

DVD Recorder

Operating Instructions

RDR-HX900



WARNING

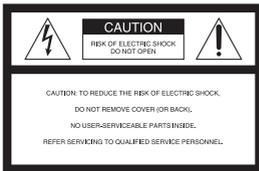
To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

The AC power cord must be changed only at a qualified service shop only.

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.



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.

For customers in the U.S.A. Owner's Record

The model and serial numbers are located at the rear of the unit.

Record the serial number in the space provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. RDR-HX900

Serial No. _____

CAUTION

You are cautioned that any change or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note

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

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

VCR Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation. The VCR Plus+ system is manufactured under license from Gemstar Development Corporation.

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The TV Guide On Screen system is protected by one or more of the following issued United States patents 6,498,895; 6,418,556; 6,331,877; 6,239,794; 6,154,203; 5,940,073; 4,908,713; 4,751,578; 4,706,121.

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 use the recorder in a place subject to extreme changes in temperature (temperature gradient less than 10 °C/hour).
- 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 heat source, such as a VCR or AV amplifier (receiver).
- Do not move the recorder with its AC power cord connected.
- Do not move the recorder for one minute after you have unplugged the AC power cord. After one minute, move the recorder without shock or vibration.
- Do not disconnect the AC power cord while the power is on.
- Do not attempt to change the hard disk. This may result in a malfunction. Should the hard disk be damaged, you cannot recover lost data. The hard disk is only a temporary storage space.

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 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.
- Before disconnecting the AC power cord, check that the recorder's hard disk is not operating (recording or dubbing) on the front panel display.

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.

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.

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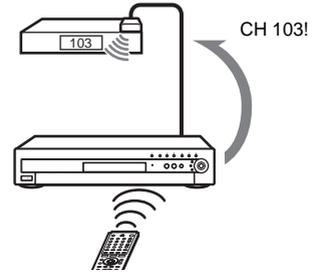
About this manual

- 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.
- 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 discs in this manual refer to discs created on this recorder. The explanations do not apply to discs that are created on other recorders and played back on this recorder.

Ways to Use Your DVD Recorder

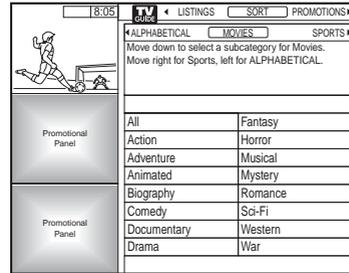
Control your cable box or satellite receiver – Set top box control

- ➔ Connect the supplied set top box controller to have the recorder change the channel of your cable box or satellite receiver during a timer recording (page 14).



Easily search for programs with the TV Guide On Screen system – TV Guide

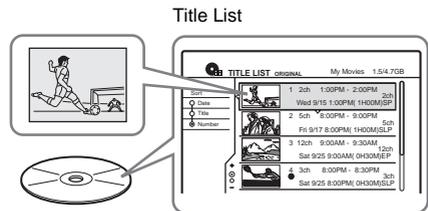
- ➔ The TV Guide On Screen system displays a free television program listing. Search for your favorite program alphabetically or by category, such as movies or sports, and then set the timer to record that program with just the push of a button (page 46).



Quickly access recorded titles – Title List

- ➔ Display the Title List to see all of the titles on the disc, including recording date, channel, recording mode and thumbnail image (page 37). The recorder will automatically take program label information from the TV Guide On Screen data* and display it as the title name (page 37).

* not available in some areas.



Play the beginning of a title while it is being recorded – Chasing Playback

- ➔ If you are using a DVD-RW (VR mode) or the HDD, you can watch a program from the beginning while it is being recorded (page 60).



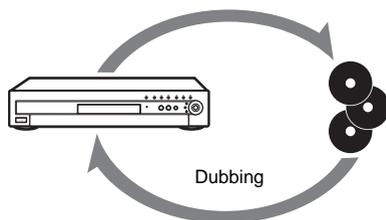
Watch one title while recording another – Simultaneous Rec and Play

- ➔ If you are using a DVD-RW (VR mode) or the HDD, you can watch a previously recorded program while recording another program on the same disc (page 60).



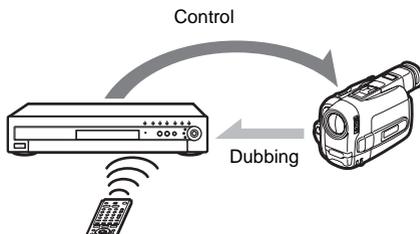
Copy a recorded title to and from the HDD – Dubbing (HDD ↔ DVD)

- ➔ Create copies of your favorite titles for safekeeping by dubbing them to a DVD, or make a copy of your friend's recordings by dubbing them to the HDD (page 72).



Automatically dub DV/Digital8 tapes – DV/Digital8 Dubbing (DV → HDD/DVD)

- ➔ Connect your digital video camera to the DV IN jack and automatically dub the entire contents or just selected scenes to a DVD disc (page 77).



A list of recordable and playable discs is on page 8.

Quick Guide to Disc Types

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)			(Formatting unnecessary)	–
DVD+RW			Automatically formatted	Playable on DVD+RW compatible players (automatically finalized)
DVD-RW			Format in VR mode (page 40)	Playable only on VR mode compatible players (finalization unnecessary)
			Format in Video mode (page 40)	Playable on most DVD players (finalization necessary) (page 40)
DVD+R			Automatically formatted	Playable on most DVD+R compatible players (finalization necessary) (page 40)
DVD-R			Automatically formatted	Playable on most DVD players (finalization necessary) (page 40)

Usable disc versions (as of May 2004)

- 4x-speed or slower DVD+RWs
- 2x-speed or slower DVD-RWs (Ver.1.1, Ver.1.1 with CPRM^{*1})
- 8x-speed or slower DVD+Rs
- 8x-speed or slower DVD-Rs (Ver.2.0)

“DVD+RW,” “DVD-RW,” “DVD+R,” and “DVD-R,” are trademarks.

^{*1} CPRM (Content Protection for Recordable Media) is a coding technology that protects copyrights for images.

^{*2} Only if the recording mode is SP, HSP, or HQ, and “DVD Rec. Picture Size” is set to “16:9.”

^{*3} Erasing titles does not free up disc space.

	Recording Features				Editing Features			
	Rewrite (page 45)	Auto Chapter (page 91)	Manual Chapter (page 68)	Record 16:9 sizes (page 51)	Change title name (page 65)	Delete title (page 66)	A-B Erase (page 66)	Playlist (page 68)
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	Yes	Yes	No	No	Yes	Yes	Yes	No
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	No	Yes * ²	Yes	Yes	No	No
	No	Yes	No	No	Yes	Yes * ³	No	No
	No	Yes	No	Yes * ²	Yes	Yes * ³	No	No

Discs that cannot be recorded on

- 4x-speed compatible DVD-RWs (Ver. 1.2/4x)
- DVD-RWs (Ver. 1.0)
- DVD+RWs that are not 2.4x-speed compatible
- Dual layer discs
- 8 cm discs

Playable discs

Type	Disc Logo	Icon used in this manual	Characteristics
DVD VIDEO			Discs such as movies that can be purchased or rented
VIDEO CD			VIDEO CDs or CD-Rs/CD-RWs in VIDEO CD/Super VIDEO CD format
CD			Music CDs or CD-Rs/CD-RWs in music CD format that can be purchased
DATA CD			CD-ROMs/CD-Rs/CD-RWs created on a PC or similar device in music format containing MP3 audio tracks

Discs that cannot be played

- All CD-ROMs (including PHOTO CDs)
- CD-Rs/CD-RWs, other than those recorded in music CD format, MP3 format, or Video CD format
- Data part of CD-Extras
- DVD-ROMs
- DVD Audio discs
- DVD-RAMs
- HD layer on Super Audio CDs
- DVD VIDEOS with a different region code (page 11)
- A disc recorded in a color system other than NTSC, such as PAL or SECAM

Hint

This DVD recorder can play 8 cm CDs and 8 cm DVDs as well.

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. Also, see 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.



Music discs encoded with copyright protection technologies

This product is designed to playback discs that conform to the Compact Disc (CD) standard. Recently, 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.

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. Also, you cannot record on the disc if the disc is not 1x speed compatible.
- It is recommended that you use discs with “For Video” printed on their packaging.
- You cannot add new recordings to 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.
- If the disc contains PC data unrecognizable by this recorder, the data may be erased.
- Some DVD+RWs/DVD+Rs, DVD-RWs/DVD-Rs, 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, see the operating instructions for the recording device.

Hooking Up the Recorder

Follow steps 1 to 7 to hook up and adjust the settings of the recorder.

Notes

- Plug 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 power cord of each component before connecting.

Step 1: Unpacking

Check that you have the following items:

- Audio/video cord (pinplug × 3 ↔ pinplug × 3) (1)
- Power cord (1)
- Antenna cable (1)
- Remote commander (remote) (1)
- Set top box controller (1)
- Size AA (R6) batteries (2)

Step 2: Connecting the Antenna Cable and Set Top Box Controller

Select one of the following antenna hookups. Do not connect the power cord until you reach “Step 5: Connecting the Power Cord” (page 21).

If you have	Hookup
Cable box or satellite receiver with a video/audio output	A (page 13)
Cable box with an antenna output only	B (page 14)
Cable without cable box, or antenna only (no cable TV)	C (page 15)

Using the cable box/satellite receiver control function

The cable box/satellite receiver control function can be used with hookup A or B. It allows the recorder to control a cable box or satellite receiver via the supplied set top box controller. The recorder controls channels on the cable box or satellite receiver for timer recording. You can also use the recorder’s remote control to change channels on the cable box/satellite receiver whenever the cable box/satellite receiver is turned on, even if the recorder is turned off.

To use the cable box/satellite receiver control function, you need to connect the set top box controller and set the code number and output channel (page 24). After setting up the cable box/satellite receiver control, check that the recorder can correctly control the cable box or satellite receiver (page 28).

Note to CATV system installer (in USA)

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

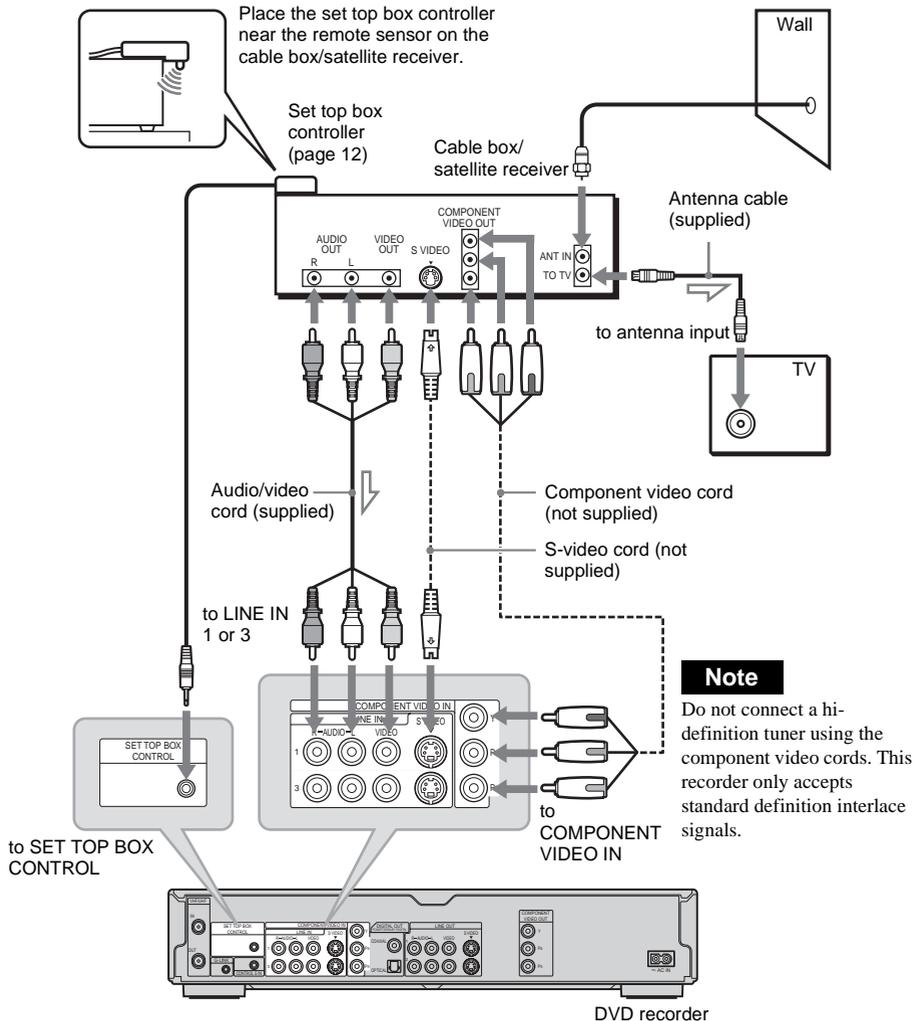
Notes

- 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.
- If you have made hookup A or B and want to use the TV Guide On Screen system, the cable box must be turned on, the set top box controller must be connected, and “Set Top Box Control” in Settings Setup must be set to “On” (page 86) to download the TV Guide On Screen data.
- If you are using the TV Guide On Screen system and the recorder is receiving TV Guide On Screen data, you may not be able to use the remote control to change channels on the cable box when the recorder is off. Wait until the recorder has finished receiving TV Guide On Screen data.

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 programs, 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). Note that satellite receiver programs do not appear in the TV Guide On Screen system.



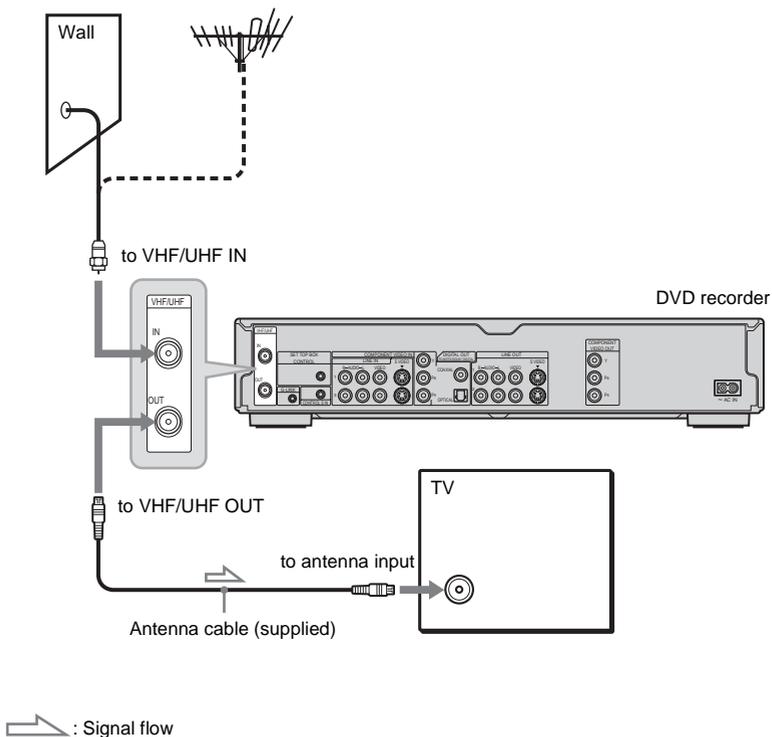
⚡ Hints

- If your cable box or satellite receiver has an S-video jack or component output jacks, you can use an S-video cord (not supplied) or component video cord (not supplied) instead of the audio/video cord. When you connect using a component video cord, connect the audio cords to the LINE IN jacks.
- If you connect an S-video cord to the LINE IN 1 jack or a component video cord, set “Line1 Input” in Video Setup to “S Video” or “Component” (page 89). If you connect an S-video cord to the LINE IN 3 jack, set “Line3 Input” in Video Setup to “S Video” (page 89).

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

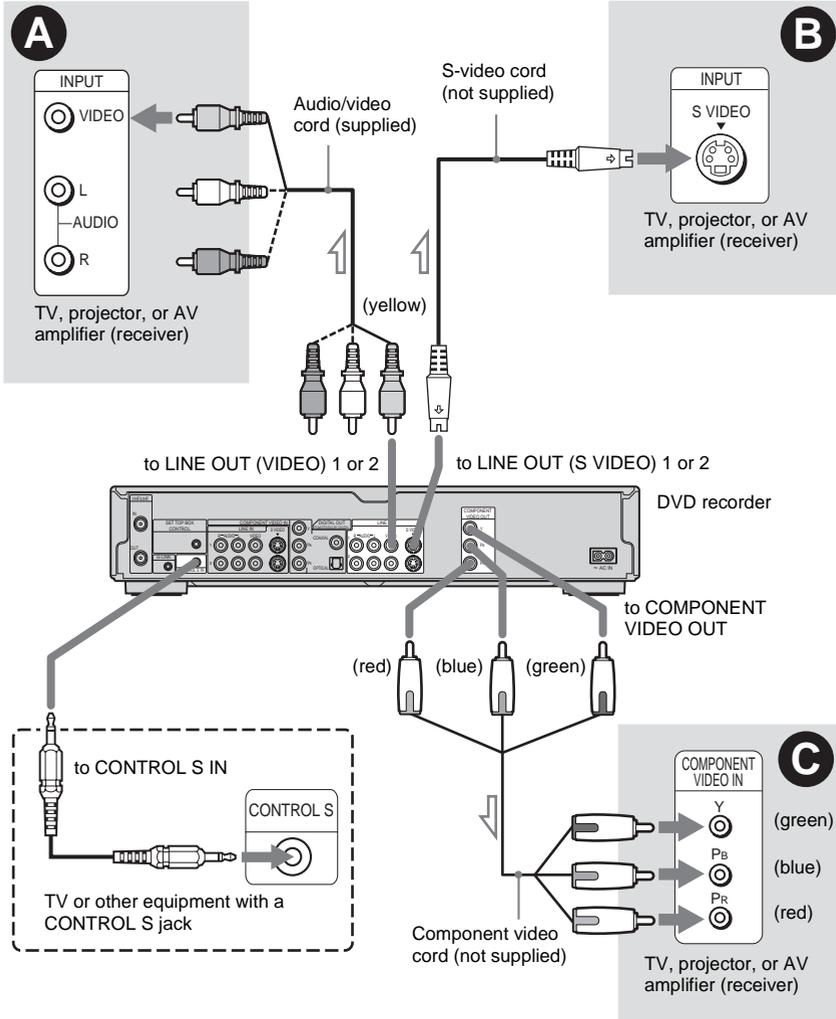
Use this hookup if you watch cable channels without a cable box. Also use this hookup if you are using a VHF/UHF antenna or separate VHF and UHF antennas.

With this hookup, you can record any channel by selecting the channel on the recorder.



Step 3: Connecting the Video Cords

Select one of the following patterns **A** through **C**, according to the input jack on your TV monitor, projector, or AV amplifier (receiver). This will enable you to view pictures. Audio connections are explained in “Step 4: Connecting the Audio Cords” (page 19).



: Signal flow

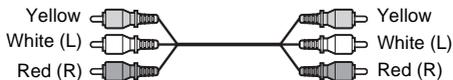
Note

Do not connect more than one type of video cord between the recorder and your TV at the same time.

A Connecting to a video input jack

Connect the yellow plug of the audio/video cord (supplied) to the yellow (video) jack. You will enjoy standard quality images.

Note that you cannot use the PROGRESSIVE button with this connection.



If your TV has a CONTROL S jack

You can control the recorder by pointing the remote at your TV. This feature is convenient when you place the recorder and the TV away from each other.

After connecting the recorder to other equipment in pattern **A**, **B**, or **C** above, connect the CONTROL S IN jack to your TV's CONTROL S (OUT) jack using a control S cord (not supplied). See the instructions supplied with the TV to be connected. Note that your TV's input will not automatically switch to this recorder when you play a disc.

B Connecting to an S VIDEO input jack

Connect an S-video cord (not supplied). You will enjoy high quality images.

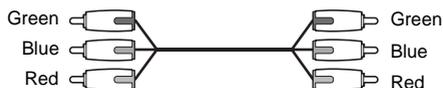
Note that you cannot use the PROGRESSIVE button with this connection.



C Connecting to component video input jacks (Y, P_B, P_R)

Connect the COMPONENT VIDEO OUT jacks using a component video cord (not supplied) or three video cords (not supplied) of the same kind and length. You will enjoy accurate color reproduction and high quality images.

If your TV accepts progressive 480p format signals, you must use this connection and then press PROGRESSIVE on the remote to send progressive video signals. For details, see "Using the PROGRESSIVE button" (page 18).



When playing "wide screen" images

Some recorded images may not fit your TV screen. To change the aspect ratio, see page 87.

If you are connecting to a VCR

Connect your VCR to the LINE IN (VIDEO) jack on the recorder (page 29).

Using the PROGRESSIVE button

By using the PROGRESSIVE button on the remote, you can select the signal format in which the recorder outputs video signals: Interlace or Progressive.

Connect the recorder using the COMPONENT VIDEO OUT jacks (pattern  above), and press PROGRESSIVE repeatedly. "PROGRESSIVE" appears in the front panel display when the recorder outputs progressive signals.

◆Progressive

Select this when:

- your TV accepts progressive signals, and,
- the TV is connected to the COMPONENT VIDEO OUT jacks.

Note that the pictures will not be clear or no picture will appear if you select progressive signal output when either of the above conditions is not met.

◆Interlace

Set to this position when:

- your TV does not accept progressive signals, or,
- your TV is connected to jacks other than the COMPONENT VIDEO OUT jacks (LINE OUT (VIDEO) or S VIDEO).

Hint

When you select progressive signal output, you can fine-tune the signal according to the type of software you are watching (page 88).

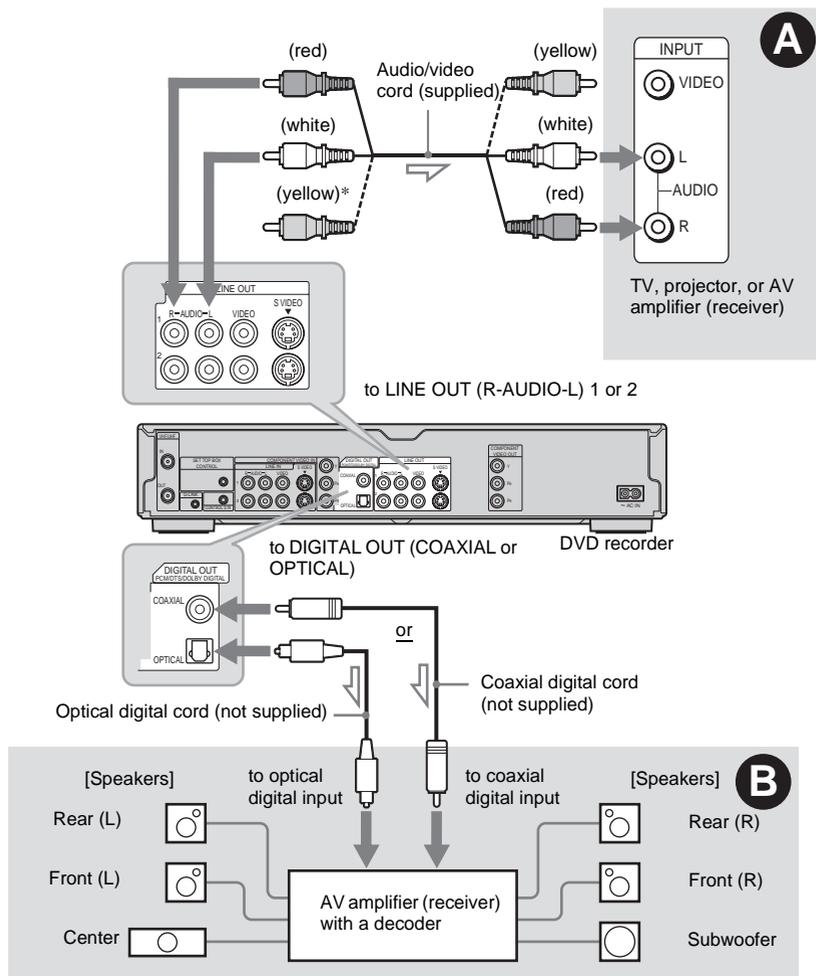
Notes

- Consumers should note that not all high definition television sets are fully compatible with this product and may cause artifacts to be displayed in the picture. In the case of 480 progressive scan picture problems, it is recommended that the user switch the connection to the 'standard definition' output. If there are questions regarding our TV set compatibility with this model 480p DVD recorder, please contact our customer service center.
- TV Guide On Screen does not appear if you connect your TV using the video or S-video jacks and press the PROGRESSIVE button on the remote, even if your TV accepts progressive signals.

Step 4: Connecting the Audio Cords

Select one of the following patterns **A** or **B**, according to the input jack on your TV monitor, projector, or AV amplifier (receiver).

This will enable you to listen to sound.



: Signal flow

* The yellow plug is used for video signals (page 17).

Hint

For correct speaker location, see the operating instructions supplied with the connected components.

Note

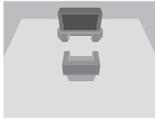
Do not connect your TV's audio output jacks to the LINE IN (AUDIO L/R) jacks at the same time. This will cause unwanted noise to come from your TV's speakers.

A Connecting to audio L/R input jacks

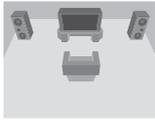
This connection will use your TV's or stereo amplifier's (receiver's) two speakers for sound. Connect using the audio/video cord (supplied).



- Surround effect (page 56)
TV: Dynamic, Wide, Night



Stereo amplifier (receiver): Standard, Night



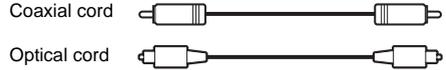
Note

Do not connect your TV's audio output jacks to the LINE IN (AUDIO L/R) jacks at the same time. This will cause unwanted noise to come from your TV's speakers.

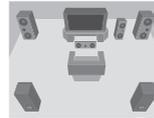
B Connecting to a digital audio input jack

If your AV amplifier (receiver) has a Dolby*¹ Digital or DTS*² decoder and a digital input jack, use this connection.

Connect using a coaxial or optical digital cord (not supplied).



- Surround effect
Dolby Digital (5.1ch), DTS (5.1ch)



*¹ Manufactured under license from Dolby Laboratories. "Dolby," "Pro Logic," and the double-D symbol are trademarks of Dolby Laboratories.

*² "DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

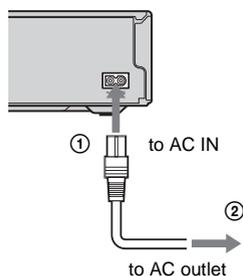
Notes

- After you have completed the connection, make the appropriate settings under "Audio Connection" in Easy Setup (page 24). Otherwise, no sound or a loud noise will come from your speakers.
- The surround sound effects of this recorder cannot be used with this connection.

Step 5: Connecting the Power Cord

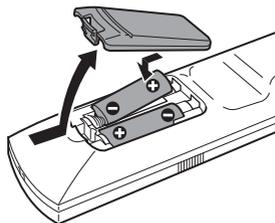
Connect the supplied power cord to the AC IN terminal of the recorder. Then plug the recorder and TV power cords into an AC outlet. After you connect the power cord, **you must wait for a short while before operating the recorder.** You can operate the recorder only after the front panel display lights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

If you connect additional equipment to this recorder (page 29), be sure to connect the power cord only after all connections are complete.



Step 6: 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 your other Sony DVD recorder or player, change the command mode number for this recorder (page 23).
- Use the batteries correctly to avoid possible leakage and corrosion. Do not touch the liquid with bare hands should leakage occur. 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 lighting apparatus. The recorder may not respond to the remote.

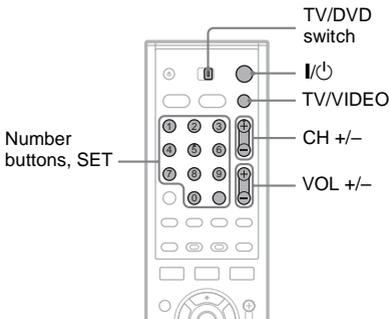
Controlling TVs with the remote

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

If you connected the recorder to an AV amplifier (receiver), you can also use the supplied remote to control the AV amplifier's (receiver's) volume (page 23).

Notes

- Depending on the connected unit, you may not be able to control your TV or AV amplifier (receiver) with some or all of the buttons below.
- If you enter a new code number, the code number previously entered will be erased.
- When you replace the batteries of the remote, the code number may be reset to the default setting. Set the appropriate code number again.



- 1 Slide the TV/DVD switch to TV.
- 2 Hold down I/⏻.
- 3 Enter your TV's manufacturer code (see "Code numbers of controllable TVs" below) using the number buttons.
- 4 Release I/⏻.
When the TV/DVD switch is set to TV, the remote performs the following:

I/⏻	Turns your TV on or off
VOL +/-	Adjusts the volume of your TV
CH +/-	Selects the channel on your TV
TV/VIDEO	Switches your TV's input source
Number buttons and SET	Selects the channel on your TV

Code numbers of controllable TVs

If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

Manufacturer	Code number
Sony	01 (default)
Akai	04
AOC	04
Centurion	12
Coronado	03
Curtis-Mathes	12, 14
Daewoo	04, 22
Daytron	03, 12
Fisher	11
General Electric	04, 06, 10
Gold Star/LG	03, 04, 17
Hitachi	02, 03, 04
J.C.Penney	04, 10, 12
JVC	09
KMC	03
Magnavox	03, 04, 08, 12, 21
Marantz	04, 13
MGA/Mitsubishi	04, 12, 13, 17
NEC	04, 12
Panasonic	06, 19
Philco	02, 03, 04, 08
Philips	08, 21
Pioneer	06, 16
Portland	03
Proscan	10
Quasar	06, 18
Radio Shack	05, 10, 14
RCA	04, 10
Sampo	12
Samsung	03, 04, 12, 20
Sanyo	11, 14
Scott	12
Sears	07, 10, 11
Sharp	03, 05, 18

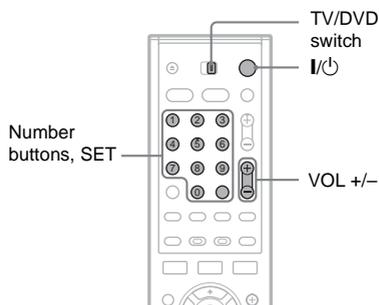
Manufacturer	Code number
Sylvania	08, 12
Teknika	03, 08, 14
Toshiba	07, 18
Wards	03, 04, 12
Yorx	12
Zenith	14, 15

Code numbers of controllable AV amplifiers (receivers)

If more than one code number is listed, try entering them one at a time until you find the one that works with your AV amplifier (receiver).

Manufacturer	Code number
Sony	78, 79, 80, 91
Denon	84, 85, 86
Kenwood	92, 93
Onkyo	81, 82, 83
Pioneer	99
Sansui	87
Technics	97, 98
Yamaha	94, 95, 96

Controlling the volume of your AV amplifier (receiver) with the remote



- 1 Slide the TV/DVD switch to DVD.
- 2 Hold down I/Power, and enter the manufacturer code (see the table below) for your AV amplifier (receiver) using the number buttons.
- 3 Release I/Power.
The VOL +/- buttons control the AV amplifier's volume.
If you want to control the TV's volume, slide the TV/DVD switch to TV.

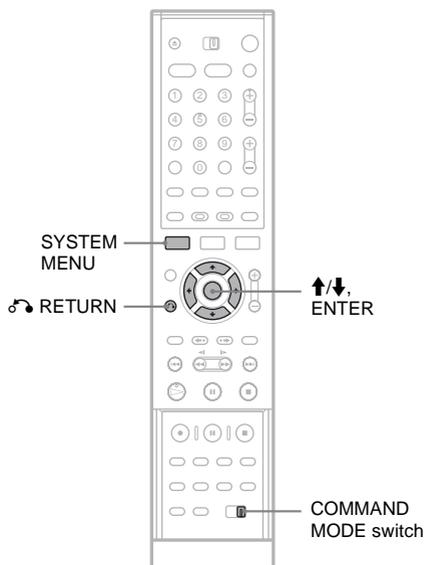
Hint

If you want to control the TV's volume even when the TV/DVD switch is set to DVD, repeat the steps above and enter the code number 90 (default).

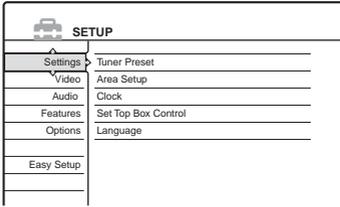
If you have a Sony DVD player or more than one Sony DVD recorder

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.

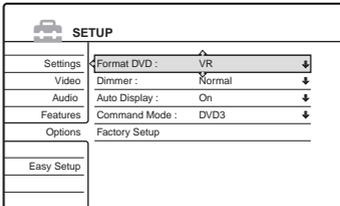
The default command mode setting for this recorder and the supplied remote is DVD3.



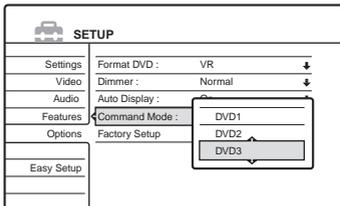
- 1 Press **SYSTEM MENU**.
The System Menu appears.
- 2 Select **"SETUP,"** and press **ENTER**.



- 3 Select **"Options,"** and press **ENTER**.



- 4 Select **"Command Mode,"** and press **ENTER**.

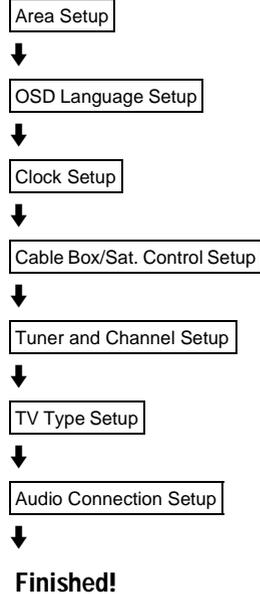


- 5 Select the Command mode (DVD1, DVD2, or DVD3), and press **ENTER**.
- 6 Slide the **COMMAND MODE** switch on the remote so it matches the mode you selected above.

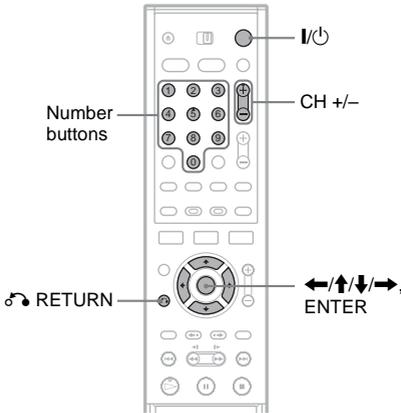
To return to the previous step
Press **↶** RETURN.

Step 7: Easy Setup

Follow the steps below to make the minimum number of basic adjustments for using the recorder. If you do not complete Easy Setup, it will appear each time you turn on your recorder. Settings are made in the following order. Note that television program listings do not appear in the TV Guide On Screen system as soon as you complete Easy Setup.



You must leave the recorder turned off for at least 24 hours to receive the TV Guide On Screen data. If your recorder is connected to a cable box, be sure to leave the cable box turned on.



1 Turn on the TV.

2 Press I/Power.

The recorder turns on.

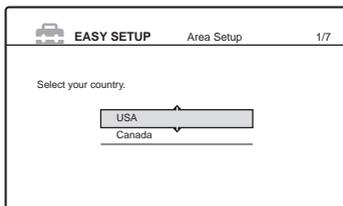
3 Switch the input selector on your TV so that the signal from the recorder appears on your TV screen.

“Initial settings necessary to operate the DVD recorder will be made. You can change them later using Setup. Before you start, check that you have made all necessary connections.” appears.

- If this message does not appear, select “Easy Setup” from “SETUP” in the System Menu to run Easy Setup. For details, see “Settings and Adjustments” on page 83.

4 Press ENTER.

The Setup Display for entering your area of residence appears. This will enable you to use the TV Guide On Screen system (page 33). Enter your area of residence even if you do not want to use the TV Guide On Screen system.

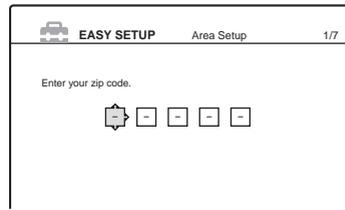


5 Select a country, and press ENTER.

The display for entering your zip code appears.

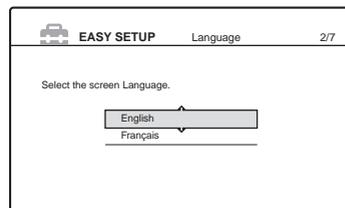
6 Enter your zip code number.

Use ↑/↓ to select the number or letter (for Canada) and ←/→ to move the cursor.



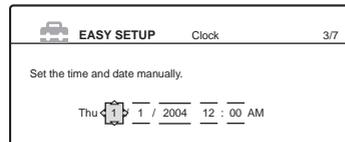
7 Press ENTER.

The Setup Display for selecting the language used in the on-screen display appears.



8 Select a language, and press ENTER.

The display for setting the clock appears. If the clock data has already been received, go to step 10.

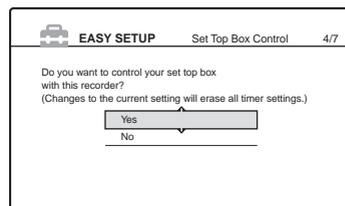


9 Enter the current date and time.

Press ↑/↓ to set the month and press →. Set the day, year, hour, and minutes in the same way. The day of the clock is set automatically.

10 Press ENTER.

The Setup Display for cable box/satellite receiver control appears.

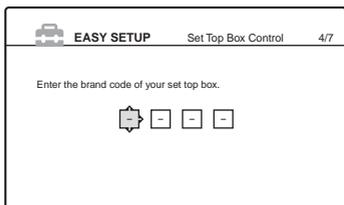


11 Set the cable box/satellite receiver control, and press ENTER.

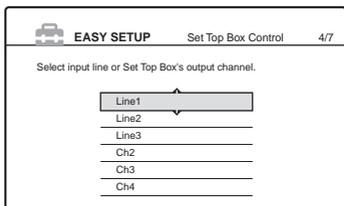
If you want to use the cable box/satellite receiver control (page 14), select “Yes.”
If you do not have a cable box, select “No,” then go to step 15.

12 Enter the brand code of your cable box/satellite receiver.

See “Cable Box/Satellite Receiver Brand Code” (page 112).
Use \uparrow/\downarrow to select the number and \leftarrow/\rightarrow to move the cursor.



13 Press ENTER.

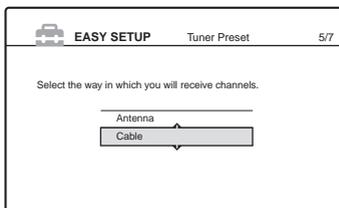


14 Select the cable box output channel.

If you connect your cable box or satellite receiver to the recorder’s audio/video input (page 13), select “Line1,” “Line2,” or “Line3,” then go to step 17.

If you connect the satellite receiver or cable box to the recorder’s antenna input (page 14), select “Ch2,” “Ch3,” or “Ch4” and press ENTER, then go to step 17. See the instructions supplied with your cable box to confirm the cable box’s antenna output channel.

15 Select whether or not you have a cable connection.

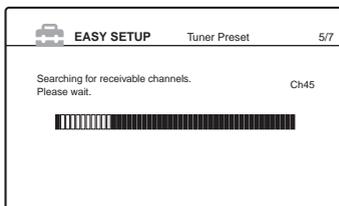


If you use an antenna only (no cable TV), select “Antenna.”

If you use a cable connection without a cable box, select “Cable.”

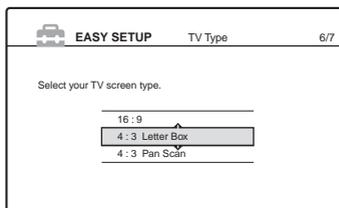
16 Press ENTER.

The Tuner Preset function automatically starts searching for all of the receivable channels and presets them.



To set the channels manually, see page 85. After the Tuner Preset is finished, the Setup Display for selecting the aspect ratio of the connected TV appears.

17 Select the setting that matches your TV type.

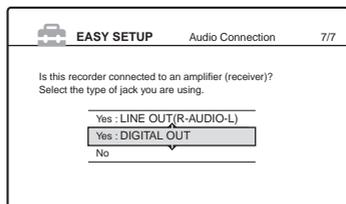


“4:3 Letter Box”: For standard TVs. Displays “wide screen” pictures with bands on the upper and lower sections of the screen.
“4:3 Pan Scan”: For standard TVs. Automatically displays “wide screen” pictures on the entire screen and cuts off the sections that do not fit.

“16:9”: For wide-screen TVs or standard TVs with a wide screen mode.
For details, see “TV Type” on page 87.

18 Press ENTER.

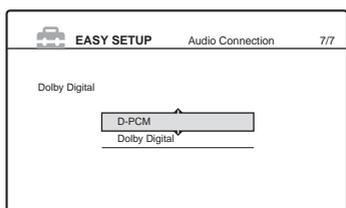
The Setup Display for selecting the type of jack used to connect to your amplifier (receiver) appears.



19 Select the type of jack (if any) you are using to connect to an amplifier (receiver), and press ENTER.

If you did not connect an AV amplifier (receiver), select “No,” then go to step 23. If you connected an AV amplifier (receiver) using just an audio cord, select “Yes: LINE OUT (R-AUDIO-L),” then go to step 23. If you connected an AV amplifier (receiver) using either a digital optical or coaxial cord, select “Yes: DIGITAL OUT.”

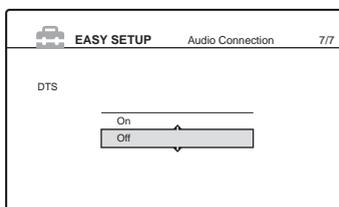
20 Select the type of Dolby Digital signal you wish to send to your amplifier (receiver).



If your AV amplifier (receiver) has a Dolby Digital decoder, select “Dolby Digital.” Otherwise, select “D-PCM.”

21 Press ENTER.

The Setup Display for the DTS signal appears.



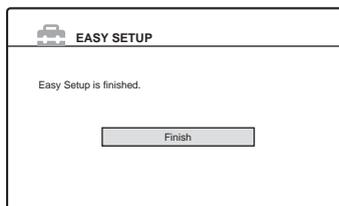
22 Select whether or not you wish to send a DTS signal to your amplifier (receiver), and press ENTER.

If your AV amplifier (receiver) has a DTS decoder, select “On.” Otherwise, select “Off.”

23 Press ENTER when “Finish” appears.

Easy Setup is finished. All connections and setup operations are complete.

If you use the cable box/satellite receiver control, check that the control works correctly (see below).



You must leave the recorder turned off for at least 24 hours to receive the TV Guide On Screen data. If your recorder is connected to a cable box, be sure to leave the cable box turned on.

To return to the previous step

Press RETURN.

Hint

If you want to run Easy Setup again, select “Easy Setup” in the Setup Display (page 95).

Notes

- To record TV programs using the timer, you must set the clock accurately.
- If you use an S-video cord to connect your cable box or satellite receiver, set “Line1 Input” or “Line3 Input” in Video Setup to “S Video” (page 89).

Checking the cable box/satellite receiver control setting

- 1 Point the DVD recorder's remote at the recorder (not at the cable box/satellite receiver).
- 2 Press CH +/- and check that the channel changes on the cable box/satellite receiver window.
- 3 Press the number buttons and check that the channel changes on the cable box/satellite receiver window.

Tune your cable box to channel 02. Then using your DVD recorder's remote, enter 09 to tune your cable box to channel 09. Did the cable box change to channel 09? If the cable box did not tune to channel 09, follow the instructions below for getting your recorder to control your cable box.

If you cannot get the recorder to control your cable box/satellite receiver

Check the settings at "Set Top Box Control" in Settings Setup (page 86). If more than one code number is listed for your cable box/satellite receiver, try entering them one at a time in step 12 of Easy Setup until you find the one that works with your cable box/satellite receiver.

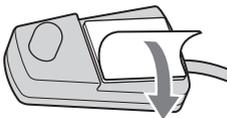
Check the connection and position of the set top box controller (page 13).

If your cable box or satellite receiver still does not operate with this recorder, contact your cable or satellite company to see if they can provide you with a compatible cable box or satellite receiver.

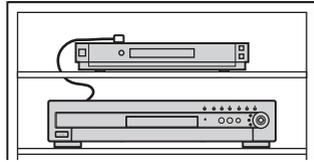
To fix the set top box controller to your cable box/satellite receiver

Once you have confirmed that the set top box controller controls your cable box or satellite receiver, fix it in place.

- 1 Remove the backing on the double-sided tape.



- 2 Attach it so that the set top box controller is directly above the remote control sensor on your cable box/satellite receiver.



Connecting a VCR or Similar Device

After disconnecting the recorder's power cord from an AC outlet, connect a VCR or similar recording device to the LINE IN jacks of this recorder.

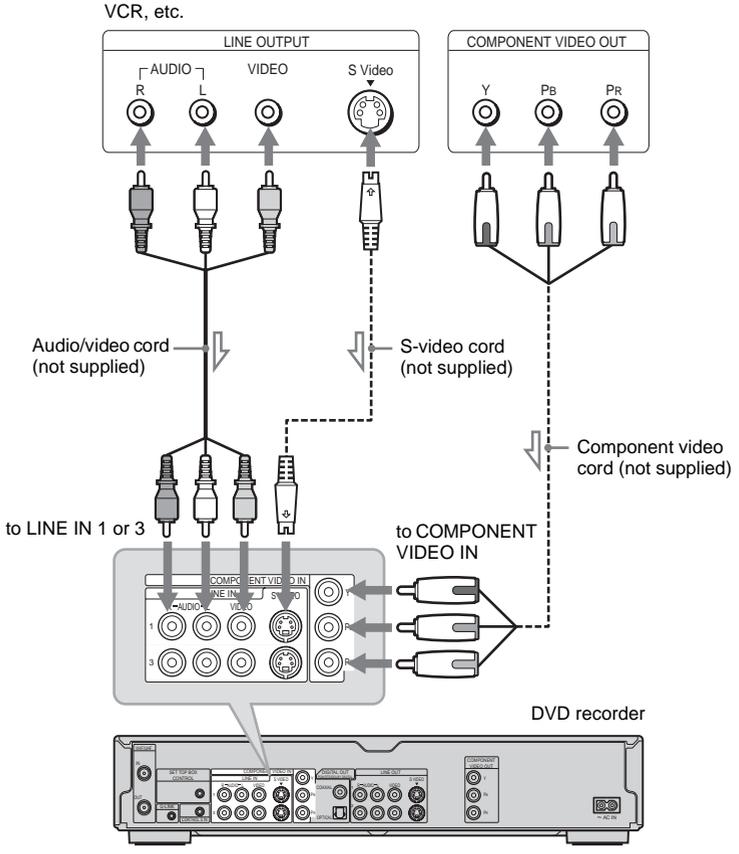
Use the DV IN jack on the front panel if the equipment has a DV/Digital8 output jack (i.LINK jack) (page 77).

See also the instruction manual supplied with the connected equipment.

To record on this recorder, see "Recording From a VCR or Similar Device" (page 53).

Connecting to the LINE IN 1 or 3 jacks

If the equipment has an S-video jack or component output jacks, you can use an S-video cord or component video cord instead of an audio/video cord.



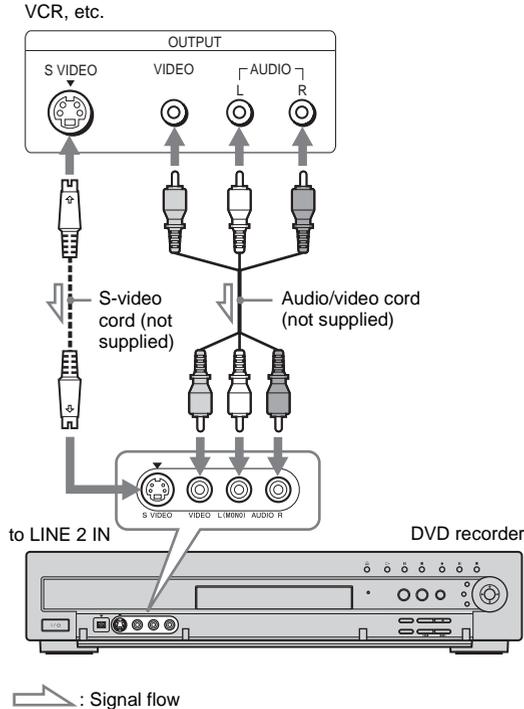
: Signal flow

Notes

- When you connect using a component video cord, connect the audio cords to the LINE IN jacks.
- Do not connect a hi-definition tuner or similar device using the component video cords. This recorder only accepts standard definition interlace signals.

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.



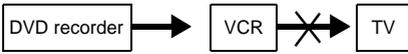
Hint

When the connected equipment outputs only monaural sound, use audio cables that distribute monaural sounds to left/right channels (not supplied).

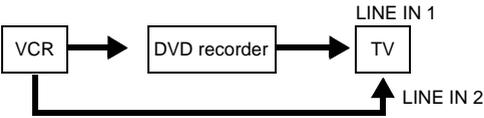
Notes

- 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. Noise (feedback) may result.
- Pictures containing copy protection signals that prohibit any copying cannot be recorded.

- If you pass the recorder signals via the VCR, you may not receive a clear image on your TV screen.



Be sure to connect your VCR to the DVD recorder and your TV in the order shown below. To watch videotapes, watch the tapes through a second Line input on your TV.

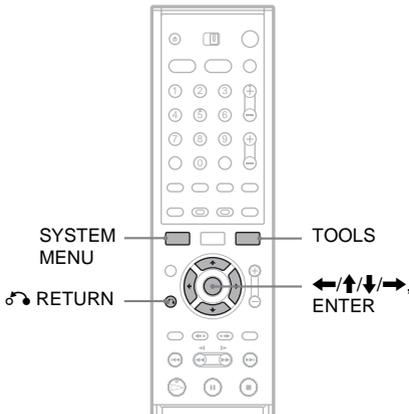


- Do not connect more than one type of video cord between the recorder and your TV at the same time.

Using the On-Screen Menus



This section introduces the System Menu, TOOLS menu, and sub-menu. By using these displays, you can perform most of the recorder's operations.



- 3** SCHEDULE (page 49):
Turns on the list menu, which allows you to check, change, or cancel timer settings.
- 4** DV/D8 EDIT (page 77):
Activates the DV Edit function, which allows you to record and edit the contents of a DV/Digital8 format tape.
- 5** DUBBING (page 72):
Dubs titles from the HDD to a DVD and vice versa. Select the dubbing direction before dubbing.
- 6** SETUP (page 83):
Turns on the Setup Display, which allows you to set up the recorder to suit your preferences.

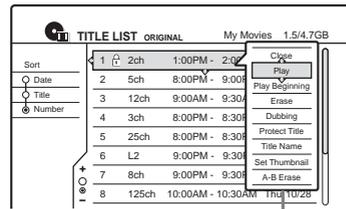
Note

The TV GUIDE option will not contain any listings until the recorder receives the TV Guide On Screen data.

Sub-menu

The sub-menu appears when you select an item from a list menu (e.g. a title from the Title List menu), and press ENTER. The sub-menu displays options applicable only to the selected item. The displayed options differ depending on the situation and disc type. Select an option by pressing **↑/↓** and ENTER.

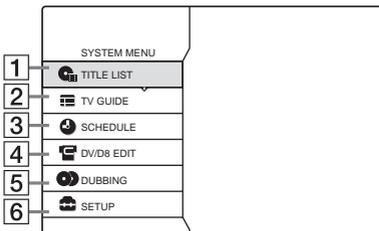
Example: The Title List menu



Options for the selected item

System Menu

The System Menu appears when you press SYSTEM MENU, and provides entries to all of the recorder's main functions, such as timer recording and setup. Select an option by pressing **↑/↓** and ENTER.

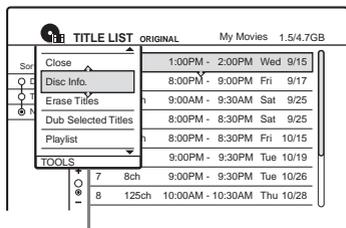


- 1** TITLE LIST (page 37):
Turns on the Title List menu, which shows recorded titles on the disc.
- 2** TV GUIDE (page 46):
Allows you to set a new timer recording setting using the TV Guide On Screen system.

TOOLS

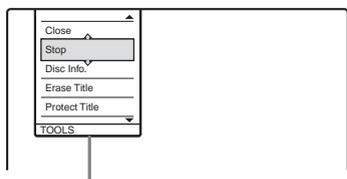
The TOOLS menu appears when you press TOOLS, and displays options applicable to the entire disc (e.g. disc protection), recorder (e.g. audio settings during recording), or multiple items on a list menu (e.g. erasing multiple titles). The displayed options differ depending on the situation and disc type. Select the option by pressing **↑/↓** and ENTER.

Example 1: When you press TOOLS while the Title List menu is turned on.



Options for the disc or menu

Example 2: When you press TOOLS while a DVD-RW (VR mode) is playing.



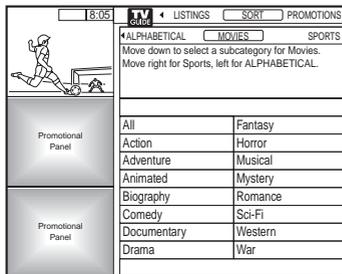
Options for the disc or picture

To return to the previous display

Press RETURN.

Using the TV Guide On Screen System

The TV Guide On Screen system automatically displays a free television program list. This list displays the program name, promotions and related information for programs being broadcast up to eight days in advance, and for a maximum of 120 channels. TV Guide On Screen data for the television program listing is carried by local broadcast stations and is received through your antenna or cable box.



These are just a few of the ways to use the TV Guide On Screen system.

- Search for a program by listing them according to category, such as Movies or Sports, or in alphabetical order.
- Once you have found the program you are looking for, use the TV Guide On Screen system to set the timer for recording (page 46).
- If you find a program that you want to watch in the future, set it as a Favorite. You can later tune in to that program directly by pressing the blue button on the remote when the program begins broadcasting.

For more information, see “Navigating the TV Guide On Screen system” (page 34).

Troubleshooting guide

If you are having trouble displaying the television program list, please check the following.

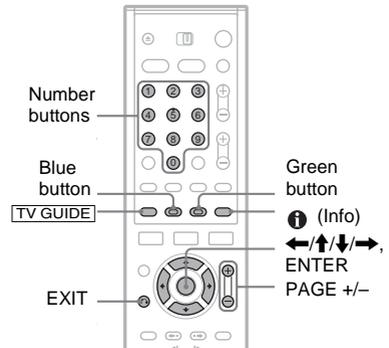
- This recorder downloads the TV Guide On Screen data several times a day when the recorder is turned off. Turn off the recorder when you are not using it (for example, at night). It may take up to 24 hours for your recorder to start receiving program listings.
- When the recorder is connected to a cable box, the cable box must be turned on, the set top box controller must be connected, and "Set Top Box Control" in the Settings setup must be set to "On" (page 86) to download the TV Guide On Screen data.
- Your area of residence and zip code must be set correctly (page 85).
- The time must be set correctly. If the time is not set, set it manually (page 86).
- The television program list is blank when TV Guide On Screen data is being downloaded or a satellite or terrestrial digital tuner is in use.

You may be asked to select a channel lineup the first time you press **TV GUIDE**. Select one of the available channel lineups. If the channel number in the program listing does not match the broadcast station, see "To match the channel number with the broadcast station" (page 36).

Notes

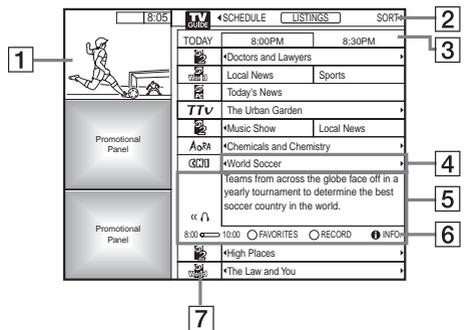
- Only English is displayed in the TV Guide On Screen system.
- The TV Guide On Screen system is not compatible with satellite and terrestrial digital broadcasts.
- Your cable box's channel may suddenly change even if the recorder is turned off. This is because the set top box control has changed the channel to receive the TV Guide On Screen data.

Navigating the TV Guide On Screen system



- 1 Press **TV GUIDE**.
TV Guide On Screen appears.
- 2 Press **←/↑/↓/→** to move the cursor around the entire TV Guide On Screen system, and press **ENTER** to make a selection.

Example: LISTINGS



- 1 **Picture in Guide**: This shows the last program you were watching. See "To lock the Picture in Guide" (page 36) to prevent the picture from changing when you move the cursor.
- 2 **Main Menu Bar**: Use **←/→** to select one of the following features and press **ENTER**.
"LISTINGS": Shows the current programs for the selected time slot.
"SORT": Allows you to sort titles alphabetically or by category (movies, sports, children's, educational, news, variety, series).

“PROMOTIONS”: Shows just promotions. Select a promotion and press the **i** (info) button.

“SETUP”: Allows you to change the TV Guide On Screen system settings and channel lineup.

“MESSAGES”: Displays messages and information such as the TV Guide ID Number. To delete unwanted messages, press the green button.

“SCHEDULE”: Displays either the RECORD list or the FAVORITES list. Press ENTER and use **←/→** to switch between the lists.

3 Time Slot: Indicates the currently selected time slot. Use **←/→** to select a different time slot.

4 Program Title: Gives the program title. The program’s category is also indicated by color: green (sports), purple (movies), blue (children’s), teal (others).

5 Info. Box: Shows information about the selected program and displays the following icons.

“**R**” indicates that the program is set to be recorded.

“**♥**” indicates that the program is set as a Favorite.

“**∩**” indicates that the program is in stereo.

“**CC**” indicates that the program is closed captioned.

Press the **i** (info) button repeatedly to show extended information about the program.

6 Action Bar: Shows buttons that can be used on the remote with the current selection.

For example, when a program is selected, press blue to add the program to the FAVORITES list, or green to add the program to the RECORD list.

7 Channel Logo: Shows the broadcast station logo.

To select a program (Direct Tuning)

1 Select “LISTINGS” in the Main Menu Bar and press ENTER.

2 Press **↑/↓** to select a program and press ENTER.

The TV Guide On Screen system disappears and the channel changes to the selected program.

You can also use the number buttons (Direct Dialing) to select a program. When “LISTINGS” is selected, enter the channel number of the program you want to watch using the number buttons on the remote, then press ENTER.

To find a program alphabetically or by category

1 Select “SORT” in the Main Menu Bar and press ENTER.

2 Press **←/→** to select the main category. To sort alphabetically, select “ALPHABETICAL.”

3 Press **←/↑/↓/→** to select the sub-category (or a letter if you are sorting alphabetically), and press ENTER.

4 Press **↑/↓** to select a program and press ENTER.

To set a program as a “Favorite”

If you find a program that you want to watch in the future, set it as a Favorite by pressing the blue button. “♥” appears next to the program.

To customize the “Favorite” setting, press the green button. The settings change as follows:

♥: Registers the program as a “Favorite.”

♥**R**: Registers a regularly scheduled program as a “Favorite.”

♥**W**: Registers the program as a weekly “Favorite.”

✗: Temporarily turns off the “Favorite” setting.

To view the programs you have set a “Favorite,” select “SCHEDULE” in the Main Menu Bar and press ENTER. Then press **←/→** to select “FAVORITES.”

To watch a “Favorite” program

When you are watching TV, press the blue button on the remote when the broadcasting time for that program arrives. If more than one program is registered as a “Favorite” in the same time slot, press the blue button repeatedly to switch between the programs.

To set a program for timer recording

See “Recording using the TV Guide On Screen system (TV GUIDE)” (page 46).

To lock the Picture in Guide

You can lock the Picture in Guide so that it does not change when you move the cursor across other titles.

Select the logo of the channel that you want to lock from LISTINGS and press the blue button. Press the blue button again to unlock the channel.

To customize the channel line-up

- 1 Select "SETUP" in the Main Menu Bar and press ENTER.
- 2 Press **↑/↓** to select "Change channel display" and press ENTER.
- 3 Press **↑/↓** to select a channel and perform one of the following.

◆To hide the channel

Press the green button.

◆To change the channel number

Enter the new channel number using the number buttons.

◆To change the order of the channels

Select channel you want to move and press **←** to highlight the channel logo. Press the blue button to move the channel up, or press the green button to move the channel down.

To match the channel number with the broadcast station

If the channel number in the program listing does not match the broadcast station, there may be more than one channel lineup for your area. To change the channel lineup, select "Change channel lineup" from "SETUP" and press ENTER. Then select a different channel lineup, if available.

To turn off the TV Guide On Screen system

Press **TV GUIDE** or EXIT on the remote.

🔔 Hints

- Press the PAGE +/- buttons to change the program list by page.
- Each time you turn on the power, the TV Guide On Screen system automatically appears on your TV screen. To turn off this function, select "SETUP" from the Main Menu Bar, and then select "Review options." Then select "Off" and press ENTER.

Notes

- Programs that contain copy protection signals do not appear in the Picture in Guide.
- The Picture in Guide is locked during recording and the lock indicator appears in the Picture in Guide window.

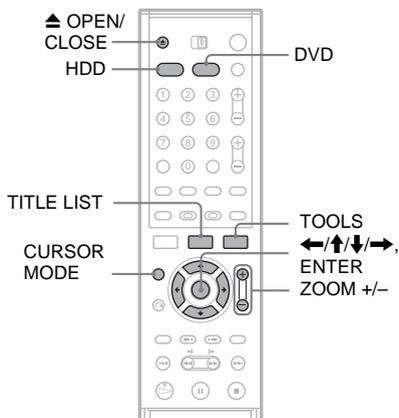
You cannot unlock the Picture in Guide during recording.

- If you are watching programs through a set top box, the Picture in Guide may not change as fast as you move the cursor. In this case, lock the Picture in Guide (page 36).
- When you turn on the recorder, the same channel that you were watching last will automatically appear, even if you should change the channel on your set top box while the recorder's power is off.
- The screen saver will not appear with the TV Guide On Screen system. The TV Guide On Screen system will simply turn off if no buttons are pressed for more than five minutes.

Using the Title List

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

The titles of programs recorded on a disc are displayed in the Title List.



1 Press HDD or DVD.

If you select DVD, press **▲ OPEN/CLOSE** and place a DVD on the disc tray. Press **▲** again to close the disc tray.



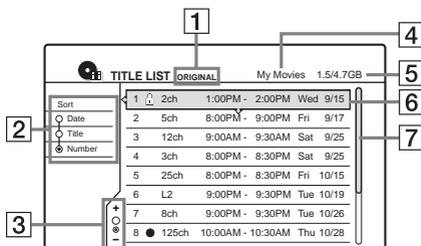
With the recording side facing down

Wait until “LOAD” disappears from the front panel display.

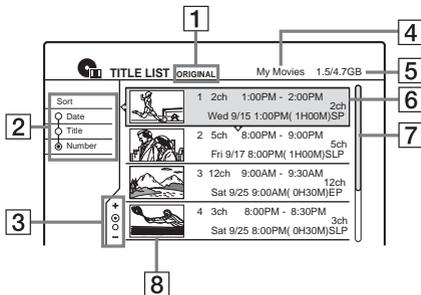
2 Press TITLE LIST.

To show the list in greater detail (zoom), press **ZOOM+**.

Standard Title List (Example: DVD-RW in VR mode)



“Zoomed” Title List



1 Disc type:

Displays a media type, HDD or DVD. Also displays the title type (Original or Playlist) for DVD-RWs (VR mode).

2 Sort buttons:

Sorts the title order (see below).

3 Zooming indicator:

Shows the current zoom status.

4 Disc name (DVD only) (page 40)

5 Disc space (remainder/total)

6 Title information:

Displays the title number, title name, and recording date.

● (red): Indicates that the title is currently being recorded.

⦿: Indicates that the title is currently being dubbed.

🔒: Indicates the protected title.

“NEW”: Indicates that the title is newly recorded (not played back) (HDD only).

- 7 Scroll bar:
Appears when all of the titles do not fit on the list. To view the hidden titles, press **↑/↓**.
- 8 Title's thumbnail picture

To scroll the list display by page (Page mode)

Press **CURSOR MODE** while the list display is turned on. The display enters Page mode. Each time you press **↑/↓**, the entire Title List changes to the next/previous page of titles.

To return to the Cursor mode, press **CURSOR MODE** again.

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

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

While the Title List menu is turned on, press **TOOLS** and select either "Original" or "Playlist," and press **ENTER**. "PLAYLIST" appears on the front panel display when "Playlist" is selected. For details, see "Edit options for DVD-RWs (VR mode)" (page 64).

To change the title order (Sort)

Press **←** while the Title List menu is turned on to move the cursor to the Sort column. Press **↑/↓** to select the item, and press **ENTER**.

Order	Sorted
New (HDD only)	in order of when the titles were recorded. The title that is recorded most recently and not played back is listed at the top.
Date	in order of when the titles were recorded. The title that is recorded most recently is listed at the top.
Title	in alphabetical order.
Number	in order of recorded title number.

To change a title thumbnail picture (Thumbnail) (HDD/DVD-RW (VR mode) only)

You can select a favorite scene for the thumbnail picture shown in the Title List menu.

- 1 Press **TITLE LIST** while a disc is in the recorder, and press **ZOOM+**.
- 2 Select a title whose thumbnail picture you want to change, and press **ENTER**.
- 3 Select "Set Thumbnail" from the sub-menu, and press **ENTER**.
The selected title starts to play in the background.

- 4 While watching the playback picture, press **▷ PLAY**, **⏸ PAUSE**, or **◀/▶** to select the scene you want to set for a thumbnail picture, and press **ENTER**.
The scene is set for the title's thumbnail picture.

To turn off the Title List

Press **TITLE LIST**.

Hint

After recording, the first scene of the recording (the title) is automatically set as the thumbnail picture.

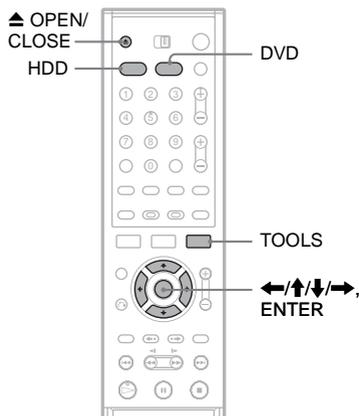
Notes

- The Title List may not appear for DVDs created on other DVD recorders.
- Letters that cannot be displayed are replaced with "∅."
- Title thumbnail pictures are displayed only on this recorder.
- 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.

Using the “Disc Info” Screen (disc settings)

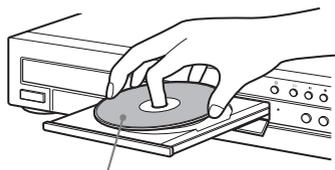
HDD +RW -RWvR -RWvideo +R -R

With the Disc Information display, you can check the disc type and remaining disc space. Also, you can perform operations such as formatting and finalizing (page 40).



1 Press HDD or DVD.

If you select a DVD, press **▲ OPEN/CLOSE** and place a DVD on the disc tray. Press **▲** again to close the disc tray.



With the recording side facing down

Wait until “LOAD” disappears from the front panel display.

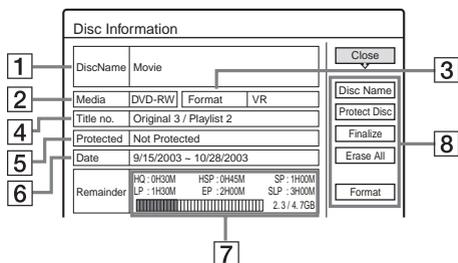
2 Press TOOLS.

The TOOLS menu appears.

3 Select “Disc Info.,” and press ENTER.

Items in the display differ depending on the disc type or recording format.

Example: DVD-RW (VR mode)



- 1 “Disc Name” (DVD only)
- 2 “Media”: Disc type
- 3 “Format”: Recording format type (HDD/DVD-RW only)
- 4 “Title no.”: Total number of titles
- 5 “Protected”: Indicates whether protection is set (DVD-RW in VR mode only)
- 6 “Date”: Dates of when the oldest and the most recent titles were recorded (DVD only)
- 7 “Continuous Rem. Time”/“Remainder” (approximate)
 - The longest continuous recording time in each of the recording modes
 - Disc space bar
 - Remaining disc space/total disc space
- 8 Disc setting buttons (page 40)
 - “Disc Name”
 - “Protect Disc”
 - “Finalize”/“Unfinalize”
 - “Erase All”
 - “Format”

Available settings differ depending on the disc type.

Hint

For DVD+RWs and DVD-RWs (Video mode), you can check free space and title location on the disc using the Disc Map display (page 67).

Note

On this model, 1 GB (read “gigabyte”) is equivalent to 1 billion bytes. The larger the number, the larger the disc space.

Labeling, protecting, or formatting a disc

HDD **+RW** **-RWVR** **-RW_{Video}** **+R** **-R**

You can execute options effective for the entire disc using the Disc Information display.

1 Press **TOOLS** while the disc is in the recorder.

The **TOOLS** menu appears.

2 Select “Disc Info.,” and press **ENTER**.

Example: When the inserted disc is a DVD-RW (VR mode).

Disc Information	
DiscName	
Media	DVD-RW Format VR
Title no.	Original 3 / Playlist 2
Protected	Not Protected
Date	9/15/2003 ~ 10/28/2003
Remainder	HO :0430M HSP :0445M SP :1H00M LP :1H30M EP :2H00M SLP :3H00M 2.3/4.7GB

Buttons: Close, Disc Name, Protect Disc, Finalize, Erase All, Format

3 Select an option, and press **ENTER**.

“Disc Name” (DVD only): Labels a DVD.

Enter the disc name in the “Input Disc Name” display (page 43).

“Protect Disc” (DVD-RW in VR mode only): Protects all titles on the disc. To cancel the protection, select “Don’t Protect.”

“Erase All” (HDD/DVD+RW/DVD-RW only): Erases all titles on the disc (except the protected titles).

“Format” (HDD/DVD+RW/DVD-RW only): Erases all contents. For DVD-RWs, select a recording format (VR or Video) according to your needs.

Hints

- You can set protection for individual titles (page 65).
- By reformatting, you can change the recording format on DVD-RWs, or record again on DVD-RWs (Video mode) that have been finalized.

Note

You can enter up to 64 characters for a DVD disc name. The disc name may not appear when the disc is played on other DVD equipment.

Finalizing a disc (preparing a disc for playback on other equipment)

+RW **-RWVR** **-RW_{Video}** **+R** **-R**

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, 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 the 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.

-RW_{Video} Finalizing is necessary when playing on any equipment other than this recorder. After finalizing, you cannot edit or record on the disc. If you want to record on it again, reformat the disc (page 40). However, all recorded contents will be erased.

+R Finalizing is necessary when playing on any equipment other than this recorder.

-R After finalizing, you cannot edit or record on the disc.

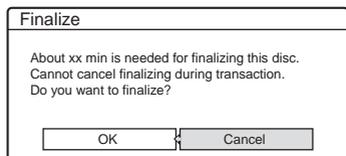
1 Press **TOOLS** while the disc is in the recorder.

The **TOOLS** menu appears.

2 Select “Disc Info.,” and press **ENTER**.

The Disc Information display appears.

- 3** Select “Finalize,” and press ENTER.
The display shows the approximate time required for finalizing and asks for confirmation.



- 4** Select “OK,” and press ENTER.
The recorder starts finalizing the disc.

To unfinalize a DVD-RW (VR mode)

If you cannot record or edit on a DVD-RW (VR mode) that has been finalized with other DVD equipment (a message appears), unfinalize the disc by selecting “Unfinalize” in step 3 above.

Hint

You can check whether the disc has been finalized or not. If you cannot select “Finalize” in step 3 above, the disc has already been finalized.

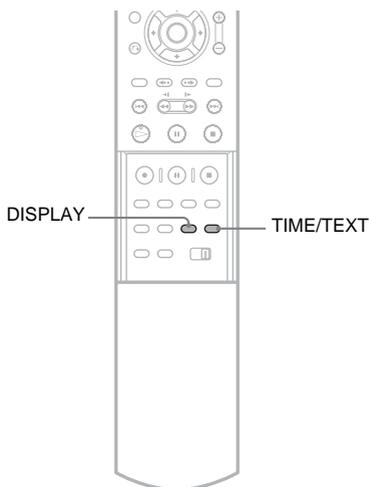
Notes

- 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.

Checking the Play Information and Playing Time



You can check the playing time and remaining time of the current title, chapter, or track. Also, you can check the disc name recorded on the DVD/CD.



Press DISPLAY repeatedly.

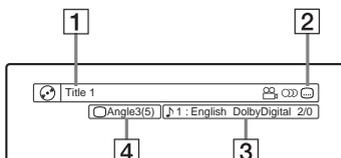
Each time you press the button, the display changes as follows:

- Title/track information (Display 1)
- ↓
- Play mode/time information (Display 2)
- ↓
- (Display off)

The displays differ depending on the disc type or playing status.

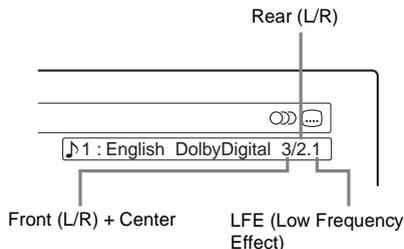
◆ Display 1

Example: When playing a DVD VIDEO



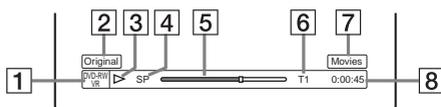
- 1 Title number/name
(Track number for CDs/VIDEO CDs without PBC, scene number for VIDEO CDs with PBC, track number/name for DATA CDs)
- 2 Available functions for DVD VIDEOS (Ⓜ angle/Ⓞ audio/⋮ subtitle, etc.)
- 3 The current selected function or audio setting (appears only temporarily)
- 4 The current selected angle

Example: Dolby Digital 5.1 ch



◆ Display 2

Example: When playing a DVD-RW (VR mode)



- 1 Disc type*2/format (page 8)
- 2 Title type (Original or Playlist) (page 64)
- 3 Play mode
- 4 Recording mode (page 45)
- 5 Playing status bar*3
- 6 Title number (chapter number*1) (page 61)
(Track number for CDs/VIDEO CDs without PBC, scene number for VIDEO CDs with PBC, track number (album number*1) for DATA CDs)
- 7 CD text (album name) appears when text is recorded on a CD.
- 8 Playing time (remaining time*1)

*1 Displayed when you press TIME/TEXT repeatedly.

*2 Displays Super VCDs as "SVCD", DATA CDs as "CD".

*3 Does not appear with VIDEO CDs, or DATA CDs.

💡 Hints

- If "DTS" is set to "Off" in Audio Setup, the DTS track selection option will not appear on the screen even if the disc contains DTS tracks (page 90).
- When "Auto Display" is set to "On" (default) in Options Setup (page 94), playback information automatically appears when the recorder is turned on, etc.

Notes

- The recorder can only display the first level of a CD's text, such as the disc name.
- The letters or symbols that cannot be displayed are replaced with "*."

Checking the playing/remaining time

You can view the playing or remaining time information displayed on the TV screen and the front panel display.

Press TIME/TEXT repeatedly.

The displays differ depending on the disc type or playing status.

◆ Front panel display

Example: When playing a DVD

Playing time and number of the current title

T 1 1:03:24

Remaining time of the current title

T 1 - 1:15:36

Playing time and number of the current chapter

C 2 0:22:30

Remaining time of the current chapter

C 2 - 0:13:20

Example: When dubbing a DVD

Remaining time of dubbing in progress

DUB - 1:25 CH 8

Example: When playing a CD

Track playing time and the current track/index number



Remaining time of the current track



Playing time of the disc



Remaining time of the disc



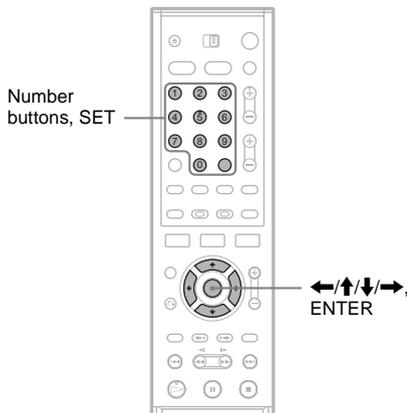
CD text (when available)

Notes

- The recorder can only display the first level of a CD's text, such as the disc name.
- The letters or symbols that cannot be displayed are replaced with "*.*"
- Playing time of MP3 audio tracks may not be displayed correctly.

How to Enter Characters

You can label a title, disc, or program by entering characters. You can enter up to 64 characters for a title or disc name, but the actual number of characters displayed in the menus such as the Title List will vary. When the display for entering characters appears, follow the steps below.



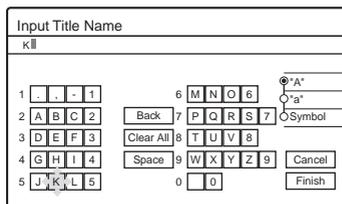
1 Press ←/↑/↓/→ to move the cursor to the right of the screen and select "A" (upper-case), "a" (lower-case), or "Symbol," and press ENTER.

The characters of the selected type are displayed.

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

The selected character appears at the top of the display.

Example: Input Title Name



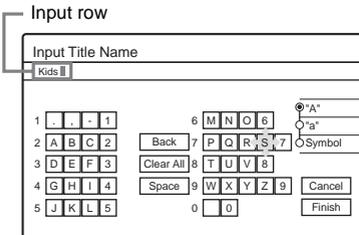
The type of characters will change according to the language you select in Easy Setup. Some languages allow you to enter an accent mark.

To enter a letter with an accent mark, select an accent followed by the letter.

Example: Select “`” and then “a” to enter “à.”

To insert a space, select “Space.”

3 Repeat steps 1 and 2 to enter the remaining characters.



To erase a character, move the cursor to the right of the character at the input row. Select “Back” and press ENTER.

To insert a character, move the cursor to the right of the point where you want to insert the character. Select the character and press ENTER.

To erase all of the characters, select “Clear All” and press ENTER.

4 Select “Finish,” and press ENTER.

To cancel the setting, select “Cancel.”

To use the number buttons

You can also use the number buttons to enter characters.

1 In step 2 above, press the number buttons repeatedly to select a character.

Example:

Press the number 3 button once to enter “D.”

Press the number 3 button three times to enter “F.”

2 Press SET and select the next character.

3 Select “Finish” and press ENTER.

Before Recording

Before you start recording...

- This recorder can record on various discs. Select the disc type according to your needs (page 8).
- Check that the disc has enough available space for the recording (page 39). For HDD, DVD+RWs, and DVD-RWs, you can free up disc space by erasing titles (page 67).
- Adjust the recording picture quality and picture size if necessary (page 51).

Hint

Timer recordings will be made regardless whether or not the recorder is turned on. You can turn off the recorder without affecting the recording even after recording starts.

Recording mode

Like the SP or LP recording mode of VCRs, this recorder has six different recording modes. Select a recording mode according to the time and picture quality you need. For example, if picture quality is your top priority, select the High Quality mode (HQ). If recording time is your priority, Super Long Play mode (SLP) can be a possible choice. Note that recording times in the following table are approximate and the actual times may differ. Note also that the maximum continuous recording time for a single title is eight hours (HDD), or six hours (DVD). Contents beyond this time will not be recorded. Press REC MODE repeatedly to switch the recording modes.

I want to record with the best possible picture quality, so I'll select HQ.



Recording mode	Recording time (hour)	
	HDD	DVD
HQ (High quality)	33	1
HSP ↑	51	1.5
SP (Standard mode)	67	2
LP ↓	103	3
EP ↓	137	4
SLP (Long duration)	204	6

“HQ+” recording mode

“HQ+” records pictures in higher quality than HQ on the HDD. Set “HQ Setting” in Features Setup to “HQ+” (page 93). Maximum recording time is 21 hours. “HQ” appears in the display.

Note

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

Recording a stereo/SAP program

The recorder can receive and record stereo/SAP programs.

Stereo programs

When a stereo program is received, the “STEREO” indicator lights up on the front panel display. If there is noise in the stereo program, set “Auto Stereo” in Audio Setup to “Off” (page 89). The sound will be recorded in monaural but with less noise.

SAP (Second Audio Program)

When a SAP (Second Audio Program) is received, the “SAP” indicator lights up on the front panel display. To record only SAP sound, set “Tuner Audio” in Audio Setup to “SAP” (page 89).

Unrecordable pictures

Pictures with copy protection cannot be recorded on this recorder.

When the recorder receives a copy guard signal, the recorder continues to record but only a blank, gray colored screen will be recorded.

Copy control signals Recordable discs

Copy-Free	HDD +RW -RWVR -RWVideo +R -R
Copy-Once	HDD -RWVR (Ver.1.1 with CPRM*)
Copy-Never	None (a blank screen is recorded)

* The recorded disc can be played only on CPRM compatible equipment.

Note

Copy-Once programs can not be dubbed (page 73).

Timer Recording (TV GUIDE/Manual/VCR Plus+)

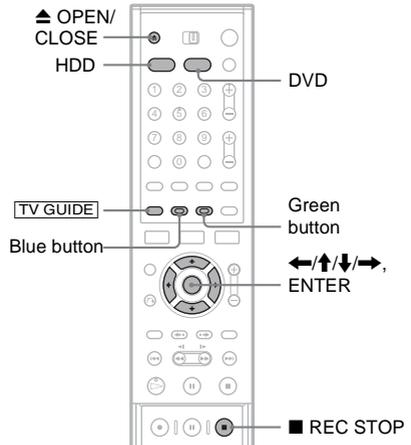
There are three methods to set the timer – setting the timer using the TV Guide On Screen system, using VCR Plus+ and setting the timer manually.

Notes

- When the recorder is connected to a cable box and you want to record using the TV Guide On Screen system, do the following: Turn on the cable box, connect the set top box controller, and set “Set Top Box Control” in the Settings setup to “On.”
- Do not operate your cable box or satellite receiver just before or during a timer recording. This may prevent the accurate recording of a program.

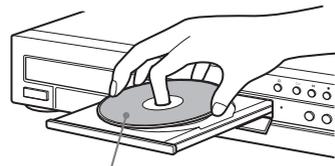
Recording using the TV Guide On Screen system (TV GUIDE)

You can use the TV Guide On Screen system to set the timer to record a program up to eight days in advance.



1 Press HDD or DVD.

If you select DVD, press ▲ OPEN/CLOSE and place a DVD on the disc tray. Press ▲ again to close the disc tray.

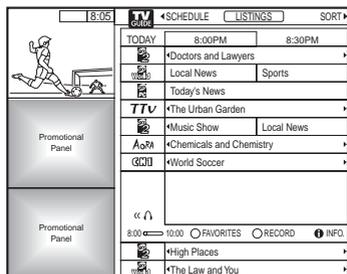


With the recording side facing down

Wait until “LOAD” disappears from the front panel display.

Unused DVDs are formatted automatically.

2 Press **TV GUIDE**.



3 Press **←/↑/↓/→** to select a program.

To search for a program alphabetically or by category, select “SORT” in the Main Menu Bar. See “Using the TV Guide On Screen system” for more information about navigating the TV Guide On Screen system (page 33).

4 Press the green button.

Ⓡ appears next to the program. Each time you press the blue button, the timer recording changes as follows.

Ⓡ: the program is recorded once.

Ⓡ: the program is recorded on a regular basis.

Ⓡ: the program is recorded weekly.

Ⓡ: the timer recording is temporarily put on hold without canceling the setting.

5 Press **TV GUIDE**.

The **TIMER REC** indicator lights up on the front panel display and the recorder is ready to start recording. When recording from a cable box, be sure to turn it on.

Unlike a VCR, there is no need to turn off the recorder before the timer recording starts.

To adjust the recording quality

See step 3 of “Checking/Changing/Canceling Timer Settings” (page 49).

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” in Features Setup to “On” (page 93).

Auto Title Erase (HDD only)

If there is not enough space for a timer recording, the recorder automatically erases old titles recorded on the HDD.

Set “Auto Title Erase” in Features Setup to “On” (page 93). The oldest, played title is erased. The protected titles are not erased.

If the timer settings overlap

If one or more timer settings overlap, Ⓡ appears next to the program and the recording is suspended. The timer recording resumes its original status when the overlap condition no longer exists. To change the timer settings, see “Checking/Changing/Canceling Timer Settings” (page 49).

Notes

- Check to see that there is enough available space for the recording (DVD+RW/DVD-RW only) (page 67). Note that recordings made with the TV Guide On Screen system require one extra minute of recording time.
- The Rec Mode Adjust function only works with a timer recording. It does not function with Quick Timer (page 51).
- You cannot adjust the recording quality or recording destination once the recording starts.

To confirm, change, or cancel a timer recording

See “Checking/Changing/Canceling Timer Settings” (page 49).

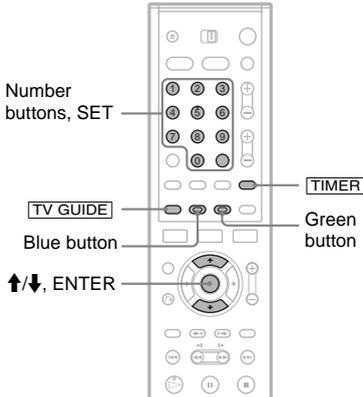
To stop recording during timer recording

Open the remote’s cover and press **REC STOP**.

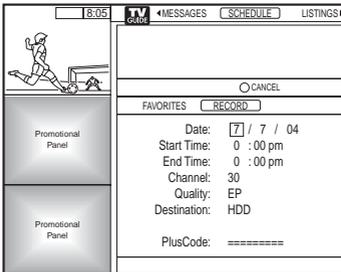
Note that it may take a few seconds for the recorder to stop recording.

Setting the timer manually or using the VCR Plus+ system (Manual/VCR Plus+)

You can set the timer for a total of 30 programs.



1 Press **TIMER**.



2 Press **Up/Down arrow** to select an item.

“Date”: Press the number buttons to enter month, day, and year.

“Start Time”/“End Time”: Press the number buttons to enter the time. To change am/pm, select “am” or “pm,” and press the blue button.

“Channel”: If you are using the set top box control, press the number buttons to enter the channel. If not, select LINE 1, 2, or 3 using the blue button, whichever your box is connected to, and select the channel you want to record on the set top box.

“Quality”: Press the blue button to change the recording mode.

“Destination”: Press the blue button to switch between HDD and DVD.

“PlusCode”: Press the number buttons. To correct the number, press **Up/Down arrow** and enter the number again.

3 Press **ENTER**.

To make another timer setting, select “RECORD” and repeat from step 3.

4 Press **TV GUIDE**.

The **TIMER REC** indicator lights up on the front panel display and the recorder is ready to start recording. When recording from a cable box or satellite tuner, be sure to turn it on. Unlike a VCR, there is no need to turn off the recorder before the timer recording starts.

To confirm, change, or cancel a timer recording

See “Checking/Changing/Canceling Timer Settings” (page 49).

To stop recording during timer recording

Open the remote’s cover and press **REC STOP**. Note that it may take a few seconds for the recorder to stop recording.

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” in Features Setup to “On” (page 93).

Auto Title Erase (HDD only)

If there is not enough space for a timer recording, the recorder automatically erases old titles recorded on the HDD.

Set “Auto Title Erase” in Features Setup to “On” (page 93). The oldest, played title is erased. The protected titles are not erased.

If the timer settings overlap

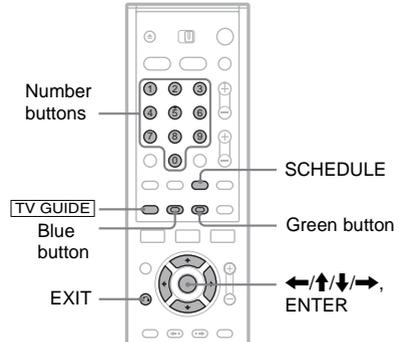
If one or more timer settings overlap, **@** appears next to the program and the recording is suspended. The timer recording resumes its original status when the overlap condition no longer exists. To change the timer settings, see “Checking/Changing/Canceling Timer Settings” (page 49).

Notes

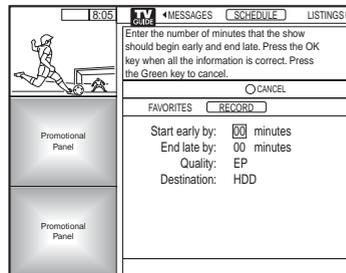
- Check to see that there is enough available space for the recording (DVD+RW/DVD-RW only) (page 67).
- To record a cable or satellite program without using cable box/satellite box control, turn on the cable box or satellite receiver and select the program you want to record. Leave the cable box or satellite receiver turned on until the recorder finishes recording.
- The Rec Mode Adjust function only works with a timer recording. It does not function with Quick Timer (page 50).
- You cannot adjust the recording quality or recording destination once the recording starts.

Checking/Changing/ Canceling Timer Settings

You can check, change or cancel timer settings using the SCHEDULE list, even while a recording is in progress.



- 1 With the TV Guide On Screen system turned off, press SCHEDULE. The SCHEDULE list appears.
- 2 Press \uparrow/\downarrow to select the program you want to change, then press ENTER.



- 3 Press \uparrow/\downarrow to select the item you want to adjust.
“Start early by”: Press the number buttons to start the recording by up to 99 minutes in advance.
“End late by”: Press the number buttons to extend the recording by up to 99 minutes.
“Quality”: Press the blue button to change the recording mode.
“Destination”: Press the blue button to switch between HDD and DVD.
- 4 Press **TV GUIDE**.

To change the recording frequency

Press SCHEDULE and select the program you want to change. Then press the green button repeatedly to change the recording frequency. Programs set to be recorded “Daily” will only be recorded from Monday through Friday.

To cancel the timer setting

Press SCHEDULE and select the program you want to cancel. Then press the blue button.

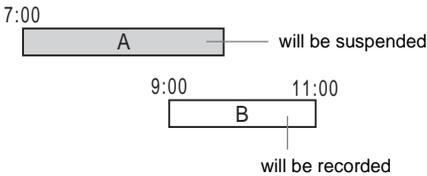
To turn off the SCHEDULE list

Press EXIT.

If two or more timer settings overlap

The timer recording set last has priority over the other settings and is recorded. All other overlapped settings are suspended, even if the setting only partially overlaps the setting with priority.  appears next to programs that are suspended.

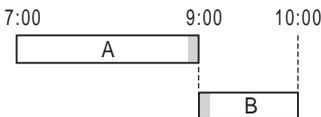
Example: You set the timer in order of A, and then B.



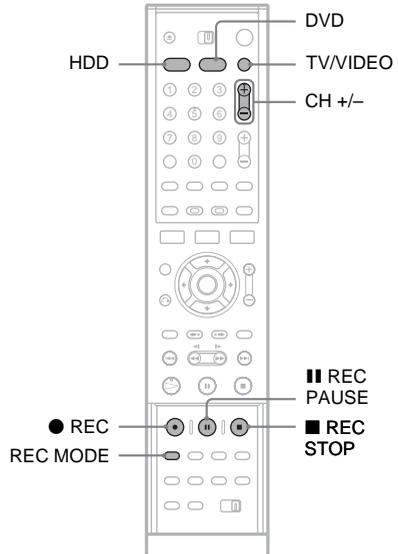
Note that if you modify setting A (for instance, if you extend the recording time), then setting A becomes the last timer recording you set and will have priority over setting B.

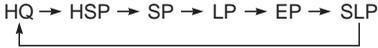
If the end and start time of two timer settings are the same

The end of program A or the beginning of program B will be cut.



Recording Without the Timer



- 1 Press **HDD** or **DVD** to select a media.
When you selected 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 changes on the TV screen as follows:

- 4 Press **● REC**.
Recording starts.
Recording continues until you stop the recording or the disc is full.

To stop recording

Press **■ REC STOP** located beneath the remote control cover. Note that it may take a few seconds for recording to stop.

To pause recording

Press **■ REC PAUSE** located beneath the remote control cover. To restart recording, press the button again.

To watch another TV program while recording

Set your TV to the TV input using the TV/VIDEO button.

Hint

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

Notes

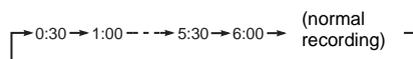
- After pressing **● REC**, it may take a short while to start recording.
- You cannot change the recording mode while recording or during recording pause.
- If there is a power failure, the program you are recording may be erased.
- You cannot watch a TV program while recording another TV program.

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.



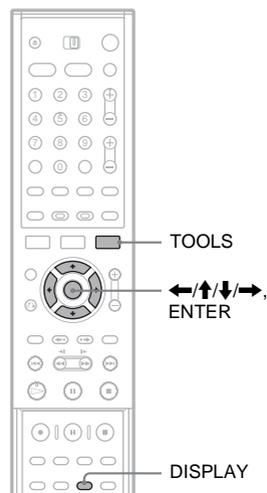
The time counter decreases minute by minute to 0:00, then the recorder stops recording (power does not turn off). Even if you turn off the recorder during recording, the recorder continues to record until the time counter runs out.

To cancel the Quick Timer

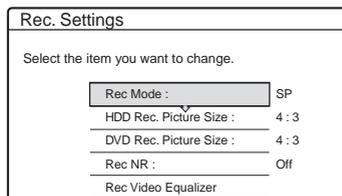
Press **● REC** repeatedly until the counter appears in the front panel display. The recorder returns to normal recording mode.

Adjusting the recording picture quality and size

You can adjust the recording picture quality and picture size.



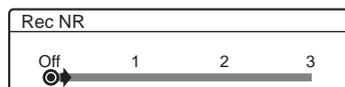
- 1 Before recording starts, press **TOOLS** and select "Rec Settings." Then press **ENTER**.



- 2 Select the item you want to adjust, and press **ENTER**.

The adjustment display appears.

Example: Rec NR



"Rec Mode": Selects the recording mode for the desired recording time and picture quality. For more information, see "Recording mode" (page 45).

“HDD Rec. Picture Size”/“DVD Rec. Picture Size”: Sets the picture size of the program to be recorded.

- 4:3 (default): Sets the picture size to 4:3.
- 16:9: Sets the picture size to 16:9 (wide mode).
- Auto (HDD only): Automatically selects the actual picture size.

“DVD Rec. Picture Size” works with DVD-Rs and DVD-RWs (Video mode) when the recording mode is set to HQ, HSP, or SP. For all other recording modes, the screen size is fixed at “4:3.”

For DVD-RWs (VR mode), the actual picture size is recorded regardless of the setting. For example, if a 16:9 size picture is received, the disc records the picture as 16:9 even if “Rec Screen Size” is set to “4:3.”

For DVD+RWs/DVD+Rs, the screen size is fixed at “4:3.”

“Rec NR” (noise reduction): Reduces noise contained in the video signal.

“Rec Video Equalizer”: Adjusts the picture in greater detail.

Press **↑/↓** to select the item you want to adjust, then press **ENTER**.

- Contrast: Changes the contrast.
- Brightness: Changes the overall brightness.
- Color: Makes the colors deeper or lighter.
- Hue: changes the color balance.

3 Adjust the setting using **←/↑/↓/→**, and press **ENTER**.

The default setting is underlined.

“Rec NR”: (weak) Off 1 ~ 3 (strong)

“Rec Video Equalizer”:

- Contrast: (weak) -3 ~ 0 ~ 3 (strong)
- Brightness: (dark) -3 ~ 0 ~ 3 (bright)
- Color: (light) -3 ~ 0 ~ 3 (deep)
- Hue: (red) -3 ~ 0 ~ 3 (green)

Repeat steps 2 and 3 to adjust any other items.

- You cannot use these settings for video signals from the DV IN jack and COMPONENT VIDEO IN jacks.

Checking the disc status while recording

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

Press **DISPLAY** twice during recording.

The recording information appears.



- 1 Disc type/format
- 2 Recording status
- 3 Recording mode
- 4 Recording time

Press **DISPLAY** to turn off the display.

Creating chapters in a title

The recorder will automatically divide a recording (a title) into chapters by inserting chapter marks at 6 or 15 minute intervals during recording. Select the interval, “6Min” (default) or “15Min” in “Auto Chapter” of Features Setup (page 91).

Hint

You can create chapters manually when playing DVD-RWs (VR mode). For details, see page 68.

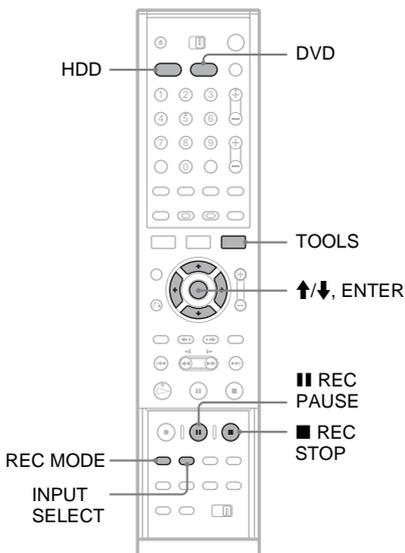
Notes

- If one program contains two picture sizes, the selected size is recorded. However, if the 16:9 signal cannot be recorded as 16:9, it is recorded as 4:3.
- When playing a 16:9 size picture recorded as 4:3, the image is fixed to 4:3 letter box regardless of the setting in “TV Type” of Video Setup (page 87).
- Remnants of images may appear on your screen when using “Rec NR.”

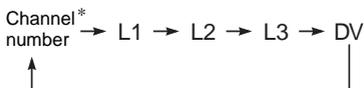
Recording From a VCR or Similar Device

HDD +RW -RWVR -RWVideo +R -R

You can record from a connected VCR or similar device. To connect a VCR or similar device, see “Connecting a VCR or Similar Device” (page 29). Use the DV IN jack on the front panel if the equipment has a DV output jack (i.LINK jack).

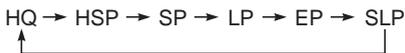


- 1 Press **HDD** or **DVD**.
If you select DVD, insert a recordable DVD.
- 2 Press **INPUT SELECT** to select an input source according to the connection you made.
The front panel display changes as follows:



* Does not appear when “Set Top Box Control” is set to “On.”

- 3 Press **REC MODE** repeatedly to select the recording mode.
The recording mode changes as follows:



- 4 Press **TOOLS** and select “Line Audio Input.” Then press **ENTER**.

“Main/Sub”: Records two different sound tracks when recording to the HDD or to a DVD-RW (VR mode).

“Stereo” (default): Records stereo sound only. Select this when recording to discs other than the HDD or DVD-RWs (VR mode).

- 5 Press **||| REC PAUSE** to set this recorder to record pause.
- 6 Insert the source tape into the connected equipment and set to playback pause.
- 7 At the same time, press **||| REC PAUSE** on this recorder and the pause or play button on the connected equipment.

Recording starts.

To stop recording, press **■ REC STOP** on this recorder.

Recording

If you connect a digital video camera with a DV IN jack

See “DV/Digital8 Dubbing (DV → HDD/DVD)” (page 77) for an explanation of how to record from the DV IN jack.

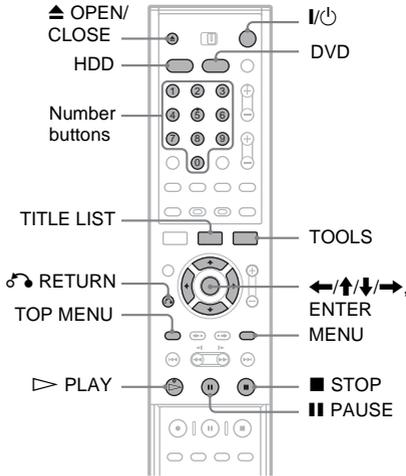
Hint

You can adjust the settings for the recording picture before recording. See “Adjusting the recording picture quality and size” (page 51).

Notes

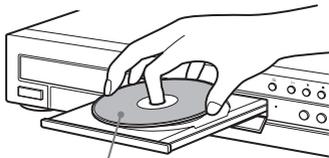
- When recording a video game image, the screen may not be clear.
- Any program that contains a Copy-Never copy guard signal cannot be recorded. The recorder continues to record, but a blank screen will be recorded.

Playing



1 Press HDD or DVD.

- If you select DVD, press **▲ OPEN/CLOSE** and place a DVD or CD on the disc tray. Then press the button again to close the disc tray.
- If you insert a DVD VIDEO, VIDEO CD, CD, or DATA CD, press **▷**. Playback starts.

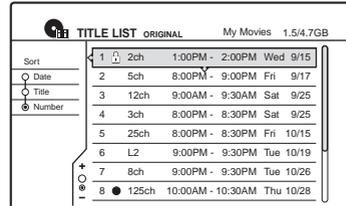


With the playback side facing down

2 Press TITLE LIST.

For details about the Title List, see “Using the Title List” (page 37).

Example: DVD-RW (VR mode)



3 Select the title, and press ENTER.

The sub-menu appears.

4 Select “Play,” and press ENTER.

Playback starts from the selected title on the disc.

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, you can display the disc’s menu by pressing TOP MENU or MENU.

To play VIDEO CDs with PBC functions

PBC (Playback Control) allows you to play VIDEO CDs interactively using the menu on your TV screen.

When you start playing a 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). The PBC function of Super VCDs does not work with this recorder. Super VCDs are played in continuous play mode only.

To stop playback

Press **■** STOP.

To resume playback from the point where you stopped the disc (Resume Play)

When you press **▷** PLAY again after you stop the disc, the recorder resumes playback from the point where you pressed **■** STOP.

To start from the beginning, press TOOLS, select “Play Beginning” and press ENTER. Playback starts from the beginning of the title/track/scene.

The point where you stopped playing is cleared when:

- you open the disc tray (except for HDD).
- you play another title (except for HDD).
- you switch the Title List menu to Original or Playlist (DVD-RW in VR mode only).
- you edit the title after stopping playback.
- you change the settings on the recorder.
- you turn off the recorder (VIDEO CD/CD/DATA CD only).
- you make a recording (except for HDD/DVD-RWs in VR mode).

To play restricted DVDs (Parental Control)

If you play a restricted DVD, the message “Do you want temporarily change parental control to *?” appears on your TV screen.

- 1 Select “OK” and press ENTER.
The display for entering your password appears.
- 2 Enter your four digit password using the number buttons.
- 3 Press ENTER to select “OK.”
The recorder starts playback.

To register or change the password, see “Parental Control (DVD VIDEO only)” (page 92).

To lock the disc tray (Child Lock)

You can lock the disc tray to prevent children from ejecting the disc.

When the recorder is in standby mode, press  RETURN, ENTER, and then  on the remote.

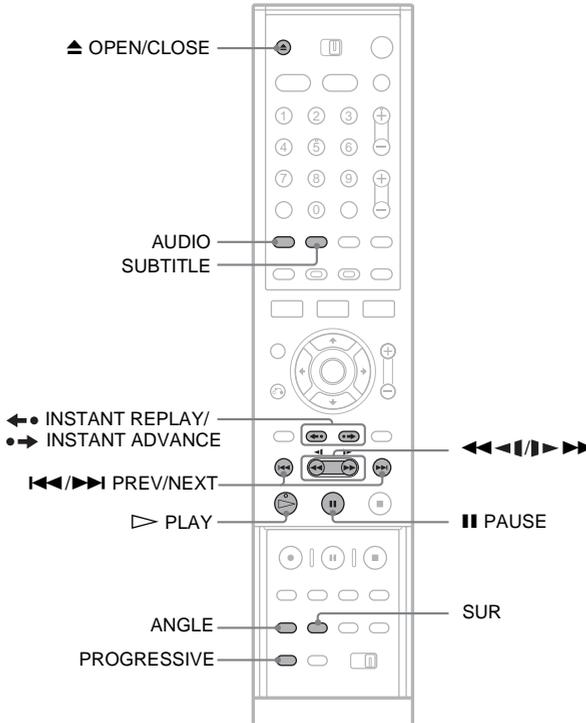
“LOCKED” appears in the front panel display. The  OPEN/CLOSE button does not work while the Child Lock is set.

To unlock the disc tray, press  RETURN, ENTER, and then  on the remote again when the recorder is in standby mode.

Hints

- You can also use the  PLAY button in step 3 (page 54) to start playback.
- Even if a timer recording starts during playback, neither the recording nor playback will stop. See page 60.
- Even if you select “Factory Setup” in Options Setup (page 94), the Child Lock remains set.

Playback options



Buttons	Operations	Discs
▲ OPEN/CLOSE	Stops play and opens the disc tray.	All discs
AUDIO	<p>Selects one of the audio tracks recorded on the disc when pressed repeatedly.</p> <p>DVD Selects the language.</p> <p>HDD -RWVR Selects the main or sub sound.</p> <p>VCD CD DATA CD Selects stereo or monaural audio tracks.</p>	<p>HDD -RWVR DVD</p> <p>VCD CD DATA CD</p>
SUBTITLE	Selects a subtitle language when pressed repeatedly.	DVD
ANGLE	<p>Selects an angle when pressed repeatedly.</p> <p>If various angles (multi-angles) for a scene are recorded on the disc, “∞” appears in the front panel display.</p>	DVD

Buttons	Operations	Discs
SUR (surround)	<p>Selects one of the TVS effects when pressed repeatedly.</p> <p>TVS* (TV Virtual Surround) lets you enjoy virtual surround sound effects created from the front left and right speakers. The selected setting is displayed in the front panel display for a few seconds.</p> <p>“TVS OFF”: No surround effect</p> <p>“TVS DYNAMIC”: Creates one set of virtual rear speakers.</p> <p>“TVS WIDE”: Creates five sets of virtual rear speakers.</p> <p>“TVS NIGHT”: Creates five sets of virtual rear speakers. Effective at low volume.</p> <p>“TVS STANDARD”: Creates three sets of virtual rear speakers. Effective when you use two separate front speakers.</p>	<p>DVD</p> <p>* TVS was developed by Sony to produce home surround sound with just a stereo TV. This only works with multichannel Dolby Digital soundtracks.</p>
PROGRESSIVE	<p>Switches the type of video output signal to interlace or progressive format (page 18).</p>	<p>HDD +RW -RWVR -RWVideo +R -R DVD VCD</p>
<p>◀• INSTANT REPLAY/•▶ INSTANT ADVANCE</p>	<p>Replays the scene/briefly fast forwards the scene.</p>	<p>HDD +RW -RWVR -RWVideo +R -R DVD</p>
<p>◀◀ PREV/ ▶▶ NEXT</p>	<p>Goes to the beginning of the previous/next title/chapter/scene/track.</p>	<p>All discs</p>
<p>◀◀◀/ /▶▶▶ (fast reverse/fast forward)</p>	<p>Fast reverses/fast forwards the disc when pressed during playback.</p> <p>Search speed changes as follows:</p> <p style="text-align: center;"> fast reverse fast forward FR1 ← → FF1 FR2 ← ← → → FF2 FR3* ← ← ← → → → FF3* </p> <p>When you press and hold the button, fast forward/fast reverse continues at the selected speed until you release the button.</p>	<p>All discs</p> <p>* FR3 and FF3 are only available for the HDD and DVDs.</p>
<p>◀◀◀/ /▶▶▶ (slow, freeze frame)</p>	<p>Plays in slow motion when pressed for more than one second in pause mode.</p> <p>Plays one frame at a time when pressed briefly in pause mode.</p>	<p>HDD +RW -RWVR -RWVideo +R -R DVD VCD *</p> <p>* Playback direction only</p>
<p>⏸ PAUSE</p>	<p>Pauses playback.</p>	<p>All discs</p>

To resume normal playback, press ▷ PLAY.

Notes

- To enjoy the TVS function, set “Digital Out” to “On” and “Dolby Digital” to “D-PCM” in Audio Setup.
- When the playback signal does not contain a signal for the rear speakers, the surround effects will be difficult to hear.
- When you select one of the surround modes, turn off the surround settings of the connected TV or amplifier (receiver).
- Make sure that your listening position is between and at an equal distance from your speakers, and that the speakers are located in similar surroundings.
- The TVS function cannot be used with discs recorded on this recorder. Angles and subtitles also cannot be changed.

Notes on playing DTS sound tracks on a CD

- When playing DTS-encoded CDs, excessive noise will be heard from the analog stereo jacks. To avoid possible damage to the audio system, the consumer should take proper precautions when the analog stereo jacks of the recorder are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1-channel decoder system must be connected to the digital jack of the recorder.
- Set the sound to “Stereo” using the AUDIO button when you play DTS sound tracks on a CD (page 56).

Notes on playing DVDs with a DTS sound track

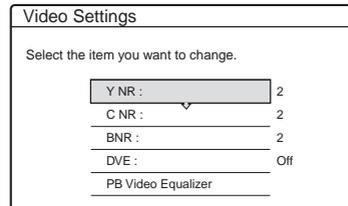
DTS audio signals are output only through the DIGITAL OUT (COAXIAL or OPTICAL) jack.

When you play a DVD with DTS sound tracks, set “DTS” to “On” in Audio Setup (page 90).

Adjusting the picture quality



- 1 Press TOOLS during playback.
The TOOLS menu appears.
- 2 Select “Video Settings,” and press ENTER.



- 3 Select an item, and press ENTER.

The adjustment display appears.

“Y NR” (luminance noise reduction):

Reduces noise contained in the luminance element of the video signal.

“C NR” (chroma noise reduction): Reduces noise contained in the color element of the video signal.

“BNR” (block noise reduction): Reduces “block noise” or mosaic like patterns in the picture.

“DVE” (digital video enhancer): Sharpens the outlines of the images.

“PB Video Equalizer” (Playback video equalizer): Adjusts the picture in greater detail.

Select an item and press ENTER.

- Contrast: changes the contrast.
- Brightness: changes the overall brightness.
- Color: makes the colors deeper or lighter.
- Hue: changes the color balance.

4 Press \leftarrow/\rightarrow to adjust the setting, and press ENTER.

The default settings are underlined.

“Y NR”: (weak) Off 1 2 3 (strong)

“C NR”: (weak) Off 1 2 3 (strong)

“BNR”: (weak) Off 1 2 3 (strong)

“DVE”*: (weak) Off 1 2 3 (strong)

“PB Video Equalizer”:

• Contrast: (weak) -3 ~ 0 ~ 3 (strong)

• Brightness: (dark) -3 ~ 0 ~ 3 (bright)

• Color: (light) -3 ~ 0 ~ 3 (deep)

• Hue: (red) -3 ~ 0 ~ 3 (green)

Repeat steps 3 and 4 to adjust any other items.

* “1” softens the outlines of the images. “2”

enhances the outlines and “3” enhances them more than “2.”

Notes

- If the outlines of the images on your screen become blurred, set “BNR” to “Off.”
- Depending on the disc or the scene being played, the above BNR, Y NR, or C NR effects may be hard to discern. And, these functions may not work with some screen sizes.
- When playing a disc recorded in SLP recording mode, the BNR setting may have little effect.
- When using the DVE function, noise found in the disc may become more apparent. In this case, it is recommended that you use the BNR function with the DVE function. If the condition still does not improve, set the DVE level to “1” or “Off.”

Adjusting the sound quality



1 Press TOOLS during playback.

The TOOLS menu appears.

2 Select “Audio Settings,” and press ENTER.

3 Select an item, and press ENTER.

“Surround (TVS)” (DVD VIDEO only):

Selects one of the surround modes. For more information, see “Playback options” (page 56).

“Audio Filter” (all discs): Selects the digital filter to reduce noise above 22.05 kHz (Fs* is 44.1 kHz), 24 kHz (Fs is 48 kHz), or 48 kHz (Fs is above 96 kHz).

• Sharp (default): Provides a wide frequency range and spatial feeling.

• Slow: Provides smooth and warm sound.

* Sampling frequency of audio source. This function only adjusts the output signals from the LINE OUT (AUDIO L/R) 1/2 jacks.

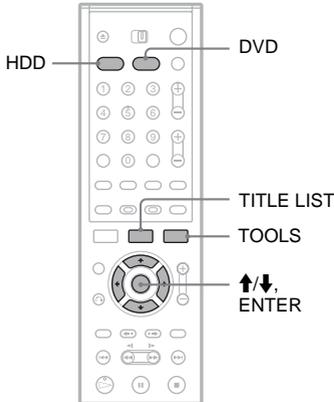
4 Press $\leftarrow/\uparrow/\downarrow/\rightarrow$ to select the option, and press ENTER.

Note

There may be little effect by changing the Audio Filter depending on the disc or playback environment.

Chasing Playback/ Simultaneous Rec and Play

You can view the beginning of a program while it is being recorded. You can also play a title or previously recorded program while recording.



Playing from the beginning of the program you are recording (Chasing Playback)

HDD **-RWvR**

“Chasing Playback” allows you to view the recorded part of a program while the recording is being made. You do not need to wait until the recording finishes.

- 1** Press **TOOLS** while recording.
The **TOOLS** menu appears.
- 2** Select “Chasing Playback,” and press **ENTER**.
Playback starts from the beginning of the program you are recording.
When you fast forward to the point that you are recording, Chasing Playback returns to normal playback.

Notes

- For DVD-RWs (VR mode), this function does not work when recording:
 - on a 1x-speed DVD-RW.
 - in the HQ or HSP recording mode.

- The DVD’s picture on your TV screen freezes for a few seconds when you fast forward/fast reverse or instant replay/advance the recording.

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

HDD **+RW** **-RWvR** **-RWVideo** **+R** **-R**
DVD **VCD** **CD** **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 **DVD**.
- While recording to a **DVD**:
Play a previously recorded program on the **HDD** by pressing **HDD**.
- While recording to a **DVD-RW (VR mode)*1**:
Play another title on the same **DVD-RW (VR mode) disc.*2**

*1 Simultaneous Rec and Play function does not work when you record:
– on a 1x-speed DVD-RW.
– in the HQ or HSP recording mode.

*2 Picture noise may appear depending upon the condition of the recording, or when playing a title recorded in the HQ or HSP recording mode.

You can also play a **DVD VIDEO**, **VIDEO CD**, **Super VCD**, **CD**, 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**.
- 3** Select “Play” from the sub-menu, 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.
- 4 Select “Play” from the sub-menu, and press ENTER.
Playback starts from the selected title.

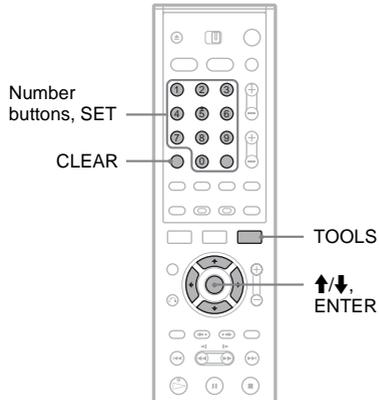
Note

The DVD’s playback picture on your TV screen freezes for a few seconds when you fast forward/fast reverse or instant replay/advance during Simultaneous Rec and Play.

Searching for a Title/ Chapter/Track, etc.

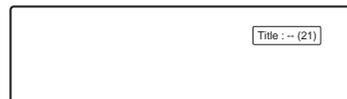


You can search a disc by title, chapter, scene or track. As titles and tracks are assigned individual numbers on the disc, select the title or track by entering its number. You can also search for a scene using the time code.



- 1 Press **TOOLS** during playback.
The **TOOLS** menu appears.
- 2 Select a search method, and press **ENTER**.
 - “Title Search” (for DVDs)
 - “Chapter Search” (for HDD/DVDs)
 - “Track Search” (for CDs/DATA CDs)
 - “Search” (for VIDEO CDs)
 - “Album Search” (for DATA CDs)
 - “Time Search” (for HDD/DVDs): Searches for a starting point by entering the time code.

The display for entering the number appears.
Example: Title Search



The number in parentheses indicates the total number of titles, tracks, etc.

- 3** Press the number buttons to select the number of the title, chapter, track, 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, press CLEAR to cancel the number, then select another number.

- 4** Press SET.

The recorder starts playback from the selected number.

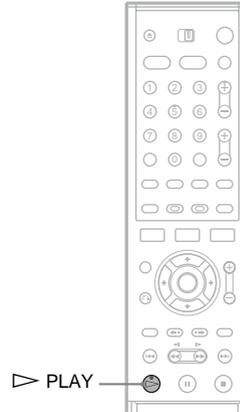
Note

“Title Search” is not applicable to the HDD.

Playing MP3 Audio Tracks

DATA CD

You can play MP3 audio tracks on DATA CDs (CD-ROMs/CD-Rs/CD-RWs).



- 1** Insert a DATA CD on the disc tray.

- 2** Press ▷ PLAY.

Playback starts from the first MP3 audio track on the disc. Note that the playback order may be different from the edited order. See “Playback order of MP3 audio tracks.”

About MP3 audio tracks

MP3 is audio compression technology that satisfies certain ISO/MPEG regulations. You can play back DATA CDs (CD-ROMs/CD-Rs/CD-RWs) recorded in MP3 (MPEG1 Audio Layer 3) format. However, the discs must be recorded according to ISO9660 Level 1, Level 2 or Joliet format for the recorder to recognize the tracks. You can also play discs recorded in Multi Session.

See the instructions supplied with the CD-R/CD-RW drives and the recording software (not supplied) for details on the recording format.

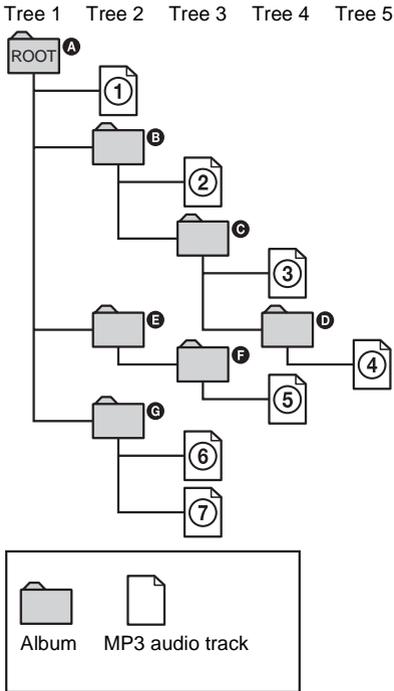
Note on Multi Session discs

If MP3 audio tracks are recorded in the first session, the recorder will also play MP3 audio tracks in other sessions. If audio tracks in Music CD format are recorded in the first session, only the first session will be played back.

Playback order of MP3 audio tracks

Albums containing MP3 audio tracks play in the following order.

A → **B** → **C** → **D** → **F** → **G**. Albums that do not contain tracks (such as album **E**) are skipped.



When you insert a DATA CD and press **▶ PLAY**, the numbered tracks are played sequentially, from ① through ⑦. Any sub-albums/tracks contained within a currently selected album take priority over the next album in the same tree. (Example: **C** contains **D** so ④ is played before ⑤.)

Hints

- You can view the disc information while playing MP3 audio tracks (page 42).
- If you add numbers (01, 02, 03, etc.) to the front of the track names when you store the tracks in a disc, the tracks will be played in that order.
- 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

- Depending on the software you use to create the DATA CD, the playback order may differ from the above illustration.
- Proceeding to the next or another album may take some time.
- The recorder may not be able to play some DATA CDs created in the Packet Write format.
- The recorder will play any data with the extension “.MP3,” even if they are not in MP3 format. Playing this data may generate a loud noise which could damage your speaker system.
- The recorder does not conform to audio tracks in MP3PRO format.
- The playback order above may not be applicable if there are more than a total of 999 albums and tracks in the DATA CD.
- The recorder can recognize up to 499 albums (the recorder will count just albums, including albums that do not contain MP3 audio tracks). The recorder will not play any albums beyond the first 499 albums. Of the first 499 albums, the recorder will play no more than a combined total of 999 albums and tracks.
- The recorder can play MP3 audio tracks recorded in the following sampling frequencies: 32 kHz, 44.1 kHz, 48 kHz.
- ID3 tags cannot be displayed.
- Only alphabet and numbers can be used for album or track names. Anything else is displayed as an asterisk.

Before Editing

This recorder offers various edit options for various disc types. Before you edit, check the disc type in the front panel display, and select the option available for your disc (page 8).

Note

You may lose the edited contents if you remove the disc or a timer recording starts while editing.

Edit options for the HDD and DVD+RWs/DVD-RWs (Video mode)/DVD+Rs/DVD-Rs

HDD +RW -RW_{Video} +R -R

You can perform simple edits. Since Video mode titles are actual recordings on the disc, you cannot undo any edits you make. The edit functions available for Video mode titles are:

- Setting protection against erasure (page 65).
- Labeling a title (page 65).
- Erasing a title (page 65).
- Erasing multiple titles (page 66).
- Erasing a section of a title (A-B Erase) (HDD and DVD+RWs only) (page 66).
- Erasing titles to open up disc space (Disc Map) (DVD-RWs in Video mode and DVD+RWs only) (page 67).

Notes

- Once the DVD is finalized, you cannot edit or record on the disc (except for DVD+RWs and DVD-RWs (VR mode)).
- You cannot create a Playlist (see below).
- If a message appears and indicates that the disc's control information is full, erase unnecessary titles.

Edit options for DVD-RWs (VR mode)

-RWVR

You can enjoy advanced edit functions. First you have two options for a DVD-RW (VR mode): editing either the original recording (called the “original”), or the playback information created from the original (called a “Playlist”). Since each is different in nature and offers different merits, read the following and select the one that better suits your needs.

To edit original titles

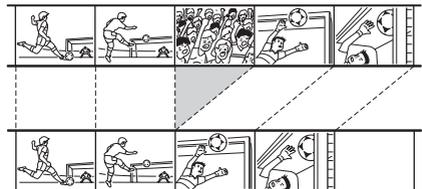
Edits made to the original titles are final. If you plan to retain an unaltered original recording, create and edit a Playlist (see below). The edit functions available for original titles are:

- Labeling a title (page 65).
- Setting protection against erasure (page 65).
- Erasing a title (page 65).
- Erasing multiple titles (page 66).
- Erasing a section of a title (A-B Erase) (page 66).

To create and edit Playlist titles

A Playlist is a group of Playlist titles created from the original title for editing purposes. When you create a Playlist, only the control information necessary for playback, such as the playback order, is stored on the disc. Since the original titles are left unaltered, Playlist titles can be re-edited.

Example: You have recorded the final few matches of a soccer tournament on a DVD-RW (VR mode). You want to create a digest with the goal scenes and other highlights, but you also want to keep the original recording.



In this case, you can compile highlight scenes as a Playlist title. You can even rearrange the scene order within the Playlist title (“Creating and Editing a Playlist” on page 68).

The advanced edit functions available for Playlist titles are:

- Labeling a title (page 65).
- Erasing a title (page 65).
- Erasing multiple titles (page 66).
- Erasing a section of a title (A-B Erase) (page 66).
- Rearranging the title order (page 70).
- Dividing a title into multiple titles (page 70).
- Combining multiple titles into one title (page 71).

Hint

You can display the disc's Playlist titles in the Title List (Playlist), or the original titles in the Title List (Original). To switch the two Title Lists, press TOOLS while a Title List is displayed, and select "Original" or "Playlist."

Notes

- The Playlist title calls up data from the original titles for playback. When an original title is used for a Playlist title, the original title cannot be erased.
- You cannot protect Playlist titles.
- If a message appears and indicates that the disc's control information is full, erase unnecessary titles.

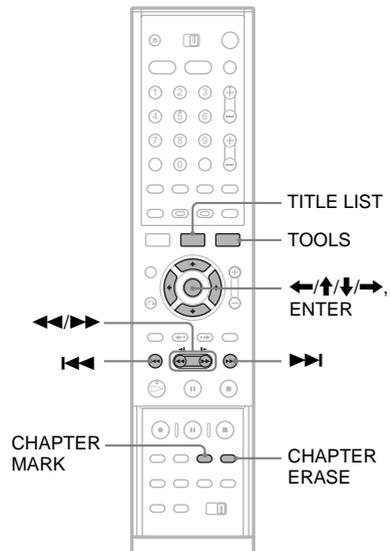
Editing a Title

HDD +RW -RWVR -RWVideo +R -R

This section explains the basic edit functions. Note that editing is irreversible. To edit a DVD-RW (VR mode) without changing the original recordings, create a Playlist title (page 68).

Note

When editing a DVD+R, DVD-R, or DVD-RW (Video mode), finish all editing before finalizing the disc. You cannot edit a finalized disc.



1 Press TITLE LIST.

When editing a DVD-RW in VR mode, press TOOLS and select "Original" or "Playlist" from the TOOLS menu to switch the Title Lists, if necessary.

2 Select a title, and press ENTER.

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 "OK" when asked for confirmation. When the title is protected, the display asks for confirmation. To erase, select "Change," and when the Protection display appears, select "Off."

“Protect Title”: Protects the title. Select “On” when the Protection display appears. “” appears next to the protected title. To cancel the protection, select “Off.”

“Title Name”: Allows you to enter or re-enter a title name (page 43).

“Set Thumbnail”: Changes the title’s thumbnail picture that appears in the Title List (page 38).

“A-B Erase”: Erases a section of the title (see below).

Hints

- You can erase multiple titles at one time (page 66), or erase all of the titles on the disc at once (page 40).
- You can label or re-label DVDs (page 40).

Note

You cannot protect Playlist titles.

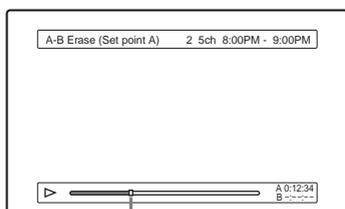
Erasing a section of a title (A-B Erase)

HDD **+RW** **-RWvR**

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 “Editing a Title,” select “A-B Erase” and press ENTER.

The display for setting point A appears.

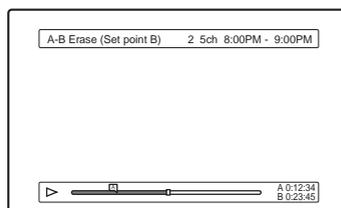


Playback point

- When the title is protected, the display asks for confirmation. To continue, select “Change,” and when the protection display appears, select “Off.”

- 2 Select point A by pressing / , and press ENTER.

The display for setting point B appears.



- 3 Select point B by pressing / , and press ENTER.

The display asks for confirmation. To reset either point A or B, select “Change A” or “Change B,” and go to step 2 or 3.

- 4 Select “OK,” and press ENTER.

The scene is erased, and the display asks whether to erase another scene. To continue, select “Yes,” and repeat from step 2. To finish, select “No.”

Hint

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

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.
- For DVD+RWs, the erased section may be slightly different from the points you selected.

Erasing multiple titles (Erase Titles)

HDD **+RW** **-RWvR** **-RWVideo** **+R** **-R**

You can select and erase two or more titles at one time using the TOOLS menu.

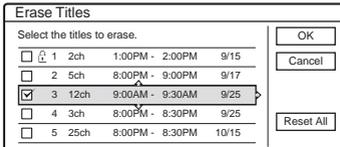
- 1 Press TITLE LIST to turn on the Title List menu, and press TOOLS.

The TOOLS menu appears.

- 2 Select “Erase Titles,” and press ENTER.

The display for selecting titles to be erased appears.

- 3** Select a title, and press ENTER. A check mark appears in the check box next to the selected title. To clear the check mark, press ENTER again. To clear all of check marks, select “Reset All.”



- When the title is protected, the display asks for confirmation. To continue, select “Change,” and when the protection display appears, select “Off.” To cancel, select “Close.”
- 4** Repeat step 3 to select all of the titles you want to erase.
- 5** When you finish selecting titles, select “OK,” and press ENTER. The list of the titles to be erased appears for confirmation. To change the selection, select “Change,” and repeat from step 3.
- 6** Select “OK,” and press ENTER. The titles are erased.

Erasing titles to open up disc space (Disc Map)

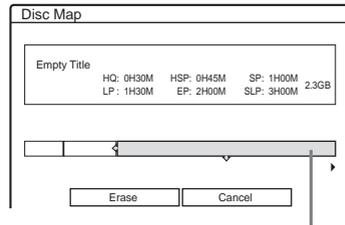
+RW **-RW_{Video}**

When recording on a DVD+RW or DVD-RW (Video mode), the recorder searches for the largest open space and records there. Before you start, check the disc status by using Disc Map, and erase titles to create a space large enough for the recording.

- 1** Insert a disc and press TITLE LIST.

- 2** Press TOOLS and select “Disc Map,” and press ENTER.

The Disc Map appears. To check the open space, select the space by pressing ◀/▶.

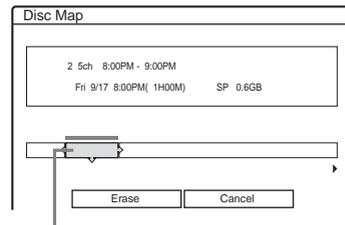


Selected open space

- When ◀ or ▶ appears on either side of the screen, you can scroll sideways by pressing ◀/▶.

- 3** Select a title by pressing ◀/▶, and press ENTER.

The display for selecting titles to be erased appears. To cancel the selection, press ENTER again.



Selected title

- When the title is protected, the display asks for confirmation. To continue, select “Change,” and when the protection display appears, select “Off.” To cancel, select “Close.”
- 4** Repeat step 3 when erasing more titles.
- 5** Select “Erase,” and press ENTER. The display asks for confirmation. To change the selection, select “Change.”
- 6** Select “OK,” and press ENTER. The selected titles are erased, freeing up disc space.

Creating chapters manually

HDD **-RWVR**

You can manually insert a chapter mark at any point you like during playback or recording.

Press CHAPTER MARK at the point where you want to divide the title into chapters.

Each time you press the button, “Marking...” appears on the screen and the scenes to the left and right of the mark become separate chapters.



To erase chapter marks

You can combine two chapters by erasing the chapter mark during playback.

Press **◀◀/▶▶** to search for a chapter number, and while displaying the chapter containing the chapter mark you want to erase, press **CHAPTER ERASE**.

The current chapter combines with the previous chapter.

Notes

- If a message appears and indicates that no more chapter marks can be added, you may not be able to record or edit.
- When dubbing, any chapter marks you enter will be erased.

Creating and Editing a Playlist

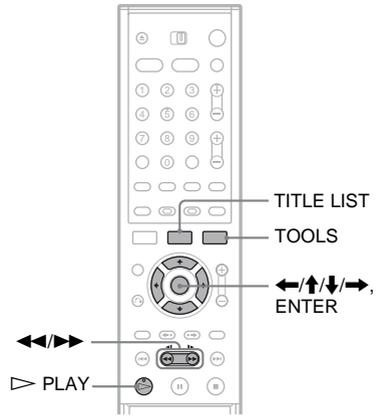
-RWVR

Playlist edit allows you to edit or re-edit without changing the actual recordings. A Playlist title can contain up to 50 scenes.

For details, see “Edit options for DVD-RWs (VR mode)” (page 64).

Note

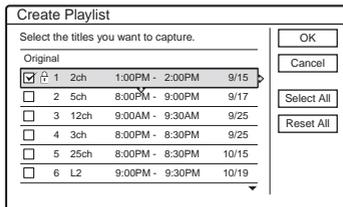
Once you create a Playlist title from original titles, you will be unable to erase or edit the original titles.



- 1 Press TITLE LIST to turn on the Title List menu, and press TOOLS.**
The TOOLS menu appears.
- 2 Select “Create Playlist,” and press ENTER.**
The display for selecting titles appears.

3 Select the title you want to include in the Playlist title, and press ENTER.

A check mark appears in the check box next to the selected title. To clear the check mark, press ENTER again. To select all of the titles, select “Select All.”

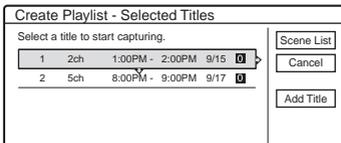


4 Repeat step 3 to add more titles.

To go to the next page of titles, press ↓. To clear all of the check marks, select “Reset All.”

5 Select “OK,” and press ENTER.

The list of selected titles appears. To add another title, select “Add Title.”



6 Select one of the titles, and press ENTER.

The sub-menu appears.

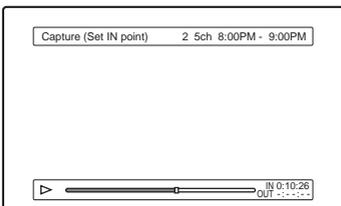
“Capture”: Adds a section of the title to the Playlist title as one scene.

“Capture All”: Adds the entire title to the Playlist title as one scene. After capturing the title, select “Scene List” and go to step 12.

“Check Scenes”: Allows you to check the captured scene.

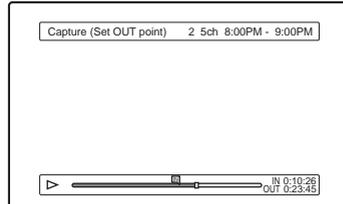
7 Select “Capture,” and press ENTER.

The display for setting the start point (IN) appears. The title starts to play in the background.



8 Select the IN point by pressing ◀◀/▶▶, and press ENTER.

The display for setting the end point (OUT) appears, and the title continues to play in the background.



9 Select the OUT point by pressing ◀◀/▶▶, and press ENTER.

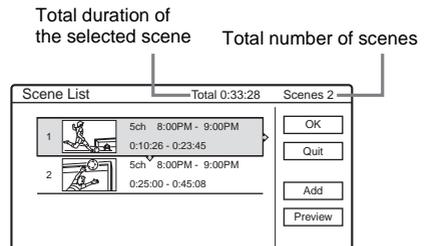
The display asks for confirmation. To reset the IN or OUT point, select “Change IN” or “Change OUT” and repeat step 8 or 9. To view the selected scene, select “Preview.”

10 Select “OK,” and ENTER.

The selected section is captured as a scene, and the display asks whether you want to continue. To continue, select “More,” and repeat the steps above. To capture a scene from another title, select “New Title.”

11 When you finish capturing scenes, select “No more” and press ENTER.

The Scene List menu appears with all of the selected scenes.



12 Select the scene you want to edit, and press ENTER.

The sub-menu appears.

“Move”: Changes the scene order.

“Erase”: Erases the scene. The selection is canceled.

“Preview”: Displays thumbnail pictures of the scenes.

“Change IN”: Allows you to change the IN point, and repeat from step 8.

“Change OUT”: Allows you to change the OUT point, and repeat from step 9.

To add more scenes, select “Add” and go to step 6. To preview all of the captured scenes in the listed order, select “Preview.”

13 When you finish editing the Scene List, select “OK,” and press ENTER.

The display for entering the title name appears. To enter a new name, select “Enter” (see page 43).

14 Select “OK” to use the default name, and press ENTER.

To play the Playlist title

Press TOOLS while the Title List menu is turned on. Then, select “Playlist” and press ENTER. When the Title List (Playlist) menu appears, select a title and press ▷ PLAY.

Hint

When a Playlist title is created, the IN and OUT points will become chapter marks, and each scene will become a chapter.

Note

The picture may pause when the edited scene is played.

Moving a Playlist title (Move Title)

-RWVR

You can change the Playlist title order within the Title List (Playlist).

1 Press TITLE LIST to turn on the Title List (Playlist) menu.

If the Title List (Original) menu appears, press TOOLS and select “Playlist.”

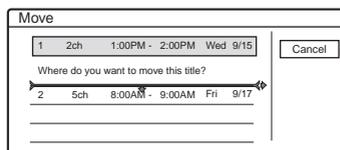
2 Select “Number” in the “Sort” column, and press ENTER.

The titles are sorted in order of title number.

3 Select a title, and press ENTER.

The sub-menu appears.

4 Select “Move Title,” and press ENTER.



5 Select a new location for the title by pressing ↑/↓ and press ENTER.

The title moves to the new location.

Dividing a Playlist title (Divide Title)

-RWVR

1 Press TITLE LIST to turn on the Title List (Playlist) menu.

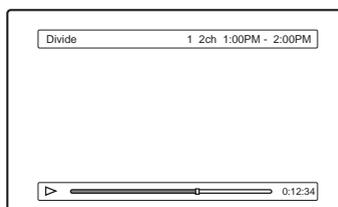
If the Title List (Original) menu appears, press TOOLS and select “Playlist.”

2 Select a title, and press ENTER.

The sub-menu appears.

3 Select “Divide Title,” and press ENTER.

The display for setting the dividing point appears. The title starts to play in the background.



4 Select the dividing point by pressing ◀◀/▶▶, and press ENTER.

The display asks for confirmation. To change the dividing point, select “Change.”

5 Select “OK,” and press ENTER.

The display for entering the title name appears. To use the same title name as before, select “No.”

6 Select “Yes,” and press ENTER to enter a new name.

Follow the explanations on page 43. After you enter a new name, the title is divided in two.

Combining multiple Playlist titles (Combine Titles)

-RWVR

- 1 Press **TITLE LIST** to turn on the **Title List (Playlist)** menu.
If the Title List (Original) menu appears, press **TOOLS** and select "Playlist."
- 2 Press **TOOLS** to select "Combine Titles," and press **ENTER**.
The display for selecting titles appears.
- 3 Select a title, and press **ENTER**.
A number indicating the order in which you selected the title appears. To cancel the selection, press **ENTER** again.

Combine				
Select the titles to combine.				
1	2ch	1:00PM - 2:00PM	9/15	<input type="button" value="OK"/> <input type="button" value="Cancel"/> <input type="button" value="Reset All"/>
2	5ch	8:00PM - 9:00PM	9/17	
3	2ch	1:00PM - 2:00PM	9/28	
4	2ch	1:00PM - 2:00PM	10/ 5	

- 4 Repeat step 3 to select all of the titles you want to combine.
To cancel all of the selections, select "Reset All."
- 5 Select "OK," and press **ENTER**.
The list of titles to be combined appears. To change the selection, select "Change" and go to step 3.

Combine				
Combine the titles in the following order.				
1	1	2ch	1:00PM - 2:00PM	9/15
2	2	2ch	1:00PM - 2:00PM	9/28
3	3	2ch	1:00PM - 2:00PM	10/ 5
<input type="button" value="OK"/> <input type="button" value="Change"/> <input type="button" value="Cancel"/>				

- 6 Select "OK," and press **ENTER**.
The display for selecting a title name from among the selected titles appears. To enter a new name, select "Enter Text," and follow the explanations on page 43.
- 7 Select a name, and press **ENTER**.
The titles are combined.

Dubbing (HDD ↔ DVD)

Before Dubbing

HDD +RW -RW/VR -RW_{Video} +R -R

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 select to dub one title at a time (Title Dubbing – see “Dubbing a Single Title (Title Dub)” on page 74), or multiple titles all at once (Multiple Title Dubbing – see “Dubbing Multiple Titles (Dub Selected Titles)” on page 75).

Before you start, read the following precautions, which are common to both dubbing methods.

Hint

This section deals with dubbing to and from the internal HDD. If you want to record from a digital video camera connected to the DV IN jack, see “DV/Digital8 Dubbing (DV → HDD/DVD)” on page 77. To record from equipment connected to the LINE IN jacks, see “Recording From a VCR or Similar Device” (page 53).

Before you start. . .

- Select the disc type according to your needs (page 8). This recorder can record on various discs.
- Timer recordings do not start during dubbing. Before you start, check the SCHEDULE list (page 49) to see if there is a timer recording due to start during dubbing.
- Chapter marks in the original recording do not remain in the dubbed title. Chapter marks are entered according to the “Auto Chapter” setting in Features Setup (page 91).
- For a title whose aspect ratio (16:9 or 4:3) is mixed:
 - When dubbed from the HDD to DVD-RW (Video mode) or DVD-R, the picture size is determined by the setting in “DVD Rec. Picture Size” (page 51).
 - When dubbed from HDD to DVD+RW or DVD+R, the picture size is always 4:3.
 - When dubbed from HDD to DVD-RW (VR mode), the originally recorded picture size is retained.

Hints

- You can dub a Playlist title on a DVD-RW (VR mode) as an original title on the HDD.
- When dubbed from a DVD to the HDD, the picture size and the sound types originally recorded are retained.

Notes

- The recorder may not function as described depending on the disc status. Follow the instructions that appear on the screen.
- When a message appears and indicates that the control information is full, erase unnecessary titles (page 65).
- You cannot dub from DVD VIDEOS or a DVD recorded on other DVD equipment to the HDD.
- Thumbnails that you have set for the originally recorded title (page 38) will not be retained in the dubbed title.

About “Dub Mode”

With this recorder, the recording mode for dubbing is displayed as “Dub Mode.” Two dubbing methods are available: High-speed Dubbing and Rec Mode Conversion Dubbing. Read the following and select according to the required time, disc space, and picture quality.

Dubbing at high-speed (High-speed Dubbing)

HDD → +RW / -RW/VR / -RW_{Video} / +R / -R

Allows you to dub what you have stored in the HDD to a high-speed DVD (4x-speed DVD+RWs/2x-speed DVD-RWs/8x-speed DVD+Rs/8x-speed DVD-Rs, or slower versions of each disc type), without changing the recording mode. Dubbing speed is increased when the recording mode of the original title is of a longer recording mode (such as SLP).

Select “Fast” when selecting the “Dub Mode” in “Dubbing a Single Title (Title Dub)” (page 74) or “Dubbing Multiple Titles (Dub Selected Titles)” (page 75). The minimum required time is as follows (approximate).

Example: When a 120 minute-title is dubbed to a high-speed DVD-R in LP mode, dubbing becomes 12 times faster, and takes a minimum of 10 minutes. (120 minutes ÷ 12 = 10 minutes).

Note that speeds shown in the table are an approximate of the maximum dubbing speed.

Speed*1	x2.4-speed	x2-speed	x4-speed
Rec mode	High-speed DVD+RW	High-speed DVD-RW	High-speed DVD+R/DVD-R
HQ	x2.4	x2	x4
HSP	x3.6	x3	x6
SP	x4.8	x4	x8
LP	x7.2	x6	x12
EP	x9.6	x8	x16
SLP	x1	x12	x24*2

*1 Maximum recording speed of this recorder.

*2 When dubbing to DVD+Rs, the dubbing speed is x1-speed.

Notes

- High-speed Dubbing is not available for the following titles:
 - Titles recorded in HQ+.
 - Titles that contain both stereo or monaural audio tracks (except DVD-RWs (VR mode)).
 - Titles recorded in mixed picture size (4:3 and 16:9 etc.) (except DVD-RWs (VR mode)).
 - Titles recorded in SLP (DVD+RW/DVD+R only).
- When dubbed to a DVD-RW (Video mode)/DVD+RW/DVD+R/DVD-R, erased pictures may remain on the disc.

Rec Mode Conversion Dubbing

HDD ↔ **+RW** / **-RWVR** / **-RWVideo** / **+R** / **-R**

Allows you to dub from the HDD to a DVD or vice versa, in a dubbing mode that differs from the original recordings. For example, when you dub an HQ title (data size is large) in SP mode, you can reduce the data size, saving more titles using less space.

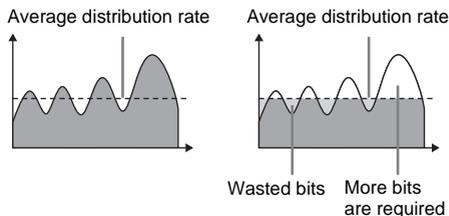
Select a mode different from the original recording in “Dub Mode” in the steps of “Dubbing a Single Title (Title Dub)” (page 74) or “Dubbing Multiple Titles (Dub Selected Titles)” (page 75).

When an HQ or HQ+ title is converted to another mode, the recorder automatically assigns an appropriate bit rate, thus retaining the original picture quality as much as possible (“Dynamic VBR Dubbing”).

◆About “VBR”

VBR (Variable Bit Rate) is an effective method of allocating a suitable bit amount per second. Fine detail pictures or dynamically moving pictures are assigned a larger amount, while static pictures are assigned less, for optimum picture quality.

- Variable bit rate (adopted for this recorder)
- Fixed bit rate



💡 Hint

When you dub an edited title using the Rec Mode Conversion Dubbing method, pauses between scenes are smoothed out.

Note

The picture quality will not improve even if a title is converted to a recording mode of better picture quality.

Dubbing restriction

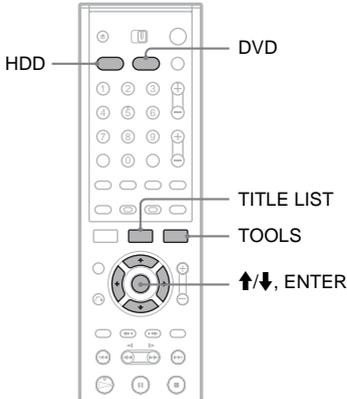
Some DVD VIDEOS or TV programs contain copy protection signals such as “Copy-Never” or “Copy-Once.” You cannot record such contents on this recorder (only a gray, blank screen will be recorded). Be especially careful when dubbing on a non-rewritable DVD such as a DVD-R.

Copy protection signals	Original recording	Dubbing
Copy-Free	HDD	+RW -RWVR -RWVideo +R -R
	+RW -RWVR -RWVideo +R -R	HDD
Copy-Once	HDD -RWVR *	recorded in gray.
Copy-Never		recorded in gray.

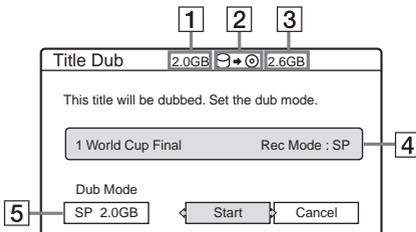
* Version 1.1 CPRM-compatible DVD-RW (VR mode) only (page 8).

Dubbing a Single Title (Title Dub)

HDD +RW -RWVR -RWVideo +R -R



- 1 Insert the DVD that you are going to dub to or from.
- 2 Select the source by pressing HDD or DVD.
- 3 Press TITLE LIST to turn on the Title List menu.
- 4 Select a title and press ENTER. The sub-menu appears.
- 5 Select "Dubbing" and press ENTER. The display for selecting the dubbing mode appears.

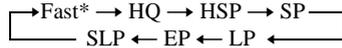


- 1 Size of the title (approximate).
- 2 Direction of dubbing.
- 3 Available space on the disc to be dubbed (approximate).
- 4 Information about the title to be dubbed.

5 Dubbing mode and the space that remains after dubbing (approximate).

6 Select "Dub Mode."

7 Select a dubbing mode by pressing ↑/↓.

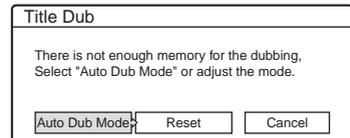


* Appears when High-speed Dubbing is available for the title (page 72).

8 Select "Start," and press ENTER.

To automatically adjust the dubbing mode (Auto Dub Mode)

The recorder adjusts the dubbing mode in order to fit a title on the disc. If there is insufficient disc space in the selected dubbing mode, the following display appears after step 8.



Select "Auto Dub Mode" and press ENTER to start dubbing. To manually select another dubbing mode, select "Reset," and go to step 7.

To stop dubbing

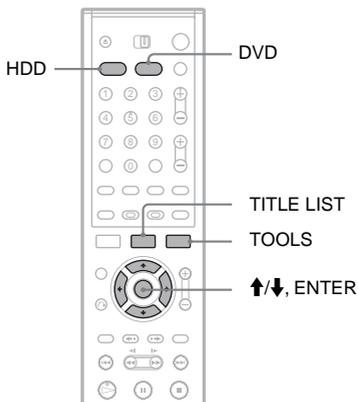
Press TOOLS to turn on the TOOLS menu. Or, while the Title List menu is displayed, press ENTER to display the sub-menu. Select "Stop Dubbing," and press ENTER. When asked for confirmation, select "Yes," and press ENTER.

Hints

- If disc space is still insufficient for the selected dubbing mode, erase unnecessary parts of the title, or free up disc space by erasing titles on the disc (page 65).
- You can turn off the recorder without affecting the dubbing. Press I/⏻ during dubbing.
- You can start Title Dubbing by selecting "DUBBING" from the System Menu.

Dubbing Multiple Titles (Dub Selected Titles)

HDD +RW -RWVR -RWVideo +R -R



- 1 Insert the DVD that you are going to dub to or from.
- 2 Select the source by pressing HDD or DVD.
- 3 Press TITLE LIST to turn on the Title List menu.
- 4 Press TOOLS. The TOOLS menu appears.
- 5 Select "Dub Selected Titles," and press ENTER. The display for selecting titles appears.



- 6 Select titles in the order you want to dub, and press ENTER. The titles are numbered in the selected order. To cancel the selection, press ENTER again.

- 7 Repeat step 6 to select all of the titles you want to dub.

To make adjustments for each of the titles, select "Settings" (see "Adjusting the settings for each title" below). To cancel all of the selections, select "Reset," and go to step 6.

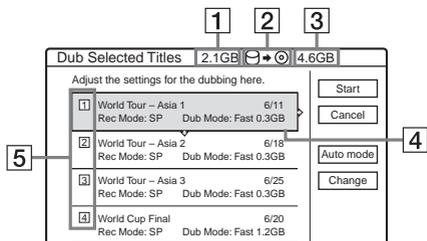
- 8 Select "Start," and press ENTER.

Adjusting the settings for each title

You can make detailed settings for each of the selected titles during Multiple Title Dubbing.

- 1 In step 7 of "Dubbing Multiple Titles (Dub Selected Titles)" (page 75), select "Settings" and press ENTER.

The following display for making the adjustments appears. To re-select titles, select "Change," and go to step 6 of "Dubbing Multiple Titles (Dub Selected Titles)" above. To have the recorder adjust the dubbing mode so all of the selected titles fit in, select "Auto mode."



- 1 Total size of the selected titles.
- 2 Direction of dubbing.
- 3 Available space on the disc to be dubbed (approximate).
- 4 Information about the title to be dubbed (title name, original recording mode, dubbing mode, and data size after dubbing).
- 5 Order of dubbing.

Dubbing (HDD ↔ DVD)

2 Select the title which you want to adjust, and press ENTER.

The sub-menu appears.

“Dub Mode”: Selects the dubbing mode for each title (see page 72).

“Change Order”: Moves the title to change the dubbing order. Press **↑/↓** to select a new location, and press ENTER.

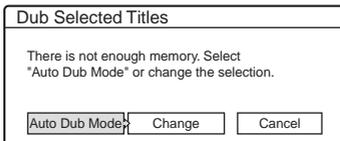
“Cancel”: Cancels the title selection. The title is excluded from dubbing.

3 Select an option, and press ENTER.

4 When you finish making adjustments, select “Start,” and press ENTER.

To automatically adjust the dubbing mode (Auto Dub Mode)

The recorder adjusts the dubbing mode so all of the titles fit in. The same dubbing mode is set for all of the titles. If disc space is insufficient for the selected dubbing mode, the following display appears after step 8 of “Dubbing Multiple Titles (Dub Selected Titles)” (page 75).



Select “Auto Dub Mode” and press ENTER. If you have selected only one title, select “OK.”

To stop dubbing

Press TOOLS to turn on the TOOLS menu. Select “Stop Dubbing” and press ENTER. When asked for confirmation, select “Yes,” and press ENTER.

🔧 Hints

- You can turn off the recorder without affecting the dubbing. Press **I/⏏** during dubbing.
- You can start Multiple Title Dubbing by selecting “DUBBING” from the System Menu.

DV/Digital8 Dubbing (DV → HDD/DVD)

Before DV/Digital8 Dubbing

This section explains dubbing with a digital video camera via the DV IN jack on the front panel. If you want to dub by way of the LINE IN jacks, see “Recording From a VCR or Similar Device” on page 53.

To record from the DV IN jack

The DV IN jack on this recorder conforms to the i.LINK standard. You can connect any other equipment that has an i.LINK (DV) jack, and record digital signals.

Follow the instructions in “Preparing for recording using the DV IN jack,” and then move on to the section on dubbing. For more information about i.LINK, see “About i.LINK” (page 103).

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 (VR mode) or HDD.

Preparing for recording using the DV IN jack

You can connect a digital video camera 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 digital video camera. Do the following to start using the “DV Edit” functions of this recorder.

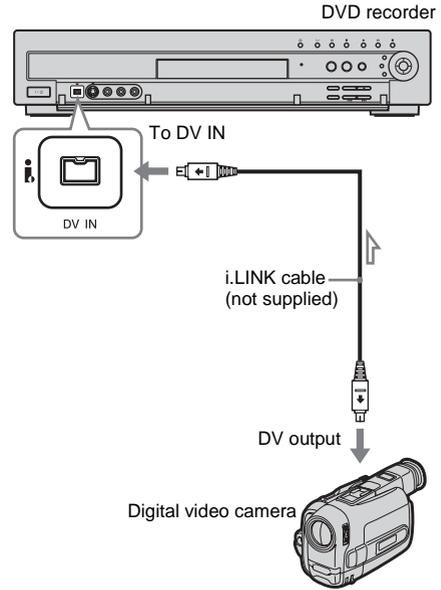
See the instruction manual supplied with the digital video camera as well before connecting.

Notes

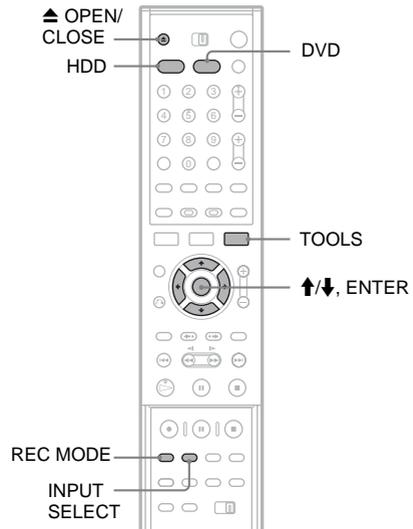
- The DV IN jack is for input only. It will not output signals.
- You cannot use the DV IN jack when:
 - your digital video camera does not work with this recorder. Connect the camera to the LINE IN jack and follow the instructions of “Recording From a VCR or Similar Device” (page 53).
 - the input signal 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 the disc on other DVD equipment, finalize the disc (page 40).

Hookups

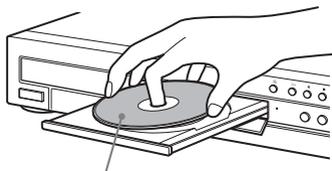


 : Signal flow



1 Press HDD or DVD.

If you select DVD, press **▲ OPEN/CLOSE** and place a DVD on the disc tray. Press **▲** again to close the disc tray.



With the recording side facing down

Wait until “LOAD” disappears from the front panel display.

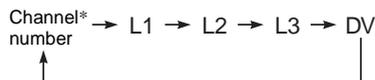
If you use an unused DVD, formatting starts automatically.

2 Insert the source DV/Digital8 format tape into your digital video camera.

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

3 Press INPUT SELECT on the remote repeatedly to select “DV.”

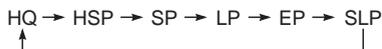
The front panel display changes as follows:



* Does not appear when “Set Top Box Control” is set to “On.”

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

The recording mode changes as follows:



For details about the recording mode, see page 45.

5 Press TOOLS on the remote to select “DV/D8 Audio Input,” and press ENTER. Then, select the setting for the audio input.

“Stereo1” (default): Records original sound only. Normally select this when dubbing a DV format tape.

“Mix”: Records both stereo 1 and 2.

“Stereo2”: Records additional audio only.

Select “Mix” or “Stereo2” only if you have added a second audio channel when recording with your digital video camera.

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

💡 Hints

- You can turn off the recorder during dubbing. The recorder completes dubbing even after being turned off.
- You can adjust the settings for the recording picture before recording. See “Adjusting the recording picture quality and size” (page 51).

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 with a sound track that is recorded in 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 Scene Chaptering function (pages 79, 80), be sure to correctly set the clock on your digital video camera before shooting.
- The recorded picture may be momentarily affected if the picture size of the source image changes, or if there is nothing recorded on the tape.

RDR-HX900
2-187-189-11(2)

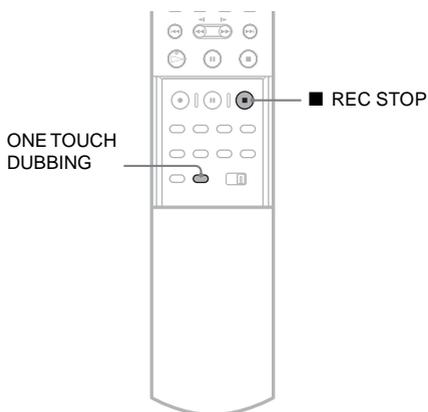
Recording an Entire DV/ Digital8 Format Tape (One Touch Dubbing)

HDD +RW -RWVR -RW_{Video} +R -R

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

◆How chapters are created

The dubbed contents on the disc become one title, and the title is divided into chapters. For the HDD and a DVD-RW (VR mode), every shooting on the tape becomes a chapter on the disc (Auto Scene Chaptering function). For other discs, the recorder divides the title in either 6 or 15-minute intervals, according to the setting in “Auto Chapter” in Features Setup.



Follow steps 1 to 5 of “Preparing for recording using the DV IN jack” (page 77), and press **ONE TOUCH DUBBING** on the remote.

The recorder rewinds the tape and then starts recording the tape contents.

When the recording is finished, the recorder rewinds the tape in the digital video camera.

To stop during recording

Open the remote’s cover and press ■ REC STOP. Note that it may take a few seconds for the recorder to stop recording.

💡 Hints

- If you set “Finalize Disc” to “Auto” in Features Setup (page 93), the recorded disc (except DVD-RW (VR mode)) will automatically be finalized after recording is finished.
- You can play back a previously recorded title on the HDD while One Touch Dubbing is in progress.

Notes

- When a blank space between the recordings on the tape continues for more than five minutes, One Touch Dubbing ends automatically.
- The recorder records a blank for five minutes before it stops dubbing. To stop the blank recording, press ■ REC STOP.

Program Edit

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

You can select scenes from a DV/Digital8 format tape, and then automatically record selected scenes to a disc of your choice.

To use this function, you will do the following:

Connect your digital video camera and prepare for recording



Select and edit the scenes you want to dub

Using the recorder's remote control, fast forward or rewind the tape to select the scenes. At this point, the selected scenes are not copied to the disc. The recorder only remembers the IN and OUT points of the scenes that you selected for dubbing. You can also reset, erase, or change the order of the scenes.

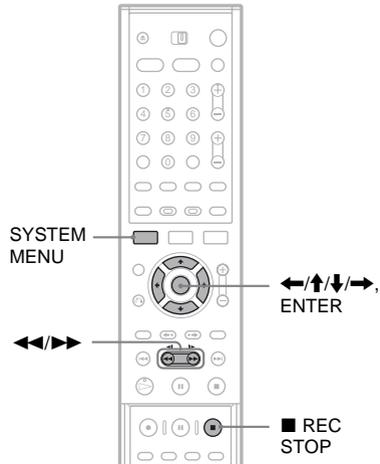


Dub the selected scenes to a disc

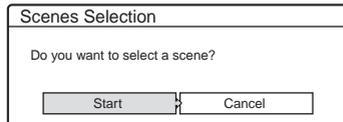
After you have selected the scenes, the recorder will fast forward and rewind the tape automatically and record the scenes to a disc of your choice.

◆How chapters are created

The dubbed contents on the disc become one title, and the title is divided into chapters. For a DVD-RW (VR mode) and the HDD, every shooting on the tape and each selected scene becomes a chapter on the disc (Auto Scene Chaptering function). For other discs, the recorder divides the title in either 6 or 15-minute intervals, according to the setting in "Auto Chapter" in Features Setup.



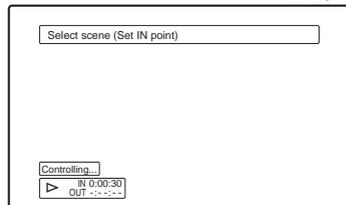
- 1 Follow steps 1 to 5 of "Preparing for recording using the DV IN jack" (page 77), and press SYSTEM MENU.
- 2 Select "DV/D8 EDIT," and press ENTER. The display asks if you want to start selecting scenes.



- If you have previously saved a program, the display asks if you want to edit an existing program or to create a new program. To resume editing the existing program, select "Saved Data," and go to step 6.

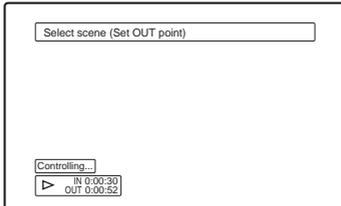
- 3 Select "Start," and press ENTER. The display for setting the IN point (start of the scene) appears. The scene starts to play in the background.

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2-187-189-11(2)



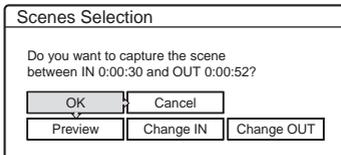
- 4** Select the IN point by pressing ◀◀/▶▶, and press ENTER.

The display for setting the OUT point (end of the scene) appears. The scene starts to play in the background from the IN point.



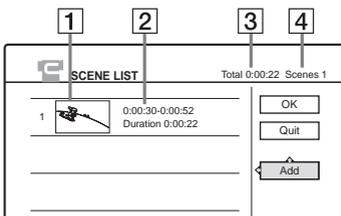
- 5** Select the OUT point by pressing ◀◀/▶▶, and press ENTER.

The display asks if you want to add the selected scene to the Scene List menu. To preview the scene, select "Preview." To reset either the IN or OUT point, select "Change IN" or "Change OUT," and repeat from step 4.



- 6** Select "OK," and press ENTER.

A new Scene List menu appears with the selected scene.



- 1** Thumbnail picture
- 2** Time information
- 3** Total duration of the program
- 4** Total number of scenes

- 7** When you finish adding scenes, select the scene you want to edit, and press ENTER.

The sub-menu appears.

"Move": Changes the scene order. Follow the explanations on the screen to change the order by pressing ↑/↓ and ENTER.

"Erase": Erases the scene. When asked for confirmation, select "OK."

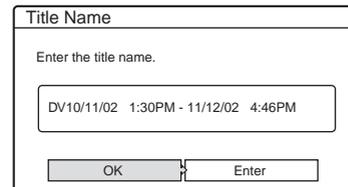
"Preview": Plays the selected scene.

"Change IN": Changes the start of the scene. Repeat from step 4.

"Change OUT": Changes the end of the scene. Repeat from step 5.

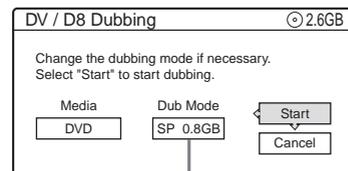
- 8** When you finish editing the Scene List, select "OK," and press ENTER.

The display for entering the title name appears. To enter a new name, select "Enter," and follow the explanations on page 43.



- 9** Select "OK," and press ENTER.

The default title name is fixed, and the display asks if you want to start recording. To change the disc media, select "Media" and press ↑/↓. To change the dubbing mode, select "Dub Mode" and press ↑/↓.



Data capacity required for the dubbing.

10 Select "Start," and press ENTER.

The recorder starts recording the tape contents as programmed.

- If the recording does not fit due to the dubbing mode you selected, the display asks if you want to continue. To change the dubbing mode, select "Reset" and repeat from step 9. To have the recorder adjust the dubbing mode, select "Auto Dub Mode."
 - If there is not enough disc space even after changing the dubbing mode, the display asks if you want to record halfway. To continue, select "OK."
-

To stop during recording

Open the remote's cover and press **■** REC STOP.

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

Notes

- The disc may not be recorded as programmed if the tape's time code is not sequential or there are blanks between the recordings on the tape. In this case, see "Recording From a VCR or Similar Device" (page 53).
- The start and end points of a program may be different from what you have set if the source DV/Digital8 format tape is in any of the following conditions:
 - Recording mode was changed during the recording.
 - There is a blank space in the recorded portion of the tape.
- If you set the beginning of the tape as the IN point and the end point as the OUT point, the IN and OUT points may change slightly during dubbing.
- You cannot set a scene to be shorter than one second.

RDR-HX900
2-187-189-11(2)

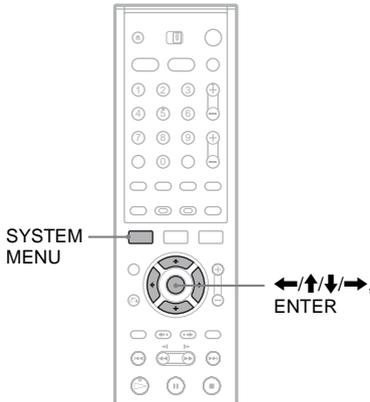
Settings and Adjustments

Using the Setup Displays

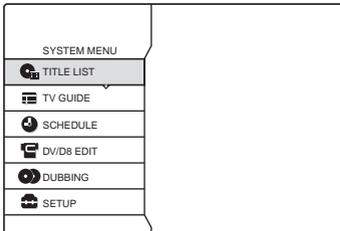
By using the Setup Displays, you can make various adjustments to items such as picture and sound, as well as select a language for the subtitles. The Setup Displays are used in the following way.

Note

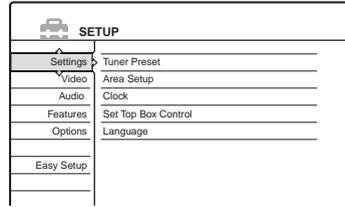
Playback settings stored in the disc take priority over the Setup Display settings, and not all of the functions described may work.



- 1 Press SYSTEM MENU while the recorder is in stop mode. The System Menu appears.

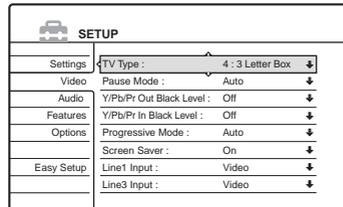


- 2 Select "SETUP," and press ENTER. The Setup Display appears.



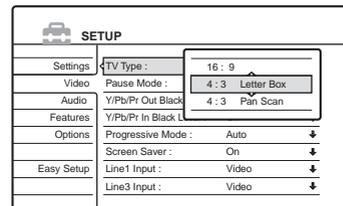
- 3 Select "Settings," "Video," "Audio," "Features," "Options," or "Easy Setup," and press ENTER.

The selected Setup Display appears. Example: "Video" setup



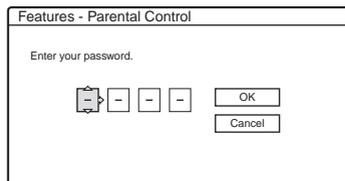
- 4 Select the item you want to set up, and press ENTER.

Available options for the item appear. Example: "TV Type"



Some items display a dialog box that provides further detailed settings.

Example: The following dialog box appears when “Parental Control” in Features Setup is selected.

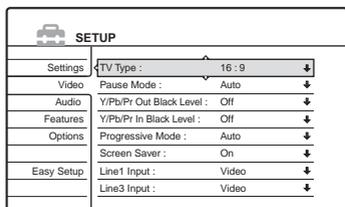


In this case, see “Parental Control” in “Recording and Parental Control Settings (Features)” (page 92).

5 Select an option, and press ENTER.

The currently selected option is displayed next to the setup item.

Example: when “16:9” is set.



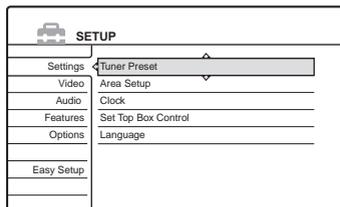
To turn off the display

Press SYSTEM MENU repeatedly.

Antenna Reception and Language Settings (Settings)

The Settings Setup helps you to make tuner, clock, and language settings for the recorder.

Select “Settings” in the Setup Display. To use the display, see “Using the Setup Displays” (page 83).



Tuner Preset

Notes

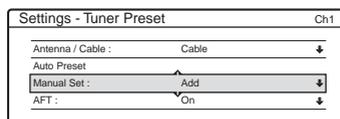
- You cannot presets channels for the connected cable box or satellite receiver.
- You cannot select “Tuner Preset” when you set “Set Top Box Control” to “On.”

Auto Preset

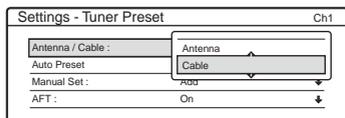
Automatically presets the receivable channels.

The recorder can receive VHF channels 2 to 13, UHF channels 14 to 69, and unscrambled CATV channels 1 to 125. First, we recommend that you preset the receivable channels in your area using automatic presetting methods.

- 1 Follow steps 1 to 3 of “Using the Setup Displays” (page 83) to select “Settings” in the Setup Display.
- 2 Select “Tuner Preset,” and press ENTER.

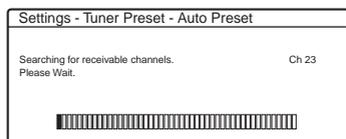


- 3 Select “Antenna/Cable,” and press ENTER.



“Cable”: Presets cable TV channels.
 “Antenna”: Presets VHF and UHF channels.

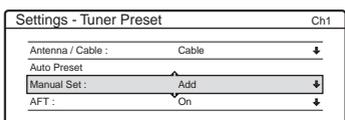
- 4 Select an option, and press ENTER.
 5 Select “Auto Preset,” and press ENTER.
 All receivable channels are preset in numerical sequence.



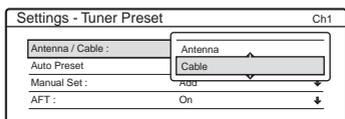
Manual Set

Presets or disables channels manually.
 If some channels could not be set using the Auto Preset or Easy Setup function, you can set them manually.

- 1 Follow steps 1 to 3 of “Using the Setup Displays” (page 83) to select “Settings” in the Setup Display.
 2 Select “Tuner Preset,” and press ENTER.



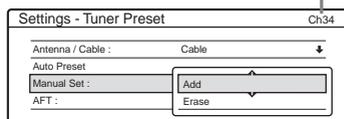
- 3 Select “Antenna/Cable,” and press ENTER.



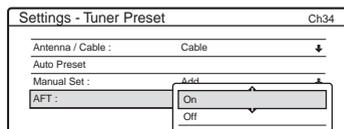
“Cable”: Presets cable TV channels.
 “Antenna”: Presets VHF and UHF channels.

- 4 Select the channel you want to preset using the number buttons and the SET button.
 To disable a channel, select the channel using CH +/-.

Channel to be preset/disabled



- 5 Select “Manual Set,” and press ENTER.
 “Add”: Presets the channel.
 “Erase”: Disables the channel.
 6 Select “Add” to preset the channel, and press ENTER.
 7 Select “AFT” and press ENTER.



“On”: Turns on the Auto Fine Tuning function. Normally, select this.
 “Off”: Allows you to adjust the picture manually.

- 8 Select “On” to turn on AFT, and press ENTER.
 To preset or disable another channel, repeat from step 3.
 • If the Auto Fine Tuning function does not work effectively, select “Off” in step 7 and press ENTER. When the fine tuning bar appears, press ←/→ to obtain a clearer picture, and press ENTER.

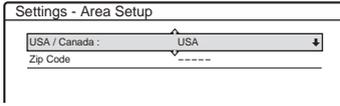


- 9 To preset or disable another channel, repeat steps 4 to 8.

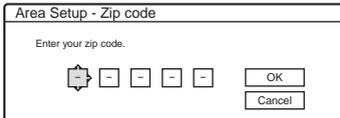
Area Setup

Sets up your area and zip code number. You need to set this correctly to use the TV Guide On Screen system.

- 1 Follow steps 1 to 3 of “Using the Setup Displays” (page 83) to select “Settings” in the Setup Display.
- 2 Select “Area Setup,” and press ENTER.



- 3 Select “USA/Canada,” and press ENTER.
- 4 Select your country, and press ENTER.
- 5 Select “Zip Code,” and press ENTER.



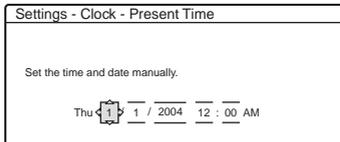
- 6 Enter your zip code number using the ←/↑/↓/→ buttons, and press ENTER.
- 7 Select “OK,” and press ENTER.

Clock

Manual Clock Set

Sets the clock manually.

- 1 Follow steps 1 to 3 of “Using the Setup Displays” (page 83) to select “Settings” in the Setup Display.
- 2 Select “Clock,” and press ENTER.



- 3 Press ↑/↓ to set the month, and press →. Set the day, year, hour, and minutes in sequence. Press ←/→ to select the item to be set, then press ↑/↓ to set the numbers. The day of the week is set automatically.
- 4 Press ENTER to start the clock.

Hint

To change the numbers in step 3, press ← to return to the item to be changed, and select the numbers by pressing ↑/↓.

Note

If the clock data is received automatically, “Clock” cannot be selected from “Settings” in the Setup Display.

Set Top Box Control

You can control your cable box/satellite receiver using the supplied set top box controller. See “Step 7: Easy Setup” for details.

Set Top Box Control

On	Turns on the cable box/satellite receiver control function. See “Using the cable box/satellite receiver control function” (page 12).
Off	Turns off the cable box/satellite receiver control function. Select this if you do not want to use the supplied set top box controller.

When “Set Top Box Control” is set to “On,” you can make the following settings. Note that when you change “Set Top Box Control” to “On” or “Off,” all of the timer recording settings will be canceled.

◆Brand Code

See “Cable Box/Satellite Receiver Brand Code” (page 112) for the brand code for your cable box or satellite receiver, and enter the code using the number buttons and ENTER.

◆Connection

Selects the connection you used for your cable box or satellite receiver. When the cable box or satellite receiver is connected to the recorder’s LINE IN jacks, select the connection from “Line1,” “Line2,” or “Line3.” When the cable box or satellite receiver is connected to the recorder’s VHF/UHF IN jack, select the output channel, “Ch2,” “Ch3,” or “Ch4.”

◆Ch. digit lock

Allows you to select whether to fix the digits for your cable box or satellite receiver.

Off	Select this when your cable box or satellite receiver only accepts a three or more digit channel number. Normally select this.
-----	--

Lock to two digits	Select this only when your cable box or satellite receiver only accepts a two digit channel number.
--------------------	---

◆**Mode for SET button**

Select “Mode 1” or “Mode 2” if your cable box or satellite receiver requires pressing an ENTER button or a SET button etc., after entering the channel number. If “Mode 1” does not work, try “Mode 2.” If your cable box or satellite receiver does not respond to either setting, contact the manufacturer of the cable box or satellite receiver.

<u>Off</u>	No code is sent when SET is pressed. Normally select this.
Mode 1	Sends the channel number you entered.
Mode 2	Sends the channel number you entered.

Language

OSD (On-Screen Display)

Switches the display language on the screen.

DVD Menu (DVD VIDEO only)

Switches the language for the DVD menu.

Audio (DVD VIDEO only)

Switches the language of the sound track.

When you select “Original,” the language given priority in the disc is selected.

Subtitle (DVD VIDEO only)

Switches the language of the subtitles recorded on the disc.

When you select “Audio Follow,” the subtitle language changes according to the language you selected for the sound track.

🔔 **Hint**

If you select “Others” in “DVD Menu,” “Subtitle,” or “Audio,” select and enter a language code from “Language Code List” (page 111) using the number buttons.

Note

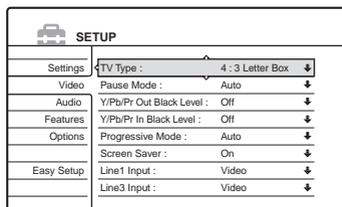
If you select a language in “DVD Menu,” “Subtitle,” or “Audio” that is not recorded on the DVD VIDEO, one of the recorded languages will be automatically selected.

Video Settings (Video)

Video settings will adjust items related to the image, such as size and color.

Choose the settings according to the type of TV, tuner, or decoder connected to the DVD recorder.

- 1 Press **SYSTEM MENU** while the recorder is in stop mode.
- 2 Select **“SETUP,”** and press **ENTER**.
- 3 Select **“Video,”** and press **ENTER**.
The Video Setup appears with the following options. The default settings are underlined.



TV Type

Selects the aspect ratio of the connected TV (4:3 standard or wide).

16:9	Select this when connecting to a wide-screen TV or TV with a wide mode function.
<u>4:3 Letter Box</u>	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



4:3 Letter Box



4:3 Pan Scan



Note

Depending on the disc, “4:3 Letter Box” may be selected automatically instead of “4:3 Pan Scan” or vice versa.

Pause Mode (DVDs only)

Selects the picture quality in pause mode.

<u>Auto</u>	The picture, including subjects that move dynamically, is output with no jitter. Normally select this position.
Frame	The picture, including subjects that do not move dynamically, is output in high resolution.

Y/Pb/Pr Out Black Level

Selects the black level (setup level) for the video signals output from the COMPONENT VIDEO OUT jacks (page 17).

This setting is not effective when the PROGRESSIVE indicator lights up on the front panel and the recorder outputs progressive signals.

On	Raises the standard black level. Select this when the picture appears too dark.
<u>Off</u>	Sets the black level of the output signal to the standard level. Normally, select this.

Y/Pb/Pr In Black Level

Selects the black level (setup level) for the NTSC video signals input from the COMPONENT VIDEO IN jacks (page 13). This setting is available when “Line1 Input” is set to “Component” (page 89).

On	Raises the standard black level. Select this when the picture appears too bright.
<u>Off</u>	Sets the black level of the input signals to the standard level. Normally, select this.

Progressive Mode

DVD software can be divided into two types: film based software and video based software. Video based software is derived from TV, such as dramas and sit-coms, and displays images at 30 frames/60 fields per second. Film based software is derived from film and displays images at 24 frames per second. Some DVD software contains both Video and Film.

In order for these images to appear natural on your screen when output in PROGRESSIVE mode, the progressive video signal needs to be converted to match the type of DVD software that you are watching.

You can fine-tune the progressive 480p video signals that are output when you press PROGRESSIVE (“PROGRESSIVE” lights up).

Note that you must connect to a progressive format TV using the COMPONENT VIDEO OUT jacks (page 17).

<u>Auto</u>	Automatically detects the software type (Film-based or Video-based) and selects the appropriate conversion mode. Normally select this position.
Video	Fixes the conversion mode to the mode for Video-based software.

Screen Saver

The screen saver image appears when you do not use the recorder for more than 10 minutes while an on-screen display, such as the System Menu, is displayed on your TV screen. The screen saver image helps prevent your display device from becoming damaged (ghosting).

<u>On</u>	Turns on the screen saver function.
Off	Turns off the function.

Line1 Input

Selects a method of inputting video signals for the LINE IN 1 jack on the rear panel of the recorder.

<u>Video</u>	Inputs video signals.
S Video	Inputs S video signals.
Component	Inputs component-video signals.

Line3 Input

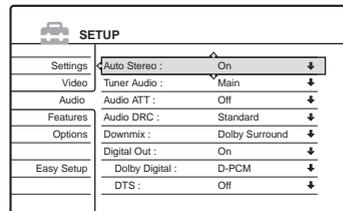
Selects the method of inputting video signals for the LINE IN 3 jack on the rear panel of the recorder. The pictures will not be clear if this setting does not match the type of video input signal.

<u>Video</u>	Inputs video signals.
S Video	Inputs S-video signals.

Audio Settings (Audio)

The Audio Setup allows you to adjust the sound according to the playback and connection conditions.

- 1 Press **SYSTEM MENU** while the recorder is in stop mode.
- 2 Select **"SETUP,"** and press **ENTER**.
- 3 Select **"Audio,"** and press **ENTER**.
The Audio Setup appears with the following options. The default settings are underlined.



Auto Stereo

This function is effective only when "Tuner Audio" is set to "Main."

<u>On</u>	Receives stereo programs. Normally select this.
Off	Select this to reduce noise. The sound changes to monaural.

Tuner Audio

Selects the sound to be recorded.

<u>Main</u>	Records only the main sound.
SAP	Records only the SAP (Second Audio Program) sound.

Note

If no SAP sound is received, the main sound is recorded regardless of the setting.

Audio ATT (attenuation)

If the playback sound is distorted, set this item to “On.” The recorder reduces the audio output level. This function affects the output of the following jacks:

- LINE OUT (AUDIO L/R) 1/2 jacks

<u>On</u>	Select this when the playback sound from the speakers is distorted.
<u>Off</u>	Normally select this position.

Audio DRC (Dynamic Range Control) (DVDs only)

Makes the sound clear when the volume is turned down when playing a DVD that conforms to “Audio DRC.” This affects the output from the following jacks:

- LINE OUT (AUDIO L/R) 1/2 jacks
- DIGITAL OUT (OPTICAL or COAXIAL) jack only when “Dolby Digital” is set to “D-PCM.”

<u>Standard</u>	Normally select this position.
TV Mode	Makes low sounds clear even if you turn the volume down.
Wide Range	Gives you the feeling of being at a live performance.

Downmix (DVDs only)

Switches the method for mixing down to two channels when you play a DVD which has rear sound elements (channels) or is recorded in Dolby Digital format. For details on the rear signal components, see “Checking the Play Information and Playing Time” (page 41). This function affects the output of the following jacks:

- LINE OUT (AUDIO L/R) 1/2 jacks
- DIGITAL OUT (OPTICAL or COAXIAL) jack when “Dolby Digital” is set to “D-PCM.”

<u>Dolby Surround</u>	Normally select this position. Multi-channel audio signals are output to two channels for enjoying surround sounds.
Normal	Multi-channel audio signals are downmixed to two channels for use with your stereo.

Digital Out

Selects if audio signals are output via the DIGITAL OUT (OPTICAL or COAXIAL) jacks.

<u>On</u>	Normally select this position. When you select “On,” see “To set the digital output signal” for further settings.
Off	The influence of the digital circuit upon the analog circuit is minimal.

◆To set the digital output signal

The following setup items switch the method of outputting audio signals when you connect a component such as an amplifier (receiver) with a digital input jack.

For connection details, see “Connecting the Audio Cords” (page 19).

Select “Dolby Digital” and “DTS” after setting “Digital Out” to “On.”

SETUP	
Settings	Auto Stereo : On ↓
Video	Tuner Audio : Main ↓
Audio	Audio ATT : Off ↓
Features	Audio DRC : Standard ↓
Options	Downmix : Dolby Surround ↓
	Digital Out : On ↓
Easy Setup	Dolby Digital : D-PCM ↓
	DTS : Off ↓

If you connect a component that does not accept the selected audio signal, a loud noise (or no sound) will come out from the speakers, and may affect your ears or cause speaker damage.

- **Dolby Digital (HDD/DVDs only)**
Selects the type of Dolby Digital signal.

<u>D-PCM</u>	Select this when the recorder is connected to an audio component lacking a built-in Dolby Digital decoder. You can select whether the signals conform to Dolby Surround (Pro Logic) or not by making adjustments to the "Downmix" item in Audio Setup (page 90).
Dolby Digital	Select this when the recorder is connected to an audio component with a built-in Dolby Digital decoder.

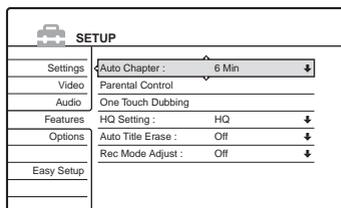
- **DTS (DVD VIDEO only)**
Selects whether or not to output DTS signals.

On	Select this when the recorder is connected to an audio component with a built-in DTS decoder.
<u>Off</u>	Select this when the recorder is connected to an audio component without a built-in DTS decoder.

Recording and Parental Control Settings (Features)

The Features Setup allows you to adjust recording and parental control settings.

- 1 Press **SYSTEM MENU** while the recorder is in stop mode.
- 2 Select "**SETUP**," and press **ENTER**.
- 3 Select "**Features**," and press **ENTER**.
The Features Setup appears with the following options. The default settings are underlined.



Auto Chapter

Automatically divides a recording (a title) into chapters by inserting chapter markings at a specified interval. The markings are inserted while the recording is being made.

Off	No chapter mark is inserted.
<u>6Min</u>	Inserts chapter marks at approximately 6-minute intervals.
15Min	Inserts chapter marks at approximately 15-minute intervals.

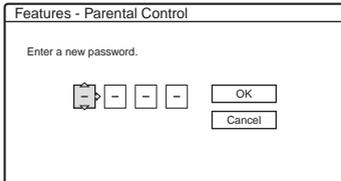
Notes

- Depending upon the size of the recording being made, the actual interval may vary from the interval selected in "Auto Chapter." The selected interval should only be used as an approximation to create chapters.
- This function is not available when dubbing DV/ Digital8 format tapes to HDD and DVD-RWs (VR mode). Chapter marks are automatically entered where the recordings start on the tape (pages 79, 80).

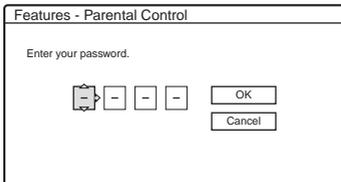
Parental Control (DVD VIDEO only)

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.

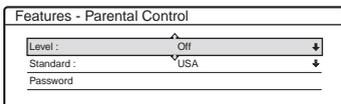
- 1 After step 3 above, select “Parental Control,” and press ENTER.
 - If you have not entered a password, the display for registering a new password appears.



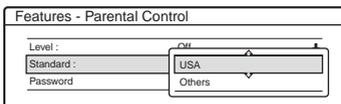
- When you have already registered a password, the display for entering the password appears.



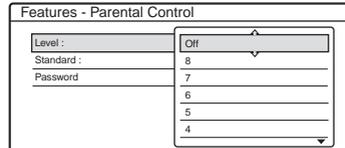
- 2 Enter your four-digit password using the number buttons, then select “OK” and press ENTER.



- 3 Select “Standard,” and press **➡** or ENTER. The selection items for “Standard” are displayed.



- 4 Select a geographic area as the playback limitation level, and press ENTER. The area is selected.
 - When you select “Others,” press the number buttons to select and enter an area code in the table (see below). Then select “OK” and press ENTER.
- 5 Select “Level,” and press ENTER. The selection items for “Level” are displayed.



The lower the value, the stricter the limitation. Discs rated higher than the selected level will be restricted.

- 6 Select the level, and press ENTER. The Parental Control setting is complete.

To cancel the Parental Control setting for the disc, set “Level” to “Off” in step 6.

To change the password, select “Password” in step 3, and press ENTER. When the display for registering a password appears, enter a new four-digit password using the number buttons, then select “OK” and press ENTER.

Notes

- If you forget your password, you will have to reset it by selecting “Parental Control” under “Factory Setup” in Options Setup (page 94).
- 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.

◆Area code

Standard	Code number
Argentina	2044
Australia	2047
Austria	2046
Belgium	2057
Brazil	2070
Canada	2079
Chile	2090
China	2092
Denmark	2115
Finland	2165
France	2174
Germany	2109
India	2248
Indonesia	2238
Italy	2254
Japan	2276
Korea	2304
Malaysia	2363
Mexico	2362
Netherlands	2376
New Zealand	2390
Norway	2379
Pakistan	2427
Philippines	2424
Portugal	2436
Russia	2489
Singapore	2501
Spain	2149
Sweden	2499
Switzerland	2086
Thailand	2528
United Kingdom	2184

One Touch Dubbing

Displays the following options for the One Touch Dub function.

◆Finalize Disc (for all recordable discs except DVD-RW in VR mode)

Selects whether or not to finalize the disc automatically following One Touch Dubbing (page 79).

Auto	Automatically finalizes the disc following One Touch Dubbing.
<u>Manual</u>	Allows you to finalize the disc manually.

HQ Setting (HDD only)

Selects the HQ mode used for recording on the HDD (page 45).

HQ+	Records in higher quality (approximate 15 Mbps).
<u>HQ</u>	Records in the standard HQ mode.

Auto Title Erase (HDD only)

On	Automatically erases old titles recorded on the HDD (page 47).
<u>Off</u>	Turns off the function.

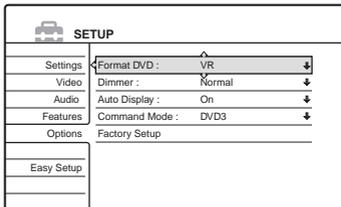
Rec Mode Adjust

On	Automatically adjusts the recording mode to enable the entire program to be recorded (page 47).
<u>Off</u>	Turns off the function.

Disc and Remote Control Settings/Factory Settings (Options)

The Options Setup allows you to set up other operational settings.

- 1 Press SYSTEM MENU while the recorder is in stop mode.
- 2 Select "SETUP," and press ENTER.
- 3 Select "Options," and press ENTER.
The Options Setup appears with the following options. The default settings are underlined.



Format DVD (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.

<u>VR</u>	Automatically formats the disc in VR mode.
Video	Automatically formats the disc in Video mode.

Dimmer

Adjusts the lighting of the front panel display.

<u>Normal</u>	Bright lighting.
Power Save	Low lighting. Turns off the lighting when the power is off.

Auto 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.

Command Mode

Changes the Command Mode of the recorder if other DVD equipment is assigned the same Command Mode. Be sure to match the Command Mode switch on the remote to the setting made here. For details, see "If you have a Sony DVD player or more than one Sony DVD recorder" on page 23.

DVD1	Select this if the default Command Mode conflicts with other DVD equipment.
DVD2	Select this if the default Command Mode conflicts with other DVD equipment.
<u>DVD3</u>	The default Command Mode of the recorder.

Factory Setup

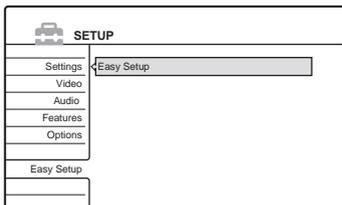
Allows you to select the setup settings by group, and return them to their default settings. Note that all of your previous settings will be lost.

- 1 After step 3 above, select "Factory Setup," and press **➡** or ENTER.
The display for selecting a group of settings appears.
- 2 Select the group of settings you want to return to default from "Settings," "Video," "Audio," "Features," "Options," "Parental Control," and "All," and press **➡** or ENTER.
- 3 Select "Start," and press ENTER.
The selected settings return to their default settings.
- 4 Press ENTER when "Finish" appears.

Easy Setup (Resetting the Recorder)

Select this to run the Easy Setup program.

- 1 Press SYSTEM MENU while the recorder is in stop mode.
- 2 Select "SETUP," and press ENTER.
- 3 Select "Easy Setup," and press ENTER.



- 4 Press ENTER.
- 5 Select "Start," and press ENTER.
- 6 Follow the instructions for Easy Setup (page 24) from step 5.

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.

Picture

There is no picture.

- ➔ Re-connect all connecting cords securely.
- ➔ The connecting cords are damaged.
- ➔ Check the connection to your TV (page 12).
- ➔ Switch the input selector on your TV (such as to "VCR") so that the signal from the recorder appears on the TV screen.

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 (the PROGRESSIVE indicator lights up) even though your TV cannot accept the progressive signal. In this case, press PROGRESSIVE until the progressive indicator turns off.
- ➔ 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, press PROGRESSIVE so that the PROGRESSIVE indicator turns off and the recorder is set to normal (interlace) format.
- ➔ Noise may sometimes appear in pictures recorded on the HDD, which is due to the characteristics of HDD, and is not a malfunction.

TV program reception does not fill the screen.

- ➔ Set the channel manually in "Tuner Preset" in Settings Setup (page 84).
- ➔ Select the correct source using the INPUT SELECT 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 (see the TV's instruction manual).
- ➔ Place the recorder and TV farther apart.
- ➔ Place the TV and any bunched antenna cables farther apart.
- ➔ The RF cable is connected to the VHF/UHF OUT jack on the recorder. Connect the cable to the VHF/UHF IN jack.

The channel on the cable box/satellite receiver has been changed.

- ➔ The set top box controller is connected and "Set Top Box Control" is set to "On." Check the "Set Top Box Control" settings in Settings Setup (page 86).

TV channels cannot be changed.

- ➔ The channel is disabled (page 85).
- ➔ 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 jack, select "L1" in the front panel display by pressing CH +/- or INPUT SELECT.
If the equipment is connected to the LINE 2 IN jacks, select "L2" in the front panel display by pressing CH +/- or INPUT SELECT.
If the equipment is connected to the LINE IN 3 jack, select "L3" in the front panel display by pressing CH +/- or INPUT SELECT.
If the equipment is connected to the DV IN jack, (this is usually for a digital video camera connection), select "DV" in the front panel display by pressing CH +/- or INPUT SELECT.
- ➔ When the equipment is connected to the COMPONENT VIDEO IN jacks using a component video cord, set "Line1 Input" in Video Setup to "Component" (page 89).

- ➔ When an S video cable is connected to the recorder's LINE IN 1 or LINE IN 3 jack, set "Line1 Input" or "Line3 Input" in Video Setup to "S Video" (page 89).

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 Video Setup in accordance with the aspect ratio of your TV (page 87).

The picture does not fill the screen, even though the aspect ratio is set in "TV Type" in Video Setup.

- ➔ The aspect ratio of the title is fixed.

TV Guide On Screen

TV Guide On Screen does not appear.

- ➔ ①Even if you complete Easy Setup, TV program listings do not appear until the recorder receives the TV Guide On Screen data. ②Turn off the recorder, but do not unplug it. ③Wait for 24 hours. It may take several days for the recorder to receive the TV Guide On Screen data for all channels.
- ➔ The area and/or zip code is incorrect. Correctly set your area of residence and zip code in "Area Setup" of the Settings Setup (page 85).
- ➔ When the recorder is connected to a cable box, the cable box must be turned on and "Set Top Box Control" in Settings Setup must be set to "On" (page 86) to download the TV Guide On Screen data.
- ➔ The cable box/satellite receiver brand code is incorrect (page 112).
- ➔ The TV Guide On Screen data may not be available in some areas.
- ➔ TV Guide On Screen does not appear if you connect your TV using the video or S-video jacks and press the PROGRESSIVE button on the remote, even if your TV accepts progressive signals.

- ➔ The "Time Lock" function on your cable box is activated. Set this function to off.

The channel number in the program listing does not match the broadcast station.

- ➔ There may be more than one channel lineup for your area. To change the channel lineup, select "Change channel lineup" from "SETUP" in the Main Menu Bar of TV Guide On Screen (page 36).

Program listings for some channels is missing.

- ➔ It may take several days for the recorded to receive all of the TV Guide On Screen data.
- ➔ Channels, such as satellite channels, are not displayed by the TV Guide On Screen system.
- ➔ All of the TV Guide On Screen data could not be received because the reception is poor.

The program listing is not up to date.

- ➔ The recorder was in use during the time that the TV Guide On Screen data was scheduled to be downloaded.
- ➔ All of the TV Guide On Screen data could not be received because the reception is poor.

Sound

There is no sound.

- ➔ Re-connect all connections securely.
- ➔ The connecting cord is damaged.
- ➔ The input source setting on the amplifier or the connection to the amplifier 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 (OPTICAL or COAXIAL) jacks, check the Audio Setup settings (page 89).

Sound distortion occurs.

- ➔ Set "Audio ATT" in Audio Setup to "On" (page 90).

Sound is noisy.

- ➔ When playing a CD with DTS sound tracks, noise will come from the LINE OUT (AUDIO L/R) 1/2 jacks (page 58).

The sound volume is low.

- ➔ The sound volume is low on some DVDs.

The sound volume may improve if you set “Audio DRC” in Audio Setup to “TV Mode” (page 90).

- ➔ Set “Audio ATT” in Audio Setup to “Off” (page 90).

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.
- ➔ You have set “Tuner Audio” in Audio Settings to “Main” (page 89). Select “SAP” to record alternate audio programs.
- ➔ When recording from connected equipment, set “Line Audio Input” in TOOLS menu to “Main/Sub” (page 53).
- ➔ If you have connected an AV amplifier to the DIGITAL OUT (OPTICAL or COAXIAL) jack and want to change the audio track for a DVD-RW (VR mode) during playback, set “Dolby Digital” in Audio Setup to “D-PCM” (page 90).

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. Remove the disc and leave the recorder turned on for about half an hour until the moisture evaporates.
- ➔ If the disc was recorded on another recorder, the recorder cannot play the disc if it was not finalized (page 40).

The disc does not start playback from the beginning.

- ➔ Resume play was activated (page 54).
- ➔ 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 the disc 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. See 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 56).
- ➔ 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 MP3 audio track does not play.

- ➔ The MP3 audio track is not recorded in a format that the recorder can play (page 62).

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 “INFOWRITE” disappears from the front panel display.

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 one hour. Reset the clock (page 86).
- ➔ The channel was hidden after the timer recording was set. (See “To customize the channel line-up” on page 36.)
- ➔ Disconnect the AC power cord from the AC outlet, and connect it again.
- ➔ The program contains copy protection signals that restrict copying.
- ➔ The timer setting overlapped another setting that was set later.
- ➔ There is no DVD inside the recorder.
- ➔ There is not enough HDD or DVD disc space for the recording.
- ➔ The set top box was turned off.
- ➔ The set top box controller was incorrectly connected (page 13).
- ➔ The settings in “Set Top Box Control” in Settings Setup have been changed (page 86).
- ➔ A separate recording was in the process of being made without the use of the timer (page 50).
- ➔ The recorder was in the process of dubbing (HDD↔DVD).
- ➔ The recorder was in the process of DV/Digital8 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.

Recording does not stop after you press ■ STOP.

- ➔ Open the remote’s cover and press ■ REC STOP.

Timer recording is not complete or did not start from the beginning.

- ➔ There was a power failure during recording. Should the power failure continue for more than one hour, reset the clock (page 86).

- ➔ There is not enough HDD or DVD disc space for the recording.

Contents previously recorded were erased.

- ➔ Data that has been recorded on a DVD with a PC will be erased from the disc when the disc is inserted.
- ➔ “Auto Title Erase” in Features Setup is set to “On” (page 93).

Display

The clock has stopped.

- ➔ Set the clock again (page 86).
- ➔ The clock stopped due to a power failure that lasted for more than one hour. Reset the clock (page 86).

The clock is wrong.

- ➔ Set the clock again (page 86). If you cannot select “Clock” from “Settings” in the Setup Display, wait until the clock data is received and the clock is automatically adjusted.

The TIMER REC indicator is flashing.

- ➔ The disc does not have enough space.
- ➔ Insert a recordable disc inside the recorder.

The recording mode indication is incorrect.

- ➔ When the recording or dubbing is less than three minutes, the recording mode indication may be displayed incorrectly. The actual recording itself is correctly made in the selected recording mode.

The clock does not appear in the front panel display.

- ➔ “Dimmer” in Options Setup is set to “Power Save” (page 94).

Remote control

The remote does not function.

- ➔ 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 21).
- ➔ Turn on the recorder.
- ➔ The remote is not pointed at the remote sensor on the recorder.
- ➔ Different command modes are set for the recorder and remote. Set the same command mode (page 23).

-
- ➔ Set the TV/DVD switch to DVD (page 22).

Other Sony equipment responds to the remote.

- ➔ The same command mode is set for both the equipment and recorder. Set a different command mode for the recorder (page 23).

Others

The recorder does not operate properly.

- ➔ Restart the recorder. Press down **I/⏻** on the recorder for more than ten seconds until “WELCOME” appears in the front panel display.
- ➔ 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.

Dubbing or DV/Digital8 Dubbing does not start.

- ➔ A timer recording is in progress.

Five numbers or letters are displayed on the front panel display.

- ➔ The self-diagnosis function was activated (see the table on page 101).

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.

The disc tray does not open and “TRAY LOCKED” appears on the front panel display.

- ➔ Contact your Sony dealer or local authorized Sony service facility.

“RECOVERY” appears in the front panel display.

- ➔ The recorder’s recovery function was activated when the recorder was turned on because the power was turned off or failed during recording. Leave the recorder on until “RECOVERY” disappears from the front panel display.

“HDD ERROR” appears in the front panel display.

- ➔ The hard disk error occurred. Press down **I/⏻** on the recorder for ten seconds to restart the recorder. If this does not resolve the problem, format the recorder’s HDD by pressing down the HDD button on the recorder for more than ten seconds until “WELCOME” appears in the front panel display. Note that all the contents recorded on the HDD will be erased.

“FAN ERROR” appears in the front panel display.

- ➔ Check that the vent on the rear of the recorder is not blocked. Then, turn off the recorder, wait until the clock appears in the front panel display, and disconnect the AC power cord. Leave the recorder off for a while, then re-connect the power cord, and press **I/⏻** on the recorder.

Mechanical sound is heard when the recorder is off.

- ➔ While the recorder is adjusting the clock or downloading the TV Guide On Screen data, operational noises (such as the internal fan) may be heard, even when the power is off. This is not a malfunction.

The disc tray does not open and you cannot remove the disc after you press **⏏** OPEN/CLOSE.

- ➔ Turn off the recorder. Once the clock appears in the front panel display, disconnect the AC power cord. Connect it again while pressing down **⏏** on the recorder, and release the button when the disc tray opens. Then, keep **I/⏻** on the recorder pressed for about ten seconds until “WELCOME” appears in the front panel display.

“LOCKED” appears in the front panel display.

- ➔ The disc tray is locked. Cancel the Child Lock (page 55).

Self-diagnosis Function (When letters/numbers appear in the display)

When the self-diagnosis function is activated to prevent the recorder from malfunctioning, a five-character service number (e.g., C 13 50) with a combination of a letter and four numbers appears on the front panel display. In this case, check the following table.

First three characters of the service number	Cause and/or corrective action
C 13	There is a problem with the HDD. ➔ Contact your nearest Sony dealer or local authorized Sony service facility. The DVD is dirty. ➔ Clean the disc with a soft cloth.
C 31	The DVD/CD is not inserted correctly. ➔ Re-insert the disc correctly.
E XX (xx is a number)	To prevent a malfunction, the recorder has performed the self-diagnosis function. ➔ Contact your nearest Sony dealer or local authorized Sony service facility and give the five-character service number. Example: E 61 10

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, remove the disc and leave the recorder turned on for about half an hour until the moisture evaporates.
- When you move the recorder, take out any discs. If you don't, the disc may be damaged.

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 benzene.

About repairing the hard disk drive

- It may be necessary to access data stored on the hard disk for testing purposes; there is no intention to copy or store the data, titles or any other information.
- If replacement or initialization (format) is required, the hard disk will be formatted at our discretion. In this case, please note that all of the contents recorded there will be erased (including any data found to violate copyright law).

On cleaning discs

Do not use a commercially available cleaning disc. It may cause a 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.

Specifications

System

Laser: Semiconductor laser

Channel coverage:

NTSC

VHF: 2 to 13/UHF: 14 to 69/CATV: A-8 to A-1, A to W, W+1 to W+84

Video reception: Frequency synthesizer system

Audio reception: Split carrier system

Antenna: 75-ohm antenna terminal for VHF/UHF

Timer: Clock: Quartz locked/Timer indication: 12-hour cycle (digital)/Power back-up duration: 1 hour

Video recording format: MPEG Video

Audio recording format/applicable bit rate:

Dolby Digital, 2 ch/256 kbps

When you play PCM sound tracks with a 96 kHz sampling frequency, the output signals from the DIGITAL OUT (OPTICAL or COAXIAL) jack are converted to 48 kHz sampling frequency.

Inputs

(Jack name: Jack type/input level/input impedance)

LINE IN 1/2/3

(AUDIO): Phono jack/2 V_{rms}/more than 22 kilohms

(VIDEO): Phono jack/1.0 V_{p-p}

(S VIDEO): 4-pin mini DIN/Y:1.0 V_{p-p}, C: 0.286 V_{p-p}

DV IN: 4-pin/i.LINK S100

COMPONENT VIDEO IN (Y, P_B, P_R):

Phono jack/Y: 1.0 V_{p-p}/P_B/P_R:

interlace*=0.648 V_{p-p}, interlace**=0.7 V_{p-p}

* “Y/P_B/P_R In Black Level” is “On”

** “Y/P_B/P_R In Black Level” is “Off”

CONTROL S IN: Mini jack

Outputs

(**Jack name:** Jack type/output level/output impedance)

LINE OUT 1/2

(**AUDIO:** Phono jack/2 V_{rms}/10 kilohms)

(**VIDEO:** Phono jack/1.0 V_{p-p})

(**S VIDEO:** 4-pin mini DIN/Y:1.0 V_{p-p}, C: 0.286 V_{p-p})

DIGITAL OUT (OPTICAL):

Optical output jack/-18 dBm (wave length: 660 nm)

DIGITAL OUT (COAXIAL):

Phono jack/0.5 V_{p-p}/75 ohms

COMPONENT VIDEO OUT (Y, P_B, P_R):

Phono jack/Y: 1.0 V_{p-p}/P_B, P_R:
interlace*=0.648 V_{p-p}, progressive or
interlace**=0.7 V_{p-p}

* "Y/P_B/P_R Out Black Level" is "On"

** "Y/P_B/P_R Out Black Level" is "Off"

SET TOP BOX CONTROL:

Mini jack

General

Power requirements: 120 V AC, 60 Hz

Power consumption: 54 W

Dimensions (approx.): 430 × 89 × 346 mm
(17 × 3⁵/₈ × 13⁵/₈ in.) (width/height/depth)
incl. projecting parts

Hard disk drive capacity: 160 GB

Mass (approx.): 5.9 kg (13.01 lb)

Operating temperature: 5 °C to 35 °C
(41 °F to 95 °F)

Operating humidity: 25 % to 80 %

Supplied accessories:

- Audio/video cord (1)
- Power cord (1)
- Antenna cable (1)
- Set top box controller (1)
- Remote commander (remote) (1)
- Size AA(R6) batteries (2)

Specifications and design are subject to change without notice.

About i.LINK

The DV IN jack on this recorder is an i.LINK-compliant DV IN jack. This section describes the i.LINK standard and its features.

What is i.LINK?

i.LINK is a digital serial interface for handling digital video, digital audio and other data in two directions between equipment having the i.LINK jack, and for controlling other equipment. i.LINK-compatible equipment can be connected by a single i.LINK cable. Possible applications are operations and data transactions with various digital AV equipment. When two or more i.LINK-compatible equipment are connected to this recorder in a daisy chain, operations and data transactions are possible with not only the equipment that this recorder is connected to but also with other devices via the directly connected equipment.

Note, however, that the method of operation sometimes varies according to the characteristics and specifications of the equipment to be connected, and that operations and data transactions are sometimes not possible on some connected equipment.

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), see the instruction manual of the equipment to be connected.

About the name "i.LINK"

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.

i.LINK baud rate

i.LINK's maximum baud rate varies according to the equipment. Three maximum baud rates are defined:

- S100 (approx. 100 Mbps*)
- S200 (approx. 200 Mbps)
- S400 (approx. 400 Mbps)

The baud rate is listed under "Specifications" in the instruction manual of each equipment. It is also indicated near the i.LINK jack on some equipment.

The maximum baud rate of equipment on which it is not indicated such as this unit is "S100."

When units are connected to equipment having a different maximum baud rate, the baud rate sometimes differs from the indicated baud rate.

* What is Mbps?

Mbps stands for megabits per second, or the amount of data that can be sent or received in one second. For example, a baud rate of 100 Mbps means that 100 megabits of data can be sent in one second.

i.LINK functions on this recorder

For details on how to dub when this recorder is connected to other video equipment having DV jacks, see page 77.

The DV jack on this recorder can only input DVC-SD signals. It cannot output signals. The DV 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 77.

For details on precautions when connecting this recorder, also see the instruction manuals for the equipment to be connected.

Required i.LINK cable

Use the Sony i.LINK 4-pin-to-4-pin cable (during DV dubbing).

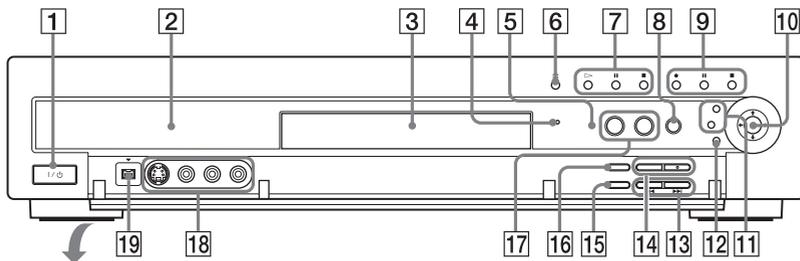
i.LINK and  are trademarks.

Guide to Parts and Controls

For more information, see the pages in parentheses.

Front panel

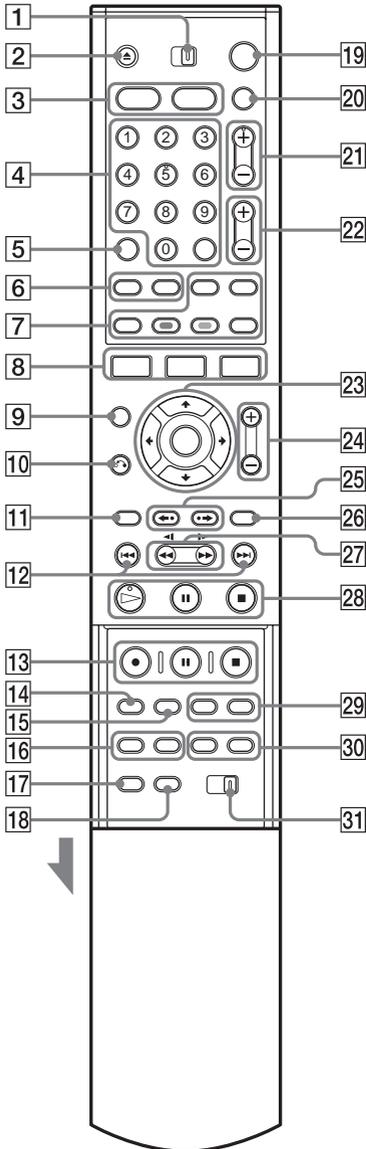
Buttons on the recorder have the same function as the buttons on the remote if they have the same or similar names.



- | | |
|---|--|
| 1 I/⏻ (on/standby) button (24) | 10 ←/↑/↓/→/ENTER button (32) |
| 2 Front panel display (42, 108) | 11 SYSTEM MENU button (32)
TOOLS button (32) |
| 3 Disc tray (46) | 12 ↶ RETURN button (32) |
| 4 TIMER REC indicator (46) | 13 ⏮/⏭ (previous/next) buttons (56) |
| 5 📡 (remote sensor) (21) | 14 CHANNEL +/- buttons (50) |
| 6 ⏏ (open/close) button (46) | 15 REC MODE button (45) |
| 7 ▷ (play) button (54)
⏸ (pause) button (54)
■ (stop) button (54) | 16 INPUT SELECT button (53, 77) |
| 8 TV GUIDE button (34, 46) | 17 DVD button/indicator (37)
HDD button/indicator (37) |
| 9 ● REC button (50)
⏸ REC PAUSE button (50)
■ REC STOP button (50) | 18 LINE 2 IN (S VIDEO/VIDEO/AUDIO L/
R) jacks (30) |
| | 19 📡 DV IN jack (77) |

Remote

Buttons on the remote have the same function as the buttons on the recorder if they have the same or similar names. Buttons with an orange dot next to them can be used with your TV when the TV/DVD switch is set to TV.

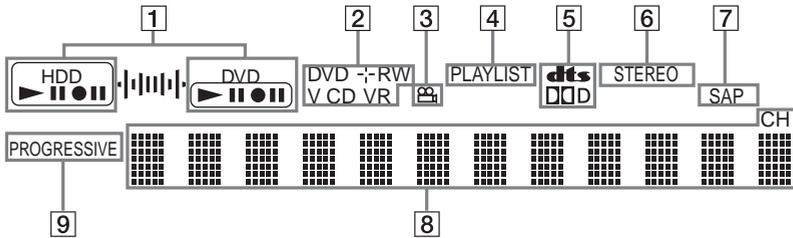


- 1** TV/DVD switch (22)
- 2** ▲ OPEN/CLOSE button (46)
- 3** HDD button (37)
DVD button (37)
- 4** Number buttons (22, 48, 61)
SET/● button (22, 48, 61)
The number 5 button has a tactile dot.*
- 5** CLEAR button (61)
- 6** AUDIO button (56)*
SUBTITLE button (56)
- 7** TV GUIDE button (34, 47)
SCHEDULE button (49)
Blue button (34)
Green button (34)
● (info) button (34)
TIMER button (48)
- 8** SYSTEM MENU button (32)
TITLE LIST button (37, 54, 65)
TOOLS button (32)
- 9** CURSOR MODE button (37)
- 10** ♂ RETURN/EXIT button (32, 34)
- 11** TOP MENU button (54)
- 12** ◀◀ PREV (previous)/▶▶ NEXT buttons (56)
- 13** ● REC button (50)
▬▬ REC PAUSE button (50)
■ REC STOP button (50)
- 14** REC MODE button (45)
- 15** INPUT SELECT button (53, 77)
- 16** ANGLE button (56)
SUR (surround) button (56)
- 17** PROGRESSIVE button (18)
- 18** ONE TOUCH DUBBING button (79)
- 19** I/⏻ (on/standby) button (24)
- 20** TV/VIDEO button (22)
- 21** CH (channel) +/- buttons (22)
The + button has a tactile dot.*
- 22** VOL (volume) +/- buttons (22)
- 23** ←/↑/↓/→/ENTER button (32)
- 24** ZOOM/PAGE +/- buttons (34, 37)

- 25** ◀• INSTANT REPLAY/•▶ INSTANT
ADVANCE buttons (56)
- 26** MENU button (54)
- 27** ◀◀◀◀▶▶▶▶ (search) buttons (56)
- 28** ▷ PLAY button (54)
The button has a tactile dot.*
■ PAUSE button (54)
■ STOP button (54)
- 29** CHAPTER MARK/ERASE buttons (68)
- 30** DISPLAY button (41, 52)
TIME/TEXT button (42)
- 31** COMMAND MODE switch (DVD 1,2,3)
(23)

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

Front panel display

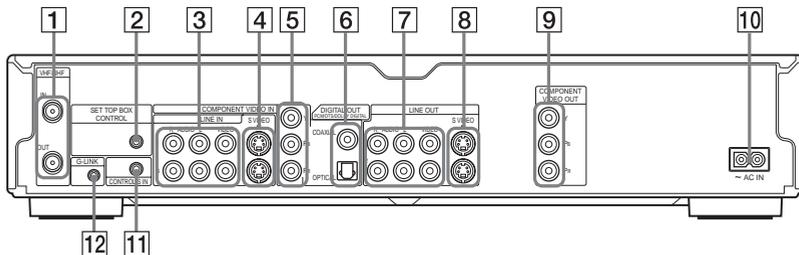


- | | |
|---|--|
| <p>1 HDD/DVD indicators
Displays the selected media and the playing/recording/dubbing status.</p> <p>2 Disc type*/recording format
* Displays DATA CDs as “CD.”</p> <p>3 (angle) indicator (56)</p> <p>4 PLAYLIST indicator (38)</p> <p>5 Audio signal indicators (41)</p> <p>6 STEREO indicator (45)</p> | <p>7 SAP (Second Audio Program) indicator (45)</p> <p>8 Displays the following (42):</p> <ul style="list-style-type: none"> • Playing time/remaining time • Current title/chapter/track/index number • Recording time/recording mode • Clock • Channel <p>9 PROGRESSIVE indicator (18)</p> |
|---|--|

Hint

You can turn off the front panel display when the recorder is turned off by setting “Dimmer” to “Power Save” in Options Setup (page 94).

Rear panel



- | | |
|---|---|
| <p>1 VHF/UHF IN/OUT jacks (14)</p> <p>2 SET TOP BOX CONTROL jack (13, 14)</p> <p>3 LINE IN (AUDIO L/R/VIDEO) 1/3 jacks (13, 29)</p> <p>4 LINE IN (S VIDEO) 1/3 jacks (13, 29)</p> <p>5 COMPONENT VIDEO IN (Y, PB, PR) jack (13, 29)</p> <p>6 DIGITAL OUT (COAXIAL/OPTICAL) jacks (20)</p> | <p>7 LINE OUT (AUDIO L/R/VIDEO) 1/2 jacks (16, 20)</p> <p>8 LINE OUT (S VIDEO) 1/2 jacks (16)</p> <p>9 COMPONENT VIDEO OUT (Y, PB, PR) jacks (16)</p> <p>10 AC IN terminal (21)</p> <p>11 CONTROL S IN jack (16)</p> <p>12 G-LINK jack (for service use only)</p> |
|---|---|

Glossary

Chapter (page 61)

Sections of a picture or a music feature that are smaller than titles. A title is composed of several chapters. Depending on the disc, no chapters may be recorded.

Copy protection signals (page 46)

Copy restriction set by copyright owners, etc. These signals are included in some software or TV programs and restrict recording on this recorder.

Dolby Digital (page 90)

Digital audio compression technology developed by Dolby Laboratories. This technology conforms to multi-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. Dolby Digital provides the same discrete channels of high quality digital audio found in “Dolby Digital” theater surround sound systems. Good channel separation is realized because all of the channel data is recorded discretely, and little deterioration occurs because all channel data processing is digital.

DTS (page 90)

Digital audio compression technology by Digital Theater Systems, Inc. This technology conforms to multi-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. DTS provides the same discrete channels of high quality digital audio. Good channel separation is realized because all of the channel data is recorded discretely, and little deterioration occurs because all channel data processing is digital.

DVD+RW (page 8)

A DVD+RW (read “plus RW”) is a recordable and rewritable disc. DVD+RWs use a recording format that is comparable to the DVD VIDEO format.

DVD-RW (page 8)

A DVD-RW is a recordable and rewritable disc that is the same size as a DVD VIDEO. The DVD-RW has two different modes: VR mode and Video mode. DVDs created in Video mode have the same format as a DVD VIDEO, while discs created in VR (Video Recording) mode allow the contents to be programmed or edited.

DVD+R (page 8)

A DVD+R (read “plus R”) is a recordable disc that is the same size as a DVD VIDEO. Contents can be recorded only once to a DVD+R, and will have the same format as a DVD VIDEO.

DVD-R (page 8)

A DVD-R is a recordable disc that is the same size as a DVD VIDEO. Contents can be recorded only once to a DVD-R, and will have the same format as a DVD VIDEO.

DVD VIDEO (page 8)

A disc that contains up to eight hours of moving pictures on a disc the same diameter as a CD. The data capacity of a single-layer and single-sided DVD is 4.7 GB (Giga Byte), which is 7 times that of a CD. The data capacity of a double-layer and single-sided DVD is 8.5 GB, a single-layer and double-sided DVD is 9.4 GB, and double-layer and double-sided DVD is 17 GB. The picture data uses the MPEG 2 format, which is a worldwide standard of digital compression technology. The picture data is compressed to about 1/40 (average) of its original size. The DVD also uses a variable rate coding technology that changes the data to be allocated according to the status of the picture. Audio information is recorded in a multi-channel format, such as Dolby Digital, allowing you to enjoy a more real audio presence.

Furthermore, various advanced functions such as the multi-angle, multilingual, and Parental Control functions are provided on the DVD.

Hard disk drive (page 8)

A hard disk drive is a whole mechanical system that consists of disks and drive. Disks are flat, circular, rigid plates coated with a thin magnetic media. Magnetic heads record data on the rapidly spinning disks, and this enables the speedy and efficient reading and writing of data.

Interlace format (page 18)

Interlace format shows every other line of an image as a single “field” and is the standard method for displaying images on television. The even number field shows the even numbered lines of an image, and the odd numbered field shows the odd numbered lines of an image.

Original (page 64)

Titles actually recorded on a DVD-RW (VR mode). Erasing original titles frees up disc space.

Playlist (page 64)

Playback information created from the actual recordings on a DVD-RW (VR mode). A Playlist leaves the original titles as they are, and contains only the information needed to control playback. A Playlist title takes up very little disc space.

Progressive format (page 18)

Compared to the Interlace format that alternately shows every other line of an image (field) to create one frame, the Progressive format shows the entire image at once as a single frame. This means that while the Interlace format can show 30 frames/60 fields in one second, the Progressive format can show 60 frames in one second. The overall picture quality increases and still images, text, and horizontal lines appear sharper.

Title (page 61)

The longest section of a picture or music feature on a DVD, movie, etc., in video software, or the entire album in audio software.

Track (page 61)

Sections of a music feature on a CD (the length of a song).

Language Code List

For details, see page 87.

The language spellings conform to the ISO 639: 1988 (E/F) standard.

Code Language	Code Language	Code Language	Code Language
1027 Afar	1183 Irish	1347 Maori	1507 Samoan
1028 Abkhazian	1186 Scots Gaelic	1349 Macedonian	1508 Shona
1032 Afrikaans	1194 Galician	1350 Malayalam	1509 Somali
1039 Amharic	1196 Guarani	1352 Mongolian	1511 Albanian
1044 Arabic	1203 Gujarati	1353 Moldavian	1512 Serbian
1045 Assamese	1209 Hausa	1356 Marathi	1513 Siswati
1051 Aymara	1217 Hindi	1357 Malay	1514 Sesotho
1052 Azerbaijani	1226 Croatian	1358 Maltese	1515 Sundanese
1053 Bashkir	1229 Hungarian	1363 Burmese	1516 Swedish
1057 Byelorussian	1233 Armenian	1365 Nauru	1517 Swahili
1059 Bulgarian	1235 Interlingua	1369 Nepali	1521 Tamil
1060 Bihari	1239 Interlingue	1376 Dutch	1525 Telugu
1061 Bislama	1245 Inupiak	1379 Norwegian	1527 Tajik
1066 Bengali;	1248 Indonesian	1393 Occitan	1528 Thai
Bangla	1253 Icelandic	1403 (Afan)Oromo	1529 Tigrinya
1067 Tibetan	1254 Italian	1408 Oriya	1531 Turkmen
1070 Breton	1257 Hebrew	1417 Punjabi	1532 Tagalog
1079 Catalan	1261 Japanese	1428 Polish	1534 Setswana
1093 Corsican	1269 Yiddish	1435 Pashto;	1535 Tonga
1097 Czech	1283 Javanese	Pushto	1538 Turkish
1103 Welsh	1287 Georgian	1436 Portuguese	1539 Tsonga
1105 Danish	1297 Kazakh	1463 Quechua	1540 Tatar
1109 German	1298 Greenlandic	1481 Rhaeto-	1543 Twi
1130 Bhutani	1299 Cambodian	Romance	1557 Ukrainian
1142 Greek	1300 Kannada	1482 Kirundi	1564 Urdu
1144 English	1301 Korean	1483 Romanian	1572 Uzbek
1145 Esperanto	1305 Kashmiri	1489 Russian	1581 Vietnamese
1149 Spanish	1307 Kurdish	1491 Kinyarwanda	1587 Volapük
1150 Estonian	1311 Kirghiz	1495 Sanskrit	1613 Wolof
1151 Basque	1313 Latin	1498 Sindhi	1632 Xhosa
1157 Persian	1326 Lingala	1501 Sangho	1665 Yoruba
1165 Finnish	1327 Laothian	1502 Serbo-	1684 Chinese
1166 Fiji	1332 Lithuanian	Croatian	1697 Zulu
1171 Faroese	1334 Latvian;	1503 Singhalese	
1174 French	Lettish	1505 Slovak	
1181 Frisian	1345 Malagasy	1506 Slovenian	1703 Not specified

Cable Box/Satellite Receiver Brand Code

If more than one code number is listed, try entering them one at a time until you find the one that works with your cable box/satellite receiver.

Cable box brand	Code number
3M	0033
ABC	0003, 0011, 0017, 0008, 0014, 0001, 0013, 0206, 0047, 0237, 0033
Accuphase	0003, 0013, 0047, 0001, 0011, 0017, 0014, 0206
Acorn	1102, 0237
Action	0237
Active	0237, 1102
Aim	0015
Allegro	0315, 0153
Amark	0008, 0277, 0144, 0056
American	0060
Americast	0899
Antronix	0207, 0022
Anvision	0211, 0111
Apache	0770
Arbatron	0014, 0011, 0003, 0476
Archer	0153, 0022, 0207, 0039, 0797, 0237, 0260
ASE	1080
Auna	1269
BBT	0267
BCC	0276
Belcor	0056, 0022
Bell & Howell	0014
Bell Atlantic	0641
Bell South	0899
Bestlink	0303
Betavue	0022
British Telecom	0003
BVS	0641

Cable box brand	Code number
Cable Healthcare	0769, 0058
Cable Star	0056
Cabletenna	0022, 0039
Cableview	0022
Century	0153, 0618, 0008, 0315
Citation	0017
Citizen	0153, 0315, 0078, 0242
Clearmaster	0883
ClearMax	0883, 1247
Colour Voice	0031, 0025
Comband	0233, 0232
Comtec	0274
Comtronics	0060, 0040
Comtronics Eagle	0040, 0060
Contec	0019
Coolmax	0883
Curtis Mathes	0015, 0242
Dae Ryung Eagle	0008
Daeryung	0008, 0877, 0477, 0277, 1877
Diamond	0035
Digeo	1476
Digi	0637
Director	0476
Dumont	0637
Eagle Comtronics	0060, 0028
Eastern	0002, 0274, 0418
Electricord	0078
Emerson	0797, 0303, 0015, 0014
Everquest	0040, 0015
Focus	0400
Fosgate	0276
Funai	0248, 0019
FutureVision	0649
Garrard	0153
Gateway	0764
GC Electronics	0207, 0056, 0330, 0016, 0040, 0077, 0030

Cable box brand	Code number
GE	0232, 0233, 0144, 0021
Gemini	0015, 0070, 0057, 0242, 0014, 0797, 0013, 0400
General Instrument	0476, 0011, 0014, 0098, 0810, 0024, 0003, 0015, 0276
GHZ	0078
Gibraltar	0003
Global	1327
GMI	0069, 0057, 0015, 0797
GoldStar	0144, 0040
Goodmind	0770, 0797
Gradiente	1136
Hamlin	0020, 0009, 0034, 0259, 0015, 0273, 0206
Healthway Interactive	0058, 1020, 1015, 0769
Hitachi	0011, 0154, 0009, 0008, 0003, 0033, 0014, 0255
Houston Tracker	0011
Hwalin	0303
IBM	0670
IIEC	1018
Interbuy	0274
Jasco	0315, 0153, 0015
Jebsee	0014, 0400
Jerrold	0003, 0014, 0276, 0011, 0012, 0020, 0024, 0015, 0047, 0098, 0476, 0031, 0029, 0111, 0032, 0054, 0810, 0028
Kuang Yu	0024
Leon	0069, 0015
LG	0040, 0144
Linsay	0440
Macom	0033
Maestro	0812
Magnavox	0797, 0027, 0032, 0334, 0069
Millennium	0618, 0153
Memorex	0000
Mitsubishi	0003

Cable box brand	Code number
Motorola	0476, 0276, 1476, 0810, 1376, 1254, 0400, 1106
Movie Time	0156, 0078, 0063, 0203
MS	0069, 0015, 1018, 0303
MultiVision	0012
Myrio	1117
NET	0274
Next Level	0764, 1316, 1315, 1314
Nexus	0770
Northcoast	0671, 0314
Nova Vision	0277, 0008
Novabeam	0277
Novaplex	0618, 0277, 0017, 0008
NSC	0156, 0070, 0203, 0063, 0400, 0012, 0618, 0022, 0637, 0010, 0044
Oak	0019, 0303, 0248, 0017
Omega	0015
Omniview	0371
Optimus	0021
Pace	0008, 0237, 0277, 0477, 0877, 1877
Pacific Bell	0843
Panasonic	0107, 0021, 0144, 0008, 0124, 0307, 0000, 0040
Panther	0637
Paragon	0000, 0525, 0008
Penney	0637, 0000
Philips	0025, 0031, 0290, 0027, 0030, 0153, 0060, 0242, 0028, 0334, 0211, 0029, 0259, 0307, 0652, 0013, 0069, 0649, 0255, 0305, 0032, 0111, 0317
Pioneer	0144, 0023, 0533, 1877, 0877, 0260
Popular Mechanics	0400
Prelude	0770
Prism	0012, 0013, 0059
Protelcon	0786
Pulsar	0000, 0040

Cable box brand	Code number
Quasar	0000
Quest	0144, 0020
R Line	0040
RadioShack	0883, 0015, 0315, 0303, 0797
Rampage	0255
Ranger	1247
RCA	0021, 0060, 0797, 0047, 1256, 0843
Realistic	0207, 0153
Recoton	0153, 0400
Regal	0259, 0020, 0273, 0279, 0276
Regency	0002, 0020, 0682
Rembrandt	0070, 0153, 0040, 0022, 0011
RK	0304, 0479
Runco	0000
Samsung	0040, 0144, 0023, 0003, 0070, 0000
Sasktel	1737
Scientific Atlanta	0008, 0277, 0017, 0006, 0237, 0025, 0477, 0207, 0877, 0003, 0012, 0000, 0021, 1877
Seam	0510
Sears	0510
Sejin	1265
Sigma	0019
Signal	0040, 0015, 0011, 0035
Signature	0011
SkyCable	0112
Skygiant	1091
SL Marx	0040
Sony	1006, 1506, 1606
Spectradyne	0769, 0058
Spectravisoin	0058
Sprucer	0021, 0307, 0010, 0144
Standard Components	0203, 0096, 0155
Starcom	0003, 0015, 0047, 0014, 0098, 0305

Cable box brand	Code number
Stargate	0015, 0040, 0770, 0865, 0797, 0305, 0014
Starquest	0015
StarSight	0542, 0422
Stealth	0274
Stellar One	0807
Storm	1018, 0637
Suena Madritel	1230
Supercable	0276
Supermax	0883
Sylvania	0001
Tandy	0258
Tatung	0097
Teac	1018
Technics	0029
Teknika	0146
Teleavia	0040
TeleCaption	0221
Television	0063, 0040
Texscan	0001, 0096, 0010
TFC	0310
Thomson	1256
Timeless	0418, 0274, 0040
Tocom	0012, 0013, 0029, 0019, 0059, 0017
Torx	0003
Toshiba	0000
Trans PX	0303, 0276, 0153, 0315
Trinity	1248
Tristar	0883
TS	0255, 0024, 1018, 0003, 0303
Tusa	0015
TV COMM	0035, 0019
TV Guide	1476
TV86	0063, 0040
Uniden	0022
Unika	0207, 0153, 0022

Cable box brand	Code number
United Cable	0003, 0014, 0011, 0276
Universal	0191, 0078, 0207, 0056, 0022, 0039, 0153, 0077, 0322, 0315
US Electronics	0276, 0008, 0003, 0017
V2	0883
Videoway	0250, 0000
VideoWorks	0124
Vidtech	0244
Viewmaster	0883, 0770
Viewstar	0258, 0289, 0060, 0063, 0211, 0027, 0111, 0030, 0121
Vision	0883
Visionetics	1264
Vortex View	0883
WaveMaster	0565
Wiso	0078
Zenith	0000, 0525, 0054, 0017, 0039, 0153, 0060, 0315, 0191, 0899
Zentek	0400

Satellite receiver brand	Code number
AlphaStar	0772
Atlantic Telephone	1333
Bell ExpressVu	0775
Century	0856
Chaparral	0216
Crossdigital	1109
DirecTV	0749, 0566, 0392, 1749, 0099, 1109, 1076, 1442, 1856, 0247, 1142, 1639, 0724, 0639, 0819
Dish Network System	0775, 1005, 1170
Dishpro	0775, 1005
Echostar	0775, 1170, 1005
Expressvu	0775
Galaxis	0863
GE	0566
General Instrument	0361, 0869, 0627
GOI	0775
Gradiente	0856
Hitachi	0819, 0749
Houston Tracker	0775
HTS	0775
Hughes Network Systems	0749, 1749, 1442, 1142
Humax	1176, 1359, 1048, 0863, 0283
Innova	0099
Jerrold	0361, 0036, 0627
JVC	0775, 1170
Magnavox	0722, 0724
McIntosh	0869
Memorex	0724
Mitsubishi	0749
Motorola	0869
NEC	1270
Netsat	0099
Next Level	0869
Optimus	0724
Panasonic	0247, 0701

Satellite receiver brand	Code number
Paysat	0724
Philips	1076, 0099, 1142, 0724, 0722, 0749, 1442, 1749, 0856, 0775
Primestar	0361, 0627, 0869
Proscan	0392, 0566
QNS	1367
RadioShack	0869
RCA	0566, 0392, 0143, 0855
Samsung	1109, 1276
Sky	0856, 0099, 1856
Sony	0639, 1639
Star Choice	0869
Star Trak	0869, 0772
Thomson	0566, 0392
Tivo	1142, 1442
Toshiba	0790, 0749, 1749, 1285
UEC	1333, 1358
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