

**Product**

Exploded View

Disassembly & Assembling



Shock absorber

# 5018 PDS OEM 2001

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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 a unique "T" number (available at WP Suspension) protect you from damaging the parts.

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

Always replace damaged or worn parts.

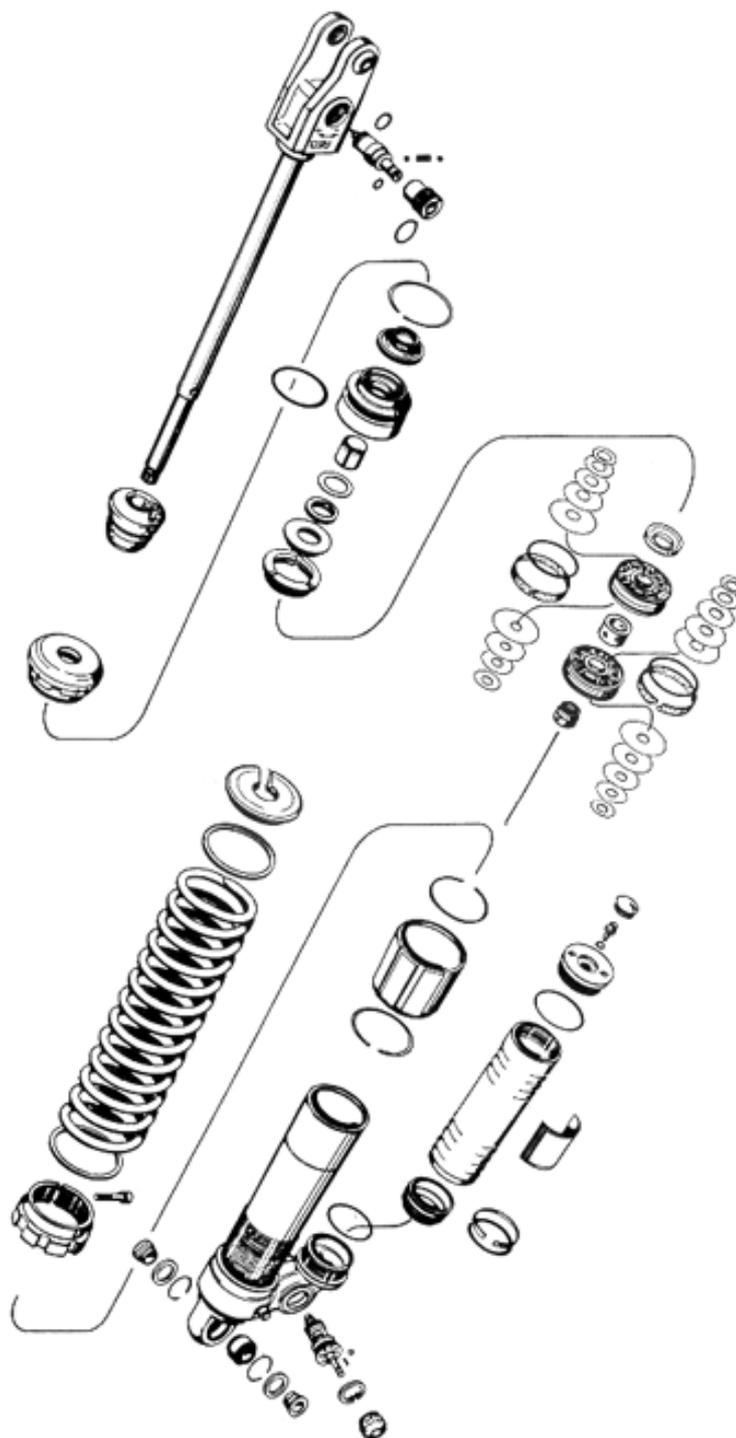
Clean all parts before assembling.

**Caution:**

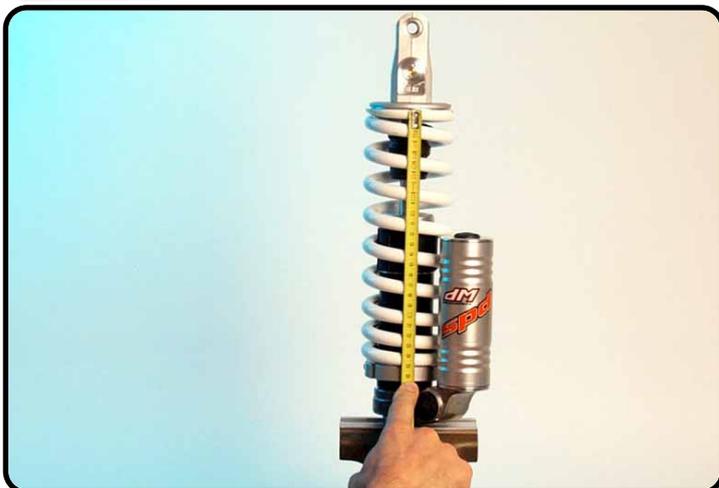
Many times it is necessary to assemble parts with T131, T132 and T163.

These parts must dry for at least four hours!!

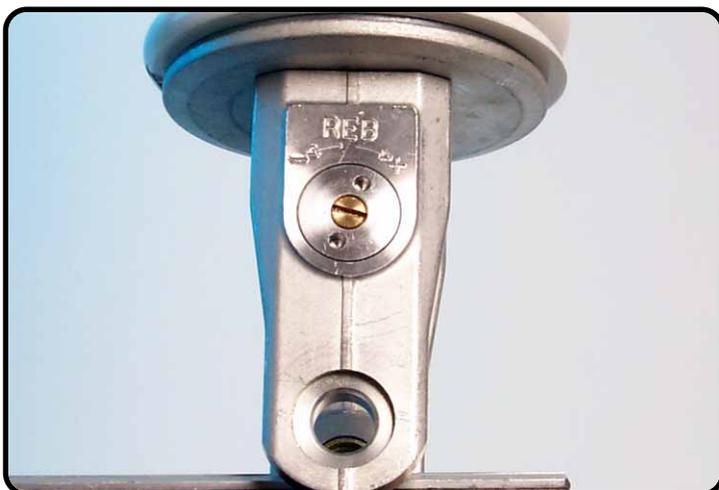
Exploded view



## Disassembly shock absorber



Measure the length (preload) of the spring.



Take note of the rebound (REB) position.  
1 is closed.  
("+" mark).



Take note of the compression (COMP) position.  
1 is open.  
("-" mark)



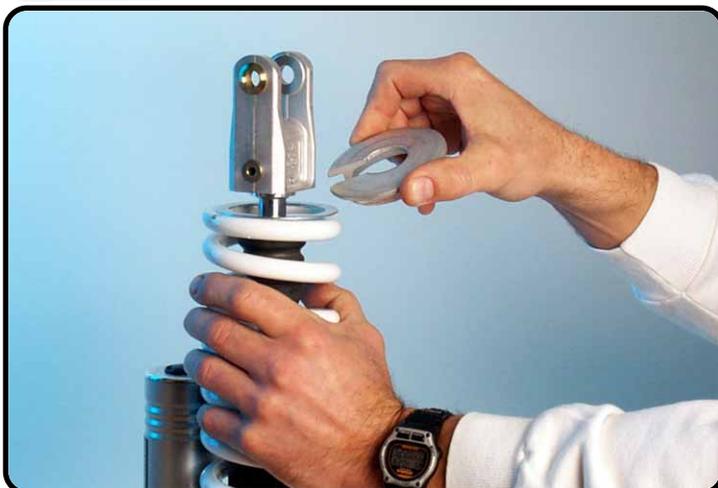
Unscrew the spring retainer.  
(Allen key 5)



Loosen the spring retainer with T106.



Screw the spring retainer to the  
bottom.



Pull the spring downwards and take off the open spring retainer.



Remove the spring washer.



Remove the spring.



Remove the second springwasher.



Remove the rubber cap of the nitrogen reservoir.



Slowly release the nitrogen pressure.  
(size 4)



Tap off the cap on one side with a drift...



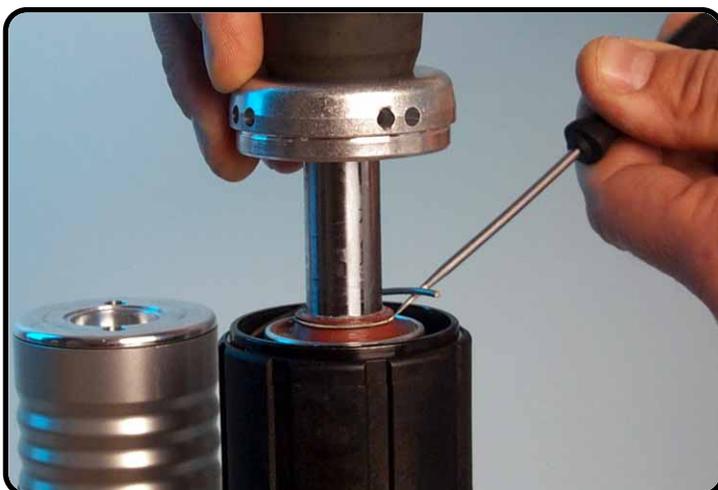
...and on the other side.



Tap the adaptor DU-bush loose with T1216.



Push the adaptor downwards.



Remove the springing.



Pull firmly but carefully the piston-rod "complete" out of the tube.

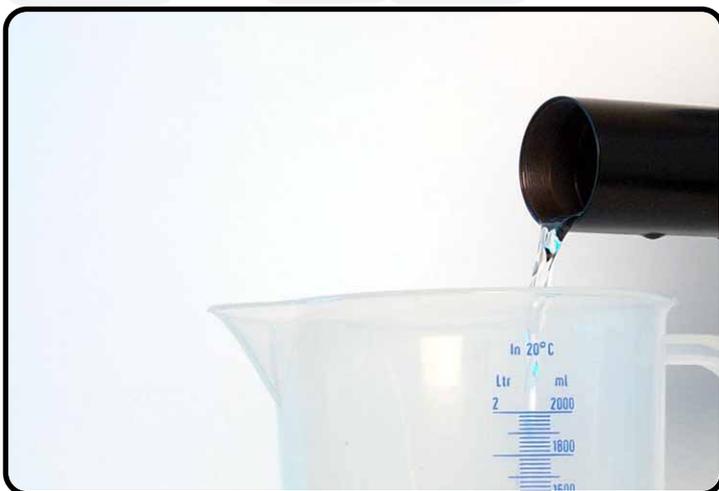
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Drain the oil out of the tube.

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## Disassembly piston-rod



Clamp the mounting eye in the vice.  
Push the rebound needle downwards.



Unscrew the piston-rod nut.  
(size 22)



Remove the nut.  
Pay attention to the assembling  
direction!!!



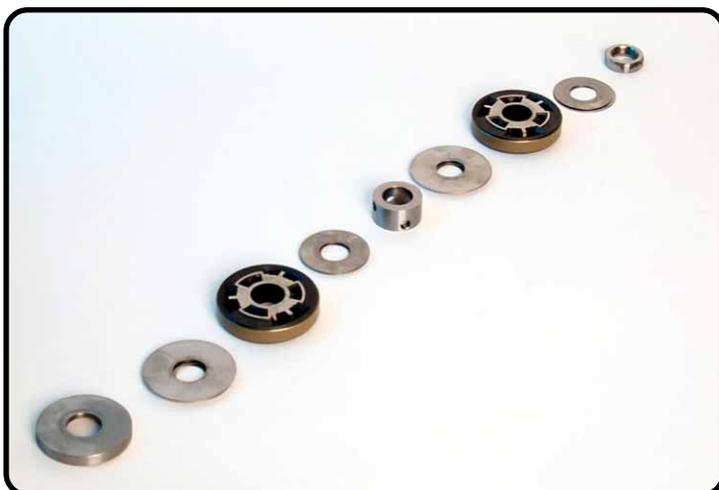
Upper side nut.



This side on the shims.



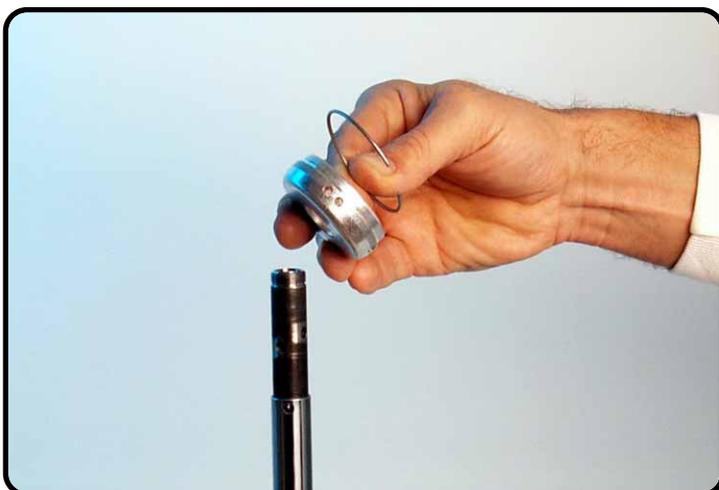
Place a screwdriver on top of the piston-rod and lift the entire assembly, consisting of rings, pistons and shims.



- rebound-bush plane
- compression shims piston 1
- piston 1
- rebound shims piston 1
- intermediate bush
- compression shims piston 2
- piston 2
- rebound shims piston 2
- piston-rod nut



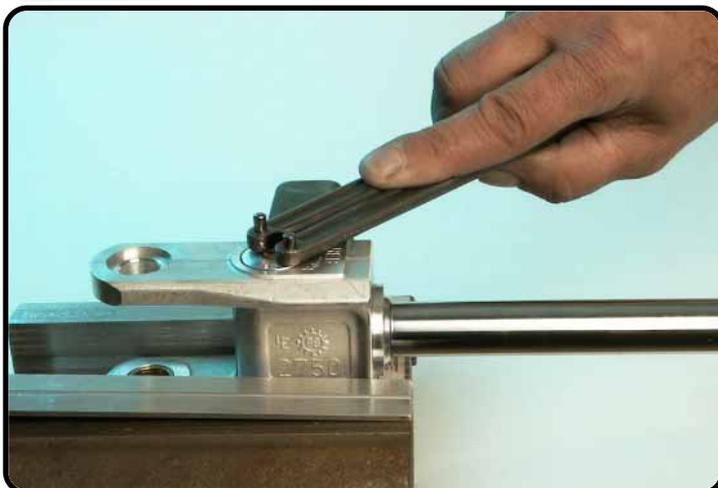
Remove the adaptor DU-bush.



Remove springring and cap.



Remove bump rubber.



Disassemble screw-cap rebound adjustment holder with T1218.



Disassemble holder out of the mounting eye.



Unscrew the adjustment needle out of the holder (clockwise).

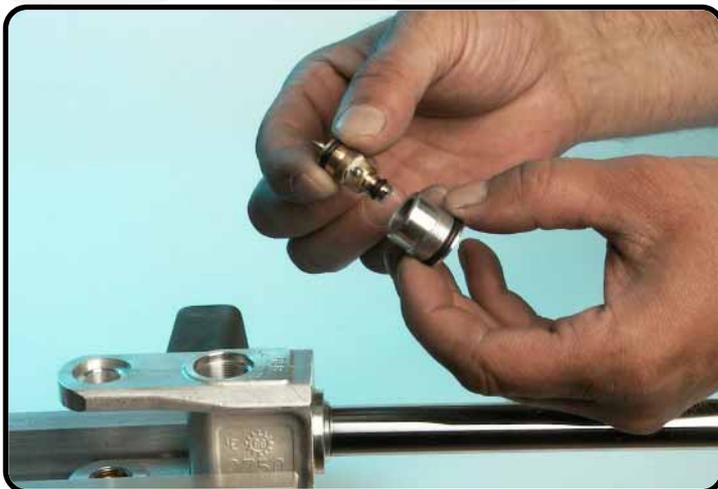
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Pay attention to the spring and the steel balls!!!

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## Disassembly adaptor DU-bush



Pull the rebound rubber out of the adaptor.



Remove the steel disc.



Remove the quad ring.



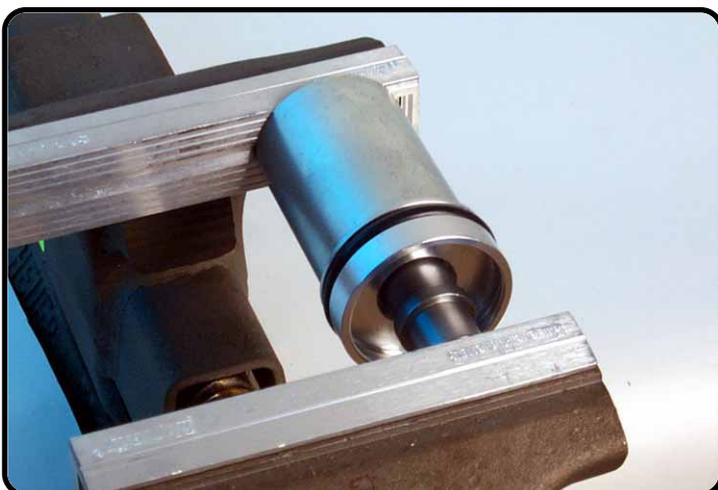
Remove the back-up ring.



Prise the dirt scraper out of the adaptor.



Disassemble the DU-bush with T1208 and T1209.



Press the DU-bush out of the adaptor.



- rebound rubber
- disc steel
- quad ring
- back-up ring
- DU-bush
- adaptor
- O-ring
- dirt scraper

## Assembling adaptor DU-bush



Assemble a new DU-bush with T1208 and T1209.  
Wet the DU-bush with oil.



Press the DU-bush into the adaptor.



Calibrate the DU-bush with T1205 and T1209.  
Wet the mandrel with oil.



Drive the calibration mandrel through the DU-bush.



Press a new dirt scraper into the adaptor with T1204.



Grease the groove of the adaptor with T158 and replace the O-ring.



Assemble the back-up ring.



Assemble the quad ring.



Replace the steel disc.

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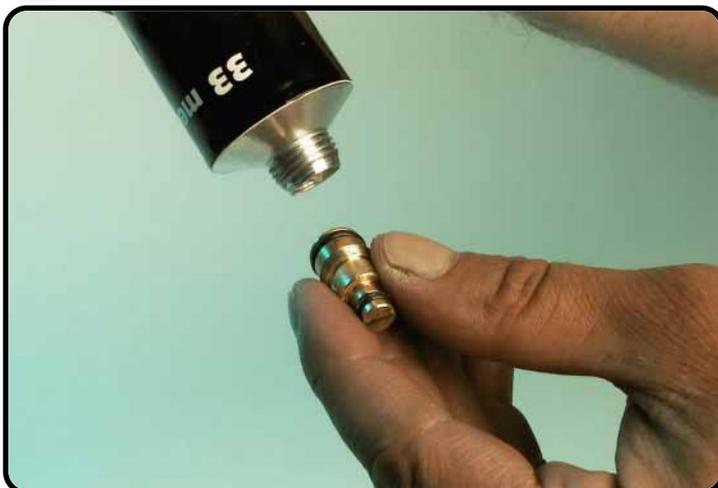
After assembling of the rebound rubber ensure that the rubber can be rotated in the adaptor.

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## Assembling piston-rod



Grease the O-rings and steel balls with T158.



Assemble the needle.



Screw the needle into the holder.



Grease the O-ring of the screw-cap with T158.



Assemble the rebound adjustment holder "cpl."



Tighten the screw-cap with T1218.



Place T1215 on top of the piston-rod.



Assemble the bump rubber.



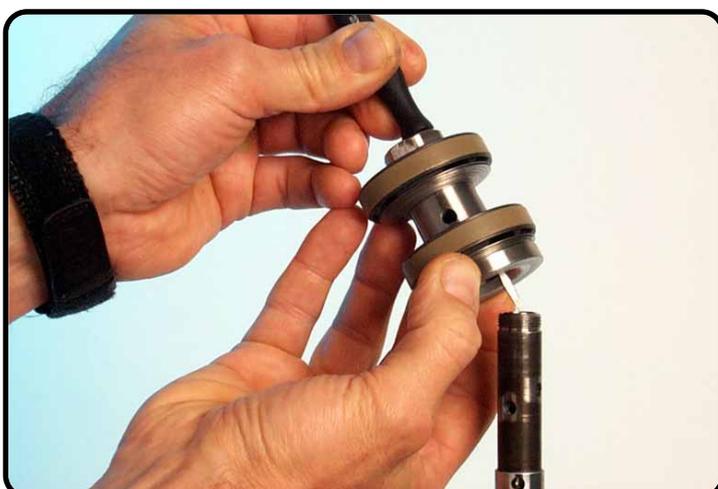
Place the cap.



Grease the dirt scraper with T625 and...



...assemble the DU-bush adaptor.



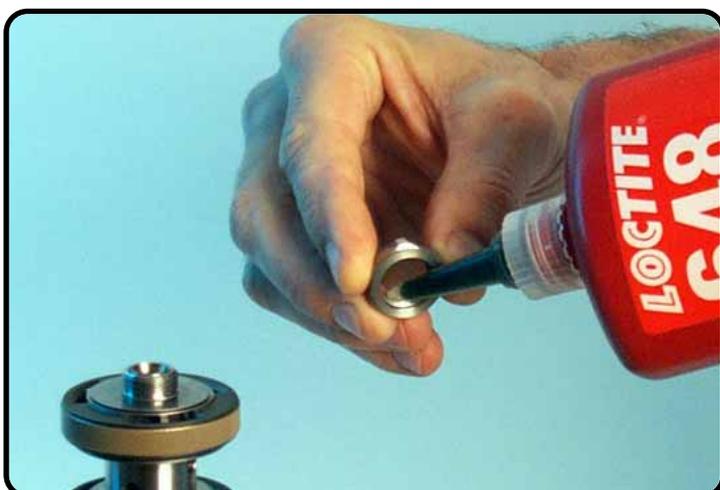
Replace the entire damping packet.



Remove the upperst shim of the rebound setting 2 and check if the ring is centered in the shim on the piston.



Assemble the shim.



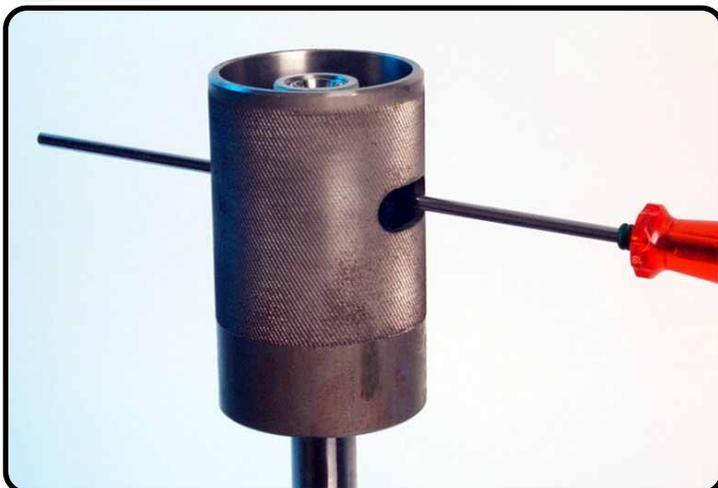
Drip T163 on the thread of the piston-rod nut.



Assemble the nut on the piston-rod.



Slide T1214 over both pistons and the adaptor.



Place T107S through T1214, intermediate bush and piston-rod.



Tighten the nut to a torque of 40Nm.



Remove the tools and check if the first shim on the piston can lift over the ring.

## Disassembly tube-side



Heat the nitrogen reservoir near the bottom.



Unscrew reservoir with T146 and T147.



Clamp nitrogen reservoir into T146 and T147 and unscrew screw-cap with T125S and T145S.



Push separation piston out of the reservoir with T107S.



Remove the springing out of the groove and and place it below the groove.



Slide spring guide downwards and...



...remove the upper springring.



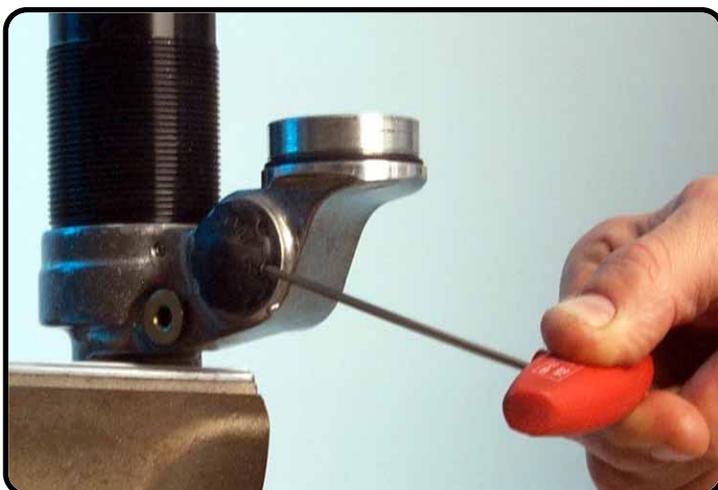
Remove the spring guide.  
Pay attention to the assembling  
direction!!!



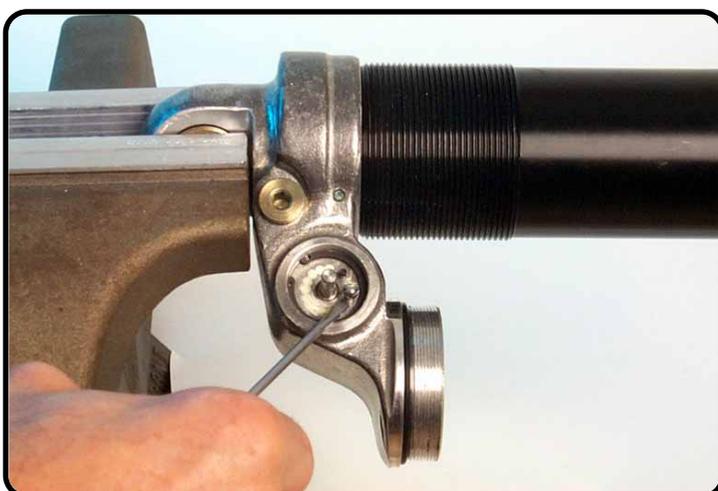
Disassemble the springring.



Screw the spring retainer from the tube.



Unscrew (size 2.5) compression adjusting knob and remove it. Pay attention to the spring in the knob!!!



Remove the steel ball.



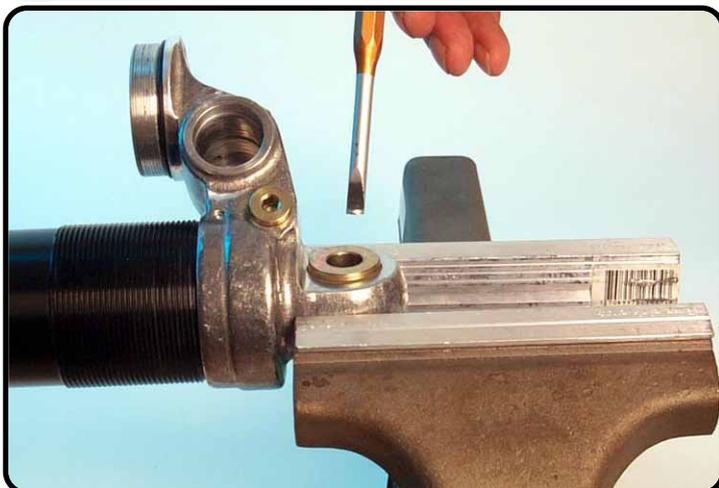
Disassemble the lock washer.



Pull out the compression control mechanism.



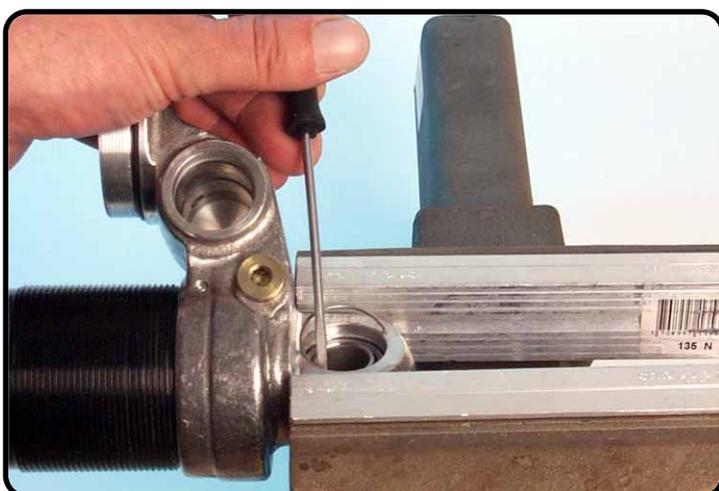
The compression control mechanism.



Removing the adaptor bushes with T120.



Tap adaptor bushes out of the heim-joint and remove the seals.



Remove the seals and disassemble the springing on both sides.



Disassemble heim-joint with T1207S.



Press the heim-joint out of the bottom with the vice.



- adaptor bush
- seal
- lock washer
- heim-joint
- bottom
- lock washer
- seal
- adaptor bush

## Assembling tube-side



Drip on the innerside of the bottom eye T163 and mount heim-joint with T1206. (with the bevelled edge direction bottom)



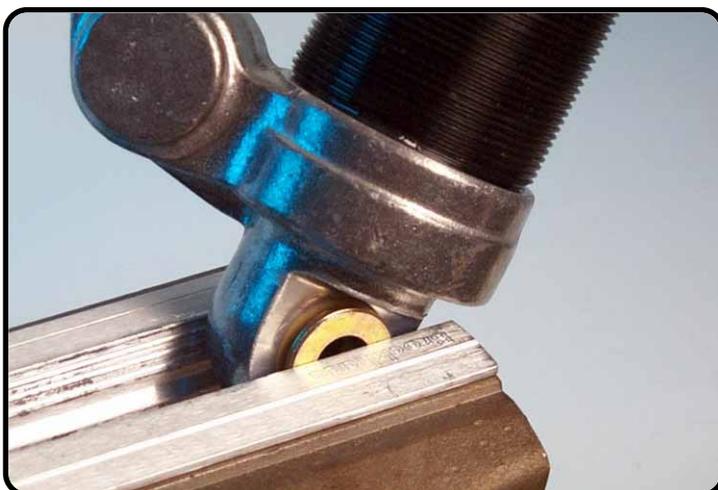
Press heim-joint into the bottom with the vice.



Assemble both springrings.



Assemble the seals.



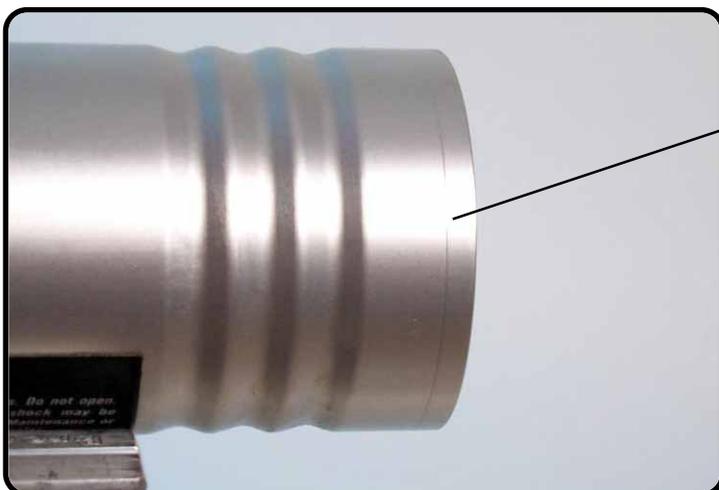
Press one adaptor bush in the heim-joint with T1206.  
And the other without the tool.



Building up the nitrogen reservoir:  
Grease the O-ring of the piston with T158.



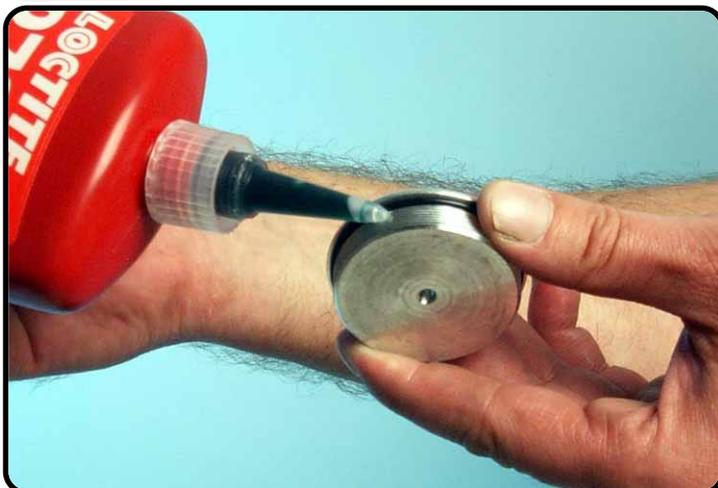
Assemble the separation piston with the spherical surface into the direction of the groove.



"Groove".



Wetting the thread of the reservoir on both sides with T132.



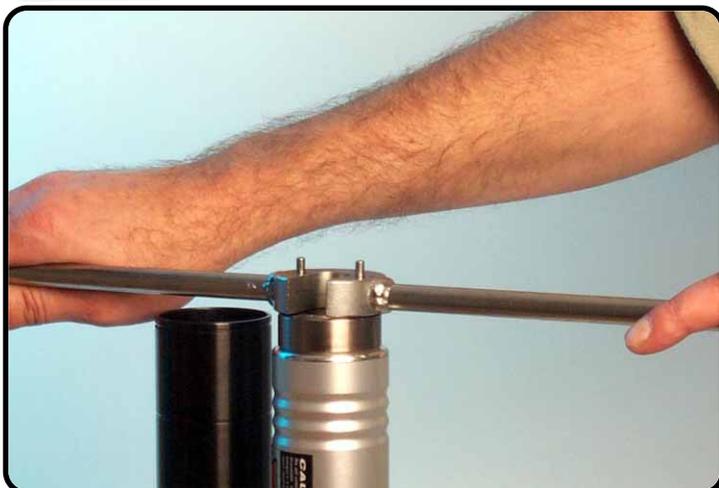
Drip T132 on thread screw-cap.



And T132 on thread bottom.



Assemble screw-cap and reservoir.



Tighten screw-cap and reservoir on bottom with T125S and T145S.



Assemble the spring retainer.



Screw the retainer against the bottom.



Assemble springing on the tube past the second groove.



Slide spring guide on the tube with the chamber of the spring guide in the direction of the upper springing groove.



Place upper springing in the groove.



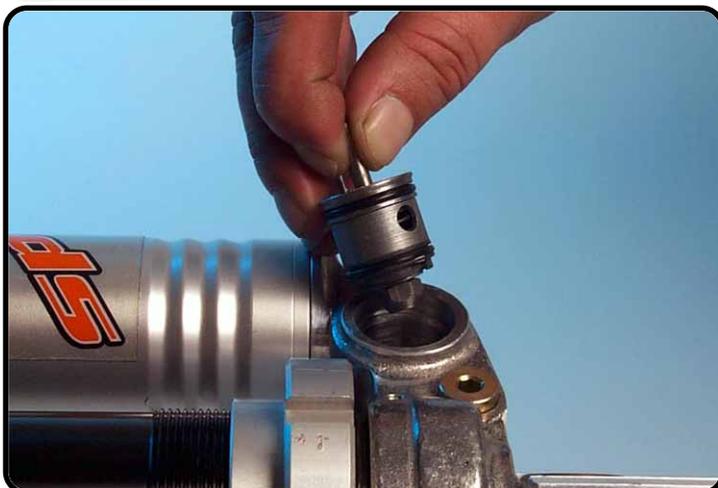
Slide guide over the springing.



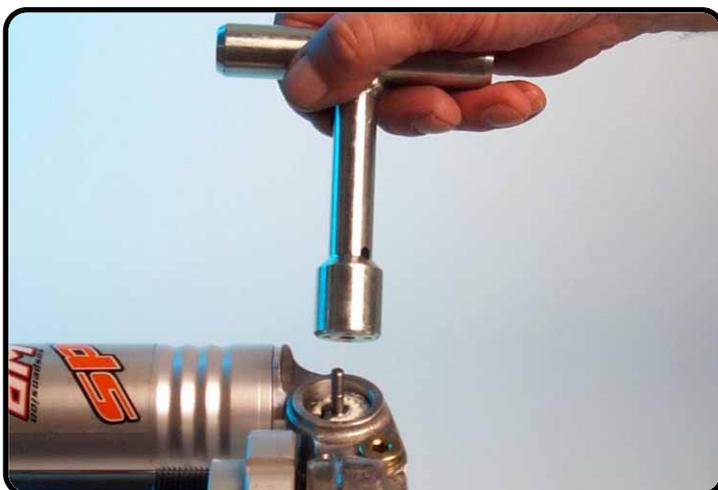
Assemble the springing.



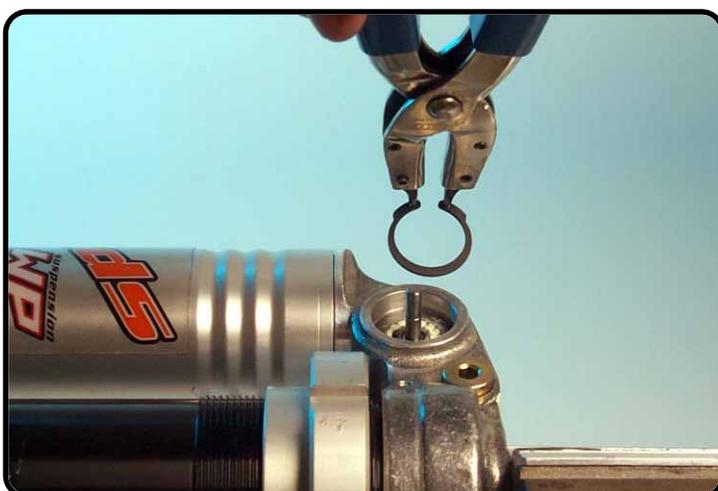
Assembling compression control mechanism:  
Grease the O-rings with T158.



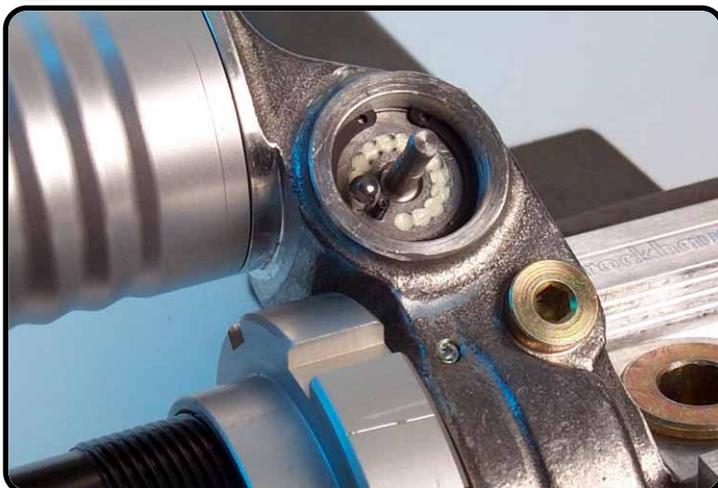
Assemble mechanism so that its hole is facing to the hole of the tube.



Push mechanism with T160 past lock washer groove.



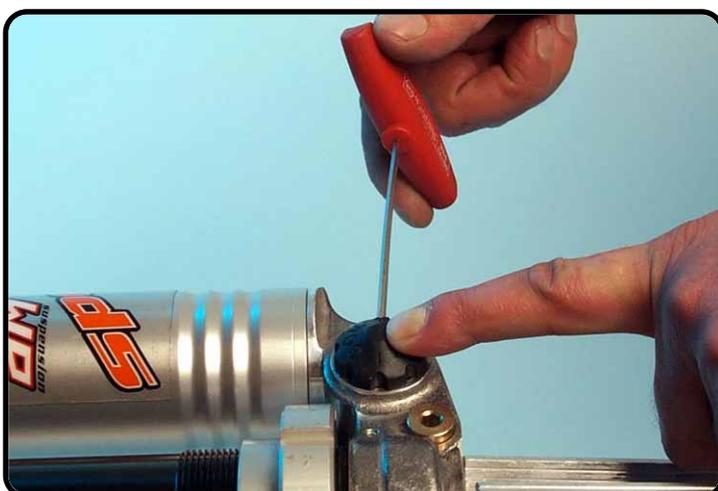
Assemble lock washer with the flat side above.



Grease the upper side of mechanism with T159 and place steel ball next (left side) to the pin.



Mount adjusting knob with the spring directly on the steel ball.



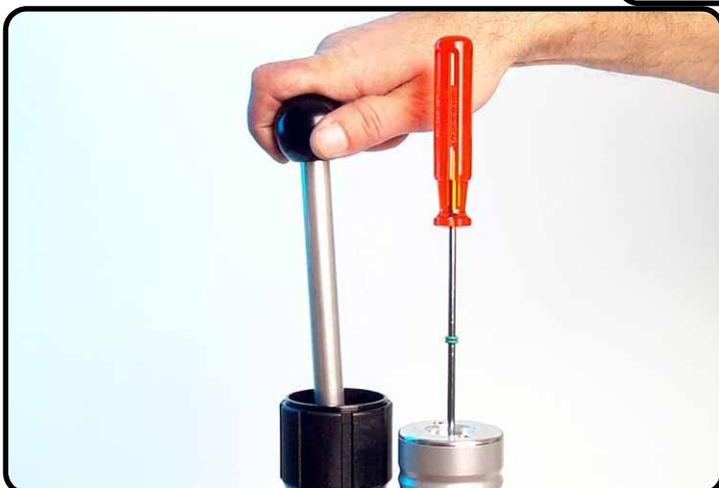
Push the knob and tighten it. Adjust knob to position 1. ("—" mark)



Fill the tube with oil about 10mm under the springing groove.



Place T1210 into the tube and T107S into the reservoir, slide the O-ring of T107S as far as the screw-cap.



Push the plunger downwards.



Push T107S downwards, (separation piston) repeat those two handlings several times.

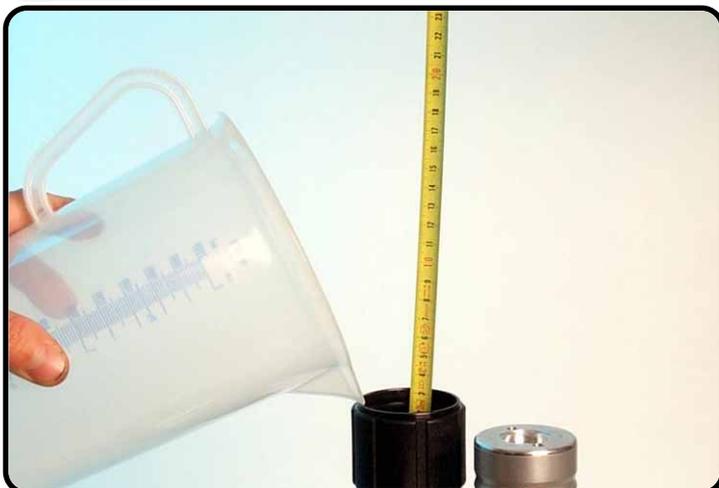


Adjust the separation piston with T1210S about 10mm from bottom, also the O-ring on the shaft of T107S will be 10mm from the screw-cap.

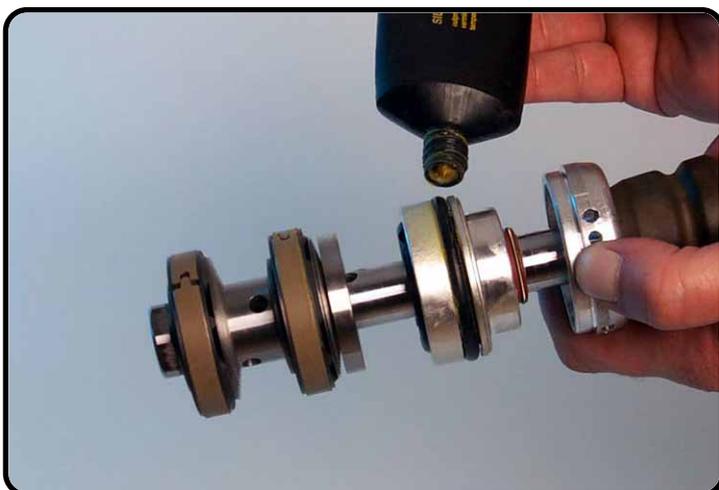


Close the compression mechanism to position 13. ("+" mark)

## Assembling shock absorber



Fill up oil about 10mm under the springing groove.



Assembling piston-rod "cpl.". Grease O-ring on DU-bush adaptor with T158.



Assemble piston-rod "complete" into the tube.



Push adaptor into the tube...

(if necessary open CC-mechanism 4 clicks)



...past the springing groove.



Assemble the springing into the groove.



Pull up the piston-rod.



Tap the cap into the tube.

## Bleeding

Clamp the shock absorber (not too tight) on the spring guide in the vice at an angle of approximately 45 degrees with the housing of the compression mechanism at the highest level.



1. Remove the knob.



2.





Remove the steel ball.



Remove the lock washer.



Remove compression control mechanism.



Connect the adaptor of T144S into the housing.



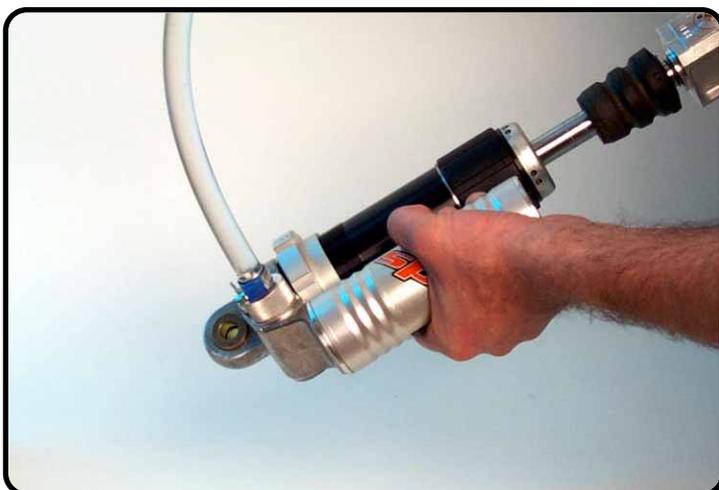
Ensure that there is sufficient oil in the bottle and that the hose is also full with oil.  
You will see air bubbles rising up through the hose.



Push the piston-rod slowly in.



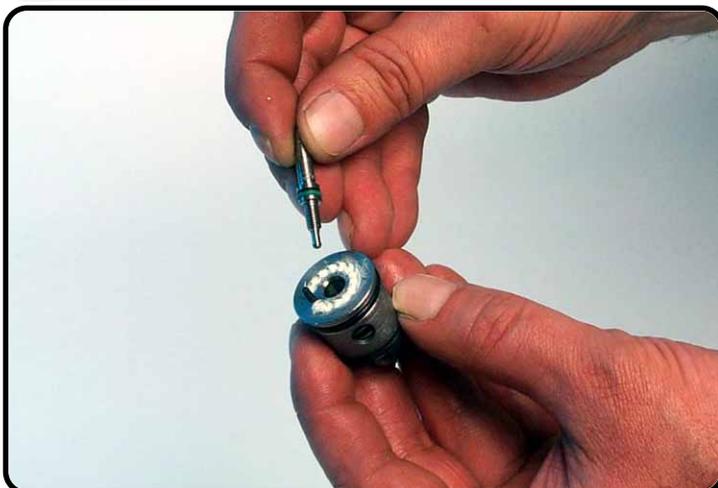
Pull the piston-rod out.



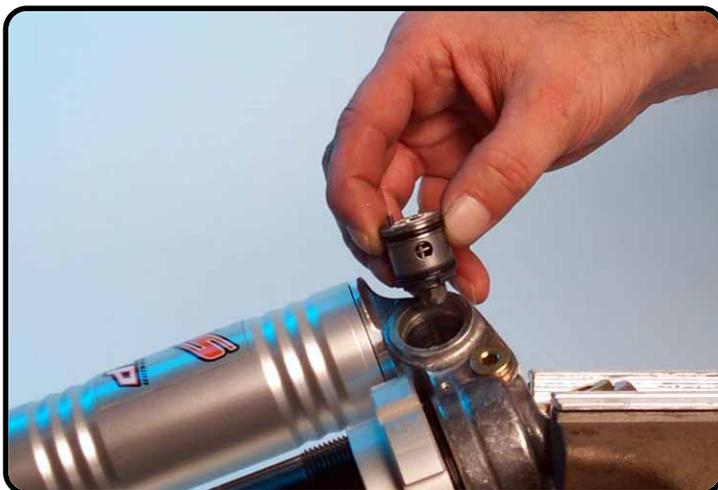
Remove the shock absorber out from the vice and turn it 45 degrees several times. Repeat all the bleeding procedures until all air is bled out.



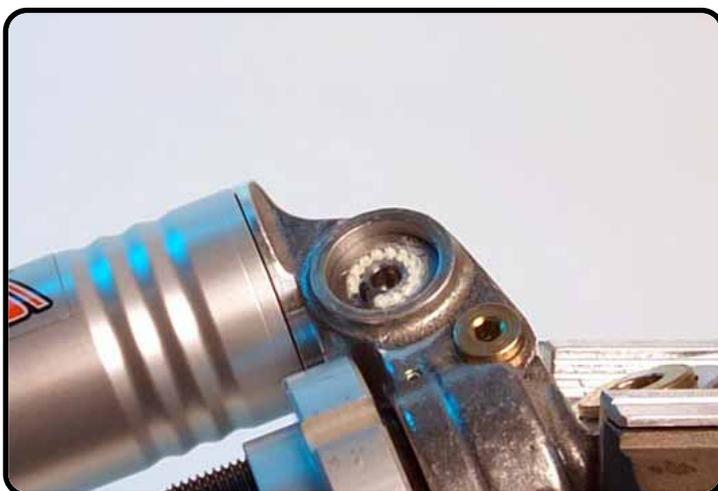
Pull the piston-rod completely out. Check position (10mm) of the separation piston with T107S.



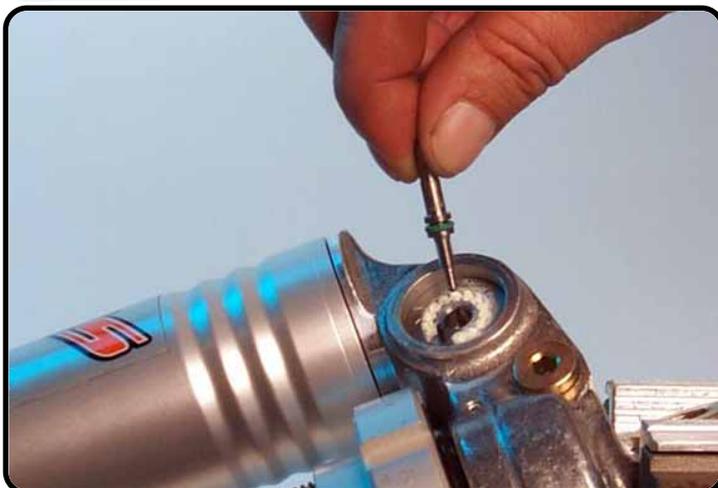
Unscrew adjusting needle clockwise out of the mechanism.



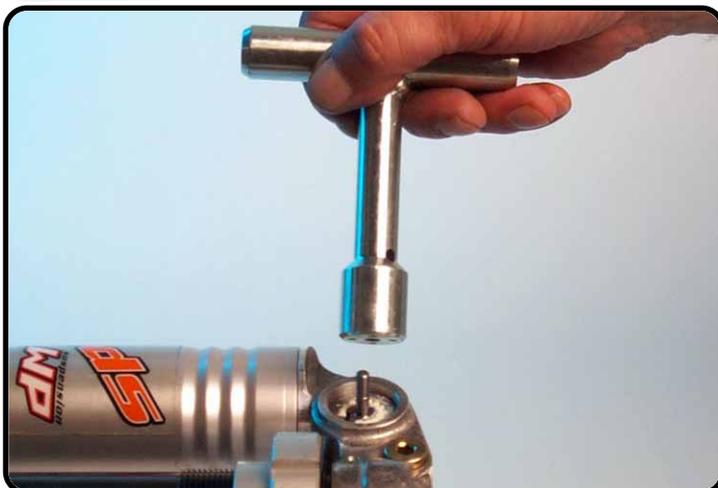
Assemble mechanism without needle. Hole of the mechanism facing the hole direction tube!!!



Assembled compression control mechanism.



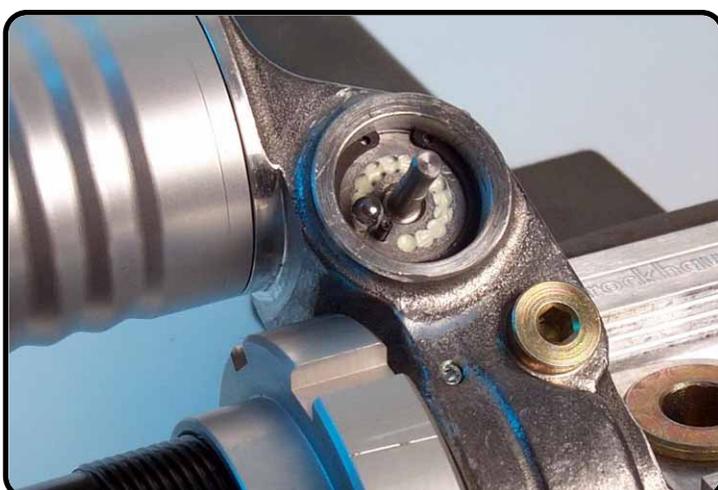
Screw the adjusting needle hand tight into the mechanism.



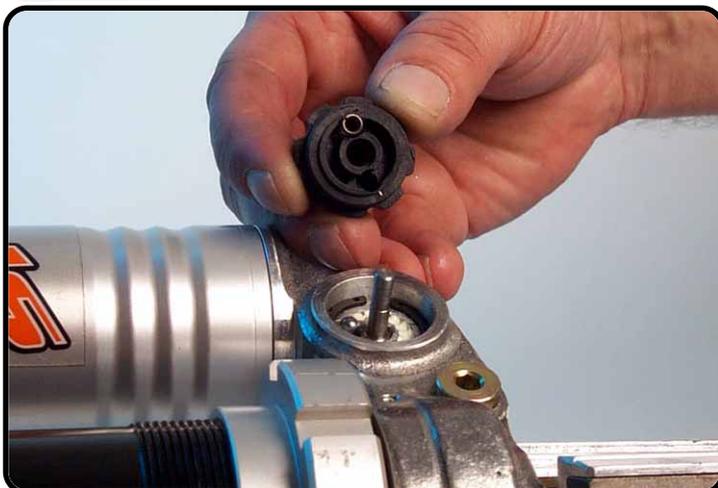
Push mechanism with T160 past lock washer groove.



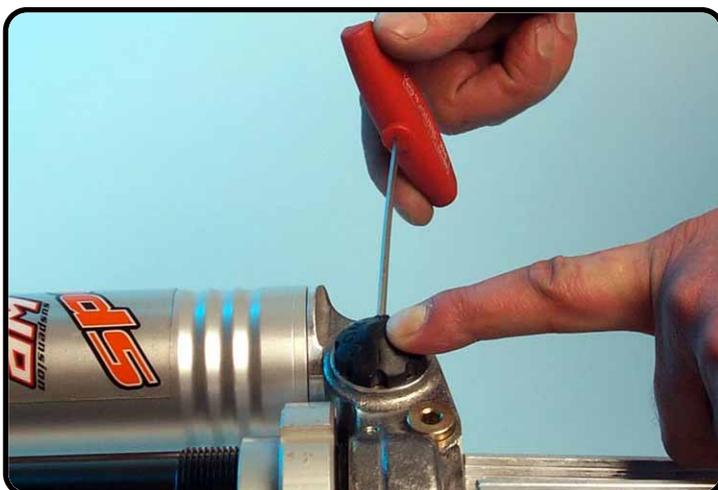
Assemble the lock washer with the flat side above in the groove.



Place steel ball left next to the pin.



Assemble the adjusting knob with spring on the steel ball.

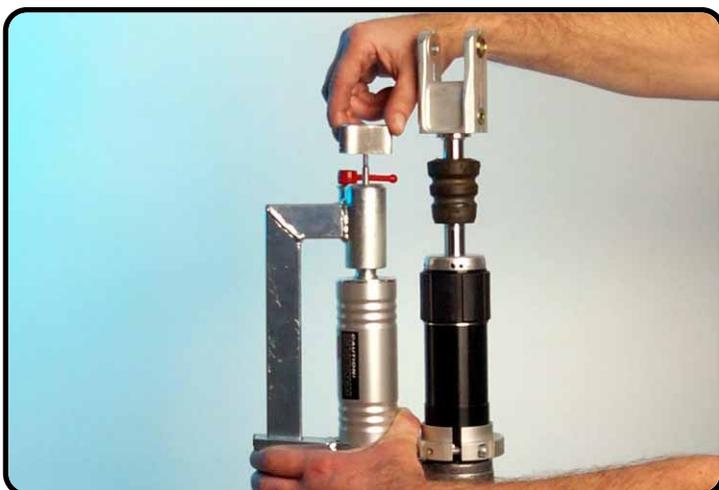


Push the knob against the housing and tighten it.

## On pressure with nitrogen



Screw the plug with O-ring several turns into the nitrogen reservoir screw-cap.  
Do not tighten the plug.



Place the PDS damper in T70S and fill the reservoir with nitrogen ( $\pm 20$  sec.) and tighten the bolt under pressure.



Assemble rubber cap.

## Mounting spring



Turn mounting fork parallel with the bottom eye.  
Rebound and compression mechanism in the same direction



Replace spring washer.



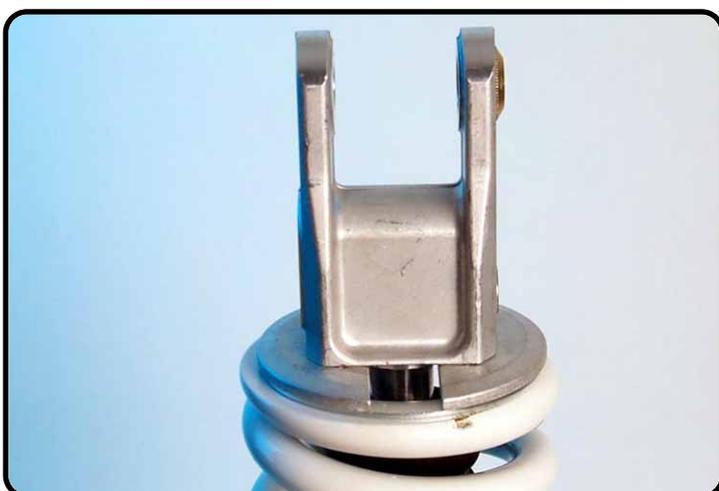
Replace the spring with the progressive coils into the direction of the bottom.



Replace second washer.



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



Move the spring and retainer in this position.



Adjust the preload of the spring.



Tighten the screw spring retainer to...



...a torque of 5Nm.

## Adjusting



Rebound position!



Compression position!