

NEC

Portable Projector

LT180

User's Manual



IMPORTANT INFORMATION

Safety Cautions

Precautions

Please read this manual carefully before using your NEC LT180 Projector and keep the manual handy for future reference. Your serial number is located on the bottom of your projector. Record it here:



CAUTION

To turn off main power, be sure to remove the plug from power outlet. The power outlet socket should be installed as near to the equipment as possible, and should be easily accessible.



CAUTION

TO PREVENT SHOCK, DO NOT OPEN THE CABINET.
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol warns the user that uninsulated voltage within the unit may be sufficient to cause electrical shock. Therefore, it is dangerous to make any kind of contact with any part inside of the unit.



This symbol alerts the user that important information concerning the operation and maintenance of this unit has been provided. The information should be read carefully to avoid problems.

WARNING

**TO PREVENT FIRE OR SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.
DO NOT USE THIS UNIT'S PLUG WITH AN EXTENSION CORD OR IN AN OUTLET UNLESS ALL THE PRONGS CAN BE FULLY INSERTED.
DO NOT OPEN THE CABINET. THERE ARE HIGH-VOLTAGE COMPONENTS INSIDE. ALL SERVICING MUST BE DONE BY QUALIFIED SERVICE PERSONNEL.**

DOC Compliance Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Acoustic Noise Information Ordinance-3. GSGV:

The sound pressure level is less than 70 dB (A) according to ISO 3744 or ISO 7779.

WARNING TO CALIFORNIA RESIDENTS:

Handling the cables supplied with this product will expose you to lead, a chemical known to the State of California to cause birth defects or other reproductive harm. Wash hands after handling.



CAUTION

Do not put the projector on its side when the lamp is turned on. Doing so may cause damage to the projector.

RF Interference

WARNING

The Federal Communications Commission does not allow any modifications or changes to the unit EXCEPT those specified by NEC Solutions (America), Inc. in this manual. Failure to comply with this government regulation could void your right to operate this equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

In UK, a BS approved power cable with moulded plug has a Black (five Amps) fuse installed for use with this equipment. If a power cable is not supplied with this equipment please contact your supplier.

Important Safeguards

These safety instructions are to ensure the long life of your projector and to prevent fire and shock. Please read them carefully and heed all warnings.

Installation

1. For best results, use your projector in a darkened room.
2. Place the projector on a flat, level surface in a dry area away from dust and moisture.
To avoid premature lamp failure, do not tilt the front of the projector up or down by more than 15° from level.
3. Do not place your projector in direct sunlight, near heaters or heat radiating appliances.
4. Exposure to direct sunlight, smoke or steam can harm internal components.
5. Handle your projector carefully. Dropping or jarring can damage internal components.
6. Do not place heavy objects on top of the projector.
7. If you wish to have the projector installed on the ceiling:
 - a. *Do not attempt to install the projector yourself.*
 - b. *The projector must be installed by qualified technicians in order to ensure proper operation and reduce the risk of bodily injury.*
 - c. *In addition, the ceiling must be strong enough to support the projector and the installation must be in accordance with any local building codes.*
 - d. *Please consult your dealer for more information.*

Fire and Shock Precautions

1. Ensure that there is sufficient ventilation and that vents are unobstructed to prevent the build-up of heat inside your projector. Allow at least 4 inches (10 cm) of space between your projector and a wall.
2. Prevent foreign objects such as paper clips and bits of paper from falling into your projector.
Do not attempt to retrieve any objects that might fall into your projector. Do not insert any metal objects such as a wire or screwdriver into your projector. If something should fall into your projector, disconnect it immediately and have the object removed by a qualified service personnel.
3. Do not place any liquids on top of your projector.
4. Do not look into the lens while the projector is on. Serious damage to your eyes could result.
5. Keep any items such as magnifying glass out of the light path of the projector. The light being projected from the lens is extensive, therefore any kind of abnormal objects that can redirect light coming out of the lens, can cause unpredictable outcome such as fire or injury to the eyes.
6. Do not cover the lens with the supplied lens cap or equivalent while the projector is on. Doing so can lead to melting of the cap and possibly burning your hands due to the heat emitted from the light output.
7. Do not place any objects, which are easily affected by heat, in front of the projector lens or a projector exhaust vent.
Doing so could lead to the object melting or getting your hands burned from the heat that is emitted from the light output and exhaust.
8. The projector is designed to operate on a power supply of 100-240 V 50/60 Hz AC. Ensure that your power supply fits this requirement before attempting to use your projector.
9. Handle the power cable carefully and avoid excessive bending.
A damaged cord can cause electric shock or fire.
10. If the projector is not to be used for an extended period of time, disconnect the plug from the power outlet.
11. Do not touch the power plug during a thunderstorm. Doing so can cause electrical shock or fire.
12. Do not handle the power plug with wet hands.

CAUTION

1. Do not try to touch the ventilation outlet on the right and rear side (when seen from the front) as it can become heated while the projector is turned on.
2. Do not use the tilt-foot for purposes other than originally intended. Misuses such as gripping the tilt-foot or hanging on the wall can cause damage to the projector.
Before putting the projector in the soft case, be sure to retract the feet. Failure to do so may cause damage to the projector.
3. When carrying the projector, heed the following:
 - Ensure that the power cable and any other cables are disconnected before moving the projector.
 - Cover the lens with the supplied lens cap so as not to scratch the lens surface.
4. Do not send the projector in the soft case by parcel delivery service or cargo shipment. The projector inside the soft case could be damaged.
5. Select "High" in the Fan mode if you continue to use the projector for consecutive days. (From the menu, select [Advanced] → [Fan Mode] → [High].)
6. Do not unplug the power cable from the wall outlet under any one of the following circumstances.
Doing so can cause damage to the projector:
 - * *While the projector is turned on.*
 - * *While the cooling fans are running. (The cooling fans continue to work for 60 seconds after the projector is turned off).*
7. If you accidentally turn off the main power by disconnecting the power cable or press the main power switch during cooling down, wait 10 minutes and then turn on the projector to resume. This is to protect the lamp.

Lamp Replacement

- To replace the lamp, follow all instructions provided on page [E-44](#).
- Be sure to replace the lamp when the message **"The lamp has reached the end of its usable life. Please replace the lamp."** appears. If you continue to use the lamp after the lamp has reached the end of its usable life, the lamp bulb may shatter, and pieces of glass may be scattered in the lamp case. Do not touch them as the pieces of glass may cause injury.
If this happens, contact your dealer for lamp replacement.
- Allow a minimum of 60 seconds to elapse after turning off the projector. Then turn off the main power switch, disconnect the power cable and allow 60 minutes to cool the projector before replacing the lamp.

What's in the Box?

Make sure your box contains everything listed. If any pieces are missing, contact your dealer.
Please save the original box and packing materials if you ever need to ship your Projector.

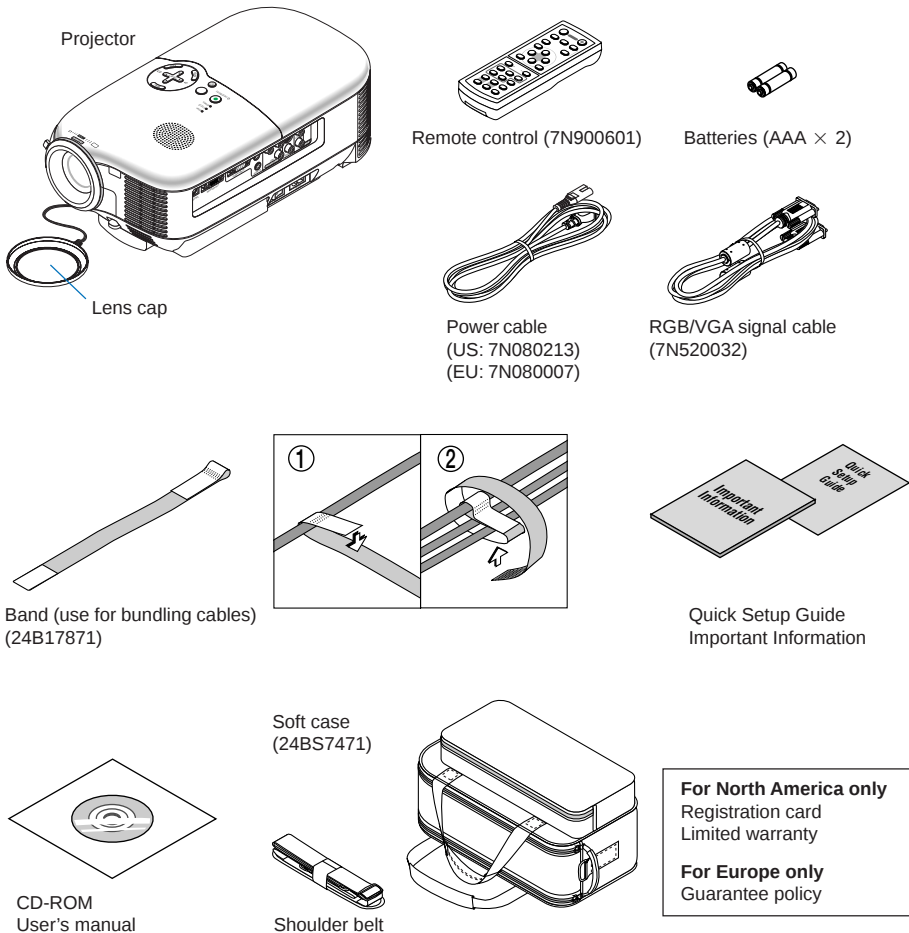


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1. INTRODUCTION

Introduction to the Projector

This section introduces you to your new NEC LT180 Projector and describes its features and controls.

Congratulations on Your Purchase of The LT180 Projector

The LT180 is one of the very best projectors available today. The LT180 enables you to project precise images up to 200 inches (measured diagonally) from your PC or Macintosh computer (desktop or notebook), VCR, DVD player, document camera, or a laser disc player.

You can use the projector on a tabletop or cart, you can use the projector to project images from behind the screen, and the projector can be permanently mounted on a ceiling*¹. The remote control can be used wirelessly.

Features you'll enjoy on the LT180 projector:

- 4:3 native screen display
- Exceptionally quiet – as low as 34dB fan noise in Eco-Mode
- High resolution images – 1024×768 display
- HDTV (1080i, 720p) and SDTV (576p, 480p) compatibility
- Adjustable rear foot for enhanced projector placement and alignment to the screen
- Eco-Mode™ technology – increases lamp life by up to 50% and reduces noise level to <34dB
- 3 video inputs – 1 component, 1 S-Video and 1 video for multiple video source connectivity
- 1 monitor out – 1 RGB and 1 stereo mini jack for audio connectivity
- Integrated deinterlace video processing technology
- Display popular wide screen and full screen aspect ratios – 16:9 and 4:3
- Built in speaker for an integrated audio solution
- Easy set up and operation
- High performance long life lamp for low total operating costs
- Wireless remote control operation
- Multiple video mode selections depending on your source
- Control the unit with a PC using the PC Control port
- NEC's exclusive intelligent scaling and pixel blending technology provides for extremely accurate image compression up to HDTV (1920×1080) and SXGA+ (1400×1050) display resolution*²
- Supports most IBM VGA, SVGA, XGA, Macintosh, component signal (YCbCr/YPbPr) or other RGB signals within a horizontal frequency range of 24 to 100 kHz and a vertical frequency range of 50 to 85 Hz. This includes NTSC, NTSC4.43, PAL, PAL-M, PAL-N, PAL60 and SECAM standard video signals

NOTE: Composite video standards are as follows:

NTSC: U.S. TV standard for video in U.S. and Canada.

PAL: TV standard used in Western Europe.

PAL-N: TV standard used in Argentine, Paraguay and Uruguay.

PAL-M: TV standard used in Brazil.

PAL60: TV standard used for NTSC playback on PAL TVs.

SECAM: TV standard used in France and Eastern Europe.

NTSC4.43: TV standard used in Middle East countries.

*¹ Do not attempt to mount the projector on a ceiling yourself.

The projector must be installed by qualified technicians in order to ensure proper operation and reduce the risk of bodily injury.

In addition, the ceiling must be strong enough to support the projector and the installation must be in accordance with any local building codes. Please consult your dealer for more information.

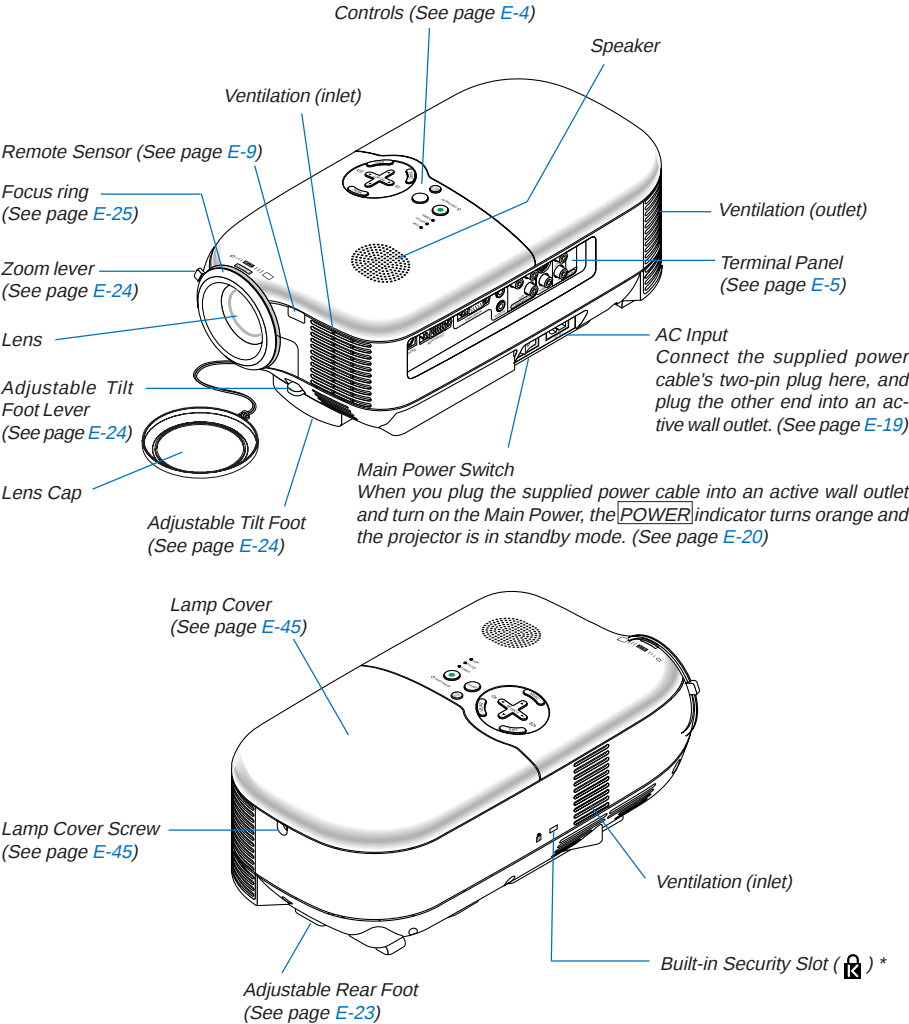
*² HDTV 1080i (1920×1080), HDTV 720p (1280×720) and SXGA+ (1400×1050) are displayed with NEC's intelligent scaling technology.

About this user's manual

The fastest way to get started is to take your time and do everything right the first time. Take a few minutes now to review the user's manual. This may save you time later on. At the beginning of each section of the manual you'll find an overview. If the section doesn't apply, you can skip it.

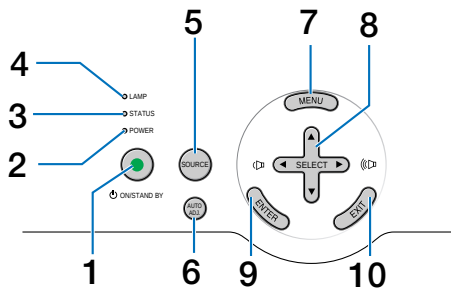
- Digital Light Processing and DLP are trademarks of Texas Instruments.
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- Mac and PowerBook are trademarks of Apple Computer, Inc., registered in the U.S. and other countries.
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Part Names of the Projector



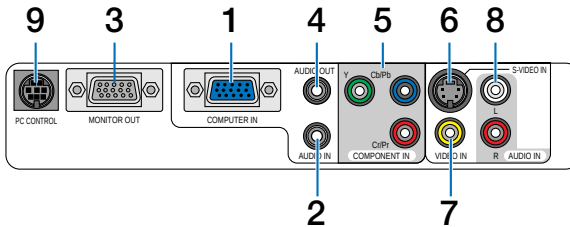
* This security slot supports the MicroSaver® Security System. MicroSaver® is a registered trademark of Kensington Microware Inc. The logo is trademarked and owned by Kensington Microware Inc.

Top Features



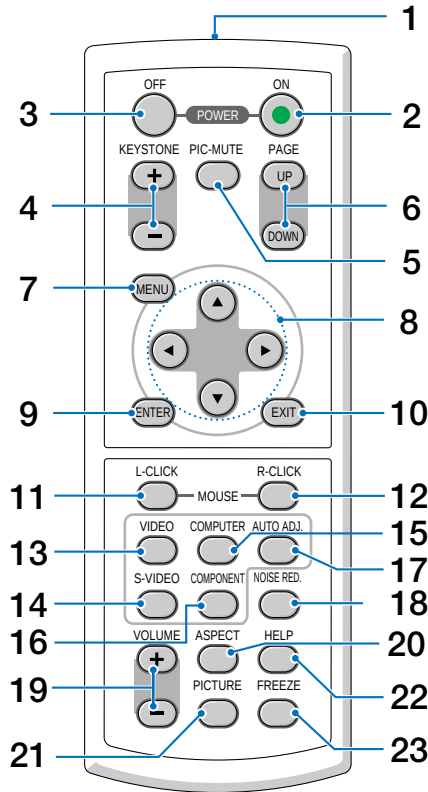
1. **ON/STAND BY** button (⏻)
 Use this button to turn the power on and off when the main power is supplied and the projector is in standby mode.
 To turn on the projector, press and hold this button for a minimum of two seconds. To turn off the projector, press this button twice.
2. **POWER** indicator (LED)
 When this indicator is green, the projector is on; when this indicator is orange, it is in standby mode. See the power Indicator section on page E-48 for more details.
3. **STATUS** indicator (LED)
 If this light blinks red rapidly, it indicates that an error has occurred, the lamp cover is not attached properly or the projector has overheated. If this light remains orange, it indicates that you have pressed a cabinet key while the Cabinet Button is locked. See the Status Indicator section on page E-48 for more details.
4. **LAMP** indicator (LED)
 If this light blinks red rapidly, it's warning you that the lamp has reached the end of its usable life. After this light appears, replace the lamp as soon as possible (See page E-44). See the Lamp Indicator section on page E-48 for more details.
5. **SOURCE** button
 This button will allow you to select a video source such as a PC, VCR or DVD player.
 Press and quickly release this button to display the Source list. Each time this button is pressed, each source name will be highlighted in sequence. Highlighting a source name for 2 seconds without pressing the **ENTER** button will display the selected source.
6. **AUTO ADJ.** button
 Use this button to adjust an RGB source for an optimal picture (See page E-26).
7. **MENU** button
 Displays the menu.
8. **SELECT** ▲▼◀▶ / volume +/- buttons
 ▲▼ : Use these buttons to select the menu of the item you wish to adjust.
 ▶◀ : Use these buttons to change the level of a selected menu item. When no menus appear, these buttons work as a volume control.
9. **ENTER** button
 Executes your menu selection and activates items selected from the menu.
10. **EXIT** button
 Pressing this button will return to the previous menu.
 While you are in the main menu, pressing this button will close the menu.

Terminal Panel Features



1. **COMPUTER IN / Component Input Connector (Mini D-Sub 15 Pin)**
Connect your computer or other analog RGB equipment such as IBM compatible or Macintosh computers. Use the supplied RGB/VGA cable to connect to your computer. This also serves as a component input connector that allows you to connect a component video output of component equipment such as a DVD player (optional adapter ADP-CV1 required).
2. **AUDIO IN mini jack (Stereo Mini)**
This is where you connect the audio output from your computer or DVD player when connected to the COMPUTER IN or COMPONENT IN.
3. **MONITOR OUT Connector (Mini D-Sub 15 Pin)**
You can use this connector to loop your computer image to an external monitor from the RGB input source. This connector outputs RGB signal in standby mode.
4. **AUDIO OUT Mini Jack (Stereo Mini)**
You can use this jack to output sound from the currently selected source (COMPUTER, COMPONENT, VIDEO or S-VIDEO). Output sound level can be adjusted in accordance with the sound level of the internal speaker. Note that this cannot be used as a headphone jack. (When audio equipment is connected, the projector speaker is disabled.)
When a cable mini-plug is inserted into this jack, both the right and left audio signals are not mixed, but separate.
For example, when a cable mini-plug is inserted into the left AUDIO IN jack only, only left sound is output.
5. **COMPONENT IN (Y, Cb/Pb, Cr/Pr) connectors (RCA)**
Connect component video outputs (Y/Cb/Cr, Y/Pb/Pr) here from external equipment such as a DVD player.
6. **S-VIDEO IN connector (Mini DIN 4 Pin)**
Here is where you connect the S-Video output from an external source like a VCR.
NOTE: *S-Video provides more vivid color and higher resolution than the traditional composite video format.*
7. **VIDEO IN connector (RCA)**
Connect a VCR, DVD player, laser disc player, or document camera here to project video.
8. **AUDIO IN jacks L & R (RCA)**
These are your left and right channel audio inputs for stereo sound from a Video or S-Video source.
9. **PC CONTROL Port (Mini DIN 8 Pin)**
Use this port to connect a PC or control system. This enables you to control the projector using serial communication protocol. If you are writing your own program, typical PC control codes are on page [E-56](#).

Part Names of the Remote Control

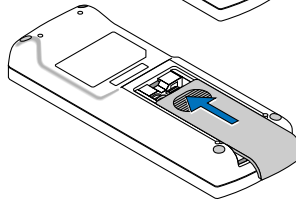
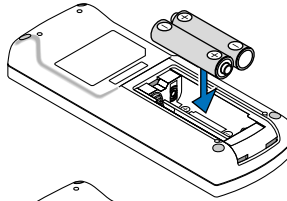
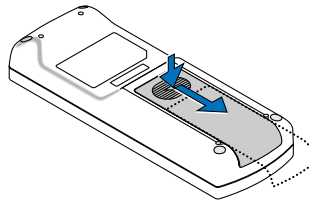


1. **Infrared Transmitter**
Direct the remote control toward the remote sensor on the projector cabinet.
2. **POWER ON** Button
When the main power is on, you can use this button to turn your projector on.
NOTE: To turn on the projector, press and hold the **POWER ON** button for a minimum of two seconds.
3. **POWER OFF** Button
You can use this button to turn your projector off.
NOTE: To turn off the projector, press the **POWER OFF** button twice.
4. **KEYSTONE** (+) (-) Button
Press this button to correct the keystone (trapezoidal) distortion, and make the image square. See page E-25.
5. **PIC-MUTE** Button
This button turns off the image and sound for a short period of time. Press again to restore the image and sound.
6. **PAGE UP/DOWN** Button
Not available on this model.

7. **[MENU]** Button
Displays the menu for various settings and adjustments.
8. **[SELECT] ▲▼◀▶** Button
▲▼ : Use these buttons to select the menu of the item you wish to adjust.
◀▶ : Use these buttons to change the level of a selected menu item.
9. **[ENTER]** Button
Use this button to enter your menu selection. It works the same as the **[ENTER]** button on the cabinet. See page [E-4](#).
10. **[EXIT]** Button
It works the same as the **[EXIT]** button on the cabinet. See page [E-4](#).
11. **[MOUSE L-CLICK]** Button
Not available on this model.
12. **[MOUSE R-CLICK]** Button
Not available on this model.
13. **[VIDEO]** Button
Press this button to select a video source connected to the VIDEO input.
14. **[S-VIDEO]** Button
Press this button to select an S-Video source connected to the S-VIDEO input.
15. **[COMPUTER]** Button
Press this button to select a video source from computer or component equipment connected to your COMPUTER IN port.
16. **[COMPONENT]** Button
Press this button to select a video source from component equipment connected to the COMPONENT input.
17. **[AUTO ADJ.]** Button
Use this button to adjust an RGB source for an optimal picture. See page [E-26](#).
18. **[NOISE RED.]** Button
This button will turn on the noise reduction feature to reduce video noise.
19. **[VOLUME](+)(-)** Button
Press (+) to increase the volume and (-) to decrease it.
20. **[ASPECT]** Button
Press this button once to display the Aspect Ratio select menu. Continue pressing to change aspect ratios. See page [E-36](#).
21. **[PICTURE]** Button
Press this button to display the Picture menu. Each time this button is pressed, the option will be changed. See page [E-34](#).
22. **[HELP]** Button
Provides the information about the status of the projector.
23. **[FREEZE]** Button
This button will freeze a picture. Press again to resume motion.

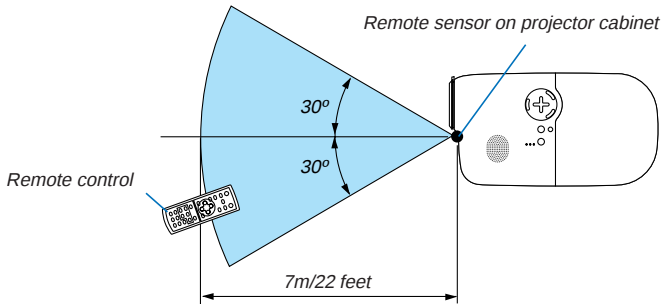
Battery Installation

- 1** Press firmly and slide the battery cover off.
- 2** Remove both old batteries and install new ones (AAA). Ensure that you have the batteries' polarity (+/-) aligned correctly.
- 3** Slip the cover back over the batteries until it snaps into place. Do not mix different types of batteries or new and old batteries.



Remote Control Precautions

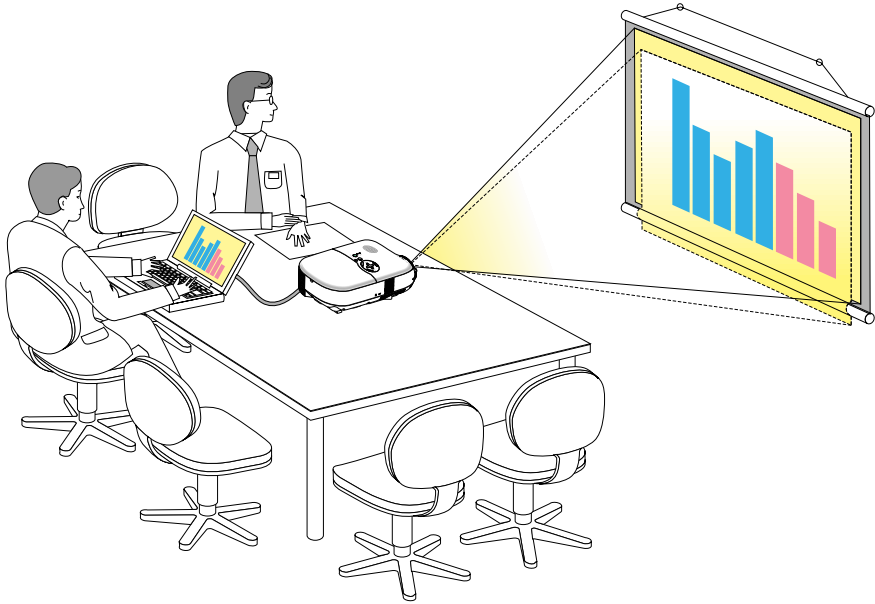
- Handle the remote control carefully.
- If the remote control gets wet, wipe it dry immediately.
- Avoid excessive heat and humidity.
- If you will not be using the remote control for a long time, remove the batteries.
- Do not place the batteries upside down.
- Do not use new and old batteries together, or use different types of batteries together.
- Dispose of used batteries according to your local regulations.

Operating Range for Wireless Remote Control

- The infrared signal operates by line-of-sight up to a distance of about 22 feet/7 m and within a 60-degree angle of the remote sensor on the projector cabinet.
- The projector will not respond if there are objects between the remote control and the sensor, or if strong light falls on the sensor. Weak batteries will also prevent the remote control from properly operating the projector.

2. INSTALLATION AND CONNECTIONS

This section describes how to set up your projector and how to connect PCs, video and audio sources.



Your projector is simple to set up and use. But before you get started, you must first:

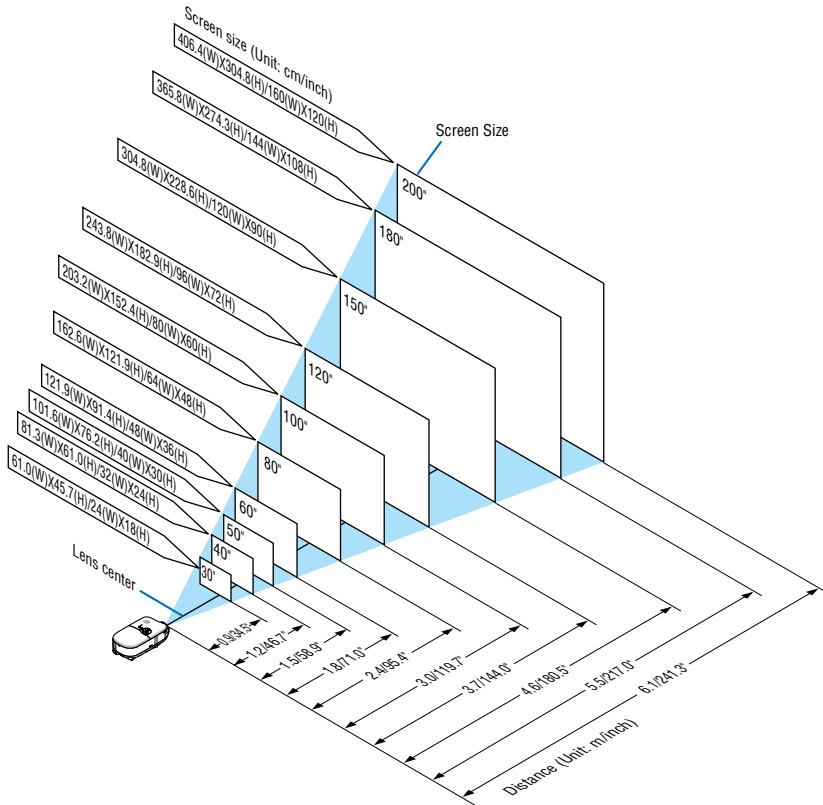
- 1 Set up a screen and the projector.
- 2 Connect your video equipment or computer to the projector. See page [E-14](#) to [E-18](#).
- 3 Connect the supplied power cable. See page [E-19](#).

NOTE: Ensure that the power cable and any other cables are disconnected before moving the projector. When moving the projector or when it is not in use, cover the lens with the lens cap.

Setting Up the Screen and the Projector

Selecting a Location

The further your projector is from the screen or wall, the larger the image. The minimum size the image can be is approximately 30" (0.76 m) measured diagonally when the projector is roughly 0.9 m/35 inches from the wall or screen. The largest the image can be is 200" (5.0 m) when the projector is roughly 6.1 m/241 inches from the wall or screen. Use the drawing below as a guide.

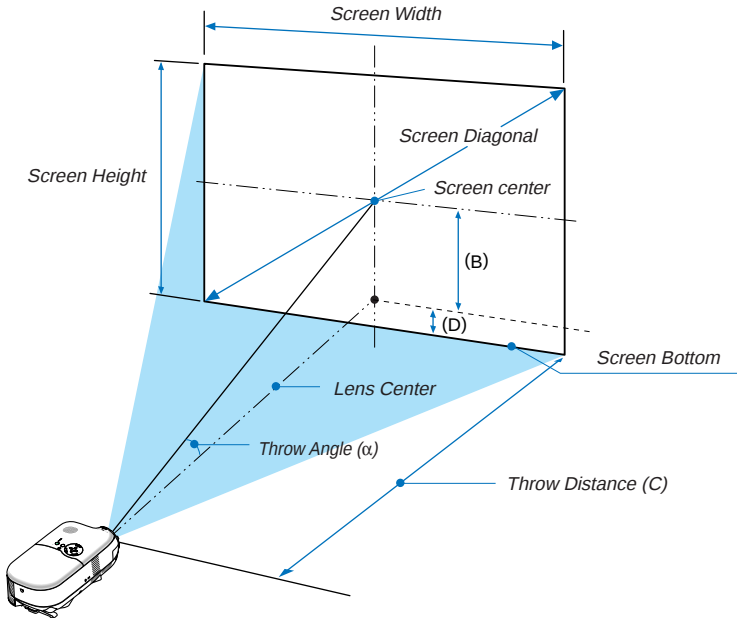


NOTE: The distances are indicated by intermediate values between tele and wide. Use as a rule of thumb.

Throw Distance and Screen Size

The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation.

Distance Chart



Screen Size (4:3)						B				C				D				α	
Diagonal		Width		Height		wide		tele		wide		tele		wide		tele		wide	tele
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	degree	degree
30	762.0	24.0	609.6	18.0	457.2	7.1	181.4	7.2	182.1	31.4	797.7	37.7	957.2	-1.8	-45.2	-1.8	-45.5	12.8	10.8
40	1016.0	32.0	812.8	24.0	609.6	9.5	241.8	9.6	242.8	42.5	1080.1	50.9	1292.6	-2.4	-60.2	-2.4	-60.2	12.6	10.6
50	1270.0	40.0	1016.0	30.0	762.0	11.9	302.2	11.9	303.5	53.6	1362.6	64.1	1628.0	-3.0	-75.3	-3.0	-75.8	12.5	10.6
60	1524.0	48.0	1219.2	36.0	914.4	14.3	362.6	14.3	364.2	64.8	1645.0	77.3	1963.4	-3.6	-90.3	-3.6	-90.9	12.4	10.5
67	1701.8	53.6	1361.4	40.2	1021.1	15.9	404.9	16.0	406.7	72.5	1842.7	86.5	2198.2	-4.0	-100.9	-4.0	-101.5	12.4	10.5
72	1828.8	57.6	1463.0	43.2	1097.3	17.1	435.1	17.2	437.1	78.1	1984.0	93.1	2365.9	-4.3	-108.4	-4.3	-109.1	12.4	10.5
84	2133.6	67.2	1706.9	50.4	1280.2	20.0	507.6	20.1	509.9	91.5	2322.9	109.0	2768.3	-5.0	-126.4	-5.0	-127.3	12.3	10.4
90	2286.0	72.0	1828.8	54.0	1371.6	21.4	543.8	21.5	546.3	98.1	2492.4	116.9	2969.6	-5.3	-135.5	-5.4	-136.4	12.3	10.4
100	2540.0	80.0	2032.0	60.0	1524.0	23.8	604.2	23.9	607.0	109.2	2774.8	130.1	3305.0	-5.9	-150.5	-6.0	-151.5	12.3	10.4
120	3048.0	96.0	2438.4	72.0	1828.8	28.5	725.0	28.7	728.4	131.5	3339.7	156.5	3975.8	-7.1	-180.6	-7.2	-181.8	12.3	10.4
150	3810.0	120.0	3048.0	90.0	2286.0	35.7	906.2	35.8	910.5	164.8	4187.1	196.1	4982.0	-8.9	-225.7	-8.9	-227.3	12.2	10.4
180	4572.0	144.0	3657.6	108.0	2743.2	42.8	1087.4	43.0	1092.6	198.2	5034.4	235.8	5988.2	-10.7	-270.9	-10.7	-272.7	12.2	10.3
200	5080.0	160.0	4064.0	120.0	3048.0	47.6	1208.2	47.8	1214.0	220.4	5599.3	262.2	6658.9	-11.9	-301.0	-11.9	-303.0	12.2	10.3

B = Vertical distance between lens center and screen center

C = Throw distance

D = Vertical distance between lens center and bottom of screen for desktop (top of screen for ceiling)

α = Throw angle

NOTE: Distances may vary +/-5%.

WARNING

- * **Installing your projector on the ceiling must be done by a qualified technician. Contact your NEC dealer for more information.**
- * **Do not attempt to install the projector yourself.**
- Only use your projector on a solid, level surface. If the projector falls to the ground, you can be injured and the projector severely damaged.
- Do not use the projector where temperatures vary greatly. The projector must be used at temperatures between 41°F (5°C) and 95°F (35°C).
- Do not expose the projector to moisture, dust, or smoke. This will harm the screen image.
- Ensure that you have adequate ventilation around your projector so heat can dissipate. Do not cover the vents on the side or the front of the projector.

Rear Projection Applications

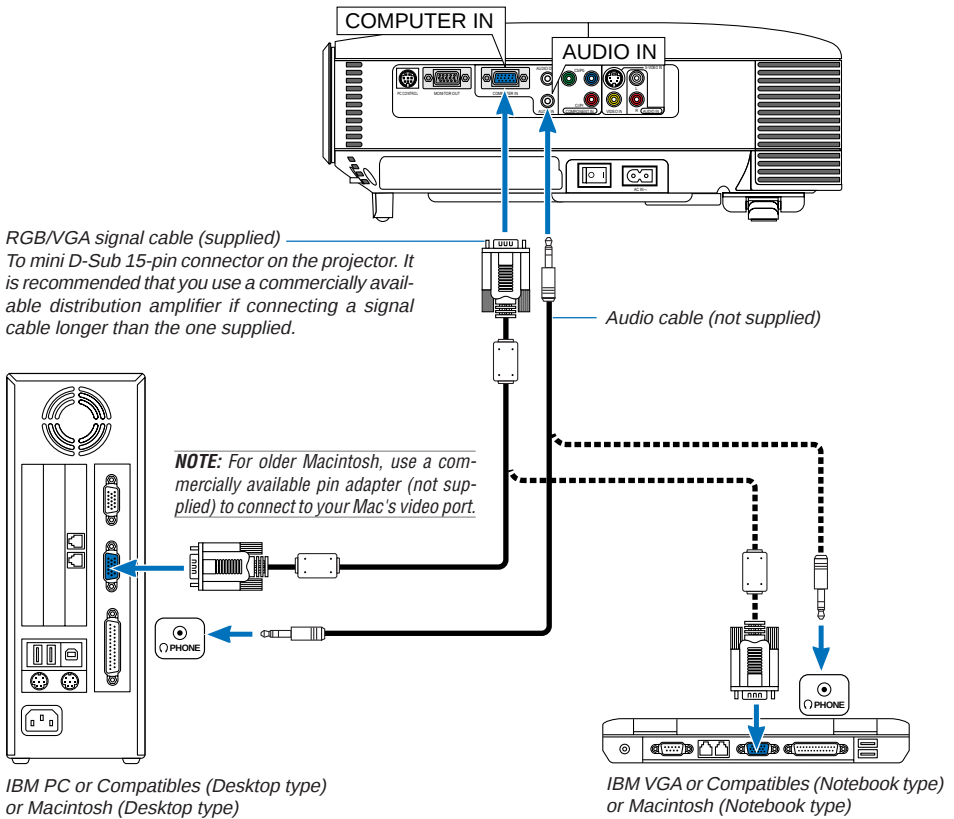
The projector has the ability to be used in a rear projection application. When used with a third party mirror and frame system, rear projection allows you to achieve a larger image size in less distance than a traditional front projection installation. If space constraints exist, please contact your authorized NEC reseller regarding a rear projection solution. Refer to page [E-38](#) on how to change the projector orientation for use in a rear projection application.

Making Connections

Connecting Your PC or Macintosh Computer

NOTE: When using with a notebook PC, be sure to connect between the projector and the notebook PC before turning on the power to the notebook PC. In most cases signal cannot be output from RGB output unless the notebook PC is turned on after connecting with the projector.

* If the screen goes blank while using your remote control, it may be the result of the computer's screen-saver or power management software.

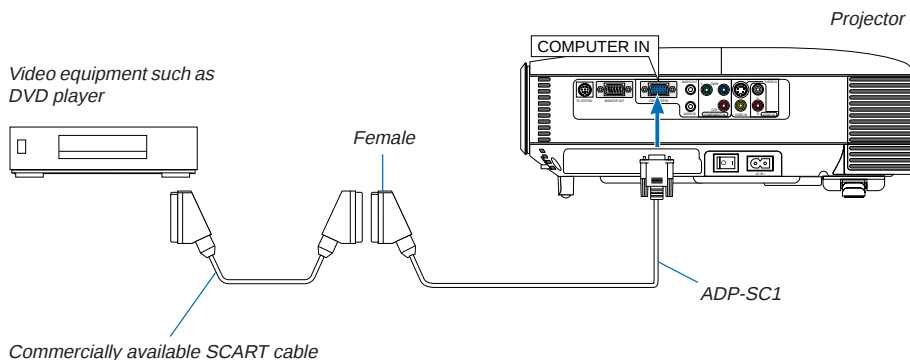


Connecting your PC or Macintosh computer to your projector will enable you to project your computer's screen image for an impressive presentation.

To connect to a PC or Macintosh, simply:

1. Turn off the power to your projector and computer.
2. Use the supplied RGB/VGA signal cable to connect your PC or Macintosh to the projector.
3. Turn on the projector and the computer.
4. If the projector goes blank after a period of inactivity, it may be caused by a screen saver installed on the computer you've connected to the projector.

To connect SCART output (RGB)



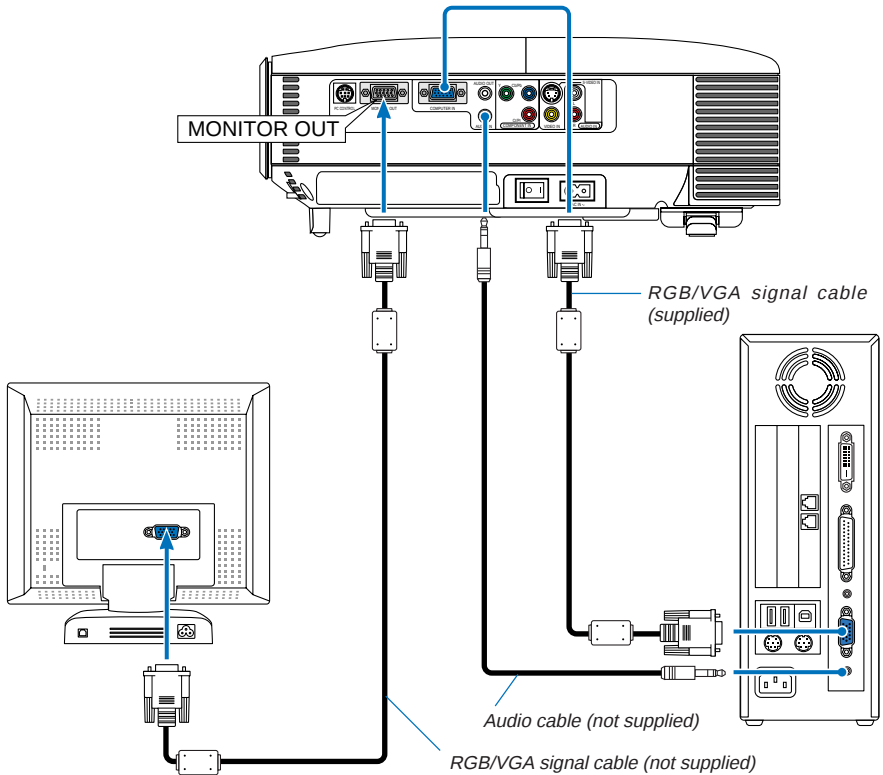
Before connections: An exclusive SCART adapter (ADP-SC1) and a commercially available SCART cable are required for this connection.

NOTE: Audio signal is not available for this connection.

1. Turn off the power to the projector and your video equipment.
2. Use the NEC ADP-SC1 SCART adapter and a commercially available SCART cable to connect the **COMPUTER** input of your projector and a SCART output (RGB) of your video equipment.
3. Connect the supplied power cable. See page [E-19](#).
4. Turn on the power to the projector and your video equipment.
5. Use the **SOURCE** button on the projector cabinet to select the **COMPUTER** input.
6. Press the **MENU** button on the projector cabinet to display the menu.
7. From the menu, select **[Advanced]** → **[Signal Select]** → **[Computer]** → **[Scart]**.
SCART is a standard European audio-visual connector for TVs, VCRs and DVD players. It is also referred to as Euro-connector.

NOTE: The ADP-SC1 SCART adapter is obtainable from your NEC dealer in Europe. Contact your NEC dealer in Europe for more information.

Connecting an External Monitor



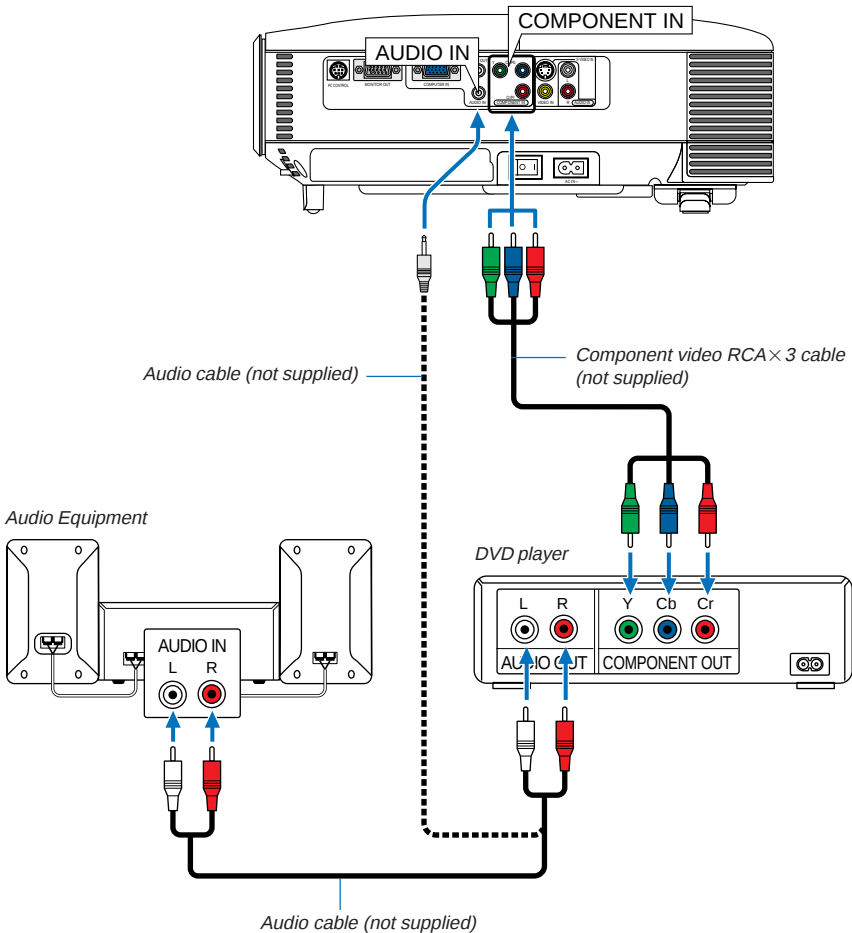
You can connect a separate, external monitor to your projector to simultaneously view on a monitor the RGB analog image you're projecting.

To do so:

1. Turn off the power to your projector, monitor and computer.
2. Use an RGB/VGA cable to connect your monitor to the MONITOR OUT (Mini D-Sub 15 pin) connector on your projector.
3. Connect the supplied power cable. See page [E-19](#).
4. Turn on the projector, monitor and the computer.

NOTE: Daisy chain connection is not possible.

Connecting Your DVD Player

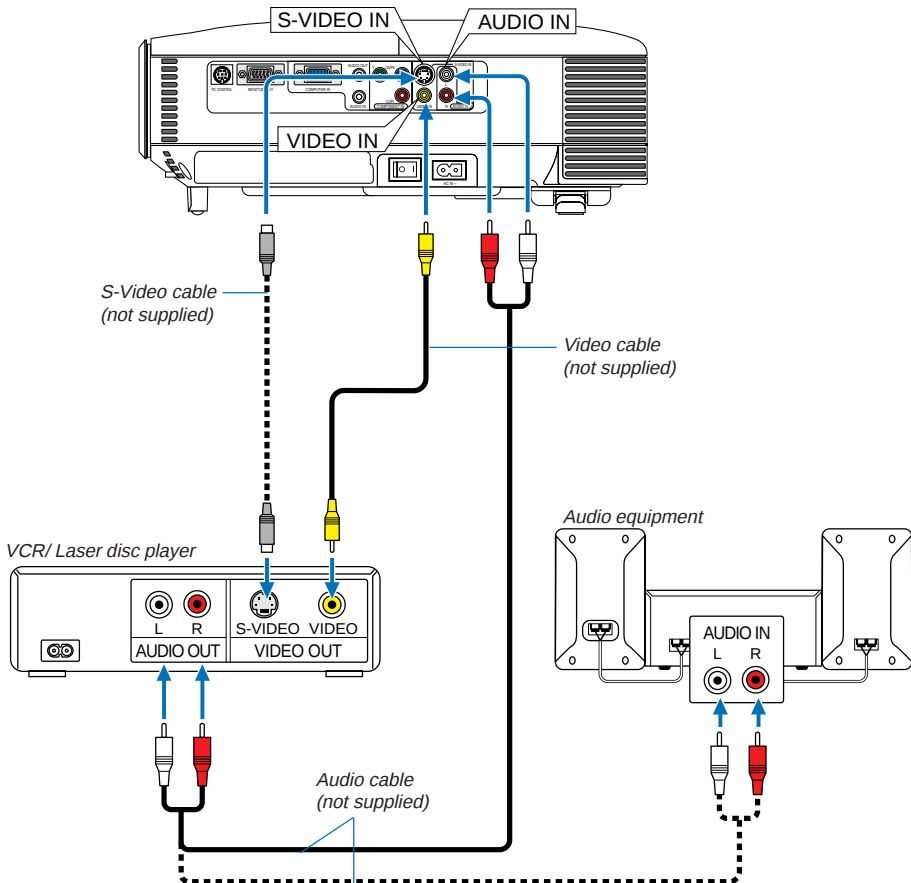


You can connect your projector to a DVD player with component output or Video output. To do so, simply:

1. Turn off the power to your projector and DVD player.
2. If your DVD player has the component video (Y,Cb,Cr) output, use a component video cable (RCA × 3) to connect your DVD player to the COMPONENT IN connectors on the projector.
For a DVD player without component video (Y,Cb,Cr) output, use the S-Video cable to connect the S-Video output of the DVD player to the S-VIDEO Input of the projector.
Use an audio cable to connect the audio from your DVD player to your audio equipment (if your DVD player has this capability). Be careful to keep your right and left channel connections correct for stereo sound.
3. Turn on the projector and DVD player.

NOTE: Refer to your DVD player's owner's manual for more information about your DVD player's video output requirements.

Connecting Your VCR or Laser Disc Player



Use S-Video or RCA cables to connect your VCR, laser disc player or document camera to your projector. To make these connections, simply:

1. Turn off the power to the projector and VCR, laser disc player or document camera.
2. Connect one end of your RCA or S-Video cable to the video output connector on the back of your VCR or laser disc player, connect the other end to the VIDEO IN or S-VIDEO IN on your projector. Use an audio cable to connect the audio from your VCR or laser disc player to your audio equipment (if your VCR or laser disc player has this capability). Be careful to keep your right and left channel connections correct for stereo sound.
3. Turn on the projector and the VCR or laser disc player.

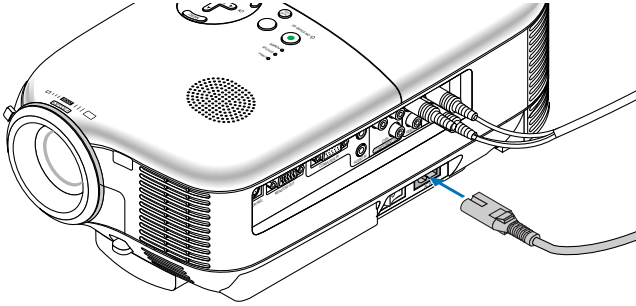
NOTE: Refer to your VCR or laser disc player owner's manual for more information about your equipment's video output requirements.

NOTE: An image may not be displayed correctly when a Video or S-Video source is played back in fast-forward or fast-rewind via a scan converter.

Connecting the Supplied Power Cable

Connect the supplied power cable to the projector.

First connect the supplied power cable's two-pin plug to the AC IN of the projector, and then connect the other plug of the supplied power cable in the wall outlet.



CAUTION

Do not unplug the power cable from the wall outlet under any one of the following circumstances. Doing so can cause damage to the projector:

- * While the projector is turned on.
- * While the cooling fans are running. (The cooling fans continue to work for 60 seconds after the projector is turned off).

3. PROJECTING AN IMAGE (BASIC OPERATION)

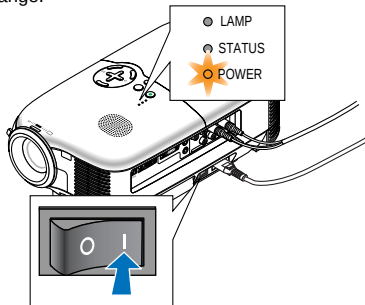
This section describes how to turn on the projector and to project a picture onto the screen.

Turning on the Projector

NOTE:

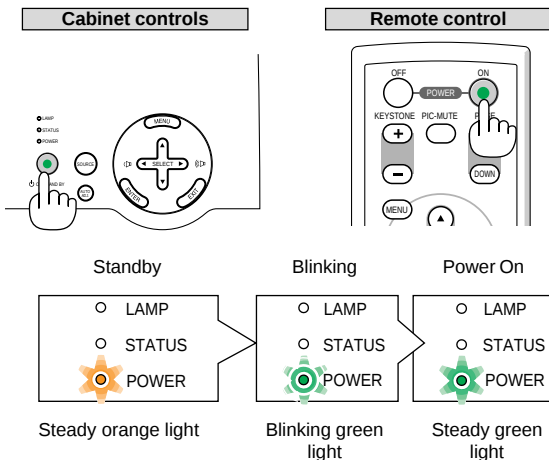
- The projector has two power switches: a main power switch and an **[ON/STAND BY]** button.
- When plugging in or unplugging the supplied power cable, make sure that the main power switch is pushed to the off (O) position. Failure to do so may cause damage to the projector.

To turn on the main power to the projector, press the Main Power switch to the on (I) position. The **[POWER]** indicator will light orange.



Before you turn on your projector, ensure that the computer or video source is turned on and that your lens cap is removed.

Only after you press the **[ON/STAND BY]** button on the projector cabinet or **[POWER ON]** button on the remote control for a minimum of 2 seconds will the **[POWER]** indicator turn to green and the projector become ready to use.



See page E-48 for more details.

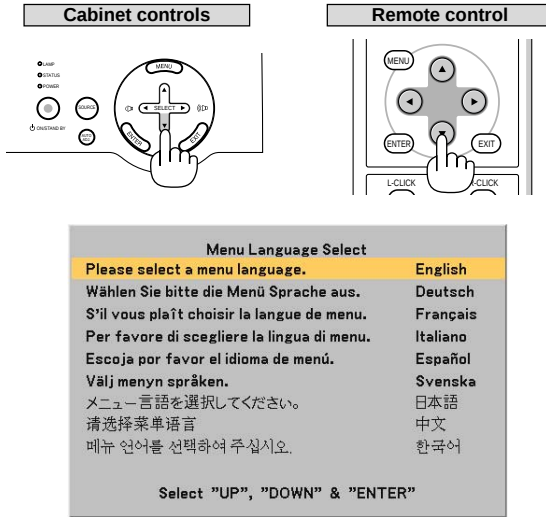
NOTE: The **[POWER]** and **[STATUS]** (LED) indicators blinking green at the same time indicates the main power was interrupted during previous operation. Wait for 60 seconds (cooling period) to see if the lamp turns on by itself.

Note on Startup screen (Menu Language Select screen)

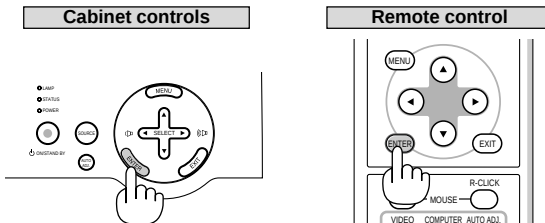
When you first turn on the projector, you will get the Startup screen. This screen gives you the opportunity to select one of the 9 menu languages.

To select a menu language, follow these steps:

1. Use the **[SELECT]**▲ or ▼ button to select one of the 9 languages for the menu.



2. Press the **[ENTER]** button to execute the selection.



After this has been done, you can proceed to the menu operation.

If you want, you can select the menu language later. See "Language" on page E-37.

NOTE: Immediately after turning on the projector, screen flicker may occur. This is not a fault. Wait 3 to 5 minutes until the lamp lighting is stabilized.

When the Lamp mode is set to Eco, the **[LAMP]** indicator will light green.

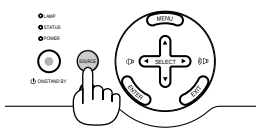
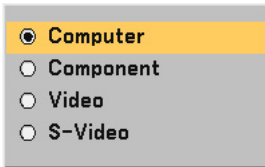
If one of the following things happens, the projector will not turn on.

- * If the internal temperature of the projector is too high, the projector detects abnormal high temperature. In this condition the projector will not turn on to protect the internal system. If this happens, wait for the projector's internal components to cool down.
- * When the lamp reaches its end of usable life, the projector will not turn on. If this happens, replace the lamp.
- * If the lamp fails to light, and if the **[STATUS]** indicator flashes on and off in a cycle of six times, wait a full minute and then turn on the power.

Selecting a Source

Selecting the computer or video source

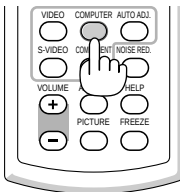
Using the cabinet buttons



Press the **SOURCE** button.

Press and quickly release the **SOURCE** button on the projector cabinet to display the Source list. Each time the **SOURCE** button is pressed, each source name will be highlighted in sequence.

Using the Remote Control



Press any one of the **VIDEO**, **S-VIDEO**, **COMPUTER** or **COMPONENT** buttons.

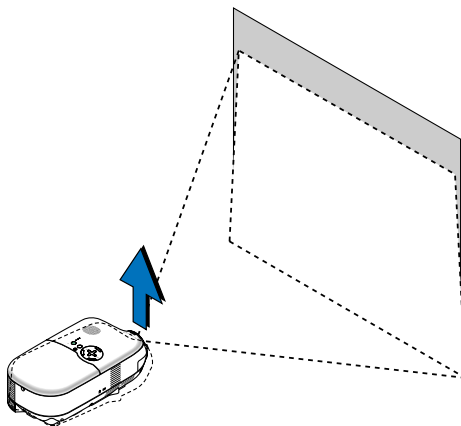
NOTE: If no input signal is available, the projector will display a blue background (factory preset).

Adjusting the Picture Size and Position

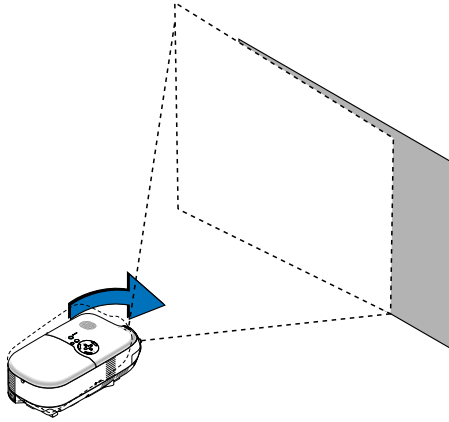
Place your projector on a flat level surface and ensure that the projector is square to the screen.

Lift the front edge of the projector to center the image vertically.

* If the projected image does not appear square to the screen then use the Keystone feature for proper adjustment. See page [E-25](#).



Move the projector left to center the image horizontally on the screen.



Using the Adjustable Rear Foot

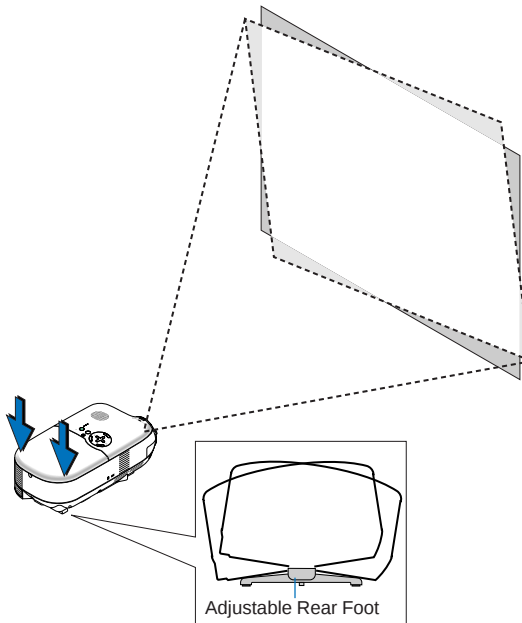
The adjustable rear foot provides the projector with a horizontal tilt adjustment.

If the projector is placed on an uneven surface, keep the projector level by pushing down the left or right rear part of the top cabinet with both hands.

NOTE: A spacer is attached to the adjustable rear foot to provide stability.

Remove the spacer before using the adjustable rear foot.

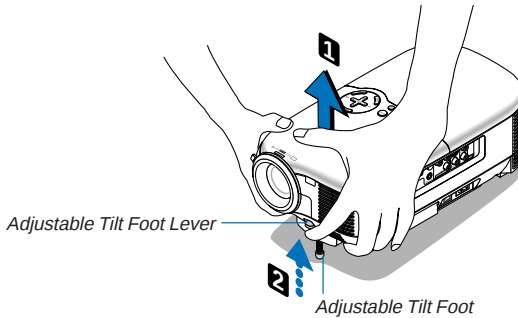
Save the spacer to use when replacing the lamp as it will keep the projector from tilting in the process (See page E-44).



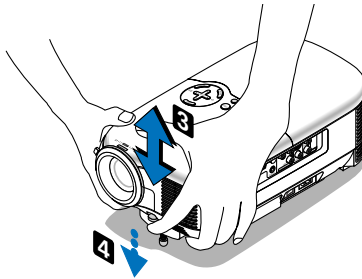
CAUTION: Use care in handling the adjustable rear foot to avoid possible injury to fingers or hands. Using the adjustable rear foot could pinch fingers or hands between the projector bottom and the adjustable rear foot.

Adjusting the Tilt Foot

1. Lift the front edge of the projector.



2. Push up the Adjustable Tilt Foot Lever on the front side of the projector to extend the adjustable tilt foot (maximum height).
3. Push down the Adjustable Tilt Foot Lever.
4. Lower the front of the projector to the desired height and release the Adjustable Tilt Foot Lever to lock the Adjustable tilt foot. There is approximately 10 degrees of tilt "UP" adjustment for the front of the projector.

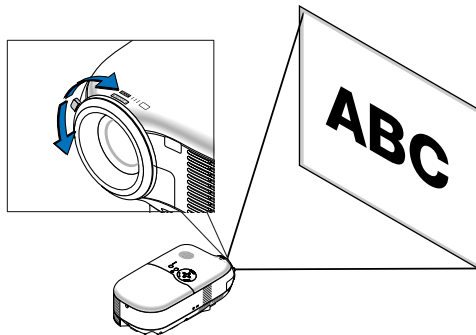


CAUTION

Do not use the tilt-foot for purposes other than originally intended. Misuses such as gripping the tilt-foot or hanging on the wall can cause damage to the projector.

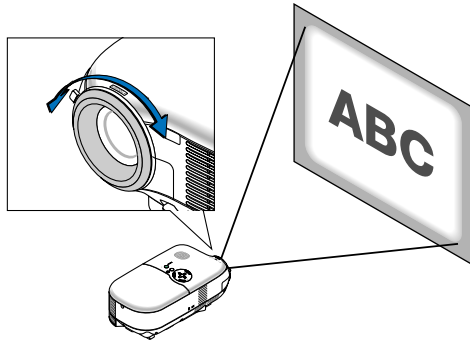
Zoom

Use the Zoom lever to finely adjust the image size on the screen.



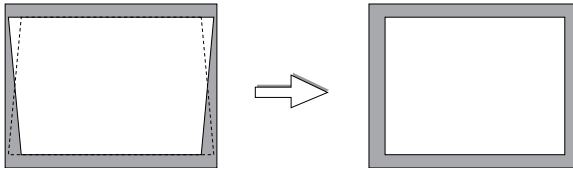
Focus

Use the Focus ring to obtain the best focus.



Correcting the Vertical Keystone Distortion

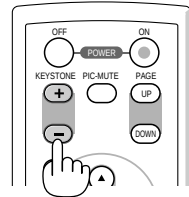
The Keystone correction feature will correct the vertical distortion of a projected image on the screen.



NOTE: Keystone angle can be corrected between 15 degrees upward and 15 degrees downward of projector tilt from level.

To correct keystone distortion using the **KEYSTONE** +/- button:

1. Press the **KEYSTONE** +/- button once to display the slide bar for adjustment.
2. Press the **KEYSTONE** + or - to correct the keystone distortion.



You can also correct keystone distortion by using the menu.

1. Press the **MENU** button to display the menu.
2. Use the **SELECT** ▲ or ▼ to select "Image" and then "Keystone".

NOTE: When this option is highlighted, pressing the **ENTER** button will display its slide bar for adjustment.

3. Press the **SELECT** ◀ or ▶ to correct the keystone distortion.

NOTE: You can save changes by using "Keystone Save" feature when you turn off the projector. See page [E-35](#).

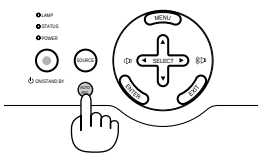
Optimizing an RGB Image Automatically

Adjusting the Image Using Auto Adjust

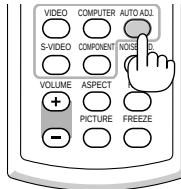
Optimizing an RGB image automatically

Press the **AUTO ADJ.** button to optimize an RGB image automatically.

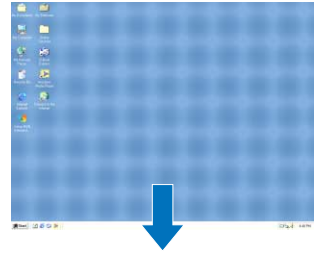
Cabinet controls



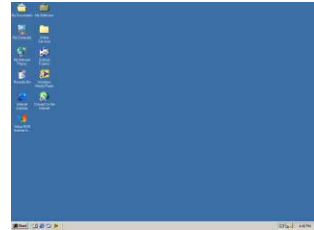
Remote control



[Poor picture]



[Normal picture]



Press the **AUTO ADJ.** button to fine-tune the computer image or to remove any vertical banding that might appear and to reduce video noise, dot interference or cross talk (this is evident when part of your image appears to be shimmering). This function adjusts the clock frequencies that eliminate the horizontal banding in the image. This function also adjusts the clock phase to reduce video noise, dot interference or cross talk. (This is evident when part of your image appears to be shimmering.)

This adjustment may be necessary when you connect your computer for the first time.

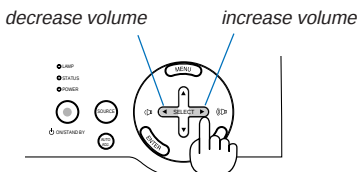
NOTE:

- Some signals may not be displayed correctly or take time.
- The Auto Adjust function does not work for component and video signals.
- If the Auto Adjust operation cannot optimize the RGB signal, try to adjust Clock and Phase manually. See page [E-37](#).

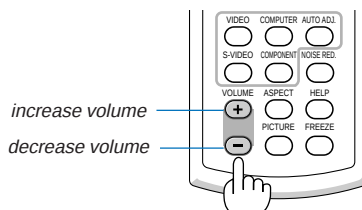
Turning Up or Down Volume

Sound level from the speaker can be adjusted.

Cabinet controls



Remote control

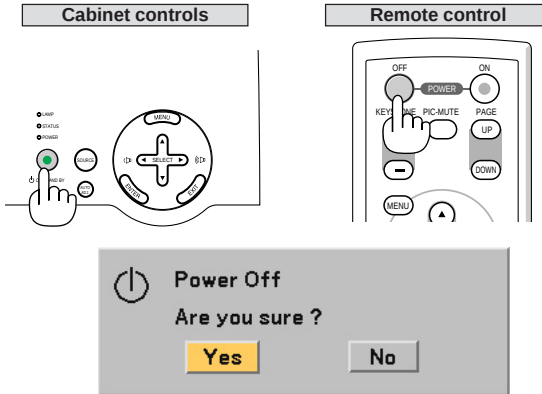


NOTE: When no menus appear, the **SELECT** ◀ and ▶ buttons on the projector cabinet work as a volume control.

Turning off the Projector

To turn off the projector:

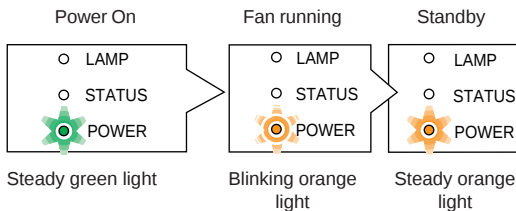
First, press the **ON/STAND BY** button on the projector cabinet or the **POWER OFF** button on the remote control. The "Power Off / Are you sure?" message will appear.



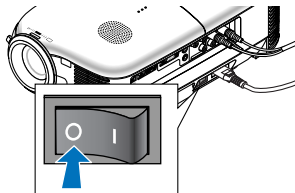
Second, press the **ENTER** button or press the **ON/STAND BY** or the **POWER OFF** button again. The **POWER** indicator will glow orange. After the projector turns off, the cooling fans keep operating for 60 seconds (Cooling-off time).

Immediately after turning on the projector and displaying an image, you cannot turn off the projector for 60 seconds.

Third, turn off the Main Power switch. The **POWER** indicator will go out.



NOTE: To avoid premature lamp failure, wait at least 5 minutes before turning on or off the projector.



CAUTION

Do not unplug the power cable from the wall outlet or do not turn off the main power under any one of the following circumstances. Doing so can cause damage to the projector:

- While the projector is turned on.
- While the cooling fans are running. (The cooling fans continue to work for 60 seconds after the projector is turned off).

After Use

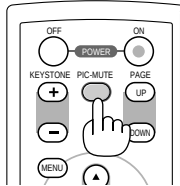
Preparation: Make sure that the projector's main power is off.

1. *Unplug the power cable.*
2. *Disconnect any other cables.*
3. *Retract adjustable tilt foot if extended.*
4. *Cover the lens with the lens cap.*
5. *Put the projector and its accessories in the supplied soft case.*

4. CONVENIENT FEATURES

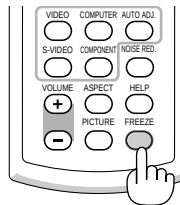
Turning Off the Image and Sound

Press the **PIC-MUTE** button to turn off the image and sound for a short period of time. Press again to restore the image and sound.



Freezing a Picture

Press the **FREEZE** button to freeze a picture. Press again to resume motion.



Reducing Video Noise (Noise Reduction)

You can reduce video noise by using the **NOISE RED.** button on the remote control. To reduce video noise, press the **NOISE RED.** button to turn on the Noise Reduction feature. You can also reduce video noise by using the menu. See page [E-34](#).

