

Vorsprung

Telum

CUSTOM TUNED COIL SHOCK

SERVICE MANUAL



Tools required:

- **Torque Wrench (+adaptors to fit all sockets)**
- **2mm, 2.5mm, 3mm, 6mm hex key**
- **Oil syringe and/or measuring cup**
- **Caliper/ruler or Telum IFP Tool**
- **Plastic seal picks**
- **10mm Bullet tool**
- **30mm shaft clamps**
- **Strap wrench**
- **Piston tool**
- **End cap tool**
- **Circlip pliers**
- **Vacuum bleeder**
- **Nitrogen charging station with needle**

Supplies required:

- **Motorex 2.5Wt Racing Fork Oil**
- **Slickoleum or similar grease.**
- **Heavy dynamic seal oil (Fox Float Fluid, Maxima 15W50, Blud assembly lube)**
- **99% Isopropyl Alcohol**

Other:

- **Lint free towels/rag**
- **Gloves**
- **Eye protection**

Do not proceed unless you have the necessary tools and supplies on hand.

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PART 1 – INTRO – SERVICE LEVELS

To continue getting the best performance out of your Telum, it is mandatory to service it on a regular basis.

This document covers the different service procedures required and how to perform them. If you are unsure on whether this task is for you, *please* go see your nearest Vorsprung Dealer.

Interval

- Every ride
- Annually / 100.000m of vertical descending
- Every 3 Years

Maintenance Required

- Wipe dirt from shock damper shaft and wiper seal
- Perform Routine Damper Service
- Perform Full Rebuild Service

What is the difference between a Routine Damper service and a Reservoir Bridge service?

The Routine Damper Service covers replacement of all the Telum's dynamic seals, and inspection of all sliding/wear surfaces. This ensures that seals are replaced before they wear to the extent of leaking, and that any dirt that has gotten past the wiper seal is cleaned out before it becomes problematic. It also ensures that any other sliding components can be checked for wear.

Reservoir Bridge Services are only needed every 3 years or if a problem with the reservoir bridge is known or suspected (leaks, adjusters not moving freely, unusual noises, or other problems with damping behaviour). The reservoir bridge valve assembly contains only static seals which do not wear like dynamic ones, so there is no need to change these as part of your annual/100.000m of vertical descending service.

Routine Damper service kit part number: R00073 - Service seal kit

Reservoir Bridge service kit part number: R00074 - Master Seal kit - *This kit contains all the seals contained in R00073 so there is no need to purchase R00073 as part of this service.*

Stroke configurations:

The stroke on the Telum can easily be reconfigured without significant damper work. Procedures to adjust the stroke by 2.5mm, 5mm and 7.5mm can be found under Part 5 and Part 6.

Lubricant Specifications:

Damper oil: Motorex Racing Fork Oil, 2.5wt, 14.5cSt @ 40C

Seal grease: Slickoleum

IFP lubricant: Blut Assembly Lubricant, Fox Float Fluid or Motorex Supergliss 100k

General Inspection Guidelines:

All seals rely on having two smooth, undamaged sealing surfaces and a smooth, undamaged seal squeezed between them in order to maintain a robust seal. Damage to either sealing surface or the seal, or any contamination between the two (dirt, hair etc) can cause seal failure.

Inspect all sliding surfaces (damper shaft, damper inner tube, reservoir body, IFP), all dynamic seal grooves, seals and sealing surfaces for damage when servicing the shock.

PART 2 – PREPARING SHOCK FOR SERVICE

See frame manufacturer's instructions for removing shock from the bike.

1. HARDWARE REMOVAL:

If present, remove the hardware spacers from both sides on the pin.

Note: If not possible to remove by hand, use a ½" or 13mm socket as a receiver, and use a smaller socket (or a bolt with an appropriate size) in a vise to press the hardware pin through the reducers/eyelet.



2. Remove any additional rubber spacers (spherical hardware) or o-rings (standard hardware) by sliding them off of the pin and set to one side.

3. Using a press/vice/hardware removal tool or otherwise press the pin out of the eyelet.

Set to one side and repeat steps at shock mounts as required.



4. SPRING REMOVAL:

Using a 2mm allen key loosen the set screw on the PRELOAD COLLAR so it is able to spin freely.



5. Turn the PRELOAD COLLAR anticlockwise to create enough space to slide the spring and RETAINING COLLAR down exposing the eyelet circlip.



6. Remove the circlip from its groove.

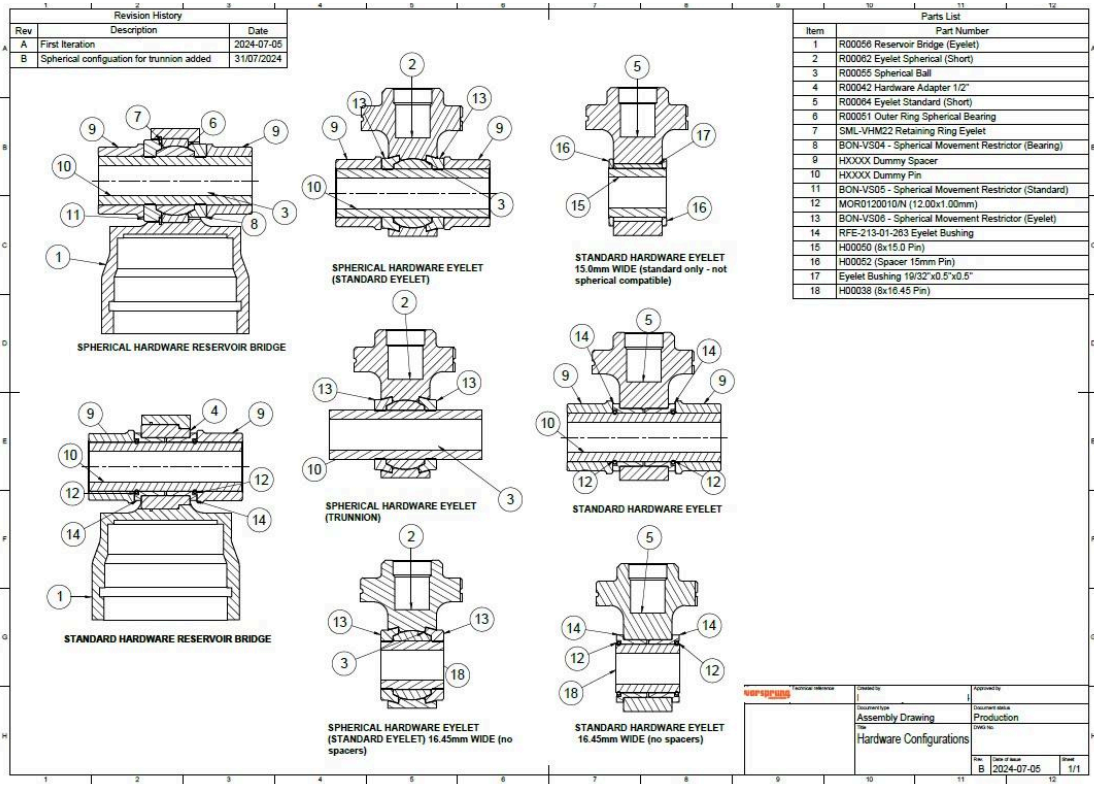
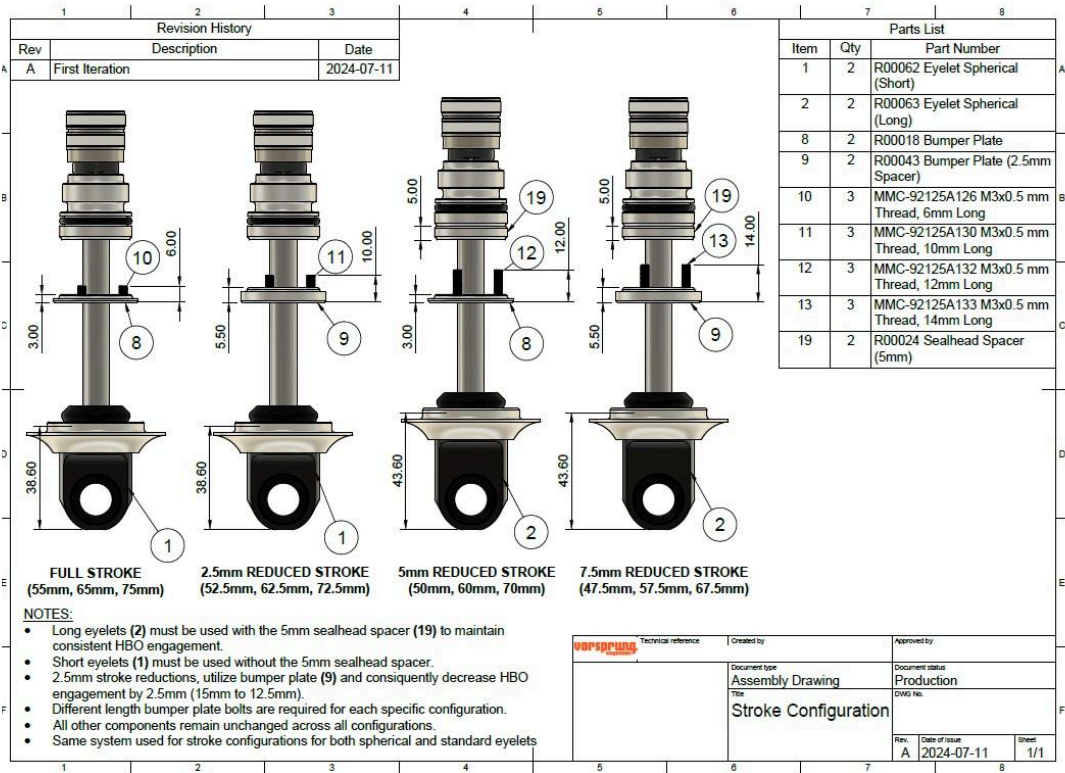
Note: There is a small relief in the groove (as pictured to make it easier to get under the circlip). It is possible to remove just using your fingers, by orienting the ends of the circlip in the relief.



7. Slide the spring & PRELOAD COLLAR over the eyelet and set to one side with the circlip.

- a. Shock is now ready to be worked on.

PART 3 – DRAWINGS



PART 4 – ROUTINE DAMPER SERVICE (YEARLY/100,000M VERTICAL DESCENDING)

1. Clamp the RESERVOIR BRIDGE across either the eyelet or trunnion mount with a soft jaw vice.

Release the IFP pressure using a needle.



2. Push the RESERVOIR END CAP into the RESERVOIR HOUSING to gain access to the wire retaining ring.

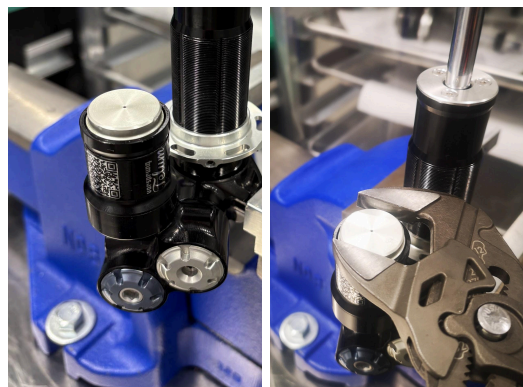
Remove the wire retaining ring using a thin (0.1mm or 0.15mm thick works best) shim and plastic pick and set aside. Be careful not to scratch the surface inside the reservoir - this is where the end cap seals. While it is also preferable to avoid scratches inside the circlip groove, they will not cause leaks.



3. Push down on the EYELET to compress the shock. This will pop the end cap partially out of RESERVOIR HOUSING.

Using Knipex pliers-wrench clamp the RESERVOIR END CAP and remove it.

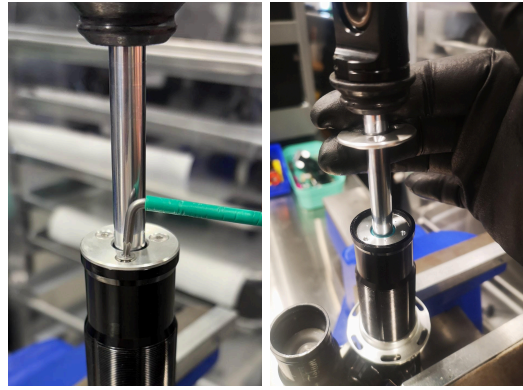
Note: if the end cap will not pop out use nitrogen charging set-up to pressurize the reservoir and remove the end cap. Careful, this will not require much pressure, 20psi is sufficient. 100psi will make you very angry with the hole in your ceiling.



UPDATE December 2025: The new revision of the end cap uses a threaded insert so it can more easily be removed

4. Remove the three bolts holding the BUMPER PLATE in place using a 2mm hex key.

Lift up the bumper plate to expose the sealhead.



5. Push the exposed SEALHEAD deeper into the OUTER TUBE to gain access to the wire retaining ring. There are three recesses on the face of the SEALHEAD which can be used to minimize the chance of slipping when doing so.

Remove the wire retaining ring using a thin shim and plastic pick and set aside.

Do not mix this circlip with the spring collar circlip as they are not the same size.



6. Carefully remove the shaft assembly from the outer tube taking care not to catch the piston bands on the outer tube on the way out.

Note: Do not pull with excessive force. If the Sealhead o-ring is catching on the circlip groove, wiggle and pull up until free.



7. Drain the waste damper oil out of the shock body and dispose of it accordingly.

Inspect the inside of the damper tubes and the outside of the damper shaft for wear or damage.

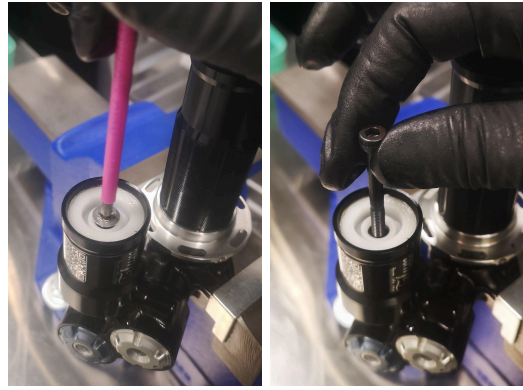
Damper shafts will show visible changes in surface finish over time - this is not necessarily a problem. However if the shaft is gouged or worn sufficiently that longitudinal grooves appear that could compromise the seal, the shaft should be replaced.



8. Clamp the shock firmly back in the vice and remove the bleed bolt from the IFP.

Thread IFP removal tool (or long M5x0.8mm bolt) into the IFP and pull it out of the reservoir.

Note: Do not pull with excessive force. If IFP o-ring is catching on the circlip groove, wiggle and pull up until IFP breaks free. Reinstall sealhead/shaft assembly & use compressed air through the bleed port to pop the IFP out if necessary.



9. Remove the RESERVOIR BRIDGE from the vice and clamp the EYELET of the shaft assembly in its place.

Move the topout bumper and sealhead away from the piston, then heat the shaft underneath the piston with a heat gun to soften the red Loctite. Keep the shaft hot for at least 60 seconds continuously. Avoid pointing the heat gun directly at the piston bands, sealhead or bumper.

Using a 4mm hex key unthread the piston bolt and remove the bolt and piston from the end of the shaft. Carefully set aside and slide the top-out bumper and sealhead off of the shaft.



10. Using a pick carefully, spear/scoop the wiper seal from the bottom of the SEALHEAD. Take care not to scratch any sealing surfaces while doing so. Discard used wiper once removed

Repeat the same process with the main shaft seal and back-up ring.

Clean out all seal grooves thoroughly and inspect for damage.



11. Identify the replacement seals provided in your service kit.

Install the new back-up ring first followed by the main shaft o-ring (10.00x3.50). **Ensure the o-ring sits between the backup ring and the sealhead bushing, NOT the other way around.**

Generously grease the o-ring and ensure it sits between the back-up ring and the bushing.

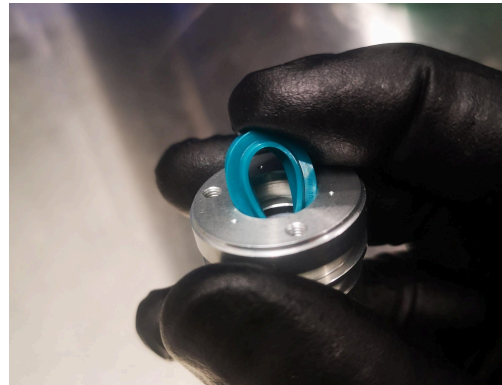
Note: may find it helpful to use blunt/rounded tool to install o-ring into place.



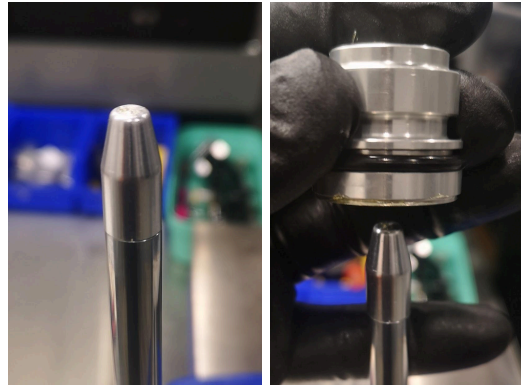
12. Install the wiper into SEALHEAD from the bottom side.

Lock a small section of the wiper into the groove by pressing it in using a blunt tool and then work your way around.

Install new 22.00 x 2.50 O-ring on outside of sealhead



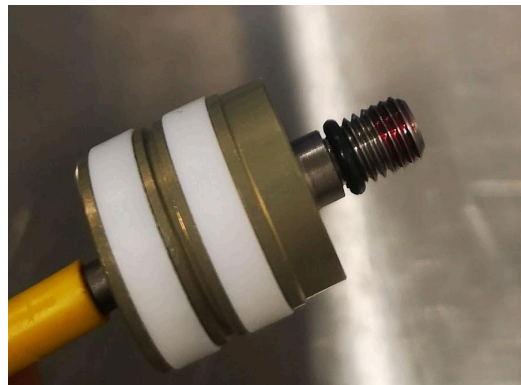
13. Install lightly greased bullet tool onto SHAFT and carefully slide re-assembled SEALHEAD into place.



14. Replace the o-ring (4.50x1.50mm) on the PISTON BOLT if you have a piston bolt with an O-Ring Groove.

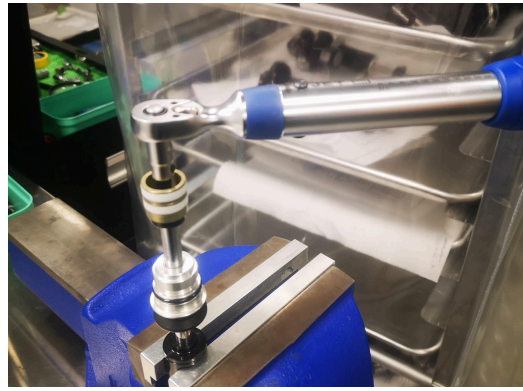
Update December 2025: If you have a piston bolt with a through hole in the center, it does not use an O-Ring.

Run the piston bolt through the shim and piston. Add one drop of red Loctite 263 to the end of the PISTON BOLT thread, and reinstall into the damper shaft. Torque to 100 in.lbs (11.3Nm) using 4mm hex adaptor.



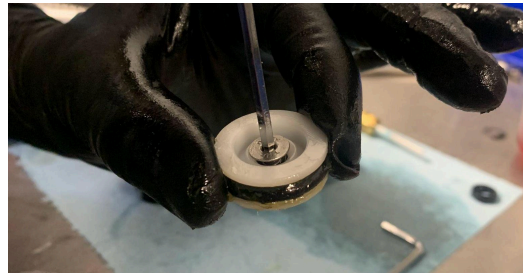
Make sure to properly brace the torque wrench with your left hand (not pictured).

Set shaft assembly aside for now.



15. Using a 3mm hex reinstall the IFP bleed port bolt and o-ring (5.00x1.50)

Grip the IFP and torque till it begins to slip in your hands.



16. Remove the o-ring from the IFP which was set aside earlier and discard it. The o-ring can be removed by fingers alone - do not use a pick.

Generously grease the replacement o-ring (-211) and install into the groove.



17. Install the IFP, with the bolt head facing outward, into the RESERVOIR HOUSING and slide approximately halfway.

Install reservoir retaining ring to retain IFP for the bleed procedure



18. Clamp the outer tube in the vice with 30mm shaft clamps.

Set the torque wrench to 40Nm (354in/Lbs) and try to TIGHTEN the head. If it moves at all before reaching 40Nm, reverse direction and remove the outer tube entirely.

If the Torque Wrench clicks, the bond is still strong enough and this connection does not need to be taken apart. **PROCEED TO STEP 35**

If the outer tube is still tight but you wish to remove it, heat it with a heat gun and keep it hot for at least 2 minutes, to soften the Loctite.

19. Remove the outer tube from the reservoir bridge. Be mindful, the inner tube and HBO cone will still be gently retained in the reservoir bridge by an o-ring.



20. Pull the inner tube loose from the reservoir. The HBO cone will come loose as well as it is clamped between the inner tube and the reservoir bridge.



21. Remove the O-ring from the outer tube and discard it.

Clean the threads of the outer tube thoroughly to remove any Loctite residue. Do the same for the reservoir bridge

Inspect the sealing surface and make sure there is no damage. Do not use any metal tools to remove the O-Ring as you risk damaging the sealing surface.

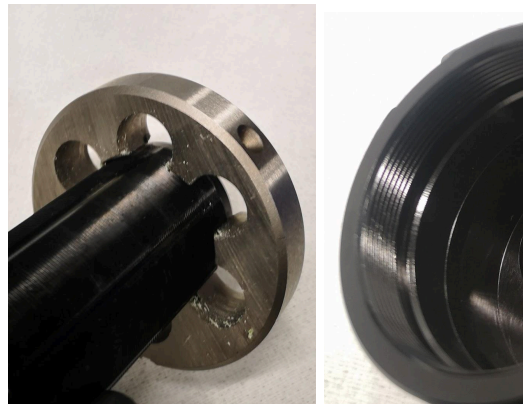
Remove the O-Ring from the inner tube and discard it. Inspect for any damage to the inner surface of the Inner tube.



22. Ensure there is no loctite residue left on the reservoir bridge or on the outer tube. You can use Isopropyl Alcohol to remove the loctite residue and a pick or nylon brush.

The outer tube can effectively be cleaned with a M33 x 0.75 thread die.

When done the surface needs to be as clean as shown.



23. If you have one, install the grease protection collar into the reservoir bridge and install a new (-026) O-ring in the bridge.

If you do not have this protective collar, be careful not to contaminate the threads of the bridge with grease.



24. Install the HBO cone.

Make sure to align the keying feature (flats on both parts) to ensure the flow passage on the cone aligns with the port in the reservoir bridge.



25. Install a new inner tube o-ring (-023), lightly greased, and install in the O-ring groove.

Apply a thin coat of grease on both ends of the inner tube to facilitate it moving into place when torqued.

Slide the inner tube into the reservoir bridge until it snaps into place. Note the orientation of the inner tube.

26. If you used a grease-protection collar inside the reservoir bridge threads, remove it now.

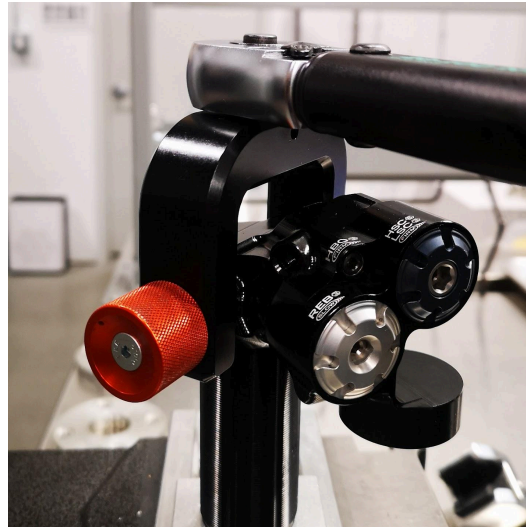
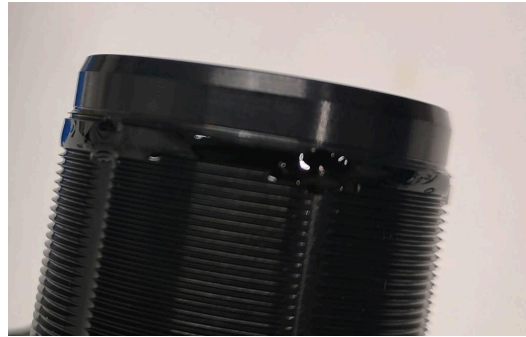


27. Apply GREEN Loctite 638 with full 360 degree coverage of the first 2-3 threads at the top of the tube (as shown) take care not to get loctite on the sealing surface above this.

DO NOT USE LOCTITE PAST DUE DATE or that has been opened more than 3 months ago.

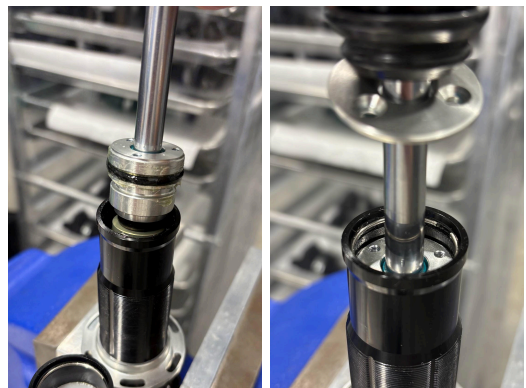
Thread the outer tube into the reservoir bridge by hand. Then, clamp the outer tube in the vice with 30m shaft clamps and torque the head to 50Nm (442in/lbs) within 5minutes of applying the loctite.

Loctite must be allowed to cure for 24hrs before the shock is used.



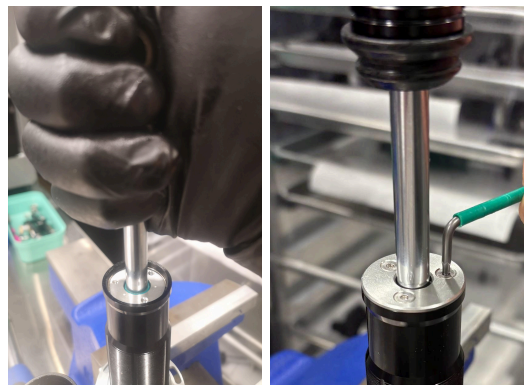
28. Clamp the RESERVOIR BRIDGE back into the vice.

Install the shaft assembly back into the outer tube and install the reservoir retaining ring back into relief.



29. Pull up on the EYELET to ensure the SEALHEAD is seated against the circlip and install the THREE bumper plate bolts with blue threadlocker using a 2mm hex key.

Work your way around the bolts multiple times to ensure they are hand tight (do not over tighten).



30. Using a 2.5mm hex key remove the bleed port bolt from the reservoir bridge.

Make sure all of the adjusters are set to fully open positions (LSC,HSC,REB & HBO).

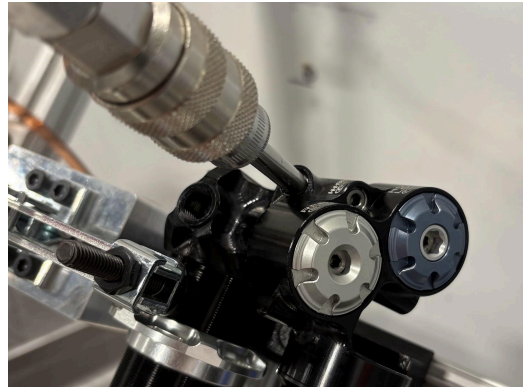
DO NOT JAM ADJUSTERS HARD AGAINST THE STOPS.

Record the settings as the number of clicks out from fully closed if not already done.



31. Attach the bleeding adaptor to the bleed port

Note: size M4x0.7mm (Same as Cane Creek, Öhlins, etc.)



32. Bleed the shock. Double check the reservoir circlip is installed before running any pressure cycles.

Run vacuum and pressure cycles multiple times and compress and extend the shaft while doing so. Ensure no air remains inside the damper.

Recommended positive pressure = 50 psi
Oil: Motorex Racing Fork Fluid, 2.5wt,
14.5cst@40C

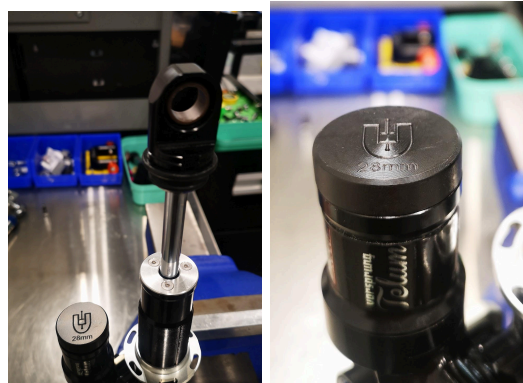


33. Leave the shock at atmospheric pressure with the bleed line connected.

Clamp the shock in a vice and ensure the shaft is fully extended. Pull up on it to check.

Using the Vorsprung IFP depth tool, or otherwise, set the IFP depth to 28mm from the upper rim of the reservoir.

Measure to the edge of the IFP - not the recess.



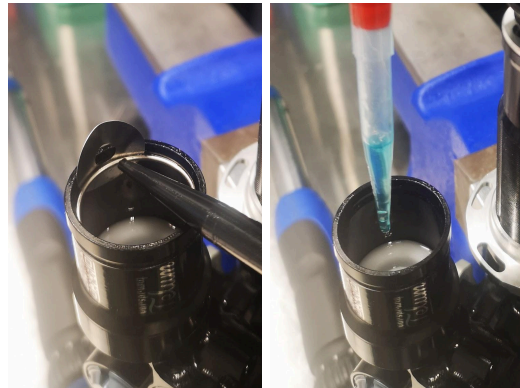
34. Remove the bleed adaptor and deposit a droplet of oil into the bleed port bolt location.

Install the bleed port bolt with o-ring and use a 2.5mm hex torque to hand tight.



35. Remove the wire retaining ring using a thin shim and pick.

Coat the inside on the RESERVOIR HOUSING with a thin layer of a thick oil eg Fox Float Fluid, Maxima 15W50, Blud Assembly Oil or equivalent.



36. Install the RESERVOIR END CAP ensure the cap is installed straight and evenly. After the end cap is seated below the retaining ring relief install the retaining ring.



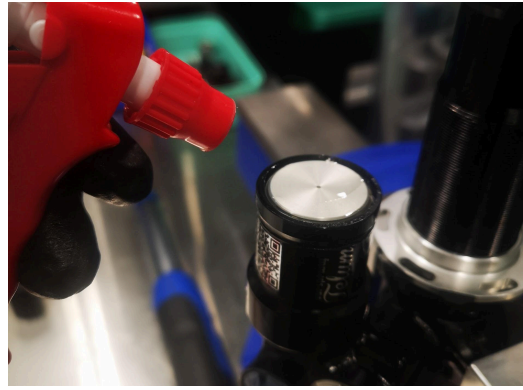
37. Using a charging needle pierce the rubber seal housed inside the RESERVOIR END CAP and set the pressure to 200 psi.



38. Spray the RESERVOIR END CAP with alcohol. Check to see if there are any bubbles coming from the center hole or around the edge of the end cap..

If there are no bubbles proceed to the final step.

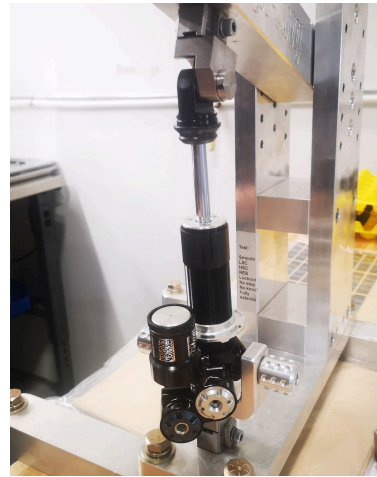
If bubbles do form remove the end cap and replace the reservoir end cap pellet (included in the seal kit) and repeat the inflation steps.



39. Thoroughly clean the exterior of the shock and test all functions on the hand dyno.

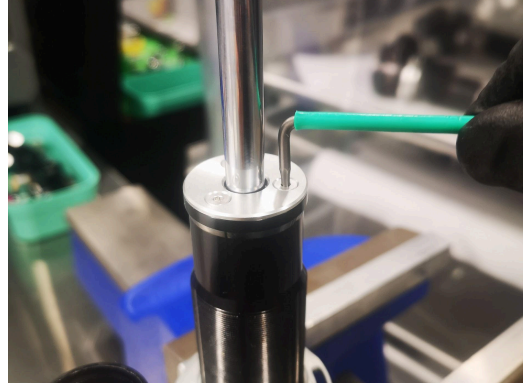
Service is now complete.

See manufacturers instructions for reinstalling shock onto frame.



PART 5 – STROKE ADJUSTMENT (2.5mm REDUCTION)

1. With shock in its 'prepared for service' state ([PART 1 - PREPARING SHOCK FOR SERVICE](#)) Clamp the shock in a soft jaw vice across the eyelet or trunion mounts. Remove the three bolts holding the BUMPER PLATE in place using a 2mm hex key and set aside. There is no need to depressurize or rebleed the shock for this procedure.



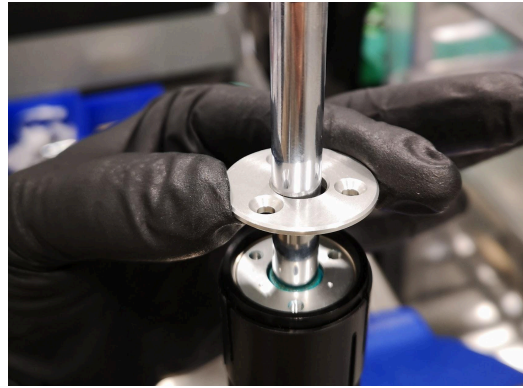
2. Clamp the SHAFT above the bottom out bumper using 10mm shaft clamps.



3. Using a heat gun or otherwise heat the interface between the SHAFT and EYELET to break the red threadlocker free. Unthread the eyelet from the shaft and set aside with the DISC WASHER from the bottom of the shaft.
4. Note: make sure to move the BOTTOM OUT BUMPER clear of the heated area so it is not damaged.



5. Remove shock from shaft clamps and put back in the vice across the eyelet/trunnion mounts. Slide the BOTTOM OUT BUMPER and BUMPER PLATE off the end of the damper shaft.

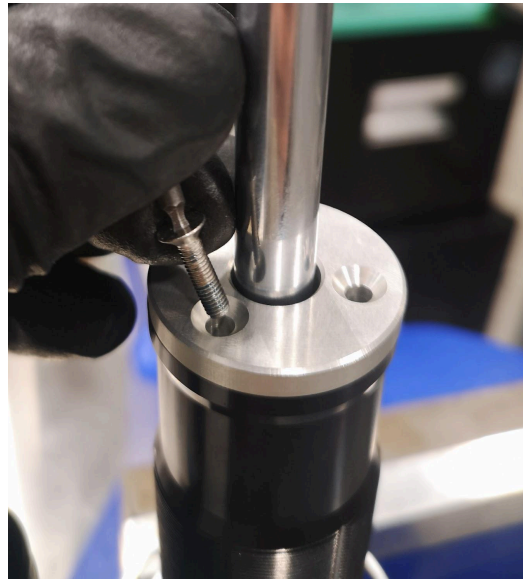


6. Slide replacement BUMPER PLATE (2.5MM SPACER) over damper shaft.

You will need THREE longer bumper plate bolts:
2.5mm stroke reduction = 10mm long bolts.
7.5mm stroke reduction = 14mm long bolts.

Apply a drop of 243 Blue Loctite on all 3 bolts & install them using a 2mm hex key.

Work your way around the bolts multiple times to ensure they are hand tight (do not over tighten)



7. Reinstall the BOTTOM OUT BUMPER by sliding it onto the shaft. Note orientation.



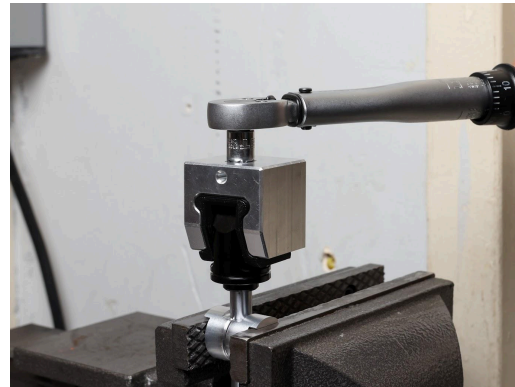
8. Apply a drop of red loctite 263 to the shaft threads and place disc washer (7.5x0.5mm) on the end of the shaft (covering the hole)

INSTALL WITHIN 5 MINUTES OF APPLYING LOCTITE.



9. Thread eyelet back onto shaft and torque to 150 in.lbs. (16.9Nm)

Stroke reduction is now complete.

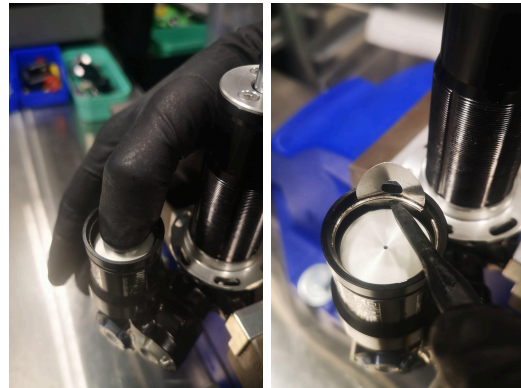


PART 6 – STROKE ADJUSTMENT (5mm REDUCTION)

1. With shock in its 'prepared for service' state ([PART 1 - PREPARING SHOCK FOR SERVICE](#)) Clamp the RESERVOIR BRIDGE across either the eyelet or trunnion mount with a soft jaw vice.
 - a.
 - b. Release the IFP pressure using a needle.

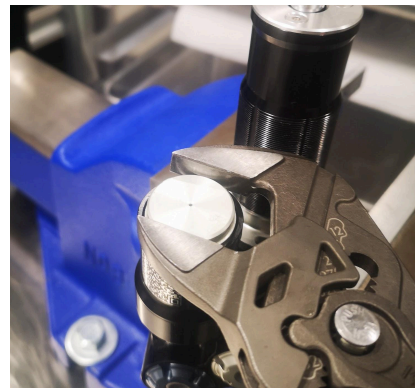


2. Push the RESERVOIR END CAP into the RESERVOIR HOUSING to gain access to the wire retaining ring.
 - a. Remove the wire retaining ring using a thin shim and pick and set aside.

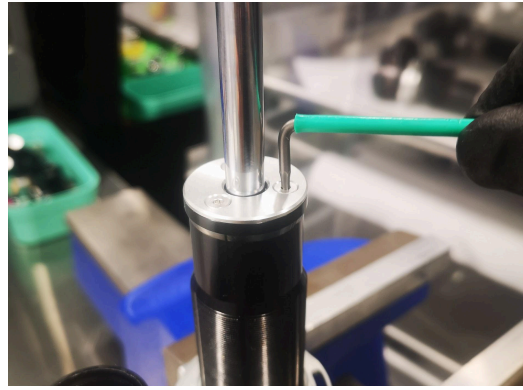


3. Push down on the EYELET to cycle the shock. This will pop the end cap partially out of RESERVOIR HOUSING.

Using Knipex pliers-wrench, clamp the RESERVOIR END CAP and wiggle to remove it.



4. Remove the three bolts holding the BUMPER PLATE in place using a 2mm hex key and set aside.



5. Clamp the SHAFT above the bottom out bumper using 10mm shaft clamps.

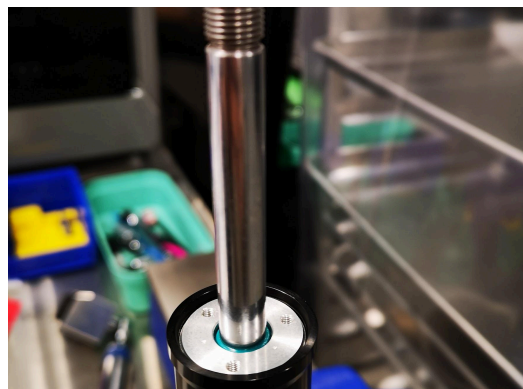


6. Using a heat gun or otherwise heat the interface between the SHAFT and EYELET to break the red thread locker free. Unthread the eyelet from the shaft and set aside with the DISC WASHER from the bottom of the shaft.

Note: make sure to move the BOTTOM OUT BUMPER clear of the heated area so it is not damaged.

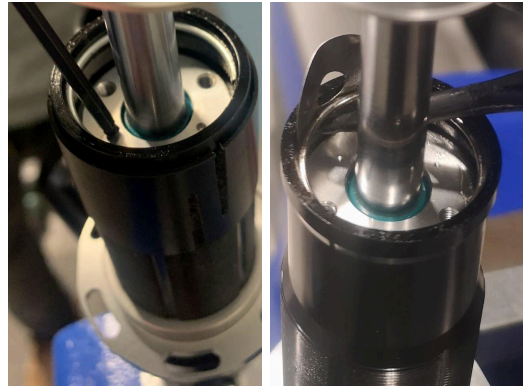


7. Remove shock from shaft clamps and put back in the vice across the eyelet/trunnion mounts. Slide the BOTTOM OUT BUMPER and BUMPER PLATE off the end of the damper shaft.



8. Push the exposed SEALHEAD deeper into the OUTER TUBE to gain access to the wire retaining ring. There are three recesses on the face of the SEALHEAD which can be used to minimize the chance of slipping when doing so.

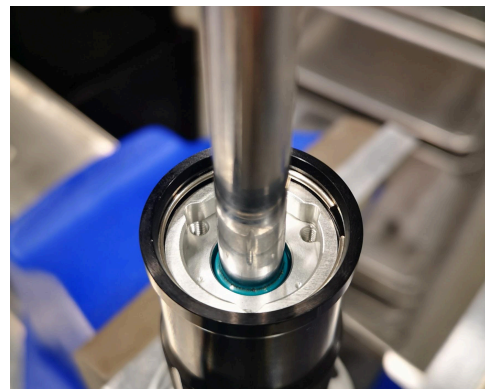
- a. Remove the circlip using a thin shim and pick and set aside.



9. Slide the SEALHEAD SPACER (5mm) in on top of the SEALHEAD and inside the OUTER TUBE. Note the orientation, the 3 reliefs should line up the bolt holes in the sealhead and the circlip groove should be facing out as pictured.



10. Reinstall the retaining ring into the outer tube and pull up on the shaft assembly to lock the SEALHEAD SPACER into position.



11. Slide replacement BUMPER PLATE over damper shaft.

You will need THREE longer bumper plate bolts:
5mm stroke reduction = 12mm long bolts.

Apply a drop of 243 Blue Loctite on all 3 bolts & install them using a 2mm hex key.

Work your way around the bolts multiple times to ensure they are hand tight (do not over tighten)

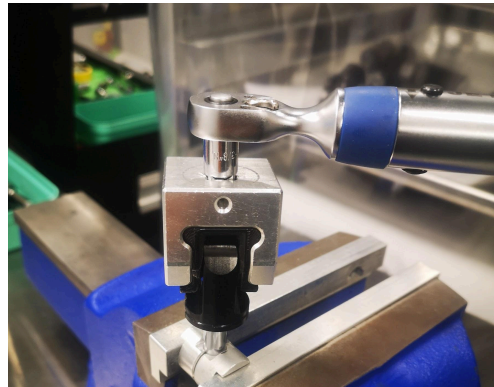


12. Apply a drop of red Loctite 263 to the shaft threads and place disc washer (7.5x0.5mm) on the end of the shaft (covering the hole)

INSTALL WITHIN 5 MINUTES OF APPLYING LOCTITE



13. To conserve the eye to eye length of the shock the EYELET must be swapped. Thread the replacement, 5mm longer eyelet, back onto shaft and torque to 150 in.lbs. (16.9Nm)



14. The IFP depth needs to be reset before recharging the unit. Using a 3mm hex key remove the bleed bolt from the IFP.



15. Using the Vorsprung IFP depth tool, or otherwise, set the IFP depth to 28mm from the upper rim of the reservoir.

Reinstall the IFP bleed bolt, tightening until the IFP starts to spin, pour out the excess oil and wipe clean.

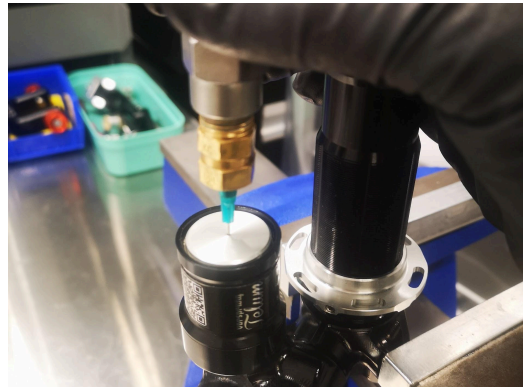


16. Coat the inside on the RESERVOIR HOUSING with a thin layer of a thick oil such as Fox Float Fluid, Blud Assembly Lube or equivalent.

Install the RESERVOIR END CAP ensure the cap is installed straight and evenly. After the end cap is seated below the retaining ring relief, install the retaining ring.



17. Using a charging needle pierce the rubber seal housed inside the RESERVOIR END CAP and set the pressure to 200 psi.



18. Spray the RESERVOIR END CAP with alcohol to ensure no air escapes from the reservoir.

Stroke reduction is now complete.



PART 7 – STROKE ADJUSTMENT (7.5mm REDUCTION)

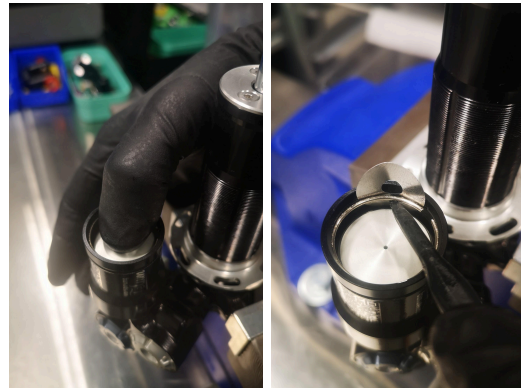
1. With shock in its 'prepared for service' state ([PART 1 - PREPARING SHOCK FOR SERVICE](#)) Clamp the RESERVOIR BRIDGE across either the eyelet or trunnion mount with a soft jaw vice.

Release the IFP pressure using a needle.



2. Push the RESERVOIR END CAP into the RESERVOIR HOUSING to gain access to the wire retaining ring.

Remove the wire retaining ring using a thin shim and pick and set aside.

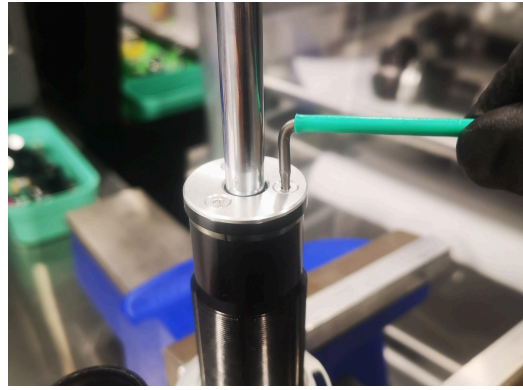


3. Push down on the EYELET to cycle the shock. This will pop the end cap partially out of RESERVOIR HOUSING.

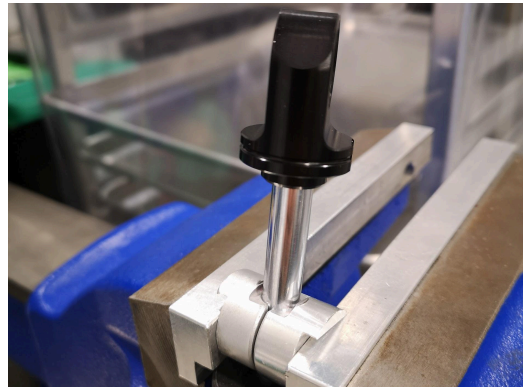
Using wrench style pliers clamp the RESERVOIR END CAP and remove it.



4. Remove the three bolts holding the BUMPER PLATE in place using a 2mm hex key and set aside.



5. Clamp the SHAFT above the bottom out bumper using 10mm shaft clamps.



6. Using a heat gun or otherwise heat the interface between the SHAFT and EYELET to break the loctite free. Unthread the eyelet from the shaft and set aside with the DISC WASHER from the bottom of the shaft.
Note: make sure to move the BOTTOM OUT BUMPER clear of the heated area so it is not damaged.



7. Remove shock from shaft clamps and put back in the vice. Slide the BOTTOM OUT BUMPER and BUMPER PLATE off the end of the damper shaft.



8. Push the exposed SEALHEAD deeper into the OUTER TUBE to gain access to the wire retaining ring. There are three recesses on the face of the SEALHEAD which can be used to minimize the chance of slipping when doing so.

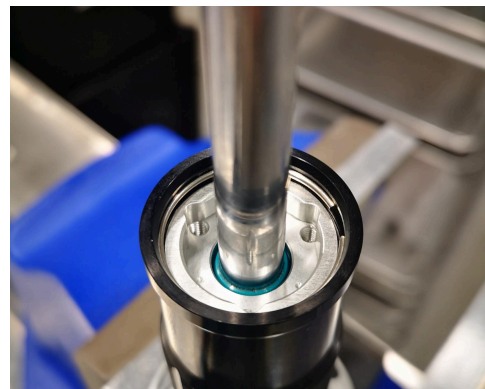
Remove the circlip using a thin shim and pick and set aside.



9. Slide the SEALHEAD SPACER (5mm) in on top of the SEALHEAD and inside the OUTER TUBE. Note the orientation, the 3 reliefs should line up the bolt holes in the sealhead and the circlip groove should be facing out.



10. Reinstall the retaining ring into the outer tube and pull up on the shaft assembly to lock the SEALHEAD SPACER into position.

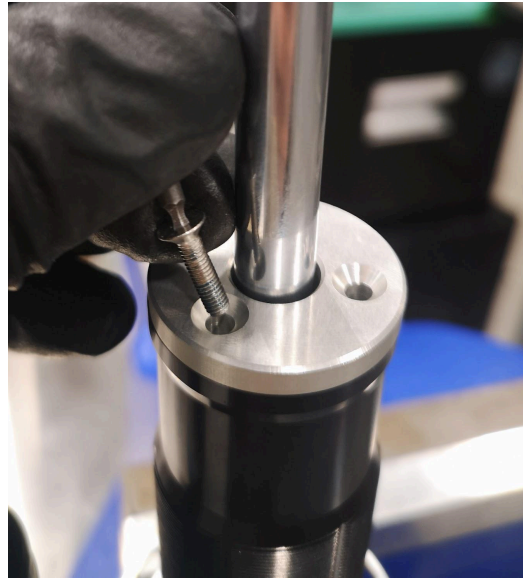


11. Slide replacement BUMPER PLATE (2.5MM SPACER) over damper shaft.

You will need THREE longer bumper plate bolts:
7.5mm stroke reduction = 14mm long bolts.

Apply a drop of 243 Blue Loctite on all 3 bolts & install them using a 2mm hex key.

Work your way around the bolts multiple times to ensure they are hand tight (do not over tighten)

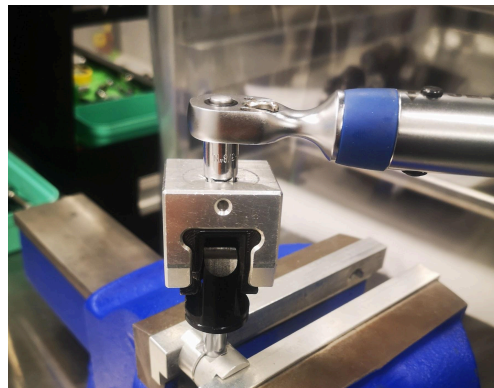


12. Apply a drop of red loctite 263 to the shaft threads and place disc washer (7.5x0.5mm) on the end of the shaft (covering the hole)

INSTALL WITHIN 5 MINUTES OF APPLYING
LOCTITE



13. To conserve the eye to eyelength of the shock the EYELET must be swapped. Thread the replacement, 5mm longer eyelet, back onto shaft and torque to 150 in.lbs. (16.9Nm)



14. The IFP depth needs to be reset before recharging the unit. Using a 3mm hex key remove the bleed bolt from the IFP.



15. Using the Vorsprung IFP depth tool, or otherwise, set the IFP depth to 28mm from the upper rim of the reservoir.

Reinstall the IFP bleed bolt, tightening until the IFP starts to spin, pour out the excess oil and wipe clean.

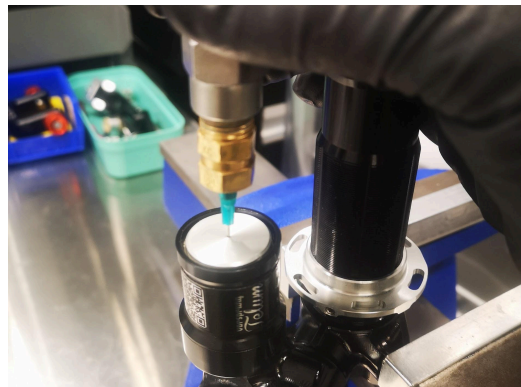


16. Coat the inside of the RESERVOIR HOUSING with a thin layer of a thick oil such as Fox Float Fluid, Maxima 15W50 or equivalent.

Install the RESERVOIR END CAP and retaining ring.

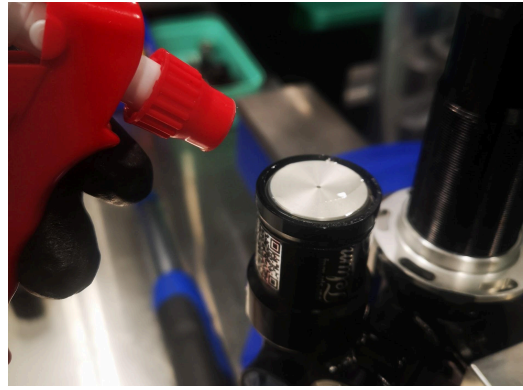


17. Using a charging needle pierce the rubber seal housed inside the RESERVOIR END CAP and set the pressure to 200 psi.



18. Spray the RESERVOIR END CAP with alcohol to ensure no air escapes from the reservoir.

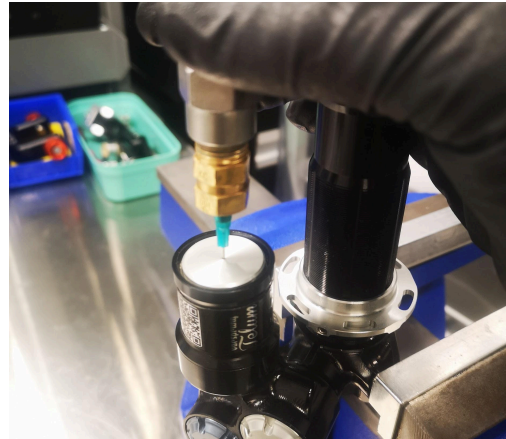
Stroke reduction is now complete.



PART 8 – FULL REBUILD

1. With the shock in prepared state for service, clamp the RESERVOIR BRIDGE across either the eyelet or trunnion mount with a soft jaw vice.

Release the IFP pressure using a needle.



2. Push the RESERVOIR END CAP into the RESERVOIR HOUSING to gain access to the wire retaining ring.

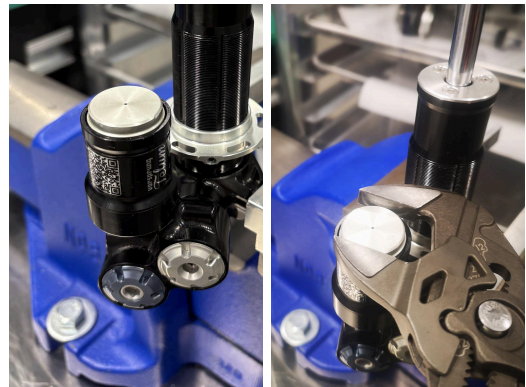
Remove the wire retaining ring using a thin (0.1mm or 0.15mm thick works best) shim and plastic pick and set aside. Be careful not to scratch the surface inside the reservoir - this is where the end cap seals. While it is also preferable to avoid scratches inside the circlip groove, they will not cause leaks.



3. Push down on the EYELET to compress the shock. This will pop the end cap partially out of RESERVOIR HOUSING.

Using Knipex pliers-wrench clamp the RESERVOIR END CAP and remove it.

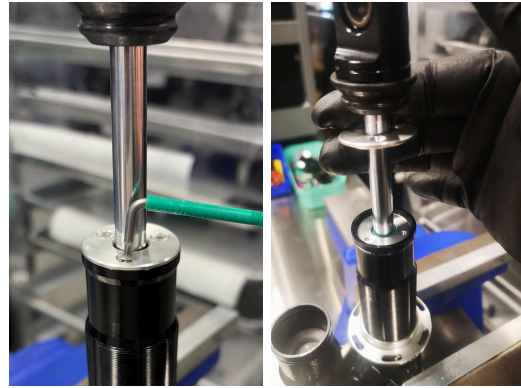
Note: if the end cap will not pop out use nitrogen charging set-up to pressurize the reservoir and remove the end cap. Careful, this will not require much pressure, 20psi is sufficient. 100psi will make you very angry with the hole in your ceiling.



UPDATE December 2025: The new revision of the end cap uses a threaded insert so it can more easily be removed

4. Remove the three bolts holding the BUMPER PLATE in place using a 2mm hex key.

Lift up the bumper plate to expose the sealhead.



5. Push the exposed SEALHEAD deeper into the OUTER TUBE to gain access to the wire retaining ring. There are three recesses on the face of the SEALHEAD which can be used to minimize the chance of slipping when doing so. Remove the wire retaining ring using a thin shim and plastic pick and set aside.

Do not mix this circlip with the spring collar circlip as they are not the same size.



6. Carefully remove the shaft assembly from the outer tube taking care not to catch the piston bands on the outer tube on the way out.

Note: Do not pull with excessive force. If the Sealhead o-ring is catching on the circlip groove, wiggle and pull up until free.



7. Drain the waste damper oil out of the shock body and dispose of it accordingly.

Inspect the inside of the damper tubes and the outside of the damper shaft for wear or damage.

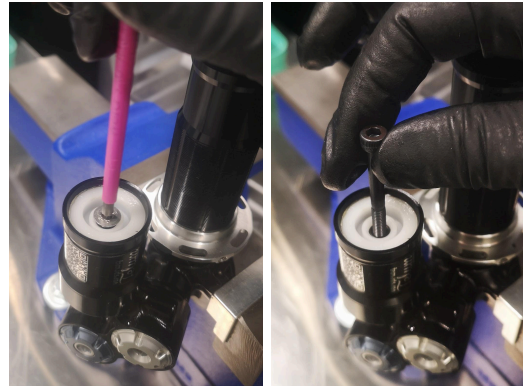
Damper shafts will show visible changes in surface finish over time - this is not necessarily a problem. However if the shaft is gouged or worn sufficiently that longitudinal grooves appear that could compromise the seal, the shaft should be replaced.



8. Clamp the shock firmly back in the vice and remove the bleed bolt from the IFP.

Thread IFP removal tool (or long M5x0.8mm bolt) into the IFP and pull it out of the reservoir.

Note: Do not pull with excessive force. If IFP o-ring is catching on the circlip groove, wiggle and pull up until IFP breaks free. Reinstall sealhead/shaft assembly & use compressed air through the bleed port to pop the IFP out if necessary.



9. Remove the RESERVOIR BRIDGE from the vice and clamp the EYELET of the shaft assembly in its place.

Move the topout bumper and sealhead away from the piston, then heat the shaft underneath the piston with a heat gun to soften the red Loctite. Keep the shaft hot for at least 60 seconds continuously. Avoid pointing the heat gun directly at the piston bands, sealhead or bumper.

Using a 4mm hex key unthread the piston bolt and remove the bolt and piston from the end of the shaft. Carefully set aside and slide the top-out bumper and sealhead off of the shaft.



10. Using a pick carefully, spear/scoop the wiper seal from the bottom of the SEALHEAD. Take care not to scratch any sealing surfaces while doing so. Discard used wiper once removed

Repeat the same process with the main shaft seal and back-up ring.

Clean out all seal grooves thoroughly and inspect for damage.



11. Identify the replacement seals provided in your service kit.

Install the new back-up ring first followed by the main shaft o-ring (10.00x3.50). **Ensure the o-ring sits between the backup ring and the sealhead bushing, NOT the other way around.**

Generously grease the o-ring and ensure it sits between the back-up ring and the bushing.

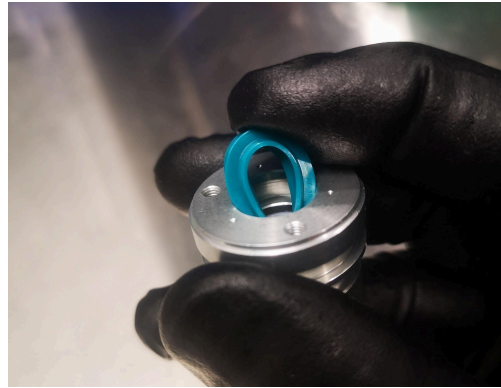
Note: may find it helpful to use blunt/rounded tool to install o-ring into place.



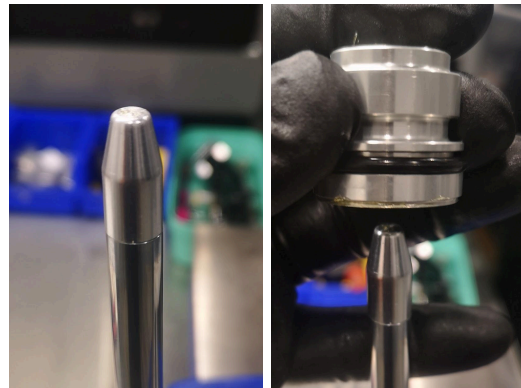
12. Install the wiper into SEALHEAD from the bottom side.

Lock a small section of the wiper into the groove by pressing it in using a blunt tool and then work your way around.

Install new 22.00 x 2.50 O-ring on outside of sealhead



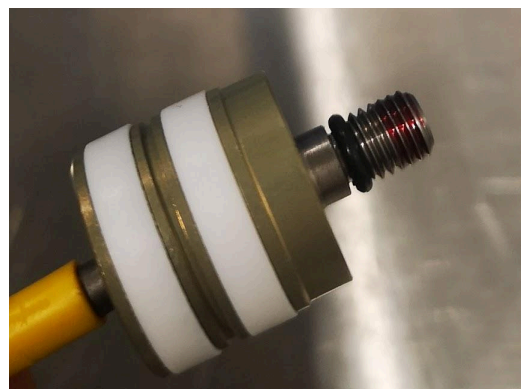
13. Install lightly greased bullet tool onto SHAFT and carefully slide re-assembled SEALHEAD into place.



14. Replace the o-ring (4.50x1.50mm) on the PISTON BOLT if you have a piston bolt with an O-Ring Groove.

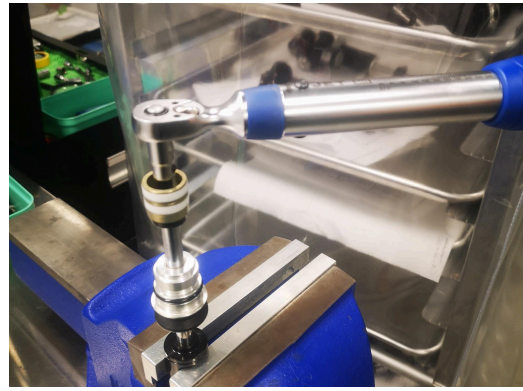
Update December 2025: If you have a piston bolt with a through hole in the center, it does **not** use an O-Ring.

Run the piston bolt through the shim and the piston. Add one drop of red Loctite 263 to the end of the PISTON BOLT thread, and reinstall into the damper shaft. Torque to 100 in.lbs (11.3Nm) using 4mm hex adaptor.



Make sure to properly brace the torque wrench with your left hand (not pictured).

Set aside shaft assembly for now



15. Clamp the outer tube in the vice with 30mm shaft clamps.

Set the torque wrench to 40Nm (354in/Lbs) and try to TIGHTEN the head. If it moves at all before reaching 40Nm, reverse direction and remove the outer tube entirely.

If the Torque Wrench clicks, the bond is still strong enough and this connection does not need to be taken apart. **PROCEED TO STEP 22**

If the outer tube is still tight but you wish to remove it, heat it with a heat gun and keep it hot for at least 2 minutes, to soften the Loctite.

Remove the outer tube from the reservoir bridge. Be mindful, the inner tube and HBO cone will still be gently retained in the reservoir bridge by an o-ring.



16. Pull the inner tube loose from the reservoir. The HBO cone will come loose as well as it is clamped between the inner tube and the reservoir bridge.



17. Remove the O-ring from the outer tube and discard it.

Clean the threads of the outer tube thoroughly to remove any Loctite residue. Do the same for the reservoir bridge

Inspect the sealing surface and make sure there is no damage. Do not use any metal tools to remove the O-Ring as you risk damaging the sealing surface.

Remove the O-Ring from the inner tube and discard it. Inspect for any damage to the inner surface of the Inner tube.

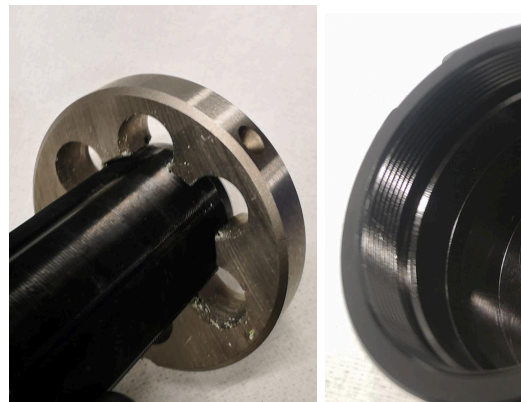


18. Ensure there is no loctite residue left on the reservoir bridge or on the outer tube. You can use Isopropyl Alcohol to remove the loctite residue and a pick or nylon brush.

The outer tube can effectively be cleaned with a M33 x 0.75 thread die.

When done the surface needs to be as clean as shown.

Set aside for now.

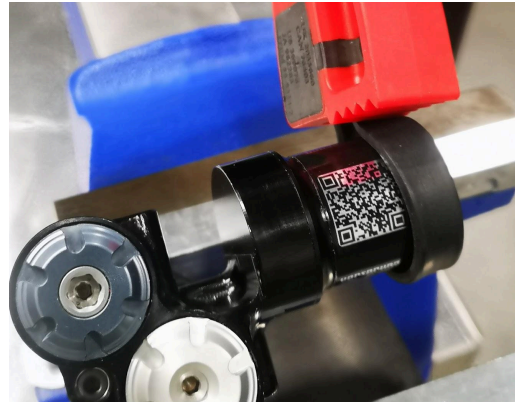


19. Clamp the Reservoir bridge in the vise. Run a strap wrench along the edge of the reservoir so as to not damage the sticker and unscrew the reservoir.

Remove the O-ring on the reservoir and discard it.

Inspect the sealing surface and re-install a new -024 O-ring.

Set aside the Reservoir.



20. With the reservoir bridge clamped in the vise, unscrew the rebound gland with the damping end cap tool.

The end cap will come with the needle attached. Do not lose the two 3/32" (2.38mm) balls and detent that are in the Rebound needle!

Remove the needle from the end cap and discard the O-Ring On the needle.

Set aside the pair of 3/32" balls and detent.

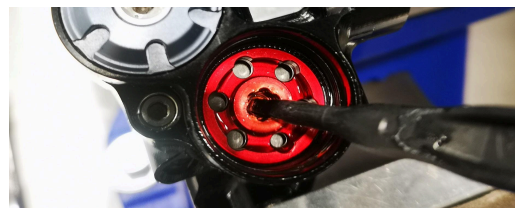
Install a new 6x1.5mm O-ring on the rebound needle.

Clean the rebound end cap, discard the O-ring and install a new (-020) O-ring



21. Remove the variable clamp. The shims will usually come with it too - if they don't, pull them out as well.

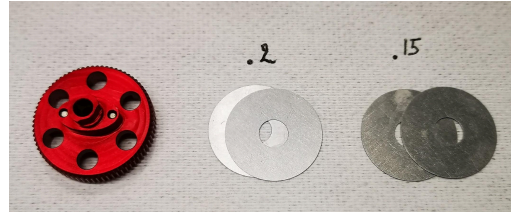
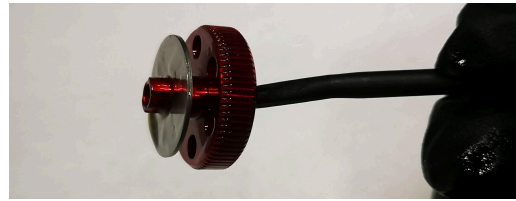
Clean them and set them aside.



You have:

2x 6x20x0.2mm shims

2x 6x20x0.15mm shims



22. With the piston tool, remove the rebound piston, Make sure there is good engagement of the tool on the piston to not damage the piston.

Remove piston circlips, shims and spring. Spray the piston & shims off with Isopropyl Alcohol and reassemble in reverse order:

- 6.0x15.0x0.2mm (Check Shim - against piston)
- Wave Spring
- 6.0x12.0x0.5mm (Retaining shim)

Ensure the circlip is properly seated! Set the piston aside for now.

Update December 2025: Rev B pistons have a longer boss and have 3x 6.0x12.0x0.5mm Shims installed!



23. Remove the compression end cap with the end cap tool. The entire compression assembly may come out at once.

Set the shims aside, and clean them.

Remove the float clamp from the variable clamp (blue).

Slide the variable clamp off the needle. Take care not to lose any 3/32 balls or detent that is in the needle.

Remove and clean the washer and wave spring.

Unscrew the needle from the compression end cap. Discard the O-ring, clean the needle and install a new 6x1.5mm O-ring on the needle



Remove the high speed adjuster from the end cap. Take care not to lose any of the 3 balls and detents. You can use the 6mm Hex to turn the high speed adjuster out.

Remove and discard both O-rings in the Compression end cap. Clean the end Cap and re-install a 10x2mm O-ring in the center and a (-020) O-ring on the OD groove

Your assembly should look like the following:



24. With the piston tool, remove the compression piston.

Clean and set aside.



25. Remove the lockout shim stack with a small pick or hex key.

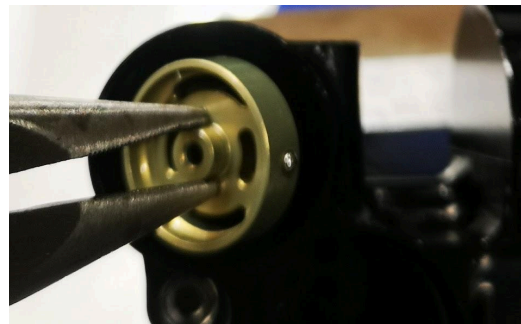
Clean shims and set aside.



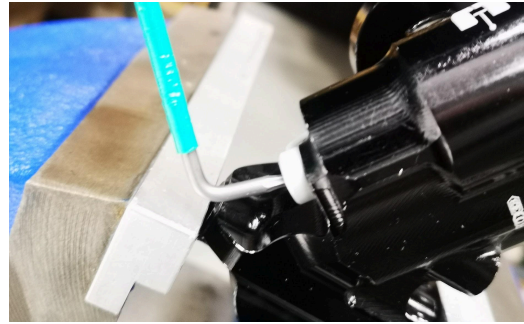
26. With pliers, DELICATELY extract the lockout piston. Be careful not to damage the boss of the piston.

The piston also has a ball on the side that indexes it in the bore. Be mindful not to lose it.

Remove the lockout shim that is under the piston and the detent underneath it. Clean and set aside.



27. Remove the lockout lever by unscrewing the M3x8 bolt.



28. DELICATELY extract the lockout arbor with pliers. Grab onto the flat surfaces of the arbor.

Discard the O-ring, clean the arbor and replace the O-ring with a new 5x1.5mm O-ring

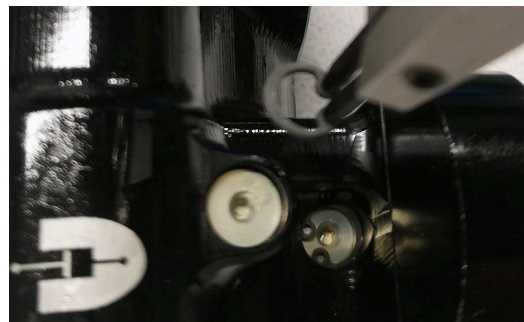
Clean and set the arbor aside.



Remove 2x 3/32" balls and 2 detents from the reservoir head (that were sitting under the arbor).
Clean and set aside.



29. Remove the reservoir from the vice and remove the worm circlips with some pliers.



Push the worms out from inside the damping bores with a plastic pick.

Discard the O-rings, clean and re-install new 3.5x1.5mm O-rings on the worms.

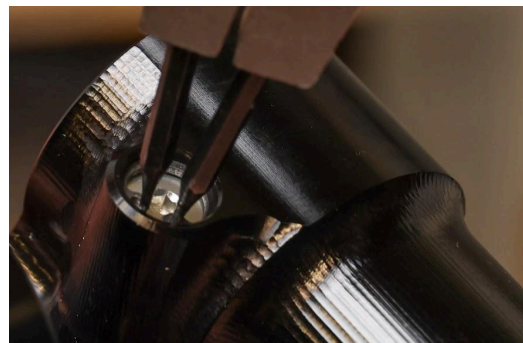
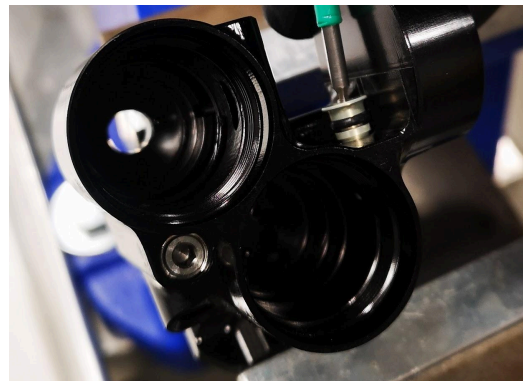


30. The reservoir head is fully disassembled now, it can be cleaned with 99% Isopropyl alcohol. Nothing else as the HBO needle is still in the reservoir, so no liquid that doesn't fully evaporate within a few seconds should be used.

Thoroughly clean it and dry it. Inspect for any internal damage.

31. Clamp the reservoir back in the vice and install the worms. Make sure to grease the O-rings so they do not catch and get damaged during the install.

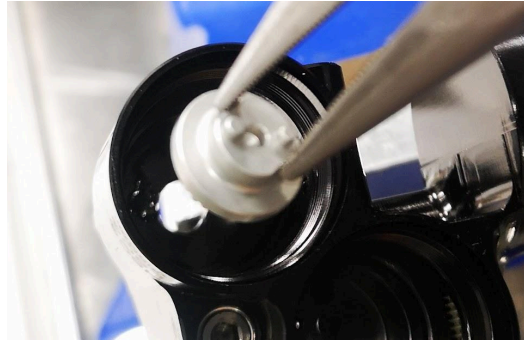
Once in place, install the circlips. Ensure circlips are seated properly in the groove!



32. Install the 2 detents and the two 3/32 balls in the compression bore. Some grease (Slickoleum or similar) can help keep these in place.



33. Lightly grease o-ring (5.0x1.50) in the lockout arbor., Using pliers to hold the lockout arbor across the flats, install through the hole at the bottom of the compression bore. Take care not to dislodge the detent springs and balls when doing so.

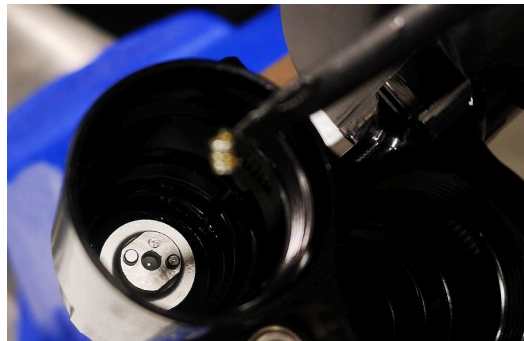


Position the lockout arbor in the orientation shown.

The flats on the arbor should be horizontal, (parallel with the worm axis). The larger of the two round tabs should be in the top LEFT HAND SIDE.



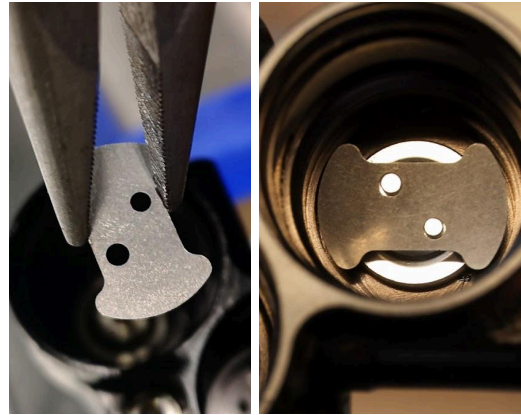
Install the detent in the center of the arbor. Some grease can help keep it in place.



34. Check flats on the arbor are horizontal again.

Install a detent spring into the hole in the end of the arbor. Using pliers, grab the lockout shim by the flats and orient it so that the flats on the shim are aligned with the flats and tabs on the arbor.

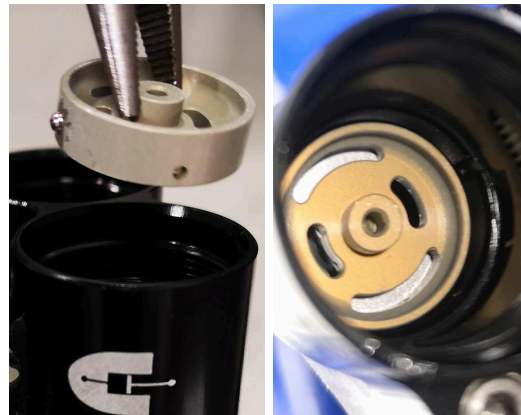
Note: there is a large and a smaller hole in the shim which corresponds with the larger and smaller tabs on the arbor.



35. Lightly grease a 3/32 ball bearing and install into the relief in the OD of the lockout piston

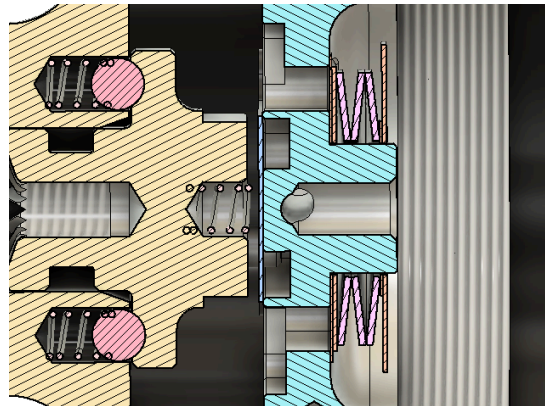
Wipe any excess grease to prevent thread Contamination.

Using pliers install the lockout piston into the reservoir bridge. Be careful not to damage port edges. Align the ball bearing with the relief groove in the reservoir bridge.



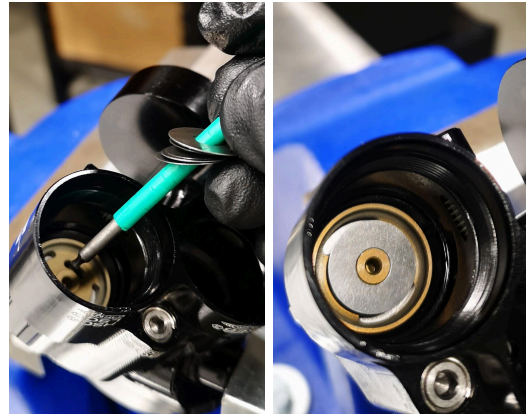
36. Prep the Lockout Shim stack in the following order (lockout arbor shown on left in picture):

- 1x 6.0x15.0x0.2mm (Check Shim/ against the piston)
- 1x 6.0x8.0x0.1mm
- 3x Belleville spring x3 Spring)
(note orientation, inverted stacking)
- 1x 6.0x13.0x0.2mm
- 1x 6.0x14.0x0.1mm (Lockout Face Shim)



37. Slide shim stack onto the lockout piston boss.
Make sure the shim stack is installed in the correct order:

15mm diameter shim should be the on top
i.e. the only visible shim once installed.



38. Apply a small amount of blue loctite 243 to the OD threads of the compression piston.

Wipe of any excess loctite before installing the piston.

Torque to 100 in.lbs (11.3Nm) using the piston tool.



39. Install the lockout lever in the orientation shown. (Perpendicular to the shaft axis)
Apply a small amount of blue loctite 243 to the Lockout lever bolt (M3x0.5mm, 8 mm Long) and use a 2mm hex key to torque hand tight.

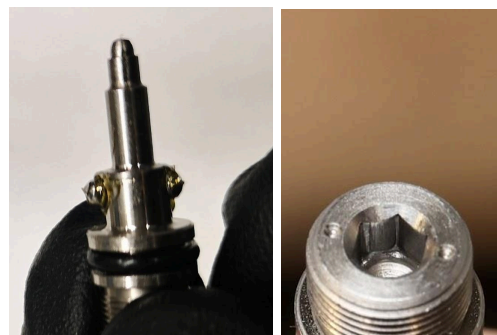
Check the functionality of the lever. E.g moves through 90 degrees, feels smooth and clicks into open and closed locations.
If it does NOT feel smooth, something is wrong.



40. Install a lightly greased o-ring (6.0x1.50) on to the lowspeed compression needle . This needle has two dots on the end.

Install a detent and two ball bearings (1 on each side) into the through hole in the compression needle.

Use a generous amount of grease to hold the ball bearings in place.



41. Insert the needle into place in the compression variable clamp.

Be mindful not to drop the balls from the needle.



42. Slide preload clamp over the variable clamp

Install the compression shim stack on the boss, they should be held securely in place by the magnets.

Shim stack = 6.0 x 20.0 x 0.1mm, qty 4



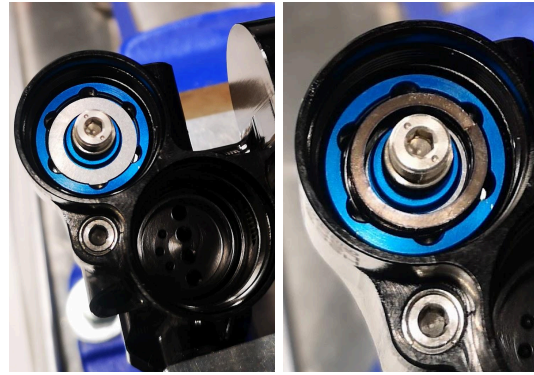
43. Slide the variable clamp assembly into place within the shock head.

Make sure to align the reliefs on the variable clamp with the dowel pins installed in the compression piston. You will also have to slide the gear teeth on the variable clamp past the worm so this may involve needing to rotate the clamp very slightly to get it to drop into place.



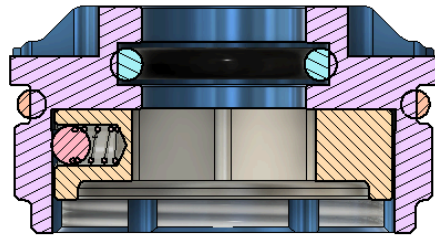
44. Place the spacer shim (12.0x18.0x0.1mm) onto the variable clamp.

Then install the wave spring on top.



45. Install three detent springs into the holes of the Preload adjuster. Install three ball bearings into the same holes with flat side facing inwards thread all the way into the compression end cap until it bottoms out.

Note: Retain all three ball bearings at the same time while installing so they don't slip out.



Push the high speed adjuster through the center of the cap and use a 6mm hex key to turn the adjuster all the way in.



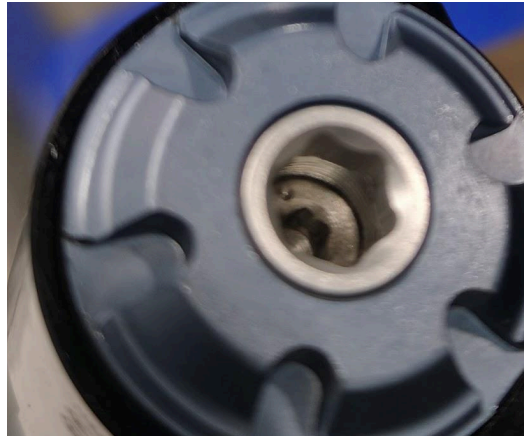
46. Install the compression end cap and use the end cap tool to hand thread into location.

When you feel resistance, that means the cap has bottomed out against the needle. **DO NOT** tighten the end cap any further at this point!

Unwind the needle all the way and then screw the end cap further down.

Clamp the shock in the vice and torque to 100 inch/lbs (*130inch/lbs when shock is pressurized*)

The compression bore is now complete.



47. Apply a small amount of blue loctite 243 to the threads of the rebound piston, Wipe off any excess loctite of the threads.

Carefully thread into the rebound bore of the Reservoir bridge with the Piston tool.

Torque to 100 in.lbs (11.3Nm) take extra care and apply downward pressure when doing so.



48. Install a detent and two ball bearings (1 on each side) into the through hole to the low speed rebound needle.

This needle has **one dot** on the end.

Use a generous amount of grease to hold the ball bearings in place.

Push the needle in the rebound variable clamp.



49. Take the rebound shim stack:

- 6.0x20.0x0.2mm qty 2 (against oval face)
- 6.0x20.0x0.15mm qty 2 (facing outward)

Install the shims, with the thicker 0.2mm shims against the elliptical clamping face, onto the boss on the variable clamp. They should be held securely in place by the magnets.

Slide the variable clamp assembly into place within the rebound bore.

Make sure to align the reliefs on the variable clamp with the dowel pins installed in the rebound piston.

You will have to slide the gear teeth on the variable clamp past the worm so this may involve needing to rotate the clamp very slightly to get it to drop into place.



50. Take the rebound end cap with O-ring already installed and carefully - using the end cap tool, thread the rebound end cap into place until you feel the end-cap contact the rebound needle.



Then using a 3mm hex key turn the Low speed rebound needle counter clockwise until it bottoms out against the end cap.

Return with the end cap tool and Torque to 100 inch/lbs (*130inch/lbs when shock is pressurized*)



51. If you have one, install the grease protection collar into the reservoir bridge and install a new (-026) O-ring in the bridge.

If you do not have this protective collar, be careful not to contaminate the threads of the bridge with grease.



52. Install the HBO cone.

Make sure to align the keying feature (flats on both parts) to ensure the flow passage on the cone aligns with the port in the reservoir bridge.



53. Install a new inner tube o-ring (-023), lightly greased, and install in the O-ring groove.

Apply a thin coat of grease on both ends of the inner tube to facilitate it moving into place when torqued.

Slide the inner tube into the reservoir bridge until it snaps into place. Note the orientation of the inner tube.

If you used a grease-protection collar inside the reservoir bridge threads, remove it now.

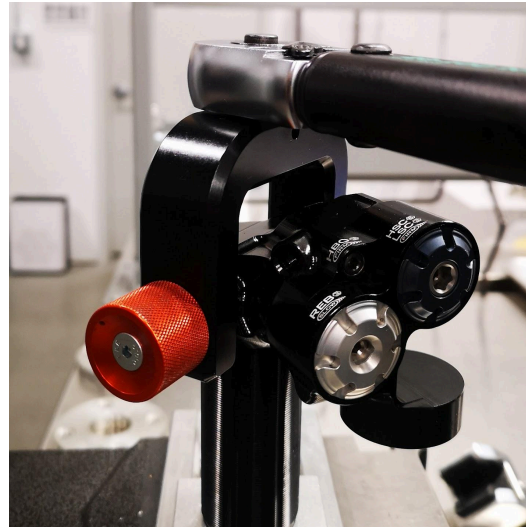
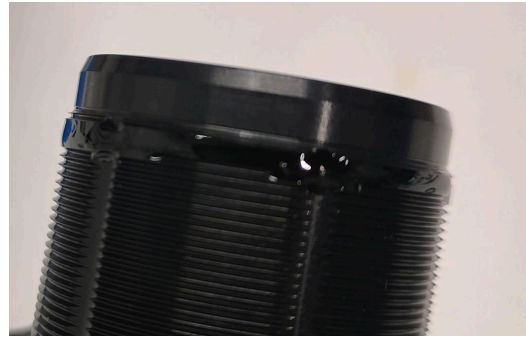


54. Apply GREEN Loctite 638 with full 360 degree coverage of the first 2-3 threads at the top of the tube (as shown) take care not to get loctite on the sealing surface above this.

DO NOT USE LOCTITE PAST DUE DATE or that has been opened more than 3 months ago.

Thread the outer tube into the reservoir bridge by hand. Then, clamp the outer tube in the vice with 30mm shaft clamps and torque the head to 50Nm (442in/lbs) within 5minutes of applying the loctite.

Loctite must be allowed to cure for 24hrs before the shock is used.



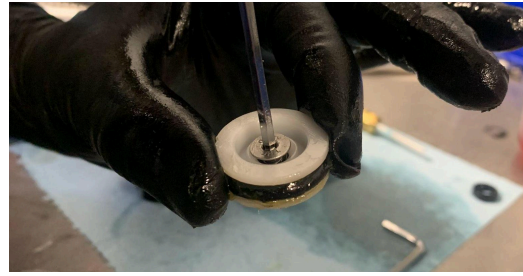
55. Clamp the reservoir bridge back into the vice and thread the reservoir back on. Use a strap wrench on the edge of the reservoir to tighten it. There is no specific torque specified here.

You can also use 30mm shaft clamps, but you will need to replace the reservoir sticker in that case.



56. Using a 3mm hex reinstall the IFP bleed port bolt and o-ring (5.00x1.50)

Grip the IFP and torque till it begins to slip in your hands.



57. Remove the o-ring from the IFP which was set aside earlier and discard it. The o-ring can be removed by fingers alone - do not use a pick.

Generously grease the replacement o-ring (-211) and install into the groove.



58. Install the IFP, with the bolt head facing outward, into the RESERVOIR HOUSING and slide approximately halfway.

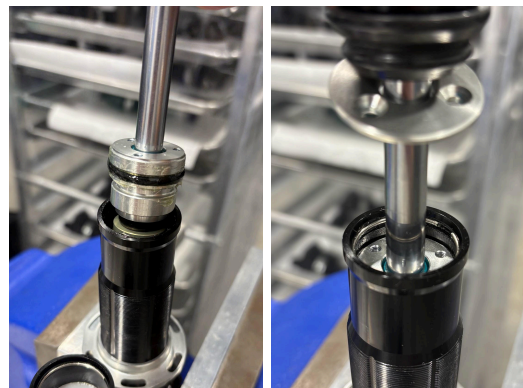
Install reservoir retaining ring to retain IFP for the bleed procedure

The shock is now ready to receive a shaft and be bled.



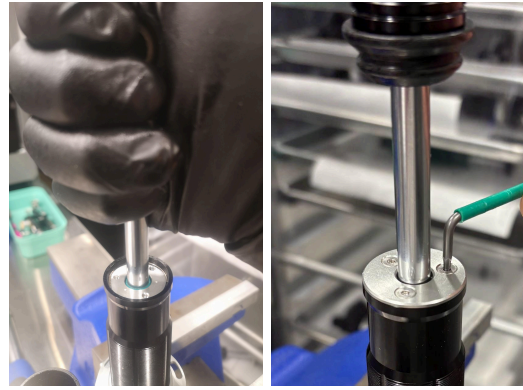
59. Clamp the RESERVOIR BRIDGE back into the vice.

Install the shaft assembly back into the outer tube and install the reservoir retaining ring back into relief.



60. Pull up on the EYELET to ensure the SEALHEAD is seated against the circlip and install the THREE bumper plate bolts with blue threadlocker using a 2mm hex key.

Work your way around the bolts multiple times to ensure they are hand tight (do not over tighten).

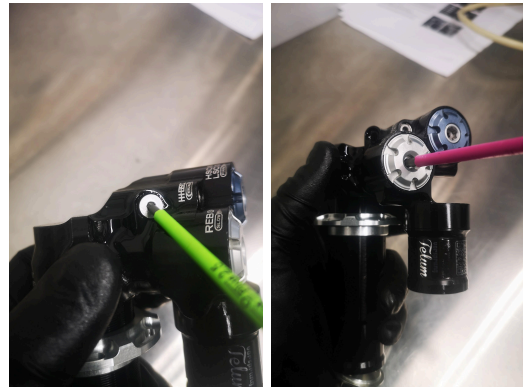


61. Using a 2.5mm hex key remove the bleed port bolt from the reservoir bridge.

Make sure all of the adjusters are set to fully open positions (LSC,HSC,REB & HBO).

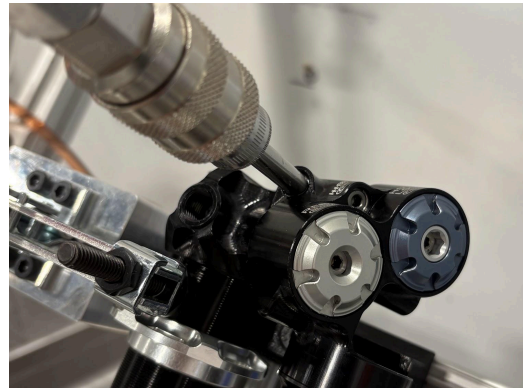
DO NOT JAM ADJUSTERS HARD AGAINST THE STOPS.

Record the settings as the number of clicks out from fully closed if not already done.



62. Attach the bleeding adaptor to the bleed port

Note: size M4x0.7mm (Same as Cane Creek, Öhlins, etc.)



63. Bleed the shock. Double check the reservoir circlip is installed before running any pressure cycles.

Run vacuum and pressure cycles multiple times and compress and extend the shaft while doing so. Ensure no air remains inside the damper.

Recommended positive pressure = 50 psi
Oil: Motorex Racing Fork Fluid, 2.5wt,
14.5cst@40C



64. Leave the shock at atmospheric pressure with the bleed line connected.

Clamp the shock in a vice and ensure the shaft is fully extended. Pull up on it to check.

Using the Vorsprung IFP depth tool, or otherwise, set the IFP depth to 28mm from the upper rim of the reservoir.

Measure to the edge of the IFP - not the recess.



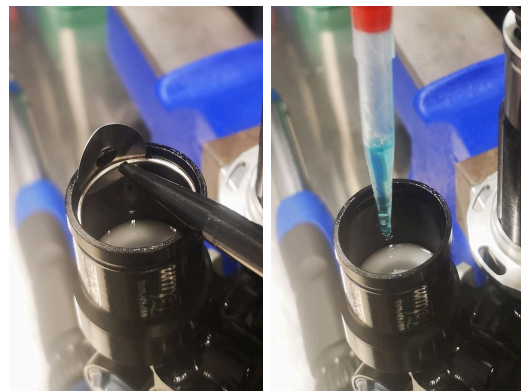
65. Remove the bleed adaptor and deposit a droplet of oil into the bleed port bolt location.

Install the bleed port bolt with o-ring and use a 2.5mm hex torque to hand tight.



66. Remove the wire retaining ring using a thin shim and pick.

Coat the inside on the RESERVOIR HOUSING with a thin layer of a thick oil eg Fox Float Fluid, Maxima 15W50, Blud Assembly Oil or equivalent.



67. Install the RESERVOIR END CAP ensure the cap is installed straight and evenly. After the end cap is seated below the retaining ring relief install the retaining ring.



68. Using a charging needle pierce the rubber seal housed inside the RESERVOIR END CAP and set the pressure to 200 psi.



69. Spray the RESERVOIR END CAP with alcohol. Check to see if there are any bubbles coming from the center hole or around the edge of the end cap..

If there are no bubbles proceed to the final step.

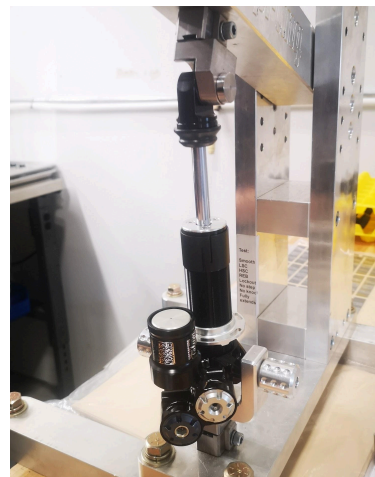
If bubbles do form remove the end cap and replace the reservoir end cap pellet (included in the seal kit) and repeat the inflation steps.



70. Thoroughly clean the exterior of the shock and test all functions on the hand dyno.

Service is now complete.

See manufacturers instructions for reinstalling shock onto frame.



Questions?

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www.vorsprungssuspension.com