

2014 - 2017 LEFTY HYBRID (1.0), LEFTY 2.0, SUPERMAX, OLAF

Solo Air Superseded By 2Spring System



Figure 1

- Product: 2014-2016 Lefty Hybrid (1.0), Lefty 2.0, SuperMax and Olaf forks with Solo Air spring systems and model year 2017 Cannondale Lefty forks without the "2Spring" decal as depicted in Figure 1.
 - **Issue:** Certain Solo Air spring systems have exhibited inconsistent performance in managing the exchange of air between the negative and positive air chambers. If this happens, travel, ride height and/or spring rate can be affected, resulting in an unusual or inconsistent spring feel.
- Remedy: Cannondale has designed an improved air spring system called "2Spring", that can be retrofitted to replace all Solo Air (both Wave Spring and Coil Upgrade) assemblies, kits and maintenance parts. Cannondale is issuing this Mandatory Service Bulletin to ensure all 2012-2014, and certain 2017, Solo Air systems are upgraded to 2Spring. In addition to improved air chamber management, 2Spring moves more freely at the top of the travel, giving the rider increased traction and reduced feedback. See Actions to Take, page 2.

Dealers can order 2Spring upgrade kits directly from Cannondale or their country's Cannondale Distributor. Installation of the 2Spring kit can be completed by a Factory Tech Room, HeadShok Service Center or qualified Cannondale Dealer. Solo Air parts will no longer be supported and will be replaced with 2Spring assemblies, kits and parts.

Affected Lefty forks that have wave spring or coil upgrade Solo Air systems installed are affected. This includes Lefty forks from model year 2014-2017, except for 2017 forks with the 2Spring decal located on the front of the Lefty fork, 15mm above the lower collar. The visual identifier below should be used as a guide to determine if your Lefty fork is affected. There is a full list of affected models on page three of this document as well.

"Lefty 2Spring System Installation Instructions" are attached at the end of this bulletin and at www.csgxchange.com

Information intended for use only by Authorized Cannondale Dealers. Special tools and skills are needed. Bike Owners must not perform the work described. Serious injury or damage can result.

Cannondale Europe Regional Contact Information

Region	Contact Telephone	Region	Contact Telephone
Finland	0942451582	Netherlands	0541820906
Italy	0294756239	Denmark	89882940
Spain	911980754	Sweden	0844683769
Belgium	025885776	Norway	62783001
France	0482810011	Portugal	211141321
Switzerland	0615880767	Austria	012675922
Germany	07614888022	Luxembourg	027860715

Lefty 2Spring Kit Identification

2014-2016 Lefty Hybrid (1.0), Lefty 2.0, SuperMax and Olaf forks with Solo Air spring systems are affected. Also effected, model year 2017 Cannondale Lefty forks without the "2Spring" decal.



Figure 2

Actions to Take:

- 1. Check your sales records, point of sale system and contact any known customers who own bikes with Lefty forks that are eligible for a 2Spring upgrade.
- 2. Bicycles that are affected can be identified by using the guide above. Use the guide to match the Lefty fork to the appropriate upgrade kit.
- 3. Contact Cannondale or your country's Cannondale distributor to order the upgrade kit if your shop is going to install the upgrade or contact a FTR or HSSC to send your fork out to be upgraded.

Affected Bike Models

The following table indicate the bike models with an affected Lefty:

Model Year 2017 Bikes		
Material	Description	Upgrade Kit Code
C24106M10	Scalpel Si BLE	CK5037U000S
C24656M80	Scalpel Si Race	CK5037U000S
C24116M50	Scalpel Si Carbon 1	CK5037U000S
C24206M30	Scalpel Si Carbon 2	CK5037U000S
C24306M10	Scalpel Si Carbon 3	CK5037U000S
C24406M30	Scalpel Si Carbon 4	CK5037U000S
C24516M10	Scalpel Si Alloy 5	CK5037U000S
C24207F60	Scalpel Si Carbon Women's 2	CK5037U000S
C28107M70	Bad Habit Carbon 1	CK5037U000S
C28416M	Bad Habit 1	CK5037U000S
C27106M	Beast of the East 1	CK5037U000S
C23127M20	Habit Carbon 1	CK5037U000S
C23207M70	Habit Carbon 2	CK5037U000S
C23207F20	Habit Carbon 1 Wmns	CK5037U000S
C23257M	Habit Carbon SE	CK5037U000S
C23307M	Habit Carbon 3	CK5037U000S
C28306M	Fat CAAD 1	CK5057U000S
C23407M	Habit 4	CK5037U000S
C23287F	Habit Carbon Women's 2	CK5037U000S
C25107M	F-Si Black Inc	CK5037U000S
C25137M	F-Si Carbon Team	CK5037U000S
C25207M	F-Si Carbon 2	CK5037U000S
C25407M	F-Si Carbon 4	CK5037U000S
C25517M	F-Si 1	CK5037U000S

Model Year 2015 Bikes		
Material	Description	Upgrade Kit Code
CM2423	Jekyll Carbon Team	CK5057U000S
CM2424	Jekyll Carbon 2	CK5057U000S
CM2398	Trigger Black Inc	CK5027U000S
CM2399	Trigger Carbon Team	CK5027U000S
CM2400	Trigger Carbon 2	CK5027U000S
CM2404	Trigger 29 Carbon Team	CK5027U000S
CM2405	Trigger 29 Carbon 2	CK5027U000S
CM2272	Scalpel 29 Black Inc	CK5047U000S
CM2105	Scalpel 29 Carbon Team	CK5047U000S
CM2497	Scalpel 29 Carbon 1	CK5047U000S
CM2106	Scalpel 29 Carbon 2	CK5047U000S
CM2462	Scalpel 29 Carbon 3	CK5047U000S
CM2108	Scalpel 29 4	CK5047U000S
CM2457	F-Si Black Inc	CK5037U000S
CM2458	F-Si Carbon Team	CK5037U000S
CM2459	F-Si Carbon 1	CK5037U000S
CM2460	F-Si Carbon 2	CK5037U000S
CM2052	F29 Carbon 3	CK5047U000S
CM2461	F29 Carbon 4	CK5047U000S
CM2418	F29 5	CK5047U000S
CM2394	Tramount 1	CK5047U000S

Model Year 2016 Bikes		
Material	Description	Upgrade Kit Code
C21116M	Jekyll Carbon 1	CK5057U000S
C21206M10	Jekyll Carbon 2 Lefty	CK5057U000S
C22116M	Trigger Carbon 1	CK5057U000S
C22206M	Trigger Carbon 2	CK5057U000S
C23106M	Habit Black Inc	CK5037U000S
C23126M	Habit Carbon 1	CK5037U000S
C23206M	Habit Carbon 2	CK5037U000S
C23256M	Habit Carbon SE	CK5037U000S
C23306M	Habit Carbon 3	CK5037U000S
C23406M	Habit 4	CK5037U000S
C28416M	Bad Habit 1	CK5037U000S
C27106M	Beast of the East 1	CK5037U000S
C24156M	Scalpel 29 Carbon Race	CK5037U000S
C24126M	Scalpel 29 Carbon 2	CK5037U000S
C24136M	Scalpel 29 Carbon 3	CK5037U000S
C24146M	Scaplel 29 4	CK5037U000S
C25106M	F-Si Black Inc	CK5037U000S
C25616M	F-Si Hi-Mod Team	CK5037U000S
C25126M	F-Si Hi-Mod 1	CK5037U000S
C25206M	F-Si Carbon 2	CK5037U000S
C25306M	F-Si Carbon 3	CK5037U000S
C25406M	F-Si Carbon 4	CK5037U000S
C25516M	F-Si1(Alloy)	CK5037U000S
C28306M	Fat CAAD 1	CK5057U000S
C23316F	Habit Women's 1	CK5037U000S
C25216F	F-Si Carbon Women's 1	CK5037U000S
C25416F	F-Si Carbon Women's 2	CK5037U000S

Model Year 2014 Bikes		
Material	Description	Upgrade Kit Code
CM2404	Trigger 29 Carbon 1	CK5027U000S
CM2405	Trigger 29 Carbon 2	CK5027U000S
CM2272	Scalpel 29 Carbon Black Inc	CK5047U000S
CM2105	Scalpel 29 Carbon Team	CK5047U000S
CM2106	Scalpel 29 Carbon 2	CK5047U000S
CM2107	Scalpel 29 3	CK5047U000S
CM2108	Scalpel 29 4	CK5047U000S
CM2049	F29 Carbon Black Inc	CK5047U000S
CM2050	F29 Carbon Team	CK5047U000S
CM2051	F29 Carbon 2	CK5047U000S
CM2052	F29 Carbon 3	CK5047U000S
CM2418	F29 4	CK5047U000S
CM2419	F29 5	CK5047U000S
C13VM0	Trigger Carbon Ultimate	CK5047U000S
C13VM1	Trigger Carbon 1	CK5047U000S
C13VM2	Trigger Carbon 2	CK5047U000S



Lefty 2Spring System



Fig. A

Cannondale Service Kits:

ORDER CODE	NEEDED FOR:
CK5057U000S	Supermax 2.0 and Olaf
CK5027U000S	Supermax 1.0
CK5037U000S	Lefty 2.0
CK5047U000S	Lefty 1.0

Cannondale Service Tools Required:

ORDER CODE	TOOL DESCRIPTION	NEEDED FOR:
KH103/	Super Castle Tool	Lefty 1.0
KH127/	36mm Socket	Supermax 1.0, 2.0, Olaf and Lefty 2.0
KH198/	40mm Castle Slider	Supermax 1.0, 2.0, Olaf and Lefty 2.0
HDTL187/	1/2" Shaft Clamps	Supermax 1.0 and Lefty 1.0
KH135/	16mm Shaft Clamps	Supermax 2.0, Olaf and Lefty 2.0

Other Tool and Supplies Required:

- Slick Honey or RSP Slick Kick
 grease
- Small foam brush
- Socket wrench
- Safety glasses
- Nitrile gloves Clean, lint free shop towels
- Phil Wood Tenacious Oil
- Loctite 262[®] (red)
- Loctite 242[®] (blue)

- 6mm hex bit
 - 2mm hex wrench
 - Shimano TL-FC32 or compatible BB wrench
- Pick
 - Small flat blade screwdriver
- Shock pump
- Schrader valve core tool
- Work in a clean shop area free from dust or other contaminants.
- Use lint-free shop towels when cleaning.
- If specified brand supplies are unavailable, use only functional equivalents. Do not improvise.

Information intended for use only by professional mechanics at Authorized Cannondale Dealers. Special tools and skills are needed. Bike Owners must not perform the work described. Serious injury or damage can result.

Release all air pressure before servicing. Remove the air valve cap at bottom of Lefty, depress the air valve and hold releasing air until hissing stops. Serious injury or damage can result.

EN	Translations of this document:	
DE	Die Übersetzungen für dieses Dokuments:	
FR	Pour accéder à ce document dans votre langue:	www.csgxchange.com
IT	Per le traduzioni di questo documento:	www.cannondale.com
ES	Para traducciones de este documento:	
NL	De vertaling van dit document:	

CARTRIDGE REMOVAL

- 1. Remove air valve cap from the bottom of the Lefty lower leg.
- 2. Cover front brake rotor with a clean shop towel to prevent oil contamination.
- 3. Depress and hold the Schrader valve open until all air has been released from the air chamber.
- 4. Remove the valve core from the Schrader plug using a valve core tool.
- 5. Remove the bike from the work stand and perform a Manual Needle Bearing Reset by following the instructions found in the Lefty Owner's Manual Supplement or at www. Cannondale.com.
- 6. Loosen stem per manufacturer's instructions and turn handle bars to be parallel with the top tube. Lightly tighten stem to hold it in place.
- 7. Clean the Lefty top cap with isopropyl alcohol and a clean rag.

8. LEFTY 1.0

- a. Use a Shimano Hollowtech BB tool TL-FC32 or compatible to turn the Lefty top collar counterclockwise until it is unthreaded. Remove the collar from the top of the damper by pulling upwards.
- b. Gently push down on the handlebars to bottom out the structure. This will expose the damper shaft.
- c. Remove the split rings by pulling them horizontally from the side of the damper top cap.
- d. Clean excess grease from the top cap groove and split rings.

- e. 29" only: unclip the white plastic travel reducer clips from the damper shaft with your fingers.
- f. Engage tool KH103/ (Super Castle) with the top of the damper. To ensure correct tool engagement within the castle slots, check for free rotation by turning the tool clockwise and counter-clockwise. If free rotation is present, disengage tool, turn 40 degrees and re-engage. Repeat free rotation check.
- g. Use tool KH103/ (Super Castle) and a socket wrench to completely unthread the damper by turning counter-clockwise.
- h. Remove the damper by pulling it up and out of the fork structure by the top cap.
- 8. SUPERMAX 1.0, 2.0, OLAF AND LEFTY 2.0
- a. XLR only: Fully unthread the two 2mm hex bolts from the top of the knob assembly. Pull the knob assembly upwards to remove.
- Unthread the top cap with tool KH127/ (socket, 36mm) and a socket wrench by turning counterclockwise until the top cap is completely unthreaded. Note: Maintain downward pressure on the tools to avoid damaging the top cap wrench flats.



Fig. 1

c. Place the bike on the ground and gently push down on the handlebars to bottom out the structure. This will expose the damper shaft.

d. Align tracks of tool KH198/ (Castle Slider, 40mm) with the flats located below the top cap threads and slide tool on until it stops.





e. Lower the top cap and attached tool down until the tool ends are engaged with top of cartridge body inside the upper structure. To ensure correct tool engagement of the castle slots on the top of the cartridge body. Check for free rotation by turning the top cap clockwise and counterclockwise. If free rotation is present, raise the top cap to disengage tool, turn it 40 degrees and re-engage tool. Repeat free rotation check.



Fig. 3

- f. Use tool KH127/ (socket, 36mm) and a socket wrench to completely unthread the damper by turning the damper top cap counter-clockwise.
- g. Remove the damper by pulling it up and out of the fork structure by the top cap.



Fig. 4

h. Remove tool KH198/ (Castle Slider 40mm) from top cap flats.

PISTON REMOVAL

1. Slide the damper cartridge body towards the top cap until the cartridge contacts the bottom out bumper.



Fig. 5

- 2. Clean lower shaft and tool HDTL187/ (1.0 Shaft Clamps, ½") or KH135/ (2.0 Shaft Clamps, 16mm) with isopropyl alcohol.
- Clamp the lower damper shaft in the vice using shaft clamps with the Solo Air assembly facing up. The shaft clamps must be placed at least 50mm from the shaft end.

4. Place the end of a small flat blade screwdriver or pick into a relief in the e-clip, push the e-clip away from the pin to remove it. **Caution: During removal, the e-clip can eject from the assembly.**





- 5. Use a small flat blade screwdriver or pick to push the pin horizontally out of the Solo Air assembly.
- 6. Remove the green valve from the center of the piston with your fingertips.
- 7. Insert a 6mm hex wrench into the center of the piston. Unthread the shaft end by turning counter-clockwise. NOTE: A heat gun may need to be used to break the Loctite bond between the shaft end and damper shaft.



Fig. 7

- 8. Remove the damper from the vice.
- 9. Supermax 1.0, Lefty 1.0 Only: Slide bumpers, plate and wave spring off of the damper shaft.
- 10. Discard all removed Solo Air parts.

NEW 2SPRING ASSEMBLY INSTALLATION

 Using a small flathead screwdriver or pick, clean Loctite residue from the damper cartridge body threads and the internal damper shaft threads.





- 2. Clean threads with isopropyl alcohol and a clean shop towel.
- 3. Wipe excess grease from the upper air seal o-ring with a clean shop towel.

4. SUPERMAX 1.0 AND LEFTY 1.0 ONLY

 Insert the small ends of the bumper retainer and plate into the topout spring until they bottom out.



Fig. 9

- b. Slide the coil topout assembly onto the damper shaft with the rubber bumper side facing the damper cartridge body.
- c. Slide the topout spring onto the damper shaft.

- 5. Apply Loctite[®] #262(red) 360 degrees around the first two shaft end threads.
- 6. Insert a 6mm hex bit into the center of the shaft end. Thread the shaft end assembly into the end of the damper shaft by turning clockwise and tighten to 3.4Nm with a torque wrench.

Note:

While not required or suggested, if the piston is removed, reinstall using only Loctite[®] 425 and tighten to 1.8Nm.



Fig. 10

 Insert the black valve into the piston cavity, rotate the valve until the cross hole is lined up with the slot located in the side of the shaft end.



Fig. 11

- 8. Rotate the plate on the damper shaft until the cross hole is lined up with the slot located in the side of the shaft end.
- 9. Push the plate towards the piston until the cross hole, shaft end slot and valve cross hole all line up. Fully insert the pin through all three parts.





10. Install the e-clip onto the groove on the pin with a small flatblade screwdriver.



Fig. 13

CARTRIDGE INSTALLATION

 Use a small foam brush to paint a thin layer of grease on the outside of the piston o-ring and upper air seal o-ring. Note: Do not apply any grease between the piston and plate.



Fig. 14

- 2. Apply a light layer of Phil Wood Tenacious Oil to the piston O-ring and Upper Air Seal o-ring. Note: Do not apply any oil between the piston and plate.
- Apply Loctite[®] #242(blue) 360 degrees around the first two damper body threads. Note: do not use the supplied Loctite[®] #262 (red) on the damper body threads, it will permanently bond the damper to the inner leg, use only Loctite[®] #242 (blue).
- 4. Hold the damper top cap with one hand and damper cartridge body with the other. Pull your hands apart until the cartridge body and upper air seal contact the piston assembly.



Fig. 15

5. Continue holding the damper top cap with one hand and the top of the cartridge body with the other. Guide the air piston into the Lefty lower leg and firmly push with both hands to insert the damper fully. Push until the damper threads contact the lower leg.



Fig. 16

Note: There will be resistance when the O-rings enter the lower leg

6. **LEFTY 1.0**

- Engage tool KH103/ (Super Castle) with the top of the damper. To ensure correct tool engagement within the castle slots, check for free rotation by turning the tool clockwise and counter-clockwise. If free rotation is present, disengage tool, turn 40 degrees and re-engage. Repeat free rotation check.
- b. Use tool KH103/ (Super Castle) and a torque wrench to tighten the damper to 27Nm by turning clockwise.
- c. 29" Only: After torqueing damper, reinstall the white plastic travel reducers by clipping them onto the damper shaft between the top cap and bottom out bumper.
- d. Lightly grease the inside of the split ring pieces and place them into the top cap groove with the flat side facing up.

- e. Gently pull up on the handlebars to raise the Lefty structure so that the lower part of the split rings fit into the upper structure.
- f. Ensure that the top collar O-rings are in their grooves and apply a light layer of grease.
- g. Apply light grease to the collar threads.
- h. Thread the top collar clockwise onto the Lefty upper structure. Tighten collar to 20Nm with a Shimano Hollowtech BB tool TL-FC32 or compatible.

6. SUPERMAX 1.0, 2.0, OLAF AND LEFTY 2.0

- a. Align tracks of tool KH198/ (Castle Slider, 40mm) with the flats located below the top cap threads and slide tool on until it stops.
- b. Lower the top cap and attached tool down until the tool ends are engaged with top of cartridge body inside the upper structure. To ensure correct tool engagement of the castle slots on the top of the cartridge body. Check for free rotation by turning the top cap clockwise and counterclockwise. If free rotation is present, raise the top cap to disengage tool, turn it 40 degrees and re-engage tool. Repeat free rotation check.
- c. Use tool KH127/ (socket, 36mm) and a torque wrench to tighten the damper to 27Nm by turning the top cap clockwise.



Fig. 17

d. Grab the front wheel and pull in an upward direction until tool KH198/ (Castle Slider, 40mm) is fully exposed. Remove tool by sliding it horizontally from the top cap flats located below the top cap threads.

- e. Lightly grease the top cap threads then lower the top cap and begin to thread it clockwise into the Lefty upper structure.
- f. Use tool KH127/ (socket, 36mm) and a torque wrench to tighten the top cap to 20Nm.

FINAL REASSEMBLY

- 1. Put a small amount of grease on the Schrader core. Reinstall to torque of 0.45Nm with a valve core tool.
- 2. Use a shock pump to pump the Lefty up to recommended pressure found in the Lefty Owner's Manual Supplement or to the rider's favorite setting.
- Loosen stem bolts and turn the stem back to riding position. Tighten stem bolts per manufacturer's instructions.
- 4. Clean the lower structure above the lower collar with isopropyl alcohol and apply the provided 2Spring decal to the front of the fork 20mm above the lower collar.



Fig. 18