

## Jupiter 9 Service

These have the reputation of being the most difficult of the FSU lenses to service and re-lube. There are multiple helix's which and only one-way to put them together correctly. The first one took me all afternoon to put back together, the second a couple of hours and now I can do it in about 20 minutes. The order of taking them apart is not critical but it is very important to put them back together in the correct order. If you follow the order detailed here, you should be able to get it back together on the first attempt. I shall cover the re-lube here and will cover the adjustment of the collimation in a separate document, as the principle is the same for most FSU lenses.

This particular lens came from an RFF member who asked me to look at it as it wasn't focussing correctly through the range. When I unpacked the lens, I was met by a familiar odour and found the lens was all greasy with oil leaking out of it. The reason for this soon became obvious and shows how not to re-lube a sticky lens. A previous owner had decided that it needed a re-lube and rather than have it done properly had used WD40 on it. If you look at the mess this made inside, you will see why this is a very bad idea!

Begin by separating the lens unit from the focus unit by unscrewing the whole front unit. It may be firm to start and was more difficult in this case because the lens was slippery. A dental dam (thin sheet of rubber) helped. Put the lens unit to one side and don't lose the shims



Remove the 3 screws around the focus ring and remove the ring.



Either slacken off or remove this screw. It is the one directly opposite the depth of field scale.



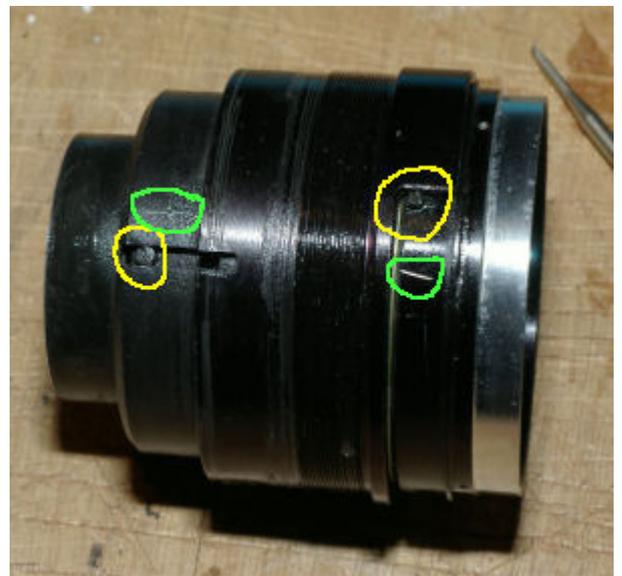
You can then unscrew and remove the lens mount. Notice the amount of yuck inside that is a mixture of the old grease and the WD40.



Looking at the bottom of the lens, you will notice that there are 2 slots in the RF tube and 4 slots in the outer helix, 2 short and 2 long. Although it is not necessary, it may want to mark these to help you get the guide pins and screws back in the right ones. This lens had already been marked so I have highlighted those marks in green.



Remove the focus limit screw and the first of the guide pins.



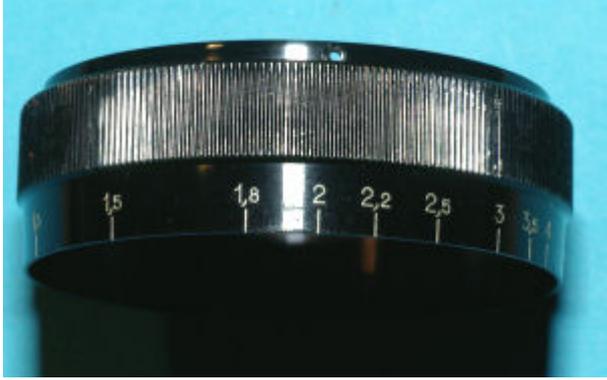
Turn the lens over and remove the other guide pin. You should now be able to unscrew the RF tube and put it to one side. The outer helix is now unscrewed and finally the inner helix is removed.



The parts can now all be de-greased and cleaned. You should have 6 in total. If you only have 5, you probably haven't taken out the inner helix.



Before covering the re-assembly I will give you a picture of the 6 major parts. I don't know if the names are correct (I have just made them up!) but it should help with the explanations.



Focus Ring



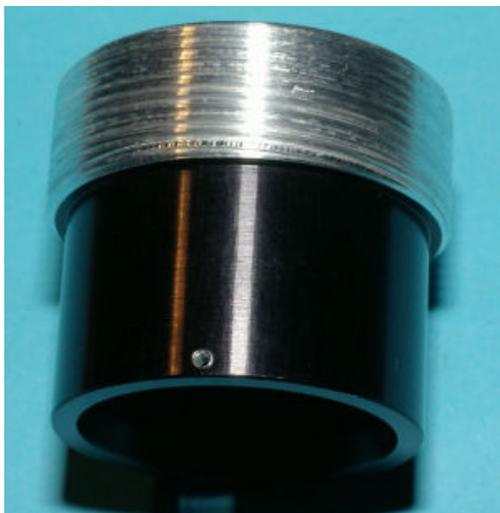
Lens Mount



Outer Helix



Middle Helix

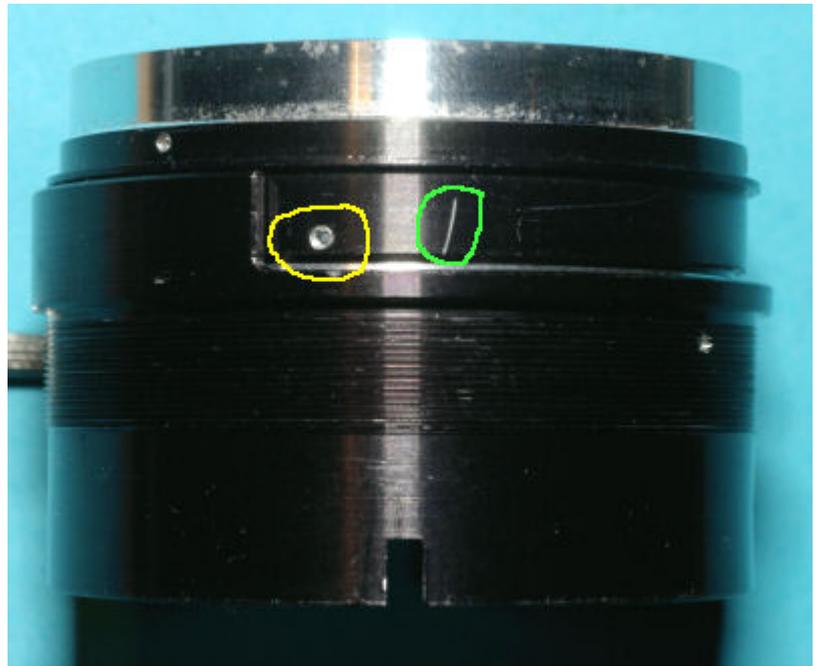


Inner Helix



RF Tube

Take the middle helix and grease the outer threads. Now screw it into the Outer Helix. You may want to try this “dry” first. There are 4 possible start positions for this but only one correct one. With the correct one, the hole for the limit pin (yellow) should just get hidden behind the stop when it is screwed fully home. In this position the mark that someone had made before was just showing. If you get it wrong the first time, it doesn't matter and it helps to spread the grease. Insert the stop pin and make sure the unit is screwed down to this stop.



Now take the RF tube, grease the thread and screw it in. We now come to the trick that took me all afternoon to discover the first time and an hour and a half to remember the second. Remember that the Outer helix has 2 short and 2 long slots? When you screw the tube in, the hole for the guide pin should be close to one of the short slots. Back it off until it is under the first long slot it comes to and now for the clever bit, undo it another half turn so it is under the other long slot. You can now refit the guide pin.

It is now worth putting the lens mount back on and checking the unit on your camera. You should be able to do this without the focus ring but you can replace it for the time being if you need to. Focus on a distant object. The lens unit should be close to or at the infinity stop with the RF patch aligned. (Assuming your camera is well adjusted). If it is, you have got it cracked and can continue. If not, retrace your steps. If you try to insert the inner helix before you have this part right, it will not work and you can end up in all sorts of muddles.

Remove the focus ring (if you refitted it) and the lens mount. Make sure the unit is still set to infinity. Grease the inner helix and screw it in. This can be awkward and I spread two fingers inside the tube to grip it. There are again 4 start positions but the good news is that 2 will work. The hole for this guide pin should just go past one of the 2 slots in the RF tube when the helix is screwed fully home. Back it off and insert the pin. If it stops about halfway between the slots when it grounds, you have got one of the 2 wrong start positions.

You can now replace the lens mount and screw it home this time. Make sure the unit is still at infinity and replace the focus ring making sure the index mark and infinity mark are aligned. If you have got it right, it should be very, very close to witness marks from when you took it off. You can now try it again on the camera. Providing the lens unit does not need any work or collimating, you can now replace it and you should be ready to shoot. I would strongly suggest however, that you either check the collimation using a test rig or use a test film first to check you have done it correctly before taking any important pictures.

If the lens does need collimation, proceed to the collimation file.