KALLER®
The Safer Choice

SERVICE INSTRUCTION
8100-2003-B

Gas spring models

M2
MM2
MC3
MC3-SP

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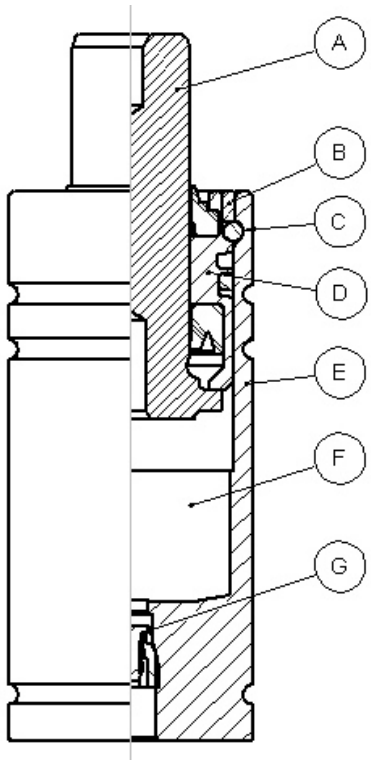
SERVICE INSTRUCTION



Please Note!

Actual gas spring design may appear different from that shown here.

A)	Piston rod	* = Parts included in the repair kit
B)*	Color coded ring	
C)*	Lock ring	
D)*	Guide	
E)	Tube	
F)*	Oil	
G)*	Valve	

⚠ Warning!

- Make sure to use the correct repair kit.
- Make sure the correct internal components are being used.
- Failure to exhaust all gas pressure prior to disassembling could result in serious injury.
- The maximum charging pressure is180 bar (2610 psi)
- Use only pure nitrogen gas (N_2) for charging.
- 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 against damage.
- Always use protective jaws when clamping the spring in a vice.
- To achieve maximum service life, keep the gas spring protected from dirt, drawing fluids, and grinding dust.
- Always wear protective equipment incl. safety goggles and rubber gloves, whilst servicing the gas spring in a well ventilated area. Avoid direct contact with gas spring lubricants and inhalation of any exhausting gases.
- Only specially trained personnel with good knowledge of the products should carry out the maintenance.

Disassembly

1) To obtain an easy working position, clamp the spring in a vice (use protective jaws). Clamp the gas spring with piston rod pointing downwards. Make sure not to damage the tube.
2) For MC3-SP, unscrew the cover screw on the tube using a 3 mm Allen key.
3) Empty all gas from the spring. Release it by screwing the threaded end of the valve tool into the gas port until the valve opens.

⚠ **Warning! The valve (G) must not be unscrewed until the piston rod can be pushed down by hand or with a rubber mallet.**

Once the gas is released use the opposite end of the valve tool to unscrew the valve. Pull the valve from the port with a pair of needle nose pliers.

4) Reposition the spring in the vice so the piston rod (A) points upward. Note: Oil will drain from the bottom of the spring. Tap the guide (D) into the tube, using a socket and rubber mallet, until the lock ring (C) is exposed. Remove the color coded ring (B) which becomes loose during the procedure.
5) Remove the lock ring (C) using the lock ring tool.

⚠ **Warning! The lock ring could fly out, be sure to wear safety goggles.**

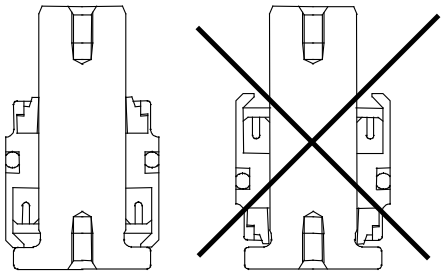
6) Pull out the piston rod (A) and the guide (D), using the piston rod removal tool (4017910).
7) Remove the tool from the piston rod (A). Remove the guide (D) from the piston rod (A).
8) Save the piston rod (A) and the tube (E).

Inspection

9) Thoroughly clean the tube and the piston rod.
10) Closely inspect the piston rod and the cylinder tube. There should be no scratches or dents on the inside surface of the tube or on the piston rod. If these parts are scratched or damaged in any way, then the gas spring cannot be repaired and has to be replaced.

Assembly

11) Unpack the repair kit. Make sure the correct repair kit is being used.
12) Using the valve tool fit the valve (G) into the charging port. Finger strength is enough to tighten the valve.
13) Clamp the tube (E) in a vice with the opening upwards
14) Fit the guide (D) on the piston rod (A) so that the small diameter of the guide is positioned toward the top of the piston rod (see picture below).



Correct **Incorrect**

15) Oil the inside of the upper tube end to prevent damage to the guide O-ring.
16) Fill the tube with 2 ml oil.
    Note! Be careful not to apply too much oil since that may lead to high gas pressure increase.
17) Insert the piston rod with guide into the tube. Tap down the guide (D) using a socket and rubber mallet until the lock ring groove is exposed
18) Fit the lock ring (C) into the groove in the tube by pushing one of the lock ring ends into the groove, steadying it with your thumb and then hit the ring inwards until it snaps into the groove. You can hear a clicking sound when the ring snaps into position.
19) Pull out the piston rod (A) and the guide (D) using the piston rod removal tool (4017910). Pull until the guide stops against the lock ring (C).
    If the guide not will stay up, there is vacuum inside the gas spring. Eliminate this vacuum by temporarily opening the valve (G) with the valve tool.

⚠ **Note! Check to make sure the top edge of the guide is flush with the upper edge of the tube. If it is not flush, the guide is not fit correctly.**
DO NOT charge the spring if the guide is not in the correct position. Charging an incorrectly assembled spring could result in serious injury.

20) Oil and fit the color coded ring (B) so it snaps into to the groove in the guide.

Charging

For gas charging see Gas Charging Instruction 8200-1873 available at kaller.com