

Service Instructions for LCF™ Force Manager™ Series Gas Springs

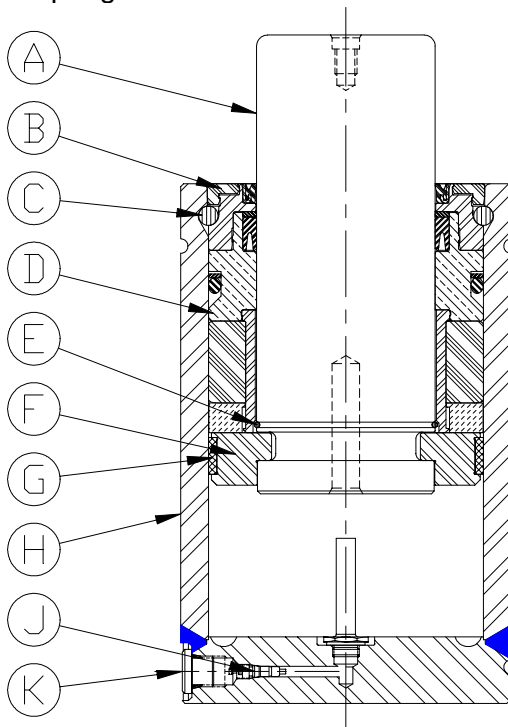
Hyson™ Products
Associated Spring 

Service Tools

Gas Spring Model	Seal Kit P/N	Tool Kit	Valve Tool	Service Gauge Assembly	Service Fitting
LCF-3000	LCFSK-3000	T2TK	T2TK-IN-G1/8	MGA-3000	T2-770-G1/8
LCF-5000	LCFSK-5000	T2TK			
LCF-7500	LCFSK-7500	T2TK			

Warnings

- Failure to exhaust all gas pressure prior to disassembly could result in serious injury.
- The maximum charging pressure is 150 bar (2175 psi).
- Once the cover screw is removed, never lean directly over the valve. Always direct the valve port away from yourself and others.
- Never use extreme force on the gas spring. Charged gas springs are under high internal pressure and should be protected from damage.
- To achieve maximum service life, keep the gas spring protected from dirt, drawing fluids, and grinding dust.
- Always use protective jaws when clamping the spring in a vise.



Discharging self-contained springs

1. Remove the charge port plug (K).
2. Close the bleed down valve on the MGA-3000 service gauge assembly. Thread the T2-770-G1/8 service fitting into the charge port. Attach the MGA-3000 to the T2-770-G1/8 to depress the valve. *Alternative method: Thread the T2TK-IN-G1/8 inlet valve tool into the charge port to depress the valve.*
3. To verify all pressure has been exhausted, manually depress the piston rod (A) into the cylinder (H) by striking the top of the rod with a rubber mallet.

Charging self-contained springs

1. Close the bleed down valve on the MGA-3000 service gauge assembly. Thread the T2-770-G1/8 service fitting into the charge port. Attach the MGA-3000 to the T2-770-G1/8.
2. Open the valve on the nitrogen bottle and slowly charge the spring to the desired pressure.
3. Close the valve to the nitrogen bottle. Disconnect the service gauge assembly and unscrew the service fitting from the spring.
4. Thread the charge port plug (K) into the port.

Disassembly

1. Verify all pressure has been exhausted from the spring by following the discharging instructions above.
2. Using the valve tool T2TK-IN-G1/8, unscrew the valve (J) from the valve port.
3. Using a socket and rubber mallet, tap the guide (D) into the cylinder tube (H) until the lock ring (C) is exposed. Remove the lock ring (C) using the lock ring tool. Bend the lock ring upwards and inwards.

4. Thread the T-handle into the top of the piston rod (A). Pull the rod/guide assembly out from the cylinder tube (H).
5. Remove the guide ring (G), piston halves (F) and guide from the piston rod (A).
6. Save the piston rod (A), the two piston halves (F) and the cylinder tube (H).

Inspection

7. Clean the piston rod (A), the piston halves (F) and the cylinder tube (H).
8. Visually inspect the piston rod (A) and cylinder tube (H) to ensure they are reusable. There should be no scratches or dents on the piston rod, the inside surface of the tube, or the lock ring groove. If defects exist, replace the parts.

Assembly

9. Unpack the seal kit.
10. Fit the piston halves (F) onto the piston rod (A) and secure in place with the guide ring (G).



Warning: The piston halves (F) must be installed on the piston rod (A) so the bottom of the piston halves are flush with the bottom of the piston rod. If there is a gap between the bottom of the rod and the bottom of the piston halves, the piston halves are installed upside down. Failure to install the piston halves correctly could result in serious injury.

11. Oil the seals on the guide (D) and insert the guide (D) onto the piston rod (A). **Note:** The smaller diameter end of the guide should be installed so it is facing upward (toward the top of the piston rod). The white plastic part should be towards the piston halves (F).
12. Lightly oil the inside diameter of the cylinder tube (H) to prevent damage to the o-ring on the guide.
13. Using the table below, fill the spring with the appropriate volume of oil.

Spring Model	Oil Volume
LCF-3000	30ml
LCF-5000	40ml
LCF-7500	60ml

14. Insert the piston/guide assembly into the cylinder tube (H). Tap down the guide (D) using a socket and rubber mallet.
15. Fit the lock ring (C) into the lock ring groove by pushing one end of the ring into the groove and knocking the other end with a mallet until it snaps into place. You can hear a clicking sound when the ring snaps into place.
16. Thread the T-handle into the piston rod and pull the piston rod/guide assembly upwards so the top of the guide is in line with the cylinder tube end.



Warning: If the guide cannot be pulled in line with the upper tube end, there is something wrong with the assembly. Gas should not be put into the spring until the guide is in line with the tube end.

17. Using the valve tool, thread the valve (J) into the valve port. **Note:** Finger strength is enough; do not over-tighten.
18. Charge the springs per the charging instructions above.
19. Thread the charge port plug (K) into the fill port and tighten with 133-159 in-lbs (15-18N·m) of torque. **Note:** The charge port plug (K) has a sealing function and must be tightly fastened.

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