



Palm Beach County Commission on Ethics

Commissioners

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Executive Director

Steven P. Cullen

This report was engaged by attorney Roma Theus on behalf of his client, Victoria McCullough, in case number C12-016.

It was provided to executive Director Cullen at the conclusion of the meeting of the Joint Legislative Auditing Committee in Tallahassee, Florida on November 4, 2013 at approximately 1:30pm.

Palm Beach County Commission on Ethics

Report on Recorded Evidence

Prepared by

**Paul Ginsberg, President
Professional Audio Laboratories, Inc.**

INTRODUCTION

Professional Audio Laboratories specializes in the enhancement, forensic examination, and presentation of audio and video taped evidentiary material. The company has been in existence for 38 years with Paul Ginsberg as its president.

During the past 38 years Professional Audio Laboratories has analyzed, enhanced and supervised the courtroom presentation of thousands of taped conversations including telephone calls, consensual meetings, video-taped meetings, as well as room bugs and body recordings recorded in various formats including digital, cassette, micro-cassette, reel, and others designed for law enforcement surveillance.

We have been court-qualified as expert, and have rendered expert testimony on 175 occasions in 36 Federal districts as well as in Canada. We have testified for prosecution, as well as defense.

A. FOCUS OF INVESTIGATION

The aim of this investigation is to determine:

1. The authenticity and continuity of a recording made on January 10, 2013 using a Marantz CDR-420 Hard Drive Recorder.
2. The properties of the Marantz recorder, and specifically characteristics, if any that would prevent, or signal the editing of a recorded file
3. The manner of installation, and initial setting of defaults in the machine that affect editing
4. The training of operators of the machine
5. The specific knowledge of the operator of the C.O.E. recordings
6. The comparison of CDs initially disseminated to the original recording still in the memory of the machine.
7. The specific procedures used to edit recordings in the machine, and the ease with which that can be done.

B. PROCEDURE

Initially two CDs were received for examination. They contained recordings of meetings of the Palm Beach County Commission on Ethics held on January 10 and February 7 of 2013.

The files were downloaded and converted to high-resolution WAV files for examination. Digital enhancement was applied to the files, and enhanced and

enhanced-slowed files were produced to assist in reviewing the recordings. CDs containing the enhanced files were produced.

Next, a machine was located locally on which to familiarize myself with the controls and features. A setup and operating manual was obtained from Marantz.

Arrangements were made for me to travel to Palm Beach to examine the original Marantz CDR-420 recorder, to download the original files still in the recorder, and to interview personnel about training, procedures, and features of the machine they use.

Back at the lab, the recordings downloaded from the original machine were compared to the originally supplied CDs. Attempts were made to reach employees by telephone, including Gina Levesque, who refused to be interviewed while I was in Palm beach County. Also, a forensic examination of the recordings was done to determine whether there was any evidence of editing.

Each of these procedures is explained in detail in the sections that follow.

C. EXAMINATION OF INITIAL CDs

Two CDs were received for examination and enhancement. Each of the CDs contained an audio MP3 file. One was labeled "Feb 07 0312PM". The other was labeled, "Jan 10 0532 PM".

The files were downloaded into a forensic analysis system and converted to high-resolution WAV files for examination and enhancement. Note that the original files on the CD were in MP3 format. This is a compression algorithm designed to save memory by cutting out sounds that are low in amplitude. Thus, a whisper could be lost from using a recorder that records using this format. Law enforcement recorders are designed to use uncompressed file formats for this reason.

PLOTS 1 and 2 are graphical representations of the recordings. In each case the upper plot is amplitude vs. time. The louder the recording, the higher and lower the plot, as time advances to the right. In the lower plot we have frequency vs. time. This shows the frequency content of the sound at any point.

Looking at the upper plot for each date, we observe that the recordings were made at high level with high amplitude excursions bordering on overload. The frequency response of the lower plot shows that the upper recordable frequency with the machine's settings, is 13,466 Hertz, adequate for voice recording.

The recorded files were digitally enhanced, and slowed, to aid in listening. Enhanced CDs were produced, each containing enhanced, as well as enhanced and slowed versions of the recordings.

D. EXAMINATION OF NEW MARANTZ CDR-420 RECORDER

The files on the CDs furnished by Palm Beach County contained metadata that included "CDR-420". This was recognized as the Marantz CDR-420 Hard Drive Recorder and CD Burner. A new unit and user guide were obtained, and test recordings were made using this recorder, to study the characteristics and features of the machine.

The recorder is a self-contained hard drive recorder, and CD burner capable of storing 1,400 hours of audio recordings on a hard drive, and subsequently copying the material to CDs.

Setup of the machine is simple and there are a number of included features that are available to an operator. In addition to recording from audio input, and copying files from the hard drive to multiple CDs, the machine can also copy CDs, even if not made on the machine. Also, there are a number of editing functions. From an EDIT menu a beginning and end of a desired edit segment can be marked, and the segment then cut and pasted to another location, or deleted, or replaced by silence. Up to 7 edits per file can be done in one session. The edited file exhibits no flag or indication that the file has been edited. The file retains its original name, with date and time of original hard drive recording, regardless of the time of subsequent editing. The machine does not label a file transferred to CD with the CD transfer date and time. The file retains its original hard drive recording time information. Thus, a CD burned just after a meeting has concluded is indistinguishable from a CD of the meeting that is burned weeks later.

The EDIT function and all of its options can be disabled to prevent tampering with a recorded file. However there is no password protection to prevent anyone from re-enabling this function if it had been disabled. In other words, there is always access to the EDIT functions by anyone with a downloadable user guide for this machine. SEE PAGES 52-56 IN ATTACHED USER GUIDE for step-by-step editing instructions. Editing can be done to a precision of one tenth of a second.

E. EXAMINATION OF PALM BEACH COUNTY CDR-420 AND FILES

I traveled to Palm Beach County to examine the original machine as well as original files, if any, in the machine's memory. I was to meet the custodian of the original CDs downloaded from the recorder, as well as the COE's operator of the machine, Ms.

Gina Levesque. When I arrived on June 19, 2013 I was met by David Frye, Senior Public Relations specialist, Public Affairs Department of Palm Beach County, and Tom Atchley, Electronic Technician with Electronic Services and Security (ESS) for Palm Beach County.

Mr. Frye supplied me with two CDs corresponding to January 10 and February 7. Mr. Atchley explained that he was one of the technicians who had installed the machine and he was familiar with its operation. I asked about seeing Ms. Levesque and I was told by Mr. Frye that there had been a misunderstanding and that he thought I needed any technician. He also said that Ms. Levesque was across town and it would take her some time to get to the County building. He asked whether it would be sufficient to talk to her by telephone. I said that that would be fine, and depending on the conversation I might ask her to come to demonstrate how she operated the machine, recording the meetings, making CDs, and her knowledge of the other machine functions.

Mr. Frye called Ms. Levesque and was told by her, that “she has been advised by counsel that she is under no obligation to cooperate” *as part of the public records process* (italicized words added by Mr. Frye while I was copying down her words as repeated by Mr. Frye)

I had intended to ask Ms. Levesque who had trained her on the use of the machine, whether or not she had a manual, and what procedures she uses to record the sessions, make the official CDs, and perform other functions involving the recordings.

The machine in question was set up in the 12th floor meeting room, with large tables, 17 microphones, and a small table off to the side on which the Marantz CDR-420 was located. I turned on the machine and observed that the original files for January 10 and February 7 were still stored in the memory of the recorder. Further, I noticed that the EDIT functions were not disabled. The machine in its present state was capable of recording a meeting, deleting sections, cutting and pasting sections, as well as inserting silence, within the files just by a series of clicks to the controls.

The two original files were downloaded and marked. The files downloaded onto CDs were observed to be in compressed MP3 format. The file names bore the dates of original recording of the meeting, not the date of download to CD. A test recording was made by speaking into the microphones and recording using the machine. The file was downloaded onto a CD. Then, using a few clicks, the file was edited, and the edited version of the file was also downloaded onto a CD. Both the original test file and the edited test file retained the same date and time information of when the file was originally recorded using the microphones. A skilled editor could edit a recording in a way to be difficult to detect. And, the design of the machine is such to permit, and facilitate editing of files. This machine was designed as a high end recorder to store recordings of music and other files for future use. One such application is to enable lecturers to record their speeches at seminars, and burn CDs to sell, on the spot. It is

specifically not designed with evidentiary considerations in mind. There is no password entry system to the setup menu. Thus, anyone can change the recording parameters and defaults. If the EDIT functions had been disabled, an operator could enable them at will. The editing of a file is not memorialized in any way, and the date and time of downloading of a file is not recorded anywhere. This machine is one that an entity would select if they wanted to be able to edit, change, cut and paste, or add silence to recordings.

By contrast, the same manufacturer markets another unit with edit safeguards built into the machine. The Marantz CDR-310 also records to hard drive, and burns CDs of the recorded files but has no edit functions. The files can be split if they are too large to fit on a single CD, but words or phrases, or passages cannot be edited out, deleted, cut and pasted, or replaced by silence. Also, once a file has been downloaded to CD it is deleted on the hard drive so that no further manipulation is possible. This would be the better choice for an entity wishing to control its recordings and limit the potential for tampering.

The manufacturer's suggested retail price for the CDR-310 is \$1,119 whereas the price of the CDR-420 is \$1,599. This means that Palm Beach, instead of spending \$1,119 on a machine that would have recorded the meetings and produced CDs, instead, spent 43% more, to include the editing functions.

F. POST TRIP INTERVIEWS

Back at the lab, I was advised that Ms. Levesque had indicated that there had been a misunderstanding and she would consent to speak with me. I called the COE and she answered and identified herself. When I identified myself she asked me to hold, and then picked up on speakerphone with Steven Cullen, the executive director. I asked Ms. Levesque about her procedures for recording and she told me that she basically presses the record button to record, the stop button to stop, the pause button to pause, and she knows how to burn CDs from recorded files. She said she was not aware that the machine could copy CDs or that it had any edit capability (despite the EDIT button on the top of the machine). She further stated that she was not given a manual and she had no knowledge of any editing of any meeting files. She said that she had been trained by Daryl and William of ESS.

I contacted ESS and identified William as William Caraballa, and Daryl as Daryl Skolnick. Repeated attempts to reach William were unsuccessful. After a number of attempts I reached Daryl, who told me that he and Tom Atchley had installed the system. He further said that they train the operators to record, play back, and to burn CDs. He said that he never does any editing. He stated that a simplified operating sheet is given to the operator initially.

G. ADDITIONAL TESTING

The CDs initially furnished for examination were compared to the CDs downloaded in Palm Beach County. They were observed to be identical. Both consisted of MP3 files and both sets had identical metadata., including date and time of original recording,. There was no indication of CD production date or time. Both sets of CDs had been downloaded directly from the CDR-420 machine.

H. FORENSIC EXAMINATION OF JAN 10 AND FEB 07 RECORDINGS

The high-resolution files for the January 10 and February 7 meetings were studied in detail, specifically looking for discontinuities.

The January 10 waveform was studied in detail repeatedly while reviewing the recording audibly. A discontinuity was observed at time 11:33.6400. This discontinuity can be seen in PLOT 3 and is highlighted with the marker. This appears to a machine edit. In this case, after the recording had ended and the file had been recorded, an operator appears to have deleted a portion of the recording. The edit was not a clean one, and bits of speech appear before and after the edit.

The February 7 recording was then studied. This meeting was recorded on the same machine in the same location. At 48:59 there is an announced recess during which the machine was placed in pause. In this case the Pause/Play button was pressed and the recorder paused during a time when nobody was talking. Similarly, when the Pause/Play was pressed again to resume recording it was done before anyone was speaking. Indeed, the operator may have cued the speaker that the recording had resumed and to continue. As a result of the timing of the pause and resume record, and constant background sounds during the brief of-the-record pause, the break is instantaneous, and the machine continues to record when the Pause button is pressed again.

As discussed above, editing is not accidental. It requires operator intervention. Deliberate steps must be taken, as follows:

First, the file to be edited must be selected. Then the Edit button is pressed. Then one enters the "Track Edit" mode, and the track is played to locate edit begin and edit end points. The selected segment is then deleted, and finally one exits Edit mode. The machine has been designed with a comprehensive number of editing functions. When one has specified edit points, the included material can be deleted, or replaced with silence, or copied and pasted to another location. This is the ideal machine to use when editing is contemplated. Four complete pages of the operation manual are devoted to the various forms of editing using this machine.

Once edited, it is impossible to determine the duration or content of the deleted material. The deleted material cannot be retrieved.

It should be noted that the Palm Beach County machine edit mode was observed to be enabled and operating as per manufacturer's specifications. Had the machine been a CDR-310 instead of the CDR-420 no editing function would be available to the operator.

Further, if the Commission had wanted to increase the evidentiary value of their recordings they would have disabled the EDIT function in the CDR-42, selected a CDR-310, and/or instituted a procedure wherein the operator made a preamble announcement including the date and time before the meeting, and a postscript announcement following the meeting with the date and time.

I. SUMMARY OF OBSERVATIONS

Observations are as follows:

- 1. Two CDs were received for enhancement and forensic examination. The CDs were dated January 10, 2013 and February 7, 2013.**
- 2. The CDs contained MP3 files generated by a Marantz CDR-420 Hard Drive Recorder and CD Burner**
- 3. The Marantz CDR-420 used by the Palm Beach Commission on Ethics was observed to be working as per manufacturer's specs, with EDIT functions enabled**
- 4. The original files recorded on January 10th and February 7th were still in the memory of the recorder.**
- 5. CDs of the files in machine memory were identical to original set of furnished CDs**
- 6. All Palm Beach employees interviewed, including Gina Levesque, David Frye, Tom Atchley, and Daryl Skolnick, denied ever editing on the machine. Ms. Levesque denied knowing the machine could perform functions other than recording, playback and burning a CD.**
- 7. There is evidence of a deletion at 11:33.6400 on the January 10 recording.**
- 8. Using this machine, an edited file still bears the original metadata as the original unedited file, with no changes.**
- 9. The machine leaves no indication of editing of a file. The new edited file length**

replaces the original file length.

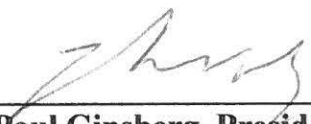
10. There is an announced pause in recording at 48:59.00 on the February 7 recording
11. There exists an alternate machine, Marantz CDR-310 that records, and burns CDs but has no editing capability.
12. The User Guide for the Marantz CDR-420 is available for download from the internet.
13. There are no procedures to prevent editing of a recording, such as pre and post announcements of date and time.
14. The non-edit machine, by the same manufacturer sells for \$480 less than the machines the county purchased.

J. CONCLUSIONS

Based upon the observations noted above, I conclude, with a reasonable degree of scientific certainty, that:

1. The Marantz CDR-420 machine, with editing functions, was selected by Palm Beach County, at a substantial increased cost, instead of a machine like the CDR-310 that has no editing capability
2. Despite the unanimous denial of knowledge of editing by Palm Beach County employees, someone with access to the machine performed an edit, deleting a portion of the original recording of January 10 at time 11:33.6400.
3. No steps have been undertaken to prevent editing of recordings. Instead, tools have been provided to make it easy for one to modify recordings as desired.
4. The January 10th file in the machine now reflects the edit.
5. All CDs of the January 10th meeting reflect the edit.
6. The recording and preservation of audio recordings by the Palm Beach County Commission on Ethics does not meet evidentiary standards for preserving evidence by law enforcement, first responder, or brokerage call centers.
7. Simple procedures can be instituted to raise the evidentiary value of recordings made by Palm Beach County. First, non-editing machines should be used instead of present machines. Alternatively the edit functions should be disabled

by tech staff. Spoken preamble and post-script announcements should be made, containing the date and time every time the machines are started and stopped during recording. Finally, a CD should be burned immediately after each meeting, signed and dated by several officers, and sealed, as the original recorded record of the meeting. Of course, a certified court reporter can be present to take down an independent record of proceedings, if desired.

Signed  Dated 2/19/13
Paul Ginsberg, President
Professional Audio Laboratories, Inc.

Paul Ginsberg

PERSONAL:

Born July 8, 1945; Married, four children

EDUCATION:

Received Master's Degree (Electrical Engineering) in 1969 from College of the City of New York.

Received Bachelor's Degree (Electrical Engineering) in 1968 from College of the City of New York.

Participated in Seminars in Signal Processing Techniques sponsored by Massachusetts Institute of Technology and Bell Telephone Laboratories. Lectured for National Technical Investigators' Association, and various U.S. Department of Justice offices in New York, New Jersey, Texas, Florida, Pennsylvania, Illinois, Connecticut, and California.

PUBLICATIONS:

Authored booklets entitled, "*A Prosecutor's Guide to the Use of Audio Taped Evidentiary Material*", and "*An Agent's Guide to the Use of Audio Taped Evidentiary Material*", magazine articles entitled "*Recorded Evidence*" Prosecutor Magazine January – March, 2009, "*Recorded Evidence for the Private Investigator*", Private Investigator Magazine October 2009.

PROFESSIONAL SOCIETIES:

Institute of Electrical and Electronic Engineers, Society of Broadcast Engineers, Audio Engineering Society, and American Board of Forensic Examiners

JOB-RELATED EXPERIENCE:

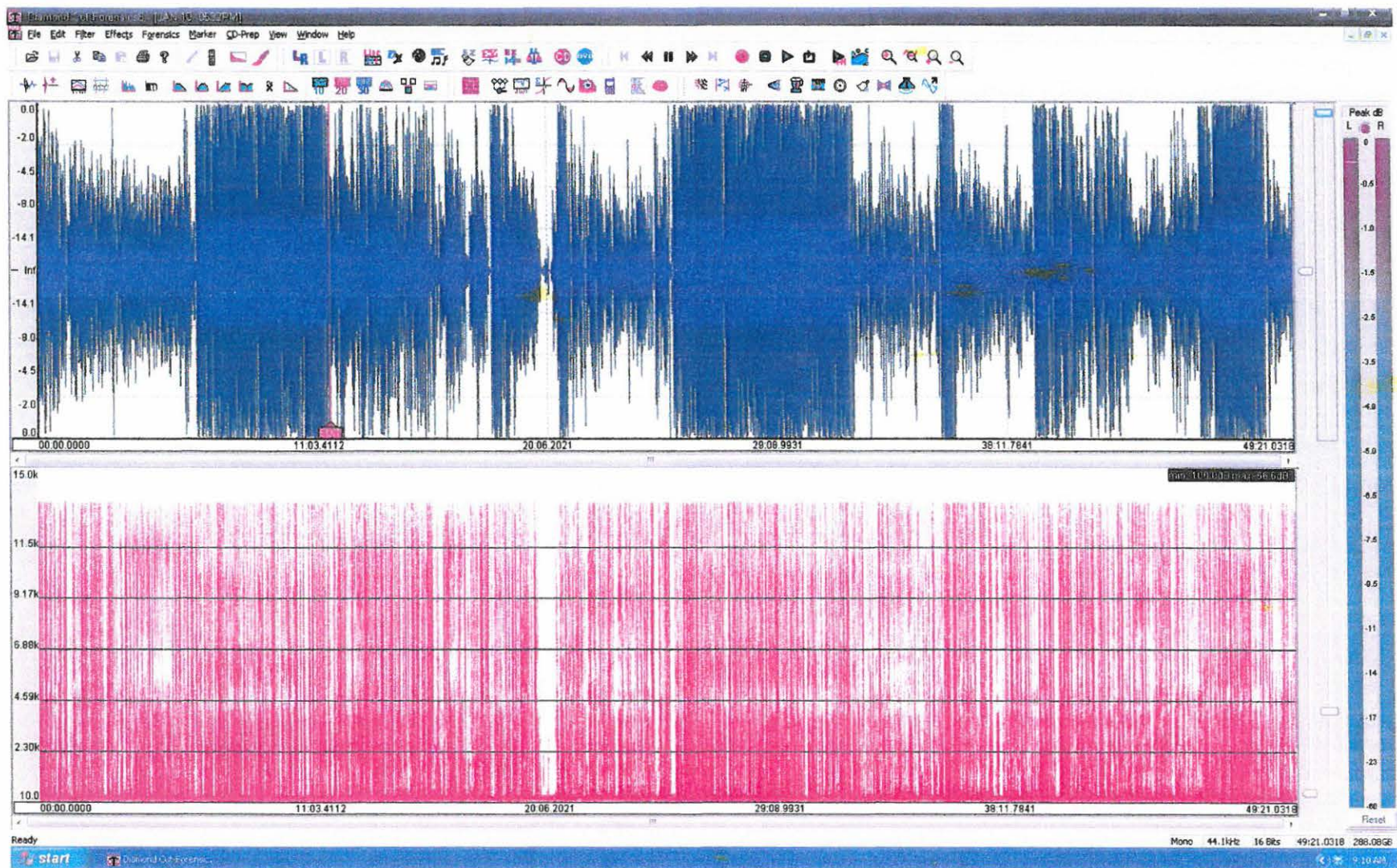
1974-Present President of Professional Audio Laboratories, Inc. a corporation specializing in enhancement, forensic examination, authentication, duplication, transcription, and courtroom presentation of audio and video taped evidence

Has been retained as consultant by all Federal investigative agencies including Central Intelligence Agency, Federal Bureau of Investigation, U.S. Customs, Drug Enforcement Administration, Bureau of Alcohol, Tobacco and Firearms, U.S. Secret Service, Department of Homeland Security, Securities and Exchange Commission, U.S. State Department, U.S. Senate, Senate Committee on Investigations, as well as the intelligence community. Cleared for TOP SECRET clearance.

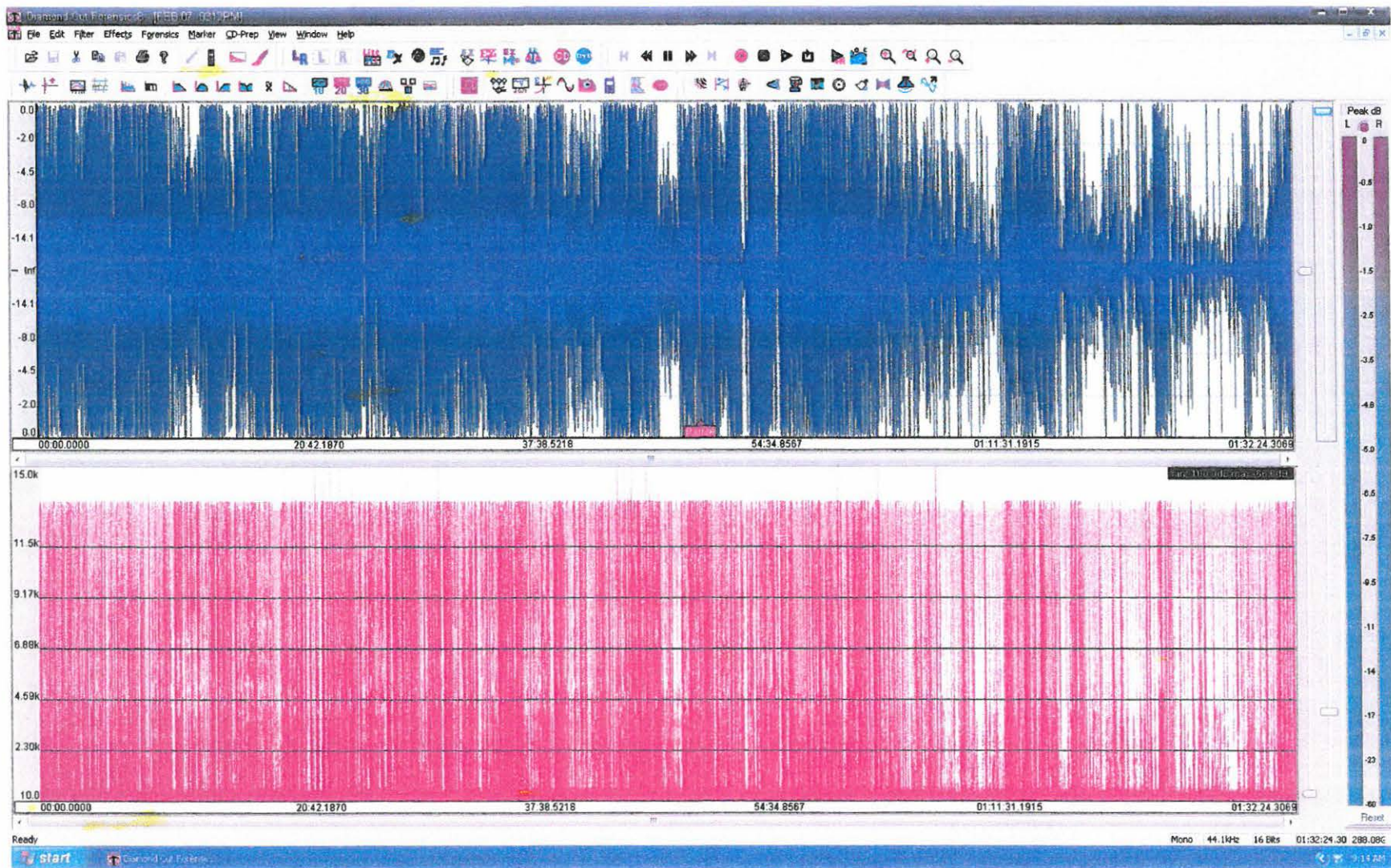
1968-1974 Consultant with all three major broadcasting networks and 25 news gathering agencies and studios designing, constructing and maintaining sophisticated electronic processing equipment.

COURT-RELATED
EXPERIENCE

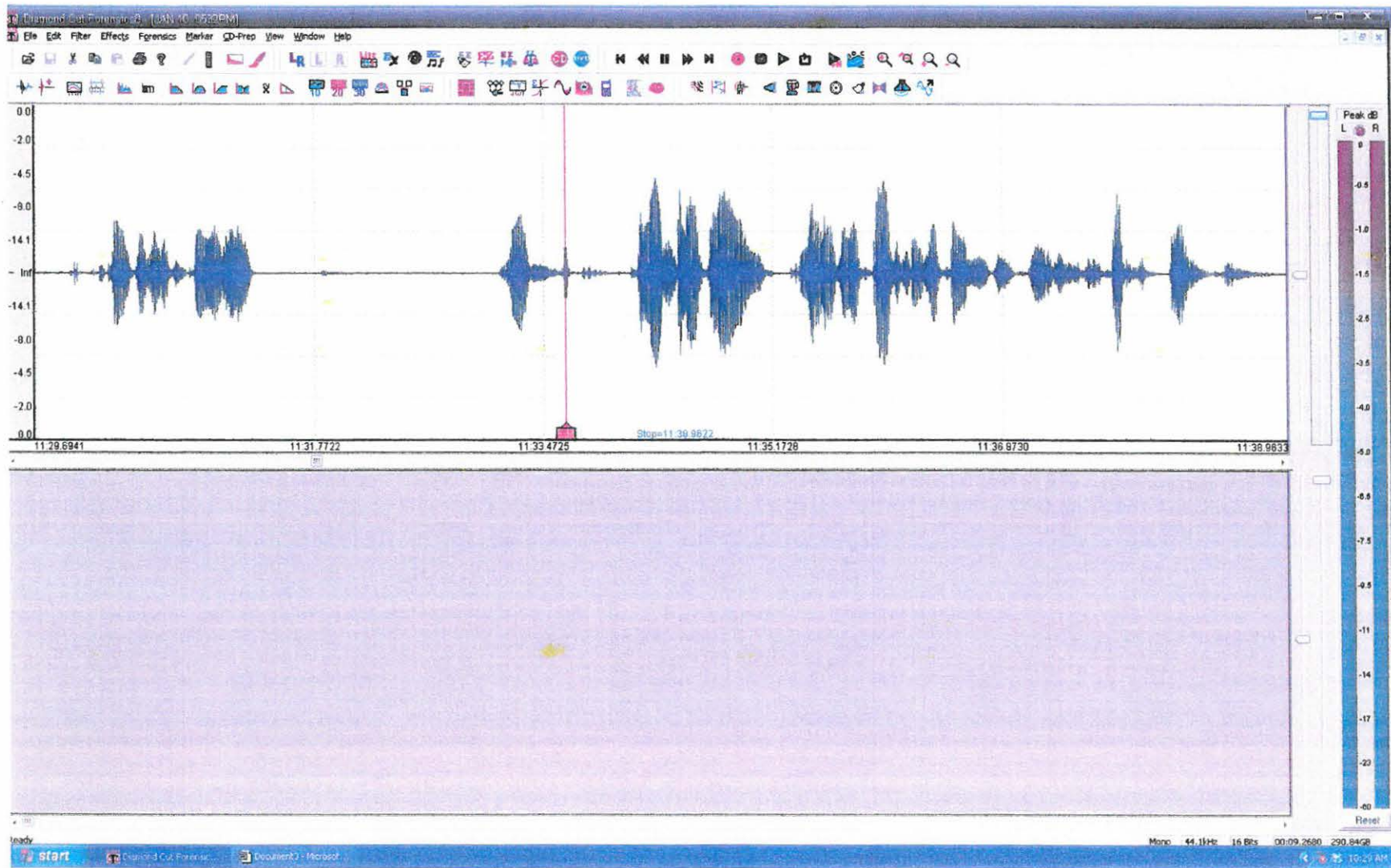
Court-qualified expert in the areas of audio and video-tapes, enhancement, authentication, transcription and all areas relating to electronic tape recorded evidence. Has participated in 1,750 trials in 36 Federal court districts, and has rendered expert testimony on 175 occasions



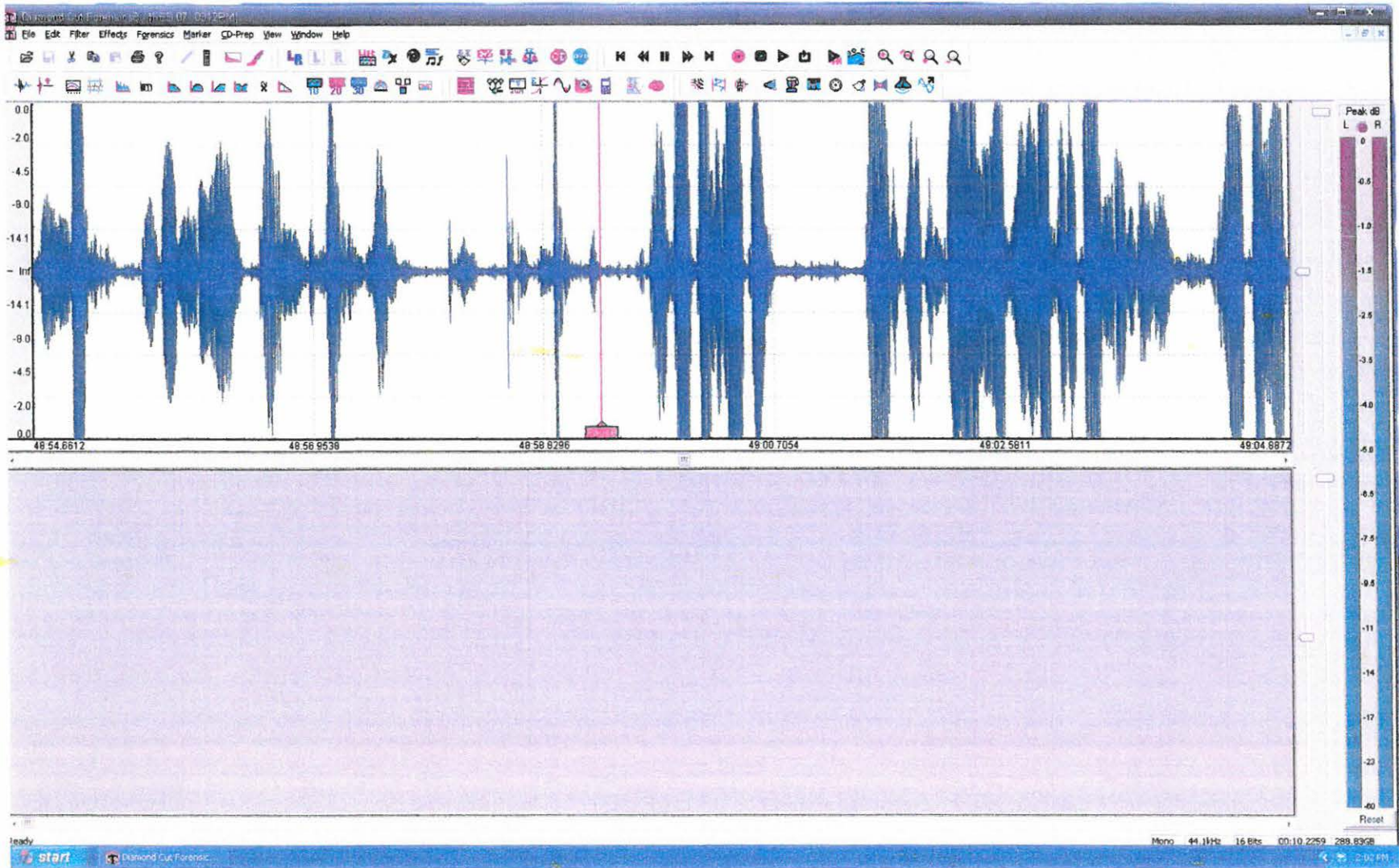
PLOT 1 January 10, 2013 COE Meeting Upper Plot - Amplitude v. Time Lower Plot - Frequency v Time Edit at 11:33.6400



PLOT 2 February 7, 2013 COE Meeting Upper Plot – Amplitude v. Time Lower Plot – Frequency v. Time Pause at 48:59.00



PLOT 3 January 10, 2013 – Expanded around edit point at 11:33.6400



PLOT 4 February 7, 2013

Expanded around Pause at 48:59.00

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PROFESSIONAL

Model CDR420 User Guide

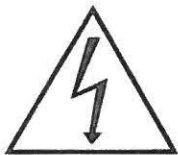
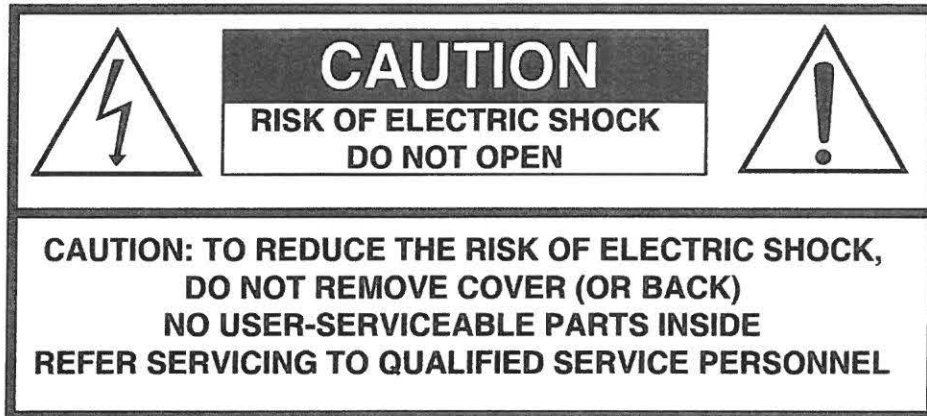
HD/CD Recorder

marantz®

CLASS 1 LASER PRODUCT
LOUKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

COMPACT
disc
Recordable
ReWritable

Warnings and Cautions



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "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.

WARNING

**TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

LASER SAFETY

This unit employs lasers. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

**CAUTION USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE
OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN
MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

WARNINGS FOR LASER RADIATION

CAUTION: INVISIBLE LASER RADIATION WHEN OPEN, DO NOT STARE INTO BEAM.

DANGER: INVISIBLE LASER RADIATION WHEN OPEN, AVOID DIRECT EXPOSURE TO BEAM.

VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTINANAYMÄTTÖMÄALLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

WARNING! OSYNLIGH LASERSTÄLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRakta EJ STRALEN.

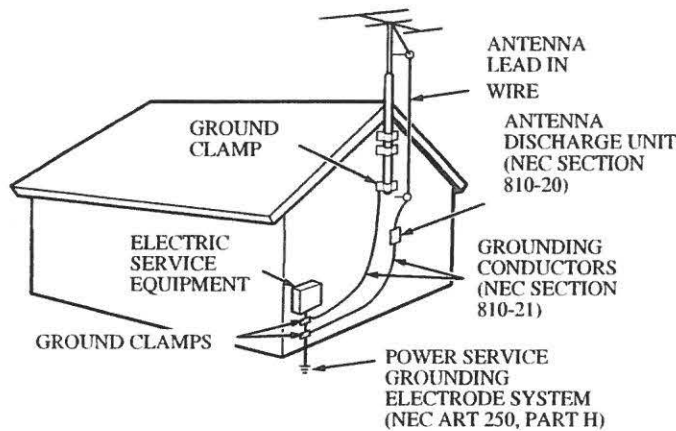


FIGURE 1
EXAMPLE OF ANTENNA GROUNDING AS PER
NATIONAL ELECTRICAL CODE, ANSI/NFPA 70
NEC - NATIONAL ELECTRICAL CODE

NOTE TO CATV SYSTEM INSTALLER:

This reminder is provided to call the CATV (Cable-TV) system installer's attention to Article 820-40 of the NEC, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

NOTE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE: Changes or modifications may cause this unit to fail to comply with Part 15 of the FCC Rules and may void the user's authority to operate the equipment.

WARNINGS

- Do not expose the equipment to rain or moisture.
- Do not remove the cover from the equipment.
- Do not insert anything into the equipment through the ventilation holes.
- Do not handle the mains lead with wet hands.
- Do not cover the ventilation with any items such as tablecloths, newspapers, curtains, etc.
- No naked flame sources, such as lighted candles, should be placed on the equipment.
- When disposing of used batteries, please comply with governmental regulations or environmental public instruction's rules that apply in your country or area.
- Do not place anything about 0.1 meter above the top panel.
- Make a space of about 0.1 meter around the unit.
- No objects filled with liquids, such as vases, shall be placed on the apparatus.
- When the switch is in the OFF position, the equipment is not completely switched off from MAINS.

When setting up the recorder ensure that:

- it will not be exposed to interference from external equipment.
- it will not be exposed to electrostatic discharges.
- it will not be exposed to direct sunlight.
- heavy objects are not placed on the recorder.

Equipment mains working system

This product complies with household power and safety requirements in your area. US units are supplied with power units that can be powered by 120 V AC only.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

Copyright

Recording and playback of any material may require consent. For further information refer to the following US ordinances:

- Copyright act of 1956
- Dramatic and Musical Performance Act 1958
- Performers Protection Acts 1963 and 1972
- any subsequent statutory enactments and orders

Important Safety Instructions

READ BEFORE OPERATING EQUIPMENT

This product was designed and manufactured to meet strict quality and safety standards. There are, however, some installation and operation precautions which you should be particularly aware of.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacture's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



Additional Safety Information!

- This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
- Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
- When the switch is in the OFF position, the apparatus isn't completely switched-off from the MAINS.

Precautions - installation

- Do not expose the CDR420 to excessive heat, excessive cold, rain, moisture, or dust this may cause damage to the unit.
- If a foreign object or water does enter the unit, contact your nearest dealer or service center.
- All players produce some heat during operation and this heat must be allowed to dissipate freely. Do not close any ventilation openings and be sure there is adequate ventilation space behind, beside and above the player so air is allowed to circulate freely around the unit.
- Be sure ventilation holes are not covered.
- Prevent extra heat from reaching the unit. Never put the CDR420 in direct sunlight or near a heat source.
- Do not expose the CDR420 to electrostatic discharges.
- Do not place heavy objects on the unit.
- Be sure the CDR420 is placed on a vibration-free surface.

Precautions - connection

- Unplug the power adapter from the AC outlet or turn off the POWER switch before making any connection.
- Connect one cable at a time observing the 'input' and 'output' labeling. This will avoid any cross connections between channels and signal inputs and outputs.
- Insert plugs securely. An incomplete connection may result in noise.
- Before connecting other audio or video equipment to the CDR420, please read their owner's manuals.

Specifications

Digital Audio System

System.....	Hard Disk Recorder
Recording media	2.5" 20GB HDD
Burning CD media.....	CD-R, CD-RW discs
Recording audio format	
MP3 (.mp3)	MPEG Audio Layer 3 compression
WAVE (.wav).....	16 bit linear PCM
Recording bit rate	
MP3 Stereo.....	320, 256, 160, 128, 80, 64 kbps
MP3 Mono.....	160, 128, 80, 64, 40, 32 kbps
Sampling frequency	44.1 kHz
Number of channels	2 (stereo), 1 (mono)
Frequency response.....	20,000 Hz (-0.5dB)

Inputs/Outputs

MIC/LINE IN L/R

Type.....	XLR (1:GND, 2:HOT, 3:COLD) ¼" T-R-S phone jack
-----------	---

Line level

Input sensitivity/Impedance	500 mVrms/2k ohms
Signal-to-Noise ratio (IEC-A weighted)	80 dB
Total Harmonic Distortion (0dB, PCM).....	0.05%

MIC level

Input Sensitivity/Impedance.....	1 mVrms/2k ohms
Signal-to-Noise ratio (IEC-A weighted)	60 dB
Total Harmonic Distortion (0dB, PCM).....	0.2%

AUX IN L/R

Input Sensitivity/Impedance.....	1 Vrms/23k ohms
Signal-to-Noise ratio (IEC-A weighted)	87 dB
Total Harmonic Distortion (0dB, PCM).....	0.05%

LINE OUT L/R

Type.....	RCA jack
Standard level/Impedance	1 Vrms/2k ohms

MIX OUT L/R

Type.....	RCA jack
Standard level/Impedance	1 Vrms/2k ohms

DIGITAL IN/OUT

Type.....	RCA jack
Standard output level/Impedance	0.5 Vp-p/75 ohms
Sampling frequency.....	44.1 kHz

KEYBOARD

USB.....	PS2 USB Type B
----------	-------------------

General

Headphone Output (10% THD).....	70 mW/32 ohms
Speaker Output.....	1.7 W/8 ohms
Phantom power	+48V, 10mA
Power requirement	AC100V-240V, 50/60 Hz
Power consumption (maximum).....	12V, 1.4A

continues

Specifications continued

Dimensions (maximum)	
Width.....	279 mm (11.0")
Height.....	102 mm (4.0")
Depth.....	229 mm (9.0")
Weight.....	2.5 kg (5 lbs. 8 oz.)
Included accessories	
AC adapter.....	1
Stereo audio cable.....	2
User Guide.....	1
Optional accessories**	
Rechargeable Lead Acid battery system.....	RPS420
Additional rechargeable Lead Acid battery pack.....	RB4200
Carrying bag.....	PRC300
Attaché carrying case.....	CA300

**See www.d-mpro.com for details.

*Specifications subject to change without notice.

Introduction

The CDR420 HD/CD Recorder is a professional recorder. You record directly to the built-in Hard Disc (HD) from digital or analog inputs.

Recording to the built-in Hard Disc (HD) provides a number of advantages:

- Over 30 hours (PCM) or 1400 hours (MP3) of recording storage capacity permits long recording times.
- Recordings on the HD are in digital form and can be transferred to your computer for editing.
- Recordings can be edited in the CDR420 itself.
- More stable than directly recording to a CD. (If recording is done directly to a CD-R a disc error can interrupt the recording session.)
- Automatically records the time and date.
- Automatically names the recording file by the time and date recording begins.
 - You can change the file name later if desired, or while recording using an attached keyboard.
- PCM recordings on the CDR420 can be burned to an AUDIO CD (CD-DA).
 - A multi-session CD (EXTRA) can also record file information tags (text files-.txt) that can be read by your computer.
- PCM and/or MP3 recordings on the CDR420 can be burned to a DATA CD.
- Unattended Record Timer lets you preset the date and time for a recording to begin and how long to record.

Editing on the CDR420

The CDR420 enables you to "assemble" a CD from audio files recorded on the HD.

The CDR420 can convert PCM tracks to MP3.

You can scrub (forward and reverse over a portion of a track to locate and mark the beginning and end points of a passage) to select a passage for editing. Editing audio on the HD *models* the common procedures used to edit text in a word processing application: mark an audio passage (highlight text), cut (cut text) [delete the audio segment and move it to the clipboard], copy (copy text) [non-destructively copy the audio segment to the clipboard], and paste (paste text) [copy the audio segment on the clipboard to a new location within the track].

When your edited file is complete you can write the file to a standard CD or MP3 data disc.

Table of Contents

Topic	page
Warnings and Cautions	2
Laser Safety	2
Important Safety Instructions	4
Specifications	5
Introduction	6
Table of Contents	7
Package contents	8
Basic Operation	8
Features	10
Connections	11
Connect Microphones or Instruments	11
Connect computer	11
Connect analog equipment	11
Connect digital equipment	12
Connect keyboard	12
Power on sequence	12
Controls, Display (top)	
1 Speaker	14
2 Built-in microphone	14
3 Tone controls	14
4 Control buttons	
4a FILE DIR button	14
4b INFO button	15
4c JUMP button	16
4d PHANTOM button	17
4e CD/HD button	17
4f MARK button	17
4g UTILITY MENU button	17
4h UNDO button	18
4i REDO button	18
4j EDIT MENU button	18
5 Display	18
a Record icon ●	18
b Pause icon ■■	18
c Play icon ►	19
d FILES label	19
e EDIT label	19
f MENU label	19
g BUILD label	19
h IN label	19
i OUT label	19
j UTILITY label	19
k Level meter scale	19
l L (left) level meter	19
m R (right) level meter	19
n ? label	19
o MP3 label	19
p PCM label	20
q Working label	20
r HD label	20
s CD label	20
t REC label	20
u Timer label	20
v Total label	20
w Select label	20
x Elapsed label	20
y Remaining label	20
z Alphanumeric display	20

Topic	page
6 POWER switch	20
7 STANDBY light	20
8 Jog Wheel (SELECT, PUSH ENTER)	21
9 IN button	21
How to jump to an IN mark	21
10 OUT button	21
How to jump to an OUT mark	22
11 REC button light ●	22
12 Fast Reverse button ◀◀	23
13 Fast Forward button ▶▶	23
14 Play/Pause button ▶▶	23
15 Stop button ■	23
Controls, Connections (front)	
1 PHONE/SPEAKER LEVEL control	24
2 PHONE SELECTOR	24
3 MIC/LINE controls and input jacks	24
3a Left XLR or 1/4" input jack	24
3b Right XLR or 1/4" input jack	24
3c LINE MIC INT switch	24
3d Left level control	24
3e L/R L+R switch	24
4 INPUT ANALOG/DIGITAL switch	25
5 REC LEVEL switch	25
6 MIC/LINE ATT switch	25
7 SPEAKER OFF/ON switch	25
8 EJECT button	25
9 Eject button	25
10 CD light	25
11 CD slot	25
12 PHONES jack	25
13 LINE OUT level control	25
Controls, Connections (rear)	
1 MIX OUT jacks	26
2 LINE OUT jacks	26
3 AUX IN jacks	26
4 DIGITAL IN and OUT jacks (SPDIF)	26
5 I/O jack (computer)	26
6 KEYB jack (keyboard)	26
7 DC IN	26
8 DCIN pinout	26
How To	
REC LEVEL adjustment	27
REC FORMAT	27
How to set or change the REC FORMAT to be recorded	27
Stereo or Mono recording	28
How to set or change the CHANNEL to be recorded	28
KBPS	29
How to set or change the BITRATE to be recorded	29
Auto Track Increment	29
How to set or change A. TRK INC HD	30
Record Timer	31
How to set the RECORD TIMER	31

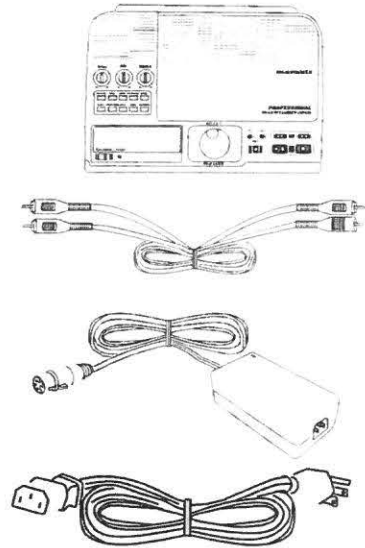
continues

Table of Contents continued

Topic	page
UTILITY MENU - NEW CD PROJECT	33
How to do a CD project.....	33
AUDIO	33
DATA	33
EXTRA	33
Add all tracks	33
How to add a track to a CD Project.....	34
How to delete a track from a CD Project....	34
How to change a track in a CD Project	34
How to burn your CD Project to a CD	35
Display messages during CD burning	35
How to Copy a CD	36
How to Rip a CD.....	37
How to RIP an Entire CD	37
How to RIP a single track	38
Date and Time.....	40
How to SET DATE/TIME.....	40
Filters	41
How to set Filters	41
PLAYBACK MODE	43
How to set the Playback Mode	43
USER SETTINGS	44
AUTO MAKE CD.....	44
AUTO TRK INC CD.....	45
A. TRK TIME	45
CD TYPE.....	46
ALLOW FORMAT	47
COPY B4 EDIT.....	47
LOCK EDITING	48
LOCK REC. SET	49
PRE-ROLL TRK	49
REQ.CONFIRM.....	50
RST DEFAULTS	51
FORMAT HDD.....	52
How to EDIT AUDIO	52
How to navigate within the track	53
How to mark an audio segment	53
Precise Editing (navigation)	54
Clipboard play	54
How to Insert Silence	54
How to Cut, Copy or Delete	55
How to Exit Edit Execute Mode.....	56
How to EDIT TAGS	57
DELETE TRACK.....	58
DELETE ALL TRK	59
COPY TRACK.....	59
SPLIT TRACK.....	59
CONVERT TO MP3	60
Firmware Update	61
Keyboard	62
About Compact Discs	63
Optional battery supply.....	64
LIMITED WARRANTY	65

Package contents

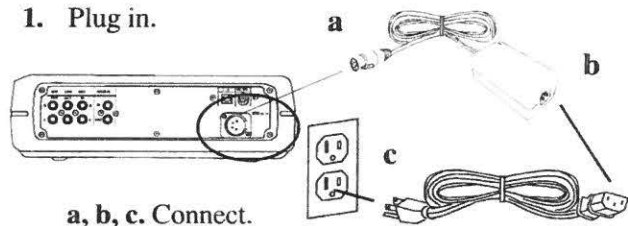
- CDR420 unit
- Audio cable (2) (stereo pair) (3' 3", 100cm)
- Power pack
- Power supply cord



Basic operation

Install on a table or other flat, stable, surface.

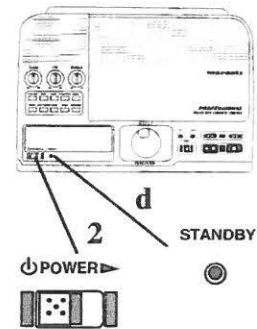
1. Plug in.



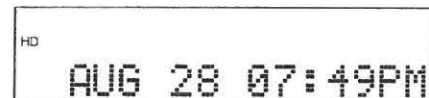
a, b, c. Connect.

d. The red STANDBY light will be lit.

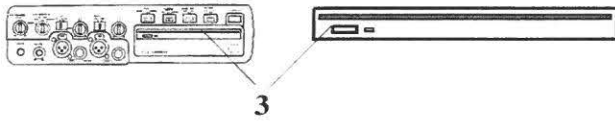
- 2. Slide the POWER switch to the right and release. The display will document the power up sequence, then display the date and time.**



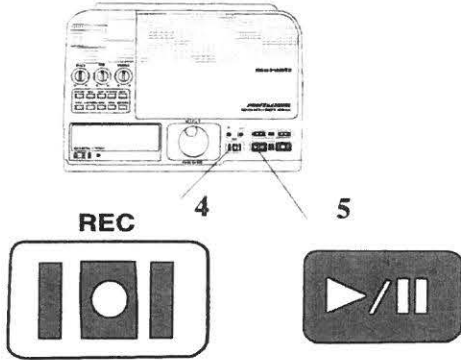
Date and time are displayed when the CDR420 is idle (example shown).



continues



3. Insert a blank (8x or greater) CD (optional).



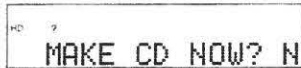
4. Press and release the REC button ●. The Play/Pause button ▶/|| (5) will be flashing.
5. Press and release the flashing Play/Pause button ▶/|| to begin recording.

While recording both the red REC button ● and the green Play/Pause button ▶/|| are lit and steady.

To pause recording press and release the Play/Pause button ▶/||. Press and release the Play/Pause button ▶/|| again to resume recording.

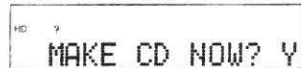
6. Press and release the Stop button ■ to stop recording.

The CDR420 will ask you if you want to MAKE a CD NOW?



7a. To exit without making a CD press and release the Jog Wheel.

7b. To immediately burn a CD of the recording you just made turn the Jog Wheel so MAKE CD NOW? Y is displayed, then press and release the Jog Wheel.



The CDR420 checks for a blank CD in the CD drive.

If not, INS. BLANK CD is displayed.



If a non-blank CD is in the drive it is ejected.

When you insert a blank CD it is automatically prepared, burned, finalized, ejected, and you are asked if you want to make another copy.

Answer N (no), or press and release the Stop button ■ to exit.

NOTES

- If your recorded track is longer than will fit on a single CD, the CDR420 will tell you how many blank CDs are needed.
- Whether or not a CD is made, the recording remains on the HD.

Features

The CDR420 records directly to the Hard Drive (HD).

Immediate CD

At the end of a recording session (a recording session or track ends when you press and release the Stop button ■) you can immediately and easily burn a CD of that track. The track remains on the HD if you burn a CD or not.

The CDR420 incorporates a suite of professional features for audio recording, editing and CD burning.

HD (Hard Drive)

- Direct to HD recording is more stable (CD-R disc errors can interrupt recording.)
- Long recording time
 - Over 30 hours of WAV (PCM)
 - 1400 hours of MP3
- Automatically names files by date and time recorded for easy file location and recall
 - Allows you to easily change file names
- Non destructive editing lets you relocate or remove unwanted audio segments
- Allows simple file conversion previously available only via computer
 - Allows you burn a CD in CDA or MP3 format
- Provides USB output for file transfer and hard disc backup
- Provides connection for your PS-2 keyboard permitting easier editing and CD Text entry

Record Functions

- Records MP3 and PCM mono and stereo
- Recordable bit rates
 - Mono: 32, 40, 64, 80, 128, 160
 - Stereo: 64, 80, 128, 160, 256, 320
- Records PCM 44.1 kHz
- Automatic time/date stamp at start of recording
- Accepts Digital or Analog input
- Unattended Record Timer can power up the CDR420 and begin recording at the time/date you select

Playback functions

Includes playback functions that let you check your recording.

- One button (CD/HD button) toggles between CD and HD playback operation
 - Play
 - Stop
 - Pause
 - Audio search Fast Forward (3 speeds)
 - Audio search Fast Reverse (3 speeds)
 - Next track
 - Previous track

File/Track Editing functions

- Scrub
- Cut
- Delete
- Insert
- Erase
- Insert silence
- Save as new file
- Name file (track)

Conversion and Make CD functions

- Assemble project (assemble tracks to make a CD)
- Make audio CD
 - Recording date/time
 - PCM 44.1 kHz
 - length and file size
 - CD Spanning (if project is too long to fit on one CD)
- Make a data CD (MP3/WAV)
 - name
 - recording date/time
 - bit rate
 - file size

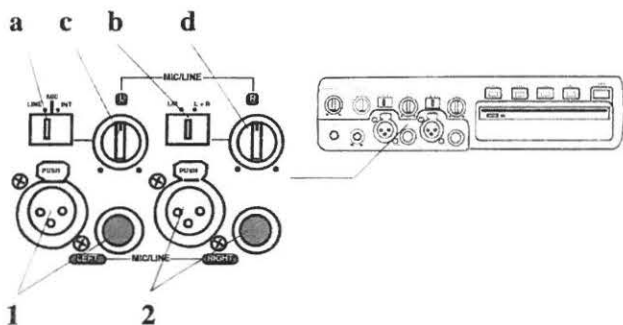
Utilities

- Delete file (track)
- Set time/date
- Setup record defaults
- Copy a CD
- Make audio CD
- Make MP3 CD
- Rip CD to HD
- Show available disc space
- Format HD
- Download file via USB
- Split long files into smaller, more manageable files
- Back up HD via USB

Connections*

*Except for power, all input and output connections are optional.

Connect Microphones or Instruments



Left and Right microphones or instruments via phone or XLR plugs are input via the MIC/LINE jacks.

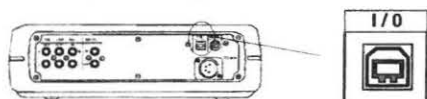
1. Plug microphone or instrument to be recorded on the LEFT channel into the LEFT jack.
2. Plug microphone or instrument to be recorded on the RIGHT channel into the RIGHT jack.

NOTE:

- a Set the LINE MIC INT switch to LINE for line level input(s) or MIC for microphone level input(s).
- For microphone(s) requiring Phantom power, press the PHANTOM button on the top of the CDR420.
- To mix two microphones from the front inputs with a stereo line input, use the AUX input jacks on the rear for the stereo line input.
- b Set the L/R L+R switch to L/R for stereo recording. Set to L+R to record both left and right inputs to both channels.
- Use the L (c) and R (d) level controls to adjust left and/or right recording levels.

Connect computer (optional)

Plug the supplied I/O cable in here and connect the other end to your computer (PC or MAC).



If the CDR420 is on, slide and release the POWER switch to connect to your computer.

If the CDR420 is off, it will automatically connect.

USB 2.0 MSD

USB 2.0 MSD is displayed on the CDR420 and the CDR420 HD appears as a volume on your computer.

The connection makes it easy to copy audio files between the CDR420 HD and your computer's hard drive. The I/O connection can only be made active when the CDR420 is off (neither recording or during playback).

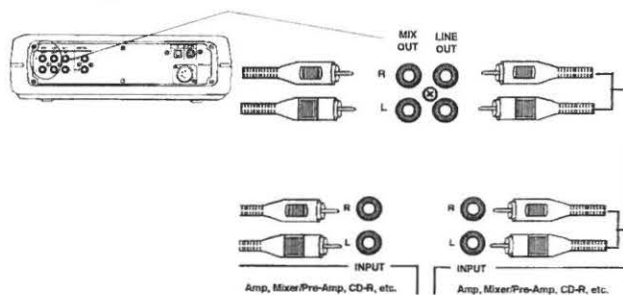
To disconnect, put the CDR420 hard drive away* on your computer, then disconnect the I/O cable.

*It is a common and safe practice to "stop" or "eject" an external hard drive before disconnecting it from your computer. Failure to do this could damage files on the CDR420 or the HD itself. Refer to your computer's operating system "help" section for instructions on using the "Safely Remove Hardware" tool (PC).

Connect Analog equipment (optional)

Connect CD/HD output to analog equipment for playing (or recording).

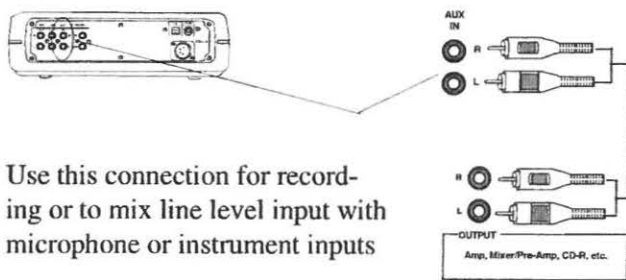
Output: Connect Right and Left RCA audio cables to MIX OUT and/or LINE OUT and then connect to the input of an amplifier, preamplifier, receiver or other recording device.



LINE OUT signal is available only while playing or recording.

MIX OUT signal is available while playing or recording and passes input signals through while the CDR420 is not playing or recording.

Input: Connect Right and Left RCA audio cables to AUX IN and then connect to the line level output of an amplifier, mixer, receiver or other audio device.



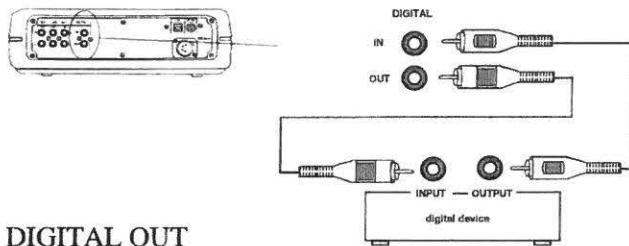
Use this connection for recording or to mix line level input with microphone or instrument inputs

Connect Digital equipment

Connect CD/HD input and/or output to digital equipment for playing or recording*.

*The CDR420 can only accept S/PDIF digital signals at the Sample Frequency of 44.1 kHz.

Connect 2 coaxial digital cables to DIGITAL IN and/or DIGITAL OUT and then to output and/or input of your digital device.



DIGITAL OUT

Signal is available only while playing.

DIGITAL IN

Use this connection for recording. Digital input cannot be mixed with microphone or instrument inputs on the front of the CDR420, or line level input via the AUX IN jacks.

NOTE:

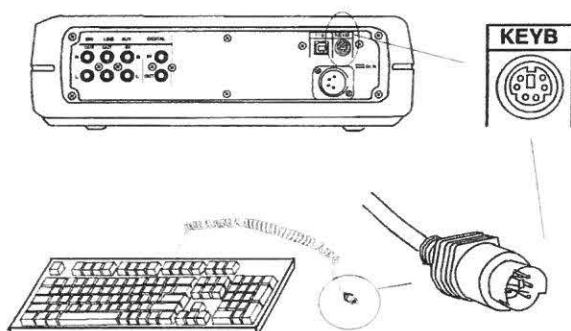
Digital In: The CDR420 can only receive and record a 16 bit, 44.1kHz digital audio signal. Should you input any other format of digital audio, the display will read "NO SPDIF LOCK" and recording is not possible.

Digital Out: The CDR420 is only capable of playing back files that have been recorded at 44.1kHz. If you place a file on the HDD that is any other frequency than 44.1kHz, playback will cease and the display will read "44.1KHZ ONLY".

Monitoring: The CDR420 is not capable of monitoring audio by any analog means, other than the level meters, when recording digitally. Please monitor the audio at the source.

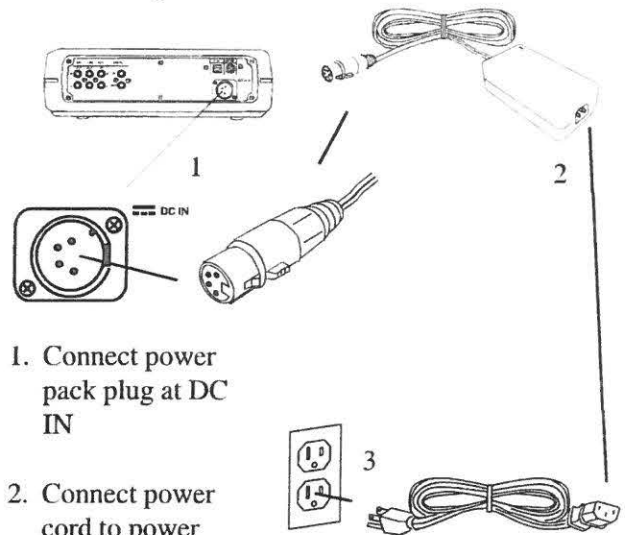
Connect keyboard

Connect your standard PS/2 PC keyboard for direct keyboard control of the CDR420.



See page 62 for keyboard operation.

Power on sequence



1. Connect power pack plug at DC IN

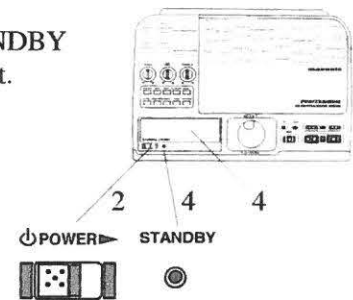
2. Connect power cord to power transformer.

3. Plug in.

NOTE:

- The Power supply switching adapter can accept 120 VAC 60 Hz (US standard) or 230 VAC 50 Hz (European standard) power.

4. The red STANDBY light will be lit.



5. Slide the POWER switch to the right and release. The display will document the power up sequence.

All elements of the display are briefly lit.



All elements of the display are briefly off.



continues

The model name and firmware version are displayed briefly.

```
CDR420, UR2.00
```

CPU TEST is displayed* while the Central Processing Unit is being tested.

CPU TEST: PASS is displayed briefly when the CPU passes.

```
CPU TEST: PASS
```

*The CPU TEST is normally so fast you won't see the pass message unless you are watching for it.

HDD TEST: PASS then CDR TEST: PASS are briefly displayed while the Hard Drive Disc and CDR are being tested and pass.

```
HDD TEST: PASS
```

```
CDR TEST: PASS
```

The amount of remaining free space on the Hard Disc is briefly displayed.

```
19067 MB FREE
```

Example display

The CDR420 checks the CD drive for a disc and briefly displays the result.

```
BLANK CD FOUND
```

Example display

When the Power on sequence is complete the display shows the date and time.

```
AUG 28 07:49PM
```

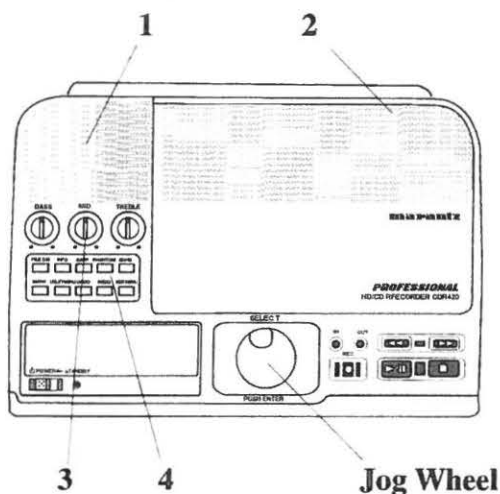
Example display

The date and time are displayed when the CDR420 is idle and ready to receive commands.

NOTE:

If a power on test fails an error procedure is followed. See page 64.

Controls, Display (top)

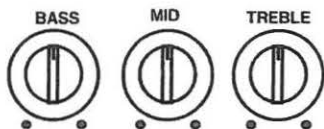


1. Speaker

The built in full range speaker allows listening to a recording without having to connect to other equipment for amplification.

2. Built in microphone

The built in microphone (internal mic) is near the top right corner.



3. Tone controls

Turning a knob controls the level of the corresponding frequency range of

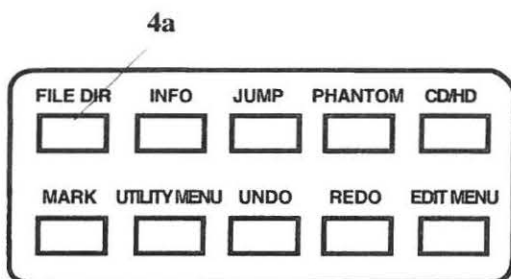
the recording being played. Level adjustments apply to the internal speaker, PHONES jack and LINE OUT output. Turn clockwise to boost the frequency and counterclockwise to attenuate it. Level adjustments do not apply to MIX OUT.

TREBLE High frequencies (18 kHz)

MID Middle frequencies (2 kHz)

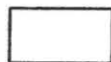
BASS Low frequencies (150 Hz)

4. Control buttons



4a FILE DIR button

FILE DIR



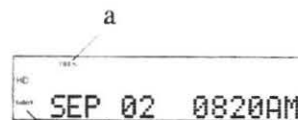
Press and release to select the File Directory. Turn the Jog Wheel to select a file (track):

To play press and release the Jog Wheel or Play/Pause button ▶/|| while the track name is displayed.

To view file information press and release the INFO button while the track name is displayed.

To edit the file press and release the EDIT MENU button while the track name is displayed. See How to EDIT AUDIO, page 52.

When FILE DIR is pressed:



- a FILES is displayed indicating that the display is the file directory.

- b 'Select' tells you to turn the Jog Wheel to select the file to display.

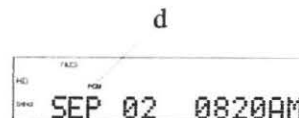
- c The file name is displayed.

NOTE:

- If the file was recorded recently the file name can be confused with the date. For example, if it was 9:20 am on September 2 when you pressed FILE DIR and the file name is SEP 02 0820AM. Look for the "FILES" icon (a above) in the display to be sure you are in the File Directory.

Turn the Jog Wheel to scroll through the File Directory.

- d The audio file format is displayed.



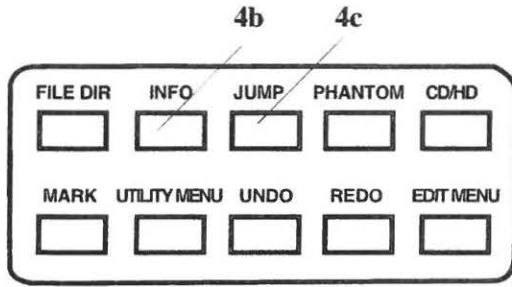
- If a file name is longer than 14 characters, after about two seconds the file name scrolls across the display.

- All audio recordings on the Hard Disc are presented in order, from most recent to oldest.

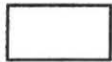
- Turn the Jog Wheel forward or backward to scroll through the files in the File Directory.

Press and release the Play/Pause button ▶/|| to play the track, press and release the INFO button for full information about the track, press and release the EDIT MENU button to edit the track, or press and release the Stop button ■ to exit the File Directory.

4. Control buttons continued



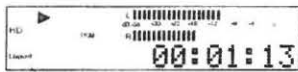
INFO



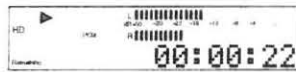
4b INFO button

Press and release repeatedly to tab through the currently selected file's (TRACK's) properties.

During playback press and hold for 2 seconds to switch the playing time display between elapsed and remaining time.



Elapsed

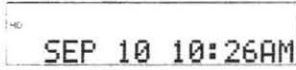


Remaining

Track INFO

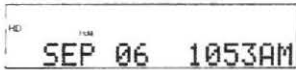
INFO is available from idle, playback or recording.

From the idle screen showing the current date and time, or playback the first press and release of the INFO button switches the display to the currently selected track.



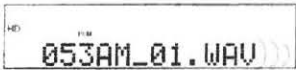
Example idle screen display

In the example that track was recorded a couple of days earlier.



Example display

After about one second the track name scrolls across the display.



Example display

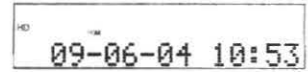
In the example the full track name is "SEP 06 1053AM_01.WAV"

Press and release the INFO button to tab through the track information displays.

NOTE:

- An information display is only displayed briefly. If the next information display is not selected the CDR420 returns to idle mode.

After the track name the date and time the recording was begun is displayed.

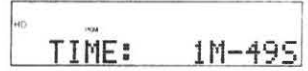


Example display

NOTE:

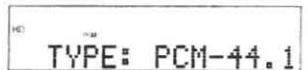
If you have changed the track name the date and time of the recording is thus still available.

The length of the track in minutes and seconds is displayed.

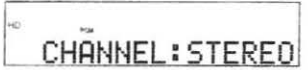


Example display

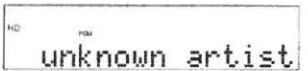
The file type and bitrate/sample frequency are displayed.



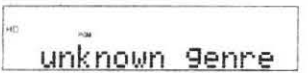
The CHANNEL(s) recorded (Stereo or Mono) is displayed.



The artist is displayed.



The genre is displayed.



The album is displayed.

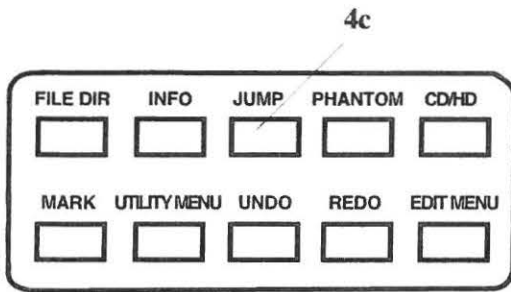


If a comment tag has been entered it is displayed.

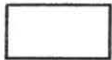
During **recording** press and release the INFO button to tab through the name, type and channel.

During **recording** you can also press and hold the INFO button for 2 seconds to switch from elapsed record time to remaining record time on the HD.

4. Control buttons continued



JUMP



4c JUMP button

Press and release to JUMP, advance or reverse to a specific time, during playback, play/pause or during editing.

- Jump backwards is available if audio is cued within the audio track and at least one second of audio has elapsed.

During playback when you press and release the JUMP button the track time is frozen while playback continues. That makes it easy for you to return to that point in playback, or adjust the point by a second or two.

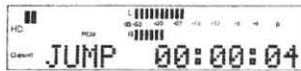
When first pressed the display prompts JUMP and the largest time flashes.

In the example, playback was paused 4 seconds into the track.



Example display

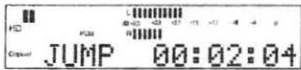
Turn the Jog Wheel to select the hour you want to jump to, then press and release the Jog Wheel.



Example display

In the example, jumping to a point within the first hour was selected.

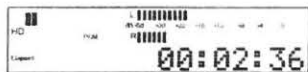
Turn the Jog Wheel to select the minute you want to jump to, then press and release the Jog Wheel.



Example display

In the example, jumping to minute two of the recording was selected.

Turn the Jog Wheel to select the second you want to jump to, then press and release the Jog Wheel.

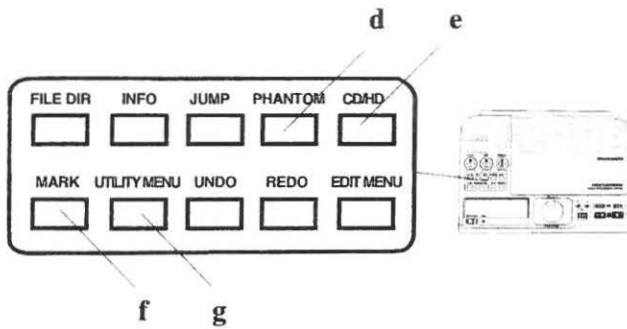


Example display

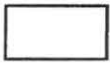
In the example, jumping to the 36th second was selected. When playback is resumed from play/pause playback will begin at 2 minutes and 36 seconds into the recording.

- Jump cannot be used to jump past the beginning or end of a track.

4. Control buttons continued



PHANTOM

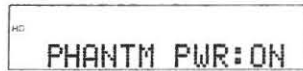


4d PHANTOM button

PHANTOM provides a power supply for condenser microphone(s) plugged into the MIC/LINE jack(s).

Press and release to turn PHANTOM microphone power on or off. The display will show the new state of PHANTOM power.

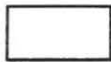
Example display



When correct, wait, the display will automatically return to the previous display after about 2 seconds.

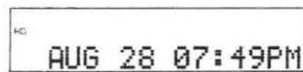
4e CD/HD button

CD/HD

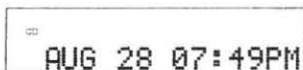


Press and release to toggle between the CD drive and the Hard drive.

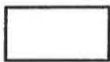
Example display



Example display



MARK



4f MARK button

Press and release to begin the process of marking a location of

playback as the beginning "IN" or ending "OUT" point of a segment of audio. SET MARK AS . . . appears in the display.

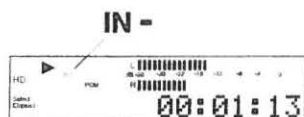
If playing, playing continues, if paused, play pause continues.



Example display

While SET MARK AS? is displayed press and release either the IN or OUT button.

Example display showing an IN- mark set, and no OUT mark set yet.



NOTE:

- IN and/or OUT marks are not remembered if you change the selected track.
- After an IN and/or OUT mark is present, you can jump to the IN or the OUT mark by pressing and releasing the IN or OUT button.
- You can mark an audio segment during playback or in Edit Mode. If during normal playback, you can switch to Edit Mode with the IN and/or OUT marks if you don't change the selected track.
- A marked audio segment can be copied, cut, deleted, or pasted in Edit Mode.

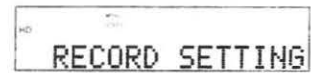
UTILITY MENU 4g UTILITY MENU button



Press and release to enter the Utility/ Setup menu.

Press and release to tab through the menu categories:

RECORD SETTING



CDR FUNCTIONS and



PRODUCT SET-



UP.

NOTE:

- Turning the Jog Wheel also tabs through the menu categories.
- Utility Menu mode times out if there is no activity for one minute.

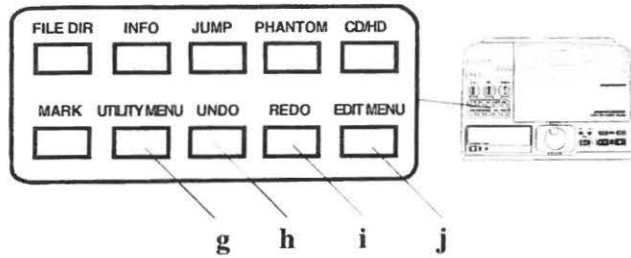
To set or change a menu parameter:

1. Press and release the UTILITY MENU button to select a menu category.
2. Turn the Jog Wheel to select a menu parameter, then press and release the Jog Wheel to confirm.
3. Turn the Jog Wheel to change the value of the parameter.
4. then press and release the Jog Wheel to confirm and switch to the next Utility Menu category.
5. Edit the next menu item or press and release the Stop button ■ to exit the UTILITY MENU.

Descriptions of the menu items and how to set or change them are on the following pages:

RECORD SETTING	page
• TRACK TYPE (PCM or MP3)	27
• CHANNEL (Stereo or Mono)	28
• BITRATE (if MP3)	29
• A. TRK INC HD (auto track increment)	29
• RECORD TIMER	31

4. Control buttons continued



4g UTILITY MENU button continued

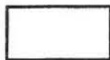
CDR FUNCTIONSpage

- NEW CD PROJECT 33
- COPY CD..... 36
- RIP CD 37

PRODUCT SETUPpage

- SET DATE/TIME 40
- RECORD FILTERS 41
- PLAYBACK MODE..... 43
- USER SETTINGS 44
 - AUTO MAKE CD 44
 - A. TRK INC CD..... 45
 - A. TRK TIME 45
 - CD TYPE 46
 - ALLOW FORMAT 47
 - COPY B4 EDIT 47
 - LOCK EDITING..... 48
 - LOC REC.SET 49
 - PRE-ROLL TRK..... 49
 - REQ.CONFIRM..... 50
 - RST DEFAULTS 51
 - FORMAT HDD..... 52

UNDO

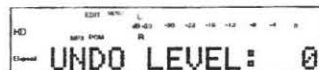


4h UNDO button

During audio file editing (4j) press and release to sequentially undo edits. Unlimited undo's are possible.

Press and release the UNDO button to undo one edit step.

Example display



REDO



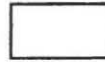
4i REDO button

Reverses UNDO. During audio file editing (4j) press and release to sequentially redo edits that were undone by UNDO. All current undoes can be redone.

Example display



EDIT MENU



4j EDIT MENU button

Press and release to select the Edit Menu.

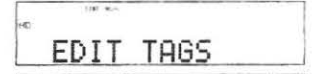
Press and release the EDIT MENU button, or turn the Jog Wheel to tab

through the Edit Menu choices:

EDIT AUDIO



EDIT TAGS



DELETE

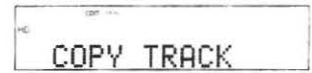


TRACK

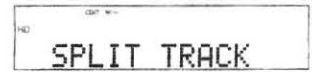
DELETE ALL TRK



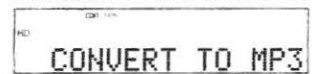
COPY TRACK



SPLIT TRACK



CONVERT TO MP3



NOTE:

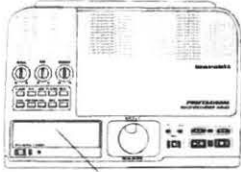
- Turning the Jog Wheel also tabs through the Edit Menu categories.
- Edit Menu mode times out if there is no activity for one minute.

Descriptions of the Edit Menu items and how to set or change them are on the following pages:

EDIT MENUpage

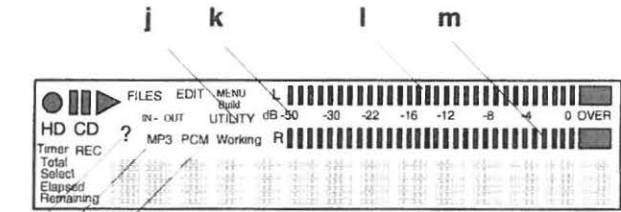
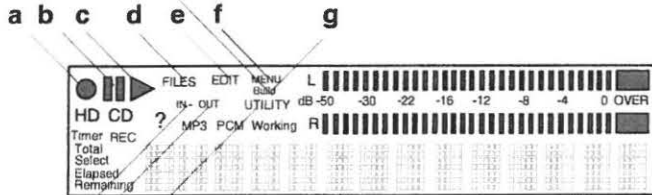
- EDIT AUDIO 52
- EDIT TAGS 57
- DELETE TRACK 58
- DELETE ALL TRK 59
- COPY TRACK 59
- SPLIT TRACK 60
- CONVERT TO MP3 60

5 Display



5 Display

Labels, icons, meters and alphanumeric messages communicate the status of the CDR420.



h i j



a Record icon
The red record icon is lit when in record mode.



b Pause icon
The Pause icon appears when the CDR420 is in playback pause, or record pause.



c Play icon
The Play icon appears when the CDR420 is in playback or recording.

FILES

d FILES label
Displayed after the FILE DIR button is pressed. When present display information refers to a track in the file directory.

EDIT

e EDIT label
Displayed when in EDIT MENU mode.

MENU

f MENU label
Displayed when in a Menu mode.

BUILD

g BUILD label
Displayed when in CD Build mode.

IN-

h IN- label
Displayed when an IN point is set.

OUT

i OUT label
Displayed when an OUT point is set.

UTILITY

j UTILITY label
Displayed when in UTILITY MENU mode.

k Level meter scale

The Level meter scale is in decibels (dB). Displayed when in Record or Playback. OVER is displayed when the level clips or is over 0 dB.



l L (left) level meter

Lit rectangles provide a visual display of the level of the left channel during playback or recording. The red OVER block on the left is displayed when the level of the left channel clips or is over 0 dB.



m R (right) level meter

Lit rectangles provide a visual display of the level of the right channel during playback or recording. The red OVER block on the right is displayed when the level of the right channel clips or is over 0 dB.



n ? label
Lit when the CDR420 is waiting for your input.

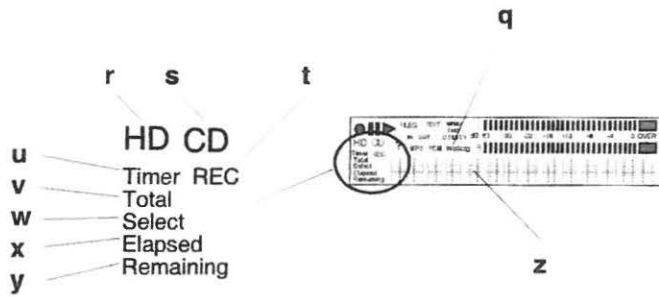
MP3

o MP3 label
Displayed when the file being recorded, played back, or being viewed in the File Directory is in MP3 format.

PCM

p PCM label
Displayed when the file being recorded, played back, or being viewed in the File Directory is in PCM (standard audio CD format).

7 Display continued



Working q Working label

Flashing when the CDR420 is processing information. The Alphanumeric display bars show progress of the operation. Wait for the operation to be completed. Pressing and releasing Stop ■ will cancel some operations.

HD r HD label

The HD label appears when the Hard Drive is selected/active.

CD s CD label

The CD label appears when the CD drive is selected/active.

REC t REC label

The REC label appears when the CDR420 is in record mode.

Timer u Timer label

Displayed when a preset time for recording has been set.

Total v Total label

Displayed when the alphanumeric display shows the total time for the selected track (file).

Select w Select label

Displayed when the CDR420 expects you to make a choice.

Elapsed x Elapsed label

Displayed when the alphanumeric display shows the elapsed time (time from the beginning) of the selected track (file). Default

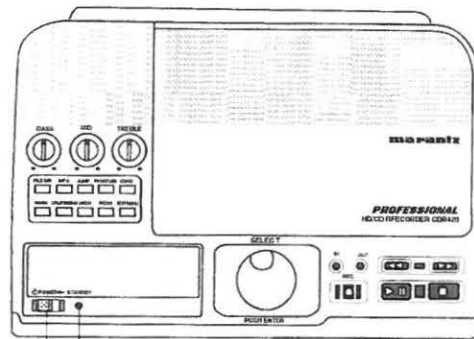
Remaining y Remaining label

Press and hold the INFO button for 2 seconds so the alphanumeric display shows the remaining time (time to the end) of the selected track (file) or the remaining record time on the HD.



z Alphanumeric display

Displays a variety of information including remaining recording time, menu settings, etc. Displays of more than 14 characters may scroll.



6 7



6 POWER switch

Slide the POWER switch to the right to turn power on or off.

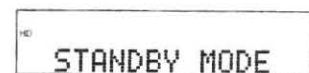
When power is ON the display is lit and the STANDBY light is off.



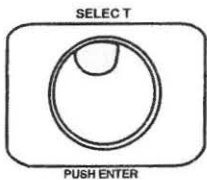
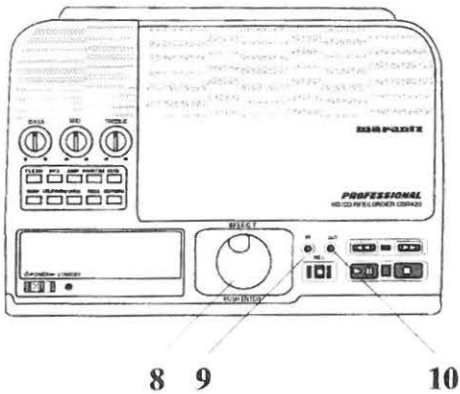
7 STANDBY light

Lit when in STANDBY MODE.

When power is switched off STANDBY MODE is briefly displayed.



STANDBY MODE retains the state of the record timer.



8 Jog Wheel (SELECT, PUSH ENTER)
This is the “master” control for the CDR420.

For most operations you **turn to display**, toggle, or tab through, an option, or adjust the position of a variable, then **press and release to select**, enter, that option or position.

For a few operations, a press and release of the Jog Wheel tabs through the options and a **double click**, two successive presses and releases of the Jog Wheel, selects, enters, the option or position.

- FILE DIR selects the Track
- UTILITY MENU selects the menu item
- Within a menu selects the value of a parameter

The Jog Wheel is also used for fine searching (scrubbing) forward and backwards during Edit Mode.



9 IN button
Press and release to set or skip to an IN mark.

To set or change an IN mark, during playback or play pause, press and release the MARK button.

SET MARK AS? is displayed. If playing, playing continues, if paused, play pause continues.

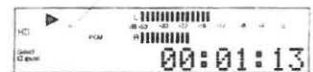


Then press and release the IN button.

If an IN mark is already present, that position is cleared and replaced by the new IN position.

IN -

In the example neither an IN or an OUT mark had been set.



Example display

The IN- mark is set at time in the track when the MARK button is pressed.

How to jump to an IN mark:

If an IN mark is set, press and release the IN button to jump to the IN mark (beginning mark) of an audio selection.

During playback, play skips to the IN mark and continues playing.

During play pause or stop, audio is cued to the IN mark and remains paused or stopped.

The IN mark remains only as long as the track is selected.



10 OUT button
Press and release to set or skip to an OUT mark.

To set or change an OUT mark, during playback or play pause, press and release the MARK button.

SET MARK AS? is displayed. If playing, playing continues, if paused, play pause continues.



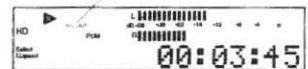
Example display

Then press and release the OUT button.

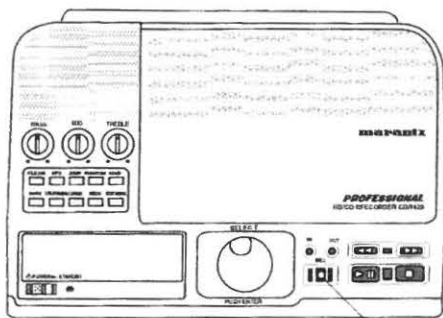
If an OUT mark is already present, that position is cleared and replaced by the new OUT position.

IN - OUT

In the example both an IN and OUT mark have been set.



Controls, Display (top) continued



11

How to jump to an OUT mark:

If an OUT mark is set, press and release the OUT button to jump to the OUT mark (end mark) of an audio selection.

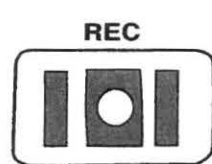
During playback, play skips to the OUT mark and continues playing.

During play pause or stop, audio is cued to the OUT mark and remains paused or stopped.

The OUT mark remains only as long as the track is selected.

NOTE:

IN and OUT points can be transferred to the Edit Audio mode as long as the track has remained the current track.



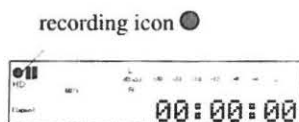
11 REC button/light ● (red)

From stop press and release to enter recording mode. During recording press and release to make a new track and continue recording.

The red REC button/light ● and the green Play/Pause button/light ►/|| are lit and steady during recording.

During rec pause the REC button/light ● is lit and steady and the Play/Pause button/light ►/|| flashes.

During recording and rec pause the recording icon is displayed.



Example display

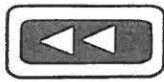
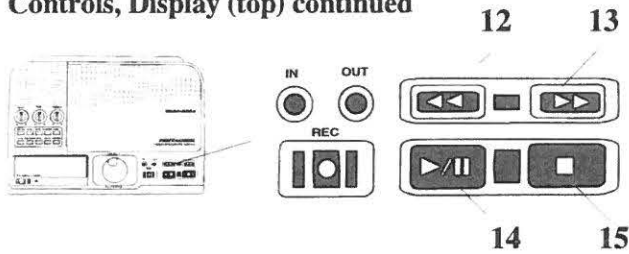
Press and release the Play/Pause button/light ►/|| again to begin recording.

Recording parameters (track type, channel, bitrate, auto track increment) currently set in the UTILITY MENU / RECORD SETTING are used.

During recording, turn the Jog Wheel to adjust REC LEVEL.

The REC button/light ● flashes during a CD Project to indicate that tracks are waiting to be written to a CD. Pressing the the REC button while it is flashing begins the process of writing the selected tracks to the CD.

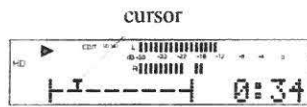
Controls, Display (top) continued



12 Fast Reverse button ◀◀
During playback, play pause, or edit play press and hold to play audio at high speed in reverse.

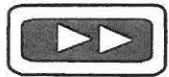
During play and edit play audio snippets are heard.

The Example display shows an edit screen with the cursor at the current point in the audio.



Example display

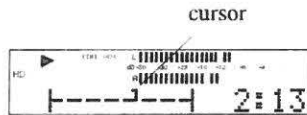
Play continues from the new point on releasing the Fast Reverse button ◀◀ during play or edit play. Speeds are 2x for 3 seconds and then 10x (audible).



13 Fast Forward button ▶▶
During playback, play pause, or edit play, press and hold to play audio at high speed.

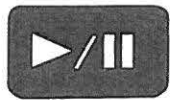
During play and edit play audio snippets are heard.

The Example display shows an edit screen with the cursor at the current point in the audio.



Example display

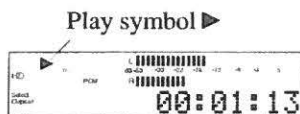
Play continues from the new point on releasing the Fast Forward button ▶▶ during play or edit play. Speeds are 2x for 3 seconds and then 10x (audible).



14 Play/Pause button ▶/||
Press and release to start play of a stopped or paused track. Press and release during playback or recording to pause.

Button lit during play or record, flashing during pause.

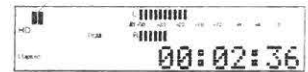
Example display during playback.



Play symbol ▶

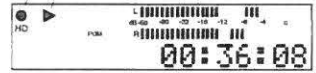
Example display while playback is paused.

Pause symbol |||



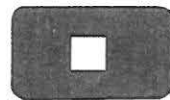
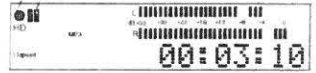
Example display during recording.

Record symbol ● and Play symbol ▶



Example display during record pause.

Record symbol ● and Pause symbol |||



15 Stop button ■
Press and release to Stop or cancel the current operation.

Button lit and steady when recording or playback is stopped.

If playback was stopped, resuming playback resumes playback from the beginning of the selected track.

If recording was stopped, starting playback begins playback at the beginning of the recorded track. Resuming recording begins a new track.

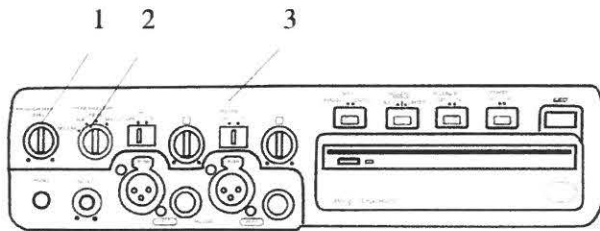
During menu, or other functions press and release the Stop button ■ to cancel the function and return the CDR420 to idle mode.

During Editing

During editing the Stop button ■ does not exit edit mode. It controls playback along with the Play/Pause button ▶/|||. During editing after pressing the Stop button ■ then pressing the Play/Pause button ▶/|||, play starts at the beginning of the track.

To exit edit mode see How to Exit Edit Execute Mode on page 56.

Controls, Connections (front)

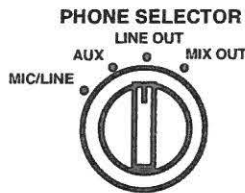


PHONE/SPEAKER LEVEL



1 PHONE/SPEAKER LEVEL control

Turn to adjust the level (volume) of the built-in speaker and headphones plugged into the PHONE jack. (To listen to headphones only turn the SPEAKER OFF/ON switch to OFF.)



2 PHONE SELECTOR

Turn to select the audio input to the PHONE jack

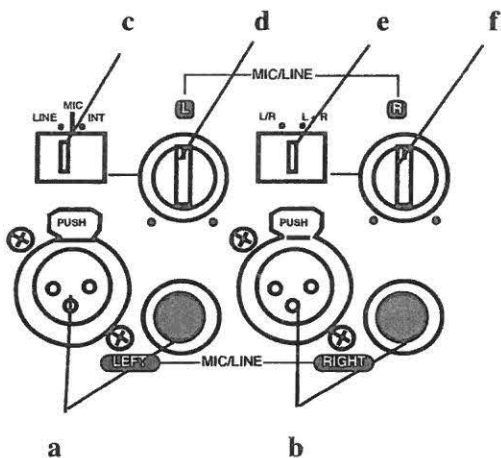
and internal Speaker.

MIC/LINE – Audio being input via the MIC/LINE input jacks.

AUX – Audio being input via the AUX IN jack.

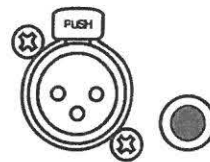
LINE OUT – Audio available at the LINE OUT output jacks.

MIX OUT – Audio available at the MIX OUT output jacks.



3 MIC/LINE controls and input jacks

Left and right microphones or instruments via phone



jacks or via XLR connectors are input here.

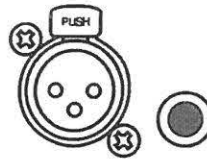
3a Left XLR or 1/4" input jack

Plug in an instrument or other line level audio device here to

provide audio to the left stereo channel.

NOTE: To avoid feedback, turn the internal SPEAKER OFF/ON switch OFF or reduce the PHONE/SPEAKER LEVEL control, and reduce the LINE OUT level control if connected to an external

amplifier.



3b Right XLR or 1/4" input jack

Plug in an instrument or other line level audio device here to provide audio to the right stereo

channel.

3c LINE MIC INT switch

Switch to LINE for a line level input, to MIC for a microphone level input, or to INT for input from the internal micro-

phone to the left recording channel.

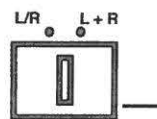
NOTE: To mix two microphones from the front inputs with a stereo



line input, use the AUX input on the rear for the stereo line input.

3d Left level control

Turn to adjust the level of the left



input.

3e L/R L+R switch

L/R records the Left input onto the left channel of the recording and the Right input onto the right channel of the recording.

L+R records Left and Right inputs onto both channels of the recording.

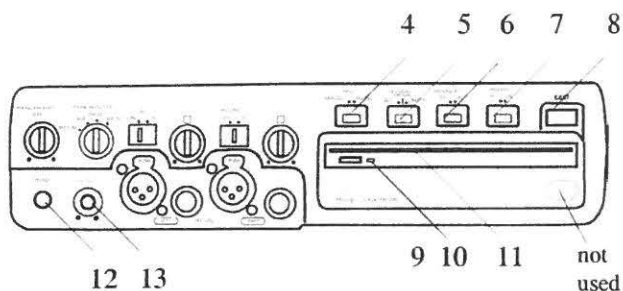


3f Right level control

Turn to adjust the level of the right input.

NOTE: When internal mic is selected both the Left level control and the Right level control are active. To record the internal microphone to both the left and right channels adjust both Left and

Controls, Connections (front) continued



4 INPUT ANALOG/DIGITAL switch
Select between analog or digital external input.

Connect digital output of the source machine to the DIGITAL IN jack on the rear of CDR420*. Connect analog input to either the MIC/LINE input jacks on the front of the CDR420, and/or the AUX IN jacks on the rear of the CDR420, or use the internal microphone.

*The CDR420 can only accept S/PDIF digital input signals at the Sample Frequency of 44.1 kHz.



5 REC LEVEL switch
Record level limiter for analog input during recording.

ALC – Limits any input signal greater than -12 dB. Left and right MIC/LINE (or INT MIC) level controls do not have any function when using ALC.

MANUAL – Set level using left and right MIC/LINE level controls. When recording via AUX IN control the level using the output level control on the external device. Levels in excess of 0 dB may be recorded and may result in distorted recordings.

LIMITER – Same as manual: Set level using left and right MIC/LINE level controls. Levels in excess of 0 dB are automatically limited.

NOTE: REC LEVEL adjustment is not available with this switch at ALC.



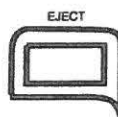
6 MIC/LINE ATT switch
Determines if the signal from the MIC/LINE inputs is attenuated.

OFF – the signal(s) is not attenuated.

ON – Overdrive of the signal is attenuated (limited).



7 SPEAKER OFF/ON switch
Turns the built-in speaker OFF or ON.



8 EJECT button
Press and release to eject a CD in the CD drive.



9 10 11

9 Eject button

The small Eject button on the CD drive mechanism can also be pressed and released to eject a CD in the CD drive.

*Neither the Eject button on the face of the unit or the small Eject button on the CD mechanism are functional when a CD is being written.

10 CD light (yellow)

The CD light flashes when the CD drive is active, reading or writing a CD.

11 CD slot

Insert a CD here.

The CD drive is used for recording and can record CD-R and CD-RW discs. The CD drive can also playback CD, CD-R and CD-RW disks

PHONES



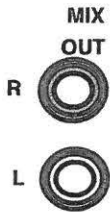
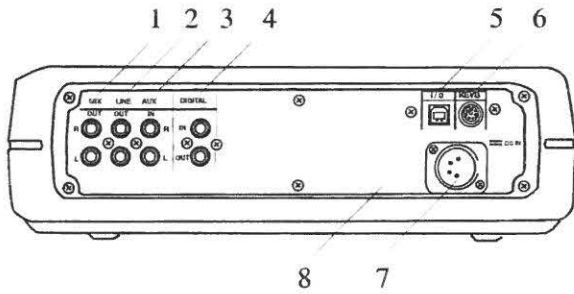
12 PHONES jack
Plug stereo headphones in here. Adjust headphone volume with the PHONES/SPEAKER LEVEL control.

LINE OUT



13 LINE OUT level control
Turn to adjust the level of the output to the LINE OUT jacks.

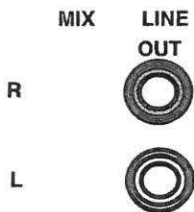
Controls, Connections (rear)



1 MIX OUT jacks
 Plug Right and Left RCA audio cables in here to connect to the input of an amplifier or other external unit. Use for recording onto an external recorder.

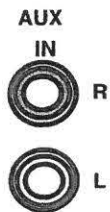
Input from MIC/LINE (or INT MIC) and/or AUX jacks are output as line level output to an external recorder or amplifier. The signal is output before going to the HD/CD drive, so it is available for monitoring or recording even if recording is paused or stopped.

This signal cannot be equalized by the CDR420 tone controls.

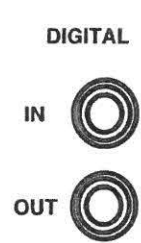


2 LINE OUT jacks
 Plug Right and Left RCA audio cables in here to connect to the input of an amplifier or other external unit.

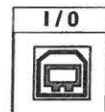
This signal can be equalized by the CDR420 tone controls.



3 AUX IN jacks
 Plug Right and Left RCA audio cables in here to connect to the output of an external unit. Use for recording from an external audio source such as a cassette deck.



4 DIGITAL IN and OUT jacks (SPDIF)
 Plug RCA coaxial cables in here to connect to the input and/or output of an external digital unit.
 Use IN for recording from an external 44.1 kHz digital audio source.
 Use OUT for going to an external digital device.



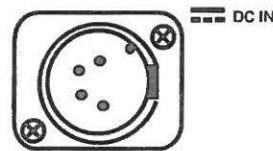
5 I/O jack (computer)
 Plug a USB cable in here and connect the other end to your computer (PC or MAC).

The HD on the CDR420 appears as an external hard drive on your computer. That makes it easy to copy audio files from the CDR420 HD to your computer's hard drive or a CD, or from your computer's hard drive to the CDR420. The I/O connection can only be made active when the CDR420 is off (neither recording or during playback).



6 KEYB jack (keyboard)
 Plug your PS/2 computer keyboard in here for direct input into the CDR420.

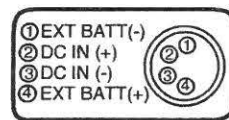
See page 62 for details.



7 DC IN
 Plug the supplied power supply into a wall outlet and in here.

The CDR420 is shipped with a power supply suitable for your area. If you are traveling or want battery power, see www.d-mpro.com for available power supplies. Search for "CDR420 accessories."

8 DCIN pin out



- 1 External Battery -
- 2 DC IN +
- 3 DC IN -
- 4 External Battery +

REC LEVEL adjustment

The recording level adjustment is available in all recording modes, during recording or when at Record Pause (Play/Pause button ►/|| flashing).

To adjust the recording level turn the Jog Wheel.



Example display

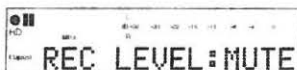
REC LEVEL: is displayed along with the current recording level setting.

If the Jog Wheel is not turned for about 2 seconds the displayed REC LEVEL is saved and the display returns to showing the elapsed recording time.

Changes to the REC LEVEL setting are saved in memory even through STANDBY and power off.

Recording level settings are in dB from +10 to -70 dB.

If you turn past -70 dB, REC LEVEL:MUTE is displayed and the input is completely muted.



Example display

REC FORMAT

The CDR420 can record in two formats: MP3 and PCM.

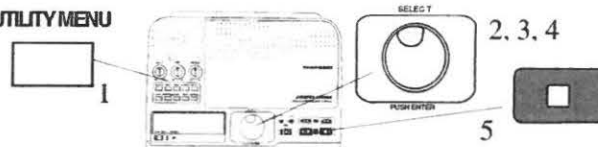
MP3 is a compressed audio data recorded using MPEG1 Layer III, or MPEG2 Layer III (bitrate depends) mono or stereo. This compressed file format is commonly used to send audio files over the internet. The 20 GB Hard Drive in the CDR420 can store up to 1400 hours of MP3 recording at 32 kbps, mono. You can record up to about 40 hours of audio on a 700 MB CD. MP3 compressed recordings, however, lack the audio quality of PCM recordings and are primarily used in applications where managing storage space is necessary.

PCM (Pulse Code Modulation) is uncompressed recording of CD quality. The 20 GB Hard Drive in the CDR420 can store up to 30 hours of PCM recording. You can record about 80 minutes of audio on an 80 minute CD in standard (WAV/CDA) format.

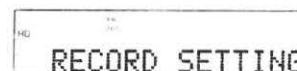
If a track is already recorded on the CDR420 in PCM, you can change its format to MP3 by recording a copy in MP3. See How to convert PCM to MP3 on page 60.

How to set or change the REC FORMAT to be recorded

UTILITY MENU

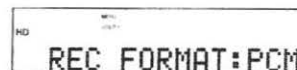


- 1 From Idle Mode, press and release the UTILITY MENU button.



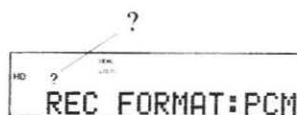
RECORD SETTING is displayed.

- 2 While RECORD SETTING is displayed, press and release the Jog Wheel. REC FORMAT: is displayed.



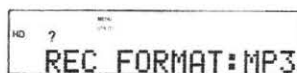
Example display

- 3 While REC FORMAT: is displayed press and release the Jog Wheel again. "?" is displayed.



Example display

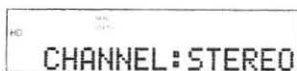
- 4 While the ? is displayed, turn the Jog Wheel to toggle between PCM and MP3.



Example display

When correct press and release the Jog Wheel to confirm your selection.

The display switches to the next RECORD SETTING parameter, CHANNEL, so you can continue with RECORD SETTING.



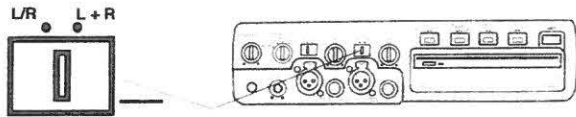
Example display

- 5 To exit press and release the Stop button ■. Changes will be stored.

Stereo or Mono recording

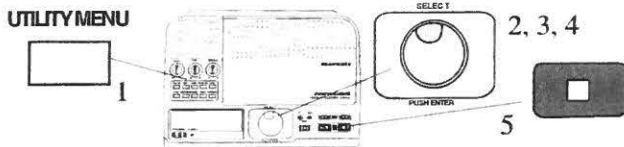
Recording in Mono requires half as much memory as Stereo. The reduced file size makes Mono recording desirable in some situations. For example, when your audio source is Mono or when recording a meeting.

To record in Mono from a single microphone or line level source, use the Left jack (left XLR or Phone jack on the front of the CDR420, or left AUX IN RCA jack on the rear).

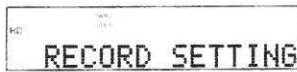


To record in Mono from two microphones or line level sources, be sure the L/R L+R switch is at L+R.

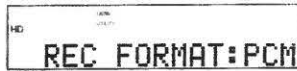
How to set or change the Channel to be recorded



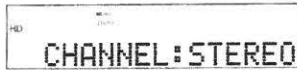
- 1 From Idle Mode, press and release the UTILITY MENU button. RECORD SETTING is displayed.



- 2 While RECORD SETTING is displayed, press and release the Jog Wheel. REC FORMAT: is displayed.

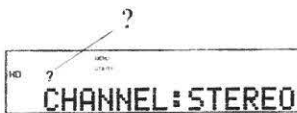


- 3 Turn the Jog Wheel so CHANNEL: is displayed.



Example display

While CHANNEL is displayed, press and release the Jog Wheel to be able to change the channel. "?" appears in the display.



Example display

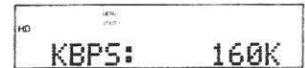
- 4 While the ? is displayed, turn the Jog Wheel to toggle between STEREO and MONO.



Example display

When correct, press and release the Jog Wheel.

The display switches to the next RECORD SETTING parameter*, KBPS, so you can continue with RECORD SETTING.



Example display

*If your selected REC FORMAT is PCM, KBPS is not applicable. The display switches to the next RECORD SETTING parameter: A. TRK INC HD.

- 5 To exit press and release the Stop button. Changes will be stored.

KBPS (Kilobits per Second)

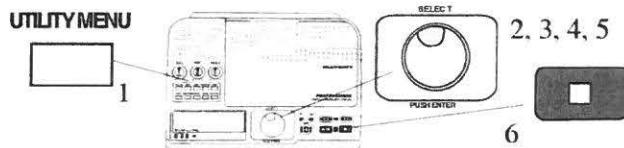
The bitrate for PCM is constant at 768 kbps/ch, so the bitrate menu choice does not appear if the track type is set to PCM.

The trade off in selecting an MP3 bitrate is audio quality versus file size. Some listeners find high bitrate MP3 recordings indistinguishable from PCM recordings, and low bitrate MP3 music recordings noticeably degraded.

MP3 Stereo bitrate choices are: 64, 80, 128, 160, 256, or 320 kbps.

MP3 Mono bitrate choices are: 32, 40, 64, 80, 128, or 160 kbps.

How to set or change the Bitrate to be recorded



- 1 From Idle Mode, press and release the UTILTY MENU button. RECORD SETTING is displayed.

HD ?
RECORD SETTING

- 2 While RECORD SETTING is displayed, press and release the Jog Wheel to accept the RECORD SETTING menu choice. REC FORMAT: is displayed.

HD ?
REC FORMAT:MP3
Example display

- 3 Turn the Jog Wheel until KBPS: is displayed.

HD ?
KBPS: 160K
Example display

NOTE:

Changing KBPS is not applicable for PCM.

- 4 Press and release the Jog Wheel to select KBPS. "?" appears in the display.

HD ?
KBPS: 160K
Example display

- 5 Turn the Jog Wheel to tab through the KBPS choices.

HD ?
KBPS: 64K

Example display

When correct press and release the Jog Wheel.

The display switches to the next RECORD SETTING parameter, A:TRK INC HD, so

HD ?
A:TRK INC HD:N

Example display

you can continue with RECORD SETTING.

- 6 To exit press and release the Stop button. Changes will be stored.

Auto Track Increment

The CDR420 can be set to automatically increment tracks during recording onto the HD or you can break a track into evenly timed segments when burning a CD. Timed tracks are helpful when a recording session is too long to fit on one CD, when recording a long meeting, speech, surveillance session, or recording for transcription. During playback timed tracks make finding a particular passage easier because of the relationship between track numbers and time.

Auto Track Increment HD can be set at 1, 2, 5, 10, 15 or 30 minutes, 650 MB CD, or 700 MB CD. A:TRK INC CD can be set at 1, 2, 5 or 10 minutes.

For example, if **Minute Track** is recorded (a new track every minute) you can select track 3 to play approximately the 3rd minute of recording. To go directly to the beginning of the 10th minute select track 10, etc.

Track #	Recording time minutes:seconds
1	0:00 - 0:59
2	1:00-1:59
3	2:00-2:59
.	.
.	.
80	79:00-79:56
.	.

Increment tracks using HD or CD?

Using HD is more convenient if you are starting with an empty or recently formatted HD. For example, if you are using the CDR420 to record board meetings

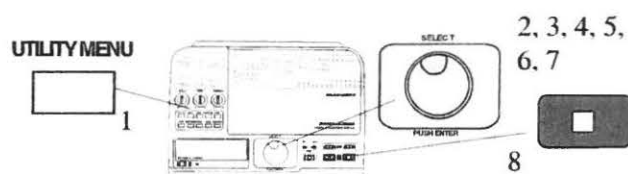
and you plan to burn the meetings to a CD using the ADD ALL TRK:Y feature (see page 33) then clear (or reformat) the HD.

Auto Track Increment HD makes it easier for you to review the meeting, and eliminate dead time (such as the 20 minutes the board broke for lunch).

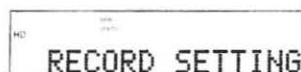
Using Auto Track Increment CD is more convenient if you have a lot of tracks recorded on the HD, so the ADD ALL TRK:Y feature is not appropriate, or if you decide that timed tracks would be convenient for a long recording already on the HD as a single track.

See page 45 to use Auto Track Increment CD.

How to set or change A. TRK INC HD



1 From Idle Mode, press and release the UTILITY MENU button.



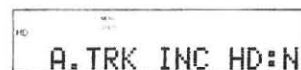
RECORD SETTING is displayed.

2 While RECORD SETTING is displayed, press and release the Jog Wheel to accept the RECORD SETTING menu choice. REC FORMAT: is displayed.



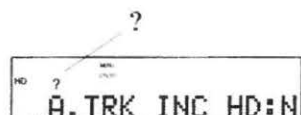
REC FORMAT: is displayed.

3 Turn the Jog Wheel until A.TRK INC HD is displayed.



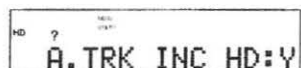
Example display

4 Press and release the Jog Wheel to select A. TRK INC HD. "?" appears in the display.

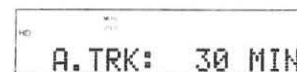


Example display

5 If :N is displayed, turn the Jog Wheel so Y is displayed then press and release the Jog Wheel.

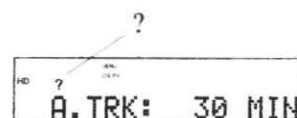


6 The display switches to the last Auto Track Increment that was set.



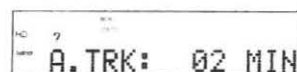
Example display

To change the setting, press and release the Jog Wheel. "?" appears in the display.



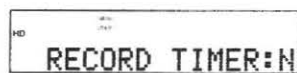
Example display

7 Turn the Jog Wheel to tab through the Auto Track Increment setting choices. When correct, press and release the Jog Wheel.



Example display

The display switches to the next RECORD SETTING parameter, RECORD TIMER, so you can continue with RECORD SETTING.



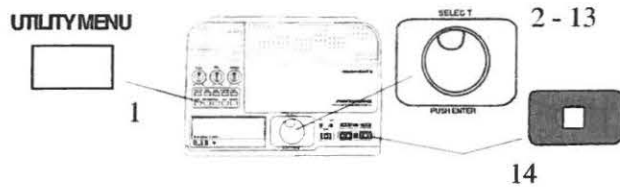
Example display

8 To exit press and release the Stop button. Changes will be stored.

Record Timer

The CDR420 can be set to automatically begin recording at a pre-specified date and time, record for a set time period and automatically stop recording. Record Timer can be set to be single or repeated daily, weekly, or only on weekdays. Only one timer recording session can be set.

How to set the RECORD TIMER



- 1 From Idle Mode, press and release the UTILITY MENU button. RECORD SETTING is displayed.

Example display

 RECORD SETTING

- 2 While RECORD SETTING is displayed, press and release the Jog Wheel to accept the RECORD SETTING menu choice. REC FORMAT: is displayed.

Example display

 REC FORMAT:MP3

- 3 Turn the Jog Wheel until RECORD TIMER is displayed.

Example display

 RECORD TIMER:N

- 4 Press and release the Jog Wheel to select RECORD TIMER. "?" appears in the display.

Example display

 RECORD TIMER:N

- 5 If :N is displayed, turn the Jog Wheel so Y is displayed then press and release the Jog Wheel.

Example display

 RECORD TIMER:Y

- 6 The display switches to setting the month for the recording to begin.

Example display

 ON:MAR 30,2005

ON: is displayed with the current month flashing.

To change the setting, turn the Jog Wheel so the desired month is displayed.

Press and release the Jog Wheel to confirm the month.

- 7 The display switches to setting the day of the month, with the day flashing.

Example display

 ON:APR 30,2005

To change the setting, turn the Jog Wheel to select the day. When correct, press and release the Jog Wheel.

- 8 The display switches to setting the year, with the year flashing.

Example display

 ON:APR 02,2005

To change the setting, turn the Jog Wheel to select the year. When correct, press and release the Jog Wheel.

- 8 The display switches to setting the hour for recording to begin, with the hour flashing.

Example display

 ON: 02:45 PM

To change the setting, turn the Jog Wheel to select the hour. When correct, press and release the Jog Wheel.

- 9 The display switches to setting the minute, with the minute flashing.

Example display

 ON: 09:45 PM

To change the setting, turn the Jog Wheel to select the minute. When correct, press and release the Jog Wheel.

- 10 The display switches to setting am or pm, with the am or pm flashing.

Example display

 ON: 09:00 PM

To change the setting, turn the Jog Wheel to select am or pm. When correct, press and release the Jog Wheel.

- 11 The display switches to setting the duration of the recording in hours and minutes, with hours flashing.

Example display

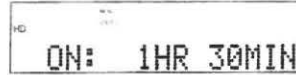
 ON: 0HR 30MIN

continues

How to set the RECORD TIMER (continued)

To change the setting, turn the Jog Wheel to select hours (0 to 999). When correct, press and release the Jog Wheel.

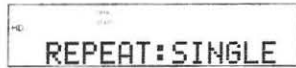
- 12 The display switches to setting how many minutes the recording should last with minutes flashing.



Example display

To change the setting, turn the Jog Wheel to select the minute. When correct, press and release the Jog Wheel.

- 13 The display switches to setting the repeat choice.



Example display

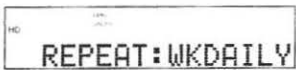
SINGLE: after the timer recording, RECORD TIMER is turned off.

DAILY: after the first timer recording, timer recording is repeated every day at the set time.

WEEKLY: after the first timer recording, timer recording is repeated at the set day (for example Tuesday) and time every week.

WKDAILY: after the first timer recording, timer recording is repeated every weekday (Monday through Friday) at the set time.

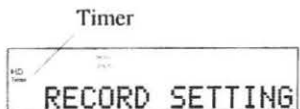
Turn the Jog Wheel to tab through the REPEAT choices.



Example display

When correct, press and release the Jog Wheel.

The display switches to RECORD SETTING, so you can continue with the UTILITY MENU.



- 14 To exit press and release the Stop button ■. Changes will be stored.

NOTE:

- 'Timer' appears in the display while a RECORD TIMER is set.
- A Timer setting remains set when the CDR420 is switched to

STANDBY MODE, and, up to about 10 years if the CDR420 is unplugged.

- Set the SPEAKER switch to OFF when using the RECORD TIMER.

UTILITY MENU - NEW CD PROJECT

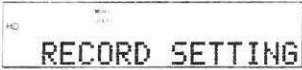

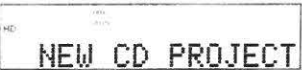
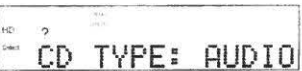
After you have tracks, audio files, recorded on the HD and have edited the tracks you can assemble one or more tracks into a CD project and then burn that CD project onto one or more CD's.

Hints

If you have a lot of files on the HD, and the files have default (date and time) names, selecting files for your CD project can be confusing. Before starting your CD project you can:

- Review the files and write down track names.
- Delete unwanted files.
- Re-name files.
- Select Pre-roll track (so the first five seconds of a displayed track are automatically played) see page 49.

How to do a CD project

- 1 From Idle Mode, press and release the UTILITY MENU button.  RECORD SETTING is displayed.
- 2 While RECORD SETTING is displayed, turn the Jog Wheel so CDR FUNCTIONS is displayed. 
- 3 Press and release the Jog Wheel to accept the CDR FUNCTIONS menu choice. NEW CD PROJECT is displayed. 
- 4 Press and release the Jog Wheel to accept the NEW CD PROJECT menu choice. CD TYPE: AUDIO is displayed. "?" appears in the display. 
- 5 Turn the Jog Wheel to tab through the CD TYPE choices: AUDIO, DATA and EXTRA.

AUDIO

Prepares CDs that can be played on standard CD players. Compact Disc Digital Audio (CDDA) uses uncompressed, PCM, .wav files. The CDR420 does not convert MP3 files to PCM so MP3 files are ignored if you choose AUDIO as the CD TYPE.

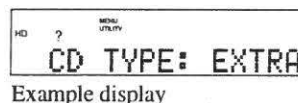
DATA

The DATA CD choice will burn exact file images of files (tracks) on the CDR420 HD, MP3 and/or PCM. The CD is formatted as ISO 9660.

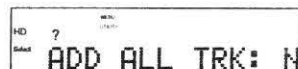
EXTRA

The EXTRA CD choice will burn a multi-session disc. It prepares the same CD format as AUDIO (no MP3 files) but adds text file records of all the tag information of the PCM files selected to burn. A CD prepared in "EXTRA" will play in standard CD players the same as a CD prepared in "AUDIO." If you put the EXTRA CD in your computer, you can also access the text files.

- 6 When the desired CD choice is displayed, press and release the Jog Wheel.



- 7 ADD ALL TRK: N is displayed.



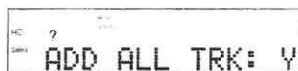
Add all tracks

If you choose ADD ALL TRK: Y, all of the tracks recorded on the HD will be included. This is a useful choice if you started from a blank HD and you have recorded multiple small tracks, for example, an hour of a meeting in minute track (60 tracks). See page 29 for setting minute track recording.

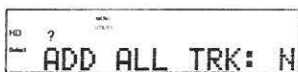
NOTE:

AUDIO and EXTRA CDs will burn all PCM tracks. DATA CDs will burn all MP3 and PCM tracks.

Turn the Jog Wheel to toggle to Y. Press and release the Jog Wheel. The CD will be burned.

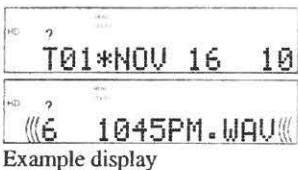


If you choose ADD ALL TRK: N, you

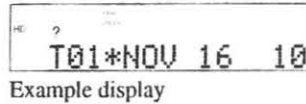


select which tracks recorded on the CD are to be included. Tracks are selected one at a time from all the tracks in the file directory. Press and release the Jog Wheel.

- 8 T01* is displayed. The first file name in the file directory is displayed and scrolls.



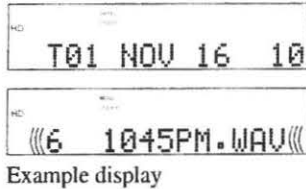
Double click the Jog Wheel to select the displayed file as the first track on your CD project.



NOTE:

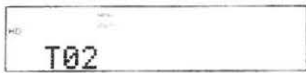
- In our example the track is NOV 16 1045PM.WAV.
- Once one or more files have been selected for the CD Project, the REC button flashes to indicate that a CD can be burned.

9 The * disappears and the file name scrolls again.

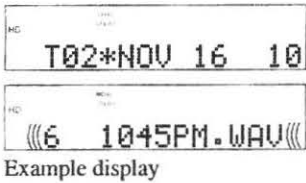


That gives you an opportunity to review your choice.

10 Turn the Jog Wheel to switch to selecting the next track.



Press and release the Jog Wheel to display the * and the first file in the file directory.



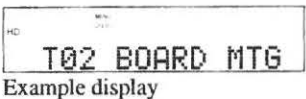
NOTE:

In our example, above, we chose the first file in the file directory for T01 so it is the first file that appears at T02*.

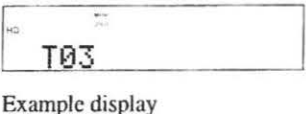
11 Turn the Jog Wheel to tab through the file directory.



Click the Jog Wheel to accept a displayed file as track 2 of your CD Project. The * disappears.



12 Turn the Jog Wheel to switch to selecting the next track. (Same as step 10.)



Repeat steps 10 and 11 to construct your CD Project.

During CD Project a single click of the Jog Wheel switches between * and no *.

During CD Project if a **display has no ***, turning the Jog Wheel tabs through the tracks (T's).

- File names are displayed for existing tracks.
- The file name is blank for the next track to be added to your project.

During CD Project if a **display has an ***, turning the Jog Wheel tabs through the file directory while remaining at the track (T) selected.

- If an existing track, DELETE TRACK is found at the end of the file directory.
- If the next track to be added to your project WRITE CD is found at the end of the file directory.

How to add a track to a CD Project

- If no *
- Turn the Jog Wheel until the highest "T" is displayed. The highest T will be blank.
- Press and release the Jog Wheel to add the * and display the file directory.
- Turn the Jog Wheel to select the track to be added.
- Click the Jog Wheel to add the displayed track to your CD project.

How to delete a track from a CD Project

- If no *
- Turn the Jog Wheel until the track you want to delete is displayed.
- Press and release the Jog Wheel to add the *.
- Turn the Jog Wheel so DELETE is displayed.
- Press and release the Jog Wheel (single click) to delete the displayed track from your CD Project. The remaining tracks in your CD Project are renumbered.

How to change a track in a CD Project

- If no *
- Turn the Jog Wheel until the track you want to change is displayed.
- Press and release the Jog Wheel to add the *.
- Turn the Jog Wheel to select the track you want to change to.
- Click the Jog Wheel.

How to burn your CD Project to a CD

- If no *
- Press and release the flashing REC button ●, or turn the Jog Wheel until the highest "T" is displayed. The highest T will be blank.
- Press and release the Jog Wheel to add the * and display the file directory.
- Turn the Jog Wheel so WRITE CD is displayed.

ARE YOU SURE:N is displayed. Turn the Jog Wheel to select Y, then press and release the Jog Wheel to confirm.

Display messages during CD burning

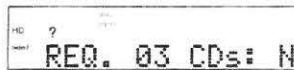
The CDR420 uses the display to keep you informed of progress during CD writing (burning). The messages can appear quite different depending on details of the project.

For example, the message "WRITING TRACK 3" might flash by so quickly you can barely read it if track 3 is very short. If track 3 is long the messages "PLEASE WAIT . . ." and a graphic display of progress such as:

"■ ■ ■ ■ 34%" might appear.

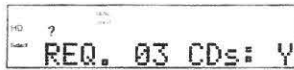
Typical messages include:

REQ. XX CD: N
appears if the burning session requires more than one CD.



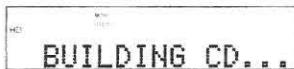
Example display

Turn the Jog Wheel so Y is displayed, then press and release the Jog Wheel to continue.

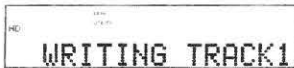


Example display

BUILDING CD appears briefly as the CDR420 prepares the CD.

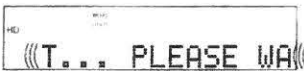


WRITING TRACK #
appears briefly as the CDR420 begins writing each track.

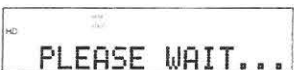


Example display

PLEASE WAIT . . . may scroll by twice and then



PLEASE WAIT . . . may remain steady.



NOTE:

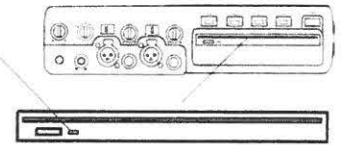
PLEASE WAIT . . . is displayed during several types of intensive cpu operations. Wait, it can take 5 minutes or more for some of these operations.

If the track is long enough the percentage of the track written is displayed and increases to 100%. Display bars, with a full bar equal to 10%, increase as the percentage number increases.

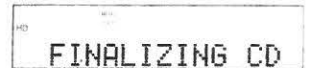


Example display

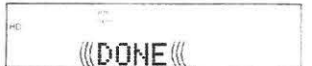
The yellow CD light flashes during CD burning, but may stay off for a couple of minutes during some CD burning operations.



FINALIZING CD is displayed briefly while the CD is being finalized.



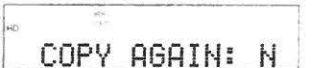
DONE scrolls by when the CD is done.



The completed CD is ejected and INS. BLANK CD is displayed if the CD project requires more than one CD.



When the CD project is completed the CD is automatically ejected and the display asks if you want to make another copy.



NOTE:

After finalizing an Audio CD the display will read "CD FINALIZED" but if the CD written is an MP3, WAV or MP3/WAV data CD then the display will read "CD WRITE DONE." This is different indicating that when a Data CD is closed, only that particular session closes, allowing you to add content to the disc at a later time.

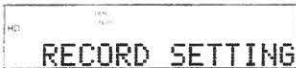
How to Copy a CD

Use COPY CD to make one or more copies of an entire CD without changing anything or storing a copy on the CDR420. To store a copy on the CDR420, copy individual tracks, change the file type, channels, or bitrate use RIP CD.

Quick instructions:

- a. Press UTILITY MENU 1x... RECORD SETTING
- b. Turn Jog Wheel until..... CDR FUNCTIONS
- c. Press Jog Wheel..... NEW CD PROJECT
- d. Turn Jog Wheel until.....COPY CD
- e. Press Jog Wheel..... ARE YOUR SURE: N
- d. Turn Jog Wheel ARE YOU SURE: Y
- e. Press Jog WheelINSERT ORIG CD
- f. insert CD to copy wait
CD ejected INS. BLANK CD
- g. insert blank CD wait
CD ejected COPY AGAIN: N

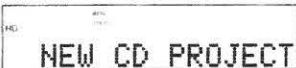
1. From the Idle screen press and release the UTILITY MENU button.



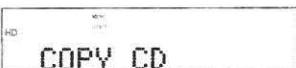
2. Turn the Jog Wheel so CDR FUNCTIONS is displayed,



then press and release the Jog Wheel so NEW CD PROJECT is displayed.

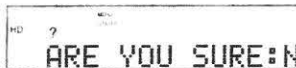


3. Turn the Jog Wheel so COPY CD is displayed.

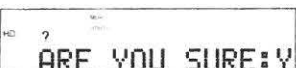


4. Press and release the Jog Wheel.

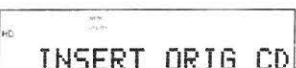
ARE YOU SURE: N is displayed.



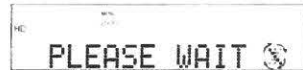
5. Turn the Jog Wheel so Y is displayed, then press and release the Jog Wheel.



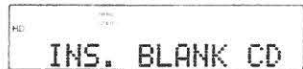
INSERT ORIG CD is displayed.



6. Insert the CD you want to copy from. Copying automatically starts.

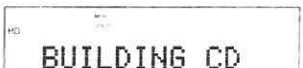


PLEASE WAIT alternates with the percentage of copying completed. When done, the original CD is automatically ejected and INS. BLANK CD is displayed.

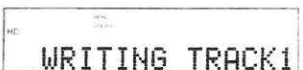



7. Insert a blank CD. Copying is automatic.

BUILDING CD is displayed briefly.



WRITING TRACK 1 is displayed briefly.

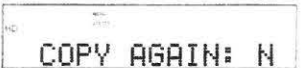


The percentage of the track written builds to 100%



When done the new CD copy is automatically ejected and the CDR420 asks you if you want to make another copy.

To make another copy turn the Jog Wheel so Y is displayed then press and release the Jog Wheel. Return to step 6 above where INS. BLANK CD is displayed.




8. To exit when COPY AGAIN: N is displayed, press and release the Jog Wheel. The temporary copy of the CD on the Hard Drive is automatically erased. The CDR420 switches to Idle Mode.

How to RIP a CD

Use RIP CD when you want to transfer an individual track on a CD, or transfer an entire CD to the HD. RIP CD permits changes to the recording format (RIP a standard CD to MP3), channel(s) recorded, and/or bitrate. RIP CD records a copy of the ripped material into a new folder on the CDR420 HD within a folder named RIPPED CD. You are prompted to give the new folder a name. You can burn a new CD from the HD immediately or later.

How to RIP an Entire CD

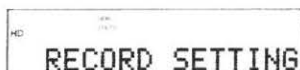
Quick instructions RIP entire CD:

- a. Insert original CD (or INSERT CD will be prompted)
- b. Press UTILITY MENU 2x.... CDR FUNCTIONS
Press Jog Wheel to enter..... CDR FUNCTIONS
- c. Turn Jog Wheel until..... RIP CD
- d. Press Jog Wheel.....RIP: ENTIRE CD
- e. Press Jog Wheel.....REC FORMAT:MP3
Turn Jog Wheel to select MP3 or PCM
- f. Press Jog Wheel..... CHANNEL:STEREO/MONO
- g. Press Jog Wheel. If MP3KBPS: 64
Turn Jog Wheel to select .
- h. Press Jog Wheel..... RENAME FOLDER
Press Jog Wheelenter folder name
Click Jog Wheelgo to i
Turn Jog Wheelgo to i
- i.START RIPPING
Press Jog Wheel..... ARE YOU SURE:N
Turn Jog Wheel Y
Press Jog Wheel..... wait
- j. Idle Mode

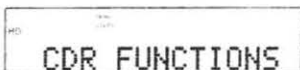
NOTE:

The RIP entire CD procedure below assumes all factory defaults and starting with no CD in the CD drive.

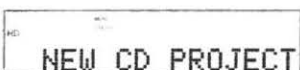
1. From the Idle screen press and release the UTILITY MENU button.



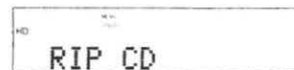
2. Turn the Jog Wheel so CDR FUNCTIONS is displayed,



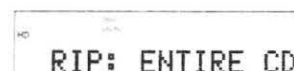
then press and release the Jog Wheel so NEW CD PROJECT is displayed.



3. Turn the Jog Wheel so RIP CD is displayed.

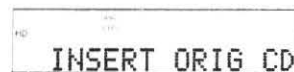


4. Press and release the Jog Wheel.



RIP: ENTIRE CD is displayed.

5. Press and release the Jog Wheel. INSERT ORIG CD is displayed.



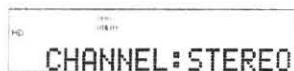
6. Insert the CD you want to RIP. REC FORMAT: is displayed. Turn the Jog Wheel to toggle between MP3 and PCM. Then push and release the Jog Wheel.



NOTE:

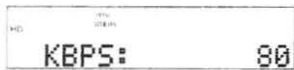
The CDR420 cannot convert MP3 files to PCM.

7. CHANNEL: is displayed. This display shows the CHANNEL



of the track to be ripped. This setting cannot be changed. It is simply displayed as a reference.

8. If REC FORMAT selected in step 6 was



MP3, KBPS is displayed. If REC FORMAT selected in step 6 was

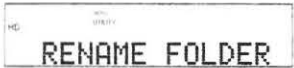
PCM, skip to step 9.

If Stereo turn the Jog Wheel to tab through 64, 80, 128, 160, 256, and 320.

If Mono turn the Jog Wheel to tab through 32, 40, 64, 80, 128, 160.

Then press and release the Jog Wheel.

9. RENAME FOLDER is displayed.



Press and release the Jog Wheel to begin renaming the folder*, or turn the Jog Wheel to skip renaming the folder.

*Only the folder name (folder stored within the RIPPED CD folder on the CDR420 HD) can be renamed at this time. Tracks within the folder are named 01, 02, ... You can use EDIT MENU / EDIT TAGS / TRACK NAME to rename them later.

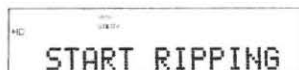
continues

How to RIP an Entire CD continued

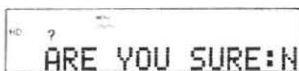
The date and time (name) of the folder will be displayed with the first character flashing**. Turn the Jog Wheel to change the flashing character. Press and release the Jog Wheel to accept the displayed character and switch to the next character. Click the Jog Wheel when name is complete.

**A connected keyboard, see page 62, lets you type in the folder name.

10. START RIPPING is displayed.
Press and release the Jog Wheel.



- ARE YOU SURE: N is displayed.



5. Turn the Jog Wheel so Y is displayed, then press and release the Jog Wheel.



As each track is ripped to the CDR420 HD progress is displayed as a percentage of the track and a graphic of the percentage of the track.

To cancel ripping in progress, press and release the Stop button ■. The CDR420 returns to Idle Mode.

When done ripping the CDR420 returns to Idle Mode.

How to RIP a single track

Use RIP CD when you want transfer an individual track on a CD to the HD. RIP CD permits changes to the recording format (RIP a standard CD track to MP3), channel(s) recorded, and/or bitrate. RIP CD records a copy of the ripped track into a new folder on the CDR420 HD within a folder named RIPPED CD. You are prompted to give the new folder a name. The ripped track is named 01. You can use EDIT MENU /EDIT TAGS / TRACK NAME to rename the track later. You can later rip another track into the same folder by using the same folder name.

Quick instructions RIP track:

- a. Insert original CD (or INSERT CD will be prompted)
- b. Press UTILITY MENU 2x CDR FUNCTIONS
Press Jog Wheel to enter..... CDR FUNCTIONS
- c. Turn Jog Wheel until RIP CD
- d. Press Jog Wheel.....RIP: ENTIRE CD
- e. Turn Jog Wheel RIP:TRACK
- f. Press Jog wheel track01.xxx
- g. Turn Jog Wheel to select CD track trackxx.xxx
- h. Press Jog WheelREC FORMAT:MP3
Turn Jog Wheel to select MP3 or PCM
- i. Press Jog Wheel.... CHANNEL:STEREO/MONO
- j. Press Jog Wheel
IF PCM.....go to k
If MP3.....KBPS: 64
Turn Jog Wheel to select bitrate then press Jog Wheel
- k. RENAME FOLDER
Press Jog Wheelgo to l
Turn Jog Wheelenter folder name
Click Jog Wheelgo to l
- l.START RIPPING
Press Jog Wheel..... ARE YOU SURE:N
Turn Jog Wheel Y
Press Jog Wheel..... wait
- p. Idle Mode

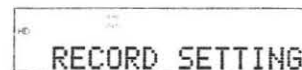
NOTE:

The RIP track procedure below assumes all factory defaults and starting with no CD in the CD drive.

Hint:


The track on the CD is identified by number T01, T02, ... Decide on the track to RIP before beginning the RIP track procedure.

1. From the Idle screen press and release the UTILITY MENU button.

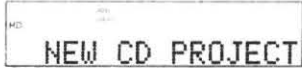







continues


How to RIP a single track continued


2. Turn the Jog Wheel so CDR FUNCTIONS is displayed.
 

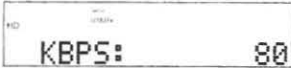
then press and release the Jog Wheel so NEW CD PROJECT is displayed.

3. Turn the Jog Wheel so RIP CD is displayed.
 
4. Press and release the Jog Wheel.
 


RIP: ENTIRE CD is displayed.
5. Turn the Jog Wheel so RIP: TRACK is displayed.
 
6. Press and release the Jog Wheel. INSERT ORIG CD is displayed.
 
7. Insert your CD. "track01.xxx" is displayed.
 
8. Turn the Jog Wheel so the track you want to RIP is displayed, then press and release the Jog Wheel.
 

Example display
9. REC FORMAT: is displayed. Turn the Jog Wheel to toggle between MP3 and PCM. Then push and release the Jog Wheel.
 

NOTE:
The CDR420 cannot convert MP3 files to PCM.
10. CHANNEL: is displayed. This display shows the CHANNEL of the track to be ripped. This setting cannot be changed. It is simply displayed as a reference.
 

11. If REC FORMAT selected in step 9 was MP3, KBPS is displayed. If REC FORMAT selected in step 9 was PCM, skip to step 12.
 

If Stereo turn the Jog Wheel to tab through 64, 80, 128, 160, 256, and 320. If Mono turn the Jog Wheel to tab through 32, 40, 64, 80, 128, and 160. Then press and release the Jog Wheel.


12. RENAME FOLDER is displayed.
 

Press and release the Jog Wheel to begin renaming the folder*, or turn the Jog Wheel to skip renaming the folder.

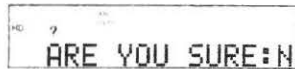
*Only the folder name (folder stored within the RIPPED CD folder on the CDR420 HD) can be renamed at this time. The track will be in the folder and named RIPPED/(folder name from this step)/trackyy.xxx (yy = track number from step 8). You can use EDIT MENU / EDIT TAGS / TRACK NAME to rename the track later.


The date and time (name) of the folder will be displayed with the first character flashing**. Turn the Jog Wheel to change the flashing character. Press and release the Jog Wheel to accept the displayed character and switch to the next character. Click the Jog Wheel when the name is complete.

**A connected keyboard, see page 62, lets you type in the folder name.

13. START RIPPING is displayed.
 

Press and release the Jog Wheel.

ARE YOU SURE: N is displayed.
 
14. Turn the Jog Wheel so Y is displayed, then press and release the Jog Wheel.

As the track is ripped to the CDR420 HD progress is displayed as a percentage of the track and a graphic of the percentage of the track.
 

To cancel ripping in progress, press and release the Stop button ■. The CDR420 returns to Idle Mode. When done ripping the CDR420 returns to Idle Mode.

Date and Time

Because the CDR420 uses the date and time as the default name for a recorded track, and tags a recorded track with the date and time each recorded track begins, be sure to set the current date and time.

The CDR420 can be set to automatically adjust for Daylight Savings Time.

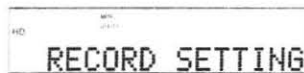
The date and time settings will remain stored for up to 10 years if the CDR420 is unplugged from external power.

How to SET DATE/TIME

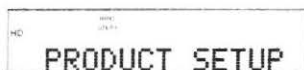
Quick instructions:

Press UTILITY MENU 3x..... PRODUCT SETUP.
 Press Jog Wheel SET DATE/TIME.
 Press Jog Wheel Date/Time item flashing.
 Turn Jog Wheeladjust flashing item.
 Press Jog Wheel..... switch to next item.
 Press Stop button ■exit.

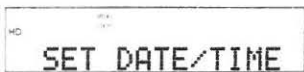
- 1 From Idle Mode, press and release the UTILITY MENU button. RECORD SETTING is displayed.



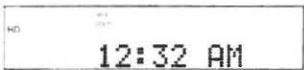
- 2 While RECORD SETTING is displayed, press and release the UTILITY MENU button or turn the Jog Wheel until PRODUCT SETUP is displayed.



- 3 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed.

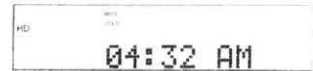


- 4 While SET DATE/TIME is displayed, press and release the Jog Wheel. The time is displayed with the hour flashing.



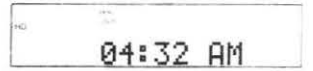
Example display

- 5 Turn the Jog Wheel to change the hour. When correct, push and release the Jog Wheel.



Example display

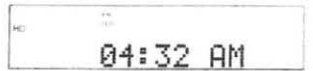
- 6 Minutes begin flashing. Turn the Jog Wheel to change the minute.



Example display

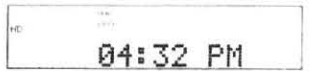
When correct, push and release the Jog Wheel.

- 7 AM/PM flashing. Turn the Jog Wheel to toggle between AM and PM.



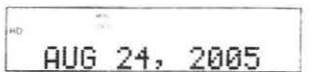
Example display

When correct push and release the Jog Wheel.



Example display

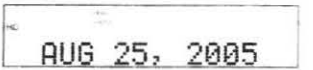
- 8 Month flashing. Turn the Jog Wheel to tab through months. When correct, press and release the Jog Wheel.



Example display

- 9 Day flashing. Turn the Jog wheel to tab through the days.

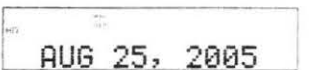
When correct, press and release the Jog Wheel.



Example display

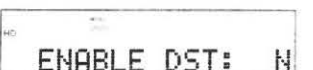
- 10 Year flashing. Turn the Jog Wheel to tab through the years (2000-2099).

When correct, press and release the Jog Wheel.



Example display

- 11 Enable daylight savings time. Turn the Jog Wheel to Y to enable daylight savings time or to N to disable. When correct, press and release the Jog Wheel.



Example display

The display returns to SET DATE/TIME.

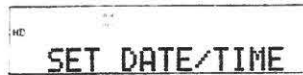


continues

NOTE:

In the example, we are in Chicago on August 25, 2005 around four thirty in the afternoon after a trip to Cairo, Egypt. The date and time need to be reset from Cairo time.

When the display returns to SET DATE/TIME.



You can:

- Press and release the Jog Wheel to review or reset the date and time.
- Turn the Jog Wheel tab through the Utility Menu PRODUCT SETUP choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

Filters

CDR420 has **HI and LO** adjustable microphone equalizer filters with adjustments from 0 to ± (plus or minus) 10 dB.


Increasing the high equalization increases the recorded volume of high frequencies. That can be desirable in music where you want your microphone to hear, for example, the low volume high notes of a violin soloist. That can be desirable in surveillance when you want to record, for example, footsteps or doors opening.


Decreasing the high equalization decreases the recorded volume of high frequencies. That can reduce unwanted high frequency noise, such as wind, hums, clicks and scratches.


Increasing the low equalization increases the recorded volume of low frequencies. That can be desirable if you want to strongly emphasize the bass sounds of music, or recorded low frequency sounds such as thunder or explosions.

Decreasing the low equalization decreases the recorded volume of low frequencies. That can reduce unwanted noise, such as rumble from heating systems, or traffic noise.

CDR420 has **HIGH PASS and LOW PASS** filters. These can be turned on or off to reduce ambient noise.

 **HIGH PASS ON** "passes" high frequencies and reduces low frequency noise only. Use to reduce unwanted noise, such as rumble from heating systems, or traffic noise.

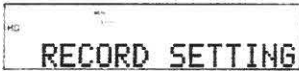
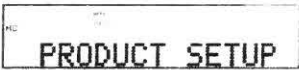
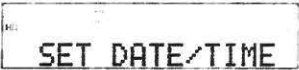
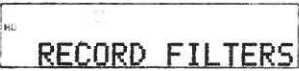
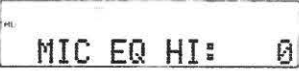
 **LOW PASS ON** "passes" low frequencies and reduces high frequency noise only. Use to reduce unwanted noise, such as wind, hums, clicks and scratches.

 **HIGH PASS ON and LOW PASS ON** is equivalent to a **Band Pass** filter.

How to set the Filters

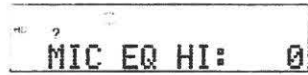
Quick instructions:

- Press UTILITY MENU 3x PRODUCT SETUP
- Press Jog Wheel SET DATE/TIME
- Turn Jog Wheel RECORD FILTERS
- Press Jog Wheel MIC EQ HI
- Turn Jog Wheel..... tab through filters
Press Jog Wheel..... ? displayed filter
Turn Jog Wheel adjust displayed setting
Press Jog Wheel accept displayed & go to next filter, e.; after last go to c.
- To exit press Stop button ■ Idle mode

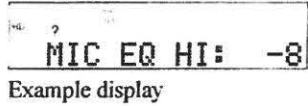
- From Idle Mode, press and release the UTILITY MENU button.  RECORD SETTING is displayed.
- While RECORD SETTING is displayed, press and release the UTILITY MENU button or turn the Jog Wheel until PRODUCT SETUP is displayed. 
- While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed. 
- While SET DATE/TIME is displayed, turn the Jog Wheel so RECORD FILTERS is displayed. 
- While RECORD FILTERS is displayed, press and release the Jog Wheel. MIC EQ HI: is displayed. 

Turn the Jog Wheel to tab to MIC EQ LO, HIGH PASS or LOW PASS, or press and release the Jog Wheel adjust the MIC EQ HI filter.

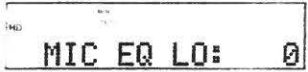
- 6 After pressing and releasing the Jog Wheel ? appears in the display indicating that MIC EQ HI is adjustable.



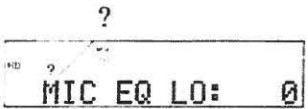
- 7 Turn the Jog Wheel to adjust MIC EQ HI. When correct press and release the Jog Wheel.



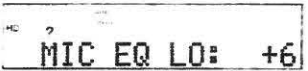
- 8 The display switches to MIC EQ LO.



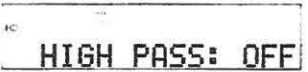
Press and release the Jog Wheel to adjust MIC EQ LO. ? appears in the display.



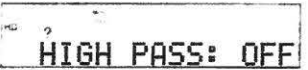
- 9 Turn the Jog Wheel to adjust MIC EQ LO. When correct, press and release the Jog Wheel.



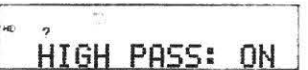
- 10 The display switches to HIGH PASS.



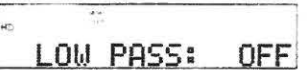
Press and release the Jog Wheel to adjust HIGH PASS. ? appears.



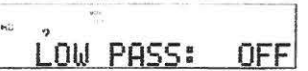
Turn the Jog Wheel to toggle between OFF and ON. When correct, press and release the Jog Wheel.



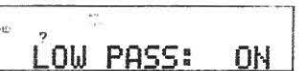
- 12 The display switches to LOW PASS.



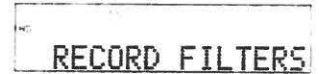
Press and release the Jog Wheel to adjust LOW PASS. ? appears.



Turn the Jog Wheel to toggle between OFF and ON. When correct, press and release the Jog Wheel.



The display returns to RECORD FILTERS.



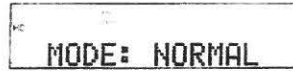
You can:

- Press and release the Jog Wheel to review or reset the filters.
- Turn the Jog Wheel to tab through the Utility Menu PRODUCT SETUP choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

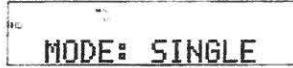
PLAYBACK MODE

The available Playback Modes are:

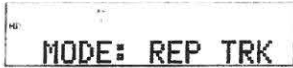
NORMAL: At the end of the track, the CDR420 automatically begins the next track. At the end of the last track in the file directory the CDR420 automatically stops. Factory default.



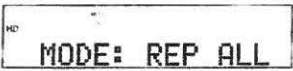
SINGLE: At the end of the track, the CDR420 automatically switches to the beginning of the same track and stops.



REPEAT TRACK: At the end of the track, the CDR420 automatically switches to the beginning of the same track and continues playback. Press the Play/Pause button to pause or the Stop button ■ to exit.



REPEAT ALL: At the end of the track, the CDR420 automatically switches to the beginning of the next track and continues playback. At the end of the file directory, the CDR420 automatically switches to the first track in the file directory and continues playback. Press the Play/Pause button to pause or the Stop button ■ to exit.

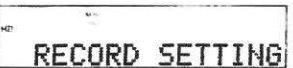


How to set the Playback Mode

Quick instructions:

Press UTILITY MENU 3xPRODUCT SETUP.
 Press Jog WheelSET DATE/TIME.
 Turn Jog WheelPLAYBACK MODE
 Press Jog Wheel Current Mode.
 Turn Jog Wheel tab through modes.
 Press Jog Wheel.....accept displayed mode.
 Press Stop button ■ exit.

1 From Idle Mode, press and release the UTILITY MENU button. RECORD SETTING is displayed.



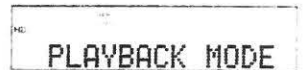
2 While RECORD SETTING is displayed, press and release the UTILITY MENU button or turn the Jog Wheel until PRODUCT SETUP is displayed.



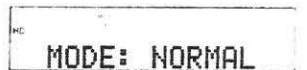
3 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed.



4 While SET DATE/TIME is displayed, turn the Jog Wheel until PLAYBACK MODE is displayed.

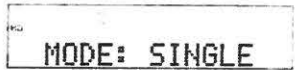


5 While PLAYBACK MODE is displayed, press and release the Jog Wheel. The currently selected Playback Mode is displayed.



Example display

6 Turn the Jog Wheel to tab through the Playback Modes. When correct, press and release the Jog Wheel. The display returns to PLAYBACK MODE.



Example display

You can:

- Press and release the Jog Wheel to review or reset the Playback Mode.
- Turn the Jog Wheel to tab through the Utility Menu PRODUCT SETUP choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

USER SETTINGS

USER SETTINGS let you disable or enable some of the automatic features of the CDR420, and secure your settings of the CDR420 against unauthorized changes.

For example, one of the USER SETTINGS lets you disallow formatting the Hard Drive. Then in order to format the Hard Drive one has to first change the USER SETTING and then choose the UTILITY MENU's FORMAT HDD choice. The two step process reduces the likelihood that the Hard Drive is formatted by mistake.

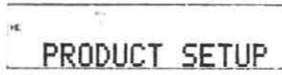
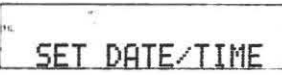
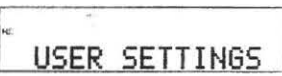
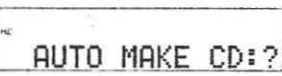

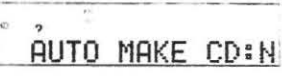
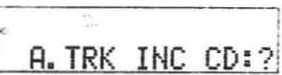
The **USER SETTINGS** are: AUTO MAKE CD, A.TRK INC CD, A TRK TIME, CD TYPE, ALLOW FORMAT, COPY B4 EDIT, LOCK EDITING, LOCK REC.SET, PRE-ROLL TRK, REQ.CONFIRM, and RST DEFAULTS.

Quick instructions:
 Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog WheelSET DATE/TIME
 Turn Jog Wheel until.....USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog Wheel desired User Setting
 Press Jog Wheel ? in display
 Turn Jog Wheeldesired setting
 Press Jog Wheelconfirm setting
 Press Stop button ■ exit

AUTO MAKE CD (? , Y, N)

If ? is chosen the CDR420 will always ask you if you want to make a CD after recording. If Y is chosen, a CD is always automatically made at the end of every recording session. If N is chosen, a CD is not made at the end of a recording session. System default N

Quick instructions:
 Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog WheelSET DATE/TIME
 Turn Jog Wheel until.....USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Press Jog Wheel? AUTO MAKE CD
 Turn Jog Wheel ?/Y/N
 Press Jog Wheelconfirm setting
 Press Stop button ■ exit

- 1 From Idle Mode, press and release the UTILITY MENU button three times. PRODUCT SETUP is displayed. 
- 2 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed. 
- 3 While SET DATE/TIME is displayed, turn the Jog Wheel until USER SETTINGS is displayed. 
- 4 While USER SETTINGS is displayed, press and release the Jog Wheel. AUTO MAKE CD is displayed. 
- 5 While AUTO MAKE CD is displayed, press and release the Jog Wheel. ? appears. 
- 6 Turn the Jog Wheel to tab through the ?, Y and N choices. When correct, press and release the Jog Wheel. 
- 7 The display switches to the next User Setting: A.TRK INC CD. 


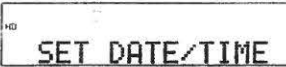
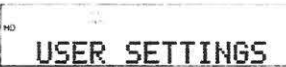

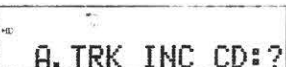

You can:

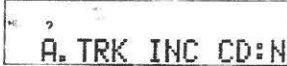

- Press and release the Jog Wheel to review or reset A.TRK INC CD.
- Turn the Jog Wheel to tab through the User Setting choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

A. TRK INC CD (? , Y, N)

As a CD is burned, Auto Track Incrementing breaks the CD recording into multiple tracks of specified length. See page 29 for an introduction to track incrementing and how to alternatively use Auto Track Incrementing HD. If Y is chosen, auto track incrementing is always on. If N is chosen, auto track incrementing is always off. If ? is chosen, the user is asked during each New CD Project if auto track incrementing is desired. System default N

Quick instructions:
 Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog WheelSET DATE/TIME
 Turn Jog Wheel until.....USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog WheelA. TRK INC CD
 Press Jog Wheel ? A. TRK INC CD
 Turn Jog Wheel ?/Y/N
 Press Jog Wheelconfirm setting
 Press Stop button ■exit

- 1 From Idle Mode, press and release the UTILITY MENU button three times. PRODUCT SETUP is displayed. 
- 2 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed. 
- 3 While SET DATE/TIME is displayed, turn the Jog Wheel until USER SETTINGS is displayed. 
- 4 While USER SETTINGS is displayed, press and release the Jog Wheel. AUTO MAKE CD is displayed. 
- 5 While AUTO MAKE CD is displayed, turn the Jog Wheel until A. TRK INC CD is displayed. 
- 6 While A. TRK INC CD is displayed, press and release the Jog Wheel. ? appears. 

- 7 Turn the Jog Wheel to tab through the ?, Y and N choices. When correct, press and release the Jog Wheel. 
- 8 The display switches to the next User Setting: A. TRK TIME. 

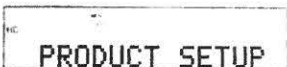
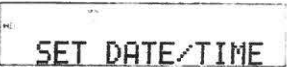
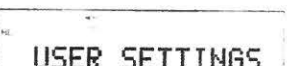
You can:

- Press and release the Jog Wheel to review or reset the A. TRK TIME.
- Turn the Jog Wheel to tab through the User Setting choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

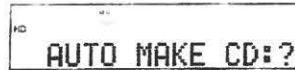
A. TRK TIME (01, 02, 05, 10M)

As a CD is burned, Auto Track Incrementing breaks the CD recording into multiple tracks of 1, 2, 5 or 10 minutes. See page 29 for an explanation of the usefulness of multiple or minute tracks.

Quick instructions:
 Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog WheelSET DATE/TIME
 Turn Jog Wheel until.....USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog Wheel A. TRK TIME
 Press Jog Wheel? A. TRK TIME
 Turn Jog Wheel?, 01M, 02M, 05M, 10M
 Press Jog Wheelconfirm setting
 Press Stop button ■exit

- 1 From Idle Mode, press and release the UTILITY MENU button three times. PRODUCT SETUP is displayed. 
- 2 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed. 
- 3 While SET DATE/TIME is displayed, turn the Jog Wheel until USER SETTINGS is displayed. 

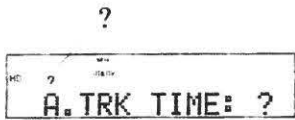
5 While USER SETTINGS is displayed, press and release the Jog Wheel. AUTO MAKE CD is displayed.



6 While AUTO MAKE CD is displayed, turn the Jog Wheel until A.TRK TIME is displayed.



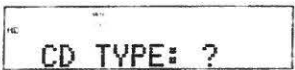
7 While A.TRK TIME is displayed, press and release the Jog Wheel. ? appears.



8 Turn the Jog Wheel to tab through the ?, 01M, 02M, 05M and 10M choices. When correct, press and release the Jog Wheel.



9 The display switches to the next User Setting: CD TYPE.



You can:

- Press and release the Jog Wheel to review or reset the CD TYPE.
- Turn the Jog Wheel to tab through the User Setting choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

CD TYPE (? , AUDIO, DATA, EXTRA)

Lets you set the CD TYPE that is your default choice when burning a CD. The default is AUDIO.

?

? prompts you to select what kind of CD you wish to burn before every burn.

AUDIO

Prepares CDs that can be played on standard CD players (CDDA). PCM files are burned. MP3 files are ignored. CD will play in standard CD players.

DATA

The CD is formatted as ISO 9660. MP3 and PCM tracks are burned. CD will not play in most CD players. The CD will play on MP3 compatible CD players or computers.

EXTRA

Burns a multi-session disc. PCM files are burned. MP3 files are ignored. CD will play in standard CD players. Text files of all the tag information of the selected tracks are recorded. Your computer can access the tag information.

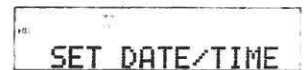
Quick instructions:

Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog WheelSET DATE/TIME
 Turn Jog Wheel until.....USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog Wheel CD TYPE
 Press Jog Wheel? CD TYPE
 Turn Jog WheelAUDIO, DATA, EXTRA
 Press Jog Wheelconfirm setting
 Press Stop button ■exit

1 From Idle Mode, press and release the UTILITY MENU button three times. PRODUCT SETUP is displayed.



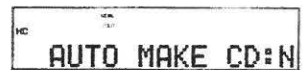
2 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed.



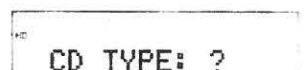
3 While SET DATE/TIME is displayed, turn the Jog Wheel until USER SETTINGS is displayed.



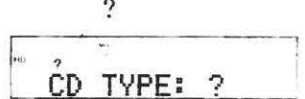
4 While USER SETTINGS is displayed, press and release the Jog Wheel. AUTO MAKE CD is displayed.



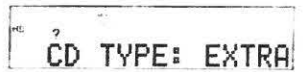
5 While AUTO MAKE CD is displayed, turn the Jog Wheel until CD TYPE is displayed.

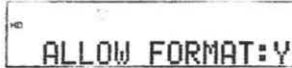


6 While CD TYPE is displayed, press and release the Jog Wheel. ? appears.



7 Turn the Jog Wheel to tab through the ?, AUDIO, DATA and EXTRA choices. When correct, press and release the Jog Wheel.



8 The display switches to the next User Setting:  ALLOW FORMAT.

You can:


- Press and release the Jog Wheel to review or reset ALLOW FORMAT.
- Turn the Jog Wheel to tab through the User Setting choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

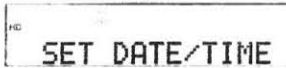
ALLOW FORMAT (Y, N)

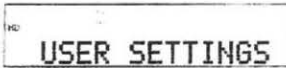
Lets you turn off the ability to format the Hard Drive in the main UTILITY MENU. The FORMAT HDD screen will not appear. Default Y.

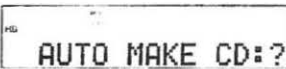
Quick instructions:

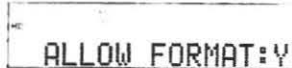
Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog WheelSET DATE/TIME
 Turn Jog Wheel until.....USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog Wheel ALLOW FORMAT
 Press Jog Wheel? ALLOW FORMAT
 Turn Jog WheelY, N
 Press Jog Wheelconfirm setting
 Press Stop button ■exit


1 From Idle Mode, press and release the UTILITY MENU button three times.  PRODUCT SETUP is displayed.

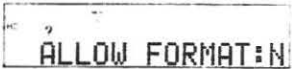
2 While PRODUCT SETUP is displayed, press and release the Jog Wheel.  SET DATE/TIME is displayed.

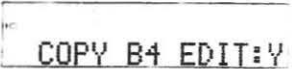
3 While SET DATE/TIME is displayed, turn the Jog Wheel until  USER SETTINGS is displayed.

4 While USER SETTINGS is displayed, press and release the Jog Wheel.  AUTO MAKE CD is displayed.

5 While AUTO MAKE CD is displayed, turn the Jog Wheel until  ALLOW FORMAT is displayed.

6 While ALLOW FORMAT is displayed, press and release the Jog Wheel.  ? appears.

7 Turn the Jog Wheel to toggle between Y and N. When correct, press and release the Jog Wheel.  ALLOW FORMAT:N

8 The display switches to the next User Setting:  COPY B4 EDIT.

You can:

- Press and release the Jog Wheel to review or reset COPY B4 EDIT.
- Turn the Jog Wheel to tab through the User Setting choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

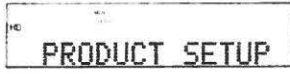
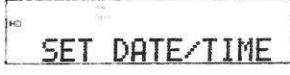
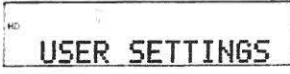
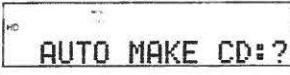
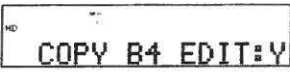
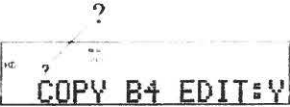
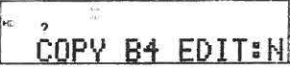
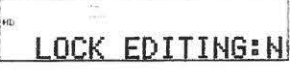
COPY B4 EDIT (Y, N)


Lets you turn off the automatic copy that is made before editing a track. That saves you time by not having to wait for the copy to be made, but it makes your recording less secure if you make an editing error. Default N.

Quick instructions:

Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog WheelSET DATE/TIME
 Turn Jog Wheel until.....USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog WheelCOPY B4 EDIT
 Press Jog Wheel? COPY B4 EDIT
 Turn Jog WheelY, N
 Press Jog Wheelconfirm setting
 Press Stop button ■exit


COPY B4 EDIT continued

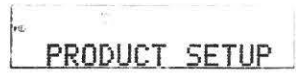
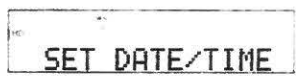
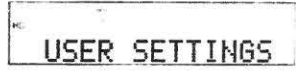
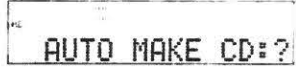
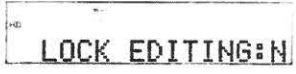
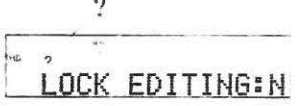

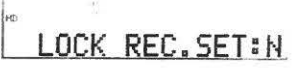
- 1 From Idle Mode, press and release the UTILITY MENU button three times. PRODUCT SETUP is displayed. 
- 2 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed. 
- 3 While SET DATE/TIME is displayed, turn the Jog Wheel until USER SETTINGS is displayed. 
- 4 While USER SETTINGS is displayed, press and release the Jog Wheel. AUTO MAKE CD is displayed. 
- 5 While AUTO MAKE CD is displayed, turn the Jog Wheel until COPY B4 EDIT is displayed. 
- 6 While COPY B4 EDIT is displayed, press and release the Jog Wheel. ? appears. 
- 7 Turn the Jog Wheel to toggle between Y and N. When correct, press and release the Jog Wheel. 
- 8 The display switches to the next User Setting: LOCK EDITING. 

- You can:
- Press and release the Jog Wheel to review or reset LOCK EDITING.
 - Turn the Jog Wheel to tab through the User Setting choices.
 - Press and release the UTILITY MENU button to return to RECORD SETTING.
 - Press and release the Stop button  to exit the Utility Menu.
 - Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

LOCK EDITING (Y, N)

Lets you disable the EDIT button so tracks on the hard drive cannot be changed. Default N.

Quick instructions:
 Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog WheelSET DATE/TIME
 Turn Jog Wheel until.....USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog WheelLOCK EDITING
 Press Jog Wheel ? LOCK EDITING
 Turn Jog WheelY, N
 Press Jog Wheelconfirm setting
 Press Stop button exit

- 1 From Idle Mode, press and release the UTILITY MENU button three times. PRODUCT SETUP is displayed. 
- 2 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed. 
- 3 While SET DATE/TIME is displayed, turn the Jog Wheel until USER SETTINGS is displayed. 
- 4 While USER SETTINGS is displayed, press and release the Jog Wheel. AUTO MAKE CD is displayed. 
- 5 While AUTO MAKE CD is displayed, turn the Jog Wheel until LOCK EDITING is displayed. 
- 6 While LOCK EDITING is displayed, press and release the Jog Wheel. ? appears. 
- 7 Turn the Jog Wheel to toggle between Y and N. When correct, press and release the Jog Wheel. 
- 8 The display switches to the next User Setting: LOCK REC.SET. 

You can:

- Press and release the Jog Wheel to review or reset LOCK REC.SET.
- Turn the Jog Wheel to tab through the User Setting choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

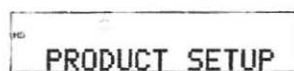
LOCK REC.SET (N, Y)

When set to Y, the CDR420 will not allow the user to change any of the record settings when recording to the HD (REC FORMAT, CHANNEL, or A.TRK INC HD). Default N.

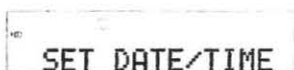
Quick instructions:

Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog Wheel SET DATE/TIME
 Turn Jog Wheel until..... USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog Wheel LOCK REC.SET
 Press Jog Wheel ? LOCK REC.SET
 Turn Jog Wheel Y, N
 Press Jog Wheel confirm setting
 Press Stop button ■ exit

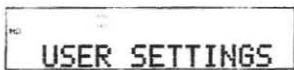
- 1 From Idle Mode, press and release the UTILITY MENU button three times. PRODUCT SETUP is displayed.



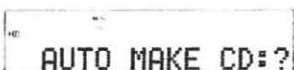
- 2 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed.



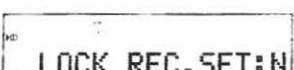
- 3 While SET DATE/TIME is displayed, turn the Jog Wheel until USER SETTINGS is displayed.



- 4 While USER SETTINGS is displayed, press and release the Jog Wheel. AUTO MAKE CD is displayed.



- 5 While AUTO MAKE CD is displayed, turn the Jog Wheel until LOCK REC.SET is displayed.



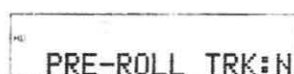
- 6 While LOCK REC.SET is displayed, press and release the Jog Wheel. ? LOCK REC.SET=N appears.



- 7 Turn the Jog Wheel to toggle between Y and N. When correct, press and release the Jog Wheel.



- 8 The display switches to the next User Setting: PRE-ROLL TRK.



You can:

- Press and release the Jog Wheel to review or reset PRE-ROLL TRK.
- Turn the Jog Wheel to tab through the User Setting choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

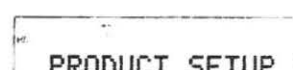
PRE-ROLL TRK (N, Y)

When set to Y during a New CD Project, the CDR420 will automatically play about 5 seconds of a newly selected track making it easier for you to select tracks for the CD Project. Default N.

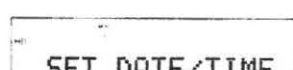
Quick instructions:

Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog Wheel SET DATE/TIME
 Turn Jog Wheel until..... USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog Wheel PRE-ROLL TRK
 Press Jog Wheel ? PRE-ROLL TRK
 Turn Jog Wheel Y, N
 Press Jog Wheel confirm setting
 Press Stop button ■ exit

- 1 From Idle Mode, press and release the UTILITY MENU button three times. PRODUCT SETUP is displayed.



- 2 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed.



You can:

- Press and release the Jog Wheel to review or reset RST. DEFAULTS.
- Turn the Jog Wheel to tab through the User Setting choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

RST DEFAULTS (N, Y)

When set to Y the CDR420 resets all USER SETTINGS to their system defaults.

Quick instructions:

Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog Wheel SET DATE/TIME
 Turn Jog Wheel until..... USER SETTINGS
 Press Jog Wheel AUTO MAKE CD
 Turn Jog Wheel RST DEFAULTS
 Press Jog Wheel ? RST DEFAULTS
 Turn Jog Wheel Y, N
 Press Jog Wheel
 if N..... USER SETTINGS
 if Y ARE YOU SURE
 Press Jog Wheel ? ARE YOU SURE
 Turn Jog Wheel Y, N
 Press Jog Wheel USER SETTINGS
 Press Stop button ■ exit

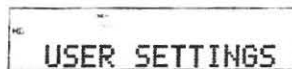
- 1 From Idle Mode, press and release the UTILITY MENU button three times. PRODUCT SETUP is displayed.



- 2 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed.



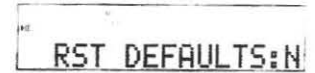
- 3 While SET DATE/TIME is displayed, turn the Jog Wheel until USER SETTINGS is displayed.



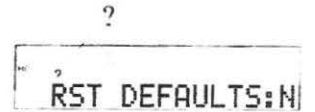
- 4 While USER SETTINGS is displayed, press and release the Jog Wheel. AUTO MAKE CD is displayed.



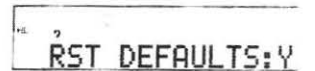
- 5 While AUTO MAKE CD is displayed, turn the Jog Wheel until RST DEFAULTS is displayed.



- 6 While RST DEFAULTS is displayed, press and release the Jog Wheel. ? appears.



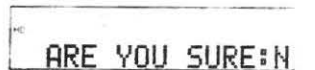
- 7 Turn the Jog Wheel to toggle between Y and N. When correct, press and release the Jog Wheel.



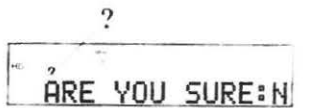
- 8a If N the display switches to USER SETTINGS.



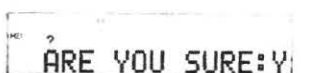
- 8b If Y, and if REQ. CONFIRM is set to Y, ARE YOU SURE appears. If REQ. CONFIRM is set to N go to 8c.



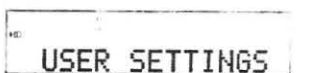
Press and release the Jog Wheel so ? appears.



Turn the Jog Wheel so Y is displayed. Go to 8c.



- 8c Press and release the Jog Wheel to reset all USER SETTINGS to system defaults. The display switches to USER SETTINGS.



You can:

- Turn the Jog Wheel to tab through the User Setting choices.
- Press and release the UTILITY MENU button to return to RECORD SETTING.
- Press and release the Stop button ■ to exit the Utility Menu.
- Do nothing. After one minute the CDR420 returns to Idle Mode with your changes, if any, saved.

FORMAT HDD

When too many files are on the HDD, creating play lists or editing becomes difficult. You can format the hard drive to delete all files on the HDD.

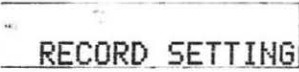

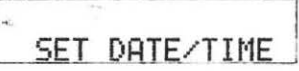
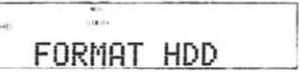
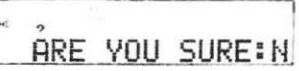
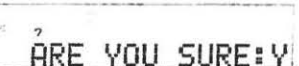
CAUTION: Formatting the HDD erases all the tracks on the CDR420.

NOTE:

- ALLOW FORMAT, page 47, must be set to Y.
- File recovery after formatting is similar to a soft format on a computer. All file names on the HDD are modified to indicate that their space is available for use. When connected to your computer, a recovery program on your computer might be able to restore deleted files.

How to format the HDD

Quick instructions
 Press UTILITY MENU 3x PRODUCT SETUP
 Press Jog WheelSET DATE/TIME
 Turn Jog Wheel until.....FORMAT HDD
 Press Jog WheelARE YOU SURE
 Turn Jog Wheel Y
 Press Jog WheelFORMATTING. . .
 CDR420 automatically turns off

- 1 From Idle Mode, press and release the UTILITY MENU button. RECORD SETTING is displayed. 
- 2 While RECORD SETTING is displayed, press and release the UTILITY MENU button or turn the Jog Wheel until PRODUCT SETUP is displayed. 
- 3 While PRODUCT SETUP is displayed, press and release the Jog Wheel. SET DATE/TIME is displayed. 
- 4 While SET DATE/TIME is displayed, turn the Jog Wheel until FORMAT HDD is displayed. 
- 5 While FORMAT HDD is displayed press and release the Jog Wheel. ARE YOU SURE is displayed. 
- 6 Turn the Jog Wheel so Y is displayed. 

- 7 Press and release the Jog Wheel to confirm.

FORMATTING. . .
 is displayed while formatting is in progress.

FORMATTING. . . .

The CDR420 automatically turns off.
 Slide the POWER switch to turn on.

How to EDIT AUDIO

You can cut and paste, copy and paste, or delete segments of audio in a track (file) that is recorded on the CDR420. You can insert silence into the track.

Hint

You determine the edit points such as the precise beginning, end and paste points of an audio segment to be pasted by listening. Before entering edit mode set up the CDR420 for how you want to monitor the editing (headphones, internal speaker, line out to an amplifier system).

How to enter Edit Mode:

1. Select the track (file) you wish to edit.
 - a. While playing the track go to step 2.

- b. From Idle mode press and release FILE DIR.

Rhapsody in bl
 Example display

Turn the Jog Wheel until the track you wish to edit is displayed.

BOARD MTG
 Example display


2. Press and release the EDIT MENU button. EDIT AUDIO is displayed.

EDIT AUDIO

3. Press and release the Jog Wheel to enter track Edit Mode.

0:00
 b a

The display shows **a** the time within the track (the time is always at the beginning 0:00 when you enter Edit Mode), and **b** a graphic of time within the track.

Navigate to an edit point. You can do your edit operation 'on the fly' by pressing the Play/Pause button  to play the track and listen for your edit point. Or you can precisely navigate to your edit point (see below), locating it to 1/10th of a second.

NOTE:: To exit, see How to Exit Edit Execute Mode on page 56.

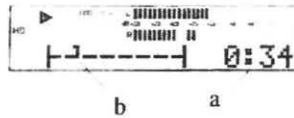
continues

How to navigate within the track:

1. Play

Press the Play/Pause button to play.

As the track plays, **a** elapsed track time advances

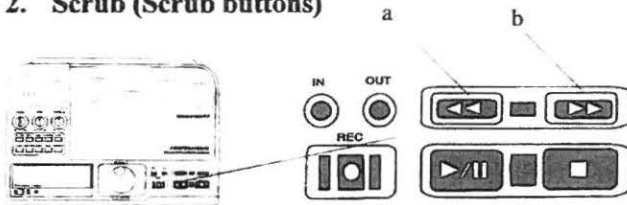


and **b** the cursor advances across the graphic.

The cursor's shape changes with its position within the graphic.



2. Scrub (Scrub buttons)



During play you can use **a** the Scrub Reverse button ◀◀ or **b** the Scrub Forward button ▶▶ to reverse or advance quickly through the track.

- after 3 seconds the scrub speed increases.
- play continues when you release a scrub button.

3. Jump

Listen to track playback to determine your edit point and note the approximate elapsed time to the second. You can use the JUMP button (page 16) to return to that position and do fine scrub from that point.

4. Fine scrub (Jog Wheel scrub)

Turn the Jog Wheel to scrub forward or reverse.

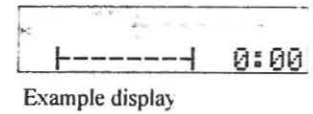
- audio is played during Jog Wheel scrub
- you can initiate Jog Wheel scrub from Play or Play/Pause
- when the Jog Wheel is released playback is at Play/Pause
- each click of the Jog Wheel is 1/10th of a second of audio
- you can mimic play by turning the Jog Wheel forward quickly

Navigation is complete when the cursor is at your desired edit point and at pause.

How to mark an audio segment

Quick Marking (on the fly)

1. Enter Edit Mode (see How to enter Edit Mode)



2. During play press and release the MARK button.



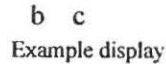
SET MARK AS . . . is displayed and playback continues.

3. Listen and press and release the IN button at the desired beginning point.

This example shows an IN point set during play.



- a** IN- is displayed to indicate that an IN point is present.



- b** An IN point marker appears in the graphic.

- c** Play continues with the playback position indicated by the cursor.

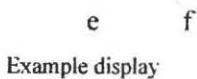
4. While play continues press and release the MARK button.

SET MARK AS . . . is displayed and play continues.

5. Listen and press and release the OUT button at the desired end point.



The example shows the OUT point set during continued playback.



- d** IN-OUT is displayed to indicate that IN and OUT points are present.

- e** An OUT point marker appears in the graphic.

- f** Play continues with the playback position indicated by the cursor.

To review your selection from the beginning of the track, press and release the Stop button ■ then press and release the Play button ▶/||.

continues

To review only the marked audio segment, use Clipboard play, see below.

To reposition your IN point repeat steps 2 and 3.

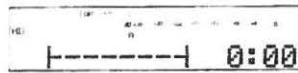
To reposition your OUT point repeat steps 4 and 5.

Your next step depends on what you intend to do with the marked IN-OUT selection.

Go to How to Cut, Copy or Delete, page 55.

Precise Editing (navigation)

1. Enter Edit Mode (see How to enter Edit Mode)



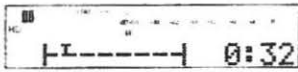
Example display

2. Use play, and/or jump and/or the Scrub Forward and Scrub Reverse buttons to find and pause at the approximate position of the IN point (beginning point of the audio segment).



Example display

3. Use Jog Wheel scrub (turn the Jog Wheel) to precisely locate the IN point.



Example display

4. Press and release the MARK button. SET MARK AS... is displayed.

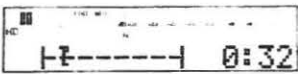


Example display

5. Turn the Jog Wheel to toggle between SET MARK: IN and SET MARK: OUT. When at IN press and release the Jog Wheel. An IN point marker appears in the graphic.



Example display



Example display

6. Similarly, set the OUT point.

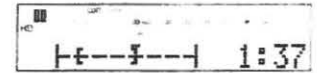
Hint

To precisely position your OUT point:

- 1 Push the Play/Pause button to resume playback.
- 2 Use the Scrub Forward and Scrub Reverse buttons to find the approximate position of the OUT point.
- 3 Pause playback as close as you can to the desired OUT point.
- 4 Turn the Jog Wheel to scrub backward and forward in 1/10ths of a second to locate your desired OUT point.

- 5 When at the precise position press the MARK button and then the OUT button.

Display with both an IN and OUT mark set.



Example display

To review only the marked audio segment, use Clipboard play.

Clipboard play

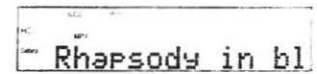
To play a selection that has both an IN and an OUT point set, from stop or pause, press and hold the EDIT MENU button while you press the Play/Pause button. The CDR420 will start playing back at the IN point and stop at the OUT point.

How to Insert Silence

- 1 Enter Edit Mode:

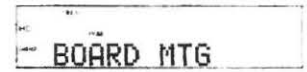
Select the track (file) you wish to edit. Play the track or select from Idle mode.

- a From Idle mode press and release FILE DIR.



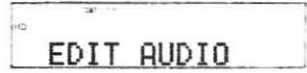
Example display

- b Turn the Jog Wheel until the track you wish to edit is displayed.



Example display

- d Press and release the EDIT MENU button. EDIT AUDIO is displayed.



- e Press and release the Jog Wheel to enter track Edit Mode.



b a

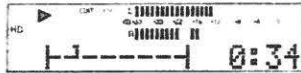
The display shows a the time within the track (at the beginning 0:00), and b a graphic of time within the track.

- 2 Navigate to the point at which you wish to insert silence.

Example navigation by playing to the approximate edit point then Jog Wheel Scrub for precise positioning.

continues

Play to approximately the desired input point.



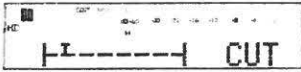
Pause near the desired input point.



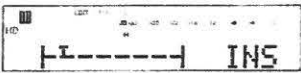
- 3 Turn the Jog Wheel (Jog Wheel scrub) to precisely locate the desired insert point.



- 4 Click the Jog Wheel. CUT replaces the track time display.

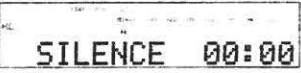


- 5 Turn the Jog Wheel so INS is displayed.



Press and release the Jog wheel.

- 6 SILENCE is displayed with minutes flashing.



- 7 Turn the Jog Wheel to set minutes of silence (0 to 59). Then press and release the Jog Wheel.

SILENCE is displayed with seconds flashing.



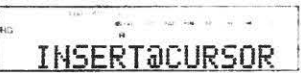
Example displays shows 0 minutes selected.

- 8 Turn the Jog Wheel to set seconds of silence (0 to 59), then press and release the Jog Wheel.

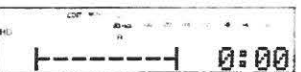


Example displays shows 14 seconds selected.

- 9 INSERT @ CURSOR is displayed briefly.



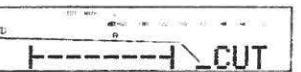
The display returns to editing the track at the beginning of the track.



NOTE:

- See How to Exit Edit Mode to commit the edit(s) (save to file).
- The next edit (the next time CUT is displayed), a bar will have been added to indicate that one edit has been made.

bar indicates one edit



How to Cut, Copy or Delete

First enter Edit Mode and mark your audio selection, either Quick Marking (page 53) or Precise Editing (page 54).

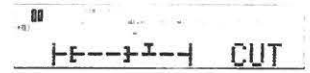
Cut and Paste moves the marked selection to a new position.

Copy and Paste leaves the marked selection and copies it to a new position.

Delete removes (clears) the marked selection.

- 1 After you have the IN and OUT points of the audio segment you wish to edit marked, click the Jog wheel to Execute Edits.

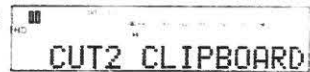
CUT replaces track time.



- 2 Turn the Jog Wheel to tab through the edit choices: CUT, COPY, INS, DEL and DONE.

- a If you want to **CUT and Paste**, press and release the Jog Wheel while CUT is displayed.

CUT2 CLIPBOARD is displayed briefly



- b and editing returns to the beginning of the track.



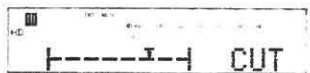
NOTE:

When audio has been cut or copied to the clipboard, PSTE is added to the Edit choices.

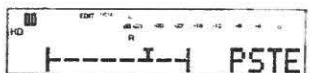
Navigate to your paste position, then click the Jog Wheel.



CUT replaces the track time.



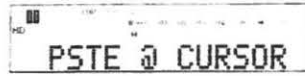
Turn the Jog Wheel to tab through the edit choices: CUT, COPY, PSTE, INS, DEL and DONE, so PSTE is displayed.



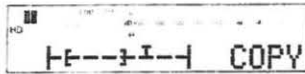
continues

4a CUT and Paste continued

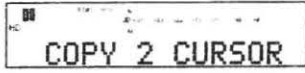
Press and release the Jog Wheel. PASTE @ CURSOR is displayed briefly. The marked audio segment is pasted at the cursor position and the CDR420 returns to the beginning of the track for more editing. Go to step 3.



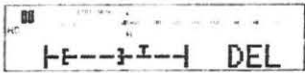
- c If you want to **Copy and Paste**, press and release the Jog Wheel while COPY is displayed.



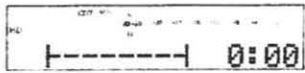
COPY 2 CURSOR is displayed briefly, the copy is made and the CDR420 returns to the beginning of the track. Go to b above.



- d If you want to **Delete**, press and release the Jog Wheel while DEL is displayed.



The CDR420 returns to the beginning of the track ready to continue editing. Continue to step 3.



- 3 The edit you made is in memory but is not written to file until you exit edit mode by "committing edits".

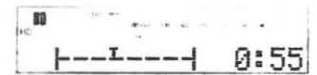
NOTE:

- The edit has not yet been committed (saved to file).
- See How to Exit Edit Mode to commit the edit(s) (save to file).
- The next edit (the next time CUT is displayed), a bar will have been added to indicate that one edit has been made.
- Up to 7 edits (7 bars) can be made before committing the edits.

bar indicates one edit

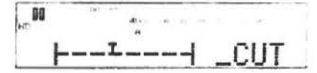
How to Exit Edit Execute Mode

From within Edit Mode



Example display

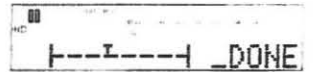
click the Jog Wheel.



Example display

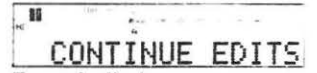
The example shows editing at pause. The click replaces the track time with edit choices.

Turn the Jog Wheel to tab through the edit execute choices: CUT, COPY, INS, DEL, and DONE.



Example display

To exit Edit Mode press and release the Jog Wheel while DONE is displayed.

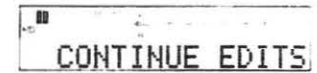


Example display

The display changes to CONTINUE EDITS.

Turn the Jog Wheel to tab through the choices: CONTINUE EDITS, COMMIT EDITS, or DISCARD EDITS.

If you press and release the Jog Wheel while CONTINUE EDITS is displayed



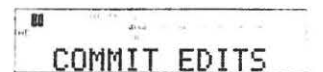
Example display

you return to editing the track at the beginning of the track.

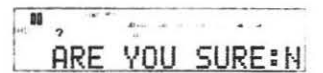


Example display

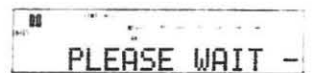
If you press and release the Jog Wheel while COMMIT EDITS is displayed



ARE YOU SURE is displayed (if not disabled).



Turn the Jog Wheel so Y is displayed,



then press and release the Jog Wheel. PLEASE WAIT is displayed while the edits are written. The CDR420 returns to Idle Mode.

continues

If you press and release the Jog Wheel while DISCARD EDITS is displayed all edits you made are discarded and the CDR420 returns to Idle Mode.



How to EDIT TAGS

Tags are editable information that the CDR420 're-members' about each track.

NOTE:

Track tags have similar names and purposes but are not the same as 'CD Text' in that they are not recorded with a track so they can be read and displayed in a CD player that is CD Text capable.

The date and time the track was recorded and the track type (.wav or .mp3) are automatically created by the CDR420 and are not editable.

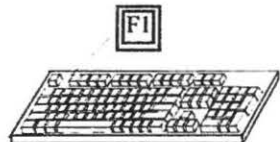
The editable tags are TRACK NAME, ARTIST NAME, GENRE, and COMMENTS.

How to enter a track name while recording:

By default, a track is named with the date and time the recording was begun.

With an attached keyboard, you can edit the track name while the track is being recorded.

- 1 While recording with an attached keyboard, press and release F1.

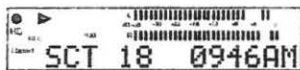


- 2 The first character of the track name flashes in the display.



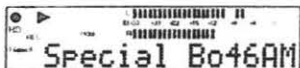
Example display

- 3 Type the name using the keyboard.



Example display

As you type the typed letters replace the flashing letter and advance.



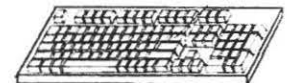
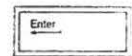
Example display

The name length is not limited. If/when you exceed the 14 characters shown in the display the name scrolls. If/when you replace all the characters in the original name the 'next character' flashing is the same as the last character typed.



Example display

When the name is complete type enter on the keyboard to save the name and exit naming the track.

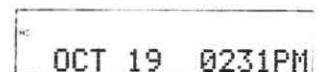


NOTE:

- After the F1 key is pressed to enter naming the track, the Jog Wheel can also be used to enter characters or save the name. See below
- The extension .wav, or .mp3, is automatically added at the end of the track name.
- Press and release the Stop button on the CDR420 to exit naming the track without saving.

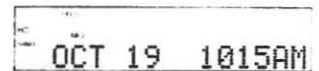
How to edit a tag

- 1 From Idle mode press and release the FILE DIR button.



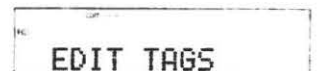
Example display

- 2 Turn the Jog Wheel until the track you want to edit is displayed.

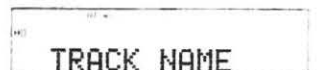


Example display

- 3 Press and release the EDIT MENU button two times so EDIT TAGS is displayed.



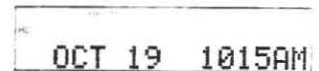
- 4 Press and release the Jog Wheel. TRACK NAME is displayed.



- 5 Turn the Jog Wheel to tab through the tag choices: TRACK NAME, ARTIST, GENRE and COMMENTS.



- 6 Press and release the Jog Wheel to accept the selected tag.



Example display

The current tag is displayed with the first character flashing (example is a TRACK NAME).

How to edit a tag continued

- Turn the Jog Wheel to edit the flashing

Example display

The CDR420 character set is:

```

ABCDEFGHIJKLMN
OPQRSTUVWXYZ
abcdefghijklm
nopqrstuvwxyz
0123456789 !"
#$%&'()*+,-./
:;<=>?@[\\]^_`
{|}~
    
```

NOTE:

- The Jog Wheel's position in the character set is always the flashing character.
- You can turn the Jog Wheel forward or backward.
- The space is between 9 and !.
- You can switch between using your attached keyboard, if present, and the Jog Wheel.

- Press and release the Jog Wheel to accept the flashing character and switch to the next character position.

Example display

- Continue turning the Jog Wheel to edit a character and pressing and releasing the Jog Wheel when correct until the tag is as desired.

Example display

NOTE:

- If the next character position is blank, the position in the character set is the same as the last character (g flashing in example above).
- You can tab backward through the tag by pressing and releasing the Scrub Reverse button ◀◀ or forward through the tag by pressing and releasing the Scrub Forward button ▶▶.

- When done editing, double click the Jog Wheel to save the tag and exit.

The CDR420 returns to step 5.

NOTE:

- Press and release the Stop button ■ any time during tag editing to cancel edits and return to Idle mode.
- For the track name, the date and time the track was recorded is saved even when the track name is changed.
- Pressing ENTER on your attached keyboard, if present, acts the same as double clicking the Jog Wheel.

You can:

- Press and release the Jog Wheel to re-edit the tag.
- Turn the Jog Wheel to tab through the EDIT TAGS menu.
- Press and release the Stop button ■ to exit the EDIT MENU and return to Idle mode.

How to delete a track

- From Idle mode press and release the FILE DIR button.

Example display

- Turn the Jog Wheel until the track you want to delete is displayed.

Example display

- Press and release the EDIT MENU button three times so DELETE TRACK is displayed.

- Press and release the Jog Wheel. DELETE: followed by the selected track name is displayed. The track name scrolls by so you can check that you are deleting the correct track.

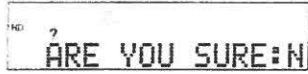
Example display

Example display

NOTE:

If you do nothing this display times out and returns to idle mode after one minute, during which the track name scrolls by several times.

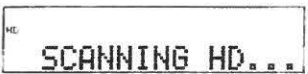
5 Press and release the Jog wheel to confirm the track to be deleted. ARE YOU SURE is displayed.



6 Turn the Jog wheel so Y is displayed. Then press and release the Jog Wheel.



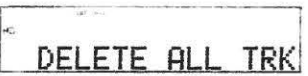
7 The track is deleted. SCANNING HD . . . is displayed momentarily. The CDR420 returns to idle mode.



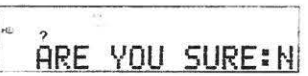
How to delete all tracks

DELETE ALL TRK lets you delete (erase) all recorded tracks on the HD without reformatting the HD.

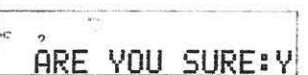
1 From Idle mode press and release the EDIT MENU button four times. DELETE ALL TRK is displayed.



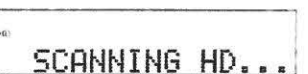
2 Press and release the Jog Wheel. ARE YOU SURE is displayed.



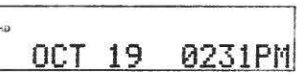
3 Turn the Jog Wheel so Y is displayed.



4 Press and release the Jog Wheel. SCANNING HD . . . is displayed briefly.

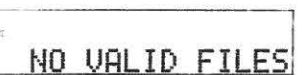


The CDR420 returns to idle mode.



Example display

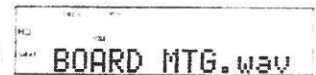
5 If you turn the Jog Wheel or press and release the FILE DIR button, NO VALID FILES is displayed.



How to copy a track

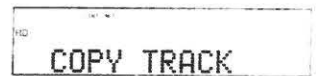
COPY TRACK lets you change the name of the copy.

1 From Idle mode turn the Jog Wheel until the track you want copied is displayed

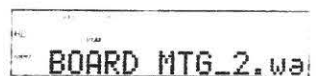


Example display

2 Press and release the EDIT MENU button five times until COPY TRACK is displayed.



3 Press and release the Jog Wheel. The proposed track name of the copy is displayed.

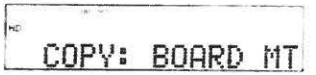


Example display

_2 is added to the original's name, and edit name is automatically entered with the first character of the new name flashing.

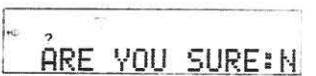
You can edit the name of the copy by turning the Jog Wheel to change the flashing character then pressing and releasing the Jog Wheel to move to the next character (or using your attached keyboard).

4 When editing is complete, or if you don't want to change the _2 name, double click the Jog Wheel to confirm. COPY: and the copy name are displayed.

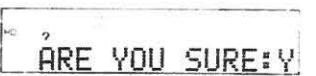


Example display

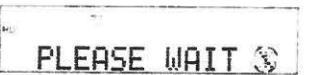
5 Press and release the Jog Wheel to copy. ARE YOU SURE is displayed.



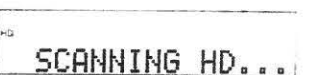
6 Turn the Jog Wheel so Y is displayed. Then press and release the Jog Wheel.



PLEASE WAIT is displayed while the copy is made.



SCANNING HD . . . is displayed briefly.

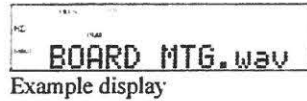


The CDR420 returns to idle mode.

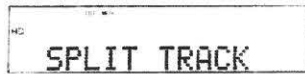
How to split a track

SPLIT TRACK lets you split a track into two tracks.

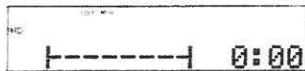
- 1 From Idle mode turn the Jog Wheel until the track you want to split is displayed.



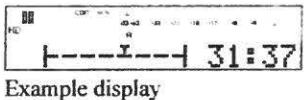
- 2 Press and release the EDIT MENU button six times until SPLIT TRACK is displayed.



- 3 Press and release the Jog Wheel. The track is ready to position the cursor at 0:00 and with the cursor graphic displayed.



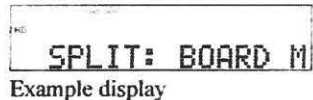
- 4 Navigate the cursor to your desired split position.



NOTE:

- You can navigate "on the fly" by pressing the Play/Pause button ►/⏸ (see page 53).
- You can navigate precisely (see page 54).
- From 0:00, if you turn the Jog Wheel one click counterclockwise you position the cursor at the end of the track. That is handy because the CDR420 displays the total track time.

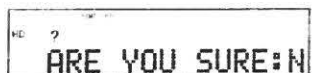
- 5 Press and release the Jog Wheel. SPLIT: and the name of the second part of the split are displayed.



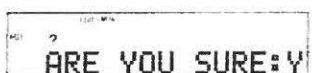
The name (the original name followed by _2) scrolls by.



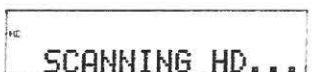
- 6 Press and release the Jog Wheel. ARE YOU SURE: is displayed.



- 7 Turn the Jog Wheel so Y is displayed, then press and release the Jog Wheel.



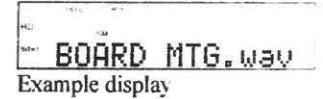
SCANNING HD... is displayed briefly. The CDR420 returns to idle mode.



How to convert PCM to MP3

CONVERT TO MP3 lets you convert a PCM track on the HD to an MP3 file. MP3 to PCM conversion is not available on the CDR420.

- 1 From Idle mode turn the Jog Wheel until the track you want to split is displayed.



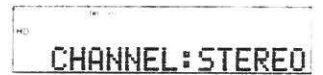
- 2 Press and release the EDIT MENU button seven times until CONVERT TO MP3 is displayed.



NOTE:

CONVERT TO MP3 does not appear if the track selected is in MP3.

- 3 Press and release the Jog Wheel. CHANNEL: is displayed.



- 4 Turn the Jog Wheel to toggle between converting to an MP3 STEREO or an MP3 MONO track.



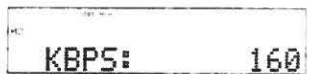
- 5 When correct, press and release the Jog Wheel. The bitrate is displayed in KBPS (Kilo Bytes Per Second).



NOTE:

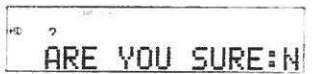
- MP3 Stereo bitrate choices are 64, 80, 128, 160, 256, or 320 kbps.
- MP3 Mono bitrate choices are 32, 40, 64, 80, 128 or 160 kbps.

- 6 Turn the Jog Wheel to tab through the bitrate choices.

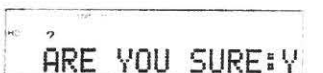


When correct, press and release the Jog Wheel.

- 7 ARE YOU SURE is displayed.



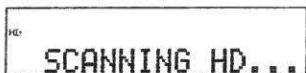
- 8 Turn the Jog Wheel so Y is displayed, then press and release the Jog Wheel.



9 Wait while the CDR420 converts the file. A graphic and numerical percent converted is displayed.



After 100% conversion SCANNING HD . . . is displayed briefly.



The CDR420 returns to idle mode.

Firmware Update

The CDR420's firmware is the program that includes the operating instructions for the CDR420. Installed firmware is in a read-only memory unit and loads on start-up.

The CDR420's firmware update procedure lets you update your CDR420 to the latest operating procedures to keep up with current changes in audio features, install improved or additional operating instructions, and correct any errors or bugs that have been found in previous firmware versions.

The current firmware version is briefly displayed on start-up after the full display is shown.

See www.d-mpro.com and search for "CDR420" for information about the latest firmware version available and how to obtain it. The firmware is a .bin file about 1.8 megabytes in size.

Quick instructions:

- a. If new firmware on computer
copy to CDR420 System folder.....go to b
- If new firmware on CD
insert CD.....go to b
- b. Power off.....STANDBY MODE
- c. Press and hold Jog Wheel while Power ON
CDR 420 does the rest, wait.....F/W VRX.XX OK
Automatically powers off.....STANDBY MODE

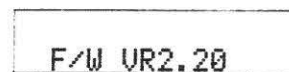
1. If the new firmware file is on your computer, copy the new firmware file into the System folder on the Hard drive of the CDR420. See Connect computer on page 11.

On a CD the firmware file has to be in a folder named System. Insert the CD into the CDR420 and go to step 2.

2. Slide and release the POWER switch to switch to STANDBY MODE.

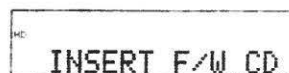
3. Press and hold the Jog Wheel while you slide and hold the POWER switch to start up and enter firmware update mode.

The normal start-up sequence is followed, then the current (old) firmware version is briefly displayed.

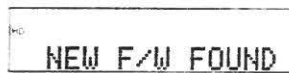


If there is no new firmware on the CDR420 Hard drive and no CD in the CDR420,

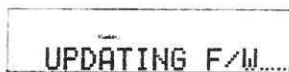
INSERT F/W CD is briefly displayed, and the CDR420 switches to Idle Mode.



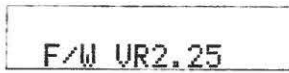
4. If a newer version of the firmware file is detected on the HD or CD, NEW F/W FOUND is briefly displayed, and



UPDATING F/W is displayed while the firmware is updated.



A firmware updated screen is briefly displayed.

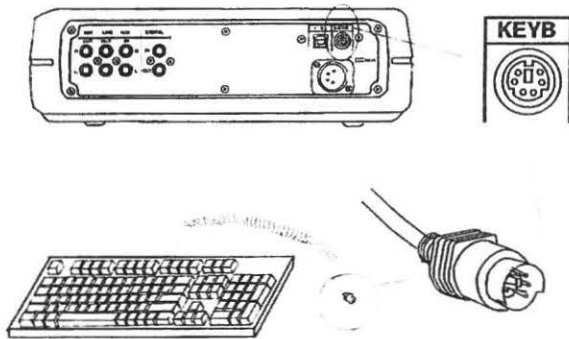


Example display

The CDR420 switches to STANDBY MODE. When you next power up from STANDBY MODE the new firmware version is used.

Keyboard (not supplied)

Connect your standard PS/2 PC keyboard (with a 6 pin mini-DIN connector) for direct keyboard control of the CDR420.



Keyboard layout

Most of the F keys (function keys) on a connected keyboard act interchangeably with buttons on the CDR420. Some of the F keys have special functions.

F1 Name File while recording

Press and release F1 during recording to enter a file name. You can type the file name using the keyboard or the Jog Wheel. When the file name is complete, press and release ENTER on the keyboard to save and exit naming the file.

F2 IN Point

Same as pressing the IN button on the CDR420.

F3 OUT Point

Same as pressing the OUT button on the CDR420.

F4 Info

Same as pressing the INFO button on the CDR420.

F5 Fast Reverse

Press and hold to work the same as the Fast Reverse button ◀◀ on the CDR420.

F6 Play/Pause - Engage Record

Same as the Play/Pause button ▶/|| on the CDR420.

F7 Stop

Same as pressing the Stop button ■ on the CDR420.

F8 Fast Forward

Press and hold to work the same as the Fast Forward button ▶▶ on the CDR420.

F9 Rec Level - / Jog Wheel Left

Press and release to work the same as turning the Jog Wheel one click to the left.

F10 Rec Level + Jog Wheel Right

Press and release to work the same as turning the Jog Wheel one click to the right.

F11 MARK

Press and release to work the same as the MARK button on the CDR420.

F12 Record Pause / Make New File

Press and release to work the same as the REC button light ● on the CDR420.

About Compact Discs

The CDR420 can play CD, CD-R, or CD-RW discs and can record on CD-R or CD-RW discs.

CD-R (record once)

CD-R discs are only able to be recorded onto a single time but will playback in most CD players.

CD-R discs can be recognized by the following logos:



CD-RW (multiple recording)

CD-RW discs are able to be recorded onto many times but will only playback in CD players offering CD-RW compatibility. Products that offer CD-RW compatibility are available from Marantz Professional. Please contact your dealer for more information on these products.

CD-RW discs can be recognized by the following logos:



NOTE::

- Some DVD players can not playback CD-R discs and some cannot playback CD-RW discs because of laser power differences.
- Some CD players may be able to playback finalized CD-RW discs.
- Some CD players can not play finalized CD-R discs because of the low reflectivity of such discs.

Which discs to use:

The CDR420 is able to record onto any compatible CD-R and CD-RW (AUDIO) disc. The CDR420 can also record on 700MB, 80 minute computer discs 8X or greater.

The CDR420 records according to the Orange Book specification. Every CDR disc sold should be according to the Orange Book specification and therefore compatible with the CDR420.

In practice however, the quality of the recording depends on the match between the disc used and the

writing strategy of the recorder. At 1X speed (stand alone audio) the match between disc and recorder is important. Higher recording speeds are less critical in terms of recording quality.

Consumer CD Recorders can only record on CD-R Audio discs and those discs are optimized for single speed automatically. Professional CD Recorders can use both Audio and Data discs. When using Data discs, one should take care to use discs with a good single speed compatibility.

Recording Capacity:

Discs with higher capacity than 80 minutes are out of the Orange Book standard and may perform below your expectations.

Compact disc care

The glossy side is the record side of the disc, and matted (dull) side is the label side.

Handle discs carefully so as not to damage or scratch the record side.

Avoid placing discs in the following locations:

- In direct sunlight or near a source of heat such as a heater.
- In a place that is damp or dirty.
- In a place which could be exposed to rain, such as near a window.

Disc cleaning

Always keep the disc surface clean. Up to six billion data units are recorded on the record side of the disc. When cleaning the disc surface always be sure to use a special compact disc cleaner and wipe as shown below.



Wipe in a radial direction.



Do not wipe in circumferential direction.

- Do not use record cleaner, it will adversely affect the disc surface.
- Store discs in their disc cases.
- Do not attach a piece of paper or sticker to the label side of the disc.



When a disc has a piece of plastic tape or rental CD label with paste protruding from the edge or when a disc has a trace of such as sticky object, do not attempt to play the disc. The disc may be impossible to take out, or another malfunction may result.

- Write only on the printed side of a CD-R or CD-RW disc, and only with a soft felt-tipped pen.
- Do not attempt to play a disc with a special shape such as an octagonal or heart shaped disc. Equipment malfunction may result.



Optional battery supply

The optional RPS420 battery supply can be used with the CDR420. The RPS420 is a rechargeable lead-acid battery system. It includes the RB4200 battery (also an additional optional accessory for applications requiring multiple batteries), a battery charger, a 120VAC plug and connector to DC IN on the CDR420.

Plug the battery connector into DC IN. Turn power on by sliding the POWER switch to the right.

Always begin recording with a fully charged battery.

NOTE:

The supplied cable with the RPS420 also includes a connector for attaching your CDR420 AC adaptor. This is useful for important recordings. If your system is connected like this and the power fails, the battery will seamlessly take over the r. saving important information.

A low battery indicator is built in to the CDR420. When a low battery condition is detected during recording or operation the display alternates between

"LOW BATTERY" and whatever the current operation screen is. When the battery reaches even lower output power the display will switch to "BAD BATTERY" and will start affecting the speaker and amplifier output.

Stop recording as soon as possible.

Power On failure

If a Power on sequence test fails the display will briefly show FAIL, then will toggle between it's associated ERROR CODE and Call Technical Service.

The CDR420 will not work until the problem is corrected.

See page 65 for warranty information.

LIMITED WARRANTY

Your Marantz Professional product is warranted against manufacturer defects in material and workmanship for a period of one year parts and labor.

Except as specified below, this warranty covers defects in material and workmanship. The following are not covered under warranty:

1. Damage, deterioration, malfunction or failure to meet performance specifications resulting from:
 - a) Accidents, acts of nature, misuse, abuse, neglect or unauthorized product modification.
 - b) Improper installation, removal or maintenance, or failure to follow supplied instructions.
 - c) Repair or attempted repair by a non-Marantz authorized agent.
 - d) Any shipment (claims must be presented to the carrier).
 - e) Any cause other than a defect of manufacturing.
2. Cleaning, check-ups with no fault found or changes incurred for installation, removal or reinstallation of the product.
3. Any serialized product on which the serial number has been defaced, modified or removed.
4. Batteries and battery chargers.
5. Accessories, including but not limited to: cables, mounting hardware and brackets, cleaning accessories, power cords and adapters, and carry cases.
6. Products purchased outside of the United States, its possessions or territories.

Non-transferable warranty

This Warranty may be enforced only by the original purchaser.

What We Will Pay For

We will pay for all labor and material expenses for items covered by the warranty.

How You Can Get Service

1. If your unit needs service in the USA, contact our service referral at the appropriate telephone number indicated below.

We will advise you of the name and location of one or more authorized service centers from which service may be obtained. Please do not return the unit directly to us.

2. You must pay any shipping charges if it is necessary to ship the product for service. If the necessary repairs are covered by the warranty, we will pay return shipping charges to your location anywhere in the United States or its territories.
3. Whenever warranty service is required, you must present the original dated sales receipt or other proof of date purchased.

Limitation of Implied Warranties

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

Exclusion of Damages

Liability for any defective product is limited to repair or replacement of the product at manufacturer's option. Manufacturer shall not be liable for damage to other products caused by any defects in Marantz products, damages based on inconvenience or loss of use of the product, or any other damages, whether incidental, consequential, or otherwise.

Some States do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

How State Law Relates to the Warranty

This warranty gives you specific legal rights, and you may have other rights which may vary from State to State.

Marantz Professional Service Number:

Marantz Professional Factory Service (866) 405-2154, toll free.

This warranty is enforceable only in the United States and its possessions or territories.

marantz®

Marantz is a registered trademark.



marantz
PROFESSIONAL

Model CDR310 User Guide

CD Recorder

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

COMPACT
disc
DIGITAL AUDIO



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 product.

WARNING

**TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

CAUTION:

**USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN
MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

Copyright

Recording and playback of any material may require consent. For further information refer to the following US ordinances:

- Copyright act of 1956
- Dramatic and Musical Performance Act 1958
- Performers Protection Acts 1963 and 1972
- any subsequent statutory enactments and orders

IMPORTANT SAFETY INSTRUCTIONS

READ BEFORE OPERATING EQUIPMENT

This product was designed and manufactured to meet strict quality and safety standards. There are, however, some installation and operation precautions which you should be particularly aware of.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacture's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



Additional Safety Information!

- This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
- Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
- The AC adaptor shall be installed near the Socket-Outlet and shall be easily accessible.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE:

Changes or modifications may cause this unit to fail to comply with Part 15 of the FCC Rules and may void the user's authority to operate the equipment.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

CE marking (only EU version)

- English**
This product is in conformity with the EMC directive and low-voltage directive.
- Français**
Cet appareil est conforme á la directive EMC et á la de directive sur les basses tensions.
- Español**
Esta unidad estáde acuerdo con las normas EMC y las relacionadas con baja tensión.
- Deutsch**
Dieses Gerät entspricht den EMC-Richtlinien und den Richtlinien für Niederspannungsgeräte.
- Italiano**
Quest' unità è conforme alle direttive EMC ed alla direttiva sulle basse tensioni.
- Português**
Esta unidade está em conformidade com as directivas EMC e as directivas de baixa voltagem.
- Svenska**
Produkten är tillverkad i enlighet med EMC-direktivet och direktivet för lågspänningsutrustning.
- Nederlands**
Dit apparaat voldoet aan de EMC-richtlijnene en de richtlijnen voor apparatuur met laag voltage.

Equipment mains working system

This product complies with household power and safety requirements in your area.

SI DICHIARA CHE L'APPARECCHIO SINTO-AMPLIFACATORE SR-39
RISPONDE ALLE PRESCRIZIONI DELL'ART. 2 COMMA 1 DEL D.M. 28
AGOSTO 1995 N° 548.

FATTO A EINDHOVEN, IL 1/1/1997.

MARANTZ EUROPE B.V.
5600 EINDHOVEN
THE NETHERLANDS

"Este aparato lleva elementos antiparasitarios necesarios para cumplir con los límites que se establecen en el Anexo V del Reglamento sobre Perturbaciones Radioeléctricas e Interferencias aprobado en el Real Decreto 138/1989. (B.O.E. de 9 Febrero 1989)."

English

WARNINGS

Do not handle the AC adaptor with wet hands.

Do not cover the ventilation with any items such as tablecloths, newspapers, curtains, etc.

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

When disposing of used batteries, please comply with governmental regulations or environmental public instruction's rules that apply in your country or area.

Make a space of about 0.1 meter around the unit.

No objects filled with liquids, such as vases, shall be placed on the apparatus.

When the switch is in the OFF position, the equipment is not completely switched off from MAINS.

Français

AVERTISSEMENTS

Ne manipulez pas l'adaptateur AC avec les mains mouillées.

Ne pas recouvrir les orifices de ventilation avec un objet quelconque comme une nappe, un journal, un rideau, etc.

Ne placer aucune source de flamme nue, comme une bougie allumée, sur l'appareil.

Pour mettre au rebut les piles usées, respecter les lois gouvernementales ou les règlements officiels concernant l'environnement qui s'appliquent à votre pays ou région.

Veiller à ce qu'aucun objet ne soit à moins de 0,1 mètre des côtés de l'appareil.

Aucun objet rempli de liquide, un vase par exemple, ne doit être placé sur l'appareil.

Lorsque l'interrupteur est sur la position OFF, l'appareil n'est pas complètement déconnecté du SECTEUR (MAINS).

Español

ADVERTENCIAS

No manipule el adaptador de CA si tiene las manos mojadas.

No cubra la ventilación con objetos como manteles, periódicos, cortinas, etc.

No deben colocarse sobre el equipo elementos con fuego, por ejemplo velas encendidas.

Cuando se eliminen baterías usadas, deben cumplirse las reglamentaciones oficiales o las normas de protección medioambiental aplicables en su país o en su zona.

Deje un espacio de unos 0,1 metro alrededor de la unidad.

No se deben colocar sobre el aparato recipientes que contengan líquidos, como por ejemplo jarrones.

Cuando el interruptor está en la posición OFF, el equipo no está completamente desconectado de la alimentación MAINS.

Deutsch

WARNHINWEISE

Fassen Sie das Netzgerät nicht mit nassen Händen an.

Decken Sie die Lüftungsöffnungen nicht mit einem Tischtuch, einer Zeitung, einem Vorhang usw. ab.

Es dürfen keine Gegenstände mit offener Flamme, wie etwa brennende Kerzen, auf dem Gerät aufgestellt werden.

Beachten Sie bei der Entsorgung der verbrauchten Batterien alle geltenden lokalen und überregionalen Regelungen.

Auf allen Geräteseiten muß ein Zwischenraum von ungefähr 0,1 Meter vorhanden sein.

Auf das Gerät dürfen keine mit Flüssigkeiten gefüllte Behälter, wie etwa eine Vase, gestellt werden.

Wenn der Schalter ausgeschaltet ist (OFF-Position), ist das Gerät nicht vollständig vom Stromnetz (MAINS) abgetrennt.

Italiano

AVVERTENZE

Non maneggiare l'adattatore CA con le mani umide.

Non coprire le fessure di ventilazione con tovaglie, giornali, tende od oggetti analoghi.

Non posare sull'apparecchio sorgenti di fiamme scoperte qualicandele accese.

Smaltire le pile usate in conformità alle norme governative od disposizioni ambientali vigenti nel proprio paese o zona.

Lasciare 0,1 metro liberi tutto intorno l'unità.

Non mettere sull'apparecchiatura alcun contenitore di liquido, come ad esempio dei vasi.

Quando l'interruttore è nella posizione OFF, l'apparecchiatura non è completamente scollegata da MAINS.

Português

ADVERTÊNCIAS

Não toque no adaptador de AC com as mãos molhadas.

Não cobrir os orifícios de ventilação com objectos tais como toalhas de mesa, jornais, cortinas, etc.

Não colocar chamas abertas tais como velas acesas, sobre o aparelho.

Ao deitar foras as pilhas usadas, favor observar os regulamentos governamentais ou as regras com respeito ao meio ambiente que se aplicam no seu país ou área de residência.

Deixar um espaço de cerca de 0,1 metro ao redor do aparelho.

Não colocar recipientes com água, tal como vasos, sobre o aparelho.

Quando o interruptor está na posição OFF, o equipamento não é totalmente desligado de MAINS.

Svenska

VARNINGAR

Hantera inte nätadaptern med våta händer.

Täck inte för ventilationsöppningarna med några föremål som till exempel bordsdukar, dagstidningar, gardiner e.d.

Inga föremål med öppen låga, som till exempel tända stearinljus, bör placeras på utrustningen.

Följ de lagar och miljöskyddsråd som gäller i det land eller området där du bor när du gör dig av med batterier.

Se till att det finns omkring 0,1 meter fri plats runt omkring enheten.

Inga objekt som är fyllda med någon vätska, till exempel blomstervaser, bör placeras på apparaten.

Även om strömbrytaren står i det avstängda läget OFF, så är utrustningen inte helt bortkopplad från det elektriska nätet (MAINS).

Nederlands

WAARSCHUWINGEN

Raak de netspanningsadapter niet met natte handen aan.

Bedek de ventilatieopeningen niet met enige voorwerpen, zoals tafelkleden, kranten, gordijnen, enz.

Plaats geen brandende voorwerpen, zoals kaarsen, op het apparaat.

Volg bij het weggooien van verbruikte batterijen de overheidswetgeving of milieuvoorschriften op die van kracht zijn in het land of de regio waarin u zich bevindt.

Zorg dat er 0,1 meter vrije ruimte rond het toestel is.

Plaats geen voorwerpen met een vloeistof erin, zoals een bloemenvaas, op het apparaat.

Als de schakelaar op OFF staat, is het apparaat niet volledig losgekoppeld van de netspanning (MAINS).

CAUTION

To completely disconnect this product from the mains, disconnect the plug from the wall socket outlet.
When setting up this product, make sure that the AC outlet you are using is easily acceptable.

*English***PRECAUTION**

Pour déconnecter complètement ce produit du courant secteur, débranchez la prise de la prise murale.
Lors de l'installation de ce produit, assurez-vous que la prise CA que vous utilisez est compatible.

*Français***PRECAUCIÓN**

Para desconectar completamente este producto de la alimentación eléctrica, desconecte el enchufe del enchufe de la pared.
Al ajustar este producto, asegúrese de que la toma de salida de CA que esté utilizando sea fácilmente aceptable.

*Español***VORSICHT**

Um dieses Gerät vollständig von der Stromversorgung abzutrennen, ziehen Sie bitte den Netzstecker von der Wandsteckdose ab.
Stellen Sie bei der Aufstellung des Gerätes sicher, dass die zu verwendende Wechselstrom-Steckdose leicht zugänglich ist.

*Deutsch***ATTENZIONE**

Per scollegare definitivamente questo prodotto dalla rete di alimentazione elettrica, togliere la spina dalla relativa presa.
Durante l'installazione, assicurarsi che la presa in CA utilizzata sia facilmente raggiungibile.

*Italiano***CUIDADO**

Para desligar totalmente este produto da corrente, desligue a ficha da tomada de parede.
Quando instalar este produto, certifique-se de que a tomada AC que está a utilizar pode ser facilmente acedida.

*Português***FÖRSIKTIGHETSMÅTT**

Koppla loss stickproppen från eluttaget för att helt skilja produkten från nätet.
Vid installationen av produkten ska du se till att eluttaget den ansluts till är nära utrustningen.

*Svenska***VOORZICHTIGHEID**

Om de voeding van dit product volledig te onderbreken moet de stekker uit het stopcontact worden getrokken.
Let er bij het plaatsen van dit product op dat het te gebruiken stopcontact goed bereikbaar is.

Nederlands

A NOTE ABOUT RECYCLING:

This product's packaging materials are recyclable and can be reused. Please dispose of any materials in accordance with the local recycling regulations.

When discarding the unit, comply with local rules or regulations.

Batteries should never be thrown away or incinerated but disposed of in accordance with the local regulations concerning chemical waste.

This product and the accessories packed together constitute the applicable product according to the WEEE directive except batteries.

English



UNE REMARQUE CONCERNANT LE RECYCLAGE:

Les matériaux d'emballage de ce produit sont recyclables et peuvent être réutilisés. Veuillez disposer de tout matériau conformément aux règlements de recyclage locaux.

Lorsque vous mettez cet appareil au rebut, respectez les lois ou réglementations locales.

Les piles ne doivent jamais être jetées ou incinérées, mais mises au rebut conformément aux règlements locaux concernant les déchets chimiques.

Ce produit et les accessoires emballés ensemble sont des produits conformes à la directive DEEE sauf pour les piles.

Français



ACERCA DEL RECICLAJE:

Los materiales de embalaje de este producto son reciclables y se pueden volver a utilizar. Disponga de estos materiales siguiendo los reglamentos de reciclaje de su localidad.

Cuando se deshaga de la unidad, cumpla con las reglas o reglamentos locales.

Las pilas nunca deberán tirarse ni incinerarse. Deberá disponer de ellas siguiendo los reglamentos de su localidad relacionados con los desperdicios químicos.

Este producto junto con los accesorios empaquetados es el producto aplicable a la directiva RAEE excepto pilas.

Español



HINWEIS ZUM RECYCLING:

Das Verpackungsmaterial dieses Produktes ist für zum Recyceln geeignet und kann wieder verwendet werden. Bitte entsorgen Sie alle Materialien entsprechend der örtlichen Recycling-Vorschriften.

Beachten Sie bei der Entsorgung des Gerätes die örtlichen Vorschriften und Bestimmungen.

Die Batterien dürfen nicht in den Hausmüll geworfen oder verbrannt werden; bitte geben Sie die Batterien gemäß örtlichen Bestimmungen an den Sammelstellen oder Sondermüllplätzen ab.

Dieses Produkt zusammen mit den Zubehörteilen ist das geltende Produkt der WEEE-Direktive, davon ausgenommen sind die Batterien.

Deutsch



NOTA RELATIVA AL RICICLAGGIO:

I materiali di imballaggio di questo prodotto sono riutilizzabili e riciclabili. Smaltire i materiali conformemente alle normative locali sul riciclaggio.

Per smaltire l'unità, osservare la normativa in vigore nel luogo di utilizzo.

Non gettare le batterie, né incenerirle, ma smaltirle conformemente alla normativa locale sui rifiuti chimici.

Questo prodotto e gli accessori inclusi nell'imballaggio sono applicabili alla direttiva RAEE, ad eccezione delle batterie.

Italiano



UMA NOTA SOBRE A RECICLAGEM:

Os materiais de embalagem deste produto são recicláveis e podem ser reutilizados. Elimine quaisquer materiais de acordo com as normas de reciclagem locais.

Quando eliminar a unidade, obedeça às regras ou normas locais.

As pilhas nunca devem ser deixadas fora ou incineradas, mas sim eliminadas de acordo com as normas locais relativas aos resíduos químicos.

Este produto e os respectivos acessórios embalados em conjunto constituem o produto aplicável de acordo com a diretiva WEEE, excepto as pilhas.

Português



EN KOMMENTAR OM ÅTERVINNING:

Produktens emballage är återvinningsbart och kan återanvändas. Kassera det enligt lokala återvinningsbestämmelser.

När du kasserar enheten ska du göra det i överensstämmelse med lokala regler och bestämmelser.

Batterier får absolut inte kastas i soporna eller brännas. Kassera dem enligt lokala bestämmelser för kemiskt avfall.

Denna apparat och de tillbehör som levereras med den är de som uppfyller gällande WEEE-direktiv, med undantag av batterierna.

Svenska



EEN AANTEKENING WAT BETREFT HET RECYCLEREN:

Het inpakmateriaal van dit product is recycleerbaar en kan opnieuw gebruikt worden. Er wordt verzocht om zich van elk afvalmateriaal te ontdoen volgens de plaatselijke voorschriften.

Volg voor het wegdoen van desperser de voorschriften voor de verwijdering van wit- en bruingoed op.

Batterijen mogen nooit worden weggegooid of verbrand, maar moeten volgens de plaatselijke voorschriften betreffende chemisch afval worden verwijderd.

Op dit product en de meegeleverde accessoires, m.u.v. de batterijen is de richtlijn voor afgedankte elektrische en elektronische apparaten (WEEE) van toepassing.

Nederlands



Table of Contents

Introduction	2	Detailed Settings for HD Recording ..	22
Features	2	Input source settings	22
Package contents.....	3	Recording format settings	23
Quick Start Guide.....	4	Recording level control settings	25
About Discs	5	Microphone attenuator	27
Playable discs	5	Phantom power settings	28
ADDITIONAL INFORMATION	5	Prerecord.....	29
Names and Functions	6	Background recording	30
Top side	6	Silent skip	31
Front side	8	Manual track.....	32
Rear side	8	Auto track	33
Right side	9	CD Burning	34
Display.....	10	CD Split	36
Preparations Before Use	11	Playing Back HD Data.....	37
AC adaptor connection	11	Schematics.....	37
Using batteries	11	Basic operations for playback	37
Safety cautions on handling batteries.....	12	Track access	38
Installing an optional Ni-Cd or Ni-MH battery...	12	Search	38
Charging the optional Ni-Cd battery.....	12	Audible search.....	38
Basic Operations	13	Playback mode settings	39
Power on/off	13	Playing Back CDs	40
Battery type settings.....	13	Schematics.....	40
Battery remaining indicator	14	CD Playback.....	40
Setting the clock.....	15	Basic operations for playback	40
Date form settings	16	Other Functions	41
Time form settings.....	16	Auto power off settings.....	41
Menu Settings.....	17	Beep sound (alarm) setting.....	41
Preset menu	18	Switching the display mode	42
Menu operation	19	Stop Monitor settings	44
Recording to the HD	20	Key lock settings	44
Schematics.....	20	Various remote functions.....	45
Basic operations for recording	20	Margin display	46
Erasing recordings	21	CD-TEXT, ID3 tag	46
Formatting the HD.....	21	Initialization of preset settings.....	46
		Troubleshooting	47
		Error Messages	48
		Specifications.....	49
		LIMITED WARRANTY	50

Introduction

Thank you for purchasing this CDR310 CD Recorder. Before using the CD recorder, make sure that you read through this instruction manual carefully to fully understand the device's functions and how to operate them. We hope that you will continue to enjoy using the recorder for a very long time. After reading this manual, please keep it in a safe, easy to reach place for future reference.

Features

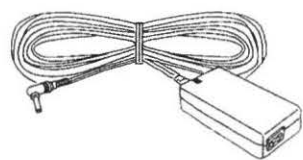
- You can record digital audio from an external microphone, internal microphone or line input onto the internal HD (Hard Disk), and then burn the audio onto a CD-R.
- Audio input
 - Condenser microphone or dynamic microphone (XLR balanced input) connected to the MIC IN jack
 - Internal microphone
 - Line level audio source connected to the LINE IN jack
 - Digital input (Coaxial input)
 - Phantom power supply
 - L/R independent attenuator for external microphone input
- 4 different types of recording format (MP3, WAVE, CD-DA, AIFF)
 - Compressed sound recording uses MPEG1 Layer III (MP3) monaural and stereo recording.
 - MP3 are compressed to 128kbps (stereo) or 64kbps (monaural).
 - Non-compressed sound recording uses 16-bit linear pulse code modulation (PCM).
- Simple recording
 - You can start simple recording to the HD just by pressing the REC button once. The HD capacity is approximately 3 Gig Bytes. (Approximately 5 hours in PCM stereo recording)
- You can create an extended play recorded CD (maximum 25 hours 29 minutes on a 700MB CD-R disc in MP3 mono format).
- Simple CD creation
 - You can burn data recorded on the HD onto a CD-R just by pressing the MAKE CD button.
- Convenient special recording functions
 - Pre-code cache (P.29)
 - Background recording (P.30)
 - Silent skip (P.31)
 - Auto track (P.33)
 - Manual track (P.32)
- Recording level and LR balance adjustment (P.25)
 - Automatic recording level control (ALC)
 - Manual control
- You can record and playback audio in stereo (2 channel) or monaural (1 channel).
- You can play back CD-DA and Data CD (MP3, AIF, WAV).
- The following sound outputs are available.
 - Internal speakers
 - Headphones connected to the headphone (PHONES) jack
 - Amp or other analog audio devices connected to the LINE OUT jack.
 - Digital output
- 2 types of power supply source
 - Use the provided AC adaptor.
 - Use alkaline batteries, the optional Nickel-Cadmium battery (RB1100), or the optional Nickel-Metal Hydride battery (RB1651).

Package contents

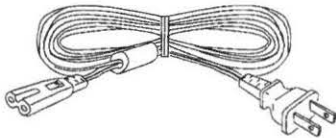
- CDR310



- AC power pack



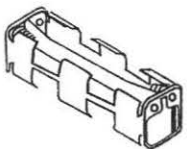
- Power cord



Europe models include 2 power cords

CEE	BS

- Battery holder (AA type)

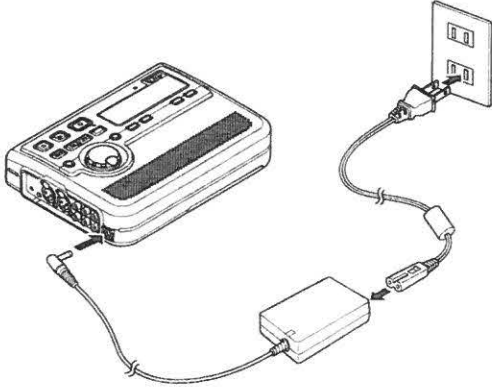


- User Guide
- User Guide (CD-ROM)
- Customer Registration Document

Quick Start Guide

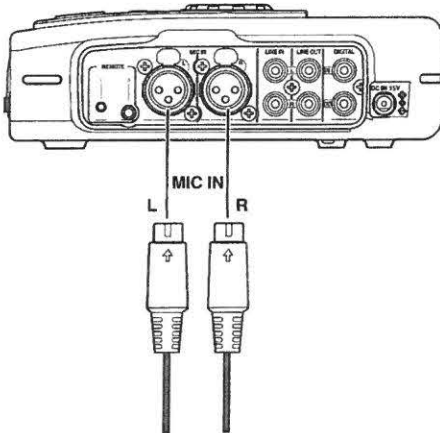
Before using the CDR310, please read through the following section which explains the basic flow of operation.

1. Setup the power supply (P.11)



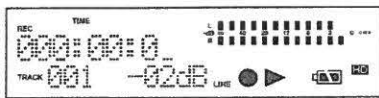
- Use either the provided AC adaptor or batteries.
- You can use any one of the 3 types of batteries: Alkaline, optional Nickel-Cadmium, or optional Nickel-Metal Hydride.
- Please make sure batteries are fully charged.

2. Connect an external microphone and turn the power ON. (P.13, 20)



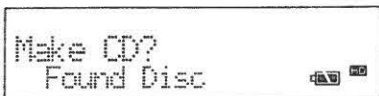
- Connect the external microphone to the MIC IN jack. (P.20)
- Slide the **power switch** to the ON side. (P.13)

3. Record (P.20)



- Press the **REC** button, and recording starts.
- Adjust the recording level/LR balance. (P.26)
- Detailed settings for recording. (P.22)
- Press the **STOP** button, and recording stops.

4. Burn a CD (P.34)



- Press the **MAKE CD** button to burn to a CD-R.
- When the CD burning process has completed, the CD-R is automatically ejected.
- To continue to burn to a different CD-R, insert a new CD-R.
- If the CD creation is ended without burning onto another CD-R, all of the HD data is deleted.

About Discs

Playable discs

CD-R	
CD-RW	

Finalized CD-R and CD-RW discs recorded in the CD-DA format, MP3 format or Video-CD format can be played with the unit.

- Finalize is the process to make a CD-R/CD-RW playable for players (not recorders)
- Some discs may not be able to be played depending on condition of the discs and recording software.
- Single CDs (8cm) cannot be used.

ADDITIONAL INFORMATION

The glossy side shining like a rainbow is the front side of the disc, and the side on which the label is printed is the back. Unlike conventional turntables for playing analog discs, the unit reads the information recorded on the disc from underneath without contacting it using a beam of laser light. Therefore, the performance of a compact disc will not degrade like conventional analog records.

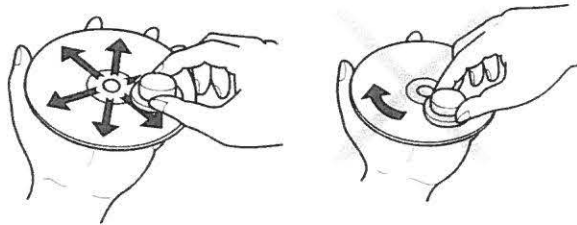
Handle discs carefully so as not to damage or scratch the front side.

To protect the disc, avoid placing it in the following locations:

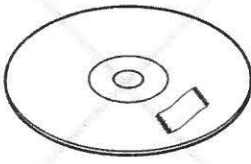
- In direct sunlight or near a source of heat like a heater.
- In a place which is damp or dirty.
- In a place which could be exposed to rain, such as near a window.

Always keep the disc surface clean.

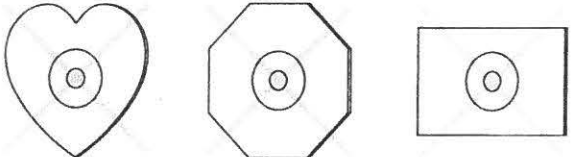
When cleaning the disc surface, always be sure to use a special compact disc cleaner and wipe as shown below.



- Do not use conventional record cleaner for analog records, as this will adversely affect the disc surface. Store discs properly by placing them in their disc cases.
- Do not attach a piece of paper or sticker on the label side of disc. When a disc has a piece of plastic tape or rental DVD/CD label with paste protruded from the edge or when a disc has a trace of such a sticky object, do not attempt to play the disc. If such a disc is played on the DVD player, impossibility of taking out the disc or other malfunction may result.

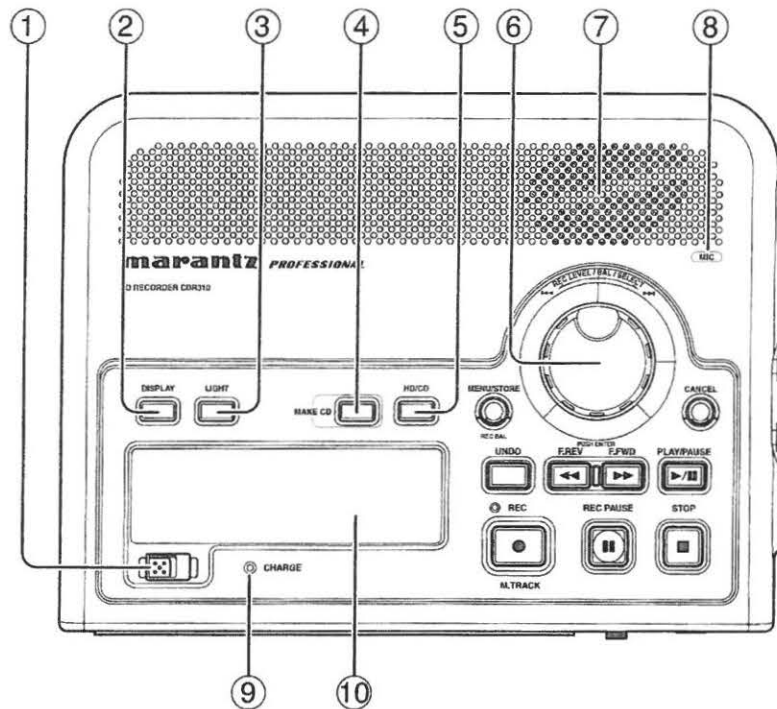


- Do not use a disc with a special shape. Do not attempt to play a disc with a special shape such as a heart-shaped disc or octagonal disc. Otherwise the equipment malfunction may result.



Names and Functions

Top side



① Power switch

Slide this switch to switch the power on/off.

② DISPLAY button

Press this button to switch the contents of the display. The displayed information is different when the recorder is stopped, recording, and playing back. (P.42)

③ LIGHT button

Press this button to light the display light for 3 seconds. Hold this button down for 1 second to keep the display light on. Press this button once again to turn the display light off.

④ MAKE CD button

You can burn the recorded data to CD-R by pressing this button when the recorder is stopped. (P.34)

⑤ HD/CD button

Press this button when the recorder is stopped to switch between the HD recording/playback mode and CD playback mode.

⑥ JOG Wheel/ENTER button

(In the text, JOG Wheel is indicated as "JOG")

• REC LEVEL control

You can adjust the recording level by rotating the JOG while the recording is paused, or during recording. You can also adjust the recording level left and right (L/R) balance by holding down the MENU button and rotating the JOG. (P.25)

• Track selection

You can select the track you wish to play back by rotating the JOG while playback is paused, stopped, or during playback. After selecting the track that you wish to play back, press the JOG or PLAY/PAUSE button to play back the selected track. (P.38)

• MENU mode

You can select the MENU items by rotating the JOG in the MENU mode. Press the JOG after selecting an item to choose that item. Press the CANCEL button to cancel the selection.

⑦ Internal speakers

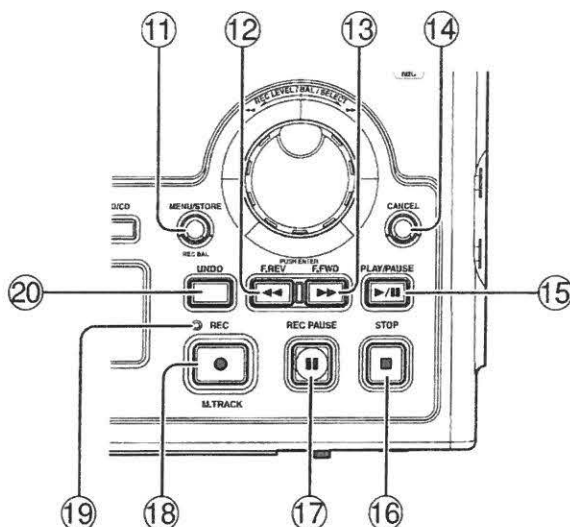
The audio signal being played back is output to the internal speakers. If headphones are connected to the headphone (PHONES) jack, sound is not output from the internal speakers. Adjust the speaker volume using LEVEL volume.

⑧ MIC (Internal microphone)

⑨ CHARGE Indicator

This LED flashes while the optional rechargeable batteries are being recharged. The LED goes out when recharging has finished.

⑩ Display (P.10)



11 MENU/STORE button

• MENU

Press this button when the recorder is stopped to switch to the Menu mode. Turn the JOG to select the item that you wish to set from the various menu items. (P.17)

• STORE

Press this button when you want to enter changes in the menu items, and when you want to write to the recorder.

• REC BALANCE

You can adjust the recording level L/R balance by holding down this button and rotating the JOG.

12 F.REV (◀◀) button

Continue to press and hold this button to search tracks. Release this button to return to paused state.

Press and hold this button during playback to search tracks in reverse direction at 2 times speed playback. Release the button to return to normal playback.

Press and hold this button when playback is paused to search tracks in reverse direction.

13 F.FWD (▶▶) button

Continue to press and hold this button to search tracks. Release this button to return to paused state.

Press and hold this button during playback to search tracks in the forward direction at 2 times speed playback. Release the button to return to normal playback.

Press and hold this button when playback is paused to search in the forward direction.

14 CANCEL button

Press this button in the MENU mode to cancel the menu contents being set, and to return to the stopped status.

15 PLAY/PAUSE button

Press this button when the recorder is stopped to start playback.

Press this button during playback to pause playback.

Also, if this button is pressed when playback is paused, playback restarts.

16 STOP button

Press this button during recording to stop the recording and save the recorded track (file).

Press this button during playback to stop playback. If you press the PLAY/PAUSE button after pressing the STOP button, the stopped track starts playback again from the beginning of the track.

17 REC PAUSE button

Press this button when the recorder is stopped to pause recording. You can adjust the recording level before recording in this state.

Press this button during recording to pause recording.

The REC indicator flashes while recording is paused.

18 REC button

Press this button when the recorder is stopped to start recording.

Also, press this button when recording is paused to start recording again.

If "Manual Trk" is set to ON in the menu item labeled "preset menu", pressing this button during recording saves the track currently being recorded, and starts recording as a new track.

Press the STOP button to stop recording.

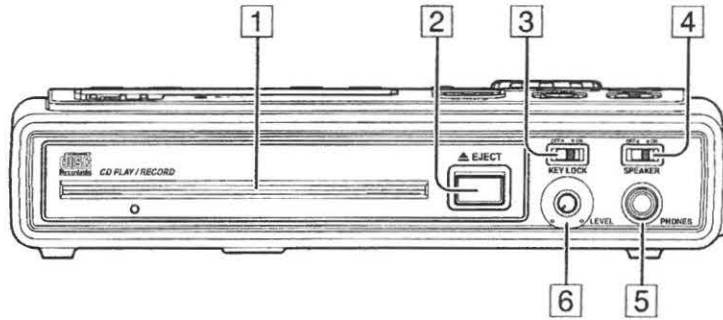
19 REC Indicator

Remains lit while recording and flashes while recording is paused.

20 UNDO button

Press this button after stopping recording to delete the recorded track. (P.21)

Front side



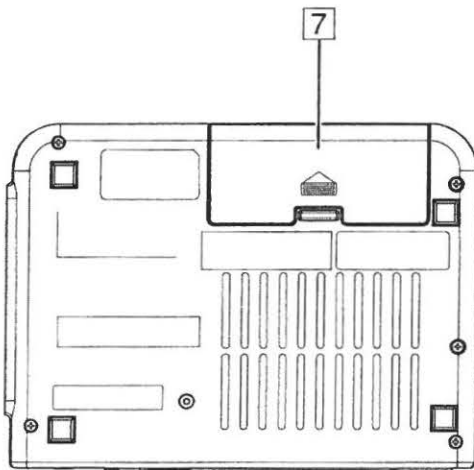
- 1 CD slot**
- 2 EJECT button**
Press this button to eject the CD that is inside the CD slot.
- 3 KEYLOCK switch**
Set this switch ON to set to the key-lock status. All of the operating buttons and switches are locked, except for the LIGHT button.
- 4 SPEAKER switch**
Set this switch to OFF to mute the output from the internal speakers.

- 5 Headphone (PHONES) jack**
Insert the stereo headphones plug here.
- 6 LEVEL volume**
Turn this knob to adjust the internal speaker volume or volume output from the headphone jack.

Notes

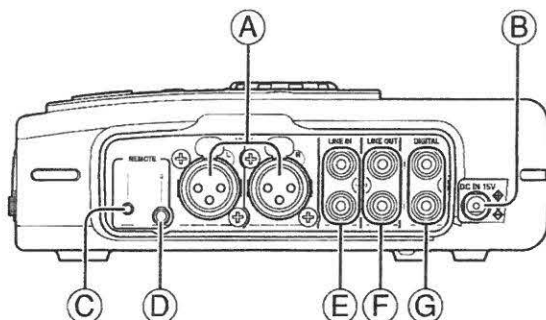
When recording with the internal microphone, switch the SPEAKER switch OFF to avoid feedback between the internal microphone and speakers.

Rear side



- 7 Battery case**
Open the battery cover case, and insert the supplied battery holder (with alkaline batteries inserted), or the commercially available Nickel-Cadmium battery or Nickel-Metal Hydride battery.

Right side



Ⓐ MIC IN jacks (L/R) (XLR balanced input)

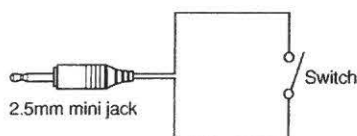
Insert an external microphone plug.
For monaural recording, plug into either the L side or R side jack.

Ⓑ DC IN jack

Insert the provided AC adaptor plug.
The power supply is DC15V, 2.3A.
If the AC adaptor plug is inserted while using the recorder on battery power, the recorder will automatically switch to adaptor power. Also, if the AC adaptor plug is removed, the recorder will automatically switch to battery power.

Ⓒ REMOTE 1 jack

Insert a contact closure plug similar to the one shown below into this 2.5mm mini jack.



You can remotely control playback/recording of the recorder by opening and closing the switch contact. (P.45)

Ⓓ REMOTE 2 jack

Connect microphone remote RC600PMD (sold separately) to this jack. There is a recording indicator lamp on the RC600PMD.

Ⓔ LINE IN jacks (L/R)

Insert RCA audio cable plugs connected to an external audio device into these jacks to input the signals output from the external device into the recorder.

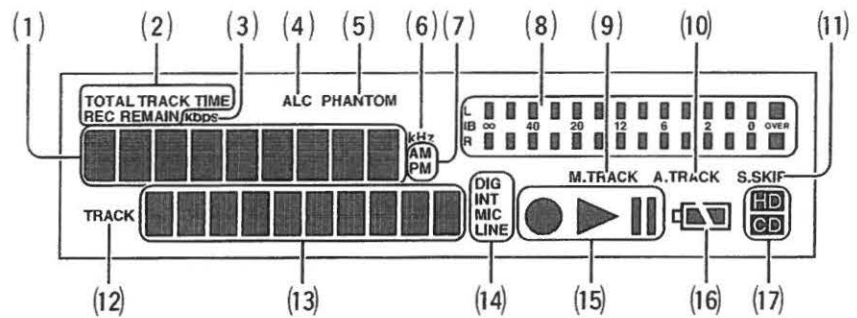
Ⓕ LINE OUT jacks (L/R)

Insert RCA audio cable plugs connected to an external audio device into these jacks to output audio signals to an external device (amp, etc.).

Ⓖ DIGITAL IN/OUT

- **IN**
Connects to the digital signal output terminal (Coaxial) of a digital device (DVD, CD, MD, etc.).
- **OUT**
Connects to the digital signal input terminal (Coaxial) of a digital recording device (CD recorder, MD recorder, etc.).

Display



- (1) **Upper character display section**
Displays the remaining time, etc.
- (2) **TOTAL/TRACK/TIME/REC/REMAIN icon**
The following types of details are displayed in the upper character display section.

Lit display	Explanation of display in upper character display section
REC REMAIN TIME	Lights when the remaining recordable time is being displayed.
TIME	Lights when the current time or the recording time is being displayed.
TRACK TIME	Lights when the playback elapsed time or the recording elapsed time is being displayed.
REC TIME	Lights when the recording time of the track is being displayed.
TRACK REMAIN TIME	Lights when the remaining playback time is being displayed.
TOTAL TRACK TIME	Lights when the total time for all tracks is being displayed.

- (3) **kbps icon**
Lights when the bit rate for the recording format is being displayed in the upper character display section.
- (4) **ALC icon**
Lights when "REC Level" is set to ALC in the preset menu.
- (5) **PHANTOM icon**
Lights when "Phantom" is set to ON in the preset menu.
- (6) **kHz icon**
Lights when the sampling frequency for the recording format is being displayed in the upper character display section.
- (7) **AM/PM icon**
When the clock setting is set to 12-hour display, the current time or recording time is displayed in the AM/PM format.
- (8) **Level meter icon**
Displays the recording levels in the left and right channels during recording.
Displays the playback levels in the left and right channels during playback.
The level meter display dots have a peak hold function that holds for a fixed amount of time. (Self reset)

- (9) **M.TRACK icon**
Lights when "ManualTR" is set to ON in the preset menu.
- (10) **A.TRACK icon**
Lights when "Auto TRK" is set to ON in the preset menu.
- (11) **S.SKIP icon**
Lights when "SilentSkip" is set to ON or TRK in the preset menu.
- (12) **TRACK icon**
Lights when the track number is displayed in the lower character display section.
- (13) **Lower character display section**
Displays the track number, channel, etc.
- (14) **Input signal (DIG/MIC/INT/LINE) icon**
Shows the type of input signal when recording.

Lit display	Type of input signal
DIG	Lights when "Input" is set to Dig-In in the preset menu.
MIC	Lights when "Input" is set to MIC in the preset menu.
INT MIC	Lights when "Input" is set to Int. MIC in the preset menu.
LINE	Lights when "Input" is set to Line in the preset menu.

- (15) **Recording/Playback/Pause mark**
Shows the operating status of the recorder.

Lit display	Operating status
▶	Playback
▶	Playback paused
● ▶	Recording
● ▶	Recording paused (Recording standby status)

- (16) **Battery remaining indicator**
Displays the remaining battery power.
- (17) **HD/CD icon**
Lights when the recorder is in the HD mode or CD mode.

Preparations Before Use

AC adaptor connection

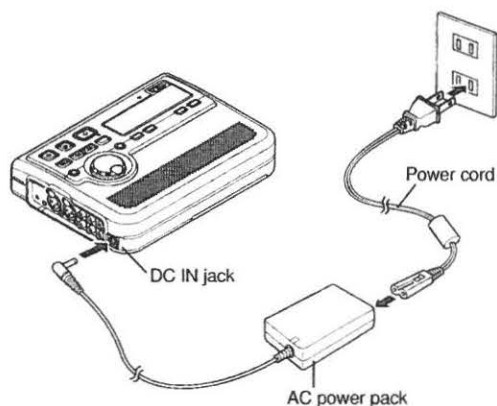
When using the recorder with the provided AC adaptor, follow the procedure below to connect the AC adaptor.

If you wish to use batteries, please refer to the [Using batteries] section. (P.11)

Notes

Only use the AC adaptor that is provided with the recorder. Running the recorder on DC power without using the provided AC adaptor will cause damage to the recorder.

- 1 Connect the plug of AC power pack into the DC IN jack on the recorder.
- 2 Connect the Power cord to a regular household plug socket.



Notes

If an optional rechargeable battery is inside the recorder, the battery will be recharged in this state.

Using batteries

If you wish to run the recorder on battery power, follow the procedure below to install batteries into the provided battery holder, and insert the holder into the recorder.

The following types of battery can be used.

- Alkaline batteries
- Optional Nickel-Cadmium battery (option: parts number RB1100)
- Optional Nickel-Metal Hydride battery (option: parts number RB1651)

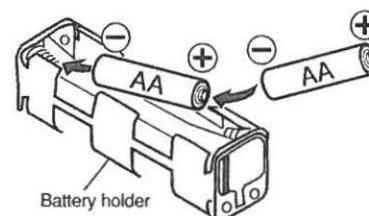
(Guide to battery lifespan)

When alkaline batteries (1450mAh type) are used
HD Recording: about 4 hours

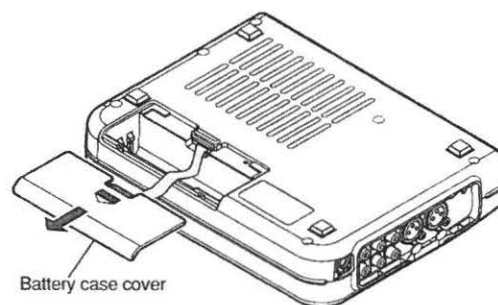
Notes

- When running the recorder on batteries, always set the battery type in the preset menu to the correct setting for the batteries used. (P.13)

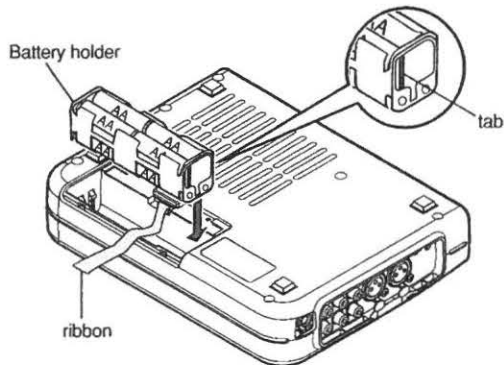
- 1 Insert 8 batteries into the battery holder correctly as shown in the diagram below, while paying attention to the polarity displays (+: plus, and -: minus).



- 2 Remove the battery case cover from the rear side of the recorder.



- 3** Insert the battery holder into the battery case of the recorder correctly as shown in the diagram below, while paying attention to the polarity displays (+: plus, and -: minus) on the case.



- 4** Re-attach the removed battery case cover.

Notes

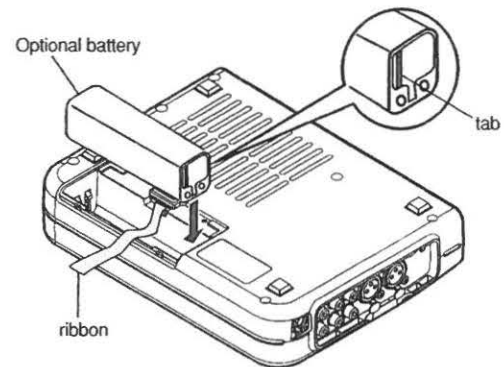
- When using the optional rechargeable batteries for the first time, fully charge the batteries. Connect the provided AC adaptor to the recorder to recharge the batteries.
- If the batteries run out during the HD recording, recording automatically stops and the file information is updated before the recorder shuts down.
- When burning data from the HD to a CD-R, the CD burning process will not start if there is not enough battery power remaining. Furthermore, if the batteries run out while burning to the CD-R, recording will stop and the recorder will shut down. If this happens, the CD burning process may not complete correctly.

Safety cautions on handling batteries

Always follow the points below when using batteries to avoid electrolyte leakage, overheating, fire, rupturing, ingestion, etc.

- Electrolyte leakage or corrosion may occur if batteries are kept inside the recorder for prolonged periods of time. If the recorder is not to be used for a prolonged period, remove the batteries to prevent electrolyte leakage.
- Make sure that the + and - markings on the batteries are aligned with the corresponding markings in the battery case and the battery holder.
- Do not recharge, heat, or disassemble batteries. Do not throw dry cell batteries onto a fire.
- Do not insert old or exhausted batteries into the recorder.
- Do not mix the type of battery, and do not use both old and new batteries together.
- If the recorder does not operate correctly, replace the old batteries with new ones.
- If electrolyte has leaked, thoroughly wipe the inside of the battery holder, and then insert new batteries.

Installing an optional Ni-Cd or Ni-MH battery



Install the battery with tab as shown and over the ribbon for easy battery removal.

When changing battery type, be sure you change the Battery type menu setting for optimal battery performance.

Charging the optional Ni-Cd battery

- Load the Ni-Cd battery correctly in the battery compartment.
- Connect the AC power pack and AC adaptor into power supply.
- Select Ni-Cd in the battery type menu. (P.13)
- Power the CDR310 on, then off for the charging cycle to begin.
- The CDR310 must be off during battery charging.

While charging (about 3 hours), the CHARGE indicator will be lit and steady.

When the Ni-Cd battery charge cycle is complete, the CHARGE indicator will be off.

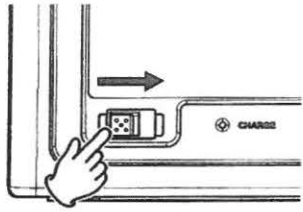
Basic Operations

Power on/off

1 Slide the **power switch** to switch the power ON.

Notes

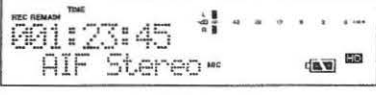
The factory-preset settings are set to record sound using the external microphone input. Refer to "Menu Settings" for details on the default settings of the various menus. (P.17)



- At this time, the display shows "Loading". The recorder's BOOT process starts.



- The recorder stops when the BOOT process completes.



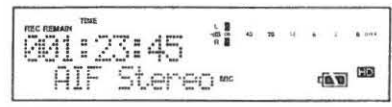
2 Slide the **power switch** to switch the power OFF.

Battery type settings

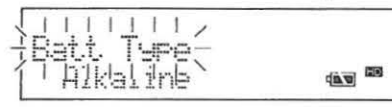
Set the battery type for the recorder to match the type of batteries you are using.

< Default value > Alkaline

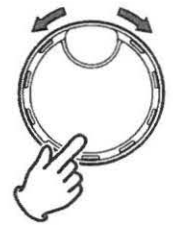
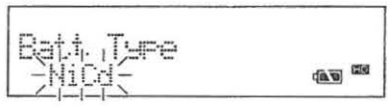
1 While the recorder is stopped, press the **MENU/STORE** button.



2 Turn the **JOG** to select "Batt Type" and press the **JOG**.



3 Turn the **JOG** to select the type of battery, and press the **JOG**.







Display	Battery type
Alkaline	Alkaline battery
NiCd	Optional Nickel-Cadmium battery
NiMH	Optional Nickel-Metal Hydride battery

4 Press the **MENU/STORE** button to register the settings.



Battery remaining indicator

The recorder operates using commercially available AA size alkaline batteries, the optional Nickel-Cadmium battery, or the optional Nickel-Metal Hydride battery. During operation, the battery remaining indicator is as follows.

Remaining indicator	Display explanation
No display	Nothing is displayed when the AC adaptor is being used. The adaptor power supply is valid.
	There is still ample battery power remaining.
	The amount of battery power remaining has decreased to approx. half.
	Only a small amount of battery power remaining. There is not enough battery power remaining to record or playback. Either replace the batteries with new ones, or recharge the rechargeable batteries.
 Flashing	There is almost no remaining battery power. If the "Beep" setting in the menu are set to ON, the beep sound will be heard. If you continue recording while this indicator is flashing, recording/playback will stop, and the recorder will shut down.

Notes

If the battery type is not set correctly to match the type of battery being used, the battery remaining display may not be displayed correctly.

Setting the clock

Set the current time (year, month, date, hour, minute).

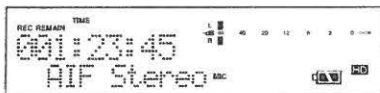
Notes

The setting order is different depending on the "DateForm" settings in the menu. Check the "Date form settings" setting. (P.16)

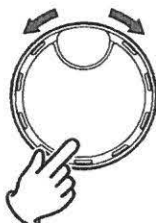
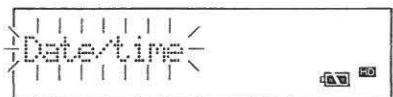
DateForm	Setting order
M (Month) / D (Date) / Y (Year)	Month → Date → Year → Hour → Minute
D (Date) / M (Month) / Y (Year)	Date → Month → Year → Hour → Minute
Y (Year) / M (Month) / D (Date)	Year → Month → Date → Hour → Minute

< When DateForm: M/D/Y >

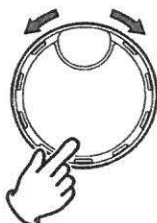
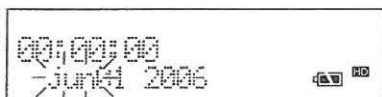
- 1 While the recorder is stopped, press the **MENU/STORE** button.



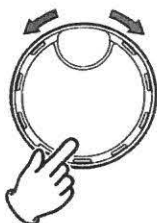
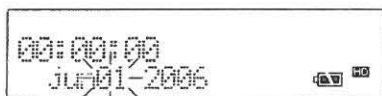
- 2 Turn the **JOG** to select "Date/time" and press the **JOG**.



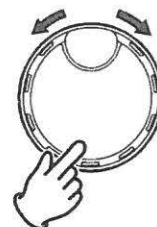
- 3 Turn the **JOG** to select [Month (Jan to Dec)], and press the **JOG**.



- 4 Turn the **JOG** to select [Date (01 to 31)], and press the **JOG**.



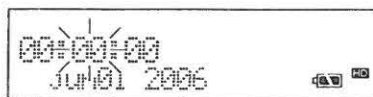
- 5 Turn the **JOG** to select [Year (2006 to 2099)], and press the **JOG**.



- 6 Turn the **JOG** to select [Time], and press the **JOG**.
For 24 hour display : 0 ~ 23
For 12 hour display : 0am ~ 11pm



- 7 Turn the **JOG** to select [Minute (00 to 59)], and press the **JOG**.



- 8 Press the **MENU/STORE** button to register the settings.



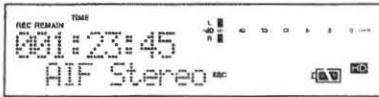
Date form settings

There are 3 types of date form. You can set the form to your own preference.

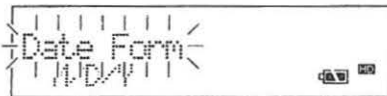
Form type	Form subjects	Form example
M/D/Y	Month/Date/Year	Jan 10 2006
D/M/Y	Date/Month/Year	10 Jan 2006
Y/M/D	Year/Month/Date	2006 Jan 10

< Default value > M/D/Y*, D/M/Y**

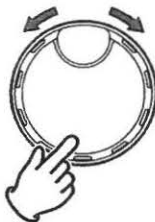
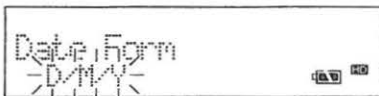
- 1 While the recorder is stopped, press the **MENU/STORE** button.



- 2 Turn the **JOG** to select "Date Form" and press the **JOG**.



- 3 Turn the **JOG** to select the type of date form, and press the **JOG**.



- 4 Press the **MENU/STORE** button to register the settings.



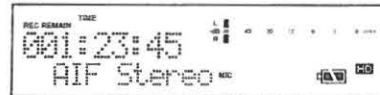
Time form settings

There are 2 types of time form. You can set the form to your own preference.

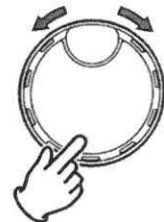
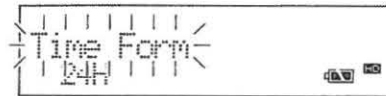
Form type	Form subjects	Form example
12H	AM/PM display	01 : 00 : 00 pm
24H	24 hour display	13 : 00 : 00

< Default value > 12H*, 24H**

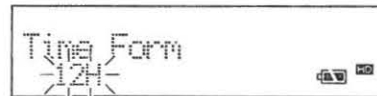
- 1 While the recorder is stopped, press the **MENU/STORE** button.



- 2 Turn the **JOG** to select "Time Form" and press the **JOG**.



- 3 Turn the **JOG** to select the type of time form, and press the **JOG**.



- 4 Press the **MENU/STORE** button to register the settings.

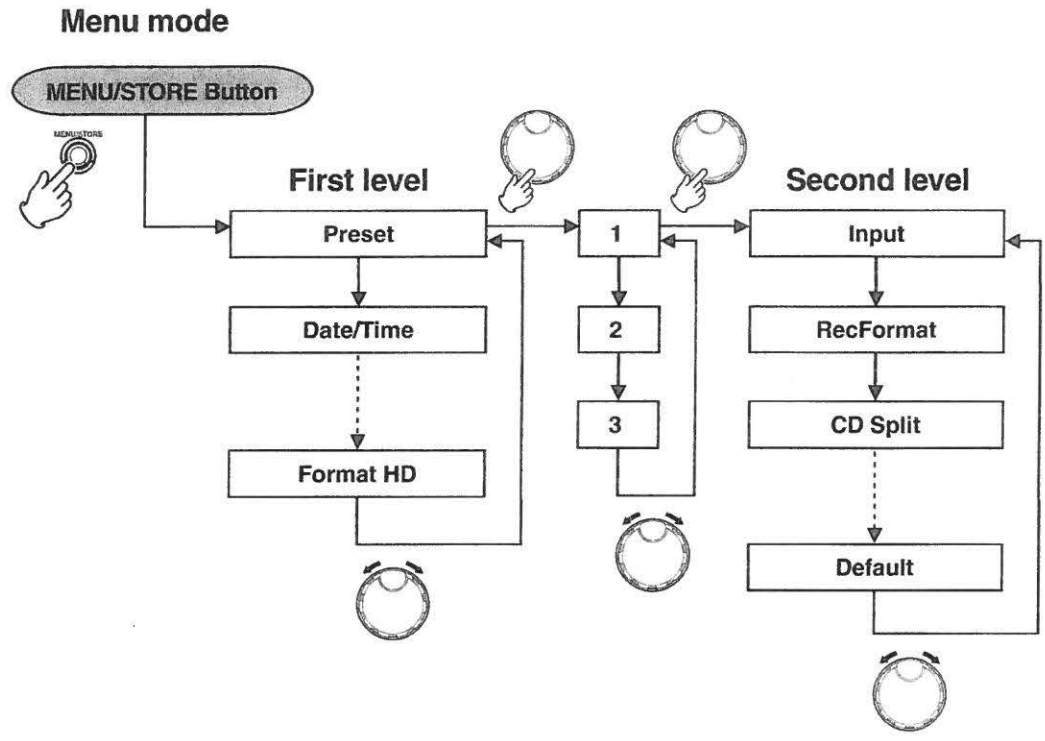


* : Only for USA
 ** : Only for Europe

Menu Settings

The recorder uses 8 menus to set the various functions. There is a menu for basic settings such as time (display method), alarm, automatic power off, and battery type, and a menu for formatting the internal HD. These menus are displayed by pressing the **MENU/STORE** button once to enter the menu mode.

You can also perform detailed settings for the recording and playback conditions, and register up to 3 of these settings in the preset menu. To enter this preset menu, select "PRESET" using the **JOG**, then specify the preset number. Refer to "Preset Menu" for details on preset items. (☞ P.18)



The composition of these menu contents is explained below.

Menu	Menu explanation	Settings	Default settings
Preset	3 settings can be registered. Select the preset number, and set the various items.	Preset-1, 2, 3	Preset-1
Date/Time (☞ P.15)	Sets the clock (current date and time).	2006–2036 JAN – DEC 1 – 31 AM/PM 0:00 – 11:59*, 0:00 – 23:59**	2006 JAN 1 AM0:00*, 0:00**
Date Form (☞ P.16)	Selects the type of date form.	M (Month) / D (Date) / Y (Year), D/M/Y, Y/M/D,	M/D/Y*, D/M/Y**
Time Form (☞ P.16)	Selects the type of time form.	12H, 24H	12H*, 24H**
Beep (☞ P.41)	Sets the alarm on/off.	On/Off	On
A.PowOff (☞ P.41)	Sets the automatic power off setting.	On/Off Time : 5/10/15/30 min	Off 15 min
Batt_Type (☞ P.13)	You can select the type of battery.	Alkaline, NiCd, NiMH	Alkaline
Format HD (☞ P.21)	Formats the HD.	(Execute)	–

* : Only for USA
** : Only for Europe

Preset menu

You can store to 3 detailed preset on the recorder for such settings as recording input, recording format, playback mode, remote control, etc. There are 17 setting items in the preset menu, and 3 presets can be set with the desired conditions.

The contents of the preset menu are explained below.

Preset1 : High quality PCM recording

Preset2 : Meeting recording (monaural)

Preset3 : MP3 music recording

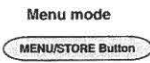
Preset menu	Menu explanation	Settings	Default settings		
			Preset1	Preset2	Preset3
Input (P.22)	Selects the input source.	MIC, Line, Int. MIC, Dig-In	MIC	MIC	MIC
RecFormat (P.23)	Sets the recording format.	Stereo, Mono CD-DA, WAVE, MP3, AIFF	Stereo CD-DA	Mono MP3	Stereo MP3
CD Split (P.36)	When burning HD data to CD-R, this sets the saving procedure for the final track when all of the contents will not fit onto one CD-R.	On/Off	On	On	On
PreRecord (P.29)	Sets PreRecord.	Off/1-10 sec (1 sec steps)	Off	4 sec	4 sec
Rec Level (P.25)	Sets the recording level operating method.	Manual/ALC	Manual	Manual	Manual
MIC-ATT-L (P.27)	External microphone Sets the attenuator function for the left channel side.	On/Off	Off	Off	Off
MIC-ATT-R (P.27)	External microphone Sets the attenuator function for the right channel side.	On/Off	Off	Off	Off
IntMicATT (P.27)	Sets the attenuator function for the internal microphone.	On/Off	Off	Off	Off
Phantom (P.28)	Sets the Phantom power supply when a condenser microphone is connected.	On/Off	Off	Off	Off
BkGrndRec (P.30)	Sets background recording.	On/Off	Off	Off	Off
SilentSkp (P.31)	Sets Silent Skip.	On/Off Time : 1-5 sec (1 sec steps) Level: -60- -20dB (5dB steps)	Off 3 sec -40dB	Off 3 sec -40dB	Off 3 sec -40dB
ManualTR (P.32)	Sets Manual Track.	On/Off	On	On	On
Auto TRK (P.33)	Sets Auto Track.	On/Off Time : 1/5/10/15/30 min, 1/2/6/8/12/24 Hrs, 640/700 MB CD	Off 5 min	On 5 min	Off 5 min
Play Mode (P.39)	Sets the playback mode.	Normal, Repeat All, Repeat TRK, Single	Normal	Normal	Normal
StopMonit (P.44)	Sets the Stop Monitor.	On/Off	Off	Off	Off
Remote (P.45)	Sets the operating mode controlled by the opening and closing of a switch contact.	* StartPause, StartPauTR, Manual TRK	Manual TRK	StartPauTR	StartPause
Default (P.46)	Returns the settings of the selected preset number only to the default values.	(Execute)	---	---	---

* StartPause : Start / stop
StartPauTR : Start / stop + track increment
Manual TRK : Manual track

Menu operation

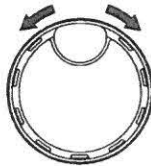
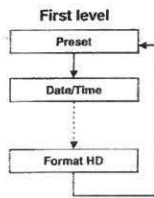
The recorder uses menus to set various functions. (P.18) You can alter the basic settings and use a wide range of recording and playback functions by changing the menu settings. The basic menu operations are explained in this section.

1 While the recorder is stopped, press the **MENU/STORE** button to enter the menu mode.

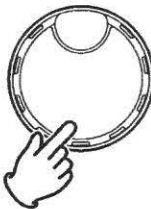


• The recorder enters the menu mode.

2 Turn the **JOG** to select a menu item.

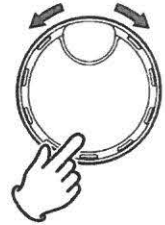
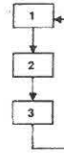


3 Press the **JOG** to choose the selected menu item.



• The recorder enters the setting mode for the menu item.

4 Turn the **JOG** to select the menu settings, then press the **JOG** to choose the selected settings.



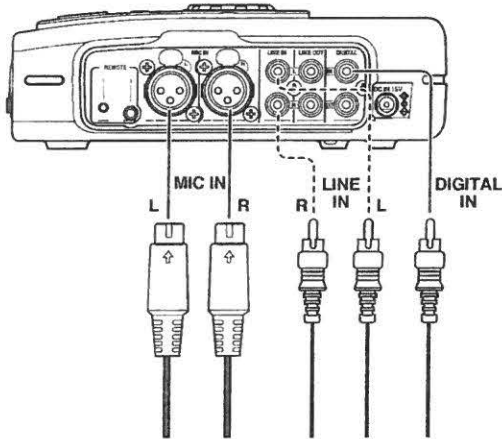
• Repeat the procedure above of rotating the **JOG** to select settings and items, and pressing the **JOG** to choose items and contents, to set each of the menu items.

5 Finally, press the **MENU/STORE** button to register all of the settings.



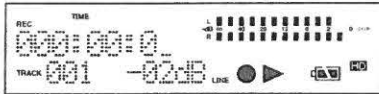
Recording to the HD

Schematics



Basic operations for recording

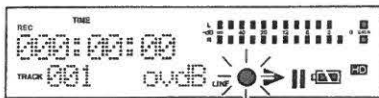
- 1 Press the **REC** button when the recorder is stopped to start recording.
 - During recording, the REC indicator lights and the following contents are displayed on the display.



Notes

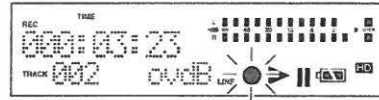
- The default preset settings for [Recording level control settings] are set to "Manual". For details on adjusting the recording level/LR balance, please refer to [Recording level control settings]. (P.25)
- When recording with the internal microphone, switch the SPEAKER switch OFF to avoid feedback between the internal microphone and speakers.

- Also, to start recording from the recording standby status, press the **REC PAUSE** button while the recorder is stopped to switch to recording standby status. When in recording standby status, the REC indicator flashes and the following contents are displayed on the display.



Adjust the recording level/LR balance while in recording standby. (P.26)
After adjusting the recording level/LR balance, press the **REC** button to start recording.

- 2 Press the **REC PAUSE** button to pause recording.
 - The recording mark flashes in the display while recording is paused.



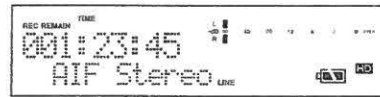
- Press the **REC** button when recording is paused to start recording again.

- 3 Press the **STOP** button to stop recording.
 - The recorded track (file) information is saved to the HD.



- Press the **PLAY** button after this to play back the recorded track from the start.

- 4 Press the **STOP** button once again to return to the stopped status.

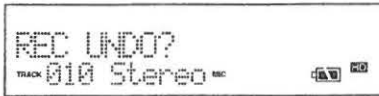


- Press the **PLAY** button after this to play back from the first track.

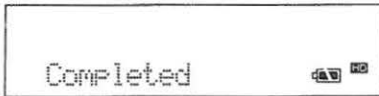
Erasing recordings

You can erase data (tracks) recorded to the HD after stopping recording.

- 1 After stopping recording, press the **UNDO** button to switch to the erase mode of the recorded track.
 - "REC UNDO?" is displayed for 3 seconds.



- 2 Press the **UNDO** button again while "REC UNDO?" is being displayed.
 - The recorded track is erased, and "Completed" is displayed for 3 seconds.



Formatting the HD

Formats all of the tracks recorded onto the HD.

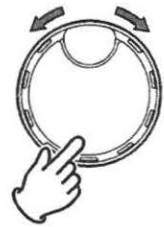
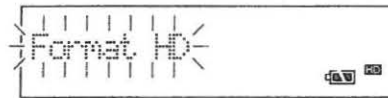
Notes

If the HD is formatted, **all contents of the HD are erased**. Before formatting, re-check the contents of the HD.

- 1 While the recorder is stopped, press the **MENU/STORE** button.



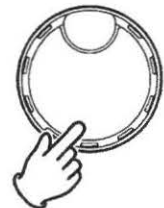
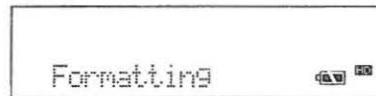
- 2 Turn the **JOG** to select "Format HD" and press the **JOG**.



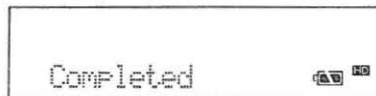
- A confirmation message to perform HD format is displayed.



- 3 To format the HD, press the **JOG**.
 - "Formatting" is displayed while the HD is being formatted.



- After formatting has completed, "Completed" is displayed for 1 second. After that, the recorder returns to the stopped status.



Detailed Settings for HD Recording

Input source settings

Set the input source (internal microphone, external microphone, line input, digital input) for recording.

< Default value > Preset1 : MIC
 Preset2 : MIC
 Preset3 : MIC

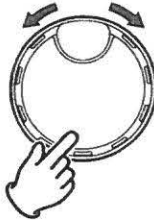
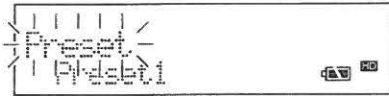
Notes

If digital input is set, only the sampling frequency 44.1KHz is available. Any other frequencies are displayed as unlocked, and are not recorded.

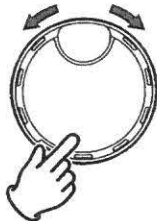
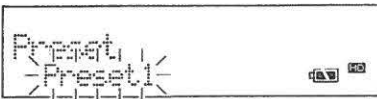
- 1 While the recorder is stopped, press the **MENU/STORE** button.



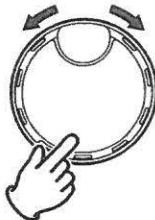
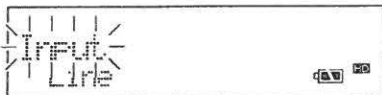
- 2 Turn the **JOG** to select "Preset" and press the **JOG**.



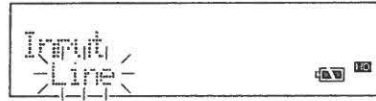
- 3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



- 4 Turn the **JOG** to select "Input" and press the **JOG**.



- 5 Turn the **JOG** to select the type of input source ("MIC", "Line", "Int.Mic", "Dig-In"), and press the **JOG**.



- 6 Press the **MENU/STORE** button to register the settings.



Notes

Depending on the combination of input source and recording format (channel), the input signal stereo / monaural settings are as follows.

For details on the recording format settings, please refer to [Recording format settings]. (P.23)

		Recording Channel	
		Stereo	Mono
Input Source	External microphone	L/R Stereo	L/R Mono Mix
	Internal microphone	Same source in L/R	Mono
	LINE Input	L/R Stereo	L/R Mono Mix
	DIGITAL input	L/R Stereo	L/R Mono Mix

Recording format settings

Set the recording format (compression format and channel) for recording.

< Default value > Preset1 : Stereo/CD-DA
 Preset2 : Mono/MP3
 Preset3 : Stereo/MP3

Notes

The recording format can only be changed when there are no tracks saved on the HD. There is only one HD recording format available at onetime on the recorder. This cannot be changed if tracks are already recorded in a certain format. To change the recording format, either burn the data to a CD-R, or format the HD. When data is burned to a CD-R, the data on the HD is erased. Stereo/monaural can be changed.

[Recording format parameters]

The recorder can record in the following recording formats and channels.

- Compressed sound recording that uses MPEG Audio Layer III (MP3) in either monaural or stereo.
- Non-compressed sound recording that uses the 16-bit linear pulse code modulation used on a CD-DA.
- Non-compressed sound recording that uses WAVE (Windows standard audio file format)
- Non-compressed sound recording that uses AIFF (the audio file format developed by Apple Computer, Inc.)

The format parameters that can be recorded are as shown below.

When the channel setting is set to Stereo

Recording Format	Sampling Frequency	Bit Rate	File Extension	Recordable Time (Approximately)
MP3	44.1KHz	128Kbps	.mp3	55 hrs
CD-DA	44.1KHz	—	.cda	5 hrs
WAVE	44.1KHz	—	.wav	5 hrs
AIFF	44.1KHz	—	.aif	5 hrs

When the channel setting is set to Mono

Recording Format	Sampling Frequency	Bit Rate	File Extension	Recordable Time (Approximately)
MP3	44.1KHz	64Kbps	.mp3	110 hrs
CD-DA	44.1KHz	—	.cda	5 hrs
WAVE	44.1KHz	—	.wav	10 hrs
AIFF	44.1KHz	—	.aif	10 hrs

When burning from the HD to CD, the CD-R Format is decided by the recording format as shown below.

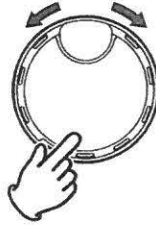
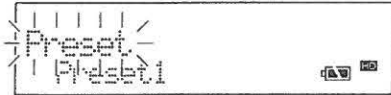
Recording Format	CD Format
MP3	Data Disc
CD-DA	CD-DA Disc
WAVE	Data Disc
AIFF	Data Disc

Set the recording format (compression format and channel) using the procedure shown below.

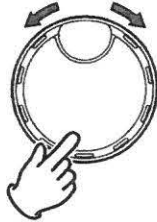
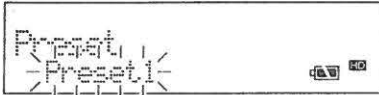
1 While the recorder is stopped, press the **MENU/STORE** button.



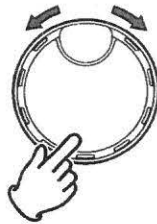
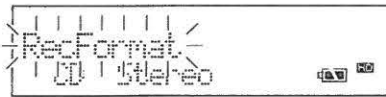
2 Turn the **JOG** to select "Preset" and press the **JOG**.



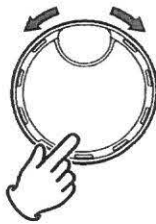
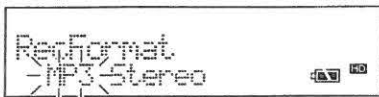
3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



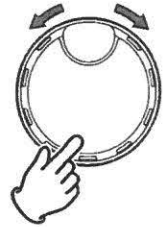
4 Turn the **JOG** to select "RecFormat" and press the **JOG**.



5 Turn the **JOG** to select the compression format ("MP3", "CD-DA", "WAVE", "AIFF"), and press the **JOG**.



6 Turn the **JOG** to select the channel ("Stereo", "Mono") and press the **JOG**.



7 Press the **MENU/STORE** button to register the settings.



Recording level control settings

Set the recording level menu (ALC, Manual) for recording.

- Automatic level control (ALC)
If the recording level menu is set to ALC, the recording level for external microphone input or internal microphone input is automatically set.
When ALC is set, the ALC icon lights in the display.

Notes

ALC becomes invalid for line input or digital input recording. Even if the ALC is set, control switches to manual control.

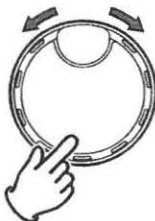
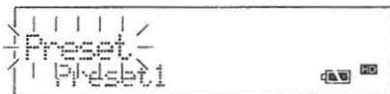
- Manual control (Manual)
If the recording level menu is set to Manual, turn the **JOG** to set the recording level when recording is paused or during recording.
Also, the LR balance can be set by holding down the **MENU** button and rotating the **JOG** during recording.

< Default value > Preset1 : Manual
Preset2 : Manual
Preset3 : Manual

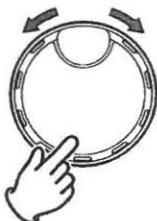
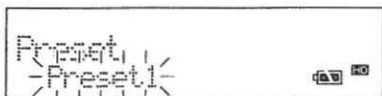
- 1 While the recorder is stopped, press the **MENU/STORE** button.



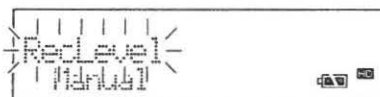
- 2 Turn the **JOG** to select "Preset" and press the **JOG**.



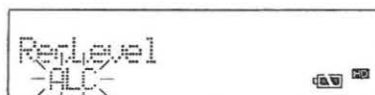
- 3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



- 4 Turn the **JOG** to select "RecLevel" and press the **JOG**.



- 5 Turn the **JOG** to select the recording level ("ALC", "Manual") and press the **JOG**.



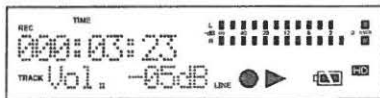
- 6 Press the **MENU/STORE** button to register the settings.



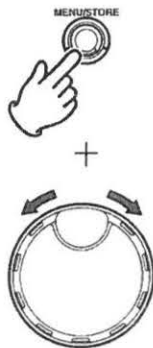
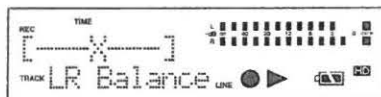
[Operations when manual control is set]

When the recording level menu is set to Manual, use the **JOG** as shown below to set the recording level.

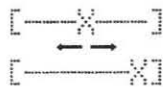
- Recording level settings
Turn the **JOG** while recording is paused or during recording, and the manual level control screen is displayed.
Turn the **JOG** to set the level.
(The level can be changed from +10dB to Mute)



- LR balance settings
Hold down the **MENU** button and turn the **JOG** while recording is paused or during recording, and the LR balance control screen is displayed.
Turn the **JOG** to set the LR balance.



The LR balance can be changed to 0dB to -18dB on the left, or 0dB to -18dB on the right.



If the above-mentioned recording level and LR balance are left without operation for 3 seconds, the recorder returns to the previous display mode.

Microphone attenuator

Set the attenuator function for external microphone input and internal microphone input.

For external microphone input, set this function when using microphones that have different sensitivity levels. The attenuator function for the external microphone can be set for the L/R sides respectively.

For internal microphone input, set this function when the input sensitivity is too high.

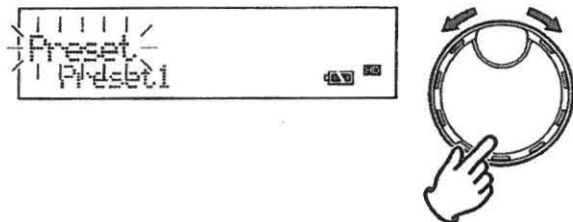
- Attenuator OFF (0dB)
No microphone level attenuation.
- Attenuator ON (-20dB)
The input signal from either the microphone connected to the MIC IN jack or the internal microphone is attenuated by -20dB.

< Default value > Preset1 : Off
Preset2 : Off
Preset3 : Off

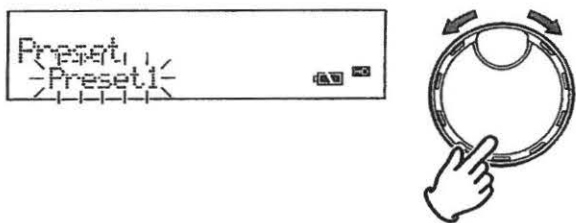
1 While the recorder is stopped, press the **MENU/STORE** button.



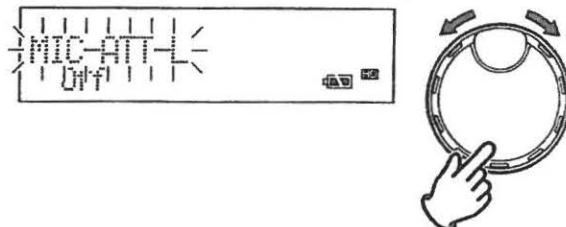
2 Turn the **JOG** to select "Preset" and press the **JOG**.



3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.

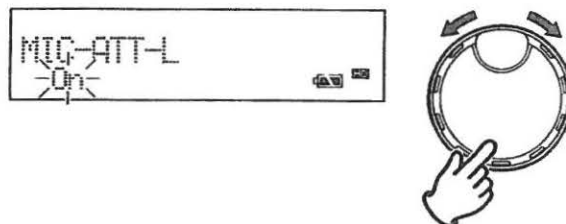


4 Turn the **JOG** to select the microphone attenuator selection ("MIC-ATT-L", "MIC-ATT-R", "IntMicATT") that you want to set in the preset menu, and press the **JOG**.



Preset menu	Menu contents
MIC-ATT-L	External microphone L Channel
MIC-ATT-R	External microphone R Channel
IntMicATT	Internal microphone

5 Turn the **JOG** to select function On/Off, and press the **JOG**.



6 Press the **MENU/STORE** button to register the settings.



Phantom power settings

The recorder has DC+48V (P49) phantom power, and the phantom power can be set On/Off.

Set to On when a condenser microphone that requires an external power source is used.

When set to On, the "PHANTOM" icon lights in the display.

For details, please refer to the instruction manual that came with your microphone.

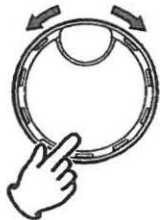
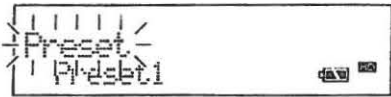
Phantom power consumes battery power. Set this setting to Off when using the internal microphone, a dynamic type microphone, or other such microphone that does not use phantom power.

< Default value > Preset1 : Off
 Preset2 : Off
 Preset3 : Off

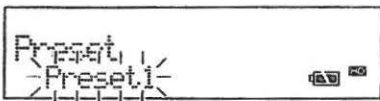
1 While the recorder is stopped, press the **MENU/STORE** button.



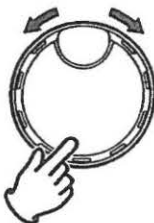
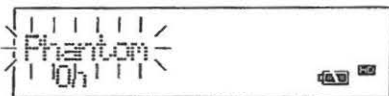
2 Turn the **JOG** to select "Preset" and press the **JOG**.



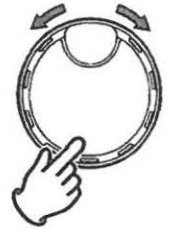
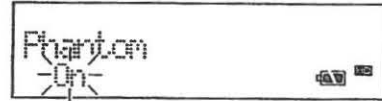
3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



4 Turn the **JOG** to select "Phantom" and press the **JOG**.



5 Turn the **JOG** to select function On/Off, and press the **JOG**.



6 Press the **MENU/STORE** button to register the settings.



PreRecord

Set the PreRecord function.

When the PreRecord function is set to On, sounds from the input source are saved for a set period of time (1 to 10 seconds) in stop or rec pause mode. When the recording is restarted, the audio data temporarily saved in the recorder is written to the HD, then recording continues from there.

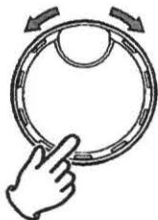
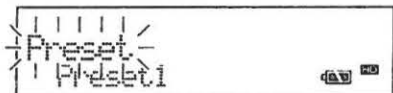
This can be set to a maximum of 10 seconds, which prevents missing the first part of a recording when recording is suddenly started.

< Default value > Preset1 : Off
 Preset2 : 4 sec
 Preset3 : 4 sec

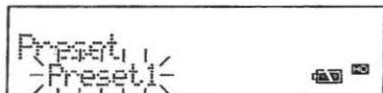
- 1 While the recorder is stopped, press the **MENU/STORE** button.



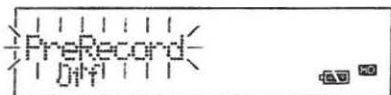
- 2 Turn the **JOG** to select "Preset" and press the **JOG**.



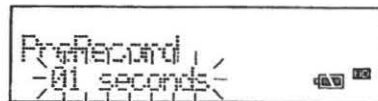
- 3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



- 4 Turn the **JOG** to select "PreRecord" and press the **JOG**.



- 5 Turn the **JOG** to select the temporary save time (1 to 10 seconds), and press the **JOG**.



- 6 Press the **MENU/STORE** button to register the settings.

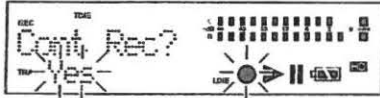


Background recording

Set background recording.

When background recording is set to On, recording is continued inside the recorder while recording is paused. This can be used to recover data after pausing a recording, so that nothing is missed even if important contents are lost while the recording is paused.

When the **REC** button is pressed to restart recording from the recording paused status, the display shows "Cont REC?" (Do you continue the recording?) "Yes".



Turn the **JOG** to select Yes/No, and press the **JOG**.

- When Yes is selected

The audio data recorded in background recording mode while the recording was paused is recorded.

- When No is selected

The data recorded by background is erased, and the recording starts as a new track. The new track is created from the point in which the track No is selected. At this time, if prerecord is set, only the data for the prerecord setting time remains.

Also, if the **STOP** button is pressed, the recording and this function stops.

Notes

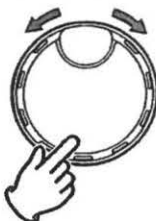
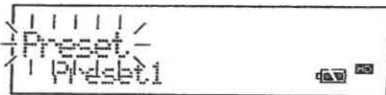
- During recording of the track 999 the new track is not created even if the background recording is selected in the menu setting.

< Default value > Preset1 : Off
 Preset2 : Off
 Preset3 : Off

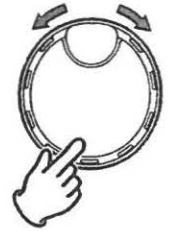
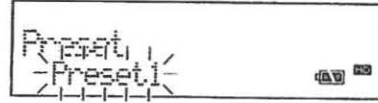
- 1 While the recorder is stopped, press the **MENU/STORE** button.



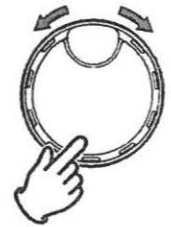
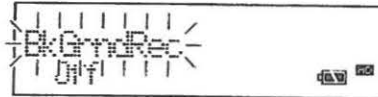
- 2 Turn the **JOG** to select "Preset" and press the **JOG**.



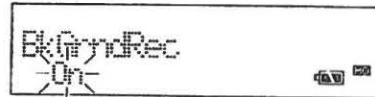
- 3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



- 4 Turn the **JOG** to select "BkGrndRec" and press the **JOG**.



- 5 Turn the **JOG** to select function On/Off, and press the **JOG**.



- 6 Press the **MENU/STORE** button to register the settings.



Silent skip

Set the silent skip function.

- Silent skip

The silent skip function automatically pauses the recording if there is a period of no signal during recording. Recording automatically starts again when an input signal is received. This function cuts unnecessary sections (sections with no sound) from within one track, and saves only the necessary sections. The file size is smaller, search is easier during playback, and the tracks are easier to listen to.

When silent skip is set, "S.SKIP" lights in the display, and it flashes when the recording is paused while there is no input signal.

- Silent skip/Track increment

Silent skip is processed within one track. However, if this function is set, every time the input signal is received, a new track is automatically created for the recording.

Notes

- This function does not operate when [Background recording] is set to On in the preset menu.
- When silent skip is set to ON, the prerecord function operates for 2 seconds, irrespective of the prerecord setting time.
- When silent skip is set to On, and the REC PAUSE button is pressed while the recorder is paused due to there being no signal, the recorder switches to regular recording pause status. At this time, the S.SKIP icon flashes in the display.
- During recording of the track 999 the new track is not created even if the Silent Skip Track is selected in the menu setting.

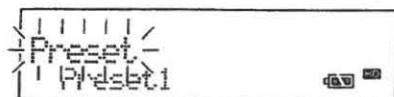
< Default value >

Preset1 : Off / Time : 3 sec / Level : -40dB
 Preset2 : Off / Time : 3 sec / Level : -40dB
 Preset3 : Off / Time : 3 sec / Level : -40dB

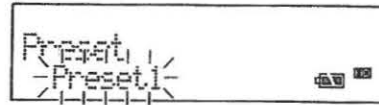
- 1 While the recorder is stopped, press the **MENU/STORE** button.



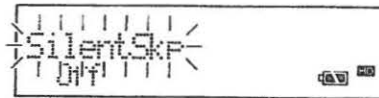
- 2 Turn the **JOG** to select "Preset" and press the **JOG**.



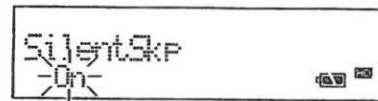
- 3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



- 4 Turn the **JOG** to select "SilentSkip" and press the **JOG**.

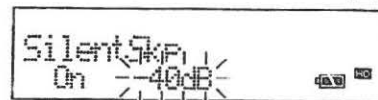


- 5 Turn the **JOG**, and select "On" to set silent skip, "T/ON" to set silent skip/track increment, or "Off" if you do not wish to set either. After making your selection, press the **JOG**.

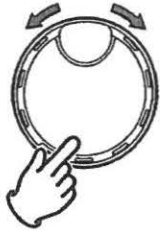
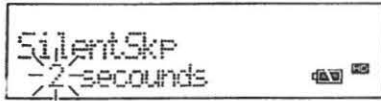


On	Silent Skip
T / ON	Silent Skip Track
Off	Off

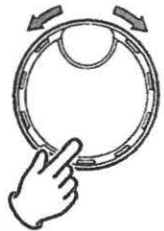
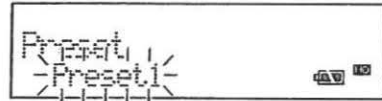
- 6 If you activate this function, turn the **JOG** to select the no signal level (-60 to -20dB: 5dB steps) and press the **JOG**.



7 If you activate this function, turn the **JOG** to select the no signal time (1 to 5 seconds) and press the **JOG**.



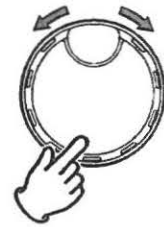
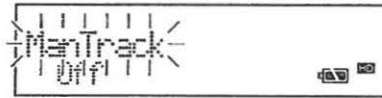
3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



8 Press the **MENU/STORE** button to register the settings.



4 Turn the **JOG** to select "ManTrack" and press the **JOG**.



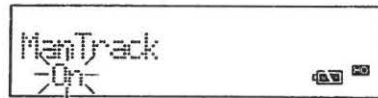
Manual track

Set the manual track.

If the manual track is set to On, press the **REC** button during recording to record as a new track at the point when the button was pressed.

This function can be used to create new tracks whenever desired, making it easier to search for tracks during playback. When manual track is set to On, the "M.TRACK" icon lights in the display.

5 Turn the **JOG** to select function On/Off, and press the **JOG**.



Notes

- During recording of the track 999 Manual Track is not functional.

6 Press the **MENU/STORE** button to register the settings.

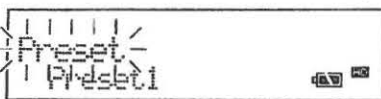


< Default value > Preset1 : On
 Preset2 : On
 Preset3 : On

1 While the recorder is stopped, press the **MENU/STORE** button.



2 Turn the **JOG** to select "Preset" and press the **JOG**.



Auto track

Set auto track.

When auto track is set to On, new tracks are automatically created and recorded at the set time interval.

Auto track can be set to make a new track every 1, 5, 10, 15, 30 minutes, or every 1, 2, 6, 8, 12, 24 hours, or every 640 Mbytes or 700 Mbytes.

By using this function, it is easy to search recorded contents for specific points.

For example, if the Auto Track function is set to "every 1 minute", the track number is updated every 1 minute. When playing back the recorded data, you can play back approximately the 3rd minute of the recording data by choosing track 4. To listen directly to the 10th minute of the recorded data, the search can be performed easily by selecting track 11.

(To search and listen from a certain number of minutes after the start, specify the track number n+1.)

Also, when burning from the HD to a CD-R, you can also divide the tracks by the capacity of one CD-R disc (640Mbyte or 700Mbyte).

When auto track is set to On, the "A.TRACK" icon lights in the display.

Notes

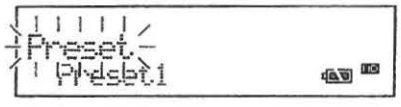
- When both auto track and manual track are set to On at the same time, if many tracks are created using manual track, the relationship between track number and time will not be consistent.
- If background recording is set to On and a No is chosen when recording is restarted, the data recorded by background is erased and a new track is created. The auto track setting time is also reset and a new count is started.
- During recording of the track 999 Auto Track is not functional.

< Default value > Preset1 : Off / Time : 5 min
 Preset2 : On / Time : 5 min
 Preset3 : Off / Time : 5 min

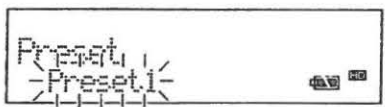
1 While the recorder is stopped, press the **MENU/STORE** button.



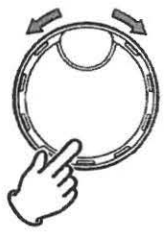
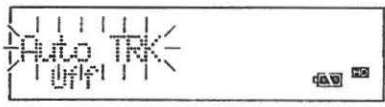
2 Turn the **JOG** to select "Preset" and press the **JOG**.



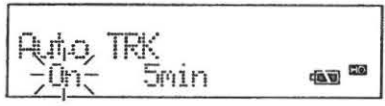
3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



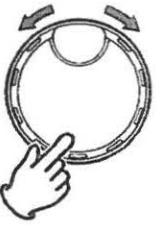
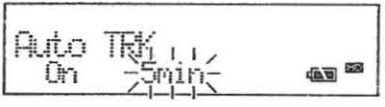
4 Turn the **JOG** to select "Auto TRK" and press the **JOG**.



5 Turn the **JOG** to select function On/Off, and press the **JOG**.



6 When this function is activated, turn the **JOG** to select the auto track time (every 1, 5, 10, 15, 30 minutes, or every 1, 2, 6, 12, 24 hours, or every 640Mbyte, 700Mbyte), and press the **JOG**.



7 Press the **MENU/STORE** button to register the settings.



CD Burning

You can easily burn all of the data recorded on the HD onto a CD-R with this recorder. You cannot specify particular data on the HD for burning onto a CD-R. After burning onto the CD-R, all of the data is erased from the HD.

Notes

- Do not attempt to playback or burn a CD while the recorder is on a slant, standing on its edge, or on an unstable surface.
- Do not move or carry the recorder while a CD is inserted and operating. Doing so may cause damage to the inserted CD.

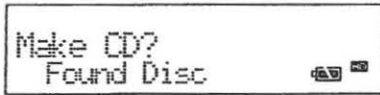
1 Insert a CD-R disc into the recorder's CD slot.

Notes

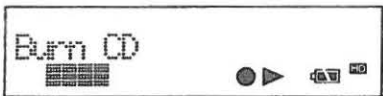
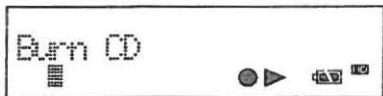
- Use CD-R discs that are compatible with the recorder. (P.5)
- Also, if all of the data will not fit onto one CD-R disc, the copy method for the final track can be set in [CD Split] in the preset menu. (P.36)

2 While the recorder is stopped, press the **MAKE CD** button.

- A confirmation message to perform CD burning is displayed.



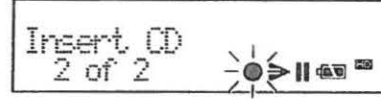
3 Press the **MAKE CD** button again to start burning all of the HD data onto a CD-R.



- The progress status is shown in the lower character display section. The display is a 10-figure display, with one figure representing 10%.
- Press the **CANCEL** button to cancel CD creation.

4 When CD burning is completed, the CD-R disc is automatically ejected from the CD slot.

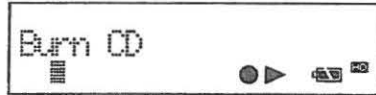
If all of the HD data did not fit onto 1 CD-R disc, "Insert CD" message is displayed.



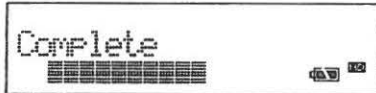
(Displayed when 2 discs are required)

5 To continue recording the remaining HD data to CD-R, insert the second CD-R disc into the recorder.

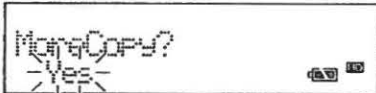
- When the CD-R disc is inserted, the recorder starts burning HD data to the CD-R again.



- When CD burning is completed, "Complete" is displayed for 3 seconds, and the CD-R disc is automatically ejected from the CD slot.



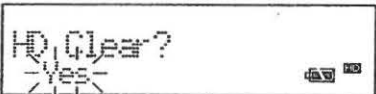
- When CD creation is fully completed, "MoreCopy?" is displayed.



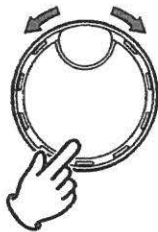
If you select No when "MoreCopy?" is displayed, the display switches to "HD Clear".

If you wish to format the HD, select YES.

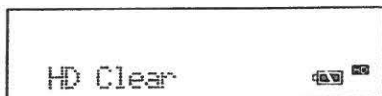
If you wish to create another CD, select No. The display returns to "MoreCopy?".



- 6 To burn the data again onto a different CD-R disc, turn the **JOG** to select "Yes", and press the **JOG**.
If you have finished burning to CD-R, select "No" and press the **JOG**.



- If you selected "Yes", CD creation starts again.
- If you selected "No", all of the HD data is erased. After all of the HD data is erased, "HD Clear" is displayed for 3 seconds, after which the display returns to the default display.



Notes

If an error occurs during CD creation, "Write_Err" is displayed in the lower section, and the CD-R disc is automatically ejected from the CD slot.
If a new CD-R disc is inserted, the recorder automatically starts CD creation again.

Recorded Date and Time of the files on the disc

The CDR310 has the Time/Date stamp function. The track recorded date and time will be recorded at the Track Title of the CD Text for CD-DA discs, and at the Track Title of ID3 tags for MP3 discs. A CD player which has the ability of those text displays can be shown the recorded date and time of each track.

Notes

Regarding the other files i.e. WAVE, AIFF and also MP3 you can see the recorded date and time on the computer. Please set the Time Zone of your computer to "GMT 0" before that to know the actual date and time.

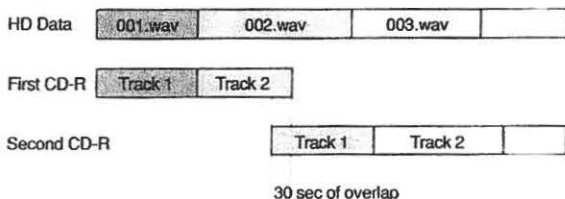
CD Split

When copying the HD data to CD-R disc, the copy method for the final track when all of the data will not fit onto 1 CD is set in the CD Split function.

• CD Split On Setting

This setting uses all of the unused space on a CD-R disc to save data.

This enables the effective use of disc space, and reduces the number of discs required. Also, when creating a CD with data from a meeting, etc., a 30 second overlap of the beginning and end contents is burned to make it easier to understand the context.



If track 001 and only part of track 002 can be saved to the first CD-R as shown in the diagram above, track 001 and part of track 002 are saved to the first disc. Then, the remainder of track 002 that could not be saved onto the first disc is saved onto the second disc, starting 30 seconds before the track cut off on the first disc.

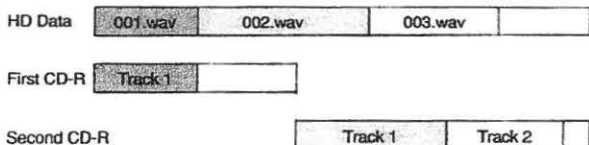
• CD Split Off Setting

The final track that could not fit onto the first CD-R is not saved to the first CD-R, but is saved from the beginning of the track onto the second CD-R.

Unused space remains on the disc, but it is easier to play back these tracks because only complete tracks exist on the same disc.

If a track with a file size larger than the capacity of the disc is being burned to disc, CD Split Off becomes invalid, and the track is cut midway.

If the file size of the next track is small, CD Split Off becomes valid again.



If only track 001 and part of track 002 can be saved onto the first CD-R as shown in the diagram above, track 001 is saved onto the first CD-R, and track 002 is saved from the start onto the second CD-R.

It is convenient to use auto track. (P.33)

Creating tracks with the desired time interval increases the efficiency with which discs are used.

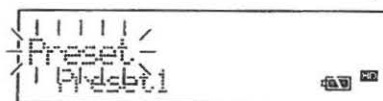
If you do not wish to create many tracks, you can create a disc with one CD-sized track by setting the capacity of the disc being used.

< Default value > Preset 1 : On
 Preset 2 : On
 Preset 3 : On

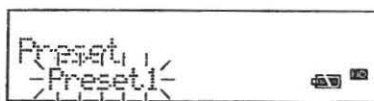
- 1 While the recorder is stopped, press the **MENU/STORE** button.



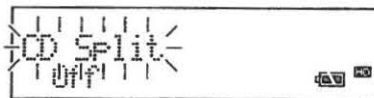
- 2 Turn the **JOG** to select "Preset" and press the **JOG**.



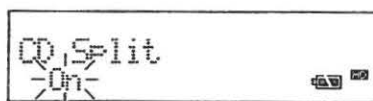
- 3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



- 4 Turn the **JOG** to select "CD Split" and press the **JOG**.



- 5 Turn the **JOG** to select function On/Off, and press the **JOG**.

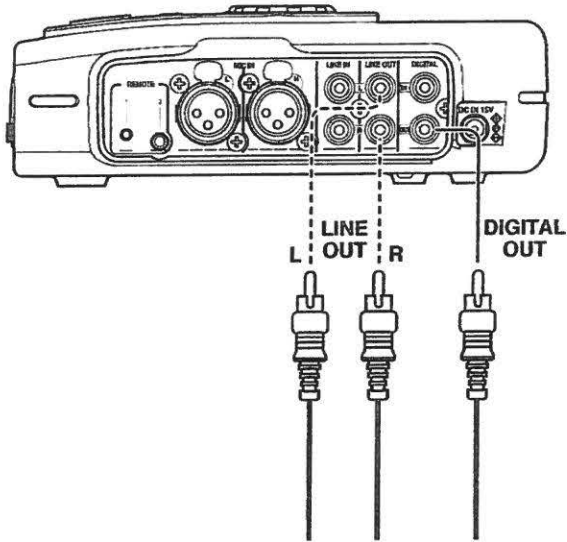


- 6 Press the **MENU/STORE** button to register the settings.



Playing Back HD Data

Schematics

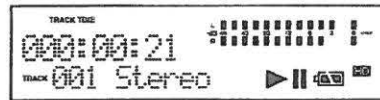


Basic operations for playback

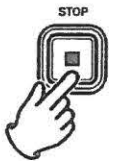
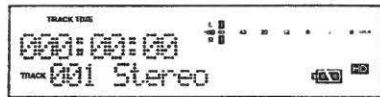
- 1 Press the **PLAY/PAUSE** button while the recorder is stopped to play back.
 - The following information is displayed during playback.



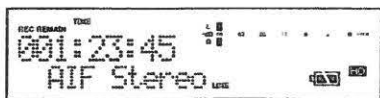
- 2 During playback, press the **PLAY/PAUSE** button to pause playback.



- 3 Press the **STOP** button to stop playback.
 - This display shows the stopped status of playback. If you press the **PLAY/PAUSE** button again, the stopped track starts playback again from the beginning of the track.



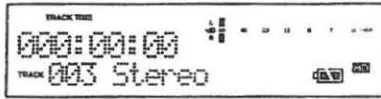
- 4 Press the **STOP** button again to return to the stopped status.
 - Press the **PLAY/PAUSE** button to play back from the first track.



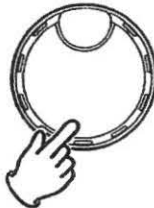
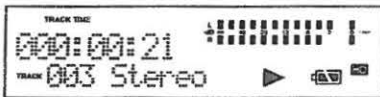
Track access

You can select the track that you wish to play back while the recorder is stopped, during playback, or while playback is paused.

- 1 Turn the **JOG** to display track selection while the recorder is stopped, during playback, or while playback is paused.



- 2 Select the track that you wish to play back, and press either the **JOG** or the **PLAY/PAUSE** button to play back the track.



Search

[Fast forward]

- 1 You can search at high speed in the forward direction by holding down the **FFWD** button while playback is paused or stopped. The search starts from the beginning of the first track while playback is stopped. The first 3 seconds of the forward search are performed at 10 times speed, after which the speed automatically increases to 140 times speed. When you release the button, the recorder returns to playback paused.



Notes

If the end of the track is passed with **FFWD** button still held down, search moves to the next track and continues searching in the forward direction.

[Fast reverse]

- 1 You can search at high speed in the reverse direction by holding down the **F.FREV** button while playback is paused or stopped. The search starts from the end of the final track while playback is stopped. The first 3 seconds of the reverse search are performed at 10 times speed, after which the speed automatically increases to 140 times speed. When you release the button, the recorder returns to playback paused.



Notes

If the start of the track is passed with **F.FREV** button still held down, search moves to the previous track and continues searching in the reverse direction.

Audible search

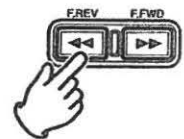
[Fast forward]

- 1 You can search audio at 2 times speed in the forward direction while listening to the audio by holding down the **FFWD** button during playback. Release the button to return to normal forward direction playback.



[Fast reverse]

- 1 You can search audio at 2 times speed in the reverse direction while listening to the audio by holding down the **F.FREV** button during playback. Release the button to return to normal forward direction playback.



Playback mode settings

You can select the playback mode from the following 4 modes.

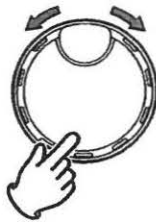
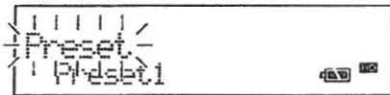
Mode	Mode explanation
Normal	Play back the tracks in numerical order, and playback stops when the final track playback is completed.
Repeat All	Repeat playback of all tracks.
Repeat Track	Repeat playback of selected tracks only.
Single	After completing playback of the tracks, playback is paused at the start of the next track.

< Default value > Preset1 : Normal
 Preset2 : Normal
 Preset3 : Normal

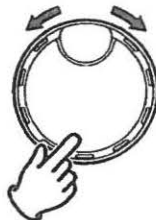
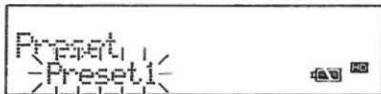
1 While the recorder is stopped, press the **MENU/STORE** button.



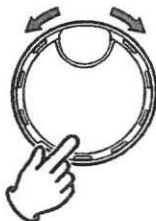
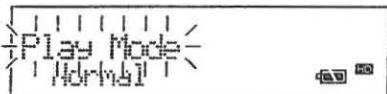
2 Turn the **JOG** to select "Preset" and press the **JOG**.



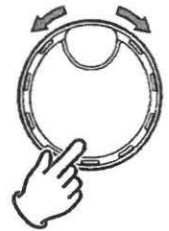
3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



4 Turn the **JOG** to select "Play Mode" and press the **JOG**.



5 Turn the **JOG** to select the playback mode and press the **JOG**.

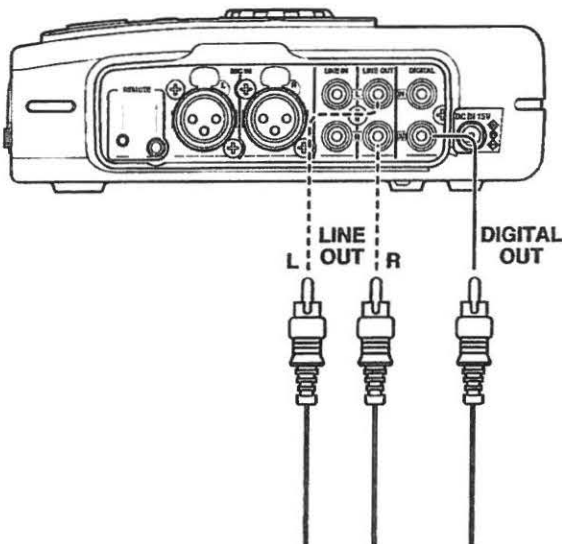


6 Press the **MENU/STORE** button to register the settings.



Playing Back CDs

Schematics



CD Playback

Pay attention to the following points when playing back a CD that was not created on the recorder.

- Data discs recorded in MP3, WAVE, and AIF format may contain a number of hierarchies (directory folders). In this case, the tracks are played back in a decided order because the recorder does not have an album (directory) selection function.
- As the recorder does not have a file name display function, only the track number starting from track 1 is displayed in the display.
- Maximum number of hierarchies that can be played back : 8
- Maximum number of displayable file : 999

You can playback a CD using the same playback mode as HD playback. (P.39)

Notes

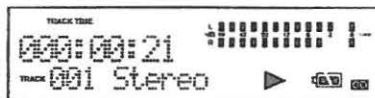
- Do not attempt to playback or burn a CD while the recorder is on a slant, standing on its edge, or on an unstable surface.
- Do not move or carry the recorder while a CD is inserted and operating. Doing so may cause damage to the inserted CD.

Basic operations for playback

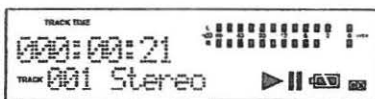
- While the recorder is stopped, press the **HD/CD** button to switch to CD playback mode.



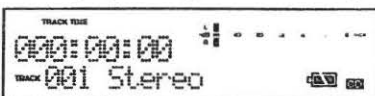
- Insert a CD into the recorder's CD slot.
- Press the **PLAY/PAUSE** button while the recorder is stopped to restart playback.
 - The following information is displayed during playback.



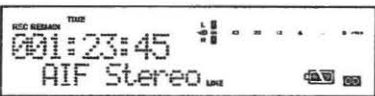
- Press the **PLAY/PAUSE** button to pause playback.



- Press the **STOP** button to stop playback.
 - This display shows the stopped status of playback. If you press the **PLAY/PAUSE** button again, the stopped track starts playback again from the beginning of the track.



- Press the **STOP** button once again to return to the stopped status.
 - In this state, press the **PLAY/PAUSE** button to play back from the first track.



- Press the **EJECT** button to eject the CD.

[Various CD playback operations]

When playing back a CD, you can perform the following various operations just as when playing back HD data.

- Track access (P.38)
- Search (P.38)
- Audible search (P.38)
- Playback mode settings (P.39)

The operating methods are the same as when playing back HD data.

Other Functions

Auto power off settings

If there is no operation for a set amount of time while the recorder is stopped or playback is paused, the power is automatically turned off.

Before the power turned off, the beep sound can be heard for 30 seconds through the speakers or headphones.

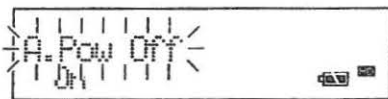
This function is used to conserve battery power.

< Default value > Off / 15 min

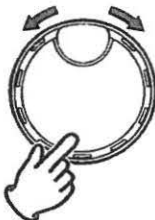
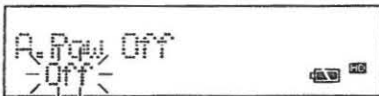
- 1 While the recorder is stopped, press the **MENU/STORE** button.



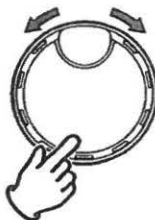
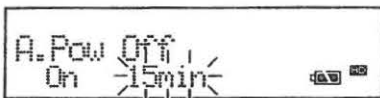
- 2 Turn the **JOG** to select "A.Pow Off" and press the **JOG**.



- 3 Turn the **JOG** to select function On/Off, and press the **JOG**.



- 4 If this function is activated turn the **JOG** to select the automatic power off (5, 10, 15, 30 minutes) and press the **JOG**.



- 5 Press the **MENU/STORE** button to register the settings.



Beep sound (alarm) setting

If there is no operation performed for a set amount of time for auto power off while the recorder is stopped or playback is paused, the beep sound can be heard.

The beep sound can be heard through the speakers or headphones.

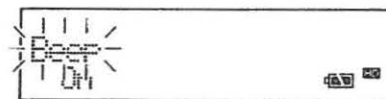
The beep sound that occurs when the remaining battery power is low can be heard through the headphones even if the recorder volume is set to minimum.

< Default value > On

- 1 While the recorder is stopped, press the **MENU/STORE** button.



- 2 Turn the **JOG** to select "Beep" and press the **JOG**.



- 3 Turn the **JOG** to select function On/Off, and press the **JOG**.



- 4 Press the **MENU/STORE** button to register the settings.

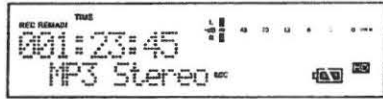


Switching the display mode

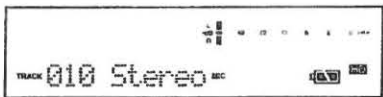
Depending on the status of the recorder, you can switch the information in the display by pressing the **DISPLAY** button.

[When the HD is stopped]

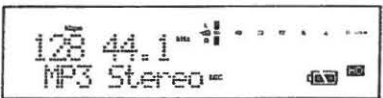
Remaining recordable time on the HD
(Default display)



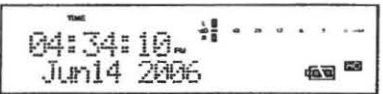
Total number of tracks



Recorded track information



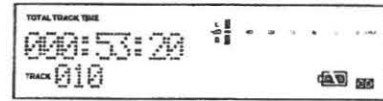
Current time



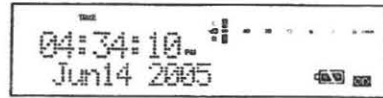
Remaining recordable time on the HD
(Return to the default display)

[When CD is stopped]

CD total time and total number of tracks
(Default display)



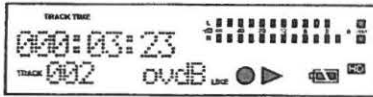
Current time



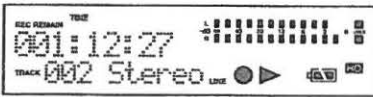
CD total time and total number of tracks
(Return to the default display)

[When in HD recording or recording paused status]

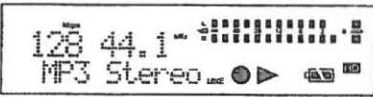
Recording elapsed time of current track
(Default display)



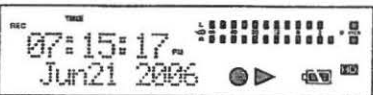
Remaining recordable time on the HD



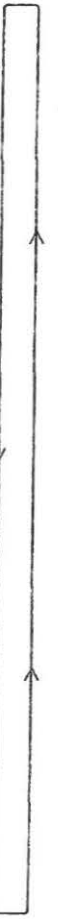
Recording format of recorded track



Recording date and time information



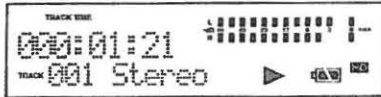
Recording elapsed time
(Return to the default display)



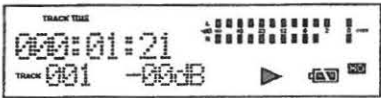
[When in HD/CD playback or playback paused status]

The following display screens are for HD playback.

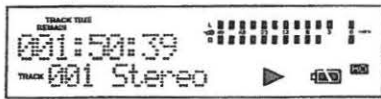
Playback elapsed time for the track currently being played back (Default display)



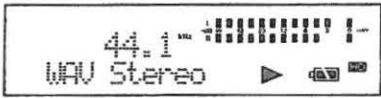
Level margin display



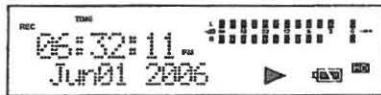
Remaining playback time for track currently being played back



Recording format of the track being played back



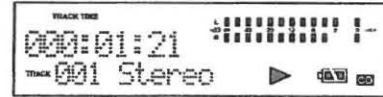
Recording date and time information



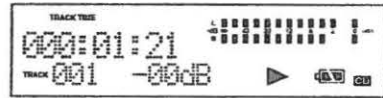
Playback elapsed time for the track currently being played back (Return to the default display)

The following display screens are for CD playback.

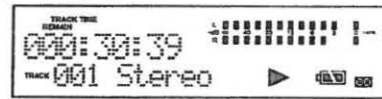
Playback elapsed time for the track currently being played back (Default display)



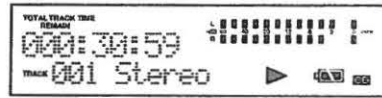
Level margin display



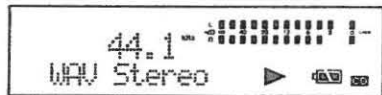
Remaining playback time for track currently being played back



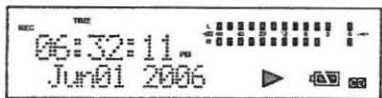
Remaining playback time for all tracks



Recording format of the track being played back



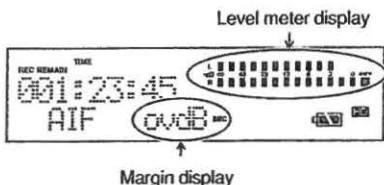
Recording date and time information



Playback elapsed time for the track currently being played back (Return to the default display)

Stop Monitor settings

This function constantly monitors the input signal from the selected input source while the recorder is stopped. When the Stop Monitor function is set to On, the level and level margin of the currently connected input signal is displayed in the display. Furthermore, audio is output to the line out jack, speakers, or headphones.

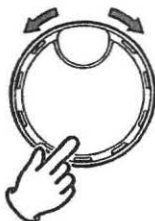
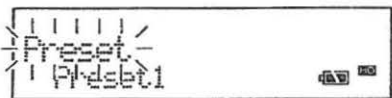


< Default value > Preset1 : Off
 Preset2 : Off
 Preset3 : Off

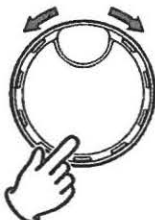
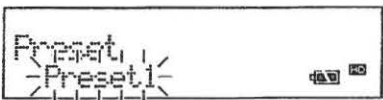
1 While the recorder is stopped, press the **MENU/STORE** button.



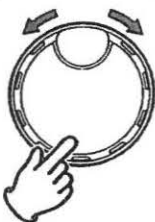
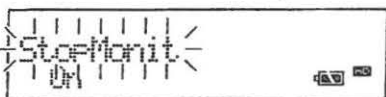
2 Turn the **JOG** to select "Preset" and press the **JOG**.



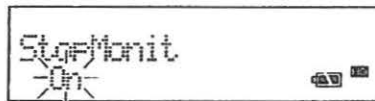
3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



4 Turn the **JOG** to select "StopMonit" and press the **JOG**.



5 Turn the **JOG** to select function On/Off, and press the **JOG**.



6 Press the **MENU/STORE** button to register the settings.



Key lock settings

When the **KEYLOCK** switch is switched ON, all of the operating buttons and switches are locked, except for the **LIGHT** button.

1 Set the **KEYLOCK** switch to ON while the recorder is stopped, paused, recording, or playing back to engage the key lock.



• If any of the buttons (except for the **LIGHT** button) are operated while key lock is engaged, the display shows "KEY LOCKED".

2 Return the **KEYLOCK** switch to OFF to disengage the key lock.

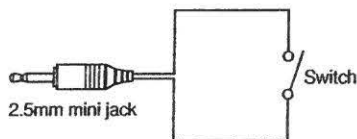
Various remote functions

1. Using a contact remote (contact closure) and setting the operating mode

Set the operating mode for the switch contact connected to the REMOTE1 jack.

There are the following 3 operating modes for when the switch contact is opened and closed.

Wiring diagram of switch contact device



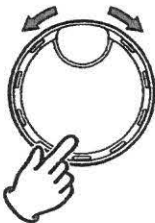
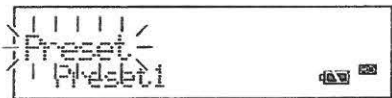
- Start / pause mode (StartPause)
Open / Close : Playback or recording starts.
Close / Open : Playback or recording pauses.
- Start / pause + track increment mode (StartPauTR)
Open / Close : Playback or recording starts.
Close / Open : Playback or recording pauses.
Creates a new track during recording.
- Manual track mode (Manual TRK)
Open / Close : Creates a new track.
Close / Open : No operation.

< Default value > Preset1 : Manual TRK
Preset2 : StartPauTR
Preset3 : StartPause

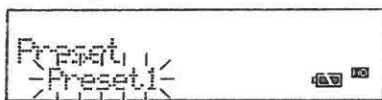
1 While the recorder is stopped, press the **MENU/STORE** button.



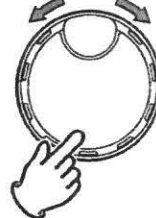
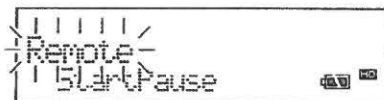
2 Turn the **JOG** to select "Preset" and press the **JOG**.



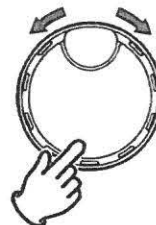
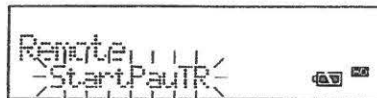
3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



4 Turn the **JOG** to select "Remote" and press the **JOG**.



5 Turn the **JOG** to select the switch contact operating mode, and press the **JOG**.



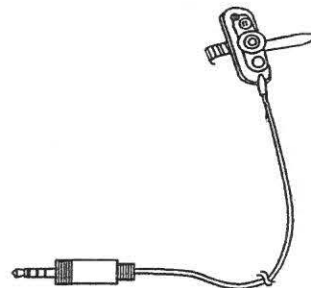
6 Press the **MENU/STORE** button to register the settings.



2. Microphone remote connection

Optional jack for the microphone remote RC600PMD (sold separately). The RC600PMD is a small unit that can be attached to the microphone.

As the recorder can be controlled by hand while holding the microphone, this is a very useful device in situations such as recording interviews, etc.



- Microphone remote RC600PMD has 3 buttons, REC, REC PAUSE, and MARK, which perform the same functions as the buttons on the recorder. However, as the CDR310 does not have a marking function, the MARK button cannot be used.
- The microphone remote has 1 LED that serves as the REC indicator and peak indicator.

(REC indicator)

Lights red during recording, and flashes red while recording is paused.

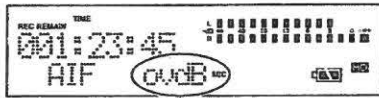
(Peak indicator)

Lights orange when the source level becomes the same level as [OVER] on the level meter during recording or recording pause.

However, it lights green when in standby (statuses other than recording and recording pause). Orange (peak) takes precedence over red in the display.

Margin display

For this reason, a precise clip margin (amount of margin from the current source level at 0dB) is displayed in -dB. The value is held in the same way as for peak hold. Press the **CANCEL** button to reset it.



Margin display

CD-TEXT, ID3 tag

There is no text display function on the recorder. However, the Time/Date stamp (the recording start date and time for a certain file) information can be recorded as text information. This is so file recording information can be seen on a regular CD player. The information is recorded in the title areas for both, as CD text for CD-DA, and as an ID3 tag for MP3. These text displays can be displayed on CD players that support these text displays.

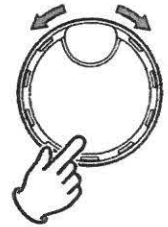
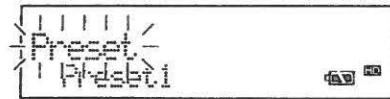
Initialization of preset settings

Returns the settings of the selected preset number to default.

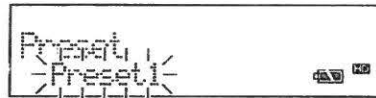
- 1 While the recorder is stopped, press the **MENU/STORE** button.



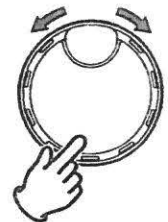
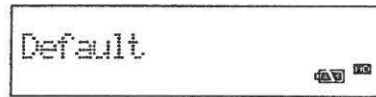
- 2 Turn the **JOG** to select "Preset" and press the **JOG**.



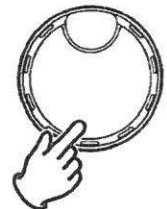
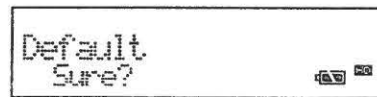
- 3 Turn the **JOG** to select the preset number that you wish to set, and press the **JOG**.



- 4 Turn the **JOG** to select "Default" and press the **JOG**.



- At this time, a default process confirmation screen is displayed. Press the **JOG** to perform the process.



- After default processing, "Completed" is displayed for 1 second, and the settings only for the selected preset number are returned to the default values. After that, the recorder returns to the stopped status.

Troubleshooting

If you think a malfunction has occurred, there may be no need to contact the dealer or the repair service counter. Please check the following points. You can easily solve many problems without needing to ask for professional help. If the problem cannot be solved even after performing these checks, contact your dealer.

Recorder power will not turn on.

- Insert new batteries.
- If you are using rechargeable batteries, recharge the batteries.
- Check the connection of the AC adaptor.

The recorder power turns itself off after it is turned on.

- Insert new batteries.

There is no sound from the internal speakers.

- Check the LEVEL volume setting on the front side of the recorder.
- Check the ON/OFF position of the speaker switch on the front side of the recorder.

Cannot record

- Check that the input source settings are correct.
- Check to see if the maximum number of tracks, 999 tracks, have been recorded.
- Check that there is enough recording time remaining on the HD.

There is no signal from the microphone input.

- Check the input source settings. (P.22)
- Check the recording level settings. (P.25)
- Check if the microphone requires Phantom power. (P.28)

Cannot change recording format.

- There can be only one HD recording format. If tracks already recorded in a certain format already exist, the format cannot be changed. To change the recording format, either burn the data to a CD, or format the HD.

Too much noise

- Check the cable connection between each device. Replace the cable if required.
- Check that the recording level is suitable.

Care and maintenance

Dip a soft cloth into water mixed with a small amount of neutral detergent, wring out the cloth, and gently wipe the recorder.

Error Messages

	Display	Description
Error messages	Full_HD	There is no space remaining on the HD.
	Full_999	The track number on the HD has reached the maximum number, track 999.
	No Track	No track files detected.
	No Disc	No disc in the CD slot.
	Blank Disc	No files detected on the CD.
	Unlocked	Cannot synchronize the signal because the sampling frequency of the digital input signal is not 44.1kHz.
	Write_Err	Write to the HD or CD-R failed.
	Read_Err	Read from the HD or CD-R failed.
	Format_Err	Formatting failed.
	Err_MPU	MPU error detected.
	Err_HD	HD error detected.
	Err_CDR	CD-R drive error detected.
	Err_RTC	Real Time Clock error detected.
	Err_EEPROM	EEPROM error detected.
Err_SRAM	SRAM error detected.	
Warning messages	LowBattery	Battery voltage is low.
	Not Blank	There is no writable CD-R disc in the CD-R slot.
	KEY LOCKED	Key Lock is engaged.
System messages	ALC On	The recording level control is set by ALC.

Specifications

Digital Audio System

System	CD Recorder
Temporary recording media	1-inch HDD (4 GByte)
Writeable CD disc media	CD-R (CD-DA, ISO9660)
Channels	2 (stereo), 1 (mono)
Recording audio format	
MP3 (.mp3)	MPEG Audio Layer III compression
WAVE (.wav)	16 bit linear PCM
AIFF (.aif)	16 bit linear PCM
CD-DA (.cda)	16 bit linear PCM
MP3 Recording bit rate	128 kbps / Stereo, 64 kbps / Mono
Sampling frequency	44.1 kHz
Maximum recording time	
.....	MP3: 55 hrs (stereo), 110 hrs (mono)
.....	PCM: 5 hrs (stereo), 10 hrs (mono)

Audio Performance

Frequency response	40 ~ 20,000 Hz (-1dB)
Signal-to-noise ratio (IEC-A, PCM)	LINE 92 dB, MIC 66 dB
Total Harmonic Distortion (0dB, 1kHz, PCM)	
.....	LINE 0.03%, MIC 0.08%
Dynamic range (0dB, 1kHz, PCM)	88 dB

Inputs

MIC IN L/R	
Type	XLR (1:GND, 2:HOT, 3:COLD)
Input sensitivity	1 mVrms / 6.5k ohms
Maximum input level	70 mVrms (20dB pad off)
Phantom power	DC +48V, 5 mA
LINE IN L/R	
Type	RCA jack
Input sensitivity	500 mVrms / 20k ohms
DIGITAL IN	
Type	RCA jack, Coaxial
Input impedance	75 ohms
Standard input level	0.5 Vp-p
Sampling frequency	44.1 kHz
Format	S/PDIF (IEC958 Type II)
REMOTE 1 (contact closure)	
.....	1/10" (2.5mm) T-R-S mini jack
REMOTE 2 (MIC remote RC600PMD)	
.....	1/8" (3.5mm) T-R-R-S mini jack

Outputs

LINE OUT L/R	
Type	RCA jack
Standard output level	2 Vrms max. / 2k ohms
DIGITAL OUT	
Type	RCA jack, Coaxial
Output impedance	75 ohms
Standard output level	0.5 Vp-p
Sampling frequency	44.1 kHz
Format	S/PDIF (IEC958 Type II)
HEADPHONES	
Type	1/4" (6.5mm) phone jack
Output power	8 mW / 32 ohms
SPEAKER	
Output power	90 mW / 4 ohms

General

DC power (DA670PMD only)	DC 15V
Battery	8 x AA, Alkaline / Ni-Cd / Ni-MH
Power consumption	5 W, DC (recording / playback)
.....	0.3 W, DC (standby)
Battery life (alkaline)	4 hours (typical)
Dimensions	
Width	9.7" (247 mm)
Height	2.4" (60 mm)
Depth	7.2" (184 mm)
Weight (w/o batteries)	2 lbs. 14 oz (1.3 kg)

Included Accessories

AC adaptor (DA670PMD)	1
8 x AA battery holder	1
User's guide	1
User's guide (CD-ROM)	1

Optional Accessories

Ni-Cd battery pack	RB1100
Ni-MH battery pack	RB1651
MIC remote	RC600PMD
Carrying case	PRC310
Attache carrying case	CA200

- Specifications are subject to change without notice.

LIMITED WARRANTY

Your Marantz Professional product is warranted against manufacturer defects in material and workmanship for a period of one year parts and labor.

Except as specified below, this warranty covers defects in material and workmanship. The following are not covered under warranty :

1. Damage, deterioration, malfunction or failure to meet performance specifications resulting from:
 - a) Accidents, acts of nature, misuse, abuse, neglect or unauthorized product modification.
 - b) Improper installation, removal or maintenance, or failure to follow supplied instructions.
 - c) Repair or attempted repair by a non-Marantz authorized agent.
 - d) Any shipment (claims must be presented to the carrier).
 - e) Any cause other than a defect of manufacturing.
2. Cleaning, check-ups with no fault found or changes incurred for installation, removal or reinstallation of the product.
3. Any serialized product on which the serial number has been defaced, modified or removed.
4. Batteries and battery chargers.
5. Accessories, including but not limited to: cables, mounting hardware and brackets, cleaning accessories, power cords and adapters, and carry cases.

Non-transferable warranty

This Warranty may be enforced only by the original purchaser.

What We Will Pay For

We will pay for all labor and material expenses for items covered by the warranty.

How You Can Get Service (Americas only)

1. If your unit needs service in the USA, contact our service referral at the appropriate telephone number indicated below. We will advise you of the name and location of one or more authorized service centers from which service may be obtained. Please do not return the unit directly to us.
2. You must pay any shipping charges if it is necessary to ship the product for service. If the necessary repairs are covered by the warranty, we will pay return shipping charges to your location anywhere in the United States or its territories.
3. Whenever warranty service is required, you must present the original dated sales receipt or other proof of date purchased.

Limitation of Implied Warranties

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

Exclusion of Damages (Americas only)

Liability for any defective product is limited to repair or replacement of the product at manufacturer's option. Manufacturer shall not be liable for damage to other products caused by any defects in Marantz products, damages based on inconvenience or loss of use of the product, or any other damages, whether incidental, consequential, or otherwise.

Some States do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

How State Law Relates to the Warranty (Americas only)

This warranty gives you specific legal rights, and you may have other rights which may vary from State to State.

Marantz Professional Service Number (Americas only):

Marantz Professional Factory Service (630) 741-0330, toll free within the US (866) 405-2154.

Products purchased outside of the United States, its possessions or territories.

This warranty is enforceable only in the United States and its possessions or territories.

Marantz Professional products Sales Office Site:

For inquiries or information on repair service of Marantz Professional Products, please contact our Sales Office or Tech Support Centre near you which are listed in D&M Professional website below.

AMERICA

D&M Professional America <http://www.d-mpro.com>
Service number : 866-405-2154 (Toll Free)

EUROPE

D&M Professional Europe <http://www.d-mpro.eu.com>

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