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

♦ High-Definition Digital Recording and Playback
♦ Hand-held LCD programming
♦ Full S-VHS VCR functions
♦ VCR Plus+ Gold for easy recording
♦ Rew/FF at 500X speed! (:43 seconds for a T-120 tape)

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.
To connect your VCR, go to page 4.

To play a tape, go to page 12.

To record a program, go to page 26.

To learn about Advanced Features, go to page 55.
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:
(a) When the power-supply cord or plug is damaged.
(b) If liquid has been spilled, or objects have fallen into the product.
(c) 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.

CONSENSUS
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.

TAPES

CARE OF THE VIDEO CASSETTE

- 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.
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 cable
- 1 Coaxial cable
- IEEE 1394 cable
- 1 IR emitter
- 2 "AA" size batteries
- D-VHS cassette tape
- 1 Audio cable

**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.

**Antenna or 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 11 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.

6. 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.

3 Set the RF converter to OFF. See page 61 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.

If you connect an S-video cable, there is no need to connect a yellow video cable. If you do so, it may cause interference of the picture depending on your TV.

IMPORTANT

If your TV does not have S-Video connections, use optional yellow video cable in step 2.
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 a recorded digital signal 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 the receiver.

When you want to record digital broadcasts in analog (S-VHS, S-VHS ET or VHS) format, follow the steps 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 the receiver’s AUDIO OUTPUT RIGHT and AUDIO OUTPUT LEFT. Match the colors of the connectors to the cables.

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

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

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

When you connect more than one IEEE 1394-equipped devices, turn the power off when they are not being used because leaving the unused devices turned on may cause a lack of memory and may interfere with the correct transmission of signals. However some IEEE 1394-equipped devices cannot receive or send 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 Mitsubishi DSS®, 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 11 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.

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.

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

   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.
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 the 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 correct input of the IEEE 1394-equipped HDTV receiver.
4. Press POWER on the VCR to turn the power on.

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

If you do not switch the integrated HDTV or the 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 a 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 and the IEEE 1394-equipped HDTV receiver will display as TUNER and the D-VHS VCR will be shown as VCR. For the device which was connected to the HS-HD2000U before but now it is not connected, lost connection will be displayed.

The device which was first connected to the HS-HD2000U will be shown as d1, and connected fifth will be shown as 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.

**IMPORTANT**

When you connect Mitsubishi integrated HDTVs WS-55859, WS-65869, WS-55909, WS-65909 or WS-73909, they will not appear in 1394 connection list menu. When you use these TVs, they will control the HS-HD2000U. So to use the function of the HS-HD2000U, use the TV to operate the VCR.

**displaying 1394 connection list**

1. Press MENU on the remote control. VCR Main Menu comes up.
2. Turn the ADJUST dial on the remote control to select 1394 connection list. Turn the shuttle ring to the right. 1394 connection list menu appears.

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.
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 61.

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 61.

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 65 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 65.
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 D VHS, S VHS 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.

Playing a Tape

Playing a Tape Recorded in D-VHS Format

1. When you connect an integrated HDTV or IEEE 1394-equipped HDTV receiver which is capable of controlling 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 connect an integrated HDTV or IEEE 1394-equipped HDTV receiver which is not capable of controlling the VCR:
   Set the connection setting of your TV or receiver to select the HS-HD2000U. Refer to the TV or receiver owner’s guide for this procedure.
   And then 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. A mosaic noise, still or black picture will appear until the correct picture comes on. When the VCR reaches the end of the tape, it will automatically rewind to the beginning of the tape and stop.

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

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

Playing a Tape Recorded in Analog (S-VHS/S-VHS ET/VHS) 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 56 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, a black picture may appear before the still picture appears depending on the integrated HDTV or IEEE 1394-equipped HDTV receiver.

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 during D-VHS playback, or "noise" or snow during analog playback, 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 11).

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.

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

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Code Number</th>
<th>Manufacturer</th>
<th>Code Number</th>
<th>Manufacturer</th>
<th>Code Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC</td>
<td>1, 2</td>
<td>Magnavox</td>
<td>69, 61, 67</td>
<td>Shentech</td>
<td>67</td>
</tr>
<tr>
<td>Archer</td>
<td>29, 35, 36</td>
<td>Movieline</td>
<td>30, 31, 34</td>
<td>SL Marx</td>
<td>3, 14, 29</td>
</tr>
<tr>
<td>Century</td>
<td>29, 65</td>
<td>NSC</td>
<td>20, 51, 52</td>
<td>Sprucer</td>
<td>14, 21, 25</td>
</tr>
<tr>
<td>Citizen</td>
<td>29, 65</td>
<td>OAK</td>
<td>27, 39, 40, 49, 50, 61</td>
<td>Stargate</td>
<td>5, 14, 29, 65</td>
</tr>
<tr>
<td>Diamond</td>
<td>34, 56</td>
<td>Panasonic</td>
<td>14, 21, 25</td>
<td>Sylvaniana</td>
<td>66</td>
</tr>
<tr>
<td>Eagle</td>
<td>17, 18, 19, 61, 62, 63</td>
<td>Paragon</td>
<td>6, 7</td>
<td>Teknika</td>
<td>46</td>
</tr>
<tr>
<td>Eastern</td>
<td>96</td>
<td>Pioneer</td>
<td>14, 15, 16, 92, 93, 94</td>
<td>Texscan</td>
<td>33, 86</td>
</tr>
<tr>
<td>G C Electronic</td>
<td>25, 65</td>
<td>Philips</td>
<td>26, 61, 62, 63, 64</td>
<td>Tocon</td>
<td>1, 2, 4, 5, 41, 42, 43, 44, 45, 46, 47</td>
</tr>
<tr>
<td>Gemini</td>
<td>3, 60</td>
<td>RCA</td>
<td>14, 21, 25</td>
<td>Toshiba</td>
<td>32, 33, 34</td>
</tr>
<tr>
<td>General Electric</td>
<td>26</td>
<td>Realistic</td>
<td>37, 48</td>
<td>Unika</td>
<td>48</td>
</tr>
<tr>
<td>General Instrument</td>
<td>1, 2, 3, 4, 5, 41, 42, 43, 44, 45, 46, 47</td>
<td>Regal</td>
<td>45, 48</td>
<td>United Cable</td>
<td>2</td>
</tr>
<tr>
<td>Hamlin</td>
<td>22, 23, 45, 46, 47</td>
<td>Regency</td>
<td>68</td>
<td>Universal</td>
<td>30, 31, 54, 85</td>
</tr>
<tr>
<td>Hitachi</td>
<td>24</td>
<td>Rembrandt</td>
<td>55, 56</td>
<td>Videoway</td>
<td>6, 7</td>
</tr>
<tr>
<td>Jerrold</td>
<td>1, 2, 3, 4, 5, 41, 42, 43, 44, 45, 46, 47</td>
<td>Samsung</td>
<td>5, 14, 21, 25, 29</td>
<td>Viewstar</td>
<td>17, 18, 19, 61, 62, 63</td>
</tr>
<tr>
<td>Macom</td>
<td>24</td>
<td>Scientific Atlanta</td>
<td>10, 11, 12, 13</td>
<td>Zenith</td>
<td>5, 7, 9</td>
</tr>
</tbody>
</table>

### Digital Cable Box Brand Code

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Code Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI</td>
<td>1, 2</td>
</tr>
</tbody>
</table>
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 23.

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 42.)

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 completed. 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 17).

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

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE</td>
<td>1</td>
</tr>
<tr>
<td>RCA</td>
<td>1, 8</td>
</tr>
<tr>
<td>PRIMESTAR®</td>
<td>2</td>
</tr>
<tr>
<td>Sony</td>
<td>3</td>
</tr>
<tr>
<td>DISH Network</td>
<td>4</td>
</tr>
<tr>
<td>Toshiba</td>
<td>5</td>
</tr>
<tr>
<td>Panasonic</td>
<td>6</td>
</tr>
<tr>
<td>Mitsubishi/Hughes</td>
<td>7</td>
</tr>
<tr>
<td>none</td>
<td>OFF</td>
</tr>
</tbody>
</table>

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.
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 60.
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.
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 16. (If you selected digital cable box, you cannot select any satellite channels.)

**Antenna/Cable selections**

- **Indoor/outdoor antenna:** Your VCR can receive VHF/UHF channels 2–69.
- **Cable antenna without box:** Cable channels 1–125.
- **Cable box only:** Cable box channels 0–99.
- **Digital cable box:** Digital cable box channels 0–999.

**Satellite Receiver selections**

- **Mitsubishi, 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.)
- **PRIMESTAR®** 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 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 Mitsubishi, 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 cancelled.

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 the quickest 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 4 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 the 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 the IEEE 1394-equipped HDTV receiver which is capable of controlling the VCR:
   Operate your TV or receiver to record, to pause recording or to stop recording. Refer to the TV or receiver owner’s guide for this procedure. During your TV or receiver is operating the HS-HD2000U, \( d \) will be displayed on the front panel display.
   When you are connecting the integrated HDTV or the IEEE 1394-equipped HDTV receiver which is not capable of controlling the VCR:
   Press IEEE 1394 INPUT on the VCR remote control to select the device you would like to record from. \( d1 \) to \( d5 \) will appear on the front panel display. Select the number that corresponds to the device from which 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/REC 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 the 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, a mosaic noise, a still or a black picture may appear when playing 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.
Recording

recording copy protected digital programs

Some programs have copy protect data to prohibit or restrict 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.

When you record the program prohibited from copying or copy the program with copy restriction, Error CP will appear on the front panel display. Error CP will also appear when recording without receiving broadcasting signal. If this occurs, check the hook up.

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 the 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 32.
4. Select the Front S-input in the S-VHS Set-UP menu when you connect an integrated HDTV or an IEEE 1394-equipped HDTV receiver to the front panel of the VCR, or Rear S-input when you connect the integrated HDTV or the IEEE 1394-equipped HDTV receiver to the rear of the VCR. See Selecting S-input Setting on page 33.
5. Press INPUT to select the external input to the position which is connected to the integrated HDTV or the IEEE 1394-equipped HDTV receiver.
   - select L1 if you connect to the rear panel.
   - select L2 if you connect to the front panel.
6. Select 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/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/REC LENGTH on the front panel to resume recording from PAUSE.

IMPORTANT

Be sure to connect the VCR and an integrated HDTV or an 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 the IEEE 1394-equipped HDTV receiver.

The menu or the program list of an integrated HDTV or an IEEE 1394-equipped HDTV 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. Select the recording format. See Selecting Recording Format on page 32.
3. Select 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 is 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/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/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/REC 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/REC 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/REC LENGTH or OTR 2/REC LENGTH for each additional 30 minutes you want to add to the OTR timer, up to 4 hours. If you press REC/REC LENGTH 10 times or OTR 2/REC 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/REC LENGTH an eleventh time, the VCR will resume normal manual recording. If you press OTR 2/REC LENGTH a tenth 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/REC LENGTH or OTR 2/REC 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/REC LENGTH will not resume your recording.

If you press STOP during OTR, you erase the OTR programming.
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. Select the recording format. See Selecting Recording Format on page 32.
3. Select 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 is 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/START TIME on the front panel or OTR 2/START 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/REC LENGTH or OTR 2/REC 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 to 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/REC 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:

<table>
<thead>
<tr>
<th>Recording format</th>
<th>D-VHS</th>
<th>S-VHS</th>
<th>VHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-VHS</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>S-VHS</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>S-VHS ET</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>VHS</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

When recording in analog, 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:

<table>
<thead>
<tr>
<th>Recording format</th>
<th>Digital recording mode</th>
<th>Analog recording mode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HS</td>
<td>STD</td>
</tr>
<tr>
<td>D-VHS</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>S-VHS/S-VHS ET/VHS</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

HS (high speed) : You can record the half duration of STD.
STD (standard)   : You can record the same duration as described on the tape.
SP (standard play): You can record the same duration as described on the tape.
EP (extended play): 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

<table>
<thead>
<tr>
<th>Recording format</th>
<th>Recording time (when recorded in STD/SP mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DF-240</td>
</tr>
<tr>
<td>D-VHS</td>
<td>4h</td>
</tr>
<tr>
<td>S-VHS/VHS</td>
<td>2h</td>
</tr>
</tbody>
</table>

S-VHS/VHS tape

<table>
<thead>
<tr>
<th>Recording format</th>
<th>Recording time (when recorded in SP mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T-30</td>
</tr>
<tr>
<td>S-VHS/S-VHS ET/VHS</td>
<td>30m</td>
</tr>
</tbody>
</table>
Recording

Using S-VHS Set-Up Menu

Selecting Recording Format

When recording in analog, 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 PerfecTape® function. See page 61 for the PerfecTape®.

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 (high grade) 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.
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**: 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.

### Video functions

- 3D-Y/C
- Tape (length)
- D-VHS Tape (length)
- DNR + TBC
- PerfecTape Select
- PerfecTape®

### 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.

When 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:

<table>
<thead>
<tr>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>stereo broadcast</td>
</tr>
<tr>
<td>SAP broadcast</td>
</tr>
<tr>
<td>stereo and SAP</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>The audio monitor you listen to</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereo</td>
<td>Audio Stereo</td>
</tr>
<tr>
<td>L</td>
<td>Audio L</td>
</tr>
<tr>
<td>R</td>
<td>Audio R</td>
</tr>
<tr>
<td>Mono</td>
<td>Audio Mono</td>
</tr>
</tbody>
</table>

### 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-Y/C
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 DNR&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.

DNR + TBC (Digital Noise Reduction + Time Base Correction)
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 DNR&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 playback of special effects. When using this setting, colors may possibly appear different than normal.

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.

<table>
<thead>
<tr>
<th>Length of tape</th>
<th>Use setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hours long or less</td>
<td>T-120</td>
</tr>
<tr>
<td>(T-30 through T-120)</td>
<td>T-120</td>
</tr>
<tr>
<td>160 minutes (T-160)</td>
<td>T-160</td>
</tr>
<tr>
<td>180 minutes (T-180)</td>
<td>T-180</td>
</tr>
<tr>
<td>200 minutes (T-200)</td>
<td>T-200</td>
</tr>
<tr>
<td>210 minutes (T-210)</td>
<td>T-210</td>
</tr>
</tbody>
</table>

D-VHS Tape (D-VHS Tape)
Adjust this function to ensure the accuracy of the Remaining Time display.

<table>
<thead>
<tr>
<th>Length of tape</th>
<th>Use setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF-160 through DF-300</td>
<td>DF-300</td>
</tr>
<tr>
<td>DF-360</td>
<td>DF-360</td>
</tr>
<tr>
<td>DF-420</td>
<td>DF-420</td>
</tr>
<tr>
<td>DF-480</td>
<td>DF-480</td>
</tr>
</tbody>
</table>

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 58 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 59 for more information on this feature.

Search to blank (Search to blank)
Use this function to search the beginning of the blank section of the tape. See page 59 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 61 for more information on this feature.
Selecting and Adjusting the Audio and Video Functions

1. If you set your remote control to be able to operate Mitsubishi televisions by code button 1, make sure that the VCR/TV slide switch is set to VCR position. See Using the Remote Control to Operate your TV on page 64.

2. Press 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.

When you set your remote control to be able to operate Mitsubishi televisions by code button 1:
- The TV audio function will appear when you press TV AUDIO on the HS-HD2000U remote.
- The TV video function will appear when you press VIDEO on the HS-HD2000U remote with the VCR/TV slide switch is set to TV position.

**setting 3D-Y/C or DNR + TBC by using DNR&TBC on the front panel**

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

2. When you want to set DNR + TBC, press DNR&TBC on the front panel during the tape is playing.

When 3D-Y/C or DNR + TBC is in operation, DNR&TBC 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, D-VHS Tape and 3D-Y/C function does not appear during playback.

Play PerfecTape and DNR + TBC is displayed only during playback.

PerfecTape displays only when a tape, with its erasure tab intact, is loaded and the VCR is stopped.
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 programming**
- **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 recording on the integrated HDTV or on the IEEE 1394-equipped HDTV receiver, not on the VCR. Refer to your TV or receiver owner’s guide.

1. Follow the steps 1 to 4 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 on the IEEE 1394-equipped HDTV receiver. Refer to your TV or receiver owner’s guide for this procedure.

The integrated HDTV or the IEEE 1394-equipped HDTV receiver will receive the program to be recorded on the start time you have set and send the signal to start recording to the VCR. The VCR will start recording automatically. The integrated HDTV or the IEEE 1394-equipped HDTV receiver will send the signal to 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, while the VCR is in stand-by mode for the D-VHS timer recording, press INPUT on the VCR remote to set the VCR’s input to the tuner or press IEEE 1394 INPUT to select d1 to d5 which corresponds to the receiver or the TV from which 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 that you are using. (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 when the D-VHS timer recording is activated. When you press POWER, the programmed recording light will be turned off but the VCR power will remain off. Please note that the VCR cannot 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 an IEEE 1394-equipped HDTV receiver with an S-video/video and an audio cable to record a digital broadcast in analog format.

1. Select 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 33.

2. Select the channel you would like to record on an integrated HDTV or an 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+ system 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+ system menu appears. See page 42 to learn how to program with VCR Plus+ system. To pass this screen, turn the SHUTTLE ring to the right.
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 an IEEE 1394-equipped HDTV receiver to the rear panel.
   • Select External L2 if you connect an integrated HDTV or an 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 48. 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+ system menu will appear. Continue the programming procedure from step 5.

14 When you are finished with all programming, check the following:
   • Leave an integrated HDTV or an 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 an IEEE 1394-equipped HDTV receiver.

   The menu or the program list of an integrated HDTV or an IEEE 1394-equipped HDTV 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.
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+ system 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+ system menu appears. See page 42 to learn how to program with VCR Plus+ system. 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.
   - 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.
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 48. 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+ system menu** will appear. Continue the programming procedure from step 3.

12 When you are finished entering the programs you wish to record, 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 recordings 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.

Cancelling 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.
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+ system menu will appear.

3. VCR Plus+ system 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, The PlusCode number is not valid will display on the screen for 3 seconds, and then the VCR Plus+ system 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.
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+ system menu. Continue the VCR Plus+ system 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 VCR Plus+ 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.

If you enter a number incorrectly, press CANCEL or turn the SHUTTLE ring on the remote control to the left.

4 Use DAILY/WEEKLY if you want to record your program daily or weekly. 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.

5 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.
   • do not make a selection if you want to keep the recording in the mode that was previously used.

6 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. Press ENTER to complete.

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

If you cannot select the other program line by turning ADJUST dial on the remote, press PAUSE first, and then turn the ADJUST dial.
## Timer Recording

<table>
<thead>
<tr>
<th><strong>IMPORTANT</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>You cannot transfer the PlusCode number while the VCR is recording or on recording pause mode.</td>
<td></td>
</tr>
<tr>
<td>If the VCR memory is full, <strong>Program memory is full</strong> will appear for 8 seconds, and then the <strong>Recap screen</strong> will appear. Use <strong>CANCEL</strong> to erase an entry before you can add another one.</td>
<td></td>
</tr>
<tr>
<td>If the code number you entered is wrong, <strong>The PlusCode number is not valid</strong> will display on the screen for 8 seconds, and then the <strong>VCR Plus+ system</strong> menu will appear.</td>
<td></td>
</tr>
<tr>
<td>If two programmed recording times overlap, <strong>VCR is already programmed for that time</strong> will display on the screen for 8 seconds. You will need to erase the previous program before you can enter the new one.</td>
<td></td>
</tr>
<tr>
<td>If the remote control has failed to transfer the data, <strong>The transfer has failed. Please transfer again</strong> will be displayed on the screen for 8 seconds. To transfer the same PlusCode number again, press <strong>TRANSFER</strong> twice. Pressing <strong>TRANSFER</strong> once displays the PlusCode number on the remote control LCD again, and pressing it again transfers the displayed PlusCode number.</td>
<td></td>
</tr>
</tbody>
</table>

7. To program additional recording times, follow the procedure from step 2 to 6 again.

8. 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.

<table>
<thead>
<tr>
<th><strong>IMPORTANT</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To cancel VCR Plus+ System Programming while programming with the remote control LCD, press <strong>VCR Plus+</strong>.</td>
<td></td>
</tr>
<tr>
<td>To cancel VCR Plus+ System Programming while displaying the <strong>Recap screen</strong>, press <strong>CANCEL</strong> to cancel the selected program, and then press <strong>MENU</strong> to exit the <strong>Program to record</strong>.</td>
<td></td>
</tr>
</tbody>
</table>
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+ system 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 OTR.)

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+ system 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 40.) 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 entering the programs you wish to record, 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.

---

**Recap screen**

<table>
<thead>
<tr>
<th>CH</th>
<th>DAY</th>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2ME14</td>
<td>11:30a</td>
<td>1:30pSP</td>
<td></td>
</tr>
<tr>
<td>10TH15</td>
<td>9:00p</td>
<td>10:00pEP</td>
<td></td>
</tr>
<tr>
<td>7E-NE</td>
<td>6:00a</td>
<td>9:00aEP</td>
<td></td>
</tr>
<tr>
<td>S12FPR16</td>
<td>5:30p</td>
<td>5:45pEP</td>
<td></td>
</tr>
<tr>
<td>8TU20</td>
<td>11:00p</td>
<td>0:30aSP</td>
<td></td>
</tr>
<tr>
<td>S980H-F</td>
<td>7:00p</td>
<td>7:15pEP</td>
<td></td>
</tr>
<tr>
<td>15GA 1</td>
<td>8:00p</td>
<td>9:00aEP</td>
<td></td>
</tr>
<tr>
<td>46SU18</td>
<td>7:00a</td>
<td>9:00aSP</td>
<td></td>
</tr>
</tbody>
</table>
On LCD Programming

On LCD Programming 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 the 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 LCD PROGRAM on the remote control. The display for programming 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.
   - the same day every week; for example, to tape your favorite weekly sitcom.
   To program, turn the ADJUST dial until DAILY appears.
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 5 and 6.
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.
   - do not make a selection if you want to keep the recording in the mode that was previously used.
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.

**IMPORTANT**

If you cannot select the other program line by turning ADJUST dial on the remote, press PAUSE first, and then turn the ADJUST dial.
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 re-enter the date will be displayed on the screen for 8 seconds.

If the remote control is failed to transfer, The transfer is failed. Please transfer again will be displayed on the screen for 8 seconds. To transfer the same programming contents again, press TRANSFER twice. Pressing TRANSFER once displays the programming contents on the remote control LCD again, and pressing it again transfers the displayed program.

10 To program additional recording times, follow the procedure from step 2 to 9 again.

11 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 LCD, press LCD PROGRAM.

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.
Timer Recording

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

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

If you forget to load a tape, the programmed recording light (PROG REC) and the tape status symbol (Tape) 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 analog programmed recording times to overlap, VCR is already programmed for that time will appear on your screen. When you set the analog and the D-VHS timer recording times overlap, these timer recordings may not be recorded correctly.

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 36.

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 in analog format, 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.
Timer Recording

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 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.

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.
Timer Recording

Cancelling 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.

Using a Satellite Receiver

If you are using a Mitsubishi, Panasonic, RCA, Sony, Toshiba, or Hughes satellite receiver, your VCR will automatically 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 a D-VHS VCR equipped with IEEE 1394 INTERFACE terminal to the HS-HD2000U with an IEEE 1394 cable, you can copy a tape from D-VHS format to D-VHS. You cannot edit the tape while copying from D-VHS to D-VHS.

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

   IMPORTANT
   Do not pull out an IEEE 1394 cable during copying the tape.
   You cannot copy a tape in D-VHS format from digital video equipment (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 will correspond 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 recording VCR 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 the button to light it 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.

   IMPORTANT
   The programs prohibited from copying or the programs with copy restriction cannot be copied correctly. When you use the HS-HD2000U as a recording VCR and copy such programs, Error CP appears on the front panel display.
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 to an integrated HDTV or an IEEE 1394-equipped HDTV receiver with an IEEE 1394 cable. And then connect an integrated HDTV or an IEEE 1394-equipped HDTV receiver to 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 an IEEE 1394-equipped HDTV receiver, and this analog signal will be sent to the recording VCR to be recorded.

1 Connect an IEEE 1394 cable to IEEE 1394 INTERFACE on an integrated HDTV or an IEEE 1394-equipped HDTV receiver and to IEEE 1394 INTERFACE on the HS-HD2000U. You can use either of the two IEEE 1394 INTERFACE terminals.

2 Connect the audio cable to AUDIO OUT L and R on an integrated HDTV or an IEEE 1394-equipped HDTV receiver and to AUDIO IN L and R on the recording VCR.

3 If the recording VCR is S-VHS, connect an S-video cable to S-VIDEO OUT on an integrated HDTV or an IEEE 1394-equipped HDTV receiver and to the recording VCR.

4 Select the external input of the recording VCR.

5 Put a blank tape into the recording VCR. If you want to record in S-VHS, 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. Press STOP if the picture starts playing.

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 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.
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 32, Selecting Recording Format.

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-adapter 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 PerfecTape 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 36.

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 (for analog playback only)

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.

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.
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, a 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 (for analog playback only)

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”.

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

When you record a digital program, there is a chance that it was broadcast as a non-standard digital signal. This means that while this D-VHS VCR can record the program, it may not display a picture when you use the visual search function (i.e. Speed Search). This is not a defect of the D-VHS VCR player.
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.

<table>
<thead>
<tr>
<th>Number button</th>
<th>Search time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30 sec.</td>
</tr>
<tr>
<td>2</td>
<td>1 min.</td>
</tr>
<tr>
<td>3</td>
<td>1 min. 30 sec.</td>
</tr>
<tr>
<td>4</td>
<td>2 min.</td>
</tr>
<tr>
<td>5</td>
<td>2 min. 30 sec.</td>
</tr>
<tr>
<td>6</td>
<td>3 min.</td>
</tr>
</tbody>
</table>

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.

IMPORTANT

The fastest search speed that allows you to see the picture is about 30 times of 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 (for the tape recorded in analog format). 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 280 times normal speed (for the tape recorded in analog format).

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. Use of tapes longer in length than T-120 (for example, T-160, T-180, T-210. Also for DF-300, DF360, DF-420, and DF-480).
3. Activating fast forwarding or rewinding from the middle of the tape.

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

When you record a digital program, there is a chance that it was broadcast as a non-standard digital signal. This means that while this D-VHS VCR can record the program, it may not display a picture when you use the visual search function (i.e. Speed Search). This is not a defect of the D-VHS VCR player.

The speed search may not work correctly when playing back a program recorded by multi stream recording or depending on the program you have recorded.
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 will be placed at specific places on the tape. Index search is then 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 STOP mode, an index mark is automatically added to the tape. When recording in analog, a message will indicate that the mark is being added.

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 from the point you are at, 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.

IMPORTANT

Index search may not work correctly if the interval between two index marks is shorter than 5 minutes in HS (high speed) mode, 10 minutes in STD (standard) mode, 5 minutes in SP (standard play) mode or 15 minutes in EP (extended play) mode.

(This screen appears during analog playback only.)
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 the 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.

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 5 minutes or less apart 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.

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.

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.

3 Complete steps 1 and 2 on the previous page. Customize choices menu appears. Use the ADJUST dial to select Auto power save. Turn the SHUTTLE ring to the right to set to ON.

4 Press MENU twice to exit the menus.

IMPORTANT
When viewing analog broadcast stations through the VCR, 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.

3 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.

4 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 13).

PerfecTape®

PerfecTape® 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 PerfecTape®

You can set up PerfecTape® 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. PerfecTape® 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.

3 Complete steps 1 and 2 on the previous page. Customize choices menu appears. Use the ADJUST dial to select PerfecTape.

4 Turn the SHUTTLE ring to the right to set PerfecTape to AUTO or MANUAL.

5 Press MENU twice to exit the menus.
**Advanced Features**

**using PerfecTape® automatically**

1. Load a blank tape 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 PerfecTape® 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 PerfecTape 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 PerfecTape function will not appear unless the tape is ejected.

**RentalXpress**

RentalXpress 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 60. 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 RentalXpress. 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 with Picture**

When you set Search w/ Picture setting to ON, it allows you to search (FWD/REW) your D-VHS recording with picture. If you turn this setting OFF, you will not see any picture while “searching”. It is preset to ON at the factory.

3 Complete steps 1 and 2 on page 60. 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 w/ Picture. Turn the SHUTTLE ring to the right to select ON or OFF.

5 Press MENU twice to exit the menus.

**IMPORTANT**

Even if you set Search w/ Picture to ON, there may be instances where there will be a frozen picture or no picture while you search. This is due to the signal that was recorded. This is not a defect of the D-VHS.
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 INPUT, 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, CHANNEL, and ENTER.

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.

**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.

---

### Brand of TV | Brand Code Buttons
---|---
Mitsubishi | 1, 2, 3
Magnavox | 4
Sharp | 3, 5
Panasonic | CHANNEL \, \, 
Toshiba | 7
Hitachi | 8
Sanyo | 0
RCA | VOLUME \, \,
NEC | 9
Goldstar | 9
Zenith | ENTER
Sony | VOLUME \, \,
JVC | MUTE
Pioneer | 6
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 to 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.
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+ system menu.
Exits the programming screen.

LCD PROGRAM
Programs the VCR to record using the remote control LCD.

VCR Plus+
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.

CANCEL
Cancels selections on the on-screen menus.
Resets the counter display to “0H00M00S”.

ENTER
Enters selections on the on-screen menus.

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 an integrated HDTV, an IEEE 1394-equipped HDTV receiver or a D-VHS VCR 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.

PAUSE ■ ■
Pauses a tape when recording.
Freezes a frame when playing a tape.

adjust dial
Selects and adjusts menu selections.

shuttle ring
Adjusts playback speed when a tape is playing.
Enter or cancels selections when using the menus.
Location of Controls

Remote Control -- Flip cover open

▲ EJECT
Ejects a tape.

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

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

TV AUDIO
Selects the TV audio settings to be adjusted.

VIDEO
Selects the audio and 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).

Remote Control LCD (Liquid Crystal Display)

display for VCR Plus+ system programming and LCD programming
Displays the programmed contents of the VCR Plus+ system programming using the remote control LCD or LCD programming.

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.

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.
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 choose between recording in 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.

DNR&TBC (Digital Noise Reduction & Time Base Correction)
Turns the DNR + TBC on or off when playing a tape. Turns the 3D-Y/C on or off when the tape is stopped.

▶ PLAY
Plays a tape.
Resumes normal playback from special effects.

□ STOP
Stops a tape.

II PAUSE/① START TIME
Pauses a tape when recording.
Freezes a frame when playing a tape.
Sets the start time in OTR 2 recording.

● REC/② REC 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

<table>
<thead>
<tr>
<th>Control</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>PerfecTape® light: PT</td>
<td>Flashes when PerfecTape test is in progress. Stays lit when test is complete.</td>
</tr>
<tr>
<td>D-VHS indicator:</td>
<td>Lights up when D-VHS playing/recording.</td>
</tr>
<tr>
<td>play and record lights: PLAY REC</td>
<td>These light up when the VCR is playing a tape or recording. The cassette status symbol (σ-τ) 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.</td>
</tr>
<tr>
<td>programmed recording light:</td>
<td>Lights up when VCR is off and it is programmed to record.</td>
</tr>
<tr>
<td>POWER light: PWR</td>
<td>Is lit when power is ON.</td>
</tr>
<tr>
<td>S-VHS indicator:</td>
<td>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).</td>
</tr>
<tr>
<td>S-ET indicator: S-ET</td>
<td>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.</td>
</tr>
<tr>
<td>tape speed lights:</td>
<td>SP, EP, HS, STD</td>
</tr>
<tr>
<td>time counter/current time/remaining time display:</td>
<td>This area displays:</td>
</tr>
<tr>
<td></td>
<td>• current time</td>
</tr>
<tr>
<td></td>
<td>• time counter showing how long tape has run</td>
</tr>
<tr>
<td></td>
<td>• time remaining on the tape</td>
</tr>
<tr>
<td>digital tracking light: D</td>
<td>Flashes when VCR is adjusting the tracking. Glows steadily when tracking is finished. If tracking is adjusted manually, it turns off.</td>
</tr>
<tr>
<td>VCR light: VCR</td>
<td>Indicates that the picture is controlled by the VCR.</td>
</tr>
<tr>
<td>channel display:</td>
<td>Displays cable channel, broadcast channel, satellite channel, or input.</td>
</tr>
<tr>
<td>OTR light: OTR</td>
<td>Lights up during recording the program with One-Touch Recording.</td>
</tr>
<tr>
<td>OTR2 light: OTR 2</td>
<td>Lights up during setting up, the delay time of Standby One-Touch Recording.</td>
</tr>
<tr>
<td>lock light: LOCK</td>
<td>Lights up when Child Lock feature is in use.</td>
</tr>
<tr>
<td>LR indicator: LR</td>
<td>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.</td>
</tr>
<tr>
<td>stereo indicator: ST</td>
<td>Indicates a stereo TV channel.</td>
</tr>
<tr>
<td>cable tuning light:</td>
<td>Lights up when VCR is set to receive cable broadcasts.</td>
</tr>
<tr>
<td>PRIMESTAR® light:</td>
<td>Lights up when VCR has selected channels from a PRIMESTAR receiver.</td>
</tr>
<tr>
<td>SAP indicator: SAP</td>
<td>Indicates that channel has a Separate Audio Program, or SAP.</td>
</tr>
<tr>
<td>digital tracking light: D</td>
<td>Flashes when VCR is adjusting the tracking. Glows steadily when tracking is finished. If tracking is adjusted manually, it turns off.</td>
</tr>
<tr>
<td>VCR light: VCR</td>
<td>Indicates that the picture is controlled by the VCR.</td>
</tr>
<tr>
<td>channel display:</td>
<td>Displays cable channel, broadcast channel, satellite channel, or input.</td>
</tr>
</tbody>
</table>
Location of Controls

Rear Panel Jacks

![Diagram of VCR rear panel with jack locations]

**VIDEO INput and OUTput jacks**
Yellow jacks are 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 are 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 an IEEE 1394 cable to an integrated HDTV or an IEEE 1394-equipped HDTV receiver for D-VHS recording/playback.
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 repeated 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 complete, 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 “✓” appears on the front panel display.
   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 panel display to begin count down. Wait about 1 minute until it reaches “00” to show the tape protecting function is complete, 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/Tuner 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 on the front panel display.
| | • Check the clock time.
| | • Make sure you have turned the VCR off before the start time.
| | • For D-VHS timer recording:
| | - Check the IEEE 1394 connection.
| | - Is an integrated HDTV or an IEEE 1394-equipped HDTV receiver turned on?
| | - Have you programmed the timer recording on an integrated HDTV or an IEEE 1394-equipped HDTV receiver?
| | - The program prohibited from copying cannot be recorded.
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.
## Trouble Checks

<table>
<thead>
<tr>
<th>Problem</th>
<th>Try This...</th>
</tr>
</thead>
</table>
| 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 the 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. Use of tapes longer in length than T-120 (for example, T-160, T-180, T-210. Also for DF-300, DF360, DF-420, and DF-480).  
  3. Activating fast forwarding or rewinding from the middle of the tape. |
| You cannot playback or record in D-VHS. | • Be sure to use the D-VHS tape for D-VHS recording.  
  • You may not be able to record programs which have copy protect data to prohibit or restrict recording. If you record such programs, Error CP will appear on the front panel display.  
  • Try the followings:  
    - Pull off the IEEE 1394 cable, and leave it unplugged for few seconds, and then plug it again.  
    - Turn the power on/off of the IEEE 1394-equipped device which is connected to the VCR.  
    - If it is equipped, press the RESET button on the IEEE 1394-equipped device which is connected to the VCR.  
    - Turn off the power of the VCR and the IEEE 1394-equipped device which is connected to the VCR, and then plug out/in the power cord of each device. |
| A mosaic noise, still or black picture appears when playback or speed search the tape recorded in D-VHS. | • When you playback the end of a recording, the point where the recording mode changes or a broken part of the tape, a mosaic noise, still or black picture may appear.  
  • The block noise may appear during speed search of the tape recorded in D-VHS.  
  • 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.  
  • The program recorded with the Search w/ Picture in the Customize Choices menu is set to OFF may not be searched correctly. |
| No picture or sound from the IEEE 1394-equipped device. | • Check the hook-up.  
  • When you connect more than one IEEE 1394-equipped devices, turn the power off when they are not being used because leaving the unused devices turned on may cause a lack of memory and may interfere with the correct transmission of signals.  
  • You cannot send/receive the data of digital video equipment (for example, digital video camera) or a personal computer because the format is different from that of the HS-HD2000U.  
  • Is an integrated HDTV or an IEEE 1394-equipped HDTV receiver turned on? |
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 IEEE 1394 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**
3D

**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)
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

**Power Requirement**
120V AC, 60 Hz

**Power Consumption**
28 Watts -- 6.0 Watts standby

**Dimensions**
3.7 in Height x 16.7 in Width x 12.0 in Depth (93mm x 425mm x 306mm)

**Weight**
9.9 lbs approx. (4.5kg)

**Supplied Accessories**
1 set coaxial cable
1 set audio cable
1 S-video cable
1 IEEE 1394 cable
1 remote control with batteries
1 IR emitter
1 D-VHS cassette tape
1 registration card

Index

**A**
adding channels.......................... 21
adjust dial .................................. 66
adjusting tracking ....................... 56
advanced options .......................... 64
playback controls ........................ 55
ALLSET feature ........................... 16
antenna, connecting ...................... 5
jacks ......................................... 5, 70
audio
connecting a TV with inputs .......... 6
input, output jacks .......................... 68, 70
monitor ................................. 34
audio video functions
button ...................................... 67
selecting ................................... 36
using ....................................... 34
auto clock function ...................... 23
auto power save .......................... 61
auto speed programming .................. 48

**B**
backup, memory ........................... 50
batteries, installing ..................... 13

**C**
cable, connections to ..................... 5
cable box, connections to ............... 5
cable tuning light .......................... 69
cancel button .............................. 66
cancel
button ..................................... 66
recording in progress .................... 41
timer recording ............................ 49
cassette slot .............................. 68
cassette status symbol ................... 69
changing recording settings ............ 49
changing settings while
programming ................................ 41
channel(s)
adding and deleting ....................... 21
display ................................... 69
memorize .................................. 16
selecting ................................... 22

child lock ................................ 65
choosing a hookup ........................ 4
clock setting ............................... 23
CM skip ................................. 57
connections to
antennas .................................. 5
cable with or without box ............. 5
home theater receiver ................... 10
satellite receiver ........................ 9
integrated HDTV or IEEE 1394-
equipped HDTV receiver ............... 7
IR emitter ................................. 11
TV w/audio video inputs ................. 6
converter box control jack ........... 11, 70
copying a tape
from D-VHS to D-VHS ................. 51
from D-VHS to analog ............... 52
from analog to analog .................. 53
counter display .......................... 69
counter zero stop ....................... 35, 58
customize choices menu ............... 60
# Index

## D
- daylight savings time .................. 24
- digital tracking light .................. 69
- display button ............................ 67
- displaying current time .................. 60
- displaying time gauge .................... 59
- DNR&TBC
  - button ................................... 68
  - using .................................... 35, 36
- D-VHS
  - button .................................. 68
  - indicator ................................ 69
  - tape setting ............................. 35

## E
- editing features .......................... 51
- eject button .............................. 67, 68
- enter button .............................. 66
- erasure, preventing tape .................. 21
- fast forwarding a tape ................... 15, 57
- FF button .................................. 66
- front panel buttons ..................... 68, 69
- front panel display ....................... 68, 69

## H
- head cleaning ............................. 15

## I
- IEEE 1394
  - connection ................................ 7
- INPUT button .............................. 66
- INTERFACE jacks .......................... 7, 70
- notes about network ..................... 8
- 1394 connection list ..................... 12
- important safeguards ..................... 2
- index buttons ............................. 66
- techniques ............................... 58
- input/daily/weekly button ................. 66

## J
- JOG/CHANNEL ................................ 68

## L
- loading tapes ................................ 14
- location of controls ....................... 66
- lock light .................................. 65, 69
- lock VCR .................................... 65
- LR indicator ................................ 69

## M
- memory backup ............................ 50
- menu button ................................ 67
- menus, using ................................ 16
- mute button ............................... 67

## N
- number buttons ............................ 66
- normal recording ......................... 34

## O
- one touch recording (OTR) .............. 29
  - light ...................................... 69
  - one touch recording, standby .......... 30
- OTR 2/1 START TIME button ............. 67
- OTR 2/2 REC LENGTH button ................ 67
- on LCD programming
  - button ..................................... 66
  - using ....................................... 46

## P
- pause button ............................... 66, 68
- pausing a tape ............................. 15
- PerfectTape® light ........................ 69
  - using ....................................... 35, 61
- PerfectTape Select ....................... 35
- play and record lights .................... 69
- play button .................................. 66, 68
- playback controls, advanced ............ 55
- power button ................................ 66
- PRIMESTAR® light .......................... 69
- program caution ........................... 48
- programmed recording light .............. 69
- programming
  - auto speed ................................ 48
  - cancel ...................................... 41, 50
  - changing settings while .............. 41

## Q
- quick program ............................. 45
- quick search ............................... 57
- Q.V button .................................. 67

## R
- rear panel jacks .......................... 70
- rec button .................................. 66, 68
- record cancel ............................. 41
- record light ................................ 69
- recording
  - analog timer recording of digital broadcast ......................... 38
  - canceling programmed .................... 50
  - canceling one in progress .................. 41
  - conventional VCR timer ................... 40
  - current digital broadcast .................. 26
  - current broadcast in analog format ................................. 28
  - D-VHS timer ................................ 37
  - format ..................................... 31, 32
  - mode ....................................... 31
  - one-touch .................................. 29
  - Quick Program ................................ 45
  - standby one-touch ......................... 30
  - time ........................................ 31
  - timer ........................................ 37
  - VCR Plus+ system .......................... 42
- remote control
  - buttons ..................................... 66
  - LCD ......................................... 67
  - sensor ...................................... 68
  - RentalXpress .............................. 62
  - repeat playback ............................ 35, 59
  - rew button .................................. 66
  - rewinding a tape .......................... 15, 57
- RF converter setting ...................... 61

## S
- SAP indicator ............................. 69
- SAP broadcast ............................. 34
- satellite receiver
  - connecting .................................. 9
  - memorizing brand code ................... 20
  - notes about using ........................ 50
  - search techniques ........................ 56
  - search to blank ............................ 35, 59
- S-ET mode ................................. 32
- S-ET indicator ............................. 69
- setting the clock .......................... 23
- shuttle ring .................................. 66, 68
- S-input setting ............................. 33
- skipping programs ......................... 49
- special effects ............................. 55
- SP/EP button ............................... 67, 68
- stereo indicator ........................... 69
- S-through ................................... 33
- still adjustment ............................ 55
- stop button .................................. 66, 68
- S-VHS Set-Up menu ......................... 32
- S-VHS indicator ............................. 69
- S-video input jack .......................... 68, 70

## T
- tape function .............................. 35
- D-VHS ........................................ 35
- tape speed lights ......................... 69
- tape
  - copying .................................... 51
  - loading ..................................... 14
  - playing ..................................... 14
  - repeating ................................. 35, 59
- television, connecting .................... 5, 6
- operating with remote ..................... 64
- time
  - counter .................................... 56
  - display current .......................... 60
  - gauge ....................................... 59
  - remaining ................................. 59
- timer recording ............................ 37
- timer reset button ......................... 50, 70
- tracking ..................................... 56
- TRANSFER button ......................... 66
- trouble checks ............................. 72
- TV POWER button ......................... 66
- TV/VCR slide switch ....................... 66

## V
- VCR
  - light ......................................... 69
  - operating 2 w/ 1 remote .................. 65
  - setting up ................................. 16
- VCR-A/B button ............................ 67
- VCR Plus+ button ........................... 66
- VCR POWER button ......................... 66
- VCR/TV button ............................. 67
- video
  - input, output jacks ........................ 68, 70
  - mute ........................................ 60
  - volume button ............................ 66
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
For your nearest Mitsubishi Authorized Service Center
call 1-800-332-2119