



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

LEFTY MAX 140

Owner's Manual Supplement

120024.PDF

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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/>.

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 document 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.

SAFETY MESSAGES

In this manual, information which affects your safety is emphasized in the following ways:

WARNING

A **WARNING** indicates a potentially hazardous situation which, if not avoided, can result in serious injury or death.

CAUTION

A **CAUTION** Indicates a potentially hazardous situation which, if not avoided, can result in serious damage to the product. The matters described under **CAUTION** may, if not avoided, lead to personal injury, or results depending on the situation and degree of damage. Important matters are described in **CAUTION** (as well as **WARNING**), so be sure to observe them.

*A **NOTE** provides helpful information or tips intended to make the information presented clearer.*

INTENDED USE

All-Mountain

INTENDED for trail riding and riding uphill. All-Mountain bicycles are more heavy duty than cross country bikes, but less heavy duty than Freeride bikes. All-Mountain bikes are lighter and more nimble than Freeride bikes. All-Mountain bikes are 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. All-Mountain bikes are intermediate in suspension travel and use components that fit the intermediate intended use. All Mountain bikes 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.

NOT INTENDED for Hardcore Freeriding, Extreme Downhill, Dirt Jumping, Slopestyle, or very aggressive or extreme riding.

TRADE OFF All-Mountain bikes are more rugged than cross country bikes, for riding more difficult terrain. All-Mountain bikes are heavier and harder to ride uphill than cross country bikes. All-Mountain bikes are lighter, more nimble and easier to ride uphill than Freeride bikes. All-Mountain bikes are not as rugged as Freeride bikes and must not be used for more extreme riding and terrain.



WARNING

USING YOUR LEFTY IMPROPERLY IS HAZARDOUS.

WARNING LABEL

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. See page 6.



BIKE SUSPENSION AND YOUR SKILLS AND ABILITIES

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.
- Learn the performance characteristics of your bike and suspension components before trying any downhill or very fast biking.
- Ride within your skills and abilities.
- Take a bicycle training course.

FRONT WHEEL

REMOVAL

1. Place bike in a work stand with front wheel off the ground.
2. Loosen the brake caliper mounting bolts.



3. 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.



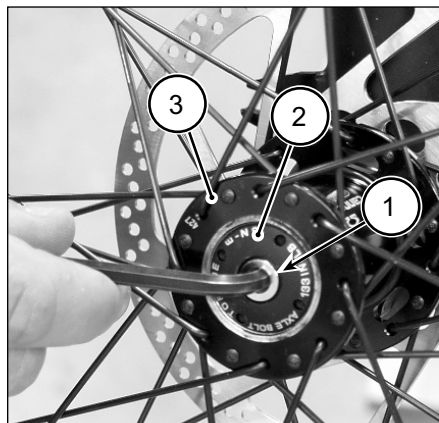
Note brake alignment shims between Lefty brake bosses and the caliper.

4. Turn hub bolt (1) counter-clockwise to remove the hub from the spindle.

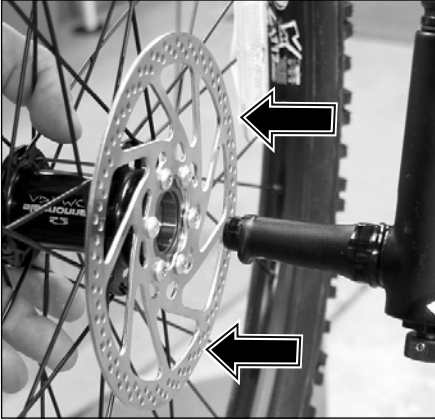
NOTE: As the bolt is turned counter-clockwise, it will begin to back against the hub cap bolt (2) causing the hub (3) to be drawn out and off the spindle bearing seats. Since the hub bolt is actually retained inside the hub body by the hub cap, the bolt will remain in the hub when the wheel is removed. There is no need to remove that cap from the hub. See the exploded view on page 8.

CAUTION

Make sure the axle bolt is completely loose before attempting to remove the wheel from the spindle.



5. Carefully slide the wheel off of the spindle carefully.



CAUTION

1. Cover the opening of a removed hub/ wheel with a clean towel to prevent contamination.
2. Protect spindle when wheel removed. A fall or drop to the ground can destroy or damage the spindle.

INSTALLATION

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

Wipe all parts clean with a dry shop towel and apply a high-quality bike grease to:

I.D. of the larger hub cartridge bearing .

Both spindle bearing lands .

Spindle axle bolt threads.



WARNING

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

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 hub completely, and proper threading is evident, 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.)

CAUTION

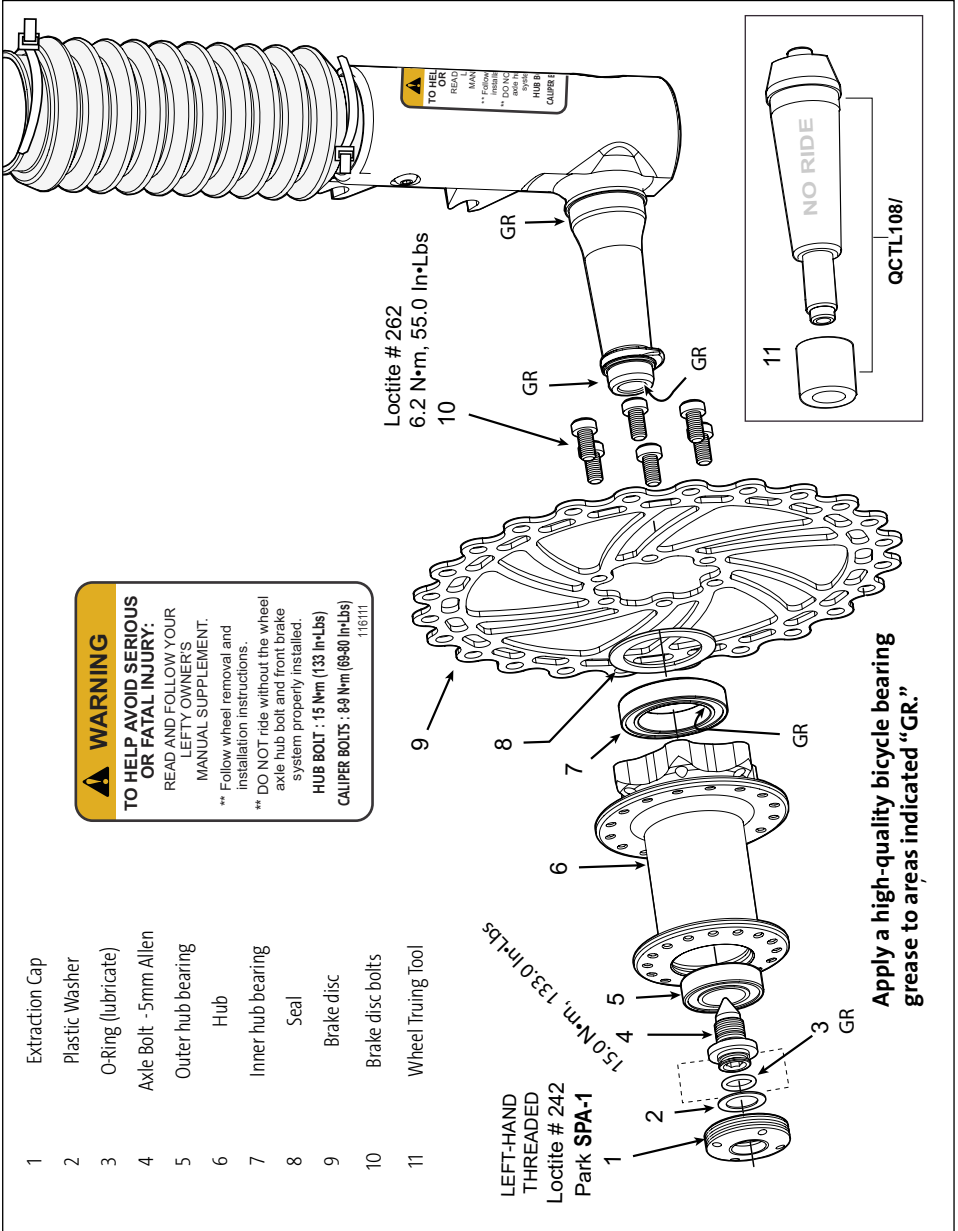
LOCATE DISC BETWEEN THE PADS.

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 16 MM (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.

5. Spin the wheel to make sure it spins freely. Be sure to test the brakes for proper operation before riding.

WHEEL HUB



FRONT BRAKE

WARNING

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

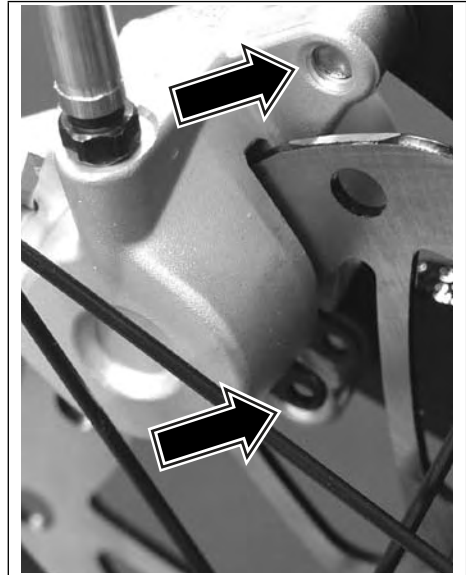
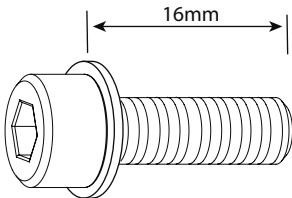
Why? In addition to providing speed control, the front brake system on your Lefty (disc/caliper) acts as an integral secondary wheel retention system. If the system is missing or improperly installed, or if the wheel hub axle bolt should loosen, the front wheel could slide off the spindle end.

When mounting IS compatible brake systems:

Follow 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.

Mount the front brake caliper using the 16 mm bolts of Cannondale kit LEFTYBOLTS. See next figure.



This photo shows the area where incorrect bolts will interfere with disc rotation possibly causing severe damage. Correct bolts are shown above. In addition to checking to make sure the bolt ends do not protrude, you must ensure proper thread engagement.

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.

ADJUSTMENTS

SUGGESTED FORK SETUP

RIDER WT.		BIKE SIZE	LEFTY MAX 140 SPV			LEFTY MAX 140 TPC or FFD	
			INSTALLED FORK SPRING COLOR	SPV AIR PRESSURE (psi/bar)	REBOUND <i>Clicks out from closed</i>	SPRING COLOR	REBOUND <i>Clicks out from closed</i>
Lbs	Kg						
120	53	PT	GREEN	40 / 2.8	9	BLUE	9
130	58	SM	GREEN	50 / 3.4	9	BLUE	9
140	63	SM	GREEN	60 / 4.1	9	BLUE	9
150	68	MD	BLUE	50 / 3.4	9	RED	9
160	72	MD	BLUE	60 / 4.1	8	RED	8
170	77	LG	RED	60 / 4.1	8	BLACK	8
180	81	LG	RED	60 / 4.1	8	BLACK	8
190	86	XL	BLACK	60 / 4.1	8	BLACK	8
200	90	XL	BLACK	70 / 4.8	7	BROWN	7
210	95	XL	BLACK	70 / 4.1	7	BROWN	7
220	100	XL	BLACK	80 / 5.5	6	BROWN	6

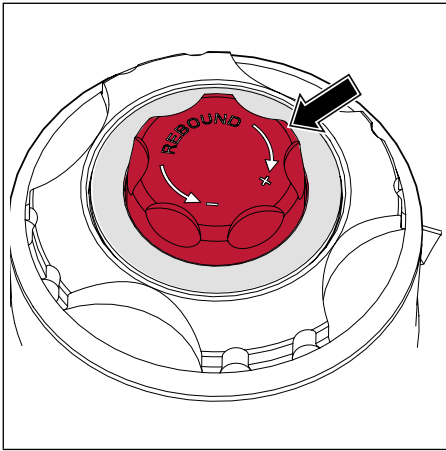
FORK SPRING KITS

	RIDER WT. RANGE		ORDER	SPRING		
	Lbs	Kg	CANNONDALE KIT #	COIL COLOR	MATERIAL	Wt. (g)
LEFTY MAX 140 SPV (Carbon or Alloy)	120 - 149	54 - 67	KF213/GRN	GREEN	Steel	156
			KF214/GRN		Titanium	114
	150 - 169	68 - 76	KF213/BLU	BLUE	Steel	174
			KF214/BLU		Titanium	108
	170 - 189	77 - 85	KF213/RED	RED	STEEL	197
			KF214/RED		Titanium	151
190 - 220	86 - 100	KF213/BLK	BLACK	STEEL	253	
LEFTY MAX 140 TPC or FFD (Carbon or Alloy)	120 - 149	54 - 67	KF213/BLU	BLUE	STEEL	174
	150 - 169	68 - 76	KF213/RED	RED	STEEL	197
	170 - 199	77 - 90	KF213/BLK	BLACK	STEEL	253
	200 - 220	91 - 100	KF213/BRN	BROWN	STEEL	262

REBOUND DAMPING ADJUSTMENT

Rebound damping controls how fast the Lefty extends following compression. The rebound adjustment knob is red in color and located at the top of the fork.

Each position in the rotation of the adjustment knob can be considered a click although no audible sound is made. The knob is stopped at each position by the detent balls and spring in the rebound knob assembly. From the fully closed to fully open position the knob can be turned. Be sure to consult “*Lefty Upper Rebound Assembly Exploded View*” in this manual.



CAUTION

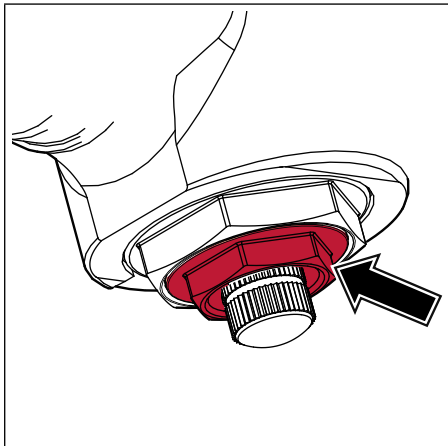
Use only finger force. Do not force adjuster past the stop points.

1¼ turns total (14 clicks)

CLOSE More Damping Turn in direction “+”	Slower Rebound “Sluggish” feel
OPEN Less Damping Turn in direction “-”	Faster Rebound “Springier” feel

SPV AIR VOLUME

Stable Platform Valve (SPV) air volume is changed by turning the red 16 mm hex clockwise or counter-clockwise. This adjustment changes the volume of the internal compression bladder.



Turn clockwise (in) (when viewed from bottom)	Increases bottoming resistance - Progressive
Turn counter-clockwise (out) (when viewed from bottom)	Decreases bottoming resistance - Linear

CAUTION

Do not force the red hex nut past the stop points.

Optional Tool Available:

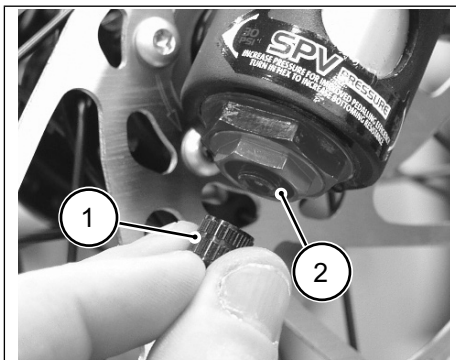
SPV 16 mm volume adjust socket (Answer Products part #85-3007) is needed.

SPV AIR PRESSURE

Stable Platform Valve (SPV) air pressure is regulated through the Schrader valve. This adjustment control pedaling platform of the fork. Pedaling platform is the fork's tendency to resist compression under the force of pedaling.

1. Remove the black valve cap (1) and attach a bicycle suspension pump to the Schrader valve (2).

Set air pressure within the limits.
Replace the valve cap when finished.



Higher pressure	Stiffer pedaling platform
Less pressure	Softer pedaling platform

SPV Air Pressure Limits:

MINIMUM - 30 psi (2.0 bar)

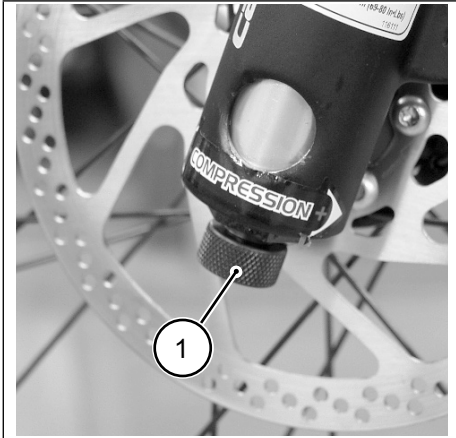
MAXIMUM - 100 psi (6.8 bar)

CAUTION

Clean the valve and pump end before attaching a pump. Pumping in dirt can quickly ruin the fork. Stay within the pressure limits

TPC COMPRESSION DAMPING

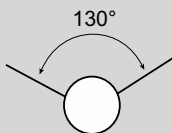
The TPC compression damping adjustment knob (1) is located at the bottom of the spindle. The knob is blue in appearance. Compression adjustment controls the rate or speed of fork compression.



Turn in direction “+” (clockwise when viewed from bottom)	More Damping Stiffer
Turn in direction “-” (counter-clockwise when viewed from bottom)	Less Damping Softer

CAUTION

Do not force the knob past the stop points. The adjustment range is 130°.

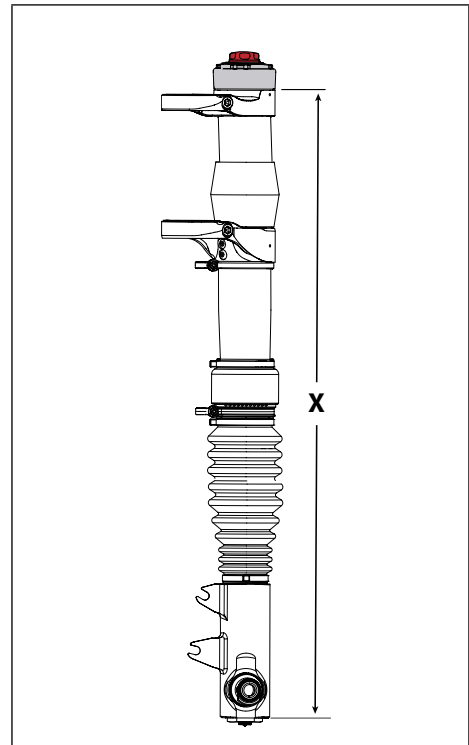


HOW TO SET UP SAG

1. Match FORK SPRING (color) to rider weight. See Suggested Fork Set Up on page 8..
2. With the help of a second person, seat the rider on the saddle with feet on pedals and hands on the handlebar. Measure X.
3. Calculate Sag:
 $686\text{mm} - X = \text{Sag}(\text{mm})$

XC	25-30%	35-45mm
TR	30-35%	40-50mm

Fine tune sag by changing the spring preload adjusters inside the fork.



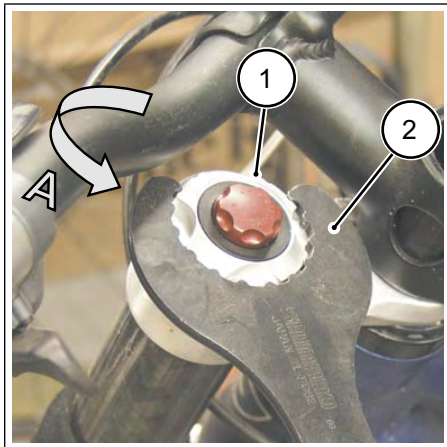
ADJUSTING SPRING PRELOAD

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

CAUTION

Clean area around the top of the fork so dirt does not enter when the fork is opened in the following steps.

2. Close the rebound knob; turn clockwise until it stops. Count the clicks to return the setting later.
3. Turn the Outer Cap (1) counter-clockwise (A) to loosen it. Use Shimano tool TL-FC32 (2). (Hollowtech bottom bracket wrench).



CAUTION

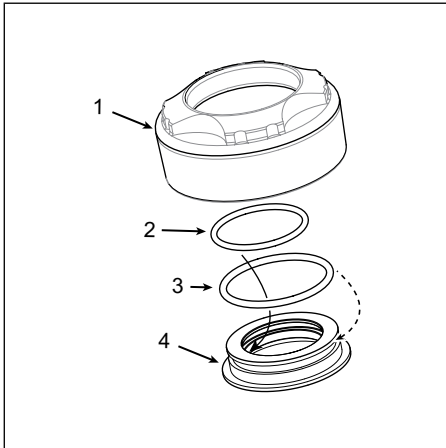
The outer cap (1) is aluminum; the tool (2) is steel; Be sure to locate all the points of tool on all the cap notches squarely before attempting to turn the cap. Apply force carefully. This will help avoid marring the cap. When loose, unscrew cap by hand.

4. Make sure the wheel is off the ground and the lower leg is extended. Unscrew outer cap by hand and lift it off.

NOTE: If needed, hold the Rebound Knob with your fingertips to keep it from rotating with the Outer Cap as it is removed.

NOTE: Be sure to note location and condition of 2 O-rings. Be sure to recover it. Check both O-ring in the Adapter for damage and replace new if necessary. See “Lefty Outer Cap Assembly Exploded View.”





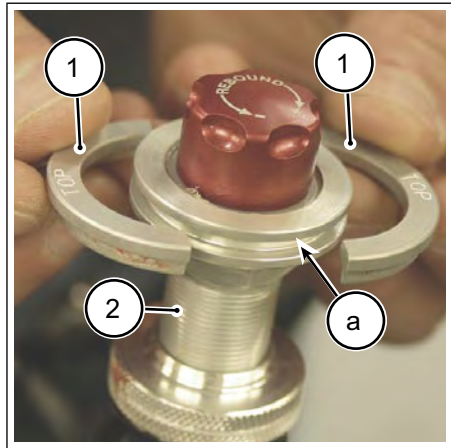
1. Outer Cap 3. O-Ring (large)
 2. O-Ring (small) 4. Adapter

5. Compress the fork to cause the rebound assembly to rise up out of the outer fork tube.



6. Remove the two Split Rings (1) in the groove (a) of the Shaft (2) .

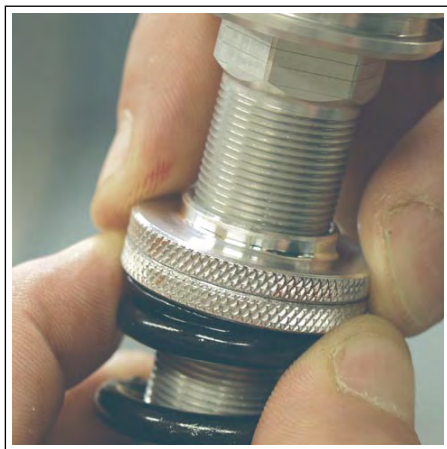
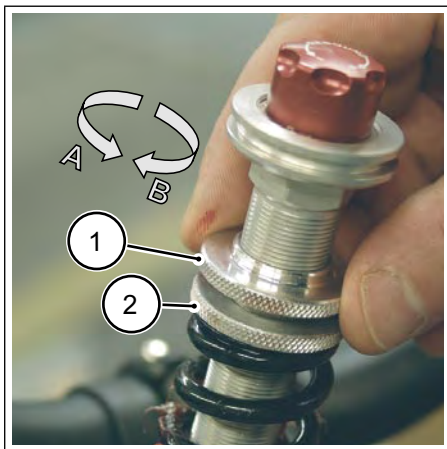
Note the "TOP" markings on the rings; they install up.



NOTE: Do not remove the rebound knob assembly from the shaft top. Its not required in this procedure. Just make sure it is screwed in (clockwise) fully.

7. Turn the Lock Ring (1) counter-clockwise (A) to loosen it.
 8. Turn the Adjust Ring (2) counter-clockwise (A) to decrease preload (increase sag)

Turn the Adjust Ring (2) clockwise to increase preload (decrease sag).



NOTE: Pull the damper shaft assembly upward to ensure the shaft is fully extended while adjusting the spring preload - if you do not do this you may get an inaccurate setup

NOTE: Make a pencil mark on top of the ring so the turn count is accurate. 1 full turn of the adjustment ring = 1 mm change in installed spring height.

ADJUST RING TURN LIMITS (clockwise after ring first contacts top of spring)
1 Turn MINIMUM
8 Turns - MAXIMUM

9. When adjustment is complete, with fingers, hold the Adjust Ring and tighten the Lock Ring securely against the Adjust Ring.

10. Apply a high-quality bicycle bearing grease to the Shaft groove. Insert the two Split Rings with the 'TOP' marking up.

Then, apply a ring of grease to the top of the Split Rings.



11. Lower the spring assembly back into the outer tube by extending the lower fork leg.

NOTE: Be sure to clean the Outer Cap threads and the threads of the fork outer tube and reapply a light film of grease. Wipe clean with a dry towel. Do not use spray cleaners!

NOTE: If the Rebound Knob is not turned in completely, when the Outer Cap assembly is installed the knob threads can be damaged or the knob will be difficult to turn. Make sure the knob is turned in fully clockwise before the Outer Cap assembly is reinstalled.

12. Apply a film of grease to the Outer Cap O-rings and threads.
13. Install the Outer cap by hand. Tighten with Shimano #TL-FC32. See following illustration for tightening method.

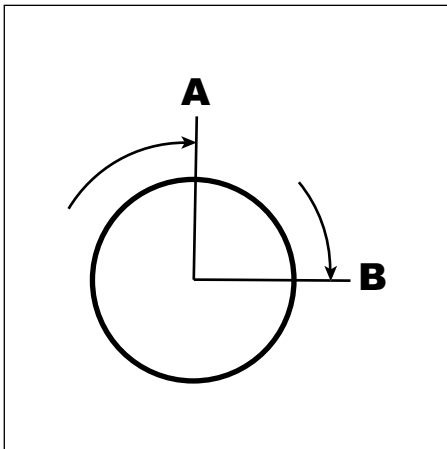


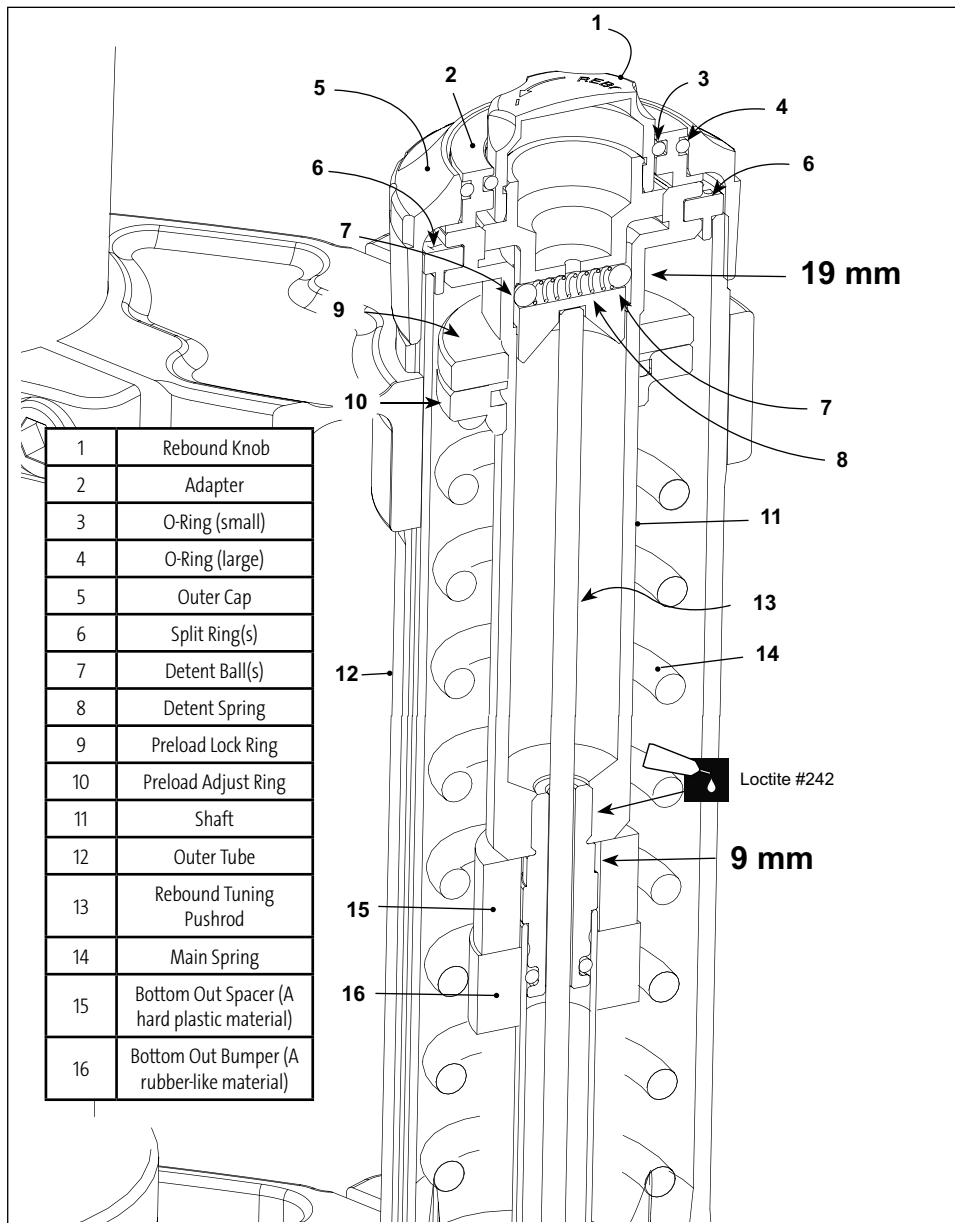
Figure 31
Tighten Outer Cap
A = Tighten Snug
B = Continue 1/4 Turn

CAUTION

Only use the tool only once the cap is screwed on fully. Do not over-tighten.

14. Reset Rebound Knob position. (Recorded earlier).

UPPER REBOUND ASSEMBLY EXPLODED VIEW



FORK CLAMPS



Figure C
Lefty Alloy Fork Clamp Bolts

Creaking noise can be an indication of loose fork clamp bolts.

Check the clamp bolt tightness periodically. When tightening is required, re-apply Loctite #242 (blue) and tighten with a good torque wrench.

Tightening Torque	
ALLOY (Figure C)	7.0 N•m (60 In•Lbs)
CARBON (Figure D)	9.0 N•m (80 In•Lbs)

CAUTION

Do not over-torque the clamp bolts.



Figure D
Lefty Carbon Fork Clamp Bolts

Removing Alloy Forks

The upper and lower fork clamps are integrated with the head tube steerer. The fork can be removed for service, by sliding it down out of the clamps:

1. Remove the brake caliper and detach the brake line.
2. Remove the outer cap assembly.
3. Loosen the three fork clamp bolts. See Figure C.
4. Slide the fork down out of the clamp. As the fork is removed, the bumper will slide off. Be sure to reinstall it when the fork is repositioned in the clamps.



Figure E
Lefty Alloy Fork Removal

Reverse the step for installation. Be sure to not key and slot in clamp and outer tube.

Removing Carbon Forks

For carbon lefty forks, the clamps are integrated with the fork clamps. The upper and lower clamps are permanently bonded to the outer tube and must not be removed. Carbon Lefty forks are removed from the bicycle by sliding the steerer tube out of the fork clamps.

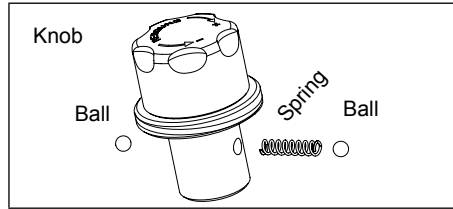
1. Remove the brake caliper and detach the brake line.
2. Handlebar stem from the head tube steerer.
3. Loosen the upper and lower clamp bolts. See Figure D.
4. Hold the fork and use a rubber mallet to remove the steerer from the head tube and fork clamps. Remove it from the bottom of the head tube.

SPRING CHANGE

About the Lefty 140 Main Spring

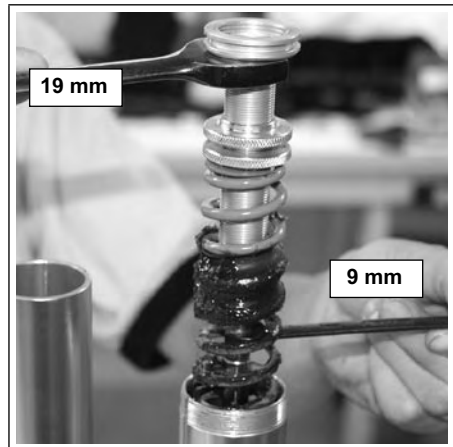
1. Lefty 140 MAX main springs come in several different sizes matched to typical rider weight. The main spring in a Lefty 140 MAX can be changed without changing any other internal parts. For available spring sizes and weight range, see the replacement parts section of this manual.
2. You should apply a generous coating of grease to the Lefty spring before you install it.
3. The shrink wrap material on the Lefty 140 spring installs with the shrink wrap up. This material is used to reduce noise caused by spring contact with the outer tube.

1. Turn the Rebound Knob clockwise in completely until it stops.
2. Remove the Outer Cap assembly. Please read "Adjusting Spring Preload" in this manual for steps to remove and install the Outer Cap Assembly.
3. Remove the two Split Rings.
4. Loosen the Lock Ring and Adjust Ring to release the main spring preload.
5. Turn the Rebound Knob assembly counter-clockwise to remove it. Hold down knob while turning; the knob assembly will pop out since it rests the pushrod which sits atop a spring. BE SURE TO CAPTURE DETENT BALLS AND SPRING.

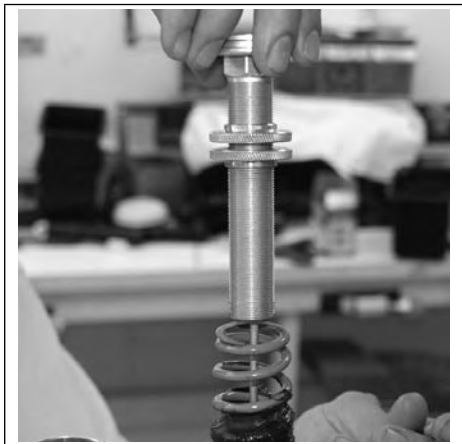


6. Hold the wrench flats on the lower rebound shaft wrench flats with a 9 mm open end wrench.

Loosen the Shaft with a 19 mm open end wrench. Turn counter-clockwise.



7. Unscrew the Shaft and lift off.



bottom out bumper (a black rubber-like material) on the rebound shaft.

11. Clean the thread of the rebound tuning assembly and reapply a small drop of Loctite #242.



8. Lift out the Rebound tuning pushrod.



12. Generously coat the entire spring with a high-quality spring grease. Then, install a new spring with the shrink wrap on the spring facing up.



9. Lift out the spring.
10. Inspect the bottom out spacer (a hard white plastic material) and

13. Reinstall the Shaft and tighten it securely. **DO NOT OVER-TIGHTEN**
14. Reinsert the Rebound Tuning Pushrod. Make sure it drops into the assembly fully. If it does not drop initially, rotate it until it does. Never force it down.
15. Reset the preload Adjust Ring. Once it contacts the SPRING turn it 1 FULL turn. ! turn is the minimum preload. Be sure to adjust sag as needed later. Tighten the Lock Ring against it securely.
16. Apply grease to the Shaft groove and install the two split rings with the "TOP" marking up.
17. Extend the fork lowering the rebound assembly into the outer tube.
18. Apply grease to the top of the split rings.
19. Clean the Outer Tube threads, grease them and reinstall the Outer Cap assembly. Be sure to lubricate the O-rings with a bit of grease.

OIL CHANGE

1. Place bike in work stand and remove the fork from the bike.
2. If you have an SPV compression damper, remove the Schrader valve cap at the bottom of the fork and release all air pressure by depressing the valve end. Wait for hissing to end.

If you have a TPC compression damper loosen the compression damping knob set screw and remove the knob from the shaft end. Be sure to capture the small O-ring in the knob groove.

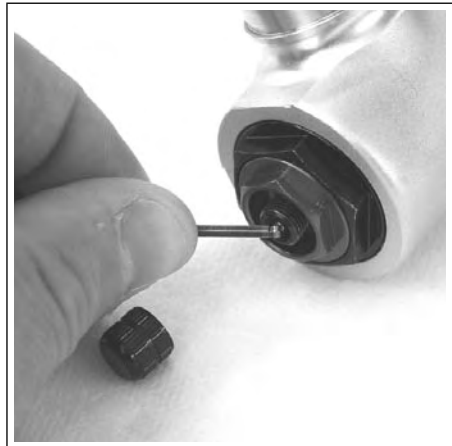
If you have a FFD compression

damper, continue to the next step.

3. Remove the air bleed screw. There is no air bleed screw on an SPV damper.

CAUTION

Make sure the fork, tools, and work area are very clean before performing an oil change. If dirt or grit falls inside the fork, or remove parts are contaminated fork performance will decrease or serious damage can result.



Releasing SPV Air Pressure



Loosening the Damping Assembly

Carefully lift out the damper.



Removing TPC Compression Damping Knob

4. Hold the fork upside down. Use a socket to loosen the damper. Turn counter-clockwise.



Removing the SPV Damping Assembly

Carefully lift out the damper.



Removing the TPC Damping Assembly



Removing the FFD Damping Assembly

5. With the damper out, invert the fork over a waste oil container and allow to drain. Dispose of waste oil responsibly.

To expel the small amount above the rebound piston, with the spring installed, place the spindle on a rag

on the floor and cycle it. About 15cc of oil will come out which a rag can handle. Wipe up any spills.



Draining Oil From The Lefty

6. Refill with the specified oil from a clean container.

Fork Oil	Golden Spectro Motorcycle Cartridge Fork Fluid, 85/150
Volume (cc)	155 (approximate)



Re-Filling Oil

7. If you have an SPV compression damper, hold the air valve end in, allowing the bladder to expand fully. Then release the valve. The bladder shape should be cylindrical prior to insertion. Make sure the bladder is affixed properly, FULLY EXPANDED, and the cap O-ring in good condition.



Expanding the SPV Bladder

If you have a TPC compression damper, dip the piston end clean fluid and check the cap O-ring.

If you have a FFD compression damper, check the cap O-ring and continue to the next step.

8. Slowly insert the damper, moving it up and down in the oil until the cap can be threaded in. Do not insert the damper too quickly; oil might be forced out .



Inserting the TPC Damper

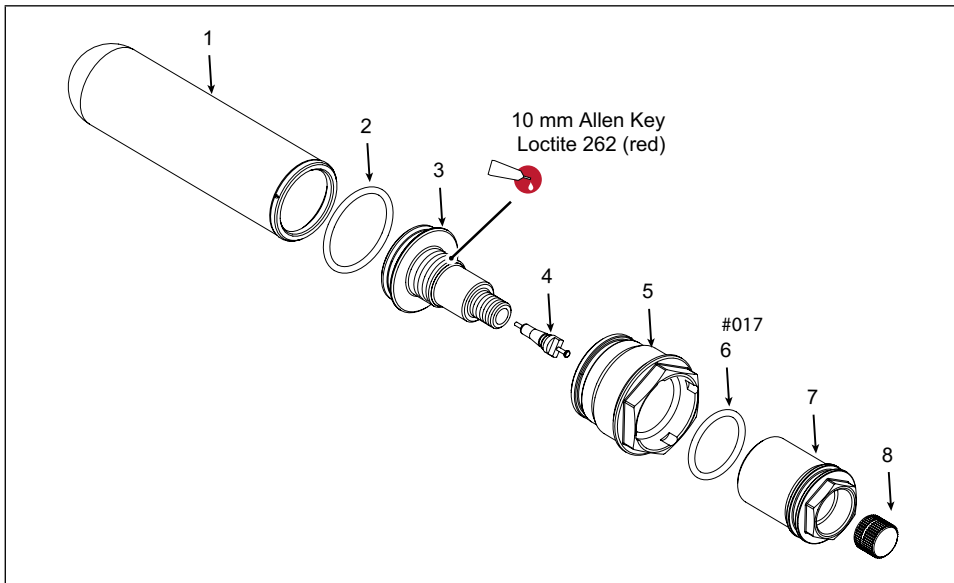
9. When the cap threads are engaged, remove the air bleed screw of the TPC and FFD dampers. There is no air bleed screw on an SPV damper.
10. Thread the cap in carefully using finger force. If sufficient oil volume is present, oil should start to be expelled through the air bleed hole.
11. Tighten the cap to 10.0 N•m (89.0 In•Lbs).

12. If you have an SPV compression damper, attach an air pump and pressurize the SPV bladder. (MINIMUM 30 psi, MAXIMUM 100 psi). Be sure to replace the valve cap.

If you have a TPC compression damper, reinstall the air bleed screw and tighten to 2.3 N•m (20.0 In•Lbs). Reinstall the adjustment knob with O-ring and tighten the set screw to 1.0 N•m (9.0 In•Lbs).

If you have a FFD compression damper, reinstall the air bleed screw and tighten to 2.3 N•m (20.0 In•Lbs).

SPV Compression Damper Assembly Exploded View



1. Bladder
2. O-Ring
3. Schrader Housing

4. Schrader Valve
5. Volume Adjust Housing
6. O-Ring

7. Volume Adjust Nut
8. Schrader Cap

MAINTENANCE SCHEDULE

Fork maintenance is important to your safety and longtime performance of the fork. The following table is intended as a guide to establishing a schedule appropriate to your riding style and conditions.

WHAT TO DO?	NORMAL	RACE
	(In Hours)	
Clean fork and visually inspect for damage. Check the fork externally for any sign of damage (e.g., bent fork, cracks, fluid leaks, tears, deep scratches, loose parts).	BEFORE AND AFTER EVERY RIDE	
Check and adjust air pressure.		
Check the fork function. Make sure it operates normally and all adjustments are normal. See Fork Problems next page		
Inspect the fork boot. Check damage (e.g., cuts, holes, rips, rub marks, and loose attachment).		
Check tightening torque of the fasteners and bolts listed in Tightening Torques in this manual.		
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* 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 technical bulletins or product recalls.	ANNUAL (Minimum)	

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.

FORK PROBLEMS

The following are conditions that can indicate a serious fork problem: If you find one, don't ride the fork. Have the fork inspected by your Cannondale Dealer and any problems corrected first.

1. Any unusual "klunking" or knocking noises
2. A change in fork travel.
3. An over-extended or compressed boot
4. Changes in the way the fork has been working
5. Loss of adjustments features, air or oil loss.
6. Crash or impact damage (deep scratches, gouges, dents, or bending).



WARNING

DO NOT RIDE ON A DAMAGED FORK. Stop riding a damaged fork immediately. YOU CAN BE SEVERELY INJURED, PARALYZED OR KILLED RIDING ON A BROKEN OR POORLY MAINTAINED FORK. Please ask your Cannondale Dealer to help you develop a complete maintenance program. Frequent checks are necessary to identify the problems that can lead to an accident.

Cleaning

USE ONLY A MILD SOAP AND WATER SOLUTION. Clean water and a common dish washing liquid will work best.

COVER SENSITIVE AREAS WITH A CLEAN PLASTIC BAG. Secured temporarily with a rubber band or masking tape, a bag can prevent water damage to various bike components (bearings, seals, fork / shock adjustment features).

SPRAY OFF BEFORE WIPING. To preserve the appearance of paint, finish, and decals, use a low pressure water hose to first spray off heavy soils and dirt.

CAUTION

DO NOT POWER WASH OR SPRAY WATER UNDER HIGH PRESSURE TO CLEAN. Power washing will force contaminants into parts where they will promote corrosion, immediately damage, or result in accelerated wear.

DO NOT USE COMPRESSED AIR TO DRY.

DO NOT USE ABRASIVE OR HARSH CHEMICAL CLEANER/SOLVENTS which can damage the finish or attack and destroy both the outside and internal parts.

When rinsing, avoid directing the spray directly at shock/fork adjusters or bearings.

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

The Cannondale Headshok needle bearing system uses precise components such as bearings and races that are 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.

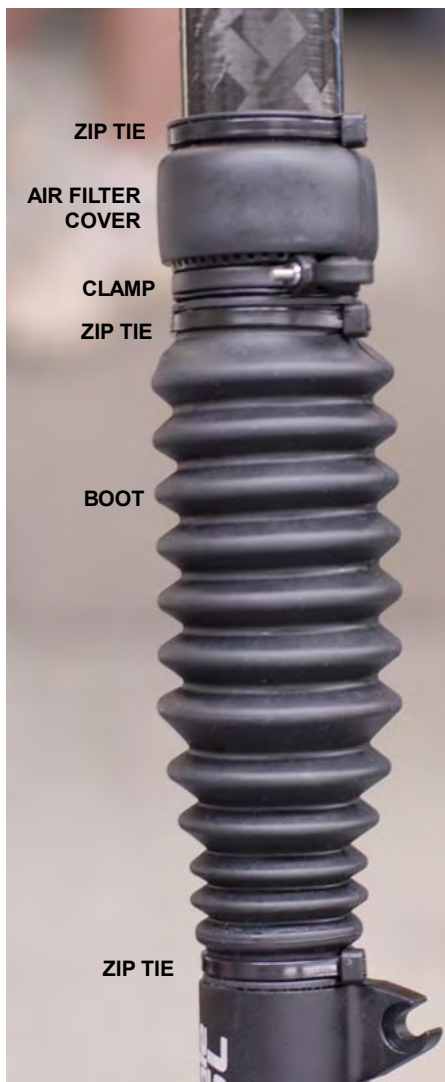
1. Inspect fork boot for rips and tears.
2. Inspect and renew grease under fork boot.
3. Clean, dry, and oil breather filter element.
4. Ensure zip-ties and band clamps are properly tightened (replace as needed)

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.**



Air Filter

The air filter assembly is located over two holes in the outer tube. Air passes in and out of the ports as the fork moves.

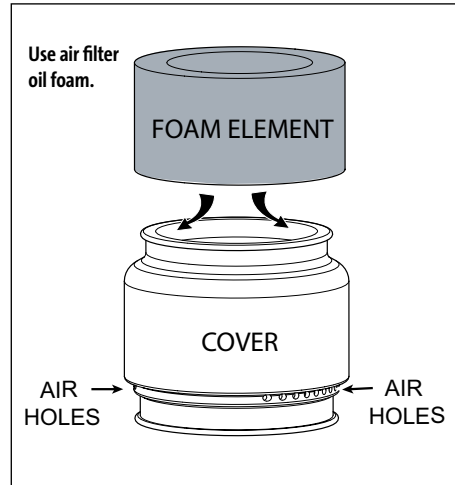
The air filter assembly stops the passage of dirt and water which would damage the internal fork components.

The small holes (a) at the base of the air filter cover should remain open.

The foam filter element (1) should be cleaned and re-oiled frequently.

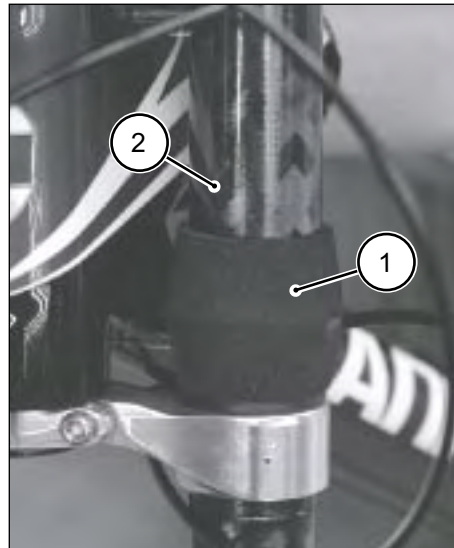
The small holes at the base of the filter cover should be positioned to the sides of the and not to the front or back of the bicycle to minimize the chance dirt thrown by the wheels will plug the holes.

Clean the foam air filter element with warm soapy water, 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.



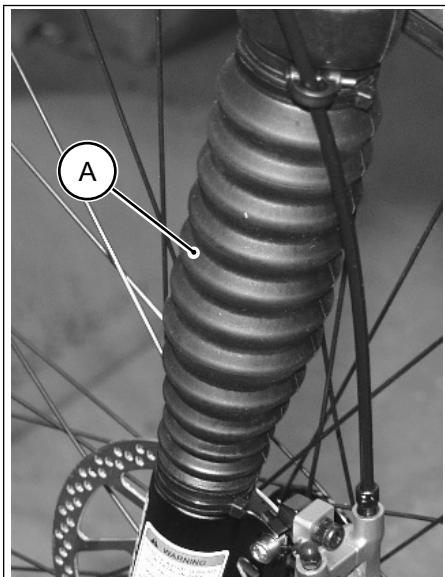
Frame Bumper

The frame bumper (1) located on the outer tube (2) between the clamp cushions the frame from contact with the fork. Replace it with a new one if it ever becomes damaged, torn, or missing.



Fork Boot

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.



Checks

1. Check the boot for damage, cracking, splits, or tears. Be sure to check in the folds of the boot. Check for any cables or lines rubbing 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 the zip ties and band clamps .

Always tighten the zip ties and clamps securely. Replacement boots, zip ties, and cable clamps are available through a Cannondale Dealer.

If you find boot damage, the area under the boot should be professionally inspected for contamination or damage. The damaged boot must be replaced with a new one. Do not try to fix it.

WARNING

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

Cleaning and Re-greasing The Telescope Under the Boot

The fork inner tube and inner bearing races, parts of the telescopic fork assembly are located behind the fork boot.

Wiping off old grease with a dry shop towel and re-apply a fresh heavy coating of grease helps assure that ,races and needle bearings remain well lubricated.

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).

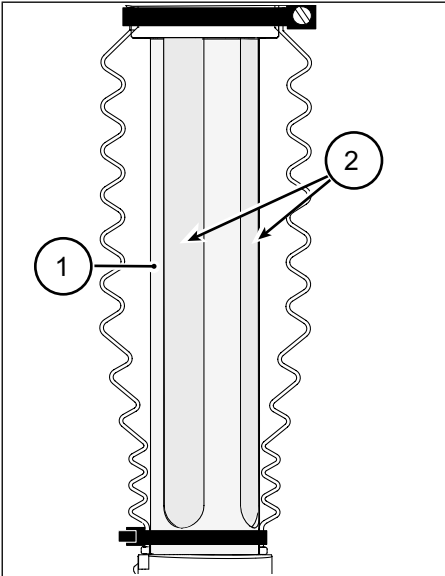
1. Remove the front wheel.
2. Release all fork air pressure.
3. Carefully cut the upper and lower zip ties securing the fork boot. Some forks may have an screw type band clamp securing the upper portion of the boot. If this is the case, loosen the clamp.
4. Lift the unsecured boot up to expose the inner tube (1).

- Wipe away any old grease with a clean lint-free shop towel. Cycle the fork and repeat.

CAUTION

Do not use solvents or spray chemicals to clean. Protect the exposed fork from contaminants. Work in a clean area.

- Visually inspect the inner tube (1) and inner races (2) for any signs of corrosion or damage. Some very light wear to the inner races is normal, however, they are worn-out if any scratches or grooves are evident. If heavy corrosion is present they must be replaced. If ridges can be felt by the tip of a rolling ball point pen over the race, the races should be replaced. If damage is found, the damaged parts must be replaced new before the fork is ridden.



- Use a stiff nylon brush to apply a high-quality bicycle grease onto the inner tube and bearing races. Cycle

the fork and carefully re-apply grease. Cycling moves the new grease inside the fork onto the outer tube races and bearing cages. Its OK to leave a good coating under the boot.

Avoid applying grease to the area (A) just under the boot/zip tie.

Also, do not contaminate the brake disc with grease.

Wipe it off the inner tube and inner boot to ensure that boot does not slide up when zip tie is re secured.



- When you are finished, inspect the condition of the boot. Make sure it is undamaged. Replace it if it is. Re secure the boot and reassembly the fork.

WARNING

NEVER RIDE YOUR LEFTY IF THE INNER TUBE, BEARING RACES, OR BEARINGS ARE CORRODED, RUSTED, OR CRACKS ARE PRESENT.

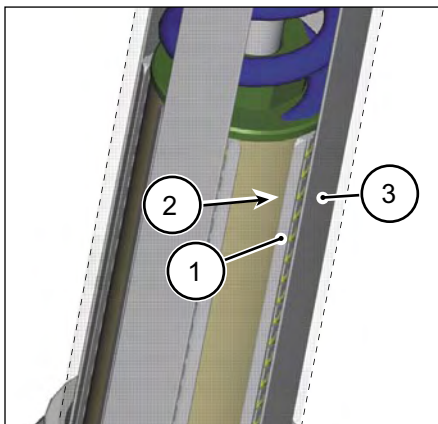
Needle Bearing Migration Reset

NOTE: Ideally, reset the bearings after 25 hours of normal riding or 10 hours of hard riding/racing to maintain optimum fork performance.

We recommend that the needle bearing reset procedure should be performed by a professional mechanic.

Explanation

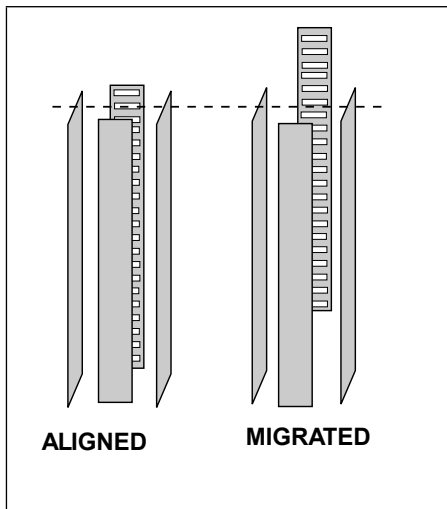
Inside the fork the four needle bearing cages (1) move independently up and down between each inner (2) and outer race pair (3). This bearing arrangement provides numerous advantages to fork performance but requires simple periodic maintenance to ensure proper alignment.



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.



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.

Resetting Migrated Needle Bearings

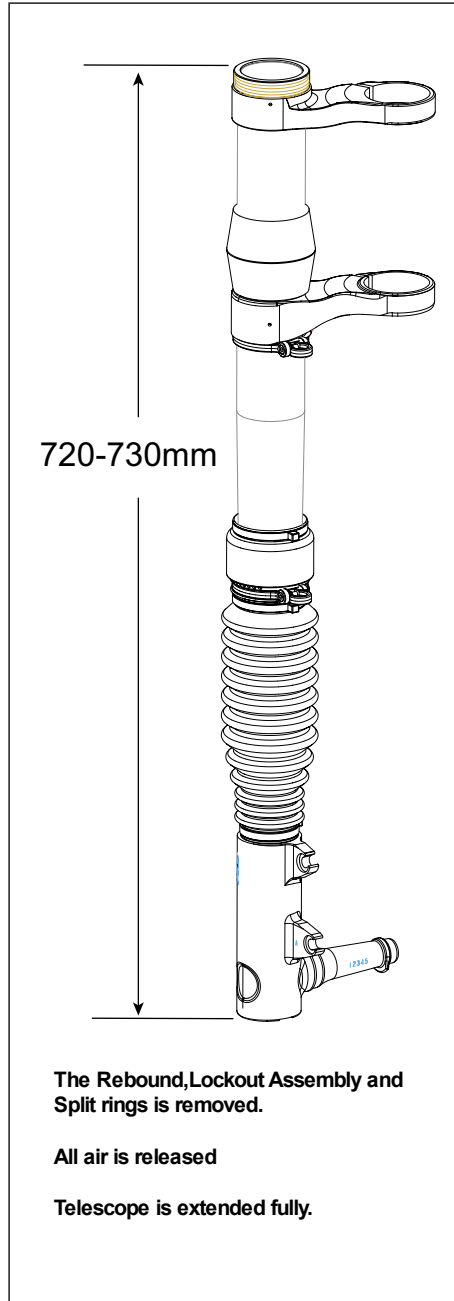
1. Place the bike in a work stand.
Release all the air pressure through the Schrader valve.
2. Remove the rebound knob and lockout lever. Remove the outer cap with the Shimano bottom bracket tool TL-FC32.
3. Compress the telescope and remove the two split rings from the top cap..
4. Fully extend the 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.

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.



REPLACEMENT PARTS (KITS)

ORDER	KIT DESCRIPTION
KF205/	Kit, Split Ring,2
KF206/	Kit, Collar, Upper,Alloy,Speed110/MAX140
KF207/	Kit, Collar, Upper,Carbon,Speed110/MAX140
KF208/	Kit, Collar, Lower,Alloy
KF209/	Kit, Collar, Lower,Carbon,clip+bushing
KF213/BLK	Kit, Spring,MAX140 FE,XFIRM
KF213/BLU	Kit, Spring,MAX140 FE,STD
KF213/BRN	Kit, Spring,MAX140 FE,XXFIRM
KF213/GRN	Kit, Spring,MAX140 FE,SOFT
KF213/RED	Kit, Spring,MAX140 FE,FIRM
KF214/BLU	Kit, Spring,MAX140 TI,STD
KF214/GRN	Kit, Spring,MAX140 TI,SOFT
KF214/RED	Kit, Spring,MAX140 TI,FIRM
KF215/	Kit,Damper,Compression,MAX140,FFD
KF216/	Kit,Damper,Compression,MAX140,TPC
KF223/	KIT,BLADDER ASSY,MAX140,SPV
KF217/	Kit,Damper,Rebound,MAX140,FFD/TPC
KF218/	Kit,Damper,Rebound,MAX140,SPV
KF219/	Kit,Damper,Control ASSY,MAX140
KF220/	Kit,,Bladder ONLY SPV,MAX140
KF221/	Kit, Knob, Compression,MAX140,TPC
KF224/	Kit, Damper,Piston Ring,MAX140-5
KF225/	Kit,Seal,Max140
KF222/	Kit, Boot, Lefty MAX 140
KF233/	KIT,KNOB,REBOUND,MAX140
KF234/	KIT,PUSHROD,MAX140
QC671/	Kit,Bleed Screw,MAX/Jake
HD208/	Kit, Outer Race Clip-Lefty / 5
HD209/BLK	Kit, Air Filter/Hood, Lefty
HD175/ BLK	Kit, Zip Ties, Black / 50

HD185/BLK	Kit, Zip Ties, Double Head /10
HD011/	Kit, Band Clamps (2), Boot - Lefty
HD215/	Kit, Frame Bumper, Lefty/Moto
QC679/	Kit, Clamp, Upper, MAX-Silver
QC680/	Kit, Clamp, Lower, MAX-Silver
HD016/	Kit, STEERER,CARBON LEFTY
KT040/	KIT,STEERER,X-LONG LEFTY- will only work with carbon and bonded alloy Leftys
HD210/	Kit, Steerer Tube Plug, Lefty
QSMSEAL/	Kit, Seal, HShok Upper Bearing
QHDST/EBO	Kit, Headset, 2 cups + 1 bearing
HD169/	Kit, Bearings, Headset - 2; HeadShok
KT020/	KIT,TOOL,LEFTY STEERER,INSTALL
HD226/	Kit,Oil,Golden Spectro, 1 Bottle
KF364/	KIT,COMPUTER MOUNT,LEFTY
HD161/	Kit, Needle Bearings, Set of 4, for all in-headtube Headshok forks
HDR2M/020	Kit, Race-Inner: 11.378"-289.0mmx.020"-.51mm (4)
HDR2M/021	Kit, Race-Inner: 11.378"-289.0mmx.021"-.53mm (4)
HDR2M/022	Kit, Race-Inner: 11.378"-289.0mmx.022"-.56mm (4)
HDR2M/023	Kit, Race-Inner: 11.378"-289.0mmx.023"-.58mm (4)
HDR2M/024	Kit, Race-Inner: 11.378"-289.0mmx.024"-.61mm (4)

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

OWNER NOTES

Record maintenance history, service, or set up information .

DATE	WORK PERFORMED