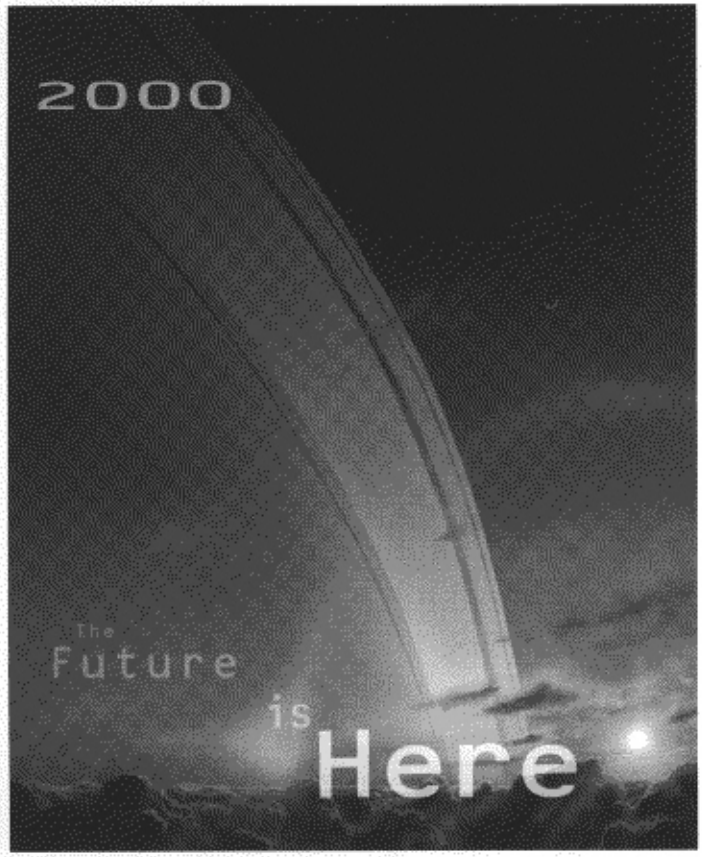
Panasonic®

HDTV Digital Receiver
Operating Instructions

TU-HDS20



For assistance, please call: 1-888-726-2377 or send
e-mail to: consumerproducts@panasonic.com

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Table of Contents

Safety Instructions 2
Important Information 4
Information on Digital Television 6
Digital Television 6
Digital Broadcasting and Cable TV 6
Digital Audio 6
Information on the HDTV Digital Receiver 7
Reception Capability of HDTV Digital Receiver 7
Panasonic HDTV Digital Receiver Model TU-HDS20 8
Congratulations 9
Customer Record 9
Care and Cleaning 9
Specifications 9
Important Notes 10
HDTV Digital Receiver Location 10
Connecting Cables 10
AC Power Supply Cord 10
Satellite Dish Antenna Connection 10
Antenna Installation and Orientation 10
Antenna/Cable Connection 11
TU-HDS20 Front Panel 12
TU-HDS20 Rear Panel 13
HD Digital TV Display Formats 14
HD Digital TV video Formats 14
Display Format Selection 14
Aspect Ratio Selection 16
Channel and Program Tuning ATSC Reception 18
Channel Banner 19
Viewing modes 22
Dolby Digital (AC-3) Audio 25
Getting Started 27
Step 1. Connect AC Power Cord 27
Step 1a. Antenna / Cable Connection 27
Step 1b. DIRECTV Satellite Dish Connection 27
Step 2. Connection to DTV-Compatible TV 28
Step 2a. Connection to RGB Monitor 29
Step 2b. Connection to Conventional TV 30
Step 3. Digital Tv Reception with DTV-Compatible TV (no Satellite or Cable Service) 31
Step 3a. Digital Tv Reception with Conventional TV (no Satellite or Cable Service) 32
Step 3b. Digital TV Reception with DTV-Compatible TV (Cable Service and Terrestrial Antenna) 33
Step 3c. Digital TV Reception with Conventional TV (Cable Service and Terrestrial Antenna) 34
Step 3d. Digital 8VSB Cable / Analog Cable Reception with DTV-Compatible TV 35
Step 3e. Digital 8VSB Cable / Analog Cable Reception with Conventional TV 36
Step 4. Turning HDTV Digital Receiver ON 37
Step 5. Switching to DTV Mode 37
Step 6. Roller Guide Menu™ 37
Step 6a. ACTION/Navigation Button 38
Step 7. Antenna/Cable Mode 38
Step 8. HDTV Digital Receiver Connection to VCR/S-VIDEO VCR 39
Step 9. Programming Available Channels 40
Optional Connections 41
HDTV Digital Receiver Connection to Dolby Digital AC-3 Decoder 41
Remote Control Guide 42
Remote Control Functional Key Chart 43
Battery Installations and Precautions 45
Special Remote Buttons 46
Programming the Remote Control 49
Remote Control Component Codes 50
Special Features of the HDTV Digital Receiver 54
Impulse Pay per View 54
Impulse Pay per View Icons 55
Software Upgrade Messages 57
Roller Guide Menu™ 58
Navigation/ACTION button 59
Roller Guide Menu Feature Chart 60
SETUP 63
Satellite Setup 63
Guide Setup 67
Antenna Setup 68
Monitor 71
System Test 72
Access Card 73
ADVANCED PROGRAM GUIDE 74
Direct Channel Entry 75
Banner Description Icons 76
Guide Banner Categories 77
Grid 78
LOCK 79
Password 79
Movies Limits 80
TV Limits 81
Channel Lock 82
Spending 84
ACCOUNT 85
Future Purchases 85
Past Purchases 86
OPTIONS 87
Audio 87
Caption 88
Clock 89
Satellite/Local Tuning Mode 90
About 91
TIMER 92
Timer error Messages 93
Glossary and Acronyms 94
Troubleshooting Table 96

Read these instructions completely before operating.

Specifications are subject to change without notice or obligation.

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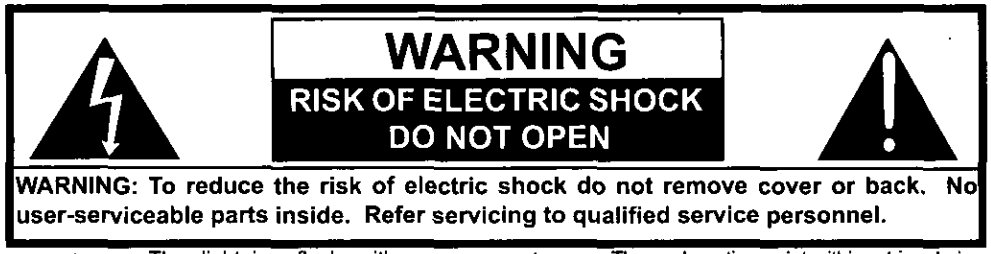
SAFETY INSTRUCTIONS



The lightning flash with arrow head within a triangle is intended to tell the user that parts inside the product are a risk of electric shock to persons.

The exclamation point within a triangle is intended to tell the user that important operating and servicing instructions are in the papers with the appliance.

Note To CATV System Installer: This reminder is provided to call the CATV system installer's attention to article 820-40 of the National Electric Code that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Note To Satellite Dish Installer:

This reminder is provided to call your attention to Article 810 and in particular article 810-15 of the National Electrical Code which covers proper installation and grounding of television receiving equipment as well as to article 820-40 of the National Electrical Code which specifies that the satellite dish cable ground shall connected to the grounding system of the building as close to the point of cable entry as practical.

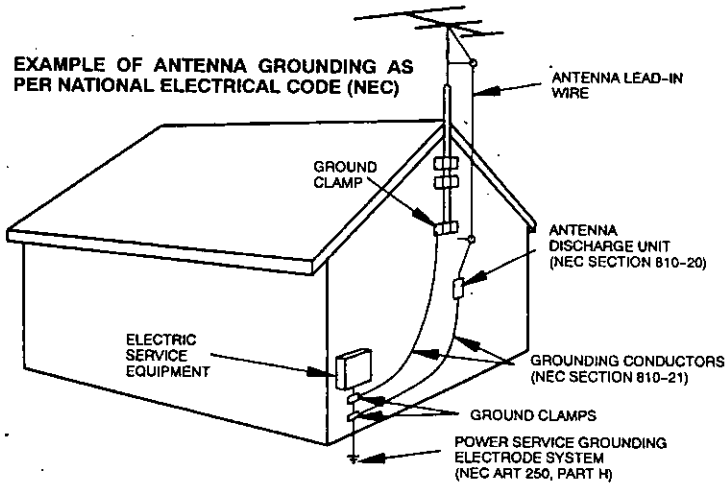
Safety Instructions For The HDTV Digital Receiver:

1. Read and apply the operating instructions provided with HDTV Digital Receiver.
2. Read all of the instructions given here and retain them for later use.
3. Unplug this HDTV Digital Receiver from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use attachments not recommended by the HDTV Digital Receiver manufacturer as they may cause hazards.
5. Do not use this HDTV Digital Receiver near water. For example: Avoid placing it near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
6. Do not place this HDTV Digital Receiver on an unstable cart, stand, or table. The HDTV Digital Receiver may fall, causing serious injury to a child or adult and serious damage to the appliance. Use only with a cart or stand recommended by the manufacturer, or sold with the HDTV Digital Receiver. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.

6a. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to insure reliable operation of the HDTV Digital Receiver and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the HDTV Digital Receiver on a bed, sofa, rug or other similar surface. This HDTV Digital Receiver should never be placed near or over a radiator or heat register. This HDTV Digital Receiver should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.
8. Operate only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home consult your HD Video dealer or local power company. For Digital Receivers designed to operate from battery power, refer to the operating instructions.
9. This HDTV Digital Receiver 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 safe purpose of the polarized plug,
10. Do not allow anything to rest on the power cord. Do not locate this HDTV Digital Receiver where the cord will be abused by persons walking on it.
11. Follow all warnings and instructions marked on the HDTV Digital Receiver.
12. Do not overload wall outlets and extension cords as this can result in fire or electric shock.

13. Never push objects of any kind in to this HDTV Digital Receiver through cabinet slots 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 HDTV Digital Receiver.



14. If an outside antenna is connected to the decoder equipment, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. In the U.S. Section 810 of the National Electrical Code, ANSI/ NFPA 70 provides information with respect 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. See Figure.
15. For added protection for this HDTV Digital Receiver 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. This will prevent damage to the decoder due to lightning and power-line surges.
16. 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 betaken to keep from touching such power lines or circuits as contact with them might be fatal.
17. Unplug this HDTV Digital Receiver from the wall outlet, and refer servicing to qualified service personnel under the following conditions:
    a. When the power cord or plug is damaged or frayed.
    b. If liquid has been spilled into the HDTV Digital Receiver.
    c. If the Digital Television Decoder has been exposed to rain or water.
    d. If the HDTV Digital Receiver does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the HDTV Digital Receiver to normal operation.
    e. If the HDTV Digital Receiver has been dropped or the cabinet has been damaged.
    f. When the HDTV Digital Receiver exhibits a distinct change in performance - this indicates a need for service.
18. Do not attempt to service this Digital Television Decoder yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
19. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
20. Upon completion of any service or repairs to this HDTV Digital Receiver, ask the service technician to perform routine safety checks to determine that the decoder is in safe operating condition.
21. **WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**
22. **CAUTION:** TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH A RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Note: *DIRECTV service can only be received within the USA and is not available in Canada*

Important Information

FCC INFORMATION

Your HDTV Digital Receiver is registered with the Federal Communication Commission and is in compliance with CFR47, Parts 15 and 68, FCC Rules and Regulations.

Radio Interference

This equipment has been tested and found to comply with the limit for a Class B Digital Device in accordance with the specifications in Part 15 of FCC Rules. The rules are designed to provide reasonable protection against radio and television 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 interference to radio or televisions reception (which you can determine by turning the equipment off and on), try to correct the interference by one or more of the following measures.

- Reposition or relocate the receiving antenna for the radio or television that is "receiving" the interference.
- Change the position of the HDTV Digital receiver with respect to the radio or television equipment that is receiving interference.
- Move the HDTV Digital receiver away from equipment receiving interference.
- Plug the HDTV Digital receiver into a different wall outlet so the HDTV Digital receiver and equipment receiving the interference are on different branch circuits.

If these measures do not eliminate interference, please consult your dealer or an experienced radio/television technician for assistance.

FCC CAUTION:

Pursuant to 47CFR, Part 15.21 of the FCC rules, any changes or modifications to this HDTV Digital Receiver not expressly approved by Matsushita Electric Corporation of America could cause harmful interference and would void the user's authority to operate this device.

A FCC compliant modem cable with modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack that is Part 68 compliant. See Installation Instructions for details.

To assure continued compliance, the modem cable (Part #TSX2AX002) provided with the HDTV Digital Receiver must be used when connecting the unit to the phone line.

FCC Declaration of Conformity

PANASONIC CONSUMER ELECTRONICS COMPANY
Responsible party:
Matsushita Electric Corporation of America
One Panasonic Way
Secaucus, NJ 07094
U.S.A.

Telephone Number: 1-888-726-2377
(8 a.m.- 10 p.m., Mon-Fri, EST)
(10 a.m.- 10 p.m., Sat-Sun, EST) OR
E-MAIL: CONSUMER PRODUCTS@PANASONIC.COM
This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notification to the Local Telephone Company.
On the back of this equipment is a label indicating among other information, the FCC Registration number and Ringer Equivalence Number (REN) for the equipment. You must, upon request, provide this information to your telephone company. The REN is useful to determine the number of devices you may connect to your telephone line and still have all these devices ring when your telephone number is called. In most (but not all) areas, the sum of the RENs of all devices connected to one line should not exceed 5. To be certain of the number of devices you may connect to your line as determined by the REN, you should contact your local telephone company.

If trouble is experienced with this equipment (HDTV Digital Receiver), for repair or warranty information, please contact the service center in the U.S.A. at the phone number listed on page 97. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Notes: This equipment may not be used on coin service provided by the telephone company.
Party lines are subject to state tariffs, and therefore, you may not be able to use your own telephone equipment if you are on a party line. Check with your local telephone company.
Notice must be given to the telephone company upon permanent disconnection of your HDTV Digital Receiver from your line.

Rights of the Telephone Company.
Should your equipment cause trouble on your line which may harm the telephone network, the telephone company shall, where practicable, notify you that temporary discontinuance of service may be required. Where prior notice is not practicable and the circumstances warrant such action, the telephone company may temporarily discontinue service immediately. In case of such temporary discontinuance, the telephone company must: (1) promptly notify you of such temporary discontinuance (2) afford you the opportunity to correct the situation and (3) inform you of your right to bring a complaint to the Commission pursuant to procedures set forth in Subpart E of Part 68, FCC Rules and Regulations. The telephone company may make changes in its communication facilities, equipment, operations of procedures where such action is required in the operation of its business and not inconsistent with FCC Rules and Regulations. Of these changes are expected to affect the use or performance of your telephone equipment, the telephone company must give you adequate notice, in writing, to allow you to maintain uninterrupted service.

Information on Digital Television

Digital Television

HDTV (High Definition Television)
HDTV signal formats are 1080i (interlaced scan) and 720p (progressive scan). HDTV provides the highest resolution picture and audio in either stereo or 5.1 channel surround sound.

SDTV (Standard Definition Television)
SDTV signal formats are 480p and 480i. SDTV provides lower resolution, yet presents a very sharp clear picture. Lower resolution allows broadcasters to transmit multiple programs per channel.

Digital Broadcasting and Cable TV

The FCC has not mandated any standards for cable operators at the time this manual is printed. Some cable companies have announced plans to introduce digital cable boxes into their markets. They may choose, however, to use the digital capability to increase the number of channels available or to provide data capability, such as high speed modem rather than transmit HDTV programming. Contact your local cable provider to determine if digital cable is available and whether a cable box is needed for converting the signals.

Digital Audio

Dolby* Digital surround sound (also commonly referred to as AC-3* or DD 5.1) is the audio standard. AC-3 will provide digital-quality sound. The system provides 3 separate audio channels for the front speakers (left, center, right), 2 channels for the rear surround sound speakers, plus one channel for subwoofer sound. You will need an external audio system capable of decoding the AC-3 encoded sound to get the full surround sound effect. Otherwise, it can be connected directly to your TV or audio system using only the stereo (left/right) audio outputs.

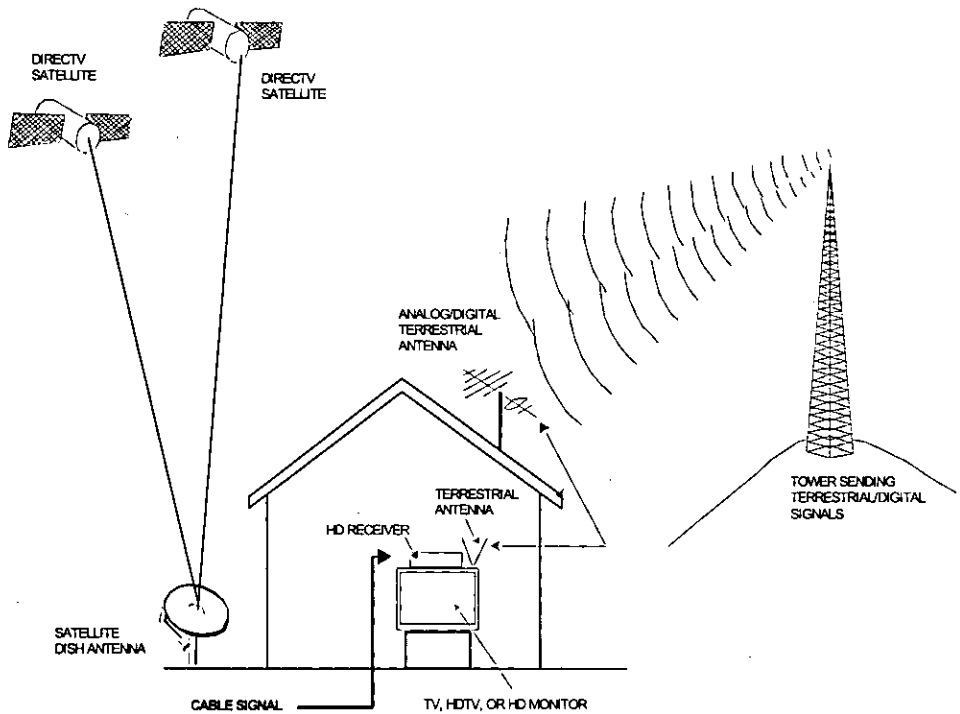
Note: *The stereo audio outputs are Dolby Surround compatible. You can connect a Dolby Surround Pro Logic* decoder (not included) to the stereo audio outputs and receive surround sound.*

*Manufactured under license from Dolby Laboratories. "Dolby", "AC-3", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.

Information on the HDTV Digital Receiver

Reception capability of HDTV Digital Receiver

The Panasonic HDTV Digital Receiver is capable of receiving analog (NTSC) and digital (ATSC format), cable (NTSC and ATSC formats), and digital satellite (coming from DIRECTV if you subscribe to DIRECTV® programming*) programming. With availability of digital terrestrial broadcast, your HDTV Digital Receiver can make receiving all types of signals seamless. The following drawing shows how you can receive various types of signals.



*Terrestrial off-air signals **or** unscrambled cable-service signals can be received by the HDTV Digital Receiver.

Note: *The shape of your satellite dish antenna determines what type of signal that your antenna can receive. If you have an oval shaped dish, you can receive signals from DIRECTV Satellites, including HD programming.*

Note: ***Due to copyright restrictions, you may not be able to view some high definition programs in high definition format using this product.***

Panasonic HDTV Digital Receiver Model TU-HDS20

Panasonic HD ATSC/NTSC HDTV Digital Receiver with a built-in DIRECTV PLUS™ receiver, can receive and process DIRECTV standard definition video and DIRECTV high definition video from satellite broadcasts if you subscribe to DIRECTV®* programming. It can also receive and process NTSC local terrestrial and cable analog programming and ATSC compliant terrestrial and cable digital programming. This HDTV Digital Receiver can output both Digital (Y,P_B,P_R or RGB) or composite signals. This digital receiver will output NTSC composite video when 480i video output is selected.

Current Conventional Televisions

Model TU-HDS20 uses specially developed chips which allow current televisions (with A/V inputs) to display digitally broadcast programs. The HDTV Digital Receiver, which receives digital signals, has the ability to convert the digital broadcast into National Television System Committee (NTSC)** signals (480i) that a conventional television can display. Most conventional televisions will not be able to display HDTV programs in their original format.

DTV-Compatible Televisions

The HDTV Digital Receiver, by using component video or RGB connections, will allow DTV-compatible televisions to produce pictures with incredible resolution. Component video consists of three (3) primary color signals: red, green and blue that together convey all necessary picture information. The three (3) component signals have been translated into luminance (Y) and two color difference signals (P_B, P_R), each on a separate wire. The HDTV Digital Receiver, depending on the capabilities of the DTV-compatible television, will give you the choice of HDTV or SDTV video output.

HDTV-Compatible (1080i / 720p)

HDTV-compatible TV models process and display high definition output from the Panasonic HDTV Digital Receiver in a 1080i or 720p video format.

SDTV-Compatible (480p / 480i)

SDTV-compatible TV models process and display standard definition output from the Panasonic HDTV Digital Receiver in a 480p or 480i video format.

*DIRECTV, the Cyclone Design logo, and DIRECTV PLUS are trademarks of DIRECTV, Inc., a unit of Hughes Electronics Corp., and are used with permission.

**NTSC is the current television system used in the U.S. It uses analog (non-digital) signals.

Congratulations

Your Panasonic HDTV Digital Receiver features state-of-the-art technology for high-quality picture and sound with complete audio/video output jacks for your home theater system.

This HDTV Digital Receiver is capable of receiving DIRECTV® high definition satellite signals. DTV signals are displayed in either an interlaced or progressive format, providing a clear, crisp picture. This HDTV Digital Receiver also has a separate ATSC/NTSC tuner to provide additional digital and analog signal capability. Your new HDTV Digital Receiver is designed to give you many years of enjoyment.

Customer Record

The model and serial number of this product are located on the back of the Digital Receiver. You should note the model and serial number in the space provided and retain as a permanent record of your purchase. This will aid in identification in the event of theft or loss. Product registration is available on-line at: **www.prodreg.com\panasonic**.

Model Number	**TU - HDS20**
Serial Number	

Care and Cleaning

Turn HDTV Digital Receiver Off

- ❒ For HDTV Digital Receiver, avoid excessive moisture and wipe dry.
- ❒ Avoid bumping or scraping the HDTV Digital Receiver.

Remote Control

- ❒ For Remote Control, use a soft cloth dampened with water or a mild detergent solution. Avoid excessive moisture and wipe dry.
- ❒ Do not use benzene, thinner or other petroleum based products.

Specifications

Power Source	120V AC, 60Hz
Channel Capability – NTSC and DTV **Satellite Signal Range**	VHF/UHF - 2-69* CATV - 1-125* 950 - 1450 Mhz (L-Band)
Digital Audio Output	PCM/AC-3 Fiber Optic
Video Output Jacks	$1V_{p-p}$, 75 Ohm, Phono Jack Type
S-Video Output jack	S-Video (Y-C) Connector
Audio Output Jacks	0-2.0V rms 4.7k Ohm
NTSC Video Output jack	$1V_{p-p}$, 75 Ohm, Phono Jack Type
NTSC Audio Output jacks	0-2.0V rms 4.7k Ohm
DTV Output (Y, P_B, P_R)/RGB Output	75 Ohm, Phono Jack Type
Modem Jack	RJ11C, 4 Conductor

Specifications are subject to change without notice or obligation.

*The digital tuning system allows channel numbers up to 999 to be displayed. The total channel capability, however, remains as stated.

Important Notes

HDTV Digital Receiver Location

This unit can be used as part of an entertainment center. Consult your dealer for available options.

- ❒ Avoid excessive sunlight or bright lights.
- ❒ Keep away from excessive heat or moisture. Inadequate ventilation may cause internal component failure.
- ❒ Fluorescent lighting may reduce Remote Control transmitting range.

Connecting Cables

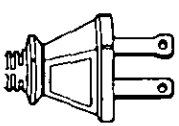
Component video cables (Y, P_B, P_R), audio cables and modem cable are provided for connection to a DTV-compatible monitor/receiver. Shielded video cables (not provided) should be used for all other connections between components. For best results:

- ❒ Use 75 Ohm coaxial shielded cables.
- ❒ Check type of output and input connectors on your components.
- ❒ Determine required cable lengths.

AC Power Supply Cord

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT OF AC OUTLET AND FULLY INSERT. DO NOT USE A PLUG WITH A RECEPTACLE OR OTHER OUTLET UNLESS THE BLADE CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Polarized Plug



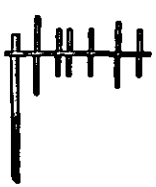
Satellite Dish Antenna Connection

Connect the cable coming from the DIRECTV PLUS™ satellite dish to the Satellite In jack on the HDTV Digital Receiver.

Note: *The shape of your satellite dish antenna determines what type of programming that your antenna can receive. If you have an oval shaped dish, you can receive programming from DIRECTV Satellites plus some local channels in certain areas.*

Note: *Consult your dealer on Satellite dish installation and options.*

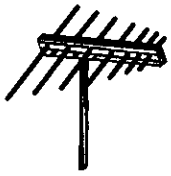
Antenna Installation and Orientation



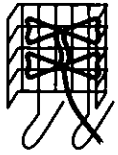
Yagi

In many areas, an indoor antenna can be used to received DTV signals. Certain conditions, however, may create a situation where an outdoor antenna is required. Tall buildings, large metal objects (e.g., a water tower) or hills may block the line-of-sight to the TV station and interfere with DTV signal reception. Keep the following in mind when installing and orienting your outdoor antenna. For additional information about antennas, see the Consumer Electronics Manufacturing Association (CEMA) website at www.AntennaWeb.org or ask your local dealer.

- ❒ Choose an antenna with directional receiving characteristics such as a Yagi, log periodic, or reflector antenna. Avoid loop, wire bowtie, rabbit-ear and omni-directional antennas.



Log Periodic



Reflector

- ❒ Use good grade 75 Ohm coax (round) cable to connect the antenna to the HDTV Digital Receiver. Do not use 300 Ohm flat twin-lead cable.
- ❒ Place the antenna away from large metal objects. If using an indoor antenna, remember that aluminum siding and foil-covered insulation can greatly reduce the signal strength inside your house.
- ❒ Point the antenna in the direction of the TV station. Allow a 4-6 second delay in tuning. Watch for a program to appear on the TV. If the signal indicator is "NOT FOUND" or if a program comes and goes, try a slightly different position for the antenna. Slowly raising or lowering the antenna by a few feet may help.
- ❒ Avoid standing in front of the antenna while adjusting its position. Move a few feet to the rear to avoid changing the signal characteristics.
- ❒ If you are located in an area serviced by two (2) different DTV stations in different directions, you may need an antenna rotator to receive signals from both stations.

Antenna/Cable Connection

Antenna Connection

For proper reception of VHF/UHF channels, a directional antenna is required (see previous page). For best reception, an outdoor antenna is recommended.

Procedure

- ❒ Connect the antenna cable from your antenna.
- ❒ Select ANTENNA, in the Roller Guide Menu™* SET UP Menu under Input (see Getting Started section, Step 6).

Incoming Cable from Home Antenna

75 Ohm ANT IN input on back of HDTV Digital Receiver

Cable Connection

Before connecting your cable to the HDTV Digital Receiver, contact your local cable provider and ask the following question:

- Do you need a separate cable box to receive cable channels in your area?

Note: *The Panasonic HDTV Digital Receiver is able to receive DTV signals from your local cable provider* ***only if*** *they are transmitted in the 8VSB modulation format approved by the FCC for DTV transmission. Also, your cable provider may elect to transmit in the 8VSB format for only a limited period of time.*

Procedure

- ❒ Connect the cable wire provided by your local cable provider.
- ❒ Select one of the following in the Roller Guide Menu™ SET UP Menu under Ant/Cable Input (see Getting Started section, Step 7).

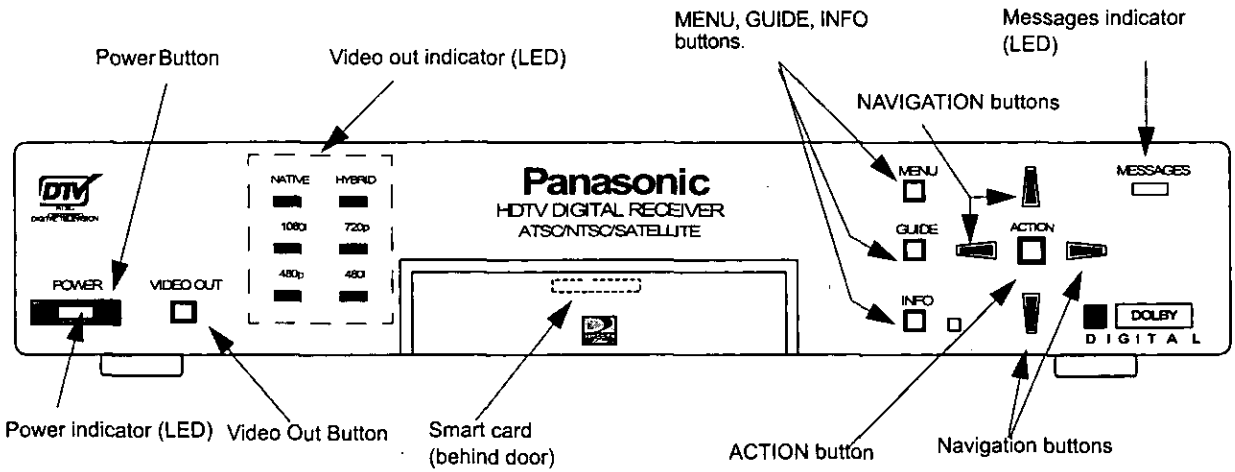
Incoming Cable from Cable Provider

75 Ohm ANT IN input on back of Digital Receiver

* Roller Guide Menu is a trademark of Panasonic Consumer Electronics Company. U.S. Patent Pending.

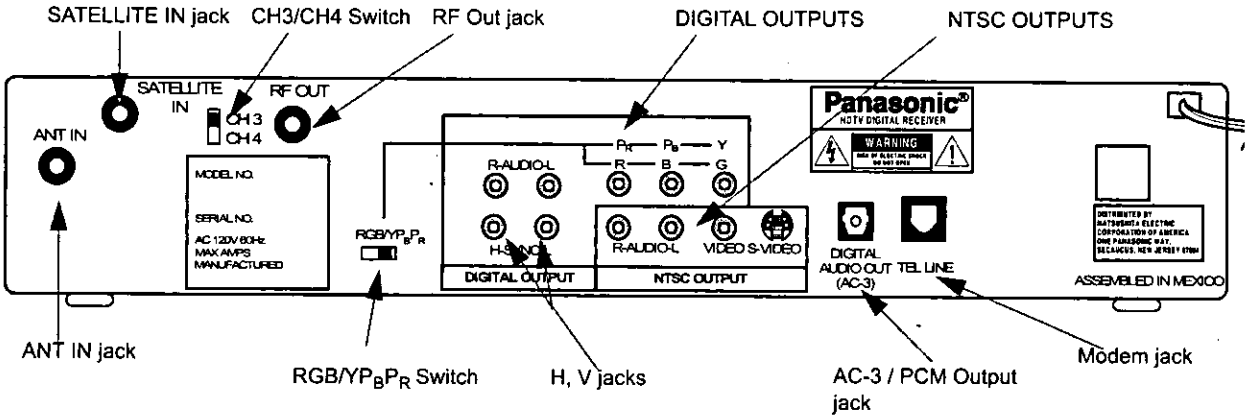
Front and Rear View of the HDTV Digital Receiver

Front Panel



POWER	Turns the HDTV Digital Receiver On.
VIDEO OUT	Press to select Video Output mode.
SMART CARD	Also known as Access Card, identifies you to your program providers. DIRECTV PLUS™ system requires a valid card.
MENU	Press to enter and exit Roller Guide Menu system.
GUIDE	Press to access Advanced Program Guide.
INFO	Press to display channel banner.
ACTION	Press to enter selection from the Guide or from the Menu.
NAVIGATION BUTTONS	Press the navigation arrows to move the highlight up, down, left or right.
MESSAGES	Message indicator LED.

Rear Panel



ANT IN	Use to connect an off-air antenna or cable TV signal to the HDTV Digital receiver.
SATELLITE IN	Use to connect DIRECTV satellite signal to the HDTV Digital Receiver.
RF OUT	Use to connect the HDTV Digital Receiver to your TV.
CH3/CH4 Switch	If a coaxial cable is used to connect the digital receiver to your TV, you must set the CH3/CH4 switch to either CH3 or CH4.
YP_BP_R / RGB Jacks	Primary jacks used to connect the HDTV Digital Receiver to a DTV Compatible Television.
RGB/YP_BP_R Switch	Selects either RGB or Component video (Y,P_B,P_R) signals according to your TV/Monitor.
DIGITAL OUTPUTS	Outputs either Component Video or RGB signal .
NTSC OUTPUTS	Use to connect the HDTV Digital Receiver to a Conventional TV.
H, V jacks	Horizontal and Vertical sync jacks used with RGB for high-end monitors, video projectors etc..
AC 3/PCM OUTPUT	Use to connect your HDTV Digital Receiver to a Dolby Digital AC-3 receiver or decoder.
MODEM	Use to connect a phone line to the HDTV Digital Receiver to enable DIRECTV pay per view services.

HD Digital TV Display Formats

The HDTV Digital Receiver converts all ATSC signal formats and HD DIRECTV signal into viewable programming. The formats are variations on the four (4) formats, 1080i, 720p, 480p and 480i. The following table shows the display formats, resolutions and aspect ratios.

DTV Format	Resolution	Aspect Ratio
1080i 720p	High Definition	16:9
480p 480i	Standard Definition	16:9 or 4:3

Display Format Selection

The HDTV Digital Receiver allows you to choose a display format based on the capability of your TV or monitor. To select the appropriate display format, use the VIDEO OUT button on the front panel of the HDTV Digital Receiver.

Note: *This section applies to DTV-compatible televisions* ***only****.*

NATIVE Format

If your TV is capable of displaying all four (4) formats, 1080i, 720p, 480p and 480i, then select NATIVE mode using the VIDEO OUT button.

Input Format	Output Format (to TV)
1080i	1080i
720p	720p
480p	480p
480i	480i

HYBRID Format

In the HYBRID format all 1080i and 720p signals are output as 1080i and 480i is outputted as 480p.

Input Format	Output Format (to TV)
1080i 720p	1080i
480p 480i	480p

1080i Format

If your TV is capable of displaying 1080i, then select 1080i by using the VIDEO OUT button on the front of the HDTV Digital Receiver.

Input Format	Output Format (to TV)
1080i	1080i
720p 480p 480i	1080i

720p Format

If your TV is capable of displaying 720p. then select 720p by using the VIDEO OUT button on the front of the HDTV Digital Receiver.

Input Format	Output Format (to TV)
1080i	720p
720p 480p 480i	720p

480p Format

If your TV is capable of displaying 480p format only, then select 480p by using the VIDEO OUT button on the front of the HDTV Digital Receiver.

Input Format	Output Format (to TV)
1080i 720p 480p 480i	480p

480i Format

If your TV is capable of displaying NTSC format only, then select 480i by using the VIDEO OUT button on the front of the HDTV Digital Receiver.

Input Format	Output Format (to TV)
1080i 720p 480p 480i	480i

Note: *In order to use either RF OUT or NTSC output jacks for NTSC video, the 480i Format mode must be selected.*

Aspect Ratio Selection

The HDTV Digital Receiver allows you to select an aspect ratio (picture display shape) to match the source signal and shape of your TV screen. You can also change the aspect ratio for your personal viewing preference. To select an aspect ratio, press the **ASPECT** button on your remote control and the HDTV Digital Receiver will cycle to the next available aspect ratio choice. The following table shows the available aspect ratios.

	Monitor Format	
Source Signal	**16:9**	**4:3**
16:9	Full (No Scaling)	Full - Zoom - Letterbox
4:3	Full - Sidebar	Full (No Scaling)

Full Aspect
16:9 or 4:3 picture will be displayed in the center of the viewing screen at full screen width and height.

Zoom Aspect (4:3 Monitor receiving 16:9 source signal)
The picture will be expanded uniformly (width and height) to fill the viewing screen. The picture will be cropped, either horizontally or vertically to fit the viewing screen. The cropped portion of the original picture will be lost from view.

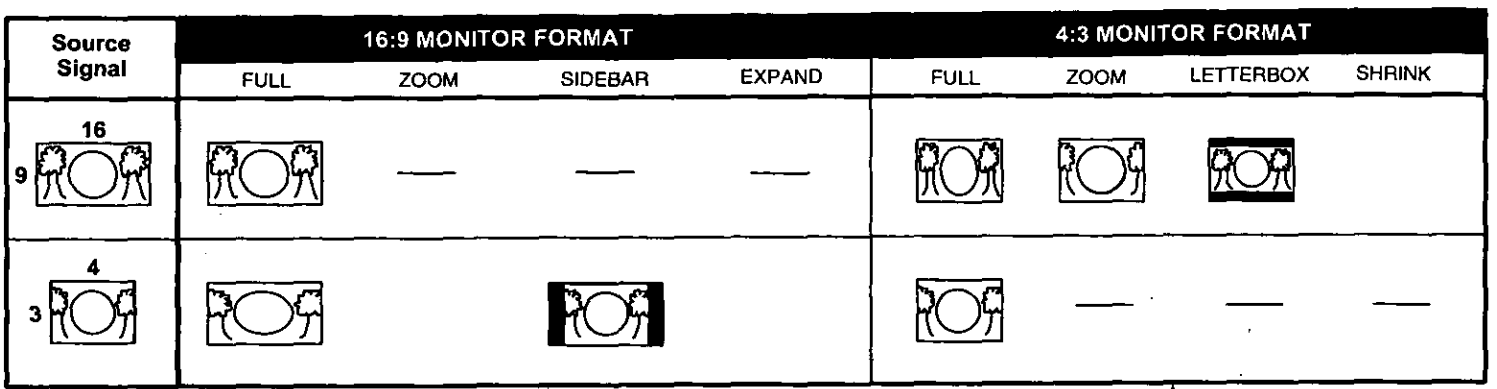
Note: *To properly view Closed Captioning, the HDTV Digital Receiver may, in some cases, change the aspect ratio from Zoom to Full.*

Letterbox Aspect
Video formats with aspect ratios greater than 16:9 will be displayed at the proper width, so no video information is lost. Bars will appear above and below the picture.

Sidebar Aspect
4:3 pictures will be viewed on a wide aspect TV screen with vertical bars on both sides of the picture.

Note: *See following page for illustrations of the various aspect ratios.*

ASPECT RATIO FORMATS



The 16:9 and 4:3 pictures represent the incoming source signals received by the HDTV Digital Receiver.

These pictures show the different aspect ratios available with a 16:9 monitor format.

- The top picture shows the 16:9 monitor format available when the HDTV Digital Receiver receives a 16:9 source signal.
- The bottom pictures show the 16:9 monitor formats available when the HDTV Digital Receiver receives a 4:3 source signal.

These pictures show the different aspect ratios available with a 4:3 monitor format.

- The top pictures show the 4:3 monitor formats available when the HDTV Digital Receiver receives a 16:9 source signal.
- The bottom picture shows the 4:3 monitor format available when the HDTV Digital Receiver receives a 4:3 source signal.

Features of the HDTV Digital Receiver

Channel and Program Tuning - ATSC reception only

Channel and program tuning in digital television is very different from current conventional television. In DTV, up to six (6) multiple programs can exist within a single 6 MHz channel. These programs behave as subchannels within the single channel. When tuning to a channel, the HDTV Digital Receiver will also tune to a program. Your HDTV Digital Receiver will indicate the channel and program through the on-screen Channel Banner display.

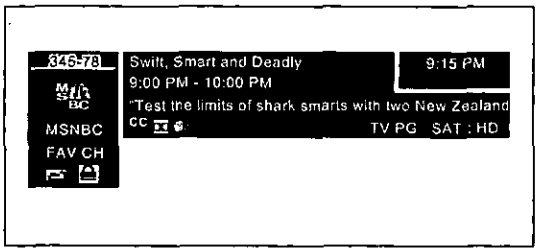
Channel and Program Tuning

The HDTV Digital Receiver allows channel and program selection in the following ways:

- Direct Tuning (**0 ~ 9** keys) - Tunes directly to a channel or program.
- Channel Up/Down Tuning (▲ or ▼ buttons) - Tunes to the next or previous available channel or program.
- Next Program Tuning (**PROG** button) - Tunes to the next program within a single 6 MHz channel.
- Rapid Tuning (R-TUNE button) - Switches between the last two remembered channels or programs.

Channel Banner: DIRECTV HD / ATSC / NTSC

The Channel Banner is available with all signal sources; DIRECTV SD, DIRECTV HD, ATSC and NTSC to show you which channel and program you are currently viewing or have selected. The following figure shows the DIRECTV HD / ATSC / NTSC channel banner. The DIRECTV HD / ATSC / NTSC channel banner description area can be expanded, if the user presses the **INFO** key.



DIRECTV HD / ATSC / NTSC

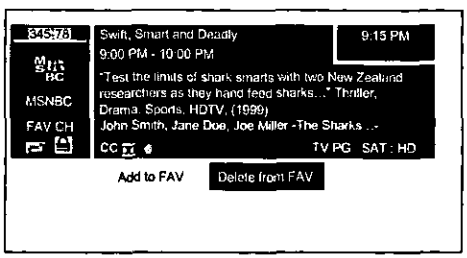
In addition to viewing the program description, the user can add or remove the channel from the favorite channel list. This is accomplished by navigating left or right and pressing the **ACTION** key.

Channel Banner: Favorite Channel List

The favorite channel list is a customized list that allows you to create your own unique channel list. The favorite channel list is active when you select the "FAV CH" mode in the guide screen. By default, the "ALL CH" mode is selected. Also, by default, both the "ALL" mode and "FAV" modes default to all the channels selected in their lists.

When the description of the channel banner is expanded, the user now has the opportunity to add or remove a channel from the favorite list. By default, **Add to FAV** button is highlighted when the Channel Banner is expanded. Once a channel is removed from the favorite list, the user is required to numerically enter in the channel number to view that channel, at which time the user can add the channel back into the favorite channel list.

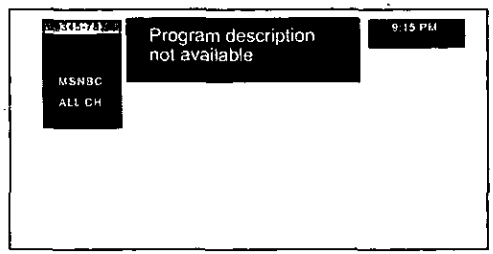
The following figure depicts the DIRECTV HD / ATSC / NTSC Channel Banner, when the Description area is highlighted.



DIRECTV HD / ATSC / NTSC

Channel Banner: ATSC OR NTSC

The HDTV Digital Receiver has the ability to operate even without DIRECTV® service. Without the DIRECTV® service, the event title, event times, event description, channel logo and Mail Icon will not be displayed. This will have have an effect on how the Channel Banner is displayed on-screen.



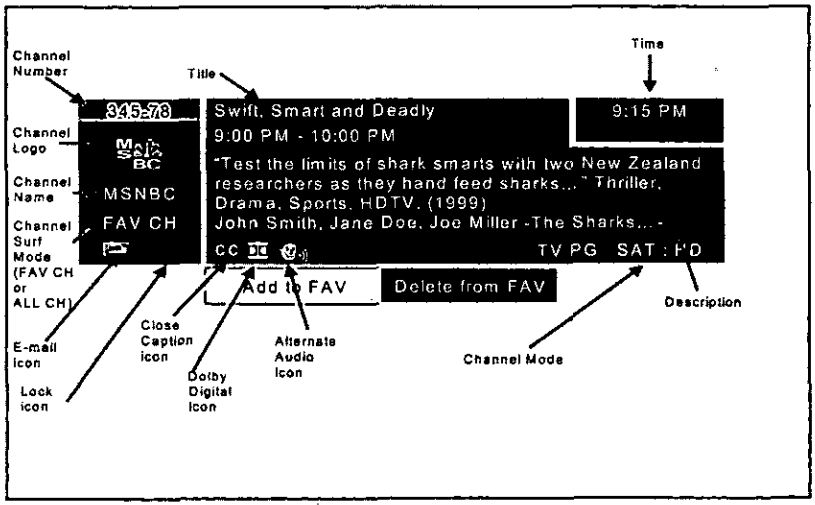
Channel Banner : ATSC configured

Following is an example of NTSC configured HDTV Digital Receiver

Channel Banner : NTSC configured

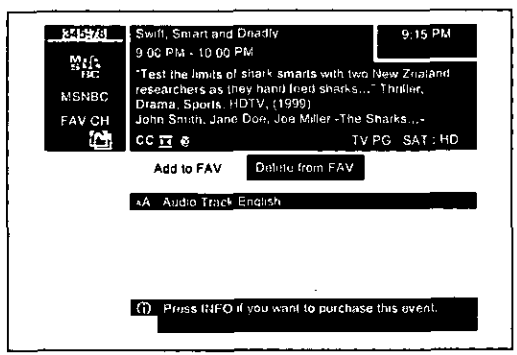
Channel Banner: Components

The HDTV Digital Receiver is required to display to the user various attributes of a program. The Channel Banner is used by all tuning methods to show you which channel and program you are currently viewing or selecting. The figure below indicates the various components of the Channel Banner.



Channel Banner Components

The following figure displays some of the information that can possibly be displayed, simultaneously.



Channel Banner with OSD Messages

Icons: Channel Banner

The Channel Banner contains several icons that are displayed only when the feature is available and is supported by the HDTV Digital Receiver. The following figure and table depicts the location and appearance of these icons.

Icon Name	Icons Description	Icon Appearance
Messages	Indicates that there is an unread message.	
Lock	Indicates that the channel is locked due to either limits on spending or by content advisory.	
Alternate Audio	Indicates that the current program has multiple audio tracks.	
Closed Captioning	Indicates that the program has Closed Captioning.	CC
Dolby Digital indication	Indicates that the program has Dolby Digital Audio.	

Viewing Modes

This section describes the user interface that is directly controlled by remote or front panel. The following operational modes are supported by this interface:

- Normal Viewing Mode (includes closed captioning)
- Tuning Mode
- Recall Display Mode
- Aspect Ratio Change Mode
- Exiting Tuning Mode

Normal Viewing Mode

Normal Viewing Mode is defined as only the video being displayed and possibly closed captioning data. When HDTV Digital Receiver is first powered on, it will be in the Normal Viewing mode.

Note: *The first time the* HDTV Digital Receiver *is powered On, all channels except those exceeding the MPAA or TV rating limits and channels not authorized by the DIRECTV are shown.*

Once the user has created a favorite channel list, the HDTV Digital Receiver will channel surf only to channels that are part of the favorite channel list. The user may tune to a channel that is not a member of the favorite channel list by entering in a channel number, explained in the Direct Tuning Method section. The user must add this channel using the menu system.

Closed Captioning Suspension

When any OSD is required (i.e. Channel Banner, messages from DIRECTV, etc.), any captioning service that is currently active will be removed from the display and any further captioning will be suspended until the OSD operation completes.

Power On Requirements

When the HDTV Digital Receiver is powered on, the receiver will tune to the last tuned channel. If this channel no longer exists, the receiver will tune to channel 100. Prior to initial setup of the receiver, the receiver may automatically go to Setup menu or tune to channel 100.

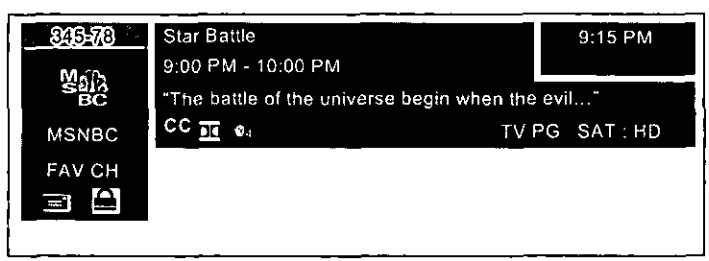
Tuning Mode

The Tuning Mode happens when the user attempts to change the channel. The HDTV Digital Receiver will support 3 ways to change the channel, as outlined below:

Method	Result
• Direct Tuning (**0-9** and **PROG** keys)	Tunes directly to a channel using either single or compound numbers.
• Channel UP/Down Tuning (▲▼keys)	Tunes to the next/previous available channel.
• Rapid Tune (**R-TUNE**)	Switches between the last two channels, accessed. This is accomplished using the **R-TUNE** key on the remote.

Direct Tuning Method

The HDTV Digital Receiver supports the tuning of either single or compound channel numbers. The single channel numbers range from (0 to 9999) and compound channel numbers (major-minor) can range from (0-0 to 999-99)*. The compound channel number uses the "**PROG**" button to enter the minor number field. Following is an example of Direct tuning screen.



Direct Tuning example

*For example, 120-1 is an example of a compound number. 120 is the major number and 1 is the minor number.

Example of Non-compound (Single) Channel Number Input

For example, to tune channel 345, you enter the channel number by using the number keys (0-9) on the remote control. Then press the **ACTION** button which causes the tuning event to occur.

Example of Compound Channel Number Input

A compound numbers (major-minor) can range from (0-0 to 999-99). For example, to enter channel number 345-78, you do the following.

- Press the numeric buttons 3, 4 and 5 on the remote control.
- Press **PROG** button to enter the minor number field.
- Press number 7 and 8 buttons on the remote control.
- Press **ACTION** button to complete the tuning event.

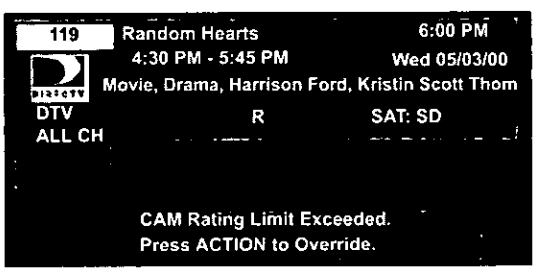
Note: *If you do not enter a number after 2 seconds, the number 0 is assumed for the minor number.*

Unavailable Channel Selection

The "Channel Not Available" screen is displayed when you select an unavailable channel. The following is a list of some possible situations where an unavailable channel selection may occur.

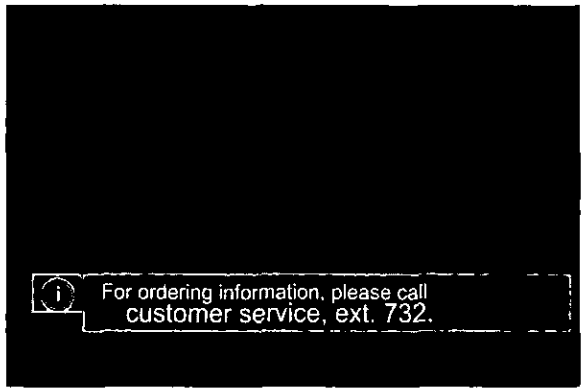
- ❒ Tuning to a channel that is not transmitting any programs.
- ❒ Tuning to a channel that is blocked either by spending or content advisory limits.
- ❒ The signal strength of the RF signal is insufficient to obtain consistent error free data.

Following is a example of Channel Not Available screen.



Channel Not Available Screen

If you tune to a channel that is blocked either by spending or advisory limits, a corresponding screen will appear. The following is an example of insufficient credit.



Note: *The screen remains displayed for 60 seconds, then is replaced by a blank screen.*

Dolby Digital (AC-3) Audio

Dolby Digital (AC-3) 5.1 channel surround sound delivers digital-quality sound. AC-3 provides five discrete full-bandwidth channels for front left, front right, center, surround left and surround right, plus a LFE (Low Frequency Effect) subwoofer channel.

External Dolby Decoder (Optional)

For a full Home Theater sound experience, an external AC-3 decoder and multichannel amplifier must be connected to the HDTV Digital Receiver.

Stereo Output

The internal decoder converts compressed audio data, up to 5.1 channels, into two digital quality stereo audio outputs, delivering stereo sound.

Note: *The stereo audio outputs are Dolby Surround compatible. You can connect a Dolby Surround Pro Logic decoder (not included) to the stereo audio outputs and receive surround sound.*

Aspect Ratio Change Mode

The **ASPECT** key on the remote allows you to change the manner in which the video is presented on the display. The ability to change the video aspect is based upon the video input source aspect and the output display, as shown below.

Video Input Source Aspect	Output Display Aspect	Possible Conversion
16:9	16:9	Full
16:9	4:3	Letterbox (default) Full - Zoom
4:3	4:3	Full
4:3	16:9	Full Sidebar

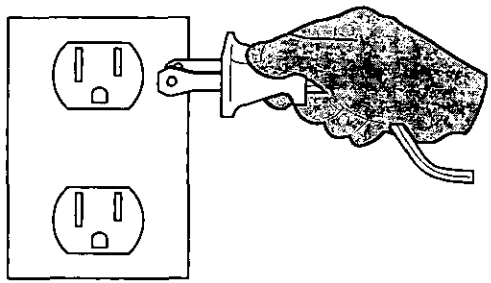
Note: *When you exit the Tuning Mode and enter either the Menu or APG the following OSD related feature and message are disabled.*

- Tuning Methods are suspended.
- Closed Captioning suspended.
- Authorization messages are suspended.

Getting Started

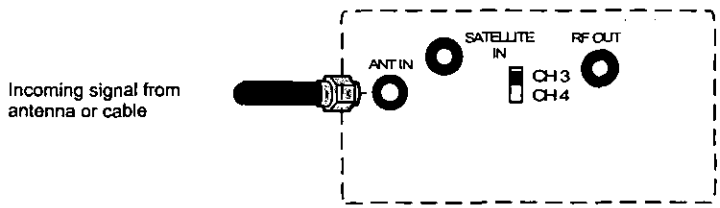
Step 1. Connect AC Power Cord

Plug the AC power cord into a grounded outlet. Do not turn on any devices until you have finished making all necessary connections.



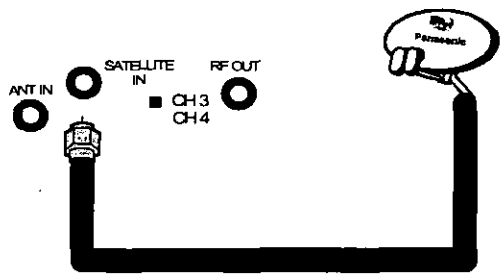
Step 1a. Antenna/Cable Connection

Connect the antenna or cable wire to the ANT IN jack on the rear panel of the HDTV Digital Receiver.



Step 1b. DIRECTV Satellite dish Connection

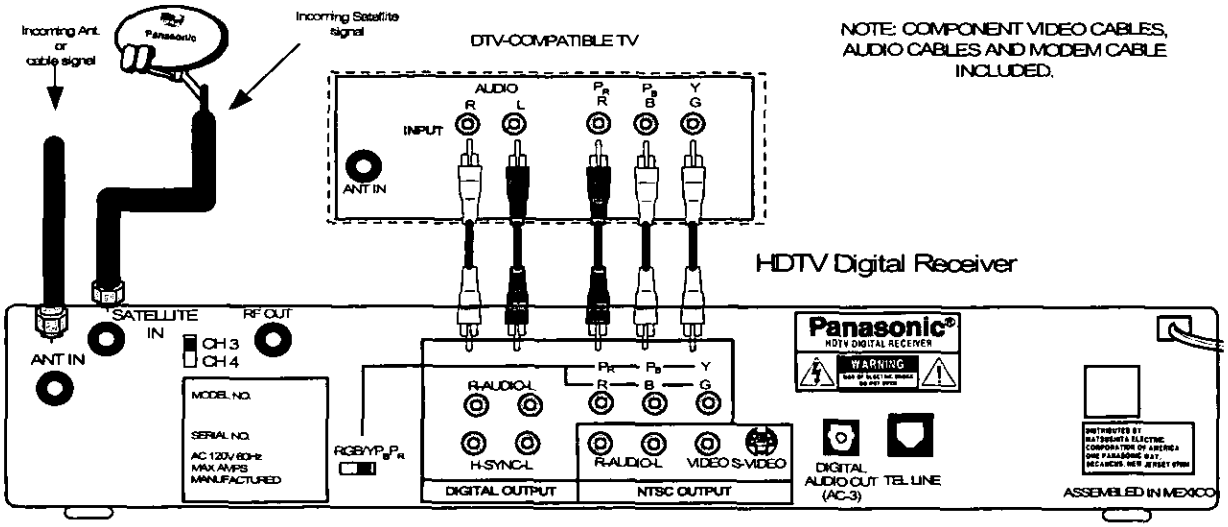
Connect the DIRECTV Satellite dish downlead to the SATELLITE IN jack on the rear panel of the HDTV Digital Receiver.



Note: *The shape of your satellite dish antenna determines what type of signal that your antenna can receive. If you have an oval shaped dish, you can receive signals from DIRECTV Satellites, including HD programming.*

Step 2. HDTV Digital Receiver Connection to DTV-Compatible TV

Follow this diagram when connecting the HDTV Digital Receiver to a DTV-compatible TV.



DTV-COMPATIBLE TV SETUP

Procedure

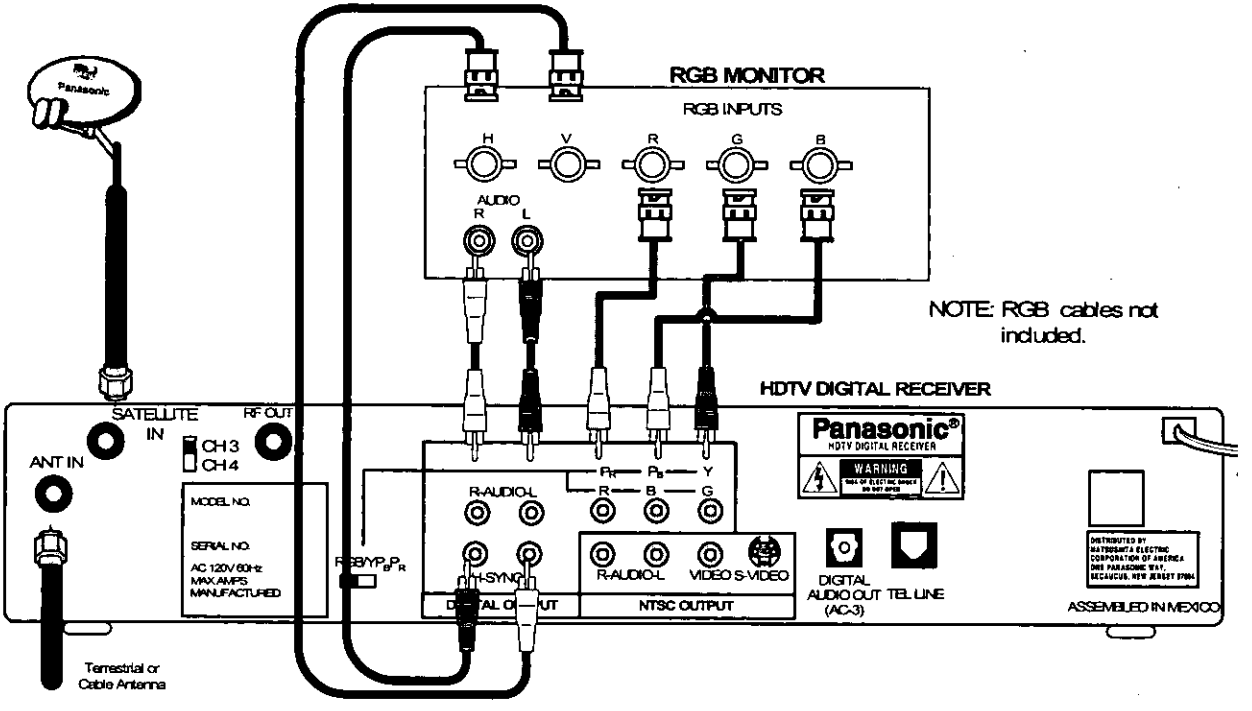
- Set the RGB/YP_BP_R switch to YP_BP_R position.
- Connect video cables from the Y, P_B, P_R digital TV video output jacks on the HDTV Digital Receiver to the Y, P_B, P_R digital TV video input jacks on the DTV-compatible TV.
- Connect audio cables from the left and right digital TV audio output jacks on the HDTV Digital Receiver to the left and right digital TV audio input jacks on the TV.
- Select the Video out mode according to the capability of your DTV compatible TV.

Note: *Modem should also be connected to a telephone jack using the supplied modem cable if impulse pay per view services are desired.*

Note: *There are three video inputs, Y, P_B, P_R. Separate component video inputs provide luminance and color difference signals.*

Step 2a. HDTV Digital Receiver Connection to RGB Monitor

Follow this diagram when connecting the HDTV Digital Receiver to a Monitor with RGB INPUTS.



HDTV DIGITAL RECEIVER CONNECTION TO RGB MONITOR

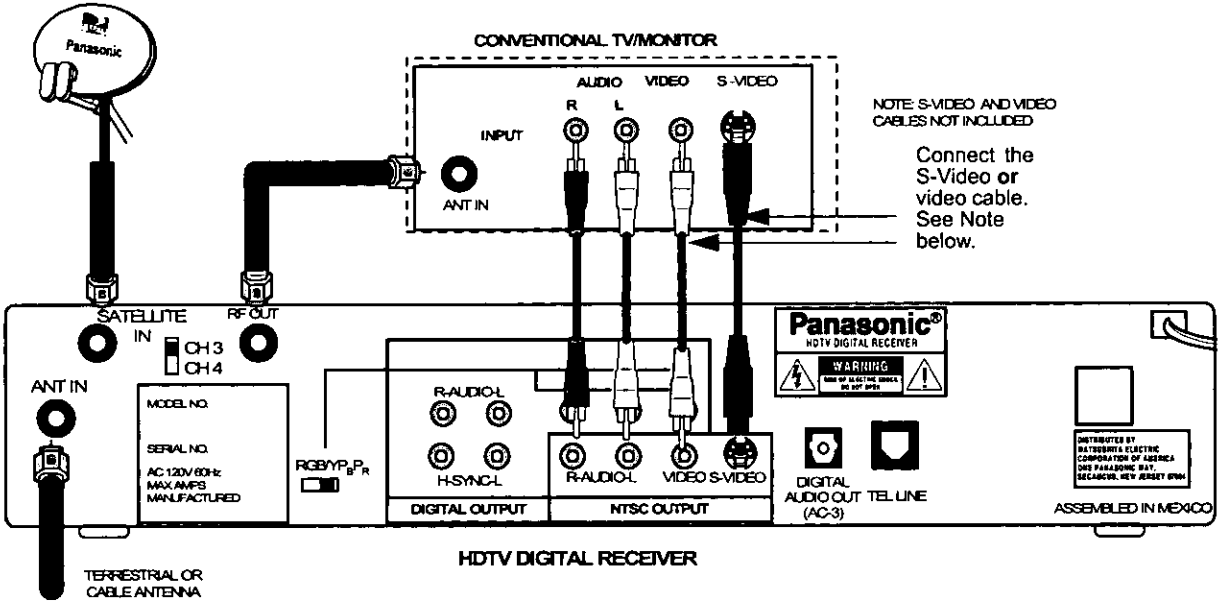
Procedure

- Connect video cables from the RGB output of the HDTV Digital Receiver to the RGB inputs of your Monitor.
- Connect the H,V output cables from HDTV Digital Receiver to the H,V inputs of your Monitor.
- Set the RGB/YP_BP_R switch to the RGB position.
- Connect the audio cables from the left and right digital audio output jacks on the HDTV Digital Receiver to the left and right digital audio jacks on the RGB monitor.
- Select the HDTV Digital Receiver video output according to the capability of your RGB monitor (Hybrid, Native, 1080i or 720i).

Note: *Modem should also be connected to a telephone jack using the supplied modem cable if impulse pay per view services are desired.*

Step 2b. HDTV Digital Receiver connection to Conventional TV

Follow this diagram when connecting the HDTV Digital Receiver to a conventional TV or Monitor. Terrestrial and digital signal can be received by connecting the digital receiver to the TV or Monitor.



CONVENTIONAL TV SETUP

Procedure

- Select 480i mode by using the Video Out button on the front panel.
- Connect the RF OUT to the ANT IN of the television or connect video cable from the video output jack on the HDTV Digital Receiver to the video input jack on the TV.

OR

- Connect S-VIDEO Cable from the NTSC S-VIDEO output jack on the HDTV Digital Receiver to the S-VIDEO input jack on the TV.

Note: *Connect either the S-Video or video input/output as shown above.*

- S-Video will provide better picture quality.
- If both S-Video and video are connected, S-Video will override video.

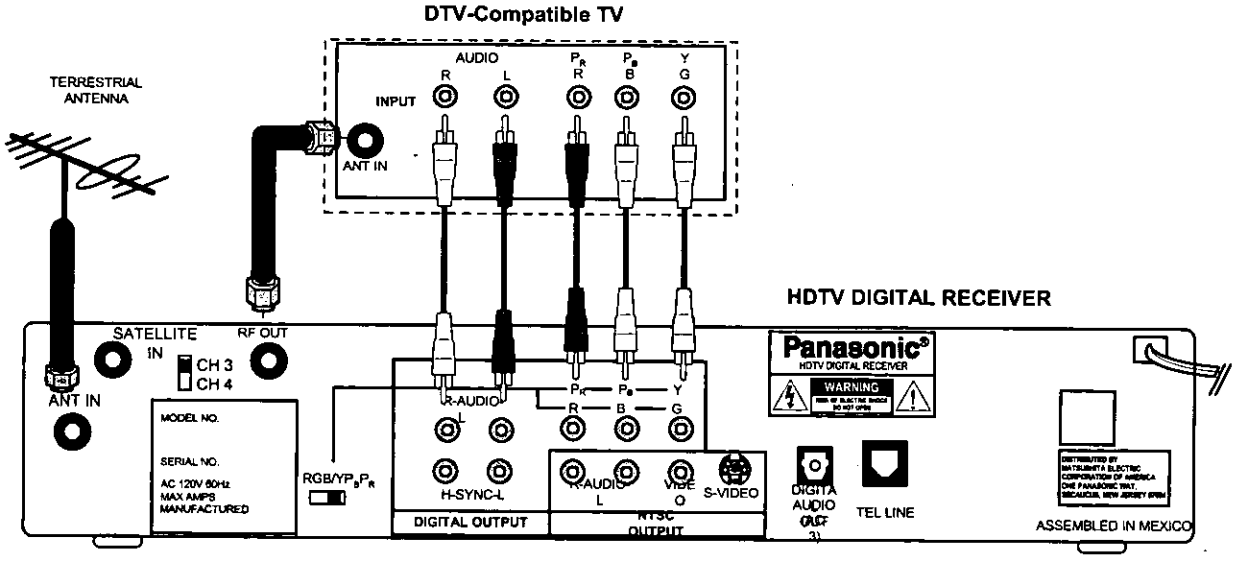
- Connect audio cables from the left and right NTSC audio output jacks on the HDTV Digital Receiver to the left and right audio input jacks on the TV.

Note: *Modem should also be connected to a telephone jack using the supplied modem cable if impulse pay per view services are desired.*

Step 3. Digital TV Reception with DTV-Compatible TV / Monitor (no satellite or cable service)

Follow this diagram if you have a DTV-compatible TV, no satellite or cable service. Digital and Standard terrestrial channels can be viewed by connecting the HDTV Digital Receiver.

NOTE: ANTENNA CABLE NOT INCLUDED



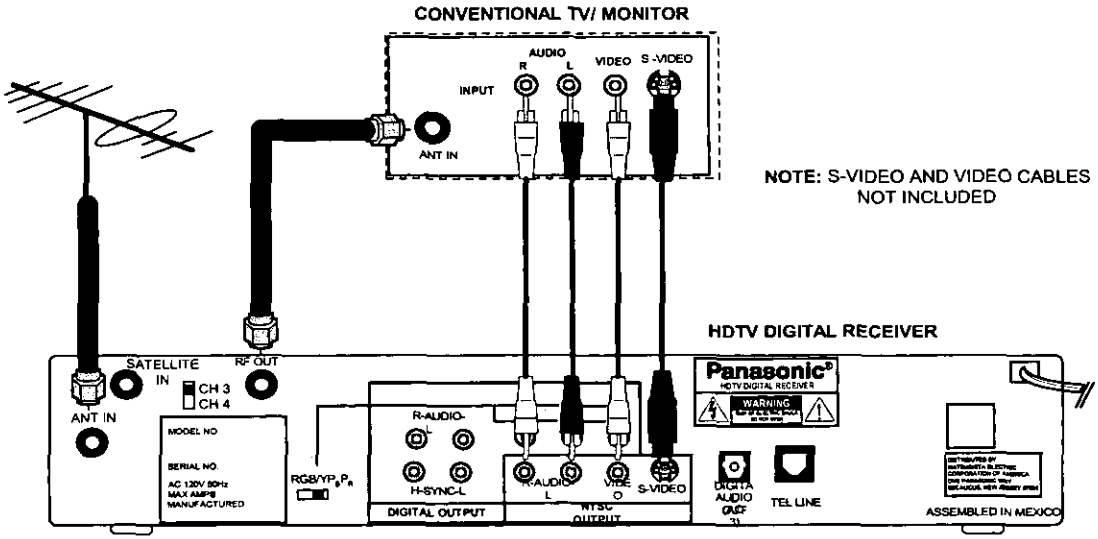
HDTV DIGITAL RECEIVER, DTV COMPATIBLE TV/MONITOR (NO SATELLITE OR CABLE SERVICE)

Procedure

- Connect the antenna cable to the ANT IN jack of the HDTV Digital Receiver.
- Connect the RF OUT signal to a DTV-compatible TV ANT IN (antenna) jack using standard RF cables with coaxial connectors.
- Connect the component video and audio cables as shown above.
- Leave the RGB/YP_BP_R switch in the YP_BP_R position.
- Select the video out mode according to the capability of your DTV-Compatible TV.

Step 3a. Digital TV Reception with Conventional TV (no satellite or cable service)

Follow this diagram if you have a conventional TV, no satellite or cable service. Digital and analog channels can be viewed by connecting the HDTV Digital Receiver.



HDTV DIGITAL RECEIVER, CONVENTIONAL TV/MONITOR (NO SATELLITE OR CABLE ANTENNA)

Procedure

- Select 480i mode by using the Video Out button on the front of the HDTV Digital Receiver.
- Connect the antenna cable to the ANT IN.
- Connect the RF OUT to the ANT IN of the television or connect Audio and Video cables as shown.

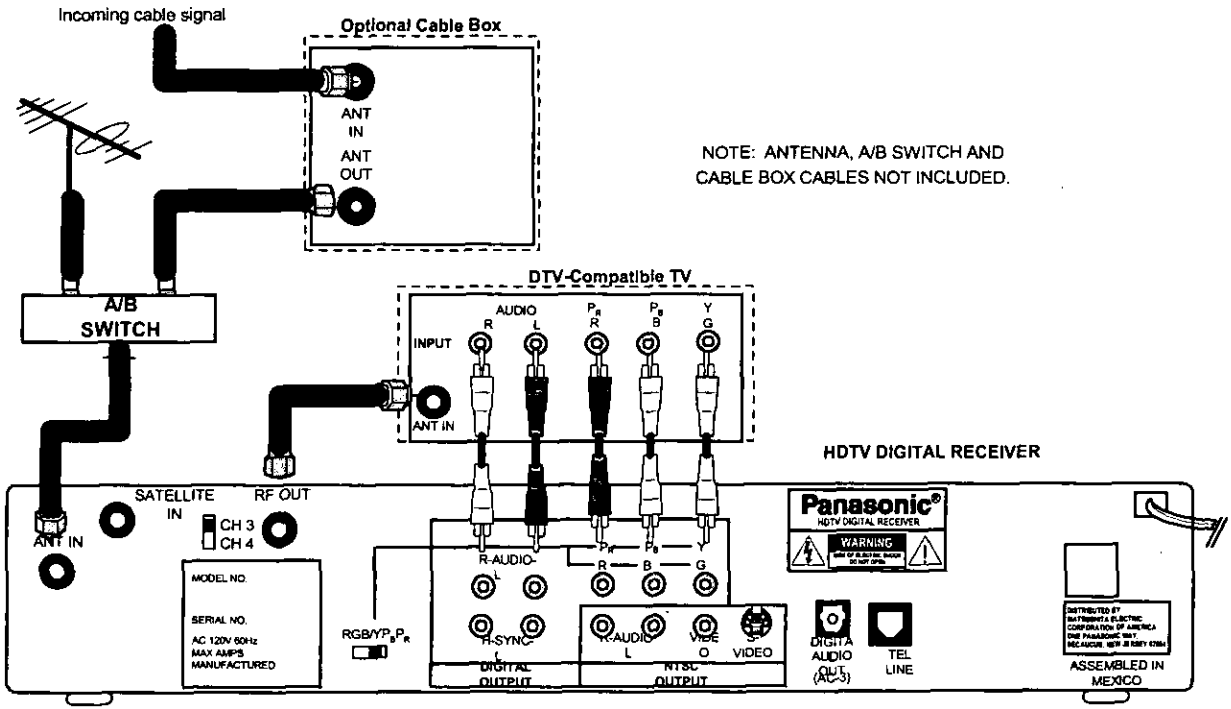
Note: *Connect either the S-Video or video input/output as shown above.*

  - S-Video will provide better picture quality.
  - If both S-Video and video are connected, S-Video will override video.

- Connect audio cables from the left and right NTSC audio output jacks on the HDTV Digital Receiver to the left and right audio input jacks on the TV.

Step 3b. Digital TV Reception with DTV-Compatible TV (Cable service and terrestrial antenna)

Follow this diagram if you have a DTV-compatible TV, cable service and terrestrial antenna.



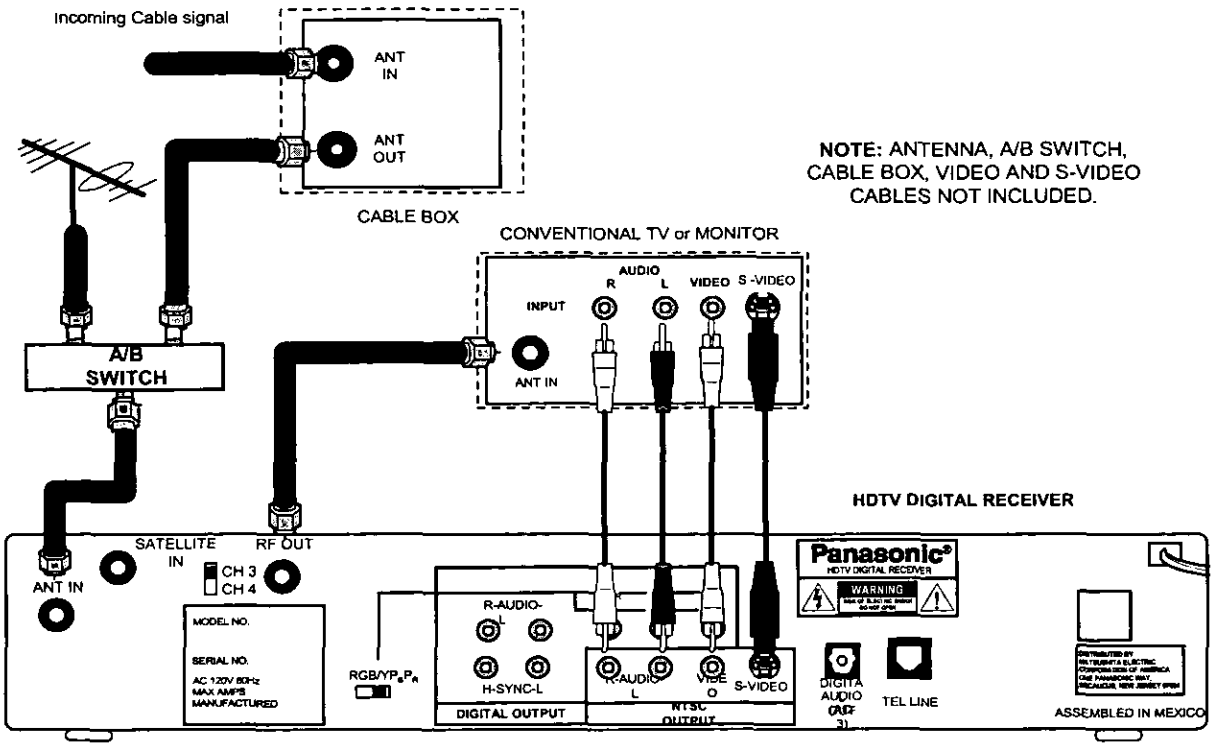
HDTV DIGITAL RECEIVER WITH DTV-COMPATIBLE TV WITH CABLE SERVICE AND TERRESTRIAL ANTENNA

Procedure

- Connect the antenna cable to one input (A or B) of the A/B switch .
- Connect the incoming cable signal to the ANT IN of the cable box. Connect the ANT OUT from the cable box to the other input (A or B) of the A/B switch.
- If not using a cable box, connect the cable to the other input of the A/B switch (not shown).
- Connect the HDTV Digital Receiver RF OUT jack to the DTV-compatible TV ANT (antenna) IN jack using a RF cable.
- Connect the component video outputs and audio output from the HDTV Digital Receiver to the input jacks of the DTV-Compatible TV.
- Select the Video out mode according to the capability of your television.

Step 3c. Digital TV/Cable Reception with Conventional TV

Follow this diagram if you have a conventional TV, cable service and terrestrial antenna.



DIGITAL TV/CABLE RECEPTION WITH CONVENTIONAL TV (CABLE SERVICE AND TERRESTRIAL ANTENNA)

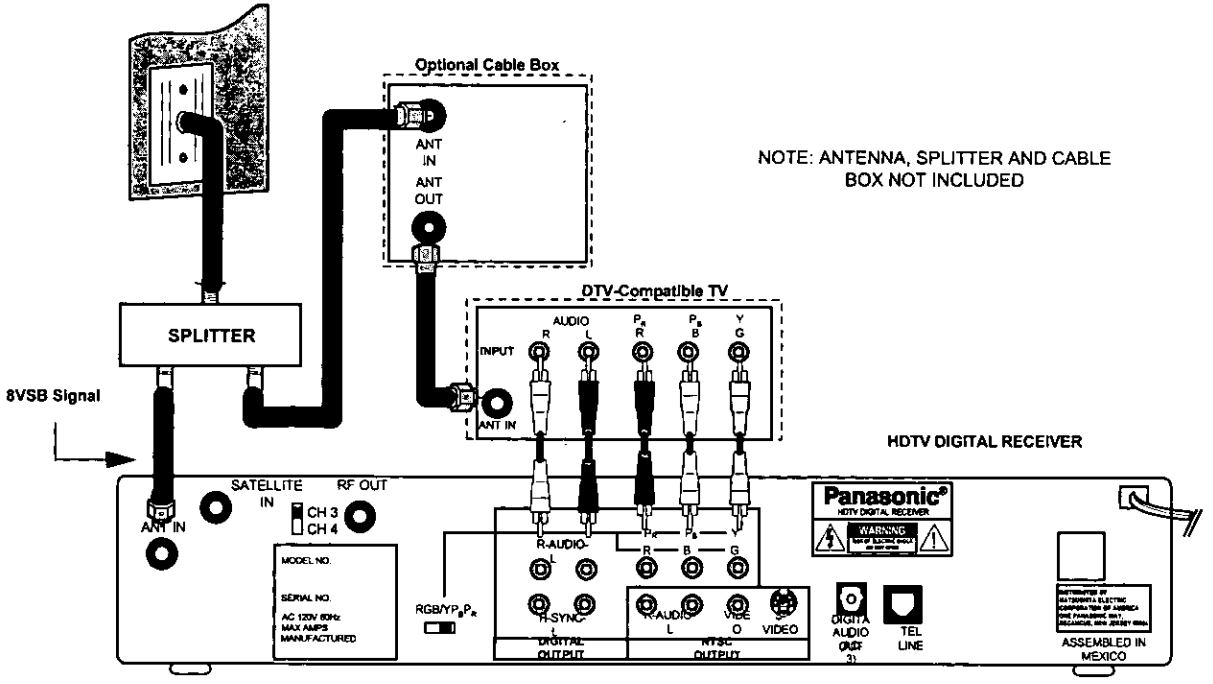
Procedure

- Select 480i by using the Video Out button on the front of the HDTV Digital Receiver.
- Connect the antenna cable to one of the inputs (A or B) of the A/B switch.
- If using a cable box, connect the cable wire from the wall jack to the cable box ANT (antenna) IN jack using a standard RF cable with coaxial connector and connect the cable box ANT (antenna) OUT jack to the other input (A or B) of the A/B switch.
- If not using a cable box, connect the cable wire from the wall jack to the second input of the A/B switch using an RF cable (not shown).
- Connect the OUT signal of the A/B switch to the ANT IN jack of the HDTV Digital Receiver.
- Connect the RF OUT jack to the Conventional TV or Monitor by suing a RF cable.
- Connect the NTSC OUTPUTS of the digital receiver to the A/V inputs of the television or monitor.

Step 3d. Digital 8VSB Cable/Analog Cable with DTV-Compatible TV

Follow this diagram if you have a DTV-compatible TV, cable service providing 8VSB digital cable, cable box and you want to receive digital cable channels through the HDTV Digital Receiver and analog cable channels through the cable box. Please take note that the HDTV Digital Receiver can receive 8 VSB as well as the unscrambled analog cable channels. Therefore, if you have no cable box, the 8VSB cable can be directly connected to the HDTV Digital Receiver.

Note: *The HDTV Digital Receiver is able to receive DTV signals from your local cable provider* ***only if*** *they are transmitted in the 8VSB modulation format approved by the FCC for DTV transmission. Also, your cable provider may elect to transmit in the 8VSB format for only a limited period of time.* ***Please contact your cable provider to determine if 8VSB modulation is available***



DIGITAL 8VSB CABLE/ANALOG CABLE RECEPTION WITH DTV-COMPATIBLE TV SETUP

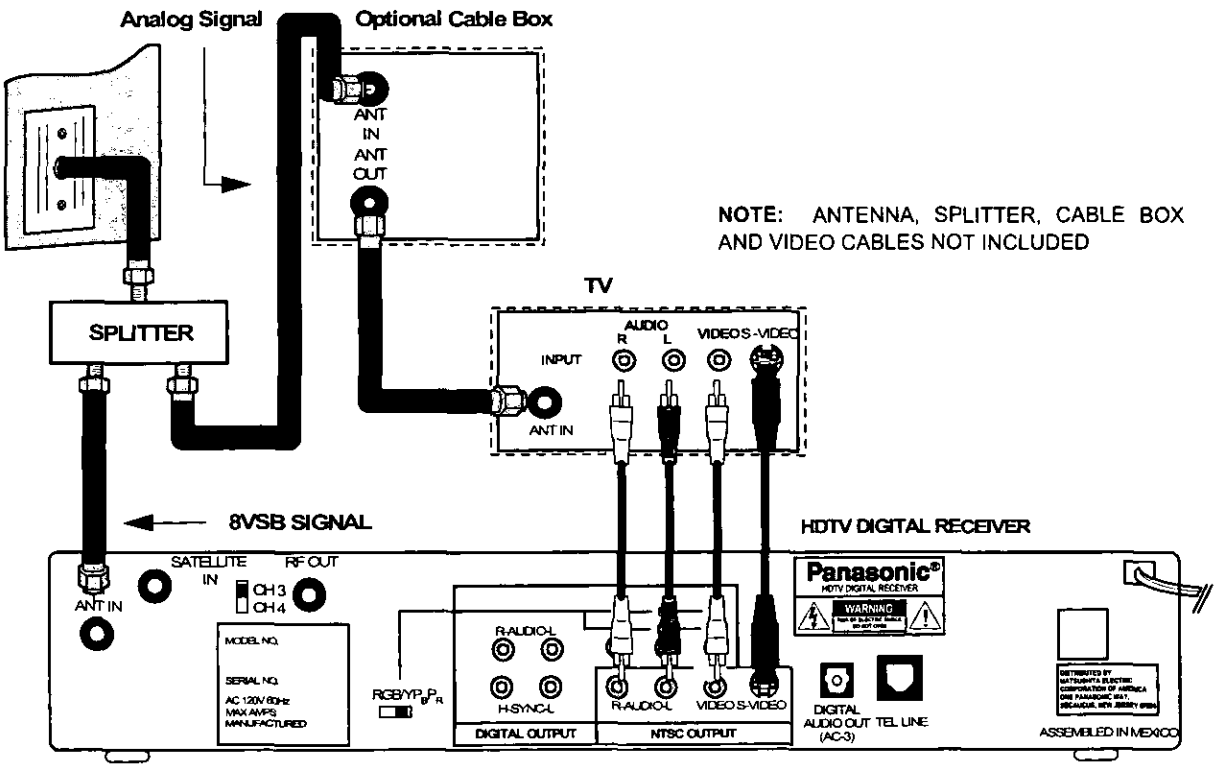
Procedure

- Connect the cable from the wall jack to the splitter using a standard RF cable with coaxial connectors.
- Connect one splitter output to the HDTV Digital Receiver ANT IN jack using a RF cable.
- If using a cable box, connect the other splitter output to the cable box ANT (antenna) IN jack using a RF cable. Connect the cable box ANT (antenna) OUT jack to the DTV-compatible TV ANT (antenna) IN jack using a RF cable.
- If not using a cable box, connect the 8VSB cable directly to the HDTV Digital Receiver.
- Follow directions in Getting Started section to connect the HDTV Digital Receiver to a DTV-compatible TV.

Step 3e. Digital 8VSB Cable/Analog Cable with Conventional TV

Follow this diagram if you have a conventional TV, cable service providing 8VSB digital cable cable box and you want to receive digital cable channels through the HDTV Digital Receiver and analog cable channels through the cable box. Please take note that the HDTV Digital Receiver can receive 8 VSB as well as the unscrambled analog cable channels. Therefore, if you have no cable box, the 8 VSB cable can be directly connected to the HDTV Digital Receiver.

Note: *The HDTV Digital Receiver is able to receive DTV signals from your local cable provider* ***only if*** *they are transmitted in the 8VSB modulation format approved by the FCC for DTV transmission. Also, your cable provider may elect to transmit in the 8VSB format for only a limited period of time.* ***Please contact your cable provider to determine if 8VSB modulation is available***



DIGITAL 8 VSB CABLE/ANALOG CABLE WITH CONVENTIONAL TV

Procedure

- Connect the cable from the wall jack to the splitter using a standard RF cable with coaxial connectors.
- Connect one splitter output to the HDTV Digital Receiver ANT IN jack using a RF cable.
- If using a cable box, connect the other splitter output to the cable box ANT (antenna) IN jack using a RF cable. Connect the cable box ANT (antenna) OUT jack to the TV ANT (antenna) IN jack using a RF cable.
- If not using a cable box, connect the 8 VSB cable directly to the HDTV Digital Receiver.
- Follow directions in Getting Started section to connect the HDTV Digital Receiver to a conventional TV.

Step 4. Turning HDTV Digital Receiver On

Procedure

- Press the Remote Control STB mode button (STB).
- Press the **POWER** button.

Note: *Monitor/TV should also be turned on.*

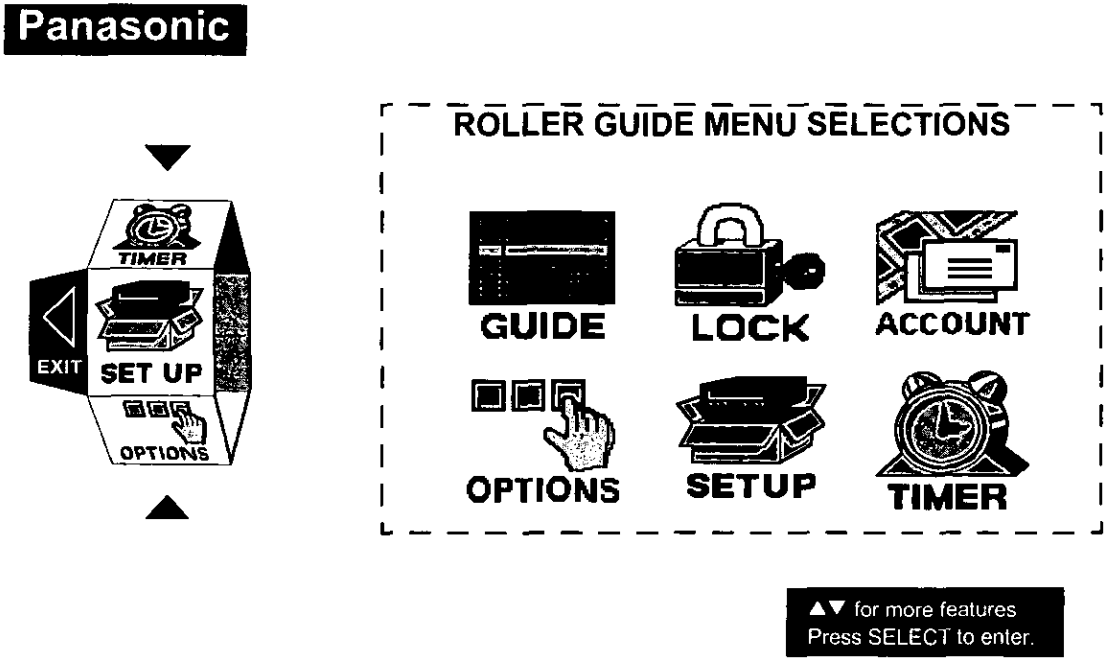
Step 5. Switching to DTV Mode (Panasonic TV models)

Press the Remote Control **TV/VIDEO** button until DTV or Component Video input appears on the Monitor/TV screen. Select the same mode that the HDTV Digital Receiver is connected to.

Note: *Non-Panasonic brand televisions require switching to the component video input.*

Step 6. Roller Guide Menu™

Press the **MENU** button to display the **Roller Guide Menu***. Press the ▲ or ▼ arrow on the **ACTION** button to rotate the Roller Guide. Press the ◀ arrow on the **ACTION** button to exit the Roller Guide Menu.



Note: *To exit the Roller Guide Menu, press the ◀ arrow on the **ACTION** button or press the **MENU** button.*

Note: *The name HDTV Digital Receiver and the term STB are interchangeable.*

Step 6a. ACTION / Navigation Button

Press **ACTION** to select the Roller Guide Menu item. Press the ▲ or ▼ arrows to highlight sub menus. Press the ▶ arrow to select features. Press the ▲ or ▼ arrows to scroll through options within a feature. Press the ◀ arrow to return to main menu items.

Remote ACTION / Navigation Button

Note: *Be careful to press **ACTION** in the middle of the button. If you do not press in the middle of the button, the arrow buttons may be activated.*

Step 7. Antenna/Cable Mode

Select either Antenna or Cable mode, depending on the type of incoming signal you are using.

Procedure

- ❒ In SET UP Menu, select Ant Input to choose either ANTENNA or Cable (IRC, HRC,STD etc.).

Note: *To view digital cable channels, your cable operator must be transmitting them in 8VSB format, please contact your local cable operator.*

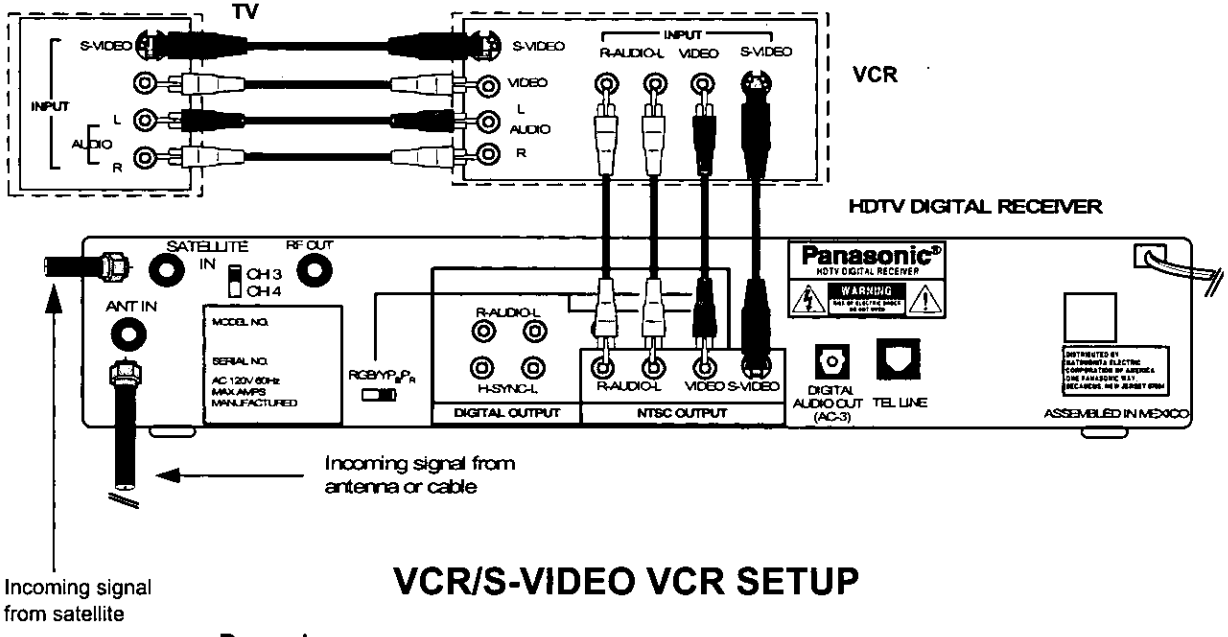
- ❒ Press the **ACTION** button to save your selection.
- ❒ Press the ◀ arrow repeatedly to exit back to Roller Guide.

Note: *Whenever the antenna or cable mode is changed, Timer will revert back to default settings.*

Step 8. HDTV Digital Receiver Connection to VCR/S-VIDEO VCR

Follow this diagram when connecting the HDTV Digital Receiver to a standard VCR or S-VIDEO VCR.

NOTE: VIDEO, S-VIDEO AND AUDIO CABLES NOT INCLUDED



VCR/S-VIDEO VCR SETUP

Procedure

- Select 480i by using the Video Out button on the front of the HDTV Digital Receiver.
- Connect video cable from the video output jack on the HDTV Digital Receiver to the video input jack on the VCR.

OR

- Connect the S-Video cable from the NTSC S-Video output jack on the HDTV Digital Receiver to the S-Video input jack on the S-Video VCR.
- Connect audio cables from the left and right audio output jacks on the HDTV Digital Receiver to the left and right audio input jacks on the VCR.
- Connect video cable from video output jack on the VCR to video input jack on TV.

OR

- Connect S-Video cable from S-Video output jack on the S-Video Vcr to S-Video input jack on TV.
- Connect audio cables from the left and right audio output jacks on the VCR to the left and right audio input jacks on the TV.

Note: *Connect either your S-Video or video input/output.*

- S-Video will provide better picture quality.
- If both S-Video and video are connected, S-Video will override video.

Note: ***This HDTV Digital Receiver incorporates an anticopy process technology that is protected by U.S. patents and other intellectual property rights measures. The anticopy process is licensed for non-commercial, home use only. Reverse engineering or disassembly is prohibited.***

Step 9. Programming Available NTSC/ATSC Channels

YOU MUST PERFORM THE AUTOMATIC CHANNEL PROGRAMMING BEFORE MANUALLY ADDING AND DELETING CHANNELS BECAUSE OF THE DIGITAL TUNING SYSTEM USED BY THE HDTV Digital Receiver. THIS METHOD WILL ENSURE THAT EVERY AVAILABLE CHANNEL IS CAPTURED AND STORED INTO MEMORY.

Automatic Channel Programming

The HDTV Digital Receiver will scan for all available channels and store them in memory. The scan will normally take several minutes to complete.

Procedure

- ❒ In SET UP Menu, select Ant Setup to choose AUTO Scan to automatically scan and store all channels with a signal.
- ❒ Press the ▶ arrow to select AUTO.
- ❒ Press the **ACTION** button to start the auto scan.
- ❒ Press the **ACTION** button to cancel the auto scan or exit back to SET UP Menu after the auto scan is complete.
- ❒ Press the ◀ arrow once to exit back to Roller Guide.

Note: As more digital channels become available in your area, the AUTO feature must be selected to store the new digital channels into memory.

Manual Channel Programming

After programming all available channels, you can use the MANUAL feature to selectively add or delete channels.

Procedure

- ❒ In SET UP Menu, select Ant Setup to choose Add/Del Ch to manually add or delete channels.
- ❒ Press the ▶ to enter sub-menu.
  - Use the ▲, ▼ arrow buttons and numeric keypad to select a channel.
  - Use the ◀ and ▶ arrow buttons to delete or add channels.
- ❒ Press the **ACTION** button to exit back to Ant Setup Menu.
- ❒ Press the ◀ arrow once to exit back to Setup Menu.

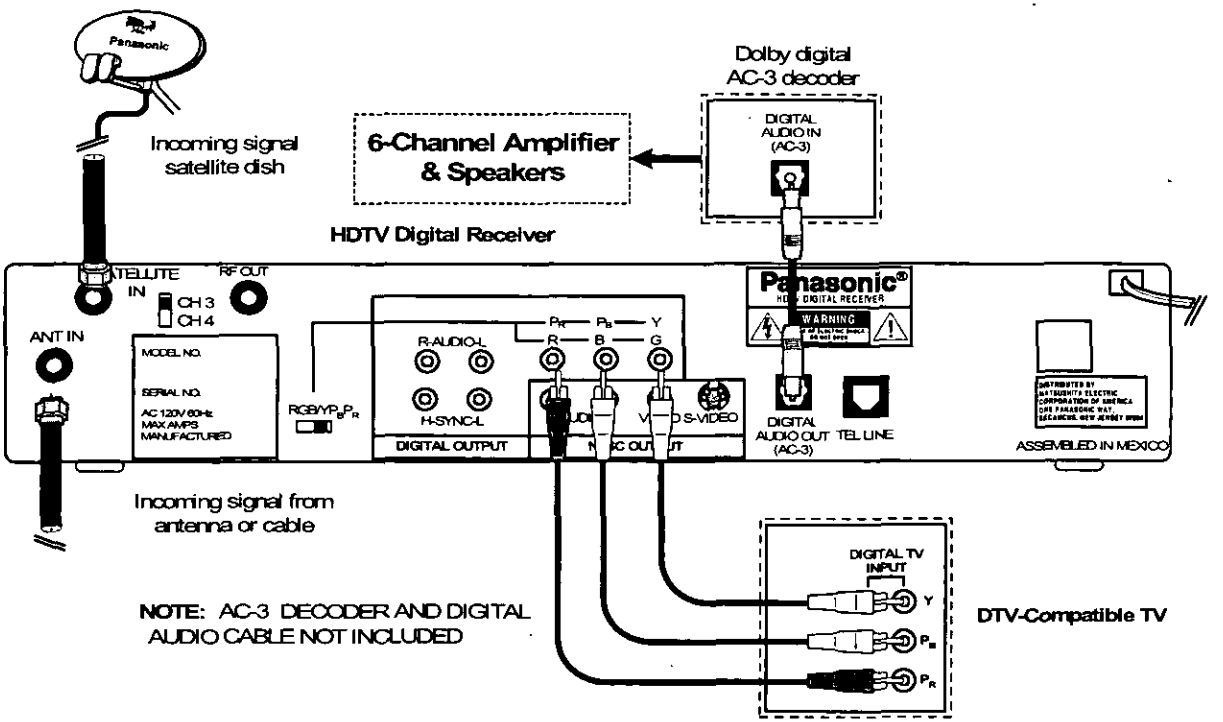
Automatic Channel Programming

The AUTO feature must be selected first to ensure that all available channels are captured and stored into memory.

Optional Connections

HDTV Digital Receiver Connection to Dolby Digital AC-3 Decoder

Follow this diagram to connect the HDTV Digital Receiver to a Dolby Digital AC-3 decoder.



DOLBY DIGITAL AC - 3 DECODER SETUP

Procedure

- Connect Digital Audio cable from the Digital Audio Out connection on the HDTV Digital Receiver to the Digital Audio In connection on the Dolby Digital AC-3 decoder.
- If using a DTV-compatible TV, follow directions in Getting Started section to connect the HDTV Digital Receiver to a DTV-compatible TV.
- If using a conventional TV, follow directions in Getting Started section to connect the HDTV Digital Receiver to a conventional TV.

Remote Control

EUR511159

ASPECT (Ratio)
Select picture shape to match signal and monitor format

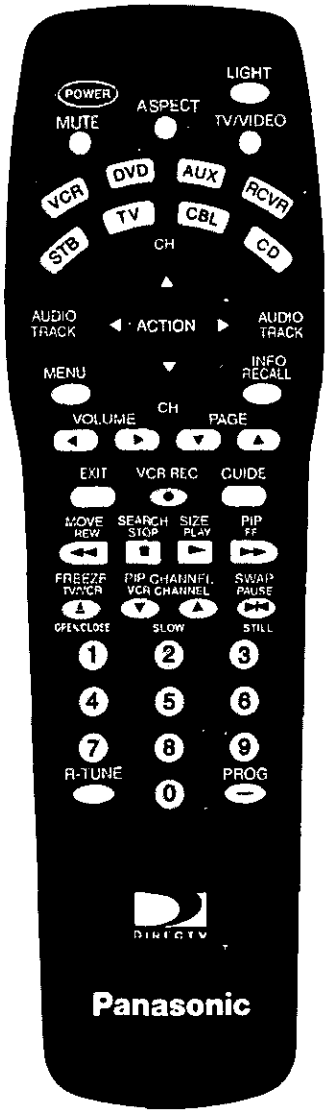
POWER
Press to turn ON and OFF.

MENU
Press to access Roller Guide Menu.

ACTION
Press to access sub menus or display Main Menus.

"0" ~ "9"
Press numeric keypad to select any channel.

R-TUNE
Press to switch to previously viewed channel or program.



LIGHT*
Press to light remote control for five (5) seconds.

TV/VIDEO
Press to select Component Video, TV or Video input mode.

VCR DVD AUX RCVR STB TV CBL CD
Press to select remote operation mode.

STB
Turns on the HDTV digital receiver.

GUIDE
Press to select STB Guide or DVD menu

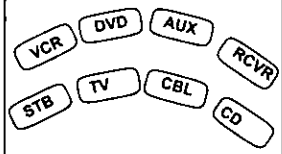
PROG (Program) / Dash
Press to enter the 2-digit minor number in a compound channel number.

CHANNEL
Press to select next channel or program.

INFO/RECALL
Press to display time, channel banner, and other options.

*To conserve battery life, the **LIGHT** function can be disabled/enabled by pressing **R-TUNE** and **RECALL** simultaneously.

Remote Control Functional Key Chart

Key	Component	Function
	ALL COMPONENTS	Turn components On and Off
LIGHT	REMOTE CONTROL	Illuminate buttons
MUTE	TV AUX (RCVR) CBL	Mute audio
TV/VIDEO	ALL COMPONENTS	Switch between component and TV
ASPECT	STB	Change picture shape to fit format: Full - Normal picture shape (16:9 or 4:3) Zoom - Expand picture uniformly Letterbox - Black bars above and below picture Sidebar/4:3 - 4:3 picture on wide aspect screen with vertical bars on both sides
	ALL COMPONENTS	Component mode selection for Remote Control
CH CH	TV DTV △ ▽ ◁ ▷	Up navigation Down navigation Left and right navigation Exit Roller Guide Menu Select and adjust features
	TV STB VCR DVD CBL	Roller Guide Menu Main menu selections Menu Select ENTER
MENU	STB DVD	Roller Guide Menu Menu
PROG	STB	Press to enter the 2- digit minor number in a compound number.
VOLUME	STB TV VCR DVD AUX (VCR2) CBL RCVR CD AUX (TAPE)	TV volume down and up Cable volume down and up Receiver volume down and up

Remote Control Functional Key Chart

Key	Component	Function
PAGE ▼ ▲	STB DVD RCVR	Page up /down Skip up / down Station up / down
CHANNEL ▼ ▲	ALL COMPONENTS	Channel down Channel up
GUIDE	STB DVD	Guide Menus
EXIT	STB	Exit Menus
VCR REC	VCR AUX (Cassette Deck)	Record
MOVE REW	TV CABLE DVD CD AUX (RCVR) VCR AUX (Cassette Deck)	Move PIP Skip / Search Rewind Search Rewind Decrease surround Rewind
SEARCH STOP	TV CABLE VCR DVD CD AUX (VCR2 Cassette Deck)	PIP channel search Stop
SIZE PLAY	TV CABLE VCR DVD CD AUX (Cassette Deck)	Change PIP size Play
PIP FF	TV CABLE DVD/LD CD AUX (RCVR) VCR AUX (Cassette Deck)	PIP ON/OFF Skip/Search Fast Forward Search Fast Forward Increase Surround Fast Forward
FREEZE TV/VCR OPEN/CLOSE	TV CABLE VCR DVD CD AUX (Cassette Deck)	Freeze PIP Switch between TV and VCR Open / Close
SWAP PAUSE STILL	TV CABLE DVD/CD/LD VCR AUX (Cassette Deck and Tape)	Switch *Main Picture* and *PIP* Still / Pause Pause
PIP CHANNEL VCR CHANNEL SLOW	TV VCR CBL DBS AUX (RCVR) DVD CD CABLE	PIP channel up / down Channel up / down Center channel sound up / down (+/-) Slow +/- Repeat / Random TV Channel Up / Down

Remote Control Functional Key Chart

Key	Component	Function
R-TUNE	TV CBL STB DVD CD (AUX) AUX (Cassette Deck)	Previous channel Title Next disc Deck A/B
INFO / RECALL	TV VCR DVD CABLE STB CD	On screen display On screen display Time format
1 2 3 4 5 6 7 8 9 0	TV STB VCR CABLE DVD CD RCVR	Selects channel Selects code Selects track Keys 1, 2, 3, and 4 selects A/V Inputs, 5 = CD, 6 = Tuner, 7 = Phono, 8 = Cassette Deck, 9 = Aux

Battery Installation

Incorrect installation can cause battery leakage and corrosion that will damage the Remote Control.

Use two AA batteries:

Remove the battery cover by pushing in near the arrow and sliding the cover back.

Install batteries matching (+) and (-) polarity signs.

Replace the battery cover.

Precautions

- Replace batteries in pairs.
- Do not mix battery types (zinc carbon with alkaline).
- Do not recharge, short-circuit, heat, burn, or disassemble batteries.

Special Remote Buttons

Aspect Ratio Selections

ASPECT

The **ASPECT** button changes the aspect ratio (picture display shape) in response to the source signal and monitor format. You can also change the aspect ratio for your personal viewing preference. Each time the **ASPECT** button is pressed, the HDTV Digital Receiver will cycle to the next available aspect ratio choice.

Full Aspect
16:9 or 4:3 picture will be displayed in the center of the viewing screen at full screen width and height.

Zoom Aspect (4:3 Monitor receiving 16:9 source signal)
The picture will be expanded uniformly (width and height) to fill the viewing screen. The picture will be cropped, either horizontally or vertically to fit the viewing screen. The cropped portion of the original picture will be lost from view.

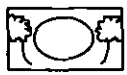
Note: *To properly display Closed Captioning in some cases, the aspect ratio should be changed from Zoom to Full.*

Letterbox Aspect (4:3 Monitor)
Video formats with aspect ratios greater than 16:9 will be displayed at the proper width, so no video information is lost. Black or gray bars will appear above and below the picture.

Sidebar Aspect (16:9 Monitor)
4:3 pictures will be viewed on a wide aspect TV screen with vertical bars on both sides of the picture.

Note: *See following page for illustrations of the various aspect ratios.*

ASPECT RATIO FORMATS

Source Signal	16:9 MONITOR FORMAT				4:3 MONITOR FORMAT			
	FULL	ZOOM	SIDEBAR	EXPAND	FULL	ZOOM	LETTERBOX	SHRINK
16:9			—	—	—			
4:3						—	—	—

The 16:9 and 4:3 pictures represent the incoming source signals received by the HDTV Digital Receiver.

These pictures show the different aspect ratios available with a 16:9 monitor format.

- The top picture shows the 16:9 monitor format available when the HDTV Digital Receiver receives a 16:9 source signal.
- The bottom pictures show the 16:9 monitor formats available when the HDTV Digital Receiver receives a 4:3 source signal.

These pictures show the different aspect ratios available with a 4:3 monitor format.

- The top pictures show the 4:3 monitor formats available when the HDTV Digital Receiver receives a 16:9 source signal.
- The bottom picture shows the 4:3 monitor format available when the HDTV Digital Receiver receives a 4:3 source signal.

TV/Video TV/VIDEO

The **TV/VIDEO** button allows you to select the mode of your TV. Each time the **TV/VIDEO** button is pressed, the TV will cycle through Channel, Video 1, Video 2, Video 3 and DTV modes.

Note: *Not all television models will display all the modes.*

Menu MENU

The **MENU** button is used to enter and exit Roller Guide Menu system. Each time the **MENU** button is pressed, the Roller Guide will appear on and disappear from the viewing screen.

Program PROG

Press the PROG button to enter the 2 digit minor number in a compound number.

Rapid Tuning R-TUNE

The **R-TUNE** button quickly switches between two channels or programs. The HDTV Digital Receiver will attempt to immediately tune to the last channel or program in its memory. If programs are no longer transmitting on the channel, the *Unavailable Channel Screen* will display and the HDTV Digital Receiver will automatically select the first program available on the channel.

Recall RECALL

The **RECALL** button displays the *Recall Screen* for 6 seconds or until you press any button (which automatically exits the Recall mode).

Programming the Remote Control

The Universal Remote Control can be programmed to operate many manufacturers' components using the component function buttons for VCR, DVD, AUX (RCVR, CD, TAPE, CASSETTE DECK and LD), CBL, DTV, TV, or DBS. Follow the procedures for programming your Remote Control with and without codes for the component. Determine the manufacturer of the component and look in the table for the code.

Note: *Be careful to press **ACTION** in the middle of the button. If you do not press in the middle of the button, the arrow buttons may be activated. This will interrupt your programming.*

Programming With Code

- Confirm that the external component is plugged in and is turned on.
- Turn the component off.
- Press the **ACTION** and **POWER** button, together, for **at least 5 seconds.** All mode buttons will flash, then let go of the buttons.
- Press appropriate component button (VCR, CBL, etc.) on the Remote Control. The pressed button will illuminate steadily. All other buttons will go out.
- Enter the 3-digit component code using the Remote Control numeric keypad (**0 ~ 9** buttons). If a proper code was entered, the mode button will blink twice and go out.
- Press the Remote Control **POWER** button to test the component. If the procedure was successful, the component will turn on.

Unsuccessful Code

If the component does not operate with the Remote Control, repeat the procedure using another code. (Some brands have multiple codes.)
If an incorrect code is entered, or if the procedure takes longer than 30 seconds, the programming will fail.

Programming Without Code

This procedure searches all codes and is called the "sequence method".

- Confirm that the external component is plugged in and is turned on.
- Turn the component off.
- Press the **ACTION** and **POWER** button, together, for **at least 5 seconds.** All mode buttons will flash, then let go of the button.
- Press appropriate component button on the Remote Control. The pressed button will illuminate. All other buttons will go out.
- Press the ▶ button to move forward to the next code. Press the ◀ button to move backward.
- Press the Remote Control **POWER** button to test the component. If the procedure was successful, the component will turn on.

Note: *Repeat the preceding two steps until the component code is found. It may take many attempts before the correct code is found.*

- After the code is found, press the **ACTION** button to store the code.

Component Codes

The Universal Remote Control is capable of operating many component brands after entering a code. Some components may not operate because memory is limited. The Universal Remote Control does not control all features in all models.

Codes for TV

Brand	Code
Akai	110
Centurion	112
Daewoo	120
Emerson	141, 143, 144
Fisher	150
GE/Panasonic/ Quasar	101
GE/RCA	162
Hitachi	180
JVC	190
Magnavox	210, 212
Marantz	220

Brand	Code
Panasonic	100, 101, 102
Pioneer	222
Proscan	230
Quasar	101, 103
Radioshack	240
RCA	250, 255
Samsung	260
Sears/Toshiba	130
Sharp	265
Sony	270
Zenith/Inteq	290, 291

Codes for Cable Box

Brand	Code
ABC	530
Archer	531, 544
Cableview	005, 544
Citizen	005, 522
Curtis	130, 131
Diamond	530, 531, 544
Eagle	541
Eastern	560
GC Brand	005, 544
Gemini	522
General Instrument/Jerrold	122, 360, 520, 521, 522, 530, 531, 532, 533
Hamlin	130, 350, 720, 730, 731, 900
Hitachi	003, 530
Macom	003, 004, 005
Memorex	542
Movietime	005, 544
Oak	002, 702, 710
Panasonic	120, 121, 132
Philips	006, 541, 542
Pioneer	001, 260
Pulsar	005, 544

Brand	Code
Puser	544
Realistic	544
Regal	130, 350, 720, 730, 731, 900
Regency	560
Rembrandt	005, 544, 702
Samsung	005
Scientific Atlanta	122, 130, 131
Simark	001, 005
Sprucer	005, 121
Stargate	005, 544
Teleview	001, 005
Texscan	810
Tocom	700, 701
Toshiba	004
Unika	531, 544
Universal	522, 544
Videoway	006
Viewstar	541, 542
Zenith	000, 280
Zenith/Drake Satellite	000

Codes for VCR

Brand	Code
Admiral	200
Aiwa	137,160
Akai	014, 015, 016,142
Audio Dynamic	011, 240
Bell & Howell	005, 013
Broksonic	081, 136
Canon	125, 135
Citizen	006
Craig	005, 006, 141
Curtis Mathes	130, 137, 300
Daewoo	001, 130, 250
DBX	010, 011, 240
Dimensia	300
Emerson	003, 080, 081, 135, 136, 243, 250
Fisher	005, 007, 008, 009
Funai	081, 136, 137
GE	130, 170, 300
Go Video	220, 512
Goldstar	006
Hitachi	000, 125, 300
Instant Replay	125, 130
J.C. Penney	000, 005, 010, 011, 130, 240, 300
Jensen	240
JVC	010, 011, 190, 240
Kenwood	006, 010, 011, 240
LXI	000, 005, 006, 007, 008, 009, 137
Magnavox	125,130, 150
Marantz	010, 011, 240
Marta	006
Memorex	009, 130
MGA/Mitsubishi	230, 241, 242, 243, 330, 340
Minolta	000, 300
Mont.Wards	006, 009, 200, 210, 290
Multitech	004, 137, 330
NEC	010, 011, 190, 240
Olympic	125, 130
Optimus	006, 100, 140, 200

Brand	Code
Orion	081, 136
Panasonic	100, 101, 125, 130
Pentax	000, 011, 300
Philco	081, 125,130, 136, 137, 150
Philips	125, 130, 150
Pioneer	125
Proscan	000, 001, 002, 125,130, 150, 300, 310
Quasar	100, 101, 125, 130
Radio Shack	005, 009, 130, 137, 170, 210, 241
RCA	000, 001, 002, 125,130, 150, 170, 300, 310
Realistic	005, 009, 130, 137, 210, 241
Samsung	002, 004, 220
Sansui	081, 136, 240, 520
Sanyo	005, 009
Scott	001, 002, 004, 009,081,136, 230, 241, 330, 340
Sears	000, 005, 006, 007,008
Shaintom	050
Sharp	200, 210
Signature 2000	137, 200
Singer	050
Sony	140, 141, 142
SV2000	137
Sylvania	125, 130, 137, 150
Symphonic	137
Tashiro	006
Tatung	010, 011, 240
Teac	010, 011, 137, 240
Technics	100, 101,125, 130
Teknika	130, 137
Toshiba	001, 310
Vector Research	011
Yamaha	005, 010, 011, 240
Zenith	290

Codes for CD

Brand	Code
Carver	550
Denon	600
Fisher	405
Harman/Kardon	459, 460, 462
JVC	590, 591, 670
Kenwood	400, 401,450, 670
Magnavox	550
Marantz	550
McIntosh	460
Optimus	430, 459
Panasonic	500, 501, 530

Brand	Code
Philips	550
Pioneer	430
Quasar	500, 501, 530
Sansui	432
Sanyo	405
Sharp	600
Sherwood	459
Sony	540
Technics	500, 501, 530
Victor	590, 591, 670
Yamaha	402, 403, 404

Codes for DVD

Brand	Code
Denon	100
Ferguson	110
Nordmende	110
Mitsubishi	150
Panasonic	100
Pioneer	120

Brand	Code
RCA	110
Saba	110
Sony	140
Thomson	110
Toshiba	130
Yamaha	100

Codes for Cassette Deck

Brand	Code
Panasonic	500, 530
Technics	500, 530

Codes for DBS

Brand	Code
Echo Star	110
GE	170
Hitachi	050
Panasonic	100
Philips	001, 002

Brand	Code
Primestar	391
RCA	170
Sony	390
Toshiba	000
Uniden	001, 002

Codes for Laser Disc

Brand	Code
Panasonic	200, 201, 235, 380
Pioneer	370
Sony	240, 241, 242, 243

Codes for Receiver/Amplifier

Brand	Code
Admiral	710
Aiwa	760, 761
Denon	800, 801, 802
Fisher	604
Garrard	655
Harman	657, 750
Jensen	764
JVC	790,791
Kenwood	600, 650
Magnavox	762
Marantz	751
McIntosh	658
Nakamichi	631
Onkyo	651, 656

Brand	Code
Optimus	603, 762, 770, 771
Panasonic	700, 701, 730
Philips	750
Pioneer	630, 632
Quasar	700, 701, 730
RCA	603, 630,762,770, 771
Sansui	603, 653,920
Sharp	800,803
Sony	740
Soundesign	820
Teac	653, 654, 655
Technics	700, 701, 730
Victor	790, 791
Yamaha	601, 602

Write the code numbers for your components in the space provided below. This will serve as a reference when you need to reprogram your remote control.

CABLE	**VCR**	**RCVR**	**LD**
Cable Box	**Video Cassette Recorder**	**Receiver or Amplifier**	**Laser Disc Player**
DBS	**TV**	**CD**	**DVD**
Direct Broadcast Satellite	**Television**	**Compact Disc Player**	**Digital Videodisc**
Other Components	**Other Components**	**Other Components**	**Other Components**

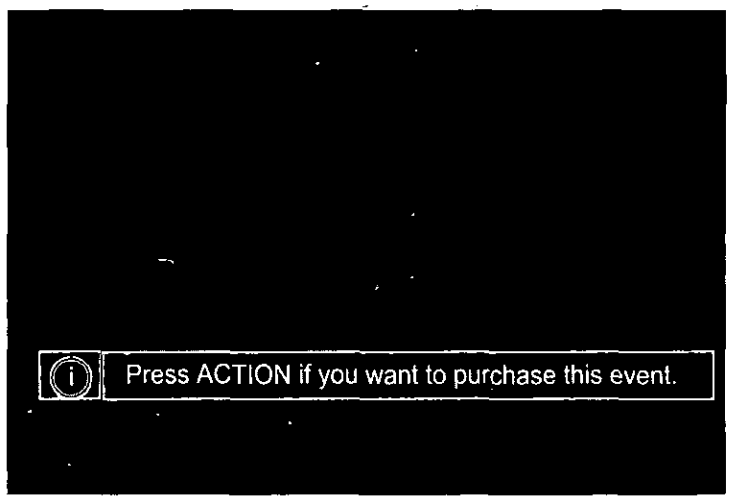
Special Features of HDTV Digital Receiver

Impulse Pay Per View (IPPV)

You must connect your phone line to the HDTV Digital Receiver to receive pay per view (PPV) service offered by DIRECTV. Connecting the phone line permits you to use the IPPV feature, which allows event purchases without calling a CSR (Customer Service Representative). If you decide against connecting to your phone line, you must call the CSR to purchase events, such as Pay per view movies. DIRECTV refers to such CSR assisted purchases as OPPV (Order ahead pay per view).

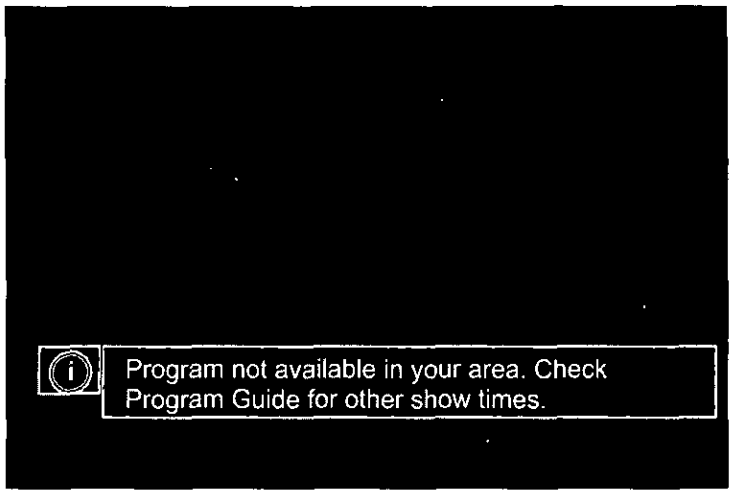
When OPPV or subscription authorization changes (e.g., customer cancels the movie purchases), the HDTV Digital Receiver will reflect that change immediately. The HDTV Digital Receiver will display a message, identifying the reason for the authorization status change.

The HDTV Digital Receiver has the ability to allow you to purchase a PPV event offered by DIRECTV. When the HDTV Digital Receiver is tuned to an IPPV channel, (video may or may not be displayed, depending upon whether the PPV event has started) the following message is displayed on the screen.



IPPV message with video in the background

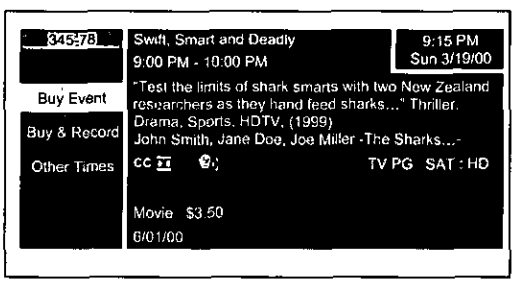
If you press the **INFO** key, the PPV window will be displayed. Once a PPV event starts, video and audio could be displayed for 5 minutes into the PPV event. After 5 minutes have elapsed, video and audio are removed from the screen. You can purchase the current PPV event up to 30 minutes after an event has started. If the PPV event passes the 30 minutes from the event starting time, a message will be displayed and video will be blocked as shown below and you will not be able to purchase the program.



Impulse pay per view: Icons

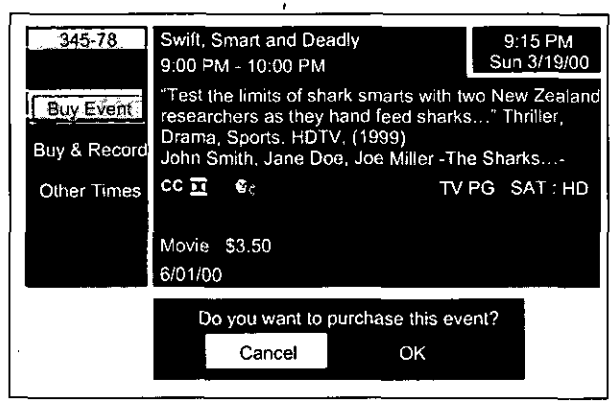
The Channel Banner will contain several icons that are displayed only when the feature is available and is supported by the HDTV Digital Receiver.

The following figure depicts the PPV window. If you decide to buy the event or buy and record the event, another confirmation window is displayed, requiring you to confirm the purchase before completing the transaction.

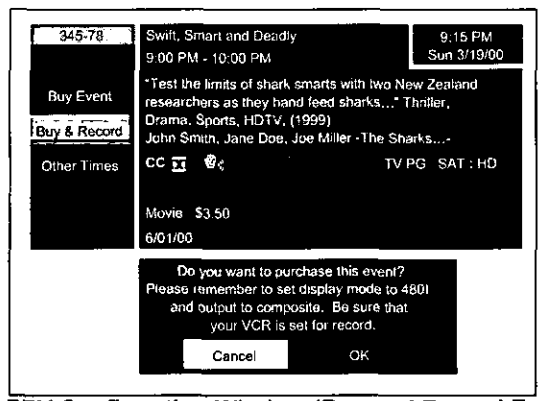


PPV Window

You will be given a choice of whether they wish to Purchase (OK) or Cancel this PPV event, as shown below.

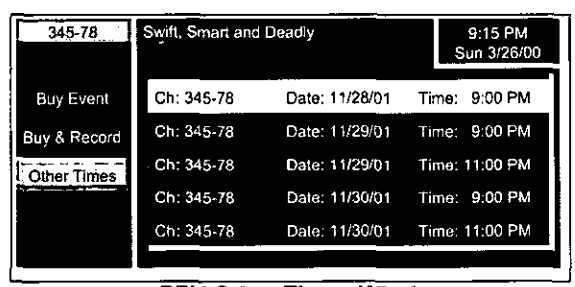


PPV Confirmation Window (Buy Event)



PPV Confirmation Window (Buy and Record Event)

You can also select other time to view this event, as shown below. After you have selected a different time, the PPV confirmation screen is displayed.

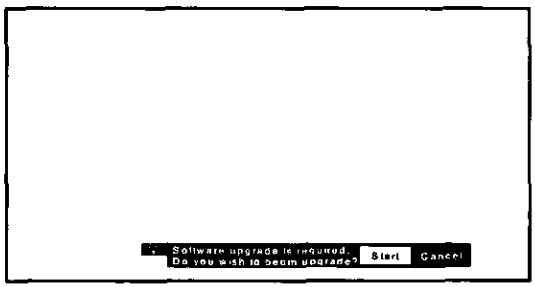


PPV Other Times Window

Software Upgrade Messages

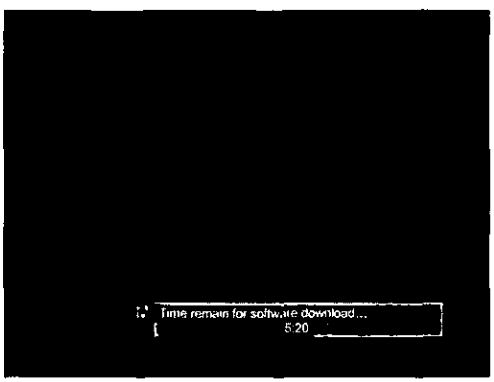
The HDTV Digital Receiver has the ability to receive download replacement software. This will allow the HDTV Digital Receiver software to be upgraded. The HDTV Digital Receiver will prompt you when an update is required. You have the ability to reject or cancel the update at this time. However, this notification will repeatedly occur until you have upgraded the software.

The HDTV Digital Receiver will first display and update message when the unit is in the tuning mode. This OSD will allows you to begin or cancel the software download, as shown below.



Software Upgrade Message

If the user elects to download software when prompted, an approximate time remaining for download will be displayed, as shown below.



Time Remain for Software Download

If you elect to cancel the download, the user will be prompted again to perform this download every time the user turns ON the HDTV Digital Receiver. This software download message will occur, until the HDTV Digital Receiver unit has been updated.

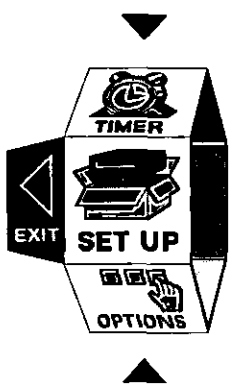
Roller Guide Menu™

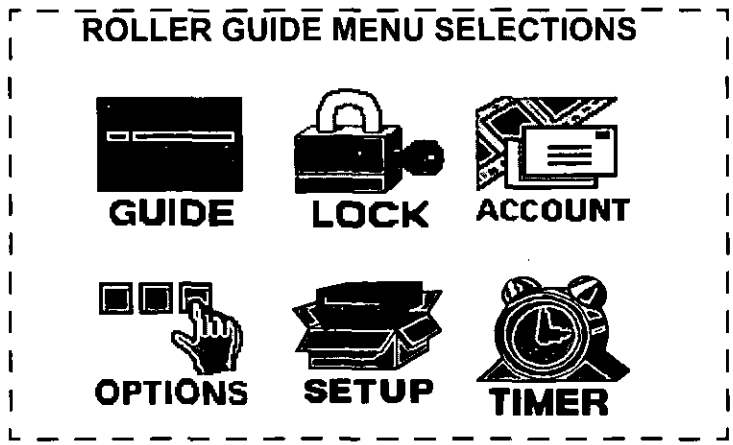
Press the **MENU** button on the Remote Control to display the **Roller Guide Menu™***. Press the ▲ or ▼ arrow to rotate the Roller Guide. Press the **ACTION** button to enter a category submenu screen, where the options for that category can be changed. Press the ◀ arrow to exit the Roller Guide Menu.

The Roller Guide screen is the entry point for all menu operations on the system. The first time that the HDTV Digital Receiver is powered ON, the SET UP category is the default state. The main menu provides access to the following categories:

- Guide
- Lock
- Account
- Options
- Setup
- Timer

Panasonic





▲▼ for more features
Press SELECT to enter.

Note: *To exit the Roller Guide Menu, press the ◀ arrow on the **ACTION** button or press the **MENU** button.*

* Roller Guide Menu is a trademark of Panasonic Consumer Electronics Company. U.S. Patent Pending.

ACTION / Navigation Button

Press the **ACTION** button to select main menu items. Press the ▲ or ▼ arrows to highlight sub menus. Press the ▶ arrow to select features. Press the ▲ or ▼ arrows to scroll through options within a feature. Press the ◀ arrow to return to main menu items.

Remote ACTION / Navigation Button

Note: *Be careful to press **ACTION** in the middle of the button. If you do not press in the middle of the button, the arrow buttons may be activated.*

Roller Guide Feature Chart

Roller Guide Feature Chart

MENU	DESCRIPTION
SETUP	**SET UP**
Satellite Setup	❒ Dish Type - Lets you choose Oval or Round dish. ❒ Auto Configuration - Enables the HDTV Digital Receiver to automatically detect and configure the correct satellite port settings. ❒ Sat. Ports - Selects up to 4 nominal satellite configuration or lets you perform auto-detection. The user can select: • Dish Type : Oval or Round • No Satellite • Auto Configuration • Satellite A and B • Satellite A, B, and C ❒ Dish Position - Lets you orient the dish antenna. ❒ Signal Meter - Shows the strength of the selected satellite signal.
Guide Setup	❒ Guide Setup - Lets you select the local zip code for the local channels in your area. These local channels should appear in the APG.
Ant Setup	❒ Ant Input - Selects the type of local input sources. ❒ Off - Deactivates Terrestrial/Cable ATSC/ NTSC portion of the HDTV Digital Receiver. ❒ Auto Scan - Allows you to retrieve all of the antenna or unscrambled cable channel. ❒ Add/Del Ch - Lets you to add or delete the channels that were detected by the auto scan.
MONITOR	❒ TYPE • 16:9 (default setting) for wide screen. • 4:3 for conventional TV screen.
System Test	❒ System Test - Invokes system test available for Satellite Input.
Access Card	❒ Access card - Remapping of information. (Use only when instructed by DIRECTV.)

Roller Guide Feature Chart (Cont.)

MENU	DESCRIPTION
GUIDE	GUIDE
Guide Setup	❒ Guide: Provides Channels and Program information to the user. ***Note:*** *The Guide is active in the DIRECTV/ ATSC/NTSC mode only.*
TIMER	TIMER
TIMER 1 TIMER 2 TIMER 3 TIMER 4 TIMER 5 TIMER 6 TIMER 6 TIMER 7 TIMER 8	❒ MODE - Select one of the following: • OFF (default setting) to disable timer. • ON to turn on HDTV Digital Receiver only. (Must turn TV on to view the event). • Repeat (weekly or once) ❒ DAY - Select the day of the week to activate timer. • START - Select time for timer to start. • STOP - Select time for timer to stop. ❒ CHANNEL - Select the channel for STB to tune to at appropriate time. ***Note:*** *Whenever the antenna or cable mode is changed, Timers will revert back to default settings.*
LOCK	LOCK
Password	❒ Password - A password, the user must provide in order to perform a function.
Movie Limits	❒ Movie Limits- Lets you block out movies based on MPAA ratings.
TV Limits	❒ TV Limits- Lets you block out TV programs based on TV Parental Guide ratings.
Ch Locks	❒ Sat Lock - Lets you lock satellite or non satellite channels from being displayed. Need to enter password to view these channels.
Spending	❒ This feature allows the user to control the amount per event. If the amount is below the event cost, you won't be able to view the event.

Roller Guide Feature Chart (Cont.)

MENU	DESCRIPTION
ACCOUNT	ACCOUNT
Future Purchases	❒ Future purchases - Displays PPV events purchased, but not aired. Also lets you to cancel a PPV event.
Past purchases	❒ Past purchases - Lets you review PPV purchased events. Displays CAM slot numbers when Past purchase data is highlighted.
Messages	❒ Messages - Displays message sent to the HDTV Digital Receiver from DIRECTV over the Satellite Link.
OPTIONS	OPTIONS
Audio	❒ Audio - Selects the Format and Language preferences.
Closed Caption	❒ Closed Caption - Select closed captioning or text services. ❒ CC1-CC4 - for closed captioning services. ❒ T1-T4 - for text services.
Clock	❒ Clock - Lets you configure the system clock for DIRECTV or NTSC. (Clock must be set to use the Timer feature.)
Sat/Loc Mode	❒ Sat/Loc Mode - Selects between between Satellite tuning mode and Local tuning mode.
Favorites	❒ Favorites - Lets you add or delete channels from the favorite list.
About	❒ About - Displays various information about the HDTV Digital Receiver including the Tech support number, serial number, model number, etc.

Roller Guide Menu Operations

Setup

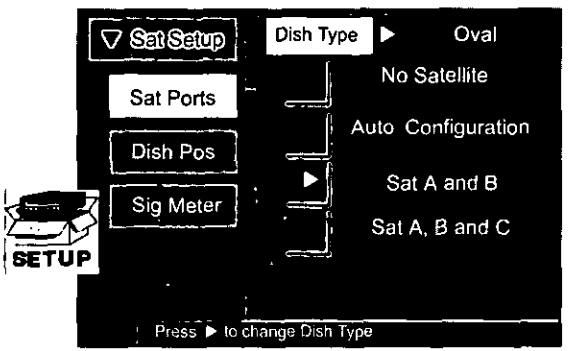
To help you with the initial set up of the digital receiver, the Setup menu is displayed automatically when the HDTV Digital receiver is turned on for the first time. A setup wizard will help guide you through the procedure of setting up the proper satellite configurations, guide setup, and antenna setup. The setup options will assist you to configure the DIRECTV or/and ATSC / NTSC signals so that the unit can receive the desired video signals. Following are requirements that are needed to receive either the DIRECTV or NTSC signals. Following table shows the Setup options for different signals.

Setup Options

Option	Required for DIRECTV HD / ATSC/NTSC Setup	Required for ATSC/ NTSC Setup
Sat. Setup	Yes	No
Guide Setup	Yes	No
Ant.Cbl Setup	No	Yes
Monitor	Yes	Yes
System Test	Yes	No
Access Card	Yes	No

Setup : Satellite Setup – Dish Type

This menu lets you select the type of satellite dish that you have installed. If you have round dish, select Round and if you have oval shaped dish, select Oval. An Oval shaped dish can receive both DIRECTV and DIRECTV HD signals.



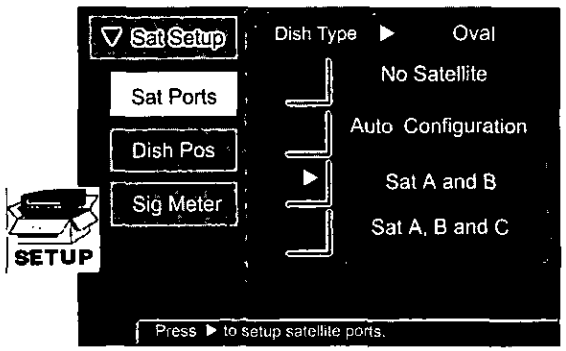
Satellite Setup – Dish Type

Procedure

- ❒ Press ▶ button to highlight Dish Type.
- ❒ Press ▶ button to change Dish Type.
- ❒ Press ▲▼ to select either Round or Oval (Oval is the default setting). Oval shaped dish lets you receive both DIRECTV and HD DIRECTV signals.
- ❒ Press **ACTION** button to save the selection.
- ❒ Press ◀ button once to return to Sat. Setup menu.

Setup : Satellite Setup – Sat. Ports

You will be able to select 4 satellite port configurations - No Satellite, Auto Configuration, Satellite A, B or Satellite A, B, C. The DIRECTV Plus Satellite Antenna comes packaged with two LNB's (Low Noise Block Down-converters) with a multiswitch. The two LNB's allow for reception of Satellite A, B. These satellites are located at 101 degree WL and 119 degree WL. The DIRECTV Plus Satellite antenna is also capable of accommodating a third LNB for future programming choices. Therefore, if you plan to subscribe to DIRECTV services, including HDTV as well as local to local broadcast channels, you should select Satellite A, B during this setup. The multiswitch provided with the DIRECTV Plus satellite antenna enables you to connect 4 different HDTV Digital Receivers in your home. Please consult your dealer for more details. The HDTV Digital Receiver will allow you to begin auto-detection of the antenna configuration or instead use one of the 4 nominal cases.



Satellite Setup – Sat. Ports Screen

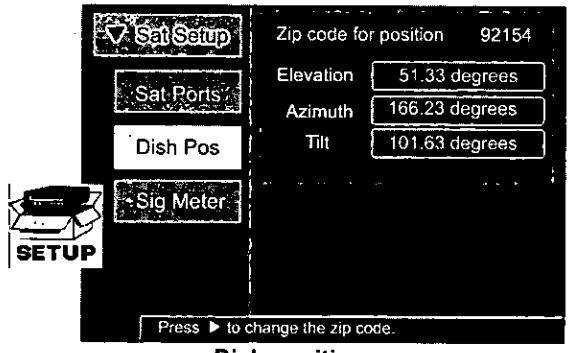
Note: *Please also refer to the installation manual for the satellite dish antenna for proper mounting procedure.*

Procedure

- ❒ Press ▶ and ▼ button to setup satellite ports configuration.
- ❒ Press ▲▼ buttons to navigate among the choices - No Satellite, Auto Configuration, Sat. A and B and Sat. A, B and C.
- ❒ Select Auto Configuration if you have Round Dish. Select Sat A & B, if you have Oval shaped dish.
- ❒ Press **ACTION** button to save the selection.
- ❒ Press ◀ button to return to Sat. Setup menu.

Setup : Satellite Setup – Dish position

This screen allows you to correctly position your Satellite antenna by receiving elevation, azimuth and rotation (marked in degrees), after the you have entered your 5-digit zip code.



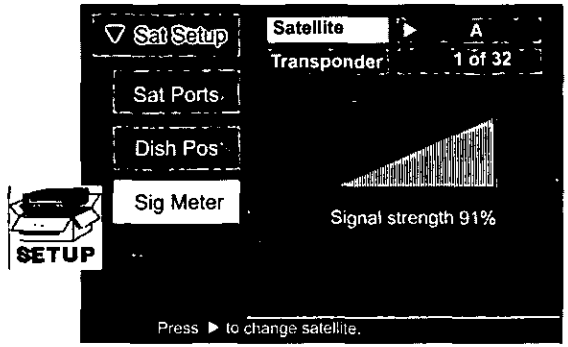
Dish position screen

Procedure

- ❒ In Sat Setup menu, press ▲▼ buttons to highlight Dish Position. Dish Position sub menu is displayed.
- ❒ Press ▶ button to enter your Zip code. Use the numeric keys on the Remote Control to input your zip code numbers. Press ▶ button to move to the next position.
- ❒ Press **ACTION** button to enter the new zip code. Elevation, Azimuth and Tilt are automatically displayed after you press the **ACTION** button.
- ❒ This information should be used to properly align and position the satellite antenna. These values are approximations. Proper alignment should also be verified by using the signal strength meter.

Setup : Satellite Setup – Signal Meter

Since the HDTV Digital Receiver is capable of receiving satellite programming from multiple DIRECTV satellites, the user has the ability to choose one of 3 supported satellites to receive signal strength and is primarily used during the system set-up procedure. The HDTV Digital Receiver signal meter uses a horizontal digital signal strength percent bar meter. The user will have the ability to select which transponder (1 to 32) they wish to measure the signal strength. The following is the signal meter screen



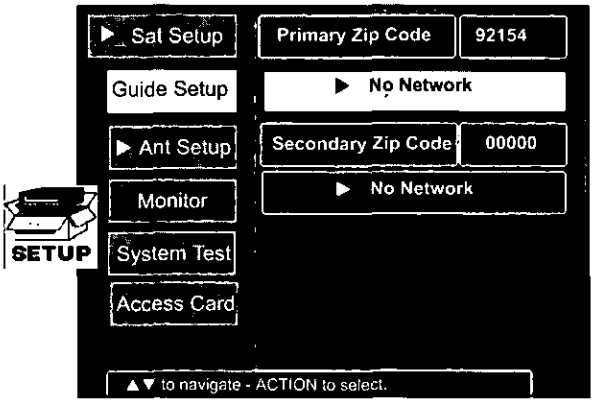
Signal Meter Screen

Procedure

- ❒ In the Sat. Setup menu, press ▼ button to highlight Signal Meter. Sub- menu is displayed.
- ❒ Press ▶ to highlight Satellite.
- ❒ Press ▶ to change Satellite
- ❒ Press ▲▼ buttons to select Satellite A, B or C.
- ❒ Press **ACTION** to enter the selection.
- ❒ Press ▼ button to highlight Transponder.
- ❒ Press ▶ button then ▲▼ buttons to choose one of 32 transponders. Select the transponder that gives you a signal strength of 85%.
- ❒ Press ◀ three times to return to SETUP menu.

Setup : Guide Setup

The guide setup allows you to select your local channel area for display in the Advanced Program Guide.



Guide Setup Screen

Procedure

- ❒ In SETUP menu. press ▲ or ▼ button to highlight Guide Setup.
- ❒ Press ▶ button twice to highlight Primary Zip Code. Use numeric keys on the Remote Control to enter zip code numbers.
- ❒ Press **ACTION** button to save.

Note: *The HDTV Digital Receiver will take a few minutes to acquire program information for your local channels. A message "Acquiring Network data ◀ to stop" appears once the user enters the zip code and presses ACTION. If the user press ◀ prior to the completion, the local channel program descriptions will not appear in the Guide.*

- ❒ Press ◀ button to return to SETUP menu.

Secondary Zip Code:

Only time you enter the Secondary Zip Code is when you can receive the same program on a different channel broadcast from an adjacent city.

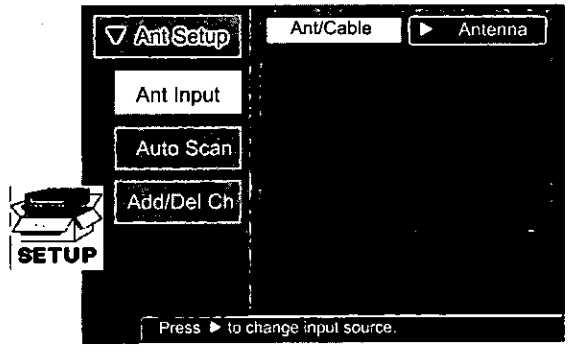
- ❒ Press **ACTION** button to save.

Setup : Ant Setup – Ant Input

This screen allows you to select the type of local input sources. The following are the list of input options:

- Antenna
- Cable
- OFF

The OFF state deactivates the Terrestrial/Cable ATSC/NTSC decoder section of the HDTV Digital Receiver.



Ant Setup – Ant Input Screen

Procedure

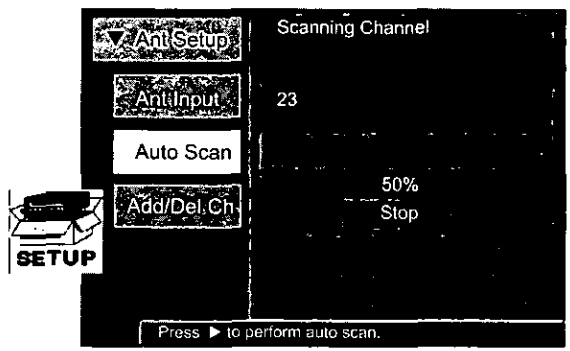
- ❒ In SETUP menu, press ▲ or ▼ button to highlight Ant Setup.
- ❒ Press ▶ button to setup antenna input.
- ❒ Press ▶ button to highlight Ant/Cable.
- ❒ Press ▶ button to change the input source.
- ❒ Use ▲ or ▼ button to select the input choices: Off, Antenna or Cable (IRC, HRC, STD etc.). Select OFF for satellite reception only.
- ❒ Press **ACTION** button to save the selection.
- ❒ Press ◀ button to return to Ant Setup menu.

Setup : Ant Setup – Auto Scan

The Auto scan allows you to retrieve all of the antenna or unscrambled cable channel. When you press the **ACTION** key while the START button is highlighted, the automatic scan of all available RF channels will begin. During Auto Scan mode only the following commands will function:

- Power Off (**POWER** key)
- Stop auto scan (**ACTION** KEY)
- **GUIDE** Key

The auto scan normally takes several minutes to complete. To inform the user that the scanning is still in progress: the current channel being scanned, the current percent of scan completed, and a bar meter is displayed, as shown in the figures below. If the channel has been received, the channel number moves to the right and a "Received" message is displayed. If no channels have been received after the scan is completed a message will be displayed indicating that the auto scan has detected no channel and that the user might want to check the input signal connections. Video will not be present in the background during Auto Scan.



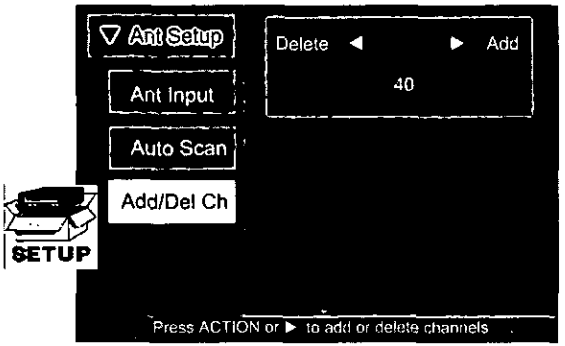
Ant Setup Setup – Auto Scan

Procedure

- ❒ In the Ant Setup menu, press ▼ button to highlight Auto Scan.
- ❒ Press ▶ button and **ACTION** button to start Auto Scan. After completion of the auto scan, press **ACTION** and press ◀ button to return to Sat setup.
- ❒ Press **ACTION** button to stop the Auto Scan if necessary.

Setup : Ant Setup – Add/Del Ch

This screen lets you to add or delete the channels that were detected by the auto scan. Once you enter the Add/Del Ch option screen, the ▲,▼ buttons and numeric keys can be used to select a channel, while the ◄ and ► keys can be use to respectively delete and add the selected from/to the channel surfing list.



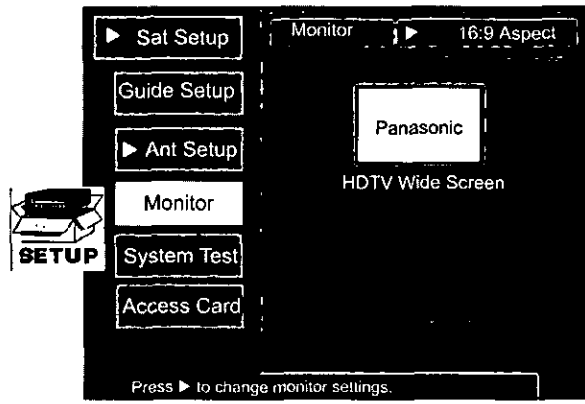
Ant Setup – Add/Del Ch Screen

Procedure

- ❒ In Ant Setup menu, press ▼ button to highlight Add/Del Ch.
- ❒ Press ► button to get into Add/Del sub menu.
- ❒ Use numeric keys on the remote control to select channel numbers you want to add to or delete from the autoscanned channels.
- ❒ Press ◄ or ► buttons to add or delete.
- ❒ Press **ACTION** button to return to Ant Setup menu.
- ❒ Press ◄ button to return to Setup menu.

Setup : Monitor

The monitor menu allows you to match your monitor/receiver type. You can choose between two monitor types: 16:9 or 4:3 aspect ratio.



Setup : Monitor Screen

The following table shows the icon and messages displayed for each of the monitor types.

Type	Picture Icon	Message
4:3	Panasonic	"Standard TV"
16:9	Panasonic	"HDTV Wide Screen"

Procedure

- ❒ In SETUP menu, press ▼ button to select Monitor.
- ❒ Press ▶ button to highlight Monitor.
- ❒ Press ▶ button to change monitor aspect ratio.
- ❒ Press ▲▼ buttons to select 4:3 or 16:9.
- ❒ Press **ACTION** button to save the selection.
- ❒ Press ◀ button to return to Setup menu.

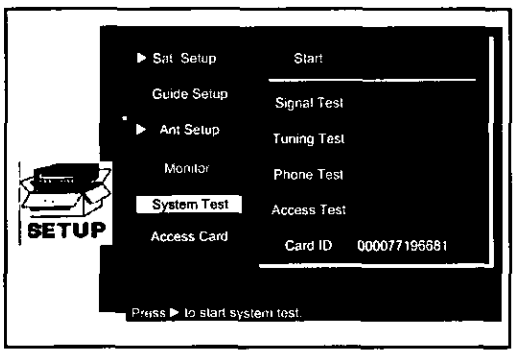
Setup : System Test

The System Test menu allows you to invoke a system test which perform a check of the following subsystems.

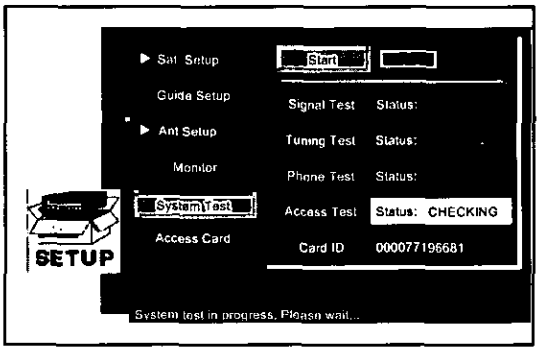
Component	Requirement	Display Information
Signal Test	This tests the signal strength.	Status: PASSED of FAILED
Tuning Test	This attempts to tune to an known frequency.	Status: PASSED of FAILED
Phone Test	This checks the modem operational status.	Status: PASSED of FAILED
Access Test	This checks the Access Card function.	Status: PASSED of FAILED
Card ID	Card is installed in TU-HDS20	Serial # xxxx-xxxx-xxxx

Note: *System test is only available for Satellite input.*

The following screens show the system test screen and the system test in progress.



System Test Screen



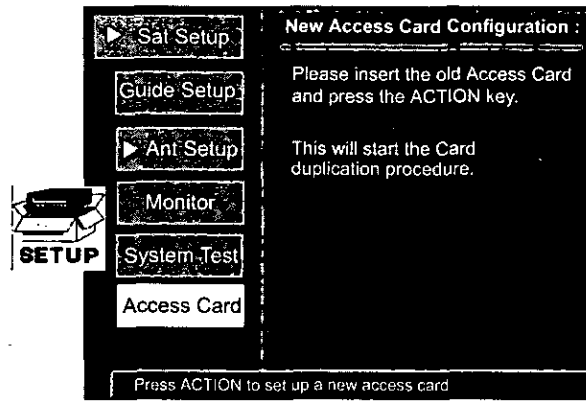
System Test Screen (System Test in progress)

Procedure

- ❒ In SETUP menu, press ▲ or ▼ button to highlight System Test.
- ❒ Press ▶ button to highlight Start.
- ❒ Press **ACTION** button to start the System Test.
- ❒ Press ◀ button to return to Setup Menu.

Setup : Access Card

The Setup screen allows you to setup a new access card. You can transfer existing access card information to the new access card. This procedure is called "chaining". When you press the ACTION button while the Access Card is highlighted, a series of Conditional Access driven menus will be displayed. This will direct you on what procedures to perform.



Access Screen (Entry Point)

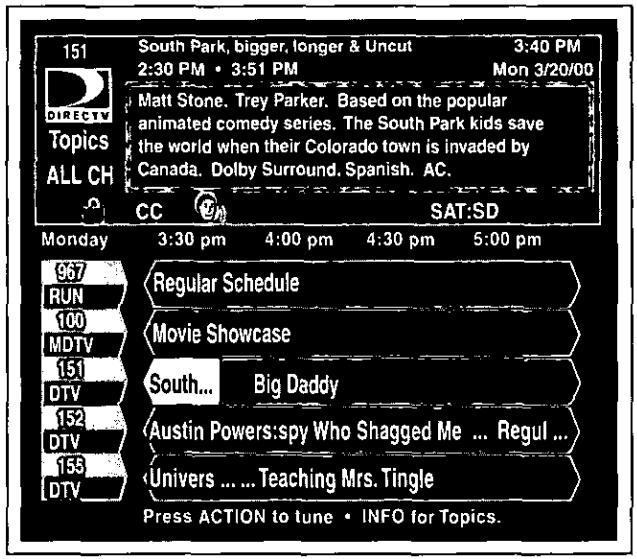
Procedure

- ❒ In SETUP menu, press ▲ or ▼ buttons to highlight Access Card. Follow the directions displayed on-screen.
- ❒ Press **ACTION** button to setup a new access card.
- ❒ Press ◀ button to return to Rollerguide menu.

Note: *This procedure can only be used in the case where a new card is provided by DIRECTV and is different from the card that comes with the unit.*

Guide

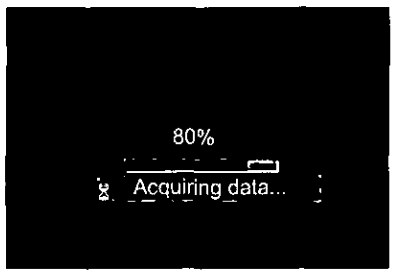
The Advanced Program Guide (APG) is a key feature of the HDTV Digital Receiver. The Guide enables you to browse through a large number of programs from the various input sources connected to the HDTV Digital Receiver and provides useful information upon user request, as shown below.



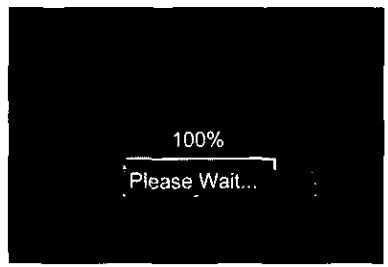
Guide: Full Screen

The Guide will be supported in the DIRECTV HD / ATSC / NTSC mode.

If the user tries to access the Guide while it is acquiring data from the satellite signal, a message will be displayed showing the graphical countdown clock of when the Guide will be ready for display.



Guide : Acquisition Delay window



100% Acquisition Window

Guide : Channel List

The guide will display channel(s) that are either in the "ALL CH" or "FAV CH" mode. The HDTV Digital Receiver default mode is "ALL CH". The user can switch the mode through a button in the channel banner area of the guide.

Guide : "ALL CH" mode

"All CH" mode - APG will contain all guide 'permitted channels'.

Guide : "FAV CH" mode

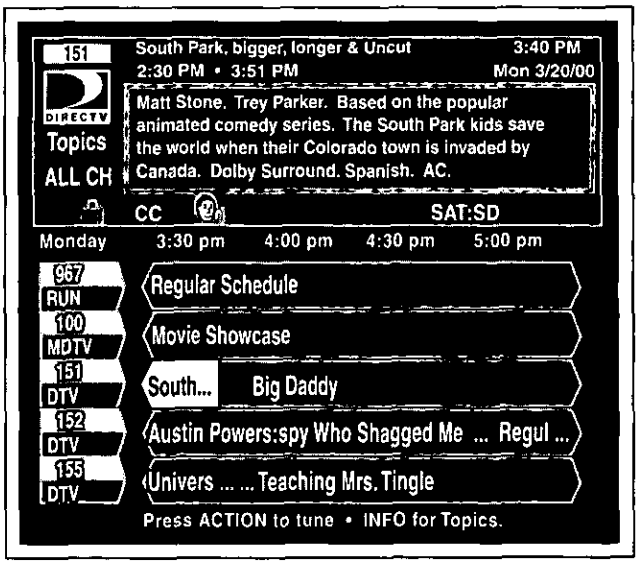
"FAV CH" - APG will contain all guide defined 'permitted channels' except the channels the user chose to remove. While navigating the guide in the "FAV CH" mode, entering a number for a hidden channel (channels that were removed by the user are referred to as hidden channel).

Procedure

- ❒ Press GUIDE button on the remote control to display the APG.
- ❒ Press INFO button on the remote control.
- ❒ Press ▼ button to highlight ALL CH or FAV CH.
- ❒ Press ACTION button to toggle back and forth.

Guide : Direct Channel Entry

The APG has the ability to search for a channel based on the channel number. When the user presses a numeric key to enter in channel numbers, a channel entry area appears in the top left corner of the guide channel banner, as shown below.

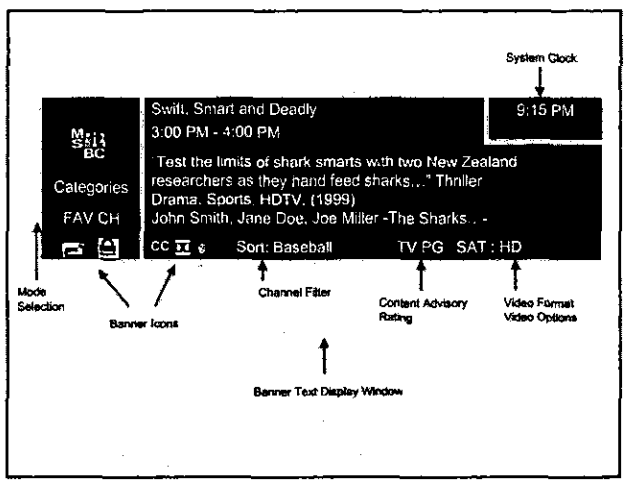


Guide: Direct Channel Entry

Guide : Banner Description Icons

The Guide Banner will contain several icons that are displayed only when the feature is available and is supported by the HDTV Digital Receiver. The following table and figure shows the appearance of these icons.

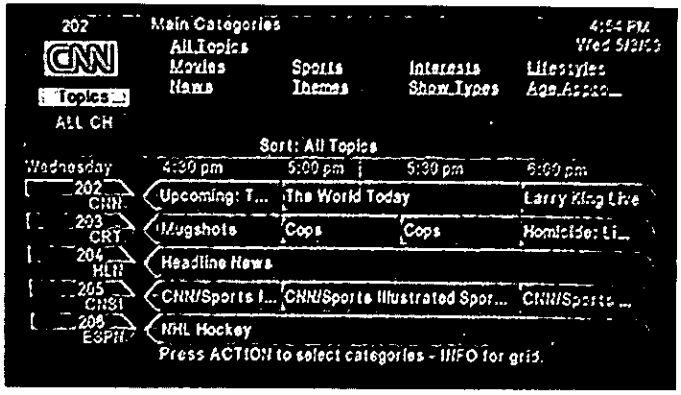
Icon Name	Icons Description	Icon Appearance
Messages	Indicates unread messages.	
Lock	Indicates that the channel is locked due to either limits on spending or by content advisory.	LOCK
Alternate Audio	Indicates that the program has multiple audio tracks.	
Closed Captioning	Indicates that the program has Closed Captioning.	CC
Dolby Digital indication	Indicates that the program has Dolby Digital Audio.	



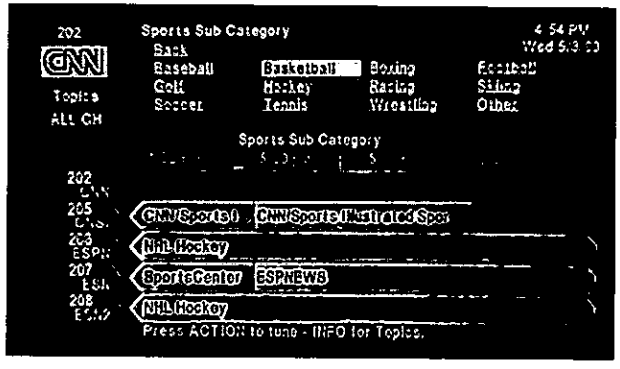
Guide : Channel Banner Components

Guide : Banner Categories

The APG is capable of displaying information according to the categories that you have selected. For example, if you select Sports category, then only those channels broadcasting sports are displayed in the guide. You can also select sub-categories of the category you selected.



Guide : Categories Top Level

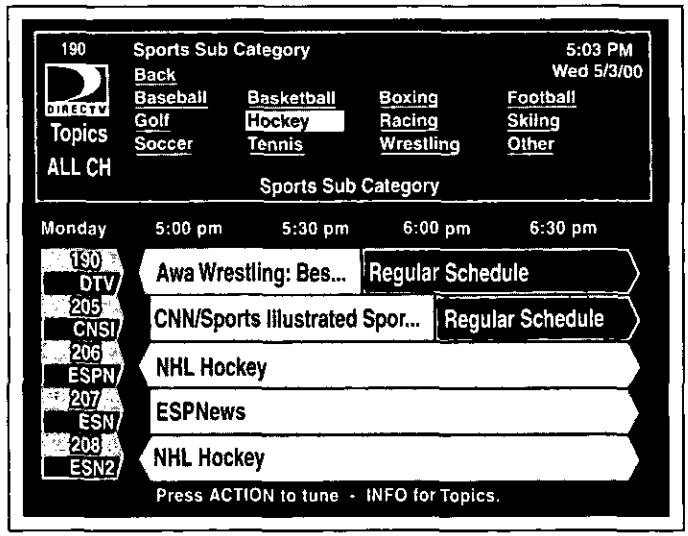


Guide : Categories Sub-Level (example of Sports)

Procedure

- ☐ Press **GUIDE** button.
- ☐ Press **INFO** button.
- ☐ Press ▶ to select category.
- ☐ Press **ACTION** button.

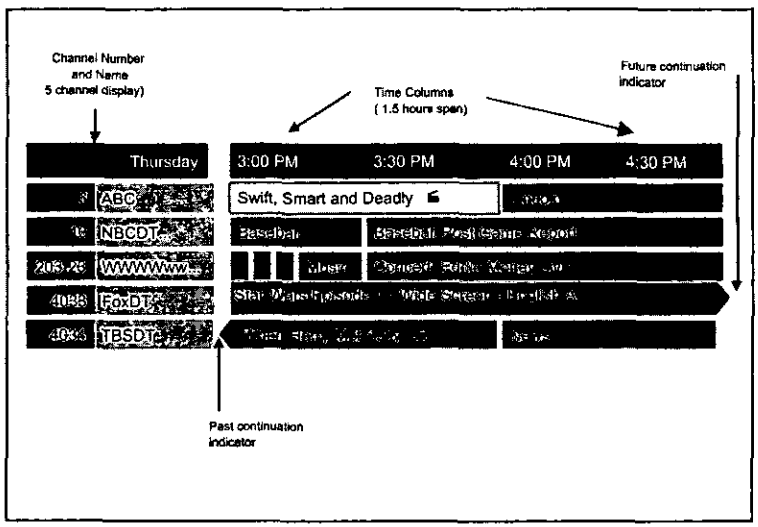
Once the user has selected a particular sub-category, the guide will reformat itself reflecting the new category filter as shown below. The new guide filter will remain in effect until the user powers off the HDTV Digital Receiver, or selects ALL TOPICS.



Guide : Categories (only sports category selected)

Guide : Grid

The guide grid shows information on 5 channels within 1.5 hour time span. The channel name can be highlighted by navigating to the left of the grid. Following is an example of the Channel Grid Components.



Guide : Grid Components

Lock

This HDTV Digital Receiver incorporates V-Chip technology to block the viewing of movies and television programs according to the rating category. There are 2 Content Advisory categories: MPAA (Motion Picture Association of America) and TV Parental Guidelines Ratings and are used as guidelines for blocking the programs.

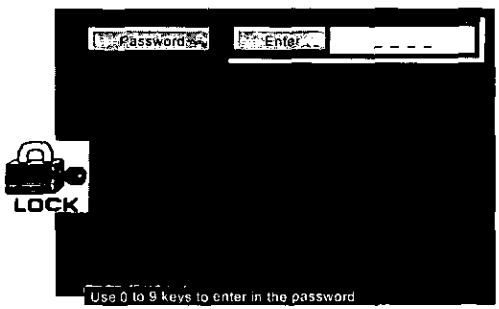
Lock : Password

Before you can access the LOCK menu settings, you need to enter a 4 digit secret code.

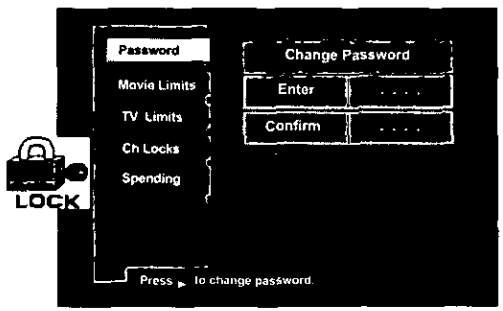
Procedure

- ❒ In the Roller Guide menu, press the ▲▼ buttons to highlight the LOCK icon.
- ❒ Press **ACTION** button to display the LOCK menu.
- ❒ Press ▶ button.
- ❒ Use the numeric keypad to enter a four-digit secret code. *(Use a code that is easy to remember and record it in a safe place).*

Once you correctly enters the code, you will have access to the user profile as shown below.



Lock : Password Screen



Lock : Change Password Screen

Once you gain access to the user profile, the user can have access to the following areas.

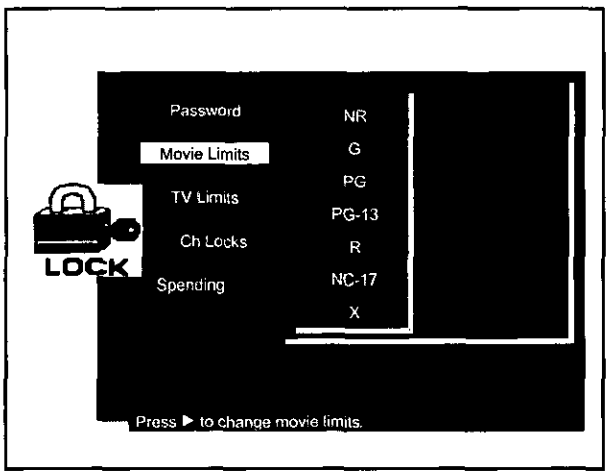
Settings	Description
Password	The user can change the current password.
Movie Limits	This allows the user to set the movie ratings limit, according to MPAA.
TV Limits	This allows the user to set TV ratings limit.
Ch Locks	This allows the user to lock all satellite and non-satellite channels from being displayed or unlock all channels.
Spending	This allows the user to set the spending limit.

Lock : Movie Limits

The MPAA uses the standard movie ratings. The TV Parental Guidelines provides rating schemes of its own: age-based ratings, content-based ratings or combination of the two.

The following table and figure shows the MPAA ratings system.

MPAA Rating	Description
NR	Not Rated by MPAA
G	General Audience
PG	Parental Guidance Suggested. Some material may not be suitable for children.
PG-13	Parent Strongly Cautioned. Some material may be inappropriate for children under 13.
R	Restricted. Under 17 requires accompanying parent or guardian.
NC-17	No one 17 and under admitted
X	No one 17 and under admitted



Lock : Movie Limits Screen

Lock : TV Limits

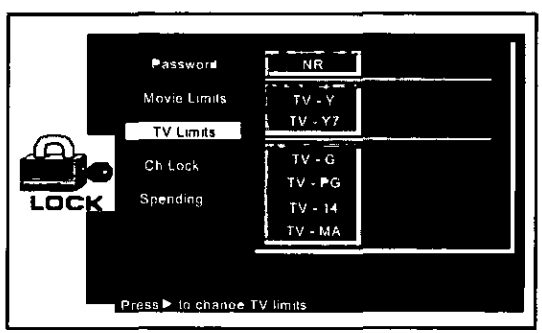
The TV Parental Guidelines has 7 levels of age-based ratings that the user can select These 7 levels are split into 2 age-based groups Youth Age-based Ratings and Guidance Age-based Ratings

Some of these age-based ratings can also have content-based ratings, denoted as D (Dialog), L (Language), S (Sex) and V (Violence) Any non-rated program that does not provide Content Advisory information will be viewable Following table shows the Age-based Ratings Selection

Age-based Group	Age-based Ratings	Possible Content Selections
NR (Not Rated)	NA	• Viewable • Blocked
Youth	TV - Y	• Viewable • Blocked
	TV - Y7	• (Fantasy) FV • Viewable • Blocked
Guidance	TV - G	• Viewable • Blocked
	TV - PG	• D,L,S,V (all selected) • Any combination of D, L, S, V
	TV - 14	• D, L S, V (all selected) • Any combination of D, L, S, V
	TV - MA	• L, S, V (all selected) • Any combination of L, S, V

Procedure

- ❒ In the Roller Guide Menu, press ▲▼ buttons to highlight LOCK icon
- ❒ Press ACTION button to display the LOCK menu



Lock TV Limits Screen

- ❒ Press ▲▼ buttons to highlight TV Limits
- ❒ Press ▶ button to display the sub-menu

Note *You will need to enter your password to change any ratings*

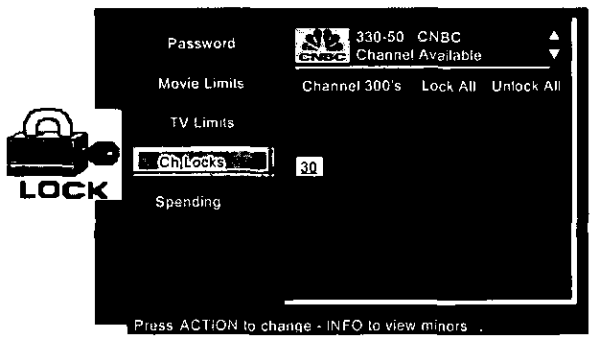
- ❒ Press ▲▼ buttons to move between different ratings
- ❒ Press ACTION button to activate or deactivate the rating level

Lock : Ch Locks

The user can lock satellite and non-satellite channels from being displayed. To access these channels when channel surfing, the user is required to enter the 4 digit secret password.

Once the user has highlighted Sat Ch Lock or Non-Sat Lock Grid, the user will be able to easily "Unlock All" or "Lock All" available channels. The channel numbers that are underlined indicate that there are more than one minor channel number. You can also individually cycle between the following selection by pressing the ACTION button:

- Channel Available — Green color
- Channel locked — Red color
- Channel Not Available — Black Color



Lock : Ch Lock Screen

Procedure

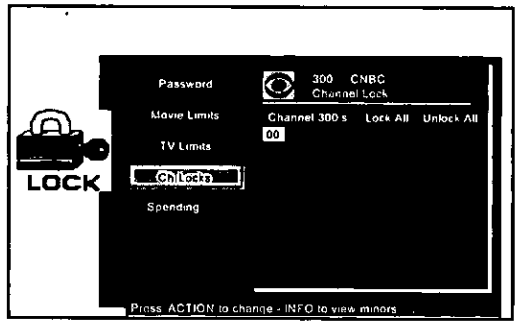
- ❒ In the LOCK menu, press ▲ or ▼ button to highlight CH Locks.
- ❒ Press ▶ button.
- ❒ Press ▲ or ▼ to Set Group, press **ACTION** to display channels and press **INFO** to enter Grid.
- ❒ Press ▲▼ or ◀▶ buttons to navigate and **ACTION** to change.

Once the user has created a channel lock list, the HDTV Digital Receiver will channel surf (when pressing ▲ or ▼ key) to the locked channels, however the user is then required to enter in the 4-digit password to view the video.

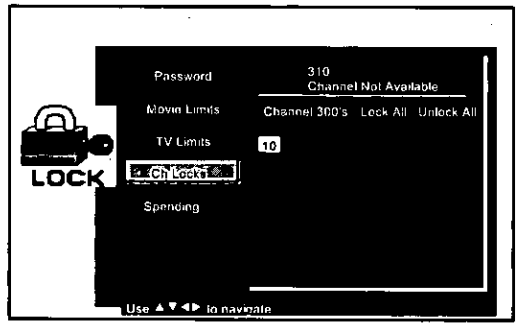
The channel lock list will have its channel number color coded as defined in the following table.

Color	Description
Red	Channel locked
Green	Channel available
Black	Channel not available

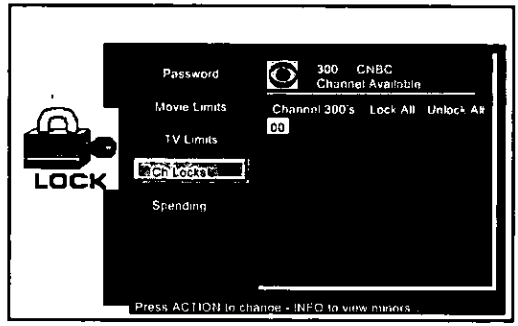
Following figures show the 3 different color code schemes.



Lock : Ch Lock Screen (Channel Locked from List)



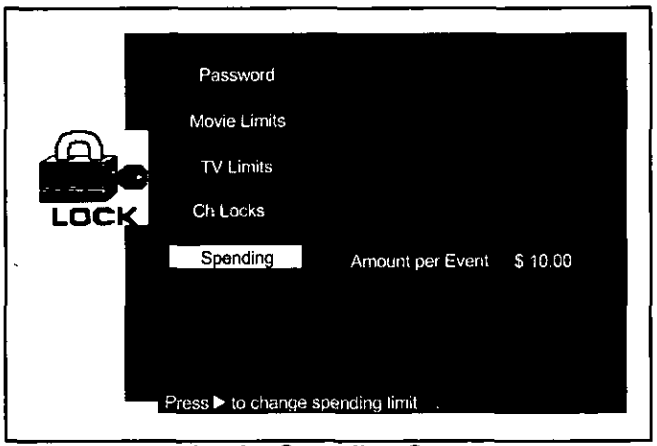
Lock: Ch Lock Screen (Channel Not Available)



Lock : Ch Lock Screen (Channel Available)

Lock : Spending

The feature allows the user to control the amount per event. If the amount is below the event cost, you won't be able to view the event.



Lock : Spending Screen

Procedure

- ❒ In LOCK menu, press ▲ or ▼ button to highlight Spending.
- ❒ Press ▶ button to highlight Amount per event.
- ❒ Press ▶ button to highlight amount field. Use number keys on the remote control to change the numbers.
- ❒ Press ACTION to save the new spending limit.

ACCOUNT

The Account category conveys information to the user. This information was either the result of the action by the user or sent from DIRECTV to the HDTV Digital Receiver. This category contains 2 areas:

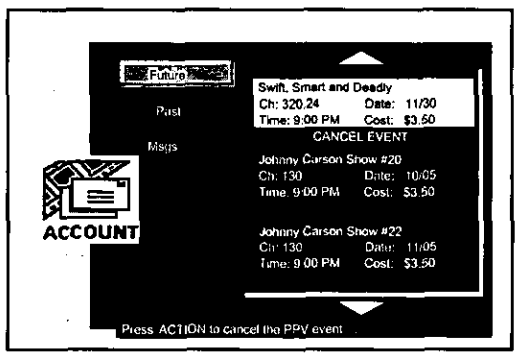
Purchase	Purchases of programs (Future / Past)
Messages	Electronic messages sent to the user through the satellite link.

Account : Future and Past Purchase

The Purchase screen allows you to review upcoming and past PPV event purchases. Purchases event screen contains information regarding the Event title, Channel Number, Date, Start time and Cost.

Account : Future

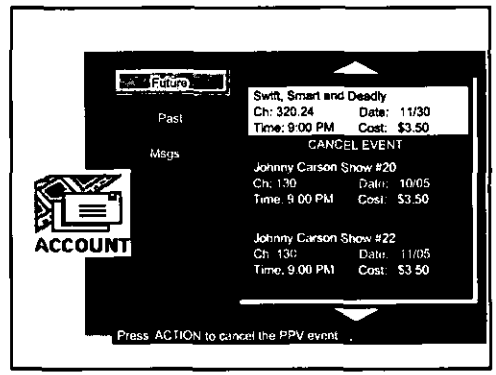
The Future Purchase screen displays PPV events purchased, but not yet aired. The Future purchases appear in chronological order, beginning with the soonest event and ending with the most distant future event. This screen also allows you to cancel a PPV purchase. A "CANCEL EVENT" message will appear in the list box. To cancel an event, highlight the event in the list box and press **ACTION** button.



Account : Future Purchase Screen (User Cancelling a PPV event)

Account : Past

This screen allows you to review PPV purchased events. The PPV events that the subscriber purchased but cancels or does not watch will not be displayed. Following is an example of Past purchase screen.

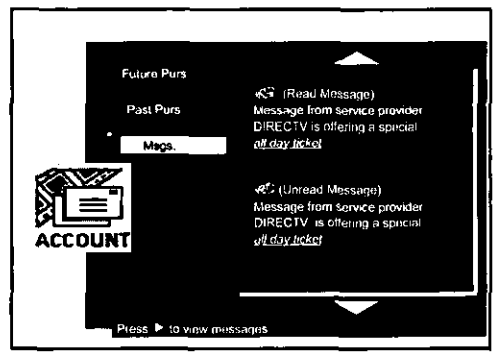


Account : Past Purchase Screen

Account : Msgs (Unread and Read)

The message screen displays messages sent to the HDTV Digital Receiver from DIRECTV. Unread messages are listed before the Read Message.

You can delete the Read messages. To delete the Read Message, highlight the Read Message and press the **ACTION** button.



Account : Message Screen

Options

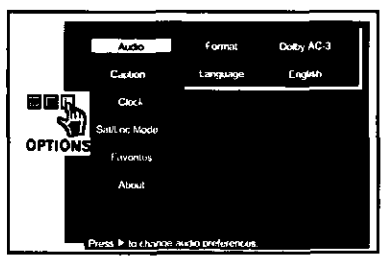
The Options menu gives you the ability to configure the HDTV DIGITAL RECEIVER. These options can affect the overall behavior of the digital receiver. Options menu has the following sub-options:

- Audio
- Caption
- Clock
- Sat/Local Mode
- Favorites
- About

Options : Audio

The Audio option allows you to select the Format and Language preferences. The Format preferences supersede the Language preferences.
There are two Format preferences: Dolby AC-3 and PCM audio.
Following are the Language preferences:

- English (default language)
- Spanish
- French
- German
- Italian
- Japanese
- Korean
- Chinese



Options : Audio Screen

Procedure

- ❒ Press MENU button to display Rollerguide.
- ❒ Press ▲▼ buttons to highlight OPTION Icon. Press ACTION button to display the OPTION menu. Audio is highlighted.
- ❒ Press ▶ button to change audio preferences. Press ▶ button to change Audio format preferences.
- ❒ Press ▲ or ▼ button to navigate in the Audio Format setting.
- ❒ Press ACTION to save format.
- ❒ Press ▼ button to highlight Language.
- ❒ Press ▶ button to change Audio Language preferences.
- ❒ Press ▲ or ▼ buttons to select the preferred language.

Note: *The Audio Language preference is used in cases where a program has multiple audio tracks. As an example, if a program is encoded with two audio tracks (English/Spanish) and you have selected Spanish as the Audio Language preference, then the Spanish audio track is automatically selected for that particular program.*

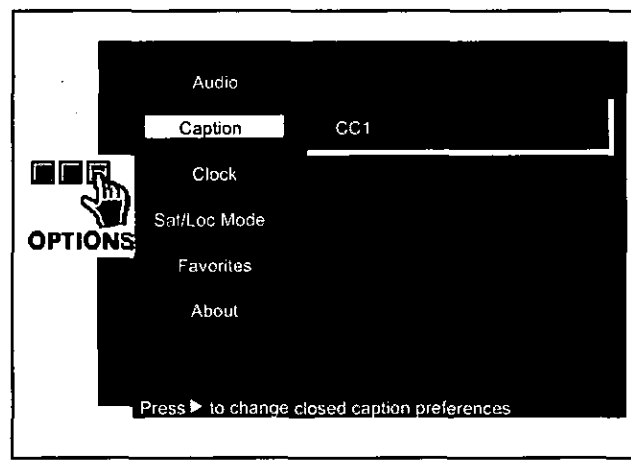
- ❒ Press **ACTION** button to save the language choice.
- ❒ Press ◀ button once to return to Options menu.

Options : Caption

The HDTV Digital Receiver contains a built-in decoder that is capable of providing a visual display of the audio portion. The program viewed must provide Closed Captioning (CC) for the television to display it. Closed Caption is displayed in the form of text across the screen (white or colored letters on black background). It allows the viewer to read the dialogue of a television program or other information.

Procedure

- ❒ Press **MENU** button to display the Rollerguide.
- ❒ Press ▲▼ button to highlight OPTIONS Icon.
- ❒ Press ACTION button to display the OPTIONS menu.
- ❒ In OPTIONS menu, press ▼ button to select Caption.
- ❒ Press the ▶ arrow, then the ▲ or ▼ arrow to select OFF, CC1, CC2, CC3, CC4, T1, T2, T3 or T4.
  - CAPTION OFF - Use when Closed Caption is not desired.
  - CAPTION CC1 - For video related information that can be displayed (up to 4 lines of script on the screen, where it does not obstruct relevant parts of the picture). Script can be in any language.
  - CAPTION CC2 - Another mode used for video related information.
  - CAPTION CC3 and CC4 - Other modes used for video related information.
  - TEXT T1 - Blanks out a large portion of the picture on the television screen, and displays program guide or any other information currently being transmitted.
  - TEXT T2, T3 & T4 - Other Modes that display information and blank out a large portion of the picture on the television screen.
- ❒ Press **ACTION** once, then the ◀ arrow to return to Roller Guide.

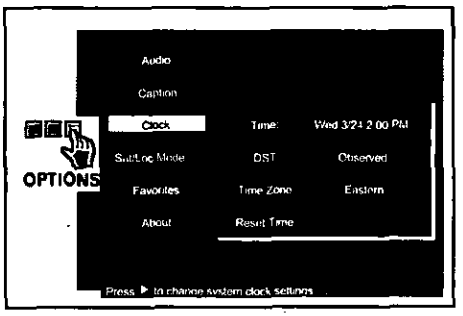


Caption Screen

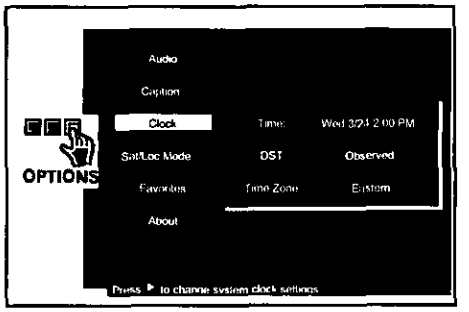
Note: *When closed captioning is selected, only the Full Aspect mode will be available.*

Options : Clock

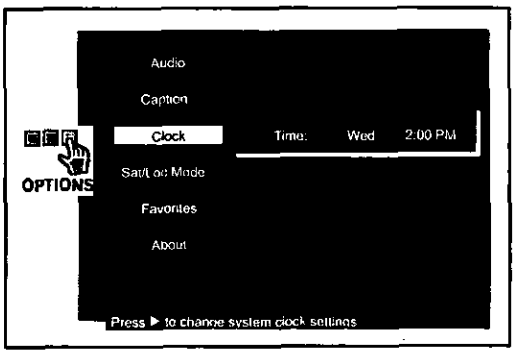
The clock option allows you to configure the system clock. When connected to DIRECTV service, you can set the DST (daylight savings time), Time Zone and reset the time to what is current in the smart card. In the case, where the ATSC/NTSC is active, you can set DST and Time Zone. If only NTSC signals are being received, you can enter Day and Time. Following three screens depict the different clock options.



DIRECTV Screen



ATSC / NTSC Screen



Clock Screen : NTSC only

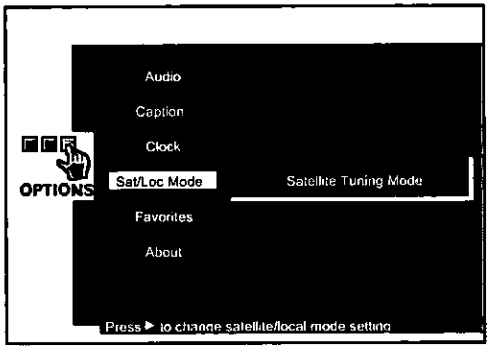
Procedure

- ❒ Select OPTIONS from the Rollerguide.
- ❒ Press **ACTION** button to display the OPTIONS menu.
- ❒ Press ▲▼ buttons to highlight Clock. Clock sub-menu is displayed.
- ❒ Press ▶ button to change the clock settings.
- ❒ Press ▶ button to highlight DST.
- ❒ Press ▲▼ buttons to select Observed or Not Observed.
- ❒ Press **ACTION** button.
- ❒ Press ▼ button to highlight Time Zone. Press ▶ button to change and ▲▼ buttons to navigate the Time Zone settings.
- ❒ Press **ACTION** button .
- ❒ Press ▼ button to highlight Reset Time.
- ❒ Press ACTION button to reset time.
- ❒ Press ◀ button three times to exit Rollerguide.

Options : Sat/Loc Mode

The Sat/Loc mode allows you to change the tuning mode between Satellite Tuning mode and Local Tuning mode.

The local tuning mode allows viewing of the channels that are programmed through the auto scan feature and/or the channels added in the Add/Del Ch in the setup menu and that are not available through APG.



Satellite/Local Mode Screen

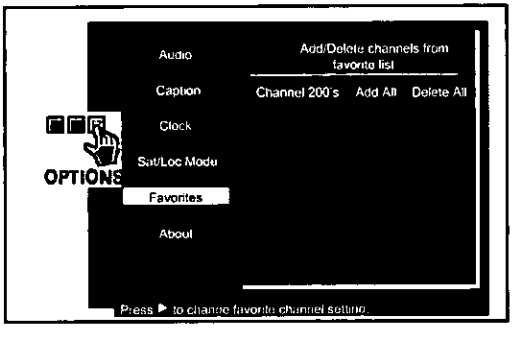
Procedure

- ❒ In Rollerguide select OPTIONS. Press ACTION to display OPTIONS menu.
- ❒ Press ▲▼ to highlight Sat/Loc Mode. Press ▲ or ▼ to navigate Tuning mode preferences. Press **ACTION**.

Note: *Select Local Tuning Mode only if the channel you wish to view does not show up in the APG.*

Options : Favorites

The Favorites Option allows you to create a favorite channel list when you toggle the FAV mode in the Advanced Program Guide or to remove all channels from the favorite list (Delete All), as shown below.



Options : Favorites Screen

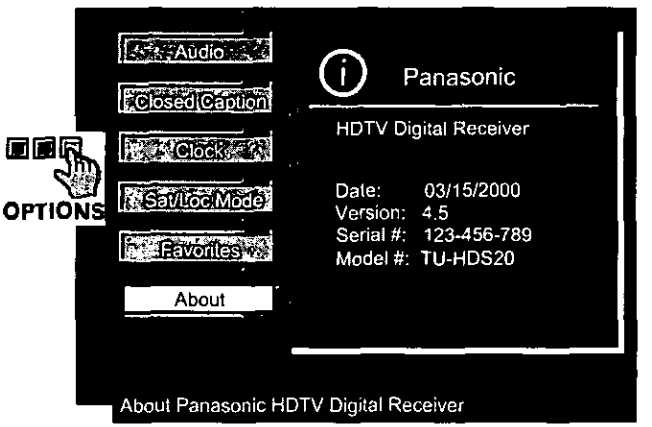
Procedure

- ❒ In Options Menu, press ▲ or ▼ button to highlight Favorites.
- ❒ Press ▶ to change Favorite channel settings.
- ❒ Press ▲▼ buttons to set Group.
- ❒ Press **ACTION** button to display all channels in that group. Highlighted numbers are the channels available in that group.
- ❒ Press **INFO** to enter grid.
- ❒ Use ▲▼ or ◀▶ buttons to navigate.
- ❒ Press **ACTION** button to change.
- ❒ Press ▶ button to highlight Delete All or Add All.
- ❒ Press **ACTION** to enter your choice.
- ❒ Press ◀ button repeatedly to exit Favorite sub-menu.

Options : About

The About screen displays assorted information about the manufacturer, including the following:

- Product Description
- Date
- Version
- Serial # number of the HDTV Digital Receiver
- Model #



Options : About Screen

Procedure

- ❒ Press **MENU** button to display the Rollerguide.
- ❒ Press ▲▼ buttons to highlight the OPTIONS Icon.
- ❒ Press **ACTION** button to display the OPTIONS screen.
- ❒ Press ▲▼ buttons to highlight About. Information about the unit is displayed.
- ❒ Press ◀ button twice to exit the Rollerguide menu.

Note: *Your digital satellite receiver is able to receive upgrades or modifications to some of its features and functions. These modification will occur automatically, usually at times when your receiver would likely be turned off. If your receiver is on when an upgrade or modification is sent, you may experience a disruption in reception for a minute or two. Your reception should return to normal after the modification is complete. Please consult the Options/About Menu to find a schedule of upgrades or modifications planned by DIRECTV.*

TIMER

This HDTV Digital Receiver contains eight timers that are capable of tuning the HDTV Digital Receiver on and off at selected times, on selected channels and on selected days. The timer options provide you an automatic way of controlling the HDTV Digital Receiver when it is active. The options are the following:

- OFF (default state)
- ON

Off state

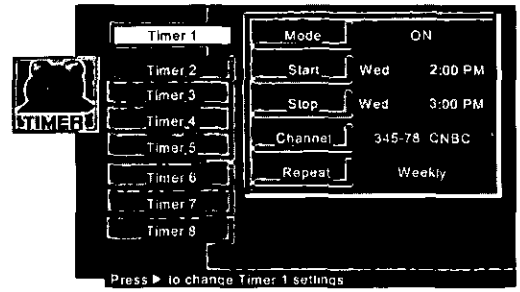
The **Off** state disables the timer and clears the timer data fields.

On state

The **On** state enables the timer to perform several actions once a timer is active. The HDTV Digital Receiver is turned ON and it is tuned to the specified channel. Once the event has ended the HDTV Digital Receiver is turned OFF.

Note: *Time must be entered in the OPTIONS menu to operate any of the eight Timers.*

By leaving a timer in a ON mode, the HDTV Digital Receiver will tune to that channel every week at that specified time and day. To turn off the timer, toggle the ON mode to OFF.



Procedure

- ❒ Press **MENU** button to display the Rollerguide menu.
- ❒ Press ▲▼ buttons to highlight TIMER icon.
- ❒ Press **ACTION** button to display the TIMER menu.
- ❒ Press ▲▼ buttons to select the desired Timer.
- ❒ Press ▶ button to change TIMER settings.
- ❒ Press ▶ button to enter the mode field.
- ❒ Use ▲▼ buttons to select the Mode OFF or ON.
- ❒ Press **ACTION** button to save your selection.
- ❒ Press ▼ button to select Start (current time and date are shown).
- ❒ Use ▶ and ▲▼ to select day, press ▶ and ▲▼ to select hour and press ▶ and ▲▼ to select minutes.
- ❒ Press ◀ to highlight Start and press ▼ to select Stop and repeat procedure to set day, hours and minutes.
- ❒ Press ▼ button to highlight Channel. Use numeric keys on the remote control to enter channel number. Press **ACTION** to enter your channel selection.
- ❒ Press ▼ button to highlight Repeat.
- ❒ Press ▶ button to highlight weekly or once.
- ❒ Use ▲▼ buttons to select the choices.
- ❒ Press ◀ button 3 times to exit the menu.

Note: *All Data fields must be entered prior to setting the view mode. Timers cannot overlap between the timers. The first entered timer will override the other timers.*

TIMER Activation

The TIMER is active when the HDTV Digital Receiver is OFF or ON. The HDTV Digital Receiver will switch to the selected channel at the selected time set in the TIMER.

Timer Error Messages

The HDTV Digital Receiver will scan the timer data fields and notify you of any problems before letting you set the viewing mode.

Timer Error Messages

Error Condition	Error Message
The system time was not set	NOTICE: Clock must be set
No data is entered in any of the timer data fields	NOTICE: Timer 1 (or 2) data must be entered
The day of the week was not entered	NOTICE: Day must be entered
The start time was not entered	NOTICE: Start time must be entered
The stop time was not entered	NOTICE: Stop time must be entered
The channel number was not entered	NOTICE: Ch number must be entered.
The day conflicts with the other timer	NOTICE: Day conflicts with Timer 2 (or 1)
The start time conflicts with the other timer	NOTICE: Start conflicts with Timer 2 (or 1)
The stop time conflicts with the other timer	NOTICE: Stop conflicts with Timer 2 (or 1)
The stop time conflicts with start time	NOTICE: Stop conflicts with start time

Glossary and Acronyms

APG Advanced Program Guide. DIRECTV new generation of the electronic program guide.

ATSC Advanced Television Systems Committee. Standardization body that developed the Digital Television Terrestrial formats.

CAM Conditional access module, usually referred to as the ***access card.*** A removable, electronic subassembly providing conditional access control of the subscriber terminal.

CSR Customer Service Representative

DIRECTV® DIRECTV is a registered trademark of DIRECTV, Inc., a unit of Hughes Electronics Corporation.

Dolby Digital Digital Audio 5.1 Channel Sound as defined by Dolby Laboratories. Dolby Digital (also known as AC-3) is a coding technique that provides five independent, full frequency response audio channels plus one low frequency bass channel.

DST Daylight Saving Time

DTV Digital Television

HD High Definition

HD-DIRECTV High Definition Digital Satellite Service

IPPV Impulse pay per view. A method for ordering service on "impulse" where payments are required for each program or special event independently.

LNB Low Noise Block downconverter. Portion of ODU that receives the satellite signal and converts the signal into L-band frequency of 950-1450 MHz.

MPAA Motion Picture Association of America. Guild governing rating assignments to movies.

NTSC National Television Systems Committee. Standardization body that developed the Analog Television Terrestrial formats.

ODU Outdoor Satellite Dish Unit. The System that provides signal reception and down conversion.

OPPV Order Ahead pay per view. Movie purchases placed by calling a customer service representative rather than using the on-screen displays. Necessary to purchase movies when the subscriber does not connect the phone to the HDTV Digital Receiver.

OSD On-screen display

Password A stored word a user must provide in order to perform a function.

SD Standard Definition

Smart Card Credit card sized microcomputer capable of securely storing service authorization and system preferences such as pay per view lock. Also known as the CAM.

Subscriber Customer of a DIRECTV system

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited pay-per-view uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

U.S. Patent Nos. 6,020,880; 5,987,635; 5,926,573; 5,917,481; 5,874,995; 5,819,035; 5,802,241; 5,737,019; 5,699,125; 5,650,825; 5,623,311; 5,619,337; 5,583,574; 5,534,944; 5,532,748; 5,510,842; 5,502,493; 5,485,215; 5,477,397; 5,387,939; 5,367,334; 5,325,125; 5,311,297; 5,294,974; 5,293,229; 5,260,788; 5,168,358; 5,130,796; 5,126,841; 5,113,255; 4,984,081; RE36,507; RE36,015; other U.S. and foreign patents pending.

Troubleshooting

Before requesting service for this unit, check the table below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation.

If you are in doubt about some of the check points, or if the remedies indicated in the table do not solve the problem, consult your dealer or call **1-888-726-2377** for assistance.

Symptom	Remedy
No power	Check that the AC power plug is securely plugged into the power outlet.
No reception	•Check that equipment is connected properly. •Make sure that the Satellite Dish unit is properly mounted and installed. •Check that antenna is properly installed and oriented. •Check that the antenna or cable wire is connected properly. •Make sure the proper mode (antenna or cable) is selected.
No digital cable	•Make sure your local cable provider is transmitting in 8VSB modulation format. •Make sure the proper cable mode is selected.
No picture	•Check that equipment is connected properly. •Check if the channel is available. •Rerun the Automatic Channel Programming to make sure all available channels are captured and stored into memory.
Available channels are missing	•Rerun the Automatic Channel Programming to make sure all available channels are captured and stored into memory.
Picture is distorted	•Make sure the proper display format is selected. •Make sure the proper aspect ratio is selected. •Make sure that proper Video output mode is selected via the Video out button.
Cannot letterbox or zoom 16:9 video on a 4:3 monitor	•Insure that the HDTV Digital Receiver is selected to output to a 4:3 monitor, and closed captioning is turned off.
Zoom aspect cannot be selected	•Make sure the Closed Caption feature is turned off. •Make sure the remote control is in STB mode.
No sound	Check that equipment is connected properly.
Wrong audio and Normal video	Check audio is set to stereo, mono, not SAP (NTSC mode only).
The remote control is not responding	•Check that the batteries are installed with the correct polarities (+ and -). •The batteries are depleted: Replace them with new ones. •Point the remote control unit at the remote control sensor and operate. •Operate the remote control unit at a distance of not more than 23 feet (7 meters) from the remote control sensor. •Remove any obstacles between the remote control unit and remote control sensor.
The remote control is operational, but the HDTV Digital Receiver is not responding	•Check that the AC power plug is securely plugged into the power outlet. •Make sure the HDTV Digital Receiver is on. •Make sure the remote control is in STB mode.
The remote control is operational, but other component(s) are not responding	•Check that the AC power plug is securely plugged into the power outlet. •Make sure the component(s) are on. •Reprogram the remote control to make sure it is programmed properly to operate the component(s). •Make sure the remote control is in the proper component mode (i.e. TV, CBL, AUX, etc.).

Symptom	Remedy
The ACTION button is not responding	•Make sure to press ACTION in the middle of the button. •Make sure the remote control is in STB or TV mode.
No key operation (by the unit and/or the remote control) is effective.	Set the POWER button to OFF and then back to ON. Alternatively, turn off the power, disconnect the power plug and then reconnect it. (The HDTV Digital Receiver may not be operating properly due to lightning, static electricity or some other external factor).
No key operation is effective. OSD reads: "Searching for Satellite Signal.	ODU (Satellite Dish) is momentarily disconnected from the digital receiver. Alternatively, turn off the power, disconnect the power plug and then reconnect it. (The HDTV Digital Receiver or the satellite dish antenna may not be operating properly due to lightning, static electricity or some other external factor).
VCR/S-Video VCR is not responding	•Check that the AC power plug is securely plugged into the power outlet. •Check that equipment is connected properly. •Make sure remote control is in VCR mode.
AC-3 decoder is not responding	•Check that the AC power plug is securely plugged into the power outlet. •Check that equipment is connected properly.
Timer does not work	•Make sure the clock is set. •Check to see whether the timers have overlapping times programmed. •Check if the timer did not reset to default settings (antenna/cable mode was changed).

Product Service

Do not attempt to remove the cover or repair the unit yourself. Refer servicing to qualified personnel only.

Product Information

For product service, product information or assistance with product operation, consult your dealer or call **1-888-726-2377 (Monday-Friday/ 8AM-10PM) (Sat & Sun/ 10AM-10PM) EST**. Please have your HDTV Digital Receiver Identification Number (ID#) available when you call. The ID# is displayed on your TV screen when the HDTV Digital Receiver is tuned to any unavailable channel.

If you ship the product

Carefully pack and send it prepaid, adequately insured and preferably in the original carton. Attach a postage-affixed letter, detailing the complaint, to the outside of the carton. DO NOT send the product to the Executive or Regional Sales offices. They are NOT equipped to make repairs.

For service assistance, please call:

1-888-726-2377