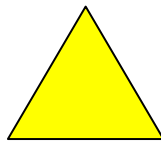


# Keeler

## Portable Slit Lamp 3010-P-2000

# Service Manual



ALWAYS READ THE INSTRUCTIONS

— A —  
HALMA GROUP  
C O M P A N Y  
—

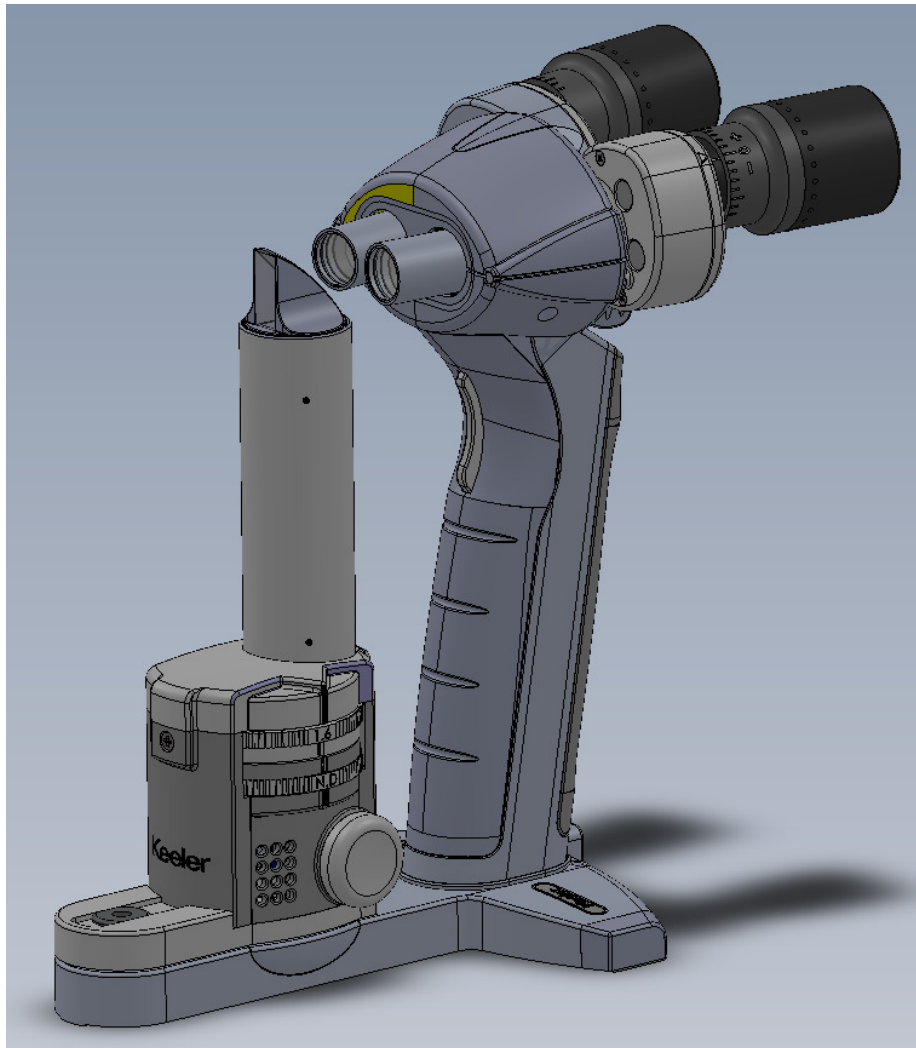
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## Introduction:

The purpose of this document is to show the service areas and procedure for the Keeler Portable Slit lamp (PSL).



*Figure 1 - Keeler Portable Slit lamp*

## Service Areas:

The PSL has limited service areas these are listed below:

- Bulb change
- Light tower / slit alignment
- Battery change
- Lens cleaning
- Cover replacement

Each area has a detailed procedure found later in this document.

## Tools Required:

Key tools required are as follows:

- 150mm long nose pliers
- Tweezers
- Hex Driver: 0.9mm
- Small Phillips Screwdriver
- Keeler PSL test bar (EP39-70737)

## Spare Parts List:

Parts that can be changed / required during service:

Part number	Description
1030-P-5000	Bulb
EP59- 47130	Battery cell
SP12- 00068	Turret grub screws
EP39-70766	Magnification label
SP12 - 52116	Rear cover retaining screw
EP29-48859	Slit Lamp Front Cover Top
EP29-48912	PSL Bottom Cover Top
EP29-48787	Slit Lamp Handle Front Cover
EP29-48867	Slit Lamp Handle Grip Rear

*Table 1 - Spare Parts List Table*

## Service Procedures:

### BULB CHANGE:

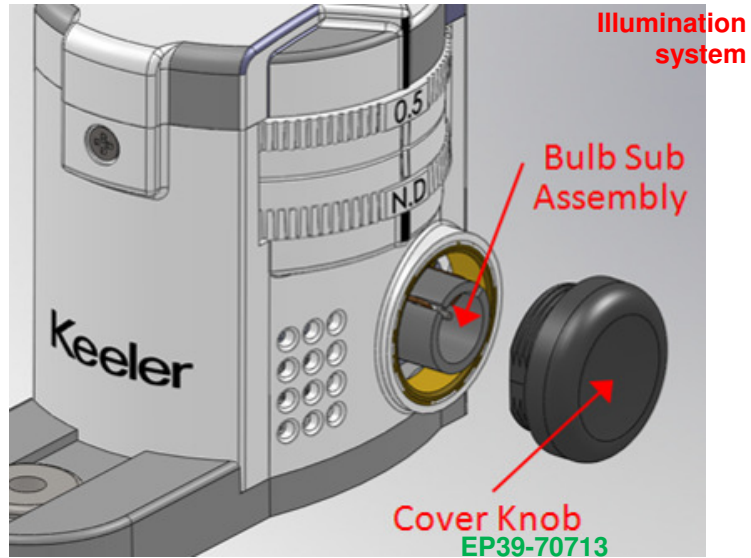


Figure 2 - Removal of bulb cover Op No 1

OP No. 1

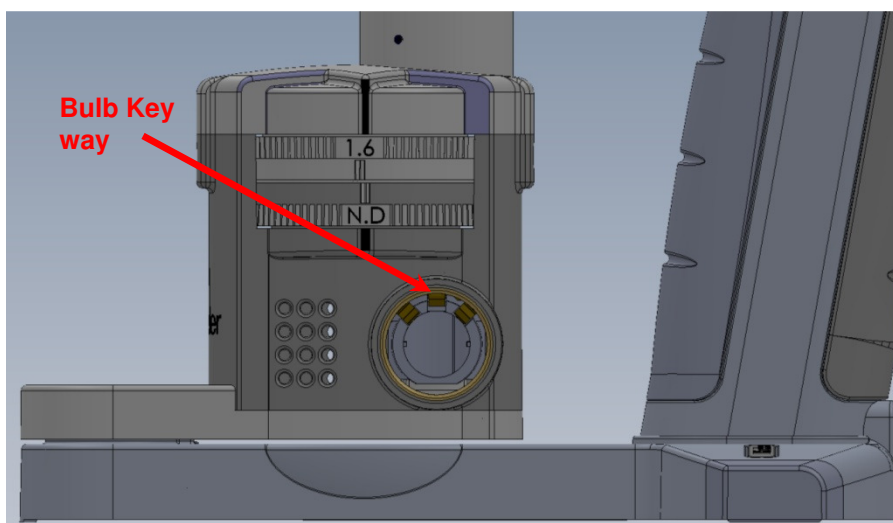
Unscrew by hand the Illumination system bulb cover, to show the bulb



Figure 3 - Remove bulb Op No 2

OP No. 2

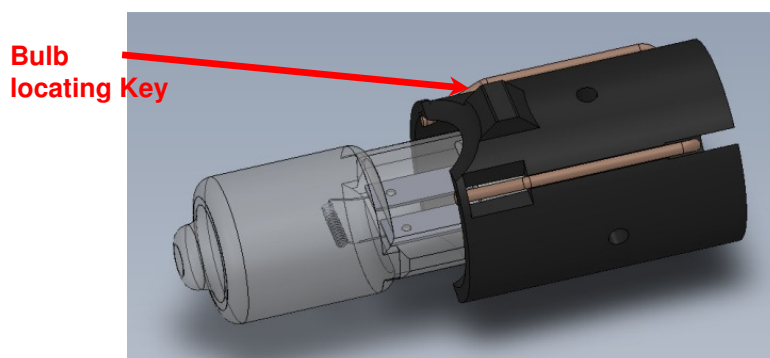
Using the long nose pliers carefully remove the bulb (1030-P-5000).



*Figure 4 - Bulb alignment - Op No 3*

OP No. 3

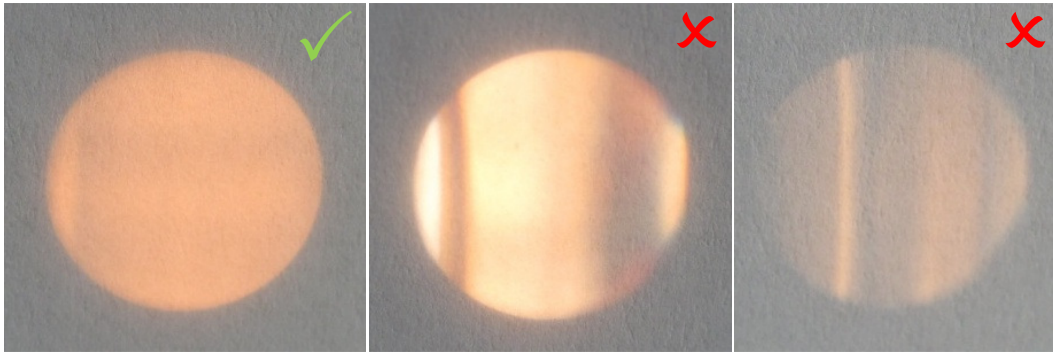
Observe the alignment of the bulb holder, the key positioned at the top of the bulb holder locates the bulb in the correct orientation.



*Figure 5 - PSL Bulb (1030-P-5000)*

OP No. 4

Without the use of tools insert a new bulb, aligning the bulb in the bulb holder keyway. The bulb will have a positive stop when inserted correctly.



*Figure 6 - Light patch check Op No 5*

OP No. 5

If the bulb is not inserted correctly, it will affect the light patch projected from the illumination system. Figure 6 shows possible observations on the light patch. The uneven light patches shown are due to incorrect insertion of the bulb.

OP No. 6

Refit the illumination system bulb cover finger tight.

**LIGHT ALIGNMENT:**

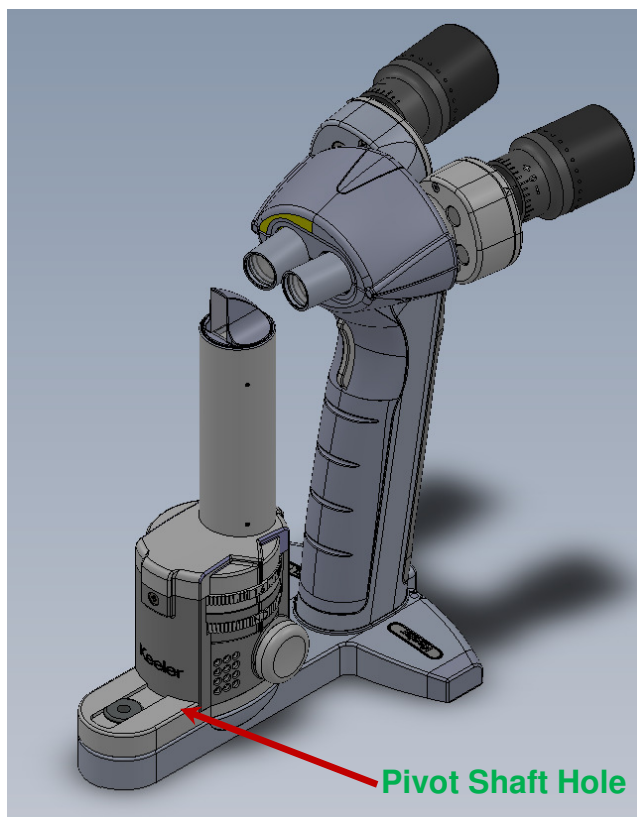


Figure 7 - Check slit alignment Op No 1

OP No. 1

Insert a PSL test bar (EP30-70737) into the pivot shaft hole Refit

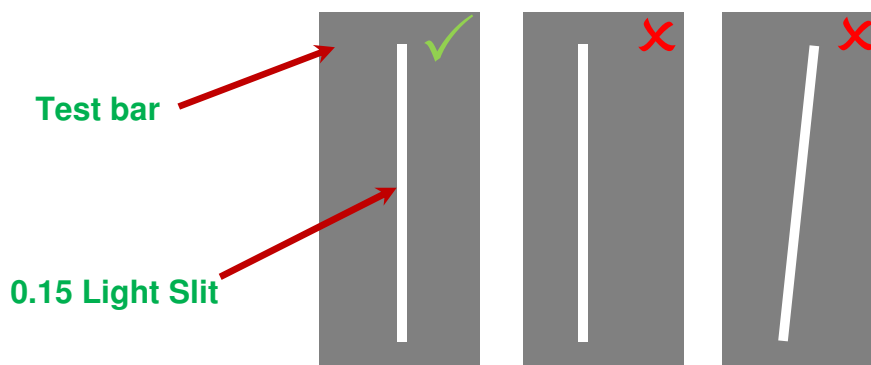


Figure 8 - Slit alignment Op No 2

OP No. 2

Check that the test bar is symmetrical in the viewing window. Squeeze the trigger to illuminate the 0.15mm slit. Check that the slit is vertical and central on the test bar.



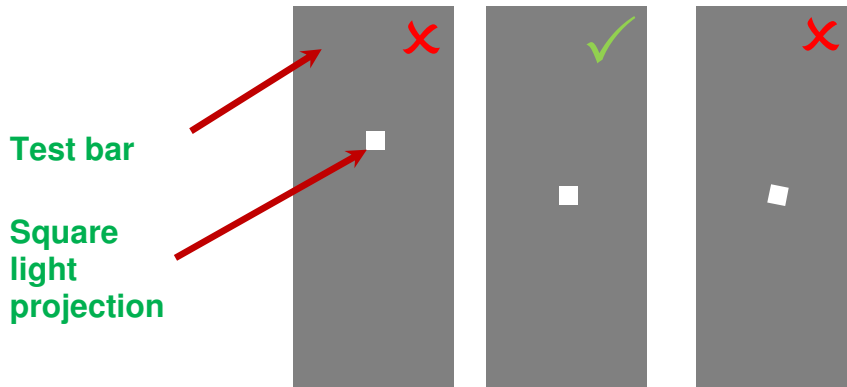


Figure 9 - Square alignment Op No 3

OP No. 3

Using both x10 and x16 magnification, illuminate the square, to check if it is central vertically in the viewing window. If the square light patch is central and straight no further action is required.

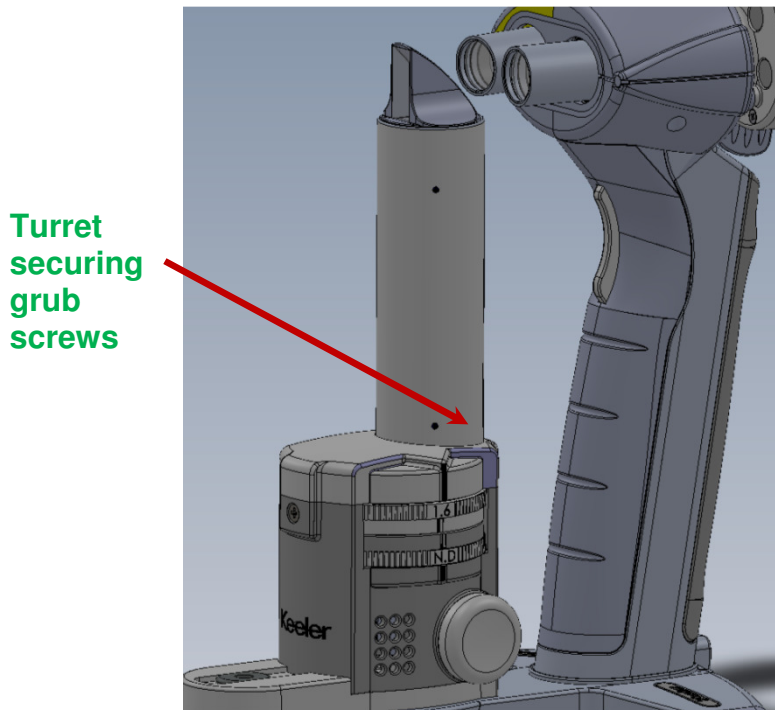
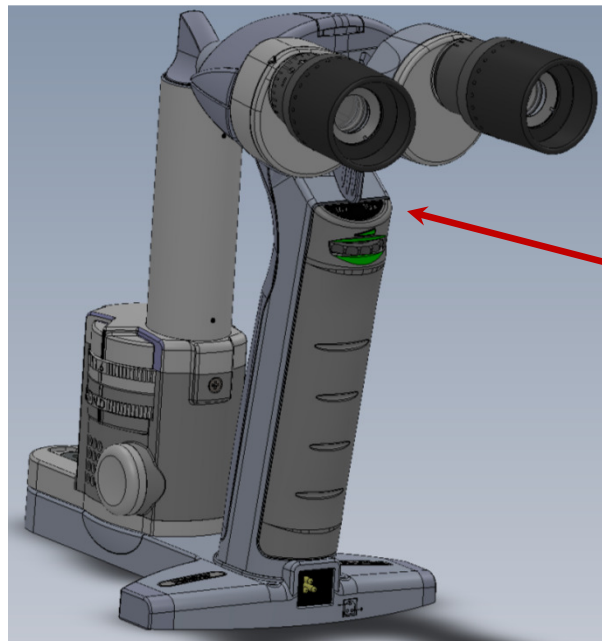


Figure 10 - Turret securing screws Op No 4

OP No. 4

If the light needs to be adjusted, gently loosen the securing grub screws, position the turret while looking at the test bar through the eye pieces. Once located in the correct place re secure the grub screws.

**BATTERY CHANGE:**



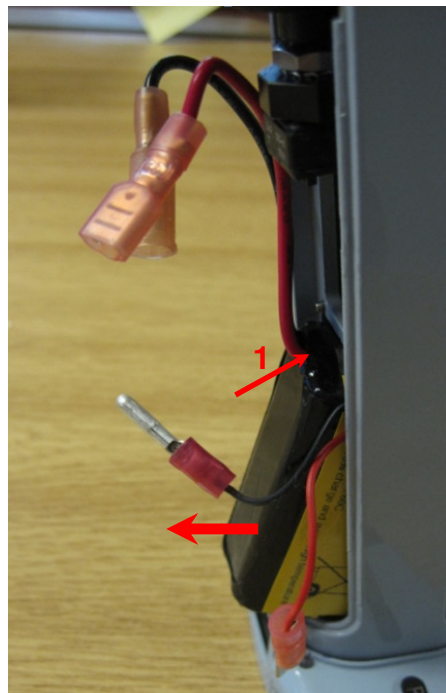
**Magnification label**  
EP39-70766

**Cover Retaining Screw:**  
SP12 -52116

*Figure 11 - Remove rear cover Op No 1*

OP No. 1

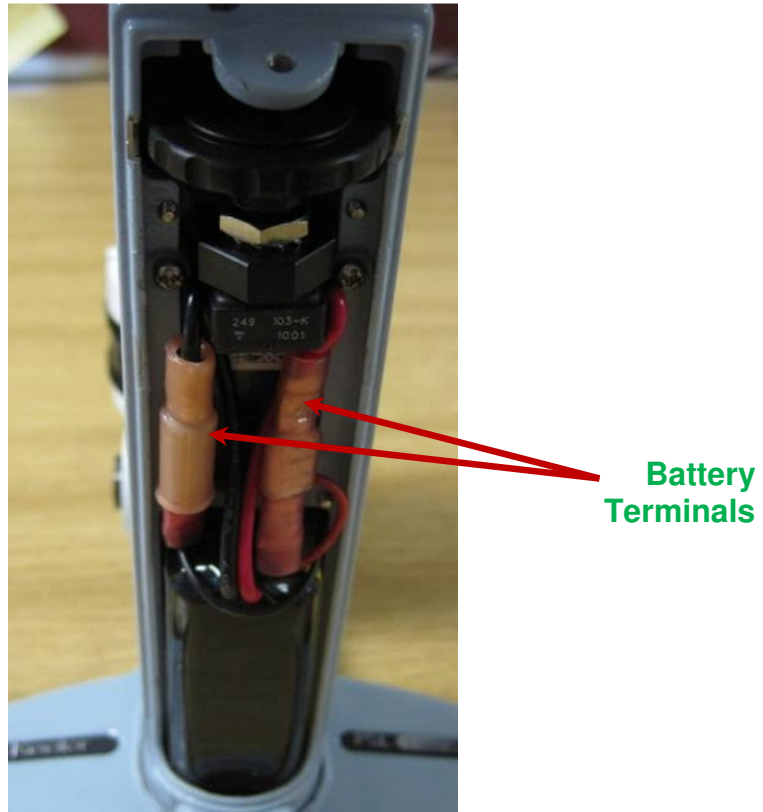
Remove the Magnification label to reveal the rear cover retaining screw. Remove this screw. Gently remove rear cover to reveal battery.



*Figure 12 - Battery removal Op No 2*

OP No. 2

Disconnect the battery terminals. Push the top of the battery up and into the unit, then pull the bottom of the battery out.



*Figure 13 - Positioning the battery terminals Op No 3*

OP No. 3

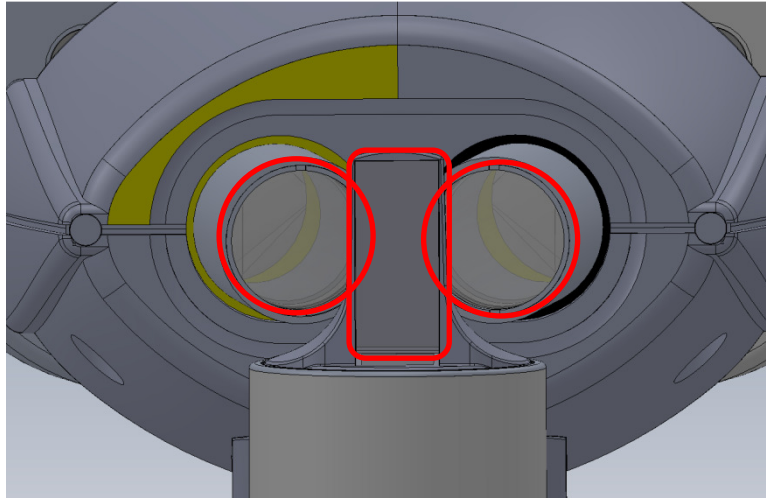
Fit the new battery back into the unit, (Top in first). Connect the terminals and position as shown in *Figure 13*.

OP No. 4

Refit the rear cover and retaining screw.

OP No. 5

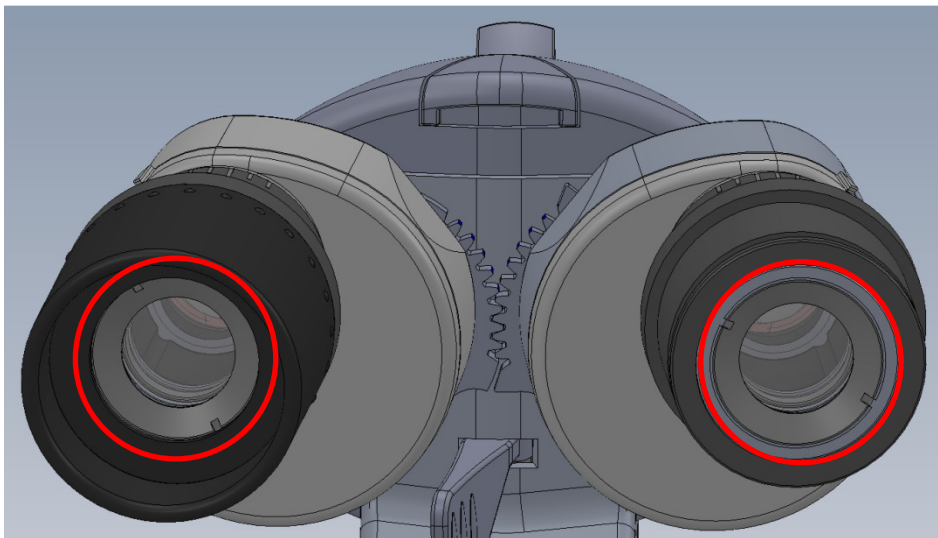
Fit a new magnification label

**LENS CLEANING:**

*Figure 14 - Patient facing lens for cleaning*

**OP No. 1**

Using a clean cloth, and a small amount of METH, gently wipe the surface on the lens shown in *Figure 14*



*Figure 15 - Operator facing Lens for cleaning*

**OP No. 2**

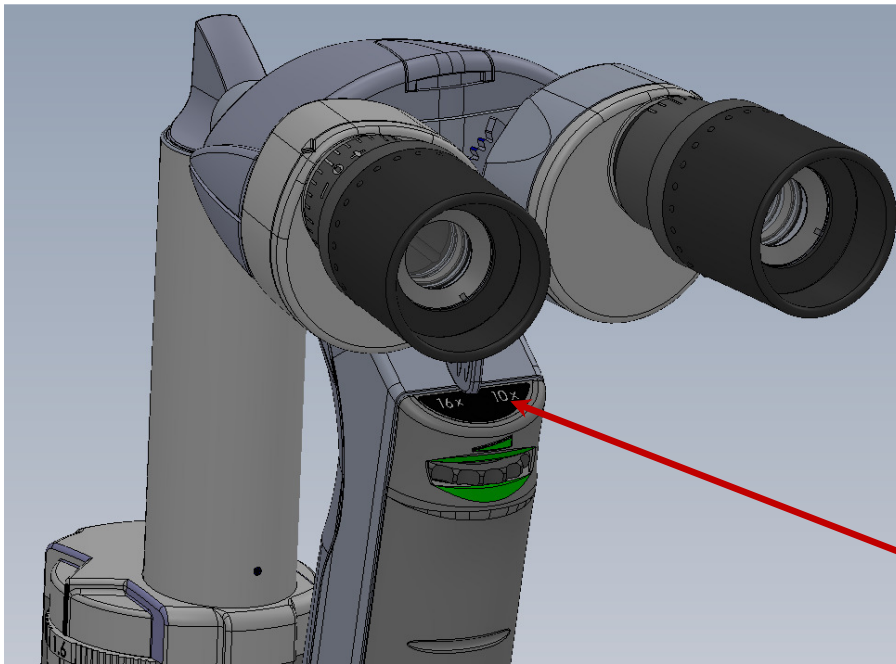
Remove the rubber eye cap, and using a clean cloth, and a small amount of METH, gently wipe the surface on the lens shown in *Figure 15*. Refit the rubber eye relief after cleaning.

## COVER REPLACEMENT:

REAR COVER:

OP No. 1

Remove the magnification label (EP39-70766) and retaining screw (SP12-52116) to allow the Slit Lamp Handle Grip Rear (EP29-48867) to be removed.



*Figure 16 - Rear Cover Removal*

OP No. 2

Fit new rear grip (EP29-48867) and refit retaining screw and new Magnification label.

## FRONT COVER:

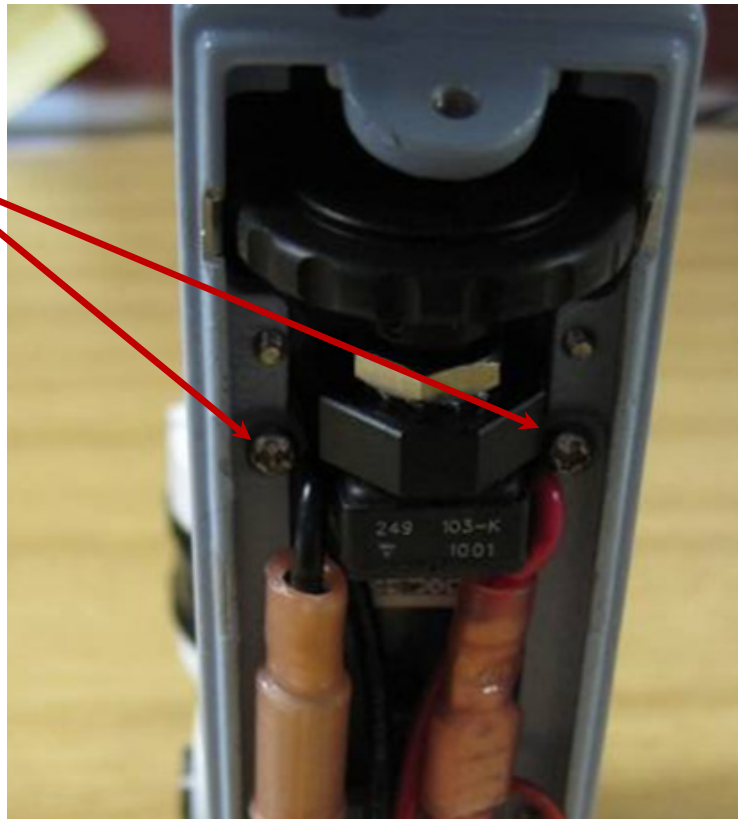
## OP No. 1

Follow procedure as stated *REAR COVER OP No. 1.*

## OP No. 2

Remove the two front cover retaining screws (Incl. washers), and remove the Handle Front Cover (EP29-48787)

Front  
Cover  
Retaining  
Screws



*Figure 17 - Front Cover Removal*

## OP No. 2

Fit new Handle Front Cover (EP29-48787) and secure in place using the retaining screws.

*Take care not to damage / pinch the wires that route through the handle.  
Service personal may find it easier to remove the battery. (See Battery Change procedure for details)*

## OP No. 3

Follow procedure as stated *REAR COVER OP No. 2.*

## FRONT COVER:

## OP No. 1

Follow procedure as stated FRONT COVER OP No. 1-2 to remove handle covers.

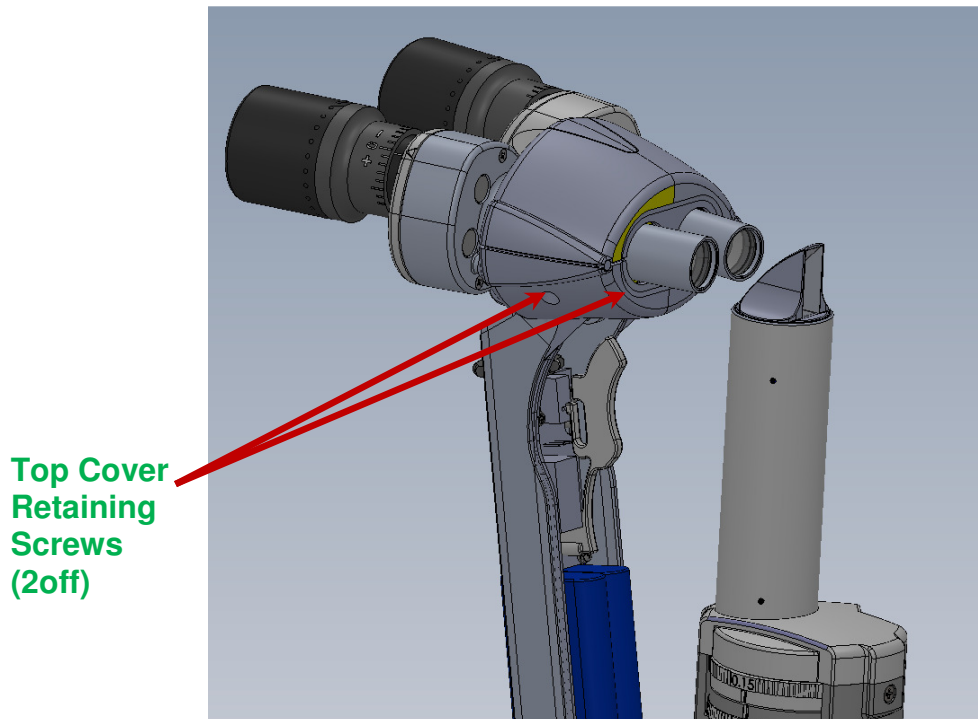


Figure 18 - Top covers removal

## OP No. 2

Remove top cover retaining screws and remove cover(s) that require replacing.

## OP No. 3

Replace covers as required Top cover (EP29-48859) / Bottom Cover Top (EP29-48912), secure using the retaining screws previously removed.

*Take care not to damage wires for the target LEDs positioned inside the top covers.*

## OP No. 4

Follow procedure as stated FRONT COVER OP No. 2-3 to refit handle covers. Use existing covers if not in need of replacement.

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## Issue history:

Date	Issue	Update
14/01/2011	A	Initial Issue Not released
18/04/2011	B	Addition of Cover replacement

Table 2 - Issue History Table