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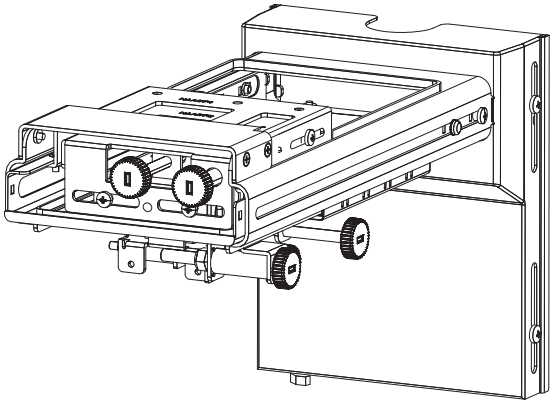
LCD Data Video Projector
User's Manual
MODEL 8104HW-WALLARM



Information in this Guide may change due to product improvements. To obtain the latest manuals, literature, and software please visit the Dukane web site at; www.dukane.com/av and look at the specific model **SUPPORT** or **DOWNLOADS** section.

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DUKANE

Wall mount unit for LCD projectors

Model name 8104HW-WALLARM

User's Manual

ENGLISH

Thank you for purchasing a wall mount unit specially designed for Dukane 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 Dukane 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.

⚠ **WARNING**	This symbol indicates information that, if ignored, could result in serious personal injury or even death due to incorrect handling.
⚠ **CAUTION**	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.

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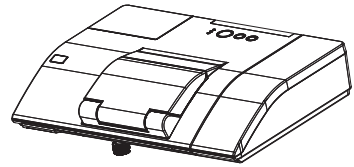
Outline and Relevant Models

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

Supported Dukane LCD projector models: 8104HW



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.

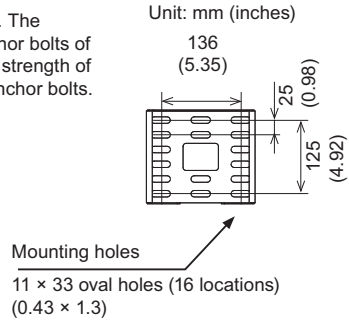
1. Considerable care is required in planning and performing the installation so that it will support the weight of the LCD projector and wall mount unit.

LCD projector	Approx. 3.8 kg
Wall mount unit (8104HW-WALLARM)	Approx. 5.9 kg

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) Select a location where the ambient temperature is in the range of 5 to 35°C.
   (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 35°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

- The wall mount unit must be secured using at least eight M10 anchor bolts. The bracket has 16 oval 11 × 33 mm (0.43 × 1.3 inch) mounting holes. Use anchor bolts of a length that suits the strength and thickness of the wall so that the pullout strength of each bolt meets or exceeds 2,000 N. If required, increase the number of anchor bolts.



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⚠WARNING

To the customer

- Do not attempt to install the projector yourself. Have your dealer or service center handle all installation work. Note that 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 such as screw caps and adjusting knobs 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.

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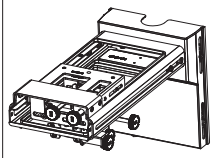
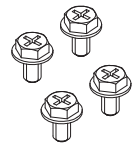
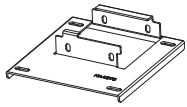
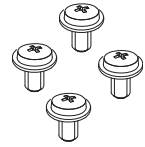
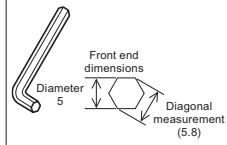
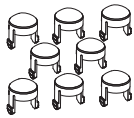
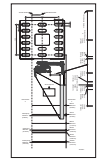
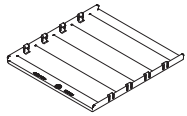
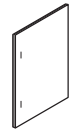
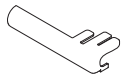
Contents of this package

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		G	M4 × 8 hexagon head screws	4	
B	Bracket	1		H	M4 × 8 round head screws	4	
C	Front cap	1		I	Allen wrench	1	
D	Screw caps	8		J	Template sheet	1	
E	Arm cover	1		K	User's Manual (This book)	1	
F	Adjust cover	1					

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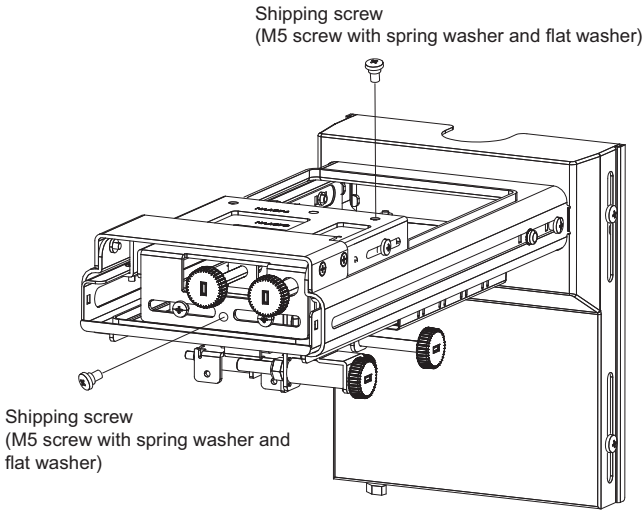
Installation procedure

① Remove the shipping screws from the arm assembly (A).

The arm assembly (A) is assembled before shipping. Before attaching the arm assembly to a wall, remove the two shipping screws (M5 screws with spring washer and flat washer) as shown in the figure below.



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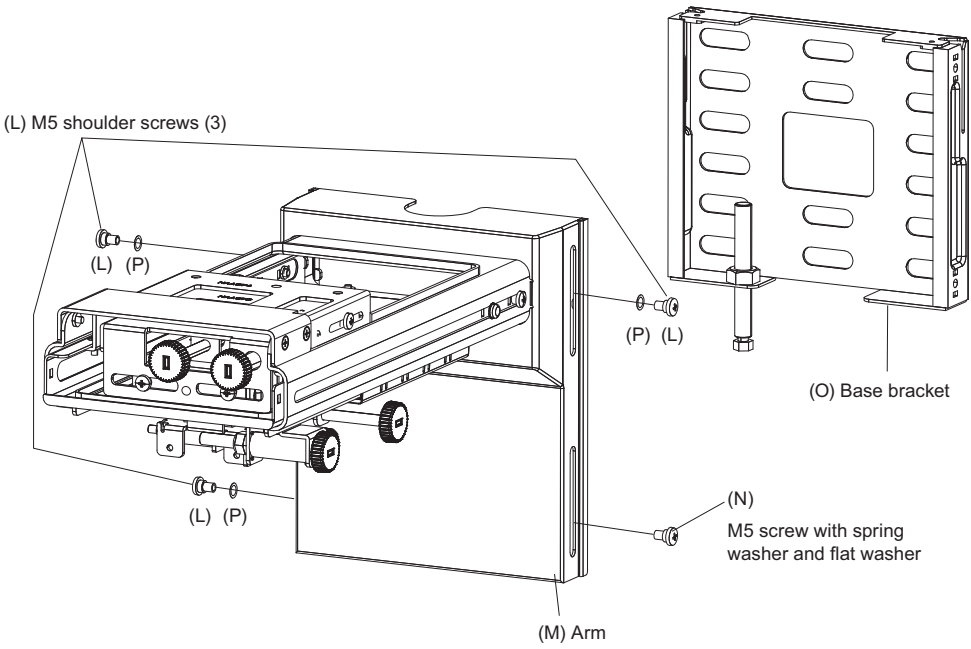
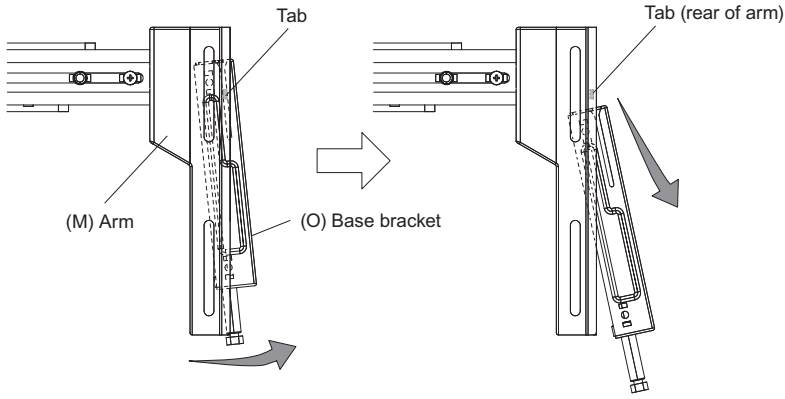
② Remove the base bracket (O) from the arm assembly (A).

Before attaching the arm assembly to a wall, remove the screws to disassemble it as shown in the figure below. Before disassembly, place the arm assembly on a mat or the protective plastic it was shipped in to prevent damaging the floor or the bracket.



Note:
The groove in the base bracket (O) is engaged with the tab at the rear of the arm (M). Move the base bracket away from the arm and then downward to remove it.



* Part names in the figures on the following pages are indicated by the symbols given in the ( ) brackets.

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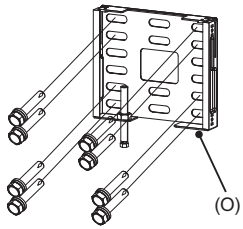
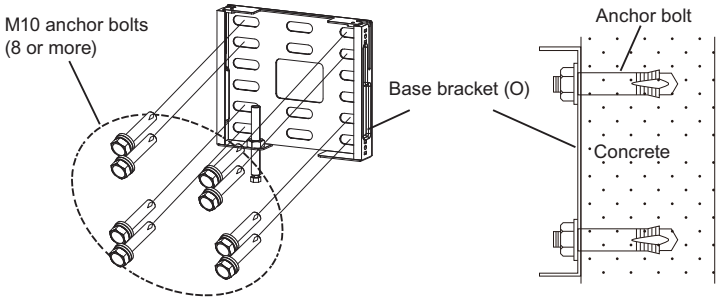
③ Attach the base bracket (O) to a wall using the anchor bolts (M10).

The holes in the base bracket (O) are oval to permit horizontal adjustment.
For details on the length and number of the anchor bolts (M10) that are required, see “Tools needed for installation” on page 2.

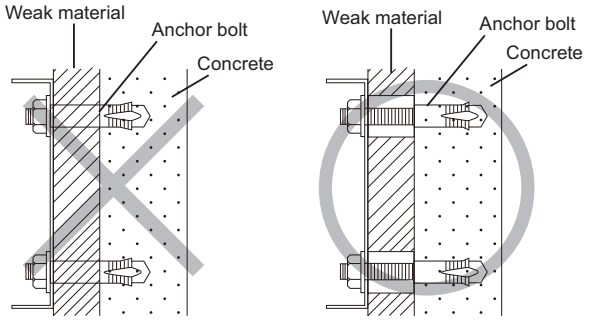


- Use anchor bolts to attach the base bracket (O) to a wall.
- Use M10 anchor bolts.
- Use anchor bolts of a length that suits the material, strength and thickness of the wall so that the pullout strength of each bolt meets or exceeds 2,000 N.
- If the bolts cannot satisfy the required strength specifications, increase the number bolts.



⚠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.

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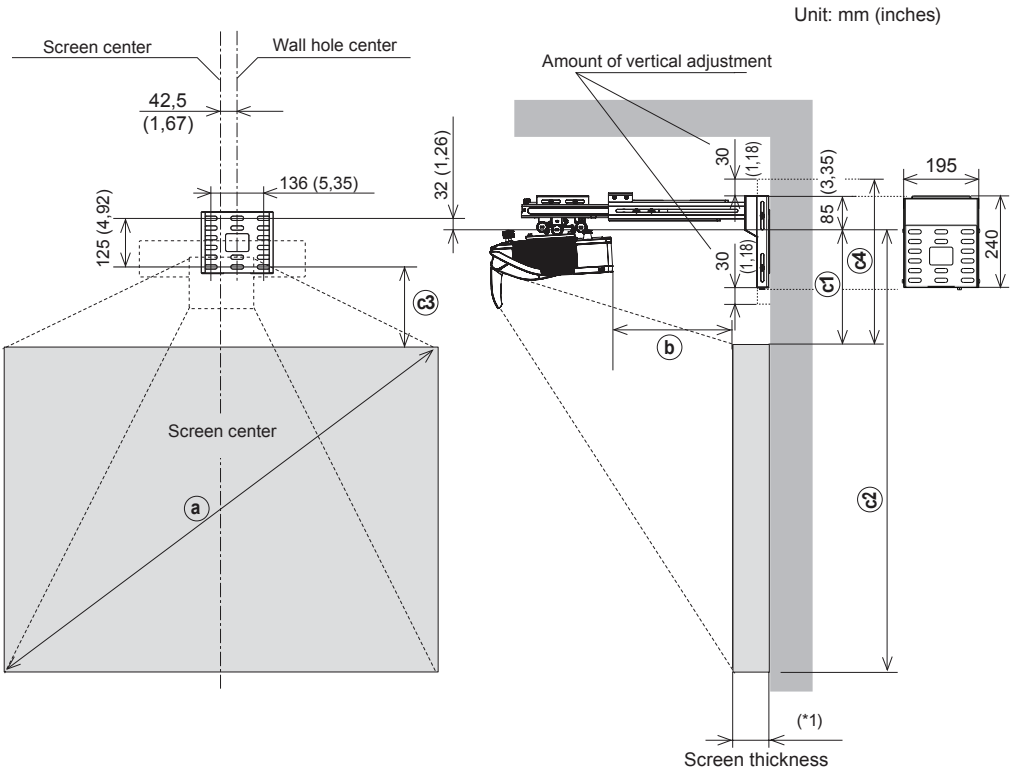
Base bracket attachment diagram

Note:
The wall hole center is 42.5 mm (1.67 inches) to the right of the screen center.

Unit: mm (inches)



16:10 screen (Full screen: Reference value for 1,280 × 800 pixel image.)
(8104HW)

ⓐ	ⓑ	ⓒ1	ⓒ2	ⓒ3	ⓒ4
Diagonal size (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)
60	120 (4,7)	295 (11,6)	1102 (43,4)	202 (8,0)	410(16.1)
70	188 (7,4)	332 (13,1)	1274 (50,2)	239 (9,4)	447(17.6)
80	256 (10,1)	369 (14,5)	1446 (56,9)	276 (10,9)	484(19.1)
90	324 (12,8)	407 (16,0)	1618 (63,7)	314 (12,4)	522(20.1)
100	392 (15,4)	444 (17,5)	1791 (70,5)	351 (13,8)	559(22.0)

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

(Future models)

ⓐ	ⓑ	ⓒ1	ⓒ2	ⓒ3	ⓒ4
Diagonal size (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)
60	96 (3,8)	281 (11,1)	1196 (47,1)	188 (7,4)	396(15.6)
70	161 (6,3)	317 (12,5)	1384 (54,5)	224 (8,8)	432(17.0)
80	225 (8,9)	352 (13,9)	1571 (61,9)	259 (10,2)	467(18.4)
90	289 (11,4)	387 (15,2)	1759 (69,3)	294 (11,6)	502(19.8)
100	353 (13,9)	423 (16,7)	1947 (76,7)	330 (13,0)	538(21.2)

(*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 ⓑ will vary by ±8% depending on what product is used.

Screen sizes when used with Hitachi Star Board

8104HW (WXGA)

Unit: mm (inches)

Modell	Projection size			ⓑ	ⓒ1	ⓒ2	ⓒ3	ⓒ4
	Aspect ratio	Diagonal size (inches)	Dimensions					
Hitachi Star Board FX-82WG	16:9	83	1.831 × 1.030 (72,1 × 40,6)	292 (11,5) (*1)	447 (17,6)	1.480 (58,3)	354 (13,9)	562 (22,1)
Hitachi Star Board FX-DUO-88W Hitachi Star Board FX-TRIO-88W	16:10	88	1.896 × 1.185 (74,7 × 46,5)	310 (12,2)	399 (15,7)	1.584 (62,4)	306 (12,0)	514 (20,2)

(*1): Sizes for a 16:9 aspect ratio setting.

CFuture models (XGA)

Unit: mm (inches)

Modell	Projection size			ⓑ	ⓒ1	ⓒ2	ⓒ3	ⓒ4
	Aspect ratio	Diagonal size (inches)	Dimensions					
Hitachi Star Board FX-63G Hitachi Star Board FX-DUO-63	4:3	63	1.280 × 960 (50,4 × 37,8)	116 (4,6)	292 (11,5)	1.252 (49,3)	199 (7,8)	452 (17,8)
Hitachi Star Board FX-77G Hitachi Star Board FX-DUO-77 Hitachi Star Board FX-TRIO-77	4:3	77	1.565 × 1.173 (61,6 × 46,2)	206 (8,1) (*2)	341 (13,4)	1.515 (59,6)	248 (9,8)	511 (20,1)

(*2): Sizes for a 4:3 aspect ratio setting.

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Template sheet usage

Determining location of wall holes

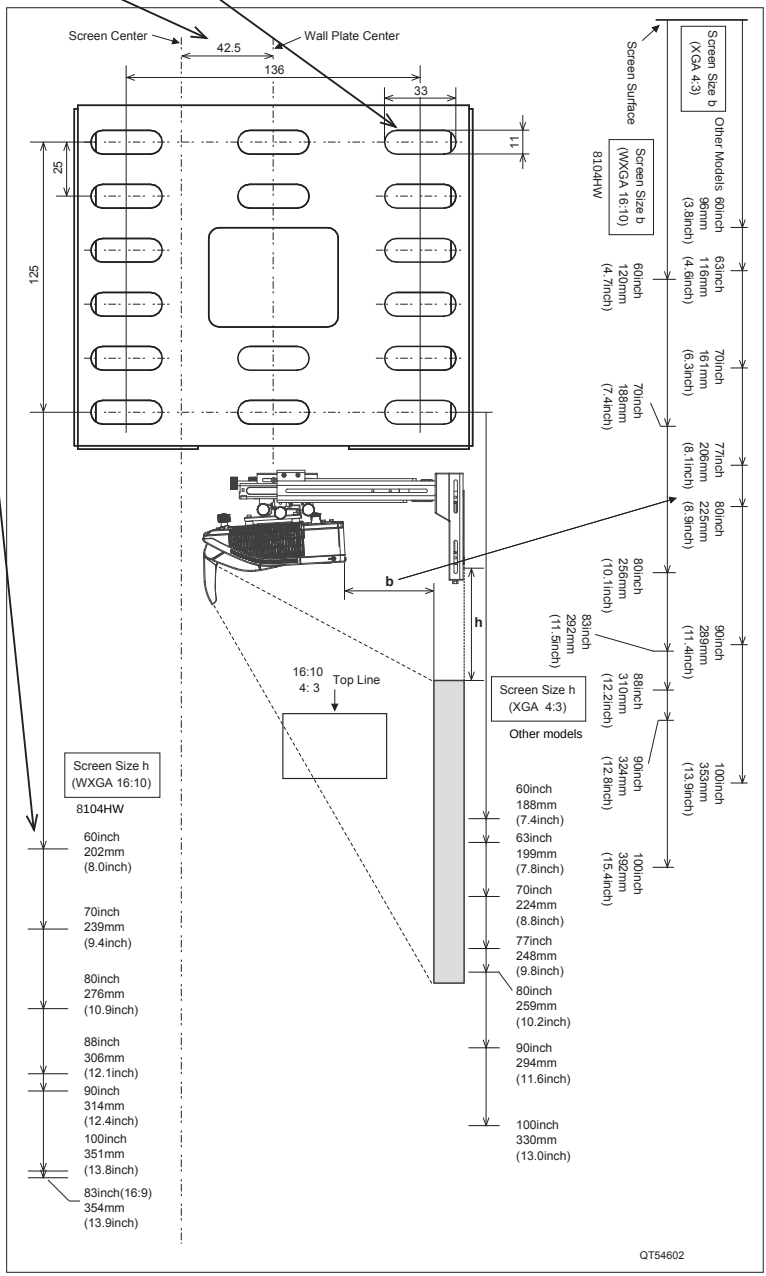
Place the template sheet (J) where you want to project the image.

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 42.5 mm (1.67 inches) to the right of the screen center.

③ Make a hole in the wall as indicated by the base bracket figure.



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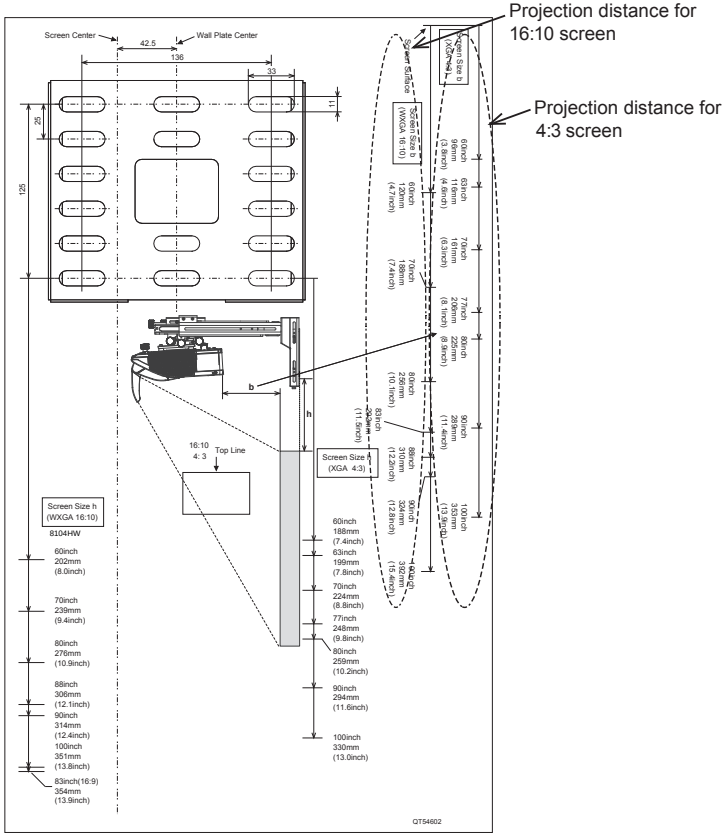
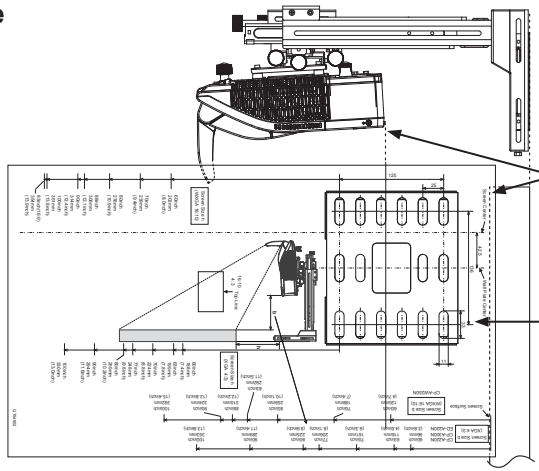
Adjusting arm length

Arrows at the right and left sides of the template sheet (J) indicate the distance from the screen surface to the back of the projector.

During rough adjustments of arm length, adjust it according to the dimension of distance (b) from the screen surface to the back of the projector.



Example



As shown in the figure, place the template sheet (J) on the wall like a screen to determine the required screen size and the distance from the wall to the back of the projector.

Screen surface

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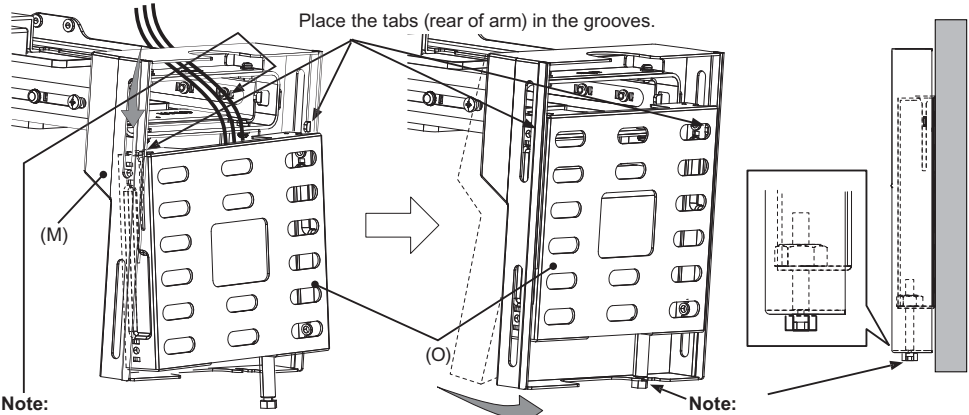
④ Attach the arm (M) to the base bracket (O).

Insert the tab at the top of the arm (M) in the groove at the top of the base bracket (O). Then insert the U-groove at the bottom of the arm (M) in the groove of the vertical adjusting nut in the base bracket.

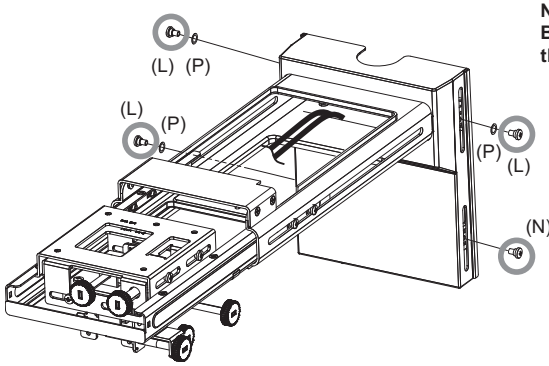


Note:
Route the cables through this hole before attaching the arm (M) to the base bracket (O).

Note:
Insert the vertical adjusting nut as shown in the figure.

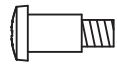
⑤ Use three M5 shoulder screws (L), three washers (P) and one M5 screw with spring washer and flat washer (N) to secure.

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

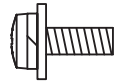


Note:
Be sure not to mix up the screw types.

(L) × 3



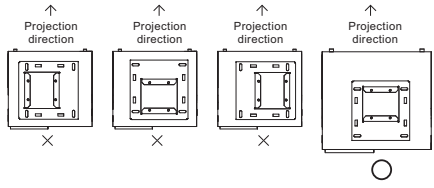
(N) × 1

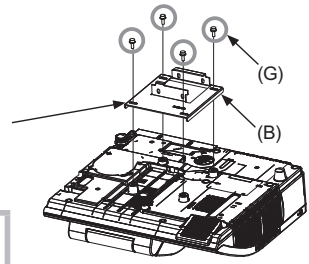


⑥ Attach the bracket (B) to the LCD projector using four M4 × 8 (G) hexagon head screws.

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

Note:
Make sure that the bracket (B) is correctly oriented.





⚠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.

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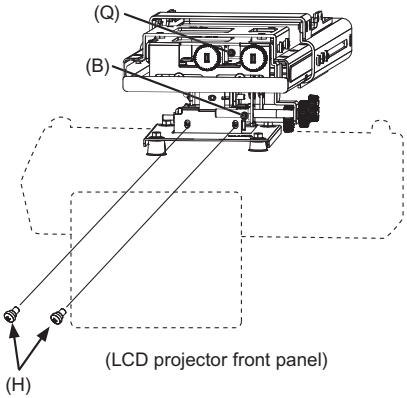
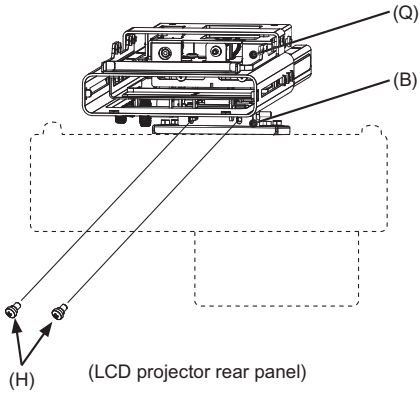
⑦ Attach the LCD projector to which the bracket (B) has been attached to the adjusting block (Q).

Tighten the four M4 x 8 round head screws (H).
Tightening torque: 0.98 N•m (10 kgf•cm)



(LCD projector front panel)

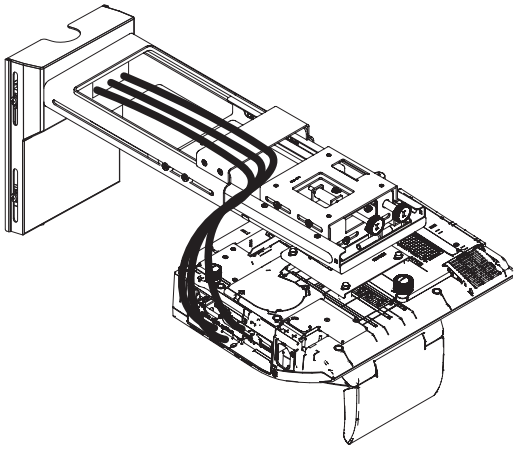


(LCD projector rear panel)

⚠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.

⑧ Connect the cables to the projector.



Connect as shown in the above figure.

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⑨ Turn the projector on and project an image to make adjustments.

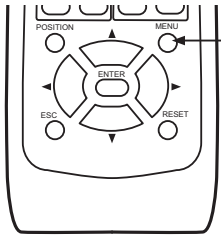
⑨-1. Project an image, adjust the image settings and focus on the LCD projector.

- Adjust the focus.
- Select MIRROR.
- Set the D-ZOOM to its maximum value (full screen).
- Reset PERFECT FIT.
- Set the ⏢ KEYSTONE and ⏢ KEYSTONE values to 0.

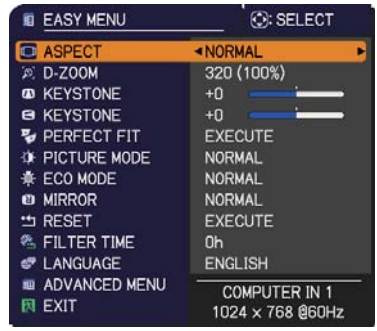
* For details, see to the User's Manual for the LCD projector.

⑨-2. 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.

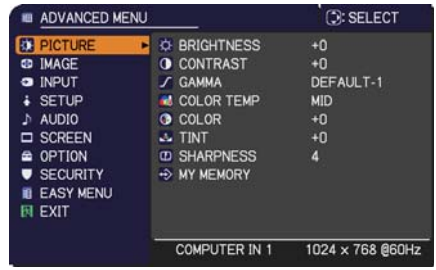


Menu button



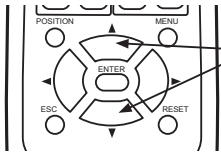
EASY MENU

② Go to step ④ if the ADVANCED MENU appears.



ADVANCED MENU

③ If the EASY MENU appears, use the cursor buttons (▲/▼) to select the ADVANCED MENU.

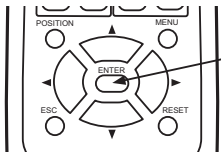


Cursor button

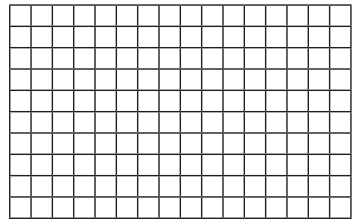
④ Use the cursor buttons (▲/▼) to select SCREEN.

TEMPLATE

⑤ Use the cursor buttons (▲/▼) to select DOT-LINE4 in TEMPLATE.
Then press the ENTER button to display the DOT-LINE4 screen.



ENTER button


DOT-LINE4 screen

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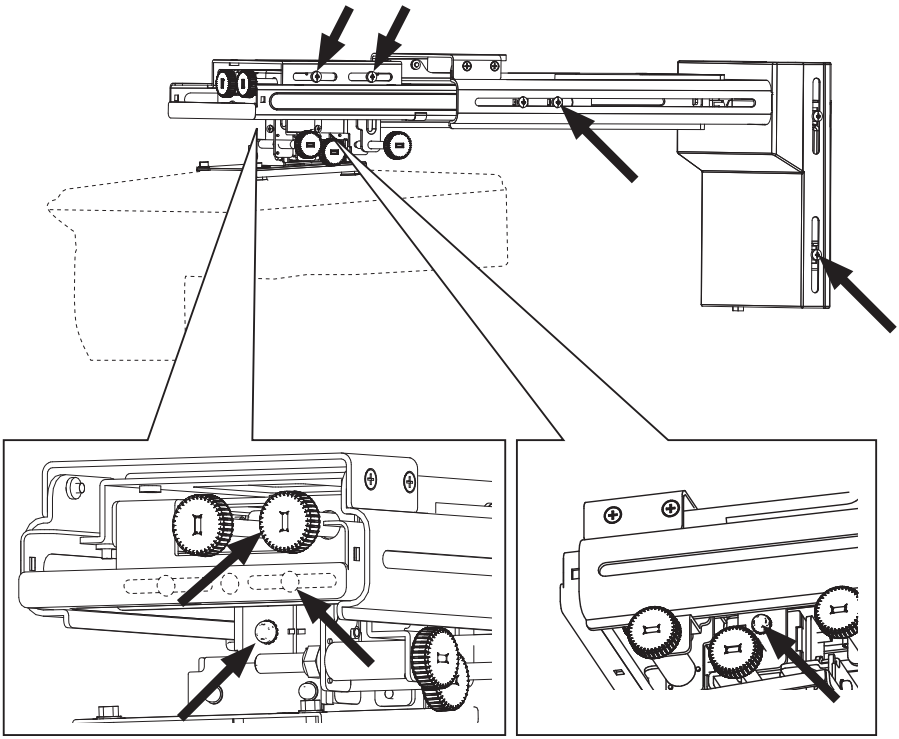
⑩ Adjust the image.

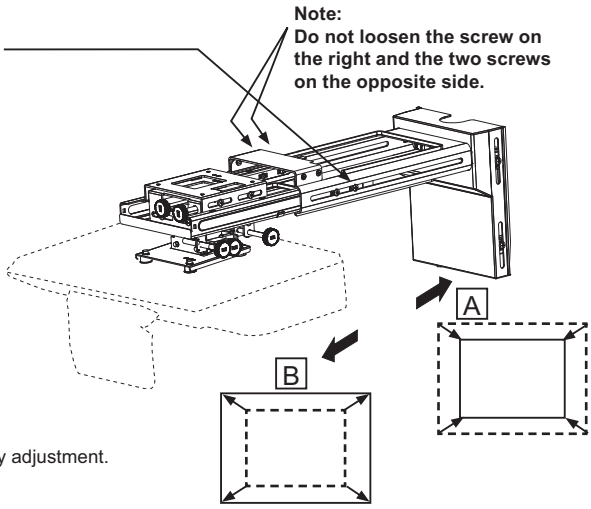
⑩-1. Loosen the securing screws.

(at the eight locations indicated by the arrows in the figure below)



⑩-2. Rough adjustment of image size.

1. Loosen the screw on the side of the arm.
2. Slide the arm forward and backward to adjust image size.
   The scale on the supplied template sheet (J) simplifies adjustment. See page 10 for information on how to use the template sheet.
3. After completing adjustments, retighten the screw.
   Tightening torque: 0.98 N•m (10 kgf•cm)



* Use the supplied template sheet to simplify adjustment. (See page 10.)

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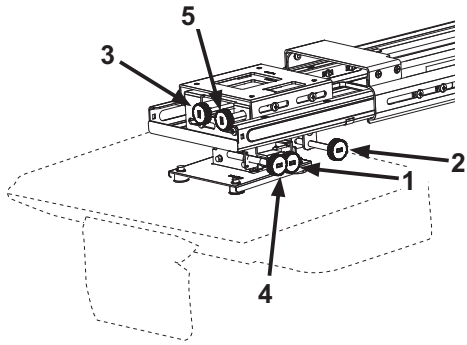
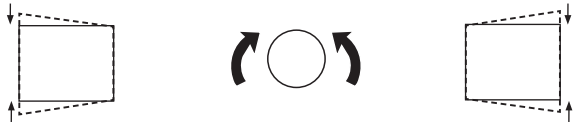
⑩**-3. Make a rough focus adjustment.**
For details, see the User's Manual for the LCD projector.

⑩**-4. Make fine adjustments.**
Follow the steps below to turn the adjusting screws and adjusting knobs to adjust the image.



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.

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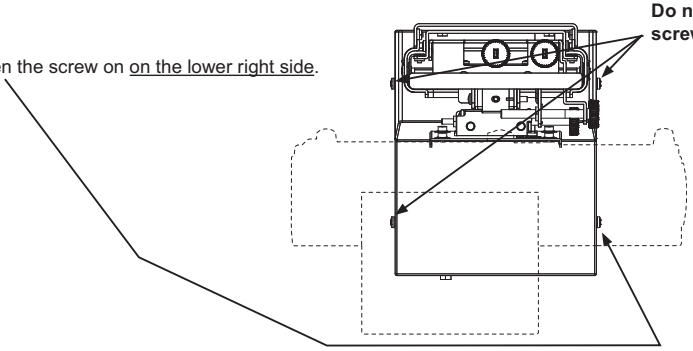
7. Fine adjustment of vertical position

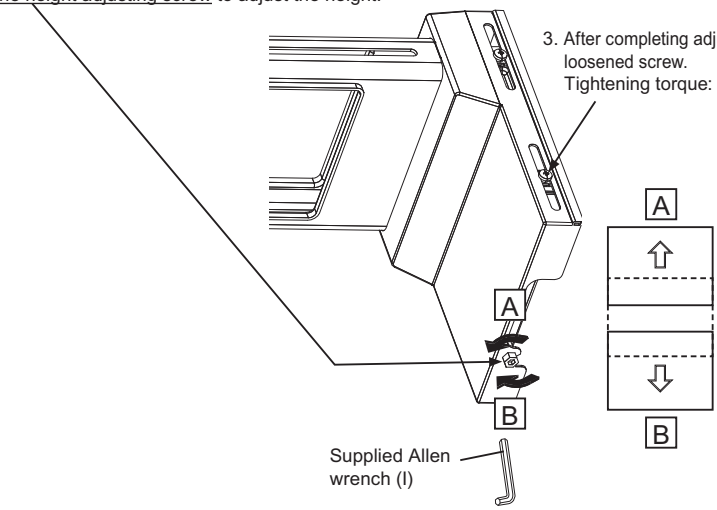
Note:
Do not loosen these three screws.

1. Loosen the screw on on the lower right side.



2. Turn the height adjusting screw to adjust the height.

3. After completing adjustments, retighten the loosened screw.
Tightening torque: 0.98 N•m (10 kgf•cm)



- Repeat steps 1 to 7 to fine adjust the image to the screen.
  See page 22 for details on adjustment range.

⑩**-5. Retighten the eight previously loosened securing screws.**
Tightening torque: 0.98 N•m (10 kgf•cm)

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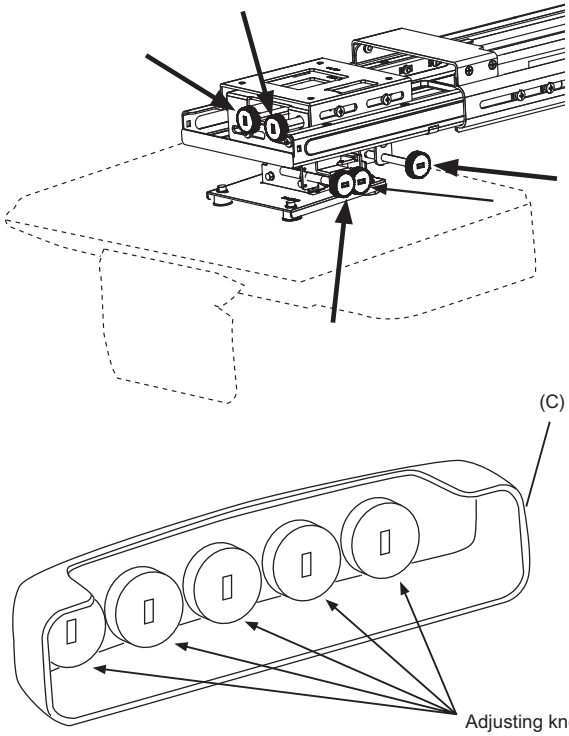
Installing exterior parts

⑪ Procedure for installing exterior parts

⑪-1. The knobs indicated by the arrows can be removed. Place them on the projections inside the front cap (C) for storage.



⚠WARNING

- Adjusting knobs are small parts that could be swallowed by children and pets and should be kept out of their reach. If your child swallows an adjusting knob, consult a doctor immediately.
  If they are removed, be sure to store them on the projections inside the front cap (C).

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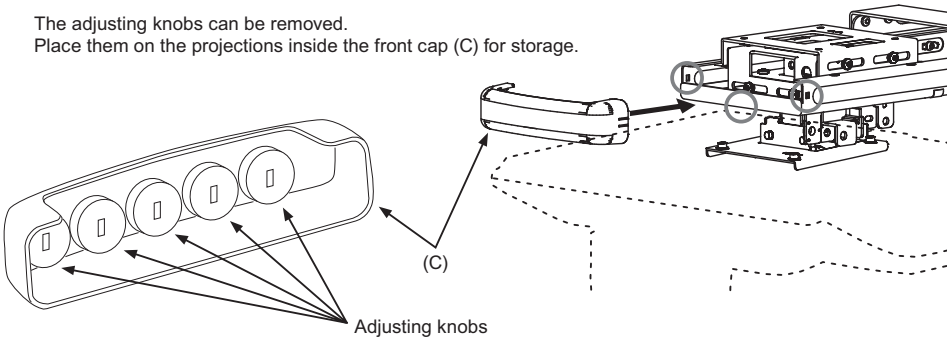
⑪-2.Attach the front cap (C) at the front end of the arm (M).

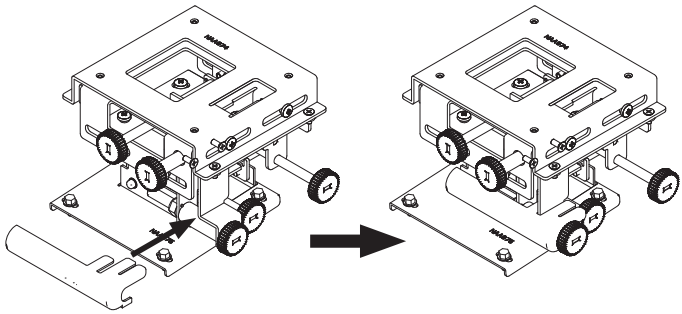
Engage the left, right and center claws.

The adjusting knobs can be removed.
Place them on the projections inside the front cap (C) for storage.



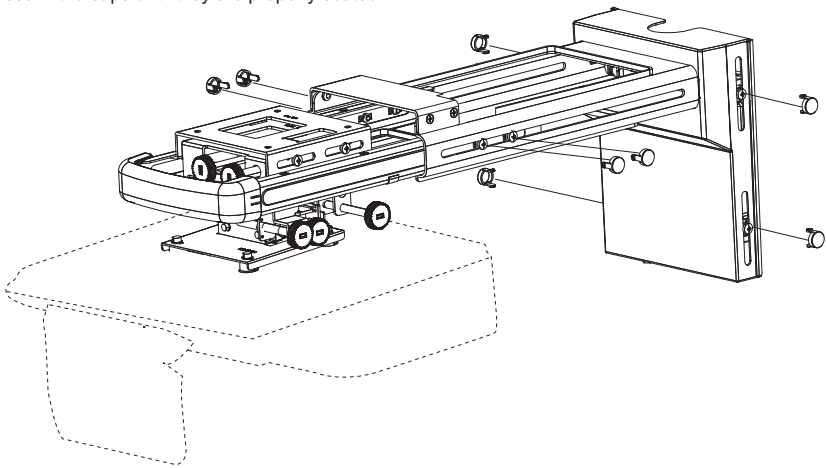
⑪-3.Attach the adjust cover (F) on the adjusting block.

As shown in the figure, engage the right claw with the opening in the adjusting block.



⑪-4.Attach the eight screw caps (D) on the screws on the arm (M).

Four locations on the right and left side
Press in the caps until they are properly seated.



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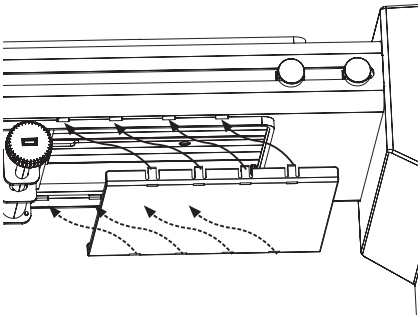
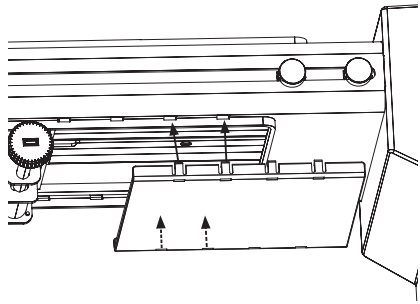
⑪-5. **Attach the arm cover (E) to the arm (M).**

Insert the eight claws in the arm cover (E) in the eight holes in the arm (M).

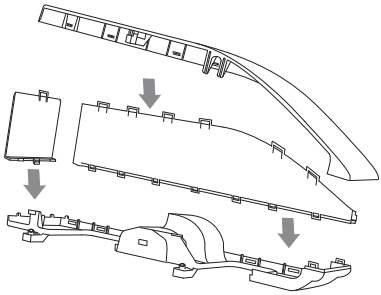
Note:
When the arm (M) will be used in retracted mode, insert the claws at the four locations shown in the figure.





⑪-6. **Assemble the cable cover as shown in the figure below.**

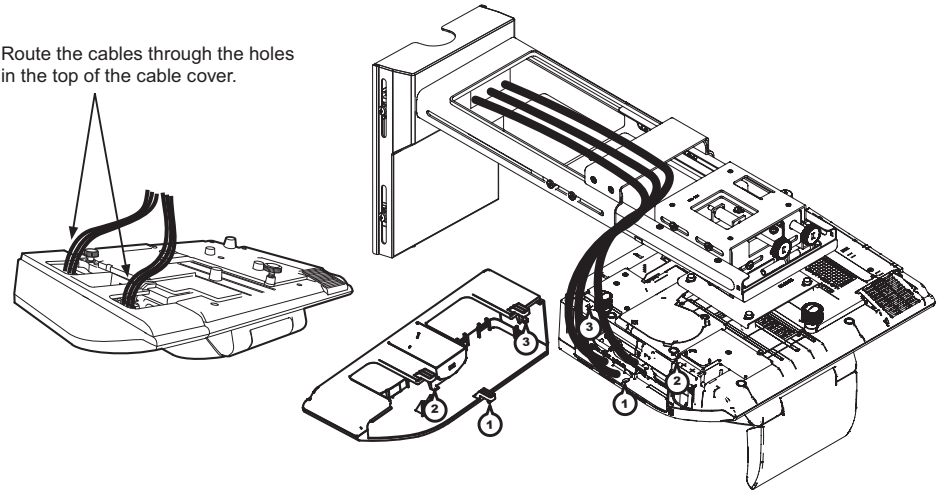
Note:
The cable cover is supplied with the LCD projector.



⑪-7. **Attach the cable cover.**

Engage the three tabs in the cable cover with the three holes in the LCD projector.

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



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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.

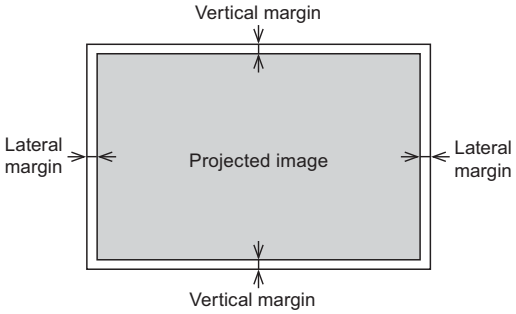
Note:

- 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



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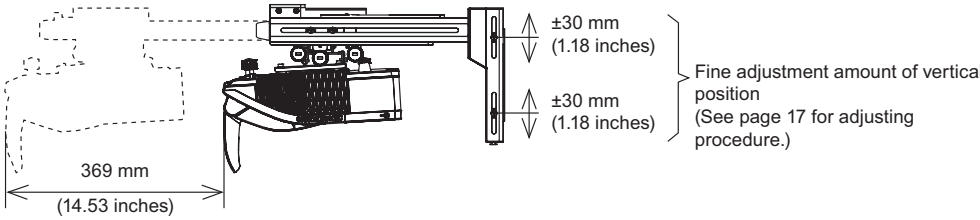
Adjustment specifications

- LCD projector range of motion provided by arm extension/contraction
  (See page 21 for adjusting procedure.)



Item	Image movement	Fine adjustment amount (amount of LCD projector movement)	Description of adjustment method
Fine adjustment of horizontal position		±3°	page 16
Fine adjustment of horizontal keystone		±3°	page 16
Fine adjustment of vertical keystone		±3°	page 16
Fine adjustment of lateral position		±20 mm (0.79 inches)	page 16
Fine adjustment of image size		±20 mm (0.79 inches)	page 16
Fine adjustment of vertical position		±30 mm (1.18 inches)	page 17

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