SONY

DVD Recorder

Operating Instructions

RDR-HX780

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
The AC power cord must be changed only at a qualified service shop.
Batteries or batteries installed apparatus shall not be exposed to excessive heat such as sunshine, fire or the like.

CAUTION

The use of optical instruments with this product will increase eye hazard. As the laser beam used in this DVD recorder is harmful to eyes, do not attempt to disassemble the cabinet.
Refer servicing to qualified personnel only.

CAUTION	CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO THE BEAM.
VORSICHT	KLASSE 3B SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN GEÖFFNET. DIREKTEN KONTAKT MIT DEM STRAHL VERMEIDEN.
ADVARSEL	SYNLIG OG USYNLIG LASERSTRÅLING AF KLASSE 3B VED ÅBNING. UNDGÅ DIREKTE UDSÆTTELSE FOR STRÅLING.
ADVARSEL	SYNLIG OG USYNLIG LASERSTRÅLING I KLASSE 3B NÅR DEKSEL ÅPNES. UNNGÅ DIREKTE EKSPONERING FOR STRÅLEN.
VARNING	KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK ATT DIREKT EXPONERA DIG FÖR STRÅLNINGEN.
VARO!	AVATTUNA LUOKAN 3B NÄKYVÄÄ JA NÄKYMÄTÖNTÄ LASERSÄTEILYÄ. VÄLTÄ SUORAA ALTISTUMISTA SÄTEELLE.

This label is located on the laser protective housing inside the enclosure.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

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

This symbol 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.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Precaution

Install this system so that the AC power cord can be unplugged from the wall socket immediately in the event of trouble.

Precautions

This equipment has been tested and found to comply with the limits set out in the EMC Directive using a connection cable shorter than 3 meters.

On safety

Should any solid object or liquid fall into the cabinet, unplug the recorder and have it checked by qualified personnel before operating it any further.

About the hard disk drive

The hard disk has a high storage density, which enables long recording durations and quick access to the written data. However, it can easily be damaged by shock, vibration or dust, and should be kept away from magnets. To avoid losing important data, observe the following precautions.

• Do not apply a strong shock to the recorder.
• Do not place the recorder in a location subject to mechanical vibrations or in an unstable location.
• Do not place the recorder on top of a hot surface, such as a VCR or amplifier (receiver).
• Do not use the recorder in a place subject to extreme changes in temperature (temperature gradient less than 10 °C/hour).
• Do not move the recorder with its AC power cord connected.
• Do not disconnect the AC power cord while the power is on.

- When disconnecting the AC power cord, turn off the power and make sure that the hard disk drive is not operating (the clock is displayed in the front panel display for at least 30 seconds and all recording or dubbing has stopped).
- Do not move the recorder for one minute after you have unplugged the AC power cord.
- Do not attempt to replace or upgrade the hard disk by yourself, as this may result in malfunction.

If the hard disk drive should malfunction, you cannot recover lost data. The hard disk drive is only a temporary storage space.

About repairing the hard disk drive

- The contents of the hard disk drive may be checked in case of repair or inspection during a malfunction or modification. However, the contents will not be backed up or saved by Sony.
- If the hard disk needs to be formatted or replaced, it will be done at the discretion of Sony. All contents of the hard disk drive will be erased, including contents that violate copyright laws.

On power sources

- The recorder is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the recorder itself has been turned off.
- If you are not going to use the recorder for a long time, be sure to disconnect the recorder from the wall outlet. To disconnect the AC power cord, grasp the plug itself; never pull the cord.

On placement

- Place the recorder in a location with adequate ventilation to prevent heat build-up in the recorder.
- Do not place the recorder on a soft surface such as a rug that might block the ventilation holes.
- Do not place the recorder in a confined space such as a bookshelf or similar unit.
- Do not place the recorder in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.
- Do not place the recorder in an inclined position. It is designed to be operated in a horizontal position only.
- Keep the recorder and discs away from equipment with strong magnets, such as microwave ovens, or large loudspeakers.
- Do not place heavy objects on the recorder.
- To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.

On recording

Make trial recordings before making the actual recording.

On compensation for lost recordings

Sony is not liable and will not compensate for any lost recordings or relevant losses, including when recordings are not made due to reasons including recorder failure, or when the contents of a recording are lost or damaged as a result of recorder failure or repair undertaken to the recorder. Sony will not restore, recover, or replicate the recorded contents under any circumstances.

Copyrights

- Television programs, films, video tapes, discs, and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or program owner.
- This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.
- This Product includes FontAvenue® fonts licenced by NEC corporation. FontAvenue is a registered trademark of NEC corporation.
- "✄" and x-Application are trademarks of Sony Corporation.

Copy guard function

Since the recorder has a copy guard function, programs received through an external tuner (not supplied) may contain copy protection signals (copy guard function) and as such may not be recordable, depending on the type of signal.

IMPORTANT NOTICE

Caution: This recorder is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen. Plasma display panels and projection televisions are especially susceptible to this.

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

Important Safety Instructions

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 manufacturer'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.

About this manual

- In this manual, the internal hard disk drive is written as "HDD," and "disc" is used as a general reference for the HDD, DVDs, or CDs unless otherwise specified by the text or illustrations.
- Icons, such as **DVD**, listed at the top of each explanation indicate what kind of media can be used with the function being explained. For details, see "Recordable and Playable Discs" on page 118.
- Instructions in this manual describe the controls on the remote. You can also use the controls on the recorder if they have the same or similar names as those on the remote.
- The on-screen display illustrations used in this manual may not match the graphics displayed on your TV screen.
- The explanations regarding DVDs in this manual refer to DVDs created on this recorder. The explanations do not apply to DVDs that are created on other recorders and played back on this recorder.

Table of Contents

Guide to Parts and Controls

For more information, see the pages in parentheses.

Remote

A **HDD (30)**
Records to or plays titles on HDD.

DVD (30)
Records to or plays titles on DVD.

B **I/⏻ (on/standby) (25)**
Turns the recorder on or off.

C **≜ OPEN/CLOSE (30)**
Opens or closes the disc tray.

D **CH (channel) +/– (30)**
The + button has a tactile dot*.

E **Number buttons (55)**
The number 5 button has a tactile dot*.

F **INPUT (input select) (46)**
Selects an input source.

G **AUDIO (50)**
The AUDIO button has a tactile dot*.

H **CLEAR (35, 52, 53)**

I **PICTURE ADJUST (94)**
Enters or exits the "Picture Adjustment" menu.

J **SUBTITLE (50)**
Selects a subtitle language.

ANGLE (50, 88)
Changes the angles or rotates an image during slideshow.

PLAY MODE (52, 55)

ZOOM (88)
Zooms an image during a slideshow.

K **SYSTEM MENU (94)**

TITLE LIST (32, 48, 57)

TIMER (42)

L **TOP MENU (48)**

MENU (48)
Displays the disc's menu.

←/↑/↓/→/ENTER (25)
Selects a desired item.

⮐ RETURN (25)

M **DISPLAY (34)**
Displays the playing status or disc information.

N **I◄◄ PREV/NEXT ►►I (previous/next) (50, 79)**

←• REPLAY/ADVANCE •→ (instant replay/instant advance) (50)

◄◄◄◄II◄I/I► II►►► (search/slow/freeze frame) (50, 79)

▷ PLAY (48, 88)

II PAUSE (31, 50, 79, 88)

■ STOP (48, 78, 88)
The ▷ PLAY button has a tactile dot*.

O **DISC SETUP (36, 38, 40)**
Enters or exits the "Disc Setup" menu (page 97).

P **● REC (30)**

■ REC STOP (30)

HDD/DVD DUB (64)
Starts dubbing the current playing title or cancels the dubbing.

REC MODE (30)
Selects the recording mode.

Q **TV I/⏻ (on/standby) (23)**

TV INPUT (input select) (23)
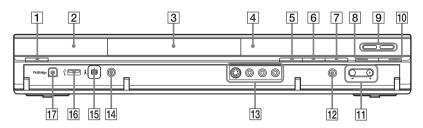
TV VOL (volume) +/– (23)

TV CH (channel) +/– (23)
The + button has a tactile dot*.

* Use the tactile dot as a reference when operating the recorder.

Front panel

1. I/⏻ **(on/standby) (25)**
   Turns the recorder on or off.

2. ⟐ **(remote sensor) (23)**

3. **Disc tray (30)**

4. **Front panel display (13)**

5. ▲ **(open/close) (30)**
   Opens or closes the disc tray.

6. ► **(play) (48, 88)**
   The ► button has a tactile dot*.

7. ■ **(stop) (48, 78, 88)**

8. ● **REC (30)**

9. **HDD (30)**
   Records to or plays titles on HDD. The HDD indicator lights up when the HDD is selected.

   DVD (30)
   Records to or plays titles on DVD. The DVD indicator lights up when the DVD is selected.

10. ■ **REC STOP (30)**

11. **CHANNEL +/– (30)**
    The + button has a tactile dot*.

12. **INPUT (input select) (46)**
    Selects an input source.

13. **LINE 2 IN (S VIDEO/VIDEO/ L(MONO) AUDIO R) jacks (28)**
    Connect a VCR or similar recording device to these jacks.

14. **ONE-TOUCH DUB (70, 74)**
    Starts dubbing from a connected digital video camera.

15. ⫯ **DV IN jack (72)**
    Connect a DV camcorder to this jack.

16. ⫿ **USB jack (type A) (76, 82)**
    Connect a USB device to this jack.

17. **PictBridge USB jack (type B) (92)**
    Connect a PictBridge-compatible printer to this jack.

* Use the tactile dot as a reference when operating the recorder.

To lock the recorder (Child Lock)
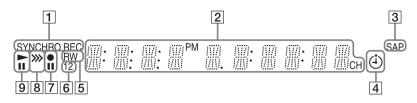
You can lock all of the buttons on the recorder so that the settings are not canceled by mistake.
When the recorder is turned off, hold down ■ (stop) on the recorder until "LOCKED" appears in the front panel display. The recorder does not work except for timer recordings and Synchro-Recording while the Child Lock is set.
To unlock the recorder, hold down ■ (stop) on the recorder until "UNLOCKED" appears in the front panel display.

Front panel display

1 SYNCHRO REC indicator (46)
Lights up when the recorder is set to stand by for Synchro-Recording.

2 Displays the following:
- Playing time
- Current title/chapter/track/index number
- Recording time/recording mode
- Clock
- Channel

3 SAP indicator (44)
Lights up when a SAP (Second Audio Program) is received.

4 Timer indicator (42)
Lights up when the timer for recording is set.

5 Disc type
Lights up when a recordable DVD-R or DVD-RW disc is loaded.
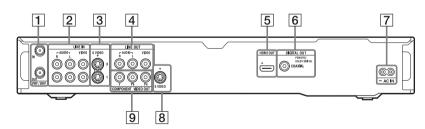
6 Command Mode indicator (109)
Displays the Command Mode of the remote.
When the Command Mode for the recorder is set to "3 (Default setting)," either "1" or "2" does not appear.

7 Recording status

8 Dubbing direction indicator

9 Playing status

Rear panel

1 VHF/UHF IN/OUT jacks (16, 17)

2 LINE IN 1/3 (R-AUDIO-L/VIDEO) jacks (15, 27, 29)

3 LINE IN 1/3 (S VIDEO) jacks (27)

4 LINE OUT (R-AUDIO-L/VIDEO) jacks (18, 21)

5 HDMI OUT (high-definition multimedia interface out) jack (18, 21)

6 DIGITAL OUT (COAXIAL) jack (21)

7 AC IN terminal (22)

8 LINE OUT (S VIDEO) jack (18)

9 COMPONENT VIDEO OUT (Y, P$_B$, P$_R$) jacks (18)

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Hooking Up the Recorder

Follow steps 1 through 6 to hook up and adjust the settings of the recorder. Do not connect the AC power cord until you reach "Step 4: Connecting the AC Power Cord" on page 22.

b **Notes**
- See "Specifications" (page 129) for a list of supplied accessories.
- Plug in cords securely to prevent unwanted noise.
- Refer to the instructions supplied with the components to be connected.
- You cannot connect this recorder to a TV that does not have a video input jack.
- Be sure to disconnect the AC power cord of each component before connecting.

Step 1: Connecting the Antenna Cable

Select one of the following antenna hookups.

If you have	Hookup
Cable box or satellite receiver with a video/audio output	A (page 15)
Cable box or satellite receiver with an antenna output only	B (page 16)
Cable without cable box, or antenna only (no cable TV)	C (page 17)
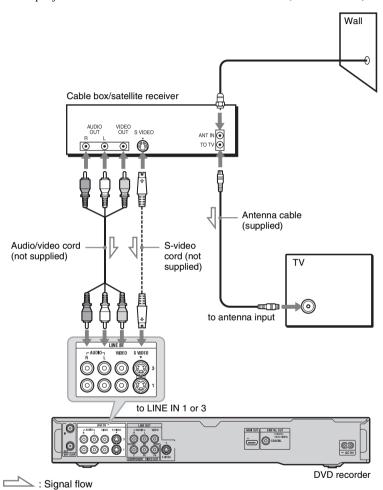
b **Notes**
- If your antenna is a flat cable (300-ohm twin lead cable), use an external antenna connector (not supplied) to connect the antenna to the recorder.
- If you have separate cables for VHF and UHF antennas, use a UHF/VHF band mixer (not supplied) to connect the antenna to the recorder.

A: Cable box or satellite receiver with a video/audio output

With this hookup, you can record any channel on the cable box or satellite receiver. Be sure that the satellite receiver or cable box is turned on.
To watch cable or satellite channel, you need to match the channel on the recorder (L1 or L3) to the input jack connected to the cable box or satellite receiver (LINE IN 1 or 3).

Wall

Cable box/satellite receiver

AUDIO OUT R L   VIDEO OUT   S VIDEO   ANT IN   TO TV

Antenna cable (supplied)

Audio/video cord (not supplied)

S-video cord (not supplied)

TV

to antenna input

LINE IN
AUDIO R L   VIDEO   S VIDEO   3   1

to LINE IN 1 or 3

DVD recorder

⬜➡ : Signal flow
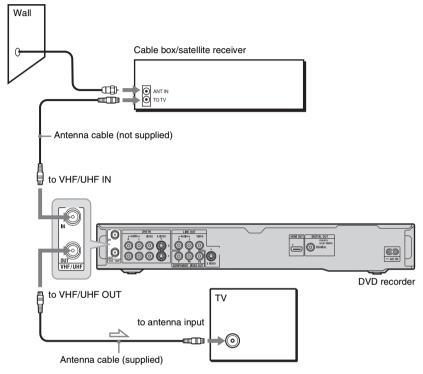
💡 Hint

If your cable box or satellite receiver has an S-video jack, you can use an S-video cord (not supplied) instead of the audio/video cord.

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B: Cable box or satellite receiver with an antenna output only

With this hookup, you can record any channel on the satellite receiver or cable box. Be sure that the satellite receiver or cable box is turned on.
To watch cable programs, you need to match the channel on the recorder (2ch, 3ch, or 4ch) to the antenna output channel on the cable box (2ch, 3ch, or 4ch).

⇒ : Signal flow
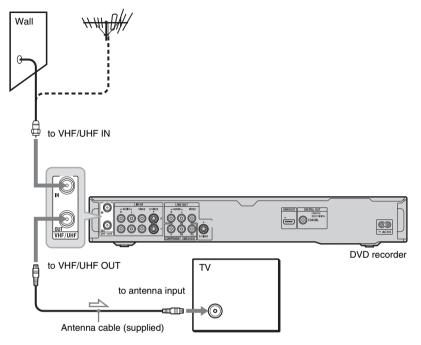
✪ Note
When using this connection, set "Auto Channel Setting" to "Antenna" in the "Tuner" setup (page 99).

C: Cable without cable box, or antenna only (no cable TV)

Use this hookup if you watch cable channels without a cable box. Also use this hookup if you are using a VHF/UHF antenna or separate VHF and UHF antennas.
With this hookup, you can record any channel by selecting the channel on the recorder.
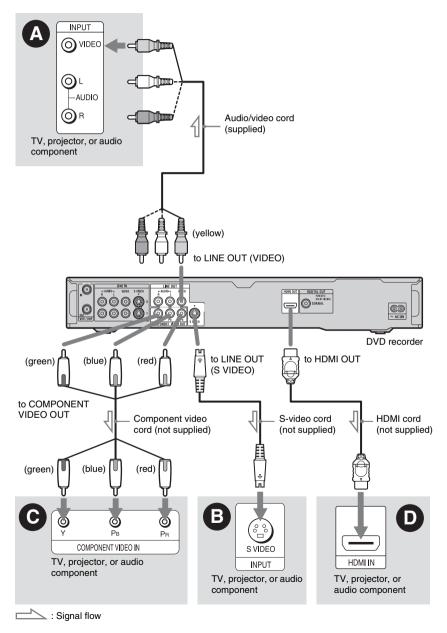
Wall

to VHF/UHF IN

DVD recorder

to VHF/UHF OUT

to antenna input

TV

Antenna cable (supplied)

: Signal flow

Step 2: Connecting the Video Cords/HDMI Cord

Select one of the following patterns, **Ⓐ** through **Ⓓ**, according to the input jack on your TV monitor, projector, or audio component such as an AV amplifier (receiver). This will enable you to view pictures.

: Signal flow

A Video input jack

You will enjoy standard quality images.

B S VIDEO input jack

You will enjoy high quality images.

C Component video input jacks (Y, P_B, P_R)

You will enjoy accurate color reproduction and high quality images.
If your TV accepts progressive 480p format signals, use this connection and set "Progressive" to "Compatible" in the "Easy Setup" setup (page 25). Then set "Component Video Out" to "Progressive" in the "Video Out" setup to send progressive video signals. For details, see "Component Video Out" on page 100.

D HDMI input jack
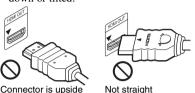
Use a certified HDMI cord (not supplied) to enjoy high quality digital picture and sound through the HDMI OUT jack.

When connecting a Sony TV that is compatible with the "Control for HDMI" function, see page 20.

When connecting to the HDMI jack
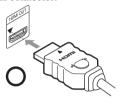
Follow the steps below. Improper handling may damage the HDMI jack and the connector.

1 Carefully align the HDMI jack on the rear of the recorder and the HDMI connector by checking their shapes. Make sure the connector is not upside down or tilted.

Connector is upside down   Not straight

2 Insert the HDMI connector straight into the HDMI jack.
Do not bend or apply pressure to the HDMI connector.

✪ Notes
- Be sure to disconnect the HDMI cord when moving the recorder.
- Do not apply too much pressure to the cabinet wall, if you place the recorder on the cabinet with the HDMI cord connected. It may damage the HDMI jack or the HDMI cord.
- Do not twist the HDMI connector while connecting to or disconnecting from the HDMI jack to avoid damaging the HDMI jack and connector.

When playing "wide screen" images

Some recorded images may not fit your TV screen. To change the picture size, see page 106.

If you are connecting to a VCR

Connect your VCR to the LINE IN jacks on the recorder (page 27).

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Notes

- Do not connect more than one type of video cord between the recorder and your TV at the same time.
- You cannot connect the HDMI OUT jack (connection ❶) to DVI jacks that are not HDCP compliant (e.g., DVI jacks on PC displays).
- Component video signal is not output when using the HDMI connection.

* This DVD recorder incorporates High-Definition Multimedia Interface (HDMI™) technology.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

About the "Control for HDMI" functions for 'BRAVIA' Sync (for HDMI connections only)

By connecting Sony components that are compatible with the "Control for HDMI" function with an HDMI cord (not supplied), operation is simplified as below:
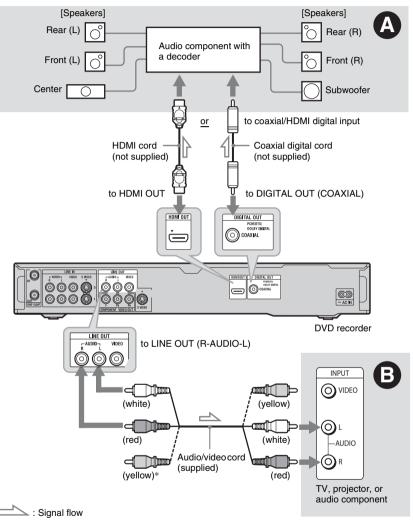
- One-Touch Play (page 49)
- System Power-Off

When you turn the TV off using the power button on the TV's remote, the recorder and components compatible with the "Control for HDMI" function turn off automatically. However, the recorder does not turn off while recording or dubbing even if you turn off the TV.

- 'BRAVIA' Sync display

You can control the recorder by pressing the SYNC MENU button on the TV's remote.

Notes

- Depending on the connected component, the "Control for HDMI" function may not work. Refer to the operating instructions supplied with the component.
- You can use the 'BRAVIA' Sync display feature only when the connected TV has the SYNC MENU button. For details on 'BRAVIA' Sync, refer to the operating instructions supplied with the TV.
- To use the 'BRAVIA' Sync features, set "Control for HDMI" to "On" (default) in the "HDMI Output" setup (page 109).

Step 3: Connecting the Audio Cords/HDMI Cord

Select one of the following patterns, **A** or **B**, according to the input jack on your TV monitor, projector, or audio component such as an AV amplifier (receiver). This will enable you to listen to sound.

⊏⊐ : Signal flow

* The yellow plug is used for video signals (page 18).

A Digital audio input jack

If your audio component has a Dolby[*1] Digital, DTS[*2], or MPEG audio decoder and a digital input jack, use this connection. You can enjoy Dolby Digital (5.1ch), DTS (5.1ch), and MPEG audio (5.1ch) surround effects.

If you connect a Sony audio component that is compatible with the "Control for HDMI" function, refer to the operating instructions supplied with the audio component.

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B Audio L/R (left/right) input jacks

This connection will use your TV's or audio component's two speakers for sound.

☼ Hint

For correct speaker location, refer to the operating instructions supplied with the connected components.
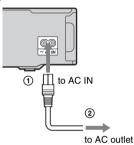
↻ Notes

- Do not connect your TV's audio output jacks to the LINE IN (R-AUDIO-L) jacks at the same time. This will cause unwanted noise to come from your TV's speakers.
- With connection B, do not connect the LINE IN (R-AUDIO-L) and LINE OUT (R-AUDIO-L) jacks to your TV's audio output jacks at the same time. This will cause unwanted noise to come from your TV's speakers.
- With connection A, after you have completed the connection, make the appropriate settings in the "Audio Out" setup (page 102). Otherwise, no sound or a loud noise will come from your speakers.
- When you connect the recorder to an audio component using an HDMI cord, you will need to do one of the following:
  – Connect the audio component to the TV with the HDMI cord, or
  – Connect the recorder to the TV with a video cord other than HDMI cord (component video cord, S-video cord, or audio/video cord).

[*1] Manufactured under license from Dolby Laboratories.
Dolby and the double-D symbol are trademarks of Dolby Laboratories.

[*2] Manufactured under license under U.S. Patent #: 5,451,942 & other U.S. and worldwide patents issued & pending. DTS and DTS Digital Out are registered trademarks and the DTS logos and Symbol are trademarks of DTS, Inc. © 1996-2007 DTS, Inc. All Rights Reserved.

Step 4: Connecting the AC Power Cord

Connect the supplied AC power cord to the AC IN terminal of the recorder. Then plug the recorder and TV power cords into the AC outlet. After you connect the AC power cord, **you must wait for a short while before operating the recorder.** You can operate the recorder once the front panel display lights up and the recorder enters standby mode.

If you connect additional equipment to this recorder (page 27), be sure to connect the AC power cord after all connections are complete.

① to AC IN

② to AC outlet

Step 5: Preparing the Remote

You can control the recorder using the supplied remote. Insert two Size AA (R6) batteries by matching the ⊕ and ⊖ ends on the batteries to the markings inside the battery compartment. When using the remote, point it at the remote sensor 📓 on the recorder.
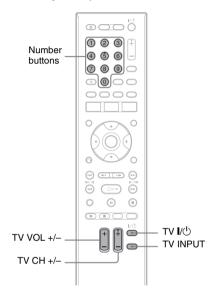
🔅 Notes
- If the supplied remote interferes with your other Sony DVD recorder or player, change the command mode number for this recorder (page 24).
- Use the batteries correctly to avoid possible leakage and corrosion. Should leakage occur, do not touch the liquid with bare hands. Observe the following:
  - Do not use a new battery with an old battery, or batteries of different manufacturers.
  - Do not attempt to recharge the batteries.
  - If you do not intend to use the remote for an extended period of time, remove the batteries.
  - If battery leakage occurs, wipe out any liquid inside the battery compartment, and insert new batteries.
- Do not expose the remote sensor (marked 📓 on the front panel) to strong light, such as direct sunlight or a lighting apparatus. The recorder may not respond to the remote.
- When you replace the batteries of the remote, the code number and Command Mode may be reset to the default setting. Set the appropriate code number and Command Mode again.

Controlling TVs with the remote

You can adjust the remote's signal to control your TV.

🔅 Notes
- Depending on the connected unit, you may not be able to control your TV with some or all of the buttons below.
- If you enter a new code number, the code number previously entered will be erased.

Number buttons

TV VOL +/–
TV CH +/–
TV I/ᵁ
TV INPUT

1 Hold down TV I/ᵁ located at the bottom of the remote.

Do not press the I/ᵁ button at the top of the remote.

2 With TV I/ᵁ pressed down, enter the TV's manufacturer code using the number buttons.

For instance, to enter "09," press "0" then "9." After you enter the last number, release the TV I/ᵁ button.

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Code numbers of controllable TVs

Manufacturer	Code number
Sony	01 (default)
Hitachi	02, 04
LG/Goldstar	04
Mitsubishi/MGA	13, 04
NEC	04
Panasonic	19
Philips	21
Pioneer	16
RCA	10, 04
Samsung	20, 04
Sharp	18
Toshiba	07, 18

The remote performs the following:

Buttons	Operations
TV I/⏻	Turns your TV on or off.
TV VOL +/–	Adjusts the volume of your TV.
TV CH +/–	Selects the channel on your TV.
TV INPUT (input select)	Switches your TV's input source.

If you have a Sony DVD player or more than one Sony DVD recorder

If the supplied remote interferes with your other Sony DVD recorder or player, set the command mode number for this recorder and the supplied remote to one that differs from the other Sony DVD recorder or player after you have completed "Step 6: Easy Setup."
The default command mode setting for this recorder and the supplied remote is "3 (Default setting)."
You can check the current Command Mode in the front panel display. For details, see page 109.

> The default command mode setting for this recorder and the supplied remote is "3 (Default setting)."
> The remote does not function if different command modes are set for the recorder and remote. Set the same command mode.

Changing channels of the recorder using the remote
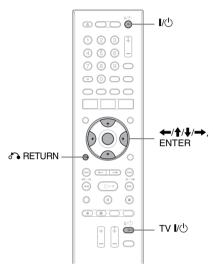
You can change channels of the recorder using the number buttons.

Example: for channel 50
Press "5," "0," then press ENTER.

Step 6: Easy Setup

Make the basic adjustments by following the on-screen instructions in "Easy Setup."
Be careful not to disconnect the cables or exit the "Easy Setup" function during this procedure.

1 **Turn on the recorder and your TV. Then switch the input selector on your TV so that the signal from the recorder appears on your TV screen.**

The "Language" display appears.
• If the "Language" display does not appear, select "Easy Setup" in the "Basic" setup from "Initial Setup" in the System Menu (page 99).

2 **Select a language for the on-screen displays using ←/↑/↓/→, and press ENTER.**

The initial settings message appears.

3 **Select "Start" using ↑/↓, and press ENTER.**

Follow the on-screen instructions to make the following settings.

◆ **Auto Channel Setting**
• Select whether or not you have a cable connection ("Cable" or "Antenna"). Auto channel setting automatically searches for all of the receivable channels and presets them.
• To skip this setting, select "Do not set."
To set the channels manually, see page 100.

◆ **Clock Setting**
• Select "Auto" when you use antenna hookup C (page 17). The "Auto Clock Setting" display appears.
Select a channel that carries a time signal and then "Start" using ←/→/↓, and press ENTER.
If a clock signal cannot be found, press ♂ RETURN, and set the clock manually.
• Select "Manual" to set the clock manually. The "Manual Clock Setting" display appears.

 1 Select the time zone for your area using ←/→, and press ↓.

 2 Select "On" using ←/→ if you are now on D.S.T (Daylight Saving Time), and press ENTER.

 3 Set the month, day, year, hour and minutes using ←/↑/↓/→, and press ENTER to start the clock.

◆ **TV Type (page 106)**
• If you have a wide-screen TV, select "Wide (16:9)."
• If you have a standard TV, select "Standard (4:3)." This will determine how "wide-screen" images are displayed on your TV.

◆ **Progressive**
When you connect a progressive format TV to this recorder using the COMPONENT VIDEO OUT jacks, select "Compatible."

◆ **HDD caution messages**
Read the HDD caution messages, and press ENTER.

4 Select "Finish Setup" using ↑/↓, and press ENTER.

"Easy Setup" is completed.

To return to the previous step

Press ⌒ RETURN.

☼ Hint

If you want to run "Easy Setup" again, select "Easy Setup" in the "Basic" setup from "Initial Setup" in the System Menu (page 99).

Connecting a VCR or Similar Device
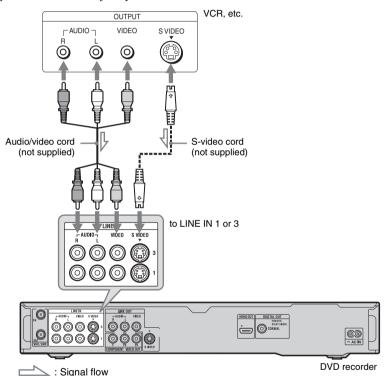
After disconnecting the recorder's AC power cord from the AC outlet, connect a VCR or similar recording device to the LINE IN jacks of this recorder.
Use the DV IN jack on the front panel if the equipment has a DV output jack (i.LINK jack) (page 72).
For details, refer to the instruction manual supplied with the connected equipment.
To record on this recorder, see "Recording from Connected Equipment" on page 46.
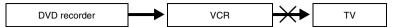
Connecting to the LINE IN 1 or 3 jacks

Connect a VCR or similar recording device to the LINE IN 1 or 3 of this recorder. If the equipment has an S-video jack, you can use an S-video cord instead of an audio/video cord.
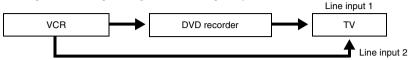
- Pictures containing copy protection signals that prohibit any copying cannot be recorded.
- If you pass the recorder signals through a VCR, you may not receive a clear image on your TV screen.
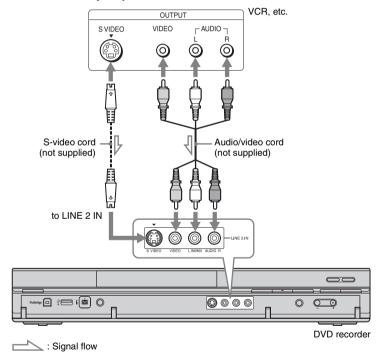
Be sure to connect your VCR to the DVD recorder and to your TV in the order shown below. To watch video tapes, watch the tapes through a second line input on your TV.

- If you disconnect the recorder's AC power cord, you will not be able to view the signals from the connected VCR.

Connecting to the LINE 2 IN jacks on the front panel

Connect a VCR or similar recording device to the LINE 2 IN jacks of this recorder. If the equipment has an S-video jack, you can use an S-video cord instead of an audio/video cord.

◯◁ : Signal flow

💡 Hint
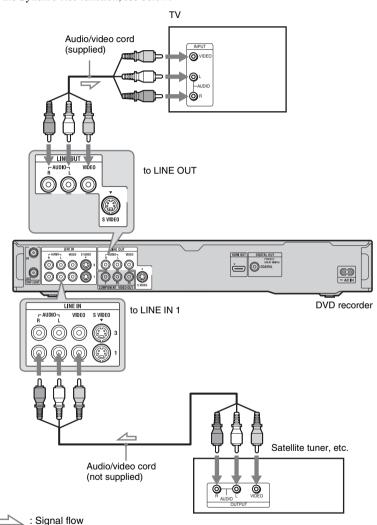
When the connected equipment outputs only monaural sound, connect to only the L(MONO) and VIDEO input jacks on the front of the recorder. Do not connect the R input jack.

✪ Notes

- Do not connect the yellow LINE IN (VIDEO) jack when using an S-video cord.
- Do not connect the output jack of this recorder to another equipment's input jack with the other equipment's output jack connected to the input jack of this recorder. This may cause noise (feedback).
- Do not connect more than one type of video cord between the recorder and your TV at the same time.

Connecting to a Satellite or Digital Tuner

Connect a satellite or digital tuner to this recorder using the LINE IN 1 jacks. Disconnect the recorder's AC power cord from the AC outlet when connecting the tuner.
To use the Synchro Rec function, see below.

TV

Audio/video cord
(supplied)

INPUT

VIDEO

L

AUDIO

R

LINE OUT

AUDIO
R   L

VIDEO

to LINE OUT

S VIDEO

LINE IN   LINE OUT
AUDIO   VIDEO S VIDEO   AUDIO   VIDEO
R   R

3

1

HDMI OUT   DIGITAL OUT
PCM/DTS/
DOLBY DIGITAL
COAXIAL

~ AC IN

COMPONENT VIDEO OUT

LINE IN   to LINE IN 1   DVD recorder

AUDIO
R   L   VIDEO   S VIDEO

3

1

Satellite tuner, etc.

Audio/video cord
(not supplied)

R   L   VIDEO
AUDIO
OUTPUT

: Signal flow

If you want to use the Synchro Rec function

This connection is necessary to use the Synchro-Recording function. See "Recording from connected equipment with a timer (Synchro Rec.)" on page 46.
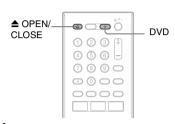
✪ Notes

- Synchro-Recording does not work with some tuners. For details, refer to the tuner's operating instructions.
- If you disconnect the recorder's AC power cord, you will not be able to view the signals from the connected tuner.

1. Inserting a Disc

+RW   -RWᵥᵣ   -RWᵥᵢdₑₒ   +R   -Rᵥᵣ
-Rᵥᵢdₑₒ   DVD   VCD   CD   DATA DVD
DATA CD

OPEN/
CLOSE   DVD

1 **Press DVD.**

2 **Press ▲ OPEN/CLOSE, and place a disc on the disc tray.**

Recording/playing side facing down

3 **Press ▲ OPEN/CLOSE to close the disc tray.**

Wait until "LOAD" disappears from the front panel display.
Unused DVDs are formatted automatically.
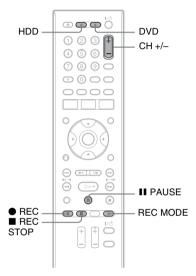
• For DVD-RW discs
DVD-RWs are formatted in the recording format (VR mode or Video mode) set by "Format DVD-RW" of "Basic" in the "Disc Setup" setup (page 97).

• For DVD-R discs
DVD-Rs are automatically formatted in Video mode. To format an unused DVD-R in VR mode, format the disc in the "Format" setup (page 40) **before** you make a recording.

If the disc is recordable on this recorder, you can manually re-format the disc to make a blank disc (page 40).

2. Recording a Program

HDD   +RW   -RWᵥᵣ   -RWᵥᵢdₑₒ   +R
-Rᵥᵣ   -Rᵥᵢdₑₒ

This section introduces the basic operation to record a current TV program to the hard disk (HDD) or to a disc (DVD). For an explanation of how to make timer recordings, see page 42.

HDD   DVD
CH +/–

II PAUSE

● REC   REC MODE
■ REC
STOP

1 **Press HDD or DVD.**
If you want to record to a DVD, insert a recordable DVD.

2 **Press CH +/– to select the channel or input source you want to record.**

3 **Press REC MODE repeatedly to select the recording mode.**
Each time you press the button, the display on the TV screen changes as follows:

┌→HQ→HSP→SP→LSP→ESP┐
└─ MN*←SEP←SLP←EP←LP ←┘

* Available when "Manual Rec. Mode" is set to "On (go to setup)" in the "Recording" setup (page 104).

For more details about the recording mode, see page 121.

30

4 Press ● REC.

Recording starts.

To stop recording

Press ■ REC STOP.

To pause recording

Press ❚❚ PAUSE.
To resume recording, press ❚❚ PAUSE
again.

To watch another TV program while recording

Set your TV to the TV input using the TV
INPUT button (page 23).

☼ Hint

If you do not want to watch TV while recording,
you can turn off the TV. When using a decoder,
make sure to leave it on.

♦ Notes
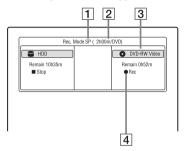
- If you press the I/☉ button while recording, the
  recorder stops recording and turns off.
- After pressing the ● REC button, it may take a
  short while to start recording.
- It may take a short while for recorder to stop or
  pause recording.
- You cannot change the recording mode while
  recording.
- Programs are recorded in the following aspect
  ratio.
  – In the original aspect ratio, when recording to
    the HDD (when "HDD Recording Format" is
    set to "Video Mode Off" in the "Recording"
    setup (page 105))/DVD-RWs/DVD-Rs (VR
    mode).
  – In 4:3 when recording to DVD+RWs/
    DVD+Rs.
- When recording to DVD-R DLs (Video mode),
  the title is divided when the layer switches.
- If there is a power failure, the program you are
  recording may be erased.

Checking the disc status while recording

You can check the recording information
such as recording time or disc type.

Press DISPLAY during recording.

The recording information appears.

1 Recording mode

2 Recording time

3 Disc type/format

4 Recording status

To turn off the display
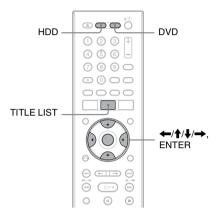
Press DISPLAY repeatedly.

3. Playing the Recorded Program (Title List)

HDD **+RW** **-RWVR** **-RWVideo** **+R**
-RVR **-RVideo**

To play a recorded title, select the title from the Title List.

HDD ——————— DVD

TITLE LIST ——————

←/↑/↓/→, ENTER

1 Press HDD or DVD.
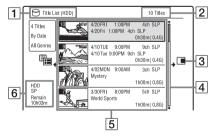
If you select DVD, insert a DVD (see "1. Inserting a Disc" on page 30).
Playback starts automatically depending on the disc.

2 Press TITLE LIST.

Example: 4-Title List for HDD
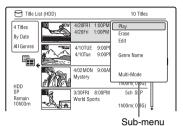
1 Disc type:
Displays the media type, HDD or DVD.

2 Total number of titles

3 Sub-menu:
Press → to display the sub-menu.
The sub-menu displays options applicable only to the selected item. The displayed options differ depending upon the model, situation, and disc type.

Sub-menu

4 Scroll bar:
Appears when all of the titles do not fit on the list. To view the hidden titles, press ↑/↓.

5 Title information:
"Recording": Indicates that the title is currently being recorded.
🔒: Indicates a protected title.
"NEW": Indicates that the title is newly recorded (not played back) (HDD only).
COPY : Press DISPLAY to display "COPY." "COPY" indicates titles containing "Copy-Once" copy protection signals (HDD only) (page 124).
↻: Indicates that the title is recorded using the Update function.
Genre icons: Indicates the title's genre (HDD only).
OC: Indicates a bilingual program (HDD only).

6 Remaining time of the current disc in the current recording mode (example: SP mode)

3 Select a title using ↑/↓, and press ENTER.

Playback starts from the selected title.

To stop playback

Press ■ STOP.

To scroll the list display by page (Page mode)

Press ⏮ PREV/NEXT ⏭ while the Title List is displayed. Each time you press ⏮ PREV/NEXT ⏭, the Title List changes to the previous/next page of titles.

About the Title List for DVD-RWs/DVD-Rs (VR mode)

You can switch the Title List to show Original or Playlist titles.

1. Press ← while the Title List is displayed.
2. Select "Play List" using ↑/↓, and press ENTER.
3. Select "Original" or "Play List" using ↑/↓, and press ENTER.

To change the title order for HDD (Sort Titles)

1. Press ← while the Title List is displayed.
2. Select "Sort Titles" using ↑/↓, and press ENTER.
3. Select the item using ↑/↓, and press ENTER.

Order	Sorted
By Date	In order of when the titles were recorded. The title that is recorded most recently is listed at the top.
Unseen Title	In order of when the titles were recorded. The title that is recorded most recently and has not been played is listed at the top.
By Title	In alphabetical order.
By Number	In order of recorded title number.

To search for a title by genre (HDD only)

1. Press ← while the Title List is displayed.
2. Select "Genre" using ↑/↓, and press ENTER.
3. Select a genre using ↑/↓, and press ENTER.

To change a title thumbnail picture (Thumbnail)

After recording, the first scene of the recording (the title) is automatically set as the thumbnail picture.
You can select a favorite scene for the thumbnail picture shown in the Title List.

1. Press TITLE LIST.
   For DVD-RWs/DVD-Rs (VR mode), switch the Title List to show Original or Playlist titles, if necessary.
2. Select a title using ↑/↓, and press →.
   The sub-menu appears.
3. Select "Edit" using ↑/↓, and press ENTER.
4. Select "Set Thumbnail" using ↑/↓, and press ENTER.
   The display for setting the thumbnail point appears and the title starts to play.
5. While watching the playback picture, press ▷ PLAY, ❚❚ PAUSE, ◀❚❚ ◀❚ ◀◀/▶▶ ❚▶ ❚❚▶ or PLAY MODE to select the scene you want to set for a thumbnail picture, and press ❚❚ PAUSE.
   Playback pauses.
6. Select "OK" using ↑/↓, and press ENTER.
   The scene is set for the title's thumbnail picture.
   To return to the Title List, press ⮐ RETURN.

To change the thumbnail preview mode (Set Preview) (HDD only)

You can select "Quick Preview" or "Normal" for the thumbnail preview mode in the Title List. Set "Set Preview" in the "Options" setup (page 110).

To switch to the 8 Title List

1 Press ← while the Title List is displayed.

2 Select "Title View" using ↑/↓, and press ENTER.

3 Select "8 Titles" using ↑/↓, and press ENTER.

Detailed information, including the resumption time, for the selected title is shown below the list.

To turn off the Title List

Press TITLE LIST.

✪ Notes
- The title names may not appear for DVDs created on other DVD recorders.
- It may take a few seconds for the thumbnail pictures to be displayed.
- After editing, the title thumbnail picture may change to the first scene of the recording (title).
- After dubbing, the title thumbnail picture set on the source recording is canceled.
- When the Title List does not appear by pressing the TITLE LIST button, the DVD has no Title List. In this case, try pressing the TOP MENU button to display the DVD's menu.

Displaying the playing time and play information

`HDD` `+RW` `-RWvr` `-RWVideo` `+R`
`-RVR` `-RVideo` `DVD` `VCD` `CD`
`DATA DVD` `DATA CD`
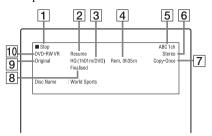
You can check the playing time of the current title, chapter, track, or disc. Also, you can check the disc name recorded on the DVD/CD.

Press DISPLAY repeatedly.

The displays differ depending on the disc type or playing status.
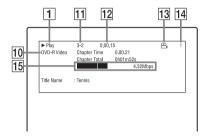
In stop mode
Example: DVD-RW in VR mode

During playback
Example: DVD-R in Video mode

1 Playing status

2 Shows that the Resume Play is available (page 49).

3 Current selected recording mode (maximum DVD recording time) (page 121)

4 Remaining time

5 Station name and channel number

6 Audio setting for the current program

7 Recording restrictions for the current program

8 Disc information

9 Title type (Original or Playlist) for DVD-RW/DVD-R in VR mode

10 Disc type/format (page 118) Displays the finalized disc in Video mode as "DVD-VIDEO."

11 Title number-Chapter number (page 55)

12 Playing time

13 Multi-angles indicator (page 50)

14 Copy-protected indicator (page 124)

15 Data transfer bar and rate

To turn off the display

Press DISPLAY repeatedly.

☼ Hints
- When "On Screen Display" is set to "On" (default) in the "Options" setup (page 109), information automatically appears on the screen when the recorder is operated.
- To increase disc space, see "To open up disc space" (page 56).
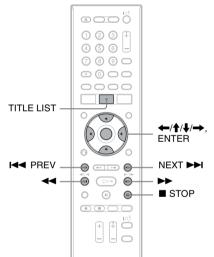
✪ Note

Playing time of MP3 audio tracks may not be displayed correctly.

4. Changing the Name of a Recorded Program

HDD +RW -RWVR -RWVideo +R
-RVR -RVideo

You can label a DVD, title, or program by entering characters. You can enter up to 64 characters for a title recorded in the HDD/DVD-RW/DVD-R (VR mode), 40 characters for a title recorded in the DVD+RW/DVD-RW (Video mode)/DVD+R/DVD-R (Video mode), but the actual number of characters displayed in the menus such as the Title List will vary. The steps below explain how to change the name of the recorded program.

TITLE LIST

←/↑/↓/→, ENTER

I◄◄ PREV   NEXT ►►I

◄◄   ►►

■ STOP

1 Press TITLE LIST.

2 Select a title using ↑/↓, and press →.

The sub-menu appears.

3 Select "Edit" using ↑/↓, and press ENTER.

35
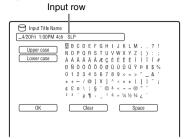
4 Select "Title Name" using ↑/↓, and press ENTER.

The display for entering characters appears.
The current name is displayed at the input row.

Input row


```
Input Title Name
_4/20Fri 1:00PM 4ch  SLP

Upper case       A B C D E F G H I J K L M . , ? !
Lower case       N O P Q R S T U V W X Y Z ( ) : ;
                 À Á Â Ã Ä Å Æ Ç È É Ê Ë Ì Í Î Ï #
                 Ð Ñ Ò Ó Ô Õ Ö Ø Ù Ú Û Ü Ý Þ ß & %
                 0 1 2 3 4 5 6 7 8 9 < = > " _ & '
                 * + − / @ [ ¥ ] ^ ÷ × ± { | } ¯ ¡
                 ¢ £ ¤ \ ¦ § ¨ © ª « ¬ ® ¯ °
                 ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿ `

   OK            Clear            Space
```

5 Move the cursor to the point where you want to insert the character using ◀◀/▶▶.

To erase all of the characters, press and hold CLEAR for 2 seconds or more.

6 Select "Upper case" or "Lower case" using ◀◀ PREV/NEXT ▶▶.

The characters for the selected type are displayed.

7 Press ←/↑/↓/→ to select the character you want to enter, and press ENTER.

The selected character appears at the input row.
To insert a space, press ❚❚ PAUSE (or select "Space," and press ENTER).

8 Repeat steps 6 and 7 to enter the remaining characters.

To erase a character, move the cursor to the character at the input row, and press CLEAR (or select "Clear," and press ENTER).
To insert a character, move the cursor to the right of the point where you want to insert the character. Then select the character, and press ENTER.
To erase all of the characters, press and hold CLEAR for 2 seconds or more.
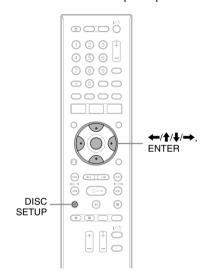
9 Press ■ STOP (or select "OK," and press ENTER).

To cancel the setting, press
↩ RETURN.

5. Labeling and Protecting a Disc

You can execute options effective for the entire disc in the "Disc Setup" setup.
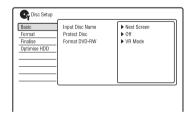
←/↑/↓/→,
ENTER

DISC
SETUP

Labeling a disc

+RW -RWVR -RWVideo +R -RVR
-RVideo

1 Insert a disc.

See "1. Inserting a Disc" on page 30.

2 Press DISC SETUP.


```
 Disc Setup

Basic         Input Disc Name    ▶ Next Screen
Format        Protect Disc       ▶ Off
Finalise      Format DVD-RW      ▶ VR Mode
Optimise HDD
```

3 Select "Basic," and press ENTER.

```
        Disc Setup
    Basic        Input Disc Name     Next Screen
    Format       Protect Disc
    Finalise     Format DVD-RW
    Optimise HDD
```

4 Select "Input Disc Name," and press ENTER.

5 Select "Next Screen," and press ENTER.

Enter the disc name (page 35).
You can enter up to 64 characters for a DVD-RW/DVD-R (VR mode) disc name, and 40 characters for a DVD+RW/DVD-RW (Video mode)/DVD+R/DVD-R (Video mode) disc name.

☼ Hint

You can also display the Disc Setup display by selecting "Disc Setup" from the System Menu.

✦ Note

The disc name may not appear when the disc is played on other DVD equipment.
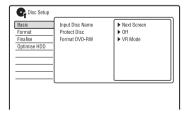
Protecting a disc

-RWVR   -RVR

1 Insert a disc.

See "1. Inserting a Disc" on page 30.

2 Press DISC SETUP.

```
        Disc Setup
    Basic        Input Disc Name    ▶ Next Screen
    Format       Protect Disc       ▶ Off
    Finalise     Format DVD-RW      ▶ VR Mode
    Optimise HDD
```

3 Select "Basic," and press ENTER.

```
        Disc Setup
    Basic        Input Disc Name     Next Screen
    Format       Protect Disc
    Finalise     Format DVD-RW
    Optimise HDD
```

4 Select "Protect Disc," and press ENTER.

```
        Disc Setup
    Basic        Input Disc Name     On
    Format       Protect Disc       ■ Off
    Finalise     Format DVD-RW
    Optimise HDD
```

5 Select "On," and press ENTER.

6 Press DISC SETUP to exit.

To cancel the protection

Select "Off" in step 5.

☼ Hints

- You can set protection for individual titles (page 57).
- You can also display the Disc Setup display by selecting "Disc Setup" from the System Menu.

6. Playing the Disc on Other DVD Equipment (Finalise)

`+RW` `-RWVR` `-RWVideo` `+R` `-RVR`
`-RVideo`

Finalizing is necessary when you play discs recorded with this recorder on other DVD equipment.

When you finalize a DVD+RW, DVD-RW (Video mode), DVD+R, or DVD-R (Video mode), a DVD menu will be automatically created, which can be displayed on other DVD equipment.

Before finalizing, check the differences between the disc types in the table below.

Differences between disc types

`+RW`	Discs are automatically finalized when removed from the recorder. However, you may need to finalize the disc for certain DVD equipment, or if the recording time is short. You can edit or record on the disc even after finalizing.
`-RWVR`	Finalizing is unnecessary when playing a disc on VR format compatible equipment. Even if your other DVD equipment is VR format compatible, you may need to finalize the disc, especially if the recording time is short. You can edit or record on the disc even after finalizing.
`-RWVideo`	Finalizing is necessary when playing on any equipment other than this recorder. After finalizing, you cannot edit or record on it. If you want to record on it again, unfinalize (page 39) or reformat the disc (page 40). However, if you reformat the disc, all recorded contents will be erased.

`-RVR`	Finalizing is necessary. The disc can be played only on equipment that supports DVD-R in VR mode. You can edit or record on the disc even after finalizing (except DVD-R DL in VR mode).
`+R` `-RVideo`	Finalizing is necessary when playing on any equipment other than this recorder. After finalizing, you cannot edit or record on the disc.
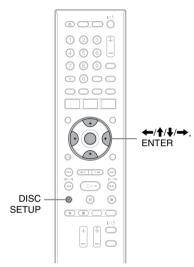
←/↑/↓/→,
ENTER

DISC
SETUP

1 Insert a disc.

See "1. Inserting a Disc" on page 30.

2 Press DISC SETUP.

Disc Setup

Basic	Input Disc Name	▶ Next Screen
Format	Protect Disc	▶ Off
Finalise	Format DVD-RW	▶ VR Mode
Optimise HDD		

3 Select "Finalise," and press ENTER.

```
  Disc Setup
  Basic        Finalise       Next Screen
  Format       Unfinalise     xx min required
  Finalise
  Optimise HDD
```
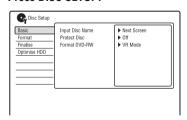
4 Select "Finalise," and press ENTER.

5 Select "Next Screen," and press ENTER.

For DVD-RW/DVD-R (VR mode), the recorder starts finalizing the disc. Go to step 8.

6 (DVD+RW/DVD-RW (Video mode)/ DVD+R/DVD-R (Video mode) only) Select a title menu style, and press ENTER.

The menu appears in the selected title menu style when the "top menu" (or "menu" for a DVD+RW/DVD+R) is selected on the DVD equipment.

7 (DVD+RW/DVD-RW (Video mode)/ DVD+R/DVD-R (Video mode) only) Select "Yes," and press ENTER.

The recorder starts finalizing the disc.

8 Press DISC SETUP to exit.

☼ Hints
- You can check whether the disc has been finalized or not. Press DISPLAY after step 1 (page 34).
- You can also display the Disc Setup display by selecting "Disc Setup" from the System Menu.

♨ Notes
- Depending on the condition of the disc, recording, or the DVD equipment, discs may not play even if the discs are finalized.
- The recorder may not be able to finalize the disc if it was recorded on another recorder.
- Inserting an unfinalized disc into other DVD equipment may damage the recorded contents.
- When using a DVD+RW, you can edit or record on the disc even after finalizing. However, the title menu will not be displayed. Finalize the disc again to display the title menu.

Unfinalizing a disc

`-RWVR` `-RWVideo`

For DVD-RWs (Video mode)
DVD-RWs (Video mode) that have been finalized to prohibit additional recording or editing can be unfinalized to allow further recording or editing.

For DVD-RWs (VR mode)
If you cannot record or edit on a DVD-RW (VR mode) that has been finalized with other DVD equipment, unfinalize the disc.
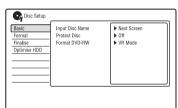
♨ Note
The recorder is not able to unfinalize DVD-RWs (Video mode) that have been finalized on another recorder.
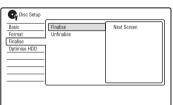
1 Insert a disc.
See "1. Inserting a Disc" on page 30.

2 Press DISC SETUP.

```
  Disc Setup
  Basic        Input Disc Name   ▶ Next Screen
  Format       Protect Disc      ▶ Off
  Finalise     Format DVD-RW     ▶ VR Mode
  Optimise HDD
```

3 Select "Finalise," and press ENTER.

```
  Disc Setup
  Basic        Finalise       Next Screen
  Format       Unfinalise
  Finalise
  Optimise HDD
```
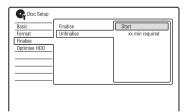
4 Select "Unfinalise," and press ENTER.

```
  Disc Setup
  Basic        Finalise       Start
  Format       Unfinalise     xx min required
  Finalise
  Optimise HDD
```

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5 Select "Start," and press ENTER.

The recorder starts unfinalizing the disc. Unfinalizing may take several minutes.
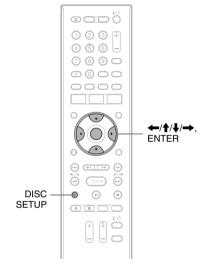
☞ Hint

You can also display the Disc Setup display by selecting "Disc Setup" from the System Menu.

7. Reformatting a Disc

+RW **-RW**VR **-RW**Video **-R**VR **-R**Video

New discs are automatically formatted when inserted. If necessary, you can manually re-format a DVD+RW, DVD-RW, or DVD-R disc to make a blank disc. For DVD-RWs or DVD-Rs, you can select a recording format (VR mode or Video mode) according to your needs.

←/↑/↓/→, ENTER

DISC SETUP

1 Insert a disc.

See "1. Inserting a Disc" on page 30.

2 Press DISC SETUP.

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3 Select "Format," and press ENTER.

```
  Disc Setup
Basic          VR Mode          Start
Format         Video Mode          xx min required
Finalise       Format DVD+RW
Optimise HDD
```

4 Select an item, and press ENTER.
"VR Mode": Formats DVD-RWs/DVD-Rs in VR mode.
"Video Mode": Formats DVD-RWs/DVD-Rs in Video mode.
"Format DVD+RW": Formats DVD+RWs.

5 Select "Start," and press ENTER.
All contents on the disc are erased.

☼ Hints
• By reformatting, you can change the recording format on DVD-RWs, or record again on DVD-RWs that have been finalized.
• You can also display the Disc Setup display by selecting "Disc Setup" from the System Menu.

↻ Note
You cannot reformat recorded DVD-Rs.

Timer Recording

`HDD` `+RW` `-RWVR` `-RWVideo` `+R`
`-RVR` `-RVideo`
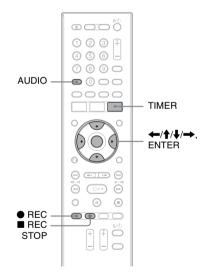
You can set the timer for a total of 32 programs, up to 30 days in advance. Set the date, time, and channel of the program manually.

Before you start recording…

• Check that the disc has enough available space for the recording (page 34). For the HDD, DVD+RWs, and DVD-RWs, you can free up disc space by erasing titles (page 56).
• Adjust the recording picture quality if necessary (page 94).

AUDIO

TIMER

←/↑/↓/→,
ENTER

● REC
■ REC
STOP

1 Press TIMER.
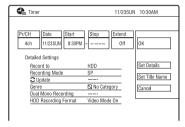
The "Timer List" display appears.

2 Select the "New Input" row, and press ENTER.

3 Select an item using ←/→ and adjust using ↑/↓. Then press ENTER.

The adjustable items are listed below.
"Pr/CH": Sets the channel.
"Date": Sets the date (up to 30 days later). Select a recording pattern by pressing ↑ repeatedly to set the timer for the same daily or weekly programs.
"Start": Sets the start time.
"Stop": Sets the stop time.
"Extend": Sets duration when a timer recording is in progress. If the program set to be recorded daily or weekly is extended, the manually extended time set here will be added to the subsequent timer recording times.
• If you make a mistake, select the item and change the setting.

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4 Select "OK," and press ENTER.

The "Timer List" display appears (page 45).

The timer recording indicator lights up on the front panel display and the recorder is ready to start recording. Unlike a VCR, there is no need to turn off the recorder before the timer recording starts.

• To record a satellite or cable program, turn on the satellite receiver or cable box and select the program you want to record. Leave the satellite receiver or cable box turned on until the recorder finishes recording. If you connect equipment with a timer function, you can use the Synchro Rec function (page 46).

To stop recording during timer recording

Press ■ REC STOP.

Note that it may take a few seconds for the recorder to stop recording.

On-screen instructions may appear after pressing ■ REC STOP. In this case, follow the on-screen instructions.

To make the detailed settings

1 Select "Set Details" in step 3 above, and press ENTER.

2 Select an item using ↑/↓ and set using ←/→.

"Record to": Sets the recording destination. If there is not enough available DVD disc space for the recording, the recorder automatically records the program to the HDD even if you select "DVD" (Recovery Recording).

"Recording Mode": Sets the recording mode (page 121).

"Update": Sets the recorder automatically replacing the previous timer recording with the new one.

"Genre": Sets the genre.

"Dual Mono Recording": Sets the sound to be recorded (page 101). If you want to make detailed settings, set the following:
– Set LINE IN 1, 2 or 3 in "Pr/CH."
– Select "Dual Mono" in "External Audio" in the "Audio In" setup (page 101).
– Select one of the following settings: "Video Mode On" in "HDD Recording Format" (page 105), "PCM" in "Recording Mode," or "DVD" in "Record to."

"HDD Recording Format": Sets the recording format of HDD (page 105).

To enter a title name

Select "Set Title Name" in step 3 above, and press ENTER (page 35).

Rec. Mode Adjust

If there is not enough available disc space for the recording, the recorder automatically adjusts the recording mode to enable the entire program to be recorded. Set "Rec. Mode Adjust" to "On" in the "Recording" setup (page 104).

☼ Hint

When you select "AUTO" for the recording mode, the recorder automatically maximizes the recording quality for the space available on the inserted disc (if recording to DVD), or to fit on to a blank DVD disc (if recording to HDD).

☼ Notes

• If a message indicating that the HDD is full appears on the screen, change the recording destination to "DVD," or make available space for the recording (page 57).
• Check that the clock is correctly set before setting the timer recording. If not, the timer recording cannot be made.
• Even if the timer is set for the same daily or weekly program, the timer recording cannot be made if it overlaps with a program that has priority. "Overlap" will appear next to the overlapped setting in the Timer List. Check the priority order of the settings (page 45).
• Even if the timer is set, timer recordings cannot be made while recording a program that has priority.
• The "Rec. Mode Adjust" function only works with a timer recording. It does not function with Quick Timer or Synchro Rec.

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Using the Quick Timer function

You can set the recorder to record in 30-minute increments.

Press ● REC repeatedly to set the duration.

Each press advances the time in 30-minute increments. The maximum duration is six hours.

```
┌─────► 0:30 ─► 1:00 ─ ─ ─► 5:30 ─┐
│                                  │
└─── (normal recording) ◄── 6:00 ◄─┘
```

The time counter decreases minute by minute to 0:00, then the recorder stops recording (the power turns off).

To cancel the Quick Timer

Press ● REC repeatedly until "0:00" appears in the front panel display. The recorder returns to normal recording mode. To stop recording, press ■ REC STOP.

✪ Note

If you turn off the recorder during recording, recording is stopped.

Recording stereo/SAP programs

The recorder can receive and record stereo/SAP programs.

Before recording SAP programs, press the AUDIO button to select the desired sound to record.

Each time you press the button, you can switch sound from the following:
"Stereo": select this if you want to record in stereo sound.
"Mono": select this if you want to record in monaural sound.
"SAP": select this if you want to record in SAP sound.

SAP (Second Audio Program)

When a SAP (Second Audio Program) is received, the "SAP" indicator lights up on the front panel display.

✿ Hint

If there is no SAP sound while playing the recorded SAP program, even if the program is recorded on the HDD (when "HDD Recording Format" is set to "Video Mode Off" in the "Recording" setup (except in PCM recording mode) (page 105)) or DVD-RW/DVD-R formatted in VR mode (except in PCM recording mode), try to press the AUDIO button to switch the sound setting.

✪ Notes

• You cannot change the recording sound ("Stereo"/"Mono"/"SAP") after the recording starts.
• If no SAP programs are broadcast in your area, the program is recorded in main sound, even if SAP sound is selected for recording.

Creating chapters in a title

The recorder can automatically divide a recording (a title) into chapters by inserting chapter marks. To select chapter mark intervals or disable this function, see "Auto Chapter (HDD/VR)," "Auto Chapter (Video)," or "Auto Chapter (DVD+R/+RW)" in the "Recording" setup (page 105). When recording to the HDD, a DVD-R (VR mode) or a DVD-RW (VR mode), you can edit chapter marks (page 59).

Checking/Changing/ Canceling Timer Settings (Timer List)

HDD +RW -RWVR -RWVideo +R
-RVR -RVideo

You can check, change, or cancel timer settings using the Timer List.

1 Press TIMER.
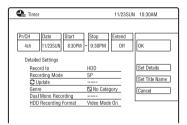
The "Timer List" display appears. When all of the timer settings are not visible on the display, press ↑/↓ to view the hidden timer settings.

2 Select the timer setting you want to check/change/cancel, and press →.

The sub-menu appears.

3 Select an option, and press ENTER.

"Modify":
Changes the timer setting.
Select an item using ←/→ and adjust using ↑/↓. Select "OK," and press ENTER.

🕒 Timer			11/23SUN 10:30AM	

Pr/CH	Date	Start	Stop	Extend	
4ch	11/23SUN	8:30PM	9:30PM	Off	OK

Detailed Settings

Record to	HDD	Set Details
Recording Mode	SP	Set Title Name
⟳ Update	--·--	Cancel
Genre	🚫 No Category	
Dual Mono Recording	--·--	
HDD Recording Format	Video Mode On	

"Erase":
Erases the timer setting. Select "Yes," and press ENTER.
"Skip Once":
Cancels the daily or weekly recordings only once. After canceling the timer setting, "Skip Once" appears next to the timer setting in the Timer List.
To change or cancel the setting, repeat steps 2 and 3 above.

When the timer settings overlap

- The program that starts first has priority and the entire program is recorded.
- After finishing the previous recording, the other recording starts with several tens-of-second's delay (when the end-time of one recording and the start-time of another are the same).
- When the recordings start at the same time, only one of them will be recorded. Cancel the timer setting for the program that you are not going to record.

☞ Hints

- While recording, you can modify the timer setting for the current recording.
- You can move to the first row/bottom row of the Timer List using ⏮ PREV/NEXT ⏭ while the list is displayed.

⚠ Note

Even if the timer is set, timer recordings cannot be made while recording a program that has priority.

Recording from Connected Equipment

Recording from connected equipment with a timer (Synchro Rec.)

HDD

You can set the recorder to automatically record programs from connected equipment that has a timer function (such as a satellite receiver or cable box). Connect the equipment to the LINE IN 1 jacks of the recorder (page 29).

When the connected equipment turns on, the recorder starts recording a program from the LINE IN 1 jacks.

The recording destination is HDD only.

1 Press REC MODE repeatedly to select the recording mode.

For details about recording mode, see page 121.

2 Select the desired audio signal when recording a Dual Mono program.

Set "External Audio" to "Dual Mono" and "Dual Mono Recording" to "L" or "R" in the "Audio In" setup (page 101).

3 Set the timer on the connected equipment to the time of the program you want to record, and turn it off.

4 Press down ■ REC STOP on the recorder for more than 3 seconds.

The SYNCHRO REC indicator lights up in the front panel display and the recorder turns off. The recorder is ready to start Synchro-Recording.

You can also set the recorder to stand by for Synchro-Recording by setting "Synchro Rec." of "Timer Recording" to "Yes" from the System Menu.

To cancel Synchro Rec before recording starts

Press I/(¹).
The SYNCHRO REC indicator in the front panel display turns off.

To cancel Synchro Rec during recording

Press down ● REC for more than 3 seconds. The Synchro Rec is canceled, and the recording continues.

To stop recording
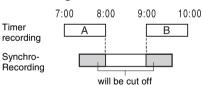
Press ■ REC STOP. Then select "Yes" in the confirmation display, and press ENTER.

✦ Notes

- The recorder starts recording only after detecting a video signal from the connected equipment. The beginning of the program may not be recorded.
- The Synchro Rec function does not work with some tuners. For details, refer to the tuner's operating instructions.
- While the recorder is standing by for Synchro-Recording, the Auto Clock Set function (page 98) does not work.
- To use the Synchro Rec function, you must first set the recorder's clock correctly.

If the timer settings of a Synchro-Recording and another timer recording overlap

Timer recordings always have priority. The Synchro-Recording starts only after the timer recording has finished.

will be cut off

Recording from connected equipment without a timer

HDD +RW -RWVR -RWVideo +R
-RVR -RVideo
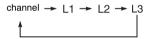
You can record from a connected VCR or similar device. To connect a VCR or similar device, see "Connecting a VCR or Similar Device" on page 27.

1 Press HDD or DVD.

If you select DVD, insert a recordable DVD (see "1. Inserting a Disc" on page 30).

2 Press INPUT to select an input source according to the connection you made.

The front panel display changes as follows:

channel → L1 → L2 → L3

3 Select the desired audio signal when recording a Dual Mono program.

Set "External Audio" to "Dual Mono" and "Dual Mono Recording" to "L" or "R" in the "Audio In" setup (page 101).

4 Press REC MODE repeatedly to select the recording mode.

For details about the recording mode, see page 121.

5 Insert the source tape into the connected equipment and set to playback pause.

6 Press ● REC.

This recorder starts recording.

7 Press the pause (or play) button on the connected equipment to cancel the playback pause status.

The connected equipment starts playback and the playback image is recorded by this recorder.
To stop recording, press ■ REC STOP on this recorder.

If you connect a DV camcorder with a DV IN jack

See "DV Camcorder Dubbing" on page 72.

If you connect an HDD camcorder with a USB jack

See "HDD Camcorder Dubbing" on page 68.
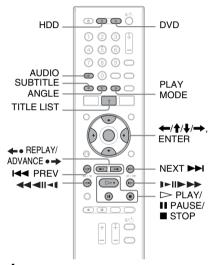
✪ Notes

- When recording a video game image, the screen may not be clear.
- Any program that contains a Copy-Never copy guard signal cannot be recorded.

Playing

HDD +RW -RWVR -RWVideo +R
-RVR -RVideo DVD VCD CD
DATA DVD DATA CD

HDD — DVD

AUDIO
SUBTITLE
ANGLE — PLAY MODE
TITLE LIST

←/↑/↓/→, ENTER

←● REPLAY/
ADVANCE ●→

|◄◄ PREV — NEXT ►►|

◄◄-◄II-◄I — ►II►►
▷ PLAY/
II PAUSE/
■ STOP

1 Press HDD or DVD.

- If you select DVD, insert a disc (see "1. Inserting a Disc" on page 30).
- If you insert a DVD VIDEO, VIDEO CD, DATA DVD or DATA CD, press ▷ PLAY. Playback starts.

2 Press TITLE LIST.

If the Title List is already displayed, skip this step.
Example: HDD

3 Select a title using ↑/↓, and press ENTER.

Playback starts from the selected title.

☼ Hint
You can also use the ▷ PLAY button in step 3 to start playback.

♦ Note
When any video titles are recorded on a DATA DVD, the MP3 audio tracks on that DATA DVD cannot be played.

To use the DVD's Menu

When you play a DVD VIDEO, or a finalized DVD+RW, DVD-RW (Video mode), DVD+R, or DVD-R (Video mode), you can display the disc's menu by pressing TOP MENU or MENU.

♦ Note
The ▷ PLAY button is not available in the disc's menu.

To play VIDEO CDs/Super VIDEO CDs with PBC functions

PBC (Playback Control) allows you to play VIDEO CDs/Super VIDEO CDs interactively using the menu on your TV screen.
When you start playing a VIDEO CD/Super VIDEO CD with PBC functions, the menu appears.
Select an item using the number buttons, and press ENTER. Then, follow the instructions in the menu (press ▷ PLAY when "Press SELECT" appears).

♦ Note
Some playback options such as search, repeat play or program play cannot be played with PBC function. To play with playback options, start playback without PBC functions using the Title List.

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To play DivX video files or audio tracks in a disc containing both file types

1 Press ← while the Title List (DVD/CD) is displayed.

2 Select "Data Format" using ↑/↓, and press ENTER.

3 Select "CD," "MP3" or "DivX" using ↑/↓, and press ENTER.

4 Return to the Title List, then select an album, title or track, and press ENTER or ▷ PLAY.

To stop playback
Press ■ STOP.

To resume playback from the point where you stopped (Resume Play)
When you press ▷ PLAY again after you stop playback, the recorder resumes playback from the point where you pressed ■ STOP.

To start from the beginning, press ■ STOP again, and press ▷ PLAY. Playback starts from the beginning of the title/track/scene.

♦ Notes
• Resume Play is not available for Super VIDEO CDs.
• The point where you stopped playing is cleared from memory when:
  – you open the disc tray (except HDD).
  – you play another title (except HDD).
  – you start playback using the Title List (except HDD).
  – you edit the title after stopping playback.
  – you change the settings on the recorder.
  – you make a recording (except HDD).
  – you disconnect the AC power cord.

To play restricted DVDs (Parental Control)
If you play a restricted DVD, the display for entering your password appears on your TV screen.
Enter your four-digit password using the number buttons, and press ENTER.
The recorder starts playback.

To register or change the password, see "Parental Control (DVD VIDEO only)" on page 106.

One-Touch Play (for HDMI connection only)
Press ▷ PLAY. With one touch of the ▷ PLAY button, the recorder and your TV automatically turn on and the TV's input is switched to the recorder. Playback starts automatically.

♦ Notes
• When using the HDMI connection, there may be a delay, before the playback picture appears on the TV screen, and the beginning portion of the playback picture may not be displayed.
• To use the One-Touch Play function, set "Control for HDMI" to "On" (default) in the "HDMI Output" setup (page 109).

Playback

Playback options

To check the position of the buttons below, see the illustration on page 48.

Buttons	Operations
ANGLE **DVD**	Changes the angles for a scene when pressed during playback. When the disc has various angles (multi-angles) recorded, "◻ " appears on the screen. To switch the angle mark indicator to off, set "Angle Indicator" to "Off" in the "Playback" setup (page 107).
AUDIO **HDD** **-RWvR** **-RvR** **DVD** **VCD** **CD** **DATA DVD** **DATA CD**	Selects one of the audio tracks recorded on the disc when pressed repeatedly in normal playback mode. **DVD** **DATA DVD**[*1] **DATA CD**[*1] : Selects the language. **HDD** **-RWvR** **-RvR** : Selects the main or sub sound. **VCD** **CD** **DATA DVD**[*2] **DATA CD**[*2] : Selects stereo or monaural audio tracks. [*1] DivX video file only [*2] MP3 audio track only
SUBTITLE **DVD** **DATA DVD**[*] **DATA CD**[*] [*] DivX video file only	Selects a subtitle language when pressed repeatedly.
◄•REPLAY/ ADVANCE •► (instant replay/instant advance) **HDD** **+RW** **-RWvR** **-RWvideo** **+R** **-RvR** **-Rvideo** **DVD** **DATA DVD**[*] **DATA CD**[*] [*] DivX video file only	Each time you press ◄•REPLAY, replays the scene for the following duration. 5 seconds → 15 seconds → 30 seconds → 1 minute → 2 minutes → 3 minutes → 5 minutes → 10 minutes → 20 minutes → advances the time in 10-minute increments → 2 hours Each time you press ADVANCE •►, briefly fast forwards the current scene for the following duration. 30 seconds → 1 minute → 1 minute 30 seconds → 2 minutes → 3 minutes → 5 minutes → 10 minutes → 20 minutes → advances the time in 10-minute increments → 2 hours
I◄◄ PREV/ NEXT ►►I	Goes to the beginning of the previous/next title/chapter/scene/ track when pressed during playback. Goes to the beginning of the first title/track when pressed in stop mode.

Buttons	Operations
◄◄ ◄▐▐ ◄▐/▐► ▐▐► ►► (fast reverse/fast forward)	Fast reverses/fast forwards the disc when pressed during playback. Search speed changes as follows: fast reverse fast forward ◄◄FR1[*1] ← → ►►FF1[*2] ◄◄FR2 ← ← → → ►►FF2 ◄◄FR3[*3] ← ← ← → → → ►►FF3[*3] ◄◄FR4[*3] ← ← ← ← → → → → ►►FF4[*3] When you press and hold the button, fast forward/fast reverse continues at the selected speed until you release the button. [*1] When you press ◄◄ once during playback, you can play Reverse play (not available for VIDEO CDs/Super VIDEO CDs/DivX video files/audio tracks). [*2] When you press ►► once during playback, you can play quickly with sound (Scan Audio) (not available for VIDEO CDs/Super VIDEO CDs). [*3] Not available for VIDEO CDs/Super VIDEO CDs/audio tracks. To resume normal playback, press ▷ PLAY.
◄◄ ◄▐▐ ◄▐/▐► ▐▐► ►► (slow, freeze frame) HDD +RW -RWVR -RWVideo +R -RVR -RVideo DVD VCD [*1] DATA DVD [*1*2] DATA CD [*1*2] [*1] Playback direction only [*2] DivX video file only	Plays in slow motion when pressed for more than one second in pause mode. Plays one frame at a time when pressed briefly in pause mode. To resume normal playback, press ▷ PLAY.
▐▐ PAUSE	Pauses playback. To resume normal playback, press ▷ PLAY.
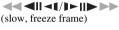
Playback

✦ Notes
- Angles and subtitles cannot be changed with titles recorded on this recorder.
- JPEG image files made with a DVD camcorder can only be played as a slideshow. For video files containing JPEG image files and movies, the recorder can play movie parts only.

Notes on playing DVDs with a DTS sound track
DTS audio signals are output only through the DIGITAL OUT (COAXIAL) jack.
When you play a DVD with DTS sound tracks, set "DTS Output" to "On" in the "Audio Out" setup (page 102).

Notes on playing DTS sound tracks on a CD
- When playing DTS-encoded CDs, excessive noise will be heard from the LINE OUT (R-AUDIO-L) jacks. To avoid possible damage to the audio system, the user should take proper precautions when the LINE OUT (R-AUDIO-L) jacks of the recorder are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external DTS decoder must be connected to the DIGITAL OUT jack of the recorder.
- Set the sound to "Stereo" using the AUDIO button when you play DTS sound tracks on a CD (page 50).

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Playing a specific portion repeatedly (A-B Repeat)
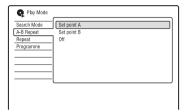
1 **Press PLAY MODE during playback.**
For audio tracks on a CD, press ➡ while the Title List is displayed, and select "Play Mode."
The "Play Mode" menu appears.

2 **Select "A-B Repeat," and press ENTER.**
"Set point A" is selected.

```
🔵 Play Mode
┌──────────────┬──────────────────────────┐
│ Search Mode  │ Set point A              │
│ A-B Repeat   │ Set point B              │
│ Repeat       │ Off                      │
│ Programme    │                          │
│              │                          │
│              │                          │
│              │                          │
│              │                          │
└──────────────┴──────────────────────────┘
```

3 **While monitoring the sound, press ENTER at the starting point (point A) of the portion to be played repeatedly.**
"Set point B" is selected.

4 **Continue playing to locate the ending point (point B), and press ENTER.**
A-B Repeat starts.

To cancel A-B Repeat
Press CLEAR. Or, set "A-B Repeat" to "Off" in the "Play Mode" menu.

ⓑ Notes
- When playing an HDD/DVD VIDEO/DVD-RW (Video mode)/DVD-R (Video mode), set the start and stop points within the same title.
- "A-B Repeat" is not available for MP3 audio tracks.

Playing repeatedly (Repeat)

You can repeatedly play all the titles/tracks/files or a single title/chapter/track on the HDD, a disc or an album.

1 **Press PLAY MODE during playback.**
For audio tracks on a DATA DVD/DATA CD/CD, press ➡ while the Title List is displayed, and select "Play Mode."
The "Play Mode" menu appears.

2 **Select "Repeat," and press ENTER.**

3 **Select an item to be repeated using ↑/↓.**
"Repeat Title" (for HDD/DVDs/DATA DVDs[*1]/DATA CDs[*1]): repeats the current title.
"Repeat Chapter" (for HDD/DVDs): repeats the current chapter.
"Repeat Track" (for VIDEO CDs[*2]/CDs/DATA DVDs/DATA CDs): repeats the current track.
"Repeat Programme": repeats the current program (page 53).
"Repeat Disc" (for VIDEO CDs[*2]/DVD-RWs/DVD-Rs (VR mode)/CDs/DATA DVDs/DATA CDs): repeats the entire disc.
"Repeat Album" (for DATA DVDs[*3]/DATA CDs[*3]): repeats the current album.
[*1] DivX video file only
[*2] Available only when playing without PBC functions
[*3] Audio tracks only

4 **Press ENTER.**
Repeat play starts.

To cancel Repeat play
Press CLEAR. Or, set "Repeat" to "Repeat Off" in the "Play Mode" menu.

ⓑ Note
You can select "Repeat Programme" only during Program play.

Creating your own program (Programme)

HDD -RWVideo *1 -RVideo *1 VCD CD
DATA DVD *2 DATA CD *2

*1 finalized disc only
*2 MP3 audio tracks only

You can play the contents of the HDD or a disc in the order you want by arranging the order of the titles/chapters/albums/tracks on the HDD or disc to create your own program. You can make a program of up to 24 chapters/tracks, etc.
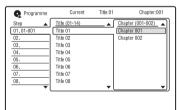
1 **Press PLAY MODE during playback.**
For audio tracks on a DATA DVD/ DATA CD/CD, press ➡ while the Title List is displayed, and select "Play Mode."
The "Play Mode" menu appears.

2 **Select "Programme," and press ENTER.**

3 **Select "Input/Edit Programme," and press ENTER.**
The "Input/Edit Programme" display differs depending upon the disc type.
Example: DVD

4 **Select a title or album (example: Title 01) using ↑/↓, and press ➡.**

5 **Select a chapter or track (example: Chapter 001) using ↑/↓, and press ENTER.**
The chapter or track is programed.
If you make a mistake, select the step number (example: 01.) using ←/↑/↓, and press CLEAR.

6 **To program other chapters or tracks, press ←/↑/↓/➡ to select a step number, and repeat steps 4 and 5.**

7 **Press ▷ PLAY.**
Program play starts.

To stop Program play
Press ■ STOP.

To cancel Program play
Press CLEAR during playback. Or, set "Programme" to "Cancel Programme Play" in the "Play Mode" menu.

To erase the program
Press CLEAR in stop mode. Or, set "Programme" to "Erase Programme List" in the "Play Mode" menu.

☼ Hints
- The program you made remains after Program play finishes. To play the same program again, set "Programme" to "Start Programme Play" in the "Play Mode" menu. However, the program is cleared after you remove the disc or press I/⏻.
- You can repeat Program play. During Program play, set "Repeat" to "Repeat Programme" in the "Play Mode" menu (page 52).

Playback

53

Advanced Playback Functions

Playing from the beginning of the program you are recording (Chase Play)

`HDD`

"Chase Play" allows you to view the recorded part of a program on the HDD while the recording is being made. You do not need to wait until the recording finishes.

Press ▷ PLAY while recording.
Playback starts from the beginning of the program you are recording.
When you fast forward to the point that you are recording, "Chase Play" returns to normal playback.

Playing a previous recording while making another (Simultaneous Rec and Play)

`HDD` `+RW` `-RWVR` `-RWVideo` `+R`
`-RVR` `-RVideo` `DVD` `VCD` `DATA DVD`
`DATA CD`

"Simultaneous Rec and Play" allows you to view a previously recorded program while recording programs. Playback continues even if a timer recording starts. Use this function as follows:
• While recording to the HDD:
  Play another title on the HDD.
  Play a previously recorded program on a DVD by pressing the DVD button.
• While recording to a DVD:
  Play a previously recorded program on the HDD by pressing the HDD button.

You can also play a DVD VIDEO, VIDEO CD, Super VIDEO CD, DATA DVD, or DATA CD while recording on the HDD.

Example: Play another title on the HDD while recording to the HDD.

1 While recording, press TITLE LIST to display the HDD Title List.

2 Select the title you want to play, and press ENTER.
Playback starts from the selected title.

Example: Play a DVD while recording to the HDD.

1 While recording, press DVD and insert the DVD into the recorder.

2 Press TITLE LIST to display the DVD Title List.

3 Select the title you want to play, and press ENTER.
Playback starts from the selected title.

Searching for a Time/Title/Chapter/Track, etc.

HDD +RW -RWVR -RWVideo +R
-RVR -RVideo DVD VCD DATA DVD *
DATA CD *

* DivX video file only

You can search a disc by title, chapter, scene or track. As titles and tracks are assigned individual numbers, select the title or track by entering its number. You can also search for a scene using the time code.

1 Press PLAY MODE during playback.
The "Play Mode" menu appears.

2 Select "Search Mode," and press ENTER.

3 Select a search method, and press ENTER.
"Time Search" (for HDD/DVDs/DATA DVDs[*1]/DATA CDs[*1]/VIDEO CDs[*2*3]): Searches for a starting point by entering the time code.
"Title Search" (for HDD/DVDs/DATA DVDs[*1]/DATA CDs[*1])
"Chapter Search" (for HDD/DVDs)
"Track Search" (for VIDEO CDs[*3])
[*1] DivX video file only
[*2] Except Super VIDEO CDs
[*3] Available only when playing without PBC functions

The display for entering the number appears.

4 Press the number buttons to select the number of the title, chapter, time code, etc., you want.
For example: Time Search
To find a scene at 2 hours, 10 minutes, and 20 seconds, enter "21020."
If you make a mistake, select another number.

5 Press ENTER.
Playback starts from the selected number.

ᵷ **Hint**
You can search for a title/track/chapter by entering the title/track/chapter number using the number buttons during playback.

Before Editing

This recorder offers various edit options for various disc types.
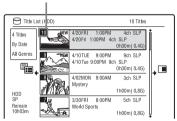
🔄 Notes

- You may lose the edited contents if you remove the disc or a timer recording starts while editing.
- DVD discs created by DVD camcorders cannot be edited on this recorder.
- If a message appears and indicates that the disc's control information is full, erase or edit unnecessary titles.
- The remaining disc space displayed on the screen may differ from the actual remaining disc space.
- When editing a DVD+R or DVD-R, finish all editing before finalizing the disc. You cannot edit a finalized disc.

To open up disc space

To open up disc space on a DVD+RW or DVD-RW (Video mode), erase the title with the largest number in the title list.

Largest title number

To open up disc space on the HDD or a DVD-RW (VR mode), you can erase any title.
See "Erasing and Editing a Title" on page 57.
For DVD-Rs and DVD+Rs, the available disc space does not increase even if you erase titles.

To switch between the Playlist and Original Title List (DVD-RW/DVD-R in VR mode only)

You can display the Playlist titles in the Title List (Playlist), or the Original titles in the Title List (Original).

1 Press ← while the Title List is displayed.

2 Select "Play List" using ↑/↓, and press ENTER.

3 Select "Original" or "Play List" using ↑/↓, and press ENTER.

About editing accuracy

When editing the titles recorded on the HDD, you can select the type of editing.
"Video Mode Compatible Editing":
Recommended if you are going to dub the titles to DVD-RWs/DVD-Rs (Video mode) or DVD+RWs/DVD+Rs afterward by High-speed dubbing. The editing points and chapter marks may be slightly different from those you selected.
"Frame Accurate Editing":
Recommended when you want to edit titles precisely. However, the editing points may be slightly different from the point you selected when you dub the titles by High-speed dubbing.

Erasing and Editing a Title

HDD +RW -RWVR -RWVideo +R
-RVR -RVideo

This section explains the basic edit functions. Note that editing is irreversible. To edit DVD-RWs/DVD-Rs (VR mode) without changing the original recordings, create a Playlist title (page 61).

1 Press TITLE LIST.

For DVD-RWs/DVD-Rs in VR mode, switch the Title List (Original or Playlist), if necessary.

2 Select a title, and press ➡.

The sub-menu appears.

3 Select an option, and press ENTER.

You can make the following edits to the title.
"Erase": Erases the selected title. Select "Yes" when asked for confirmation.
"Edit": Allows you to make the following edits.
• "Title Name": Allows you to enter or re-enter a title name (page 35).
• "Set Thumbnail": Changes the title's thumbnail picture that appears in the Title List (page 33).
• "A-B Erase": Erases a section of the title (page 58).
• "Divide": Divides a title into two titles (page 58).
• "Chapter Edit": Edits chapters in a title (page 59).
• "Set Genre": Assigns a genre to a title.
• "Protect": Protects the title. "🔒" appears next to the protected title.
• "Move": Changes the title's playing order (page 61).
• "Combine": Combines two titles into one (page 61).
"Genre Name": Allows you to enter a genre name (up to 12 characters) (page 35).
"Multi-Mode": Allows you to select and edit multiple titles at one time (page 57).

"Create": Creates a Playlist (page 61).
"Undo": Undoes the last edit you made.

☀ Hint

You can label or re-label DVDs (page 36).

Editing multiple titles (Multi-Mode)

HDD
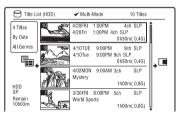
You can select and edit up to 24 titles at one time.

1 Press TITLE LIST.

2 Press ➡.

The sub-menu appears.

3 Select "Multi-Mode," and press ENTER.

The display for selecting titles to be edited appears.

4 Select a title, and press ENTER.

A check mark appears in the check box. To clear the check mark, press ENTER again.

5 Repeat step 4 to select all of the titles you want to edit.

6 When you finish selecting titles, press ➡.

The sub-menu appears.

7 Select an option, and press ENTER.

"Erase": Erases the selected titles.
"Protect": Protects the titles. "🔒" appears next to the protected title.
"Unprotected": Unprotects the titles.
"Change Genre": Changes the genre of the titles.

57

You can exit "Multi-Mode" by pressing ➡ and selecting "Single-Mode" while selecting titles.

Erasing a section of a title (A-B Erase)
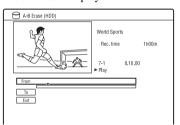
HDD -RWVR -RVR

You can select a section (scene) in a title and erase it. Note that erasing scenes in a title cannot be undone.

1 **After step 2 of "Erasing and Editing a Title," select "Edit," and press ENTER.**

2 **Select "A-B Erase," and press ENTER.**

For the HDD, select a type of editing, and press ENTER. For details, see page 56.

The display for setting point A appears. The title starts to play.

```
A-B Erase (HDD)

                          World Sports
                          Rec. time      1h00m

                          7-1        0.10.00
                          ▶ Play

     From      ▽
     To
     Exit
```

3 **Select point A using ◄◄/►► or ▷ PLAY, and press ‖ PAUSE.**

- To return to the beginning of the title, press ‖ PAUSE and then press ◄◄ PREV.

4 **Select "From," and press ENTER.**

The position of point A is displayed.

5 **Press ▷ PLAY.**

6 **Select point B using ◄◄/►► or ▷ PLAY, and press ‖ PAUSE.**

7 **Select "To," and press ENTER.**

The position of point B is displayed.

8 **Select "Yes," and press ENTER.**

The scene is erased.

To cancel "A-B Erase"

Press ⟲ RETURN. The Title List appears.

ῷ **Hint**

A chapter mark is inserted after the scene is erased. The chapter mark divides the title into separate chapters on either side of the mark.

❹ **Notes**

- Images or sound may be momentarily interrupted at the point where you erase a section of a title.
- Sections shorter than five seconds may not be erased.

Dividing a title (Divide)

HDD -RWVR * -RVR *

If you want to dub a long title to a disc but do not want to reduce the picture quality, divide the title into two shorter titles. Note that dividing a title cannot be undone.

* Only playlist titles can be divided for DVD-RWs/DVD-Rs in VR mode.

1 **After step 2 of "Erasing and Editing a Title," select "Edit," and press ENTER.**

2 **Select "Divide," and press ENTER.**

For the HDD, select a type of editing, and press ENTER. For details, see page 56.

The display for setting the dividing point appears.

The title starts to play.

```
Divide Title (HDD)

                          World Sports
                          Rec. time      1h00m

                          7-1        0.10.00
                          ▶ Play

     Divide    ▽
     Cancel
```

3 **Select the dividing point using ◄◄/►► or ▷ PLAY, and press ‖ PAUSE.**

- To return to the beginning of the title, press ‖ PAUSE and then press ◄◄ PREV.

4 Press ENTER.

For the HDD, the display asks for confirmation.

5 Select "Yes," and press ENTER (HDD only).

The title is divided into two.

Erasing and Editing a Chapter

HDD -RWvr -Rvr

You can edit individual chapters within a title. To edit DVD-RWs/DVD-Rs (VR mode) without changing the original recordings, create a Playlist (page 61).

1 Press TITLE LIST.

For DVD-RWs/DVD-Rs in VR mode, switch the Title List (Original or Playlist), if necessary.

2 Select a title containing the chapter you want to edit, and press ➡.

The sub-menu appears.

3 Select "Edit," and press ENTER.

4 Select "Chapter Edit," and press ENTER.

For the HDD, select a type of editing, and press ENTER. For details, see page 56.

5 Select an option, and press ENTER.

You can make the following edits to the chapter.
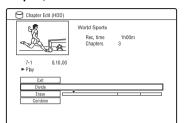
"Divide": Divides a chapter into two (page 60).

"Erase/Move"

• "Erase": Erases the selected chapter (page 60).

• "Move" (for Playlist titles on DVD-RWs/DVD-Rs in VR mode): Changes the chapter's playing order (page 62).

"Combine": Combines two chapters into one (page 60).

Dividing a chapter (Divide)

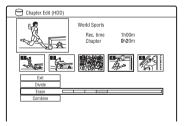**1** **After step 4 of "Erasing and Editing a Chapter," select "Divide."**

```
┌─────────────────────────────────────┐
│ 🖴 Chapter Edit (HDD)                 │
│                                       │
│  ┌──────┐   World Sports              │
│  │      │   Rec. time      1h00m      │
│  │      │   Chapters       3          │
│  └──────┘                             │
│                                       │
│    7-1        0.10.00                  │
│    ▶Play                               │
│       ┌──────────────────────────┐    │
│       │ Exit                     │    │
│       │ Divide                   │    │
│       │ Erase    ▼               │    │
│       │ Combine                  │    │
│       └──────────────────────────┘    │
│                                       │
└─────────────────────────────────────┘
```

2 **Select a chapter using ←/→.**

3 **Select the dividing point using ◄◄/
►► or ▷ PLAY, and press
❙❙ PAUSE.**

- To return to the beginning of the chapter, press ❙❙ PAUSE and then press I◄◄ PREV.

4 **Press ENTER.**
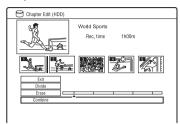The chapter is divided into two.

Erasing a chapter (Erase)

1 **After step 4 of "Erasing and Editing a Chapter," select "Erase."**

```
┌─────────────────────────────────────┐
│ 🖴 Chapter Edit (HDD)                 │
│                                       │
│  ┌──────┐   World Sports              │
│  │      │   Rec. time      1h00m      │
│  │      │   Chapter        0h20m      │
│  └──────┘                             │
│                                       │
│  ┌──┐ ┌──┐ ┌──┐ ┌──┐ ┌──┐             │
│  │1 │ │2 │ │3 │ │4 │ │5 │             │
│  └──┘ └──┘ └──┘ └──┘ └──┘             │
│       ┌──────────────────────────┐    │
│       │ Exit                     │    │
│       │ Divide                   │    │
│       │ Erase                    │    │
│       │ Combine                  │    │
│       └──────────────────────────┘    │
│                                       │
└─────────────────────────────────────┘
```

2 **Select a chapter using ←/→, and press ENTER.**

3 **(For a Playlist chapter only)
Select "Erase," and press ENTER.**
The display asks for confirmation.

4 **Select "Yes," and press ENTER.**
The chapter is erased.

Combining multiple chapters (Combine)

1 **After step 4 of "Erasing and Editing a Chapter," select "Combine."**

```
┌─────────────────────────────────────┐
│ 🖴 Chapter Edit (HDD)                 │
│                                       │
│  ┌──────┐   World Sports              │
│  │      │   Rec. time      1h00m      │
│  │      │                             │
│  └──────┘                             │
│                                       │
│  ┌──┐ ┌──┐ ┌──┐ ┌──┐ ┌──┐             │
│  │1 │ │2 │ │3 │ │4 │ │5 │             │
│  └──┘ └──┘ └──┘ └──┘ └──┘             │
│       ┌──────────────────────────┐    │
│       │ Exit                     │    │
│       │ Divide                   │    │
│       │ Erase                    │    │
│       │ Combine                  │    │
│       └──────────────────────────┘    │
│                                       │
└─────────────────────────────────────┘
```

2 **Move the combining bar using ←/
→, and press ENTER.**
The two adjacent chapters of the combining bar are combined.

✷ Note
Chapters cannot be combined if they are automatically created from an HDD camcorder dubbing.

Creating and Editing a Playlist

-RWVR -RVR

Playlist edit allows you to edit or re-edit without changing the actual recordings. You can create up to 99 Playlist titles.

✪ Note
Playlist titles containing titles recorded with the "Copy-Once" copy protection signal cannot be dubbed or moved (page 124).

1 Press TITLE LIST, and switch to the Playlist.

For details on switching to the Playlist, see page 56.

2 Press ➡.

The sub-menu appears.

3 Select "Create," and press ENTER.

The original titles in the Title List appear.

4 Select an original title to add to the Playlist, and press ENTER.

The selected title is added to the Playlist.

5 Repeat steps 3 and 4 to select all of the titles you want to add to the Playlist.

Moving a Playlist title (Move)

1 Press TITLE LIST, and switch to the Playlist.

For details on switching to the Playlist, see page 56.

2 Select a Playlist title, and press ➡.

The sub-menu appears.

3 Select "Edit," and press ENTER.

4 Select "Move," and press ENTER.

5 Select a new location for the title using ↑/↓, and press ENTER.

The title moves to the new location.
• To move more titles, repeat from step 2.

Combining multiple Playlist titles (Combine)

1 Press TITLE LIST, and switch to the Playlist.

For details on switching to the Playlist, see page 56.

2 Select a Playlist title, and press ➡.

The sub-menu appears.

3 Select "Edit," and press ENTER.

4 Select "Combine," and press ENTER.

5 Select a title you want to combine, and press ENTER.

6 Select "Yes," and press ENTER.

The titles are combined.

Dividing a Playlist title (Divide)

You can divide a Playlist title. For instructions, see page 58.

Erasing and Editing

61

Moving a chapter (Move)

1 **Press TITLE LIST, and switch to the Playlist.**

For details on switching to the Playlist, see page 56.

2 **Select a Playlist title containing the chapter you want to edit, and press →.**

The sub-menu appears.

3 **Select "Edit," and press ENTER.**

4 **Select "Chapter Edit," and press ENTER.**

5 **Select "Erase/Move."**

6 **Select a chapter using ←/→, and press ENTER.**

7 **Select "Move," and press ENTER.**

8 **Select a new location for the chapter using ←/→, and press ENTER.**

The chapter moves to the new location.

Before Dubbing

In this section, "dubbing" refers to "copying a recorded title on the internal hard disk drive (HDD) to another disc, or vice versa." You can dub a playing title using the HDD/ DVD DUB button (see "HDD/DVD Dubbing" on page 64) or you can select to dub multiple titles all at once (see "Dubbing Using Dubbing List" on page 64). You can also dub an entire DVD disc to make a backup copy (see "Making a Backup Disc (DVD Backup)" on page 67).
Before you start, read the following precautions, which are common to all dubbing methods.

Before you start…
- You cannot record both the main and sub sound on the HDD (when "HDD Recording Format" is set to "Video Mode On" in the "Recording" setup), DVD+RWs, DVD-RWs (Video mode), DVD+Rs, or DVD-Rs (Video mode). For stereo/SAP programs, set "Dual Mono Recording" to either "L" (default) or "R" in the "Audio In" setup (page 101). To record both the main and sub sound on the HDD, select "Video Mode Off" in "HDD Recording Format" (except in PCM recording mode) (see page 105). To record on DVDs, use DVD-RWs/DVD-Rs formatted in VR mode (except in PCM recording mode). If the recording mode is in PCM mode, only one of the audio signals can be recorded.
- A title name in the dubbing source is dubbed. However, only up to 40 characters of a title name are dubbed when dubbing from the HDD to a DVD+RW/DVD-RW (Video mode)/DVD+R/DVD-R (Video mode).

- The chapter marks in the dubbing source are dubbed. The position of chapter marks may be slightly changed from the original. However, the chapter marks in the dubbing source are not retained in the dubbed title when dubbing to a DVD-RW/DVD-R (Video mode), DVD+RW, or DVD+R at normal speed. The chapter marks are automatically inserted according to the "Auto Chapter (Video)" and "Auto Chapter (DVD+R/+RW)" settings in the "Recording" setup (page 105).
- The "Set Thumbnail" setting in the dubbing source is dubbed as a thumbnail picture marker (except when dubbing from a DVD+RW/DVD-RW (Video mode)/ DVD+R/DVD-R (Video mode)). The position of thumbnail picture markers may be slightly changed from the original.

✰ Hint
When you dub a Playlist title, it is recorded as an Original title.

✪ Notes
- You cannot make a recording while dubbing.
- Before playing a dubbed disc on other DVD equipment, finalize the disc (page 38, 65).
- You cannot dub from DVD VIDEOs to the HDD.
- Titles containing mixed aspect ratios cannot be dubbed to a DVD+RW/DVD+R/DVD-RW/ DVD-R (Video mode) using the HDD/DVD DUB button.
- Titles over 8 hours cannot be dubbed to single-layer DVD+RWs/DVD+Rs.
- Low resolution (SEP through LP modes) 16:9 size titles cannot be dubbed to a DVD+RW/ DVD+R/DVD-RW/DVD-R (Video mode).
- Titles recorded in Dolby Digital 5.1 ch audio are down-converted to 2-channel audio when dubbed at normal speed ("Real time" dubbing).
- About the "Move" function, see page 124.

HDD/DVD Dubbing

HDD **+RW** **-RWᵥᵣ** **-RWᵥᵢdeₒ** **+R**
-Rᵥᵣ **-Rᵥᵢdeₒ**

You can dub a single title by pressing the HDD/DVD DUB button during playback. You can also dub from finalized DVD-RWs/DVD-Rs (Video mode) to the HDD.

1 Start playback of a title.

For playing a title, see "Playing" on page 48.

2 Press HDD/DVD DUB.

The recorder starts dubbing the current playing title from the beginning.
The recorder turns off automatically when you do not use the recorder for more than 20 minutes after the dubbing has finished.

To cancel dubbing

Press and hold HDD/DVD DUB for more than one second.
When dubbing is stopped partway, no part of the title will be moved to the dubbing target. However, note that this will decrease the free space for DVD+Rs/DVD-Rs.

About dubbing mode

Titles on the HDD are dubbed to a disc at high speed ("High-Speed" dubbing).
Titles on a disc are dubbed to the HDD at normal speed ("Real time" dubbing).

For the minimum required time for "High-Speed" dubbing, see page 124.

To convert the recording mode (only when dubbing from a disc to the HDD)

Before step 1, press REC MODE to select the recording mode.

✷ Note

You cannot use the HDD/DVD DUB button in the following cases. Dub the title using Dubbing List (page 64).
– When dubbing the title recorded in MN6 mode or longer duration mode to a DVD+RW/DVD+R.
– When dubbing the title recorded in HQ+ mode to a DVD.

Dubbing Using Dubbing List

HDD **+RW** **-RWᵥᵣ** **-RWᵥᵢdeₒ** **+R**
-Rᵥᵣ **-Rᵥᵢdeₒ**

You can select the titles you want to dub using Dubbing List. You can also edit titles before dubbing without changing the original titles.

1 Press SYSTEM MENU.

The System Menu appears.

2 Select "Dubbing," and press ENTER.

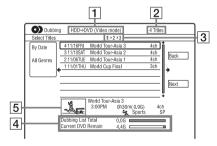## 3 Select a dubbing direction, and press ENTER.

To dub titles from the HDD to a disc, select "HDD -> DVD."
To dub titles from a disc to the HDD, select "DVD/CD -> HDD."

4 Select "Create New Dubbing List," and press ENTER.

The Dubbing List appears.
• If you have previously saved a Dubbing List and want to resume editing it, select "Use Previous Dubbing List," and go to step 7.

[1] Direction of dubbing

[2] Total number of titles to be dubbed

3️⃣ Dubbing step number
Display 1: Select a title you want to dub (the "Select Titles" display).
Display 2: Edit a title (the "Title Edit" display).
Display 3: Confirm the settings and start dubbing (the "Start Dubbing" display).

4️⃣ Total size of the selected titles and available space on the disc to be dubbed (approximate)

5️⃣ Selected title's thumbnail picture

5 Select a title, and press ENTER.

The selected title changes color.
When you select "HDD -> DVD" in step 3, you can change the title order or search for a title by genre (see "3. Playing the Recorded Program (Title List)" on page 32).

6 Repeat step 5 to select all of the titles in the order you want to dub.

7 Select "Next" using ➡, and press ENTER.

The "Title Edit" display appears.
For details about editing, see "To edit titles on the Dubbing List" on page 66.

8 Select "Next" using ➡, and press ENTER.

The "Start Dubbing" display appears.

```
Dubbing     HDD → DVD (Video mode)
Start Dubbing                  1 › 2 › 3

 HDD   →    DVD-R
              Video Mode              Back
Dub. Time    0h      3m              Recording Mode
Recording Mode   High-Speed          Input Disc Name
Disc Name        DISC01              Finalise
Finalise         Off
Dubbing List Total    0,7G           Start Dubbing
Current DVD Remain    4,4G
```

9 Select an option using ↑/↓, and press ENTER.

The options differ depending on the dubbing direction or disc type.
"Recording Mode": Changes the dubbing mode of all selected titles at a time using ↑/↓ (page 121).
"Input Disc Name": Changes the disc name (page 35).
"Finalise": Select "Yes" to finalize a disc automatically after dubbing (DVD-RW/DVD-R (Video mode), or DVD+R).

10 Select "Start Dubbing," and press ENTER.

When you set "Finalise" to "Yes" in step 9, select the title menu style, and press ENTER.
The recorder turns off automatically when you do not use the recorder for more than 20 minutes after the dubbing has finished.

To cancel dubbing

Press and hold HDD/DVD DUB for more than one second.
When dubbing (Move) is stopped partway, no part of the title will be moved to the dubbing target. However, note that this will decrease the free space for DVD+Rs/DVD-Rs.
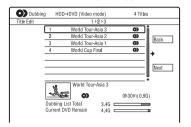
About dubbing mode

"●●" appears next to the title that can be dubbed at high speed ("High-Speed" dubbing) in the "Title Edit" display. The following titles are dubbed at normal speed ("Real time" dubbing).
– Titles containing both main and sub sounds (except DVD-RWs/DVD-Rs (VR mode)).
– Titles recorded in mixed picture size (4:3 and 16:9, etc.) (except for DVD-RWs/DVD-Rs (VR mode)).
– Titles recorded on DVD+RWs/DVD-RWs (Video mode)/DVD+R/DVD-R (Video mode).

For the minimum required time for "High-Speed" dubbing, see page 124.

To edit titles on the Dubbing List

1 Follow steps 1 to 7 of "Dubbing Using Dubbing List" on page 64.
The "Title Edit" display appears.

2 Select a title you want to edit, and press ENTER.
The sub-menu appears.

3 Select an option, and press ENTER.
The options differ depending on the dubbing direction or disc type.
"Erase": Erases the selected title.
"Title Name": Names or renames a title (page 35).
"A-B Erase": Erases the section of the title (page 58).
"Move": Changes the order of titles (page 61).
"Preview": Allows you to check the content of a title.
"Divide": Divides a title into two titles (page 58).
"Combine": Combines two titles (page 61).
"Chapter Edit": Edits chapters (page 59).
"Set Thumbnail": Changes the title's thumbnail frame that appears in the Title List (page 33).
"Recording Mode": Sets the picture quality of the dubbing.
"Dual Mono Audio": Changes the audio sound of a SAP or Dual Mono program (page 63).
"Cancel": Exits the sub-menu.

4 Repeat steps 2 and 3 to edit all of the titles.

5 Go to step 8 of "Dubbing Using Dubbing List" on page 64 to dub edited titles.

♻ Notes

- The Dubbing List you created remains after dubbing. To edit the existing Dubbing List, select "Use Previous Dubbing List" in step 4. The Dubbing List is cleared when:
  – you reset the recorder (page 117).
  – you open the disc tray (except when dubbing from the HDD).
  – you edit the titles on a disc (except when dubbing from the HDD).
  – you switch the Title List to Original or Playlist (when dubbing from DVD-RWs/DVD-Rs in VR mode only).
  – you finalize the disc.
- The "seams" that are left over from editing may remain on the disc after dubbing to DVD+RWs/DVD-RWs (Video mode)/DVD+Rs/DVD-Rs (Video mode).
- Finalization is canceled if a timer recording starts, even if you set "Finalise" to "Yes" in step 9.

Making a Backup Disc (DVD Backup)

+RW **-RW**_{Video} **+R** **-R**_{Video}

You can dub all of the contents on a finalized DVD+RW/DVD+R or finalized DVD-RW/DVD-R (Video mode) to another recordable DVD+RW/DVD-RW or unused DVD+R/DVD-R via the HDD as a backup copy.

✦ Note

Backup discs of unfinalized discs cannot be made.

1 Press SYSTEM MENU.
The System Menu appears.

2 Select "Dubbing," and press ENTER.

3 Select "DVD Backup," and press ENTER.

4 Select "Start new DVD Backup," and press ENTER.
- If you have previously dubbed backup data to the HDD, select "Resume writing data," and go to step 7.

5 Insert the DVD you are going to make a backup of.

6 Select "Start," and press ENTER.
The recorder starts dubbing all of the contents on a DVD to the HDD.

7 Press ▲ OPEN/CLOSE, and replace the DVD with a recordable DVD+RW/DVD-RW or an unused DVD+R/DVD-R.
To make a backup disc of DVD+RWs/DVD+Rs, insert a recordable DVD+RW or unused DVD+R.
To make a backup disc of DVD-RWs/DVD-Rs, insert a recordable DVD-RW or unused DVD-R.

8 Select "Start," and press ENTER.
The recorder starts "High-Speed" dubbing the contents that were dubbed to the HDD in step 6.

9 Select "Cancel," and press ENTER.
The disc is automatically finalized.
- To make another backup disc, replace discs, select "Start," and press ENTER.

10 Select "Yes" or "No," and press ENTER.
To erase the backup data on the HDD, select "Yes."
To make another backup disc later, select "No."
The recorder turns off automatically when you do not use the recorder for more than 20 minutes after the dubbing has finished.

To display the dubbing information
Press DISPLAY while dubbing.

To cancel DVD backup during dubbing
Press and hold HDD/DVD DUB for more than one second.

To erase backup data on the HDD

1 Select "Erase back-up data" in step 4, and press ENTER.
The display asks for confirmation.

2 Select "Yes," and press ENTER.

✦ Notes
- When dubbing to a DVD+R/DVD-R is stopped partway in step 8, you cannot play or record on the disc. However, a DVD+RW/DVD-RW can be used again after it is reformatted.
- You cannot make a backup disc of DVD+R DLs/DVD-R DLs.
- You may not use the "DVD Backup" function depending on the recording quality or physical condition of the disc, or characteristics of the recording device and authoring software.

Before HDD Camcorder Dubbing

You can dub the contents of a Sony HDD camcorder to the hard disk drive of the recorder via the USB jack on the front panel. Methods to dub from the HDD camcorder include:
• One-Touch Dubbing (Incremental Dubbing)
• Dubbing using the on-screen display (Incremental Dubbing/Full Dubbing)
Follow the instructions in "Preparing for HDD camcorder dubbing," and then move on to the section on dubbing.

✧ Hints
• If you want to dub by way of the LINE IN jacks, see "Recording from Connected Equipment" on page 46.
• If you want to record the contents of the HDD camcorder on a DVD, dub them to the HDD of the recorder first, and then edit the title on the HDD and dub it to a DVD.
• Parts finished dubbing remain on the recorder when the HDD space of the recorder becomes full or you stop dubbing partway.
• Dolby Digital 5.1 ch audio recorded in the HDD camcorder can be dubbed to the recorder in the same format, without down-conversion.

❂ Notes
• No timer recordings or other operations are available when dubbing from the HDD camcorder.
• The supported device is Sony HDD SD (standard definition) camcorder released in or before April 2008.
• The recorder does not support the AVCHD format (HD (high definition) image quality). You can dub MPEG-2 format images (SD (standard definition) images) only.
• When the HDD camcorder contains still images and moving images, only moving images can be dubbed to the recorder.
• Playlist made with the HDD camcorder cannot be dubbed to the recorder.
• You cannot set the recording mode for HDD camcorder dubbing.
• When dubbing from the HDD camcorder, the recorder recognizes and uses the shooting date and time information of the HDD camcorder. If the HDD camcorder's clock is incorrect, the recorder may not dub the contents properly. Set the HDD camcorder's clock correctly before shooting.
• Images of the HDD camcorder are not displayed when dubbing.
• You cannot record date, time, or the contents of the HDD camcorder memory onto the recorder.
• If you dub the contents recorded in high quality mode in the HDD camcorder to the recorder, it may take longer to finish dubbing than the recording.
• Be sure to set the HDD camcorder to the NTSC color system.

How titles and chapters are created

In each dubbing operation, the contents dubbed to the recorder are divided into titles by the shooting date. If the date has been changed to the next day during one shooting session, the shot image is included in the title of the date when the shooting session started. The title is divided into chapters. Each shooting session on the HDD camcorder becomes a chapter.

✧ Hint
The title names are automatically labeled as "USB *** (start time of the first shooting session)."

❂ Note
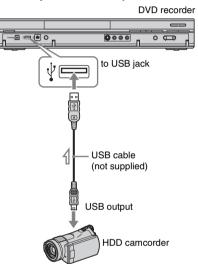The dubbed contents are divided into titles in the following cases, even if they were all recorded in the same day:
– When the total recording time exceeds 12 hours.
– When the total number of scenes exceeds 99.

Preparing for HDD camcorder dubbing

Connect an HDD camcorder to the USB jack on the recorder.
Refer as well to the instruction manual supplied with the HDD camcorder before connecting.

1 **Turn on your HDD camcorder and the recorder.**

2 **Connect your HDD camcorder to the USB jack on the front panel.**

DVD recorder

to USB jack

USB cable (not supplied)

USB output

HDD camcorder

: Signal flow

3 **Set your HDD camcorder to the USB connection mode (example: "⊟ COMPUTER" or "⊟ USB CONNECT").**

For details, refer to the operating instructions supplied with the HDD camcorder.

To restart the connected USB device

Select "Restart USB Device" of "USB" in the "Options 2" setup (page 110).

✪ Notes

- Connect the HDD camcorder directly to the recorder.
- Do not disconnect the USB cable while dubbing.
- When signal input to the USB jack (type A) on the front panel or recorder operation cannot be performed correctly when using an HDD camcorder, connect the HDD camcorder to the LINE IN jacks and follow the instructions of "Recording from Connected Equipment" on page 46.
- The recorder can recognize and store the shooting date and time information of up to 10 HDD camcorders. If you connect 11 or more HDD camcorders, one-touch dubbing and "Incremental Dubbing" cannot be made properly.

One-Touch Dubbing from HDD Camcorder (ONE-TOUCH DUB)

HDD

You can dub contents of your HDD camcorder onto the HDD of the recorder with a single press of the ONE-TOUCH DUB button on the recorder.
When dubbing from the HDD camcorder for the first time, all of the contents are dubbed to the recorder. The next time, only newly shot sessions that have not been dubbed yet are dubbed to the recorder.

Follow steps 1 to 3 of "Preparing for HDD camcorder dubbing" on page 69, and press ONE-TOUCH DUB on the recorder.

The recorder starts dubbing the contents on the HDD camcorder to the HDD Title List of the recorder.
The recorder turns off automatically if you do not use the recorder for more than 20 minutes after the dubbing has finished.

To stop during dubbing

Press ■ REC STOP.
Note that it may take a few seconds for the recorder to stop dubbing.

↻ Notes

- The one-touch dubbing button on the HDD camcorder does not function with the recorder.
- In One-Touch Dubbing, the contents that have already been dubbed to the recorder cannot be dubbed again, even after you erase them from the recorder. To dub the same contents to the recorder again, dub the entire contents of the HDD camcorder (see "Dubbing from HDD Camcorder Using the On-Screen Display (HDD-Cam Dubbing)" on page 70).
- Data about the dubbed contents are all cleared when you reset the recorder (page 117).
- If the USB jack and the DV IN jack on the recorder are both connected to a compatible digital video camera, One-Touch Dubbing is performed via the USB jack.

Dubbing from HDD Camcorder Using the On-Screen Display (HDD-Cam Dubbing)

HDD

You can dub the contents of your HDD camcorder onto the HDD of the recorder using the on-screen display.
Methods to dub from the HDD camcorder include:
- Incremental Dubbing
  The recorder automatically detects the contents recorded on the connected HDD camcorder, and starts dubbing from the contents following the last dubbed contents if there are contents that have already been dubbed.
- Full Dubbing
  The recorder dubs all contents of the HDD camcorder, including the contents that have already been dubbed to the recorder.

1 **Follow steps 1 to 3 of "Preparing for HDD camcorder dubbing" on page 69.**

2 **Press SYSTEM MENU.**
The System Menu appears.

3 **Select "HDD-Cam/DV," and press ENTER.**

4 **Select "HDD-Cam Dubbing," and press ENTER.**

5 **Select "Incremental Dubbing" or "Full Dubbing," and press ENTER.**
To dub newly shot contents only, select "Incremental Dubbing."
To dub all contents of the HDD camcorder, select "Full Dubbing."
The display asks for confirmation.

6 Select "Yes," and press ENTER.

The recorder starts dubbing the contents on the HDD camcorder to the HDD Title List of the recorder.

The recorder turns off automatically if you do not use the recorder for more than 20 minutes after the dubbing has finished.

To stop dubbing

Press ■ REC STOP. Or, select "Exit" in step 6, and press ENTER.

✪ Note

With "Incremental Dubbing," the contents that have already been dubbed to the recorder are not dubbed again, even after you erase them from the recorder. You can dub only newly shot contents.

Before DV Camcorder Dubbing

This section explains dubbing with a DV camcorder and playing the contents of a DV camcorder via the DV IN jack on the front panel. If you want to dub by way of the LINE IN jacks, see "Recording from Connected Equipment" on page 46.
The DV IN jack on this recorder conforms to the i.LINK standard.
Follow the instructions in "Preparing for DV camcorder dubbing," and then move on to the section on dubbing. For more information about i.LINK, see "About i.LINK" on page 128.

How chapters are created

The contents dubbed to the HDD or DVD become a single title. This title is divided into chapters. When dubbing to the HDD or a DVD-RW/DVD-R (VR mode) and when "Auto Chapter (HDD/VR)" is set to "On" in the "Recording" setup (page 105), each shooting session on the tape becomes a chapter on the disc. For other discs, the recorder divides the title into chapters according to the "Auto Chapter (Video)" or "Auto Chapter (DVD+R/+RW)" setting in the "Recording" setup (page 105).

Preparing for DV camcorder dubbing

You can connect a DV camcorder to the DV IN jack on the recorder to record or edit from a DV/Digital8 format tape. Operation is straightforward because the recorder will fast forward and rewind the tape for you – you do not need to operate your DV camcorder.
Refer as well to the instruction manual supplied with the DV camcorder before connecting.
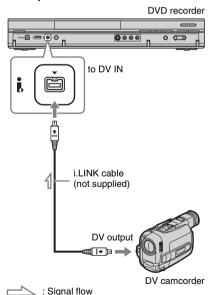
☼ Hint

If you plan to do additional editing on a disc after the initial dub, use the DV IN jack and record on a DVD-RW/DVD-R (VR mode) or HDD.

✪ Notes

- You cannot make a recording while DV camcorder dubbing.
- The DV IN jack is for input only. It will not output signals.
- You cannot use the DV IN jack when:
  – signal input to the DV IN jack on the front panel or recorder operation cannot be performed correctly when using a digital video camera (see "About i.LINK" on page 128). Connect the camera to the LINE IN jacks and follow the instructions of "Recording from Connected Equipment" on page 46.
  – the input signal is not in DVC-SD format. Do not connect a MICRO MV format digital video camera even if it has an i.LINK jack.
  – the images on the tape contain copy protection signals, which limit recording.
- If you want to play DVDs dubbed from a DV camcorder on other DVD equipment, finalize the disc (page 38).
- Be sure to set the DV camcorder to the NTSC color system.

Hookups

DVD recorder

to DV IN

i.LINK cable (not supplied)

DV output

DV camcorder

: Signal flow

1 Press HDD or DVD to select the recording destination.

If you select DVD, insert a disc (see "1. Inserting a Disc" on page 30).

2 Insert the source DV/Digital8 format tape into your DV camcorder.

For the recorder to record or edit, your DV camcorder must be set to video playback mode.

3 Press REC MODE on the remote repeatedly to select the recording mode.

The recording mode changes as follows:

```
┌→HQ →HSP→ SP→ LSP→ESP┐
└─ MN ← SEP← SLP← EP← LP←┘
```

For details about the recording mode, see page 121. Note that you cannot select further manual recording mode options.

4 Set the "External Audio" setting in the "Audio In" setup (page 101).

5 Set the "DV Input" setting in the "Audio In" setup (page 101).

You are ready to start dubbing. Select one of the dubbing methods on the following pages.

To playback DV/Digital8 format tape

You can check the contents of DV/Digital8 format tape before dubbing. For details, see "Playing from a DV Camcorder" on page 75.

♺ Notes

- You cannot connect more than one piece of digital video equipment to the recorder.
- You cannot control the recorder using another device or another recorder of the same model.
- You cannot record date, time, or the contents of the cassette memory onto the disc.
- If you record from a DV/Digital8 format tape that is recorded in multiple sound tracks, such as a tape with multiple sampling frequencies (48 kHz, 44.1 kHz, or 32 kHz), no sound or an unnatural sound will be output when playing back the sampling frequency switch point on the disc.
- In order to use this recorder's "Auto Chapter" setting (page 72), be sure to correctly set the clock on your DV camcorder before shooting.
- The recorded picture may be momentarily affected or the start and end points of a title may be different from what you have set if the source DV/Digital8 format tape is in any of the following conditions. In this case, connect your digital video camera to the LINE IN jacks and follow the instructions of "Recording from Connected Equipment" (page 46).
  – There is a blank space in the recorded portion of the tape.
  – The tape's time code is not sequential.
  – If the picture size or the recording mode on the tape being dubbed changes.
- You cannot use a color system other than NTSC, such as PAL.

Dubbing an Entire DV Format Tape (DV One-Touch Dubbing)

`HDD` `+RW` `-RWVR` `-RWVideo` `+R`
`-RVR` `-RVideo`

You can record the entire contents of a DV/ Digital8 format tape onto a disc with a single press of the ONE-TOUCH DUB button on the recorder. The recorder controls the DV camcorder for the whole process, and completes the recording.

Follow steps 1 to 5 of "Preparing for DV camcorder dubbing" on page 72, and press ONE-TOUCH DUB on the recorder.
The recorder rewinds the tape and then starts recording the tape contents.
After the recording is finished, the recorder rewinds the tape in the DV camcorder, and finalizes the recorded disc (except DVD-RW/DVD-R (VR mode)) automatically.

To stop during recording
Press and hold ■ REC STOP for more than 3 seconds.
Note that it may take a few seconds for the recorder to stop recording.

⊙ Notes
- When a blank space between the recordings on the tape continues for more than two minutes, DV One-Touch Dubbing ends automatically.
- The recorder will pause recording when there is a blank space or an image containing copy protection signals on the tape. The recorder will resume recording automatically when receiving a recordable signal.
- Finalization is canceled if a timer recording starts (except for DVD-RW/DVD-R (VR mode)).
- DV One-Touch Dubbing ends automatically when there are images containing copy protection signals at the beginning of the tape.
- When connecting digital video cameras to both DV IN jack and USB jack, pressing the ONE-TOUCH DUB button starts dubbing from the HDD camcorder. Disconnect the HDD camcorder from the USB jack to dub from the DV camcorder.

Dubbing Selected Scenes (DV Manual Dubbing)

`HDD` `+RW` `-RWVR` `-RWVideo` `+R`
`-RVR` `-RVideo`

You can select and dub scenes while playing a DV/Digital8 format tape.

1 Follow steps 1 to 5 of "Preparing for DV camcorder dubbing" on page 72.

2 Press SYSTEM MENU.
The System Menu appears.

3 Select "HDD-Cam/DV," and press ENTER.

4 Select "DV Manual Dubbing," and press ENTER.

5 Select the recording destination, "Record to Hard Disk Drive" or "Record to DVD," and press ENTER.

6 Press ▷ PLAY.
The scene starts to play.

7 Find the point on the DV/Digital8 format tape that you want to start dubbing from using ◀◀/▶▶ or ◀II/ II▶, and press II PAUSE.

8 Select "Start Rec.," and press ENTER.
The recorder starts dubbing.

9 Select "Pause Rec," and press ENTER.
The recorder pauses dubbing.

10 Repeat steps 6 to 9 to dub more scenes.

11 Select "Stop Rec," and press ENTER.
The selected scenes are dubbed as a single title.

To exit "DV Manual Dubbing"
Press SYSTEM MENU.

You can turn off the dubbing menu by pressing the DISPLAY button during dubbing. Press the DISPLAY button again to display the dubbing menu.

🌜 **Note**

You cannot set a scene to be shorter than one second.

Playing from a DV Camcorder

1 Connect your DV camcorder to the DV IN jack on the front panel.

2 Press SYSTEM MENU.
The System Menu appears.

3 Select "HDD-Cam/DV," and press ENTER.

4 Select "DV Playback," and press ENTER.

5 Start playback on the DV camcorder.
Images from the DV camcorder appear on your TV screen.

To cancel playback
Press SYSTEM MENU.

ϟ **Hint**
You can dub the playing tape contents. During playback, press HDD or DVD to select the dubbing destination, and press ● REC. To stop dubbing, press ■ REC STOP.

About Jukebox

There are two methods to use Jukebox: connecting the USB device or copying audio tracks to the HDD.
When using Jukebox, you can do following:
• Store audio tracks on the HDD.
• Play audio tracks using various play modes.
• Label tracks, albums, or artists.
• Create a Playlist.

Notes on copying

• You cannot copy audio tracks on the HDD to discs or USB devices.
• Some audio tracks may not be copied depending on the file size.
• An artist name, album name, and MP3 audio track name are copied, and albums and MP3 tracks are stored in each artist folder. However, albums and MP3 audio tracks are stored in the "Unknown" folder when their artist name cannot be copied.
• Audio tracks from a CD are stored in the artist folder labeled "Unknown." Names are automatically labeled; "A_*****_F_*****" for album, "A_*****_F_*****_T_*****" for audio tracks.
• When copying is stopped partway, tracks that have finished copying before you stop will remain copied onto the HDD as an album. You can check which albums have been copied in the Music Jukebox list (page 78).
• No other operations are available when copying audio tracks.
• While copying audio tracks, timer recordings are unavailable. If the timer is set during copying, the recorder starts the timer recording after copying is finished.
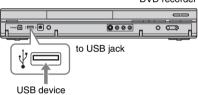• Copy-protected CDs cannot be copied to the HDD.

Preparing for Using Jukebox

Connect a USB device to the USB jack on the recorder, or copy audio tracks from the connected USB device or CDs/DATA CDs/DATA DVDs to the HDD.

Connecting the USB device

You can connect a USB device to the USB jack on the recorder to listen to the MP3 audio tracks or copy to the HDD. Refer to the operating instructions supplied with the USB device before connecting.

DVD recorder

to USB jack

USB device

❖ Note
Some USB devices may not work with this recorder.

Copying tracks or albums (USB → HDD)

You can copy up to 99 albums or 999 audio tracks on the USB device to the HDD.

1 **Connect the USB device to the USB jack on the recorder (page 76).**

2 **Press SYSTEM MENU.**
The System Menu appears.

3 **Select "Music Jukebox," and press ENTER.**

4 **Select "Listen to Music from USB Device," and press ENTER.**
The "Music Jukebox (USB)" appears.

5 **Select an album to copy using ↑/↓, and press ➡.**
The sub-menu appears.

6 Select "Edit" using ↑/↓, and press ENTER.

7 Select an item using ↑/↓, and press ENTER.
To copy all albums, select "Copy all to HDD."
To copy the selected albums, select "Copy to HDD."
The display asks for confirmation.

8 Select "Yes" using ←/→, and press ENTER.
The albums are copied to the HDD.
• To copy more albums, repeat from step 5.

To cancel copying
Press ENTER.

Copying audio tracks (DISC → HDD)

1 Insert a disc that you are going to copy to the HDD.

2 Press SYSTEM MENU.
The System Menu appears.

3 Select "Dubbing," and press ENTER.

4 Select "DVD/CD -> HDD" using ↑/↓, and press ENTER.
The copying starts.

To cancel copying
Press ENTER.

⌖ Note
Before copying, select "CD" or "MP3" under "Data Format" in the Title List (DVD/CD) (page 49).

Copying tracks or albums on the HDD (HDD ⟷ HDD)

1 Press SYSTEM MENU.
The System Menu appears.

2 Select "Music Jukebox," and press ENTER.

3 Select "Listen to Music / Edit," and press ENTER.
The "Music Jukebox (HDD)" appears.

4 Select an artist using ↑/↓, and press ENTER.

5 Select an album using ↑/↓, and press ENTER.
If you want to copy the album, press → instead of ENTER, then go to step 7.

6 Select a track to copy using ↑/↓, and press →.
The sub-menu appears.

7 Select "Edit" using ↑/↓, and press ENTER.

8 Select "Copy Album" or "Copy Track" using ↑/↓, and press ENTER.

9 Select a copy destination (an artist or album) using ↑/↓, and press ENTER.
The display asks for confirmation.

10 Select "Yes" using ←/→, and press ENTER.
The albums or tracks are copied to the HDD.
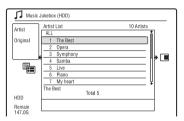• To copy more tracks or albums, repeat from step 4.

To cancel copying
Press ENTER.

Music Jukebox

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Playing Audio Tracks Using Jukebox/USB Device

1 Press SYSTEM MENU.
The System Menu appears.

2 Select "Music Jukebox," and press ENTER.

3 Select "Listen to Music / Edit" or "Listen to Music from USB Device," and press ENTER.
To listen to the audio tracks on the HDD, select "Listen to Music / Edit."
To listen to the MP3 audio tracks from the connected USB device, select "Listen to Music from USB Device."
The Music Jukebox list appears.

4 Select an artist, album, or track, and press ▷ PLAY.
(HDD only) To display an album list, select an artist using ↑/↓, and press ENTER.
To display a track list, select an album using ↑/↓, and press ENTER.
Playback starts.

To stop playback
Press ■ STOP.

To return to the previous display
Press ᨆ RETURN. If you cannot return to the artist list or album list using
ᨆ RETURN, see "To change the display mode (Original list only)" on page 78.

To scroll the list display by page (Page mode)
Press SUBTITLE (previous)/ANGLE (next) while the Music Jukebox list is displayed.
Each time you press SUBTITLE (previous)/ANGLE (next), the Music Jukebox list changes to the previous/next page of the list.

To change the play information (HDD only)
Press DISPLAY repeatedly.
Each time you press the button, information below the artist/album/track list is changed.

About the Playlist and Original list (HDD only)
You can switch the "Music Jukebox (HDD)" to show tracks in Original list or Playlist.

1 Press ← while the "Music Jukebox (HDD)" is displayed.

2 Select "Play List" using ↑/↓, and press ENTER.

3 Select an item using ↑/↓, and press ENTER.

Item	Display
Original	Tracks in the Original list.
Play List 1 Play List 2 Play List 3 Play List 4	Tracks in each Playlist.
Favourites	Tracks in order of playback frequency. The track that is most often played is listed at the top.

To change the display mode (Original list only)

1 Press ← while the "Music Jukebox (HDD)" is displayed.

2 Select "Display Mode" using ↑/↓, and press ENTER.

3 Select an item using ↑/↓, and press ENTER.

Item	Display
Artist (HDD only)	Artist list appears.
Album	Album list appears.
Track	Track list appears.

Adding audio tracks to a Playlist (HDD only)

You can add audio tracks on the HDD to the Playlist. You can add up to 25 audio tracks to each Playlist.

1 **After step 2 of "Playing Audio Tracks Using Jukebox/USB Device," select "Listen to Music / Edit," and press ENTER.**

Switch the display to the Original list (page 78).

2 **Select a track to add to the Playlist, and press →.**

The sub-menu appears.

3 **Select "Add to Play List," and press ENTER.**

4 **Select a Playlist, and press ENTER.**

The track is added to the selected Playlist.

5 **Repeat steps 2 to 4 to select all of the tracks you want to add to the Playlist.**

- To check the Playlist tracks, switch to the Playlist.

Playback options

Buttons	Operations
⏮ PREV/ NEXT ⏭ (previous/ next)	Goes to the next or previous track when pressed during playback.
◀◀/▶▶ (fast reverse/ fast forward)	Fast reverses/fast forwards the disc when pressed during playback. Search speed changes as follows: fast reverse fast forward ◀◀FR1 ← → ▶▶FF1 ◀◀FR2 ← ← → → ▶▶FF2 When you press and hold the button, fast forward/fast reverse continues at the selected speed until you release the button. To resume normal playback, press ▷ PLAY.

Buttons	Operations
⏸ PAUSE	Pauses playback. To resume normal playback, press ▷ PLAY.

Playing repeatedly (Repeat)

You can repeatedly play tracks or a single track.

1 **Press → during playback.**

If you are playing tracks on the HDD, go to step 3.

2 **(USB device only) Select "Play Mode" using ↑/↓, and press ENTER.**

The "Play Mode" menu appears.

3 **Select "Repeat" using ↑/↓, and press ENTER.**

4 **Select an item using ↑/↓.**

"Repeat Artist" (HDD only): repeats tracks of the current artist.
"Repeat Album": repeats the current album.
"Repeat Track": repeats the current track.
"Repeat Play List" (HDD only): repeats the current Playlist.
"Repeat Programme" (USB device only): repeats the current program (page 80).

5 **Press ENTER.**

Repeat play starts.

To cancel Repeat play

Set "Repeat" to "Repeat Off" in step 4.

✪ Note

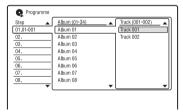You can select "Repeat Programme" only during Program play.

Creating your own program (Programme) (USB device only)

You can play the contents of the connected USB device in the order you want by arranging the order of the tracks on the connected USB device to create your own program. You can make a program of up to 24 tracks.

1 **Press ➡ while the "Music Jukebox (USB)" is displayed.**

2 **Select "Play Mode" using ↑/↓, and press ENTER.**
The "Play Mode" menu appears.

3 **Select "Programme," and press ENTER.**

4 **Select "Input/Edit Programme," and press ENTER.**

5 **Select an album (example: Album 01) using ↑/↓, and press ➡.**

6 **Select a track (example: Track 001) using ↑/↓, and press ENTER.**
The track is programed.
If you make a mistake, select the step number (example: 01.) using ←/↑/↓, and press CLEAR.

7 **To program other tracks, press ←/↑/↓/➡ to select a step number, and repeat steps 5 and 6.**

8 **Press ▷ PLAY.**
Program play starts.

To stop Program play
Press ■ STOP.

To cancel Program play
Set "Programme" to "Cancel Programme Play" in the "Play Mode" menu during playback.

To erase the program
Set "Programme" to "Erase Programme List" in the "Play Mode" menu.
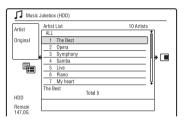
✦ Hints
- The program you made remains after Program play finishes. To play the same program again, set "Programme" to "Start Programme Play" in the "Play Mode" menu. However, the program is cleared after you press I/↻.
- You can repeat Program play. During Program play, set "Repeat" to "Repeat Programme" in the "Play Mode" menu (page 79).

Managing Audio Tracks on the Music Jukebox (HDD only)

You can erase or label artists/albums/tracks on the HDD.

1 Press SYSTEM MENU.

The System Menu appears.

2 Select "Music Jukebox," and press ENTER.

3 Select "Listen to Music / Edit," and press ENTER.

The "Music Jukebox (HDD)" appears.

```
┌─────────────────────────────────────────┐
│ ♫ Music Jukebox (HDD)                    │
│         Artist List              10 Artists │
│ Artist  ALL                              │
│ Original 1  The Best              ▲      │
│         2  Opera                         │
│         3  Symphony                      │
│         4  Samba               →  ■      │
│         5  Live                          │
│         6  Piano                         │
│         7  My heart               ▼      │
│ HDD     The Best                         │
│ Remain              Total 5              │
│ 147.0G                                   │
└─────────────────────────────────────────┘
```

4 Select an artist, album, or track, and press →.

To display an album list, select an artist using ↑/↓, and press ENTER.
To display a track list, select an album using ↑/↓, and press ENTER.

5 Select an option, and press ENTER.

"Erase": Erases the selected artist/album/track. Select "Yes" when asked for confirmation.

"Edit": Allows you to make the following edits.

- "Artist Name": Allows you to enter or re-enter an artist name (page 35).
- "Album Name": Allows you to enter or re-enter an album name (page 35).
- "Track Name": Allows you to enter or re-enter a track name (page 35).
- "Copy Album": Allows you to copy an album (page 77).
- "Copy Track": Allows you to copy a track (page 77).

"Repeat": Repeats playback of artist/album/track (page 79).

"Add to Play List": Allows you to add tracks to a Playlist (page 79).

"Play List Name": Allows you to enter or re-enter a Playlist name (up to 12 characters) (page 35).

⏻ Note

You cannot edit audio tracks on the connected USB device.

About the "Photo Album" Function

The "Photo Album" function enables you to do following.
- Store JPEG image files on the HDD.
- View JPEG image files on the HDD, DATA DVDs (DVD-RWs/DVD-Rs)/ DATA CDs, or connected USB device.
- Edit JPEG image files.
- Print JPEG image files.
- Copy JPEG image files and slideshow to DVD-RWs/DVD-Rs.
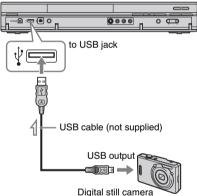- Create a slideshow with your favorite music and graphic effects (x-Pict Story).

Preparing for Using the "Photo Album" Function

Connect a USB device to the USB jack on the recorder, or copy JPEG image files from DATA CDs/DATA DVDs or the connected USB device to the HDD.

Connecting the USB device

You can connect a USB device (digital still camera, Memory card reader, and USB memory) to the USB jack on the recorder to view JPEG image files or copy to the HDD. Refer to the operating instructions supplied with the USB device before connecting.

DVD recorder

to USB jack

USB cable (not supplied)

USB output

Digital still camera

: Signal flow

ⓘ Note
Some USB devices may not work with this recorder.

Copying JPEG image files to the HDD (DISC/USB → HDD)

1 Insert a disc that you are going to copy to the HDD or connect the USB device to the USB jack on the recorder.

2 Press SYSTEM MENU.
The System Menu appears.

3 **Select "Photo Album," and press ENTER.**
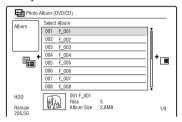
The "Photo Album" menu appears.

4 **Select the item, and press ENTER.**

To copy from DATA CDs/DATA DVDs (DVD-RWs/DVD-Rs), select "View Photos on a DVD/CD."
To copy from the connected USB device, select "View Photos on a USB Device."
The "Photo Album" list appears.
Example: DVD/CD

```
┌─────────────────────────────────────────┐
│ 🖼 Photo Album (DVD/CD)                   │
│            Select Album                   │
│ Album    001  F_001                       │
│          002  F_002                       │
│          003  F_003                       │
│          004  F_004                    ↑  │
│          005  F_005                 →  ■  │
│   🖼  ←   006  F_006                       │
│          007  F_007                       │
│          008  F_008                    ↓  │
│                                           │
│ HDD        001 F_001                      │
│   🐘      Files        5                  │
│ Remain    Album Size   2.8MB              │
│ 226.5G                            1/9     │
└─────────────────────────────────────────┘
```

5 **Select an album or JPEG image file using ↑/↓, and press →.**

The sub-menu appears.

6 **Select "Multi-Mode" using ↑/↓, and press ENTER.**

• To copy all the albums and JPEG image files, select "Copy all to HDD," and go to step 11.
• To copy the album or file selected in step 5 only, select "Copy to HDD," and go to step 11.

7 **Select an album or JPEG image file, and press ENTER.**

A check mark appears in the check box by the selected item.
• To clear the check mark, press ENTER again.
• To clear all check marks, press → to select "Single-Mode" from the sub-menu.

8 **Repeat step 7 to select all of the albums or JPEG image files you want to copy.**

9 **Press →.**

The sub-menu appears.

10 **Select "Copy to HDD," and press ENTER.**

The display asks for confirmation.

11 **Select "Yes," and press ENTER.**

• To cancel, select "No."

Copying all JPEG image files from the connected USB device (USB → DVD-RW/DVD-R)

1 **Connect the USB device to the USB jack on the recorder.**

2 **Insert a blank DVD-RW/DVD-R (Video mode).**

3 **Press SYSTEM MENU.**

The System Menu appears.

4 **Select "Photo Album," and press ENTER.**

The "Photo Album" menu appears.

5 **Select "Copy Photos from a Digital Camera," and press ENTER.**

The display asks for confirmation.

6 **Select "Yes," and press ENTER.**

• To cancel, select "No."

ᆼ̈ **Hint**

See "7. Reformatting a Disc" (page 40) to format DVD-RWs/DVD-Rs in Video mode.

🔅 **Notes**

• During copying, other operations cannot be performed.
• While copying JPEG image files, timer recordings are unavailable. If the timer is set during copying, the recorder starts the timer recording after copying is finished.

Copying JPEG image files or albums on the HDD (HDD ←→ HDD)

1 **Press SYSTEM MENU.**
The System Menu appears.

2 **Select "Photo Album," and press ENTER.**
The "Photo Album" menu appears.

3 **Select "View/Edit Photos on the HDD," and press ENTER.**
The "Photo Album" list appears.

4 **Select an album using ↑/↓.**
To copy the selected album, go to step 6.
To copy a JPEG image file, go to step 5.

5 **Press ENTER, and select a JPEG image file using ↑/↓.**

6 **Press →.**
The sub-menu appears.

7 **Select "Multi-Mode" using ↑/↓, and press ENTER.**
• To copy the selected album, select "Copy Album Contents" in "Album Options," and go to step 12.
• To copy the selected files, select "Copy" in "File Options," and go to step 12.

8 **Select an album or JPEG image file, and press ENTER.**
A check mark appears in the check box by the selected item.
• To clear the check mark, press ENTER again.
• To clear all check marks, press → to select "Single-Mode" from the sub-menu.

9 **Repeat step 8 to select all of the albums or JPEG image files you want to copy.**

10 **Press →.**
The sub-menu appears.

11 **Select "Copy," and press ENTER.**

12 **Select the destination album using ↑/↓, and press ENTER.**
The display asks for confirmation.

13 **Select "Yes," and press ENTER.**
• To cancel, select "No."

✦ Note
Albums or JPEG image files are not copied to the HDD in the following cases.
– when the HDD disc space is insufficient for copying.
– when there are already the maximum number of files and/or albums on the HDD.

Copying JPEG image albums to a disc (HDD → DVD-RW/DVD-R)

You can copy the edited JPEG image albums to a DVD-RW/DVD-R (Video mode).
A slideshow is also recorded to the disc as a video file. You can play the slideshow on other DVD equipment that may not be compatible with the playback of JPEG image files.

1 **Insert a DVD-RW/DVD-R (in Video mode).**

2 **Press SYSTEM MENU.**
The System Menu appears.

3 **Select "Photo Album," and press ENTER.**
The "Photo Album" menu appears.

4 **Select "View/Edit Photos on the HDD," and press ENTER.**
The "Photo Album" list appears.

5 **Select an album using ↑/↓, and press →.**
The sub-menu appears.

6 **Select "Multi-Mode," and press ENTER.**
To copy the album selected in step 5 only, go to step 10.

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7 Select an album, and press ENTER.

A check mark appears in the check box by the selected item.

- To clear the check mark, press ENTER again.
- To clear all check marks, press ➡ to select "Single-Mode" from the sub-menu.

8 Repeat step 7 to select all of the albums you want to copy.

9 Press ➡.

The sub-menu appears.

10 Select "Copy to DVD," and press ENTER.

The display asks for confirmation.

11 Select "Yes," and press ENTER.

The selected JPEG image albums are copied in the "PICTURE" folder on the disc.

The JPEG image album names are automatically labeled as "***ALBUM."

If you want to play the disc on other DVD equipment, finalize the disc (page 38).

- To cancel, select "No."

☞ Hints

- See "7. Reformatting a Disc" (page 40) to format DVD-RWs/DVD-Rs in Video mode.
- See the "Photo Album" list to check which albums have been copied (page 86).

✦ Notes

- You may not be able to play the slideshow depending on DVD equipment.
- You cannot copy JPEG image files to a recordable DVD which has been recorded using other recorders/devices.
- DATA DVDs finalized on this recorder may not be able to play on other equipment.
- You can record up to 99 slideshows to a disc.
- When copying an album containing more than 99 JPEG image files to a disc, slideshows will be created with every 99 JPEG image files and recorded to a disc.
- For DVDs, the available disc space does not increase even if you erase slideshows.

Copying JPEG image files to a disc (HDD → DVD-RW/DVD-R)

You can copy the edited JPEG image files to a DVD-RW/DVD-R (Video mode).

A slideshow is also recorded to the disc as a video file. You can play the slideshow on other DVD equipment that may not be compatible with the playback of JPEG image files.

1 Follow steps 1 to 4 of "Copying JPEG image albums to a disc (HDD → DVD-RW/DVD-R)" on page 84.

The "Photo Album" list appears.

2 Select an album using ↑/↓, and press ENTER.

The photo list appears.

3 Select a JPEG image file using ↑/↓, and press ➡.

The sub-menu appears.

4 Select "Multi-Mode," and press ENTER.

To copy the JPEG image file selected in step 3 only, go to step 8.

5 Select a JPEG image file, and press ENTER.

A check mark appears in the check box by the selected item.

- To clear the check mark, press ENTER again.
- To clear all check marks, press ➡ to select "Single-Mode" from the sub-menu.

6 Repeat step 5 to select all of the JPEG image files you want to copy.

7 Press ➡.

The sub-menu appears.

8 Select "Copy to DVD," and press ENTER.

The display asks for confirmation.

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Photo Album

9 Select "Yes," and press ENTER.

The selected JPEG image files are copied in the "PICTURE" folder on the disc.

The JPEG image file names are automatically labeled as "PHOT****." If you want to play the disc on other DVD equipment, finalize the disc (page 38).

• To cancel, select "No."

To select a JPEG image file from a different album

1 Switch to the album list in step 5. For instructions, see "To switch between the album list and JPEG image file list" on page 88.

2 Select an album using ↑/↓, and press ←.

3 Switch to the JPEG image file list. For instructions, see "To switch between the album list and JPEG image file list" on page 88.

4 Select a JPEG image file using ↑/↓, and press ENTER.

☆ Hints
• See "7. Reformatting a Disc" (page 40) to format DVD-RWs/DVD-Rs in Video mode.
• See the "Photo Album" list to check which JPEG image files have been copied (page 86).

♦ Notes
• You may not be able to play the slideshow depending on DVD equipment.
• You cannot copy JPEG image files to a recordable DVD which has been recorded using other recorders/devices.
• DATA DVDs finalized on this recorder may not be able to play on other equipment.
• You can record up to 99 slideshows to a disc.
• For DVDs, the available disc space does not increase even if you erase slideshows.

Using the "Photo Album" List

You can play JPEG image files on the HDD, DATA DVDs/DATA CDs, or connected USB device using the "Photo Album" list.

1 Press SYSTEM MENU.
The System Menu appears.

2 Select "Photo Album," and press ENTER.
The "Photo Album" menu appears.

3 Select the item, and press ENTER.
To play JPEG image files on the HDD, select "View/Edit Photos on the HDD." To play JPEG image files on DATA CDs/DATA DVDs, select "View Photos on a DVD/CD." To play JPEG image files on the connected USB device, select "View Photos on a USB Device." The "Photo Album" list appears.

4 Select an album using ↑/↓, and press ENTER.
To show the 4-Photo List or 1-Photo List, press ← to select "Title View," and press ENTER, then select "4 Photos" or "1 Photo" using ↑/↓, and press ENTER.

12-Photo List (Example: HDD)

4-Photo List

1-Photo List
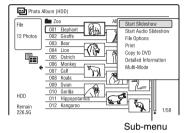
1 Album name

2 Album size

3 Sub-menu:
Press ➡ to display the sub-menu.
The sub-menu displays options applicable only to the selected item. The displayed options differ depending upon the model, situation, and disc type.
For details about the sub-menu options, see "Managing JPEG Image Files on the HDD" on page 91.

Sub-menu

4 Scroll bar:
Appears when all of the JPEG image files do not fit on the list. To view the hidden JPEG image files, press ↑/↓.

5 Album and JPEG image file information:
Displays the image, JPEG image file number, recording date and time, JPEG image file name, and JPEG image file size. " 🔒 " appears for protected JPEG image files.

6 Remaining space on the HDD

To scroll the list display by page (Page mode)

Press I◄◄ PREV/NEXT ►►I while the "Photo Album" list is displayed. Each time you press I◄◄ PREV/NEXT ►►I, the "Photo Album" list changes to the previous/next page of albums/JPEG image files.

Photo Album

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To switch between the album list and JPEG image file list

1 Press ← while the "Photo Album" list is displayed.

2 Select "Display Mode" using ↑/↓, and press ENTER.

3 Select "File" or "Album" using ↑/↓, and press ENTER.

☼ Hints
- You can switch the thumbnail picture on the album list among the JPEG image files in the selected album by pressing ◄◄/►►.
- You can switch to the previous or next album by pressing ◄◄/►► on the JPEG image file list.

To turn off the "Photo Album" list
Press SYSTEM MENU.

To display the detailed information

1 Select a JPEG image file, and press →.

2 Select "Detailed Information," and press ENTER.
The detailed information for the selected JPEG image file appears.

To reload the files or folders
When a disc or the connected USB device contains 1,000 or more files and/or 100 or more folders, select "Read next" in the "Photo Album" list, and press ENTER to view unloaded files or folders.
It may take a few minutes to load files or folders.

ⓘ Note
The thumbnail for a file that cannot be playable on the recorder is displayed as "⚠."

Playing a slideshow

1 Follow steps 1 to 4 of "Using the "Photo Album" List."
The "Photo Album" list appears. Switch between the album list and JPEG image file list, if necessary.

2 Select an album or JPEG image file using ↑/↓, and press ▷ PLAY.
The slideshow starts.

☼ Hint
You can start a slideshow by selecting "Start Slideshow" from the sub-menu.

ⓘ Notes
- Depending on the aspect ratio, some pictures may be displayed with black bands at top and bottom, or left and right.
- Large picture files may take a few seconds to display. This is not a malfunction.

To stop a slideshow
Press ■ STOP or ⟲ RETURN.

To pause a slideshow
Press ‖ PAUSE.

To view the previous/next image during a slideshow
Press ◄◄ PREV/NEXT ►►|.

To zoom an image
Press ZOOM repeatedly during a slideshow. Each time you press ZOOM, the magnification changes as shown below.
2× → 4× → normal magnification
You can move the area you want to zoom using ←/↑/↓/→.

To rotate an image
Press ANGLE repeatedly during a slideshow.
Each time you press ANGLE, the image turns clockwise by 90°.

To play a slideshow with the sound (HDD only)

You can enjoy a slideshow while listening to the sound stored in the HDD. First prepare Music Playlists by adding audio tracks using Jukebox (see "Adding audio tracks to a Playlist (HDD only)" on page 79).

1 Select "View/Edit Photos on the HDD" in step 3 of "Using the "Photo Album" List" on page 86.
The "Photo Album" list appears. Switch between the album list and JPEG image file list, if necessary.

2 Select an album or JPEG image file using ↑/↓, and press →.

3 Select "Start Audio Slideshow," and press ENTER.

4 Select the desired Music Playlist or "Favourites" using ←/→.

5 Select "Start," and press ENTER.
The slideshow and the playback from the first track of the selected Music Playlist start.

✪ Notes

- While playing a slideshow with the sound, you cannot do the following:
  – Zoom, rotate, skip or pause an image.
  – Display information on the screen by pressing DISPLAY.
- If there is no audio track in the selected Music Playlist, the slideshow is played back with no sound.

Creating a Slideshow with Your Favorite Music and Graphic Effects (x-Pict Story) (HDD only)

You can easily create and play your own slideshow with your favorite music in Music Playlist and graphic effects using the JPEG image files on the HDD (x-Pict Story). First prepare Music Playlists by adding audio tracks using Jukebox (see "Adding audio tracks to a Playlist (HDD only)" on page 79). The created x-Pict Story is automatically stored in the Title List (HDD) and you can copy it onto a recordable disc.

1 Press SYSTEM MENU.
The System Menu appears.

2 Select "Photo Album," and press ENTER.
The "Photo Album" menu appears.

3 Select "View/Edit Photos on the HDD," and press ENTER.
The "Photo Album (HDD)" list appears.

4 Select an album, and press →.
The sub-menu appears.

5 Select "Create x-Pict Story" using ↑/↓, and press ENTER.

6 Select a graphic effect and a Music Playlist using ←/↑/↓/→.

- "Theme": Select a theme. The recorder adds graphic effects according to the theme you set from the following:
  "Happy moments (1)": with simple graphic effects
  "Happy moments (2)": with simple graphic effects rapidly changing
  "Nostalgic memories": in monochrome
  "Sweetest recollections": with moving graphic effects
  "Blissful life": with moving graphic effects rapidly changing
  "Normal": no graphic effects
- "Play List": Select the desired Music Playlist or "Favourites." For an explanation of how to make a Music Playlist, see "Adding audio tracks to a Playlist (HDD only)" on page 79.

7 Select "Next," and press ENTER.
The copyright message appears on the screen.

8 Select "Yes" using ←/→, and press ENTER.
The x-Pict Story is saved as a video file in the Title List on the HDD.
The title names are automatically labeled as "x-Pict_Story ***" using the name of the selected album folder.

To stop creating x-Pict Story
Press and hold ■ REC STOP for more than 3 seconds.

☼ Hints
- The order of audio tracks in the created x-Pict Story is followed by that of Music Playlist. If you want to change its order, change the order of Music Playlist before creating an x-Pict Story.
- If the selected folder has no name, the title names are automatically labeled with the date when the x-Pict Story was created.
- An x-Pict Story is created in the HQ mode.
- To edit x-Pict Story titles, see "Erasing and Editing" on page 56.

♺ Notes
- You cannot make a recording while creating an x-Pict Story.
- If there is no JPEG image file in the selected folder, you cannot create an x-Pict Story.
- If there is no audio track in the selected Music Playlist, the x-Pict Story is created with no sound.
- The selected Music Playlist may not be played back to the end depending on the number of JPEG image files.
- If the HDD is full, a warning message appears and you cannot create an x-Pict Story.
- While creating an x-Pict Story, you cannot do the following:
  – Zoom, rotate, skip or pause an image.
  – Display information on the screen by pressing DISPLAY.
- The order of graphic effects changes at random every time you create an x-Pict Story in the same theme.
- Do not disconnect or connect the USB cable or i.LINK cable while creating an x-Pict Story. This may cause the x-Pict Story to be created incorrectly.
- The graphic effect may not show a smooth motion or not appear correctly on the created x-Pict Story depending on conditions, such as size of the image files.

To play an x-Pict Story
You can play a created x-Pict Story from the Title List on the HDD.
For details, see "3. Playing the Recorded Program (Title List)" on page 32.

To dub an x-Pict Story
You can dub a created x-Pict Story to DVDs. For details, see "Dubbing (HDD ←→ DVD)" on page 63. If you want to play the disc on other DVD equipment, finalize the disc (page 38).

Managing JPEG Image Files on the HDD

1 Press SYSTEM MENU.
The System Menu appears.

## 2 Select "Photo Album," and press ENTER.
The "Photo Album" menu appears.

3 Select "View/Edit Photos on the HDD," and press ENTER.
The "Photo Album (HDD)" list appears.

4 Select an album or JPEG image file, and press ➡.
The sub-menu appears.

5 Select an option, and press ENTER.
You can make the following edits to the album/JPEG image file.

"Start Slideshow": Starts a slideshow (page 88).

"Start Audio Slideshow" (HDD only): Starts a slideshow with the sound (page 89).

"Create x-Pict Story": Creates a new x-Pict Story (page 89).

"New Album": Creates a new album.

"Album Options"
• "Erase Album": Erases the selected album.
• "Copy Album Contents": Copies all JPEG image files in the selected album to the HDD (page 84).
• "Rename Album": Changes the selected album name (page 35).
• "Protect Album Contents": Protects all JPEG image files in the selected album.
• "Cancel Protection": Cancels protection of all JPEG image files in the selected album.

"Copy to DVD": Copies the selected album or JPEG image file to a DVD (page 84).

"Multi-Mode": Selects multiple albums or JPEG image files to edit.

"Copy all to HDD": Copies all the albums and JPEG image files to the HDD (page 82).

"Copy to HDD": Copies the selected album or JPEG image file to the HDD (page 82).

"File Options"
• "Erase": Erases the selected JPEG image file.
• "Copy": Copies the selected JPEG image file (page 84).
• "Rename File": Changes the selected JPEG image file name (page 35).
• "Protect": Protects the selected JPEG image file. Select again to cancel the protection.

"Print": Prints the selected JPEG image file (page 92).

"Detailed Information": Displays the detailed information for the selected JPEG image file (page 88).
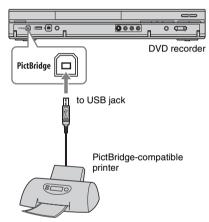
"Single-Mode": Cancels "Multi-Mode."

Printing JPEG Image Files

You can print JPEG image files on the HDD, DATA DVDs/DATA CDs, or connected USB device by connecting a PictBridge-compatible printer to the USB jack on the recorder.
Refer to the instructions supplied with the printer.

1 Connect a PictBridge-compatible printer to the USB jack on the recorder.

DVD recorder

PictBridge

to USB jack

PictBridge-compatible printer

2 Connect the USB device to the USB jack on the recorder.
When printing JPEG image files on the HDD or DATA DVDs/DATA CDs, skip this step.

3 Press SYSTEM MENU.
The System Menu appears.

4 Select "Photo Album," and press ENTER.
The "Photo Album" menu appears.
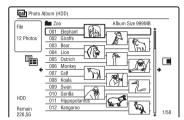
5 Select the item, and press ENTER.
To print JPEG image files on the HDD, select "View/Edit Photos on the HDD."
To print JPEG image files on a DATA DVD/DATA CD, select "View Photos on a DVD/CD."
To print JPEG image files from the connected USB device, select "View Photos on a USB Device."
The "Photo Album" list appears.

6 Select an album, and press ENTER.

7 Select a file using ↑/↓, and press ➡.
The sub-menu appears.

8 Select the item, and press ENTER.
To print two or more files, select "Multi-Mode."
To print the file selected in step 7 only, go to step 12.

9 Select a file, and press ENTER.
A check mark appears in the check box by the selected item.
- To clear the check mark, press ENTER again.
- To clear all check marks, select "Single-Mode."

10 Repeat step 9 to select all files you want to print.

11 Press ➡.
The sub-menu appears.

12 Select "Print," and press ENTER.
The display asks for confirmation.

13 Select "Start," and press ENTER.
You can set the paper size and layout. Refer to the operating instructions supplied with the printer.

To cancel printing

Press ENTER.

To display the connected printer

Select "Confirm Printer" of "USB" in the "Options 2" setup (page 110).

To restart the connected USB device

Select "Restart USB Device" of "USB" in the "Options 2" setup (page 110).

ϔ Hint

Printing options, such as paper size or layout, differ depending on the printer. For details, refer to the instructions supplied with the printer.

Adjusting Picture Quality

| HDD | +RW | -RWvr | -RWvideo | +R |
| -RVR | -Rvideo | DVD | VCD | DATA DVD * |
| DATA CD * |

* DivX video file only

You can adjust the picture quality from the connected equipment, such as a TV or VCR, and also the picture quality of broadcasts that the recorder can receive by selecting a preset setting. You can also adjust the picture quality by changing detailed settings, and store up to three settings in the memory.

1 **Press PICTURE ADJUST in stop mode.**
For adjusting playback picture quality, press PICTURE ADJUST during playback.

2 **Select a preset setting using ←/→, and press ENTER.**

For recording

Tuner	TV broadcast
VCR	Video cassettes
DTV	Digital broadcast
Memory1/ Memory2/ Memory3	Your own settings. To create your own settings, see "To create your own setting" on page 94.

For playback

Dynamic	Produces a bold dynamic picture by increasing the picture contrast and the color intensity.
Standard	Displays a standard picture.
Professional	Displays an original picture.
Memory1/ Memory2/ Memory3	Your own settings. To create your own settings, see "To create your own setting" on page 94.

To check the detailed settings for the selected preset, press DISPLAY.

3 **Press SYSTEM MENU to exit.**

To create your own setting

1 Select "Memory1," "Memory2," or "Memory3" in step 2.

2 Select "Detailed Settings," and press ENTER.
The display for adjusting detailed settings appears.

3 Select an item using ↑/↓, and adjust settings using ←/→.
For explanation of each setting, see the tables below.

4 Press SYSTEM MENU to exit.
The setting is automatically stored as the setting you selected in step 1.

ヾ Hint
You can also select the "Picture Adjustment" menu in the System Menu.

◆**Setting options for recording picture quality**

For details about each setting, see the explanation of the display.

Prog. Motion	Adjusts the progressive video signal when "Component Video Out" is set to "Progressive" (page 100) or when using the HDMI connection. Select "Motion" for a picture, including subjects that move dynamically. Select "Still" for a picture with little movement.
Cinema	Converts the progressive video signal to match the type of DVD software that you are watching when "Component Video Out" is set to "Progressive" (page 100) or when using the HDMI connection. Select "Auto" to detect the software type (Film-based or Video-based) automatically and select the appropriate conversion mode. Normally select this position. Select "Off" to fix the conversion mode to the mode for Video-based software.
3-D Y/C	Adjusts the brightness/color separation for the video signals. Select "Motion" for a picture, including subjects that move dynamically. Select "Still" for a picture with little movement.
YNR (luminance noise reduction)	Reduces noise contained in the luminance element of the video signal.
CNR (chroma noise reduction)	Reduces noise contained in the chroma element of the video signal.
Detail	Adjusts the sharpness of images outlines.
White AGC	Turn on for automatic white level adjustment.

White Enhancer	Adjusts the intensity of white.
Black Enhancer	Adjusts the intensity of black.
Black Level	Selects the black level (setup level) for the video signals. Select "ON" to remove the 7.5 IRE setup level. Normally, select this position.
Hue	Adjusts the color balance.
Chroma Level	Makes the colors deeper or lighter.

◆**Setting options for playback picture quality**

For details about each setting, see the explanation of the display.

Prog. Motion	Adjusts the progressive video signal when "Component Video Out" is set to "Progressive" (page 100), or when "Screen Resolution" is set to other than "720 x 480i" (page 108). Select "Motion" for a picture, including subjects that move dynamically. Select "Still" for a picture with little movement.
Cinema	Converts the progressive video signal to match the type of DVD software that you are watching when "Component Video Out" is set to "Progressive" (page 100), or when "Screen Resolution" is set to other than "720 x 480i" (page 108). Select "Auto1" to automatically detect the software type (Film-based or Video-based) and select the appropriate conversion mode. Normally select this position. If the picture appears unnatural, select "Auto2," "On," or "Off."
YNR (luminance noise reduction)	Reduces noise contained in the luminance element of the video signal.

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BNR (block noise reduction)	Reduces "block noise" or mosaic-like patterns in the picture.
MNR (mosquito noise reduction)	Reduces the faint noise appearing around the outlines of the images. The noise reduction effects are automatically adjusted within each setting range according to the video bit rate and other factors.
Sharpness	Sharpens the outlines of the images.
Detail	Adjusts the sharpness of images outlines.
White Enhancer	Adjusts the intensity of white.
Black Enhancer	Adjusts the intensity of black.
Black Level	Selects the black level (setup level) for the video signals. Select "ON" to set the black level of the input signals to the standard level. Normally, select this position. Select "OFF" to lower the black level of the input signals to the standard level. Select this when the picture becomes too white.
Gamma Correction	Adjusts how dark areas look.
Hue	Adjusts the color balance.
Chroma Level	Makes the colors deeper or lighter.

Using the Setup Menus

You can change the settings of the recorder, such as picture quality settings, audio settings, etc.

1 **Press SYSTEM MENU while the recorder is in stop mode.**

2 **Select "Disc Setup" or "Initial Setup" using ↑/↓, and press ENTER.**

3 **Select the desired setup item using ↑/↓, then press ENTER.**
   See the explanations in the following sections.
   The default settings are underlined.

Disc Settings (Disc Setup)

You can adjust DVD related settings.

Basic

Input Disc Name
You can label a disc.
For details, see page 36.

Protect Disc
You can protect a disc against erasure.
For details, see page 37.

Format DVD-RW (DVD-RW only)
The recorder automatically starts formatting in VR mode or Video mode, whichever is selected below, when a new, unformatted DVD-RW is inserted.

VR Mode	Automatically formats the disc in VR mode.
Video Mode	Automatically formats the disc in Video mode.

Format

You can manually re-format a DVD+RW, DVD-RW, or DVD-R disc to make a blank disc.
For details, see page 40.

Finalise

Finalizes a disc to play it on other DVD equipment.
For details, see page 38.

Settings and Adjustments

Optimise HDD

As you record, erase and edit recordings repeatedly, the HDD file system gradually becomes fragmented. To 'clean up' all the fragmented files, optimize the HDD periodically. When the HDD needs optimizing, a message recommending optimization will appear automatically. To cancel optimization, press ENTER. The HDD will be partly optimized.

↺ Notes
- It will take about eight hours to optimize the HDD. During optimization, other operations, such as recording or playback, cannot be performed.
- You cannot optimize the HDD when the HDD disc space is insufficient for optimizing. Erase titles to open up disc space (page 57).

Format HDD.

You can format the HDD and resolve the problem when the hard disk error occurred. "Format HDD." can be selected only when the hard disk needs formatting. Note that all of the recorded content on the HDD will be erased.

Recorder Settings (Basic)

You can make clock and other recorder-related settings.

Clock Setting

Auto (Auto Clock Set)
Turns on the Auto Clock Set function when a channel in your local area broadcasts a time signal.

1 Press ←/→ repeatedly until the channel of the station that carries a time signal appears.

2 Press ↓ to select "Start," and press ENTER.
- If the recorder does not receive a time signal from any station, press ⟲ RETURN and set the clock manually.
- If the Auto Clock Set function did not set the clock correctly for your local area, try another station for the Auto Clock Set function or set the clock manually.

↺ Note
The Auto Clock Set function does not work while the recorder is standing by for Synchro-Recording.

Manual (Manual Clock Set)
Set the clock manually.

1 Press ←/→ to select the time zone for your area, and press ↓.

2 Select "On" using ←/→ if you are now on D.S.T (Daylight Saving Time), and press ENTER.

3 Set the month, day, year, hour, and minutes using ←/↑/↓/→, and press ENTER to start the clock.

To change the numbers, press ← to return to the item to be changed, and press ↑/↓.

HELP Setting

On	Displays Help information for GUI displays.
Off	Does not set to HELP setting mode.

Easy Setup (Resetting the Recorder)

Select this to run the "Easy Setup" program. Follow the instructions for "Easy Setup" (page 25) from step 2.

Antenna Reception Settings (Tuner)

You can make tuner and channel settings for the recorder.

Auto Channel Setting

Automatically presets the receivable channels. The recorder can receive VHF channels 2 to 13, UHF channels 14 to 69, and unscrambled CATV channels 1 to 125. Select "Antenna" or "Cable," and press ENTER.
"Antenna"(Default): Presets VHF and UHF channels.
"Cable": Presets cable TV channels.
The channel order will be set.
If any channels are unused or contain unwanted channels, you can disable them (page 100).
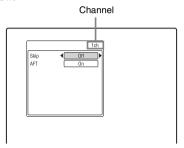
✪ Note
You cannot preset channels for the connected cable box or satellite receiver.

Manual CH Setting

Presets channels manually.
If some channels could not be set using the "Easy Setup" function, you can set them manually.
If there is no sound or if the picture is distorted, the wrong tuner system may have been preset during "Easy Setup." Set the correct tuner system manually in the steps below.

Channel

```
                                    1ch
       Skip        ◄    Off    ►
       AFT               On
```

1 Press CH +/– to select the channel.

2 Select the item you want to change using ↑/↓, and change the settings using ←/→, then press ENTER.
   • To preset another channel, repeat from step 1.

Skip

On	Select this when the channel is unused or contains unwanted channels. The selected position will be skipped when you press CH +/–.
Off	Does not skip the selected channel.

AFT

On	Turns on the Auto Fine Tuning function. Normally select this position.
Off	Allows you to adjust the picture manually.

• If the Auto Fine Tuning function does not work effectively, select "Off" and press ↓. Press ←/→ to obtain a clearer picture, and press ENTER.

Video Settings (Video Out)

You can adjust items related to the image, such as size and color, according to the type of TV or tuner connected to the recorder.

Component Video Out

Selects the signal format in which the recorder outputs video signals: interlace or progressive, from the COMPONENT VIDEO OUT jacks.

Normal(Interlace)	Outputs signals in the interlace format.
Progressive	Outputs signals in the progressive format. Select this when you want to view progressive signals.

ⓑ Notes
• When picture noise appears after you set the recorder to progressive format, hold down ■ (stop) on the recorder, and press ⏏ (open/close) on the recorder.
• No video signals are output when using the HDMI connection.

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Audio Input Settings (Audio In)

You can adjust the sound according to the playback and connection conditions.

External Audio

Stereo	Select this when receiving stereo programs from connected equipment.
Dual Mono	Select this when receiving Dual Mono program from connected equipment.

✬ Hint
If you select "Dual Mono," then record Dual Mono programs on the HDD (when "HDD Recording Format" is set to "Video Mode Off" (except in PCM recording mode)) or a DVD-RW/DVD-R in VR mode (except in PCM recording mode), both audio channels are recorded and you can select the sound while playing by using the AUDIO button.

✦ Note
When receiving audio input signals from the DV input jack, the recorder automatically selects "Stereo" or "Dual Mono" regardless of the "External Audio" setting.

Dual Mono Recording

Selects the sound to be recorded.

L	Records only the main sound (left channel).
R	Records the sub sound (right channel).

✬ Hint
Select "L" if "External Audio" is set to "Dual Mono," and you want to record the left channel audio on the HDD (when "HDD Recording Format" is set to "Video Mode On" (page 105) (or in PCM recording mode)) or DVDs in Video mode (or in PCM recording mode).

DV Input

Select the setting for the audio input when DV camcorder dubbing.
Select "Mix (Stereo 1: 75 %)"/"Mix (Stereo 1: 50 %)"/"Mix (Stereo 1: 25 %)" or "Stereo 2" only if you have added a second audio when recording with your digital video camera.

Stereo 1	Records original sound only. Normally select this when dubbing a DV format tape.
Stereo 2	Records additional audio only.
Mix (Stereo 1: 75 %)	Records both stereo 1 and 2.
Mix (Stereo 1: 50 %)	
Mix (Stereo 1: 25 %)	

Audio Output Settings (Audio Out)

You can switch the method of outputting audio signals when you connect a component such as an amplifier (receiver) with a digital input jack.

♨ Note

If you connect a component that does not accept the selected audio signal, a loud noise (or no sound) will come from the speakers, and may affect your ears or cause speaker damage.

Dolby Digital Output (HDD/ DVDs only)

Selects the type of Dolby Digital signal.

Dolby Digital	Select this when the recorder is connected to an audio component with a built-in Dolby Digital decoder.
Dolby Digital -> PCM	Select this when the recorder is connected to an audio component lacking a built-in Dolby Digital decoder.

♨ Note

If the HDMI OUT jack is connected to equipment not compatible with Dolby Digital signals, the PCM signals will be automatically output even when you select "Dolby Digital."

DTS Output (DVD VIDEOs only)

Selects whether or not to output DTS signals.

On	Select this when the recorder is connected to an audio component with a built-in DTS decoder.
Off	Select this when the recorder is connected to an audio component without a built-in DTS decoder.

♨ Note

When HDMI output is performed to equipment not compatible with DTS signals, the signals will not be output regardless of the "DTS Output" setting.

96 kHz PCM Output (DVD VIDEOs only)

Selects the sampling frequency of the audio signal.

96 kHz -> 48 kHz	The audio signals of DVD VIDEOs are converted to 48 kHz and output.
96 kHz	All signals containing 96 kHz are output without conversion. However, the signals are output at 48 kHz if copyright-protected signals are contained.

♨ Notes

- "96 kHz PCM Output" setting has no effect when audio signals are output from the LINE OUT (R-AUDIO-L) jacks. If the sampling frequency is 96 kHz, signals are simply converted to analog signals and output.
- If the HDMI OUT jack is connected to equipment not compatible with 96 kHz signals, 48 kHz PCM will be automatically output even when you select "96 kHz."

MPEG Output (DVD VIDEOs only)

Selects the type of MPEG audio signal.

MPEG	Select this when the recorder is connected to an audio component with a built-in MPEG decoder.
MPEG -> PCM	Select this when the recorder is connected to an audio component without a built-in MPEG decoder. If you play MPEG audio sound tracks, the recorder outputs stereo signals via the DIGITAL OUT (COAXIAL) jack.

🔅 Note

If the HDMI OUT jack is connected to equipment not compatible with MPEG audio signals, the PCM signals will be automatically output even when you select "MPEG."

Audio DRC (Dynamic Range Control) (DVDs only)

Selects the dynamic range (difference between soft and loud sounds) setting when playing a DVD that conforms to "Audio DRC." This affects the output from the following jacks:

– LINE OUT R-AUDIO-L jacks
– DIGITAL OUT (COAXIAL)/HDMI OUT jack only when "Dolby Digital Output" is set to "Dolby Digital -> PCM" (page 102).

On	Makes low sounds clear even if you turn the volume down.
Off	Normally select this position.

Language Settings (Language)

You can make language settings.

OSD Language

Switches the display language on the screen.

Audio Language (DVD VIDEO only)

Switches the language of the sound track.

Subtitle Language (DVD VIDEO only)

Switches the language of the subtitles recorded on the disc.

Auto Language

The "Auto Language" function is available when "Audio Language" and "Subtitle Language" are set to the same language, and "Subtitle Display" is set to "On."

On	For DVD VIDEOs whose main audio track is the language you set in "Audio Language" and "Subtitle Language," the recorder plays the main audio track without subtitles. For DVD VIDEOs whose main audio track is not the language you set in "Audio Language" and "Subtitle Language," the recorder plays the main audio track with subtitles in the language you set.
Off	Turns off the function.

Settings and Adjustments

DVD Menu Language (DVD VIDEO only)

Switches the language for the DVD menu. Select "w/Subtitle Language" to set the same language as the language you set in "Subtitle Language."

Subtitle Display

On	Displays subtitles.
Off	Does not display subtitles.
Assist Subtitle	Displays special assistive subtitles, where available.

ʚ̈ **Hint**
If you select "Others" in "Audio Language," "Subtitle Language," or "DVD Menu Language," press ↓, and enter a language code from "Language Code List" on page 125.

ｂ **Note**
If you select a language in "DVD Menu Language," "Subtitle Language," or "Audio Language" that is not recorded on the DVD VIDEO, one of the recorded languages will be automatically selected.

Recording Settings (Recording)

You can adjust recording settings.

Manual Rec. Mode

You can select further options for recording mode (manual recording mode). The default setting is "Off" (standard recording mode). You can check the approximate recording times for the HDD and the different DVD types in each recording mode on page 122.

1 Select "On (go to setup)" using ↑/↓, and press ENTER.

2 Select a recording mode using ←/→, and press ENTER.
To easily select a manual recording mode, press REC MODE repeatedly to display "MN," and select a manual recording mode using ←/→.

Rec. Mode Adjust

On	Automatically adjusts the recording mode to enable the entire program to be recorded (page 43).
Off	Turns off the function.

Set Thumbnail

Selects a scene for the thumbnail picture shown in the Title List.

0 seconds	The first frame of the title is set for the thumbnail picture.
30 seconds	The frame at 30 seconds from the first frame is set for the thumbnail picture.
3 minutes	The frame at 3 minutes from the first frame is set for the thumbnail picture.

Auto Chapter (HDD/VR) (HDD/DVD-RW/DVD-R in VR mode only)

On	The recorder detects changes in the picture and sound and automatically inserts chapter marks (up to 99 chapters for one title recorded on the HDD).
Off	No chapter mark is inserted.

✪ Notes
- The actual chapter mark interval may vary depending on the amount of information contained in the video to be recorded.
- Chapter marks are automatically inserted, where the date or time information changes on the tape, when "Auto Chapter (HDD/VR)" is set to "On" during DV dubbing to the HDD or a DVD-RW/DVD-R (VR mode).

Auto Chapter (Video) (DVD-RW/DVD-R in Video mode only)

No Separation	No chapter mark is inserted.
10 minutes	Inserts chapter marks at approximately 10-minute intervals.
15 minutes	Inserts chapter marks at approximately 15-minute intervals.

Auto Chapter (DVD+R/+RW) (DVD+RW/DVD+R only)

No Separation	No chapter mark is inserted.
10 minutes	Inserts chapter marks at approximately 10-minute intervals.
15 minutes	Inserts chapter marks at approximately 15-minute intervals.

HDD Recording Format

Selects the HDD recording format.

Video Mode Off	Records to the HDD in VR mode. When recording stereo and SAP programs, both main and sub sounds can be recorded.
Video Mode On	Records to the HDD in Video mode. When recording stereo and SAP programs, only one sound track (main or sub) can be recorded (page 101).

ϔ Hint
The HDD contents recorded in Video mode can be dubbed to a disc at high speed (page 63).

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Playback Settings (Playback)

You can adjust playback settings.

TV Type

Select the playback picture size according to the type of connected TV (wide-screen/wide mode TV or conventional 4:3 screen TV).

4:3 Letter Box	Select this when connecting to a 4:3 screen TV. Displays a wide picture with bands on the upper and lower portions of the screen.
4:3 Pan Scan	Select this when connecting to a 4:3 screen TV. Automatically displays a wide picture on the entire screen and cuts off the portions that do not fit.
16:9	Select this when connecting to a wide-screen TV or TV with a wide mode function.

4:3 Letter Box

4:3 Pan Scan

16:9

⚙ Note
Depending on the disc, "4:3 Letter Box" may be selected automatically instead of "4:3 Pan Scan" or vice-versa.

Pause Mode

Selects the picture quality in pause mode.

Field	Outputs a stable, generally shake-free image.
Frame	Outputs a sharp image, but may be prone to shake.
Auto	Outputs a generally less sharp but more stable still image.

Seamless Playback (HDD/DVD-RW/DVD-R in VR mode only)
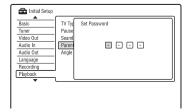
On	Playback is smooth, but with a trade-off against the accuracy of the edit points.
Off	You may notice momentary interruption at edited points during playback of a VR mode Playlist.

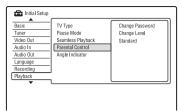## Parental Control (DVD VIDEO only)

Playback of some DVD VIDEOs can be limited according to a predetermined level, such as the age of the users. Scenes may be blocked or replaced with different scenes.

1 Select "Parental Control" in "Playback," and press ENTER.
When you have already registered a password, go to step 4.

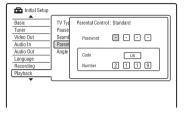**2** Select "Set Password," and press ENTER.
The display for registering a new password appears.

3 Enter your four-digit password using the number buttons, and press ENTER.

4 Select "Standard," and press ENTER.
The "Parental Control : Standard" display appears.
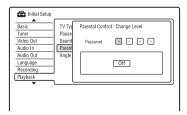

5 Enter your four-digit password using the number buttons, and press ENTER.

6 Select "Code" (geographic area) as the playback limitation level, and press ENTER.
The area is selected.
• When you select "Number," press the number buttons to select and enter a country/area code in the table (page 125), and press ENTER.

7 Select "Change Level," and press ENTER.
The "Parental Control : Change Level" display appears.

8 Enter your four-digit password using the number buttons, and press ENTER.

9 Select the level.
The lower the value, the stricter the limitation.
Discs rated higher than the selected level will be restricted.

10 Press ENTER.
The Parental Control setting is complete.
To cancel the Parental Control setting for the disc, select "Off" in step 9.

Change Password

1 Select "Parental Control" in "Playback," and press ENTER.

2 Select "Change Password," and press ENTER.

3 Enter your four-digit password in the "Current Password" row using the number buttons, and press ENTER.

4 Enter a new password in the "New Password" row using the number buttons, and press ENTER.

✪ Notes
• If you forget your password, reset the recorder (page 117).
• When you play discs which do not have the Parental Control function, playback cannot be limited on this recorder.
• Depending on the disc, you may be asked to change the Parental Control level while playing the disc. In this case, enter your password, then change the level.

Angle Indicator (DVD VIDEOs only)

On	Displays "⛛" on the TV screen if various angles (multi-angles) for a scene are recorded on the disc.
Off	Does not display "⛛" on the TV screen.

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HDMI Settings (HDMI Output)

You can adjust items related to the HDMI connection.

⚡ Note

You can select "HDMI Output" only when connecting equipment to the HDMI OUT jack.

Screen Resolution

Selects the type of video signals output from the HDMI OUT jack. If the picture is not clear, natural or to your satisfaction, try another option that suits the disc and your TV/projector, etc. For details, refer also to the instruction manual supplied with the TV/projector, etc.

1920 x 1080p	Sends 1920×1080p video signals.
1920 x 1080i	Sends 1920×1080i video signals.
1280 x 720p	Sends 1280×720p video signals.
720 x 480p	Sends 720×480p video signals.
720 x 480i	Sends 720×480i video signals.

⚡ Notes

- When picture noise appears after you change the "Screen Resolution" setting, hold down ■ (stop) on the recorder, and press ▲ (open/close) on the recorder.
- When "Colour" is set to "YCbCr 4:2:2" in the "HDMI Output" setup, you cannot select "720 x 480i".

4:3 Video Output

This setting is effective only when you set "TV Type" to "16:9" in the "Playback" setup.
Adjust this setting to watch 4:3 aspect ratio signals. If you can change the aspect ratio on your TV, change the setting on your TV, not this recorder.
Note that this setting is effective only for HDMI connection.

| Full | Select this when you can change the aspect ratio on your TV. |
| Normal | Select this when you cannot change the aspect ratio on your TV. Shows a 4:3 size video with the aspect ratio as it is. |

16:9 aspect ratio TV

Colour

Selects the method of outputting video signals for the HDMI jack.

RGB (0-255)	Outputs RGB (0-255) signals. Select this when connecting to an RGB (0-255) device.
RGB (16-235)	Outputs RGB (16-235) signals. Select this if colors appear overly rich and the black appears too deep.
YCbCr 4:2:2	Outputs 10-bit YCbCr 4:2:2 component signals.
YCbCr 4:4:4	Outputs 8-bit YCbCr 4:4:4 component signals.

Notes

- Some settings may not be available depending on the connected device.
- When a DVI device is connected, you cannot select "YCbCr 4:2:2" or "YCbCr 4:4:4."
- When "Screen Resolution" is set to "720 x 480i" in the "HDMI Output" setup, you cannot select "YCbCr 4:2:2."

Audio Output

Selects the type of audio signal output from the HDMI OUT jack.

<u>Auto</u>	Outputs Dolby Digital, MPEG and DTS audio signals as a bitstream signal. Normally select this position.
PCM	Converts all audio signals except for DTS signals to PCM.
Bitstream Priority	Select this if the connected device is compatible with bitstream audio.

Notes

- The PCM signals may not be output even when you select "Auto" depending on the "Audio Out" settings, number of audio channels, and the HDMI-connected device.
- The "Audio Output" function is not available when a DVI device is connected.

Control for HDMI

<u>On</u>	Allows you to use the "Control for HDMI" function (page 20).
Off	Turns off the function.

Other Settings (Options)

You can make other operation settings.

On Screen Display

<u>On</u>	Automatically displays information on the screen when the recorder is turned on, etc.
Off	Displays information only when DISPLAY is pressed.

Front Panel Display

Adjusts the lighting of the front panel display.

<u>On</u>	Bright lighting.
Off	Turns off the lighting and saves power consumption when the power is off.

Command Mode

Changes the Command Mode of the recorder to avoid interference with your other Sony DVD recorder or player.

1 Select a Command Mode ("1," "2," or "3 (Default setting)"), and press ENTER.

> **Note**
> The default command mode setting for this recorder and the supplied remote is "3 (Default setting)."
> The remote does not function if different command modes are set for the recorder and remote. Set the same command mode.

Settings and Adjustments

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2 Set the Command Mode for the remote so it matches the Command Mode for the recorder you set above.
Follow the steps below to set the Command Mode on the remote.
① Hold down ENTER.
② While holding down ENTER, enter the Command Mode code number using the number buttons.
③ Hold down both the number and ENTER buttons at the same time for more than three seconds.

ϔ Hint

You can check the Command Mode for the recorder in the front panel display (page 13). When the Command Mode is set to "3 (Default setting)," "1" or "2" does not appear.

DivX

Registration Code

Displays the registration code of DivX video files for this recorder.
For more information, go to http://www.divx.com/vod on the Internet.

Set Preview (HDD only)

Selects the thumbnail type shown in the Title List.

Quick Preview	Plays short excerpts from throughout the selected title.
Normal	Plays the selected title from the beginning.

Other Settings (Options 2)

You can make other operation settings.

USB

Restart USB Device

Restarts the connected USB device if it does not respond to the recorder. If the connected USB device still does not work properly, try following:
– Turn the connected USB device off and on again.
– Disconnect and then connect the USB cable.

Confirm Printer

Displays the manufacturer and model name of the printer connected to the recorder. Note that this function may not work depending on the printer.

Troubleshooting

If you experience any of the following difficulties while using the recorder, use this troubleshooting guide to help remedy the problem before requesting repairs. Should any problem persist, consult your nearest Sony dealer.

Power

The power does not turn on.

➜ Check that the AC power cord is connected securely.

The power of the recorder turns off at the same time as the TV is turned off.

➜ This is caused by the 'BRAVIA' Sync features. Set "Control for HDMI" to "Off" in the "HDMI Output" setup to cancel this function (page 109).

Picture

There is no picture.

➜ Re-connect all connecting cords securely.
➜ The connecting cords are damaged.
➜ Check the connection to your TV (page 14).
➜ Switch the input selector on your TV (such as to "VCR" and "AV 1") so that the signal from the recorder appears on the TV screen.
➜ If you connect the recorder to your TV via only the COMPONENT VIDEO OUT jacks, set "Component Video Out" in the "Video Out" setup to "Progressive" (page 100).
➜ When playing a double-layer DVD, the video and audio may be momentarily interrupted at the point where the layers switch.

Picture noise appears.

➜ If the picture output signal from your recorder passes through your VCR to get to your TV, or if you are connected to a combination TV/VIDEO player, the copy-protection signal applied to some DVD programs could affect picture quality. If you still experience this problem even when you connect your recorder directly to your TV, try connecting your recorder to your TV's S VIDEO input.
➜ You have set the recorder to progressive format even though your TV cannot accept the progressive signal. In this case, hold down ■ (stop) on the recorder, and press ▲ (open/close) on the recorder.
➜ Even if your TV is compatible with progressive format (480p) signals, the image may be affected when you set the recorder to progressive format. In this case, hold down ■ (stop) on the recorder, and press ▲ (open/close) on the unit and the recorder is set to normal (interlace) format.
➜ Noise may appear in the pictures recorded on the HDD, which is due to the characteristics of HDD, and is not a malfunction.
➜ When playing a double-layer DVD, the video and audio may be momentarily interrupted at the point where the layers switch.

There is no picture or picture noise appears when connected to the DV IN jack.

➜ Try the following: ①Turn the recorder off and on again. ②Turn the connected equipment off and on again. ③Disconnect and then connect the i.LINK cable again.

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There is no picture or picture noise appears when connected to the HDMI OUT jack.

➡ Try the following: ①Turn the recorder off and on again. ②Turn the connected equipment off and on again. ③Disconnect and then connect the HDMI cord again.

➡ If the HDMI OUT jack is used for video output, changing the "Screen Resolution" setting in the "HDMI Output" setup may solve the problem (page 108). Connect the TV and the recorder using a video jack other than HDMI OUT, and switch the TV's input to the connected video input so that you can see the on-screen displays. Change the "Screen Resolution" setting in the "HDMI Output" setup, and switch the TV's input back to HDMI. If the picture still does not appear, repeat the steps and try other options.

➡ The recorder is connected to an input device that is not HDCP compliant (page 18).

➡ When picture noise appears after you change the "Screen Resolution" setting, hold down ■ (stop) on the recorder, and press ▲ (open/close) on the recorder.

TV program reception does not fill the screen.

➡ Set the channel manually in "Manual CH Setting" in the "Tuner" setup (page 100).

➡ Select the correct source using the INPUT button, or select a channel of any TV program using the CH +/– buttons.

TV program pictures are distorted.

➡ Reorient the TV antenna.

➡ Adjust the picture (refer to the TV's instruction manual).

➡ Place the recorder and TV farther apart.

➡ Place the TV and any bunched antenna cables farther apart.

➡ The antenna cable is connected to the VHF/UHF OUT jack on the recorder. Connect the cable to the VHF/UHF IN jack.

TV channels cannot be changed.

➡ The channel is skipped (page 100).

➡ A timer recording started, which changed the channels.

The picture from equipment connected to the recorder's input jack does not appear on the screen.

➡ If the equipment is connected to the LINE IN 1 jacks, select "L1" in the front panel display by pressing INPUT.
If the equipment is connected to the LINE 2 IN jacks, select "L2" in the front panel display by pressing INPUT.
If the equipment is connected to the LINE IN 3 jacks, select "L3" in the front panel display by pressing INPUT.

The playback picture or TV program from the equipment connected through the recorder is distorted.

➡ If the playback picture output from a DVD player, VCR, or tuner goes through your recorder before reaching your TV, the copy-protection signal applied to some programs could affect picture quality. Disconnect the playback equipment in question and connect it directly to your TV.

The picture does not fill the screen.

➡ Set "TV Type" in the "Playback" setup in accordance with the screen size of your TV (page 106).

The picture does not fill the screen, even though the picture size is set in "TV Type" in the "Playback" setup.

➡ The picture size of the title is fixed.

Sound

There is no sound.
➡ Re-connect all connections securely.
➡ The connecting cord is damaged.
➡ The input source setting on the audio component or the connection to the audio component is incorrect.
➡ The recorder is in reverse play, fast-forward, slow motion, or pause mode.
➡ If the audio signal does not come through the DIGITAL OUT (COAXIAL)/HDMI OUT jacks, check the "Audio Out" setup (page 102).
➡ The recorder supports only MP3 audio, Dolby Digital and MPEG audio for DivX video files. Press AUDIO and select MP3 audio or MPEG audio.

No sound is output from the HDMI OUT jack.
➡ Try the following: ①Turn the recorder off and on again. ②Turn the connected equipment off and on again. ③Disconnect and then connect the HDMI cord again.
➡ The HDMI OUT jack is connected to a DVI device (DVI jacks do not accept audio signals).
➡ The equipment connected to the HDMI OUT jack does not conform to the audio signal format. In this case, set "Audio Output" to "PCM" in the "HDMI Output" setup (page 109).

Sound is noisy.
➡ When playing a CD with DTS sound tracks, noise will come from the LINE OUT R-AUDIO-L jacks (page 51).

The sound volume is low.
➡ The sound volume is low on some DVDs. The sound volume may improve if you set "Audio DRC" in the "Audio Out" setup to "On" (page 103).

An alternate audio track cannot be recorded or played.
➡ Second Audio Program (SAP) is not available for all programs. The program you are recording does not have a second audio program (page 44).
➡ When recording from connected equipment, set "External Audio" to "Dual Mono" in the "Audio In" setup (page 101).
➡ Multilingual tracks (main and sub) cannot be recorded on the HDD (when Video Mode On), DVD+RWs, DVD-RWs (Video mode), DVD+Rs, or DVD-Rs (Video mode) or if the recording mode is set in PCM mode. To record both the main and sub sounds on a disc, record on DVD-RWs/DVD-Rs (VR mode). To record on the HDD, set "HDD Recording Format" to "Video Mode Off" in the "Recording" setup (page 105).
➡ If you have connected an audio component to the DIGITAL OUT (COAXIAL) jack and want to change the audio track for the HDD (when "HDD Recording Format" is set to "Video Mode Off" in the "Recording" setup (page 105))/DVD-RWs/DVD-Rs (VR mode) during playback, set "Dolby Digital Output" in the "Audio Out" setup to "Dolby Digital -> PCM" (page 102).

Recording/Timer recording/Editing

The channel cannot be changed from the channel you are recording.
➡ Set the TV's input source to "TV."

Recording does not start immediately after you press ● REC.
➡ Operate the recorder only after "LOAD," "FORMAT," or "INFO WRITE" disappears from the front panel display.

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Nothing was recorded even though you set the timer setting correctly.

➡ There was a power failure during recording.
➡ The recorder's internal clock stopped due to a power failure that lasted for more than 1 hour. Reset the clock (page 98).
➡ The channel was disabled after the timer recording was set. See "Manual CH Setting" on page 100.
➡ Disconnect the AC power cord from the AC outlet, and connect it again.
➡ The program contains copy protection signals that restrict copying.
➡ Another timer setting overlapped the timer setting (page 45).
➡ There is no DVD inside the recorder.
➡ There is not enough disc space for the recording.
➡ The recorder was in the process of dubbing.

Recording does not stop immediately after you press ■ REC STOP.

➡ It will take a few seconds for the recorder to input disc data before recording can stop.
On-screen instructions may appear after pressing ■ REC STOP. In this case, follow the on-screen instructions.

Recording does not stop after you press ■ STOP.

➡ Press ■ REC STOP.

Timer recording is not complete or did not start from the beginning.

➡ There was a power failure during recording. If the power recovers when there is a timer recording, the recorder resumes recording.
Should the power failure continue for more than 1 hour, reset the clock (page 98).
➡ Another timer setting overlapped the timer setting (page 45).
➡ Disc space was not sufficient.

Contents previously recorded were erased.

➡ Data that is not playable on this recorder but was recorded on a DVD with a PC will be erased from the disc when the disc is inserted.

Playback

The recorder does not play any type of disc (except HDD).

➡ The disc is upside down. Insert the disc with the labeled side facing up.
➡ The disc is not correctly inserted.
➡ Moisture has condensed inside the recorder. In this case, if the recorder is on, leave it on (if it is off, leave it off) for about an hour until the moisture evaporates.
➡ If the disc was recorded on another recorder and was not finalized (page 38), the recorder cannot play the disc.

The recorder does not start playback from the beginning.

➡ Resume play was activated (page 49).
➡ You have inserted a DVD whose Title menu or DVD menu automatically appears on the TV screen when it is first inserted. Use the menu to start playback.

The recorder starts playing automatically.

➡ The DVD VIDEO features an auto playback function.

Playback stops automatically.

➡ If the DVD has an auto pause signal, the recorder stops playback at the auto pause signal.

Some functions such as Stop, Search, or Slow-motion Play cannot be performed.

➡ Depending on the DVD, you may not be able to do some of the operations above. Refer to the instruction manual supplied with the disc.

The language for the sound track cannot be changed.

➡ Multilingual tracks are not recorded on the DVD being played.

➡ The DVD VIDEO prohibits the changing of the language for the sound track.

➡ Try changing the language using the DVD VIDEO's menu.

The subtitle language cannot be changed or turned off.

➡ Multilingual subtitles are not recorded on the DVD VIDEO.

➡ The DVD VIDEO prohibits changing of the subtitles.

➡ Try changing the subtitle using the DVD VIDEO's menu.

➡ The subtitles cannot be changed for the titles recorded on this recorder.

The angles cannot be changed.

➡ Multi-angles are not recorded on the DVD VIDEO being played.

➡ You are trying to change the angles when "⊞" does not appear on the TV screen (page 50). To display "⊞" if various angles (multi-angles) for a scene are recorded on the disc, set "Angle Indicator" to "On" in the "Playback" setup (page 107).

➡ The DVD VIDEO prohibits changing angles.

➡ Try changing the angle using the DVD VIDEO's menu.

➡ The angles cannot be changed for the titles recorded on this recorder.

➡ The angles cannot be changed during slow motion playback or when playback is paused.

The DivX video files do not play.

➡ The file is not created in DivX format.

➡ The file has an extension other than ".avi" or ".divx."

➡ The DATA CD (DivX video)/DATA DVD (DivX video) is not created in a DivX format that conforms to ISO9660 Level 1/ Level 2, Romeo, Joliet, or UDF (Universal Disk Format) 1.02, 1.50, 2.00, or 2.01.

➡ The DivX video file format is larger than 720 (width) × 576 (height).

The MP3 audio tracks do not play.

➡ The MP3 audio tracks are not recorded in a format that the recorder can play (page 127).

The JPEG image files do not play.

➡ The JPEG image files are not recorded in a format that the recorder can play (page 127).

➡ Progressive JPEG images cannot be played.

Recording from the connected equipment with a timer

Nothing was recorded even though you set the Synchro-Recording setting correctly.

➡ You forgot to turn off the connected equipment. Turn off the connected equipment and set the recorder to Synchro-Recording standby mode (page 46).

➡ The recorder was not set to the Synchro-Recording standby mode. Set the recorder to stand by for Synchro-Recording. Make sure the SYNCHRO REC indicator lights up in the front panel display (page 46).

➡ The equipment is not connected to the LINE IN 1 jacks of the recorder.

➡ The recorder is connected to the TV output jack of the connected equipment.

➡ The Synchro-Recording and another timer recording overlap (page 46).

Synchro-Recording does not complete.

➡ The timer setting for the connected equipment overlapped the recorder's timer setting (page 46).

➡ There was a power failure during the recording.

➡ The I/⏻ button was pressed before Synchro-Recording started.

The recorder automatically starts recording when the satellite receiver is turned on.

➡ The Synchro Rec function was activated. Turn off the satellite receiver and cancel the Synchro Rec function (page 46).

Additional Information

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Dubbing

You dubbed a title, but the title did not appear in the HDD Title List.

➡ The title contained a copy protection signal, so it was moved (page 124).

High-speed dubbing is not possible.

➡ The title cannot be dubbed at high speed (page 65). Even if A-B erasure is performed so that a title does not contain mixed picture sizes, it is still treated as a title with mixed picture sizes.

HDD/DVD Dubbing is not possible.

➡ The title cannot be dubbed (page 64).

HDD camcorder dubbing is not possible.

➡ An HDD camcorder which is not supported by this recorder is connected (page 68).
➡ The HDD camcorder is not set to the USB connection mode (page 69).
➡ The HDD camcorder contains only the contents that have already been dubbed to the recorder when you are dubbing using the ONE-TOUCH DUB button or "Incremental Dubbing."

Display

The clock has stopped.

➡ Set the clock again (page 98).

The clock is wrong.

➡ Set the clock again (page 98). If you cannot set the clock, wait until the clock data is received and the clock is automatically adjusted.

The timer indicator is flashing.

➡ The disc does not have enough space.
➡ Insert a recordable disc into the recorder.
➡ The inserted DVD is protected (page 37).

The clock does not appear in the front panel display when the recorder is turned off.

➡ "Front Panel Display" is set to "Off" in the "Options" setup (page 109).

Remote control

The remote does not function.

➡ Different command modes are set for the recorder and remote. Set the same command mode (page 109). The default command mode setting for this recorder and the supplied remote is "**3 (Default setting)**." You can check the current command mode in the front panel display (page 109).
➡ The batteries are weak.
➡ The remote is too far from the recorder.
➡ The remote's manufacturer code returned to the default setting when you replaced the batteries. Reset the code (page 23).
➡ The remote is not pointed at the remote sensor on the recorder.

Others

The recorder does not detect a USB device connected to the recorder.

➡ Make sure that the USB device is securely connected to the recorder (page 110).
➡ Check if the USB device or a cable is damaged.
➡ Check if the USB device is on.
➡ The USB device is connected via a USB hub. Connect the USB device directly to the recorder.

Display language on the screen switches automatically.

➡ When "Control for HDMI" is set to "On" (default) in the "HDMI Output" setup (page 109), the display language on the screen automatically switches, according to the language setting of the connected TV, if you change the language settings on your TV, etc.

The 'BRAVIA' Sync features do not operate.

➡ Your TV is not compatible with the 'BRAVIA' Sync features.
➡ "Control for HDMI" is set to "Off" in the "HDMI Output" setup (page 109).
➡ The recorder is connected to the TV via an amplifier. Connect the recorder directly to the TV.

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The recorder does not operate properly.
➡ Press down I/① on the recorder for more than five seconds until the recorder turns off. Then, press I/① again to turn on the recorder.
➡ When static electricity, etc., causes the recorder to operate abnormally, turn off the recorder and wait until the clock appears in the front panel display. Then, unplug the recorder and after leaving it off for a while, plug it in again.

The disc tray does not open after you press ▲ (open/close).
➡ It may take a few seconds for the disc tray to open after you have recorded or edited a DVD. This is because the recorder is adding disc data to the disc.

Any buttons do not function and "LOCKED" appears in the front panel display.
➡ The recorder is locked. Cancel the Child Lock (page 12).

The disc tray does not open and "TRAYLOCKED" appears in the front panel display.
➡ Contact your Sony dealer or local authorized Sony service facility.

"REPAIR" appears in the front panel display.
➡ The recorder's repair function is activated to repair the hard disk drive or disc. Leave the recorder on until "REPAIR" disappears from the front panel display. Some data may be lost even if the repair function is activated.

"E01" appears in the front panel display.
➡ There is a problem in the HDD. Contact your nearest Sony dealer. Note that contents on the HDD may be erased when servicing this unit.

"E02" appears in the front panel display.
➡ The HDD information is incorrect. You cannot make a new recording to the HDD. Format the HDD following the instructions of "Format HDD." (page 98). Note that all of the recorded contents on the HDD will be erased. If this does not fix the problem, contact your nearest Sony dealer.

Mechanical sounds are heard when the recorder is off.
➡ While the recorder is adjusting the clock for the Auto Clock Set function, operational noises may be heard, even when the power is off. This is not a malfunction.

Resetting the Recorder

You can reset the recorder to all its factory settings.

1 Make sure that the recorder is turned on and remove the disc.

2 Hold down ■ (stop) on the recorder and press I/① on the recorder.
All settings are reset and the recorder turns off.

Recordable and Playable Discs

Type		Disc Logo	Icon used in this manual	Formatting (new discs)	Compatibility with other DVD players (finalizing)
Hard disk drive (internal)	VR mode	**HDD**	HDD	Select "Video Mode Off" in "HDD Recording Format" (page 105)	Dub HDD contents to a DVD (VR mode) to play on other DVD players
	Video mode			Select "Video Mode On" (default) in "HDD Recording Format" (page 105)	Dub HDD contents to a DVD (Video mode) to play on other DVD players
DVD+RW		RW DVD+ReWritable / RW DVD+ReWritable High Speed	+RW	Automatically formatted in +VR mode (DVD+RW VIDEO)	Playable on DVD+RW compatible players (automatically finalized)
DVD-RW	VR mode	DVD RW	-RWVR	Format in VR mode (page 30)	Playable only on VR mode compatible players (finalization unnecessary)
	Video mode	DVD RW / RW 2	-RWVideo	Format in Video mode (page 30)	Playable on most DVD players (finalization necessary) (page 38)
DVD+R DVD+R DL		RW DVD+R / RW DVD+R DL	+R	Automatically formatted in +VR mode (DVD+R VIDEO)	Playable on most DVD players (finalization necessary) (page 38)
DVD-R	VR mode	DVD R R4.7	-RVR	Format in VR mode (page 30)*1 Formatting is performed in the "Format" setup (page 40).	Playable only on DVD-R in VR mode compatible players (finalization necessary) (page 38)
DVD-R DL	Video mode	DVD R R DL 4X/2X	-RVideo	Automatically formatted in Video mode	Playable on most DVD players (finalization necessary) (page 38)

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Usable disc versions (as of April 2008)

- 8x-speed or slower DVD+RWs
- 6x-speed or slower DVD-RWs (Ver.1.1, Ver.1.2 with CPRM[*2])
- 16x-speed or slower DVD+Rs
- 16x-speed or slower DVD-Rs (Ver.2.0, Ver.2.1 with CPRM[*2])
- 8x-speed or slower DVD+R DL (Double Layer) discs
- 8x-speed or slower DVD-R DL (Dual Layer) discs (Ver.3.0 with CPRM[*2])

"DVD+RW," "DVD-RW," "DVD+R," "DVD+R DL," "DVD-R," and "DVD-R DL" are trademarks.

[*1] When an unformatted DVD-R is inserted into this recorder, it is automatically formatted in Video mode. To format a new DVD-R in VR mode, format in the "Format" setup (page 40).
[*2] CPRM (Content Protection for Recordable Media) is a coding technology that protects copyrights for images.

Discs that cannot be recorded on

- DVD-RAMs

Maximum recordable number of titles

Disc	Number of titles
HDD*	999
DVD-RW/DVD-R	99
DVD+RW/DVD+R	49
DVD+R DL	49
DVD-R DL	99

* The maximum length for one title is 12 hours.

❖ Notes

- You cannot mix VR mode and Video mode on the same DVD-RW. To change the disc's format, reformat the disc (page 40). Note that the disc's contents will be erased after reformatting.
- You cannot shorten the time required for recording even with high-speed discs.
- It is recommended that you use discs with "For Video" printed on their packaging.
- You cannot add new recordings to DVD+Rs, DVD-Rs, or DVD-RWs (Video mode) that contain recordings made on other DVD equipment.
- In some cases, you may not be able to add new recordings to DVD+RWs that contain recordings made on other DVD equipment. If you do add a new recording, note that this recorder will rewrite the DVD menu.
- You cannot edit recordings on DVD+RWs, DVD-RWs (Video mode), DVD+Rs, or DVD-Rs that are made on other DVD equipment.
- If the disc contains PC data unrecognizable by this recorder, the data may be erased.
- You may not be able to record, edit, or dub on some recordable discs, depending on the disc.
- Do not insert any discs that cannot be recorded or played on this recorder. This may cause the recorder to malfunction.

Playable Discs

Type	Disc Logo	Icon used in this manual	Characteristics
DVD VIDEO	**DVD VIDEO**	**DVD**	Discs such as movies that can be purchased or rented This recorder also recognizes DVD-RAMs* as DVD Video compatible discs.
VIDEO CD	**COMPACT disc DIGITAL VIDEO**	**VCD**	VIDEO CDs or CD-Rs/CD-RWs in VIDEO CD/Super VIDEO CD format
CD	**COMPACT disc DIGITAL AUDIO**	**CD**	Music CDs or CD-Rs/CD-RWs in music CD format
DATA DVD	—	**DATA DVD**	DVD+RWs/DVD+Rs/DVD-RAMs* containing MP3 audio tracks or DivX video files DVD-RWs/DVD-Rs/DVD-ROMs containing MP3 audio tracks, JPEG image files or DivX video files
DATA CD	—	**DATA CD**	CD-ROMs/CD-Rs/CD-RWs containing either MP3 audio tracks, JPEG image files or DivX video files

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DivX$^®$ is a video file compression technology, developed by DivX, Inc.

* If the DVD-RAM has a removable cartridge, remove the cartridge before playback.

Discs that cannot be played
• PHOTO CDs
• CD-ROMs/CD-Rs/CD-RWs that are recorded in a format different from the formats mentioned in the table above.
• Data part of CD-Extras
• BDs (Blu-ray Discs)
• HD DVDs
• Discs recorded with an AVCHD-compatible DVD video camera

• DVD-ROMs/DVD+RWs/DVD-RWs/ DVD+Rs/DVD-Rs that do not contain DVD Video, DivX video, JPEG image files, or MP3 audio tracks.
• DVD Audio discs
• Cartridge-only type DVD-RAMs.
• HD layer on Super Audio CDs
• DVD VIDEOs with a different region code (page 121).
• DVDs that were recorded on a different recorder and not correctly finalized.

Note on playback operations of DVD VIDEOs/VIDEO CDs
Some playback operations of DVD VIDEOs/VIDEO CDs may be intentionally set by software producers. Since this recorder plays DVD VIDEOs/VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available. Refer to the instructions supplied with the DVD VIDEOs/VIDEO CDs.

Region code (DVD VIDEO only)

Your recorder has a region code printed on the rear of the unit and will only play DVD VIDEOs (playback only) labeled with identical region codes. This system is used to protect copyrights.

DVD VIDEOs labeled (⊕) will also play on this recorder.

If you try to play any other DVD VIDEO, the message "Playback prohibited by region code." will appear on the TV screen. Depending on the DVD VIDEO, no region code indication may be labeled even though playing the DVD VIDEO is prohibited by area restrictions.

— Region code

Music discs encoded with copyright protection technologies

This product is designed to play back discs that conform to the Compact Disc (CD) standard.

Various music discs encoded with copyright protection technologies are being marketed by some record companies. Please be aware that among those discs, there are some that do not conform to the CD standard and may not be playable by this product.

Note on DualDiscs

A DualDisc is a two sided disc product which mates DVD recorded material on one side with digital audio material on the other side.

However, since the audio material side does not conform to the Compact Disc (CD) standard, playback on this product is not guaranteed.

✪ Notes

- Some DVD+RWs/DVD+Rs, DVD-RWs/DVD-Rs, DVD-RAMs, or CD-RWs/CD-Rs cannot be played on this recorder due to the recording quality or physical condition of the disc, or the characteristics of the recording device and authoring software. The disc will not play if it has not been correctly finalized. For more information, refer to the operating instructions for the recording device.
- If the disc contains PC data unrecognizable by this recorder, the data may be erased.
- Do not insert any discs that cannot be recorded or played on this recorder. This may cause the recorder to malfunction.

About Recording/ Dubbing Mode

Like the standard ×3 recording modes of video tapes, you can select the desired recording mode using the REC MODE button.

Recording modes with higher quality provide a more beautiful recording, but the large data volume also results in a shorter recording time.

Conversely, a longer duration provides a longer recording time, but the lower data volume results in a coarser picture quality.

To select further options for recording mode (manual recording mode), set "Manual Rec. Mode" to "On (go to setup)" in the "Recording" setup (page 104). To record pictures in higher quality than HQ mode on the HDD, set "Manual Rec. Mode" to "On (go to setup)," and then select "HQ+." The table on the following pages shows the approximate recording times for the HDD and the different DVD types in each manual recording mode, as well as the standard recording mode equivalents.

ϒ Hint

To easily select a manual recording mode, press REC MODE repeatedly to display "MN," and select a manual recording mode using ←/→.

Additional Information

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Recording time in each recording mode

Bold lines indicate noticeable level differences in recording picture quality.

Recording mode		Approx. recording time (hours)		
		HDD	DVD+RW/DVD-RW/ DVD+R/DVD-R	DVD+R DL/ DVD-R DL
	HQ+[*1]	23	–	–
	PCM[*2]	34	1 hr. 1 min.	1 hr. 51 min.
HQ	MN32	34	1 hr. 1 min.	1 hr. 51 min.
	MN31	36	1 hr. 5 min.	1 hr. 57 min.
	MN30	39	1 hr. 10 min.	2 hr. 6 min.
	MN29	42	1 hr. 15 min.	2 hr. 15 min.
	MN28	45	1 hr. 20 min.	2 hr. 24 min.
	MN27	48	1 hr. 25 min.	2 hr. 33 min.
HSP	MN26	50	1 hr. 30 min.	2 hr. 41 min.
	MN25	53	1 hr. 35 min.	2 hr. 50 min.
	MN24	56	1 hr. 40 min.	2 hr. 59 min.
	MN23	59	1 hr. 45 min.	3 hr. 8 min.
	MN22	62	1 hr. 50 min.	3 hr. 17 min.
SP	MN21	68	2	3 hr. 35 min.
	MN20	73	2 hr. 10 min.	3 hr. 53 min.
	MN19	79	2 hr. 20 min.	4 hr. 11 min.
LSP	MN18	84	2 hr. 30 min.	4 hr. 29 min.
	MN17	90	2 hr. 40 min.	4 hr. 47 min.
	MN16	96	2 hr. 50 min.	5 hr. 5 min.
ESP	MN15	100	3	5 hr. 23 min.
	MN14	105	3 hr. 10 min.	5 hr. 41 min.
	MN13	110	3 hr. 20 min.	5 hr. 59 min.
	MN12	115	3 hr. 30 min.	6 hr. 17 min.
	MN11	120	3 hr. 40 min.	6 hr. 35 min.
	MN10	125	3 hr. 50 min.	6 hr. 53 min.
LP	MN9	135	4	7 hr. 11 min.
	MN8	150	4 hr. 30 min.	8 hr. 4 min.
	MN7	165	5	8 hr. 58 min.
EP	MN6[*3]	200	6	10 hr. 46 min.
	MN5[*3]	235	7	12 hr. 34 min.

Recording mode		Approx. recording time (hours)		
		HDD	DVD+RW/DVD-RW/ DVD+R/DVD-R	DVD+R DL/ DVD-R DL
SLP	MN4[*3]	270	8	14 hr. 21 min.
SEP	MN3[*3*4]	340	10	17 hr. 57 min.
	MN2[*3*4]	405	12	21 hr. 32 min.
	MN1[*3*4]	455	13 hr. 22 min.	24

[*1] Records in higher quality (15 Mbps).

When recording to the HDD in HQ+ mode, recordings are made in "Video Mode Off" format regardless of the "HDD Recording Format" setting (page 105).

HQ+ mode is not available for DVDs. When recording to DVDs, the recording mode automatically switches to HQ mode even if you set to HQ+ mode.

[*2] Audio signals are recorded in 48 kHz PCM format, and video signals are recorded in HQ mode.

[*3] Titles recorded in MN6 or lower mode cannot be dubbed to DVD+RWs/DVD+Rs at high speed.

[*4] SEP, MN1, MN2, or MN3 mode is not available for DVD+RWs/DVD+Rs/DVD+R DLs. When recording to DVD+RWs/DVD+Rs, the recording mode automatically switches to SLP mode even if you set to SEP, MN1, MN2, or MN3 mode.

Resolution

◆ **For the HDD ("HDD Recording Format" is set to "Video Mode Off")/DVD-RW (VR mode)/DVD-R (VR mode)**
HQ+, PCM, MN32 to MN16: 720×480
MN15 to MN12: 544×480
MN11 to MN9: 480×480
MN8 and MN7: 352×480
MN6 to MN1: 352×240

◆ **For the HDD ("HDD Recording Format" is set to "Video Mode On")/DVD+RW/DVD-RW (Video mode)/DVD+R/DVD-R (Video mode)**
PCM, MN32 to MN9: 720×480
MN8 and MN7: 352×480
MN6 to MN1: 352×240

✂ Hint
Audio signals are recorded in Dolby Digital 2 ch format (except for PCM mode).

✪ Notes
• The maximum continuous recording time to the HDD is 12 hours for a single title. A title longer than 12 hours is divided.
• Situations below may cause slight inaccuracies with the recording time.
  – Recording a program with poor reception, or a program or video source of low picture quality.
  – Recording on a disc that has already been edited.
  – Recording only a still picture or just sound.

Additional Information

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About "High-Speed" dubbing

Required times (approximate) for "High-Speed" dubbing from HDD to DVD (for 60-minute program)[1]

Speed[2]	6x	2.4x	2x
Rec. mode	High-speed DVD+RW/ DVD-RW/ DVD+R/ DVD-R	DVD+R (Double Layer)	DVD-R (Dual Layer)
HQ	Approx. 10 min.	Approx. 25 min.	Approx. 30 min.
HSP	Approx. 6 min. 40 sec.	Approx. 16 min. 40 sec.	Approx. 20 min.
SP	Approx. 5 min.	Approx. 12 min. 30 sec.	Approx. 15 min.
LSP	Approx. 4 min.	Approx. 10 min.	Approx. 12 min.
ESP	Approx. 3 min. 20 sec.	Approx. 8 min. 20 sec.	Approx. 10 min.
LP	Approx. 2 min. 30 sec.	Approx. 6 min. 15 sec.	Approx. 7 min. 30 sec.
EP	Approx. 1 min. 40 sec.[3]	Approx. 60 min.[3]	Approx. 5 min.
SLP	Approx. 1 min. 15 sec.[3]	Approx. 60 min.[3]	Approx. 3 min. 45 sec.
SEP	Approx. 1 min.[3]	Approx. 60 min.[3]	Approx. 3 min.[3]

[1] The values in the above table are for reference only. Actual times for dubbing also require time for creating disc's control information and other data.

[2] This is the maximum recording speed of this recorder. The recording speed cannot exceed the value indicated in the above table even when using discs that support higher recording speeds. In addition, depending on the disc condition, the recorder may be unable to record at the maximum recording speed indicated in the table.

[3] "High-Speed" dubbing is not available when dubbing titles recorded in SEP, SLP, or EP mode to DVD+RWs and DVD+Rs.

About Copy Protection

Pictures with copy protection cannot be recorded on this recorder.

Dubbing restriction

You cannot dub movies and other DVD VIDEOs to the HDD. Also, when dubbing from a DVD to the HDD, scenes that contain a copy protection signal cannot be recorded. Titles containing "Copy-Once" copy protection signals can be moved only from the HDD to a DVD-RW/DVD-R (VR mode)* (after the title is moved, the original title in the HDD is erased). The "Move" function is performed using Dubbing List. Titles containing "Copy-Once" copy protection signals are indicated with COPY .

Discs that can be used for protected signals

Copy protection signals	Usable discs
Copy-Free (No copy protection signal)	HDD +RW -RWVR -RWVideo +R -RVR -RVideo
Copy-Once	HDD -RWVR * -RVR *
Copy-Never	None

* CPRM-compatible DVD-RWs/DVD-Rs (VR mode) only.
 The recorded disc can be played only on CPRM compatible equipment (page 119).
 CPRM (Content Protection for Recordable Media) is a coding technology that protects copyrights for images.

❂ Notes
- Protected titles in the HDD cannot be moved.
- The "Move" function is not available for HDD/DVD DUB dubbing.
- Even if you erase a scene that contains a copy protection signal, the recording restrictions on that title are retained.

Language Code List

For details, see page 103.
The language spellings conform to the ISO 639: 1988 (E/F) standard.

Number, Language (Code)

0101, Afar (aa)
0102, Abkhazian (ab)
0106, Afrikaans (af)
0113, Amharic (am)
0118, Arabic (ar)
0119, Assamese (as)
0125, Aymara (ay)
0126, Azerbaijani (az)
0201, Bashkir (ba)
0205, Byelorussian (be)
0207, Bulgarian (bg)
0208, Bihari (bh)
0209, Bislama (bi)
0214, Bengali (bn)
0215, Tibetan (bo)
0218, Breton (br)
0301, Catalan (ca)
0315, Corsican (co)
0319, Czech (cs)
0325, Welsh (cy)
0401, Danish (da)
0405, German (de)
0426, Bhutani (dz)
0512, Greek (el)
0514, English (en)
0515, Esperanto (eo)
0519, Spanish (es)
0520, Estonian (et)
0521, Basque (eu)
0601, Persian (fa)
0609, Finnish (fi)
0610, Fiji (fj)
0615, Faroese (fo)
0618, French (fr)
0625, Frisian (fy)

0701, Irish (ga)
0704, Scots Gaelic (gd)
0712, Galician (gl)
0714, Guarani (gn)
0721, Gujarati (gu)
0801, Hausa (ha)
0809, Hindi (hi)
0818, Croatian (hr)
0821, Hungarian (hu)
0825, Armenian (hy)
0901, Interlingua (ia)
0905, Interlingue (ie)
0911, Inupiak (ik)
0914, Indonesian (in)
0919, Icelandic (is)
0920, Italian (it)
0923, Hebrew (iw)
1001, Japanese (ja)
1009, Yiddish (ji)
1023, Javanese (jw)
1101, Georgian (ka)
1111, Kazakh (kk)
1112, Greenlandic (kl)
1113, Cambodian (km)
1114, Kannada (kn)
1115, Korean (ko)
1119, Kashmiri (ks)
1121, Kurdish (ku)
1125, Kirghiz (ky)
1201, Latin (la)
1214, Lingala (ln)
1215, Laothian (lo)
1220, Lithuanian (lt)
1222, Latvian (lv);
     Lettish

1307, Malagasy (mg)
1309, Maori (mi)
1311, Macedonian (mk)
1312, Malayalam (ml)
1314, Mongolian (mn)
1315, Moldavian (mo)
1318, Marathi (mr)
1319, Malay (ms)
1320, Maltese (mt)
1325, Burmese (my)
1401, Nauru (na)
1405, Nepali (ne)
1412, Dutch (nl)
1415, Norwegian (no)
1503, Occitan (oc)
1513, (Afan)Oromo (om)
1518, Oriya (or)
1601, Panjabi (pa)
1612, Polish (pl)
1619, Pashto (ps);
     Pushto (ps)
1620, Portuguese (pt)
1721, Quechua (qu)
1813, Rhaeto-Romance
     (rm)
1814, Kirundi (rn)
1815, Romanian (ro)
1821, Russian (ru)
1823, Kinyarwanda (rw)
1901, Sanskrit (sa)
1904, Sindhi (sd)
1907, Sangho (sg)
1908, Serbo-Croatian (sh)
1909, Singhalese (si)
1911, Slovak (sk)

1912, Slovenian (sl)
1913, Samoan (sm)
1914, Shona (sn)
1915, Somali (so)
1917, Albanian (sq)
1918, Serbian (sr)
1919, Siswati (ss)
1920, Sesotho (st)
1921, Sundanese (su)
1922, Swedish (sv)
1923, Swahili (sw)
2001, Tamil (ta)
2005, Telugu (te)
2007, Tajik (tg)
2008, Thai (th)
2009, Tigrinya (ti)
2011, Turkmen (tk)
2012, Tagalog (tl)
2014, Setswana (tn)
2015, Tonga (to)
2018, Turkish (tr)
2019, Tsonga (ts)
2020, Tatar (tt)
2023, Twi (tw)
2111, Ukrainian (uk)
2118, Urdu (ur)
2126, Uzbek (uz)
2209, Vietnamese (vi)
2215, Volapük (vo)
2315, Wolof (wo)
2408, Xhosa (xh)
2515, Yoruba (yo)
2608, Chinese (zh)
2621, Zulu (zu)

Country/Area Code

For details, see page 106.

Number, Area (Code)

0118, Argentina (ar)
0121, Australia (au)
0120, Austria (at)
0205, Belgium (be)
0218, Brazil (br)
0301, Canada (ca)
0312, Chile (cl)
0314, China (cn)
0411, Denmark (dk)

0609, Finland (fi)
0618, France (fr)
0405, Germany (de)
0811, Hong Kong (hk)
0914, India (in)
0904, Indonesia (id)
0920, Italy (it)
1016, Japan (jp)
1118, Korea (kr)

1325, Malaysia (my)
1324, Mexico (mx)
1412, Netherlands (nl)
1426, New Zealand (nz)
1415, Norway (no)
1611, Pakistan (pk)
1608, Philippines (ph)
1620, Portugal (pt)
1821, Russia (ru)

1907, Singapore (sg)
0519, Spain (es)
1905, Sweden (se)
0308, Switzerland (ch)
2023, Taiwan (tw)
2008, Thailand (th)
0702, United Kingdom
     (gb)
2119, USA (us)

Notes About This Recorder

On operation
- If the recorder is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the recorder. Should this occur, the recorder may not operate properly. In this case, if the recorder is on, leave it on (if it is off, leave it off) for about an hour until the moisture evaporates.
- When you move the recorder, take out any discs and do not apply shock or vibration to the hard disk drive to avoid damaging the disc or hard disk drive (page 2).

On adjusting volume
Do not turn up the volume while listening to a section with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level section is played.

On cleaning
Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

On cleaning discs, disc/lens cleaners
Do not use cleaning discs or disc/lens cleaners (including wet or spray types). These may cause the recorder to malfunction.

Notes about the discs
- To keep the disc clean, handle the disc by its edge. Do not touch the surface. Dust, fingerprints, or scratches on the disc may cause it to malfunction.

- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.
- Clean the disc with a cleaning cloth. Wipe the disc from the center out.

- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.
- Do not use the following discs.
  - A disc that has a non-standard shape (e.g., card, heart).
  - A disc with a label or sticker on it.
  - A disc that has cellophane tape or sticker adhesive on it.

On replacement of parts
In the event that this unit is repaired, repaired parts may be collected for reuse or recycling purposes.

Notes on MP3 Audio Tracks, JPEG Image Files, DivX Video Files, and i.Link

About MP3 audio tracks, JPEG image files, and DivX video files

MP3 is an audio compression technology that satisfies certain ISO/MPEG regulations. JPEG is an image compression technology. You can play MP3 (MPEG1 Audio Layer 3) format audio tracks on the HDD, DATA CDs (CD-ROMs/CD-Rs/CD-RWs) or DATA DVDs (DVD-ROMs/DVD-RWs/DVD-Rs/DVD+RWs/DVD+Rs/DVD-RAMs) or play JPEG image files on the HDD, DATA CDs (CD-ROMs/CD-Rs/CD-RWs) or DATA DVDs (DVD-ROMs/DVD-RWs/DVD-Rs).

DivX® is a video file compression technology, developed by DivX, Inc. This product is an official DivX® Certified product. You can play DATA CDs (CD-ROMs/CD-Rs/CD-RWs) and DATA DVDs (DVD-ROMs/DVD+RWs/DVD+Rs/DVD-RWs/DVD-Rs/DVD-RAMs) that contain DivX video files.

DATA DVDs must be recorded according to ISO9660 Level 1, Level 2, Romeo, Joliet, or UDF (Universal Disk Format) 1.02, 1.50, 2.00*, or 2.01 format for the recorder to recognize the MP3 tracks, JPEG image files, and DivX video files.

DATA CDs must be recorded according to ISO9660 Level 1, Level 2, Romeo, or Joliet format for the recorder to recognize the MP3 tracks, JPEG image files, and DivX video files.

You can also play discs recorded in MultiSession/Border.

Refer to the instructions supplied with the disc drives and the recording software (not supplied) for details on the recording format.

* Not available for MP3 audio tracks.

Note on MultiSession/Border discs

If audio tracks and images in Music CD format or Video CD format are recorded in the first session/border, only the first session/border will be played back.

MP3 audio tracks, JPEG image files, or DivX video files that the recorder can play

The recorder can play the following tracks and files:
– MP3 audio tracks with the extension ".mp3."
– JPEG image files with the extension ".jpeg" or ".jpg."
– Baseline JPEG image files that conform to the Exif 2.2* image files format, and $Y:C_B:C_R$ is 4:4:4, 4:2:2, or 4:2:0.
– DivX video files with the extension ".avi" or ".divx."
* "Exchangeable Image File Format": The file format used by digital still cameras.

῍ Hint
Since a disc with many trees takes longer to start playback, it is recommended that you create albums with no more than two trees.

✦ Notes
• The recorder will play any data with the extension ".mp3," ".jpeg," ".jpg," ".avi," or ".divx" even if they are not in MP3, JPEG, or DivX format. Playing these data may generate a loud noise which could damage your speaker system.
• Depending on the disc, normal playback may not be possible. For example, the picture may be unclear, playback may not appear smooth, the sound may skip, and so on.
• Depending on the disc, playback may take some time to start.
• Some files cannot be played.
• For MP3 audio tracks and DivX video files, the recorder can play up to 99 albums each on a DATA CD or DATA DVD. Up to 99 tracks and files under an album can be played.
• For JPEG image files, the recorder can load up to 99 albums and/or up to 999 files under an album on a DATA CD/DATA DVD or the connected USB device at a time. To view unloaded albums, reload them.

- Proceeding to the next or another album may take some time.
- The image size that can be displayed is limited. The following image sizes can be displayed: width 160–5,120 pixels by height 120–3,840 pixels.
- This recorder supports MP3 audio tracks recorded with a sampling frequency of 32 kHz, 44.1 kHz, and 48 kHz.
- No more than a 1 GB MP3 audio track can be played.
- The recorder does not conform to audio tracks in mp3PRO format.
- The recorder cannot play a DivX video file of a size larger than 720 (width) × 576 (height)/4 GB.
- The recorder may not play a DivX video file when the file has been combined from two or more DivX video files.

Notes on copying JPEG image files/MP3 audio tracks

- You cannot copy JPEG image files/MP3 audio tracks to the HDD if:
  – The total number of JPEG image albums on the HDD exceeds 999.
  – The total number of JPEG image files/MP3 audio tracks under an album exceeds 999.
  – The MP3 audio tracks are 1 GB or larger.
- Note that the size of JPEG image files copied to the HDD may be automatically increased to fit the TV screen.
- You cannot copy JPEG image files onto a DATA DVD finalized on other recorders or devices.
- If a warning message indicating that the HDD is full appears, erase several albums or files to make space. For details on erasing tracks or files, see page 81 or 91.

About i.LINK

The DV IN jack on this recorder is i.LINK-compliant for digital video cameras.
i.LINK is a more familiar term for IEEE 1394 data transport bus proposed by SONY, and is a trademark approved by many corporations.
IEEE 1394 is an international standard standardized by the Institute of Electrical and Electronics Engineers.
For details on how to dub when this recorder is connected to other video equipment having DV jacks, see page 72.
The DV IN jack on this recorder can only input DVC-SD signals. It cannot output signals. The DV IN jack will not accept MICRO MV signals from equipment such as a MICRO MV digital video camera with an i.LINK jack.
For further precautions, see the notes on page 72.
For details on precautions when connecting this recorder, also refer to the instruction manuals for the equipment to be connected.

✦ Note

Normally, only one piece of equipment can be connected to this recorder by the i.LINK cable (DV connecting cable). When connecting this recorder to i.LINK-compatible equipment having two or more i.LINK jacks (DV jacks), refer to the instruction manual of the equipment to be connected.

i.LINK and ⅰ are trademarks.

Specifications

System
Laser: Semiconductor laser
Channel coverage:
NTSC
VHF: 2 to 13
UHF: 14 to 69
CATV: A8 to A1, A to W, W+1 to W+84

Video reception: Frequency synthesizer system
Audio reception: Split carrier system
Antenna out: 75-ohm asymmetrical antenna socket
Timer: Clock: Quartz locked/Timer indication: 12-hour cycle (digital)
Video recording format: MPEG-2, MPEG-1
Audio recording format/applicable bit rate: Dolby Digital 2 ch 256 kbps/128 kbps (in EP, SLP, and SEP mode), PCM

Inputs and outputs
LINE OUT
(AUDIO): Phono jack/2 Vrms/10 kilohms
(VIDEO): Phono jack/1.0 Vp-p
(S VIDEO): 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p (NTSC)
LINE IN 1/2/3
(AUDIO): Phono jack/2 Vrms/more than 22 kilohms
(VIDEO): Phono jack/1.0 Vp-p
(S VIDEO): 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p (NTSC)
DV IN: 4-pin/i.LINK S100
DIGITAL OUT (COAXIAL): Phono jack/0.5 Vp-p/75 ohms
COMPONENT VIDEO OUT
(Y, P$_B$, P$_R$):
Phono jack/Y: 1.0 Vp-p,
P$_B$: 0.7 Vp-p, P$_R$: 0.7 Vp-p
HDMI OUT: HDMI™ Connector

USB:
USB jack Type A (For connecting digital still camera, Memory card reader, USB memory and HDD camcorder)
USB jack Type B (For connecting PictBridge-compatible printers)

General
Power requirements: 120 V AC, 60 Hz
Power consumption: 42 W
Dimensions (approx.):
$430 \times 66.5 \times 286.5$ mm (width/height/depth) incl. projecting parts
Hard disk drive capacity:
160 GB
Mass (approx.): 4.4 kg
Operating temperature: 5ºC to 35ºC
Operating humidity: 25% to 80%
Supplied accessories:
Power cord (1)
Antenna cable (1)
Audio/video cord (1)
Remote commander (remote) (1)
Size AA (R6) batteries (2)

Specifications and design are subject to change without notice.

Index

Words in quotations appear in the on-screen displays.

Numerics

A

B

C

D

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I-3874363114

3-874-363-**11**(1)

http://www.sony.net/