

**Product**

Exploded View

Disassembly & Assembling



Shock absorber

# 3612 / 4681 BAVP

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## Introduction

### General notice

Pay attention to the following notes, when you are working with WP Suspension products as described in this workshop manual.

Always use clean and professional tools.  
Regular you need next to the general equipment, the special tools of WP Suspension.  
These tools with an unique "T" number (available by WP Suspension) protect you from damaging the parts.

Always use aluminium protector-plates, when clamping our products or parts in the vice.

Replace always damaged or worn parts.

Clean all parts before assembling.

#### Caution:

Many times it is necessary to assemble parts with T131, T132 and T163.  
These parts must to dry for at least four hours!!



## Adjustment



Measure the length (preload) of the spring.



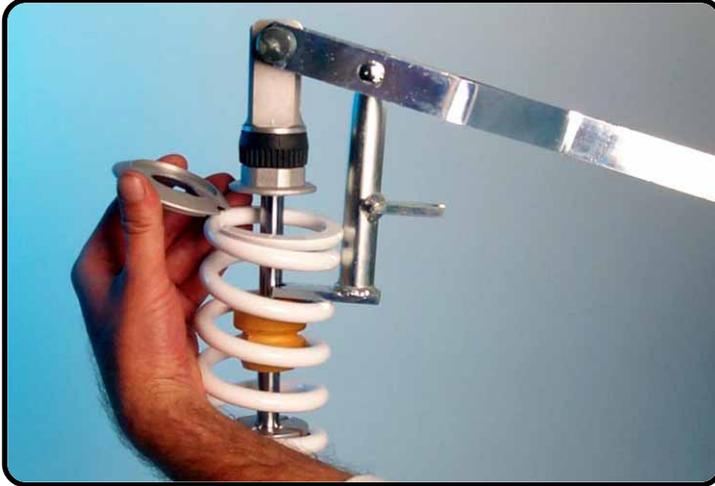
Take note of position compression.



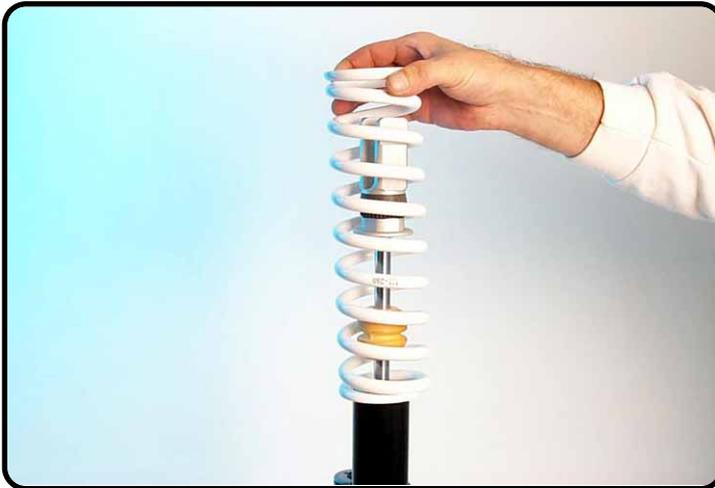
Take note of position rebound.

## Disassembly shock absorber

Disassemble the spring with T101S and remove the open spring retainer.



Remove the spring.

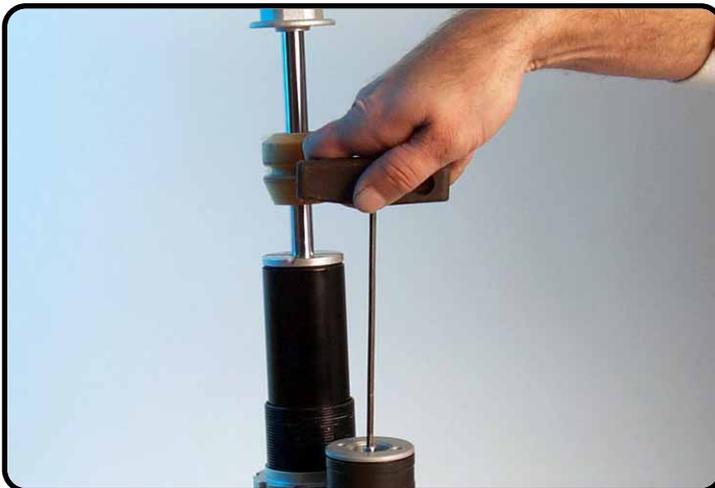


Adjust the rebound to position 1.





Remove the rubber cap.



Unscrew slowly the nitrogen plug and release the pressure.



Unscrew the screw-cap with T125S.



Lift the O-ring out of the tube.

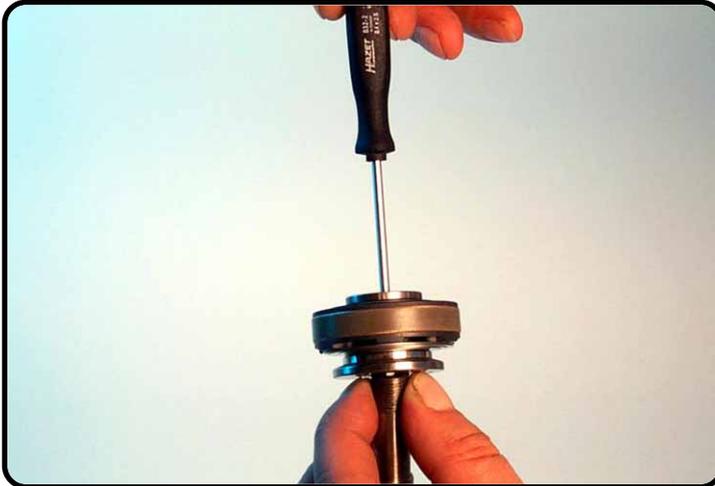


Pull piston-rod "complete" out of the tube.

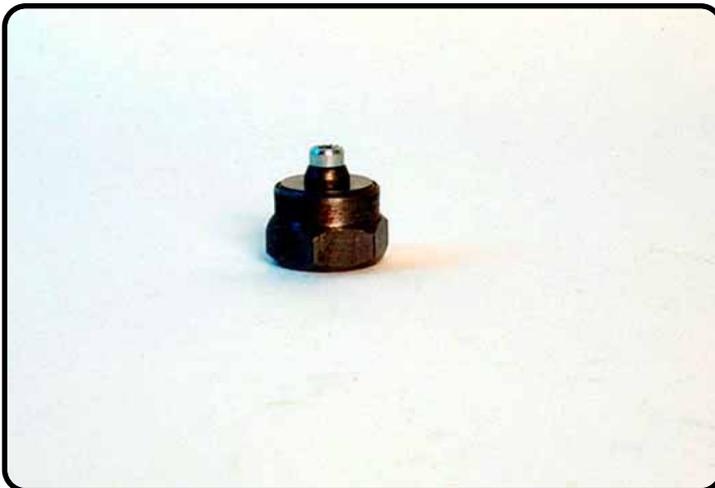


### Disassembly piston-rod

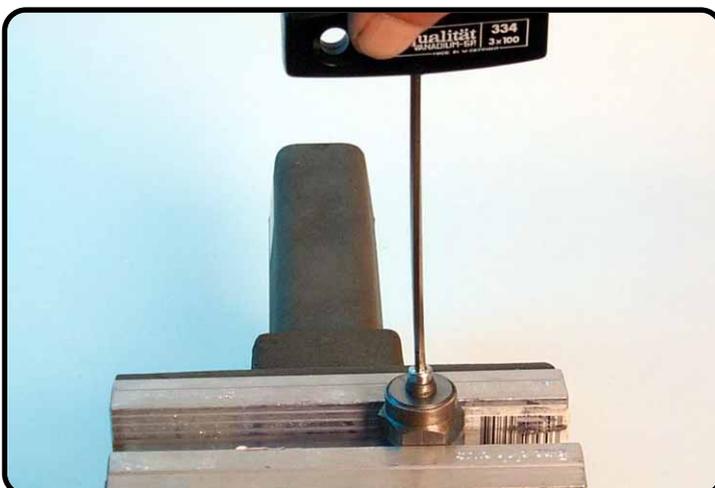
Unscrew piston-rod nut.  
(size 22)



Place a screwdriver on top of the piston-rod and remove the entire assembly.



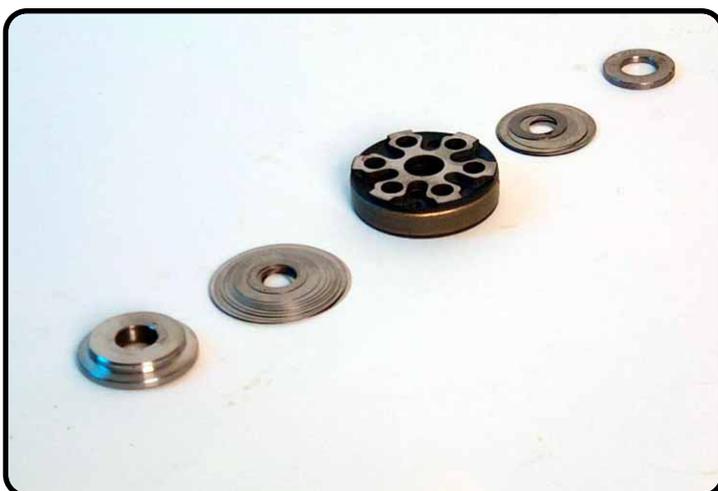
The piston-rod nut BA. (Bleed Adjuster)



Disassemble the piston-rod nut.



- piston-rod nut
- shims
- bush
- bleed bolt (Allen screw)



- rebound bush plane
- compression shims
- piston
- rebound shims
- washer



Remove (should this be the case) the spacers.  
Pay attention to the assembling direction!!!



Remove adaptor DU-bush.



Remove the circlip and O-ring.



Remove the dirt scraper and screw-cap.



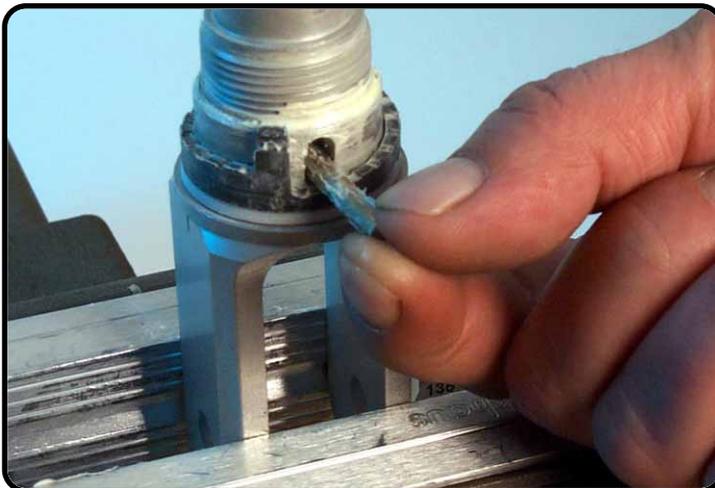
Remove the bump rubber.



Remove the steel washer and springing.



Take off the adjusting knob.



Remove the pin. (D4)



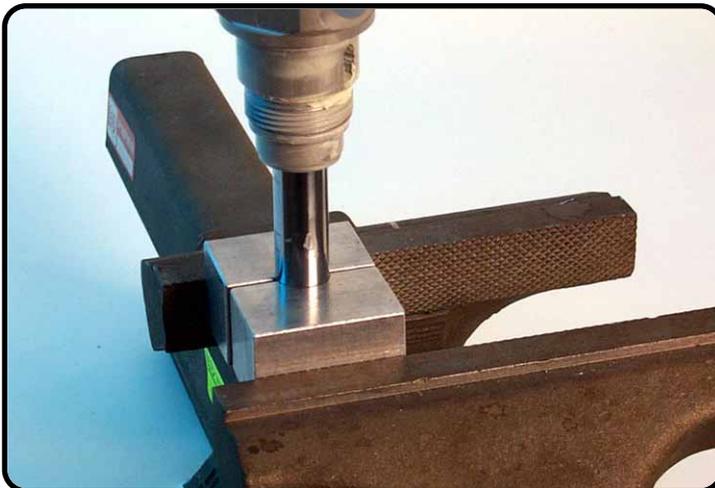
Remove the position ring.

02/2002

Shock absorber 3612/4681BAVP



Remove the seal.



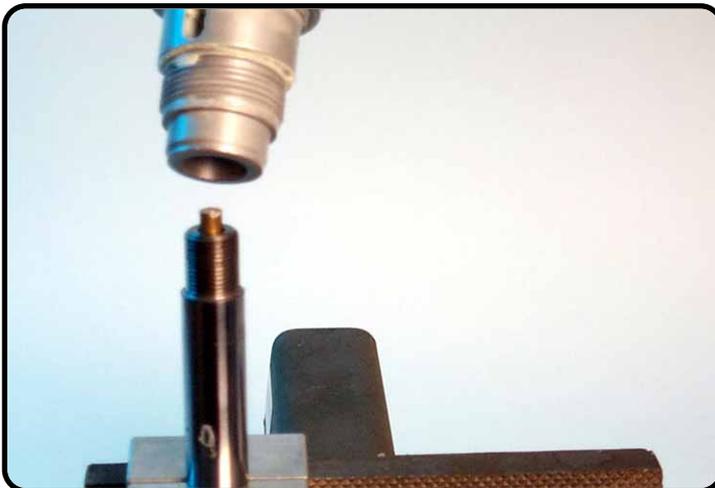
Clamp the piston-rod in the vice with T104S.



Heat the mounting fork / eye.



Unscrew the mounting fork / eye.



Remove mounting fork / eye.



Unscrew the seat with an Allenkey.  
(size 3)



Remove the seat.



Remove the adjusting needle BA.



**Disassembly adaptor  
DU-bush**

Prise the rebound rubber out the adaptor  
DU-bush.



Remove the washer.



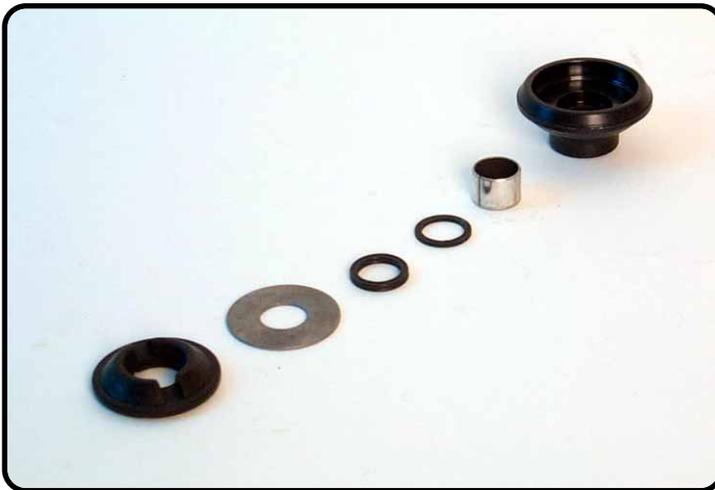
Remove the quad ring and back-up ring.



Disassemble with T105S the DU-bush.



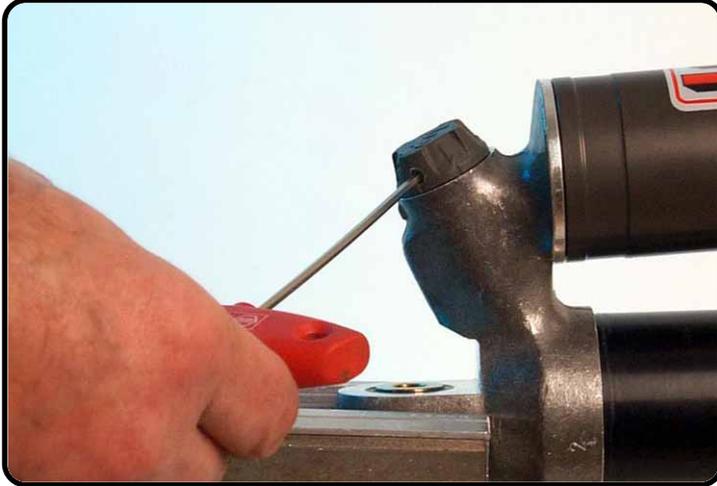
Press the DU-bush out of the adaptor.



- rebound rubber
- washer
- quad ring
- back-up ring
- DU-bush
- adaptor

## Disassembly tube side

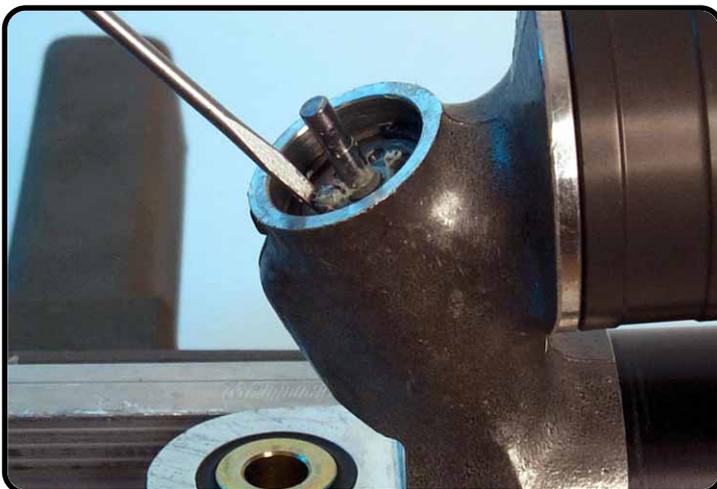
Unscrew the compression adjusting knob with Allenkey 2.5.

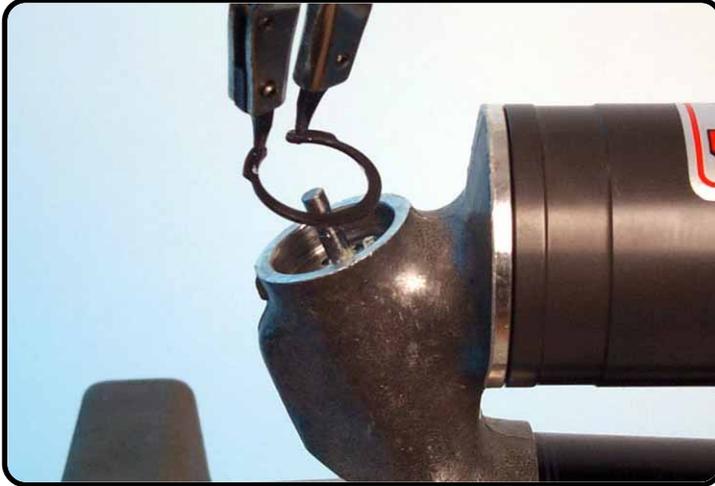


Remove the adjusting knob.



Remove the ball-steel.

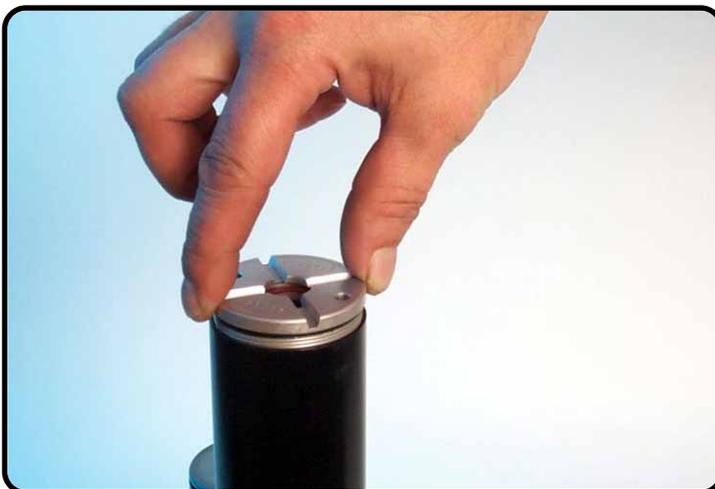




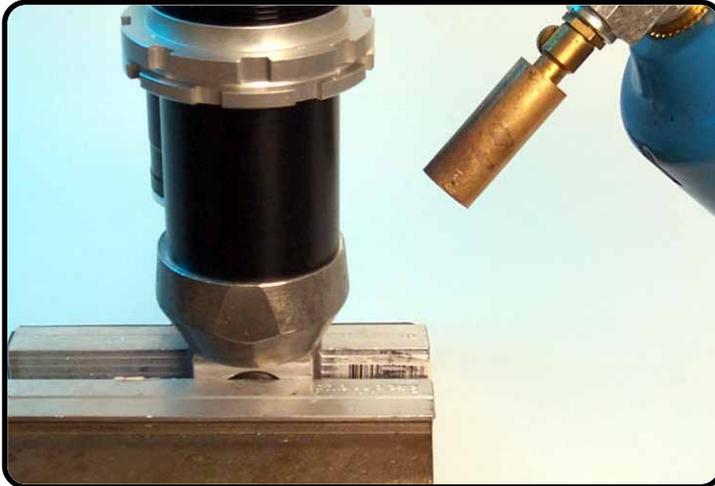
Remove the lock washer.



Lift out the compression control mechanism.



Screw the screw-cap hand tight into the tube.



Heat the bottom.



Unscrew the tube with T146 and T148.

3612 BAVP with T146 and T315.



Clamp the tube with T146 and T148 and heat the threaded bush.

3612 BAVP with T146 and T148.



Unscrew the threaded bush with T106.

*3612 BAVP with T304.*



Threaded bush with the spring retainers.



Disassemble the spring retainers with T106.

*3612 BAVP with T304.*



Heat reservoir near bottom.



Unscrew reservoir with T146 and T147.

3612 BAVP with T146 and T316.



Push the separation piston out of the reservoir with T107S.



The separation piston.



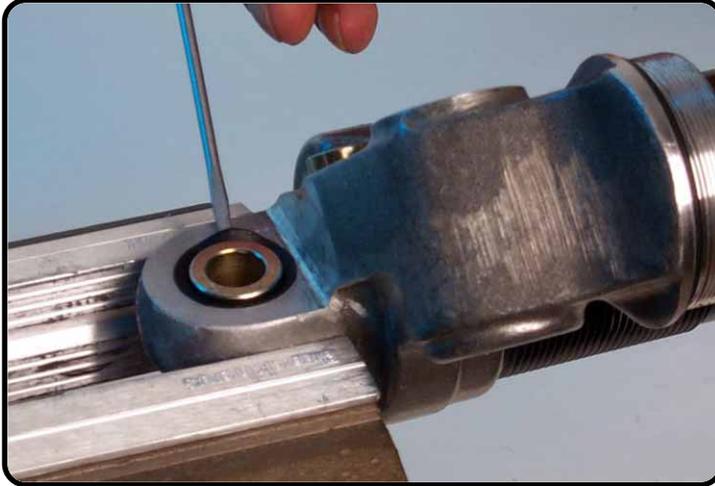
Clamp reservoir into T146 and T147.

3612 BAVP with T146 and T316.

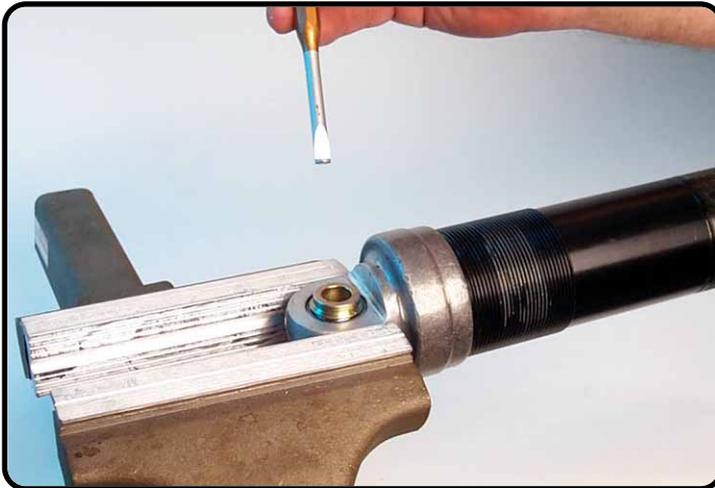
Unscrew the screw-cap with T125S and T145S.

## Disassembly heim-joint KGW

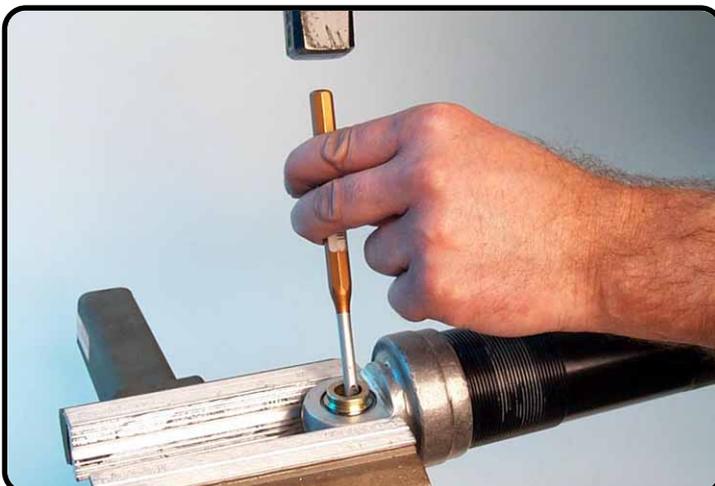
Remove the seals on both sides.



Tap the adaptor bushes out of the heim-joint with T120.



Tapping the adaptor bushes out.





Disassemble the heim-joint KGW with T130S...



...with support of the vice.

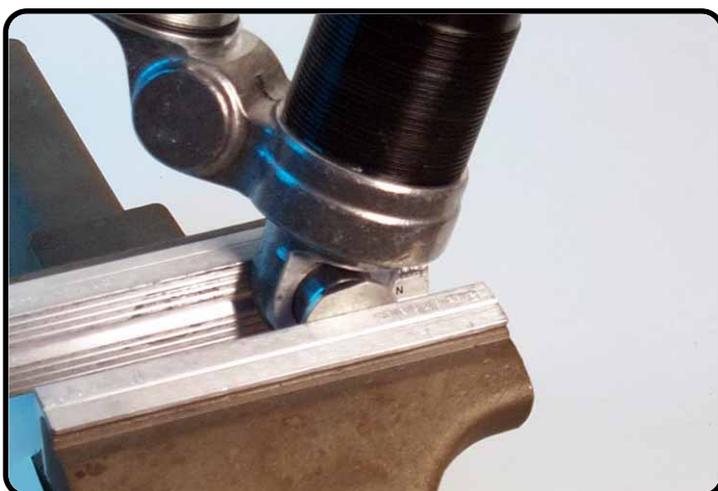


- seal
- adaptor bush
- heim-joint KGW
- bottom
- adaptor bush
- seal

## Assembling heim-joint KGW



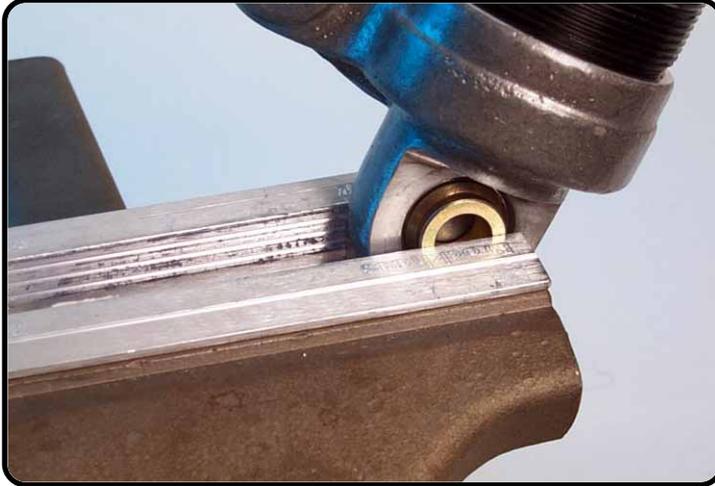
Drip on the innerside of bottom-eye T163 and mount heim-joint KGW with T129. (With the bevelled edge direction bottom-eye)



Press the heim-joint into the bottom with the vice.



Assemble with T129 adaptor bush on one side...

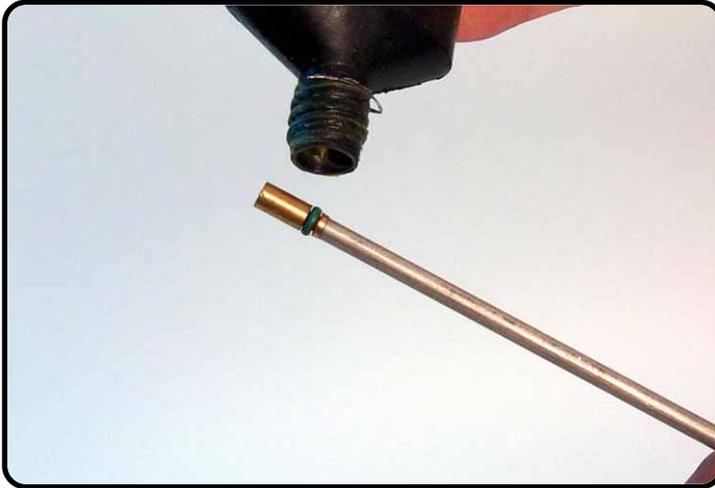


...and without tool the other side.

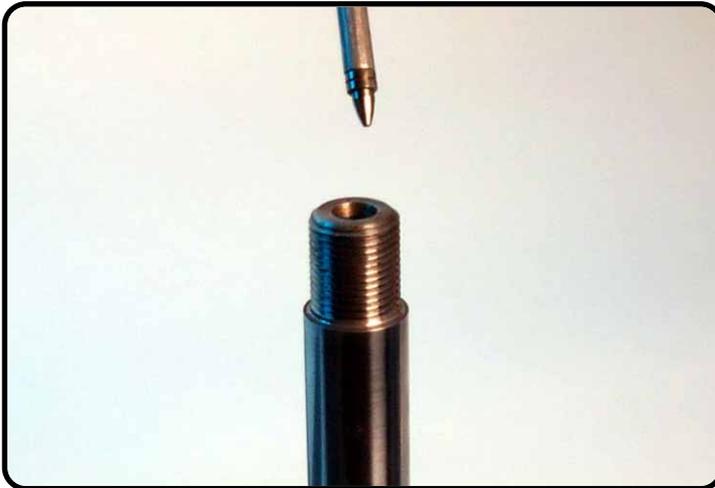


Assemble the seals in the groove of the bottom- eye.

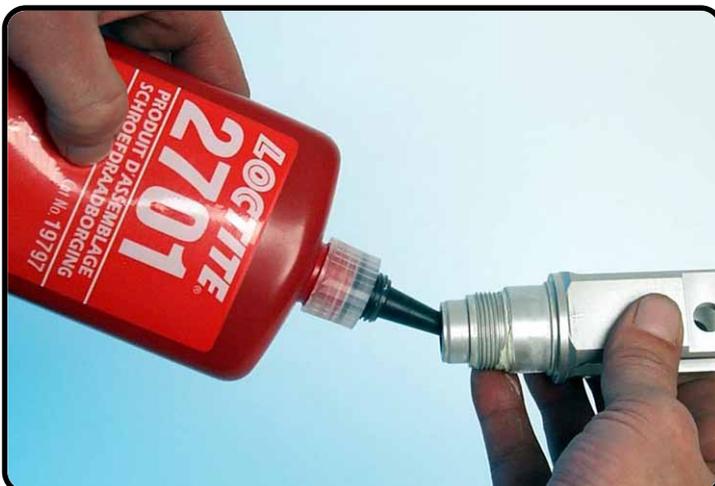
## Assembling piston-rod



Grease O-ring adjusting needle rebound with T158.



Assemble the adjusting needle in piston-rod.



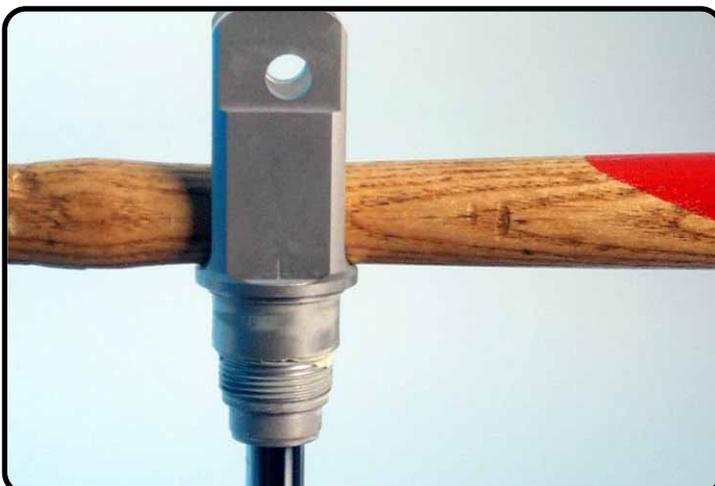
Drip T132 on thread of the mounting fork / eye.



Drip on thread piston-rod T132.



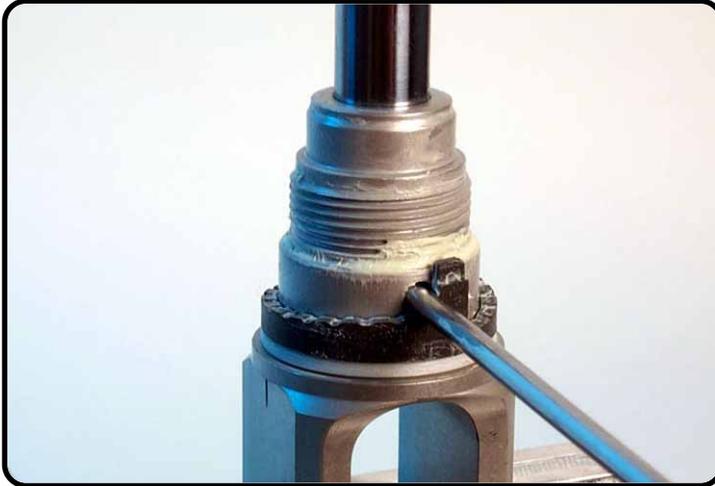
Screw mounting fork / eye on the piston-rod.



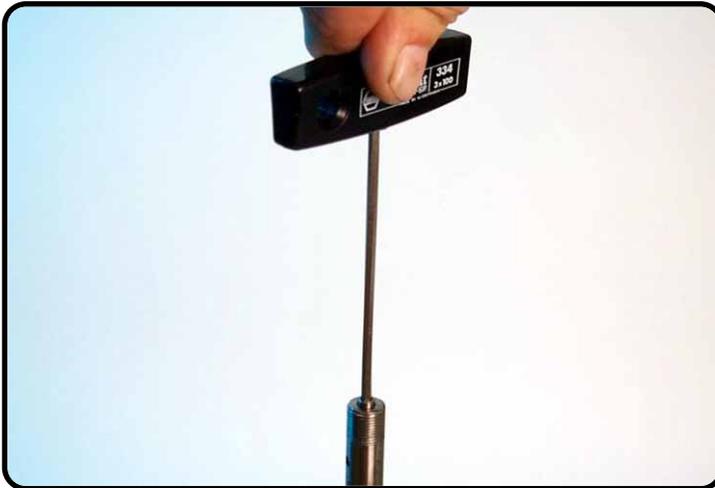
Tighten the mounting fork / eye.



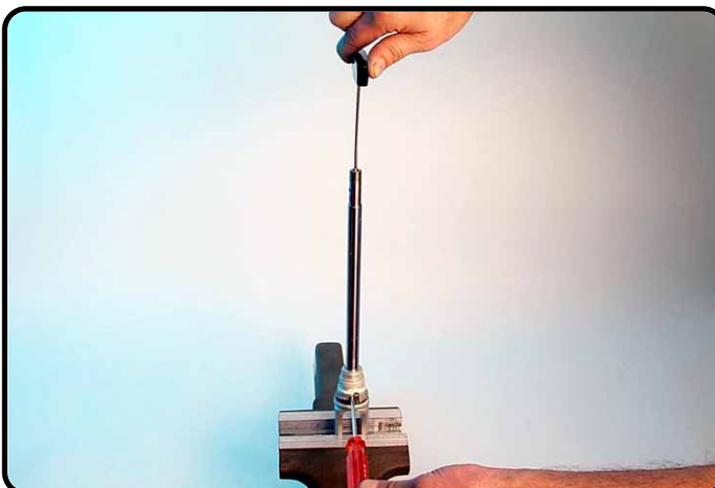
Replace the seal and the position ring.



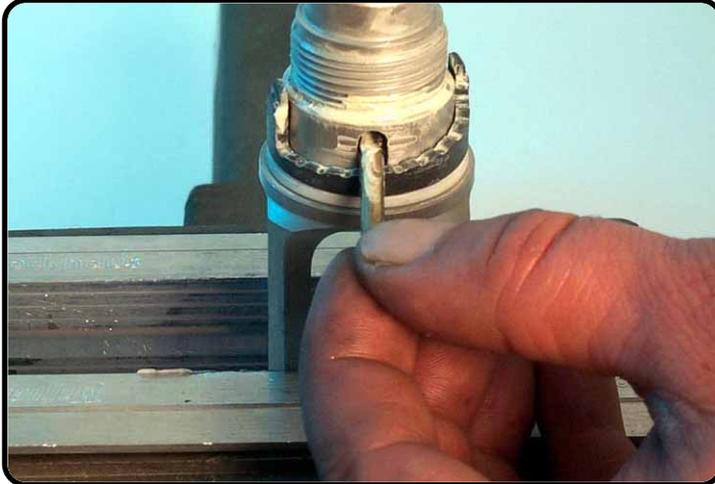
Place T107S through mounting fork / eye under the needle and adjust position ring in the highest position.



Assemble a new seat greased with T152 on the thread.



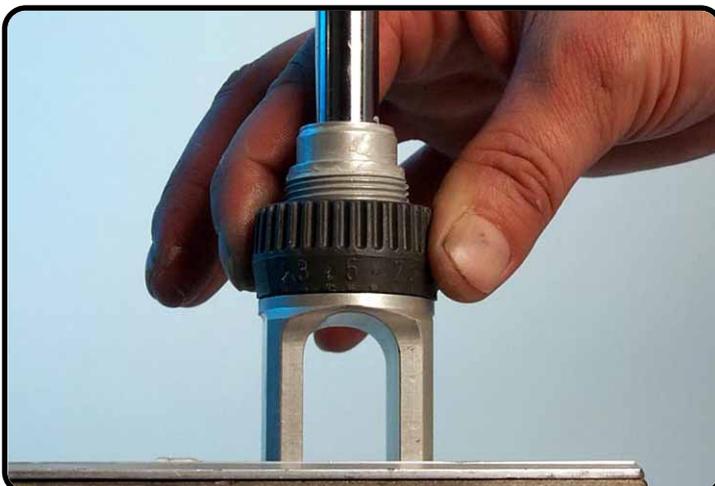
Tight seat light till T107S and turn two rotations backwards.



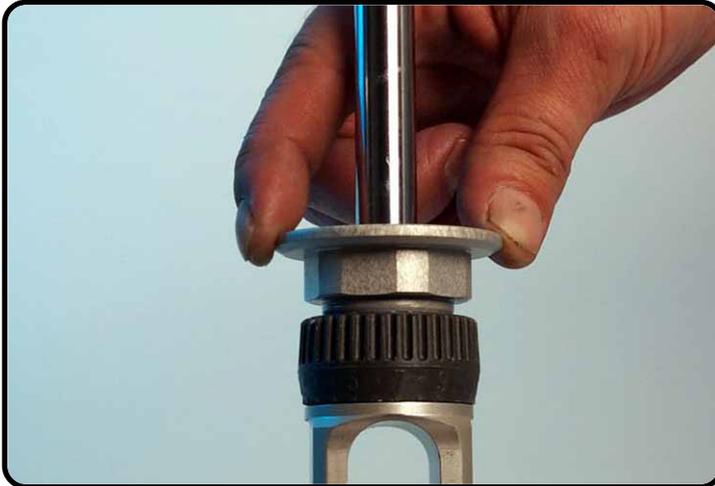
Grease the ring and pin with T159 and assemble the pin.



Grease innerside adjusting knob with T159 and replace the seal.



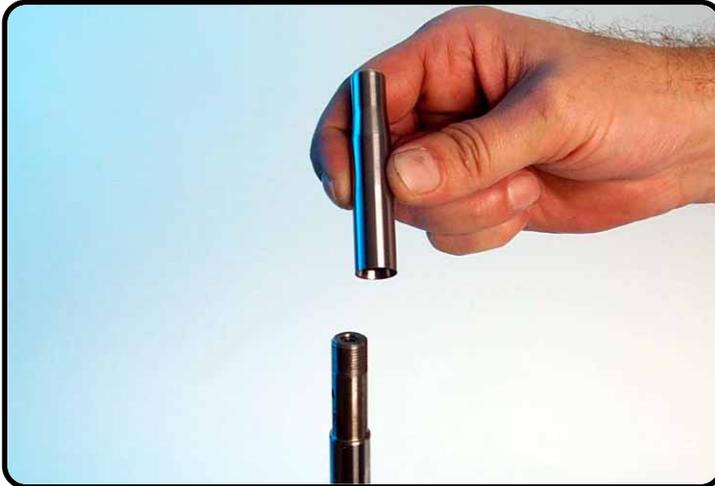
Assemble the adjusting knob and turn the knob to position 1.



Assemble the steel washer and springing.

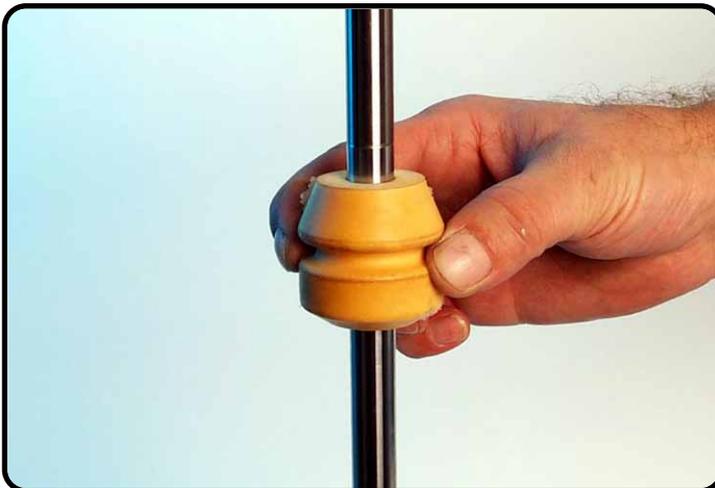


Push needle downwards on pin with Allenkey size 2.



Place T108 on top of the piston-rod.

3612 BAVP with T313.



Assemble the bump rubber.



Assemble the screw-cap.



Grease the innerside dirt scraper with T625 and assemble.



Replace the O-ring.



### Assembling adaptor DU-bush

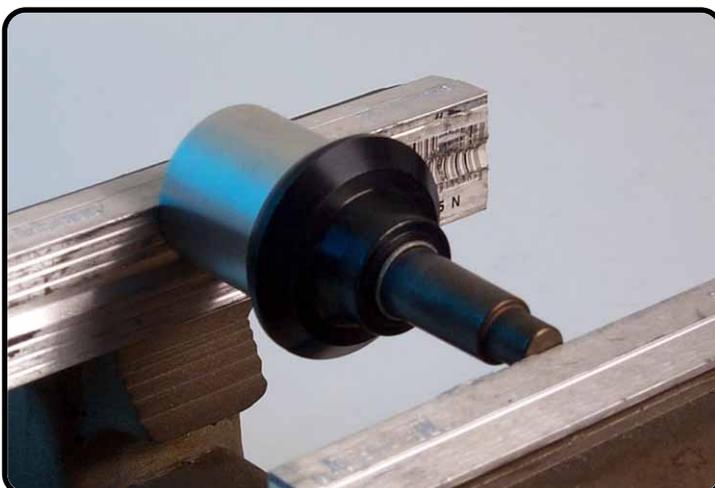
Press DU-bush in adaptor with T150S.



Pressing DU-bush into adaptor with support of the vice.



Calibrate DU-bush with T149 and part of T150S.



Wet the mandrel with oil.  
Drive the calibration mandrel through the DU-bush.



Assemble the back-up ring.



Assemble the quad ring.



Assemble the washer.



After assembly the rebound rubber, check if the rubber can be rotate in the holder.



Assemble the DU-bush adaptor.



Should it be the case to assemble spacers, then place them with the flat side direction rebound rubber.



Replace the entire damping packet.



Screw the piston-rod nut on piston-rod....



...and tighten the nut to a torque of 40Nm.

3612 BAVP with 30Nm.

## Assembling tube side

Grease the O-ring of the separation piston with T158.



**4681 BAVP:**  
Assembly direction separation piston:  
With the flat side of the piston into  
direction flat side bottom.



**3612 BAVP:**  
Assembly direction separation piston:  
With the hollow side of the piston into  
direction spherical surface bottom.





Assemble separation piston (with piston-ring) always into direction of the screw-cap.



Drip T132 on thread reservoir.



Drip T132 on the thread of the screw-cap.



Drip T132 on thread of the bottom.



Tighten the screw-cap and reservoir with T125S and T145S.



Assemble both spring retainers on threaded bush.



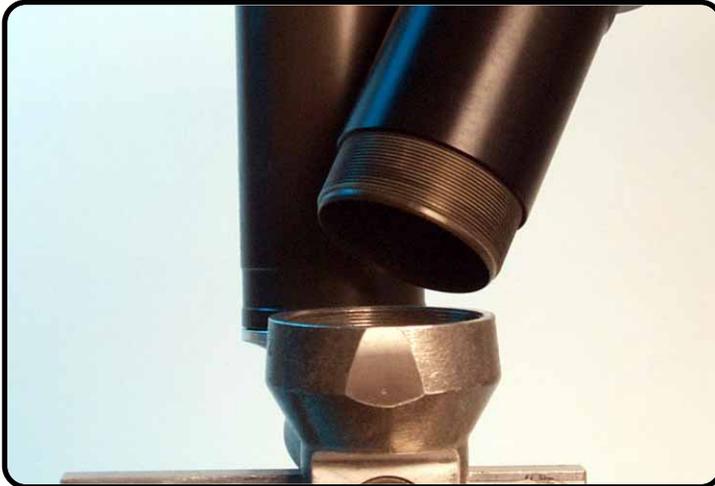
Drip T132 on thread of the tube...



...and on the thread of the bottom.



Assemble the threaded bush until the end of thread of the tube.



Assemble the tube in the bottom.



Screw down with T146 and T148.

3612 BAVP with T146 and T315.



Screw threaded bush against the bottom.



Tighten threaded bush with T106.

3612 BAVP with T304.



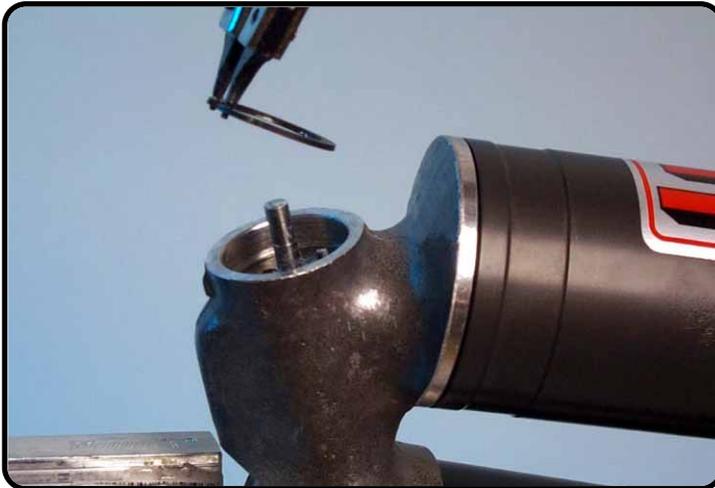
Grease the O-rings with T158.  
Assembly compression control  
mechanism.



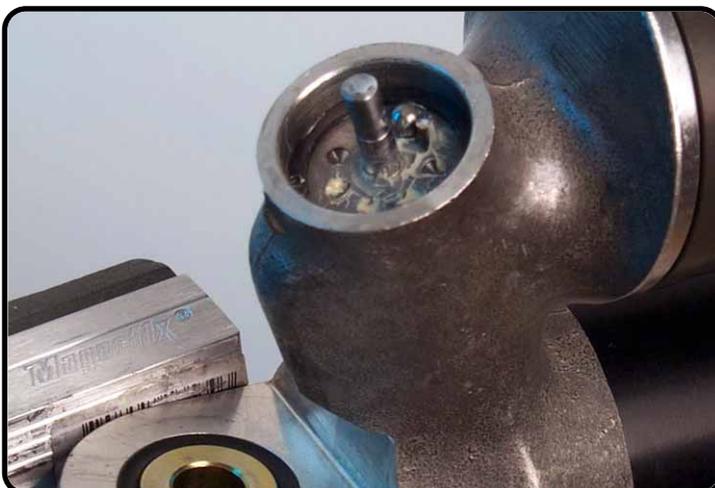
Assemble mechanism, so that the hole  
of this is facing the hole in the direction  
of the tube.



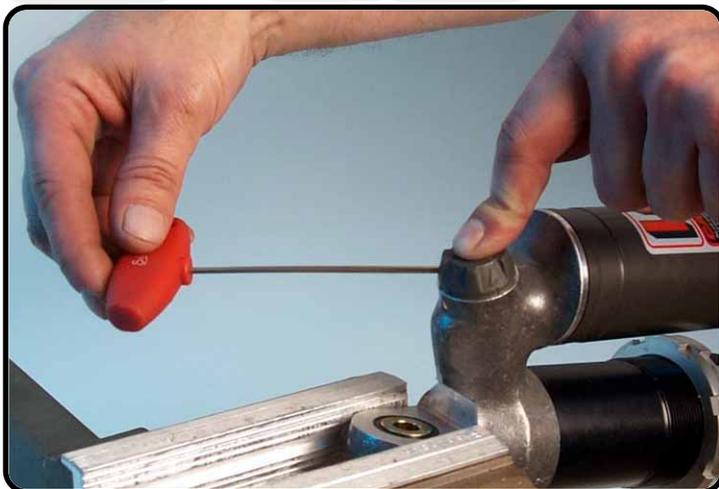
Push the mechanism with T160 past the lock washer groove.



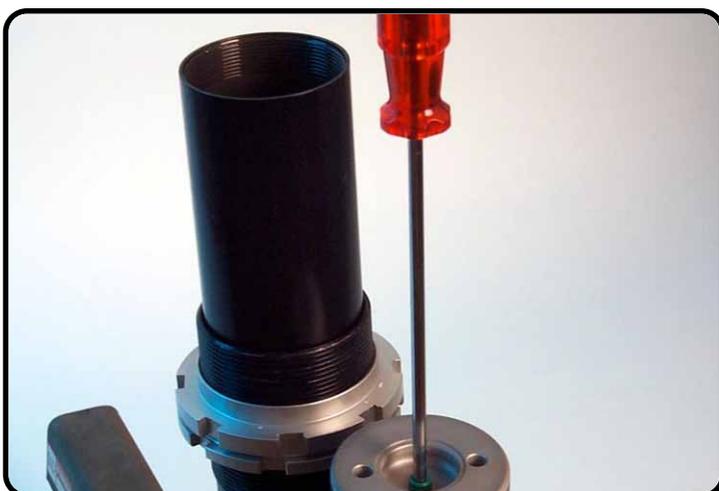
Assemble the lock washer with flat side above.



Grease the upper side compression mechanism with T159 and place ball-steel next to the pin.



Push adjusting knob with the spring directly on the steel ball and tighten Allen screw.  
Adjust compression control mechanism to position 1.



Push the separation piston with T107S to the bottom and slide O-ring as far as the screw-cap.



Fill the tube with oil about 15mm under the springing groove.



Place T110S in the tube and push the plunger downwards.

3612 BAVP with T306S.



Push the separation piston downwards, and hold the tube side in a angle. (about 45 degrees)

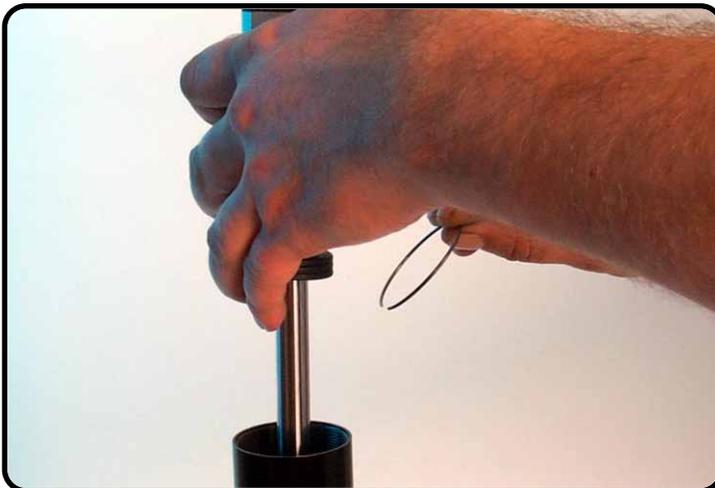
Repeat those procedures several times.



Adjust separation piston about 10mm from the bottom, O-ring on the shaft will be 10mm above the screw-cap.



Adjust oil level about 45mm under the edge of the tube and set compression adjusting knob on position 1.

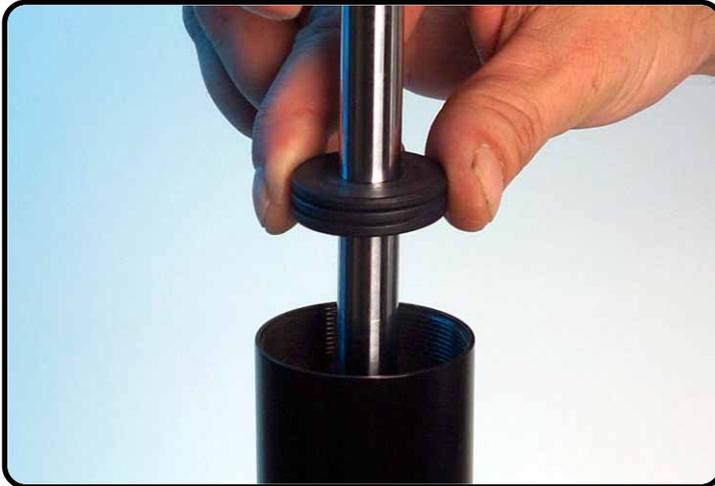


Slide piston-rod "complete" into the tube and assemble the springring above the piston in the groove with support of...



...T155.  
Pull light the piston against the springring and hold this till assembly screw-cap.

3612 BAVP with T317.



(Assemble the spacers)



Assemble adaptor DU-bush.



Remove (if necessary) the oil above the adaptor with T137S.



Slide O-ring against the adaptor.



Slide dirt scraper against the adaptor.



Screw the screw-cap into the tube.



Tighten the screw-cap with T125S.

## Bleeding

Disassemble compression control mechanism.



Connect the adaptor of T144S into the housing.



Ensure that there is sufficient oil in the bottle and that the hose is also full with oil. You will see air bubbles rising up through the hose.





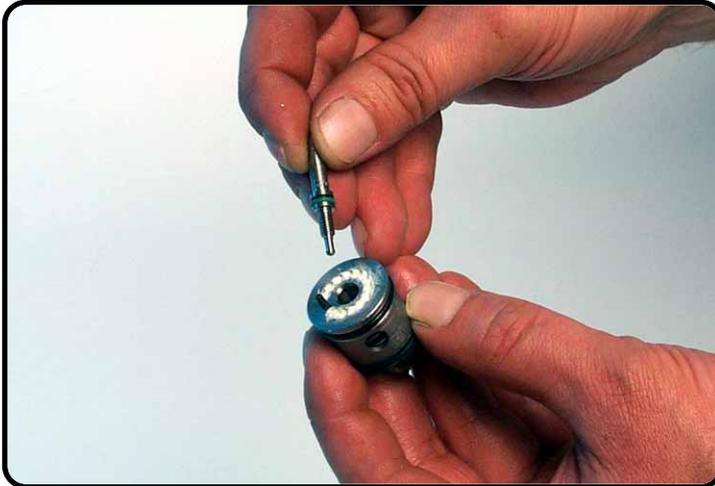
Push the piston-rod slowly in and out.



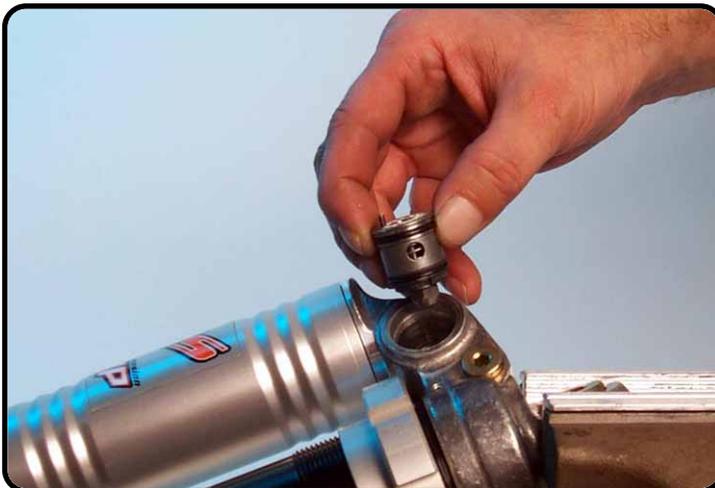
Turn to a view times the shock absorber and repeat the procedures several times until all air is bled out.



Check the position of the separation piston with T107S.



Assemble mechanism without adjusting needle. (left handed thread)

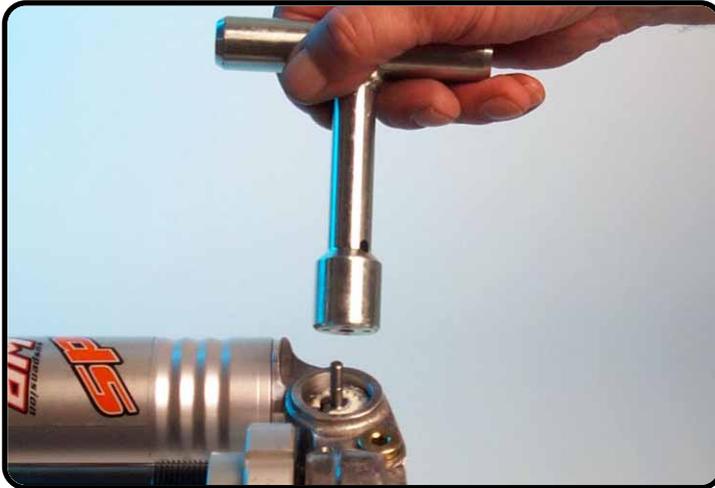


Note: hole of mechanism facing hole direction tube.

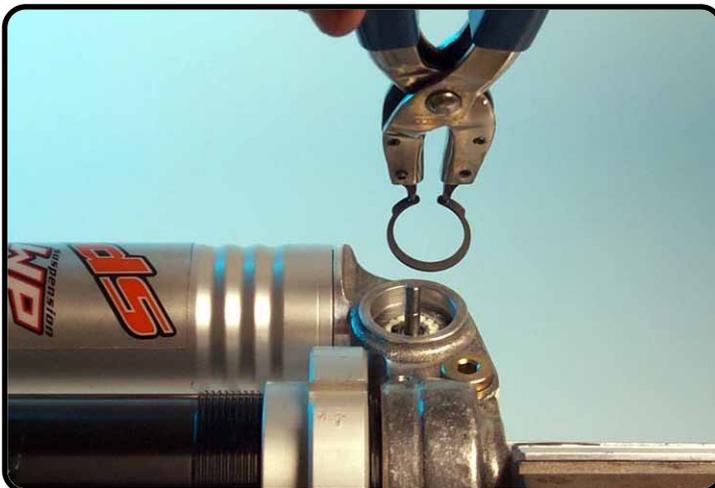




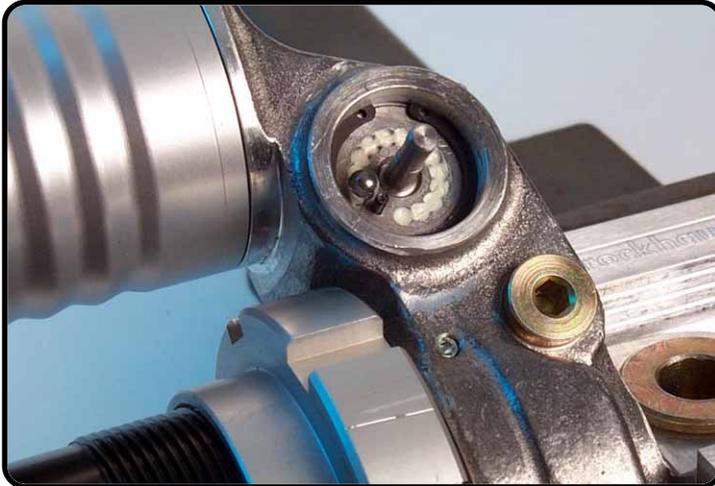
Screw the adjusting needle hand tight into mechanism.



Push compression control mechanism past lock washer groove.



Assemble lock washer with flat side above.

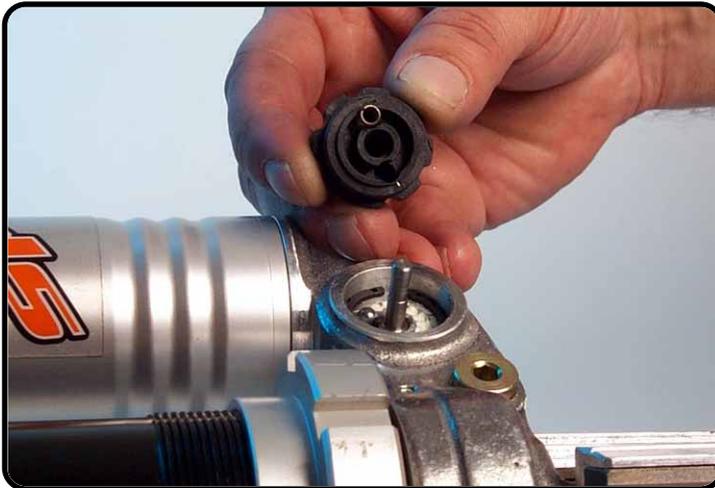


Replace the steel ball on the left position next to the pin.

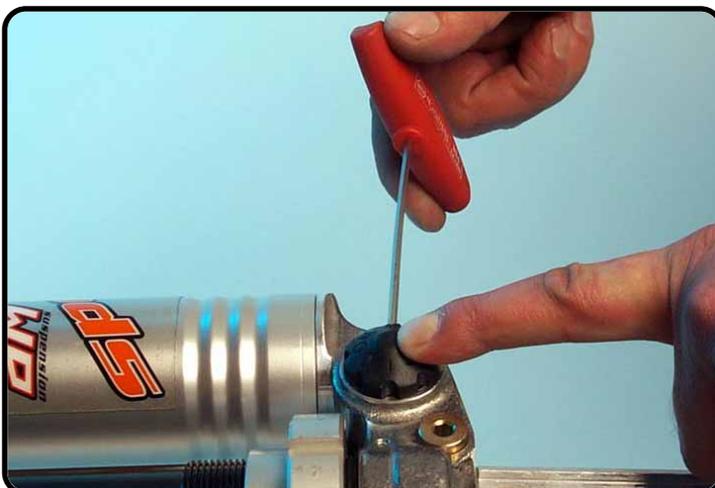
Place the steel ball:

By CC no. 11: the third position on the right side of the pin.

By CC no. 16: next on the right side of the pin.



1. Assemble adjusting knob with spring on the steel ball.



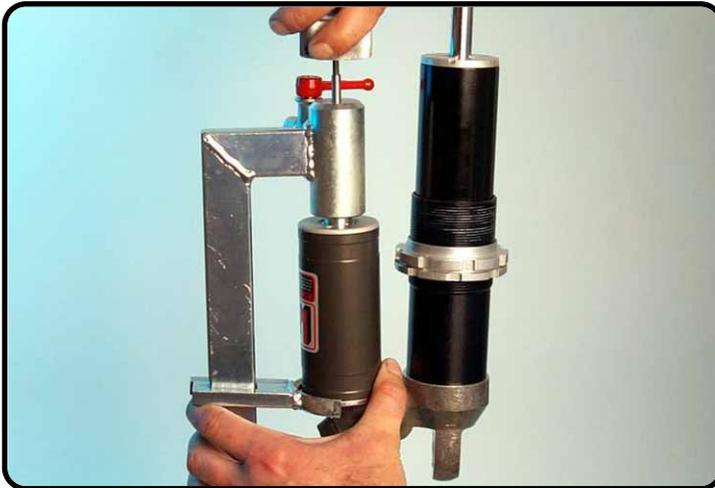
2.

## On pressure with nitrogen

Replace the nitrogen plug with O-ring several turns into the screw-cap.



Place the shock absorber (reservoir) in T170S and fill it with nitrogen ( $\pm 20$  sec.) and tighten the plug under pressure.



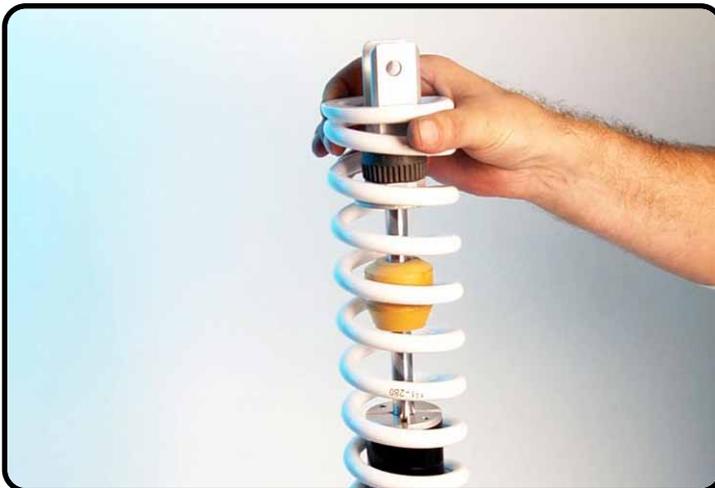
Assemble the rubber cap "do not open"



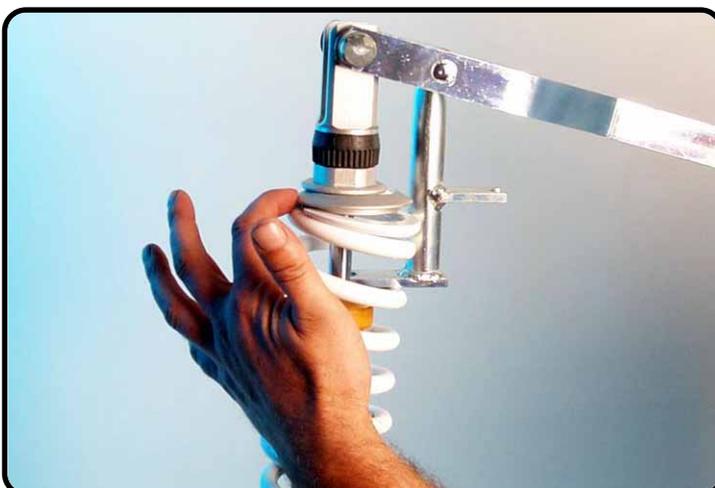
## Assembling spring



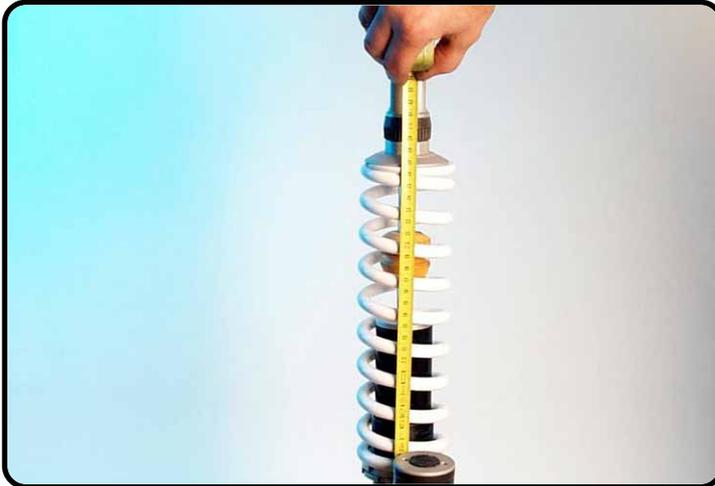
Turn mounting fork / eye parallel with bottom-eye.



Assemble the spring.



Assemble the open spring retainer with T101S.  
Closed side of the retainer on the end of the coil.



Adjust the spring preload.



Tighten the spring retainers with T106.

*3612 BAVP with T304.*

## Adjusting

Position rebound!



Position compression!

