

# Jupiter-3 Lens CLA

## By Brian Sweeny

Jupiter-3 Clean and Lube. The 39mm focus mount of the Jupiter-3 is a simplified and improved mount compared with the wartime Zeiss mount for the Sonnar 5cm F1.5. The Russian mount maintains compatibility with the optics module of the Zeiss lens. The mechanism breaks down to five units: 39mm mount, inner helical, outer helical with an inner “sleeve”, and focus ring. I prefer to clean the outer helical with the inner sleeve partially unscrewed, but not completely separated.



For the disassembly, you will need a set of fine screwdrivers- either jeweler’s or from an eye-glass repair kit; a compartmented tray such as an ice cube tray; grease, such as white lithium grease; solvent- such as Isopropyl alcohol or lighter fluid; and a flat work surface-



such as a cafeteria tray. I line the tray with a layer of small-size bubble wrap and white paper towels. This dampens anything that falls from the lens- such as set screws.

The optics module simply unscrews from a Jupiter-3 focus mount. Sometimes a good grip is required, I use rubber mouse pads. Occasionally, one is stuck. I've seen dried grease that acts like cement, thin shims caught in the threads, and modules cemented into the mounts. Use about as much force as required opening up a glass jar that is vacuum sealed and is tightly on. Much more than that, you run the risk of snapping the guide pins that hold the helical together. At that point: things get a little complicated, and you need to take the glass out of the barrel and soak it in solvent. I've had to soak one J-3 in solvent, and have seen one with broken guide pins.

The focus ring comes off with three set screws. Keep the individual set screws in order, remember the starting position and put the screws in different bins of a tray. Use a screwdriver that matches well with the slot, the screws break easily. The focus ring slides forward to reveal the screws holding the helical into the mount. Note the taps under the set-screws; these will be critical to realign the ring. Clean the focus ring with some soap and water, or some silver polish.

KMZ helicals are held into place with one set screw. The KMZ Helical typically screws tightly into position in the mount. All others are held in place with three set screws. These often can be screwed in farther into the mount a fraction of a turn, and the three set screws hold the helical into place. The position of the helical in the mount sets RF coincidence at infinity. Remove the set screw(s), test if the helical can be screwed farther into the mount, and then unscrew the helical from the mount. There is only one possible starting position to put it back, and the taps in the helical will allow resetting to the original position.

The inner and outer helical are held together with two guide pins. Once apart; there are multiple "starting position" and only one of them is correct. Make a scribe mark across the two sections of the helical; I use the tip of a screwdriver. Set the position to Infinity: the RF cam as shown. Note the position of the guide pin in the slot. Unscrew the guide pins and keep them in order, use a separate bin in the tray. I've seen differences in thickness enough to prevent smooth focus if replaced in reverse order.

With the guide pins out, the inner helical unscrews. The grease is usually dry, and needs to be removed completely. Save those old tooth brushes and dip them in alcohol or lighter fluid. The inner helical can be dropped in an ultrasonic cleaner if you have one.



The outer helical is in two pieces, best to not separate the sleeve. The travel is limited by a screw, accessible with the helical set to infinity.

If the movement of the sleeve in the outer helical is uneven, in this case there was sand and grit, take out the screw. The sleeve should screw in slightly farther into the helical-note where it stops. Once noted, back the inner sleeve out- but do not unscrew all the way. There are many starting positions, and only one is correct. With the sleeve partially unscrewed, flood clean by dipping in a bowl with 99% Isopropyl alcohol and “work it”. The old grease will dissolve out. You can use a slight amount of grease on the visible portions of the sleeve, use sparingly. Screw the sleeve back into position and replace the stop screw.



Use a little grease on the inner helical. Some helicals have more play than others; excess grease will work forward as you screw it in. Wipe off that excess.



Once the inner sleeve is back into the proper position, the outer and inner helical is ready for reassembly. This is where the scribe marks and guide pin positions are important. Some play in the J-3 helical is due to the rails being wider than the guide pins. The guide pins move slightly before engaging the side of the rail. I've put some heavy grease, such as vacuum pump grease, on the rails to dampen the play.



With the helical reassembled; time to screw back into the mount. There is only one starting position, and the taps for the set screws will line things up properly. Make sure the holes of the helical are clean so you can see the taps. A pin or thin screwdriver can be used to “feel” the taps. Replace the set screw(s). On mounts with three screws, tighten them a bit at a time, sequentially, until all are tight. Optional: once you are satisfied with the movement of the helical, and RF coupling, using some lacquer to secure the set screws is a good idea. Do this only when you are happy, and are fairly certain you do not need to reopen. Nail polish is a good choice, and can be removed. I borrow my daughter’s nail polish remover for that operation.



With the helical in place and any lacquer dry: the next step is to put the focus ring back on. Line it up with the taps. Put the three set screws back in order of removal. Screw them in a little at a time, in order. Like the lug nuts on a car tire, spread the tightening function across the three to get the focus ring in place as evenly as possible.

The focus mount is done. Next step is to check focus on your camera. Usually, if it was good before- it will be good now.



The next write-up will cover adjusting the shim of the Jupiter-3 for best focus close-up and wide-open.

