

1999 HEADSHOK® SUPER FATTY® D, FATTY® D, AND P-BONE™ D

OWNER'S MANUAL

Congratulations and thanks for your purchase of a HeadShok suspension fork. You have invested in a suspension system which offers light weight, long travel, maximum adjustability, and absolute steering precision. This owner's manual contains important and useful information regarding the proper operation, care, and maintenance of your HeadShok Super Fatty D, Fatty D, or P-Bone D fork. Please read it carefully and follow its instructions for miles of safe, high performance riding. If you have any questions about your fork or the contents of this manual, don't hesitate to contact us. See the back page for phone numbers and E-mail contacts.

STEM SELECTION

All HeadShok equipped bicycles come with a CODA® Suspension Stem that is designed to work specifically with the unique head tube arrangement of the HeadShok front suspension system. These stems are supplied in sizes proportional to the different bicycle frame sizes. There are a total of 14 different stem sizes available, and all of these stems can be inverted, for a total of 28 possible unique rider positions. This allows any rider to customize the fit of his or her bicycle. See your Authorized Cannondale Retailer for replacement CODA stems. Framesets and aftermarket forks do not include a stem.

REQUIRED MAINTENANCE

It is recommended that you take your Super Fatty D, Fatty D, or P-Bone D fork to your Authorized HeadShok Service Center for a regular tune up every two months or 40 hours of riding. Your fork is a high performance suspension system and needs regular inspection, lubrication, and maintenance. Your mechanic will check the following items and service the fork as necessary. Between these tune ups, you should also occasionally check the top bearing seal and boot as outlined below.

HEADSET BEARINGS:

Every few rides, or every time that the bicycle is exposed to water (rain, mud, or washing) a few drops of lightweight oil should be applied to the upper headset bearing seal (located just below the stem.) This seal must be kept lubricated, as it protects the headset cartridge bearings from contamination by water and dirt. Failure to keep the headset bearing seal lubricated will result in premature bearing wear.

SUSPENSION FORK BOOT:

Frequently inspect the rubber boot at the base of the headtube for tears or cuts which could allow contamination. If the boot is damaged in any way, it must be replaced immediately. Since boot replacement requires the fork be removed from the frame, this job should be performed only by an experienced bicycle mechanic at an Authorized HeadShok Service Center. Damage to the Head-Shok due to contamination by water or dirt will not be covered under warranty.

HYDRAULIC CARTRIDGE OIL OR SEAL REPLACEMENT:

Oil in the HeadShok hydraulic cartridge should be replaced every 80 hours of riding, or at least once a year. The seals in the cartridge require less frequent attention, and should be replaced every two years or whenever significant oil loss occurs. These procedures require unique tools and substantial expertise and training with hydraulic suspension systems. Therefore, they should be performed only by an experienced mechanic at an Authorized HeadShok Service Center.

NEEDLE BEARING LUBRICATION:

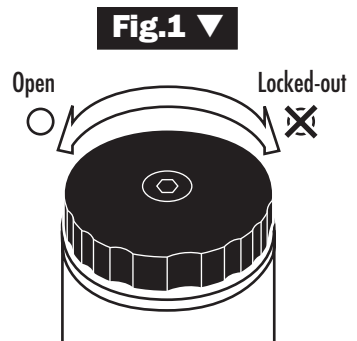
The needle bearings which provide the smooth travel of the suspension in the HeadShok fork should be lubricated every two months or every 40 hours of riding. This procedure requires partial disassembly of the suspension fork, and therefore must be performed only by an experienced bicycle mechanic at an Authorized HeadShok Service Center.

SUPER FATTY D

The Super Fatty D suspension fork offers 80mm of travel with a lightweight air spring. It also features the DD80 hydraulic damper cartridge which uses a variable-orifice shim valve to react to various size impacts with varying amounts of damping. The suspension cartridge can be locked out "On-The-Fly" by turning Damping Dial™, located atop handlebar stem (See Fig. 1.)

FATTY D and P-BONE D

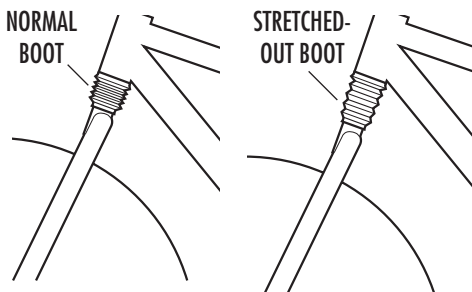
The Fatty D and P-Bone D suspension forks use the HeadShok Advanced Spring System. This spring system is made up of a coil spring with a column of MicroCellular Urethane (MCU) running through its middle to provide 60mm of travel. They also feature the shim-valved DD60 hydraulic damper cartridge which can be locked out "On-The-Fly" by turning the Damping Dial™, located atop the handlebar stem (See Fig. 1.)



WARNINGS:

- **Any HeadShok fork should be installed and adjusted by a qualified mechanic. Brakes must also be installed and adjusted by a qualified mechanic. (This applies to either cantilever-type or disc brakes.) If the brakes are improperly installed or misadjusted, the bicycle will not be safe to ride. Improper installation, service, or adjustment of the fork or brakes will place the rider in danger of serious injury or death.**
- **Only use brakes designed to be mounted to existing cantilever bosses or disc brake mount on the fork. Do not attempt to add any brake mount or use any brake device that requires adapting the fork's existing brake mounts. Altering or adapting existing brake mounts or installing new brake mounts will void the fork's warranty, and may result in structural failure of the fork. Structural failure of fork will result in loss of control of the bicycle, placing the rider in danger of serious injury or death.**
- **If the suspension fork ever begins to make "knocking" or "klunking" noises, or if it ever shows an unexplained increase in travel, or looks like it is extended farther than it was originally, or if the fork loses its ability to lock-out, stop riding the bike and bring it to a HeadShok dealer for inspection. Possible indications of a problem are:**
 - * **An increase in the fork's extension or travel.**
 - * **A stretched-out fork boot (See below.)**
 - * **A stretched or strained front brake cable.**
 - * **"Knocking" or "klunking" noises coming from fork.**
 - * **A sudden loss of lock-out ability**

If any of the above symptoms manifest themselves and are ignored, the result could be a separation of the fork from the bicycle frame, leading to an accident with risk of serious injury to, or death of the rider.



WARNING: Use great care and pay close attention the road or trail in front of you while turning the Damping Dial. Adjusting the fork can be distracting, and it is possible to lose control of the bicycle if your eyes wander from the surface directly in your path. Also remember that your balance and steering control change as soon as your remove one hand from the handlebars, and that your hand is further from the brake lever. If you are at all unsure of your ability to control the bike while adjusting the suspension fork, or if you are on a rough surface or a busy road, please stop before attempting to adjust the fork.

PRELOAD ADJUSTMENT

Before the bike is ridden, the spring preload must be adjusted to suit the weight of the rider. If too much pre-load is applied, the suspension will be stiff and unresponsive; too little pre-load and the rider may feel some amount of “bouncing” while climbing or sprinting, and may tend to bottom out the shock (compress to the limit of its travel) on large bumps.

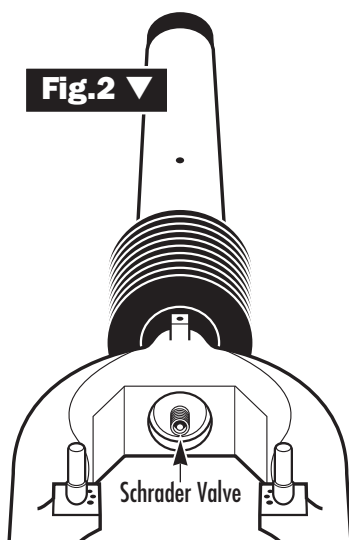
SUPER FATTY D

The Super Fatty D uses compressed air for a spring, allowing infinite adjustability of the preload by varying the air pressure within the cartridge. Preload adjustment requires a precision suspension air pump with gauge that is capable of delivering at least 150 psi through a Schrader valve. A check valve, quick-disconnect, or valve extension may also be helpful in preventing air loss from the valve as the pump is removed. The maximum preload pressure for the air cartridge is 200 psi.

The following procedure is for initial setup only. We encourage riders to experiment with different preloads to achieve their optimal setting.

1. Remove front wheel. Thoroughly clean area underneath the fork crown, then remove Schrader valve cap (See Fig. 2.)

2. Refer to Fig. 3 to determine the recommended air pressure range based on the rider’s weight. Using your suspension pump, add air to the fork according to the chart. Note that Cannondale recommends running the Super Fatty D in the soft end of the adjustment range to allow more shock sag for full suspension use.

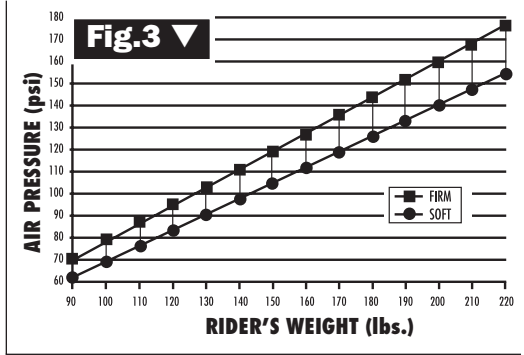


3. Replace valve cap and front wheel. Remember to reattach front brake.

For a more customized setup, follow the steps detailed below.

4. With rider off of the bike, measure from floor to center of one end of the handlebar with the bicycle standing perfectly upright. Then position the rider on the bike in a seated, natural riding position. With only the rear brake applied and the Damping Dial turned fully counter-clockwise, again measure the distance from the floor to the center of one end of the handlebar.

5. The difference in these two measurements is the preload sag. Most riders find the best suspension performance with 1/16" to 1/8" sag compression. Add or remove air from the fork through the Schrader valve until this measurement is achieved. Note this pressure setting for future reference.



FATTY D AND P-BONE D

For both of these forks, there are three different coil springs available, allowing the fork to be customized to suit riders of different sizes. Refer to Fig. 4 for information on which spring came with your bicycle, and recommendations for custom tuning your fork's spring. The springs are interchangeable, and are color coded by stiffness. Each of these springs also allow fine tuning by adjusting the preload.

NOTE: All aftermarket HeadShok forks come with a Blue spring installed.

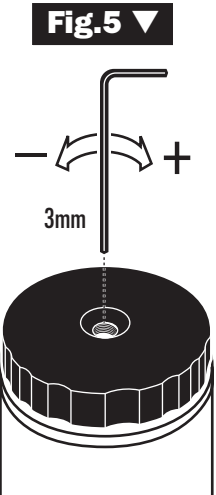
Bike size.....	comes with...
Small	Green
Medium	Blue
Large	Blue
Extra Large	Red
Jumbo	Red

Rider weight range	Recommended spring	Spring Kit code
150 lbs. or less	Green	HD110/GRE
140 - 200 lbs.	Blue	HD110/BLU
180 lbs. or more.	Red	HD110/RED

Beyond changing the coil spring in the Fatty D or P-Bone D forks, the spring preload can be fine-tuned to suit the rider's weight and riding style as follows:

1. Make sure that the Damping Dial is in the "Open" position by turning it to the left (counter-clockwise.)
2. Remove the small bolt from the center of the Damping Dial.
3. With the rider off of the bike, measure from the floor to the center of one end of the handlebar with the bicycle standing perfectly upright. Then position the rider on the bike in a seated, natural riding position. With only the rear brake applied, again measure the distance from the floor to the center of one end of the handlebar.
4. The difference in these two measurements is the preload sag. Most riders find the best suspension performance with about 1/8" sag compression. To change the amount of sag, insert a 3mm Allen wrench into the hole in the top of the fork. Turn the preload adjustment screw clockwise for greater preload (less sag compression) or counter-clockwise for less preload (more sag compression.) See Fig. 5.
5. When desired preload is set, replace the Damping Dial bolt.

NOTE: This procedure is to be used as a guideline only. We encourage riders to experiment with preload adjustment. Some prefer a stiffer suspension, some a softer, more compliant suspension. Replacement springs are available from your Authorized HeadShok Retailer.



DAMPING ADJUSTMENT

Damping controls the speed at which the suspension moves. Compression and rebound damping of the Super Fatty D, Fatty D, and P-Bone D forks can be adjusted by changing the viscosity of the hydraulic oil within the cartridge. Since this procedure requires several unique tools and expertise with hydraulic suspension systems, it should only be performed by an experienced bicycle mechanic at an Authorized HeadShok Service Center. See your dealer for more information regarding the fine tuning of your HeadShok fork.

SUPER FATTY D SPECIFICATIONS

<i>Weight</i>	3.4 lbs.
<i>Steerer Tube</i>	HeadShok telescoping with 88 needle bearings
<i>Travel</i>	80mm
<i>Blades</i>	TIG-welded 6061-T6 aluminum, swaged and tapered w/Disc Brake mount
<i>Spring</i>	Pressurized air
<i>Damper Cartridge</i>	DD80 hydraulic with shim valve and "On-The-Fly" lockout
<i>Adjustments</i>	Air preload and shock oil weight
<i>Damping Dial</i>	2 position lockout
<i>Upgrades</i>	FT 80 cartridge with 4-circuit damping

FATTY D SPECIFICATIONS

<i>Weight</i>	3.4 lbs.
<i>Steerer Tube</i>	HeadShok telescoping with 88 needle bearings
<i>Travel</i>	60mm
<i>Blades</i>	TIG-welded 6061-T6 aluminum, swaged and tapered
<i>Spring</i>	Advanced Spring System, coil with nested MCU
<i>Damper Cartridge</i>	DD60 with shim valve and "On-The-Fly" lockout
<i>Adjustments</i>	Preload, spring rate, and shock oil weight
<i>Damping Dial</i>	2 position lockout
<i>Upgrades</i>	FT 70 cartridge with air spring and 4-circuit damping (increases travel to 70mm)

P-BONE D SPECIFICATIONS

<i>Weight</i>	3.4 lbs.
<i>Steerer Tube</i>	HeadShok telescoping with 88 needle bearings
<i>Travel</i>	60mm
<i>Blades</i>	TIG-welded 6061-T6 aluminum
<i>Spring</i>	Advanced Spring System, coil with nested MCU
<i>Damper Cartridge</i>	DD60 with shim valve and "On-The-Fly" lockout
<i>Adjustments</i>	Preload, spring rate, shock oil weight
<i>Damping Dial</i>	2 position lockout
<i>Upgrades</i>	FT 70 cartridge with air spring and 4-circuit damping (will not increase travel)

SUSPENSION UPGRADES AND OPTIONS

The HeadShok is a modular cartridge system, and there are several different suspension systems which may be installed in your HeadShok suspension fork. See your Authorized HeadShok retailer about the different options currently available.

DISC BRAKE MOUNT

Some HeadShok forks include a mount on the left side dropout of the fork designed to fit a CODA Compact Disc Brake caliper. Other brands of disc brakes may fit as well.

HEADSHOK WARRANTY

All HeadShok forks and their internal assemblies are warrantied against manufacturing defects in materials and/or workmanship for a period of one year from the date of original retail purchase.

Not covered under warranty is damage resulting from improper adjustment or maintenance, lack of maintenance, crashes, or use judged by HeadShok to be excessive or abusive.

GETTING IN TOUCH WITH HEADSHOK

For warranty related questions or for more information on this or any HeadShok product, please feel free to contact us.

USA and Canada: (888) HEAD-SHK
Europe (EC): (31) 5415-89898
Japan: (81) 722-99-9399
Australia: (612) 9979-5851

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