

Projector Specifications

General

Type of display	Poly-silicon Thin Film Transistor (TFT)
Size of liquid crystal panels	Diagonal: 1.3 inches (33.6 mm)
Lens	F=1.8 to 2.3, f=49 to 69 mm
Resolution	1024 × 768 pixels (8000i) 1366 × 1024 pixels (9000i)
Color reproduction	24 bit, 16.7 million colors
Brightness	2200 lumens (ANSI) 8000i 1700 lumens (ANSI) 9000i
Image size	Wide angle: 30 to 320 inches (at 3.6 to 43.3 feet distance) Tele angle: 23 to 320 inches (at 3.6 to 52.1 feet distance)
Projection distance	3.6 to 52.1 feet (1.1 to 15.9 meters)
Projection methods	Front, rear, upside-down (ceiling mount)
Internal speaker system	3 × 3 W stereo output 2 × 3 W 8 (Ω) speakers
Optical aspect ratio	4:3 (horizontal:vertical)
Zoom ratio	1:1.4
Tilt angle	0 to 12°
Keystone correction angle	±20° (±30° using ELP Link IV)
Supported video interface standards	NTSC, PAL, PAL-M, PAL-N, HDTV, SECAM

Projection Lamp

Type	UHE (Ultra High Efficiency)
Power consumption	220 W
Lamp life	About 2000 hours
Part number	ELPLP08

Remote Control

Range	32.8 feet (10 meters)
Batteries	Alkaline AA (2)

Mouse Compatibility

Supports PS/2, USB, serial, ADB

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Remote IR Receiver

Supports EPSON Remote IR Receiver, 10-foot cable (typical use for rear screen projection)

Mechanical

Height	6.1 inches (157 mm), including feet
Width	12 inches (305 mm)
Depth	19.8 inches (475 mm), including lens
Weight	18.3 lb. (8.3 kg)

Electrical

Rated frequency	50 to 60 Hz
Power supply	100 to 120 VAC, 2.4 A 200 to 240 VAC, 1.2 A
Power consumption	Operating: 360 W Standby: 12 W

Environmental

Temperature	Operating: 41 to 104° F (5 to 40° C), non-condensing Storage: 14 to 140° F (-10 to 60° C), non-condensing
Humidity	Operating: 20 to 80% RH, non-condensing Storage: 10 to 90% RH, non-condensing

Safety

United States	FCC Part 15J Class B UL1950 Rev. 3
Canada	DOC SOR/88-475 CSA C22.2 No. 950 Rev. 3

Supported Monitor Displays

Here are the display formats supported by the projector:

	Mode	Resolution	Frequency H(KHz)/V(Hz)
PC98	PC98	640 × 400	24.82 / 56.42
PC/ATDOS/V	VGACGA	640 × 400	31.46 / 70.00
	VGAEGA	640 × 350	31.46 / 70.00
	VGA60	640 × 480	31.47 / 59.94
	VGA72	640 × 480	37.86 / 72.81
	VGA75	640 × 480	37.50 / 75.00
	VGA85	640 × 480	43.27 / 85.01
	SVGA56	800 × 600	35.16 / 56.25
	SVGA60	800 × 600	37.88 / 60.32
	SVGA72	800 × 600	48.08 / 72.19
	SVGA75	800 × 600	46.88 / 75.00
	SVGA85	800 × 600	53.67 / 85.06

	Mode	Resolution	Frequency H(KHz)/V(Hz)
	XGA43i	1024 × 768	35.52 / 43.48
	XGA60	1024 × 768	48.36 / 60.00
	XGA70	1024 × 768	56.48 / 70.07
	XGA75	1024 × 768	60.02 / 75.03
	XGA85	1024 × 768	68.68 / 85.00
	SXGA1_70	1152 × 864	63.85 / 70.01
	SXGA1_75	1152 × 864	67.50 / 75.00
	SXGA1_85	1152 × 864	77.09 / 85.00
	SXGA2_60	1280 × 960	60.00 / 60.00
	SXGA2_75	1280 × 960	75.00 / 75.00
	SXGA2_85	1280 × 960	85.94 / 85.00
	SXGA3_43i	1280 × 1024	46.43 / 43.44
	SXGA3_60	1280 × 1024	63.98 / 60.02
	SXGA3_75	1280 × 1024	79.98 / 75.03
	SXGA_85	1280 × 1024	91.15 / 85.02
	UXGA48i	1600 × 1200	62.50 / 48.04
	UXGA60	1600 × 1200	75.00 / 60.00
	UXGA65	1600 × 1200	81.25 / 65.00
	UXGA70	1600 × 1200	87.50 / 70.00
	UXGA75	1600 × 1200	93.75 / 75.00
	UXGA80	1600 × 1200	100.00 / 80.00
	UXGA85	1600 × 1200	106.25 / 85.00
MAC	MAC13	640 × 480	35.00 / 66.67
	MAC16	832 × 624	49.73 / 74.55
	MAC19-60	1024 × 768	48.19 / 59.28
	MAC19	1024 × 768	60.24 / 74.93
	MAC21	1152 × 870	68.68 / 75.06
VIDEO	SDTV480P (ANSI/SMPTE)	720 × 483	31.47 / 59.94
	SDTV480P (ATSC)	704 × 480	31.47 / 59.94
	SDTV480I (ANSI/SMPTE)	720 × 487	15.73 / 59.94
	SDTV480I (ATSC)	704 × 480	15.73 / 59.94
	HDTV720P (SMPTE)	1280 × 720	44.96 / 59.94
	HDTV1080I (ANSI/SMPTE)	1920 × 1080	67.43 / 59.94
	HDTV1080I (ANSI/SMPTE)	1920 × 1080	33.72 / 59.94
	NTSC (XGA)	1024 × 438	15.734 / 60
	PAL (XGA)	1024 × 576	15.625 / 50
	SECAM (XGA)	1024 × 576	15.625 / 50

Note: The frequencies of some computers may not allow the image to be displayed correctly.

Computer 1 and Computer Out Connector Pin Assignments

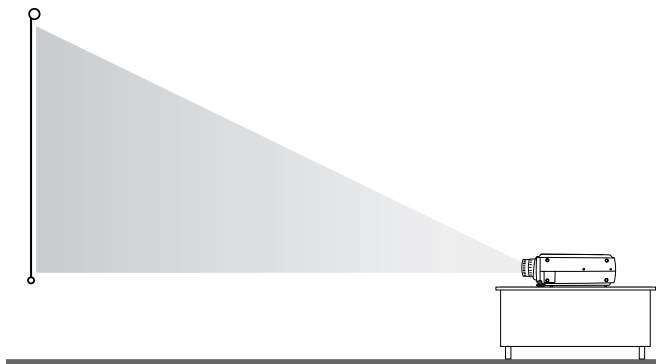
The Computer 1 and Computer Out connectors are female video RGB, 15-pin micro-D-style connectors. The pin assignments are:

Input pin	Computer Out connector signals	Computer 1 connector signals
1	Red out / red video	Red video
2	Green out / green video	Green video
3	Blue out / blue video	Blue video
4	Reserved	Monitor (ID bit 2)
5	GND	GND
6	GND	Red video GND
7	GND	Green video GND
8	GND	Blue video GND
9	Reserved	+5 V
10	GND	Synchronous GND
11	Reserved	Monitor (ID bit 0)
12	Reserved	SDA
13	Horizontal sync	Horizontal sync
14	Vertical sync	Vertical sync
15	Vertical sync	Reserved

Projector Placement Guidelines

To get the best results when projecting your images, it is important to position the projector at the proper height and distance relative to the screen.

When projecting from a table or desk, place the projector so the lens is aligned as closely as possible with the bottom of your screen:



When projecting from the ceiling, align the lens as closely as possible with the top of your screen:



Using the Keystone Feature

In circumstances where the lens cannot be properly aligned, use the projector's Keystone function to help maintain optimum screen geometry.

- ❑ Press the Optical Keystone Adjustment knob on the side of the projector (next to the handle). When the knob pops out, turn it clockwise or counter-clockwise to move the lens up or down. When you're finished, press the knob back in.
- ❑ Adjust angle tilt digitally by pressing the Keystone button on the control panel to increase or decrease the image adjustment. This feature allows you to correct up to a $\pm 20^\circ$ tilt, maintaining an aspect ratio of 4:3. Using the ELP Link IV software, you can correct up to a $\pm 30^\circ$ tilt.

Calculating Image Size and Projection Distance

The distance between the projector and the screen determines the actual image size. To determine the exact distance required for a particular image size (or to determine the size of an image at a particular distance), use the formulas given in this section. (The size of the image can also be changed by rotating the zoom ring.)

Standard Lens Calculations

To determine the minimum and maximum diagonal size of an image when you know the projection distance:

- ❑ **Inches:**
 Maximum diagonal size = $(0.642 \times \text{projection distance}) + 2.197$
 Minimum diagonal size = $(0.507 \times \text{projection distance}) + 1.721$
- ❑ **Centimeters:**
 Maximum diagonal size = $(1.630 \times \text{projection distance}) + 5.5356$
 Minimum diagonal size = $(1.287 \times \text{projection distance}) + 4.3713$

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To determine the projection distance when you know the diagonal size of the screen image:

❑ Inches:

$$\begin{aligned} \text{Maximum projection distance} &= (1.967 \times \text{diagonal size}) - 3.224 \\ \text{Minimum projection distance} &= (1.554 \times \text{diagonal size}) - 3.563 \end{aligned}$$

❑ Centimeters:

$$\begin{aligned} \text{Maximum projection distance} &= (4.996 \times \text{diagonal size}) - 8.1889 \\ \text{Minimum projection distance} &= (3.947 \times \text{diagonal size}) - 9.0500 \end{aligned}$$

For example, here are the measurements for three installations:

Image size (diagonal)	Horizontal distance from projector to screen	
	Minimum	Maximum
300 in.* (762 cm)	460.6 in. (11.7 m)	586.6 in. (14.9 m)
200 in. (508 cm)	307.1 in. (7.8 m)	389.8 in. (9.9 m)
100 in. (254 cm)	153.5 in. (3.9 m)	192.9 in. (4.9 m)

* For an image size of 320 inches, the projector may be up to 52.1 feet away from the screen, depending on the setting of the zoom ring.

Long Throw Zoom Lens Calculations (ELPLL02)

To determine the minimum and maximum diagonal size of an image when you know the projection distance:

❑ Inches:

$$\begin{aligned} \text{Maximum diagonal size} &= (0.487 \times \text{projection distance}) + 2.336 \\ \text{Minimum diagonal size} &= (0.286 \times \text{projection distance}) + 1.458 \end{aligned}$$

❑ Centimeters:

$$\begin{aligned} \text{Maximum diagonal size} &= (1.2369 \times \text{projection distance}) + 5.9334 \\ \text{Minimum diagonal size} &= (0.7264 \times \text{projection distance}) + 3.7033 \end{aligned}$$

To determine the projection distance when you know the diagonal size of the screen image:

❑ Inches:

$$\begin{aligned} \text{Maximum projection distance} &= (3.492 \times \text{diagonal size}) - 5.091 \\ \text{Minimum projection distance} &= (1.554 \times \text{diagonal size}) - 3.563 \end{aligned}$$

❑ Centimeters:

$$\begin{aligned} \text{Maximum projection distance} &= (8.8696 \times \text{diagonal size}) - 12.9311 \\ \text{Minimum projection distance} &= (3.9471 \times \text{diagonal size}) - 9.0500 \end{aligned}$$

Short Throw Zoom Lens Calculations (ELPLW01)

To determine the minimum and maximum diagonal size of an image when you know the projection distance:

❑ Inches:

$$\begin{aligned} \text{Maximum diagonal size} &= (0.876 \times \text{projection distance}) + 3.793 \\ \text{Minimum diagonal size} &= (0.730 \times \text{projection distance}) + 3.029 \end{aligned}$$

❑ Centimeters:

$$\begin{aligned} \text{Maximum diagonal size} &= (2.2250 \times \text{projection distance}) + 9.6342 \\ \text{Minimum diagonal size} &= (1.8542 \times \text{projection distance}) + 7.6936 \end{aligned}$$

To determine the projection distance when you know the diagonal size of the screen image:

❑ Inches:

$$\begin{aligned} \text{Maximum projection distance} &= (1.369 \times \text{diagonal size}) - 4.147 \\ \text{Minimum projection distance} &= (1.142 \times \text{diagonal size}) - 4.331 \end{aligned}$$

❑ Centimeters:

$$\begin{aligned} \text{Maximum projection distance} &= (3.4772 \times \text{diagonal size}) - 10.5333 \\ \text{Minimum projection distance} &= (2.9006 \times \text{diagonal size}) - 11.0007 \end{aligned}$$

Fixed Short Throw Lens Calculations (ELPLR01)

To determine the diagonal size of an image when you know the projection distance:

❑ Inches:

$$\text{Diagonal size} = (1.239 \times \text{projection distance}) + 3.415$$

❑ Centimeters:

$$\text{Diagonal size} = (3.1470 \times \text{projection distance}) + 8.6741$$

To determine the projection distance when you know the diagonal size of the screen image:

❑ Inches:

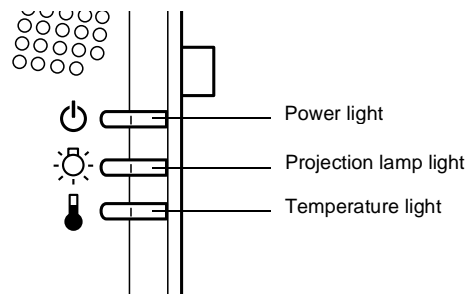
$$\text{Projection distance} = (0.807 \times \text{diagonal size}) - 2.756$$

❑ Centimeters:

$$\text{Projection distance} = (2.0497 \times \text{diagonal size}) - 7.0002$$

Projector Status Lights

The lights on top of the projector indicate the projector's operating status.



Caution: A red light warns you if a serious problem occurs.

Power Light

Light status	Meaning
Steady orange	Sleep mode. (The projector is plugged in, but not projecting.)
Steady green	Power and lamp are on.
Flashing green	Projector is warming up. Allow about 30 seconds.
Flashing orange	Projector is cooling down.
Off	There is an internal projector problem.

Projection Lamp Light

Light status	Meaning
Orange and red flashing alternately	Projection lamp needs replacing.
Steady red	Projection lamp has burned out. Replace it to project image.
Flashing red	Problem with projection lamp or lamp power supply.
Off	Lamp is functioning normally.

Temperature Light

Light status	Meaning
Flashing orange	Projector is too hot.
Steady red	Projector has turned off automatically because of overheating.
Flashing red	Problem with the cooling fan or temperature sensor.
Off	Projector is functioning normally.

Using the Remote Control

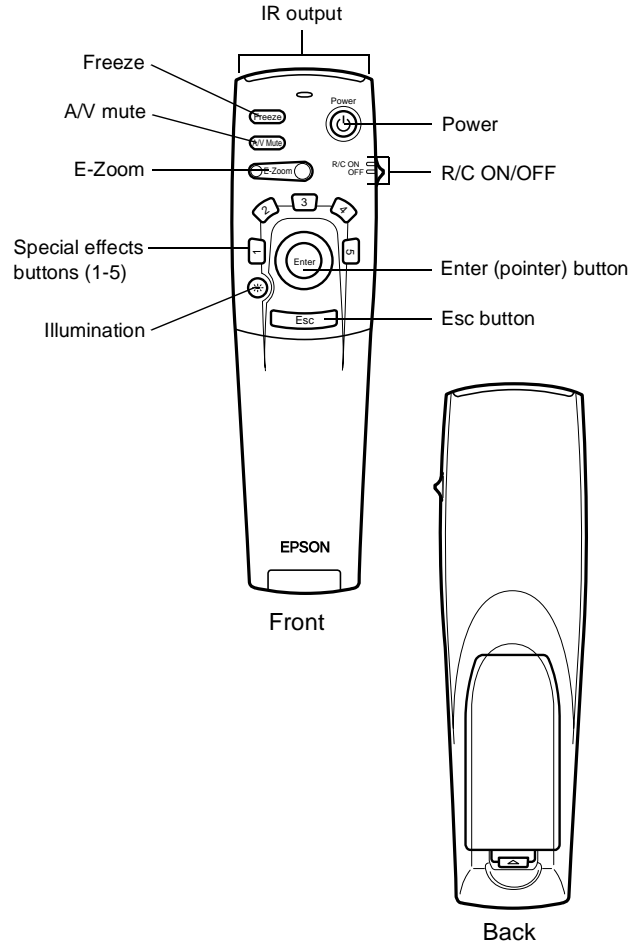
The remote control uses a line-of-sight infrared signal. To use the remote control, point it toward one of the remote control receivers located at the front and back of the projector. You can use the remote control up to about 32.8 feet (10 meters) from the projector. (This distance may be shorter if the remote control batteries are low.) You must also be within a ±30° angle from the front or rear receiver. The remote control buttons and commands are shown in the figure to the right.

Note: To be able to use the remote control as a wireless mouse, make sure you've connected the mouse cable to the projector and your computer.

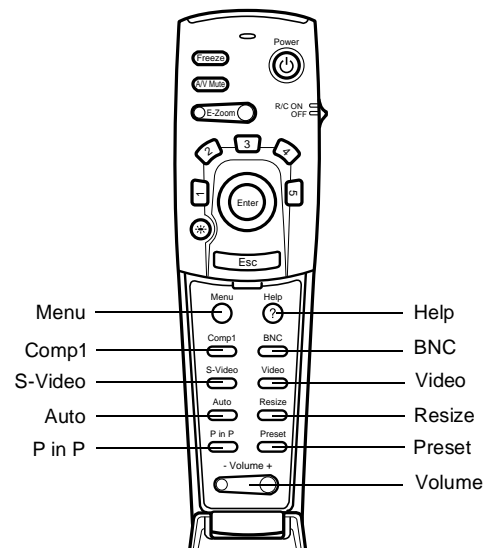
The five Special Effects buttons are preprogrammed with the following options:

1. Change the mouse cursor to a stamp
2. Draw a box
3. Use a marker pen
4. Draw a freehand line
5. Clear the screen

Note: The projector may not respond to remote control commands in these conditions: the R/C (remote control) ON/OFF switch is in the OFF position; batteries are weak; ambient light is too bright; a certain type of fluorescent light is present; a strong light source (such as direct sunlight) shines into the infrared receiver; or other equipment emitting infrared energy is present (such as a radiant room heater). Correct these conditions to use the remote control or control the projector from a computer.



Open the cover just below the Esc button to access these remote control commands:

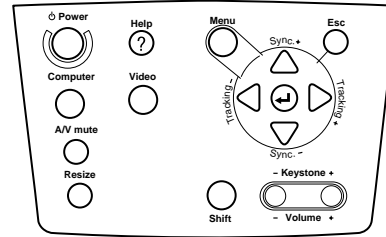


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This table summarizes the functions on the remote control.

Button	Function
Power	Starts or stops the projector.
Freeze	Keeps the current computer or video image on the screen.
A/V mute	Turns off the audio and video, displaying the black, blue or user logo background.
E-Zoom	Enlarges or reduces the image size from 1x to 4x (in 24 steps). Pressing the right side of the button enlarges the image, pressing the left side of the button reduces the image. To display a portion of an enlarged image which is outside the display area, press the Enter button and scroll the image to the desired location.
R/C ON/OFF	Turns the remote control on or off.
Effects buttons	Use to display preprogrammed special effects. Additional effects can be programmed using the ELP Link IV software, or control panel menu options.
Enter (pointer button)	Use the Enter button to navigate the menus or use the remote as a mouse pointer when the projector is connected to the computer with the main cable and the mouse cable. When the image source is Computer, the Enter button acts as a mouse left-click.
Illumination	Illuminates all buttons on the remote control.
Esc	Stops the current function. Pressing Esc while viewing a menu or the online help displays the previous screen or menu. When the image source is Computer, the Esc button acts as a mouse right-click.
Menu	Displays or hides the menu.
Comp1	Switches to the Computer 1 image.
S-Video	Switches to the S-Video image.
Auto	Optimizes the computer image.
P in P	Displays a video or S-video image in a subscreen on the main display. Use the Enter button to reposition the Picture in Picture (P in P) screen, or the E-Zoom button to enlarge or reduce the image. Changes made to the P in P screen location and size are automatically carried over to the next P in P session.
Help	Displays the online help menu.
Comp2/BNC	Switches to the Computer2/BNC image.
Video	Switches to the Video image.
Resize	Switches the display dot mode and resize mode for VGA, UXGA, SVGA, and SXGA input. You cannot resize the image if the input resolution matches the output resolution of the projector.
Preset	Saves and recalls up to five different session settings (resolution, tracking, sync signal, and position). To save the current session settings, press the Preset button and it will be assigned the next available number, 1 through 5. To recall a setting, press the Preset button a second time and move to the desired session number. To overwrite a saved setting, move to the setting you want to replace and press Enter. When the confirmation message displays, choose Yes and press Enter.
- Volume +	Adjusts the volume.

Using the Control Panel



You can use the control panel to control the projector instead of the remote control. However, you can program and access the custom features only with the remote control.

The following table summarizes the functions on the control panel:

Button	Function
Power	Starts or stops projection.
Help	Displays the online help menu.
Computer	Switches between Computer 1 and Computer 2.
A/V mute	Turns off the audio and video, displaying the black, blue, or user logo background.
Resize	Switches the display dot mode and resize mode for VGA, UXGA, SVGA, and SXGA input. You cannot resize the image if the input resolution matches the output resolution of the projector.
Video	Switches to the video image. Pressing the button once switches to composite video, pressing it twice switches to S-Video.
Menu	Displays or hides the menu.
Esc	Stops the current function. Pressing Esc while viewing a menu or the online help displays the previous screen or menu. When the image source is Computer, the Esc button acts as a mouse right-click.
Up, down arrows (Sync+/Sync-)	Synchronizes the computer's graphic signal. Use these buttons to adjust an overall image that is fuzzy or streaked, or to select menu items during menu operations. Allows movement or selection of a menu, if a menu is displayed.
Left, right arrows (tracking-/tracking+)	Matches the projector's internal clock to various computer graphic signals (tracking adjustment). Use these buttons to adjust an image with vertical fuzzy lines, or to change numeric settings during menu operations. Allows movement of a menu, if a menu is displayed.
Enter	Selects a menu option or the next menu/help screen. Pressing Enter when no menu or help screen is displayed optimizes the computer image.
Shift	Pressing the shift and Keystone buttons at the same time increases or decreases the sound volume.
- Keystone +	Adjusts a trapezoid distorted image to normal, correction up to a $\pm 20^\circ$ tilt.
- Volume +	Adjusts the volume when used in conjunction with the Shift button.

Cleaning the Lens

Warning: Before you clean any part of the projector, turn off the projector and unplug the power cord. Never open any cover on the projector, except the lamp and filter covers. Dangerous electrical voltages in the projector can injure you severely. Do not try to service this product yourself, except as specifically explained in this Product Information Guide. Refer all other servicing to qualified service personnel.

Clean the lens whenever you notice dirt or dust on the surface. Lightly wipe the lens surface with a soft, dry, lint-free cloth. To remove dirt or smears on the lens, moisten a soft cloth with an alcohol-based cleaner and gently wipe the lens surface.

Cleaning the Projector Case

To clean the projector case, first unplug the power cord. To remove dirt or dust, wipe the case with a soft, dry, lint-free cloth. To remove stubborn dirt or stains, moisten a soft cloth with water and a neutral detergent. Then wipe the case.

Do not use alcohol, benzene, thinner, or other chemical detergents. These can cause the case to warp.

Cleaning the Air Filter

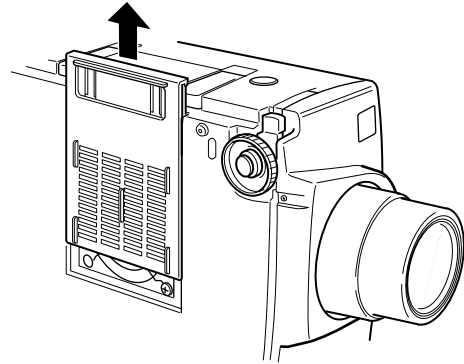
Clean the air filter at the bottom of the projector after every 100 hours of use. If it is not cleaned periodically, it can become clogged with dust, preventing proper ventilation. This can cause overheating and damage the projector.

To clean the air filter, follow these steps:

1. Turn off the projector and unplug the power cable.
2. Turn the projector on its side so that the handle is on top and you can access the filter easily.

Note: Standing the projector with the handle at the top keeps dust from getting inside the projector housing.

3. Pull up on the filter cover tab to release the filter cover. Remove the cover.



4. The filter is attached to the inside of the filter cover. It is recommended that you use a small vacuum cleaner designed for computers and other office equipment to clean the filter. If you don't have one, use a dry, lint-free cloth. If the dirt is difficult to remove or the filter is torn, replace it.
5. Replace the filter cover when you're done.

Replacing the Lamp

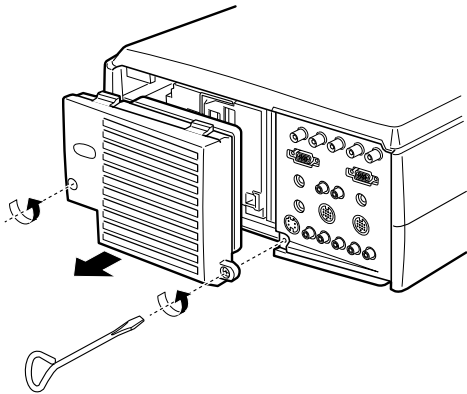
The projection lamp typically lasts for about 2000 hours of use. It is time to replace the lamp when:

- The projected image gets darker or starts to deteriorate.
- The projection lamp indicator is either red, or flashing orange and red alternately.
- The message **LAMP REPLACE** appears on the screen when the projection lamp comes on (after about 2000 hours). To maintain the projector brightness and image quality, replace the lamp as soon as possible.

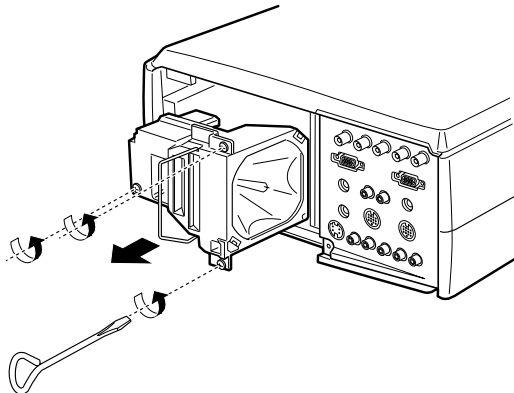
Warning: Let the lamp cool before replacing it. Also, do not touch the glass portion of the lamp assembly. Touching the glass portion of the lamp will result in premature lamp failure.

1. Turn off the projector and unplug the power cable.
2. Turn the projector over so you can access the lamp cover.

- Use a screwdriver to loosen the two retaining screws on the lamp cover. When the screws are loose, lift off the lamp cover. (You cannot remove these screws from the cover.)



- Use a screwdriver to loosen the three screws holding the lamp unit in place. (You cannot remove these screws completely.) Then lift up the handle and pull out the lamp unit.



- Gently insert the new lamp unit by lowering it into position. Make sure it's inserted securely. Tighten the screws on the new lamp unit.
- Replace the lamp cover and tighten the cover screws. (Make sure the lamp cover is securely fastened. The projector turns itself off if the lamp cover is open.)

Optional Accessories

To enhance your use of the projector, EPSON provides the following optional accessories:

Product	Product number
Customized carrying cases for the projector and its cables:	
Hard shell carrying case	ELPKS22
ATA shipping case	ELPKS21
Replacement lamp and air filter	ELPLP08
Short throw zoom lens	ELPLW01
Long throw zoom lens	ELPLL02
Fixed short throw lens	ELPLR01
Communication kit cable set and computer cable so you can connect your projector to a second computer. There is also a Mac® adapter set so you can connect to a second Macintosh. You may also need the VGA-13W3 video cable if you're connecting the projector to a high-end workstation.	
ELP communication cable set	ELPKC04
Computer video cable (HD15/H15, 1.8m)	ELPKC02
Computer video cable (HD15/HD15, 3.0m)	ELPKC09
Portable projection screen	ELPSC06
Remote IR receiver	ELPST02
Mediaphile™ PAS (personal audio system)	ELPPAS1
Mediaphile CVS (clear voice system, wireless microphone and satellite speakers)	ELPCVS1

You can purchase these accessories from your dealer or by calling EPSON Accessories at (800) 873-7766; or visit our web site at www.epsonsupplies.com (U.S. sales only). In Canada, please call (800) 873-7766 for dealer referral.

Related Documentation

CPD 9112	EPSON PowerLite 8000i/9000i User's Guide
CPD 9113	EPSON PowerLite 8000i/9000i Quick Setup Poster
Service Manual	SM-EMP8/9000
Parts Price Lists	PL-EMP8000, PL-EMP9000