READ THIS MANUAL CAREFULLY!
It contains important safety information.
Keep it for future reference.

LEFTY SPEED FOX RLC 110/130

Owner's Manual Supplement

122171.PDF

CONTENTS

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/.

SAFETY INFORMATION

About This Supplement

Cannondale Owner's Manual Supplements provide important model specific safety, maintenance, and technical information. They are not replacements for your *Cannondale Bicycle Owner's Manual*.

This supplement may be one of several for your bike. Be sure to obtain and read all of them.

If you need a manual or supplement, or have a question about your bike, please contact your Cannondale Dealer immediately, or call us at one of the telephone numbers listed on the back cover of this manual.

You can download Adobe Acrobat PDF versions of any Cannondale Owner's Manuals or Supplements from our website: http://www.cannondale.com/bikes/tech.

- This manual is not a comprehensive safety or service manual for your bike.
- This manual does not include assembly instructions for your bike.
- All Cannondale bikes must be completely assembled and inspected for proper operation by a Cannondale Dealer before delivery to the owner.

⚠ 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.

Warning Label

The warning label shown in Figure 1. is located on the lower leg of the Lefty. Do not remove it. If it is missing or damaged, you can obtain a free replacement from Cannondale.

Figure 1.

Intended Use

Lefty FOX RLC 110mm is intended for Condition 3 (Cross-Country, Marathon) riding. Condition 3 symbol shown in Figure 2.

Figure 2.

Lefty FOX RLC 130mm is intended for Condition 4 (All Mountain) riding. Condition 4 symbol shown in Figure 2B.

Figure 2B.

Not Intended

The Lefty FOX RLC 110 and 130 are not intended for use in extreme forms of jumping/riding such as hardcore mountain, Freeriding, Downhill, North Shore, Dirt Jumping, 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.

Bike Suspension

WARNING

YOU COULD HAVE A BAD ACCIDENT IF YOUR SKILL IS NOT UP TO HANDLING A SUSPENSION SYSTEM.

Suspension systems (front fork, rear shocks) can increase the handling and stability of most bicycles. If you lack the skills and experience necessary to ride at higher speeds and maneuver over difficult terrain at the greatly increased performance level, you can ride faster than your abilities. You can lose control of the bike in these conditions and crash. Anytime you lose control of the bike, especially at high speed and in advanced terrain, you risk severe injury or death in a crash.

• Ride at reduced speeds.

• Take time to learn the performance characteristics of your bike and suspension components.

•Ride within your skills and abilities.

•Take a bicycle training course.

Front Brake Requirement

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.

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.

CAUTION

USE ONLY 16mm (Cannondale kit # LEFTYBOLTS/. 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. See Figure 3 item (19).

SPECIFICATIONS

Fork	130	110
Travel	130mm	110mm
External Adjustments	Rebound Lockout Low Speed Compression Blowoff Threshold	
Internal Adjustments	Spring	
	Spring Preload (Sag) 10mm/10 turns Maximum	
Spring Type	Coil	
Spring Material	Titanium, Steel	
Oil Volume	135cc	125cc
Oil Weight	Golden Spectro 85/150, Up to 10wt oil can be used if firmer low speed compression is desired.	
Recommended Sag	25% ,32.5mm	25% , 27.5mm

TIGHTENING TORQUES

Item	Nm	In Lbs	Loctite®
Outer Collar	28.0	248.0	
Lefty Steerer Clamp Bolts	9.0	80.0	
Rebound Knob Set Screw	1.2	10.6	Loctite 222 (purple)
Blowoff Threshold Set Screw	2.0	18.0	
Lefty Wheel Axle Bolt	15.0	133.0	grease
Lefty Brake Disc Bolts	6.2	55.0	Loctite 242 (blue)
Lefty Brake Caliper Bolts	9.0	80.0	

FORK OVERVIEW

ITEM	DESCRITION
1.	Rebound Knob
2.	Lockout Lever
3.	Low Speed Compression Knob
4.	Outer Collar
5.	Upper Clamp
6.	Clamp Bolts - 9.0Nm
7.	Outer Tube
8.	Bumper
9.	Lower Clamp
10.	Serial Number
11.	Cable Guide
12.	Zip Tie
13.	Air Filter Assembly
14.	Cable Guide
15.	Boot
16.	Zip Tie
17.	Spindle
18.	Brake Mounts
19.	Brake Bolts - **LEFTYBOLTS/**
20.	Inner Bearing Seat
21.	Outer Bearing Seat
22.	Spindle Threads
23.	WARNING LABEL
24.	Blowoff Threshold Knob
25.	Lefty Computer Mount (optional)

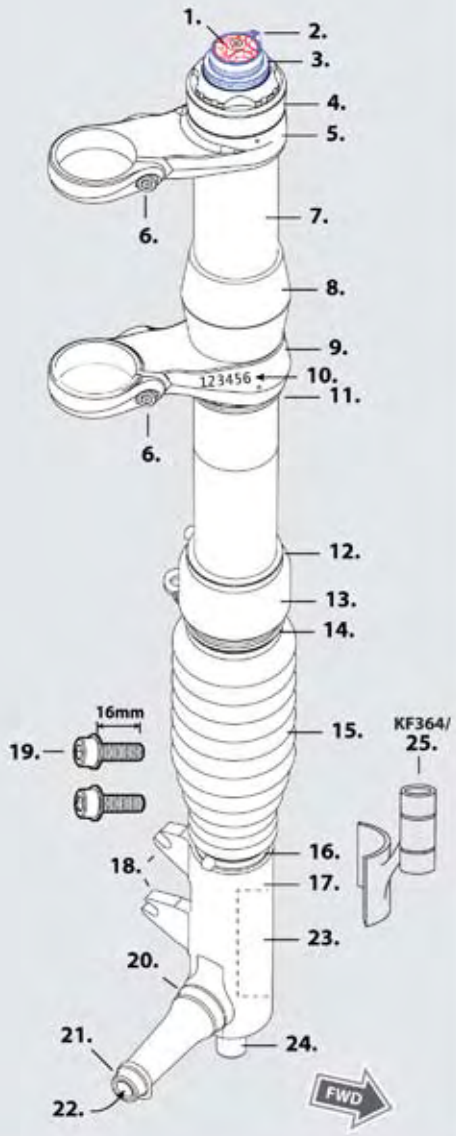
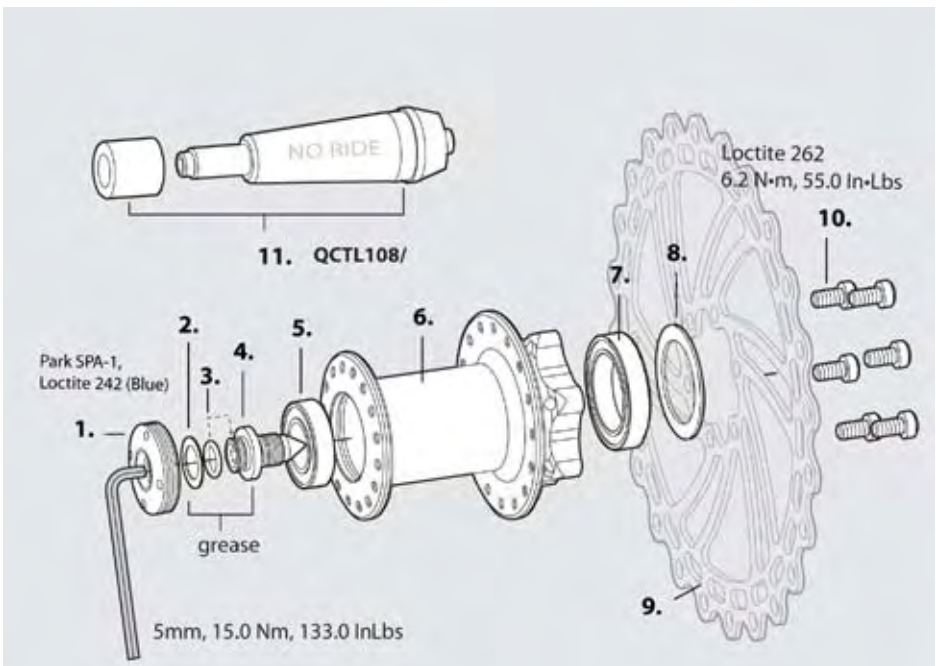


Figure 3.

WHEEL HUB



ITEM	DESCRIPTION
1.	Extraction Cap (left hand thread)
2.	Plastic Washer
3.	O-Ring (lubricate)
4.	Axle Bolt
5.	Outer hub bearing
6.	Hub
7.	Inner hub bearing
8.	Hub Seal
9.	Brake Disc
10.	Brake disc bolts
11.	Wheel Truing Tool

KIT	ITEMS
QC117/	1,2,3,4
KB61902/	5
KB61805/	7
QC081/	Kit,Hub, Lefty 24h6-Bolt/BLK
QC627/	Kit,Hub, Lefty 32h6-Bolt/BLK
QC118/	8

Figure 4.

Wheel Removal

1. Place bike in a work stand with front wheel off the ground. 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.

   Take note of brake alignment shims between brake bosses and the caliper. Be sure to reposition correctly.

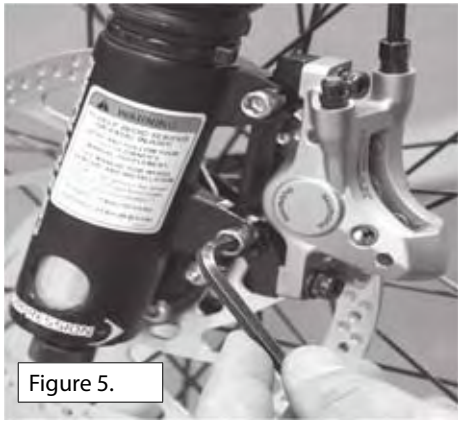


Figure 5.

2. Turn the hub extraction bolt (1) counter-clockwise (ccw) to remove the wheel.

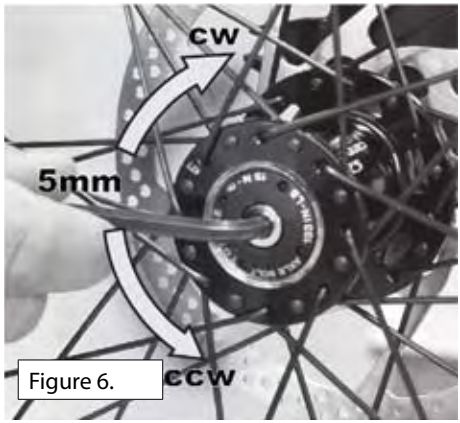


Figure 6.

CAUTION

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

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

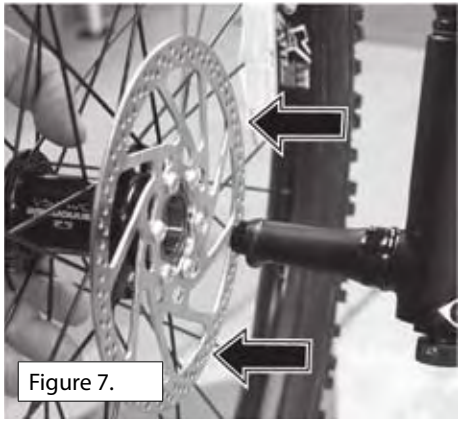


Figure 7.

Wheel Installation

1. Inspect inside the wheel hub for contamination and 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. See next Figure.

2. Slide the wheel straight onto the spindle so, the larger hub bearing starts to position on it 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 hub 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 spins freely. Be sure to test the brakes for proper operation before riding.

⚠ WARNING

Do not contaminate brake caliper, pads, or rotor with grease.

CAUTION

LOCATE DISC 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 16mm (Cannondale kit # LEFTYBOLTS/. 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. See Figure 3 item (19).

ADJUSTMENTS

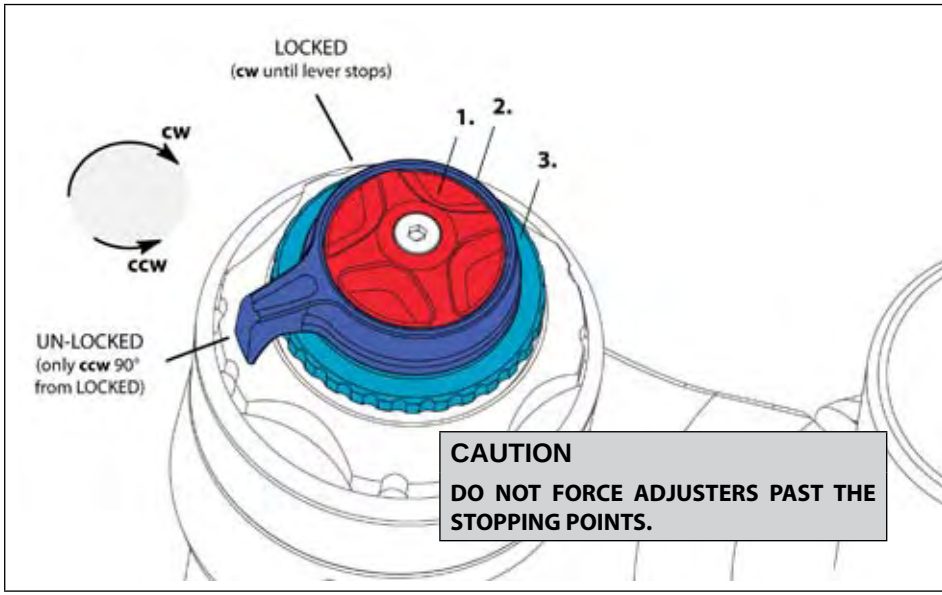


Figure 8.

Rebound

The red rebound knob (1) is located on the top of the fork. It has 15 clicks of adjustment. Rebound controls the speed at which the fork extends after compressing. Turn the knob clockwise (cw) to close it (slower rebound) and counter-clockwise (ccw) to open it (faster rebound).

CLICKS OUT (from full in)	SETTING
1	SLOW
15	FAST

To use the knob:

First turn it completely clockwise (cw) until it stops, then turn counterclockwise (ccw) and count each click. Seven clicks out from closed is a good middle starting point.

Lockout

The blue compression lockout lever (2) 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 LOCKOUT	**Rotate the lever (2) fully clockwise (cw) until it stops.** The fork will "blow off" in the event that a big hit is encountered with the fork locked out. **See 4 - Blow off Threshold on next page!** ***NOTE: The fork may cycle a couple of times after enabling lockout. Once complete lockout is achieved, the fork may continue to move 3 - 5 mm. This is normal and does not affect performance.***
TO UNLOCK	**From LOCKED , only rotate the lever (2) counter-clockwise (ccw) 90°.** While it is possible to the lever counter-clockwise over 360°, it is only necessary to rotate counter-clockwise 90° to unlock.

Low-Speed Compression

Low-speed compression damping is adjusted with the blue bezel ring (3) 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)	SETTING
1	SOFT
8	FIRM

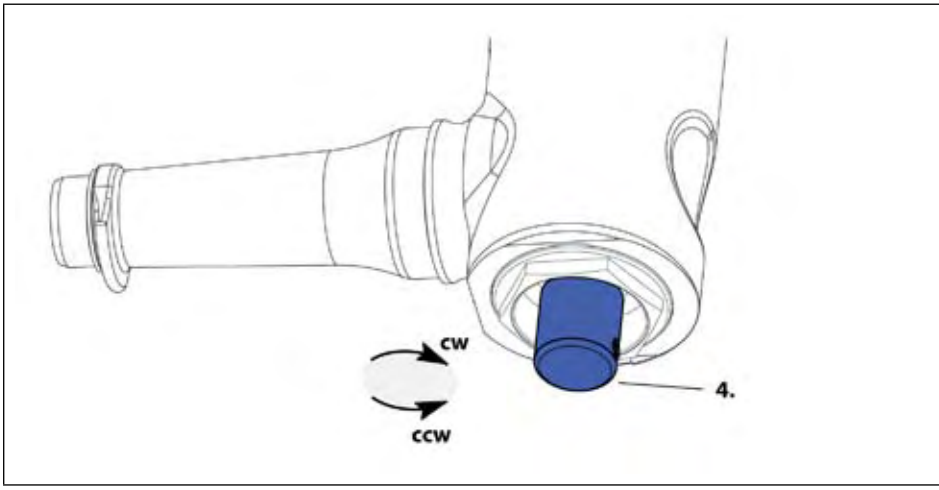


Figure 9.

Blowoff 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 "blowoff" 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 blowoff. During this blow-off event, the damper circuitry may make an audible noise. This is normal.

CLICKS OUT (from full in)	BLOWOFF
1	At 1 click, the blow off resistance is greatest The fork requires a harder hit to blowoff the fork compression lockout. It feels firmest at this setting.
12	In this setting, the blows off resistance is lightest. A smaller bump will release the lockout. The fork lockout will feel softest at this setting

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)	
CHECK FOR DAMAGE. See Damage Inspections on the next page.	**BEFORE AND AFTER EVERY RIDE**	
CHECK THE BOOT. Make sure its in good shape and in place. See page 15.		
CHECK TIGHTENING TORQUES. See Tightening Torques on page 5.		
Grease telescope.	**50**	**25**
Needle bearing reset*	**25**	**25**
Clean air filter	**25**	**10**
Damping cartridge oil and seal change*	**100**	**25**
Inspect, Replace Bumper	**AS NEEDED**	

PROFESSIONAL SERVICE* ANNUAL (Minimum)
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 interal 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.

Our "Factory Tech Room," (in the USA) provides professional services through Cannondale dealers for Headshok suspension forks . Please ask your dealer about the service programs available for your model fork.

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.

Damage Inspections

⚠ WARNING

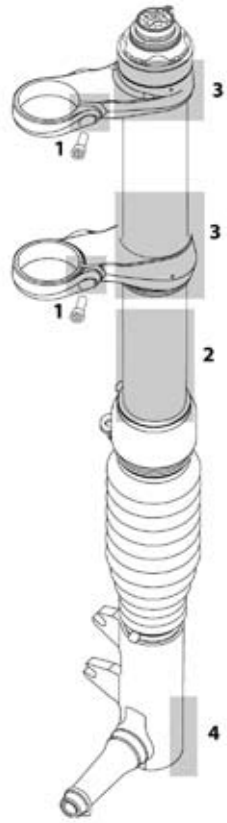
STOP RIDING A DAMAGED FORK IMMEDIATELY.

The following conditions indicate serious fork damage:

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 forks had been working
5. Loss of adjustments features, oil or air leakage.
6. Crash or impact damage (deep scratches, gouges, dents, or bending)

For next items 7-10 please read Inspect For Safety in PART II, Section D. of your *Cannondale Bicycle Owner's Manual*.

7. **AREA 1** - Small cracks under the bolt head of clamp bolts. This inspection requires the removal of the bolts.
8. **AREA 2** - 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.
9. **AREA 3** - Horizontal cracks above and below the intersection of the upper and lower clamps with the outer tube portion of the Lefty structure.
10. **AREA 4** - Vertical cracks at the back of the Lefty spindle directly behind the safety roll-pin. This may happen in a big event crash and the spindle twists slightly.



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.

Cleaning

When cleaning, use only a mild soap and water solution. Clean water and a common dish washing liquid will work best. Cover the adjusters with a clean plastic bag secured with a rubber band or masking tape. Spray off heavy dirt before wiping.

CAUTION

Do not use a pressure washer. Use a low pressure garden hose. Power washing will force contaminants into the fork promoting corrosion, immediately damage, or result in accelerated wear. **Don't dry with compressed air for the same reason.**

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

Cannondale Headshok needle bearing system uses precise components such as bearings and races made of high strength steel. These components require proper maintenance before and after riding in severely wet conditions.

PRE-RIDE CHECKS

The following service and checks are recommended above and beyond typical scheduled maintenance if riding in severely wet conditions.

1. Inspect fork boot for rips and tears.
2. Inspect and renew grease under fork boot.
3. Clean, dry, and oil breather filter element.
4. Ensure zip-ties and band clamps are properly tightened (replace as needed)

POST-RIDE CHECKS

The following service and checks are recommended above and beyond typical scheduled maintenance after riding in severely wet conditions.

1. Inspect and renew grease under fork boot – wipe dry if water is present.
2. Inspect fork boot for rips and tears if water is present in boot.
3. Clean, dry, and oil breather filter element.
4. Ensure zip-ties and band clamps are properly tightened (replace as needed).

IF THE FORK BECOMES SUBMERGED, PERFORM THE CHECKS IMMEDIATELY.

Figure 10.

Removing And Reinstalling The Adjusters

To remove

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).

> **CAUTION**
> 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

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	CANNONDALE
1.	1	019-01-007	Cannondale kit KH030/ is a complete adjuster assembly. It includes all parts shown in this table.
2.	1	210-22-210	
3.	3	019-01-006	
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	

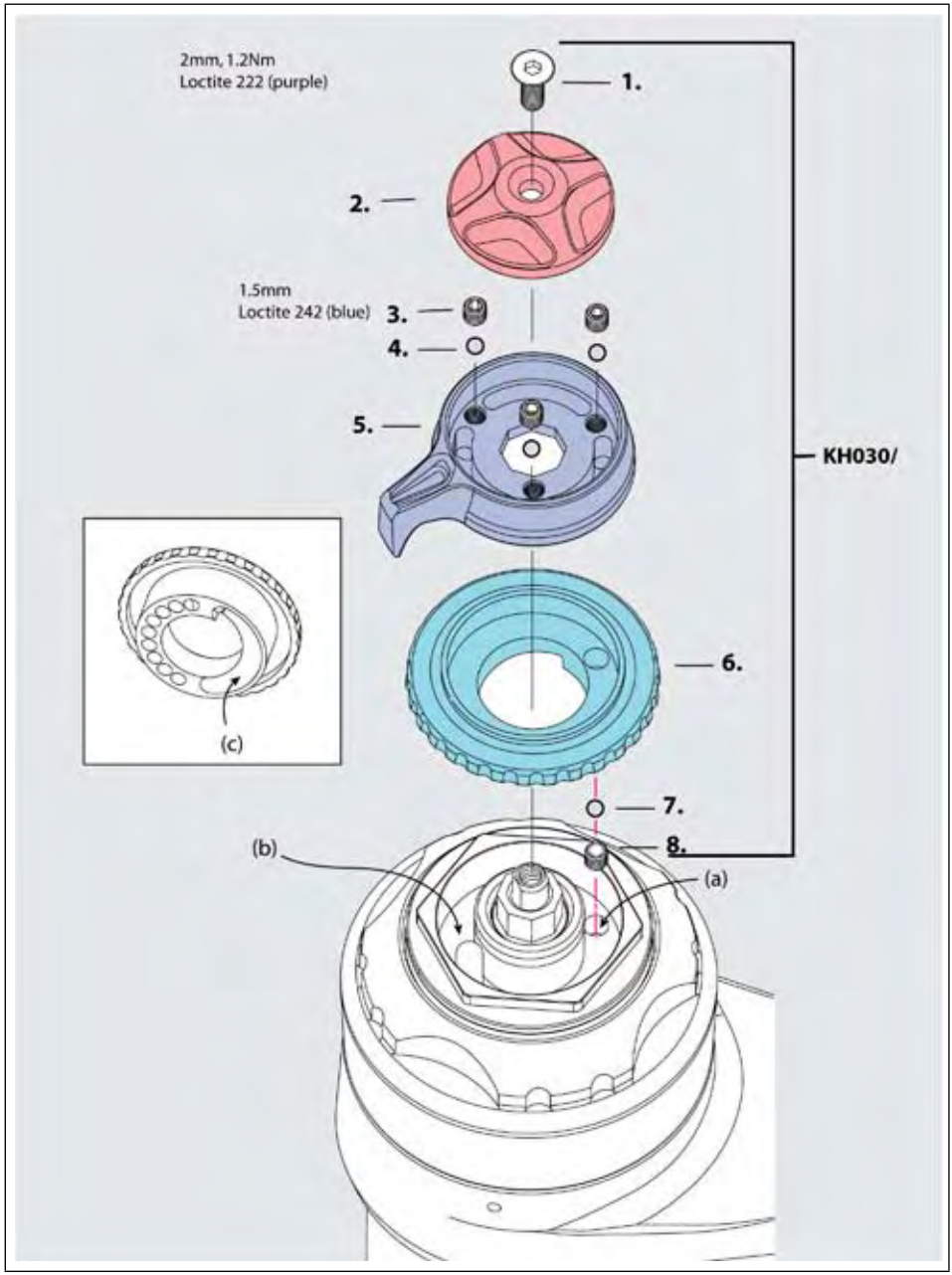

2mm, 1.2Nm
Loctite 222 (purple)
1.
2.
1.5mm
Loctite 242 (blue)
3.
4.
5.
KH030/
6.
(c)
7.
8.
(b)
(a)

Figure 11.

Spring Preload Adjustment (Sag)

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.

1. Start by measuring length (A), the fork length without a rider. Next, Measure (B) fork length with a rider (B). Calculate A - B = SAG (mm).
2. To set adjust the Sag, remove adjusters. See page 16..
3. Use Shimano tool TL-FC32 to loosen and remove the outer collar. (1). Slightly compress fork telescope and remove both split rings (2).
4. Use 1.5mm hex to loosen the preload adjuster set screw (3). Turn the preload adjuster (4) to increase or decrease SAG.

   To decrease sag turn the adjuster clockwise (cw)

   To increase sag turn the adjuster counter clockwise (ccw).

   1 turn is equal to 1mm of sag change

> **CAUTION**
>
> 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 ajuster, consider changing to a softer or firmer spring (4). See next page.

5. Tighten the 1.5mm preload adjust set screw finger tight.
5. Apply grease to the split ring groove (a) and reinstall the split rings (2) with the "TOP" marking up. Raise the telescope and reinstall the outer collar (1). Tighten with Shimano tool TL-FC32 to 28Nm. Reinstall the adjusters. See previous page.

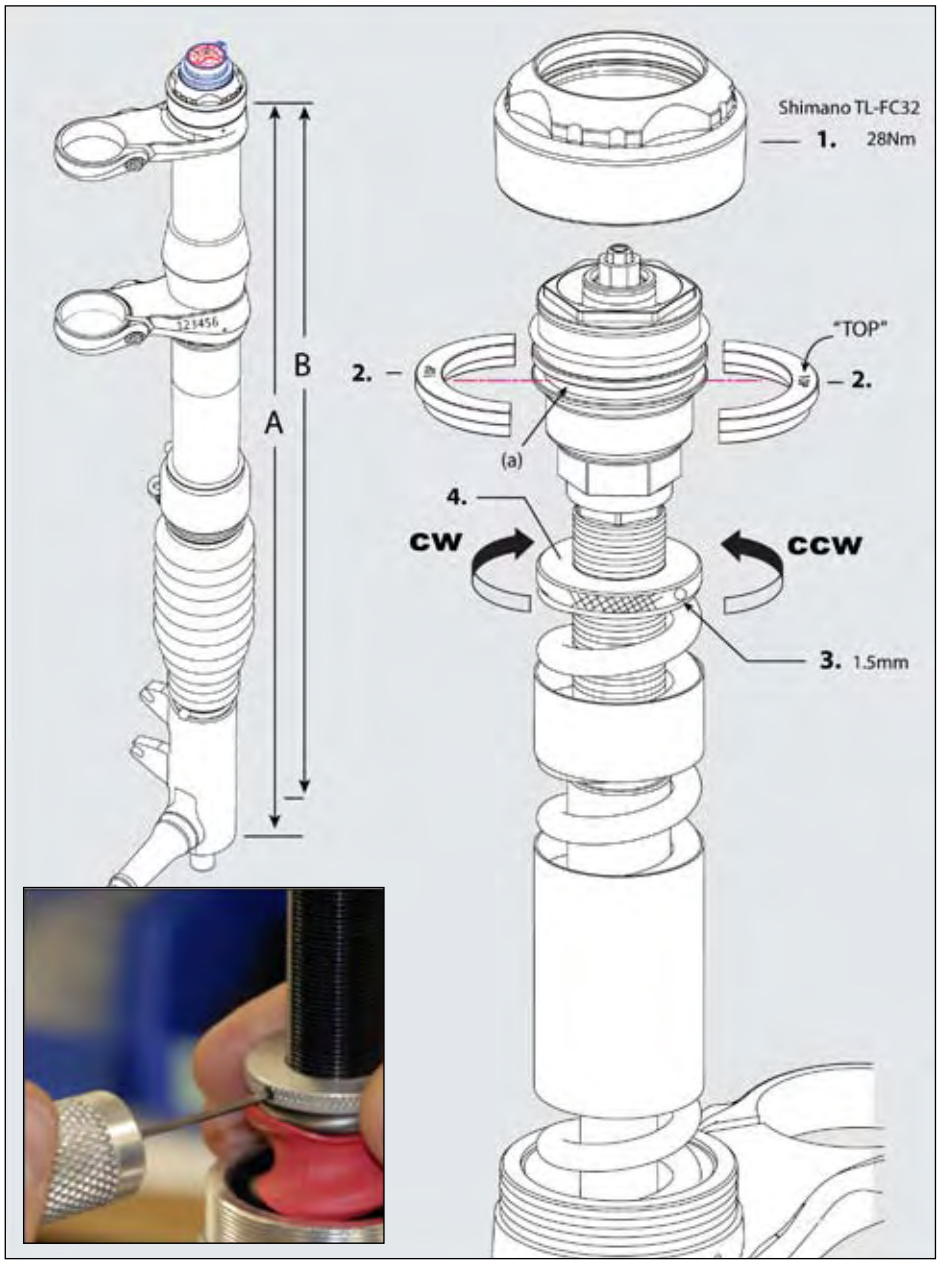


Figure 12.

Spring Change

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

1. Remove the adjusters. See page 16.
2. Use Shimano tool TL-FC32 to loosen and remove the outer collar. See page 18.
3. Lower the telescope and remove the two splits rings (1) from the compression assembly groove (a).
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 (2) and remove the spring clip (3) from the groove (b).
6. Lift out the spring shaft assembly from inside the spring: preload tube (2), preload adjust ring (4), O-Ring (5), Spacer (6), O-ring (7).
7. Lift out the spring (8). Note: Titanium springs are a lighter wieght spring.

Titanium Spring Kits		
	110mm	130mm
SOFT	KH007/	KH032/
STANDARD	KH008/	KH033/
FIRM	KH009/	KH034/
X-FIRM,	KH010/	KH035/

Steel Spring Kits		
	110mm	130mm
SOFT	KH017/	KH036/
STANDARD	KH018/	KH037/
FIRM	KH019/	KH038/
X-FIRM,	KH020/	KH039/
XX-FIRM	KH021/	KH040/

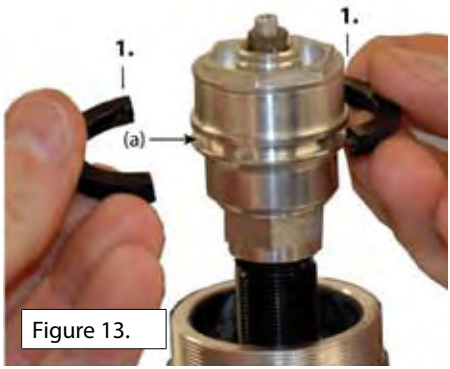


Figure 13.

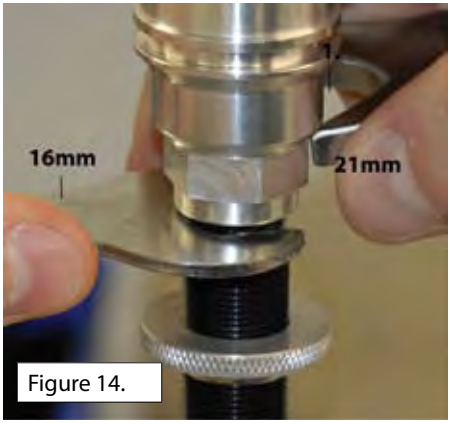


Figure 14.

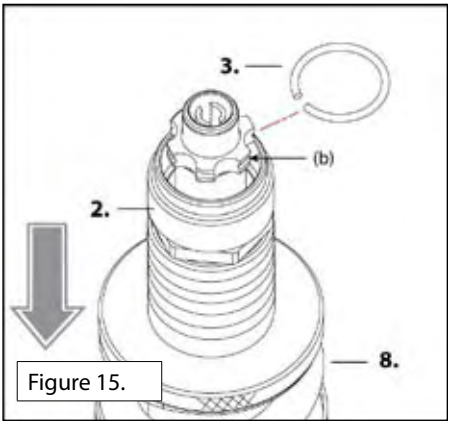


Figure 15.

8. Coat the new spring with Maxima Red Spring Grease.
9. Install the spring with the small isolator (c) up. The large isolator (d) goes down.
10. Apply Loctite 242 (blue) to the compression valve assembly (9) (e) threads and install it onto the top of the preload tube (2).

    Be sure to align the key (f) with the slot (g) on the top of the rebound damper.

    Make sure the compression clamp (10) orientation is 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. Turn clockwise.
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.
13. Reinstall adjusters.

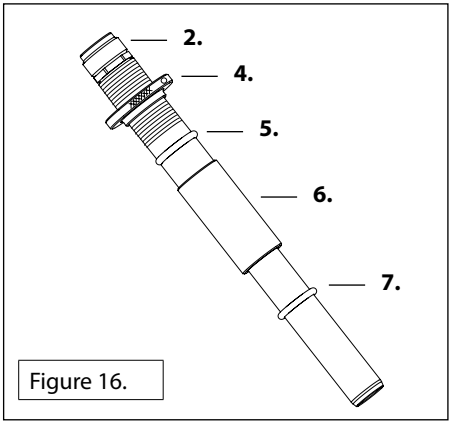


Figure 16.

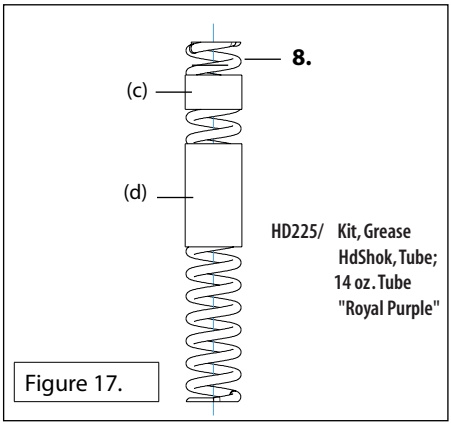


Figure 17.

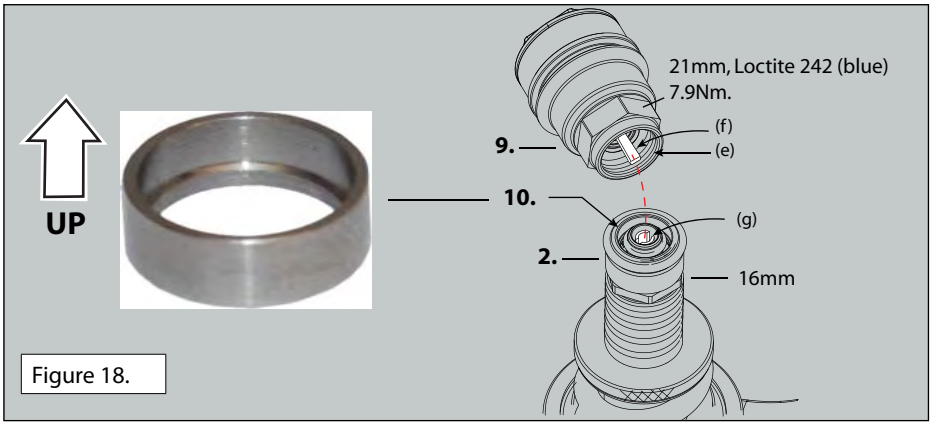


Figure 18.

Oil Change

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

1. Remove the adjusters. See page 16.
2. Use a 26mm socket to remove the compression valve assembly.


Figure 19.

3. Lift out the compression valve assembly. Note the pin (a).
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.

Figure 20.

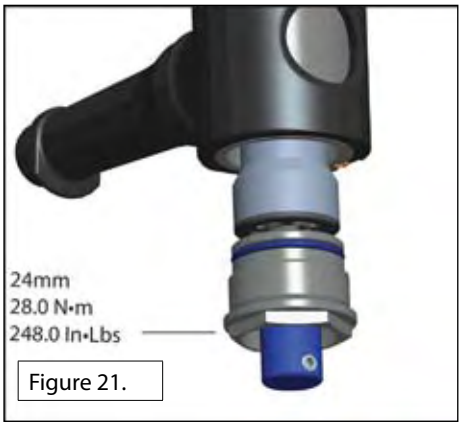


Figure 21.

5. Pour a small amount of the specified oil into the top of the fork up to the valve assembly threads.

   Golden Spectro 85/150

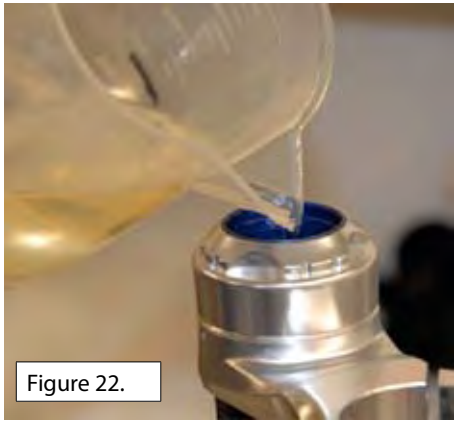


Figure 22.

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

Travel	Oil Volume
110mm	125cc
130mm	135cc

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


Figure 23.

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 6.0Nm

7. Reinstall the adjusters.


Figure 24.

Air Filter Clean/Re-Oil

The air filter assembly is located over two 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 small holes (a) at the base of the filter cover (2) should remain clear and be positioned to the sides of the and not to the front or back of the bicycle to minimize the chance dirt thrown by the wheels will plug the holes.

The foam filter element (1) should be cleaned and re-oiled frequently. This can be performed without removing the filter from the fork.

Slide cover up off the foam. In place, massage the foam air filter element with warm soapy water preventing water or soap from entering the holes in the outer tube.

Allow to dry completely, and reapply a high-quality foam air filter oil before reinstallation. Be sure to massage the oil into the foam.

A foam element without the oil is ineffective.

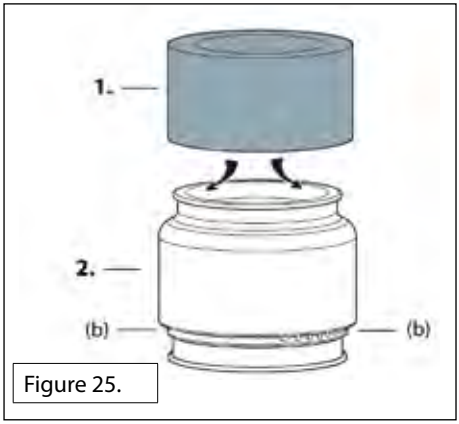


Figure 25.

HD209/BLK Lefty Air Filter Assy

Frame Bumper

The bumper (1) located on the outer tube (2) between the clamps. It cushions the frame from contact with the fork. Replace it with a new one if it ever becomes damaged, torn, or missing. To remove it, remove the band (3) from the bumper groove and unwrap the bumper.

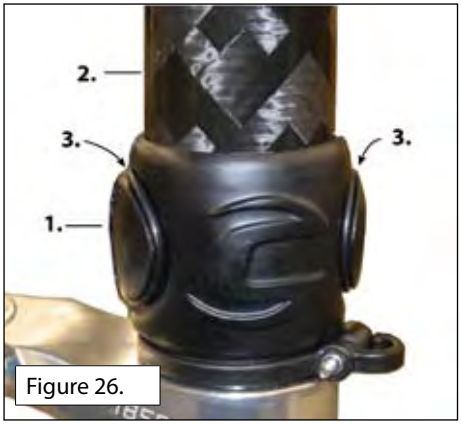


Figure 26.

HD215/ Lefty Bumper

Periodic Grease Service Under the Boot

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 (s).
3. Lift the unsecured boot up to expose the inner tube .

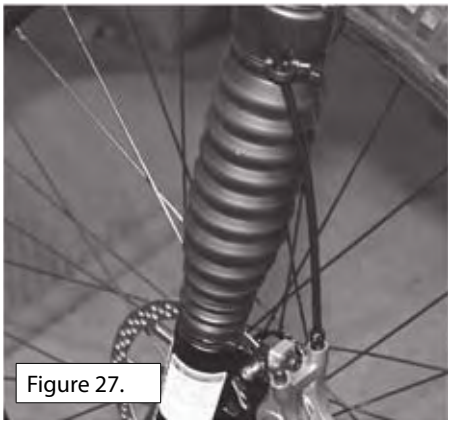


Figure 27.

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 Royal Purple Ultra Performance Grease NLGI #2 (ISO 46 BASE).

   Cycle the fork several times between applying grease to the new grease is worked into the bearings.
6. Reposition the boot and replace the zip ties. Make sure the zip ties are very tight. Loose zip ties may allow water or dirt to pass behind the boot.

WARNING

CHECK THE BOOT BEFORE EACH RIDE.
DON'T RIDE IF IT IS DAMAGED.
REPLACE IT WHEN YOU FIND DAMAGE.


Figure 28.

Bearing Migration Reset

Inside the fork the four needle bearing cages (1) move independently up and down between each inner (2) and outer race pair (3). This bearing arrangement provides numerous advantages to fork performance but requires simple periodic maintenance to ensure proper alignment.

Bearing Migration

If a cage or cages shifts out of alignment up or down in relation to the others it is said to have "migrated." This migrated condition will limit travel.

Needle bearing migration is normal and expected. However, if the fork is ridden in this state for extended periods, the fork can be damaged.

Evidence of migration is:

1 An unusual "top out" noise .If an unusual noise is heard, the extended fork length should be measured to confirm the condition.

2. The fork's maximum extended length is reduced.

   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.

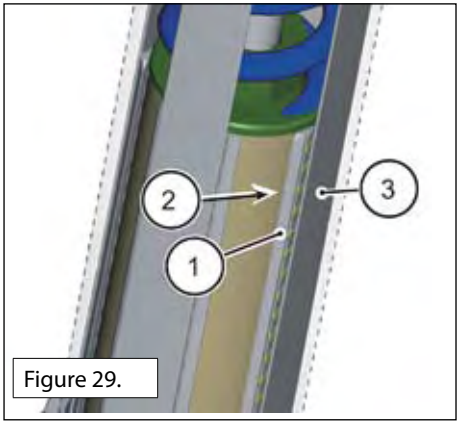


Figure 29.

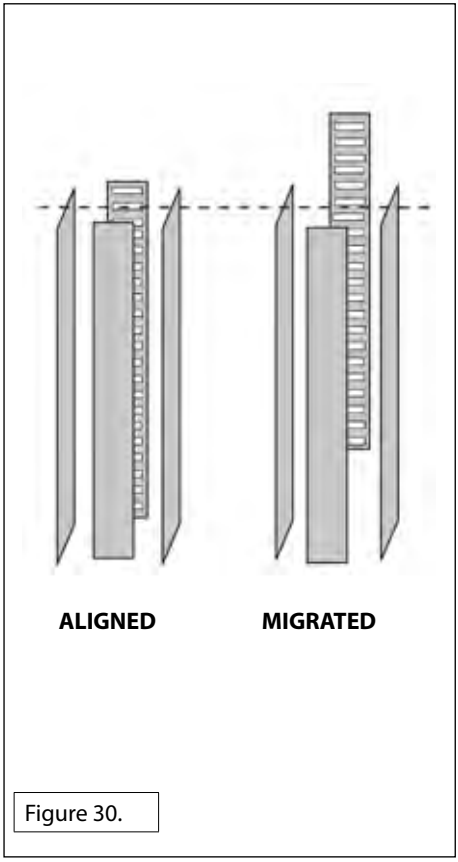


Figure 30.

To reset

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

1. Place the bike in a work stand.
2. Remove the adjusters.
3. Remove the outer collar the Shimano bottom bracket tool TL-FC32.
4. Compress the telescope and remove the two split rings from the top cap..
5. 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:

Length A	
110	**720-730mm**
130	**740-750mm**

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.

CAUTION

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

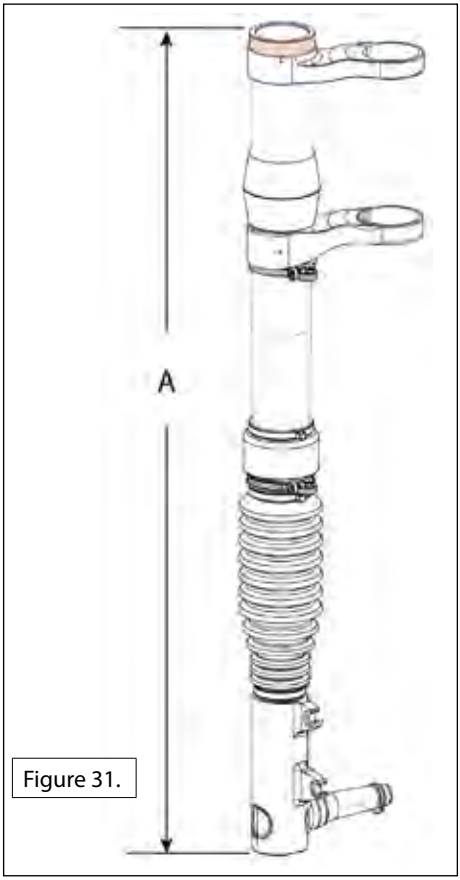


Figure 31.

XC3 SI Stem-Steerer

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

Installation

1. Loosen both clamp bolts (1).
3. Position the Lefty clamps onto the headtube assembly as shown.
4. Insert Cannondale tool KT020/ through the bottom clamp, into the head tube, and out the upper clamp.
5. Make sure the plastic ring (6) is on the stem. Insert the bottom of the stem-steerer onto the top of the tool.
6. Remove the cap (1) from the top of the steerer. Use a rubber mallet to drive the stem-steerer into the head tube until it stops. Return the cap (1).
7. Clean and apply grease to the steerer bolt threads and install into the bottom of the stem-steerer. Align handlebar and tighten the bolt to 9 N•m.
8.. Tighten the upper and lower clamp bolts to 9 N•m.

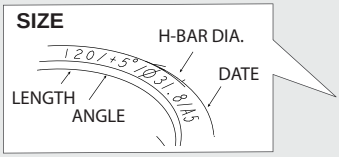
Removal

1 Loosen upper and lower clamp bolts.

2. Remove steerer bolt (10).
3. Insert the small end of KT020/ into the bottom of the stem-steerer and drive the stem-steerer up out of the head tube.

Figure 32

Figure 33.

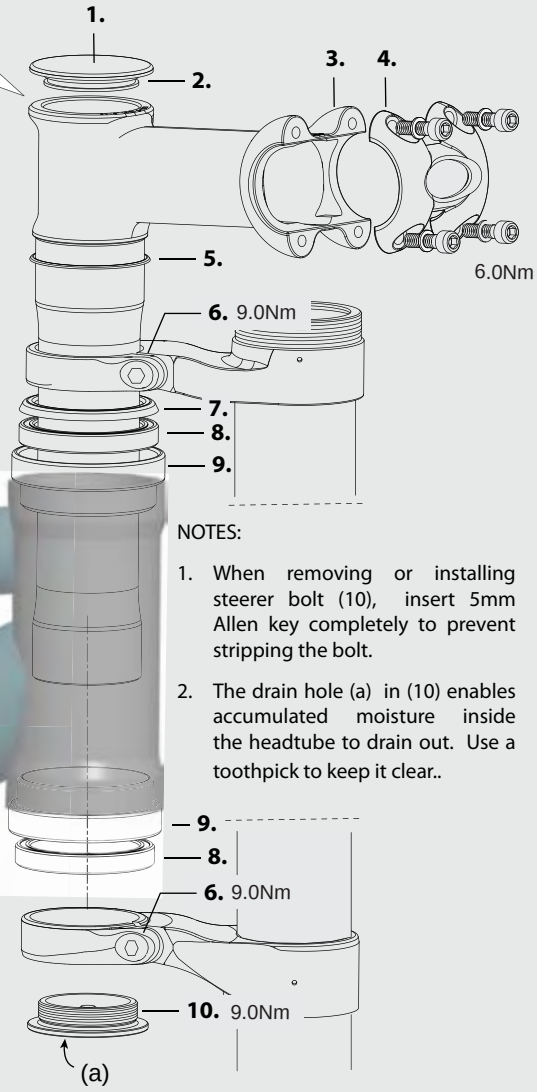


An alloy frame headset with bearing cups is shown here. If the frame headtube is carbon fiber, the bearing cups are bonded in place and non-removable.

WARNING

The steerer bolt (10) is a structural part and must be installed.

ITEM	DESCRITION
1.	Cap
2.	O-Ring
3.	Stem
4.	Handlebar Clamp
5.	Clamp Bolt
6.	Plastic Ring
7.	Bearing Seal
8.	Bearing
9.	Bearing Cup
10.	Stem-Steerer Bolt



NOTES:

1. When removing or installing steerer bolt (10), insert 5mm Allen key completely to prevent stripping the bolt.
2. The drain hole (a) in (10) enables accumulated moisture inside the headtube to drain out. Use a toothpick to keep it clear..

Figure 34.

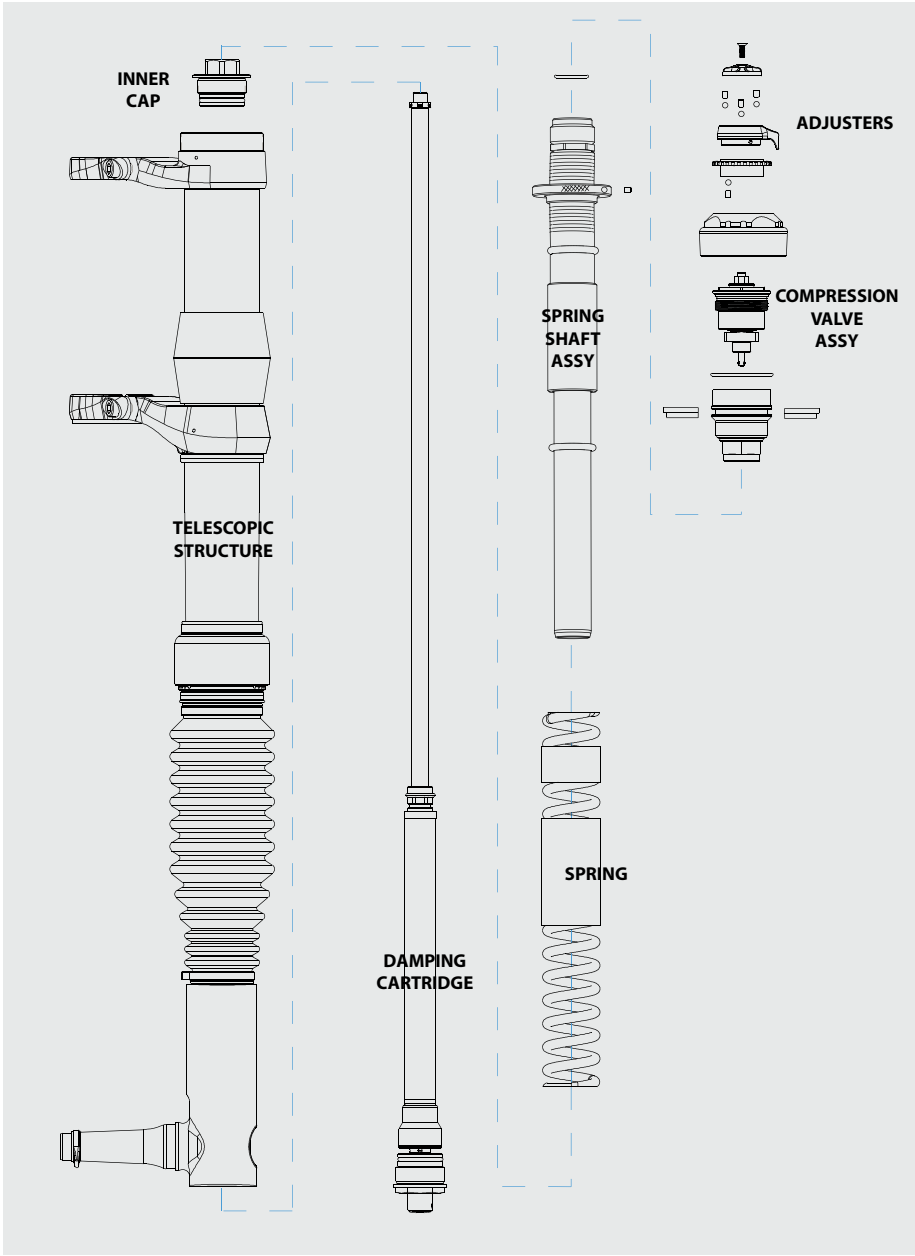

INNER
CAP
TELESCOPIC
STRUCTURE
DAMPING
CARTRIDGE
SPRING
SHAFT
ASSY
SPRING
ADJUSTERS
COMPRESSION
VALVE
ASSY

Figure 35.

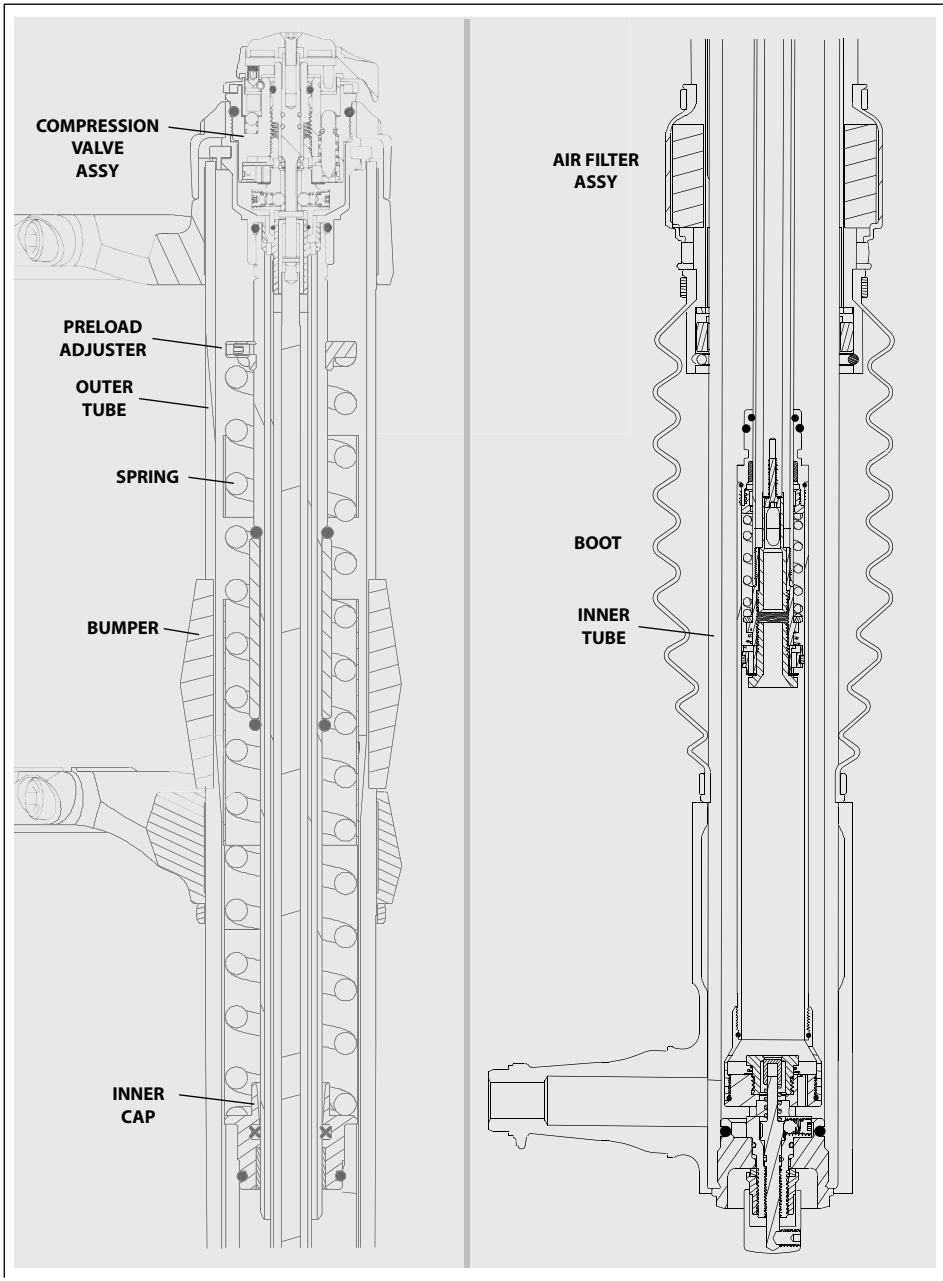

COMPRESSION VALVE ASSY
PRELOAD ADJUSTER
OUTER TUBE
SPRING
BUMPER
INNER CAP
AIR FILTER ASSY
BOOT
INNER TUBE

Figure 36.

ITEM	DESCRIPTION
	DAMPER BODY ASSY
1.	DAMPER BODY 110/130
2.	COUPLER
3.	O-RING 17.00 ID x 1.00 W
4.	O-RING 20.00 ID x 1.00 W
5.	O-RING 2-020 21.95 ID x 1.78 W
6.	O-RING 8.00 ID x 1.00 W
7.	O-RING 3.00 ID x 1.00 W
8.	CRUSH WASHER, PLASTIC
9.	NUT
10.	BLOWOFF KNOB
11.	SET SCREW
12.	BASE CAP
	REBOUND SHAFT ASSY
13.	SHAFT COUPLER
14.	RING
15.	REBOUND SHAFT
16.	ADJUST ROD LOWER
17.	SEAL HEAD
18.	O-RING 10.00 ID x 1.50 W
19.	O-RING 12.50 ID x 2.00 W
20.	O-RING 14.50 ID x 1.00 W
21.	TOPOUT PERCH UPPER
22.	NEGATIVE SPRING
23.	TOPOUT SPRING PERCH
24..	PISTON ASSY

LENGTH (mm)	TRAVEL (mm)	
	130	110
A	137.3	117.3
B	664.3	644.3
C	422.4	422.4

NOTE: Apply NGLI-2 synthetic grease to all O-Rings

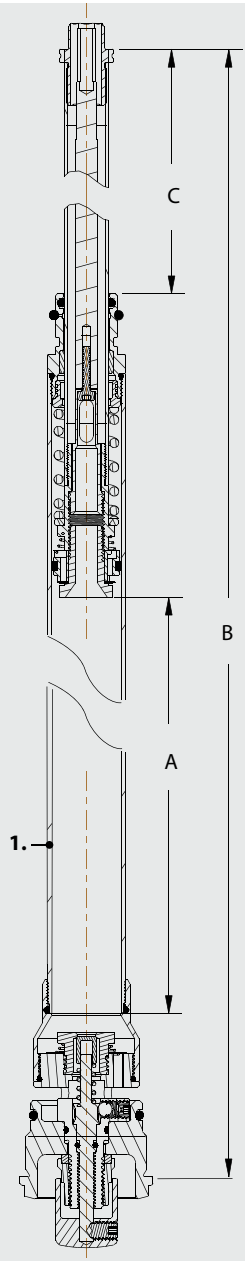


Figure 37.

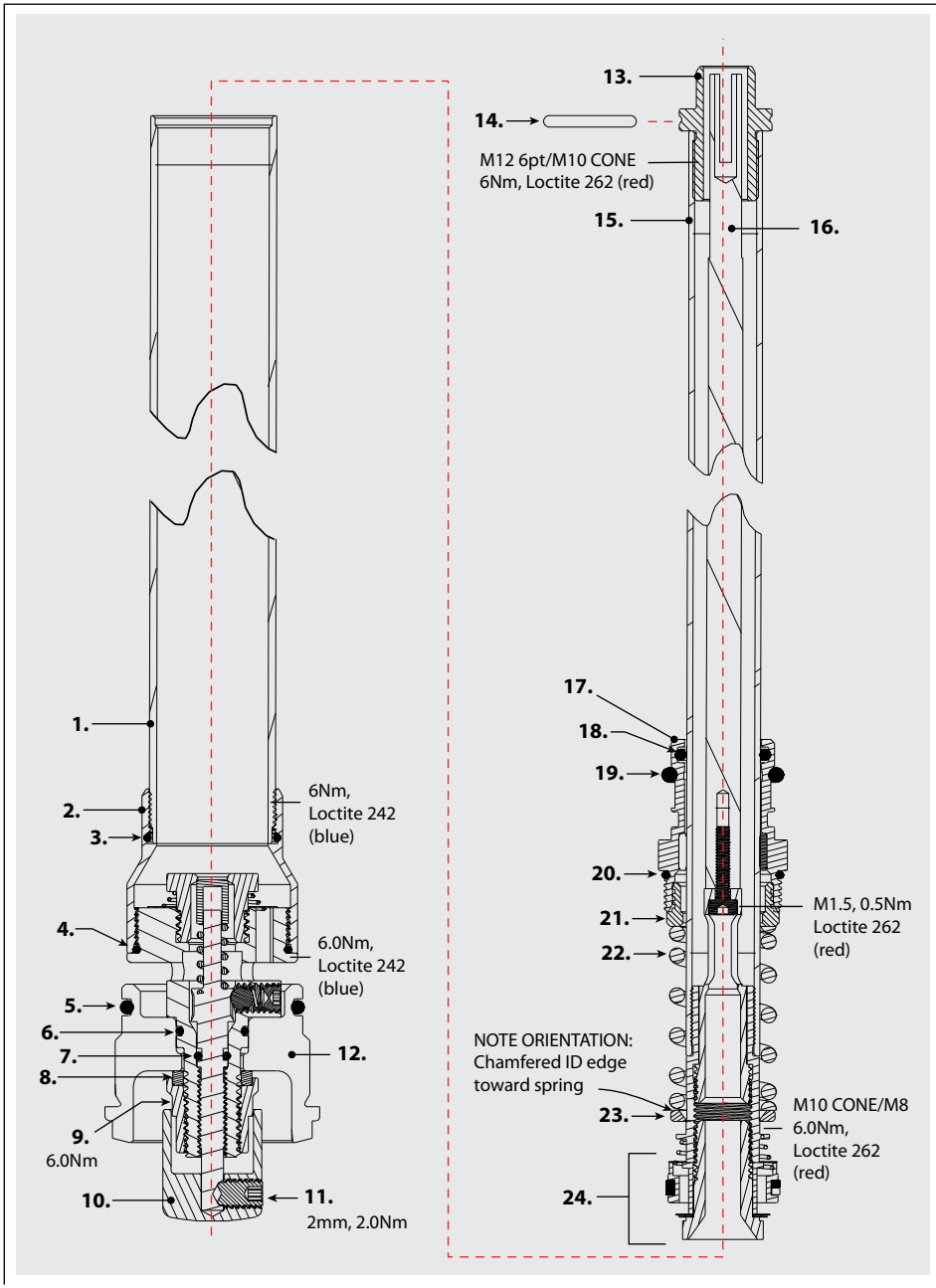

13.
14.
M12 6pt/M10 CONE
6Nm, Loctite 262 (red)
15.
16.
1.
2.
3.
6Nm,
Loctite 242
(blue)
4.
6.0Nm,
Loctite 242
(blue)
5.
6.
7.
8.
12.
9.
6.0Nm
10.
11.
2mm, 2.0Nm
17.
18.
19.
20.
21.
22.
M1.5, 0.5Nm
Loctite 262
(red)
NOTE ORIENTATION:
Chamfered ID edge
toward spring
23.
M10 CONE/M8
6.0Nm,
Loctite 262
(red)
24.

Figure 38.

SUSPENSION GLOSSARY

Damping - The process of dissipating energy and slowing down the suspension motion. Damping absorbs the force of a bump or landing. Damping is usually done with oil, but can be done with air and friction as well.

Spring - The part of a suspension fork or shock that holds the rider/bike up. Springs can be metal coils (steel or titanium) or high pressure air.

Compression - The process of squeezing together. The front and rear suspension compress when hitting a bump, landing off a jump, or braking for corners. Compression can refer to the spring or damping (compression damping).

Rebound - The process of extending back from a compressed state. The front and rear suspension rebound after being compressed from a bump or jump landing. Rebound can refer to the spring or damping (rebound damping).

Low Speed (compression or rebound) - Low speed damping references the speed at which the fork/damper travels through its stroke. It does NOT refer to the speed at which the rider is moving. Low speed bumps are typically round in shape or smooth actions like jump landings and pedal bob. In the case of rebound, it mostly refers to rebound speed caused by smaller bumps where the fork does not get fully compressed.

High Speed (compression or rebound) - High speed damping references the speed at which the fork/damper travels through its stroke. It does NOT refer to the speed at which the rider is moving. High speed bumps are typically square in shape or harsh terrain like sharp-edged rocks that may cause pinch flats. In the case of rebound, it mostly refers to rebound speed caused by larger bumps where the fork gets fully compressed.

Bottom Out - When the front or rear suspension fully compresses to absorb a bump or jump landing. A hard stop is usually felt at bottom out.

Top Out - When the front or rear suspension fully extends after absorbing a bump or jump landing. A soft stop is usually felt at top out. The fork and shock are typically topped out without a rider on the bike.

Compression Adjuster - Used to adjust the front or rear compression damping setting.

Rebound Adjuster - Used to adjust the front and rear rebound setting

Sag - Refers to how much the front and rear suspension compress when a rider sits on the bike. Sag is measured as a percentage of suspension travel. Typical sag values are: 20-30% for XC riding and 25-35% for Trail/ Freeride.

Preload - Refers to how much initial compression is applied to a spring. In the case of an air spring, preload is achieved by increasing the air pressure. You use preload to adjust the sag. More preload decreases the sag. Less preload increases the sag.

Spring Rate - Refers to the strength of a spring. A spring with a higher rate is stiffer, a lower rate softer.

Diving - Normal movement when a suspension fork compresses resulting in a downward change in the the angle of the bicycle. Mostly occurs when braking.

Revalve - Revalving is the process of changing the internal compression and rebound shims to change the flow of oil through passages in the forks and shock. A suspension specialist should revalve your bike's suspension.

OWNER NOTES

Record maintenance history, service, or set up information .

DATE	WORK PERFORMED

REPLACEMENT PARTS KITS

110mm and 130mm Common Kits

KIT #	DESCRIPTION
KH025/	FOX RLC PRELOAD TUBE
KH011/	FOX RLC UPGRADE KIT
KH012/	FOX RLC SEAL KIT
KH028/	FOX RLC REBOUND SHAFT
KH015/	FOX RLC COMPRESSION DAMPER
KH029/	FOX RLC SEAL HEAD
KH026/	FOX RLC COMPRESSION CLAMP
KH027/	FOX RLC RETAINING RING
HD226/	GOLDEN SPECTRO 1 US QT.
KF205/	SPLIT RINGS 2
KH016/	FOX RLC OUTER COLLAR
HD215/	LEFTY BUMPER
HD209/BLK	AIR FILTER ASSY
HD208/	OUTER RACE CLIP (QTY 5)
HD161/	LEFTY NEEDLE BEARINGS
HD175/BLK	ZIP TIES 50 BLACK
HD185/BLK	ZIP TIES DOUBLE HEAD 10 BLACK
HD011/	BAND CLAMPS (QTY 2)
LEFTYBOLTS	16MM BRAKE BOLTS (QTY 2)
KF364/	LEFTY COMPUTER MOUNT
QSMSEAL/	HEADSHOK HEADSET SEAL (ALLOY)
QHDST/EBO	HEADSHOK HEADSET CUP (QTY 2), PLUS 1 BEARING
HD169/	HEADSHOK HEADSET BEARINGS (QTY 2)
KT020/	STEERER TOOL "THE ERNIE"
KH023/	TOOL: FOX BODY CLAMP
KH024/	TOOL: FOX SHAFT CLAMP

For an up to date list of kits available for your bike, please visit our Tech Center at : http://www.cannondale.com/tech/

110mm Specific Kits

KIT #	DESCRIPTION
QC678/	BOOT 110mm
KH013/	FOX RLC 110 Rebound Damper
KH007/	SPRING, SOFT, TI
KH008/	SPRING, STANDARD, TI
KH009/	SPRING, FIRM, TI
KH010/	SPRING, X-FIRM, TI
KH017/	SPRING, SOFT, FE
KH018/	SPRING, STANDARD, FE
KH019/	SPRING, FIRM, FE
KH020/	SPRING, X-FIRM, FE
KH021/	SPRING, XX-FIRM, FE
HDR2L/020	RACE INNER 10.197 X **.020in** [259.0 X .53mm] (Qty 4)
HDR2L/021	RACE INNER 10.197 X **.021in** [259.0 X .56mm] (Qty 4)
HDR2L/022	RACE INNER 10.197 X **.022in** [259.0 X .58mm] (Qty 4)
HDR2L/023	RACE INNER 10.197 X **.023in** [259.0 X .61mm] (Qty 4)
HDR2L/024	RACE INNER 10.197 X **.024in** [259.0 X .635mm] (Qty 4)
HDR2N/024	RACE OUTER

130mm Specific Kits

KIT #	DESCRIPTION
KF222/	BOOT 130mm
KH014/	FOX RLC 130 Rebound Damper
KH032/	SPRING, SOFT, TI
KH033/	SPRING, STANDARD, TI
KH034/	SPRING, FIRM, TI
KH035/	SPRING, X-FIRM, TI
KH036/	SPRING, SOFT, FE
KH037/	SPRING, STANDARD, FE
KH038/	SPRING, FIRM, FE
KH039/	SPRING, X-FIRM, FE
KH040/	SPRING, XX-FIRM, FE
HDR2M/020	RACE INNER 11.378 X **.020in** [289.0 X .53mm] (Qty 4)
HDR2M/021	RACE INNER 11.378 X **.021in** [289.0 X .56mm] (Qty 4)
HDR2M/022	RACE INNER 11.378 X **.022in** [289.0 X .58mm] (Qty 4)
HDR2M/023	RACE INNER 11.378 X **.023in** [289.0 X .61mm] (Qty 4)
HDR2M/024	RACE INNER 11.378 X **.024in** [289.0 X .635mm] (Qty 4)
HDR2N/024	RACE OUTER