

Ultra short throw lens installation

The ultra short throw lens—0.36 UST GS (P/N: 140-133108-XX)—allows you to position your projector as close as possible to your screen or display.



Unless otherwise indicated, the 700-GS and 850-GS model is shown for illustration purposes and may vary from your model.

Affected products

The following products are affected:

- GS Series

Identifying product versions

The Ultra short throw lens kit is designed with two types of installation accessories to fit the different lens shift modules (LSM) on the projectors. Check the boresight of the projector to identify the version of the lens shift module. This document provides installation steps for both types of LSMs.



Make sure the projector is turned off before checking the boresight.

Lens shift module	Boresight description	Projectors
LSM1	Has a lens release button. The boresight plate is secured with three screws.	Christie DHD630-GS Christie DWU630-GS Christie DHD635-GS Christie DWU635-GS Christie DHD850-GS Christie DWU850-GS Christie DHD700-GS Christie DWU700-GS Christie DHD1075-GS Christie DWU1075-GS
LSM2 - A	Does not have a lens release button. The boresight plate is secured with four screws	Christie DHD630-GS Christie DWU630-GS Christie DHD635-GS Christie DWU635-GS

Lens shift module	Boresight description	Projectors
		Christie DHD850-GS Christie DWU850-GS Christie DHD700-GS Christie DWU700-GS Christie DHD1075-GS Christie DWU1075-GS
LSM2 - B		Christie DWU880-GS Christie DWU1100-GS Christie DWU1400-GS

Required components

The Ultra short throw lens kit (P/N: 140-133108-XX) includes the following components.

Quantity	Description
1	0.36 UST GS lens
1	Lens support bracket
1	Lens bracket
2	Mounting blocks (A)
2	Mounting blocks (B)
1	Angle bracket
12	M3x8 screws
6	M3x8 hex screws
4	M6x22 screws
4	M6x55 screws
4	M6x65 screws
6	M3 washers
10*	M6 washers
1	Product information card

* Six of the washers are provided as spare parts.

Lens shift 1 components

Quantity	Description
1	Boresight adapter plate
3	Boresight extension rods
1	Boresight L-shaped socket key (silver)

Lens sift 2 components

Quantity	Description
1	Ultra short throw lens pogo adapter
3	Boresight extension rods (with red rubber ring)
1	Boresight L-shaped socket key (black) or Boresight U-shaped socket key (black)

Required tools

The following tools are required.

- Long neck #2 Phillips screwdriver
- L-shaped socket key provided with the lens kit
- 2.5 mm allen key
- 5 mm hex nut driver
- 10 mm hex key wrench

Safety precautions

When installing the ultra short throw lens, observe these important safety rules to avoid personal injury or damage to the projector.



Warning! If not avoided, the following could result in death or serious injury.

- Do not look directly into the lens when the light source is on. The extremely high brightness can cause permanent eye damage.
- EXTREME BRIGHTNESS! Make sure no personnel or objects are in the product light path.



Caution! If not avoided, the following could result in minor or moderate injury.

- All procedures must be performed by Christie qualified technicians.
- SHOCK HAZARD! Always turn off power when replacing product components.
- TIP HAZARD! Place the product on a stable surface.

Completing the ultra short throw lens installation setup

To complete the installation setup, enter UST mode and start a lens calibration.

1. If you have a non-ultra short throw lens, complete the following steps:
 - a) Install a non-ultra short throw lens in the projector.
 - b) Power on the projector.
 - c) Access the Service menu.

- For the 700-GS, 850-GS, and 1075-GS models: From the on-screen display, select **Configuration > Service**.
 - For the 630-GS and 635-GS models: From the on-screen display, select **Settings > Service**.
- d) Enter the Service password.
- e) Select **OK**.
- f) Start the ultra short throw lens installation.
- For the 630-GS, 635-GS, 700-GS, 850-GS, and 1075 models: Select **UST Lens Install > Start**. A lens calibration is performed.
 - For the 880-GS, 1100-GS, and 1400 models: Select **UST > On**.

A lens calibration is performed.

If you do not have non-ultra short throw lens, use Exit/Input/Left/Right the shortcut keys on the local keypad or on the remote control unit to start ultra short throw lens installation.

2. If you do not have a non-ultra short throw lens and projector is a 630-GS, 635-GS, 700-GS, 850-GS, or 1075 model, complete the following steps.
 - a) Connect to the projector with a computer using RS232 or Ethernet.
The default IP address is 192.168.0.100.
 - b) Send the following two serial API commands to the projector to enter UST mode:

```
(UID "service,service")
(UST 1)
```

A lens calibration is performed.

3. When the lens calibration is complete, to turn off the projector, select **Exit**.
4. Disconnect the projector from AC power.

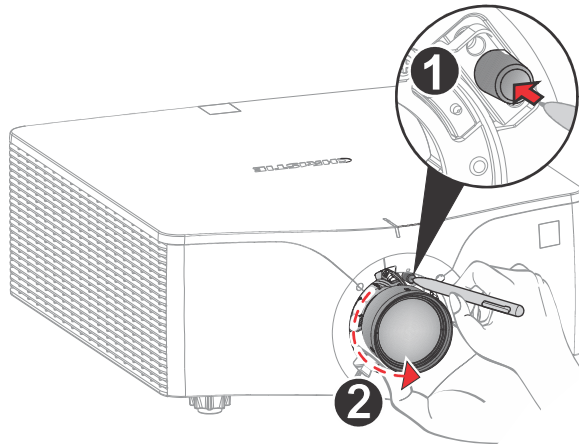
Removing the non-ultra short throw lens

Use the correct method to remove the non-ultra short throw projection lens, if it is installed.

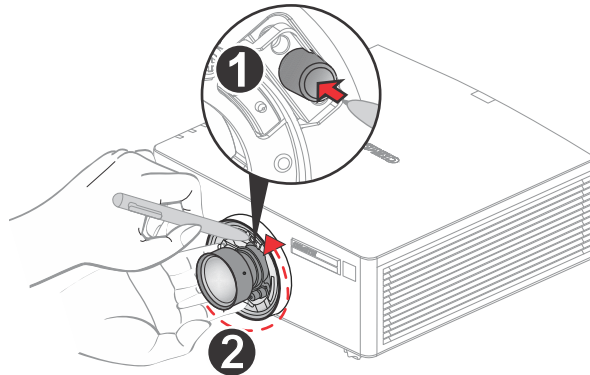


If a non-ultra short throw lens is not installed, proceed to *Replacing the boresight adapter* (on page 5).

1. To remove the lens, select the **Lens Release** button and rotate the lens counterclockwise by a quarter to release the lock.
 - LSM1 for 700-GS, 850-GS, and 1075-GS:



- LSM1 for 630-GS and 635-GS:



- For LSM2, proceed to step 2.
2. Remove the lens through the front of the projector.

Removing the standard boresight adapter plate

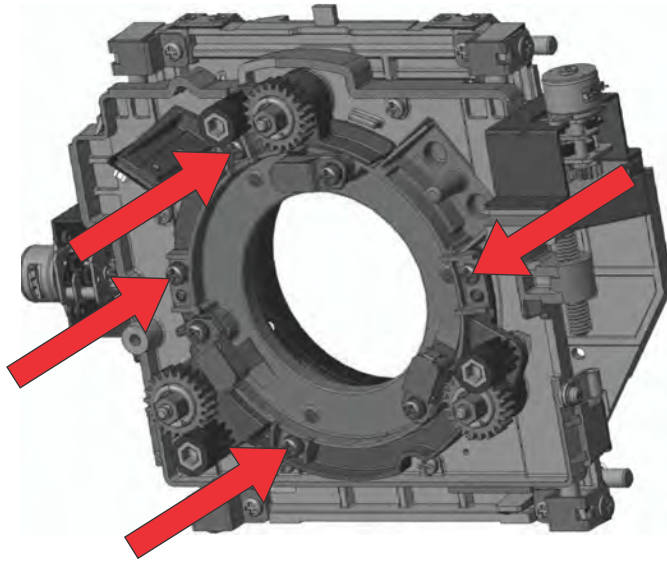
As part of the ultra short throw lens installation, remove the standard boresight adapter plate.

Depending on your projector, there are two standard boresight adapter plates:

- Boresight adapter 1 secured with three screws
 - Boresight adapter 2 secured with four screws
1. For 630-GS and 635-GS only, release the lens ring by turning the lens ring counterclockwise.
 2. Remove the screws securing the standard boresight adapter plate.
 - Remove the three screws securing boresight adapter plate 1 (LSM1).



- Remove the four securing the boresight adapter plate 2 (LSM2).



3. Rotate the standard boresight adapter and remove from the projector.
When removing the boresight adapter, make sure it does not scratch the aperture casing of the projector.
4. Retain the standard boresight adapter for future use.

Installing the ultra short throw boresight adapter plate for LSM1

Install the boresight adapter plate for LSM1.

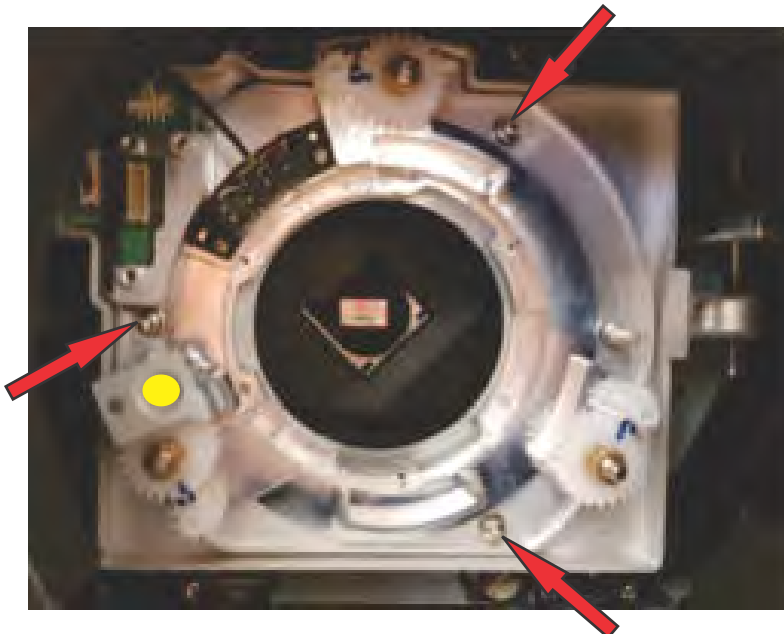
1. Disconnect the connector from the plate the boresight adapter rests on.



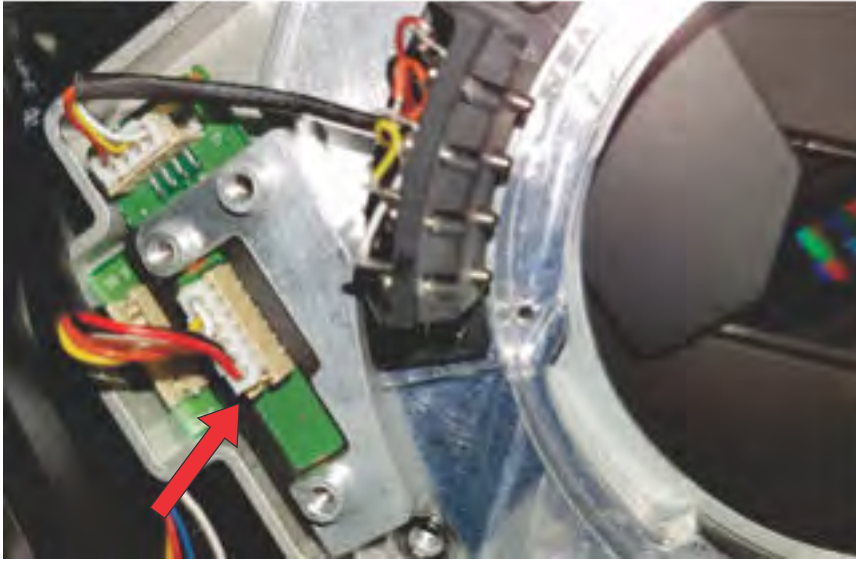
If in a poorly lit area, stand the projector with the projector aperture facing up for better visibility of the connector.



2. Insert the new ultra short throw lens boresight adapter in the projector. When inserting the new boresight adapter, make sure it does not scratch the aperture casing of the projector and the cable is not wrapped or pinched.
3. Install and tighten the three screws.

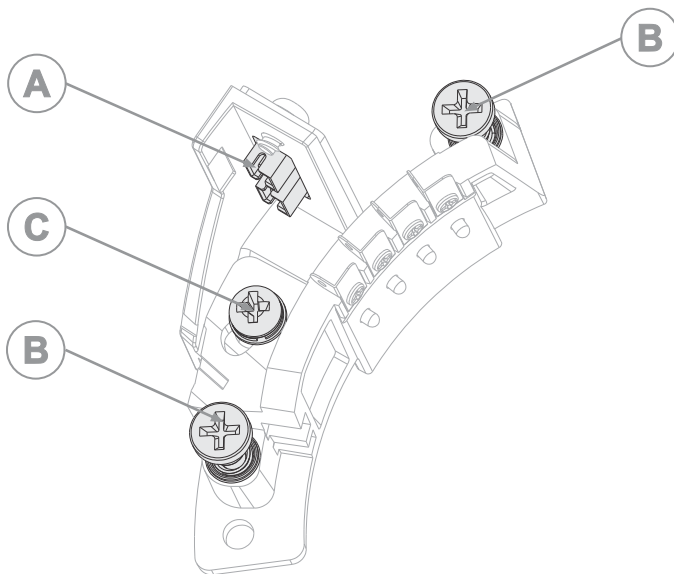


4. Install the connector you disconnected in step 1 on the new boresight adapter plate.



Installing the ultra short throw pogo pin adapter for LSM2

To attached the ultra short throw lens to the projector, install the pogo pin adapter for LSM2.



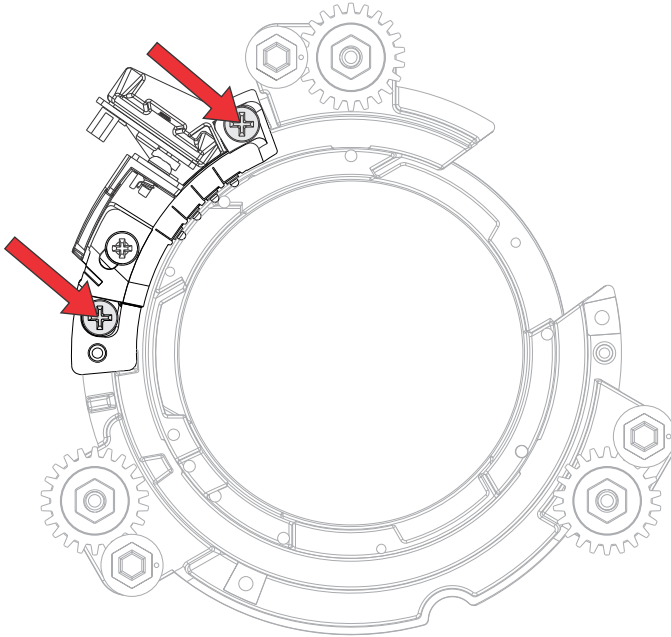
- A Circuit board
- B Side screws
- C Middle screw

The middle screw (C) controls the lateral position of the circuit board (B) on the adapter:

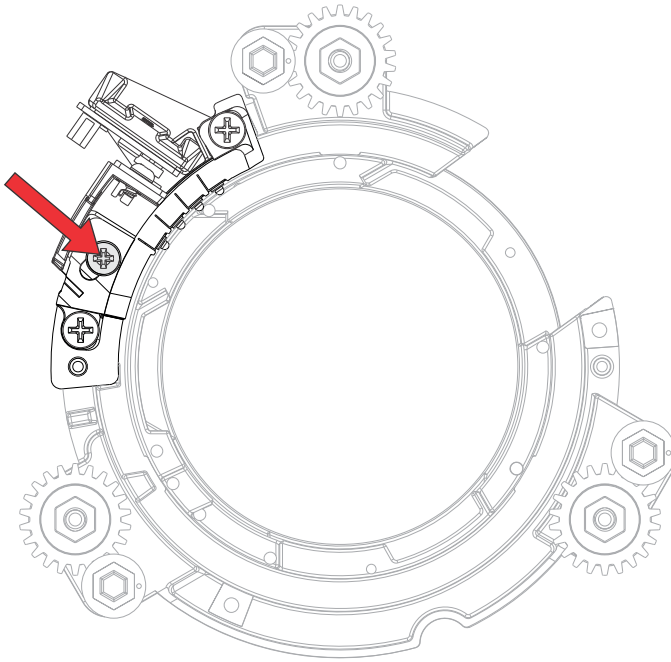
- Turning the screw counter-clockwise moves the circuit board towards the screw.
- Turning the screw clockwise moves the circuit board away from the screw.

The middle screw in the pogo pin adapter must be turned at least three counterclockwise turns or the pogo pin adapter cannot be properly installed in the projector.

1. Insert the UST lens pogo pin adapter into the projector.
Before installing the pogo pin adapter, make sure the middle screw on the adapter is turned counter-clockwise for at least three turns and the other two screws are loosened.
2. Tighten the side screws (B) on the pogo pin adapter.



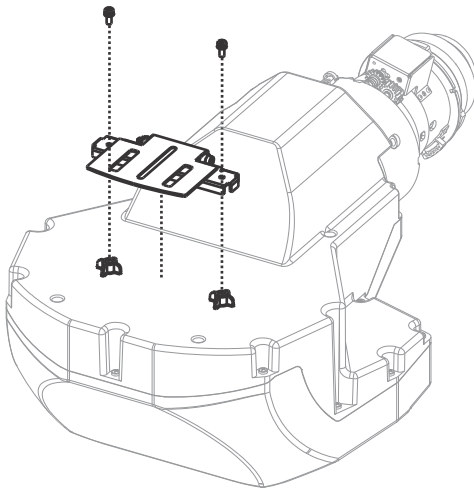
3. Tighten the middle screw (C) on the pogo pin adapter.
Make sure you tighten the side screws before tightening the middle screw.



Mounting the lens support bracket

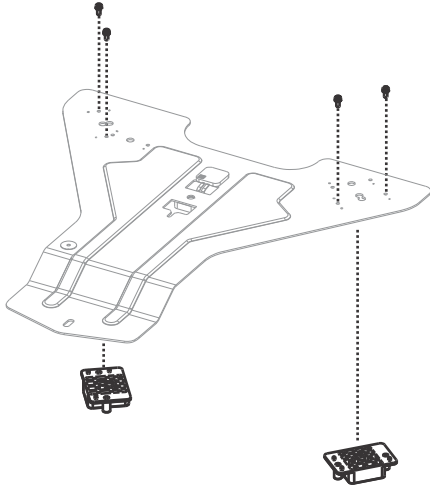
To provide additional support for the ultra short throw lens, mount it on a support bracket.

1. Place the ultra short throw lens on a cushioned surface to prevent damaging the lens.
2. Using two M3x8 screws, secure the lens bracket to the ultra short throw lens.
Note the direction of the arrow on the lens bracket.

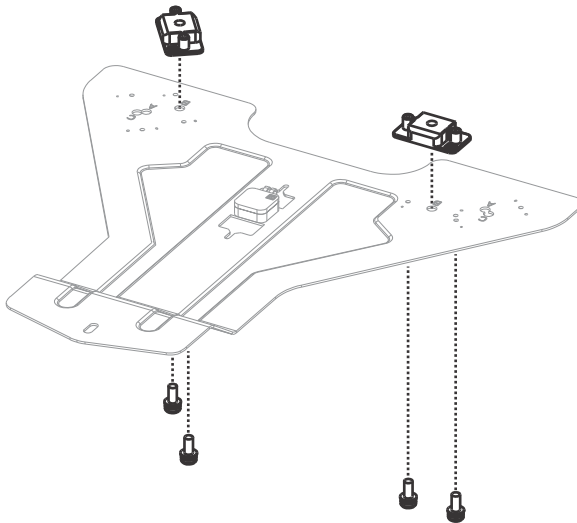


3. Place the projector upside-down on a flat, clean surface.
4. For 630-GS and 635-GS only, to ensure enough clearance exists between the lens support bracket and the surface the projector is on, rotate each projector foot five counterclockwise turns.
5. Align the mounting block to the lens support bracket.

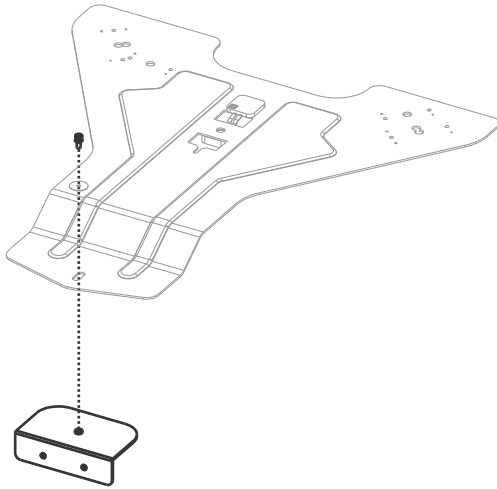
- For the 700-GS, 850-GS, 880-GS, 1075-GS, 1100-GS, and 1400-GS models, align the screw holes on mounting block A to the holes marked A on the lens support bracket.
 - For the 630-GS and 635-GS models, align the screw holes on mounting block B to the holes marked B on the lens support bracket.
6. Install four M3x8 screws to secure the mounting block to the lens support bracket.
700-GS, 850-GS, 880-GS, 1075-GS, 1100-GS, and 1400-GS:



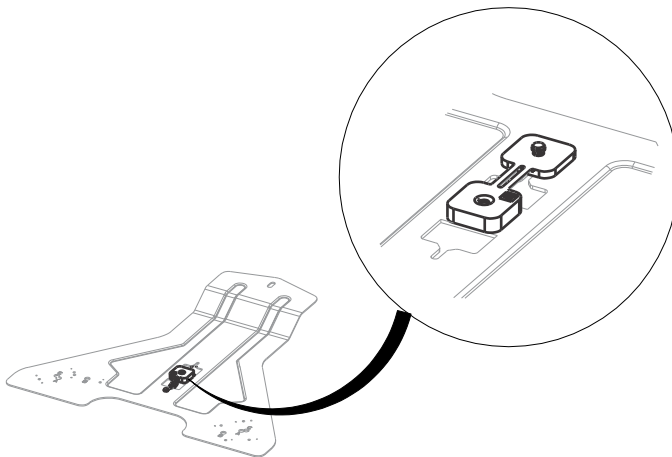
630-GS and 635-GS:



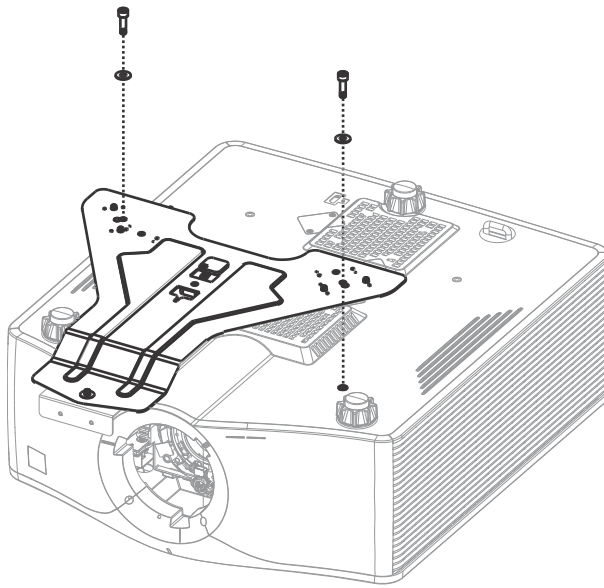
7. To secure the angle bracket to the lens support bracket, install one M3x8 hex screw and one M3 washer.
Do not fully tighten the screw.



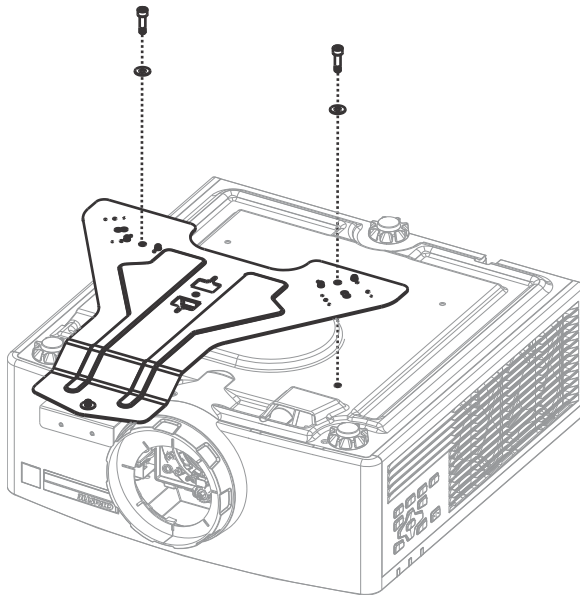
8. For the 630-GS and 635-GS models only, install the rubber spacer provided in the installation kit on top of the default rubber spacer on the lens support bracket. The additional rubber spacer is not required for the 700-GS, 850-GS, 880-GS, 1075-GS, 1100-GS, and 1400-GS models.



9. If not mounting the projector using Christie One Mount, complete the following steps:
- Attach the lens support bracket assembly to the bottom surface of the projector.
 - Install the two M6x22 hex screws and two M6 washers in the mounting holes of the projector.
700-GS, 850-GS, 880-GS, 1075-GS, 1100-GS, and 1400-GS:



630-GS and 635-GS:



- c) Continue with the last step in this procedure.
- 10. If using the lens support bracket with Christie One Mount, complete the following steps:
 - a) Place the lens support bracket assembly on the bottom of the projector.
 - b) Position two pillars of Christie One Mount to the lens support bracket and the other two pillars on the projector as shown below.



- c) To fasten the two rear pillars of Christie One Mount to the projector, install the two M3x8 hex screws (no washers required) provided with Christie One Mount.
- d) Fasten the two front pillars of Christie One Mount to the lens support bracket assembly.
 - For the 700-GS, 850-GS, 880-GS, 1075-GS, 1100-GS, and 1400-GS models, install the two M6x65 screws and two M6 washers.
 - For the 630-GS and 635-GS models, install two M6x55 screws.

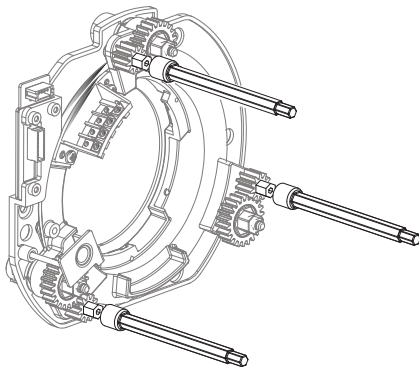
11. Turn the projector back to its original orientation.

12. Install the three extension rods.

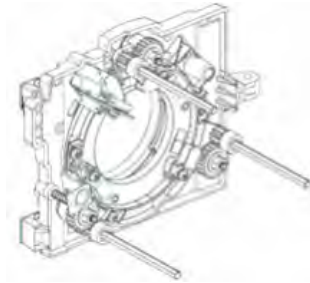
- For LSM1, face the socket heads of the extenders towards the projector.
- For LSM2, face the red rubber rings on the extenders toward the projector.

The boresight extensions rods must be installed before installing the ultra short throw lens.

LSM1:



LSM2:



Initially adjusting the boresight screws

Before installing the ultra short throw lens, Christie recommends initially adjusting the boresight. Once the lens is installed, the adjustment range is limited.

1. Turn the boresight gears counter-clockwise to the end position with the boresight extension rod.
Ignore the marks, marks are for production requirements only.



2. If the boresight screws are not in their initial position, turn the screws counterclockwise until they stop .
3. Adjust the boresight to the recommended ranges according to the projector orientation.
For LSM1 for the 700-GS and 850-GS models:

Orientation	Adjustment range (in turns) for boresight screws		
	A	B	C
Table top	3 + 1/4	9	9
Portrait (right)	6 + 3/4	7	10 + 3/4
Portrait (left)	5 + 1/4	10 + 3/4	6
Ceiling mount	10 + 1/2	7 + 1/4	7 + 1/4
Upright	10 + 3/4	8 + 1/4	8 + 1/2

For LSM1 for the 630-GS, 635-GS, 1075-GS models:

Orientation	Adjustment range (in turns) for boresight screws		
	A	B	C
Table top	3 + 3/4	7 + 1/2	8 + 1/2
Portrait (right)	5 + 1/4	4	10
Portrait (left)	5 + 1/4	9 + 1/2	4 + 1/2
Ceiling mount	7 + 1/4	6	6
Upright	7 + 1/2	7	7 + 1/4

For LSM2 A for the 630-GS, 635-GS, 1075-GS models:

Orientation	Adjustment range (in turns) for boresight screws (LSM 2 A)		
	A	B	C
Table top	7	7	7
Portrait (right)	8 + 1/2	5 + 1/2	8 + 1/2
Portrait (left)	8 + 1/2	8 + 1/2	5 + 1/4
Ceiling mount	11	5 + 1/2	6 + 1/2
Upright	9 + 1/2	7	7

For LSM2 B for the 880-GS, 1100-GS, 1400-GS models:

Orientation	Adjustment range (in turns) for boresight screws (LSM 2 B)		
	A	B	C
Table top	3	3	3
Portrait (right)	5	2	5
Portrait (left)	5 + 1/4	5 + 1/4	2
Ceiling mount	7 + 1/2	2	3
Upright	5 + 1/2	3	3

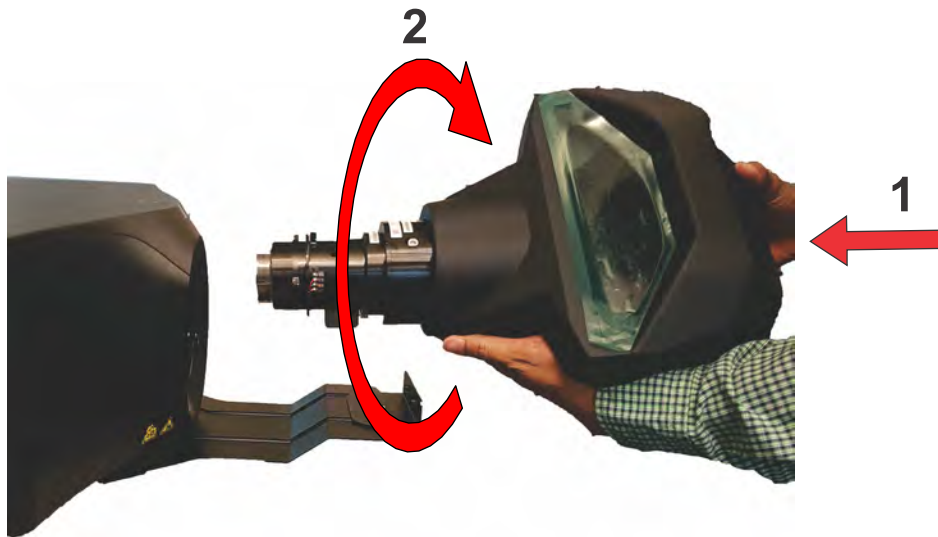
Installing the ultra short throw lens

Install the ultra short throw lens in the projector after installing the new boresight adapter.

1. Insert the ultra short throw lens into the projector slightly angled to the left so the Top label on the lens aligns with the Status LED indicator on the projector.

Note the orientation of the lens (1) as illustrated below.

2. To lock the lens, rotate the lens clockwise (2 in the image below).



Setting up the projector

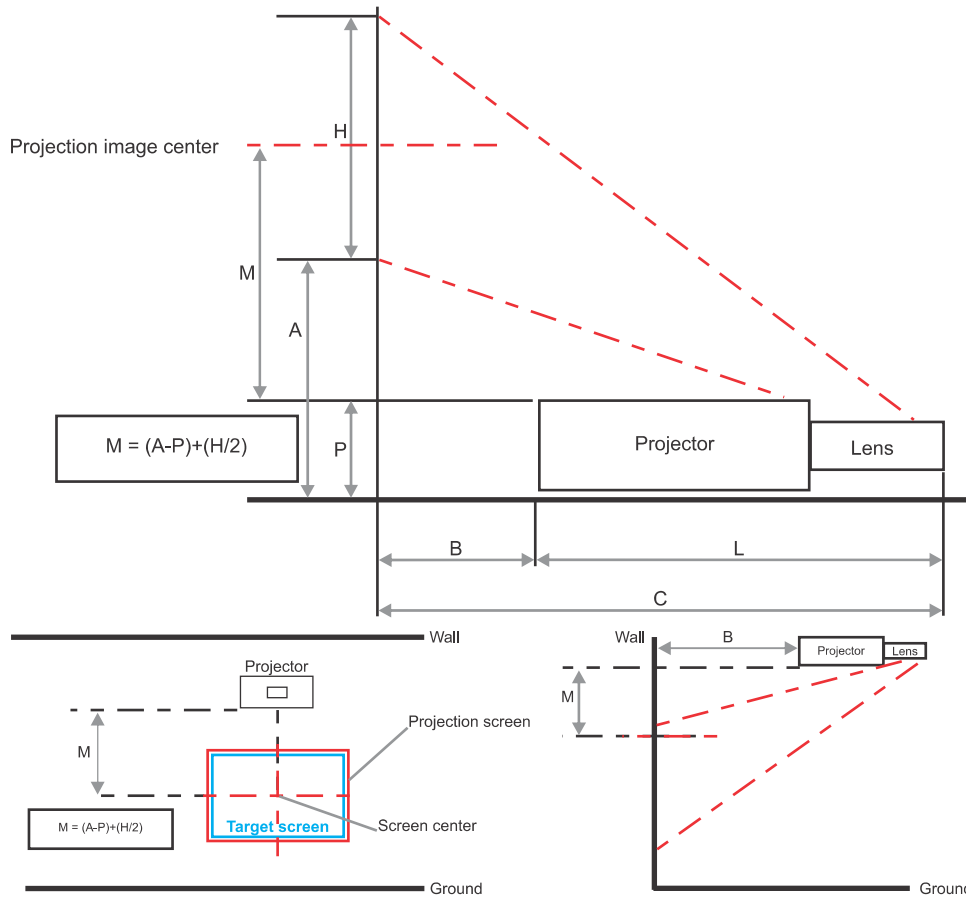
Follow these steps to mark the target screen and set up the projector.

1. Make sure the projector is position perpendicular to the projection wall.
2. Mark the size and center of the projection target screen.
Christie recommends the projection image size is at least 25.4 cm (10 inches) larger than the target screen size.
3. Based on the projection screen size, calculate the setup dimension.
See the *Lens specification table* (on page 17).
4. Make sure the variation of the B value and the value in the Lens specification table are within +/-1cm (+/-0.4 inches).
5. Make sure the variation of the M value and the value in the Lens specification are within +/-1cm (+/-0.4 inches).

Lens specification table

The following table and image provides the lens specifications.

- P = Projector height
- A-P = From the top of the projector to the bottom edge of the screen
- L = From the front of the lens to the rear of the projector
- B = From the projector back to the projection screen
- C = From the lens front to the projection screen
- M = $(A-P) + (H/2)$ = From the top of the projector to the center of the screen



Screen size								
Diagonal (inches)	W (cm)	H (cm)	P (cm)	A-P (cm)	L (cm)	B (cm)	C (cm)	M (cm)
110	236.9	148.1	19.9	52.6	82.6	6.3	88.9	126.6
120	258.5	161.5	19.9	58.2	82.6	13.6	96.3	139.0
130	280.0	175.0	19.9	63.9	82.6	21.0	103.6	151.4
140	301.5	188.5	19.9	69.5	82.6	28.3	110.9	163.8
150	323.1	201.9	19.9	75.2	82.6	35.6	118.2	176.2
160	344.6	215.4	19.9	80.9	82.6	42.9	125.5	188.5
170	366.2	228.9	19.9	86.5	82.6	50.3	132.9	200.9
180	387.7	242.3	19.9	92.2	82.6	57.6	140.2	213.3
190	409.2	255.8	19.9	97.8	82.6	64.9	147.5	225.7
200	430.8	269.2	19.9	103.5	82.6	72.2	154.8	238.1
210	452.3	282.7	19.9	109.1	82.6	79.5	162.2	250.5
220	473.9	296.2	19.9	114.8	82.6	86.9	169.5	262.9

Screen size			P (cm)	A-P (cm)	L (cm)	B (cm)	C (cm)	M (cm)
Diagonal (inches)	W (cm)	H (cm)						
230	495.4	309.6	19.9	120.4	82.6	94.2	176.8	275.2
240	516.9	323.1	19.9	126.1	82.6	101.5	184.1	287.6
250	538.5	336.5	19.9	131.7	82.6	108.8	191.5	300.0
260	560.0	350.0	19.9	137.4	82.6	116.2	198.8	312.4
270	581.6	363.5	19.9	143.0	82.6	123.5	206.1	324.8
280	603.1	376.9	19.9	148.7	82.6	130.8	213.4	337.2
290	624.6	390.4	19.9	154.4	82.6	138.1	220.8	349.6
300	646.2	403.9	19.9	160.0	82.6	145.5	228.1	361.9
310	667.7	417.3	19.9	165.7	82.6	152.8	235.4	374.3
320	689.3	430.8	19.9	171.3	82.6	160.1	242.7	386.7
330	710.8	444.2	19.9	177.0	82.6	167.4	250.0	399.1
340	732.3	457.7	19.9	182.6	82.6	174.7	257.4	411.5
350	753.9	471.2	19.9	188.3	82.6	182.1	264.7	423.9
400	861.6	538.5	19.9	216.5	82.6	218.7	301.3	485.8

Turning on the projector

Before turning on the projector, ensure the ultra short throw lens has been installed.

1. Plug the projector into AC power.
2. To turn on the projector, select the **Power** button.

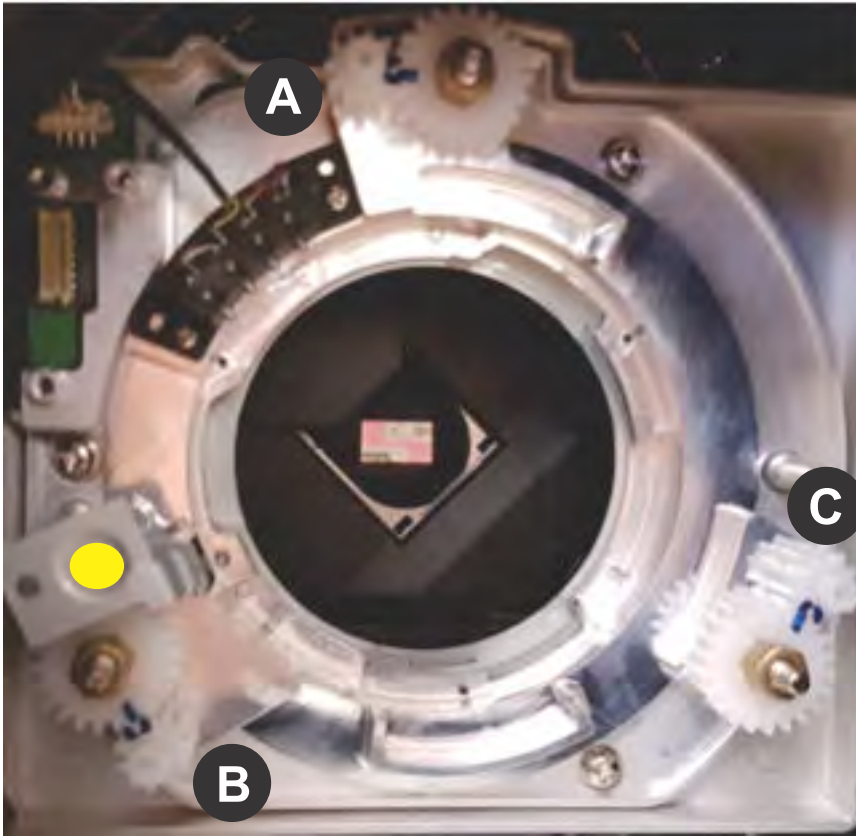
Adjusting the boresight

The boresight adjustment range changes depending on the orientation of the projector.

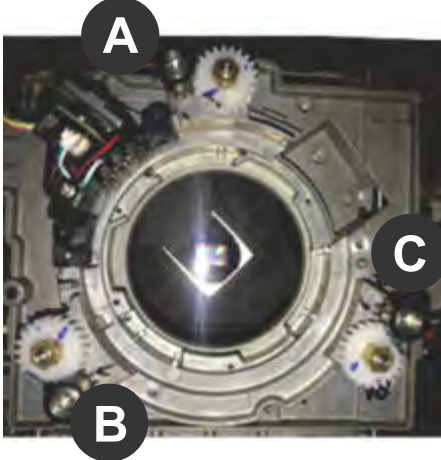
When adjusting the boresight with the internal test pattern, only limited lens shift can be performed and source input is not allowed.

1. Note the location of each the boresight screw before continuing with this procedure.

LSM1:

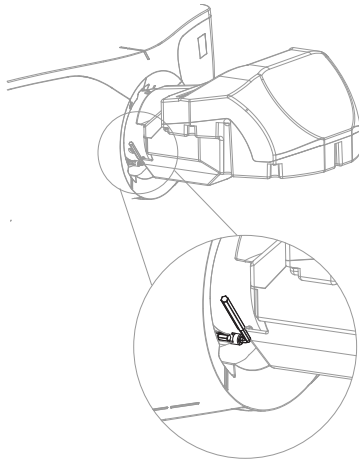


LSM2:

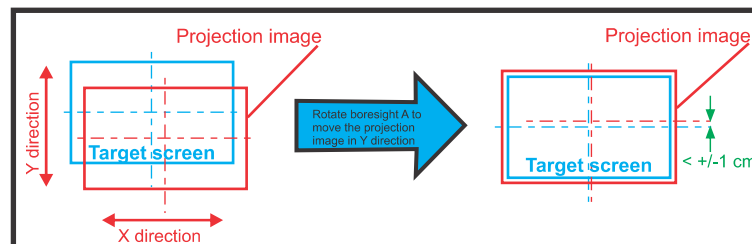
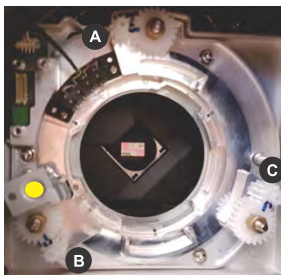


2. To display a test pattern to assist with adjusting boresight, select **TEST**.
Four internal test patterns are available.
3. To switch to the next test pattern, select **TEST**.
4. To exit the Test pattern menu, select **Exit**.
To access the boresight test pattern after pressing **Exit** from the popup window, go to the Service menu.

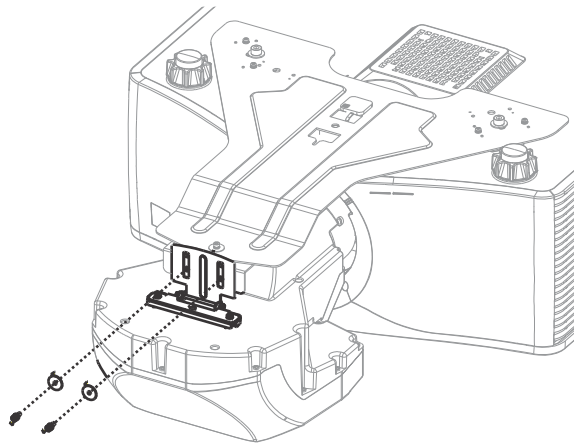
- For 700-GS, 850-GS, and 1075-GS, to enable the boresight adjustment mode, from the on-screen display select **Configuration > Service > UST Lens Install > Test Pattern 1 to 4.**
 - For 630-GS and 635-GS, to enable the boresight adjustment mode, from the on-screen display select **Settings > Service > UST Lens Install > Pattern 1 to 4.**
 - For 880-GS, 1100-GS, and 635-GS, to enable the boresight adjustment mode, from the on-screen display select **Configuration > Service > UST Pattern > Test Pattern 1 to 4.**
5. Using the L-shaped socket key, adjust the three boresight screws (A, B, and C in the image in Step 1) counterclockwise until tight.



6. To adjust the boresight for optimized image quality, use the L-shaped socket key.
 - a) To focus the center of the screen, adjust the floating and back focus.
To adjust the floating focus, select **FOCUS**. To adjust the back focus, select **ZOOM**.
 - b) To focus the left area of the screen, adjust the B boresight screw.
 - c) To focus the right area of the screen, adjust the A boresight screw.
 - d) To focus the top area of the screen, select **FOCUS**.
 - e) To focus the bottom area of the screen, adjust the C boresight screw.
7. If the distance between the projection image center and the target center is too large in Y direction, adjust boresight A (shown in the image below) to make the projection image center close to the target screen center (within +/-1cm).



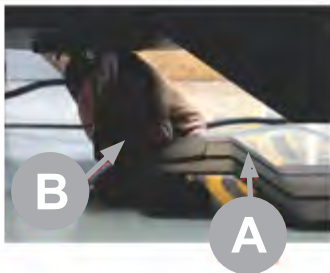
8. To complete the installation of the lens support bracket, install two M3x8 hex screws and two M3 washers to secure the lens bracket to the lens support bracket assembly.



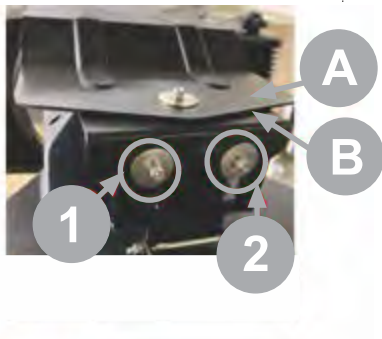
9. 8. Tighten the center M3 screw

To avoid affecting the projected image, only use a rotation force on a hex key wrench while fastening the screws.

- a) Hand fastening the screws before using tools. With your hand tighten the screws make metal sheet B as close as possible to metal sheet A (shown in the image below).



- b) Tighten screw 1 approximately 180 degree, tighten screw 2 approximately 180 degree, and then repeat until fully tightened (as shown in the image below).

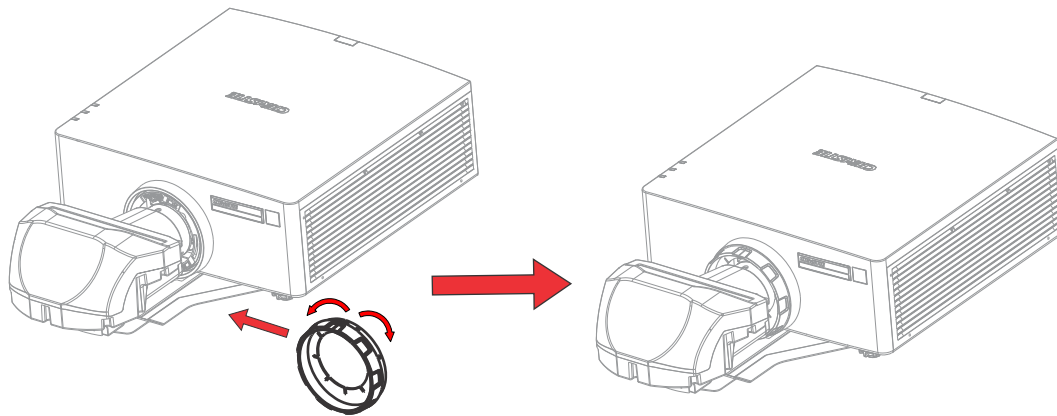


- c) Tighten screw 3 (as shown in the image below).



Avoid moving the projection during the operation.

10. For 630-GS and 635-GS only, Christie recommends installing the rubber boot.

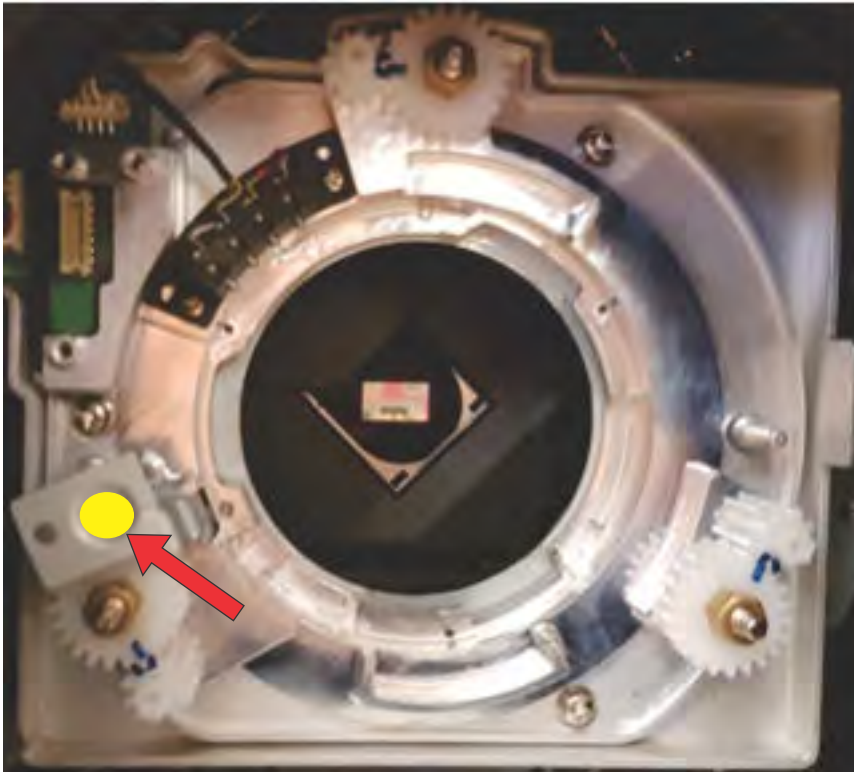


Christie recommends keeping the boresight extenders in place in case you need to adjust boresight again.

Removing the ultra short throw lens

A long neck screwdriver is required to release the lens.

1. Turn off the projector and disconnect from AC power.
2. Loosen the screws that connect the lens bracket to the lens support bracket assembly.
 - For lens shift module 1, proceed to step 3.
 - For lens shift module 2, proceed to step 5.
3. For lens shift module 1, insert the screwdriver into the lens aperture, aligning the screwdriver with the bottom side of the lens.
4. To remove the lens, with the screwdriver select the **Lens Release** button (shown below) and rotate the lens counterclockwise by a quarter.



5. Remove the lens through the front of the projector.
6. If installing a non-ultra short throw lens in the projector:
 - a) Remove the new boresight adapter and install the original standard boresight adapter. Repeat the steps in the *Removing the standard boresight adapter plate* (on page 5) in reverse order.
 - b) Install a non-ultra short throw lens.
 - c) From the on-screen display, do one of the following:
 - For the 700-GS, 850-GS, 1075-GS, 880-GS, 1100-GS, and 1400-GS models, select **Configuration > Service**.
 - For the 630-GS and 635-GS models, select **Settings > Service**.
 - d) Enter the Service password.
 - e) Select OK.
 - f) For the 630-GS, 635-GS, 700-GS, 850-GS, and 1075-GS, models, select **UST Lens Install > None**.
A lens calibration is performed and the projector is ready to use with the non-ultra short throw lens.
 - g) For the 880-GS, 1100-GS, and 1400-GS models, select **UST > Off**.
A lens calibration is performed and the projector is ready to use with the non-ultra short throw lens.

Ultra short throw lens specifications

Learn about the specifications for the ultra short throw lens.

Description	Value
Throw ratio (0.67" WUXGA, 0.65" 1080P)	0.361 (120")
Focal length	9.49 - 9.55
F number	2.4
Zoom ratio	No zoom
Throw distance (0.67" WUXGA)	0.96 - 2.65 m
Throw distance (0.65" 1080P)	0.99 - 2.72 m
Screen size	120" to 350" (305 to 889 cm)
Lens configuration	23 group 23 elements
Brightness ratio	76.5%
Net weight	2.715 kg (5.986 lbs)



The throw ratio is for screen size 120". The tolerance is +/- 3%.

Technical support

Technical support for Christie Enterprise products is available at:

- North and South America: +1-800-221-8025 or Support.Americas@christiedigital.com
- Europe, Middle East, and Africa: +44 (0) 1189 778111 or Support.EMEA@christiedigital.com
- Asia Pacific (support.apac@christiedigital.com):
 - Australia: +61 (0)7 3624 4888 or tech-Australia@christiedigital.com
 - China: +86 10 6561 0240 or tech-supportChina@christiedigital.com
 - India: +91 (80) 6708 9999 or tech-India@christiedigital.com
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