TECHNICAL SERVICE

DVO

DEVELOPED SUSPENSION

DOCUMENTATION

SAPPHIRE Full Service Guide

Fork Service, Seal Change, Bleed

SERVICE OVERVIEW

This manual will guide you step by step performing a full service to your Sapphire D1 & D2. Please follow each instruction carefully to achieve the best and safest results.

***Always wear your safety gear while working on suspension products. We care about you, make sure you wear your safety glasses and protective gloves while servicing DVO Suspension Products.**



WEAR SAFETY GEAR!

Tools Needed For Service:

- Allen Key Set
- Shaft Clamps
- Vice
- Adjustable Wrench
- 32mm, 14mm, Socket,
- Rubber Mallet
- Pin Spanner
- 19mm Wrench
- Crescent Wrench
- Needle-Nose Pliers
- Punch

Fluids & Cleaner Needed For Service:

- Safety Glasses
- Clean, Lint Free Rag
- 7.5 Wt. Suspension Oil (no maxima)
- Suspension Cleaner or Alcohol
- Shock Pump
- Loctite 242 BLUE

Recommended Service Interval:

- Full Service .....100 Hours of Ride Time

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A Disassembly

1.

Use a 2.5mm allen key to remove the compression adjuster.



2.

Remove the adjuster.



3.

The adjuster has been changed to one peice, it will hold itself together.



4.

Remove air cap



5.

Use a small allen key to depress the air valve and remove air pressure.



6.

Use a 22mm socket to break the top caps loose on both sides.



7.

Un-thread the damper side top cap completely, pull upward to remove the bladder/compression unit.



8.

Drain the oil into a catch container.



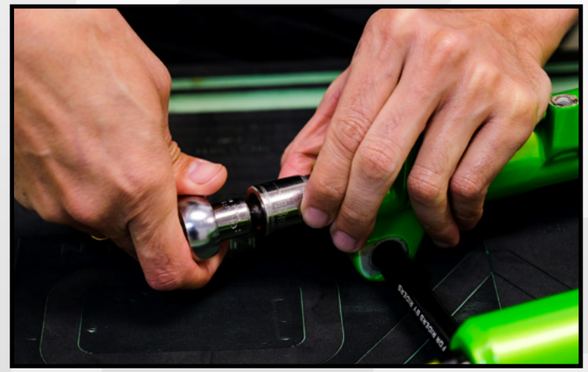
9.

Use a 18mm socket to un-thread the foot-nuts.



10.

Loosen foot-nuts on both sides.



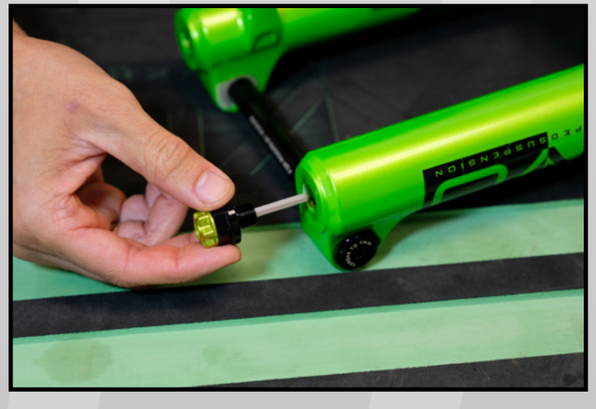
11.

Remove OTT adjuster foot nut.



12.

Remove the rebound adjuster foot nut.



13.

Place a small punch inside the casting as shown. This will dislodge the upper assembly from the casting.



14.

Hit the punch with a rubber mallet to dislodge the upper assembly.



15.

Repeat on both sides.



16.

Drain the oil into the catch container.



17.

Pull upwards on the upper-assembly to remove it from the casting.



18.

Use a pin-spanner wrench to loosen the stanchion plug on the air side.



B Damper Service

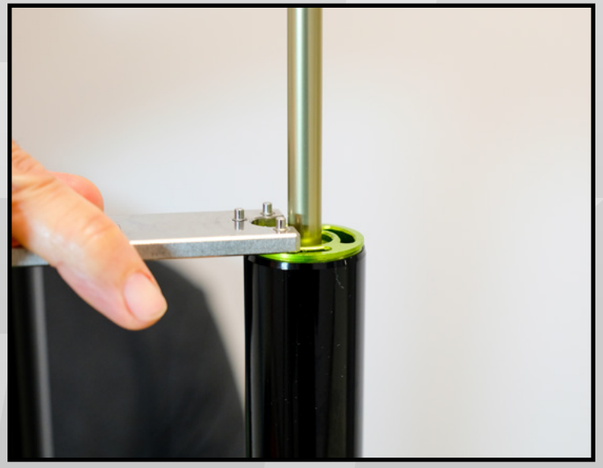
19.

Remove the OTT/negative spring unit.



20.

Use a pin-spanner wrench to loosen the stanchion plug on the damper side.



21.

Remove the damper unit.



22.

Use a vice and shaft clamps to secure the damper unit. Place a 19mm wrench on the unit in the area shown.



23.

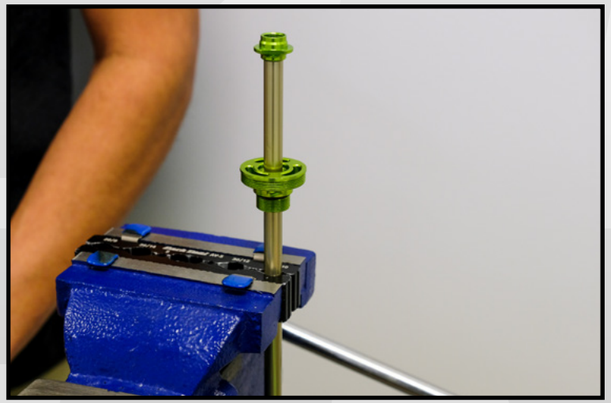
Use the pin-spanner wrench to break the stanchion plug loose while securing the lower section with the 19mm wrench.



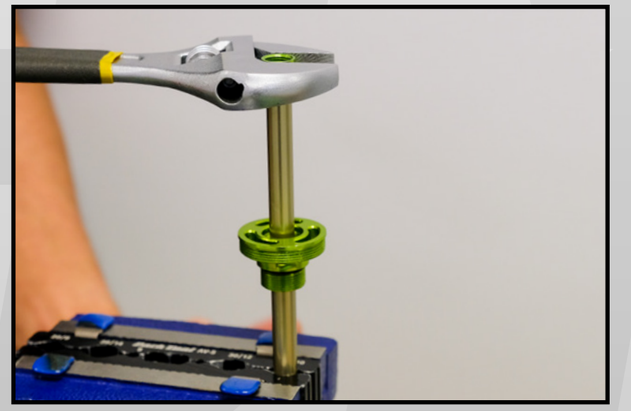
24.
Pull upward to separate separate the rebound shaft from the damper body.



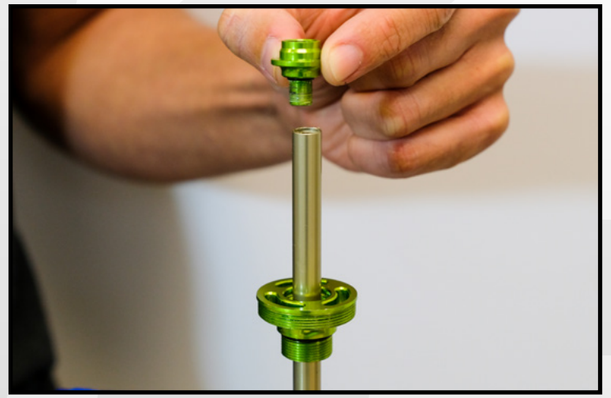
25.
Secure the rebound shaft in the direction shown with shaft clamps.



26.
Use a crescent wrench to loosen the rebound shaft end plug.



27.
Remove the plug.



28.
Pull upward on the stanchion plug unit.



29.
Remove the stanchion plug unit.



30.

Use a small pick to remove the O-Ring in the center of the plug.



31.

Replace the O-Ring. Apply a small amount of grease to the new one.



32.

Install the new O-ring. Make sure it fits flush and securely in the groove



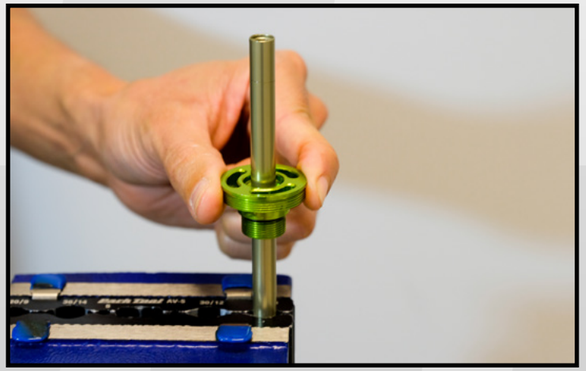
33.

Reinstall the stanchion plug unit in the direction shown.



34.

Slide it downwards



35.

Use a pick to remove the o-ring from the rebound shaft end plug.



36.

Place a new o-ring on the plug.



37.

Apply a thin layer of **242 Loctite** to the threads.



38.

Reinstall the end plug.



39.

Tighten the plug with a crescent wrench.



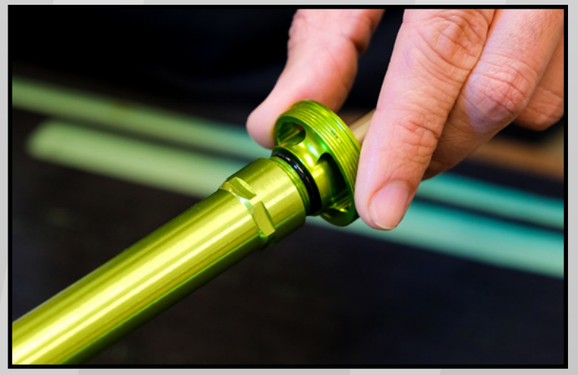
40.

Apply a thin layer of **242 Loctite** to the threads of the stanchion plug.



41.

Reinstall the inner rebound unit in the cartridge body.



42.

Tighten the stanchion plug into the cartridge body with the pin spanners and 19mm wrench.



43.

Apply a thin layer of **242 Loctite** to the threads.



44.

Apply a thin layer of grease to the o-ring on the top of the cartridge body.



45.

Apply a thin layer of grease to the inside of the stanchion tube.



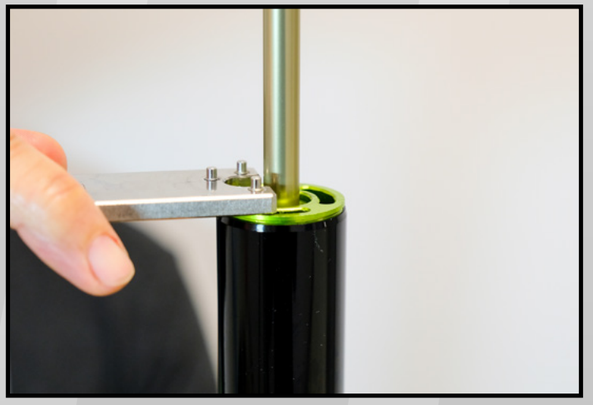
46.

Reinstall the rebound damper unit into the stanchion tube.



47.

Tighten the end plug with the pin-spanner wrench.



C Travel Change

48.

Grab the OTT/Negative spring unit.



49.

Forcefully pull downward on the spring to dislodge it from the barrel.



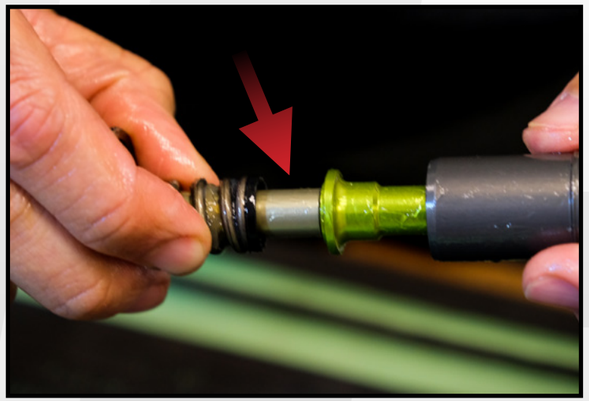
50.

Shown here is the top out spring. You want to slide it downward to make space for the travel spacer.



51.

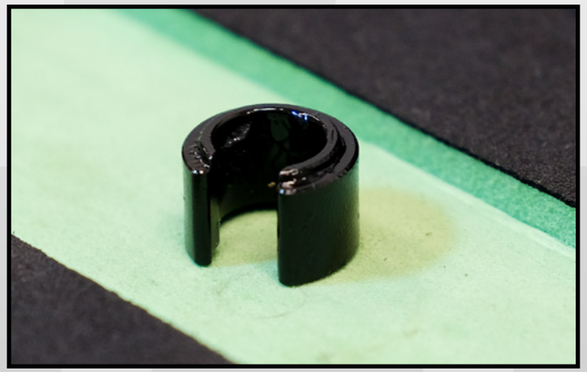
This is where you clip the spacer.



52.

Take note of the direction of the travel spacer. The side with the ridge (as shown) faces toward the top out spring.

1 spacer = 10mm reduction



53.

Clip the spacer as shown. Make sure the ridge is facing toward the springs.



54.

Slide the top out spring upward to connect the travel spacer.



55.

Make sure it fits together securely with no gaps present.



56.

Use a pick to remove the c-clip at the end of the OTT/Negative spring unit.



56.

Remove the clip and set aside.



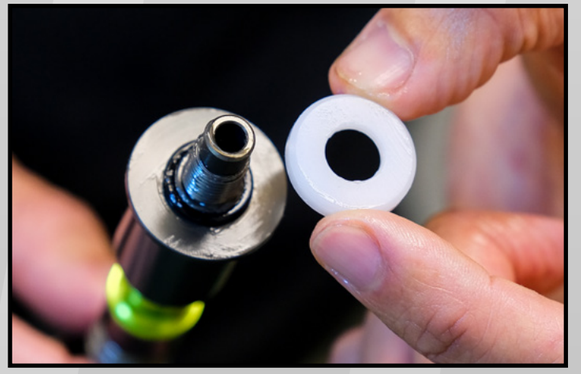
57.

Remove the metal washer.



58.

Remove the white spacer. The o-ring stays fixed to the barrel.



59.

Place a 4mm allen into the end plug of the OTT/Negative spring unit.



60.

With your other hand, hold the barrel in place. Turn the 4mm allen key to un-thread the barrel.



61.

Place a fair amount of grease on the threads as shown.



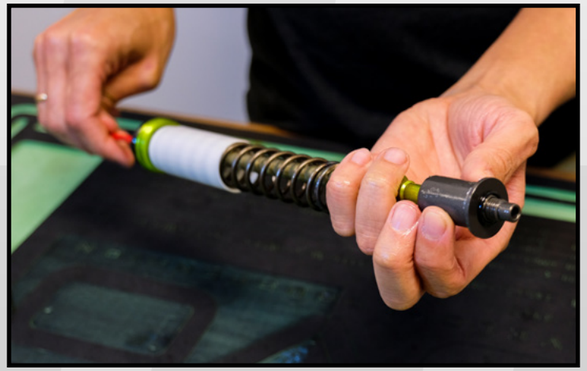
62.

Place the barrel back onto the threads.



63.

Using the same method as steps 59 and 60. Thread the barrel back on.



64.

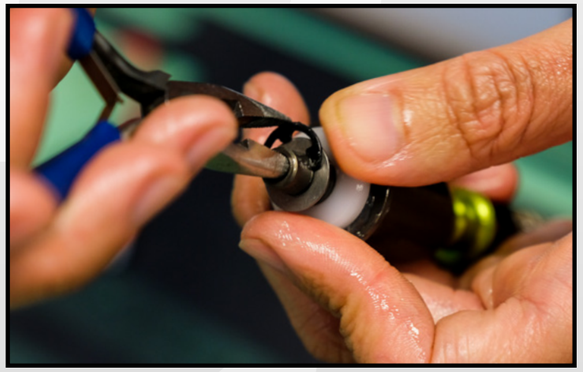
Re-installed the white washer first. Then install the metal washer.



D Air Spring Service

65.

With needle-nose pliers, install the retainer clip.



66.

Get a stick or long shaft and use it push the air piston out of the stanchion tube.



67.

Remove the air piston.



68.

Get your new air piston kit.



69.

Apply a thin layer of grease to the outside rim of the air piston.



70.

Apply a thin layer of grease to inner walls of the stanchion tube.



71.

Install the new air piston. The dome shaped side of the piston faces up toward the crown. The side with the ridge faces down.



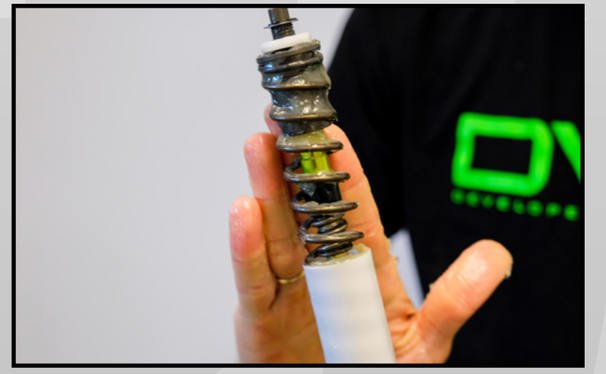
72.

Apply a generous amount of grease to the OTT/Negative spring assembly.



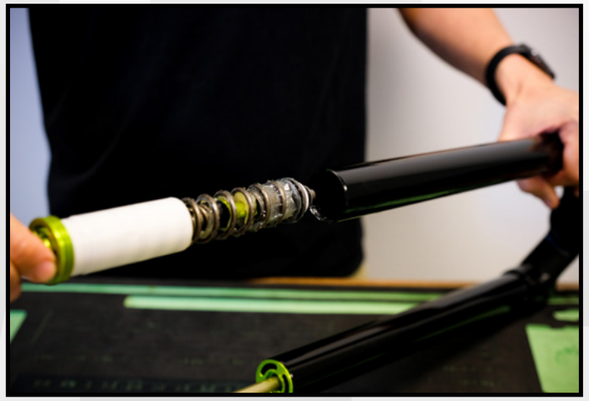
73.

Cover the entire spring with grease as shown.



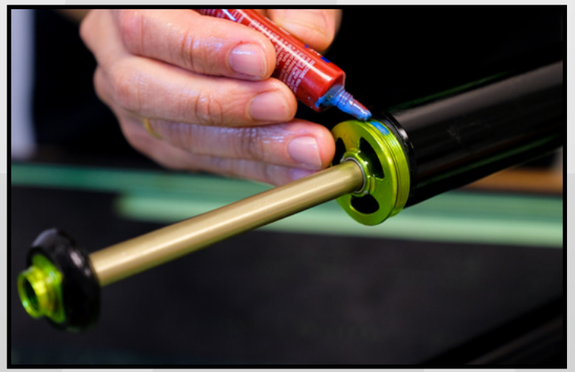
74.

Install the OTT/Negative spring assembly back into the stanchion tube.



75.

Apply a thin layer of **242 Loctite** to the threads.



76.

Tighten the air spring plug with the pin spanner wrench.



E Bleed

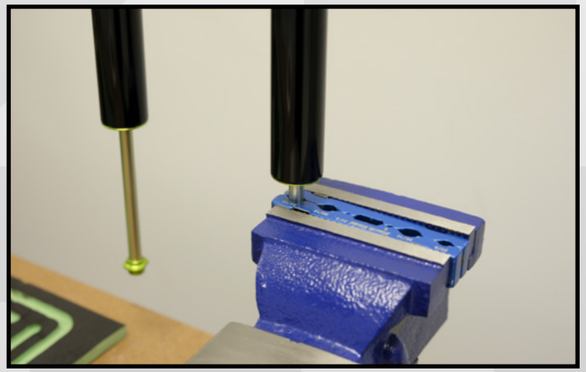
77.

Use the 4mm allen key to ensure the OTT is working properly. Do a couple rotations in each direction.



78.

Clamp the air side shaft into the soft jaws as shown.



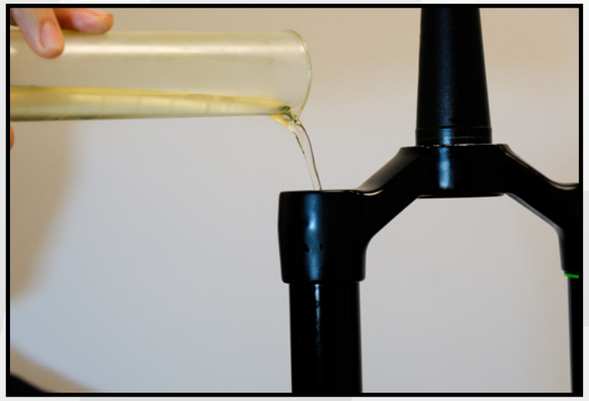
79.

The upper assembly should look like this in the clamp.



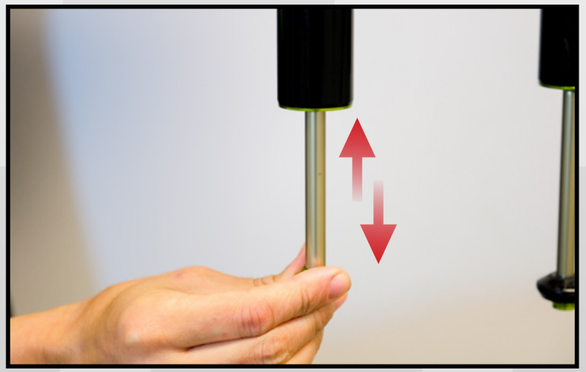
80.

Pour 70cc's of 2.5wt oil into the damper side as shown.



81.

Cycle the damper numerous times to ensure all the fluid has been cycled through the system.



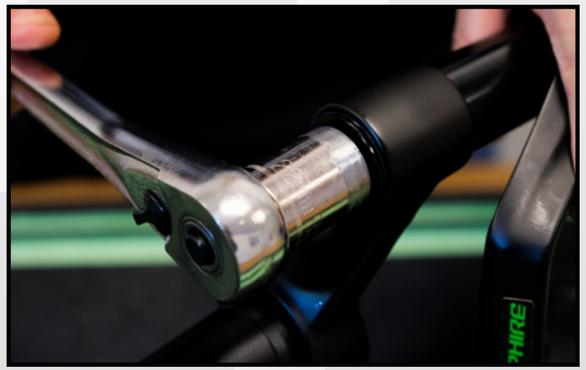
82.

Install the bladder unit into the stanchion in the direction shown.



83.

Tighten the top cap with 22mm socket.



84.

Remove the bleed screw with a 2.5mm allen key.



85.

Use your fingers to open the low speed. Twist the adjuster fully clockwise.



86.

Pour 2.5wt into the bleed cup as shown. Fill to the half-way mark.



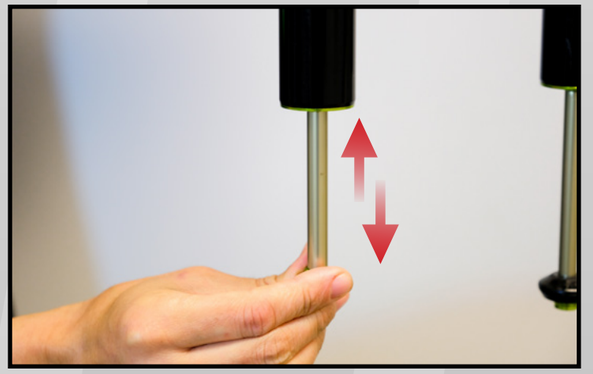
87.

Make sure the oil level never goes below the top cap. Oil needs to sit above the cap to ensure no air gets sucked in.



88.

Cycle the damper numerous times to ensure all the fluid has been cycled through the system.



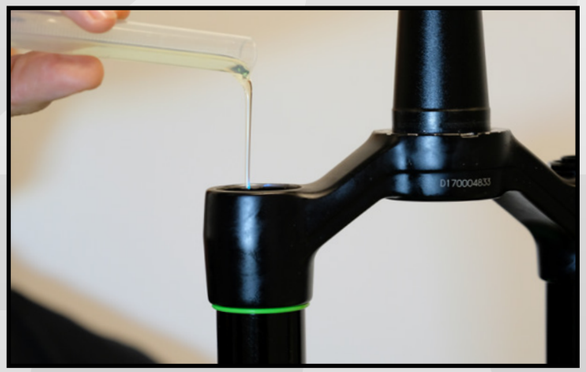
89.

Re-install the bleed screw into the top cap and remove the bleed cup. The damper bleed is finished.



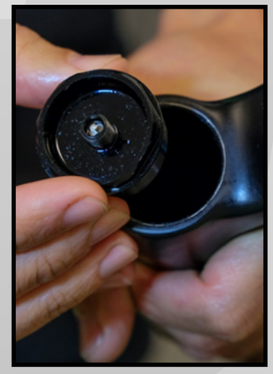
90.

On the air side, pour 5cc's of 7.5 wt. oil above the air piston.



91.

Place the top cap back on the crown/ stanchion and tighten with 22mm socket. The air side service is now complete.





92.

Remove the foam rings from the bottom of the seals.



93.

Remove the pressure springs from the top of the seals.



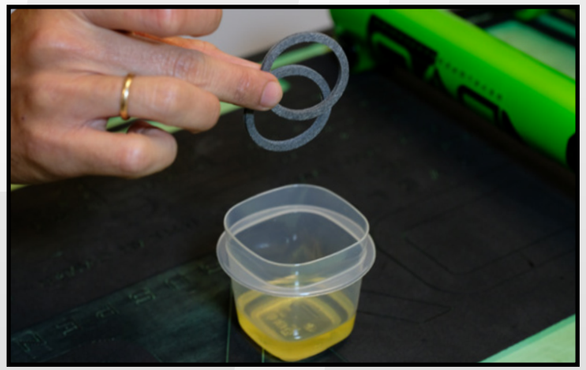
94.

Use a flat head screw-driver to remove the seals.



95.

Soak the new foam rings in 7.5 wt oil.



96.

Get your new seals and place them on the 34mm seal press.



97.

Use a rubber mallet to press in the new seals.



98.

Make sure the seals fit securely in the casting with no gaps.



99.

Re-install the foam rings in the groove under the seals.



100.

They should fit comfortably over the bushing.



101.

Place a fair amount of grease on the inner lips of both seals.



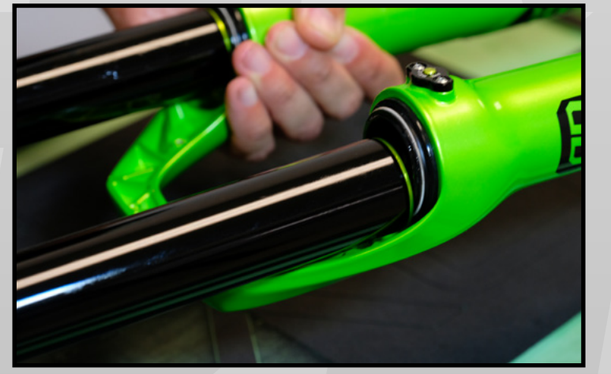
102.

Inflate the air side to the desired pressure.



103.

Install the upper assembly into the lowers.



104.

Leave a small gap between the casting and the inner shafts as shown.



105.

Pour 25cc's of 7.5wt. oil in each side of the casting.



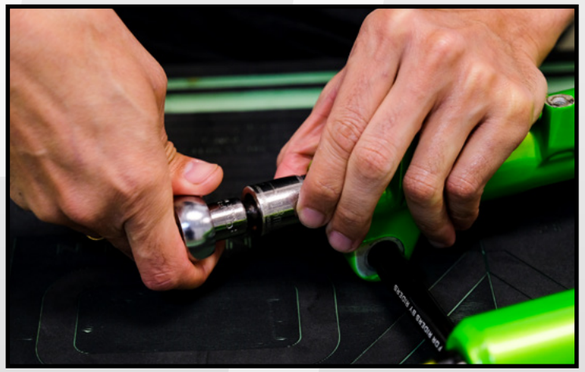
106.

Install the OTT adjuster foot nut.



107.

Tighten the foot nut with an 18mm socket.



108.

Use a 5mm allen key to turn the OTT adjuster. You want to make sure it's functioning properly.



109.

Re-install the rebound adjuster.



109.

Tighten with an 18mm socket.



110.

Place the compression adjuster back on the top cap and tighten with 2.5mm allen key.



111.

Re-install the air cap and you're ready to ride!



Notes: