

Owner's Manual



Wren Inverted Suspension Forks

with
Keyed Stanchions
TwinAir System
Carbon Bash Guards
2 - Travel/AC Clips
2 - Hose/Cable Guides
43mm Uppers
36mm Stanchions

Check out our service videos at: https://wrensports.com/tech-resources/

Congratulations!

You have just purchased a Wren Inverted Suspension Fork. The culmination of years of design, testing and riding.

Please read this entire owner's manual carefully before riding to learn about all the possibilities this fork offers to you. Please make sure that you follow the safety and maintenance instructions strictly.

Modular Fork:

This fork is assembled and designed from a modular point of view. This means all parts can be exchanged for new parts when needed. These parts can be ordered from https://wrensports.com/fork-replacement-parts/ or from a Wren Service Center. The Wren fork is specifically designed to be easily serviced by the owner carefully following our instructions. If you prefer, the fork may be returned to one of our Wren Service centers for service or repair. The Wren damper is a totally sealed damper and is maintenance free. Attempting to open and service the damper will void the warranty. Please refer to page 3 for complete fork description.

Fork Features

Hydraulic Damping with Adjustable Compression and Rebound (right leg):

The hydraulic oil damper is a sealed unit and is maintenance free. If necessary, you can replace the damper by following the instructions in this manual. When removing the rebound knob, be sure the knob is roughly in the middle of its range. Do not remove the knob if it is fully closed or open. Do not force the knob beyond its stops. You can modify the fork's ride and feel by changing the presets as described in this manual.

Air Spring (left leg):

The air spring is fully serviceable and all parts are replaceable. If you have good wrenching skills, you can do this yourself (check the performance tuning section before doing this). There are also service videos at https://wrensports.com/tech-resources/.

Dropouts and Quick Release:

This fork is made for 15 mm thru-axle hubs only and has a specific axle which is supplied with the fork and works with all 15 mm thru-axle front hubs. Wheel installation on an inverted fork can be a bit tricky compared to regular forks and requires attention. Before you insert the wheel, make sure both legs are at the same level. When inserting the axle you may need to move one leg up or down slightly to ensure the axle slides completely through easily. The axle can only be inserted from the BRAKE MOUNT (left) side of the fork.

Warranty

The original manufacturer warrants this fork for a period of two years from the date of purchase to be free from defects in materials or workmanship for the first owner only. During this warranty period we will replace or repair any defective component of the fork. Paint, anodizing, bushing, o-ring or seal damage caused by normal use ("wear and tear") are not covered by this warranty. We shall not be held liable for any damage caused by a crash, insufficient maintenance or ignorance of the safety and maintenance instructions. We shall not be held liable for normal maintenance, damage or failure due to abuse or misuse. A dated sales receipt must be presented to confirm fork is still under warranty.

Important Safety and Maintenance Instructions

Warning:

It is extremely important that your Wren Inverted Fork be installed correctly by a dealer. Incorrectly installed forks are dangerous and can result in loss of control of the bicycle and severe or fatal injuries. Follow the instructions below to maintain your fork. If you do not follow these instructions, your warranty will be void.

Maintenance:

To maintain safety, long life and high performance of your Wren Inverted Fork, periodic maintenance is required. If you frequently join competitions, ride in wet, muddy or other extreme conditions, a 50% reduction in recommended maintenance intervals listed below is necessary.

- 1. After every ride clean and dry the exterior of your fork. Gently clean the stanchions and lubricate, if necessary.
- 2. Minimum every 25 hours of riding you should check the smoothness of your fork. The stanchions need to run smoothly up and down through the wipers. If they do not run smoothly, put 2-3 drops of a Teflon-based oil on the stanchions and move them up and down through the compression stroke (this is easier when you release some air pressure through the air valve).
- 3. Check if all dials and nuts are still tightened properly.
- 4. Check the stanchion tubes for scratches and also inspect the lower wipers for any wear or tear. If one of the above mentioned parts appears damaged, make repairs ASAP or send your fork to a certified service center.
- 5. After 100 hours of riding, your fork should be fully serviced by you or a Wren Service Center. You may find a listing of Wren Service Centers at https://wrensports.com/authorized-service-centers/.

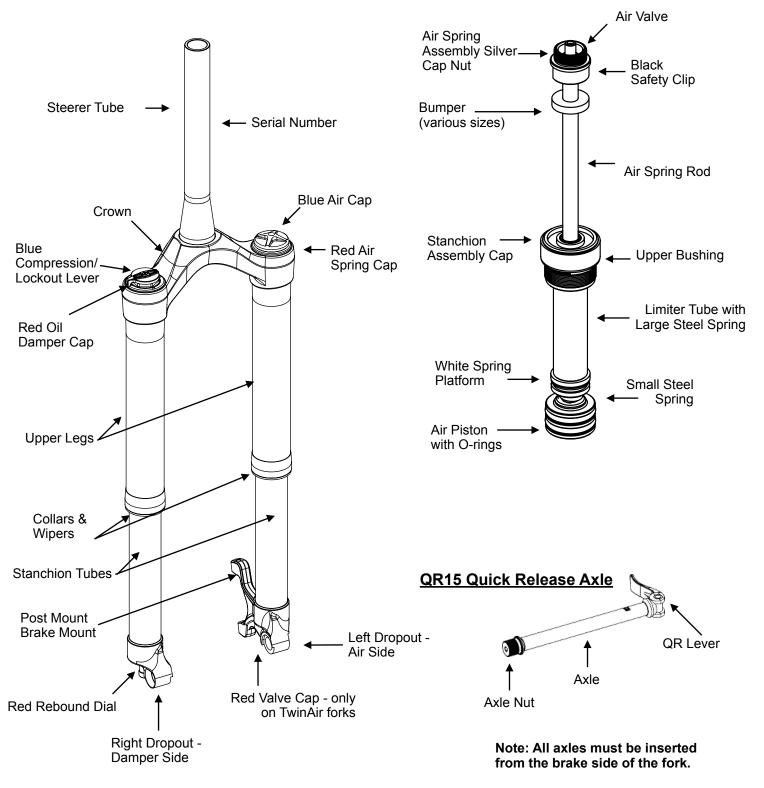
General instructions:

- 1. This Wren fork is designed for off-road use. It is not designed for excessive riding like extreme jumps, etc. This is not a downhill/freeride fork. To use it on-road, you will have to follow your country's specific traffic regulations and laws and equip your bike and your fork accordingly.
- 2. Do not ride your bike if you notice technical problems or material failures like bending, cracking or broken parts. Immediately take your bike to a qualified dealer or Wren Service Center to prevent further damage. Failure to do this may result in damage and severe or fatal injury.
- 3. Make sure the quick release lever is tightened and the hub axle is correctly fixed in the bore of the dropouts. When the quick release is locked, the lever should point **backwards in the horizontal position** on the post mount disc brake side of the fork. **Axles can only be inserted from the BRAKE MOUNT (left) side of the fork. Bolt-On axles should be tightened to 8 Nm max.** Our forks are available in hub widths of: 100mm, 110mm, 135mm and 150mm.
- 4. Adjust the headset until there is no play or drag.
- 5. Install the brakes according to the manufacturer's instructions and adjust brake pads properly. Use the fork only with brakes that fit to the existing brake mounts and use a 160 mm rotor. For larger rotors up to a maximum of 203 mm, use a proper post mount adapter for installation. Before riding the bicycle, ensure the brakes are correctly installed and working properly. Some 2 piece rotors may have clearance issues. Be sure to check you have rotor clearance before riding.
- 6. Do not add threads to the thread-less steerer tube.
- 7. Do not replace the steerer tube by yourself as it needs to be pressed in under very high pressure.
- 8. Do not disassemble the damper cartridge yourself. High pressure inside the cartridge may cause injuries and disassembly may lead to damage. You may replace the cartridge by following instructions in this manual.
- 9. The air side of the fork may be disassembled in order to modify the fork's travel only or travel **and** AC length in 10 mm increments. This is done by installing clips supplied with the fork. This may be needed to make sure that your tire **does not hit the crown** while the fork is fully compressed when using bigger volume tires. This must be checked properly before each first ride with a different tire width or height. *Generally*, the 100mm hub fork can fit up to a 2.5" tire, the 110mm hub fork can fit up to a 3" tire, the 135 mm hub fork can fit up to a 4" tire and the 150 mm hub fork can fit up to a 5" tire. Every rim tire combination can fit differently so you must check your travel and clearance. See page 5 for how to modify travel. You will find tire fit and travel recommendations at https://wrensports.com/tech-resources/.
- 10. Avoid directing water pressure at the stanchions and/or wipers.
- 11. Be cautious when mounting the bicycle to a carrier. Carriers that hold the bike in trays with the wheels on are preferred. Follow the instructions of the carrier manufacturer. Avoid mounting the bike by fixing it at the dropouts (front wheel removed). The dropouts could be damaged.
- 12. If your bike is transported by air, release the air pressure from the air spring side of the fork before packing. Deflating the air spring before transport avoids pressure damage and will guarantee proper function after transport.
- 13. After a crash, have your bike and your fork inspected by a qualified dealer as internal damage may occur.
- 14. Always use genuine Wren parts. Use of different parts voids the warranty and could cause structural failure of the fork resulting in loss of control of the bike with possible damage and/or injuries. You will find genuine Wren service parts at https://wrensports.com/fork-replacement-parts/.

Wren Inverted Suspension Fork

Complete Fork Description

Air Spring Insert





AIR Spring Travel and AC Length Modifications

Before your first ride you should check if you have enough tire to crown clearance. Depending on the model, this fork comes standard with either 100 mm (505 mm AC), 110 mm (530 mm AC) or 150 mm (570 mm AC) of travel from the factory. If you are using narrow rims and big tires, you must check if you have enough clearance between your crown and tire before you ride with this fork. If you do not have enough clearance, the air spring needs to be modified with a clip(s) that will give you the proper clearance. Two clips (1 - 10mm and 1 - 20mm) are now supplied with every fork. If you have an older fork, you may contact us to purchase clips. The clips reduce travel or travel and AC Length in 10 mm increments. As an example:

150 mm of travel - pre-set at factory:

For 140 mm of travel - leave the pre-installed* 10 mm safety clip on and add your 10mm travel clip.

For 130 mm of travel - leave the pre-installed* 10 mm safety clip on and add your 20mm travel clip.

For 120mm of travel - leave the pre-installed* 10 mm safety clip on and add your 10mm and 20mm travel clips. The 10mm travel clip should always be on top of the 20mm travel clip.

110 mm of travel - pre-set at the factory:

For 100 mm of travel - leave the pre-installed* 10 mm safety clip on and add your 10mm travel clip.

For 90 mm of travel - leave the pre-installed* 10 mm safety clip on and add your 20mm travel clip.

For 80mm of travel - leave the pre-installed* 10 mm safety clip on and add your 10mm and 20mm travel clips. The 10mm travel clip should always be on top of the 20mm travel clip.

100 mm of travel - pre-set at the factory:

For 90 mm of travel - leave the pre-installed* 10 mm safety clip on and add your 10mm travel clip.

For 80 mm of travel - leave the pre-installed* 10 mm safety clip on and add your 20mm travel clip.

For 70mm of travel - leave the pre-installed* 10 mm safety clip on and add your 10mm and 20mm travel clips. The 10mm travel clip should always be on top of the 20mm travel clip

*The pre-installed 10 mm clip does not reduce the advertised travel of the fork. It is installed to provide a safety stop should the fork take a big hit. You should **always** ride with a clip in place on TOP of the air spring. The safety clip is exactly the same as a travel clip. If you take out the 10mm safety clip and install a 20 mm travel clip, you will reduce the advertised travel by 10 mm. If you decide to reduce the travel <u>and</u> AC length, leave the pre-installed 10 mm safety clip on the TOP of the air spring and insert the correct clip INSIDE the air spring as noted on page 6.

Checking for Crown to Tire Clearance:

- 1. Install the front wheel on the fork being sure the tire is properly inflated.
- 2. Release all air from the air spring to make the fork easier to compress.
- 3. Push down on the handlebars until the fork bottoms out and check for the amount of clearance between crown and tire. A minimum of 5 mm is recommended, but 10 mm is better if conditions might lead to snow or mud buildup between the tire and crown.

Air Spring Travel Only Modification and Assembly:

- 1. Place your bike in a work stand and remove the front wheel.
- 2. Remove the blue air cap from the left leg and release all the air from the system. If your fork is a TwinAir, be sure to empty both top and bottom air chambers.
- 3. Loosen and carefully remove the air spring assembly nut (large silver nut below the blue air cap) with a 26 mm socket. This nut is low profile and care should be taken to firmly engage the socket. DO NOT remove the red air spring assembly cap.
- 4. Unscrew the collar on the stanchion by hand. A piece of old tube can be used as a grip. Now the air spring can be pulled out including the air side stanchion from the bottom of the fork.

Warning: At this stage please absolutely make sure again that all the air has been released from the air spring unit to avoid severe or fatal injuries.

- 5. Select the correct clip(s) as discussed above.
- 6. Insert the proper clip size onto the air spring at the TOP directly below the black safety clip and above the bumper. For a 10 mm reduction, use only the 10 mm clip. For a 20 mm reduction, use only the 20 mm clip. For a 30 mm reduction, use both clips. If using both clips, be sure the 10 mm is on TOP.
- 7. Wipe any old grease off the upper bushing and the lower bushing on the stanchion and lightly re-grease with a grease suitable for the temperature you will be riding in. If your fork is keyed, lightly grease the keys. For general use we recommend Slick Honey.
- 8. Reverse steps 1 to 4 for reassembly. If your fork is keyed, be sure to lineup the keys properly. Be sure the sliding bushing is completely pressed into and flush with the upper tube before tightening the collars. Be sure to torque the 26 mm nut to 10 Nm. Be sure the fork collars are hand tight. Be sure to re-set your air pressure and sag.

Air Spring Travel and AC Length Modification and Assembly:

You can reduce travel and the AC Length of the fork by placing the travel clips INSIDE the air spring.

- 1. Follow steps 1 through 4 above to remove the stanchion with the air spring from the fork. Be sure ALL air is released from the air spring.
- 2. Looking at the top of the air spring, you will see a silver cap with 2 holes. This is the stanchion assembly cap. Using a pair of bent nose pliers in the holes, unscrew the cap completely.
- 3. Grip the top of the air spring firmly and pull it out of the stanchion. This may take some effort.
- 4. Locate the Small Steel Spring at the bottom of the air spring. The clips will be installed UNDER that spring and above the white spring platform below that spring. The clips snap onto the rod same as above and provide the same 10, 20 or 30 mm reduction to both travel **and** AC length.
- 5. Be sure both coil springs are well greased. All coils should be lightly filled. If riding in cold weather, be sure to use a grease specified for use in the temperature you will be riding in.
- 6. Lightly grease the air piston O-rings. Work the grease in making sure all gaps between the black O-rings and the piston are filled. We recommend using Molykote 55 grease for the air piston seals. Insert the air spring back into the stanchion. You will have to release air through the top valve as you push the air spring back into the stanchion. CAREFULLY thread the stanchion assembly cap back into the stanchion making sure not to cross-thread the cap and securely tighten with the bent nose pliers. A single vertical stripe of Locktite may be used on the cap threads.
- 7. Wipe any old grease off the upper bushing and the sliding bushing on the stanchion and lightly re-grease with a grease suitable for the temperature you will be riding in. If your fork is keyed, lightly grease the keys.
- 8. Now reverse steps 1 to 4 from the travel modification section and install the stanchion into the fork. If your fork is keyed, be sure to lineup the keys properly. Be sure the sliding bushing is completely pressed into and flush with the upper tube before tightening the collar. Be sure to torque the 26 mm nut to 10 Nm. Be sure the fork collars are hand tight. Be sure to re-set your air pressure and sag.

Fork Setup/Performance Tuning

Please follow these instructions if you want to modify the ride or feel of this fork. For additional information, please ask your dealer or contact Wren directly.

After installing the fork on your bike correctly, you must determine the correct fork setup for your weight and riding style. First step is to inflate the fork because the fork is shipped with less air than you need to ride (air freight requires forks at very low or no air pressure). Remember, the following is a guide. The final settings are determined by paying attention to the feel of the fork and adjusting over your first few rides.

Air Spring - Single Air

If you have a single air valve on top of the left leg, you have a single air fork. Remove the blue air valve cap and use a suspension pump to pump up the fork to 50 psi as a starting point. Push down on the fork a few times to determine if it feels about right for you. Adjust pressure if necessary. **Maximum air pressure is 120psi.** Now check for the proper sag.

Single Air Fork Sag Setup:

Sag is the amount of travel that is used when a rider sits on the bike and the suspension compresses under the rider's weight. Sag, also known as negative travel, is needed to achieve a well-functioning fork. Sag on this fork should be around 20% of the fork's travel. This can be easily measured by first locating the rubber o-rings on the stanchion tubes. Be sure no one is on the bike and the fork is uncompressed. Slide the o-rings up against the wipers. Now carefully sit on the bike in your riding position with all your gear and let your weight slowly compress the fork. Do not bounce the fork. Carefully dismount being sure not to compress the fork. Now measure the distance between the o-rings and the wipers. If the distance for the 110 mm travel fork is around 22 mm (30 mm for the 150 mm travel fork), your starting sag setup is good. If the distance is less than 22 mm, reduce the air pressure in the air spring. If the distance is more than 22 mm, increase the air pressure in the air spring. This setup is now your starting point. Adjustments from here need to be done as you ride and feel out your new fork.

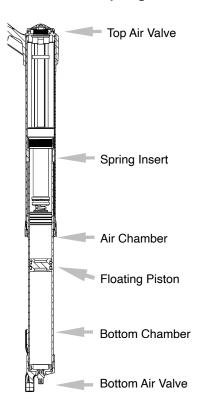
Air Spring - TwinAir

The Wren TwinAir system is a unique design that allows for fine adjustment of the air spring using only a pump. No need to disassemble the fork to insert or remove tokens.

The Wren TwinAir System uses a positive air chamber divided into two parts by a floating piston. This mimics the token system for changing air spring rate that is familiar to most riders. Think of our floating piston as a token. However, you do not need to disassemble the fork to add or remove tokens, plus, TwinAir is infinitely adjustable. Tokens have a fixed dimension, so you get jumps in the spring rate as you add or remove tokens. TwinAir allows you to move the piston as little or as much as you want simply by using your shock pump.

To begin setting up the TwinAir, you first need to set your sag. Start by releasing all air from the top and bottom chambers. Now add about 50 psi to the top chamber only as a starting point. Now set the sag by first locating the rubber o-rings on the stanchion tubes. Be sure no one is on the bike and the fork is uncompressed. Slide the o-rings up against the wipers. Now carefully sit on the bike in your riding position with all your gear and let your weight slowly compress the fork. Do not bounce the fork. Carefully dismount being sure not to compress the fork. Now measure the distance between the o-rings and the wipers. The distance

TwinAir Air Spring



measured should be 20% of your fork's travel (22 mm for 110 mm travel, 30 mm for 150 mm travel). If the distance is less than suggested, reduce the air pressure in the air spring. If the distance is more than suggested, increase the air pressure in the air spring. This setup is now your starting point. Remember, this pressure reading is only accurate with the bottom chamber empty. Because you have only added air to the top chamber, this gives you the softest, plushest ride for your sag setting. Make a note of the top air pressure for your sag setup so you can easily return to it again. Remember, sag is set with the bottom chamber empty. If the fork bottoms out during a ride, and you want to keep the fork as plush as possible, add small amounts of air to the top valve only until bottom out is eliminated. If you want a stiffer, more progressive ride, add air to the bottom valve only to eliminate bottom out.

Adding air to the bottom moves the sliding piston up shrinking the size of the air chamber. This is the same idea as adding tokens to other suspension forks. Keeping the top chamber as large as possible keeps the fork riding plush. Adding air to the bottom chamber shrinks the volume of the air chamber giving you a more progressive, stiffer ride. So now take your shock pump on a test ride and fine adjust the air spring to get exactly the ride you want.

When adding air to the bottom, count your pump strokes - 1/4 stroke, 1 stroke, 5 strokes - whatever it takes. This will allow you to return to your bottom setting for that ride characteristic easily in the future. Remember, once you start adding air to the bottom chamber, pressure is no longer an accurate gauge of where the air spring is set. Keeping track of your bottom pump strokes for various trails or conditions allows you to quickly set the fork before riding.

Rebound Knob:

The rebound speed of the hydraulic damper can be fine-tuned by turning the external red knob at the bottom of the right leg. Turn the knob clockwise for slower rebound. Slower rebound means that the outward movement of the fork after compression is slower (the damping is higher). Turn the knob counter-clockwise for faster rebound. Faster rebound brings the fork back to its original position faster. For bumpy rides, we recommend a fast setting to avoid over-damping. Most riders start with the rebound fully open (fastest setting) and adjust from there.

Do not turn the rebound knob past its limits. Squishy sounds in the sealed rebound stages are normal, it's just the oil flowing back into the compression stage of the cartridge. This means your fork works! If you choose a faster rebound setting, the squishy noise will lessen and the fork will bounce back to its extended position faster, but the damping will become less.

Lockout / Compression Adjustment Lever:

In addition to the rebound adjustment, compression can also be controlled. Just turn the blue lockout lever clockwise until its limit to lock out the fork (do not move past this limit). We recommend this when climbing uphill or when no front suspension is needed. A very slight inward movement of the fork may appear even when the lockout is activated. This is required to avoid damage to the cartridge and the fork. To unlock the lockout function, turn the lockout lever counter-clockwise (do not move past the fully open limit). In between the two limits (fully open / locked) is the compression adjustment range. The compression becomes slightly firmer when the lever is turned clockwise toward the lockout and slightly softer when turned counter-clockwise toward the fully open position.

First Ride

It is advised to ride the fork on a flat surface at first in order to make any initial adjustments necessary to achieve the ride you want. A new fork will have slight seal friction. Seals and stanchions need to break in and after a few hours of riding the fork will move up and down smoother. If this changes the feeling you want, simply readjust your settings. On your first off-road ride, it is advised to bring a suspension pump in order to make additional adjustments, if needed.

Wren Suspension Fork Damper Replacement Instructions

- 1. The damper is contained inside the right leg of the fork with the blue lockout lever on top. Lock the fork using the blue lockout lever. Remember this position for the lever so you can reassemble it later.
- 2. For safety, release all air from the air spring (left leg). Remove the QR axle.
- 3. Using a 2 mm allen wrench, remove the bolt from the center of the blue lockout lever on top of the fork. There is a very small ball under the lever and under the ball is a very small spring. **Carefully** lift the lockout lever off the fork watching that you do not lose the ball. The spring may stay in the detent, but you should remove it as you will be turning the fork upside down next. A small allen wrench will pick the spring out.

- 4. Turn the fork upside down. At the bottom of the same leg, locate the red rebound knob. Turn the knob to the middle of its range until you can see a small hole on the side. Do not force the knob beyond its stops. Do not remove the knob if in the fully open or closed position. Insert a 1.5 mm allen wrench into the hole and unscrew the bolt until the knob slides off the shaft. It is not necessary to take the bolt completely out.
- 5. Using a 9 mm socket, remove the rebound fitting from the dropout. This fitting also contains the adjustment shaft. Be sure not to lose the rubber O-ring and washer. The O-ring may stay in the bottom of the dropout. Remove it if it does and place on the rebound fitting up against the washer.
- 6. Turn the fork back upright and locate the 27 mm silver nut on top of the upper leg (this is actually the top of the damper). This nut is very low profile and care needs to be taken that the wrench or socket is firmly engaged. Loosen and completely unscrew the nut. Remove the damper from the upper leg. Do not remove the red cap under the damper.
- 7. Now you are ready to insert the **new** damper. First, you must slowly pull the lower rod of the damper out so that it will reach the bottom of the stanchion when installed. If the damper is locked, you must unlock it by using the blue lockout lever or a 5 mm wrench on the fitting on top of the damper and turning counter-clockwise. Now slowly pull the rod out until it stops.
- 8. Insert the new damper into the upper leg and slowly push down until the threads engage in the top of the upper leg. Hand tighten the damper. Now loosen the 3 1.5 mm allen bolts in the top cap of the damper. Use a pin wrench to slightly loosen the cap. Place the blue lockout lever back on the damper and set the lockout by turning the lever clockwise a full 360° and continue past 360° to the lockout position you want. The factory setting is 6 0'clock. Remove the lever and tighten the cap. Now tighten the 3 1.5mm allen bolts in the cap. This will fix the lockout position. Keep the damper locked throughout this process. Now tighten the 27 mm silver nut to 12.5 Nm with a torque wrench.
- 9. Turn the fork back upside down and reassemble the rebound fitting. First, look into the hole on the bottom of the drop out and ensure the shaft of the damper is centered in the hole. There is a slight depression on the inside of the dropout that the shaft sits in. By inserting an allen wrench through the hole into the shaft, you can gently move the shaft to center it while gently pushing in on the dropout. The shaft should sit in the depression and stay centered. Now thread the rebound fitting into the shaft. Tighten the 9 mm nut to 5 Nm with a torque wrench.
- 10. Now you must lineup the dimple on the shaft, the hole in the collar and the allen bolt in the red rebound knob so that the allen bolt tightens through the hole in the collar and into the dimple on the shaft. Look through the hole in the collar to locate the dimple on the shaft. If you don't see the dimple, slowly turn the shaft only, while looking for the dimple to appear. A small amount of the shaft extends beyond the fitting to allow you to turn it. Once everything is lined up, slide the rebound knob onto the fitting and use a 1.5 mm allen wrench to tighten snugly. The allen bolt should thread well into the knob. If the bolt tightens almost immediately, you have tightened on the collar, not into the dimple. It is **important** that you take the time to do this step correctly. Do not over tighten, just a snug fit. If too tight, the shaft will not turn properly. When tightened correctly, the red rebound knob will turn smoothly. If the knob is hard to turn, back off the allen bolt **slightly**. The allen bolt has loctite applied to it. Over time this could wear off and new loctite should be applied.
- 11. Now turn the fork back upright and reassemble the blue lockout lever from step 3. Notice that there are 6 small holes on top of the damper. Three have small allen bolts visible and 3 are open. **Lightly** grease the spring and insert into one of the open holes. **Lightly** grease the ball and place the ball on top of the spring.
- 12. Next, place the blue lockout lever on top of the damper in the lockout position you set in step 8. Insert the allen bolt and tighten snugly with a 2 mm allen wrench. Do not over tighten. Reapply loctite to this bolt, if necessary. Damper replacement is complete. Remember to refill the air spring and re-set your sag before riding.

Thank you for purchasing the Wren Inverted Suspension Fork. To see all the Wren products available please visit our website. To view our service videos that will help guide you through the steps covered in this manual, please visit https://wrensports.com/tech-resources/. Should you ever have any questions, comments or just need more information, please contact us at:

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For technical or service questions, please call 201-588-5949.

Service: https://wrensports.com/authorized-service-centers/

