

Catrike Spindle Replacement Instructions

August 23, 2013

Tools needed:

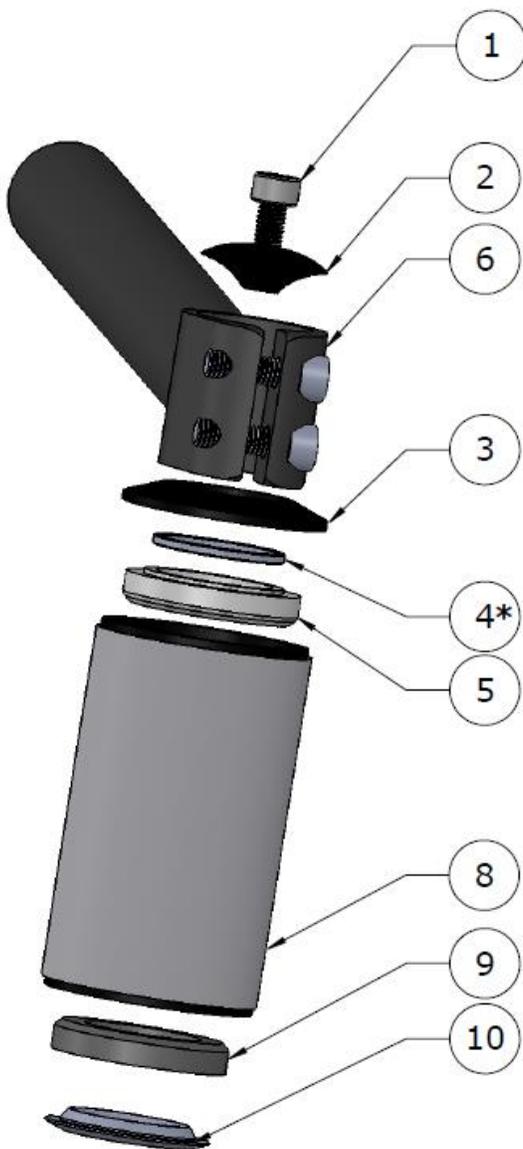
1. Allen wrenches
2. Tape Measure or Calibro (Specialty Catrike Tool).

Tips:

1. Make note of the disassembly procedure as the reassembly is essentially the same except in reverse order
2. During disassembly layout parts in the order sequence they belong for reassembly

Reference:

Please see Headset Assembly Diagram below for reference



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	M6 BOLT		1
2	TOP CAP		1
3	DUST COVER		1
4	HEADSET SPACER 2mm	*FSA ONLY, NOT IN CANE CREEK HEAD SET	1
5	TEFLON BEARING		1
6	HANDLEBAR		1
7	CUP	PRE-INSTALLED	2
8	HEAD TUBE	PART OF TRIKE FRAME	1
9	BEARING		1
10	PRESSED CROWN RACE	PRE-INSTALLED ON SPINDLE	1

Please see steps and photos showing procedure for replacing spindles below

Step 1

Remove the Top Cap (Headset Assembly Diagram Item No 2) by removing the M6 Bolt (Headset Assembly Diagram Item No 1). Set M6 bolt and Top Cap aside and keep parts in order for reassembly. Please see photos below showing step 1.



Step 2

Remove tie rod using allen wrench and wrench. Set parts aside and keep parts in order for reassembly.



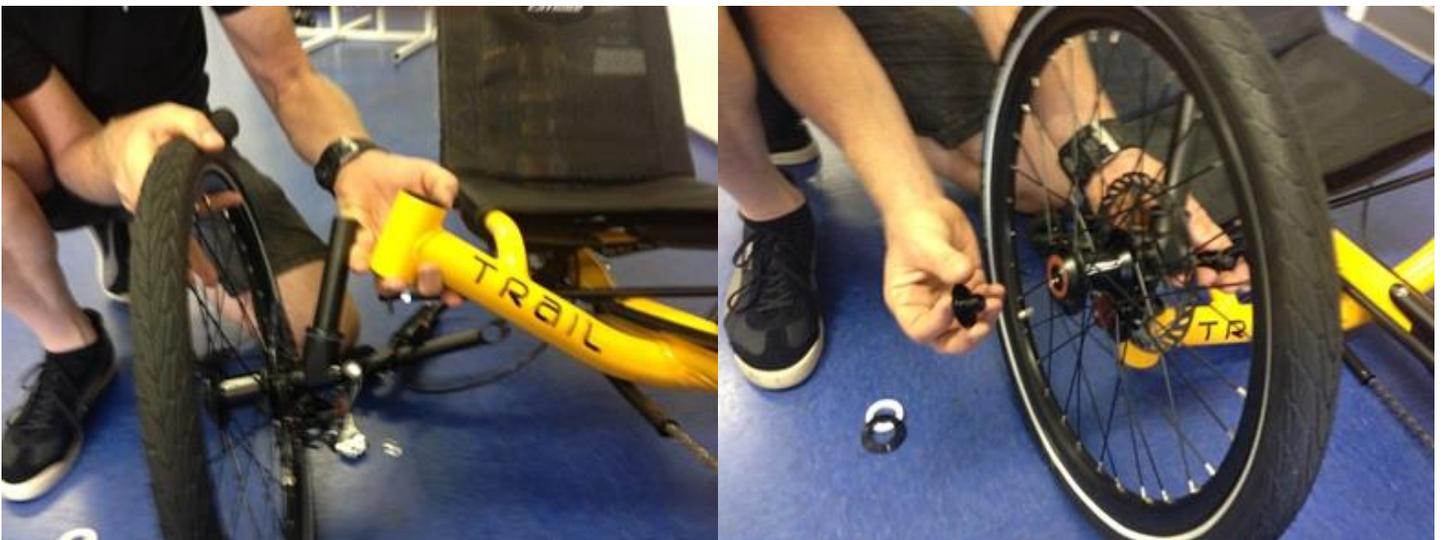
Step 3

Loosen and remove handlebar (Headset Assembly Diagram Item No 6). Note: Leave cables attached to handlebar for reassembly.



Step 4

- A) Remove Dust Cover (headset item No 3) and Headset Spacer (headset item No 4)* and Teflon Bearing (headset item No 5). *Note: Headset spacer (headset item No 4) found only on FSA headsets. Cane Creek headsets do not come with a headset spacer. You can easily determine if you have a FSA headset or Cane Creek headset by looking at the Top Cap where you will find the name printed.
- B) Remove wheel
- C) Remove Bearing (headset item No 9)
- D) Remove quick release by loosening quick release lever and unscrewing the outer black domed axle nut. Remove skewer and spring. Set aside parts in order for reassembly.



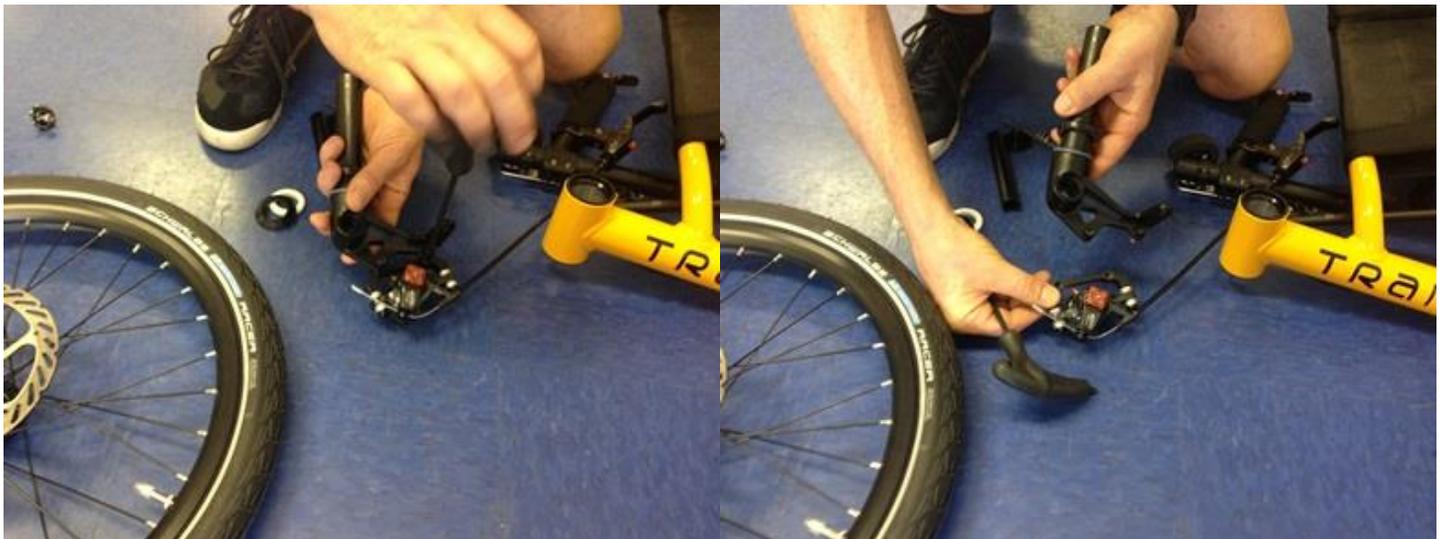
Step 5

Remove Axle



Step 6

Remove brakes by removing bolts as shown below



Reassembly Step 1

Reassembly basic overview. Generally, reassembly involves putting everything back together in reverse sequence. Below are the main steps.

- A) Attach brakes to new spindle.
- B) Slide Bearing (headset item No 9) onto new spindle. Note: Position of Bearing outside beveled edge is on top.
- C) Insert spindle through Catrike frame head tube.
- D) Slide Teflon Bearing onto spindle. Note: Position of Teflon Bearing beveled outside edge is on bottom.
- E) Slide Headset Spacer onto spindle. Note: Only FSA headsets have this Headset Spacer. Cane Creek headsets do not have this part.



Reassembly Step 2

- A) Attach handlebar. Note: Leave handlebar loose at this point. The handlebars will be tightened after the M6 bolt is tightened properly as described in the next step B) below and after the wheel is installed so that you can set for rider comfort in relation to wheel location.
- B) Attach Top Cap and M6 Bolt. Note: Tighten until there is no play in the headset and check to make sure the headset assembly still rotates freely as when turning.



Reassembly Step 3

- A) Install wheel
- B) Tighten quick release



Reassembly Step 4

- A) Connect tie-rod.
- B) Tighten handlebars in desired position.



Step 5

- A) Check to make sure wheel spins freely
- B) Check to make sure steering turns freely.
- C) Check to make sure there is no play in the wheel or headset.
- D) Adjust toe-in as described below in the last step.



Last Step

Adjust the toe (Front wheel alignment). After spindle replacement it will be necessary to adjust the toe.

Any vehicle with left and right wheels has a setting called "toe." This refers to the extent to which the front wheels point towards one another. Toe in means that the front edges of the wheels point inward slightly. Toe out means they point outward slightly.

The purpose of toe is to keep the steering nice and tight. Too much toe and you cause the tires to scrub. This causes premature tire wear and increased rolling resistance. What you're looking for is just a little bit of toe.

Toe is checked by measuring the distance between the front wheels. Check the distance between the front of wheels at axle height and then at the rear of the wheels at axle height. The measured distances should be the same or 1/16th of an inch closer in the front; a very slight toe-in.

This can be done with a tape measure or a Catrike Calibro tool. Make sure to have the wheels pointing straight ahead using either method. When using a tape measure it is best to measure from the centerline of the tire to the centerline of the other tire at axle height (approximately 9 1/2" off the ground). First measure the front, running tape measure just under the boom at axle height, then, measure the rear, running the tape measure just under the bottom of seat frame at axle height.

For measurement using the Catrike Calibro tool, use the same method but you can get more accurate by measuring from the inside of the rim to the inside of the other rim at axle height using the telescoping feature of the Calibro. Now do the same for the back of the wheel, running the Calibro under the seat. Again, the rear measurement should be no more than 1/16" greater than the front measurement.

Please see photos below showing how to check and measure the toe settings.



It's very important to get this right...if you have a quarter inch of toe your tires will wear out very quickly and handling performance will be degraded. Proper toe-in will also affect rolling efficiency. Too much toe-in (greater than 1/16" or toe-out where the front of wheel is wider than the rear) are to be avoided as either incorrect setting will significantly reduce rolling efficiency.

To adjust, loosen the jam nuts and twist the tie rod between your fingers to adjust the length. Continue to make small adjustments, then, measure until your wheels are set so that the length measures 1/16" greater in the rear as shown in the photos above. Once everything is set tighten the jam nuts. Flats are provided on the tie rod to fit an 11m wrench.

Final Summary

IMPORTANT

1. **ADJUST TOE:** After spindle replacement, the toe (front wheel alignment) must be checked and adjusted before riding.
2. **HEADSET ADJUSTMENT:** It is common that the headsets will need to be tightened slightly after your first few rides. The headset assembly parts commonly take a little time to properly seat and therefore a slight adjustment may be needed. To tighten headset, loosen handlebars by loosening both bolts with an allen wrench. Then tighten the M6 bolt in very small increments until play is removed from headset and steering still rotates smoothly. If steering becomes hard to turn then you need to loosen the M6 bolt in micro adjustments until steering operates smoothly.
3. **SEND OLD SPINDLES TO CATRIKE:** Please send old spindles back to Catrike using return label included with shipment of new spindles.
4. **THANK YOU:** Enjoy riding your Catrike.