



SPECIALTY RETRO PRODUCTS.COM



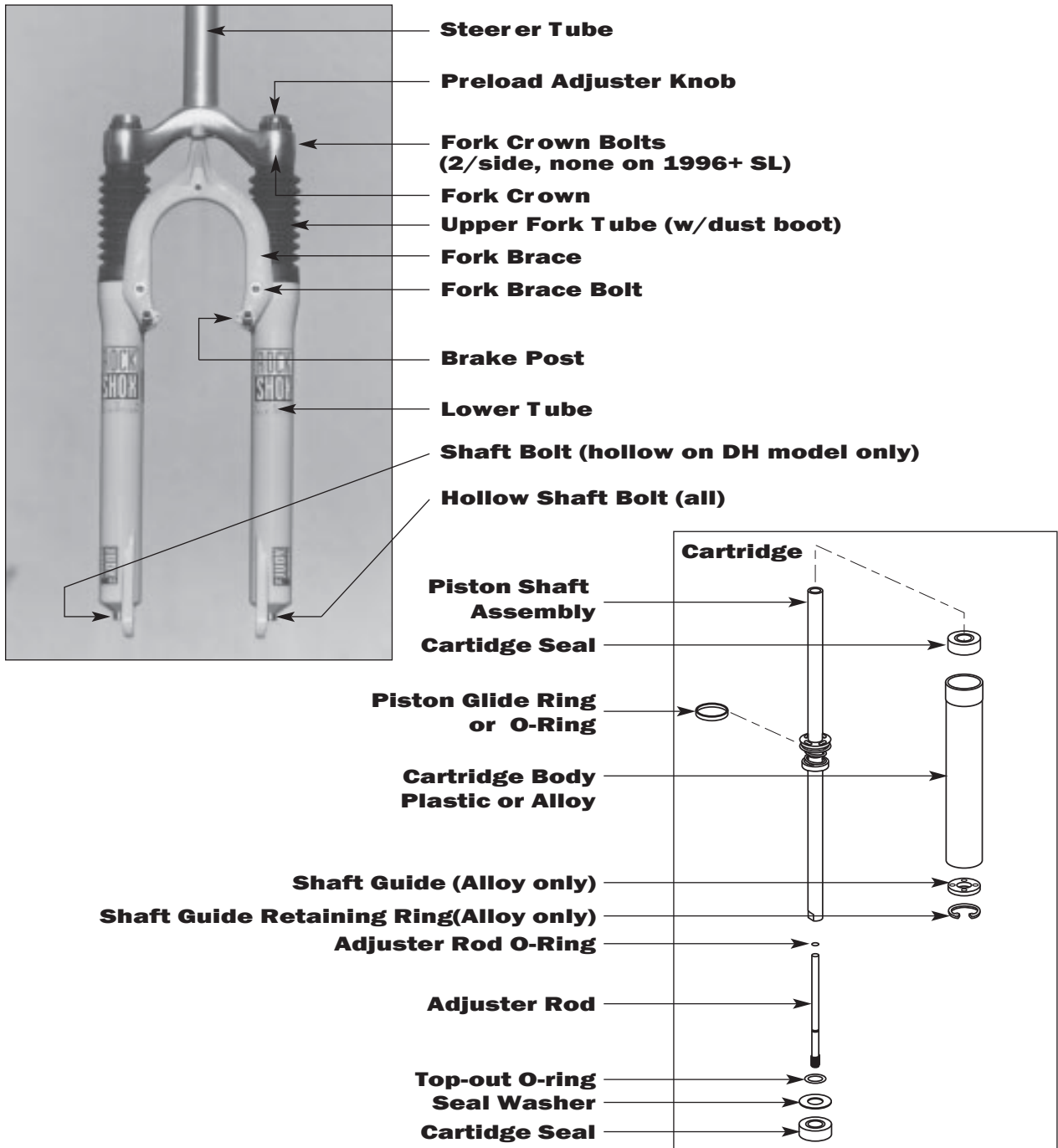
**DAMPER SERVICE
MANUAL**

1 9 9 5 - 1 9 9 8

For Judy XC, SL, DH and FSX Forks

INTRODUCTION

ROCK SHOX JUDYS – The Judys are designed as a modular system. The multicellular urethane (MCU) springs or upgraded SRP Steed springs and damper cartridge are easy to tune, remove and replace. With the adjustability available almost and ride quality can be achieved.



REQUIRED TOOLS

COMMON HAND TOOLS:

- 2, 4 & 5mm hex keys
- Snap ring pliers
- Small straight blade screwdriver
- Soft face mallet
- Safety glasses

MISCELLANEOUS:

- M6 threaded rod
- SRP damper service kit

TUNING VARIABLES

Judy forks can be tuned to your particular weight, riding style and terrain. Start by tuning the spring stack to achieve the correct ride height.

COMPRESSION DAMPER TUNING

A single cartridge in the left leg provides the damping for the entire fork (except the DH.) Kits with different travel options (2"/50mm adjustable, 2.5"/60mm adjustable, and 3"/75mm adjustable were available for XC, FSX and SL models only). The DH is available in 80mm adjustable only. The damper unit has a wide range of adjustment. Insert a 2mm hex key through the hollow shaft bolt in the bottom of the left leg (see exploded view at end of English section.) Turn the hex key clockwise to increase the compression damping. Turning the hex key counterclockwise will decrease the compression damping. There are two full turns of adjustment available from full clockwise. **DO NOT TURN ADJUSTER MORE THAN TWO FULL TURNS COUNTER-CLOCKWISE.**

REBOUND DAMPER TUNING (DH only)

A cartridge in the right leg provides the rebound damping for the DH fork. The damper unit has a wide range of adjustment. Insert the enclosed 2mm hex key through the hollow shaft bolt in the bottom of the right leg (see exploded view at end of English section.) Turn the hex key clockwise to increase the rebound damping (slow the return stroke.) Turning the hex key counterclockwise will decrease the rebound damping (speed the return stroke.) There are four full turns of adjustment available from full clockwise. **Early DH forks did not come with the rebound damper.**

CARTRIDGE SERVICE SECTION

INTRODUCTION

ROCK SHOX JUDY CARTRIDGE - The Judy damper cartridge is designed to be fully servicable and tuneable. Use the proper tools and procedures to keep Judy cartridges operating properly. The best performing cartridges have the least amount of air inside. Keep this in mind when servicing your cartridge.

Judy XC, SL and FSX models are capable of having any of three travels that are available:
2" (50mm), 2.5" (60mm), or 3" (75mm)

REMOVING MCU/SPRING STACKS



Figure 2A

1. Using a 5mm hex wrench, loosen the 6mm bolt at bottom of each lower. Do not remove the bolts. See fig. 2D.
2. Loosen the 5 or 6mm crown bolts using a 4 or 5mm allen wrench respectively, then unscrew top cap assembly counter-clockwise and pull top cap and MCU / Steed spring stackout (fig. 2A and 2B). Repeat on other side.
3. Replace O-Rings above threads on each top cap.



Figure 2D



Figure 2B

REMOVING LOWER TUBES/LEGS



Figure 2D

1. First, disconnect front brake cable and remove front wheel.
2. Now you need to free the damper and neutral shaft using the 6mm shaft bolts left loose on the previously page. Loosen the bolts half way, leaving the hex key in the bolt, see fig. 2D, carefully hit the hex key with a hammer until the bolts push the shafts free.
3. After removing both 6mm bolts, pull lower tube/brace assembly free of upper tubes. See fig.2E.



Figure 2E

REMOVING THE CARTRIDGE



Figure 6C

CAUTION: MAKE SURE THE FORK HAS BEEN AT REST FOR A MINIMUM OF 15 MINUTES BEFORE REMOVING SNAP RING.

1. With lower tubes removed, use internal snap ring pliers to remove snap ring on end of each upper tube. See figure 6C.
2. Next, grab end of each shaft and gently pull cartridge and neutral shaft assembly free of each upper tube, one at a time. Depending on the age and storage conditions of the fork the cartidge could take some effort to get out. Do not pull to hard on the shaft as you could pull the shaft and seal out, evacuating the oil. Consider using a long socket extension to push from the top.

CARTRIDGE DISASSEMBLY AND OIL CHANGE



Figure 7B

1. Slide off the plastic cartridge washer. Hold the cartridge over an oil recepticle with the exposed seal end down and tap the damper shaft with a mallet, firmly holding the cartridge body, to press the seal out of the cartridge body. (Fig. 7B) Once the seal is exposed, drain the oil from the cartridge into the oil container.
2. Pull the damper shaft free of the cartridge body. Inspect the damper shaft for nicks or scratches that may cause oil leakage. Replace assembly as needed.
3. Inspect the inside bore of the cartridge body for scoring or scratches that may cause oil leakage. Replace cartridge body as needed. **If you have a plastic body we recommend to replace it with an alloy body ASAP.** The plastic bodies are prone to leaking due to poor seal retention.
4. For adjustable compression cartridges unscrew the adjuster rod completely with a 2mm hex and remove from the damper shaft. (Fig. 8A)

CAUTION: REMOVE THE ADJUSTER ROD GENTLY TO AVOID DAMAGING THE ADJUSTER ROD O-RING ON THE THREADS OF THE SHAFT WHEN REMOVING.

Note: The adjuster rod in the DH rebound cartridge is not removable.

5. Clean the following parts with a clean, lint-free rag: damper shaft, seal, cartridge body.
6. Press upper seal out of cartridge body by using a 2mm hex key, alternating through the four access holes in cartridge body. Finish seal removal using a flat-blade screwdriver through the shaft hole.

WARNING: USE EXTREME CARE NOT TO DAMAGE THE CARTRIDGE BORE.



Figure 8A

Continued on next page

CARTRIDGE DISASSEMBLY (CONT.)

7. For DH cartridges, remove top retaining clip and plastic shaft guide washer to allow seal to be pressed out through top of cartridge using upper seal installation tool.

Note: Some 50mm and 60mm cartridges use a plastic spacer located inside or outside upper seal.

8. Identify whether piston has an O-ring or a piston glide ring (pistons with three ports have an O-ring, pistons with four ports have a glide ring). For pistons with an O-ring, remove and replace the O-ring and inspect rebound plate (white plastic washer) for freedom of movement. If plate is not free, replace assembly. For pistons with a glide ring, inspect ring for nicks and scratches and that it shuttles freely on the piston. Replace as needed.

Note: The piston shaft is available in assembly form only. Do not disassemble.

9. Remove and replace adjuster rod O-ring. Grease liberally prior to installation onto adjuster rod.

CARTRIDGE ASSEMBLY



Figure 8B



Figure 9A



Figure 9C

1. Lightly coat inside of cartridge body with SRP oil. If a spacer was used, reinstall it into the cartridge. Apply grease to a new upper cartridge seal inside and out. Slide seal so the pocket-side will be in contact with the oil, into the body. Using a socket and extension press the seal into seal bore of cartridge until fully seated (Fig. 8B).
2. For DH cartridges, reinstall retaining ring, sharp side out, and make sure it is fully seated into its groove. Next, reinstall plastic shaft guide and then press upper seal into cartridge bore, as previously described. Make sure seal is fully seated, as plastic shaft guide should not be loose in the cartridge.
3. Insert a piece of M6 threaded rod into the threaded end of the Neutral shaft with a 1/4" of thread exposed. Insert that assembly into cartridge body and seal from the closed end. (Fig. 9A) Fill cartridge 1/2 full with SRP oil. Apply oil to piston new O-ring or glide ring and insert piston shaft assembly into cartridge. The non threaded end of the piston shaft should sit over top of the threaded rod/neutral shaft assembly. The neutral shaft will be used as a guide tool to push the piston/shaft assembly through the upper seal forcing neutral shaft out. (Fig 9C)
4. Lift entire cartridge body fixture and remove shaft guide tool from bottom side, taking care not to lose any oil from the cartridge. (Fig. 9D)
5. Push piston/shaft assembly into cartridge body until it stops. Add more oil until it's about 2/3 full, using care not to pull shaft back through the seal and the piston out of the oil. Cycle piston/shaft assembly several times until no air bubbles are seen in the oil. (Fig. 9D)
6. Push piston/shaft assembly fully into cartridge body until it stops.
7. Install new top-out O-ring and seal washer onto shaft.
8. Fill cartridge body within 3mm of the top with SRP oil.



Figure 9D

Continued on next page

CARTRIDGE REASSEMBLY (CONT.)



Figure 9E

9. Apply grease to new seal, inside and out, fully filling pocket of seal with grease.
10. Cut the piston O-ring that is no longer needed and place in the I.D. of seal. (Fig. 9E)
11. Carefully install this seal assembly, over the shaft, pocket-side facing the oil, being careful not to damage sealing lips on the flats of shaft and maintaining orientation of the O-ring between seal and shaft. (Fig. 9F)

Note: Make sure O-ring does not get caught between cartridge body and seal O.D.



Figure 9F



Figure 9G

12. Place seal over exposed shaft with O-ring between and press seal into cartridge body, leaving 1mm of seal exposed above cartridge body lip. Use a socket evenly push the seal into place. (Fig. 9G)

CAUTION: HOLD A RAG AROUND LOWER SEAL INSTALLATION TOOL AS OIL WILL BE FORCED OUT THROUGH THE VENT HOLES OF THE TOOL.

Note: The lower seal can be pressed in too far. Leave 1mm exposed.

13. Remove O-ring from seal. This procedure is very important. It vents any air from the system. Air in the cartridge impacts the forks performance.



Figure 10A

14. Adjustable cartridges only: Fill exposed adjuster rod shaft full with oil. (Fig 10A)
15. Using a 2mm hex key, install adjuster rod with new O-ring that is liberally greased. Thread into exposed shaft until rod bottoms out.

CAUTION: USE CARE WHILE INSTALLING ADJUSTER ROD TO PREVENT DAMAGE TO O-RING THREADS IN SHAFT.

Hint: Spin adjuster rod as O-ring contacts shaft, effectively threading O-ring through the 6mm threads.

ASSEMBLY



Figure

1. Prior to installing serviced damping cartridge into left upper tube, make certain that cone-shaped shaft end plate is installed on shaft end that is NOT threaded to accept a 6mm bolt. Install a plastic cartridge washer onto other end of the shaft.
 2. Slide cartridge into Left upper tube with end plate side first. On '96 SL forks, make sure the cartridge stop clip is properly seated in its groove within the upper tube.
- CAUTION: BE SURE TO PROPERLY INSTALL CARTRIDGE WASHER BETWEEN THE CARTRIDGE AND RETAINING CLIP.**
3. Reinstall snap ring, sharp outside edge facing out. Make certain cartridge washer is in place, snap ring is oriented correctly and fully engaged in groove of upper tube.

CAUTION:

IT IS VERY IMPORTANT THAT THE SNAP RING IS CORRECTLY INSTALLED AND FULLY ENGAGED IN THE UPPER TUBE. IF THE SNAP RING WORKS ITSELF LOOSE, THERE WILL BE A SEAL FAILURE IN THE CARTRIDGE

ASSEMBLY (Cont.)



Figure 7A

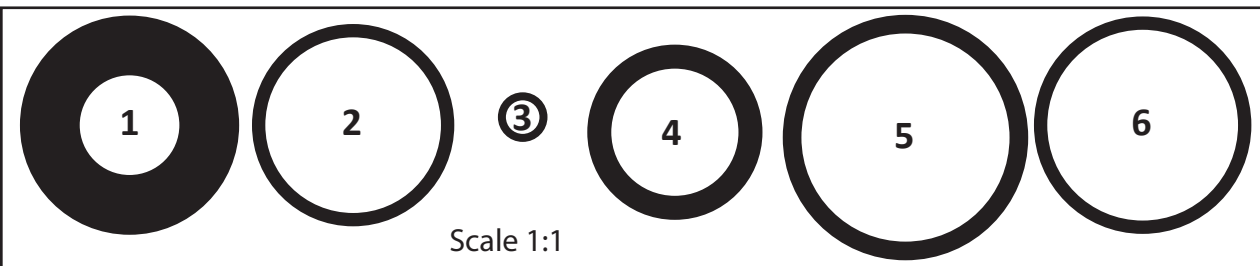
7. Repeat this entire procedure to install neutral shaft assembly of matching travel length in right upper tube. See figure 7A for the correct sequence of neutral shaft assembly parts. Replace O-ring prior to assembly.
8. After installing cartridge and matching neutral shaft assembly, reinstall lower tubes. Slide lower tube/brace assembly gently over upper tubes, taking care not to damage dust wiper or lower bushing. (Fig. 3D)
9. Apply medium threadlock such as blue Loctite 242 to threads of 6mm bolts and, using a 5mm allen key, reinstall them through the lower tubes, engaging threads in cartridge and/or neutral shafts.



Figure 3D

10. Torque to 60in/lbs. If bolts do not thread into cartridge and/or neutral shafts, check to see if upper tubes have engaged lower bushings. It may be necessary to spread lower tube/brace assembly apart slightly or gently rock assembly side to side while getting lower bushings to mate with upper tubes. **DO NOT FORCE.** Be sure to push protective boots into their retaining grooves on the lower tubes.
11. Re-install the MCU / Steed spring assembly, tighnering the top caps clockwise. Apply medium threadlock such as blue Loctite 242 to threads of the crown bolts and torque to 60in/lbs.

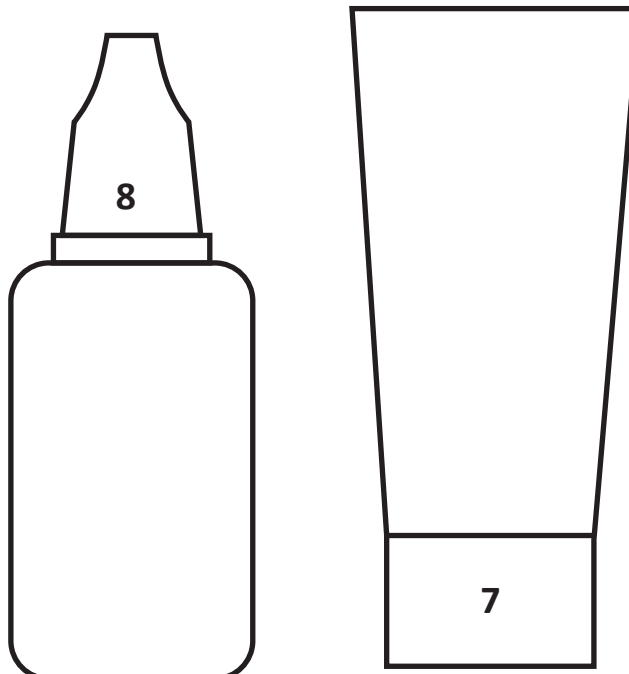
CARTRIDGE SERVICE KIT



Contents:

- 1 Cartridge Seal (2)
- 2 Piston O-Ring * (1)
- 3 Adjuster Rod O-Ring (1)
- 4 Top-out O-Ring (1)
- 5 Neutral Shaft O-Ring (1)
- 6 Top Cap O-Ring (2)
- 7 Slickoleum (15ml tube)
- 8 SRP shock Oil (30ml Bottle)

*only applicable for early cartridges with the black O-ring before they transitioned to the blue glide ring.





SPECIALTY RETRO PRODUCTS . COM
Questions? Contact: sales@specialtyretroproducts.com