



OWNERS MANUAL

HEADSHOK

moto



HEADSHOK™ FORKS

1998 HEADSHOK MOTO FR INSTRUCTIONS

The HeadShok Moto FR combines the versatility of a triple-clamp fork with the superior stiction-free performance of all the HeadShok forks. Unlike the other telescoping-blade suspension forks on the market, which use plastic or steel bushings to isolate the upper and lower sliding sections of the fork, the Moto FR's suspension rolls up and down on needle bearings. These needle bearings virtually eliminate stiction that plagues bushing-type suspension forks.

The Moto FR uses a combination Coil/MCU spring element located in one fork blade to provide 100mm of plush front wheel travel. The other fork blade contains the Moto FR's hydraulic damper cartridge, with its five-position Damping Dial.

The Moto FR's hydraulic damper cartridge has four separate damping circuits (high speed compression and rebound, low speed compression and rebound), allowing the suspension to react to small bumps differently than it does to large impacts. The high-speed damping circuits are adjustable, allowing the rider to customize the ride of the bike to his or her liking.

DAMPING DIAL

The Moto FR's slow speed damping can be adjusted via a five-position Damping Dial while the bike is being ridden. A 90 deg. turn of the dial changes the damping from fully open and plush to firm, reducing the bouncing sometimes induced by hard pedaling in a climb.

Note: This adjustment is biased toward the fork's rebound damping. If the fork is compressed while the dial is turned all the way to the right (clock-wise), it will rebound very slowly, or not at all, depending on spring preload. When the Damping Dial is turned back to the left (counter clockwise), the fork should rebound. This feature is designed into the system, to allow the rider to stiffen the fork in a climb while simultaneously steepening the head tube angle.

WARNING: Use great care and pay close attention to 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 you remove one hand from the handlebars. If you are at all unsure of your ability to control the bike while adjusting the suspension fork, or if your are on a rough surface or a busy road, please stop before attempting to adjust the fork.

Initial Setup

Installation of fork in frame

1. Begin with the fork assembled, but with the top crown removed. The headset cups should already be pressed into the frame.
2. Install crown race on steerer tube.
3. Insert the steerer tube into the head tube. Install upper parts of headset.
4. Press a 1" star-fangled nut into the steerer tube.
5. Install both frame bumpers on the stanchion tubes. Adjust the bumpers up or down so that the bumpers (and not the stanchions) contact the frame when the handlebar is turned to either side.
6. Install the top crown on top of the upper headset cup.
7. Install the headset spacers and stem on top of the top crown.
8. Use an Aheadset top cap specifically designed for a 1 $\frac{1}{8}$ " alloy steerer tube. Complete the headset adjustment as usual. When the headset is adjusted, apply grease to steerer tube clamp bolts and tighten to 6-8 ft-lbs.

Frame bumpers for stanchion tubes

To keep the aluminum stanchion tubes from hitting the frame, the Moto FR fork is equipped with frame bumpers that slide onto the stanchion tubes. These bumpers (part #105417) should be adjusted so that they contact the frame when the handlebar is turned in either direction. These bumpers will not protect the frame or fork in all possible circumstances. Any damage to the Moto fork or to a frame resulting from the fork hitting the frame is not covered by warranty.

Spring preload

There are three different springs available for the Moto FR fork. Refer to the chart below to determine which spring suits you best.

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

| Rider weight range | Recommended spring | Spring Kit code |
|---------------------------|---------------------------|------------------------|
| 150 lbs. or less | Green | HD135/GRE |
| 140 - 200 lbs. | Blue | HD135/BLU |
| 190 lbs. or more. | Red | HD135/RED |

We recommend adjusting the preload of the Moto FR fork so that the suspension “sags in”, or compresses, 1/4” when the rider sits on the bike in a neutral, relaxed riding position. To adjust spring preload, begin by removing the cap on the spring side of the fork (the side opposite the Damping Dial). Use a small screwdriver to pry the cap up. Insert a long 5mm Allen wrench into the hole, and turn the Allen screw within the fork clockwise to increase preload or counter-clockwise to reduce preload.

Head Tube Angle adjustment

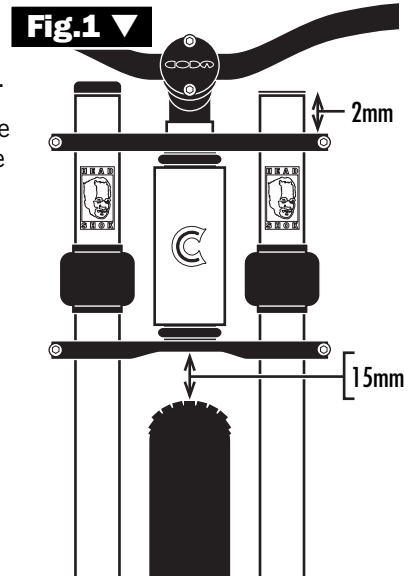
Once spring preload is set, the head tube angle may be adjusted. This is done by changing the position of stanchion tubes within the fork’s triple clamps.

1. Loosen outer caps of both stanchion tubes with pin-spanner wrench. Compress fork so that it is at the bottom of its travel.

2. Loosen stanchion clamp bolts, and slide stanchion tubes up in the clamps until the bottom crown is 15mm from the front tire (Fig.1). Mark the stanchions at this point with a marker or tape. This is the lowest safe adjustment for the fork crown.

3. Apply some grease to the threads of the outer caps and re-tighten into the stanchion tubes.

4. From this point, slide the top and bottom crowns up the stanchions until the desired head tube angle is located. Use a Smart Level(tm) digital level or similar device to determine the head tube angle.



Remember that the Moto FR fork is designed to be adjusted so that the fork sags 1/4” to 3/8” when the rider sits on the bike. To compensate for this, set the head tube angle with the bike unloaded, then slide the triple clamps up the stanchion tubes 1/4” to 3/8” before tightening the stanchion clamp bolts.

5. Apply grease to the threads of all 4 stanchion clamp bolts and tighten to 6-8 ft-lbs.

6. To do a final check of the bike’s head tube angle, begin by setting the preload of both the front and rear shocks. Check the head tube angle with the rider seated on the bike.

NOTE: The tops of the stanchions must be at least 2mm above the top crown (Fig.1).

On some frames with long head tubes, it is impossible to get a desirable head tube angle and maintain this safe adjustment. In these cases, a special “drop-down” top crown must be used. The drop-down top crown is available through Cannondale/HeadShok dealers.

Damping Dial setup

1. Turn tuning shaft clockwise until it stops. Do not force the tuning shaft! Tightening the shaft with excessive force will damage the cartridge (Fig.2).

2. Loosen set screw located in side of Damping Dial. Install dial on tuning shaft, with ball plunger set into machined groove in top of fork. Turn dial clockwise to its stop.

3. Press down firmly on Damping Dial while tightening set screw in side of dial (Fig.3).

Check the function of the suspension fork in each of the five positions of the Damping Dial. When the dial is turned all the way to the right (clock-wise), the fork's rebound damping should be very slow. Likewise, when the dial is turned to the left, the re-bound damping should be very quick. Please note that the Moto FR fork is not designed to have a firm lock-out.*

*For explanation of the dial's function, refer to the "Damping Dial" section at the beginning of this booklet.

Caution: Do not back the tuning shaft out more than one full turn from its clockwise limit. Oil loss will occur if the shaft is loosened too far.

MAINTENANCE

Washing

IMPORTANT: When washing the Moto FR fork, be very careful not to spray water directly into the upper ends of the fork boots. The upper ends of the fork boots cover vent holes in the fork (Fig.4). Water must not be sprayed into these vent holes, or damage to the fork's needle bearings will result. If the fork requires a thorough cleaning, the vent holes should be sealed first.

To seal the vent holes, peel the hood up, exposing the filter. Cut the filter and remove (Fig.5). Seal the vent holes with tape, and repeat the process for the other stanchion before washing the fork. The filters should be washed separately and dried. To re-install, stuff the filter into the hood, making sure that it covers the vent holes completely.

The painted surfaces of the fork may be cleaned with mild detergent and water. If desired, a coating of wax may be applied.

Fig.2 ▼

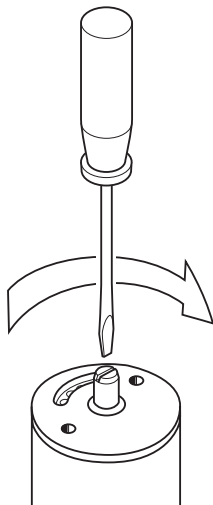
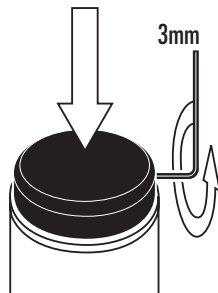
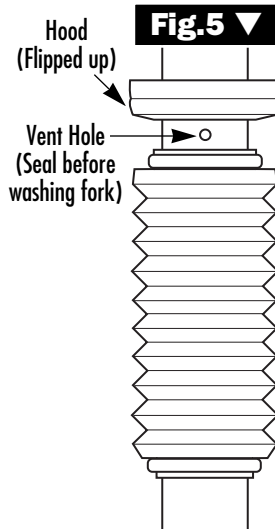
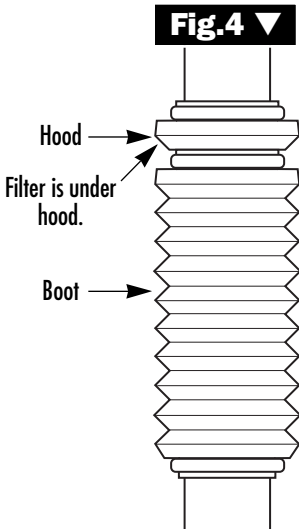


Fig.3 ▼





Filter
(Cut to remove)

NOTE: The filters must be cut to be removed, but they can be reused.

Boot/Seal Inspection

IMPORTANT: Inspect the fork boots frequently for cuts, tears, or broken zip-ties. If damage is found, do not ride the fork until the boot or zip-tie is replaced. The fork boots protect the needle bearings and bearing races from water, dirt, and other contaminants. If a fork is ridden with a torn or unsealed boot, damage to the fork may result. Such damage is not covered under warranty.

Damper Cartridge Oil Change/Seal Replacement

The oil in your fork's damper cartridge should be replaced every 50 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 as needed. These procedures require unique tools and substantial expertise with hydraulic suspension systems. Therefore, they should only be performed by an experienced mechanic at an Authorized HeadShok Service Center.

Needle Bearing Lubrication

The needle bearings in the HeadShok suspension fork should be lubricated at least once a year. This procedure requires partial disassembly of the suspension fork, and therefore must only be performed by an experienced mechanic at an Authorized HeadShok Service Center.

Custom Tuning the High-Speed Damping

The high-speed (big impact) compression damping and rebound damping are both adjusted by changing valve shims within the cartridge. Since this procedure requires several unique tools and expertise with hydraulic suspension, 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 Moto FR suspension fork.

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 purchase.

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

Please note:

This booklet is meant to supplement, not replace, your bicycle owner's manual. The bicycle owner's manual contains valuable information regarding safe operation, adjustment, and maintenance of your bicycle, as well as more complete warranty information. Please read the bicycle owner's manual thoroughly before riding your bicycle, and keep it and this booklet for future reference.

For warranty related questions, or for technical assistance with any procedures in this booklet, contact HeadShok at one of the numbers listed below.

| | |
|------------------|-----------------------------|
| U.S. and Canada: | 888-HEAD-SHK (888-432-3745) |
| Europe: | (31) 5415-89898 |
| Japan: | 0722-99-9399 |
| Australia: | 612-9979-5851 |

