



# Smashpot

## BOTTOMLESS COIL SPRING SYSTEM

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INSTALLATION MANUAL - DVO

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REVISION B



## TOOLS & SUPPLIES REQUIRED

NOTE: Do not proceed unless you have the following tools and supplies on hand.

- Torque wrench
- Torque wrench to spanner adaptor
- 12mm Spanner
- 13mm Spanner (29er PIKE only)
- 14mm Cone Wrench
- 22mm Cone Wrench
- 12mm Socket
- 28mm Chamferless Socket or 32mm Chamferless Socket (some Fox models)
- 2mm + 1.5mm Allen Keys
- Oil syringe or graduated cylinder
- Sharp knife or scissors
- Slick Honey Grease or equivalent
- 90ml of 15 - 20wt fork oil (for spring side)

\*\*Damper side oil - please refer to manufacturers specifications for a lower leg service to determine if a different oil weight/viscosity is required in the lowers of the damper side.

## ASSEMBLY

There are 3 main sections to installing the Smashpot

PART 1 - Removing the stock air spring assembly from your fork .....	Page 4
PART 2 - Configuring the Smashpot travel and spring rate .....	Page 5
PART 3 - Installing the Smashpot assembly into your fork .....	Page 15

Also included:

SMASHPOT TUNING - Adjuster Dial .....	Page 18
SERVICING YOUR LOWERS & SMASHPOT .....	Page 19
SMASHPOT TUNING - Shim Stack .....	Page 21
Changing Coil Springs .....	Page 23

## PART 1 - REMOVING THE STOCK AIR SPRING ASSEMBLY FROM YOUR FORK

- 1.1** See manufacturers service instructions for disassembling the stock air spring and removing it completely from your fork. The Vorsprung Smashpot kit will replace the entire stock air spring assembly including foot stud and top cap and this must be removed first.

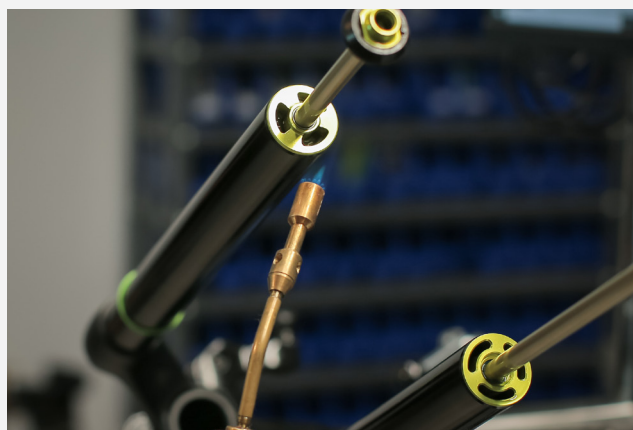
Refer to the relevant factory service instructions up until you have removed the air spring from the stanchion (STEPS 1 - 19, then 65-67 to remove air piston)

Unless your fork requires additional servicing, the damper and seals will not need to be touched to install the Smashpot.

**DVO:** <http://tech.dvosuspension.com/service-guides/onyx-sc-service-guides/>

### NOTE **STEP 18** in DVO manual:

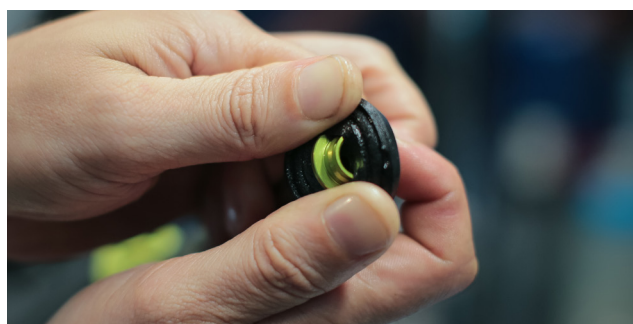
When upper assembly is removed from casting (lowers), you may need to apply heat to stanchion plug on the AIR side, in order to break loctite for easier removal.



### 1.2 (Bottom Out Bumper removal)

Remove footstud from OTT assembly. Remove bottom out bumper from OTT assembly.

Stretch bottom out bumper over DAMPER side footstud, and onto the damper side shaft (in the same way that it was originally installed on the air side shaft). Ensure correct orientation - recess of bumper should seat around the footstud.





## PART 2 - CONFIGURING YOUR SMASHPOT TO YOUR TRAVEL & SPRING RATE

### KIT CONTENTS - pre-2023 KITS



- Smashpot Coil spring & heat shrink (Legacy pre-2023 spring kits included a plastic spring perch. 2023+ kits include the Spring Isolator instead.)
- Smashpot Inner Tube Assembly
- Smashpot Outer Tube Assembly
- Smashpot Top Cap Kit

### KIT CONTENTS - 2023+ KITS

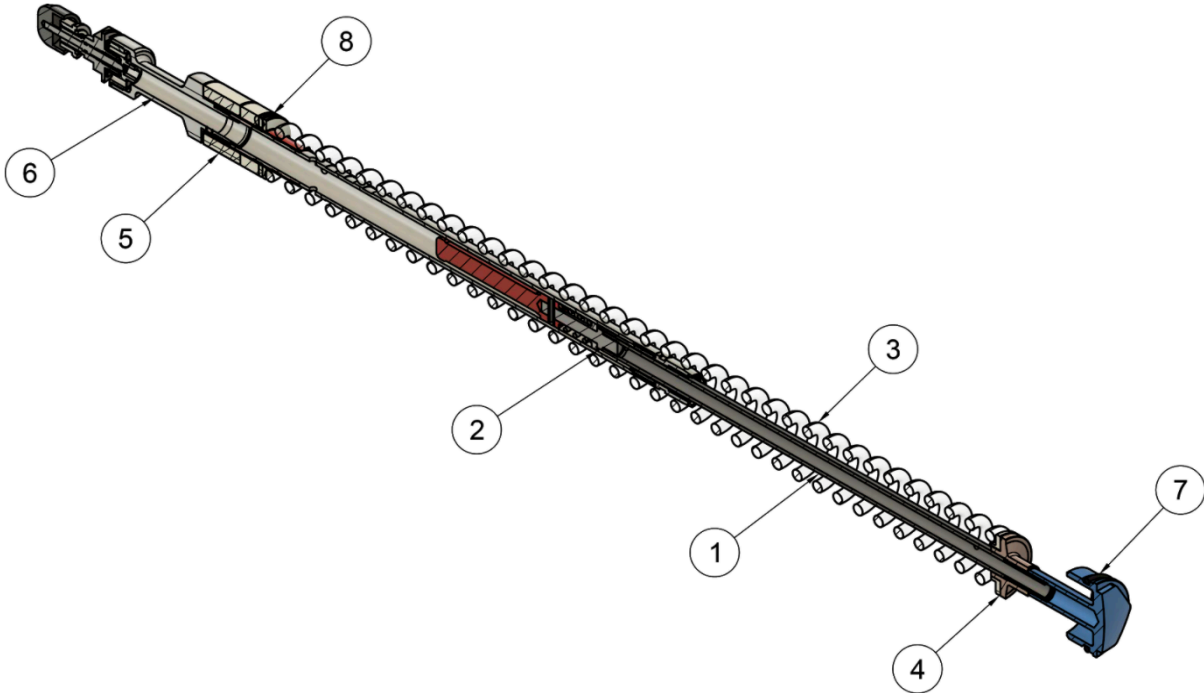


- Smashpot Coil Spring & Heat Shrink
- Smashpot Inner Tube Assembly
- Smashpot Outer Tube Assembly
- Smashpot Top Cap Kit
- Spring Isolator (universal 2023+, 2 pcs - comes with spring kit)

Unsure whether the kit you have is pre-2023 or 2023+? You can tell them apart by the black plastic spring isolators in the bottom left of the above picture - these only come in the 2023+ kits.

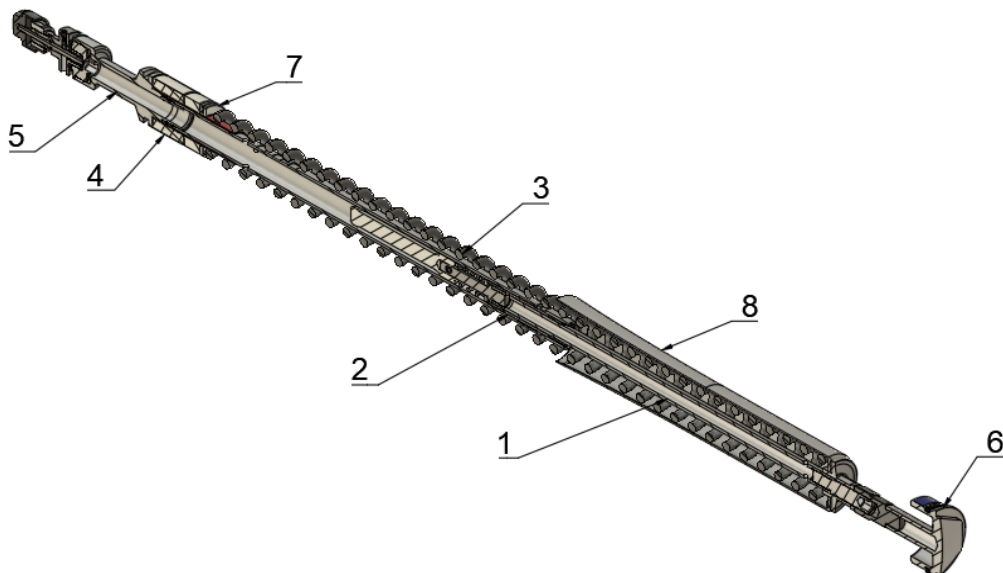
## PARTS LIST & SECTION VIEW - pre-2023 KITS

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	13-07-2-A01	SMASHPOT - INNER TUBE ASSEMBLY
2	AS REQ'D	1-07-2-07	SMASHPOT - SPACER = TOP OUT SPRING (10mm) SEE CHART FOR STACK HEIGHT
3	1	13-07-5-xx	SMASHPOT - COIL SPRING (TO SUIT YOUR WEIGHT/RIDING)
4	1	13-07-3-1x	SMASHPOT - SPRING PERCH (TO SUIT YOUR SPRING SIZE)
5	AS REQ'D	13-07-3-05/06	SMASHPOT - SPACER MAIN SPRING (20mm AND 10mm) SEE CHART FOR STACK HEIGHT
6	1	13-07-3-Axx	SMASHPOT - OUTER TUBE COMPLETE ASSEMBLY (TO SUIT YOUR FORK MODEL)
7	1	13-07-1-Axx	SMASHPOT - TOP CAP (TO SUIT YOUR FORK MODEL)
8	IF REQ'D	13-07-3-08	SMASHPOT - SPACER - MAIN SPRING 2mm - USED FOR PRELOAD IF REQ'D



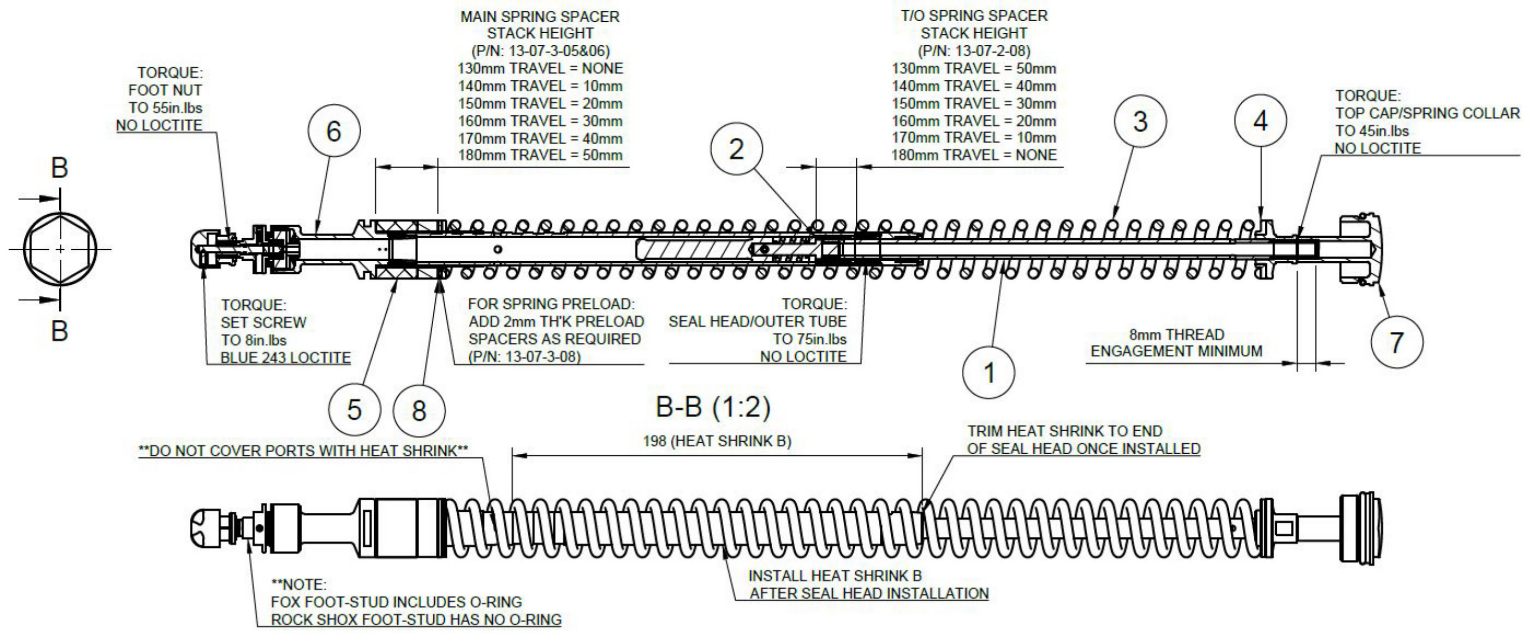
## PARTS LIST & SECTION VIEW - 2023+ KITS

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	13-07-2-A01	SMASHPOT - INNER TUBE ASSEMBLY
2	AS REQ'D	1-07-2-0-7	SMASHPOT - SPACER (TOP OUT SPRING (10mm) SEE CHART FOR STACK HEIGHT)
3	1	13-07-7-XX	SMASHPOT - COIL SPRING (TO SUIT WEIGHT/RIDING)
4	AS REQ'D	13-07-3-05/06	SMASHPOT - SPACER MAIN SPRING (10mm & 20mm) SEE CHART FOR STACK HEIGHT)
5	1	13-07-3-AXX	SMASHPOT - OUTER TUBE COMPLETE ASSEMBLY (TO SUIT YOU FORK MODEL)
6	1	13-07-1-AXX	SMASHPOT - TOP CAP (TO SUIT YOUR FORK MODEL)
7	IF REQ'D	13-07-3-08	SMASHPOT - SPACER MAIN SPRING (2mm) USED FOR PRELOAD IF REQ'D
8	2	13-07-7-00	SMASHPOT - SPRING ISOLATOR

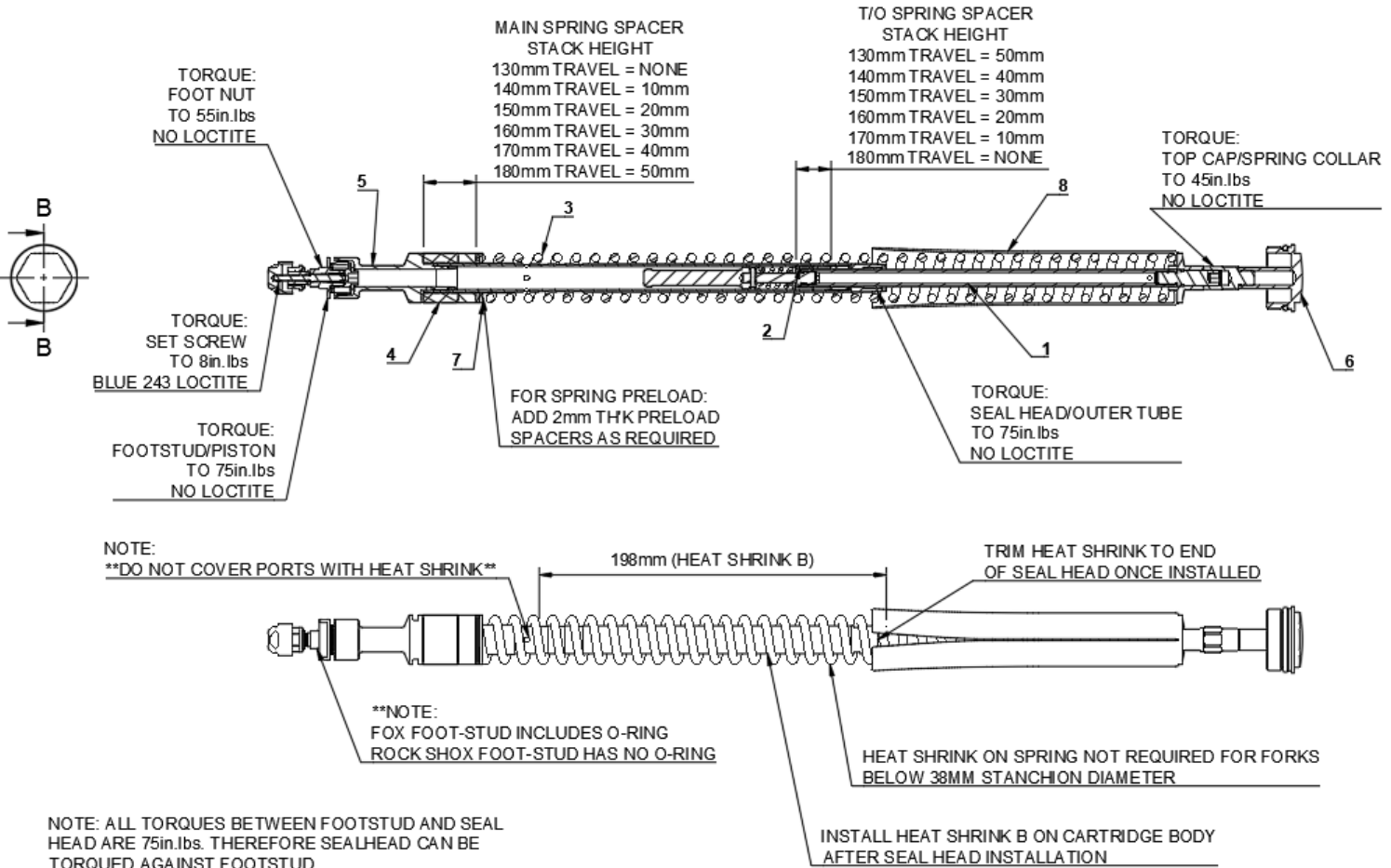


# DRAWING 2: TRAVEL SPACER, TORQUE SETTINGS & HEAT SHRINK DETAILS

## pre-2023 KITS:



## 2023+ KITS:



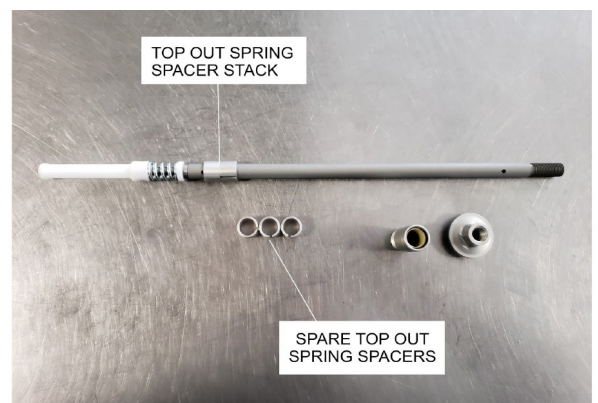
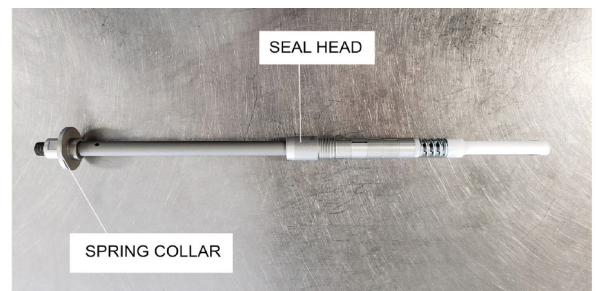
NOTE: ALL TORQUES BETWEEN FOOTSTUD AND SEAL HEAD ARE 75in.lbs. THEREFORE SEALHEAD CAN BE TORQUED AGAINST FOOTSTUD.

Your kit will consist of a number of items as per the above parts list. Depending on the travel of your fork you will have to configure the top out and main spring spacers accordingly.

**In some cases the travel of your fork may be increased, however, it is your responsibility to check with the fork manufacturer to ensure this is permissible.** Bushing overlap and damper length may restrict this and improperly installed products can fail, causing the rider to lose control resulting in **SERIOUS INJURY OR DEATH**. Check the maximum allowable travel of your fork with the fork manufacturer prior to increasing travel above your factory-set travel.

**2.1** Remove SPRING COLLAR from the INNER TUBE ASSEMBLY in order to remove the SEAL HEAD and access the TOP OUT SPRING SPACERS.

Part Number: 13-07-2-08

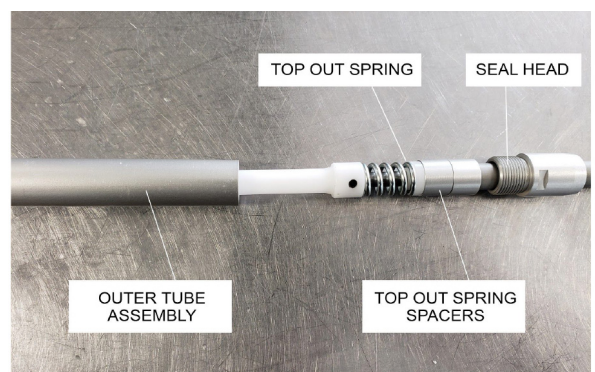




**2.2** Install a stack height of TOP OUT SPRING SPACERS as required to suit your fork travel. TOP OUT SPRING SPACERS must sit on the INNER TUBE between TOP OUT SPRING ASSEMBLY and SEALHEAD. See Drawing 2 and table below for details. For example: a 160mm travel fork requires 20mm of TOP OUT SPRING SPACERS so install 2 x 10mm spacers.

TOP OUT SPRING SPACERS	
Fork Travel (mm)	Spacer Stack Height (mm)
130	50
140	40
150	30
160	20
170	10
180	NONE

**2.3** Re-install the SEAL HEAD onto the INNER TUBE ASSEMBLY and insert the INNER TUBE ASSEMBLY into the OUTER TUBE ASSEMBLY.

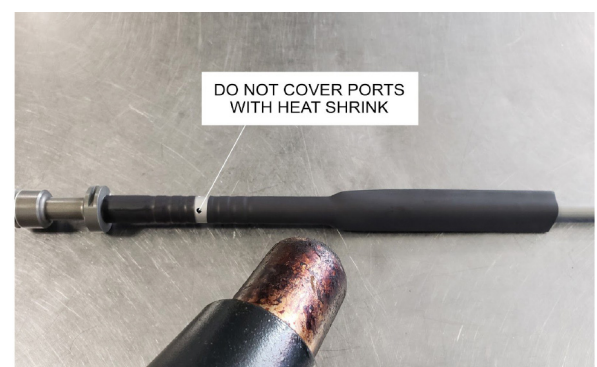


**2.4** Using a 14mm cone wrench on the SEAL HEAD and a 22mm cone wrench on the BOTTOM OUT CUP - use a Torque wrench to torque SEAL HEAD to 75in.lbs without loctite.

NOTE: If you do not have a 22mm cone wrench, you may tighten the SEAL HEAD against the wrench flats on the FOOT STUD. The torque will be transmitted through the whole assembly.



**2.5** Position and install the included length of HEAT SHRINK just shy of the ports and extending over the end of the SEAL HEAD using a heat gun. **\*\*Make sure you do not cover the ports with Heat Shrink**



**2.6** Push INNER TUBE into the OUTER TUBE assembly as far as possible. Using a sharp knife or scissors, trim back the Heat Shrink to be in line with the end of the Seal Head. (Try not to score the shaft with the knife but note that scratches are not critical - it is not a sealing surface.)



**2.7** Install a stack height of MAIN SPRING SPACERS on the outer tube as required to suit your fork travel. See Drawing 2 above and following table for details. For example: a 160mm travel fork requires 30mm of MAIN SPRING SPACERS so install 1 x 20mm spacer + 1 x 10mm spacer.



MAIN SPRING SPACERS	
Fork Travel (mm)	Spacer Stack Height (mm)
130	NONE
140	10
150	20
160	30
170	40
180	50

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## 2.8 PRE-2023 SMASHPOT KITS:

Place the acetal SPRING PERCH included in the spring bag, into the end of the COIL SPRING. It may fit one end of the spring better than the other. The better fitting end will be the top of the spring as oriented in the fork.



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## 2023+ SMASHPOT KITS:

2023+ complete Smashpot kits include a new type of 2-piece SPRING ISOLATOR that sits between the top of the COIL SPRING and the INNER TUBE. This SPRING ISOLATOR is used in all forks. It replaces the SPRING PERCH. In forks smaller than 38mm stanchions, it also replaces the HEAT SHRINK on the SPRING. The SPRING ISOLATOR can be ordered separately to update pre-2023 Smashpot kits if required.

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## HEAT SHRINK:

Heat shrink should be installed on the spring in the following cases:

- Pre-2023 Smashpot kits in Onyx SC

Heat Shrink installation is optional in the following cases:

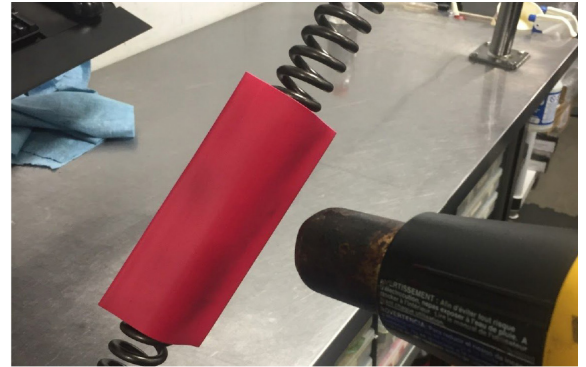
- 2023+ Smashpot kits in Onyx SC

## 2.9 IF INSTALLING HEAT SHRINK:

Slide the Heat Shrink provided on to the COIL SPRING, approximately 90-100mm from the top end of the spring.



**2.10** Use a heat gun to heat the Heat Shrink until it fits snugly over the COIL SPRING. Once shrunk, trim any excess from the ends of the Heat Shrink that protrudes inside the inner diameter of the COIL SPRING. When complete, check that the spring slides smoothly over the cartridge OUTER TUBE.

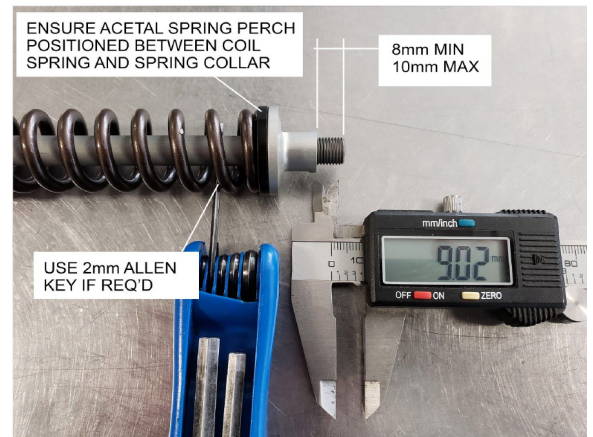


**2.11** Install on to the assembly, in order:

1. COIL SPRING
2. SPRING PERCH (pre-2023 kits, shown top right) or SPRING ISOLATOR (2023+ kits, below right)
3. SPRING COLLAR.

Ensure the SPRING PERCH or SPRING ISOLATOR is positioned between the COIL SPRING and the SPRING COLLAR. Correct preload needs to be set such that the SPRING COLLAR is tightened 1-4mm beyond the point at which the COIL SPRING is first contacted by the SPRING PERCH or SPRING ISOLATOR so that the COIL SPRING has no play

If using a SPRING ISOLATOR, it clips between the SPRING and the SPRING COLLAR in two pieces, instead of the SPRING PERCH. Adjust preload with the SPRING ISOLATOR installed.





Preload needs to be adjusted using the included spacers so that the spring is properly secured when approximately 9mm of INNER TUBE thread is exposed (min 8mm, max 10mm). Too little preload may result in the spring moving around and causing noise - too much may result in topout noise. If you are experiencing substantial topout noise even with minimum preload, please contact us - [support@vorsprungssuspension.com](mailto:support@vorsprungssuspension.com)

Insert a 2mm allen key through the hole in the INNER TUBE to prevent it from rotating if required.

- 2.12** Check that the COIL SPRING is adequately pre-loaded so that it is not able to rattle around. One or two of the 2mm SPRING SPACERS (part number: 13-07-3-08) may be required for appropriate preload. Position the longest spacers closest to the COIL SPRING and the shortest spacers furthest away as this help stabilise the spring assembly during use.



**\*\*NOTE:** Getting preload right is necessary for proper operation of the fork. Too much or too little can cause substantial noise.

## ADDITIONAL STEPS (2.13 & 2.14)

### FOR:

#### RXF38 m.2

- 2.13** RXF38 m.2 kits include a 20 mm long TOPCAP ADAPTOR. This must be installed between the TOPCAP and the INNER TUBE



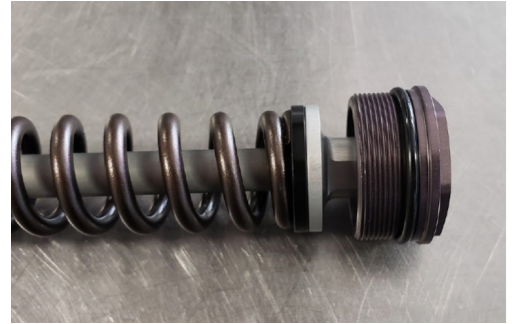
- 2.14** Thread the TOPCAP ADAPTOR into the TOPCAP. Use a Torque wrench, chamferless socket and 13mm Spanner to torque to **45in.lbs** without loctite.



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**2.15** Thread the TOPCAP onto the INNER SHAFT ASSEMBLY.

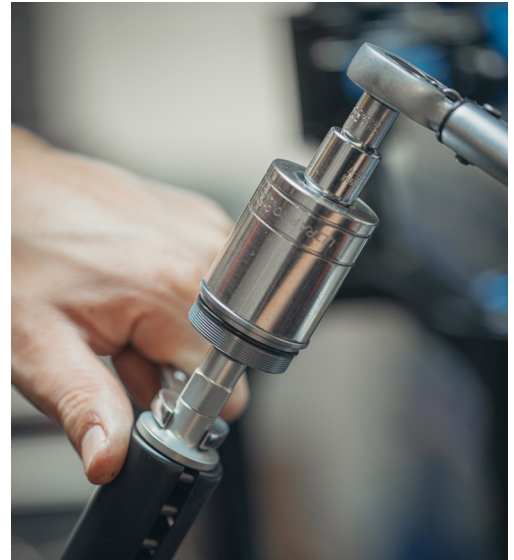
Note: SPRING ISOLATOR not pictured.



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**2.16** Use a Torque wrench + chamferless socket on the TOPCAP and a 12mm Spanner on the SPRING COLLAR to torque to **45in.lbs** without loctite.  
**DO NOT EXCEED TORQUE SPECIFICATION.**

\*\*It is important that the SPRING COLLAR be tightened against the TOPCAP. Do not simply tighten the TOPCAP onto the INNER SHAFT until the threads bottom out. This will damage the assembly.



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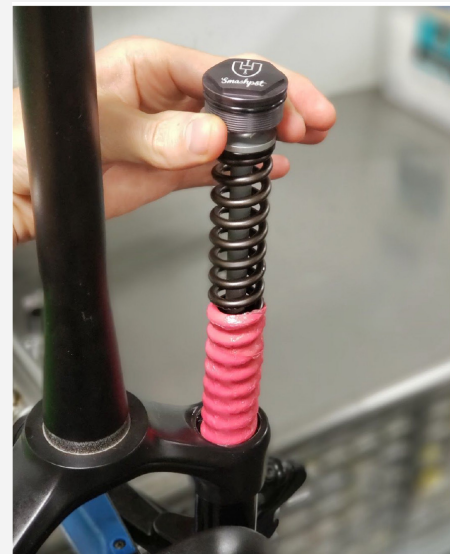
**The complete Smashpot assembly is now ready to be inserted into your fork and should look like the picture below for pre-2023 kits. (SPRING ISOLATOR not pictured for 2023+ kits)**



## PART 3 - INSTALLING THE SMASHPOT ASSEMBLY INTO YOUR FORK

### PRE-2023 SMASHPOT KIT IN ONYX SC:

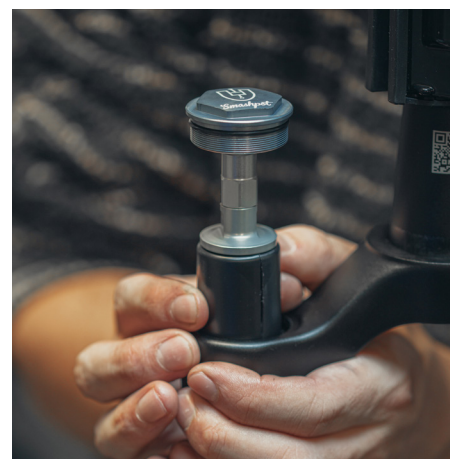
- 3.1A** Apply a generous amount of Slick Honey grease to the COIL SPRING especially the portion covered in Heat Shrink. Insert assembly into the fork as shown. Be careful as the needle adjuster is a small diameter and could be damaged if the assembly is dropped into the fork lower.



### 2023+ SMASHPOT KIT IN ALL FORKS:

- 3.1B** Apply a generous amount of Slick Honey grease to the COIL SPRING especially the portion covered in Heat Shrink (if the spring has HEAT SHRINK installed).

Insert assembly into the fork as shown, squeezing the bottom of the SPRING ISOLATOR together to fit it through the top of the stanchion. Be careful as the needle adjuster is a small diameter and could be damaged if the assembly is dropped into the fork lower.





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- 3.2** Use a Torque wrench and chamferless socket to torque the TOPCAP (without loctite) to 280in.lbs (32Nm).



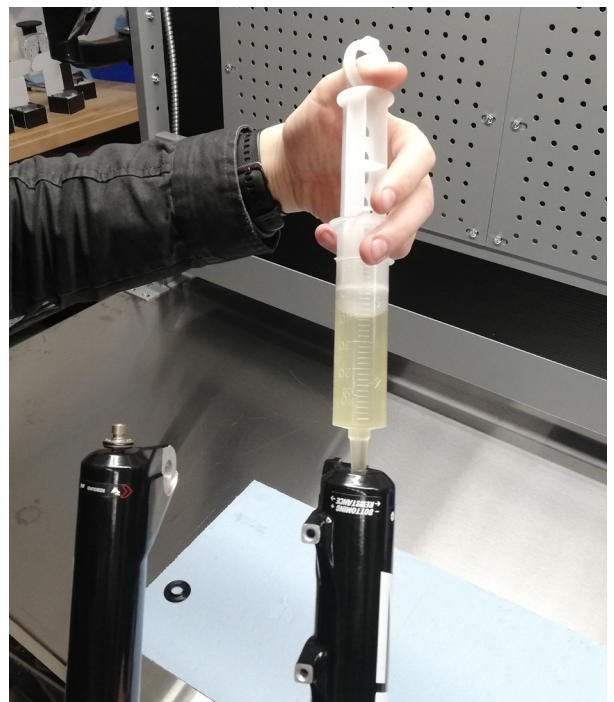
- 
- 3.3** Using a syringe or graduated cylinder add oil to the lower leg.

**Volume:** 90ml

**Oil Specification:** 15-20wt bath oil  
(eg Fox 20wt Gold, Rockshox OW30, WPL ShockBoost 20wt, Motorex Supergliss 100K, Ohlins Renep CGLP 68))

Note:

As oil thickens when temperatures get cold, we recommend using a thinner oil in colder climates. Below 5C, use a 3-5wt oil such as Fox 5wt PTFE, WPL ShockBoost 5wt, Motorex Supergliss 32K. Rockshox OW30 has better cold-weather performance than most other OEM bath oils - Fox 20wt Gold becomes extremely thick below 5C.



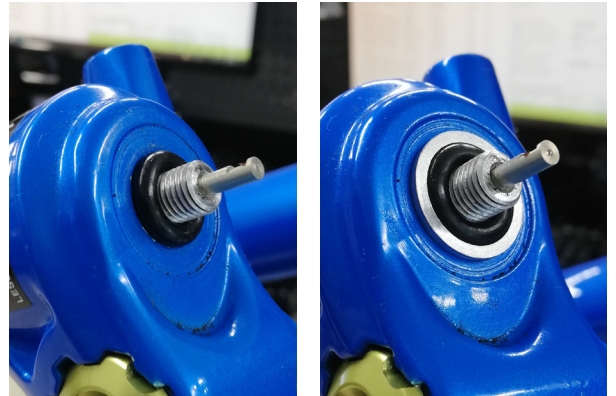
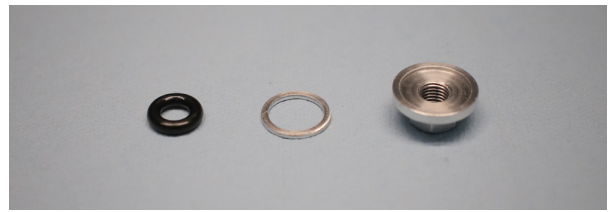
Riding in low temperatures (below 5C) and not sure what oil to pick? Read more here:

<https://wplbike.com/pages/suspension-oil-specs>

<https://www.shockcraft.co.nz/technical-support/suspension-oils/fork-bath-oils>

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**3.4** Install 203 O-ring, WASHER and FOOTNUT onto the FOOTSTUD.



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**3.5** Use a Torque wrench and 12mm socket to torque the FOOTNUT to **55in.lbs** without loctite.



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**3.6** Apply a fresh drop of blue 243 loctite to the set screw and torque to 8in.lbs using a 1.5mm Allen key. Ensure the set screw is aligned so that it contacts the flat portion of the adjuster shaft.



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**Installation is complete.  
Now go ride your bike!**

## SMASHPOT TUNING - ADJUSTER DIAL

The Smashpot utilises a hydraulic damping system that engages during the last third of the fork travel in order to prevent harsh bottom out of the suspension. The amount of damping force can be adjusted by modifying the adjuster dial position or by modifying the shim stack.

Given you are running the correct spring rate for your weight and riding style, the adjustment range provided by using the adjuster dial should be adequate for the majority of riders.

### 1. Adjuster Dial

To increase (+) bottom out stroke compression damping (firmer), turn the Smashpot adjuster dial clockwise.

To decrease (-) bottom out stroke compression damping (softer), turn the Smashpot adjuster dial counter-clockwise.



## SERVICING YOUR FORK LOWERS & SMASHPOT

### 1 DAMPER SIDE:

Refer to the Factory service instructions for removal of the Rebound Adjuster Knob, Bottom Nut & Crush Washer.

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### 2 SPRING SIDE:

Undo the set screw in the Adjuster Knob with a 1.5mm Allen key.



#### 2.1 Use a 12mm socket to remove the FOOTNUT and CRUSH WASHER.



#### 2.2 Use a chamferless socket to undo the TOPCAP.



### 3 Re-install the FOOTNUT onto the FOOTSTUD & unwind approximately 4 turns.

Place a 12mm socket over the FOOTNUT. Strike the socket to dislodge the unit from the lower leg. The bolt head should contact the bottom of the lower leg.

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### 4 Also dislodge the DAMPER SIDE as per Factory service instructions.

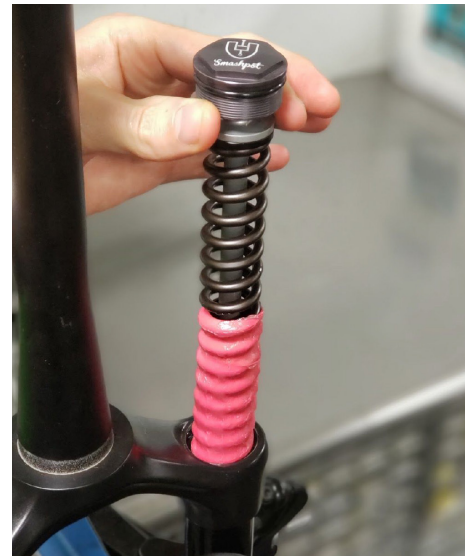
**Proceed with service as per Factory service instructions.**



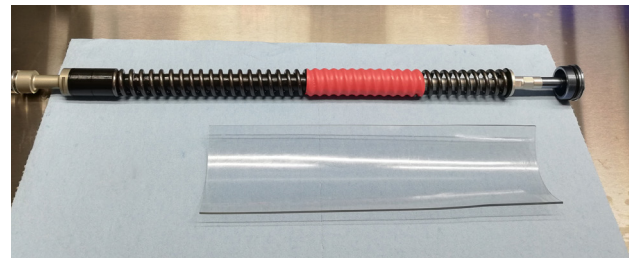
# SERVICING THE SMASHPOT

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- 1 Remove Smashpot assembly from your fork.



- 2.1 ROCKSHOX ZEB & FOX 38 FORKS using the pre-2023 Smashpot kit will have PVC Sleeve inside of the stanchion, this will also need to be removed for cleaning. The PVC liner along with the SPRING PERCH can be replaced by a 2023+ SPRING ISOLATOR (purchased separately)



- 2.2 The Smashpot requires minimal servicing.

Check the placement of the heat shrink as it can move.

Check preload is correct.

Inspect and thoroughly clean the unit, re-grease and re-install as per PART 3 of this Installation Manual.



## SMASHPOT TUNING - SHIM STACK

If you cannot obtain the desired level of bottom out resistance by modifying the position of the adjuster dial, there is also a speed sensitive shim stack that can be reconfigured to increase or decrease the damping force.

If you have wound the adjuster dial all the way out (anti-clockwise) and find there is still too much bottom out resistance. Or if you have wound the adjuster dial all the way in (clockwise) and find there is still not enough bottom out resistance - follow the below procedure:

### SHIM STACK MODIFICATION

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1. Remove Smashpot assembly from your fork by working backwards through the installation instructions.
2. Use a 22mm Cone Wrench on the BOTTOM OUT CONE and a 12mm Spanner on the FOOTSTUD to remove the FOOTSTUD and shim stack assembly from the rest of the OUTER TUBE ASSEMBLY.
3. Once removed, shims can be repositioned to increase or decrease the bottom out resistance. See Drawing 3 below.

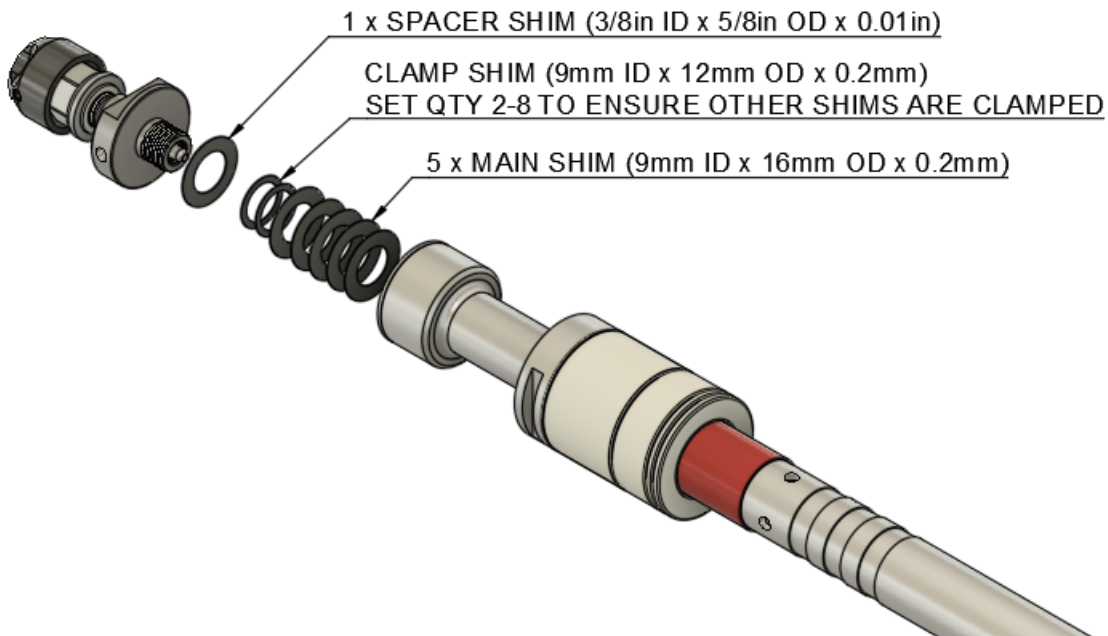
To decrease bottom out resistance - reposition one of the MAIN SHIMS to be located in between the SPACER SHIM and the CLAMP SHIM.

To increase bottom out resistance - add an additional MAIN SHIM to the existing stack of 5 MAIN SHIMS. 9mm ID x 16mm OD x 0.2mm thick



4. Reinstall the FOOTSTUD and modified shim stack into the OUTER TUBE ASSEMBLY.

Using a 12mm spanner on the FOOTSTUD and a 22mm Cone Wrench on the BOTTOM OUT CONE Torque to 75in.lbs without loctite.



**DRAWING 3: Stock shim stack configuration**

## CHANGING COIL SPRINGS

The correct spring for your weight and riding style should have been selected at the time of purchase. If you are running too much or too little sag and need to remove and replace the spring, this can be done by following the below procedure. Note: having a new, clean gear shift cable on hand will make this a much easier process.

### REMOVING & REPLACING COIL SPRING

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1. Remove TOPCAP using 28mm (or 32mm for Fox) chamferless socket.



2. Use a chamferless socket on the TOPCAP and a 12mm Spanner on the SPRING COLLAR to remove the TOPCAP



3. Remove SPRING COLLAR, SPRING PERCH/ SPRING ISOLATOR and COIL SPRING. The INNER TUBE will fall down inside the stanchion. Compress the fork fully and you should be able to grab the INNER TUBE and pull it out of the stanchion.



4. Thread a gear shift cable through the hole in the top of the INNER TUBE and through the new COIL SPRING. The COIL SPRING should be orientated with the HEAT SHRINK closest to the top.





5. Use the shifter cable to pull the INNER TUBE up through the COIL SPRING until the threads of the INNER TUBE are exposed above the COIL SPRING.



6. Install the SPRING PERCH or SPRING ISOLATOR and SPRING COLLAR onto the INNER TUBE and tighten down until 8-10mm of threads are exposed.



7. Thread the TOPCAP onto the INNER SHAFT ASSEMBLY
8. Use a Torque wrench + chamferless socket on the TOPCAP and a 12mm Spanner on the SPRING COLLAR to torque to **45in.lbs** without loctite. **DO NOT EXCEED TORQUE SPECIFICATION.**

**\*\*It is important that the SPRING COLLAR be tightened against the TOPCAP. Do not simply tighten the TOPCAP onto the INNER SHAFT until the threads bottom out. This will damage the assembly.**



## Questions?

[support@vorsprungssuspension.com](mailto:support@vorsprungssuspension.com)

[www.vorsprungssuspension.com](http://www.vorsprungssuspension.com)