

# **2003 SERVICE MANUAL**

**MANITOU Q  
MANITOU QR  
MANITOU QL**

**PN 85-4420, REV NC**

# 03 Q SHOCK SERVICE MANUAL INDEX

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## INTRODUCTION

This manual is intended to guide the user through basic service of Manitou Q rear shocks. Service is supported by the identification of common parts and assemblies that have been assembled into Service Kits. The purpose of this manual will be to describe conditions that may drive the need for service and to provide installation instructions for the kits.

Due to the time-consuming nature rear shock service, at this time our primary focus is to offer service kits that minimize the amount of downtime and labor involved. As the program matures, and we are able to gather feed back from our customers, we may offer kits to a more detailed level.

**GENERAL WARNING: Rear shocks by design contain gases and fluids under extreme pressure and warnings contained in this manual must be observed to reduce the possibility of injury or possible death. Following these instructions can help you reduce the risk of being injured. Any questions in regards to the information in this manual should be directed to Answer Products Customer Service at (661) 257-4411.**

**CAUTION: The Q Shock uses compressed air to provide fluid pressure in the damping system and spring resistance. These systems must be relieved of pressure prior to servicing. Failure to relieve air pressure could result in injury or possible death.**

**CAUTION: The Q Shock uses precision machined aluminum and other soft alloy components. Using correct tools for assembly is essential to prevent damage.**

## SETUP, TUNING, PERIODIC MAINTENANCE

Instructions for shock setup, tuning, and periodic rider maintenance is not covered in detail in this manual. Please refer to the Manitou Q Rear Shock Owner's Manual (PN 042102) for that information. If you did not receive a manual, you can download one at [www.answerproducts.com](http://www.answerproducts.com) or contact Answer Products Customer Service at (661) 257-4411.

## **COMPLETE SHOCK LESS SPACERS - See Kit B**

The highest-level kit offered will be a complete shock, without spacers (mounting hardware) or a Damper body without air canister. These kits are offered as a fast replacements where all that is need is to change out the spacers or damping unit.



## **SPACER REMOVAL AND INSTALLATION- (See Kit D)**

Spacers, sometimes called mounting hardware, are used to mount shocks to the various frame configurations. Over time, spacers may wear between the mounting bolts or DU Bushing which will result in play in the connection.

Remove spacers using pliers as shown in Figure 1



Figure 1

DU Bushing Eyelet

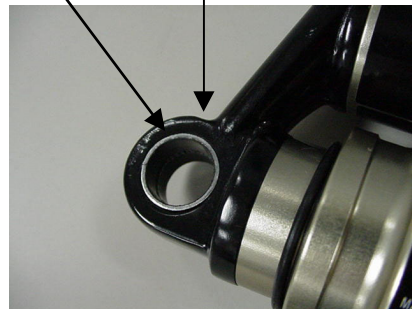





Figure 2

## **SPACER REPLACEMENT**

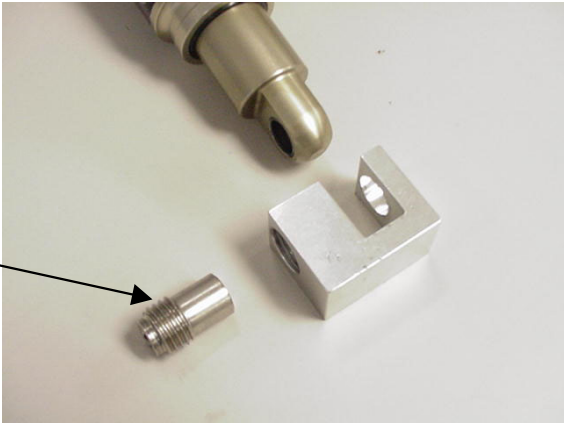
Spacers should have a slight press fit into the DU bushing and can be tapped in place with a rubber mallet or soft jaws in a vise. Apply a small amount of thick grease such as Motorex Bike Grease 2000 (PN 85-0033) to the spacer before installation.

There are virtually an infinite number of spacer combinations in use on bikes today. When ordering spacers from Answer Products, It will be necessary to identify the eyelet width, overall width and mounting hole diameter.

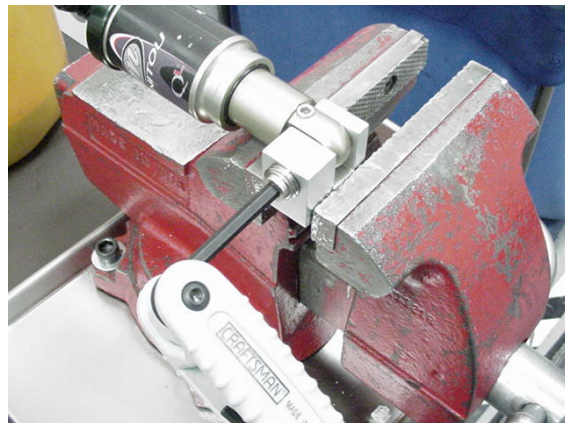
<p>1. Measure the eyelet width.</p> 	<p>2. Measure hole size. Current spacers are designed to accept a 6mm or 8mm fastener.</p> 
<p>3. Measure eyelet width.</p> 	

**DU BUSHING REMOVAL AND INSTALLATION - See Kit E**

DU bushings are press fit into the shock eyelets at each end of the shock. The spacers fit into the bushings and will rotate slightly within the bushing during suspension compression. DU Bushings, like spacers, may wear over time. Removal and installation is accomplished using tool PN 85-6075.

<p><b>REMOVAL</b></p> <ol style="list-style-type: none"> <li>1. Remove spacers from the shock.</li> <li>2. Insert unthreaded end of punch into the removal tool first and screw in about half a turn.</li> </ol>	
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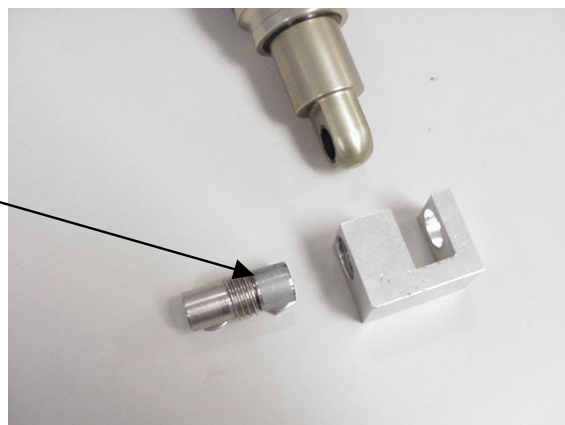
3. Clamp removal tool in vise.
4. Insert eyelet into tool.
5. Use 6mm hex wrench to screw in punch, making sure that it is centered on the bushing. This will press out the bushing.



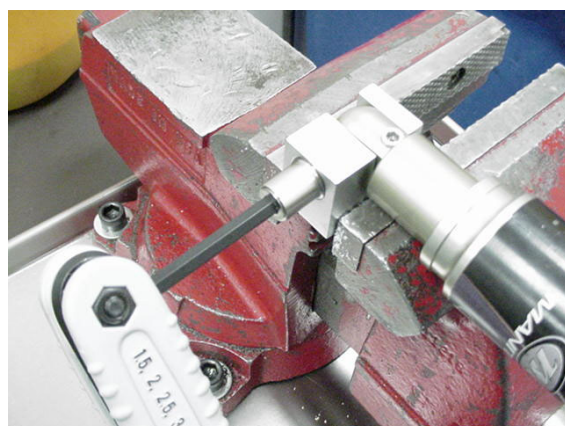
#### INSTALLATION

1. Place a bushing onto the threaded end of the punch and into the removal tool; screw in about half a turn.

Bushing



2. Clamp removal tool in vise.
3. Insert eyelet into tool.
4. Use 6mm hex wrench to screw in punch, making sure that it is centered on the bushing and that the bushing is centered to the eyelet. This will press in the bushing.



## AIR CANISTER – See Kit A

**WARNING:** The Swinger Air uses compressed air to provide resistance to compression in place of a coil spring. You must be certain that the air canister is relieved of all pressure prior to servicing the air system. Failure to relieve air pressure could result in injury or possible death.

Failure of an air shock to maintain air pressure is usually the result of defective or worn seals. If there is suspicion of an air leak, the location can be isolated by spraying the air canister joints with a mild solution of dish soap and water. Bubbles will form in from the area of leakage. You can also immerse the shock in water to locate the leak.

Sealing of the shock is accomplished through a series of o-rings, quad seals, and wipers. When the air canister is removed, these seals can be replaced from Seal Kit C.

Seal Descriptions:

O-Rings: Black synthetic rubber with a round cross section. Used for fluid sealing.

Quad Seals: Black synthetic rubber with an "X" cross section, used for sealing air.

Wipers: White Teflon, used for keeping debris out of quad seals.

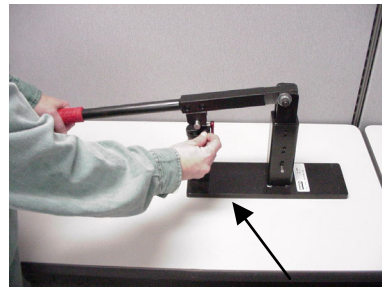
1. For leaks at the adjuster eyelet or damper end of the air canister, refer to the detailed disassembly instructions below.
2. For leaks at the Schrader valve, release all air pressure and replace the Schrader valve core or assembly as needed.
3. If when you pressurize the air canister the shock collapses to its shortest travel position, the shock has an air piston leak into the negative chamber. Place the shock in the shock tester and extend it to its full travel. Depress the adjuster eyelet Schrader while the shock is extended under load. If it remains in the full travel position, refer to the detailed disassembly instructions below for instructions on servicing the air canister and piston seals.
4. If the shock returns to the short travel position, it is not serviceable and the entire shock must be replaced.

**WARNING:** Attempting to service a shock with this condition could result in injury or possible death.

Adjuster Eyelet Schrader



Shock in Shortest Travel Position



Extend to long travel and depress the air canister Schrader Valve

## AIR CANISTER REMOVAL AND SEAL SERVICE

1. **Release All air pressure from air canister.** Remove spacers as shown under **SPACER REMOVAL AND INSTALLATION.**

Air release Schrader valve



2. Place adjuster eyelet in a vise using soft jaws. Using a rubber strap wrench to prevent damage, loosen the air canister completely



3. Slide air canister away from the canister eyelet and remove.

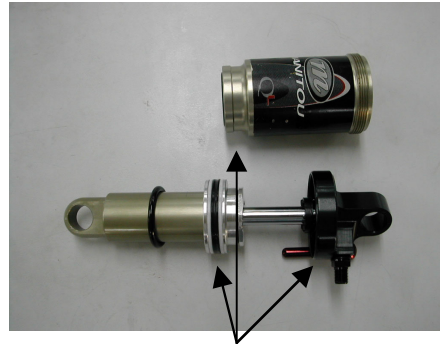
**WARNING:** Do not remove the damper cap. The damper system is under extreme pressure. Removal of the damper cap without releasing damper system pressure will result in the possibility of injury or possible death.





## AIR CANISTER REMOVAL AND SEAL SERVICE (CONT.)

4. Replace o-rings, seals, and wipers in the air canister and air piston. Air Canister Kit A will have new seals installed as part of the kit. Also replace the o-ring inside the canister eyelet.



O-Ring, Seal, Wiper Locations

5. Lightly grease the air piston, damper body, air canister seals, and inside the air canister with a thick grease such as Motorex Bike Grease 2000.



6. Slide air canister over the damper body.



7. Lightly grease the air canister threads and inside the canister. Screw the air canister into the canister eyelet. Due to pressure in the damping system, it may be difficult to compress the shock enough to thread the canister onto its eyelet. If necessary, the shock test fixture can be used.



## **DAMPING SYSTEM BLEEDING**

**CAUTION: The Q Shock uses compressed air to provide fluid pressure in the damping system and spring resistance. These systems must be relieved of pressure prior to servicing. Failure to relieve air pressure could result in injury or possible death.**

Air canister removal requires special tooling and training for service that is unavailable at this time. In cases where it is suspected that there is air in the damper or the damper body is leaking oil, use the applicable Damper Body Kit to replace the suspect damper.

### 03 Q Rear Shock Service Kits

Kit Description Detail	Kit	Answer Kit Part Number
Air Canister, Regular Mount 32mm Travel	A	85-6035
Air Canister, Regular Mount 38mm Travel	A	85-6036
Air Canister, Regular Mount 50mm Travel	A	85-6037
Q Shock, No Spacers, 152mm Eye to Eye, 32mm Travel, 45' Valve	B	85-5400
Q Shock, No Spacers, 165mm Eye to Eye, 38mm Travel, 45' Valve	B	85-5401
Q Shock, No Spacers, 190mm Eye to Eye, 50mm Travel, 45' Valve	B	85-5402
Q Shock, No Spacers, 200mm Eye to Eye, 50mm Travel, 45' Valve	B	85-5403
QR Shock, No Spacers, 152mm Eye to Eye, 32mm Travel, 45' Valve	B	85-5404
QR Shock, No Spacers, 165mm Eye to Eye, 38mm Travel, 45' Valve	B	85-5405
QR Shock, No Spacers, 190mm Eye to Eye, 50mm Travel, 45' Valve	B	85-5406
QR Shock, No Spacers, 200mm Eye to Eye, 50mm Travel, 45' Valve	B	85-5407
QL Shock, No Spacers, 152mm Eye to Eye, 32mm Travel, 45' Valve	B	85-5408
QL Shock, No Spacers, 165mm Eye to Eye, 38mm Travel, 45' Valve	B	85-5409
QL Shock, No Spacers, 165mm Eye to Eye, 38mm Travel, 30' Valve	B	85-5410
QL Shock, No Spacers, 190mm Eye to Eye, 50mm Travel, 45' Valve	B	85-5411
QL Shock, No Spacers, 200mm Eye to Eye, 50mm Travel, 45' Valve	B	85-5412
Damper Body, Q Shock, 152mm Eye to Eye, 32mm Travel, 45' Valve	B	85-6039
Damper Body, Q Shock, 165mm Eye to Eye, 38mm Travel, 45' Valve	B	85-6040
Damper Body, Q Shock, 190mm Eye to Eye, 50mm Travel, 45' Valve	B	85-6041
Damper Body, Q Shock, 200mm Eye to Eye, 50mm Travel, 45' Valve	B	85-6042
Damper Body, QR Shock, 152mm Eye to Eye, 32mm Travel, 45' Valve	B	85-6044
Damper Body, QR Shock, 165mm Eye to Eye, 38mm Travel, 45' Valve	B	85-6045
Damper Body, QR Shock, 190mm Eye to Eye, 50mm Travel, 45' Valve	B	85-6046
Damper Body, QR Shock, 200mm Eye to Eye, 50mm Travel, 45' Valve	B	85-6047
Damper Body, QL Shock, 152mm Eye to Eye, 32mm Travel, 45' Valve	B	85-6049
Damper Body, QL Shock, 165mm Eye to Eye, 38mm Travel, 45' Valve	B	85-6050
Damper Body, QL Shock, 165mm Eye to Eye, 38mm Travel, 30' Valve	B	85-6051
Damper Body, QL Shock, 190mm Eye to Eye, 50mm Travel, 45' Valve	B	85-6052
Damper Body, QL Shock, 200mm Eye to Eye, 50mm Travel, 45' Valve	B	85-6053
Seal Kit	C	85-6054
Spacers - *(Contact Answer for correct mounting hardware part numbers)	D	*
DU Bushing Kit - *(Contact Answer for correct mounting hardware part numbers)	E	*
Sticker Kit, Q 152mm Eye to Eye	F	85-6077
Sticker Kit, Q 165mm Eye to Eye	F	85-6080
Sticker Kit, Q 190/200mm Eye to Eye	F	85-6083
Sticker Kit, QR 152mm Eye to Eye	F	85-6078
Sticker Kit, QR 165mm Eye to Eye	F	85-6081
Sticker Kit, QR 190/200mm Eye to Eye	F	85-6084
Sticker Kit, QL 152mm Eye to Eye	F	85-6079
Sticker Kit, QL 165mm Eye to Eye	F	85-6082
Sticker Kit, QL 190/200mm Eye to Eye	F	85-6085
DU Bushing Tool	H	85-6075
Air Shock Compression Fixture	H	85-3008

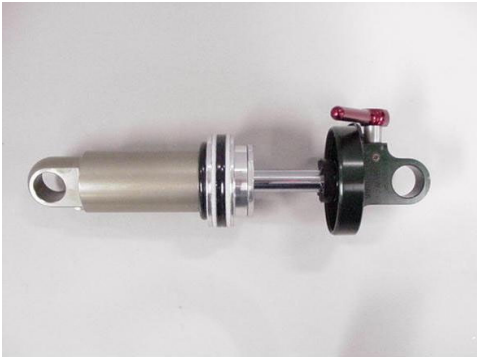
### 03 Q Rear Shock Service Kits - Description



**A - Air Canister**



**B - Q Shock, No Spacers**



**B- Q Shock Damper Body**



**C - Seal Kit**



**D - Spacers**



**E - DU Bushing Kit**



**F - Sticker Kit**



**H - DU Bushing Tool**

