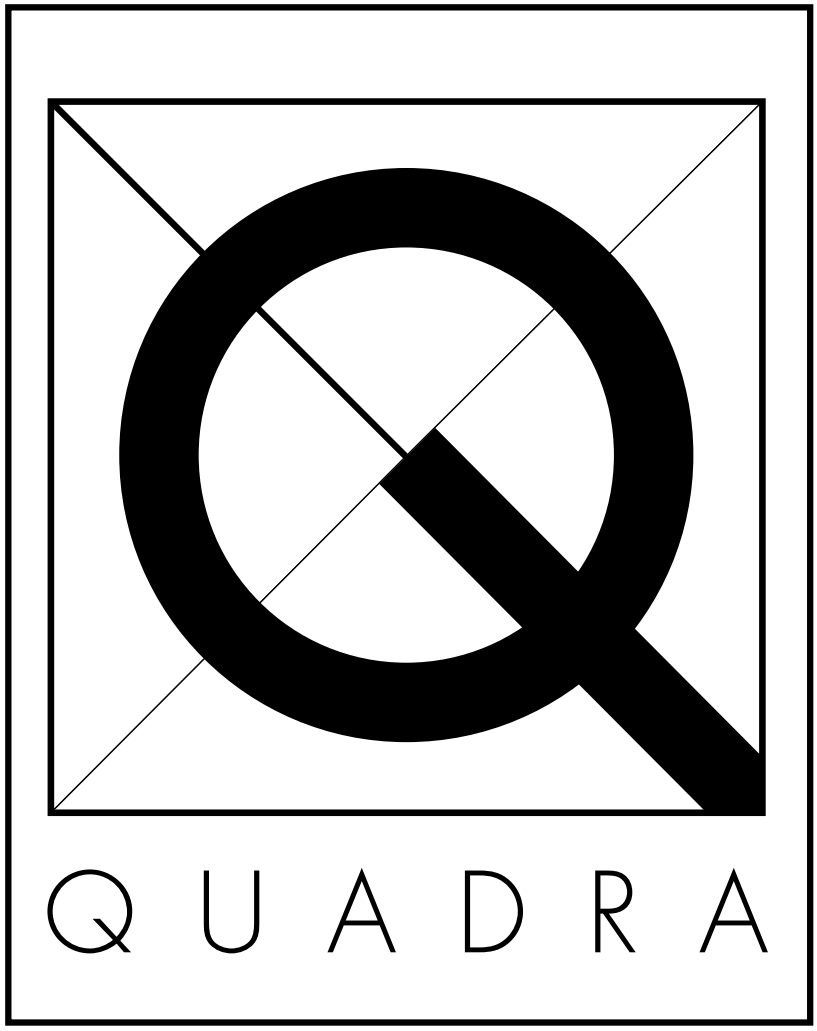


SERVICE MANUAL

ROCK SHOX
1996 Quadra 5 and Quadra 21R
1995 Quadra 5, Quadra 21 and Quadra 21R;
1994 Quadra 10 and Quadra 21;
1993 Quadra
SUSPENSION FORKS

RockShox, Inc. 1.800.677.7177

INTRODUCTION

ROCK SHOX QUADRA – To service Quadra forks, you must determine which year and model of Quadra you are servicing. Please refer to the chart below for assistance in identifying the fork you are working on.

QUADRA IDENTIFICATION GUIDE

MODEL / YEAR	CROWN	PRELOAD ADJUSTER	FORK BRACE
'93 Quadra	BLK,PRESSED ON	HEX KEY	BLACK ALUM
'94 Q10	PRESSED ON	HEX KEY	BLACK ALUM
'94 Q21	CLAMP ON	HAND ADJUST	BLACK ALUM
'95 Q5	PRESSED ON	HEX KEY	STAMPED STEEL/BLK ALUM
'95 Q21	PRESSED ON	HAND ADJUST	GRAY ALUM
'95 Q21R	CLAMP ON	HAND ADJUST	YELLOW MAG
'96 Q5	PRESSED ON	HAND ADJUST	BLACK ALUM
'96 Q21R	PRESS ON (OE), CLAMP ON (DI)	HAND ADJUST	YELLOW ALUM

REQUIRED TOOLS

COMMON HAND TOOLS:

- Small tip internal snap ring pliers
- Small tip external snap ring pliers
- 4 mm hex key
- 5 mm hex key
- 8 mm hex key
- 8 mm open end wrench
- Soft face mallet
- Precision calipers, 6"
- Safety glasses
- 3/8" socket drive extension (6" long, minimum)
- 5mm long hex 3/8" drive socket
- 3/8" drive ratchet
- Small flat-blade screwdriver
- 3/8" drive torque wrench
- 22mm socket (3/8" drive) or open end wrench

ROCK SHOX TOOLS:

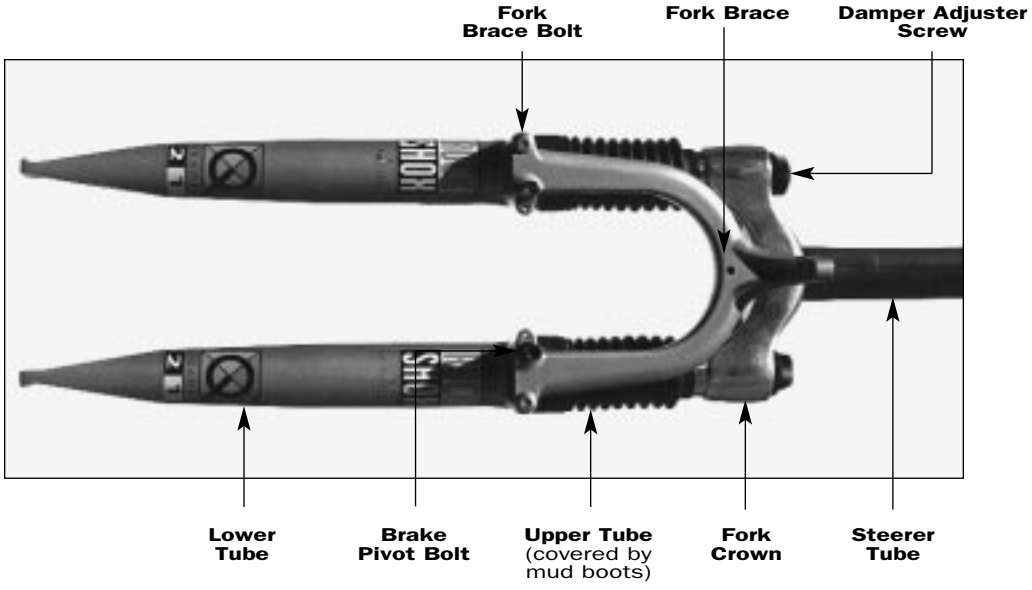
- Quadra 5/10/21 bushing removal tool (p.n. 70106)
- Quadra 5/10/21 bushing installer tool (p.n. 70108)
- Upper tube clamping blocks (p.n. 70101)
- Seal puller (p.n. 70113)
- Quadra friction ring installer (p.n. 70113)

MISCELLANEOUS:

- High quality bearing grease (JUDY Butter, etc.)

NOTE: DO NOT USE LITHIUM-BASED GREASE.

FORK COMPONENT OVERVIEW



MAINTENANCE INTERVALS

1. ROCK SHOX Quadra forks require routine maintenance. After each ride, wipe down the outside of the fork. 2. Approximately once a month and/or every 40 hours of riding, inspect the fork for damage (crown, brace, upper tubes, lower tubes). 3. A general service (cleaning, greasing elastomers and bushings) should be made at approximately 200 hours of riding or more frequently if you ride in dusty or muddy conditions.

COMPRESSION BUMPER MAINTENANCE



Fig. 2A



Fig. 2B



Fig. 2C



Fig. 2D

'93 Quadra — skip to #2

1. **'95 Q5 and Q10:** Pry off dust cap from top cap using a small straight slot screwdriver (Fig. 2A).
   '94 Q21, '95 Q21(DI), '96 Q5 and Q21R: Remove top cap by unscrewing it, using a 22mm socket or wrench (Fig. 2B).
2. **'93 Quadra, '95 Q5 and Q10:** Remove top cap using an 8 mm hex key (Fig. 2C). **NOTE:** It may be necessary to turn 4 mm adjuster screw clockwise a few turns to permit insertion of 8 mm hex key.
3. **'93 Quadra, Q5, Q10 and Q21:** Clean and inspect each compression bumper column for evidence of cracking or permanent set (Fig. 2D). Minimum length (permanent set) 5.8" (147 mm). If there is evidence of damage, replace as necessary.

   Q21R: Pull MCU springs and spacers from skewers or Judy Jax. Clean off old grease with a rag and degreaser such as Pedros. If evidence of damage, replace as necessary.
4. **'93 Quadra, Q5, Q10 and Q21:** Replace compression bumper into upper tube. It should first be greased all over with a high quality non-lithium grease (Judy Butter, etc.).

   Q21R: Apply a dab of grease to the hole on each MCU spring during installation on skewer. This will ensure a coating of grease on the skewer. It is necessary to grease the outside of the MCU springs. Be sure to use a washer between each MCU spring (the solid spacers do not require a washer) if on skewer, or use Judy Jax and Judy Spacer.
5. **ALL MODELS:** Reinstall top cap, turning clockwise. Maximum torque is 60 IN–LBS (6.8 Nm).
6. **'93 Quadra, '95 Q5 and Q10:** Adjust preload screw using a 4 mm hex key to desired number of turns from full counter-clockwise (softest setting). Adjust both legs equally.
   '96 Q5, Q21 and Q21R: Adjust preload by turning top cap adjuster the desired number of turns from full counter clockwise (softest setting). Adjust both legs equally.


Fig. 3A


Fig. 3B


Fig. 3C


Fig. 3D

INTRODUCTION: The high quality bushings are designed to last many months of hard riding. The protective boots, a clean fork, and timely greasing are the keys to long bushing life. However, like all moving parts, bushings will eventually wear and need replacement. Increased fore and aft movement of upper tubes in lower tubes (similar to a loose headset), slow action even after applying fresh grease, visible scratches, and worn coating on bushing surface all signal the bushings need replacing.

WARNING: THE PROTECTIVE BOOTS ARE PART OF THE SYSTEM—REMOVING BOOTS VOIDS WARRANTY. ⚠

1. Cycle fork several times. Note amount of play detected fore and aft, and smoothness of stroke. Excessive fore and aft movement and sticky action could mean the bushings need replacement.
2. Clean exterior of fork legs. Use soap and water if necessary.
3. Disconnect front brake cable and remove front wheel. Remove brakes according to manufacturer's instructions.
4. Remove brake pivot bolts using an 8 mm wrench (Fig. 3A).
5. Remove fork brace screws using a 4 mm hex key.
6. Remove fork brace from lower tubes.
7. Remove compression bumper. Refer to ***Compression Bumper Maintenance.***
8. **'93 QUADRA:** Slide up fork boots to expose lower tube retaining ring. Hold fork boot up and release retaining ring from lower tube (use internal snap ring pliers (Fig. 3B). Once retaining ring has been released, pull lower tube off upper tube crown/steerer assembly. Compress leg and then pull down sharply on lower tube (Fig. 3C). If lower tube does not easily release from assembly, spray WD-40 (or another thin lubricant) into assembly, then warm lower tube with a heatgun (hairdryer).

⚠ **NOTE: '93 Quadra: Main retaining ring holds fork together.**

WARNING!! DO NOT USE OPEN FLAME ON MAGNESIUM LOWER LEGS.

Q5, Q10, Q21 and Q21R: Be sure legs are compressed and use a long 5mm hex on a long extension to unscrew and remove plunger assembly from lower tube (Fig. 3D). The lower tube can now slide free from upper tube. Compress leg and then pull down sharply on lower tube.

NOTE: '94 Q21: Disassembly requires removing plunger assembly from lower tube. This model also has a retaining ring under the fork boot that retains a friction plate. The retaining ring does not hold the fork together.

9. **'93 QUADRA:** Proceed to ***Upper Tube Disassembly*** section.
   Q5, Q10, Q21 and Q21R: Proceed to ***Inspection*** section.

'93 QUADRA UPPER TUBE DISASSEMBLY



Fig. 4A

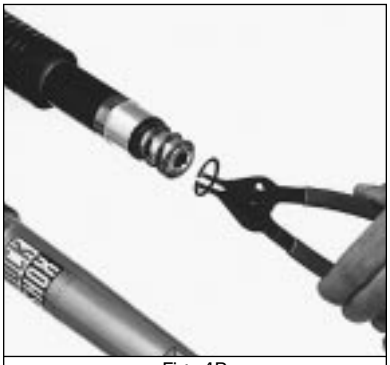


Fig. 4B

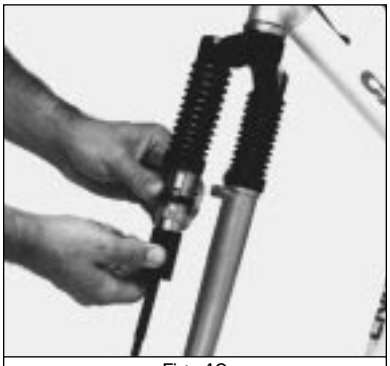


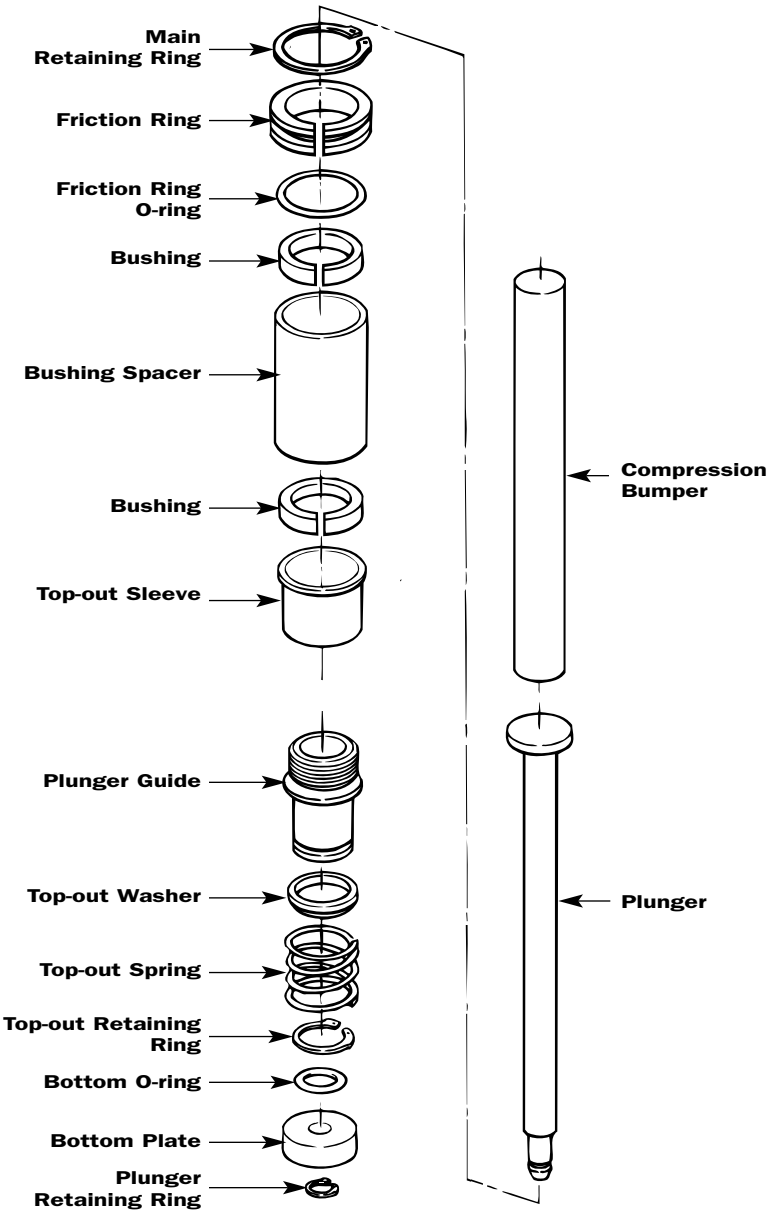
Fig. 4C

1. Remove snap ring from end of plunger (Fig. 4A).

2. Remove top-out retaining clip (Fig. 4B).

3. Remove following parts from upper tube: top-out spring, top-out washer, top-out sleeve, bushing, bushing spacer, bushing, compression ring, and main retaining ring (Fig. 4C).

4. Proceed to ***Inspection*** section



INSPECTION

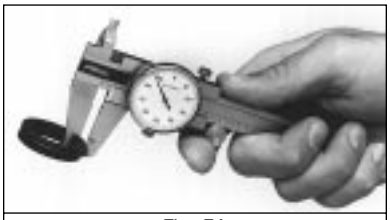

Fig. 5A


Fig. 5B


Fig. 5C


Fig. 5D

1. Check upper tube for signs of nicks or scratches that could damage bushings. Replace as needed.

2. '93 QUADRA and '94 Q21: Check wall thickness of compression ring (1 per leg). Minimum thickness is 4.5 mm (.177") (Fig. 5A).

3. Q10 and '94 Q21: Inspect plunger head. If there are signs of wear or scratches, then replace wear ring (p.n. 56408).

4. Check top-out springs for uniform free length. Spring length should be 25.4mm ±1mm (1.00" ±0.04")(Fig. 5B).

5. Inspect fork brace at cable mount area and fastener holes for signs of damage from crashes or misuse (Fig. 5C). Replace as needed.

6. Inspect lower tubes for signs of damage, paying particular attention to drop-out area (Fig. 5D). Replace lower tube if damage is found.

7. '93 QUADRA, Q5, Q10 and Q21: Check compression bumper for cracking or permanent set. Permanent set minimum length: 147 mm/5.80" (Fig. 5E).
Q21R: Check MCU springs for cracking or permanent set. Permanent set minimum length: 147 mm/5.80" (Fig. 5E).


Fig. 5E

8. Inspect coating (gray in color) on inside of bushings (2 per leg) for scratches and wear. Replace as needed. See ***Bushing Removal and Installation.***

9. Proceed to ***Fork Reassembly*** once inspection and parts replacement are complete.

Q5, Q10, Q21 AND Q21R BUSHING REMOVAL


Fig. 5A


Fig. 5B

INTRODUCTION: To maintain a close tolerance between upper and lower tubes, the bushings are pressed into the lower tube. As a result, there is a break-in period for new forks and for re-built forks.

1. Insert bushing removal tool into lower tube until it is past upper bushing and engages lower edge of upper bushing (Fig. 5A).

2. Slide seal puller tool over bushing removal tool with larger end over lower tube, keeping bushing removal tool engaged with bushing (Fig. 5B).

3. Clamp bushing removal tool into a vice.

4. Unscrew seal puller using 32mm and 36mm headset wrenches until upper bushing is pulled out of lower tube (Fig. 5B).

5. Repeat steps 1-4 to remove lower bushing from lower tube, then repeat for other leg.

Q5, Q10, Q21 AND Q21R BUSHING INSTALLATION


Fig. 6A


Fig. 6B

Note: Upper bushing has a larger outer diameter than lower bushing.

1. Apply Judy Butter or other non-lithium high-quality bearing grease to outside of upper and lower bushings, and bushing seat locations in lower tube.
2. Slide greased lower bushing onto end of bushing installer tool with sleeve installed (Fig. 6A).
3. Using a soft mallet, gently tap tool into lower tube until tool bottoms on upper bushing seat (Fig. 6B).
4. Remove installer tool from lower tube. Remove sleeve from installer tool.
5. Slide greased upper bushing onto installer tool.
6. Slide installer tool into lower tube making certain to engage tool with lower bushing.
7. Using a soft mallet, gently tap installer tool into lower tube until tool bottoms on lower tube.
8. Repeat procedure for other lower tube.
9. Grease inside of bushings after installation.

Note: Bushings must be pressed in straight. Use care to prevent bushings from seating at an angle. Do not use lithium-based grease on bushings. it can damage the gray coating.

FORK REASSEMBLY


Fig. 6C


Fig. 6D

1. Make certain all parts are clean and properly lubed (bushings and elastomers greased).
2. **'94 Q21:** Insert friction ring into upper tube (small shoulder down away from fork crown). Reinstall retaining ring (sharp outside edge facing up towards crown)(Fig. 6C).

   '93 QUADRA: Slide the following parts on upper tube in the following order: retaining ring (sharp outside edge facing up towards fork crown), compression ring (side with small shoulder down away from fork crown), bushing (greased inside & out), bushing spacer, bushing (greased inside & out), top-out sleeve (shoulder up towards bushing), top-out washer (smaller diameter down towards top-out spring), top-out spring, and then install top-out spring clip (sharp inside edge facing down towards dropout) (Fig. 6D).
3. **Q5, Q10, Q21 and Q21R:** Slide lower tube (greased bushings installed) onto lightly-greased upper tube.

   '93 QUADRA: Slide bottom O-ring and bottom plate onto plunger rod and install retaining ring (sharp inside edge facing down) (Fig. 6E).


Fig. 6E

(CONT. page 7)


Fig. 7A


Fig. 7B


Fig. 7C


Fig. 7D

4. **Q5, Q10, Q21 and Q21R:** Insert plunger assembly into upper tube with medium strength threadlock (blue Loc-Tite or equivalent) applied to threads (clean threads with alcohol if necessary)(Fig. 7A).

'93 QUADRA: Clamp the '93 QUADRA bushing installer onto upper tube between main snap ring and friction ring. Slide lower tube over assembly and push up to fully install bushings and friction ring. Tap lightly at drop-out with a soft mallet if necessary (Fig. 7B). Remove bushing installer tool.

5. **Q5, Q10, Q21 and Q21R:** Using a 5mm hex on a long extension, screw plunger assembly into lower tube.

NOTE: USE MEDIUM STRENGTH (BLUE LOC-TITE OR EQUIVALENT) THREADLOCK AND 14FT–LBS (20 Nm) TORQUE.

6. **'93 QUADRA:** Install retaining ring in lower tube (with sharp outside edge facing up towards crown) (Fig. 7C).

WARNING: BE SURE MAIN RETAINING RING IS FULLY SEATED INTO GROOVE.

7. **ALL:** Locate dust boot lip over lower tube.

8. **'93 QUADRA, Q5, Q10, and Q21:** Install heavily greased elastomer into upper tube.

   Q21R: Apply a dab of grease to the hole on each MCU spring during installation on skewer (the spacer is installed nearest top cap). This will ensure a coating of grease on the skewer for best performance. If Judy Jax are used, spacer can be between any two MCU springs. Grease outside of MCU stacks before installing in upper tube (Applies to both skewer and Judy Jax MCU stacks).

9. **ALL:** Screw top cap assembly into upper tube until snug. Do not overtighten cap. Maximum torque is 60 IN–LBS (6.8Nm).

   Clamp-On Crown Models: Make certain upper tube surface and crown are free of residue (clean with alcohol if necessary). Tighten four 4mm crown bolts alternately to 60 IN–LBS (6.8 Nm). Upper tubes should not extend above the crown more than 3mm (Fig. 8A).

NOTE: CHECK CLEARANCE TO FRAME DOWN TUBE BEFORE FINALIZING THIS SETTING.

10. **ALL:** Adjust preload to the desired setting from full counter-clockwise (softest setting) equally on both legs.

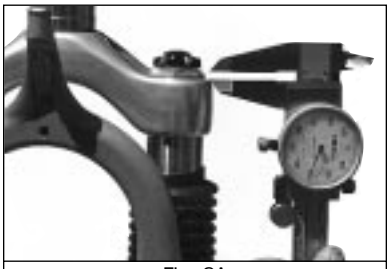
11. **ALL:** Rotate lower legs forward so fork brace bosses face the front of bicycle. Install brake posts and bolts through fork brace and into lower tube (Fig. 7D).

NOTE: APPLY MEDIUM STRENGTH THREADLOCK (BLUE LOC-TITE OR EQUIVALENT) ON THREADS OF EACH BRAKE POST AND BRACE BOLT. THREADS MUST BE CLEAN AND FREE OF GREASE/OIL.

12. **ALL:** Torque brake posts and fork brace bolts to 60 IN–LBS (6.8 Nm).

13. **ALL:** Install brakes according to manufacturer's specifications.

TIRE CLEARANCE CHECK


Fig. 8A

1. **Clamp-On Crown Models:** The upper tube should not extend above crown more than 3 mm (Fig. 8A).

NOTE: CHECK CLEARANCE TO FRAME DOWN TUBE BEFORE FINALIZING THIS SETTING.

2. Tire radius maximum is 335mm (13.2") (26" X 2.1 tire).
3. Tire clearance can be checked by removing top caps (see Compression Bumper Maintenance) and bottoming out forks. Minimum clearance from bottom of fork crown to tire with forks firmly bottomed out is 10mm.

WARRANTY

ROCKSHOX, INC. WARRANTS ITS FORKS FOR A PERIOD OF ONE YEAR FROM ORIGINAL DATE OF PURCHASE TO BE FREE FROM DEFECTS IN MATERIALS OR WORKMANSHIP. ANY ROCKSHOX FORK THAT IS RETURNED TO THE FACTORY AND IS FOUND BY ROCKSHOX TO BE DEFECTIVE IN MATERIALS OR WORKMANSHIP WILL BE REPAIRED OR REPLACED AT THE OPTION OF ROCKSHOX, INC. THIS WARRANTY IS THE SOLE AND EXCLUSIVE REMEDY. ROCKSHOX SHALL NOT BE HELD LIABLE FOR ANY INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES.

THE WARRANTY DOES NOT APPLY TO FORKS WHICH HAVE NOT BEEN PROPERLY INSTALLED AND ADJUSTED ACCORDING TO ROCKSHOX INSTALLATION INSTRUCTIONS. THE WARRANTY DOES NOT COVER ANY FORK THAT HAS BEEN SUBJECT TO MISUSE OR WHOSE SERIAL NUMBER HAS BEEN ALTERED, DEFACED OR REMOVED. THIS WARRANTY DOES NOT COVER PAINT DAMAGE OR MODIFICATIONS TO FORKS. PROOF OF PURCHASE IS REQUIRED.

WARRANTY REPAIR

IF FOR ANY REASON IT SHOULD BE NECESSARY TO HAVE WARRANTY WORK DONE, RETURN THE FORK TO THE PLACE OF PURCHASE. IN THE USA, DEALERS SHOULD CALL FOR A RETURN AUTHORIZATION (RA#) PRIOR TO RETURNING PRODUCT. PRODUCTS RETURNED FOR INSPECTION MUST BE SENT FREIGHT PREPAID TO:

ROCKSHOX, INC.
401 CHARCOT AVE.
SAN JOSE, CA 95131
408.435.7469
FAX 408.435.7468

CUSTOMERS IN COUNTRIES OTHER THAN THE USA SHOULD CONTACT THEIR DEALER OR LOCAL DISTRIBUTOR.