

# Panasonic®

**DTV Compatible**

**Projection Monitor-Receiver**

**Operating Instructions**

**PT-56WXF90**

**PT-56WG80**



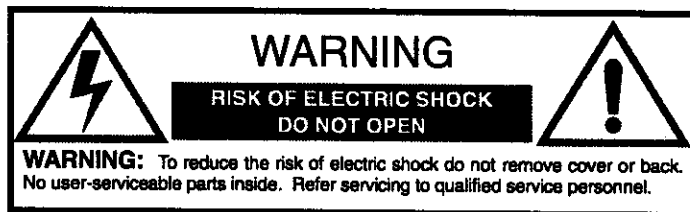
Read these instructions completely before operating PTV

TQB2AA0233-1 80726  
PRINTED IN USA

**Read these instructions completely before operating.**

**Contents are subject to change without notice or obligation.**

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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.

**WARNING:** To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

Panasonic Consumer Electronics Company,  
Division of Matsushita  
Electric Corporation of America  
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Secaucus, New Jersey 07094

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## CONGRATULATIONS

### Congratulations

Your new Projection Television (PTV) features state-of-the-art technology for high-quality picture and sound with complete audio/video connections for your home theater system. Standard television signals are displayed in a progressive format, providing a clear, crisp picture without visible scan lines. This PTV is also DTV (Digital TV)-compatible. When connected to a Panasonic digital TV set-top box, this TV can display high-definition (HDTV) 1080i format and standard definition (SDTV) 480p format. Your new PTV is designed to give you many years of enjoyment. It was thoroughly tuned and tested at the factory for best performance.

### Customer Record

The model and serial number of this product are located on the back of the TV. 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 at: [www.prodreg.com/panasonic](http://www.prodreg.com/panasonic).

Model  
Number  
Serial  
Number

Model	
Number	
Serial	
Number	

### Care and Cleaning

#### Protective Screen (Turn PTV Off)

The projection screen is a high precision lens system which has a protective screen. The protective screen is fully washable with the following precautions:

- Use a mild soap solution or window cleaner and a clean cloth.
  - DO NOT USE ABRASIVE CLEANERS.
  - Do not use laundry detergent or automatic dishwasher soap.
  - Do not use alcohol, ammonia, or petroleum based products.
- Avoid excessive moisture and wipe dry.
  - Prevent solution from running into the receiver below.
- Avoid bumping or scraping the screen.

#### Cabinet and Remote Control

- For cabinets and 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	PT-56WXF90	120V AC, 60Hz
Channel Capability - 181		VHF-12; UHF-56; Cable-125
Video Input Jacks		1Vp-p, 75 Ohm, Phono Jack Type
Audio Input Jacks		500mV RMS 47K Ohm
Audio Output Jacks		0-2.0V RMS 4.7K Ohm
S-Video Input Jacks		S-Video (Y-C) Connector
DTV Input (Y / Pb / Pr)		75 Ohm, Phono Jack Type

Specifications are subject to change without notice or obligation.

## **Important Notes**

### **Television Location**

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

- Avoid excessive sunlight or bright lights, including reflections.
- Keep away from excessive heat or moisture. Inadequate ventilation may cause internal component failure.
- Fluorescent lighting may reduce Remote Control transmitting range.
- Keep away from magnetic equipment, including motors, fans, or external speakers.

### **Optional Cable Connections**

Shielded audio and video cables should be used 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. FOR SOME MODELS THAT ARE NON-POLARIZED, THE USE OF AN AC ADAPTOR CONNECTOR MAY BE NECESSARY**

**Polarized Plug**



### **Cable / Antenna Connections**

For proper reception, either a cable or antenna connection is required.

#### **Cable Connection**

Connect the cable supplied by your local cable company or select Antenna 1 or 2 (Ant 1 or Ant 2) if you do not have cable.

**Note:** A cable converter box may be required for proper reception. Check with your local cable company for compatibility requirements.

**Incoming Cable from Cable Company**

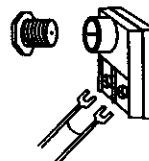



**75 Ohm VHF/UHF on back of TV**

#### **Antenna Connections**

- For proper reception of VHF/UHF channels, an external antenna is required. For best reception an outdoor antenna is recommended.
- Select Antenna 1 and Antenna 2, in the Roller Guide SET UP Menu under Prog. Chan.

**Incoming Cable from Home Antenna**



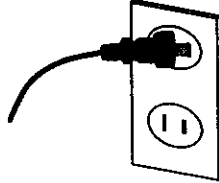
 **Cable Preset**

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Cable Mode is preset at the factory. Antenna users must change to TV Mode (antenna) for antenna use in the Set Up Menu.

## GETTING STARTED

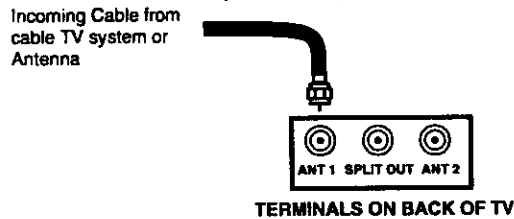
### Step 1 - Connect AC Power Cord



### Step 2 - Antenna Connection - No Cable Box

Follow this diagram when connecting the TV system to Cable TV System or Antenna.

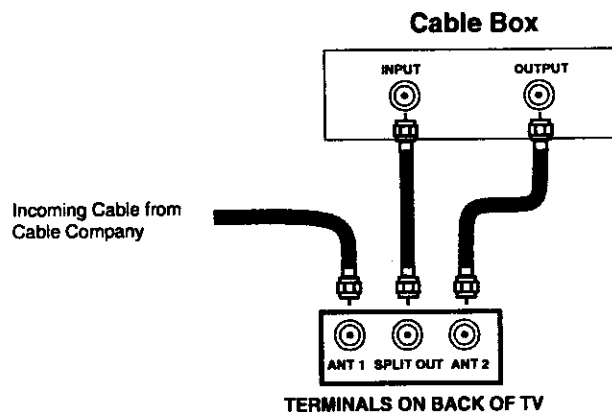
**Note:** No additional connections are required for split screen operation.



### Step 2a- Antenna Connection with Cable Box


Follow this diagram when connecting the TV system using a Cable Box.

**Note:** No additional connections are required for split screen operation.



**Note:** In the SET UP menu choose AUTO POWER SET to power up the TV at the same time as the Cable Box or other components.

#### Procedure

- The Remote Control must be programmed with supplied codes to operate the Cable Box. (See *Programming the Remote Control*.)
- Press the Remote Control TV mode button .
- Select ANT 2 to view the Cable Box, located in the Roller Guide Set Up Menu under Prog Chan.
- Turn the TV to the appropriate channel for the Cable Box (channel 3 or 4).
- Press the Remote Control CBL button.
- Use the Remote Control CH (up/down) buttons or the numeric keypad for selecting channels using the Cable Box.

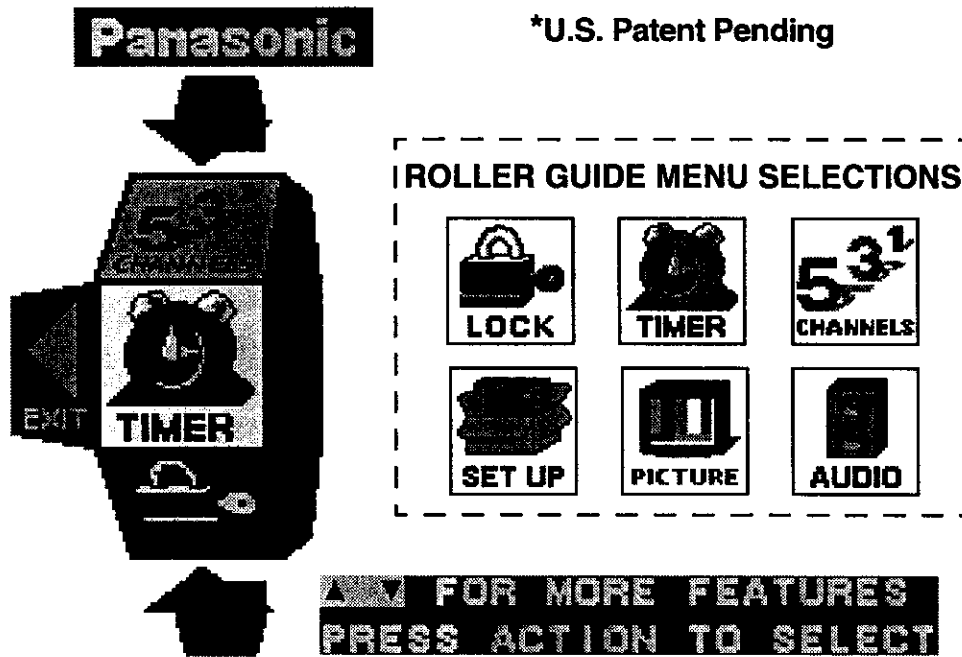
**Step 3 - Turning Set On**

Press the Remote Control TV mode button 

Then press the POWER button 

**Step 4 - Roller Guide Menu**

Press the **ACTION** button in the middle of the large blue button on the Remote Control to display the **Roller Guide Menu\***. Press the CH (channel) up/down to rotate the Roller Guide. Press the Left VOL (volume) button to exit the Roller Guide Menu.



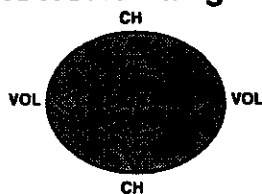
**Note:** To exit the Roller Guide Menu, press the left VOL (Volume) arrow on the ACTION button.

## GETTING STARTED

### Step 4a- ACTION / Navigation Button

Press the **ACTION** button to select main menu items. Press the up/down **CH** (channel) arrows to highlight sub menus. Press the Right **VOL** arrow to select and adjust features. Press the **ACTION** button to return to sub menus.

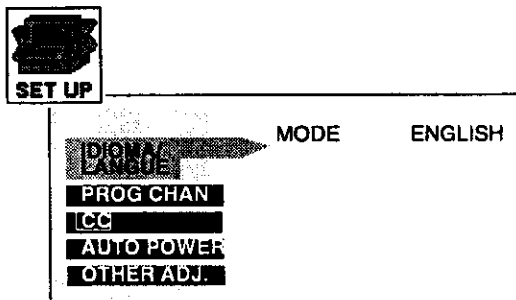
#### Remote ACTION / Navigation Button



**Note:** Be careful to press **ACTION** in the middle of the button. If you do not press in the middle of the button, the (**CH**) channel or (**VOL**) volume keys may be activated.

### Step 5 - Language

In SET UP Menu, select IDIOMA / LANGUE to change menu language to ENGLISH, ESPAÑOL or FRANÇAIS.





**Step 6 - Prog Chan**

In SET UP Menu, Select PROG CHAN to select choices.

**Cable Mode/ TV Mode**

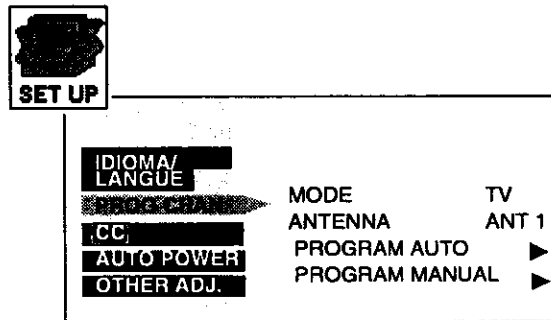
In SET UP Menu, select PROG CHAN to select TV (antenna) MODE or CABLE MODE depending on the signal source. Select Antenna 1 or 2 depending on the input on back of TV.

**Program Auto**

In SET UP Menu, select PROGRAM AUTO to automatically program all channels with a signal.

**Program Manual**

In SET UP Menu, select PROGRAM MANUAL to manually add or delete channels.



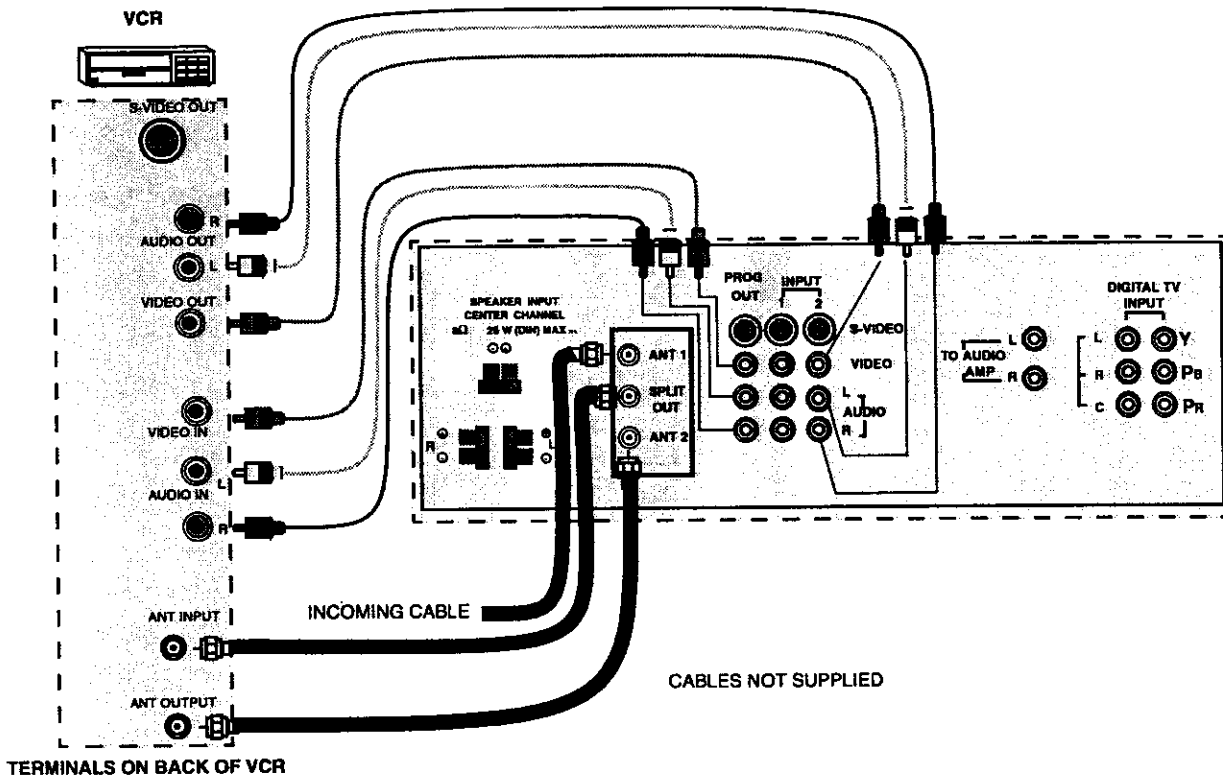
## INSTALLATION

### Antenna Connection with VCR


Follow this diagram when connecting the TV system using a VCR.

**Note:** No additional connections are required for split screen operation.

When connecting S-Video Input (1 or 2), connect the S-Video cable instead of the standard video cable.



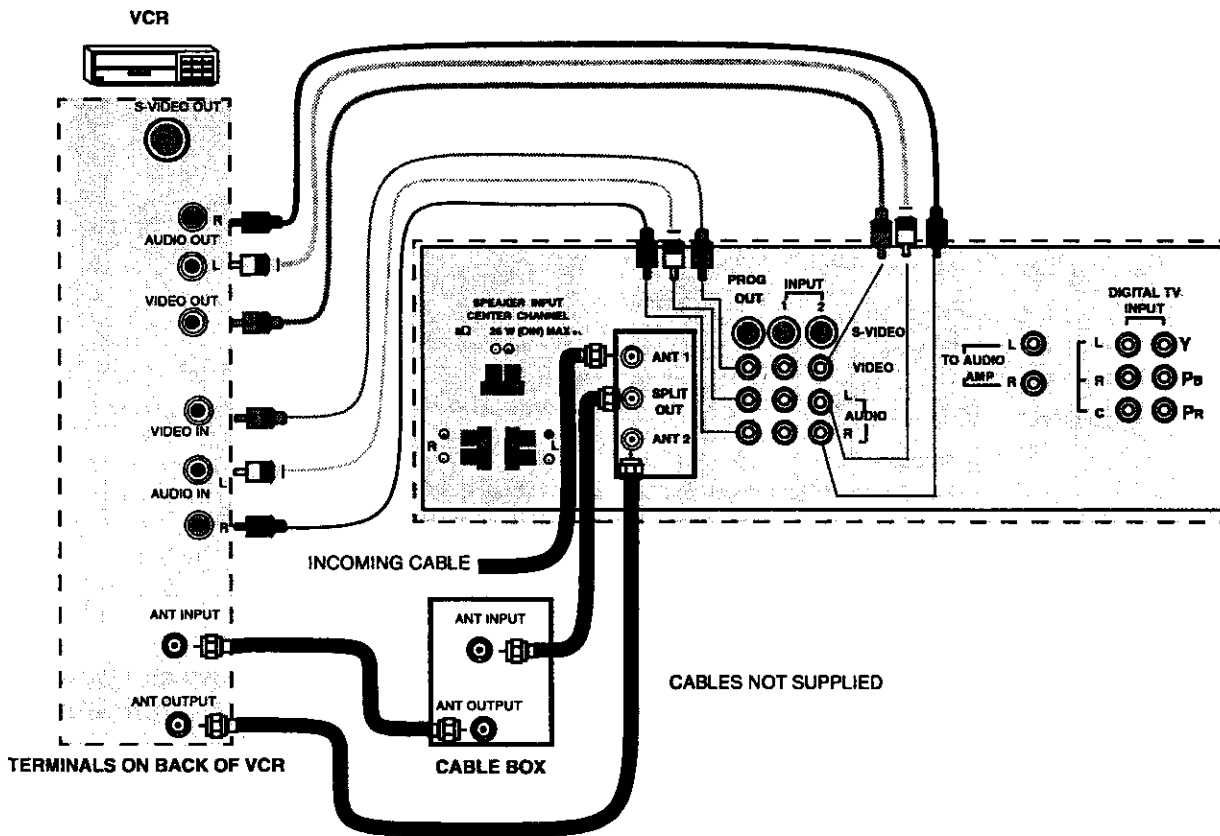
### Procedure

- The Remote Control must be programmed with supplied codes to operate the VCR. (See programming the Remote Control.)
- Press the Remote Control TV mode button .
- Select TV or Cable and ANT 1, if necessary, located in the Roller Guide Set Up Menu under Prog. Chan.


**Antenna Connection with Cable Box and VCR**

Follow this diagram when connecting the TV system using a Cable Box and VCR.

**Note:** When connecting S-Video Input (1 or 2), connect the S-Video cable instead of the standard video cable.



**Procedure**

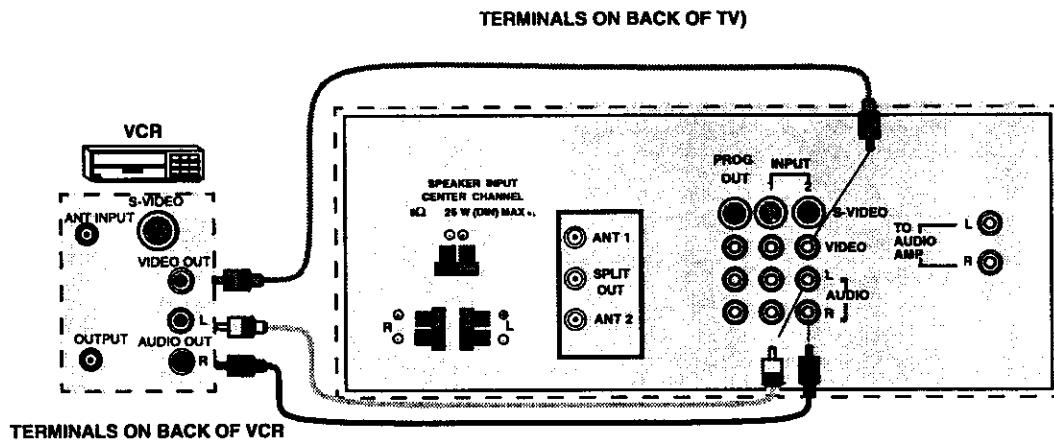
- The Remote Control must be programmed with supplied codes to operate the VCR and Cable Box. See Programming the Remote Control.
- Press the Remote Control TV mode button .
- Select ANT 2 mode located in the Roller Guide Set Up Menu under Prog Chan to view Cable Box.
- Turn the TV to the appropriate channel for the Cable Box (usually channel 3 or 4).
- Press the Remote Control CBL mode button.
- Use the Remote Control CH up/down buttons or the numeric keypad for selecting channels using the Cable Box.
- Turn VCR on channel 3 or 4.

## INSTALLATION

### Optional Equipment Connections

VCR's, video disc players, video game consoles, and DSS equipment can also be connected. See the optional equipment manual for full details.

**Note:** DVD players should be connected to the S-Video input unless the DVD is 480p output.



#### Procedure

1. Connect equipment to rear Audio/Video input jacks as shown.
2. Select the corresponding video input mode by pressing **TV/VIDEO** button.
3. Operate optional equipment as instructed in equipment manual.

**Note:** The S-VIDEO connection is optional and overrides other VIDEO connection.

### Amplifier Connection (TO AUDIO AMP)

Connect to an external audio amplifier input for listening through a stereo system.

**Note:** TO AUDIO AMP terminals cannot and should not be connected directly to external speakers.

#### Audio Adjustments

1. Select TV **SPEAKERS ON** located in the **AUDIO** Menu.
2. Set amplifier volume to minimum.
3. Adjust TV volume to desired level.
4. Adjust amplifier volume to match the TV.
5. Select **AUDIO SOURCE, EXT & VAO (Variable Audio Out)** from **AUDIO** menu to control speakers from the TV or select **EXT** and **FAO (Fixed Audio Out)** to control speakers from the external amplifier.
6. Volume, mute, bass, treble and balance are now controlled from the TV.

### Program Out Connection (PROG OUT)

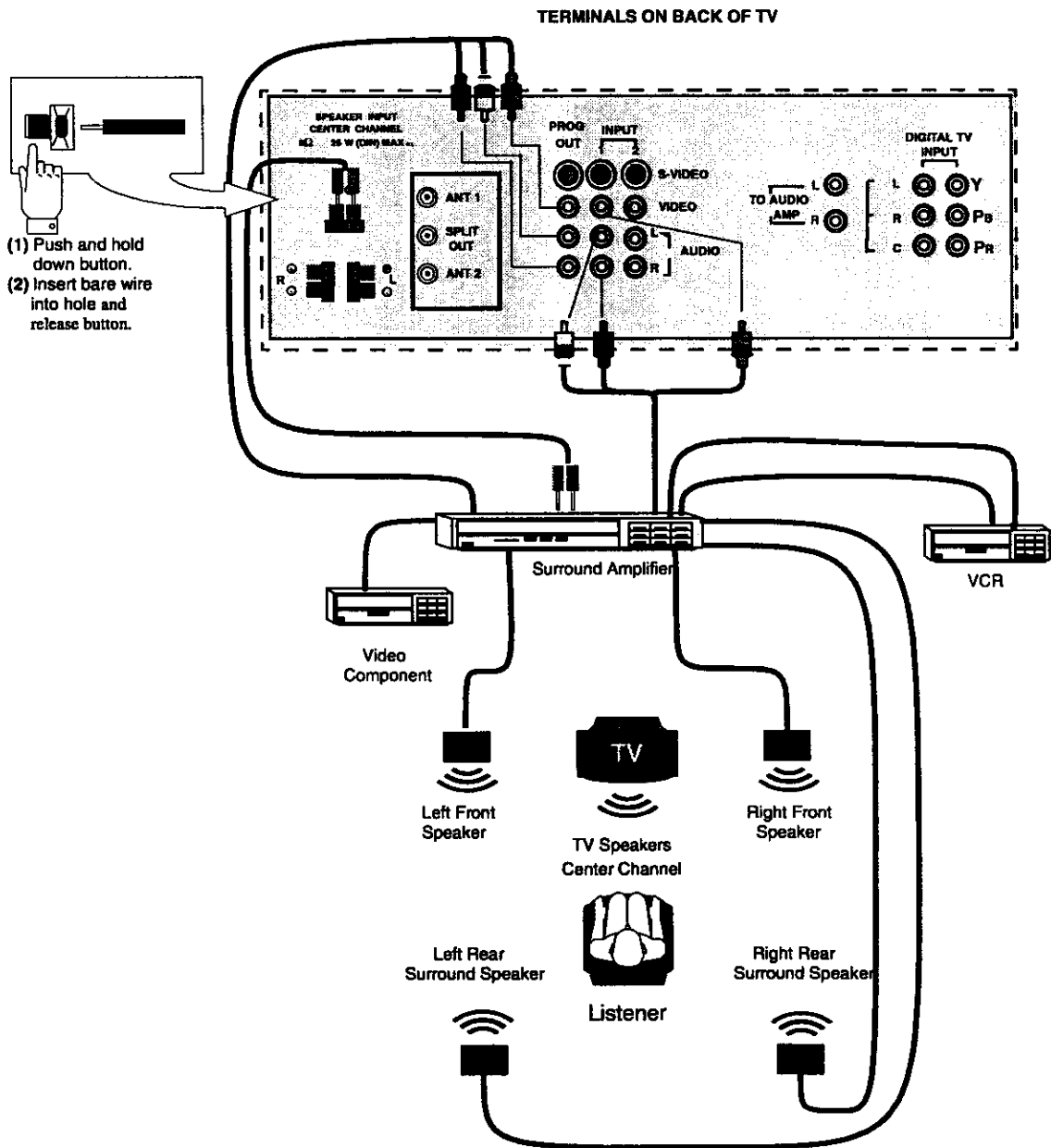
For monitoring the TV audio and video with optional video equipment, connect to **PROG OUT** terminals on the back or front of the TV.

#### Procedure

1. Connect optional video equipment input to the **PROG. OUT (R/L Audio and Video)** terminals.
2. **PROG. OUT** terminal display is the same as the picture on the TV.
3. See optional equipment manual for further instructions for recording or monitoring.

## Home Theater Connection

Your TV internal speakers can be connected as the center channel for a surround sound home theater system. Connect a surround sound amplifier (center channel speaker output) to CENTER CHANNEL INPUT on the back of the TV, as shown. CENT SPEAKER & FIXED AUDIO OUT must be selected in the AUDIO Roller Guide Menu under SPEAKERS.



**REMOTE CONTROL**

**Remote Control**

**ASPECT (Ratio)**

Press to select screen size (ratio) to match programming format.

**LIGHT†**

Press to light remote control on (110-6) seconds.

**POWER**

Press to turn ON and OFF.

**MUTE**

Press to mute sound.

**ACTION**

Press to access menus.

**CH (Channels)**

Press to select next channel and navigate through.

**MEMO (Memory)**

Press to save on-screen images for later viewing.

**M-DISPLAY (Memory Display)**

Press to display on-screen images saved with MEMO button.

**VCR REC REW STOP PLAY FF TV/VCR VCR/DBS CH PAUSE OPEN CLOSE STILL**

Component function buttons.

**SEARCH**

Press to search all or favorite channels by split screen.

**"0" - "9"**

Press numeric keypad to select any channel.

**R-TUNE†**

Press to switch to previously viewed channel.

**TV/VIDEO**

Press to select TV or Video mode.

**VCR DVD AUX RCVR TV DTV CBL DBS**

Press to select remote operation.

**PLAYBACK**

Press to display video memory captured during CATCH UP.

**MENU / PROG (Program)**

Optional buttons for use with a Set-Top Box.

**CATCH UP**

Press to begin video memory capture.

**SPLIT / FF**

Press to view two pictures on a split screen. (Fast forward VCR.)

**SPLIT CHANNEL (up/down arrows)**

Press to select next channel on split screen.

**SWAP**

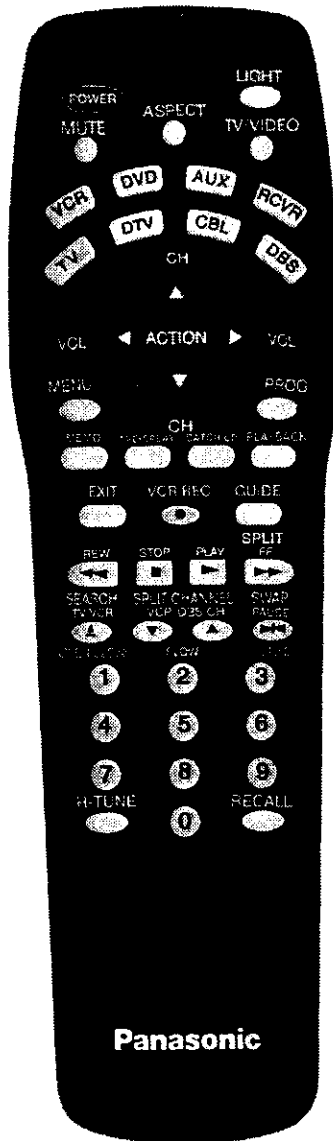
Press to switch pictures on split screen.

**EXIT / GUIDE**

DBS function buttons.

**RECALL†**

Press to display time, channel, sleep timer, and other options.






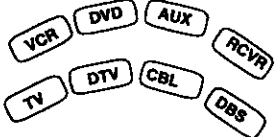
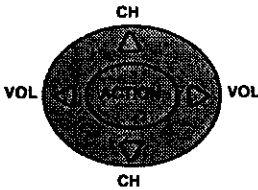







**EUR511153**

†Turn the light OFF and ON by pressing R-TUNE and RECALL, together.












**REMOTE CONTROL FUNCTIONAL KEY CHART**

**Remote Control Functional Key Chart**

Key	Component	Function
	ALL COMPONENTS	Turn components On and Off
LIGHT 	REMOTE CONTROL	Turn remote on/off
MUTE 	TV RCVR CBL	Mute audio
TV/VIDEO 	TV CABLE VCR DBS DTV RCVR LD/CD/DVD AUX	Switch between component and TV
ASPECT 	TV DTV	Change picture size to fit format: 4:3 Standard picture 16:9 Standard viewed full screen FULL Wide picture (16:9) ZOOM Expand picture uniformly
	VCR DVD AUX (CD VCR 2, TAPE) RCVR TV DTV CBL DBS	Component mode selection for Remote Control
	ALL COMPONENTS CH ▲ ▼ CH VOL ◀ ▶ VOL	Except VCR and AUX (Tape) Channel up Up navigation Channel Down Down navigation
ACTION 	TV VCR CABLE DBS	Enter Quick Menu DBS ENTER MENU
MENU 	DTV DVD	Enter On-Screen Menu
PROG 	DTV	Program
MEMO 	TV DTV	Open On-Screen Images
M-DISPLAY 	TV DTV	View saved on-screen images

**REMOTE CONTROL FUNCTIONAL KEY CHART**

**Remote Control Functional Key Chart**

Key	Component	Function
<b>CATCH UP</b> 	TV DTV	Audio/Video memory capture
<b>PLAYBACK</b> 	TV DTV	Audio/Video memory playback
<b>EXIT / GUIDE</b> 	DBS DTV	Exit / Guide Menu
<b>VCR REC</b> 	VCR DBS AUX (Cassette Deck)	Record
<b>REW</b> 	VCR AUX (Cassette Deck)  DVD LD CD RCVR	Rewind  Slow Search (video) Search (audio) Reconnect (DBS)
<b>STOP</b> 	VCR DVD LD CD AUX (Cassette Deck)	Stop
<b>PLAY</b> 	VCR DVD LD CD AUX	Play
<b>SPLIT</b>  FF	TV VCR DVD LD CD RCVR	Split Screen Fast Forward (video) Fast Forward (audio) Fast Forward (DBS) Fast Forward (video) Fast Forward (audio) Fast Forward (DBS)
<b>SEARCH</b> TV/VCR  OPEN/CLOSE	TV  VCR DVD LD CD	Split channel search (TV) Search between closed VCR Open/Close
<b>SWAP PAUSE</b>  STILL	TV VCR DVD CD LD AUX (Cassette Deck and Tape)	Swap (audio/video) Pause Still (video) Pause (audio)
<b>SPLIT CHANNEL</b> VCR/DBS CH  SLOW	TV VCR Cable DBS RCVR DVD LD CD	Split channel (video) Split channel (audio) Split channel (DBS) Original (video) Original (audio) Original (DBS) Control channel (video) (up/down) (TV) SLOW (video) SLOW (audio) SLOW (DBS)



**REMOTE CONTROL FUNCTIONAL KEY CHART**

**Remote Control Functional Key Chart**

Key	Component	Function												
R-TUNE 	TV DTV CABLE DBS DVD LD CD (AUX) AUX (Cassette Deck)	Channel/Source Select												
RECALL 	TV VCR DVD LD DBS CD (AUX) DTV	One Touch Memory Time Format Channel Map Display												
<table border="0"> <tr> <td>①</td> <td>②</td> <td>③</td> </tr> <tr> <td>④</td> <td>⑤</td> <td>⑥</td> </tr> <tr> <td>⑦</td> <td>⑧</td> <td>⑨</td> </tr> <tr> <td></td> <td>⑩</td> <td></td> </tr> </table>	①	②	③	④	⑤	⑥	⑦	⑧	⑨		⑩		TV VCR CABLE DBS  LD CD (AUX) RCVR	Select channel Channel mode  Select chapter Select track Keys 1, 2, and 3 select A/V Inputs on CD; 6 = Input 7 = Input 8 = Cassette Deck 9 = Aux
①	②	③												
④	⑤	⑥												
⑦	⑧	⑨												
	⑩													

**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**

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### **Special Remote Buttons**

#### **Viewing Mode Selections** ASPECT

The **ASPECT** button changes the normal picture display size in response to the signal format or you can change the picture size for your personal viewing preference.

**4:3 ASPECT:** Normal picture size displayed in the center of the viewing screen at full screen height.

**JUST (Justified) ASPECT:** 4:3 picture displayed across the entire viewing screen in 16:9 aspect ratio. The edges of the picture are stretched while keeping images at the center of the screen in proper perspective.

**FULL ASPECT:** 16:9 picture at full screen width and height. Video formats with aspect ratios greater than 16:9 will be displayed at the proper width, so no video information is lost. Black bars will appear above and below the picture.

**ZOOM ASPECT:** Expands the 4:3 picture uniformly (width and height) filling the screen horizontally. The top and bottom of the picture is cut, but can be adjusted in the PICTURE section of the Roller Guide Menu under V-POSITION (Vertical Position). There is no image distortion.

#### **Catch Up Feature** CATCH UP PLAYBACK

The **CATCH UP** button captures the video and sound of the TV program and the **PLAYBACK** button plays back the still pictures at a faster rate, allowing you to "catch up" with the TV program. When the stills catch up with the current program, the TV automatically switches to the current program. The "tortoise and hare" on the bottom of the screen indicate the progress of the catch up feature.

#### **Advanced Channel Search** SEARCH

The **SEARCH** button displays 6 channels simultaneously on the right half of the split screen, allowing you to view the current program on the left side of the split screen. You can program the 6-channel display to search through all available channels or through your "favorite channel" memory.

#### **Memory Function** MEMO M-DISPLAY

The **MEMO** button saves images on screen for later viewing. Save up to six (6) screen images, which are displayed simultaneously or one-at a time on a split screen by pressing the **M-DISPLAY** button

### Component Codes

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

### 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, 140
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
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
Minolta	000, 300
MGA/Mitsubishi	230, 241, 242, 243, 330, 340
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
J.C. Penney	000, 005, 010, 011, 130, 240, 300
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	051, 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
Mont.Wards	006, 009, 200, 210, 290
Yamaha	005, 010, 011, 240
Zenith	290

**COMPONENT CODES**

**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, 704, 710
Panasonic	120, 121, 132
Philips	006, 007, 540, 541, 542
Pioneer	001, 260
Pulsar	005, 544

Brand	Code
Puser	544
RCA	170
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
Television	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 Laser Disc**

Brand	Code
Panasonic	100, 101, 135, 380
Pioneer	370
Sony	140, 141, 142, 143

**Codes for DVD**

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

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

**COMPONENT CODES**

**Codes for CD**

Brand	Code
Admiral	510
Aiwa	562, 564
Carver	550
Denon	600
Emerson	572
Fisher	405
Gerrard	457
Harman/Kardon	459, 460, 462
Hitachi	407
Jensen	563
JVC	590, 591, 670
Kardon	458
Kenwood	400, 401, 450, 670
LXI/Sears	565
Magnavox	550, 561
Marantz	550
Mcintosh	460
Nakamichi	432

Brand	Code
Onkyo	453, 454
Optimus	430, 457, 459, 461
Panasonic	500, 501, 530
Philips	550
Pioneer	430
Quasar	501, 530, 500
RCA	560, 570, 571, 900
Sansui	432, 720
Sanyo	405
Scott	432, 720
Sharp	600, 601
Sherwood	459
Sony	540
Soundesign	620
Teac	451, 455, 457
Technics	500, 501, 530
Victor	590, 591, 670
Yamaha	402, 403, 404

**Codes for Cassette Deck**

Brand	Code
Aiwa	760, 761, 762
Denon	800
Fisher	603
Jensen	657
JVC	780, 781
Kenwood	600, 650
Marantz	751
Nakamichi	631
Onkyo	651, 652, 656
Panasonic	700, 730

Brand	Code
Philips	751
Pioneer	630
RCA	763, 770, 771
Sansui	631, 653
Sharp	800
Sony	740
Teac	653, 654, 658
Technics	700, 730
Yamaha	601, 602

**COMPONENT CODES**

**Codes for Receiver/Amplifier**

Brand	Code
Admiral	170, 730
Aiwa	160, 161
Denon	200, 201, 202
Fisher	004
Garrard	055
Harman	050, 157
Jensen	164
JVC	190, 191
Kenwood	000, 050
Magnavox	162
Marantz	151
McIntosh	058
Nakamichi	031
Onkyo	051, 056

Brand	Code
Optimus	003, 162, 170, 171
Panasonic	100, 101, 130
Philips	150
Pioneer	030, 032
Quasar	100, 101, 130
RCA	003, 030, 162, 170, 171
Sansui	003, 053, 320
Sharp	200, 203
Sony	140
Soundesign	220
Teac	053, 054, 055
Technics	100, 101, 130
Victor	190, 191
Yamaha	001, 002

**Codes for DBS**

Brand	Code
Echo Star	100
G.E.	170
Hitachi	050
Panasonic	100
Philips	001, 002

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

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.

<b>CABLE</b> <input type="text"/> <input type="text"/> <input type="text"/> <b>Cable Box</b>	<b>VCR</b> <input type="text"/> <input type="text"/> <input type="text"/> <b>Video Cassette Recorder</b>	<b>CD / LD</b> <input type="text"/> <input type="text"/> <input type="text"/> <b>Compact / Laser Disc Player</b>
<b>DBS</b> <input type="text"/> <input type="text"/> <input type="text"/> <b>Direct Broadcast Satellite</b>	<b>RCVR</b> <input type="text"/> <input type="text"/> <input type="text"/> <b>Receiver or Amplifier</b>	<b>DVD</b> <input type="text"/> <input type="text"/> <input type="text"/> <b>Digital Videodisc</b>
<input type="text"/> <input type="text"/> <input type="text"/> <b>Other Components</b>	<input type="text"/> <input type="text"/> <input type="text"/> <b>Other Components</b>	<input type="text"/> <input type="text"/> <input type="text"/> <b>Other Components</b>

## PROGRAMMING THE REMOTE CONTROL

### **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, TV, DTV, CBL, 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 (CH) channel or (VOL) volume keys 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.

 <b>Unsuccessful Code</b>
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 **VOL** ► button to move forward to the next code. Press the **VOL** ◀ 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.

## **SPLIT SCREEN OPERATION**


### **Split Screen Operation**

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This television includes a two tuner split screen feature. This allows watching two (2) live broadcasts at the same time with or without an external video source (VCR).

#### **Without a VCR**

##### **Procedure**

- Connect incoming cable to antenna (ANT 1) input on back of TV.
- Press the **SPLIT**  button on the Remote Control to display the Split Screen.

**Note:** *The audio is for the Main Picture, only.*

- Choose channels for the *Split Screen Picture* by pressing the Remote Control **SPLIT CHANNEL** up/down buttons.
- Choose channels for the *Main Picture* by pressing the Remote Control **CH** up/down buttons or by using the numeric keypad.

#### **With a VCR and Cable Box**

**Note:** *The Remote Control must be programmed with supplied codes to operate the VCR and Cable Box. (See Programming the Remote Control.)*

##### **Procedure**

Press the **SPLIT**  button on the Remote Control to display the Split Screen.

**Note:** *The audio is from the Main Picture only.*

To view scrambled channels through your Cable Box on the Split Screen:

- Verify the Cable Box and VCR are ON and the VCR tuned to Channel 3 or 4, depending on the VCR.
- Press the **TV/VIDEO** button on the Remote Control to select the video input from your Cable Box.
- Choose channels for the *Split Screen* by pressing the **SPLIT CHANNEL** up/down buttons on the Remote Control and using the numeric keypad or **CH** up/down buttons.
- Choose channels for the *Main Picture* by pressing the **TV** button on the Remote Control and using the numeric keypad or **CH** up/down buttons.



**Split Screen Operation (Cont.)**

**With a VCR- No Cable Box**

This television includes a two tuner split screen feature. This allows watching two (2) live broadcasts at the same time with or without an external video source (VCR).

**Note:** *The Remote Control must be programmed with supplied codes to operate the VCR and Cable Box. (See Programming the Remote Control.)*


**Procedure**

Press the **SPLIT**  button on the Remote Control to display the Split Screen.

**Note:** *The audio is for the Main Picture, only.*

To view an external video source in the Split Screen:

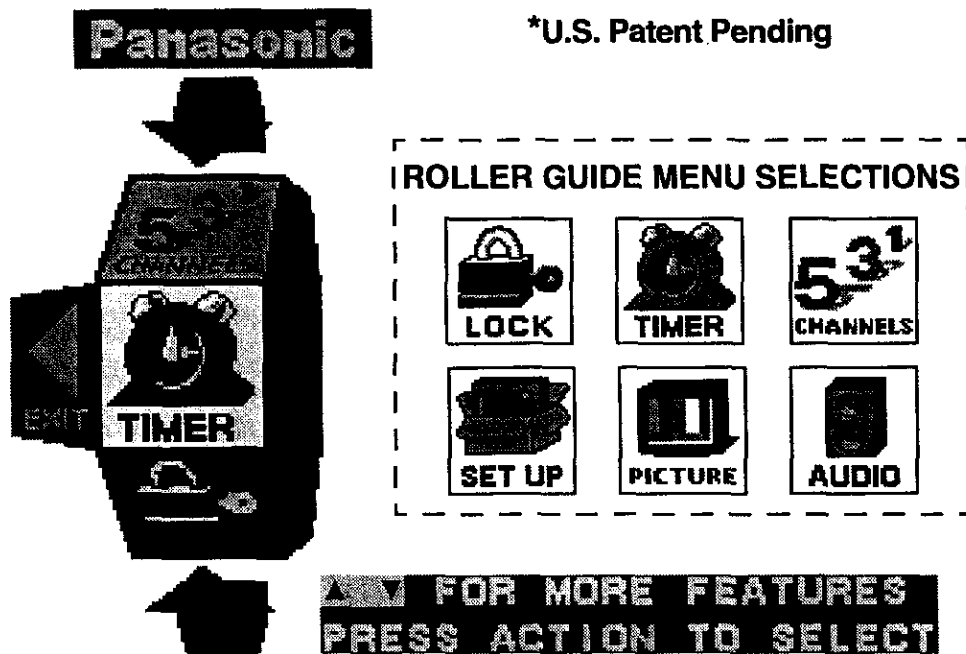
- Press the TV/VIDEO button on the Remote Control to select the video input for your VCR.
- Verify the VCR is on.
- Choose channels for the *Main Picture* by pressing the TV button on the Remote Control and using the numeric keypad or CH up/down button.
- Choose channels for the *Split Screen Picture* by pressing the TV button on the Remote Control and using the **SPLIT CHANNEL** up/down buttons.

	<b>SWAP and RECALL Buttons</b>
The <b>SWAP</b> button switches the Split Screen and Main Picture source. Press the <b>RECALL</b> button for Split Screen status, on-screen.	

## ROLLER GUIDE MENU

### Roller Guide Menu

Press the **ACTION** button in the middle of the large blue button on the Remote Control to display the **Roller Guide Menu**\*. Press the **CH** (channel) up/down to rotate the Roller Guide. Press the Left **VOL** (volume) button to exit the Roller Guide Menu.



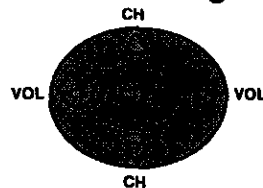
\*U.S. Patent Pending

**Note:** To exit the Roller Guide Menu, press the left **VOL** (Volume) arrow on the **ACTION** button.

### ACTION / Navigation Button




Press the **ACTION** button to select main menu items. Press the up/down **CH** (channel) arrows to highlight sub menus. Press the Right **VOL** arrow to select and adjust features. Press the **ACTION** button to return to sub menus.

### 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 (**CH**) channel or (**VOL**) volume keys may be activated.

**Roller Guide Feature Chart**

MENU	DESCRIPTION
	<p align="center"><b>SET UP</b></p>
<p align="center"><b>LANGUAGES</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Select English, Spanish, or French menu.</li> </ul>
<p align="center"><b>PROG. CHAN</b> (Program Channels)</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>MODE</b> - Select Cable or TV (Antenna). See Installation section in Manual.</li> <li><input type="checkbox"/> <b>ANTENNA</b> - Select ANT 1 or ANT 2.</li> <li><input type="checkbox"/> <b>AUTO PROGRAM</b> - Automatically program channels having a signal into memory.</li> <li><input type="checkbox"/> <b>MANUAL PROGRAM</b> - Manually add or delete channels from memory.</li> </ul>
<p align="center"> (Closed Captioned)</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>CC ON MUTE</b> - Select C1-C4 for Closed Captioning display when the Remote MUTE button is pressed.</li> <li><input type="checkbox"/> <b>CC MODE</b> - Select T1-T4 or C1-C4 for transmitted information, if available, in large black box.</li> </ul>
<p align="center"><b>AUTO POWER</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>AUTO POWER</b> - Select SET to power up the TV at the same time as the Cable Box or other components.</li> </ul>
<p align="center"><b>OTHER ADJ.</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>DTV AUTO</b> - Select ON to view digital broadcasts, when available.</li> <li><input type="checkbox"/> <b>CONVERGENCE</b> - Adjustment may be required when the PTV is moved because of the effects of the Earth's magnetic field on the projection tubes.</li> </ul>
<p align="center"></p>	<p align="center"><b>AUDIO</b></p>
<p align="center"><b>AUDIO ADJ.</b> (Adjustments)</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>MODE</b> - Select STEREO, SAP (Second Audio Program) or MONO. (Use MONO when stereo signal is weak.)</li> <li><input type="checkbox"/> <b>BASS</b> - Increase or decrease the bass response.</li> <li><input type="checkbox"/> <b>TREBLE</b> - Increase or decrease the treble response.</li> <li><input type="checkbox"/> <b>BALANCE</b> - Emphasize the left/right speaker volume.</li> <li><input type="checkbox"/> <b>NORMAL</b> - Reset BASS, TREBLE and BALANCE to factory default.</li> </ul>



**ROLLER GUIDE FEATURE CHART**

**Roller Guide Feature Chart (Cont.)**

MENU	DESCRIPTION
 <p><b>AUDIO</b></p>	<p><b>AUDIO</b></p>
<p><b>SURROUND</b></p>	<p><input type="checkbox"/> SURROUND - Three dimensional surround sound with two speakers.</p>
<p><b>OTHER ADJ.</b> (Adjustments)</p>	<p><input type="checkbox"/> AI SOUND - Automatically adjust volume to maintain a comfortable listening level.</p>
<p><b>SPEAKERS</b></p>	<p><input type="checkbox"/> AUDIO SOURCE</p> <ul style="list-style-type: none"> <li>• TV - speakers operate normally.</li> <li>• EXT &amp; VAO (Variable Audio Output) - TV speakers off - audio adjustable by TV.</li> <li>• EXT &amp; FAO (Fixed Audio Output)- TV speakers off — audio adjustable only by the external amplifier.</li> </ul> <p><input type="checkbox"/> CENT (Center) SPEAKERS - TV speakers provide center channel with surround sound connection. (See installation section in manual.)</p> <p><input type="checkbox"/> SPEAKER VOL - Select HIGH, MIDDLE, or LOW for volume range.</p>
 <p><b>TIMER</b></p>	<p><b>TIMER</b></p>
<p><b>CLOCK SET</b></p>	<p><input type="checkbox"/> When set, TIME will display on screen after pressing POWER button, RECALL button, or changing channels. (Clock must be set to use Timer features.)</p>
<p><b>SLEEP</b></p>	<p><input type="checkbox"/> Set timer to turn off TV in 30, 60, or 90 minutes. Select NO to turn timer off.</p>
<p><b>TIMER 1</b> <b>TIMER 2</b></p>	<p><input type="checkbox"/> Set two timers to automatically turn TV on and off at selected times, on selected channels, and on selected days. (Clock must be set to use Timer features.)</p>


**ROLLER GUIDE FEATURE CHART**

**Roller Guide Feature Chart (Cont.)**

MENU	DESCRIPTION
	<p align="center"><b>PICTURE</b></p>
<p align="center"><b>VIDEO ADJ.</b> (Adjustments)</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> COLOR - Adjust desired color intensity.</li> <li><input type="checkbox"/> TINT - Adjust natural flesh tones.</li> <li><input type="checkbox"/> BRIGHTNESS - Adjust dark areas for crisp detail.</li> <li><input type="checkbox"/> PICTURE - Adjust white areas of picture.</li> <li><input type="checkbox"/> SHARPNESS - Adjust clarity of outline detail.</li> <li><input type="checkbox"/> NORMAL- Reset all picture adjustments to factory default settings.</li> </ul>
<p align="center"><b>OTHER ADJ.</b> (Adjustments)</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> COLOR TEMP - Adjust white balance to COOL (blue), WARM (red) or NORMAL.</li> <li><input type="checkbox"/> SCAN MODE - Picture adjustment when switching between video games and DTV picture, if needed.</li> <li><input type="checkbox"/> V-POSITION - Adjust the vertical position of the picture on-screen when in ZOOM.</li> <li><input type="checkbox"/> COLOR MATRIX - Select AUTO to automatically adjust color parameters for HD (high definition) and SD (standard definition) transmissions or use manually for best picture.</li> </ul>
	<p align="center"><b>CHANNELS</b></p>
<p align="center"><b>FAVORITES</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> CHANNEL SCAN - Select FAV (15 favorites) or ALL channels to scan channels using the up/down CH buttons.</li> </ul>
<p align="center"><b>CAPTION</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> PRESET CAPTION - Enter channel numbers for preset captions.</li> <li><input type="checkbox"/> MANUAL CAPTION - Enter channel numbers and captions manually.</li> <li><input type="checkbox"/> INPUT LABEL - Label video connections for on-screen display of optional equipment.</li> </ul>

**ROLLER GUIDE FEATURE CHART**

**Roller Guide Feature Chart (Cont.)**

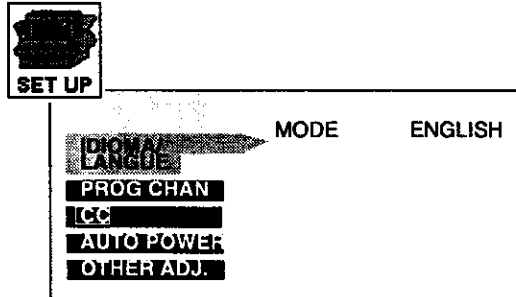
<b>MENU</b>	<b>DESCRIPTION</b>
 <b>LOCK</b>	<b>LOCK</b>
<b>CHANNEL</b>	<input type="checkbox"/> Select channels to lock out for 12, 24, or 48 hours with a secret code.
<b>GAME GUARD</b>	<input type="checkbox"/> Lock out video games, cable box, and VCR's from being viewed for 12, 24, or 48 hours with a secret code.
<b>ALL</b>	<input type="checkbox"/> Lock out all channels and video inputs for 12, 24, or 48 hours with a secret code.

**Special Features**

**SET UP**

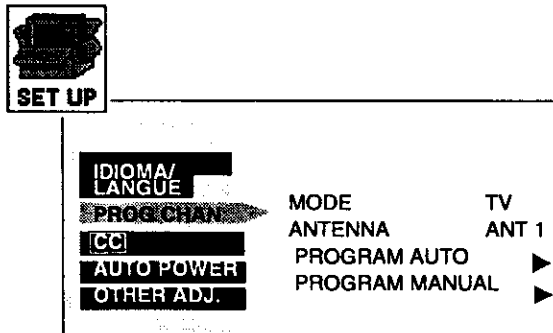
**Language**

In SET UP Menu, select IDIOMA / LANGUE to change menu language to ENGLISH, ESPAÑOL or FRANÇAIS.



**Cable Mode / TV Mode**

In SET UP Menu, select PROG CHAN to select TV (antenna) MODE or CABLE MODE depending on the signal source. Select Antenna 1 or 2 depending on the input on back of TV. Choose PROGRAM AUTO to automatically program all channels having a signal or choose PROGRAM MANUAL to manually add or delete channels.



## SPECIAL FEATURES

### **CC** (Closed Captioned)

This television contains a built in decoder that is capable of providing a visual depiction of the audio portion. The program viewed must include Close Captioning (CC) for the television to display it. CC 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.

### **CC** Mode

- In Set Up Menu, select CC (Closed Caption)
- Press the ▲ or ▼ to select **CC** MODE
- Press now ◀ or ▶ to select OFF, C1, C2, T1, T2, C3, C4, T3 or T4.
  - CAPTION OFF - Use when Closed Caption is not desired.
  - CAPTION C1 - 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 C2 - Another mode used for video related information.
  - CAPTION C3 and C4 - 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 twice to exit menus.

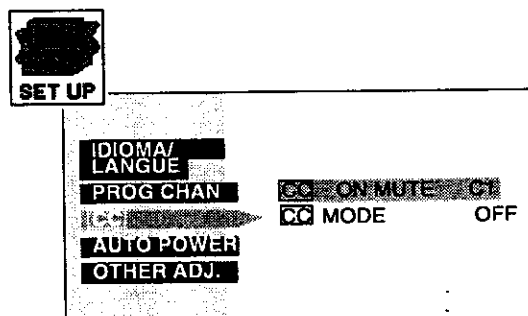
### **CC** On Mute

Activates the On Screen Closed Caption feature when the MUTE button on the Remote Control is pressed. To deactivate press the MUTE button again.

*Note: This feature only functions when the Closed Caption Mode is in the "OFF" position. The program being viewed must be broadcast with Closed Caption. (Refer to your local TV guide).*

- In Set Up Menu, select **CC** (Closed Caption).
- Press the ▲ or ▼ to select **CC** ON MUTE.
- Press now ◀ or ▶ to select No, C1, C2, C3, or C4.
- Recommended Set Up for Closed Caption when using the MUTE button
  - **CC** ON MUTE: C1
  - **CC** MODE: OFF
- Press ACTION exit menus.
- Press Mute when the program being viewed is broadcast with Closed Caption to activate.

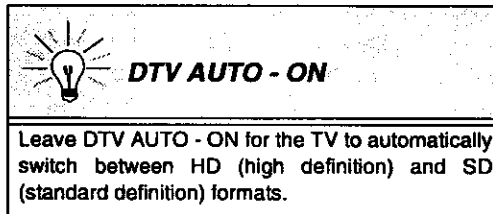
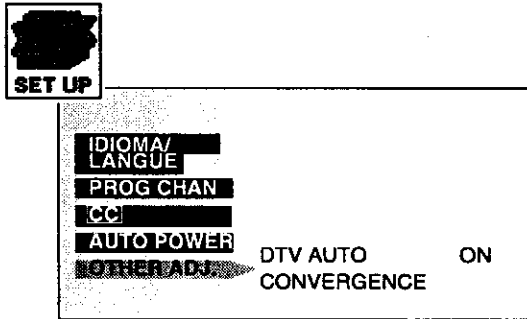
Press MUTE again to deactivate.





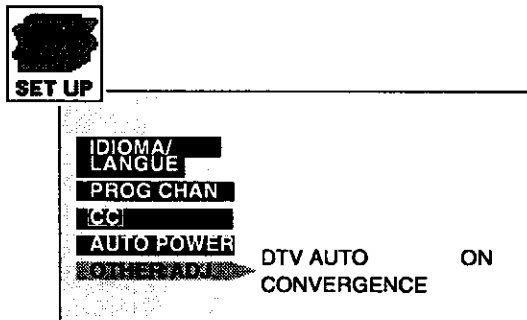
**DTV**

In SET UP menu, select DTV AUTO ON to receive digital TV broadcasts using a Panasonic Set-top Box.



**Convergence**

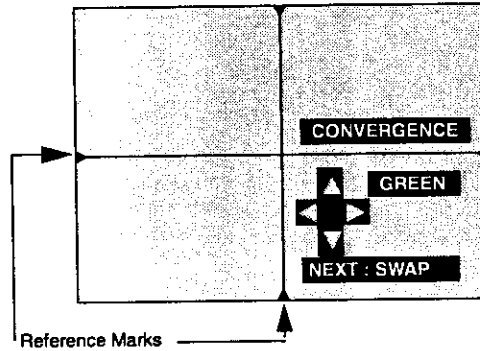
In SET UP menu, select CONVERGENCE under OTHER ADJ. only after moving the TV to adjust for the effects of the earth's magnetic field on the projection tubes.



**Note:** *Convergence seldom needs adjusting, except when moving the TV.*

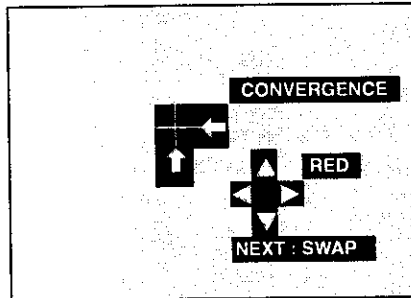
## **SPECIAL FEATURES**

Use the navigation buttons to align the horizontal and vertical green lines on screen with the outside reference marks, as shown below. Press the **SWAP** button to move to the RED CONVERGENCE screen.




### **Convergence (Cont.)**

Use the navigation buttons to align the red cross with the white cross pattern at the center of the screen. Press **SWAP** to continue to the blue convergence adjustment screen and repeat.



**Note:** TO PREVENT PICTURE TUBE DAMAGE, DO NOT LEAVE TEST PATTERN ON FOR AN EXTENDED PERIOD OF TIME.



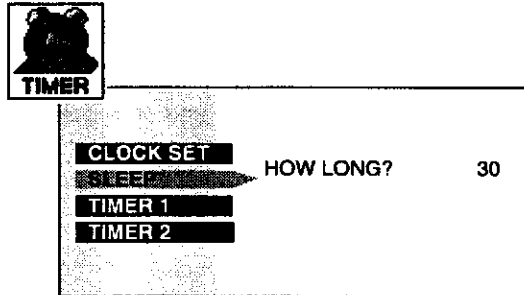
### **Convergence Adjustment**

A properly adjusted cross pattern appears white with a minimum of color fringing.

**TIMER**

**Sleep**

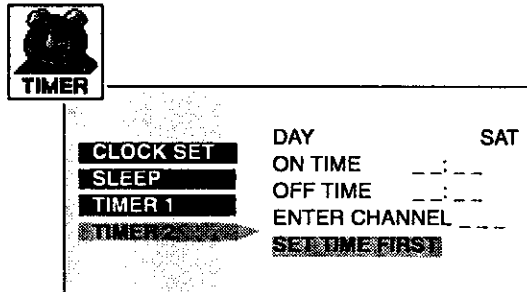
In **TIMER** menu, select **SLEEP** to turn TV off in 30, 60, or 90 minutes. Select **NO** to turn off timer.




**Note:** *SLEEP and TIMER features are unavailable when AUTO POWER is on.*

**Timer 1 and Timer 2**

In **TIMER** menu select two timers, **TIMER 1** and **TIMER 2**, to turn the TV on and off at selected times, on selected channels, and on selected days.




**Note:** *TIME must be entered in CLOCK SET to operate TIMER features.*



**Turn Off After 90 Minutes**

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The TV automatically turns OFF after 90 minutes when turned on by the **TIMER**. If the **OFF** time is selected or if any key is pressed, the automatic OFF after 90 minutes will be cancelled.



**TIMER Activation**

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The **TIMER** is active when the TV is OFF or ON. The TV will switch to the selected channel at the selected time set in the **TIMER**.

## **SPECIAL FEATURES**

### **PICTURE**

#### **Other Adjustments**

Use these picture adjustments to improve the picture quality. In PICTURE menu under OTHER ADJ., select COLOR TEMP (temperature) to increase or decrease WARM (red) and COOL (blue) colors to suit personal preferences. Select SCAN CORRECTION ON if the picture looks unusual. Select V-POSITION when in ZOOM (ASPECT button) to adjust vertical position. Select COLOR MATRIX AUTO to automatically adjust color for high or low definition signal formats or change manually for best picture quality.



<b>VIDEO ADJ.</b>	COLOR TEMP	NORMAL
<b>OTHER ADJ.</b>	SCAN CORRECTION	ON
	V-POSITION	31
	COLOR MATRIX	AUTO

**Note:** When SCAN CORRECTION, V-POSITION, AND COLOR MATRIX are not highlighted, they are not adjustable in the current operating mode..



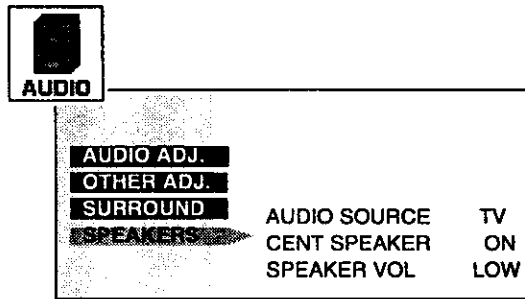
#### **COLOR MATRIX - AUTO**

Leave COLOR MATRIX on AUTO to adjust for high definition and low definition color formats or change manually for best picture.

**AUDIO**

**Speakers**

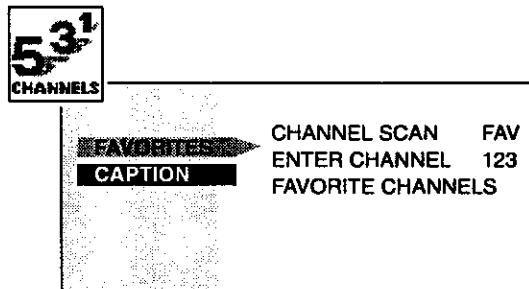
In AUDIO menu under SPEAKERS, select AUDIO SOURCE - TV for normal TV speakers, select EXT & VAO (variable audio out) to adjust speakers from TV controls, or select EXT & FAO (fixed audio out) to adjust speakers from an external amplifier. Select CENT SPEAKER ON to operate TV speakers as center speakers for surround sound. (See Installation section in the manual.) Select SPEAKER VOL (volume) to choose LOW, MIDDLE, or HIGH volume range.



**CHANNELS**

**Favorites**

In CHANNELS menu under FAVORITES, select CHANNEL SCAN FAV to enter 15 favorite channels or select CHANNEL SCAN ALL to scan all channels when using the up/down CH buttons.



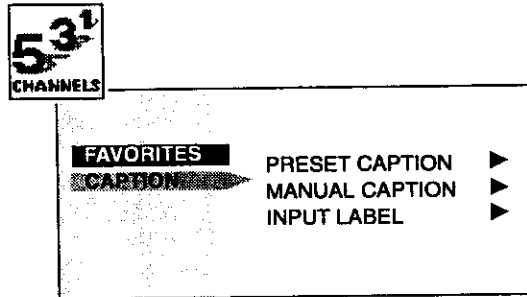
## SPECIAL FEATURES

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### CHANNELS

#### Caption

In CHANNELS menu under CAPTION, select PRESET CAPTION to enter channel labels for popular TV stations. Select MANUAL CAPTION to enter numbers and captions manually. Select INPUT LABEL to label video input connections for on-screen display by source (VCR, DVD, etc.). Press right VOL arrow on ACTION button to access sub menus.

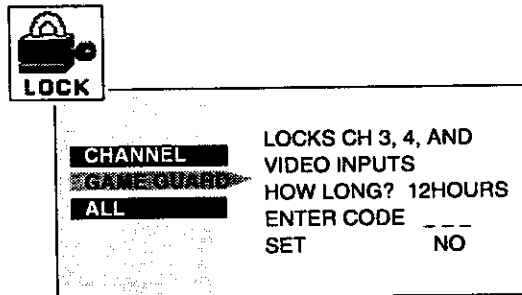


### LOCK

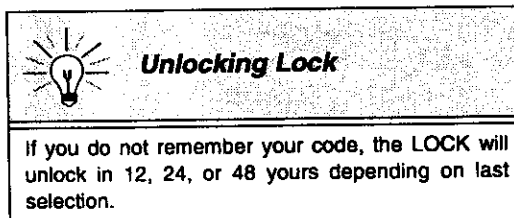
#### Game Guard

In LOCK menu, select GAME GUARD to lock Channel 3, Channel 4, and video inputs for 12, 24, or 48 hours by entering a three-digit secret code using the numeric keypad. Select CHANNEL to lock all channels or select ALL to lock both channels and video inputs.

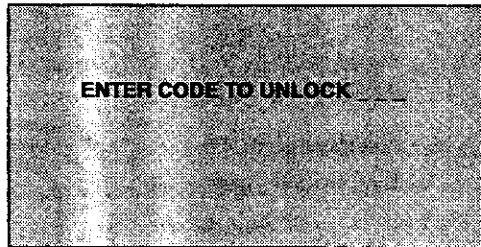
Unlock GAME GUARD by reentering the same three-digit secret code.



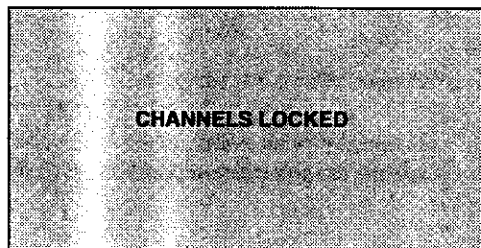
**Note:** Understand how to unlock CHANNELS, GAME GUARD, and ALL before locking. Use a code that is easy to remember or record it in a safe place.



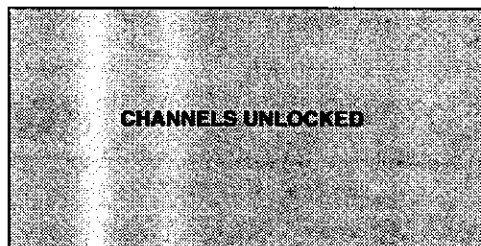
**Unlocking Channel, Game Guard, and All**



Enter the same three-digit code.



If the three-digit code is not the same as entered previously.

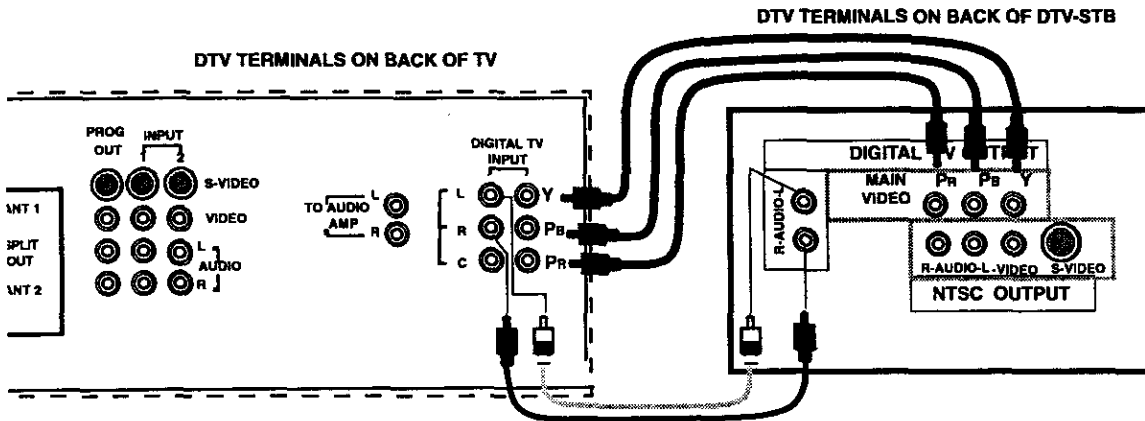


If the same three-digit code is used.

## DIGITAL TV - SET-TOP BOX (DTV-STB) CONNECTION

### Digital TV - Set-Top Box (DTV-STB) Connection

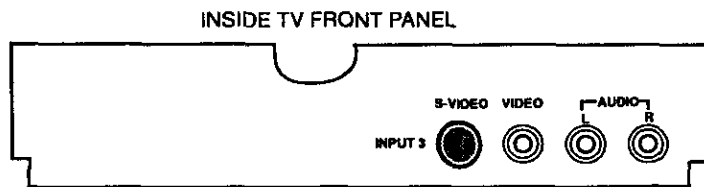
Use this diagram to connect the Panasonic DTV-STB (Digital TV-Set-Top Box) to the back of your TV.



**Note:** There are three video inputs, Y, Pb, and Pr. Separate component color inputs provide luminance and color separation. Use the L (left) and R (right) audio inputs.

### Front Audio/Video Connections

Open the door on the TV front panel to use the connections for your optional equipment.





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## **Glossary**

### **Digital Television**

Digital Television (DTV) broadcasts are scheduled to become available in 10 major U.S. markets. Broadcasts will be in both high definition (HDTV) and standard definition (SDTV). The HDTV signal formats are 1080i (interlaced scan) and 720p (progressive scan). SDTV signal formats are 480i and 480p.

### **HDTV-Compatible (1080i)**

HDTV-compatible TV models process and display the high definition output from a DTV Set-top Box (STB) at 1080i (interlaced) lines. When 1080i HDTV is available in your viewing area, your TV will be compatible when using a Panasonic DTV-STB, Panasonic model #TU-DST50.

### **SDTV-Compatible (480p)**

SDTV-compatible TV models process and display the standard definition output with the use of a Panasonic DTV-STB at 480 lines, interlaced or progressive scan. When DTV programming is available, you can view it in the standard format, 4:3 aspect ratio.

### **DTV Compatibility of PT-56WXF90**

This TV is capable of displaying the 1080i HDTV signal as well as the 480p SDTV signal using the Panasonic DTV-STB, model TU-DST50. In order to view DTV programming, the TV must be connected to DTV-STB component video inputs (Y, Pr, Pb) and audio inputs and in DTV mode. A DTV signal must be available in your area and the DTV-STB must be tuned to the proper channel.

*Note: DVD players should be connected to the S-Video input unless the DVD is 480p output.*

### **Color Matrix Adjustment**

When viewing DTV programming from a DTV-STB, this TV automatically adjusts the color parameters between 1080i and 480p transmissions. However, when viewing a nonstandard DTV signal format, you can change the color parameters manually in the Roller Guide PICTURE Menu for best picture quality.

### **Progressive Scan**

Progressive scan de-interlaces the incoming signal and progressively scans the image. This allows you to sit very close to the TV and not see the thin black horizontal scan lines (venetian blind effect) associated with an interlaced picture.

### **Vertical Position Adjustment (V-Position)**

When operating this TV in ZOOM aspect, you can raise or lower the image depending on your personal viewing preference in the PICTURE Menu under V-POSITION.

### **Five Speaker Sound System**

The 5-speaker sound system combines 2 full-range speakers with 2 tweeters to reproduce the entire range of audio in crisp, clear stereo. The fifth speaker, a center speaker, allows you to play center channel audio through the TV without the need for an external speaker.

## ***FREQUENTLY ASKED QUESTIONS ABOUT DIGITAL TV***

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### ***Frequently Asked Questions About Digital TV***

#### **What is digital TV (DTV)?**

In April, 1997, the FCC (Federal Communications Commission) announced that, by 2006, all television broadcasting will be digital. Digital TV broadcasting delivers crystal-clear pictures, approaching the quality of 35mm movies and CD (compact disc) sound. Digital broadcasts include both High Definition Television (HDTV) and Standard Definition Television (SDTV). Broadcasters may choose their own broadcast formats.

#### **HDTV (High Definition Television)**

One form of digital broadcasting is HDTV, which provides the highest resolution picture. Besides incredible picture, the sound is available in the 5.1 channel surround sound.

#### **SDTV (Standard Definition Television)**

Another form of digital broadcasting is SDTV, which provides lower resolution, but still presents a very sharp, clear picture. Lower resolution allows broadcasters to transmit more than one program per channel.

#### **When will TV stations start broadcasting digital signals?**

Television stations are required to continue broadcasting regular TV signals along side the digital signals until 2006. Cable TV and satellite TV are not affected by this FCC ruling.

All stations are required to become digital by 2006. This will be an evolutionary process. According to the FCC, digital broadcasting must be available in the top ten markets, covering 30% of households by May 1999. By the end of 1999, digital broadcasting must be available in the top 30 markets, covering 50% of households.

#### **Will I be able to adapt my current TV to receive digital broadcasts?**

Manufacturers will offer a digital TV set-top box (DTV-STB) which will allow current televisions to display digitally broadcast programs. The picture and sound quality will be about the same as small dish digital satellite systems today.

Conventional televisions (non-digital televisions) will not be able to display the HDTV resolution quality or sound.

#### **What digital formats will broadcasters use?**








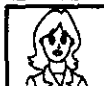












There are presently four DTV formats: 1080i (interlaced), 720p (progressive), 480i and 480p. The higher numbers indicate a higher resolution picture.

In an interlaced picture, the odd numbered lines (picture information) are scanned first creating field 1 and then the even numbered lines are scanned, creating field 2. The two fields are then interlaced to provide the entire image (one frame). This process happens in 1/30<sup>th</sup> of a second and is invisible to the human eye. In progressive scanning, all lines in the entire frame are scanned sequentially in 1/60<sup>th</sup> of a second.

Broadcasters may choose to transmit different levels of resolution throughout the day, broadcasting day programs in SDTV and night sports and movies in HDTV.

**Troubleshooting Chart**

Before calling for service, determine the symptoms and follow suggested solutions.

<b>AUDIO</b>	<b>VIDEO</b>	<b>Solutions</b>
 Noisy Audio	 Snowy Video	Adjust Antenna Location and Connection
 Noisy Audio	 Multiple Image	Adjust Antenna Location and Connection Check Antenna Lead-in Wire Change Scan Correction in PICTURE Menu
 Noisy Audio	 Interference	Move TV from Electrical Appliances, Lights, Vehicles, and Medical Equipment
 No Audio	 Normal Video	Increase Volume Check Mute Check TV SPEAKERS on/off Change Channel
 Noisy Audio	 No Video	Set TV or Cable Mode Property Check Antenna Cables
 No Audio	 No Video / No Split Screen	Check Power Cord is Plugged into Active Outlet Adjust Brightness and Audio Controls Change Channel Check Cable Connections Program the Remote Control Again Check Second Video Source Operation
 Normal Audio	 No Color	Adjust Color Settings Change Channel
 Wrong Audio	 Normal Video	Check Audio is Set To Stereo Or Mono, Not SAP
 Normal Audio	 Black Box on Screen	Change CC (Closed Captioning) from Text Mode
 Normal Audio	 Normal Video	Replace Remote Control Batteries
Intermittent Remote Control Operation		

