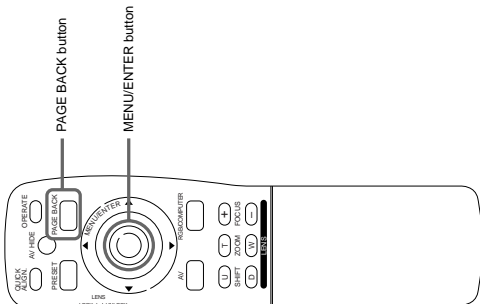


Operating the Main Menu (Cont.)

Changing (Setting) the Source

Remote control unit



Normally, use the source setting in AUTO. If use in AUTO is unstable such as color not appearing, the screen being disturbed or the screen being intermitted, set to the dedicated source (forced mode) in accordance with the input signal.

Also, USER mode, which is a user-dedicated source, is available.

- When shipped from the factory, the source settings are as follows:

	Factory setting	Input mode	Factory setting
VIDEO	NTSC(480i)	RGB 1	AUTO
Y/C	NTSC(480i)	RGB 2	AUTO
Y, P/B-Y, P/R-Y	AUTO		

Notes

- Depending on the signal from a device connected, adjustment may be needed after a dedicated source is set. If that is the case, adjust the appropriate items.
- When the input mode (SOURCE) is VIDEO or Y/C, and if AUTO is set, the automatic detecting function may work, possibly causing the screen to be intermitted or disturbed. In that case, set to a dedicated source (forced mode).
- When special effect playback (fast-forward/double-speed/multi-speed) is performed on a video deck, etc., the picture may be disturbed or intermitted, depending on the device.
- When inputting 480p or 720p-DTV-format signal in COMPUTER2 input mode, use the dedicated source mode "SDTV(480p)" or "HDTV(720p)". (At AUTO, 480p or 720p signal can not be detected.)

1 Press the MENU/ENTER button.

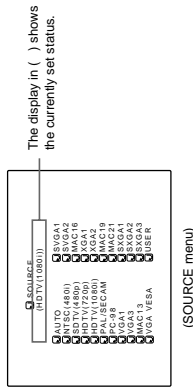
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select "SOURCE".

- The selected item (displayed in text) is shown in magenta color.

3 Press the MENU/ENTER button.

- The submenu items, SOURCE menu, appears on the screen.



(SOURCE menu)

4 Press MENU/ENTER toward the ◀, ▶, ▲ or ▼ mark to select a source from the "SOURCE" items.

- The selected item (text display) is shown in magenta color.

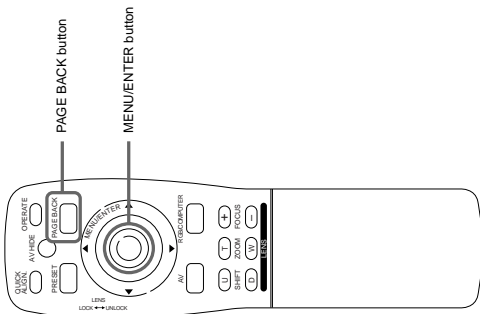
Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items that can be set are different when video signals are input and when computer signals are input.
- For dedicated source signals (corresponding frequency, etc.) for computer signals, see page 13.

Operating the Main Menu (Cont.)

Changing (Setting) the Source (Cont.)

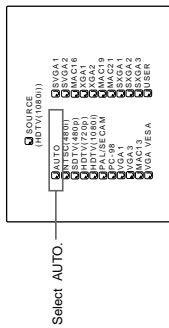
Remote control unit



5 Press MENU/ENTER to set (fix).

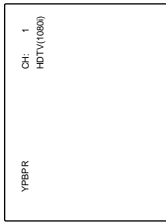
- When a source setting "AUTO" is selected:

Under "SOURCE" shown at the top of the screen, AUTO is displayed in (), and the menu will automatically be cleared, finishing the setting procedure. Then, information on the input source will be shown for about 5 seconds.



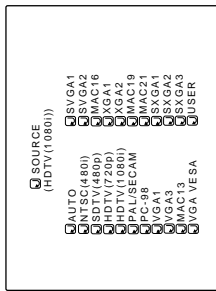
Select AUTO.

(SOURCE setup menu)



Submenu

[SOURCE setup menu]



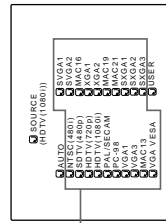
Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items that can be set are different when video signals are input and when computer signals are input.
- For dedicated source signals (corresponding frequency, etc.) for computer signals, see page 13.

- When a source setting "DEDICATED SOURCE" is selected:

Under "SOURCE" shown at the top of the screen, a dedicated source name is displayed in (), and the setting procedure is finished.

- To finish the menu display, press PAGE BACK twice. (The display goes back to the main menu with the first press, and the main menu is cleared with the second press.)



Select a dedicated source.

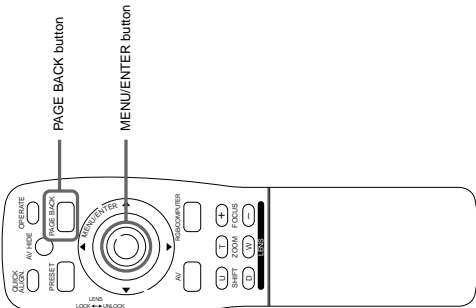
(SOURCE setup menu)

(To be continued on the next page)

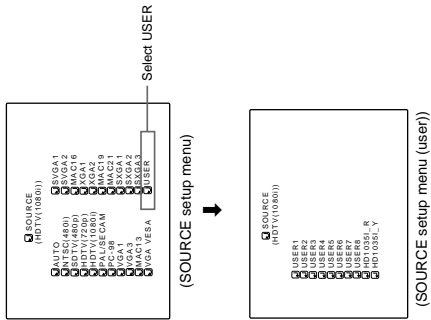
Operating the Main Menu (Cont.)

Changing (Setting) the Source (Cont.)

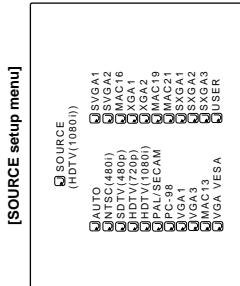
Remote control unit



- When a source setting "USER" is selected, the "USER SOURCE setup menu" is displayed.
- On the "USER SOURCE setup menu (user)", a source created by the user can be selected.
- To select a user area, it must already be user-registered with the "USER SOURCE setup menu".



Submenu



- Press MENU/ENTER toward the ▲ or ▼ mark to select a user area.
 - The selected item (text display) is shown in magenta color.
 - Press MENU/ENTER down to set a source.
 - By having a source set, the source for the projector switches to the setting registered to the user source.
- Pressing PAGE BACK twice will bring you back to the main menu. To finish the main menu, press PAGE BACK again.

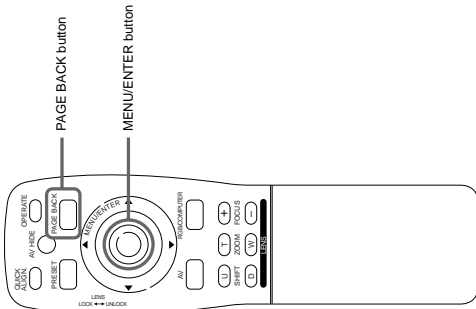
Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items that can be set are different when video signals are input and when computer signals are input.
- For dedicated source signals (corresponding frequency, etc.) for computer signals, see page 19.

Operating the Main Menu (Cont.)

Setting Up Channels

Remote control unit



- When you set up channels, you can select a line and a multiple of sources (up to 30) for each channel. If you are using a switcher and set switcher numbers, you can also select each channel from the switcher side.
- With multiple sources having been set on channels, when a channel is selected, incoming signal is automatically checked and switched to one of the sources registered on the channel.
- If a matching source is not found among the registered sources, all other available sources are searched to find a matching source.

1 Press the MENU/ENTER button.

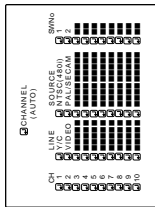
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, "CHANNEL".

- The selected item (text display) is shown in magenta color.

3 Press the MENU/ENTER button to set.

- A submenu item, "CHANNEL setup/selection menu", appears on the screen.
- If no "LINE", "SOURCE" or "SWNo" item is registered, unregistered characters (■) are displayed on the screen.



(CHANNEL setup menu)

4 Press MENU/ENTER toward the ▲ or ▼ mark to select the channel (CH) whose contents you want to change.

- The selected CH is shown in magenta color.

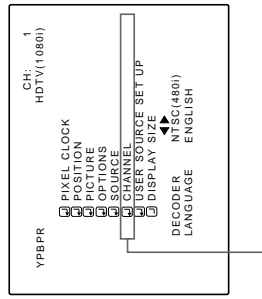
5 Press MENU/ENTER toward the ◀ or ▶ mark to select the item to set (LINE, SOURCE or SWNo).

- The selected item is shown in magenta color.
- Unregistered channel items (LINE, SOURCE or SWNo) can also be selected. However, "LINE" and "SOURCE" need to be already set.

6 Press MENU/ENTER to set.

- Channel items LINE, SOURCE and SWNo for the "CH" selected on the "CHANNEL setup" selection menu are set.
- For how to set each item, see pages 48 to 51.

Main menu



Submenu item (CHANNEL)

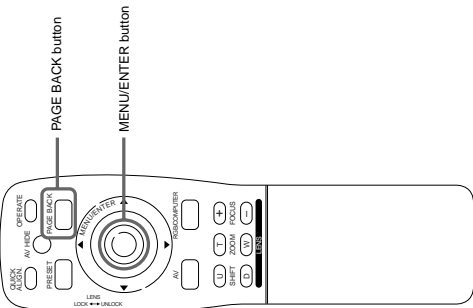
Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items that can be set are different when video signals are input and when computer signals are input.
- For dedicated source signals (corresponding frequency, etc.) for computer signals, see page 19.

Operating the Main Menu (Cont.)

Setting Up Channels (SOURCE setup) (Cont.)

Remote control unit



- 2. Press the MENU/ENTER button.
 - When the item is set, a check mark is placed next to its user name, which is registered as a "SOURCE".
 - If you place the cursor on a "SOURCE" item with a check mark attached and press MENU/ENTER down straight, the check mark will disappear, making the item unregistered as a "SOURCE" item.
- Pressing PAGE BACK twice will bring you back to the main menu. To finish the main menu, press PAGE BACK again.

CHANNEL setup - selection menu

CH	LINE	Y/C	VIDEO	SOURCE	NTSC(480i)	PAL/SECAM	SWING
1							1
2							2
3							
4							
5							
6							
7							
8							
9							
10							

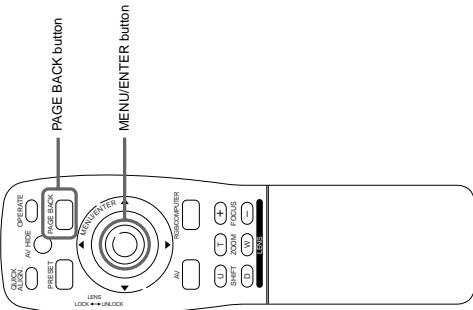
Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode. (If no line is registered, you cannot set any "SOURCE" item.)

Operating the Main Menu (Cont.)

Setting Up Channels (SWNo. setup)

Remote control unit



- When a switcher number "SWNo" is selected: The "Switcher number setup menu" is displayed.
 - To be able to display a menu, a "SOURCE" needs to be already set.



(SWITCHER No. setting menu)

- Press MENU/ENTER toward the ◀ or ▶ mark to select a switcher number.
 - Numbers that you can select from are numbers from 1 to 20 and characters "■" that signify non-registration.
 - If you press MENU/ENTER toward the ◀ mark, the number becomes smaller, and pressing the button toward the ▶ mark makes the number larger.
 - If you select "■", "SWNo" will be deselected.
 - If the selected channel is the same with the one in () under the "CHANNEL" display at the top of the CHANNEL setup selection menu, the registration or settings cannot be cleared.

2 Press the PAGE BACK button to set.

- When you press PAGE BACK, the switcher number is set, and the display returns to the "CHANNEL setup/selection menu".

CHANNEL setup - selection menu

CH	LINE	Y/C	VIDEO	SOURCE	NTSC(480i)	PAL/SECAM	SWING
1							1
2							2
3							
4							
5							
6							
7							
8							
9							
10							

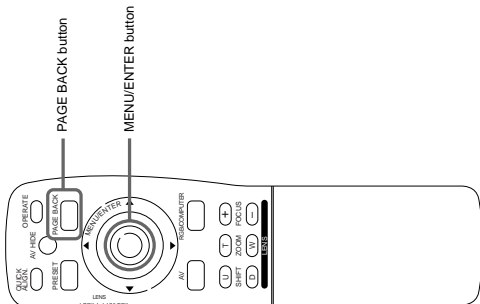
Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode. (If no line is registered, you cannot set any "SW No" item.)

Operating the Main Menu (Cont.)

Changing Channels (CH Change)

Remote control unit

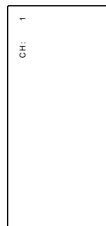


Channels which have lines and sources registered can be switched. The channels can be switched by using either a direct channel or the "CHANNEL setup • selection" menu.

To switch channels using a "DIRECT CHANNEL"

1 Press PAGE BACK while no menu is displayed.

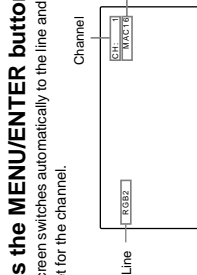
- A channel No. is displayed on the right upper area of the screen.
- A channel number where lines and sources are registered is displayed. (If such a channel is not available, AUTO will be selected.)



(Direct channel switching menu)

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a channel number.

- The numbers that you can select from are from 1 to 10 and AUTO.
- If you press MENU/ENTER toward the ▼ mark, the number becomes smaller, and pressing the button toward ▲ makes the number larger.
- Pressing PAGE BACK cancels the selection.



- If the source being input to the projector is not registered on the selected channel, a "?" mark is placed before the source name.



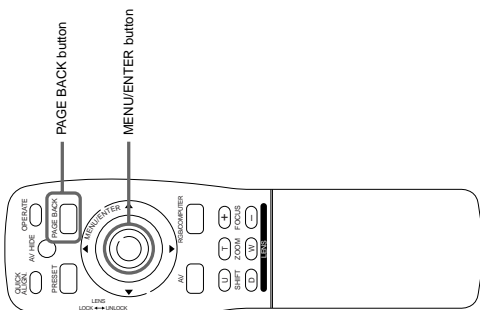
Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

Operating the Main Menu (Cont.)

Changing Channels (CH Change) (Cont.)

Remote control unit



- To switch on the "CHANNEL setup • selection" menu:

1 Press the MENU/ENTER button.

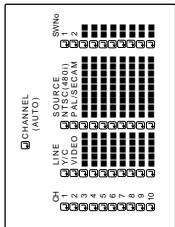
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, "CHANNEL".

- The selected item (text display) is shown in magenta color.

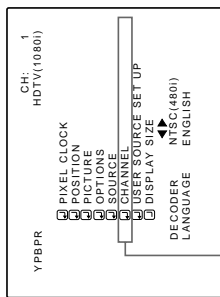
3 Press the MENU/ENTER button to set.

- A submenu item, "CHANNEL setup • selection menu", appears on the screen.



(CHANNEL setup • selection menu)

Main menu



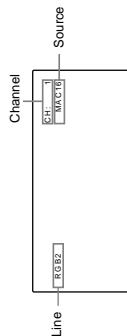
Submenu item [CHANNEL]

4 Press MENU/ENTER toward the ▲ or ▼ mark to select the channel (CH) you want to switch to.

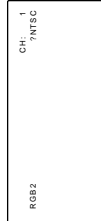
- The selected CH is shown in magenta color.

5 Press the MENU/ENTER button to set.

- The line input, source and switcher number registered to the channel are selected.



- If the source being input to the projector is not registered on the selected channel, a "?" mark is placed before the source name.

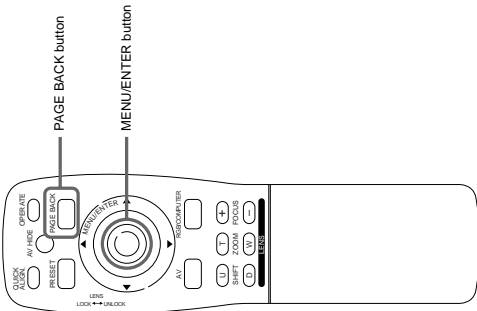


- To be able to select a channel, line input, source and switcher number need to be already registered.

Operating the Main Menu (Cont.)

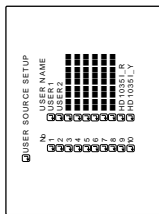
Setting Up (or Changing) User Sources

Remote control unit



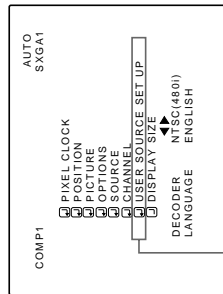
A maximum of 10 types of information can individually be registered regarding the source being input and projected through the line connection.

- **Preparation**
With source setup "AUTO" selected, keep signal being input.
- 1 Press the MENU/ENTER button.**
 - The main menu appears on the screen.
- 2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, "USER SOURCE SETUP".**
 - The selected item (text display) is shown in magenta color.
- 3 Press the MENU/ENTER button to set.**
 - A submenu item, "USER SOURCE SETUP menu", appears on the screen.
 - "No" is displayed for Nos which have no user source registered.



(USER SOURCE set up menu)

Main menu



Submenu item [USER SOURCE SET UP]

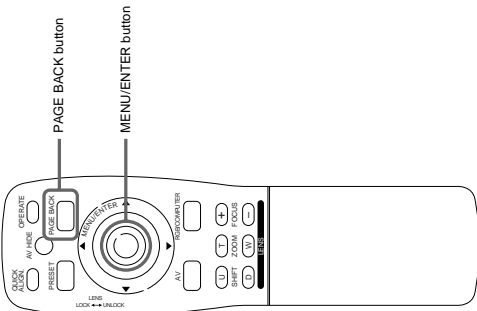
Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

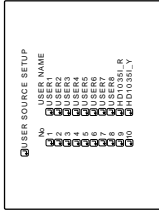
Operating the Main Menu (Cont.)

Setting Up (or Changing) User Sources (Cont.)

Remote control unit

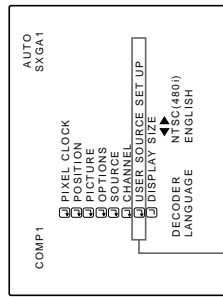


- To change the registered user source name.
- 1 Press the MENU/ENTER button.**
 - The main menu appears on the screen.
- 2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, "USER SOURCE SETUP".**
 - The selected item (text display) is shown in magenta color.
- 3 Press the MENU/ENTER button to set.**
 - A submenu item, "USER SOURCE SETUP menu", appears on the screen.



(USER SOURCE set up menu)

Main menu



Submenu item [USER SOURCE SET UP]

Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

- 4 Press MENU/ENTER toward the ▲ or ▼ mark to select a "No" where no user registration has been made.**
 - The selected item (text display) is shown in magenta color.
- 5 Press the MENU/ENTER button to set.**
 - The source data of the line now selected is registered as a user source and a temporary user name is displayed.
 - If you select and set on the No which has a source registered, the source is overwritten by a new source.

- **To return to the main menu, press PAGE BACK. To finish the main menu, press PAGE BACK again.**

Note

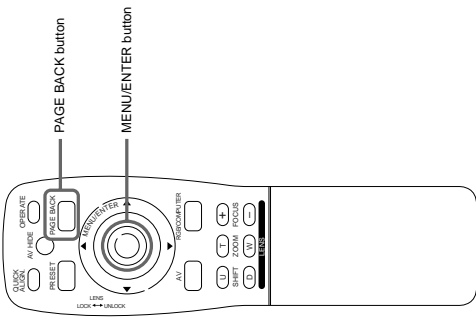
- When EXT. IN (Video, Y/C or Y/PaP) is selected, the display size cannot be changed.

(To be continued on the next page)

Operating the Main Menu (Cont.)

Setting Up (or Changing) the Display Size (Cont.)

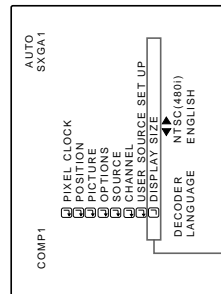
Remote control unit



Adjustment item	Contents of adjustment
H PIXEL	Adjusts the number of horizontal effective dots. Adjustment value (640 ↔ 1360)
V PIXEL	Adjusts the number of vertical effective dots. Adjustment value (350 ↔ 1024)
H CENTER	Adjusts the horizontal display position. Adjustment value (0 ↔ 639)
V CENTER	Adjusts the horizontal display position. Adjustment value (1 ↔ 511)

■ To return to the main menu, press PAGE BACK. To finish the main menu, press PAGE BACK again.

Main menu



Submenu item [DISPLAY SIZE]

Note

• The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

Filter Maintenance and Light-Source Lamp Replacement

Cleaning and Replacing the Filter

The filters should be cleaned periodically. If they are heavily stained, do not become clean if cleaned, or are damaged, or are damaged, replace them with new filters (Parts number: LC30505); otherwise, dirt and dust may get inside, possibly causing an adverse effect on the screen and preventing you from enjoying clear pictures.

■ The projector has two filters installed, one on the right side and the other on the back.

1 Bring the projector into stand-by state, and turn off the MAIN POWER switch.

Put the projector into stand-by, and make sure the STAND BY indicator is lit, then turn off the MAIN POWER switch. After that, disconnect the power cord from the wall outlet and the projector. For detailed procedures, refer to "Turning off the power" (page 25).

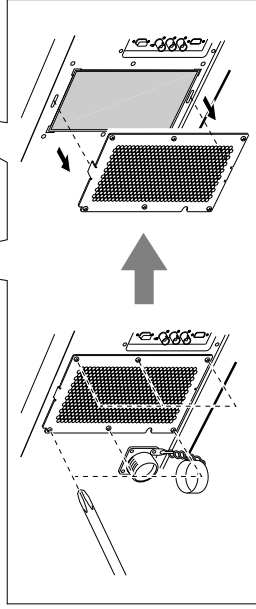
Note

• If the filter is clogged with dirt, etc., the projector goes into an emergency mode (the EMERGENCY indicator blinks). So, clean the filter periodically. For the emergency mode, refer to pages 8 and 24.

There are two filters used.

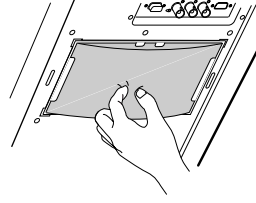
2 Remove the filter cover screws.

Using a Phillips screwdriver, remove the six screws fixing each filter.
Two filters are used, one on the right side and the other on the back of the projector.



3 Remove the filters.

To remove the filter, pinch the center portion of the filter with your fingers and pull it toward you.
(The filter is held by four tabs.)



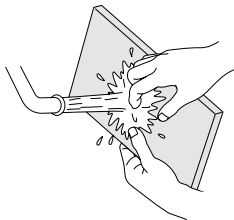
(To be continued on the next page)

Filter Maintenance and Light-Source Lamp Replacement (Cont.)

Cleaning and Replacing the Filter (Cont.)

4 Clean the filters.

Wash the filter in water with neutral detergent, and dry it in the shade.



5 Reinstall the filters.

To reinstall the filters to the projector, reverse the procedure for removing. Finally, be sure to reinstall the filter covers.

CAUTIONS

- Put on rubber gloves when using neutral detergent.
- After you have washed the filter in water, make sure the filter is completely dry before reinstalling it. Otherwise, electric shock or malfunction could occur.
- Do not clean the filter using a vacuum cleaner. Since the filter is soft, it may be sucked into the vacuum cleaner or damaged.

Notes

- Install the filters correctly; otherwise the projector will not operate normally.
- If the filters and/or filter holders are damaged, the projector may fail to operate. Then, replace with new parts.

About Light-Source Lamp Replacement

The light-source lamp has its service life. It is approximately 1000 hours.

When the light-source lamp approaches the end of its service life, its degradation progresses rapidly. When the lamp's used hours exceed 900 hours, the projector's LAMP indicator comes on. Also, at the start of projection (lamp energized), the message "REPL -LAMP" appears on the projection screen for about two minutes. Then, the light-source lamp needs to be replaced. When lamp's service has reached 1000 hours, the projector's LAMP indicator starts blinking. The specified lamp replacement period is 1000 hours, but depending on use conditions, the replacement period may vary. If video image is dark and its color tint is extraordinary even after you have adjusted color tint and brightness, replace the light-source lamp a little earlier.

For replacing the light-source lamp, consult the dealer where you purchased your projector or a local service center.

Troubleshooting

Solutions to common problems related to your projector are described here. If none of the solutions presented here solves the problem, unplug the projector and consult a authorized dealer or service center.

Symptom	Probable cause	Corrective action	Page
Power is not supplied.	• Is the power cord disconnected?	• Insert the power cord (plug) firmly.	23
	• Is the main power switch turned on?	• Turn on the MAIN POWER switch.	25
	• Is the correct power voltage used?	• Check that AC220V is supplied.	3, 65
	• Has the breaker tripped open?	• Check that the breaker is closed.	—
Light is not emitted, or light level is low.	• Has the lamp protective function activated? (This can occur if the power is shut down due to a power failure, etc.)	• Wait until the lamp has cooled down. (Turn on the main power and let the fans cool the lamp.) About 10 minutes later, press OPERATE on the remote control.	—
	• Is the lens cap removed?	• Remove the lens cap.	23
	• Is the lamp life near its end?	• Check the lamp use time on the menu, and if the lamp life is near its end, arrange for a replacement lamp, or replace a little earlier.	41, 59
With power on, operation starts but stops in a few minutes.	• Has the projector been moved from its installed place?	• Check the installed position.	—
	• Is the air intake or exhaust area blocked?	• Turn off the MAIN POWER switch, remove any blocking objects, and turn on the MAIN POWER switch again.	8, 9, 16
	• Is the correct input selected?	• Select the correct inputs with the AV and RGB buttons.	26
	• Are connected devices connected correctly?	• Connect connected devices correctly.	20, 21
Video image does not appear.	• Are signals being supplied from the connected devices?	• Set connected devices correctly.	—
	• Are input signals (scanning frequency, etc.) appropriate?	• Check if the signal is correct as input (scanning frequency, etc.). Input the appropriate signal.	19
	• Is the source setting correctly selected? Isn't a wrong source (forced mode) selected?	• Set the source setting to AUTO or to the correct dedicated source (forced mode).	44, 46
	• Is brightness adjusted correctly?	• Adjust brightness on the menu.	38, 40
Video image dims.	• Is focus adjusted correctly?	• Adjust focus with the remote control's FOCUS (+/-) buttons.	27, 30
	• Is distance too short or too long?	• Set the projector at the correct distance.	18
Color is poor or unstable.	• Are TRACKING and PHASE adjusted correctly?	• Adjust TRACKING and PHASE on the menu.	30, 36
	• Is picture quality (color density, etc.) adjusted correctly?	• Adjust picture quality on the menu.	38, 40
	• Is the correct CLAMP selected?	• Select the correct CLAMP on the OPTION MENU.	41, 42

(To be continued on the next page)

Troubleshooting (Cont.)

Symptom	Probable cause	Corrective action	Page
During video replay, video image sometimes is disturbed	<ul style="list-style-type: none"> • Have installation adjustment been performed? • Is picture quality (color density, etc.) adjusted correctly? • Is the correct broadcast system (color system) selected? • Are signals (scanning frequency, etc.) to connected devices appropriate? • Is the source setting correctly selected? Isn't a wrong source (forced mode) selected? 	<ul style="list-style-type: none"> • For installation, consult the dealer where you purchased the projector or a local service center. • Adjust picture quality on the menu. • Set the broadcast system (color system) to AUTO. • Check if the signal is appropriate (scanning frequency, etc.), and input the appropriate signal. • Set the source setting to AUTO. If the problem still persists, set it to the correct dedicated source (forced mode). 	<p>—</p> <p>38, 40</p> <p>34</p> <p>19</p> <p>44 - 46</p>
Specific colors fail to be displayed	<ul style="list-style-type: none"> • Are specifications of the signal being input matching those of the video input card? • Is the input cable connected correctly? • Has the lamp's life come to its end? 	<ul style="list-style-type: none"> • Check specifications of both signal being input and video input card. • Check cable connections. • Check the used lamp hours on the menu, and if the lamp life is near its end, consult the dealer where you purchased the projector or a local service center. 	<p>—</p> <p>21</p> <p>60</p>
The upper part of the video image bows or distorts.	<ul style="list-style-type: none"> • While computer system signal is input, isn't a sync signal for composite sync (Cs) or G on sync being input? • Isn't signal with much jitter or skew distortion being input to a video deck? • Is the source setting correctly selected? Isn't a wrong source (forced mode) selected? 	<ul style="list-style-type: none"> • Input separate sync signals for vertical sync (V) and horizontal sync (H) signals. • Input signals with little jitter or distortion. • Set the source setting to AUTO. If the problem still persists, set it to the correct dedicated source (forced mode). 	<p>10</p> <p>—</p> <p>44 - 46</p>
The projection position on the screen has shifted.	<ul style="list-style-type: none"> • Have the channel's setup contents been changed? • Have the channel's setup contents been changed? • Is sync signal being input correctly? • Has the projector been moved from its installed place? • Aren't video turned off by pressing the remote control's AV HIDE button? • Are all color video signals being input? 	<ul style="list-style-type: none"> • Check the setup contents been changed. • Check the setup contents of the channel and correct them if necessary. • Check sync signal and related connection. • Check the installed position. • Press the remote control's AV HIDE button to turn video on. • Check signals and connections. 	<p>47 - 51</p> <p>47 - 51</p> <p>10</p> <p>—</p> <p>12</p> <p>19 - 23</p>

Troubleshooting (Cont.)

Symptom	Probable cause	Corrective action	Page
Lens shift adjustment is not possible.	<ul style="list-style-type: none"> • Is the shift center lock pin for shipment left attached? 	<ul style="list-style-type: none"> • Remove the shift center lock pin, and then make adjustments. (For how to remove the shift center lock pin, consult the dealer where you purchased the projector or a local service center.) 	16
Remote control unit does not work.	<ul style="list-style-type: none"> • Are batteries installed correctly? • Are batteries exhausted? • Is there a shielding object between the remote control unit and the remote sensor? • Is the distance too long? • Is the remote control's LENS LOCK ↔ UNLOCK switch set to LOCK? 	<ul style="list-style-type: none"> • Match the polarities of batteries correctly (+ to + and - to -). • Replace with new batteries. • Remove any shielding objects. • Use the remote control unit at a nearer point. • Set the remote control's LENS LOCK ↔ UNLOCK switch to UNLOCK? 	<p>13</p> <p>13</p> <p>—</p> <p>22</p> <p>12</p>

■ When the emergency indicator starts blinking:

Refer to the CAUTION and NOTES on page 24.

* This projector is equipped with a microcomputer that may operate abnormally due to interference from external components. If this happens, turn off the main power and disconnect the power cord from the wall AC outlet. Then reconnect the power cord to AC outlet and turn on the main power again.
(For the turning on and off the power, see pages 25)

Specifications

Optical mechanism system

- Projection method : 3D-ILA device, 1 lens, 3 primary color optical shutter method
- D-ILA device : 0.9" measured diagonally (1365 × 1024 pixels) × 3 (Total number of pixels : 4,193,280)
- Projecting lens (separately available) : GL-M4023S2 3.1~7.1 zoom lens
- Screen size (separately available) : GL-M4015S 1.5:1 fixed focus lens
- Light-source lamp : 60" to 300" [recommended] to 600" [maximum] measured diagonally (* with aspect ratio : 4 : 3)
1.6 KW xenon lamp

Electrical system

- Color system : NTSC, NTSC4.43, PAL, SECAM (* Automatic switching / manual switching)
- Resolution : 1365 × 1024 dots (*S-XGA full resolution, during RGB input)
- Scanning frequency : 1000TV lines (*Horizontal resolution, aspect ratio 4 : 3, during video input)
- Horizontal frequency : 15 kHz ~ 82 kHz
- Vertical frequency : 50 Hz ~ 78 Hz

Input / output

[EXT. IN (AV IN input)] * The Y/C (S-video) and VIDEO (composite video) signals can be input with the video board installed.

- Y/C : 1-line, mini-DIN 4 pin × 1 (* With the video board, separately available, installed)
Y (luminance signal) : 1V(p-p), 75Ω (negative sync)
C (chroma signal) : 0.286V(p-p) (burst signal), 75Ω [NTSC]
: 0.3V(p-p) (burst signal), 75Ω [PAL]

- VIDEO : 1-line, BNC × 1 (* With the video board, separately available, installed)

Composite video signal : 1V(p-p), 75Ω (negative sync)

- Y, Pb/B-Y, Pr/R-Y

1-line, BNC × 3

Component (Y/B-Y/R-Y) signals

Y : 1V(p-p), 75Ω (negative sync or 3-value sync)

Pb/B-Y : 0.7V(p-p), 75Ω

Pr/R-Y : 0.7V(p-p), 75Ω

DTV-format signals

[480i (ITU-R BT. 601-4), 480p (SMPTE 293M)]

Y : 1V(p-p), 75Ω (negative sync)

Pb, Pb_s : 0.7V(p-p), 75Ω

[720p (SMPTE 296M), 1080i (SMPTE 274M)]

Y : 1V(p-p), 75Ω (3-value sync)

Pb, Pb_s : 0.7V(p-p), 75Ω

[RGB IN (RGB input)]

- RGB IN-1 (PC)

1-line, D-sub 3-row 15 pin × 1

Analog RGB signal

R : 0.7V(p-p), 75Ω

B : 0.7V(p-p), 75Ω

G : 0.7V(p-p), 75Ω

G on Sync : 1V(p-p), 75Ω (negative sync)

Sync signal : 1V(p-p) to 5V(p-p), high impedance (positive/negative polarity)

- Some connected devices may not correspond to composite sync (Cs) or G on sync signal.

- RGB IN-2

1-line, BNC × 5

Analog RGB signal

R : 0.7V(p-p), 75Ω

B : 0.7V(p-p), 75Ω

G : 0.7V(p-p), 75Ω

G on sync : 1V(p-p), 75Ω (negative sync)

Specifications (Cont.)

Horizontal sync/composite sync signal (H/Cs)

H : 1V(p-p) to 5V(p-p), high impedance (positive/negative polarity)

Cs : 1V(p-p) to 5V(p-p), high impedance (positive/negative polarity)

Vertical sync signal (V)

V : 1V(p-p) to 5V(p-p), high impedance (positive/negative polarity)

- Some connected devices may not correspond to composite sync (Cs) or G on sync signal.

[RGB OUT (RGB OUTPUT)]

- RGB OUT

1-line, D-sub 3-row 15-pin × 1

Analog RGB signal

R : 0.7V(p-p), 75Ω

B : 0.7V(p-p), 75Ω

G : 0.7V(p-p), 75Ω

G on sync : 1V(p-p), 75Ω (negative sync)

Horizontal sync/composite sync signal (H/Cs)

H : TTL level (Polarity : Same for input)

Cs : TTL level (Polarity : Same for input)

V : TTL level (Polarity : Same for input)

[CONTROL]

- RS-232C

: 1-line, D-sub 9-pin × 1

- RS-232C-interface specified control terminal for controlling this projector with a personal computer.

- REMOTE : 1-line, mini-jack × 1

General

- Power requirements : AC 220 V~240 V, 50 Hz/60 Hz

12 A (at 220V)

- Allowable operation temperature : +5°C to +40°C (41°F to 104°F)

90% or less (no condensation)

- Allowable relative humidity : -5°C to +60°C (23°F to 140°F)

Approx. (W)687 mm × (H)420 mm × (D)793 mm (27'-1/16" × 16'-2/16" × 31'-1/16")

- Allowable storage temperature : Maximum outside dimensions (excluding protruding parts)

Approx. 70.0kg (154 lbs.)

- Weight : (Refer to page 5.)

- Accessories

* Design and specifications are subject to change without notice.

* D-ILA devices are manufactured with a very high-precision technology, allowing 99.99% of the pixels to be effective. Only 0.01% or less of the pixels are missing or always on.

* For easy understanding, pictures and illustrations are shown by being emphasized, omitted or composed, and may be more or less different from actual products.

* TRADEMARKS

IBM, IBM PC, and VGA are registered trademarks of International Business Machines Corporation. Macintosh is registered trademarks of Apple Computer, Inc.

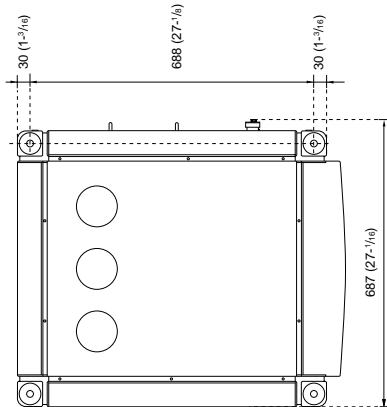
VESA is a trademark of the non-profit organization Video Electronics Standard Association.

All other product names mentioned herein are used for identification purposes only, and may be the trademarks or registered trademarks of their respective companies.

Specifications (Cont.)

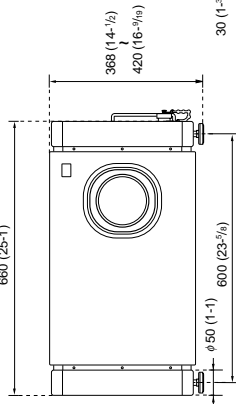
Outside dimensions

■ **Top**

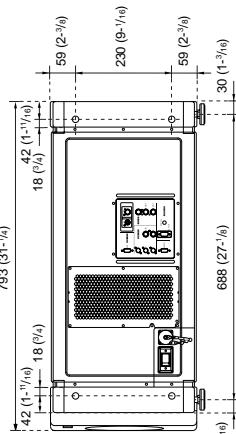


Unit: mm (inch)

■ **Front**



■ **Side**



Specifications (Cont.)

Pin assignment (Specifications for terminals)

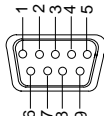
■ **Y/C terminal**

Pin number	Signal name
1	GND (Y)
2	GND (C)
3	Y
4	C



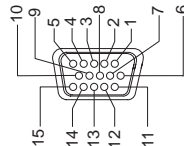
■ **RS-232C terminal**

Pin number	Signal name	Pin number	Signal name
1	N/C	6	N/C
2	RD	7	N/C
3	TD	8	N/C
4	N/C	9	N/C
5	GND		



■ **COMPUTER IN-1 (PC) / COMPUTER OUT Terminal**

Pin number	Signal name	Pin number	Signal name
1	Red	9	N/C
2	Green	10	GND (SYNC)
3	Blue	11	GND
4	N/C	12	N/C
5	N/C	13	H.SYNC
6	GND (Red)	14	V.SYNC
7	GND (Green)	15	N/C
8	GND (Blue)		



DTV-format signals

* The following are DTV-format signals that can be input.

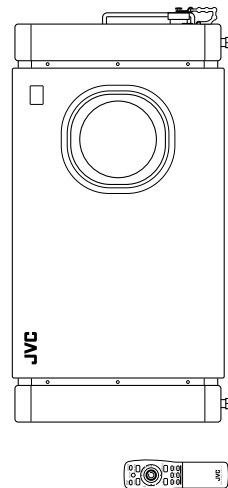
DTV-Formats	480i	480p	720p	1080i
Signal Standard	ITU-R BT. 601-4	SMPTTE 293M	SMPTTE 296M	SMPTTE 274M
Scanning Line / Frame	525	525	750	1125
Effective Samples x Scanning Lines	720 x 485	720 x 483	1280 x 720	1920 x 1080
Samples / Total Line	858	858	1650	2200
Field Frequency (Hz)	59.94	59.94	60/59.94	60/59.94
Line Frequency (Hz)	15734	31468.5	45000/44855	33750/33716.25
Interface Ratio	0.5	1	1	0.5

JVC

DLA-M4000LE **DILA** SUPER PROJECTOR

DILATM SUPER PROJECTOR

DLA-M4000LE INSTRUCTIONS



JVC

VICTOR COMPANY OF JAPAN, LIMITED

Printed in Japan
LCT0532-001A
1199-K-M-NI



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Thank you for purchasing this projector. Before using it, read and follow all instructions carefully to take full advantage of the projector's capabilities.

SAFETY PRECAUTIONS

IMPORTANT INFORMATION

WARNING :
TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

WARNING :
THIS APPARATUS MUST BE EARTHED.

CAUTION :
To reduce the risk of electric shock, do not remove cover.
Refer servicing to qualified service personnel.

MACHINE NOISE INFORMATION

(Germany only)
Changes Machine Noise Information Ordinance 3. GSGV, January 18, 1991; The sound pressure level at the operator position is equal or less than 70 dB(A) according to ISO 7779.

About burning-in of the D-ILA device

Do not allow the same still picture to be projected for a long time or an abnormally bright video picture to be projected. Do not project video images with high-intensity or high-contrast on a screen. The video image could be burned in to the D-ILA device.
Use special care when projecting video games or computer program images. There is no problem with ordinary video-cassette playback images.

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

IMPORTANT SAFEGUARDS

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. But **IMPROPER USE CAN RESULT IN POTENTIAL ELECTRICAL SHOCK OR FIRE HAZARD.** In order not to defeat the safeguards incorporated into this product, observe the following basic rules for its installation, use and service. Please read these "Important Safeguards" carefully before use.

- All the safety and operating instructions should be read before the product is operated.
- The safety and operating instructions should be retained for future reference.
- All warnings on the product and in the operating instructions should be adhered to.
- All operating instructions should be followed.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use attachments not recommended by the product manufacturer as they may be hazardous.
- Do not use this product near water. Do not use immediately after moving from a low temperature to high temperature, as this causes condensation, which may result in fire, electric shock, or other hazards.
- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. The product should be mounted according to the manufacturer's instructions, and should use a mount recommended by the manufacturer.



When the product is used on a cart, care should be taken to avoid quick stops, excessive force, and uneven surfaces which may cause the product and cart to overturn, damaging equipment or causing possible injury to the operator.

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

For proper ventilation, separate the product from other equipment, which may prevent ventilation and keep distance more than 60 cm.

SAFETY PRECAUTIONS (Cont.)

- This product should be operated only with the type of power source indicated on the label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.
- This product is equipped with a three-wire plug. This plug will fit only into a grounded power outlet. If you are unable to insert the plug into the outlet, contact your electrician to install the proper outlet. Do not defeat the safety purpose of the grounded plug.
- 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. Pay particular attention to cords at doors, plugs, receptacles, and the point where they exit from the product.
- For added protection of this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the product due to lightning and power line surges.
- Do not overload wall outlets, extension cords, or convenience receptacles on other equipment as this can result in a risk of fire or electric shock.
- 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.
- Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltages and other hazards. Rely on all service to qualified service personnel.
- Unplug this product from the wall outlet and refer service 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 on 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 Operation Manual, as an improper adjustment of controls may result in damage and will often require extensive work by a qualified technician to restore the product to 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.
- When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or with same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
- 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.

*** DO NOT allow any unqualified person to install the unit.**

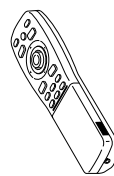
Be sure to ask your dealer to install the unit (eg. attaching it to the ceiling) since special technical knowledge and skills are required for installation. If installation is performed by an unqualified person, it may cause personal injury or electrical shock.

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Accessories

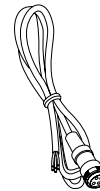
The following accessories are included with this projector. Check for them; if any item is missing, please contact your dealer.



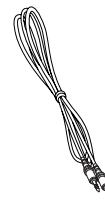
Remote control unit (RM-M4000G)



AA/R6-size dry cell battery (x2) (for checking operation)



Power cord (approx. 3.35 m)



Remote control cable (approx. 15 m)

Memo

In addition to the above accessories, an operator manual (this book) and warranty sheet are included. If any is missing, also contact your dealer.

SAFETY PRECAUTIONS (Cont.)

POWER CONNECTION (United Kingdom only)

WARNING

Do not cut off the main plug from this equipment. If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or adapter or consult your dealer.

If nonetheless the mains plug is cut off, remove the fuse and dispose of the plug immediately to avoid a possible shock hazard by inadvertent connection to the main supply.

If a new main plug has to be fitted, then follow the instruction given below:

WARNING:

THIS APPARATUS MUST BE EARTHED.

IMPORTANT:

The wires in the mains lead on this product are coloured in accordance with the following cord:

- Green and Yellow : Earth
- Blue : Neutral
- Brown : Live

As these colours may not correspond with the coloured marking identifying the terminals in your plug, proceed as follows:

Information on the power cord plug

The power cord of this projector does not have a wall outlet plug attached. We recommend you to select and attach a plug which matches your wall outlet.

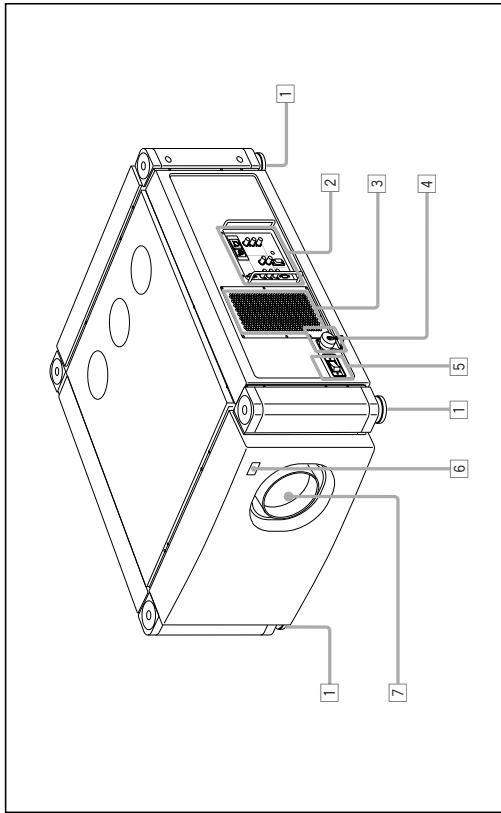
Use a plug rated 250V/20A.

The wires ends of the power cord are covered for protection. Remove the covers before attaching the plug to the power cord.



Controls and Features

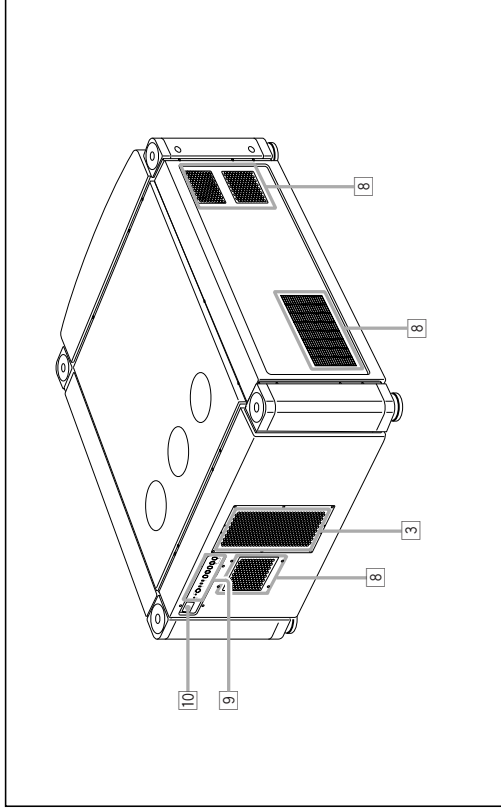
Front Side / Top Surface / Right Side



- 1 Adjustable foot**
It is set at the shortest position when shipped from the factory. Turn the foot to make the projector level. Adjustment can be made in the range of $\pm 4^\circ$ from the vertical and $\pm 5^\circ$ from the horizontal.
 - 2 Connector panel**
For details, refer to "Connector Panel" on page 10.
 - 3 Air intake area (filter)**
Air is taken in through this area to cool the light-source lamp. If this area is blocked or if something that obstructs taking in or exhausting air is placed around the projector, heat may build up inside and could cause a fire. For details, refer to "Precautions for installation" on page 14.
- CAUTIONS**
- Be careful as paper, cloth or soft cushion could be drawn in if placed nearby. Do not block the intake area, or heat may build up and could cause a fire.
 - Clean the filter periodically. For details, refer to "Cleaning and Replacing the Filter" on page 59.
- Deposition of dirt on the filter works to reduce the cooling effect, causing heat to build up inside, which could cause a fire or malfunction.
- 4 AC IN (power input) terminal**
This is the power input terminal where the supplied power cord is connected. For details, refer to page 23.
 - 5 MAIN POWER switch**
This is the main power switch. When it is turned on, the projector goes into stand-by state, and the STAND BY indicator on the control panel comes on.
ON [I]: The main power turns on.
OFF [O]: The main power turns off.
 - 6 Remote sensor**
When operating with the remote control, aim it toward this sensor. An additional remote sensor is provided on the back of the projector. The effective operating distance of the remote control is 10 m from each of the sensors. The effective operating range of angles is 50° left and right, and 15° up and down.
 - 7 Lens mount**
Attach a projection lens separately sold to this mount.
GL-M4023SZ 3 : 1 - 7 : 1 zoom lens
GL-M4015S 1.5 : 1 fixed-focus lens
For information on attaching the lens, consult the dealer or service center who performed the installation and adjustments of your projector.

Controls and Features (cont.)

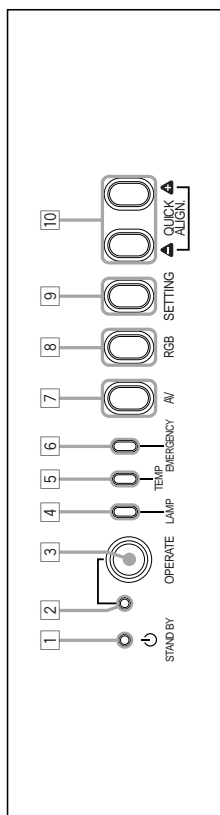
Left-hand side / Back Side



- 8 Exhaust vents**
Vents for cooling fans through which warm air comes out.
- 9 Control panel**
For details, refer to "Control Panel" (page 8 and 9).
- 10 Remote sensor**
When operating with the remote control, aim it toward this sensor. An additional remote sensor is provided on the front of the projector. The effective operating distance of the remote control is 10 m from each of the sensors. The effective operating range of angles is 50° left and right, and 15° up and down.

Controls and Features (cont.)

Control Panel

**1 STAND BY indicator**

ON : When in stand-by mode.
Blinking : When in cool-down mode.

CAUTION

- The cool-down mode continues for about 20 seconds, during which projection cannot be started again. After the cooling-down period, the projector goes into stand-by mode, but the cooling fans will continue to run for about 10 minutes more.
- The purpose of the cool-down mode is to prevent inner parts from being deformed or broken by heat from the heated lamp as well as to prolong the life of the lamp. Do not turn off the main power switch while in the cool-down mode. Also, do not block any of exhaust openings while in cool-down mode.

2 OPERATE indicator

ON: When the projector is in operation (projecting)

3 OPERATE button

When the projector is in the stand-by mode, press this button for one or more seconds, and the main power switch is turned on, causing the OPERATE indicator to light. Press it again, and the projector goes into the cool-down mode, then stand-by mode.

Memo

While in the cool-down mode:
If you press the OPERATE button, the projector is not tuned on.

4 Lamp indicator

ON : After the light-source lamp has been used for more than approx. 900 hours.

Blinking : Replace the lamp.(Ask the dealer where you purchased your projector to replace the lamp.)

5 TEMP indicator

ON: The temperature inside the projector has abnormally risen.

Note

- While the TEMP indicator is on (during abnormal temperature), the power is automatically cut off, and an emergency mode is shown (with the EMERGENCY indicator blinking).

6 EMERGENCY indicator

Blinking: Something abnormal has occurred with the projector.

Memo

About the emergency mode:
The emergency mode is shown when the following anomalies have occurred with the projector (the EMERGENCY indicator blinks). In the emergency mode, projection is automatically interrupted and the cooling fans operate for about 20 seconds.

- When the filter is clogged.
- When the light-source lamp has suddenly gone off.
- When the fans have stopped.
- When the temperature inside has risen abnormally high.

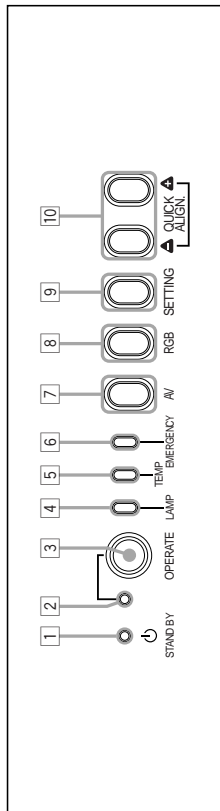
CAUTION**• When an emergency mode is shown:**

After the cooling fans have stopped, turn off the main power switch and unplug the power cord from the wall outlet.

Check that the filter covers are correctly installed. Then, plug in the power cord again and try operating the projector. If it goes into an emergency mode again, after the cooling fans have stopped, turn off the main power switch, unplug the power cord, and call your dealer for repair.

Controls and Features (cont.)

Control Panel (Cont.)

**7 AV button**

Use this button to select a device such as a video deck connected to the EXT. IN terminal of the projector. Each time you press the button, the device selected changes as follows:

• * * *

• Y/C and VIDEO can be used only when a video board separately sold has been installed.

8 RGB button

Use this button to select a device connected to the RGB -1 or -2 terminals. Each time you press the button, the selection changes as follows:

Memo**The quick alignment function :**

- Works for computer input (RGB-1 and -2 input terminals) signals.
- Does not work for video input (EXT. IN input terminal) signals.

CAUTION

- Automatic adjustment with the quick alignment function may not work correctly on a dark screen or motion-picture screen. If adjustment with this function is not satisfactory, adjust TRACKING, PHASE, H, POS. and V, POS. manually (see pages 30, 36 and 37).

10 QUICK ALIGN button

While a menu screen is shown, use this button to adjust the values for the item selected. When no menu is shown, the quick alignment function works.

- When a menu is shown

• **▲ button:** The value for the selected item increases.

• **▼ button:** The value for the selected item decreases.

- When no menu is shown

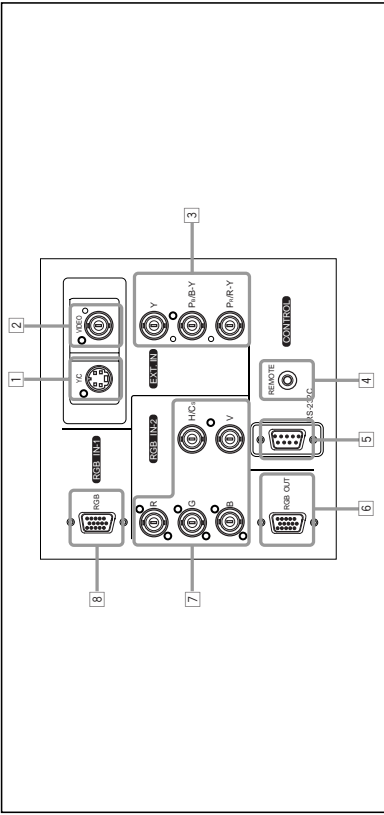
• Press the **▲ button** and **▲ button at the same time:** QUICK ALIGNMENT is displayed on the screen and the quick alignment function works (TRACKING, PHASE, H, POS. and V, POS. are automatically adjusted). When the adjustment is finished, the display goes off automatically.

9 SETTING button

Use this button to call up the setting menu. For details, refer to "Making Basic Settings" on page 30.

Controls and Features (cont.)

Connector Panel



- Y/C (S video) input terminal (Mini DIN 4 pin)**
Connect this terminal to the S video output terminal of a video deck, etc.
* This terminal can be used if a video board (PK-G1101D) sold separately has been installed. The terminal was not provided when the projector was shipped from the factory.
- VIDEO (composite video) input terminal (BNC)**
Connect this terminal to the composite video output terminal of a video deck, etc.
* This terminal can be used if a video board (PK-G1101D) sold separately has been installed. The terminal was not provided when the projector was shipped from the factory.
- Y, Pb/B-Y, Pr/R-Y input terminals (BNC)**
These are input terminals for component (Y, B-Y, R-Y) signals or DTV-format (Y, Pb, Pr) signals.
Device with component signal output terminals, such as for NTSC and DTV-format, can be connected.
* For details about DTV-format signals (480i, 480p, 720p, 1080i) compatible with this unit, refer to page 66.

- REMOTE terminal (mini jack)**
This terminal is used to directly connect the remote control to the projector. Use the remote control cable supplied. An infrared remote control extension unit can also be connected to the jack.
- RS-232C terminal (D-sub 9 pin)**
This is a RS-232C interface-specified terminal. This projector can be controlled by a computer connected externally.
- RGB OUT (RGB output) terminal (D-sub 3-row 15 pin)**
The computer input signal projected on the screen is output. A display unit can be used by connecting it to this terminal.
- RGB IN (RGB input) -1 terminal (D-sub 3-row 15 pin)**
This is an input terminal (PC) dedicated for computer signals (RGB video signals and sync signals). Connect the display output terminal of the computer to this terminal. When a Macintosh or PC-9801/9802 series computer is to be connected, use a suitable conversion adapter separately available.

- RGB IN (RGB input) -2 terminal (BNC)**
These are input terminals for analog RGB signals, vertical sync (V) signals, and horizontal sync (H) signals / composite signals (Cs). Devices which have analog RGB signal output terminals can be connected.
* Input of external sync signals is automatically detected.
Detection of HV signals or Cs signals causes automatic switch to external sync. The priority order is HV > Cs.

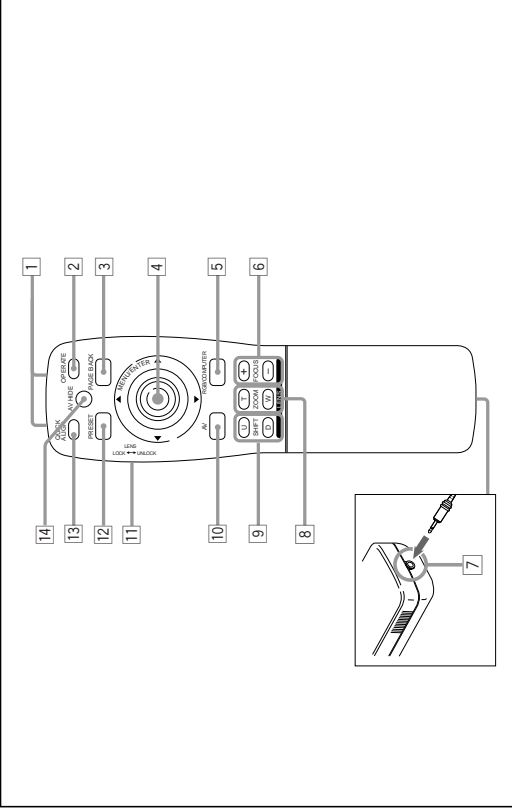
- CAUTION**
- When computer-related signals are input, the uppermost edge of the screen may appear bowing if the sync signal input is composite sync (Cs) or G on sync signal. In that case, use separate sync signals for vertical sync (V) and horizontal sync (H).
- CAUTION**
- When computer-related signals are input, the uppermost edge of the screen may appear bowing if the sync signal input is composite sync (Cs) or G on sync signal. In that case, use separate sync signals for vertical sync (V) and horizontal sync (H).

- RGB IN (RGB input) -1 terminal (D-sub 3-row 15 pin)**
This is an input terminal (PC) dedicated for computer signals (RGB video signals and sync signals). Connect the display output terminal of the computer to this terminal. When a Macintosh or PC-9801/9802 series computer is to be connected, use a suitable conversion adapter separately available.

- RGB IN (RGB input) -2 terminal (BNC)**
These are input terminals for analog RGB signals, vertical sync (V) signals, and horizontal sync (H) signals / composite signals (Cs). Devices which have analog RGB signal output terminals can be connected.
* Input of external sync signals is automatically detected.
Detection of HV signals or Cs signals causes automatic switch to external sync. The priority order is HV > Cs.

Controls and Features (Cont.)

Remote Control Unit



- Remote control's signal transmitter**
Use these buttons to adjust the focus of the projected picture.
+ : The focus point becomes more distant.
- : The focus point becomes nearer.
- OPERATE button**
To turn on or off the power, press this button for one or more seconds.
* About 30 seconds after the power has turned on, video image will appear on the screen.
- PAGE BACK button**
While no menu is displayed, pressing this button causes a direct channel to be displayed.

Memo

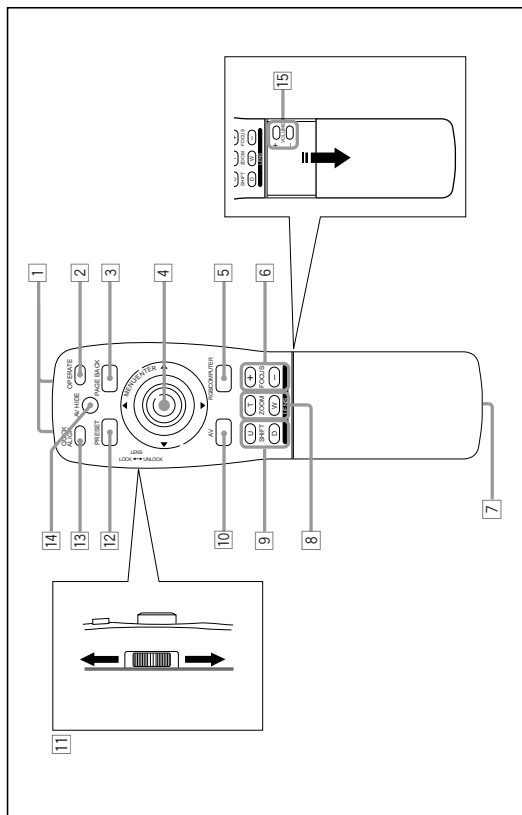
Direct channel display:
A direct channel display allows you to switch between channels which have lines and sources registered. For details, refer to "Switching channels using a direct channel" (page 52).

- MENU/ENTER button**
Use this button to display the main menu, or while the main menu is displayed, use the button to select an item to adjust or make adjustment. While the main menu is displayed, pressing MENU/ENTER displays a details setting (submenu) if the selected item has a details setting. For how to operate the buttons, see page 13.
- RGB / COMPUTER button**
Use this button to select the devices connected to the projector's RGB IN (RGB input) -1 and -2 input terminals. Each time you press the button, the selection changes as follows: RGB 1 → RGB 2
- SHIFT (UD) button**
Use these buttons to adjust the height of the projection screen when projectors are used in a stack configuration.
U: Moves the screen upwards.
D: Moves the screen downwards.

- FOCUS (+/-) button**
Use these buttons to adjust the focus of the projected picture.
+ : The focus point becomes more distant.
- : The focus point becomes nearer.
- REMOTE terminal**
Use a remote control cable to connect between the projector and the remote control. For details, refer to "Connecting to Devices which Control the Projector" on page 22.
- ZOOM (T/W) button**
Use these buttons to increase or decrease the screen size.
T: They can only be used when a zoom lens is used.
W: The screen size increases.

Controls and Features (Cont.)

Remote Control Unit



10 AV button

Use this button to select the devices such as a video connected to the projector's AV IN (EXT. input) terminal. Each time you press the button, the selection changes as follows:



* Y/C and VIDEO can be used only when a video board separately sold has been installed.

11 LENS LOCK ↔ UNLOCK switch

With this switch set at the LOCK position, adjustment operations (focus, zoom or shift) with the remote control are disabled, preventing adjustment contents from being inadvertently changed while the remote control is being used. When adjustment is needed, set the switch to the UNLOCK position.

12 PRESET button

While making adjustment on the main or setting menu, use this button to reset the setting of the selected item to the factory-set value. This button works only for numerical settings and does not work for switching ON to OFF.

13 QUICK ALIGN (Quick Alignment) button
Use this button to automatically adjust TRACKING, PHASE, H. POS. and V. POS. of the projected video. During the automatic adjustment, QUICK ALIGNMENT appears on the screen, and disappears after it is finished.

Memo

Quick alignment function:
Does not work for video input (EXT. IN input terminal) signals. Works only for computer-related (RGB-1 and 2 input terminals) signals.

CAUTION

* Automatic adjustment with the quick alignment function should be done on a bright still-picture screen. This function may not work correctly on a dark screen or motion-picture screen. If adjustment with this function is not satisfactory, adjust TRACKING, PHASE, H. POS. and V. POS. manually (see pages 30, 36 and 37).

14 AV HIDE button

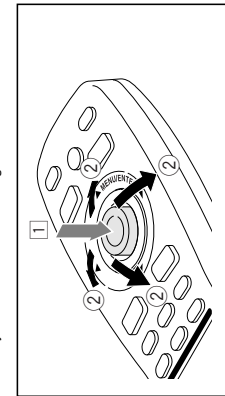
Use this button to turn off the video image temporarily. Pressing it again makes the video image to resume.

15 Not used with this projector

Controls and Features (cont.)

MENU / ENTER (Menu Operation) Button

The remote control supplied with this projector has only one button to navigate through the menus. Pressing the menu operation button too strongly may cause an incorrect operation. So, before you use the button in an actual situation, have some practice to make yourself familiar with using the button.



1 When using the MENU/ENTER button as a menu operation button :

Press the button down straight when displaying the main menu. While the main menu is displayed, if the selected item has a details setting (submenu), pressing the button will cause the submenu to be displayed.

2 When using the MENU/ENTER button as a cursor moving button:

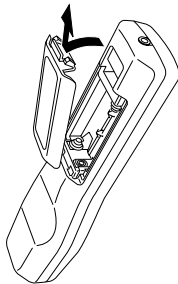
Press the button toward one of the ▲▼◀▶ marks. While the main menu is displayed, use the button to select an item to adjust or make adjustment.

Installing Batteries

Install batteries in the remote control. If the remote control has started to work erratically, replace the batteries.

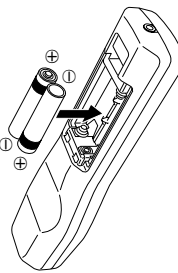
1 Open the back cover.

Open the back cover in the direction of the arrow.



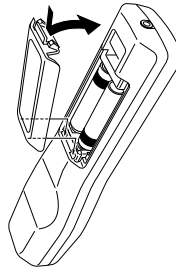
2 Install the batteries.

Place the two batteries (AA/R6-size) supplied in the remote control as illustrated below.



3 Close the back cover.

First fit the claw on the back cover into the case, then close the back cover in the direction of the arrow.



Precautions for using batteries
If batteries are used incorrectly, they may crack or leak liquid. This could cause a fire, burn, malfunction, or staining or damaging the surrounding.

- Beware of the following:
 - Do not mix new and old batteries.
 - Do not mix different types of batteries as they differ in characteristics.
 - Place batteries so they match the polarities indicated: (+) to (+) and (-) to (-).
 - Be sure to put the minus (-) end in first to avoid short-circuiting.
 - Use only designated batteries.
 - Remove the batteries if not used for a prolonged period of time.
 - When the batteries are exhausted, replace them immediately. Otherwise, liquid could leak, or malfunction could occur due to leaked liquids. If the leaked liquid contacts the skin, wipe it off with a cloth, otherwise the skin could become rough.
 - Do not put batteries into fire or try to recharge them.
 - Batteries run for six months to one year in normal use. But the batteries supplied are for confirming operation and may not run that long. When the remote control starts failing to work properly, replace the batteries with new ones.

Installing the Projector

Precautions for Installation

CAUTION

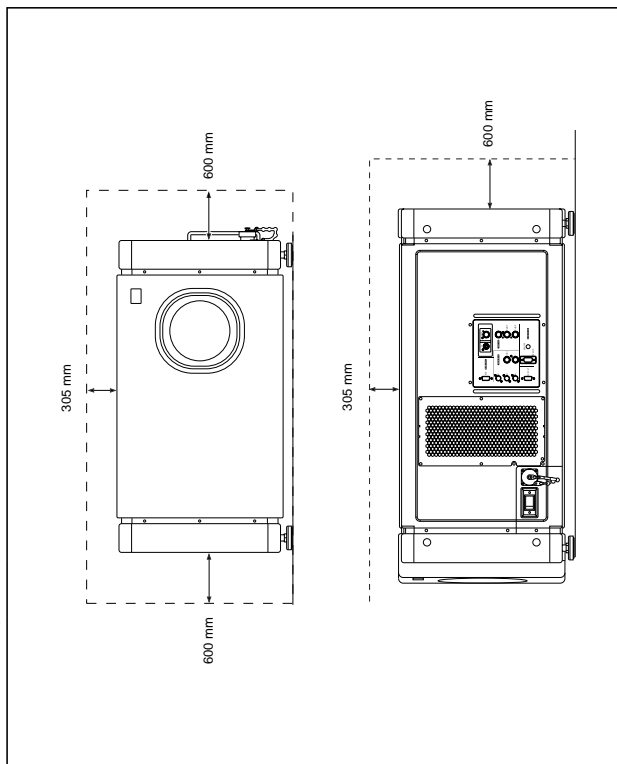
Do not install the projector in the following places :

- There is much water, humidity or dust.
 - The projector may be subjected to oil smoke or cigarette smoke.
 - On a soft surface such as a carpet or cushion.
 - The projector may be subjected to direct sunlight.
 - Temperature is high or humidity is low.
- Allowable operation temperature range: + 5°C to + 40°C
Allowable relative humidity range: 90% or less (no condensation)
Allowable storage temperature range: -5°C to +60°C

■ When installing the projector, observe the followings:

- Do not use the projector placed on its side. Avoid using the projector placed on its side. This could cause a malfunction.
- Use the projector within the installed angle. Avoid using the projector inclined $\pm 5^\circ$ or more right-to-left or left-to-right. This could cause color variation or harm the lamp life.
- Do not block the exhaust vents. Do not use a cover which encloses the projector air-tight or blocks the exhaust vents. Allow sufficient space around the projector. When the projector is enclosed in a space of the following dimensions, use an air conditioner so the temperature inside becomes equal to the outside temperature.

Allowable minimum space required

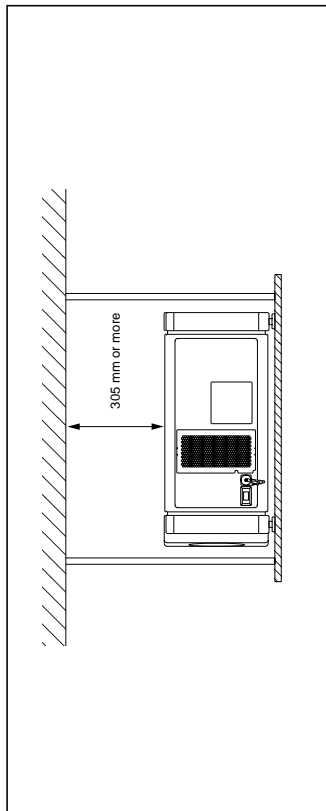


Installing the Projector (Cont.)

Precautions for Installation (Cont.)

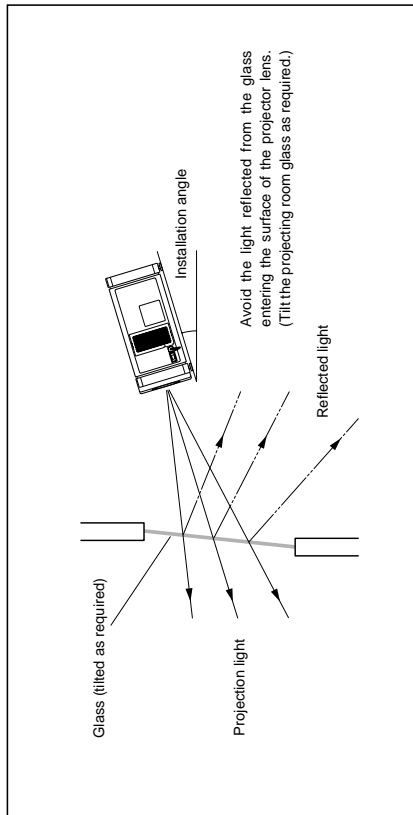
■ Observe the following points when installing the projector by hanging it from the ceiling

- To prevent falling or overturning, it is recommended that the projector be fixed to its stand with bolts.
- When mounting the projector to the ceiling, first install a special shelf and then set the projector on it securely. For safety and maintenance purposes, a suitable facility is necessary to easily lift and lower the projector from the shelf for maintenance access.



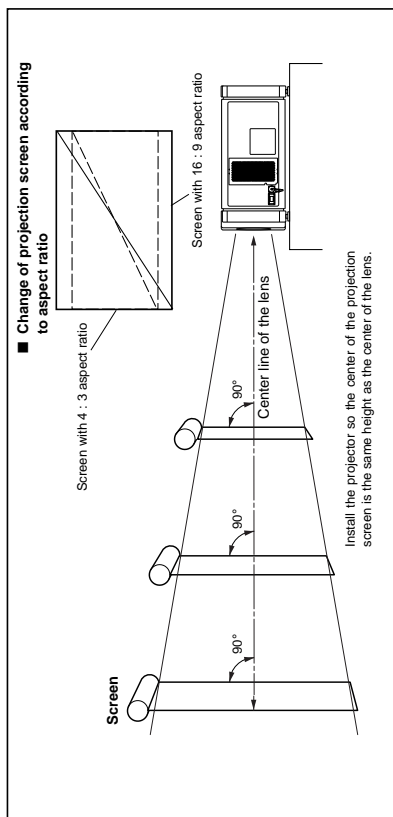
Relationship relative to Glass Surface

- Light energy decreases as it passes a glass. So, no more than one glass should be used in the projecting room.
- Avoid using panes of glass as much as possible.
- Pay attention to the angle of the glass and the installed angle of the projector so that the light emitted from the projector does not come back into the lens after reflection.



Installing the Projector (Cont.)

Lens Shift Function



The separately sold lenses used on the projector have a lens shift function. With the lens used, you can adjust the projected image vertically using the setting menu or the remote controls SHIFT button U or D.

When using the projectors in a stack configuration (stacked one over another), make adjustment so that the picture of one projector overlaps exactly that of another using the lens shift function.

For detailed adjustment procedures, refer to "Operating the Setting Menu" (page 17) and "Maximum Amount of Shift" (page 17).

(When the lens needs to be adjusted in horizontal angles, consult your dealer or service center.)

Note

- Some of the lenses (except GL-M4023SZ and GL-M4016S) to be introduced in the future may not feature the lens shift function.

Memo

Stack configuration:
Up to four projectors can be stacked and used together (stack configuration).
Using two or more projectors together, high image brightness can be attained. This allows you to project sufficiently bright image in a fairly large auditorium or relatively bright place without using a heavy-duty projector.

CAUTION

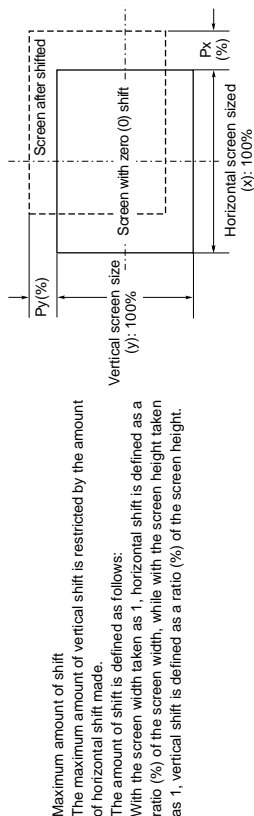
To prevent damage to the projector during shipment, a shift center lock pin was used to fix the lens mechanism when the projector was shipped out of the factory. If you implement "SHIFT LENS" on the setting menu and the lens does not either move up or down, the shift center lock pin may not have been removed. Consult your dealer or service center.

CAUTIONS and NOTES

- When installing the screen, use a 4 : 3 aspect ratio picture.
- (A 16 : 9 aspect ratio picture is projected based on the width of the range in which a 4 : 3 aspect ratio picture is projected.)
- The diagonal length of a 16 : 9 aspect ratio picture is about 91.8% that of a 4 : 3 aspect ratio picture. This value is a guide and should be used as a reference.
- When projecting at the maximum projection distance, we recommend that the projector be used with the zoom on the Tele (T).
- If sunlight or lamp light strikes the projection screen directly, the picture becomes whitish and dim. Be sure to use a curtain, etc. to shield the light.
- Trapezoidal distortion may not be corrected.
- Adjust the projector within the range of angle adjustment (up/down adjustment angle: +4°; horizontal adjustment angle: ±5°) so that it is set up level.

Installing the Projector (Cont.)

Lens Shift Function (Cont.)



Relational table for maximum shift amounts (aspect ratio 4 : 3)

Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)
0.000	31.968	10.000	28.102	20.000	23.272	30.000	17.268
1.000	31.621	11.000	27.666	21.000	22.729	31.000	16.592
2.000	31.265	12.000	27.219	22.000	22.173	32.000	15.900
3.000	30.901	13.000	26.762	23.000	21.606	33.000	15.192
4.000	30.528	14.000	26.295	24.000	21.026	34.000	14.467
5.000	30.146	15.000	25.818	25.000	20.434	35.000	13.725
6.000	29.756	16.000	25.331	26.000	19.828	36.000	12.966
7.000	29.356	17.000	24.833	27.000	19.209	37.000	12.189
8.000	28.948	18.000	24.324	28.000	18.577	38.000	11.392
9.000	28.530	19.000	23.803	29.000	17.930	39.000	10.576
						40.000	9.739
						41.000	8.881
						42.000	8.000
						43.000	7.096
						44.000	6.167
						45.000	5.213
						46.000	4.231
						47.000	3.221
						48.000	2.180
						49.000	1.107
						50.000	0.000

Relational table for maximum shift amounts (aspect ratio 16 : 9)

Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)
0.000	31.968	10.000	26.609	20.000	19.421	30.000	9.747
1.000	31.503	11.000	25.960	21.000	18.581	31.000	8.599
2.000	31.234	12.000	25.333	22.000	17.716	32.000	7.410
3.000	31.528	13.000	24.666	23.000	16.824	33.000	6.178
4.000	30.018	14.000	23.960	24.000	15.905	34.000	4.900
5.000	29.491	15.000	23.274	25.000	14.958	35.000	3.573
6.000	28.949	16.000	22.548	26.000	13.981	36.000	2.193
7.000	28.389	17.000	21.800	27.000	12.973	37.000	0.756
8.000	27.813	18.000	21.030	28.000	11.933	37.509	0.001
9.000	27.220	19.000	20.237	29.000	10.858		

Connecting to Various Devices

- Before connection, be sure to turn off the projector and connected devices.
- Read the manual which comes with each device thoroughly.

Signals that Can Be Input to the Projector

The following signals can be input to the projector.

Video signals

(1) Response to color systems

Input terminal	Color system	NTSC 480i	NTSC4.43	PAL	SECAM
VIDEO ³		○	○	○	○
Y/C ³		○	○ ¹	○	○
Y, P _B /B-Y, P _R /R-Y		○ ²	○ ²	○ ²	○ ²
G, B, R, H/Cs, V		○ ²	○ ²	○ ²	○ ²

- *¹: Responds if Y/C output is available.
- *²: Signifies that component signals (Y, P_B, P_R, B-Y, R-Y, G, B, R, H/Cs, V) conform to the signal timing (synchronization and video period) of each color system. The color systems are used for convenience only.
- *³: To use these terminals, a video board (separately sold) is required.

(2) Response to double density (*1), high-vision signals

Input terminal	NTSC ²	PAL ³	High-vision signal
Y, P _B /B-Y, P _R /R-Y	○	○	○
G, B, R, H/Cs, V	○	○	○

- *¹: Signals whose density of scanning lines/field is twice as high.
- *²: Responds to signals whose horizontal scanning frequency is 31.5 kHz. NTSC can be made twice as dense by a line doubler (separately available: recommended article). Also, possible to respond to fully-specified, decoded 525P progressive signals.
- *³: Responds to signals whose horizontal scanning frequency is 33.5 kHz. PAL can be made twice as dense by a line doubler (separately available: recommended article).

Computer signals

- Signals with the following resolutions can be input to the input terminal of RGB IN-1 (PC) or RGB IN-2 (G, B, R, H/Cs, V). (The following signals are preset.)

Screen resolution (standard name)	Horizontal frequency	Vertical frequency	Scanning method
640 × 400 (PC-9801)	24.8kHz	56.4Hz	Non-interface
640 × 350 (VGA1)	31.5kHz	70.1Hz	Non-interface
640 × 480 (VGA3)	31.5kHz	59.9Hz	Non-interface
640 × 480 (Macintosh 13 ¹)	35.0kHz	66.7Hz	Non-interface
640 × 480 (VGA VESA)	37.5kHz	75.0Hz	Non-interface
800 × 600 (SVGA1)	37.9kHz	60.3Hz	Non-interface
800 × 600 (SVGA2)	48.1kHz	72.2Hz	Non-interface
832 × 624 (Macintosh 16 ¹)	49.7kHz	74.6Hz	Non-interface
1024 × 768 (XGA1)	48.4kHz	60.0Hz	Non-interface
1024 × 768 (XGA2)	56.5kHz	70.1Hz	Non-interface
1024 × 768 (Macintosh 19 ¹)	60.2kHz	74.9Hz	Non-interface
1152 × 870 (Macintosh 21 ¹)	68.7kHz	75.0Hz	Non-interface
1280 × 1024 (SXGA1)	64.0kHz	60.0Hz	Non-interface
1280 × 1024 (SXGA2)	70.8kHz	67.0Hz	Non-interface
1360 × 1024 (SXGA3: Mac Board)	80.0kHz	75.1Hz	Non-interface

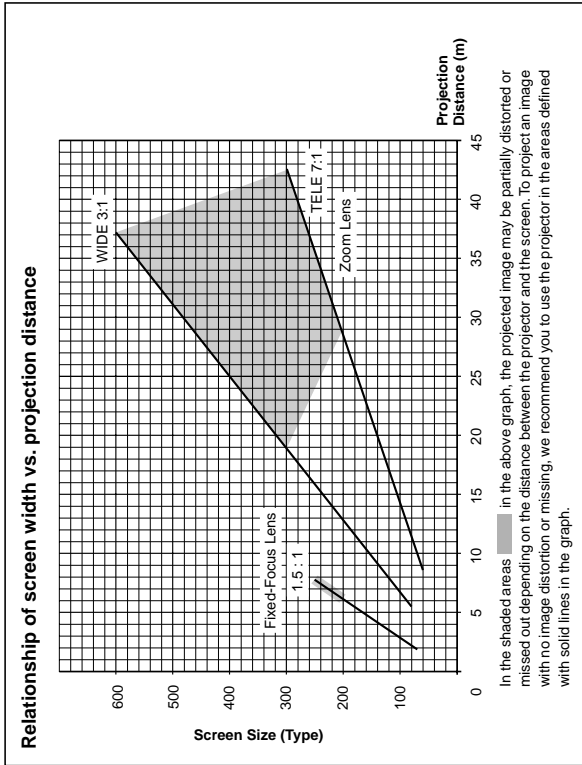
Notes

- Interface signals are not handled.
- Some signals other than listed above can be displayed. But they require adjustment. Even some of the signals listed above may require adjustment depending on the video board used.
- When a signal other than listed above is input, the screen could be partially erased or an unneeded fold-over screen could appear.
- Even signals in the frequency range that can be input may not be displayed normally depending on the type of the signal.
- Composite sync.(Cs) and G on sync. signals can not be handled depending on the devices connected.

Installing the Projector (Cont.)

Projection Distances and Screen Sizes

Lenses that can be used are a 3.1 : 1 zoom lens and a 1.5 : 1 fixed-focus lens. With a zoom lens used, you have a wider latitude in selecting projection distance and installation space than with a fixed lens. For how to install the lens, consult the dealer who installed and adjusted your projector or service center.



In the shaded areas in the above graph, the projected image may be partially distorted or missed out depending on the distance between the projector and the screen. To project an image with no image distortion or missing, we recommend you to use the projector in the areas defined with solid lines in the graph.

Adjustable range of the lens

Lens	Screen Size (Type)	Projection Distance (m)	Remarks
GL-M4023SZ zoom lens	80 - 300 (80 - 600)	5.06 - 18.65 (5.06 - 37.19)	3:1 wide
	60 - 200 (60 - 300)	8.65 - 28.56 (8.65 - 42.79)	7:1 tele
GL-M4015S fixed-focus lens	69 - 208 (65 - 250)	2.09 - 6.50 (1.97 - 7.83)	————

The numbers in () represent the minimum to maximum adjustable range.