TOSHIBA

OWNER'S MANUAL

HOME PROJECTOR

TDP-MT500

SAFETY PRECAUTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.
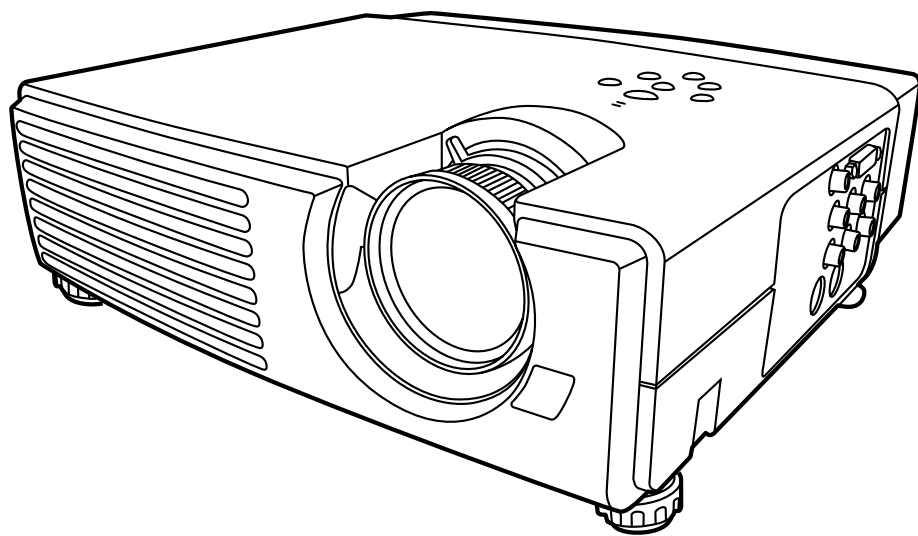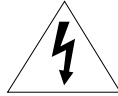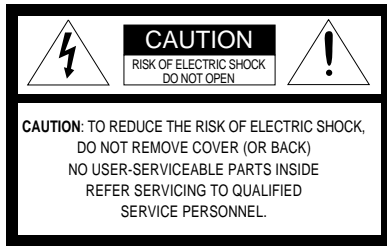
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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 appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

USA only
WARNING: Handling the cord on this product or cords associated with accessories sold 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.***

FCC NOTICE: 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.

WARNING: Changes or modifications made to this equipment, not expressly approved by Toshiba, or parties authorized by Toshiba, could void the user's authority to operate the equipment.

Use the attached RS-232C cable and mini D-SUB 15P - DVI conversion cable with this equipment so as to keep interference within the limit of a FCC class B device.

CANADA only
Notice: This Class B digital apparatus complies with Canadian ICES-003.

WARNING
Use the attached specified power cord. If you use another power cord, it may cause interference with radio and television reception, too.

This apparatus must be grounded.

CAUTION
Not for use in a computer room as defined in the Standard for the Protection of Electronic Computer/Data Processing Equipment, ANSI/NFPA 75.

When using the projector in Europe
COMPLIANCE NOTICE
This Home Projector complies with the requirements of the EC Directive 89/336/EEC "EMC Directive" as amended by Directive 93/68/EEC and 73/23/EEC "Low Voltage Directive" as amended by Directive 93/68/EEC.

WARNING
Use the attached RS-232C cable and mini D-SUB 15P - DVI conversion cable with this equipment so as to keep interference within the limits of a EN55022 Class B. Use the shielded DVI cable with this equipment so as to keep interference within the limits of a EN55022 Class B. Please follow WARNINGS instructions.

IMPORTANT SAFETY INSTRUCTIONS

CAUTION: **PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS PROVIDED IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE PROJECTOR. KEEP THIS OWNER'S MANUAL FOR FUTURE REFERENCE.**

This projector has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this projector will protect you if you observe the following procedures for installation, use and servicing. This projector is fully transistorized and does not contain any parts that can be repaired by the user.

1. Read Owner's Manual

After unpacking this projector, read the owner's manual carefully, and follow all the operating and other instructions.

2. Power Sources

This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.

3. Source of Light

Do not look into the lens while the lamp is on. The strong light from the lamp may cause damage to your eyes or sight.

4. Ventilation

Openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been followed.

5. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

6. Water and Moisture

Do not use this product near water. - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool and the like.

7. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a soft cloth for cleaning.

8. Power-Cord Protection

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

9. Overloading

Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

10. Lightning storms

During a storm, do not touch the product and the power cord. When it is left unattended or unused for a long period of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges.

11. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

12. Do not place the product vertically

Do not use the product in the upright position to project the pictures at the ceiling, or any other vertical positions. It may fall down.
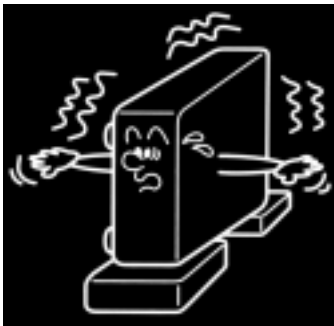
13. Stack Inhibited

Do not stack other equipment on this product or do not place this product on the other equipment.
Top and bottom plates of this product may develop heat and damage other equipment.

14. Attachments

Do not use attachments not recommended by the product manufacturer as they may cause a hazard.

15. Accessories

Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product.
Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

16. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a) When the power-supply cord or plug is damaged.

b) If liquid has been spilled, or objects have fallen into the product.

c) If the product has been exposed to rain or water.

d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.

e) If the product has been dropped or damaged in any way.

f) When the product exhibits a distinct change in performance.

17. If glass components, including lens and lamp, should break, contact your dealer for repair service.

This product incorporates glass components, including a lens and a lamp. If such parts should break, please handle with care to avoid injury and contact your dealer for repair service. The broken pieces of glass may cause to injury. In the unlikely event of the lamp rupturing, thoroughly clean the area around the projector.

18. Servicing

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

19. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

20. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

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21. Do not leave thermal-paper documents or easily damaged items on top of the projector or near the air exhaust.
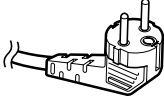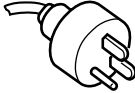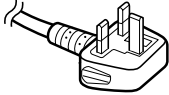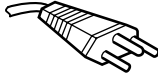The heat from the projector could erase the information on the thermal paper, or cause damage or warping. Also, when you touch a metal object put near the air exhaust, it could be hot and burn you.

22. Unplug the power plug after you are finished using the projector.
Turn off the POWER button to bring the projector into its standby state with the light-source lamp off. Then, wait about 2 minutes and turn off the main power switch, and be sure to unplug the power plug for safety. Wait about 2 minutes while the projector is in standby, because during this time the intake/exhaust fan is operating to cool down the light-source lamp. Turning off the main power switch or unplugging the power plug immediately after use may harm the projector.

SELECTING THE POWER CORD

If your line voltage is 220 to 240 V, use one of the following types of cord.

Plug configuration	Plug type	Line voltage
	EURO	220 – 240 V
	UK	220 – 240 V

Use a 5 A fuse which is approved by ASTA or BSI to BSI362.
Always replace the fuse cover after changing the fuse.

Plug configuration	Plug type	Line voltage
	Australian 240 V 10 A	
	Switzerland 240 V 6 A	200 – 240 V

IMPORTANT PRECAUTIONS

Save Original Packing Materials
The original shipping carton and packing materials will come in handy if you ever have to ship your projector. For maximum protection, repack the projector as it was originally packed at the factory.

Avoid Volatile Liquid
Do not use volatile liquids, such as an insecticide, near the projector. Do not leave rubber or plastic products touching the projector for a long time. They will leave marks on the finish. If cleaning with a chemically saturated cloth, be sure to follow the product's precautions.

Moisture Condensation
Never operate this projector immediately after moving it from a cold location to a warm location. When the projector is exposed to such a change in temperature, moisture may condense on the crucial internal parts. To prevent the projector from possible damage, do not use the projector for at least 2 hours when there is an extreme or sudden change in temperature.

Place and Manner of Installation
- Do not place in hot locations, such as near heating equipment. Doing so could cause malfunction, and shorten the life of the projector.
- Avoid locations with oil or cigarette smoke. If exposed to these conditions, you could dirty the projector's optical parts, shortening its life, and darkening the screen.
- Do not use at an angle of 15 degrees or more. Doing so could shorten the life of the lamp.
- If used at high altitudes, the projector may cease the operation even if used within the rated temperature range. This is because the thinner air at high altitudes decreases the internal cooling efficiency. Therefore, please lower the ambient temperature if using at high altitudes.
- Contact your dealer for the ceiling mount bracket. As installation requires technical knowledge and skill, be sure to ask your dealer for installation.
- When mounted on the ceiling, the product shall be installed by the dealer with the bracket designed for this product. If you attempt to install the product by yourself, you may fall and be injured or the product may fall causing injury.

Exemption Clauses

- Toshiba Corporation bears no responsibility in the case of damages arising from earthquakes, fire not liable to Toshiba Corporation, operating by third parties, other accidents, or use under abnormal conditions including erroneous or improper operation and other problems.
- Toshiba Corporation bears no responsibility for incidental damages (lost profit, work interruption, corruption or loss of the memory contents, etc.) arising from the use of or the inability to use this projector.
- Toshiba Corporation accepts no liability whatsoever for any damages arising from not having followed the descriptions in this Owner's Manual.
- Toshiba Corporation accepts no liability whatsoever for any damages arising from malfunctions arising from combination with equipment or software that is not related to Toshiba Corporation.

Disposal

This product contains the following materials harmful to human body and environment.

- Solder used in manufacture of its printed board contains lead.
- Its lamp uses inorganic mercury

When to dispose this product or its used lamp, carry out disposal processing according to ordinance or regulations of your local self-government. As for details, consult your local self government.

In the spaces provided below, record the Model and Serial No. located at the bottom of your projector.

Model No. _____ Serial No. _____

Keep this information for future reference.

DECLARATION OF CONFORMITY
TRADE NAME: HOME PROJECTOR
MODEL NAME: TDP-MT500
RESPONSIBLE PARTY: TOSHIBA CORPORATION
                                    1-1, Shibaura 1-chome,
                                    Minato-ku, Tokyo, Japan

This device complies with part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

TABLE OF CONTENTS

TRADEMARKS

- Macintosh is registered trademark of Apple Computer Inc.
- DLP, Digital Micromirror Device and DMD are all trademarks of Texas Instruments.
- Each name of corporations or products in the owner's manual is a trademark or a registered trademark of its respective corporation.
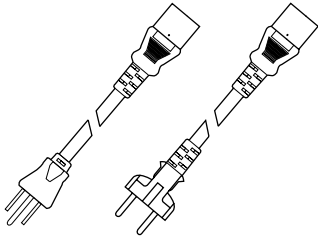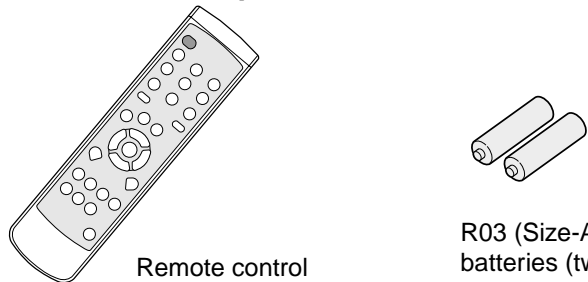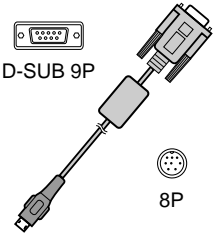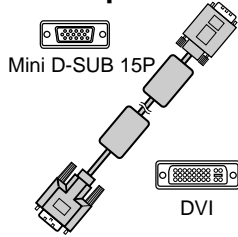
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PREPARING YOUR PROJECTOR

Checking accessories

The following accessories are provided with this projector. Check to be sure that all of the accessories are packed in the package.

■**Power supply parts**

Power cord (two)

■**Remote control parts**

Remote control

R03 (Size-AAA) batteries (two)

■**Personal computer parts**

D-SUB 9P

8P

RS-232C cable

■ **Video parts**

Mini D-SUB 15P

DVI

Mini D-SUB 15P DVI-conversion cable

■**Others**

• Lens cap (Attached to the main unit)
• Owner's manual
• Remote control photo-sensor protection sticker

NOTE

• The attached power cords are to be used exclusively for this product. Never use them for other products.

Inserting the batteries into the remote control

1

2

3
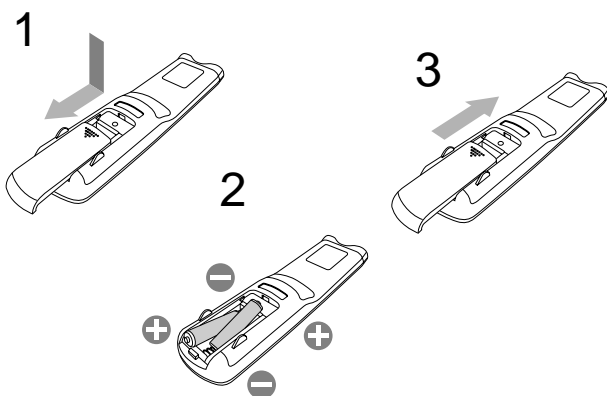
1. Remove the rear lid of the remote control.
2. Check the polarity (+), (-) of the batteries, and set them correctly, inserting their (-) side first.
• If the battery is inserted from the (+) side first, inserting the (-) side is difficult because the coil spring end hits on the battery side. If the battery is forced to insert in this way, the outer label of the battery may get ripped and it may cause a short-circuit and heating.
3. Attach the rear lid.
• Use two size-AAA batteries (R03).
• Replace the two batteries with new ones when the remote control is slow to operate.

⚠ • If the batteries are treated incorrectly, they may cause fire or other contamination due to leakage of the liquid, heating, or they may burst. (Read the cautions indicated on the battery, too.)
• Do not use a new battery with an old one.
• Load batteries in the correct position.
• Do not heat, take apart, or throw batteries into fire.
• Do not try to recharge batteries. Do not use rechargeable batteries.
• If the solution of batteries comes in contact with your skin or clothes, rinse with water. If the solution comes in contact with your eyes, rinse them with water and then consult your doctor.

Understanding the parts of the projector

Intake vent

Remote control photo-sensor (Front) (14)

Operation panel

Remote control photo-sensor (Rear) (14)

Terminal panel

Angle adjusting (15) **button**

Angle adjusting foot (15)

Exhaust vent

Angle adjusting button (15)

Kensington Security Lock Standard connector (33)

Power cord inlet (18)

Main power switch
I: Turn-on
O: Turn-off

Operation panel (Top)

Focus ring: (19) (23)
Adjusts focus.

Zoom ring: (19) (23)
Expands projected picture images when turned to the right (WIDE).
Contracts projected picture images when turned to the left (TELE).

LAMP indicator (33) (34) (36)

POWER button / POWER indicator:
(19) (23) (33) (36)

TEMP (temperature) indicator (33) (36)
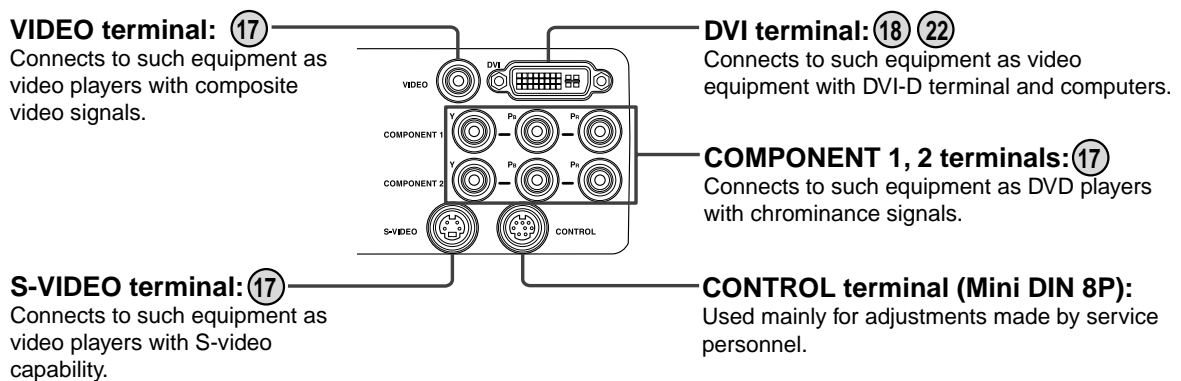
MENU/EXIT button: (26)
Displays menu when pressed.
Erases menu when pressed again.

ENTER button: (26)
Used to determine menu item.

Directional button: (26)
Used to shift menu item and adjust values.

LAMP
TEMP
ON / STANDBY
MENU / EXIT
ENTER

Terminal panel (Side)

VIDEO terminal: (17)
Connects to such equipment as video players with composite video signals.

DVI terminal: (18) (22)
Connects to such equipment as video equipment with DVI-D terminal and computers.

COMPONENT 1, 2 terminals: (17)
Connects to such equipment as DVD players with chrominance signals.

S-VIDEO terminal: (17)
Connects to such equipment as video players with S-video capability.

CONTROL terminal (Mini DIN 8P):
Used mainly for adjustments made by service personnel.

VIDEO
DVI
COMPONENT 1
COMPONENT 2
S-VIDEO
CONTROL
PB
PR
PB
PR

Using the remote control
Name and function of operational parts of the remote control

POWER button: ⑲ ㉓

SOURCE button: ⑲ ㉓
Selects an input video signal to be projected.

ASPECT button: ㉑
Selects size of the video image according to the video signal to be projected.

MEMORY (1, 2, 3) buttons: ㉙
Calls the pre-stored values in the picture adjustment menu when pressed.

ENTER button: ㉖
Used to determine menu item. Enters a new item.

Directional button: ㉖
Used to shift menu item and adjust values.

MENU button: ㉖
Displays menu.
Erases the menu when pressed again.

EXIT button: ㉖
Displays the menu in one-level higher hierarchy when pressed.

Picture quality adjusting button: (See below)

LIGHT button:
Switches between LIGHT modes of remote control every time it is pressed.
If the remote control button lights up when the LIGHT button is pressed, the dark-room mode is brought into ON. If it does not light up, the normal mode is ON.
Dark room mode : All the buttons on the remote controller light up if any of the buttons are pressed.
Normal mode : None of the buttons light up (Except for LIGHT button).
• The light automatically comes off a while after the remote control button is released.

Using the picture quality adjusting buttons
When you press any of the picture quality adjusting button is pressed, the screen for adjusting the picture quality appears. Then, adjust the picture quality by pressing the ▶ and ◀ buttons. The picture quality adjustment can also be made in the PICTURE menu or the PROFESSIONAL-PICTURE menu. (See Page 27.)
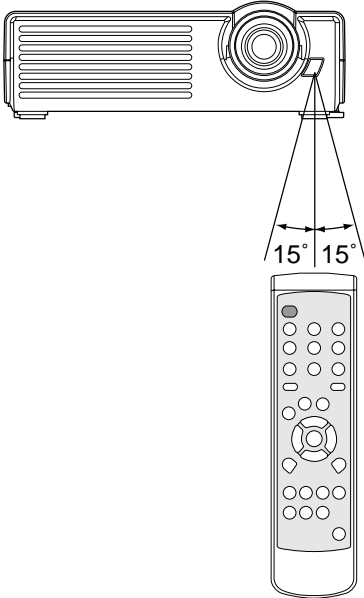
The following picture quality features are displayed on the menu screen:
CONTRAST ....Adjusts the contrast of projected picture images. Every time you press the ▶ button, the projected image becomes brighter and more vivid. Every time you press the ◀ button, the projected image becomes darker and less vivid.
BRIGHT ....Adjusts the brightness of projected picture images. Every time you press the ▶ button, the projected image becomes brighter. Every time you press the ◀ button, the projected image becomes darker.
COLOR ....Adjust the color thickness of projected picture image. Every time you press the ▶ button is pressed, the projected image color becomes thicker. Every time you press the ◀ button is pressed, the projected image color becomes thinner.
TINT ....Adjusts the tint of projected picture images. Every time you press the ▶ button, the skin color of the projected image becomes more reddish. Every time you press the ◀ button, the skin color of the projected image becomes greenish.
COLOR TEMP .....Selects one of the preset color temperatures.
GAMMA ....Selects one of the preset gamma corrections.
SHARPNESS ....Adjusts the sharpness of projected picture images. Every time you press the ▶ button, the projected picture image becomes sharper. Every time you press the ◀ button, the projected picture image becomes softer.
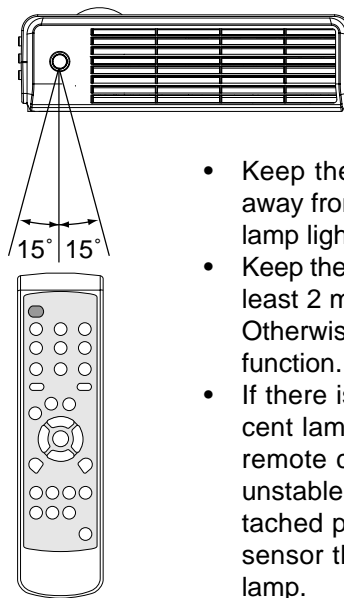
13

Operational range of the remote control

Front of projector

Rear of projector

15˚ 15˚

15˚ 15˚

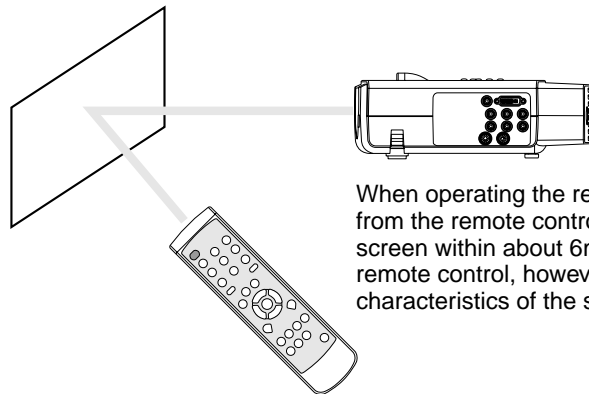Operate the remote control within a distance of 7 m from the projector, pointing the light beam at the remote control photo-sensor (front or rear) of the projector.

• Keep the remote control photo-sensor away from direct sun light or fluorescent lamp light.
• Keep the remote control photo-sensor at least 2 m apart from fluorescent lamps. Otherwise, the remote control may malfunction.
• If there is an inverter-operated fluorescent lamp near the remote control, the remote control operation may become unstable. On this occasion, stick the attached protection sticker on the photo-sensor that is closer to the fluorescent lamp.

When operating the remote control, keep the distance from the remote controller to the projector via the screen within about 6m. The operable range of the remote control, however, depends on the characteristics of the screen.

Vertical directions

15˚
15˚

15˚
15˚
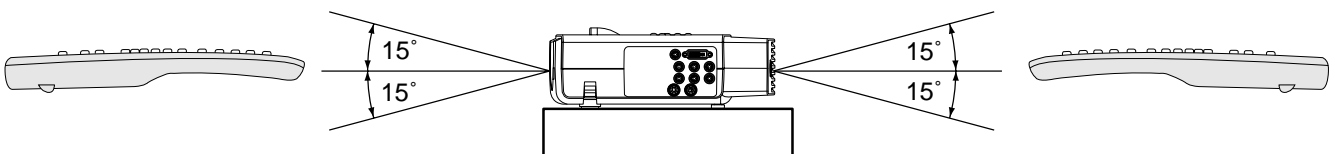
SETTING UP YOUR PROJECTOR

Setting up the screen

Set the screen perpendicular to the projector. If the screen can not be set perpendicularly, adjust the projection angle of the projector. (See below.)

- Adjust the screen or projector so that the shadow of the projector lens may be projected onto the center of the screen.
- Place the screen where it is projected from direct sunlight and other lights. Direct light onto the screen could whiten the screen surface making the projected picture images hard to see.

Basic setup

Determine the distance from the screen to the projector according to the size of the picture images to be projected. (See Page 16.)

Screen

Projector

Size of projected picture images (Width)

A   B

Screen

A=B
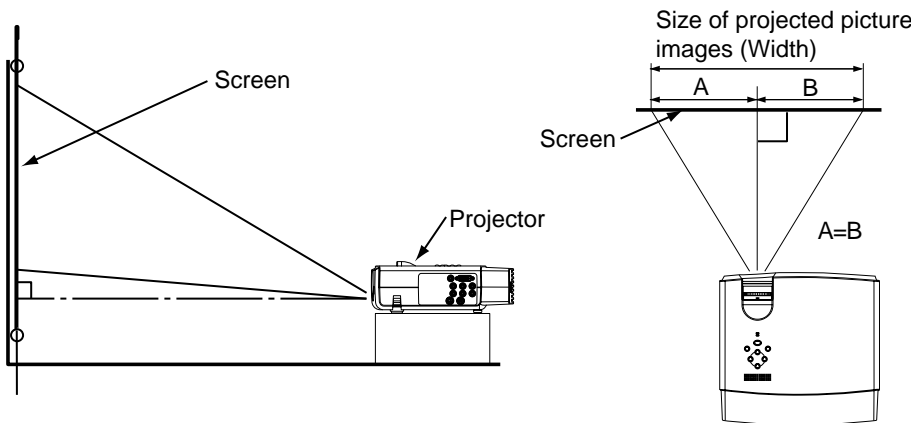
Adjusting the projection angle

If a part of the projected picture image lies off the edge of the screen, adjust the projection height or the projection angle as follows:

1   2
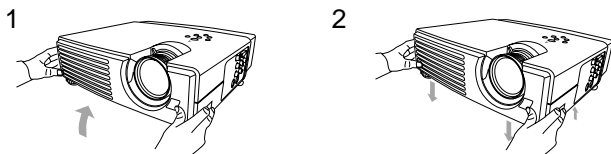
1. Lift up the projector up to the desired projection angle.
- Set the projector within a tilt angle of 15 degrees.
2. Press up the left and right angle adjusting buttons.
3. Getting place the projector down at the angle you adjusted.

4
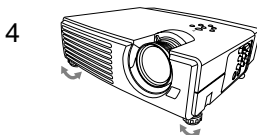
4. By turning the angle adjusting foot (front) to the left or right, make fine adjustment so that the projected image frame may be in parallel with the sides of the screen.
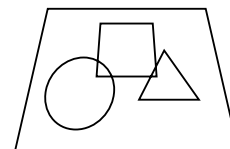
When storing the projector:
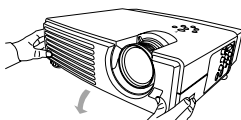
5. Slowly set the projector down by pressing the left and right angle-adjusting buttons.
- It is also possible to adjust the projection angle by turning the angle adjusting foot (rear) to the left or right.

If the projected image frame is distorted to a trapezoid:

If the screen and the projector are not set perpen-

dicular to each other, the projected image frame becomes trapezoidal. If it is not possible to bring them into positions perpendicular to each other by any mechanical adjustments, adjust the value for KEYSTONE in the INSTALLATION menu. (See Page 28.)

- If the "KEYSTONE" is applied, the aspect ratio may not be adjusted correctly in some cases.
- If the "KEYSTONE" is applied, the resolution of the projected image will be reduced. Also, moire fringes on fine-pattern images or drooping of straight lines in the images will appear. Therefore, try to set the screen and the projector perpendicular to each other as much as possible.
- When changing the "KEYSTONE" setting, the image may distort or disappear in a moment. However, this is not a malfunction.

Screen size and projection distance

Determine screen size by referring to the following table:

When the screen size is 16: 9

(Unit : cm)
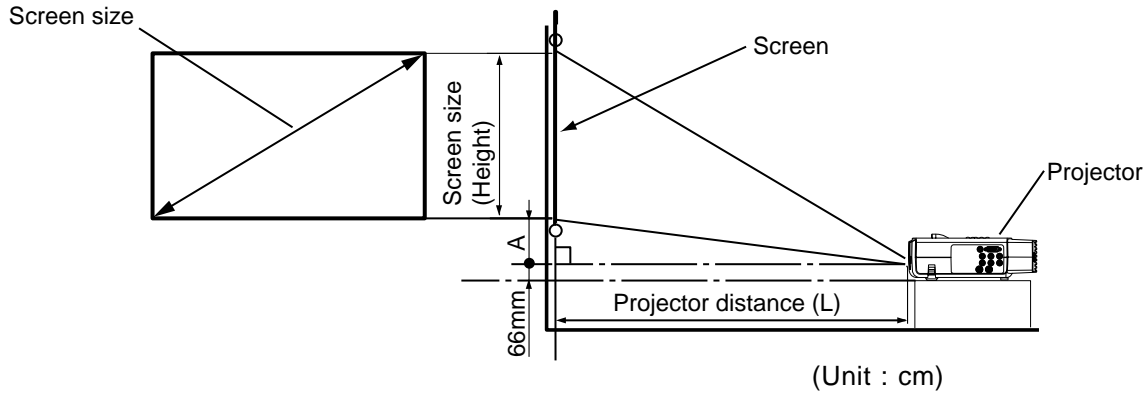
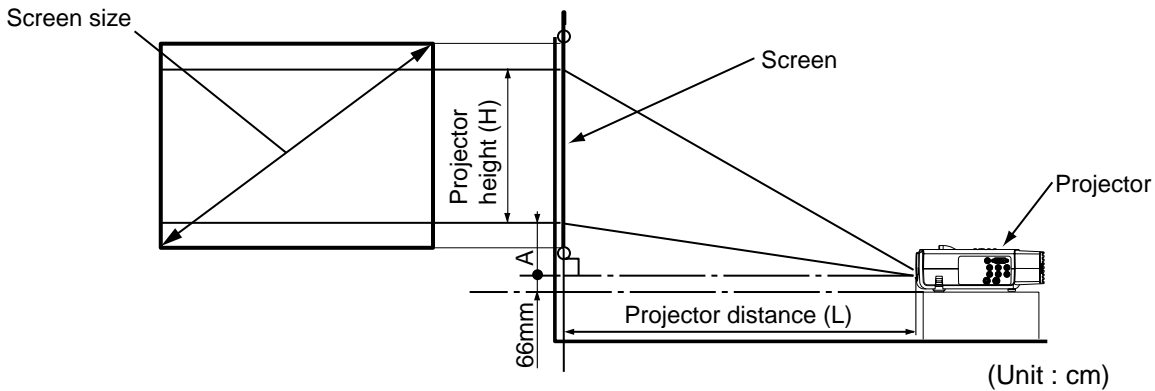| Screen size			Projector distance (L)		Height (A)	
Type	Height	Width	Min.	Max.	Tele	Wide
50	62	111	181	217	23	21
60	75	133	218	260	27	26
70	87	155	254	303	32	30
80	100	177	290	347	36	34
90	112	199	326	390	41	39
100	125	221	363	433	45	43
110	137	244	399	477	50	47
120	149	266	435	520	54	52
130	162	288	471	563	59	56
140	174	310	508	607	64	60
150	187	332	544	650	68	64
180	224	399	653	780	82	77

• The above numbers are approximate, and may be slightly different from the actual measurements.

When the screen size is 4: 3

(Unit : cm)

| Screen size			Projector distance (L)		Height (A)		Projector height (H)
Type	Height	Width	Min	Max	Tele	Wide	
50	76	102	167	199	21	20	57
60	91	122	200	239	25	24	69
70	107	142	233	279	29	28	80
80	122	163	266	318	33	32	91
90	137	183	300	358	37	35	103
100	152	203	333	398	42	39	114
110	168	224	366	438	46	43	126
120	183	244	400	477	50	47	137
130	198	264	433	517	54	51	149
140	213	284	466	557	58	55	160
150	229	305	500	597	62	59	171
180	274	366	600	716	75	71	206

• The above numbers are approximate, and may be slightly different from the actual measurements.

VIEWING VIDEO IMAGES

A. Connecting the projector to video equipment

Preparations:
• Check to be sure that the power for the projector and video equipment is turned off.
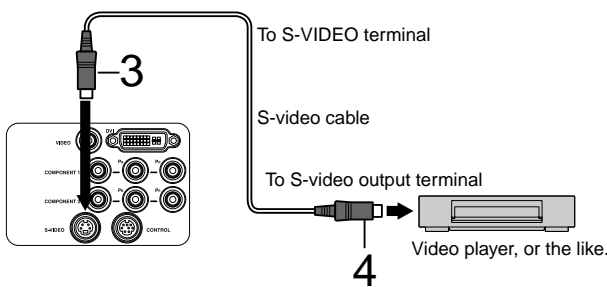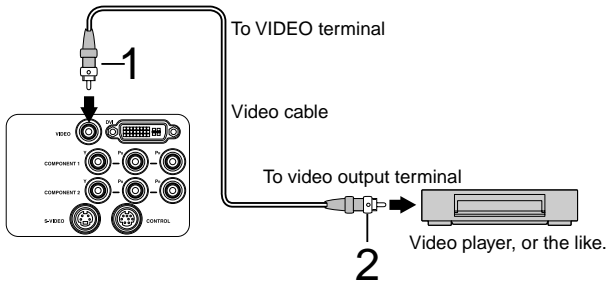
1 Connect an end of a commercially available video cable to the VIDEO terminal of the projector.

2 Connect the other end of the video cable to the video output terminal of the video equipment.

If an S-video output terminal is provided with the video equipment, make the connection as follows:

3 Connect an end of a commercially available S-video cable to the S-VIDEO terminal of the projector.

4 Connect the other end of the S-video cable to the S-video output terminal of the video equipment.

To VIDEO terminal

Video cable

To video output terminal

Video player, or the like.

To S-VIDEO terminal

S-video cable

To S-video output terminal

Video player, or the like.

• Also, read the instruction manual of the video equipment to be connected.
• The projector does not have a speaker. To reproduce audio signals, you must connect audio equipment.
• Consult the delivery agent of this projector on the detailed connections, as needed.

Connecting to DVD players

When connecting this projector to a video equipment that has component video output terminals, such as DVD players, connect video cables to COMPONENT (1 or 2) terminals.

DVD player

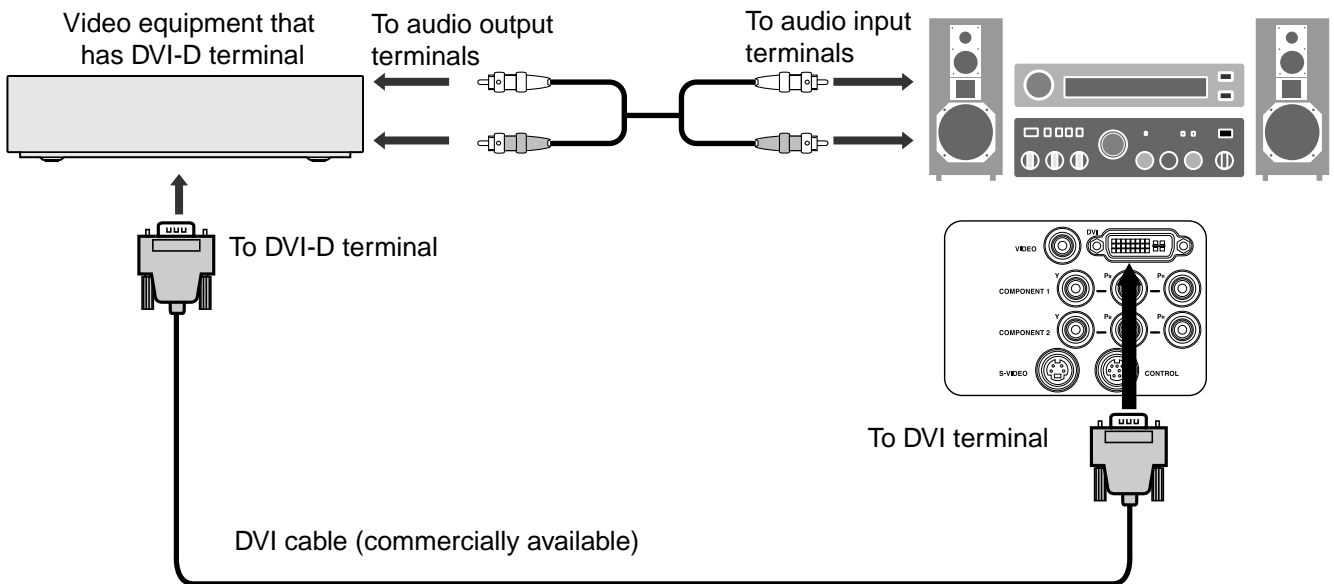To audio output terminals

To audio input terminals

$C_R(P_R)$ $C_B(P_B)$ Y

To COMPONENT (1 or 2) terminals

Video cables (Commercially available)
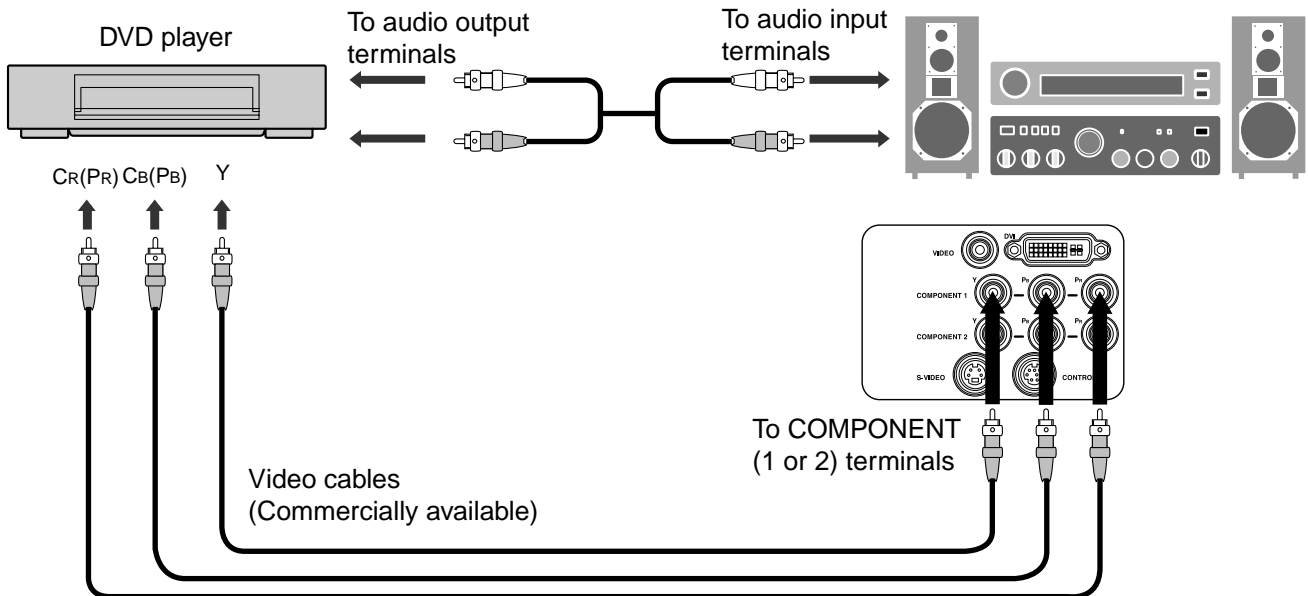
• Playback picture images of some of DVD players may not be able to be properly projected on screen.

Connecting to video equipment that has DVI-D terminal

The DVI terminal of this projector makes it possible to project high-quality video images on screen by connecting with video equipment that has DVI-D terminal. Also, because this projector is in conformity with HDCP, it is possible to receive digital image signals encrypted from video equipment.

Video equipment that has DVI-D terminal   To audio output terminals   To audio input terminals

To DVI-D terminal

VIDEO   DVI

COMPONENT 1

COMPONENT 2

S-VIDEO   CONTROL

To DVI terminal

DVI cable (commercially available)

- Connect to DVI terminal with a commercially available DVI cable.
- Select DVI-DIGITAL for switching input signals.
- This projector is in compliance with only RGB signals, not with component video signals.
- HDCP (High-band with Digital Content Protection) is one of encryption formats of digital image signals, which has been developed by Intel Corporation to protect digital contents.
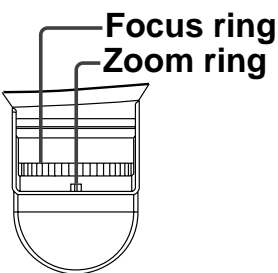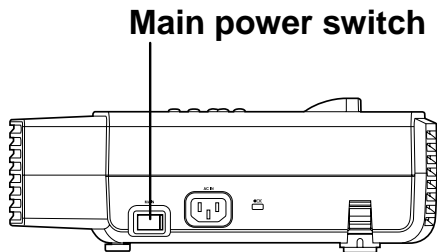
B. Plugging in the power cord

Plug the attached power cable as it is.

Earthing terminal
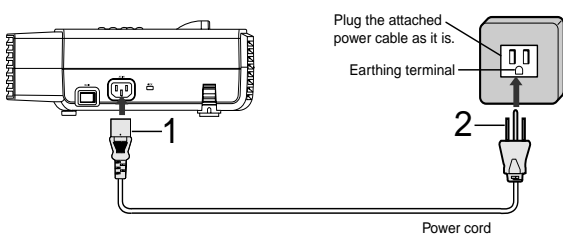
Power cord

1 Plug the attached power cord into the power cord inlet of this projector.

2 Plug the other end of the power cord into a power outlet.

- The power cords for use in the U.S. and Europe are included with this projector. Use the appropriate one for your country.
- This projector uses the power plug of three-pin grounding type. Do not take away the grounding pin from the power plug. If the power plug doesn't fit your wall outlet, ask an electrician to change the wall outlet.
- The provided power cord for the U.S. is rated at 120 V. Never connect this cord to any outlet or power supply using other voltages or frequencies than rated. If you use a power supply using other voltage than rated, prepare an appropriate power cord separately.
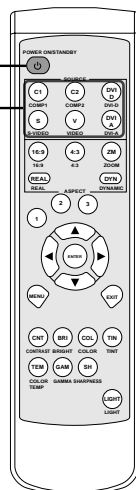
C. Projection the image

Preparations:
- Remove the lens cap.
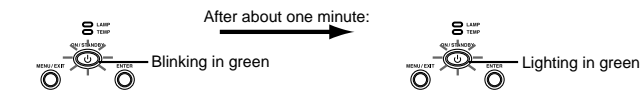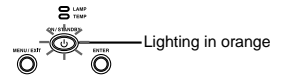- Turn on power for the connected video equipment.

Main power switch

Focus ring
Zoom ring

POWER button /
POWER indicator

POWER button
SOURCE button

1 Turn "ON" the main power switch (O➤I).
- When the main power switch is turned on, the POWER indicator comes on in orange.

Lighting in orange

- If you turn projector off before it cools, the main power button may not work when the cooling fan is running. (The POWER indicator blinks in orange.) After the fan has stopped turning, press the power button again to turn on the indicator in orange.

After about one minute:

Blinking in green   Lighting in green

Power can not be turned "ON" or "OFF".

2 Press the POWER ( ) button.
- It may take about one minute for the lamp to come on.

3 Select an input signal.
- Press one of the SOURCE buttons (VIDEO, S-VIDEO, COMPONENT 1, COMPONENT 2, DVI-DIGITAL, or DVI-ANALOG button) according to the connected input terminal.
- Select the input signal after the video image is projected on the screen.
- With this projector, the input signal is selected from the SOURCE contained in the DISPLAY menu. (See page 27 for details.)
- Some projected picture images may be easier to see by changing the ASPECT (image angle). (See page 21 for details.)

4 Set the projector after adjusting the projection distance to obtain the specified image frame size.

5 Set the projector and screen so that they are perpendicular to each other. (See page 15.)
- If the projector and the screen can not be made perpendicular to each other, adjust the projection angle. (See page 15.)
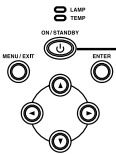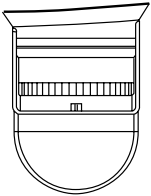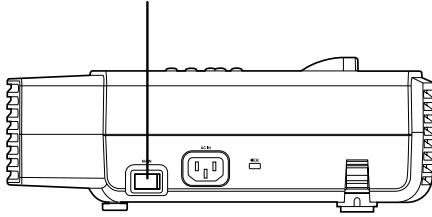
6. Adjust the size of the projected image by turning the zoom ring.
- It is possible to change the image size by varying the distance from the projector to the screen.
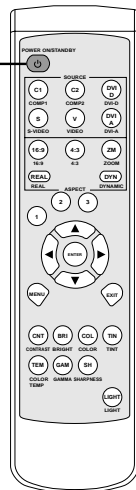
7. Adjust the focus by turning the focus ring.

Main power switch

POWER button / POWER indicator

POWER button

When stopping projection:

8 Press the POWER (⏻) button.
• A confirmation message appears on the screen.
• To cancel this state, wait for a while, or press the EXIT button or MENU button on the remote control, or press the MENU/EXIT button of the projector.

9 Press the POWER (⏻) button again.
• The light-source lamp goes off and the projector goes to standby. The POWER indicator blinks in orange.

10 Wait about 2 minutes until the POWER indicator comes on in orange.
• Wait about 2 minutes in the standby, because during this time the intake/exhaust fan is cooling the light-source lamp.
• The intake/exhaust fan continues to turn for about one minute after the POWER indicator has come on in orange.
• Do not turn off the main power switch while the POWER indicator is blinking. If the main power switch is turned off immediately after use, the projector may malfunction.
• The fan makes a loud sound while cooling down, but this is not a malfunction.

11 Turn "OFF" the main power switch (I➡O).
• When the projector is not used for a long time, unplug the power plug from the power outlet for safety.
• Attach the lens cap to prevent dust from being gathered from outside.

If the projected image frame is deformed to a trapezoid:
Adjust the trapezoidal correction value contained in the setting menu.
(See to Page 26 for the method of setting the menu.)
1. Bring up the INSTALLATION menu.
2. Select "KEYSTONE" by pressing the ▲, ▼ buttons.
3. Press the ENTER button.
4. While viewing the image frame, align the upper and lower sides of the image frame by pressing the ◄, ► buttons.

When canceling the menu:
5. Press the MENU button.

• When changing the "KEYSTONE" setting, the image may distort or disappear in a moment. However, this is not a malfunction.

KEYSTONE		
KEYSTONE	▬▬▬	0
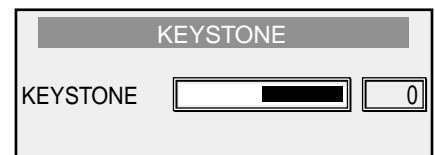
D. Setting the ASPECT

This projector can change the ASPECT ratio (the ratio between the width and length of the image frame) according to the input video signals.

	16 : 9	4 : 3	ZOOM	DYNAMIC	REAL
Original video image	Projects video images on full screen (16: 9).	Projects video images at a ratio of 4: 3.	Projects video images of cinemascope and vista size together with the caption.	Projects 4-to-3 signals by expanding them to 16-to-9 images on full screen (Nonlinear).	Projects video images of input signals as they are.
Picture images with a ratio of 4: 3 (480i, 576i, 480p, 576p, and PC)				Projected images expand in horizontal direction.	PC inputs not less than SVGA are projected on full screen (16: 9).
Cinemascope and vista signals with a ratio of 4: 3			*or		
Squeezed 4-to-3 images (480i, 576i, 480p, 576p)					
16-to-9 images (1080i)					Horizontal and vertical size of the projected images are reduced to a half.
16-to-9 images (720p)					Projected images are compressed to the full screen size.

Bold frames ▭ are recommended modes.

*) In zoom mode, it is possible to switch between display sizes (cinemascope/vista) with the ZOOM button.
   In cinemascope mode, it is possible to shift the display position with the ▲, ▼ buttons.

Using this function to change the size of the displayed image (i. e. changing the height/width ratio) for the purpose of public display or commercial may infringe on copyright laws.

How to change the settings:

With the remote control:
1. Press an ASPECT button (16: 9, 4 : 3, ZOOM, DYNAMIC or REAL).

With the operation panel of the projector.
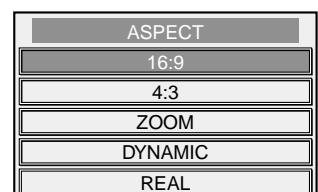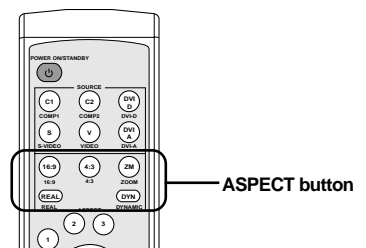(Refer to page 26 for the method of setting the menu.)
1. Bring up the DISPLAY menu.
2. Select the "ASPECT" by pressing the ▲, ▼ buttons.
3. Press the ENTER button.
4. Select a desired image angle by pressing the ▲, ▼ buttons.
5. Press the ENTER button.

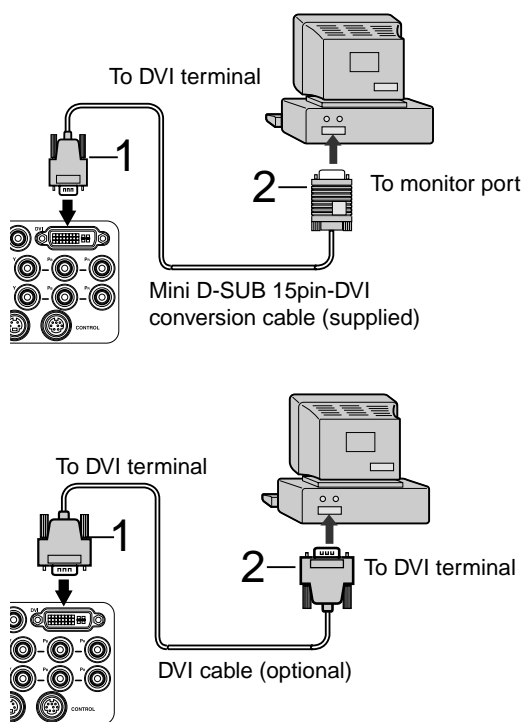When canceling the menu:
6. Press the MENU button.

ASPECT button

ASPECT
16:9
4:3
ZOOM
DYNAMIC
REAL

VIEWING COMPUTER IMAGES

A. Connecting the projector to a computer

Preparations:
• Make sure that the power for the projector and computer are turned off.
• With a desktop type computer, disconnect the RGB cables connected to the monitor.

To DVI terminal

1

2 — To monitor port

Mini D-SUB 15pin-DVI
conversion cable (supplied)

To DVI terminal

1

2 — To DVI terminal

DVI cable (optional)

In the case of analog connections:

1 Connect the attached mini D-SUB 15pin-DVI conversion cable to DVI terminal of the projector.

2 Connect the other end of the mini D-SUB 15pin-DVI conversion cable to the monitor port of the computer.
• A conversion connector, analog RGB output adaptor, and/or the like may be needed depending on the type of computer to be connected.
• If a long cable other than the attached cable is used, the quality of projected images may be lessoned.
• When viewing picture images from a computer with analog connection, press the DVI-ANALOG button on the remote control.
• This projector does not comply with 3-line-signals (SYNC-ON-GREEN).
• This projector does not comply with component video signals.

In the case of digital connections:

1 Connect a commercially available the DVI cable to the DVI terminal of this projector.

2 Connect the other end of the DVI cable to the DVI terminal of the computer.

• A conversion connector, analog RGB output adaptor, and/or the like may be needed depending on the type of computer to be connected.
• When viewing picture images from a computer with digital connection, press the DVI-DIGITAL button on the remote control.
• When using this unit by input RGB signal, some noises may appear on the image, depending on the type of the computer or the connection cable. In this case, use this unit with a lower refresh rate of the computer signal or resolution. Using the connection cable of 2 m or less is recommended.
• Also, read the instruction manual of the other equipment to be connected.
• If a VGA60 signal outputs at the start-up of the computer, the projected image may not be displayed properly-for example, the position of the displayed image may shift. However, this is not malfunction (Non-compliant signal).
• The projector does not have speaker. To reproduce audio signals, use the speakers of the personal computer, or connect the necessary audio equipment.
• Consult the delivery agent of this projector on the detailed connections, as needed.

About DDC™
The DVI terminal of this projector complies with the DDC1/2B standard.
When a computer supporting this standard is connected to this terminal, the computer will automatically load the information from this projector and prepare for output of appropriate images.
• After connecting a computer supporting this standard to this terminal, turn on the projector's main power switch first, and then boot up the computer.
• You may need to install the DDC driver, depending on the computer you use. In this case, you need to download the driver. Contact your dealer for further information.
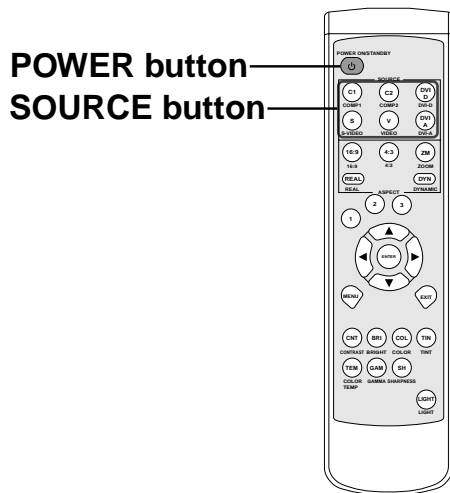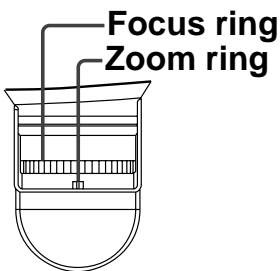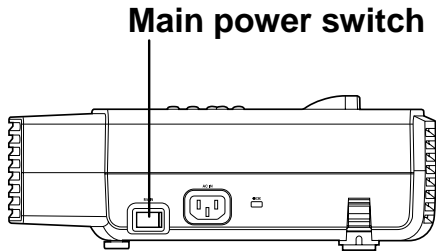
B. Plugging in the power cord

Plug the power cord in the same way as previously described. See page 18.
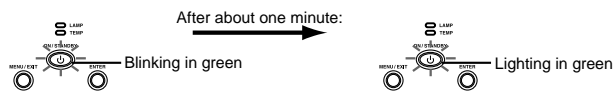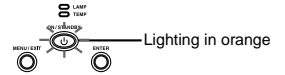
C. Projection the image

Preparations:
• Remove the lens cap.
• Turn on power for the connected video equipment.

Main power switch

Focus ring
Zoom ring

POWER button /
POWER indicator

POWER button
SOURCE button

1 Turn "ON" the main power switch (O➔I).
• When the main power switch is turned on, the POWER indicator comes on in orange.

Lighting in orange

• If you turn projector off before it cools, the following operation of the main power button may not work when the cooling fan is running. (The POWER indicator blinks in orange.) After the fan has stopped turning, press the power button again to turn on the indicator in orange.

After about one minute:

Blinking in green   Lighting in green

Power can not be
turned "ON" or "OFF".

2 Press the POWER (⏻) button.
• It may take about one minute for the lamp to come on.

3 Select an input signal.
• Press one of the SOURCE buttons (VIDEO, S-VIDEO, COMPONENT 1, COMPONENT 2, DVI-DIGITAL, or DVI-ANALOG button) according to the connected input terminal.
• Select the input signal after the video image is projected on the screen.
• With this projector, the input signal is selected from the input signal sources contained in the DISPLAY menu. (See page 27 for details.)
• Picture images of some input signals may not be projected on the proper position of the screen. On this occasion, execute "AUTO" in the RGB & COMPONENT menu of the INSTALLATION menu. (See page 32.)

4 Set the projector after adjusting the projection distance to obtain the specified image frame size.

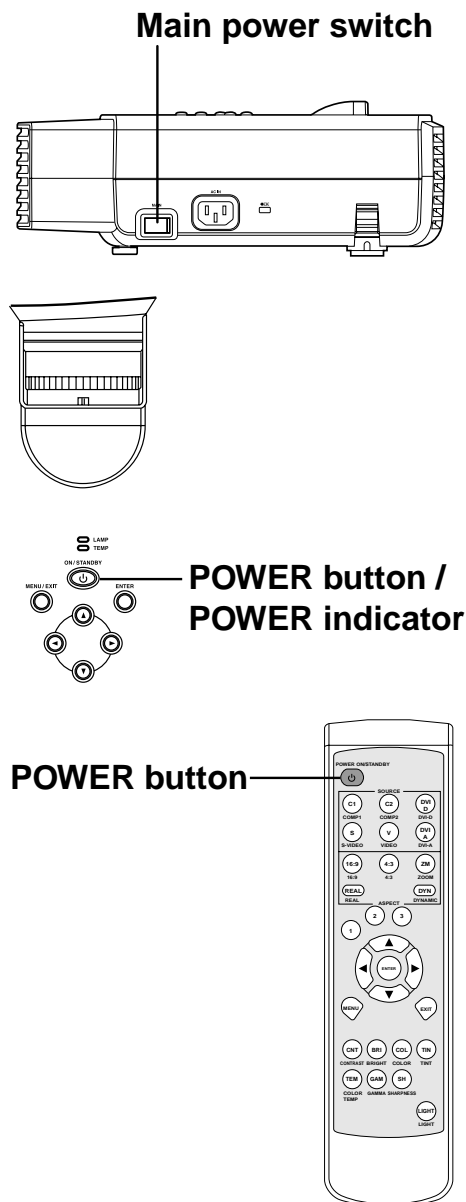**5 Set the projector and screen so that they are perpendicular to each other. (See page 15.)**
• If the projector and the screen can not be made perpendicular to each other, adjust the projection angle. (See page 15.)

6. Adjust the size of the projected image by turning the zoom ring.
• It is possible to change the image size by varying the distance from the projector to the screen.

7. Adjust the focus by turning the focus ring.

Main power switch

POWER button / POWER indicator

POWER button

When stopping projection:

8 Press the POWER (⏻) button.
- A confirmation message appears on the screen.
- To cancel this state, wait for a while, or press the EXIT button or MENU button on the remote control, or press the MENU/EXIT button of the projector.

9 Press the POWER (⏻) button again.
- The light-source lamp goes off and the projector goes to standby. The POWER indicator blinks in orange.

10 Wait about 2 minutes until the POWER indicator comes on in orange.
- Wait about 2 minutes in the standby state, because during this time the intake/exhaust fan is cooling the light-source lamp.
- The intake/exhaust fan continues to turn for about one minute after the POWER indicator has come on in orange.
- Do not turn off the main power switch while the POWER indicator is blinking. If the main power switch is turned off immediately after use, the projector may malfunction.
- The fan makes a loud sound while cooling down, but this is not a malfunction.

11 Turn "OFF" the main power switch (I➡O).
- When the projector is not used for a long time, unplug the power plug from the power outlet for safety.
- Attach the lens cap to prevent dust from being gathered from outside.

Notebook type computer
When the projector is connected to a notebook type computer, the picture images from the computer may not be projected on screen. For this situation, set up the computer so that it may output picture signals. How you do this to set up the computer depends on the type of computer you have. Refer to the instruction manual of the computer.
Example of set up for the external output:
Press "Fn" key and any of "F1" to "F12" key (Depends on the type of the computer).

USING THE MENUS

Menu construction

PICTURE...	CONTRAST	− 32 ~ +31
	BRIGHTNESS	− 30 ~ +30
	COLOR	− 30 ~ +30
	TINT	− 15 ~ +15
	SHARPNESS	− 5 ~ +5

PRO-PICTURE...	ICC CONTROL ⏎	ICC RED	− 15 ~ +15
		ICC GREEN	− 15 ~ +15
		ICC BLUE	− 15 ~ +15
		ICC YELLOW	− 15 ~ +15
		WHITE	0 ~ +10
	COLOR TEMP ⏎		HI BRIGHT / STANDARD / LOW / USER1 / USER2
	SET USER COLOR TEMP ⏎	LOAD FROM	HiBrt / Std / Low / USER1 / USER2
		R GAIN	+1 ~ +512
		G GAIN	+1 ~ +512
		B GAIN	+1 ~ +512
		R BIAS	0 ~ +90
		G BIAS	0 ~ +90
		B BIAS	0 ~ +90
		SAVE TO	USER1 / USER2
	GAMMA ⏎		CINEMA / VIDEO / PC

DISPLAY...	SOURCE...	VIDEO/S-VIDEO/COMPONENT1/COMPONENT2/DVI-DIGITAL/DVI-ANALOG
	ASPECT...	16:9 / 4:3 / ZOOM / DYNAMIC / REAL
	SAVE...	MEMORY1 / MEMORY2 / MEMORY3

OPTION...	RESET ALL ⏎	YES / NO
	AUTO OFF	0 / 10 / 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90 MINUTES
	LAMP HOUR	

INSTALLATION...	LANGUAGE...		ENGLISH / FRANÇAIS / DEUTSCH / ITALIANO / ESPAÑOL
	RGB & COMPONENT	AUTO	YES?
		FREQUENCY	− 15 ~ +15
		PHASE	0 ~ +31
		H. POS	− 30 ~ +30
		V. POS	− 30 ~ +30
	MIRROR..		FLOOR FRONT / CEILING FRONT / FLOOR REAR / CEILING REAR
	KEYSTONE...		− 12 ~ +12
	PATTERN		

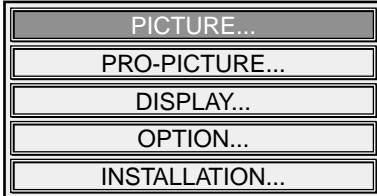• The items with mark "⏎" or "…" requires you to press the ENTER button to confirm its entry after selecting the item.
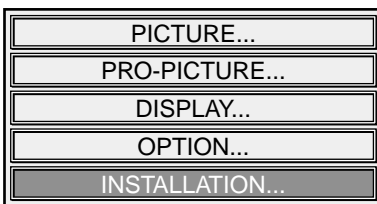
How to make a menu setting:

The following figures describe how to set the trapezoidal correction as an example:

1   Press the MENU button.
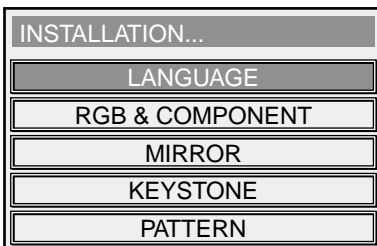   The main menu (the first level) appears.

PICTURE...
PRO-PICTURE...
DISPLAY...
OPTION...
INSTALLATION...

2   Select a menu to be revealed by pressing the ▲ , ▼ buttons.

PICTURE...
PRO-PICTURE...
DISPLAY...
OPTION...
INSTALLATION...

3   Press the ENTER button.
    The desired menu (the second level) appears.

INSTALLATION...
LANGUAGE
RGB & COMPONENT
MIRROR
KEYSTONE
PATTERN

4   Select the menu to be revealed by pressing the ▲ , ▼ buttons.

INSTALLATION...
LANGUAGE
RGB & COMPONENT
MIRROR
KEYSTONE
PATTERN
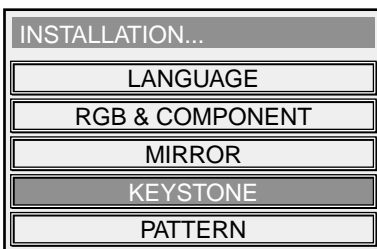
5   Press the ENTER button.
    The desired menu (the third level) appears.

KEYSTONE		
KEYSTONE	▬	0
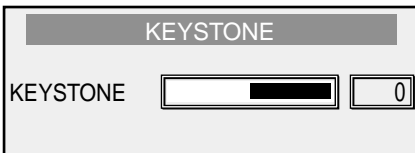
6   Press the ◀ , ▶ buttons for the setting.

KEYSTONE		
KEYSTONE	▬	+4
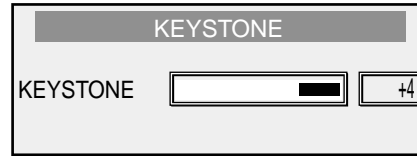
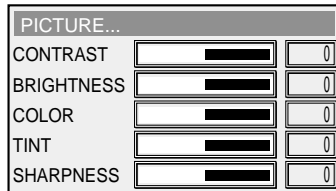When canceling the menu

7   Press the MENU button.
•   When you press the EXIT button, the Menu returns to the previous level.
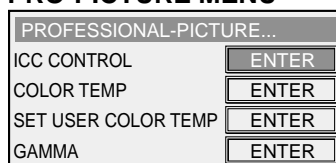
Items that can be set with the menus

In this projector, the following items can be set from the set up menus.

PICTURE MENU

PICTURE...		
CONTRAST	▬▬	0
BRIGHTNESS	▬▬	0
COLOR	▬▬	0
TINT	▬	0
SHARPNESS	▬▬	0

ITEM	SETTING	FUNCTION
CONTRAST -------	-32 ~ +31 ----------	Adjusts contrast of projected images. (See Page 29.)
BRIGHTNESS ----	-30 ~ +30 ----------	Adjusts brightness of projected images. (See Page 29.)
COLOR ------------	-30 ~ +30 ----------	Adjusts color thickness of projected images. (See Page 30.)
TINT --------------	-15 ~ +15 ----------	Adjusts tint of projected images. (See Page 30.)
SHARPNESS -------	-5 ~ +5 ------------	Adjusts sharpness of projected images. (See Page 30.)

PRO-PICTURE MENU

PROFESSIONAL-PICTURE...	
ICC CONTROL	ENTER
COLOR TEMP	ENTER
SET USER COLOR TEMP	ENTER
GAMMA	ENTER

ITEM	SETTING	FUNCTION
ICC CONTROL --------------------------		Emphasizes or de-emphasizes independently each of four colors, RED, GREEN, BLUE, YELLOW and WHITE. (See Page 30.)
COLOR TEMP -	HI BRIGHT/STANDARD/LOW ----------	Selects one of preset color temperatures.
	USER1/USER2 ------	Selects one of color temperatures that are set in SET USER COLOR TEMP menu.
SET USER COLOR TEMP -------------		Adjusts favorable color temperatures and stores them. (See Page 31.)
GAMMA ----------	CINEMA -----------	Mode for viewing movies in a dark room like a movie theater.
	VIDEO ------------	Mode for viewing video programs in a dark room: Emphasizes contrast of bright portions of projected images.
	PC --------------	Mode for keeping contrast of projected images in a somewhat brightly lit room. (for PC and the like)

DISPLAY MENU

DISPLAY...
SOURCE...
ASPECT...
SAVE...
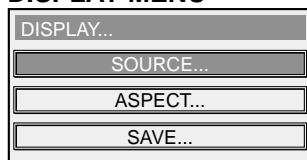
ITEM	SETTING	FUNCTION
SOURCE -------------	VIDEO ------------	Select when viewing picture images from video equipment connected to VIDEO terminal.
	S-VIDEO ----------	Select when viewing picture images from video equipment connected to S-VIDEO terminal.
	COMPONENT1 ------	Select when viewing picture images from video equipment connected to COMPONENT1 terminal.
	COMPONENT2 ------	Select when viewing picture images from video equipment connected to COMPONENT2 terminal.
	DVI-DIGITAL -------	Select when viewing picture images from digital equipment connected to DVI terminal.
	DVI-ANALOG -------	Select when viewing picture images from analog equipment connected to DVI terminal.
ASPECT---------------	16 : 9 -------------	Sets picture images to be projected to an aspect ratio of 16 : 9.
	4 : 3 -------------	Sets picture images to be projected to an aspect ratio of 4 : 3.
	ZOOM -----------	Projects expanded picture images.
	DYNAMIC ---------	Projects picture images expanded to full screen.
	REAL -----------	Projects picture images keeping the input signals as they are.
SAVE -----------	MEMORY 1,2,3 ------	Stores the settings made in the PICTURE menu and the PROFESSIONAL PICTURE menu into MEMORY. (See Page 29.)

OPTION MENU

OPTION...	
RESET ALL	ENTER
AUTO OFF	0 MINUTES
LAMP HOUR	+11 HOURS

ITEM	SETTING	FUNCTION
RESET ALL --------------------------------		Pressing the ENTER button shows a confirmation box. Select "Yes" and press ENTER button. Then, the settings that were made in the picture quality setting menu and the professional-use picture quality setting menu are changed to the factory-default settings.
AUTO OFF ------------- 0 ---------------		Auto power off does not function.
	10-90 MINUTES --------	Without a picture image signal input, the power is automatically turned off at the preset time.
LAMP HOUR -------------------------------		Indicates used-hours of the lamp. It is not possible to change the indicated used-hours.

INSTALLATION MENU

INSTALLATION...
LANGUAGE
RGB & COMPONENT
MIRROR
KEYSTONE
PATTERN

RGB & COMPONENT MENU

RGB & COMPONENT		
AUTO	YES?	
FREQUENTCY		0
PHASE		15
H. POS		0
V. POS		0

ITEM	SETTING	FUNCTION
LANGUAGE -------------------------------		Selects a language used for displays on the screen, such as menus.
RGB & COMPONENT -------------------		Adjusts computer video images.
AUTO * -----------------------------------		Selecting Auto and pressing the ENTER button automatically adjust position and size of the projected images in accordance with the image signals from the computer.
FREQUENCY * - -15 ~ +15 ----------		If any wide streak pattern appears on the projected images, it can be adjusted with this setting while viewing the images.
PHASE * ------------ 0 ~ +31 -----------		If any flicker or blur appears on the projected images, it can be adjusted with this setting while viewing the images.
H.POS * ---------- -30 ~ +30 ----------		Moves display position of projected images in a horizontal direction.
V. POS * ------------ -30 ~ +30 ----------		Moves display position of projected images in a vertical direction.
MIRROR ------- FLOOR FRONT ------		Select this setting with the projector set on the floor when viewing the projected images from the front side. Normally, select this setting.
	CEILING FRONT -----	Select this setting with the projector suspended from the ceiling when viewing the projected images from the front side.
	FLOOR REAR -------	Select this setting with the projector set on the floor when viewing the projected images from the rear side of the screen.
	CEILING REAR ------	Select this setting with the projector suspended from the ceiling when viewing the projected images from the rear side of the screen.
KEYSTONE ------- -12 ~ +12 ----------		Select this setting when correcting trapezoidal distortion. Normally, select "0".
PATTERN ---------------------------------		Pressing ENTER button reveals the test pattern for focus adjustment.

- The items with the * mark function only for 1080i, 720p, 525p, and 625p input signals and input signals from DVI terminal.
- The varying range of the vertical position depends on the type of the input signal. With some values the vertical position may not change, but this is not a malfunction.
- With the inputs from DVI-DIGITAL terminal, no change appear on the projected images with adjustment of the dividing ratio and fine, but this is not a malfunction.
- Without input signals, only some of the above items can be changed.
- Contact your dealer for the ceiling mount bracket. As installation requires technical knowledge and skill, be sure to ask your dealer for installation.
- When mounted on the ceiling, the product shall be installed by the dealer with the bracket designed for this product. If you attempt to install the product by yourself, you may fall and be injured or the product may fall causing injury.

On the memory for projected image quality

This projector allows each item in the PICTURE menu and the PROFESSIONAL-PICTURE menu (except for SET USER COLOR TEMP) to be adjusted to up to three kinds of favorable picture quality for each input signal.

Input that allows the setting	Number of settings
VIDEO	3
S-VIDEO	3
COMPONENT 1, 2	3
DVI-ANALOG/DIGITAL	3

SAVE
MEMORY 1
MEMORY 2
MEMORY 3

To store the settings:

(Refer to Page 26 for how to set menus.)

1 Set an item in the PICTURE menu and the PRO-PICTURE menu.
2 Bring up the DISPLAY menu.
3 Select "SAVE" by pressing the ▲, ▼ buttons.
4 Press the ENTER button.
   The setting storage menu appears.
5 Select the memory where the setting is to be stored by pressing the ▲, ▼ buttons.
6 Press the ENTER button.
   The setting is stored in the memory.

To cancel the menus:
7 Press the MENU button.

To apply the set picture quality:

1. Press the MEMORY 1, 2, or 3 button.
The picture quality of the projected image comes to the set quality.

Adjusting projected images
To adjust brightness (CONTRAST and BRIGHTNESS):

1 Bring up the PICTURE menu.
2 Select "CONTRAST" or "BRIGHTNESS" by pressing the ▲, ▼ buttons.
3 Adjust the selected item by pressing the ◀, ▶ buttons.

PICTURE...		
CONTRAST	▬▬▬	0
BRIGHTNESS	▬▬▬	0

To cancel the menus:
4 Press the MENU button.

CONTRAST .... Adjusts the vividness of a projected picture image. Every time the ▶ button is pressed, the images are made brighter and more vivid. Every time the ◀ button is pressed, the images are made darker and less vivid.
BRIGHTNESS .... Every time the ▶ button is pressed, the images are made brighter. Every time the ◀ button is pressed, the images are made darker.

Adjusting color (COLOR and TINT)

Items related to color of projected images are adjusted with menus. To adjust the color:
(Refer to Page 26 for setting menus.)
1   Bring up the PICTURE menu.
2   Select "COLOR" or "TINT" by pressing the ▲, ▼ buttons.
3   Adjust the selected item by pressing the ◀, ▶ buttons.

| COLOR | | 0 |
| TINT | | 0 |

To cancel the menus:
4   Press the MENU button.

COLOR .... Adjusts color thickness of projected picture images. Every time the ▶ button is pressed, the colors are made thicker. Every time the ◀ button is pressed, the colors are made thinner.
TINT .... Adjusts tint of projected picture images. Every time the ▶ button is pressed, the skin color of the projected images is made more reddish. Every time the ◀ button is pressed, the skin color is made more greenish.

Setting projected images sharper or softer (SHARPNESS)

To adjust the sharpness :
(Refer to Page 26 for setting menus.)
1   Bring up the PICTURE menu.
2   Select "SHARPNESS" by pressing the ▲, ▼ buttons.
3   Adjust sharpness by pressing the ◀, ▶ buttons.

| SHARPNESS | | 0 |

To cancel the menus:
4   Press the MENU button.

Emphasizing or de-emphasizing a specified color of projected images (ICC CONTROL)

To increase or decrease a specified color (RED, GREEN, BLUE, YELLOW or WHITE) :
(Refer to Page 26 for setting menus.)
1   Reveal the PRO-PICTURE menu.
2   Select "ICC CONTROL" by pressing the ▲, ▼ buttons.
3   Press the ENTER button.
4   Select a color to be set by pressing the ▲, ▼ buttons.
5   Set the color by pressing the ◀, ▶ buttons.
6   Set the other colors by repeating steps 4 and 5.

| ICC CONTROL		
ICC RED		0
ICC GREEN		0
ICC BLUE		0
ICC YELLOW		0
WHITE		+5
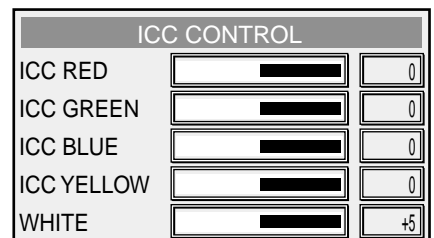
To cancel the menus:
7   Press the MENU button.

Adjusting whiteness degree of white color (COLOR TEMPERATURE)

One of preset color temperatures (degree of white color) is selected with menus.
(Refer to Page 26 for setting menus.)
1   Reveal the PRO-PICTURE menu.
2   Select "COLOR TEMPERATURE" by pressing the ▲, ▼ buttons.
3   Press the ENTER button.
4   Select a desired color temperature by pressing the ▲, ▼ buttons.
•   A favorable color temperature depends on each one's preference. Gener-

COLOR TEMPERATURE
HI BRIGHT
STANDARD
■ LOW
USER1
USER2

ally, HIGH BRIGHT is preferably selected for viewing PC, STANDARD is for viewing TV, and LOW is for viewing movies.
•   When "USER1" or "USER2" is selected, each corresponding color temperature adjusted by user setting is selected.
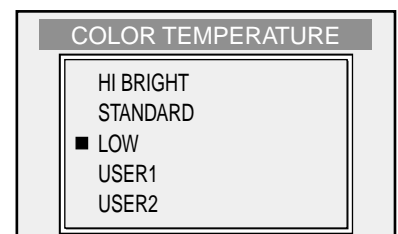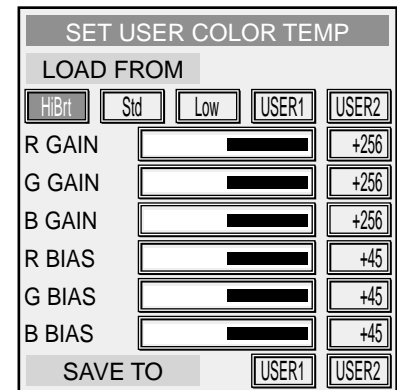
To cancel the menus:
5   Press the MENU button.

To adjust the degree of white color (SET USER COLOR TEMP):
When setting (storing) user's preferable color temperatures, use "SET USER COLOR TEMP" in the PRO-PICTURE menu.
(Refer to Page 26 for setting menus.)

To store the settings:
1   Bring up the PRO-PICTURE menu.
2   Select "SET USER COLOR TEMP" by pressing the ▲, ▼ buttons.
3   Press the ENTER button.
    •   The SET USER COLOR TEMP menu appears.
4   Select a basic color temperature by pressing the ▲, ▼ buttons.
    •   Generally, select the most preferable color temperature from the preset color temperatures.
5   Press the ENTER button.
    •   The selected color temperature is indicated, and the whiteness of the projected images changes according to the color temperature.
6   Select the item to be changed by pressing the ▲, ▼ buttons.
7   Set the item by pressing the ◄, ► buttons.
    •   The projected images also change accordingly.
8   Repeat the settings by repeating steps 6 and 7.
9   Select "USER 1" or "USER 2" by pressing the ▲, ▼ buttons.
10 Press the ENTER button.
    •   The set color temperatures are stored in the memory.

To cancel the menus:
11 Press the MENU button.

To bring one of the set color temperatures:
Select "USER1" or "USER 2" in "SET USER COLOR TEMP" of the PRO-PICTURE menu.

On color temperatures
There are various degrees of white color. One of the methods of representing degree of white color is color temperatures. The white color of low color temperature is reddish white, and that of high color temperature is bluish white. In this projector, the color temperatures are set by varying each gain and bias of R (red), G (green), and B (blue) signal.

To make the color temperature higher:
Set the value of B GAIN (or B BIAS) larger, and the value of R GAIN (or R BIAS) smaller.

To make the color temperature lower:
Set the value of R GAIN (or R BIAS) larger, and the value of B GAIN (or B BIAS) smaller.

One method of adjusting color temperatures is to make use of a person's skin color. Project a large still picture of a human face on the screen, and adjust the color tone of the face so that it looks neutral.
•   Generally, the gains are used to adjust bright pictures, and the biases are used to adjust dark pictures.
•   Using the biases is effective in adjusting color of monotone pictures. (It is especially effective for adjusting dark to intermediate portions.) For example, when the green is relatively strong, decrease the value of R BIAS, or increase the values of both B BIAS and R BIAS evenly. Also, when the projected images are bluish, decrease the value of B BIAS, and when they are reddish, decrease the value of R BIAS.

31

Adjusting picture images sent from computers

This projector automatically sets an appropriate signal processing format according to the image signal sent from computers. However, depending on the type of the computer, the image signals may not be projected properly. If this happens.
1   Bring up the INSTALLATION menu.
2   Select "RGB & COMPONENT" by pressing the ▲, ▼ buttons.
3   Press ENTER button.
    •   The RGB & COMPONENT menu appears.
4   Select "AUTO" by pressing the ▲, ▼ buttons.
5   Press the ENTER button.
    •   The automatic setting is made so that an appropriate setting may be obtained for the input signal.

To cancel the menus:
6   Press the MENU button.

If the computer images can not be projected properly with the above operation, adjust the images using the menus. These settings can be stored in the memory of the projector.

How to adjust computer images using menus:

If the following phenomena are observed, adjust as follows:

Projected images are shifted to the left or right: .... Adjust "H.POS" in the RGB & COMPONENT menu. Every time the ◀ button is pressed, the projected image is shifted to the left. Every time the ▶ button is pressed, the projected image is shifted to the right.

Projected images are shifted up or down: .... Adjust "V.POS" in the RGB & COMPONENT menu. Every time the ◀ button is pressed, the projected image is shifted downward. Every time the ▶ button is pressed, the projected image is shifted upward.

Projected images blink.
Projected images are blurred: .... Adjust "PHASE" in the RGB & COMPONENT menu.

A wide streak pattern appears on the projected images: .... Adjust "FREQUENCY" in the RGB & COMPO-NENT menu.

•   Usually, do not change the settings in the RGB & COMPONENT menu.

A simple method of adjusting the position of projected images
Adjusting horizontal position:
    1   Align the left edge of the projected image with the left side of the screen by adjusting "H.POS". Then, align the right edge with the right side of the screen by adjusting "FREQUENCY".
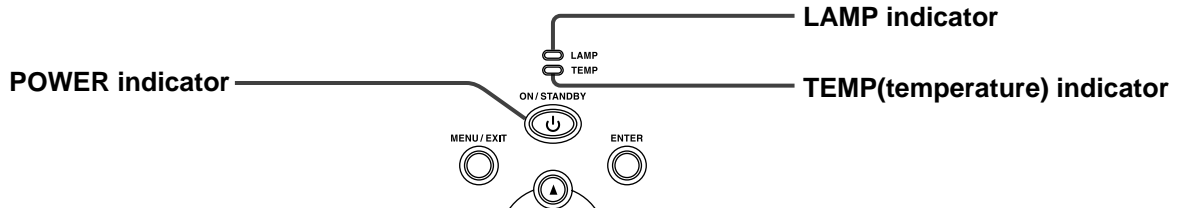   2   Repeat the above adjustments to align the horizontal position.

Adjusting vertical position:
    3   Align the upper edge of the projected image with the upper side of the screen by adjusting "V.POS".

INDICATORS

How to see the internal states from indicators
There are three indicators that show the status of the projector. Check the followings, and if there is any phenomenon, stop use of the projector and be sure to unplug the power plug. Then, contact your dealer.

LAMP indicator

POWER indicator

TEMP(temperature) indicator

LAMP
TEMP
ON / STANDBY
MENU / EXIT   ENTER

When the projector is normal:

POWER	LAMP	TEMP	STATE	REMARK
On in orange			Standby state.	
Blinking in green	Off	Off	Lamp standby state.	Power can not be turned "OFF".
On in green			Power "ON" (usually).	
Blinking in orange			Lamp is being cleaned.	Power can not be turned "ON".

If the projector is not normal:

POWER	LAMP	TEMP	STATE	REMARK
On in orange	Off	On in red	The interior of the projector is very hot. • The intake vent and/or exhaust vent is blocked with something. • The projector is used at a very hot place such as outlet of heating air.	Solution • Make sure the vent is not blocked. • Relocate the projector.
On in orange	On in red	Off	The protection circuit is working, or The lamp is not normal. (When power is turned off normally, this indication appears, and this is not a failure.)	• Press the POWER button after the POWER indicator has stopped a blinking. • If this operation is repeated several times and the light-source lamp still does not come on, replace the lamp with a new one. Ask your dealer.
On in green	Blinking in red	Off	Indicating replacement of the lamp (Used about 1000 hours* in total; Power is "ON".)	Replace the light-source lamp to a new one. Purchase a light-source lamp from the delivery agent of the projector.
	Blinking in red	Off	Indicating replacement of the lamp (Used about 1000 hours* in total; Power is "OFF".)	
On in orange	On in red		Indicating replacement of the lamp (Used about 1500 hours* in total)	
On in orange	Blinking in red	Blinking in red or Blinking in red	The cooling system error.	• Ask your dealer.

Kensington Lock
This projector has a Kensington Security Standard connector for use with a Kensington MicroSaver Security System. Refer to the information that came with the Kensington System for instructions on how to use it to secure the projector. Please contact to Kensington Technology Group as shown below.

Kensington Technology Group
2855 Campus Drive
San Mateo, CA 94403, U.S.A.

Phone :+1- (650)572-2700   Fax :+1- (650)572-9675

REPLACING THE LAMP/CLEANING THE PROJECTOR

The light-source lamp is stored in the projector to project picture images on screen. The light-source lamp is a consumable part. It may go off or its brightness may decrease during use, this is a characteristic of the lamp and is not a malfunction. In these cases, replace the lamp to new one in good time. To replace the lamp, be sure to use the light-source lamp that is sold exclusively for the TDP-MT500 (Model TDPLMT50). For the details, refer to the operation manual for TLPLMT50. Purchase the lamp from the delivery agent of the projector.

Warning

- Before replacing the light-source lamp, be sure to turn off the main power switch and unplug the power cord. Replacing the lamp without turning off the main power switch can cause electric shock.
- When replacing the light-source lamp, be cautious not to drop the screws fixing the lamp into the inside of the projector. Do not put any metal pieces or easily flammable things in the projector. If the projector is operated with foreign material inside, electric shock or fire may be caused. If users can not take out the foreign matters inside, ask your dealer to take them out.
- Securely fix the light-source lamp. If it is not fixed properly, it will not come on and may cause fire.
- Never shake the replaced light-source lamp or bring it near your face. The lamp may be broken and its broken glass pieces may be scattered or enter human eyes causing injuries.
- Do not replace the light-source lamp immediately after its use, because it is very hot and may cause burns. Turn off the power button to put off the lamp, and wait about 2 minutes until the cooling fan comes to a complete stop. Then, turn off the main power switch and unplug the power plug. After more than one hour has passed and the lamp has been thoroughly cooled down, replace the lamp.
- When this projector is ceiling-mounted, ask your dealer for the maintenance such as cleaning and lamp replacement.

Caution

In this projector, a LAMP indicator blinks after the light-source lamp has been used for more than 1000 hours. When the lamp has been used more than 1300 hours, a warning appears on the screen every time the power is turned on. After more than 1500 hours of use, the power for the lamp is automatically turned off and the lamp can not be used any more. Then, replace the lamp to new one as soon as possible.

- Do not remove the light-source lamp except when it is replaced. Otherwise, removing it may cause a malfunction.
- The light-source lamp is a high-pressure mercury lamp. The high-pressure mercury lamp may burst with a disruptive sound, if it is shocked or scratched, or if the lamp deteriorates while being used. The lapse of time until each lamp bursts or stops lighting, if it occurs, depends on the characteristics or use condition of each lamp. Therefore, there is a possibility that it may burst by chance even in a short time after you start using it.
- The possibility of bursting of the high-pressure mercury lamp increases if it is used beyond its replacement period. When the indication of lamp replacement appears, immediately replace the lamp to a new one even if the lamp is lighting normally.
- If the high-pressure mercury lamp bursts, the fragments of the glass valve may scatter in and out of the lamp box, or the gas filled in the valve may come out of the ventilation outlet. The gas filled in the high-pressure mercury lamp contains mercury vapor. Be extremely cautious not to inhale the gas or bring the gas into eyes or mouths. If the gas is inhaled or brought into eyes or mouths, consult a doctor immediately.
- If the high-pressure mercury lamp bursts, fragments of the glass valve are scattered inside of the projector. It is recommended to ask your dealer to replace the light-source lamp and check the interior of the projector. When users clean and replace the lamp for themselves, be sure to turn the main unit upside down and do it holding the lamp holder. Otherwise, the broken pieces of the lamp may cause injuries.

How to replace the lamp:
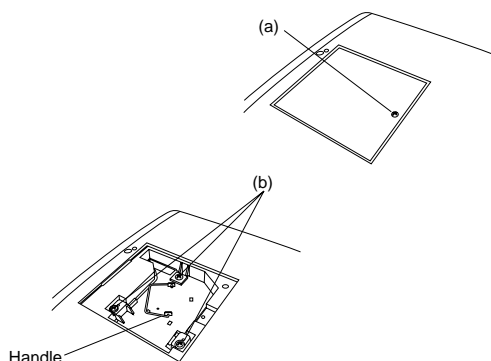
1 **Turn off the projector and disconnect the power cord.**

2 **Wait until this unit is sufficiently cooled down.**

3 **Turn the projector upside down.**

4 **Loosen the screw (a) fixing the lamp cover with a Phillips screwdriver and remove the lamp cover from the projector.**

5 **Loosen the three screws (b) fixing the lamp box with the Phillips screwdriver.**

6 **Raise up the handle.**

Handle

(b)

(a)

LAMP
TEMP

ON / STANDBY

MENU / EXIT   ENTER

POWER button

▲ button

▼ button
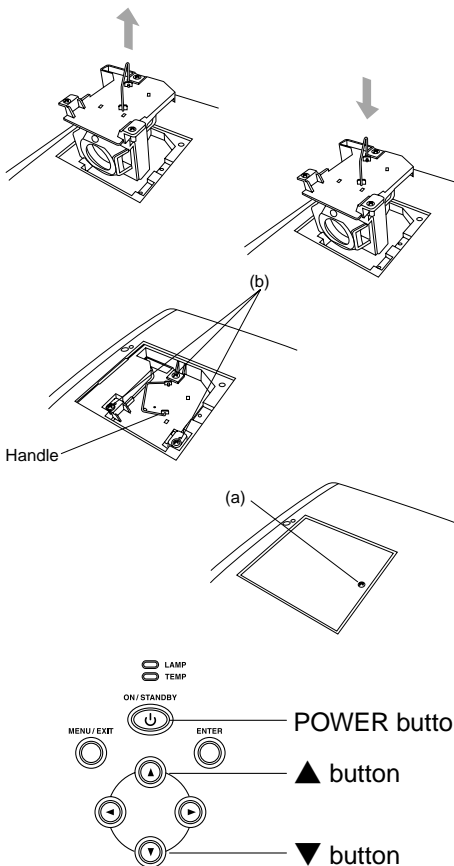
7 Holding the handle, pull out the light-source lamp from the projector.
- Pull out the light-source lamp slowly. The lamp may burst the glass of the lamp is pulled out too quickly.
- Do not spray water over the light-source lamp and do not put it where children can reach it or near anything flammable. It may cause burn or injury.

8 Holding the handle of a new lamp, insert the lamp to main the shape of the hole in the projector.

9 Press the handle into the storage.
- Make sure that the handle is securely locked.

10 Securely screw down the three fixing screws (b) with the Phillips screwdriver.

11 Insert the lamp cover into the projector, and securely screw down the screw (a) with the Phillips screwdriver to fix the lamp cover.
- If the lamp cover is dislocated, the power can not be turned on.

12 Connect the power cord and turn on the power.

13 Simultaneously press on the ▲, ▼ buttons and POWER button (⏻) on the operation panel for more than 3 seconds.
- If the three buttons are not pressed simultaneously, the lamp-used-hours may not be reset. If you do not this, the projector unit will not count the lamp hours for your next replacement.

- If the lamp-used-hours have exceeded 1500 hours and the lamp has been replaced, it is not possible to turn on the new light-source lamp until the lamp-used-hours are reset.
- Do not reset the lamp-used-hours if the lamp is not replaced.

ORDER REPLACEMENT LAMP
Replacement Lamp can be ordered through your dealer. When ordering Projector Lamp, give following information to dealer.
- Replacement Lamp Type No; TLPLMT50

Disposal of Used Lamp
The lamp of this product uses a small amount of inorganic mercury harmful to environment. Handle the used lamp with care not to break it, and dispose it separately as one of harmful waste goods like fluorescent lamp and the similar. And in a self-government where separate waste goods collection is conducted, dispose the lamp according to its ordinance.

Cleaning dust in the intake vent
If dust is accumulated in the intake vent, the temperature in the projector goes up abnormally, and may damage the internal parts. Also, the light-source lamp may come off to protect the internal parts. Clean up the dust with a vacuum cleaner about once a year.

Exhaust vent

Intake vent
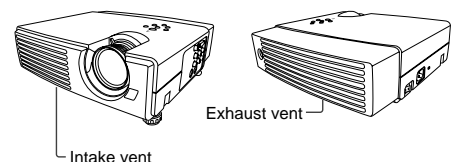
Cleaning the projector
Softly wipe off dirt on the projector with a soft cloth.
- If the dirt is thick, wipe it off with a cloth soaked in a neutral detergent diluted with water, and then finish with a dry cloth.
- If any pesticide is sprayed over the projector, or if the projector is wiped with benzine or thinner, or if rubber or vinyl products are brought into contact with the projector for a long period of time, the paint on the projector could be damaged.

Cleaning the lens
Remove dust or dirt on the lens with a commercially available lens cleaning kit (blower, brush, and the like).
- Because the surface of the lens is easily scratched, do not rub or hit the surface with anything hard.

TROUBLESHOOTING

Before asking for repair of the projector, check the followers: If the phenomenon still continues, stop using it and be sure to unplug the power plug. Then, contact the delivery agent of the projector.

Picture images are not projected on screen.

Problem	Solution
Power can not be turned on.	• Check whether the indicators are on or off and how they are lighting.

POWER	LAMP	TEMP	Solution
○ Off	○ Off	○ Off	• Connect the power cable to the projector. • Plug the power plug into a power outlet. • Turn "On" the main power switch. • Fit the lamp cover. • If the projector itself is very hot, turn off the power switch, and after the temperature has come down, turn on the power switch again.
☀ On in orange	☀ On in red	○ Off	• Replace the light-source lamp. (The lamp is at the end of its life.)
	○ Off	☀ On in red	• If the intake and/or exhaust vent is blocked with anything, remove it. • Prevent the heat from a vent or fan from blowing into the exhaust vent of the projector.

○⇄☀
Blinking in orange
	○
	Off
		○
		Off
			• Press the POWER button after the POWER indicator has stopped blinking in orange.
			  • If the main power was turned "Off" while the fan was still turning, the lamp may not be able to come on next time for about one minute after the main power switch is turned "On".
			  • For about one minute after the light-source lamp has been put out, it is not possible to put the lamp on again.

☀ On in orange	○⇄☀ Blinking in red	☀⇄○ or ○⇄☀ Blinking in red	• Ask your dealer.

Picture images are not projected on screen.	• In some cases it takes about one minute to put the lamp on. • On rare occasions, the lamp fails to come on. If this happens, turn on the lamp again after a few minutes. • If the projector finished operation without sufficient cooling, the cooling fan is turning and the following operation of the main power button may not work after the main power was turned on. (At this time the POWER indicator blinks in orange.) After the fan has stopped turning, press the POWER button again to turn on the indicator in orange. • Check if to make sure the intake vent is not blocked with anything. • Check to be sure that the lamp cover is closed. (See Pages 34 and 35.) • Check if the cable connecting the projector and external equipment is not broken.

Projected images suddenly disappear.	• This problem may occur if the intake vent and/or exhaust vent is blocked with anything. (At this time the TEMP (temperature) indicator lights in red.)
	➜ After removing anything blocking the intake vent and/or exhaust vent, do the followings:
	  1 Wait until the intake/exhaust fan stops turning. (Wait until the TEMP (temperature) indicator comes off.)
	  2 Turn off the main power switch.
	  3 Wait about 10 minutes.
	  4 Turn on the main power switch.
	  5 Press the POWER button.
	• LAMP indicator lighting in red indicates that the lamp must be replaced. Replace the light-source lamp to a new one. (See Pages 34 and 35.)

Problem	Solution
Projected images are distorted.	• Adjust the projector and the screen so that they are perpendicular to each other. (See Page 15.)
Projected images are dark.	• Adjust BRIGHTNESS and CONTRAST in the PICTURE menu. (See Page 29.) • Replace the lamp to a new one. (See Pages 34 and 35.)
Projected images are blurred.	• Adjust the focus. (See Page 19 and 23.) • Check if the lens cap is on. • Clean the lens. • Adjust FREQUENCY and PHASE in the RGB & COMPONENT menu. (See Page 28.) • Adjust BRIGHTNESS and CONTRAST in the picture quality menu. (See Page 29.) • Adjust the projector and the screen so that they are perpendicular to each other. (See Page 15.)
White dots are seen in projected images. Black dots are seen in the projected images.	• This phenomenon is normal for a DLP projector and is not a malfunction. (A very small number of pixels may be constantly lighting on or off, but this is not a malfunction. Pixels of more than 99.99% are acceptable.)
A rainbow-color brume pattern is seen on projected images.	• This pattern is a color breaking noise that occurs in a DLP system . This is not a malfunction.
Fine streak pattern is seen on projected images.	• This problem occurs due to an interference with the screen surface, and is not a malfunction. Try to replace the screen or refocus the lens a little.
Projected images are wavy.	• Securely plug the cable connecting the external equipment to the bottom. • Keep the projector away from equipment generating interfering radio waves.
Tint of projected images is irregular.	• Check if the cable connecting the external equipment is broken.

Others

Problem	Solution
Hot air comes out of the exhaust vent.	• This air comes out after cooling the inside of the projector. It may feel hot, but is not a malfunction.
Menu setting is disabled.	• If POWER can not be turned off, turn off the main power switch and leave the projector to cool for more than 10 minutes. Then, turn on POWER again.
Abnormal sounds occur.	• On rare occasions, a metallic clank occurs because the color wheel is rotating at a high speed. This is not a malfunction.

If the following problem occurs after the lamp has been replaced, check the following first:

Problem	Solution
Power can not be turned on.	• Securely fit the lamp cover. (See Pages 34 and 35.) • Reset the lamp-used-hours. (See Page 35.)

SPECIFICATIONS

(The specifications and outside appearance of the projector are subject to change without prior notice.)

Item	HOME projector
Model no.	TDP-MT500
Projection system	DLP™ (Single-Board DMD™) system
Power	AC 100-240 V, 50/60 Hz
Power dissipation	3.5 A
Resolution	1,024 x 576 dots
Maximum number of display colors	16,770,000 colors (full-color display)
Light-source lamp	210 W lamp
Projection screen	111 cm x 62 cm - 399 cm x 224 cm
PC image input signal	Resolution: 640 x 400 (expanded) ~ 1024 x 768 (compressed)
Video input signal	NTSC /4.43 NTSC / PAL / PAL-N / PAL-M / PAL-60: automatically discriminated
S-video input	Luminance signal: Vp-p = 1.0 V, 75Ω (negative sync) Chrominance signals: Vp-p = 0.286 V, 75Ω (burst signal)
Video input	Vp-p = 1.0 V, 75Ω (negative sync)
Analog RGB input (Mini D-SUB 15P)	RGB: Vp-p = 0.7 V, 75Ω (negative sync) YC_BC_R: Vp-p = 1.0 V (Y) (negative sync), Vp-p = 0.7 V (C_B, C_R) HD/CS: TTL-level (negative or positive polarity) VD: TTL-level (negative or positive polarity)
Computer digital input (DVI-D24P)	DVI interface (TMDS single ring)
Control terminal	Serial (8-pin terminal): RS-232C specification: one route
Maximum outside dimensions	308 mm (W) x 90 mm (H) x 293 mm (D): not including lens projection and legs
Weight	3.7 kg
Power cable	3 m
Operating temperatures	+5˚C - +35˚C
Operating humidity	10% - 90% (except for dew condensation)

## Dimensional drawings (for references)
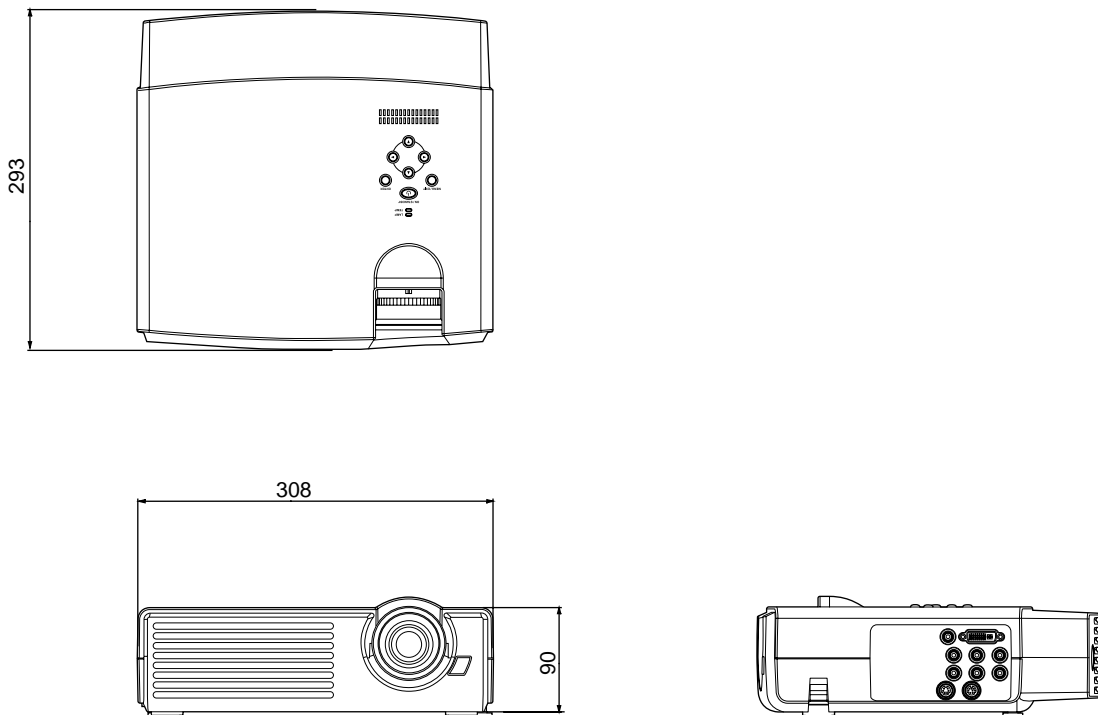
Type of connectable signals

	Input signal			Screen size
Signal representation	**Resolution (H x V)**	**Horizontal sync frequency (kHz)**	**Vertical sync frequency (Hz)**	**REAL display (H x V)**
480i	–	15.73	59.94	720 x 480
576i	–	15.63	50.00	720 x 576
480p	–	31.47	59.94	720 x 480
576p	–	31.25	50.00	720 x 576
720p50	–	37.50	50.00	1024 x 576
720p59	–	44.96	59.94	1024 x 576
720p60	–	45.00	50.00	1024 x 576
1080i25	–	28.13	25.00	960 x 540
1080i29	–	33.72	59.94	960 x 540
1080i30	–	33.75	60.00	960 x 540
VGA	640 x 400	31.47	70.09	640 x 400
VGA	640 x 480	43.27	85.01	640 x 480
SVGA	800 x 600	37.88	60.32	800 x 600
SVGA	800 x 600	46.88	75.00	800 x 600
SVGA	800 x 600	53.67	85.06	800 x 600
XGA	1024 x 768	48.36	60.00	1024 x 768
XGA	1024 x 768	60.02	75.03	1024 x 768
XGA	1024 x 768	68.68	85.00	1024 x 768

- The maximum resolution of this projector is 1024 x 576 dots. It is not possible to obtain more than the maximum resolution for projected images.
- If picture images of a connected computer have a resolution and sync frequency other than those indicated in the above table, they may be projected by changing the resolution and frequency within the computer.
- Because XGA60 signals and SVGA60 signals are in conformity with HTPC, they are projected with an emphasis on picture quality, and the projected images become a little dark. The other PC input signals are projected with an emphasis on brightness.
- 1080i represents Hi-Vision.
- COMPONENT 1,2 inputs do not project RGB signals.
- The DVI-ANALOG input does not project chrominance signals.
- If signals are out of specification input, they may not be projected properly.
- If VGA60 signal outputs at the start-up of the computer, the projected image may not be displayed properly-for example, the position of the displayed image may be shifted. However, this is not a malfunction (non-compliant signal).
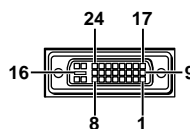- DVI input of 480i and 576i may not be displayed correctly.
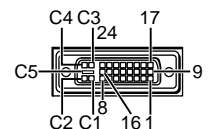
Terminals

RS-232C terminal (8P)
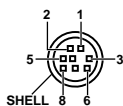
PIN No.	NAME	I/O
1	–	–
2	–	–
3	RXD	OUT
4	–	–
5	–	IN/OUT
6	–	IN
7	TXD	–
8	–	–
SHELL	GND	–

DVI terminal (DVI-D)

PIN NO.	STATUS	PIN NO.	STATUS
1	DATA 2–	13	–
2	DATA 2+	14	+5V Power
3	DATA 2 Shield	15	GND
4	–	16	Hot Plug Detect
5	–	17	DATA 0–
6	DDC Clock	18	DATA 0+
7	DDC Data	19	DATA 0 Shield
8	–	20	–
9	DATA 1–	21	–
10	DATA 1+	22	Clock Shield
11	DATA 1 Shield	23	Clock+
12	–	24	Clock–

DVI terminal (DVI-A)

PIN NO.	STATUS
C1	ANALOG RED
C2	ANALOG GREEN
C3	ANALOG BLUE
C4	H Sync
C5	GND
6	DDC Clock
7	DDC Data
8	Analog Sync
14	+5V Power
15	GND
16	Hot Plug Detect

For assistance with your Toshiba projector in the **United States**, please visit www.toshiba.com/tacp or contact by phone at 800-346-6672.

For assistance with your Toshiba projector in the **Europe**, please visit www.toshiba-europe.com or contact your local Toshiba dealer.