



# Panasonic®

## Operating Instructions

### Digital Progressive

### Plasma Television

Model No. **TH-37PD25**  
**TH-42PD25**



**For assistance, please call : 1-888-VIEW-PTV(843-9788)**  
or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)  
or visit us at [www.panasonic.com](http://www.panasonic.com)

(U.S.A.)

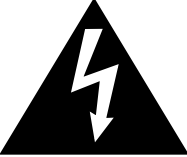
**For assistance, please call : 787-750-4300**  
or visit us at [www.panasonic.com](http://www.panasonic.com)

(Puerto Rico)

Before connecting, operating or adjusting this product, please read these instructions completely.  
Please keep this manual for future reference.

**English**

TQBC0761

	<b>WARNING</b> <b>RISK OF ELECTRIC SHOCK</b> <b>DO NOT OPEN</b>	
<b>WARNING: To reduce the risk of electric shock, do not remove cover or back. No user-serviceable parts inside. Refer servicing to qualified service personnel.</b>		

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 reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not place liquid containers (flower vase, cups, cosmetics, etc.) above the set. (including on shelves above, etc.)**

**WARNING: AS WITH ANY SMALL OBJECT, SD CARDS CAN BE SWALLOWED BY YOUNG CHILDREN. DO NOT ALLOW CHILDREN TO HANDLE THE SD CARD.**


**WARNING:** 1) To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.  
 2) Do not remove the grounding pin on the power plug. This apparatus is equipped with a three pin grounding-type power plug. This plug will only fit a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician.  
 Do not defeat the purpose of the grounding plug.

**Note:**  
 Do not allow a still picture to be displayed for an extended period, as this can cause a permanent after-image to remain on the Plasma Television.  
 Examples of still pictures include logos, video games, computer images, teletext and images displayed in 4:3 mode.

	Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbols are trademarks of Dolby Laboratories.
---	---

	HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.
---	---

	: SD Logo is a trademark.
---	---------------------------

	Manufactured under license from BBE Sound, Inc. Licensed by BBE Sound, Inc. under USP4638258, 4482866, 5510752 and 5736897. BBE and BBE symbol are registered trademarks of BBE Sound, Inc.
---	---

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 Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

U.S. Patents Nos. 4,631,603; 4,577,216; 4,819,098; 4,907,093; 6,381,747; and 6,516,132.

# Important Safety Instructions

- 1) Read these instructions.  
All the safety and operating instructions should be read before the appliance is operated.
- 2) Keep these instructions.  
The safety and operating instructions should be retained for future reference.
- 3) Heed all warnings.  
All warnings on the appliance and in the operating instructions should be adhered to.
- 4) Follow all instructions.  
All operating and use instructions should be followed.
- 5) Do not use this apparatus 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.
- 6) Clean only with dry cloth.  
Do not use liquid cleaners or aerosol cleaners. Use a dry cloth for cleaning.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.  
Slots and Openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.  
This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments / accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart / apparatus combination to avoid injury from tip-over.  
Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.  
This will prevent damage to the product due to lightning and power-line surges.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 15) To prevent electric shock, ensure the grounding pin on the AC cord power plug is securely connected.



# *Dear Panasonic Customer*

*Welcome to the Panasonic family of customers. We hope that you will have many years of enjoyment from your new Plasma TV.*

*To obtain maximum benefit from your set, please read these Instructions before making any adjustments, and retain them for future reference.*

*Retain your purchase receipt also, and record the model number and serial number of your set in the space provided on the back cover of these instructions.*

*Visit our Panasonic Web Site : [www.panasonic.com](http://www.panasonic.com)*

<p><b>For assistance, please call : 1-888-VIEW-PTV(843-9788)</b> or send e-mail to : <a href="mailto:consumerproducts@panasonic.com">consumerproducts@panasonic.com</a> or visit us at <a href="http://www.panasonic.com">www.panasonic.com</a> (U.S.A.)</p>
--

<p><b>For assistance, please call : 787-750-4300</b> or visit us at <a href="http://www.panasonic.com">www.panasonic.com</a> (Puerto Rico)</p>
--

# FCC STATEMENT

## FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

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.

### FCC CAUTION:

**To assure continued compliance and possible undesirable interference, the provided ferrite cores must be used when connecting this plasma television to video equipment; and maintain at least 40 cm spacing to other peripheral devices. Refer to instructions on pages 10, 12, 13, 17, 18.**

**Any changes or modifications to this TV not expressly approved by Matsushita Electric Corporation of America could result harmful interference and would void the user's authority to operate this device.**

### FCC Declaration of Conformity Model No. TH-37PD25, TH-42PD25

Responsible Party: Matsushita Electric Corporation of America  
One Panasonic Way, Secaucus, NJ 07094  
Contact Source: Panasonic Consumer Electronics Company  
1-888-843-9788  
email: [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

### Trademark Credits

- VGA is a trademark of International Business Machines Corporation.
- Macintosh is a registered trademark of Apple Computer, USA.
- S-VGA is a registered trademark of the Video Electronics Standard Association.

Even if no special notation has been made of company or product trademarks, these trademarks have been fully respected.

# Table of Contents

<b>Important Safety Instructions</b> .....	<b>3</b>	Timer .....	33
<b>FCC STATEMENT</b> .....	<b>5</b>	Sleep .....	33
<b>Safety Precautions</b> .....	<b>7</b>	Timer .....	34
Cleaning and maintenance .....	8	Clock Set .....	35
<b>Installation</b> .....	<b>9</b>	Day Set .....	35
Receiver Location .....	9	Setup .....	36
Optional External Equipment .....	9	Program CH .....	36
Remote Control Battery Installation .....	9	Auto Scan .....	37
<b>Accessories</b> .....	<b>10</b>	Manual Program .....	37
<b>Cable Connection</b> .....	<b>11</b>	Closed Caption .....	39
Antenna Connection .....	12	Other Adjust .....	41
Cable Box Connection .....	13	CableCARD .....	41
CableCARD Connection .....	13	Lock .....	42
HDMI Connection .....	14	Password .....	42
Digital TV - Set-Top Box (DTV-STB) or DVD Connection .....	15	Lock Set .....	42
VCR Connection .....	15	Channel Lock .....	43
Amplifier Connection (TO AUDIO AMP) .....	16	Block Program .....	43
Program Out Connection (PROG OUT) .....	16	How Long? .....	45
Connecting Headphones / Earphones .....	17	Blocking Messages .....	45
Connecting to the front AV terminals .....	17	<b>Photo Viewer</b> .....	<b>46</b>
PC Input Terminals Connection .....	18	Thumbnail Mode .....	48
<b>Power ON / OFF</b> .....	<b>19</b>	Photo Viewer Setup Menu .....	49
<b>Location of Controls</b> .....	<b>19</b>	Slide Show .....	49
The Main Unit .....	19	Rotate .....	50
The Illuminated Remote Control .....	20	Zoom .....	50
<b>First Time Setup</b> .....	<b>22</b>	Photo Viewer Troubleshooting .....	51
<b>Watching TV programs</b> .....	<b>23</b>	<b>PIP (Picture in Picture) Operation</b> .....	<b>52</b>
VHF and UHF .....	23	<b>SPLIT Operation</b> .....	<b>54</b>
Cable TV .....	23	<b>Aspect Controls</b> .....	<b>56</b>
<b>Menu Navigation</b> .....	<b>24</b>	<b>PC MENU</b> .....	<b>57</b>
Picture .....	26	<b>Operating peripheral equipment using the remote control ...</b>	<b>59</b>
Pic Mode .....	26	Programming the remote control code .....	59
Color / Tint / Brightness / Picture / Sharpness / Normal .....	26	Infrared Code Index .....	60
Other Adjust .....	26	Mode Operational Key Chart .....	63
Audio .....	28	<b>Troubleshooting Chart</b> .....	<b>65</b>
Bass / Treble / Balance / Normal .....	28	<b>VIDEO/COMPONENT/RGB/PC/HDMI input signals ...</b>	<b>66</b>
Other Adjust .....	28	<b>Specifications</b> .....	<b>67</b>
Channel .....	30		
Favorite .....	30		
Captions .....	31		

# Safety Precautions

## WARNING

### Set up

**Do not place the Plasma TV on sloped or unstable surfaces.**

- The Plasma TV may fall off or tip over.

**Do not place any objects on top of the Plasma TV.**

- If water spills onto the Plasma TV or foreign objects get inside it, a short-circuit may occur which could result in fire or electric shock. If any foreign objects get inside the Plasma TV, please consult an Authorized Service Center.

**Do not cover the ventilation holes.**

- Doing so may cause the Plasma TV to overheat, which can cause fire or damage to the Plasma TV.

**If using the pedestal, leave a space of 3 15/16" (10 cm) or more at the top, left and right, 2 3/8" (6 cm) or more at the bottom, and 2 3/4" (7 cm) or more at the rear. If using some other setting-up method, leave a space of 3 15/16" (10 cm) or more at the top, bottom, left and right, and 3/4" (1.9 cm) or more at the rear.**

**Avoid installing this product near electronic equipment that easily receives electromagnetic waves.**

- It may cause interference in image, sound, etc. In particular, keep video equipment away from this product.

### AC Power Supply Cord

**The Plasma TV is designed to operate on 120 V AC, 50/60 Hz.**

**Securely insert the power cord plug as far as it will go.**

- If the plug is not fully inserted, heat may be generated which could cause fire. If the plug is damaged or the wall socket plate is loose, they should not be used.

**Do not handle the power cord plug with wet hands.**

- Doing so may cause electric shocks.

**Do not do anything that might damage the power cable. When disconnecting the power cable, hold the plug, not the cable.**

- Do not make any modifications, place heavy objects on, place near hot objects, heat, bend, twist or forcefully pull the power cable. Doing so may cause damage to the power cable which can cause fire or electric shock. If damage to the cable is suspected, have it repaired at an Authorized Service Center.

**If the Plasma TV will not be used for a long period of time, unplug the power cord from the wall outlet.**

### If problems occur during use

**If a problem occurs (such as no picture or no sound), or if smoke or an abnormal odor is detected from the Plasma TV, unplug the power cord immediately.**

- Continuous use of the TV under these conditions might cause fire or permanent damage to the unit. Have the TV evaluated at an Authorized Service Center. Services to the TV by any unauthorized personnel are strongly discouraged due to its high voltage dangerous nature.

**If water or foreign objects get inside the Plasma TV, if the Plasma TV is dropped, or if the cabinet becomes damaged, disconnect the power cord plug immediately.**

- A short may occur, which could cause fire. Contact an Authorized Service Center for any repairs that need to be made.

# Safety Precautions

---

## CAUTION

**This Plasma TV is for use only with the following optional accessories. Use with any other type of optional accessories may cause instability which could result in the possibility of injury.**

(All of the following accessories are manufactured by Matsushita Electric Industrial Co., Ltd.)

- Pedestal (included) ..... TY-ST42PA20
- Wall-hanging bracket (Vertical) ..... TY-WK42PV3U, TY-WK42PV2W
- Wall-hanging bracket (Angled) ..... TY-WK42PR2U
- Display stand ..... TY-DP4201W

Always be sure to ask a qualified technician to carry out set-up.

### When using the Plasma TV

**Do not bring your hands, face or objects close to the ventilation holes of the Plasma TV.**

- Top of the Plasma TV is usually very hot due to the high temperature of exhaust air being released through the ventilation holes. Burns or personal injuries can happen if any body parts are brought too close. Placing any object near the top of the TV could also result in heat damages to the object as well as to the TV if its ventilation holes are blocked.

**Be sure to disconnect all cables before moving the Plasma TV.**

- Moving the TV with its cables attached might damage the cables which, in turn, can cause fire or electric shock.

**Disconnect the power plug from the wall outlet as a safety precaution before carrying out any cleaning.**

- Electric shocks can result if this is not done.

**Clean the power cable regularly to prevent it from becoming dusty.**

- Built-up dust on the power cord plug can increase humidity which might damage the insulation and cause fire. Unplug the cord from the wall outlet and clean it with a dry cloth.

**This Plasma TV radiates infrared rays, therefore it may affect other infrared communication equipment.**

**Install your infrared sensor in a place away from direct or reflected light from your Plasma TV.**

---

## Cleaning and maintenance

---

**The front of the display panel has been specially treated. Wipe the panel surface gently using only a cleaning cloth or a soft, lint-free cloth.**

- If the surface is particularly dirty, soak a soft, lint-free cloth in a weak detergent solution and then wring the cloth to remove excess liquid. Use this cloth to wipe the surface of the display panel, then wipe it evenly with a dry cloth, of the same type, until the surface is dry.
- Do not scratch or hit the surface of the panel with fingernails or other hard objects. Furthermore, avoid contact with volatile substances such as insect sprays, solvents and thinner, otherwise the quality of the surface may be adversely affected.

**If the cabinet becomes dirty, wipe it with a soft, dry cloth.**

- If the cabinet is particularly dirty, soak the cloth in a weak detergent solution and then wring the cloth dry. Use this cloth to wipe the cabinet, and then wipe it dry with a dry cloth.
- Do not allow any detergent to come into direct contact with the surface of the Plasma TV. If water droplets get inside the unit, operating problems may result.
- Avoid contact with volatile substances such as insect sprays, solvents and thinner, otherwise the quality of the cabinet surface may be adversely affected or the coating may peel off. Furthermore, do not leave it for long periods in contact with articles made from rubber or PVC.

**Note:**

Do not allow a still picture to be displayed for an extended period, as this can cause a permanent after-image to remain on the Plasma TV.

Examples of still pictures include logos, video games, computer images, teletext and images displayed in 4:3 mode.



# Installation

## Receiver Location

This unit is intended to be used with an optional stand or entertainment center. Consult your dealer for available options. Locate for comfortable viewing. Avoid placing where sunlight or other bright light (including reflections) will fall on the screen.

Use of some types of fluorescent lighting can reduce remote control transmitter range.

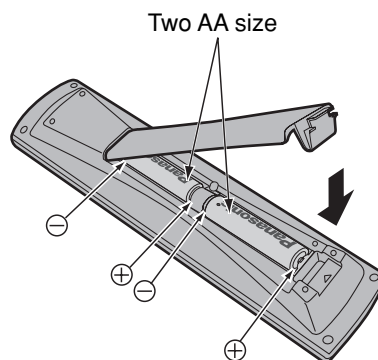
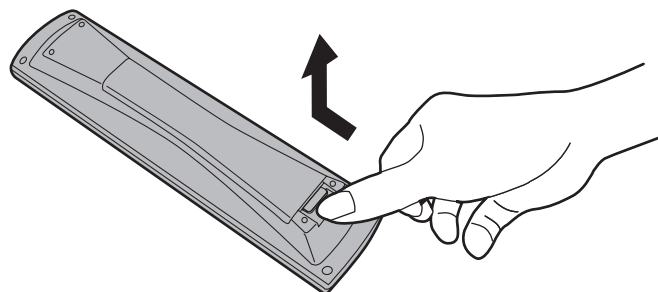
Adequate ventilation is essential to prevent internal component failure. Keep away from areas of excessive heat or moisture.

## Optional External Equipment

The Video/Audio connection between components can be made with shielded video and audio cables. For best performance, video cables should utilize 75 ohm coaxial shielded wire. Cables are available from your dealer or electronic supply store. Before you purchase any cables, be sure you know what type of output and input connectors your various components require. Also determine the length of cable you will need.

## Remote Control Battery Installation

1. Open the cover.
2. Install the batteries and replace the cover.  
Note the correct polarity (+ and -).



### Helpful Hints:

For frequent remote control users, replace old batteries with alkaline batteries for longer life.

### Helpful Hints:

Whenever you remove the batteries, **you may need to reset the remote control infrared codes**. We recommend that you record the code on page 59, prior to setting up the remote control.

### ⚠ Precaution on battery use

Incorrect installation can cause battery leakage and corrosion that will damage the remote control transmitter.

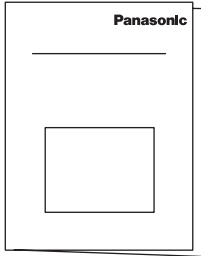
#### Observe the following precautions:

1. Batteries should always be replaced as a pair. Always use new batteries when replacing the old set.
2. Do not combine a used battery with a new one.
3. Do not mix battery types (example: "Zinc Carbon" with "Alkaline").
4. Do not attempt to charge, short-circuit, disassemble, heat or burn used batteries.
5. Battery replacement is necessary when remote control acts sporadically or stops operating the TV set.

# Accessories

Check that you have the Accessories and items shown

Operating Instruction book



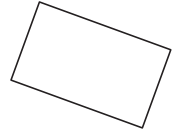
Remote control EUR7627Z10



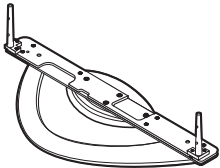
Batteries for the remote control (AA Battery × 2)



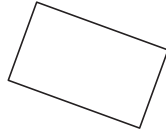
Warranty card



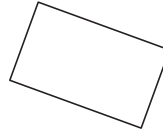
Pedestal TY-ST42PA20



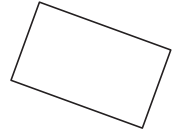
Customer card



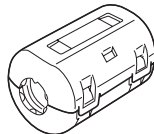
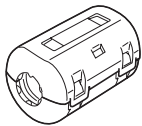
Service center list



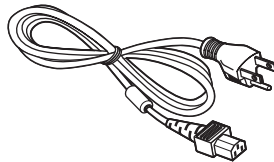
Customer care plan card



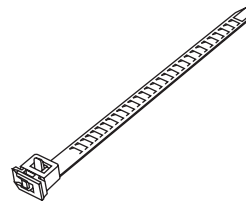
Ferrite core Small size × 6 Large size × 4



AC cord

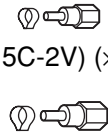


Fixing band



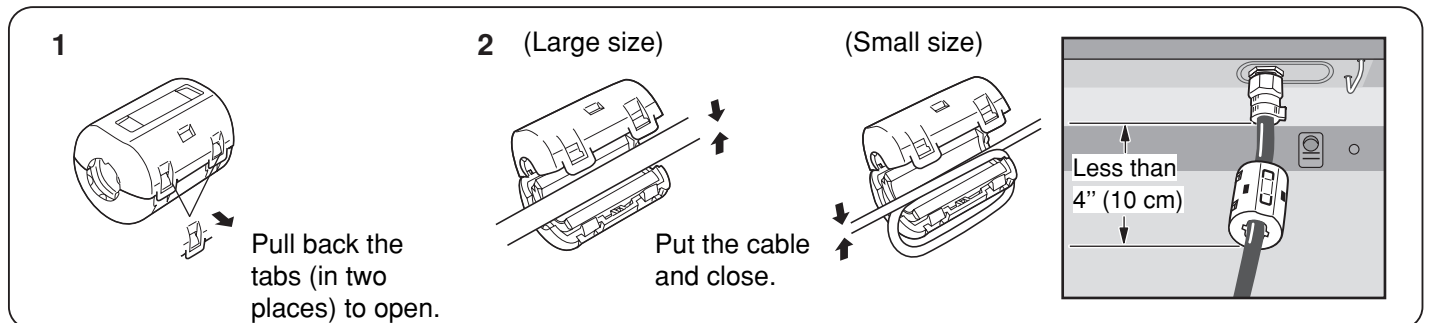
F-Type antenna adapter (for 3C-2V) (×2)

(for 5C-2V) (×2)

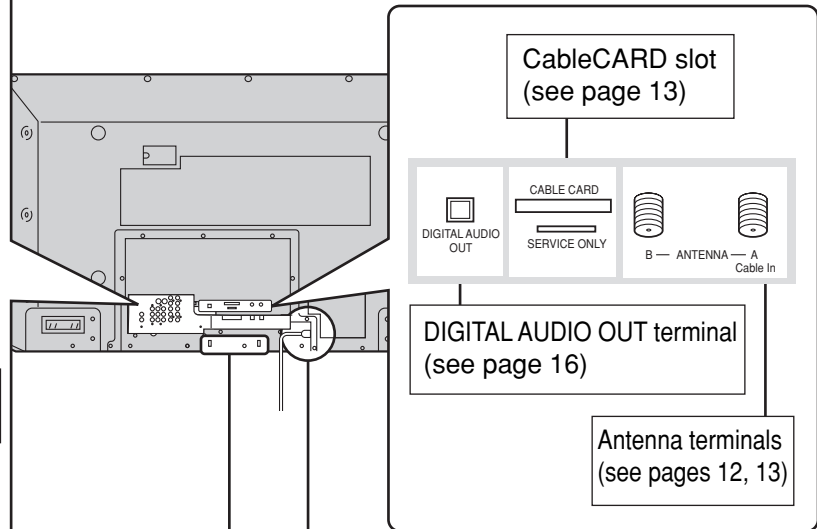
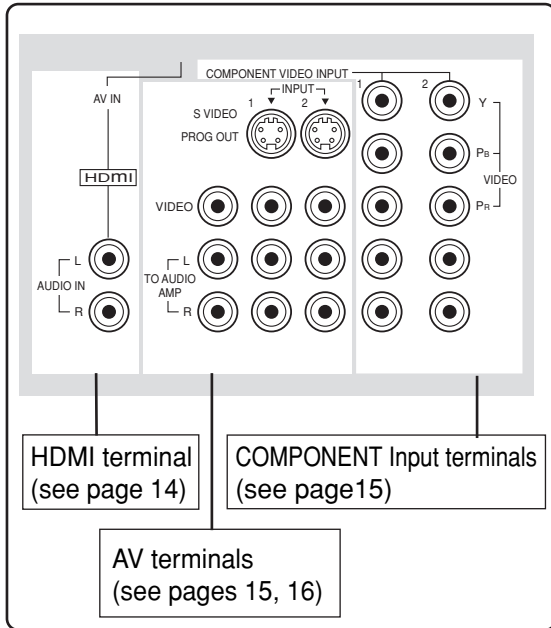
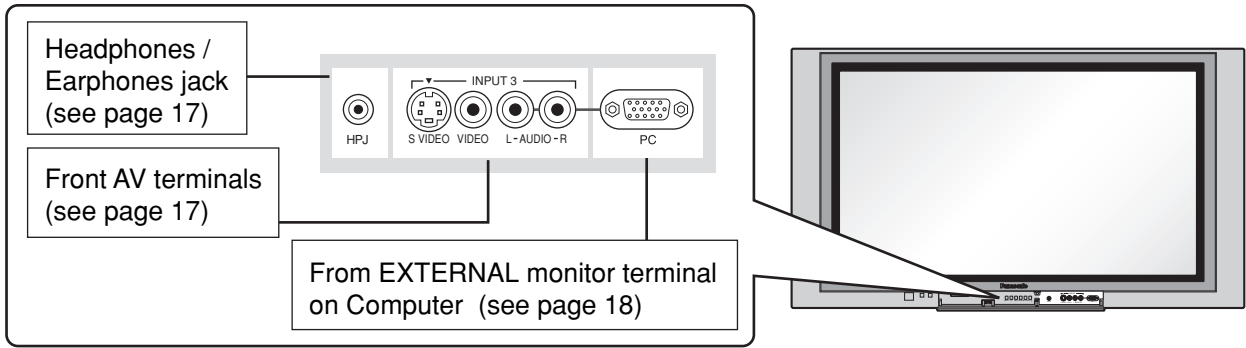


## Attaching the ferrite core

Be sure to choose the appropriate size of ferrite core (large or small) and the correct setting of the cable (winding or passing), as indicated by each connection diagram on the following pages (12, 13, 17, 18).

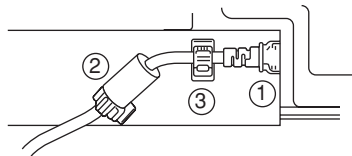


# Cable Connection

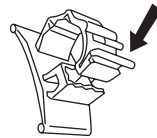


## - AC cord fixing

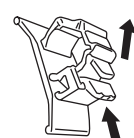
- ① Connect power plug to the socket of the main body.
- ② Fix the left clamber.
- ③ Fix the right clamber.



To fix: Push in till a clicking sound is heard.



To release: Pull up while drawing the knob.

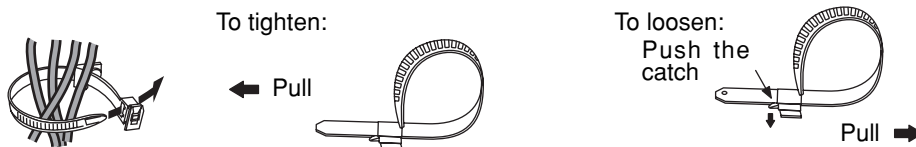


## - Cable fixing bands

Secure cables connected to terminals with bands as required.

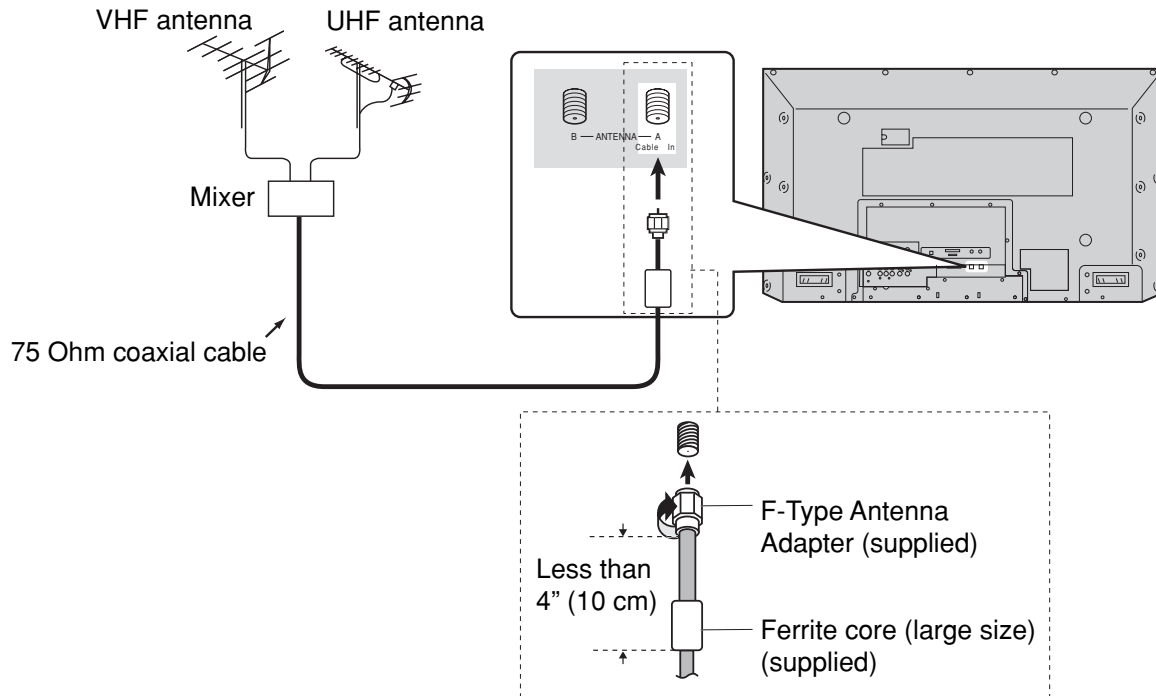
Wrap the cable fixing band around cables then pass the pointed end through the locking block, as shown in the figure.

**While ensuring there is sufficient slack in cables to minimize stress (especially in the power cord), firmly bind all cables with the supplied fixing band.**



## Antenna Connection

- For proper reception of VHF/UHF channels, an external antenna is required. For best reception, an outdoor antenna is recommended.
- When you enjoy the terrestrial TV programs only, connect the home antenna to ANTENNA (A). When you enjoy both the terrestrial TV programs and the cable TV programs, **connect the cable TV's cable to ANTENNA (A), and the terrestrial antenna cable to ANTENNA (B).**
- Select the antenna mode in Input Setup (see page 22).

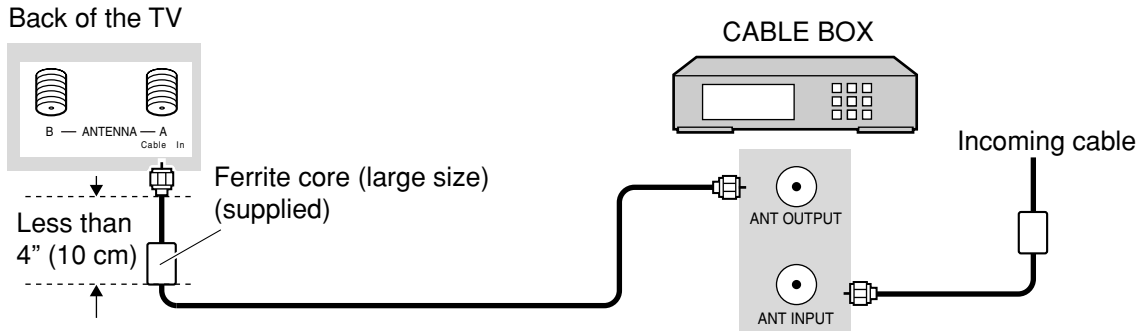


### Notes:

- Certain cable systems offset some channels to reduce interference or have Premium (scrambled) channels. A cable converter box is required for proper reception. Check with your local cable company for its compatibility requirements.
- To obtain optimum quality picture and sound, an antenna, the correct cable (75 Ohm coaxial) and the correct terminating plug are required.
- If a communal antenna system is used, you may require the correct connection cable and plug between the wall antenna socket and your television receiver.
- Your local television service centre or dealer may be able to assist you in obtaining the correct antenna system for your particular area and the accessories required.
- Any matters regarding antenna installation, upgrading of existing systems or accessories required, and the costs incurred, are your responsibility.

## Cable Box Connection

- When you enjoy the cable TV programs only, connect the cable TV's cable to ANTENNA (A). When you enjoy both the terrestrial TV programs and the cable TV programs, **connect the cable TV's cable to ANTENNA (A), and the terrestrial antenna cable to ANTENNA (B).**
- Select the antenna mode in Input Setup (see page 22).

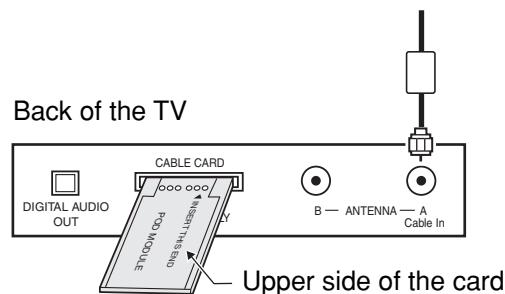


## CableCARD Connection

CableCARD allows you to tune digital and high definition cable channels through the cable antenna. Consult your cable company on the availability of CableCARD.

### Procedure

1. Connect the cable antenna to ANTENNA (A).
2. Turn the TV on (see page 19).
3. Set the input mode to TV (see page 20).
4. Insert the CableCARD (as it's upper side facing to your side) into CABLE CARD slot on the back of the TV. Follow the messages displayed on the screen.



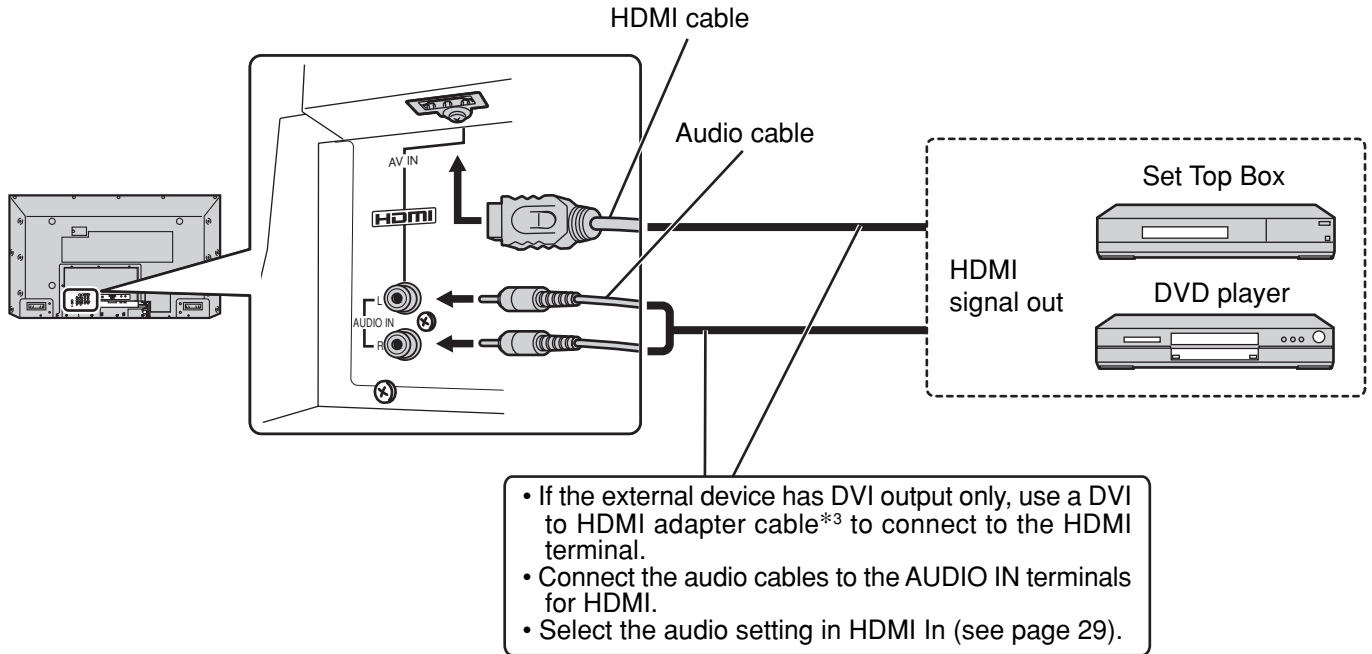
### Notes:

- If you experience keyboard or remote control function hang-up when using CableCARD, unplug the TV and plug it back on and try the controls again. If this condition still exists, please call Panasonic Customer Call Center for further instructions.
- Do not insert a PCMCIA card into CABLE CARD slot.

## HDMI Connection

HDMI\*<sup>1</sup> (High Definition Multi media Interface) is the first all digital consumer electronics A/V interface that supports uncompressed standard. The HDMI terminal supports both video and audio information. To the HDMI\*<sup>1</sup> input terminal, you can connect an EIA/CEA-861/861B\*<sup>2</sup> compliant consumer electronic device, such as a Set Top Box or DVD player with HDMI or DVI output terminal.

Input a High-bandwidth Digital Content Protection (HDCP) high-definition picture source to this HDMI terminal, so you can display the high-definition pictures on this TV in the digital form.



### Compatible VIDEO Signal

	No. of dots (H × V)	Vertical scanning frequency (Hz)
<b>1080i</b>	1,920 × 1,080i	59.94/60
<b>480p</b>	720 × 480p	59.94/60
	640 × 480p	59.94/60
<b>480i</b>	720(1,440) × 480i	59.94/60

#### Notes:

- This input terminal is not intended for use with computers.
- 1080i signals will be re-formatted to view on your plasma display.

### Compatible sampling frequency of AUDIO signal through HDMI (L.PCM) : 48 kHz / 44.1 kHz / 32 kHz

#### Notes:

- This HDMI connector is Type A.
- If you connect an equipment without a digital output terminal, connect to the COMPONENT VIDEO, S VIDEO or VIDEO input terminal on the TV so you can enjoy an analog signal.
- The DIGITAL IN terminal can only be used with 1080i, 480i or 480p picture signals. Set the Digital Set -Top -Box DIGITAL OUT terminal Output setting to 1080i, 480i or 480p. For detailed information, refer to the Digital Set -Top -Box instruction manual. If you cannot display the picture because your Digital Set -Top -Box does not have a DIGITAL OUT terminal Output setting, use the component Video Input (or the S Video Input or Video Input). In this case the picture will be displayed as an analog signal.

\*1. HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

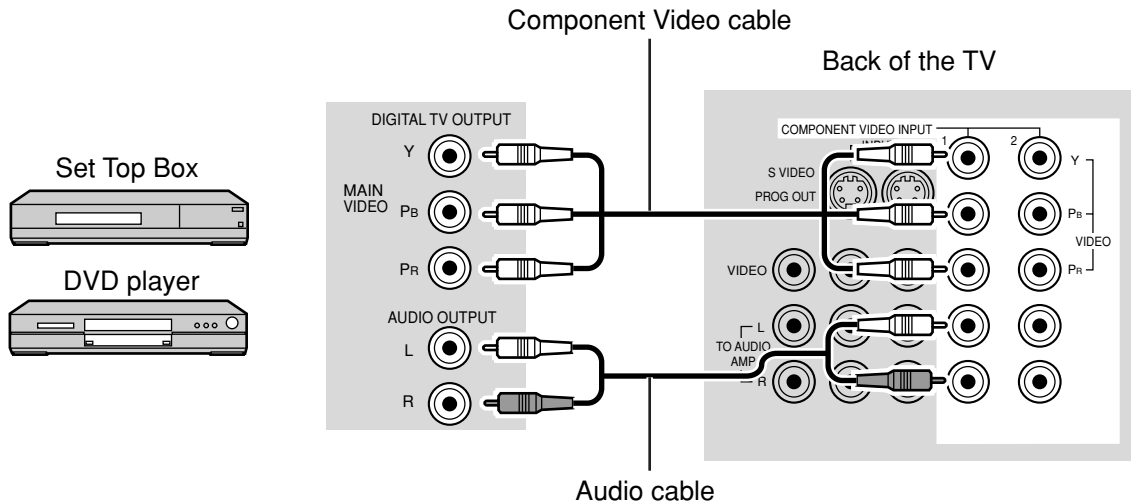
\*2. EIA/CEA-861/861B profiles compliance covers profiles for transmission of uncompressed digital video including high bandwidth digital content protection.

\*3. HDMI-DVI conversion cable (TY-SCHO3DH): available on Panasonic Website ([www.panasonic.com](http://www.panasonic.com)). Consult your consumer electronics dealer for availability details.

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

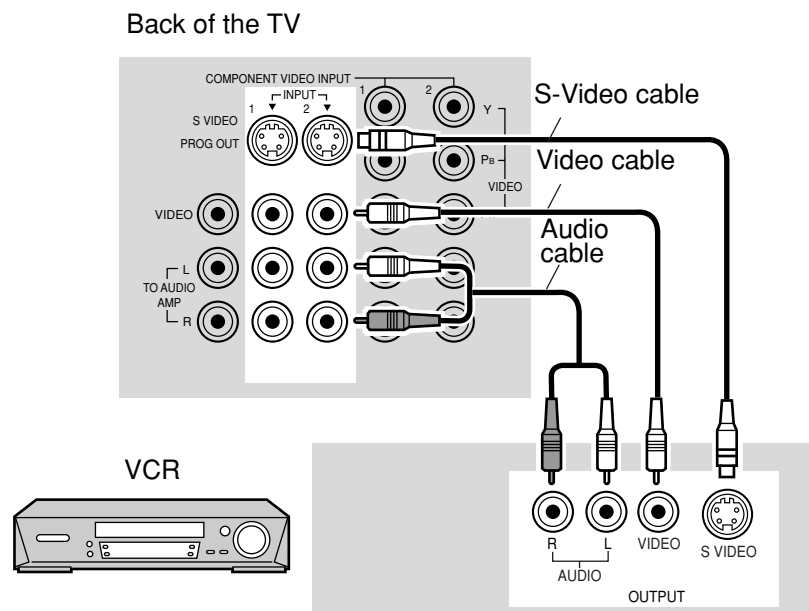
This TV is capable of displaying 1080i and 480p DTV signals when connected to a DTV Tuner Set-Top-Box (STB). This TV also utilizes a progressive scan doubler, which de-interlaces the NTSC signal and progressively scans the image.

- To view DTV programs, connect the STB to the component video input terminals (Y, P<sub>B</sub>, P<sub>R</sub>) of the TV. Component color inputs provide luminance and separate color signal.
- Select the output of the STB to either 1080i or 480p.
- A DTV signal must be available in your area.
- Use a Panasonic DTV-STB (Digital TV-Set-Top Box) or DVD Player.



**Note:**  
1080i signals will be re-formatted to view on your plasma display.

## VCR Connection



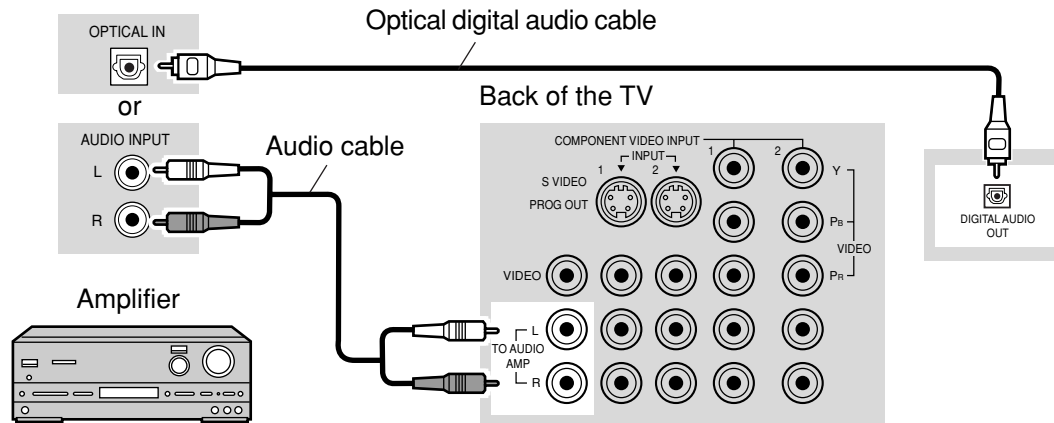
**Note:**  
The S-VIDEO connection provides higher quality picture. It overrides other VIDEO connections. Use INPUT 2, AUDIO L and R with S-VIDEO connection.

# Cable Connection

## Amplifier Connection (TO AUDIO AMP)

For a full Home Theater sound experience, an external Dolby Digital\* decoder and a multichannel amplifier must be connected to the DIGITAL AUDIO OUT terminal on the TV.

\*Dolby Digital 5.1 channel surround sound delivers digital-quality sound. Dolby Digital 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.



### Procedure

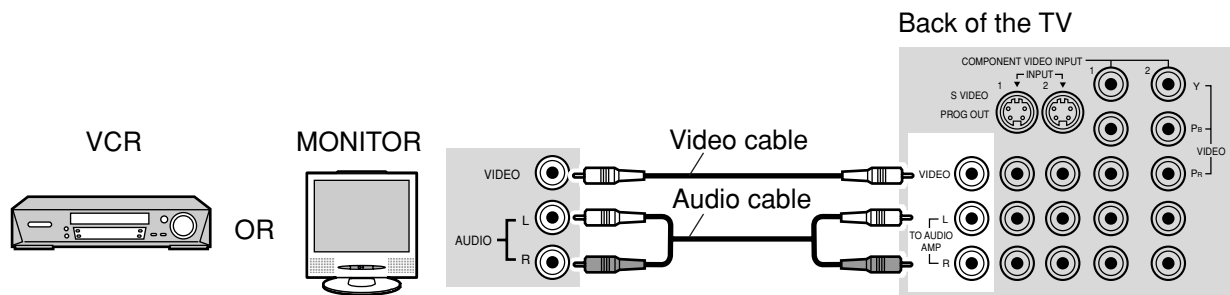
1. Select Speakers "Off" in Audio menu (see page 29).
2. Adjust the amplifier volume to the desired level.

### Notes:

- External speakers cannot be connected directly to TO AUDIO AMP terminals.
- When ATSC channel is selected, the output from the DIGITAL AUDIO OUT jack will be Dolby Digital. When NTSC channel is selected, the output will be PCM.

## Program Out Connection (PROG OUT)

See optional equipment manual for further instructions for recording and monitoring.

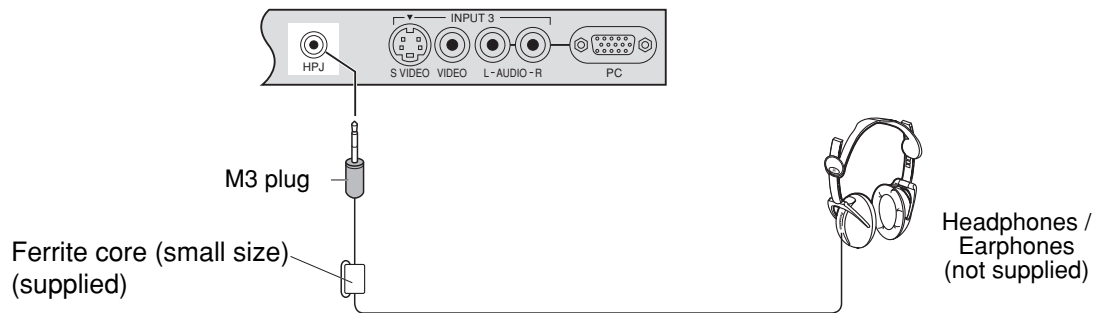


### Notes:

- When a device (STB, DVD, etc.) is connected to the HDMI terminal (see page 14), no video or audio is output due to license restrictions.
- Program Out signal may not be available when COMPONENT input (see page 20) is selected for the Main picture during PIP or SPLIT operation (see pages 52, 54).
- When receiving digital channel signals, all digital formats are down-converted to composite NTSC video to be output through Program Out terminals.
- Some programs contain Macrovision signal to prevent VCR recording.

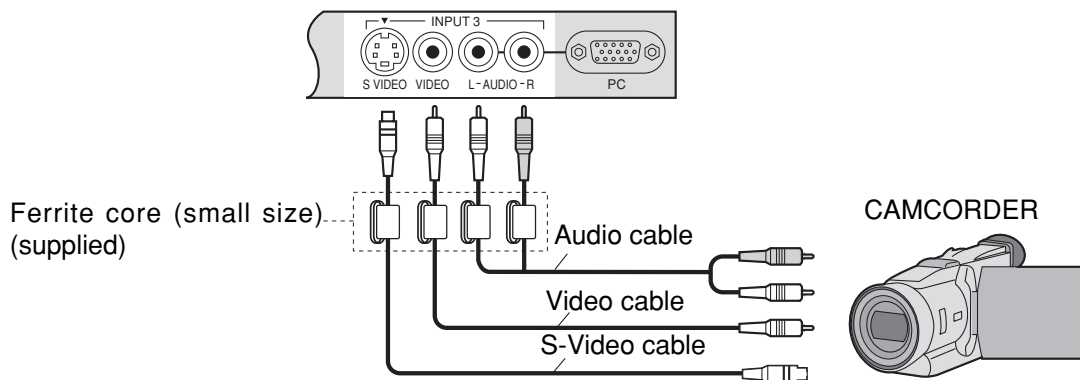


## Connecting Headphones / Earphones



## Connecting to the front AV terminals

Push to open the front panel and connect equipment to front Audio/Video input terminals.

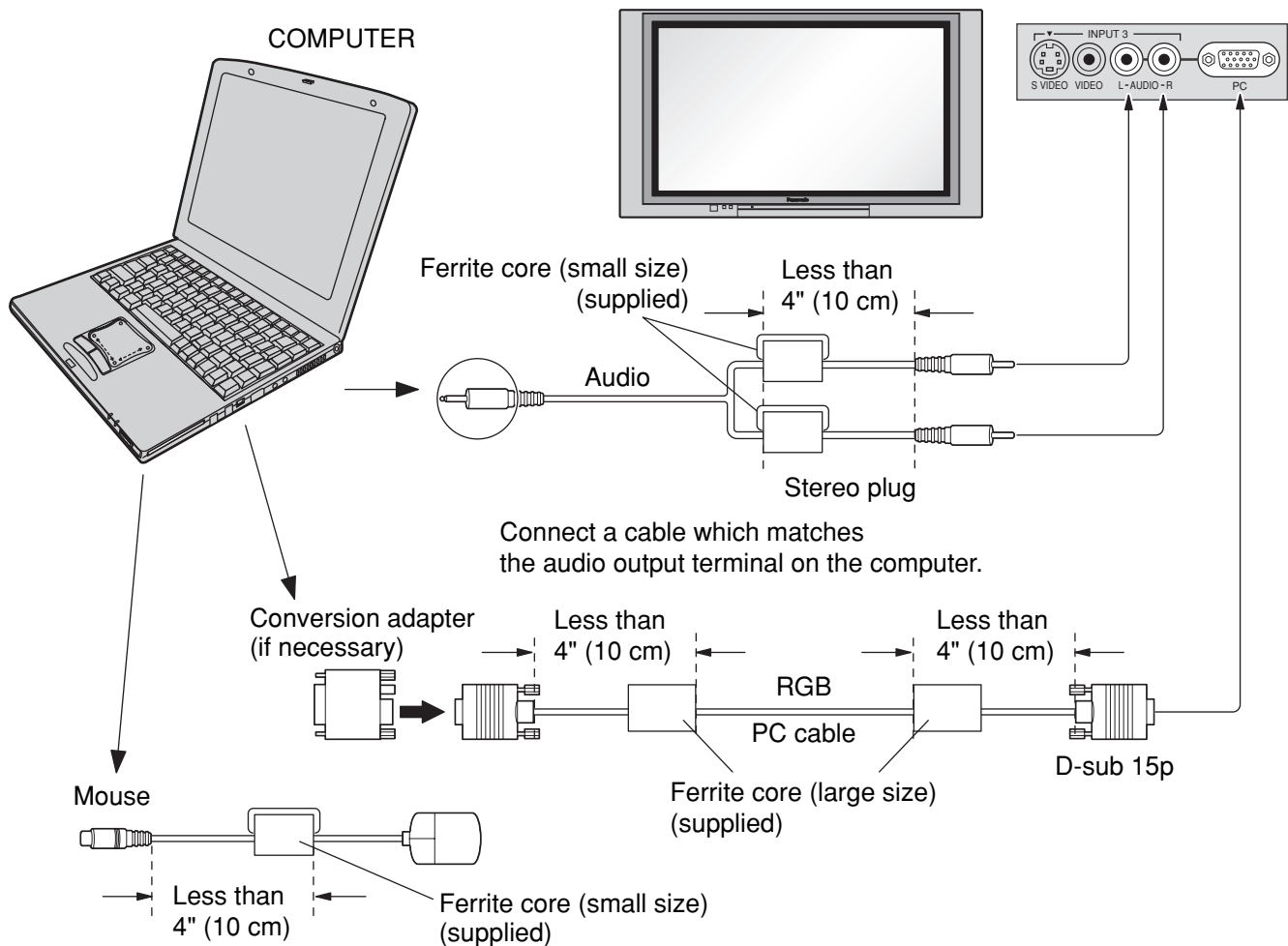


A second VCR, video disc player, video game equipment and DSS equipment can also be connected to the video input terminals. See the optional equipment manual for details.

**Note:**

The S-VIDEO connection provides higher quality picture. It overrides other VIDEO connections. Use INPUT 3, AUDIO L and R with S-VIDEO connection.

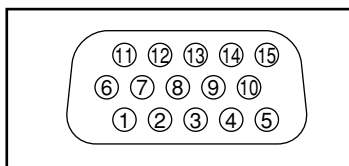
## PC Input Terminals Connection



### Notes:

- (1) Computer signals which can be input are those with a horizontal scanning frequency of 15 to 110 kHz and vertical scanning frequency of 48 to 120 Hz. (However, the image will not be displayed properly if the signals exceed 1,200 lines.)
- (2) The display resolution is a maximum of 640 × 480 dots when the aspect mode is set to "4:3", and 852 × 480 dots when the aspect mode is set to "16:9". If the display resolution exceeds these maximums, it may not be possible to show fine detail with sufficient clarity.
- (3) Some PC models cannot be connected to the set.
- (4) There is no need to use an adapter for computers with DOS/V compatible D-sub 15P terminal.
- (5) The computer shown in the illustration is for example purposes only.
- (6) Additional equipment and cables shown are not supplied with this set.
- (7) Do not set the horizontal and vertical scanning frequencies for PC signals which are above or below the specified frequency range.

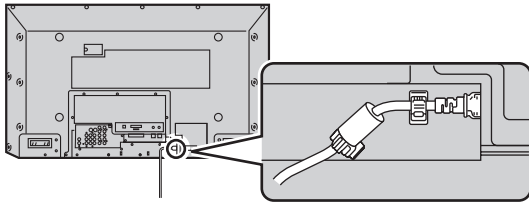
### Signal Names for D-sub 15P Connector



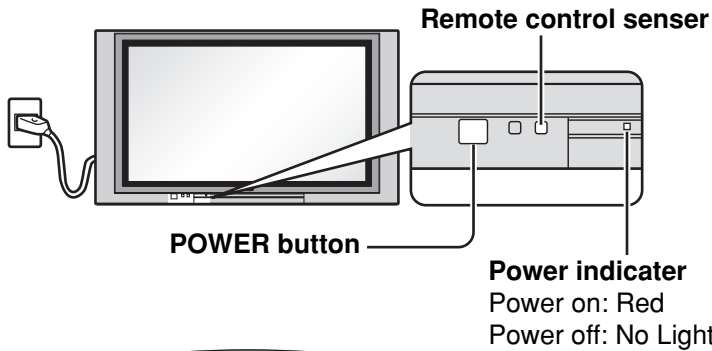
Pin Layout for PC Input Terminal

Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name
①	R	⑥	GND (Ground)	⑪	NC (not connected)
②	G	⑦	GND (Ground)	⑫	NC
③	B	⑧	GND (Ground)	⑬	HD/SYNC
④	NC (not connected)	⑨	NC (not connected)	⑭	VD
⑤	GND (Ground)	⑩	GND (Ground)	⑮	NC


# Power ON / OFF



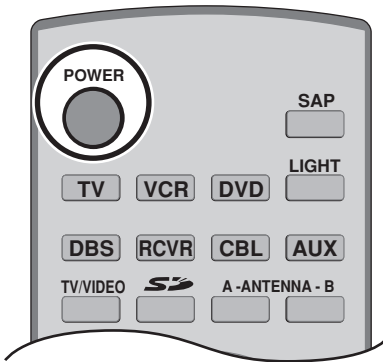
- 1 Connect the AC cord plug to the Plasma TV.
  - Fix the power cord plug securely with the clasper (see page 11).



- 2 Connect the plug to the wall outlet.

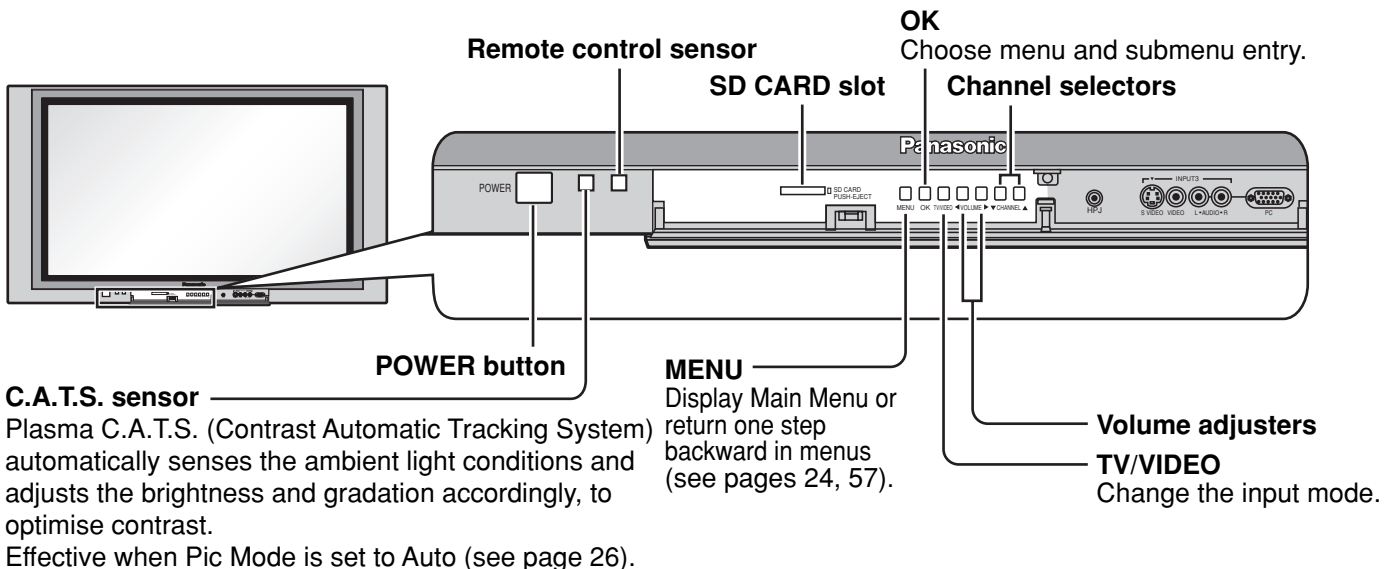
- 3  Press to turn the TV on or off.

**Note:**  
The TV will still consume some power as long as the power cord is inserted into the wall outlet.



# Location of Controls

## The Main Unit



**C.A.T.S. sensor**  
Plasma C.A.T.S. (Contrast Automatic Tracking System) automatically senses the ambient light conditions and adjusts the brightness and gradation accordingly, to optimise contrast.  
Effective when Pic Mode is set to Auto (see page 26).

# Location of Controls

## The Illuminated Remote Control

### POWER

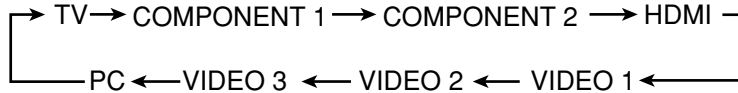
Turn the TV ON or OFF.

#### Mode Selection buttons (see page 59)

- TV:** TV
- VCR:** VCR
- DVD:** DVD
- DBS:** Digital Broadcasting Satellite
- RCVR:** Receiver/Amplifier
- CBL:** Cable TV
- AUX:** Aux

### TV/VIDEO

Change the input mode.



### SD

Access Photo Viewer (see page 48).

### R-TUNE

Switch to previously viewed channel and input modes.

**PIP MIN, PIP MAX**  
Change the size of PIP frame (see page 52).

**Operation of other Device** (see pages 63, 64)

**SEARCH**  
Display search frames during PIP or SPLIT operation (see pages 53, 55).

**PIP CH**  
Select the channel during PIP or SPLIT operation (see pages 52, 54).

**FREEZE**  
Freeze the picture (see pages 53, 55).

**PIP**  
PIP (Picture in Picture) Operation (see page 52)

**SPLIT**  
Split Screen (see page 54)

**MOVE**  
Move PIP frame (see page 53).

**SWAP**  
Swap pictures in PIP or SPLIT operation (see pages 52, 54).

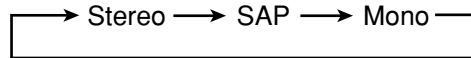


## SAP

- Digital channel  
Select the audio track (if available).

**Audio Track 1 of 1 (English)**

- Analog channel  
Cycle through different audio modes.  
ex. If receiving Stereo, SAP and Mono or receiving Stereo and Mono only:



## LIGHT

Light the remote control buttons. The selected button blinks when lit.

## A - ANTENNA - B

Switch to (A or B) RF antenna input.

## MUTE

Mute the sound. Press again to cancel the mute.

## ASPECT

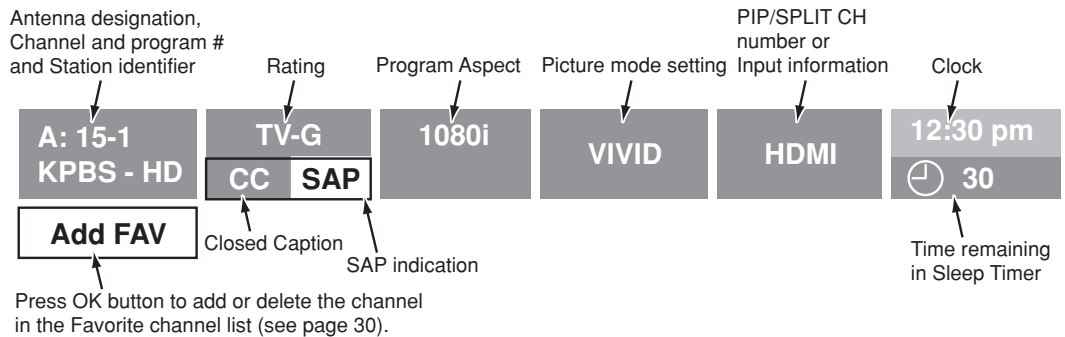
Change the screen aspect (see page 56).

## BBE

Turn BBE VIVA 3D OFF or ON (see page 29).

## RECALL

Display or remove the channel banner.

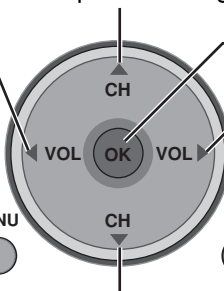


- ▲ CH: Change to the next channel up.
- ▲ : Move cursor upward during menu mode.

- ◀ VOL : Reduces volume.
- ◀ : Move cursor to the left during menu mode.

## MENU

Display Main Menu or return one step backward in menus (see pages 24, 57).



Choose menu and submenu entry.

- VOL ▶: Increase volume.
- ▶ : Move cursor to the right during menu mode.

## EXIT

Exit menus.

- ▼ CH: Change to the next channel down.
- ▼ : Move cursor downward during menu mode.

## Direct program number selection buttons

**PROG** —: When tuning digital channel, press the button to enter the minor number in a compound channel number.

- To enter the channel number  
ex. CH 15-1: [1] → [5] → [-] → [1] → [OK]

# First Time Setup

For your convenience, First Time Setup menu will be displayed on screen when the set is turned on for the first time. If needed, follow the menus and procedures displayed on-screen for setting up the features. You can also make the settings in Setup menu (see pages 36, 37).



## Input Setup

Select the configuration of RF input depending on the signal source.

First Time Setup		
Input Setup	Setting	Cable/Antenna
Auto Scan		

- Press to select Input Setup.

Press to select Cable only, Cable/Antenna or Antenna only.

Press to enter your selection.
- Press to start the Auto Scan. All available channels with a signal will be programmed into memory.

## Auto Scan

This feature allows you to selectively auto scan channels. You can scan All, Analog only channels or Analog & Digital channels.

- Press to select Auto Scan.

Press to enter the sub-menu field.
- Press to select the sub-menu.

Press to start Auto Scan. After Auto Scan is completed, the TV tunes to the first channel found during Auto Scan.

First Time Setup	
Input Setup	Scan All
Auto Scan	Antenna (A) Analog
	Antenna (A) Analog & Digital
	Antenna (B) Analog
	Antenna (B) Analog & Digital

### To return to the previous menu

Press .

### To exit the menu screen

Press .



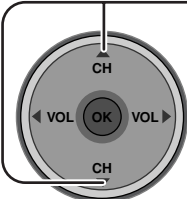
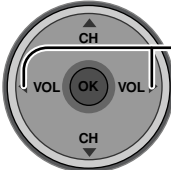
### Notes:

- If the EXIT button is pressed at anytime during Auto Scan, Auto Scan will be cancelled and the TV will return to the First Time Setup menu.
- If a CableCARD is present during the First Time Setup and Antenna (A) is set to cable, Antenna (A) will not be scanned due to the CableCARD providing the channel map.

# Watching TV programs

## VHF and UHF



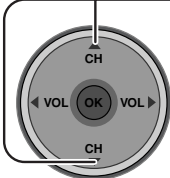


-  Press to operate the TV set with the remote control.
-  Press to turn the TV on.
-  Press to select desired channel.
-  Select the desired volume level.

### Notes:

- The channel number and volume level remain the same even after the TV is turned off.
- Power consumption and howling sound can be reduced if the volume level is lowered.

## Cable TV

Make sure that registration with cable TV provider and connection of equipment are completed.

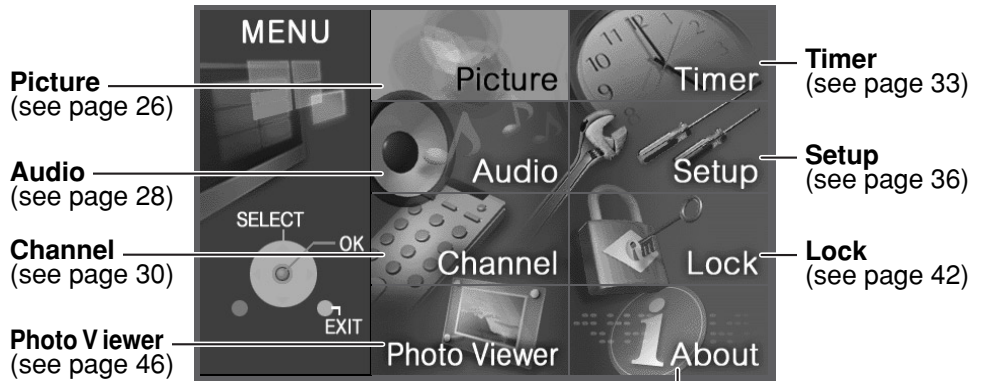
-  Select the TV channel 3 or 4.
-  Press to operate the cable box with the remote control.
-  Press to turn the cable box on.

### Notes:

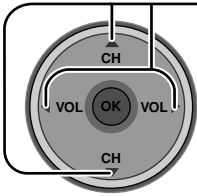
- The remote control code number is set for Panasonic products.
- To operate other manufacturer's product (see pages 59 - 64).

# Menu Navigation

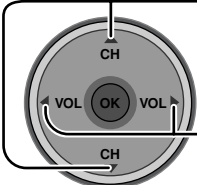
- 1  Press to display the Main menu.



**About**  
The About screen displays assorted information about the TV. Please have this information when calling Customer Care Center.

- 2  Press to select the menu.

- 3  Press to enter the sub-menu field.

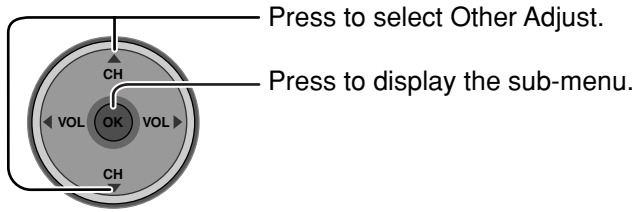
- 4  Press to select the sub-menu.  
Press to adjust the sub-menu.

ex. Picture menu

Picture	
Pic Mode	Vivid
Color	31
Tint	31
Brightness	26
Picture	63
Sharpness	50
Normal	No
Other Adjust	

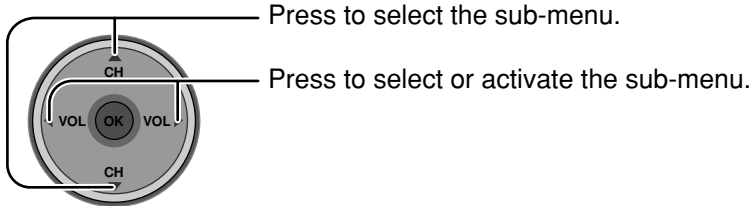


## 1 [ To select Other Adjust sub-menu]



Other Adjust	
Color Temp	Cool
Natural Color	On
Video NR	Off
3D Y/C Filter	Off
Color Matrix	HD
Freeze	Split

## 2



## To return to the previous screen



Press to return.

## To exit menus



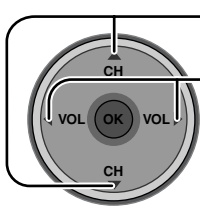
Press to return to normal picture.

## Picture

Picture	
Pic Mode	Vivid
Color	31
Tint	31
Brightness	26
Picture	63
Sharpness	50
Normal	No
Other Adjust	

### Pic Mode

Lets you choose the pre-set picture modes that best suits the program you are viewing. This feature also affects Color Temp setting (see page 27).



Press to select Pic Mode.

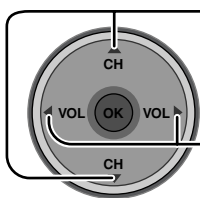
Press to select the picture mode.

- Vivid (default) : Provides enhanced picture contrast and sharpness for viewing in a well-lit room.
- Standard : Recommended for normal viewing conditions with subdued room lighting.
- Cinema : For watching movies in a darkened room. It provides a soft, film-like picture.
- Auto : Automatically senses the ambient light conditions and adjusts the brightness and gradation accordingly, to optimise contrast.

#### Note:

Each mode has its own picture settings (Color, Tint, Brightness, Picture and Sharpness).

### Color / Tint / Brightness / Picture / Sharpness / Normal



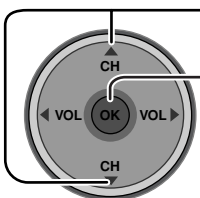
Press to select the sub-menu.

Press to adjust the sub-menu.

Item	Explanations
<b>Color</b>	Adjusts desired color intensity.
<b>Tint</b>	Adjusts natural flesh tones.
<b>Brightness</b>	Adjusts dark areas of picture.
<b>Picture</b>	Adjusts white areas of picture.
<b>Sharpness</b>	Adjusts clarity of outline detail.
<b>Normal</b>	Resets all picture adjustments to factory default settings.

### Other Adjust

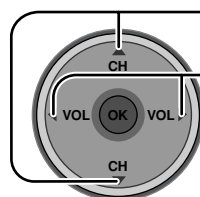
1



Press to select Other Adjust.

Press to display the sub-menu.

2

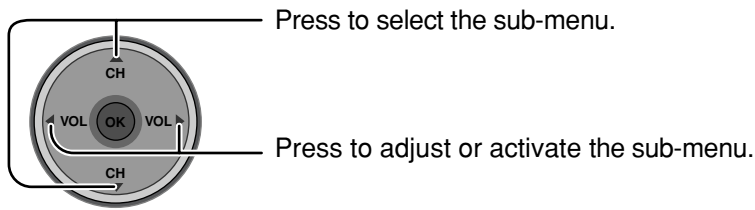


Press to select the sub-menu.

Press to select or activate the sub-menu.

Other Adjust	
Color Temp	Cool
Natural Color	On
Video NR	Off
3D Y/C Filter	Off
Color Matrix	HD
Freeze	Split

## ■ Color Temp (temperature) / Natural Color / Video NR / 3D Y/C Filter

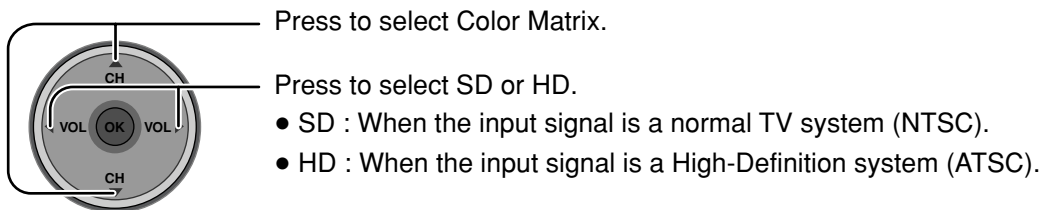


Item	Explanations
<b>Color Temp (temperature)</b>	To increase or decrease Warm (red) and Cool (blue) colors to suit personal preferences.
<b>Natural Color</b>	To increase the color reproduction range with natural color gradation and highly delicate hues.
<b>Video NR</b>	Reduces noise in the channel, commonly called snow. Remains off when receiving a strong signal.
<b>3D Y/C Filter</b>	Minimizes noise and cross color in the picture.

## ■ Color Matrix

Displays 480p input signals in a natural color from digital equipment adapters connected to COMPONENT VIDEO INPUT (Y, P<sub>B</sub>, P<sub>R</sub>) terminals.

Select HD or SD to automatically adjust color parameters for HD (high definition) or SD (standard definition).

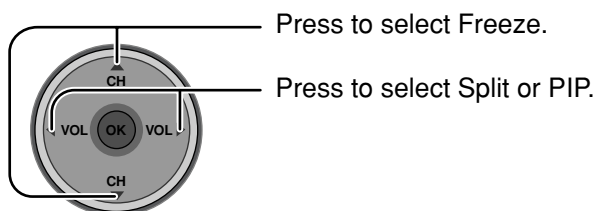


### Notes:

- This feature is available only with 480p signal and not available with regular TV (NTSC) program.
- When viewing a non-standard DTV signal format, you can change color parameters manually for the best picture quality.

## ■ Freeze

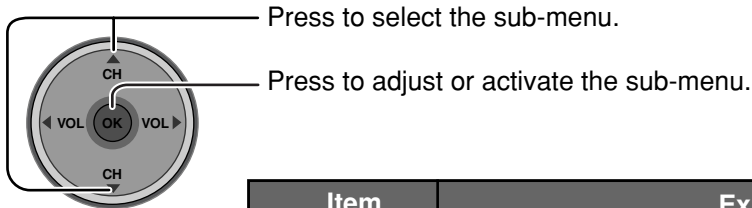
This feature is used to freeze main picture and display it in a PIP or SPLIT frame, when the **FREEZE** button on the remote control is pressed. Press **FREEZE** again to delete frame (see pages 53, 55).



## Audio

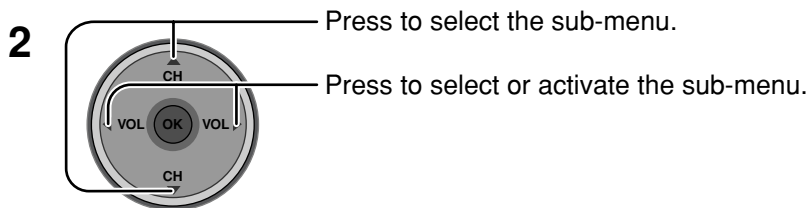
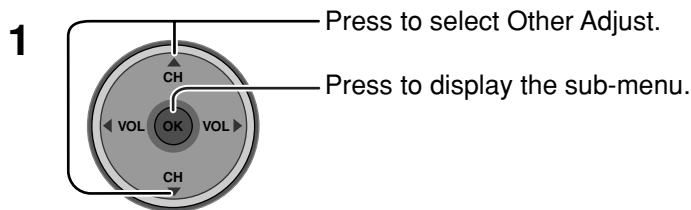
Audio	
Bass	7
Treble	7
Balance	31
Normal	Set
Other Adjust	

### Bass / Treble / Balance / Normal



Item	Explanations
<b>Bass</b>	Increase or decrease the bass response.
<b>Treble</b>	Increase or decrease the treble response.
<b>Balance</b>	Emphasize the left / right speaker volume.
<b>Normal</b>	Reset Bass, Treble and Balance adjustments to factory default settings.

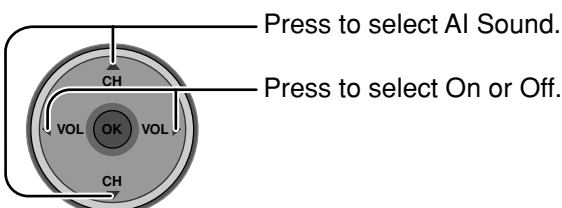
### Other Adjust



Other Adjust	
AI Sound	On
BBE VIVA 3D	Off
BBE	Off
Surround	Off
Speakers	On
HDMI In	Auto

#### ■ AI Sound

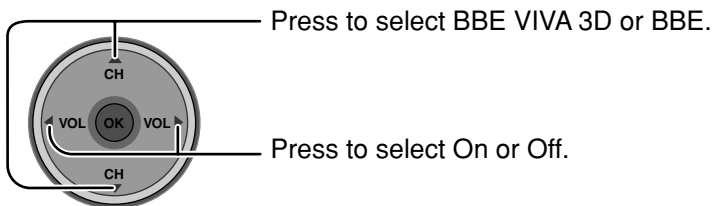
Equalize overall volume levels across all channels. AI sound is not available in VIDEO input mode (see page 20).



## ■ BBE VIVA 3D / BBE

**BBE VIVA 3D** BBE VIVA 3D provides a musically accurate natural 3D image with hi-fi sound. The clarity of the sound is improved by BBE while the width, depth and height of the sound image are expanded by BBE's proprietary 3D sound processing. BBE VIVA 3D is compatible with all TV programs including news, music, dramas, movies and sports as well as electronic games. BBE VIVA 3D enhances the surround sound effect, while maintaining the clarity of dialogue.

**BBE** Sound technology enhances speech intelligibility and restores the dynamic range of musical passages to provide outstanding natural sound.

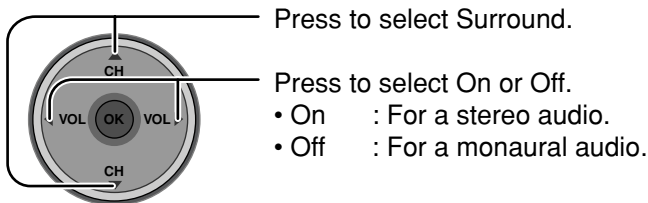


### Notes:

- When "BBE VIVA 3D" is set to On, "BBE" and "Surround" setting are fixed to "On".
- When "BBE VIVA 3D" is set to Off, "BBE" and "Surround" can be set individually.

## ■ Surround

Enhances audio response when listening to stereo.

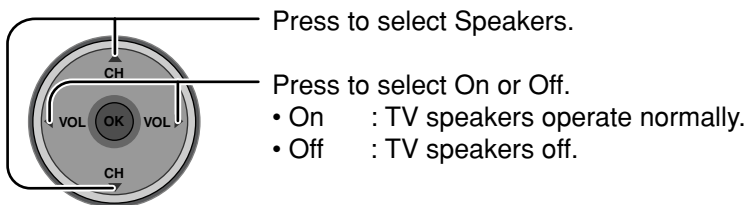


### Note:

This feature is effective when BBE VIVA 3D is set to Off.

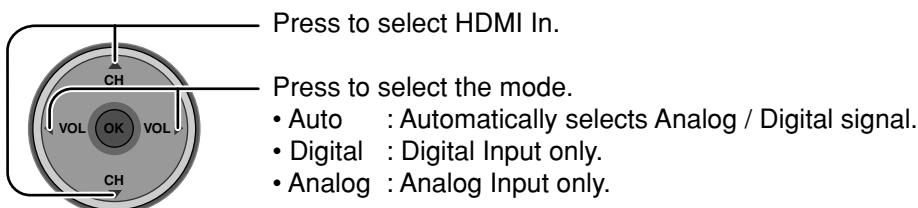
## ■ Speakers

This feature is used to turn TV speakers On or Off (see page 16, Amplifier Connection).

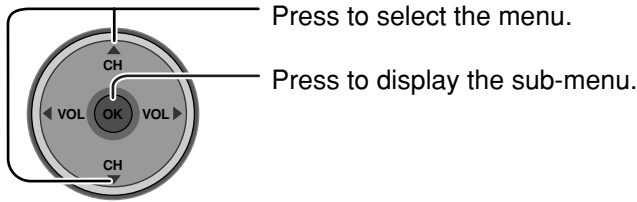


## ■ HDMI In

When using HDMI (see page 14), this feature will let you switch between Analog Input and Digital Input.



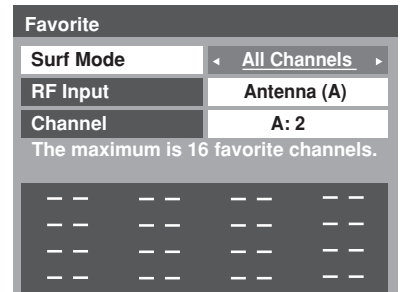
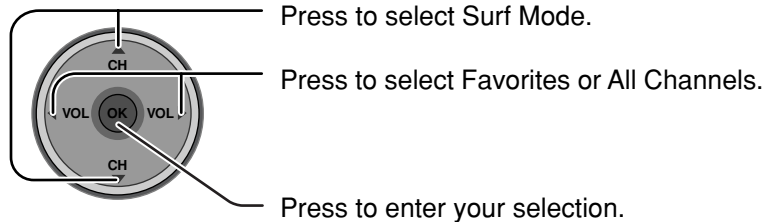
## Channel



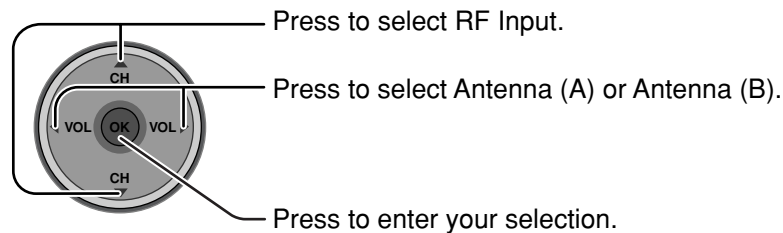
### Favorite

Allows you to create Favorite channel list from Antenna (A) or Antenna (B).

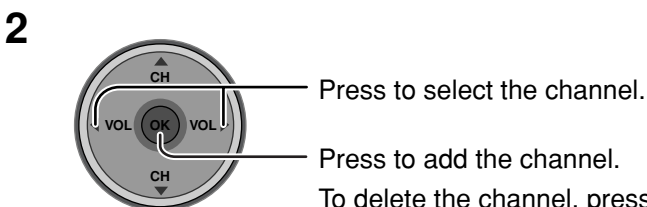
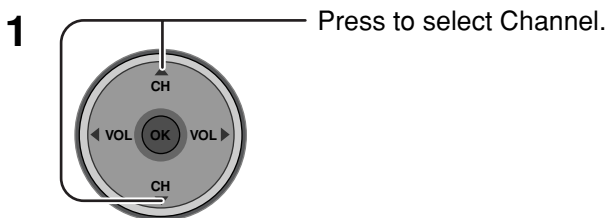
#### ■ Surf Mode



#### ■ RF Input



#### ■ Channel



To delete the channel, press again while the channel number is displayed.

- Repeat step 2 up to 16 favorite channels.

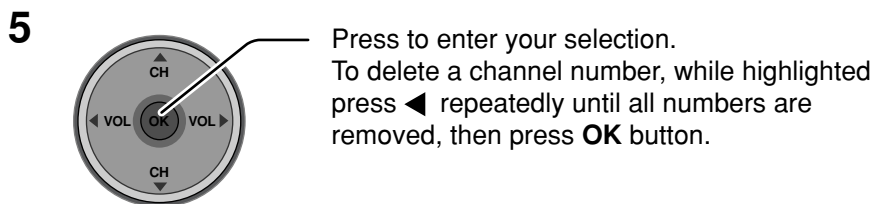
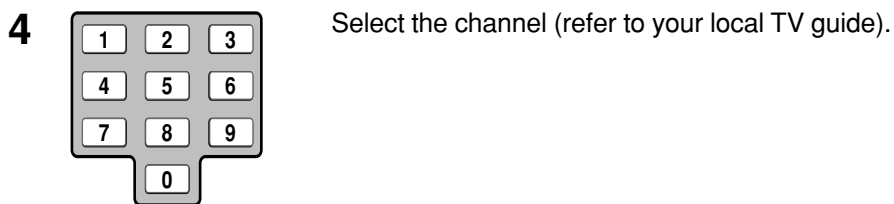
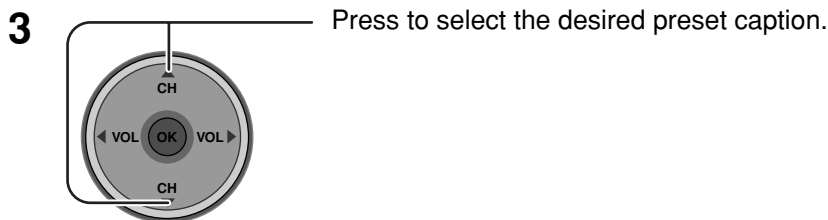
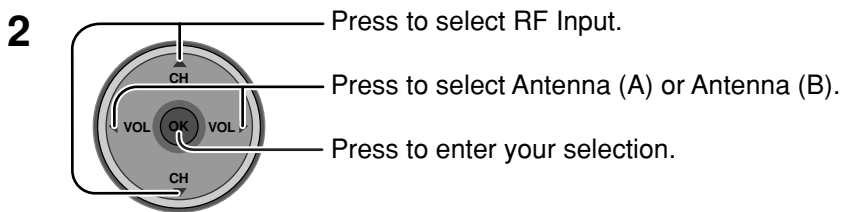
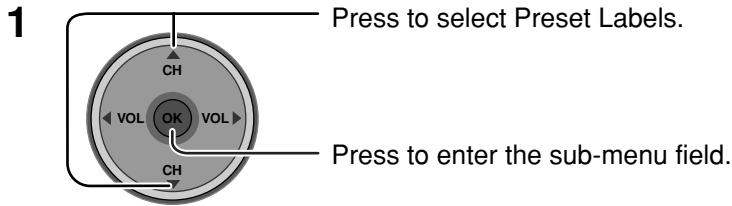
## Captions

To enter preset and manual labels to desired stations. Also to enter input label to video inputs.

### ■ Preset Labels

To enter channel numbers for popular TV stations.

Captions		
Preset Labels	RF Input	Antenna (A)
Manual Labels	ABC	
Input Labels	CBS	
	FOX	
	NBC	
	PBS	
	CNN	
	ESPN	
	HBO	



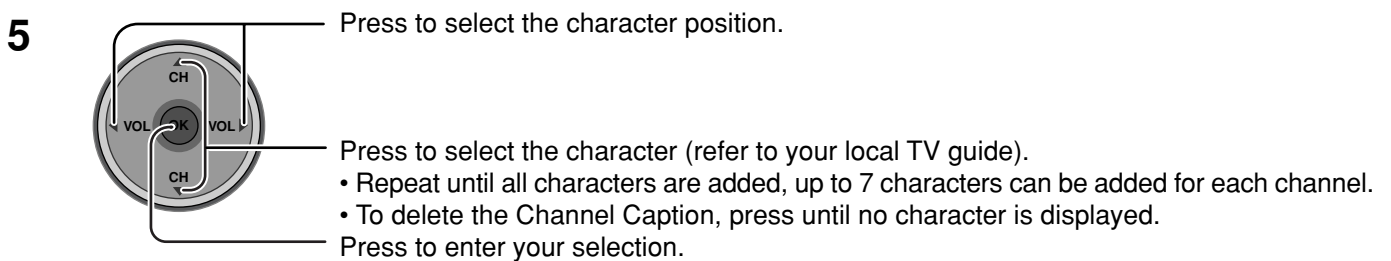
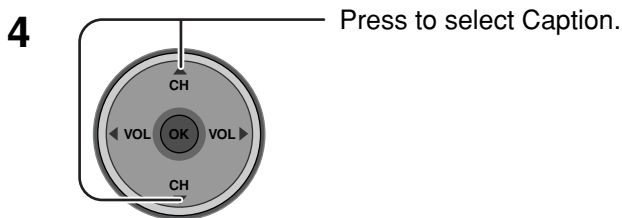
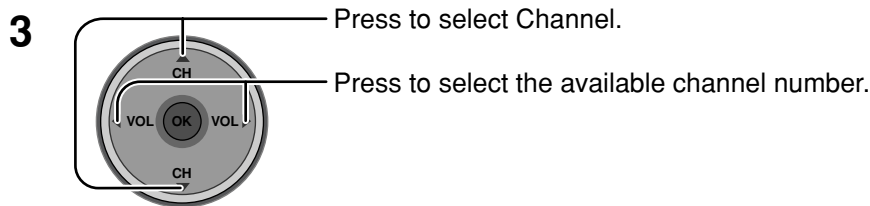
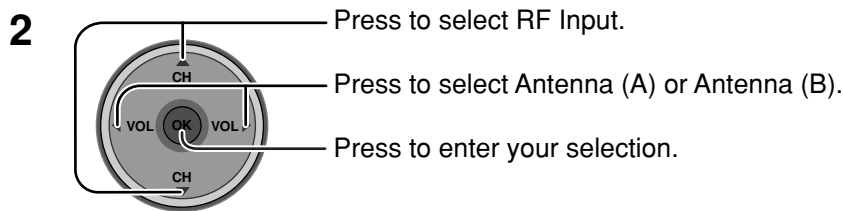
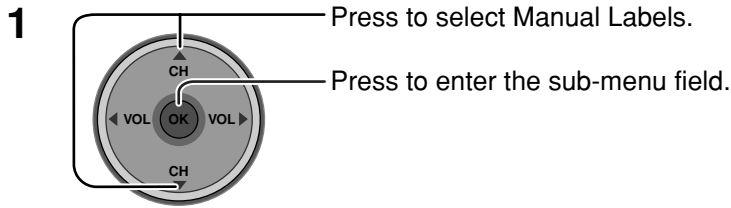
**Note:**  
Only input with signal will be selectable.

# Menu Navigation

## Manual Labels

To enter numbers and captions manually.

Captions		
Preset Labels	RF Input	Antenna (A)
Manual Labels	Channel	A: 2
Input Labels	Caption	



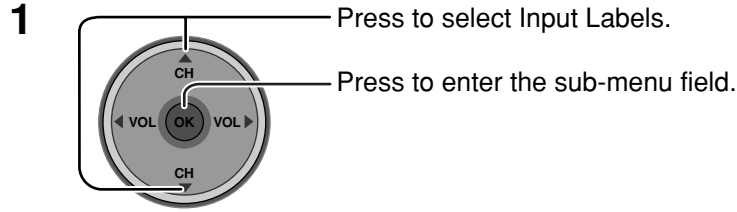
### Note:

Only input with signal will be selectable.

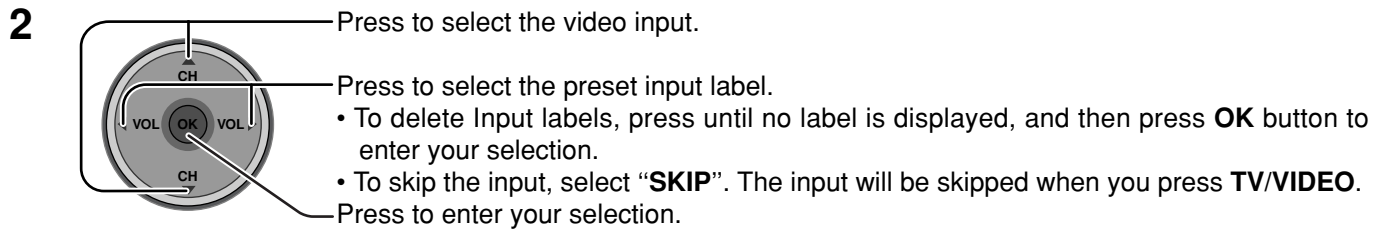


## Input Labels

To label video input connections for on-screen display.



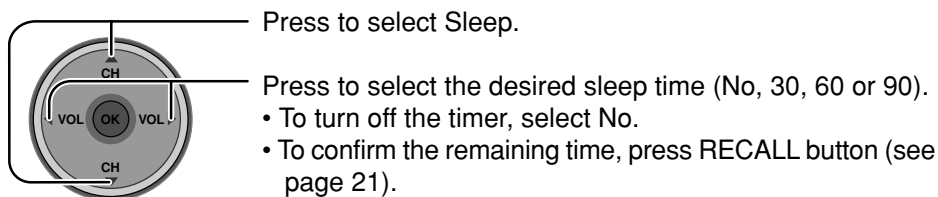
Captions	
Preset Labels	Component 1
Manual Labels	Component 2
Input Labels	HDMI
	Video 1
	Video 2
	Video 3
	PC



## Timer

Set the time in Clock Set (see page 35) before setting Timer.

### Sleep

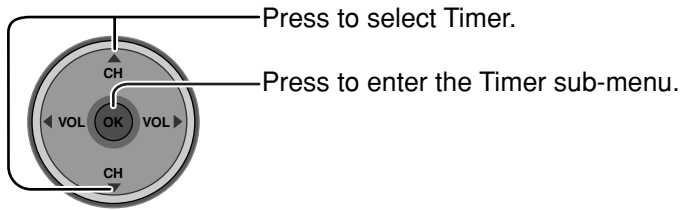


Timer	
Sleep	No
Timer	
Clock Set	...:.. --
Day Set	...

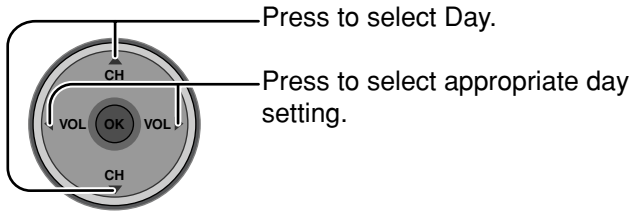
# Menu Navigation

## Timer

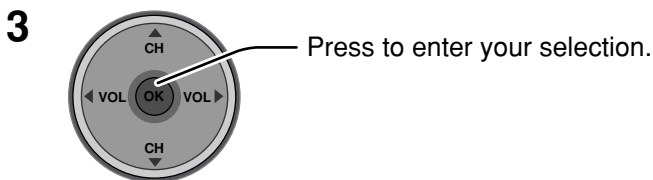
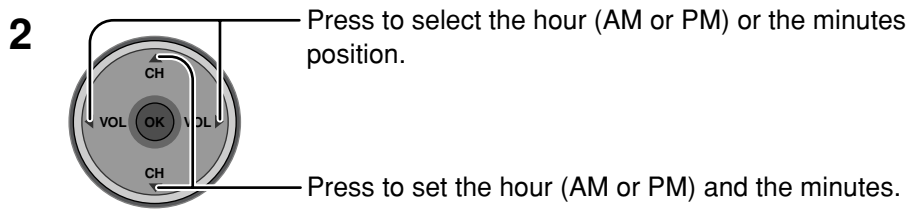
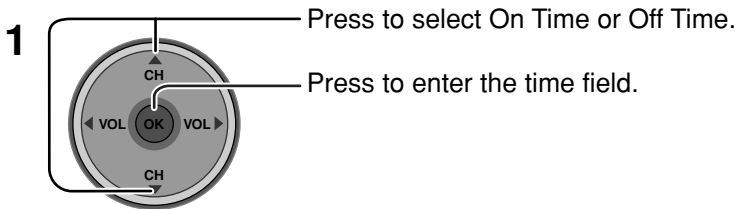
Select timer to turn the TV on and off at selected times and on selected day.



### Day



### On Time/ Off Time



Timer	
Sleep	No
Timer	
Clock Set	-- : -- --
Day Set	---

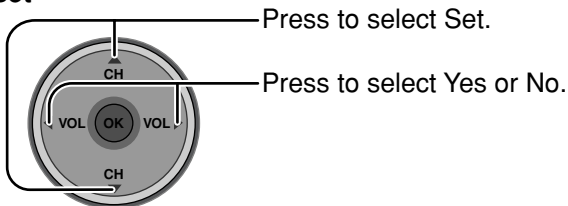


Timer	
Day	MON-FRI
On Time	7 : 10 AM
Off Time	8 : 10 PM
Set	Yes

### Notes:

- The TV automatically turns Off after 90 minutes when turned On by the Timer. It will be cancelled if the Off Time is selected or if a key is pressed.
- When the power to the TV set is disrupted due to a power outage or similar problem, the off-timer will be deactivated and the TV will be in standby mode even after power is restored.

### Set



## To return to the previous screen

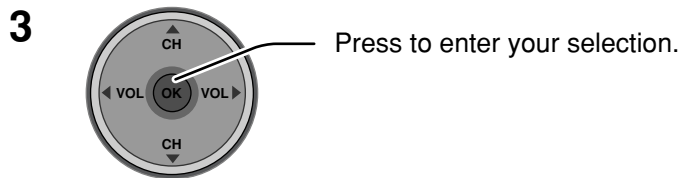
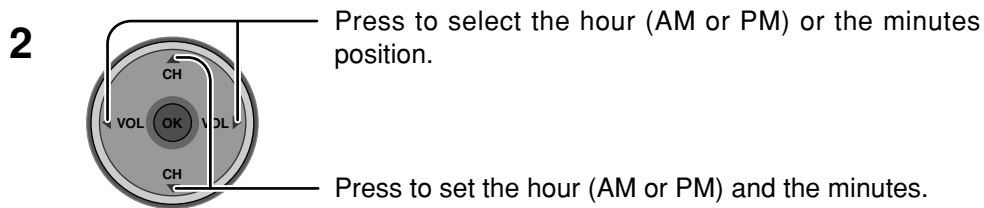
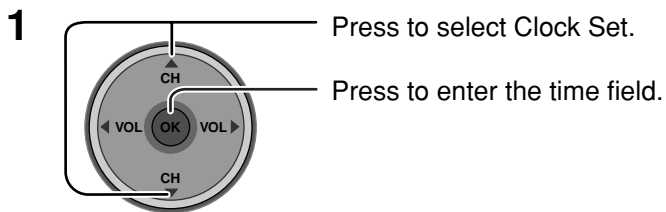


Press to return.

## To activate Timer

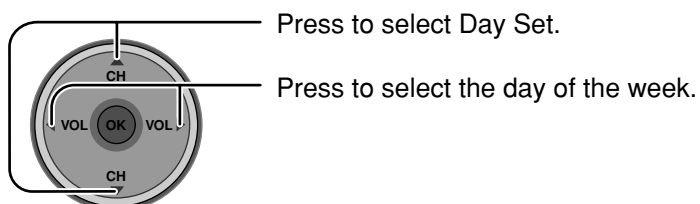
Select the channel and turn off the TV.

### Clock Set

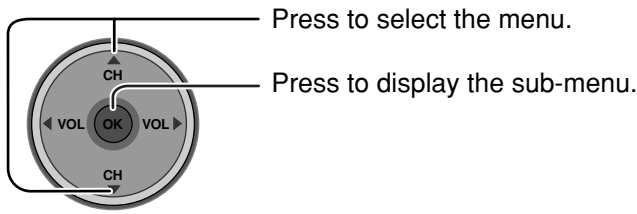


### Day Set

Set the day of the week.



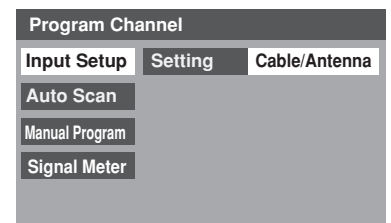
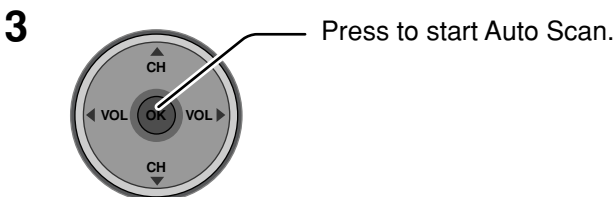
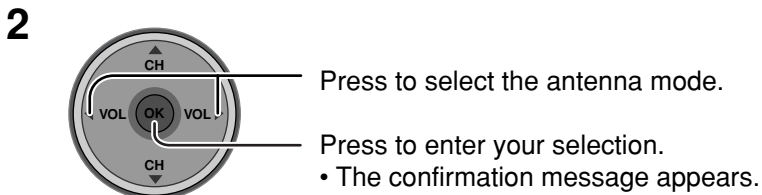
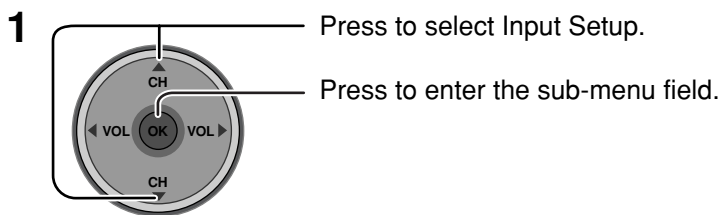
## Setup



### Program CH

#### ■ Input Setup

Lets you specify the antenna mode (Cable only, Cable/Antenna or Antenna only).

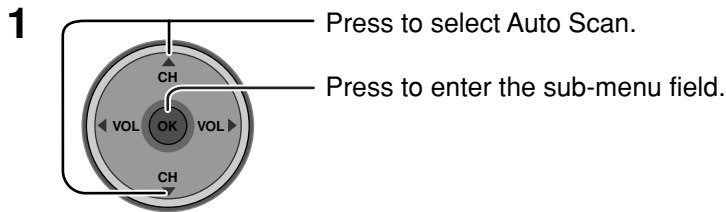


#### Notes:

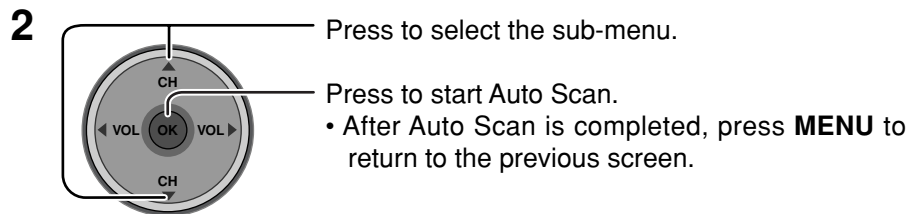
- Auto scan is necessary when you select the input signal for the first time or whenever you change the antenna configuration.
- If CableCARD is not inserted, the Auto scan performs Scan All.
- When CableCARD is inserted and Cable only is selected, Auto Scan will be skipped.
- When CableCARD is inserted and Cable/Antenna is selected, Antenna (B) Analog & Digital Auto Scan will be performed.
- In order to manually select Antenna B from the remote, Auto Scan must first be performed.

## Auto Scan

Automatically scans all available channels, Antenna (A) Analog, Antenna (A) Analog & Digital, Antenna (B) Analog and Antenna (B) Analog & Digital.

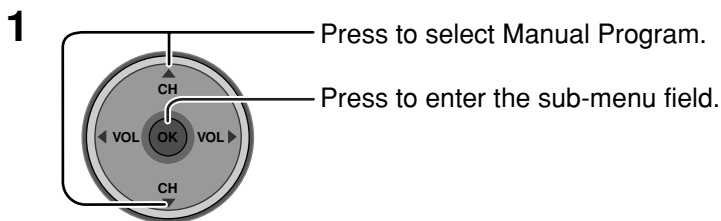


Program Channel	
Input Setup	Scan All
<b>Auto Scan</b>	Antenna (A) Analog
Manual Program	Antenna (A) Analog & Digital
Signal Meter	Antenna (B) Analog
	Antenna (B) Analog & Digital

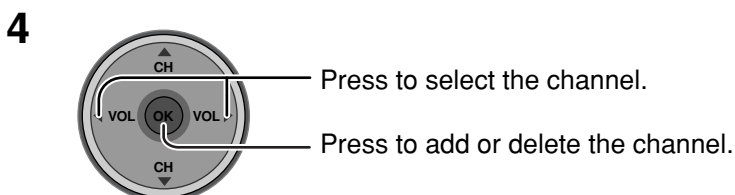
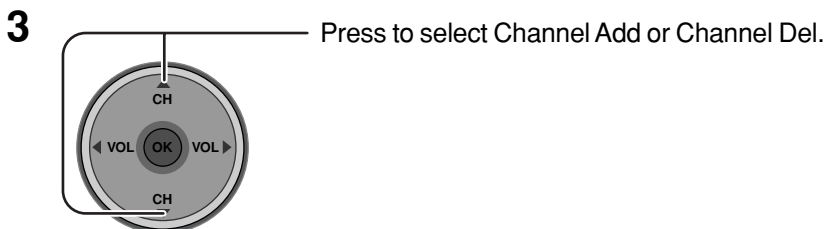
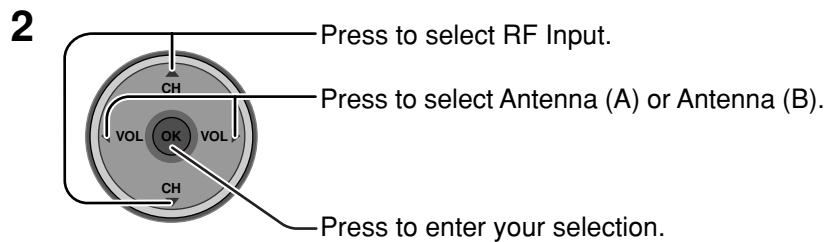


## Manual Program

To add or delete channels from either channels list (A/B) manually.



Program Channel		
Input Setup	RF Input	Antenna (A)
Auto Scan	Channel Add	A: 1
Manual Program	Channel Del	A: 2
Signal Meter		

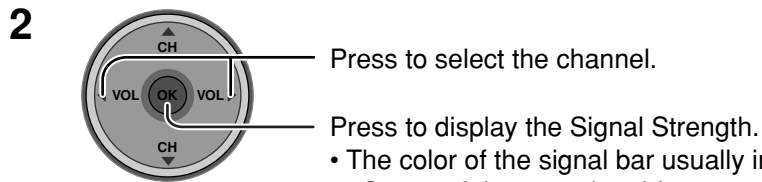
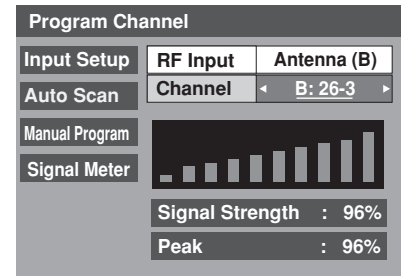
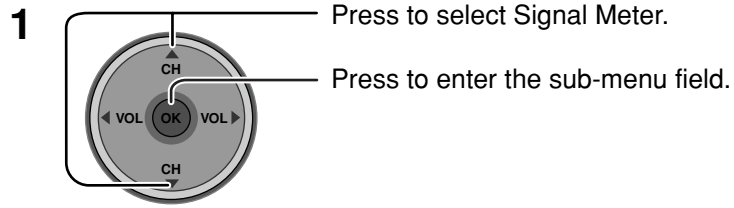


# Menu Navigation

## ■ Signal Meter

(For digital channels only)

Displays the signal strength of the ATSC digital channel in either Antenna (A) or Antenna (B).



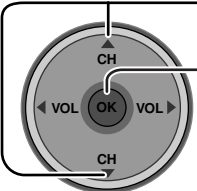
- The color of the signal bar usually indicates the strength of the received signal.
  - Green - Adequate signal for a good reception.
  - Yellow - Poor signal strength.
  - Red - Very poor signal strength.

## Closed Caption

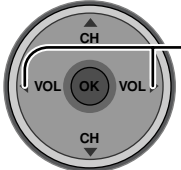
The television includes a built-in decoder that is capable of providing a visual display of the audio portion. The program viewed must provide Closed Captioning (CC) for the television to display it.

### ■ CC Mode

Activates Closed Captioning when the MUTE button is pressed.

- 

Press to select CC Mode.

Press to enter the sub-menu field.
- 

Press to select the setting.

  - Off
  - On : To display Closed Captions.
  - On Mute : To display Closed Captions when audio is muted.

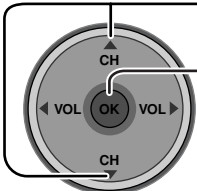
Closed Caption		
CC Mode	Setting	Off
Analog		
Digital		

### Notes:

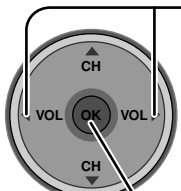
- The closed caption is not displayed when you use HDMI connection.
- When displaying or recording an analog channel program on a connected equipment, select the closed caption On/Off setting on the connected equipment. The TV's CC Mode setting does not affect with the analog channel output signal.
- When displaying or recording a digital channel program on a connected equipment, set the TV's CC Mode setting to Off and select the closed caption On/Off setting on the connected equipment. The digital closed captions will overlap if the closed caption setting is On on both the TV and the connected equipment.

### ■ Analog

Lets you choose the closed caption service of Analog broadcasting.

- 

Press to select Analog.

Press to enter the sub-menu field.
- 

Press to select the setting.

  - CC1 : For video related information that can be displayed (up to 4 line of script on the screen, where it does not disturb the relevant parts of the picture). Script can be in any language.
  - CC2/CC3/CC4 : Other modes used for video related information.
  - T1 : Blanks out a large portion of the picture on the television screen, and displays program guide or any other information currently being transmitted.
  - T2/T3/T4 : Other modes that display information and blank out a large portion of the picture of theTV screen.

Press to enter your selection.

Closed Caption		
CC Mode	Service	CC1
Analog		
Digital		

# Menu Navigation

## ■ Digital

The Digital Closed Caption menu lets you configure the way you choose to view the digital captioning.

**1**

Press to select Digital.

Press to enter the sub-menu field.

Closed Caption		
CC Mode	Service	Primary
Analog	Font	Automatic
Digital	Size	Automatic
	Style	Automatic
	Colors	
	Reset	
Sample CC Text		

**2**

Press to select the sub-menu.

Press to select the setting.

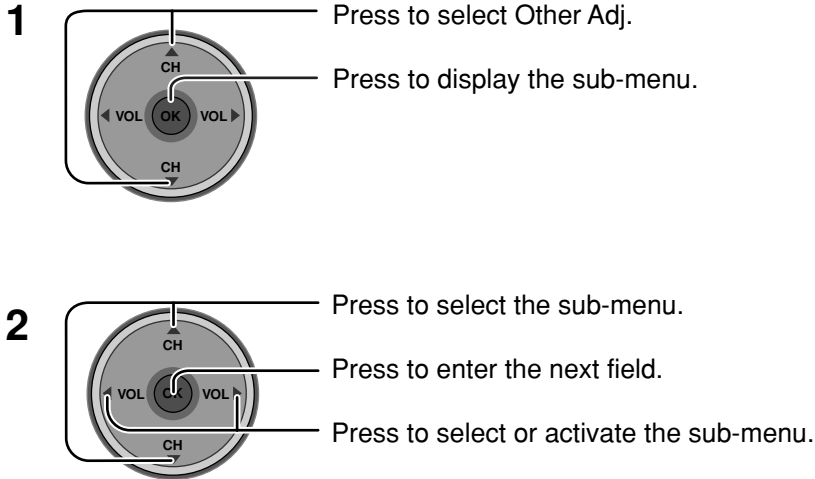
- Service : Primary, Secondary, Service 3, Service 4, Service 5, Service 6
- Font : Automatic, Default, Mono-serif, Pro-serif, Mono, Prop, Casual, Curative, Small Caps
- Size : Automatic, Normal, Small, Large
- Style : Automatic, None, Raised, Depressed, Uniform, Drop Shadow
- Colors : Foreground ..... The opacity of the font (Automatic, Black, White, Red, Green, Blue, Yellow, Magenta, Cyan)  
 Fore Opacity ..... The opacity of the text box (Automatic, Transparent, Translucent, Solid, Flashing)  
 Background ..... The color of the text box (Automatic, Black, White, Red, Green, Blue, Yellow, Magenta, Cyan)  
 Back Opacity .... The opacity of the text box (Automatic, Transparent, Translucent, Solid, Flashing)  
 Outline ..... The outline of the dropshadow (if selected under style)(Automatic, Black, White, Red, Green, Blue, Yellow, Magenta, Cyan)
- Reset : Reset the Digital CC settings.

**3**

Press to enter your selection.



## Other Adjust



Other Adjust	
Auto Power On	Off
Side Bar	Bright
Power Save	Off

### ■ Auto Power On (Set or Off)

Select Set to power up the TV at the same time as the cable box or other connected components.

### ■ Side Bar (Off, Dark, Mid, Bright)

Displaying a picture in 4:3 mode for an extended period may cause an after-image. Change the brightness of the side bars to prevent the after-image.

#### Notes:

- Setting the side bar to Bright for an extended period may cause an after-image.
- The side bar may flash (alternate black/white) depending on the picture. In such a case, set Pic Mode to Cinema (see page 26).

### ■ Power Save (Off or On)

Suppress the luminous level of the TV to reduce power consumption.

## CableCARD

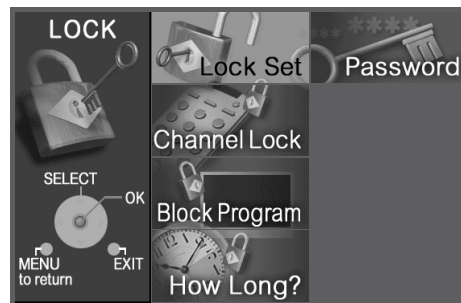
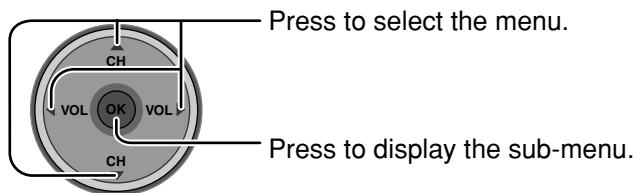
This menu provides information when a CableCARD is inserted into the CABLE CARD slot (see page 13).

#### Notes:

- If CableCARD is not inserted and you access the CableCARD Info, the message "Cable Module Not present" appears.
- To receive the features offered by your cable company, you may have to subscribe to those services. Contact your cable company regarding availability of the CableCARD. The CableCARD is required receive premium digital services (where available) through the cable input. You may also be able to order call-ahead pay per view events.

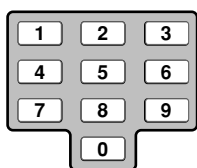
# Menu Navigation

## Lock

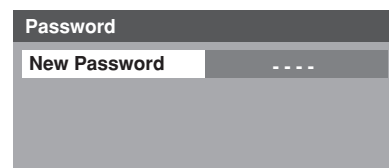


### Password

Create a 4-digit password to enter the Lock menu.



Enter a 4-digit password.

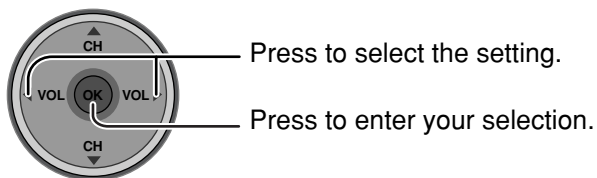


#### Notes:

- Use a code that is easy to remember and record it in a safe place.
- If Always is selected in How Long? (see page 45) and you forget your secret code, the TV must be serviced by a qualified technician to clear the Lock setup.

### Lock Set

Select Lock Set to prevent viewing video games, VCR tapes, channels and Video modes.



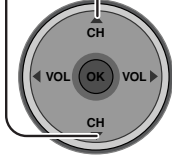
- Off : Turns off Lock set functions.
- Lock All : All channels are locked regardless of the rating level.
- Game Lock : Locks out CH 3, 4 and Video inputs.
- Channel Lock : Locks out specific analog and digital channels. Password is required to view any of the locked channels.

## Channel Lock

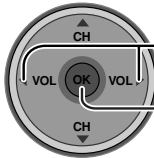
### ■ RF Input

Select either Antenna (A) or Antenna (B).

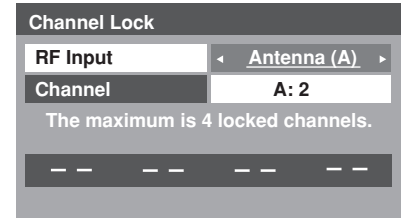
- 1** Press to select RF Input .



- 2** Press to select the setting.



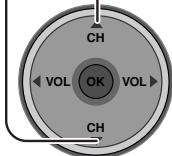
Press to enter your selection.



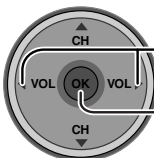
### ■ Channel

Select up to four (4) channels to be blocked out. These channels will be blocked out regardless of the program rating.

- 1** Press to select Channel.



- 2** Press to select the setting.



Press to enter your selection.

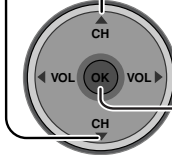
• To clear the channel number from the list, select the channel number and press **OK**.

## Block Program

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

- The default mode for the Lock category is the Unlocked state.

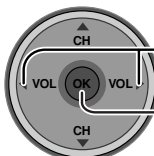
- 1** Press to select MPAA or U.S.TV.



**MPAA** : for U.S movie ratings  
**U.S. TV** : for U.S TV program ratings

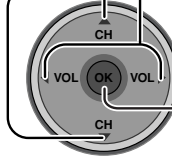
Press to enter the Mode field.

- 2** Press to select On or Off.



Press to enter your selection.

- 3** Press to highlight the desired rating level.



Press to change the rating limit to "Blocked" or "Viewable".

Block Program		
MPAA	Mode	Off
U.S.TV	NR	Viewable
	G	Viewable
	PG	Viewable
	PG-13	Viewable
	R	Viewable
	NC-17	Viewable
	X	Viewable

### Notes:

- The NR rating is independent of other ratings.
- Placing a block on a specific age based rating level, the NR rating and any other more restrictive ratings will also be blocked.

# Menu Navigation

## U.S. TV PROGRAMS RATINGS CHART

<b>NR</b>	Not Rated. See Customer Caution below.
<b>TV-Y</b>	All children. The themes and elements in this program are specifically designed for a very young audience, including children from ages 2-6.
<b>TV-Y7</b>	Directed to older children. Themes and elements in this program may include mild physical or comedic violence, or may frighten children under the age of 7.
<b>TV-G</b>	General audience. It contains little or no violence, no strong language, and little or no sexual dialogue or situations.
<b>TV-PG</b>	Parental guidance suggested. The program may contain infrequent coarse language, limited violence, some suggestive sexual dialogue and situations.
<b>TV-14</b>	Parents strongly cautioned. This program may contain sophisticated themes, sexual content, strong language and more intense violence.
<b>TV-MA</b>	Mature audiences only. This program may contain mature themes, profane language, graphic violence, and explicit sexual content.
<b>FV</b>	FANTASY/CARTOON VIOLENCE
<b>V</b>	VIOLENCE
<b>S</b>	SEX
<b>L</b>	OFFENSIVE LANGUAGE
<b>D</b>	DIALOGUE WITH SEXUAL CONTENT

## U.S. MOVIES RATINGS CHART

<b>NR</b>	CONTAINS NO RATING (NOT RATED) AND NA (NOT APPLICABLE) PROGRAMS. Movie has not been rated or rating does not apply.
<b>G</b>	GENERAL AUDIENCES. All ages admitted.
<b>PG</b>	PARENTAL GUIDANCE SUGGESTED. Some material may not be suitable for children.
<b>PG-13</b>	PARENTS STRONGLY CAUTIONED. Some material may be inappropriate for children under 13.
<b>R</b>	RESTRICTED. Under 17 requires accompanying parent or adult guardian.
<b>NC-17</b>	NO ONE 17 AND UNDER ADMITTED.
<b>X</b>	ADULTS ONLY.

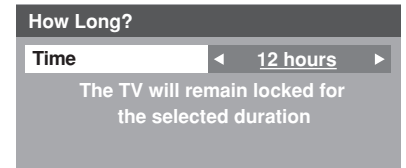
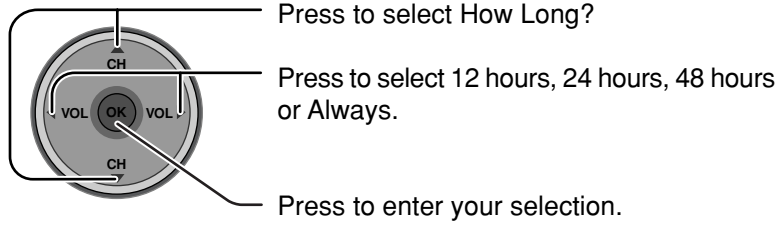
### *Customer Caution*

The V-Chip system that is used in this set is capable of blocking "NR" programs (non rated, not applicable and none) per FCC Rules Section 15.120(e)(2). If the option of blocking "NR" programs is chosen "unexpected and possibly confusing results may occur, and you may not receive emergency bulletins or any of the following types of programming:"

- Emergency Bulletins (Such as EAS messages, weather warnings and others)
- Locally originated programming • News • Political • Public Service Announcements • Religious • Sports
- Weather

## How Long?

The Lock settings remain for the selected duration.



**Note:**

When you select Always and you forget your secret code, the TV must be serviced by a qualified technician to clear the Lock setup.

## Blocking Messages

Various Blocking messages are displayed on-screen depending upon the type of blocking you have selected in the Lock menu.

**Note:**

Entering the password will override the block condition. However, the ratings selection will be retained.

Message	Possible cause
Video Inputs Locked.	Game Lock is selected.
Channel Locked. Press OK to enter password.	Channel Lock is selected.
Rating Limit Exceeded. Press OK to enter password.	The rating level is exceeded.

# Photo Viewer

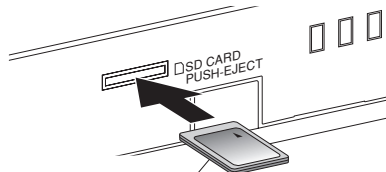
Photo Viewer lets you display JPEG images recorded by digital camera on SD card or other types of memory card when it is inserted in the card slot.

## Inserting and removing a card



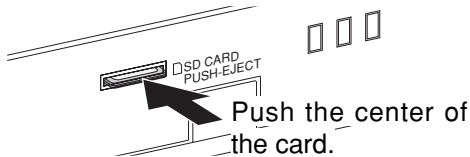
Insert the card.

Remove the card.



Label-side upward

Insert it to be clicked in.



Push the center of the card.

## Compatible card type and card size

- SD Card (512MB)
- Multi Media Card (128MB)
- miniSD Card\* (128MB)

\* miniSD Card requires miniSD adapter.

• Memory cards are not supplied with this television.

### ■ Card Data Protection

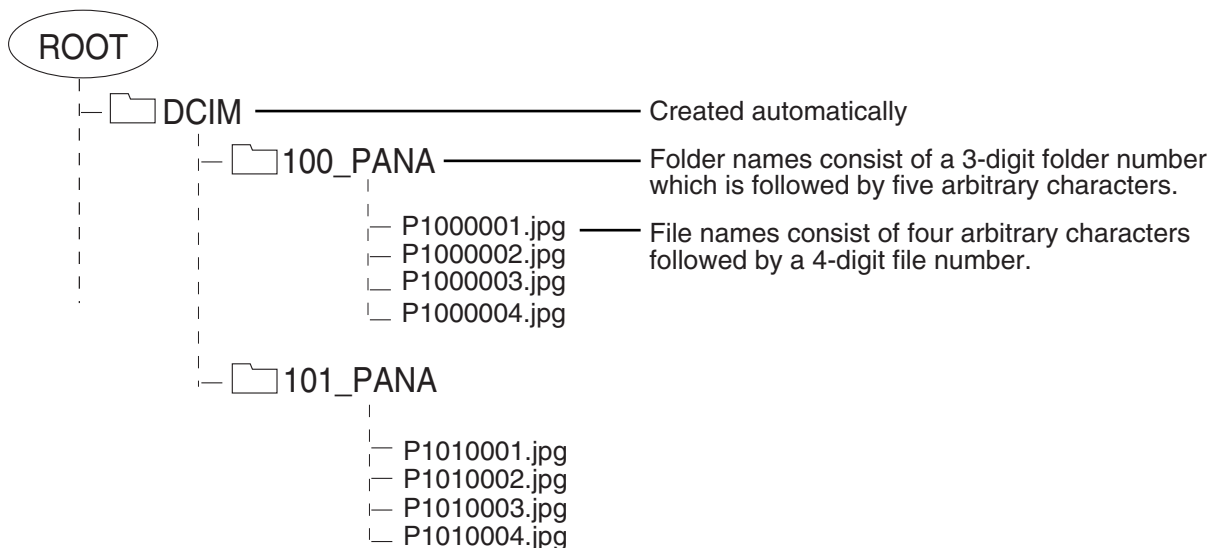
- Do not remove the card while Photo Viewer is accessing the information (when the card icon is flashing). Such action may damage the memory card or the unit itself.
- Do not touch the terminals on the back of the SD card.
- Always insert a card in the correct direction. Failure to do so may result in damage to the card and this unit.
- Do not subject the card to excessive pressure or strong impacts.
- Electrical interference, electrostatic discharges and malfunctions of the unit or card may all result in data loss or damage to the card.
- Stored data should be periodically backed up as a protection against data corruption, data loss or device malfunction. Please note that our company shall not accept any liability for damage or loss of stored data.
- **WARNING: As with a small object, SD card can be swallowed by young children. Do not allow children to handle SD card. Please remove SD card immediately after use.**

## Folders and Files

- Photo Viewer can only show still images recorded by a digital still camera with DCF\* and EXIF standard JPEG file.
  - \*DCF (Design rule for Camera File system)
    - Unified standard established by Japan Electronics and Information Technology Industries Association (JEITA).
- Memory cards must be formatted with FAT12 or FAT16 in order to be viewed on TV. If the card is not formatted, it may cause incompatibility with certain memory card adapters. If this happens, reformat the card using your digital camera.
  - Reformatting the card will erase the images stored in it.** Refer to your camera manual for more information.
- Maximum number of folders that can be displayed: **100**.
- Maximum number of files that can be displayed: **3,000**.
- **Picture resolution:** Compatible in the range 64 x 64 - 8,192 x 8,192 (sub-sampling 4:2:2 or 4:2:0)
- If the image is imported from a PC, it must follow the EXIF (Exchangeable image file format) 2.0, 2.1, 2.2 in addition to the DCF (design rule for Camera File system) format.
- The JPEG modified using a PC will not be displayed on TV.
- The Photo Viewer cannot display Motion JPEG and still image not DCF formatted (i.e. TIFF, BMP).
- If the file is partially corrupted, it may be shown in lower resolution.
- The displayed image size depends on the recorded size.

### Example folder structure

JPEG images in all the folders are displayed sequentially.



#### Notes:

- Folder and file names may vary according to the digital still camera.
- Use the characters "a-z", "A-Z", "0-9" and "\_" to name a directory or a file. Do not use two-byte characters or other special codes.

## Thumbnail Mode

The thumbnail screen is the initial entry screen from the main menu.

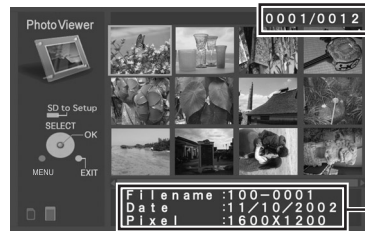


**1** Insert the card into the card slot (see page 46).

**OR**



Press to display the thumbnail screen.



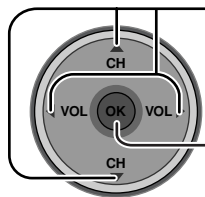
0001/0012 — Picture No. /Total No. of pictures

File name, the date and the pixel (resolution) of the picture

**Notes:**

- You can also enter the thumbnail screen from MENU screen (see page 24).
- It may take long time to display the thumbnail if there are lots of files or the file size is large.
- The video disappears from the screen while the Photo Viewer access the information from the card. After accessing the images from the card, a thumbnail screen is displayed.

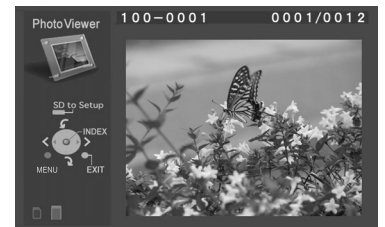
**2**



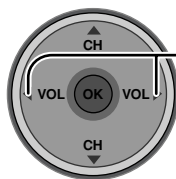
Select the thumbnail image.

Press to display the image in the single picture view mode.

Single picture view mode



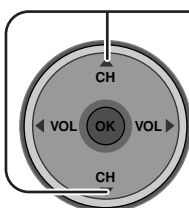
**3**



Press to select the next or the previous picture.  
• Press **OK** to return to the thumbnail screen.

**To rotate the picture**

While in the single picture view mode




Press to rotate the picture ninety degree.

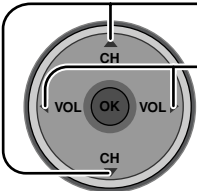


# Photo Viewer Setup Menu


This menu allows you to customize features in the Photo Viewer Setup Menu.

While in the thumbnail mode or the single picture view mode (see page 48)

**1**  Press to display the Setup Menu screen.

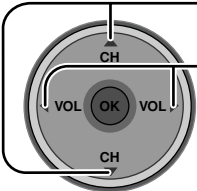
**2**  Press to select the sub-menu.  
Press to adjust or activate the sub-menu.

Setup Menu	Return
Slide Show	Start
Interval	5Sec
Sequence	Order
Repeat	OFF
Rotate	Left
Zoom	To Fit

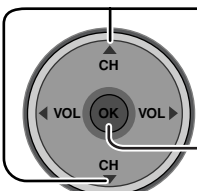


## Slide Show

Select the settings of Interval, Sequence and Repeat before starting the slide show.

**1**  Press to select the sub-menu.  
Press to adjust or activate the sub-menu.

- **Interval**  
Allows you to change the length of time that a slide is being displayed on screen. (5Sec, 10Sec, 15Sec, 30Sec, 60Sec, 90Sec, 10Min).
- **Sequence (Order or Random)**
- **Repeat (OFF or ON)**

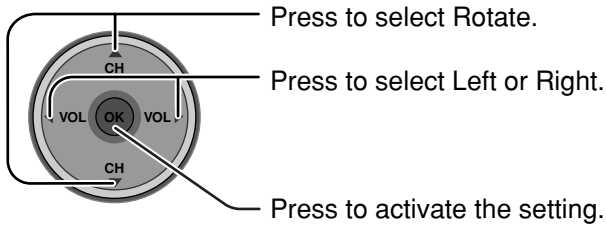
**2**  Press to select Start.  
Press to start the slide show.

- Press again to stop.
- Press **ASPECT** to change the aspect of the image (see page 56).

# Photo Viewer

## Rotate

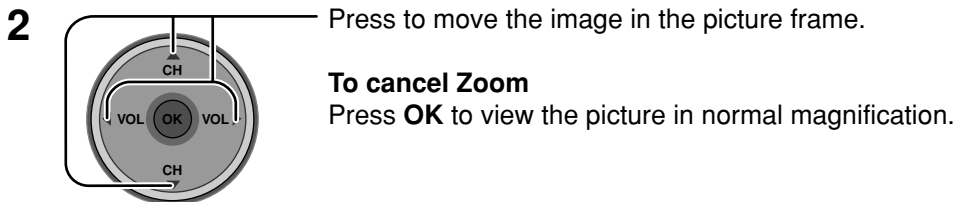
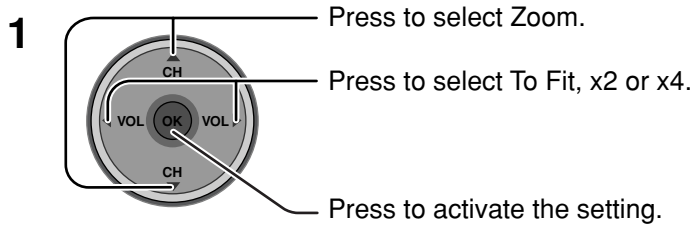
Allows you to rotate the image (see also page 48).



## Zoom

(While in the single picture view mode only)


Lets you select the magnification of the single picture display.



## Photo Viewer Troubleshooting

Symptom	Cause and remedy	Page
Cannot read the content of the card.	• Not compatible format. Must be formatted with FAT 12 or FAT 16.	47
	• The extension is not "JPG".	47
	• The folders not under DCF standard.	47
Poor picture quality.	If the main image cannot be read (the file is partially corrupted), the Photo Viewer will read the thumbnail. Please confirm the format of the image.	47
Long time to display.	There are lots of images or the file size is large.	47
The screen turns black.	If the TV is left with no operation for longer than 5 minutes during the thumbnail screen or the single picture view mode, the screen turns black to avoid image retention. Press any key to return to the normal display.	—


### ■ Error messages

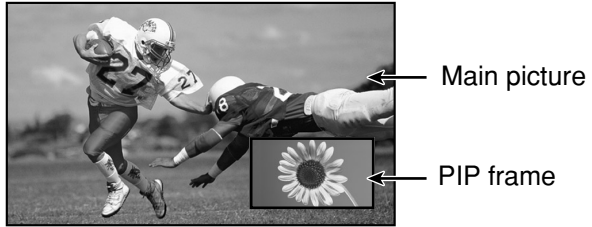
"Card is not inserted correctly."	Insert a card.
"This type of image is not supported."	The JPEG file is corrupted and cannot be decoded.
"This type of format is not supported."	The card is not formatted with FAT 12 or FAT 16 or if it is not DCF standard.
" 	Thumbnail and main picture cannot be shown.
"Photo Viewer cannot support over 3000 JPEG files."	Over 3,000 image files.
"Photo Viewer cannot support over 8192 x 8192 pixels."	Resolution over.
"This type of card is not supported."	Incompatible card is inserted.
"Press any key to return."	The screen turned black to avoid image retention. Press any key to return to the normal display.

# PIP (Picture in Picture) Operation

This television includes a two-tuner Picture In Picture (PIP) feature. This allows you to watch two (2) live broadcasts at the same time with or without an external video source such as a VCR, cable box, etc.



**1**  Press to display the PIP frame.



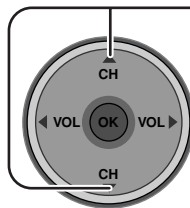
**Notes:**

- Audio is from Main picture only.
- PIP frame displays analog channel signal of ANTENNA (A) only, and cannot display ANTENNA (B) or digital channel signal.

**2** In the PIP frame

 Select the channel.

In the Main picture

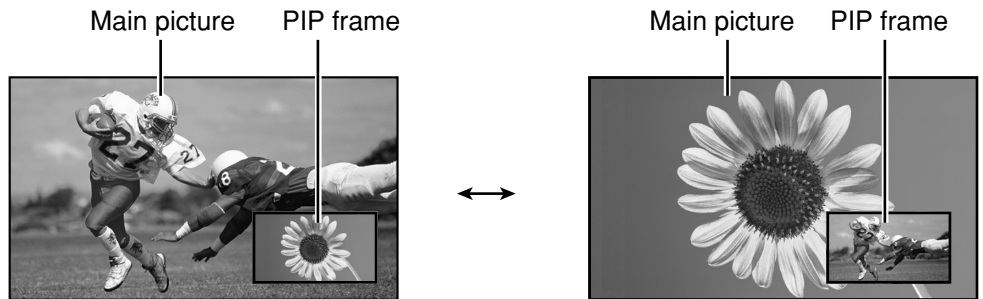
 Press to select the channel.  
• You can also use the numbered buttons.

**To cancel the PIP operation**



**To swap the pictures**





**To change the size of PIP frame**

 : smaller       : larger

## To freeze the picture

### PIP frame



- Press again to cancel Freeze.

### Main Picture

While PIP frame is not displayed

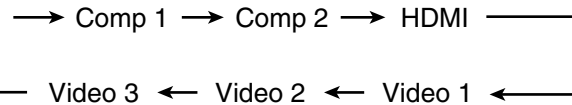
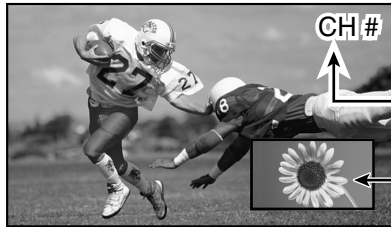


- Select PIP or Split (see page 27, Freeze) when freezing the Main picture.

#### Notes:

- Freeze is canceled after 3 minutes.
- Only MOVE (see below) is active while the Main picture is frozen.

## To select the input mode of PIP frame

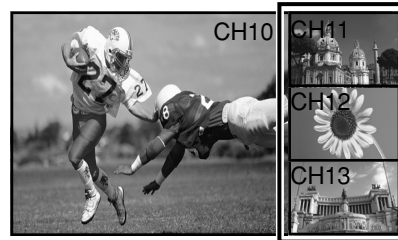


The input mode changes in PIP frame.

## To search the channel

(For analog channels only)

- Press to display search frames.
  - Press again to cancel Search.



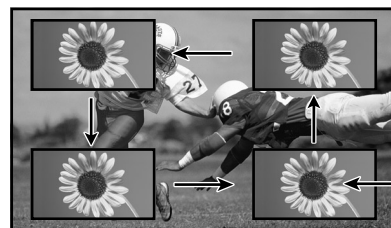
← Search frames

- Press to select the channel.
  - You can also use the numbered buttons.

## To move PIP frame



Press to position PIP frame to one of the four corners.




← PIP Frame

# SPLIT Operation

This feature lets you watch two different channels side by side with or without an external video source.



**1**  Press to display the SPLIT frame.



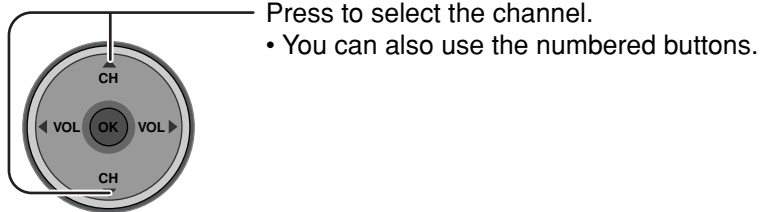
**Notes:**

- Audio is from Main picture only.
- SPLIT frame displays analog channel signal of ANTENNA (A) only, and cannot display ANTENNA (B) or digital channel signal.

**2** In the SPLIT frame



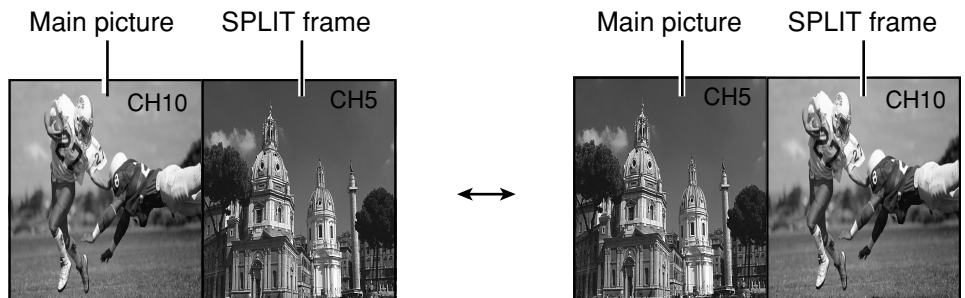
In the Main picture



## To cancel the SPLIT operation



## To swap the pictures



## To freeze the picture

### SPLIT frame



- Press again to cancel Freeze.

### Main Picture

While SPLIT frame is not displayed

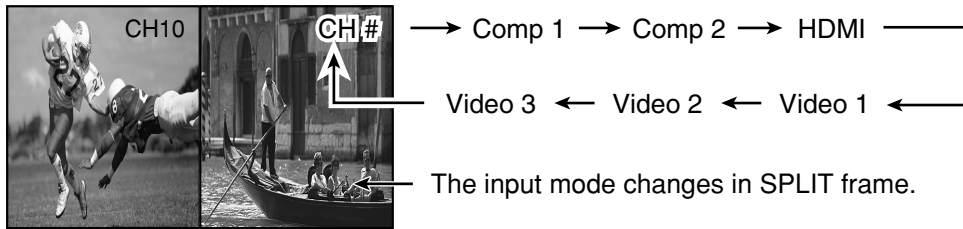


- Select PIP or Split (see page 27, Freeze) when freezing the Main picture.

#### Note:

Freeze is canceled after 3 minutes.

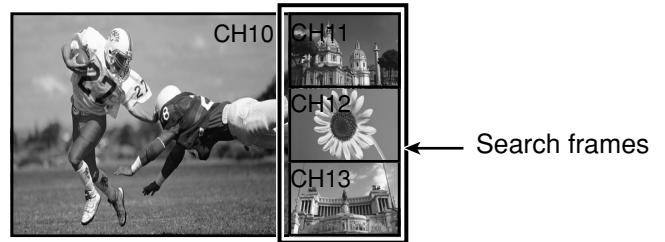
## To select the input mode of SPLIT frame



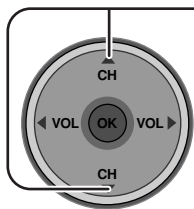
## To search the channel

(For analog channels only)

- Press to display search frames.  
• Press again to cancel Search.



- Press to select the channel.  
• You can also use the numbered buttons.



#### Notes:

- The Main picture and the SPLIT frame are processed in the individual circuits, and may have slight difference in image quality.
- You cannot display the same picture in the Main picture and the SPLIT frame at the same time.
- While Main picture freeze frame is displayed, you cannot select or search the channel, swap the pictures, or select the input mode.

# Aspect Controls

Lets you choose the aspect depending on the format of the received signal and your preference.



Press to change the aspect mode.

**Note:**

The available aspect modes depend on the receiving signal.

- 480i : 4:3, Full, Just or Zoom
- 480p (4:3) : 4:3, Full or Zoom
- 480p (16:9) : 4:3, Full or Zoom
- 1080i : 16:9 only
- PC mode : NORMAL, FULL, JUST or ZOOM  
(In PC mode, "4:3" indication is displayed as "NORMAL".)

Mode	Picture	Explanation
<b>4 : 3</b> (NORMAL in PC mode)		Displays a 4:3 picture at its standard 4:3 size with gray side bars. (It may create an after-image on screen if displayed for a prolonged period of time.)
<b>Zoom</b>		Expands a 4:3 picture uniformly (width and height) to full screen width and then reposition the picture vertically. (Recommended for letterbox. This will show picture at full screen size.)
<b>Full</b>		Displays a picture at full screen size. (Recommended for anamorphic pictures.)
<b>Just</b>		Stretches the right and left edges of a 4:3 picture to fill the screen, and the center of the screen have aspect correction applied. The size of the picture depends on the original signal. (Recommended for regular TV viewing.)

**Note:**

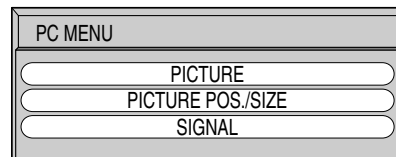
In PC mode, aspect mode information is displayed in the top right of the screen.



# PC MENU

## Preparation:

- Connect a PC to the TV (see page 18).
- Select PC input mode (see page 20).



- 1** Press to display the PC MENU.
  - 2** Press to select the sub-menu.  
 Press to display the sub-menu screen.
  - 3** Press to select the sub sub-menu.  
 Press to adjust the sub sub-menu.
- To return to the previous screen**
- EXIT

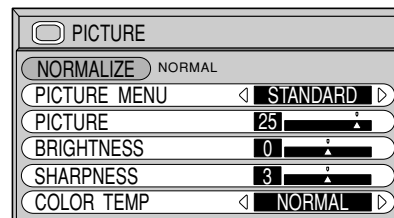
## PICTURE

### ■ NORMALIZE

Select "NORMALIZE" to reset adjustments to the factory default setting.

#### Note:

You can select "NORMALIZE" when you changed the settings.



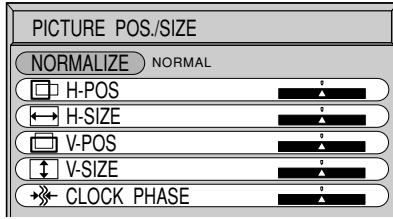
### ■ PICTURE MENU

MENU	Function
<b>AUTO</b>	Automatically selects the mode that best suits the brightness of the environment.
<b>STANDARD</b>	For viewing in standard (evening lighting) environments.
<b>DYNAMIC</b>	For viewing in brighter environments.
<b>CINEMA</b>	Ideal for movies.

### ■ PICTURE, BRIGHTNESS, SHARPNESS, COLOR TEMP

Item	Function
<b>PICTURE</b>	Adjusts white areas of picture.
<b>BRIGHTNESS</b>	Adjusts dark areas of picture.
<b>SHARPNESS</b>	Adjusts clarity of outline detail.
<b>COLOR TEMP</b>	To increase or decrease WARM (red) and COOL (blue) colors to suit personal preferences.

## PICTURE POS./SIZE



**Note:**

If a "Cue" or "Rew" signal from a VCR or may DVD player is received, the picture position may shift up or down despite of the PICTURE POS./SIZE settings.

**■ NORMALIZE**

Select "NORMALIZE" to reset adjustments to the factory default setting.

**Note:**

You can select "NORMALIZE" when you change the settings.

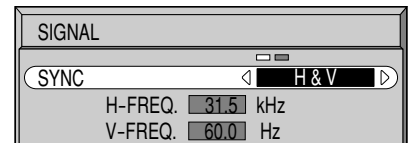
Menu	When "◀" button is pressed	When "▶" button is pressed
H-POS		
H-SIZE		
V-POS		
V-SIZE		
<b>CLOCK PHASE</b> (RGB/PC in Mode)	Flickering and distortion can be eliminated by using the Position Left "◀" or Right "▶" button to carry out adjustment.	

## SIGNAL

**■ SYNC**

(Only for RGB INPUT signal)

- H & V: The H and V sync signals are input from the HD/VD connector.
- ON G: Uses a synchronized signal on the Video G signal, which is input from the G connector.



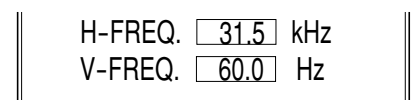
**■ H-FREQ. (kHz)/V-FREQ. (Hz)**

(Only for RGB input signal)

Displays the H (Horizontal)/V (Vertical) frequencies.

Display range:

- Horizontal 15 - 110 kHz
- Vertical 48 - 120 Hz



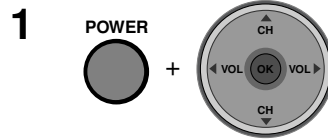
# Operating peripheral equipment using the remote control

## Programming the remote control code

You can operate other manufacturers' components using this TV's remote control.

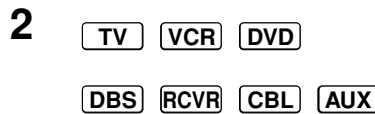
### Preparation:

- Connect the plug of the external component to the well outlet.
- Make sure the component is turned off.



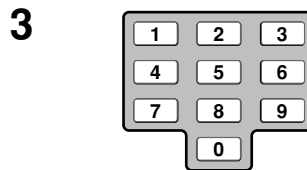
Press and hold **POWER** and **OK** together, for at least **5 seconds**.

- The mode selection buttons flashes, and then release the **POWER** and **OK**.



Select the type of the component.

- The selected button light and all others go out.



Enter the 3-digit infrared code (see pages 60-62).

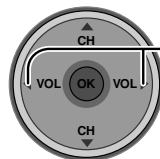
- Factory default setting : Panasonic
- Press **POWER** to test the operation.

### Notes:

- 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.

### To find the code not listed in the index

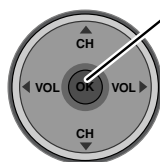
**1** After selecting the type of component (step 2, above)



Press to select the code.

- The code starts from the current device.
- Press **POWER** button to test the operation.
- Repeat the steps until the component code is found. It may take many attempts before the correct code is found.

**2**



Press to store the code.

# Operating peripheral equipment using the remote control

## Infrared Code Index

The remote control is capable of operating many brands of peripheral equipment. Refer to page 59 for programming procedures.

### Notes:

- The remote control memory is limited and therefore some models may not operate. The remote control is not designed to control all features available in all models.
- After entering the proper infrared code, press the desired Mode Selection buttons (see page 20). Refer to pages 63 and 64 for details on operating peripheral equipment using the remote control.

### Infrared Remote Codes for Specific Components

Helpful Hint: Write down the code numbers for your components in the space provided below. This will serve as a handy reference whenever you need to reprogram your remote control.

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

### Codes for VCR

Brand	Code
Admiral	335
Aiwa	332
Akai	314, 315, 316, 329
Audio Dynamic	311, 339
Bell & Howell	305, 313
Broksonic	320, 326
Canon	323, 325
CCE	343
Citizen	306
Craig	305, 306, 329
Curtis Mathes	324, 345
Daewoo	301, 324, 343
DBX	310, 311, 339
Dimensia	345
Emerson	303, 319, 320, 325, 326, 343
Fisher	305, 307, 308, 309, 313
Funai	320, 326, 334
GE	324, 333, 345
Goldstar	306
Gradiente	334
Hitachi	300, 323, 345
Instant Replay	323, 324
Jensen	339
JVC	310, 311, 334, 339
Kenwood	306, 310, 311, 339
LXI	300, 305, 306, 307, 308, 309
Magnavox	323, 324, 331
Marantz	310, 311, 339
Marta	306
Memorex	309, 324
MGA	338, 340, 341, 347, 348
Minolta	300, 345
Mitsubishi	338, 340, 341, 347, 348
Multitech	304, 347
NEC	310, 311, 334, 339
Olympic	323, 324

Brand	Code
Optimus	306, 321, 328, 335
Orion	320, 326
Panasonic	321, 322, 323, 324
Penney	300, 305, 310, 311, 324, 339, 345
Pentax	300, 311, 345
Philco	320, 323, 324, 326, 331, 343
Philips	323, 324, 331
Pioneer	323
Proscan	300, 301, 302, 323, 324, 331, 333, 345, 346
Quasar	321, 322, 323, 324
Radio Shack	305, 309, 324, 333, 336, 340
RCA	300, 301, 302, 323, 324, 331, 333, 345, 346
Realistic	305, 309, 324, 336, 340
Samsung	302, 304, 333
Sansui	320, 326, 339, 352
Sanyo	305, 309, 313
Scott	301, 302, 304, 309, 320, 326, 338, 340, 347, 348
Sears	300, 305, 306, 307, 308
Sharp	335, 336
Shintom	317
Signature 2000	335
Singer	317
Sony	328, 329, 330
Sylvania	323, 324, 331
Tashiro	306
Tatung	310, 311, 339
Teac	310, 311, 339
Technics	321, 322, 323, 324
Teknika	324
Toshiba	301, 346
Vector Research	311
Wards	306, 309, 335, 336, 344
Yamaha	305, 310, 311, 339
Zenith	306, 344

# Operating peripheral equipment using the remote control

DVD

## Codes for DVD

Brand	Code
Denon	100
Ferguson	101
JVC	109
Mitsubishi	105
Nordmende	101
Panasonic	100
Philips	103
Pioneer	102
RCA	101

Brand	Code
Saba	101
Samsung	110
Sharp	108
Sony	104
Technics	100
Thomson	101
Toshiba	103
Yamaha	100
Zenith	107

DVD

## Codes for CD

Brand	Code
Admiral	226
Aiwa	233, 235
Carver	229
Denon	242
Emerson	239
Fisher	205
Harman Kardon	219, 220, 221, 223
Hitachi	207
Jensen	234
JVC	240, 241, 245
Kardon	223
Kenwood	200, 201, 211, 245
LXI/Sears	236
Magnavox	229, 232
Marantz	229
McIntosh	221
Nakamichi	210
Onkyo	214, 215

Brand	Code
Optimus	208, 218, 220, 222
Panasonic	224, 225, 227
Philips	229, 230
Pioneer	208
Quasar	224, 225, 227
RCA	231, 237, 238, 247
Sansui	210, 246
Sanyo	205
Scott	210, 246
Sharp	242, 243
Sherwood	220
Sony	228
Soundesign	244
Teac	212, 216, 218
Technics	224, 225, 227
Victor	240, 241, 245
Yamaha	202, 203, 204

AUX

## Codes for Personal Video Recorders

Brand	Code
Panasonic Replay TV	100
Philips Tivo	101
Sony Tivo	102

AUX

## Codes for Cassette Deck

Brand	Code
Aiwa	223, 224, 225
Denon	231
Fisher	203
Jensen	214
JVC	229, 230
Kenwood	200, 207
Marantz	202
Nakamichi	205
Onkyo	208, 209, 213
Panasonic	216, 218

Brand	Code
Philips	222
Pioneer	204
RCA	226, 227, 228
Sansui	205, 210
Sharp	231
Sony	219, 220
Teac	210, 211, 215
Technics	216, 218
Yamaha	201, 202

# Operating peripheral equipment using the remote control

RCVR

## Codes for Receivers

Brand	Code
Admiral	120
Aiwa	125, 126
Denon	134, 135, 136
Fisher	104
Garrard	113
Harman Kardon	115, 123
Jensen	129
JVC	132, 133
Kenwood	100, 108
Magnavox	127
Marantz	124
McIntosh	116
Nakamichi	106
Onkyo	109, 114

Brand	Code
Optimus	103, 127, 130, 131
Panasonic	118, 119, 121
Philips	123
Pioneer	105, 107
Quasar	118, 119, 121
RCA	103, 105, 127, 130, 131
Sansui	103, 111, 139
Sharp	134, 137
Sony	122
Soundesign	138
Teac	111, 112, 113
Technics	118, 119, 121
Victor	132, 133
Yamaha	101, 102

CBL

## Codes for Cable Box

Brand	Code
ABC	124
Archer	125, 132
Cableview	105, 132
Citizen	105, 122
Curtis	112, 113
Diamond	124, 125, 132
Eagle	129
Eastern	134
GC Brand	105, 132
Gemini	122
General Instrument/Jerrold	111, 119, 120, 121, 122, 123, 124, 125, 126, 127
Hamlin	112, 118, 140, 141, 142, 145
Hitachi	103, 124
Macom	103, 104, 105
Magnavox	133
Memorex	130
Movietime	105, 132
Oak	102, 137, 139
Panasonic	109, 110, 114
Philips	106, 107, 128, 129, 130
Pioneer	101, 116
Pulsar	105, 132

Brand	Code
Puser	132
RCA	115
Realistic	132
Regal	112, 118, 140, 141, 142, 145
Regency	134
Rembrandt	105, 132, 137
Samsung	105
Scientific Atlanta	111, 112, 113
Slmark	101, 105
Sprucer	105, 110
Stargate	105, 132
Tel eview	101, 105
Texscan	144
Tocom	135
Toshiba	104
Unika	125, 132
Universal	122, 132
Videoway	106
Viewstar	129, 130
Zenith	100, 117
Zenith /Drae Satellite	100

DBS


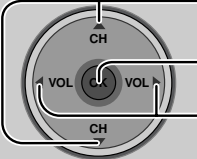







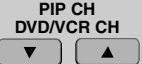
## Codes for DBS

Brand	Code
Dish Network	105, 115, 116
Echo Star (EchoStar)	105
Express VU	105, 115
G.E.	106
G.I. (General Instrument)	108
Gradiente	114
Hitachi	103, 111, 112
HNS (Hughes)	103





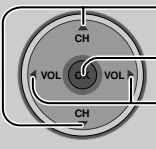






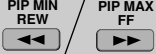





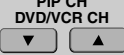

Brand	Code
Magnavox	101, 102
Panasonic	104
Philips	101, 102
Primestar	108
Proscan	106, 109, 110, 113
RCA	106, 109, 110, 113
Sony	107
Star Choice	103, 108
Toshiba	100
Uniden	101, 102

## Mode Operational Key Chart

This chart defines which keys that are operational after programming (if needed), while in the selected remote control mode, DTV, CABLE, DBS, VCR, DVD ...etc.

KEY NAME	DTV MODE	CABLE MODE	DBS MODE
	POWER	POWER	POWER
	NAVIGATION UP/DOWN	CABLE CHANNEL UP/DOWN	DBS NAVIGATION UP/DOWN
	OK	–	DBS MENU
	NAVIGATION RIGHT/LEFT	–	DBS NAVIGATION RIGHT/LEFT
	DTV MENU	–	–
	PROGRAM INFO.	–	DBS PROGRAM INFO.
	EXIT (EPG)ELECTRONIC PROGRAM GUIDE	–	EXIT DBS MENU
	Select Channel	Select Channel	Select Channel
	PREVIOUS STB CHAN	CABLE PREVIOUS CHAN	DBS PREVIOUS CHAN
	DTV PROGRAM/DASH	–	–
	Info (EPG) ELECTRONIC PROGRAM GUIDE	–	–
	–	–	DBS CHANNEL UP/DOWN









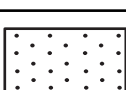













# Operating peripheral equipment using the remote control

KEY NAME	VCR MODE	DVD/CD MODE		AUX MODE			RCVR MODE
		(DVD)	(CD)	(PVR)	(VCR2)	(TAPE)	
	POWER	POWER	POWER	POWER	POWER	POWER	POWER
	–	–	–	–	–	–	RCVR MUTE
	TV INPUT SW	–	–	–	TV INPUT SW	–	RCVR INPUT SW
	–	–	–	–	–	–	REMOTE BUTTONS
	–	NAVIGATION UP/DOWN	NEXT/PREVIOUS TRACK	NAVIGATION UP/DOWN	–	–	TUNER +/-
	–	–	–	–	–	–	–
	–	–	–	NAVIGATION RIGHT/LEFT	–	VOLUME +/-	RCVR VOLUME +/-
	–	–	–	PVR MENU	–	–	–
	ONSCREEN VCR DISPLAY	DVD DISPLAY	TIME FORMAT	–	ONSCREEN VCR DISPLAY	–	–
	–	–	–	EXIT PVR MENU	–	–	–
	–	–	–	Select Channel	–	–	1.... AV1 2.... AV2 3.... AV3 4.... AV4 5.... CD 6.... TUNER 7.... PHONO 8.... TAPE 9.... AUX
	–	–	–	PREVIOUS CHAN RELAY ZONES	–	DECK A/B	–
	–	–	–	PVR RETURN TO LIVE	–	–	–
	VCR REW/FF	SKIP SEARCH REW/FF	SEARCH REW/FF	–	VCR REW/FF	TAPE REW/FF	SURROUND +/-
	PLAY	PLAY	PLAY	PLAY	PLAY	PLAY	–
	PAUSE	STILL/PAUSE	PAUSE	PAUSE	PAUSE	PAUSE	–
	STOP	STOP	STOP	–	STOP	STOP	–
	VCR RECORD	–	–	PVR RECORD	VCR RECORD	TAPE RECORD	–
	TV/VCR SWITCH	SLOW +/-	–	–	TV/VCR SWITCH	–	–
	VCR CHANNEL UP/DOWN	–	–	PVR CHANNEL UP/DOWN	VCR CHANNEL UP/DOWN	–	RCVR CENTER +/-
	–	OPEN/CLOSE	OPEN/CLOSE	PVR QUICK SKIP	–	–	–




# Troubleshooting Chart

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

Symptoms		Solutions	Page
VIDEO	AUDIO		
 Snowy Video	 Noisy Audio	<ul style="list-style-type: none"> <li>Adjust the antenna location and connection.</li> </ul>	12, 13
 Multiple Image	 Noisy Audio	<ul style="list-style-type: none"> <li>Adjust the antenna location and connection.</li> <li>Check the antenna lead-in cable.</li> </ul>	12, 13 12, 13
 Interference	 Noisy Audio	<ul style="list-style-type: none"> <li>Move the television away from electrical appliances, lights, vehicles and medical equipment.</li> </ul>	—
 Normal Video	 No Audio	<ul style="list-style-type: none"> <li>Increase volume.</li> <li>Check Mute.</li> <li>Check Television Speakers on/off.</li> <li>Change channel.</li> </ul>	23 20 29 23
 No Video with Snow	 Noisy Audio	<ul style="list-style-type: none"> <li>Set Input Setup properly.</li> <li>Check the antenna cables.</li> </ul>	36 12, 13
 No Video / No PIP	 No Audio	<ul style="list-style-type: none"> <li>Check the power cord is plugged into the wall outlet.</li> <li>Adjust Brightness and Audio controls.</li> <li>Change channel.</li> <li>Check the cable connections.</li> <li>Program the remote control code.</li> <li>Check the second video source operation.</li> <li>Make sure that a PC is not connected to HDMI input. Rarely, the TV will not display video in HDMI input from devices with HDMI or DVI output due to bad communication between the TV and the devices. Should this happens, unplug the HDMI/DVI device and plug it back on.</li> </ul>	19 26,28,29 23 12-18 59-61 59-64 14
 No Color	 Normal Audio	<ul style="list-style-type: none"> <li>Adjust Color settings.</li> <li>Change channel.</li> </ul>	26, 27 23
 Digitalization of image Image freeze up	 Audio Break up	<ul style="list-style-type: none"> <li>Re-orient the ATSC antenna.</li> <li>Check signal meter. If the signal is weak, add a signal booster to boost the signal strength.</li> </ul>	— 38
 Normal Video	 Wrong Audio	<ul style="list-style-type: none"> <li>Check the audio mode is set to Stereo or Mono, not SAP.</li> <li>Change the audio of the HDMI device to Linear PCM.</li> <li>Check the audio setting for HDMI. If there is functional problem with Digital Audio, use Analog audio.</li> </ul>	21 — 29
 Black Box on Screen	 Normal Audio	<ul style="list-style-type: none"> <li>Change CC (Closed Caption).</li> </ul>	39, 40
 Normal Video	 Normal Audio	<ul style="list-style-type: none"> <li>Replace the remote control batteries.</li> </ul>	9
Intermittent Remote Control Operation			
Cannot select Antenna B		<ul style="list-style-type: none"> <li>Perform Auto Scan.</li> </ul>	36

# Troubleshooting Chart / VIDEO/COMPONENT/RGB/PC/HDMI input signals

## Plasma Display panel

Symptoms	Check	Page
Some parts of the screen do not light up.	<ul style="list-style-type: none"> <li>The plasma display panel is manufactured using an extremely high level of precision technology, however, sometimes some parts of the screen may be missing picture elements or have luminous spots. This is not a malfunction.</li> </ul>	—
 <p>An after-image appears.</p>	<ul style="list-style-type: none"> <li>Do not allow a still picture to be displayed for an extended period, as this can cause a permanent after-image to remain on the Plasma TV. Examples of still pictures include logos, video games, computer images, teletext and images displayed in 4:3 mode.</li> </ul> <p><b>Note:</b> The permanent after-image on the Plasma TV resulting from fixed image use is not an operating defect and as such is not covered by the Warranty. This product is not designed to display fixed images for extended periods of time.</p>	56
Whirring sounds can be heard from the display unit.	<ul style="list-style-type: none"> <li>The TV is fitted with a cooling fan to dissipate heat generated during normal use. The rotating fan may cause a whirring sound but it is not a malfunction.</li> <li>The TV slightly consumes power and rotates the cooling fan even when turned off in order to receive program guide data etc. through the CableCARD. The rotating fan may cause a whirring sound but it is not a malfunction.</li> </ul>	—

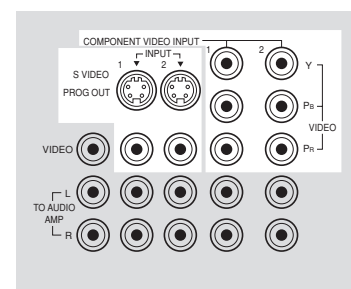
# VIDEO/COMPONENT/RGB/PC/HDMI input signals

## VIDEO input

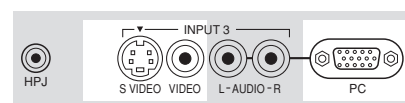
	signal name	horizontal frequency(kHz)	vertical frequency(Hz)
1	NTSC	15.73	59.94

## Applicable input signals (\* mark)

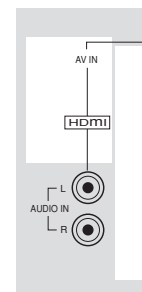
	signal name	horizontal frequency(kHz)	vertical frequency(Hz)	COMPONENT	PC	HDMI
1	525 (480) /60i	15.73	59.94	*	*	*
2	525 (480) /60p	31.47	59.94	*	*	*
3	750 (720) /60p	45.00	60.00		*	
4	1,125 (1,080) /60i	33.75	59.94	*	*	*
5	640 × 400 @70	31.47	70.00		*	
6	640 × 480 @60	31.47	59.94		*	
7	Macintosh13" (640 × 480)	35.00	66.67		*	
8	640 × 480 @75	37.50	75.00		*	
9	852 × 480 @60	31.50	60.00		*	
10	800 × 600 @60	37.88	60.32		*	
11	800 × 600 @75	46.88	75.00		*	
12	800 × 600 @85	53.67	85.06		*	
13	Macintosh16" (832 × 624)	49.73	74.55		*	
14	1,024 × 768 @60	48.36	60.00		*	
15	1,024 × 768 @70	56.48	70.07		*	
16	1,024 × 768 @75	60.02	75.03		*	
17	1,024 × 768 @85	68.68	85.00		*	
18	Macintosh21" (1,152 × 870)	68.68	75.06		*	
19	1,280 × 1,024 @60	63.98	60.02		*	
20	1,280 × 1,024 @75	79.98	75.03		*	
21	1,280 × 1,024 @85	91.15	85.02		*	
22	1,600 × 1,200 @60	75.00	60.00		*	



VIDEO input  
COMPONENT input



VIDEO input  
PC RGB input



HDMI input

**Note:** Signals without above specification may not be displayed properly.

# Specifications

		TH-37PD25	TH-42PD25
<b>Power Source</b>		AC 120 V, 50/60 Hz	
<b>Power Consumption</b>		Maximum : 345 W Stand-by condition : 18 W	Maximum : 395 W Stand-by condition : 18 W
<b>Plasma Display panel</b>		Drive method : AC type 37-inch , 16 : 9 aspect ratio	Drive method : AC type 42-inch , 16 : 9 aspect ratio
<b>Screen Size</b>		32.20 " (818 mm) (W) × 18.15 " (461 mm) (H) × 36.97 " (939 mm) (diagonal)	36.22 " (920mm) (W) × 20.39 " (518 mm) (H) × 41.57 " (1056 mm) (diagonal)
<b>Dimensions ( W × H × D )</b>		42.13 " (1070 mm) × 23.46 " (596 mm) × 3.90 " (99 mm)	46.06 " (1170 mm) × 29.91 " (658 mm) × 3.90 " (99 mm)
<b>Mass (Weight)</b>		67.2 lb. (30.5 kg) Net	79.4 lb. (36.0 kg) Net
<b>Channel Capability-ATSC/NTSC</b>		VHF/ UHF : 2-69, CATV:1-136	
<b>Sound</b>	<b>Speaker</b>	Woofer $\phi$ 1.57 " (40 mm) × 8 , Tweeter $\phi$ 1.38 " (35 mm) × 2	
	<b>Audio Output</b>	16 W [ 8 W + 8 W ] ( 10 % THD )	
	<b>Headphone</b>	M3 (3.5 mm) Jack × 1	
<b>FEATURES</b>		Two screen display fuctions BBE VIVA 3D CLOSED CAPTION	3D Y/C FILTER LINEAR PIP V-Chip HDMI JPEG Viewer
<b>Accessories Supplied</b>		Remote control: EUR7627Z10 AA Battery × 2 AC Cord Pedestal Fixing band	Ferrite cores : large × 4, small × 6 F-type antenna adapter (3C-2V × 2, 5C-2V × 2)
<b>Operating Conditions</b>		Temperature : 34 °F - 104 °F (0 ° - 40 °C) Humidity : 20 % - 80 % (non-condensing)	
<b>Connection Terminals</b>		RGB input D-SUB 15pin	R,G,B / 0.7 Vp-p (75 $\Omega$ ) HD, VD / 1.0 - 5.0 Vp-p (high impedance)
		AV INPUT 1- 3 VIDEO (Phono Jack Type) S-VIDEO (Mini DIN 4-pin) AUDIO L-R (Phono Jack Type × 2)	1.0 Vp-p (75 $\Omega$ ) Y : 1.0 Vp-p (75 $\Omega$ ), C : 0.286 Vp-p (75 $\Omega$ ) 0.5 Vrms
		AV PROG. OUT VIDEO (Phono Jack Type) AUDIO L-R (Phono Jack Type × 2)	1.0 Vp-p (75 $\Omega$ ) 0.5 Vrms
		TO AUDIO AMP AUDIO L-R (Phono Jack Type × 2)	0.5 Vrms
		COMPONENT VIDEO INPUT1-2 Y P <sub>B</sub> / P <sub>R</sub> AUDIO L-R (Phono Jack Type × 2)	1.0 Vp-p (including synchronization) $\pm$ 0.35 Vp-p 0.5 Vrms
		HDMI HDMI type A Connector AUDIO L-R (Phono Jack Type × 2)	0.5 Vrms
		DIGITAL AUDIO OUT PCM / Dolby Digital, Fiber Optic	

**Note:** Design and Specifications are subject to change without notice. Weight and Dimensions shown are approximate.

By using this TV you are indicating acceptance of the GNU Public Licenses indicated below.

This product utilizes the following so called "open source" software:

- (1) the software which is licensed under the GNU GENERAL PUBLIC LICENSE,
- (2) the software which is licensed under the GNU LESSER GENERAL PUBLIC LICENSE, and
- (3) software developed by the third parties and available under certain terms and conditions.

For the software categorized as (1) and (2), please refer to the terms and conditions of the following GNU GENERAL PUBLIC LICENSE and GNU LESSER GENERAL PUBLIC LICENSE respectively.

If you wish to get further information as to the software, please contact the web site below.

<http://www.fsf.org/licenses/> and <http://www.am-linux.jp/>

## **GNU GENERAL PUBLIC LICENSE**

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.  
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

### **Preamble**

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights. We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all. The precise terms and conditions for copying, distribution and modification follow.

### **TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION**

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law:

that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program).

Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
- b) You must cause any work that you distribute or publish, that in whole or in part contains

or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

- a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than yours cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### **NO WARRANTY**

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### **END OF TERMS AND CONDITIONS**

##### **How to Apply These Terms to Your New Programs**

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

```
<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>
```

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program;

if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail. If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

```
Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type
`show c' for details.
```

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

#### **GNU LESSER GENERAL PUBLIC LICENSE**

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.  
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA  
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

#### **Preamble**

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

## **TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION**

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) The modified work must itself be a software library.
- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or

with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

- a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
- b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary

libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

- a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
- b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

## **NO WARRANTY**

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

## **END OF TERMS AND CONDITIONS**

### **How to Apply These Terms to Your New Libraries**

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>  
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yooyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice

That's all there is to it!

**Customer's Record**

The model number and serial number of this product can be found on its back cover. You should note this serial number in the space provided below and retain this book, plus your purchase receipt, as a permanent record of your purchase to aid in identification in the event of theft or loss, and for Warranty Service purposes.

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

---

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

**Panasonic Sales Company,  
Division of Matsushita Electric  
of Puerto Rico Inc. ("PSC")**  
Ave. 65 de Infanteria, Km 9.5  
San Gabriel Industrial Park,  
Carolina, Puerto Rico 00985