

TLD+ (1.2:1) lens kit



Installation manual

R9840775
R9840776

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1. TLD+ (1.2:1) LENS KIT

Overview

- Kit description
- Lens formulas
- Focus adjustment
- Cleaning the lens

1.1 Kit description

Kit description

This lens kit can be used on several types of projectors:

- SLM-series
- Galaxy Warp-series
- NH-12/NW-12 series
- FLM-series

In very demanding situations (e.g. where Galaxy Warp or SLM projectors are installed on a motion based system), it might be needed to have an additional fixation of the lens to avoid vibration, although this is rarely the case. A procedure below describes how to additionally fix the lens to the lens holder.



The C type lens (R9840776) is optimized for short throw (approximately 2 meter) rear projection application (e.g. MegaCADWall).

Kit content

This lens kit includes the following parts:

Description	Article number	Quantity
TLD+ (1.2:1) lens	R851650	1
D916 M5x6 SS	R3624866	4
D912 M4x16 SS	G115920	4
D912 M5x12 SS	V3624376	4
Cleaning cloth Toraysee	R379058	1
Installation manual	R5976975	1
Packaging	-	1

1.2 Lens formulas

Lens formulas

PD = projector distance = the distance from the projection screen to the projector front side (reference plane)

SW = screen width

Projector type	Formula (in meter)	Formula (in inches)
SLM-series	$PD = 1.11 \times SW - 0.01$	$PD = 1.11 \times SW - 0.39$
Galaxy Warp-series	$PD = 1.11 \times SW - 0.01$	$PD = 1.11 \times SW - 0.39$
NH-12 / NW-12 –series	$PD = 1.14 \times SW + 0.18$	$PD = 1.14 \times SW + 7.26$

Projector's reference planes

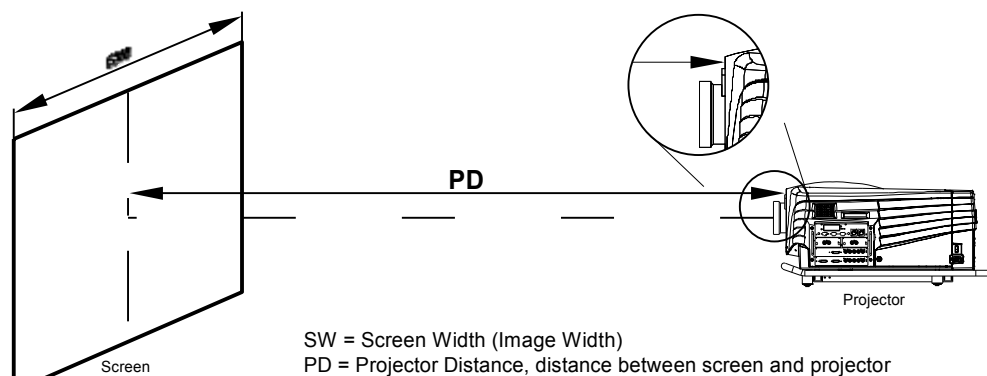


Image 1-1
Reference plane of the FLM series, the SLM series and Galaxy Warp series

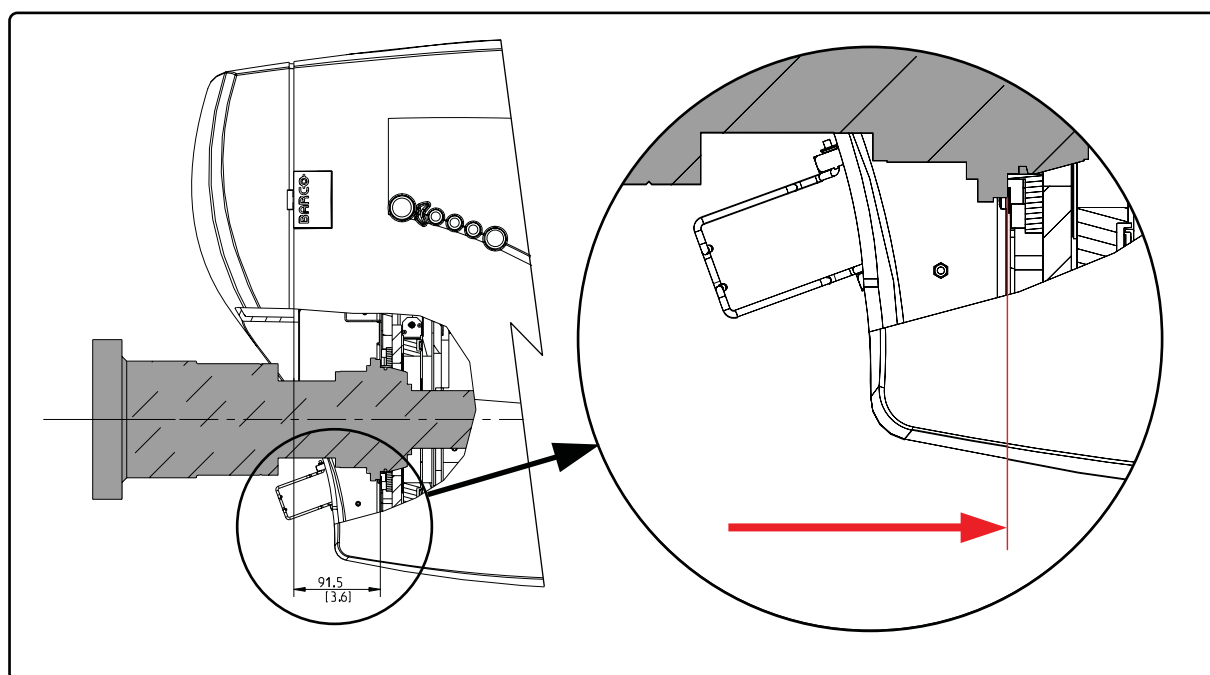


Image 1-2
Reference plane of the NH-12/NW-12 series

1.3 Focus adjustment

Necessary tools

No tools.

How to adjust the focus?

1. Adjust the focus by turning the focus ring



Image 1-3
Focus adjustment

Note: The focus must be adjusted when the lens is heated up (i.e. after 15 minutes of projection).

1.4 Cleaning the lens



To minimize the possibility of damage to optical coatings, or scratches to lens surfaces, we have developed recommendations for cleaning. **FIRST**, we recommend you try to remove any material from the lens by blowing it off with clean, dry deionized air. **DO NOT** use any liquid to clean the lenses.

Necessary tools

Toraysee™ cloth (delivered together with the lens kit). Order number : R379058.

How to clean the lens ?

1. Always wipe lenses with a CLEAN Toraysee™ cloth.
2. Wipe lenses in a one single direction.
Warning: Do not wipe back and forwards across the lens surface as this tends to grind dirt into the coating.
3. Do not leave the cleaning cloth in either an open room or lab coat pocket, as doing so can contaminate the cloth.
4. If smears occur when cleaning lenses, replace the cloth. Smears are the first indication of a dirty cloth.



CAUTION: Do not use fabric softener when washing the cleaning cloth or softener sheets when drying the cloth.

Do not use liquid cleaners on the cloth as doing so will contaminate the cloth.



Other lenses can also be cleaned safely with this Toraysee™ cloth.

2. THE LENS ON SLM AND ON GALAXY WARP

Overview

- Lens removal
- Lens installation
- Additional fixation of the lens

2.1 Lens removal

Necessary tools

Allen key (hexagonal key) 2.5 mm (only if the additional screws are used)

How to remove the lens?

1. Release the additional screws if they are present. See "Additional fixation of the lens", page 8 .
2. Support the lens with one hand.
3. Move the handle of the lens locking system to the left.



Image 2-1
Move the handle of the lens locking system to the left

4. Pull the lens out of the lens holder.

2.2 Lens installation

How to install the lens?

1. Take the lens out of the packaging and remove the lens caps from both sides of the lens.
2. Move the handle of the lens locking system to the right.



Image 2-2
Engage the lens locking system

3. Push the lens in the lens holder horizontally, until the lens is locked (confirmed by a “click” sound).

Caution: In case of table configuration, make sure to hold the projector while pushing in the lens to avoid pushing it off its support.

2.3 Additional fixation of the lens

Description

In case of a motion based system, it might be needed to additionally secure the position of the lens. Four screws are used to do so.



CAUTION: If the lens is fixed with these additional screws, they must be unscrewed prior to removing the lens from the projector!

Necessary tools

Allen key (hexagonal key) 2.5 mm

Necessary parts

4x screws DIN 916 M5x6

How to secure the lens position?

1. Install the lens
2. Insert the four screws in the threaded holes on the lens flange, but do not tighten them yet



Image 2-3
TLD lens: locking top screws



Image 2-4
TLD lens: locking top screws

3. Carefully tighten the four screws crosswise

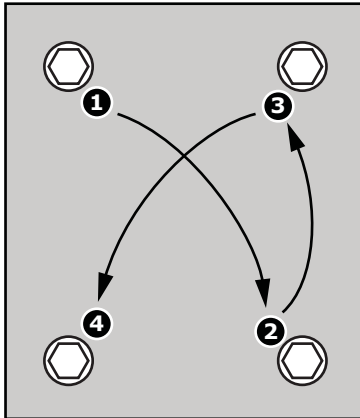


Image 2-5
Tighten the screws crosswise

Caution: A Scheimpflug error (local focus issue) can be introduced if this step is not carried out carefully.

3. THE LENS ON NH-12 AND ON NW-12

Overview

- Lens removal
- Lens installation

3.1 Lens removal

Necessary tools

Allen key 4 mm (hexagonal key)

How to remove the lens?

1. Remove the four fixing screws, while supporting the lens

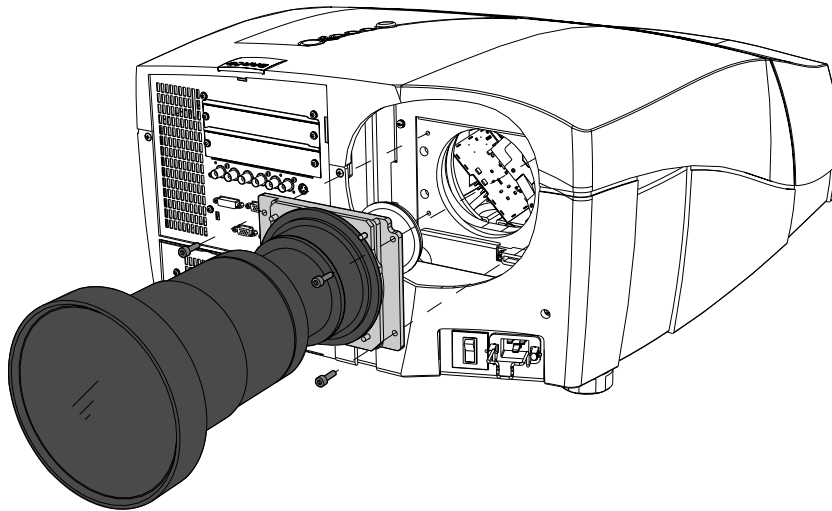


Image 3-1
Lens: fixing screws

2. Remove the lens from the projector
3. Remove the four screws, fixing the lens interface plate

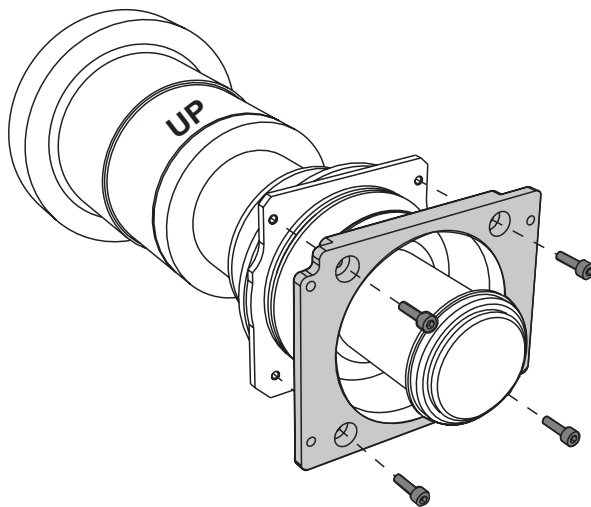


Image 3-2
Lens interface plate: fixing screws

Note: Each lens interface plate only matches one particular projector: always keep the lens interface plate and the projector together.

Tip: To avoid loosing the lens interface plate and its screws, it might be good to fix it to the projector.

4. Put the protective caps on the lens

3.2 Lens installation

Necessary tools

Hexagonal key 4 mm (hexagonal) - delivered with the projector

Necessary parts

- Lens
- Lens interface plate (pre-mounted on the lens holder)
- 4x M5x12 screws (delivered with the projector and with the lens)

How to install the lens ?

1. Remove the lens interface plate from the lens holder if it is still mounted to it

2. Fix the lens interface plate to the lens using the delivered screws (4)

Note: Install the lens and the lens interface plate with their screening **UP** or **TOP** oriented in the same direction

Caution: Mind the orientation of the lens interface plate in relation to the lens.

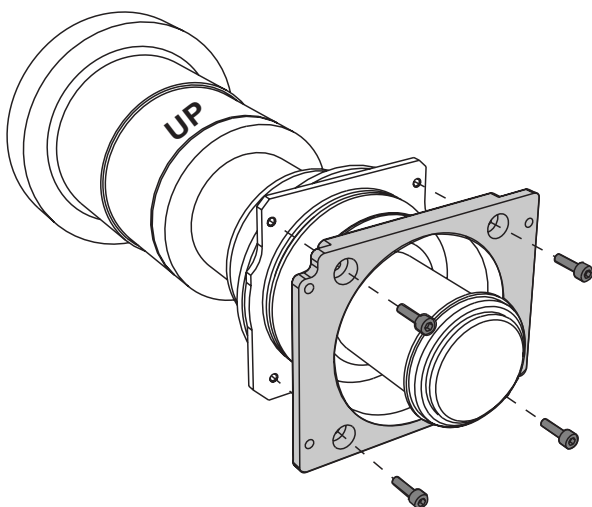


Image 3-3
Assembling the lens, screening UP to the top side

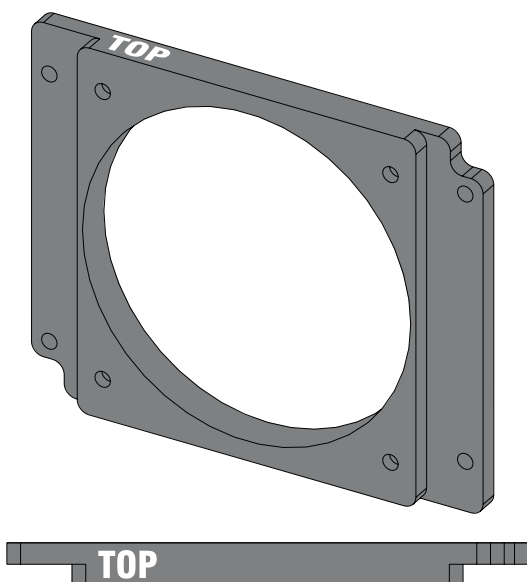


Image 3-4
Lens interface plate, screening UP to the top side

3. Mount the assembly (lens + interface plate) on the lens holder

Insert and tighten the 4 screws with one hand while supporting the lens with the other hand

Caution: Mind the orientation of the lens assembly: the screenings **UP** and **TOP** must be oriented upwards (table configuration!).

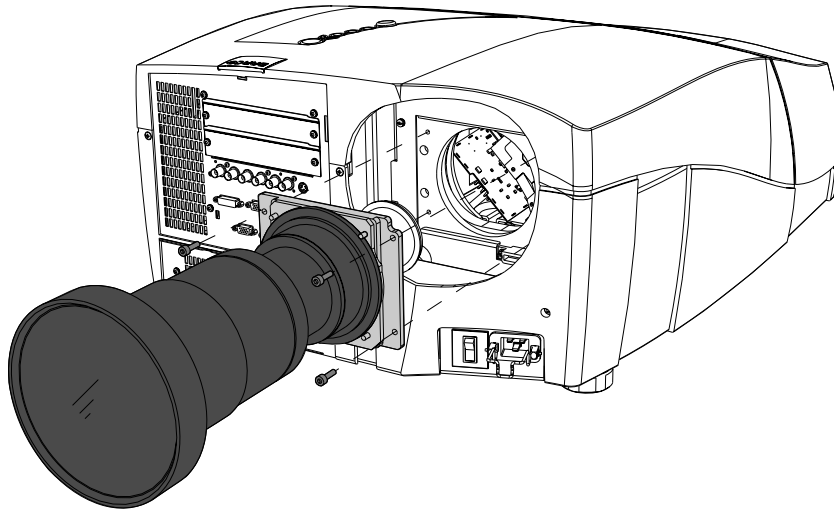


Image 3-5
Lens assembly mounting

4. THE LENS ON FLM

Overview

- Lens removal
- Lens installation

4.1 Lens removal

How to remove a lens from the projector lens holder ?

1. Support the lens with one hand while you unlock the lens holder by sliding the lock handle towards the “unlocked” position as illustrated.

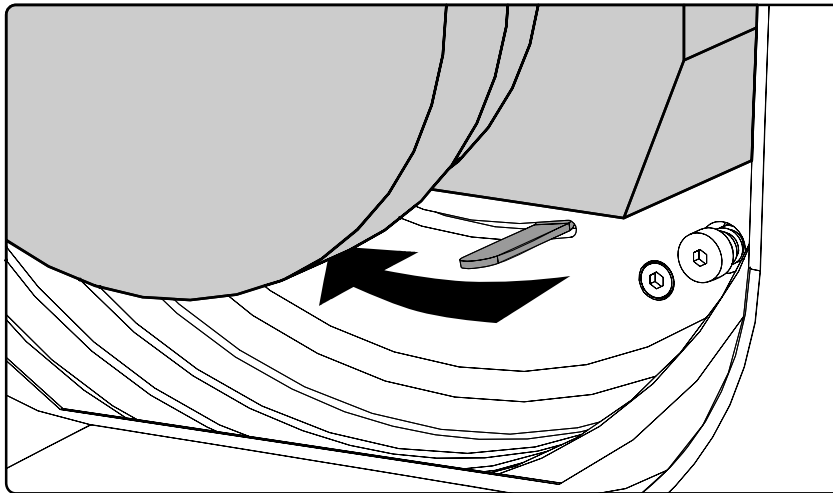


Image 4-1

2. Gently pull the lens out of the lens holder.

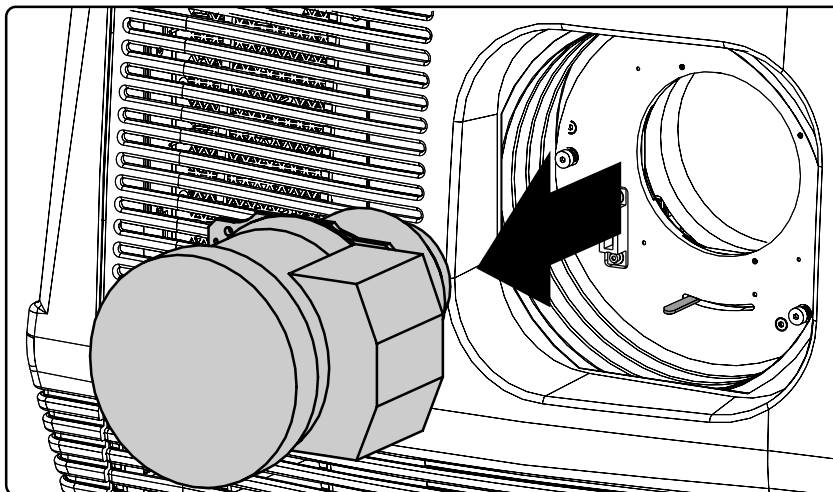


Image 4-2



It's recommended to place the Lens caps of the original Lens packaging, back on both sides of the removed Lens to protect the optics of the Lens.



It's recommended to place the foam rubber of the original projector packaging, back in the Lens opening to prevent intrusion of dust. Note that this foam rubber is packed in a plastic bag to prevent the dust, emitted by the foam, from entering the projector.

4.2 Lens installation

How to install a lens into the projector lens holder ?

1. Remove the foam rubber in the opening of the lens holder if not removed yet.
2. Take the lens assembly out of its packing material and remove the lens caps on both sides.
3. Place the lens holder in the "unlocked" position by moving the lens lock handle (A) towards the lens power supply socket (B) as illustrated.

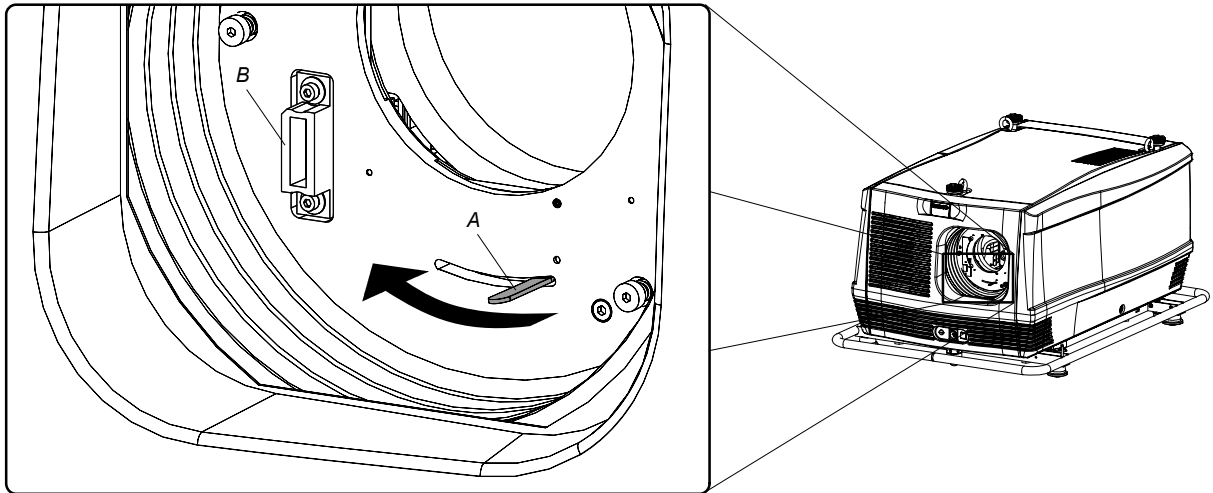


Image 4-3

4. Ensure that the lens holder stands in the On-Axis position (horizontal and vertical mid position).
Note: The lens holder is placed default in the On-Axis position at factory.
5. Gently insert the lens in such a way that the lens connector matches the socket (B).

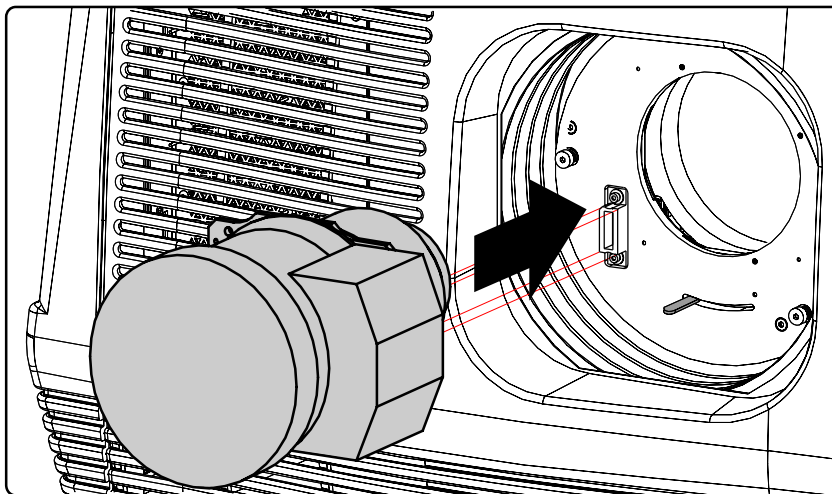


Image 4-4

6. Insert the lens until the connector seats into the socket.
Warning: Do not release the Lens yet, as the Lens may fall out of the Lens Holder.
7. Secure the lens in the lens holder by sliding the lens lock handle into the "locked" position, which is away from the lens power supply socket. Ensure the lens touches the front plate of the lens holder.

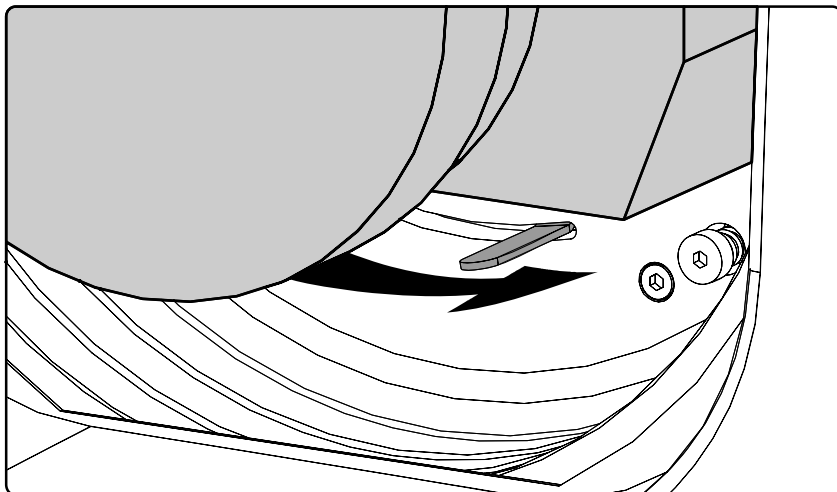


Image 4-5

8. Check if the lens is really secured by trying to pull the lens out of the lens holder.



CAUTION: Never transport the projector with a Lens mounted in the Lens Holder. Always remove the Lens before transporting the projector. Neglecting this can damage the Lens Holder and Prism.