Replacing the Lens and Cleaning the V-Groove on ThermoFlex Mid and Narrow

Product

All configurations and options of the following:

- *Kodak ThermoFlex* Mid platesetter family
- *ThermoFlex* Narrow platesetter family

Background

This procedure describes how to replace the optic lens and clean the V-groove. To access the lens, you must open the back of the telescope and remove the laser head. Then insert the custom-designed jig inside the telescope and remove the lens. Insert the new lens, and use the same jig to tighten it in place.

Requirements

- Optic head inner key (293B7B866)



- Optic head outer key (291B7B867)



- Cotton swabs
- Acetone

Procedure

The following illustration provides an at-a-glance, six-step overview of the lens replacement procedure. Basically, you remove everything from the telescope, remove the lens, install the new lens, and reassemble the components in the telescope.

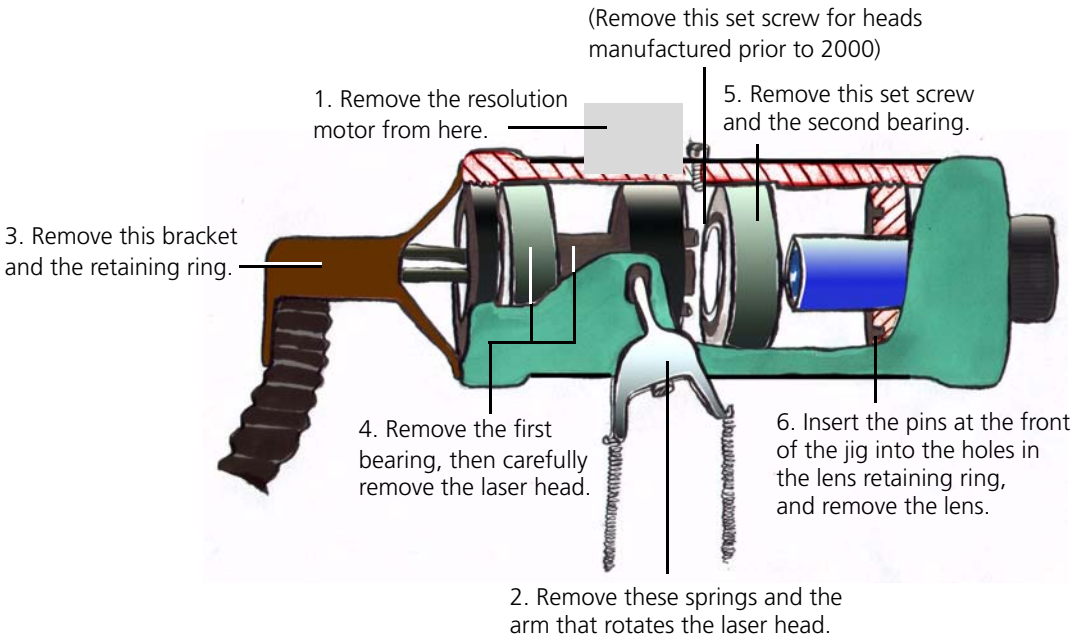


Figure 1: Overview of the lens replacement procedure

1. In *ThermoFlex* Controller, send the carriage to position 700, or any position that enables you to work comfortably on the head.
2. Take the necessary steps to access the carriage, quit *ThermoFlex* Controller, turn off the platesetter, and disconnect the main power supply.

Removing the Lens

To remove the resolution motor and head rotation arm:

When removing the motor and springs, mentally note how to reassemble them. Pay close attention to how the resolution motor fits with the head rotation arm. They must be reassembled properly.

1. Disconnect the two detector connectors and the motor power connector, as shown in Figure 2, and move aside the motor and support bracket
2. At the top back of the head assembly on the resolution motor, remove the four hex screws.



Figure 2: Resolution motor

3. Release the resolution bracket screw.
4. With the motor and mounting bracket released, unhook the two springs underneath the motor that provide tension to the head rotation arm. The arm and springs are shown in Figure 1.
5. Set the resolution motor aside.
6. Using a screwdriver, remove the head rotation arm from where it protrudes from the telescope, as shown in Figure 1.

To remove the bracket, retaining ring, and bearings:

1. Loosen, but do not remove, the locking set screws from the telescope and telescope holder.

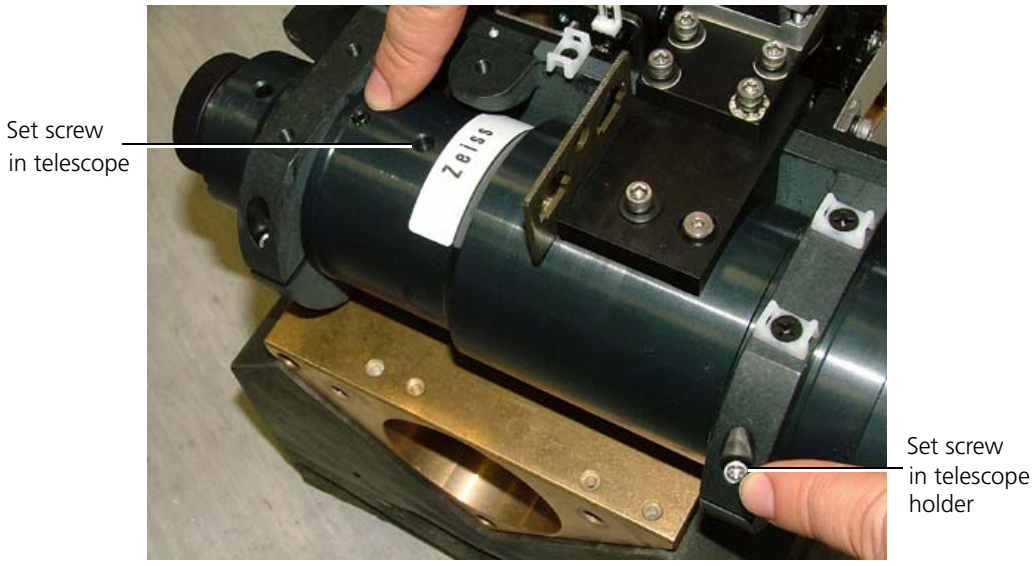


Figure 3: Telescope locking screw

Note: Before removing the cable ties in the next step, pay attention to how they are threaded through the two brackets. You will need to put them back in the same way.

2. At the back of the telescope, cut and remove the various cable wraps that secure the black plastic tubing in place.

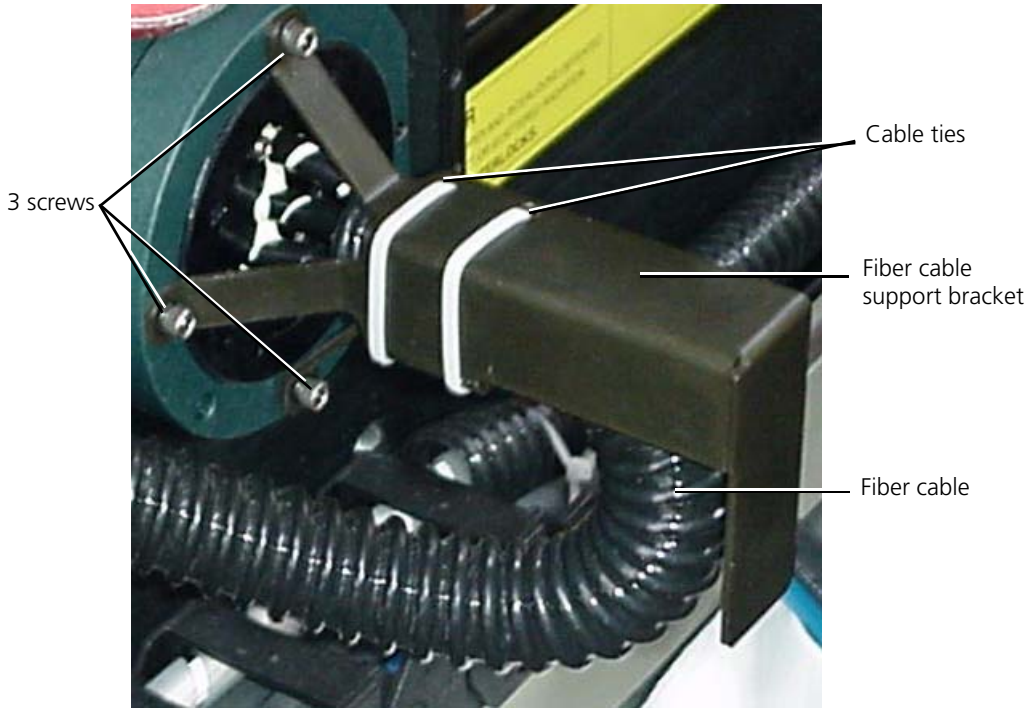


Figure 4: Fiber cable support bracket

Important: From this point on, the fibers are unsupported. You must be very careful with them.

3. Remove the three screws from the fiber cable support bracket (Figure 4) and set the cable support bracket aside.
4. From the back of the head/lens assembly telescope, remove the black retaining ring, using the optic head outer key.

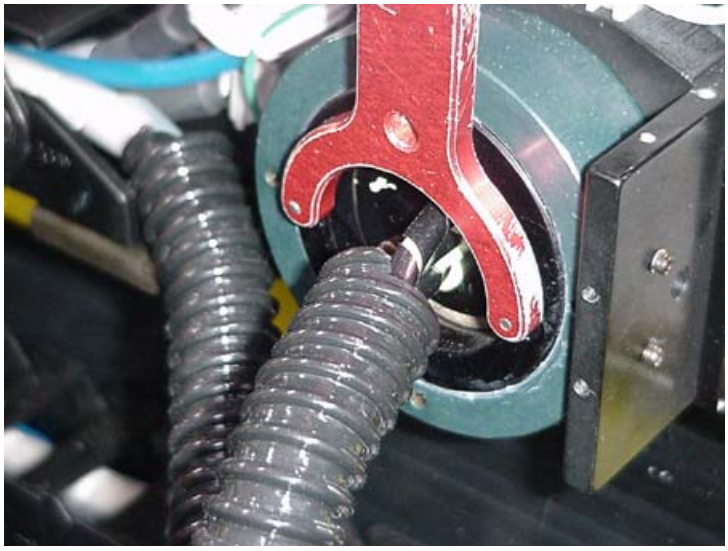


Figure 5: Removing the retaining ring

Note: To prevent rotation as you unscrew, temporarily reinsert the head rotation arm through the telescope so that you can hold it.

Note: There is a large spring washer directly behind the retaining ring. The washer will fall out when you remove the retaining ring. Remember to put it back at the end of the procedure.

5. Set aside the retaining ring and remove the bearing behind it, as shown in Figure 1 and in Figure 6.

6. Remove the laser head and lay it over the V-block.

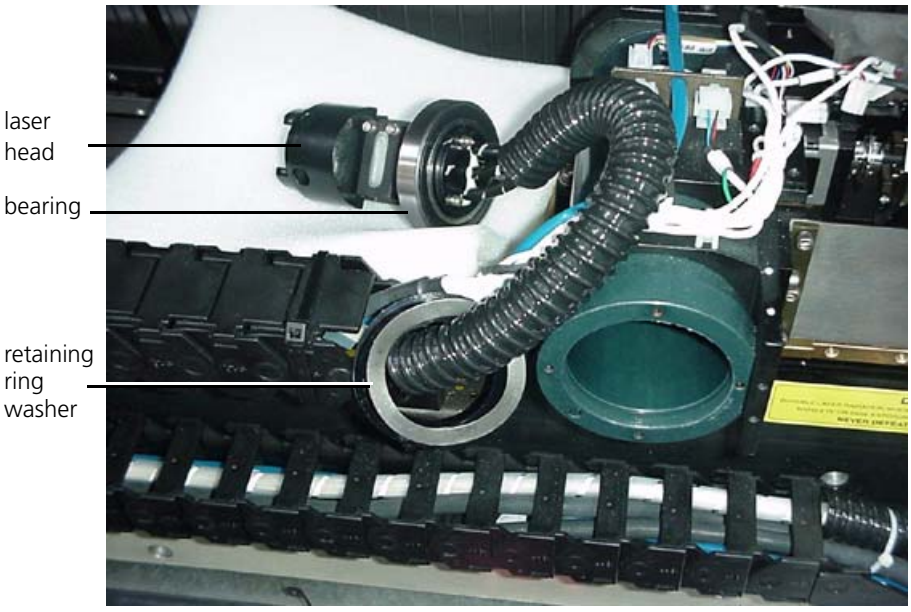


Figure 6: Laser head on the V-block

Important: The next step is for heads manufactured prior to 2000 only.

7. For heads manufactured prior to 2000:
   a. From the top of the telescope, remove the screw that reaches down into the telescope, preventing the lens nut from opening.
   b. When the screw is removed, reach a finger into the telescope and pull the bearing out. You may need to hook the bearing out with an hex key. If you use a hex key, be very careful, because the lens is behind the bearing.

Note: The following pictures show the telescope outside of the telescope holder, but generally, you do not need to remove the telescope from the telescope holder.

To remove the lens:

1. Look into the telescope to see the lens and the pin holes in which the jig fits. Very carefully insert the optic head inner key (part number 293B7B866) into the telescope, and fit the jig pins into the holes on either side of the lens (see Figure 7). Rotate the jig counter-clockwise to release the lens.



Figure 7: Lens in telescope

2. Use the jig to pull out the lens and lens nut. Be sure to hold the telescope straight up so that the lens and nut do not fall.



Figure 8: Lens pulled out

Cleaning the V-groove:

➢ Hold the laser head in one hand; then, using the other hand, wipe the front, shiny V-groove with a cotton swab soaked in acetone.

Note: Wipe the V-groove with the soaked cotton tip in one direction only; then throw the cotton tip away and use a new one.

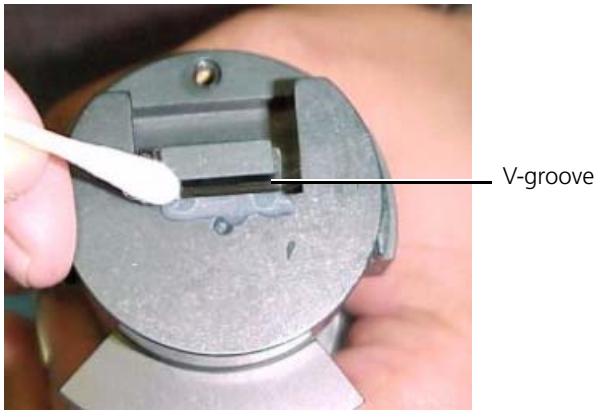


Figure 9: Cleaning the laser head V-groove

Installing the Lens

1. Using the optic head inner key, insert the new lens with the lens nut.
2. Turn the jig clockwise to tighten the lens into place.
3. Carefully detach the jig from the lens and pull the jig out of the telescope.
4. For heads manufactured prior to 2000 only, insert the bearing into the telescope, and then insert and tighten the screw that secures the lens nut.
5. Carefully insert the laser head into the telescope so that the rotation arm can pass through the telescope and screw into it.
6. From the back of the telescope, insert the bearing and then use the optic head outer key to secure the black retaining ring, as shown in Figure 5.

Note: Do not overly tighten the retaining ring: that will cause an unsmooth resolution rotation. The retaining ring should protrude slightly, as shown in Figure 1.

7. Insert the fiber cable support bracket and secure it with the three screws that you removed in step 3 of the *Removing the Lens* section.
8. Secure the black tubing to the fiber cable support bracket with cable ties, as described in step 2 of the *Removing the Lens* section.
9. Re-insert the hex screws removed in step 1 of the *Removing the Lens* section.
10. Thread the rotation arm through the telescope and screw the rotation arm back into the head assembly.
11. Secure the rotation arm with the two springs, shown in Figure 1.

12. Reinstall the resolution motor assembly by screwing the motor block into place. Ensure that it connects properly to the head rotation arm.
13. Connect the detector connectors and the motor power connector.
14. Insert the exposed earth wire under the resolution motor screw, as shown in Figure 2, and tighten the four resolution motor hex screws.

Testing the Procedure

1. Verify that the resolution motor moves freely:
   a. Turn on the platesetter and start ThermoFlex Controller.
   b. From the **Resolution Motor** menu, in **Properties** tab, check the **Max Pos App** value, and then move the resolution motor back and forth a few times between home position (HP) and the **Max Pos App** value.
2. Verify that the focus motor moves freely:
   a. Select **Hardware > Database > Focus Motor** and check the **Max Pos App** value.
   b. From the **Focus Motor** menu, move the focus motor back and forth a few times between HP and the **Max Pos App** value.
3. Fully calibrate the platesetter, including focus, intensity, resolution, delay and elevation.