

VIDEO CASSETTE RECORDER OWNER'S GUIDE



MODEL HS-HD2000U



VCR Plus+, C³, ALLSET and PlusCode are trademarks of Gemstar Development Corporation. The VCR Plus+ system is manufactured under license from Gemstar Development Corporation.

With the VCR Plus+ GOLD system, this video cassette recorder can automatically select the appropriate channel on your compatible cable box or satellite receiver.



This Video Cassette Recorder is based on the D-VHS, S-VHS and VHS formats. Only video cassette tapes with the **D VHS** mark, **S VHS** mark or the **VHS** mark may be used with this model. However, D-VHS recordings are possible only with cassettes marked **D VHS**. D-VHS tapes recorded on video products not using the D-VHS MTP/NTSC standard cannot be played back on this unit.

Special Features HS-HD2000U

SMART:

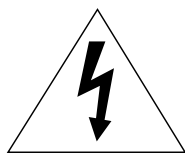
- ◆ Program Conflict Warning
- ◆ S-VHS and S-VHS ET record/playback
- ◆ VHS Hi-Fi audio record/playback
- ◆ VCR Plus+® C3 with cable converter control and AllSet™
- ◆ Satellite Receiver Control

FAST:

- ◆ Alfa 500 Precision High Speed Mechanism with 500x rewind/fast forward speed

EASY:

- ◆ ViewPoint® Menu Operating System
- ◆ Rental Xpress - Automatic Rental tape rewind
- ◆ VCR Plus+® easy programming system
- ◆ OTR² Advanced One Touch Recording with delayed start time
- ◆ Auto Clock Set



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



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



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



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

IMPORTANT:

RECORDING OF COPYRIGHTED TELEVISION PROGRAMS MAY VIOLATE COPYRIGHT LAW.

WARNING:

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

CAUTION:

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

NOTE TO CATV SYSTEM INSTALLER:

THIS REMINDER IS PROVIDED TO CALL THE CATV SYSTEM INSTALLER'S ATTENTION TO SECTION 820-40 OF THE NEC WHICH PROVIDES GUIDELINES FOR PROPER GROUNDING AND, IN PARTICULAR, SPECIFIES THAT THE CABLE GROUND SHALL BE CONNECTED TO THE GROUNDING SYSTEM OF THE BUILDING, AS CLOSE TO THE POINT OF CABLE ENTRY AS PRACTICAL.

SHORTCUTS

To **connect** your VCR, go to page 4.

To **play a tape**, go to page 10.

To **record a program**, go to page 21.

To learn about **Advanced Features**, go to page 38.

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IMPORTANT SAFEGUARDS

Please read all these instructions carefully regarding your VCR before you begin operating it. Follow all warnings and instructions marked on the VCR. Thank you.

1 Read Instructions

All the safety and operating instructions should be read before the product is operated.

2 Retain Instructions

The safety and operating instructions should be retained for future reference.

3 Heed Warnings

All warnings on the product and in the operating instructions should be adhered to.

4 Follow Instructions

All operating and use instructions should be followed.

5 Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6 Attachments

Do not use attachments not recommended by the product manufacturer as they may cause hazards.

7 Water and Moisture

Do not use this product near water — for example, near a bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.

8 Accessories

Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9 A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.



10 Ventilation

Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

11 Power Sources

This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

12 Grounding or Polarization

This product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

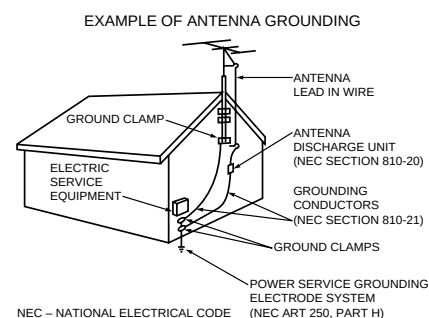
13 Power-Cord Protection

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

14 Outdoor Antenna Grounding

If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges.

Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



15 Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

16 Power Lines

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

17 Overloading

Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in fire risk or electric shock.

18 Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

19 Servicing

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20 Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.

(d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.

(e) If the product has been dropped or damaged in any way.

(f) When the product exhibits a distinct change in performance – this indicates a need for service.

21 Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

22 Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

23 Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

CONDENSATION

Leave the VCR on, without a tape in it, for 2 hours if the VCR has been exposed to sudden changes in temperature. Sudden temperature changes cause moisture to form on the metal parts inside the VCR. This moisture can cause the tape to stick and damage the head. Leaving the VCR on for a 2 hour period will dry the inside of the VCR.

PROTECT THE POWER CORD

Do not damage the power cord. Damage to the power cord may cause a fire or shock hazard. When unplugging the power cord, please hold it by the plug and remove it carefully.

DO NOT PLACE HEAVY OBJECTS ON THE RECORDER

Heavy objects placed on the recorder will cause damage.

WHEN NOT IN USE

When you finish operating the recorder, always unload the cassette and turn OFF the VCR POWER.

CARE OF THE VIDEO CASSETTE TAPES

- Avoid violent vibration or shock.
- Do not place in a location where strong magnetic fields exist (near a motor, transformer or magnet).
- Never place or store in direct sunlight.
- Avoid dusty places.
- Place the cassette in the cassette case and store vertically.
- Never store tape in a high humidity location.

INFORMATION

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, try to correct the interference by one or more of these measures:

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

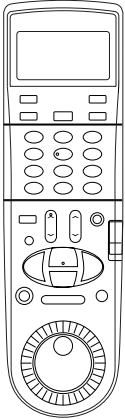
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. If necessary, consult the dealer or an experienced radio/TV technician for additional suggestions. You may find this booklet prepared by the Federal Communications Commission helpful: How to Identify and Resolve Radio-TV Interference Problems. This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

Hooking Up Your VCR

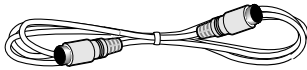
Unpacking Your VCR

As you unpack your new VCR, please make sure the following items are included:

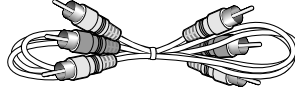
- Remote control



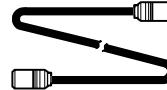
- 1 S-Video cable



- 1 Audio/Video cable



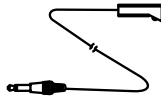
- 1 Coaxial cable



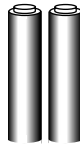
- IEEE 1394 cable



- 1 IR emitter



- 2 "AA" size batteries



- D-VHS cassette tape



- Registration card



IMPORTANT

Never place any heavy objects on top of the VCR. Do not place the VCR on top of the television as the surface may not be stable.

Choosing a Hookup

The connections shown in this book are general. Individual televisions, stereo systems and satellite receivers can vary from those shown here. The first diagrams show connections for common equipment. Then, if you are connecting equipment such as a satellite receiver, an integrated HDTV, an IEEE 1394-equipped HDTV receiver or a Home Theater receiver, you will also use those diagrams after you have connected the common equipment.

IMPORTANT

To maximize your system for its best performance, your dealer can help you customize these hookups and sell you any additional connection accessories that may be necessary to match your particular equipment and antennas.

- 1 Make a list of each piece of equipment that you want to hook up.
- 2 If you are connecting several pieces of equipment, you may be using more than one of these diagrams. Using your list, find EACH of the diagrams you will need to connect all of your equipment. For example, to hook up this VCR, a TV, a cable box, and a Home Theater receiver, you will use Cable System with Cable Box, and Connecting a Home Theater receiver.
- 3 If your TV has audio and video inputs, use the diagrams on page 6 in addition to the connections on the next page.

Hooking Up Your VCR

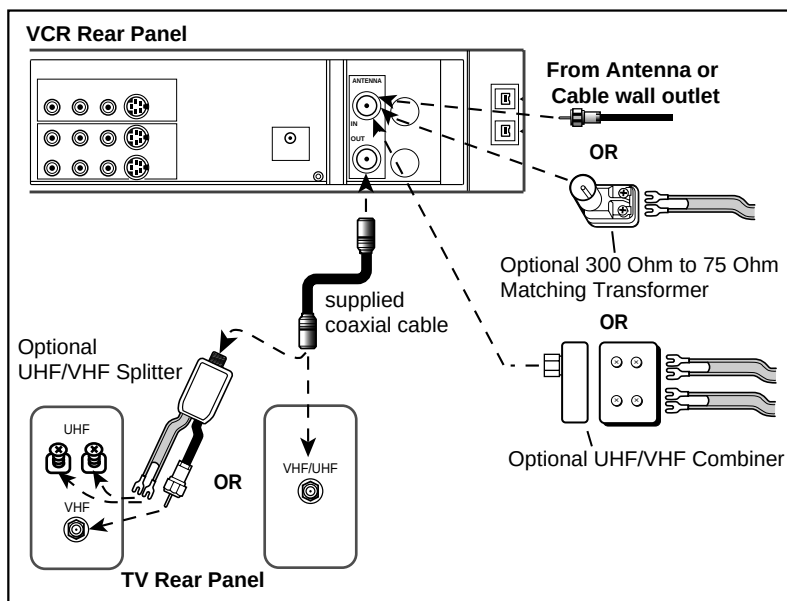
IMPORTANT

You must use one of the connections shown on this page in order to record television or cable programs.

Antenna or Cable System without Cable Box

Connecting Antenna or Cable

- 1 Connect antenna or cable from wall outlet to ANTENNA IN of the VCR.
- 2 Connect VCR ANTENNA OUT to the TV's Antenna jacks (varies by TV).
- 3 If your TV has audio video inputs, continue with the connections on the next page. If not, plug in power cords of VCR and TV.



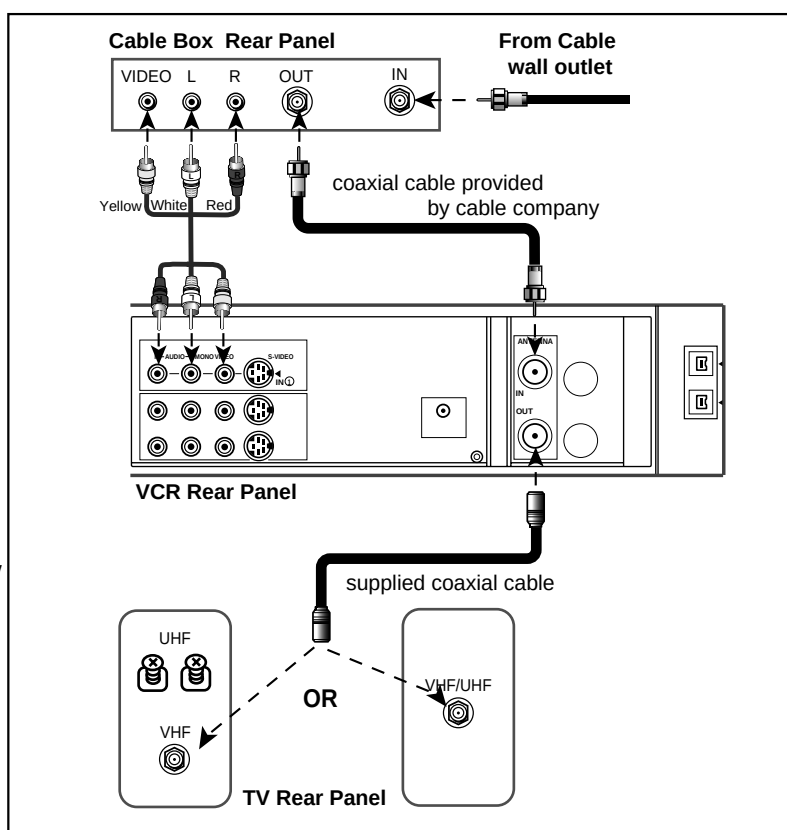
Cable System with Cable Box

Connecting Cable and Cable box

- 1 Connect cable from wall outlet to CABLE IN on the cable box.
- 2 Connect OUT (or OUT TO TV) on the cable box to ANTENNA IN on the VCR.
- 3 Connect ANTENNA OUT on the VCR to the TV's antenna jacks (varies by TV).
- 4 If your TV has audio video inputs, continue with the connections on the next page. If not, plug in power cords of VCR, TV, and cable box.
- 5 See page 9 for IR Emitter connection.

If your cable box has audio and video outputs, follow the additional directions below. You may need to purchase additional sets of audio/video cables for this hookup.

- 6 Connect the red and white cable to the **AUDIO IN R** (right) and **AUDIO IN L** (left) on the VCR. Connect the other end to the cable box's **AUDIO OUT RIGHT** and **AUDIO OUT LEFT**.
- 7 Connect the yellow video cable to **VIDEO IN** on VCR. Connect the other end to **VIDEO OUT** on the cable box.



IMPORTANT

Your TV Owner's Guide may have additional suggestions for antenna/cable hookups.

If your TV has more than one antenna jack, ask your Mitsubishi dealer for advice on additional accessories.

Hooking Up Your VCR

Connections to TV with Audio Video Inputs

Because you purchased a Hi-Fi VCR, you will want to take advantage of its superior sound capability and connect it to a stereo TV system with audio and video inputs. This connection also helps maintain the best picture quality.

- 1 Connect the red and white audio cable to AUDIO OUT R (right) and AUDIO OUT L (left) on the VCR. Connect the other end to the TV's AUDIO INPUT RIGHT and AUDIO INPUT LEFT. Match the colors of the connectors to the cables.
- 2 Connect the S-video cable to S-VIDEO OUT on VCR. Connect the other end to S-VIDEO INPUT on the TV.

IMPORTANT

If your TV does not have S-Video connections, use standard yellow video cable in step 2.

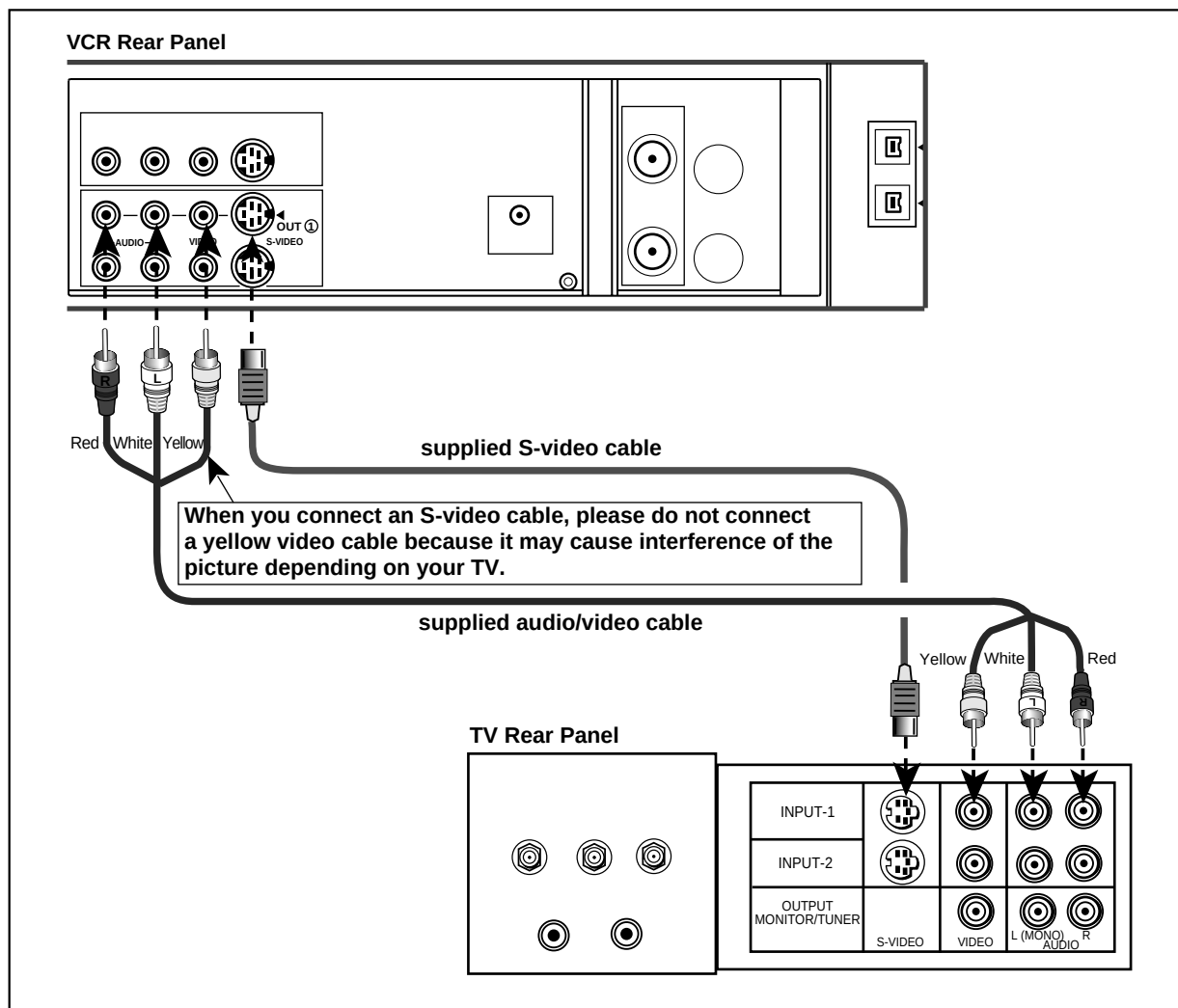
- 3 Set the RF converter to OFF. See page 48 for instructions on this setting, which can be done at a later time.

IMPORTANT

Your TV Owner's Guide may have additional suggestions for audio video hookups.

To connect your VCR to a mono (non-stereo) TV, connect only the white AUDIO OUT L of the VCR and the white AUDIO INPUT of the TV. Since the TV is not stereo, you cannot take advantage of your VCR's Hi-Fi stereo sound.

If you have an older TV without audio video inputs, simply connect only the antenna or cable as shown on the previous page.



Hooking Up Your VCR

Connections to integrated HDTV or IEEE 1394-equipped HDTV receiver

If you connect the HS-HD2000U to an integrated HDTV or an IEEE 1394-equipped HDTV receiver with an IEEE 1394 cable, you can record digital broadcasts in D-VHS format, which records digital broadcasts as digital signals, so programs can be recorded as is with no loss of quality. And this connection also makes it possible to playback the recorded digital signals in D-VHS format.

- 1 Connect the supplied IEEE 1394 cable to IEEE 1394 INTERFACE on the HS-HD2000U. You can connect either of the two IEEE 1394 INTERFACE terminals. Connect the other end of this cable to IEEE 1394 INTERFACE terminal on the TV or receiver.

When you want to record digital broadcasts in analog (S-VHS, S-VHS ET, VHS) format, follow the steps **2** and **3** below.

- 2 Connect the red and white audio cable to AUDIO IN R (right) and AUDIO IN L (left) on the VCR. Connect the other end to the TV or receiver's AUDIO OUTPUT RIGHT and AUDIO OUTPUT LEFT. Match the colors of the connectors to the cables.

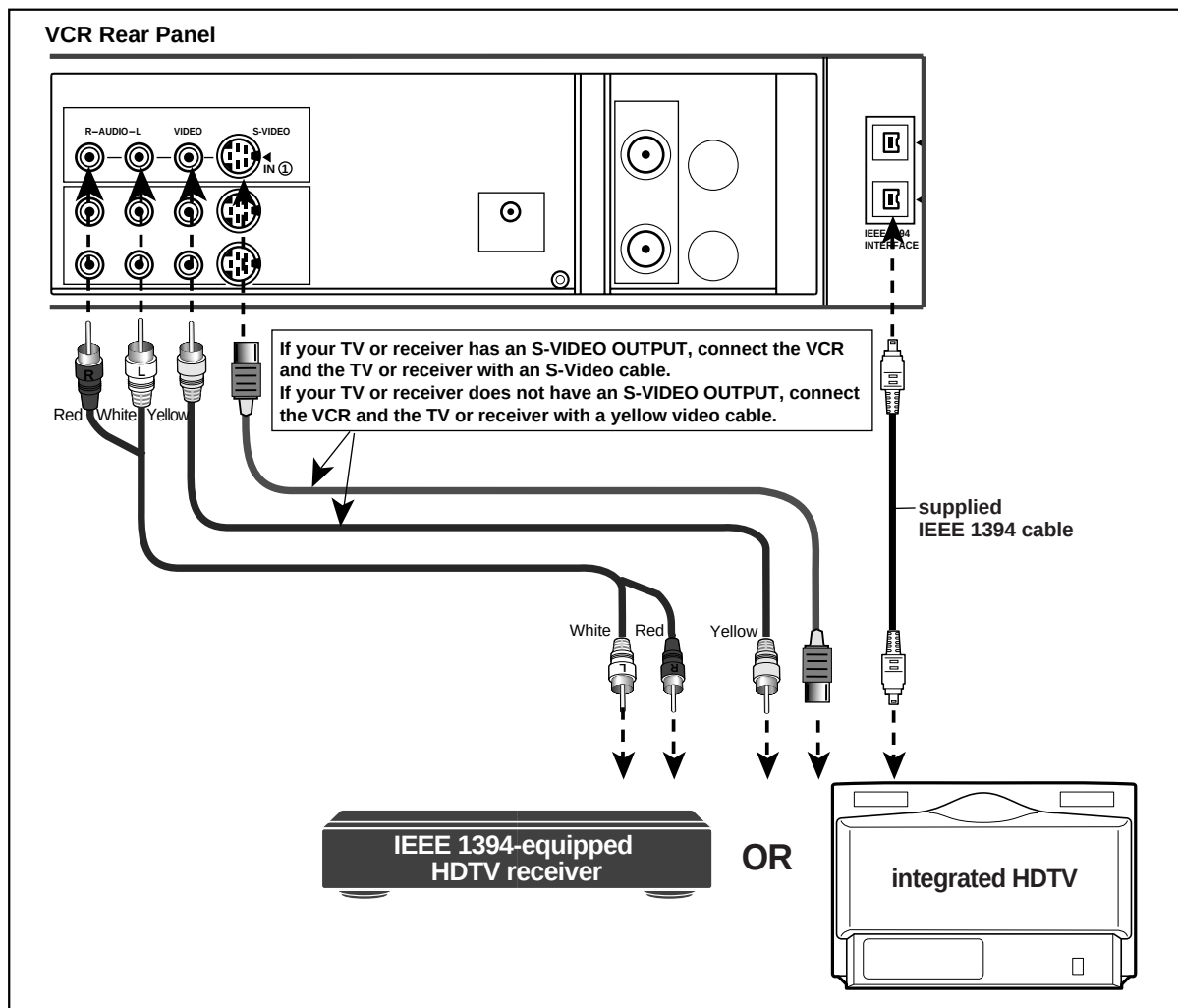
- 3 If your TV or tuner has an S-VIDEO OUTPUT, connect the S-Video cable to S-VIDEO IN on the VCR. Connect the other end to S-VIDEO OUTPUT on the TV or receiver.

If your TV or tuner does not have an S-VIDEO OUTPUT, connect the yellow video cable to VIDEO IN on the VCR. Connect the other end to VIDEO OUTPUT on the TV or receiver.

IMPORTANT

You may need to purchase additional sets of audio cable and S-video/video cable for this hookup.

Refer to your integrated HDTV or IEEE 1394-equipped HDTV receiver owner's guide for this connections.



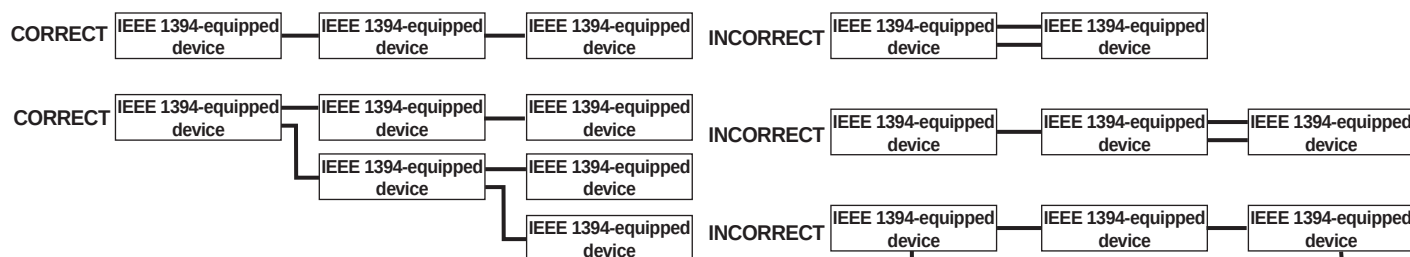
Hooking Up Your VCR

Notes about IEEE 1394 network

The IEEE 1394-equipped devices which are available to be connected to the HS-HD2000U are integrated HDTV, IEEE 1394-equipped HDTV receiver or D-VHS VCR. The data may not be sent/received correctly if you are connecting the IEEE 1394-equipped devices other than Mitsubishi integrated HDTV or Mitsubishi D-VHS VCR.

You cannot send/receive the data of the digital video equipment (for example, digital video camera) or the personal computer because the format is different from that of the HS-HD2000U.

Be sure not to make the IEEE 1394 connection in a loop, as shown below.



When you connect more than one IEEE 1394-equipped devices, turn the power off when they are not used because leaving the unused devices turned on may cause the lack of memory and the signal cannot be transferred correctly. But some IEEE 1394-equipped devices cannot receive or send the data when it is turned off, so refer to your device owner's guides.

While using the IEEE 1394-equipped device, do not plug in/off the IEEE 1394 cable or turn the power on/off of the unused devices. When you unplug the IEEE 1394 cable and connect it again, leave it unplugged for a few seconds and then connect again.

The maximum transmit speed of the IEEE 1394 INTERFACE on the HS-HD2000U is 400Mbps. This speed may be slower when you connect the device with its transmit speed is different from this VCR.

Hooking Up Your VCR

Connections to Satellite Receiver

If you have an RCA DSS®, Sony DSS®, Toshiba DSS®, Panasonic DSS®, Hughes DSS®, PRIMESTAR®, or DISH Network™ satellite system, you can connect the satellite receiver to your VCR and then set up the VCR to change the channels of the satellite receiver. This will allow you to program your VCR to make unattended recordings from several different satellite channels.

- 1 Connect the red and white audio cable to AUDIO OUT R and AUDIO OUT L on the satellite receiver. Connect the other end to the AUDIO IN R and AUDIO IN L on the back of the VCR. Match the colors of the connectors to the cables.
- 2 Connect the S-video cable to S-VIDEO OUTPUT on the satellite receiver. Connect the other end to the S-VIDEO IN on the back of the VCR.
If your satellite receiver does not have S-VIDEO OUTPUT, connect the video cable to VIDEO OUTPUT on the satellite receiver. Connect the other end to the VIDEO IN on the back of the VCR.
- 3 See page 9 for IR Emitter connection.

connecting both a satellite receiver and a cable box with audio video outputs

- 1 Connect the satellite receiver to the audio video inputs on the back of the VCR as shown.
- 2 Connect the cable box to the audio video inputs on the front of the VCR.

IMPORTANT

You cannot connect both a satellite receiver and a digital cable box.

You may need to purchase an audio cable and an S-video cable for this hookup.

If possible, you should have connected your VCR to your TV with an S-Video cable. It will allow you to watch the satellite video signal on your TV even when the VCR is off if you set the Rear S-through in the S-VHS Set-Up menu to ON.

If you connect your VCR to your TV with a standard video cable, you will have to turn the VCR on to watch the video signal from the satellite receiver. You will be able to hear the audio signal from your satellite receiver both when the VCR is on and off.

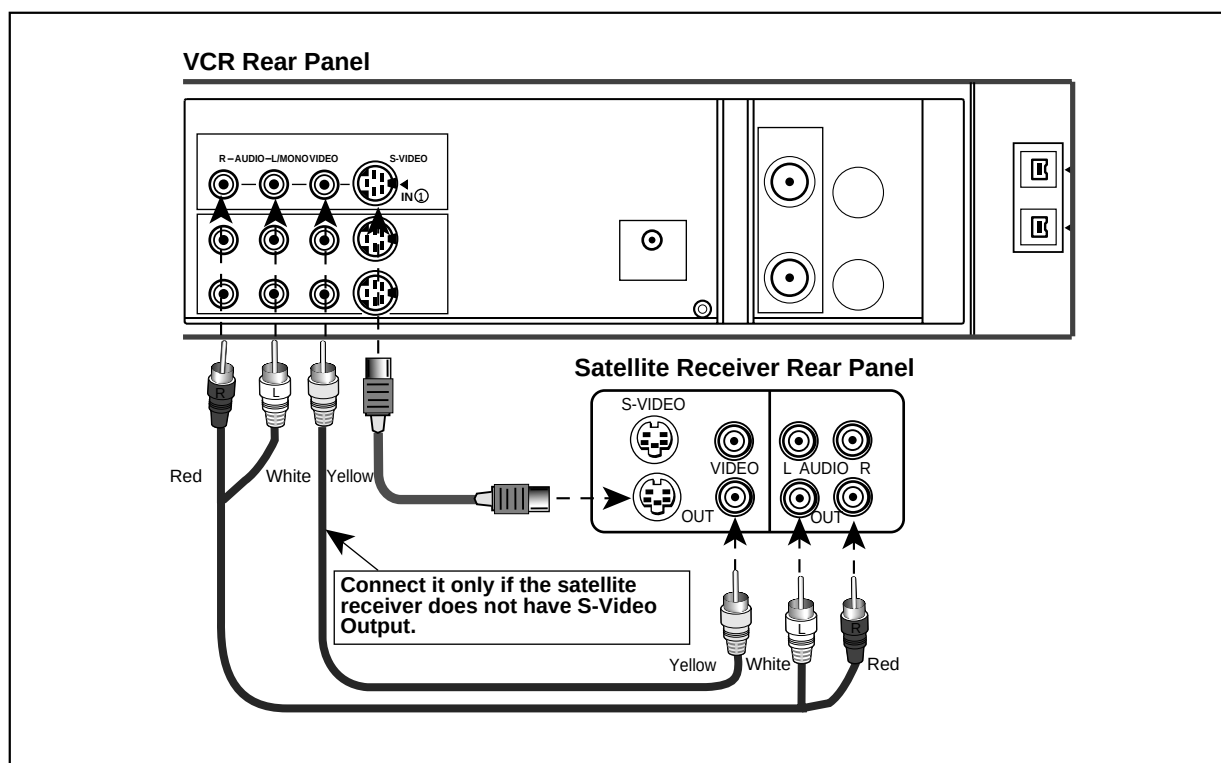
When you connect a satellite receiver to the S-video input on the back of the VCR, you have to set the Rear S-input in the S-VHS Set-Up menu to ON.

Refer to your Satellite Receiver Owner's Guide for Satellite dish to Satellite receiver connections, as well as other possible video connections to your TV.

DSS® is a registered trademark of DirecTV, Inc.

PRIMESTAR® is a registered servicemark of PRIMESTAR Partners LP.

DISH Network™ is a registered trademark of EchoStar Communications Corp.



Hooking Up Your VCR

Connections to Home Theater Receiver

You may wish to connect your VCR to a Home Theater Receiver so that you can take advantage of the Surround Sound audio recordings that are common with many movies. Home Theater Receivers will often control both the sound that is heard from the speakers and the picture shown on your TV. Below is the basic connection between your VCR and Home Theater Receiver. If you use this connection, you will not use **Connections to TV with Audio Video Inputs**.

- 1 Connect the red and white audio cables to AUDIO OUT R and AUDIO OUT L on the VCR. Connect the other end to the VCR 1 AUDIO INPUT R and AUDIO INPUT L on the Home Theater Receiver.
- 2 Connect an S-video cable to S-VIDEO OUT on the VCR. Connect the other end to the VCR 1 S-VIDEO INPUT on the Home Theater Receiver.

- 3 Connect an S-video cable to the MONITOR S-VIDEO OUTPUT of the Home Theater Receiver. Connect the other end to the S-VIDEO INPUT on the back of the TV.

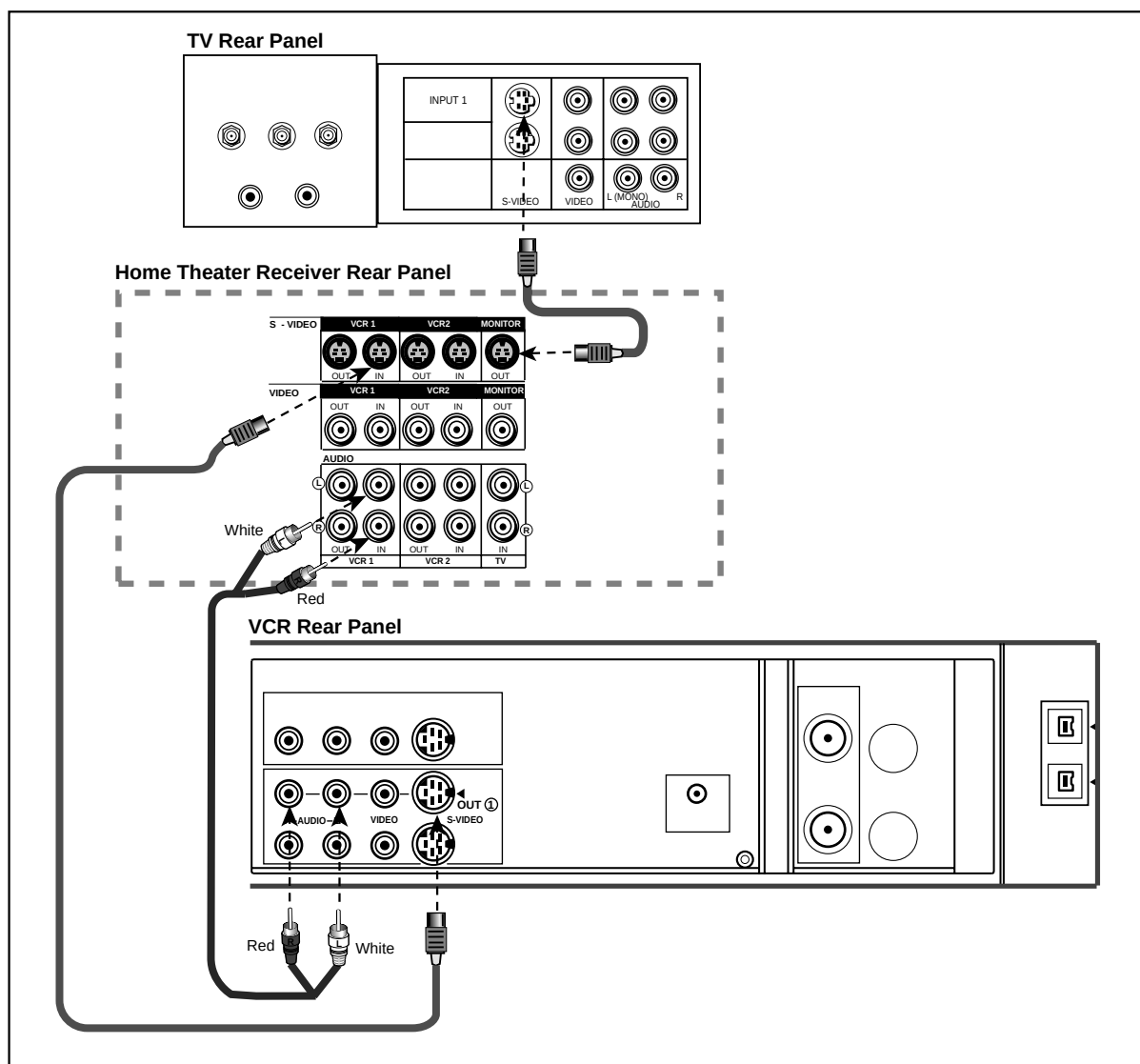
IMPORTANT

If either your Home Theater Receiver or TV does not have S-Video connections, use standard yellow video cables in step 2 and 3.

- 4 See your Home Theater Receiver Owner's Guide for information concerning audio connection between TV and Home Theater Receiver, or additional hookups and operations.

IMPORTANT

You may need to purchase additional sets of audio video cables for this hookup.



Hooking Up Your VCR

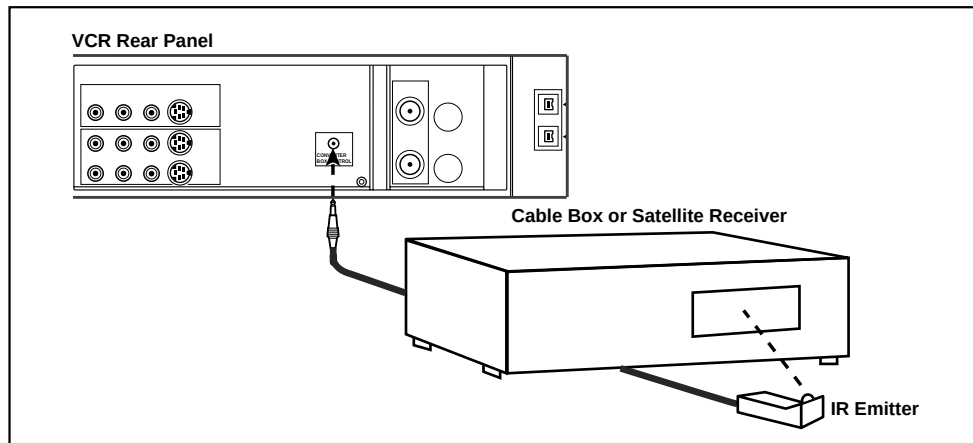
Connections to IR Emitter

Your VCR will be able to send remote control channel changing commands to your compatible cable box or satellite receiver. The VCR uses the IR Emitter to send these commands in the same way as when you use the hand held remote that came with the cable box or receiver.

- 1 Connect the supplied IR Emitter to **CONVERTER BOX CONTROL** on back of the VCR.
- 2 Run the wire under or along side the cable box or satellite receiver and place the end in front of the cable box and/or satellite receiver.
- 3 Use the double stick tape to secure the end of the emitter in the proper place.

IMPORTANT

If you connect both a cable box and satellite receiver, place the IR Emitter to face the remote control window (sensor) in the front of both. If you cannot place it this way, you can purchase a dual IR Emitter from your Mitsubishi dealer.



Playback

Setting Up Your VCR to Playback/Recording the Digital Broadcast in D-VHS format

- 1 Make sure that your VCR and the integrated HDTV or IEEE 1394-equipped HDTV receiver is connected with an IEEE 1394 cable.
- 2 Turn on the IEEE 1394-equipped HDTV receiver.
- 3 Turn on your TV and switch the input of the TV to the position which is connected to the IEEE 1394-equipped HDTV receiver.
- 4 Press POWER on the VCR to turn the power on.
- 5 When you are connecting the IEEE 1394-equipped HDTV receiver which is available to control the VCR:
Set the IEEE 1394 setting of the receiver to be able to control the HS-HD2000U. Refer to the receiver owner's guide for this procedure.

When you are connecting the IEEE 1394-equipped HDTV receiver which is not available to control the VCR:

Press IEEE 1394 INPUT on the VCR remote control to select the receiver you would like to playback/record. d1 to d5 will appear on the VCR front panel display. Select the number corresponds to the receiver you would like to playback/record.

To go back to viewing the picture from the TV, set your TV input to the previous ANTENNA input position.

If you does not switch the integrated HDTV or IEEE 1394-equipped HDTV receiver to the correct external input, the screen to the right will be displayed on the screen when you try to watch the digital broadcast.

1394 connection list

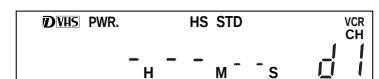
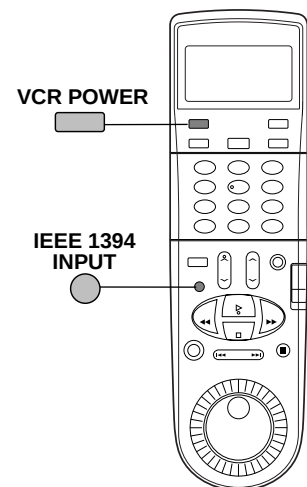
When you connect an integrated HDTV, an IEEE 1394-equipped HDTV receiver or a D-VHS VCR to the HS-HD2000U, you can see the list of connected TV, receiver or VCR on the 1394 connection list menu up to 5 devices. The integrated HDTV, an IEEE 1394-equipped HDTV receiver will be shown as TUNER and D-VHS VCR will be shown as VCR. The device which was connected to the HS-HD2000U before but now it is not connected, lose connection will be displayed. The device connected first will be d1, and connected fifth will be d5. When you want to remake the list, press CANCEL on the VCR remote control. In this case, the order of the devices on the list will be changed.

Setting Up Your VCR to playback/recording the tape in analog (S-VHS/S-VHS ET/VHS) format

The first thing you need to do is set up your VCR so that you can see the picture coming from the VCR. It's important to take a few minutes to set up your VCR correctly before you try to use it. Based on the type of TV that you have, choose one of the following:

TV with Audio/ Video Inputs

- 1 Turn on your TV and switch it to the correct external input. For most Mitsubishi TVs, this means pressing the TV's INPUT button until you see the words **Ext-1** or **Input-1** on the screen. If you do not have a Mitsubishi TV, please refer to your TV Owner's Guide for this procedure.
- 2 Turn the VCR on by pressing POWER.



Do you want to watch the contents of this program?

Sorry, but I cannot comply with your request on this line.

I'd like to advise you to use the 1394's line.

f1394 connection list

d1 TUNER lose connection
d2 TUNER lose connection
d3 TUNER connecting
d4 VCR now connecting

Press CANCEL to retake.
Use ADJUST to select, and ENTER.
Press MENU to go back.

Playback

- 3 You are now watching the VCR's picture. To go back to viewing the picture from the TV, press the TV's INPUT button to go back to the previous ANTENNA input position.
- 4 Later, you should turn the RF converter OFF by following instructions on page 48.

If your system includes a home theater receiver or an A/V receiver, refer to your home theater receiver's owner's guide.

TV without Audio/Video Inputs

If your TV does not have separate audio/video inputs, then your VCR will need to convert the VCR's picture to channel 3 or 4. This is called the video channel. The factory has already selected channel 3; however, if it is a broadcast channel in your area, then you will need to change this to channel 4. To make this change:

set up

- 1 To choose channel 4: with VCR power OFF, turn the front panel jog dial disk clockwise while holding down the SP/EP button on the front panel. **Ant ch 4** will display on the front panel and the VCR will send signals on channel 4.

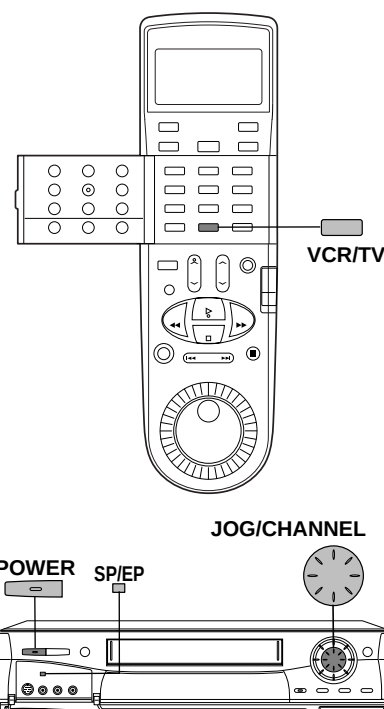
If needed, to return to channel 3: with the VCR turned OFF, turn the jog dial counter-clockwise while holding down the SP/EP button on the front panel. **Ant ch 3** will display.

- 2 Turn the VCR on by pressing POWER.

operating

- 3 Check to see if the VCR light on the front panel display is lit. If it is not, press VCR/TV on the remote control until the VCR light appears on the front panel. This light must be on when you watch a video tape or use the VCR menus. The VCR light will turn on automatically when you play a tape or use the VCR menus when the RF converter is set to ON. See page 48.
- 4 Turn on the TV and change the TV to the video channel (3 or 4). You are now watching the VCR's picture.

To watch a channel that is different than the channel your VCR is recording, the VCR light must be off. The VCR/TV button turns this light on and off.



Operating Your Remote Control

Installing the Batteries

- 1 To remove the back cover, press the ridged area gently, then push the cover in the direction of the arrow and lift.
- 2 Load the batteries, making sure the polarities (+) and (-) are correct. This is marked inside the battery compartment.

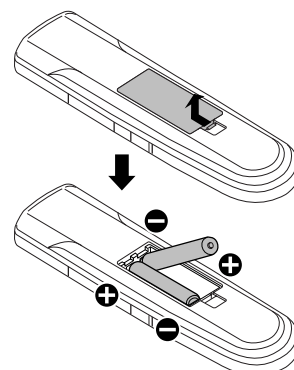
Next, you need to tell the remote control to operate the VCR, not the TV.

Operating the VCR with the Remote Control

The HS-HD2000U has two VCR remote control operational settings: VCR-A and VCR-B. The HS-HD2000U is pre-set to VCR-A setting. See page 53 for information about VCR operational setting.

- 1 Set the VCR/TV slide switch on the remote control to VCR position. This "tells" the remote that you want to control the VCR.

Now your remote is ready to operate your HS-HD2000U. If the VCR does not respond to the remote, please see page 53.



Playback

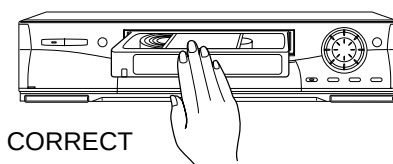
Loading a Tape

Tapes can be loaded into your VCR as long as the VCR is plugged in. Even when the VCR POWER is off, loading a tape will automatically turn the VCR on. Use only tapes that have a **DVHS**, **SVHS** or **VHS** label.

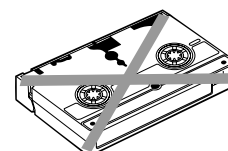
- 1 Hold the tape so that the long narrow edge with the contents label faces you. The other edge is hinged and should face the VCR. The plastic window that shows the videotape should face up.
- 2 Gently insert the tape evenly into the cassette slot until the VCR automatically takes it in.

If the VCR will not automatically take the tape in, press EJECT and try again.

Your VCR will eject the tape if it is loaded improperly. If the VCR ejects the tape; remove the tape, check to see that the contents label is facing you, that the geared tape reels are facing down, wait a few seconds, and try again.



CORRECT



INCORRECT

Playing a Tape

Playing a Tape Recorded in D-VHS Format

- 1 When you are connecting the integrated HDTV or IEEE 1394-equipped HDTV receiver which is available to control the VCR:
Operate your TV or receiver to playback the tape. Refer to the TV or receiver owner's guide for this procedure.

When you are connecting the integrated HDTV or IEEE 1394-equipped HDTV receiver which is not available to control the VCR:

Press PLAY on the front panel or the remote control of the VCR.

You can stop playing by pressing STOP.

It will take a few seconds to display the playback picture. The mosaic noise, still or black picture will appear until the correct picture appears.

When you playback the end point of a recording, the point where the recording mode changes or the broken part of the tape, the mosaic noise, still or black picture may appear.

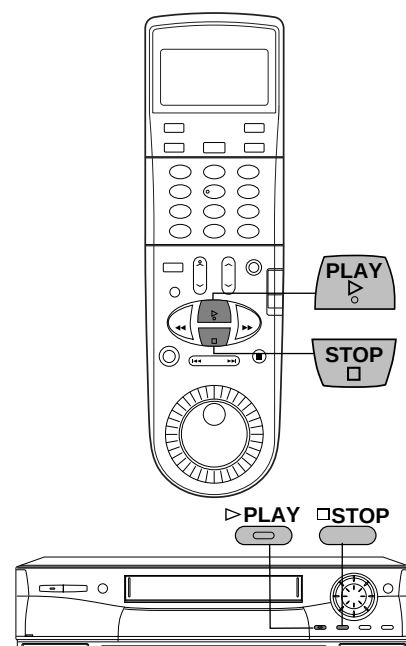
The tape recorded in D-VHS format by another VCR may not be played back correctly on this VCR.

Playing a Tape Recorded in Analog Format

- 1 Press PLAY on the front panel or the remote control.

The VCR will automatically play the tape at the correct speed. When the VCR reaches the end of the tape, it will automatically rewind to the beginning of the tape and stop.

You can stop playing by pressing STOP.



Playback

Using Basic Playback Controls

Rewinding a tape

While the tape is stopped, press REW on the remote control or turn the shuttle ring on the front panel to the left.

Fast forwarding a tape

While the tape is stopped, press FF on the remote control or turn the shuttle ring on the front panel to the right.

Speed Search with picture

While the tape is playing, press FF on the remote control or turn the shuttle ring on the front panel to the right for forward speed search with picture, or press REW on the remote control or turn the shuttle ring on the front panel to the left for reverse speed search. See page 40 for additional information on searching techniques.

Pausing a tape

While the tape is playing, press PAUSE on the remote control or on the front panel to freeze the picture on the screen.

Press PAUSE a second time to return to normal play.

If you leave the VCR in pause for more than 5 minutes, the VCR will automatically stop to prevent damage to the tape.

When pausing a tape recorded in D-VHS format, the black picture may appear before the still picture appears depending on the integrated HDTV or IEEE 1394-equipped HDTV receiver.

Controlling the Vibration During Still Frame

If the picture vibrates during still frame, turn the jog dial while holding down SP/EP on the front panel until the picture is steady.

Unloading a Tape

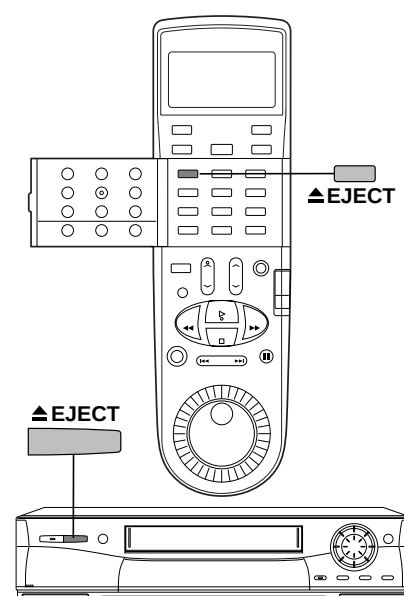
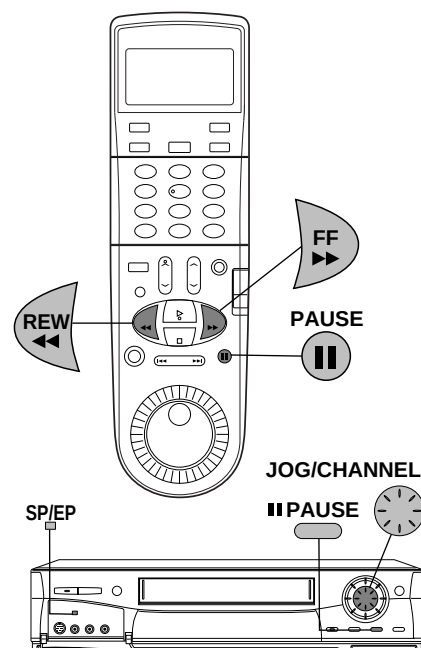
- 1 Press EJECT on the front panel or on the remote control. If the VCR POWER is off, the VCR will turn on, eject the tape, then turn off.
- 2 Remove the tape.

Using repaired tapes

We recommend that you take any broken or torn tapes to a professional for repair. If you repair a torn tape with improper materials, you could damage your VCR when you play the tape.

Head cleaning

Your VCR automatically cleans the head and the drum of the VCR whenever you load a tape. If you see mosaic noise, still or black picture when D-VHS playing, or "noise" or snow when analog playing, eject the tape, re-load the tape, then wait 3 or 4 seconds. Repeat this process several times to improve the picture.

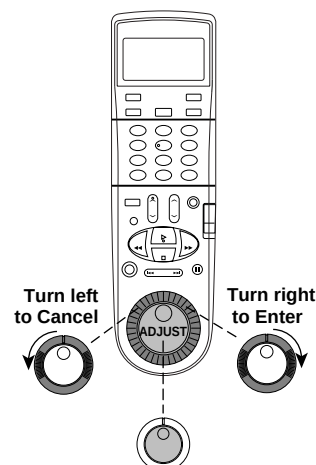


Setting Up Your VCR

Your VCR comes with Mitsubishi's exclusive **ViewPoint®** on-screen operating system. This system has been developed to simplify the operation of your VCR with clear, easy-to-understand language and design.

Before your VCR can receive television channels or you can program your VCR to record, you need to memorize all of the channels you can receive into your VCR and set the clock. Additionally, if you are using a satellite receiver, you need to do a first time setup to memorizing satellite brand code. Fortunately, your VCR makes this an easy process with our menu system.

When using the on-screen menus, use the JOG/SHUTTLE control on the remote control, not the front panel. Use the ADJUST dial to move the highlight bar up or down and to change the setting of selected features. Turn the SHUTTLE ring to the right to enter a selection or adjustment (the ENTER button may also be used for this). Turn the shuttle ring to the left to cancel or clear a setting (the CANCEL button may also be used for this).



Using AllSet™ to Set Up Your VCR Automatically

AllSet will automatically set the clock, memorize all of the television stations available to you and set the VCR Plus+® guide channel numbers.

You need to manually set the brand code for the satellite receiver.

If your local cable company scrambles some or all stations, and/or requires you to use a cable box, then your ability to program channels would normally be limited. The cable box receives all of your channels, then sends only one to your TV and your VCR, usually on channel 3 or 4.

If you are required to use a cable box, you should choose Cable box only or Digital Cable box only option in step 4 on the next page and turn the cable box on. Your HS-HD2000U will use its Converter Box Control technology to change the channels on the cable box. Make sure you have properly placed the IR Emitter (see page 9).

If your cable box or cable system seems incompatible with your new VCR, call your cable company. They may be able to provide solutions to your problems.

- 1 Make sure you are viewing the picture coming from your VCR. Press MENU on the remote control. VCR Main Menu comes up. If First Time Set-Up is not highlighted, use the ADJUST dial on the remote to highlight it.
- 2 Turn the shuttle ring on the remote control to the right. First Time Set-Up menu will appear. AllSet will be highlighted. Turn the shuttle ring to the right.

IMPORTANT

If you are recording or playing back a tape, Not available will flash and an error message will appear. To correct this, stop the tape.

- 3 You will see the AllSet explanation screen. Turn the shuttle ring to the right.

A special note to cable box subscribers

```

VCR Main Menu
~Program to record
f1394 connection list
Customize choices
»S-VHS Set-Up
fFirst Time Set-Up

Use ADJUST to select,
and ENTER.
Press MENU to exit menus
    
```

```

fFirst Time Set-Up
AllSet
Set the clock
«Add/delete channels
±Sat.receiver (OFF)

Use ADJUST to select,
and ENTER.
Press MENU to go back.
    
```

```

AllSet

Fully Automatic Setting

Clock
VCR Plus+ Guides
Channel memory

Press ENTER to continue.
Press MENU to go back.
    
```

Setting Up Your VCR

- 4 You will see the menu for sources connected to the VCR. Using the list below as a reference, turn the ADJUST dial to select the kind of antenna you connected.
- **Cable** if you have standard cable service without a cable box, use a cable box with an A/B switch, or your cable box is not remote controllable
 - **Cable box only** if you use a standard cable box
 - **Digital cable box only** if you use a digital cable box
 - **Indoor/outdoor ant.** if you use rabbit ears type or roof mounted type antennas
- After you have selected, turn the SHUTTLE ring to the right.

If you choose **Cable** or **Indoor/outdoor ant.**

An on-screen message and the front panel display of your VCR will show you that the VCR is memorizing the stations you can receive. After the VCR has programmed all the channels, you will see the screen for entering the zip code. Go to step 10 in this section.

If you choose **Cable box only** or **Digital cable box only**

You need to tell the VCR which manufacturer makes your cable box or digital cable box, and on which channel the cable box or digital cable box sends a signal.

- 5 Brand code will be highlighted. Turn the ADJUST dial or press the number buttons to select the manufacturer's code number for your cable box or digital cable box. The codes are listed below.
- 6 To determine if the Brand code is correct, press CHANNEL on the remote. The channel number on the front panel display should change. Then your cable box or digital cable box should change to the exact same number a moment after it appears on your VCR.

If your cable box or digital cable box does not change channels at all, or does not show the exact same number, try the next Brand code, if another is listed for your type of cable box or digital cable box. Also make sure the IR emitter bulb faces the IR window on the cable box.

If no code number is listed for your cable box, or if none of the listed numbers work, try each code from 1 to 94. (For digital cable box, code numbers 3 to 5 are not functional.)

If your cable box or digital cable box cannot be operated by a remote control (if it has a mechanical dial or slide), then your VCR will not be able to change channels on the cable box.

If your cable box will not respond to any of the codes, your VCR cannot change channels on the cable box. You will need to change channels yourself, using the cable box's remote control. You should re-program your VCR, choosing Cable in step 4. When programming to record, you will need to leave your cable box ON and tuned to the channel you wish to record.

Cable Box Brand Code

Manufacturer	Code Number	Manufacturer	Code Number	Manufacturer	Code Number
ABC	1, 2, 11	Magnavox	59, 61, 67	Sheritech	57
Archer	29, 58, 65	Movietime	30, 31, 51, 54	SL Marx	5, 14, 29
Century	29, 65	NSC	20, 51, 52	Sprucer	14, 21, 25
Citizen	29, 65	OAK	27, 39, 40, 49, 50, 61	Stargate	5, 14, 29, 65
Diamond	54, 58	Panasonic	14, 21, 25	Sylvania	66
Eagle	17, 18, 19, 61, 62, 63	Paragon	6, 7	Teknika	36
Eastern	68	Pioneer	14, 15, 16, 92, 93, 94	Texscan	53, 66
G C Electronic	29, 65	Philips	26, 61, 62, 63, 64	Tocom	1,2,3,4,5,41,42,43,44,69,91
Gemini	5, 60	RCA	14, 21, 25	Toshiba	32, 33, 34
General Electric	35	Realistic	37, 38	Unika	48
General Instrument	1,2,3,4,5,41,42,43,44,69,91	Regal	45, 48	United Cable	2
Hamlin	22, 23, 45, 46, 47	Regency	68	Universal	30, 31, 54, 65
Hitachi	24	Rembrandt	55, 56	Videoway	6, 7
Jerrold	1,2,3,4,5,41,42,43,44,69,91	Samsung	5, 14, 21, 25, 29	Viewstar	17, 18, 19, 61, 62, 63
Macom	28	Scientific Atlanta	10, 11, 12, 13	Zenith	6, 7, 8, 9

Digital Cable Box Brand Code

Manufacturer	Code Number
GI	1, 2

AllSet

What type of sources are connected to the VCR?

☒Cable

☐Cable box only

☐Digital cable box only

☐Indoor/outdoor ant.

Use ADJUST to select, and ENTER.

Press MENU to go back.

AllSet

Now memorizing all the stations you can receive

Channel 3

Stand by this may take a few minutes

To cancel memorization, press CANCEL

AllSet

Please enter code from your Owner's Guide:

fBrand code -

Use ADJUST to select, and ENTER.

Press MENU to go back.

Setting Up Your VCR

- 7

When the Brand code is correct, turn the shuttle ring to the right. The screen will add a Channel selection.
- 8

Use the ADJUST dial to select the channel on which your cable box or digital cable box sends a signal to the VCR (normally channel 3 or 4). If you connected your cable box or digital cable box with audio/video cables, use INPUT to select **L1** (if you used the rear panel jacks), or **L2** (if you used the front panel jacks). You cannot use both digital cable box and satellite receiver. Thus if you selected Digital cable box only in step 4, you cannot select **L2**.
- 9

After entering the channel number, turn the SHUTTLE ring to the right. The VCR will begin memorizing the available channels. During this process your TV screen, the front panel display, and your cable box or digital cable box should all display each channel number one by one.

- 10

When the VCR is finished memorizing, you will see the screen for entering your zip code. Use the number keys to enter your zip code. For example, if your zip code is 92618, press 9-2-6-1-8.

If you enter a number incorrectly, turn the SHUTTLE ring to the left or press CANCEL.
When you have finished entering the zip code, turn the SHUTTLE ring to the right.

The VCR will begin to search for a channel that carries a time signal to set the clock. If the VCR can find the channel, it will set the clock. You can see if the clock has been set on the front panel display of your VCR.

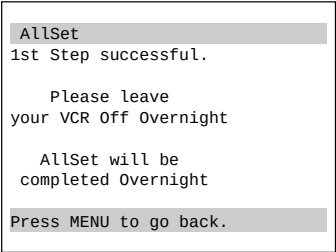
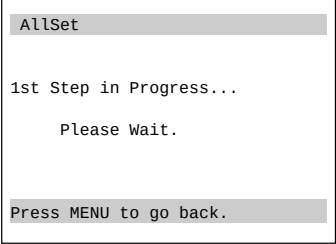
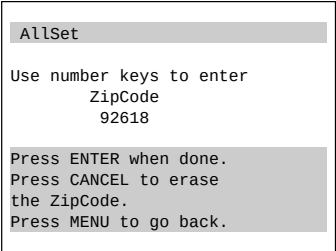
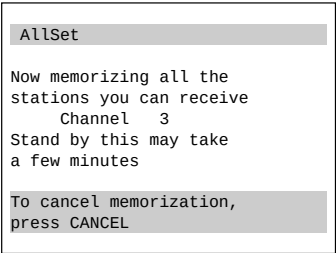
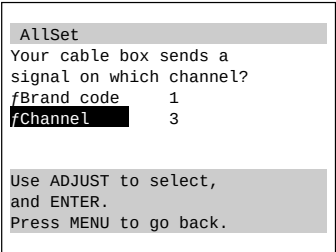
The clock setting set up time varies, it may take up to 30 minutes as the VCR searches one by one for a channel that carries a time signal.

If the VCR will not set the clock (the current time display still shows --:--), see **Setting the Clock** on page 20.

- 11

Once the VCR has set the clock, it shows the message indicating that the first step is completed. Then, press POWER to turn off the VCR and leave the VCR off for the night. The full set-up will be completed overnight (from about Midnight to 7:00AM).

During this time, the VCR will search for a channel that carries data to set the VCR Plus+® guide channel numbers for your area and then check the guide channel number against the channel number you receive in your home and select the correct lineup automatically.



IMPORTANT

If you use a cable box or digital cable box, you will need to leave your cable box or digital cable box ON at all times.

Setting Up Your VCR

12 Turn on the VCR the next day. When you set your TV's input to view the VCR picture, you will see one of the following messages:

- **Setup Completed**
- **Press MENU to see the message of AllSet**
- **Setup failed**

Setup Completed means AllSet has successfully completed the setup procedure and set the VCR Plus+® system for recording. Press MENU to clear the screen.

Press MENU to see the message of AllSet means that you need to perform one more operation before AllSet can complete the setup procedure. Press MENU to see the full message as shown here.

This message is displayed when there is more than one cable company servicing your zip code area. In these situations, there will be more than one channel lineup and your VCR may not be able to identify which is the correct lineup for your home. To select the correct channel lineup:

- 1** Turn the SHUTTLE ring to the right. You will see the first lineup screen, Lineup1, which will show selected key stations.
 - **Guide** column shows the selected stations' call letters or network name.
 - **VCRCH** column shows the channel numbers used for the selected stations by one of the local cable companies.

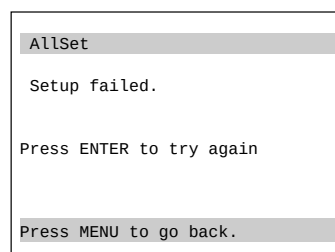
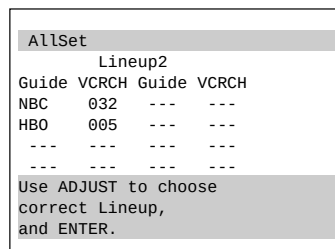
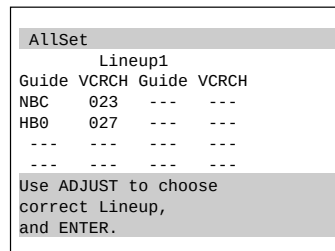
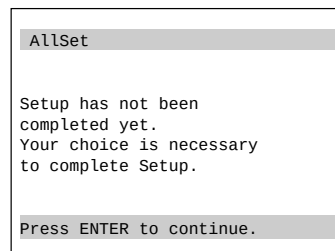
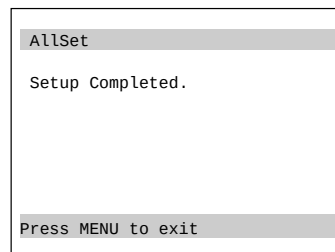
Note: As the VCR's memory is limited, the Guide column may not display call letters completely.

- 2** Turn the ADJUST dial to cycle through the other possible lineups, Lineup2, Lineup3 and so forth, until you find the lineup that matches your cable company.
- 3** Turn the SHUTTLE ring to the right. The screen will instruct you to turn the VCR off so that AllSet can complete the setup overnight. Leave the VCR turned off overnight and check it the next morning for the **Setup Completed** display.

If the correct lineup is not displayed or you see **Setup failed**, the VCR cannot set up the VCR Plus+® guide channel numbers automatically. Set them manually when you program your VCR to record with VCR Plus+® system. (See page 34.)

Setup failed means an error has prevented AllSet from properly setting up the VCR Plus+® Guide channel numbers. This is normally caused by one of the following reasons:

- You entered an invalid zip code for your area. Turn the SHUTTLE ring to the right to return to the zip code screen and re-enter the correct zip code. Try the setup again and do not turn on the VCR until after 7:00 am the next day.
- You entered a new zip code that AllSet is not ready to use. Turn the shuttle ring to the right to return to the zip code screen and re-enter your old zip code. Try the setup again and do not turn on the VCR until after 7:00 am the next day.
- You turned on the VCR and interrupted the AllSet procedure before it was complete. AllSet completes the setup normally between midnight and 7:00 am. Try the setup again and do not turn on the VCR until after 7:00 am the next day.
- AllSet information is not broadcast in your area. You will need to set the VCR Plus+® Guide channel manually when you program your VCR to record with VCR Plus+® system.



Setting Up Your VCR

IMPORTANT

Automatic channel programming using AllSet may include vacant channels if there are stray signals or noise on those channels. If this occurs, you can manually delete the channels using the procedure in the section **Adding and Deleting Channels**.

You do not need to perform this set-up again unless your cable company changes their channel lineup, or you move the VCR to a new address.

After a power failure, if you have set Clock set within the Set the clock menu to AUTO, then AllSet will automatically set the clock again.

Once the VCR has completed the AllSet set-up, it can automatically set the clock, including your time zone and daylight saving time. In order for the auto clock function to work, the Clock set within the Set the clock menu must be set to AUTO. Follow ALL the steps in **Setting the Auto Clock**.

Satellite Receiver Control

If you are using a satellite receiver, you can set up your VCR to change channels on the satellite receiver.

- 1 Make sure you are viewing the picture coming from your VCR. Press MENU on the remote control. VCR Main Menu appears.
- 2 Turn the ADJUST dial on the remote control to select First Time Set-Up. Turn the SHUTTLE ring to the right.
- 3 You will see the First Time Set-Up menu. Turn the ADJUST dial to select Sat. receiver.

IMPORTANT

You cannot select Sat. receiver if you select Digital Cable box only in step 4 of AllSet (on page 14).

```
fFirst Time Set-Up
AllSet
Set the clock
«Add/delete channels
+Sat.receiver (OFF)
```

Use ADJUST to select,
and ENTER to change.
Press MENU to go back.

- 4 Turn the SHUTTLE ring to the right to select the correct code for your satellite receiver.

<u>Manufacturer</u>	<u>Code</u>
GE	1
RCA	1, 8
PRIMESTAR®	2
Sony	3
DISH Network	4
Toshiba	5
Panasonic	6
Hughes	7
none	OFF

- 5 After you have selected, press MENU twice to exit the menus.

IMPORTANT

After you have connected the satellite receiver and set the brand code, you need to see if your VCR can control your satellite receiver. To do this, use CHANNEL or number buttons on the VCR remote to tune to a satellite channel. If the satellite channels appear on your TV, then your VCR can control your satellite receiver.

Setting Up Your VCR

Adding and Deleting Channels

If necessary, you can manually add or delete channels after you have completed the automatic channel memorizing by using AllSet. You cannot do this for channels coming from a satellite receiver.

- 1 Make sure that video mute is ON. See page 47.
- 2 Set the VCR's input to tuner. To do this, press INPUT on the remote control until a channel number appears on the screen or the front panel display.
- 3 Press MENU on the remote control. VCR Main Menu appears.
- 4 Turn the ADJUST dial on the remote control to select First Time Set-Up. Turn the SHUTTLE ring to the right.
- 5 You will see the First Time Set-Up menu. Turn the ADJUST dial to select Add/delete channels. Turn the SHUTTLE ring to the right.

IMPORTANT

If you are recording, playing back a tape, receiving a video signal from an external input, or watching a satellite receiver channel, then Not available will flash on-screen. To correct this, stop the tape or turn off the menus and switch the VCR's input to tuner.

- 6 You will see the screen for adding or deleting channels. Use the ADJUST dial to select the channel that you want to add or delete. Press ENTER or turn the SHUTTLE ring to the right to add the channel; press CANCEL or turn the SHUTTLE ring to the left to delete it.
- 7 When you are finished adding or deleting channels, press MENU three times to exit the menus.

IMPORTANT

If you use AllSet to memorize channels again, you will lose all of the manual changes you made. All of the channels you deleted will be added; all of the channels you added will be deleted. If your cable box receives only one or two digit channels, you cannot add a three-digit channel.

```
First Time Set-Up
AllSet
Set the clock
«Add/delete channels
±Sat.receiver (OFF)
```

```
Use ADJUST to select,
and ENTER.
Press MENU to go back.
```

«Add/delete channels

```
Channel      39
              Not in memory
```

```
Use ADJUST to select,
a channel. Use ENTER
to add it. CANCEL to
delete it.
Press MENU to go back.
```

Setting Up Your VCR

Selecting a Channel

Now that you have memorized channels, and added or deleted some, you will want to be able to select channels. If you have not yet memorized channels using AllSet, see page 13. (If you selected digital cable box, you cannot select any satellite channels.)

Antenna/Cable selections
indoor/outdoor antenna
cable antenna without box
cable box only
digital cable box

Your VCR can receive
VHF/UHF channels 2–69
cable channels 1–125
cable box channels 0–99
digital cable box channels 0–999

Satellite Receiver selections
Sony, RCA, GE, Toshiba,
Panasonic, Hughes,
DISH Network™

Your VCR can receive
any channel from 100-999 provided
by your satellite service
(cable channels 100-125 cannot be selected)

Satellite Receiver selections
PRIMESTAR®

Your VCR can receive
any channel from 1-999 provided
by your satellite service
(cable channels 100-125 cannot be selected)

If you try to select a channel number that the VCR cannot receive, the VCR will not change channels.

selecting antenna, cable or digital cable channels sequentially

Press CHANNEL on the remote control or turn the jog dial on the VCR front panel. This will cycle through the channels in sequential numerical order. When you select the digital cable channels from 100 to 999, holding down the CHANNEL on the remote or turning the jog dial on the front panel quickly will advance the channels in 10 channel increments.

selecting antenna, cable or digital cable channels directly

Use the number buttons on the remote control. For example, to choose channel 23, press 2-3. If you select digital cable channels, you can select the three digits channels directly by using the number buttons. For example, to choose digital cable channel 157, press the 1-5-7. To select a single digit channel, such as channel 5; press 0-5. You can also press 5, then press ENTER.

selecting satellite channels sequentially

Press CHANNEL on the remote or turn the jog dial on the VCR front panel. When pressing the up arrow or turning the jog dial to the right, the lowest satellite channel will follow the highest antenna or cable channel. When pressing the down arrow or turning the jog dial to the left, the highest satellite channel will follow the lowest antenna or cable channel. The other satellite channels will follow in numerical order. Continuously holding down CHANNEL on the remote or turning the jog dial on the front panel quickly will advance the channels in 10 channel increments.

selecting satellite channels directly

For Sony, RCA, GE, Toshiba, Panasonic, Hughes and DISH Network; press the number buttons on the remote. For example, to go to channel 263, press 2-6-3. For PRIMESTAR channels, press INPUT until the channel number with the PRIMESTAR light (◆) appears on the front panel display. Then press the number buttons on the remote. For one or two digit channel numbers, press the number buttons, then turn the SHUTTLE ring to the right. For example, to go to channel 29, press 2-9-ENTER.

Setting Up Your VCR

Setting the Clock

If your clock is set correctly, skip this section.

If your VCR cannot set the clock automatically in the AllSet™ procedure, you have to set the clock using either **Setting the Auto Clock** or **Setting the Clock Manually**.

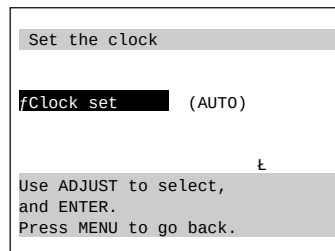
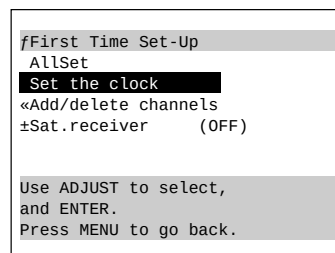
Setting the Auto Clock

Your VCR can set the clock automatically by picking up a time signal which some TV and cable channels transmit with their broadcasts. Most PBS stations send this signal; however, this function works only if a channel in your area is broadcasting a time signal. If you don't receive this signal, set the clock manually.

- 1 Press MENU on the remote control. VCR Main Menu will appear.
- 2 Turn the ADJUST dial to select First Time Set-Up. Turn the SHUTTLE ring to the right. The First Time Set-Up menu will appear. Use the ADJUST dial to select Set the clock. Turn the SHUTTLE ring to the right.
- 3 You will see the Set the clock menu. Clock set will be highlighted. Turn the ADJUST dial to select AUTO.
- 4 Turn the VCR off to activate the auto clock setting function.

The VCR will search for a channel that carries a time signal, then set your time zone and daylight saving time. If there are only a few channels in your area that carry time signals, it may take about 30 minutes to complete. If you turn the VCR on before the correct time displays, the auto clock setting will be cancelled. See if the clock has been set on the front panel display on the VCR.

If the VCR displays the wrong time, the time zone setting may not be correct. To adjust this, follow the steps in **If the VCR displays the wrong time**. (See the next page.)



IMPORTANT

When you memorized channels, if you chose **Cable box only** or **Digital cable box only**, make sure you leave the cable box or digital cable box **on**. At 3:00 am, when the VCR power is off, the VCR will begin to automatically change channels on the cable box, one by one, to set the clock. At this time you cannot use the cable box.

If you want to use the cable box at 3:00 am, turn on the VCR or set the Clock set of the Set the clock menu to MANUAL. In both cases, auto clock function will be canceled.

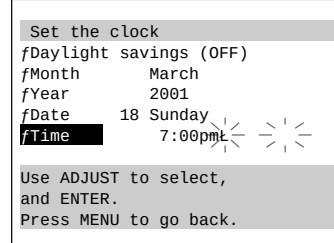
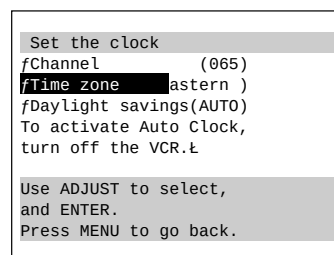
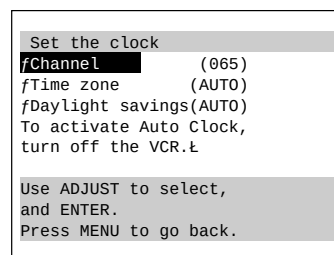
When you memorized channels, if you chose **Cable** or **Indoor/outdoor ant.**, the VCR will set the clock as soon as you turn off the VCR, and at 3:00 am.

After a power failure, the VCR will automatically set the clock again. (If you have set the Clock set setting of the Set the clock menu to MANUAL, the auto clock function will not work.)

Setting Up Your VCR

If the VCR displays the wrong time

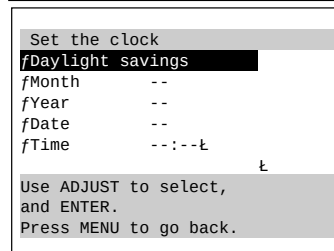
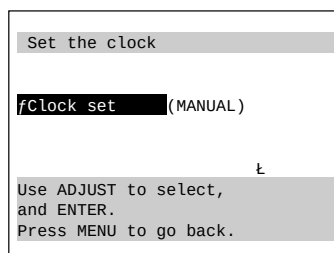
- 1 Follow the procedure on the previous page to step 3. Then turn the SHUTTLE ring to the right.
- 2 You will see the Set the clock menu. Channel will be highlighted. If you know the channel that carries a time signal, turn the ADJUST dial to enter the channel. Most PBS stations broadcast a time signal. For fastest response, enter your local PBS station. If you don't know it, leave the channel setting at AUTO. Turn the SHUTTLE ring to the right.
- 3 Time zone will be highlighted. Turn the ADJUST dial to select the time zone of your area. Available time zones are: Atlantic, Eastern, Central, Mountain, Pacific, Alaska, and Hawaii. Turn the SHUTTLE ring to the right.
- 4 Daylight savings will be highlighted. Turn the ADJUST dial to select AUTO, ON or OFF. If you follow daylight saving time, select ON. If not, select OFF. If you select AUTO, the VCR automatically sets the daylight saving time.
- 5 To activate the auto clock function, turn off the VCR.



Setting the Clock Manually

Skip this section if your VCR has set the clock correctly using AllSet or the auto clock function.

- 1 Press MENU on the remote control. You will see the VCR Main Menu.
- 2 Turn the ADJUST dial to select First Time Set-Up. Turn the SHUTTLE ring to the right. First Time Set-Up menu will appear. Turn the ADJUST dial to select Set the clock. Turn the SHUTTLE ring to the right.
- 3 You will see the Set the clock menu. Clock set will be highlighted. Turn the ADJUST dial to select MANUAL. Turn the SHUTTLE ring to the right.
- 4 Daylight savings will be highlighted. Turn the ADJUST dial to select ON or OFF. If you are currently following daylight savings, select ON. Otherwise, select OFF. Turn the SHUTTLE ring to the right.



Setting Up Your VCR

- 5 Turn the ADJUST dial until the correct month appears on screen. Turn the SHUTTLE ring to the right.
- 6 Turn the ADJUST dial to set the current year. Turn the SHUTTLE ring to the right.
- 7 Turn the ADJUST dial to set the date. Turn the SHUTTLE ring to the right.
- 8 The hour numbers and the am/pm indicator will be blinking. Turn the ADJUST dial to set the hour and am/pm at the same time. Turning the dial *right* moves the clock *forward*; turning the dial *left* moves the clock *backward*. Turn the SHUTTLE ring to the right.
- 9 Turn the ADJUST dial to set the minutes. When you have set the correct time, turn the SHUTTLE ring to the right. First Time Set-Up menu will appear, and the clock will start running.
- 10 Press MENU twice to turn off the menus.

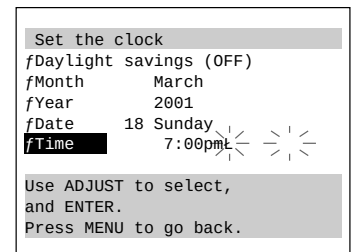
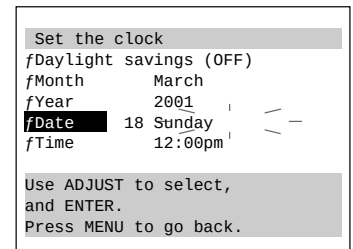
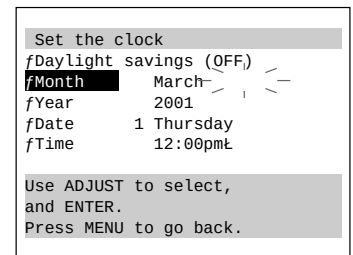
You can adjust the daylight saving time manually. When Daylight savings is highlighted, turn the ADJUST dial to select ON or OFF.

If you select ON, the VCR will set the clock forward one hour.

If you select OFF, the VCR will set the clock back one hour.

IMPORTANT

Any time you adjust this setting, check your programmed recordings to be sure they are set to the correct times.



Recording

Your new VCR offers a wide variety of recording options that take full advantage of our advanced electronics. First, you can learn how to record a current broadcast. Then, in another section of this book called **Timer Recording**, you can learn how to program your VCR to record at a later time and day.

Recording a Current Digital Broadcast

Recording a Current Digital Broadcast in D-VHS format

- 1 Follow the steps 1 to 5 of **Setting Up Your VCR to Playback/Recording the Digital Broadcast in D-VHS format** on page 12.
- 2 Select the channel you would like to record on the integrated HDTV or IEEE 1394-equipped HDTV receiver, not on the VCR.
- 3 Load a D-VHS tape with its erasure prevention tab intact into the VCR.
- 4 Make sure that the D-VHS button on the front panel is lit. If not, press this button until it lights up.
- 5 When you are connecting the integrated HDTV or IEEE 1394-equipped HDTV receiver which is available to control the VCR:
Operate your TV or receiver to record the program, pause recording or stop recording. Refer to the TV or receiver owner's guide for this procedure.

When you are connecting the integrated HDTV or IEEE 1394-equipped HDTV receiver which is not available to control the VCR:

Press IEEE 1394 INPUT on the VCR remote control to select the device you would like to record. d1 to d5 will appear on the front panel display. Select the number corresponds to the device you would like to record. And then press REC on the remote control or on the front panel.

Recording will start. When the VCR reaches the end of the tape, it will automatically rewind to the beginning of the tape and stop.

- You can stop recording at any time by pressing STOP or PAUSE on the remote or on the front panel.
 - To resume recording from STOP, press REC.
 - To resume recording from PAUSE, press PAUSE.
- You cannot use REC/②REC LENGTH on the front panel to resume recording from PAUSE.

IMPORTANT

Refer to your integrated HDTV or IEEE 1394-equipped HDTV receiver owner's guide.

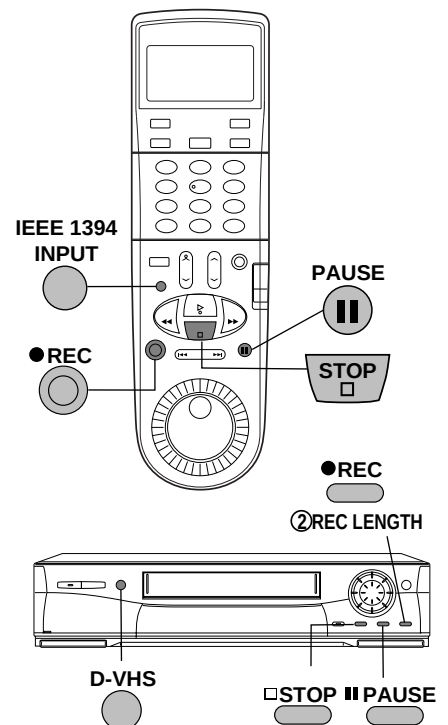
The recording mode will be changed automatically depending on the broadcasting signal.

While the VCR is recording a digital broadcast, please do not change the channel on the integrated HDTV or IEEE 1394-equipped HDTV receiver.

If you pause the VCR for more than five minutes, recording will stop automatically to protect the tape.

If you pause a recording, the mosaic noise, still or black picture may appear when playing the point where the recording is resumed.

If you attempt to record on a tape that has had its erasure prevention tab removed, the VCR will eject it. To record over such a tape, simply place a piece of vinyl tape over the opening.



Erasure prevention tab

Recording

recording the copy protected digital programs

Some program have copy protect data to prohibit or restrict the D-VHS recording.

- Programs without copy protection : D-VHS recording is available.
- Programs with copy restriction : You can record in D-VHS format once, but cannot copy.
- Programs prohibited from copying: D-VHS recording is not available.

Recording a Current Digital Broadcast in analog (S-VHS/S-VHS ET/VHS) format

- 1 Select the channel you would like to record on the integrated HDTV or IEEE 1394-equipped HDTV receiver, not on the VCR.
- 2 Load a tape with its erasure prevention tab intact into the VCR.
- 3 Set the recording format. See **Selecting Recording Format** on page 24.
- 4 Set the Front S-input in the S-VHS Set-UP menu when you connect the integrated HDTV or IEEE 1394-equipped HDTV receiver to the front panel of the VCR, or Rear S-input when you connect the integrated HDTV or IEEE 1394-equipped HDTV receiver to the rear of the VCR. See **Selecting S-input Setting** on page 24.
- 5 Press INPUT to set the external input to the position which is connected to the integrated HDTV or IEEE 1394-equipped HDTV receiver.
 - select **L1** if you connect to the rear panel.
 - select **L2** if you connect to the front panel.
- 6 Set the speed at which you would like to record by pressing SP/EP on the remote control or on the front panel.
- 7 Press REC on the remote or REC/②REC LENGTH on the front panel.

Recording will start. When the VCR reaches the end of the tape, it will automatically rewind to the beginning of the tape and stop.

- You can stop recording at any time by pressing STOP or PAUSE on the remote or on the front panel.
 - To resume recording from STOP, press REC.
 - To resume recording from PAUSE, press PAUSE.
- You cannot use REC/②REC LENGTH on the front panel to resume recording from PAUSE.

IMPORTANT

Be sure to connect the VCR and an integrated HDTV or IEEE 1394-equipped HDTV receiver with an S-video/video and an audio cable to record a digital broadcast in analog format.

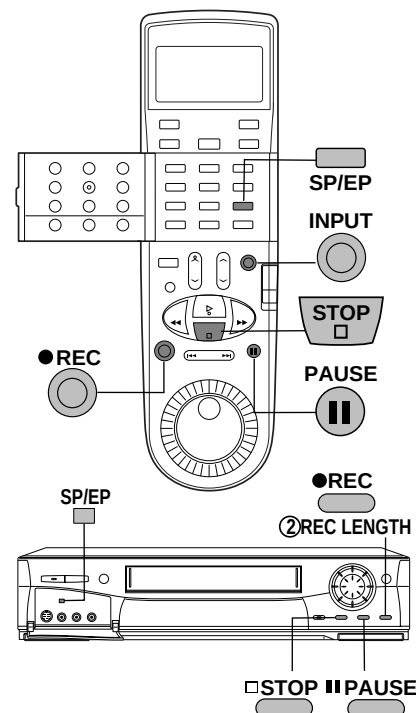
While the VCR is recording a digital broadcast, please do not change the channel on the integrated HDTV or IEEE 1394-equipped HDTV receiver.

The menu or the program list will be recorded if it is displayed during recording.

If you pause the VCR for more than five minutes, recording will stop automatically to protect the tape.

If you record a digital broadcast in analog format, the picture quality will not be as clear as that of the original digital broadcast.

If you record a copy protected digital program, the copy protect data will also be recorded.



Recording

Recording a Current Broadcast in analog (S-VHS/S-VHS ET/VHS) format

- 1 Load a tape with its erasure prevention tab intact into the VCR.
- 2 Set the recording format. See **Selecting Recording Format** on page 24.
- 3 Set the speed at which you would like to record by pressing SP/EP on the remote control or on the front panel.
- 4 Set the VCR's input to tuner by pressing INPUT until a channel number shown on-screen or on the front panel display. If **L1** or **L2** appears instead of a channel number, continue to press INPUT until a channel number appears. To record channels from a PRIMESTAR® receiver, press INPUT until a channel number with the PRIMESTAR light (◆) appears on the front panel display.
- 5 Select the channel you wish to record by pressing CHANNEL or the number buttons on the remote or the jog dial on the front panel. If you are using a cable box that the VCR cannot control, select channel 3 or 4 on the VCR, and change the channel on the cable box, not on the VCR.
- 6 Press REC on the remote or REC/② REC LENGTH on the front panel.

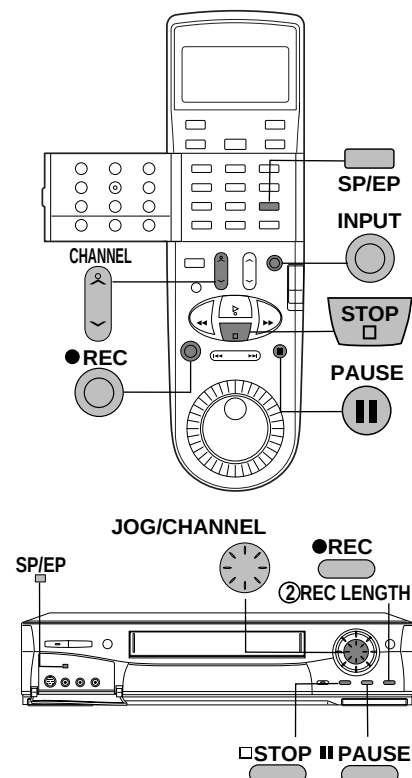
Recording will start. When the VCR reaches the end of the tape, it will automatically rewind to the beginning of the tape and stop.

- You can stop recording at any time by pressing STOP or PAUSE on the remote or on the front panel.
 - To resume recording from STOP, press REC.
 - To resume recording from PAUSE, press PAUSE.
- You cannot use REC/② REC LENGTH on the front panel to resume recording from PAUSE.

IMPORTANT

If you pause the VCR for more than five minutes, recording will stop automatically to protect the tape.

If you record in extended play (EP), you will only be able to play the tape on a VCR equipped for EP play, such as this one.



Recording

Using One-Touch Recording (OTR)

One-Touch Recording (OTR) is a way to begin recording immediately, and have your VCR stop recording and turn off automatically after your show is over.

- 1 When you record a digital broadcast in D-VHS format, follow the steps **1 to 4** on page 26.
When you record a digital broadcast in S-VHS/S-VHS ET/VHS format, follow the steps **1 to 6** on page 27.
When you record an analog broadcast in S-VHS/S-VHS ET/VHS format, follow the steps **1 to 5** on page 28.
- 2 Press REC/②REC LENGTH on the front panel twice. The first time you press the button, recording will begin. The second press of the same button adds 30 minutes to the OTR timer, displayed on the front panel. The OTR 2/②REC LENGTH on the remote control can also be used. When you first press this button, the VCR will begin recording and 30 minutes is added to the OTR timer.
- 3 Press REC/②REC LENGTH or OTR 2/②REC LENGTH for each additional 30 minutes you want to add to the OTR timer, up to 4 hours. If you press REC/②REC LENGTH 10 times or OTR 2/②REC LENGTH 9 times, you will see End on the front panel display. The VCR will record until the end of the tape. If you press REC/②REC LENGTH an eleventh time, the VCR will resume normal manual recording. If you press OTR 2/②REC LENGTH an twelfth time, 0:00 will be displayed on the front panel display and the recording will stop.

The OTR timer will begin to count down backwards. When it reaches zero, the VCR will stop recording and turn off. The OTR light on the front panel display will light up during the OTR recording.

If you program too much time into the OTR timer

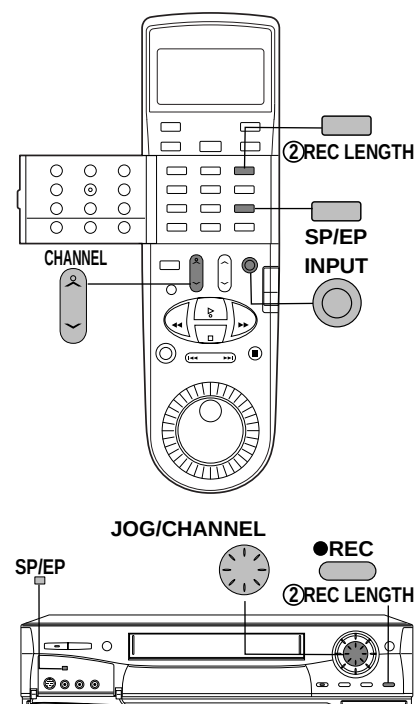
Continue pressing REC/②REC LENGTH or OTR 2/②REC LENGTH. After the End point you can start over from zero, adding time in 30 minute intervals.

How OTR affects other controls

If you press PAUSE during OTR, the VCR will pause recording, but the OTR timer continues to count down.

Press PAUSE again to resume recording from the record-pause mode. The REC/②REC LENGTH will not resume your recording.

If you press STOP during OTR, you erase the OTR programming.



Recording

Using Standby One-Touch Recording (OTR²)

Standby One-Touch Recording (also called OTR²) is a programming method to begin recording within the next 24 hours and record in 30 minutes intervals. Before you use OTR², make sure the clock has been set correctly.

- 1 Load a tape with its erasure prevention tab intact into the VCR.
- 2 Set the recording format. See **Selecting Recording Format** on page 24.
- 3 Set the speed at which you would like to record by pressing SP/EP on the remote control or on the front panel.
- 4 Set the VCR's input to tuner by pressing INPUT until a channel number shown on-screen or on the front panel display. If **L1** or **L2** appears instead of a channel number, continue to press INPUT until a channel number appears. To record channels from a PRIMESTAR® receiver, press INPUT until a channel number with the PRIMESTAR light (◆) appears on the front panel display.
- 5 Press CHANNEL or the number buttons on the remote or the front panel jog dial to choose the channel to be recorded. If you are using a cable box that the VCR does not control, select channel 3 or 4 on the VCR, and change the channel on the cable box.
- 6 Press PAUSE/①START TIME on the front panel or OTR 2/①START TIME on the remote to set the time when you wish recording to start (within 24 hours). The start time is displayed on the front panel. The first time display is the next half-hour increment from the current time. For example, if it is currently 2:15, 2:30 (next half-hour increment) will be displayed. Similarly, if it is currently 2:40, 3:00 (again, the next half-hour increment) will be displayed. Each time you press the button, the start time is delayed by 30 minutes.
- 7 Press REC/②REC LENGTH or OTR 2/②REC LENGTH on the remote for each additional 30 minutes you want to add to the OTR² timer, up to 4 hours. If you see **End** on the front panel display, the VCR will record until the end of the tape.

If you have a cable box, a digital cable box, a PRIMESTAR® or a DISH Network™ satellite receiver, leave the cable box or receiver turned ON. If the HS-HD2000U does not control your cable box, leave the box tuned the station you wish to record.

After 30 seconds, the power will turn off and the programmed recording light will be lit. The VCR will automatically turn on at the OTR² start time and recording will begin. When the OTR² timer reaches zero, the VCR will stop recording and turn off automatically. If the end of the tape is reached before OTR² is finished, the VCR will stop and the power will turn off.

IMPORTANT

Other programs you have set to record may be erased if:

- the start times are before the OTR² start time
- conflicts with the OTR²
- starts within one minute or less after the OTR² finishes

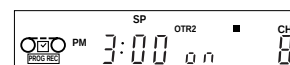
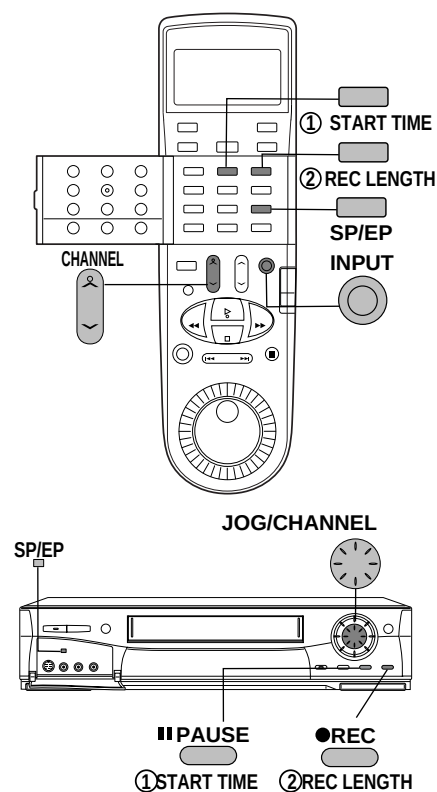
If you turn the power on while your VCR is in stand-by for the OTR², the OTR² programming will be erased.

To cancel OTR²

- Turn the power OFF while you are programming the timer.
- Turn the power ON if you have finished programming the timer.

How OTR² affects other controls

If you press REC/②REC LENGTH on the front panel during OTR² recording, 30 minutes will be added to the OTR² timer. If you press STOP during OTR² recording, you erase the OTR² programming.



Recording

Notes about Available Tape and Recording Time

Recording format

The available recording format is as follows:

Recording format	Tape		
	D-VHS	S-VHS	VHS
D-VHS	Yes	No	No
S-VHS	Yes	Yes	No
S-VHS ET	No	No	Yes
VHS	Yes	Yes	Yes

When you use a D-VHS tape for D-VHS recording, the recording format is preset to D-VHS format.

When analog recording, the recording format is preset to S-VHS format when you use a D-VHS or S-VHS tape, VHS format when you use a VHS tape.

Recording mode

The available recording mode is as follows:

Recording format	Digital recording mode		Analog recording mode	
	HS	STD	SP	EP
D-VHS	Yes	Yes		
S-VHS/S-VHS ET/VHS			Yes	Yes

HS : You can record the half duration of STD.

STD : You can record the same duration as described on the tape.

SP : You can record the same duration as described on the tape.

EP : You can record the duration as three times as described on the tape.

When you record a digital broadcast in D-VHS format, the recording mode will be changed automatically depending on the broadcast signal of the recorded program. For analog recording, set the recording mode manually by pressing SP/EP.

When playing a tape, the VCR will automatically select the recording mode.

Recording time

The available recording time is as follows:

D-VHS tape

Recording format	Recording time (when recorded in STD/SP mode)				
	DF-240	DF-300	DF-360	DF-420	DF-480
D-VHS	4h	5h	6h	7h	8h
S-VHS/VHS	2h	2h 30m	3h	3h 30m	4h

S-VHS/VHS tape

Recording format	Recording time (when recorded in SP mode)								
	T-30	T-60	T-90	T-120	T-140	T-160	T-180	T-200	T-210
S-VHS/S-VHS ET/VHS	30m	1h	1h 30m	2h	2h 20m	2h 40m	3h	3h 20m	3h 30m

Recording

Using S-VHS Set-Up Menu

Selecting Recording Format

When analog recording, the HS-HD2000U allows you to choose between recording in standard VHS or Super VHS (S-VHS) when you use an S-VHS tape. If you use a VHS tape, you can choose to record in S-VHS ET (Expansion Technology) mode or VHS. S-VHS ET mode allows you to record in S-VHS format on a VHS tape. Though the picture quality of S-VHS ET mode will not be as clear as that of the S-VHS format, you can record or playback with a higher picture quality than VHS format.

- 1 Press MENU on the remote control. VCR Main Menu appears.
- 2 Turn the ADJUST dial on the remote control to select S-VHS Set-Up. Turn the SHUTTLE ring to the right.

If you use S-VHS tape for recording:

- 3 Turn the ADJUST dial to select S-VHS record.
- 4 Turn the SHUTTLE ring to the right to select the recording format.
 - select **AUTO** if you want to record in **S-VHS**.
 - select **OFF** if you want to record in **VHS**.
- 5 Press MENU twice to exit the menus.

If you use VHS tape for recording:

- 3 Turn the ADJUST dial to select S-ET record.
- 4 Turn the SHUTTLE ring to the right to select the recording format.
 - select **OFF** if you want to record in **VHS**.
 - select **ON** if you want to record in **S-VHS ET**.
 - **AUTO** will make the VCR automatically select VHS or S-VHS-ET as a result of the PerfectTape® function. See page 48 for the PerfectTape®.
- 5 Press MENU twice to exit the menus.

During playback, the VCR automatically selects the recorded format/mode.

- The S-VHS light on the front panel display will light up during the playback with the tape recorded in S-VHS.
- The S-VHS ET light on the front panel display will light up during the playback with the tape recorded in S-VHS ET.

IMPORTANT

For the best quality recording, use S-VHS tapes and record in the S-VHS format.

The quality of S-VHS ET recordings will vary by the quality of VHS tapes used. For the best quality S-VHS ET recordings, it is recommended that you use HG tapes.

S-VHS recordings can be played on:

- S-VHS VCRs
- VHS VCRs with S-VHS Quasi playback capabilities

S-VHS ET recording can be played on:

- S-VHS VCRs (not all S-VHS VCRs will be able to play S-VHS ET)
- VHS VCRs with S-VHS Quasi playback capabilities

Please use this VCR or S-VHS VCR with S-VHS ET mode to playback the tape recorded in S-VHS ET for better picture quality.

Recording

Selecting S-input Setting

To watch the picture from other equipment through the VCR, you have to select the S-video input jack or video input jack that matches the equipment. If you connect the satellite receiver to the VCR with an S-video cable, you have to set Rear S-input to ON.

- 1 Press MENU on the remote control. VCR Main Menu appears.
- 2 Turn the ADJUST dial on the remote control to select S-VHS Set-Up. Turn the SHUTTLE ring to the right.
- 3 Turn the ADJUST dial to select Front S-input if you use the front panel jacks, or select Rear S-input if you use the rear panel jacks.
- 4 Turn the SHUTTLE ring to the right to select which input jack to input.
 - select **OFF** when you want to input signals from **video input jack**.
 - select **ON** when you want to input signals from **S-video input jack**.
- 5 Press MENU twice to exit the menus.

Using S-through

This function allows you to view the video signal from the equipment connected to the back of the VCR even when the VCR is off. To use this function, you have to connect your VCR and TV, and also connect your VCR and the other equipment with an S-Video cable. For example, if you connect satellite receiver with an S-Video cable, you can watch the satellite video signal on your TV with the VCR power off when you set Rear S-through to ON.

- 1 Press MENU on the remote control. VCR Main Menu appears.
- 2 Turn the ADJUST dial on the remote control to select S-VHS Set-Up. Turn the SHUTTLE ring to the right.
- 3 Turn the ADJUST dial to select Rear S-through.
- 4 Turn the SHUTTLE ring to the right to set Rear S-through to ON or OFF.
- 5 Press MENU twice to exit the menus.

Recording

Using Audio and Video Functions

The audio and video function menus allow you to set things such as listening to the stereo track of your recording, or setting the tape length to have the remaining time display function work properly. The VCR will display the functions and settings on your TV screen. The first section describes the functions, the next section tells you how to adjust the functions.

Audio functions

audio monitor
normal record

Video functions

3D
Tape (length)
repeat playback
Search to blank
counter zero stop

3DNR&TBC
D-VHS Tape (length)
PerfectTape Select
PerfectTape®

Descriptions of Audio Functions

Audio monitor (Listen to):

This allows you to listen to the various audio tracks that your VCR is capable of recording.

- Choose **Stereo** to listen to both stereo channels.
- Choose **L** to listen to the left channel of a stereo track.
- Choose **R** to listen to the right channel of a stereo track.
- Mono track is lower in quality than the others. The audio monitor is automatically set to **Mono** if you are watching a tape that was not recorded in VHS Hi-Fi. Set the audio monitor to **Mono** to hear SAP signal recorded on the mono track of a Hi-Fi tape.

IMPORTANT

Surround Sound systems: If you have your VCR connected to a surround sound system, set the audio monitor to **Stereo**. Surround sound requires both left and right channels to create the rear channel effects.

While the VCR is not playing a tape, you will see the following displays on the TV screen for 3 seconds when you change the channel or press DISPLAY.

If you change the channel to:	Display
stereo broadcast	Stereo
SAP broadcast	SAP
stereo and SAP	Stereo+SAP

While the VCR is playing a tape, you will see the following displays on the TV screen for 4 seconds when you press DISPLAY.

The audio monitor you listen to	Display
Stereo	Audio Stereo
L	Audio L
R	Audio R
Mono	Audio Mono

Normal recording (Record):

When your VCR is recording, it actually records the audio portion of a program twice: once on the stereo Hi-Fi tracks, and once on the mono track. Additionally, your VCR can receive Separate Audio Program (SAP) broadcasts. A SAP broadcast is an alternative soundtrack for a program; it is often a sound track in another language. The SAP broadcast is recorded only on the mono track.

Use the normal recording function to record the SAP broadcast on the mono track by choosing **Stereo+SAP**. Otherwise, choose **Stereo**. In either case, the main program is recorded on the stereo Hi-Fi track. Also, if there is no SAP broadcast, the VCR will record the main program on the mono track.

Recording

Descriptions of Video Functions

3D

This function improves the picture quality when you watch or record a TV program or picture coming through your other equipment. You can set this function also by using the 3D&TBC on the front panel. (See the next page.) Set it to **ON** when you want to use this feature, If not, set it to **OFF**.

3D&TBC

This adjusts the picture when playing a tape. If you set it to **ON**, the video noise, vibration or distortion in the picture will be reduced. You can set this function also by using the 3D&TBC on the front panel. (See the next page.) Set it to **ON** when you want to use this feature. If not, set it to **OFF**. It will take a few seconds to adjust the picture. It will not work during the special effect playback. The color of the picture may be seem to be different depending on this setting.

Tape (Tape)

Adjust this function to ensure the accuracy of the Remaining Time display. The remaining time function does not work properly with a tape that is less than 30 minutes long.

<u>Length of tape</u>	<u>Use setting</u>
2 hours long or less (T-30 through T-120)	T-120
160 minutes (T-160)	T-160
180 minutes (T-180)	T-180
200 minutes (T-200)	T-200
210 minutes (T-210)	T-210

D-VHS Tape (D-VHS Tape)

Adjust this function to ensure the accuracy of the Remaining Time display. The remaining time function does not work properly with a tape that is less than 30 minutes long.

<u>Length of tape</u>	<u>Use setting</u>
DF-160 through DF-300	DF-300
DF-360	DF-360
DF-420	DF-420
DF-480	DF-480

PerfecTape Select (Play PerfecTape)

This function turns on the PerfecTape Select circuitry, which automatically maximizes picture quality when playing a worn or poor quality tape.

Set the switch to **Soft** to soften the picture, set it to **Sharp** to sharpen it. Set it to **Normal** when you do not want to use this feature. Use **Normal** on new or high quality tapes. If it is set to **Auto**, the VCR will automatically select the ideal setting of PerfecTape Select depending on the condition of the tape.

Counter zero stop (Counter zero stop)

This function is used to automatically fast forward or rewind to "0H00M00S" and stop the tape. See page 41 for more information on this feature.

Repeat playback (Repeat play)

Use this function to repeatedly play a section of tape between two index marks. See page 42 for more information on this feature.

Search to blank (Search to blank)

Use this function to repeatedly play a section of tape between two index marks. See page 40 for more information on this feature.

PerfecTape® (PerfecTape)

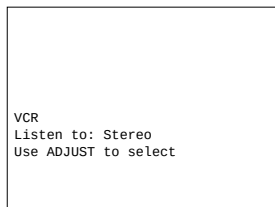
PerfecTape function allows you to test the quality of video tapes you will record on. After each test, the VCR adjusts its circuitry in order to make the best possible recording on your tape. See page 48 for more information on this feature.

Recording

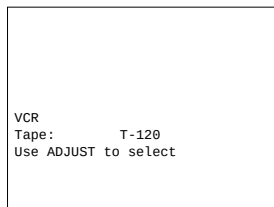
Selecting and adjusting the audio and video functions

- 1 Press AUDIO on the remote control to see the audio function menu, or press VIDEO to see the video function menu.

audio function menu



video function menu



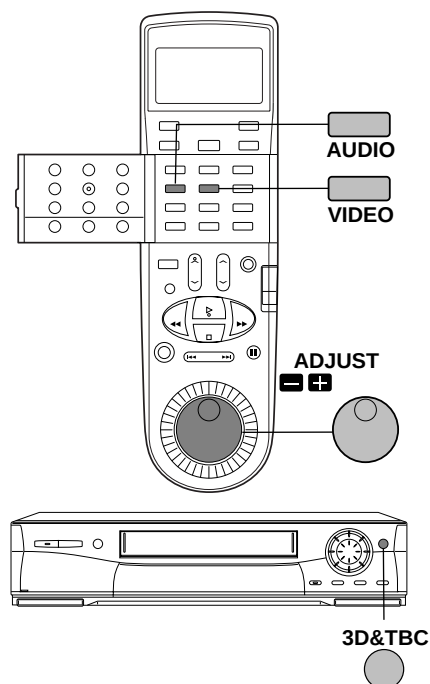
- 2 Press AUDIO or VIDEO repeatedly until the function you want to adjust appears.
- 3 Turn the ADJUST dial on the remote to adjust the setting. The functions will disappear if you do not press any buttons for 5 seconds.

setting 3D or 3DNR&TBC by using 3DNR&TBC on the front panel

- 1 When you want to set 3D, press 3D&TBC on the front panel during the tape is stopped.

When you want to set 3D&TBC, press 3D&TBC on the front panel during the tape is playing.

When 3D or 3DNR&TBC is in operate, the button will be lit. If not, the button will be turned off.



IMPORTANT

The audio and video function menus do not appear:

- when the VCR menu is displayed
- during special effects playback

Tape and **3D** function does not appear during playback.

3DNR&TBC displays only during playback.

Play PerfectTape is displayed only during playback.

PerfectTape displays only when a tape, with its erasure tab intact, is loaded and the VCR is stopped.

Timer Recording

Mitsubishi offers 6 ways to set your VCR to record upcoming broadcasts. Choose from:

D-VHS Timer Recording

Analog Timer Recording of Digital Broadcast

VCR Plus+® system programming (easy)

On LCD reserve

Conventional VCR timer recording

Quick Program (easy) -- VCR does not need to be on to begin programming

You can schedule up to 8 recording events within a one month period.

Clock must be set before **any** timer recordings can be performed.

D-VHS Timer Recording

To set the timer recording of the digital broadcast in D-VHS format, set the timer program on the integrated HDTV or IEEE 1394-equipped HDTV receiver, not on the VCR. Refer to your TV or receiver owner's guide.

- 1 Follow the steps 1 to 5 of **Setting Up Your VCR to Playback/Recording the Digital Broadcast in D-VHS format** on page 12.
- 2 Load a D-VHS tape with its erasure prevention tab intact into the VCR.
- 3 Make sure that the D-VHS button on the front panel is lit. If not, press this button until it lights up.
- 4 Press POWER on the VCR front panel or on the remote control to turn off the VCR.
- 5 Set the timer recording on the integrated HDTV or IEEE 1394-equipped HDTV receiver. Refer to your TV or receiver owner's guide for this procedure.

The integrated HDTV or IEEE 1394-equipped HDTV receiver will receive the program to be recorded on the start time you have set and send the signal for start recording to the VCR. The VCR will start recording automatically. The integrated HDTV or IEEE 1394-equipped HDTV receiver will send the signal for stop recording to the VCR on the end time you have set, and the VCR will stop recording automatically.

IMPORTANT

The recording mode will be changed automatically depending on the broadcasting signal.

Depending on your integrated HDTV or IEEE 1394-equipped HDTV receiver, the programmed D-VHS recording may not be recorded if you turn on the VCR while it is in stand-by mode for the D-VHS timer recording.

The programmed D-VHS timer recording may not be recorded correctly depending on your integrated HDTV or IEEE 1394-equipped HDTV receiver.

When you connect more than one integrated HDTVs or IEEE 1394-equipped HDTV receivers, the D-VHS timer recording of only one integrated HDTV or IEEE 1394-equipped HDTV receiver will be activated. In this case, press INPUT on the VCR remote to set the VCR's input to tuner or press IEEE 1394 INPUT to select d1 to d5 which corresponds to the receiver or TV you would like to record.

Timer Recording

When you program both the D-VHS and analog timer recording

When you turn the VCR off, the programmed recording light will appear on the front panel display, showing that the VCR is in stand-by mode for the analog timer recording. In this mode, the D-VHS timer recording you have set may not be recorded depending on the integrated HDTV or IEEE 1394-equipped HDTV receiver. (Refer to your TV or receiver owner's guide for the details.) If so, you need to press POWER on the VCR front panel once to cancel the stand-by mode. The programmed recording light will be turned off but the VCR power will remain on. Please note that the VCR can not activate the analog timer recording while the programmed recording light is turned off.

When the D-VHS timer recording is over, press POWER on the front panel twice to turn on the programmed recording light.

Analog (S-VHS/S-VHS ET/VHS) Timer Recording of Digital Broadcast

IMPORTANT

Be sure to connect the VCR and an integrated HDTV or IEEE 1394-equipped HDTV receiver with an S-video/video and an audio cable to record a digital broadcast in analog format.

- 1 Set the Front S-input in the S-VHS Set-UP menu when you connect an integrated HDTV or IEEE 1394-equipped HDTV receiver to the front panel of the VCR, or Rear S-input when you connect an integrated HDTV or IEEE 1394-equipped HDTV receiver to the rear of the VCR. See **Selecting S-input Setting** on page 24.
- 2 Select the channel you would like to record on an integrated HDTV or IEEE 1394-equipped HDTV receiver, not on the VCR.
- 3 Load a tape with its erasure prevention tab intact into the VCR.
- 4 Press MENU. VCR Main Menu appears on your screen. Turn the ADJUST dial to select Program to record. Turn the SHUTTLE ring to the right.

If there is at least one programmed recording already entered, you will see the Recap screen. Wait 4 seconds, and the VCR Plus+ Program to record menu will appear.

IMPORTANT

If you have already programmed 8 recording events, Program memory is full will appear on your screen for 3 seconds, and then the Recap screen will appear. Use CANCEL to erase an entry before you can add another one.

- 5 VCR Plus+ Program to record menu appears. See page 31 to learn how to program with VCR Plus+®. To pass this screen, turn the SHUTTLE ring to the right.

Recap screen

-Program to record

Use number keys to enter
the PlusCode number

or press ENTER to
program.

Press MENU for Main Menu

Timer Recording

- 6 **Program to record** menu appears. Turn the ADJUST dial to choose the channel you would like to record. Turn the SHUTTLE ring to the right.
 Select **External L1** if you connect an integrated HDTV or IEEE 1394-equipped HDTV receiver to the rear panel.
 Select **External L2** if you connect an integrated HDTV or IEEE 1394-equipped HDTV receiver to the front panel.
- 7 **Day** will flash. Turn the ADJUST dial to choose the day on which you want to record; for example, Monday the 12th.
 Your choices are:
 - a single day up to one month away.
 - every day from Monday through Friday; for example, to tape a soap opera. To program, turn the ADJUST dial until **Monday-Friday** appears.
 - the same day every week; for example, to tape your favorite weekly sitcom. To program, turn the ADJUST dial until **Every** and the desired day of the week appears.
 Turn the SHUTTLE ring to the right once you have made your choice.
- 8 The hour numbers of the start time will flash. Turn the ADJUST dial to set the hour when recording is to start. Turn the SHUTTLE ring to the right.
- 9 The minute numbers of the start time will flash. Turn the ADJUST dial to set the minutes when recording is to start. Turn the SHUTTLE ring to the right.
- 10 Set the stop time the same way as the start time, using steps 8 and 9.
- 11 Turn the ADJUST dial to set the recording speed:
 SP = standard play; EP = extended play; AUTO = auto. **Auto speed programming** is discussed on page 33. Turn the SHUTTLE ring to the right.

IMPORTANT

If you turn the SHUTTLE ring to the right when you set the timer recording incompletely, **Program is not completed** will appear on your screen.

If two programmed recording times overlap, **VCR is already programmed for that time** will display on your screen for about 3 seconds, and then the Recap screen will appear. The program you have just set will flash for 3 seconds and the start time and the stop time will be shown in red letters. The start and stop time of the overlapped program will be highlighted in red color. You will need to erase one of them.

- 12 The programmed memory will appear on the Recap screen.
- 13 To program additional recording times, select an empty program line by turning ADJUST dial. Turn the SHUTTLE ring to the right. The **VCR Plus+ Program to record** menu will appear. Continue the programming procedure from step 3.
- 14 When you are finished with all programming, check the following:
 - Leave an integrated HDTV or IEEE 1394-equipped HDTV receiver turned ON.
 - Turn the VCR power OFF and make sure the programmed recording light is lit.

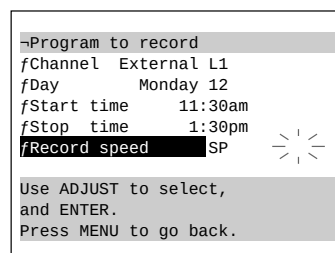
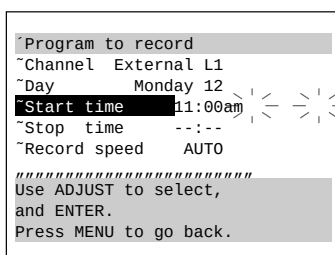
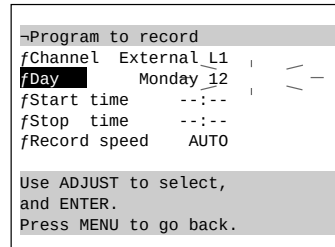
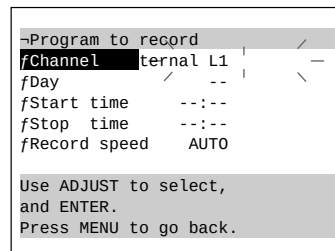
IMPORTANT

While the VCR is recording a digital broadcast, please do not change the channel on an integrated HDTV or IEEE 1394-equipped HDTV receiver.

The menu or the program list will be recorded if it is displayed during recording.

If you record a digital broadcast in analog format, the picture quality will not be as clear as that of the original digital broadcast.

If you record a copy protected digital program, the copy protect data will also be recorded.



Recap screen

Timer Recording

Conventional VCR Timer Recording

- 1 Load a tape with its erasure prevention tab intact into the VCR.
- 2 Press MENU. VCR Main Menu appears on your screen. Turn the ADJUST dial to select Program to record. Turn the SHUTTLE ring to the right.

If there is at least one programmed recording already entered, you will see the Recap screen. Wait 4 seconds, and the VCR Plus+ Program to record menu will appear.

IMPORTANT

If you have already programmed 8 recording events, Program memory is full will appear on your screen for 3 seconds, and then the Recap screen will appear. Use CANCEL to erase an entry before you can add another one.

- 3 VCR Plus+ Program to record menu appears. See page 31 to learn how to program with VCR Plus+®. To pass this screen, turn the SHUTTLE ring to the right.

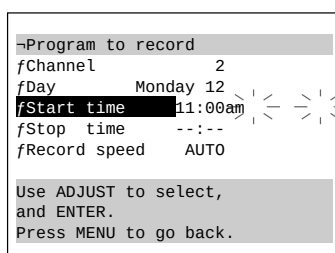
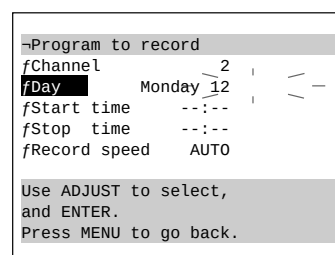
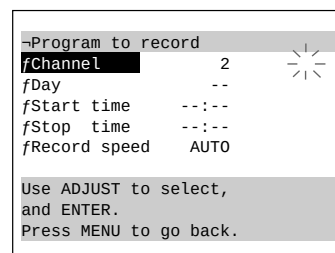
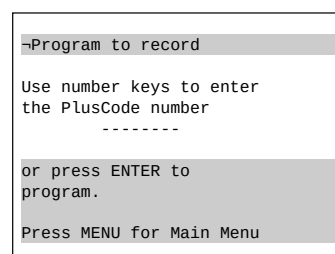
- 4 Program to record menu appears. Turn the ADJUST dial to choose the channel you would like to record; for example, channel 2. Turn the SHUTTLE ring to the right.
 - If you are using a **cable box** that the VCR cannot control, enter the channel number on which the cable box sends a signal to your VCR (usually channel 3 or 4).
 - If you are recording from a **DSS®**, **PRIMESTAR®** or **DISH Network™ satellite receiver**, simply choose the channel you would like to record; for example, channel 245. SAT will display next to the channel number.
 - To record from an **external source**, press INPUT or turn the ADJUST dial to: Select External L1 for a source connected to the rear panel. Select External L2 for a source connected to the front panel.

- 5 Day will flash. Turn the ADJUST dial to choose the day on which you want to record; for example, Monday the 12th. Your choices are:
 - a single day up to one month away.
 - every day from Monday through Friday; for example, to tape a soap opera. To program, turn the ADJUST dial until Monday-Friday appears.
 - the same day every week; for example, to tape your favorite weekly sitcom. To program, turn the ADJUST dial until Every and the desired day of the week appears.

Turn the SHUTTLE ring to the right once you have made your choice.

- 6 The hour numbers of the start time will flash. Turn the ADJUST dial to set the hour when recording is to start. Turn the SHUTTLE ring to the right.
- 7 The minute numbers of the start time will flash. Turn the ADJUST dial to set the minutes when recording is to start. Turn the SHUTTLE ring to the right.
- 8 Set the stop time the same way as the start time, using steps 6 and 7.

Recap screen



Timer Recording

- 9 Turn the ADJUST dial to set the recording speed:
SP = standard play; EP = extended play; AUTO = auto. **Auto speed programming** is discussed on page 33. Turn the SHUTTLE ring to the right.

IMPORTANT

If you turn the SHUTTLE ring to the right when you set the timer recording incompletely, Program is not completed will appear on your screen.

If two programmed recording times overlap, VCR is already programmed for that time will display on your screen for about 3 seconds, and then the Recap screen will appear. The program you have just set will flash for 3 seconds and the start time and the stop time will be shown in red letters. The start and stop time of the overlapped program will be highlighted in red color. You will need to erase one of them.

- 10 The programmed memory will appear on the Recap screen. "S" next to the channel number indicates satellite channels.
- 11 To program additional recording times, select an empty program line by turning ADJUST dial. Turn the SHUTTLE ring to the right. The VCR Plus+ Program to record menu will appear. Continue the programming procedure from step 3.
- 12 When you are finished with all programming, check the following:
- If you have a cable box, a digital cable box, a PRIMESTAR® or a DISH Network™ satellite receiver, leave the cable box or receiver turned ON.
 - If your VCR does not control your cable box, leave the box tuned to the station you wish to record.
 - Turn the VCR power OFF and make sure the programmed recording light is lit.

IMPORTANT

When programmed recording of 4 and under are entered, only 4 of the 8 program lines appear on the Recap screen at any one time. To see additional program lines, turn the ADJUST dial to scroll the lines on the screen.

Canceling a recording in progress

There are two ways to cancel a recording in progress:

Press STOP. The recording stops, but the program is not cancelled. Therefore, if you press REC, the recording will start again.

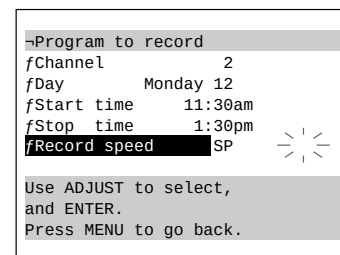
Press POWER on the front panel. The recording stops and the program is cancelled.

Changing while programming

To change one of your settings (such as start time) while you are programming:

Turn the SHUTTLE ring to the right to move forward through the program list.
Turn the SHUTTLE ring to the left to move backward.
Then use ADJUST dial to change the setting.

You will cancel the entire program if you turn the shuttle ring to the left while the channel number is flashing.



Recap screen

Programming not cancelled

Programming cancelled

Timer Recording

VCR Plus+® System Programming

The VCR Plus+® system allows you to program your VCR to record by simply entering a PlusCode programming number. You can find this number in *TV Guide* or possibly your local TV listings. There are 2 ways of using VCR Plus+® System Programming on the HS-HD2000U. You can use either of the 2 following sections, **VCR Plus+® System Programming using the on screen display** or **VCR Plus+® System Programming using the remote control LCD**.

VCR Plus+® System Programming using the on screen display

- 1 Load a tape with its erasure prevention tab intact into the VCR.
- 2 Press MENU. VCR Main Menu appears on your screen. Turn the ADJUST dial to select Program to record. Turn the SHUTTLE ring to the right.

IMPORTANT

If the VCR memory is full, Program memory is full will appear for 3 seconds, and then the Recap screen will appear. Use CANCEL to erase an entry before you can add another one.

If there is at least one programmed recording already entered, the Recap screen will appear. Wait 4 seconds, and the VCR Plus+ Program to record menu will appear.

- 3 VCR Plus+ Program to record menu will appear. Use the number buttons on the remote control to enter the PlusCode number for the television show you want to record. For example, if the PlusCode number for the program you want to record is 5678, simply enter 5-6-7-8. See your local newspaper or *TV Guide* for PlusCode numbers.
- 4 If you enter a number incorrectly, turn the SHUTTLE ring to the left or press CANCEL on the remote control. When you have finished entering the PlusCode number, turn the SHUTTLE ring to the right.

IMPORTANT

If the code number you entered is wrong, PlusCode Not a valid number will display on the screen for 3 seconds, and then the VCR Plus+ Program to record menu will reappear.

- 5 Use the ADJUST dial to select whether you want to record your program once, daily, or weekly.
 - **Once** will record a program one time.
 - **Daily** will record the same channel at the same time, Monday through Friday.
 - **Weekly** will record the same channel at the same time, on the same day each week.

After you have made your choice, turn the SHUTTLE ring to the right.

IMPORTANT

If two programmed recording times overlap, VCR is already programmed for that time will display on the screen. You will need to erase the previous program before you can enter the new one.

- 6 Recap screen will appear. The program you have chosen to record will be highlighted.

The channel number will appear in blue color. Make sure that the correct channel number is shown on the screen. If the displayed number is not correct, press INPUT to make the number flash, then turn the ADJUST dial to correct the channel number. Press the ENTER to complete. "S" will appear next to the channel number when you select a satellite channel.

```
-Program to record

Use number keys to enter
the PlusCode number
5678----
```

```
Press ENTER when done.
Press CANCEL to erase
the PlusCode number.
Press MENU for Main Menu
```

```
-Program to record
PlusCode number:5678
Once
fDaily
fWeekly
```

```
Use ADJUST to select,
and ENTER.
Press MENU for Main Menu
```

Recap screen

Timer Recording

- 7 If you wish to change the record speed, turn the SHUTTLE ring to the right repeatedly until the record speed is flashing. Change the recording speed by turning the ADJUST dial. Turn the SHUTTLE ring to the right.
- 8 To program additional recording times, select an empty program line by turning the ADJUST dial. Turn the SHUTTLE ring to the right. You will return to the VCR Plus+ Program to record menu. Continue the VCR Plus+® programming procedure from step 3.
- 9 When you are finished with all programming, check the following:
 - If you have a cable box, a digital cable box, a PRIMESTAR® or a DISH Network™ satellite receiver, leave the cable box or receiver turned ON.
 - If your VCR does not control your cable box, leave the box tuned to the station you wish to record.
 - Turn the VCR power OFF and make sure the programmed recording light is lit.

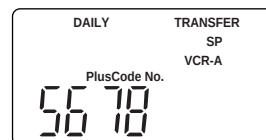
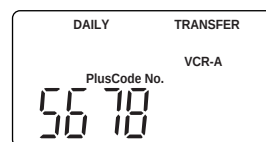
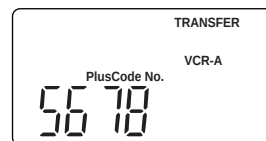
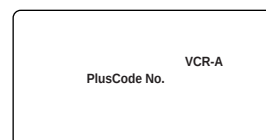
If you want to stop the programmed recording after it starts, press POWER on the front panel.

VCR Plus+® System Programming using the remote control LCD

- 1 Load a tape with its erasure prevention tab intact into the VCR.
- 2 Press PlusCode on the remote control. PlusCode No. appears on the remote control LCD.
- 3 Use the number buttons on the remote control to enter the PlusCode number for the television show you want to record. For example, if the PlusCode number for the program you want to record is 5678, simply enter 5-6-7-8. See your local newspaper or *TV Guide* for PlusCode numbers.
- 4 If you enter a number incorrectly, press CANCEL or turn the SHUTTLE ring on the remote control to the left.
- 5 Use DAILY/WEEKLY if you want to record your program daily or weekly; for example, DAILY. If you want to record a program one time, skip this step.
 - select **DAILY** if you want to record the same channel at the same time, Monday through Friday.
 - select **WEEKLY** if you want to record the same channel at the same time, on the same day each week.
- 6 Press SP/EP under the flip cover of the remote control to select the recording mode; for example, SP. SP = standard play; EP = extended play.
 - select **SP** if you want to record in SP mode.
 - select **EP** if you want to record in EP mode.
 - displays nothing indicates the recording mode which is selected before programming this timer recording.
- 7 Press TRANSFER. The PlusCode number will be transferred to the VCR, and the Recap screen will appear. The program you have chosen to record will be highlighted.

Make sure that the programming contents shown on the screen is correct. The channel number will appear in blue color. If the displayed number is not correct, press INPUT to make the number flash, then turn the ADJUST dial to correct the channel number.

“S” will appear next to the channel number when you select a satellite channel.



Timer Recording

IMPORTANT

You cannot transfer the PlusCode number while the VCR is recording or on recording pause mode.

If the VCR memory is full, Program memory is full will appear for 8 seconds, and then the Recap screen will appear. Use CANCEL to erase an entry before you can add another one.

If the code number you entered is wrong, PlusCode Not a valid number will display on the screen for 8 seconds, and then the VCR Plus+ Program to record menu will reappear.

If two programmed recording times overlap, VCR is already programmed for that time will display on the screen. You will need to erase the previous program before you can enter the new one.

If the remote control is failed to transfer, The transfer is failed please transmit again will be displayed on the screen for 8 seconds.

- 8 The VCR will be turned off automatically about 16 seconds after the Recap screen appears on screen.
- 9 To program additional recording times, follow the procedure from step 2 to 8 again.
- 10 When you are finished with all programming, check the following:
 - If you have a cable box, a digital cable box, a PRIMESTAR® or a DISH Network™ satellite receiver, leave the cable box or receiver turned ON.
 - If your VCR does not control your cable box, leave the box tuned to the station you wish to record.
 - Turn the VCR power OFF and make sure the programmed recording light is lit.

IMPORTANT

To cancel VCR Plus+® System Programming while programming with the remote control display, press PlusCode.

To cancel VCR Plus+® System Programming while displaying the Recap screen, press CANCEL to cancel the selected program, and then press MENU to exit the Recap screen.

Timer Recording

Quick Program

Quick Program is an exclusive Mitsubishi feature that simplifies the process of programming your VCR to record. When you press QUICK PROGRAM on the remote control, you will immediately see the VCR Plus+ Program to record menu and can begin programming right away.

You can use this feature even when the VCR is stopped, playing, fast forwarding, rewinding, or off. (Quick program does not work while using OTR².)

- 1 Press QUICK PROGRAM on the remote control. If the VCR is off, it will turn on. After tuning your TV to the correct channel or input, VCR Plus+ Program to record menu will appear.

IMPORTANT

If the VCR memory is full, Program memory is full will appear for 3 seconds, and then the Recap screen will appear. Use CANCEL to erase an entry before you can add another one.

- 2 Complete steps 3 through 10 in **Conventional VCR timer recording**. (See page 28.)

When you have finished, press QUICK PROGRAM again.

If the VCR is stopped, it will turn off and be ready to record your program at a later time.

If the VCR is playing, recording, fast forwarding or rewinding, the menus will turn off, but the VCR power will remain on.

- 3 When you are finished with all programming, check the following:
 - If you have a cable box, a digital cable box, a PRIMESTAR® or a DISH Network™ satellite receiver, leave the cable box or receiver turned ON.
 - If your VCR does not control your cable box, leave the box tuned to the station you wish to record.
 - Make sure the VCR is turned OFF and the programmed recording light is lit before the recording time.

IMPORTANT

If you press QUICK PROGRAM, but the clock is not set, Set the clock menu will appear. Set the clock manually.

Program to record

Use number keys to enter the PlusCode number

or press ENTER to program.

Press MENU for Main Menu

Recap screen

Program to record

	CH	DAY	ON	OFF
\$	2WE14		11:30a	1:30pSP
	10TH15		9:00p	10:00pEP
	7E-WE		8:00a	9:00aEP
S125FR16			5:30p	5:45pEP
8TU20			11:00p	0:30aSP
S980M-F			7:00p	7:15pEP
15SA 1			8:00p	9:00pEP
46SU18			7:00a	9:00aSP

Timer Recording

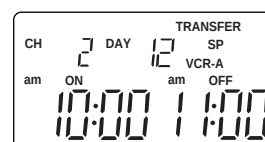
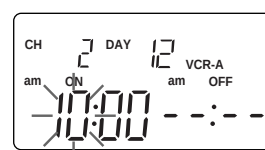
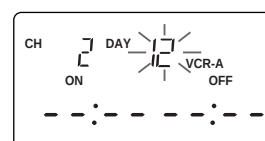
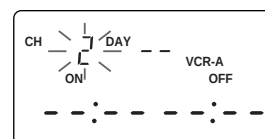
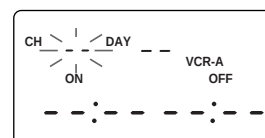
On LCD Reserve

On LCD Reserve is a programming method to set the timer recording on the remote control LCD and transfer it to the VCR. For example, setting the timer recording of the program on channel 2, on 12th from 10:00 am to 11:00 am, in SP mode:

- 1 Load a tape with its erasure prevention tab intact into the VCR.
- 2 Press O.L.R on the remote control. The display to program the timer recording will appear on the remote control LCD and CH will flash.
- 3 Turn the ADJUST dial to choose the channel you would like to record. Turn the SHUTTLE ring to the right.
 - If you are using a **cable box** that the VCR cannot control, enter the channel number on which the cable box sends a signal to your VCR (usually channel 3 or 4).
 - If you are recording from a **DSS®**, **PRIMESTAR®** or **DISH Network™** satellite receiver, simply choose the channel you would like to record; for example, channel 245. S will display next to the channel number.
 - To record from an **external source**, press INPUT or turn the ADJUST dial to:
 - Select L1 for a source connected to the rear panel.
 - Select L2 for a source connected to the front panel.
- 4 DAY will flash. Turn the ADJUST dial to choose the day on which you want to record. Your choices are:
 - a single day up to one month away.
 - every day from Monday through Friday; for example, to tape a soap opera. To program, turn the ADJUST dial until DAILY appears.
 - the same day every week; for example, to tape your favorite weekly sitcom. To program, turn the ADJUST dial until E- and the desired day of the week appears.

Turn the SHUTTLE ring to the right once you have made your choice.
- 5 The hour numbers of the start time will flash. Turn the ADJUST dial to set the hour when recording is to start. Turn the SHUTTLE ring to the right.
- 6 The minute numbers of the start time will flash. Turn the ADJUST dial to set the minutes when recording is to start. Turn the SHUTTLE ring to the right.
- 7 Set the stop time the same way as the start time, using steps 6 and 7.
- 8 Press SP/EP under the flip cover of the remote control to select the recording mode.
 - select **SP** if you want to record in SP mode.
 - select **EP** if you want to record in EP mode.
 - displays nothing indicates the recording mode which is selected before programming this timer recording.
- 9 Press TRANSFER. The programmed contents will be transferred to the VCR, and Recap screen will appear. The program you have chosen to record will be highlighted.

Make sure that the programming contents shown on the screen is correct.



Timer Recording

IMPORTANT

You cannot transfer the program while the VCR is recording or on recording pause mode.

If you have already programmed 8 recording events, Program memory is full will appear on your screen for 8 seconds, and then the Recap screen will appear. Use CANCEL to erase an entry before you can add another one.

If two programmed recording times overlap, VCR is already programmed for that time will display on your screen for about 8 seconds, and then the Recap screen will appear. The program you have just set will flash for 3 seconds and the start time and the stop time will be shown in red letters. The start and stop time of the overlapped program will be highlighted in red color. You will need to erase one of them.

If you set the impossible date, The date is wrong. Please confirm the date. will be displayed on the screen for 8 seconds.

- 10 The VCR will be turned off automatically about 16 seconds after the Recap screen appears on screen.
- 11 To program additional recording times, follow the procedure from step 2 to 10 again.
- 12 When you are finished with all programming, check the following:
 - If you have a cable box, a digital cable box, a PRIMESTAR® or a DISH Network™ satellite receiver, leave the cable box or receiver turned ON.
 - If your VCR does not control your cable box, leave the box tuned to the station you wish to record.
 - Turn the VCR power OFF and make sure the programmed recording light is lit.

IMPORTANT

To cancel programming while programming with the remote control display, press O.L.R.

To cancel programming while displaying the Recap screen, press CANCEL to cancel the selected program, and then press MENU to exit the Program to record menu.

Timer Recording Hints

To use the VCR before timer recording begins, press POWER on the remote once. This turns the programmed recording light off and the VCR on.

If you use POWER on the front panel for this purpose, press it twice. Pressing it once turns off the programmed recording light; pressing it again turns the VCR on.

When you are finished using the VCR, turn the VCR power off again. Make sure the programmed recording light is back on.

After a program has been recorded, the VCR memory of that program is cleared (unless you have scheduled the VCR to record the program every day or every week).

If there is already a program in the VCR's memory, you will see the Recap screen when you bring up the menus for programming to record (unless you are programming with the QUICK PROGRAM). If the VCR's memory is full, Program memory is full will appear on the screen. If so, you must erase a program before you can enter a new one.

If a tape runs out during timer recording, the VCR ejects the tape and the programmed recording light and the tape status symbol will flash. Load a new tape and press REC. Recording will resume.

Timer Recording

The programmed recording will be cancelled unless you turn the VCR off before the recording starts. Do not operate an integrated HDTV or IEEE 1394-equipped HDTV receiver to turn on the VCR and so on while the VCR is in stand-by mode for the timer recording.

If you forget to load a tape, the programmed recording light and the tape status symbol will flash when you turn the VCR power off. (A tape without an erasure tab will be ejected. To correct this, load a tape with its erasure tab intact, and turn off the VCR.)

Do not overlap the recording times you enter into the VCR. If you set two programmed recording times overlap, VCR is already programmed for that time will appear on your screen.

Remember that the VCR will record over the next section of tape. If you want to save a tape, remove it and instead use a different tape for a new recording.

Your VCR will not record over a tape that has the erasure prevention tab removed. All rental movies have this tab removed, so they are safe from being accidentally erased.

Auto speed programming

Use auto speed programming if you want to record as much of the program as possible in standard play (SP) speed, but you want the VCR to automatically switch to extended play (EP) if there is not enough tape left.

Auto speed programming is only available for one program. In the first slot, the recording speed default is AUTO.

Make sure that the Tape video function matches the length of tape you are using. See **Selecting and adjusting the audio and video functions** on page 27.

At the point where the recording mode changes from standard play (SP) to extended play (EP), some noise may be in the picture or sound when playing the tape.

Program caution

If your VCR is set to record, but the power is still ON within 3 minutes before timer recording starts, this screen will appear to remind you to turn off the VCR.

If the VCR is still turned on 12 seconds before the start time of the recording, that timer recording will be cancelled.

TV programs that end on the day after

If you want to start the recording at 11:00 PM and end it at 2:00 AM the next day, simply set the start time to 11:00 PM on the recording start day and the end time to 2:00 AM. There is no need to change the day of the week.

program caution

REC in 3 min
Turn off VCR

Timer Recording

Program skip using menus

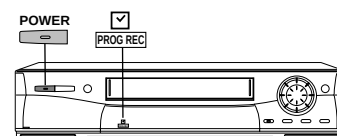
Sometimes you may want to skip one day of a timer recording but do not want to erase it. Program skip will prevent the recording, for that day only, of a program you have scheduled to record every day or every week.

- 1 Press MENU on the remote control. Your VCR will turn on and VCR Main Menu will appear. Turn the ADJUST dial to select Program to record. Turn the SHUTTLE ring to the right.
- 2 Recap screen will display for 4 seconds. While this screen is displayed, turn the ADJUST dial to place the cursor arrow next to the program you wish to skip.
- 3 Press STOP. The cursor arrow will change to a **X**.
- 4 Press MENU twice to turn off the menus.

To resume recording every day or every week, change the **X** to the cursor arrow by following steps 1 to 4 again.

Program skip using the POWER button

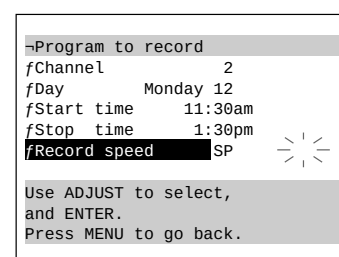
If you have entered only one program into your VCR's memory, you can skip the program without going into the VCR's menus. Simply press POWER on the front panel once. The programmed recording light will turn off, and the program will be skipped. If you decide not to skip the program, press POWER on the front panel twice; the programmed recording light will light up again.



Recap screen

Changing timer recording settings

- 1 Press MENU on the remote control. Your VCR will turn on and VCR Main Menu will appear. Turn the ADJUST dial to select Program to record. Turn the SHUTTLE ring to the right.
- 2 Recap screen will display for 4 seconds. While this screen is displayed, turn the ADJUST dial to place the cursor arrow next to the program you wish to change. Turn the SHUTTLE ring to the right. You will see the Program to record setting menu.
- 3 Turn the SHUTTLE ring to the right repeatedly to select the item you wish to change. Turn the ADJUST dial to change it. Then Turn the SHUTTLE ring to the right repeatedly to return the altered program to the Recap screen.
- 4 Press MENU twice to turn off the menus. Then press POWER to turn off the VCR. Make sure the programmed recording light is on.



Recap screen

Canceling a timer recording before the recording starts

- 1 Press MENU on the remote control. Your VCR will turn on and VCR Main Menu will appear on your screen. Turn the ADJUST dial on the remote control to select Program to record. Turn the SHUTTLE ring to the right.
- 2 Recap screen will display for 4 seconds. While this screen is displayed, turn the ADJUST dial to place the cursor next to the program you wish to cancel.
- 3 Press CANCEL. The program is erased.
- 4 Press MENU twice to turn off the menus.

Timer Recording

Using a satellite receiver

If you are using a Panasonic, RCA, Sony, Toshiba, or Hughes satellite receiver, your VCR will turn the receiver on when a timer recording begins and off when the recording ends.

However, if you are using a PRIMESTAR® or DISH Network™ receiver, you will have to turn the receiver on before a timer recording begins.

Before turning off the VCR, to put your VCR in stand-by for recording, make sure that your satellite receiver's menu turns off.

You can watch satellite channels through your VCR even when the VCR is turned off but only if you connected your VCR and TV with an S-Video cable and the Rear S-through in the S-VHS Set-Up menu is set to ON. If you used a standard video cable, you can only view satellite channels through your VCR when the VCR is on.

TIMER RESET

You can use TIMER RESET on the rear panel to erase both the clock and all timer recordings.

To use TIMER RESET, press it with a pencil or a ball point pen. The power will turn off and the clock will be cleared. All timer recordings are erased.

If you have set the Clock set setting of the Set the clock menu to AUTO, the auto clock function will automatically set the clock again.

Memory backup

If the VCR is without power for 30 minutes or less, it will retain the clock and the programmed settings. The VCR must have been plugged in for at least an hour beforehand to charge this backup. If the power is lost for more than 30 minutes, the time and the programmed settings will be lost.

If you have set the Clock set setting of the Set the clock menu to AUTO, the auto clock function will automatically set the clock again when power is restored.

Editing Features

Copying a tape from D-VHS to D-VHS

When you connect the D-VHS VCR equipped with IEEE 1394 INTERFACE terminal to the HS-HD2000U with 1394 cable, you can copy a tape from D-VHS format to D-VHS.

- 1 Connect the 1394 cable to IEEE 1394 INTERFACE on the playback VCR and to IEEE 1394 INTERFACE on the HS-HD2000U. You can connect either of the two IEEE 1394 INTERFACE terminals.

IMPORTANT

Do not plug out the IEEE 1394 cable during copying the tape.

You cannot copy a tape in D-VHS format from DV devices (for example, digital video camera) even if it is connected with an IEEE 1394 cable.

- 2 Set the recording VCR to be able to control the playback VCR.
To do this, when you use HS-HD2000U as a recording VCR, press IEEE 1394 INPUT on the remote control to display d1 to d5 on the front panel which corresponds to the D-VHS VCR used as a playback VCR. If you use this VCR as a playback VCR and the other VCR as a recording VCR, refer to the playback VCR's owner's guide for this procedure.
- 3 Put a D-VHS tape with the erasure prevention tab intact to the recording VCR.

- 4 When you are using the HS-HD2000U as a recording VCR, make sure that the D-VHS button on the front panel is lit. If it is not, press this button to light up.
- 5 Put the tape you want to copy into the playback VCR and find the cue point. Press STOP if the picture starts playing.

IMPORTANT

As it will take a few seconds to automatically select the recording mode, stop the tape slightly before the point you want to start copying.

- 6 On the playback VCR, press PLAY, then PAUSE.
- 7 On the recording VCR, press REC, then PAUSE.
- 8 Press the PAUSE buttons on both VCRs at the same time to begin copying the tape.
- 9 When finished, press STOP on both VCRs.

Editing Features

Copying a tape from D-VHS to analog

To copy a tape from D-VHS to analog format, use the HS-HD2000U as a playback VCR and connect it to an integrated HDTV or IEEE 1394-equipped HDTV receiver with an IEEE 1394 cable. And then connect an integrated HDTV or IEEE 1394-equipped HDTV receiver and the recording VCR with an S-video/video and audio cable. The digital signal which is played back on HS-HD2000U will be changed to analog signal by an integrated HDTV or IEEE 1394-equipped HDTV receiver, and this analog signal will be sent to the recording VCR.

- 1 Connect the IEEE 1394 cable to IEEE 1394 INTERFACE on an integrated HDTV or IEEE 1394-equipped HDTV receiver and to IEEE 1394 INTERFACE on the HS-HD2000U. You can connect either of the two IEEE 1394 INTERFACE terminals.
- 2 Connect the audio cable to AUDIO OUT L and R on an integrated HDTV or IEEE 1394-equipped HDTV receiver and to AUDIO IN L and R on the playback VCR.
- 3 If the playback VCR is S-VHS, connect an S-video cable to S-VIDEO OUT on an integrated HDTV or IEEE 1394-equipped HDTV receiver and to the playback VCR.

If the playback VCR is standard VHS, connect a video cable to VIDEO OUT on an integrated HDTV or IEEE 1394-equipped HDTV receiver and to the VIDEO IN on the playback VCR.
- 4 Select the external input of the recording VCR.
- 5 Put a blank tape into the playback VCR. If you are recording in S-VHS, be sure to use an S-VHS tape.
- 6 On the recording VCR, press REC, then PAUSE.
- 7 On the HS-HD2000U, press PLAY, then PAUSE.
- 8 Press the PAUSE buttons on both VCRs at the same time to begin copying the tape.
- 9 When finished, press STOP on both VCRs.

IMPORTANT

The picture quality of the copied program will not be as clear as that of the original digital broadcast.

Digital programs with copy restriction or programs prohibited from copying cannot be copied.

Editing Features

Copying a tape from analog to analog

There are two basic ways to make a copy of a tape from analog to analog.

One way is to use the HS-HD2000U to record and another VCR for playback.

The other way is to use another VCR to record and use the HS-HD2000U for playback.

Regardless of which method you may choose, you will need one RCA audio cable and one S-video cable to connect the two VCRs. You can use either a standard RCA video cable or an S-video cable. If you do not have these cables, they are available at your local electronics dealer. The highest quality is achieved through an S-video cable.

Using the HS-HD2000U to record from another VCR

- 1 Connect the audio cable to AUDIO OUT L and R on the playback VCR and to AUDIO IN L and R on the HS-HD2000U. If the playback VCR is mono, use only the AUDIO IN L on the HS-HD2000U.
- 2 If the playback VCR is S-VHS, connect an S-video cable to S-VIDEO OUT on the playback VCR and to the S-VIDEO IN on the HS-HD2000U.

If the playback VCR is standard VHS, connect a video cable to VIDEO OUT on the playback VCR and to the VIDEO IN on the HS-HD2000U.
- 3 If the playback VCR is Hi-Fi, set the audio monitor to **Stereo**.
- 4 Use INPUT to set the HS-HD2000U to **External 1** (L1) if you used the HS-HD2000U **rear** panel jacks, or **External 2** (L2) if you used the HS-HD2000U **front** panel jacks.
- 5 Put a blank tape into the HS-HD2000U. If you are recording in S-VHS, be sure to use an S-VHS tape.

Make sure that the S-VHS record or S-ET record in the S-VHS Set-Up menu is set correctly. See page 24, **Selecting Recording Format**.

Make sure that the Front S-input or Rear S-input in the S-VHS Set-Up menu is set correctly. See page 25, **Selecting S-input Setting**.
- 6 Put the tape you want to copy into the playback VCR and find the cue point. Press STOP if the picture starts playing.
- 7 On the HS-HD2000U, press REC, then PAUSE.
- 8 On the playback VCR, press PLAY, then PAUSE.
- 9 Press the PAUSE buttons on both VCRs at the same time to begin copying the tape.
- 10 When finished, press STOP on both VCRs.

Editing Features

Using the HS-HD2000U to playback to another VCR

- 1 Connect one stereo audio cable to AUDIO IN L and R on the recording VCR, and to AUDIO OUT L and R on the HS-HD2000U. If the other VCR is mono, you need a Y-adaptor to record both audio channels.
- 2 If the recording VCR is S-VHS, connect an S-video cable to S-VIDEO IN on the recording VCR and to S-VIDEO OUT on the HS-HD2000U.

If the recording VCR is standard VHS, connect a yellow video cable to VIDEO IN on the recording VCR and to VIDEO OUT on the HS-HD2000U.
- 3 Set the audio monitor on the HS-HD2000U to **Stereo**.
You should set the PerfectTape Select in the video function to **Normal** to improve the quality of your copy. See **Selecting and adjusting the audio and video functions** on page 27.
- 4 Set the input of the recording VCR to **External**.
- 5 Put a blank tape into the recording VCR. If the recording VCR is an S-VHS VCR, be sure to use an S-VHS tape.
- 6 Put the tape you want to copy into the HS-HD2000U and find the cue point.
- 7 On the recording VCR, press REC, then PAUSE.
- 8 On the HS-HD2000U, press PLAY, then PAUSE.
- 9 Press the PAUSE buttons on both VCRs at the same time to begin copying the tape.
- 10 Press STOP on both VCRs when you are finished.

Advanced Features

Advanced Playback Controls

Special effects

You can use the shuttle ring and the jog dial on the front panel, or the shuttle ring and the adjust dial on the remote to control the playback speed of the tape.

Change the playback speed while tape is paused

- 1 While the VCR is playing a tape, press PAUSE to freeze the picture.
- 2 Turn the shuttle ring and hold it to play the tape at a particular speed (see diagram). If you release the ring, it will come back to the center position, and the still (PAUSE) mode will resume.
- 3 To resume normal playback, press PLAY.

After about 5 minutes in the still or slow-motion mode, the VCR will automatically stop to avoid damage to the tape. The picture may vibrate vertically when you pause the VCR's picture.

Still adjustment

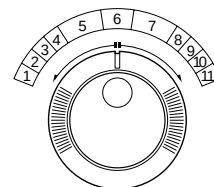
Sometimes during still frame, the picture may vibrate or shake. To correct this problem, turn the jog dial on the front panel while pressing SP/EP on the front panel until the vibration is reduced or stops. Side-to-side vibration cannot be corrected.

Change the playback speed while tape is playing

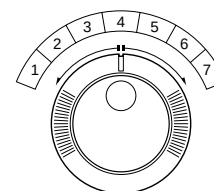
You can also change the playback speed with the shuttle ring without entering the PAUSE mode. To do this, turn the shuttle ring and hold it to play the tape at a particular speed (see the diagram). If you release the ring, it will come back to the center position, and normal playback will resume.

Advance tape frame by frame

- 1 While the VCR is playing a tape, press PAUSE to freeze the picture.
- 2 Turn the jog or the ADJUST dial clockwise to advance the tape forward. Turn it counter-clockwise to reverse the tape. The faster you turn the dial, the faster the tape will move.
- 3 To resume normal playback, press PLAY.



- 1 Reverse high speed search
- 2 Reverse speed search
- 3 Reverse fast playback
- 4 Reverse playback
- 5 Reverse slow-motion playback
- 6 Still
- 7 Slow-motion playback
- 8 Playback
- 9 Fast playback
- 10 Forward speed search
- 11 Forward high speed search



- 1 Reverse high speed search
- 2 Reverse speed search
- 3 Reverse fast playback
- 4 Playback
- 5 Fast playback
- 6 Forward speed search
- 7 Forward high speed search

Advanced Features

Adjusting the Tracking

automatic tracking

Your VCR automatically adjusts the tape to give you the best quality picture. When you start playback of a newly inserted tape, the DIGITAL TRACKING light (D) will flash, showing that the VCR is adjusting the picture. When the VCR has finished adjusting the picture, the DIGITAL TRACKING light will shine steadily.

A certain amount of “noise” in the picture or sound is normal while the VCR is tracking a tape.

manual tracking

From time to time, you might play a tape that has excess noise in the picture, often looking like vibration or interference at the top or bottom of the screen, or during D-VHS playback, the mosaic noise, still or black picture may appear. To correct the picture, you have to manually track the tape.

- 1 While the tape is playing, press and hold SP/EP and turn the front panel jog dial until the picture is clear of excess noise.
- 2 To continue automatic tracking, press SP/EP again. Automatic tracking will also resume when you eject the tape.

slow tracking

Slow tracking is used to adjust the playback quality during slow motion playback and still frame. You can only use slow tracking if your tape was recorded in extended play (EP) speed. To adjust the slow tracking, put a tape into slow motion, then press and hold SP/EP and turn the front panel jog dial until the best picture is obtained.

Time Counter

Your VCR has a time counter that shows the amount of time the tape has run in hours, minutes, and seconds. This counter is useful when you want to find specific points on a tape. The counter will not work when playing blank tapes or on blank sections of tape, or when the VCR's power is off.

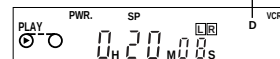
setting the counter

To set the counter to “0H00M00S,” press CANCEL on the remote control.

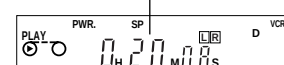
You cannot reset the counter if you are using the VCR's menus.

The counter will reset to “- H - - M - - S” when you eject a tape. When you load a tape again, the counter will display “0H00M00S”.

D (digital tracking) light



Time counter



Searching Techniques

Your VCR lets you search through a tape in a number of ways. These include:

- Quick search (CM skip)** -- 30 second intervals
- Speed search** -- visually search
- Counter zero stop** -- direct to start of recording
- Index search** -- find specific index points

The tape recorded in D-VHS format may not be searched correctly depending on the recording condition.

Advanced Features

Quick search (CM skip)

Quick search lets you skip over the tape you are playing in about 30 second intervals. It is designed so that you can quickly speed through any commercials you may have recorded. To do this:

- 1 Make sure that you have set the VCR/TV slide switch on the remote control to the VCR position.
- 2 While playing a tape, choose the desired search time by pressing a number button.

Number button	1	2	3	4	5	6
Search time	30 sec.	1 min.	1 min. 30 sec.	2 min.	2 min. 30 sec.	3 min.

The VCR will speed through the selected length of tape, then resume playback. This screen will show the search time and the gauge. Each mark on the gauge represents 15 seconds. The marks will disappear, one by one, every 15 seconds of the search time. You can select a search time up to 3 minutes.

Speed search

Use speed search to visually search through the contents of a videotape.

- 1 While playing a tape, press FF or REW on the remote control. You will see the picture as it fast forwards or rewinds. Noise bars may appear in the pictures.
- 2 When you are playing the tape recorded in analog format, if you press FF or REW and hold it down for about 1 second, the search speed will increase.
- 3 To resume normal playback, press FF or REW again quickly, or press PLAY.

CM Skip
3m00s
SSSSSSSSSSSS

IMPORTANT

The fastest search speed that allows you to see the picture is about 30 times normal speed. It is normal for the number of noise bars on the screen to increase and roll from top to bottom as the visual search speed increases. Using speed search for long stretches of tape may cause the video heads to become dirty faster.

The fastest way to move through the tape is without a picture, which allows you to search up to 500 times normal speed. To do this, press STOP, then FF or REW. If you press and hold FF or REW for more than 2 seconds, the search speed will slow to 330 times normal speed.

In order to protect your tapes and the VCR heads, the Fast Forwarding/ Rewinding Speed will be slower than 500x under the following conditions:
1 Use of tapes shorter in length than T-120 (for example, T-30, T-60, T-90).
2 Activating fast forwarding or rewinding from the middle of the tape.

Speed search may not work correctly when playing a tape recorded in both analog and digital format.

Notes for the program recorded in D-VHS format:

- When you use speed search for the program recorded without recording the search data, the speed search may not work correctly or the picture may not appear.
- It will take a few seconds to see the speed search picture.
- The mosaic noise, still or black picture may appear during using the speed search.
- The speed search picture may not appear depending on the digital program.

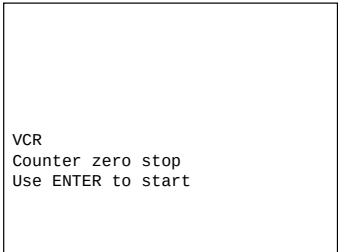
Advanced Features

Counter zero stop

Counter zero stop allows you to quickly access the beginning of a recorded or playback section of a tape. The counter zero stop will automatically fast forward or rewind the tape to "0H00M00S" and stop.

- 1 Press CANCEL on the remote control at the point you wish to locate later. The counter will reset to "0H00M00S".
- 2 When you wish to return to the point specified in step 1, press VIDEO on the remote control. The video function menu appears on your screen. Press VIDEO until the Counter zero stop function appears.
- 3 Turn the SHUTTLE ring to the right to start the counter zero stop.

The VCR will automatically search to the counter "0H00M00S" and then stop. The VCR may stop slightly before or after the counter "0H00M00S".



Index search

Index search is a way to find specific points on a tape. Before using index search, index marks are placed at important places on a tape. Index search is used to find these marks. Index marks are added automatically whenever your VCR starts a new recording; you can also add index marks manually at any point during recording.

automatic index marks

Whenever recording is begun from the STOP mode, an index mark is automatically added to the tape. When analog recording, a message will indicate that the mark is being recorded.

Index marks are not added when you press PAUSE or REC to begin recording from the record-pause mode.

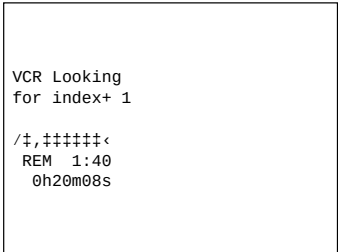
manual index marks

To add an index mark yourself, press REC on the remote control while a tape is recording.

Index marks must be added at least one minute apart.

- 1 When the tape is stopped, press INDEX ►►I to begin a forward search; press INDEX I◄◄ to search in reverse. The VCR will fast forward or rewind and index search display appears on the TV.

Once the VCR finds an index mark, it will begin playing back the tape from that point.
- 2 You can press INDEX ►►I or INDEX I◄◄ up to 19 times to search for that many index marks. For example, to find the third index mark ahead, press INDEX ►►I three times. The on-screen display will count down the number of marks passed before playback begins.
- 3 To cancel index search, press STOP.



(This screen appears during analog playback only.)

IMPORTANT

Index search may not work correctly if the interval between two index mark is shorter than 5 minutes in HS mode, 10 minutes in STD mode, 5 minutes in SP mode or 15 minutes in EP mode.

Advanced Features

repeat playback

You can playback a section of tape over and over using repeat playback. The tape will play until the next index mark, rewind to the previous index mark, and resume playing. If there is only one index mark on the tape, then the VCR will play or rewind to that mark and resume playback. If there is no index mark, the entire cassette will repeat.

- 1 Press VIDEO on the remote control to display the video function menu. Press VIDEO until the Repeat play function appears.
- 2 To start the playback, turn the SHUTTLE ring to the right.
When the VCR encounters the next mark or the end of the tape, it will automatically rewind to the previous mark and begin playback again.

The VCR will also search for a blank section of tape. If the VCR encounters any blank sections longer than 4 seconds in length, the repeat playback will begin.

- 3 Press STOP to cancel the repeat.

IMPORTANT

For the tape recorded in D-VHS format, repeat playback may not work correctly depending on the recording condition.

VCR
Repeat play
Use ENTER to start

Search to blank

This feature allows you to find the end point of the recorded part of the tape. The VCR will stop automatically at the beginning of the blank section of a tape.

- 1 Press VIDEO on the remote control to display the video function menu. Press VIDEO until the Search to blank function appears.
- 2 To start the search, turn the SHUTTLE ring to the right.
When the VCR encounters the blank section of a tape, it will automatically stop.

IMPORTANT

This feature may not work if the blank section is within 5 minutes or less in HS mode, 10 minutes or less in STD mode, 5 minutes or less in SP mode or 15 minutes or less in EP mode.

VCR
Search to blank
Use ENTER to start

Displaying the Time Gauge and the Remaining Time

The time gauge is a graphic representation of your position on a video tape. The left side of the gauge is the tape start (S), and the right side is the tape end (E). For a T-120 length tape played at standard (SP) speed, each mark on the gauge represents about 15 minutes. The remaining time display shows the time, in hours and minutes, left until the end of a tape.

the time gauge and the remaining time automatically appear during:

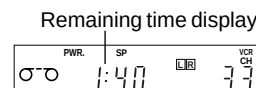
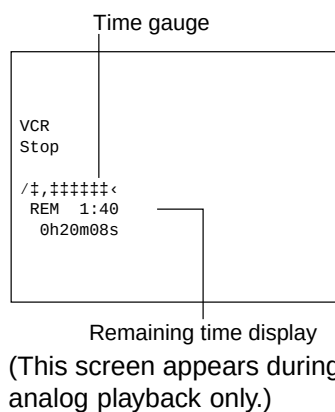
- fast forward and rewind (from a stopped tape)
- counter zero stop
- index searches
- rewinding for repeat playback
- search to blank

Turn off the time gauge and the remaining time by pressing DISPLAY twice.

to make the time gauge and the remaining time appear:

Press DISPLAY once. The time gauge and remaining time appear on the TV screen, and the remaining time appears on the front panel display. They disappear after 4 seconds when playing a tape.

To turn off the display, press DISPLAY twice.



Advanced Features

IMPORTANT

The time gauge and remaining time work by detecting control signals on recorded tapes. Therefore they do not function while playing blank tapes.

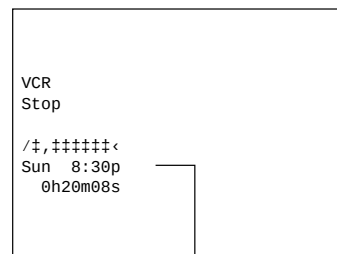
The remaining time display may not show the correct remaining time if the **Tape** function is incorrectly set, if you are using speed search, if you are using a special length cassette (such as T-10 length), or if you are using an S-VHS-C or a VHS-C tape with an adapter.

The remaining time display may not work correctly depending on your tape.

Displaying the Current Time

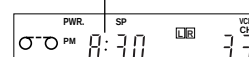
The current time is shown in the front panel display or the TV screen. If you have not set the clock, or if there has been a power failure of longer than 30 minutes, the display will show - : -. The current time will be displayed when the VCR is off. To see the current time when the VCR is on:

- 1 Press DISPLAY twice. The counter will be replaced by the current time.
- 2 To turn off the current time, press DISPLAY again.



Current time display
(This screen appears during analog playback only.)

Current time display



Customize Choices Menu

In the Customize Choices menu, there are 7 options that you can set. For each of the 7 options, start with these 2 steps:

- 1 Press MENU on the remote control. VCR Main Menu appears on your TV.
- 2 Use the ADJUST dial on the remote to select Customize choices. Turn the SHUTTLE ring to the right.

IMPORTANT

Customize choices menu consists of two pages. To display the next page, use ADJUST dial to select Go to next page and turn the SHUTTLE ring to the right. To go back to the previous page, use ADJUST dial to select Back to previous page.

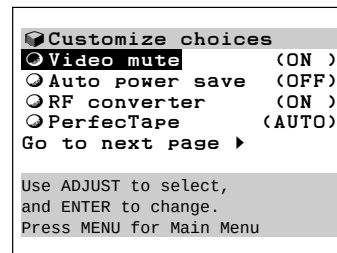
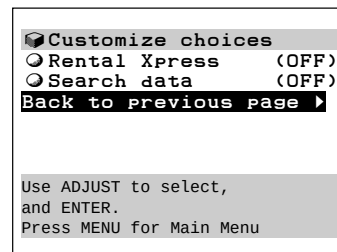
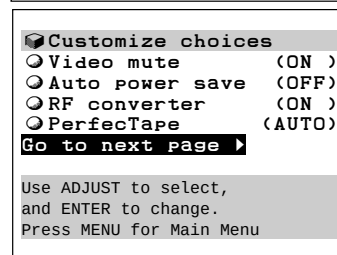
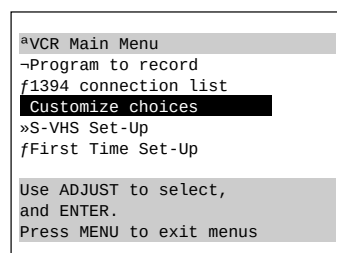
Video mute

When you turn video mute ON, any blank section of tape or many stations with a weak signal will be replaced by a blue screen. The sound will also be turned off. When you would like to try to tune in on a weak station, turn video mute OFF.

- 3 Complete steps 1 and 2 above. Customize choices menu appears. Use the ADJUST dial to select Video mute. Turn the SHUTTLE ring to the right to set video mute to ON or OFF.
- 4 Press MENU twice to exit the menus.

IMPORTANT

Video mute function may not work properly when you playback a section of a tape where only audio signals are recording.



Advanced Features

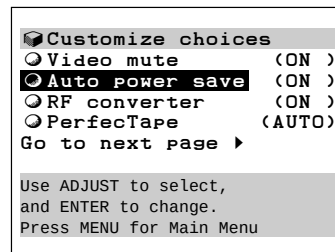
Auto power save (auto-off)

When the Auto Power Save feature is turned on, the VCR will automatically turn off after remaining idle for 30 minutes. If a control, such as a menu function or channel selection, is used or if there is a tape playing or being recorded, the VCR will remain on.

- Complete steps 1 and 2 above. Customize choices menu appears. Use the ADJUST dial to select Auto power save. Turn the SHUTTLE ring to the right to set to ON.
- Press MENU twice to exit the menus.

IMPORTANT

When viewing analog broadcast stations through the VCR, 3minutes→Power off will appear on the TV screen three minutes before the VCR power turns off. The display will count down the number of minutes until the VCR turns off. If you want to continue using the VCR, press any of the buttons.



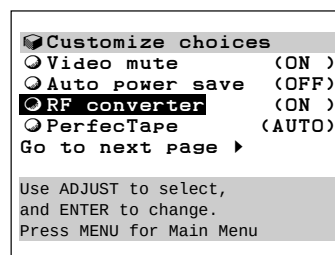
RF converter

If your TV has audio and video inputs, turn the RF converter OFF. If your TV does not have audio and video inputs, keep the RF converter set to ON. It is preset by the factory to ON.

- Complete steps 1 and 2 on the previous page. Customize choices menu appears. Use the ADJUST dial to select RF converter. Turn the SHUTTLE ring to the right to select ON or OFF.
- Press MENU twice to exit the menus.

IMPORTANT

If the RF converter is set to ON, you aren't required to press VCR/TV to play a tape or to use VCR menus. The VCR light will automatically light up when you press PLAY or MENU. Be sure to set the TV to the video channel (see page 10).



PerfectTape®

PerfectTape® is an exclusive Mitsubishi feature that tests the quality of video tapes you will record on. After each test, the VCR will adjust its internal circuitry in order to make the best possible recording on your tape.

setting up PerfectTape®

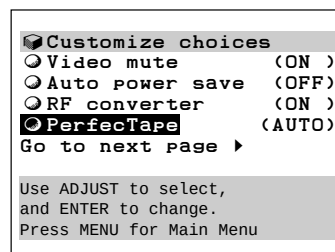
You can set up PerfectTape® to function two ways.

If you want the VCR to automatically test any non-recorded tapes when the tape is loaded, select AUTO.

If you do not want the VCR to automatically test tapes, select MANUAL. PerfectTape® will now function only when you start a test. Any tape with the erasure prevention tab intact can be manually tested.

It will not automatically test recorded tapes – you must choose to test those yourself.

- Complete steps 1 and 2 on the previous page. Customize choices menu appears. Use the ADJUST dial to select PerfectTape.
- Turn the SHUTTLE ring to the right to set PerfectTape to AUTO or MANUAL.
- Press MENU twice to exit the menus.



Advanced Features

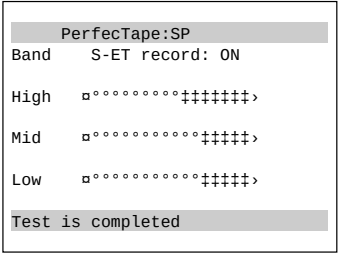
using PerfectTape® automatically

- 1 Load a tape that has not been recorded into the VCR.

The VCR will display the testing status screen. When testing, the VCR records for one second, then evaluates the recording it made. The entire test takes about 8 seconds. During this time, the PT light on the front panel will flash. If you wish to cancel the test, press STOP on the remote while the PT light is still flashing.

When the test is done, the VCR will display the rating of your tape for 8 seconds. On the front panel, the PT light will shine steadily, indicating that the VCR has set its internal circuitry to make the best possible recording on this tape.

If you would like to know whether your VHS tape is suitable for S-ET recording, set the S-ET record in the S-VHS Set Up menu to **AUTO** then test the VHS tape. If the tape is suitable, S-ET record: ON is shown on the screen and the tape will record in S-ET mode. If it is not suitable for S-ET recording, S-ET record: OFF is shown on the screen and the tape will record in VHS format.

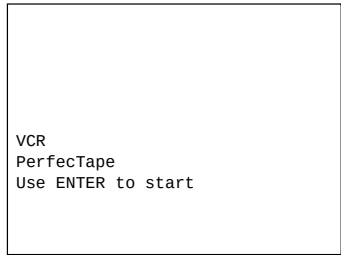


using PerfectTape® manually

- 1 Load a tape that has its erasure prevention tab intact into the VCR.
- 2 Find a portion of the tape that is OK to record over; this feature will record over one second of your tape.
- 3 Press VIDEO on the remote control. Video function menu appears. Press VIDEO until the PerfectTape function appears.
- 4 Turn the SHUTTLE ring to the right on the remote to begin the test. During this time, the PT light on the front panel will flash. To cancel the test, press STOP on the remote while the PT light is still flashing.

When the test is finished, the VCR will display the rating of your tape for 8 seconds. Turn off the display by pressing STOP on the remote control.

If you would like to know whether your VHS tape is suitable for S-ET recording, set the S-ET record in the S-VHS Set Up menu to **AUTO** then test the VHS tape. If the tape is suitable, S-ET record: ON is shown on the screen and the tape will record in S-ET mode. If it is not suitable for S-ET recording, S-ET record: OFF is shown on the screen and the tape will record in VHS format.

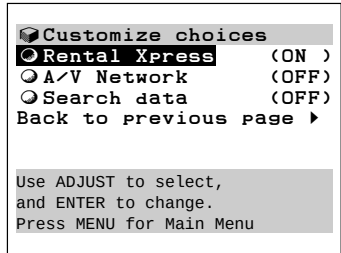
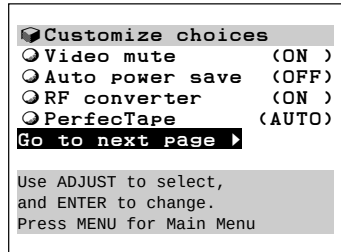


If you wish to erase the settings, eject the tape. The settings will also be erased if you press TIMER RESET or if the VCR loses power. After the test is finished, the PerfectTape function will not appear unless the tape is ejected.

Rental Xpress

Rental Xpress is a feature, when activated, that will automatically rewind the tape to the beginning, eject and power off the VCR, after it has reached the blank section of 30 seconds or longer on any rental tape (or any tape with the erasure prevention tab removed). To activate this feature:

- 3 Complete steps 1 and 2 on page 47. Customize choices menu appears. Use the ADJUST dial to select Go to next page. Turn the SHUTTLE ring to the right.
- 4 Turn the ADJUST dial to select Rental Xpress. Turn the SHUTTLE ring to the right to select ON or OFF.
- 5 Press MENU twice to exit the menus.



IMPORTANT

While the VCR is rewinding to the beginning of the tape, you cannot use repeat playback, counter zero stop and index search.

Advanced Features

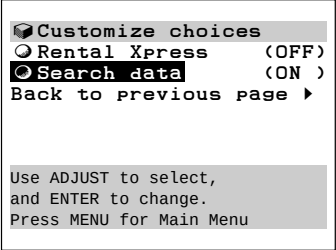
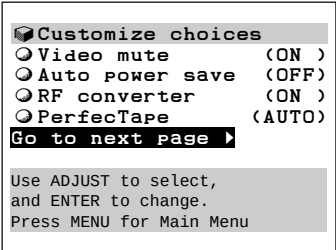
Search data

When you set Search data setting to ON, the search data will be recorded to use speed search for the tape recorded in D-VHS format. It is preset to ON at the factory.

- 3 Complete steps 1 and 2 on page 47. Customize choices menu appears. Turn the ADJUST dial to select Go to next page. Turn the SHUTTLE ring to the right.
- 4 Press the ADJUST buttons to select Search data. Turn the SHUTTLE ring to the right to select ON or OFF.
- 5 Press MENU twice to exit the menus.

IMPORTANT

The search data may not be recorded correctly depending on the recorded signal, and the speed search may not work correctly.



Advanced Features

Advanced Options

Using the remote control to operate your TV

The HS-HD2000U remote control can operate many of the frequently-used functions of your TV. You only need one remote to operate both your VCR and TV.

The HS-HD2000U remote control is pre-set to operate Mitsubishi televisions, but it can also operate TVs from other manufacturers. To set your remote control for your particular brand of television, follow these instructions.

setting up your remote control to operate your TV

- 1 Turn off your TV.
- 2 On the HS-HD2000U remote control, set the VCR/TV slide switch to the TV position.
- 3 While holding in SP/EP, press the code listed that corresponds to the brand of your TV.
- 4 Press TV POWER on the HS-HD2000U remote control. Once your TV has turned on, your remote is set up to operate your brand of TV.

If your TV does not turn on, repeat step 3 using the next code listed for the brand of your TV.

If none of the codes listed for the brand of your TV work, then repeat step 3 several times, using a different code button until one works. The possible code buttons are: 0, 1-9, MUTE, VOLUME $\wedge$, $\vee$, CHANNEL $\wedge$, $\vee$ and INPUT.

You do not need to perform this set-up again until you change the batteries, set up your remote for another brand of television, or you get a new TV.

Once you have correctly set your remote control to operate your TV, you will be able to use the TV POWER, CHANNEL, VOLUME, and number buttons to operate your TV.

Brand of TV	Brand code buttons
Mitsubishi	1, 2, 3
Fisher	0
G.E.	VOLUME $\wedge$
Goldstar	2, 9
Hitachi	8
JVC	MUTE
Magnavox	4
NEC	2, 9
Panasonic	CHANNEL $\wedge$, $\vee$
Pioneer	6
Philips	4
Proscan	VOLUME $\wedge$
Quasar	CHANNEL $\vee$
RCA	VOLUME $\wedge$
Sanyo	0
Sharp	3, 5
Sony	VOLUME $\vee$
Toshiba	7
Zenith	INPUT

IMPORTANT

Because of variations among models, some or all codes may not work, or they may operate different functions than expected for your particular TV. If this occurs, you may need to use your TV remote control.

Sometimes manufacturers will change the remote control codes for their products, or they will use more than one code. If this is the case, your remote may not be able to control your TV.

When you replace the batteries in your remote, the remote may return to its initial setting (code button 1). Repeat the steps above to reset your remote control. If you enter a new code, the previous code will be erased.

operating your TV with the HS-HD2000U remote control

- 1 Set the VCR/TV slide switch to TV position on the HS-HD2000U remote control to tell the remote that you want to operate the TV.
- 2 Point the remote control towards the TV and press the desired buttons. To once again control the VCR, set the VCR/TV slide switch to VCR position.

Advanced Features

To program the remote control operational setting

The HS-HD2000U has two remote control operational settings, VCR-A and VCR-B. These are available so you may separately control two Mitsubishi VCRs that are placed close together. The VCR-A setting can be used to operate any other Mitsubishi VCR introduced since 1986. Setting the HS-HD2000U to VCR-B will allow the HS-HD2000U be operated without the VCR responding at the same time.

To program the HS-HD2000U and the remote to VCR-B

For VCR:

- 1 Make sure the HS-HD2000U is plugged in but turned off. On the VCR front panel, turn the shuttle ring left while holding down SP/EP on the front panel. To confirm that the VCR responds to VCR-B signals, **b** appears on the front panel display.

For remote:

- 2 On the remote, make sure the VCR/TV slide switch is in the VCR position, then press VCR-A/B on the remote control until VCR-B appears on the remote control LCD.

When you wish to operate the other VCR

- 1 On the remote, with the VCR/TV slide switch in the VCR position, press VCR-A/B on the remote control until VCR-A appears on the remote control LCD.

To reprogram the HS-HD2000U to respond to VCR-A signals again

- 1 Make sure the HS-HD2000U is plugged in but turned off. On the VCR front panel, turn the shuttle ring right while holding down SP/EP on the front panel. To confirm that the VCR responds to VCR-A signals, **A** appears on the front panel display.

IMPORTANT

Some other models of Mitsubishi VCRs can respond to VCR-B signals. If your other VCR is one of these models, and you would like to program the other VCR to respond to VCR-B signals, refer to the owner's guide that came with the other VCR.

Some of the buttons may not function or they may operate different features than expected for the other VCR, particularly, those Mitsubishi VCR's that are more than 10 years old because Mitsubishi changes the codes from time to time.

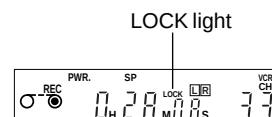
Child Lock

The child lock feature prevents others from using your VCR. To lock the VCR:

- 1 Press and hold down DISPLAY on the remote control for about 8 seconds. The LOCK light on the front panel display will light up.
- 2 To cancel the child lock, press and hold down DISPLAY for about 8 seconds, until the LOCK light on the front panel display goes out.

IMPORTANT

You can lock the VCR with the power off, even if the VCR is standing by for a programmed recording. If you lock the VCR with no cassette in it, the VCR will not accept a cassette.



Location of Controls

Remote Control

remote control LCD

See the section "Remote Control LCD".

VCR POWER

Turns the VCR on or off. If you have programmed the VCR to record, you need to turn the VCR off.

QUICK PROGRAM

Goes to VCR Plus+ Program to record menu.

Exits the programming screen.

O.L.R

Programs the VCR to record using the remote control LCD.

PlusCode

Sets VCR Plus+ system programming using the remote control LCD.

TRANSFER

Press when you transfer the PlusCode number or the contents of the programmed recording displayed on the remote control LCD to the VCR.

Number buttons

Selects TV stations, enters PlusCode numbers.
Sets quick search (CM skip) time.

TV POWER

Turns the TV on or off. You need to program your remote to operate your particular brand of television.

IEEE 1394 INPUT

Selects the integrated HDTV or IEEE 1394-equipped HDTV receiver connected to the VCR.

CHANNEL Up and Down

Selects next higher or lower channel in the VCR's or TV's channel memory.

VOLUME Up and Down

Raises and lowers the sound of the TV.
(Operates the TV only)

INPUT

DAILY/WEEKLY

Selects between the antenna and any other video equipment that may be connected.

Press to record the program every day or the same day every week when program the timer recording using the remote control LCD.

VCR/TV slide switch

Operates the VCR when set to the VCR position, the TV when set to the TV position. You need to program your remote to operate your particular brand of television.

REW ◀◀

Rewinds a tape or reverse searches.

PLAY ▷

Plays a tape.

STOP ◻

Stops a tape.

FF ▶▶

Fast forwards a tape or fast forward searches.

● REC

Starts recording. While recording, adds manual index mark.

INDEX ◀◀, ▶▶

Begins index search forward and backward.
Controls the playback speed of a tape.

adjust dial

Selects and adjusts menu selections.

shuttle ring

Adjusts playback speed when a tape is playing.
Enters or cancels selections when using the menus.

Location of Controls

Remote Control -- Flip cover open

EJECT
Ejects a tape.

OTR 2/①START TIME
Sets the start time in OTR² recording.

OTR 2/②REC LENGTH
Sets the recording length in OTR² recording.

TV AUDIO
Selects the audio settings to be adjusted.

VIDEO
Selects the video settings to be adjusted.

DISPLAY
Displays on the TV screen:

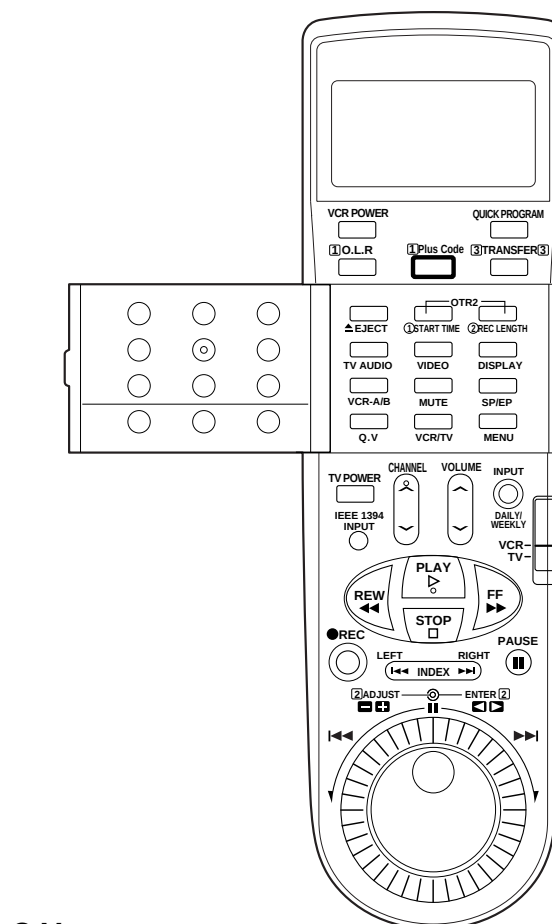
- Time elapsed on the tape
- Time left on the tape, current time
- Channel number and audio reception mode
- Audio channel(s) selected
- Source supplying the VCR with a signal
- If the VCR is stopped, playing, or recording

Turns the Child Lock on and off.

VCR-A/B
Selects between two Mitsubishi VCRs while using one remote.

MUTE
Turns off the TV sound. Press again to restore the TV sound to its previous volume. (Operates the TV only)

SP/EP
Changes the recording speed. (SP is standard play; EP is extended play).



Q.V
Uses Mitsubishi TV's QuickView feature. See your Mitsubishi TV owner's guide for more details.

VCR/TV
Switches between the VCR's picture and the TV's tuner.

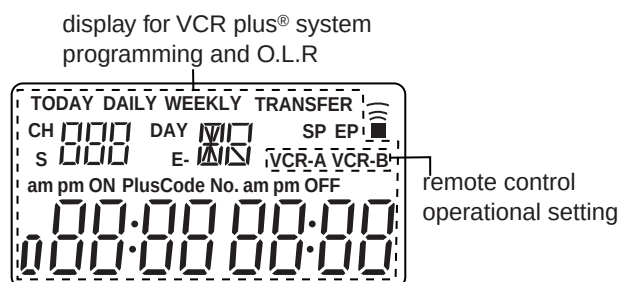
MENU
Displays the menus. Exits the menus.

Remote Control LCD (Liquid Crystal Display)

display for VCR plus[®] system programming and O.L.R
Displays the programmed contents of the VCR plus[®] system programming using the remote control LCD or O.L.R.

TRANSFER indicator 
Flashes when transfer the PlusCode number or the contents of the programmed recording displayed on the remote control LCD to the VCR.

remote control operational setting
Displays the selected remote control operational setting.



Location of Controls

Front Panel

POWER

Turns the VCR on or off.

If you have programmed your VCR to record, turn off your VCR.

EJECT

Ejects a tape.

D-VHS

Press to select whether you record the digital broadcast in D-VHS format or in analog (S-VHS/S-VHS ET/VHS) format. This button lights up during D-VHS recording/playing.

SP/EP

Changes the recording speed (SP is standard play; EP is extended play).

S-video input ② jack

Connect source here, such as a VCR or camcorder, to record or dub video.

video input ② jack

Connect source here, such as a VCR or camcorder, to record or dub video.

audio input ② jacks

Connect source here, such as a VCR or camcorder, to record or dub audio.

cassette slot

Insert the video cassette tape here.

front panel display

See the next page.

remote control sensor

Receives signals from the remote control.

Do not block it.

JOG/CHANNEL

Changes channels when tape is stopped.

Adjusts tracking and picture vibration.

shuttle ring

Fast forwards a tape or fast forward searches by turning right. Rewinds a tape or reverse searches by turning left.

3D&TBC

Turns the 3DNR&TBC on or off when playing a tape.

Turns the 3D on or off when the tape is stopped.

PLAY

Plays a tape.

Resumes normal playback from special effects.

STOP

Stops a tape.

PAUSE/①START TIME

Pauses a tape when recording.

Freezes a frame when playing a tape.

Sets the start time in OTR² recording.

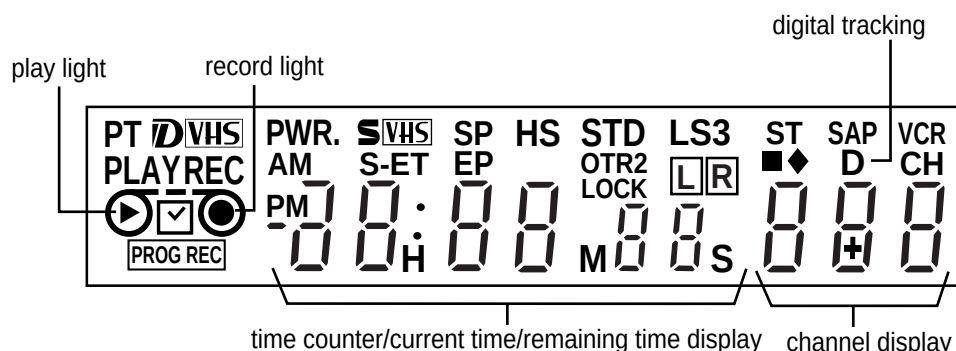
REC/②REC LENGTH

Records to the end of the tape by pressing once.

Sets the recording time for OTR recording by pressing repeatedly.

Location of Controls

Front Panel Display



PerfectTape® light : PT

Flashes when PerfectTape test is in progress.
Stays lit when test is complete.

D-VHS indicator : D-VHS

Lights up when D-VHS playing/recording.

play and record lights : PLAY REC

These light up when the VCR is playing a tape or recording. The cassette status symbol (σ-0) will light up when a tape is in the VCR. The dashes in the center of the symbol simulate the movement of the tape when playing and recording.

programmed recording light :

Lights up when VCR is off and it is programmed to record.

POWER light : PWR.

Is lit when power is ON.

S-VHS indicator : S-VHS

Lights up when the S-VHS tape or no tape is loaded and the S-VHS record is set to AUTO, when you play or record in Super-VHS (S-VHS).

S-ET indicator : S-ET

Lights up when the VHS tape is loaded and the S-ET record is set to ON, and when you play or record in S-ET mode.

tape speed lights : SP, EP, HS, STD, LS3

Indicates tape speed.

LS3 will be displayed only during playback.

time counter/current time/remaining time display

This area displays:

- current time
- time counter showing how long tape has run
- time remaining on the tape

OTR light : OTR

Lights up during recording the program with One-Touch Recording.

OTR2 light : OTR 2

Lights up during setting up, the delay time of Standby One-Touch Recording.

lock light : LOCK

Lights up when Child Lock feature is in use.

LR indicator :

L indicates that you are listening to the left channel of a stereo track, R indicates that you are listening to the right channel of a stereo track.

stereo indicator : ST

Indicates a stereo TV channel.

cable tuning light :

Lights up when VCR is set to receive cable broadcasts.

PRIMESTAR® light :

Lights up when VCR has selected channels from a PRIMESTAR receiver.

SAP indicator : SAP

Indicates that channel has a Separate Audio Program, or SAP.

digital tracking light : D

Flashes when VCR is adjusting the tracking.
Glow steadily when tracking is finished.
If tracking is adjusted manually, it turns off.

VCR light : VCR

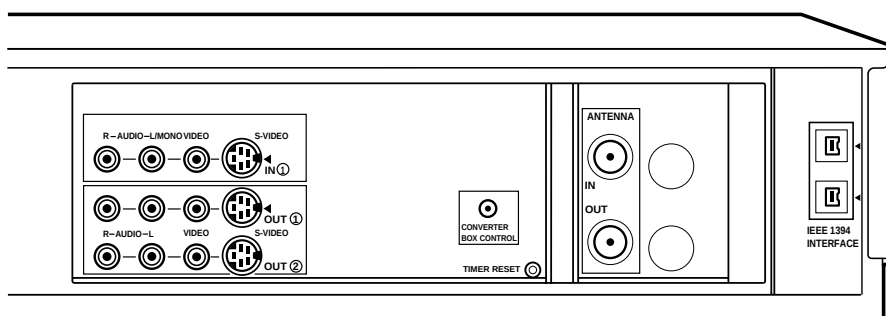
Indicates that the picture is controlled by the VCR.

channel display

Displays cable channel, broadcast channel, satellite channel, or input.

Location of Controls

Rear Panel Jacks



VIDEO INput and OUTput jacks

Yellow jacks for receiving (IN) and sending (OUT) video signals to a monitor TV or from another VCR.

The black jacks marked with "S-Video" can be used to connect televisions with S-Video jacks. ("S-Video jack" refers to a Separated Luminance-Chrominance (Y/C) jacks that conforms to the NTSC signal.)

AUDIO INput and OUTput jacks

Red and white jacks for receiving (IN) and sending (OUT) audio signals. Red signifies the right channel, and white signifies the left channel. Stereo audio cables are also color coded red and white. If you are receiving or sending a mono (non-stereo) signal, you should use only the left (white) terminal.

CONVERTER BOX CONTROL jack

Connects IR Emitter to a cable box and/or satellite receiver.

TIMER RESET

Erases all programmed recording settings and resets the clock. Use this button with care.

ANTENNA IN jack

Attach an external antenna or cable to bring in an outside signal.

ANTENNA OUT jack

Attach a coaxial cable to your TV to send out antenna/cable signals from the VCR to your TV.

IEEE 1394 INTERFACE

Connects a IEEE 1394 cable to an integrated HDTV or an IEEE 1394-equipped HDTV receiver for D-VHS recording.

Important Information

Special Information Concerning Stationary Images or Letterbox Images:

For best performance and longest life, the normal use of a TV should include a mixture of TV picture types. The most frequently used picture types should fill the screen with constantly moving images rather than stationary images or patterns. Displaying the same stationary patterns over extended periods of time, or displaying the same stationary patterns frequently, can cause uneven aging of the TV picture tubes and leave a subtle, but permanent, ghost image. Most TV warranties do not cover this type of damage to the picture tubes. To avoid this, mix your viewing pattern. Do not show the same stationary image for more than 15% of your total TV viewing in any one week. Display constantly moving and changing images that fill the screen whenever possible. We also recommend that you reduce the contrast setting of your TV when you watch that type of image. When possible, you may wish to use your television's PIP, POP, ZOOM, EXPAND or other picture shape controls so that the moving images fill the screen.

Please check your TV's owner's guide for other recommendations.

Examples of stationary images include:

- **Letterbox top/bottom bars.** These are solid colored bars that when showing a widescreen (16:9) image on a standard (4:3) TV.
- **Side panels.** These are the solid colored side bars when showing standard shaped (4:3) TV images on a widescreen (16:9) TV.
- **Stock-market report bars.** These include the ticker bar constantly running at the bottom of the TV screen on financial news channels.
- **Shopping channel logos & pricing displays.** These include bright graphics that are shown constantly or repeatedly in the same location.
- **Video game patterns and scoreboards.**
- **Bright station logos.** Moving or low-contrast graphics are less likely to cause uneven aging of the picture tubes.
- **On-line (internet) web sites.** In addition, any other stationary or repetitive computer style images from any source may cause uneven aging of the picture tubes.

Trouble Checks

If your VCR malfunctions, try the following steps prior to contacting your Mitsubishi Dealer:

- 1 Check the **Trouble Checks** below to see if there is a solution to the current problem that you are experiencing.
- 2 If the problem is not addressed on the **Trouble Checks**, the safety circuits in the VCR may be in operation, thus please try the following: (the clock setting and the timer recording will be deleted.)
 - 1 If possible, press EJECT on the front panel and remove the tape.
 - 2 Press TIMER RESET on the rear panel with a pencil or a ball point pen.
 - 3 If a tape is not loaded, press POWER to turn the power on. If a tape is loaded, wait about 1 minute until the tape protecting function is completed, then press POWER.
- 3 You may also try the following procedure if the above steps did not resolve the problem. (All settings will be reset to the default settings.)
 - 1 Press POWER on the front panel for about 8 seconds until the current time display on the front panel shows “- : - -”.
 - 2 If a tape is not loaded, press POWER to turn the power on. If a tape is loaded, the tape protecting function will work and “99” will appear on the front pane display to begin count down. Wait about 1 minute until it reaches “00” to show the tape protecting function is completed, then press POWER.

If the problem with your VCR persists, contact your Mitsubishi dealer for assistance.

Problem

Try This...

The VCR won't turn on.

- Check the power cord and the AC outlet.
- Is the LOCK light ON? If so, press and hold DISPLAY on the remote for more than 8 seconds until the LOCK light turns off.

The VCR power is on but no controls work.

- Is the LOCK light ON? If so, press and hold DISPLAY on the remote for more than 8 seconds until the LOCK light turns off.
- Set the VCR/TV slide switch to VCR position.
- Press TIMER RESET on the rear panel.

You can't see the VCR's picture on your TV.

- Check the TV's input setting.
- Check to see that your VCR is not set to **L1** or **L2**.

Poor picture when watching the VCR's tuner on your TV.

- Check to see if your TV is set to the correct channel or input.
- Check your TV's fine tuning, if using an older TV.
- Check your connections to make sure they are secure.

VCR REC button doesn't function.

- Check the erasure prevention tab on the tape cassette.

No picture during recording.

- Check the hook-up.
- Check to see if your TV is set to the correct channel or input.

VCR does not record TV program.

- Check the VCR tuning.
- Check the input selection on the VCR. Does the front panel display show **L1** or **L2**? If so, switch it to tuner by pressing INPUT.

The VCR timer recording does not operate.

- Check that the programmed recording light lights up in the front panel display.
- Check the clock time.
- Make sure you have turned the VCR off before the start time.

Trouble Checks

Problem

Try This...

Noise in the picture and distorted sound.

- Check the tracking control. Adjust manually if necessary.

Poor or no Hi-Fi sound.

- Check the monitor settings.
- Check the quality of the video tape.

Playback is noisy or "snowy".

- Try automatic head cleaning.
- Clean the video heads using a dry-type video head cleaning cassette. Do not use a wet-type head cleaning cassette, as it may damage your VCR. Excessive use of a cleaning cassette could shorten head life. Follow the cleaning instructions carefully.
- Have the VCR video heads cleaned by a qualified service technician.

VCR remote does not function.

- Check that remote mode of the VCR and your remote are set correctly (VCR-A or VCR-B).
- Check to see that the VCR/TV slide switch is set to the correct position.
- Change the batteries.

Your converter box or satellite receiver does not respond to any signals from the VCR's IR Emitter.

- Try moving the IR Emitter so that there is a clear line of sight between the Emitter and the box's remote sensor.
- Check that the IR Emitter is connected properly.
- Sometimes a cable box needs to be set by the cable company to receive signals. Contact your cable company.

The fast forwarding/rewinding speed is slow.

- In order to protect your tapes and the VCR heads, the Fast Forwarding/Rewinding Speed will be slower than 500x under the following conditions:
1 Use of tapes shorter in length than T-120 (for example, T-30, T-60, T-90).
2 Activating fast forwarding or rewinding from the middle of the tape.

Specifications

FORMAT	S-VHS/VHS NTSC standard with Hi-Fi audio and D-VHS standard
VIDEO SIGNAL SYSTEM	EIA standard; NTSC color
RECORD/PLAYBACK SYSTEM	Video -- 4 heads Audio -- 2 Hi-Fi channels and 1 monaural audio control Digital -- HS 4 heads STD 2 heads
ANTENNA	75-ohm external VHF/UHF combined antenna terminal
TUNER	181 channels capability VHF -- Channels 2 - 13 UHF -- Channels 14 - 69 CATV -- Channels 1-125
DIGITAL INTERFACE INPUT/OUTPUT	based on IEEE1394 digital interface, 4 pin, corresponds to S400
HORIZONTAL RESOLUTION	S-VHS -- more than 400 lines (SP) more than 400 lines (EP) VHS -- more than 220 lines (SP) more than 210 lines (EP)
SIGNAL-TO-NOISE RATIO	S-VHS -- more than 43 dB (SP) more than 43 dB (EP) VHS -- more than 45 dB (SP) more than 46 dB (EP)
COMB FILTER	Digital dynamic
TIMER PROGRAM CAPACITY	1-month programmable / 8 programs
MEMORY BACKUP TIME	approx. 30 minutes
MAXIMUM RECORDING TIME (D-VHS)	150 min. with DF-300 video cassette (HS) 300 min. with DF-300 video cassette (STD)
(S-VHS/VHS)	120 min. with T-120 video cassette (SP) 360 min. with T-120 video cassette (EP)
REWIND TIME	approx. 43 seconds for T-120 cassette (full recorded tape)
POWER REQUIREMENT	120V AC, 60 Hz
POWER CONSUMPTION	28 Watts -- 6.0 Watts standby
DIMENSIONS	3-5/8 in Height x 16-3/4 in Width x 11-13/16 in Depth (93mm x 425mm x 300mm)
WEIGHT	8.4 lbs approx. (3.8kg)
SUPPLIED ACCESSORIES	1 set coaxial cable 1 set stereo audio/video cables 1 S-video cable 1 IEEE 1394 cable 1 remote control with batteries 1 IR emitter 1 D-VHS cassette tape 1 registration card

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Warranty

MITSUBISHI VIDEO CASSETTE RECORDER LIMITED WARRANTY

MITSUBISHI DIGITAL ELECTRONICS AMERICA, INC. (MDEA) warrants to the original purchaser of this video cassette recorder if purchased from an authorized MITSUBISHI Audio/Video Dealer that, should it prove defective by reason of improper workmanship and/or material:

- a. **Parts.** For one year from the date of original purchase at retail, we will repair or replace, at our option, any defective part including the video head without charge for the part. Parts used for replacement are warranted for the remainder of the original warranty period.
- b. **Labor.** For ninety days from the date of original purchase at retail, we will provide the labor for a warranty repair without charge at an authorized MITSUBISHI service center.
- c. **Notice.** To obtain warranty service, you must notify an authorized MITSUBISHI service center of any defect within the applicable warranty time period.

1 TO OBTAIN WARRANTY SERVICE, deliver your VCR to the nearest MITSUBISHI service center.

Shipping expenses are your responsibility. The name and address of the nearest service center can be obtained from your MITSUBISHI Dealer, or by writing or calling MDEA at the address and telephone number below. Proof of purchase date from an authorized MITSUBISHI Dealer is required when requesting warranty service. Present your sales receipt or other document which establishes proof and date of purchase. THE RETURN OF THE OWNER REGISTRATION CARD IS NOT A CONDITION OF WARRANTY COVERAGE. However, please detach and return the Owner Registration Card so that we can contact you should a question of safety arise which could affect you.

2 THIS WARRANTY DOES NOT COVER damage caused by: modification, alteration, repair or service of this product by anyone other than an authorized MITSUBISHI service center; physical abuse to, or misuse of, the VCR; operation in a manner contrary to the instructions which accompany the VCR; freight damage; or any damage caused by acts of God such as lightning or fluctuation in electrical power. This warranty also excludes all costs arising from installation, adjustment of user controls, external antenna systems, service of products purchased or serviced outside the U.S.A., initial technical adjustments (set-up) and user-required maintenance including head cleaning. Consult the operating instructions enclosed with the product for information regarding user controls.

3 ANY EXPRESS WARRANTY NOT PROVIDED HEREIN, AND ANY REMEDY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION OR OPERATION OF LAW, IS HEREBY EXCLUDED AND DISCLAIMED. THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO A TERM OF ONE YEAR.

4 UNDER NO CIRCUMSTANCES SHALL MDEA BE LIABLE TO PURCHASER OR ANY OTHER PERSON FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT, OR OTHERWISE.

5 Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental, special, or consequential damages, so the above limitations or exclusions may not apply to you.

6 This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

7 BEFORE REQUESTING SERVICE, please review the instruction booklet to insure proper installation and correct customer control adjustment. If the problem persists, contact your nearest MITSUBISHI Dealer for name(s) of authorized MITSUBISHI Service Center(s). If you are unable to obtain the information, please call 1-800-332-2119, or write us at the address below.

MITSUBISHI DIGITAL ELECTRONICS AMERICA, INC.
9351 Jeronimo Road
Irvine, CA 92618-1904



RETAIN THIS PORTION FOR YOUR RECORDS

SERIAL NO. _____

CUSTOMER NAME _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE (____) _____ PURCHASE DATE ____/____/____

MO DAY YR

PLACE OF PURCHASE _____

PHONE (____) _____

For your nearest Mitsubishi Authorized Service Center
call 1-800-332-2119



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