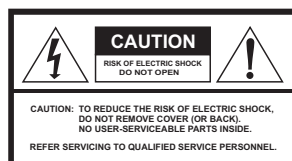


DCT 2020

User Guide





Graphical symbols and supplemental warning marking locations on bottom of terminal.

WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION

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



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



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

REPAIRS

If you find the unit in need of repair, contact your cable system operator for repair or replacement.

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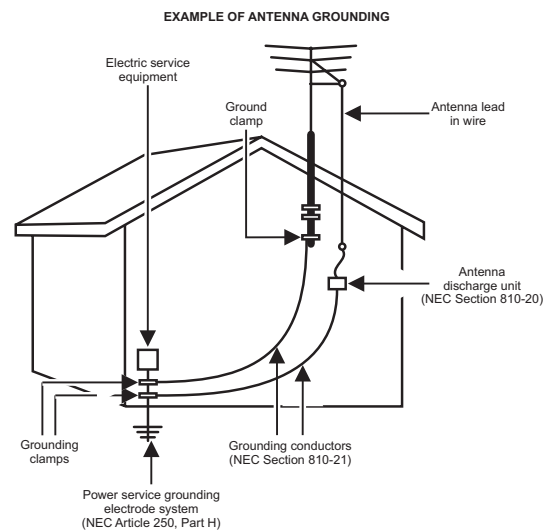
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NOTE TO CATV SYSTEM INSTALLER

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

EXAMPLE OF ANTENNA GROUNDING



NEC=NATIONAL ELECTRICAL CODE

IMPORTANT SAFEGUARDS

1 Read instructions

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

2 Retain instructions

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

3 Heed warnings

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

4 Follow instructions

All operating and use instructions should be followed.

5 Cleaning

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

6 Attachments

Do not use attachments not recommended as they may cause hazard.

7 Water and moisture

Do not use this equipment near water; for example, near a bathtub, wash bowl, kitchen sink, or laundry-tub, in a wet basement, or near a swimming pool, and the like.

8 Accessories

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

9 Ventilation

Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the equipment and to protect it from overheating. The openings should never be blocked by placing the product on a bed, sofa, rug, or similar surface. Equipment should never be placed near or over a radiator or heat register, or in a built-in installation such as a bookcase or rack unless proper ventilation is provided.

10 Power sources

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

11 Ground or polarization

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

12 Power cord protection

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

13 Outdoor Antenna Grounding

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

14 Lightning

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

15 Power lines

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

16 Overloading

Do not overload wall outlets and extension cords as this can result in a risk of fire or electrical shock.

17 Object and liquid entry

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

18 Servicing

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

19 Damage requiring service

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

- a** When the power supply cord or plug is damaged.
- b** If the equipment has been exposed to rain or water.
- c** If liquid has been spilled, or objects have fallen into the equipment.
- d** If the equipment does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.
- e** If the equipment has been dropped or cabinet has been damaged.
- f** When the equipment exhibits a distinct change in performance, indicating a need for service.

20 Replacement parts

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

21 Safety check

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

22 Battery usage

Notwithstanding any information provided by Motorola in this manual regarding the use of batteries, the end user assumes all responsibility and liability to use and dispose of batteries in accordance with all applicable laws, rules and regulations. Motorola will not be liable to anyone for the end user's failure to use and/or dispose of batteries in the proper manner and in accordance with such laws, rules and regulations, or for any defect contained in batteries that may cause injury damage to persons or property.

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INTRODUCTION

Your DCT 2020 includes one or more of the following features, depending on the applications supported by your service provider:

- Remote control
- Volume control
- Parental control
- Favorite channel recall
- Sleep and alarm timers
- Pay-Per-View purchases
- Electronic program guide (EPG)
- Digital audio

Congratulations on your purchase of the state-of-the-art DCT 2020 digital consumer terminal. The DCT 2020 brings unsurpassed digital audio and video quality to your TV viewing. Electronic program guide menus provide convenient control of selecting and viewing programs.

The DCT 2020 requires a point of deployment (POD) module that is supplied by your service provider. The POD is inserted into the SECURITY DEVICE port in the back of the DCT 2020. Additional information about installing the POD is included later in this book.

Your DCT 2020 is operational after:

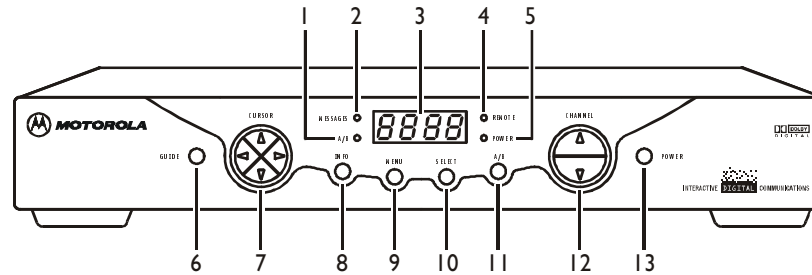
- The POD is installed in the DCT 2020
- The DCT 2020 is connected to the signal and audio and video components
- Your service provider has initialized the DCT 2020

After the DCT 2020 is operational, you can purchase Pay-Per-View special events and/or recent movies. Contact your service provider for details about digital programming and premium services.









This user guide introduces you to the features and operation of the DCT 2020. Access to DCT 2020 features is gained through the electronic program guide. Be sure to read your electronic program guide instruction manual to get the most out of your DCT 2020.

Front Panel






The DCT 2020 front panel has 12 keys and an LED display. Use the keys to perform basic functions, such as changing channels and powering on and off. Display the current channel or time of day on the LED by changing the default settings in the electronic program guide.



INTRODUCTION

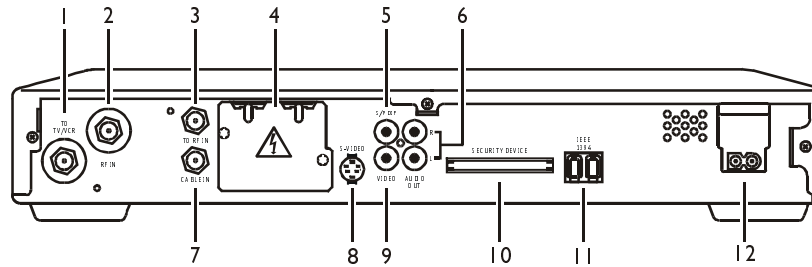
Item		Description
1	A/B 	For future use
2	MESSAGES 	Lights to indicate that a message is present
3		Displays current channel number or time of day
4	 REMOTE	Flashes when an error-free signal is received from the remote control
5	 POWER	Lights when the unit is turned on
6	GUIDE 	Displays the electronic program guide
7		Moves the cursor in menus and electronic program guide screens
8	INFO 	Displays current channel and program information

INTRODUCTION

Item		Description
9		Displays the Main menu
10		Selects menu options, Pay-Per-View (PPV) events, and tunes channels from the electronic program guide
11		For future use
12		Changes the channel up and down
13		Turns the DCT 2020 on and off

Rear Panel

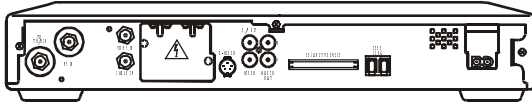
Before you begin installing the DCT 2020, take a moment to become familiar with the rear panel connections. The rear panel connectors are for system cabling, and an AC power cord connects the DCT 2020 to an electrical power outlet. For cabling diagrams, see *Connecting Your DCT 2020*.



INTRODUCTION

	Item	Description
1	TO TV/VCR	A coaxial output to connect the DCT 2020 to the TV or VCR.
2	RF IN	A coaxial input that is connected to the TO RF IN, see Connecting the DCT 2020.
3	TO RF IN	A coaxial input that directs the cable signal to other connections on the DCT 2020.
4	Removable plate	This plate covers the location for future optional modules.
5	S/P DIF	A S/P DIF RCA connector that provides Dolby Digital® audio or PCM audio (digital audio recording). The audio settings are defined in the electronic program guide.
6	AUDIO OUT	Left/right RCA stereo outputs connect the DCT 2020 to your stereo.
7	CABLE IN	A coaxial input for the incoming signal from the wall outlet.
8	S-VIDEO	An S-Video connector sending high quality video to external devices (high-end VCR or TV) that accept S-Video.
9	VIDEO	This RCA video output connects the DCT 2020 to a composite (baseband) TV.
10	SECURITY DEVICE	Location where point of deployment (POD) module is inserted. The POD takes the signal from the cable and performs the signal decryption and message processing functions for the DCT 2020.
11	IEEE 1394	An IEEE 1394 connector for HDTV signals.
12	AC power	A two-prong connector to attach an AC power cord.

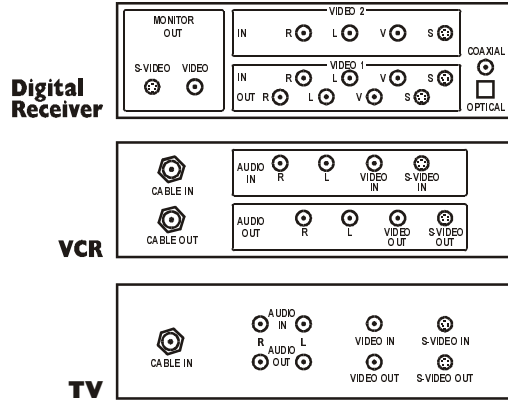
RECORDING YOUR CONNECTIONS



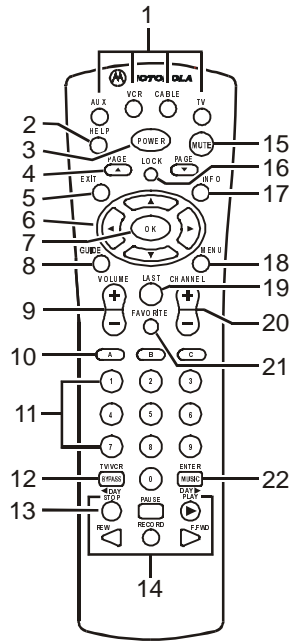
DCT 2020

Use this diagram to record cable connections from the rear panel. Later, you can use this diagram to reconnect your system if you move the equipment or add new equipment.

Disconnect the power from the DCT 2020 before connecting or changing cable connections. Do not place another component or object on top of the DCT 2020.




USING THE REMOTE CONTROL



Use the remote control to operate the DCT 2020, TV, and VCR. Many of the keys on the remote control share the same function as keys on the front panel.

Your remote control may be different from the one illustrated here. The remote control must be programmed for use. If your service provider has not programmed your remote control, refer to the remote control instruction guide supplied by your service provider.

USING THE REMOTE CONTROL

Key	Item	Description
1	AUX, VCR, CABLE, or TV	Selects the desired device to control (the selected mode remains active until you press another key)
2	HELP	Displays the help screen
3	POWER	Turns the selected home entertainment component on or off
4	PAGE ▲ or PAGE▼	Pages through menu screens and electronic program guide
5	EXIT	Exits menus and electronic program guide
6		Moves cursor around the electronic program guide and menu screens
7	OK/SELECT	Selects menu options and Pay-Per-View events, or tunes programs from the electronic program guide (your remote may only have OK; this key performs the same functions)
8	GUIDE	Displays the electronic program guide

USING THE REMOTE CONTROL

Key	Item	Description
9	VOLUME + or VOLUME -	Increases or decreases volume of the currently selected device
10	A, B , or C	Functionality is determined by your service provider
11	NUMBER KEYS	Directly selects a channel
12	TV/VCR BYPASS	For future use
13	◀ DAY DAY ▶	Use when operating the electronic program guide (moves electronic program guide ahead or back 24 hours)
14	STOP, PAUSE, PLAY, REW, RECORD, F.FWD	Controls the VCR
15	MUTE	Toggles the sound on and off

USING THE REMOTE CONTROL

Key	Item	Description
16	LOCK/PPV	Limits viewing of selected programs, and accesses Pay-Per-View menu (your remote control may only have LOCK; this key still performs the same functions)
17	INFO	Displays the current channel and program information (not supported by all applications)
18	MENU	Displays the Main menu
19	LAST	Recalls the last channel or goes back one screen in the menu
20	CHANNEL + or CHANNEL -	Changes the channels up or down
21	FAVORITE	Displays preset favorite cable channels
22	ENTER/MUSIC	Displays digital music channel menus (on some TV models, press to enter channels)



Installing Batteries

Before you can use the remote control, you must install two AA (1.5-volt) alkaline batteries:

- 1** Slide open the battery door on the back of the remote control.
- 2** Insert the batteries in the direction indicated on the inside of the battery compartment.

Batteries installed incorrectly can cause battery leakage and corrosion that will damage the remote control.

- 3** Slide the battery door closed until it snaps into place.

Point the remote control at the DCT 2020, and then press POWER. If the DCT 2020 does not turn on, check the orientation of the batteries or replace with new batteries.

Your remote control may be different from the one illustrated here. Refer to the remote control instruction guide for details on battery installation.

Turning Power On and Off

Press POWER on the front panel to turn the DCT 2020 on or off. If using the remote control, be sure it is in cable mode by pressing CABLE, and then press POWER.

Changing Channels

You can change channels in two ways:

- Press CHANNEL ▲ or ▼ on the front panel of the DCT 2020, or press CHANNEL + or – on the remote control to step through the channel selection.
- Enter the number of the channel you want to tune using the numeric keys on the remote control.

Adjusting the Volume

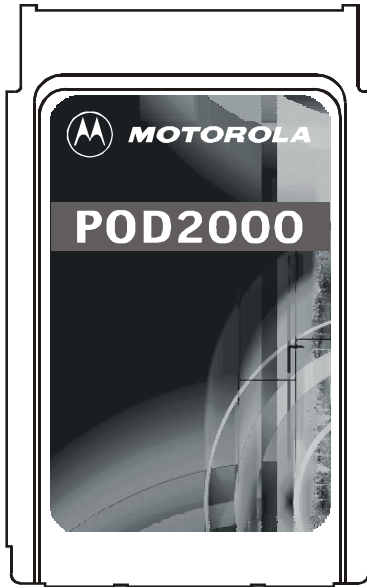
Press VOLUME + or – on the remote control to adjust the volume. When you adjust the volume, the volume scale is displayed on the screen. Press MUTE on the remote control to turn the sound off and on again.

For best audio quality, use the remote control to set the DCT 2020 to approximately $\frac{3}{4}$ of the maximum volume level and then adjust the audio levels on the external devices.

Electronic Program Guide

The electronic program guide displays information about TV programs and enables you to access features such as Parental Control or Pay-Per-View. Electronic program guides can vary in look and feel with each service provider. Reference the electronic program guide instruction manual (supplied by your service provider) for detailed instructions.

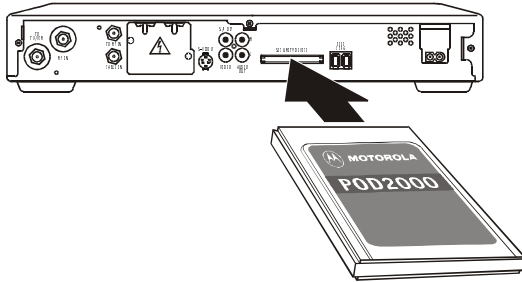
The electronic program guide is only accessible if your service provider has initialized your DCT 2020 and activated your cable service. Also, your POD must be installed before you can access the electronic program guide.



Description of the POD

The POD is a Personal Computer Memory Card International Association (PCMCIA) Type II, 68-circuit receptacle. It takes the signal that comes in from the cable and performs the signal decryption and message processing functions for the DCT 2020.

The POD is installed in the rear panel of the DCT 2020 in the SECURITY DEVICE port.



Installing the POD

The POD may have already been installed by your service provider. However, if you are installing the POD:

- 1** Locate the SECURITY DEVICE port on the rear panel of the DCT 2020.
- 2** Prepare to insert the POD by making sure the socket end is facing toward the SECURITY DEVICE port. If you are installing the POD2000, the label should be on top of the POD. If you are installing a different POD, refer to that manufacturer's directions to be sure you are installing the POD correctly.
- 3** Align the POD with the opening of the SECURITY DEVICE port and carefully insert the POD into the port. The POD should slide easily into the port. Do not force the POD into the port.
- 4** Gently slide the POD into the SECURITY DEVICE port until it stops.

NOTE

A system initialization screen appears briefly, and then disappears when initialization is complete. No action on your part is required.

AUDIO/VIDEO CONNECTIONS



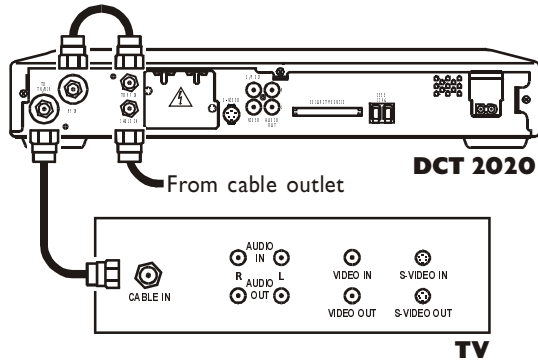
NOTE

It is important to remember not to place anything on top of the DCT 2020 and to provide for adequate ventilation to prevent overheating.

Before you begin to hook up your DCT 2020, review the following:

- Make sure the POD is installed in the DCT 2020.
- For basic cable connections, use 75-ohm coaxial cables equipped with F-type connectors. You can find coaxial cables in your local electronics store.
- For audio or video outputs, use cables equipped with RCA-type connectors.
- Disconnect power from the DCT 2020 before connecting or changing cable connections.
- **Do not** place anything on top of the DCT 2020, especially other home video components.

CONNECTING YOUR DCT 2020



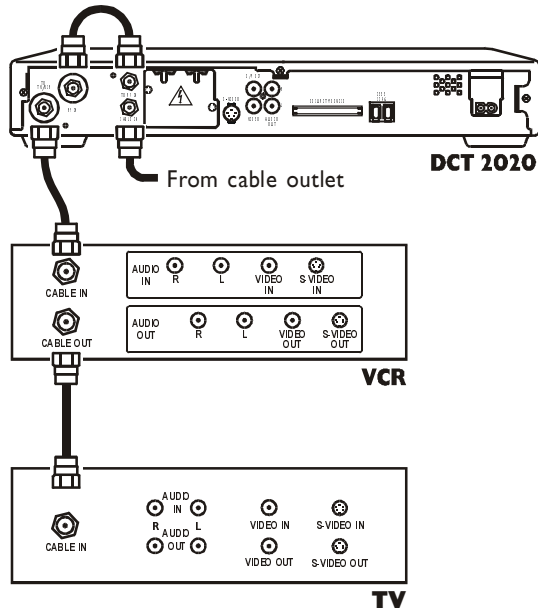
Standard TV Cabling

Use 75-ohm coaxial cables to connect your DCT 2020 to a TV. This is the most common cable connection and provides all of the basic features of the DCT 2020.

If you are using a diagram that connects the coaxial TO TV/VCR connector on the DCT 2020 to the coaxial CABLE IN connector on the TV, you must tune your TV to channel 3 or 4.

The illustrated connections will not provide stereo on digital channels. Connect the DCT 2020 using RCA baseband connectors to receive stereo on digital channels (illustrated later in this section).

CONNECTING YOUR DCT 2020



Standard VCR Cabling

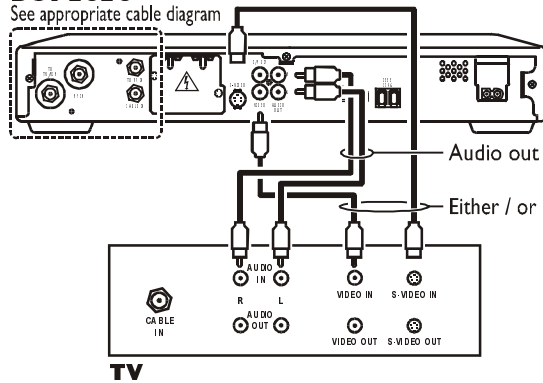
To connect your VCR, you will need 75-ohm coaxial cables. The illustrated VCR connection enables you to record the program you are watching, including Pay-Per-View events. You can also view videotapes just as you do now.

The illustrated connections will not provide stereo on digital channels. Connect the DCT 2020 using RCA baseband connectors to receive stereo on digital channels (illustrated later in this section).

CONNECTING YOUR DCT 2020

DCT 2020

See appropriate cable diagram



In these illustrations the baseband connectors on entertainment components are labeled R for right audio, L for left audio, V or VIDEO for video, and S or S-VIDEO for stereo video.

Composite Baseband and S-Video

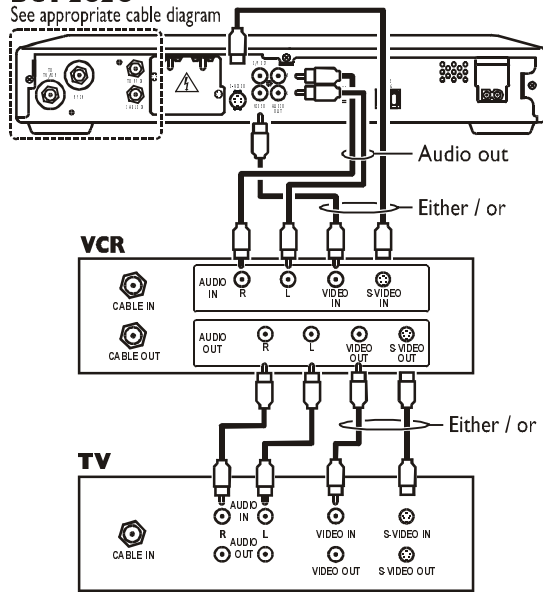
Connecting the DCT 2020 using the baseband RCA type outputs enables you to experience stereo and Dolby Surround[®] sound on digital channels when available.

When connecting the video path, never connect baseband composite video and S-Video together. Because some entertainment equipment will not support both video inputs simultaneously, use only one connection path.

CONNECTING YOUR DCT 2020

DCT 2020

See appropriate cable diagram



Composite VCR Cabling

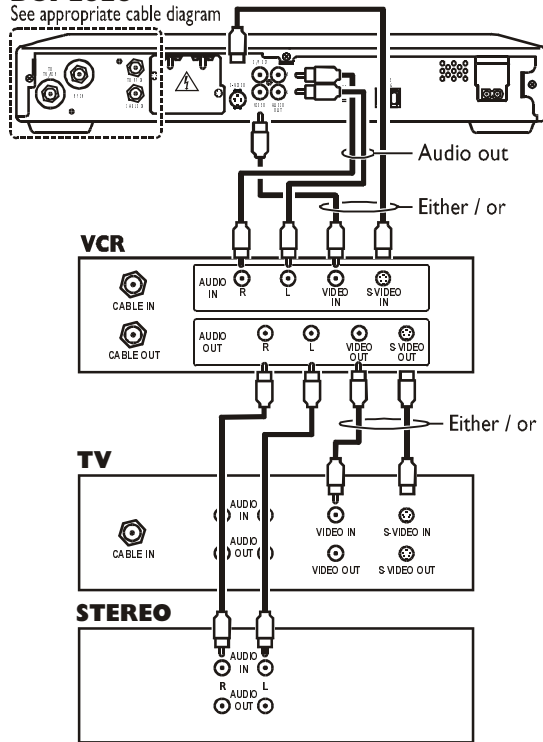
This diagram illustrates how to connect the DCT 2020 to a VCR using the audio connectors on the VCR.

When connecting the video path, never connect baseband composite video and S-Video together. Because some entertainment equipment will not support both video inputs simultaneously, use only one connection path.

CONNECTING YOUR DCT 2020

DCT 2020

See appropriate cable diagram



Stereo Cabling Diagram (VCR to Stereo)

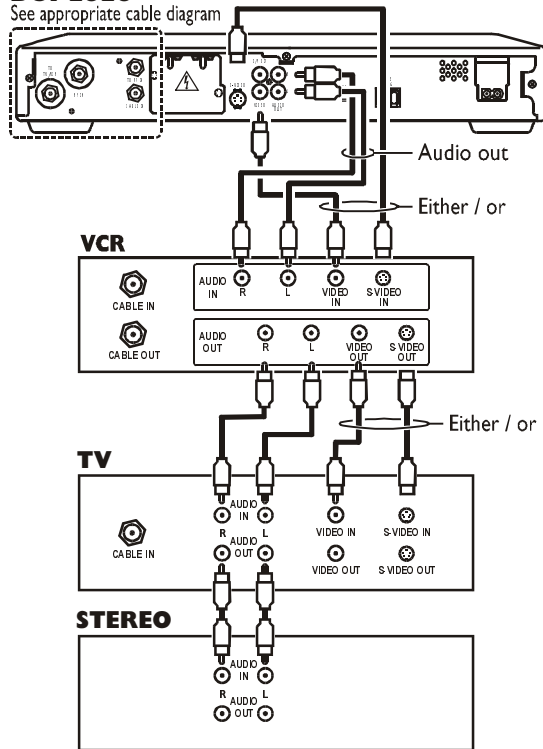
This diagram illustrates how to connect the DCT 2020 to a stereo using the audio connectors on the VCR. The VCR sound is played through the stereo. This configuration does not provide for TV sound to play through the stereo.

When connecting the video path, never connect baseband composite video and S-Video together. Because some entertainment equipment will not support both video inputs simultaneously, use only one connection path.

CONNECTING YOUR DCT 2020

DCT 2020

See appropriate cable diagram

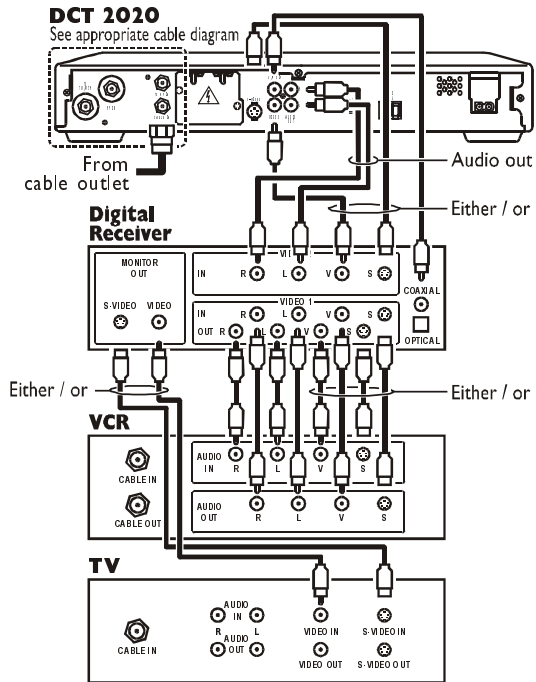


Stereo Cabling Diagram (TV to Stereo)

This configuration allows the TV sound to play through the stereo.

When connecting the video path, never connect baseband composite video and S-Video together. Because some entertainment equipment will not support both video inputs simultaneously, use only one connection path.

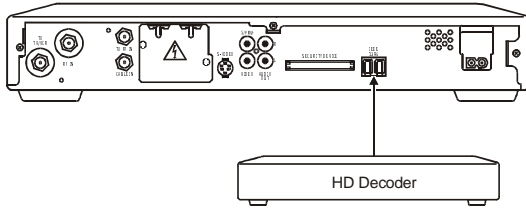
CONNECTING YOUR DCT 2020



Baseband with Dolby Digital

This diagram illustrates audio and video connections to a Dolby Digital receiver. This configuration enables you to record on the VCR and play back with sound through the Dolby Digital receiver.

If you use the Dolby Digital S/P DIF output, you must connect both the left/right baseband audio out from the DCT 2020 and the S/P DIF ports to the digital receiver. The S/P DIF port does not carry audio for analog.



High Definition Decoding

This configuration enables you to view high definition content on your high definition television (HDTV). Several companies manufacture HD Decoders. Refer to the documentation that came with your HD Decoder to determine the connections from the HD Decoder to the IEEE 1394 connector on the DCT 2020.

Contact your service provider to find out if high definition content is available.

TROUBLESHOOTING

Before calling your service provider, review the troubleshooting guide. This information is to help you quickly solve a problem. If your problem still exists, contact your service provider.

Problem	Possible Solution
No sound	Press MUTE on the remote control to restore the volume level. Check that the stereo is looking at the proper input source. Turn your VCR on.
No picture	Check to be sure that all cables are connected properly (hand-tighten if necessary). If connected through the baseband RCA video connection, make sure the cables are connected properly. If you are watching TV using your VCR, be sure your VCR is on.
Picture or sound is noisy on one channel	Reconnect the cable and hand-tighten if loose.
Sound from only one stereo speaker	Hand-tighten or reconnect the cables properly. Be sure wires are not frayed and plugs are not bent or broken.

TROUBLESHOOTING

Problem	Possible Solution
No power	Reconnect the power cord. Be sure the DCT 2020 is plugged into an outlet that is always live.
Remote control does not work	Press CABLE on the remote control to ensure the remote control is in cable mode. Change the batteries in your remote control according to the instructions in the section "Installing Batteries." Ensure that nothing is on the DCT 2020 or blocking a clear line of sight between it and the remote control.
Poor audio quality	For best audio quality, use the remote control to set the DCT 2020 to approximately 75% of maximum volume level and then adjust the audio levels on the external devices.

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