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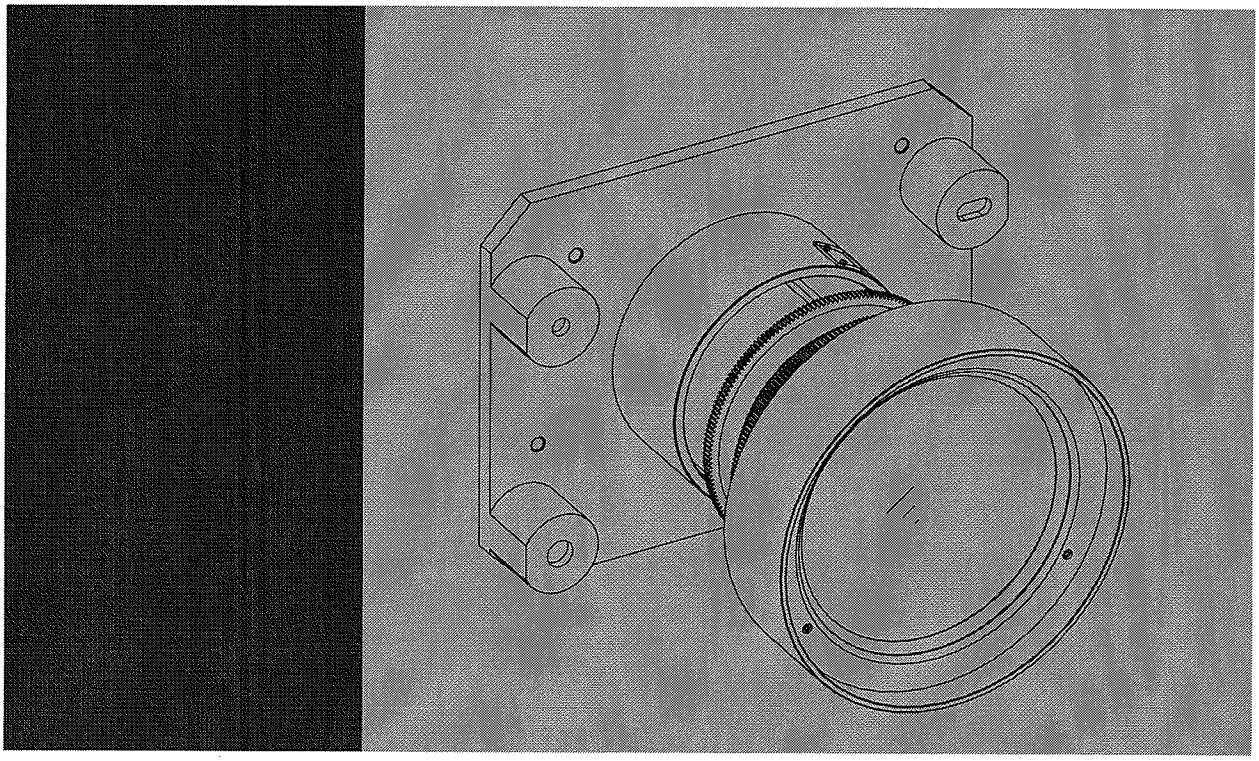
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QSD Lenses



Installation Manual

R9849975
R9849980
R9849990

R59770110/01
03/11/2008

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TABLE OF CONTENTS

1. Kit description 3
1.1 Kit content 3
1.2 Lens range 3
1.3 Domain of application 3
1.4 Lens formulas 3

2. Installing the lens 5
2.1 Installing the lens 5
2.2 Connecting the lens 8

3. Adjusting the lens 9
3.1 Back focal length adjustment 9
3.2 Shift/Zoom/Focus 11

Index 15

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1. KIT DESCRIPTION

1.1 Kit content

Overview

The delivered kit contains the following parts :

Description	Quantity
QSD lens[1]	1
Toraysee™ lens cleaning cloth	1
BFL adjustment tool	1
This Installation manual R59770110	1

Table 1-1
Kit content

1.2 Lens range

Lens overview

Lens	Partnumber
QSD (0.8 : 1)	R9849990
QSD (1.0-1.4 : 1)	R9849975
QSD (1.4-2.0 : 1)	R9849980

Table 1-2
Lens range overview

1.3 Domain of application

Where used

The QSD lenses described in this manual are used on the Barco SIM 7 projectors :

- SIM 7D: R9011205, R9011207
- SIM 7Q: R9011200, R9011201, R9011202

1.4 Lens formulas

Formulas

	Metric Formulas (meter)	Inch formulas (inch)
QSD (0.8:1)	PD = 0.0679 + 0.803xSW - 0.0121/SW	PD = 2.673 + 0.803xSW - 18.755/SW
QSD (1.0:1.4:1)	PD_{min} = 0.0299 + 1.026xSW + 0.0047/SW PD_{max} = 0.0341 + 1.434xSW + 0.0030/SW	PD_{min} = 1.1772 + 1.026xSW + 7.285/SW PD_{max} = 1.3425 + 1.434xSW + 4.650/SW
QSD (1.4:2.0:1)	PD_{min} = -0.0858 + 1.471xSW + 0.0077/SW PD_{max} = -0.0013 + 2.031xSW - 0.0606/SW	PD_{min} = -3.3779 + 1.471xSW + 11.935/SW PD_{max} = -0.0511 + 2.031xSW - 93.930/SW

Table 1-3
Lens formula overview

1. One of the QSD lenses described in "Lens range"

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Lens program to calculate the projector distance is available on the BARCO web site : http://www.barco.com/projection_systems/customer_services/lens_program.asp

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2. INSTALLING THE LENS

Overview

- Installing the lens
- Connecting the lens

2.1 Installing the lens

Each of the lenses have Scheimpflug adjustment possibility!

Necessary tools

- Torx screwdriver T10
- Nut spanner or socket spanner 10 mm
- Allen key 2 mm

How to prepare the projector lens?

1. Screw in 3 Allen bolts M4 into the lens flange. See image 2-1 and image 2-2
   Tip: *Make sure the bolts do not completely go through the flange.*
2. Fix a nut M4 to the Allen bolts. Do not tighten yet.

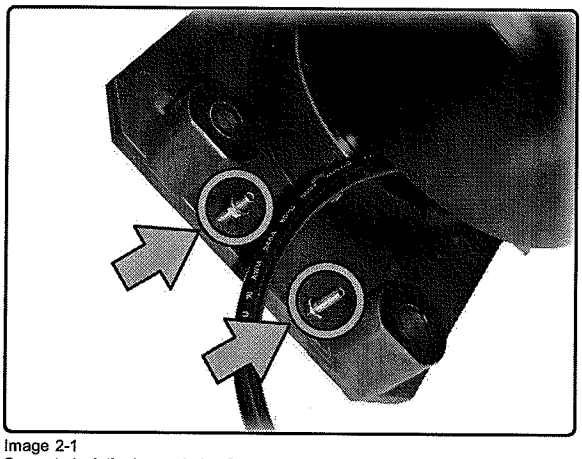


Image 2-1
Srews to lock the lens scheimpflug settings (left side)

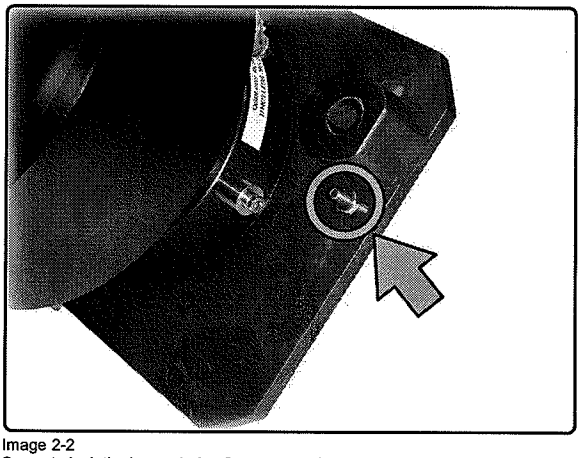


Image 2-2
Srews to lock the lens scheimpflug settings (right side)

How to mount the lens on the projector ?

1. Remove the top lens cover (6 screws)

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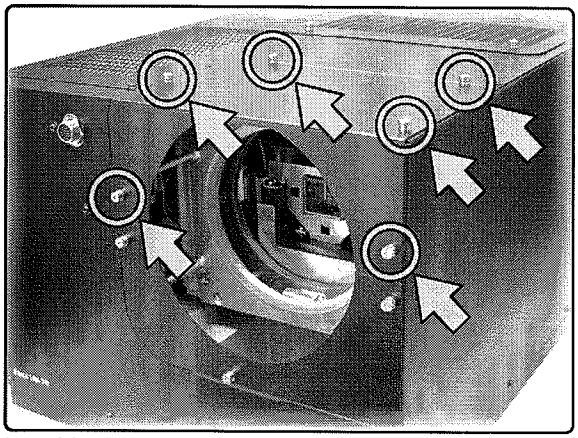


Image 2-3
Top lens cover: fixing screws

2. Remove the bottom lens cover (3 screws)

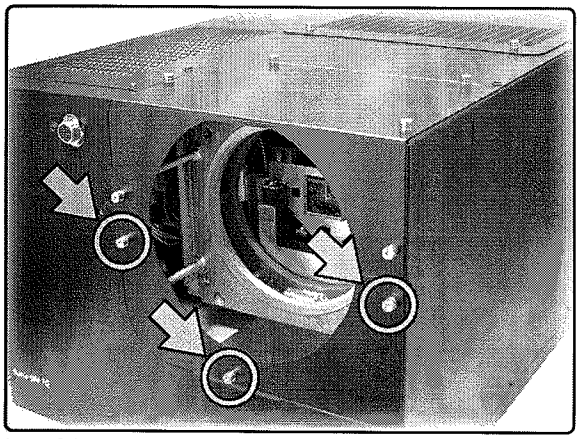


Image 2-4
Bottom lens cover: fixing screws

3. Fix the three springs to the lens holder studs

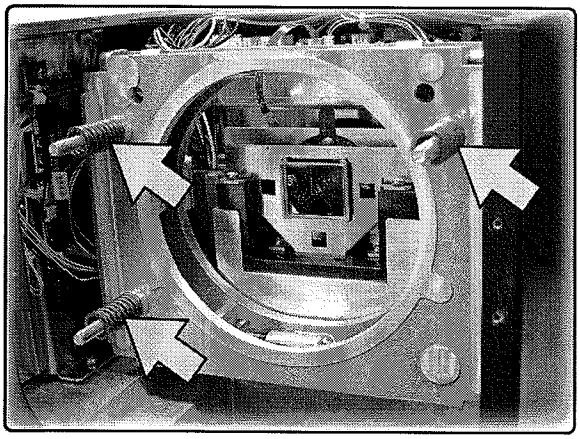


Image 2-5
Lens: scheimpflug springs

4. Slide the lens over the 3 rods.

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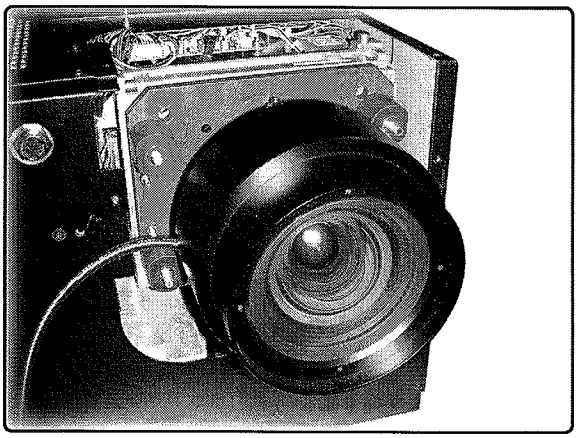


Image 2-6
Lens positioned

5. Put a nut on each rod

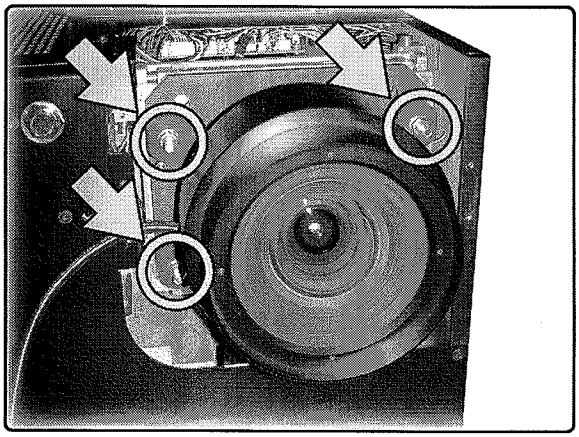


Image 2-7
Lens fixation nuts

6. Fix the nuts until the lens flange touches the lens holder plate at the 3 fixation points (nominal position).
7. Unscrew each nut 1 revolution and start adjusting the Scheimpflug by tightening or loosening the fixation nuts
8. If the adjustment is done, screw in the Allen bolts M4 (see "1" on image 2-8) until they are hand-tight

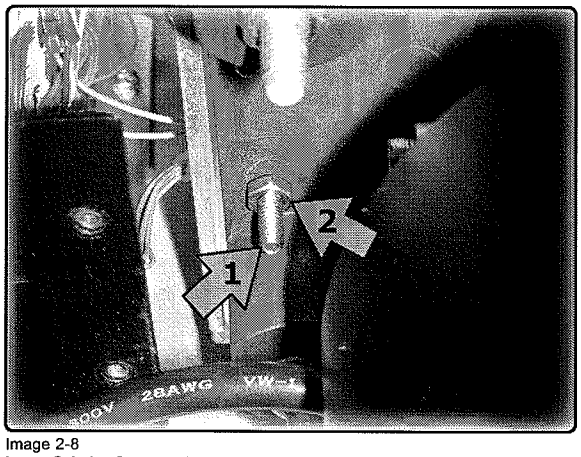


Image 2-8
Lens: Scheimpflug securing bolts and nuts

9. Secure the Allen bolts M4 by tightening the nuts (see "2" onimage 2-8) on to the lens flange.
10. Install the bottom lens cover
11. Install the top lens cover

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2.2 Connecting the lens

What must be done ?

The lens must be connected to the projector to allow the control of the Zoom and Focus and to allow data communication for the aperture control.

Insure that the lens is always connected to the projector. Not doing this will possibly damage the lens aperture and will not allow optimal aperture control.

Never change the lens when the projector is ON. Always insure that the projector is in standby or OFF.

How to connect the lens ?

1. Connect the male connector attached to the lens to the female connector located on the front of the projector.
   Tip: *The side labeled **TOP** on the male connector must be orientated upwards.*

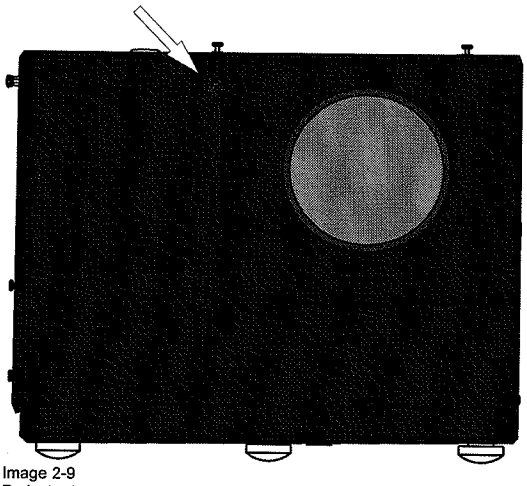


Image 2-9
Projector lens connection.

2. Secure the connection by turning and fastening the locking ring.

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3. ADJUSTING THE LENS

Overview

- Back focal length adjustment
- Shift/Zoom/Focus

3.1 Back focal length adjustment

What can be done ?

The position of the projector lens in relation to the interpolation lens can be adjusted. The lens can be shifted towards or away from the projector chassis . By doing so, the back focal length is adjusted and the focus is set to an optimal value. This adjustment will allow to benefit from the largest adjustment range for the lens focus (motorized lens focus).

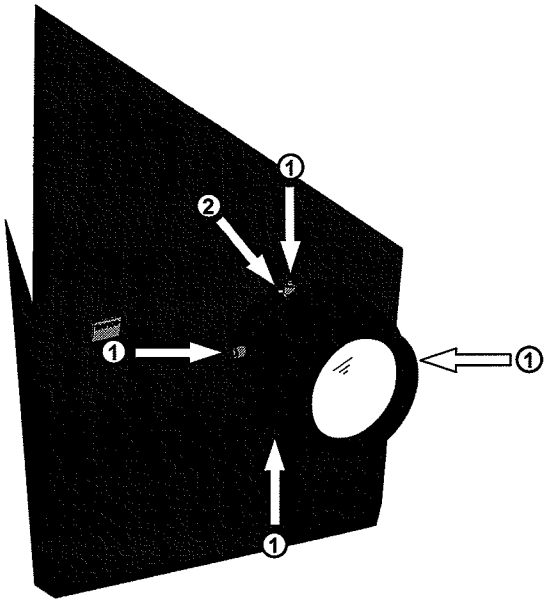


Image 3-1
Back Focal length adjustment.

1 Locking screws

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2 Adjustment hole

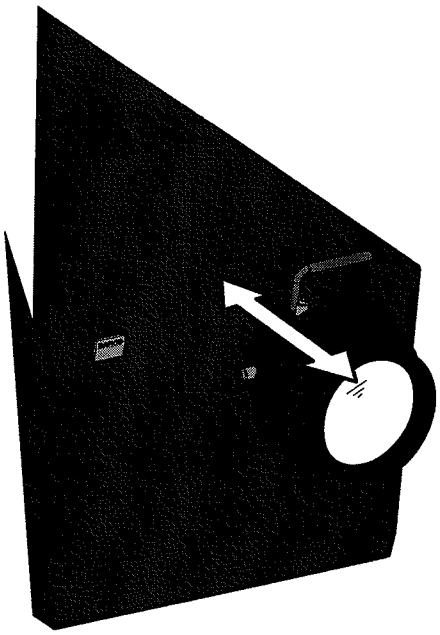


Image 3-2

A wrong back focal length adjustment will not allow optimal focus throughout the full zoom range.

Necessary tools

- BFL adjustment tool
- Allan key 2.5 mm (hexagonal key)

How to adjust ?

1. Loosen the 4 screws along the outline of the lens (top, bottom, left, right)
   Tip: *Only loosen these screws a bit. Just enough to allow the lens to be shifted forward and backward.*

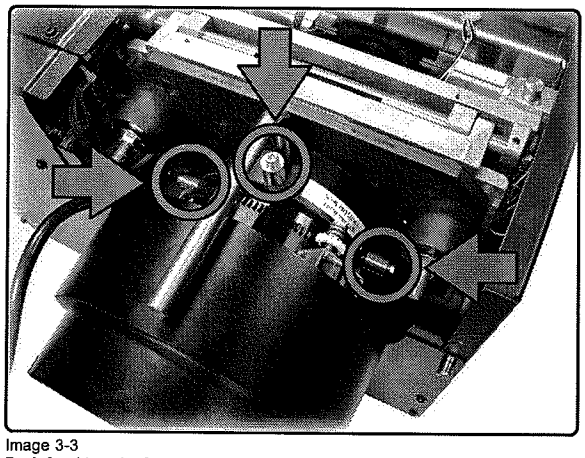


Image 3-3
Back focal length: fixation screws

Note: *The fourth screw is located underneath the lens*

2. Put the BFL tool in the adjustment hole

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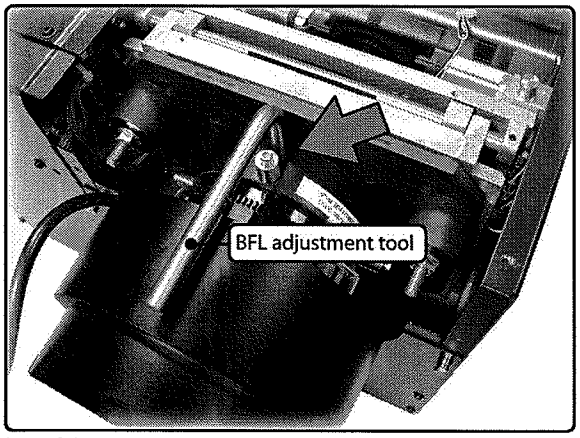


Image 3-4
Back focal length adjustment tool

3. Zoom the lens to wide position
4. Focus the image on the screen using the BFL tool

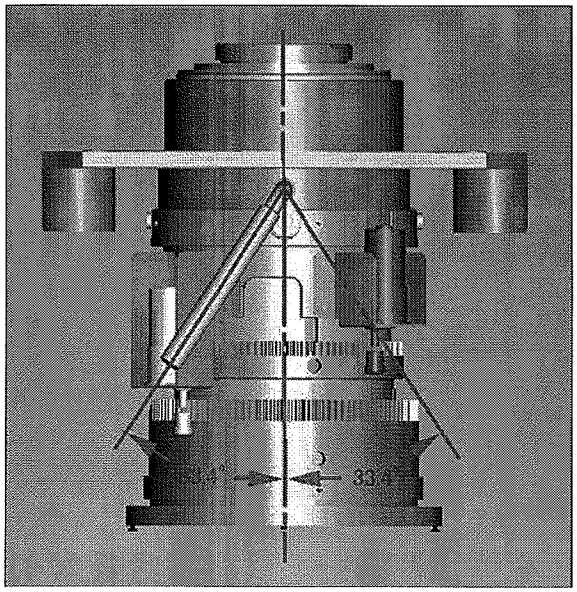


Image 3-5
Back focal length adjustment range

5. Zoom the lens to tele position
6. Focus the image on the screen using the remote control
7. Repeat step 3 to step 6 until the image stays in focus regardless to the zoom position
8. Fix the 4 screws

3.2 Shift/Zoom/Focus

Description

The shift adjustment is done during the Installation phase.

The other adjustments possible on the lenses are:

- motorized zoom
- motorized focus : should be done during the installation phase
- ECR (Extended Contrast Ratio) : ECR is done through automatic adjustment of the lens opening (aperture).

How to shift via the RCU (or keypad)

1. Press **LENS SHIFT** on the RCU

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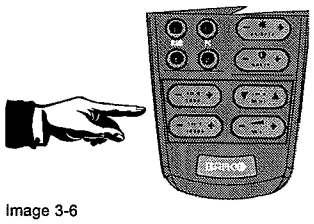


Image 3-6

2. Use the arrow keys to adjust

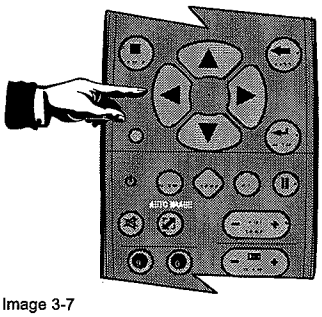


Image 3-7

CAUTION: Before shifting the lens, make sure that the lens locking system is not engaged! See the User guide of the projector for details on the lens locking system.

How to shift in the projector's OSD ?

1. Press **MENU** to activate the Tool bar
2. Press → to select the *Installation*
3. Press ↓ to Pull down the *Installation* menu
4. Use ↑ or ↓ to select *Lens adjustments...*

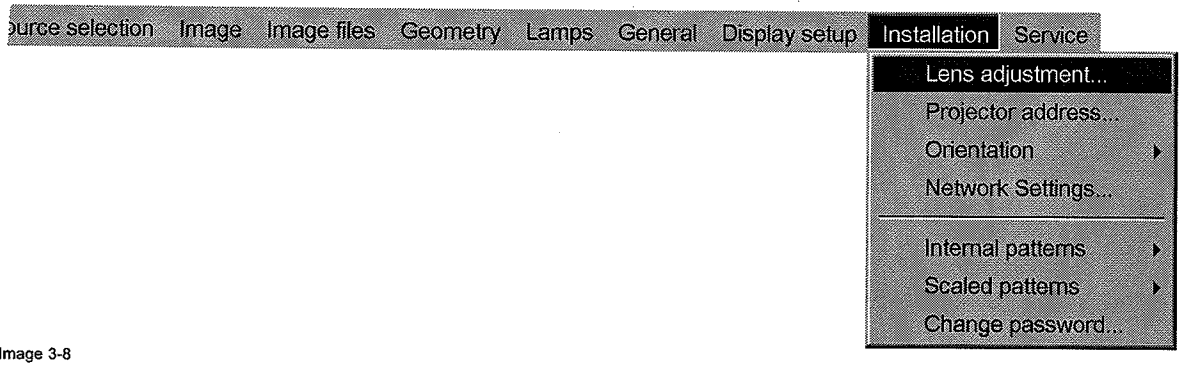


Image 3-8

5. Press **ENTER**

A text box appears on the screen, follow the instructions.

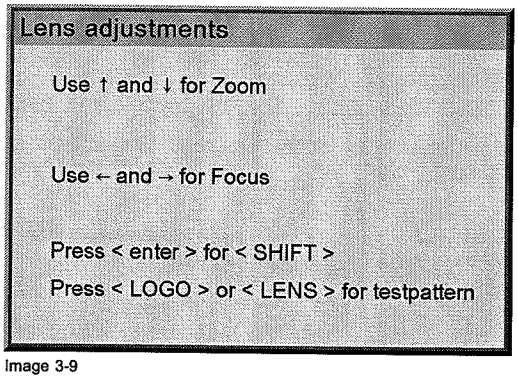


Image 3-9

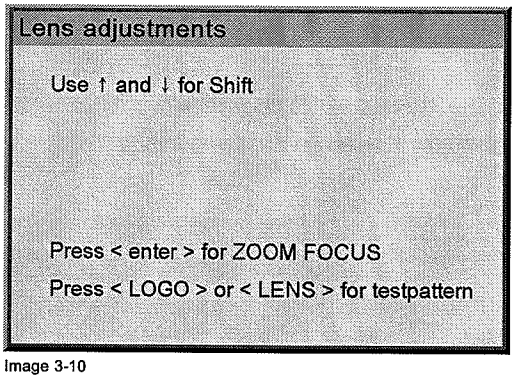


Image 3-10

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CAUTION: Before shifting the lens, make sure that the lens locking system is not engaged! See the User guide of the projector for details on the lens locking system.

How to adjust the focus ?

1. Turn the lens focus ring so as to obtain an overall focussed image

The use of a sheet of paper held in front of the screen can be useful to determine the focus plane (position for best focus)

Unsharp corners in the image can be adjusted with the Sheimpflug adjustment (3 adjustment screws on the lens holder), see the Installation section

Before adjusting the lens focus, insure that the Back Focal Length is correctly adjusted, "Back focal length adjustment", page 9

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