

Foreword

This service manual is designed to guide a skilled technician through the field service of the Griffin Motion 3CS spindle. The procedure includes O-ring replacement and general cleaning.

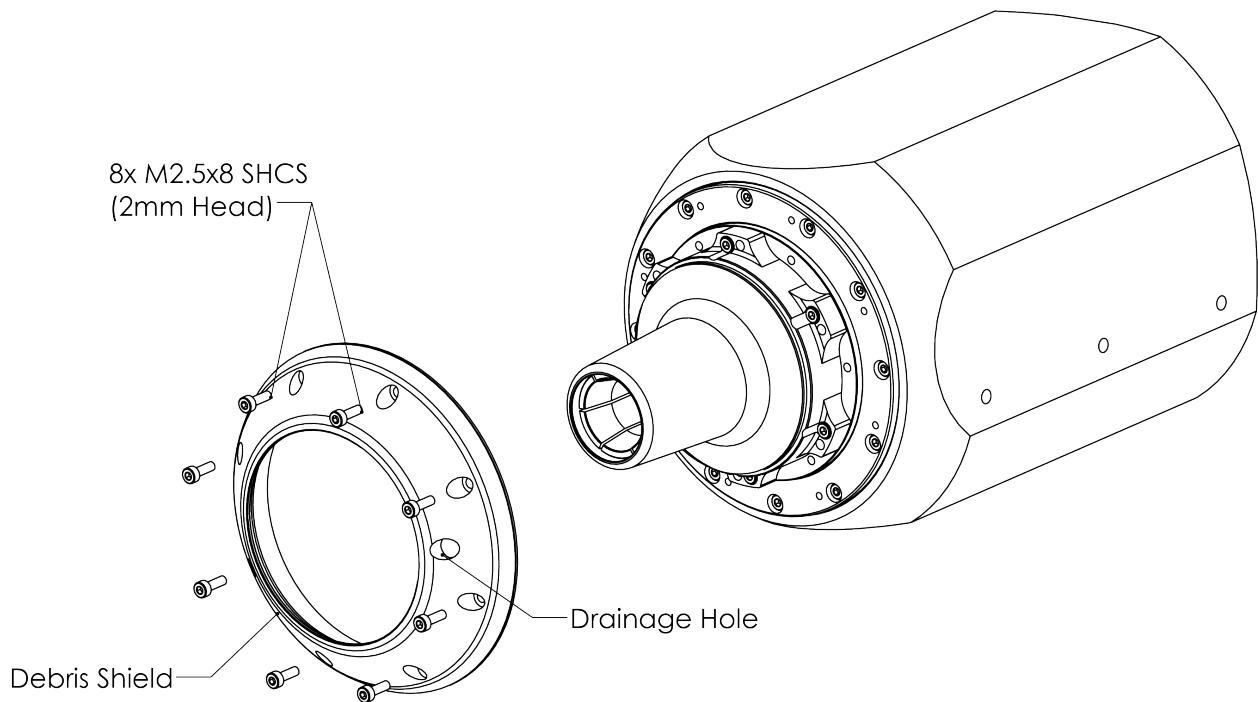
Warnings

- This service should only be performed under the guidance of a Griffin Motion representative.
- Do not attempt any maintenance beyond what is described in this document.
- Before starting any service, remove the collet.
- Do not use compressed air to clean the spindle.
- Do not service the 3CS unless you have read this entire manual.



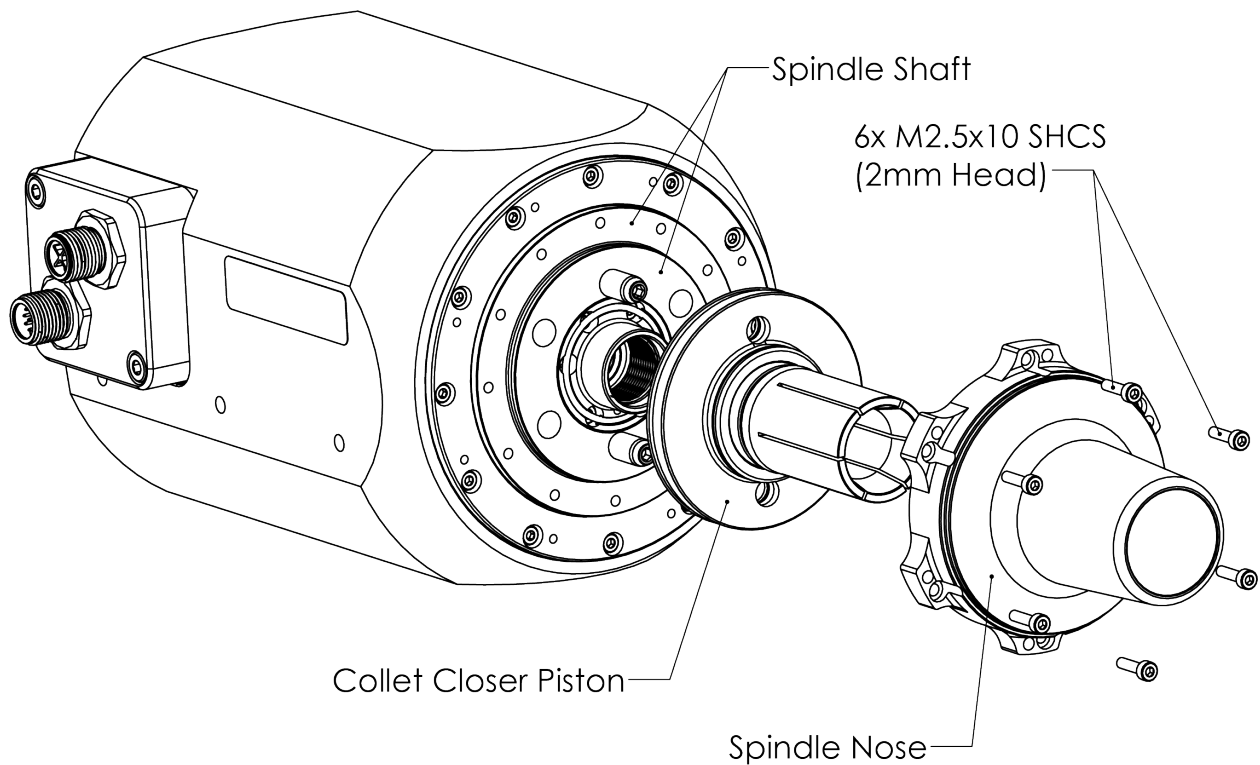
Disassembly

To begin servicing the 3CS spindle, first remove the debris shield from the front of the spindle. Start by unscrewing the eight M2.5-8 cap screws. Once removed, detach the debris shield from the spindle. Before proceeding, note the orientation of the drainage hole on the debris shield, as it may differ from the example shown below.



Disassembly

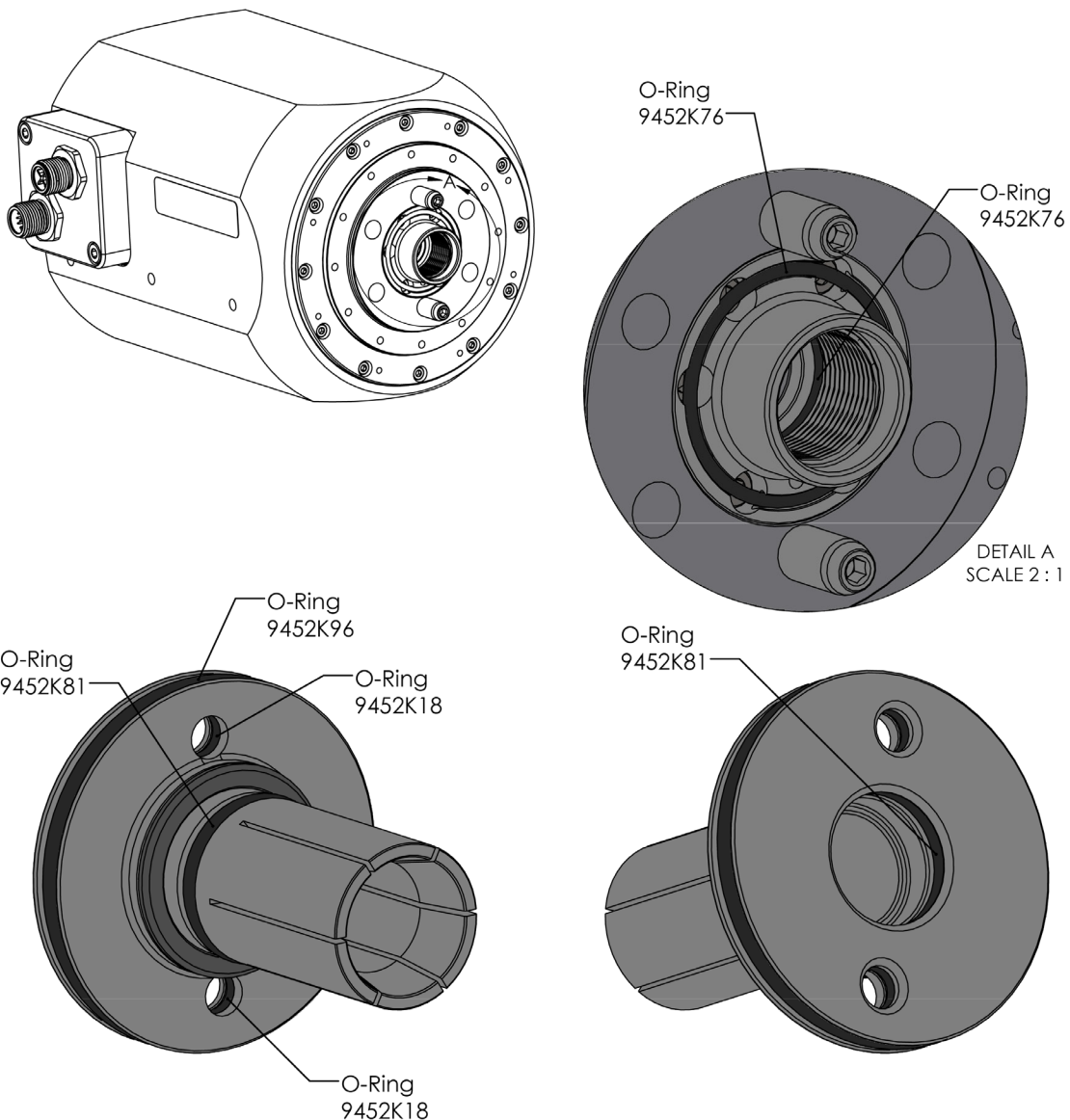
After removing the debris shield, remove the six M2.5-10 cap screws. The spindle nose may not detach immediately after removing the screws. To separate it, gently pull straight outward on the spindle nose. Avoid pulling at an angle, as this can cause misalignment and binding. With careful, controlled force, the spindle nose will detach. The collet closer piston can also be removed at this stage. This completes the disassembly process.



O-Rings

With the spindle nose disassembled, you can now access all seven O-rings. Use a non-marring pick tool, such as McMaster-Carr 53385A21, to carefully remove them. The images below show the McMaster-Carr part numbers for the replacement O-rings.

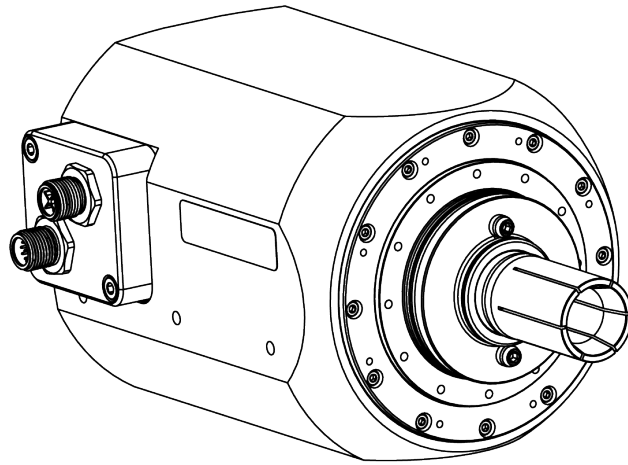
Before installing the new O-rings, apply a light coat of Parker O-Lube. Ensure each O-ring is fully seated before reassembly, using the non-marring pick tool if needed.



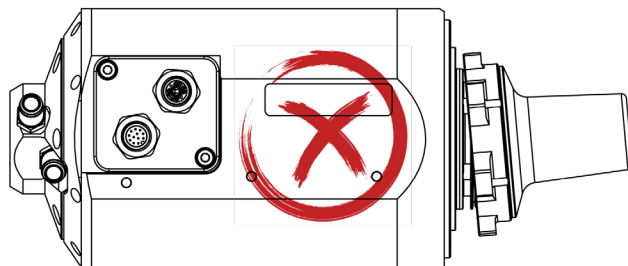
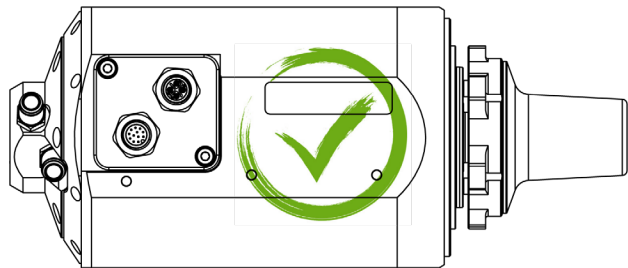
Reassembly

Before reassembly, ensure all exposed surfaces are clean. Check that the collet retaining threads (adjacent to 9452K76 in Detail View "A", page 4) are free of metal shavings and excess anti-seize lubricant. Use a lint-free wipe to remove any debris or excess lubricant.

Once clean, slide the collet closer piston back onto its guide pins. Ensure the piston moves freely in and out along the pins.

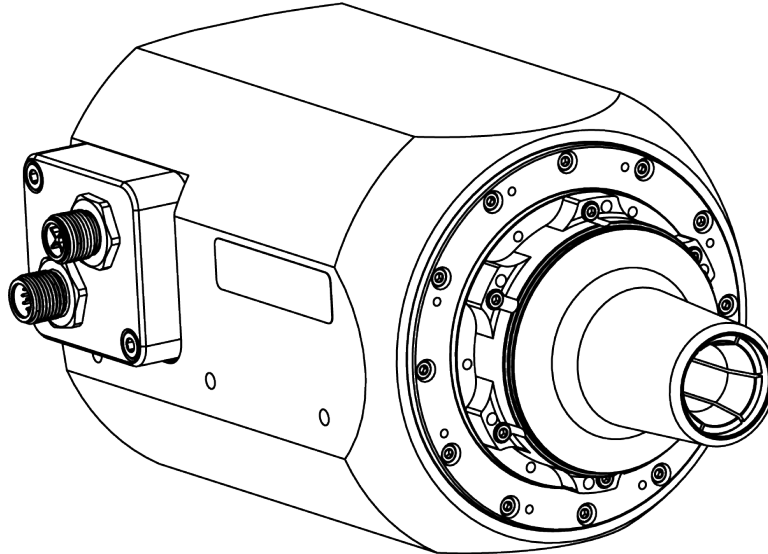


Place the spindle nose back over the collet closer piston, keeping it straight while applying light pressure. Keeping the collet nose straight during installation is paramount.

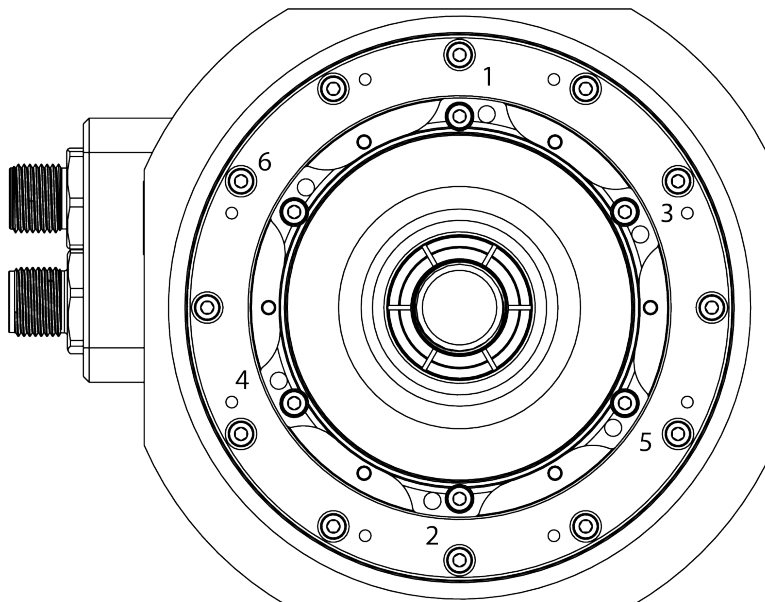


Reassembly

Once the nose is properly seated against the spindle shaft, loosely reinstall the six M2.5-10 cap screws, but do not tighten them yet.



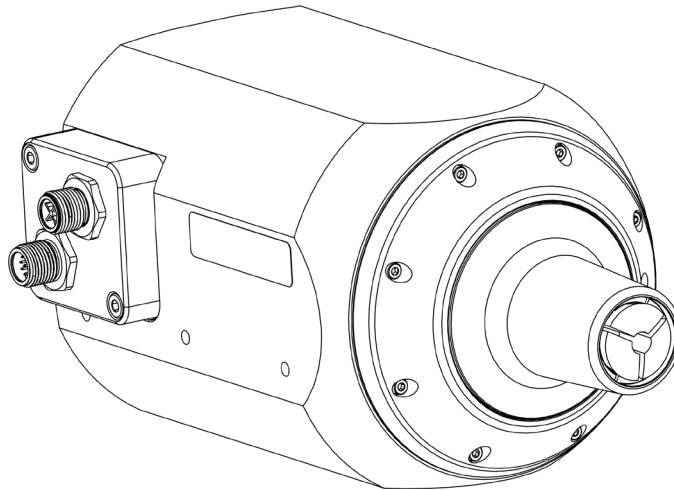
Gradually tighten the cap screws in an alternating sequence to ensure the spindle nose seats properly on the spindle shaft. Tighten the screws in several steps to ensure evenness. Once all screws have bottomed out, torque them to 5.0 in-lbs, maintaining the alternating pattern. An example of this sequence is shown below:



Reassembly

Once the spindle nose is torqued into place, slide the debris shield back into position, ensuring the drainage hole aligns as it was before disassembly. Using a similar alternating sequence, tighten the eight M2.5-10 screws until they bottom out. Then, torque each screw to 5.0 in-lbs, maintaining the alternating pattern.

This completes the O-ring service for the 3CS spindle.



Preventative Maintenance

To keep the 3CS spindle running like new between O-ring services, follow these maintenance practices:

1. Maintain Cleanliness – Regularly clean the spindle and its components to prevent debris buildup.
2. Prevent Standing Water – Ensure the spindle remains dry to avoid corrosion or contamination.
3. Ensure Proper Collet Lubrication – To minimize friction and wear, apply a thin layer of anti-seize (Loctite LB 8150) to the taper and threads of the 3C collet. Avoid excess lubricant, as buildup can affect the closer mechanism.