I. Exhausting Pressure

1. Stand the gas spring upright.
2. Remove valve using the Port Servicing Tool (90.285.x).
3. Replace the damaged valve.
4. Check the port for debris or burrs and clean thoroughly.
5. Slowly open the shut-off valve and allow gas spring to reach the desired charging pressure. After the gas spring has been charged, close the desired pressure. CLOSE THE HOSE SHUT-OFF VALVE AND THE TANK SHUT-OFF VALVE.

II. Port Maintenance

1. Generally the valve does not need replacing, but the valve appears damaged, a leaking pressure, or sticking, proceed to "II. Port Maintenance".
2. Unthread the service fitting and wipe with a clean cloth to absorb discharge.
3. Once the cartridge and rod are removed from the Tube Assembly, To clean any scratches or gouges.
4. Inspect the finish of the rod for any scratches or gouges, if the rod is damaged it must be replaced. If present, the thread area of the rod must be replaced with a new one. The rod should remain in place.

III. C-Ring Removal

1. Stand the gas spring upright. Make sure the rod is retracted.
2. Reposition the Removal Sleeve and continue reaming until the rod cartridge assembly is slightly below the Retaining Ring groove. DO NOT force the cartridge down further into the Tube Assembly.
3. Remove the C-style Retaining Ring (90.285.x) using a C-Ring Removal Tool (90.310.040 or 90.310.045). Position the correct hooked end of the C-Ring Removal Tool below the o-ring. For best results locate the bolt hole either end of the o-ring.
4. After all of the gas pressure is exhausted, be sure that the piston rod will freely extend and the cartridge valve to relieve any nitrogen trapped between the rod and carriage assembly.
5. Choose the appropriate repair kit (90.260.x) or (90.285.x) for the specific model you are repairing. The repair kit number is laser marked on the back of the tube assembly.
6. Use the Assembly Cap (90.320.105) to drive the rod and cartridge assembly into the tube assembly.

IV. Rod & Cartridge Removal

1. To remove the Cartridge Assembly, Thread a TriDrive (90.335.x) into the rod end.
2. Align the control panel. To release the remaining pressure.
3. Once the cartridge and rod are removed from the Tube Assembly, slide the cartridge off the end of the tube. Remember not for inspection and possible reuse.
4. Lightly polish the rod surface with an emery cloth (600 grit). Inspect the finish of the rod for any scratches or gouges. If the rod is damaged it must be replaced. If present, the thread area of the rod must be replaced with a new one. The rod should remain in place.
5. Inspect the Tube Assembly for any damage, especially around the mouth of the Tube Assembly. Polish out any scratches at the mouth of the tube assembly to assure a proper seal. Once the rod is retracted, inspect for proper retraction.
6. Wash, clean and dry the interior of the Tube Assembly thoroughly.

V. Cleaning & Inspection

1. To remove the Cartridge Assembly, Thread a TriDrive (90.335.x) into the rod end.
2. Pull the entire assembly out of the tube. Depress the cartridge up to relieve any back pressure.
3. Once the cartridge and rod are removed from the Tube Assembly, slide the cartridge off the end of the tube. Remember not for inspection and possible reuse.
4. Slowly open the shut-off valve and allow gas spring to reach the desired charging pressure. After the gas spring has been charged, close the desired pressure.

VI. Cartridge Replacement and Reassembly

1. Choose the appropriate repair kit (90.260.x) or (90.285.x) for the specific model you are repairing.
2. Thread Assembly Core (90.315.x) into rod. Slide Stand (90.310.045) into rod. Use the Assembly Cap (90.320.105) to drive the rod and cartridge assembly into the tube assembly.
3. While holding the cartridge, slowly turn the Assembly Cap to drive the cartridge down the rod. Be careful not to bend the cartridge at an angle on the rod to prevent excessive damage.
4. Lubricate the inside wall of the tube with entire contents of the bottle of assembly oil.
5. Place the rod and cartridge assembly into the spring. To release any trapped nitrogen, depress the cartridge valve.
6. Position the top of the cartridge just below the retaining ring groove. The assembly cap is designed to locate the cartridge in this position.
7. Insert the C-Style Retaining Ring (90.250.x) in the retaining ring groove using a DADCO C-Ring Installation Tool (90.335.x, 90.310.045 or 90.310.040) to the charging nipple. The DADCO Pressure Analyzer (90.313.x) can also be used for charging, tightening and gauging the pressure.
8. Thread TriDrive (90.335.x) into the end of the piston rod. Pull up in the TriDrive until the top of the cartridge is past the port. The rod must seat cartridge assembly into the spring. To clean any scratches or gouges, if the rod is damaged it must be replaced. If present, the thread area of the rod must be replaced with a new one. The rod should remain in place.

VII. Charging

1. Thread the Quick Disconnect Charging Nipple (90.310.x) into the port of the gas spring. Connect the female end of the Charging Assembly (90.310.045) or (90.310.040) to the charging nipple. The DADCO Pressure Analyzer (90.313.x) can also be used for charging, tightening and gauging the pressure.
2. To decrease gas spring pressure, depress the valve stem using a Valve Bleed Tool (90.310.045) or an arbor press.
3. Open the main valve on the nitrogen tank.
4. NOTE: For best results, use the DADCO Charging Assembly which has a shut off valve and a quick disconnect charging nipple at the end of the hose.
5. Insert the charging hose from the charging nipple. The small amount of nitrogen trapped between the shut off valve and filler valve will bleed off as you disconnect the filling.
6. Check for leaks at the top of the tube around the rod and the base around the valve compartment using a soapy solution or water.
7. Verify the pressure with a DADCO Load Cell using a Portable Test Stand (90.305.3) or an arbor press.
8. Slowly open the shut-off valve and allow gas spring to reach the desired charging pressure.
9. Once the hooked end of the o-ring is firmly seated below the o-ring, begin pushing it toward the outside of the gas spring can. The handle will close naturally, and the o-ring will be retracted as you complete this motion.
10. Make sure the valve is securely over top.
11. Make sure the valve is securely over top.
12. Thread the Quick Disconnect Charging Nipple (90.310.x) into the port of the gas spring. Connect the female end of the Charging Assembly (90.310.045) or (90.310.040) to the charging nipple. The DADCO Pressure Analyzer (90.313.x) can also be used for charging, tightening and gauging the pressure.

VIII. Adjusting Gas Spring Pressure

1. Choose the appropriate repair kit (90.260.x) or (90.285.x) for the specific model you are repairing.
2. Thread Assembly Core (90.315.x) into rod. Slide Stand (90.310.045) into rod. Use the Assembly Cap (90.320.105) to drive the rod and cartridge assembly into the tube assembly.
3. While holding the cartridge, slowly turn the Assembly Cap to drive the cartridge down the rod. Be careful not to bend the cartridge at an angle on the rod to prevent excessive damage.
4. The cartridge is now below the Assembly Cone. Remove Assembly Cone from the rod.
5. Place the rod and cartridge assembly into the spring. To release any trapped nitrogen, depress the cartridge valve.
6. Position the top of the cartridge just below the retaining ring groove. The assembly cap is designed to locate the cartridge in this position.
7. Insert the C-Style Retaining Ring (90.250.x) in the retaining ring groove using a DADCO C-Ring Installation Tool (90.335.x, 90.310.045 or 90.310.040) to the charging nipple. The DADCO Pressure Analyzer (90.313.x) can also be used for charging, tightening and gauging the pressure.
8. Thread TriDrive (90.335.x) into the end of the piston rod. Pull up in the TriDrive until the top of the cartridge is past the port. The rod must seat cartridge assembly into the spring.
Nitrogen Gas Spring Maintenance Instructions

90.8 / 90.10 / 90.10RX / 90.5B2 Series

Please Note: Nitrogen Gas Spring repair varies slightly from model to model and by mode of operation (self-contained or linked). As you proceed through the basic steps outlined in this bulletin, take care to follow the instructions pertaining to your model. All DADCO Nitrogen Gas Springs are permanently marked with model and serial number. Please refer to those numbers when performing repair work and when ordering replacement parts.

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Comprehensive Guide
This service manual is a simple step-by-step maintenance guide for DADCO Nitrogen Gas Spring models including the 90.8, 90.10, 90.10RX and 90.5B2 Series.

Proper repair requires careful examination of all component parts and replacement of any that are worn or damaged. All DADCO replacement parts are available from factory stock.

Typically, DADCO Nitrogen Gas Springs can be rebuilt in less than ten minutes by replacing only one part, the factory pre-assembled cartridge assembly.

After reviewing this maintenance guide, if you require any additional training or have any questions please contact DADCO for assistance.

Repair Tools

Cartridge Starter Kit
90.335.
(00500, 00750, 01500, 03000, 05000, 07500, 10000)
The Cartridge Starter Kit includes an Assembly Cap and an Assembly Cone. The Assembly Cone is used to start the cartridge assembly onto the rod without damaging the seal, the Assembly Cap is used to set the cartridge at a proper depth for C-Ring installation.

C-Ring Installation Tool
90.352 (00500 – 03000 Models)
To insert the C-style retaining ring into the retaining ring groove.

T-Handle
90.320.2 – M8 thread
90.320.10 – M10 thread
To remove the piston rod when disassembling and position correctly when reassembling.

Valve Bleed Tool
90.365.4
Use the DADCO Valve Bleed Tool to slowly discharge a spring to the desired pressure.

Port Servicing Tool
90.325.8
To perform all necessary servicing to the valve compartment.

Quick Disconnect Charging Nipple
90.310.111 (5 1/8
Use the DADCO Quick Disconnect Charging Nipple to charge Nitrogen Gas Springs.

Standard Load Cell
90.305.
(00500, 00750, 01500, 03000, 05000, 07500, 10000)
The Standard Load Cell gives precise measurement of gas spring charging pressure. Each model requires its specified load cell. Load cells for 00500 – 07500 Models may be used with the Portable Test Stand; the load cell for the 90.10.10000 may be used with an arbor press. For more information, request bulletin B18113.

Portable Test Stand
90.305.3
Use the Portable Test Stand in conjunction with a Standard Load Cell for precise measurement of gas spring force. For more information, request bulletin B181132.

DADCO Pressure Analyzer
90.315.5
Use the DADCO Pressure Analyzer to easily charge, discharge, and gauge the pressure in DADCO’s Nitrogen Gas Springs.

Charging Assembly
90.310.040
Use the DADCO Quick Disconnect Charging Assembly with the Charging Nipple or Pressure Analyzer to charge self-contained gas springs. The 90.310.040 can also be used with a DADCO control panel for charging linked systems.

Removal Sleeve
90.390
(00500, 00750, 01500, 03000, 05000, 07500, 10000)
To position the cartridge below the C-ring groove when assembling or disassembling a gas spring.

C-Ring Removal Tool
90.355
(00500 – 03000 Models)
To remove the C-style retaining ring from the retainer ring groove.

C-Ring Installation Tool
90.352 (00500 – 07500 Models)
To insert the C-style retaining ring into the retaining ring groove.

C-Ring Installation Tool
90.355 (00500 – 03000 Models)
To insert the C-style retaining ring into the retaining ring groove.

Cartridge Valve
90.265
To remove the Cartridge Valve from the valve compartment.

Compact Valve
90.265
To remove the Compact Valve from the valve compartment.

Port Adapter
90.505.110
To remove the Port Plug from the valve compartment.

Port Plug
90.505.110
To remove the Port Plug from the valve compartment.

Self-Contained
The Self-Contained retainer wear ring, piston rod safety ring, and rod guide are included in the Cartridge Assembly.

*Included in the Repair Kit
**Included in the Cartridge Assembly
*Included in the Repair Kit
**Included in the Cartridge Assembly

Pressure Compartment®