

Wall mount unit for LCD projectors

Model name **HAS-WM05**

## User's Manual

Thank you for purchasing a wall mount unit specially designed for Hitachi LCD projectors. Be sure to read this manual and the User's Manual supplied with the LCD projector before use so you will know how to install it properly. After you have finished reading these documents, put them away in a safe place for future reference.

**Disclaimer**



- The content of this manual and the specifications of the product it describes are subject to change without prior notice.
- Note that Hitachi will accept no liability whatsoever for injuries and damages arising from incorrect use or handling that exceeds normal operating limits.

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### Safety Symbols

The following symbols are used in this manual to help you use this product safely and correctly, and to prevent injury to yourself and others or damage to property. Read through the safety instructions below so you can operate the product correctly.

 <b>WARNING</b>	This symbol indicates information that, if ignored, could result in serious personal injury or even death due to incorrect handling.
 <b>CAUTION</b>	This symbol indicates information that, if ignored, could result in personal injury or physical damage due to incorrect handling.



**Indicates a prohibited action.**

This symbol is accompanied by text indicating an action that must not be taken.



**Indicates a mandatory action.**

This symbol is accompanied by text indicating an action that must be taken.

## Overview

This product is designed to mount a Hitachi LCD projector on a wall.

## Installation Precautions

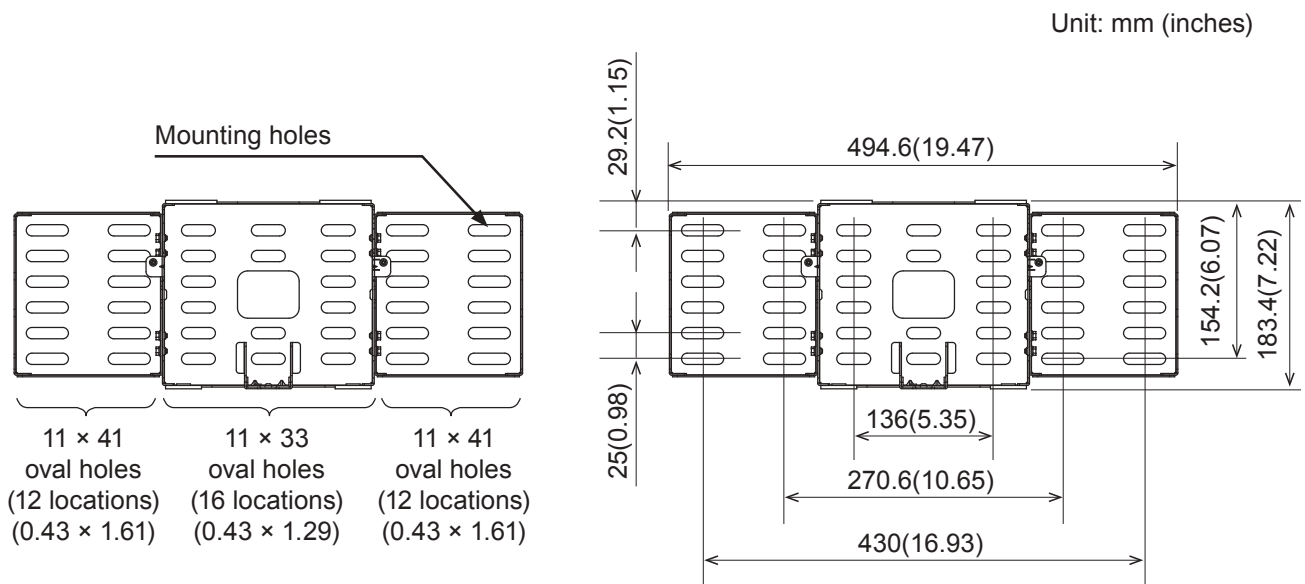
Installation of this product requires special technical skills. Ask your dealer or service center (for details, see the User's Manual supplied with the LCD projector) to handle the installation work.

### Be sure to observe the following instructions when installing an LCD projector.

1. Considerable care is required in planning and performing the installation so that it will support the weight of the LCD projector and wall mount unit. Refer to the table listing applicable models.
2. If the temperature inside the LCD projector gets too high, the temperature sensor will activate and turn off the projector to prevent damage. Do the following to avoid an abnormally high temperature.
  - (1) Use the projector within the operating temperature range shown in the User's Manual.
  - (2) Periodically clean the projector's air intake filter. For details on how often and how to clean the filter, see the LCD Projector User's Manual.
  - (3) In a dusty location, the filter will need more frequent cleaning than in (2) above so install the projector in a location where cleaning is easy.
  - (4) Leave 30 cm or more space on the sides of the LCD projector to allow the free flow of air from the exhaust and leave 10 mm or more space at the back of the projector to enable air to enter via the air intake.
  - (5) Do not install the projector in a location exposed to sudden temperature changes, for example near air conditioners, or where the temperature rises above 40°C.
3. Do not install the projector in a smoke-filled or extremely dusty environment as the tar in cigarette smoke will settle on the optics and lower performance.
4. Do not install the projector in a location where the remote control sensor will be exposed to direct sunlight, other strong light sources or inverter fluorescent lamp light at close range to prevent remote control malfunction.

## Tools needed for installation

- Have at least eight M8 anchor bolts on hand for attaching the wall-mount fixture to the wall. The fixture has 24 elongated 11mm x 41mm (0.43 x 1.61-inch) holes and 16 elongated 11mm x 33mm (0.43 x 1.61-inch) holes. The pull-out strength required of the bolts is at least 2,000N per bolt, so determine the appropriate length of bolts for the strength and thickness of the wall surface in order to meet this standard, and if necessary, increase the number of bolts.



 **WARNING**
**To the customer**

- Do not attempt to install the projector yourself. Have your dealer or service center handle all installation work. Note that Hitachi will accept no liability whatsoever for accidents or injuries resulting from an incorrect installation or improper use.



- Make sure that the projector is installed high enough so that there is no risk of people bumping their heads. If a sufficiently high installation cannot be made, be sure to take the necessary precautions when the projector is used.



- Do not hang on the LCD projector or the arm after installation as this could cause the LCD projector to fall down or bend the arm resulting in injury or damage.



- Do not install the projector in a location exposed to high humidity, dust or tobacco smoke or in a location exposed to smoke or steam.



- Do not install the projector in a location exposed to vibrations.



- After you have finished installation, keep this manual and accessories in a safe place for future reference.



- Small parts could be swallowed by children and pets and should be kept out of their reach. If your child swallows any small parts, consult a doctor immediately.

**To service personnel**

- Perform all installation work correctly according to this manual. Make sure that all specified screws and brackets are used in the installation.



- Considerable care is required in planning and performing the installation so that it will support the weight of the LCD projector and wall mount unit.



- Never attempt to modify the wall mount unit. (We will not guarantee the strength of a unit that has been modified.)



- Make sure that all screws are tightened to the proper torque after installation and adjustments. There must be no loose or over tightened screws.



- Do not use adhesives, lubricants, lubricating oils or other chemicals designed to prevent loosening of fasteners on screws and bolts used to secure the projector ceiling mount. The use of such materials could cause the mount to fail and the projector to fall resulting in damage or injury.



- Route electric cables as prescribed and take care not to damage them in the installation work.



- Be sure to read this manual and the User's Manual of the LCD projector prior to installation to ensure that all safety instructions are observed and the projector is correctly installed.



- Be sure to turn off the LCD projector and disconnect the power plug from the wall outlet before starting installation work.

**Routine Inspections**

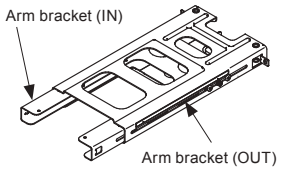
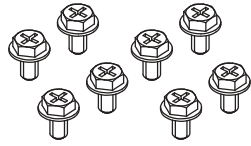
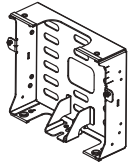
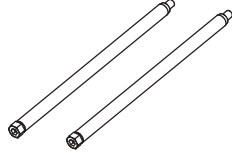
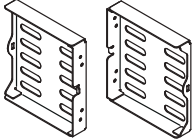
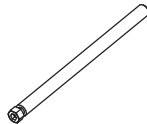
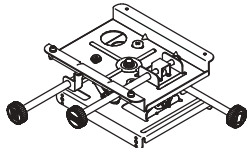
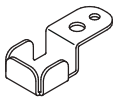
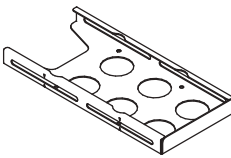

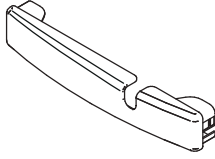
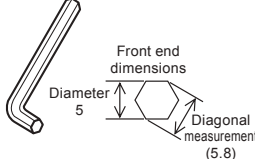
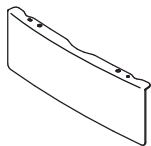
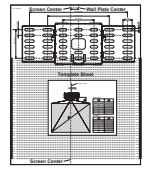
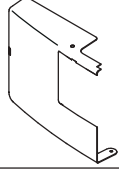

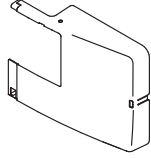
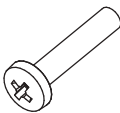
Like the projector, the wall mount unit should be inspected once a year.

1. Check that the screws in the wall mount unit and adjusted parts are not loose.
2. Check that the wall mount unit, adjusted parts and the set are not scarred or damaged.

**Contents of this package**

Check that the items listed in the table below are included in this package. If any are missing, please contact your dealer immediately. (The fasteners (screws, etc.) required for wall mounting are not supplied with the wall mount unit. Select fasteners that suit the structure of the wall to ensure they will properly support the LCD projector and the wall mount unit.)

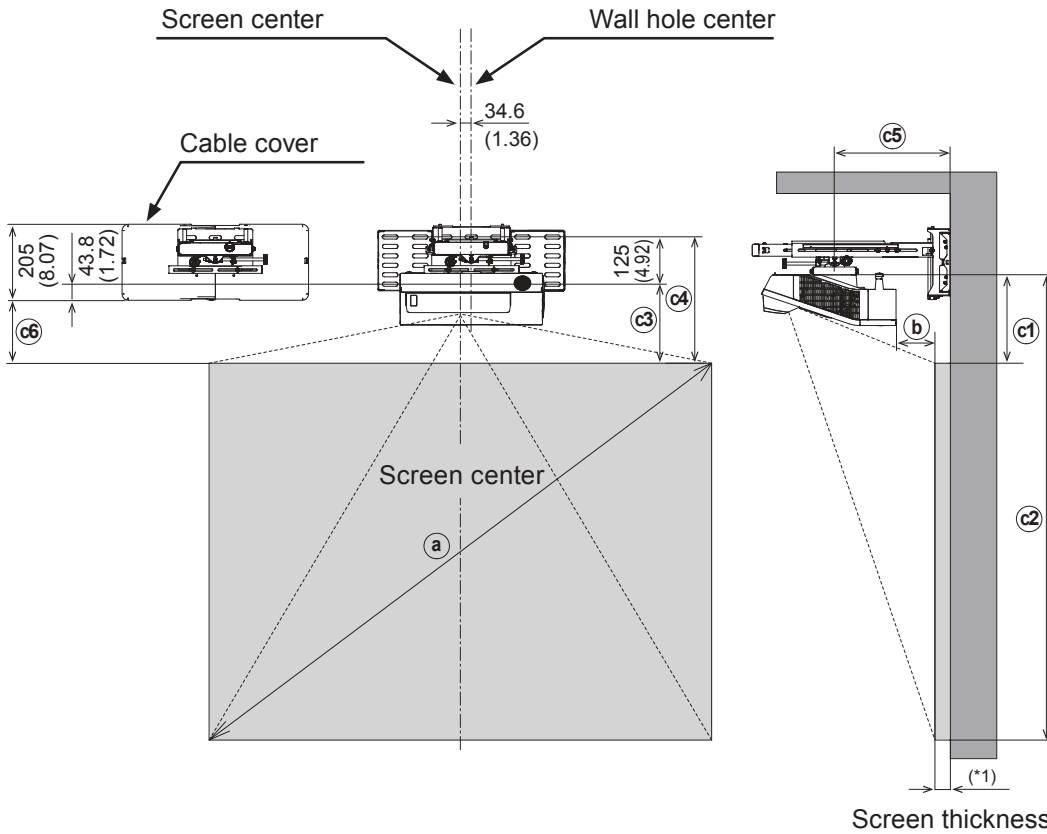
Part names in the figures on the following pages are indicated by the symbols given in the table below.

Symbol	Part name	Quantity	Appearance	Symbol	Part name	Quantity	Appearance
A	Arm assembly	1		J	M4 x 8 hexagon head screws	21	
B	Base bracket (center)	1		K	M10 x 194mm Arm fixing strut screw	2	
C	Base bracket (sides)	2		L	M10 x 152mm Arm vertical adjustment screw	1	
D	Adjusting block	1		M	Strut cover bracket	2	
E	Bracket	1		N	M5 shoulder screw	3	
F	Front cap	1		O	Allen wrench	1	
G	Cable cover (middle)	1		P	Template sheet	1	
H	Cable cover (left)	1		Q	User's Manual (This book)	1	
I	Cable cover (right)	1		R	M4 x 20mm cover mounting screws	1	

**Base bracket attachment diagram**

**Note:**

The wall hole center is 34.6 mm (1.36 inches) to the right of the screen center.



Unit: mm (inches)

**Sheet projecting distance table**

**16:10 screen** (Full screen: Reference value for 1,280 × 800 pixel image.)

a	b	c1	c2	c3	c4	c5	c6
Diagonal size (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)
60	128(5.04)	308(12.13)	1116(43.94)	279.3(11.00)	404.3(15.92)	342.6(13.49)	235.5(9.27)
70	198(7.80)	346(13.62)	1288(50.71)	317.3(12.49)	442.3(17.41)	412.6(16.24)	273.5(10.77)
80	268(10.55)	383(15.08)	1460(57.48)	354.3(13.95)	479.3(18.87)	482.6(19.00)	310.5(12.22)
90	338(13.31)	421(16.57)	1632(64.25)	392.3(15.44)	517.3(20.37)	552.6(21.76)	348.5(13.72)
100	408(16.06)	459(18.07)	1805(71.06)	430.3(16.94)	555.3(21.86)	622.6(24.51)	386.5(15.22)

**4:3 screen** (Full screen: Reference value for 1,024 × 768 pixel image.)

a	b	c1	c2	c3	c4	c5	c6
Diagonal size (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)
60	104(4.09)	219(8.62)	1133(44.61)	190.3(7.49)	315.3(12.41)	318.6(12.54)	146.5(5.77)
70	170(6.69)	242(9.53)	1309(51.54)	213.3(8.40)	338.3(13.32)	384.6(15.14)	169.5(6.67)
80	236(9.29)	265(10.43)	1484(58.43)	236.3(9.30)	361.3(14.22)	450.6(17.74)	192.5(7.58)
90	302(11.89)	288(11.34)	1660(65.35)	259.3(10.21)	384.3(15.13)	516.6(20.34)	215.5(8.48)
100	368(14.49)	310(12.20)	1834(72.20)	281.3(11.07)	406.3(16.00)	582.6(22.94)	237.5(9.35)

(b) Screen front from projector back (c1) Screen top from bracket mounting surface (c2) Screen bottom from bracket mounting surface (c3) Screen top from bottom mounting hole on wall (c4) Screen top from top mounting hole on wall (c5) Bracket center from wall surface (c6) Screen top from bottom of cable cover

(\*1) For a 50 mm thick screen

Size of images that can be projected with screen sizes of up to 100 inches.

\* Use of the supplied template sheet will facilitate positioning of the base bracket.

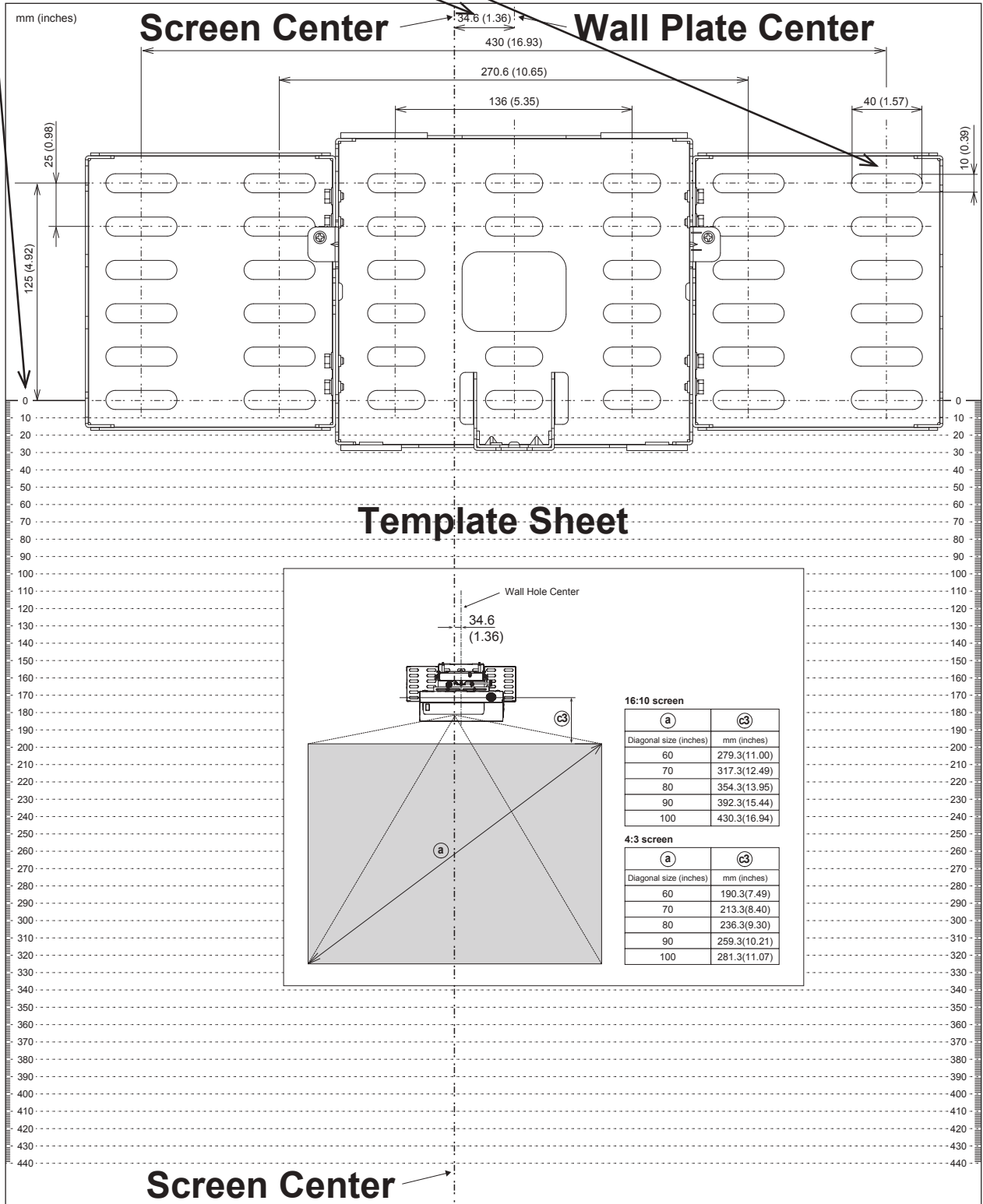
**Note:** Note that projection distance (b) will vary by ±3% depending on what product is used.

# Template sheet usage

## Determining location of wall holes

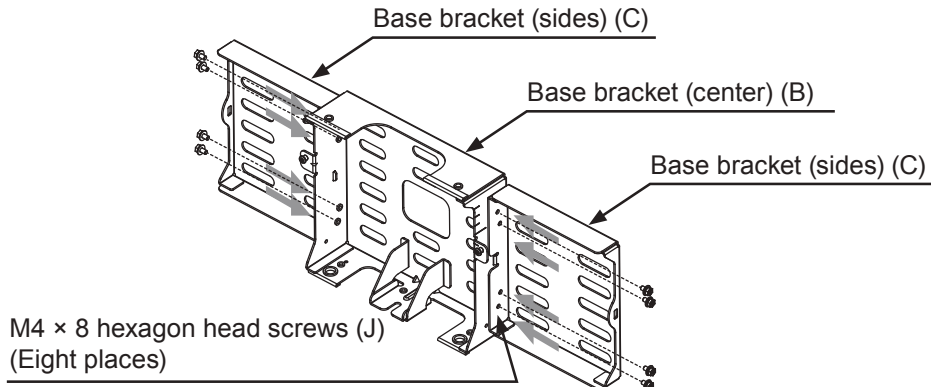
Place the template sheet (P) where you want to project the image.

- ① Vertical orientation: Align the top of the sheet with the upper edge of the image you want to project.
- ② Horizontal orientation: Align with the screen center.  
**Note: The base bracket center is 34.6 mm (1.36 inches) to the right of the screen center.**
- ③ Make a hole in the wall as indicated by the base bracket figure.

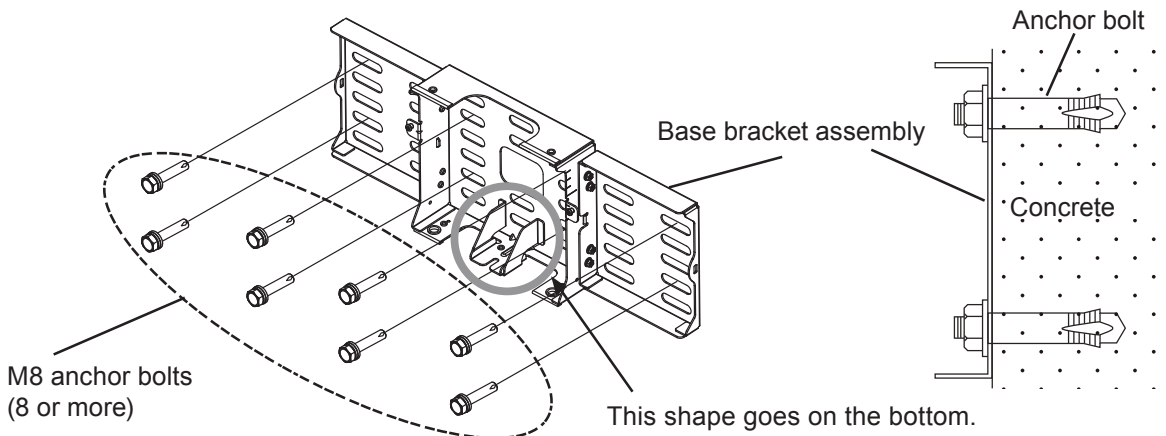


**Installation procedure**

- ① **Fasten the base bracket (center) (B) to the base brackets (side) (C) with the eight M4 x 8mm hex-head screws (J).**



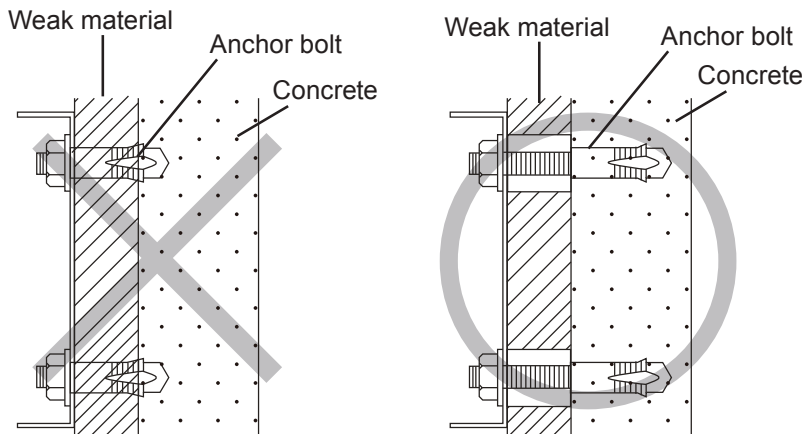
- If mounting the base bracket assembly on a wall, use anchor bolts.
- Use M8 anchor bolts.
- Use anchor bolts of a length that suits the material, strength and thickness of the wall so that the pullout strength of each bolt meets or exceeds 2,000 N.
- If the bolts cannot satisfy the required strength specifications, increase the number bolts.
- When fastening the brackets with anchor bolts, use at least four bolts on the base bracket (center) (B) and at least two on each of the base brackets (side) (C) (for a total of at least 8 bolts).



- Base bracket (center) (B): at least 4 places
- Base brackets (side) (C): at least 2 places on each

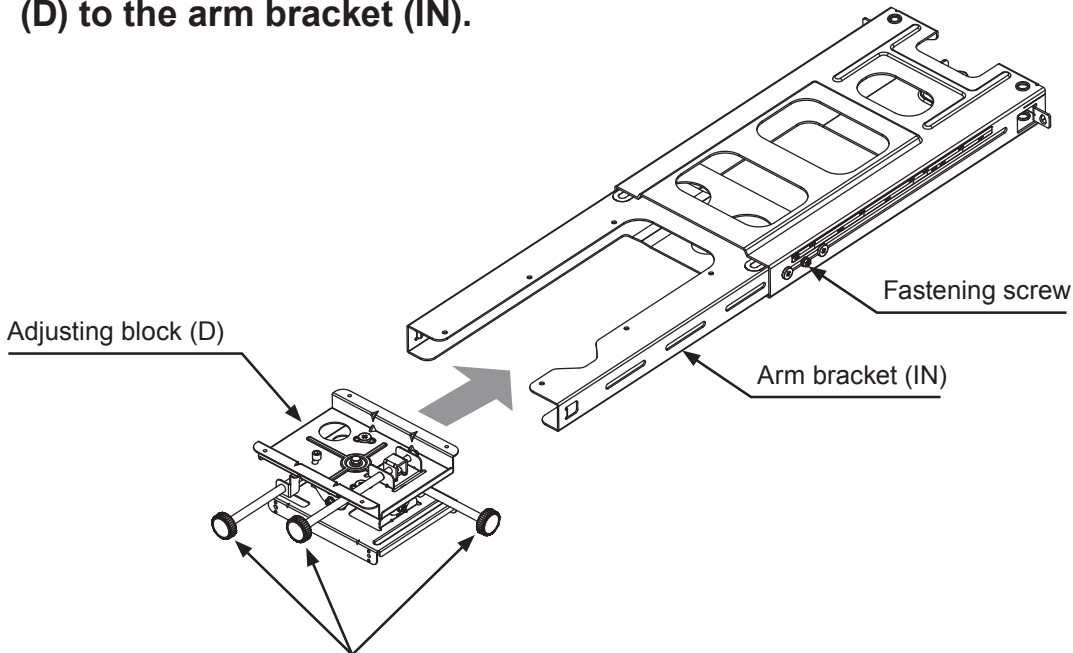
**! WARNING**

- When attaching the wall mount unit to a wall covered with a layer of plaster or other weak finishing material, make sure the anchor bolts reach into the underlying concrete.



- As shown in the figure, at least eight anchor bolts, two in each corner are required.

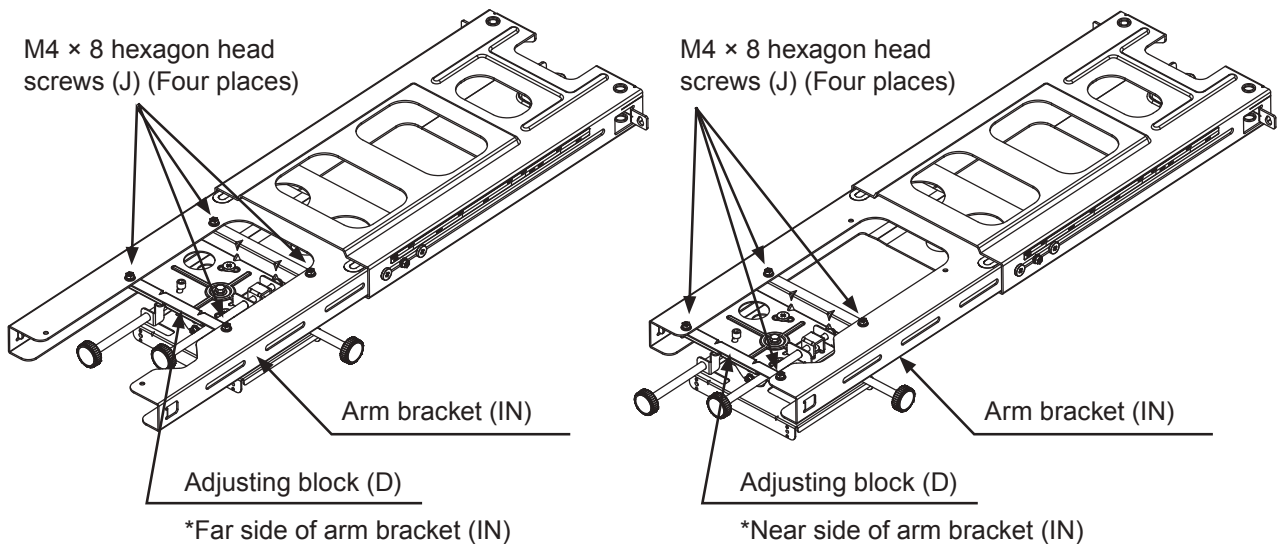
- ② Loosen the fastening screw (in the location indicated by the arrow in the diagram below) and extend the arm bracket (IN). Attach the adjustment block (D) to the arm bracket (IN).



**Note:**  
Face the knobs of the adjustment block (D) in the directions shown in this diagram.

- ③ Attach the adjustment block (D) to the arm bracket with four M4 x8mm hex-head screws (J). Align with the projection screen size and attach to the position as indicated in the diagram.

Tightening torque: 0.98 N·m (10 kgf·cm)



Projection screens smaller than 70 inches

Projection screens 70 inches or larger

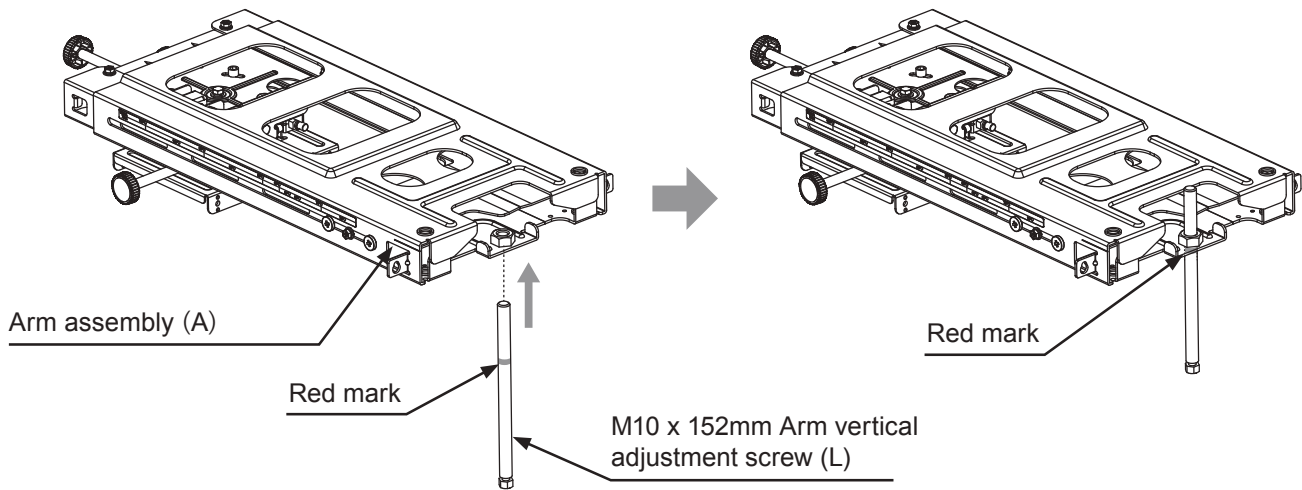


**CAUTION**

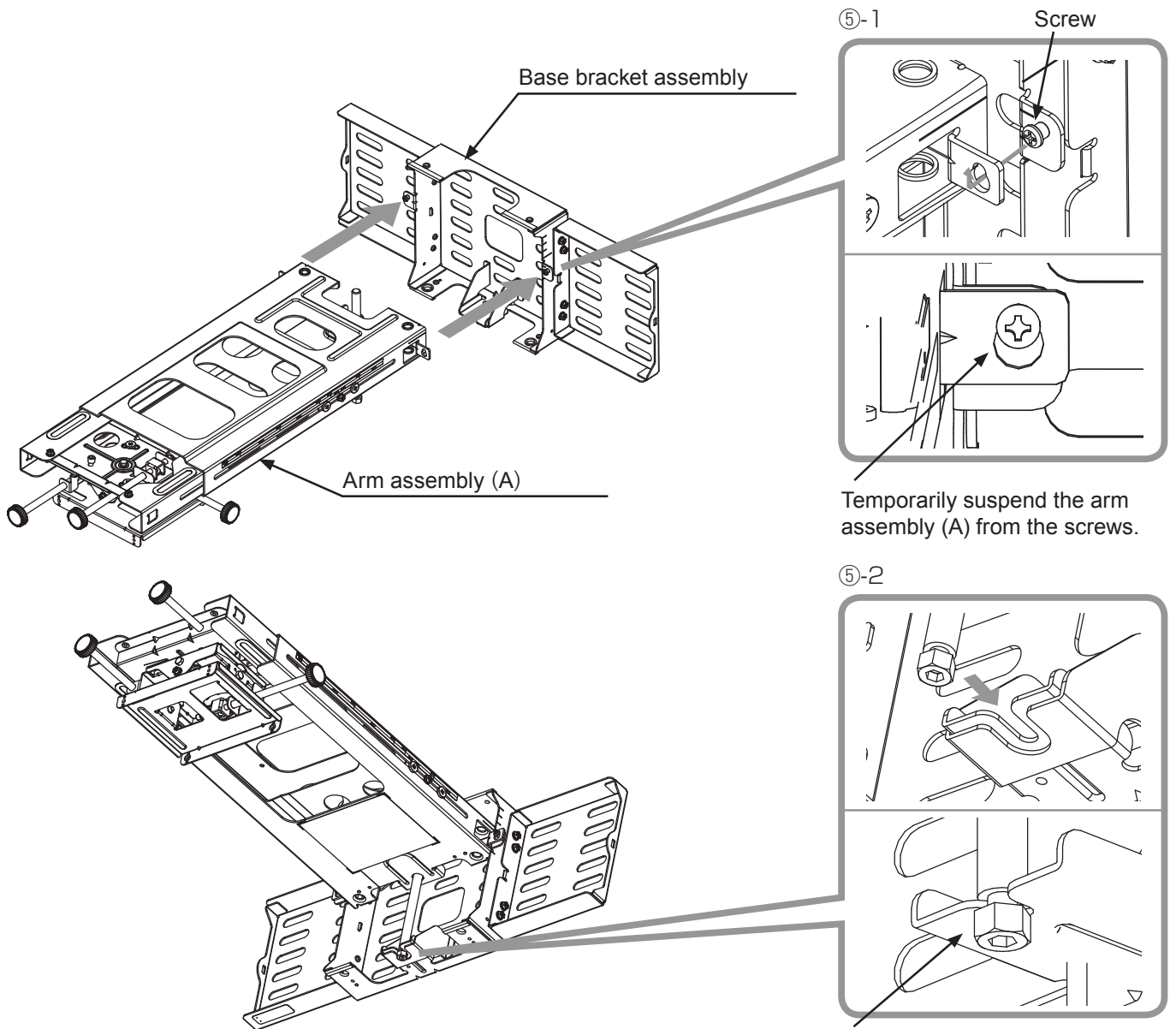
- Assemble the adjusting block (D) according to projection screen size.



- ④ Attach the M10 x 162mm arm vertical adjustment screws (L) to the base bracket assembly (A) up to the red mark.



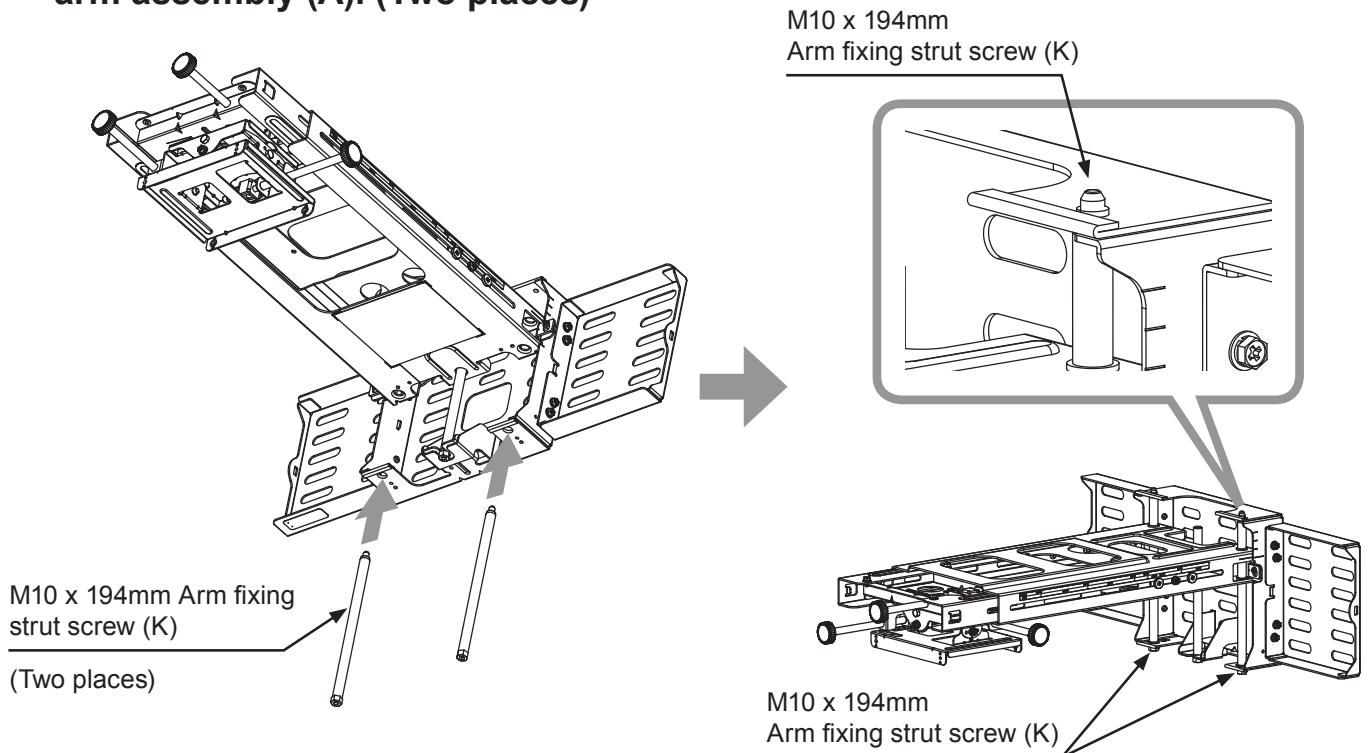
- ⑤ Mount the arm assembly (A) on the base bracket assembly.



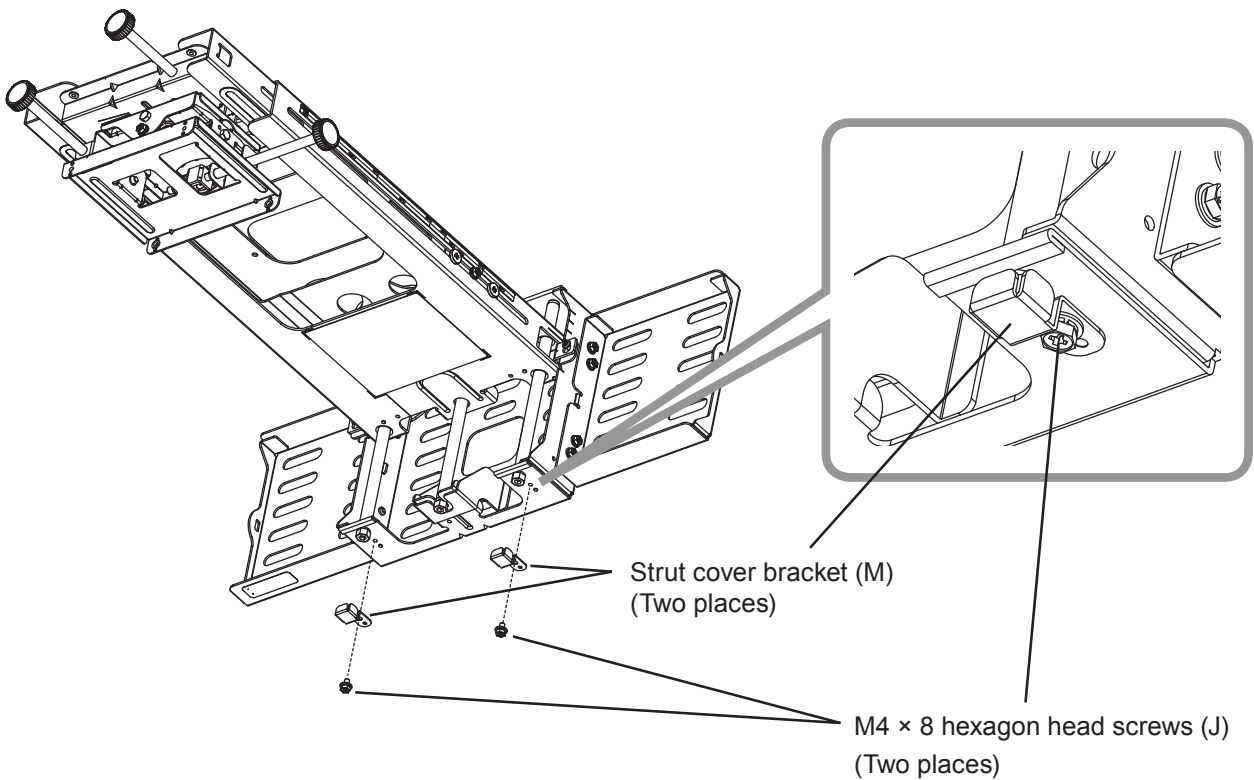
Temporarily suspend the arm assembly (A) from the screws.

Hook the groove of the screw on the U-shape of the base bracket assembly.

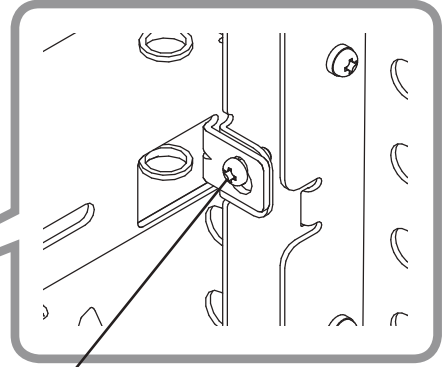
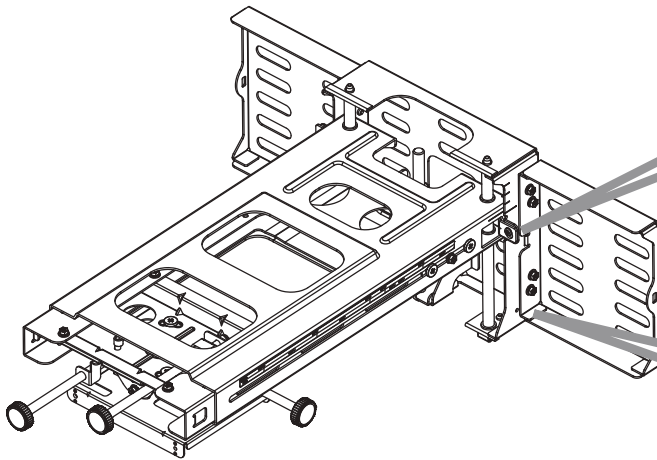
- ⑥ Pass the M10 x 194mm arm fixing strut screws (K) from under the base bracket (center) (B) and tighten them with a hex wrench (O) and fasten the arm assembly (A). (Two places)



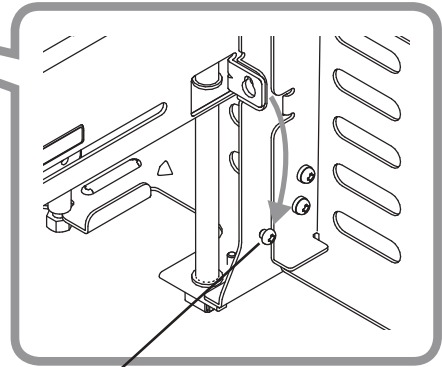
- ⑦ Fasten the strut cover bracket (M) with the M4 x 8mm hex-head screws (J). (Two places)



- ⑧ Remove the temporary mounting screws, and attach them to the base bracket (B) for storage.



Remove the temporary screws (Two places).

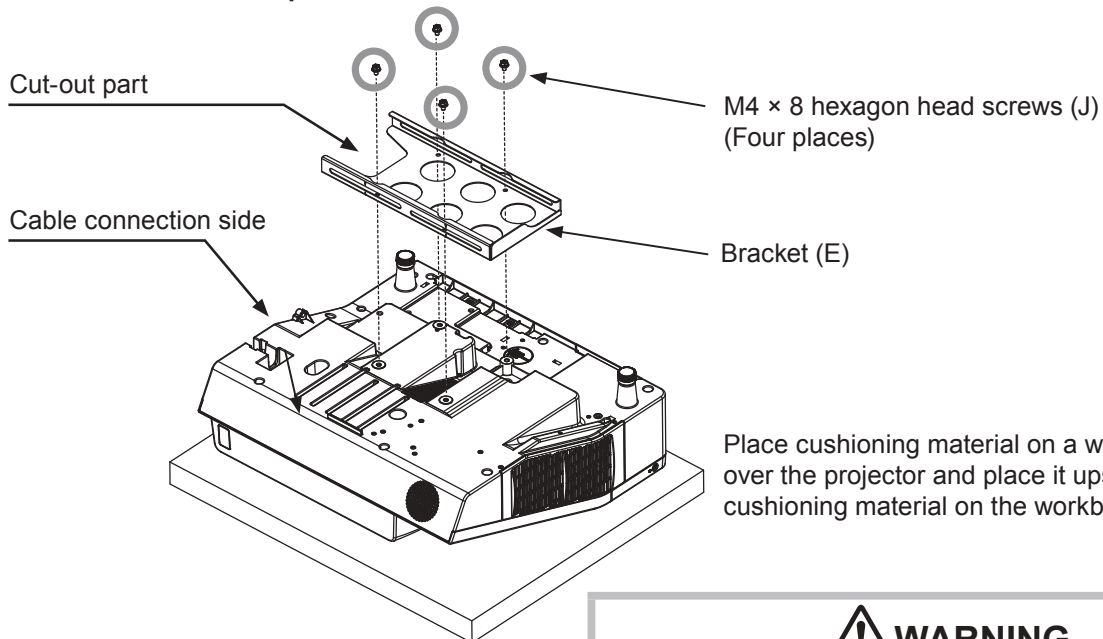


Attach to base bracket (B).

- ⑨ Attach the bracket (E) to the LCD projector using four M4 × 8 (J) hexagon head screws.

Tightening torque: 0.98 N·m (10 kgf·cm)

**Note:** Make sure that the bracket (E) is correctly oriented.  
Face the cut-out part toward the cable connection side.



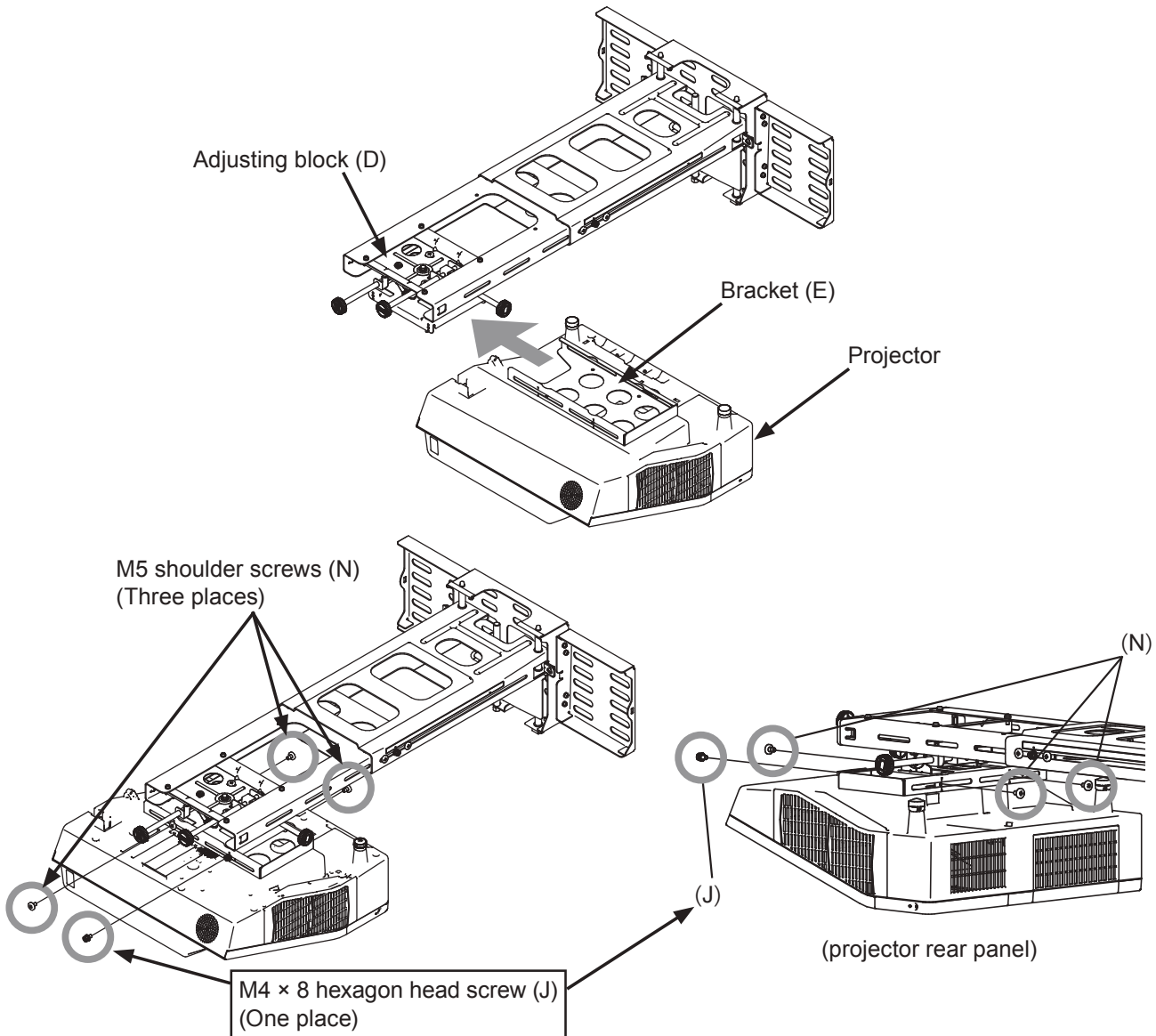
Place cushioning material on a workbench. Turn over the projector and place it upside down on the cushioning material on the workbench.

**! WARNING**

- Never use screws other than those designated. Failure to heed this warning may cause the projector to fall or other hazard resulting in damage or injury.

⑩ **Mount bracket (E) from the direction of the arrow to the adjustment block (D).**

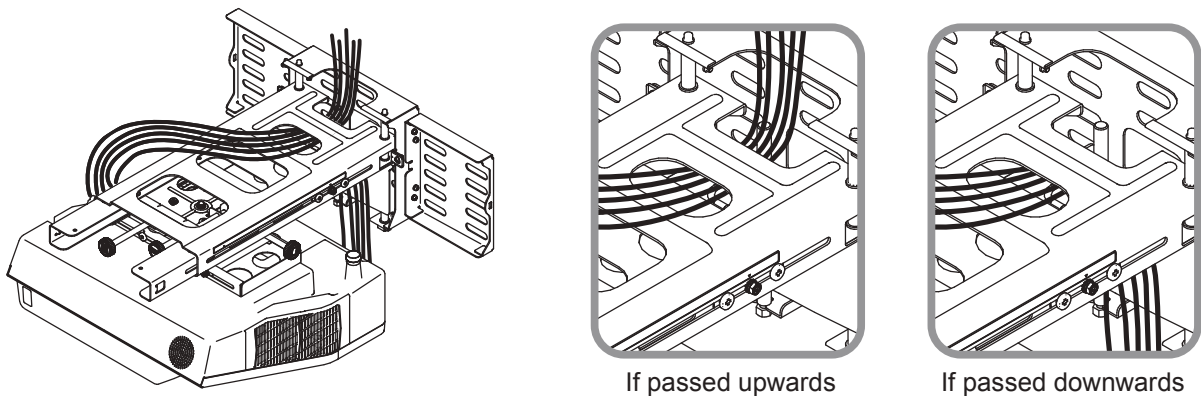
Tighten the three M5 x 8mm shoulder screws (N) and one M4 x 8mm hex-head screw (J).  
Tightening torque: 0.98 N•m (10 kgf•cm)



**⚠ WARNING**

- Never use screws other than those designated. Failure to heed this warning may cause the projector to fall or other hazard resulting in damage or injury.

⑪ **Connect the cables to the projector.**



## Adjustments

### 12 Turn the projector on and project an image to make adjustments.

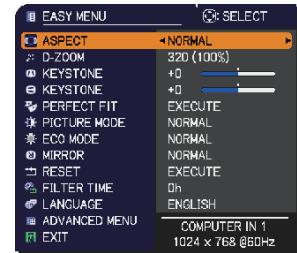
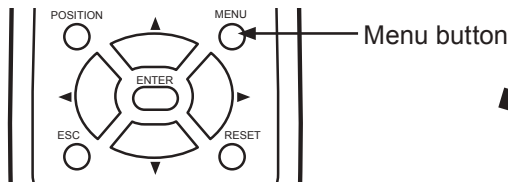
12-1. Project an image, adjust the image settings and focus on the LCD projector.

- Adjust the focus.
- Select MIRROR.
- Set the D-ZOOM to its maximum value (full screen).
- Reset PERFECT FIT.
- Set the  $\triangleleft$  KEYSTONE and  $\triangleright$  KEYSTONE values to 0.
- \* For details, see to the User's Manual for the LCD projector.

12-2. Use the remote control to select a screen for making adjustments.

1 To simplify adjustments, press the Menu button on the remote control.

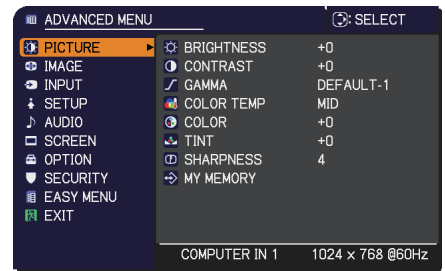
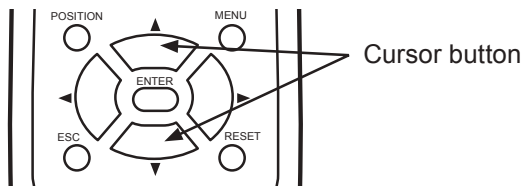
The EASY MENU or ADVANCED MENU appears.



EASY MENU

2 Go to step 4 if the ADVANCED MENU appears.

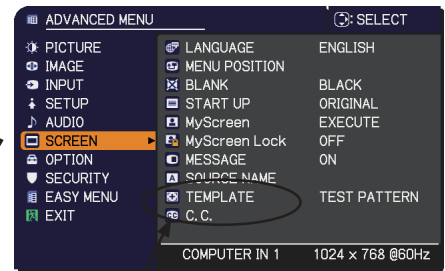
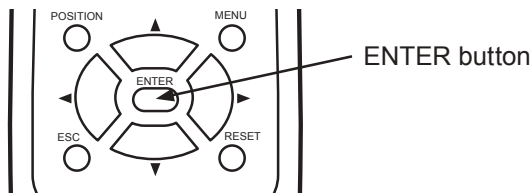
3 If the EASY MENU appears, use the cursor buttons ( $\blacktriangle$ / $\blacktriangledown$ ) to select the ADVANCED MENU.



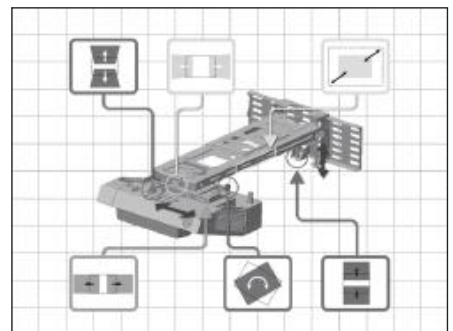
ADVANCED MENU

4 Use the cursor buttons ( $\blacktriangle$ / $\blacktriangledown$ ) to select SCREEN.

5 Use the cursor buttons ( $\blacktriangle$ / $\blacktriangledown$ ) to select HAS-WM05 in the illustrated template. Press the ENTER button to display the selected HAS-WM05.



TEMPLATE

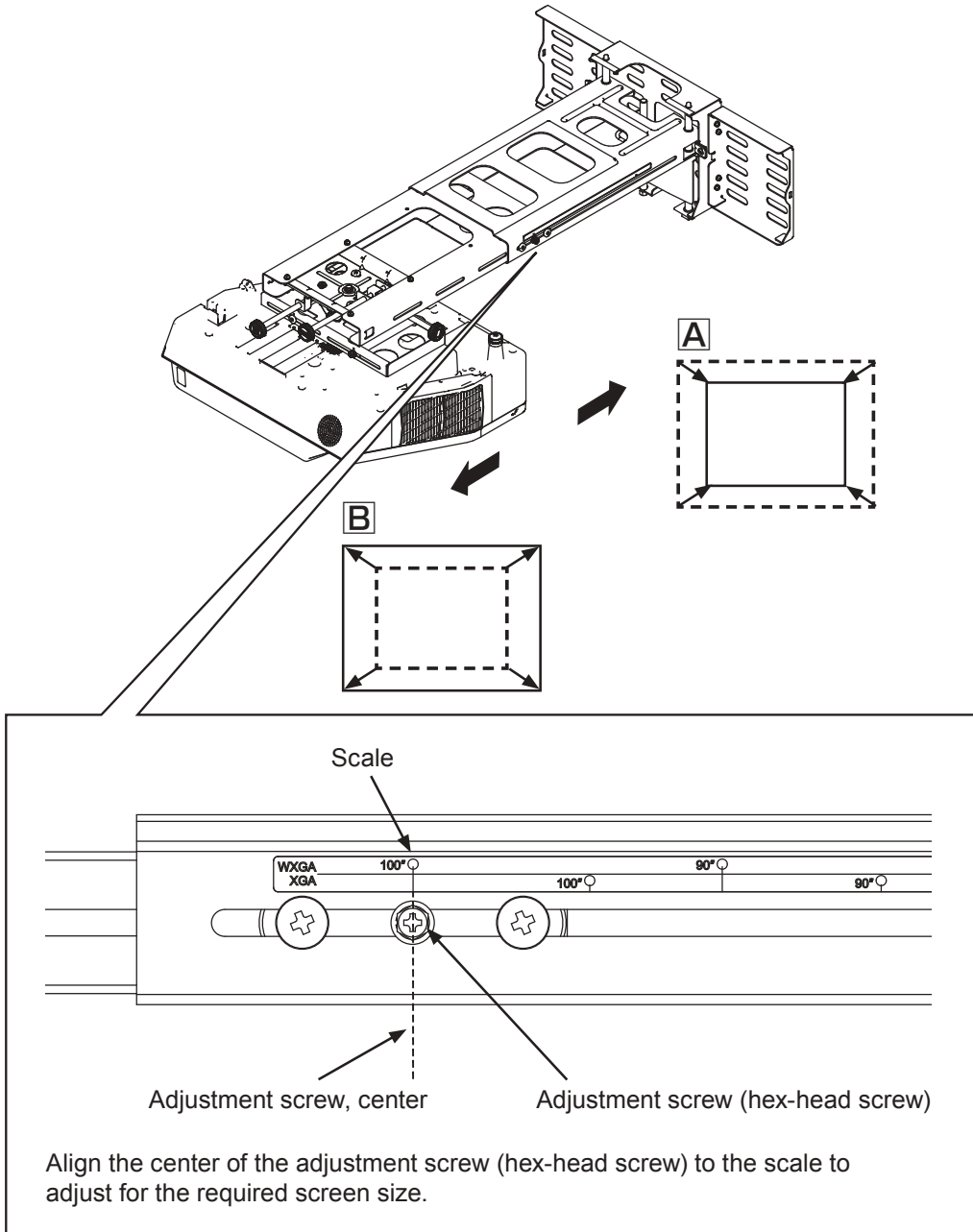


HAS-WM05

⑬ Adjust the image.

⑬-1. Adjustment of image size.

1. Slide the arm forward and backward to adjust image size.



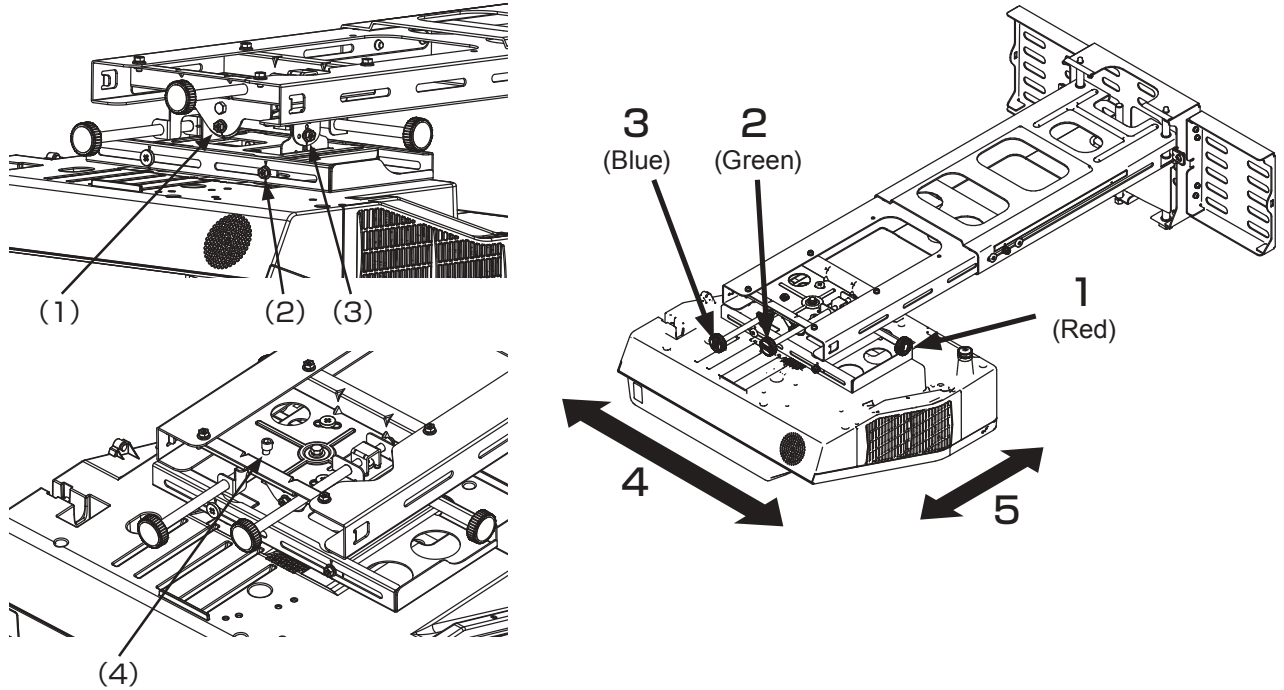
**⑬-2. Make a rough focus adjustment.**

For details, see the User's Manual for the LCD projector.

**⑬-3. Make fine adjustments.**

Loosen fastening screws (1) to (4).

Follow the steps below to turn the adjusting screws and adjusting knobs to adjust the image.

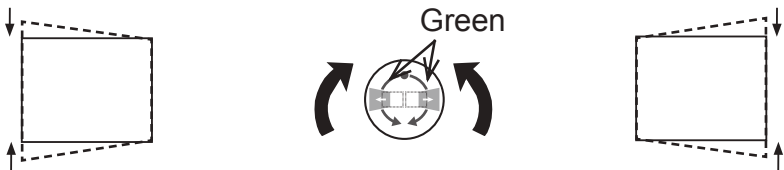


Use the included hex wrench (O).

**1. Fine adjustment of horizontal position**



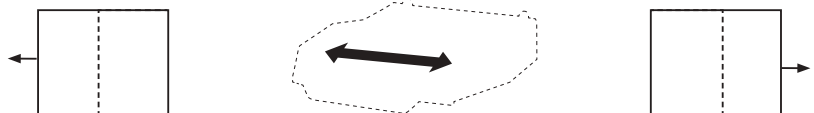
**2. Fine adjustment of horizontal keystone**



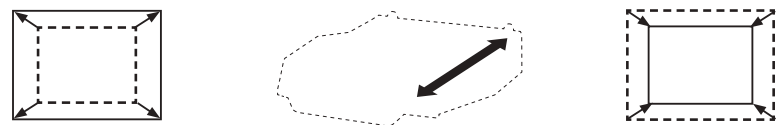
**3. Fine adjustment of vertical keystone**



**4. Fine adjustment of lateral position**



**5. Fine adjustment of image size**

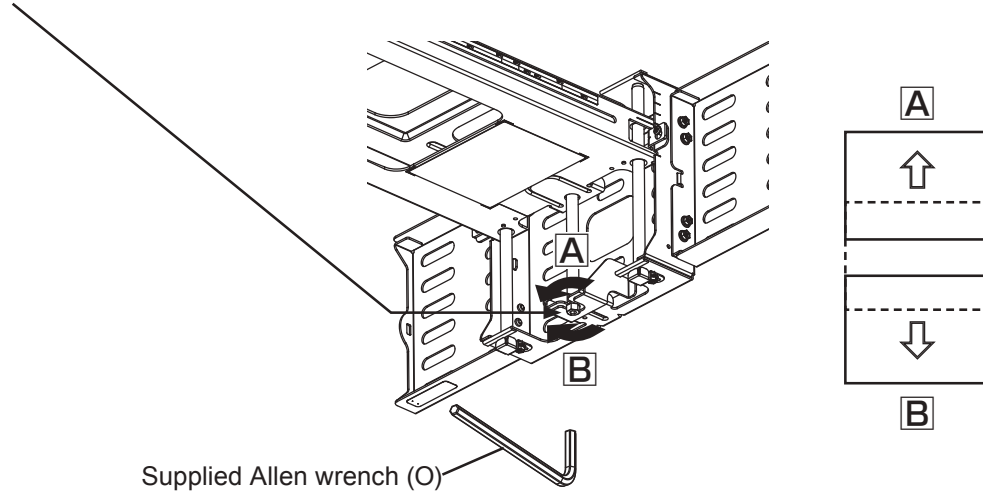


**6. Fine adjustment of focus**

For details, see the User's Manual for the LCD projector.

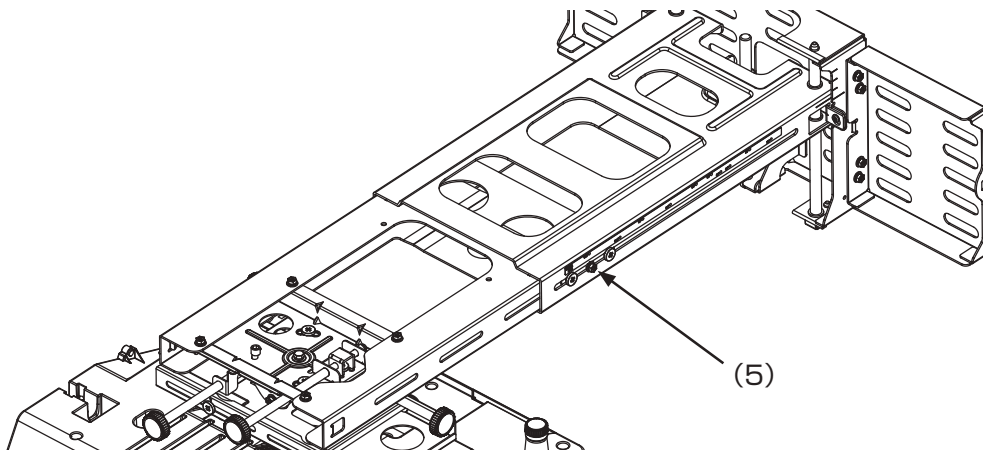
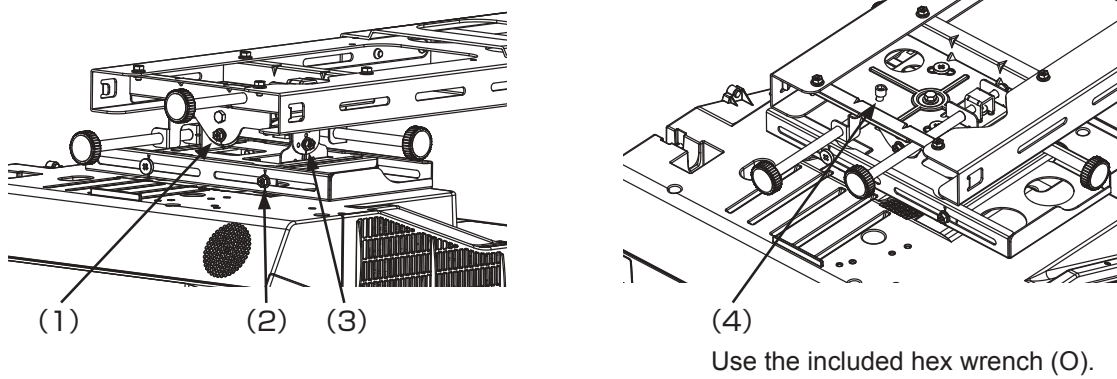
**7. Fine adjustment of vertical position**

Turn the height adjusting screw to adjust the height.



- Repeat steps 1 to 7 to fine adjust the image to the screen.  
See page 20 for details on adjustment range.

**13-4. Tighten the five loosened fastening screws (1) to (5).**

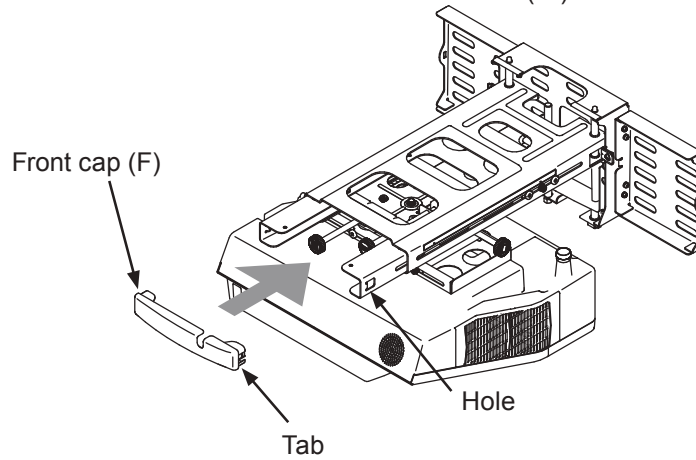




## Installing exterior parts

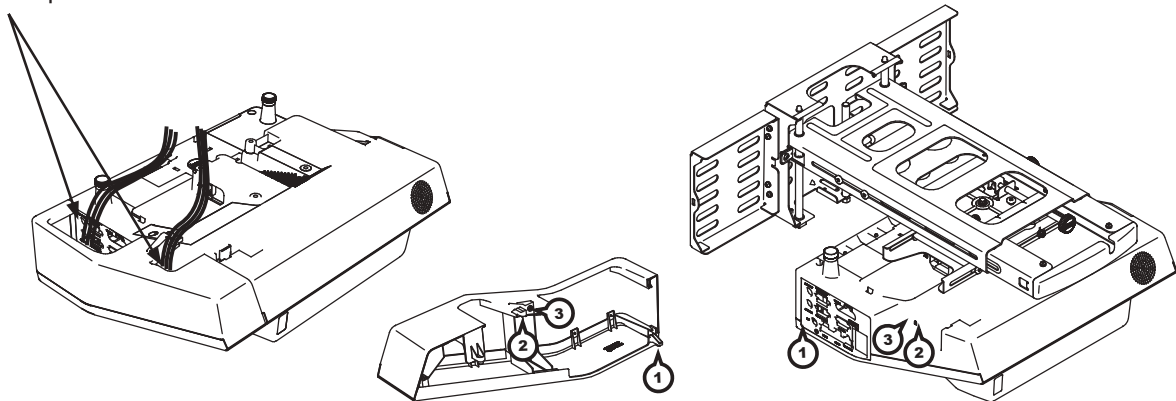
### ⑭ Procedure for installing exterior parts

- ⑭-1. **Attach the front cap (F) at the front end of the Arm bracket (IN).**  
Hook the tabs on either side in the holes in the arm bracket (IN).



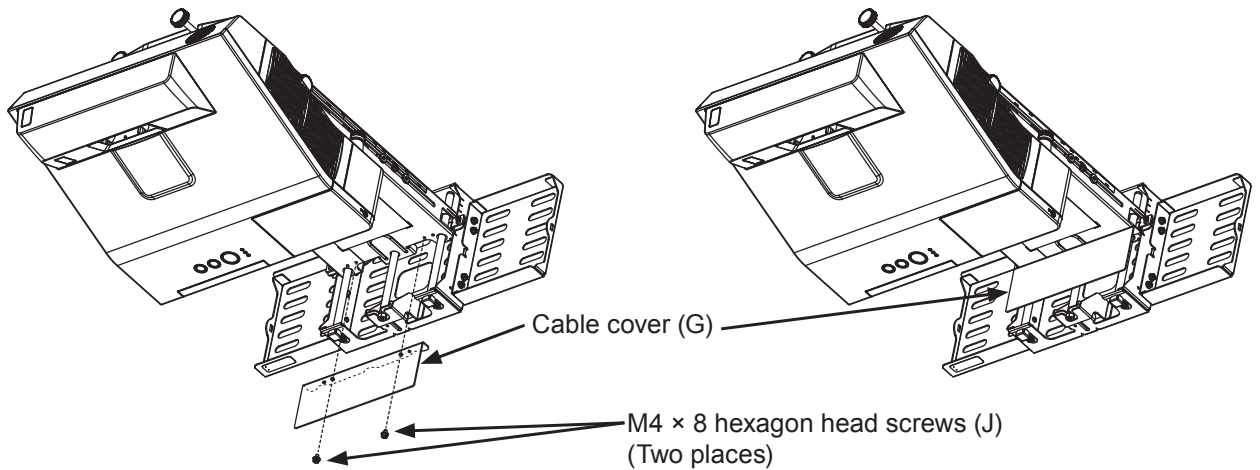
- ⑭-2. **Attach the cable cover.**  
Insert the two tabs (1) and (2) in the cable cover with the two holes (1) and (2) in the LCD projector. Secure the cable cover screw (3) to the LCD projector (3).

Route the cables through the holes in the top of the cable cover.

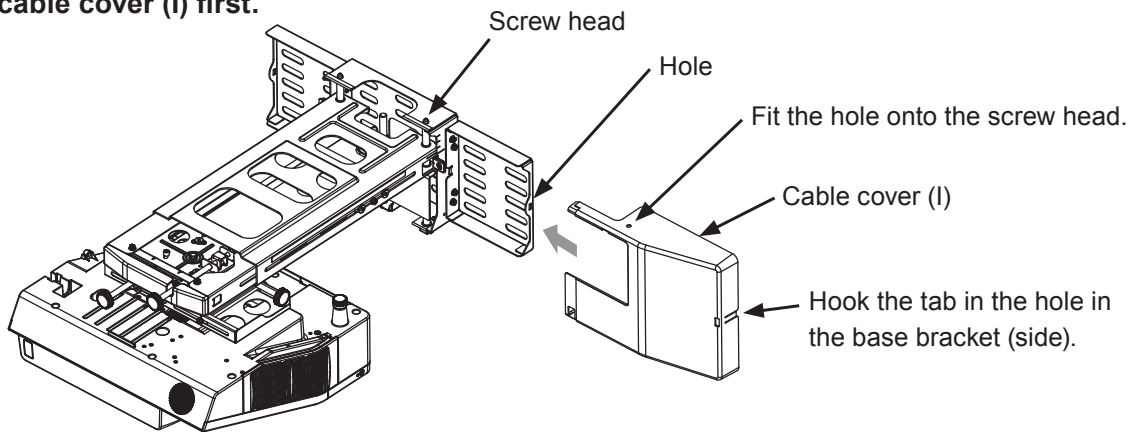


⑮ Attaching the cable cover

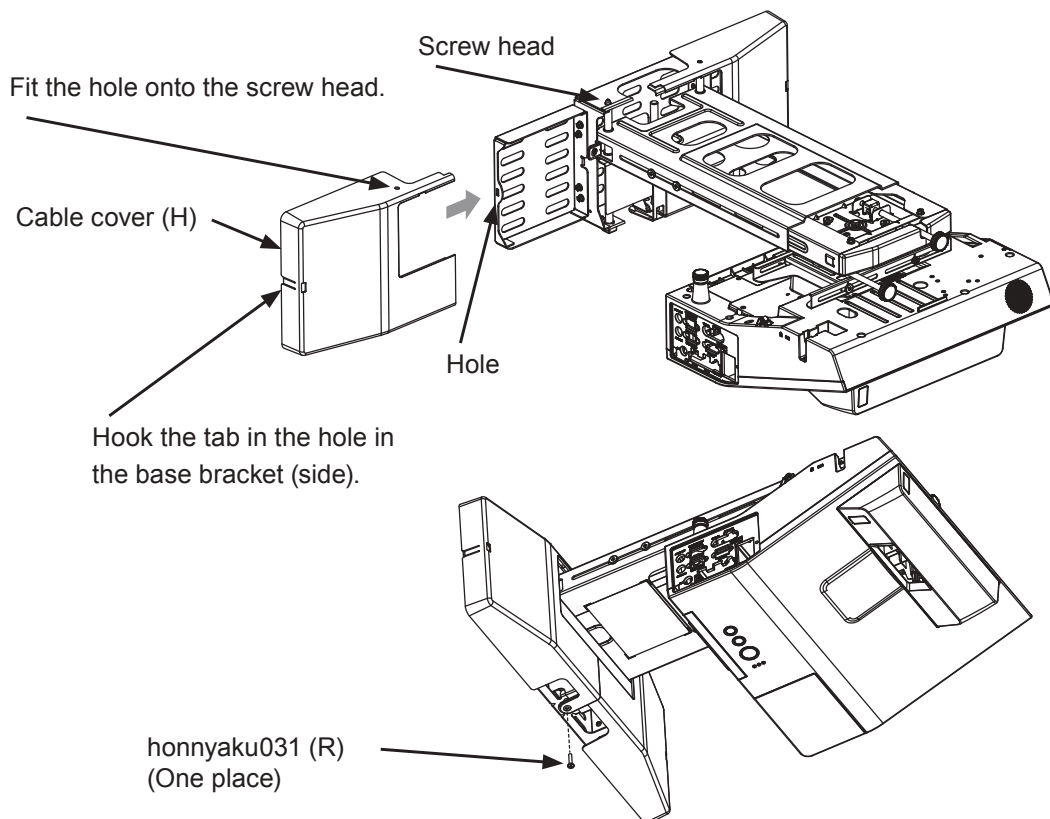
⑮-1. Fasten the cable cover (G) with the two M4 x 8mm hex-head screws (J).



⑮-2. Attach cable cover (I) first.



⑮-3. Attach cable cover (H) and fasten it with the one M4 x 20mm cover mounting screw (R).



**Adjustment precautions**

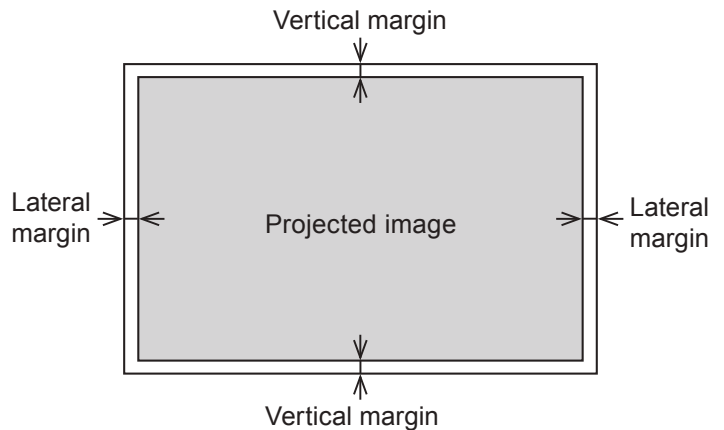
- Roll down screens and other screens that are not perfectly flat tend to substantially distort the projection surface and cannot be used. Use board screens or other flat screens.  
Bead-type screens with a high screen gain are not suitable for this projector. Use of a matte screen with a wide viewing angle and a gain of about 1.0 is recommended.  
Interaction between the screen pattern and LCD pixels may result in interference fringes (moiré). This is not a malfunction. Use a screen that suppresses this phenomenon.
- The size of the image at the top of the screen changes with focus adjustment. Fine-tune screen position and angle after adjusting focus the first time.
- Reset corner fit before starting adjustments.
- Make sure that the digital zoom value is set to the maximum value (full screen) before starting adjustments.
- Make sure that the keystone control is set to 0 (no correction) before starting adjustments.
- It takes about 30 minutes for lamp performance to stabilize and a change in environment may cause subtle changes in projection location and focus. Make proper adjustments to compensate for changes in focus.

**Note:**

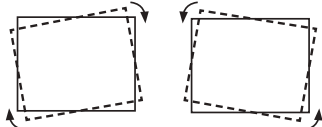
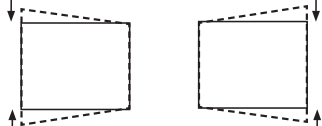
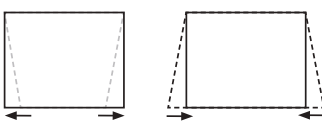

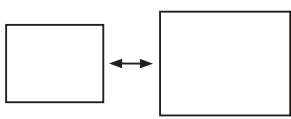
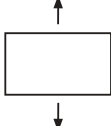
- Changes in temperature, humidity and other ambient environmental factors may result in changes in screen size and location.
  - The minute vibrations and other phenomena that the wall mount unit and the mirror are exposed to will start to cause changes in projection location a week or so after installation.
1. • Set a screen size that is smaller relative to actual screen size to allow for changes after installation.
- Use the values in the table below to set a vertical and lateral margin.
  - Set a margin for each corner to allow for screen distortion.

(both 4:3 and 16:10 screens)

Screen size Diagonal size (inches)	Vertical margin (mm)	Lateral margin (mm)
60	20	25
80	25	30
100	30	35



**Adjustment specifications**

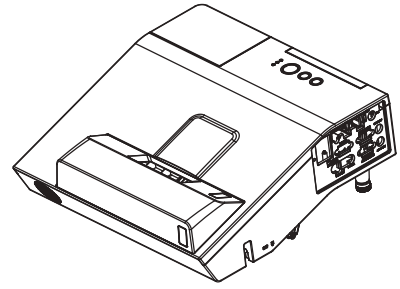
Item	Image movement	Fine adjustment amount (amount of LCD projector movement)	Description of adjustment method
Fine adjustment of horizontal position		±5°	page 15
Fine adjustment of horizontal keystone		±5°	page 15
Fine adjustment of vertical keystone		±5°	page 15
Fine adjustment of lateral position		±50 mm (1.96 inches)	page 15
Fine adjustment of image size		308 mm (12.1 inches)	page 15
Fine adjustment of vertical position		±35 mm (1.37 inches)	page 16

## HAS-WM05

### Applicable models

Supported Hitachi LCD projector models

	Model	Screen size	Weight
LCD projector model A	CP-AX2503 CP-AX3003 CP-AX3503	4:3	Approx. 4.2kg
	CP-AW2503 CP-AW3003 CP-TW2503 CP-TW3003	16:10	
Wall mount unit	HAS-WM05		Approx. 6.4kg



ENGLISH