



1-800-SAMSUNG(1-800-726-7864)

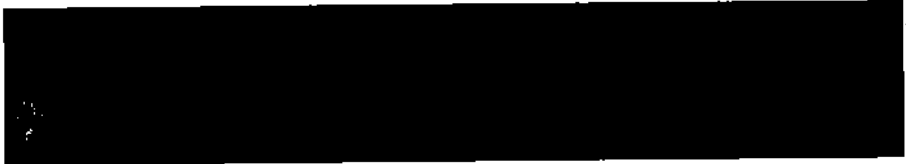
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SAMSUNG

TFT-LCD TELEVISION



Owner's Instructions

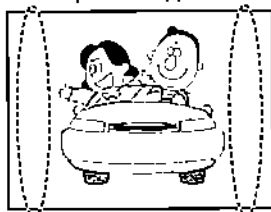
This device is a Class B digital apparatus.

Register your product at
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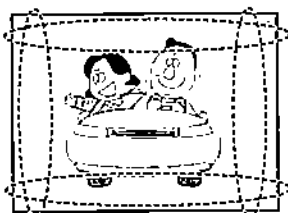
Precautions When Displaying a Still Image

A still image may cause permanent damage to the TV screen.

- Digital Ready TV: When you select the regular screen (4:3) mode to watch an SD-grade digital broadcast (and the set-top box output is 480p).



- Digital Ready TV: When you select the wide screen (16:9) mode to watch an SD-grade digital broadcast (and the set-top box output is 1080i).

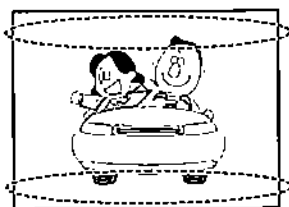


Although digital broadcasting must be in the wide screen (16:9) HD format, broadcasters sometimes show programs made originally in the regular screen format (4:3) by converting the signals into digital form, in which case the left and right side edges of the screen are cropped.

Note: If the borders at the left, right and the center of the screen remain fixed for an extended period of time, the amount of light transmission will also remain varied and as a result the borders may leave traces.

Do not leave the screen in pause mode for extended periods of time as you may experience temporary or permanent image burn.

- Digital Ready TV: When the TV receives HD-grade signals (and the set-top box output is 1080i).

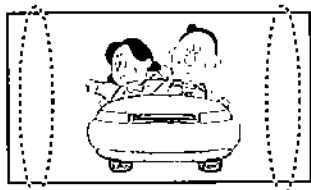


When you watch a digital HD-grade broadcast on a regular (4:3) TV with the screen size "16:9" or "Panorama" selected, you will be able to watch the program but the top and bottom edges of the screen will be cropped.

Note: If the borders at the top, bottom and the center of the screen remain fixed for an extended period of time, the amount of light transmission will also remain varied and as a result the borders may leave traces.

Do not leave the screen in pause mode for extended periods of time as you may experience temporary or permanent image burn.

- **Integrated Digital TV (Wide-screen):** When the TV receives SD-grade (regular) broadcasting signals (receives 480p regular signals).
- **Digital Ready TV (wide-screen):** digital TV: When the TV receives SD-grade (regular) broadcasting signals (with a set-top box).
- When you watch an analog (regular) broadcast on a wide-screen TV (with the 4:3 screen mode selected).

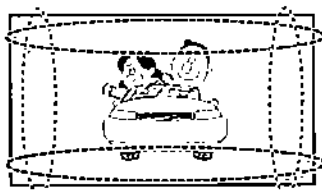


Although digital broadcasting must be in the wide screen (16:9) HD format, broadcasters sometimes show programs made originally in the regular screen format (4:3) by converting the signals into digital form, in which case the left and right side edges of the screen are cropped.

Note: If the borders at the left, right and the center of the screen remain fixed for an extended period of time, the amount of light transmission will also remain varied and as a result the borders may leave traces.

Do not leave the screen in pause mode for extended periods of time as you may experience temporary or permanent image burn.

- When you watch a DVD, CD or a video in wide-screen (21:9) format on a wide-screen (16:9) TV.
- When you connect a computer or a game console to the TV and select the 4:3 screen mode.



If you connect a DVD player, computer or a game console to the wide-screen TV and watch a movie or play a game in regular (4:3) or wide (21:9) screen mode, the left and right side edges, or the top and bottom edges of the screen will be cropped.

Note: If the borders at the left, right and the center of the screen remain fixed for an extended period of time, the amount of light transmission will also remain varied and as a result the borders may leave traces.

Do not leave the screen in pause mode for extended periods of time as you may experience temporary or permanent image burn.

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Chapter One

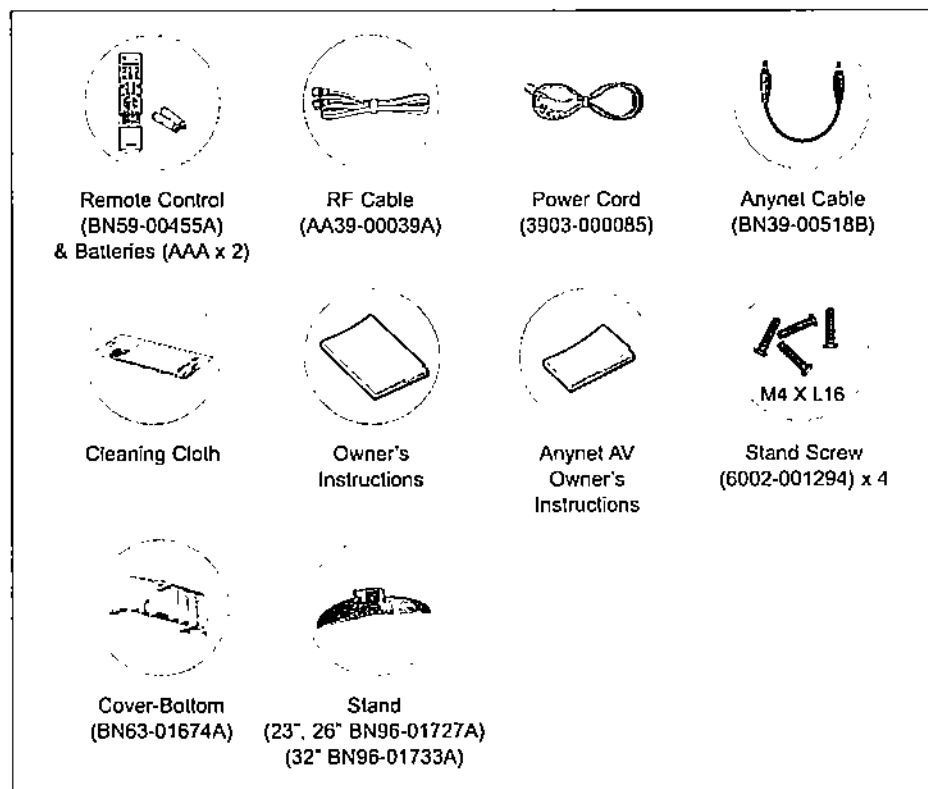
GENERAL INFORMATION

List of Features

- **Excellent Picture Quality**
 - DNIe technology provides life-like clear images
 - My Color Control: Colors can be set to your preference by adjusting pink, blue and green.
 - Dynamic Contrast: Automatically detects the input visual signal and adjusts to create optimum contrast.
 - Brightness Sensor: Adjusts the screen brightness automatically depending on the brightness of the surrounding environment.
- **SRS TruSurround XT**
 - SRS TruSurround XT provides a virtual Dolby surround system.
- **Convenience**
 - The TV utilizes the HDMI system to implement perfect digital sound and picture quality.
 - The Anynet system enables you to easily control Samsung audio-video (AV) devices from this TV.

List of Parts

Please make sure the following items are included with your LCD TV.
If any items are missing, contact your dealer.

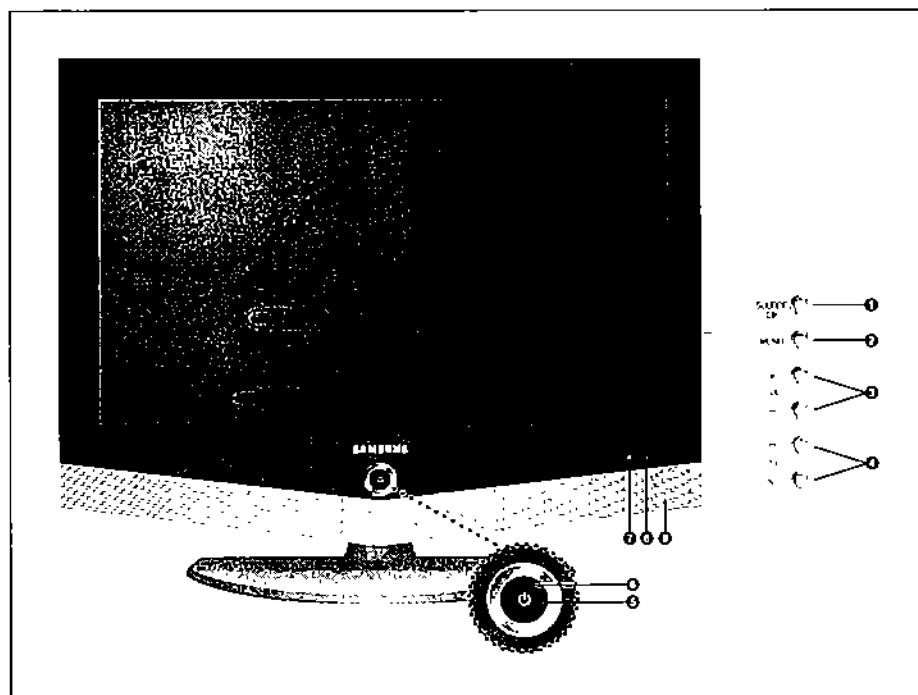


GENERAL INFORMATION

Familiarizing Yourself with Your New TV

Buttons on the Lower-Right Part of the Panel

The buttons on the lower-right panel control your TV's basic features, including the on-screen menu. To use the more advanced features, you must use the remote control.



1 SOURCE

Displays a menu of all of the available input sources (TV, AV1, AV2, S-Video, Component 1, Component 2, PC, HDMI). Also used to confirm your choice on the on-screen menu.

2 MENU

Press to see an on-screen menu of your TV's features.

3 - VOL +

Press to decrease or increase the volume. Also used to select items on the on-screen menu.

4 V CH ^

Press to change channels. Also press to highlight various items on the on-screen menu.

5 (POWER)

Press to turn the TV on and off.

6 POWER INDICATOR

Blinks and turns off when the power is on and lights up in stand-by mode.

7 LIGHT DETECTING SENSOR

Adjusts the brightness of the screen automatically by detecting brightness of the surrounding environment. This sensor works when the Brightness Sensor is on.

8 REMOTE CONTROL SENSOR

Aim the remote control towards this spot on the TV.

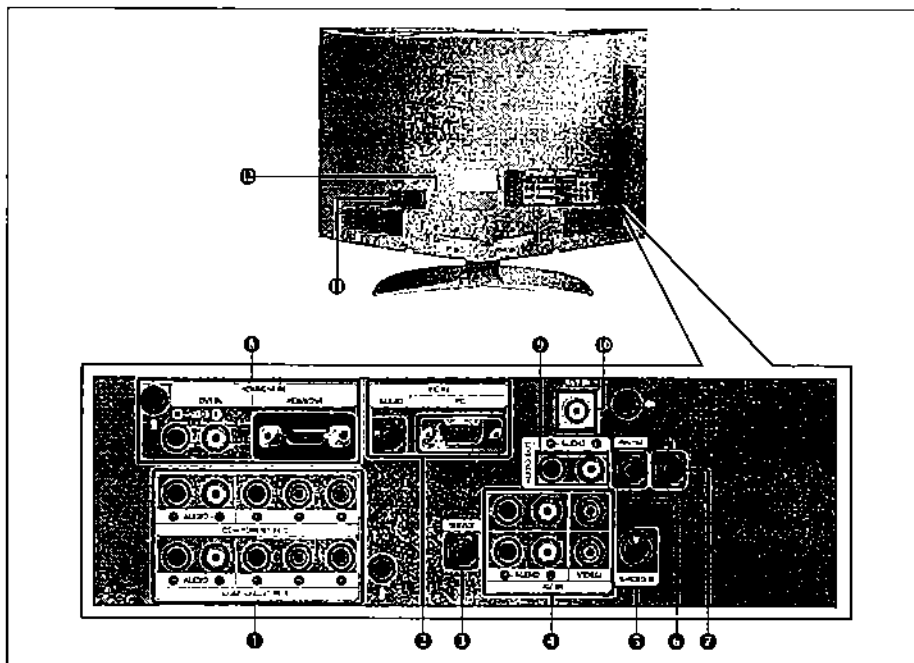
9 SPEAKERS

GENERAL INFORMATION

Rear Panel Jacks

Use the rear panel jacks to connect an A/V component that will be connected continuously such as a VCR or a DVD player.

For more information on connecting equipment, see pages 7-18.



1 COMPONENT IN 1, 2

Connect component video/audio from a DVD/Set-top box.

2 PC IN

Connect to the video and audio output jack on your PC.

3 SERVICE

Connector for service only.

4 AV IN

Video and audio inputs for external devices, such as a camcorder or VCR.

5 S-VIDEO IN

Video inputs for external devices with an S-Video output, such as a camcorder or VCR.

6 Anynet

Refer to "Anynet AV Owner's Instructions".

7 HEADPHONE JACK

Connect a set of external headphones for private listening.

8 HDMI/DVI IN

Connect to the HDMI jack of a device with HDMI output.

Use the HDMI/DVI terminal for DVI connection to an external device. You should use the DVI-to-HDMI cable or DVI-HDMI Adapter for the connection, and the 'R-AUDIO-L' terminal on DVI-IN for sound output. (HDMI/DVI IN terminal does not support PC.)

9 AUDIO OUT

Connect to the audio input jack on your amplifier.

10 ANT IN

Connect to an antenna or to a cable TV system.

11 POWER INPUT

Connect the supplied power cord.

12 KENSINGTON LOCK

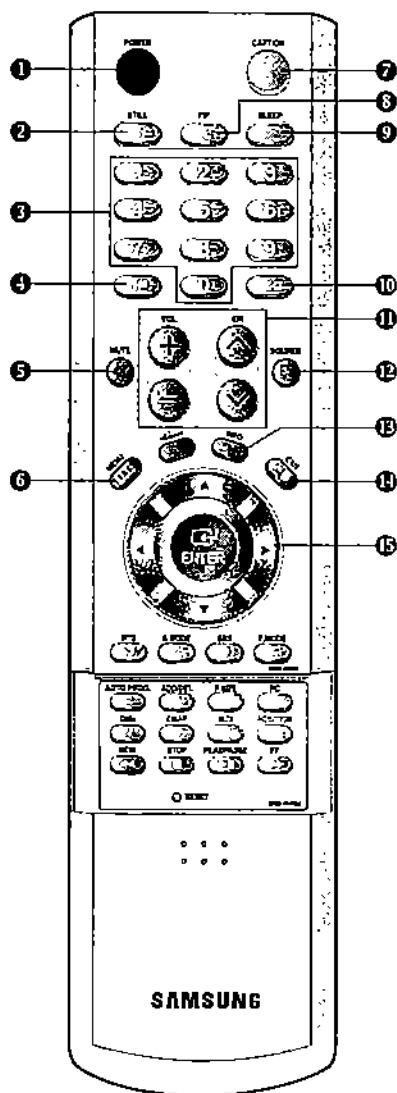
Refer to "Using the Anti-Theft Kensington Lock" on page 78.

	Speaker			Audio Out		
	RF	AV, S-Video	Component, PC, HDMI	RF	AV, S-VIDEO	Component, PC, HDMI
Internal Mute Off	Speaker Output	Speaker Output	Speaker Output	Sound Output	Sound Output	Sound Output
Internal Mute On	Mute	Mute	Mute	Sound Output	Sound Output	Sound Output
Video No Signal	Mute	Mute	Mute	Mute	Sound Output	Sound Output

GENERAL INFORMATION

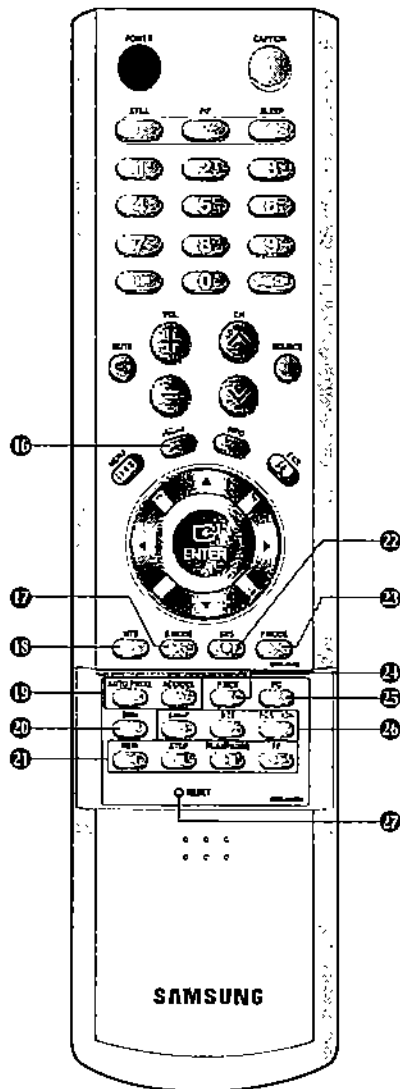
Remote Control

You can use the remote control up to a distance of about 23 feet from the TV.
When using the remote, always point it directly at the TV.



- 1 POWER**
Turns the TV on and off. (See page 19)
- 2 STILL**
Press to stop the action during a particular scene.
Press again to resume normal video. (See page 34)
- 3 NUMBER BUTTONS**
Press to change the channel.
- 4 +100**
Press to select channels over 100. For example,
to select channel 121, press "+100", then press "2"
and "1". (See page 19)
- 5 MUTE**
Press to temporarily cut off the sound. (See page 20)
- 6 MENU**
Displays the main on-screen menu. (See page 21)
- 7 CAPTION**
Controls the caption decoder. (See page 69)
- 8 PIP**
Picture-in-Picture ON/OFF. (See page 40)
- 9 SLEEP**
Press to select a time for the TV to turn off
automatically. (See page 57)
- 10 PRE-CH**
Tunes to the previous channel. (See page 19)
- 11 CH ^ and CH v (Channel UP/Down)**
Press CH ^ or CH v to change channels.
(See page 19)
VOL + and VOL -
Press to increase or decrease the volume.
(See page 20)
- 12 SOURCE**
Press to display all of the available video sources.
(See page 27)
- 13 INFO**
Use to see information on the current broadcast.
(See page 21)
- 14 EXIT**
Press to exit the menu.
- 15 UP / DOWN / LEFT / RIGHT / ENTER**
Use to select on-screen menu items and change menu
values.

GENERAL INFORMATION



16 Anynet

Press the Anynet button to bring up the Anynet menu. (Refer to "Anynet AV Owner's Instructions".)

17 S.MODE

Adjusts the TV sound by selecting one of the preset factory settings (or selects your personal, customized sound settings). (See page 43)

18 MTS

(Multi channel Television Stereo)

Press to choose stereo, mono or Separate Audio Program (SAP broadcast). (See page 46)

19 AUTO PROG.

Press to automatically store selected TV/Cable channels. (See page 25)

ADD/DEL

Use to store and delete channels to/from memory. (See page 26)

20 DNLe

DNLe Demo On/Off.

Off : DNLe Demo mode is deactivated.

On : On the right-hand side of the screen shows improved DNLe image.

On the left-hand side of the screen shows the original image. (See page 35)

21 VCR/DVD Functions

- Rewind - Stop
- Play/Pause - Fast Forward

22 SRS

Selects TruSurround XT mode. (See page 45)

23 P.MODE

Adjusts the TV picture by selecting one of the preset factory settings. (See page 29)

24 P.SIZE

Press to change the screen size. (See page 33)

25 PC

Press to switch to the PC mode. (See pages 52-55)

26 SWAP

Press to interchange the main picture and the sub (PIP) picture. (See page 41)

SIZE

Press to make the PIP window small, double1, double2. (See page 42)

POSITION

Press to select the position of sub (PIP) picture. (See page 42)

27 RESET

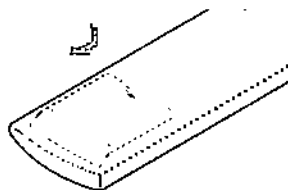
When your remote does not work, change the batteries and press the RESET button for 2-3 seconds before use.

GENERAL INFORMATION

Installing Batteries in the Remote Control

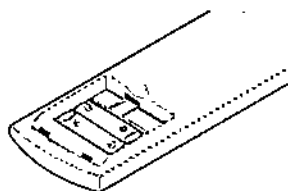
1

Slide the cover out completely.



2

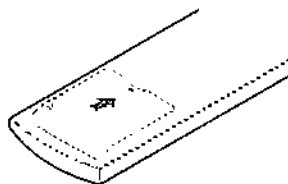
Install two AAA size batteries.



◀ Make sure to match the "+" and "-" ends of the batteries with the diagram inside the compartment.

3

Replace the cover.



◀ Remove the batteries and store them in a cool, dry place if you won't be using the remote control for a long time.

The remote control can be used up to about 23 feet from the TV. (Assuming typical TV usage, the batteries last for about one year.)

If the remote control doesn't work

Check the following:

1. Is the TV power on?
2. Are the plus and minus ends of the batteries reversed?
3. Are the batteries drained?
4. Is there a power outage, or is the power cord unplugged?
5. Is there a special fluorescent light or a neon sign nearby?

Chapter Two

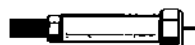
CONNECTIONS

Connecting VHF and UHF Antennas

If your antenna has a set of leads that look like this, see "Antennas with 300-ohm Flat Twin Leads" below.



If your antenna has one lead that looks like this, see "Antennas with 75-ohm Round Leads" on page 8.



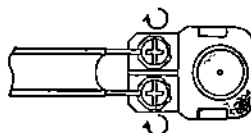
If you have two antennas, see "Separate VHF and UHF Antennas" on page 8.

Antennas with 300-ohm Flat Twin Leads

If you are using an off-air antenna (such as a roof antenna or "rabbit ears") that has 300-ohm twin flat leads, follow the directions below.

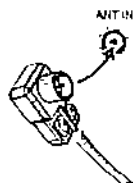
1

Place the wires from the twin leads under the screws on a 300-75 ohm adapter (not supplied). Use a screwdriver to tighten the screws.



2

Plug the adapter into the ANT IN terminal on the back of the TV.



CONNECTIONS

Antennas with 75-ohm Round Leads

1

Plug the antenna lead into the ANT IN terminal on the back of the TV.

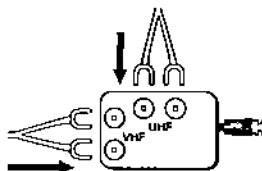


Separate VHF and UHF Antennas

If you have two separate antennas for your TV (one VHF and one UHF), you must combine the two antenna signals before connecting the antennas to the TV. This procedure requires an optional combiner-adapter (available at most electronics shops).

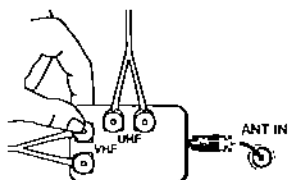
1

Connect both antenna leads to the combiner.



2

Plug the combiner into the ANT IN terminal on the back of the TV.



CONNECTIONS

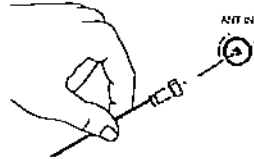
Connecting Cable TV

To connect to a cable TV system, follow the instructions below.

Cable without a Cable Box

1

Plug the incoming cable into the ANT IN terminal on back of the TV.



◀ Because this TV is cable-ready, you do not need a cable box to view unscrambled cable channels.

Connecting to a Cable Box that Descrambles All Channels

1

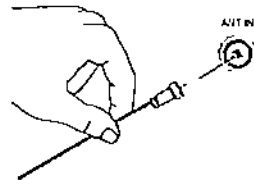
Find the cable that is connected to the ANT OUT terminal on your cable box.



◀ This terminal might be labeled "ANT OUT", "VHF OUT" or simply, "OUT".

2

Connect the other end of this cable to the ANT IN terminal on the back of the TV.

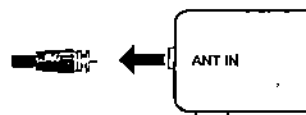


Connecting to a Cable Box that Descrambles Some Channels

If your cable box descrambles only some channels (such as premium channels), follow the instructions below. You will need a two-way splitter, an RF (A/B) switch, and four lengths of RF cable. (These items are available at most electronics stores.)

1

Find and disconnect the cable that is connected to the ANT IN terminal on your cable box.

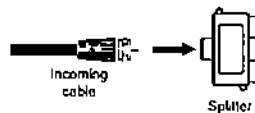


◀ This terminal might be labeled "ANT IN", "VHF IN" or simply, "IN".

CONNECTIONS

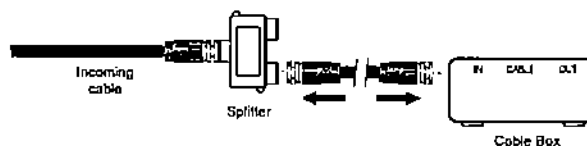
2

Connect this cable to a two-way splitter.



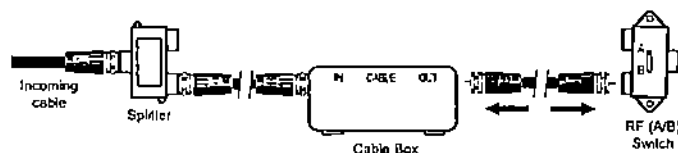
3

Connect a RF cable between an OUTPUT terminal on the splitter and the IN terminal on the cable box.



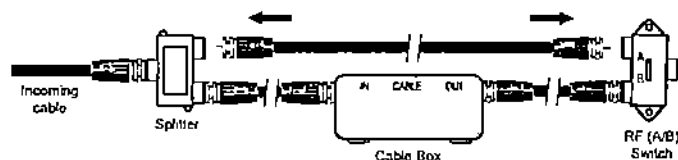
4

Connect a RF cable between the ANT OUT terminal on the cable box and the B-IN terminal on the A/B switch.



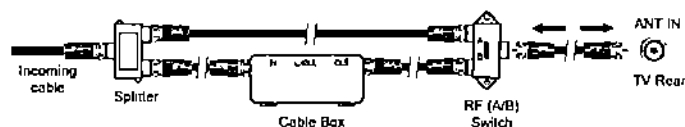
5

Connect another cable between the other OUT terminal on the splitter and the A-IN terminal on the RF (A/B) switch.



6

Connect the last RF cable between the OUT terminal on the RF (A/B) switch and the ANT IN terminal on the rear of the TV.



After you've made this connection, set the A/B switch to the "A" position for normal viewing. Set the A/B switch to the "B" position to view scrambled channels. (When you set the A/B switch to "B", you will need to tune your TV to the cable box's output channel, which is usually channel 3 or 4.)

CONNECTIONS

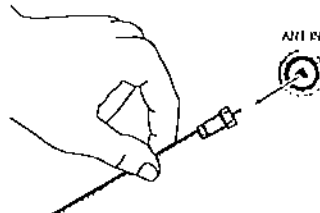
Connecting a VCR

These instructions assume that you have already connected your TV to an antenna or a cable TV system (according to the instructions on pages 7-10).

Skip step 1 if you have not yet connected to an antenna or a cable system.

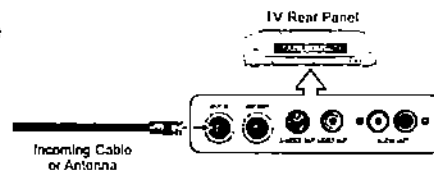
1

Unplug the cable or antenna from the back of the TV.



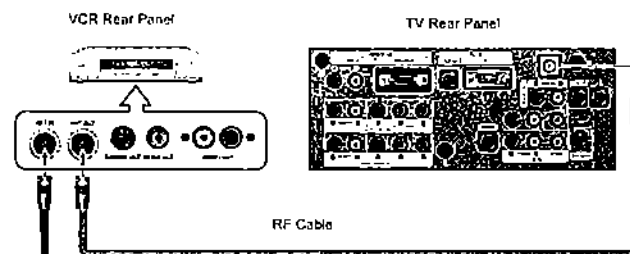
2

Connect the cable or antenna to the ANT IN terminal on the back of the VCR.



3

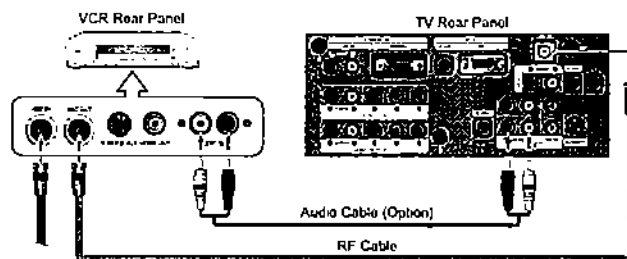
Connect an RF cable between the ANT OUT terminal on the VCR and the ANT IN terminal on the TV.



CONNECTIONS

4

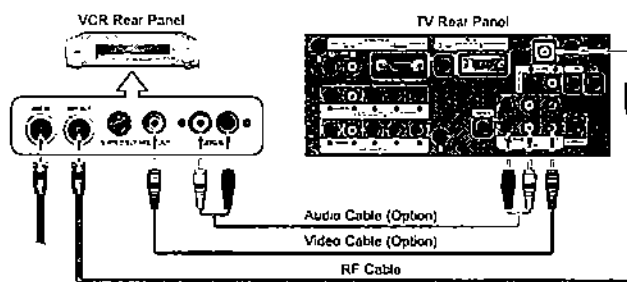
Connect an audio cable between the AUDIO OUT jacks on the VCR and the AV IN [R-AUDIO-L] jacks on the TV.



If you have a "mono" (non-stereo) VCR, use the Y-connector (not supplied) to hook up to the left and right audio input jacks of the TV.

5

Connect a video cable between the VIDEO OUT jack on the VCR and the AV IN [VIDEO] jack on the TV.



Follow the instructions in "Viewing a VCR or Camcorder Tape" to view your VCR tape.

* Each external input source device has a different back panel configuration.

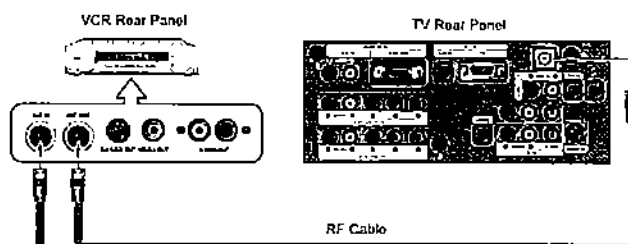
CONNECTIONS

Connecting an S-VHS VCR

Your Samsung TV can be connected to an S-Video signal from an S-VHS VCR. (This connection delivers a better picture as compared to a standard VHS VCR.)

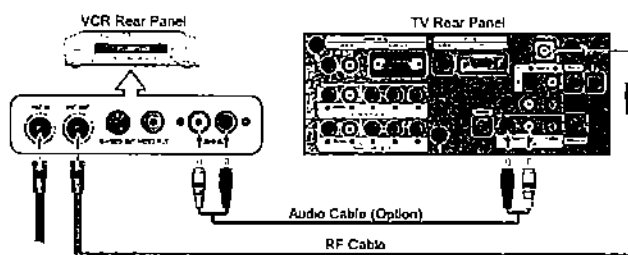
1

To begin, follow steps 1–3 in the previous section to connect the antenna or cable to your VCR and your TV.



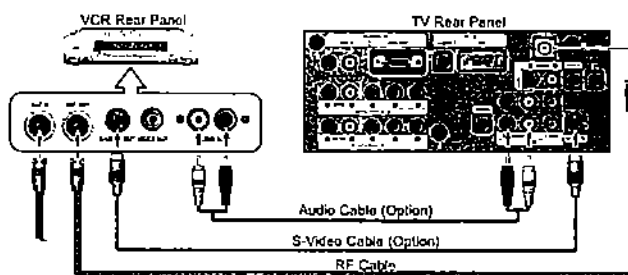
2

Connect an audio cable between the AUDIO OUT jacks on the VCR and the AV IN (R-AUDIO-L) jacks on the TV.



3

Connect an S-Video cable between the S-VIDEO OUT jack on the VCR and the S-VIDEO IN jack on the TV.



An S-Video cable is usually included with an S-VHS VCR. (If not, check your local electronics store.)

- Each external input source device has a different back panel configuration.

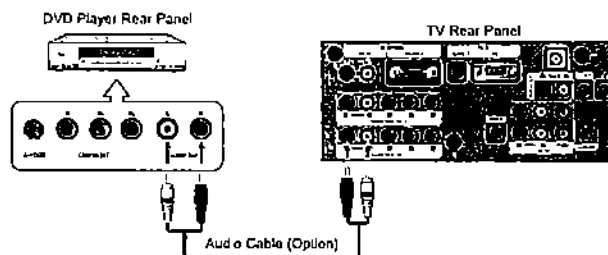
CONNECTIONS

Connecting a DVD Player

The rear panel jacks on your TV make it easy to connect a DVD player to your TV.

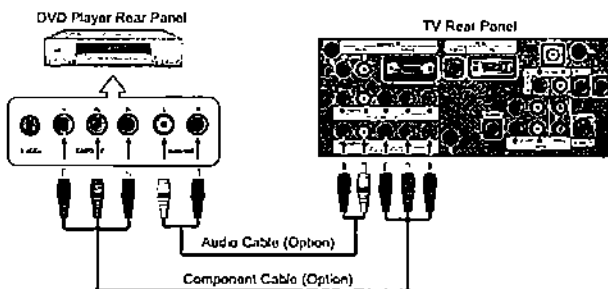
1

Connect an audio cable between the COMPONENT IN 1 or COMPONENT IN 2 [R-AUDIO-L] jacks on the TV and the AUDIO OUT jacks on the DVD player.



2

Connect a component cable between the COMPONENT IN 1 or COMPONENT IN 2 [Pa, Pb, Y] jacks on the TV and the COMPONENT [Y, Pb, Pa] jacks on the DVD player.



Note: For an explanation of Component video, see your DVD player owner's manual. Be sure to match the component video and audio connections. For example, if connecting the video cable to Component In 1, connect the audio cable to Component In 1 also.

- Each external input source device has a different back panel configuration.

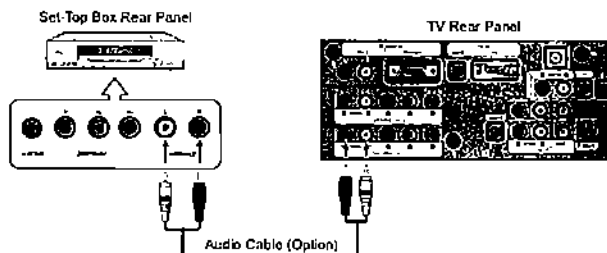
CONNECTIONS

Connecting a Digital TV Set-top box

The connections for a typical Set-top box are shown below.

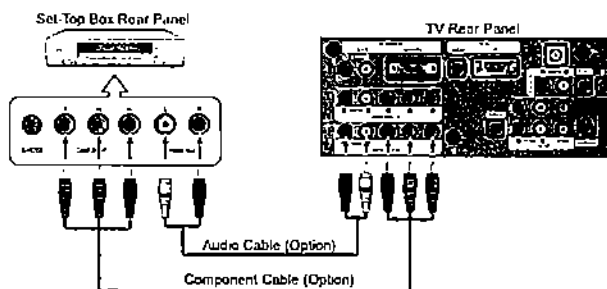
1

Connect an audio cable between the COMPONENT IN 1 or COMPONENT IN 2 [R-AUDIO-L] jacks on the TV and the AUDIO OUT jacks on the Set-top box.



2

Connect a component cable between the COMPONENT IN 1 or COMPONENT IN 2 [P_R, P_B, Y] jacks on the TV and the COMPONENT [Y, P_B, P_R] jacks on the Set-top box.



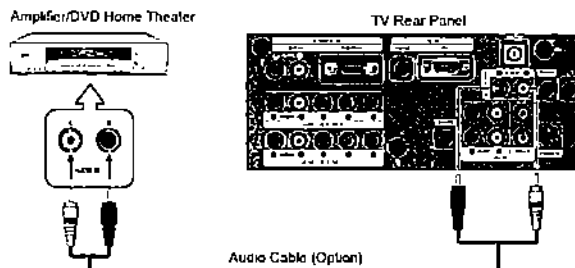
Note: For an explanation of Component video, see your Set-top box owner's manual.

* Each external input source device has a different back panel configuration.

Connecting an Amplifier/DVD Home Theater

1

Connect an audio cable between the AUDIO OUT [R-AUDIO-L] jacks on the TV and the AUDIO IN jacks on the Amplifier/DVD Home Theater.



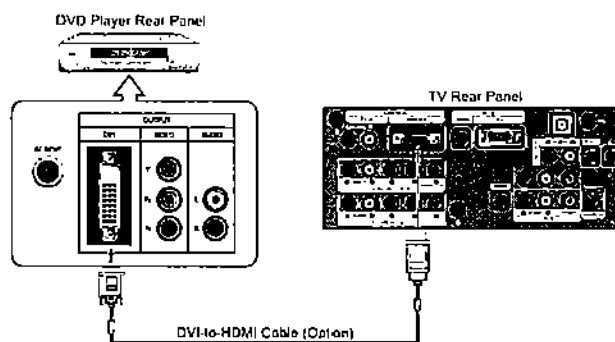
CONNECTIONS

Connecting a DVD/Set-top box via DVI

This can be applied only if there is the DVI Output connector on the external device.

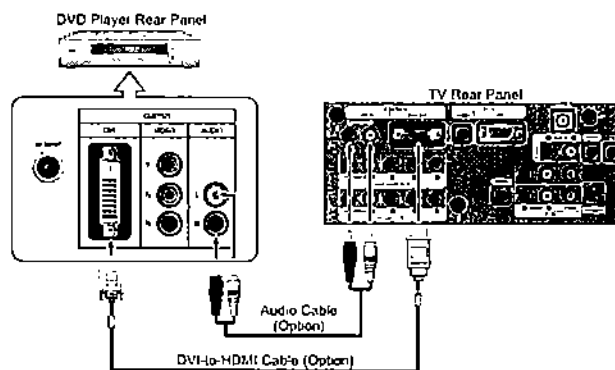
1

Connect a DVI-to-HDMI cable or DVI-HDMI adaptor between the HDMI/DVI connector on the TV and the DVI connector on the DVD player/Set-top box.



2

Connect an audio cable between the DVI IN [R-AUDIO-L] jack on the TV and the AUDIO OUT jacks on the DVD player/Set-top box.



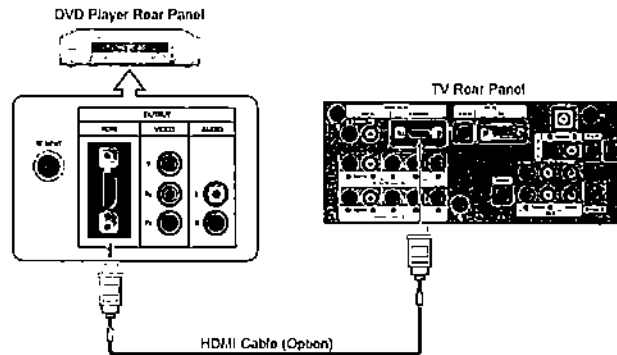
CONNECTIONS

Connecting a DVD/Set-top box via HDMI

This can be applied only if there is the HDMI Output connector on the external device.

1

Connect an HDMI cable between the HDMI/DVI connector on the TV and the HDMI connector on the DVD player/Set-top box.



Note: No sound connection is needed for an HDMI to HDMI connection.

What is HDMI?

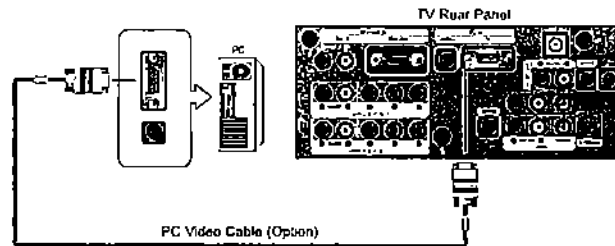
- HDMI, or high-definition multimedia interface, is a next-generation interface that enables the transmission of digital audio and video signals using a single cable without compression.
- "Multimedia interface" is a more accurate name for it especially because it allows multiple channels of digital audio (5.1 channels). The difference between HDMI and DVI is that the HDMI device is smaller in size, has the HDCP (High Bandwidth Digital Copy Protection) coding feature installed, and supports multi-channel digital audio.

CONNECTIONS

Connecting a PC

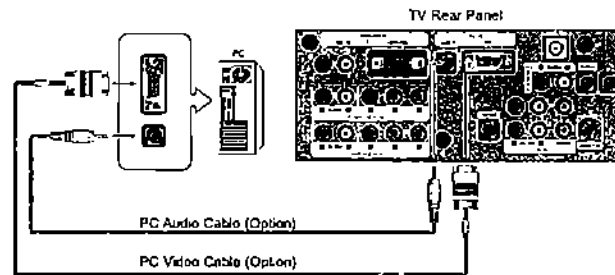
1

Connect a PC video cable(D-Sub) between PC IN [PC] connector on the TV and the PC output connector on your computer.



2

Connect a PC audio cable between PC IN [AUDIO] on the TV and the Audio Out of the sound card on your computer.



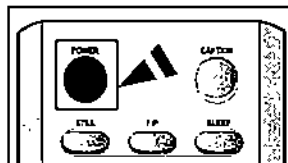
Chapter Three

OPERATION

Turning the TV On and Off

1

Press the **POWER** button on the remote.
You can also use the **POWER** button on the front of the panel.

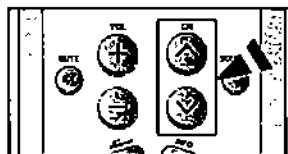


Changing Channels

Using the Channel Buttons

1

Press the **CH** $\wedge/\vee$ buttons to change channels.



When you press the **CH** $\wedge/\vee$ buttons, the TV changes channels in sequence. You will see all the channels that the TV has memorized. (The TV must have memorized at least three channels). You will not see channels that were either crased or not memorized. See pages 22-23 to memorize channels.

Using the Number Buttons

1

Press the number buttons to go directly to a channel.

ex) To select channel 27, press "2" $\rightarrow$ "7".

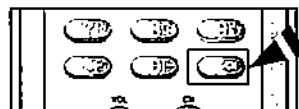
To select channel 108, press "1" $\rightarrow$ "0" $\rightarrow$ "8".

When you use the number buttons, you can directly select channels that were either crased or not memorized. To change to single-digit channels (0-9) faster, press "0" before the single digit. (For channel "4" press "0", then "4".)

Using the PRE-CH Button to select the Previous Channel

1

Press the **PRE-CH** button.
The TV will switch to the last channel viewed.



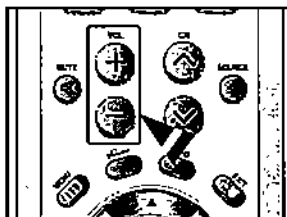
To quickly switch between two channels that are far apart, tune to one channel, then use the number button to select the second channel. Then use the **PRE-CH** button to quickly alternate between them.

OPERATION

Adjusting the Volume

1

Press the VOL + and VOL - buttons to increase or decrease the volume.

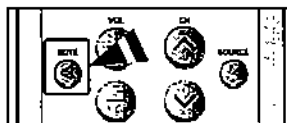


Using Mute

At any time, you can temporarily cut off the sound using the MUTE button.

1

Press MUTE and the sound cuts off.
The word "Mute" will appear in the lower-left corner of the screen.



2

To turn mute off, press the MUTE button again, or simply press the VOL + and VOL - buttons.

OPERATION

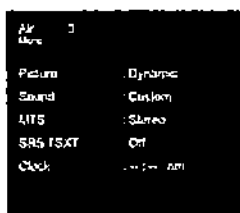
Viewing the Display

The display identifies the current channel and the status of certain audio-video settings.

1

Press the **INFO** button on the remote control.

The TV will display the channel, the type of sound, and the status of certain picture and sound settings.



- ◀ The on-screen displays disappear after about ten seconds.
- ◀ Press the **INFO** button once more or wait approximately 10 seconds and it disappears automatically.
- ◀ Allows the user to adjust the settings according to his/her preference and shows the current settings.

Viewing the Menus

1

With the power on, press the **MENU** button.

The main menu appears on the screen.

It's left side has five icons: Input, Picture, Sound, Channel, Setup.



- ◀ The on-screen menus disappear from the screen after about two minutes.

2

Use the **UP/DOWN** buttons to select one of the 5 icons. Then press the **ENTER** button to access the icon's sub-menu.

3

Press the **EXIT** button to exit.

OPERATION

Plug & Play Feature

When the TV is initially powered on, several basic customer settings proceed automatically and subsequently.

1

Press the **POWER**  button on the remote control.

The message "Start Plug & Play" is displayed with "OK" selected.



2

Select the appropriate language by pressing the **UP/DOWN**  buttons.

Press the **ENTER**  button to confirm your choice.



3

The message "Check Antenna Input" is displayed with "OK" selected.

Press the **ENTER**  button.



4

Press the **UP/DOWN**  buttons to select "Air", "STD", "HRC", or "IRC", then press the **ENTER**  button.



OPERATION

5

Press the **ENTER** (OK) button to select "Start".

The TV will begin memorizing all of the available channels.



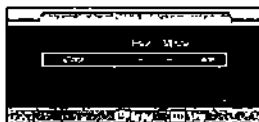
◀ To stop the search before it has finished, press the **ENTER** (OK) button with "Stop" selected.

6

Press the **ENTER** (OK) button.

Press the **LEFT/RIGHT** (◀▶) buttons to move to the "Hour", "Minute" or "am/pm".

Set the "Hour", "Minute" or "am/pm" by pressing the **UP/DOWN** (▲▼) buttons. (Refer to "Setting the Clock" on page 56.)



7

Press the **MENU** (≡) button to confirm your setting.

The message "Enjoy your watching." is displayed.



OPERATION

Memorizing the Channels

Your TV can memorize and store all of the available channels for both "off-air" (antenna) and cable channels. After the available channels are memorized, use the CH $\wedge$ and CH $\vee$ buttons to scan through the channels. This eliminates the need to change channels by entering the channel digits. There are three steps for memorizing channels: selecting a broadcast source, memorizing the channels (automatic) and adding and deleting channels (manual).

Selecting the Video Signal-source

Before your television can begin memorizing the available channels, you must specify the type of signal source that is connected to the TV (i.e. an antenna or a cable system).

1

Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Channel", then press the **ENTER** button.

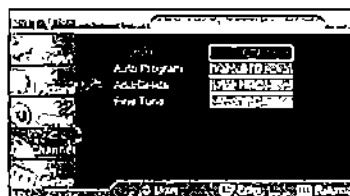


2

Press the **ENTER** button.

Repeatedly press the **UP/DOWN** buttons to cycle through these choices: "Air", "STD", "HRC", or "IRC" (all cable TV).

Press the **EXIT** button to exit.



Note: STD, HRC and IRC identify various types of cable TV systems.

Contact your local cable company to identify the type of cable system that exists in your particular area.

At this point, the signal source has been selected.

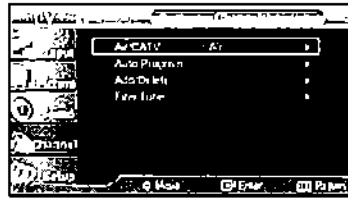
Proceed to "Storing Channels in Memory" (next page).

OPERATION

Storing Channels in Memory (Automatic Method)

1

First, select the correct signal source (Air, STD, HRC, or IRC). See steps 1~2 on the previous page.



2

Press the UP/DOWN ▲▼ buttons to select "Auto Program".

Press the ENTER button.



3

Press the ENTER button to select "Start". The TV will begin memorizing all of the available channels.



◀ The TV automatically cycles through all of the available channels and stores them in memory. This takes about one to two minutes. Press the ENTER button at any time to interrupt the memorization process and return to the "Channel" menu.

4

After all the available channels are stored, the "Channel" menu reappears.

Press the EXIT button to exit.



◀ To stop the search before it has finished, press the ENTER button with "Stop" selected.

Alternate method:

Press the **AUTO PROG.** button under the cover of the remote.



OPERATION

Adding and Erasing Channels (Manual Method)

1

Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Channel", then press the **ENTER** button.

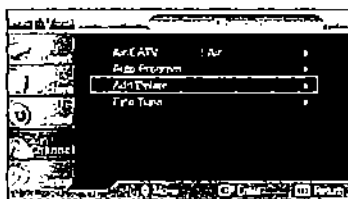
Press the **UP/DOWN** buttons to select "Add/Delete".

Press the **ENTER** button.

Press the **CH** or **CH** button to select channel that you wish to add or delete.

Press the **ENTER** button to select "Add" or "Delete" (Pressing the **ENTER** button toggles between the two).

Press the **EXIT** button to exit.

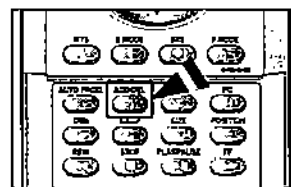


Alternate method:

Use the number buttons to directly select the channel that will be added or erased. Press the **ADD/DEL** button.

Repeatedly pressing the **ENTER** button will alternate between "Add" and "Delete". Press the **EXIT** button to exit.

You can view any channel (including an erased channel) by using the number buttons on the remote control.



OPERATION

To Select the Source

Use to select TV or another external input source connected to the TV.

Use to select the input source of your choice.

1

Press the **MENU** button to display the on-screen menu.

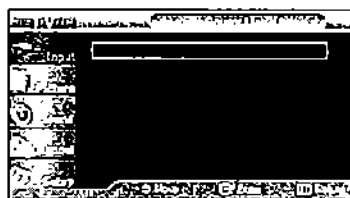
Press the **ENTER** button.



2

Press the **ENTER** button.

Press the **UP/DOWN** buttons to select the input source, then press the **ENTER** button.



Alternate method:

Press the **SOURCE** button on the remote control to view an external signal source.



OPERATION

To Edit the Input Source Name

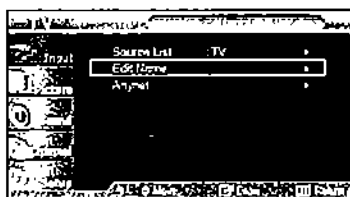
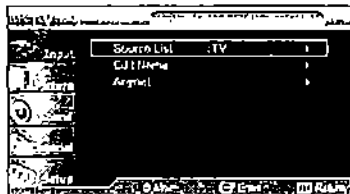
Name the device connected to the input jacks to make your input source selection easier.

1

Press the **MENU** button to display the on-screen menu.

Press the **ENTER** button to select "Input".

Press the **UP/DOWN** buttons to select "Edit Name", then press the **ENTER** button.



2

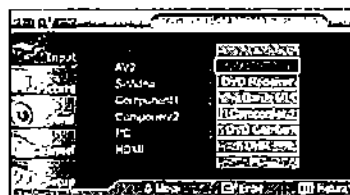
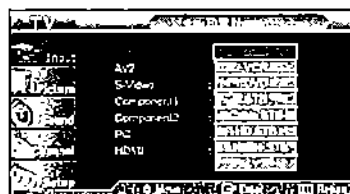
Press the **UP/DOWN** buttons to select "AV1", "AV2", "S-Video", "Component1", "Component2", "PC", or "HDMI" input jack, then press the **ENTER** button.



3

Press the **UP/DOWN** buttons to select "VCR", "DVD", "STB", "Cable STB", "HD STB", "Satellite STB", "AV Receiver", "DVD Receiver", "Game", "Camcorder", "DVD Combo", or "DHR (DVD HDD Recorder)", "PC" input source, then press the **ENTER** button.

Press the **EXIT** button to exit.



Chapter Four

PICTURE CONTROL

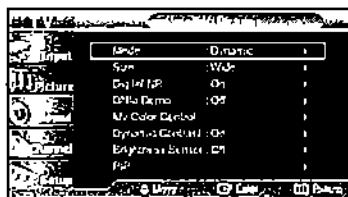
Using Automatic Picture Settings

Your TV has four automatic picture settings ("Dynamic", "Standard", "Movie", and "Custom") that are preset at the factory. You can activate either Dynamic, Standard, Movie, or Custom by pressing P.MODE (or by making a selection from the menu). Or, you can select "Custom" which automatically recalls your personalized picture settings.

1

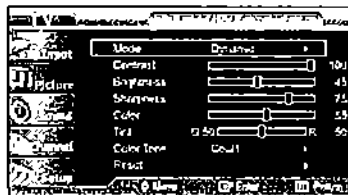
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.



2

Press the **ENTER** button.



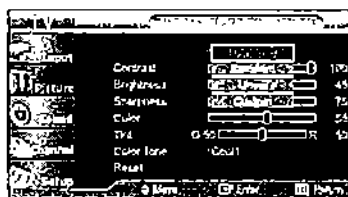
3

Press the **ENTER** button again to select "Mode".

Press the **UP/DOWN** buttons to select "Dynamic", "Standard", "Movie", or "Custom".

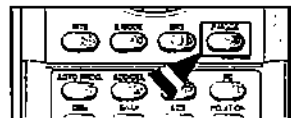
Press the **ENTER** button.

Press the **EXIT** button to exit.



Alternate method:

Simply press the **P.MODE** button on the remote control to select one of the standard picture settings.



- Choose *Dynamic* to increase the clarity and sharpness of the picture.
- Choose *Standard* for the standard factory settings.
- Choose *Movie* when watching movies.
- Choose *Custom* if you want to adjust the settings according to personal preference (see "Customizing the Picture, page 30).

PICTURE CONTROL

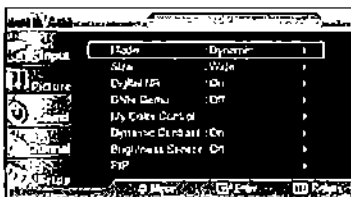
Customizing the Picture

You can use the on-screen menus to change the contrast, brightness, sharpness, color, and tint according to personal preference.
(Alternatively, you can use one of the "automatic" settings. See the previous page.)

1

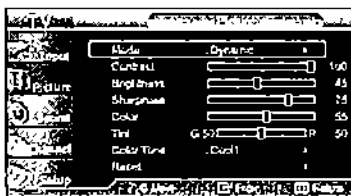
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.



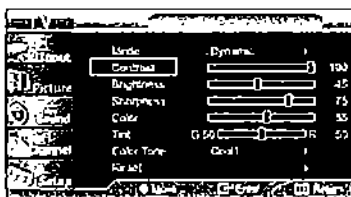
2

Press the **ENTER** button.



3

Press the **UP/DOWN** button to select a particular item (Contrast, Brightness, Sharpness, Color, or Tint), then press the **ENTER** button.



◀ If you make any changes to these settings, the Picture Mode is automatically switched to "Custom".

4

Press the **LEFT/RIGHT** buttons to decrease or increase the value of a particular item.

For example, if you select "Contrast", pressing the **RIGHT** button increases it.

Press the **EXIT** button to exit.



◀ You can select the option (Contrast, Brightness, Sharpness, Color, or Tint) to be adjusted by pressing the **UP/DOWN** button.

PICTURE CONTROL

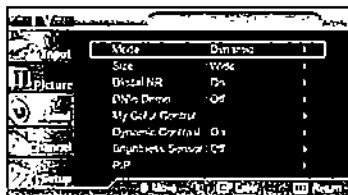
Adjusting the Color Tone

You can change the color of the entire screen according to your preference.

1

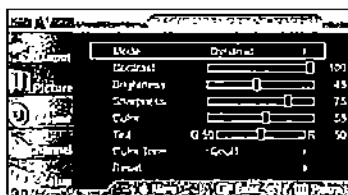
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.



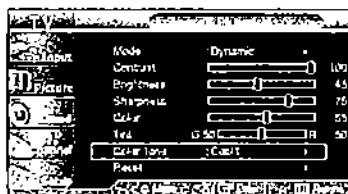
2

Press the **ENTER** button.



3

Press the **UP/DOWN** button to select "Color Tone", then press the **ENTER** button.



4

Press the **UP/DOWN** buttons to select "Cool2", "Cool1", "Normal", "Warm1", or "Warm2".

Press the **ENTER** button.

Press the **EXIT** button to exit.

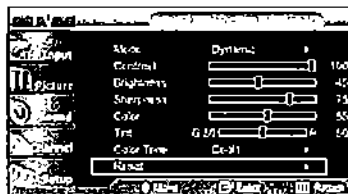


Choose from the following Color Tone settings: "Cool2", "Cool1", "Normal", "Warm1", "Warm2" according to personal preference.

Resetting the Picture Settings to the Factory Defaults

Press the **ENTER** button again to select "Mode".

Press the **UP/DOWN** buttons to select "Reset", then press the **ENTER** button.



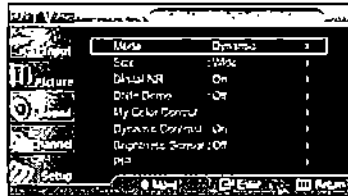
PICTURE CONTROL

Changing the Screen Size

1

Press the **MENU** button to display the menu.

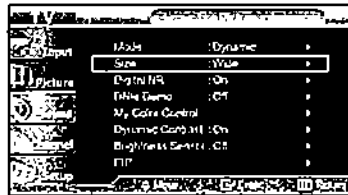
Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.



◀ Only the wide and 4:3 sizes can be selected when the Source is PC.

2

Press the **UP/DOWN** buttons to select "Size", then press the **ENTER** button.



3

Press the **UP/DOWN** buttons to select "Wide", "Panorama", "Zoom", "4:3".

Press the **EXIT** button to exit.



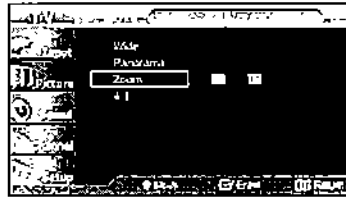
- **Wide** : Sets the picture to 16:9 wide mode.
- **Panorama** : Use this mode for the wide aspect ratio of a panoramic picture.
- **Zoom** : Magnifies the 16:9 wide picture (in the vertical direction) to fit the screen size.
 Select  by pressing the **LEFT/RIGHT** buttons.
 Use the **UP/DOWN** button to move the picture up and down.
 After selecting , use the **UP/DOWN** button to magnify or reduce the picture size in the vertical direction.
- **4:3** : Sets the picture to 4:3 normal mode.
 This is the standard TV screen size.

PICTURE CONTROL

Zoom

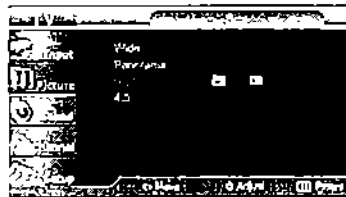
1

Press the UP/DOWN ▲▼ buttons to select "Zoom".



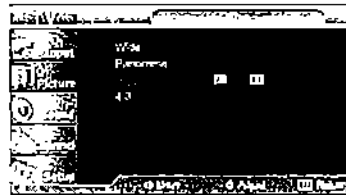
2

Select  by pressing the LEFT/RIGHT ◀▶ buttons. Use the UP/DOWN ▲▼ button to move the picture up and down.



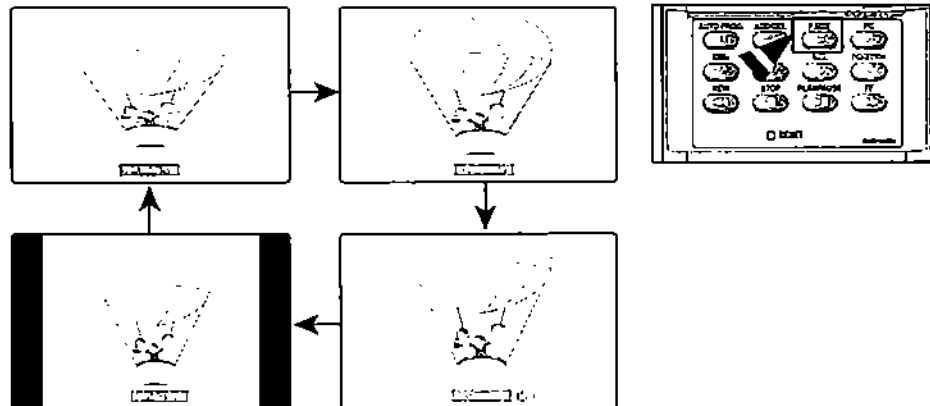
3

After selecting , use the UP/DOWN ▲▼ button to magnify or reduce the picture size in a vertical direction.



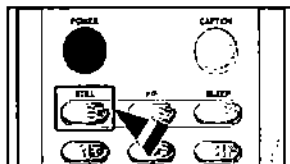
Alternate method:

Press the P.SIZE button to change the screen size.



PICTURE CONTROL

Freezing the Picture



1

Press the **STILL** button to freeze a moving picture.

• Normal sound will still be heard.

Press again to cancel.

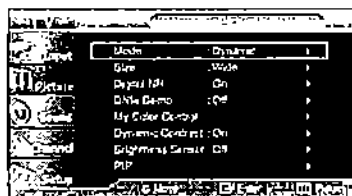
Digital Noise Reduction

If the broadcast signal received by your TV is weak, you can activate the Digital Noise Reduction feature to help reduce any static and ghosting that may appear on the screen.

1

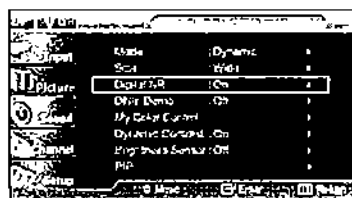
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.



2

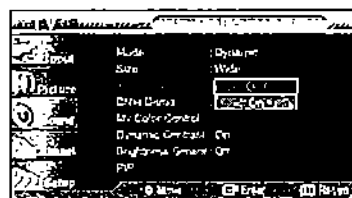
Press the **UP/DOWN** buttons to select "Digital NR", then press the **ENTER** button.



3

Press the **UP/DOWN** buttons to select "Off".

Press the **EXIT** button to exit.



PICTURE CONTROL

DNie (Digital Natural Image engine)

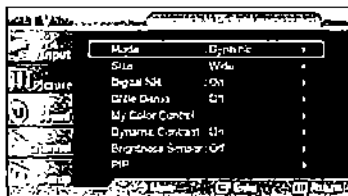
Samsung's new technology brings you more detailed images with contrast, white enhancement and 3D noise reduction.

You can see how DNie improves the picture by setting DNie demo mode to On.

1

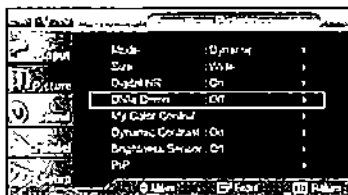
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.



2

Press the **UP/DOWN** buttons to select "DNie Demo", then press the **ENTER** button.

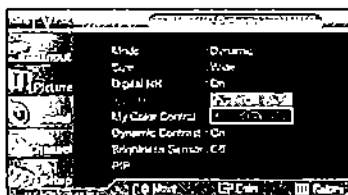


◀ This function doesn't work when Source is in PC mode.

3

Press the **UP/DOWN** buttons to select "On", then press the **ENTER** button.

Press the **EXIT** button to exit.



Alternate method:

Press the **DNie** button to change the DNie Demo mode.



- **DNie Demo; Off**
DNie Demo mode is deactivated.
- **DNie Demo; On**
The right-hand side of the screen shows the improved DNie image.
The left-hand side of the screen shows the original image.
- The "DNie Demo" is designed to show the difference between the regular and DNie pictures.
- By default, the product displays the picture with DNie applied.

PICTURE CONTROL

My Color Control

My Color Control allows users to adjust colors to their preference by adjusting Pink, Blue and Green using the predefined settings (Blue, Green, Pink, Standard, and Custom) without affecting other colors on the screen.

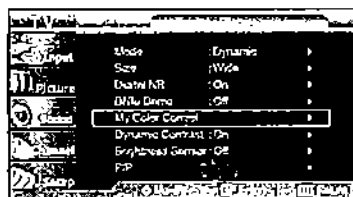
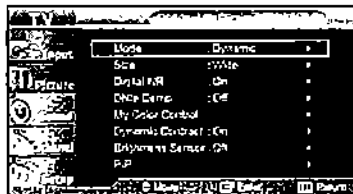
Easy Control

1

Press the **MENU** button to display the menu.

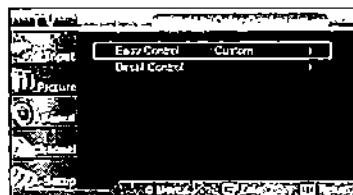
Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.

Press the **UP/DOWN** buttons to select "My Color Control", then press the **ENTER** button.



2

Press the **UP/DOWN** buttons to select "Easy Control", then press the **ENTER** button.



◀ This function doesn't work when Source is in PC mode or PIP is set to on.

3

Press the **LEFT/RIGHT** buttons to select the desired "My Color Control" color, then press the **ENTER** button.

The Original picture (before adjustment) is shown on the left side, while the selected mode is shown on the right side.



◀ This captures the current screen in a still image to adjust the color.

* The sources are displayed in the following order: Blue-Green-Pink-Standard-Custom

PICTURE CONTROL

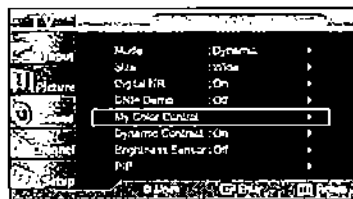
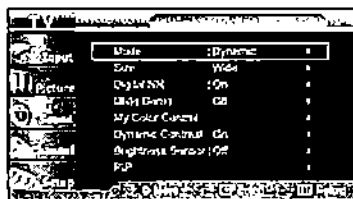
Detail Control

1

Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.

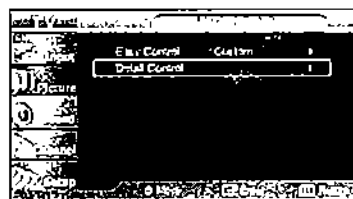
Press the **UP/DOWN** buttons to select "My Color Control", then press the **ENTER** button.



◀ You can adjust pink, blue and green without using the predefined settings in custom mode.

2

Press the **UP/DOWN** buttons to select "Detail Control", then press the **ENTER** button.



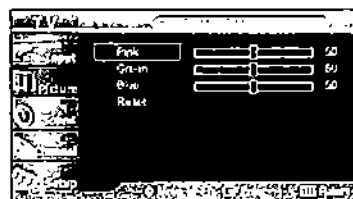
◀ This function doesn't work when the Source is in PC mode or PIP is set to on.

3

Press the **UP/DOWN** buttons to select the desired "My Color Control" color and press the **ENTER** button.

Press the **LEFT/RIGHT** buttons to increase or decrease the value of a particular item.

Press the **EXIT** button to exit.



◀ This captures the current screen in a still image to adjust the color.

◀ To reset the "Detail Control", select "Reset" by pressing the **UP/DOWN** button and then press the **ENTER** button.

• The sources are displayed in the following order: Pink-Green-Blue-Reset

PICTURE CONTROL

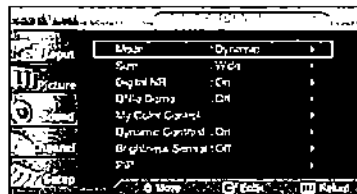
Dynamic Contrast

Dynamic Contrast detects the visual signal input and adjusts to create optimum contrast.

1

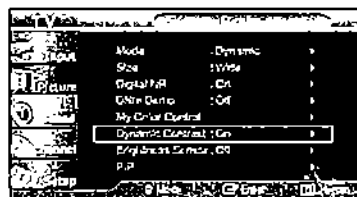
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.



2

Press the **UP/DOWN** buttons to select "Dynamic Contrast", then press the **ENTER** button.

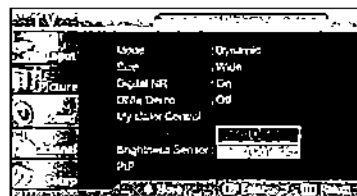


◀ This function doesn't work when the Source is in PC mode or PIP is set to on.

3

Press the **UP/DOWN** buttons to select "Off".

Press the **EXIT** button to exit.



PICTURE CONTROL

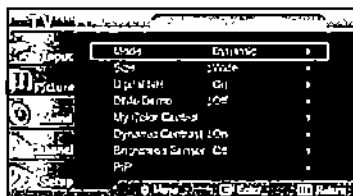
Brightness Sensor

The Brightness Sensor adjusts the screen brightness automatically by using a light detecting sensor.

1

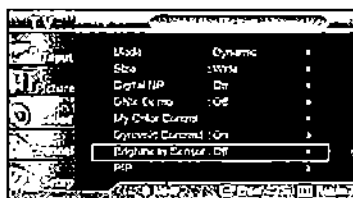
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.



2

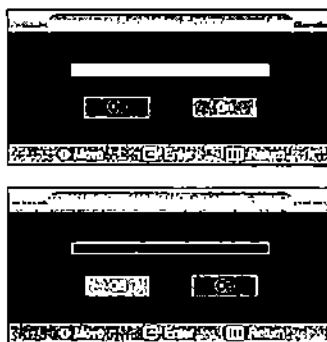
Press the **UP/DOWN** buttons to select "Brightness Sensor", then press the **ENTER** button.



◀ This function doesn't work when the Source is in PC mode.

3

Press the **LEFT/RIGHT** buttons to select "On".
Press the **EXIT** button to exit.



◀ Screen brightness is adjusted automatically depending on the brightness of the surrounding environment.

PICTURE CONTROL

Viewing Picture-in-Picture

This product has one built-in tuner, which does not allow PIP to function in the same mode. For example, you cannot watch one TV channel in the main screen, and a different one in the PIP screen. Please see 'PIP Settings' below for details.

You can use the PIP feature to simultaneously watch two video sources.

Note: While V-Chip is in operation, the PIP function cannot be used.

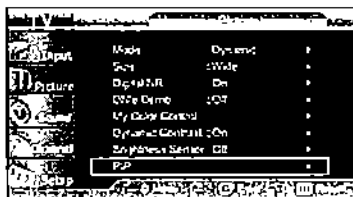
Activating Picture-in-Picture

1

Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Picture", then press the **ENTER** button.

Press the **UP/DOWN** buttons to select "PIP", then press the **ENTER** button.

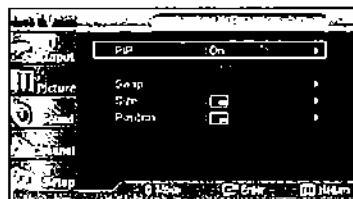
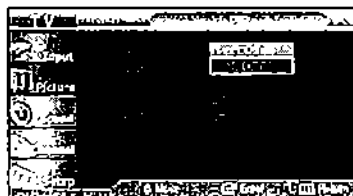


2

Press the **ENTER** button.

Press the **UP/DOWN** buttons to select "On".

Press the **ENTER** button.



◀ If you turn the TV off while watching and turn it on again, the PIP window will disappear.

Alternate method:

Press the **PIP** button on the remote control repeatedly to activate or deactivate the PIP.



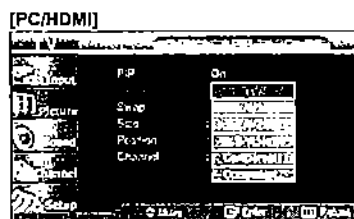
PICTURE CONTROL

Selecting a Signal Source (External A/V) for PIP

3

Press the UP/DOWN▲▼ buttons to select "Source", then press the ENTER button.

Select a source of the sub picture by pressing the UP/DOWN▲▼ buttons and press the ENTER button.



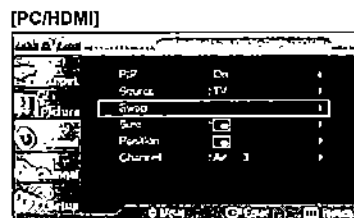
◀ When main picture is set to TV/AV1/AV2/S-Video/Component1/Component2, only HDMI can be selected and when main picture is set to PC/HDMI, only TV/AV1/AV2/S-Video/Component1/Component2 can be selected.

◀ Source selection is possible only when PC or HDMI is connected.

Swapping the Contents of the PIP and Main image

4

Press the UP/DOWN▲▼ buttons to select "Swap", then press the ENTER button.



Alternate method:

Press the SWAP button under the cover of the remote.

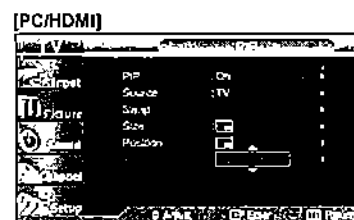


Changing the PIP Channel

5

Press the UP/DOWN▲▼ buttons to select "Channel", then press the ENTER button.

Press the UP/DOWN▲▼ buttons to select the desired channel in the PIP window.



◀ MAIN: PC, HDMI
PIP: TV
"Channel" is inactive and not available in TV mode. However, they become active and available in PC, HDMI modes.

PICTURE CONTROL

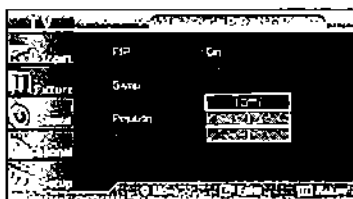
Changing the Position of the PIP Window

6

Press the UP/DOWN ▲▼ buttons to select "Size", then press the ENTER button.

Press the UP/DOWN ▲▼ buttons to select the desired size of the PIP window.

Press the ENTER button.



Alternate method:

Press the SIZE button under the cover of the remote.



Changing the Size of the PIP Window

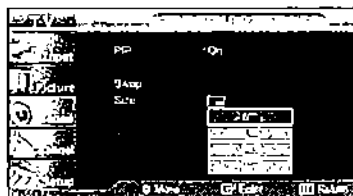
7

Press the UP/DOWN ▲▼ buttons to select "Position", then press the ENTER button.

Press the UP/DOWN ▲▼ buttons to select the desired PIP window position.

Press the ENTER button.

Press the EXIT button to exit.



Alternate method:

Press the POSITION button under the cover of the remote.



PIP Settings

O : PIP operates
X : PIP doesn't operate

Sub Picture Main Picture	TV	AV1	AV2	S-Video	Component1	Component2	PC	HDMI
TV	X	X	X	X	X	X	X	O
AV1	X	X	X	X	X	X	X	O
AV2	X	X	X	X	X	X	X	O
S-Video	X	X	X	X	X	X	X	O
Component1	X	X	X	X	X	X	X	O
Component2	X	X	X	X	X	X	X	O
PC	O	O	O	O	O	O	X	X
HDMI	O	O	O	O	O	O	X	X

- When the PC is in energy saving mode, you cannot choose the PIP option.
- You may notice that the picture in the PIP window becomes slightly unnatural when you use the main screen to view a game or karaoke.
- You can adjust picture position only by using the size menu.

Chapter Five

SOUND CONTROL

Using Automatic Sound Settings

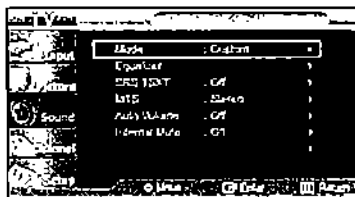
Your TV has five automatic sound settings ("Standard", "Music", "Movie", "Speech", and "Custom") that are preset at the factory. You can activate any of them by pressing the S.MODE button (or by making a selection from the on-screen menu). Or, you can select "Custom", which automatically recalls your personalized sound settings.

1

Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Sound", then press the **ENTER** button.

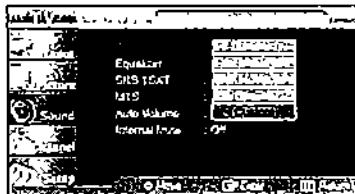
Press the **ENTER** button.



2

Press the **UP/DOWN** buttons repeatedly to select the "Standard", "Music", "Movie", "Speech", or "Custom" sound settings.

Press the **EXIT** button to exit.



Alternate method:

Simply press the **S.MODE** button on the remote control to select one of the standard sound settings.



- Choose *Standard* for the standard factory settings.
- Choose *Music* when watching music videos or concerts.
- Choose *Movie* when watching movies.
- Choose *Speech* when watching a show that is mostly dialog (i.e. news).
- Choose *Custom* to recall your personalized settings.

SOUND CONTROL

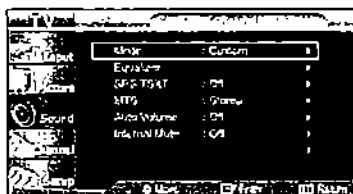
Customizing the Sound

The sound settings can be adjusted to suit your personal preference.
(Alternatively, you can use one of the "automatic" settings. See the previous page.)

1

Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Sound", then press the **ENTER** button.



2

Press the **UP/DOWN** buttons to select "Equalizer", then press the **ENTER** button.

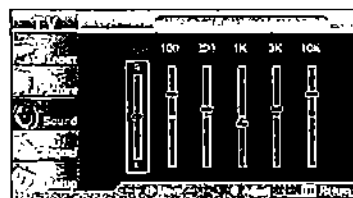


3

Press the **LEFT/RIGHT** buttons to select a particular frequency to be changed.

Press the **UP/DOWN** buttons to increase or decrease the value of a particular item.

Press the **EXIT** button to exit.



◀ If you make any changes to these settings, the Sound Mode is automatically switched to "Custom".

Note: The Custom setting allows you to adjust frequencies to your preference.
The lowest frequency is 100 and 10K is the highest.

SOUND CONTROL

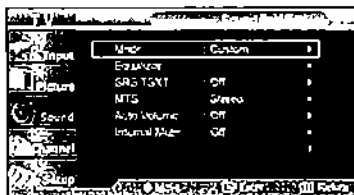
Setting the TruSurround XT (SRS TSXT)

Emphasizes midrange and bass and provides a simulated surround-sound experience.

1

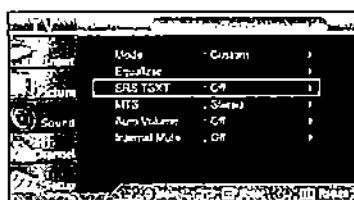
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Sound", then press the **ENTER** button.



2

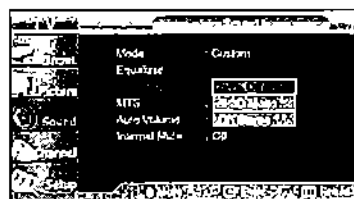
Press the **UP/DOWN** buttons to select "SRS TSXT", then press the **ENTER** button.



3

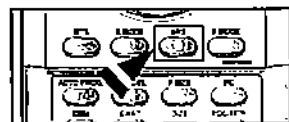
Press the **UP/DOWN** buttons to select "Off". "3D Mono", "Stereo" than Press the **ENTER** button.

Press the **EXIT** button to exit.



Alternate method:

Simply press the **SRS** button on the remote control to change the "SRS TSXT" settings.



TRADEMARK & LABEL LICENSE NOTICE



TruSurround XT, SRS and (X) symbol are trademarks of SRS Labs, Inc. TruSurround XT technology is incorporated under license from SRS Labs, Inc.

SOUND CONTROL

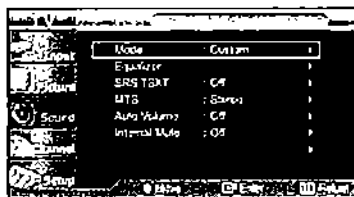
Choosing a Multi-Channel Sound (MTS) Soundtrack

Depending on the particular program being broadcast, you can listen to stereo, mono or a Separate Audio Program. (SAP audio is usually a foreign-language translation. Sometimes SAP has unrelated information like news or weather).

1

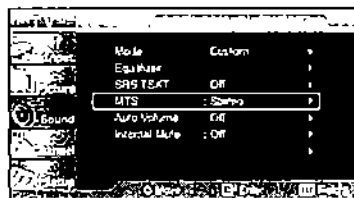
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Sound", then press the **ENTER** button.



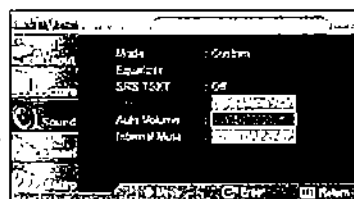
2

Press the **UP/DOWN** buttons to select "MTS", then press the **ENTER** button.



3

Press the **UP/DOWN** buttons to select "Mono", "Stereo" or "SAP", then press the **ENTER** button. Press the **EXIT** button to exit.



◀ When you change channels, MTS is set to "Stereo" automatically.

Alternate method:

Simply press the **MTS** button on the remote control to change the MTS settings.



- Choose *Mono* for channels that are broadcasting in mono, or if you are having difficulty receiving a stereo signal.
- Choose *Stereo* for channels that are broadcasting in stereo.
- Choose *SAP* to listen to the Separate Audio Program, which is usually a foreign-language translation.

SOUND CONTROL

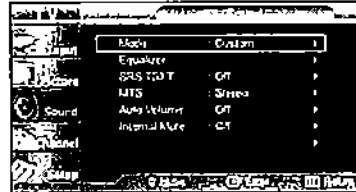
Automatic volume control

Reduces the differences in volume level among broadcasters.

1

Press the **MENU** button to display the menu.

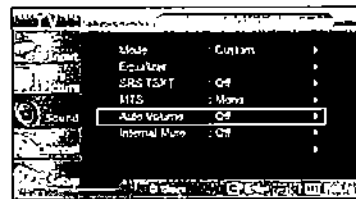
Press the **UP/DOWN** buttons to select "Sound", then press the **ENTER** button.



◀ Headphones must be purchased separately.

2

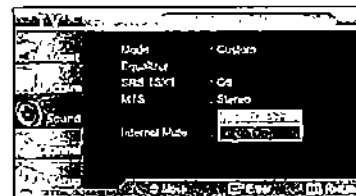
Press the **UP/DOWN** buttons to select "Auto Volume", then press the **ENTER** button.



3

Press the **UP/DOWN** buttons to set Auto Volume "On".

Press the **EXIT** button to exit.



SOUND CONTROL

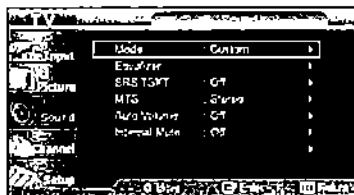
Selecting the Internal Mute

Sound output from the TV speakers is muted.

1

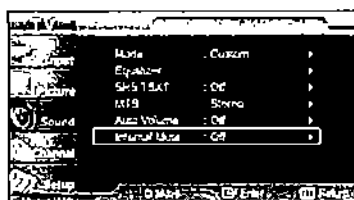
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Sound", then press the **ENTER** button.



2

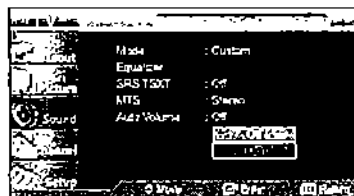
Press the **UP/DOWN** buttons to select "Internal Mute", then press the **ENTER** button.



3

Press the **UP/DOWN** buttons to select "On", Then Press the **ENTER** button.

Press the **EXIT** button to exit.



◀ When "Internal mute" is set to "On", Sound menus except "MTS" cannot be adjusted.

SOUND CONTROL

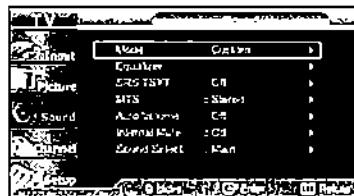
Selecting the Main or Sub Sound

You can select either Main or Sub when PIP is On.

1

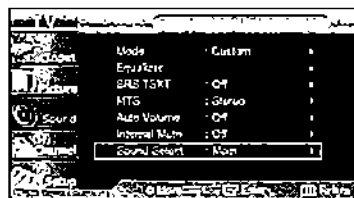
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Sound", then press the **ENTER** button.



2

Press the **UP/DOWN** buttons to select "Sound Select", then press the **ENTER** button.

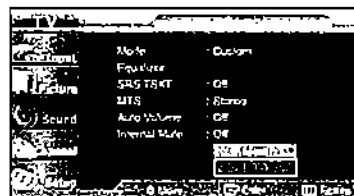


3

Press the **UP/DOWN** buttons to select "Main" or "Sub".

Select "Main" to hear the main TV sound and select "Sub" to hear the PIP window sound.

Press the **EXIT** button to exit.



Chapter Six

CHANNEL CONTROL

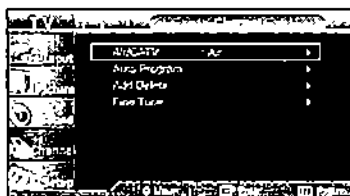
Fine Tuning Channels

Use fine tuning to manually adjust a particular channel for optimal reception.

1

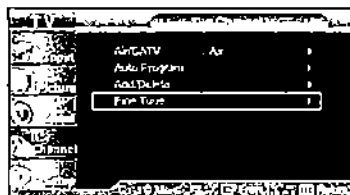
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Channel", then press the **ENTER** button.



2

Press the **UP/DOWN** buttons to select "Fine Tune", then press the **ENTER** button.



3

Press the **LEFT/RIGHT** buttons to adjust the fine tuning.



◀ If you do not store the fine-tuned channel in memory, adjustments are not saved.

4

To store the fine tuning setting in the TV's memory, press the **ENTER** button.

Press the **EXIT** button to exit.



◀ Fine tuned channels that have been saved are marked with an asterisk "*" on the right-hand side of the channel number in the channel banner.



◀ Press the **UP/DOWN** button to select "Reset" then press the **ENTER** button.

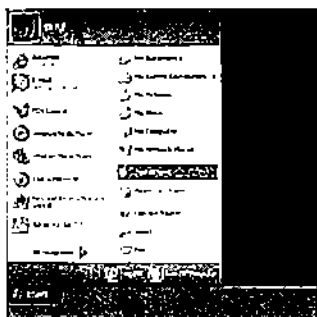
Chapter Seven

PC DISPLAY

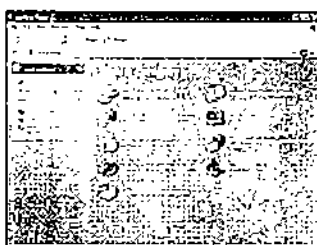
Using Your TV as a Computer (PC) Display

Setting Up Your PC Software (Based on Windows XP)

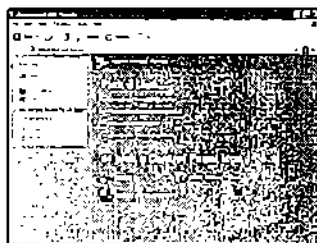
The Windows display-settings for a typical computer are shown below. The actual screens on your PC will probably be different, depending upon your particular version of Windows and your particular video card. However, even if your actual screens look different, the same basic set-up information will apply in almost all cases. (If not, contact your computer manufacturer or Samsung Dealer.)



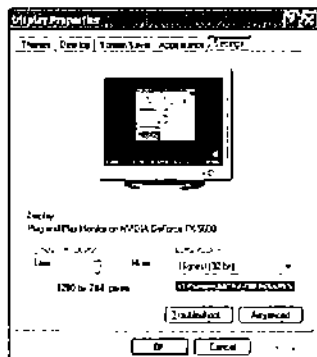
- 1 First, click on "Control Panel" on the Windows start menu.



- 2 When the control panel window appears, click on "Appearance and Themes" and a display dialog-box will appear.



- 3 When the control panel window appears, click on "Display" and a display dialog-box will appear.



- 4 Navigate to the "Settings" tab on the display dialog-box.
The correct size setting (resolution)
LN-R238W: 1360 x 768 pixels
LN-R268W: 1360 x 768 pixels
LN-R328W: 1360 x 768 pixels

If a vertical-frequency option exists on your display settings dialog box, the correct value is "60" or "60 Hz". Otherwise, just click "OK" and exit the dialog box.

* See "Display Modes" on page 81.

PC DISPLAY

How to Auto Adjust

Use the Auto Adjust function to have the TV set automatically adjust the video signals the monitor receives. The function also automatically fine-tunes the settings and adjusts the frequency values and positions.

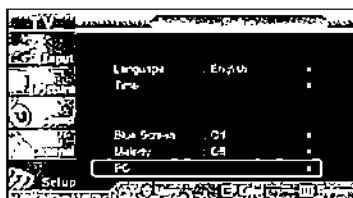
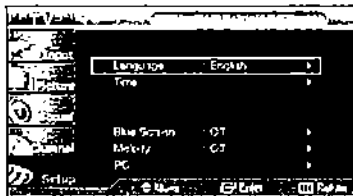
Press the PC button on the remote control to select the PC mode.

1

Press the **MENU** button to display the menu.

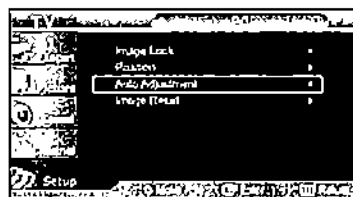
Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.

Press the **UP/DOWN** buttons to select "PC", then press the **ENTER** button.



2

Press the **UP/DOWN** buttons to select "Auto Adjustment", then press the **ENTER** button.



Auto Adjustment in progress.

PC DISPLAY

Adjusting the Screen Quality

The purpose of the picture quality adjustment is to remove or reduce picture noise. If the noise is not removed by fine tuning alone, then do the frequency adjustments to the utmost and fine tune again. After the noise has been reduced, re-adjust the picture so that it is aligned on the center of screen.

Press the PC button on the remote control to select the PC mode.

1

Press the MENU button to display the menu.

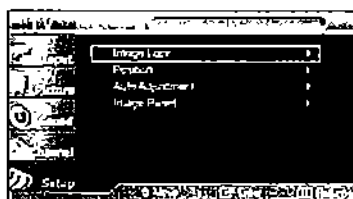
Press the UP/DOWN buttons to select "Setup", then press the ENTER button.

Press the UP/DOWN buttons to select "PC" then press the ENTER button.



2

Press the ENTER button to select "Image Lock".

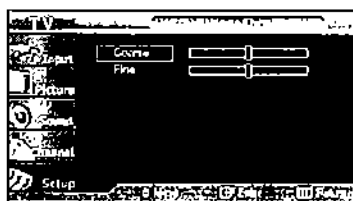


3

Press the UP/DOWN buttons to select "Coarse" or "Fine", then press the ENTER button.

Press the LEFT/RIGHT buttons to adjust the screen quality. Vertical stripes may appear or the picture may be blurry.

Press the EXIT button to exit.



<Adjusting Coarse>



<Adjusting Fine>

PC DISPLAY

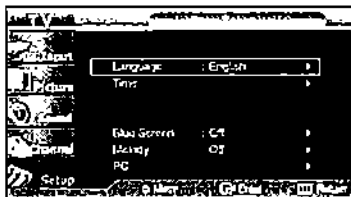
Changing the Screen Position

Press the PC button on the remote control to select the PC mode.

1

Press the MENU button to display the menu.

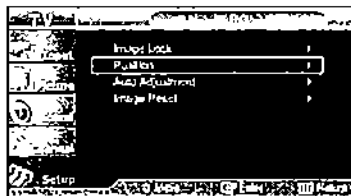
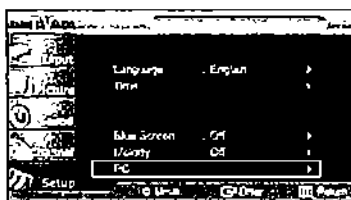
Press the UP/DOWN buttons to select "Setup", then press the ENTER button.



2

Press the UP/DOWN buttons to select "PC", then press the ENTER button.

Press the UP/DOWN buttons to select "Position", then press the ENTER button.

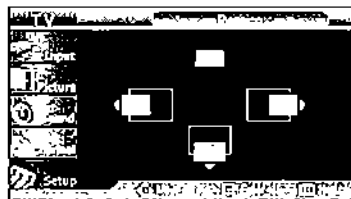


3

Press the UP/DOWN buttons to adjust the V-Position.

Press the LEFT/RIGHT buttons to adjust the H-Position.

Press the EXIT button to exit.



PC DISPLAY

Initializing the Screen Position or Color Settings

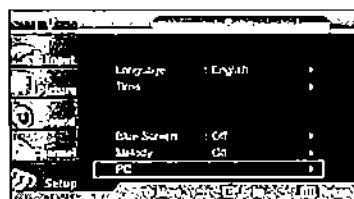
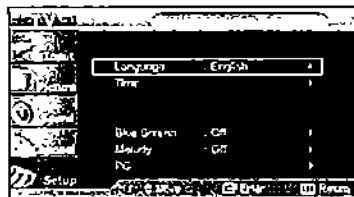
Press the PC button on the remote control to select the PC mode.

1

Press the MENU button to display the menu.

Press the UP/DOWN buttons to select "Setup", then press the ENTER button.

Press the UP/DOWN buttons to select "PC", then press the ENTER button.



2

Press the UP/DOWN buttons to select "Image Reset", then press the ENTER button.

Press the EXIT button to exit.



Chapter Eight

TIME SETTING

Setting the Clock

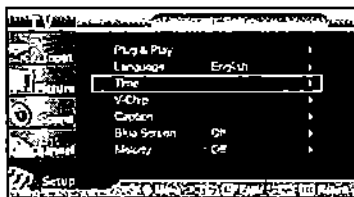
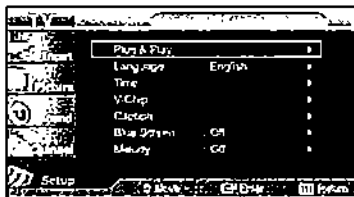
Setting the clock is necessary in order to use the various timer features of the TV. Also, you can check the time while watching the TV. (Just press the INFO button).

1

Press the **MENU** button to display the on-screen menu.

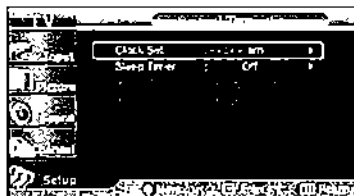
Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.

Press the **UP/DOWN** buttons to select "Time", then press the **ENTER** button.



2

Press the **ENTER** button to select "Time", then press the **ENTER** button to select "Clock Set".



3

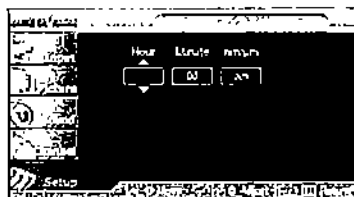
Press the **UP/DOWN** buttons repeatedly until the correct "Hour" appears.

After the hour is entered, press the **LEFT/RIGHT** buttons to select "Minute".

Press the **UP/DOWN** buttons until the correct "Minute" appears.

Press the **LEFT/RIGHT** buttons to select "am/pm" and adjust with the **UP/DOWN** buttons.

Press the **EXIT** button to exit.



◀ You can also set the time using the number buttons on the remote.

TIME SETTING

Setting the Sleep Timer

Set the timer for the TV to turn off at the preset time automatically.

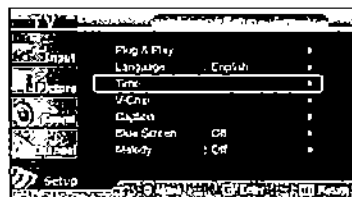
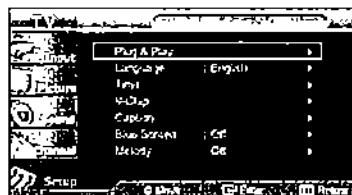
Sleep timer

1

Press the **MENU** button to display the on-screen menu.

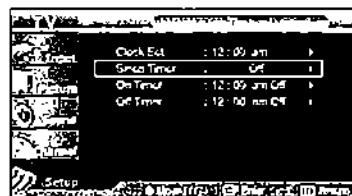
Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.

Press the **UP/DOWN** buttons to select "Time", then press the **ENTER** button.



2

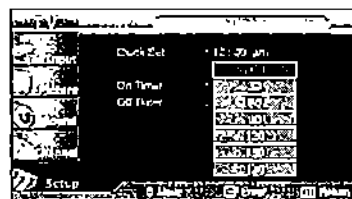
Press the **UP/DOWN** buttons to select "Sleep Timer", then press the **ENTER** button.



3

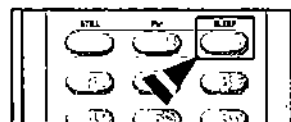
Press the **UP/DOWN** buttons repeatedly until the correct time appears.

Press the **EXIT** button to exit.



Alternate method:

Press the **SLEEP** button on the remote. The number on the screen changes from Off • 30 • 60 • 90 • 120 • 150 • 180



TIME SETTING

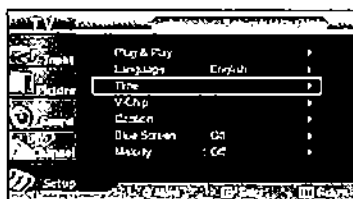
Setting the On/Off Timer

1

Press the **MENU** button to display the on-screen menu.

Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.

Press the **UP/DOWN** buttons to select "Time", then press the **ENTER** button.



◀ Before using the timer, you must set the TV's clock.

2

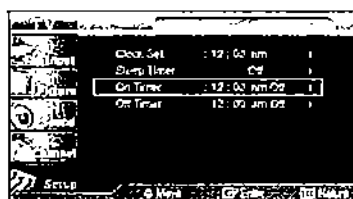
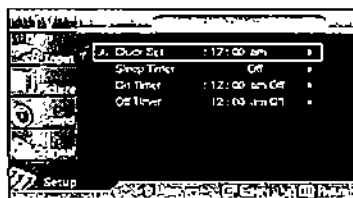
Press the **UP/DOWN** buttons to select "On Timer", then press the **ENTER** button.

Press the **UP/DOWN** buttons repeatedly to select the appropriate "Hour".

Press the **LEFT/RIGHT** buttons to select "Minute".

Press the **UP/DOWN** buttons repeatedly to select the appropriate "Minute".

Set other items using the same method as above.



◀ When you set the hours, make sure the correct time of day (am or pm) appears to the right of the time.



◀ You can also set the time using the number buttons on the remote.

TIME SETTING

3

Press the **LEFT/RIGHT** ◀▶ buttons to select "Activation". Press the **UP/DOWN** ▲▼ buttons to set the On Time "On".

When finished, press the **ENTER**  button.



◀ To deactivate the "On Timer," select "Off" during this step.

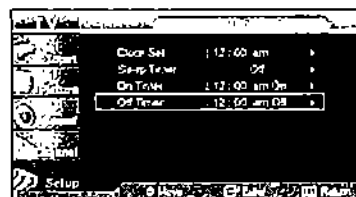
◀ Repeatedly pressing the **UP/DOWN** ▲▼ buttons will alternate between On and Off.

4

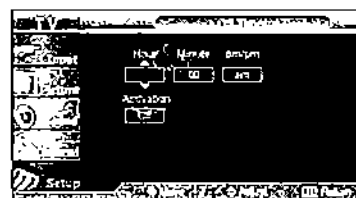
To set the Off time, press the **UP/DOWN** ▲▼ buttons to select "Off Timer".

Press the **ENTER**  button and set the hours and minutes.

(Follow the same procedure as in steps 2 and 3 above).



◀ You can also set the time using the number buttons on the remote.



5

When finished setting the timer, press the **EXIT** button to exit.

• Auto Power Off

When you set the timer on, your television will be turned off if you do not operate any controls for 3 hours after the TV has been turned on with the "Timer On" function.

Chapter Nine

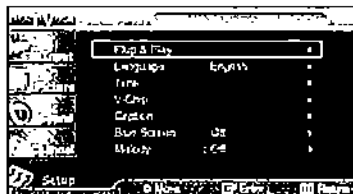
FUNCTION DESCRIPTION

Selecting a Menu Language

1

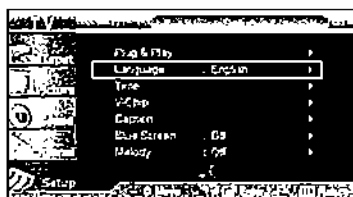
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.



2

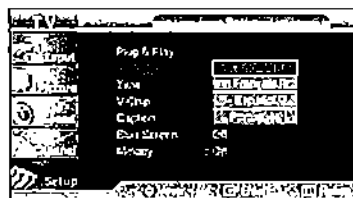
Press the **UP/DOWN** buttons to select "Language". Press the **ENTER** button.



3

Press the **UP/DOWN** buttons to select "English", "Français", "Español", or "Portugués".

Press the **EXIT** button to exit.



FUNCTION DESCRIPTION

Using the V-Chip

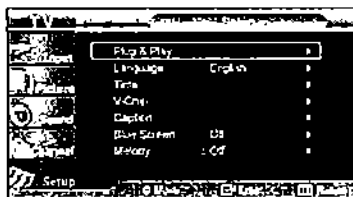
The V-Chip feature automatically locks out programming that is deemed inappropriate for children. The user must first enter a PIN (personal ID number) before any of the V-Chip restrictions can be set up or changed.

Setting Up Your Personal ID Number (PIN)

1

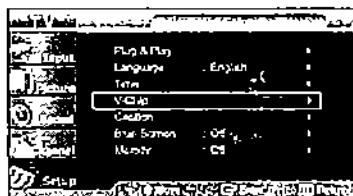
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.



2

Press the **UP/DOWN** buttons to select "V-Chip", then press the **ENTER** button.



3

The "Enter PIN" screen will appear.
Enter your 4-digit PIN number.

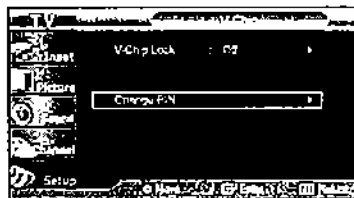


◀ The default PIN number for a new TV set is "0-0-0-0."

FUNCTION DESCRIPTION

4

After entering a valid PIN number, the "V-Chip" screen will appear. Press the UP/DOWN ▲▼ buttons to select "Change PIN".



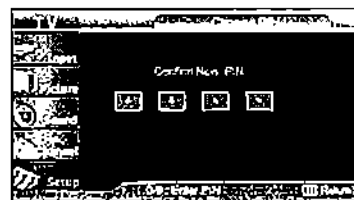
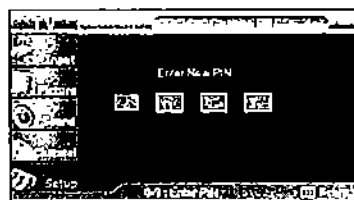
5

Press ENTER(OK) button.

The Change PIN screen will appear. Choose any 4-digits for your PIN and enter them.

As soon as the 4 digits are entered, the "Confirm New PIN" screen appears. Re-enter the same 4 digits. When the Confirm screen disappears, your PIN has been memorized.

Press the EXIT button to exit.



◀ If you forget the PIN, press the remote-control buttons (with the unit "Off") in the following sequence, which resets the PIN to 0-0-0-0:

POWER OFF → MUTE →
8 → 2 → 4 → POWER ON.

FUNCTION DESCRIPTION

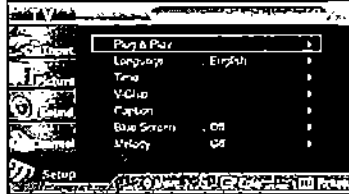
How to Enable/Disable the V-Chip

Note: PIP operation is disabled when the V-chip is on.

1

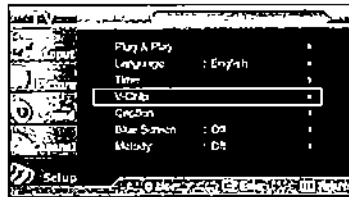
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.



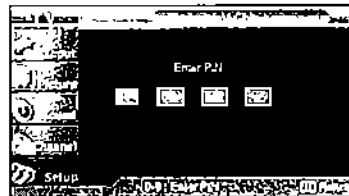
2

Press the **UP/DOWN** buttons to select "V-Chip", then press the **ENTER** button.



3

The "Enter PIN" screen will appear.
Enter your 4-digit PIN number.



◀ The default PIN number for a new TV set is "0-0-0-0."

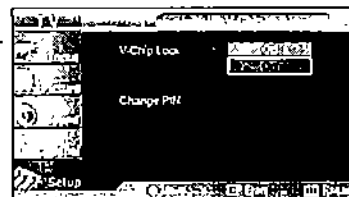
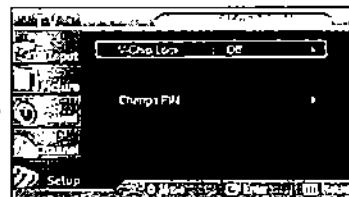
4

The "V-Chip" screen will appear, and "V-Chip Lock" will be selected.

To enable the V-Chip feature, press the **UP/DOWN** buttons so that the "V-Chip Lock" is set to "On".

Press the **ENTER** button.

Press the **EXIT** button to exit.



FUNCTION DESCRIPTION

How to Set up Restrictions Using the 'TV Parental Guidelines'

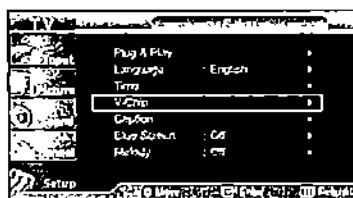
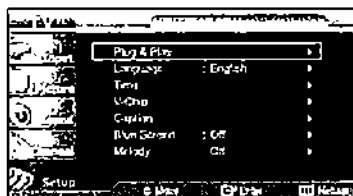
First, set up a personal identification number (PIN), and enable the V-Chip.
(See previous section.) Parental restrictions can be set up using either of two methods:
The TV guidelines or the MPAA rating.

1

Press the MENU button to display the menu.

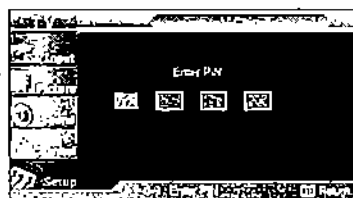
Press the UP/DOWN buttons to select "Setup", then press the ENTER button.

Press the UP/DOWN buttons to select "V-Chip", then press the ENTER button.



2

The "Enter PIN" screen will appear.
Enter your 4-digit PIN number.

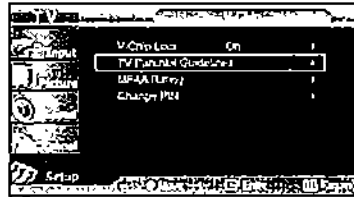


◀ The default PIN number for a new TV set is "0-0-0-0."

FUNCTION DESCRIPTION

3

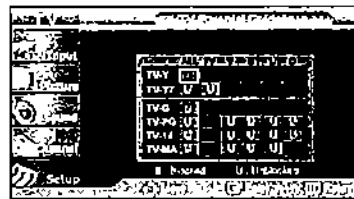
Press the UP/DOWN ▲▼ buttons to select "TV Parental Guidelines", then press the ENTER (OK) button.



4

The "TV Parental Guidelines" screen will appear. Press the UP/DOWN ▲▼ buttons to select one of the six age-based categories:

TV-Y Young children
 TV-Y7 Children 7 and over
 TV-G General audience
 TV-PG Parental guidance
 TV-14 Viewers 14 and over
 TV-MA Mature audience



◀ Note: These categories consist of two separate groups: TV-Y and TV-Y7 (young children through age 7), and TV-G through TV-MA (everybody else). The restrictions for these two groups work independently: If a household includes very young children as well as young adults, the TV guidelines must be set up separately for each age group. (See next step.)

FUNCTION DESCRIPTION

5

At this point, one of the TV-Ratings is selected.

Depending on your existing setup, the letter "U" or "B" will be highlighted (changed to yellow).
(U= Unblocked, B= Blocked)

When the "U" or "B" is highlighted, press the **ENTER** button to block or unblock the category.
To select a different TV-Rating, press the **UP/DOWN** buttons and then repeat the process.
To **EXIT** this screen, press the **MENU** buttons again.

Note 1: The TV-Y7, TV-PG, TV-14 and TV-MA have additional options.

See the next step to change any of the following sub-ratings:

FV: Fantasy Violence
D : Sexual suggestive Dialog
L : Adult Language
S : Sexual situation
V : Violence

Note 2: The V-Chip will automatically block certain categories that are "more restrictive."

For example, if you block "TV-Y" category, then TV-Y7 will automatically be blocked.

Similarly, if you block the TV-G category, then all the categories in the "young adult" group will be blocked (TV-G, TV-PG, TV-14 and TV-MA). The sub-ratings (D, L, S, V) work together similarly. (See next section.)

6

How to set the FV, D, L, S and V sub-ratings.

First, select one of these TV-Ratings: TV-Y7, TV-PG, TV-14 or TV-MA (See Step 4, on previous page).

Next, while the TV-Rating is selected, repeatedly press the **LEFT** or **RIGHT** buttons.

This will cycle through the available sub-ratings (FV, L, S, D or V).

A highlighted letter ("U" or "B") will be displayed for each sub-rating. While the "U" or "B" is highlighted, press the **ENTER** button to change the sub-rating.

Press the **MENU** buttons once to save the TV guidelines.

To select a different TV-Rating, press the **UP/DOWN** buttons and then repeat the process.

To exit this screen, press the **MENU** buttons once again.

Note: The V-chip will automatically block certain categories that are "More restrictive".

For example, if you block the "L" sub-rating in TV-PG, then the "L" sub-ratings in TV-14 and TV-MA will automatically be blocked.

7

Press the **EXIT** button to exit.

(Or proceed to the next section, and set up additional restrictions based on the MPAA codes).

FUNCTION DESCRIPTION

How to Set up Restrictions Using the MPAA Ratings: G, PG, PG-13, R, NC-17, X, NR

The MPAA rating system uses the Motion Picture Association of America (MPAA) system, and its main application is for movies.

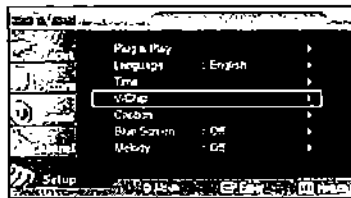
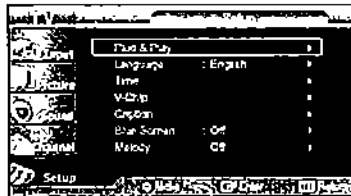
When the V-Chip lock is on, the TV will automatically block any programs that are coded with objectionable ratings (either MPAA or TV-Ratings).

1

Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.

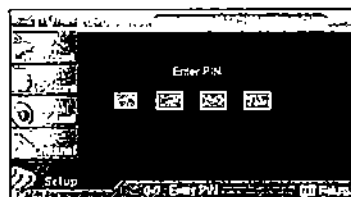
Press the **UP/DOWN** buttons to select "V-Chip", then press the **ENTER** button.



2

The "Enter PIN" screen will appear.

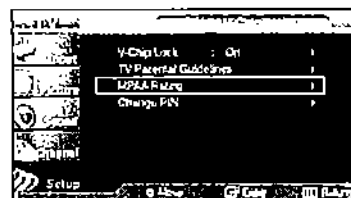
Enter your 4-digit PIN number.



◀ The default PIN number for a new TV set is "0-0-0-0."

3

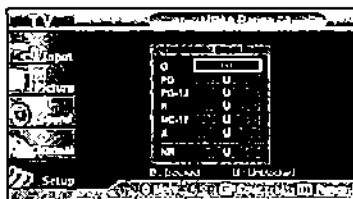
Press the **UP/DOWN** buttons to select "MPAA Rating", then press the **ENTER** button.



FUNCTION DESCRIPTION

4

Repeatedly press the **UP/DOWN ▲▼** buttons to select a particular MPAA category. (When a category is selected, its color changes to yellow.)



G	General audience (no restrictions).
PG	Parental guidance suggested.
PG-13	PG-13 (Parents strongly cautioned).
R	R (Restricted. Children under 17 should be accompanied by an adult).
NC-17	No children under age 17.
X	X (Adults only).
NR	Not rated.

Press the **ENTER** button to select "U" or "B".

Press the **MENU** button four times to save the settings and to clear all screens.

Note: The V-Chip will automatically block any category that is "more restrictive".

For example, if you block the "PG-13" category, then "R", "NC-17" and "X" will automatically be blocked also.

How to Reset the TV after the V-Chip Blocks a Channel ('Emergency Escape')

If the TV is tuned to a restricted channel, the V-Chip will block it. The screen will go blank and the following message will appear: "Excessive rating".

To resume normal viewing, tune to a different channel using the number buttons. Under certain conditions (depending on the rating of the local TV programs) the V-Chip might lock out all the channels.

In this case, use the **MENU** button for an "emergency escape":

Select the V-Chip on the Menu. Enter your PIN number, and press the **ENTER** button to temporarily disable the V-Chip Lock.

FUNCTION DESCRIPTION

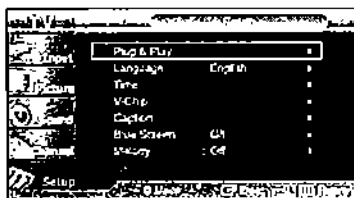
Viewing Closed Captions

Your TV decodes and displays the closed captions that are broadcast with certain TV shows. These captions are usually subtitles for the hearing impaired or foreign-language translations. All VCRs record the closed caption signal from television programs, so home-recorded video tapes also provide closed captions. Most pre-recorded commercial video tapes provide closed captions as well. Check for the closed caption symbol in your television schedule and on the tape's packaging: .

1

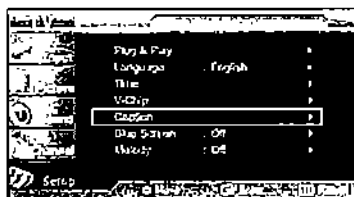
Press the **MENU** button to display the on-screen menu.

Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.



2

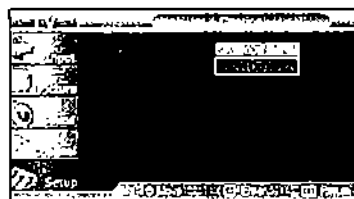
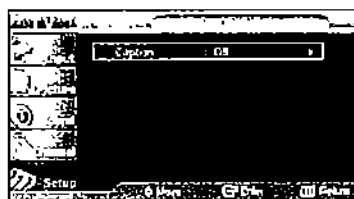
Press the **UP/DOWN** buttons to select "Caption", then press the **ENTER** button.



3

Press the **ENTER** button to select "Caption".

Press the **UP/DOWN** buttons to set the Caption "On", then press the **ENTER** button.



4

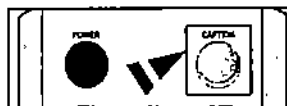
Depending on the particular broadcast, it might be necessary to alter the settings to "Channel" and "Field".

Alternate method:

Press the **CAPTION** button under the cover of the remote.

◀ The Caption feature does not work with DVD or DTV signals.

Different channels and fields display different information: Field 2 carries additional information that supplements the information in Field 1. (For example, Channel 1 may have subtitles in English, while Channel 2 has subtitles in Spanish).

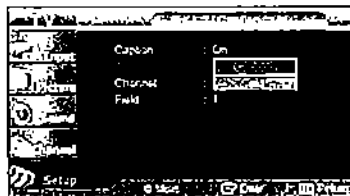
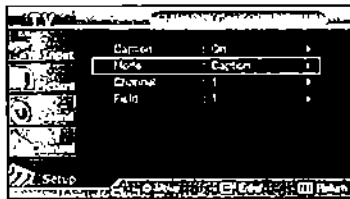


FUNCTION DESCRIPTION

5

Press the UP/DOWN ▲▼ buttons to select "Mode", then press the ENTER  button.

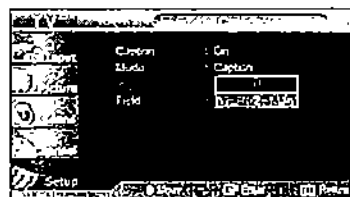
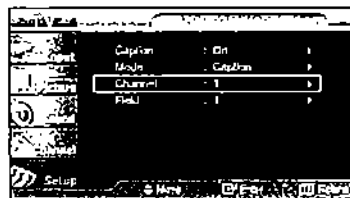
Press the UP/DOWN ▲▼ buttons to select "Caption" or "Text", then press the ENTER  button.



6

Press the UP/DOWN ▲▼ buttons to select "Channel", then press the ENTER  button.

Press the UP/DOWN ▲▼ buttons to select "1" or "2", then press the ENTER  button.

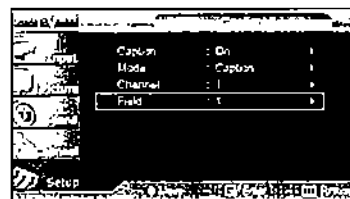


7

Press the UP/DOWN ▲▼ buttons to select "Field", then press the ENTER  button.

Press the UP/DOWN ▲▼ buttons to select "1" or "2", then press the ENTER  button.

Press the EXIT button to exit.



FUNCTION DESCRIPTION

Setting the Blue Screen Mode

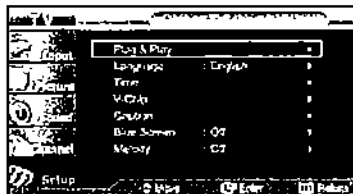
If no signal is being received or the signal is very weak, a blue screen automatically replaces the noisy picture background.

If you wish to continue viewing the poor picture, you must set the "Blue Screen" mode to "Off".

1

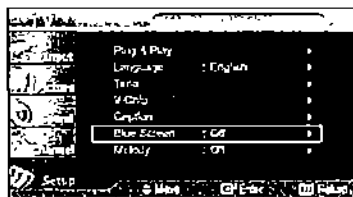
Press the **MENU** button to display the menu.

Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.



2

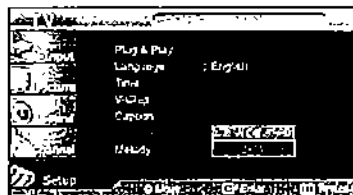
Press the **UP/DOWN** buttons to select "Blue Screen", then press the **ENTER** button.



3

Press the **UP/DOWN** buttons to set Blue Screen "On".

Press the **EXIT** button to exit.



FUNCTION DESCRIPTION

Selecting the Melody

You can hear a melody sound when the television is powered on or off.

1

Press the **MENU** button to display the on-screen menu.

Press the **UP/DOWN** buttons to select "Setup", then press the **ENTER** button.



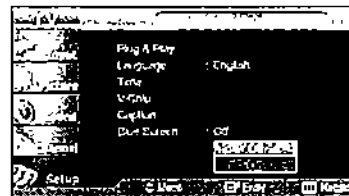
2

Press the **UP/DOWN** buttons to select "Melody", then press the **ENTER** button.



3

Press the **UP/DOWN** buttons to select "On".
Press the **EXIT** button to exit.



Chapter Ten

TROUBLESHOOTING

If the TV seems to have a problem, first try this list of possible problems and solutions. If none of these troubleshooting tips apply, call your nearest Samsung service center.

Identifying Problems

Poor picture	Try another channel. Adjust the antenna. Check all wire connections.
Poor sound quality.	Try another channel. Adjust the antenna.
No picture or sound.	Try another channel. Press the SOURCE button. Make sure the TV is plugged in. Check the antenna connections.
No sound or sound is too low at maximum volume.	First, check the volume of units connected to your TV (digital broadcasting receiver, DTV, DVD, cable broadcasting receiver, VCR, etc.). Then, adjust the TV volume accordingly.
Picture rolls vertically.	Check all wire connections.
The TV operates erratically.	Unplug the TV for 30 seconds, then try operating it again.
Remote control malfunctions	Replace the remote control batteries. Clean the upper edge of the remote control (transmission window). Check the battery terminals.
"Check Signal Cable" message.	Ensure that the signal cable is firmly connected to the PC sources.
"Not Supported Mode" message.	Check the maximum resolution and the frequency of the Video Adapter. Compare these values with the data in the Display Modes.
The image is too light or too dark.	Adjust the Brightness and Contrast. Adjust the Fine tuning.
Horizontal bars appear to flicker, jitter or shimmer on the image.	Adjust the Coarse tuning and then adjust the Fine tuning.

TROUBLESHOOTING

Vertical bars appear to flicker, jitter or shimmer on the image.

Adjust the Coarse tuning and then adjust the Fine tuning.

Screen is black and power indicator light blinks steadily.

On your computer check: Power, Signal Cable.
The TV is using its power management system.
Move the computer's mouse or press any key on the keyboard.

Image is not stable and may appear to vibrate.

If the setting is not correct, use your computer utility program to change the display settings.

NOTE: Your TV supports multiscan display functions within the following frequency domain:

	LN-R238W / LN-R258W / LN-R328W
Horizontal frequency (kHz)	30~61
Vertical frequency (Hz)	60~75
Maximum refresh rate (at 60Hz)	1360 x 768

Image is not centered on the screen.

Adjust the horizontal and vertical position.
The screen position must be adjusted on the output source (i.e. STB) with a digital signal.

If a still image is displayed for an extended period of time, residual images or blurring may appear.

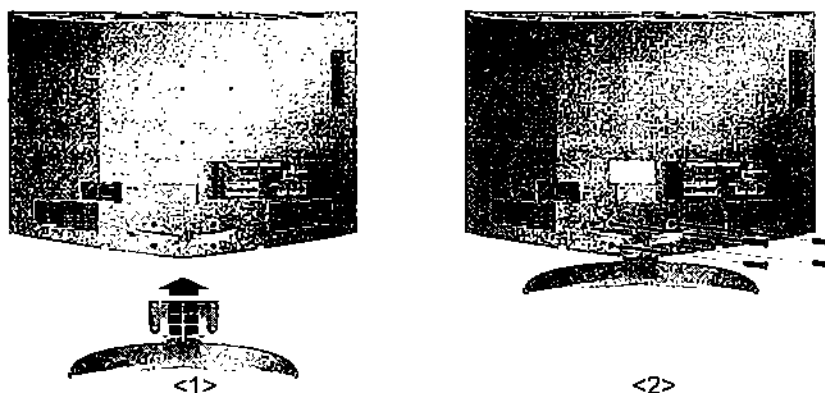
When you need to leave the monitor unused for an extended period of time, adjust the settings so that the monitor automatically goes into energy saving mode or activates the screen saver to display moving images.

The TFT LCD panel uses a panel consisting of sub pixels (3,147,264) which require sophisticated technology to produce.

However, there may be few bright or dark pixels on the screen. These pixels will have no impact on the performance of the product.

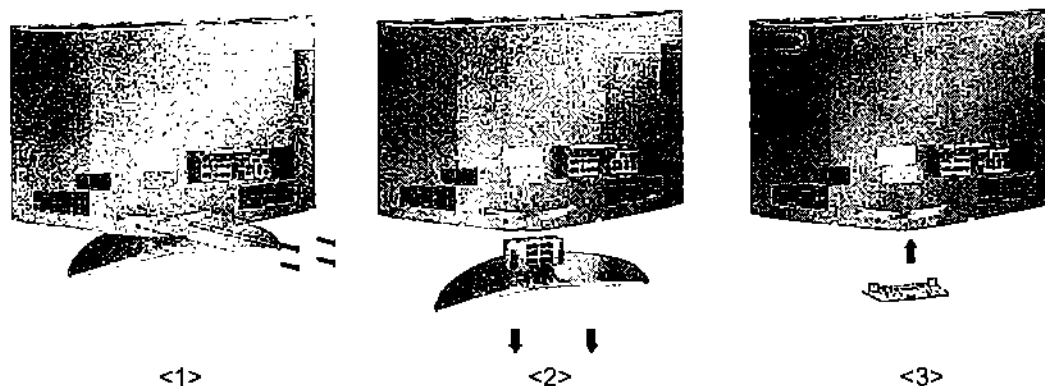
APPENDIX

Installing the stand



1. Lower the TV set in the direction of the arrow and fix the stand.
2. Use the four screws to tightly fix the stand.

Disconnecting the stand



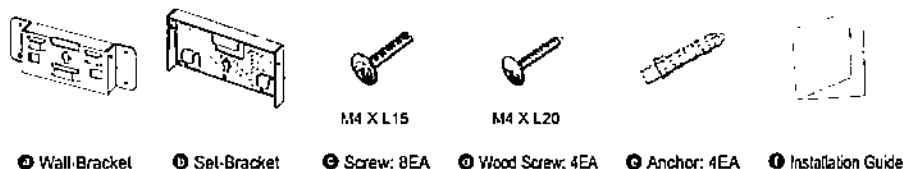
1. Remove four screws from the back of the TV.
2. Separate the stand from the TV.
3. Cover the bottom hole with a cap.

APPENDIX

Installing the Wall Mount Kit (LN-R238W / LN-R268W)

Note: This installation is to be used when attaching the wall mount to a concrete wall.
When attaching to other building materials, please contact your nearest dealer.

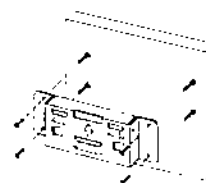
Components (Sold separately)



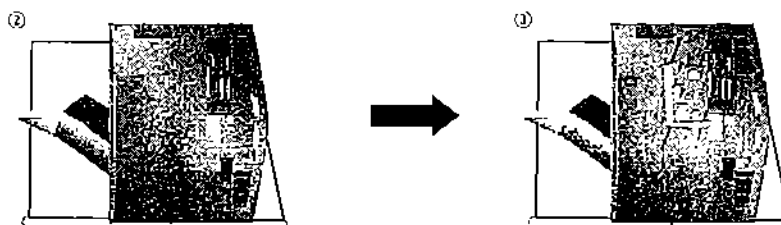
How to assemble the Wall Mount Bracket

- 1 ④ Mark the location of hole on the wall.
- ⑤ Drill a hole of 35mm depth on the marked location.
- ⑤ Fix anchors ⑤ on each hole on the wall.
- ⑤ Connect wall-bracket ① to the wall with wood screws ④ after fitting anchors ⑤ into the wall-bracket ①.

Note: If the bracket is not firmly fixed to the wall, LCD TV can fall off.

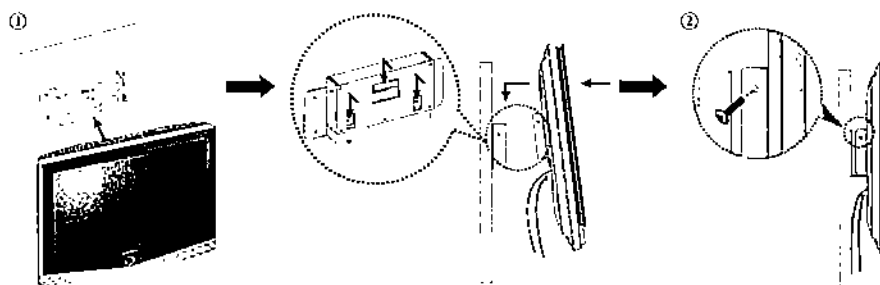


- 2 ④ Turn the power off and unplug the power cord from the outlet.
- ④ Place the TV faced down on a soft cloth or cushion on a table.
- ③ Attach the set-bracket ② onto the rear side of the TV set and secure the screws ③.



- 3 ④ Insert three Hangers of the set-bracket ② into the grooves of the wall-bracket ①.
- ④ Fix set-bracket ② and wall-bracket ① with screws ③.

Note: Before installing the set on the wall, connect the cables to the set first.

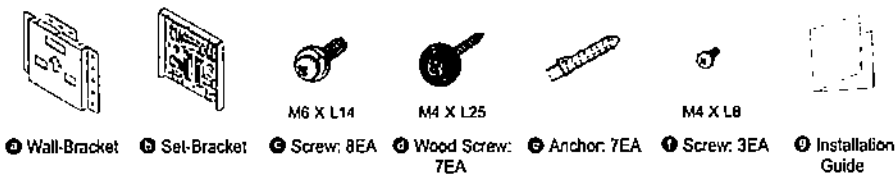


APPENDIX

Installing the Wall Mount Kit (LN-R328W)

Note: This installation is to be used when attaching the wall mount to a concrete wall.
When attaching to other building materials, please contact your nearest dealer.

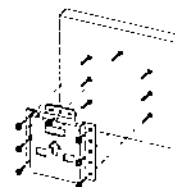
Components (Sold separately)



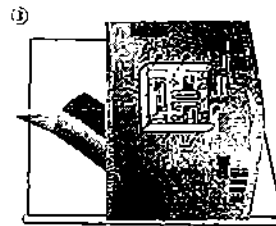
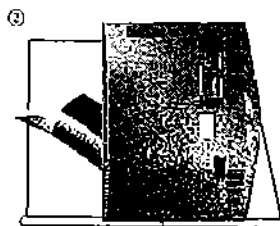
How to assemble the Wall Mount Bracket

- 1 ① Mark the location of hole on the wall.
- ② Drill a hole of 35mm depth on the marked location.
- ③ Fix anchors ⑤ on each hole on the wall.
- ④ Connect wall-bracket ① to the wall with wood screws ④ after filling anchors ⑤ into the wall-bracket ①.

Note: If the bracket is not firmly fixed to the wall, LCD TV can fall off.

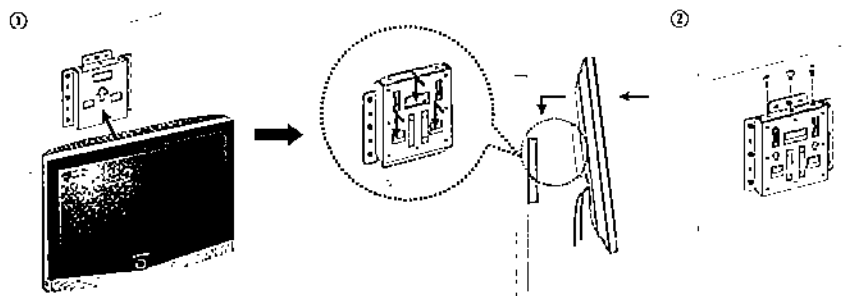


- 2 ① Turn the power off and unplug the power cord from the outlet.
- ② Place the TV faced down on a soft cloth or cushion on a table.
- ③ Attach the set-bracket ② onto the rear side of the TV set and secure the screws ③.



- 3 ① Insert three Hangers of the set-bracket ② into the grooves of the wall-bracket ①.
- ② Fix set-bracket ② and wall-bracket ① with screws ⑥.

Note: Before installing the set on the wall, connect the cables to the set first.

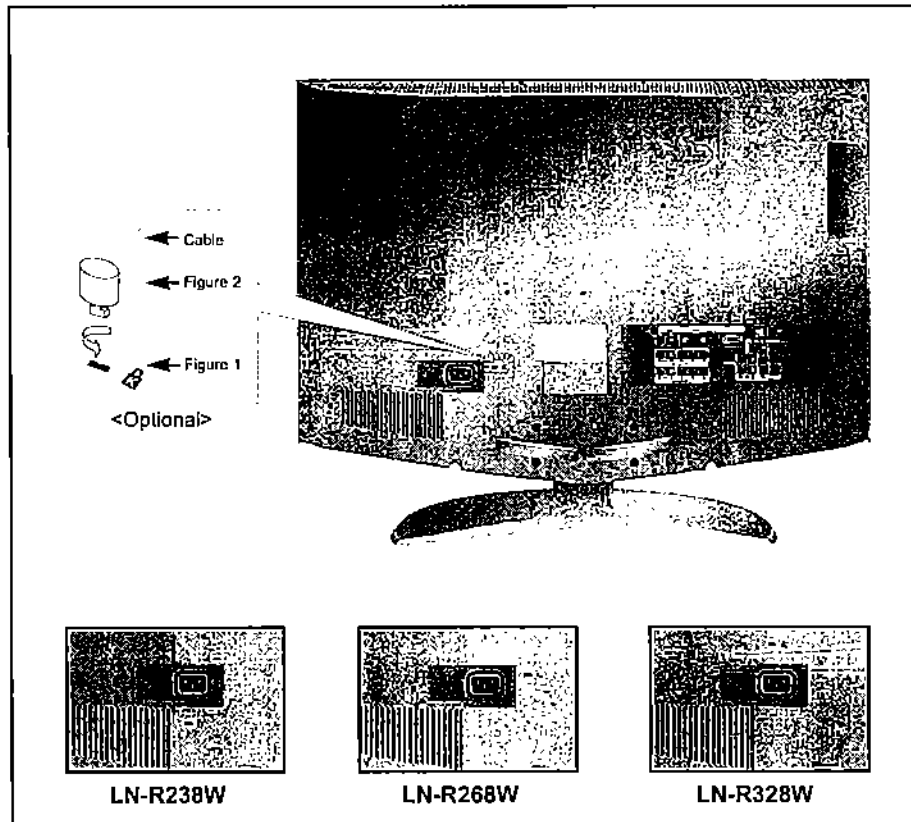


APPENDIX

Using the Anti-Theft Kensington Lock

The Kensington lock is a device used to physically fix the system when using it in a public place.

The locking device has to be purchased separately. The appearance and locking method may differ from the illustration depending on the manufacturer. Please refer to the manual provided with the Kensington lock for proper use.



1. Insert the locking device into the Kensington slot on the LCD TV (Figure 1), and turn it in the locking direction (Figure 2).
2. Connect the Kensington lock cable.
3. Fix the Kensington lock to a desk or a heavy stationary object.

Using Your TV in Another Country

If you plan to take your TV with you to a foreign country, please be aware of the different television systems that are in use around the world. A TV designed for one system may not work properly with another system due to differences in the TV channel frequencies.

APPENDIX

Specifications

	LN-R238W	LN-R268W	LN-R328W
Panel			
Size	23" Diagonal (16:9)	26" Diagonal (16:9)	32" Diagonal (16:9)
Display Size	20.00(H) x 11.25(V)inches (508.125(H) x 285.696(V)mm)	22.67(H) x 12.74(V)inches (575.77(H) x 323.71(V)mm)	27.47(H) x 15.44(V)inches (697.68(H) x 392.26(V)mm)
Type	a-si TFT active matrix	a-si TFT active matrix	a-si TFT active matrix
Pixel Pitch	0.015(H) x 0.015(V)inches (0.372(H) x 0.372(V)mm)	0.017(H) x 0.017(V)inches (0.511(H) x 0.511(V)mm)	0.020(H) x 0.020(V)inches (0.511(H) x 0.511(V)mm)
Viewing Angle	170/170(H/V) (H/V)	170/170(H/V) (H/V)	170/170(H/V) (H/V)
Resolution	1366 (H) x 768 (V)	1366 (H) x 768 (V)	1366 (H) x 768 (V)
Frequency			
Horizontal	30 ~ 61kHz	30 ~ 61kHz	30 ~ 61kHz
Vertical	60 ~ 75Hz	60 ~ 75Hz	60 ~ 75Hz
Display Color	16,777colors	16,777,216colors	16,777,216colors
PC Resolution			
Maximum Mode	1360 x 768 @ 60 Hz	1360 x 768 @ 60 Hz	1360 x 768 @ 60 Hz
Optimum Mode	1360 x 768 @ 60 Hz	1360 x 768 @ 60 Hz	1360 x 768 @ 60 Hz
Input Signal			
Sync.	H/V Separate, TTL, P. or N.	H/V Separate, TTL, P. or N.	H/V Separate, TTL, P. or N.
Video Signal	0.7 Vp-p @ 75 ohm	0.7 Vp-p @ 75 ohm	0.7 Vp-p @ 75 ohm
TV			
Color System	NTSC	NTSC	NTSC
Sound System	STEREO	STEREO	STEREO
Video			
Color System	NTSC	NTSC	NTSC
Video System	CVBS, S-VHS	CVBS, S-VHS	CVBS, S-VHS
Component			
Video In	1.0Vp-p @ 75 ohm	1.0Vp-p @ 75 ohm	1.0Vp-p @ 75 ohm
Audio In	500mVrms	500mVrms	500mVrms
Power Supply			
Input	AC 110~120V, 60 Hz	AC 110~120V, 60 Hz	AC 110~120V, 60 Hz
Power Consumption			
Maximum	100W	140W	184W
Power Saving	<1 W	<1 W	<1 W
Dimension			
(W x D x H)			
Body	22.95 x 3.54 x 17.44 inches (583.0 x 90.0 x 443.0 mm)	26.06 x 3.70 x 19.60 inches (662.0 x 94.0 x 497.8 mm)	31.38 x 3.898 x 23.31 inches (797.0 x 99.0 x 592.0 mm)
With stand	22.95 x 8.11 x 19.10 inches (583.0 x 206.0 x 484.7 mm)	26.06 x 8.11 x 21.22 inches (662.0 x 206.0 x 539.0 mm)	31.38 x 9.80 x 25.62 inches (797.0 x 249.0 x 650.7 mm)

APPENDIX

	LN-R238W	LN-R268W	LN-R328W
Weight			
With Stand	18.96 lbs (8.6 kg)	33.07 lbs (15.0 kg)	39.02 lbs (17.7 kg)
Environmental Considerations			
Operating Temperature	50°F to 104°F (10°C to 40°C)	50°F to 104°F (10°C to 40°C)	50°F to 104°F (10°C to 40°C)
Operating Humidity	10% to 80%, non-condensing	10% to 80%, non-condensing	10% to 80%, non-condensing
Storage Temperature	-4°F to 113°F (-20°C to 45°C)	-4°F to 113°F (-20°C to 45°C)	-4°F to 113°F (-20°C to 45°C)
Storage Humidity	5% to 95%, non-condensing	5% to 95%, non-condensing	5% to 95%, non-condensing
Audio Characteristics			
Audio Input	RCA Jack (L, R), 0.5Vrms (-9dB)	RCA Jack (L, R), 0.5Vrms (-9dB)	RCA Jack (L, R), 0.5Vrms (-9dB)
Audio Input (PC)	3.5 ϕ Stereo Jack, 0.5Vrms (-9dB)	3.5 ϕ Stereo Jack, 0.5Vrms (-9dB)	3.5 ϕ Stereo Jack, 0.5Vrms (-9dB)
Headphone Output	Max. 10mW Output (3.5 ϕ Stereo Jack, 32 Ω)	Max. 10mW Output (3.5 ϕ Stereo Jack, 32 Ω)	Max. 10mW Output (3.5 ϕ Stereo Jack, 32 Ω)
Frequency	RF: 80Hz ~ 15kHz (at -3dB)	RF: 80Hz ~ 15kHz (at -3dB)	RF: 80Hz ~ 15kHz (at -3dB)
Response	AV: 80Hz ~ 20kHz (at -3dB)	AV: 80Hz ~ 20kHz (at -3dB)	AV: 80Hz ~ 20kHz (at -3dB)

* Referring to Display Modes, page 81.

APPENDIX

Display Modes

If the signal from the system equals the standard signal mode, the screen is adjusted automatically. If the signal from the system doesn't equal the standard signal mode, adjust the mode by referring to your video card user guide; otherwise there may be no video. For the display modes listed below, the screen image has been optimized during manufacture.

Mode	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)	Sync Polarity (H/V)
IBM	640 X 480	31.469	59.940	25.175	- / -
	720 X 400	31.469	70.087	28.322	- / +
VESA	640 X 480	37.861	72.809	31.500	- / -
	640 X 480	37.500	75.000	31.500	- / -
	800 X 600	37.879	60.317	40.000	+ / +
	800 X 600	48.077	72.188	50.000	+ / +
	800 X 600	46.875	75.000	49.500	+ / +
	1024 X 768	48.364	60.000	65.000	- / -
	1024 X 768	56.476	70.069	75.000	- / -
	1024 X 768	60.023	75.029	78.750	+ / +
	1360 X 768	47.712	60.015	85.800	+ / +

* The interlace mode is not supported.

* The set might operate abnormally if a non-standard video format is selected.

* DVI dose not support PC function.

Regulatory and Safety Compliance Guide



Warning! Important Safety Instructions

(Please read the appropriate section that corresponds to the marking on your Samsung product before attempting to install the product.)

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER ALL SERVISING TO QUALIFIED PERSONNEL.



This symbol indicated high voltage is present inside. It is dangerous to make any kind of contact with any inside part of this product.



This symbol alerts you that important literature concerning operation and maintenance has been included with this product.

- ☛ The slots and openings in the cabinet and in the back or bottom are provided for necessary ventilation. To ensure reliable operation of this apparatus, and to protect it from overheating, these slots and openings must never be blocked or covered.
 - Do not cover the slots and openings with a cloth or other materials.
 - Do not block the slots and openings by placing this apparatus on a bed, sofa, rug or other similar surface.
 - Do not place this apparatus in a confined space, such as a bookcase, or built-in cabinet, unless proper ventilations is provided.
- ☛ Do not place this apparatus near or over a radiator or heat register, or where it is exposed to direct sunlight.
- ☛ Do not place the sources of heat on this apparatus, such as a candle, ash tray, incense or other similar material.
- ☛ Do not place a water containing vessel on this apparatus, as this can result in a risk of fire or electric shock.
- ☛ Do not expose this apparatus to rain or place it near water (near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool etc.). If this apparatus accidentally gets wet, unplug it and contact an authorized dealer immediately. You can clean this apparatus with damp cloth when necessary, but be sure to unplug the apparatus first.
- ☛ Do not expose this apparatus set to extreme temperature conditions or to extreme humidity conditions.
- ☛ This apparatus use batteries. In your community there might be regulations that require you to dispose these batteries properly under environmental considerations. Please contact your local authorities for disposal or recycling information.
- ☛ To cut off the power source, unplug this apparatus from the wall outlet.
- ☛ Do not overload wall outlets, extension cords or convenience receptacles beyond their capacity, since this can result in fire or electric shock.
- ☛ Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- ☛ To protect this apparatus from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the set due to lightning and power line surges.
- ☛ Before connecting the AC power cord to the DC adapter outlet, make sure the voltage designation of the DC adapter corresponds the the local electrical supply.
- ☛ Never insert anything metallic into this apparatus openings. Doing so may create the danger of electric shock.
- ☛ To avoid electric shock, never touch the inside of this apparatus. Only a qualified technician should open this apparatus's case.
- ☛ Be sure to hold the plug, not the cord, when disconnecting this apparatus from an electric socket.
- ☛ Locate this apparatus near an easily accessible AC outlet.
- ☛ If this apparatus does not operate normally - in particular, if there are any unusual sounds or smells coming from it - unplug it immediately and contact an authorized dealer or service center.
- ☛ Unplug this apparatus from the AC outlet before any service.

Regulatory Compliance Statements

Your Samsung product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) - USA
- Industry Canada Equipment Standard for Digital Equipment (ICES-003) - Canada
- Voluntary Control Council for Interference (VCCI) - Japan
- Bureau of Standards Metrology and Inspection (BSMI) - Taiwan
- Ministry of Information and Communication (MIC) - Republic of Korea
- Italian Post Ministry (Homologation) - Italy

FCC Information

FCC Class A Notice

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Class B Notice

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.

NOTE: 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.

User Information

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. If necessary, consult with your dealer or an experienced radio/television technician for additional suggestions. You may find the booklet called How to Identify and Resolve Radio/TV Interference Problems helpful. This booklet was prepared by the Federal Communications Commission. It is available from the U.S. Government Printing Office. Washington, DC 20402, Stock Number 004-000-00345-4.

The party responsible for product compliance:

SAMSUNG ELECTRONICS CO., LTD.

America QA Lab of Samsung

3351 Michelson Drive

Suite #290, Irvine, CA92612 USA

Warning

User must use shielded signal interface cables to maintain FCC compliance for the product. Provided with this monitor is a detachable power supply cord with IEC320 style terminations. It may be suitable for connection to any UL Listed personal computer with similar configuration. Before making the connection, make sure the voltage rating of the computer convenience outlet is the same as the monitor and that the ampere rating of the computer convenience outlet is equal to or exceeds the monitor voltage rating.

For 120 Volt applications, use only UL Listed detachable power cord with NEMA configuration 5-15P type(parallel blades) plug cap. For 240 Volt applications use only UL Listed detachable power supply cord with NEMA configuration 6015P type(tandem blades) plug cap.

This television receiver provides display of television closed captioning in accordance with Section 15.119 of the FCC rules.(TV broadcast receivers with picture screens 13 inches or larger in diameter models only)

ICES-003 Class A Notice - Avis NMB-003, Classe A

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

ICES-003 Class B Notice - Avis NMB-003, Classe B

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

VCCI Class A Notice

この装置は「情報処理装置等電波障害自主規制協議会(VCCI)の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。」

VCCI Class B Notice

この装置は「情報処理装置等電波障害自主規制協議会(VCCI)の基準に基づくクラスB情報技術装置です。この装置は「家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると「受信障害を引き起こすことがあります。」取扱説明書に従って正しい取り扱いをして下さい。」

BSMI Class A Notice

The following statement is applicable to products shipped to Taiwan and marked as Class A on the product compliance label.

警告使用者:

這是甲類資訊類產品，在居住環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。」

European Notice(Europe Only)

Products with the CE marking comply with the EMC Directive(89/336/EEC), (92/31/EEC), (93/68/EEC) and the Low Voltage Directive(73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms:

- EN55022: Radio Frequency Interference
- EN55024: Electromagnetic Immunity of Information Technology Equipment
- EN61000-3-2: Power Line Harmonics
- EN61000-3-3: Voltage Fluctuations
- EN55013: Radio disturbance characteristics of broadcast receivers and associated equipments
- EN55020: Electromagnetic immunity of broadcast receivers and associated equipments

European Class A Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.(Class A product only)

정보통신기기 A급 기기(MIC Class A Notice)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며 만약 잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

정보통신기기 B급 기기(MIC Class B Notice)

이 기기는 가정용으로 전자파적합등록을 한 기기로서 주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

Italian Homologation Notice

Questo apparecchio e fabbricato in conformita al D.M.28.08.95 n.548
ed in particolare a quanto specificato nell Art.2, comma 1.

Questo apparecchio e fabbricato nella U.E. in conformita al D.M.28.08.95 n.548
Art.2, comma 1 ed al D.M.26.03.92 Art.1

- For products produced in countries except European Community

Questo apparecchio e fabbricato in conformita al D.M.28.08.95 n.548
ed in particolare a quanto specificato nell Art.2, comma 1.

- For products produced in European Community

Questo apparecchio e fabbricato nella U.E. in conformita al D.M.28.08.95 n.548
Art.2, comma 1 ed al D.M.26.03.92 Art.1

Important Safety Instructions(TV Only)

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings, Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, or other apparatus (including amplifiers) that produce heat.
- 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 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.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 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.



CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol indicates high voltage is present inside. It is dangerous to make any kind of contact with any inside part of this product. This symbol alerts you that important literature concerning operation and maintenance has been included with this product.	 
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Warning: To prevent damage which may result in fire or electric shock hazard, do not expose this appliance to rain or moisture.

(EPA applied model only) As an ENERGY STAR Partner, Samsung has determined that this product or product models meets the ENERGY STAR guidelines for energy efficiency.
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■ Optional ■

Do not place the apparatus in a rack or bookcase. Ensure that there is adequate ventilation and that you've followed that manufacturer's instructions for mounting.
(For PDP or Projection TV apparatus)

If you place the apparatus in a rack or bookcase, ensure that there is adequate ventilation and that you've followed the manufacturer's instructions.

Wiring the Mains Power Supply Plug(UK Only)

IMPORTANT NOTICE

The mains lead on this equipment is supplied with a moulded plug incorporating a fuse. The value of the fuse is indicated on the pin face of the plug and, if it requires replacing, a fuse approved to BS11362 of the same rating must be used.

Never use the plug with the fuse cover omitted if the cover is detachable. If a replacement fuse cover is required, it must be of the same colour as the pin face of the plug. Replacement covers are available from your dealer. If the fitted plug is not suitable for the power points in your house or the cable is not long enough to reach a power point, you should obtain a suitable safety approved extension lead or consult your dealer for assistance. However, if there is no alternative to cut off the plug, remove the fuse and then safely dispose of the plug. Do NOT connect the plug to a mains socket as there is a risk of shock hazard from the bared flexible cord.

IMPORTANT

The wires in the mains lead are coloured in accordance with the following code:

BLUE - NEUTRAL BROWN - LIVE

As these colours may not correspond to the coloured markings identifying the terminals in your plug, proceed as follows:

The wire coloured BLUE must be connected to the terminal marked with the letter N or coloured BLUE or BLACK.

The wire coloured BROWN must be connected to the terminal marked with the letter L or coloured BROWN or RED.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL, WHICH IS MARKED WITH THE LETTER E OR BY THE EARTH SYMBOL , OR COLOURED GREEN OR GREEN AND YELLOW.

Russia Only - PCT Notice



MPR II Compliance

TCO'95-Ecological requirements for personal computers (TCO'95 applied model only)
TCO'99-Ecological requirements for personal computers (TCO'99 applied model only)
TCO'03-Ecological requirements for personal computers (TCO'03 applied model only)
TCO'03 Recycling Information (TCO'03 applied model only)
Medical Requirement (Medical applied model only)

● MPR II Compliance

This monitor complies with SWEDAC(MPR II) recommendations for reduced electric and magnetic fields.

● TCO'95-Ecological requirements for personal computers (TCO'95 applied model only)



AB general requirements

AB2 Written Eco-document accompanying the products

Congratulations! You have just purchased a TCO'95 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and to the further development of environmentally-adapted electronic products.

Why do we have environmentally-labelled monitors?

In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem as far as monitors and other electronic equipment are concerned is that environmentally harmful substances are used both in the products and during their manufacture. Since it has not been possible so far for the majority of electronic equipment to be recycled in a satisfactory way, most of these potentially damaging substances sooner or later enter Nature.

There are also other characteristics of a monitor, such as energy consumption levels, that are important from both the working and natural environment viewpoints. Since all types of conventional electricity generation have a negative effect on the environment (acidic and climate-influencing emissions, radioactive waste, etc.) it is vital to conserve energy. Electronic equipment in offices consumes an enormous amount of energy, since it is often routinely left running continuously.

What does labelling involve?

This product meets the requirements for the TCO'95 scheme, which provides for international environmental labelling of monitors. The labelling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees), Naturskyddsforeningen (The Swedish Society for Nature Conservation) and NUTEK (The National Board for Industrial and Technical Development in Sweden).

The requirements cover a wide range of issues: environment, ergonomics, usability, emission of electrical and magnetic fields, energy consumption and electrical and fire safety.

The environmental demands concern among other things restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons), and chlorinated solvents. The product must be prepared for recycling and the manufacturer is obliged to have an environmental plan, which must be adhered to in each country where the company conducts its operations policy. The energy requirements include a demand that the monitor after a certain period of inactivity shall reduce its power consumption to a lower level, in one or more stages. The length of time to reactivate the monitor shall be reasonable for the user.

Labelled products must meet strict environmental demands, for example in respect of the reduction of electric and magnetic fields, along with physical and visual ergonomics and good usability.

TCO Development Unit 1996-11-29

On the page this folder you will find a brief summary of the environmental requirements met by this product.

The complete environmental criteria document may be ordered from:

TCO Development Unit

S-11494 Stockholm

Sweden

Fax: +46 8 782 92 07

E-mail (Internet): development@tco.se

Current information regarding TCO'95-approved and labelled products may also be obtained via the Internet, using the address:

<http://www.tco-info.com/>

TCO'95 is a co-operative project between (3 logos)

Environmental Requirements

Brominated flame retardants are present in printed circuit boards, cables, wires, casings and housings. In turn, they delay the spread of fire. Up to thirty percent of the plastic in a computer casing can consist of flame retardant substances. These are related to another group of environmental toxins, PCBs, which are suspected to give rise to similar harm, including reproductive damage in fish eating birds and mammals, due to the bioaccumulative processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.

TCO'95 demand requires that plastic components weighing more than 25 grams must not contain organically bound chlorine and bromine.

Lead

Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in higher doses, causes lead poisoning.

TCO'95 requirement Permits the inclusion of lead since no replacement has yet been developed.

Cadmium

Cadmium is present in rechargeable batteries and in the colour generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses.

TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of cadmium. The colour-generating layers of display screens must not contain any cadmium.

Mercury

Mercury is sometimes found in batteries, relays and switches. Mercury damages the nervous system and is toxic in high doses.

TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of mercury. It also demands that no mercury is present in any of the electrical or electronics

components concerned with the display unit.

CFCs (freons)

CFCs (freons) are sometimes used for washing printed circuit boards and in the manufacturing of expanded foam for packaging. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on Earth of ultraviolet light with consequent increased risks of skin cancer (malignant melanoma).

The relevant TCO'95 requirement: Neither CFCs nor HCFCs may be used during the manufacturing of the product or its packaging.

● TCO'99-Ecological requirements for personal computers (TCO'99 applied model only)



Congratulations!

You have just purchased a TCO'99 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and also to the further development of environmentally adapted electronics products.

This product meets the requirements for the TCO'99 scheme which provides for an international environmental and quality labelling of personal computers. The labelling scheme was developed as a joint effort by the TCO(The Swedish Confederation of Professional Employees), Svenska Naturskyddsforeningen(The Swedish Society for Nature Conservation), Statens Energimyndighet(The Swedish National Energy Administration) and SEMKO AB.

The requirements cover a wide range of issues: environment, ergonomics, usability, reduction of electric and magnetic fields, energy consumption and electrical safety.

Why do we have environmentally labelled computers?

In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem, as far as computers and other electronics equipment are concerned, is that environmentally harmful substances are used both in the products and during their manufacture. Since it is not so far possible to satisfactorily recycle the majority of electronics equipment, most of these potentially damaging substances sooner or later enter nature.

There are also other characteristics of a computer, such as energy consumption levels, that are important from the viewpoints of both the work (internal) and natural (external) environments. Since all methods of electricity generation have a negative effect on the environment (e.g. acidic and climate-influencing emissions, radioactive waste), it is vital to save energy. Electronics equipment in offices is often left running continuously and thereby consumes a lot of energy.

What does labelling involve?

The environmental demands have been developed by Svenska Naturskyddsforeningen (The Swedish Society for Nature Conservation). These demands impose restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs(freons)and chlorinated solvents, among other things. The product must be prepared for recycling and the manufacturer is obliged to have an environmental policy which must be adhered to in each country where the company implements its operational policy.

The energy requirements include a demand that the computer and/or display, after a certain period of inactivity, shall reduce its power consumption to a lower level in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.

Below you will find a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

TCO Development
SE-114 94 Stockholm, Sweden
Fax: +46 8 782 92 07
Email (Internet): development@tco.se

Current information regarding TCO'99 approved and labelled products may also be obtained via the Internet, using the address: <http://www.tco-info.com/>

Environmental requirements

Flame retardants

Flame retardants are present in printed circuit boards, cables, wires, casings and housings. Their purpose is to prevent, or at least to delay the spread of fire. Up to 30% of the plastic in a computer casing can consist of flame retardant substances. Most flame retardants contain bromine or chloride, and those flame retardants are chemically related to another group of environmental toxins, PCBs. Both the flame retardants containing bromine or chloride and the PCBs are suspected of giving rise to severe health effects, including reproductive damage in fish-eating birds and mammals, due to the bio-accumulative* processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.

The relevant TCO'99 demand requires that plastic components weighing more than 25 grams must not contain flame retardants with organically bound bromine or chlorine. Flame retardants are allowed in the printed circuit boards since no substitutes are available.

Cadmium**

Cadmium is present in rechargeable batteries and in the colour-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries, the colour-generating layers of display screens and the electrical or electronics components must not contain any cadmium.

Mercury**

Mercury is sometimes found in batteries, relays and switches. It damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries may not contain any mercury. It also demands that mercury is not present in any of the electrical or electronics components associated with the labelled unit. There is however one exception. Mercury is, for the time being, permitted in the back light system of flat panel monitors as today there is no commercially available alternative. TCO aims on removing this exception when a Mercury free alternative is available.

CFCs (freons)

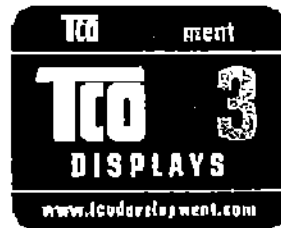
The relevant TCO'99 requirement states that neither CFCs nor HCFCs may be used during the manufacture and assembly of the product. CFCs (freons) are sometimes used for washing printed circuit boards. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on earth of ultraviolet light with e.g. increased risks of skin cancer (malignant melanoma) as a consequence.

Lead**

Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in higher doses, causes lead poisoning. The relevant TCO'99 requirement permits the inclusion of lead since no replacement has yet been developed.

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• TCO'03-Ecological requirements for personal computers (TCO'03 applied model only)



Congratulations!

The display you have just purchased carries the TCO'03 Displays label. This means that your display is designed, manufactured and tested according to some of the strictest quality and environmental requirements in the world. This makes for a high performance product, designed with the user in focus that also minimizes the impact on our natural environment.

Some of the features of the TCO'03 Display requirements:

Ergonomics

Good visual ergonomics and image quality in order to improve the working environment for the user and to reduce sight and strain problems. Important parameters are luminance, contrast, resolution, reflectance, colour rendition and image stability.

Energy

Energy-saving mode after a certain time – beneficial both for the user and the environment

Electrical safety

Emissions

- Electromagnetic fields
- Noise emissions

Ecology

- The product must be prepared for recycling and the manufacturer must have a certified environmental management system such as EMAS or ISO 14 000
- Restrictions on
 - o chlorinated and brominated flame retardants and polymers
 - o heavy metals such as cadmium, mercury and lead.

The requirements included in this label have been developed by TCO Development in cooperation with scientists, experts, users as well as manufacturers all over the world. Since the end of the 1980s TCO has been involved in influencing the development of IT equipment in a more user-friendly direction. Our labelling system started with displays in 1992 and is now requested by users and IT-manufacturers all over the world.

For more information, Please visit
www.tcodevelopment.com

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● TCO'03 Recycling Information (TCO'03 applied model only)

[European Residents Only]

For recycling information for TCO'03 certified monitors, for the residents in the following countries, please contact the company corresponding to your region of residence. For those who reside in other countries, please contact a nearest local Samsung dealer for recycling information for the products to be treated in environmentally acceptable way.

	[U.S.A. Residents Only]	[European Residents Only]		
	U.S.A.	SWEDEN	NORWAY	GERMANY
COMPANY	Solid Waste Transfer & Recycling Inc	ELKRETSSEN	Elektronikkretur AS	vfw AG
ADDRESS	442 Frelinghuysen Ave Newark, NJ 07114	ELKRETSSEN Box 1357, 111 83 Stockholm Barnhusgatan 3, 4 tr.	6454 Etterstad 0602 Oslo Fyrstikkalln 3B	Max Plank Strasse 42 50858 Cologne Germany
TELEPHONE	973-565-0181	08-545 212 90	23 06 07 40	49 0 2234 9587 - 0
FAX	Fax: 973-565-9485	08-545 212 99	23 06 07 41	
E-MAIL	none	info@el-kretsen.se	adm@elektronikkretur.no	vfw.info@vfw-ag.de
HOME PAGE	http://www.bcuu.org/SolidWaste_Disposal.htm	http://www.el-kretsen.se/	http://www.elretur.no/	

● Medical Requirement (Medical applied model only)



Classifications:

In accordance with UL 2601-1/IEC 60601-1, the product is classified as Continuous duty Class I equipment, which is not protected against ingress of liquids. The product is not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

EMC

This equipment has been tested and found to comply with the limits for medical devices to the IEC 601-1-2:1994. These limits are designed to provide reasonable protection against harmful interference in a typical medical 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 other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to other devices, 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 device.
- Increase the separation between the equipment.
- Connect the equipment into an outlet on a circuit different from that to which the other device(s) are connected.
- Consult the manufacturer or field service technician for help.

Video In / RS 232 / Video Out

Accessories equipment connected to the analog and digital interfaces must be certified to the respective IEC standards (i.e. IEC 950 for data processing equipment and IEC 601-1 for medical equipment.) Furthermore all configurations shall comply with the system standard IEC 601-1-1. Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore, responsible that the system complies with the requirements of the system standard IEC 601-1-1. If in doubt, consult the technical services department or your local representative.

Transport and Storage Limitations:

Temperature Range of -40°C to +70°C

Relative Humidity of 10 -95%, non-condensing

* Bio-accumulative is defined as substances which accumulate within living organisms.

** Lead, Cadmium and Mercury are heavy metals which are Bio-accumulative.