Replacing the Cinema 4K-RGB diffuser and depolarizer

Christie has identified two optical components (diffuser and depolarizer) in the light path that may degrade and cause a significant reduction in brightness. If this occurs, brightness can be recovered by replacing the diffuser and depolarizer (which are found in the rear IOS assembly).

The illustrations in this document are for representation only and may not depict your projector model exactly.

Affected products

The following products are affected.

- Christie CP4315-RGB
- Christie CP4320-RGB
- Christie CP4325-RGB
- Christie CP4330-RGB
- Christie CP4415-RGB Gen 1
- Christie CP4415-RGB Gen 2
- Christie CP4420-RGB Gen 1
- Christie CP4420-RGB Gen 2
- Christie CP4425-RGB
- Christie CP4430-RGB
- Christie CP4435-RGB

Required components

Depending on the issue being solved, one of the following components is required.

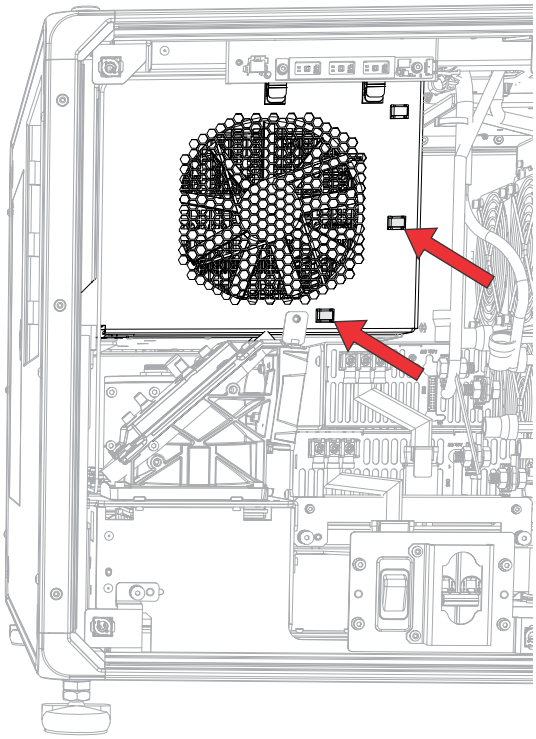
- Diffuser service kit for CP4315-RGB, CP4320-RGB, CP4330-RGB, CP4425-RGB, and CP4435-RGB (P/N: 003-006917-XX)
- Diffuser service kit for CP4325-RGB (P/N: 003-007089-XX)
- Depolarizer service kit (P/N: 003-007097-XX)

Removing the integrator assembly

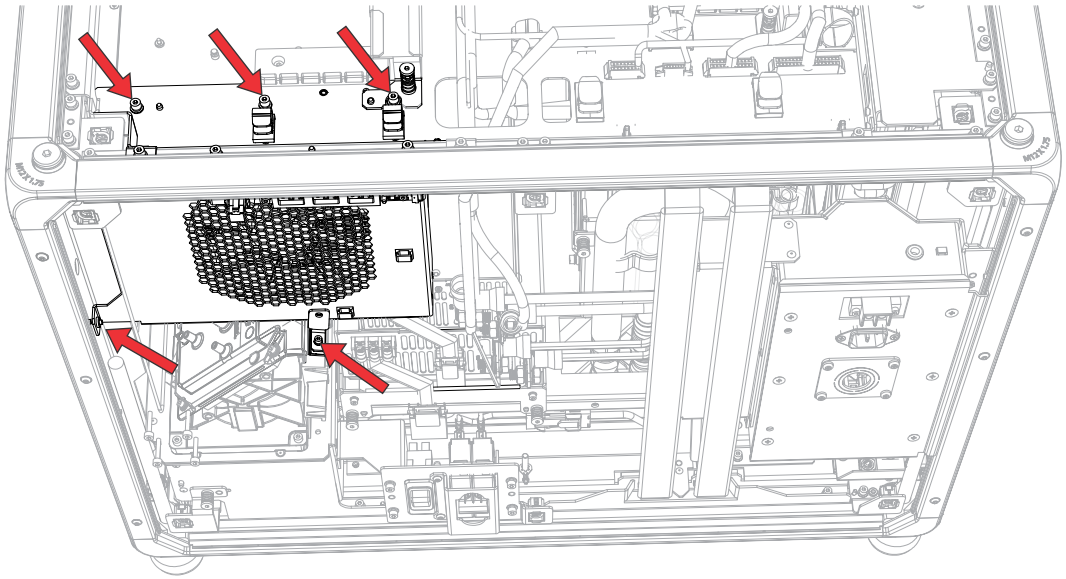
Remove the integrator assembly. For details on removing components, refer to the *Cinema 4K-RGB Service guide (P/N: 020-102713-XX)*.

1. Remove the rear cover.

2. Remove the card cage.
3. Remove the coolant reservoir.
4. If required, release the diffuser harness (J135) from the rear card cage security bracket clips.



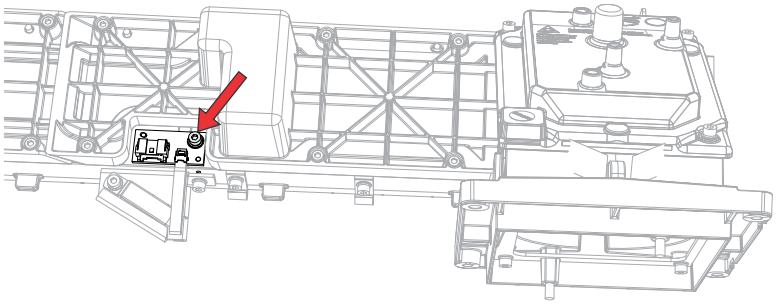
5. Using a 3 mm driver, remove the three top screws and lower left screw securing the rear card cage security bracket.



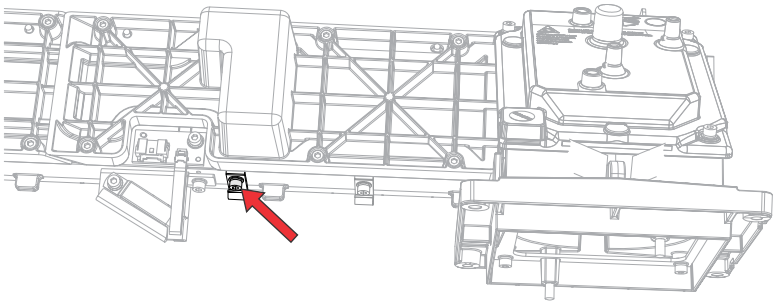
Using a 2.5 mm driver, remove the lower right screw securing the rear card cage security bracket.

6. Remove the bracket.

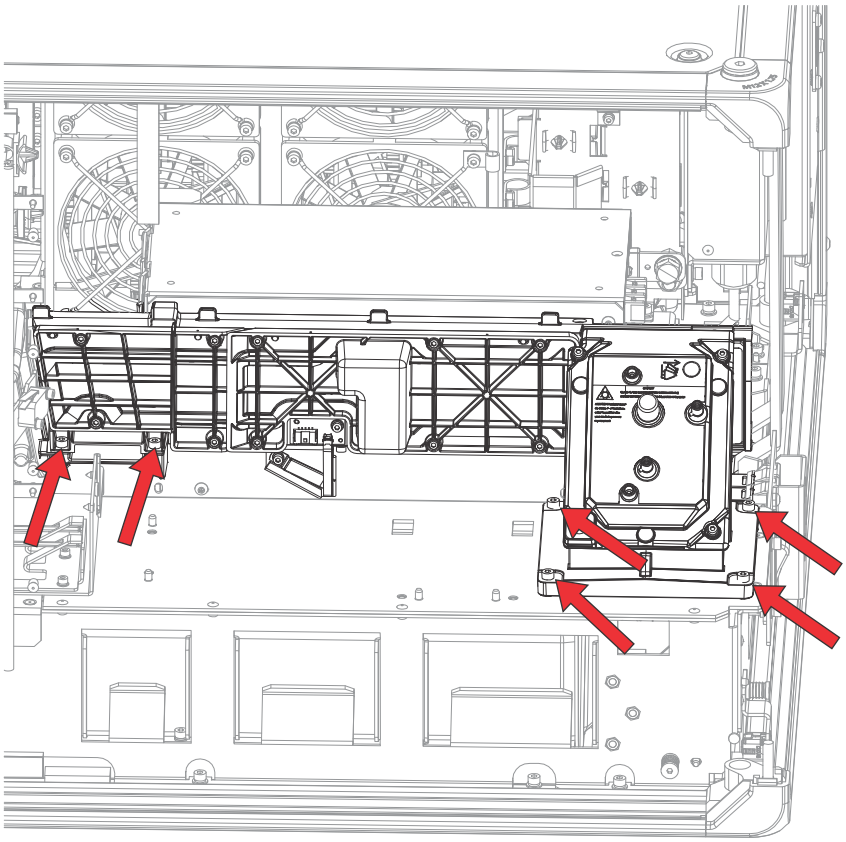
7. Disconnect the diffuser harness (J135) from the diffuser interface board (DIB).



8. Remove the diffuser harness from the clip.



9. Using a 3 mm driver, remove the six screws securing the integrator assembly.



10. Vertically, pull out the integrator assembly and place it on a clean, flat surface.

To keep out dust and other contaminant, Christie recommends covering the laser optical subsystem (LOS) opening with a lint-free cloth.

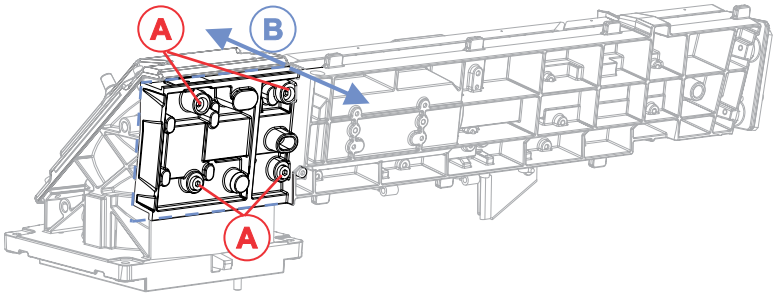
Replacing the diffuser

Follow these steps to replace the diffuser.

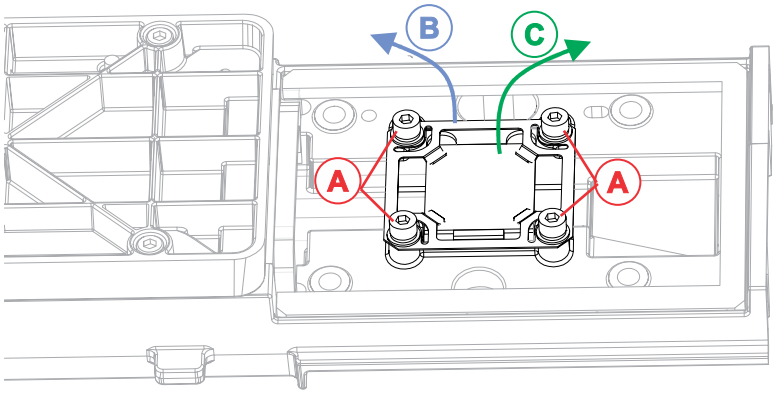
Notice. If not avoided, the following could result in property damage.

- Always wear clean, powder-free latex gloves when handling optical components.

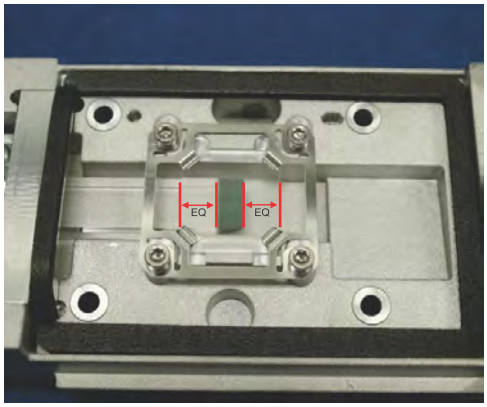
1. Set the rear illumination optical system (IOS) on a table and separate the integrator from the coupling elbow.
   a) Remove the four screws (a in the image in step b) from the rear of the integrator rod assembly.
   b) Separate the elbow (b in the image below) and set it aside.



2. Lay the integrator assembly on a table and remove the static diffuser.
   a) Remove the four silver screws (a in the image in step c)—short with washers.
   b) Lift off the retaining clip (b in the image in step c).
   c) Lift the static diffuser (c in the image in step c) out of the retaining pocket.
   Note the rectangular diffusion area in the center that looks like frosted glass.



3. Inspect the integrator rod for any damage, contamination, and for signs of misalignment towards the spinning diffuser.
   If signs of misalignment are seen, the integrator rod assembly may need to be replaced. The centered appearance of the rectangular shape of the integrator entrance aperture in the image below is a good indicator the integrator rod has not "walked".



4. Blow away any particles with a compressed air gun.

   Make sure to blow the particles away from the rest of the integrator assembly, if possible.

5. If any physical damage or coating breakdown/deposit on the integrator rod or depolarizer are apparent, set it aside and notify Christie Technical Support for an assessment.

6. Install the new static diffuser element with the diffusion side towards the integrator rod.

   The diffusion side appears like frosted glass, while the non-diffused surface should cleanly reflect light.

7. Install the diffuser retaining clip.

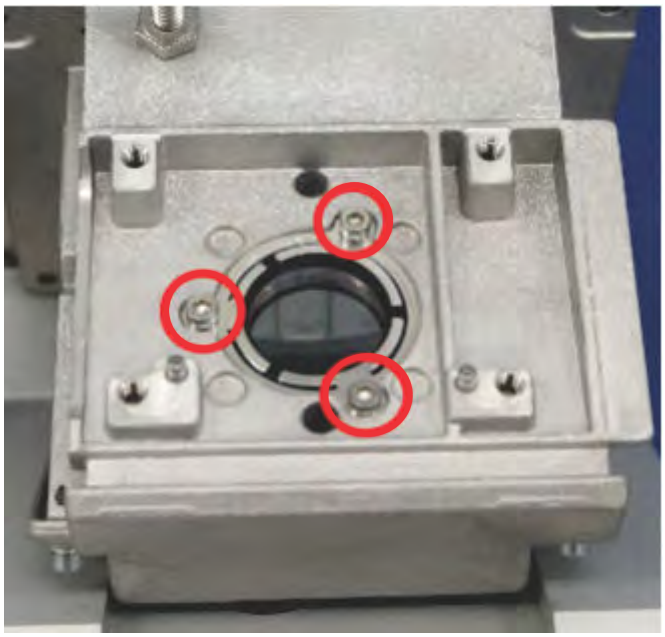
   a) Place the clip with the spring features down on the diffuser.

   b) Loosely install all four silver screws (short with washers), then tighten while holding the clip in place to prevent movement.

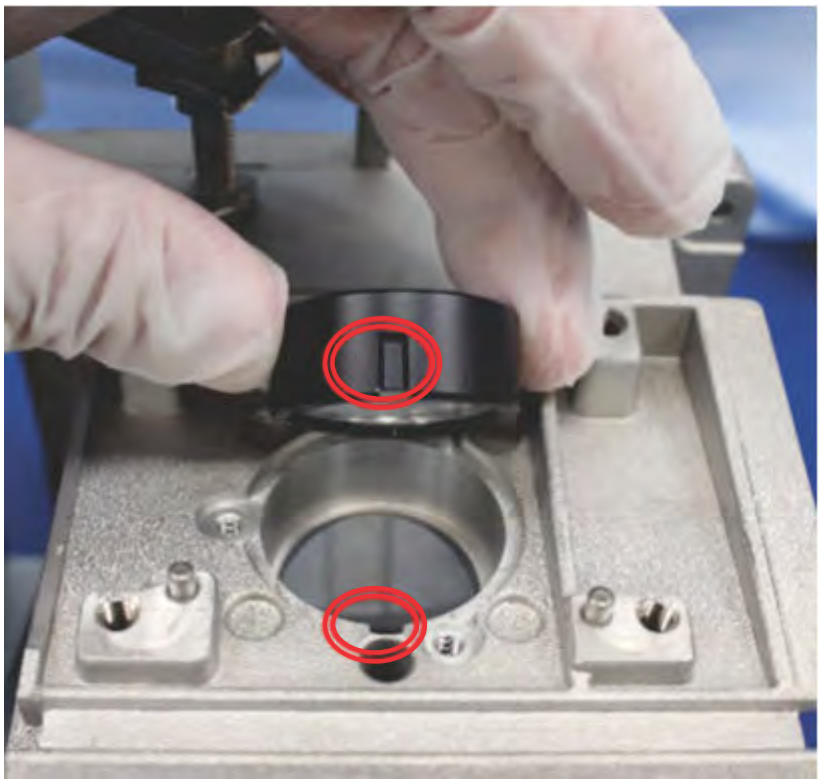
Replacing the depolarizer

After replacing the diffuser, replace the depolarizer.

1. Remove the three screws holding the depolarizer clip in the coupler elbow housing.



2. Remove the depolarizer.



3. Install the new depolarizer by aligning the notch on the depolarizer to the pin in the casting.

Completing the installation

After replacing the diffuser and depolarizer, re-install the projector components and complete laser configurations.

1. Re-install the integrator assembly and other projector components removed to access the integrator assembly.
2. Complete the following laser configurations:
   - Run LiteLOC calibration.

     See the "Performing the LiteLOC™ v1 calibration" topic in the *Upgrading the color sensor board instruction sheet (P/N: 020-103100-XX)* or *LiteLOC™ calibration for cinema projectors instruction sheet (P/N: 020-103436-XX)*.
   - Create or adjust the laser configuration files.
   - Create MCGD files.
   - Create PCT files, if applicable.

Technical support

Technical support for Christie Cinema products is available at:

- *Support.cinema@christiedigital.com*
- +1-877-334-4267
- Christie Professional Services: +1-800-550-3061 or *NOC@christiedigital.com*