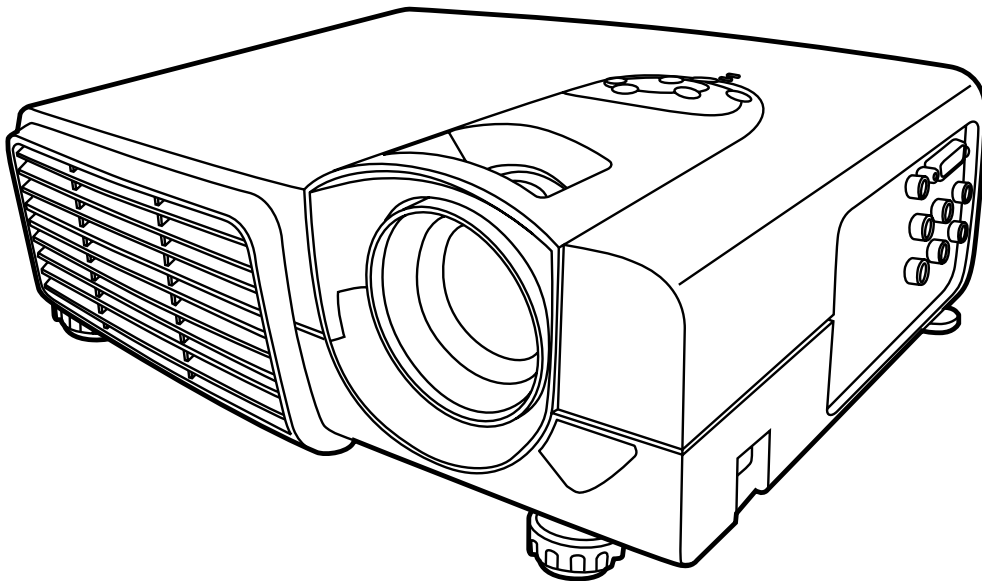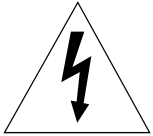# OWNER'S MANUAL

DATA PROJECTOR

TDP-MT500

SAFETY PRECAUTIONS

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 userís authority to operate the equipment.

CANADA only
Notice: This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

IMPORTANT SAFETY INSTRUCTIONS

CAUTION: PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS GIVEN IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE UNIT. RETAIN THIS BOOKLET FOR FUTURE REFERENCE.

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

1.   Read Owner's Manual

After unpacking this product, 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.
For products intended to operate from battery power, or other sources, refer to the operating instructions.

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 adhered to.

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

For added protection for this product during storm, or when it is left unattended and unused for long periods 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 and dangerous.
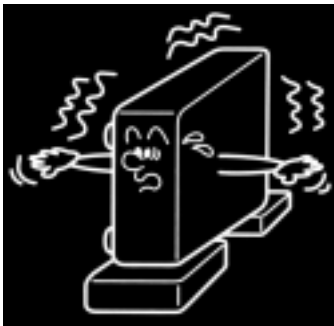
13. Stack Inhibited

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 develops heat and may give some undesirable damage to other unit.

14. Attachments

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

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. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with 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 - this indicates a need for service.

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 and discard any edible items placed in that area.

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.
(Replacement of the lamp only should be made by users.)

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.

21. Do not leave thermal-paper documents or easily deformed items on top of the unit or near the air exhaust.

The heat from the unit could erase the information on the thermal paper, or cause deformation or warping.
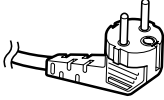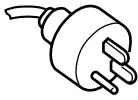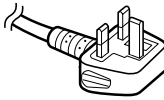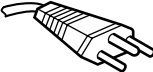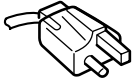
Also, when you touch a metal object put near the air exhaust, a burn may be caused.

22. Unplug the power plug after the projector is finished to use.

Turn off 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 in standby state, 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 bring the projector into failure.

POWER SUPPLY CORD SELECTION

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

Plug configuration	Plug type	Line voltage	Plug configuration	Plug type	Line voltage
	EURO	220 – 240V		Australian 240V 10A	
	UK	220 – 240V		Switzerland 240V 6A	200 – 240V

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

	North American 240V 15A	200 – 240V

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 set as it was originally packed at the factory.

Moisture Condensation
Never operate this unit immediately after moving it from a cold location to a warm location. When the unit is exposed to such a change in temperature, moisture may condense on the crucial internal parts. To prevent the unit from possible damage, do not use the unit 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. Doing so will dirty the optical parts, shortening their lives, and darkening the screen.
• Do not use in angle of 20∞ or more degrees. Doing so could shorten the life of the lamp.
• If used at high altitudes, the unit could cease 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.

Avoid Volatile Liquid
Do not use volatile liquids, such as an insect spray, near the unit. Do not leave rubber or plastic products touching the unit 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.

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

Model No.   Serial No.

Retain this information for future reference.

DECLARATION OF CONFORMITY
TRADE NAME: DLP DATA PROJECTOR
MODEL NAME: TDP-MT500
RESPONSIBLE PARTY: TOSHIBA AMERICA INFORMATION SYSTEMS, INC.
                                      9740 Irvine Blvd., Irvine, CA 92618-1697 U.S.A
                                      Phone: (949) 583-3000

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

PREPARATION

Checking accessories

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

■ Power supply parts

Power cable   Conversion adaptor

■ Remote controller parts

Remote controller   Size-AAA dry batteries (two)

■ Personal computer parts

D-SUB 9P

Mini DIN 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 body)
• Soft carrying case
• Operation manual
• Regular user card
• Warranty card
• Remote controller photo-sensor protection sticker

• The attached power cable and conversion adaptor are to be used exclusively for this product. Never use them for other products.

Inserting the dry batteries into the remote controller

1

2

3

1. Remove the rear lid of the remote controller.
2. Check the polarity (+), (-) of the dry 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 short-circuit and heating.
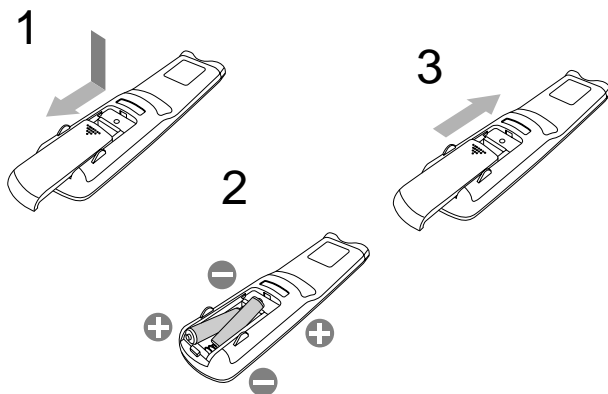3. Attach the rear lid.
• Use two size-AAA dry batteries (RO3).
• Exchange the two batteries to new ones if the distance that allows the remote controller to operate becomes shorter than usual.

⚠
• Correctly treat the batteries after thoroughly reading "On treating the batteries" described on Page 7. If the batteries are treated incorrectly, they may cause fire or peripheral contamination due to leakage of the liquid, heating, or burst. (Read the cautions indicated on the battery, too.)
• This projector is designed as plug-in equipment. There must be an easily accessible power outlet near the installed projector.
• Use the attached power cord with this projector. Using any other power cord than specified could cause electromagnetic interference to radio or television broadcast.
• Use the attached mini D-SUB 15pin-DVI conversion cable and RS-232C cable to suppress the interference within the restriction for J55022 class-B apparatus.
• Use a DVI shielded cable to suppress the interference within the restriction for J55022 class-B apparatus.
• Be sure to connect this projector to a ground.

Name and function of operational parts of the projector

Intake vent   **Operation panel**   **Remote controller photo-sensor (Rear)** (10)

Terminal panel

Angle adjusting (11)
button

**Remote controller
photo-sensor (Front)** (10)

Exhaust vent

**Angle adjusting
button** (11)

**Theft-prevention
lock hole** (36)

Power cable inlet (17)

Angle adjusting foot (11)

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

Focus ring: (18) (22)
Adjusts focus.

Zoom ring: (18) (22)
Expands projected picture images when
turned to the right (WIDE).
Contracts projected picture images
when turned to the left (TELE).

TELE ···················· WIDE

MENU/EXIT button: (25)
Displays menu when pressed.
Erases menu when pressed again.

Directional button: (25)
Used to shift menu item and adjust values.

MENU/EXIT   ENTER

POWER

LAMP
TEMP

ENTER button: (25)
Used to determine menu item.

LAMP indicator (32) (34) (36)

**POWER button /
POWER indicator**
(18) (22) (34) (36)

TEMP (temperature) indicator
(34) (36)

VEDEO terminal: (14)
Connects to such equipment as
video players that output
composite video signals.

DVI

VIDEO

COMPONENT1   Y   Cb/Pb   Cr/Pr

COMPONENT2

S-VIDEO   RS-232C

DVI terminal: (15) (21)
Connects to such equipment as video
equipment with DVI-D terminal and computers.

COMPONENT 1, 2 terminals: (14) (15) (16)
Connects to such equipment as DVD players
that output chrominance signals.

RS-232C terminal (DIN 8P):
Used mainly for adjustments made by service
personnel.

S-VIDEO terminal: (14)
Connects to such equipment as video players that
output S-video signals.

12

How to use remote controller
Name and function of operational parts of remote controller

POWER button: ⑱ ㉒

MEMORY (1, 2, 3) buttons: ㉗
Set the pre-stored values in the
picture adjustment menu when
pressed.

MENU button: ㉕
Displays menu.
Erases the menu when pressed again.

SOURCE button: ⑱ ㉒
Selects an input video signal to be
projected.

ASPECT button: ⑳
Selects size of the video image according to
the video signal to be projected.

ENTER button: ㉕
Used to determine menu item.

Directional button: ㉕
Used to shift menu item and adjust values.

EXIT button: ㉕
Displays the menu in one-level higher
hierarchy when pressed.

Picture quality adjusting button:
(See below)

LIGH button:
Switches between LIGHT modes of remote controller every time
it is pressed.
If the remote controller 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 is pressed.

Normal mode : Any of the buttons on the remote controller
does not light up if any of the button is
pressed (Except for LIGHT button).

• The light automatically comes off a while after the remote
controller button is released.

On the picture quality adjusting buttons

When any of the picture quality adjusting button is pressed, its corresponding screen for adjusting the
picture quality appears. Then, adjust the picture quality by pressing ▶ and ◀ button. The picture quality
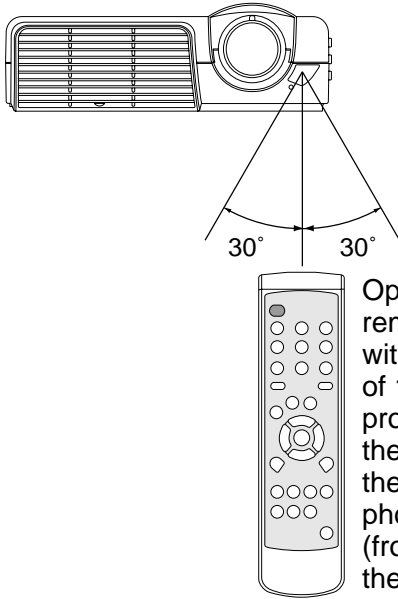adjustment can also be made in the picture quality menu. (See Page 26.)

The following picture quality adjusting buttons are displayed on the menu screen:

CONTRAST .... Adjusts the contrast of projected picture images. Every time the ▶ button is pressed, the projected image becomes brighter and more vivid. Every time the ◀ button is pressed, the projected image becomes darker and less vivid.

BRIGHT .... Adjusts the brightness of projected picture images. Every time the ▶ button is pressed, the projected image becomes brighter. Every time the ◀ button is pressed, the projected image becomes darker.

COLOR .... Adjust the color thickness of projected picture image. Every time the ▶ button is pressed, the projected image color becomes thicker. Every time the ◀ button is pressed, the projected image color becomes thinner.

TINT .... Adjusts the tint of projected picture images. Every time the ▶ button is pressed, the skin color of projected image becomes more reddish. Every time the ◀ button is pressed, the skin color of 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 the ▶ button is pressed, the projected picture image becomes sharper. Every time the ◀ button is pressed, the projected picture image becomes softer.
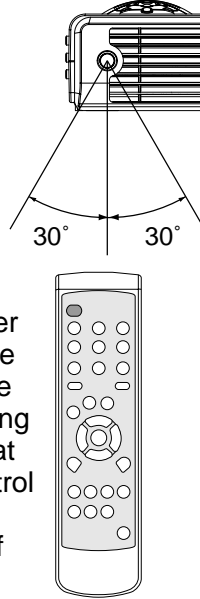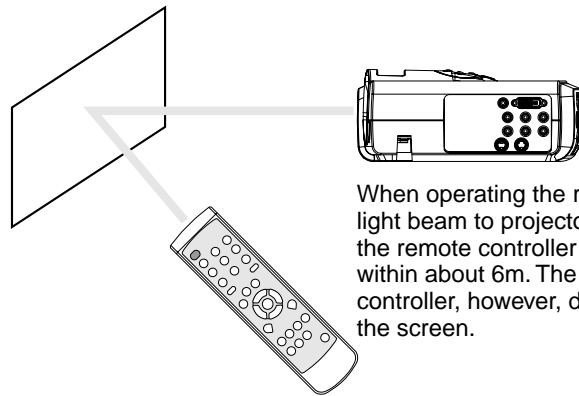
13

Operational range of remote controller

Front of projector

Rear of projector

30˚   30˚

30˚   30˚

Operate the remote controller within a distance of 10 m from the projector, pointing the light beam at the remote control photo-sensor (front or rear) of the projector.
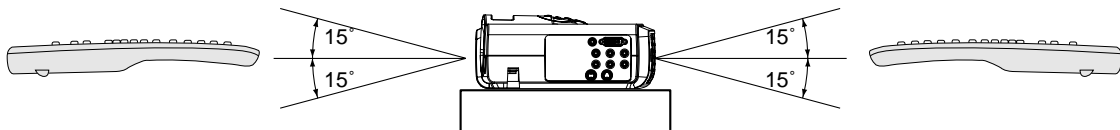
• Keep the remote controller photo-sensor away from the direct sun light or fluorescent lamp light.
• Keep the remote controller photo-sensor at least 2 m apart from fluorescent lamps. Otherwise, the remote controller may malfunction.
• If there is an inverter-operated fluorescent lamp near the remote controller, the remote controller 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 controller forwarding the light beam to projector screen, keep the distance from the remote controller to the projector via the screen within about 6m. The operable range of the remote controller, however, depends on the characteristics of the screen.

Vertical directions

15˚   15˚

15˚   15˚

Vertical directions (When the projector is suspended from ceiling)

15˚   15˚
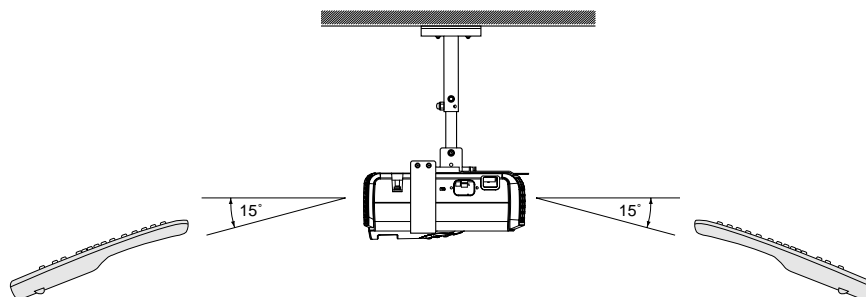
SETTING UP

Setting up 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.
- Do not place the screen where the direct sunlight and illuminating lights come onto the screen. Direct light illumination onto the screen could whiten the screen surface making the projected picture images bad 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 14 and 15.)
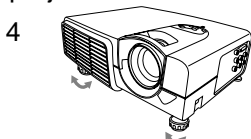
Screen

Projector

Size of projected picture images (Width)

A   B

Screen

A=B
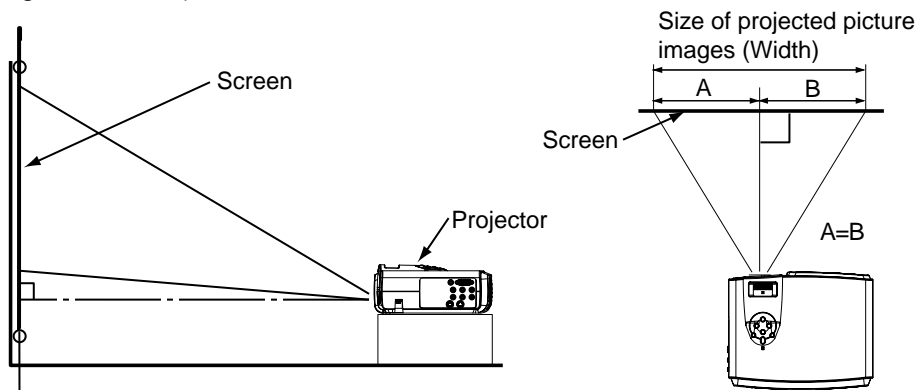
- As for the locations for the setup, read "Be sure to observe the followings for safety" described on Pages 4 to 7 in advance.

Adjusting 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
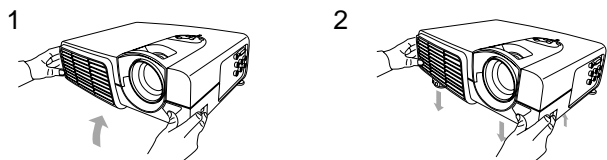
1. Lift up the projector up to the desired projection angle by hands.
- Set the projector within a tilt angle of 15 degrees.
2. Press up the left and right angle adjusting buttons.
3. Release the hands from the angle adjusting buttons and projector.

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
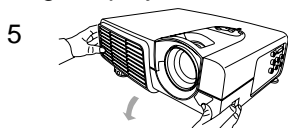
5. Slowly lift down the projector by pressing the left and right angle-adjusting buttons while holding the projector by hands.
- It is also possible to adjust the projection angle by turning the angle adjusting foot (rear) to the lift or right.

If the projected image frame is distorted to a trapezoid:
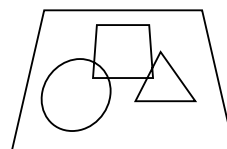
If the screen and the projector are not set perpendicular to each other, the projected image frame becomes trapezoidal.If it is not possible to bring them into positions perpendicular to each other by any mechanical adjustments, adjust the value for trapezoidal correction in the setup menu. (See Page 19.)
- If the "trapezoidal correction" is applied, the aspect ratio may not be adjusted correctly in some cases.
- If the "trapezoidal correction" 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.

Screen size and Projection distance

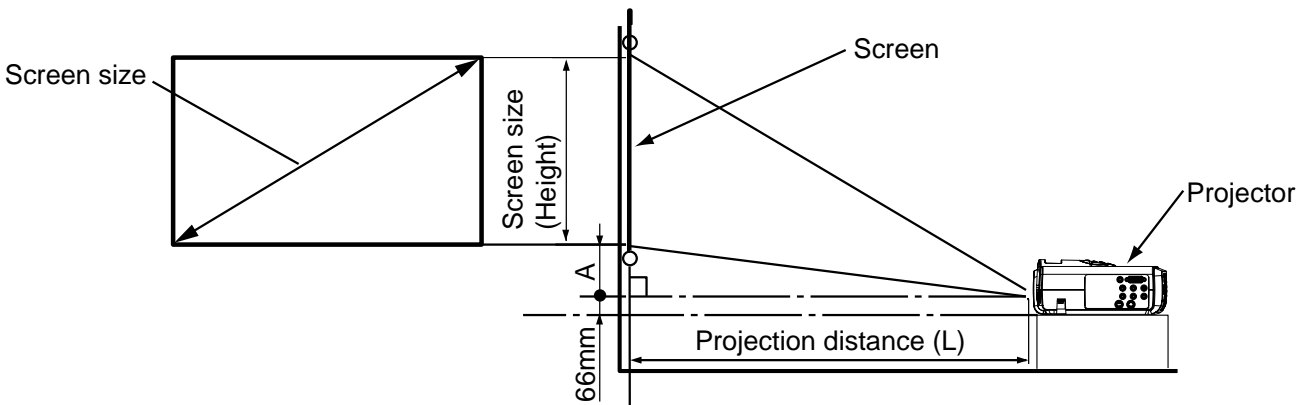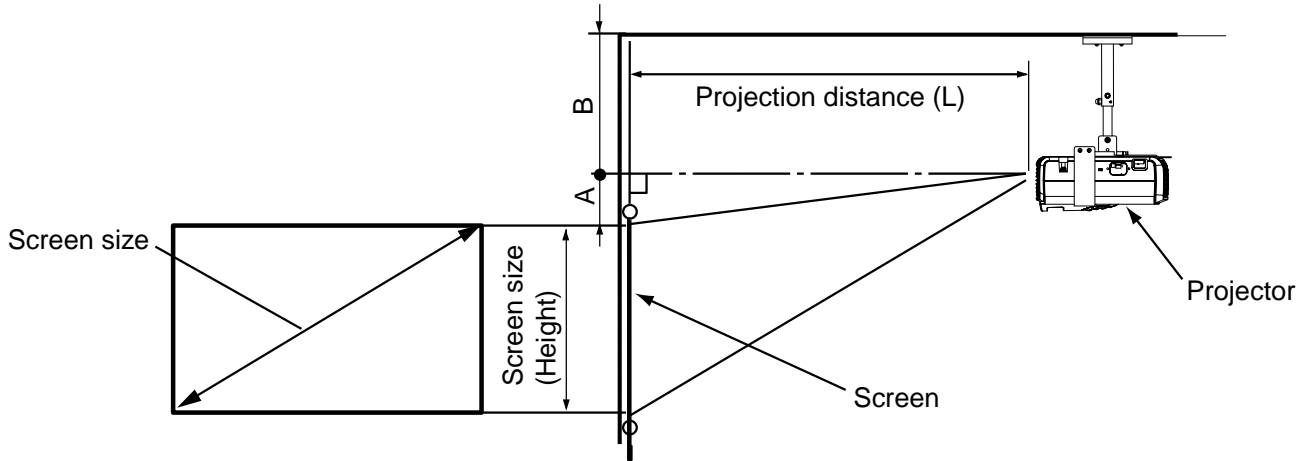Determine screen size by referring to the following table:

Where the screen size is 16: 9

Where the projector is suspended from the ceiling:

In the case of using suspension metal hook BR-D1208 only: B = 23 cm - 52cm

In the case of using suspension metal hook BR-D1208 and high-ceiling pole BR-XL30P: B = 77 cm - 129 cm

(Unit : cm)

Screen size			Plojection 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

Where the screen size is 4: 3

Where the projector is suspended from the ceiling:

In the case of using suspension metal hook BR-D1208 only: B = 23 cm - 52cm

In the case of using suspension metal hook BR-D1208 and high-ceiling pole BR-XL30P: B = 77 cm - 129 cm
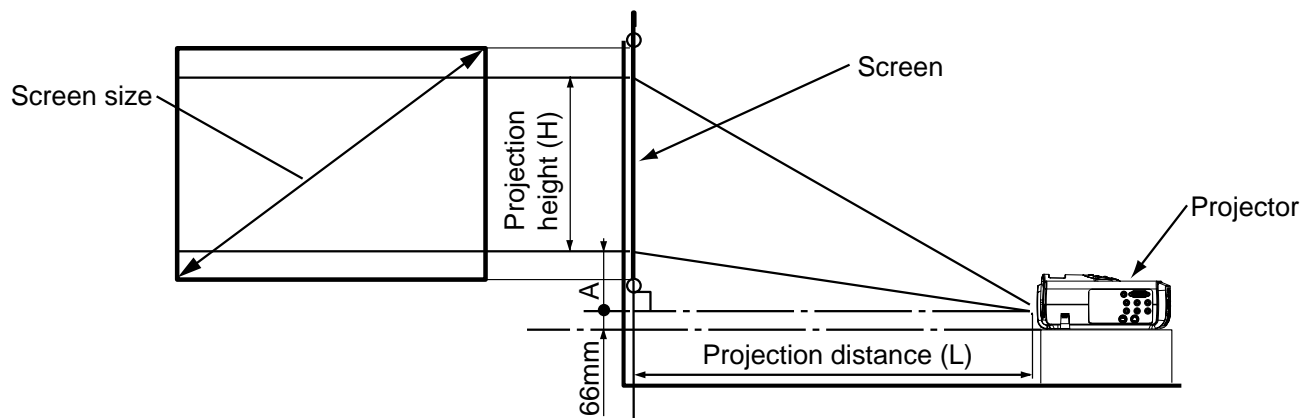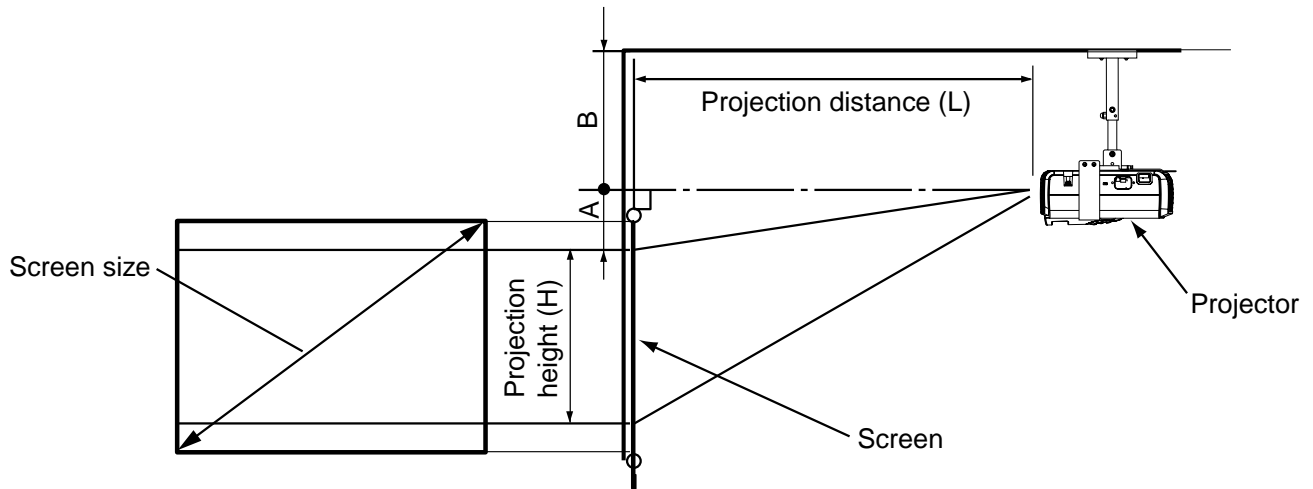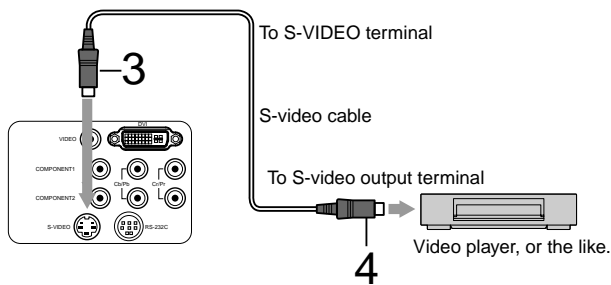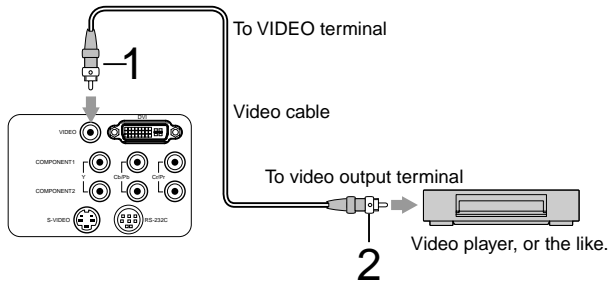

(Unit : cm)

Screen size			Projection distance (L)		Height (A)		Projection
Type	Height	Width	Min	Max	Tele	Wide	height (H)
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

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.

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.

1 Connect an end of a commercially available video cable to VIDEO terminal of the projector.

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

If S-video output terminal is provided with the video equipment, make the connection as follows:
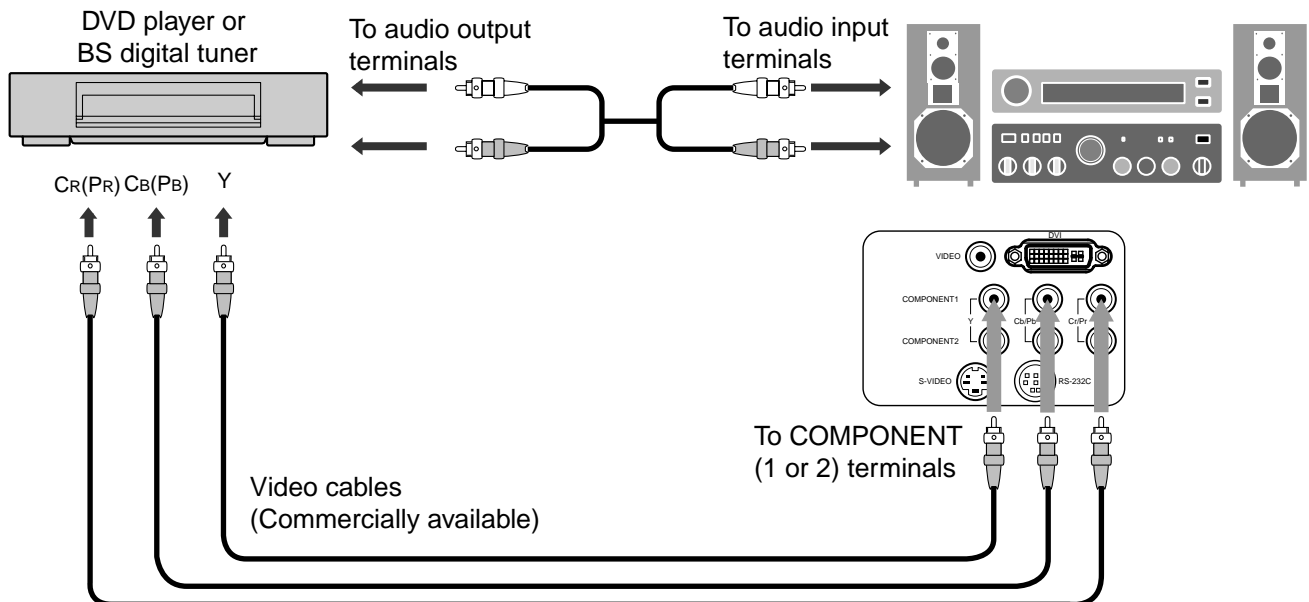
3 Connect an end of a commercially available S-video cable to the S-VIDEO terminal of the projector.

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

• Also, read the instruction manual of the video equipment to be connected.
• No speaker for audio output is stored in this projector. To reproduce audio signals, connect audio equipment.
• Consult the delivery agent of this projector on the detailed connections, as needed.
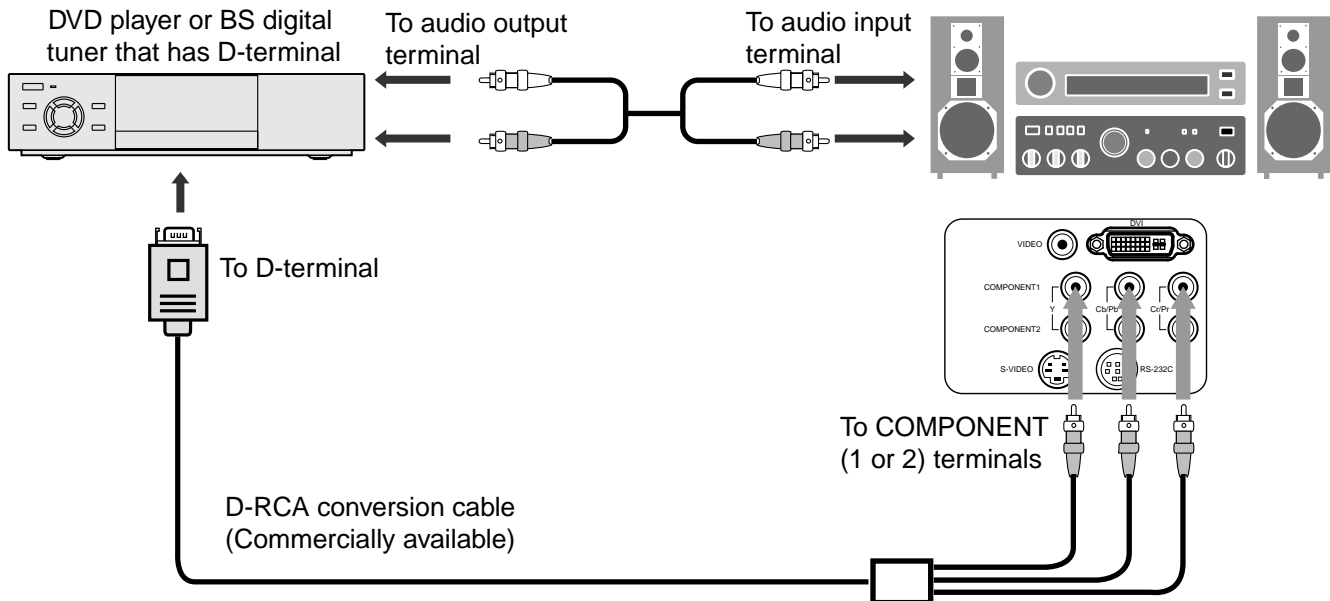
Connecting to DVD players

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 or
BS digital tuner

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 DVD players or BS digital tuners that have D-terminal

When connecting this projector to a DVD player or BS digital tuner that has D-terminal, connect a commercially available D-RCA conversion cable to COMPONENT (1 or 2) terminal.

DVD player or BS digital tuner that has D-terminal

To audio output terminal

To audio input terminal

To D-terminal

To COMPONENT (1 or 2) terminals

D-RCA conversion cable (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 a 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 BS tuner outputs or DVD player outputs.

Video equipment that has DVI-D terminal

To DVI-D terminal

To DVI terminal

To DVI-D terminal

To DVI-D terminal

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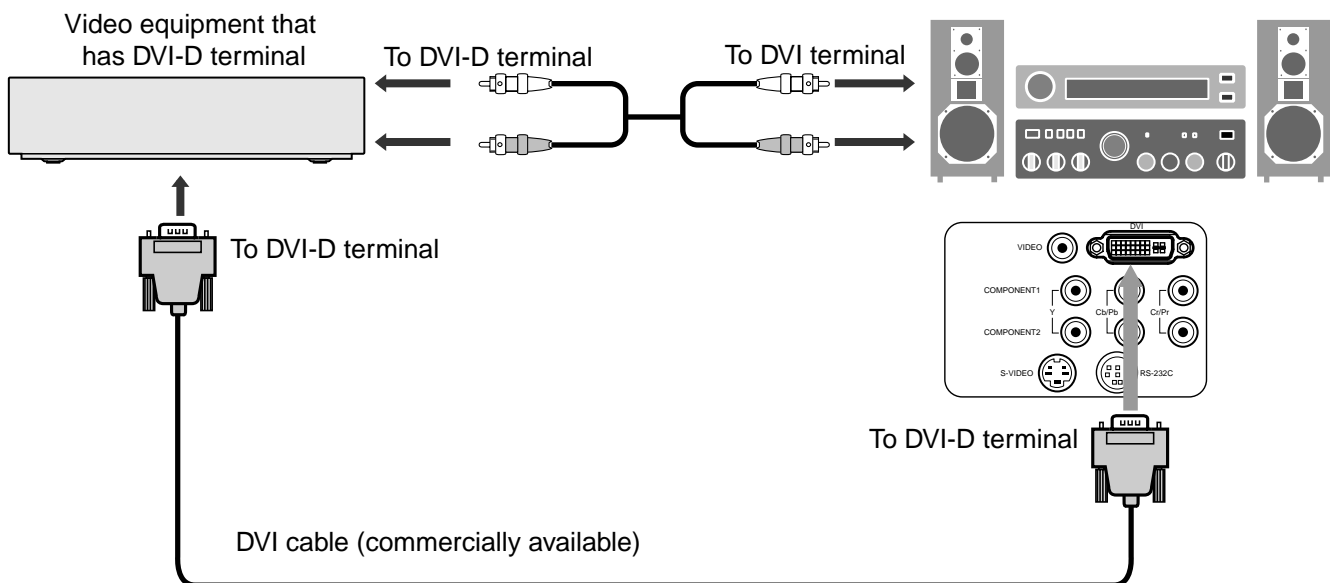
- Connect to DVI terminal with a commercially available DVI cable.
- Select DVI-DIGITAL for switching input signals.
- This projector is in compliance with only RGB signals, not with chrominance signals.
- HDCP (High-band with Digital Content Protection) is one of encryption formats of digital image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

19

B. Plugging power cord

In the case of power outlets provided with an earthing terminal inlet:

Plug the attached power cable as it is.

Earthing terminal
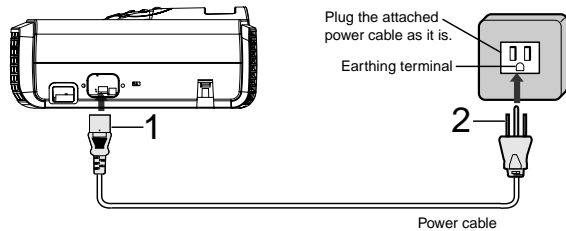
Power cable

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

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

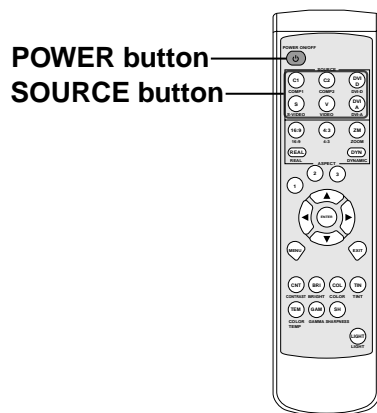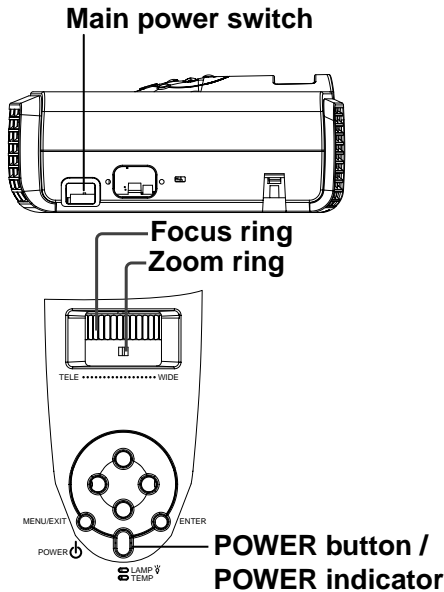In the case of power outlets provided with no earthing terminal inlet:

U-shaped metal

Power plug

Conversion adaptor
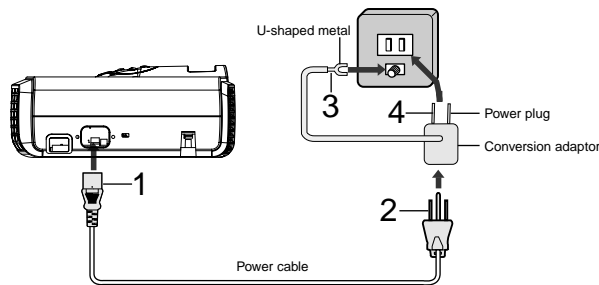
Power cable

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

2 Fit the attached conversion adaptor to the other end of the power cable.

3 Connect the U-shaped metal of the conversion adaptor to the earthing terminal of the power outlet (Earthing connection).

• If there is no earthing terminal with the power outlet, ask the delivery agent of this projector for the earthing work (To be charged).

• Be sure to make earthing connection before connecting the power plug to the power outlet. Further, when disconnecting the earthing connection, be sure to unplug the power plug from the power outlet at

4 Plug the power plug of the conversion adaptor into the power outlet.

• Be sure to use an AC-100V power outlet with earthing terminal for supply to this projector.
• Never connect the earthing metal of the power plug of the conversion adaptor to any of gas pipes, water pipes and lightning conductors.

C. Making projection

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

Main power switch

Focus ring
Zoom ring

TELE ·················· WIDE

MENU/EXIT   ENTER

POWER

LAMP
TEMP

**POWER button /
POWER indicator**

**POWER button
SOURCE button**

1 Turn "ON" the main power switch (Turn to indication I).

• When the main power switch is turned on, POWER indicator comes on in orange.

MENU/EXIT   ENTER
POWER   Lighting in orange
LAMP
TEMP

• If the projector finished operation without sufficient cooling, the following operation of the main power button may not work during the time when the cooling fan is turning. (At this time POWER indicator blinks in orange.) After the fan has stopped turning, press the power button again to turn on the indicator in orange.

MENU/EXIT   ENTER
POWER   Blinking in green
LAMP
TEMP

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

MENU/EXIT   ENTER
POWER   Lighting in green
LAMP
TEMP

2 Press POWER (⏻) button.

• It may take about one minute for the lamp to come on.
• On rare occasions, the lamp may fail to come on. At this time, turn on the lamp again after a few minutes.

3 Select an input signal.

• Press one of 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 video image is projected on the screen.
• With this projector, the input signal is selected from the input signal sources contained in the signal setting menu. (See Page 26 for the details.)
• Some projected picture images may be made easy to see by changing ASPECT (image angle). (See Page 20 for the details.)

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

5 Set the projector and screen so that they may face perpendicular to each other. (See Page 11.)

• If the projector and the screen can not be made perpendicular to each other, adjust the projection angle. (See Page 11.)
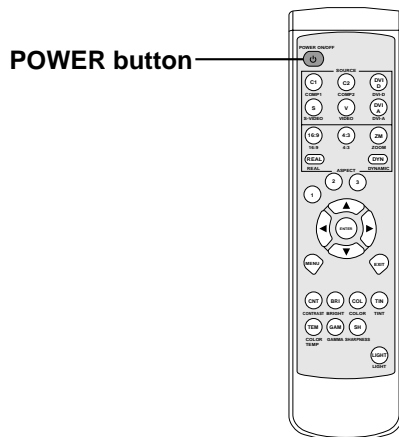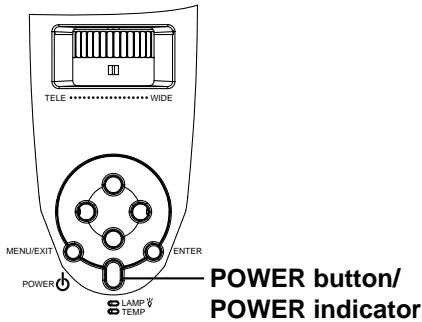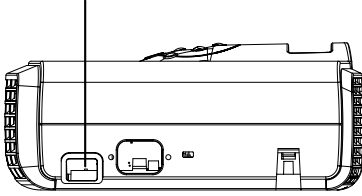
6. Adjust size of the projected image by turning the zoom ring.

• It is possible to change image size by varying the distance from the projector to the screen.

7. Adjust focus by turning the focus ring.

Main power switch

**POWER button/
POWER indicator**

POWER button

When stopping projection:

8 Press POWER (⏻) button.

- A confirmation message appears on the screen.
- To cancel this state, wait for a while, or press EXIT button or MENU button of the remote controller, or press MENU/EXIT button of the projector.

9 Press POWER (⏻) button again.

- The light-source lamp comes off and the projector comes to standby state. At this time POWER indicator blinks in orange.

10 Wait about 2 minutes until POWER indicator comes on in orange.

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

11 Turn "OFF" the main power switch (Turn to indication O).

- When the projector is not used for a long time, unplug the power plug from the power outlet for safety.
- Set 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.
(Refer to Page 25 for the method of setting the menu.)

1. Reveal the setting menu.
2. Select "Trapezoidal correction" by pressing ▲, ▼ buttons.
3. Press ENTER button.
4. While viewing the image frame, align the upper and lower sides of the image frame by pressing ◀, ▶ buttons.

When canceling the menu:
5. Press MENU button.

INSTALLATION...	
KEYSTONE	
KEYSTONE	▮▮▮▮ 0
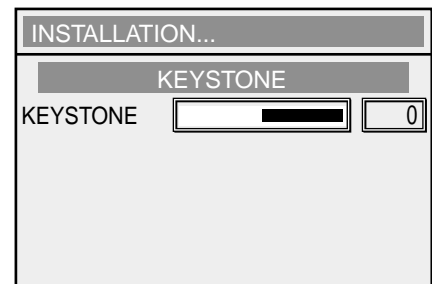
On setting ASPECT (Image angle)

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

( ): name of remote controller button

	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 ZOOM button. In cinemascope mode, it is possible to shift the display position with ▲, ▼ buttons.

How to change the settings:

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

With the operation panel of the projector.
(Refer to Page 25 for the method of setting the menu.)
1. Reveal the signal setting menu.
2. Select "Image angle" by pressing ▲, ▼ buttons.
3. Press ENTER button.
4. Select a desired image angle by pressing ▲, ▼ buttons.
5. Press ENTER button.

When canceling the menu:
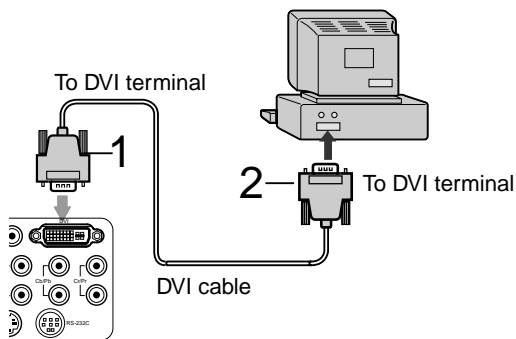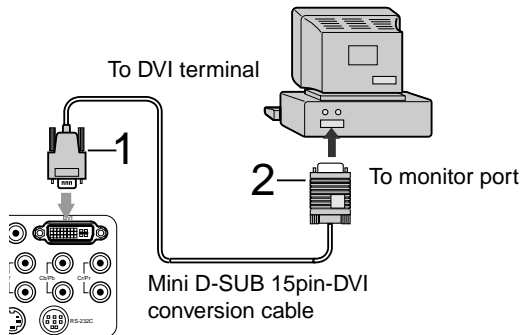6. Press MENU button.

ASPECT button

DISPLAY...
ASPECT
16:9
4:3
ZOOM
DYNAMIC
REAL
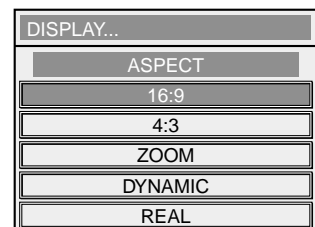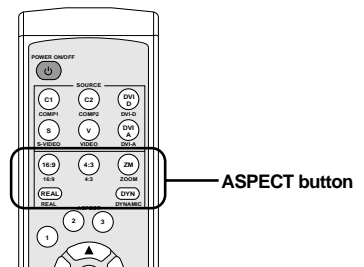
VIWING COMPUTER IMAGES

A. Connecting this projector with a computer

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

To DVI terminal

1

Mini D-SUB 15pin-DVI
conversion cable

2 — To monitor port

To DVI terminal

1

2 — To DVI terminal

DVI cable

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 degraded.
- When viewing picture images from a computer with analog connection, press DVI-ANALOG button of the remote controller.
- This projector does not comply with 3-line-signals (SYNC-ON-GREEN).
- This projector does not comply with chrominance signals.

In the case of digital connections:

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

2. Connect the other end of the DVI cable to 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.
- If a long cable other than the attached cable is used, the quality of projected images may be degraded.
- When viewing picture images from a computer with digital connection, press DVI-DIGITAL button of the remote controller.

- Also, read the instruction manual of the other equipment to be connected.
- If VGA60 signal outputs at the startup of the computer, the projected image may not be displayed properlyÑüfor example, the position of the displayed image may be shifted. However, this is not a failure (Non-compliant signal).
- No speaker for audio outputs is stored in this projector. To reproduce audio signals, use the speakers of the personal computer, or connect necessary audio equipment.
- Consult the delivery agent of this projector on the detailed connections, as needed.
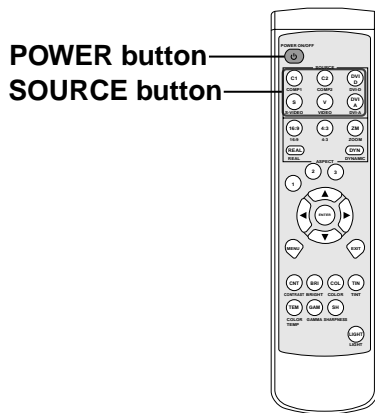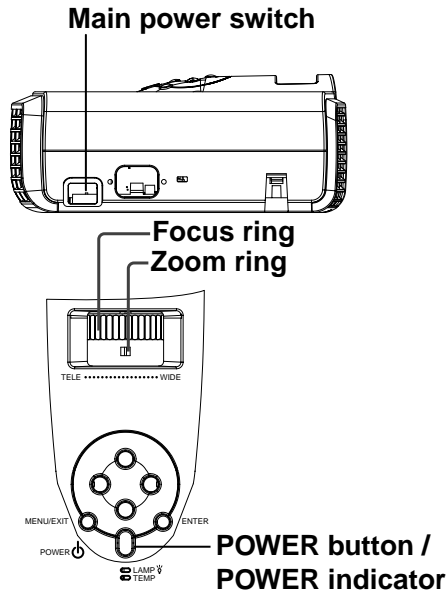
B. Plugging power cord

Plug the power cord in the same way as described in "Connecting to video equipment". See Page 17.

C. Making projection

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

Main power switch

Focus ring
Zoom ring

TELE •••••••••••••••• WIDE

MENU/EXIT   ENTER

POWER

LAMP
TEMP

POWER button /
POWER indicator

POWER button
SOURCE button

1 Turn "ON" the main power switch (Turn to indication I).

• When the main power switch is turned on, POWER indicator comes on in orange.

MENU/EXIT   ENTER
POWER   Lighting in orange
LAMP
TEMP

• If the projector finished operation without sufficient cooling, the following operation of the main power button may not work during the time when the cooling fan is turning. (At this time POWER indicator blinks in orange.) After the fan has stopped turning, press the power button again to turn on the indicator in orange.

MENU/EXIT   ENTER
POWER   Blinking in green
LAMP
TEMP

MENU/EXIT   ENTER
POWER   Lighting in green
LAMP
TEMP

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

2 Press POWER (⏻) button.

• It may take about one minute for the lamp to come on.
• On rare occasions, the lamp may fail to come on. At this time, turn on the lamp again after a few minutes.

3 Select an input signal.

• Press one of 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 video image is projected on the screen.
• With this projector, the input signal is selected from the input signal sources contained in the signal setting menu. (See Page 26 for the 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 signal setting menu of the setting menu. (See Page 30.)

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

5 Set the projector and screen so that they may face perpendicular to each other. (See Page 11.)
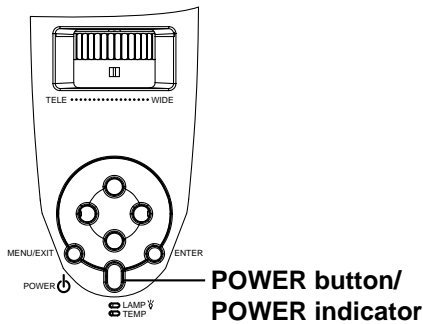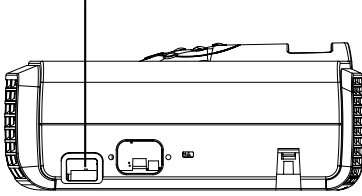
• If the projector and the screen can not be made perpendicular to each other, adjust the projection angle. (See Page 11.)

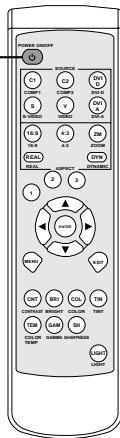### 6. Adjust size of the projected image by turning the zoom ring.

• It is possible to change image size by varying the distance from the projector to the screen.

Main power switch

**POWER button/
POWER indicator**

POWER button

When stopping projection:

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

9 **Press POWER (⏻) button again.**
• The light-source lamp comes off and the projector comes to standby state. At this time POWER indicator blinks in orange.

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

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

Note-book type computer
When the projector is connected to a note-book type computer, the picture images from the computer may not be projected on screen. On this occasion, setup the computer so that it may output picture signals. How to setup the computer depends on the type of the computer. Refer to the instruction manual of the computer.
Example of setup for the external output:
Press "Fn" key and any of "F1" to "F12" key (Depends on the type of the computer).

SETTING WITH MENUS

Menu construction

PICTURE...	CONTRAST		– 32 ~ +31
	BRIGHTNESS		– 30 ~ +30
	COLOR		– 30 ~ +30
	TINT		– 15 ~ +15
	SHARPNESS		– 10 ~ +10
PRO-PICTURE...	ICC CONTROL ↵	ICC RED	– 15 ~ +15
		ICC GREEN	– 15 ~ +15
		ICC BLUE	– 15 ~ +15
		ICC YELLOW	– 15 ~ +15
	COLOR TEMP ↵		9300 / 6500 / 5700 / USER1 / USER2
	SET USER COLOR TEMP ↵	LOAD FROM	9300 / 6500 / 5700 / 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 ↵		CINEMA1/CINEMA2/VIDEO1/VIDEO2/STANDARD
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...		日本語 / ENGLISH /简体中文 / 繁體中文 / 한글
	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		

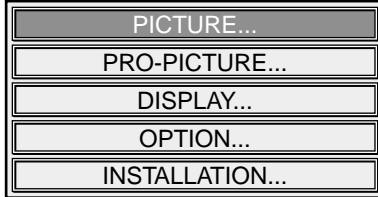• The items with mark "↵" or "..." requires to press ENTER button to confirm its entry after selecting the item.
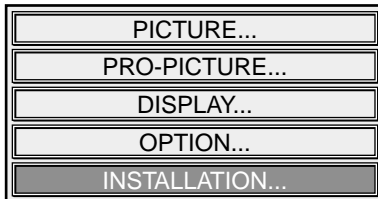
How to make menu setting:

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

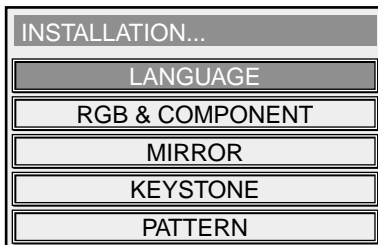1 Press MENU button.
   Main menu (the first level) appears.

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

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

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

3 Press 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 ▲ , ▼ buttons.

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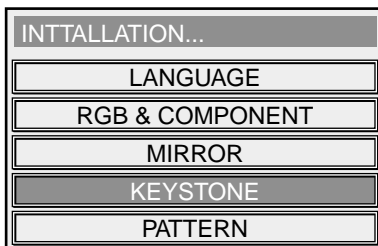
5 Press ENTER button.
   The desired menu (the third level) appears.

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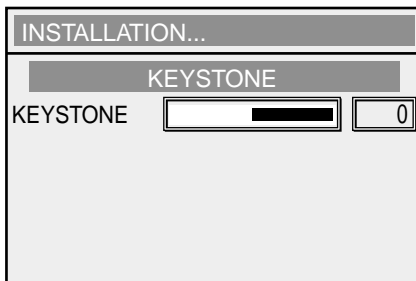
6 Press ◀ , ▶ buttons for the setting.

INSTALLATION...
KEYSTONE
KEYSTONE   +4
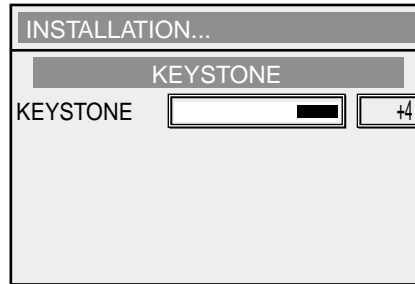
When canceling the menu
7 Press MENU button.
• When EXIT button of the remote controller is pressed, the display returns to the menu of the previous level.

Items that can be set with menus

In this projector, the following items can be set by revealing setup 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 28.)
BRIGHTNESS ----	-30 – +30 ----------	Adjusts brightness of projected images. (See Page 28.)
COLOR ------------	-30 – +30 ----------	Adjusts color thickness of projected images. (See Page 28.)
TINT ---------------	-15 – +15 ----------	Adjusts tint of projected images. (See Page 28.)
SHARPNESS -----	-10 – +10 ----------	Adjusts sharpness of projected images. (See Page 28.)

PROFESSIONAL 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 and YELLOW.
COLOR TEMP ----------------------------		Selects one of preset color temperatures.
SET USER COLOR TEMP -------------		Selects one of color temperatures that are set in "Color temperature user adjustment". (See Page 29.)
GAMMA ------------------------------------		Adjusts favorable color temperatures and stores them. (See Page 29.)

DISPLAY MENU

DISPLAY...
SOURCE...
ASPECT...
SAVE...

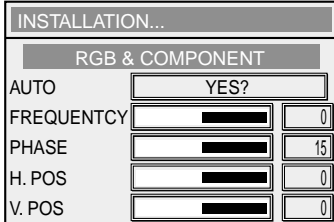| ITEM	SETTING	FUNCTION
SOURCE -----------	VIDEO -----------	Select when viewing picture images from a video equipment connected to VIDEO terminal.
	S-VIDEO ----------	Select when viewing picture images from a video equipment connected to S-VIDEO terminal.
	COMPONENT1 -----	Select when viewing picture images from a video equipment connected to COMPONENT1 terminal.
	COMPONENT2 -----	Select when viewing picture images from a video equipment connected to COMPONENT2 terminal.
	DVI-DIGITAL -------	Select when viewing picture images from a digital equipment connected to DVI terminal.
	DVI-ANALOG ------	Select when viewing picture images from an 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.
	DINAMIC ----------	Projects picture images expanded to full screen.
	REAL -------------	Projects picture images keeping the input signals as they are.
SAVE ----------	MEMORY1 2 3 ----	Stores the settings made in the PICTURER menu and the PROFESSIONAL PICTURE menu into MEMORY. (See Page 27.)

OPTION MENU

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

| ITEM	SETTING	FUNCTION
RESET ALL --------------------------------		Pressing ENTER button reveals 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 -------------------------------	O ---------------	Auto power off does not function.
	10 90MINUTES ---------	Without picture image signal input, 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.

SETTING WITH MENUS

INSTALLATION MENU

```
INSTALLATION...
    LANGUAGE
  RGB & COMPONENT
      MIRROR
     KEYSTONE
      PATTERN
```

DIASPLAY MENU

```
INSTALLATION...
   RGB & COMPONENT
AUTO          YES?
FREQUENTCY  [====]    0
PHASE       [====]   15
H. POS      [====]    0
V. POS      [====]    0
```
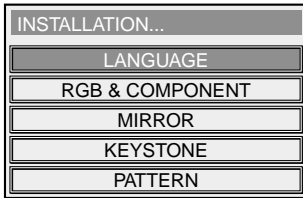
ITEM	SETTING	FUNCTION
LANGUAGE --------- -5	-----------	Selects a language used for displays on the screen, such as menus. Adjusts computer video images.
RGB & COMPONENT ---------------		Adjusts computer video images.
AUTO * ------------------------------------		Selecting Auto and pressing ENTER button 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 * ------------O	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 horizontal direction.
V.POS * --------- 30	+30 --------	Moves display position of projected images in 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 * 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 failure.
- 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 failure.
- Without input signals, only some of the above items can be changed.

On the memory for projected image quality

This projector allows each item in the picture quality setting menu and the professional-use picture quality setting menu (except for color temperature use-adjustment) 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

```
INSTALLATION...
       SAVE
     MEMORY 1
     MEMORY 2
     MEMORY 3
```
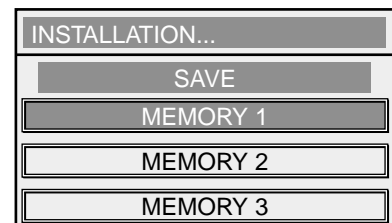
To store the settings:
(Refer to Page 25 for how to set menus.)
1. Set an item in the picture quality setting menu and the professional-use picture quality setting menu.
2. Reveal the signal setting menu.
3. Select "Store the setting " by pressing ▲, ▼ buttons.
4. Press ENTER button.
The setting storage menu appears.
5. Select the memory where the setting is to be stored by pressing ▲, ▼ buttons.
6. Press ENTER button.
The setting is stored in the memory.
To cancel the menus:
7. Press MENU button.

To apply the set picture quality:
1. Press MEMORY1, 2, or 3 button.
The picture quality of the projected image comes to the set quality.

Adjusting projected images

Adjusting brightness of projected images (CONTRAST and BRIGHT)
Items related to brightness of projected images are adjusted with menus.
(Refer to Page 25 for setting menus.)
1   Reveal the picture quality setting menu.
2   Select "CONTRAST" or "BRIGHT" by pressing ▲, ▼ buttons.
3   Adjust the selected item by pressing ◀, ▶ buttons.
To cancel the menus:
4   Press MENU button.

CONTRAST .... Adjusts vividness of projected picture images.Every time ? button is pressed, the images
                                        are made brighter and more vivid. Every time ? button is pressed, the images are made
                                        darker and less vivid.
BRIGHT .... Every time ? button is pressed, the images are made brighter. Every time ? button is
                                        pressed, the images are made darker.

Adjusting color (COLOR THICKNESS and TINT)

Items related to color of projected images are adjusted with menus.
(Refer to Page 25 for setting menus.)
1   Reveal the picture quality setting menu.
2   Select "COLOR THICKNESS" or "TINT" by pressing ▲, ▼ buttons.
3   Adjust the selected item by pressing ◀, ▶ buttons.
To cancel the menus:
4   Press MENU button.

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

Setting projected images sharper or softer (SHARPNESS)

Sharpness of projected images are adjusted with menus.
(Refer to Page 25 for setting menus.)
1   Reveal the picture quality setting menu.
2   Select "SHARPNESS" by pressing ▲, ▼ buttons.
3   Adjust sharpness by pressing $ buttons.
To cancel the menus:
4   Press MENU button.

Emphasizing or de-emphasizing a specified color of projected images (FOUR COLOR INDEPENDENT CONTROL)

It is possible to emphasize or de-emphasize a specified color (RED, GREEN, BLUE, OR YELLOW) of
projected images with menus.
(Refer to Page 25 for setting menus.)
1. Reveal the professional-use picture quality setting menu.
2. Select "FOUR COLOR INDEPENDENT CONTROL" by pressing ▲,
    ▼ buttons.
3. Press ENTER button.
4. Select a color to be set by pressing ▲, ▼• buttons.
5. Set the color by pressing ◀, ▶ buttons.
6. Set the other colors by repeating no. 4 and 5.
To cancel the menus:
7. Press MENU button.
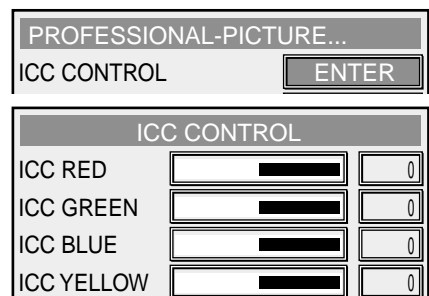
SETTING WITH MENUS

Adjusting whiteness degree of white color of projected images (Setting COLOR TEMPERATURE)
One of preset color temperatures (degree of white color) is selected with menus.
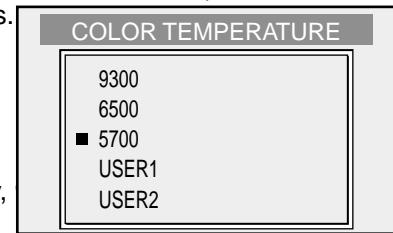(Refer to Page 25 for setting menus.)
1. Reveal the professional-use picture quality setting menu.
2. Select "COLOR TEMPERATURES" by pressing ▲, ▼ buttons.
3. Press ENTER button.
4. Select a desired color temperature by pressing ▲, ▼ buttons..

```
┌─────────────────────────────┐
│  COLOR TEMPERATURE          │
│ ┌─────────────────────────┐ │
│ │   9300                  │ │
│ │   6500                  │ │
│ │ ■ 5700                  │ │
│ │   USER1                 │ │
│ │   USER2                 │ │
│ └─────────────────────────┘ │
└─────────────────────────────┘
```

Åú A favorable color temperature depends on each one's preference. Generally, for viewing TV, 6500 is for viewing HDTV, and 5700 is for viewing movies.
Åú When "USER1" or "USER2" is selected, each corresponding color temperature adjusted by user setting is selected.
To cancel the menus:
5. Press MENU button.

Adjusting degree of white color of projected images (User-adjustment of COLOR TEMPERATURES)
When setting (storing) user's preferable color temperatures, use "User-adjustment of color temperatures" in the professional-use picture quality setting menu.
(Refer to Page 25 for setting menus.)

To store the settings:
1. Reveal the professional-use picture quality setting menu.
2. Select "User-adjustment of color temperatures" by pressing ▲, ▼ buttons. bu
3. Press ENTER button.
Åú The menu for user-adjustment of color temperatures appears.
4. Select a basic color temperature by pressing ▲, ▼ buttons.
Åú Generally, select the most preferable color temperature from preset color tem
5. Press ENTER button.
Åú The selected color temperature is indicated, and the whiteness of projected in
the color temperature.
6. Select the item to be changed by pressing ▲, ▼ buttons.
7. Set the item by pressing ?, ? buttons.
Åú The projected images also change accordingly.
8. Repeat the settings by repeating no. 6 and 7.
9. Select "User 1" or "User 2" by pressing ▲, ▼ buttons buttons.
10. Press ENTER button.
Åú The set color temperatures are stored in the memory.
To cancel the menus:
11. Press MENU button.

```
┌───────────────────────────────────────┐
│       SET USER COLOR TEMP              │
│  LOAD FROM                             │
│ [5700] [6500] [9300] [USER1] [USER2]   │
│ R GAIN  [        ████    ]     +256    │
│ G GAIN  [        ████    ]     +256    │
│ B GAIN  [        ████    ]     +256    │
│ R BIAS  [         ████   ]     +45     │
│ G BIAS  [         ████   ]     +45     │
│ B BIAS  [         ████   ]     +45     │
│  SAVE TO              [USER1] [USER2]   │
└───────────────────────────────────────┘
```
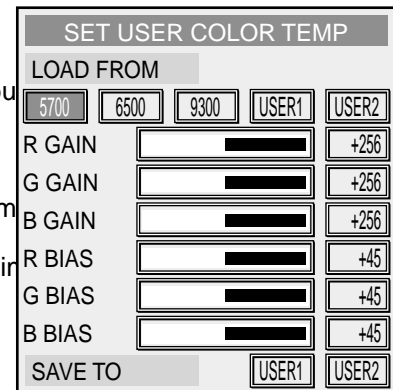
To bring one of the set color temperatures:
Select "User 1" or "User 2" in "Setting color temperatures" of the professional-use picture quality setting menu.

On color temperatures
There is various degree of white color. One of the methods of representing degree of white color is color temperatures. 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 person's skin color. Project a large still picture of human face on the screen, and adjust the color tone of the face so that it may look favorable (generally, it may look healthy).
Åú Generally, the gains are used to adjust bright pictures, and the biases are used to adjust dark pictures.
Åú 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. In this way, favorable picture quality can be obtained.

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. On this occasion, a countermeasure should be taken as follows:

1. Reveal the setting menu.
2. Select "Setting signals" by pressing Å£, Å• buttons.
3. Press ENTER button.
• The signal setting menu appears.
4. Select "Auto" by pressing Å£, Å• buttons.
5. Press ENTER button.
• Automatic setting is made so that an appropriate setting may be obtained for the input signal.
To cancel the menus:
6. Press MENU button.

If the computer images can not be projected properly with the above operation, adjust the images using menus as follows:
These settings can be stored in 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:Åc.
Adjust "Horizontal position" in the signal setting menu. Every time ? button is pressed, the projected image is shifted to the left. Every time ? button is pressed, the projected image is shifted to the right.
Projected images are shifted up or down:Åc.
Adjust "Vertical position" in the signal setting menu. Every time ? button is pressed, the projected image is shifted downward. Every time ? button is pressed, the projected image is shifted upward.
Projected images blink.
Projected images are blurred:Åc.
Adjust "Fine" in the signal setting menu.
A wide streak pattern appears on the projected images:Åc.
Adjust "Dividing ratio" in the signal setting menu.

Åú Usually, do not change the settings in the signal setting 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 "Horizontal position". Then, align the right edge with the right side of the screen by adjusting "Dividing ratio".
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 "Vertical position".

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. In these cases, replace the lamp to new one in good time. For the replacement, be sure to use the light-source lamp that is sold exclusively for TDP-MT500. 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 plug. 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 containing foreign matters, electric shock or fire may be caused. If users can not take out the foreign matters inside, ask a repair front of Mitsubishi Electric Corporation 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 over 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 burn. 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.

Caution
In this projector, a LAMP indicator blinks after the light-source lamp has been used 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 failure.
- As the light-source lamp, the high-pressure mercury lamp is used. 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. Also, it may stop lighting when it comes to its life end. 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 its start of use.
- The possibility of burst 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 new one 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 should be 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 a service outlet of Mitsubishi Electric Corporation to replace the light-source lamp and check the interior of the projector. When users make the cleaning and the replacement of the lamp for themselves, be sure to turn the main unit upside down and do it holding the lamp holder. Otherwise, the broken glass pieces of the lamp may cause injuries.

How to replace the lamp:

(a)

(b)
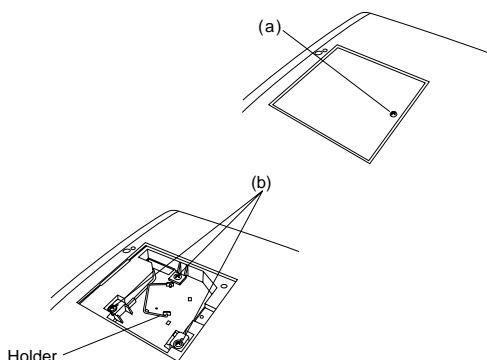
Holder

1 Turn the unit upside down.

2 Undo the screw fixing the lamp cover (a) with a Phillips screwdriver and remove the lamp cover from the unit.

3 Undo the three screws fixing the lamp box with the Phillips screwdriver.

4 Pull up the holder.

Holder

button

button

POWER button
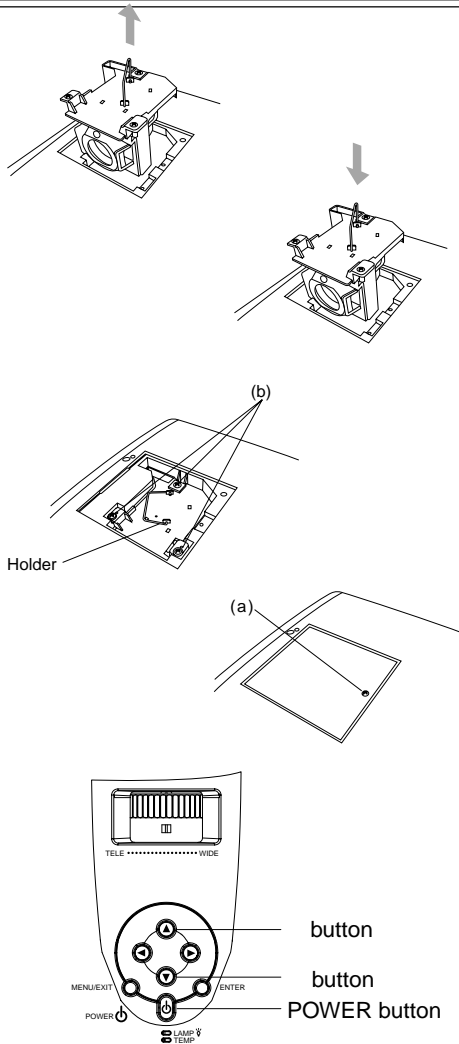
5 Holding the holder, pull out the light-source lamp from the unit.

- Pull out the light-source lamp slowly. If the lamp is burst, the glass fragments may be scattered if the lamp is pulled out hurriedly.
- Do not spray water or the like over the light-source lamp pulled out, or do not put it where children can access it or near anything easily flammable. It may cause burn or injury.

6 Holding the holder of a new lamp, insert the lamp to the bottom fitting the lamp to the shape of the hole in the unit.

7 Press the holder into the storage.

- Make sure that the holder is securely locked.

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

9 Insert the lamp cover into the unit, 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.

10 Turn on the power.

11 Simultaneously press on ▲, ▼ buttons and POWER button ( ) on the operation panel of the unit for more than 3 seconds.

- If the three buttons are not pressed simultaneously, the lamp-used-hours may not be reset.

- 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.

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
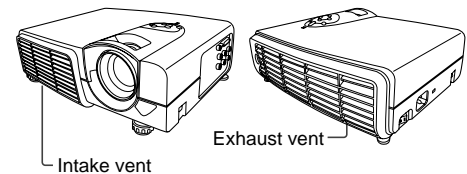
Cleaning the projector

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 painting of the projector may change in quality or removed.

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 followings: If the problem 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.

Phenomenon	Check/Countermeasure
Power can not be turned on.	• Check whether the indicators are on or off and how they are lighting.

POWER	LAMP	TEMP	Countermeasure
○ 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 rear 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.)
☀ On in green	○ Off	☀ On in red	• If the intake and/or exhaust vent is blocked with anything, remove it. • Prevent the wind from a heater from blowing into the exhaust vent of the projector, if it is happening. • Check if the air filter is foul with dust or not. Clean the filter, if it is foul.
○ ☀ Blinking in orange	○ Off	○ Off	• Press POWER button after 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.

Phenomenon	Check/Countermeasure
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. Then, 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 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 the intake vent is not blocked with anything. • Check to be sure that the lamp cover is closed. (See Page 32 and 33.) • Check if the cable connecting the projector and external equipment is not broken. • When an extension cable is used, replace it with the attached cable for checking. If picture images are normally projected with the attached cable, employ an RGB signal amplifier together with the extension cable.
Projected images suddenly disappear.	• This phenomenon may occur if the intake vent and/or exhaust vent is blocked with anything. (At this time TEMP (temperature) indicator is lighting in red.) – After removing those things blocking the intake vent and/or exhaust vent, execute the followings: 1 Wait until the intake/exhaust fan stops turning. (Wait until 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 POWER button. • LAMP indicator lighting in red indicates that the lamp must be replaced. Replace the light-source lamp to a new one. (See Page 32 and 33.)

Projected images are irregular.

Phenomenon	Check/Countermeasure
Projected images are distorted.	• Adjust the projector and the screen so that they may become perpendicular to each other. (See Page 11.)
Projected images are dark.	• Adjust BRIGHT and CONTRAST in the picture quality menu. (See Page 28.) • Replace the lamp to a new one. (See Page 32 and 33.)
Projected images are blurred.	• Adjust the focus. (See Page 18 and 22.) • Check if the lens cap is not put on. • Clean the lens. • Adjust "FINE" and "DIVIDING RATIO" in the signal setting menu. (See Page 30.) • Adjust BRIGHT and CONTRAST in the picture quality menu. (See Page 28.) • Adjust the projector and the screen so that they may become perpendicular to each other. (See Page 11.)
White dots are seen in projected images. Black dots are seen in the projected images.	• This phenomenon is proper to DLP projector and is not a failure. (A very small number of pixels may be constantly lighting on or off, but this is not a failure. Pixels of more than 99.99% are effective ones.)
A rainbow-color brume pattern is seen on projected images.	• This pattern is a color breaking noise that occurs in DLP system in principle. This is not a failure.
Fine streak pattern is seen on projected images.	• This phenomenon occurs due to the interference with the screen surface, and is not a failure. Try to replace the screen or defocus the lens a little.
Projected images are disturbed.	• Securely plug the cable connecting the external equipment to the bottom. • Keep the projector away from equipment generating interfering radiowaves.
Tint of projected images is irregular.	• Check if the cable connecting the external equipment is broken.

Others

| Phenomenon	Check/Countermeasure
A 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 failure.
Menu setting is disabled.	• Affected by noises, the microcomputer in the projector may be malfunctioning. –>Turn off POWER once, and after 2 minutes turn it on again. • If POWER can not be turned off, turn off the main power switch and leave the projector as it is 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. But, this is not a failure.

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

Phenomenon	Check/Countermeasure
Power can not be turned on.	• Securely fit the rear lamp cover. (See Page 32 and 33.) • Reset the lamp-used-hours. (See Page 33.)

INDICATORS

How to see the internal states from indicators
There are three indicators that inform of the internal states of the projector. The internal states can be known by how the indicators are lighting. Check the followings, and if there is any problem, stop to use the projector and be sure to unplug the power plug. Then, contact a repair/customer front of Mitsubishi Electric Corporation.

POWER indicator

LAMP indicator

TEMP(temperature) indicator
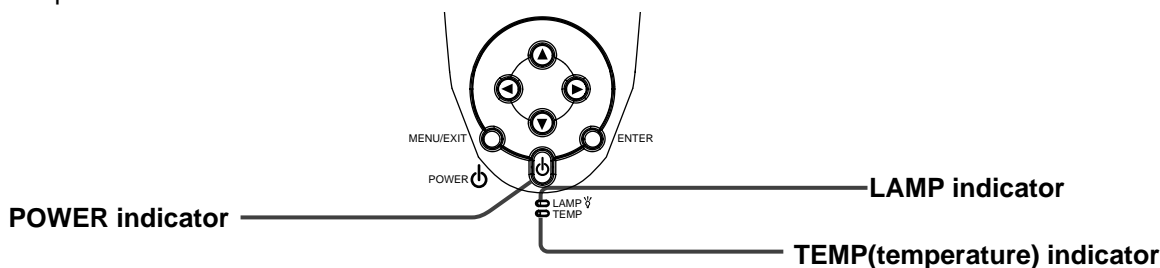
When the projector is normal:

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. • The air filter is foul.	Countermeasure • Remove those things with which the vent is blocked. • Relocate the projector. • Clean the filter.
On in green	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 POWER button after POWER indicator has ceased blinking. If this operation is repeated several times and the light-source lamp still does not come on, replace the lamp to a new one. Ask the delivery agent of the projector or a repair/customer front of Mitsubishi Electric Corporation about purchase of the lamp.
On in orange	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.
			Indicating replacement of the lamp (Used about 1000 hours* in total; Power is "OFF".)	
	On in red		Indicating replacement of the lamp (Used about 1500 hours* in total)	

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 : (650)572-2700   Fax : (650)572-9675

WHEN ASKING INSTALLATION WORK

In the case of suspending the projector from ceiling and viewing the projected images from the front side:

When suspending the projector from ceiling, use the separately sold dedicated metal bracket (see Page 38). Also, be sure to ask a special worker who received training of the installation work to do the work. Consult the delivery agent of the projector about the details of the installation work.

• If the projector is damaged by using any other suspension bracket than the dedicated one or due to any problem of the environment in which the suspension metal bracket is installed, Mitsubishi Electric Corporation will not compensate the damage even if the product is still under warranty.
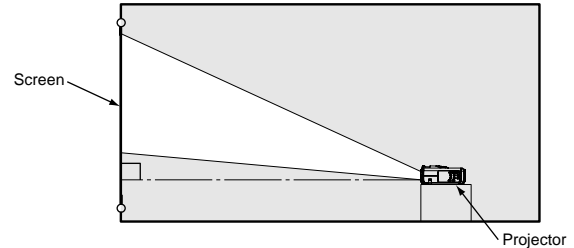

Projector

Screen
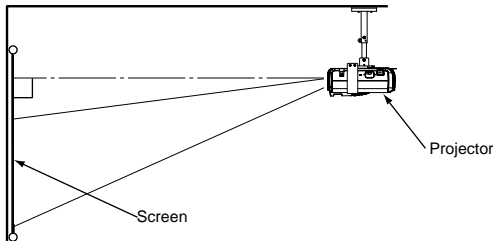
• In the case of the suspension from ceiling, set the projection method in the setting menu to "Ceiling suspension". Refer to Page 27 for the detail.
• Ask the installation worker to provide a power breaker for the projector. When the projector is not used, be sure to turn off the main power for the projector with the breaker.
• Where the projector is suspended from ceiling, the brightness of the projected images may be less brighter than where it is set on floor. However, this is not a failure.
• Do not install the projector where its exhaust vent is directly exposed to the wind from an air conditioner or the like. Such installation may cause failures of the projector.
• Do not install the projector near a fire alarm, because hot air is exhausted form the vent of the projector.

## Dimensional drawings (for references)
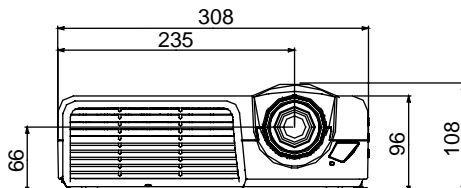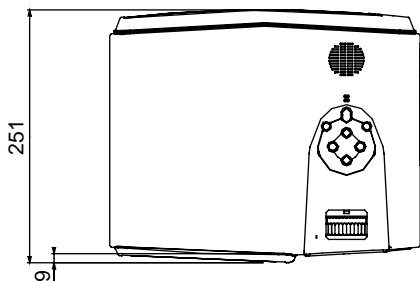
In the case of installing the projector so that the picture images are projected onto a semitransparent screen and viewed them from the rear side of the screen:

When installing the projector, be sure to ask a special worker who received training of the installation work. Consult the delivery agent of the projector about the details of the installation work.

Screen

Projector

• When viewing projected images from the rear side of the screen, set the projection method in the setting menu to "Rear". Refer to Page 27 for the detail.
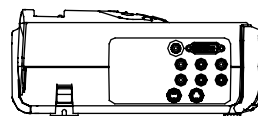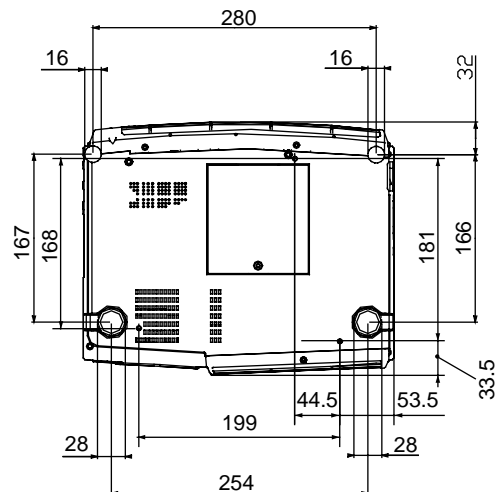
SPECIFICATIONS (The specifications and outside appearance of the projector are subject to change without prior notice. Please be notified in advance.)

| Item	DLP™ projector
Model no.	TDP-MT500
Projection system	DLP™ (Single-Board DMD™) system
Power	AC 100 V, 50/60 Hz
Power dissipation	300 W
Resolution	1,024 x 576
Maximum number of display colors	16,770,000 colors (full-color display)
Light-source lamp	210-W lamp
Projection screen	Resolution: 640 x 400 (expanded) ~ 1024 x 768 (compressed)
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 (DIN 8-pin female terminal): RS-232C specification: one route
Maximum outside dimensions	30.8 cm (W) x 10.8 cm(H) x 25.1 cm(D): including lens projection and legs
Weight	3.4 kg
Power cable	2.9 m
Operating temperatures	+5˚C - +35˚C
Operating humidity	10% - 90% (except for dew condensation)

Terminals

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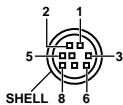
PIN No.	NAME	I/O
1	–	–
2	–	–
3	RXD	OUT
4	–	–
5	–	IN/OUT
6	–	IN
7	TXD	–
8	–	–
SHELL	GND	–

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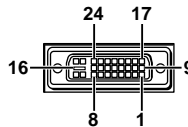
PIN NO.	STATUS	PIN NO.	STATUS
1	DATA 2–	13	–
2	DATA 2+	14	+5V Power
3	DATA 2 Shield	15	GND
4	–	16	Hot Plug Detect
5	–	17	DATA 0–
6	DDC Clock	18	DATA 0+
7	DDC Data	19	DATA 0 Shield
8	–	20	–
9	DATA 1–	21	–
10	DATA 1+	22	Clock Shield
11	DATA 1 Shield	23	Clock+
12	–	24	Clock–

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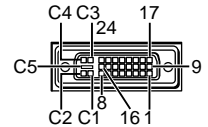
PIN NO.	STATUS
C1	ANALOG RED
C2	ANALOG GREEN
C3	ANALOG BLUE
C4	H Sync
C5	GND
6	DDC Clock
7	DDC Data
8	Analog Sync
14	+5V Power
15	GND
16	Hot Plug Detect

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 signal and SVGA60 signal are in conformity with HTPC, they are projected with emphasis on picture quality, and the projected images become a little dark. The other PC input signals are projected with emphasis on brightness.
- 1080i represents Hi-Vision.
- COMPONENT 1,2 input does not deal with RGB signals.
- DVI-ANALOG input does not deal with chrominance signals.
- If signals out of specification input, they may not be projected properly.
- If VGA60 signal outputs at the startup 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 failure (non-compliant signal).