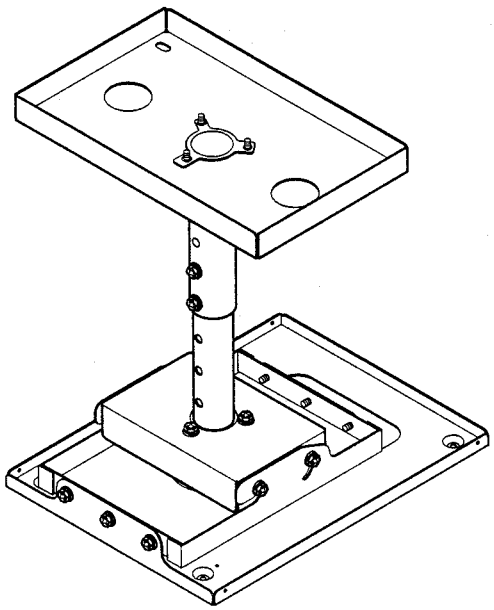
Panasonic

Ceiling Mount Bracket for LCD Projectors (for High Ceilings)

Installation Guide

Model No. ET-PKL6500



Contents

Thank you for choosing the ET-PKL6500 ceiling mount bracket for Panasonic LCD Projectors.

■ Only a qualified installer should install this product.

Read these instructions completely before installing this unit.

TQZH 275

Dear Panasonic Customer:

This instruction booklet provides all the necessary operating information that you might require. We hope it will help you to get the most performance out of your new product, and that you will be pleased with your Panasonic Ceiling Mount Bracket.
The serial number of your product may be found on its back. You should note it in the space provided below and retain this booklet in case service is required.

Model number: **ET-PKL6500**

Serial number:

Precautions with regard to safety

WARNING

Installation and setting-up work should only be carried out by a qualified installer.

- Be sure to ask a qualified installer to set up this unit because of the need to maintain installation precision and safety.

Do not install in a place which is not strong enough.

- Set the unit up in a place where there will be no problems with the weight of the projector. If the strength of the setting-up location is deemed to be insufficient, add an appropriate amount of reinforcing.

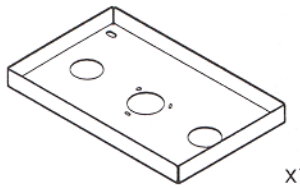
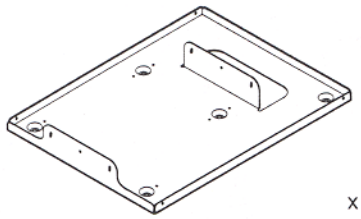
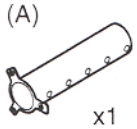
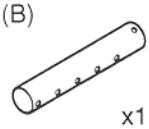
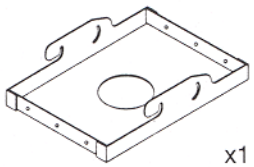
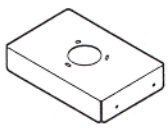
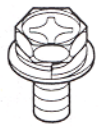
Caution

Setting-up and installation should be carried out by two or more people.

PARTS LIST

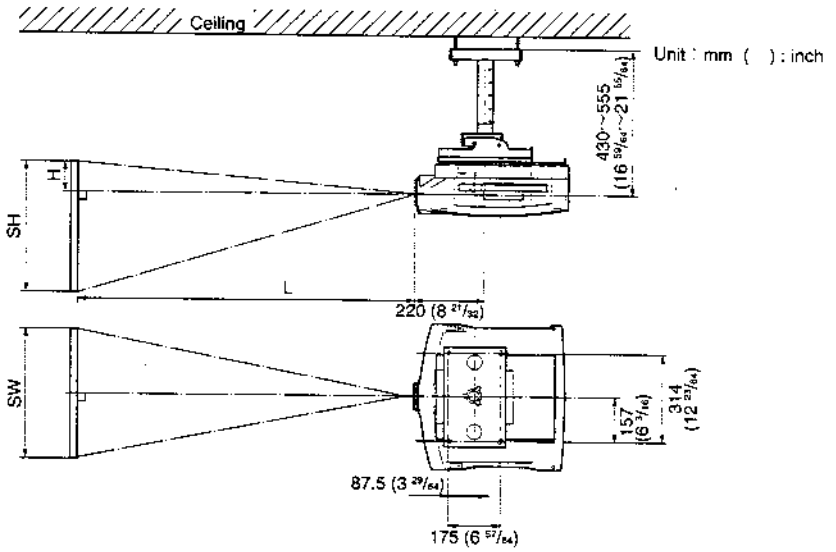
The following is a list of parts and their descriptions for the LCD Projector Ceiling Mount Bracket for High Ceilings.

Parts List

Item	Illustration	Purpose
Ceiling base	 x1	The ceiling base is attached to the ceiling via 4 ceiling mount bolts. Installation methods are different for concrete and wooden ceilings.
Projector mounting bracket	 x 1	The projector mounting bracket directly holds the projector while allowing rotational adjustment.
Adjustable poles	(A)  x1 (B)  x1	The adjustable poles are used between the ceiling base and projector mounting bracket to suspend the projector while allowing coarse vertical positioning.
Adjustable bracket	 x1	The adjustable bracket is attached the projector mounting bracket. Pole base to allow tilt adjustment.
Pole brace	 x1	The pole brace is attached to adjustable pole (B).
Pole base	 x1	The pole base is attached to the pole brace.
Safety stops	 x 2	The safety stops prevent the projector from separating from the bracket.
Screws and bolts	Screw, captive washer (M4 x 8) x 4  Hex-head bolt, captive washer (M6 x 12) x 30 	Used to secure base and brackets to the projector.

PROJECTION DISTANCE

The following is a table of projection distances in relation to picture and screen sizes. Projection distance is adjustable with the projector's zoom lens. The projector's adjustable lens mechanism allows for vertical image positioning (from the lens center of projector to the bottom of the picture height). Try fine adjustment while viewing pictures on the screen.



Projection distance vs. Picture size (PT-L6500U/PT-L6600U)

Unit : m ( ) : inch [ ] : foot

Screen Size (4 : 3)			Projection distance: L		Height Position : H
Diagonal length	Height (SH)	Width (SW)	Wide (LW)	Telephoto (LT)	
0.76 (30")	0.46 [1'6"]	0.61 [2']	–	1.4 [4'7"]	0.22 (8 21/32)
1.02 (40")	0.61 [2']	0.81 [2'8"]	1.4 [4'7"]	1.9 [6'2"]	0.30 (11 13/16)
1.27 (50")	0.76 [2'6"]	1.02 [3'4"]	1.8 [5'11"]	2.4 [7'11"]	0.38 (14 61/64)
1.52 (60")	0.91 [3']	1.22 [4']	2.1 [6'11"]	2.9 [9'6"]	0.45 (17 23/32)
2.03 (80")	1.22 [4']	1.63 [5'4"]	2.9 [9'6"]	3.9 [12'10"]	0.60 (23 10/16)
2.54 (100")	1.52 [5']	2.03 [6'8"]	3.6 [11'10"]	4.9 [16'8"]	0.76 (29 59/64)
3.05 (120")	1.83 [6']	2.44 [8']	4.3 [14'1"]	5.9 [19'5"]	0.91 (35 53/64)
3.56 (140")	2.13 [7']	2.84 [9'4"]	5.1 [16'8"]	6.9 [22'7"]	1.06 (41 47/64)
4.06 (160")	2.44 [8']	3.25 [10'8"]	5.8 [19']	7.9 [25'11"]	1.21 (47 41/64)
4.57 (180")	2.75 [9']	3.66 [12']	6.6 [21'8"]	8.9 [29'2"]	1.37 (53 15/16)
5.08 (200")	3.05 [10']	4.06 [13'4"]	7.3 [24']	9.9 [32'6"]	1.52 (59 27/32)
5.51 (220")	3.35 [11']	4.47 [14'8"]	8.1 [24'7"]	10.9 [35'10"]	1.67 (65 3/ 4)
6.10 (240")	3.66 [12']	4.88 [16']	8.8 [28'11"]	11.9 [39']	1.82 (71 21/32)
6.60 (260")	3.96 [13']	5.28 [17'4"]	9.5 [31'2"]	12.9 [42'4"]	1.98 (77 61/64)
7.11 (280")	4.27 [14']	5.69 [18'8"]	10.3 [33'10"]	13.9 [45'7"]	2.13 (83 55/64)
7.62 (300")	4.57 [15']	6.10 [20']	11.0 [36'1"]	14.9 [48'11"]	2.28 (89 49/64)

Setting-up dimensions which are not given in the above table can be calculated using the formulas below.
If the screen size (diagonal) is SD, then the following formulas is first used to obtain the screen width (SW).

SW = (SD x 0.0254) x 4 ÷ 5 (SD unit is inches)

The value for SW obtained above can then be used with the following function to calculate the projection distance for the wide lens position (LW) and the projection distance for the telephoto lens position (LT).

LW = 1.831 x SW - 0.071 , LW = 2.449 x SW - 0.066

For 16 : 9 aspect rations, the following formal can be used to calculate the screen width (SW).

SW = (SD x 0.0254) x 16 ÷ $\sqrt{327}$

Note

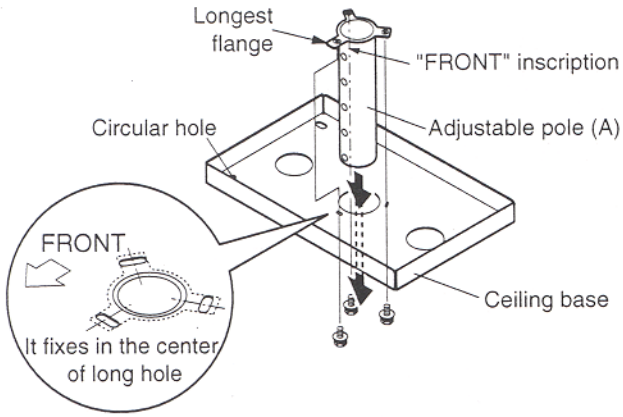
- The dimensions in the table above and the values obtained from the above formulas may contain slight errors.

INSTALLATION

1. Preparing the ceiling base

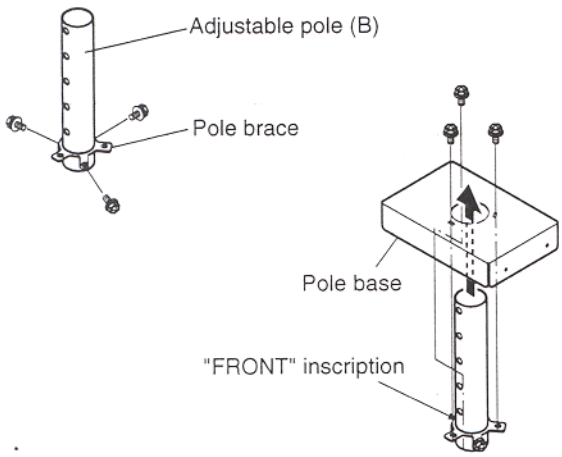
Before installing the ceiling base on the ceiling, attach the adjustable pole (A), pole brace, and pole base to the ceiling base.

Attaching the adjustable pole (A) to the ceiling base.



(1) Insert adjustable pole (A) into the center hole in the ceiling base.
(2) Rotate adjustable pole (A) until the longest flange (and "FRONT" inscription) faces the side with the round bolt hole.
(3) Secure adjustable pole (A) to the ceiling base with 3 hex-head bolts (M6 x 12) such that the pole flanges are each retained in the center of the oval bolt holes.

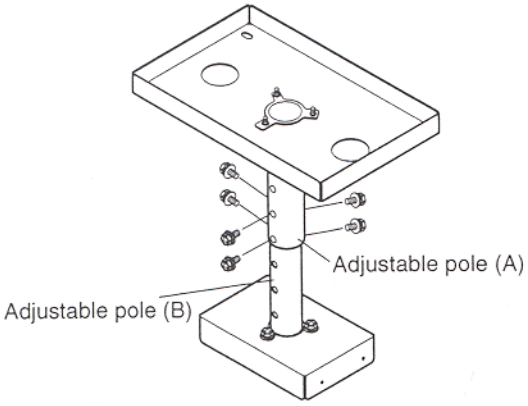
Attaching the pole base and pole brace to adjustable pole (B)



(1) Secure the pole brace to the adjustable pole (B) with 3 hex-head bolts (M6 × 12).

(2) Insert adjustable pole (B) into the center hole of the pole brace and secure it with 3 hex-head bolts (M6 × 12).

Joining adjustable poles (A) and (B)



Insert adjustable pole (B) into adjustable pole (A), align the holes and secure the two poles with 6 hex-head bolts (M6 × 12).

- Align the "FRONT" inscription on adjustable pole (B) with that on adjustable pole (A).

Note

- Adjustable screw holes are provided in both adjustable poles (A) and (B) at spacings of 40-mm. Join the poles to each other using the adjustable screw holes determined from the projection distance table on the previous page.

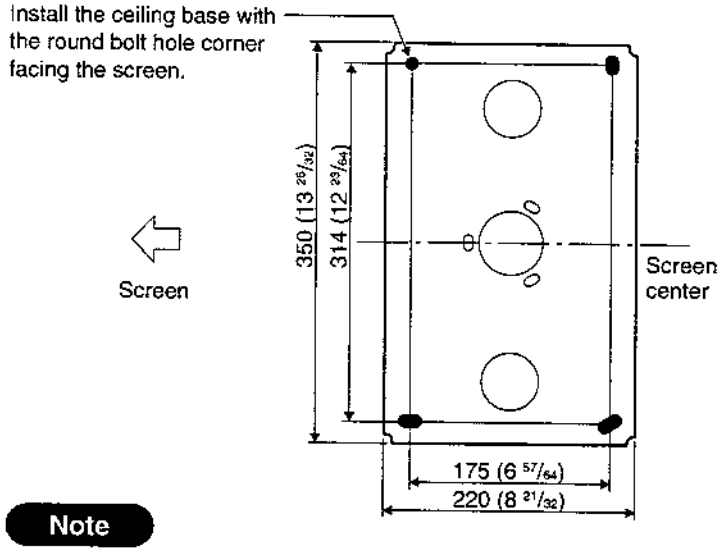
2. Installing the ceiling base on the ceiling

By referring to the projection distance table on page 4, position the LCD projector while taking into account the ceiling height, the size of the room, and the ceiling structure.

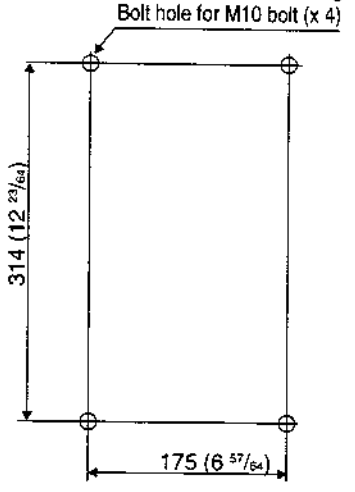
Ceiling base bolt hole geometry and drilling the holes.

Drill ceiling mount bolt holes in the ceiling by referring to the following figures:

<Bolt holes in ceiling base>



<Bolt hole size and relative positioning>



Unit: mm ( ): inch

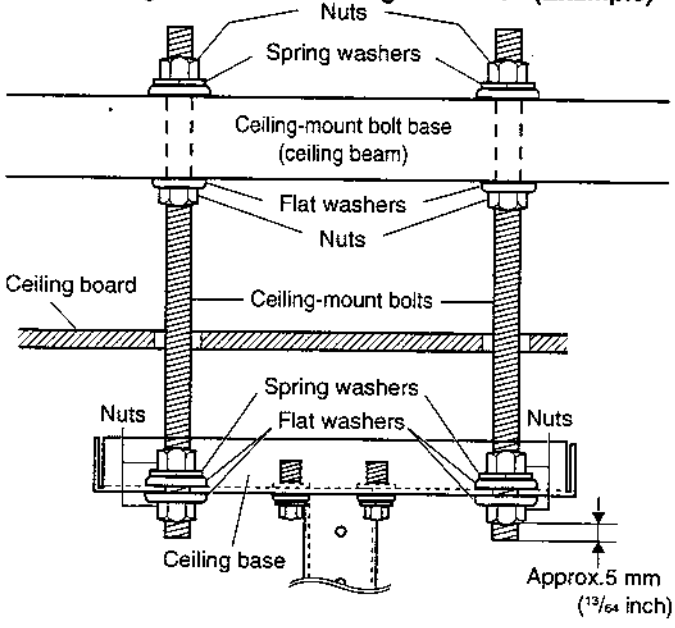
Note

- When installing the ceiling base on a concrete ceiling structure, match the size of the bolt holes in the ceiling base with that of the anchor nuts. (The nut of maker specification size is used.)
- Use commrecially-available ceiling-mount bolts, nuts, flat washers, spring washers and embedding-nuts.

Installing the ceiling base

Depending on whether it is installed on a concrete or wooden ceiling structure, there are two different installation methods as described below:

<Installing to a wooden ceiling structure> (Example)

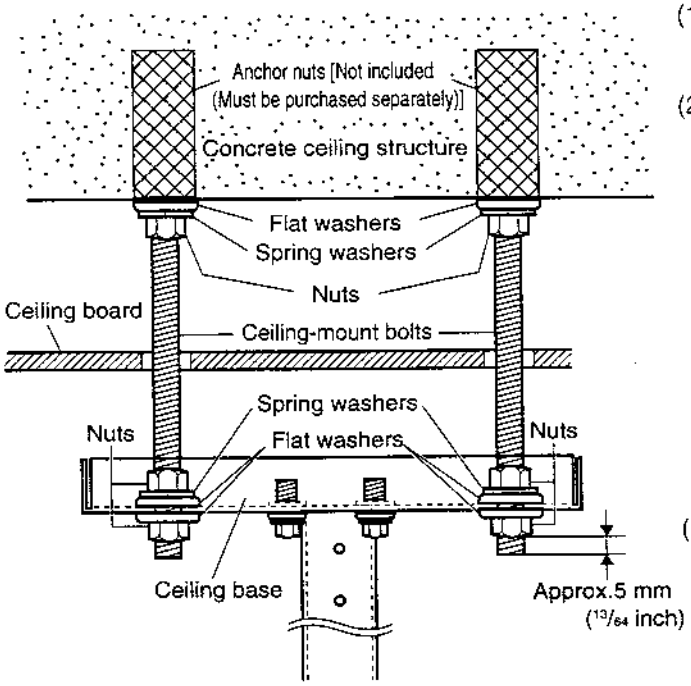


(1) Drill four bolt through-holes in the ceiling board, with their sizes equal to that of the ceiling-mount bolt holes drilled in the Ceiling base (see the figure above).

(2) Securing the ceiling-mount bolt:
Check to make sure that the ceiling-mount bolt base, often the ceiling beam, is strong enough to easily bear the whole weight of the projector. If not, use reinforcement sufficient to clear the prescribed safety margin.

(3) Locate the centers of the oval bolt holes in the ceiling base and tighten the nuts while in those centers.(It will be permanently secured after page 9 horizontal picture skew adjustment)
The threaded end of each ceiling-mount bolt should protrude by approx. 5 mm from the bottom surface of the retention nuts. Be sure to use flat and spring washers on every nut.

<Installing to a concrete ceiling structure> (Example)



(1) Drill 4 bolt through-holes in the ceiling board, with their sizes equal to that of the ceiling-mount bolt holes drilled in the ceiling base (see page 5).

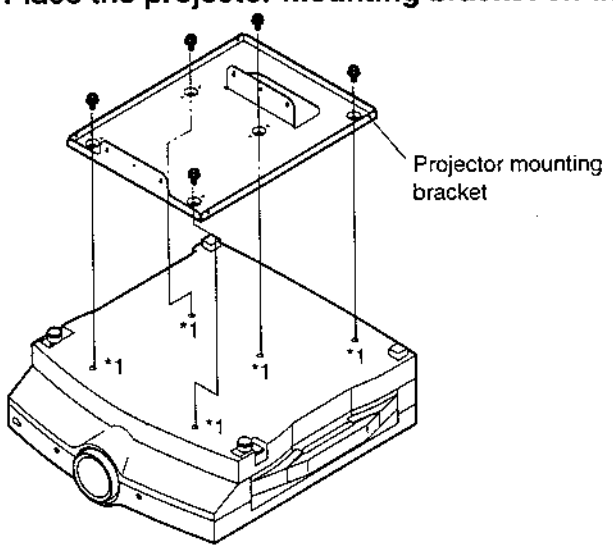
(2) Hammer anchor nuts into the concrete ceiling structure and screw the ceiling-mount bolts into the nuts.

- When installing anchor nuts, strictly adhere to the installation instructions supplied by the manufacturer of the nuts, so they will not loosen in the concrete structure or be dislodged from the intended positions.
- Check to make sure that the concrete ceiling structure can easily bear the whole weight of the projector. If it is found to be fragile or degraded, use steel or wooden reinforcements.
  Check to make sure that the ceiling-mount bolt base, often the ceiling beam, is strong enough to easily bear the whole weight of the projector. If not, use reinforcement sufficient to clear the prescribed safety margin.

(3) Temporarily secure the ceiling base to the ceiling-mount bolts (it will be permanently secured after page 9 horizontal picture skew adjustment).
The threaded end of each ceiling-mount bolt should protrude by approx. 5 mm from the bottom surface of the retention nuts. Be sure to use flat and spring washers for every nut.

3. Installing the projector mounting bracket on the projector

Place the projector mounting bracket on the projector.

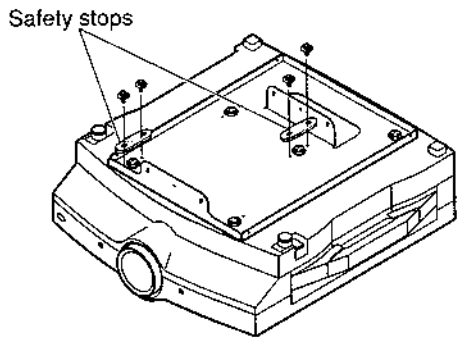


(1) Place the projector on an appropriate cushioning material with its bottom side facing up.
*1 Remote the five washer pan screws (M6 x 10) from the button of projector.

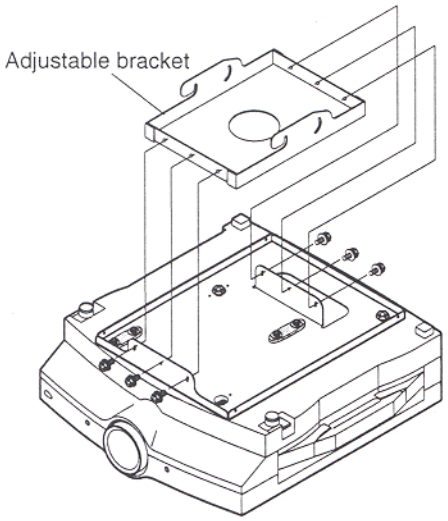
Note

- The removed five screws carefully kept in order to use normal set up from ceiling set up.

(2) Secure the projector mounting bracket to the bottom of the projector using 5 hex-head bolts (M6 x 12), as shown in the diagram on the left.

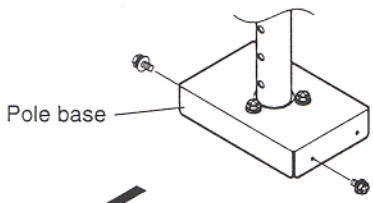


(3) Attach the two safety stops to the bracket using 4 screws (M4 x 8).

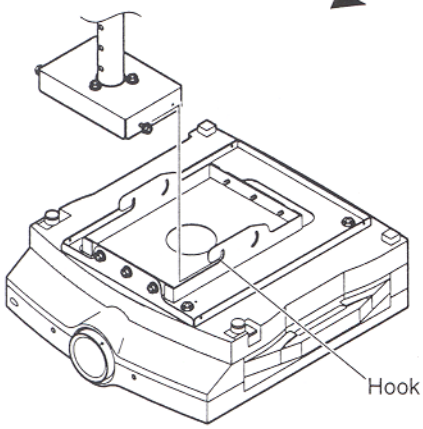


(4) Secure the adjustable bracket to the projector mounting bracket with 6 hex head bolts (M6 × 12).

4. Installing the projector on the ceiling



(1) Screw 2 hex-head bolts (M6 × 12) half way into two opposite side bolt holes in the pole base, on the forward side nearest the screen.

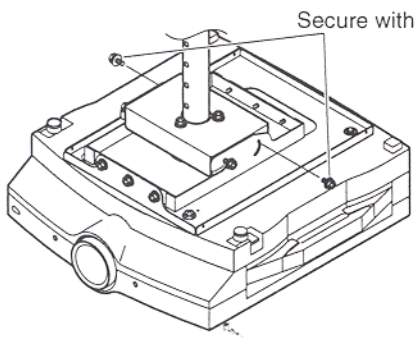


(2) Install the projector on the pole base by fitting the adjustable hook part of the adjustable bracket over the hex head bolts just installed in step (1) above.

- Hold the projector firmly until the hex-head bolts are securely tightened in the hook part of the adjustable bracket.

Warning

These steps must be carried out by 2 persons.

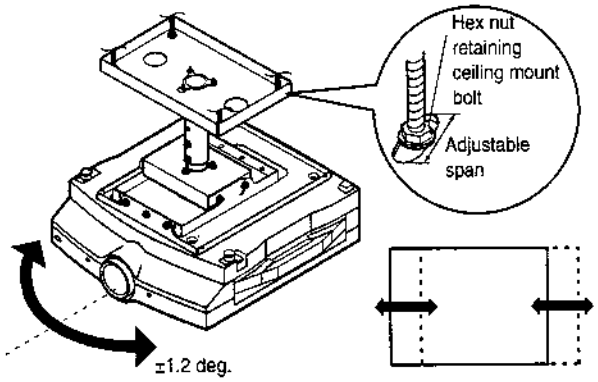


(3) Using 2 hex-head bolts (M6 × 12), secure the adjustable bracket to the pole base as illustrated on the left.

ADJUSTING THE OVERALL PROJECTOR ANGLE

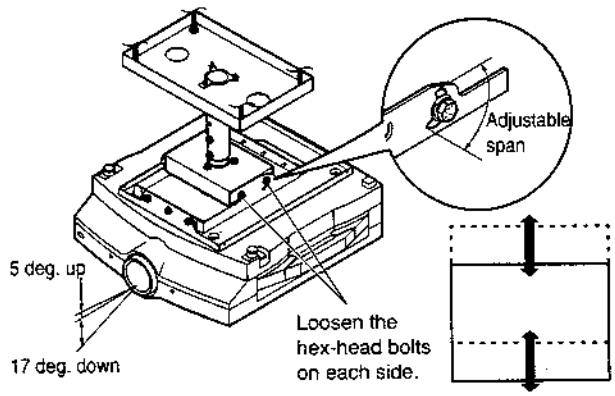
- The ceiling base allows the installer to correct vertical or horizontal skew or rotation of pictures. It should be adjusted so that the lens axis is perpendicular to the screen surface.
- Before making the following adjustments, first temporary adjust the picture size with the zoom lens, then the focus with the focus ring, and then proceed with the projector angle adjustment. (For more details of picture size and focus adjustment, read the user's manual supplied with the projector.)

Correcting Horizontal Picture Skew



(1) Loosen the 4 hex nuts retaining the ceiling base to the top ceiling-mount bolts, then swivel the projector head horizontally until the picture is centered on the screen.
(2) Retighten the 4 hex nuts.

Correcting Vertical Picture Skew

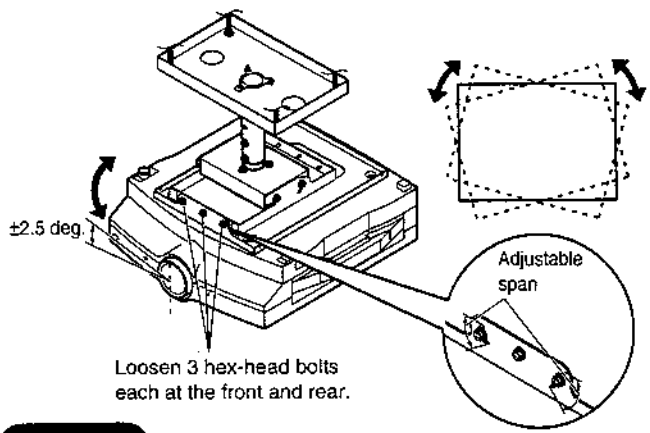


Note

- Do not loosen the hex nuts that retain the adjustable base to the pole base as the projector may fall off the pole base.

(1) Loosen the two hex-head bolts (one on each side) that attach the adjustable base to the pole base, then tilt the projector until the picture is centered on the screen.
(2) Retighten the hex-head bolts.

Correcting Rotation



Note

- Do not loosen the hex nuts that attach the adjustable base to the projector mounting bracket as the projector may fall off the adjustable base.

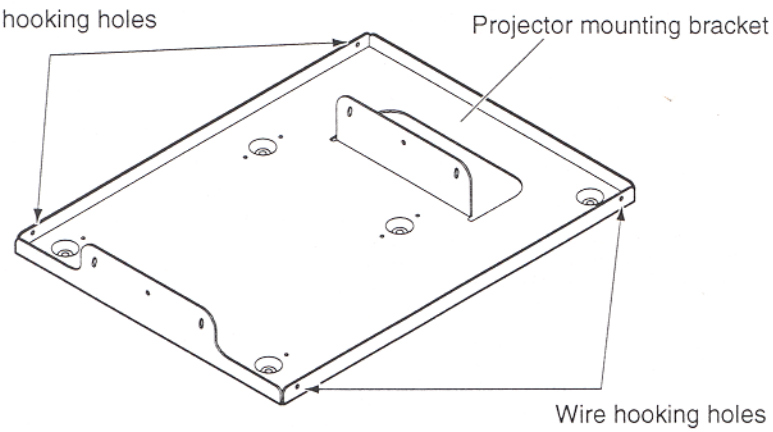
(1) Loosen the 3 hex-head bolts each at the front and rear that attach the adjustable base to the projector mounting bracket, and then rotate the projector around its optical axis until the picture edges are aligned with the screen frame.
(2) Retighten the 3 hex-head bolts each at the front and rear.

Note

- If the picture still suffers from trapezoidal distortion after all of the above adjustment steps, the projector requires elevation angle adjustment. See "PROJECTION DISTANCE" on page 4.

Installation of anti-vibration wires

It is recommended that you connect wires between the ceiling mount bracket and the ceiling leading out in four directions in order to prevent the projector from vibrating and to help in preventing it from falling down.(Use commrecially available wires.)



SPECIFICATIONS

Adjustable span	Height (adjustable)	430~555 mm (16 50/64"~21 55/64")
	Height (lens center to ceiling)	5 deg. upward, 17 deg. downward
	Tilt angle	± 2.5 deg.
Pan angle		± 1.2 deg.
Outer dimensions (H x W x D)		340~465 mm x 350 mm x 407.5 mm (13 25/64"~18 5/16" x 13 25/32" x 16 3/64")
Weight		6.9 Kg (15.2 lbs)

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