Service Guide
020-101699-04

Boxer 4K

CHRISTIE®

NOTICES

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GENERAL

Every effort has been made to ensure accuracy, however in some cases changes in the products or availability could occur which may not be reflected in this document. Christie reserves the right to make changes to specifications at any time without notice. Performance specifications are typical, but may vary depending on conditions beyond Christie's control such as maintenance of the product in proper working conditions. Performance specifications are based on information available at the time of printing. Christie makes no warranty of any kind with regard to this material, including, but not limited to, implied warranties of fitness for a particular purpose. Christie will not be liable for errors contained herein or for incidental or consequential damages in connection with the performance or use of this material. Canadian manufacturing facility is ISO 9001 and 14001 certified.

WARRANTY

Products are warranted under Christie's standard limited warranty, the complete details of which are available by contacting your Christie dealer or Christie. In addition to the other limitations that may be specified in Christie's standard limited warranty and, to the extent relevant or applicable to your product, the warranty does not cover:

a. Problems or damage occurring during shipment, in either direction.

b. Projector lamps (See Christie's separate lamp program policy).

c. Problems or damage caused by use of a projector lamp beyond the recommended lamp life, or use of a lamp other than a Christie lamp supplied by Christie or an authorized distributor of Christie lamps.

d. Problems or damage caused by combination of a product with non-Christie equipment, such as distribution systems, cameras, DVD players, etc., or use of a product with any non-Christie interface device.

e. Problems or damage caused by the use of any lamp, replacement part or component purchased or obtained from an unauthorized distributor of Christie lamps, replacement parts or components including, without limitation, any distributor offering Christie lamps, replacement parts or components through the internet (confirmation of authorized distributors may be obtained from Christie).

f. Problems or damage caused by misuse, improper power source, accident, fire, flood, lightening, earthquake or other natural disaster.

g. Problems or damage caused by improper installation/alignment, or by equipment modification, if by other than Christie service personnel or a Christie authorized repair service provider.

h. Problems or damage caused by use of a product on a motion platform or other movable device where such product has not been designed, modified or approved by Christie for such use.

i. Problems or damage caused by use of a projector in the presence of an oil-based fog machine or laser-based lighting that is unrelated to the projector.

j. For LCD projectors, the warranty period specified in the warranty applies only where the LCD projector is in "normal use" which means the LCD projector is not used more than 8 hours a day, 5 days a week.

k. Except where the product is designed for outdoor use, problems or damage caused by use of the product outdoors unless such product is protected from precipitation or other adverse weather or environmental conditions and the ambient temperature is within the recommended ambient temperature set forth in the specifications for such product.

l. Defects caused by normal wear and tear or otherwise due to normal aging of a product.

The warranty does not apply to any product where the serial number has been removed or obliterated. The warranty also does not apply to any product sold by a reseller to an end user outside of the country where the reseller is located unless (i) Christie has an office in the country where the end user is located or (ii) the required international warranty fee has been paid.

The warranty does not obligate Christie to provide any on site warranty service at the product site location.

PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.

REGULATORY

The product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. The product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.

CAN ICES-3 (A) / NMB-3 (A)

이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

ENVIRONMENTAL

The product is designed and manufactured with high-quality materials and components that can be recycled and reused. This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from regular waste. Please dispose of the product appropriately and according to local regulations. In the European Union, there are separate collection systems for used electrical and electronic products. Please help us to conserve the environment we live in!

Content

Introduction

This document provides technical information for assisting Christie qualified technicians in the servicing of the Boxer 4K projector.

Every effort has been made to make sure the information in this document is accurate and complete. However, due to continuing research all information is subject to change without notice. Christie assumes no responsibility for omissions or inaccuracies.

Affected products

The following products are affected:

- Boxer 4K30
- Boxer 4K20
- Mirage 304K
- Boxer 30

Site requirements

To safely install and operate the projector, the installation location must have restricted access for authorized personnel only and meet these minimum requirements.

Physical operating environment

Provides specifications for the operating environment.

- Ambient temperature (operating) 5 to 40°C (41 to 104°F) up to 1500 ft
- Humidity (non-condensing) 10 to 80%
- Operating altitude: 10,000 ft maximum at 5 to 25 degrees Celsius ambient

Power connection

The projector uses an innovative dual AC inlet power system that offers two power modes.

To operate at full brightness (six lamps), power the projector using AC Input 1 if the appropriate high power source is available. To operate in limited power mode (single lamp), power the projector using standard lower power sources using AC Input 2. A different power cord is provided for each power source. A 30A rated wall breaker is required at the installation when using Input 1. A 15A rated wall breaker is required at the installation when using Input 2.

Projector components

Identify the main components of the projector.
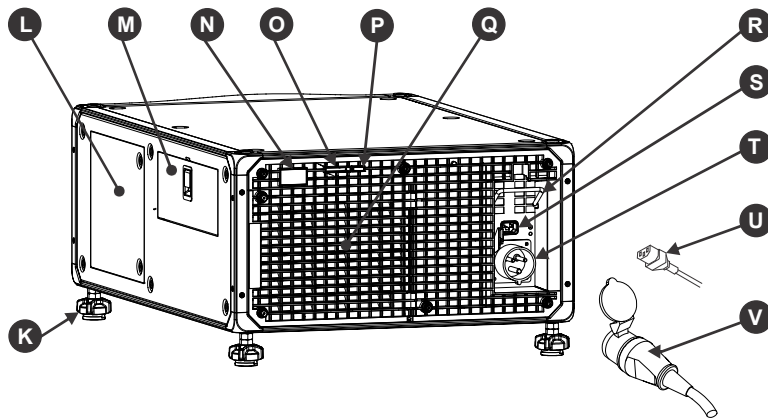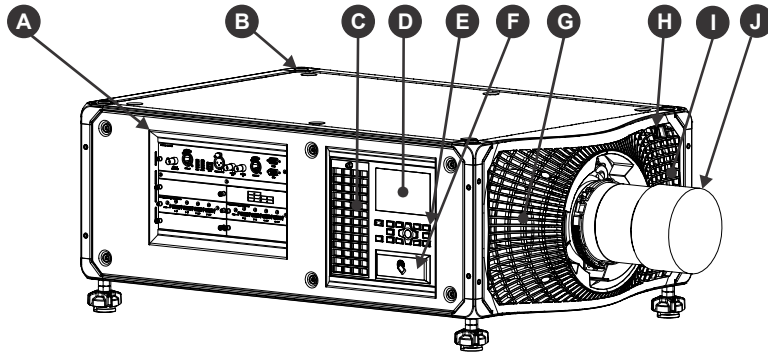
ID	Component	Description
A	Communication and input panel	Connects media sources to either the ports on the option cards or the IMXB.
B	Mounting and rigging holes	M12 x 1.75 holes for projector feet installation and offer mounting and rigging points.
C	User interface air filter door	Provides to the user interface air filter.
D	Display panel	Displays the projector menus and status.
E	Keypad interface	Controls the projector.
F	Christie TAP Enables	Android devices to communicate with the projector using near field communication.
G	Electronics-side filter door	Provides access to the electronics-side air filter.
H	Front IR	Receives transmissions from the IR remote.
I	Lamp-side filter door	Provides access to the lamp-side air filter.
J	Projection lens	A variety of lenses can be used with the projector. Available lenses are listed in accessories.

ID	Component	Description
K	Adjustable feet	Raise or lower these feet when positioning the projector to make sure it is level on all sides so the displayed image appears rectangular without any keystone.
L	Service compartment	Access to fold mirror, optical zoom/focus, and DMD convergence adjustments.
M	Tool box	Provides tools for Christie qualified technicians.
N	Rear IR	Receives transmissions from the IR remote.
O	LED status indicator	Indicates lamp and power status.
P	Shutter LED status indicator	Indicates shutter status.
Q	Lamp door	Access to lamp compartment.
R	AC lock	Locks Input 1 power cord.
S	AC Input 2: limited power	Use this IEC 320-C14 inlet to connect to an appropriately rated power cord (component R) provided for your region. For use in limited power mode.
T	AC Input 1: full power	Use this IEC 309 inlet to connect to an appropriately rated power cord (component S) provided for your region. For use in full power mode.
U	Power cord: limited power	Connects the provided power cord appropriately rated for your region to AC Input 2 for limited power mode.
V	Power cord: full power	Connects the provided power cord appropriately rated for your region to AC Input 1 for full power mode.

IR remote keypad

The IR remote keypad controls the projector by way of wireless communications from a battery-powered infrared (IR) transmitter.

To use the IR remote, direct the keypad toward the projector's front or rear IR sensor and press a function key. One of the two IR sensors on the projector detect the signal and relay the commands for internal processing. The remote also offers a connector for wired connections to the projector.
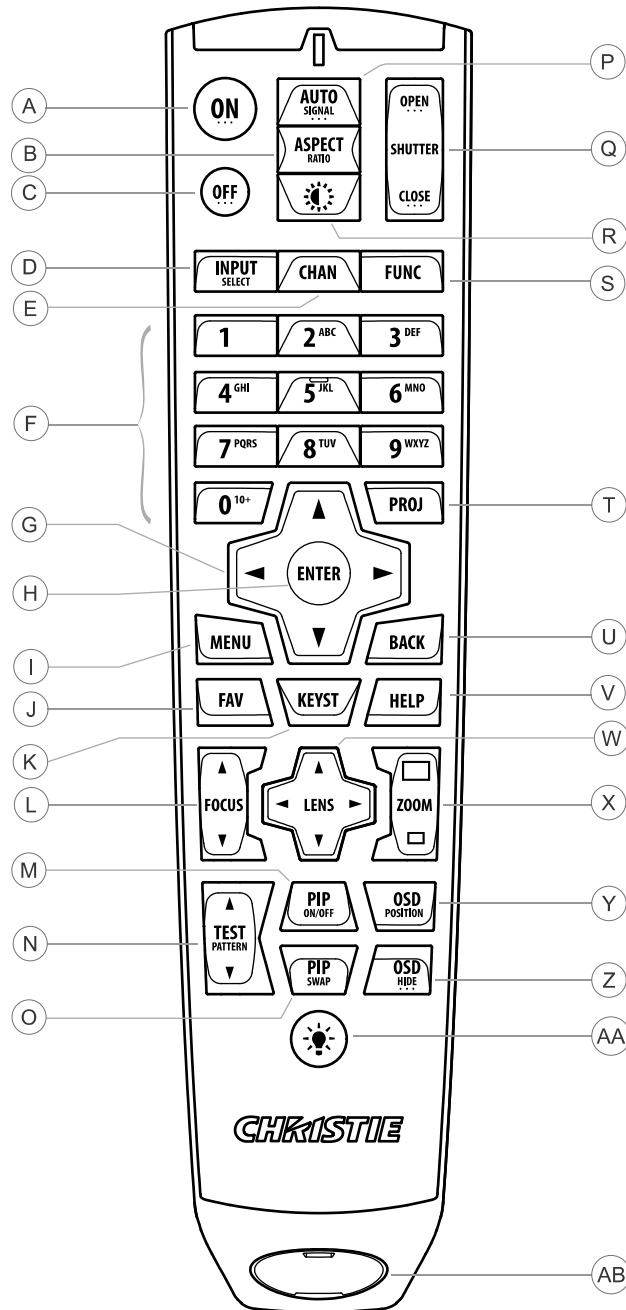
Button	Description
A	Powers on the projector light source.
B	Opens the aspect ratio dialog.
C	Turns off the light source and puts the projector in standby.
D	Selects an active or inactive input on any slot.
E	Not supported.

Button	Description
F	Enter a number, such as menu, item index or value.
G	Use the arrows to navigate within a menu or to adjust settings.
H	Selects a highlighted menu item and changes or accepts a value.
I	Toggles the menus on/off.
J	Not supported.
K	Opens the keystone dialog.
L	Adjusts the lens focus.
M	Not supported.
N	Displays a test pattern.
O	Not supported.
P	Optimizes the image automatically.
Q	Opens or closes the shutter.
R	Not supported.
S	Initiates a custom action when a number is selected.
T	Selects a projector in multi-projector installations.
U	Returns to the previous menu level or exits menus if at the top level.
V	Displays context-sensitive help.
W	Arrows adjust the lens offset.
X	Adjust the lens zoom.
Y	Opens the on-screen display position menu.
Z	Shows or hides the on-screen display menus.
AA	Turns the remote backlight on.
AB	Male XLR connector for wired option.

Service guidelines

Review safety guidelines and information required for replacing modules.

Ordering parts

When ordering replacement parts, quote the part numbers of the items required. Quote the projector model number, serial number, and date of manufacture, as indicated on the license label.

Not all parts are available separately. In addition, some parts stocked as inventory are available only until the current supply lasts.

All part numbers are subject-to-change.

Replacing modules

To ensure you have the correct module and the projector module is replaced correctly, check module markings, parts lists, and the relevant disassembly and replacement procedures.

Components must be replaced with exact equivalents. Failure to do so may result in unsafe operation.

Interconnections and line drawings

The interconnect diagram illustrates the path of electrical connections between modules. Manufacturer's part numbers are included. Part numbers are subject to change.

Line drawings provide projector dimensions and sizes for installation.

To download the latest interconnect diagram or line drawings, visit *www.christiedigital.com*.

Servicing live equipment

Only Christie accredited technicians who are knowledgeable about the hazards associated with hazardous voltage, ultraviolet exposure, and high temperatures are authorized to assemble, install, and service Christie equipment.

To make sure you remain safe when servicing energized (live) Christie equipment:

- Locate the main AC power shut off prior to servicing the equipment. This will allow you to turn the power off quickly in an emergency.

- Disconnect the projector from the communication and management network so it cannot receive commands to turn the lamp on, open the douser, and move the lens.

- Familiarize yourself with all potential safety hazards prior to servicing the equipment. This includes, but is not limited to, the location and accessibility of hazardous voltages.

- Read and understand all written procedures prior to commencing a service procedure.
- Understand and follow all local safety codes and requirements when servicing energized (live) equipment.
- Perform equipment service in a location free of obstructions and other hazards. For example, you must have an unobstructed view of the area being serviced.

Wear personal protective equipment (PPE) clothing appropriate to the service you are performing. This includes, but is not limited to, protective (electrically insulated) footwear, safety glasses, and gloves rated for the working voltage of the equipment you are servicing.

Safety and warning guidelines

Read all safety and warning guidelines before installing or operating the projector.

This projector must be operated in an environment that meets the operating range specification. Use only the attachments and/or accessories recommended by Christie. Use of others may result in the risk of fire, shock, or personal injury.

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

- This product must be operated in an environment that meets the operating range as specified in this document.
- Do not look directly into the lens when the light source is on. The extremely high brightness can cause permanent eye damage.
- EXTREME BRIGHTNESS! When accessing a restricted access location for product service or maintenance, avoid exposure to the product beam path by turning the product power off and disconnecting the product from AC power, or by shuttering the light source to avoid emissions from the front aperture.
- ELECTRICAL and BURN HAZARD! Use caution when accessing internal components.
- FIRE HAZARD! Keep hands, clothes, and all combustible material away from the concentrated light beam of the projector.
- Keep fingers and other body parts away from the moving parts in the product. Tie back long hair, and remove jewelry and loose clothing before manually adjusting the product.
- FIRE AND SHOCK HAZARD! Use only the attachments, accessories, tools, and replacement parts specified by Christie.
- SHOCK HAZARD! Power supply uses double pole/neutral fusing. Disconnect all power sources before opening the product.
- FIRE HAZARD! Do not exceed 30 A for the breaker to power Input 1 on the projector.
- Install the product near an easily accessible AC receptacle.
- UV EXPOSURE! Protective UV safety glasses with side shields and Christie approved protective safety clothing must be worn when performing optical adjustments or servicing the product.
- FIRE AND SHOCK HAZARD! Use only the attachments, accessories, tools, and replacement parts specified by Christie.

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

- SHOCK HAZARD! Disconnect the product from AC before installing, moving, servicing, cleaning, removing components, or opening any enclosure.

- Christie products must be installed and serviced by Christie qualified technicians.

- TRIP OR FIRE HAZARD! Position all cables where they cannot contact hot surfaces, be pulled, be tripped over, or damaged by persons walking on or objects rolling over the cables.

- The American Conference of Governmental Industrial Hygienists (ACGIH) recommends occupational UV exposure for an 8-hour day to be less than 0.1 microwatts per square centimeters of effective UV radiation. A workplace evaluation is advised to assure employees are not exposed to cumulative radiation levels exceeding the government guidelines for your area. Be aware that some medications are known to increase sensitivity to UV radiation.

Notice. If not avoided, the following could result in property damage.

- SHOCK HAZARD! All harnessing must be properly routed and secured as originally installed, especially in high voltage areas.

- FIRE HAZARD! Do not use a power cord, harness, or cable that appears damaged.

Light intensity hazard distance

This projector has been classified as Risk Group 3 as per the IEC62471 standard due to possible hazardous optical and thermal radiation being emitted.

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

- PERMANENT/TEMPORARY BLINDNESS HAZARD! No direct exposure to the beam must be permitted.

- PERMANENT/TEMPORARY BLINDNESS HAZARD! Operators must control access to the beam within the hazard distance or install the product at the height that prevents exposure of spectators' eyes within the hazard distance. The hazard zone must be no lower than 3.0 meters above the floor and the horizontal clearance to the hazard zone must be a minimum 2.5 meters.

- EXTREME BRIGHTNESS! Do not place reflective objects in the product light path.

The following diagram and table show the zones for ocular and skin hazard distances:
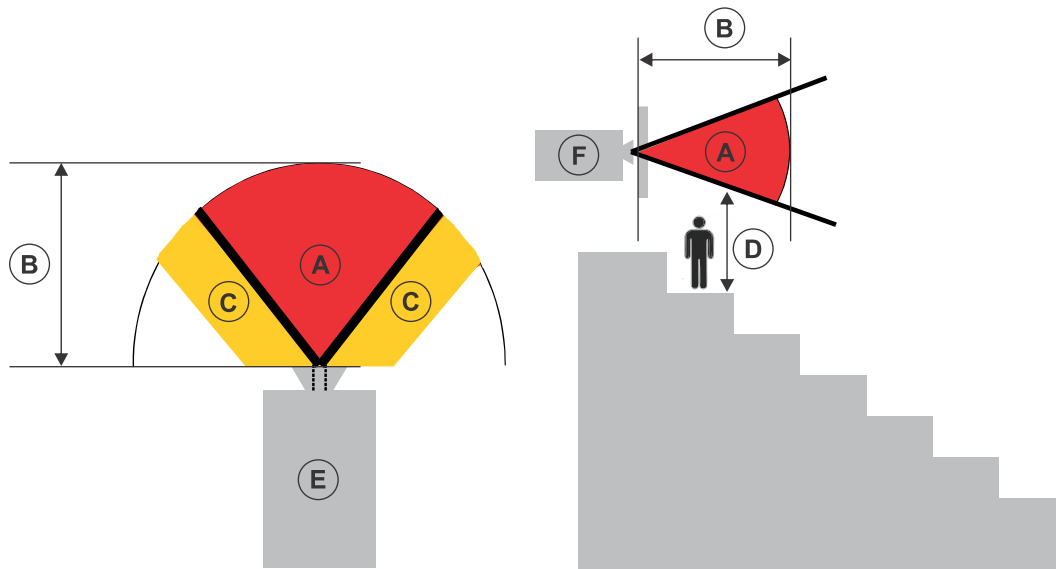
- A—Hazard zone. The region of space where the projection light from the projector is above emission limits for Risk Group 2. The light intensity may cause eye damage after a momentary or brief exposure (before a person can avert his or her eyes away from the light source). The light may cause skin burns to occur.

- B—Hazard distance. Operators must control access to the beam within the hazard distance or install the product preventing potential exposure of the spectators' eyes from being in the hazard distance.

- C—No access zone. Horizontal clearance of the no access zone must be a minimum of 2.5 meters.

- D—Vertical distance to hazard zone. The hazard zone must be no lower than 3.0 meters above the floor.

- E—Represents the top view of the projector.

- F—Represents the side view of the projector.

Projection lens	Part number	Hazard distance (m)
0.72:1 HB fixed lens	144-110103-XX	0.6
0.9:1 fixed lens	144-111014-XX	0.7
1.13-1.31:1 HB zoom lens	144-103105-XX	1.1
1.31-1.63:1 HB zoom lens	144-104106-XX	1.3
1.63-2.17:1 HB zoom lens	144-105107-XX	1.7
1.99-2.71:1 HB zoom lens	144-106108-XX	2.2
2.71-3.89:1 HB zoom lens	144-107109-XX	3.1
3.89-5.43:1 HB zoom lens	144-108100-XX	4.2
4.96-7.69:1 HB zoom lens	144-109101-XX	6.0

Product labels

Learn about the labels that may be used on the product. Labels on your product may be yellow or black and white.

General hazards

Hazard warnings also apply to accessories once they are installed in a Christie product that is connected to power.

Fire and Shock Hazard	
	To prevent fire or shock hazards, do not expose this product to rain or moisture.
	Do not alter the power plug, overload the power outlet, or use it with extension cords.
	Do not remove the product enclosure.
	Only Christie qualified technicians are authorized to service the product.

Electrical Hazard	
	Risk of electric shock.
	Do not remove the product enclosure.
	Only Christie qualified technicians are authorized to service the product.

	General hazard.
	Electric shock hazard. To avoid personal injury, disconnect all power sources before performing maintenance or service.
	Electrocution hazard. To avoid personal injury, always disconnect all power sources before performing maintenance or service procedures.
	Hot surface hazard. To avoid personal injury, allow the product to cool for the recommended cool down time before performing maintenance or service.
	Burn hazard. To avoid personal injury, allow the product to cool for the recommended cool down time before performing maintenance or service.
	Explosive material hazard. To avoid personal injury, disconnect all power sources before performing maintenance or service, and wear Christie-approved protective clothing.
	Bright light hazard. To avoid personal injury, never look directly at the light source.
	Pinch hazard. To avoid personal injury, keep hands clear and loose clothing tied back.

Fan hazard. To avoid personal injury, keep hands clear and loose clothing tied back. Always disconnect all power sources before performing maintenance or service procedures.

Not for household use.

Mandatory action

Disconnect all power sources before performing maintenance or service procedures.

Consult the service manual.

Electrical labels

Indicates the presence of a protective earth ground.

Indicates the presence of an earth ground.

Additional hazard labels

Risk Group 3 warning: Indicates a potential optical radiation hazard emitted from this product. Thermal radiation emitted from this product may cause burns.

Service setups

Understand the special internal hardware and software adjustments and related details that may require the attention of a qualified service technician, whether done periodically or after a specific module replacement.

Optical adjustments are not considered maintenance. The lamps are turned on during optical adjustments and UV emissions are present.

Turning the projector on

When the projector AC power supply is plugged in, the power is on.

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

- SHOCK HAZARD! Do not attempt operation if the AC supply is not within the specified voltage and current, as specified on the license label.

1. Plug the projector in to AC power.

   The projector automatically powers on when plugged in. The display panel functionality becomes available.

2. To turn the light source on using the projector keypad, press and hold the power ⏻ button until you hear a beep.

   To turn on the light source using the remote, press and hold the **ON** button until you hear a beep.

Turning the projector off

When powering off in preparation for inspection or maintenance, always disconnect from AC.

1. To turn the light source off using the projector keypad, press and hold the ⏻ button until you hear a beep.

   To turn off the light source using the remote, press and hold the **OFF** button until you hear a beep.

   When powering off the projector, allow the projector to complete its cool down cycle. Do not immediately unplug the projector if this can be avoided.

2. To turn off power to the projector, disconnect from AC power.

Adjusting boresight

The boresight adjustment balances the tilt of the lens mount to compensate for screen-to-projector tilt.

1. Close the shutter on the projector.

2. Unlock the three lens mount stabilization screws.
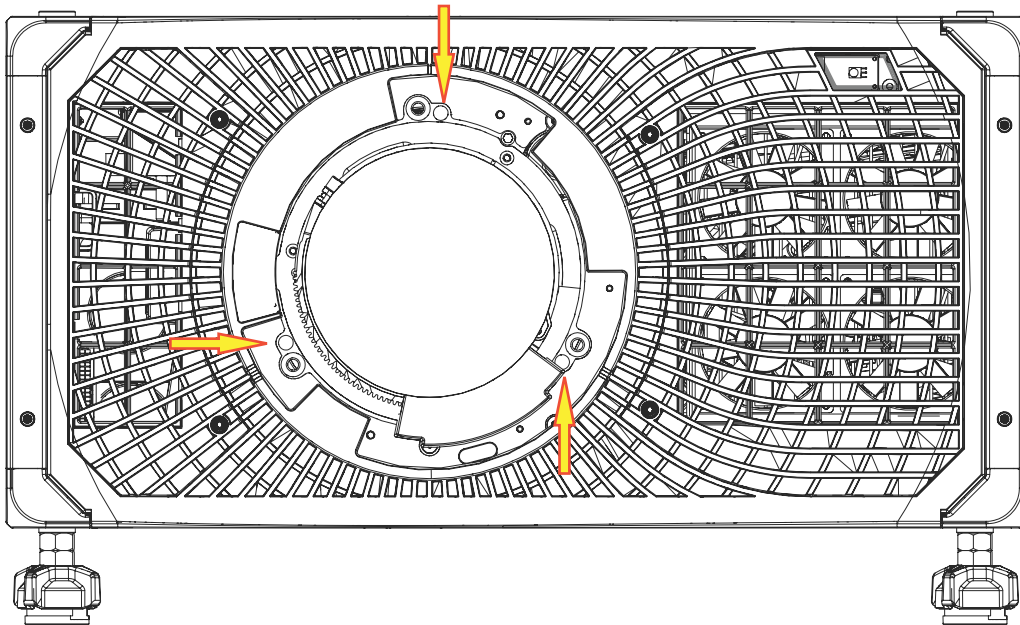
3. Open the shutter.

4. From the Test Pattern menu, select the **Boresight** test pattern.

   The Boresight test pattern assists with adjusting the boresight for the three focus points.
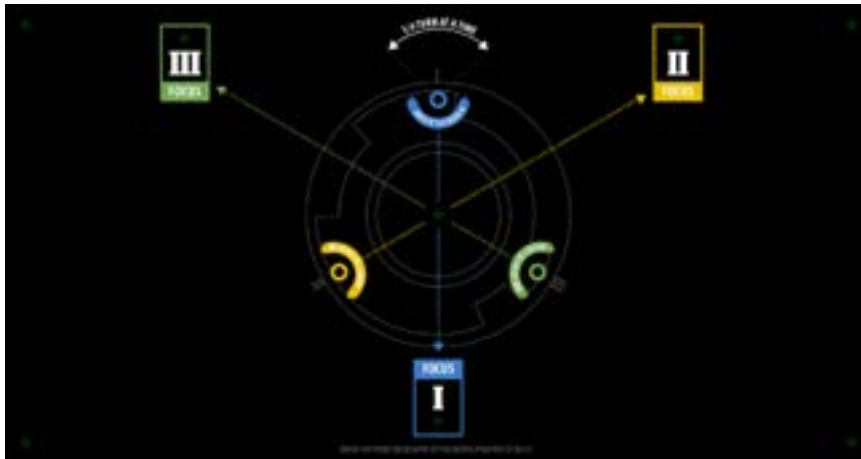
5. To focus the bottom boresight guide, adjust the blue boresight screw.

   Adjust the screw 1/4 inch. If you get to the end, further unlock the corresponding stabilization screw.
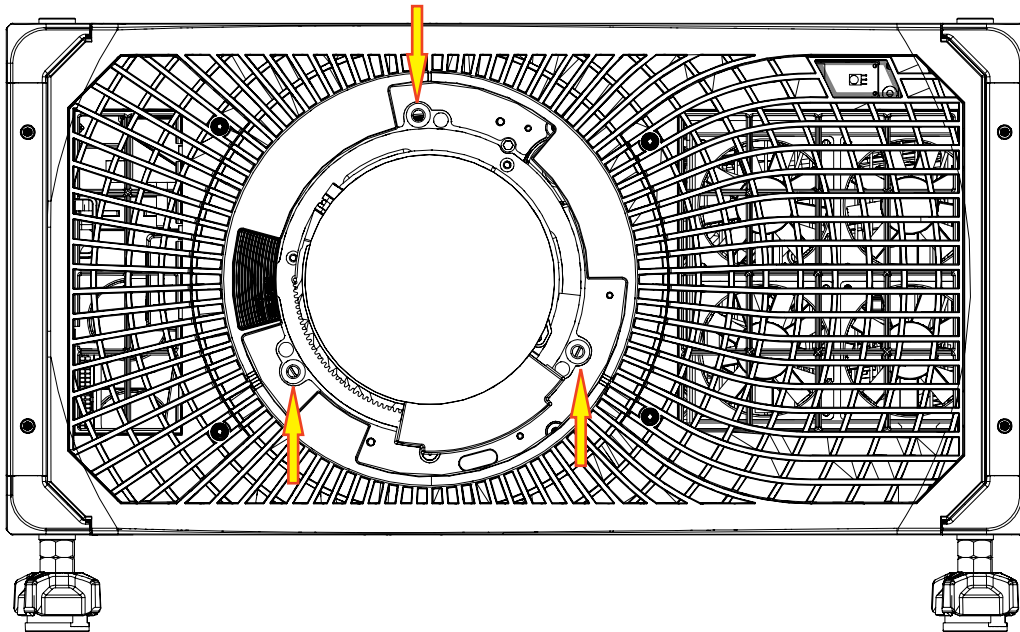
6. To focus the right boresight guide, adjust the green boresight screw.

7. To focus the left boresight guide, adjust the yellow boresight screw.

8. To continue to refine the focus, repeat steps 5 to 7.

9. Before adjusting the stabilization screws, close the shutter.

10. To maintain the adjustments, lock the stabilization screws.

    When locking the screws, start with the top stabilization screw and turn it so it just touches the base. Repeat for the other two stabilization screws. Continue to adjust the locking screws until they are tight.

Adjusting the fold mirror

Fold mirror adjustment must be completed by trained personnel and with the projector in single lamp mode.

⊘ **Notice.** If not avoided, the following could result in property damage.

  • Misalignment of the fold mirror may cause permanent damage to the product.

1. From the Test Pattern menu, select the **Integrator Rod** test pattern.
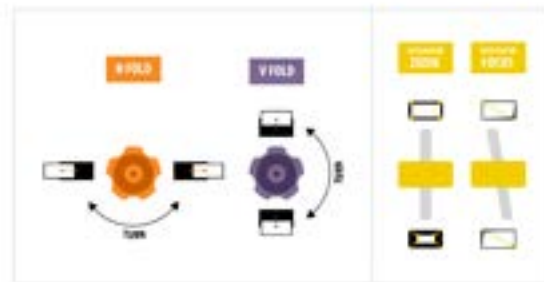
2. Open the Service door on the side of the projector.

3. Unlock the fold mirror screws to unlock the adjustment knobs.
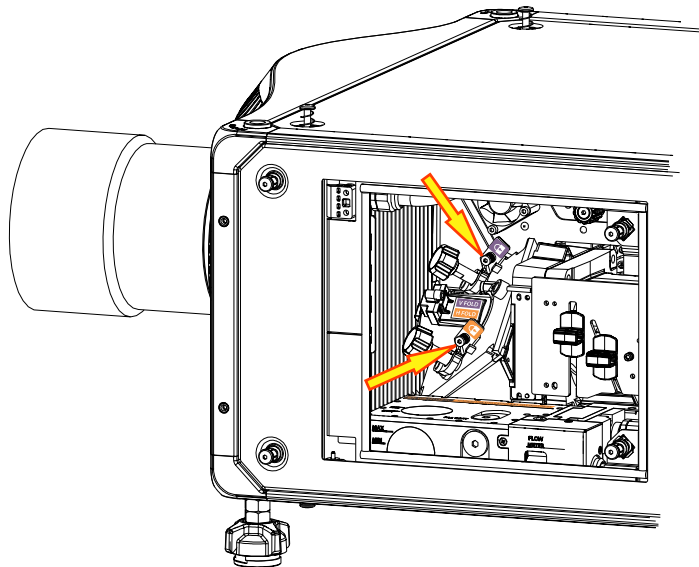
4. To make horizontal adjustments, use the orange knob labeled Horizontal .

5. To make vertical adjustments, use the purple knob labeled Vertical.

6. Lock the fold mirror screw to lock the adjustment knobs.

Optimizing the integrator zoom and focus

1. From the Test Pattern menu, select the **Integrator Rod** test pattern.

   The Integrator Rod test pattern includes guided information for integrator zoom and focus adjustments.
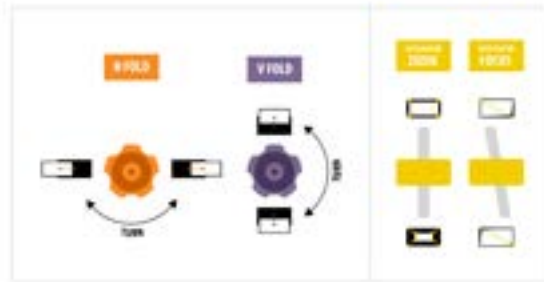
2. Open the Service door on the side of the projector.

3. Unlock the Zoom and Focus paddles.
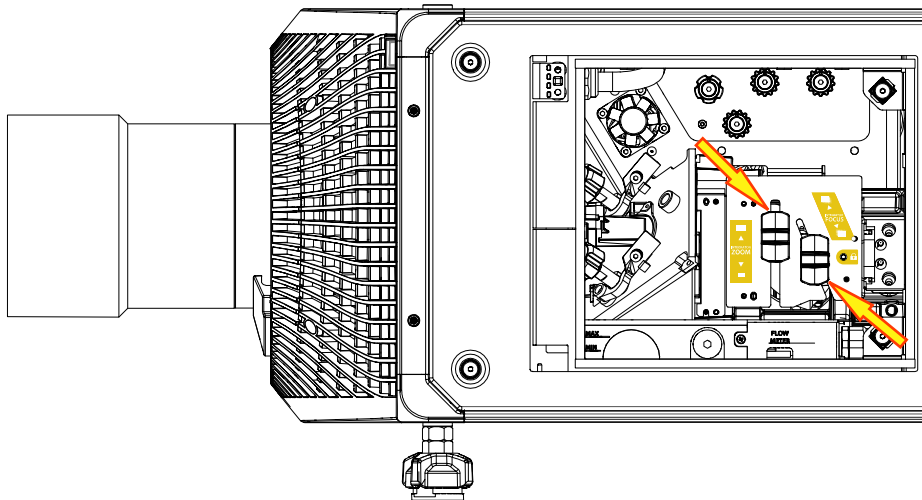
4. Adjust the magnification using the Zoom paddle.
   Make sure you do not see any corners.

5. Adjust the focus using the Focus paddle.
   Always focus the center of the image first and then make sure no blurry edges exist.

6. When complete, lock the Zoom and Focus paddles.

Adjusting DMD convergence

A convergence problem occurs when one or more projected colors (red, green, and blue) appears misaligned when examined with a convergence test pattern.

The three colors should overlap to form pure white lines throughout the image and one or more poorly converged individual colors may appear adjacent to some or all of the lines.

When adjusting the convergence, you are adjusting red and green to blue.

1. From the Test Pattern menu, select the **Convergence** test pattern.
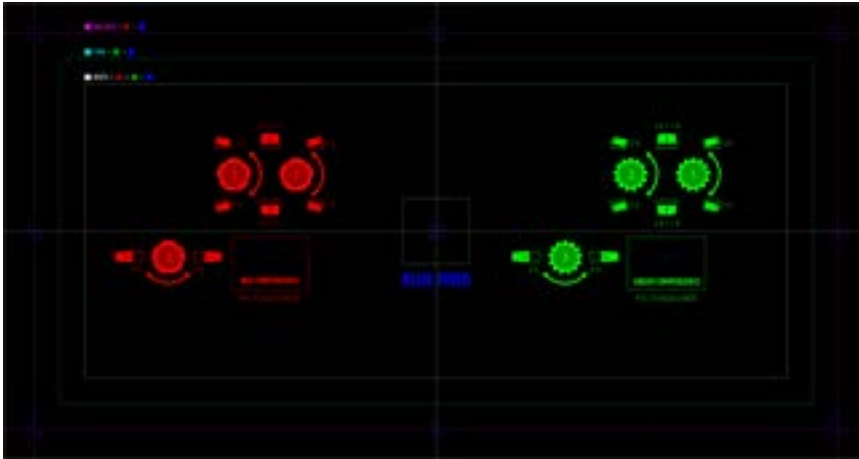
2. Open the Service door on the side of the projector.

3. To adjust the convergence knobs, use the 2.5 mm tool included with the projector.

    If adjusting by hand without using the tool, pull out the convergence adjustment knobs to engage them.
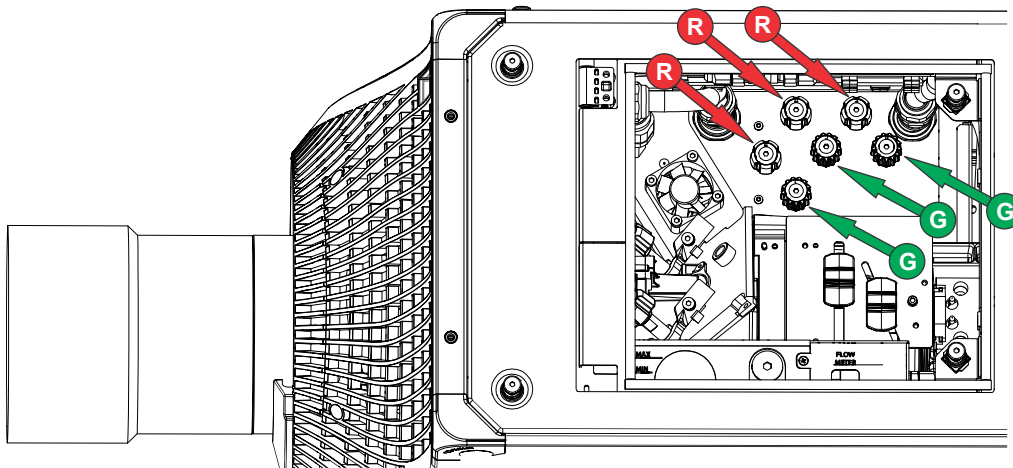
4. Use the Convergence test pattern to assist with adjusting the horizontal and vertical lines.

    Vertical convergence and rotation is done by adjusting two knobs. Christie recommends rotating a single knob a maximum of a quarter rotation before adjusting the second knob a quarter rotation. For example, if using one hand, turn the left knob a quarter rotation and then the right knob a quarter rotation, and so on. Adjusting a single knob for vertical or rotational adjustment to an extreme before adjusting the second knob may result in the convergence mechanism binding.

5. When complete, push in all the convergence adjustment knobs to disengage the knobs.

Disconnecting the liquid cooling system hoses

The liquid cooling system hoses are pressurized and may cause spraying or dripping when disconnected for service.

These procedures must be followed regardless or whether the system has been powered on previously or not.

⚠️ **Danger!** If not avoided, the following results in death or serious injury.

- SHOCK HAZARD! Disconnect the product from AC before installing, moving, servicing, cleaning, removing components, or opening any enclosure.

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

- Protective safety gear and goggles are recommended when servicing.

1. Turn off the lamps by pressing and holding the power button until you hear a beep.
2. Power off the projector by disconnecting from AC power after the cool down period ends.
3. Place the projector in a level landscape orientation.
4. Relieve the pressure in the liquid cooling hoses by opening the reservoir fill port.

5. Allow the system to vent for 10 seconds so captured pressures in the water blocks can begin to normalize.
6. Wipe any coolant that may have bubbled out when removing the fill port.
7. Reinstall the fill port.
8. Place a large kimwipe or equivalent cloth wipe over the light engine compartment to catch any potential coolant ejected while disconnecting the hoses.

9. Place another large cloth wipe on top of the fold mirror and integrator assemblies.
10. Wrap a cloth wipe over around the disconnect fitting and pull the release sleeve.

   If possible, once a female side is disconnected, point it upright to reduce the amount of coolant loss in the event that the inner locking ring becomes stuck.

11. Capture excess coolant that may spill from the female disconnect fitting.

    In rare occurrences the inner locking ring of the female side of the fitting can become stuck in an open position.

12. Wipe up any leaked coolant detected that did not get captured.

Parts and module replacement

When ordering replacement parts, provide the following information found on the product license label:

- Projector Model
- Projector Serial Number
- Manufacture Date

Maintenance prerequisites

Before servicing the projector, perform the following tasks.

- Always *power down and disengage all power sources* (on page 18) to the projector prior to servicing.
- Follow all *service safety guidelines* (on page 13).
- For detailed breakdown of serviceable modules, see *Index of parts and modules* (on page 27).
- When re-connecting harnesses, see the interconnect drawings on *www.christiedigital.com*.

Tools required for service

Before servicing the projector, ensure the following tools are available.

- Long and stubby neck magnetic-tip ball drivers—2.5 mm, 3 mm, and 5 mm (provided in projector toolbox)
- #2 Phillips™ screwdriver
- 1.5 mm and 2.0 mm hex screwdriver
- Slotted screw driver
- Side cutters and cable ties
- Needle nose pliers
- 19 mm wrench
- Magnetiser
- Electrostatic protective strap and pad
- Disposable lint-free gloves (included with optical components)
- Cloth wipes

Index of parts and modules

The following table lists the parts and modules for Boxer 4K.

Description	Part number
Filters	
Lamp-side air filter	003-005173-XX
Electronics-side air filter	003-005172-XX
User interface air filter	003-005249-XX
Duct LAD filter	003-006163-XX
LAD filter—three pack	03-001982-52P
Fans	
Lamp cooling blower (#1, 2, 3, 4, 5, 6)	003-112559-XX
Lamp cooling fan (#7, 8, 9, 10, 11, 12)	003-005515-XX
Radiator air intake fan (#13, 14, 15, 16)	003-112570-XX
HIP fan (#18)	003-006002-XX
Side intake fan (#19, 20)	003-112617-XX
Lamp driver fan (#21, 22)	003-111699-XX
Green/red fan (#23, 24)	003-112555-XX
Blue fan (#25)	003-112556-XX
LAD blower (#26, 27)	003-111697-XX
Lamp duct housing fan (#28, 29)	001-112559-XX
Card cage fan (# 30, 31)	003-112557-XX
Power supply fan	003-121153-XX
Cooling	
Liquid cooling module (LCM)	003-121119-XX
Radiator	003-121118-XX
Coolant propylene glycol 740	003-005179-XX
Side intake duct	003-006288-XX
LAD blower module	003-006163-XX
Electronics	
User interface	003-104579-XX
Interlock switch	003-001559-XX
Lamp driver housing	003-005356-XX
Lamp driver 450W	003-120554-04
Power supply 3800W	003-120877-XX

Description	Part number
Optics	
Lamp cartridge A	003-104621-XX
Lamp cartridge B	003-104622-XX
Lamp module	003-104599-XX
Lamp cartridge repair kit	003-005165-XX
Shutter	003-104955-XX
Light engine	003-105756-XX
Integrator module	003-104549-XX
Integrator zoom and focus adjuster	003-104583-XX
Relay optics assembly	003-104690-XX
Fold mirror 1	003-005263-XX
Fold mirror2	003-005151-XX
Printed circuit boards (PCB) and sensors	
IMXB board	003-112351-XX
High-speed imaging processor board (HIP)	003-111780-XX
Backplane board (C4BP)	003-112331-XX
CLB PCB and holder	003-111635-XX
Near field communication reader (NFCR)	003-105356-XX
IR sensor board	003-100221-XX
Housekeeping board (HKBA)	003-112350-XX
Status LED board (SLB)	003-112245-XX
Dual temperature sensor module (DTSM)	003-111269-XX
Lens connector board projector (LCBP)	003-112399-XX
Light sensor (LSM)	003-005264-XX
Remote temperature sensor (RTSM)	003-100618-XX
Mechanical	
Foot assembly	003-006113-XX
Lens mount boot	003-005150-XX
Lens mount	003-104569-XX
Motor offset	003-005247-XX
Captive lock screws	003-006170-XX
Filter covers screw kit	003-006168-XX
Top/bottom cover	003-005704-XX

Description	Part number
Side plate and fan bracket kit	003-006169- XX
Spring coil compression .654 kit	003-005848-XX
Harnesses	
Optical switch	003-111558-XX
Manual optical switch	003-112419-XX
Light engine cables	003-005166-XX
NFCR harnesses	003-005251-XX
IKB harnesses	003-005260-XX
Card cage harnesses	003-005259-XX
Cartridge to lamp driver harness	003-112385-XX
Lens mount harness	003-112597-XX
Lens mount to projector harness	003-112596-XX
Connector backplates for lamp cartridge harnesses	003-005514-XX
Power supply to HKBA harnesses	003-005831-XX
Power supply to lamp driver harnesses	003-005835-XX
Integrated keypad board to power supply harnesses	003-005837-XX
Integrated keypad board to CLBs and NFCT harnesses	003-005836-XX
Lamp driver to HKBA harnesses	003-005832-XX
Lamp driver to inline harness	003-112511-XX
HIP to light engine PCBs harnesses	003-005838-XX
HIP blowers harness	003-112382-XX
Bulb blowers A and B harness	003-005834-XX
Fans 21 to 25 harnesses	003-112371-XX
Radiator blower harness	003-112372-XX
LAD blowers harness	003-112661-XX
Duct blowers harness	003-112914-XX
Front integrated optic system harness	003-112371-XX
Front IR sensor harnesses—three pack	003-112373-XX
Liquid cooling module harnesses—two pack	003-112376-XX
Back panel harness	003-112380-XX
Shutter to HKBA	003-006172-XX
Accessories	
Remote control IR	003-120918-XX

Description	Part number
Lens 1.13-1.31:1 HB Zoom	144-103105-XX
Lens 1.31-1.63:1 HB Zoom	144-104106-XX
Lens 1.63-2.17:1 HB Zoom	144-105107-XX
Lens 1.99-2.71:1 HB Zoom	144-106108-XX
Lens 2.71-3.89:1 HB Zoom	144-107109-XX
Lens 3.89-5.43:1 HB Zoom	144-108100-XX
Lens 4.98-7.69:1 HB Zoom	144-109101-XX
Lens 0.72:1 HB Fixed	144-110103-XX
Lens 0.9:1 Fixed	144-111014-XX
Twin HDMI input card	108-311101-XX
Dual Link DVI input card	108-312101-XX
Dual 3G/HD/SD-SDI input card	108-313101-XX
DMX512 interface	108-314101-XX
Twin DisplayPort input card	108-451101-XX
High bandwidth multiple input card	144-116109-XX
Driver set	003-005250-XX

Projector covers and feet

Learn how to remove the covers and feet of the projector.

Removing the filter doors

The electronics-side and lamp-side filter doors are located at the front of the projector.

Estimated replacement time:
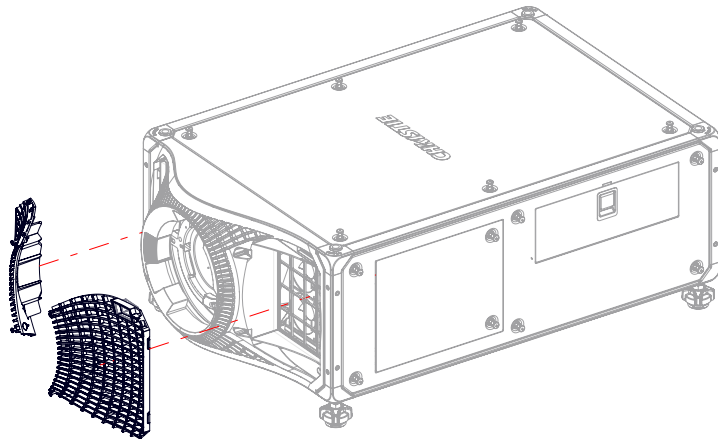
1. Using a M4 screwdriver, loosen the two screws securing the filter door.
2. Pull out the filter door.
3. Repeat steps 1 and 2 for the other filter door.
4. If required, replace one or both filter doors.
5. To install the filter doors, repeat these steps in reverse order.

Replacing the captive lock screws

The captive lock screws secure the projector covers to the projector.

Estimated replacement time: 10 minutes
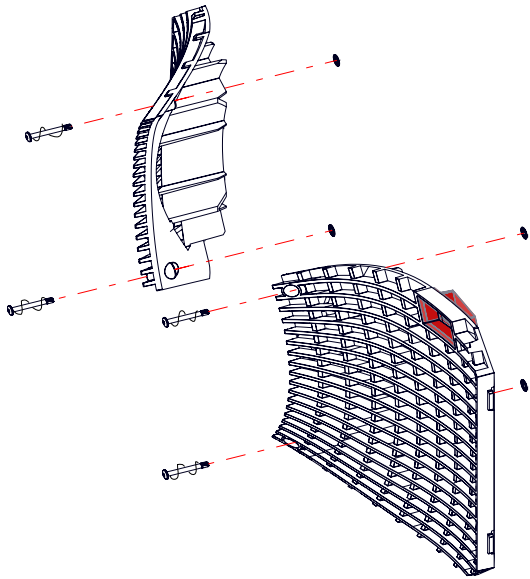
1. *Remove the front filter doors* (on page 31).

2. Remove the damaged captive screw.

3. Place a new washer on top of a 7mm socket nut driver with the convex side inside the socket hole.

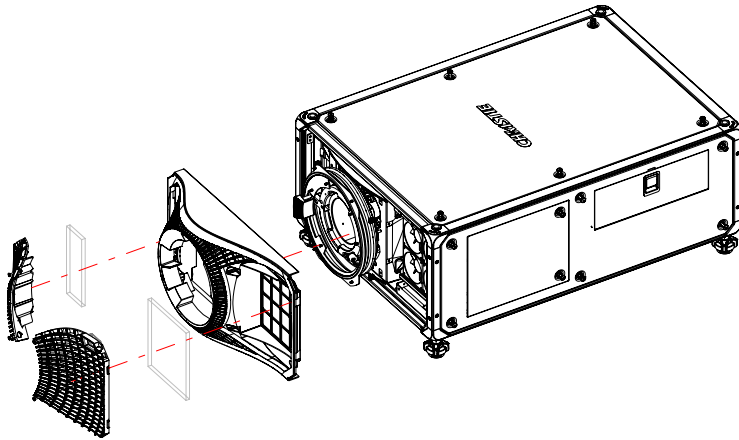4. Position the new screw above the washer.

5. Tap the screw with a rubber mallet hammer until the washer seats in the groove.

Removing the front cover

The front cover provides access to the lens assembly and front sensors.

Estimated replacement time: 3.5 minutes

1. *Remove the front filter doors* (on page 31).
2. Using a M4 screwdriver, remove the six screws securing the front cover.
3. Remove the front cover.
4. If required, replace the front cover.
5. To install the front cover, repeat these steps in reverse order.
   The lens boot must be properly re-aligned before securing the front cover.

Removing the top cover

The top cover provides access to the light engine, HKBA board, and various other components.
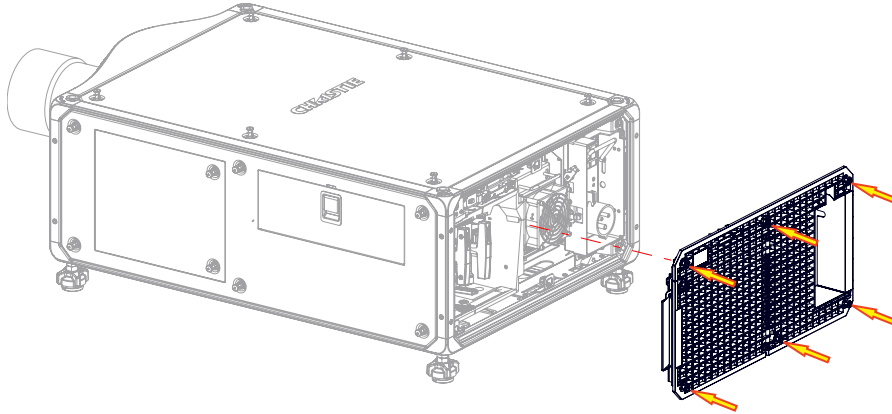
Estimated replacement time: 1 minute
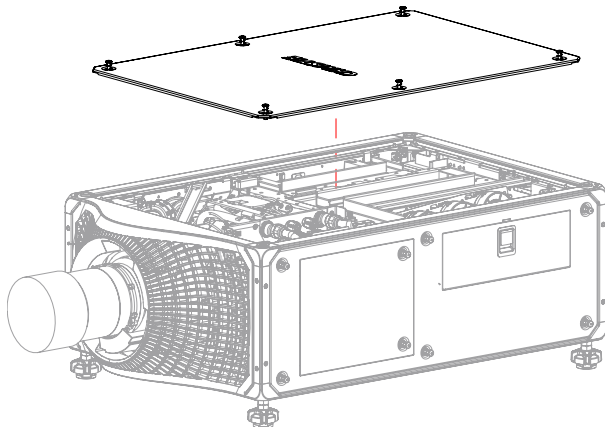
1. Loosen the six captive screws securing the top cover.
2. Remove the top cover.
3. If required, replace top cover.
4. To install the top cover, repeat these steps in reverse order.

Removing the rear cover

The rear cover provides access to lamp and lamp driver modules.
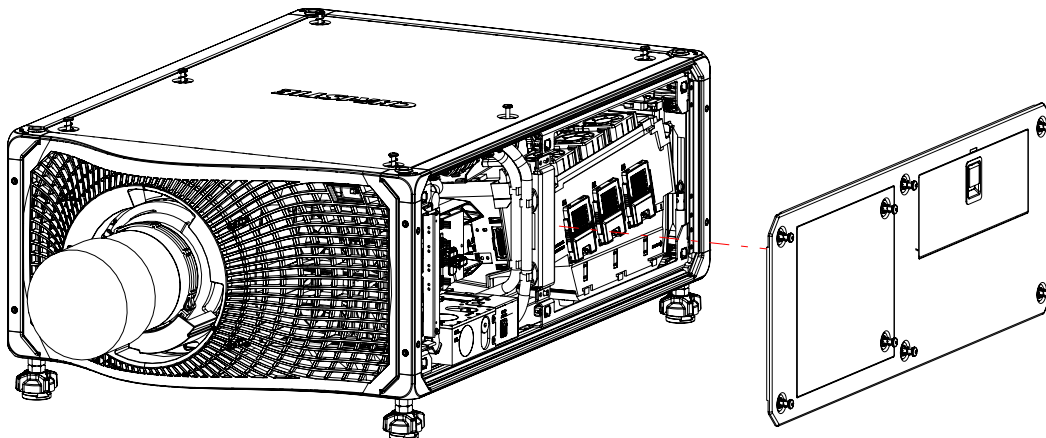
Estimated replacement time: 1 minute

1. Loosen the six captive screws securing the rear cover.
2. Remove the rear cover.
3. If required, replace the rear cover.
4. Regulary clean the steel mesh shield when servicing the rear cover.
5. To install the rear cover, repeat these steps in reverse order.

Removing the optics-side cover

The optics-side cover provides access to liquid cooling module, integrator focus module, zoom/focus module, NFC readers, and other components.
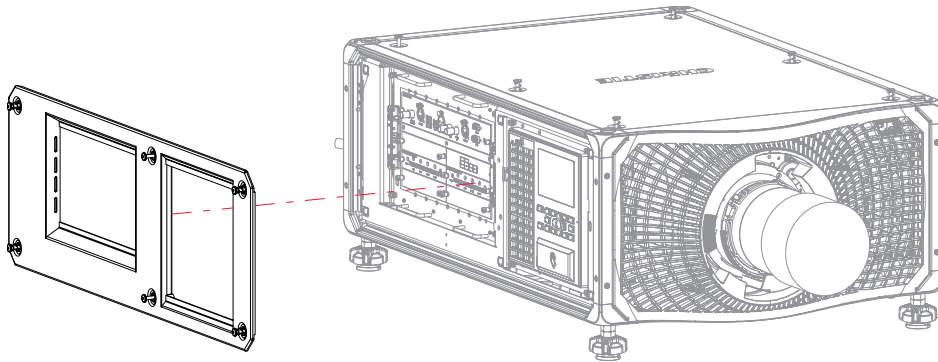
Estimated replacement time: 1 minute

1. Loosen the six captive screws securing the optics-side cover.
2. Remove the optics-side cover.
3. If required, replace the optics-side cover.

4. To install the optics-side cover, repeat these steps in reverse order.

Removing the electronics-side cover

The electronics-side cover provides access to side panel display and card cage.

Estimated replacement time: 1 minute

1. Loosen the six captive screws securing the electronics-side cover.
2. Remove the electronics-side cover.
3. If required, replace the electronics-side cover.
4. To install the electronics-side cover, repeat these steps in reverse order.
   The chassis serial # should match the electronics-side cover when installing the cover.

Removing the bottom cover

The bottom cover provides access to power supply and fold mirror 2.

Estimated replacement time: 1.5 minutes
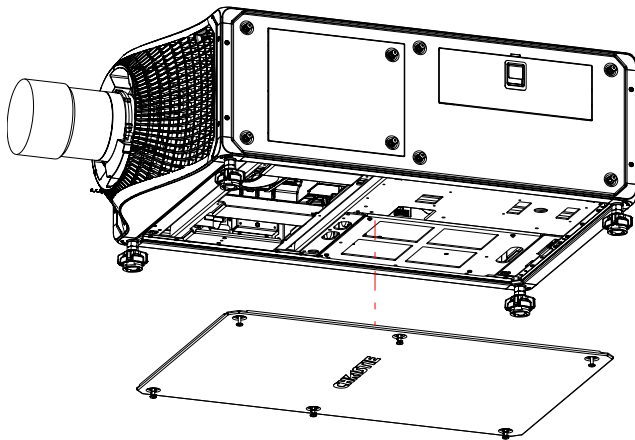
1. Flip the projector onto its side.
2. Loosen the six captive screws securing the bottom cover.
3. Remove the bottom cover.

4.　If required, replace the bottom cover.

5.　To install the bottom cover, repeat these steps in reverse order.

Replacing a projector's foot

The adjustable feet can be raised or lowered when positioning the projector to make sure it is level on all sides so the displayed image appears rectangular without any keystone.

Estimated replacement time: 3 minutes for servicing a single foot
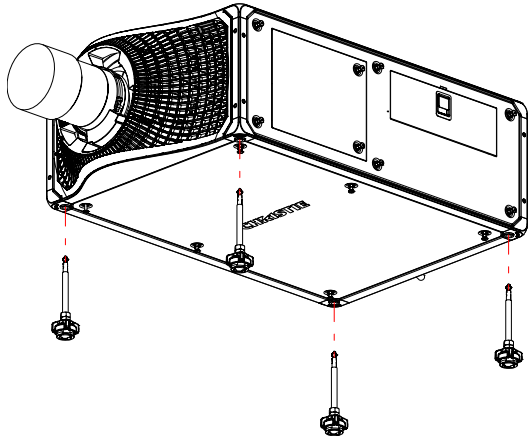
1.　Ensure the projector is in a secure position.

　　Christie does not recommend having the projector overhang when replacing the feet, unless the projector is securely positioned.

2.　Loosen the lock nut on the affected foot.

3.　Uninstall the foot.

4.　Replace the foot.

5.　To re-install, follow these steps in reverse order.

Filtration

Filters help to reduce the effects created by dust, smoke, fog, and other foreign materials from entering the projector.

⚠ **Notice.** If not avoided, the following could result in property damage.

- Do not operate the product without the filter installed.
- Do not reuse an old air filter.
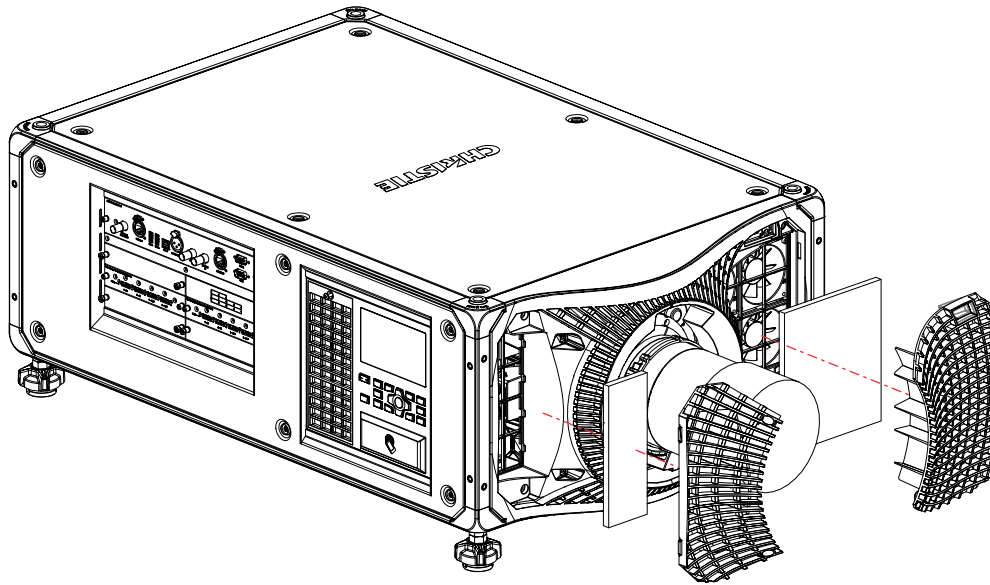
Replacing the front air filters

The front air filters are located on either side of the projection lens: one of the electronics side and the other on the lamp side.

Estimated replacement time: 1.5 minutes

1. To open the electronics-side filter door, remove the two screws from the door.
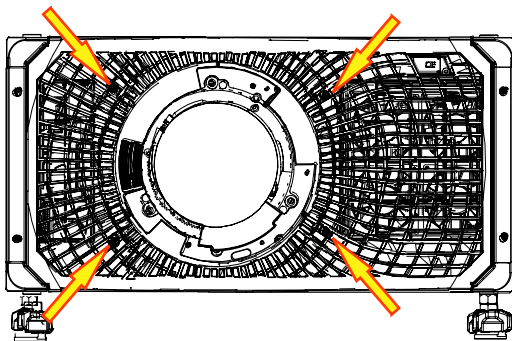
2. Repeat the previous step for the lamp-side filter door.
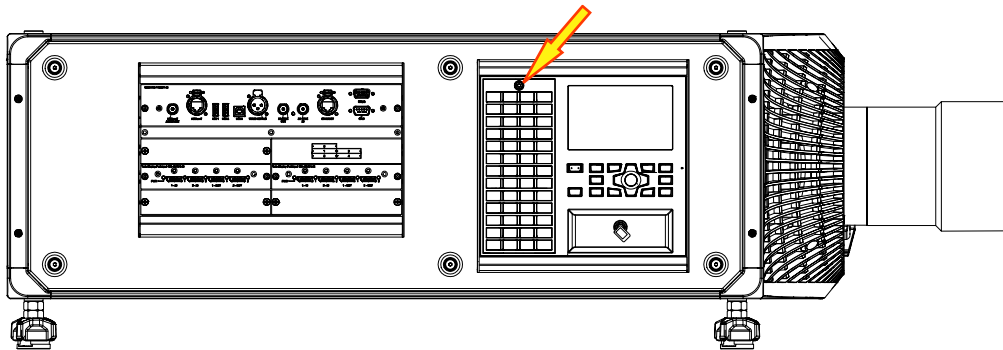3. Remove the used filters.

4. Install the new lamp-side filter (P/N: 003-005173-XX) and the electronics-side filter (P/N: 003-005172-XX)

5. Re-install the filter doors.

6. Re-install the two screws for each filter door.

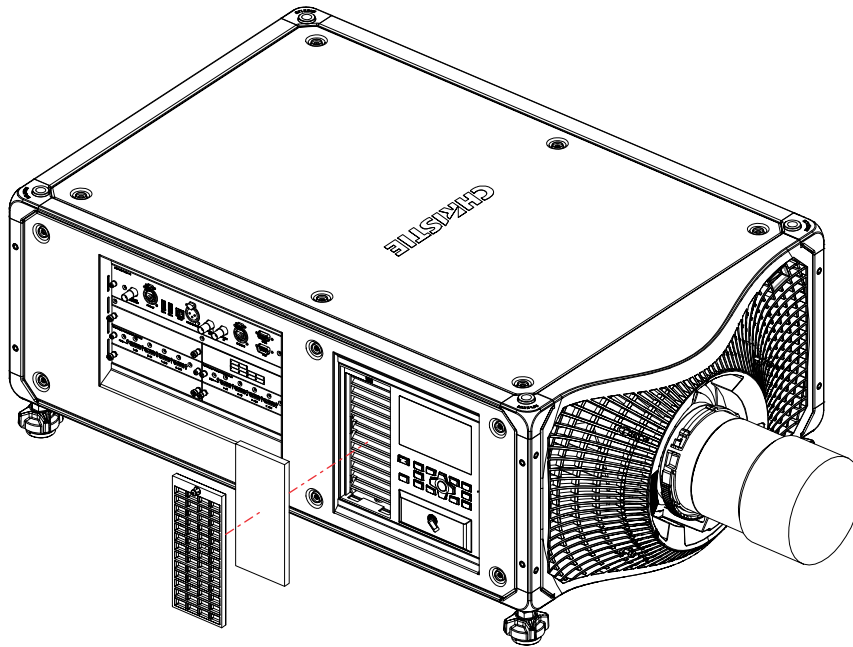# Replacing the user interface air filter

The user interface air filter is located next to the side panel display.

Estimated replacement time: 1.5 minutes

1. To open the filter door, loosen the captive screw.
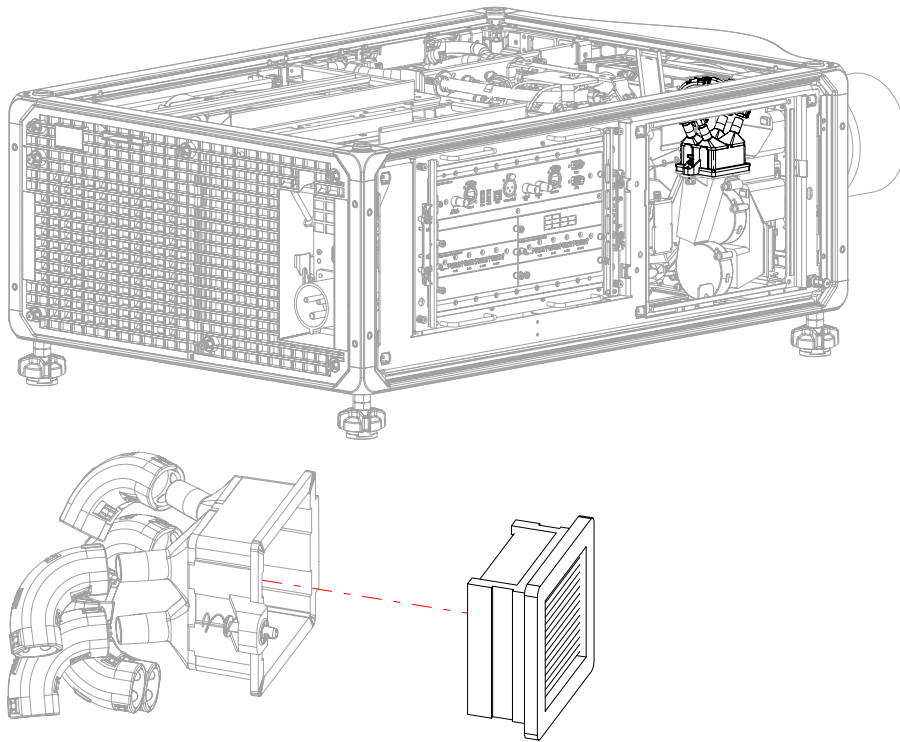

2. Remove the used filter.

3. Install the new filter (P/N: 003-005249-XX).

4. Reinstall the filter door.

5. Reinstall the captive screw on the filter door.

Replacing the laminar airflow device filter

The laminar airflow device (LAD) filter is located beside the light engine compartment.

Estimated replacement time: 10.25 minutes

1. *Remove the top cover* (on page 34).

2. Loosen the two captive screws on the front top support bracket and remove.

3. *Remove the user interface module* (on page 60).

4. Loosen the captive screw to remove the LAD housing cover.

5. Pull the LAD filter towards the electronics assembly in the projector to clear the tabs.

6. Rotate the LAD filter towards the user interface opening and pull it out.

7. Remove the used filter.

8. Install the new filter.

9. To replace the LAD filter assembly, repeat these steps in reverse order.

Ventilation and cooling

Vents and louvers provide ventilation, both for intake and exhaust, keeping the projector components within their operating temperature specifications.

Do not install the projector near a radiator, heat register, or within an enclosure. To ensure adequate airflow, follow the requirements specified in the line drawing (P/N: 020-000782-XX) and never block or cover the vents.

When replacing fans, ensure you confirm the fan direction for airflow. The correct orientation of the fan also ensures that the fan harness reaches the connector.

Replacing the lamp blower fans (#1, 2, 3)

Each lamp cartridge has six fans cooling the lamp modules. The blower fans #1, 2, and 3 cool the B1, B2, and B3 lamps.

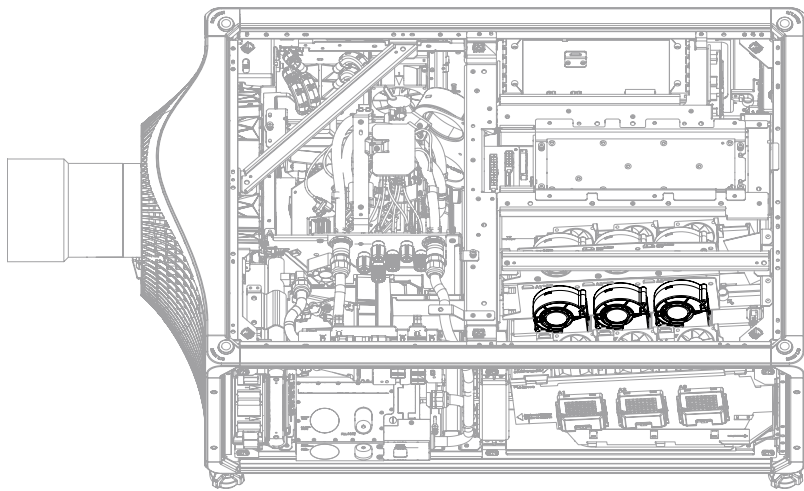Estimated replacement time: 3.5 minutes for servicing a single lamp B blower fan
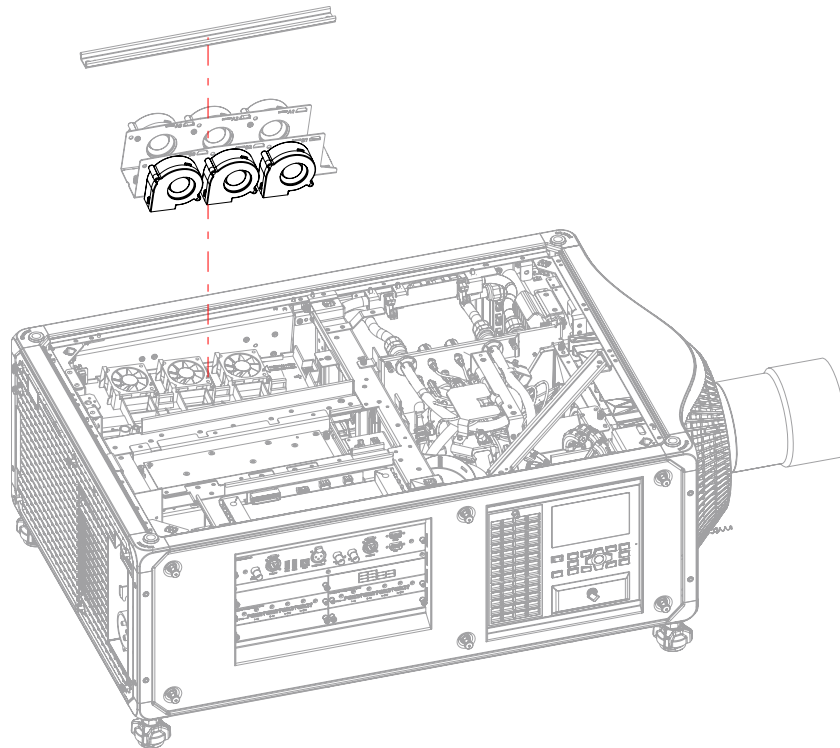
1. *Remove the top cover* (on page 34).
2. Loosen the two screws on the rear top support bracket and remove the bracket.
3. Remove the screw securing the lamp blower bracket.
4. Slide the bracket to clear the teeth securing the bracket.

5. Pull out the bracket and flip it on its side.

6. Disconnect the inline connector of the affected fan.

7. Remove the two screws securing the fan and release it.

8. Replace the fan.

9. To re-install, follow these steps in reverse order.

Replacing the lamp blower fans (#4, 5, 6)

Each lamp cartridge has six fans cooling the lamp modules. Blower fans #4, 5, and 6 cool the A1, A2, and A3 lamps.

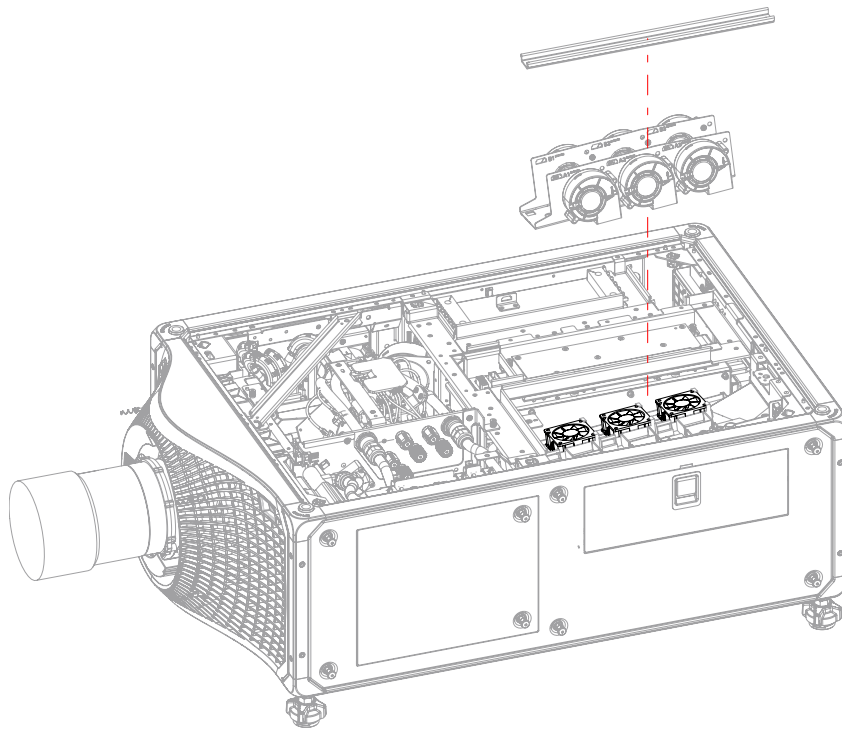Estimated replacement time: 3 minutes for servicing a single lamp A blower fan

1. *Remove the top cover* (on page 34).

2. *Remove the optics-side cover* (on page 35).

3. Disconnect the inline connector for the affected fan.

4. Remove the two screws securing the fan and slide it out.

5. Replace the fan.

6. To re-install, follow these steps in reverse order.

Replacing the lamp fans (#7, 9, 11)

Each lamp cartridge has six fans cooling the lamp modules. Fans #7, 9, and 11 cool the B1, B2, and B3 lamps.

Estimated replacement time:3.5 minutes for servicing a single lamp B fan

1. *Remove the top cover* (on page 34).
2. Loosen the two screws on the rear top support bracket and remove it.
3. Remove the one screws securing the lamp blower bracket.
4. Slide the bracket to clear the tabs securing it.
5. Pull the bracket out and flip it on its side.
6. Disconnect the inline connector of the affected fan and release it.
7. Remove the one screw from the affected fan and release it.
8. Replace the fan.
9. To re-install, follow these steps in reverse order.

Replacing the lamp fans (#8, 10, 12)

Each lamp cartridge has six fans cooling the lamp modules. Fans #8, 10, and 12 cool the A1, A2, and A3 lamps.

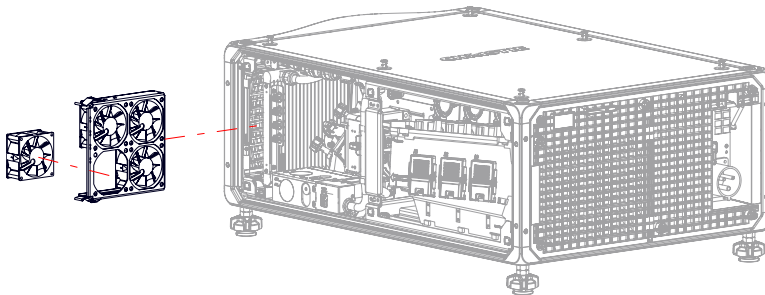Estimated replacement time: 3.5 minutes for servicing a single lamp A fan
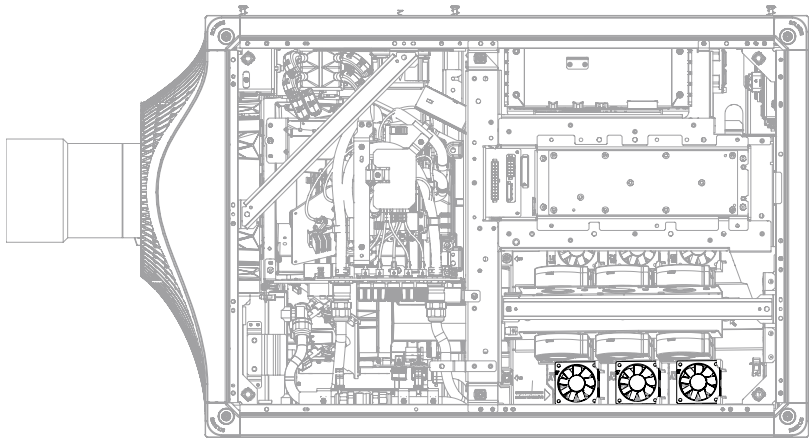
1. *Remove the top cover* (on page 34).

2. *Remove the optics-side cover* (on page 35).

3. Disconnect the harnesses.

4. Remove the screw from the affected fan and release it.

5. Replace the fan.

6. To re-install, follow these steps in reverse order.

Replacing the radiator fans (#13, 14, 15, and 16)

The four radiator fans are mounted in a fan pack that can be easily removed. The fans provide the primary cooling for the radiator.

Estimated replacement time: 5.25 minutes for replacing a single radiator fan

1. *Remove the optics-side cover* (on page 35).

2. Disconnect the four harnesses.

3. Press the tabs to release the radiator fan pack and pull it out.

4. Remove the four screws securing the fan you want to replace.

5. Replace the fan.

6. To install the fan pack, repeat these steps in reverse order.
   When re-installing the fan, make sure wires are not pinched under it.

Replacing the HIP blower fans (#17 and 18)

The HIP blower fans cool the HIP printed circuit board.

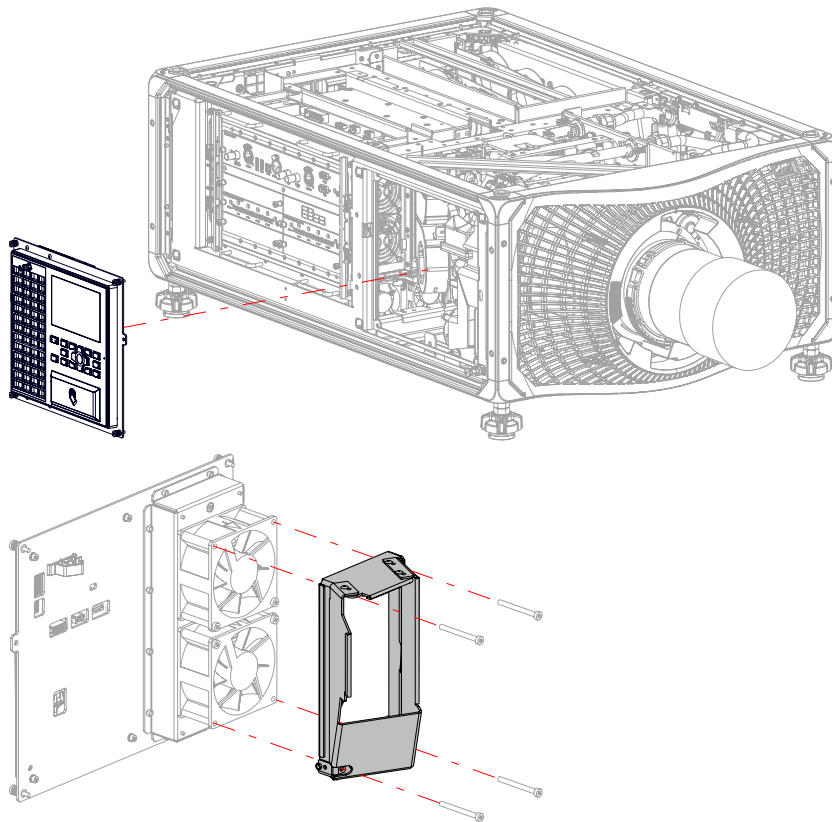Estimated replacement time: 15 minutes for servicing a single blower fan
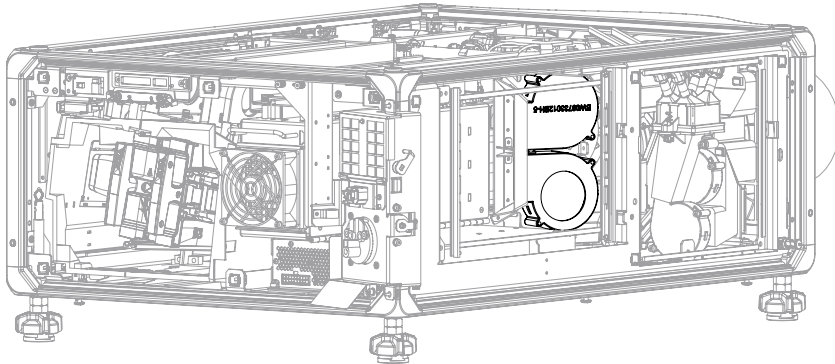
1. *Remove the top cover* (on page 34).

2. *Remove the electronics-side cover* (on page 36).

3. *Remove the card cage* (on page 59).

4. *Remove the user interface module* (on page 60).

5. Disconnect the inline fan connector for the fan, routing the wiring free.

6. Remove the two screws from the affected fan to release it.

7. Replace the fan.

8. To re-install, repeat these steps in reverse order.
   Make sure the harnesses route properly and do not get pinched.

Replacing the side intake duct

The side intake duct directs air to cool the light engine and electronics.

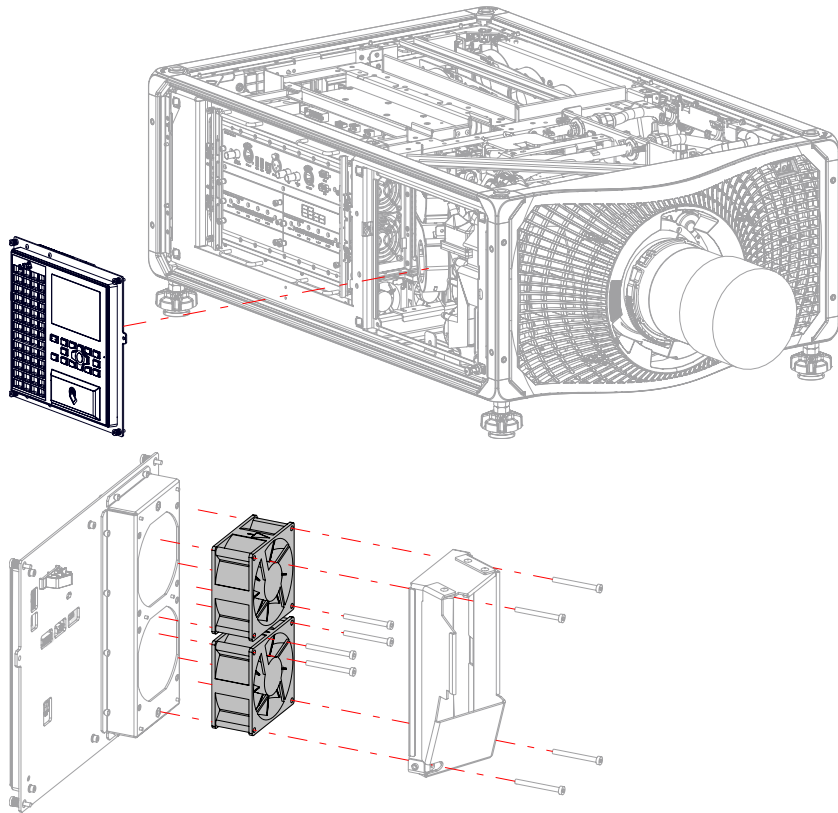Estimated replacement time: 8 minutes

1. *Remove the top cover* (on page 34).
2. *Remove the electronics-side cover* (on page 36).
3. *Remove the user interface module* (on page 60).
4. Remove the four screws securing the aluminum duct to the fans.
5. Remove the aluminum duct.
6. Replace the aluminum duct.
7. To install the side intake duct, repeat these steps in reverse order.

Replacing the side intake fans (#19 and 20)

The side intake fans (#19 and 20) draw air into the projector for the light engine and electronics cooling.

Estimated replacement time: 9 minutes for servicing a single intake fan

1. *Remove the top cover* (on page 34).
2. *Remove the electronics-side cover* (on page 36).
3. *Remove the user interface module* (on page 60).
4. Remove the four screws securing the aluminum duct to the fans.
5. Remove the aluminum duct.
6. Remove the two screws from the affected fan and remove the fan.
7. Replace the fan.
8. To install the user interface intake fans, repeat these steps in reverse order.

Replacing the lamp driver intake fan (#21)

The lamp driver intake fan (#21) provides the intake cooling for the six lamp driver modules.

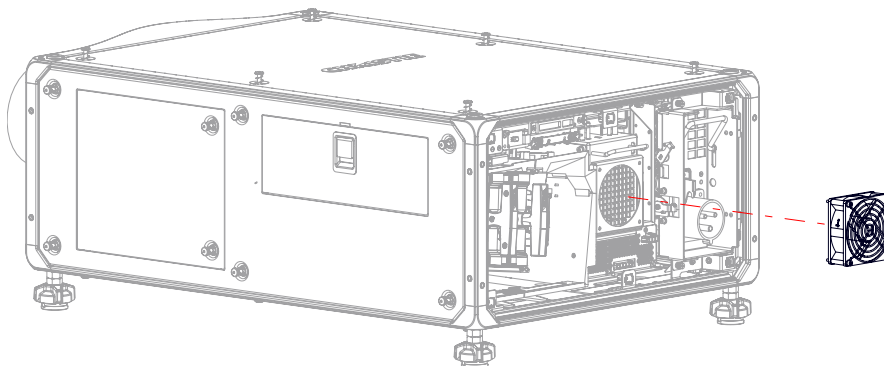Estimated replacement time: 5 minutes
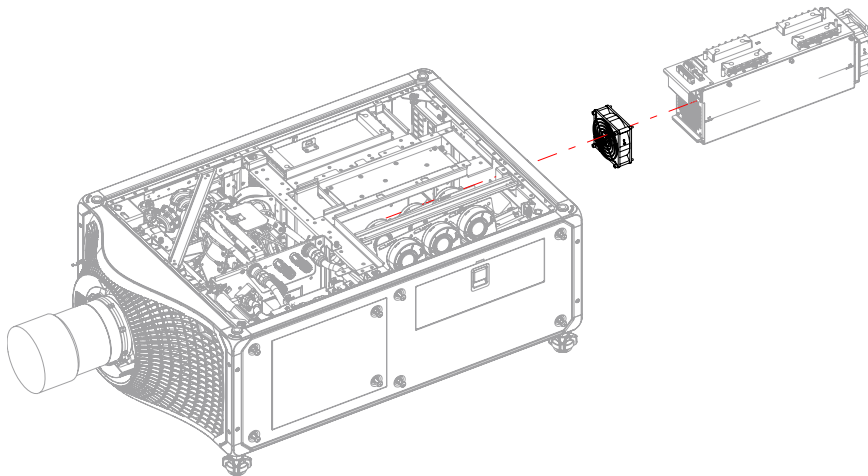
1. *Remove the rear cover* (on page 35).
2. *Remove the top cover* (on page 34).
3. Disconnect the connectors for the lamp driver module.
4. Remove the four screws from teh top of the lamp driver module.
5. Pull out the lamp driver module.
6. Remove the inline connection harness for the fan.
7. Remove the four screws securing the fan to release it.
8. Transfer the grill to the replacement fan.
9. To re-install, complete these steps in reverse order.

    When replacing the harness, make sure to watch for any pinch points and tuck the fan harness under the front bracket.

Replacing the lamp driver exhaust fan (#22)

The lamp driver exhaust fan (#22) provides the exhaust cooling for the six lamp driver modules.

Estimated replacement time: 2 minutes

1. *Remove the rear cover* (on page 35).
2. Disconnect the inline connector for the fan.

3. Remove the four screws securing the fan to release it.

4. Transfer the grill over to the replacement fan.

5. To re-install, follow these steps in reverse order.

Replacing the green fan (#23)

The green blower fan (#23) provides air cooling for the green light engine satellite board.

Estimated replacement time: 3.0 minutes
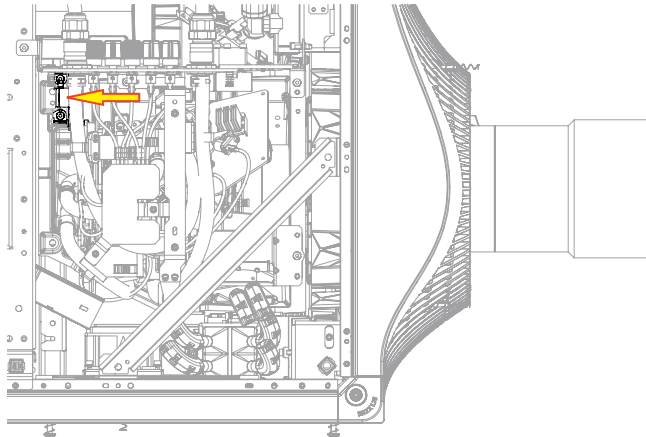
1. *Remove the top cover* (on page 34).

2. Disconnect the harness.

3. Loosen the two captive bracket screws.

4. Pull the fan bracket up and out of the projector.

5. Remove the inline fan connector.

6. Remove the two screws securing the fan and remove the fan.

7. Replace the fan.

8. To install the fan, repeat these steps in reverse order.
   Ensure you route the harnessing properly.

Replacing the red blower fan (#24)

The red blower fan (#24) provides air cooling for the red light engine satellite board.

Estimated replacement time: 5 minutes

1. *Remove the top cover* (on page 34).

2. *Remove the optics-side cover* (on page 35).

3. Examine the red blower fan installed in the projector to determine what steps to take next.

| Red blower fan design A
Follow steps 4-7 | Red blower fan design B
Follow steps 8-11 |
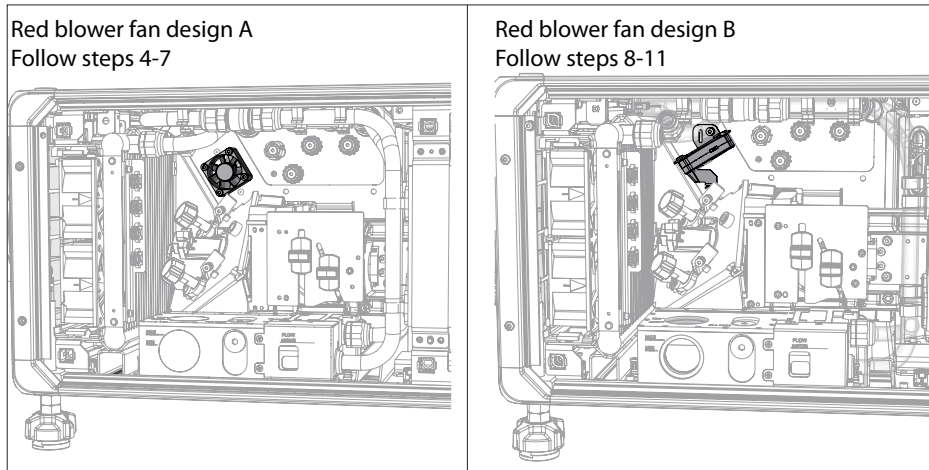
4. To remove the red blower fan design A, disconnect the fan harness.

5. Remove the four screws securing the fan and remove the fan.

6. Transfer the fan grill to the new fan.

7. Replace the fan if required.

8. To remove the red blower fan design B, disconnect the fan harness.

9. Remove the two screws securing the fan to the bracket.

10. To remove the fan bracket, remove the screw.

11. Replace the fan and bracket if required.

12. To install the red blower fan A or B, repeat the steps specific to that fan design in reverse order.

    Ensure you route the harnessing properly.

Replacing the blue fan (#25)

The blue fan (#25) provides cooling for the blue light engine satellite board.

Estimated replacement time: 3.25 minutes
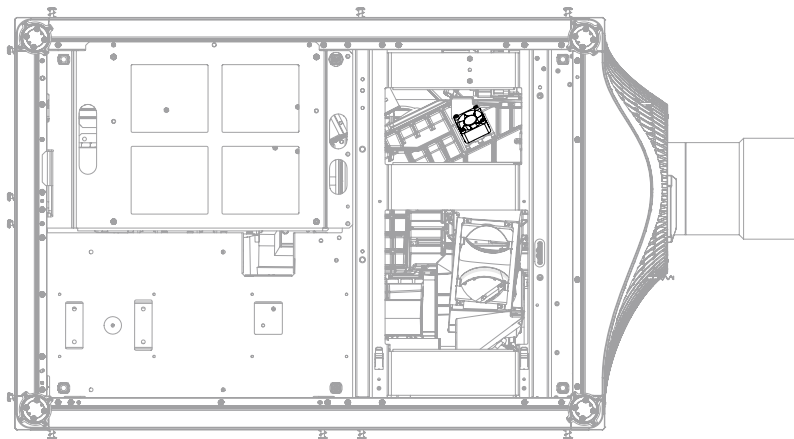
1. *Remove the bottom cover* (on page 36).

2. Disconnect the inline fan connector.

3. Remove the four screws securing the fan.

4. Remove the blue fan.

5. Replace the blue fan.

6. To install the blue fan, repeat these steps in reverse order.

Removing the laminar airflow device blower fans (#26 and 27)

The laminar airflow device (LAD) blower fans (#26 and 27) provide cooling for the DMD assemblies in the light engine.

Estimated replacement time: 14 minutes for servicing a single LAD blower fan
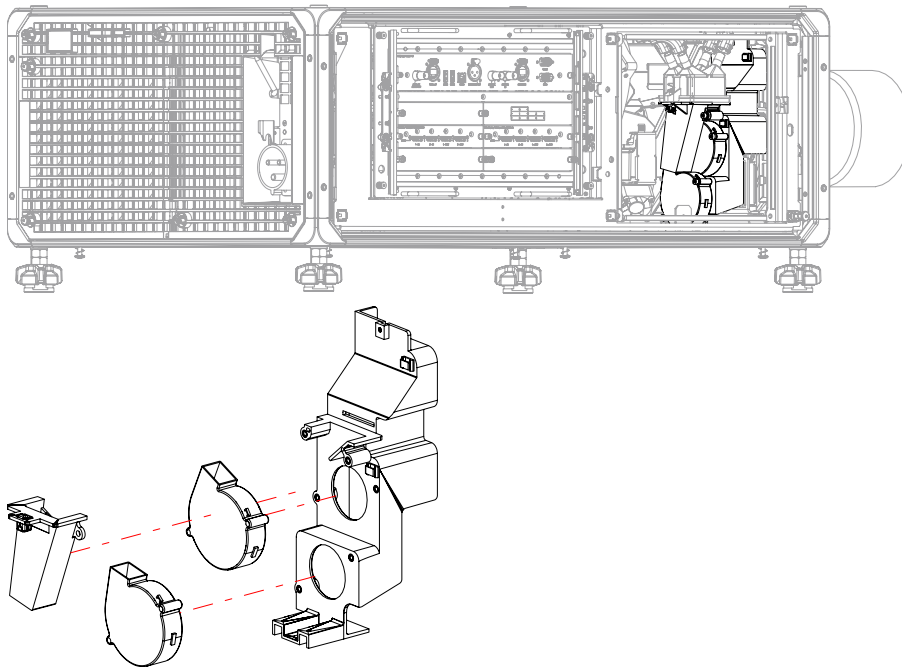
1. *Remove the top cover* (on page 34).

2. *Remove the user interface module* (on page 60).

3. *Remove the LAD blower* (on page 56).

4. Remove the two screws securing the duct assembly to gain access to the fans.

5. Remove the two screws securing each fan to release it.

6. Replace the fan.

7. To re-install, follow these steps in reverse order.
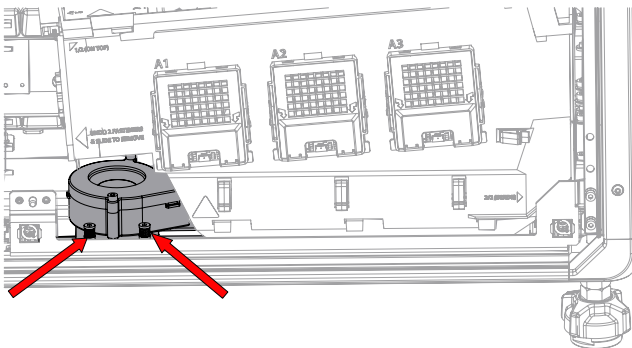   Make sure the harnesses on the fan are properly rerouted.

Replacing the lamp duct housing fans (#28 and 29)

The lamp duct housing fans

1. Remove the top cover.
2. Remove the optics-side cover.
3. Remove the rear cover.
4. Loosen the two captive screws.
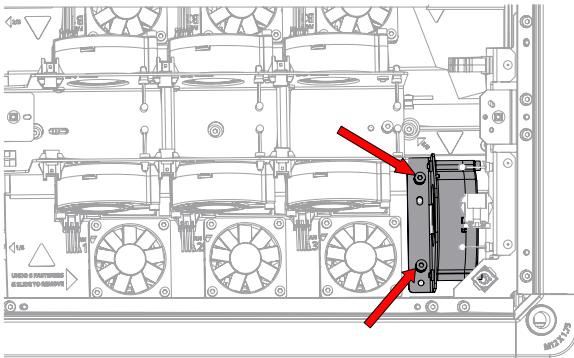
5. Remove fan 28 and replace if required.
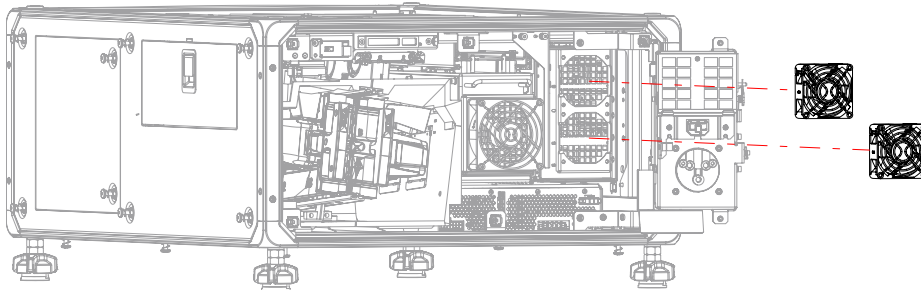6. Loosen the two captive screws.

7. Remove fan 29 and replace if required.

8. To install the fans, repeat these steps in reverse order.

Replacing the card cage exhaust fans (#30 and 31)

The card cage exhaust fans (#30 and 31) draw the hot air out of the card cage.

Estimated replacement time: 3.5 minutes for servicing a single card cage exhaust fan

1. *Remove the rear cover* (on page 35).

2. Loosen the two captive screws securing the AC input module.

3. Swing the AC input module door out to access the required fan.

4. Disconnect the inline fan connector.

5. Remove the four screws securing the connected fan.

6. Remove the fan.

7. Transfer the grill assembly to the replacement fan.

8. To install the card cage exhaust fans, repeat these steps in reverse order.
   When closing the AC input module, make sure the AC input harness routes properly and does not get pinched.

Replacing the power supply module fans

The power supply module fans provide cooling for the single power supply in the projector.

Estimated replacement time: 10 minutes for servicing a single power supply fan
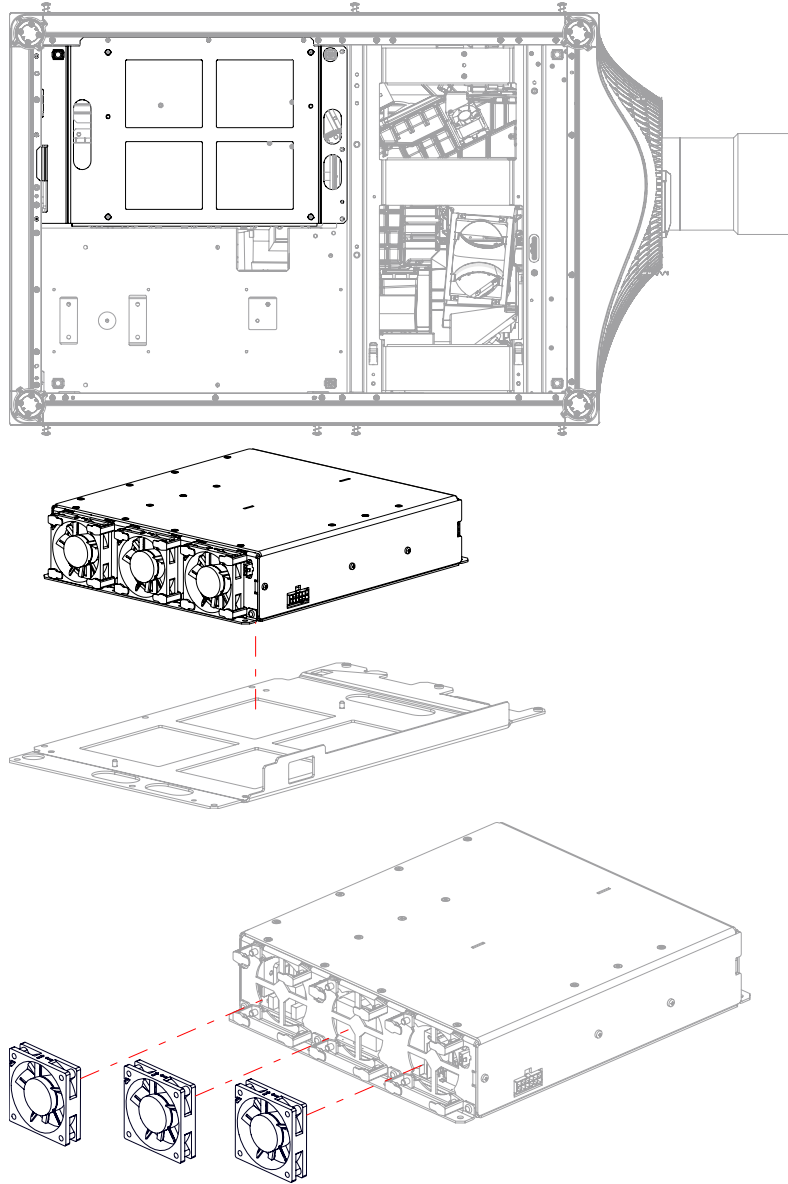
1. Turn the projector on its side.
2. *Remove the power supply module* (on page 66).
3. Disconnect the inline fan connector.
4. Release the four rubber inserts securing the fan.
5. Replace the fan.
6. To re-install, follow these steps in reverse order.

Removing the laminar airflow device blower module

The laminar airflow device (LAD) blower module helps to cool the light engine.

Estimated replacement time: 13 minutes
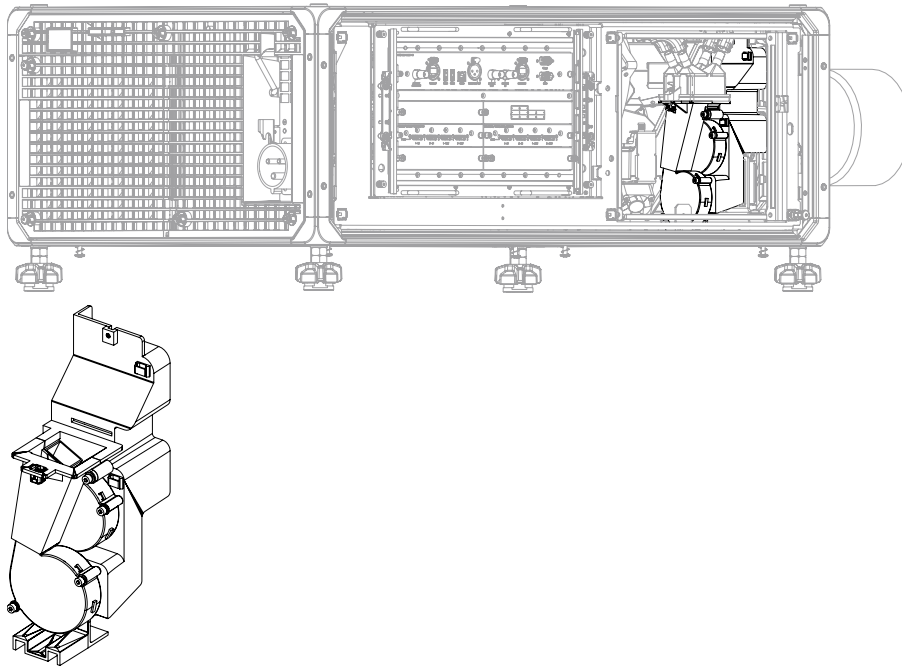
1. *Remove the top cover* (on page 34).
2. *Remove the user interface module* (on page 60).
3. Loosen the two captive screws on the front top support bracket and remove.
4. Loosen the three captive screws on the LAD cooling assembly.
5. Release the one screw holding the blower to the light engine LAD assembly.
6. Disconnect the two inline fan connections.
7. Pull out the LAD blower module towards the inside of the projector.
8. To install the LAD blower module, repeat these steps in reverse order.

Replacing the liquid cooling module

The liquid cooling module (LCM) provides thermal cooling to the 4K light engine.

Estimated replacement time: 6 minutes
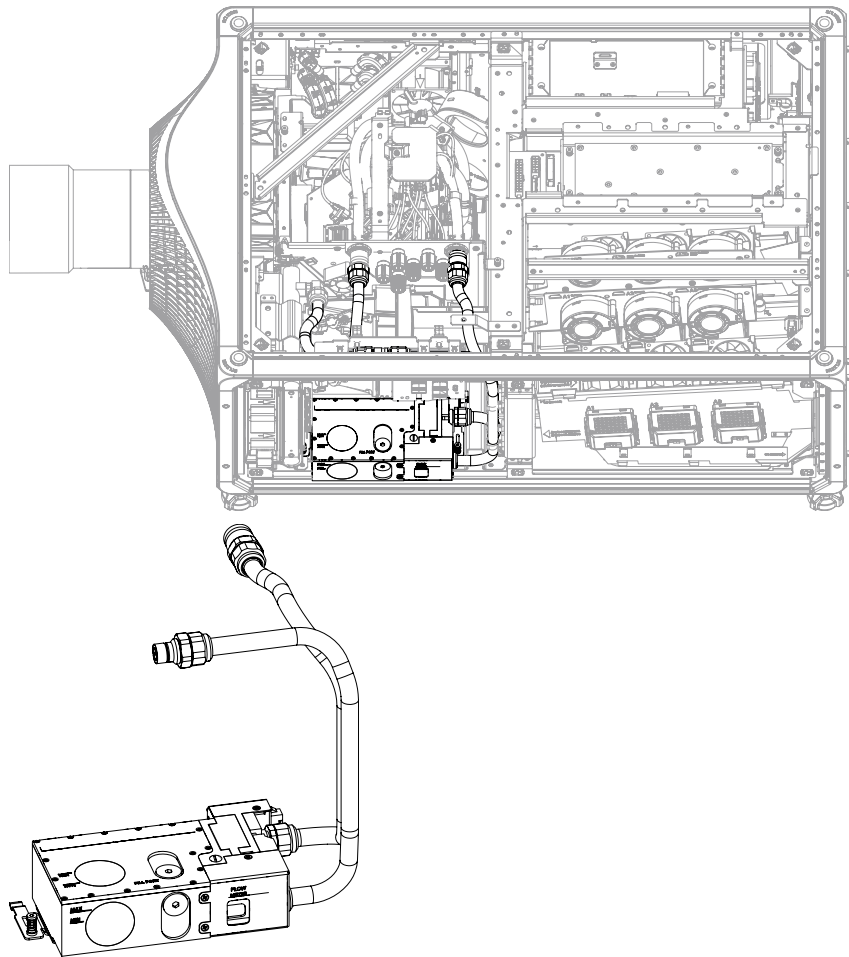
1. *Remove the top cover* (on page 34).

2. *Remove the optics-side cover* (on page 35).

3. Vent the LCM.

4. *Disconnect the two hoses connected to the light engine* (on page 23).

5. Release the hoses from the eight clips.

6. Disconnect the inline hose to the radiator.

7. Loosen the two captive screws securing the LCM.

8. Slide the LCM out and disconnect the LCM harness.

9. Replace the LCM.

10. To re-install, follow these steps in reverse order.

Replacing the radiator

The radiator provides the system cooling to the liquid in the liquid cooling module (LCM) and 4K light engine.

Estimated replacement time: 6.5 minutes
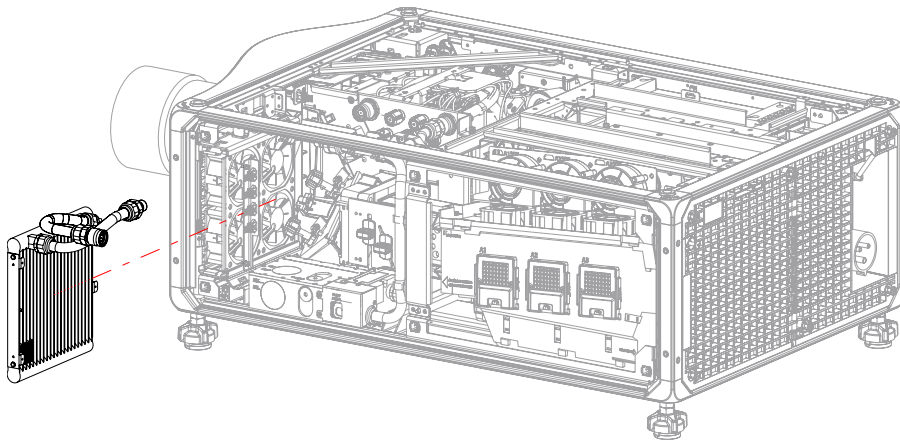
1. *Remove the top cover* (on page 34).
2. *Remove the optics-side cover* (on page 35).
3. Loosen the two captive screws securing the radiator bracket.
4. Disconnect the fan connections from fans #13, 14, 15, and 16.
5. Release the three tension clamps securing the radiator hoses.
6. Vent the liquid cooling module.
7. Disconnect the two inline hose connections going to the radiator.
8. Remove the two screws securing the fan bracket to the radiator.
9. Slide the radiator out of the projector.
10. Replace the radiator.
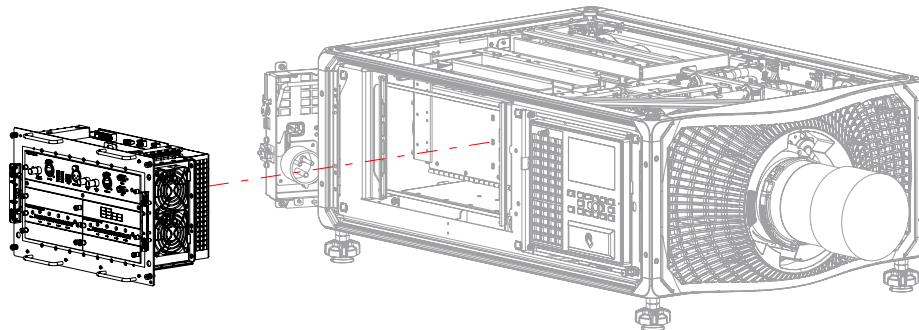11. To re-install, follow these steps in reverse order.

Electronics

Learn how to replace the electronic components and cards in the projector.

Removing the card cage

The card cage contains slots of the IMXB module, four CoreIII option cards, and one Core4 option card..

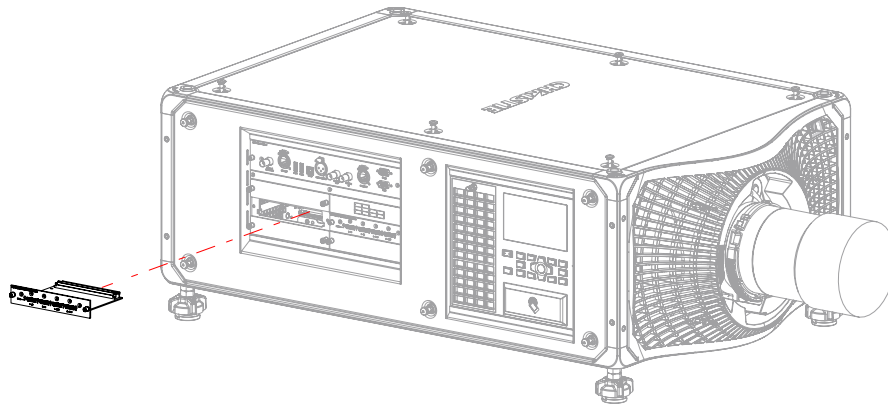Estimated replacement time: 6.5 minutes

1. *Remove the electronics-side cover* (on page 36).
2. *Remove the top cover* (on page 34).
3. *Remove the rear cover* (on page 35).
4. Open the AC input module door.
5. Disconnect the red, green, and blue mini-SAS harnesses.
6. Disconnect the four harnesses (CLB and P3, P26, and P5 on the Core4 backplane board) located on the top of the card cage.
7. Loosen the four captive screws from the card cage and remove it.
   To avoid possible damage, place the card cage on a surface and rest it on its handles.
8. Replace the card cage.
9. To re-install, follow these steps in reverse order.
   When closing the AC input module, make sure the AC input harness routes properly and does not get pinched.

Replacing the option cards

The projector comes standard with two DisplayPort cards and two 3G/HD/SDI cards.

Estimated replacement time: 1 minute

1. On the option card you want to remove, loosen the two captive screws and pull out the option card.
2. Replace the option card.
3. To re-install, follow these steps in reverse order.

Removing the user interface module

The user interface module mounts to the electronics side of the projector.

Using the side panel display, the user can view and control input and output activities on the projector The near field communication (NFC) reader on the user interface module enables Android devices to communicate with the projector, regardless if the projector is powered on or not.

Estimated replacement time: 10 minutes
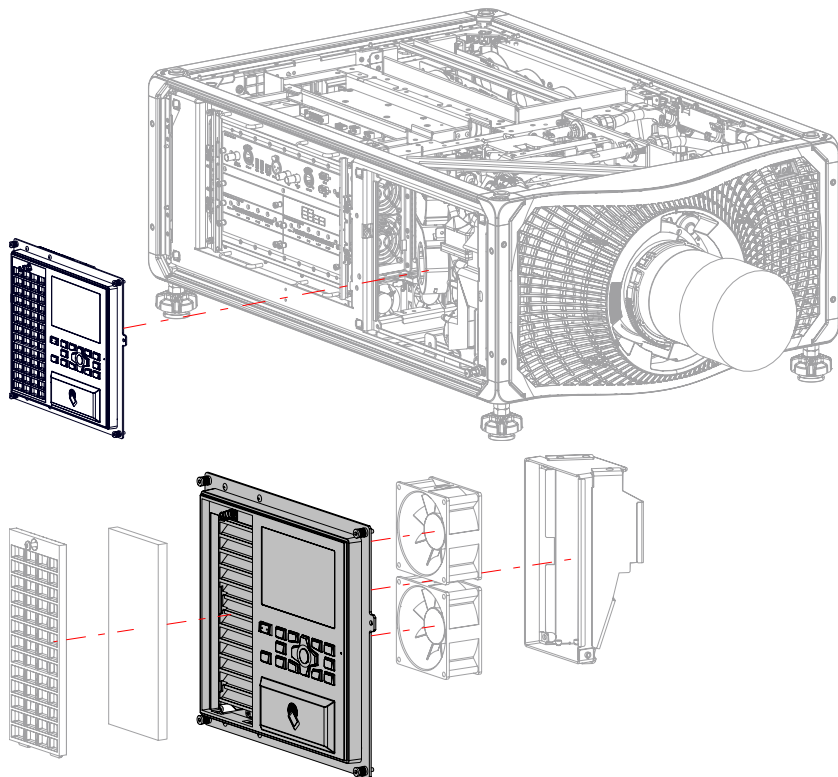
1. *Remove the top cover* (on page 34).

2. *Remove the electronics-side cover* (on page 36).

3. Loosen the four captive screws securing the user interface module.

4. Gently pull out and rotate the user interface module so the harnesses becomes accessible.

5. Free the clip from the module.

6. Disconnect the P30 and P32 harnesses.

7. Disconnect the harnesses for intake fans A (#19) and B (#20).

8. Remove the user interface module assembly.

9. *Remove the two air intake fans from the back of the assembly* (on page 47).

10. *Remove the filter door* (on page 31).

11. *Remove the filter* (on page 39).

12. Keep the fans, filter door, and filter to replace on the new user interface module.

13. Replace the user interface module and attach the components from step 11.

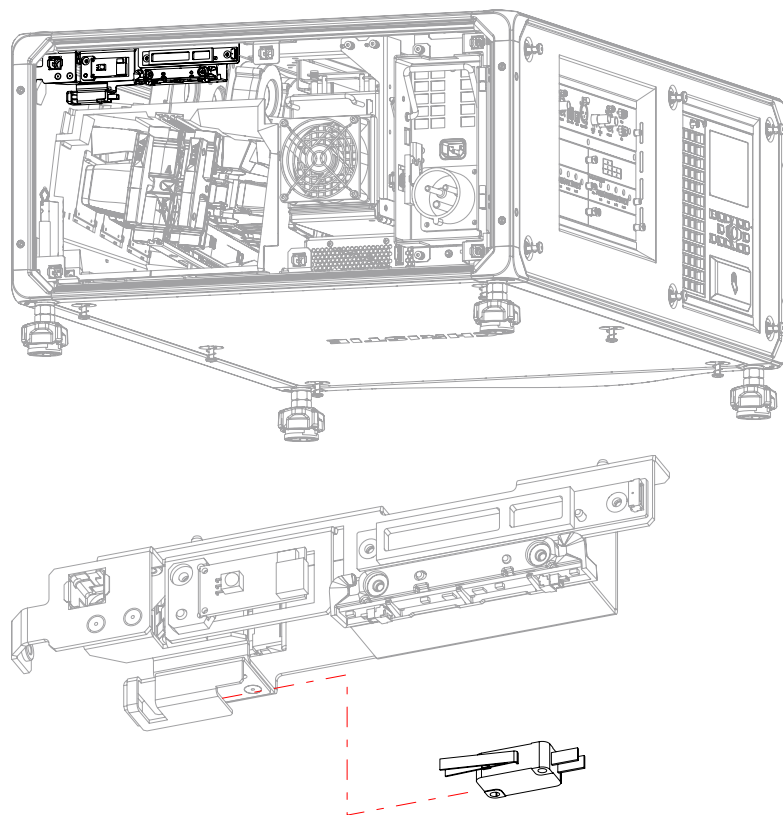14. To re-install, follow these steps in reverse order.
    Make sure the UI module harnesses are properly routed through the clip. The aluminum fan duct is not shown for clarity.
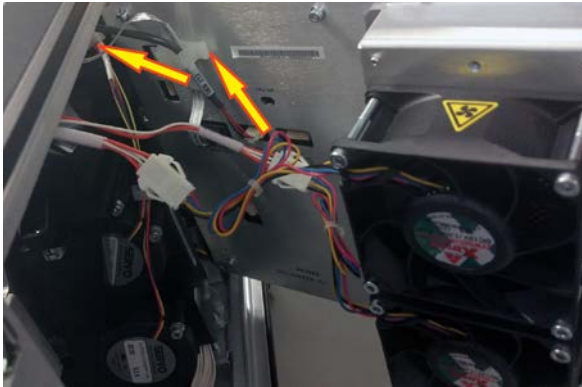
Replacing the lamp door interlock—Design A

The lamp door interlock prevents the projector from operating when the lamp door is open.

Estimated replacement time: 8.5 minutes

1. *Remove the rear cover* (on page 35).
2. *Remove the top cover* (on page 34).
3. *Remove the optics-side cover* (on page 35).
4. Remove the four screws to release the rear electronics bracket.
5. Release the two harnesses from the clip to the rear of the electronics bracket.

6. Disconnect the harness to the status LED board (SLB) to allow for easier access of the bracket.

7. Remove the two screws securing the lamp door interlock switch.

8. Using needle nose pliers, remove the two harness connections to the interlock switch, making note of the location of each harness.

9. Remove the switch and replace it.

10. To re-install, follow these steps in reverse order.

# Replacing the lamp door interlock—Design B

The lamp door interlock prevents the projector from operating when the lamp door is open.

Estimated replacement time: 5 minutes

1. *Remove the rear cover* (on page 35).

2. *Remove the top cover* (on page 34).

3. *Remove the optics-side cover* (on page 35).

4. Remove the two screws.
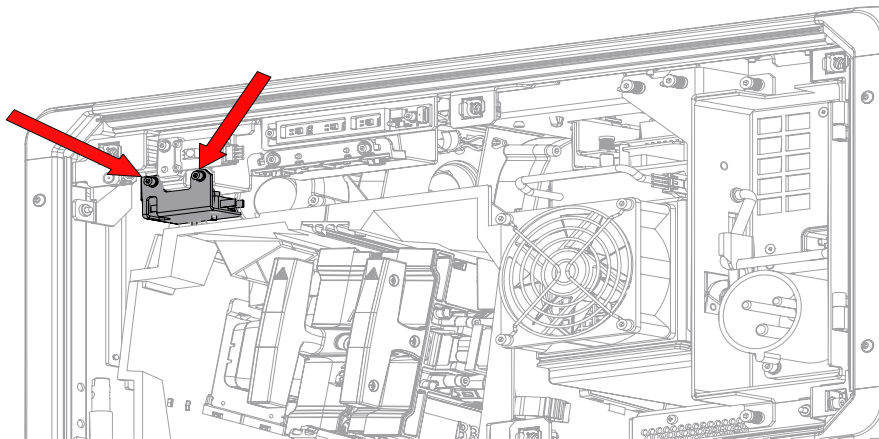
5. Remove the bracket with the interlock out of the projector.

6. To remove the interlock from the bracket, remove the two screws.
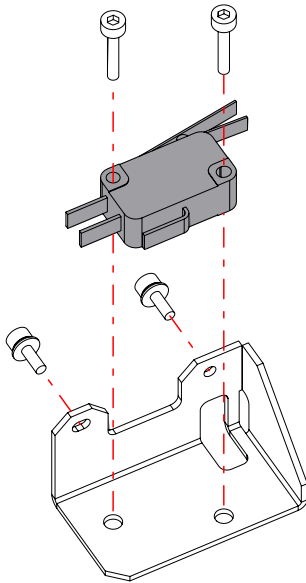
7. Remove the switch and replace it.

8. To re-install, follow these steps in reverse order.

Replacing the lamp driver housing

The lamp driver housing contains the six lamp drivers.

Estimated replacement time: 16.75 minutes

1. *Remove the top cover* (on page 34).

2. *Remove the rear cover* (on page 35).

3. Disconnect the four cable connections to the lamp driver: J70, J78, driver power inline, and cartridge inline.

4. Loosen the four captive screws securing the lamp driver to the HKBA bracket.

5. Slide the lamp driver out the rear of the projector.

6. Remove the three screws securing the lamp driver access cover.

7. Open the access cover.

8. Remove the four screws securing the A and B lamp driver brackets.

9. Disconnect the three cable connections (CN1, CN2, and CN3) going to the six lamp drivers.

   The lamp drivers are stacked on each other (A3 and B3 are at the bottom and A1 and B1 are at the top).

10. Remove the six lamp drivers.

    The lamp drivers will be transferred to the new service module.

11. Remove and replace the lamp driver housing.

12. To re-install-follow these steps in reverse order.
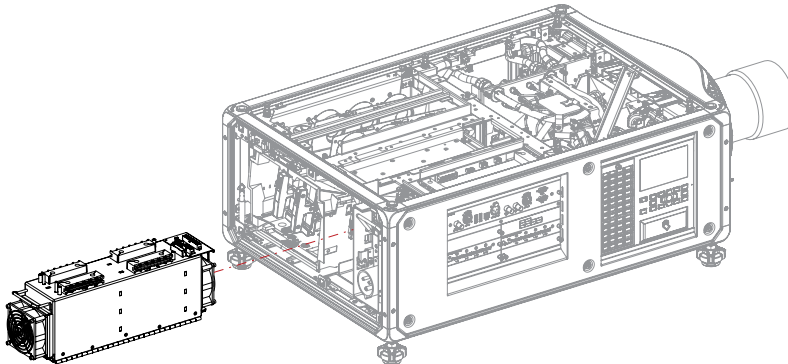
Replacing the lamp driver

Each lamp driver provides the energy required to drive one lamp module in the projector.

Estimated replacement time: 10 minutes for servicing a single lamp driver

1. *Remove the top cover* (on page 34).

2. *Remove the rear cover* (on page 35).

3. Disconnect the four connections to the lamp driver, J70, J78, the lamp driver power inline, and the lamp cartridge inline.
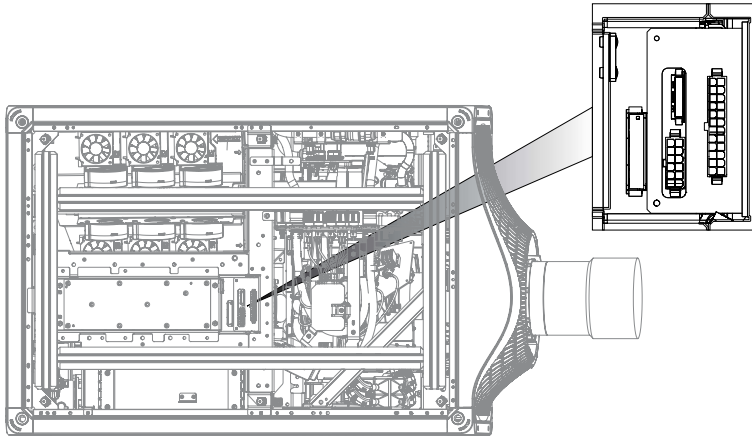
4. Loosen the four captive screws from the top of the lamp driver module.

5. Pull the lamp driver module out the rear of the projector.

6. Remove the three screws to open the lamp driver housing cover.

7. Locate the lamp driver to replace.

	Left Side	Right Side
Top	B1	A1
Middle	B2	A2
Bottom	B3	A3
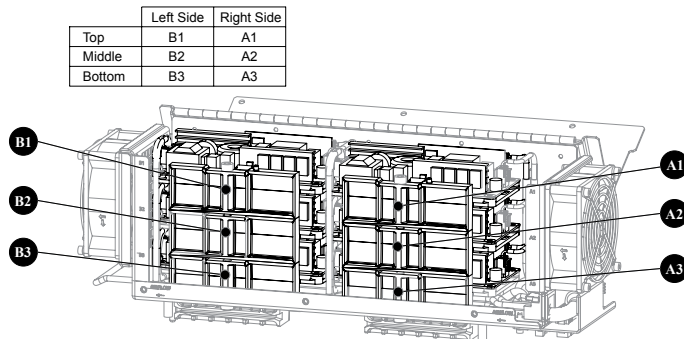
8. Remove two screws from the stack of the lamp drivers that contains the one to be replaced.

9. Disconnect the two harnesses.

10. Slide it to the side to remove the driver.

11. Disconnect the third harness.

12. The lamp driver module comes out as a stack.

13. Remove the failed lamp driver.

14. Install the new lamp driver.

15. To reassemble the projector, follow these steps in reverse order.

Replacing the power supply module

The power supply module provides the required voltages for operating the electronics in the projector.

Estimated replacement time: 10 minutes
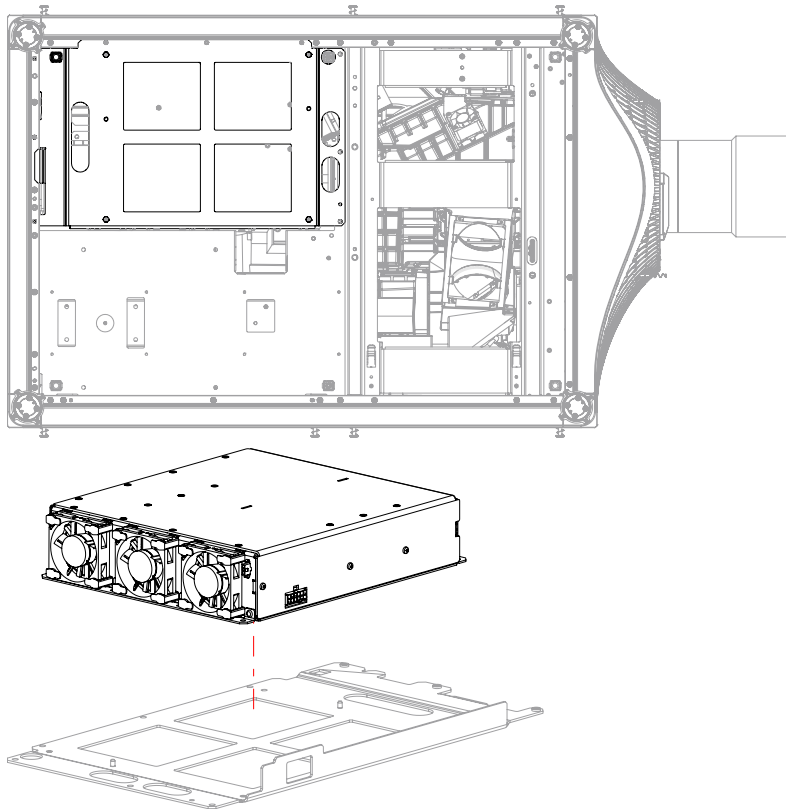
1. *Remove the rear cover* (on page 35).

2. *Remove the bottom cover* (on page 36).

3. Release the AC input module.

4. Disconnect the five harnesses.

5. Remove the nine screws securing the power supply bracket to the projector.

6. Swing the power supply bracket out and remove the power supply module.

7. Remove the four screws securing the power supply to the bracket.

8. Replace the power supply.

9. To re-install, follow these steps in reverse order.

> ⚠️ **Warning!** If not avoided, the following could result in death or serious injury.
>
> • To ensure proper grounding of the product, insert the primary AC Input 1 and Input 2 connectors until you hear a click to indicate they are properly secured.

Testing ground continuity

Complete a ground continuity test to verify a continuous conductive path exists for current to flow in the event of a fault.

1. Check AC Input 1 earth terminal continuity.

    a) Attach one test lead to the AC Input 1 ground post.

    b) Attach the second test lead to the projector's metal foot post.

c) To confirm the ground integrity, verify the ohmmeter reading is below 1 ohm to ensure the primary connections to the power supply have been made correctly.

2. Check AC Input 2 earth terminal continuity.

   a) Attach one test lead to the AC Input 2 ground post.

   b) Attach the second test lead to the projector's metal foot post.

   c) To confirm the ground integrity, verify the ohmmeter reading is below 1 ohm to ensure the primary connections to the power supply have been made correctly.
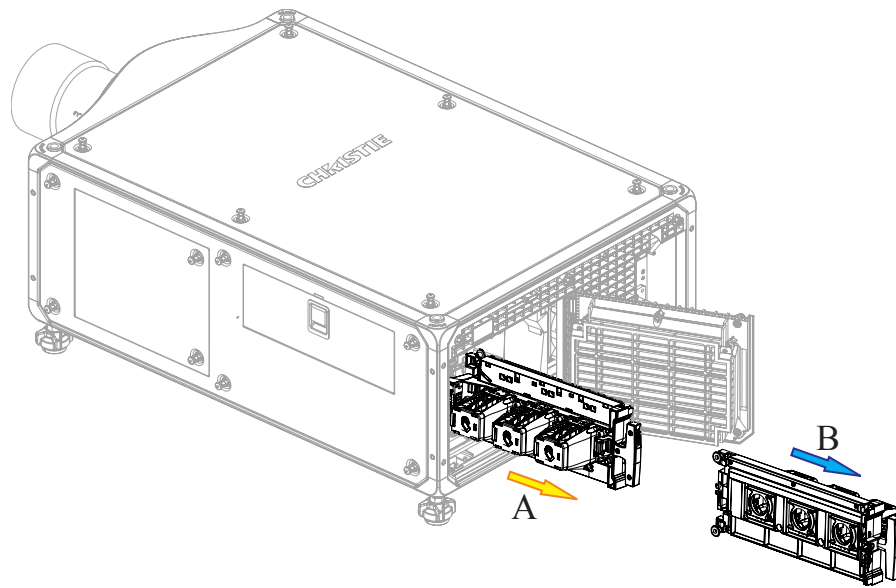

3. Remove the test equipment.

Optics

Learn how to replace lamps, mirrors, and other optical components.

Replacing lamp cartridge A or B

The lamp cartridges can be easily accessed from the rear of the projector.

Each Lamp Cartridge contains three lamp modules.
Estimated replacement time: 1 minute for servicing a single lamp cartridge.

1. *Shut down the projector* (on page 18).

2. To open the lamp door, loosen the two captive screws and open the door.

3. Loosen the captive screw from the lamp cartridge containing the lamp module you want to replace.

4. Use the handle to pull out the lamp cartridge.

5. If required, replace the lamp cartridge.

6. To re-install, follow these steps in reverse order
   Make sure the captive screw is fully seated (tightened) or a loose connection between the lamp cartridge and the projector could occur.

Replacing the lamp module

The lamp module acts as the projector's illumination source directing light into the integrator module. It mounts to the lamp cartridge module, which contains three lamps per module.

Replace the lamp module when the lamps are nearing the end of their operational lives or have burnt out.

Estimated replacement time: 2 minutes for servicing a single lamp module

1. To open the lamp door, loosen the two captive screws and open the door.

2. Loosen the captive screw from the lamp cartridge containing the lamp module you want to replace.

3. Use the handle to pull out the lamp cartridge.

4. Loosen the four lamp module mounting captive screws and remove the module.

5. Install the new lamp module and fasten with the four captive screws.

6. Slide the new cartridge back in until you feel the connector engaging.

7. Tighten the previously removed captive screw to secure the lamp cartridge.

   Make sure the captive screw is fully seated (tightened) or a loose connection between the lamp cartridge and the projector could occur.

8. Close the lamp door and tighten the two captive screws.

Repairing a lamp module lens

Use the cartridge repair kit (P/N: 003-005165-XX) when a lamp explosion has occurred, causing damage to the lamp module lens.

Estimated replacement time: 7 minutes
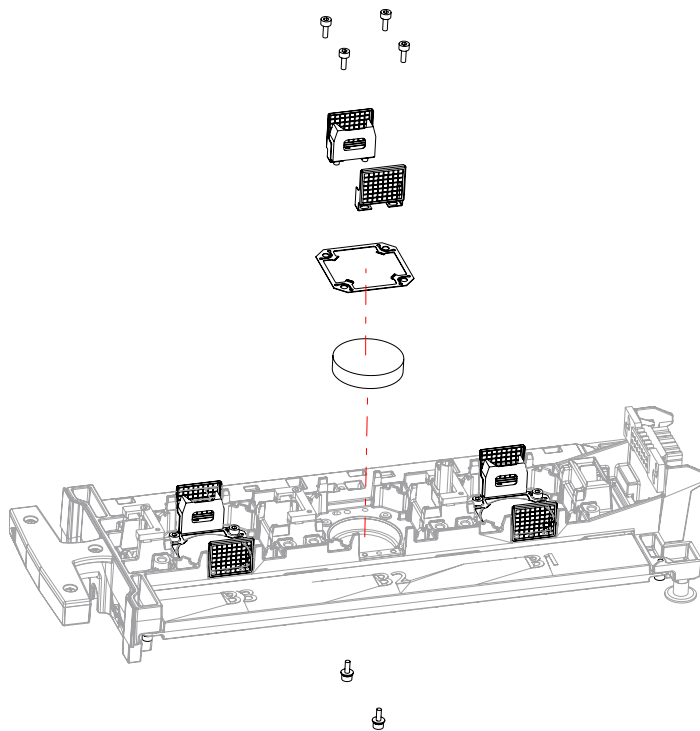
1. *Remove the lamp module* (on page 70) that contains the lamp to be replaced.
2. Remove the two screws securing the lamp grills from the bottom of the lamp cartridge.
3. Remove the four screws from the lamp lens mounting bracket.
4. Remove the two grills.
5. Remove the reflector duct.
6. Remove the grill spacer.
7. Remove the lens mounting bracket.
8. Remove the lens.
9. Make sure the curved side (convex side) of the lens is pointing out when you remove the lens.
10. Replace the lens.
11. Replace the lens mounting bracket, making sure the bracket tabs are pointing up.
12. Tighten the four screws on the lens mounting bracket.
13. Replace the grill spacer with the grill in place on the side of the lamp IDs and tighten the screws.
14. Replace the reflector duct with the grill in place on the opposite side of the lamp IDs and tighten the screw.
15. Re-install the remaining components.

Removing the light dump

The light dump absorbs any off-state light from the light engine.

Estimated replacement time: 3 minutes
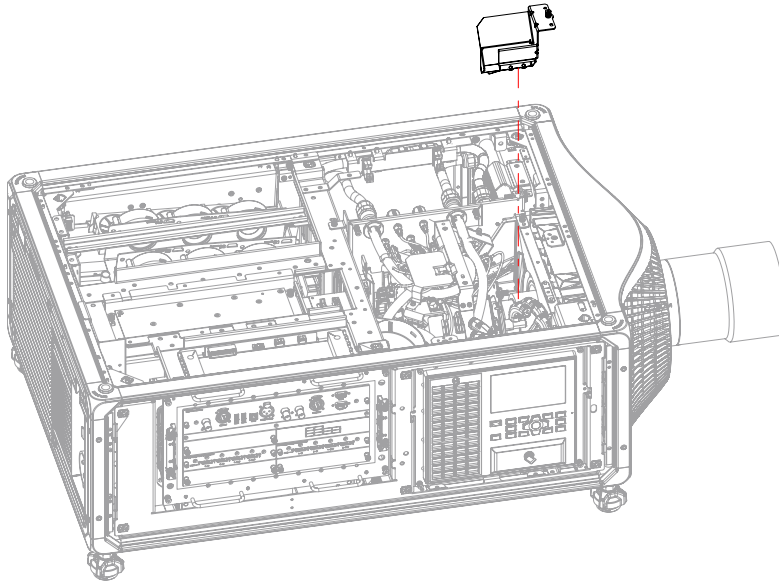
1. *Remove the top cover* (on page 34).
2. Loosen the two captive screws on the front top support bracket and remove.
3. Loosen the captive screw securing the light dump.
4. Remove the light dump.
5. If required, replace the light dump.
6. To re-install, follow these steps in reverse order.

Replacing the shutter

The shutter blocks the light coming into the projector lens.

Estimated replacement time: 10 minutes
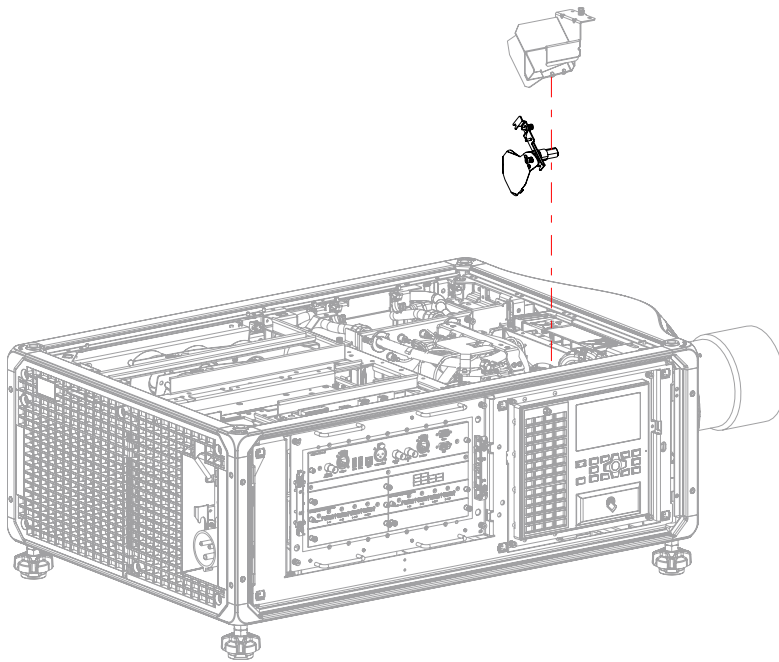
1. *Remove the top cover* (on page 34).
2. *Remove the light dump* (on page 72).
3. Disconnect the inline shutter connector.
4. Loosen the captive screw securing the shutter using the 3 mm hex key, and pull it out.
5. Replace the shutter.
   Make sure the new shutter bracket is engaged with the pins for realignment.
6. Install and route the new harness through the clips same as the old harness.
7. Connect the new shutter harness labeled shutter to the shutter, J-Switch to P-Switch on the shutter assembly.
8. Connect J85 end of the shutter harness to P85 connector on the housekeeping (HKBA) board.
9. Re-install the light dump.
10. Re-install the top cover.

Replacing the light engine

The light engine modulates incoming light from the light source to create an image, which is projected to the screen.

Estimated replacement time: 20 minutes
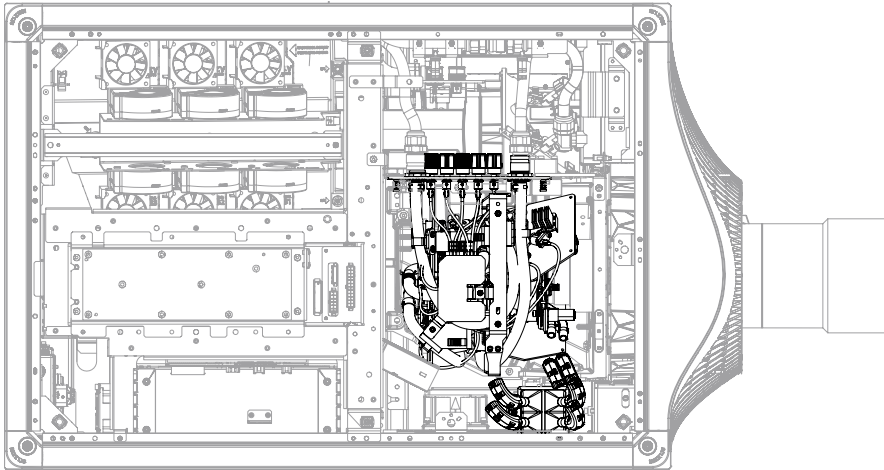
1. *Remove the top cover* (on page 34).
2. *Remove the optics-side cover* (on page 35).
3. *Remove the light dump* (on page 72).
4. *Remove the rear cover* (on page 35).
5. *Remove the user interface module* (on page 60).
6. Open the AC input module.
7. Remove the two screws securing the mini-SAS bracket.
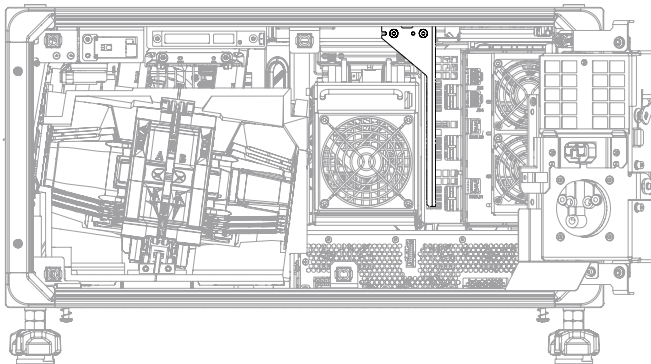
8. Disconnect the three mini-SAS harnesses from the card cage.
9. Disconnect the harnesses to the housekeeping (HKBA) board.
   The J92, J30, J117, J77, J87, J88, and J5 harnesses run across the mini-SAS harnesses.
10. Disconnect the shutter harness.
11. Loosen the captive screw for the laminar airflow device (LAD) housing assembly.
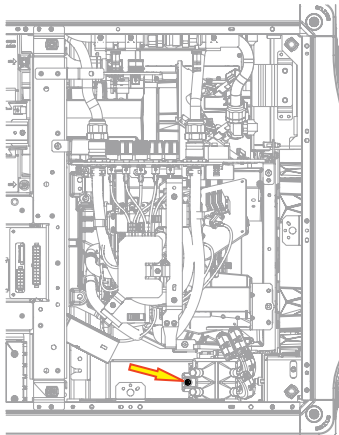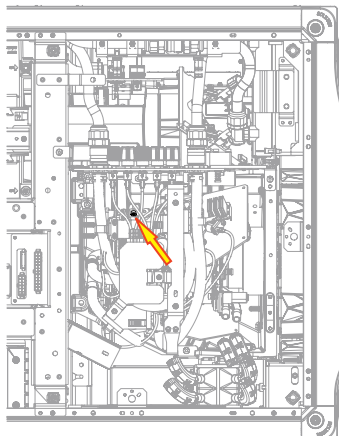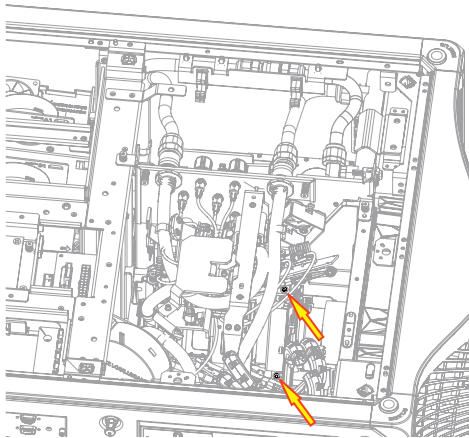
12. Vent the LCM.

13. *Disconnect the hoses* (on page 23).

14. Loosen the two captive screws from the convergence interface plate.
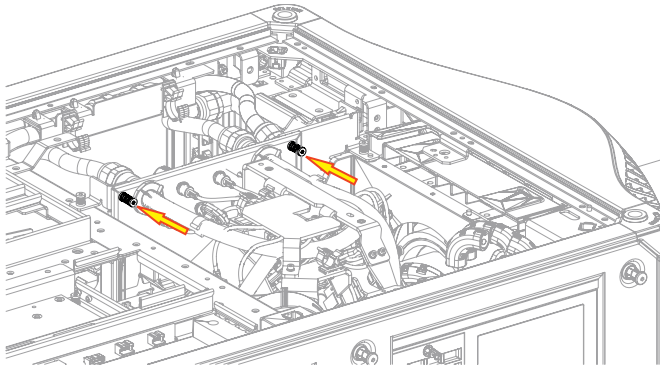
15. Loosen the three captive screws from the light engine base plate.

16. Pull the light engine towards yourself at a 45 degree angle to clear the pins on the convergence interface plate and then pull it completely out.

    When removing or replacing the light engine, ensure special care is taken around the red formatter board and the fan duct. If you do not lift light engine straight out or replace it straight in, the formatter board may contact the fan duct, which can disable the red formatter board.
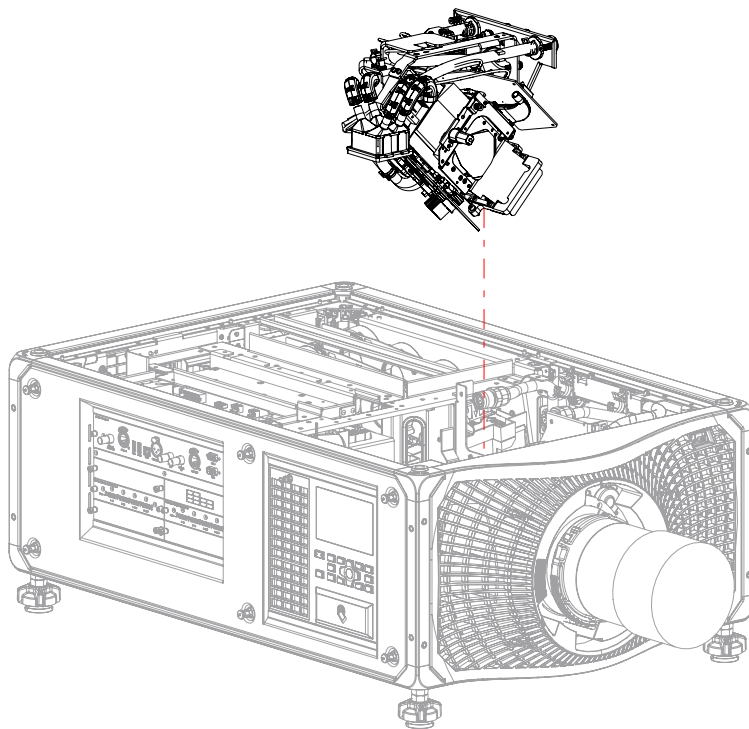
17. Place the light engine on the shipping base plate.

18. To secure the light engine to the shipping base plate, tighten the two screws.

19. Put the light engine and base plate in the shipping package and return to Christie.

20. To re-install the new light engine, follow these steps in reverse order.

    When re-installing the light engine into the projector, avoid pinching the green fan harness and contacting the red satellite board on the firewall.

21. Ensure the three mini-SAS harnesses are routed properly so none of them interfere with the fan in the light engine area. For more details refer to *replacing the mini-SAS harnesses* (on page 91).
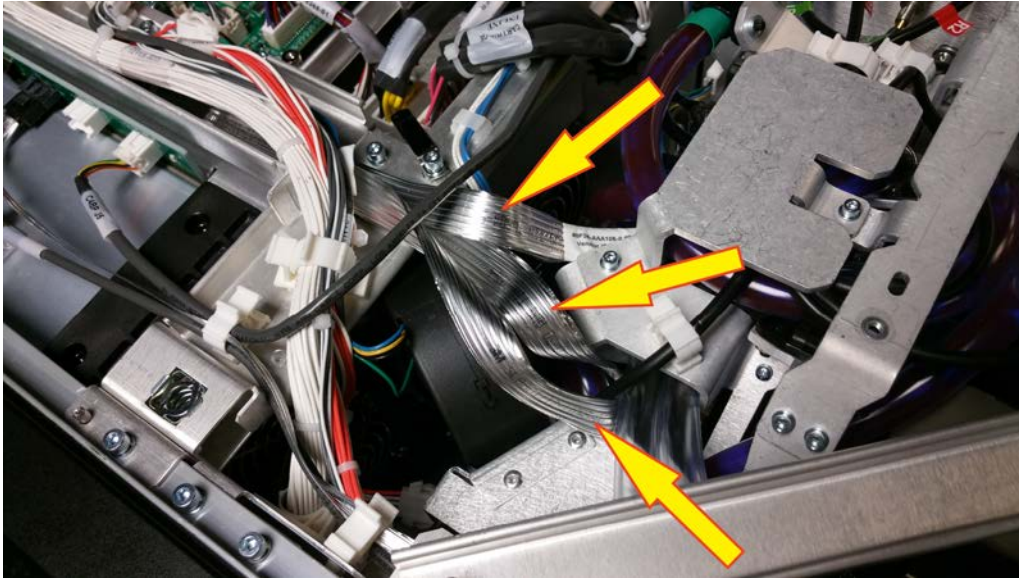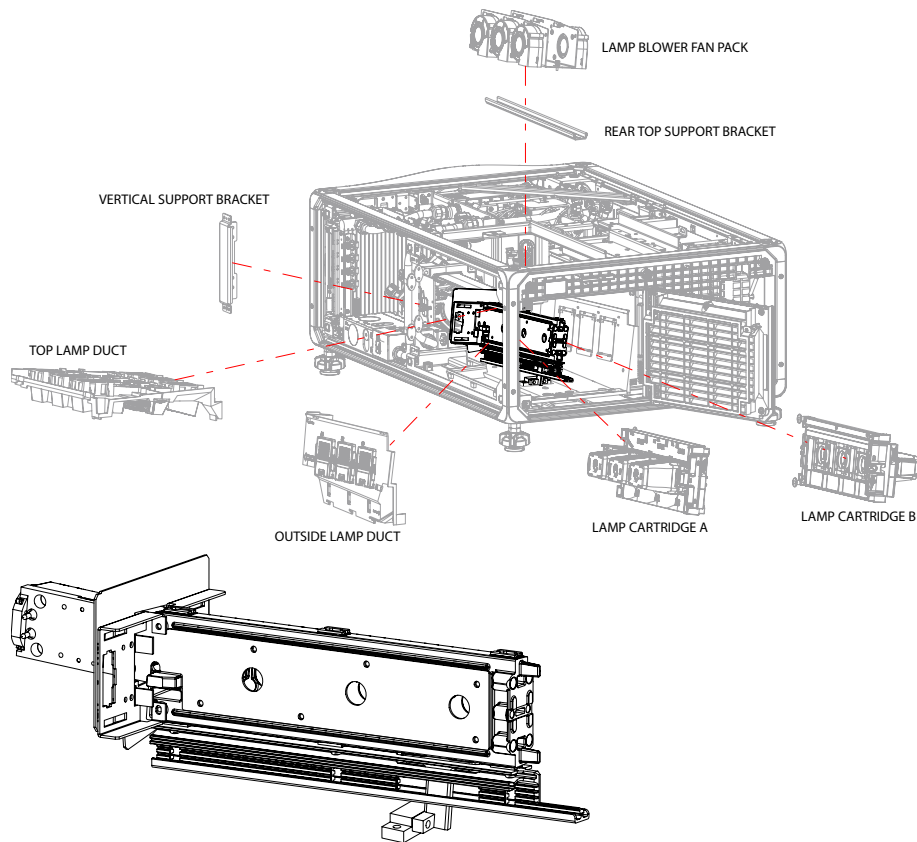

Replacing the integrator module

The integrator module is positioned between the two lamp cartridges and captures light from up to six lamps and combines it into a uniform rectangular light source for the light engine.

Estimated replacement time: 16 minutes

> ⚠️ **Warning!** If not avoided, the following could result in death or serious injury.
>
> • Always handle optics by their edges.

LAMP BLOWER FAN PACK

REAR TOP SUPPORT BRACKET

VERTICAL SUPPORT BRACKET

TOP LAMP DUCT

OUTSIDE LAMP DUCT

LAMP CARTRIDGE A

LAMP CARTRIDGE B

1. *Remove the top cover* (on page 34).
2. *Remove the optics-side cover* (on page 35).
3. Remove the two screws securing the rear top support bracket.
4. Open the lamp door.
5. *Remove the rear cover* (on page 35)
6. *Remove the two lamp cartridges* (on page 70).
7. Loosen the two captive screws to release the lamp cartridges.
8. Use the handles to pull out the lamp cartridges.
9. To release the vertical support bracket, remove the four screws.
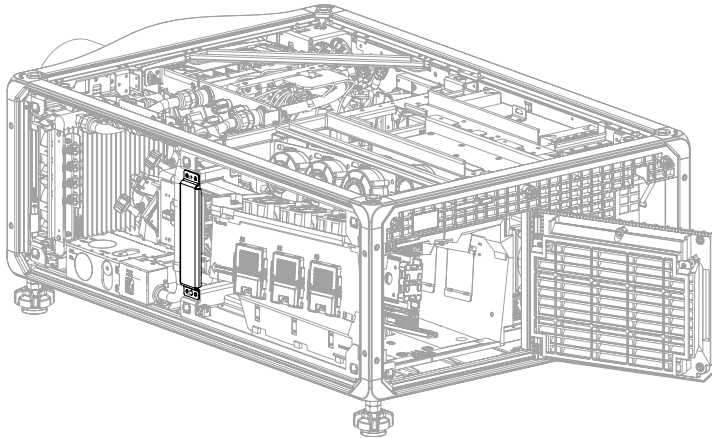
10. To free the lamp blower fan pack, loosen the captive screw securing it.

11. Slide the lamp blower fan pack towards the front of the projector to release the assembly from the tabs.

12. Disconnect the J73 and J74 harnesses.

13. Free the harnesses from the clips.

14. Remove the lamp blower fan pack.

15. Disconnect the J75 harness and route free from the harness clips.

16. Disconnect the J72 NFCR harness (A side).

17. To release the top lamp duct module, remove the three screws.
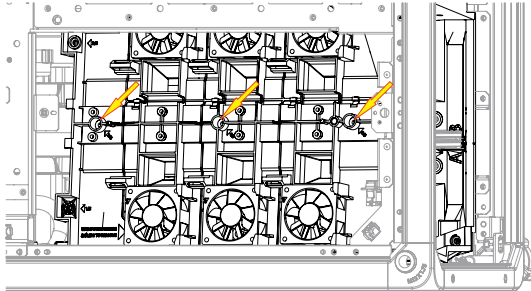

18. To remove the outside lamp duct, loosen the three captive screws.
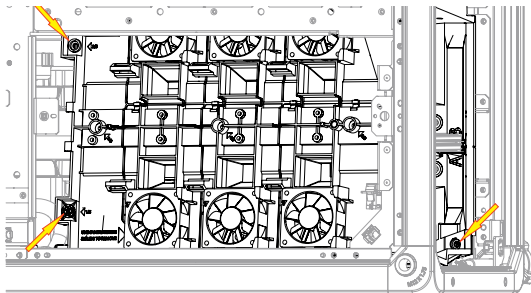
19. Disconnect the J72 inline connection located at the electronics bracket.

20. Slide the outside lamp duct assembly to the front of the projector and remove it.

21. Remove the top lamp duct module.

22. Disconnect the cartridge inline connector from the lamp driver and P89 from the HKBA and route free from the harness clips.

23. Remove the two screws from the bottom of the integrator focus module to disengage it from the bottom of the projector.

    Use caution when handling the integrator module assembly. Touching the glass with bare hands will impact the optics due to residue such as oil or dirt. The areas of the integrator module where light enters the module from the lamps can become hot and touching these areas could potentially cause damage to the lamps or the integrator module assembly.
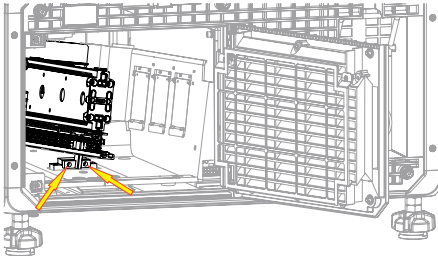
24. Remove the four screws from the front of the integrator focus module connecting it to the zoom and focus module.
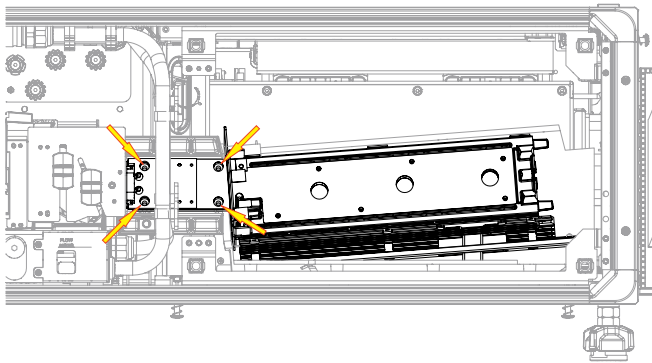
25. Slide the integrator module out the side of the projector.

26. Replace the integrator module.

27. To re-install, follow these steps in reverse order.

    When re-installing the J72, J73, J74, and J75 harnesses, make sure they do not protrude above the upper electronics bracket.

Removing the integrator front plate assembly

The integrator front plate assembly supports mounting locations for the lamp cartridge connectors.

Estimated replacement time: 40 minutes

1. *Remove the integrator module* (on page 77).

2. To remove the two harness connector backplates, remove the four screws.
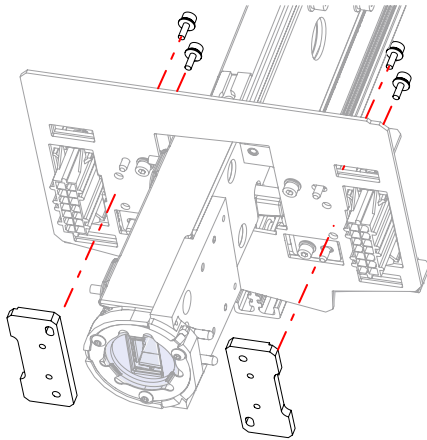
3. Remove the four screws securing the front plate assembly to the integrator.
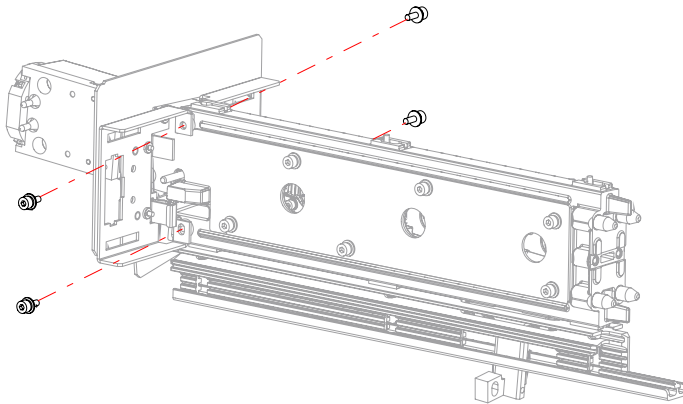
4. Remove the five screws securing the lamp harness connector brackets to the front plate.
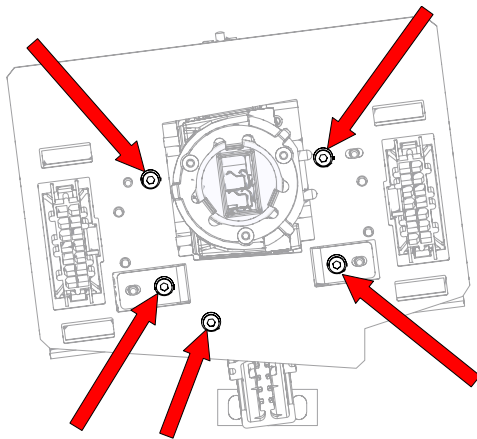
5. Remove the two lamp harness connector brackets.
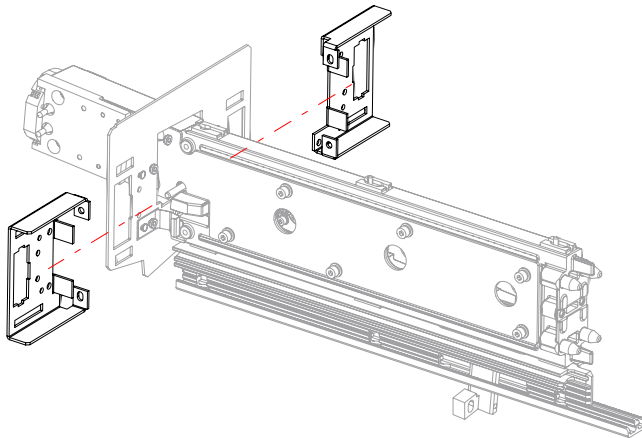
6. To remove the integrator front plate, slide it towards the short end of the integrator.
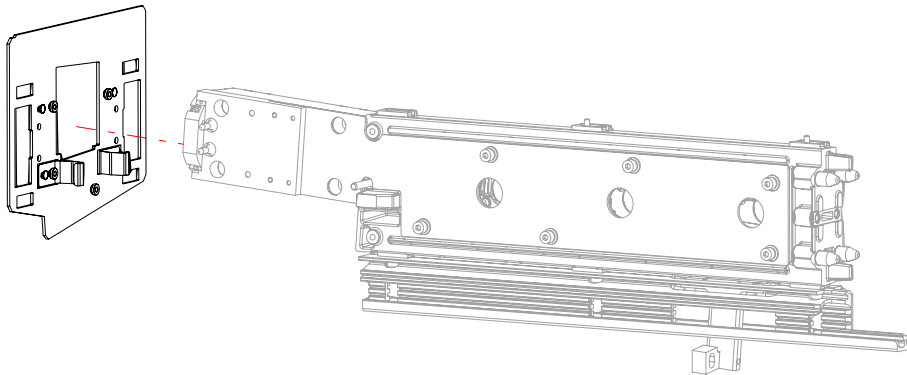
7. To re-install, follow these steps in reverse order.

Replacing the integrator zoom and focus module

The integrator zoom and focus module allows the user to adjust the magnification and focus of the light directed onto the DMDs.

Estimated replacement time: 19 minutes

1. *Remove the integrator module* (on page 77).

2. *Remove the liquid cooling module* (on page 56).

3. Remove the four screws from the integrator zoom and focus module.
   Christie recommends removing the screws inside the hollow chamber first.
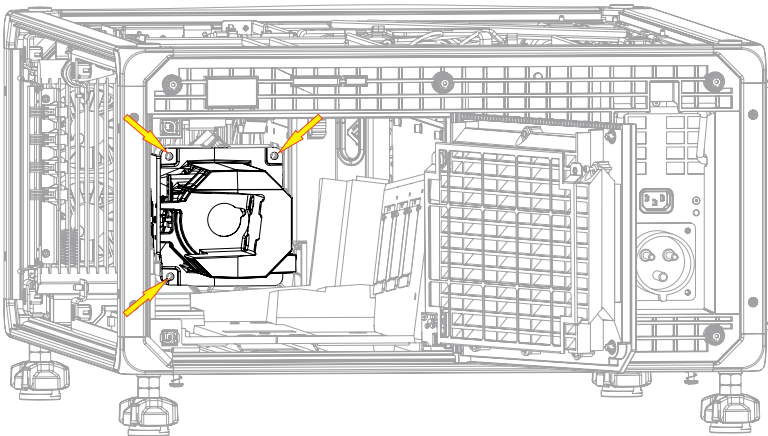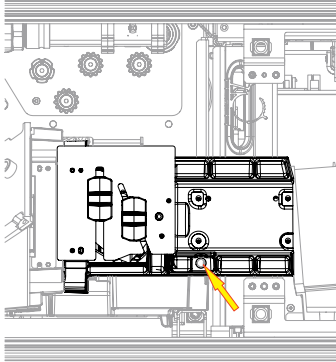
4. Slide the integrator zoom and focus module to the back of the projector to remove it.

5. Replace the integrator zoom and focus module.

6. To re-install, follow these steps in reverse order.

Replacing the relay optics housing

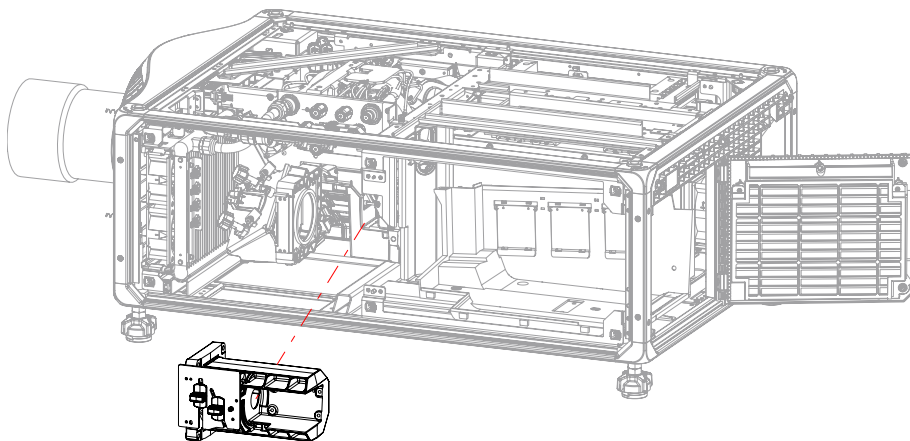The relay optics housing contains optical lens elements that move the light from the integrator zoom and focus module and folds it back into the light engine.

Estimated replacement time: 32 minutes

1. *Remove the integrator zoom and focus module* (on page 82).

2. *Remove the radiator* (on page 57).

3. Flip the projector so it sits on its electronics-side.

4. *Remove the bottom cover* (on page 36).

5. Remove the four screws securing the relay optics housing.
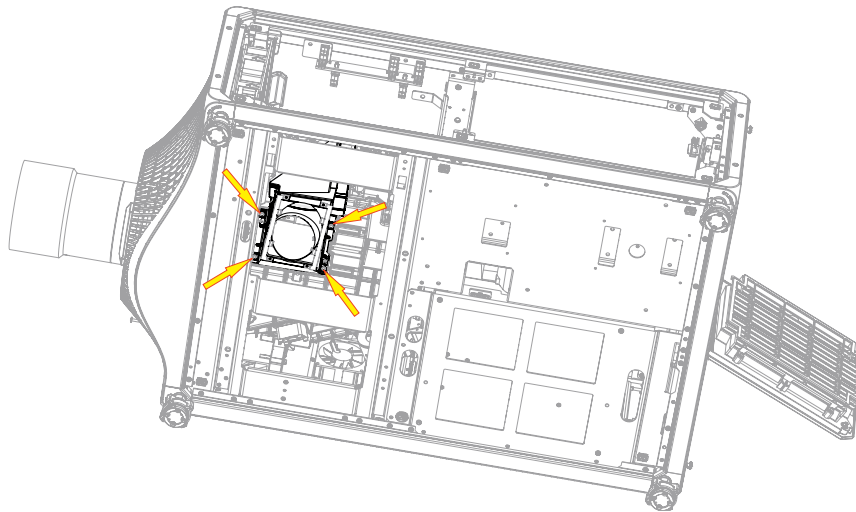
6. Slide the housing clear to access the light lock sensor screw.

7. Remove the screw.

8. Disconnect the light sensor harness.

9. Remove and replace the relay optics housing.
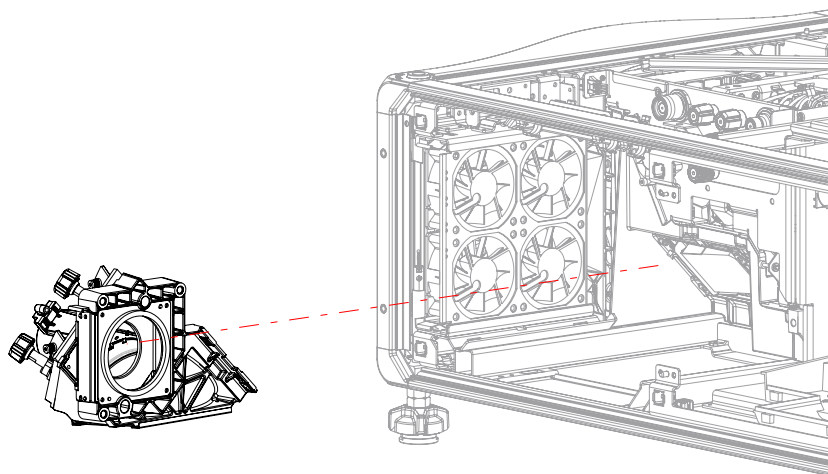
10. To re-install-follow these steps in reverse order.

Cleaning or replacing fold mirror 1

Fold mirror 1 is located below the LiteLOC sensor and provides the first light bend to getting the light directed towards the light engine.

Estimated replacement time: 15 minutes
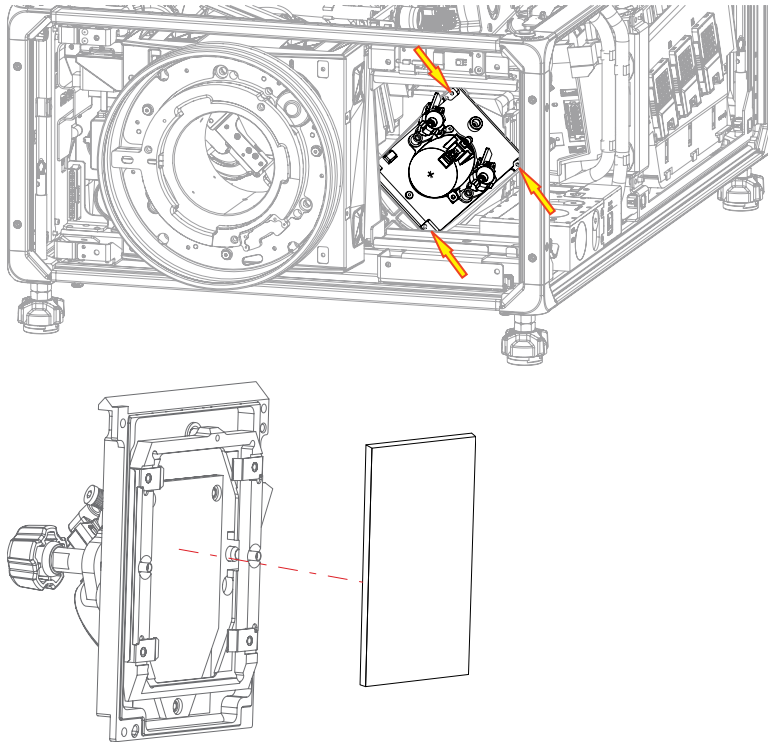
1. *Remove the front cover* (on page 33).

2. *Remove the radiator* (on page 57).

3. Loosen the two captive screws securing and remove the radiator bracket.

4. To remove the radiator fan pack, press on the two tabs.

5. Remove the three screws securing fold mirror 1 adjust module.

6. Remove the four screws securing fold mirror 1 retaining clamps.

7. Remove the retraining clamps.

8. Drop fold mirror 1 out of the fold mirror 1 adjust module.

9. Clean or replace fold mirror 1 as required.

10. To re-install, follow these steps in reverse order.

11. After replacing fold mirror 1, power on the lamp in single-lamp mode and adjust the fold mirror 1 before powering on in six-lamp mode.

Cleaning or replacing fold mirror 2

Fold mirror 2 is located behind the bottom cover. It folds the light back into the light engine.

Estimated replacement time: 4 minutes
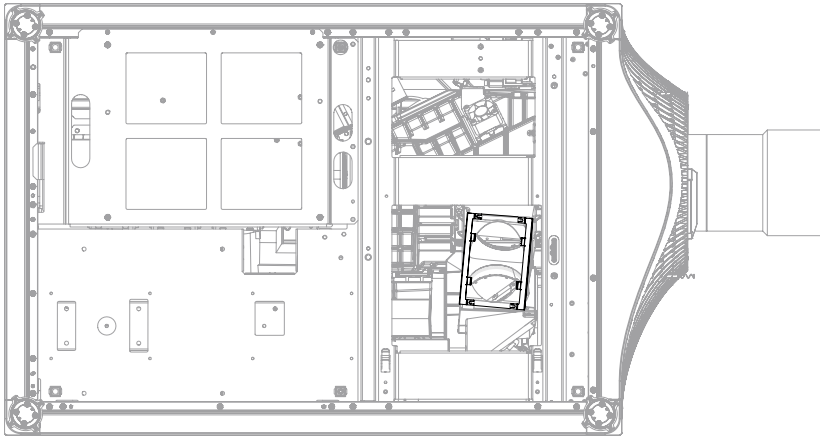
1. *Remove the bottom cover* (on page 36).

2. Loosen the four captive screws securing fold mirror 2.

3. Remove the two bracket assemblies while securing fold mirror 2.

4. Remove fold mirror 2.

5. Clean or replace fold mirror 2 as required.

6. To re-install, follow these steps in reverse order.

Lens mount components

Lens mount provides a means of securing a projection lens to the projector. Components include the lens boot, lens mount barrel, and the lens mount offset.

Removing the lens boot

The lens boot is a critical part of the projector's electromagnetic interference (EMI) enclosure and is required to meet FCC standards for radiated emissions. It also helps to keep out dust and foreign materials.

Estimated replacement time: 8 minutes

1. *Remove the front cover* (on page 33).
2. Remove the two screws securing the lens contact board.
3. Disconnect the harness.
4. Remove the lens contact board.
5. To release the boresight indicator brackets and lens boot, remove eight screws.
6. Remove the lens boot and boresight indicator brackets.
7. Replace the lens boot and/or the boresight indicator brackets.
8. To install the lens boot and boresight indicator brackets, repeat these steps in reverse order.

Removing the lens mount barrel

The lens mount barrel is the housing for the projector lens.

Estimated replacement time: 18.5 minutes

1. *Remove the lens boot* (on page 87).
2. Disconnect the lens mount harness.
3. Release the harness from the tension clamp.
4. Disconnect the vertical and horizontal offset sensors.
5. Disconnect the vertical and horizontal offset motors.
6. Release the harnesses from the five clips.
7. Remove the three boresight safety screws.
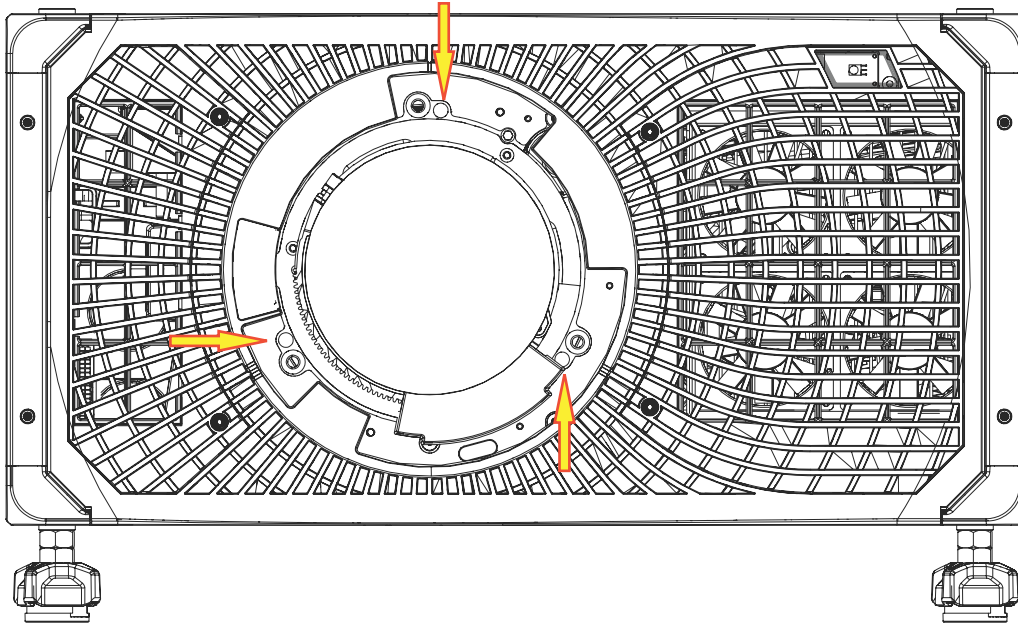
8. Remove the three boresight screws and their springs.

Christie recommends removing the two bottom screws before removing the top screw. Note the washer order on the boresight screws to ensure the proper order when re-installing.
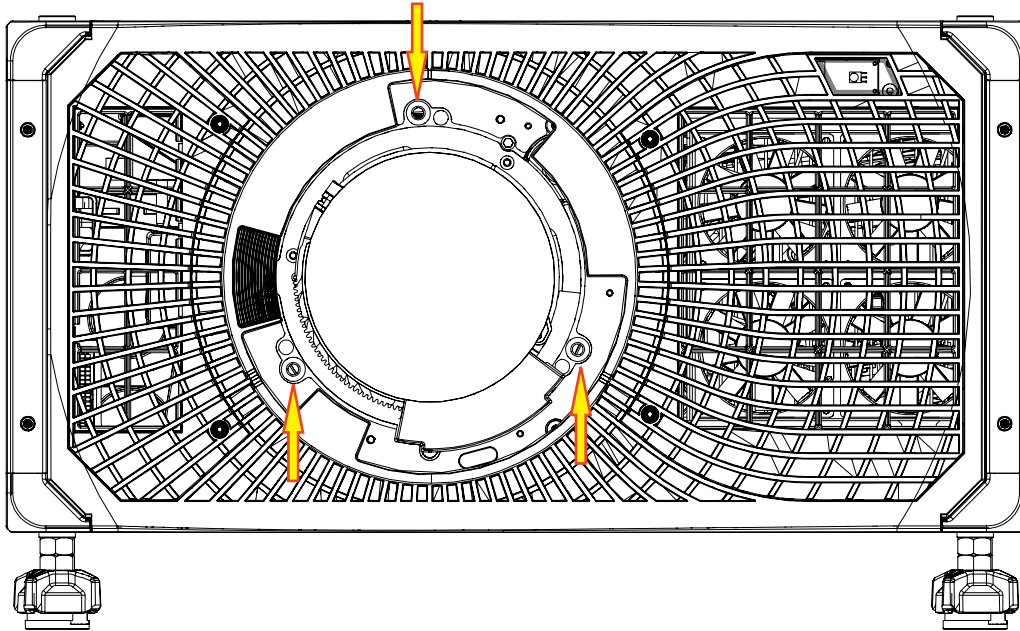
9. Reach behind the lens mount and remove the springs.

10. Remove the lens mount barrel.

11. Replace the lens mount barrel.

12. To install the lens mount barrel, repeat these steps in reverse order.

    The boresight locking screws should be level with the countersunk holes. This simulates a factory default state.

Replacing the offset motor

The offset motor provides a means of adjusting the position of the projection lens using motorized controls. It contains both the horizontal and vertical offset motors.

Estimated replacement time: 8.5 minutes

1. *Remove the front cover* (on page 33).

2. Disconnect the lens mount harness.

3. Remove the four screws from the lens mount offset (leaving the barrel attached).

4. Remove the entire lens mount.

5. Remove the four screws securing the affected offset motor (horizontal (H) or vertical (V)).
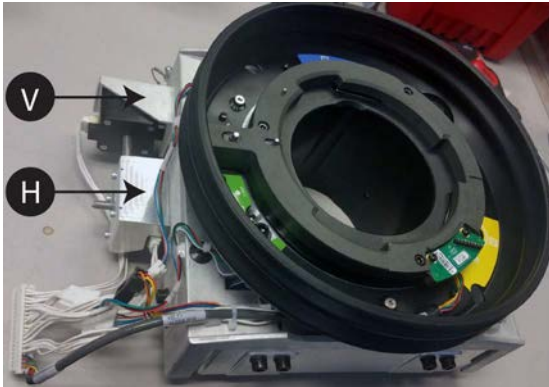
6. With a flathead screwdriver, adjust the plunger until the motor assembly is free.

7. Disconnect the harness to the affected motor.

8. Replace the affected motor.

9. To install the offset module, repeat these steps in reverse order.

Harnesses

Harnesses can transmit signals or electrical power.

Before servicing, always carefully observe the original lead dress. Take extra precautions to secure all harnessing properly, especially in the high voltage circuitry areas (such as lamp cables). Replace any wire that appears to have damaged insulation.

Replacing the mini-SAS light engine harnesses

The mini-SAS harnesses move data from the light engine to the card cage.

Estimated replacement time: 23.0 minutes

1. *Remove the light engine* (on page 73).

2. Disconnect the red, green, and blue mini-SAS harnesses from the light engine.

3. Replace the mini-SAS harnesses.

4. Reconnect the mini-SAS harnesses.

   Make sure the access and bends are identical to what was installed or the harnesses do not route properly.

5. Pull the longer blue mini-SAS harness towards the rear of the projector to remove the slack from the light engine area that may cause interference with the fan.

6. Route the mini-SAS harnesses so none of them interfere with the fan in the light engine area.

The harnesses must be snug and clear of the fan.
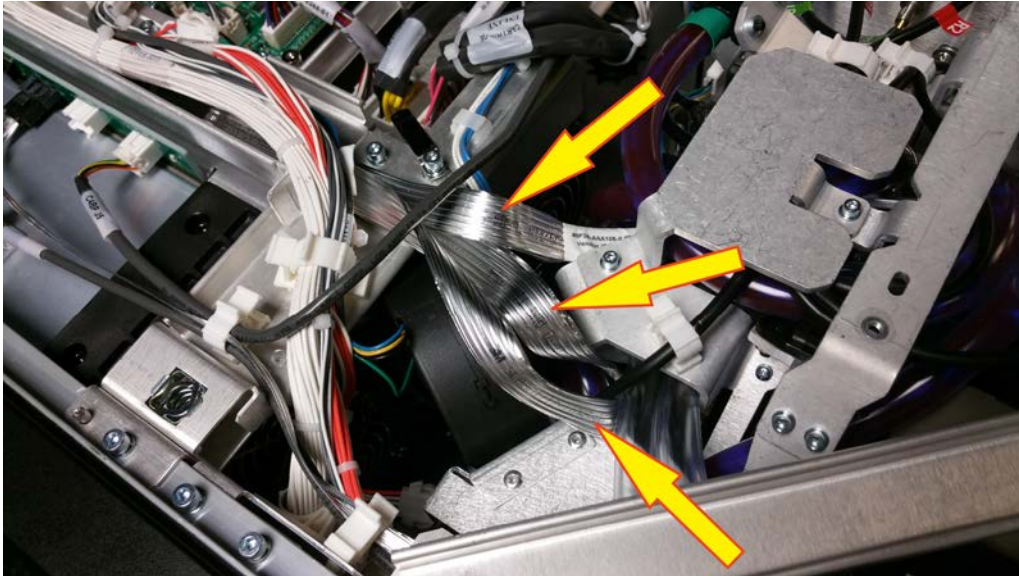
7. Fold the longer blue mini-SAS harness and secure it along with the other harnesses with the swivel clamp.

8. To secure the harnesses, apply the remaining two swivel clamps.

Replacing the NFCR harnesses

The NFCR harnesses are located on the panel mount connector.

Estimated replacement time: 10 minutes

1. *Remove the top cover* (on page 34).

2. *Remove the optics-side cover* (on page 35).

3. Replace the A1, A2, and A3 NFCR harness:

   a) Route the harness free from the four clamps.

   b) Disconnect the harness connections to the A1, A2, and A3 NFC reader.

   c) Disconnect the harness connection from the inline connector.

   d) Remove the harness.

4. Replace the B1, B2, and B3 NFC reader harness:

   a) *Remove the lamp driver module* (on page 65).

   b) Disconnect harness connections from NFCR B1, B2, and B3.

   c) Disconnect harness J72 from HKBA.

   d) Release the harness from the three tension clamps.

   e) Release the harness from inline connector bracket.
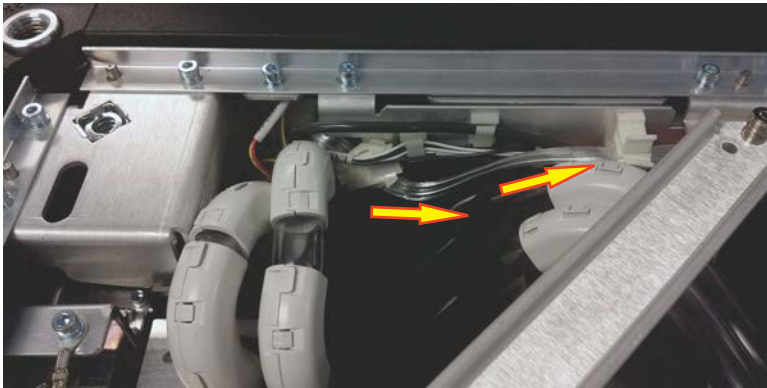

   f) Remove the harness.

5. To install the NFCR harnesses, repeat these steps in reverse order.

Replacing the IKB harnesses

The integrated keypad board (IKB) harnesses connects the IKB board to the Core4 backplane board and the convenience light board (CLB).

Estimated replacement time: 8.75 minutes

1. *Remove the top cover* (on page 34).
2. *Remove the user interface module* (on page 60).
3. Release the harnesses from the three tension clamps and the one harness clamp.
4. Route the wiring free.
5. Disconnect the J26 and CLB inline connectors.
6. Remove the IKB harnesses.
7. Replace the IKB harness.
8. To install the new IKB harness, repeat these steps in reverse order.

Replacing the HKB and SLB harnesses

The HKB and SLB (sensor light board) harnesses connect the housekeeping (HKBA) and status LED boards to the Core4 backplane board.

Estimated replacement time: 3.75 minutes

1. *Remove the top cover* (on page 34).
2. *Remove the rear cover* (on page 35).
3. Replace the HKB harness:
    a) Disconnect J3 from the Core4 backplane board.
    b) Disconnect J30 from the HKBA board.
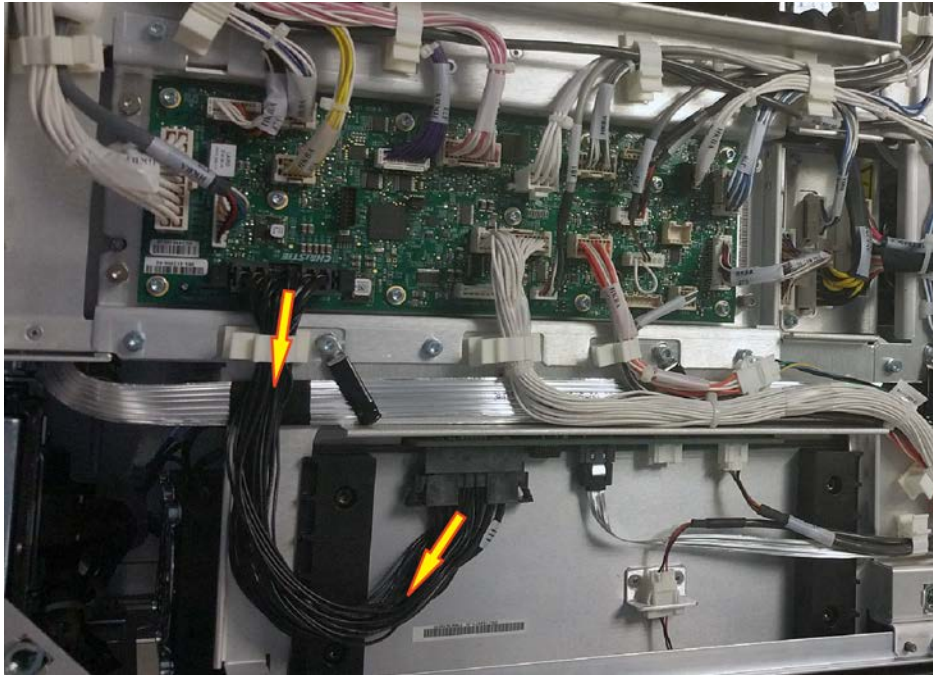
c) Release the harnesses from the tension clamp.

d) Remove the HKB harness.

e) Replace the HKB harness.

4. Replace the SLB harness.

a) Disconnect J1 from the SLB.

b) Disconnect J5 from the Core4 backplane board.

c) Release the SLB harness from the six tension clamps.
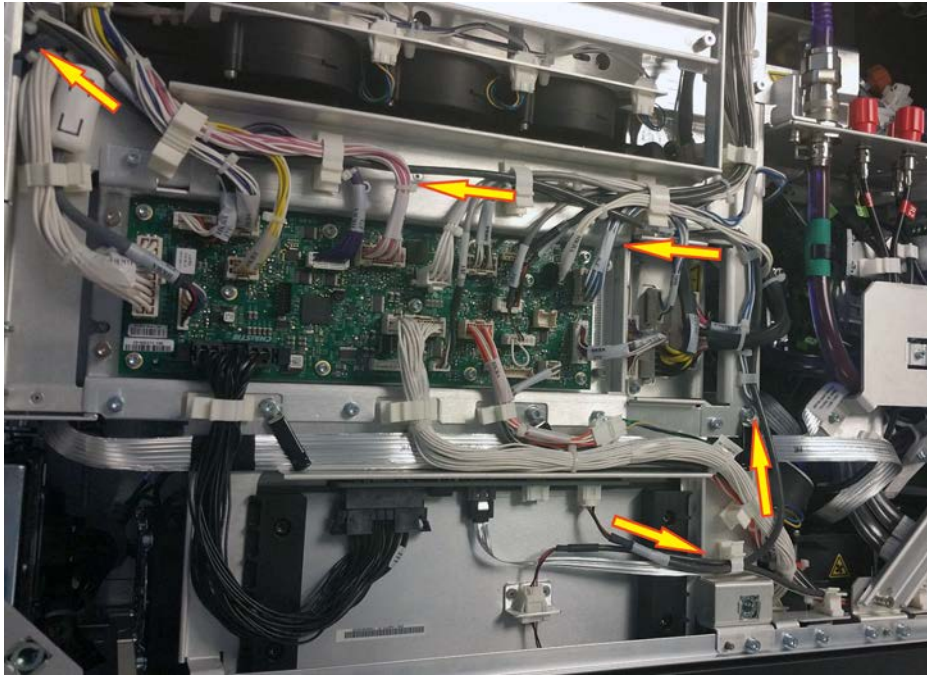
    d) Remove the SLB harness.

    e) Replace the SLB harness.

5. To install the new HKB and SLB harnesses, repeat these steps in reverse order.

Replacing the lamp driver harnesses

The lamp driver harnesses connect the lamp driver module to the housekeeping (HKBA) board.

Estimated replacement time: 18 minutes
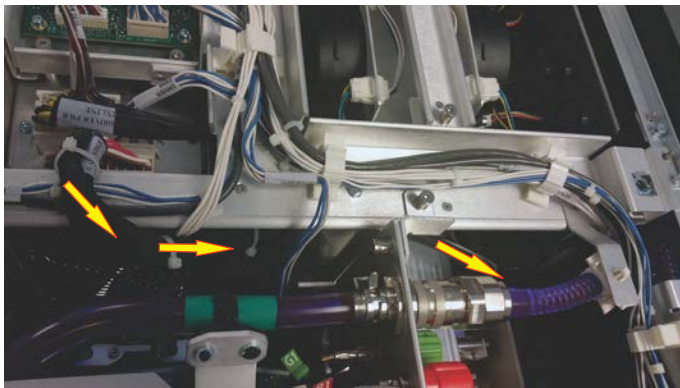
1. *Remove the integrator module* (on page 77).
2. Disconnect the two lamp driver harnesses from the integrator lamp cartridge bracket.
3. Remove the two tension clips around the lamp driver harnesses.
4. Disconnect the lamp driver harnesses from the power connection.
5. Disconnect J89 from the HKBA.

6. Route the power harnesses to free them from the projector.

7. Replace the lamp driver harnesses.

8. To install the lamp driver harnesses, repeat these steps in reverse order.

Replacing the lens mount harnesses

The lens mount harnesses transmit signals and power from the lens.

Before servicing the lens mount, Christie recommends raising the vertical offset for easier access to the cables underneath the lens mount.

Estimated replacement time: 7.5 minutes

1. Raise the vertical offset before starting this procedure.

2. Unplug the AC line cord to remove power from the projector.

3. *Remove the front cover* (on page 33).

4. Disconnect the following harnesses:

   • Vertical and horizontal sensors

   • Vertical and horizontal offset motors

   • Focus motor

   • Focus sensor
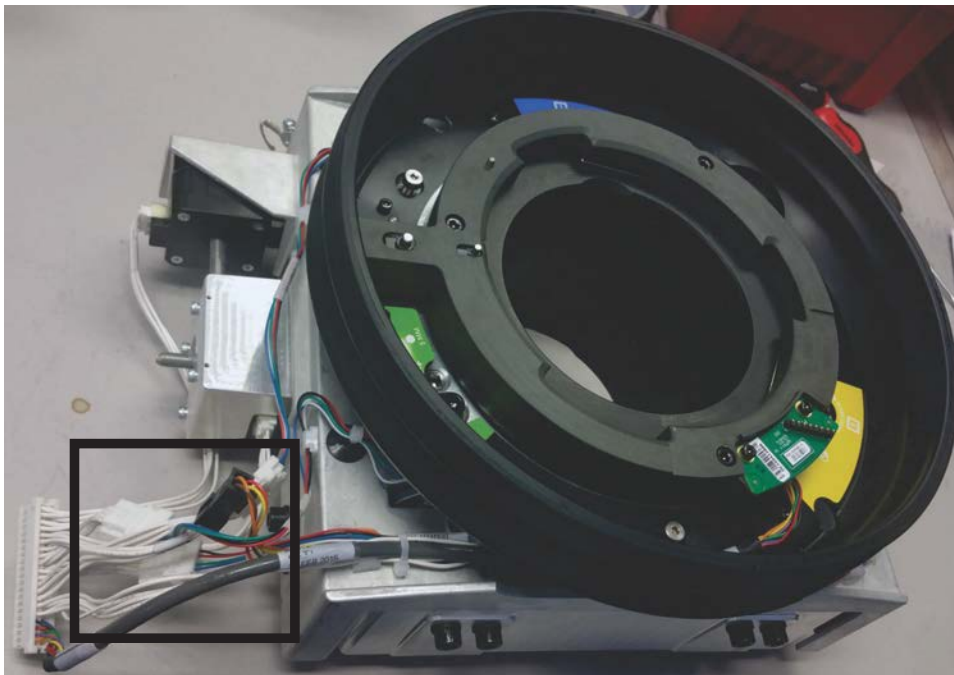
5. Remove the two screws from the lens contact board.

6. Remove the lens contact board harness.

7. Disconnect the main lens mount harness from its bracket.
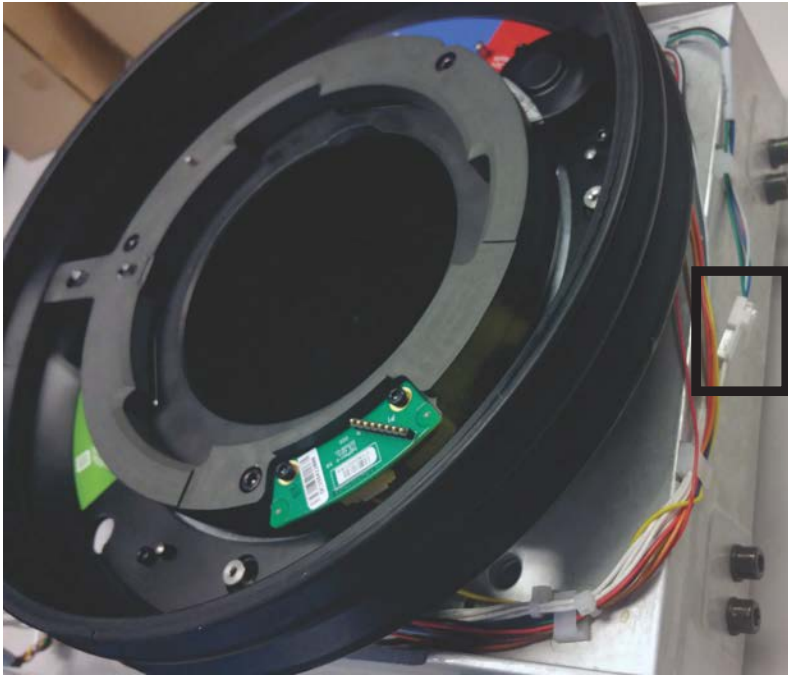
8. Replace the main lens mount harness.

9. To install the main lens mount harness, repeat these steps in reverse order.

Printed circuit boards and sensors

Printed circuit boards (PCB) mechanically support and electrically connect to the projector components. Sensors convert information such as temperature, light, and communication into electrical signals.

Replacing the IMXB board

The IMXB module acts as the communication interface between the projector and the control systems.

Estimated replacement time: 30 seconds

1. Loosen the two captive screws and pull out the IMXB board.

2. Replace the IMXB board.
3. To re-install, follow these steps in reverse order.

Replacing the high-speed imaging processing board (HIP)

The high-speed imaging processing board (HIP) provides the signal processing of the inputs going into the projector.

Estimated replacement time: 13 minutes
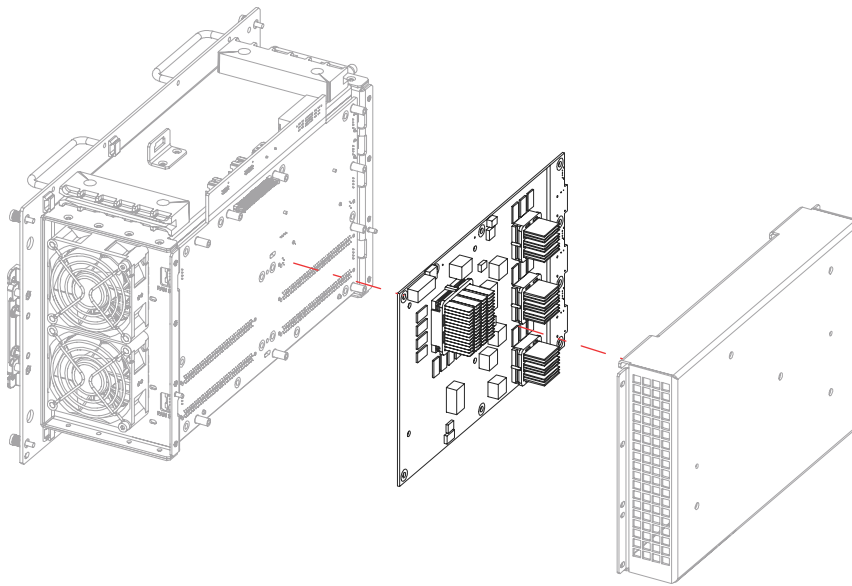
1. *Remove the card cage* (on page 59).

2. On the back of the card cage, remove eight screws securing the cover on the HIP.

3. Take off the back cover of the card cage.

4. Remove the nine screws securing the HIP.

5. To remove, pull out the HIP straight up to clear the inline connector.

6. Replace the HIP.

7. To re-install, follow these steps in reverse order.
    When replacing the HIP, make sure you place it appropriately and secure the inline connector.

Replacing the backplane board (C4BP)

The backplane board (C4BP) provides the main interconnection between the input modules and the signal processing board (the HIP).

Estimated replacement time: 16 minutes
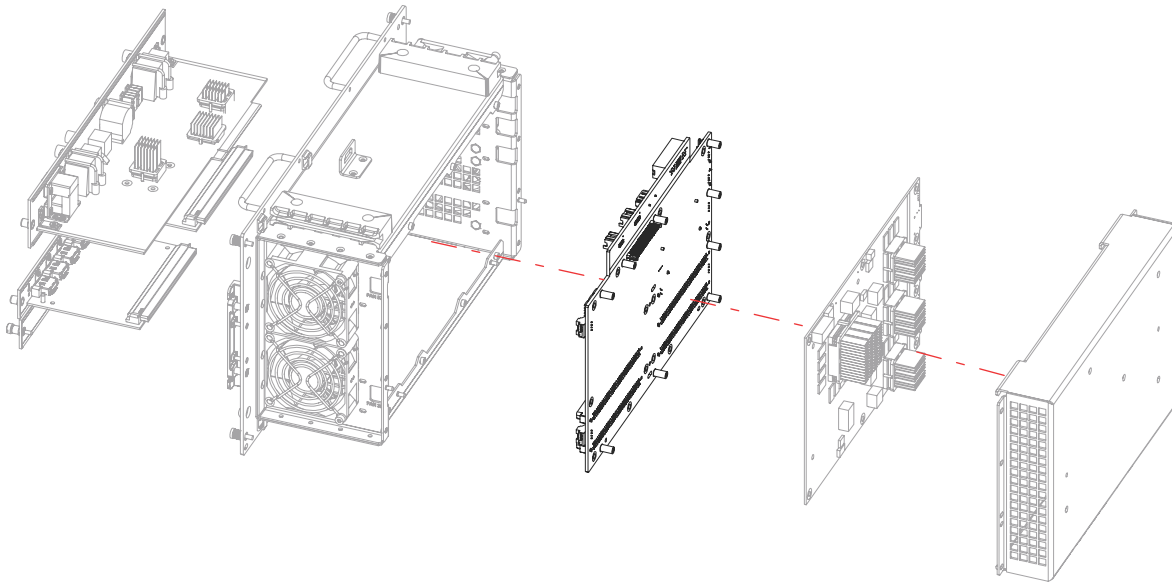
1. *Remove the card cage* (on page 59).

2. *Remove all the option cards* (on page 60) and cover plates from slots 0 to 4.

3. *Remove the IMXB board* (on page 99).

4. *Remove the HIP board* (on page 99).

5. Disconnect the four fan harnesses.

6. Remove the 12 screws securing the backplane board and pull it out.

7. Remove the two clips holding the middle guide rail bracket.

8. Clip the middle guide rail bracket in place on the new backplane board.

9. To re-install, follow these steps in reverse order.
    Ensure fan harness connectors do not get trapped behind the backplane board.

Replacing the rear convenience light board (CLB)

The rear convenience light board (CLB) provides extra illumination when needed for changing a lamp.

Estimated replacement time: 2 minutes

1. *Remove the rear cover* (on page 35).

2. Remove the two screws securing the CLB.
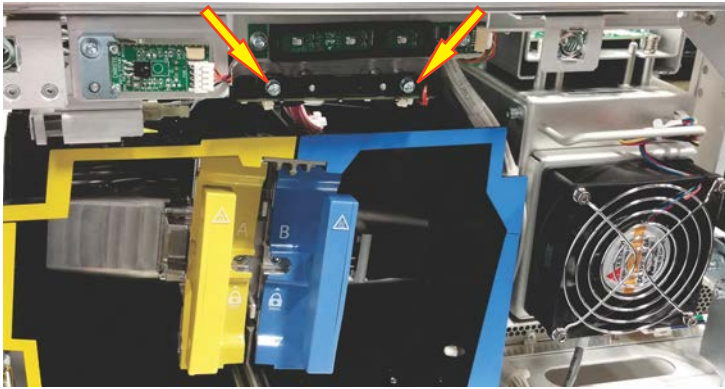
3. Disconnect the harness.

4. Remove the CLB bracket.

5. Replace the CLB board.

6. To re-install, follow these steps in reverse order.

Replacing the card cage convenience light boards (CLB)

The card cage convenience light boards (CLB) provides extra illumination when needed for connecting to the card cage.

Estimated replacement time: 2.25 minutes for servicing a single CLB

1. *Remove the electronics-side cover* (on page 36).

2. Remove the two screws securing the CLB.

3. Disconnect the one or two inline connectors, depending on which CLB is being removed. The left CLB has one harness and the right CLB has two harnesses.

4. Remove the affected CLB with bracket.

5. Replace the CLB.

6. To re-install, follow these steps in reverse order.

Replacing the near field communication tags (NFCT) on the lamp duct

The near field communication tags (NFCT) receive information from the lamp modules and transmits it to the near field communication reader (NFCR) located on the user interface module.

Estimate replacement time: 1 minutes for servicing a single A# NFCT and 5 minutes for servicing a single B# NFCT

1. To replace the NFCTs on the outside lamp duct (A module):
   a) *Remove the optics-side cover* (on page 35).
   b) Disconnect the harness of the NFCT to be replaced.

   c) Pinch the sides of the reader on the tabs, slide it down, and pull out.
   d) Replace the NFCT.

2. To replace the NFCTs on the inside lamp duct (B module):
   a) *Remove the rear cover* (on page 35).
   b) *Remove the lamp driver module* (on page 65).
   c) Open up the three cable ties to free the cables.
      If you do not open the three cable ties, you will likely pinch the cables and have difficulty installing the NFCT.
   d) Disconnect the harness of the NFCT to be replaced.

    e)   Pinch the sides of the tag on the tabs, slide it down, and pull out.

    f)   Replace the NFCT.

3.   To re-install, follow these steps in reverse order.

Replacing the rear IR sensor board

The rear IR sensor board receives command codes from the IR remote to control the projector operation.

Estimated replacement time: 1.25 minutes

1.   *Remove the rear cover* (on page 35).

2.   Remove the two screws securing the rear IR sensor board to the bracket.

3.   Disconnect the rear IR harness (J108_B).

4.   Replace the board.

5.   To re-install, follow these steps in reverse order.

Replacing the front IR sensor board

The front IR sensor board receives command codes from the IR remote to control the projector operation.

Estimated replacement time: 4.5 minutes

1. *Remove the front cover* (on page 33).

2. Remove the two screws securing the front IR sensor board to the bracket.

3. Disconnect the front IR harness (J108_F).

4. Replace the board.

5. To re-isntall, follow these steps in reverse order.

Replacing the housekeeping board (HKBA)

The housekeeping (HKBA) board acts as an interface board with the majority of the control devices feeding into it, including most of the fans, convenience light board, IR receivers, lamp drivers, and so on.

Estimated replacement time: 8.5 minutes

1. *Remove the top cover* (on page 34).

2. Disconnect 21 harnesses.

   The 21 harnesses to remove: J80, J79, J30, J71, J74, J73, J72, J75, J88, J87, J83, J81, J76, J89, J84, J82, J78, J70, J92, J77, and J117.
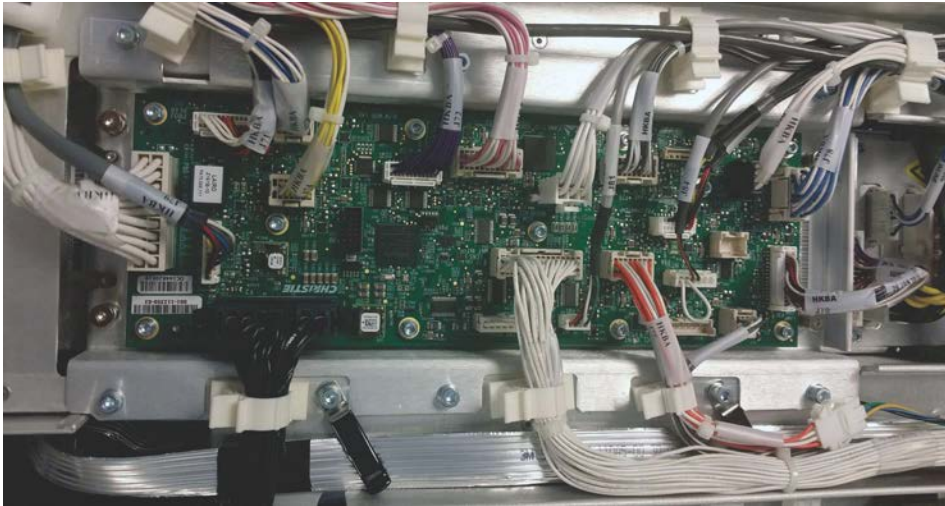
3. Remove the 11 screws securing the HKBA board.

4. Pull back the harnesses and pull out the board.

5. Replace the board.

6. To re-install, follow these steps in reverse order.

Replacing the status LED board (SLB)

The status LED board (SLB) provides a visual about the operational state of the projector.

Estimated replacement time: 2 minutes

1. *Remove the rear cover* (on page 35).

2. Remove the two screws securing the board.

3. Disconnect the harness and pull out the board.

4. Replace the board.

5. To re-install, follow these steps in reverse order.

Replacing the dual temperature sensor module (DTSM)

The dual temperature sensor module (DTSM) monitors the ambient air temperature going into the projector.

Estimated replacement time: 4.5 minutes

1. *Remove the front cover* (on page 33).
2. Disconnect the J82 harness.
3. Remove the one screw securing the DTSM and pull out the board.

4. Replace the DTSM.
5. To re-install, follow these steps in reverse order.

Replacing the lens connector board projector

The lens connector board projector (LCBP) located on the projector lens mount, provides the physical contact control between the lens and the projector for operation of the zoom motor on the lens.

Estimated replacement time: 1.5 minutes

1. If installed, remove the lens.
2. Remove the two screws securing the lens mount board.

3. Disconnect the J2 harness.

4. Pull out the board.

5. Replace the board.

6. To re-install, follow these steps in reverse order.

Replacing the light sensor module (LSM)

The light sensor module (LSM) checks the incoming light and provides feedback to maintain the projector brightness over time.

Estimated replacement time: 7 minutes

1. *Remove the front cover* (on page 33).

2. *Remove the optics-side cover* (on page 35).

3. *Remove the radiator* (on page 57).

4. *Remove the radiator fan pack* (on page 45).

5. Remove the screw securing the LSM cover.

6. Release the cover from its lip to access the LSM and pull it out.

7. Disconnect the harness from the LSM.

8. Replace the LSM.

9. To re-install, follow these steps in reverse order.
   The LSM must be properly aligned and clipped in for the LSM cover to go on flat.

Replacing the remote temperature sensor module (RTSM)

The remote temperature sensor module (RTSM) is located on the red waterblock.

Estimated replacement time: 13.5 minutes

1. *Remove the light engine* (on page 73).

2. Disconnect the connector to the RTSM.

3. Remove the screw securing the RTSM and remove the RTSM.
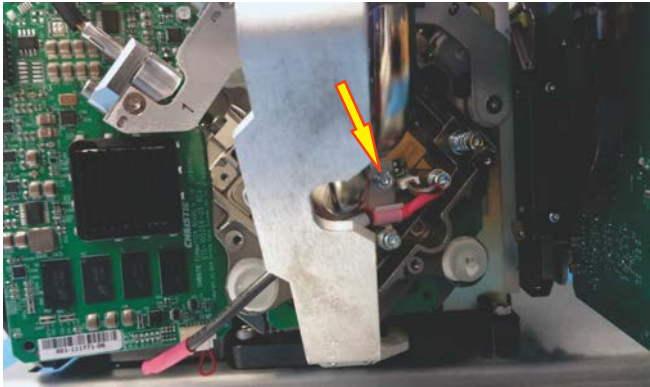
4.   Replace the RTSM.

5.   To re-install, follow these steps in reverse order.

Replacing the manual focus sensor

The manual focus sensor detects if focus is being adjusted manually and prohibits any automatic focus adjustments.

Estimated replacement time: 21.5 minutes

1.   *Remove the lens boot* (on page 87).

2.   *Remove the lens mount barrel* (on page 87).

3.   Remove the two screws securing the manual focus sensor.


4.   Route the harness from the clip.

5.   Cut the cable ties to remove the harness.

6.   Disconnect the manual focus sensor.

7.   Remove and replace the manual focus sensor.

8.   To re-install, follow these steps in reverse order.

Replacing the auto focus sensor

The auto focus sensor detects the position of the focus barrel.

Estimated replacement time: 19.5 minutes

1. *Remove the lens boot* (on page 87).
2. *Remove the lens mount barrel* (on page 87).
3. Remove the screw securing the auto focus sensor.
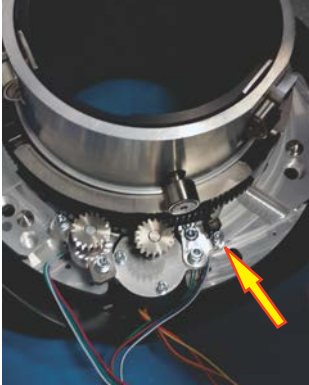
4. Disconnect the inline connector.
5. Remove and replace the auto focus sensor.
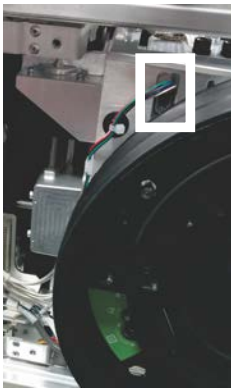6. To re-install, follow these steps in reverse order.

Replacing the vertical and horizontal offset adjust sensor

The vertical and horizontal focus adjust sensors detect any vertical or horizontal offset adjustments.

Estimated replacement time: 5.5 minutes

Note the location of the vertical and horizontal offset adjust sensors:

*   Vertical offset adjust sensor

*   Horizontal offset adjust sensor

1. *Remove the front cover* (on page 33).

2. Remove the screw securing the affected sensor.

3. Disconnect the appropriate sensor harness connection.

4. Cut the appropriate cable tie to the affected sensor.

5. Remove and replace the affected sensor.

6. If required, repeat steps 1 to 5 for the other sensor.

7. To re-install, follow these steps in reverse order.

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