Section B: Tuning Modifications

The AD-12 Rear Shock is designed to be used with a wide variety of bike frames. The shocks are built and tuned at the factory for a particular bike. If the factory settings are not appropriate for your preferences or riding abilities you can change the factory setting relatively easily. There are four different factors involved in tuning the AD-12. Air pressure is the easiest to vary and is usually based on the rider's weight. Compression and rebound damping can be set using the adjuster knobs as previously discussed. And, the volume of the shock can be varied to change the shape of the spring curve. The volume is set by the volume adjustment plate located in the piston shaft. Moving the plate to a position deeper inside the shaft will increase the shock's air volume and make the spring curve more linear. A smaller shock air volume will make the spring curve more progressive causing the shock to bottom-out less frequently. Changing the air volume setting is described in the following instructions. If you want to know the setting on your shock or if you have other questions prior to disassembling it, please call a technical service representative at 800-234-2725.

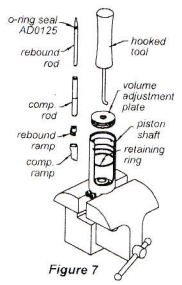


Figure 7

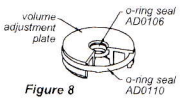


Figure 8

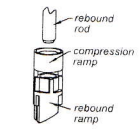


Figure 9

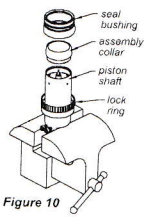
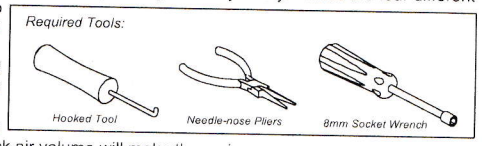


Figure 10



1. To change the shock's volume (or repair a leak in the piston shaft eyelet bushing, AD0127) the black, volume adjustment plate within the piston shaft must first be removed. With the piston shaft still clamped in the vice, remove the aluminum rebound rod and compression rod by pulling them up and out of the black plate (Using a dry lint free cloth will improve your grip. Do not use tools that will damage the surface). They will probably come out together. (Figure 7)

2. Insert the hooked tool into the volume adjustment plate's opening and carefully pull it upward, being careful not to damage the plate. Work from side to side not allowing the plate to become jammed within the shaft. Once you have removed the plate, you will find the rebound ramp and compression ramp loose inside the piston shaft. They were attached to the rods you removed in step 1. If you are simply repairing a leak, you can replace the seals on the plate as shown in figure 8, and move to step 4.

3. A small, metal retaining ring will be visible in one of three internal grooves of the piston shaft. This ring positions the plate within the shaft. Remove the retaining ring from its groove using your fingernail. Do not use tools that could scratch the inside of the shaft. Move the ring to the desired groove and snap it back in place.

4. Slide the rebound rod out of the compression rod if they are not already apart, and check the o-ring seal on the rebound rod. You can replace it with AD0125 from the seal kit.

5. Nest the rebound ramp inside the compression ramp and insert the blunt end of the rebound rod into the hole. If it does not stay attached, a slight amount of grease on the end of the rebound rod will help keep things together. (Figure 9)

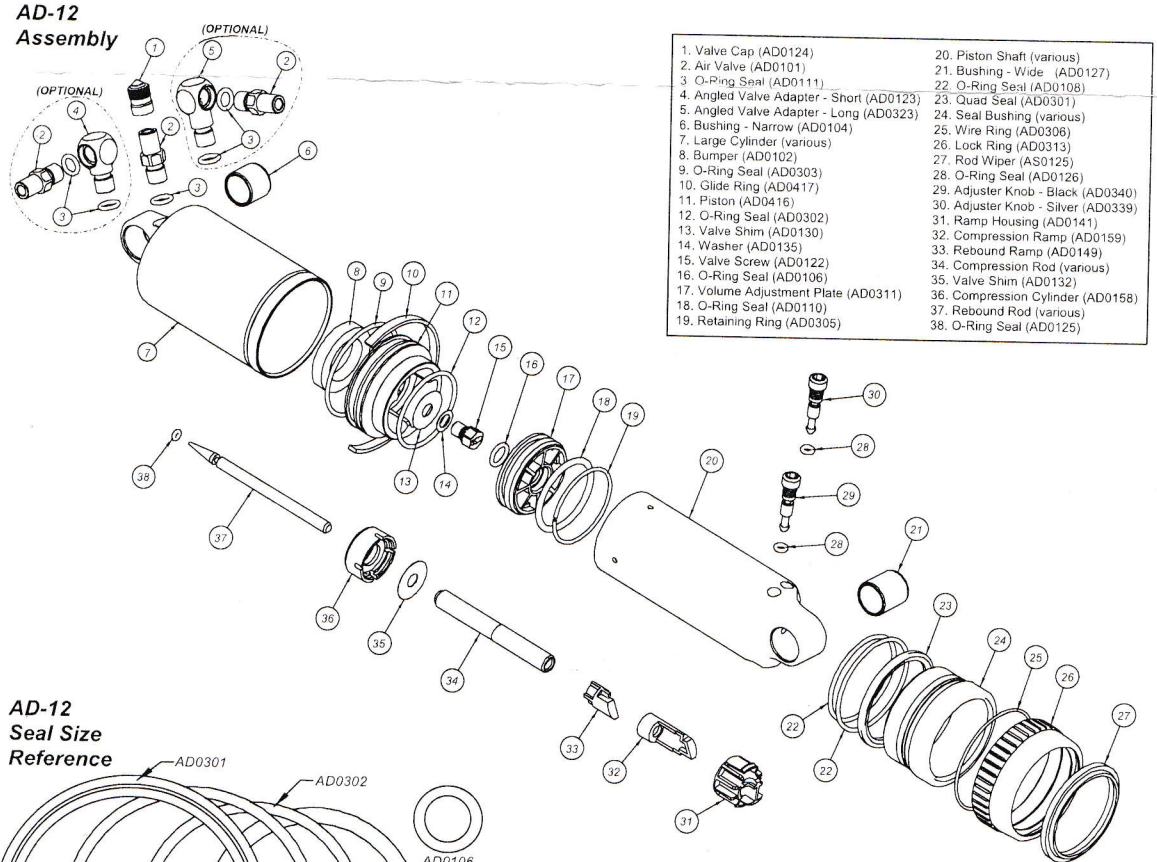
6. Carefully insert the rebound rod assembly into the black ramp housing in the bottom of the piston shaft. The ramped side of the rebound and compression ramps should face toward the external adjuster knobs. Both adjuster knobs should be backed out 2 - 3 turns from the full-in position when reassembling the shock. **Note: the adjuster knobs should never be removed from the piston shaft. Doing so will damage them.**

7. Before reinstalling the volume adjustment plate inspect the seals for cuts or dirt that may allow leaks. Lubricate the seals and push the plate carefully down into the shaft, keeping it level (Be careful not to cut or pinch the seals while reinstalling the volume adjustment plate). The sharp end of the rebound rod will protrude loosely through the hole in the center of the plate. If the plate gets stuck remove the rebound rod, plate, and ramps; and start over. When properly installed, the groove (or four side holes in the shaft if the plate is in the highest position) will be barely visible just above the plate.

8. Slide the compression rod (shiny end up) down over the rebound rod and through the hole in the plate. It will be a little tight going past the seals. Be careful not to cut them in the process.

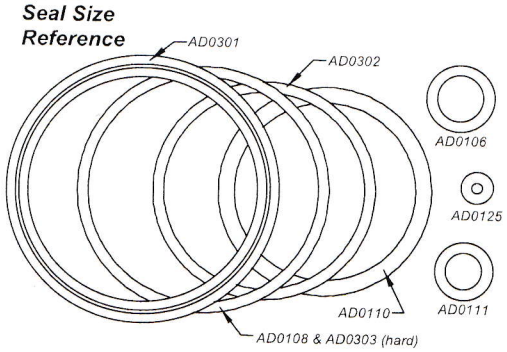
9. The shock is ready for re-assembly. Return to step 8 of Section A.

AD-12 Assembly



1. Valve Cap (AD0124)
2. Air Valve (AD0101)
3. O-Ring Seal (AD0111)
4. Angled Valve Adapter - Short (AD0123)
5. Angled Valve Adapter - Long (AD0323)
6. Bushing - Narrow (AD0104)
7. Large Cylinder (various)
8. Bumper (AD0102)
9. O-Ring Seal (AD0303)
10. Glide Ring (AD0417)
11. Piston (AD0416)
12. O-Ring Seal (AD0302)
13. Valve Shim (AD0130)
14. Washer (AD0135)
15. Valve Screw (AD0122)
16. O-Ring Seal (AD0106)
17. Volume Adjustment Plate (AD0311)
18. O-Ring Seal (AD0110)
19. Retaining Ring (AD0305)
20. Piston Shaft (various)
21. Bushing - Wide (AD0127)
22. O-Ring Seal (AD0108)
23. Quad Seal (AD0301)
24. Seal Bushing (various)
25. Wire Ring (AD0306)
26. Lock Ring (AD0313)
27. Rod Wiper (AS0125)
28. O-Ring Seal (AD0126)
29. Adjuster Knob - Black (AD0340)
30. Adjuster Knob - Silver (AD0339)
31. Ramp Housing (AD0141)
32. Compression Ramp (AD0159)
33. Rebound Ramp (AD0149)
34. Compression Rod (various)
35. Valve Shim (AD0132)
36. Compression Cylinder (AD0158)
37. Rebound Rod (various)
38. O-Ring Seal (AD0125)

AD-12 Seal Size Reference



CANE CREEK CYCLING COMPONENTS
355 CANE CREEK ROAD
FLETCHER, NC 28732
800-234-2725
WWW.CANECREEK.COM

11/30/01

Cane Creek AD-12 Instructions

The Cane Creek AD-12 rear shock is a combined spring and damper system for rear suspension mountain bikes. The shock utilizes pressurized air as both the springing and damping medium. The unit is typically filled with air to a pressure between 70 and 250 psi (4.8 - 17.2 bar), depending on the weight and preferences of the rider as well as the design of the bicycle suspension. The springing system is like a conventional air spring, where the spring force is generated by reducing the volume of the pressurized air chamber, thereby increasing its internal pressure. The damping forces are generated by flowing the pressurized air into and out of several internal chambers through valves as the shock is compressed and extended. On the AD-12, this valving can be tuned precisely by simply turning the two adjuster knobs near the end of the shock. The system also incorporates a negative spring air chamber which assists the initial travel and provides very smooth performance.

Setup and Adjustments:

The springing and damping characteristics of the AD-12 shock are controlled by air pressure. The air pressure is set based on the weight of the rider and the desired performance characteristics. Pressure is controlled with a standard shock pump, which should be capable of over 200 psi (13.8 bar) and have a pressure gauge. The shock should be inflated as indicated on the following chart. After some riding, this initial pressure setting can be adjusted up or down to suit the rider's preferences. Reduced pressure will provide a smoother, more "plush" ride, but with a greater tendency to bottom-out. Increased pressure will give a firmer ride with somewhat quicker rebound.

The adjuster knobs, located on the small end of the shock, provide independent control of the compression and rebound damping characteristics. As indicated on the shock's decal, turning the knobs clockwise will increase the damping. Increased compression damping will decrease the shock's travel in reaction to a bump. Decreasing the compression damping will make the shock "softer" and more likely to use the full stroke in absorbing a hit. By increasing the rebound damping, the shock will extend more slowly after compressing, while decreasing this damping will make it rebound quickly. If you feel increased resistance to turning an adjuster knob, you have reached the end of the adjustment range (these knobs are fully extended when four lines are visible under the head). Forcefully turning the knob farther will cause damage.

ATTENTION: Use a metal cap with seal to prevent leakage of air from the valve. Inflate or deflate shock only while it is installed on the bike.

Recommended Pressure Settings:

In general, the shock should initially be pressurized according to the table below. Some bikes require much different settings and the bike's owners manual should be consulted if your bike came with an AD-12 as original equipment.

Rider's Weight lbs. (kilos)	Shock Pressure psi (bars)	Rider's Weight lbs. (kilos)	Shock Pressure psi (bars)	Rider's Weight lbs. (kilos)	Shock Pressure psi (bars)
100 (45)	110 (7.6)	150 (68)	160 (11.0)	200 (91)	210 (14.5)
110 (50)	120 (8.3)	160 (73)	170 (11.7)	210 (95)	220 (15.2)
120 (54)	130 (9.0)	170 (77)	180 (12.4)	220 (100)	230 (15.9)
130 (59)	140 (9.7)	180 (82)	190 (13.1)	230 (104)	240 (16.5)
140 (64)	150 (10.3)	190 (86)	200 (13.8)	240 (109)	250 (17.2)

Recommended Maintenance:

Proper care for the AD-12 rear shock includes checking the pressure periodically (some air will be lost whenever the pressure is checked), keeping the shaft and exposed wiper seal clean, and occasionally lubricating the seals. Lubricating the seals is a fairly simple process requiring only a few simple tools, and is recommended after approximately 200 hours of use.

Servicing the AD-12:

Section A: Shock Disassembly and Seal Replacement

For periodic maintenance or if the shock is not holding pressure, it can be disassembled and serviced easily. If the shock is losing pressure, apply soapy water to the exterior of the shock prior to disassembly. Bubbles will indicate a leak's location. We recommend ordering a seal kit before opening the shock. The kit contains the seals and grease required to properly rebuild the shock. Call a Cane Creek technical service representative at 800-234-2725.

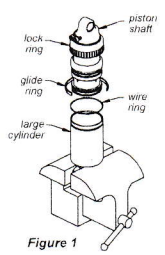


Figure 1

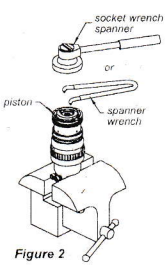


Figure 2

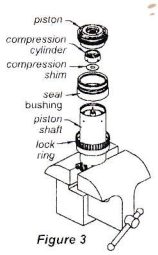


Figure 3

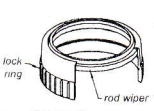


Figure 4

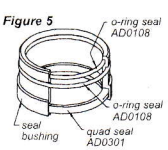


Figure 5

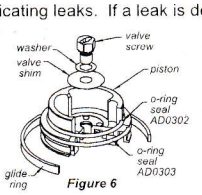
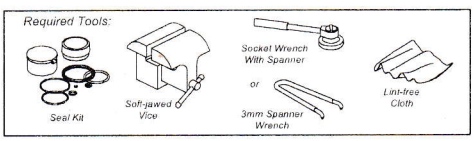


Figure 6



1. Deflate the shock and clamp the valve end of the shock in a soft-jawed vice, being careful not to damage the shock's eyelet (Figure 1).

2. Unscrew the lock ring in the middle of the shock. **DO NOT USE TOOLS** (pliers, vice grips, etc.) Wrapping a cloth or large rubber band around the ring will improve your grip.

3. Carefully pull the piston shaft out of the large cylinder. The glide ring (Figure 6) will fall off the piston as it exits the large cylinder. Prevent contamination of the seals by keeping all parts clean and free of dirt. **DO NOT** remove the black and silver adjustment screws. Doing so will damage the internal mechanism of the shock.

4. Clamp the piston shaft eyelet in the vice, and use a spanner wrench or socket wrench with special spanner head (available from Cane Creek) to unscrew and remove the piston (Figure 2). Be careful not to lose the compression cylinder and compression shim (Figure 3).

5. Now remove the seal bushing from the piston shaft by sliding it off the open end of the shaft (Figure 3). The lock ring can also be removed and the rod wiper can be replaced (Figure 4).

6. Remove seals shown in Figure 5 and 6 (be very careful not to scratch the seal grooves while removing the seals). Wipe all the surfaces using a clean lint-free cloth (Do not use solvent). Liberally apply Cane Creek De-friction Lube to the seal grooves and the new seals. Install the seals as shown in Figure 5 and 6. Note: The AD0303 seal is slightly harder than the AD0108.

7. In order to modify the shock's volume set-up, or if the "soapy water" test revealed a leak around the bushing (AD0127) on the piston shaft eyelet, then the volume adjustment plate must be removed. This is described in section B. Otherwise, the shock is ready to reassemble.

8. Reinstall the lock ring on the piston shaft. The rod wiper end should go onto the shaft first.

9. Reinstall the seal bushing on the piston shaft. Use the assembly collar (Figure 10) supplied in the seal kit to simplify this step. Place the assembly collar into the open end of the piston shaft and slide the seal bushing (larger end first) down over the collar into place on the shaft. Be careful not to cut or pinch the seals while reinstalling the seal bushing. Once the seal bushing is in place remove the assembly collar.

10. Place the compression shim on the step in the compression rod. It should sit flat. Now place the slotted end of the compression cylinder on the shim.

11. Screw the piston back onto the shaft being careful not to disturb the compression cylinder and compression shim. Tighten the piston using the spanner wrench or socket wrench with special spanner head. Apply Cane Creek De-friction Lube to the interior of the large cylinder. Hold the glide ring in place on the piston and carefully slide the large cylinder down over the piston.

12. Remove the piston end of the shock from the vice, and place the valve end in the vice again. Slide the seal bushing down the shaft and into the open end of the large cylinder as far as it will go. Now slide the lock ring over the seal bushing and screw it onto the large cylinder. The lock ring should capture the wire ring at the end of the threads leaving half of it exposed. Be sure that the wire ring is evenly in place all the way around the shock.

13. Align the eyelets by turning the piston shaft. Inflate the AD-12 with a hand shock pump to about 150 psi. Submerge it in water to see if any bubbles come from the shock indicating leaks. If a leak is detected, disassemble the shock again and check the appropriate seal for cuts or dirt. If there are no leaks, the shock can be remounted on the bike and inflated to riding pressure. It may be difficult to compress the shock the first time since the negative air spring chamber has not been charged. It is charged when the shock is compressed about ½ inch (13 mm). Once it is filled the shock will function normally.