

**Product**

Exploded View

Disassembly & Assembling



Schok absorber

# 4618 BAVP 85 SX

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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.

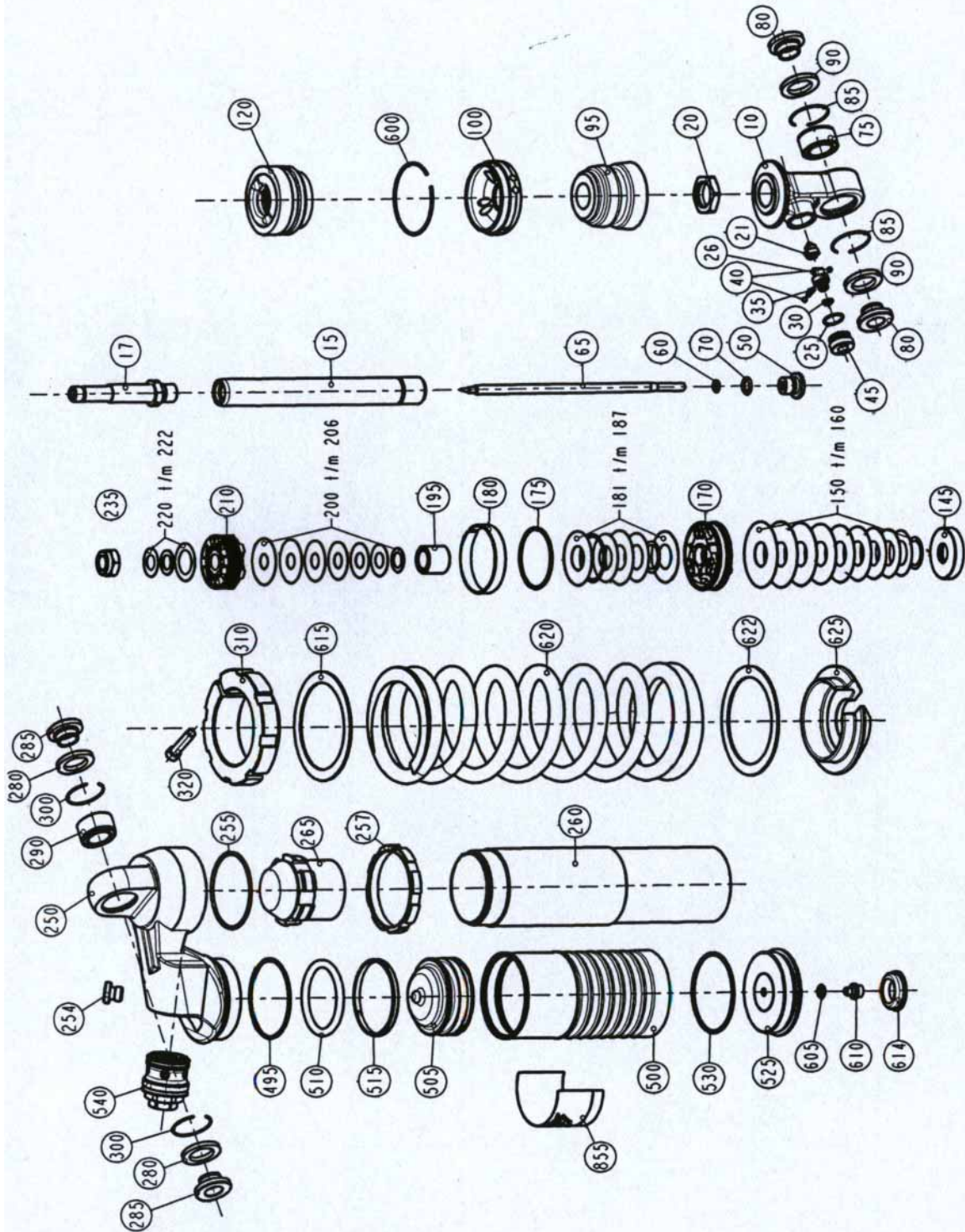
These parts must dry for at least four hours!!

Product

Exploded View

Disassembly & Assembling

Exploded view



## Disassembly Shock absorber



Measure the spring preload between the spring retainer and lock retainer.



Take note of the angle of the position of the Allen bolt!  
Unscrew the Allen bolt.



Release the spring preload with open spanner T106.



Screw the retainer into the direction of the lock retainer.



Remove the open spring retainer.



Remove the washer.



Remove the spring.



Remove the second washer.



Note the position of the compression low-speed.  
Fully closed is turning the screw clockwise.

**Turn the low-speed compression fully open.**



Note the position of the compression high-speed.  
Fully closed is turning the hexagonal (size 17) clockwise.

**Turn the high-speed compression fully open!**



Note the position of the rebound.  
Fully closed is turning the screw clockwise.

**Turn the rebound fully open!**



Disassemble the rubber cap.



Unscrew slowly the nitrogen plug (size 4) to release the pressure.  
Pay attention to the O-ring of the plug!





Tap the cap from the tube.



Push the adaptor DU-bush downwards.



Disassemble the springing out of the groove of the tube.



Remove the springring.



1. Pull carefully but firmly the piston rod "cpl" out of the tube.



2.



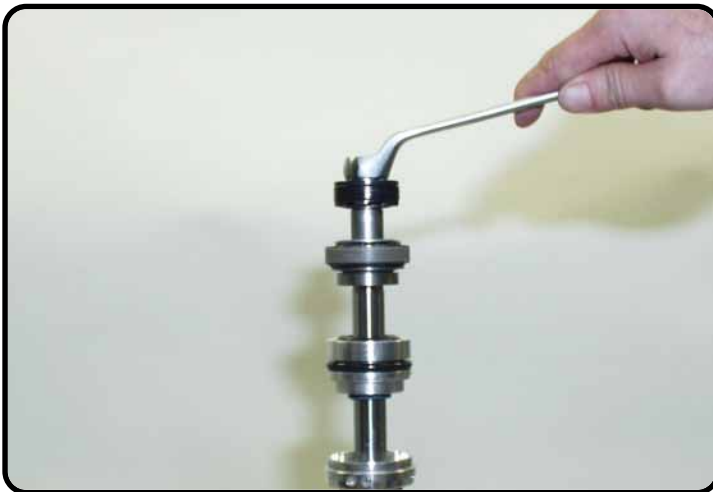
Drain the oil out of the tube.

## Disassembly piston rod

Place the piston rod "cpl" in the vice.



Unscrew the piston rod nut (size 17).



Turn off the nut.





1. Place a screwdriver on top of the piston rod and lift the entire assembly onto the screwdriver.



2. Pay attention to the assembling direction of all the parts!!!



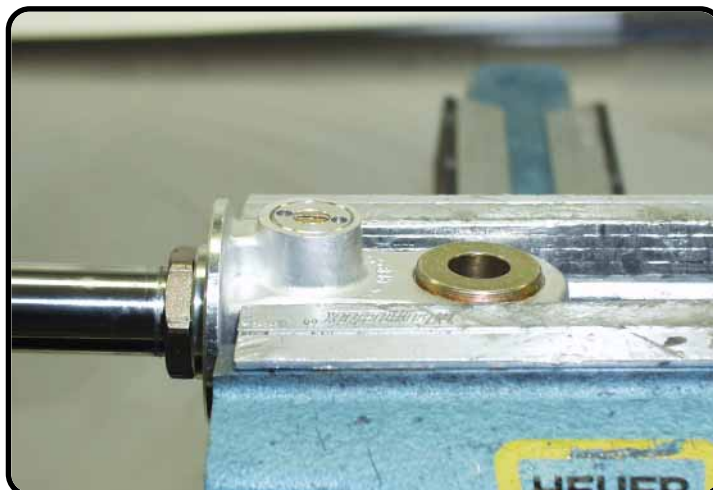
Remove the adaptor DU-bush



Remove the cap.



Remove the bumrubber.  
Pay attention to the assembling  
direction!



Clamp the mounting-eye in the vice.



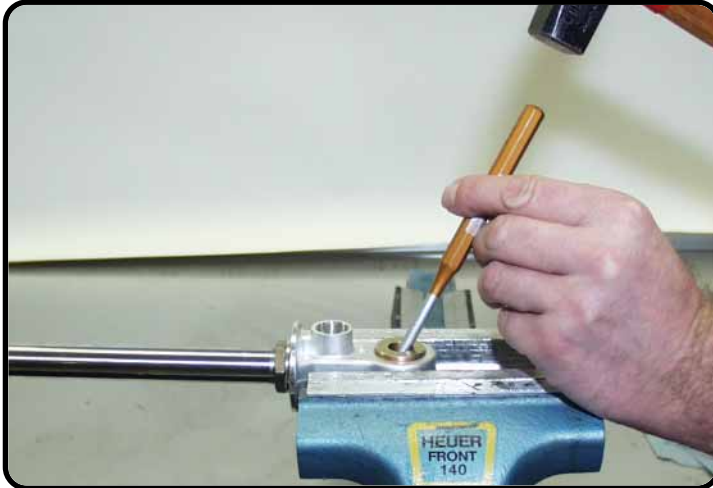
Unscrew the screw cap out of the mounting-eye with T1218.



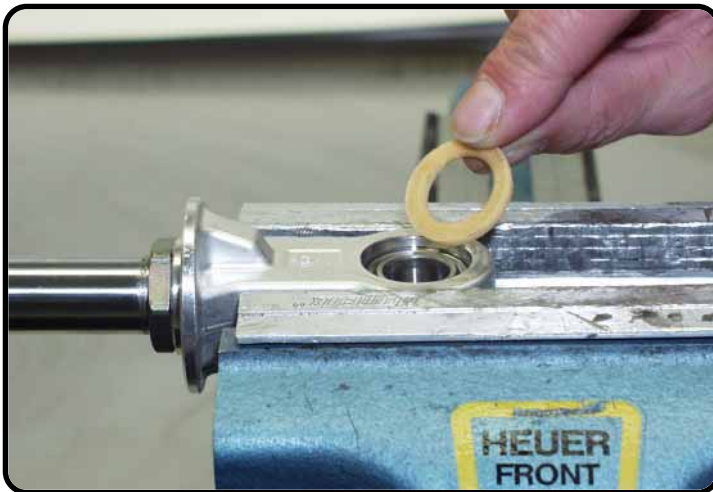
Turn the screw cap with the adjustment adaptor out of the mounting-eye.



Turn the adjustment needle out of the mounting-eye.



Tap with T120 the adaptor bush out of the heim joint.



Remove the seal.

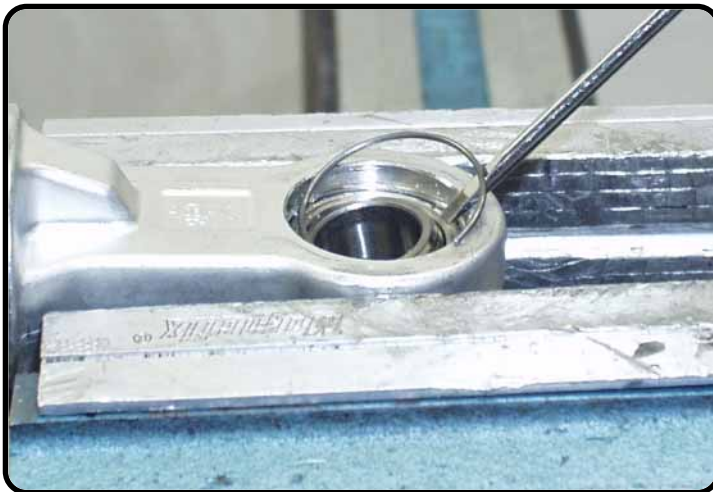


Tap the other adaptor bush out of the heim joint.





Push with T1207S the heim joint against the springing of the mounting-eye.



Disassemble the springing.



Push with T1207S the heim joint out of the mounting-eye.  
Disassemble when necessary the other springing.



Heat the lock nut of the piston rod / mounting-eye.



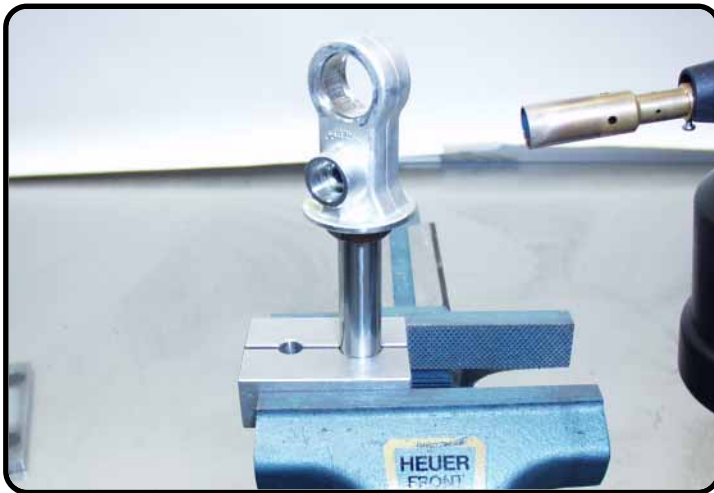
1. Unscrew the locking nut (size 14).



2.



Clamp the piston rod in T1202S.



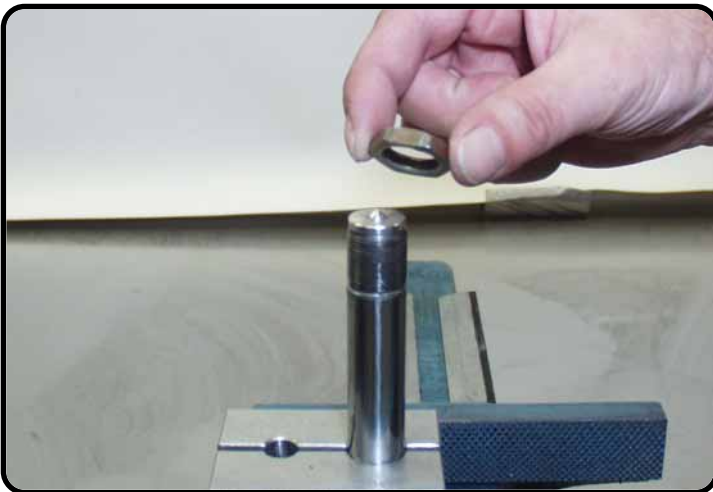
Heat the mounting-eye.



Unscrew the mounting-eye.



Turn the mounting-eye of the piston-rod.



Turn the lock nut of the piston-rod.  
**Pay attention to the assembling direction!**



1. Take the rebound adjustment needle with guiding out of the piston-rod.



2.



Turn the piston-rod in the clamping block.



Heat the tap of the piston-rod.



Untighten the tap (size 15).



Srew the tap of the piston-rod.

## Assembling the piston-rod.

Wet the thread of the tap with T132.



Screw the tap into the piston-rod.



Tighten the tap.





Rebound adjustment needle with the needle guiding.



Grease both O-rings (in- and outside) with T158.



1. Place the needle into the piston-rod.





2.



Screw the lock nut on the piston-rod.



Wet the thread of the mounting-eye with T132.



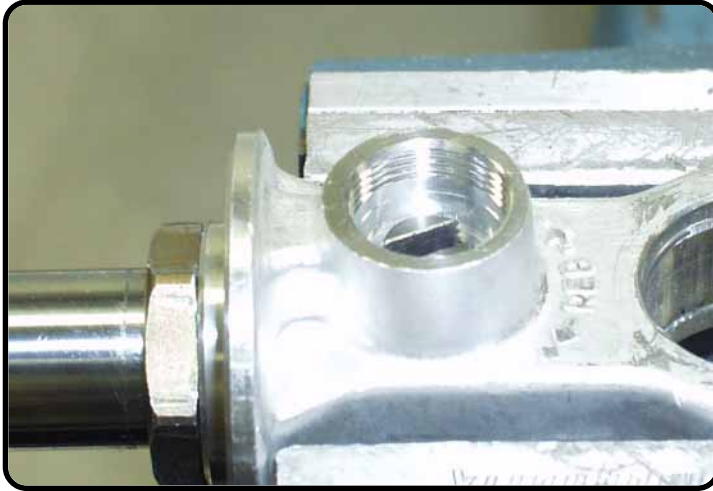
Tight the mounting-eye.



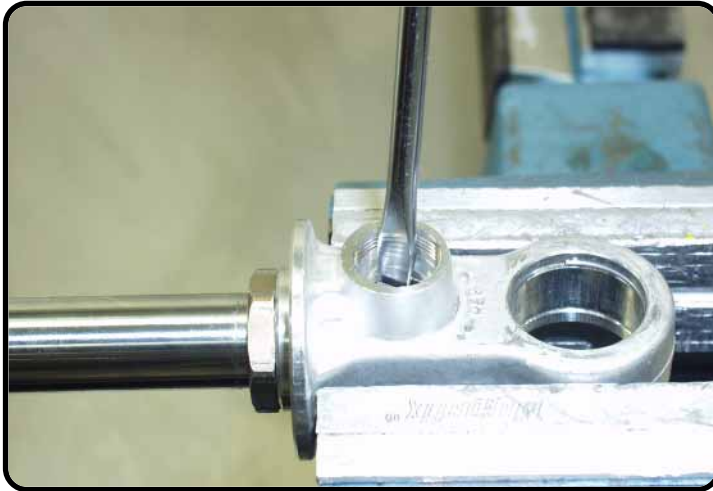
Tight the lock nut.



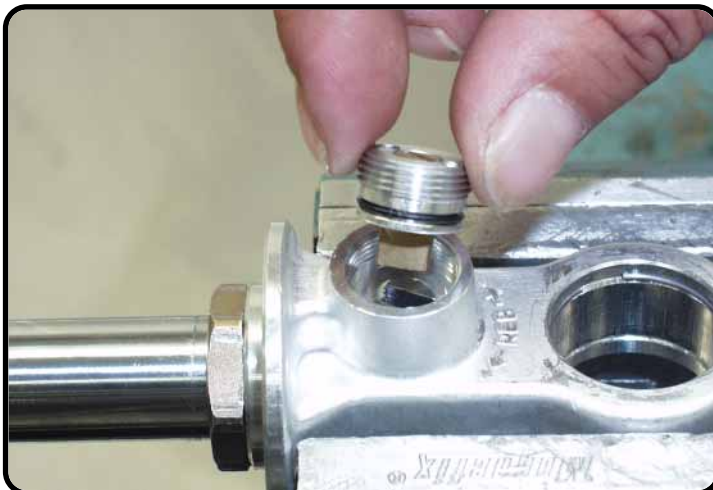
1. Replace the rebound adjustment needle.



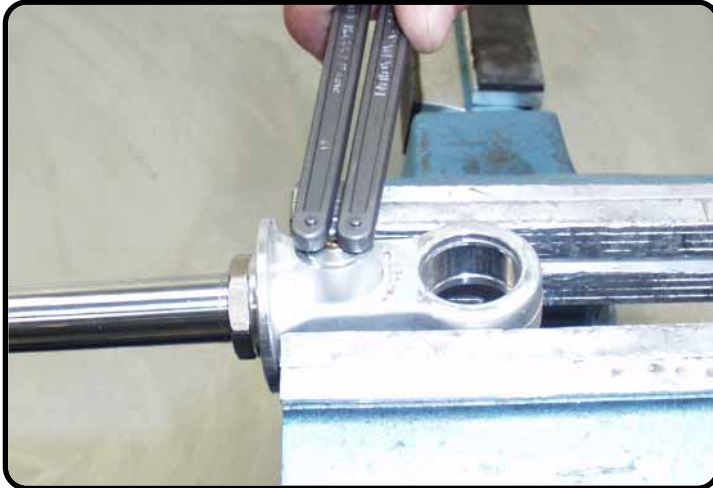
2.



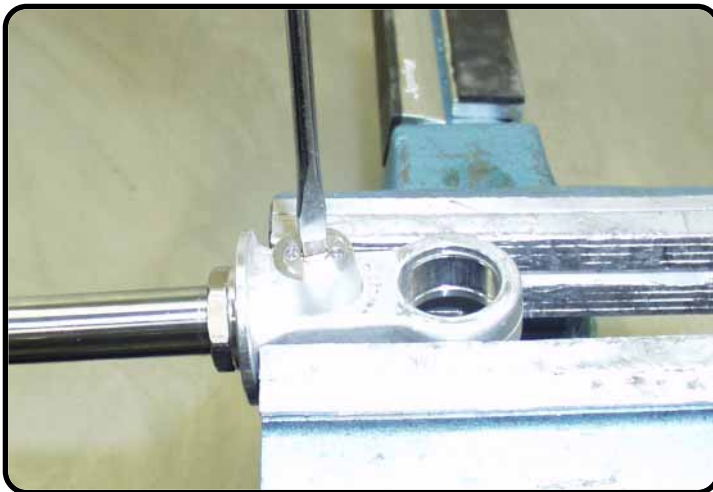
Screw the needle several turns into the mounting-eye.



Greas the adaptor with waterproof grease T159.  
Replace the rebound screw cap with the adjustment adjuster.



Tight the screw cap with T1218.



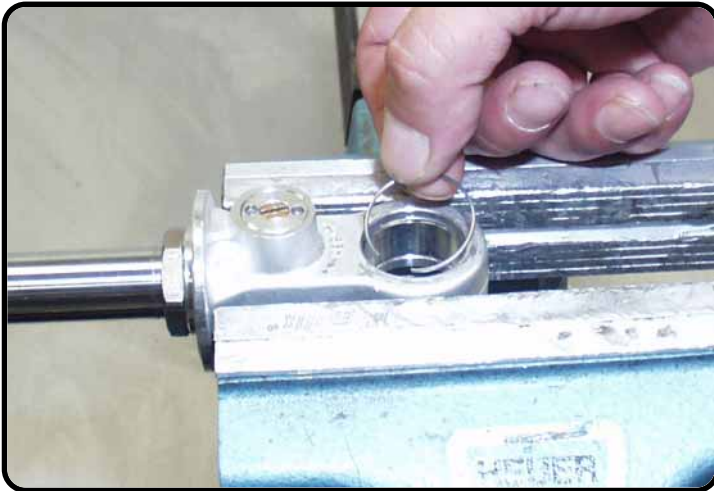
Turn the rebound position fully open.



Push the rebound needle downwards.



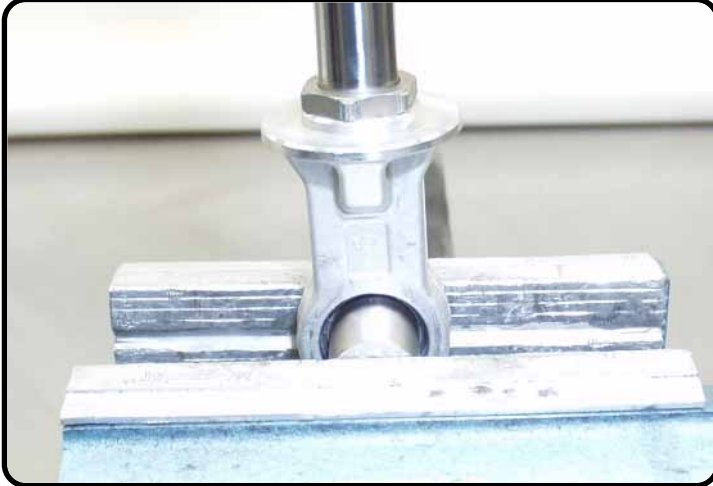
Wet the innerside of the mounting eye a little bit with T132.



Assemble one springing into the mounting-eye.



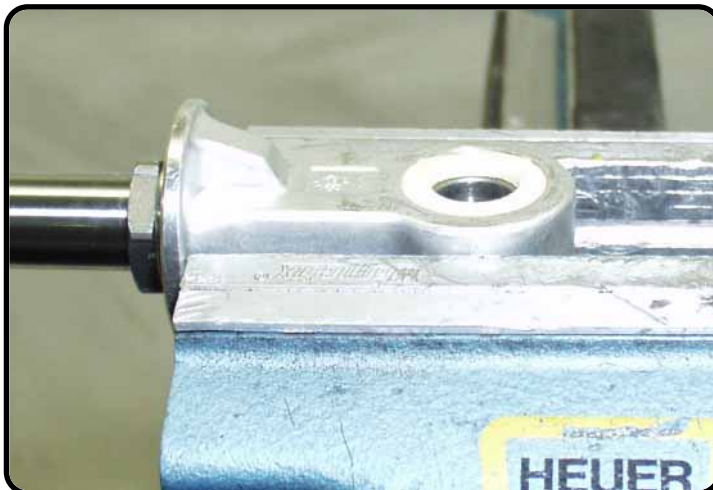
“Heim joint KGW”  
Pay attention to the bevelled edge on one side!



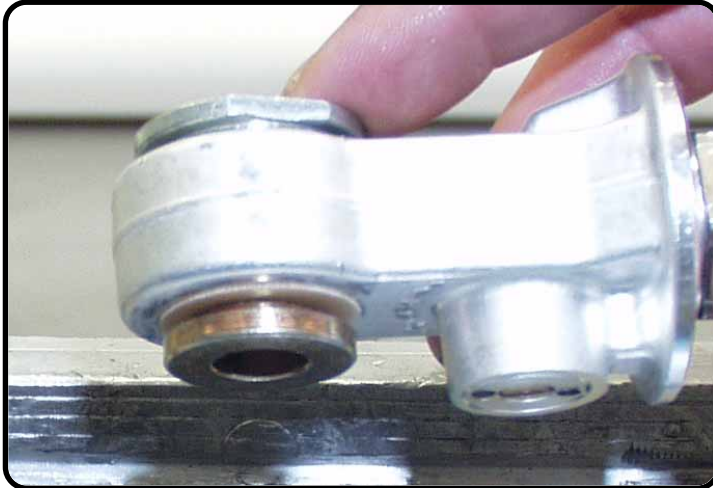
Press with T1207S the heim joint into the mounting eye, with the bevelled edge in the direction of the springing.



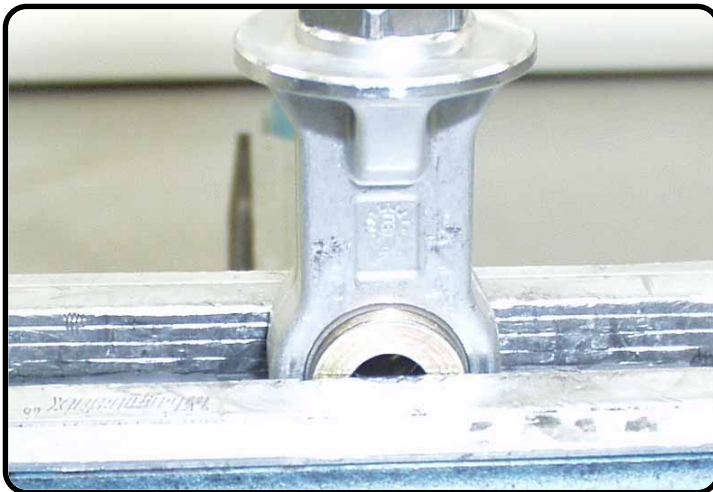
Assemble the other springing.



Replace both seals.



Assemble one adaptor bush in the heim joint with support of T1206.



Press the adaptor bush in the heim joint. The second adaptor bush without support of T1206.



Replace the bumprubber.



Replace the cap.



### Disassembly adaptor DU-bush

Lift the rebound rubber out of the adaptor.



Remove the steel plate.



Remove the first back-up ring.





Remove the quad-ring.



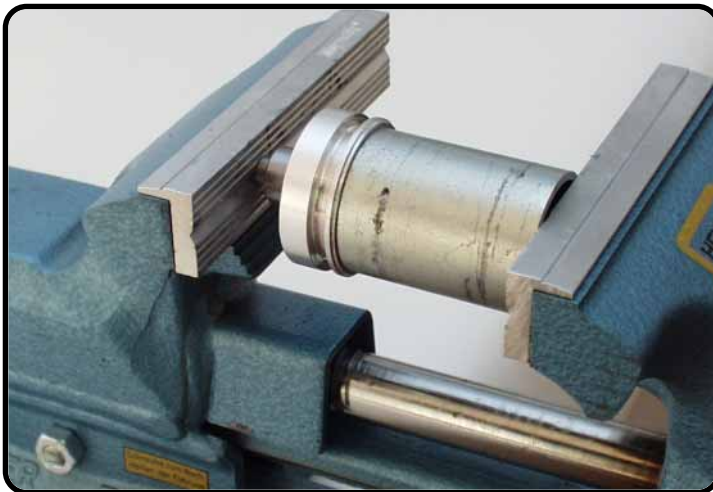
Remove the second back-up ring.



Lift the dirt scraper out of the adaptor.



Remove the O-ring



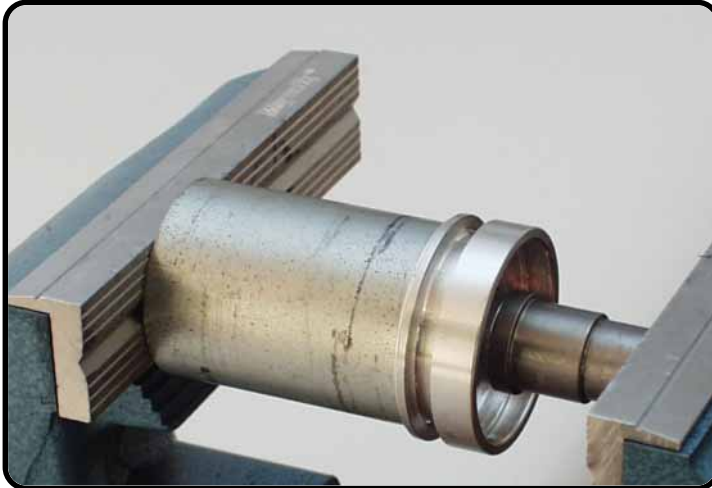
Press the DU-bush out of the adaptor with T1209 and T1504.



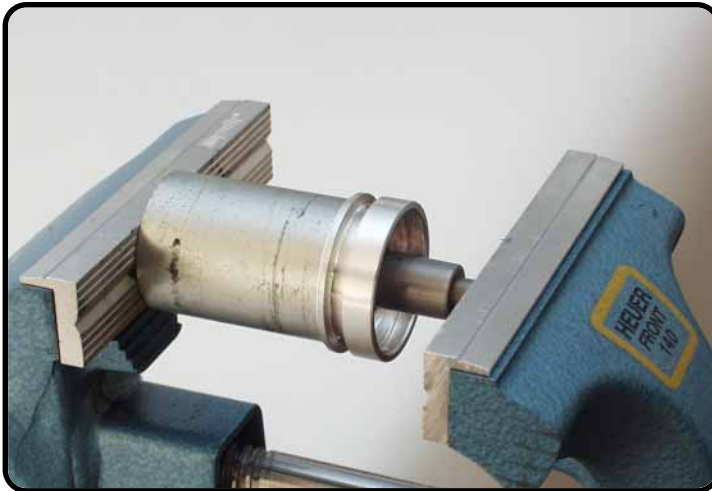
Adaptor DU-bush in parts.

### Assembling adaptor DU-bush

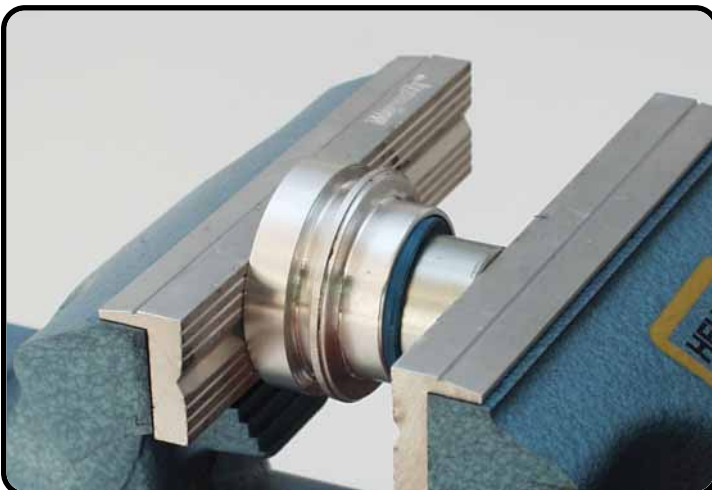
Press the DU-bush into the adaptor with  
T1209 and T1504 .



Calibrate the DU-bush with the  
calibration thorn T1205.  
**Important: wet the thorn with oil  
before the calibration.**



Press the dirt scraper into the adaptor  
with assembling bush T1204.





Grease the Groove of the adaptor with T158 and assemble the O-ring (not on picture).  
Replace the second back-up ring.



Replace the quad-ring.



Replace the first back-up ring.



Replace the steel plate.



Assemble the rebound rubber in the adaptor DU-bush and ensure that the rubber can rotate in the adaptor.



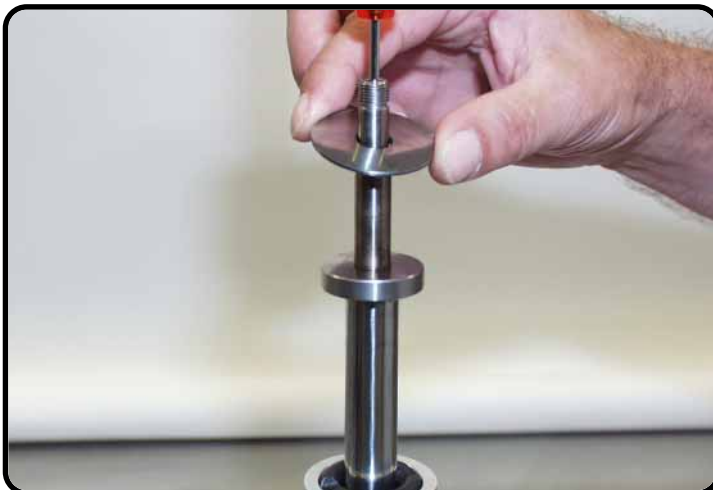
Replace carefully the adaptor DU-bush on the piston-rod.



- Rebound bush plane
- Compression setting 1 (shims)
- Main piston 1 (with ring and O-ring)
- Rebound setting 1 (shims)
- Intermediate bush
- Compression setting 2 (shims)
- Piston 2
- Rebound check valve setting
- Piston-rod nut



Assemble the rebound bush plane.



Assemble compression shim setting 1.



Replace piston 1.



Assemble rebound setting 1.



Replace the intermediate bush.





Assemble compression setting 2.



Replace piston 2.



Assemble the ring of check-valve setting 2.



Assemble the shim of check-valve setting over the ring 2.



Assemble the shim.



Turn the nut on the piston-rod,



Tighten the piston-rod nut to a torque of 30Nm.

## Disassembly tube side

Turn the screw retainer of the tube.



Untighten the screw cap of the DCC (Duel Compression Control) of the bottom. (size 24)



Remove the screw cap.





Pull the DCC out of the bottom.



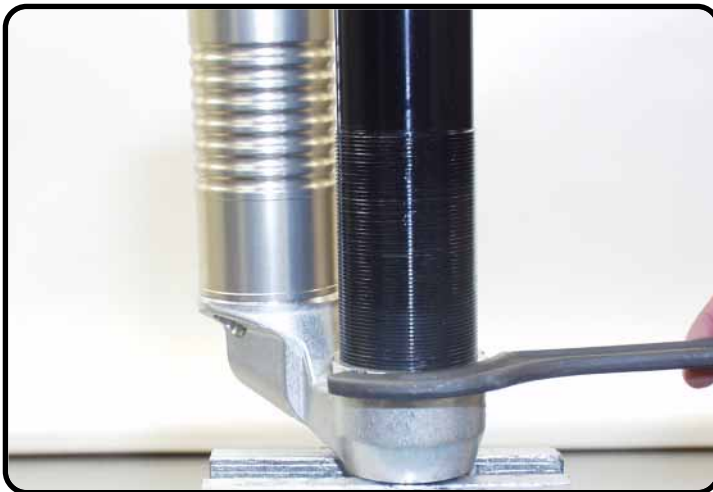
“DCC”



Unscrew and remove the plug R1/8.



Heat the lock ring of the tube/bottom.



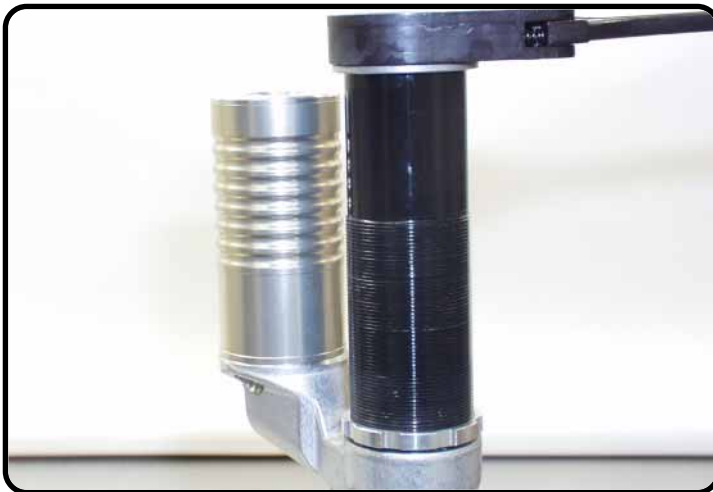
Untighten the lock ring with a open spanner.



Remove the "caution" sticker.



Heat the bottom near the tube.



Untighten the tube with slide spanner T146 with bush T148.



Turn the tube out of the bottom.



Pull the hydraulic sleeve out of the bottom.

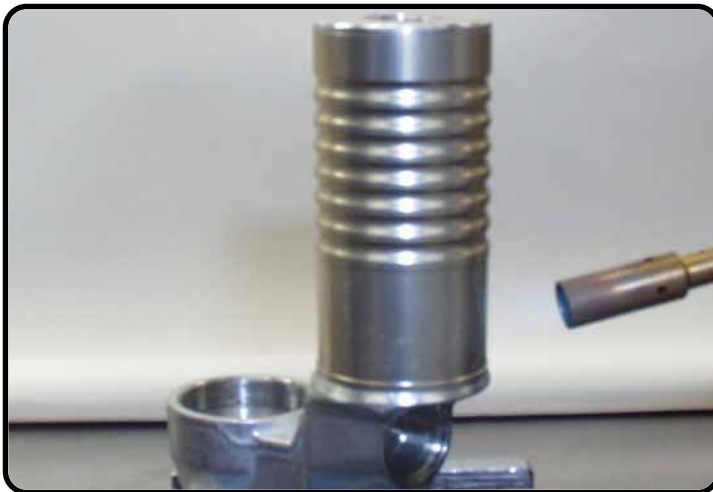


Disassemble the O-ring.





Remove the sticker.



Heat the reservoir near the bottom.



Use T125S and T145S....



....to untighten the reservoir.



Unscrew the reservoir of the bottom.



Remove the O-ring.



- Bottom
- Both O-rings
- Hydraulic sleeve

To disassemble the adaptor bushes and heim joint see disassembly piston rod (mounting-eye)



Clamp slide spanner T146 with bush T148 in the vice, see picture. Heat the lock ring.



Screw the lock ring of the tube.



Tube with lock ring.



Pay attention to the assembling direction!  
Push with T170S the separation piston out of the reservoir.



Remove the O-ring and piston ring.

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Exploded View

Disassembly & Assembling



- Reservoir
- O-ring
- Piston ring
- Separation piston

### Assembling tube side

Grease the groove of the separation piston with T158.



Assemble the O-ring and grease the O-ring with T158.



Grease the surface of the inner side of the reservoir with T158.





1. Assemble the separation piston with piston ring with the hollow surface into the reservoir.



2. Push the separation piston into the reservoir.



1. Assemble both O-rings.



2.



Wet the thread of the bottom and the thread of the reservoir with T131.





Screw the reservoir on the bottom.



Tighten the reservoir with T125S and T145S.



Screw the lock ring on the tube as far as possible.



Assemble the hydraulic sleeve.



Wet the thread of the tube with T132.



Grease the edge of the tube a little bit with T158.



Screw the retainer into the bottom.



Tighten the tube.



Screw the lock ring downwards against the bottom.



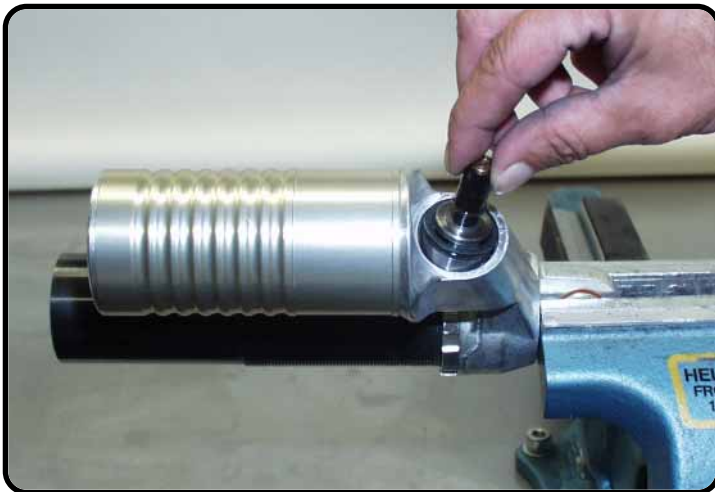
Tighten the lock ring with the hook spanner.



Place a new "caution" sticker.



Grease the O-ring of the DCC piston.



Assemble the DCC into the bottom.



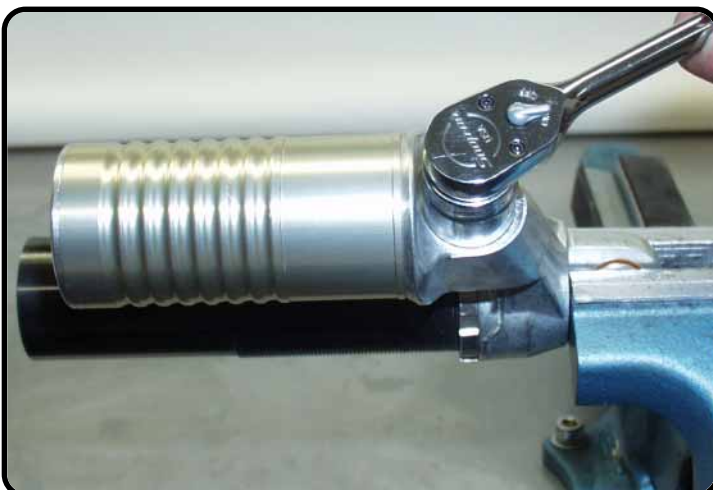
Place the spring.



Grease the O-ring inside of the hexagonal with T158.



Srew the screw cap of the DCC into the bottom.



Tighten the screw cap to a torque of 50Nm.



Screw the filling plug R1/8 in the bottom and tighten it to a torque of 16Nm.



Fill the tube with oil till about 50mm under the spring ring groove.



Adjust the O-ring of T170S like picture ( $\pm$  50mm of the top).



Push the separation piston fully downwards.



Use plunger T110S....



...to push the oil through the bottom.





Push T170S again fully downwards.



Fill the tube with oil till  $\pm 10\text{mm}$  under the spring ring groove.



Slide the piston rod side "cpl" in the oil.



Assemble the adaptor DU-bush in the oil and....



....push the adaptor just under the spring ring groove.



Assemble first the closed side of the spring ring into the groove and then the open side.



Pull the piston rod "cpl" fully out.



Tap the cap into the tube.

## Bleeding

Disassemble the DCC.

Place the shock absorber in the vice like picture - not too tight.



Turn adaptor T1502S of the air release bottle T144S into the (DCC) housing of the bottom.



1.  
Hold the bottle up so that the oil will flow into the shock absorber.





2.



3. Push slowly the piston rod inside.



4. Pull the piston rod completely out.



5. Cant the shock absorber several times.  
Repeat handling 1until 5 till all air is out of the shock absorber.



Push the separation piston with T170S till the distance between the screw cap of the reservoir is 10mm.

Remove the adaptor and replace the DCC.



Place the screw retainer.



Place a new sticker.

### On pressure with nitrogen



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



Use "nitrogen charging device" T170S1 for filling the shock absorber with nitrogen (10 BAR).



Place the shock absorber in T170S1 and open the tap for about 20 seconds. Close the nitrogen plug. Close the tap.





Replace the rubber “do not open” cap.

## Mounting spring



assemble the washer.



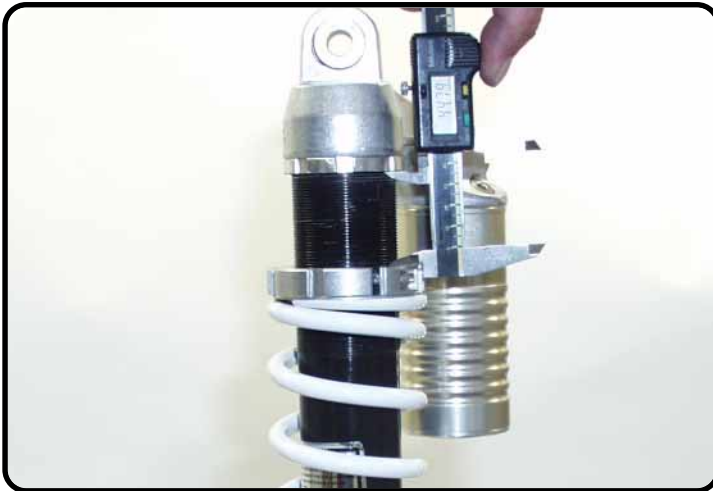
Assemble the spring.



Assemble the second washer.



Assemble the open spring retainer.



Adjust the spring to the correct preload as measured before.



**Important!**  
Tighten the Allen bolt of the spring retainer to a torque of 5Nm.

## Adjustments



Compression position low-speed!



Compression position high-speed!



Rebound position!