Operating Instructions

Color Video/Data Monitor
Model No. DT-M3050W

Panasonic®

Dear Panasonic Customer:

This instruction booklet provides all the necessary operating information that you might require. We hope it will help you to get the most performance out of your new product, and that you will be pleased with your Panasonic Color Video/Data Monitor.
The serial number of your product may be found on its back. You should note it in the space provided below and retain this booklet in case service is required.

Model number: **DT-M3050W**   Serial number:

Contents

Features

High-resolution images provided by a new super-flat and high-definition CRT

The adoption of a new super-flat and high-definition CRT with inline gun and a center mask pitch of 0.68 mm allows high resolutions of up to 550 horizontal TV scanning lines (for video signal input) and 800 × 600 dots (for RGB signal input) to be obtained.

Color Video / Data monitor has automatic scanning frequency tracking

The scanning frequency ranges for the input signals are 15.5 - 60 kHz (horizontal scanning frequency) and 50 - 120 Hz (vertical scanning frequency). In addition, adjustment details for sources with different input frequencies can be stored separately in memory for each source, up to a maximum of 16 signals). This allows pictures to be received with high precision at all times.

Long-term white balance stability

The adoption of an automatic white balance stabilization circuit (beam current feedback circuit) ensures that stable white balance can be obtained over a long period of use.

Extremely clear color reproduction

The adoption of a three-line digital comb filter ensures color reproduction has the greatest clarity possible by eliminating any cross-color and dot interference when receiving NTSC and PAL signals.

Input selection is possible using external control equipment

The MULTI IN connector can be used to switch the monitor's input source using an external switching source.

Simultaneous and individual control of multiple monitors is also possible

An ID (identification) setting function and SYSTEM CONTROL terminals are provided to allow multiple monitors to be controlled as a group or individually.

A wide variety of signal connection terminals

A wide variety of input and output signal terminals are available for connection of RGB signals, YP_BP_R signals and video signals, so that the monitor can be compatible with many different systems.

Compatible with four different video signal formats

The input video signals (including S-Video signals) can be of either NTSC, PAL, SECAM or NTSC 4.43 format.

IMPORTANT SAFETY NOTICE

WARNING: To prevent damage which may result in fire or shock hazard, do not expose this appliance to rain or moisture.
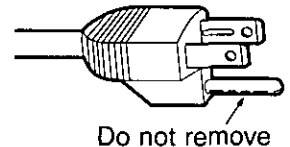
Power Supply: This Color Video/Data Monitor is designed to operate on 120 volt, 50/60 Hz AC, house current only.

⚠	CAUTION **RISK OF ELECTRIC SHOCK. DO NOT OPEN**	⚠
	AVIS : RISQUE DE CHOC ÉLECTRIQUE. NE PAS OUVRIR	

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION: This equipment is equipped with a three-pin grounding-type power plug.
Do not remove the grounding pin on the power plug.
This plug will only fit a grounding-type power outlet. This is a safety feature.
If you are unable to insert the plug into the outlet, contact an electrician.
Do not defeat the purpose of the grounding plug.

Do not remove

WARNING: 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.
CAUTION: Any unauthorized changes or modifications to this equipment would void the users authority to operate.

Precautions with regard to safety

WARNING

Setting up

Set up the monitor in a place which is strong enough to support it.
- If the setting-up location is not strong enough, the monitor may fall down or tip over, and damage or injury may result.

Do not place anything on top of the monitor.
- If water gets spilled on the monitor or foreign objects get inside it, short-circuits can occur which may result in fire.
  If any foreign objects get inside the monitor, contact an Authorized Service Center.

Do not place the monitor on top of surfaces which are unstable.
- If the monitor is placed on top of a surface which is sloped or unstable, it may fall down or tip over, and injury or damage could result.

Using the monitor

Do not remove the rear cover or cabinet or make any modifications yourself.
- High voltages which could cause fire or electric shocks are present inside this monitor.
  Consult the place of purchase for any inspection, adjustment and servicing needs.

Do not insert any foreign objects into the monitor.
- Do not insert any metal objects or flammable objects into the monitor or drop them onto the monitor, as doing so can result in fire or electric shocks.

Clean the power cable regularly to prevent it from becoming covered in dust.
- If dust builds up on the power cable plug, the resulting humidity can damage the insulation, which could result in fire. Pull the power cable out from the wall outlet and wipe it with a dry cloth.
- If not using the monitor for an extended period of time, pull the power cable plug out from the wall outlet.

Do not damage the power cable or power cable plug.
- Do not damage, modify or bind the cord, place heavy objects on top of the cord, heat the cord or bring it close to hot objects, twist or pull the cord strongly. If the cord is not handled properly, the live wires may become exposed or a short-circuit may develop, and fire or electric shocks may result.
- If the power cable becomes damaged, contact an Authorized Service Center for repairs.

Do not pour water on the monitor or otherwise allow it to become wet.
- Fire and electric shocks may result.

Insert the power cable plug securely into the wall outlet.
- If the plug is not inserted correctly, overheating , fire or electric shocks could result.

If problems occur during use

If a problem occurs (such as no image or no sound) or if you notice smoke or a strange smell coming from the monitor, immediately turn off the power and disconnect the power cable from the wall outlet.
● A short-circuit could develop, and fire or electric shocks may result.
  Contact an Authorized Service Center for repairs.
● Check that no more smoke is coming out, and then contact an Authorized Service Center for repairs.
● Do not attempt to repair the monitor yourself, as this can be dangerous.

If foreign objects or water get inside the monitor, or if the monitor is dropped or the cover is broken, turn off the power and disconnect the power cable from the wall outlet.

CAUTION

Setting-up

Do not set up the monitor in humid or dusty places or in places where the monitor may come into contact with smoke or steam.
● Failure to do so may result in fire or electric shocks.

Do not set up the monitor in humid or dusty places or in places where the monitor may come into contact with smoke or steam.
● Failure to do so may result in fire or electric shocks.

Do not use a power supply which is outside the specified voltage range (120 V AC).
● Failure to do so may result in fire or electric shocks.

Do not cover the ventilation holes.
● If the ventilation holes are covered, the inside of the monitor could overheat, and fire may result. Leave a space of 10 cm or more between the monitor and the wall and maintain a distance of 10 cm or more between the monitor and any audio/visual equipment when setting up the monitor.
● Do not place the monitor facing straight up or straight down, and do not tilt it on its side or place it upside down or place it somewhere where there is poor ventilation.
● Do not place a tablecloth over the monitor, or place it on top of a rug or quilt.

When using the monitor

Do not place any heavy objects on top of the monitor.
● Doing so can cause the monitor to become unbalanced and fall, which could result in damage or injury.

Take steps to prevent the monitor from moving or turning after setting-up.
● If the monitor moves or tips over, injury may result.
● If placing the monitor on top of a table with casters, make sure that the casters are prevented from moving.

Do not sit on top of the monitor.
● Doing so may cause the monitor to tip over or break, and injury may result.

Always disconnect the power cable before moving the monitor.
● Moving the monitor with cables still attached can damage the cables, and fire or electric shocks may result.
● Always check that the power cable plug and cables are disconnected before moving the monitor.
● Two people are needed for unpacking and moving the monitor.

When using the monitor

When disconnecting the power cable, hold the plug, not the cable.
● If the power cable itself is pulled, the cable will become damaged, and fire, short-circuits or serious electric shocks may result.

Do not handle the power cord plug with wet hands.
● Doing so may result in electric shocks.

Observe the following when handling the batteries.
● Make sure the polarities ⊕ and ⊖ are correct.
● Use only the batteries specified.
● Do not heat or disassemble the batteries or place them into water or fire.
● Remove the batteries if not using the remote control unit for long periods.
● Do not place the batteries in a container together with metallic objects such as necklaces.
● If batteries are not treated properly, they may leak, and fire, electric shocks or contamination may result.
● If the batteries start leaking, contact an Authorized Service Center.
● If battery fluid gets onto your body, wash well with copious amounts of running water.

Cleaning

Ask an Authorized Service Center to clean inside the monitor at least once a year.
● If dust is left to build up inside the monitor without being cleaned out, fire may result. It is a good idea to clean the inside of the monitor before the season for humid weather arrives. Please discuss with the Authorized Service Center regarding cleaning costs.

Disconnect the power plug from the wall outlet as a safety precaution before carrying out any cleaning.
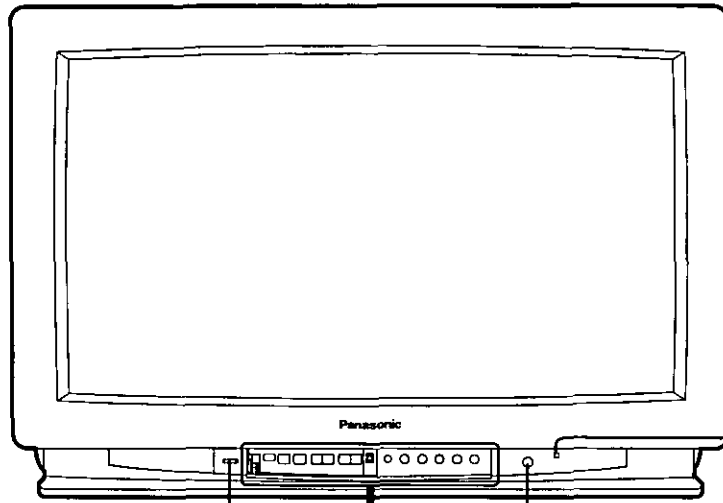● Electric shocks may result if this is not done.

Location and function of each part

Monitor

The number in branckets (such as ⑱) after the name of the part indicates the page number where the description of that part can be found.

<Front>

Opening the control panel cover

Push the place marked "PUSH-OPEN" and then release it.
The cover will then open.

⑯**Power indicator**
This indicator becomes green when the POWER switch on the monitor is turned to ON. It changes to red when the POWER button on the remote control unit is turned to OFF.

⑯**POWER switch**
This switch is used to turn the monitor power on and off.

⑫**Remote control unit signal receptor**
When using the remote control unit, point it toward this window to operate.
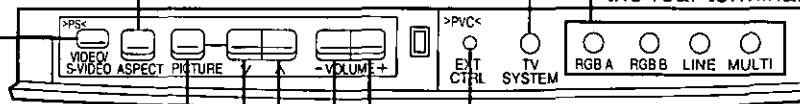
Monitor control panel

This control panel can be used to make adjustments and input selections when the remote control unit is not available.

⑱**VIDEO/S-VIDEO button**
This button is used to switch between the video signals and S-Video signals which are being input to the LINE terminals.

⑲**TV SYSTEM button**
This button is used to switch between the four system formats (NTSC, PAL, SECAM, NTSC 4.43).

㉕**ASPECT button**
This button is used to select the screen aspect ratio (width and height ratio).

⑰**Input select buttons**
These buttons are used to select the signal to be received by the monitor from the signal sources connected to the rear terminals.

⑳**PICTURE button**
This button is used to switch between picture adjustment modes such as color density, tint, brightness, contrast and sharpness.
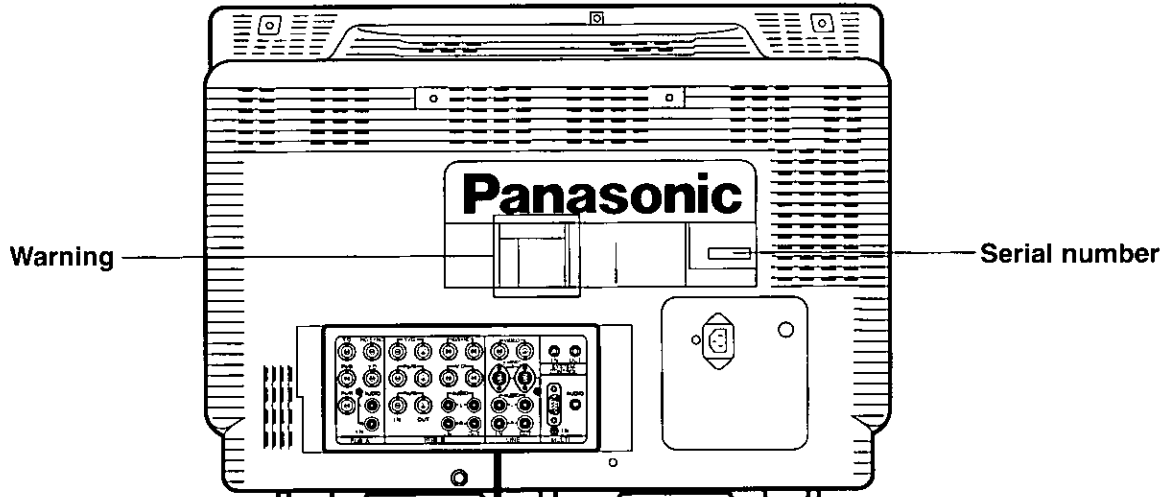
㊳**EXT CTRL button**
This button is used to turn the external control function on and off when selecting the input source connected to the MULTI IN connector. Selection is possible when the ON SCREEN button on the remote control is set to ON.

⑳**Picture adjustment buttons**
These buttons are used to adjust the color, tint, brightness, contrast and sharpness.

㉓**VOLUME buttons**
These buttons are used to adjust the volume of the sound output by the monitor's built-in speakers.

The >PS< and >PVC< marks indicate the manufacturing material used.

<Rear>

Warning ——————— Serial number

Panasonic

⑩LINE S-VIDEO IN/OUT connectors
These connectors are for input and output of S-Video signals. The signals input to these connectors include an S1/S2 picture function which automatically selects the screen size based on the full picture detection signal and the zoom picture detection signal output by the picture signal source.

(40,41)RGB B IN/OUT connectors
These connectors are used for input and output of RGB signals and YP$_B$P$_R$ signals.

⑩LINE VIDEO IN/OUT connectors
These connectors are used for input and output of video signals.

(40,41)RGB A IN connectors
These connectors are used for input of RGB signals and YP$_B$P$_R$ signals.

㊲SYSTEM CONTROL connectors
These connectors are used to connect a video or computer interface.

⑩RGB A AUDIO IN connectors
These connectors are used for input of the RGB A audio signals.

Y/G	HD/SYNC	Y/G	HD/SYNC	VIDEO		SYSTEM CONTROL
P$_B$/B	V D	P$_B$/B	V D	S-VIDEO	AUDIO
P$_R$/R	AUDIO	P$_R$/R	AUDIO	AUDIO	
RGB A		RGB B		LINE	MULTI

⑩RGB B AUDIO IN/OUT connectors
These connectors are used for input and output of the RGB B audio signals.

⑩LINE AUDIO IN/OUT connectors
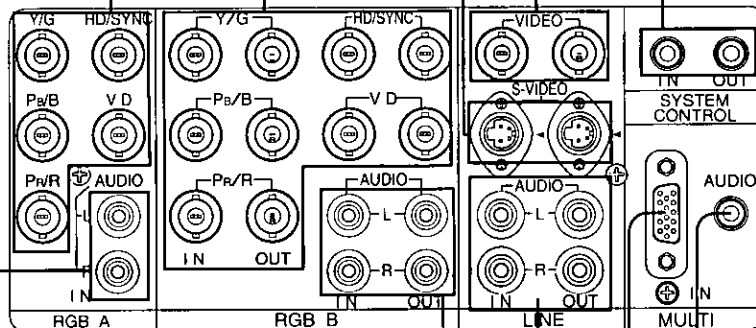These connectors are used for input and output of the audio signals for video and S-Video signals.

(38,41)MULTI IN connector
This is a high-density D-sub 15-pin connector which allows selection of RGB signals and YP$_B$P$_R$ signals, and also input selection using external control.

㊳MULTI AUDIO IN connector
This connector is used as for input of audio signals for the video signals, RGB signals or YP$_B$P$_R$ signals which are input to the high-density D-sub 15-pin MULTI IN connector.

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Remote control unit

The number in brackets (such as ⑲) after the name of the part indicates the page number where the description of that part can be found.

Transmitter
The control signals are emitted from this end of the remote control unit from this section.
Aim this end at the front of the monitor.

⑰ Input selection buttons
These buttons are used to select the signal to be viewed on the monitor from the signal sources connected to the connectors at the rear of the monitor.

㉓ AUDIO button
This button is used to select audio adjustment modes, which include volume, bass, treble and balance.

⑳ PICTURE button
This button is used to select picture adjustment modes, which include color, tint, brightness, contrast and sharpness.

⑲ TV SYSTEM button
This button is used to select one of the four system formats (NTSC, PAL, SECAM, NTSC 4.43).
Selection is possible when video and S-Video signals are being input.

㉖ DISP FREQ button
This button is used to display the horizontal and vertical scanning frequencies of the signal being input on the monitor screen.

⑬,㉖ ON SCREEN button
This button is used to turn on-screen displays on and off, and also to regulate the functions of the buttons inside the cover.

㉜ Raster adjustment buttons
These buttons are used to adjust the raster size and to return the size to the standard setting, and also to change the scanning size.

㉞ Color temperature adjustment buttons
These buttons are used to change the color temperature and to adjust the color temperature in user mode.

㉟ STORE button
This button is used to store adjustments made to color temperature in user mode and landing adjustments made for degaussing.
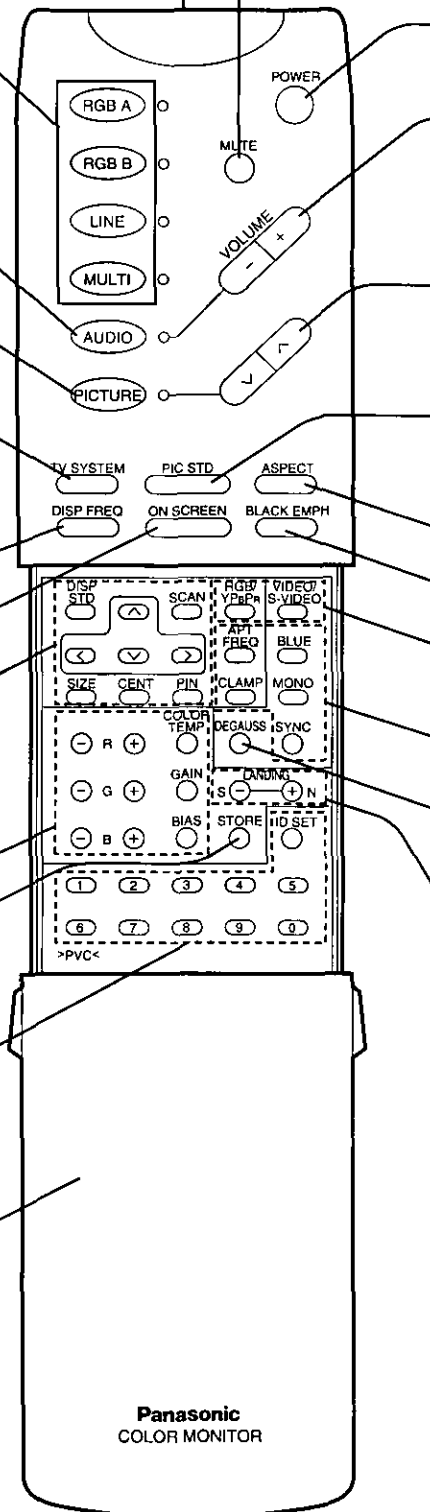
⑭ ID setting buttons
These buttons are used to set ID numbers for different monitors and to specify ID numbers in order to determine which monitors are to be controlled.

Cover

(**Operation buttons under the remote control unit cover**)

If the ON SCREEN button is set to OFF, none of these operation buttons work except the VIDEO/S-VIDEO and DEGAUSS buttons.

㉔**MUTE button**
This button can be used to turn off the sound being output from the monitor's built-in speakers.

⑯**POWER button**
This button is used to turn the monitor power on and off.

㉓**VOLUME button**
This button is used to adjust the sound (volume, bass, treble and balance) being output from the monitor's built-in speakers.
Direct volume adjustment is possible when no audio adjustment mode indication appears on the screen.

⑳**Picture adjustment buttons**
These buttons are used to adjust the color, tint, brightness, contrast and sharpness.

㉑**PIC STD button**
This button is used to switch the picture adjustment levels between the standard levels at the time of shipment from the factory and the current user adjustment levels. It can also be used to switch current user adjustment levels back to the standard levels at the time of shipment from the factory.

㉕**ASPECT button**
This button is used to select the screen aspect ratio (width and height ratio).

㉔**BLACK EMPH button**
This button is used to emphasize the modulation of the black component of the picture. (It does not function when RGB signals are being input.)

⑲**Input selection buttons**
These buttons can be used to select between VIDEO or S-VIDEO signals when LINE input is selected, or between RGB and YP$_B$P$_R$ signals when RGB A/B or MULTI input is selected.
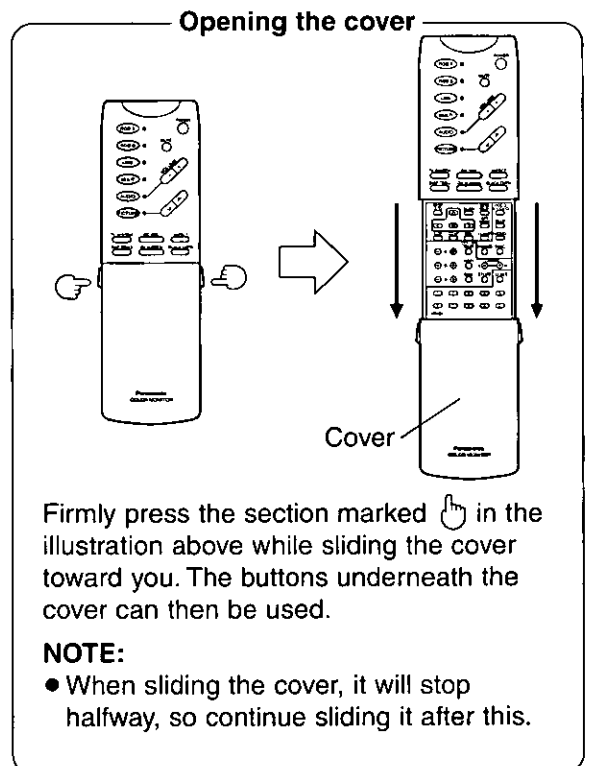
㉗**Image control buttons**
These buttons are used to select the aperture frequency, brightness clamp position and synchronization. In addition, they can be used to display the blue-only screen which is driven by the blue signal or to force the picture to be displayed in black-and-white.

⑯**DEGAUSS button**
This button is used to remove color distortion caused by magnetization of the CRT.

㉟**LANDING button**
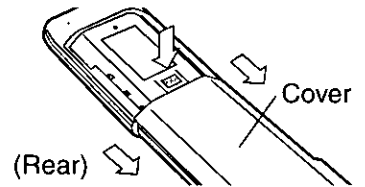This button is used to correct color distortion caused by geomagnetism.

Opening the cover

Cover

Firmly press the section marked 🖐 in the illustration above while sliding the cover toward you. The buttons underneath the cover can then be used.

NOTE:
● When sliding the cover, it will stop halfway, so continue sliding it after this.

Before using the remote control unit

Inserting the batteries

Use the accessory AAA-size batteries, making sure that they are inserted with the correct polarities.
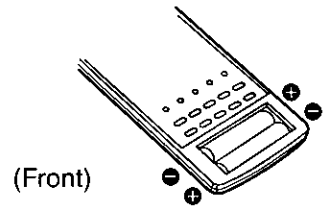
1 Remove the cover.
After sliding open the cover, press down firmly on the section marked PUSH on the rear of the remote control unit and slide the cover further to remove it.
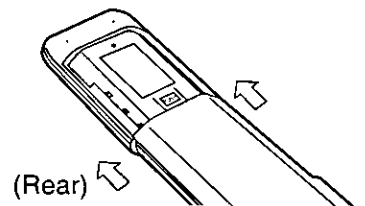
(Rear) Cover

2 Insert the batteries.
Insert the batteries into the battery receptacle at the front of the remote control unit, while making sure that the battery polarities are correct.

(Front)

3 Replace the cover.
Turn the remote control unit over, and slide the remote control cover onto the remote control unit starting from the edge of the remote control unit.
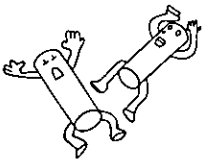
(Rear)

NOTE:
• Do not drop the remote control unit.
• Do not bring the remote control unit into contact with any liquids.
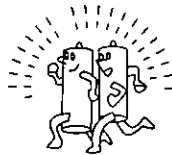• Do not use rechargeable (Ni-Cd) batteries.

Notes on using the batteries

The following should be observed in order to prevent damage to or leaking of the batteries.

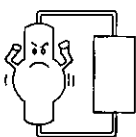**Old Batteries**   **New Batteries**

Replace both batteries at the same time.
Furthermore, do not burn spent batteries or put them in with combustible garbage.

Do not mix old and new batteries or batteries of different types (such as alkali and manganese batteries).

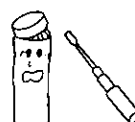## DO NOT do any of the following:

NG	NG	NG	NG
Do not recharge	**Do not short-circuit**	**Do not open**	**Do not heat or burn**

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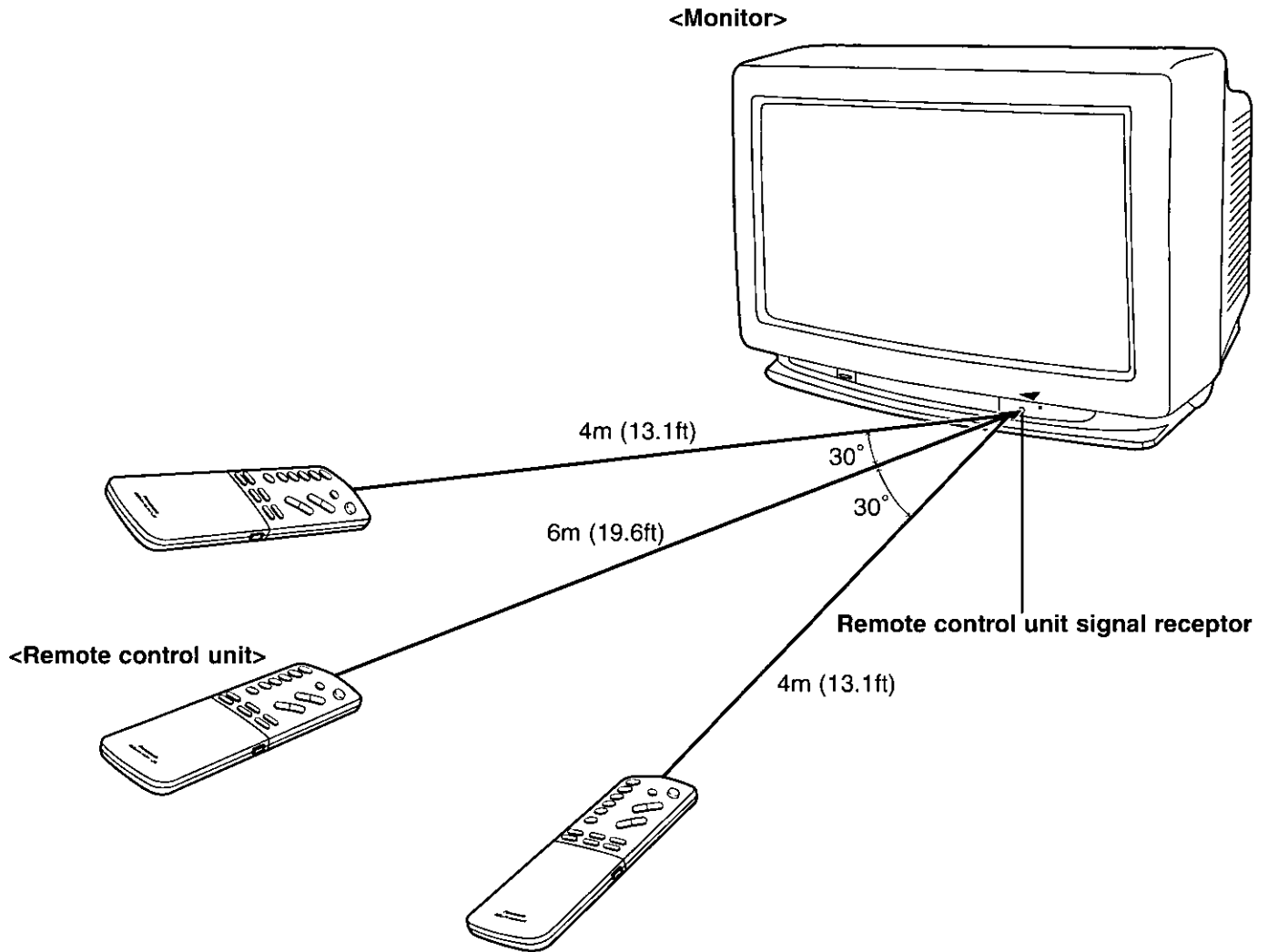
Using the remote control unit

The remote control unit can be used by pointing it toward the remote control unit signal receptor and pressing the buttons.
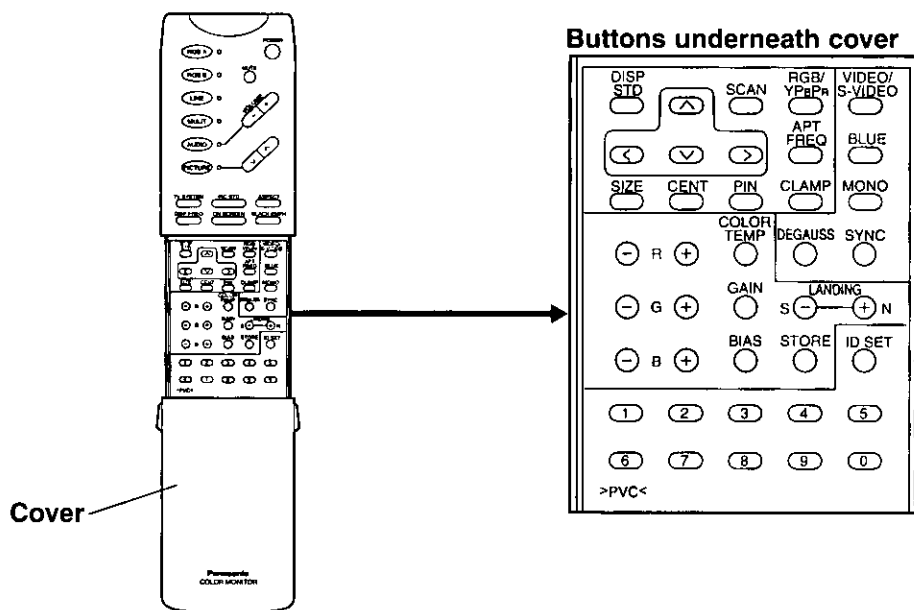
NOTE:
- The operating range for the remote control unit is within 6 meters from directly in front of the remote control unit signal receptor, and within 4 meters from an angle of ±30° from the left and right of the receptor.
- The remote control unit will not operate if an error is made with the remote control unit ID settings. Refer to page 14 for details on setting and specifying IDs.

<Monitor>

4m (13.1ft)

30°

30°

6m (19.6ft)

Remote control unit signal receptor

<Remote control unit>

4m (13.1ft)

Using the operation buttons under the remote control unit cover

The buttons which are visible after the remote control unit cover has been removed include some buttons which do not operate at all, or only operate when certain types of signals are being input, when the ON SCREEN button is set to OFF. Refer to the table shown below for details on when the various buttons can be operated.

Buttons underneath cover

Cover

Input signal	Video signal		S-VIDEO signal		RGB signal		YPᵦPᵣ signal	
ON SCREEN button setting	ON	OFF	ON	OFF	ON	OFF	ON	OFF
VIDEO/S-VIDEO button	○	○	○	○	×	×	×	×
RGB/YPᵦPᵣ button	×	×	×	×	○	×	○	×
BLUE button	○	×	○	×	×	×	○	×
MONO button	○	×	○	×	×	×	○	×
SYNC button	×	×	×	×	○	×	○	×
APT FREQ button	×	×	×	×	×	×	○	×
CLAMP button	×	×	×	×	○	×	○	×
COLOR TEMP button	○	×	○	×	○	×	○	×
GAIN/BIAS/RGB buttons	○	×	○	×	○	×	○	×
PIN button	○	×	○	×	○	×	○	×
CENT button	○	×	○	×	○	×	○	×
SIZE button	○	×	○	×	○	×	○	×
DISP STD button	○	×	○	×	○	×	○	×
DEGAUSS button	○	○	○	○	○	○	○	○
LANDING button	○	×	○	×	○	×	○	×
STORE button	○	×	○	×	○	×	○	×
ID SET button/Numeric buttons	○	×	○	×	○	×	○	×

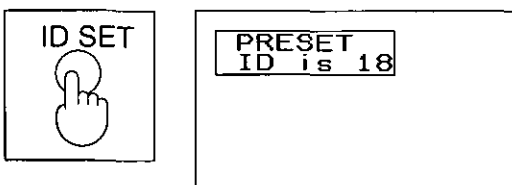○···can be operated   ×···cannot be operated
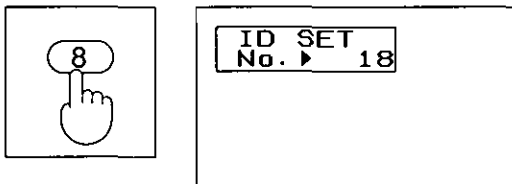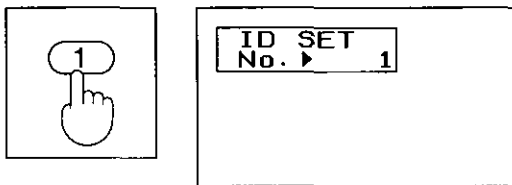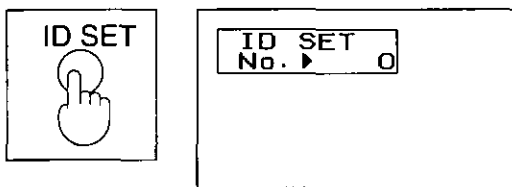
Monitor ID function

When using multiple monitors together, individual monitors can be operated separately using the accessory remote control unit by assigning an ID number to each monitor.
Monitors are assigned an ID number, and then this number is specified when you wish to operate the monitor.

Setting ID numbers
● Setting of ID numbers is carried out using the accessory remote control unit.
● ID numbers can be set from ID0 to ID99.
● If the ID number is set to "0", the monitor can be operated regardless of the ID number specified.
● The ID number is set to "0" at the time of shipment from the factory.

Setting procedure (Example: To set the ID number to "18")

```
ID SET          ┌─────────┐
                │ ID  SET │
                │ No. ▶  0│
                └─────────┘
```

① Press the ON SCREEN button to set the on-screen display to ON.
② Press the ID SET button continuously for approximately 3 seconds or more to switch to ID number setting mode.

NOTE:
● When ID number setting mode is active, the on-screen displays appear in pale blue color.
● When ID number setting mode is active, none of the buttons work except the POWER button, ID SET button and the numeric buttons.

```
 1              ┌─────────┐
                │ ID  SET │
                │ No. ▶  1│
                └─────────┘
```

③ Use the numeric buttons to set the ID number.
　(1) Press the "1" button.

```
 8              ┌─────────┐
                │ ID  SET │
                │ No. ▶ 18│
                └─────────┘
```

　(2) Press the "8" button.
NOTE:
● If you would like to cancel the setting before it is complete, press the POWER button to turn off the power.
The ID number setting value will then return to its original value.

```
ID SET          ┌─────────┐
                │ PRESET  │
                │ ID is 18│
                └─────────┘
```

④ Once the ID number has been set to "18", press the ID SET button.
The ID number will then be stored in memory and the on-screen display will appear in green.
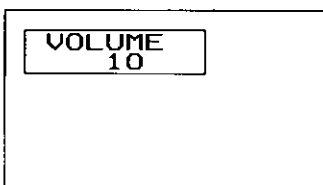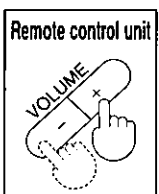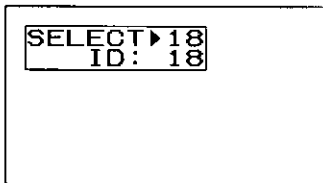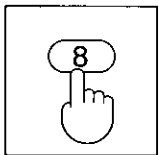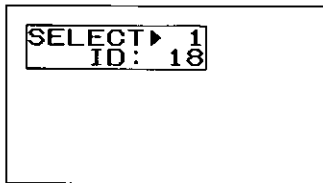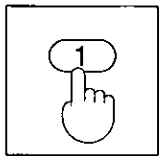**NOTE:**
● After an ID number has been set, the ID number specified will be automatically switch ed to "0". Refer to the following page for details on how to specify an ID number.
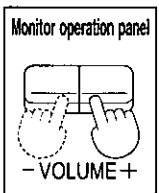
Specifying ID numbers

● ID numbers can be specified by using the accessory remote control unit.
● If "0" is specified as the ID number, all monitors can be operated together.
● When the power supply for a monitor is turned on, that monitor is automatically assigned an ID number of "0". If only using one monitor, it is thus not necessary to specify an ID number for that monitor.

Specifying procedure
(Example: When using multiple monitors connected in a group and you wish to adjust the volume for only the monitor with ID number "18")

```
SELECT▶  1
    ID:  18
```

①Press the ON SCREEN button to turn on the on-screen display function.
②Use the numeric buttons to specify the ID number.
　(1)Press the "1" button.

```
SELECT▶18
    ID:  18
```

(2)Press the "8" button.
NOTE:
● Once the ID number is specified, the on-screen display for the corresponding monitor will appear in green.
　The on-screen displays for all other monitors will appear in red.
● The ID numbers specified can be up to two digits long. If you enter three or more digits, the first digits entered will be disregarded and only the last two digits will be used.

Remote control unit

or

Monitor operation panel

−VOLUME+

```
VOLUME
   10
```

③Use the VOLUME button to adjust the volume.
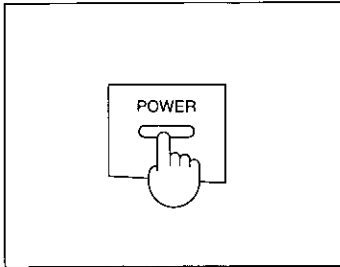　The volume can then be adjusted for only the monitor which has its on-screen display appearing in green.
NOTE:
● If you would then like to operate a monitor with a different ID number, repeat the operation from step ② above.
● When the power supply for a monitor is turned on or off, the ID number for that monitor will be automatically set to "0".

— 15 —

Handling each part

Turning the power supply on and off

At the monitor
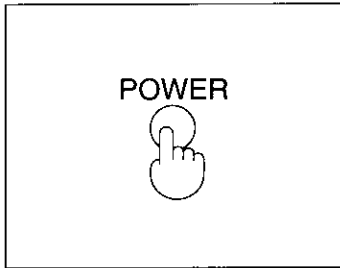
Press the POWER switch on the monitor.
The power supply for the monitor will turn on, and the power indicator will become green.
- The POWER button on the remote control unit can now be used.
- When the power indicator is green, the picture and audio signals being input to the monitor will appear.
- When the power indicator is red, it means that the power supply has been turned off using the remote control unit.

Press the button once more.
The power supply for the monitor will turn off and the power indicator will switch off.

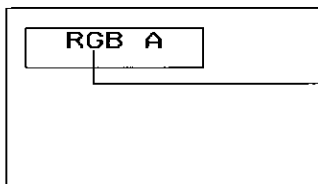### At the remote control unit (can be used when the monitor power is turned on)

The power supply for the monitor will turn on and off each time the POWER button on the remote control unit is pressed.
- When the power is on, the power indicator will become green and the picture and audio signals being input to the monitor will appear.
- When the power is off, the power indicator will become red and the monitor will switch to the standby condition.
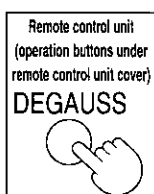
NOTE: • If the ON SCREEN button is set to OFF when the power supply is turned on, the name of the signal currently being input will appear on the screen for approximately 6 seconds.
If the ON SCREEN button is set to ON at this time, the signal name will remain displayed.

RGB A, RGB B, MULTI, VIDEO or S-VIDEO appears depending on the type of signal being input.

- Degaussing is carried out automatically for approximately 7 seconds after the power is turned on. The remote control unit cannot be used to turn the power off and landing adjustment (correction of color distortion due to geomagnetism) cannot be carried out during this time. Refer to page 36 for details on landing adjustment.
- The setting of the POWER button on the remote control unit is retained in memory even if the power cable of the monitor is removed from the wall outlet.

Eliminating color distortion due to magnetization

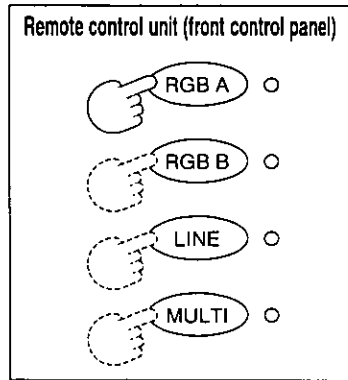Remote control unit (operation buttons under remote control unit cover)

DEGAUSS

Color distortion caused by magnetization of the CRT due to geomagnetism can be eliminated by pressing the DEGAUSS button on the remote control unit. The remote control unit cannot be used to turn the power off and landing adjustment (correction of color distortion due to geomagnetism) cannot be carried out during the demagnetization process (which takes approximately 7 seconds).
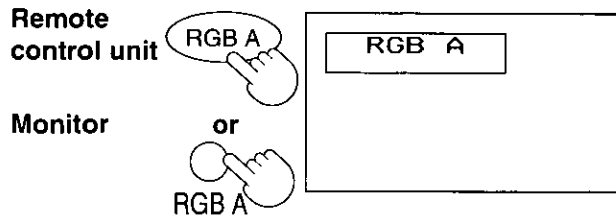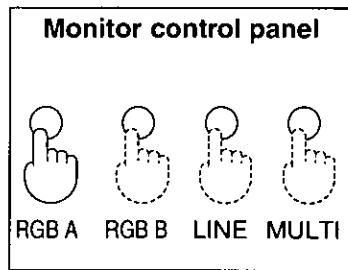
NOTE: • This button does not function when pressed continually. After pressing it once, wait approximately five minutes or more before pressing it again.
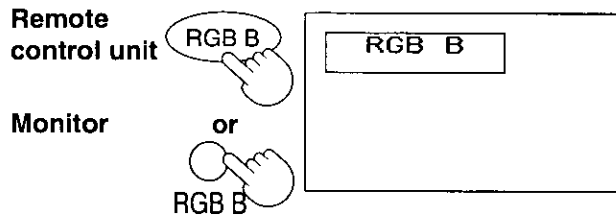
Selecting the input source

The input selection buttons on either the remote control unit or the monitor control panel can be used to specify the signal to be received by the monitor.
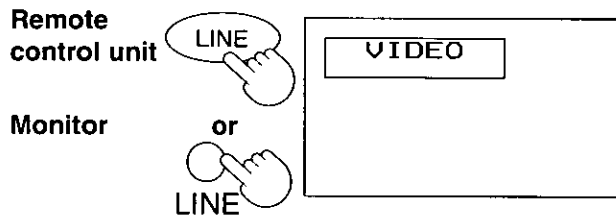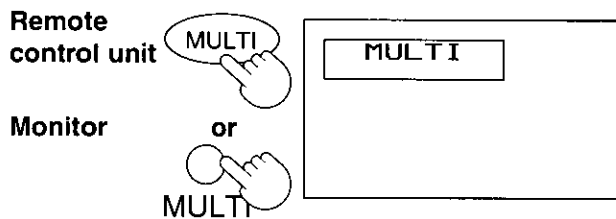
Remote control unit (front control panel)

RGB A   ○

RGB B   ○

LINE   ○

MULTI   ○

or

Monitor control panel

RGB A   RGB B   LINE   MULTI

Remote control unit RGB A

Monitor or RGB A

RGB A

The RGB signals or YP₈Pᴿ signals from the signal source which is connected to the RGB A IN connectors appear on the monitor screen, and the RGB A audio signals from the source which is connected to the AUDIO IN connectors are output from the monitor's built-in speakers.

Remote control unit RGB B

Monitor or RGB B

RGB B

The RGB signals or YP₈Pᴿ signals from the signal source which is connected to the RGB B IN connectors appear on the monitor screen, and the RGB B audio signals from the source which is connected to the AUDIO IN connectors are output from the monitor's built-in speakers.

Remote control unit LINE

Monitor or LINE

VIDEO

The signals from the signal source which is connected to the LINE VIDEO IN or S-VIDEO IN connectors appear on the monitor screen, and the LINE audio signals from the source which is connected to the LINE AUDIO IN connectors are output from the monitor's built-in speakers.
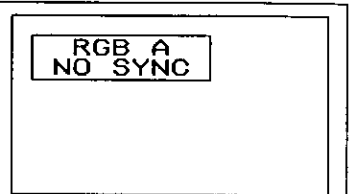

Remote control unit MULTI

Monitor or MULT

MULTI

The RGB signals or YP₈Pᴿ signals from the signal source which is connected to the 15-pin MULTI IN connector appear on the monitor screen, and the audio signals from the source which is connected to the MULTI AUDIO IN connectors are output from the monitor's built-in speakers.

NOTE:
- If you pressed the RGB A, RGB B or MULTI buttons to select the type of signal to be received (RGB or YP₈Pᴿ), use the RGB/YP₈Pᴿ button underneath the remote control unit cover to select whether RGB signals or YP₈Pᴿ signals are to be received. Refer to page 20 for further details.
- If you pressed the LINE button to select the type of signal to be received (VIDEO or S-VIDEO), use the VIDEO/S-VIDEO button underneath the remote control unit cover to select whether video signals or S-Video signals are to be received. Refer to page 20 for further details.

NOTE:
- If the ON SCREEN button has been set to OFF, the on-screen display will disappear if no buttons are pressed within approximately 3 seconds. Refer to page 28 for details on how to set the ON SCREEN button.
- When a video signal source is connected to the 15-pin MULTI IN connector, input selection for the video signals can be carried out by means of external control. Refer to page 41 for further details.
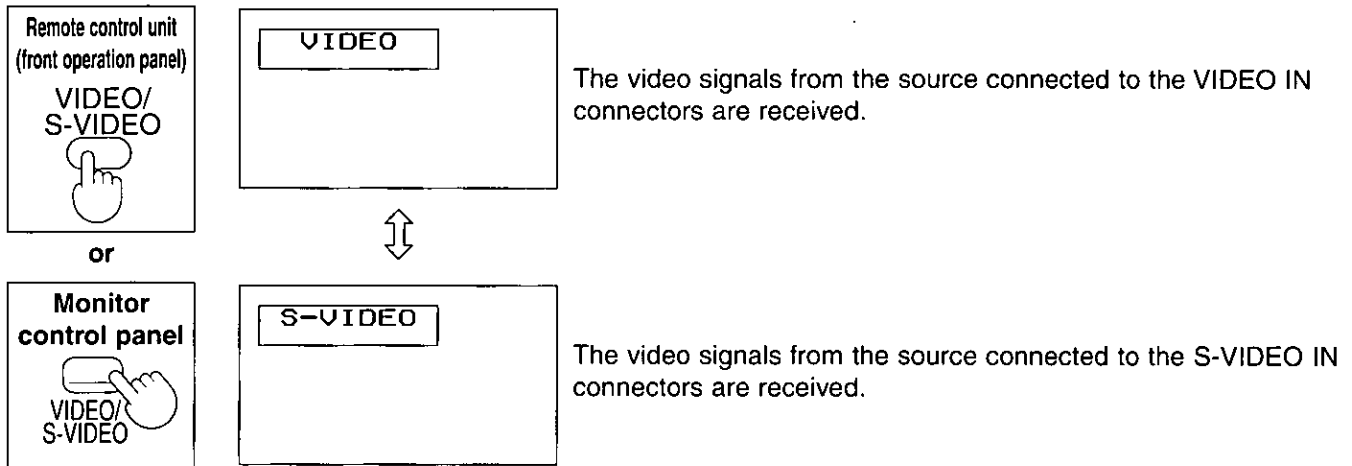

If no signals are being input

The message "NO SYNC" will appear below the signal name as shown at right, and the monitor screen will not light up.

RGB A
NO SYNC

Switching between video signals and S-Video signals

This operation can be carried out if LINE has been selected using the input selection buttons and video signals or S-Video signals are being received.
- The mode switches alternately between VIDEO and S-VIDEO each time the VIDEO/S-VIDEO button on the remote control unit or monitor control panel is pressed.
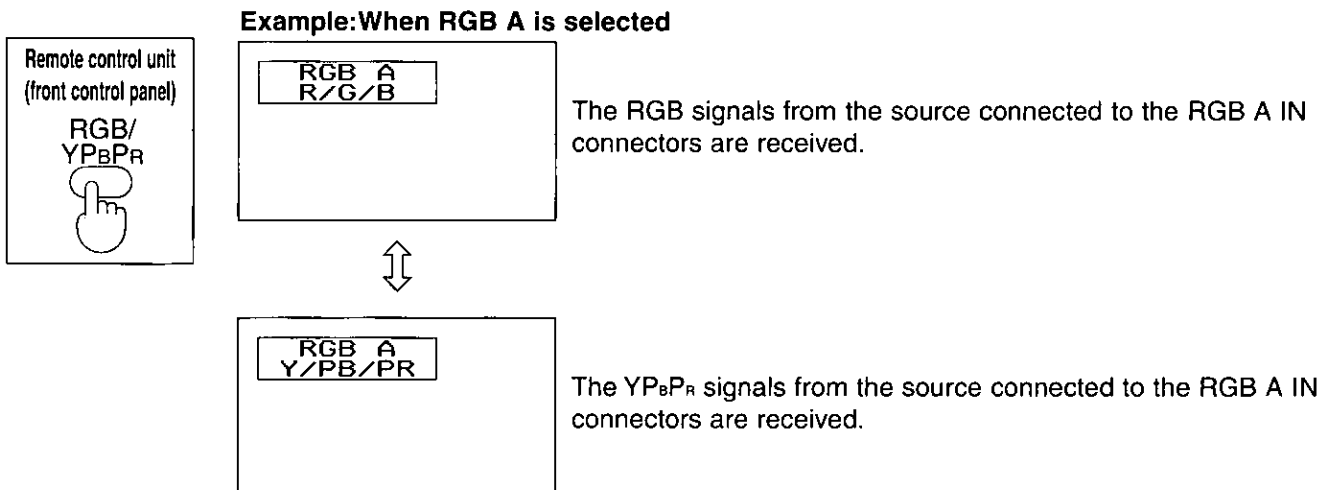
Remote control unit (front operation panel) VIDEO/ S-VIDEO	VIDEO	The video signals from the source connected to the VIDEO IN connectors are received.
or	⇕	
Monitor control panel VIDEO/ S-VIDEO	S-VIDEO	The video signals from the source connected to the S-VIDEO IN connectors are received.

NOTE:
- The current setting is displayed the first time the VIDEO/S-VIDEO button is pressed, and the mode switches when the button is pressed after that.
- If the ON SCREEN button has been set to OFF, the on-screen display will disappear if no buttons are pressed within approximately 3 seconds.
- The currently-selected setting is retained in memory even when the power supply is turned off.

Switching between RGB signals and YPBPR signals

This operation can be carried out if RGB A, RGB B or MULTI has been selected using the input selection buttons and the ON SCREEN button has been set to ON. However, if RGB or YPBPR signals are not being input, this selection cannot be made, and if the selection setting is incorrect, the picture color will not appear as normal.
- The mode switches alternately between R/G/B and Y/PB/PR each time the RGB/YPBPR button on the remote control unit is pressed.

Example:When RGB A is selected

Remote control unit (front control panel) RGB/ YPBPR	RGB A R/G/B	The RGB signals from the source connected to the RGB A IN connectors are received.
	⇕	
	RGB A Y/PB/PR	The YPBPR signals from the source connected to the RGB A IN connectors are received.

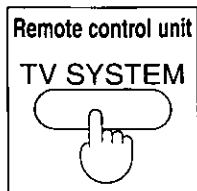**NOTE:**
- The current setting is displayed the first time the RGB/YPBPR button is pressed, and the mode switches when the button is pressed after that.
- The currently-selected setting is retained in memory even when the power supply is turned off.
- The RGB or YPBPR setting can be stored for up to 16 different signals with different scanning frequencies.
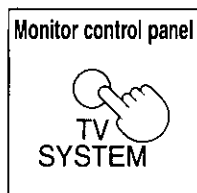
Selecting the system format

This operation can be carried out if LINE has been selected using the input selection buttons and video signals (including S-Video signals) are being received, or if external control mode is set and video signals are being input to the high-density D-sub 15-pin MULTI IN connector.
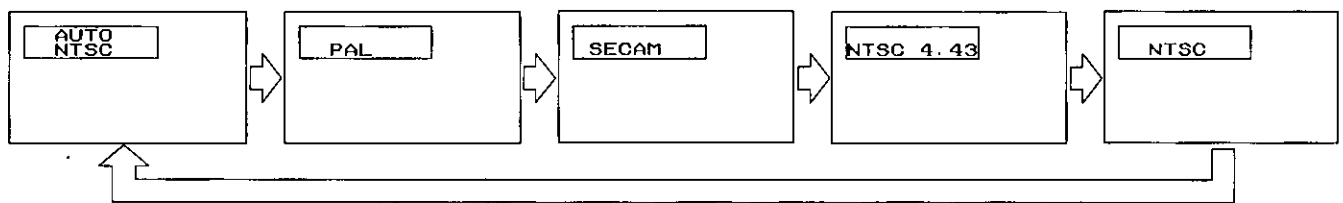
The TV SYSTEM button on the remote control unit or monitor control panel can then be used to switch the video signal circuits to match the format of the video signals being input to the VIDEO IN or S-VIDEO IN connectors or the MULTI IN connector.

Remote control unit

TV SYSTEM

or

Monitor control panel

TV SYSTEM

● The mode switches in the order "AUTO" → "PAL" → "SECAM" → "NTSC 4.43" → "NTSC" each time the TV SYSTEM button on the remote control unit or monitor control panel is pressed.
● The format should normally be left at the "AUTO" setting.

AUTO NTSC ⇨ PAL ⇨ SECAM ⇨ NTSC 4.43 ⇨ NTSC

NOTE:
● When the system format is set to "AUTO", the monitor automatically detects whether the signal being input is a PAL, SECAM, NTSC 4.43 or NTSC signal, and it then displays the name of the signal format on the screen. Furthermore, if a black-and-white signal is being input, "MONO" is displayed on the screen.
● The current setting is displayed the first time the TV SYSTEM button is pressed, and the mode switches when the button is pressed after that.
● If the ON SCREEN button has been set to OFF, the on-screen display will disappear if no buttons are pressed within approximately 3 seconds.
● If there is a lot of noise in the input signal, or if the signal level is low, the picture may not stabilize when "AUTO" is selected. In such cases, select the input signal format manually.

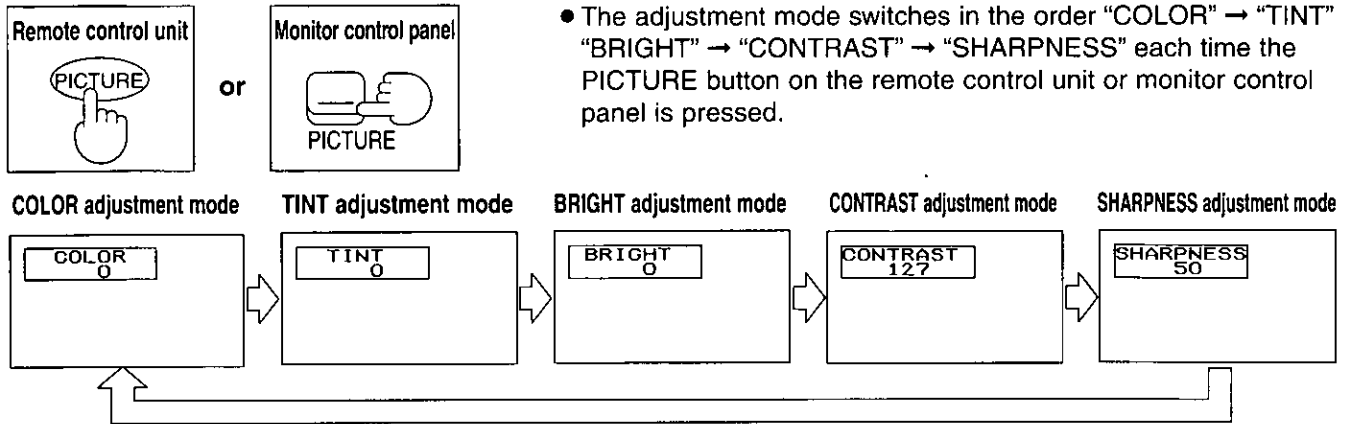**What are the different system formats?**

NTSC ....This format is used mainly in Japan and North and South America. It comprises 525 scanning lines, and the screen is refreshed 30 times a second. The horizontal scanning frequency is 15.75 kHz and the color sub-carrier is frequency 3.58 MHz.

NTSC 4.43 ....This resembles the NTSC format, but uses a color sub-carrier frequency of 4.43 MHz.

PAL, SECAM ....These formats are used most widely in Europe, Africa and the Middle East. They comprise 625 scanning lines, and the screen is refreshed 25 times a second. The horizontal scanning frequency is 15.625 MHz, and the color sub-carrier frequency is 4.43 MHz (PAL) and 4.25 MHz or 4.41 MHz (SECAM).

Adjusting the picture

Setting the adjustment mode

Remote control unit		Monitor control panel
PICTURE	or	PICTURE

● The adjustment mode switches in the order "COLOR" → "TINT" "BRIGHT" → "CONTRAST" → "SHARPNESS" each time the PICTURE button on the remote control unit or monitor control panel is pressed.

COLOR adjustment mode   TINT adjustment mode   BRIGHT adjustment mode   CONTRAST adjustment mode   SHARPNESS adjustment mode

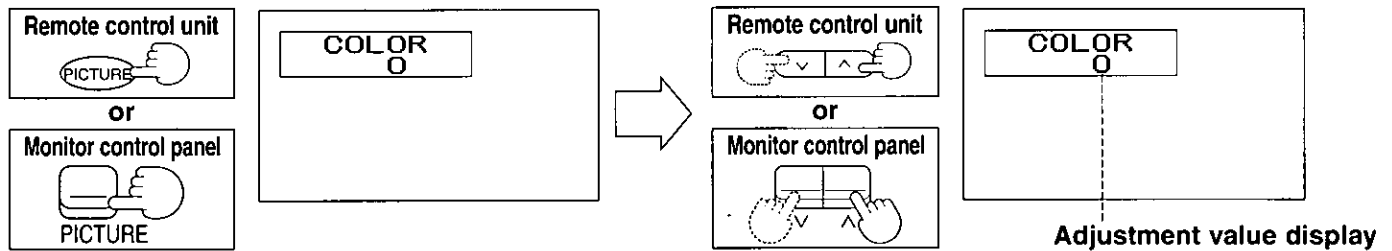| COLOR 0 | ⇨ | TINT 0 | ⇨ | BRIGHT 0 | ⇨ | CONTRAST 127 | ⇨ | SHARPNESS 50 |

NOTE:
● When RGB signals are being input, only BRIGHT adjustment mode and CONTRAST adjustment mode are displayed.
● When video signals in PAL or SECAM format are being input, TINT adjustment mode is not displayed.
● If the ON SCREEN button has been set to OFF, the on-screen display will disappear and the adjustment mode will be canceled if no buttons are pressed within approximately 3 seconds.
● The last adjustment mode used is displayed the first time the PICTURE button is pressed, and the mode switches when the button is pressed after that.

Making adjustments

Once a picture adjustment mode is being displayed, the "∨" and "∧" picture adjustment buttons can be used to adjust the picture.

1. Press the PICTURE button until the desired adjustment mode is displayed.

Example: Adjusting COLOR

2. Press the "∨" and "∧" picture adjustment buttons to adjust the picture.
"∧"····Increases the adjustment value
"∨"····Decreases the adjustment value

Remote control unit
PICTURE

or

Monitor control panel
PICTURE

| COLOR 0 |

⇨

Remote control unit
∨   ∧

or

Monitor control panel
∨   ∧

| COLOR 0 |

Adjustment value display

● Direction of adjustment level change and standard value for each adjustment mode

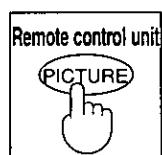| Adjustment mode	Direction of change and standard value	Adjustment mode	Direction of change and standard value
COLOR	∧ ····The color becomes intense ∨ ····The color becomes pastel Standard value: 0	**CONTRAST**	∧ ····The picture becomes stronger Standard value: 100 ∨ ····The picture becomes fainter (127 during LINE input)
TINT	∧ ····Flesh tones become greenish ∨ ····Flesh tones become reddish Standard value: 0	**SHARPNESS**	∧ ····The picture becomes sharper Standard value: 0 ∨ ····The picture becomes softer (50 during LINE input)
BRIGHT	∧ ····The screen becomes brighter ∨ ····The screen becomes darker Standard value: 0		

NOTE:
● If the ON SCREEN button has been set to OFF, the on-screen display will disappear and the adjustment mode will be canceled if no buttons are pressed within approximately 3 seconds.
● The adjustment level ranges are 0 - 127 for SHARPNESS and CONTRAST adjustment modes, and –64 - +63 for all other adjustment modes.
● Adjustments cannot be carried out if the PIC STD button has been pressed so that STANDARD is being displayed.

Returning picture adjustment values to standard settings (factory default settings)
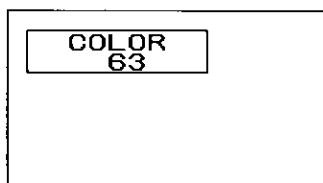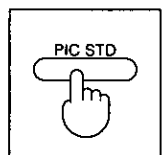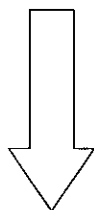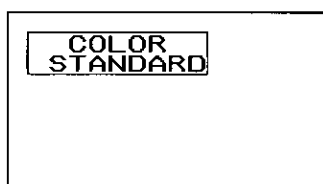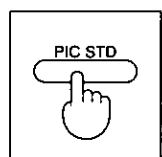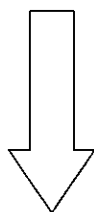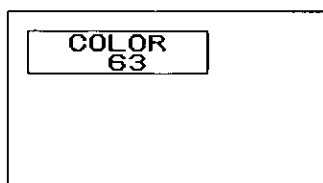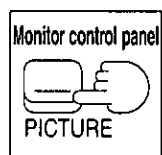
Returning only a single image adjustment value to the standard setting (factory default setting)

If you would like to return one of the COLOR, TINT, BRIGHT, CONTRAST and SHARPNESS adjustments to the factory default setting, switch to the desired picture adjustment mode (so that the adjustment mode is displayed on the screen), and then press the PIC STD button on the remote control. The setting will switch back and forth between the current user setting and the factory default setting each time the PIC STD button is pressed.

Example: To return the COLOR adjustment setting to the standard setting (factory default setting)

① Press the PICTURE button to display the COLOR adjustment mode setting on the screen.

② Press the PIC STD button.

"STANDARD" will be displayed on the screen, and the COLOR adjustment value will be returned to the factory default setting.

③ Press the PIC STD button once more.

The COLOR adjustment value will return to the current user setting.

NOTE:
● If the ON SCREEN button has been set to OFF, the on-screen display will disappear and the selection mode will be canceled if no buttons are pressed within approximately 3 seconds.
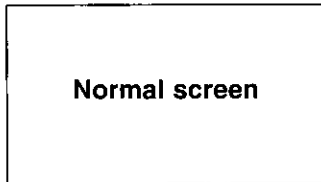
NOTE:
● To return the TINT, BRIGHT, CONTRAST and SHARPNESS adjustment values to the standard settings, follow the same procedure for the COLOR adjustment value given above.
● This procedure only temporarily changes the adjustment values. Because of this, if the input source is changed or the power is turned off or on while "STANDARD" is being displayed, the adjustment value will return to the current user setting.
● If the PICTURE button is pressed while "STANDARD" is displayed on the screen, the picture adjustment mode will be displayed but adjustment will not be possible. You must cancel the "STANDARD" mode before picture adjustments can be carried out.
● An adjustment value can be returned to the factory default setting by pressing the PIC STD button continuously for 3 seconds or more while the adjustment value is being displayed.
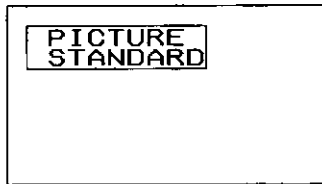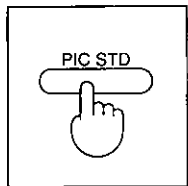
Returning all image adjustment values to the standard setting (factory default setting)

If the PIC STD button on the remote control unit is pressed while no picture adjustment mode (COLOR, TINT, BRIGHT, CONTRAST, SHARPNESS) is currently being displayed, all picture adjustment values are switched between the factory default settings and the current user settings each time this button is pressed.

● To change all picture adjustment settings to the standard settings (factory default settings)

Normal screen

① Switch the monitor to show a screen other than a picture adjustment mode screen.
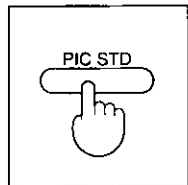

PIC STD

PICTURE STANDARD

② Press the PIC STD button.

"PICTURE STANDARD" will be displayed on the screen and all picture adjustment data will be switched to the factory default settings.

NOTE:
● If the ON SCREEN button has been set to OFF, the on-screen display will disappear and the selection mode will be canceled if no buttons are pressed within approximately 3 seconds.

PIC STD

PICTURE USER DATA

③ Press the PIC STD button once more.

"PICTURE USER DATA" will be displayed on the screen and all picture adjustment data will be switched to the current user settings.

NOTE:
● If the ON SCREEN button has been set to OFF, the on-screen display will disappear and the selection mode will be canceled if no buttons are pressed within approximately 3 seconds.

NOTE:
● This procedure only temporarily changes the adjustment values. Because of this, if the input source is changed or the power is turned off or on while "STANDARD" is being displayed, the adjustment values will return to the current user settings.
● The COLOR, TINT, BRIGHT, CONTRAST and SHARPNESS user adjustment values can all be returned to the factory default settings by pressing the PIC STD button continuously for 3 seconds or more after "USER DATA" is displayed on the screen.
● If the PICTURE button is pressed while "STANDARD" is displayed on the screen, the picture adjustment mode will be displayed but adjustment will not be possible. You must cancel the "STANDARD" mode before picture adjustments can be carried out.

Adjusting the audio level

Setting the adjustment mode

The adjustment mode switches in the order "BASS" → "TREBLE" → "BALANCE" → "VOLUME" each time the AUDIO button on the remote control unit is pressed.

| BASS adjustment mode | TREBLE adjustment mode | BALANCE adjustment mode | VOLUME adjustment mode |

NOTE:

● The last adjustment mode used is displayed the first time the AUDIO button is pressed, and the mode switches when the button is pressed after that.
● If the ON SCREEN button has been set to OFF, the on-screen display will disappear and the adjustment mode will be canceled if no buttons are pressed within approximately 3 seconds.
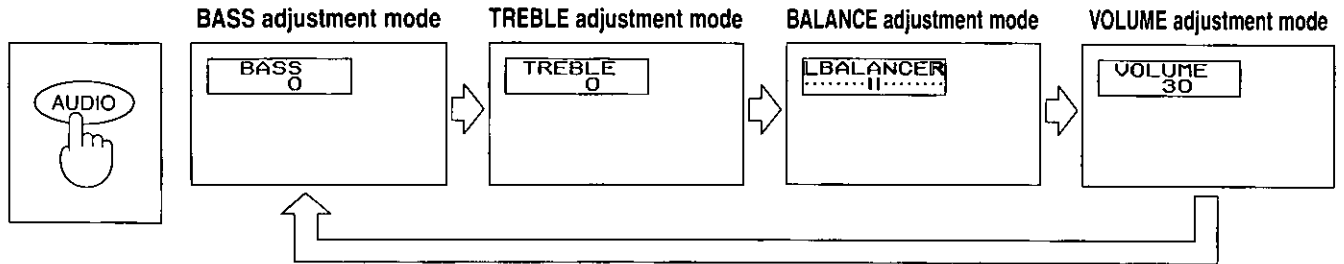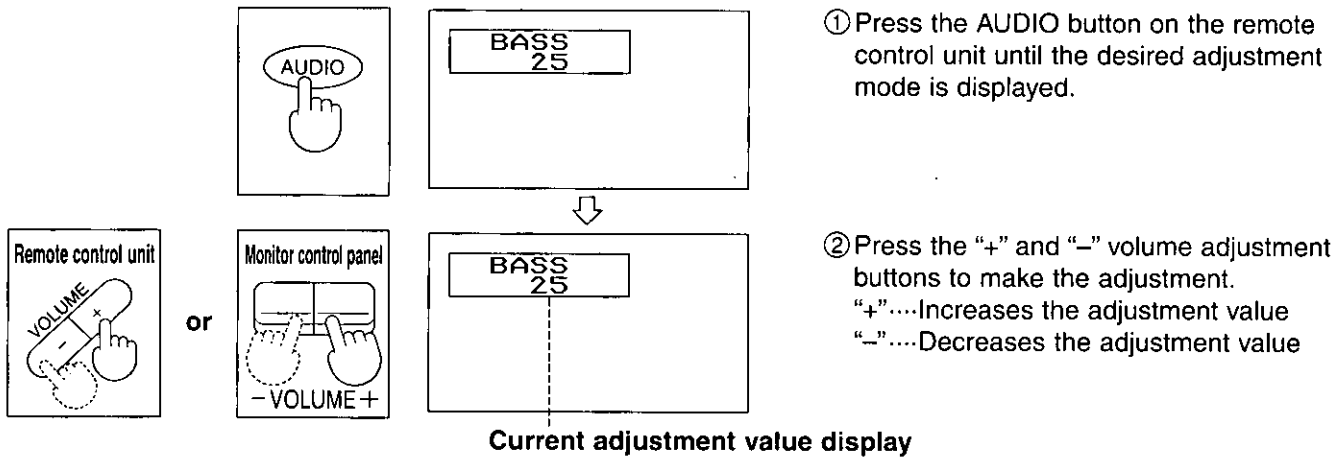
Making adjustments

Once an audio adjustment mode is being displayed, the "+" and "−" volume adjustment buttons can be used to make the adjustment.

Example:To adjust the quality of the bass sound

① Press the AUDIO button on the remote control unit until the desired adjustment mode is displayed.

② Press the "+" and "−" volume adjustment buttons to make the adjustment.
"+"····Increases the adjustment value
"−"····Decreases the adjustment value

Current adjustment value display

● **Details of adjustment level change for each adjustment mode**

Adjustment mode	Details of level change
BASS	"+"····The bass response becomes stronger (Maximum value: 31) "−"····The bass response becomes weaker (Minimum value: −32)
TREBLE	"+"····The treble response becomes stronger (Maximum value: 31) "−"····The bass response becomes weaker (Minimum value: −32)
BALANCE	"+"····The sound volume from the left speaker becomes quieter and the sound volume from the right speaker becomes louder (Maximum value: Indicated by white arrow) "−"····The sound volume from the left speaker becomes louder and the sound volume from the right speaker becomes quieter (Maximum value: Indicated by white arrow)
VOLUME	"+"····The overall volume becomes louder (Maximum value: 63) "−"····The overall volume becomes quieter (Minimum value: 0)

NOTE:

● If the ON SCREEN button has been set to OFF, the on-screen display will disappear and the adjustment mode will be canceled if no buttons are pressed within approximately 3 seconds.
● The sound volume can be adjusted by pressing the VOLUME buttons while no audio adjustment mode is being displayed.
● If the MUTE button is pressed to set the sound level to "MUTE", the volume adjustment mode setting will be displayed in red, and adjustment of the BASS, TREBLE and BALANCE settings will not be possible.

Canceling the sound output

You can stop the sound from being output from the monitor's built-in speakers by pressing the MUTE button on the remote control unit.
If the MUTE button is pressed once more, the sound will be heard again.

The volume adjustment level and the word "MUTE" will be displayed on the screen in red, and the sound will stop coming out from the speakers.

NOTE:
- If you press the VOLUME buttons on the remote control unit or monitor control panel or turn the power off and on while the MUTE setting is active, the MUTE setting will be canceled and the sound will start coming out from the speakers again.
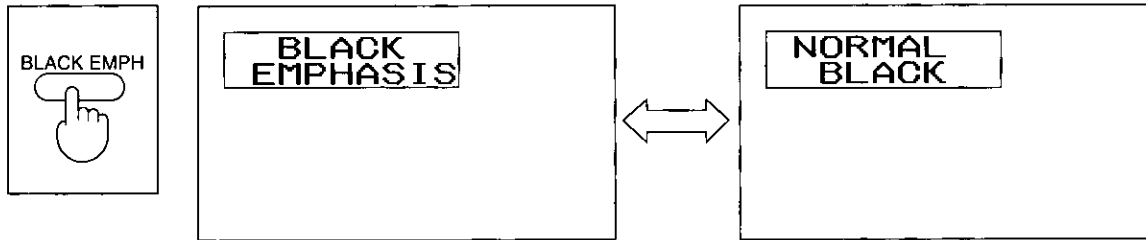- If the ON SCREEN button has been set to OFF, the audio adjustment mode will be canceled if no buttons are pressed within approximately 3 seconds, but the "MUTE" display will move to the top-left of the screen and remain displayed.

Changing the black emphasis

"BLACK EMPHASIS" or "NORMAL BLACK" is displayed on the screen and the black emphasis of the picture changes each time the BLACK EMPH button on the remote control unit is pressed.

- Set to "BLACK EMPHASIS" if the overall picture is very bright and adjusting the CONTRAST setting has little effect, or if you would like to strengthen the modulation of the darker areas of the picture.
- Set to "NORMAL BLACK" when carrying out operations such as checking the signal.

NOTE:
- This function does not operate when RGB signals are being received.
- The current setting is displayed the first time the BLACK EMPH button is pressed, and the mode switches when the button is pressed after that.
- If the ON SCREEN button has been set to OFF, the on-screen display will disappear if no buttons are pressed within approximately 3 seconds.

Selecting the aspect

Press the ASPECT button to select the desired screen size.
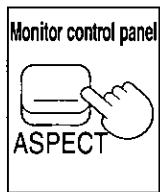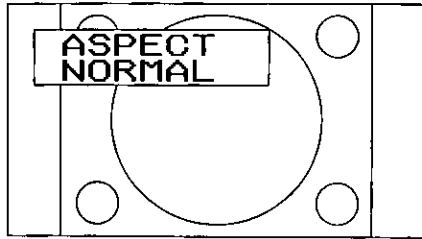
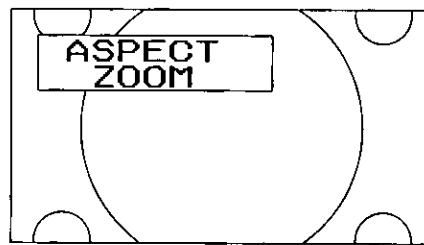| Remote control unit |
| --- |
| ASPECT |

or

Monitor control panel
ASPECT

● If a video or S-Video signal is being received, the setting changes in the order "NORMAL" → "ZOOM" → "FULL" each time the ASPECT button is pressed.

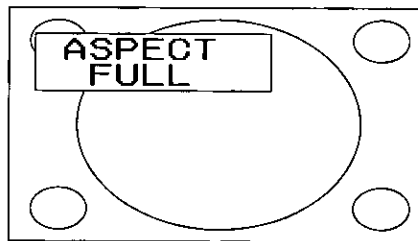**NORMAL** Normal (4:3) picture. (No picture appears at both edges.)

ASPECT NORMAL

For viewing normal (4:3) pictures

ZOOM The whole picture becomes widened and the top and bottom of the picture are cropped.

ASPECT ZOOM

For viewing high-definition or cinemascope pictures

FULL The whole picture is stretched sideways.

ASPECT FULL

For normal viewing of pictures which have been compressed sideways

> **NOTE:**
> ● If RGB or YPвPн signals are being received, the mode switches between "NORMAL" and "FULL" only.
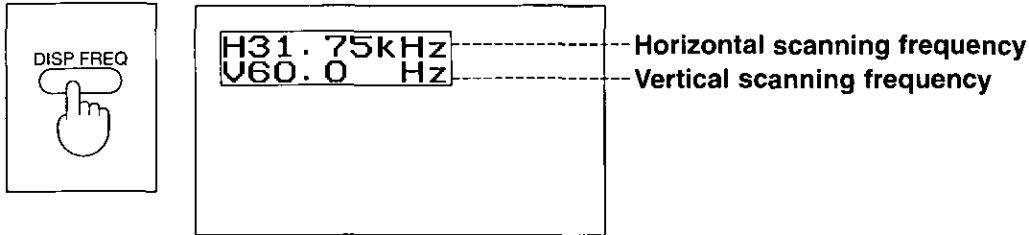
NOTE:
● If the ON SCREEN button has been set to OFF, the on-screen display will disappear if no buttons are pressed within approximately 3 seconds.
● The current setting is displayed the first time the ASPECT button is pressed, and the mode switches when the button is pressed after that.
● A maximum of 16 ASPECT button settings for signals with different scanning frequencies can be stored in memory.
● The aspect (the ratio between the width and length of the picture screen) can vary depending on the broadcasting and video playback equipment.

● This monitor is equipped with a variety of different screen mode selection functions. If a mode which does not match the aspect ratio of the TV programs or other video sources received is selected, it may affect the quality of viewing of the original picture. Keep this in mind when selecting the screen mode.
● If using this monitor in places such as cafes or hotels with the aim of displaying programs for viewing for a commercial purpose or for public presentation, note that if the screen mode switching function is used to change the aspect ratio of the screen picture, you may be infringing the rights of the original copyright owner for that program under copyright protection laws.
● If a normal (4:3) picture is viewed using ZOOM or FULL modes so that the picture fills the whole of the monitor screen, obsuration may occur around the edges of the picture so that part of the picture is no longer visible. Such programs should be viewed in NORMAL mode to give proper consideration to the aims and intentions of the original program's creator.

Selecting the input signal frequency display

If you press the DISP FREQ button on the remote control unit, the horizontal and vertical scanning frequencies of the signals which are currently being input to the monitor will be displayed on the monitor screen.
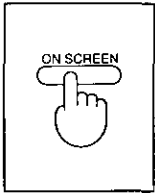
Example of display

```
┌─────────┐
│         │
│ DISP FREQ │
│   ╒═══╕  │
│   └─┬─┘  │
│   ⊂‴ᵐ⌐   │
│   (  ᴶ)   │
│         │
└─────────┘
```

```
H31.75kHz ----------- --Horizontal scanning frequency
V60.0  Hz  ----------- --Vertical scanning frequency
```

NOTE:
● The values displayed are reference values which are reported by the monitor's frequency counter.
● If the ON SCREEN button has been set to OFF, the on-screen display will disappear after approximately 3 seconds.

Functions of the ON SCREEN button

The ON SCREEN button on the remote control unit has two functions: it turns the display of button operation details on the monitor screen on and off, and it also locks the operation of some functions to prevent mistakes in operation from occurring when the on-screen display is turned off.

```
┌─────────┐
│         │
│ ON SCREEN │
│   ╒═══╕  │
│   └─┬─┘  │
│   ⊂‴ᵐ⌐   │
│   (  ᴶ)   │
│         │
└─────────┘
```

● The ON SCREEN button setting switches between ON and OFF each time the button is pressed.

NOTE:
● If the button setting is switched to OFF, the details of operation for each button pressed are displayed on the screen for approximately 3 seconds only. However, the "MUTE" indication is the only indication which does not disappear.
● If the button setting is switched to OFF, none of the operation buttons underneath the remote control unit cover work except the VIDEO/S-VIDEO and DEGAUSS buttons. This is to stop the other buttons being operated by mistake. In addition, the EXT CTRL button on the monitor control panel (the button used for external control) also will not operate at this time.
● If the button setting is switched to ON, the input selection setting will be displayed, and from that point on the operation resulting from the last button pressed will remain displayed on the monitor screen.
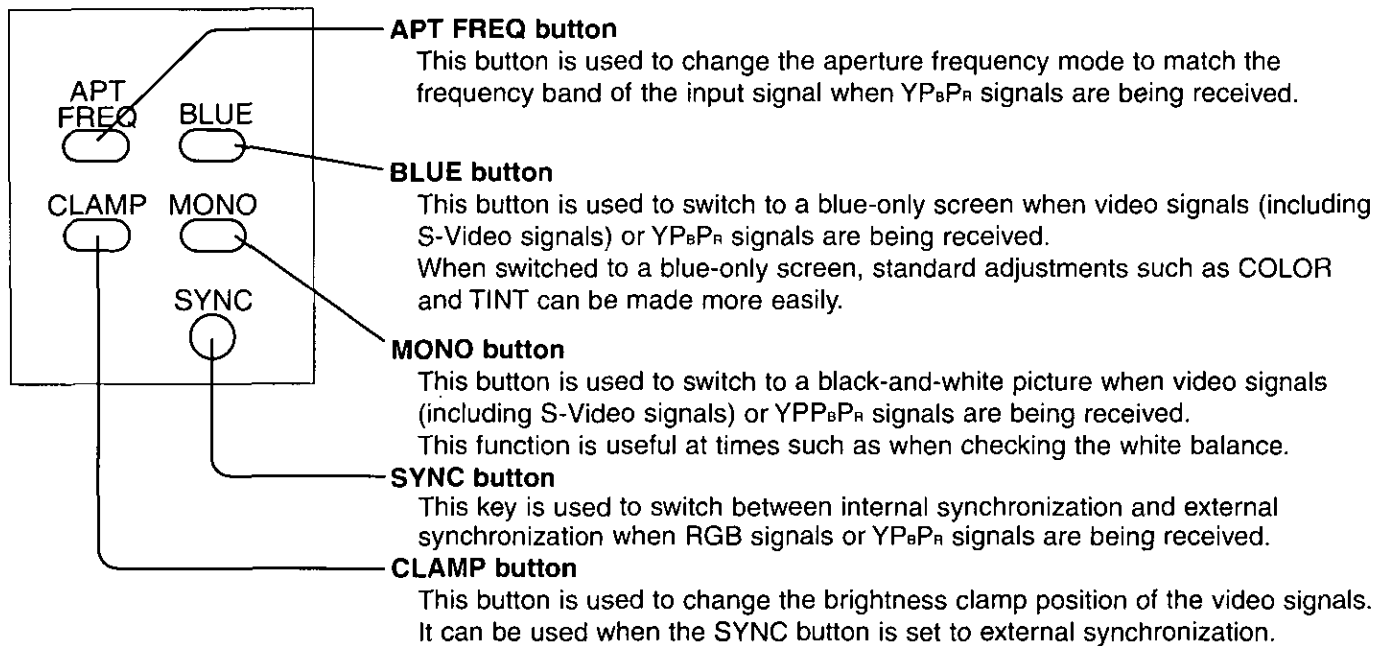● The ON and OFF settings of the ON SCREEN button are not themselves displayed on the screen.

NOTE:
● Be sure to read the section titled "Using the operation buttons under the remote control unit cover" on page 15 also.

Using the picture control buttons

The buttons shown in the illustration below which are under the remote control unit cover can be use to switch the aperture frequency mode, change the brightness clamp position, switch to a blue-only picture, switch to a black-and-white picture, or switch the synchronizing signal.
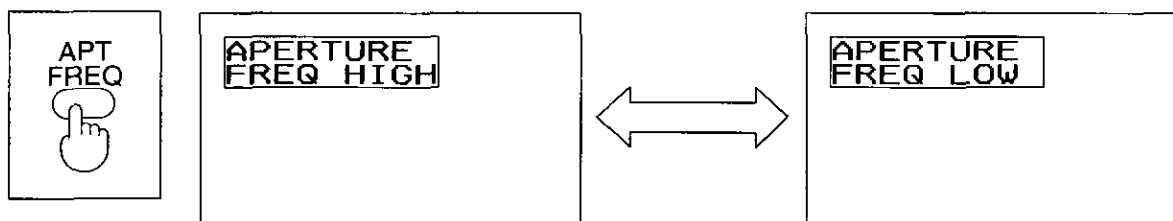
Following is a description of each of the picture control buttons.

APT FREQ button
This button is used to change the aperture frequency mode to match the frequency band of the input signal when YPBPR signals are being received.

BLUE button
This button is used to switch to a blue-only screen when video signals (including S-Video signals) or YPBPR signals are being received.
When switched to a blue-only screen, standard adjustments such as COLOR and TINT can be made more easily.

MONO button
This button is used to switch to a black-and-white picture when video signals (including S-Video signals) or YPPBPR signals are being received.
This function is useful at times such as when checking the white balance.

SYNC button
This key is used to switch between internal synchronization and external synchronization when RGB signals or YPBPR signals are being received.

CLAMP button
This button is used to change the brightness clamp position of the video signals.
It can be used when the SYNC button is set to external synchronization.

Using the APT FREQ button

This button can be used when the input selection setting is RGB A, RGB B or MULTI and YPBPR signals are being received.
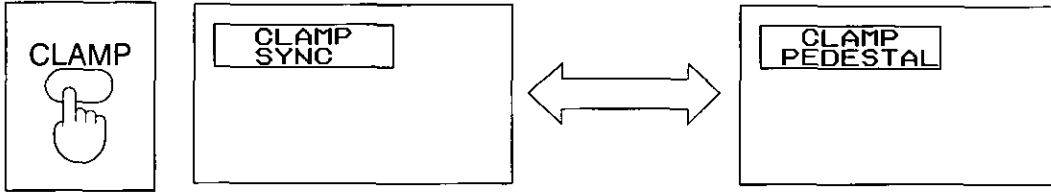The setting switches between HIGH and LOW each time the APT FREQ button is pressed.

• HIGH ⋯⋯⋯⋯Standard picture sharpness for signals within the high-definition base band
• LOW⋯⋯⋯⋯⋯Standard picture sharpness for double-density signals (with a horizontal scanning frequency of 31.5 kHz)

NOTE:
• This button can be used when the ON SCREEN button is set to ON.
• Switching is not possible when video signals (including S-Video signals) and RGB signals are being received.
• The current setting is displayed the first time the APT FREQ button is pressed, and the mode switches when the button is pressed after that.
• A maximum of 16 APT FREQ button settings for signals with different scanning frequencies can be stored in memory.

Using the CLAMP button

This button can be used when the input selection setting is RGB A, RGB B or MULTI, the SYNC button setting is external synchronization (EXT-SYNC) or automatic synchronization (AUTO-SYNC), and provided that RGB signals or YPвPв signals with an external synchronization signal are being received. The brightness clamp position switches between "SYNC" and "PEDESTAL" each time the CLAMP button is pressed.
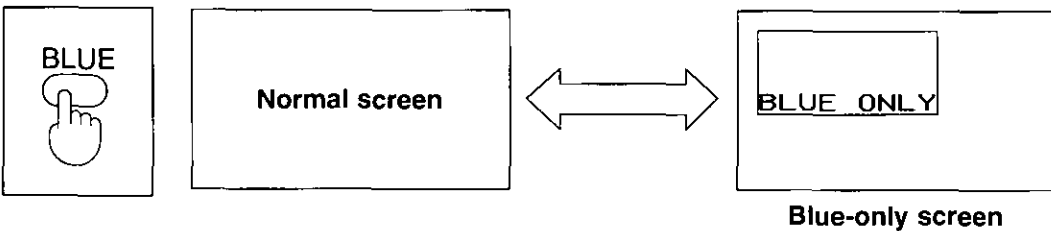

Normally, the clamp position should be set to "PEDESTAL", and should be changed to "SYNC" if the black level (brightness) of the video signal changes.

NOTE:
● This button can be used when the ON SCREEN button is set to ON.
● Switching is not possible when no synchronization signal is being input to the HD/SYNC or VD connectors at the rear of the monitor, or when the SYNC button setting is "INT-SYNC".
● The current setting is displayed the first time the CLAMP button is pressed, and the mode switches when the button is pressed after that.
● A maximum of 16 CLAMP button settings for signals with different scanning frequencies can be stored in memory.

Using the BLUE button

The screen switches between a normal screen and a blue-only screen each time the BLUE button is pressed.
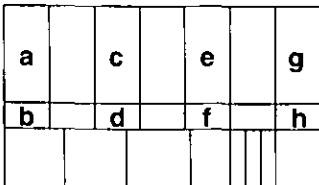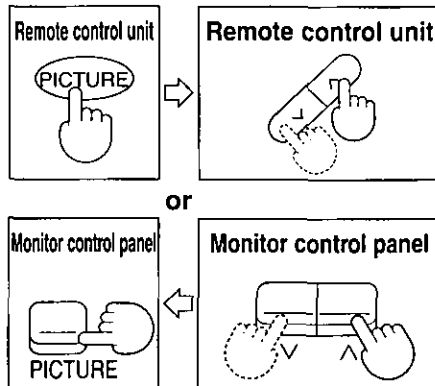

Blue-only screen

NOTE:
● This function does not operate when RGB signals are being received.
● This button can be used when the ON SCREEN button is set to ON.
● The blue-only screen mode is canceled when an input selection is made and when the monitor power is turned off and back on again.

Adjusting the color

When an SMPTE color bar signal is being received and the screen has been switched to a blue-only screen by the procedure given above, adjust the COLOR and TINT settings so that the blue colors a to h in the color bar pattern below are all of the same hue.
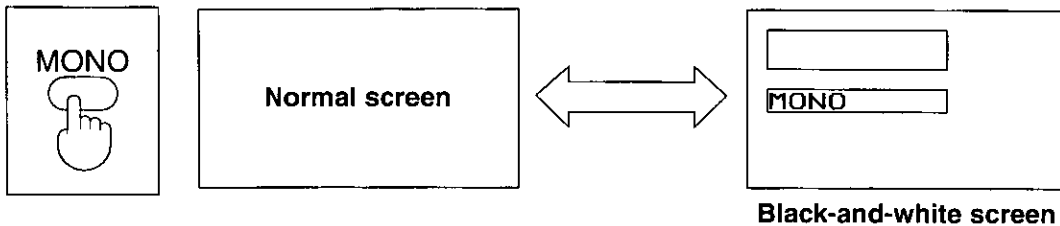

SMPTE color bar pattern

or

① Set to TINT adjustment mode, and then use the "∨" and "∧" picture adjustment buttons to adjust so that the blues from a to h are all of the same brightness.
② Set to COLOR adjustment mode, and then use the "∨" and "∧" picture adjustment buttons to adjust so that the blues from a to h are all of the same brightness.
③ After adjustment is complete, press the BLUE button to cancel the blue-only screen mode. (The screen will return to a standard screen with standard colors.)

Using the MONO button

This button can be used to make it easier to check the resolution, white balance and convergence of video signals. The screen switches between a normal picture and a black-and-white picture (which consists of only the luminance signal with the color signal components removed).
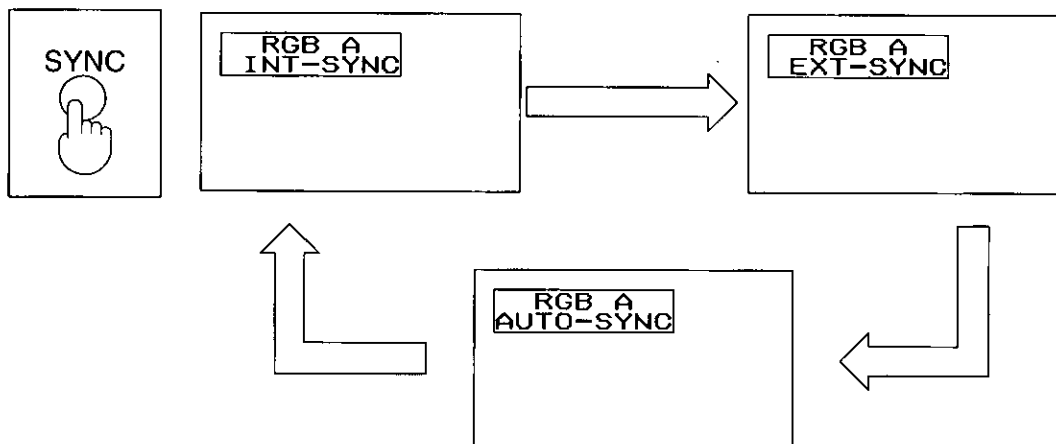

Black-and-white screen

NOTE:
● This function does not operate when RGB signals are being received.
● This button can be used when the ON SCREEN button is set to ON.

Using the SYNC button

This button is used to switch the synchronization signal being input to the monitor. When using sync signals which are included in the Y (luminance) or G (green) signal components, set to "INT-SYNC"; when a synchronization signal is being input to the HD/SYNC or VD connector, set to "EXT-SYNC".

The synchronization mode switches in the order "INT-SYNC" (internal synchronization) "EXT-SYNC" (external synchronization) "AUTO-SYNC" (automatic selection: external synchronization has priority) each time the SYNC button is pressed.
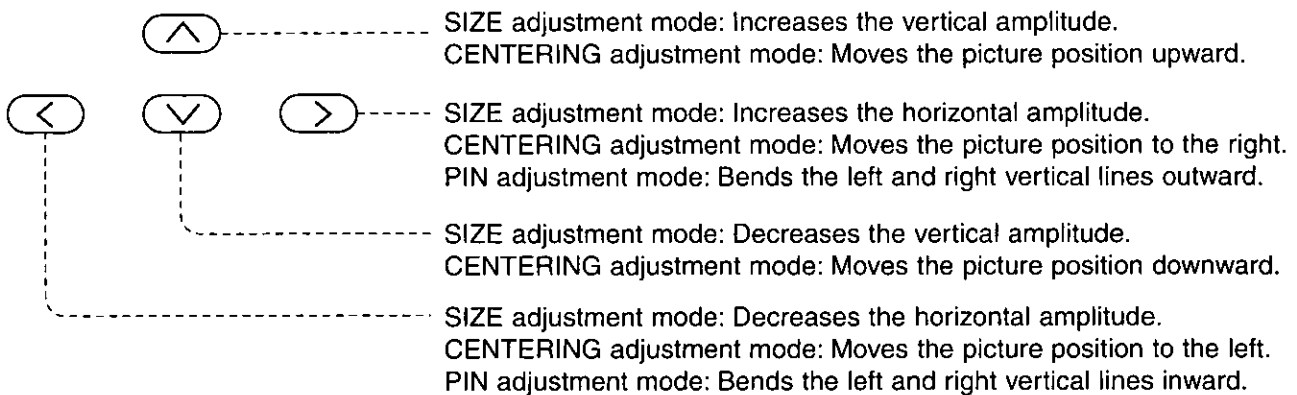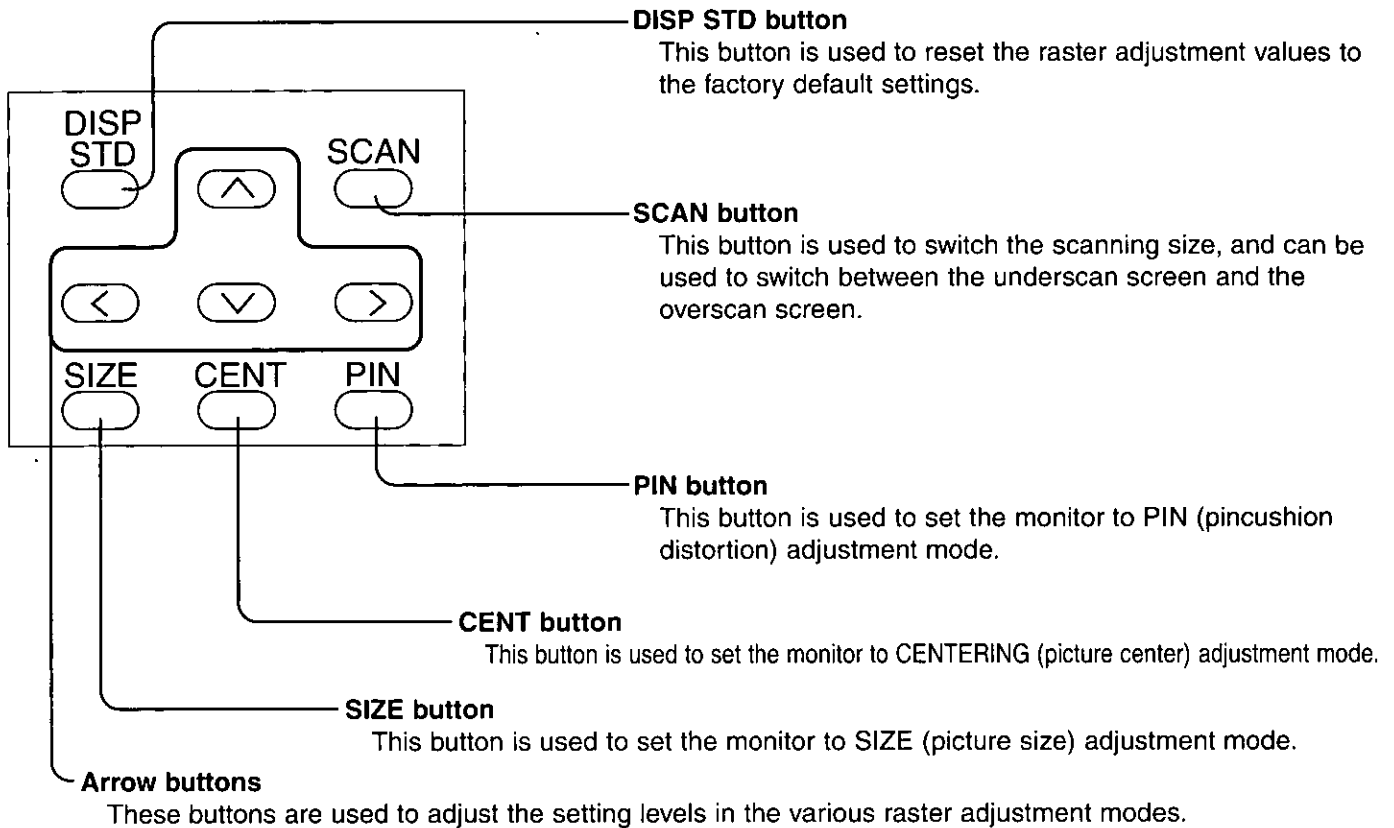

NOTE:
● This button can be used when the ON SCREEN button is set to ON.
● The current setting is displayed the first time the SYNC button is pressed, and the mode switches when the button is pressed after that.
● This setting should normally be left at "AUTO-SYNC". (When set to "AUTO-SYNC", external synchronization is selected automatically if an external sync signal is present. If no external sync signal is present, internal synchronization is then selected.) If "AUTO SYNC" is selected but the synchronization is unstable, try selecting either "EXT-SYNC" or "INT-SYNC" manually.
● When set to "INT-SYNC", the CLAMP button setting is automatically switched to "PEDESTAL". However, if the setting is changed back to "EXT-SYNC", the original CLAMP button setting is restored.

Using the raster adjustment buttons

The raster adjustment buttons shown below which are underneath the remote control unit cover can be used to adjust the screen size, picture center position and horizontal pincushion distortion. They can also be used to switch the scanning size and to restore raster adjustment values to the factory default settings.
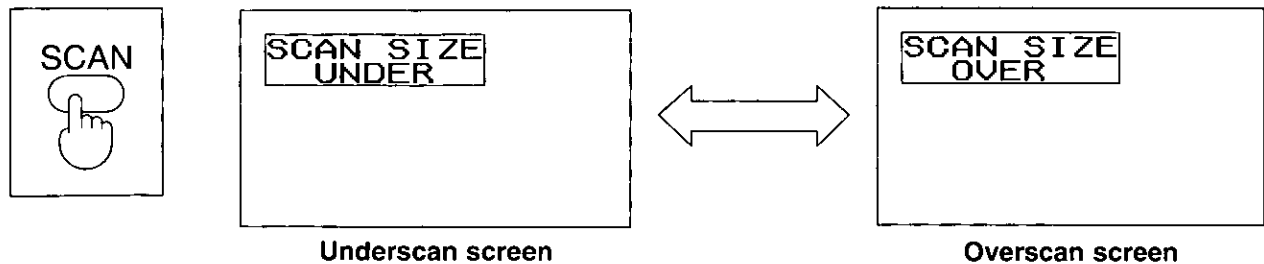Following is a description of each of the raster adjustment buttons.

DISP STD button
This button is used to reset the raster adjustment values to the factory default settings.

SCAN button
This button is used to switch the scanning size, and can be used to switch between the underscan screen and the overscan screen.

PIN button
This button is used to set the monitor to PIN (pincushion distortion) adjustment mode.

CENT button
This button is used to set the monitor to CENTERING (picture center) adjustment mode.

SIZE button
This button is used to set the monitor to SIZE (picture size) adjustment mode.

Arrow buttons
These buttons are used to adjust the setting levels in the various raster adjustment modes.

SIZE adjustment mode: Increases the vertical amplitude.
CENTERING adjustment mode: Moves the picture position upward.

SIZE adjustment mode: Increases the horizontal amplitude.
CENTERING adjustment mode: Moves the picture position to the right.
PIN adjustment mode: Bends the left and right vertical lines outward.

SIZE adjustment mode: Decreases the vertical amplitude.
CENTERING adjustment mode: Moves the picture position downward.

SIZE adjustment mode: Decreases the horizontal amplitude.
CENTERING adjustment mode: Moves the picture position to the left.
PIN adjustment mode: Bends the left and right vertical lines inward.

NOTE:
- The current setting is displayed the first time one of the arrow buttons is pressed, and the mode switches when an arrow button is pressed after that.
- The raster adjustment buttons can be used when the ON SCREEN button is set to ON.
- A maximum of 16 different picture size, picture center position and horizontal pincushion distortion adjustments and scan size settings for signals with different scanning frequencies can be stored in memory.
- The adjustment range for the arrow buttons is 0 - 127.
- Refer to page 34 for details on raster adjustment methods.

Using the SCAN button

The screen size changes each time the SCAN button is pressed.

SCAN

| SCAN SIZE |
| UNDER |

Underscan screen

⟸⟹

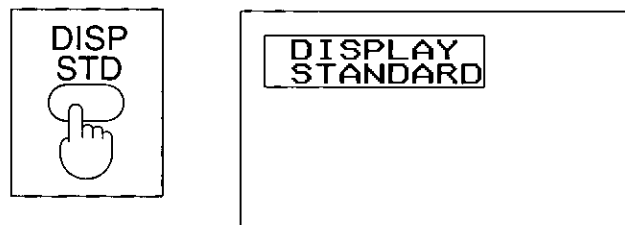| SCAN SIZE |
| OVER |

Overscan screen

NOTE:
● The underscan screen is a reduced-size screen which is approximately 90% smaller in the horizontal and vertical directions than the overscan screen.
● The current setting is displayed the first time the SCAN button is pressed, and the mode switches when the button is pressed after that.
● A maximum of 16 SCAN button settings for signals with different scanning frequencies can be stored in memory.

> ● When the SCAN SIZE is UNDER. The picture is compressed therefore the picture
> quality may become different from the original scanning size. (OVER)

Using the DISP STD button

When the DISP STD button is pressed, the raster adjustment data values (SIZE, CENT, PIN and SCAN) and the aspect value are all returned to the factory default (DISPLAY STANDARD) settings.

DISP
STD

| DISPLAY |
| STANDARD |

NOTE:
● When the DISP STD button is pressed, the aspect setting and the raster adjustment details are canceled and all settings return to the factory default settings.
● Because a variety of different type of signal can be input, not all types of signals have factory default settings available. It may not be possible to return the adjustment settings for some signals to the factory default settings when this button is pressed.
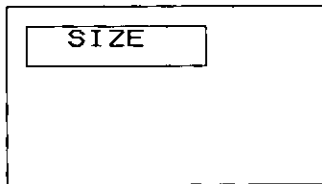
Making raster adjustments

Carry out these adjustments if a normal picture image cannot be obtained after using the ASPECT button and the SCAN button to adjust the screen size.
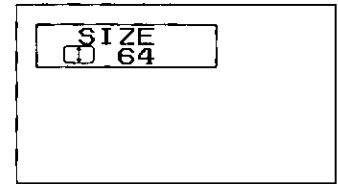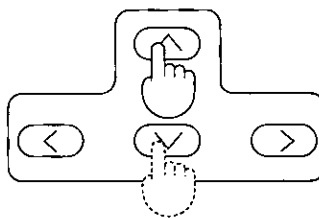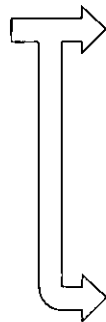
Preparation

①Set the ON SCREEN button to ON.
②Press the ASPECT button to select the correct aspect for the signal being input.
③Press the SCAN button to select the raster size (underscan/overscan) to be adjusted.
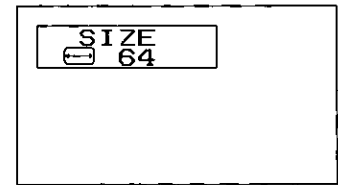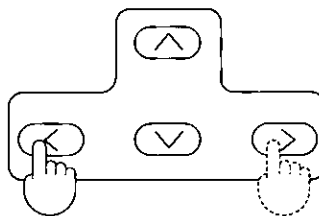
● Adjusting the screen size

①Set to SIZE adjustment mode.　　　　　　　②Adjust using the arrow buttons.
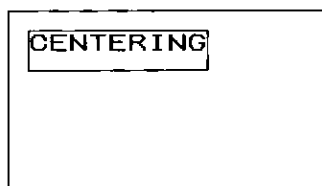
Vertical size adjustment

Horizontal size adjustment
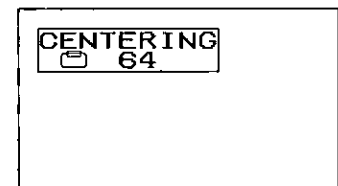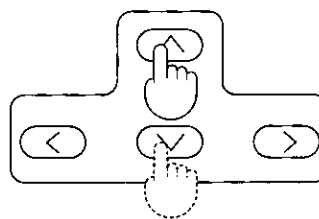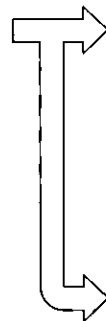
NOTE: ● The adjustment range is 0 - 127.

TIP: ● Adjustment can be carried out more easily if a circular still picture is being received.

● Adjusting the picture position

①Set to CENTERING adjustment mode.　　　　②Adjust using the arrow buttons.

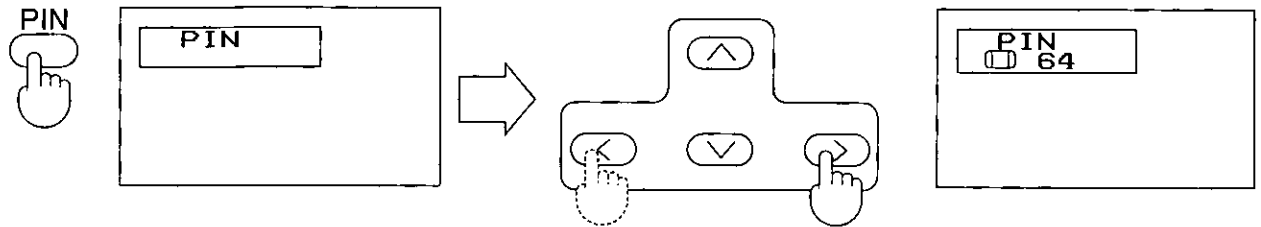**Vertical position adjustment**

Horizontal position adjustment

NOTE: ● The adjustment range is 0 - 127.
● If LINE has been selected using the input selection buttons and video signals or S-Video signals are being received, vertical position adjustment will only be possible if the ASPECT button setting is set to "ZOOM". In this case, the setting range is 0 - 63.

● Adjusting the pincushion distortion (horizontal pincushion)

① Set to PIN adjustment mode.　　　　　② Adjust using the arrow buttons.

NOTE:　● The adjustment range is 0 - 127.
　　　　　● There is no vertical pincushion adjustment function.

TIP:　● Adjustment can be carried out more easily if a crosshatch pattern is being received.

Storing adjustment data into memory

There are eight selections and adjustments which can be automatically stored in memory for up to a maximum of 16 different signals. The selections and adjustments that can be stored are: screen size (SIZE) adjustment, picture center position (CENT) adjustment, horizontal pincushion distortion (PIN) adjustment, scan size (SCAN) setting, aspect ratio (ASPECT) setting, RGB/YPʙPʀ setting, aperture frequency (APT FREQ) setting, and clamp position (CLAMP) setting. The different types of signal are differentiated by the frequency of the input signal, the type of synchronization, and the input terminal used.
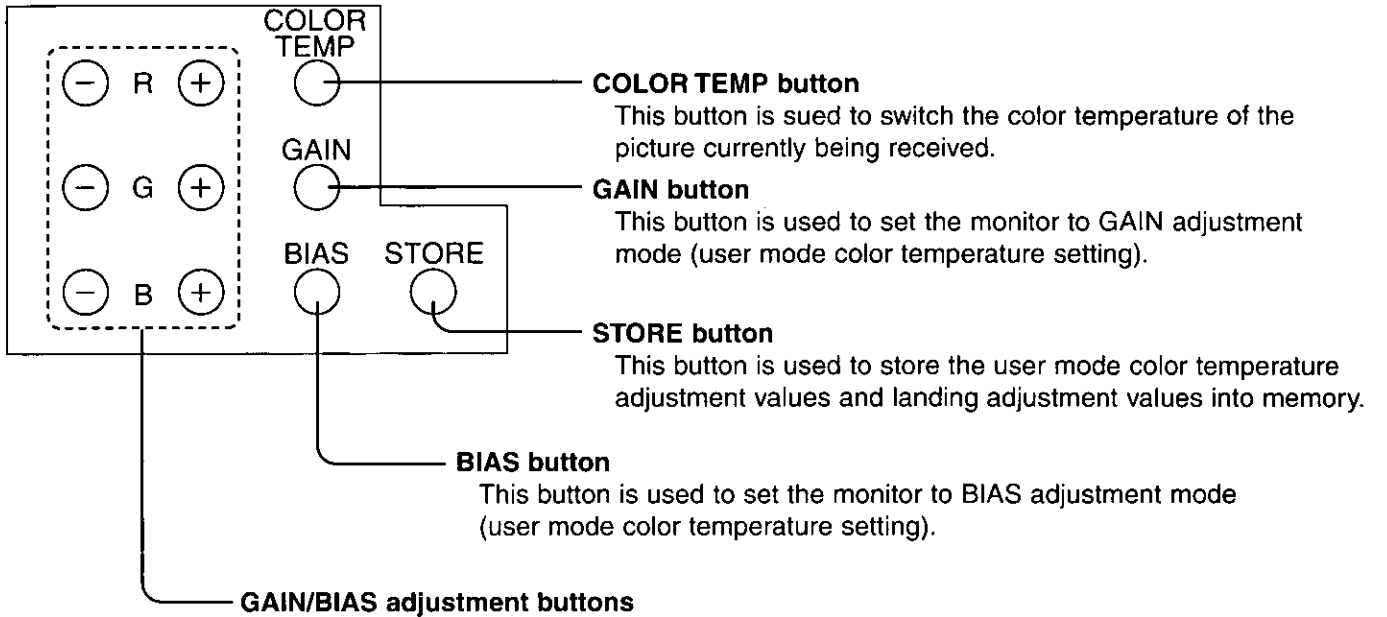
<The following chart can be used as a useful reference for the adjustment data for different input signals.>

Input signal				Adjustment values in memory							
				Raster adjustment data				Selection data			
Horizontal scanning frequency	Vertical scanning frequency	Input terminal	SYNC IN/EXT	SIZE	CENT	PIN	SCAN	ASPECT	RGB/ YPʙPʀ	APT FREQ	CLAMP

NOTE:　● If you store a new signal into memory when 16 different types of signal have already been stored in memory, the oldest data (the data which was the first to be stored) will be erased and the new signal data will replace it.
　　　　　● If the DISP STD button is pressed, the raster adjustment data and aspect setting for the signal currently being received will be returned to the factory default settings, in which case the stored values will be different from the values for the picture actually being received.

Using the color temperature adjustment buttons

The color temperature adjustment buttons shown below which are underneath the remote control unit cover can be used to switch the color temperature and to adjust the user mode color temperature.
Following is a description of each of the color temperature adjustment buttons.

COLOR TEMP button
This button is sued to switch the color temperature of the picture currently being received.

GAIN button
This button is used to set the monitor to GAIN adjustment mode (user mode color temperature setting).

STORE button
This button is used to store the user mode color temperature adjustment values and landing adjustment values into memory.

BIAS button
This button is used to set the monitor to BIAS adjustment mode (user mode color temperature setting).

GAIN/BIAS adjustment buttons
These buttons are used to adjust the levels in GAIN and BIAS adjustment modes (user mode color temperature settings).

⊖ R ⊕ ----- Increases the red (R) level in GAIN/BIAS adjustment mode
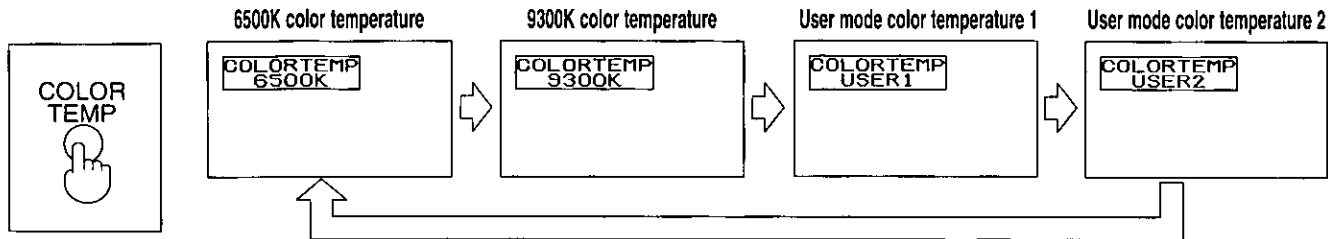----------- Decreases the red (R) level in GAIN/BIAS adjustment mode

⊖ G ⊕ ----- Increases the green (G) level in GAIN/BIAS adjustment mode
----------- Decreases the green (G) level in GAIN/BIAS adjustment mode

⊖ B ⊕ ----- Increases the blue (B) level in GAIN/BIAS adjustment mode
----------- Decreases the blue (B) level in GAIN/BIAS adjustment mode

NOTE: • The current setting is displayed the first time one of the GAIN/BIAS adjustment buttons is pressed, and the mode switches when a GAIN/BIAS adjustment button is pressed after that.
• The GAIN/BIAS adjustment buttons can be used when the ON SCREEN button is set to ON.

Changing the color temperature

The standard color temperature setting changes in the order "6500K" "9300K" "USER1" "USER2" each time the COLOR TEMP button is pressed.
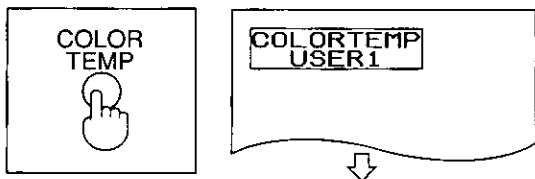

| 6500K color temperature | 9300K color temperature | User mode color temperature 1 | User mode color temperature 2 |

NOTE: ● At the time of shipment from the factory, the "USER1" setting is 6500K and the "USER2" setting is 9300K. These settings can be changed by the user as desired.
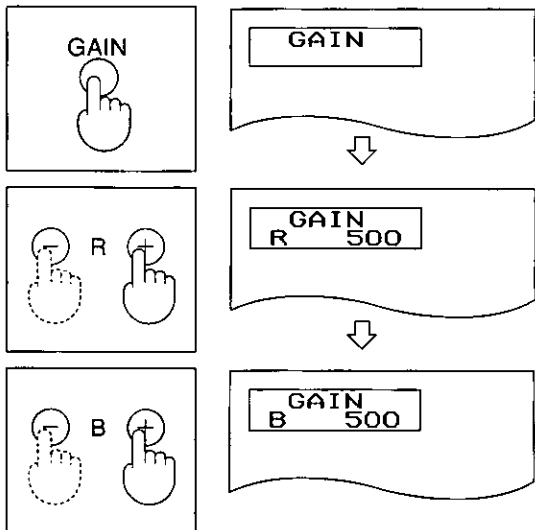
Adjusting the user mode color temperature

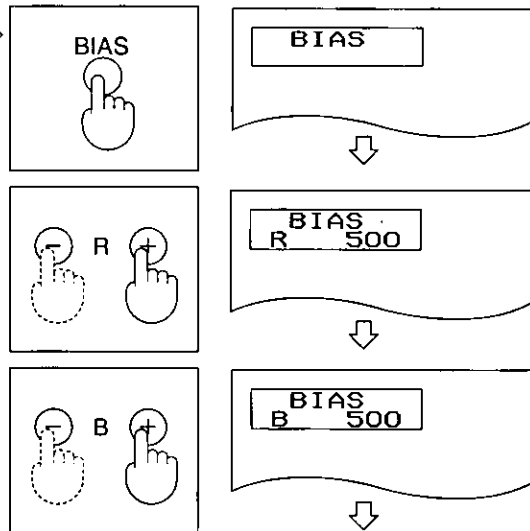① Press the COLOR TEMP button to select the user mode color temperature to be adjusted.
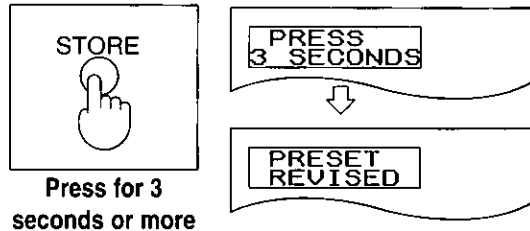
Example: To adjust the USER1 setting

② Press the GAIN button to switch to GAIN adjustment mode, and then adjust the red (R) and blue (B) levels.

③ Press the BIAS button to switch to BIAS adjustment mode, and then adjust the red (R) and blue (B) levels.

④ Press the STORE button continuously for 3 seconds or more to store the adjustment values into memory.

Press for 3 seconds or more

NOTE: ● Be sure to press the STORE button continuously for 3 seconds or more after adjustment is complete. If the STORE button is not pressed, the adjustments will not take effect.
● The green (G) setting should be left at 500. If the green (G) setting is changed to a value other than 500, normal adjustments may no longer be possible.
● The adjustment range is 0 - 999.

TIP: ● If you select 6500K or 9300K in step ① and then proceed to steps ② and ③, the values for the respective item will be displayed, but adjustment will not be possible. Use these values as references when adjusting the USER1 and USER2 settings.
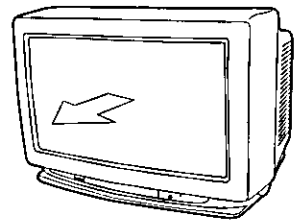
Eliminating color distortion and skew

Some large CRTs can be affected by color distortion or picture skew that results from the effects of geomagnetism. These effects are influenced by the direction that the CRT is facing. Landing adjustment is necessary in order to eliminate this color distortion and picture skew.
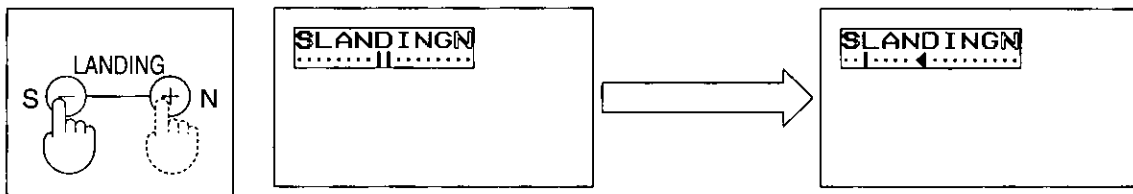
Making landing adjustments

Preparation

① Turn off the monitor power and determine the setting-up location for the monitor. Check in which direction the screen will face at this time. (Direction of arrow)

② Turn on the power.

● Adjustment

① Press the ⊖ or ⊕ LANDING buttons on the control panel underneath the remote control unit cover to set the direction that the CRT is facing in order to adjust the amount of geomagnetism correction.
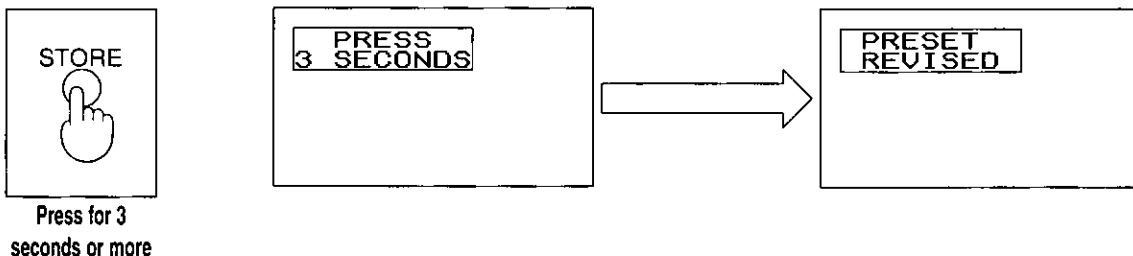
NOTE: ● When the ⊖ and ⊕ LANDING buttons are pressed, an arrow is appears to indicate the direction of adjustment, and the bar indicator moves in the direction of the arrow. When the bar indicator reaches the maximum or minimum value, the arrow turns white.

TIP: ● Refer to the table below in order to adjust so that no color distortion is noticeable.

Screen direction	South (S)	East/West	North (N)
Adjustment guide	Close to left edge	Near center	Close to right edge

● This adjustment will also slightly correct the picture skew at the same time. If the degree of skew is of concern because of the playback equipment, adjust within the range where color distortion is not noticeable.

② Press the STORE button on the control panel underneath the remote control unit cover for 3 seconds or more to store the adjustment value into memory.
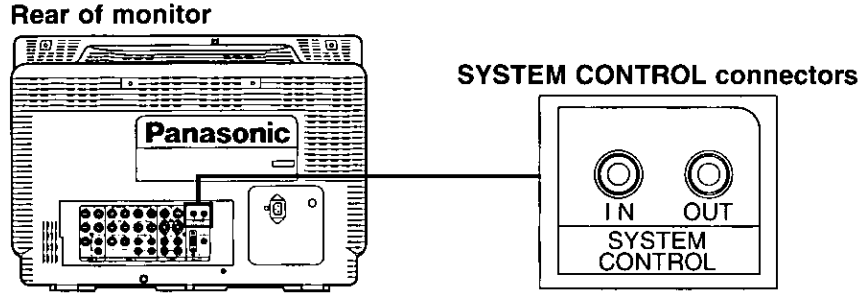
Press for 3 seconds or more

NOTE: ● Be sure to press the STORE button continuously for 3 seconds or more in step ② after LANDING adjustment is complete to store the adjustment value into memory. If step ② is not carried out, the LANDING adjustments will not be stored into memory.
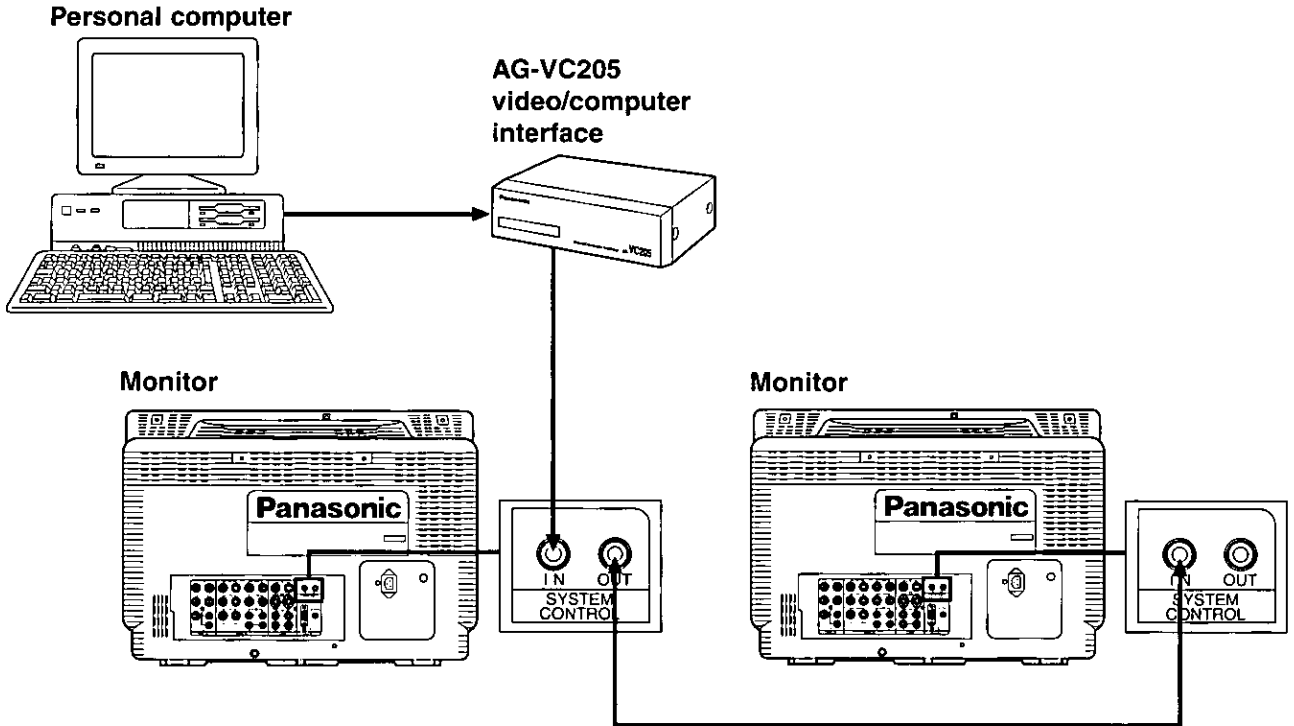
TIP: ● The current setting is displayed the first time one of the LANDING adjustment buttons is pressed, and the mode switches when a LANDING adjustment button is pressed after that.
● If the setting-up location or direction are changed, you will need to re-adjust the LANDING setting.
● If the monitor is set up inside a building which creates a magnetic disturbance, such as a building with reinforced concrete, and the resulting color distortion cannot be eliminated, turn off the monitor power and wait about 20 minutes. Then move the monitor to a different location and repeat the adjustment procedure.

Using the SYSTEM CONTROL connectors

The SYSTEM CONTROL connectors can be used to connect a AG-VC205 video/computer interface so that the monitor can be controlled using a personal computer.
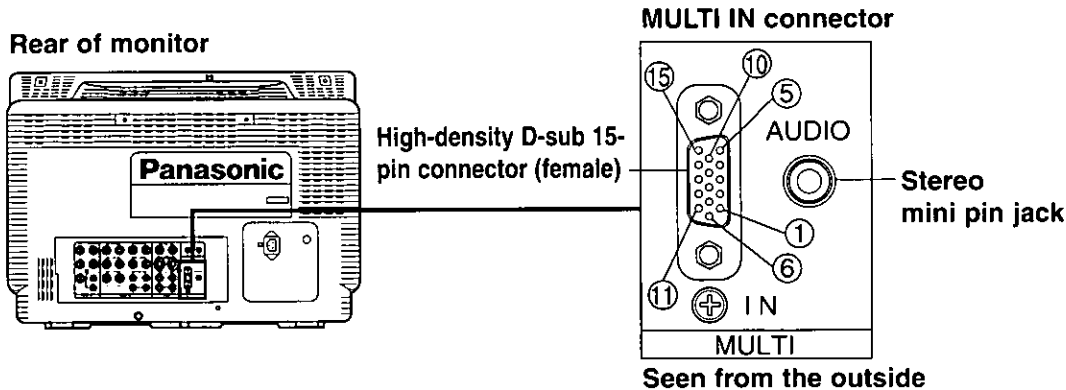
Rear of monitor

SYSTEM CONTROL connectors

Example of SYSTEM CONTROL signal connections

Personal computer

AG-VC205 video/computer interface

Monitor

Monitor

NOTE:
- Special software designed for use with this monitor is required in order to use the SYSTEM CONTROL connectors to control the monitor using a personal computer. Please contact the place of purchase for further details.
- Read the instruction manuals for the AG-VC205 video/computer interface and the computer being connected in addition to this instruction manual.
- In this system, the monitor is controlled by uni-directional communication.

Using the MULTI IN connector

The MULTI IN connector on this monitor incorporates a stereo mini pin jack for audio signals and a high-density D-sub 15-pin connector. The high-density D-sub 15-pin connector can be connected to a RGB signal/YPвPв signal source or a video signal source, and allows the input selection to be switched externally.
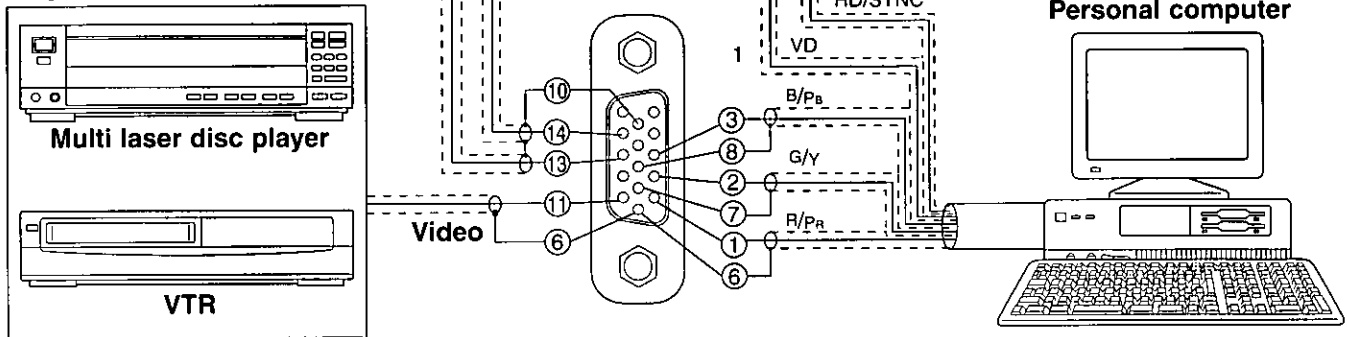
Rear of monitor

MULTI IN connector

High-density D-sub 15-pin connector (female)

AUDIO

Stereo mini pin jack

MULTI

I N

Seen from the outside

Signal specifications for high-density D-sub 15-pin connector

Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name
①	R/Pв	⑥	GND (ground)	⑪	Video
②	G/Y	⑦	GND (ground)	⑫	R1
③	B/Pв	⑧	GND (ground)	⑬	HD/SYNC
④	R2	⑨	NC (not connected)	⑭	VD
⑤	GND (ground)	⑩	GND (ground)	⑮	NC (not connected)

● Signal connections

Example of video signal equipment

Multi laser disc player

VTR
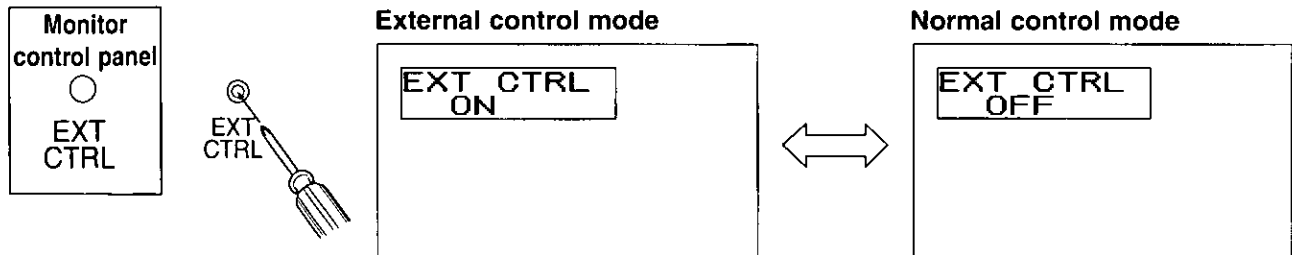
HD/SYNC

VD

B/Pв

G/Y

R/Pв

Video

Personal computer

NOTE:
- If the synchronizing signal used for RGB signal or YPвPв signal input is a composite sync signal, connect pin No. 13; if it is a separate sync signal, connect the horizontal sync signal to pin No. 13 and connect the vertical sync signal to pin No. 14.
- Read the instruction manuals for the AG-VC205 video/computer interface and the computer being connected in addition to this instruction manual.
- Switching between the video signal source and RGB/YPвPв signal source connected to the high-density D-sub 15-pin connector can be controlled externally via pin No. 4 (R2) and pin No. 12 (R1). Refer to the following page for details.
- Only a single audio signal system can be input via the stereo mini pin jack to the right of the high-density D-sub 15-pin connector.
- If a RGB signal or YPвPв signal source is connected, you will need to set the RGB/YPвPв button underneath the remote control unit cover in accordance with which type of signal is being input.
- If or MULTI has been selected using the input selection buttons on the remote control unit of the monitor control panel on the front of the monitor, the RGB signals or YPвPв signals from the signal source connected to the high-density D-sub 15-pin MULTI IN connector will be received and displayed.

Using the external control function

The function for selecting the input source by means of external control can be switched on and off by pressing the EXT CTRL button on the monitor control panel under the front cover of the monitor with a small insulated screwdriver.
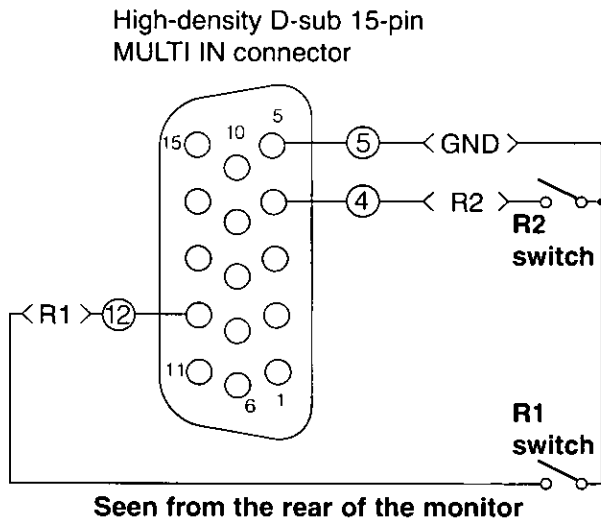
Input selection by means of external control can be carried out using the high-density D-sub 15-pin MULTI IN connector at the rear of the monitor.

Monitor control panel		External control mode	Normal control mode
O EXT CTRL	EXT CTRL	EXT CTRL ON	EXT CTRL OFF

NOTE:
• This button can be used when the ON SCREEN button is set to ON.
• If the ON SCREEN button setting is set to OFF after external control mode (EXT CTRL ON) has been set, the on-screen displays can be turned off but external control mode will still remain active.
• While external control mode (EXT CTRL ON) is active, "EXT CTRL ON" will remain displayed on the screen and input selection using the input selection buttons on the remote control unit or monitor control panel will not be possible.

Selecting the input source

You can switch the signal source being connected to the input terminals on the rear of the monitor by changing the ON and OFF settings for pin No. 4 (R2) and pin No. 12 (R1) of the high-density D-sub 15-pin MULTI IN connector on the rear of the monitor as shown in the illustration below.
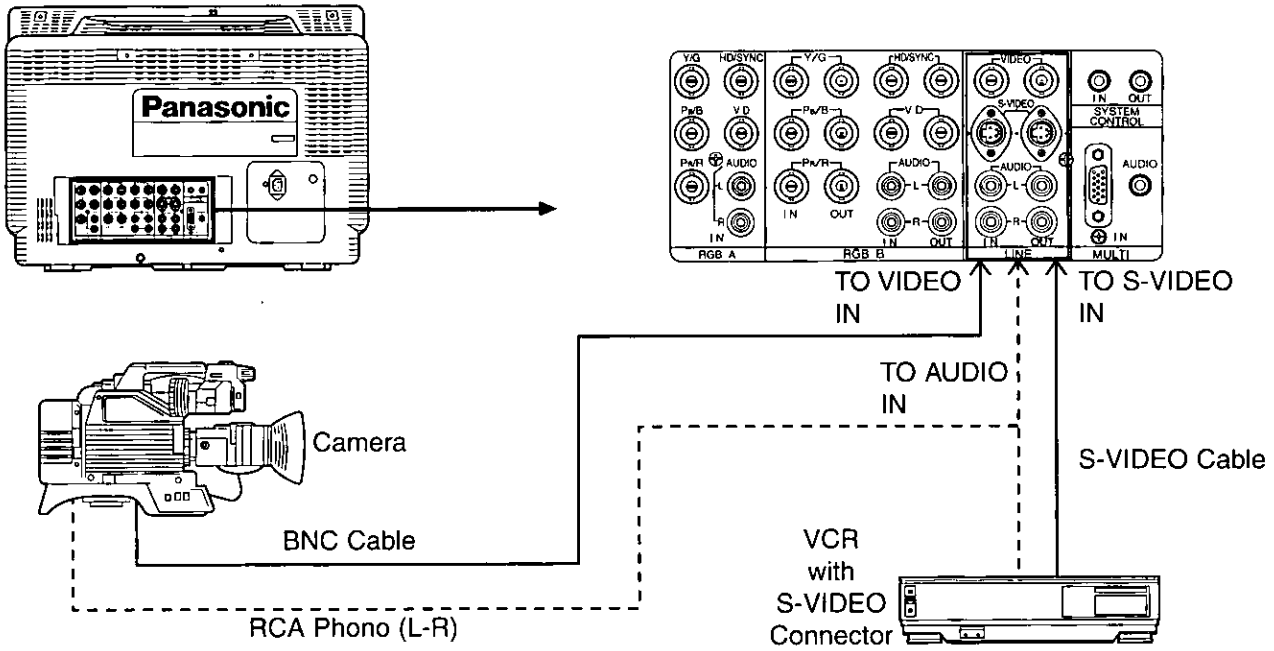
High-density D-sub 15-pin
MULTI IN connector

Seen from the rear of the monitor

R2 switch	R1 switch	Input selection
ON	ON	The signals from the signal source which is connected to the LINE VIDEO IN or S-VIDEO IN connectors appear on the monitor screen.
ON	OFF	The signals from the signal source which is connected to the MULTI IN connector appear on the monitor screen.
OFF	ON	The video signals from the signal source which is connected to the RGB B IN connectors appear on the monitor screen.
OFF	OFF	The RGB signals or YPaPr signals from the signal source which is connected to the MULTI IN connector appear on the monitor screen.

NOTE:
• Use a lock-type switch (one which stays in the ON or OFF position).
• This function cannot be used unless the external control mode (EXT CTRL ON) is active.
• It is not possible to switch to the signal source which is connected to the RGB A IN terminals.
• Input selection can also be carried out by applying a 5 V or 0 V (GND) power supply externally to pin No. 4 (R2) and pin No. 12 (R1). In this case, ON corresponds to 0 V and OFF corresponds to 5 V.
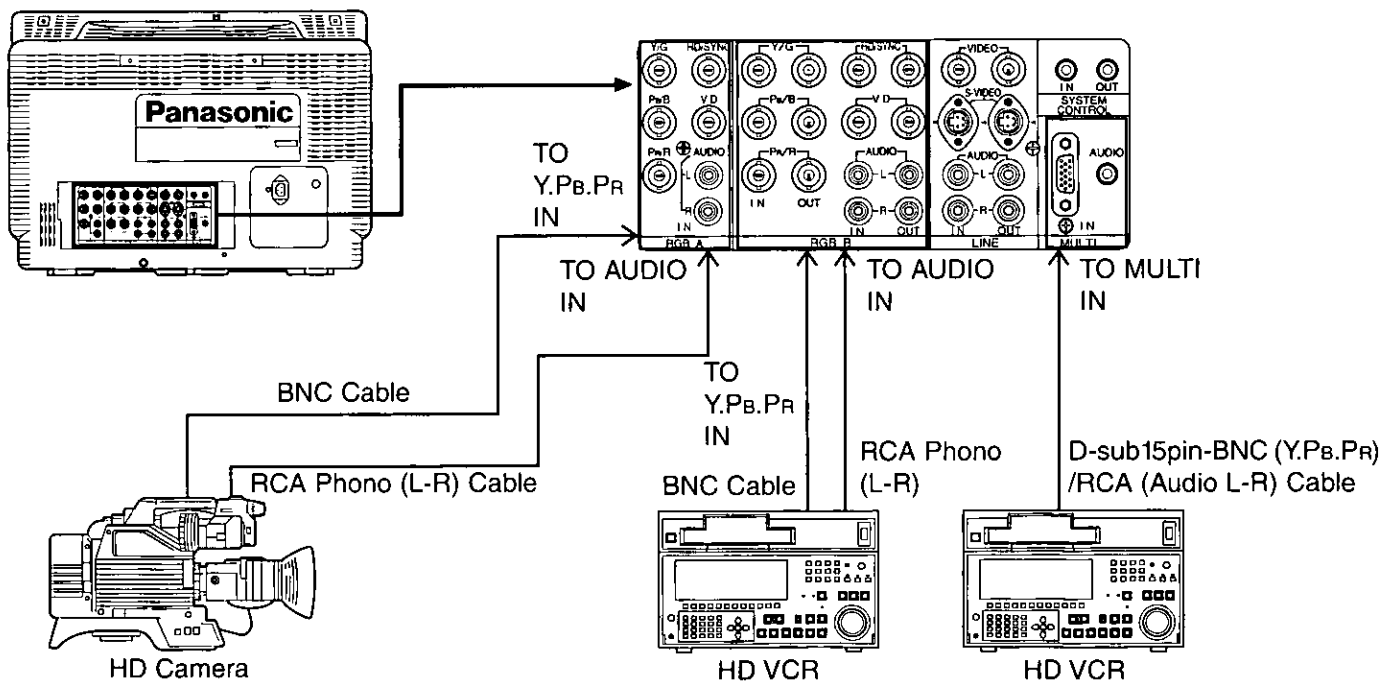
Examples of system connections
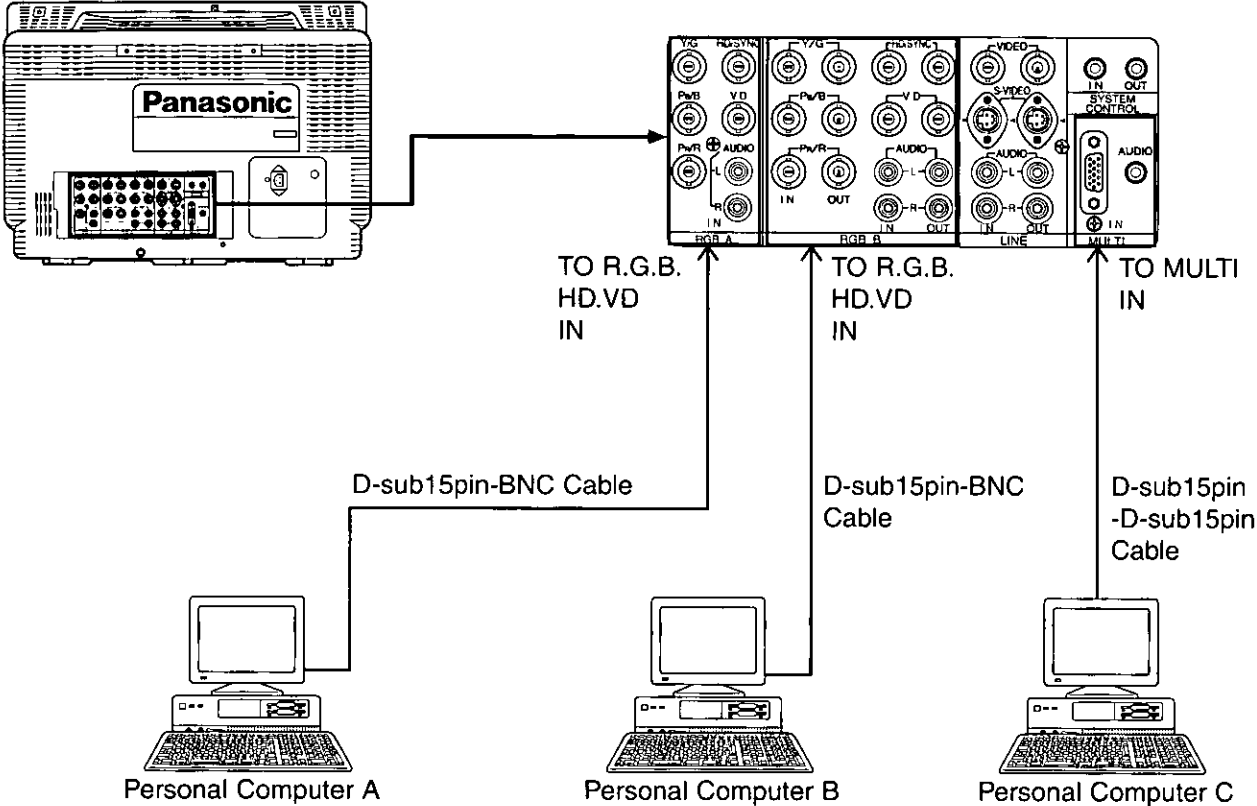
1. LINE (VIDEO/S-VIDEO) mode connection

Example

TO VIDEO IN
TO S-VIDEO IN
TO AUDIO IN
Camera
S-VIDEO Cable
BNC Cable
VCR with S-VIDEO Connector
RCA Phono (L-R)

2. RGB A/B. MULTI mode connection

Example 1

TO Y.PB.PR IN
TO AUDIO IN
TO AUDIO IN
TO MULTI IN
TO Y.PB.PR IN
BNC Cable
RCA Phono (L-R) Cable
BNC Cable
RCA Phono (L-R)
D-sub15pin-BNC (Y.PB.PR) /RCA (Audio L-R) Cable
HD Camera
HD VCR
HD VCR

Example 2

TO R.G.B.
HD.VD
IN

TO R.G.B.
HD.VD
IN

TO MULTI
IN

D-sub15pin-BNC Cable

D-sub15pin-BNC
Cable

D-sub15pin
-D-sub15pin
Cable

Personal Computer A

Personal Computer B

Personal Computer C

Specifications

■ Power source:	120V AC, 50/60Hz
Max.Amps:	3.7A
■ CRT:	30″ diagonal. 16:9 aspect
	106-degree deflection
	0.68mm mask pitch
■ Speaker Output:	Stereo 4W + 4W
	Impedance 8Ω
■ Resolution:	Video 550TV lines (NTSC)
	RGB 800 × 600 dots
■ Horizontal Frequeucy:	15.5 - 60kHz
Vertical Frequency:	50 - 120Hz
■ Video System:	PAL/SECAM/NTSC 3.58
	/NTSC 4.43

■ Connectors:

○ RGB A IN
○ YP_BP_R/R.G.B.HD.VD. (BNC type Connector)

Y:	1Vp-p (75Ω termination)
P_BP_R:	±0.35V (75Ω termination)
R.G.B:	0.7Vp-p (75Ω termination)
HD/SYNC, VD:	±0.6-5.0Vp-p
	Posi/Nega (Hi-impedance)

○ Audio (RCA phono type connector)

L.R:	0.5Vrms (more than 22kΩ)

○ RGB B IN/OUT
○ YP_BP_R/R.G.B.HD.VD. (BNC type connector)

Y:	1Vp-p (75Ω or High-impedance Auto)
$P_B.P_R$:	±0.35V (75Ω or High-impedance Auto)
R.G.B.:	0.7Vp-p (75Ω or High-impedance Auto)
HD/SYNC, VD:	±0.6 - 5.0Vp-p Posi/Nega (High-impedance)

○ Audio (RCA phono type connector)

L.R:	0.5Vrms (more than 22kΩ)

○ LINE IN/OUT
○ VIDEO (BNC type connector)
  1Vp-p (75Ω or High-impedance Auto)

○ S-VIDEO

Y:	1Vp-p (75Ω or High-impedance Auto)
C:	0.286Vp-p (75Ω or High-impedance Auto)

○ Audio (RCA phono type connector)

L.R:	0.5Vrms (more than 22kΩ)

○ MULTI IN
○ MULTI (D-sub 15p connector)

Y:	1Vp-p (75Ω termination)
$P_B.P_R$:	±0.35V (75Ω termination)
R.G.B.:	0.7Vp-p (75Ω termination)
HD/SYNC.HD:	±0.6 - 5.0Vp-p. Posi/NEGA (High-tmpedance)
R1.R2:	Short or open to GND

○ Audio (RCA phono type connector)

L.R:	0.5Vrms (more than 22kΩ)

○ System control IN/OUT
M3 type connector

■ Dimensions:	
Wigth:	31 1/2 inches (800mm)
Hight:	21 5/8 inches (549mm)
Depth:	21 11/32 inches (543mm)
■ Weight:	127.9 lbs (58kg)
■ Operating temperature:	32 - 104°F (0 - 40°C)
■ Operating humidity:	20 - 80% (non - condencing)
■ Accessories:	○ AC power cord
	○ Remote control unit
	○ batteries for remote control unit