

2010



**WARNING**

READ THIS SUPPLEMENT AND YOUR  
CANNONDALE BICYCLE OWNER'S MANUAL.

Both contain important safety information.  
Keep both for future reference.

# TOWNER'S MANUAL SUPPLEMENT

**LEFTY MAX 140**  
**125123.PDF**

Revision 03/2010

**cannondale**

In this supplement, particularly important information is presented in the following ways:



### **WARNING**

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### **NOTICE**

Indicates special precautions that must be taken to avoid damage.

### **TIP**

*A TIP provides helpful information.*

This manual meets EN standards  
14764, 14766, and 14781.

Vélo certifié conforme aux exigences du décret  
N 95-937 du 24 août 1995 norme NFR030

Replacement Cannondale part numbers are shown throughout this supplement in **BOLD ITALIC** text.

# 2010 LEFTY MAX 140

## Owner's Manual Supplement

### 125123.PDF

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#### **WARNING**

This supplement may include procedures beyond the scope of general mechanical aptitude. Special tools, skills, and knowledge may be required. Improper mechanical work increases the risk of an accident. Any bicycle accident has risk of serious injury, paralysis or death. To minimize risk we strongly recommend that owners always have mechanical work done by an authorized Cannondale retailer.

Please note that the specifications and information in this manual are subject to change for product improvement. For the latest product information, go to [http://www.cannondale.com/tech\\_center/](http://www.cannondale.com/tech_center/)

## SAFETY INFORMATION

### INTENDED FORK USE

Lefty MAX 140mm forks are intended for use in Condition 4 (All Mountain) riding. The CONDITION 4 symbol is shown next figure.



Figure 1.

### CONDITION 4

Bikes designed for riding Conditions 1, 2, and 3, plus rough technical areas, moderately sized obstacles, and small jumps.

### Fork is Intended

For trail and uphill riding. All-Mountain bicycles are: (1) more heavy duty than cross country bikes, but less heavy duty than Freeride bikes, (2) lighter and more nimble than Freeride bikes, (3) heavier and have more suspension travel than a cross country bike, allowing them to be ridden in more difficult terrain, over larger obstacles and moderate jumps, (4) intermediate in suspension travel and use components that fit the intermediate intended use, (5) cover a fairly wide range of intended use, and within this range are models that are more or less heavy duty. Talk to your retailer about your needs and these models.

### Fork Not Intended

This fork is not intended for use in extreme forms of jumping/riding such as hardcore mountain, Freeriding, Downhill, North Shore, Dirt Jumping, Slope-style, Hucking etc.



### WARNING

**UNDERSTAND YOUR FORK AND ITS INTENDED USE.**

**USING YOUR FORK THE WRONG WAY IS DANGEROUS.**

Industry usage Conditions 1 - 5 are generalized and evolving. Consult your Cannondale Dealer about how you intend to use your bike.

**Please read your *Cannondale Bicycle Owner's Manual* for more information about Intended Use and Conditions 1-5.**

## FORK DAMAGE



### **STOP RIDING A DAMAGED FORK IMMEDIATELY.**

The following conditions indicate that serious fork damage is present:

1. Any unusual “klunking” or knocking noises.
2. A change in fork travel.
3. An over-extended, elongated, or compressed boot.
4. Changes from the way the fork had been working
5. Loss of adjustment features, oil leaks, or air leaks.
6. Crash or impact damage (deep scratches, gouges, dents, or bending)
7. Small cracks under the bolt head of upper and lower clamp bolts. This inspection requires the removal of the bolts.

Horizontal cracks above and below the intersection of the upper and lower clamps with the outer tube portion of the Lefty carbon structure.

Vertical cracks in the outer tube (where the races and needle bearings run). These may show as long, straight lines perhaps several lines parallel to each other.

Also, please read Inspect For Safety in PART II, Section D. of your *Cannondale Bicycle Owner's Manual*.

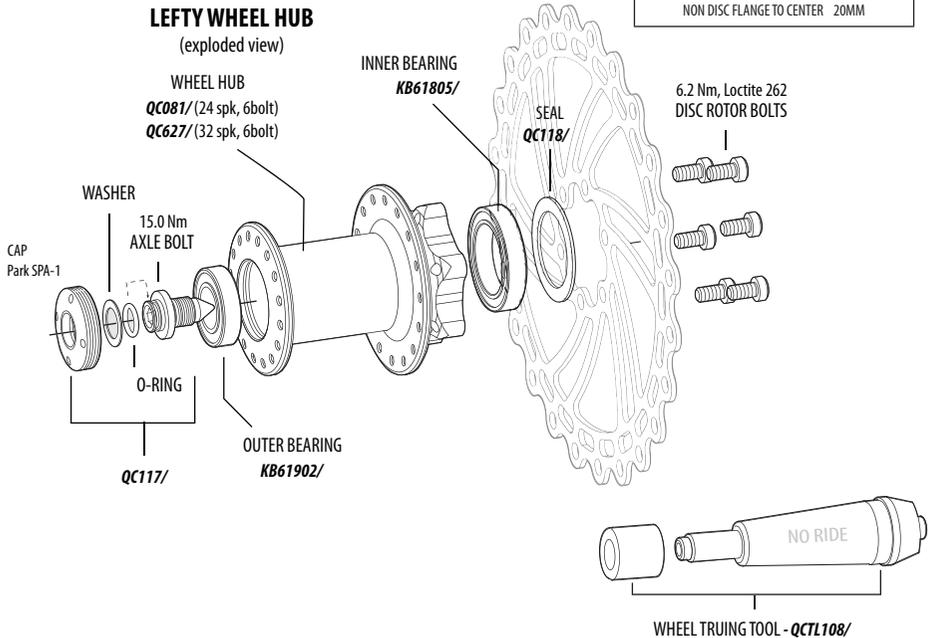
**HAVE ANY DAMAGED FORK INSPECTED AND DAMAGE REPAIRED BY YOUR CANNONDALE DEALER. YOU CAN BE SEVERELY INJURED, PARALYZED OR KILLED IN AN ACCIDENT IF YOU IGNORE THIS WARNING.**

The **MAINTENANCE** section of this supplement includes information about regular maintenance practices that can keep your fork in good operating condition.

## SPECIFICATION

	LEFTY MAX 140 w/ FOX RLC	LEFTY MAX 140 w/ PBR					
TRAVEL	140 mm	140 mm					
INTENDED USE	CONDITION 4, All Mountain	CONDITION 4, All Mountain					
ADJUSTMENTS	LOCKOUT	POP-TOP					
	REBOUND						
	LOW-SPEED COMPRESSION	REBOUND					
	BLOW-OFF THRESHOLD						
	MAIN SPRING	AIR PRESSURE					
	SPRING PRELOAD 10mm/10 turns MAX.	<table border="1"> <tr> <td>LIMITS:</td> <td>MIN.</td> <td>50 psi, 3.4 bar</td> </tr> <tr> <td></td> <td>MAX.</td> <td>225 psi, 15.5 bar</td> </tr> </table>	LIMITS:	MIN.	50 psi, 3.4 bar		MAX.
LIMITS:	MIN.	50 psi, 3.4 bar					
	MAX.	225 psi, 15.5 bar					
RECOMMENDED SAG 25-30%	35 - 42 mm	35 - 42 mm					
SPRING TYPE/MATERIAL	COIL/STEEL	SOLO AIR					
NEGATIVE SPRING	STEEL	AIR AUTOMATIC					
DAMPER OIL VOLUME	145cc	--					
DAMPER OIL WEIGHT	10W	5W					
TELESCOPE LENGTH (Needle Bearing Reset)	720 - 730 mm	720 - 730 mm					

LEFTY 24 AND 32 SPOKE HUB DIMENSIONS	
DISC FLANGE DIAMETER	58MM
NON DISC FLANGE DIAMETER	44.5MM
DISC FLANGE TO CENTER	35MM
NON DISC FLANGE TO CENTER	20MM

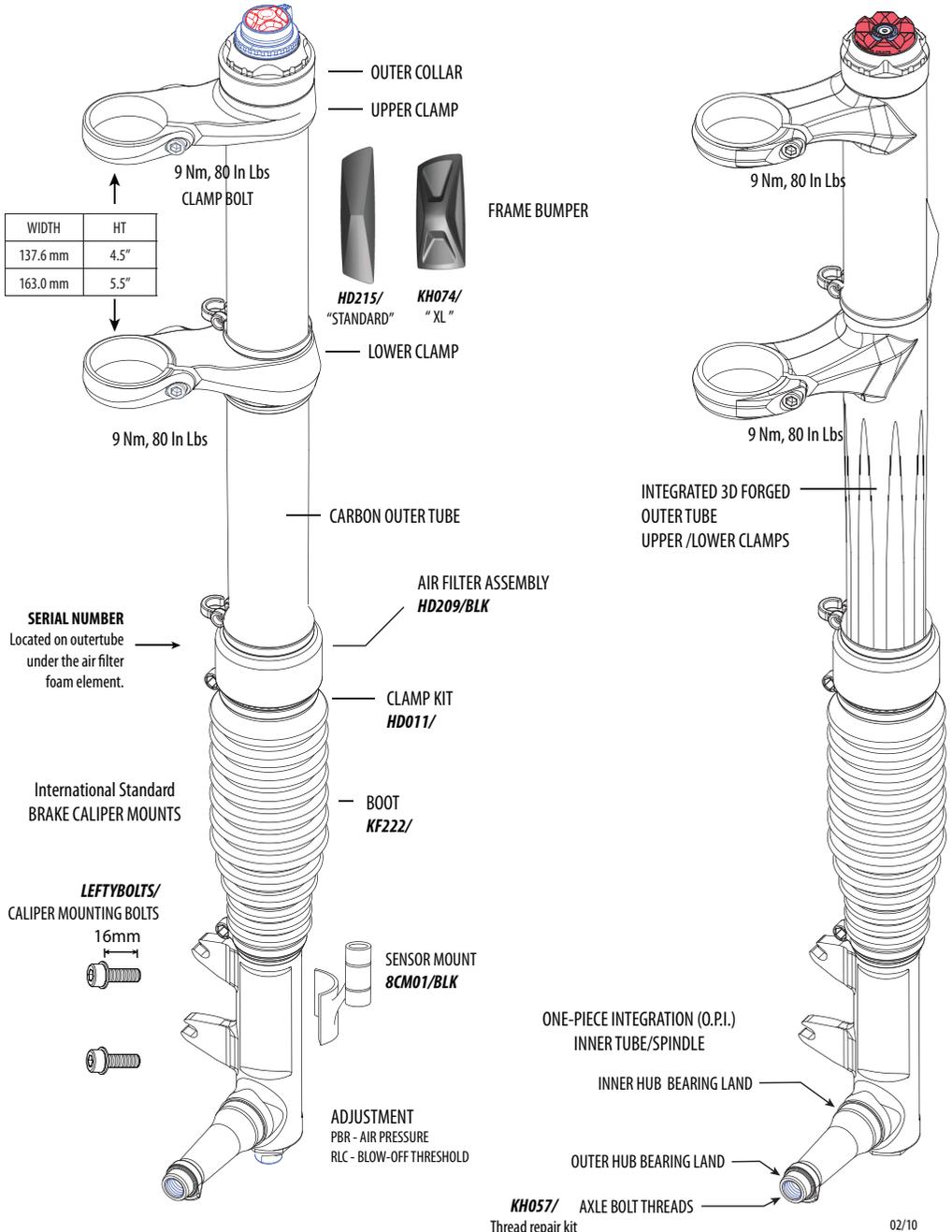


**CARBON**

(FOX RLC shown)

**ALLOY**

(PBR shown)



Thread repair kit

## FRONT WHEEL

### To remove the wheel:

1. Use a 5 mm Allen key to loosen the brake caliper mounting bolts.

Tilt the lower caliper bolt out of the boss so the caliper is up out of the way of the disc. Snug up on the upper bolt to hold caliper in place.

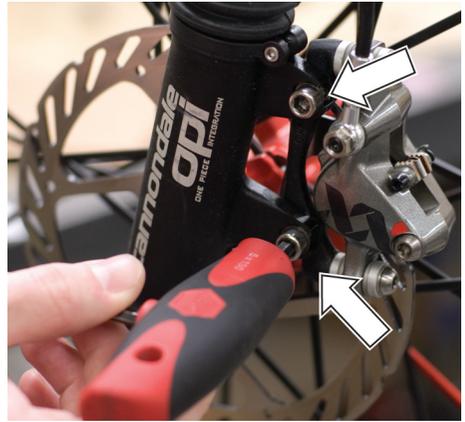
Note brake alignment shims between brake bosses and the caliper. Replace correctly during reinstallation.

2. Insert a 5 mm Allen key into the axle hub bolt and turn the the hub extraction bolt counter-clockwise.

Continue turning the extraction bolt until the wheel can be removed easily from the spindle end.

### NOTICE

- Make sure the bolt is completely disengaged before attempting to remove the wheel. Never try to pull the wheel off forcefully.
- When the wheel is off, to keep dirt out, cover the hub opening.
- Protect spindle from damage when wheel is removed.



**To install the wheel:**

1. Inspect inside the wheel hub for contamination and the condition of the hub seal. Take corrective action if necessary.

Wipe the spindle clean with a dry shop towel and apply a high-quality bike grease to the spindle bearing lands and end threads.

2. Slide the wheel straight onto the spindle so, the larger hub bearing starts to position on its spindle seat. At this point, the axle bolt threads can correctly engage the threaded spindle if the wheel is held on straight.

**NOTE:** *Install the front wheel by positioning the bike horizontally with the spindle facing up. Then place the hub straight down onto the spindle, and tighten the axle bolt.*

3. When the axle bolt threads engage the spindle, turn the bolt clockwise with finger force slowly to allow the hub bearings to slide onto the spindle bearing seats.

Once the hub has been drawn onto the spindle completely, use torque wrench to tighten to final 15.0 N•m (133.0 In•Lbs).

4. Reinstall the brake caliper. Tighten bolts to 78.0 In•Lbf (9.0 N•m).
5. Spin the wheel to make sure it moves freely. Be sure to test the brakes for proper operation before riding.

**WARNING**

**DO NOT CONTAMINATE BRAKE CALIPER, PADS, OR ROTOR WITH GREASE.**

**WARNING**

**DO NOT RIDE WITHOUT A PROPERLY MOUNTED, ADJUSTED, AND FUNCTIONING FRONT BRAKE SYSTEM.**

The Lefty (disc/caliper) acts as an integral secondary wheel retention system. If the system is missing or improperly installed, or if the wheel hub axle bolt should loosen, the front wheel could slide off the spindle end.

When mounting IS compatible brake systems:

Follow brake manufacturer's instructions when mounting the brake caliper to the spindle brake bosses. Do not modify the fork in any way.

**PLEASE ASK YOUR CANNONDALE DEALER FOR HELP WHEN INSTALLING COMPATIBLE FRONT BRAKE SYSTEMS.**

**NOTICE**

- **LOCATE BRAKE ROTOR BETWEEN THE PADS.**

Replace shims that are in use, be sure the shims are positioned between the caliper (adapter if any) and inner face of the fork mounts, not under the head of the caliper bolts.

- **USE ONLY THE LEFTY 16mm CALIPER BOLTS TO MOUNT THE BRAKE.**

Longer bolts can result in contact with the brake rotor causing severe damage. Check clearance between the bolt tips and rotor after remounting the caliper. Order replacement bolts - Cannondale p/n **LEFTYBOLTS/**.

- **MAKE SURE THE BRAKE DISC CAN NOT MAKE CONTACT WITH THE FORK BOOT.**

A rotating brake disc can wear through the boot allowing contaminants into the fork.

## 1 1/8" ADAPTER

The 1 1/8" steerer adapter assembly enables fork installation into a compatible 1 1/8" head tube frame. Four different headset kit are available. **The adapter system must be installed by a professional bike mechanic.**

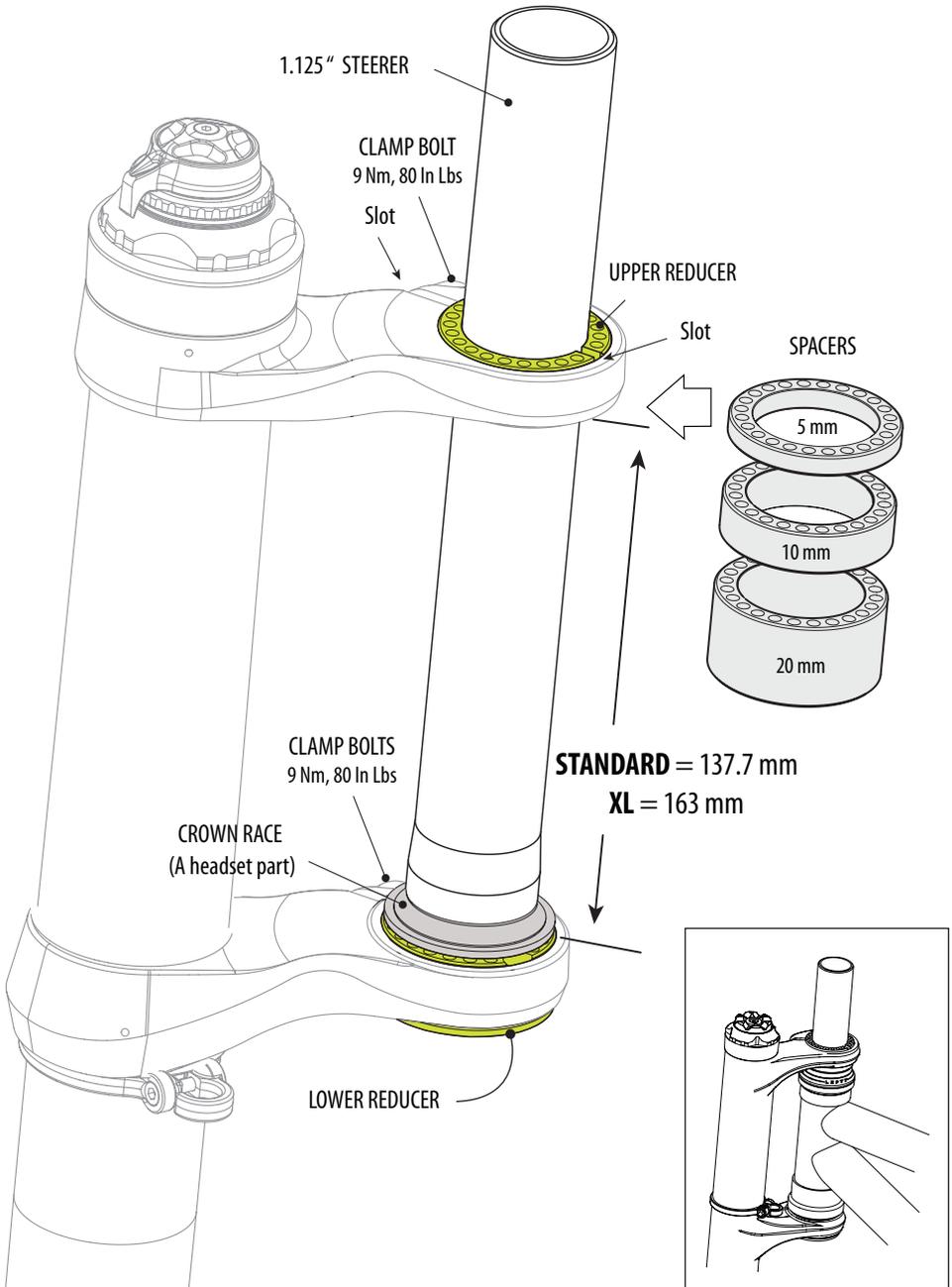
- The LOWER REDUCER must be inserted completely into the lower clamp.
- The upper clamps should only clamp to the UPPER REDUCER as it is designed to compress onto the 1.125 in STEERER. Clamping on SPACERS will result in insufficient clamping force.
- Locate the upper reducer slot 180° opposite the Lefty upper clamp slot.
- Install a combination of adapter kit spacers (5 mm, 10 mm, and 20 mm) to close the gap between the headset top cap and the upper reducer.
- Install all handlebar stem spacers above the upper reducer.
- Tighten the upper and lower Lefty Clamp bolts AFTER the stem top cap has been installed and preload set. Tighten the Lefty Clamp bolts to 9 Nm, 80 In Lbs.

CANNONDALE KIT	HEADSET STACK HEIGHTS	STANDARD Lefty Clamp Width	XL Lefty Clamp Width						
<i>KH075/</i> w/o headset									
<i>KH058/</i> w/ Standard headset	<table border="1"> <tr> <td>Upper cup</td> <td>13.8 mm</td> </tr> <tr> <td>Lower cup</td> <td>11.5 mm</td> </tr> <tr> <td>Total</td> <td>25.3 mm</td> </tr> </table>	Upper cup	13.8 mm	Lower cup	11.5 mm	Total	25.3 mm	Headtube ≤ 112.3 mm	Headtube ≤ 137.7 mm
Upper cup	13.8 mm								
Lower cup	11.5 mm								
Total	25.3 mm								
<i>KH059/</i> w /Zero Stack headset	<table border="1"> <tr> <td>Upper cup</td> <td>11.3 mm</td> </tr> <tr> <td>Lower cup</td> <td>2 mm</td> </tr> <tr> <td>Total</td> <td>13.3 mm</td> </tr> </table>	Upper cup	11.3 mm	Lower cup	2 mm	Total	13.3 mm	Headtube ≤ 124.3 mm	Headtube ≤ 149.7 mm
Upper cup	11.3 mm								
Lower cup	2 mm								
Total	13.3 mm								
<i>KH060/</i> w/ Hiddenset headset	<table border="1"> <tr> <td>Upper cup</td> <td>10 mm</td> </tr> <tr> <td>Lower cup</td> <td>0.5 mm</td> </tr> <tr> <td>Total</td> <td>10.5 mm</td> </tr> </table>	Upper cup	10 mm	Lower cup	0.5 mm	Total	10.5 mm	Headtube ≤ 127.1 mm	Headtube ≤ 152.5 mm
Upper cup	10 mm								
Lower cup	0.5 mm								
Total	10.5 mm								



### WARNING

Before installing the adapter system, YOU must confirm with the frame manufacturer that the frame can be safely used with the adapter system and fork. This is YOUR responsibility and important to your safety. A long travel fork may create too much force on a frame designed for a shorter fork. If you ignore this warning, then the frame can break while you are riding it. YOU CAN BE SEVERELY INJURED, PARALYZED OR KILLED IN A RESULTING ACCIDENT.



## XC3 SI STEM STEERER

The following procedures should only be completed by a professional bike mechanic.

### INSTALLATION

1. Loosen both clamp bolts .
2. Position the Lefty clamps onto the headtube assembly as shown.

**NOTE:** Be sure to route the front brake line between Lefty and Headtube when mounting the fork.

3. Insert Cannondale tool **KT020/** (a.k.a. “Ernie”) through the bottom clamp, into the head tube, and out the upper clamp. The tool aligns and guides the steerer. Its really quite effective! See the graphic?
4. Use a rubber mallet to drive the stem-steerer into the head tube until it stops.
5. Clean and apply grease to the steerer bolt threads and install into the bottom of the stem-steerer. This is an important step. **Don't forget the grease!**

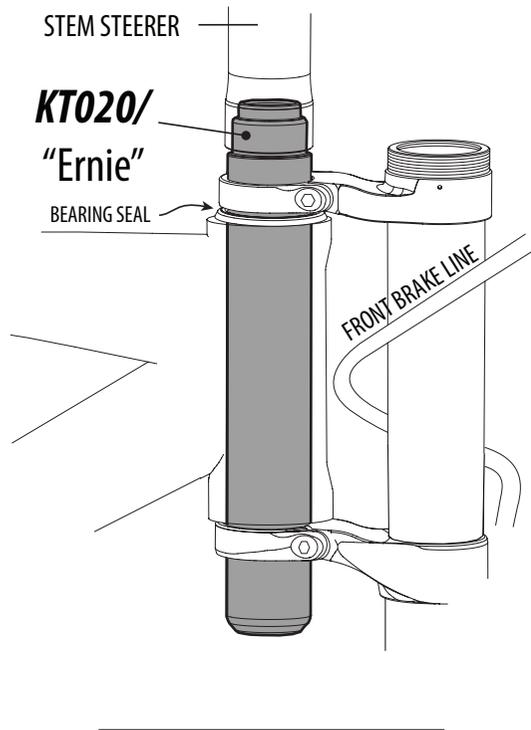
Align handlebar and tighten the steerer bolt to 9 N·m.

6. Tighten the upper and lower clamp bolts to 9 N·m.

### REMOVAL

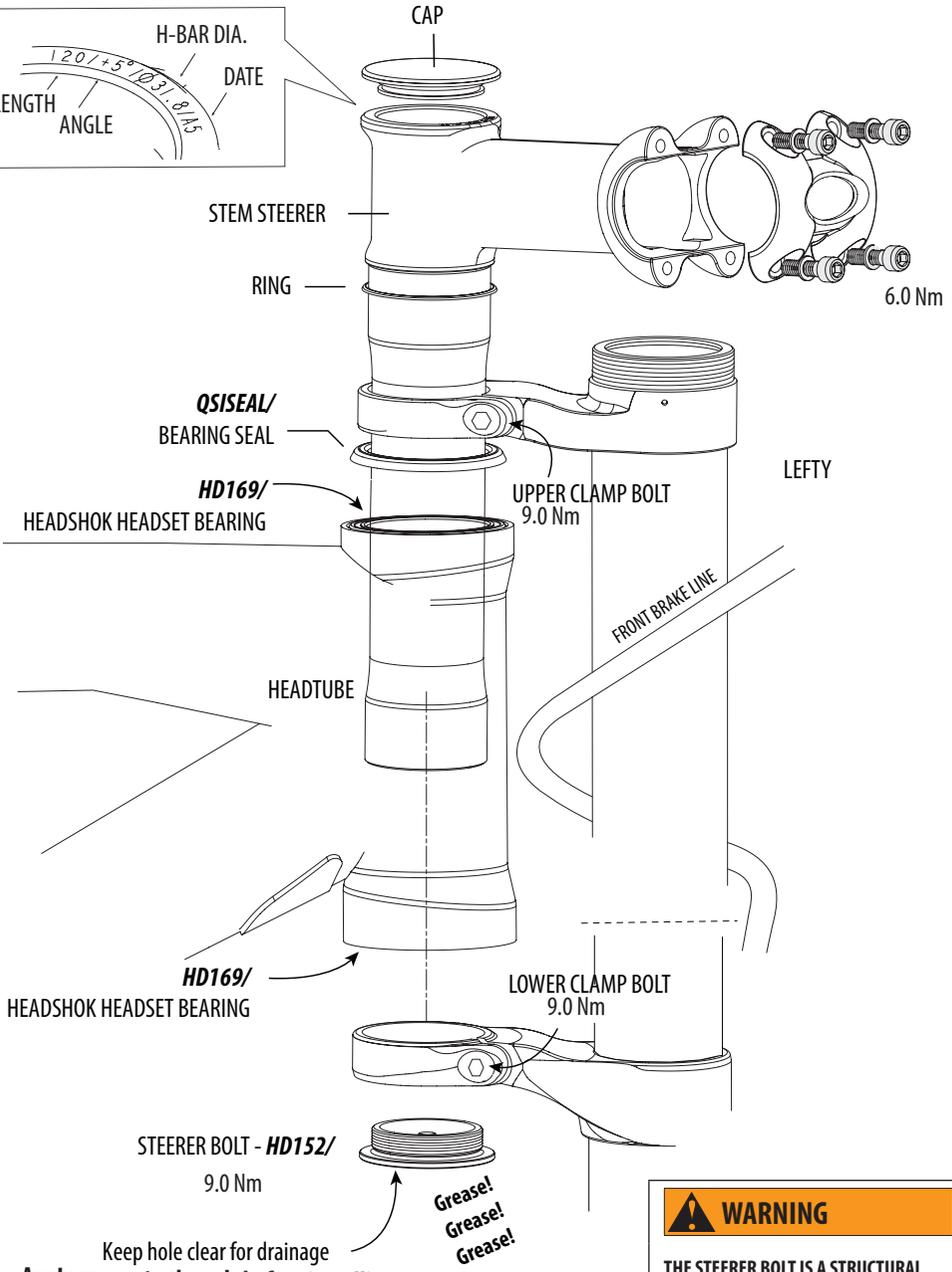
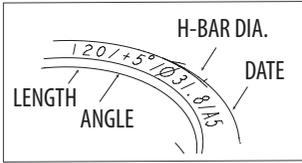
Once again, make sure you have the Ernie.

1. Loosen upper and lower clamp bolts.
2. Remove steerer bolt. Use a 5mm Allen key; turn counter-clockwise.
3. Insert the small end of **KT020/** into the bottom of the stem-steerer; hold the LEFTY, and drive the stem-steerer up out of the head tube.



**"NOW THAT'S  
AN  
AWESOME TOOL!"**

STEM SIZE MARKING



Keep hole clear for drainage  
**Apply grease to threads before installing!**

**WARNING**

THE STEERER BOLT IS A STRUCTURAL PART AND MUST BE INSTALLED.

## MAINTENANCE SCHEDULE

This schedule is intended as a guide only. You must establish a schedule appropriate to your riding style and conditions.

WHAT TO DO	NORMAL	RACE
	(In Hours)	
<b>CHECK FOR DAMAGE - See page 3.</b>	BEFORE AND AFTER EVERY RIDE	
<b>BOOT INSPECTION - See page 14.</b>		
<b>TIGHTENING TORQUE CHECK - Use a torque wrench:</b> Upper/lower clamp bolts: 9.0 Nm, 80 In Lbs Wheel axle bolt: 15.0 Nm, 133.0 In Lbs	AFTER FIRST RIDE CHECK EVERY 4-5 RIDES	
<b>CLEAN/RE-OIL AIR FILTER - See page 15.</b>	25	10
<b>CLEAN/ RE-GREASE TELESCOPE - See page 21.</b>	50	25
<b>NEEDLE BEARING RESET * See page 16.</b>	25	25
Damping cartridge oil and seal change *	100	25
Inspect, replace frame bumper	AS NEEDED	
<p><b>SCHEDULE PROFESSIONAL FORK SERVICE * ANNUALLY (Minimum)</b> Annually, or when problems are indicated you must have your Lefty fork serviced through a Cannondale Dealer or an Authorized Headshok Service Center. Your fork should be disassembled by a suspension professional and evaluated for internal and external part wear and damaged parts replaced with new ones. It should also include any work described in any technical bulletins or product recalls.</p> <p><b>PLEASE NOTE:</b> Cannondale provides professional services through Cannondale dealers for Headshok /Lefty suspension forks. Please ask your dealer about the service programs available for your model fork.</p>		

### WARNING

**FREQUENT MAINTENANCE AND INSPECTION IS IMPORTANT TO YOUR SAFETY. YOU CAN BE SEVERELY INJURED, PARALYZED OR KILLED RIDING ON A BROKEN OR POORLY MAINTAINED FORK.** Ask your Cannondale Dealer to help you develop a complete fork maintenance program, one that suits where and how you ride.

## IMPORTANT INFORMATION ABOUT RIDING IN WET, HUMID, OR COASTAL CONDITIONS

Before and after rides, frequently, inspect and renew grease under fork boot and service the air filter. Inspect the boot for rips and tears. Check the folds. If the boot is damaged or not attached securely by the clamps/zip ties, water or contaminants can enter. The boot should be removed and the fork should be immediately dried and re-greased to stop any damage occurring due to moisture.

### ANYTIME THE FORK BECOMES SUBMERGED

**Stop riding it.** The fork is not water tight. A moving submerged fork can accumulate water inside. If your fork has been submerged, you should perform checks immediately.

**DO NOT STORE YOUR LEFTY FOLLOWING A WET RIDE WITHOUT FIRST PERFORMING THE CHECKS ABOVE. SERIOUS DAMAGE CAN OCCUR.**

## Cleaning

Clean using only a mild soap and water solution. Clean water and common liquid dish washing soap will work best. Be sure to cover the adjusters with a clean plastic bag secured with a rubber band or masking tape. Spray off heavy dirt before wiping. Spray indirectly.

### NOTICE

- **DO NOT USE A PRESSURE WASHER.** Use a low pressure garden hose. Power washing will force contaminants into the fork promoting corrosion, immediately damaging, or result in accelerated wear.
- **DON'T DRY WITH COMPRESSED AIR FOR THE SAME REASON.**

## Frame Bumper

The Lefty frame bumper is located on the outer tube between the clamps. The bumper cushions the frame from contact with the fork. Replace it with a new one if it ever becomes damaged, torn, or missing.

**REPLACEMENT:** Before replacement, gently clean the Lefty outer tube with warm soapy water and wipe dry. Remove the backing from the new bumper, position and affix by pressing firmly against the outer tube.

**IMPORTANT:** Be sure to position the bumper so that when the handlebar is rotated to the left, the bumper prevents fork contact with the the frame. Frame damage can result from using the wrong bumper or positioning a bumper incorrectly. Ask your Cannondale Dealer for help.



ORDER NO.	KIT DESCRIPTION
<b>HD215/</b>	KIT,FRAME BUMPER, LEFTY STD (for standard clamp width Lefty)
<b>KH074/</b>	KIT,FRAME BUMPER, LEFTY XL (for tall clamp width Lefty)

## BOOT INSPECTION

The fork boot protects the internal parts (inner tube, races, lubricant, needle bearings, and other internal parts) from contamination and damage. It is a barrier to water, dirt, dust, mud, or grit encountered while riding. If the boot is loose or damaged, dirt, water, dust, salt spray or other contaminants will quickly ruin the fork.

**The boot is an important protection, so before every ride do the following:**

1. Check the boot for damage cracking, splits, or tears. Be sure to check in the folds of the boot.  
  
Check carefully in the folds.  
  
Check for any cables or lines rubbing the boot.  
  
Make sure the brake rotor does not rub or contact the boot.
2. Check the attachment of the boot at the top and bottom. The upper and lower boot lips should be fitted over the lower collar and fork lip. **NO PART OF THE FORK INNER TUBE (lower leg) SHOULD BE EXPOSED.**
3. Replace clamps as required. Always tighten securely, but do not over-tighten the clamps. Replacement cable clamps are available through a Cannondale Dealer.

### **IMPORTANT:**

*If you find boot damage, the area under the fork should also be inspected for damage. And, the damaged boot must be replaced with a new one before riding. Do not try to fix it.*



## CLEAN/RE-OIL AIR FILTER

The air filter assembly is located over breather air holes in the outer tube. The air filter assembly stops the passage of dirt and water which would damage the internal fork components.

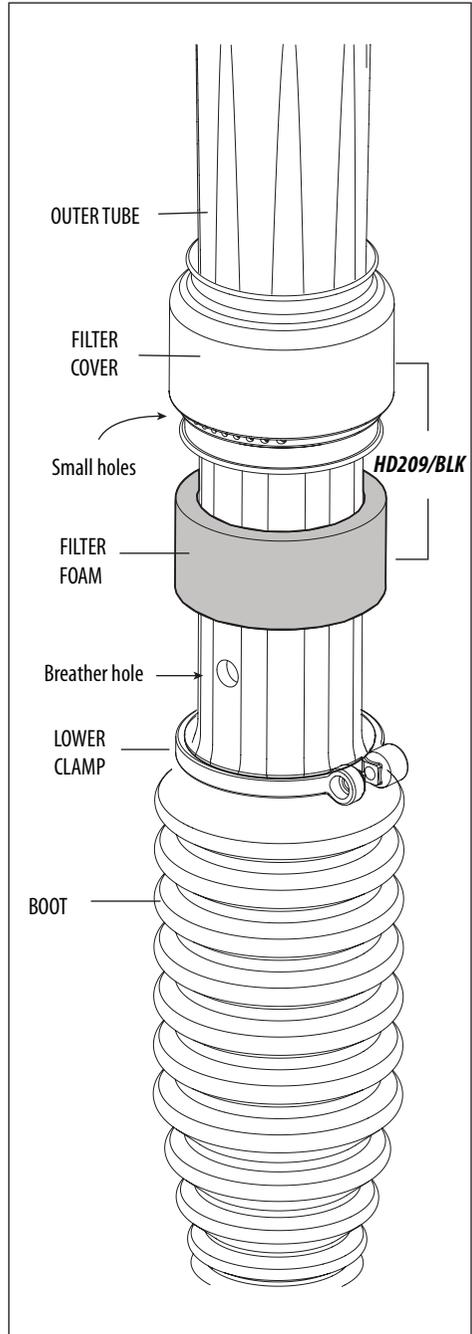
The cleaning procedure is the same for carbon or alloy outer tube fork

### To clean and re-oil air filter

- Loosen and remove both the upper and lower clamps.  
Return the lower clamp to the top of the boot and secure it to seal out water.
- Slide the air filter cover up off the foam element.
- Slide the foam element up off the breather hole.
- Cover the breather hole by applying a ring of vinyl tape around the tube.
- Using warm clean soapy water, massage the foam air filter element. Preventing water or soap from entering the holes in the outer tube or into top of the boot. This will clean the foam of accumulated dirt or dust.
- Repeat the process with clean warm water to rinse the foam. Gently squeeze the foam element to remove the water.
- Allow the foam element to dry completely, and massage in a high-quality foam air filter oil.
- Slide the foam element back into position over the breather hole.
- Slide the boot back over the foam element. The lower filter cover lip should be lapped over the top of the boot. The small holes in the filter cover should be positioned on the fork so they are at the sides to prevent plugging from dirt or debris thrown by the front wheel.

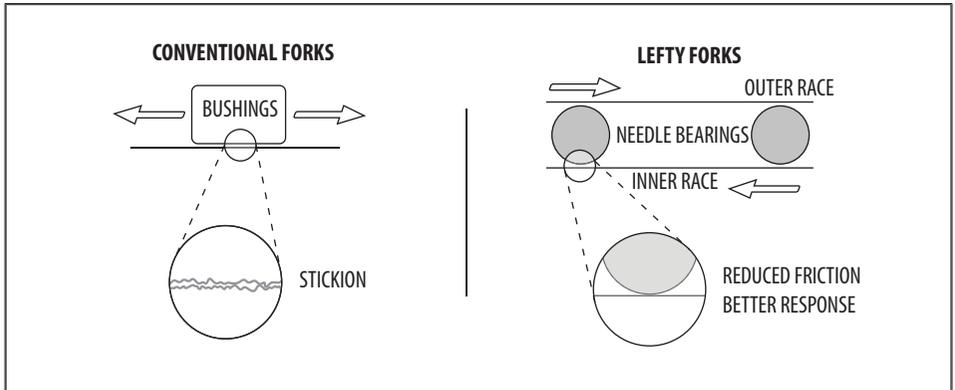
### NOTICE

- DO NOT USE SPRAY CLEANERS.
- COVER BREATHER HOLE. MAKE SURE THE BOOT LOWER CLAMP IS SECURE.



## LEFTY NEEDLE BEARING RESET

The unique advantage of the Lefty telescopic fork structure is the utilization of 4 needle bearing cages. Each cage contain 22 precision stainless steel needle bearings. The use of needle bearings requires less surface area to make the telescope perform smoothly and efficiently. This is accomplished through rolling versus sliding and results in less friction. Less friction means smoother travel, pure and simple. Compare that with conventional forks that use bushings in their stanchions. These bushings have more contact with the sliding part of the scope, which generates friction. That friction causes a heat build-up within the fork and robs performance.

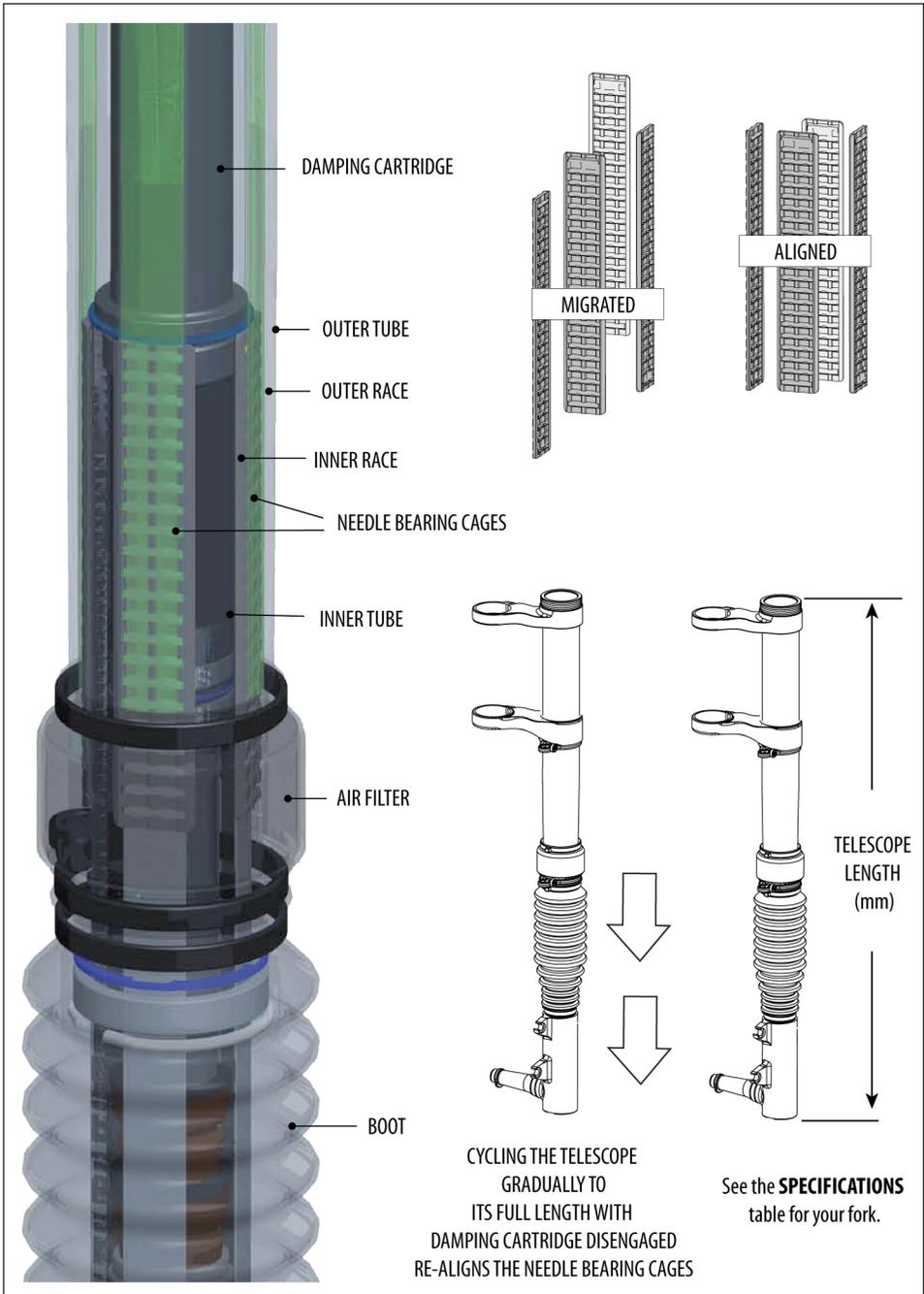


The system requires simple periodic maintenance to ensure proper bearing alignment. Why? Inside the fork the four needle bearing cages of the telescope move independently up and down between each inner and outer race pair. Bearing cage migration happens when a cage or cages shifts out of alignment up or down in relation to the others. Very slight migration would not affect travel noticeably, however, as a cage continues to move out of position relative to the others, the available travel will be reduced.

Needle bearing migration is normal and to be expected. However, if the fork in this state for extended periods, the fork can be damaged. Indications of migration are: An usual "top out" noise, reduced travel.

### RESETTING NEEDLE BEARING MIGRATION

The procedure for resetting your specific Lefty needle bearings is described in the section of the supplement specific to your fork. The techniques of resetting is the same for all forks, however, dis-engaging the damping cartridge differs. We provide the information in the supplement, however, we recommend that you always have this procedure performed by your Cannondale Dealer. If migration re-occurs frequently (immediately after resetting), the cause could be damage present in the inner or outer races, bearings/cages or other fork parts. Inspection and replacement of damage parts will be required to correct a persistent problem with bearing migration.



## CLEAN/RE-GREASE TELESCOPE

Periodically, or whenever the fork is ridden in extreme conditions or is submerged, perform the following procedure.

### To clean and re-grease

1. Remove the front wheel.
2. Carefully release the upper and lower zip ties securing the fork boot. If the boot is secured with a band clamp, loosen and remove the clamp.
3. Lift the unsecured boot up to expose the inner tube.
4. Wipe off the old grease with a dry shop towel.
5. Re-apply a fresh heavy coating of grease. Any clean high-quality bicycle bearing grease selected for riding temperatures and environment can be used.

*We assemble forks at our factory using*

**LUBRIPLATE GR-132.**

[http://www.lubriplate.com/pdf/pds/3\\_4%20GR-132.pdf](http://www.lubriplate.com/pdf/pds/3_4%20GR-132.pdf)

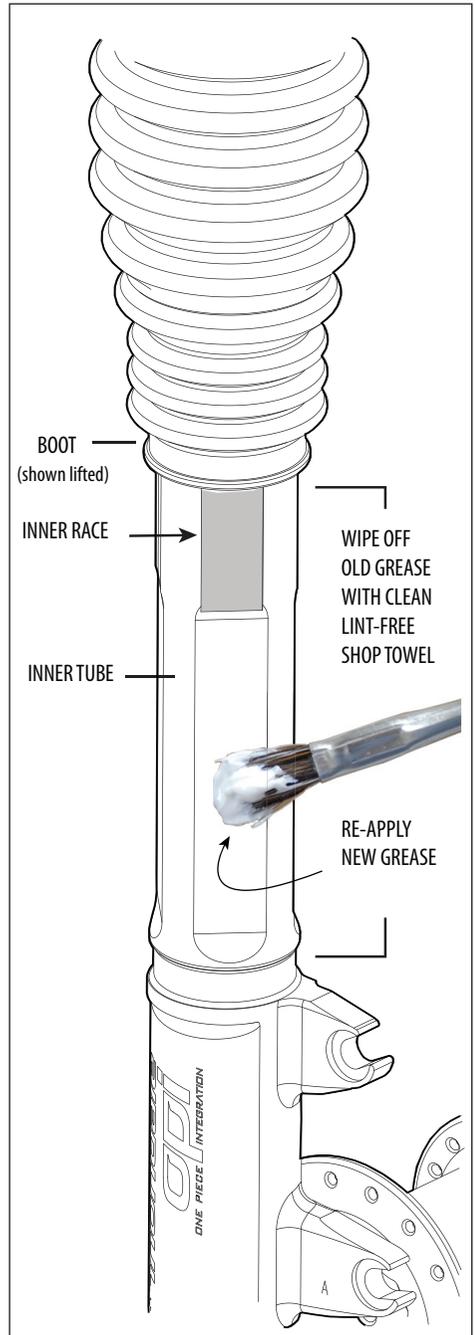
Cycle the fork several times between applying grease to the new grease is worked into the bearings.

6. Reposition the boot and replace the upper and lower clamps.

### NOTICE

- **DO NOT USE SPRAY CLEANERS OR ABRASIVES. USE A CLEAN SHOP TOWEL ONLY.**

**NOTE:** Make sure the clamps are secure without over-tightening. A loose clamp may allow water or dirt to pass behind the boot. If the clamps are too tight, boot damage can occur.



# LEFTY MAX 140 W/FOX RLC

## ADJUSTMENTS

### REBOUND

When setting rebound, First, turn completely clockwise to close, then turn counterclockwise and count each click. Seven clicks out from closed is a good middle starting point.

CLICKS OUT (from closed)	REBOUND SPEED
1	SLOW
15	FAST

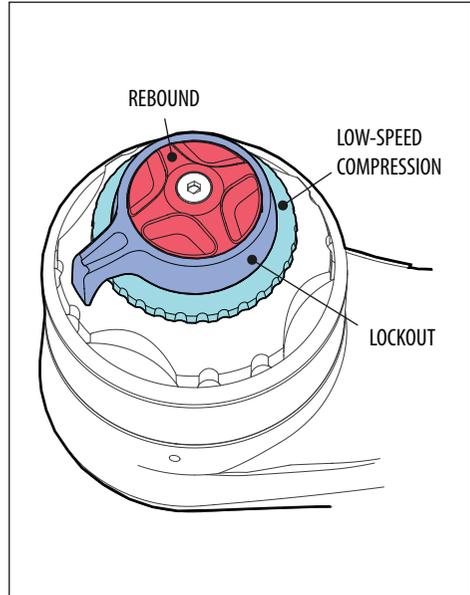
Turn in the -- direction (counter-clockwise) to increase rebound speed (faster). Turn in the + direction (clockwise) to decrease rebound speed (slower).

### LOCKOUT

The blue compression lockout lever allows you to close the compression damping circuit in the fork. This keeps the fork at the top of its travel, making it harder to compress.

**TO LOCK** - Rotate the lever (2) fully clockwise (cw) until it stops. In the locked position, the fork will "blow off" in the event that a big hit is encountered with the fork locked out.

**TO UNLOCK** - From LOCKED, only rotate the lever (2) counter-clockwise (ccw) 90°. While it is possible to rotate the lever counter-clockwise over 360°, it is only necessary to rotate counter-clockwise 90° to unlock the travel.



### LOW-SPEED COMPRESSION

Low-speed compression damping is adjusted with the blue bezel ring below the blue lockout lever, and has 8 clicks of adjustment. Compression damping controls the speed at which the fork compresses. Adjust low-speed compression with lockout disabled (lockout lever fully counterclockwise). As a starting point, turn the low-speed compression dial all the way counterclockwise (full out) until it stops, then turn clockwise (in) 5 clicks.

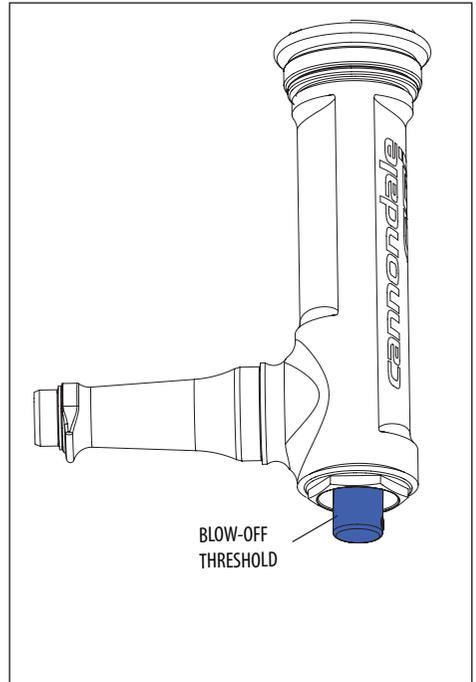
CLICKS IN (from full out, counter-clock- wise)	LOW-SPEED COMPRESSION SPEED
1	SOFT
8	FIRM

## BLOW OFF THRESHOLD

Even when your fork is fully locked out, there are instances when you still want your fork to be active. To protect your fork's internal parts, your fork will "blow off" when it exceeds a certain threshold force.

You can adjust when the fork blows off—lockout force—by adjusting the blue knob (4) at the bottom of the fork. Your fork will then respond to hits in the trail (greater lockout force), for example, but will be locked out (lower lockout force) when you are out of your saddle on a climb.

In the event of a hit that exceeds this threshold, the fork will blow off. During this blow-off event, the damper circuitry may make an audible noise. This is normal.



CLICKS OUT (from fully closed, clockwise)	BLOW OFF THRESHOLD
1	At 1 click, the blow off resistance is greatest. The fork requires a harder hit to blow off the fork compression lockout. It feels firmest at this setting.
12	In this setting, the blow off resistance is lightest. A smaller bump will release the lockout. The fork lockout will feel softest at this setting.

## RLC ADJUSTER DISASSEMBLY

The following procedure should only be completed by a professional bike mechanic.

1. Hold the rebound knob from turning with your finger tips while using a 2mm hex to remove the rebound knob set screw (1). Turn counter-clockwise. Then, lift of the rebound knob (2).

### NOTICE

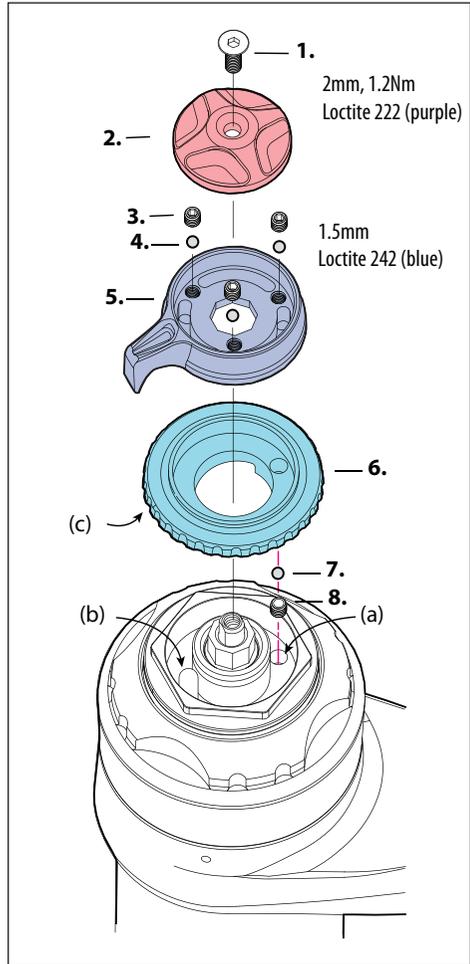
Forcing the rebound knob to its stop with a wrench to loosen the screw will result in damage.

2. Use a 1.5 hex to loosen all three lever set screws (3). Turn counter-clockwise. DO NOT REMOVE THEM. Then, lift off the lockout lever (5).
3. Lift off the low speed compression dial (6). Be sure to capture the ball (7) and spring (8) from hole (a) in the top of the compression valve assembly.

### To reinstall adjusters

Make sure the parts are clean. Apply a very light film of grease to adjuster contact surfaces during assembly.

1. Insert spring (8) into (a). Use a bit of grease to stick ball (7) onto top of spring (8).
2. Align pin (b) with groove (c) in (6) and insert into top of fork. Make sure the dial rotates smoothly and the ball ratchet functions correctly as dial is rotated.
3. Insert (5) into (6). Hold very slight downward pressure on (5) and finger tighten each (3). Tighten evenly. This locks (5) into (6) by moving balls (4) into groove in (6). Do not over-tighten. Set lever resistance by adjusting tightness of (3) until good lever action is achieved.
4. Install (2) and tighten (1) to 1.2 Nm.



No.	Qty	FOX P/N	Obtain from FOX.
1.	1	019-01-007	<a href="http://www.foxracing-shox.com/">http://www.foxracing-shox.com/</a>
2.	1	210-22-210	
3.	3	019-01-006	EMAIL: INFO@FOXRACINGSHOX.COM TEL: 800.FOX.SHOX FAX: 831.768.9342
4.	3	010-01-004-A	
5.	1	210-22-228	
6.	1	210-22-208	
7.	1	039-00-005-A	
8.	1	010-01-000-A	

## RLC PRELOAD /SAG ADJUSTMENT

The following procedure should only be completed by a professional bike mechanic.

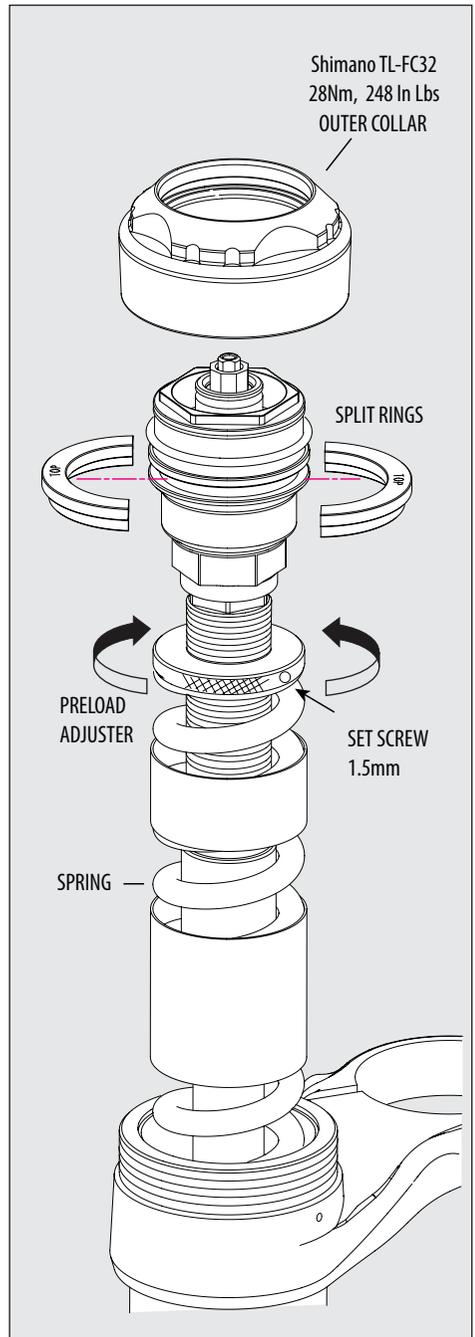
Sag is the distance the fork compresses when a rider sits on the bike. The recommended sag for the Lefty is 25% of the total travel or 27.5mm. Sag is adjusted by changing the spring preload with the preload adjustment ring. The following procedure should only be completed by a professional bike mechanic.

1. Remove the adjuster from the top of the fork.  
See **RLC ADJUSTER DISASSEMBLY**.
2. Next, use Shimano tool TL-FC32 to loosen and remove the outer collar. Slightly compress fork telescope and remove both split rings.
3. Use 1.5mm hex to loosen the preload adjuster set screw. Turn the preload adjuster to increase or decrease SAG. To decrease sag turn the adjuster clockwise. To increase sag, turn the adjuster counter clockwise. 1 complete turn of the preload adjuster is equivalent to 1mm of sag change.

### NOTICE

The preload adjust ring (4) must be set at a minimum of two full turns after it contacts the top of the spring. THE MAXIMUM NUMBER OF TURN AFTER MINIMUM PRELOAD IS SET IS 10. If the desired sag for your body weight can not be achieved using the preload adjuster, consider changing the spring.

4. Tighten the 1.5mm preload adjust set screw finger tight.
5. Apply grease to the split ring groove (a) and reinstall the split rings with the "TOP" marking up. Raise the telescope and reinstall the outer collar. Tighten with Shimano tool TL-FC32 to 28Nm. Reinstall the adjusters.



## RLC NEEDLE BEARING RESET

The following procedure should only be completed by a professional bike mechanic.

See **LEFTY NEEDLE BEARING RESET** on page 14.

1. Remove the RLC adjusters from the top of fork. See previous page.
2. Remove the outer collar with the Shimano tool TL-FC32. Turn counter-clockwise.
3. Compress the telescope and remove the two split rings from the top cap.
4. Fully extend the fork, and measure from top edge of outer tube to bottom edge of spindle. See right. If the length is out of specification do the following:

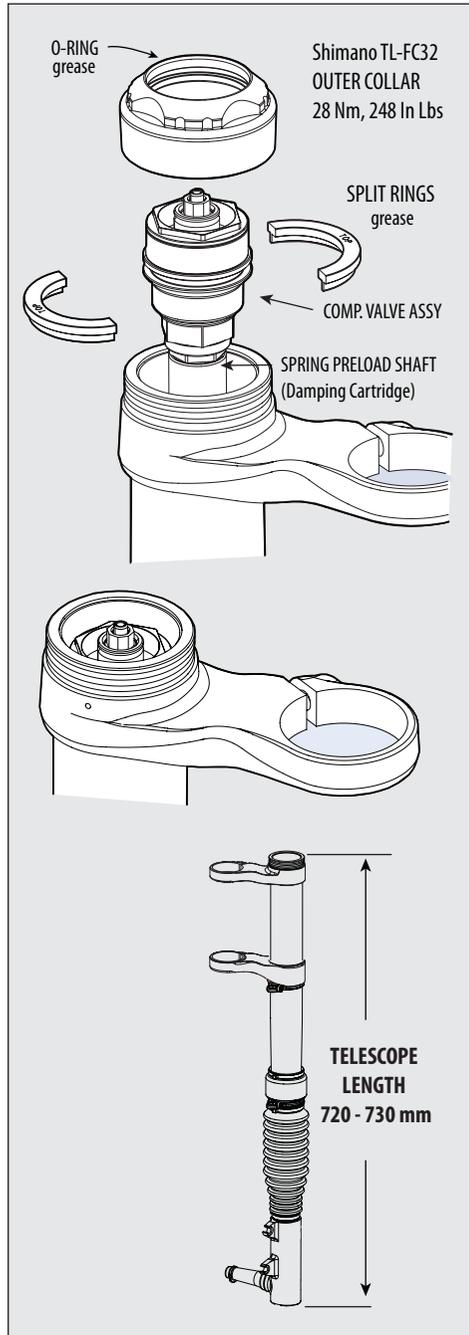
Firmly extend the telescope until it stops (tip - listen for the knocking at full extension to change from a hollow sound to a solid sound - this indicates full extension has been achieved). Do this several times using only moderate force, extend the lower fork leg using a pumping action.

After, you have performed this action several times, re-measure.

### NOTICE

If fork is out of range following reset attempt, it may be damaged internally. The fork should be disassembled and inspected by a professional mechanic before it is ridden.

**NOTE:** If migration re-occurs frequently (immediately after resetting), the cause could be damage present in the inner or outer races, bearings/cages or other fork parts. Inspection and replacement of damage parts will be required to correct a persistent problem with bearing migration.



## RLC SPRING CHANGE

The following procedure should only be completed by a professional bike mechanic.

1. Remove the adjusters.  
See **RLC ADJUSTER DISASSEMBLY**.
2. Use Shimano tool TL-FC32 to loosen and remove the outer collar.
3. Lower the telescope and remove the two splits rings from the compression assembly groove.
4. Hold spring shaft flats with 16mm wrench. Locate a 21mm wrench on the flats and turn it the compression valve assembly counter-clockwise to remove it.
5. Compress the preload tube and remove the retaining ring from the groove.
6. Lift out the spring shaft assembly from inside the spring.
7. Lift out the spring.

To install the spring

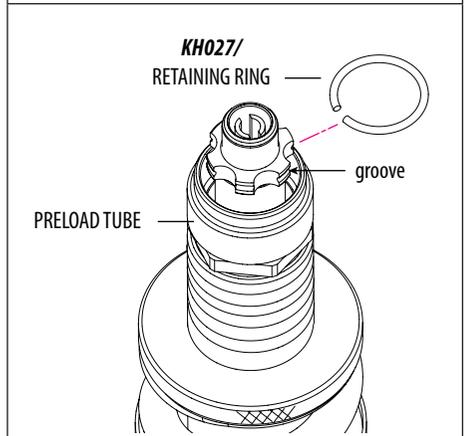
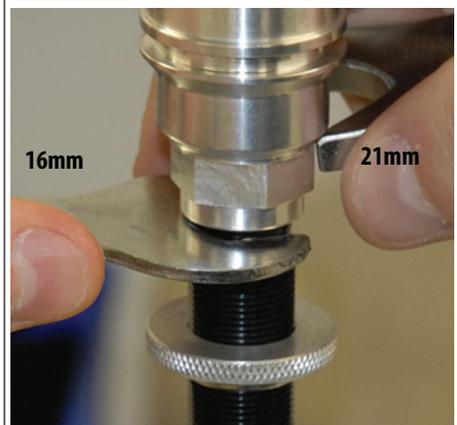
8. Coat the new spring with Maxima Red Spring Grease.
9. Install the spring with the small isolator up.
10. Apply Loctite 242 (blue) to the compression valve assembly threads.

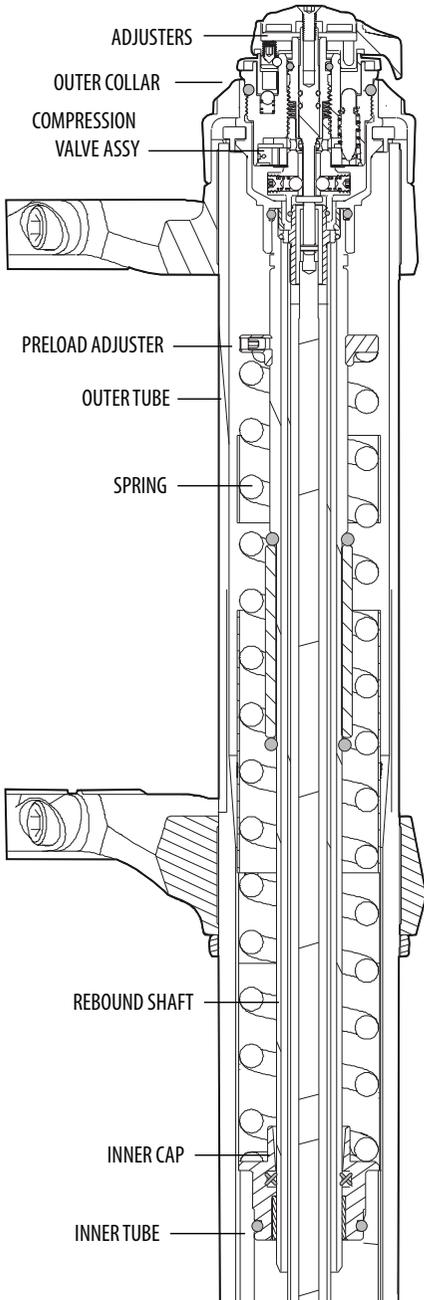
Align the key with the slot on the top of the rebound damper.

Install the compression clamp with the ridge down as shown.

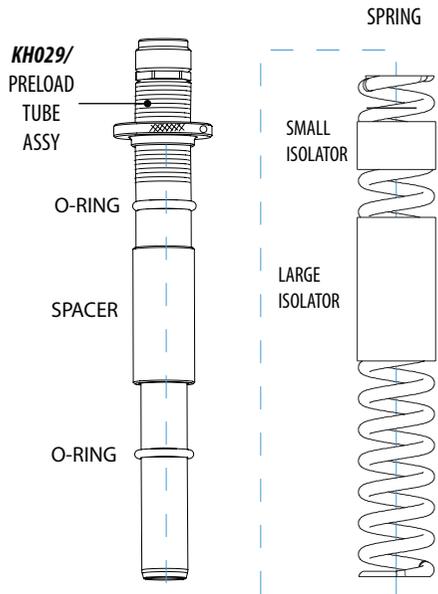
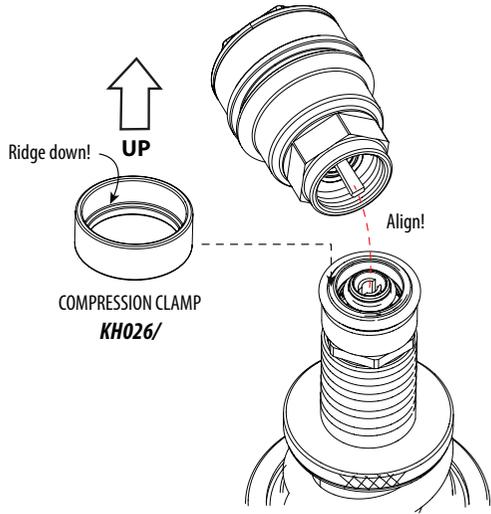
Hold the spring shaft on the flats with a 16mm wrench. Use a 21mm wrench to tighten the compression valve assembly to 7.9Nm.

11. Apply grease to the split ring groove (a) and reinstall the split rings (1) with the "TOP" marking up.
12. Raise the telescope and reinstall the outer collar. Tighten with Shimano tool TL-FC32 to 28Nm.





Loctite 242 (blue), 7.9Nm  
 COMPRESSION VALVE ASSEMBLY

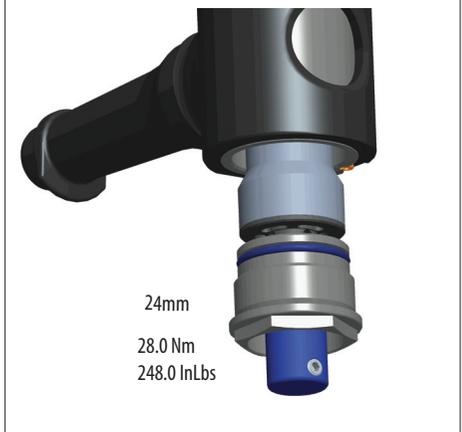
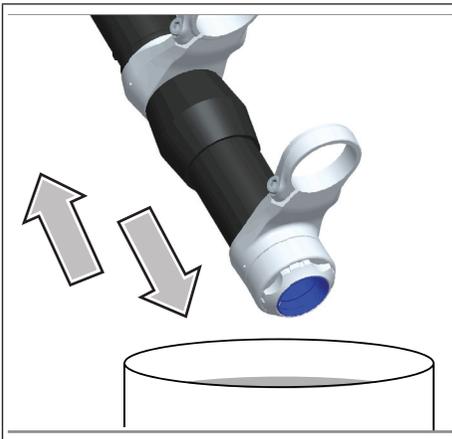


## RLC OIL CHANGE

The following procedure should only be completed by a professional bike mechanic.

1. Remove the adjusters. See RLC ADJUSTER DISASSEMBLY.
2. Use a 26mm socket to remove the compression valve assembly.
3. Lift out the compression valve assembly. Note the pin.
4. Invert the fork over an oil collection pan.  
Cycle the fork several times to pump out the oil.
5. At the bottom of the fork, with a 24mm socket, turn the damper counter-clockwise and lower it out of the spindle enough to drain out oil.

Then, return reinstall the damper and tighten to 28.0Nm, 248 In Lbs.



5. Fill the compression valve assembly with the specified fork oil. See **SPECIFICATIONS**.

Fill oil until it reaches the top of the threads.

Slowly cycle the fork. You will see air bubbles arise through the oil as the oil flows into the damper.

Continue filling and cycling until all the oil has been poured and no bubbles are present.

6. Apply grease to the compression valve assembly threads and the O-ring.

Carefully reinstall the assembly into the top of the fork by hand.

Allow the pin to drop into the slot in the top of the damper and turn the assembly by hand a few turns before using the socket to tighten.

Tighten to 6.0 Nm, 53 In Lbs.

**HD225/** - LUBRIPLATE GR-132

**KF269/** - TORCO RSF MEDIUM



## LEFTY MAX 140 W/PBR

### REBOUND

The red rebound knob has two functions:

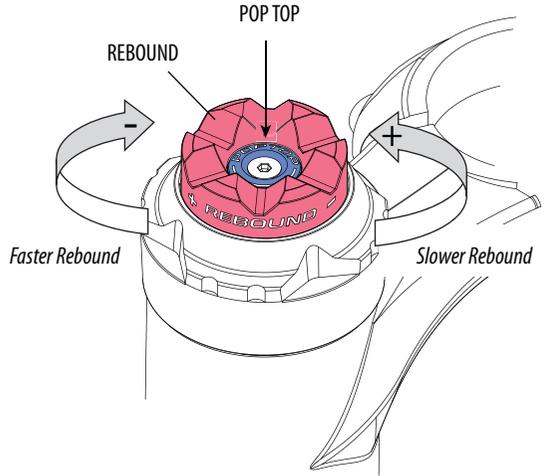
1. **ROTATE TO CONTROL REBOUND.**

Turn in the -- direction (counter-clockwise) to increase rebound speed (faster).

Turn in the + direction (clockwise) to decrease rebound speed (slower).

2. **PRESS DOWN TO DISENGAGE POP TOP.**

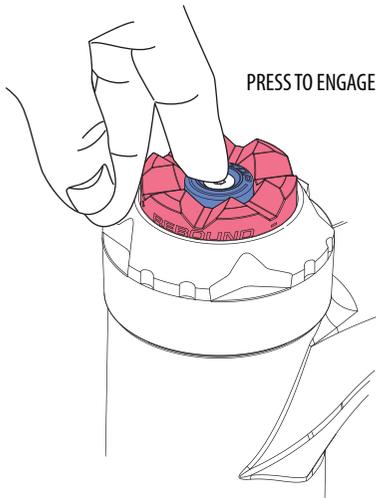
Rebound can be adjusted in or out of POP TOP.



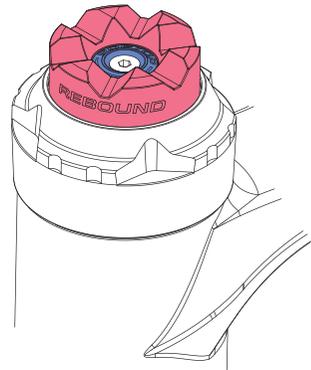
### POP TOP

Press the blue button in the center of the rebound knob to engage the POP TOP feature. Riders will feel a firm threshold which offers great efficiency for climbing and smoother trails.

Press down the red rebound knob to disengage the threshold.



WHEN POP TOP IS ENGAGED,  
THE REBOUND KNOB IS RAISED.



## RECOMMENDED AIR PRESSURE

To set air pressure

1. Make sure the bottom of the fork is clean. Remove the Schrader valve cap. Attach a bicycle suspension pump to the valve end. Pressurize the fork according to the table.

RIDER (Lbs/Kg)		STARTING PRESSURE (psi, bar)	
75	34	45	3.1
100	45	60	4.1
125	57	75	5.2
150	68	90	6.2
175	80	105	7.2
200	91	120	8.2
225	102	135	9.3
250	114	149	10.3
275	125	164	11.3

### RECOMMENDED SAG

35 - 42 mm

### PRESSURE LIMITS

Minimum: 50 psi, 3.4 bar

Maximum: 225 psi, 15.5 bar

2. Now, to fine tune the sag. Without a rider, measure the fork from the bottom edge of the outer collar to the bottom edge of the spindle. Next, have someone assist you. Sit on the bike with your feet on the pedals and hands on handlebar as if you were in a riding position; measure length (B), the fork compressed under your weight.

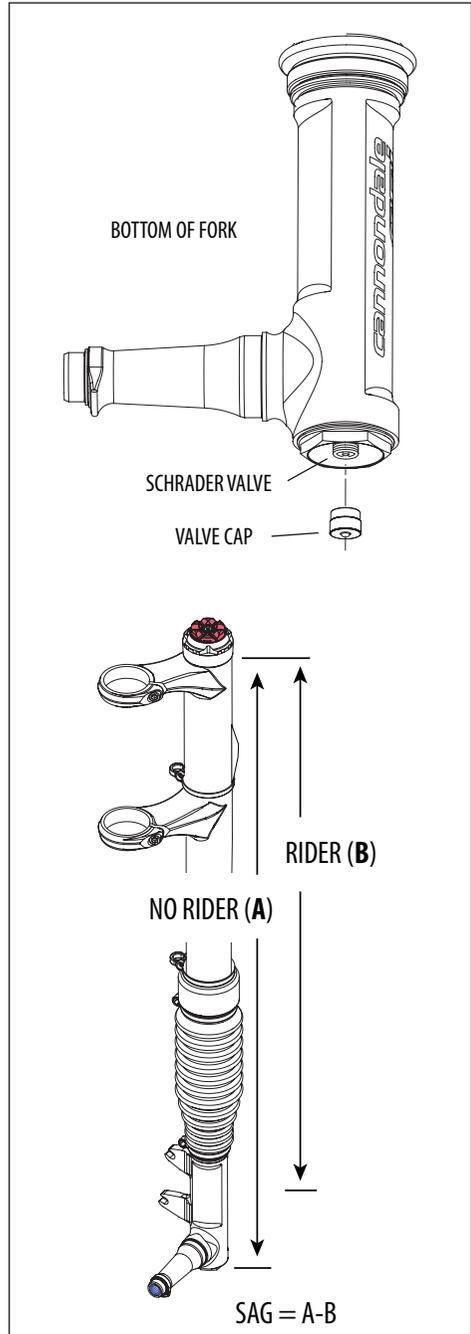
To calculate the sag, subtract :  $A - B = \text{SAG (mm)}$ .

Add air pressure to decrease sag.

Release air pressure to increase sag.

### NOTICE

**MAKE SURE THE SUSPENSION PUMP AND FORK SCHRADER VALVE ARE CLEAN.** Attaching to a dirty valve or with a dirty pump end can result in pumping the dirt into the fork. This could result in damage and air loss.



## PBR NEEDLE BEARING RESET

The following procedure should only be completed by a professional bike mechanic.

See **LEFTY NEEDLE BEARING RESET** on page 14.

To reset

1. Release all air pressure through Schrader valve in bottom of fork.
2. Remove the outer collar with the Shimano tool TL-FC32. Turn counter-clockwise.
3. Compress the telescope and remove the two split rings from the top cap.
4. Fully extend the fork, and measure from top edge of outer tube to bottom edge of spindle. See right. If the length is out of specification do the following:

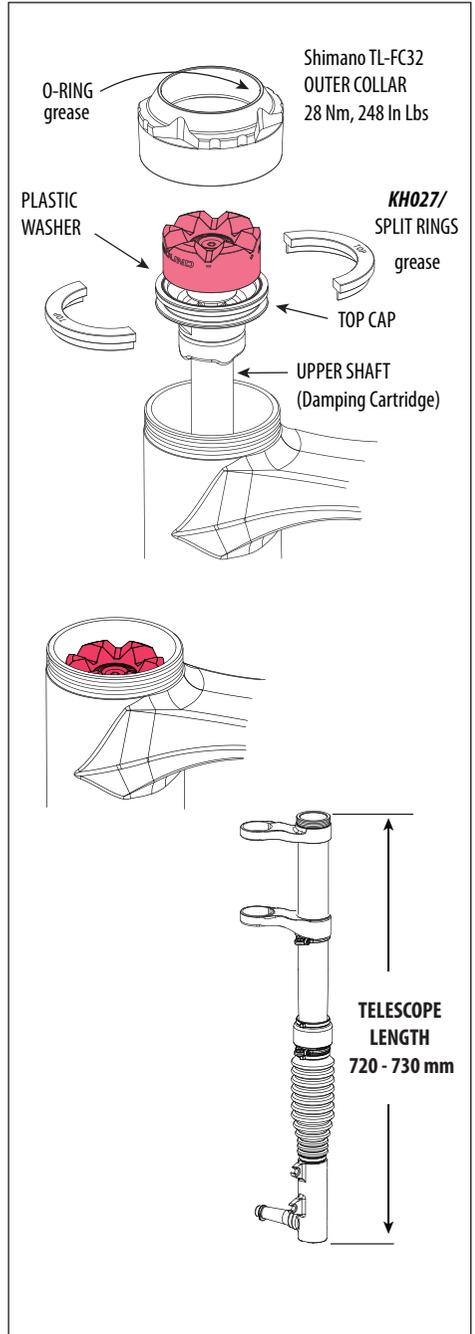
Firmly extend the telescope until it stops (tip - listen for the knocking at full extension to change from a hollow sound to a solid sound - this indicates full extension has been achieved). Do this several times using only moderate force, extend the lower fork leg using a pumping action.

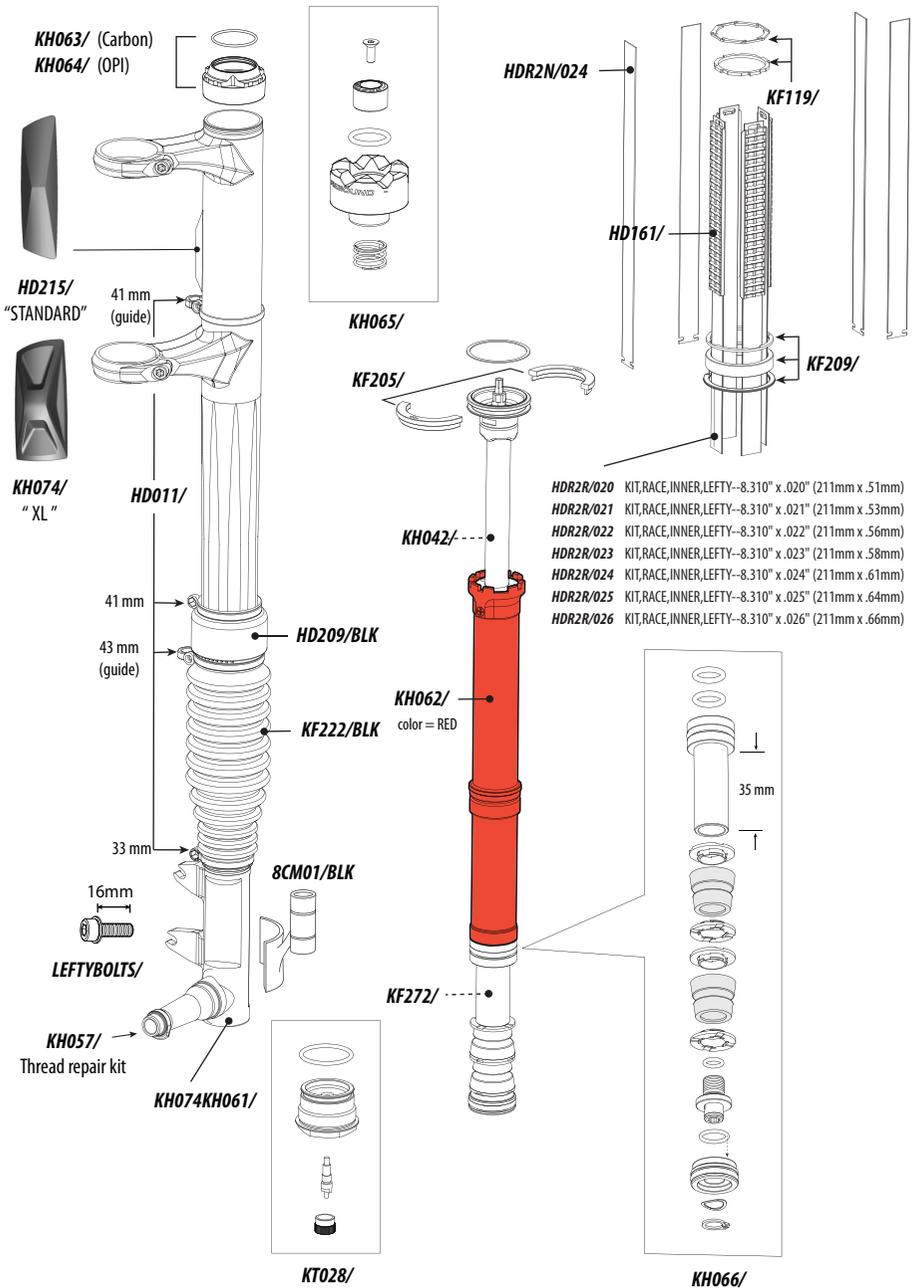
After, you have performed this action several times, re-measure.

### NOTICE

If fork is out of range following reset attempt, it may be damaged internally. The fork should be disassembled and inspected by a professional mechanic before it is ridden.

**NOTE:** If migration re-occurs frequently (immediately after resetting), the cause could be damage present in the inner or outer races, bearings/cages or other fork parts. Inspection and replacement of damage parts will be required to correct a persistent problem with bearing migration.





## REPLACEMENT PARTS

RLC	PBR	ORDER NO.	TELESCOPE PARTS
X	X	<i>HD161/</i>	KIT, NEEDLE BEARINGS
X	X	<i>HDR2N/024</i>	KIT, RACE, OUTER, LEFTY--8.11" x .024" (206mm x .61mm)
X	X	<i>HDR2R/020</i>	KIT, RACE, INNER, LEFTY--8.310" x .020" (211mm x .51mm)
X	X	<i>HDR2R/021</i>	KIT, RACE, INNER, LEFTY--8.310" x .021" (211mm x .53mm)
X	X	<i>HDR2R/022</i>	KIT, RACE, INNER, LEFTY--8.310" x .022" (211mm x .56mm)
X	X	<i>HDR2R/023</i>	KIT, RACE, INNER, LEFTY--8.310" x .023" (211mm x .58mm)
X	X	<i>HDR2R/024</i>	KIT, RACE, INNER, LEFTY--8.310" x .024" (211mm x .61mm)
X	X	<i>HDR2R/025</i>	KIT, RACE, INNER, LEFTY--8.310" x .025" (211mm x .64mm)
X	X	<i>HDR2R/026</i>	KIT, RACE, INNER, LEFTY--8.310" x .026" (211mm x .66mm)
X	X	<i>KF209/</i>	KIT, COLLAR, LOWER, LEFTY
X	X	<i>KF119/</i>	KIT, RACE CLIP, METRIC
X	X	<i>KH061/</i>	KIT, INNER LEG, LEFTY OPI 140/120
X	X	<i>KF222/</i>	KIT, BOOT, LEFTY MAX
X	X	<i>HD209/BLK</i>	KIT, AIR FILTER, LEFTY
X	X	<i>HD011/</i>	KIT, BAND CLAMPS, CABLE GUIDE
X	X	<i>HD215/</i>	KIT, FRAME BUMPER, LEFTY STD
X	X	<i>KH074/</i>	KIT, FRAME BUMPER, LEFTY XL
RLC	PBR	ORDER NO.	DAMPING CARTRIDGE PARTS
X		<i>KH067/</i>	KIT, DAMPER, REB, FOX RLC 140
	X	<i>KH062/</i>	KIT, DAMPER, PBR140
	X	<i>KH063/</i>	KIT, COLLAR, UPPER, PBR, CRB, BLK
	X	<i>KH064/</i>	KIT, COLLAR, UPPER, PBR, OPI, BLK
X	X	<i>KF205/</i>	KIT, SPLIT RING /2 LEFTY
X		<i>KH015/</i>	KIT, DAMPER, COMP, FOX RLC
X		<i>KH068/GRN</i>	KIT, SPRING, FOX RLC 140, FE, SOFT
X		<i>KH068/BLU</i>	KIT, SPRING, FOX RLC 140, FE, STD
X		<i>KH068/RED</i>	KIT, SPRING, FOX RLC 140, FE, FIRM
X		<i>KH025/</i>	KIT, PRELOAD TUBE, FOX RLC
X		<i>KH026/</i>	KIT, COMPRESSION CLAMP, FOX RLC
X		<i>KH027/</i>	KIT, RETAINING RING, FOX RLC
X		<i>KH029/</i>	KIT, SEAL HEAD, FOX RLC
X		<i>KH016/</i>	KIT, COLLAR, FOX RLC
X		<i>KH012/</i>	KIT, SEALS, FOX RLC
	X	<i>KH065/</i>	KIT, KNOBS, PBR 2.0
	X	<i>KF272/</i>	KIT, PRESSURE COMP SYSTEM, LEFTY
	X	<i>KT028/</i>	KIT, SCHRADER PLUG, LEFTY
	X	<i>KH066/</i>	KIT, AIR PISTON, PBR140
	X	<i>KH042/</i>	KIT, SEALS, PBR
RLC	PBR	ORDER NO.	SERVICE TOOLS
X	X	<i>KH023/</i>	KIT, TOOL, SHAFT CLAMP, FOX BODY
X		<i>KH024/</i>	KIT, TOOL, SHAFT CLAMP, FOX SHAFT
X	X	<i>KT016/</i>	KIT, TOOL, BEARING RESET, ENGLISH & METRIC
X	X	<i>KT002/</i>	KIT, TOOL, LEFTY RACE RETAINER, "DIGGLER"
X	X	<i>KT020/</i>	KIT, TOOL, LEFTY INSTALL
X	X	<i>KH057/</i>	KIT, TOOL, LEFTY THREAD REPAIR
X		<i>HD225/</i>	KIT, GREASE, LUBRIPLATE
X		<i>KF269/</i>	KIT, OIL, TORCO, RSE, MID
	X	<i>HD226/</i>	KIT, OIL, GOLDEN SPECTRO
	X	<i>KH031/</i>	KIT, TOOL, CASTLE TOOL-SUPER
	X	<i>KH004/</i>	KIT, TOOL, OIL CAP WRENCH
	X	<i>HDTL168/</i>	KIT, TOOL, BULLET, 1/2"
	X	<i>HDTL187/</i>	KIT, TOOL, SHAFT CLAMP, 1/2"

## Cannondale Limited Warranty

Cannondale Headshok (Lefty, Fatty, Solo) suspension products are covered under the terms and conditions of the Cannondale Limited Warranty. It is available on the Policies page of our website at: <http://www.cannondale.com>. Be sure to read the exclusions listed in the limited warranty. For example, damage from accidents and improper maintenance are not covered.

### Definitions related to forks:

**The fork structure is covered in the FRAMES section of the Cannondale Limited Warranty.**

“Fork structure” means certain structural parts of the fork, specifically the fork legs, outer tube, the steerer tube, steerer tube clamps and the inner tubes with attached dropouts or spindle. The boot, air filter assembly, cable clamps, needle bearings, races, and bushings which are part of the telescopic assembly are normal wear and tear items and ARE NOT covered by the limited lifetime warranty.

**The internal fork internal parts are covered by the 1 year (2 years in EU countries) warranty against defects in materials or workmanship described in the COMPONENTS section of the Cannondale Limited Warranty.**

“Internal fork parts” are defined as items such as damping cartridges and their internal parts, seals, o-rings, air cylinders, air pistons, springs, elastomers, bumpers, bushings, needle bearings, races, and oil. Normal wear and tear on these items is NOT covered by this 1 year (2 in EU) warranty. Like brake pads on a car, you should expect to have these items professionally replaced or renewed as you use the fork and they wear.

### Fork Warranty Claims

For any warranty claim to be considered, the bicycle/fork must be brought into an Authorized Cannondale Retailer on the continent on which the bicycle/fork was purchased. The bicycle/fork must be in assembled condition and accompanied by the original, dated sales receipt for the bicycle/fork.

Dealer Locator at: <http://www.cannondale.com/Dealerlocator>

# SUPPLEMENTS FOR RACER'S SMANUALS

## CANNONDALE EUROPE

Cycling Sports Group Europe, B.V.  
mail: Postbus 5100  
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(Email): servicedeskeurop@cannondale.com

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