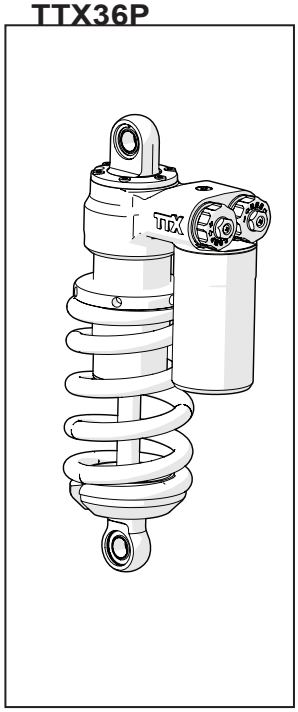
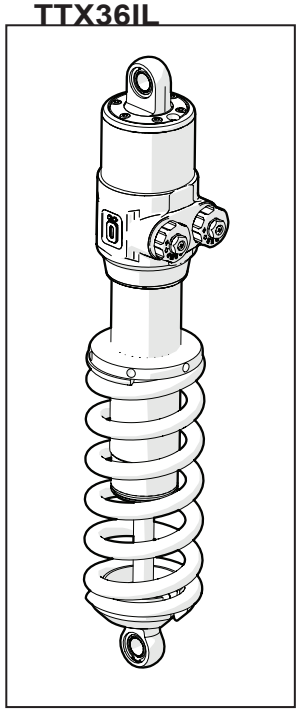
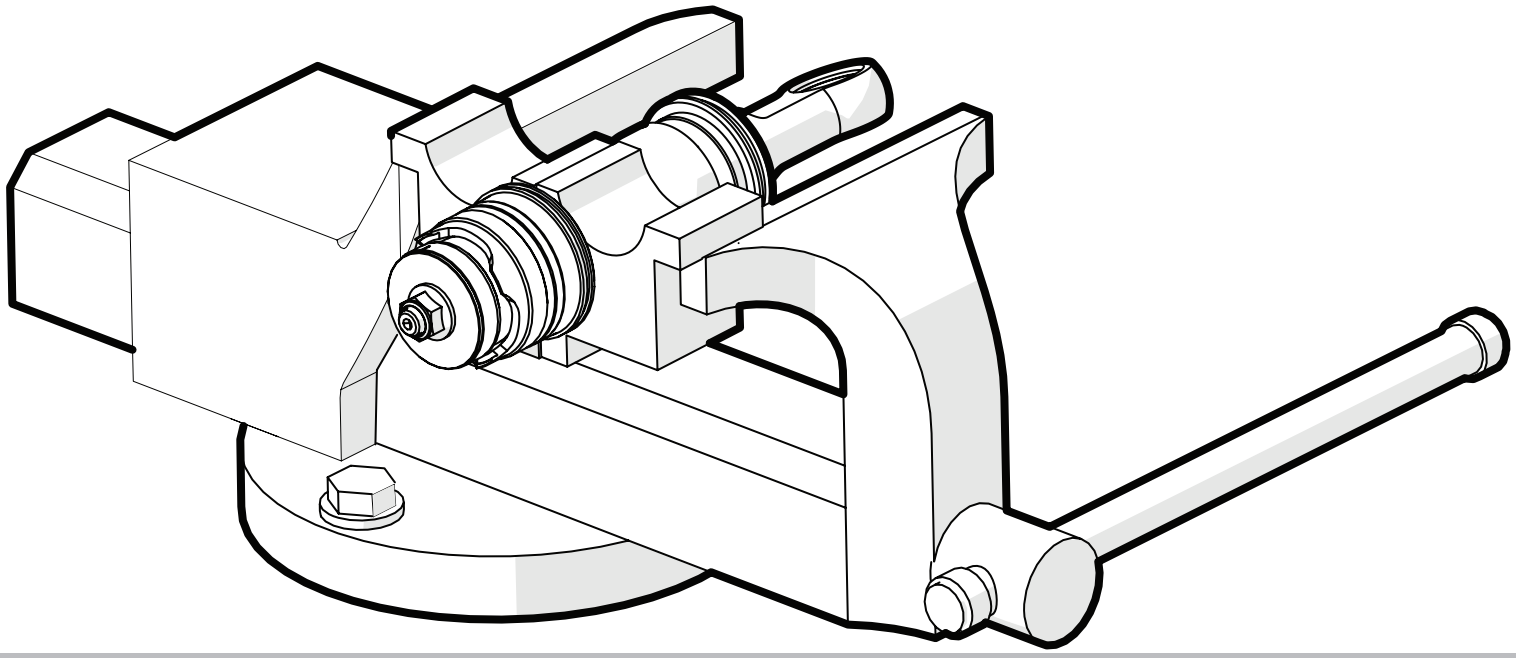
TTX36P



TTX36IL





Shock absorber for Automotive

TTX36 P/ IL

Workshop Manual

ÖHLINS®

ADVANCED SUSPENSION TECHNOLOGY

Safety precautions

General Warnings

Note!

The shock absorber/front fork/steering damper is an important part of the vehicle and will affect the stability.

Note!

Read and make sure you understand the information in this manual and other technical documents provided by Öhlins, before using the product.

Note!

Öhlins Racing AB can not be held responsible for any damage to the shock absorber/front fork/steering damper, vehicle, other property or injury to persons, if the instructions for installing, usage and maintenance are not followed exactly.

⚠ Warning!

After installing the Öhlins product, take a test drive at low speed to make sure your vehicle has maintained stability.

⚠ Warning!

If the suspension makes an abnormal noise, or the function is irregular, or if you notice any leakage from the product, stop the vehicle immediately and return the product to an Öhlins Service Centre.

⚠ Warning!

The product warranty shall only apply if the product has been operated and maintained in accordance with recommendations in this manual. If you have any questions regarding usage, service, inspection and/or maintenance please contact Öhlins.

Note!

When working with the Öhlins product, always read the Vehicle Service Manual.

SAFETY SYMBOLS

In this manual, mounting instructions and other technical documents, important information concerning safety is distinguished by the following symbols:

⚠

The Safety Alert Symbol means: Warning! Your safety is involved.

⚠ Warning!

The Warning Symbol means: Failure to follow warning instructions can result in severe or fatal injury to anyone working with, inspecting or using the shock absorber, or to bystanders.

Caution!

The Caution Symbol means: Special precautions must be taken to avoid damage to the shock absorber.

Note!

The Note Symbol indicates information that is important regarding procedures.

Product Specific Warnings

⚠ Warning!

This product was developed and designed exclusively for a specific vehicle model and shall only be installed on the intended vehicle model in its original condition as delivered from the vehicle manufacturer.

⚠ Warning!

This product contains pressurized nitrogen gas (N_2). Do not open, service or modify this product without proper education (approved Öhlins dealer/distributor) and proper tools.

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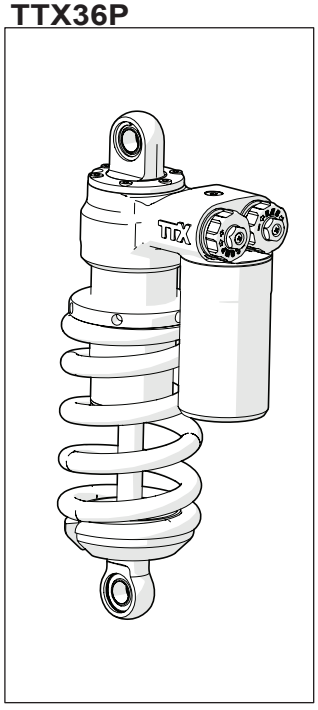
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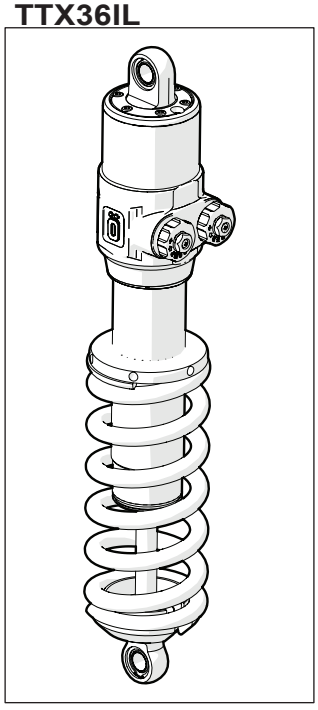
Note!

The images in this manual are a general representation of the product and can look different from the product you have. If you have any questions regarding the procedure in this manual please contact an Öhlins dealer.

TTX36P

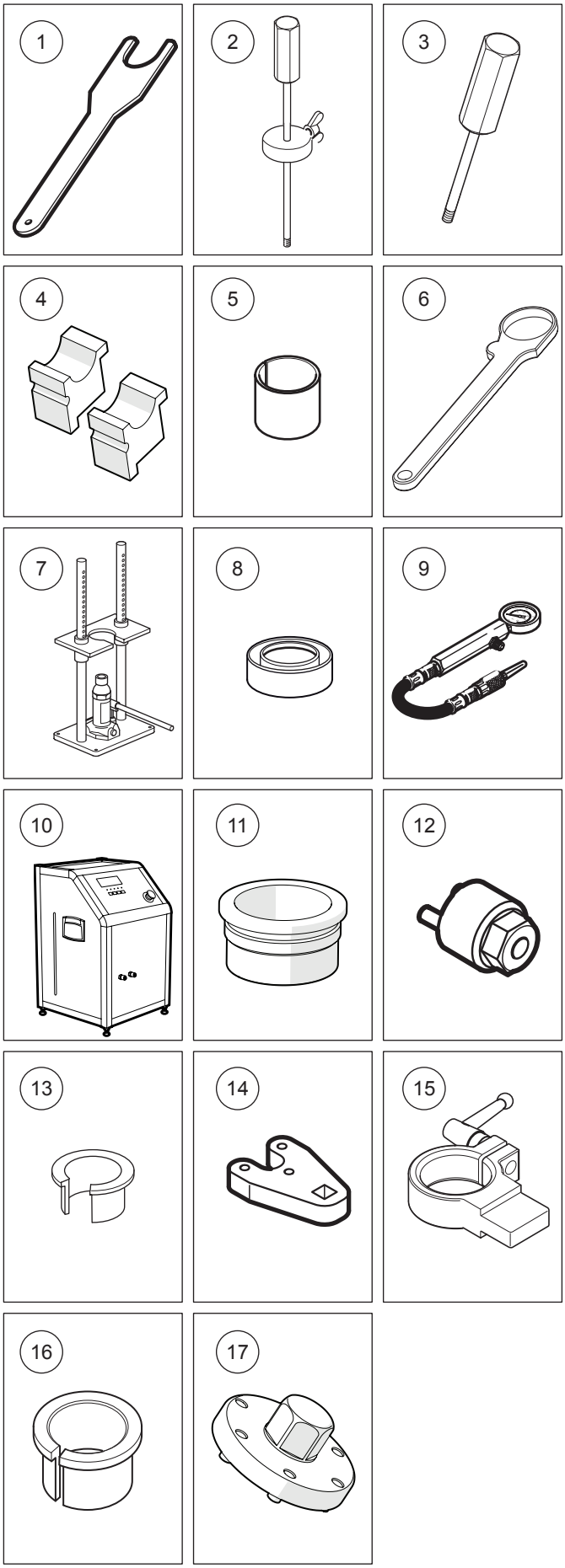


TTX36IL



Öhlins tools

Pos	Part no	Description
1	00704-02	Tool, end cap
2	00720-02	Measure pin
3	00720-03	Disassembly tool, end cap
4	00727-03	Soft jaws
5	00737-04	Sleeve 56 x 50.5
	00737-11	Sleeve 56 x 48.1
	00737-23	Sleeve 70 x 64.1
6	00738-01	Spanner 56
	00738-02	Spanner 70
7	00747-01	Spring assembly tool
8	01776-04	Oil Retaining Cup
9	01781-01	Gas Filling Device
10	01840-XX 07221-02	Filling Machine (220V/110V) Owner's manual for filling machine
11	01859-XX	Positioning tool
12	01860-01	Tool compression adjuster (BOB)
13	01861-06	Mounting sleeve for piston band
14	01885-01	Seal head tool
15	01878-01	Damper holder
16	01878-20	Sleeve for TTX36
17	01894-01	End cap tool



Standard tools

Allen key	3 mm
Allen bit	3 mm
Circlip pliers	
Heat gun	
Plastic hammer	
Ratchet	
Screwdriver	Phillips, Torx T25, T20
Small pliers	
Socket	12, 17 and 19 mm
Torque wrench	3 - 140 Nm
Vise with soft jaws	
Wrench	12 mm, 19 mm

Oil and grease

Part no.	Description	Notes
00159-01	Function grease	CaH92
01304-XX	Öhlins high performance fluid	
01791-03	Threadlocker - medium	Loctite 243
01791-05	Threadlocker - high	Loctite 2701

Spec. card and other information:
http://world.ohlins.com

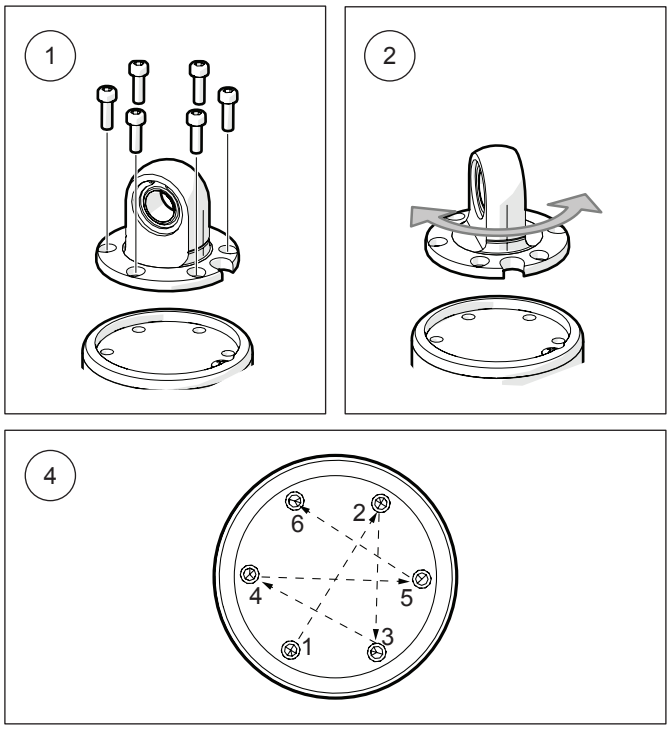
1 Rotate the top eye

1.1
Use a 3 mm Allen key to remove the screws. Apply heat with a heat gun if needed.

1.2
Rotate the top eye to the correct position.

1.3
Clean the screws.
Apply threadlocker (01791-03) and insert the screws.

1.4
Use a 3 mm Allen bit in a torque wrench to tighten the screws.
Tighten to 3 Nm in a criss-cross pattern.



2 Spring

2.1 Remove the spring

⚠ Warning!
A loaded spring can be dangerous. Only approved personnel must work with a loaded spring.

2.1.1
Put the shock absorber upside down in the spring assembly tool (00747-01).

2.1.2
Remove the spring clip and spring.

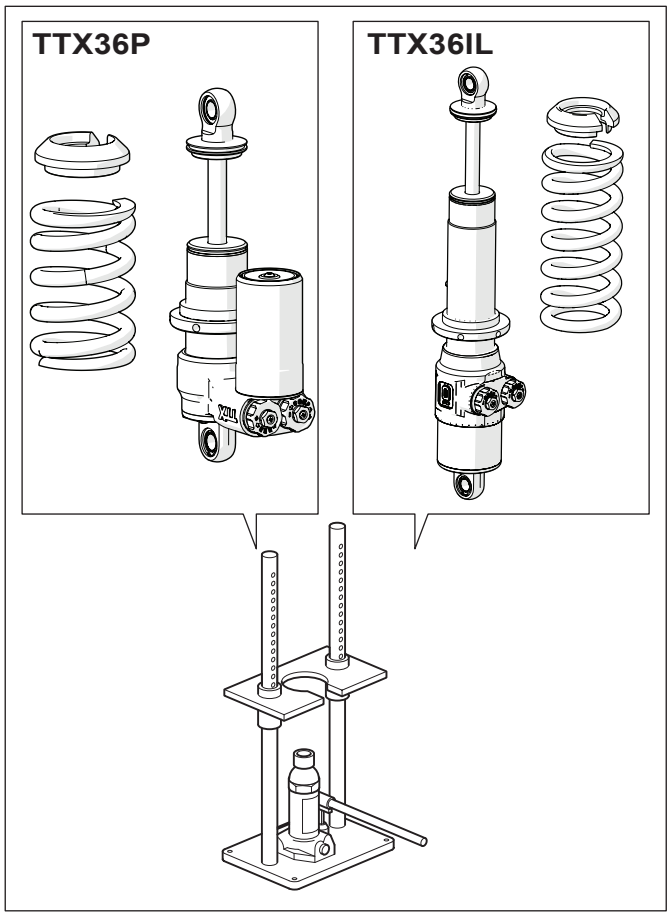
2.2 Install the spring

⚠ Warning!
A loaded spring can be dangerous. Only approved personnel must work with a loaded spring.

2.2.1
Put the shock absorber upside down in the spring assembly tool (00747-01).

2.2.2
Install the spring and the spring clip.

2.2.3
Set the spring preload according to the spec. card.



3 Pressure

⚠ Warning!

This procedure can be dangerous. Only approved personnel must work with a pressurized shock absorber.

⚠ Warning!

Be careful when you use the gas filling device (01781-01). Put the needle cover (01780-01) on the needle when the procedure is completed.

⚠ Warning!

Release the gas pressure before you do any other service on the shock absorber.

3.1 Release the gas pressure

3.1.1

Put the shock absorber in a vise with soft jaws.

P: Clamp around the top eye of the cylinder head.

IL: Clamp around the flat surfaces of the cylinder head.

3.1.2

Note the compression and rebound clicks.
Turn the adjusters to fully open.

3.1.3

Use a T20 screwdriver to remove the screw and the O-ring from the fill hole.

3.1.4

Remove the needle cover.

3.1.5

Apply function grease (00159-01) on the needle.

3.1.6

Push the needle of the needle housing assembly (01781-01) through the center of the rubber valve in the fill hole. Thread in all the way.

3.1.7

Insert the quick connect hose and gauge to the needle housing. Note the current pressure.

3.1.8

Remove the gauge to release the gas pressure.

3.1.9

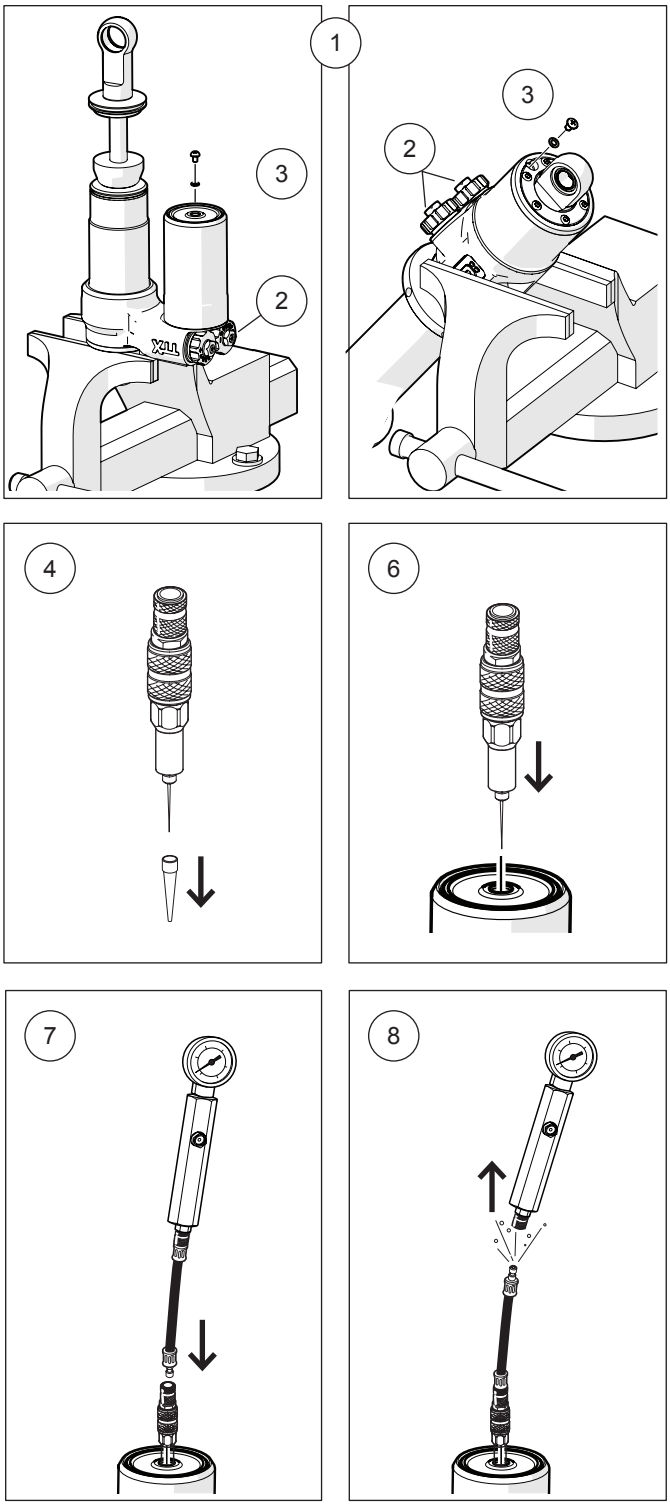
Remove the gas needle housing assembly.

⚠ Warning!

Be careful when you use the gas filling device (01781-01). Put the needle cover (01780-01) on the needle when the procedure is completed.

3.1.10

Insert the needle cover on the needle.



3.2 Pressurize

⚠ Warning!

This procedure can be dangerous. Only approved personnel must work with a pressurized shock absorber.

⚠ Warning!

Be careful when you use the gas filling device (01781-01). Put the needle cover (01780-01) on the needle when the procedure is completed.

⚠ Warning!

Only use nitrogen gas (N2) to pressurize the shock absorber. Nitrogen is an inflammable gas that does not affect the materials in the gas reservoir.

3.2.1

If not removed, use a T20 screwdriver to remove the screw and the O-ring from the fill hole.

3.2.2

Remove the needle cover.

3.2.3

Apply function grease (00159-01) on the needle.

3.2.4

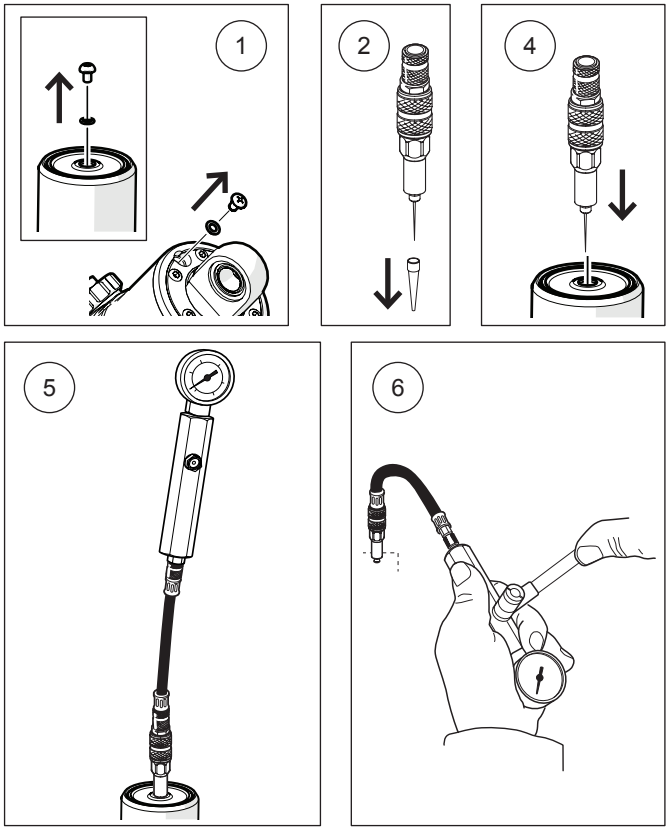
Push the needle of the needle housing assembly (01781-01) through the center of the rubber valve in the fill hole. Thread in all the way.

3.2.5

Insert the quick connect hose and gauge in the needle housing.

3.2.6

Pressurize the shock absorber according to the spec. card.



⚠ Warning!

Do not remove the needle housing from the fill hole with a pressurized gauge still connected. A pressurized needle can be dangerous. If nitrogen is injected into the body there is a risk for personal injury or death.

3.2.7

Important: Remove the quick connect hose from the needle housing to release the gas pressure in the gauge.

3.2.8

Remove the gas needle housing assembly from the fill hole.

⚠ Warning!

Be careful when you use the gas filling device (01781-01). Put the needle cover (01780-01) on the needle when the procedure is completed.

3.2.9

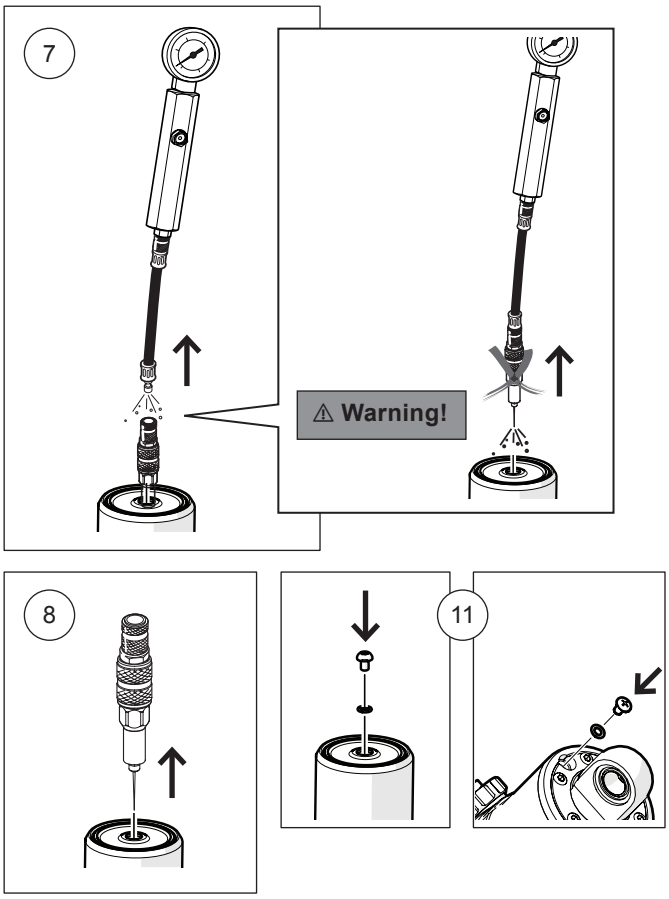
Insert the needle cover on the needle.

3.2.10

Make sure that there is no nitrogen gas leakage. Apply some soap water on the end cap and rubber membrane and check for bubbles.

3.2.11

When the pressurizing procedure is completed, install the O-ring and screw in the fill hole.



4 Re-valve

4.1 Disassemble - one-way valve

⚠ Warning!

Release the gas pressure before you remove the valve assembly.

Note!

Do not mix the parts. Work with one valve at a time.

4.1.1

Put the shock absorber in a vise with soft jaws.

P: Use the damper holder (01878-01) and sleeve (01878-20).

IL: Clamp around the flat surfaces of the cylinder head.

4.1.2

Open the adjuster fully.

4.1.3

Use a Phillips screwdriver to remove the screw and the adjuster knob. Make sure not to lose the springs or balls. Examine the O-ring, replace if worn or damaged.

4.1.4

Use the compression adjuster tool (01860-01) and a ratchet with a 17 mm socket to loosen the valve assembly.

4.1.5

Use small pliers to remove the spring.

4.1.6

Drain the shock absorber from oil.

4.1.7

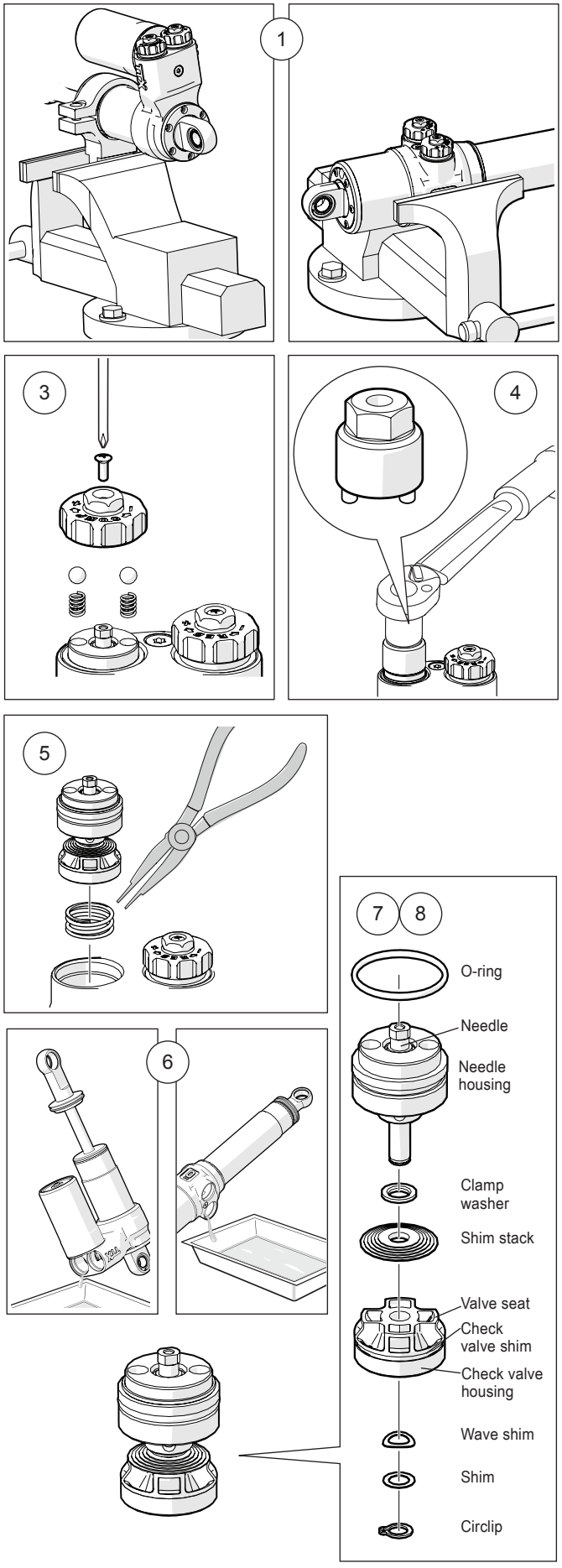
Use circlip pliers to remove the circlip. Remove the valve seat from the valve assembly.

Disassemble the valve assembly.

4.1.8

Clean all parts.

Examine all parts and replace if worn or damaged.



4.2 Disassemble - two-way valve assembly

⚠ Warning!

Release the gas pressure before you remove the valve assembly.

Note!

Do not mix the parts. Work with one valve at a time.

4.2.1

Put the shock absorber in a vise with soft jaws.

P: Use the damper holder (01878-01) and sleeve (01878-20).

IL: Clamp around the flat surfaces of the cylinder head.

4.2.2

Open the adjuster fully.

4.2.3

Use a 19 mm wrench to remove the valve assembly.

4.2.4

Use small pliers to remove the spring.

4.2.5

Drain the shock absorber from oil.

4.2.6

Use circlip pliers to remove the circlip. Remove the valve seat from the valve assembly.

4.2.7

Remove the shims and the clamp washer.

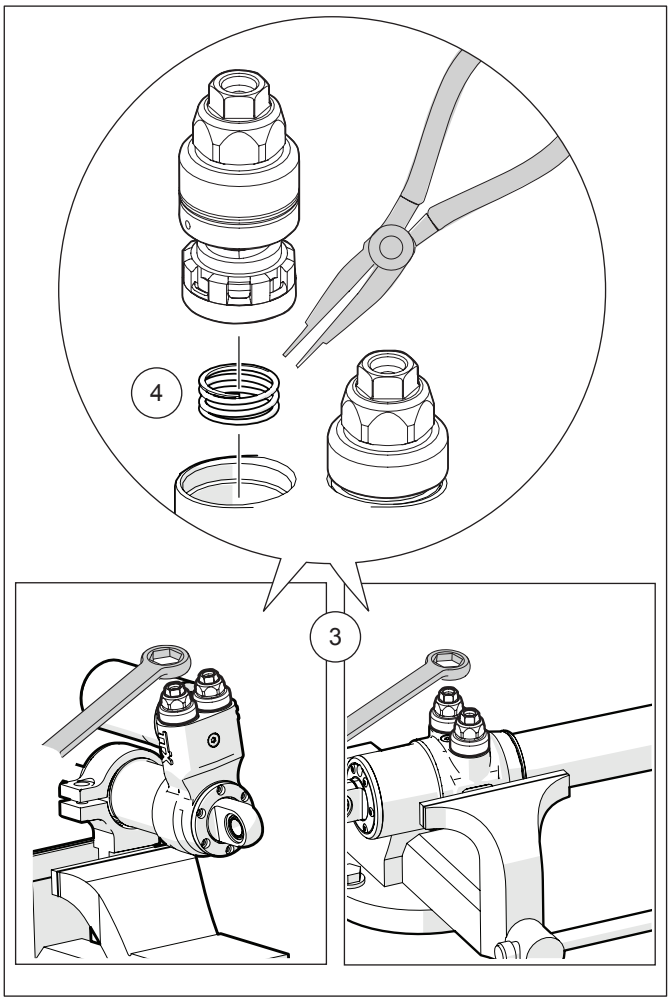
4.2.8

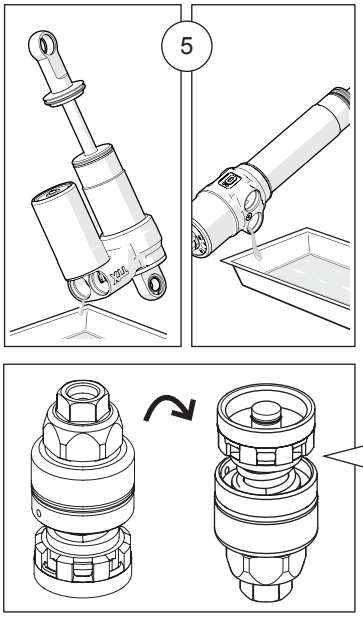
Remove the lower preload ring, spring, adjustment shims and the upper preload ring.

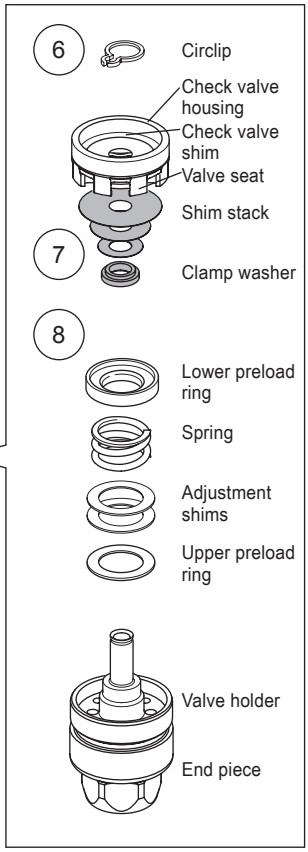
4.2.9

Clean all parts.

Examine all parts and replace if worn or damaged.







4.3 Assemble - one-way valve assembly

4.3.1
Insert the spring in the valve cavity.

4.3.2
Insert the valve assembly in the valve cavity.

4.3.3
Use the compression adjuster tool (01860-01) and a ratchet with a 17 mm socket to tighten the valve assembly to 10 Nm.

4.3.4
Use some grease to keep the balls in place.
Insert the springs and the balls into the top of the valve.

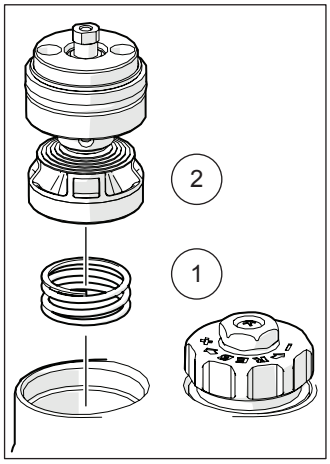
4.3.5
Use a Phillips screwdriver to install the adjustment knob.

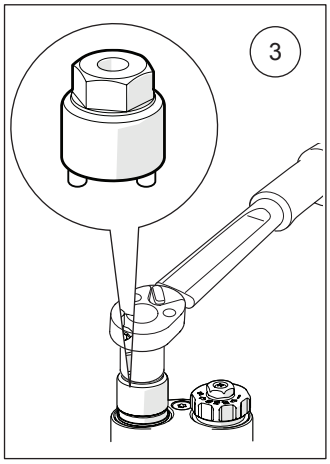
4.3.6
Make sure that the adjuster works properly. The adjustment range should be ~ 24 clicks.

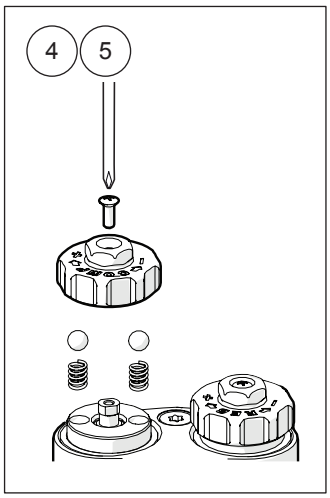
- To continue service: go to chapter 5 General service
- To finish service: continue with step 4.3.7 and 4.3.8.

4.3.7
Use the filling machine (01840-02/-03) to fill the shock absorber with oil. See the user manual (07221-02). Use only Öhlins high performance shock fluid (01304-01).

4.3.8
Pressurize the shock absorber, see chapter 3.2.







4.4 Assemble - two-way valve assembly

4.4.1
Insert the spring in the valve cavity.

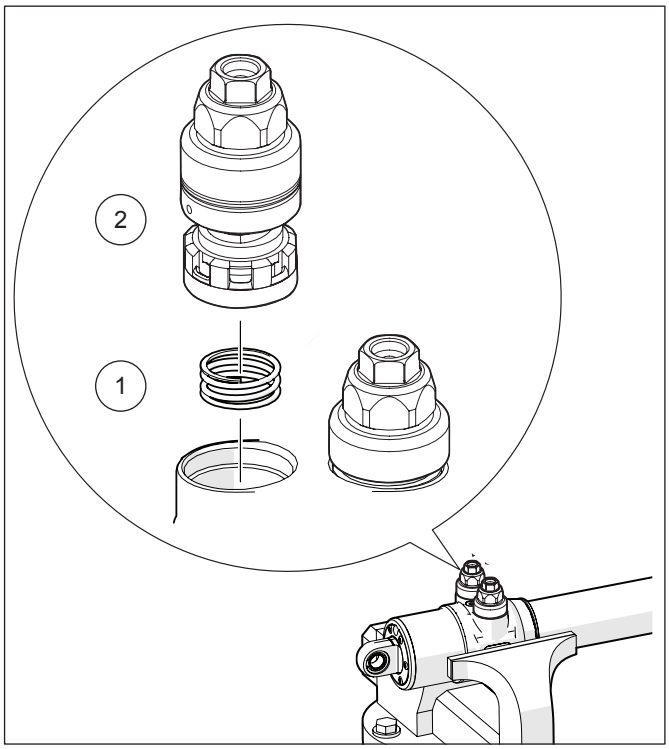
4.4.2
Insert the valve assembly in the valve cavity.

4.4.3
Use a 19 mm socket and a torque wrench to tighten the nut to 10 Nm.

- To continue service: go to chapter 5 General service
- To finish service: continue with step 4.4.3 and 4.4.4.

4.4.3
Use the filling machine (01840-02/-03) to fill the shock absorber with oil. See the user manual (07221-02). Use only Öhlins high performance shock fluid (01304-01).

4.4.4
Pressurize the shock absorber, see chapter 3.2.



5 General service

5.1 Remove the shaft assembly

⚠ Warning!

Release the gas pressure before you do any other service on this shock absorber.

5.1.1

Put the shock absorber in a vise with soft jaws.

P: Clamp around the top eye of the cylinder head.

IL: Clamp around the flat surfaces of the cylinder head.

5.1.2

Use the end cap tool (00704-02) and carefully tap with a plastic hammer to remove the end cap.

5.1.3

Use the seal head tool (01885-01) and a ratchet to remove the seal head.

5.1.4

Install the oil retaining cup (01776-04).

5.1.5

Carefully remove the shaft assembly from the cylinder tube.

✋ Caution!

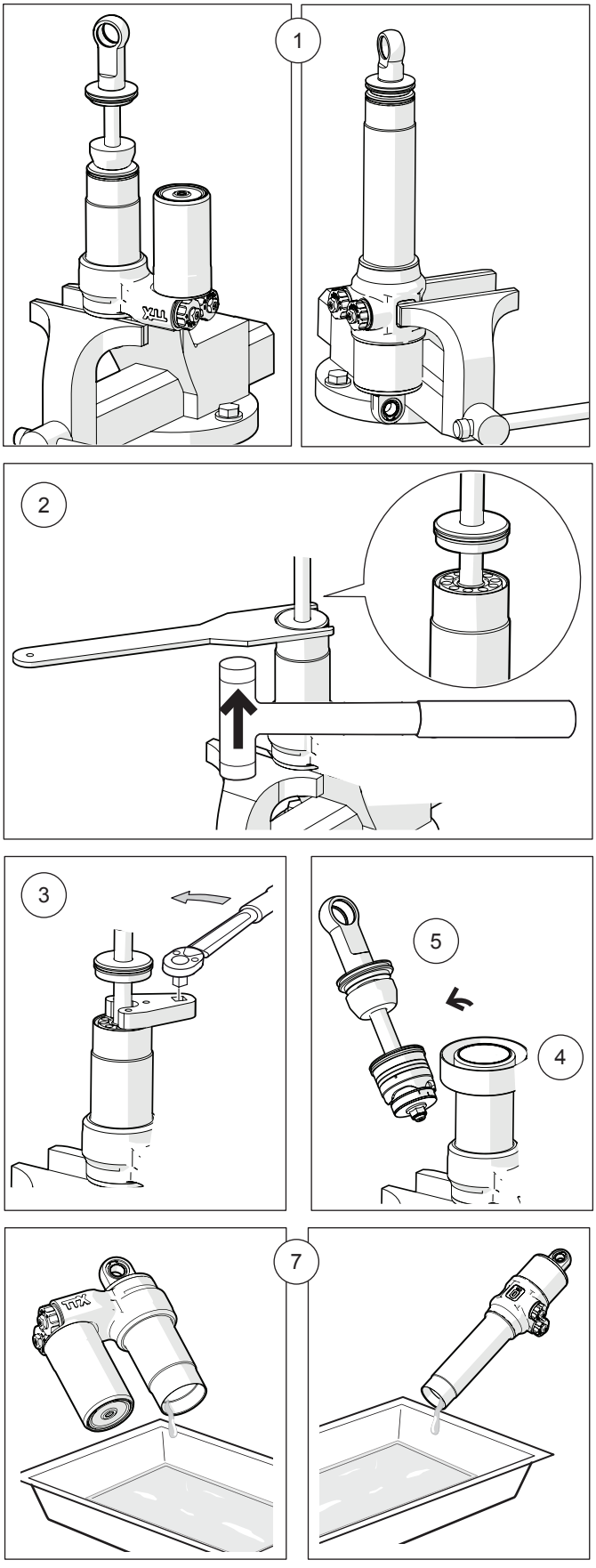
Make sure that the inner tube stays in place when you remove the shaft assembly.

5.1.6

Remove the oil retaining cup (01776-04).

5.1.7

Drain the shock absorber from oil.



5.2 Disassemble the shaft assembly

5.2.1

Use the soft jaws (00727-03) and put the shaft assembly in a vise.

5.2.2

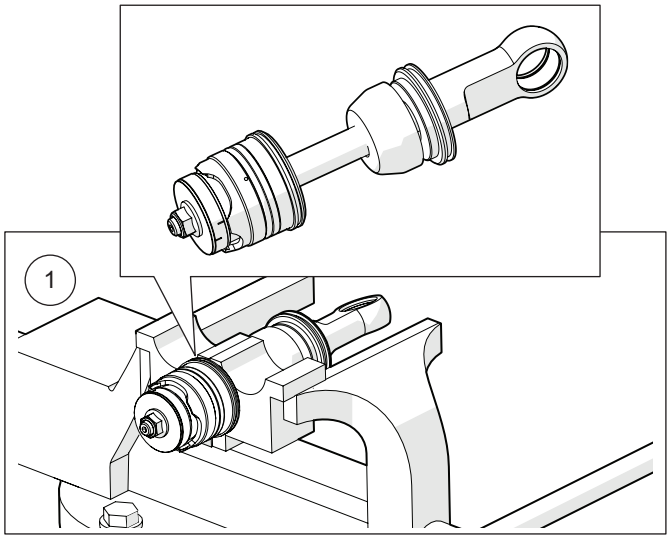
Use a 12 mm wrench to remove the top nut.

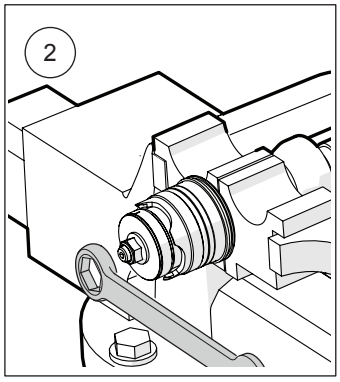
5.2.3

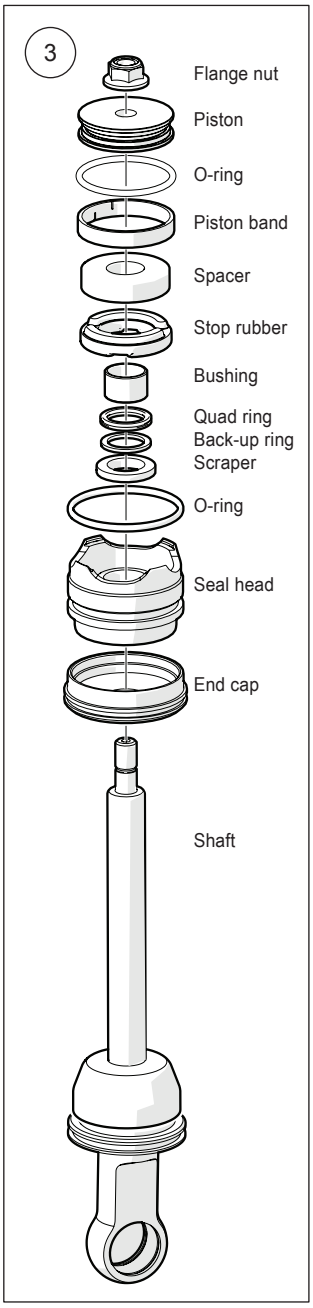
Remove the piston, internal spacers, seal head and end cap.
Remove all other parts.

5.2.4

Clean all parts.
Examine all parts and replace if worn or damaged.







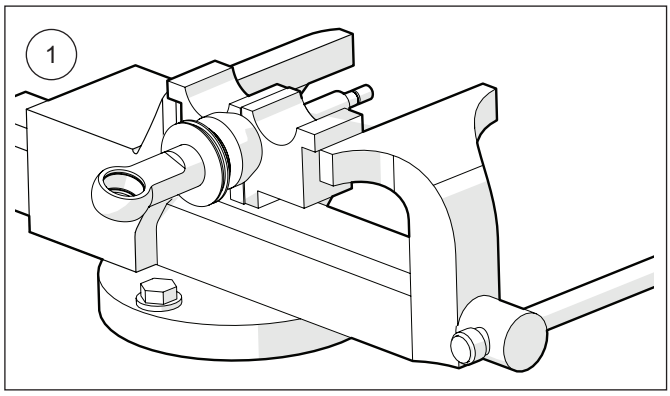
5.2.1 Change the end eye

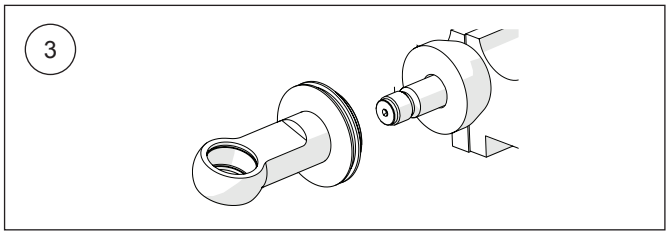
5.2.1.1
Use the soft jaws (00727-03) and put the shaft assembly in a vise.

5.2.1.2
Apply heat with a heat gun to break down the threadlocker on the shaft thread.

5.2.1.3
Remove the end eye.
Clean the end eye and the shaft.

5.2.1.4
Apply threadlocker (01791-05) on the thread of the shaft.
Install the new end eye.
Tighten to 60 Nm.



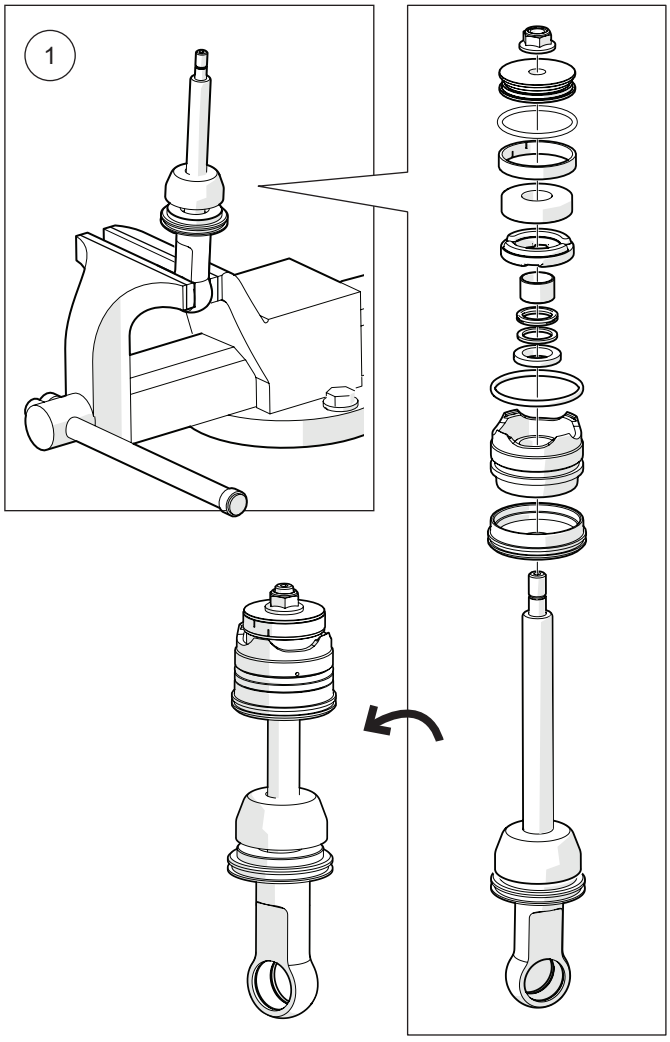


5.3 Assemble the shaft assembly

5.3.1
Clamp around the end eye and put the shaft assembly in a vise with soft jaws.

5.3.2
Install the end cap, seal head, internal spacers and the piston.

5.3.3
Apply threadlocker (01791-05) on the thread of the shaft.
Use a 12 mm socket and a torque wrench to tighten the top nut to 28 Nm.



5.4 Install the shaft assembly

5.4.1

Place the mounting sleeve (01861-06) in the inner tube.

5.4.2

Carefully insert the shaft assembly in the inner tube. Make sure not to damage the piston ring.

5.4.3

Install the seal head assembly on the cylinder tube.

5.4.4

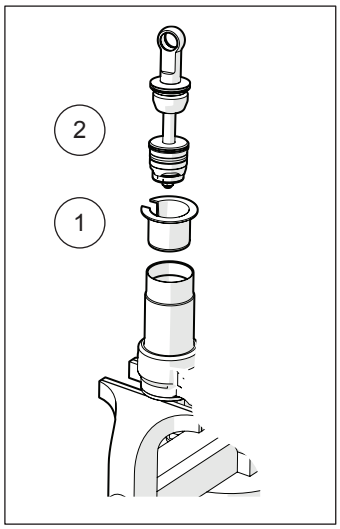
Use the seal head tool (01885-01) and a torque wrench. Place the torque wrench in a right angle to the seal head tool.
Tighten the seal head to 40 Nm.

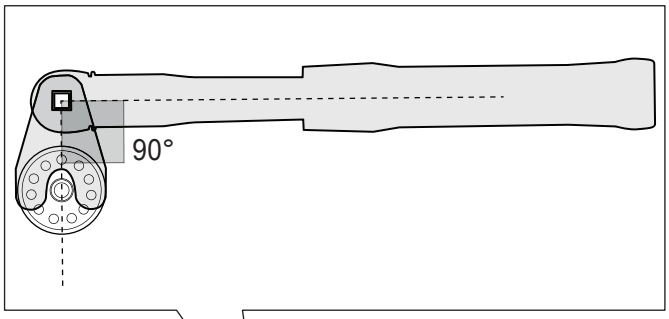
Note!

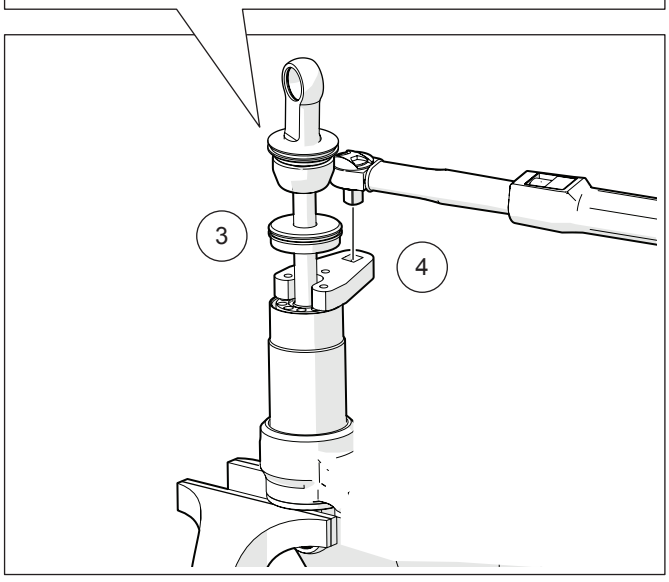
To get correct torque, make sure to place the torque wrench in a right angle to the seal head tool.

5.4.5

Use a plastic hammer and carefully tap the end cap to install it on the cylinder tube.







6 Reservoir

6.1 Reservoir service TTX36P

6.1.1 Disassemble the reservoir - TTX36P

6.1.1.1

If not removed, use a T20 screwdriver to remove the screw and the O-ring.

6.1.1.2

Use the disassembly tool (00720-03) and a plastic hammer to carefully push the end cap down into the reservoir.

6.1.1.3

Remove the circlip and the reservoir end cap.

6.1.1.4

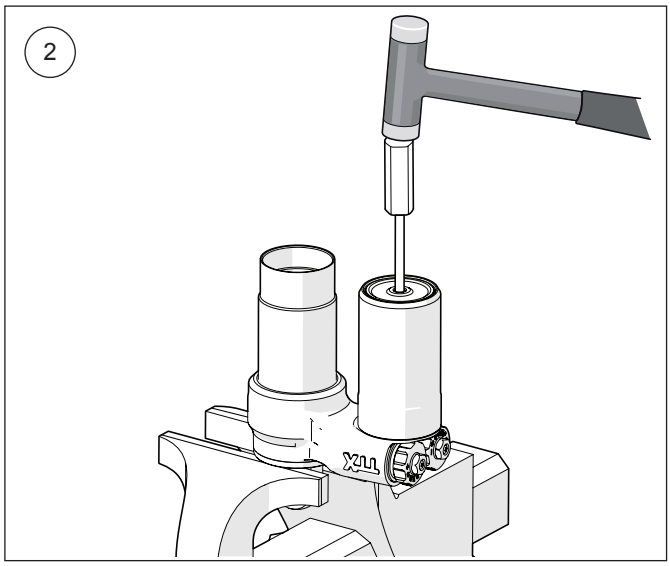
Use the measure pin (00720-02) to remove the gas piston.

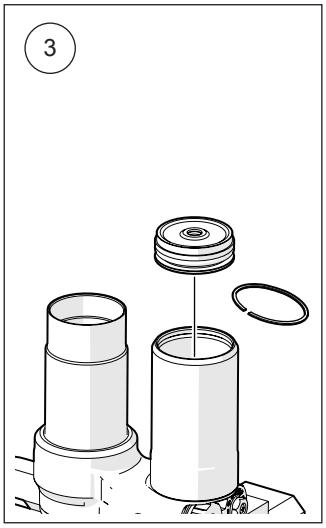
Caution!

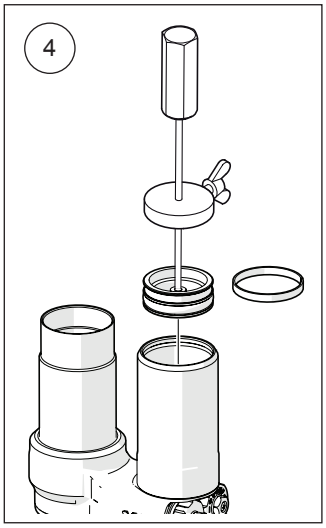
When you remove the gas piston, the piston band will fall out. Make sure not to lose it.

6.1.1.5

Clean the gas piston and the inner surface of the reservoir. Replace the O-ring on the gas piston.







6.1.2 Remove the reservoir tube - TTX36P

6.1.2.1

Use the sleeve (00737-04) and the spanner (00738-01) to remove the reservoir tube.

6.1.2.2

Clean the reservoir tube and the cavity of the cylinder head.

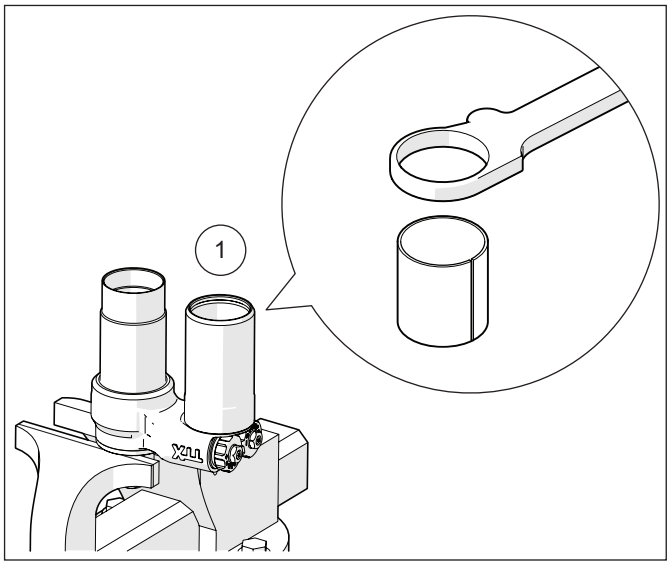
6.1.3 Install the reservoir tube - TTX36P

6.1.3.1

Apply function grease (00159-01) on the reservoir tube threads.

6.1.3.2

Use the sleeve (00737-04) and the spanner (00738-01) to install the reservoir tube and tighten to 70 Nm.

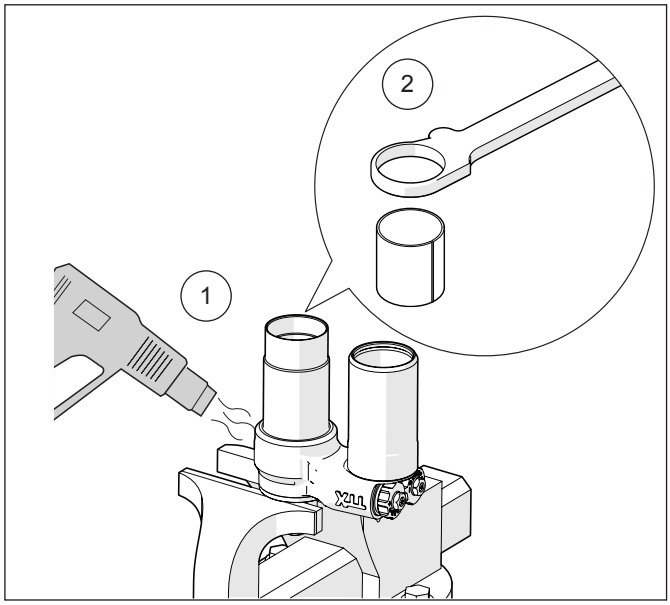


6.1.4 Remove the cylinder tube - TTX36P

6.1.4.1
Apply heat with a heat gun to break down the threadlocker.

6.1.4.2
Use the sleeve (00737-11) and the spanner (00738-01) to remove the cylinder tube.

6.1.4.3
Clean the cylinder tube and the cylinder head cavity. Make sure to remove all threadlocker.



6.1.5 Install the cylinder tube - TTX36P

6.1.5 1
Apply threadlocker (01791-05) on the cylinder tube.

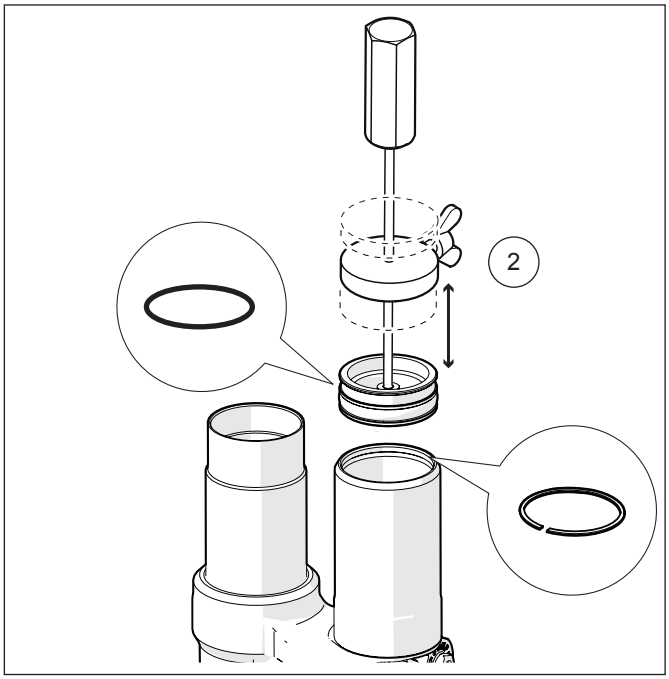
6.1.5.2
Use the sleeve (00737-11) and the spanner (00738-01) to tighten the cylinder tube to the cylinder head.
Tighten to 140 Nm.

6.1.6 Assemble the reservoir - TTX36P

6.1.6.1
Apply function grease (00159-01) on the gas piston O-ring and on the inner surface of the reservoir.

6.1.6.2
Attach the measure pin (00720-02) on the gas piston. Set the measure pin to the correct position according to wanted oil level:

	Oil level (mm)
Street and race (non-frequent service)	20
Race (frequent service intervals)	7

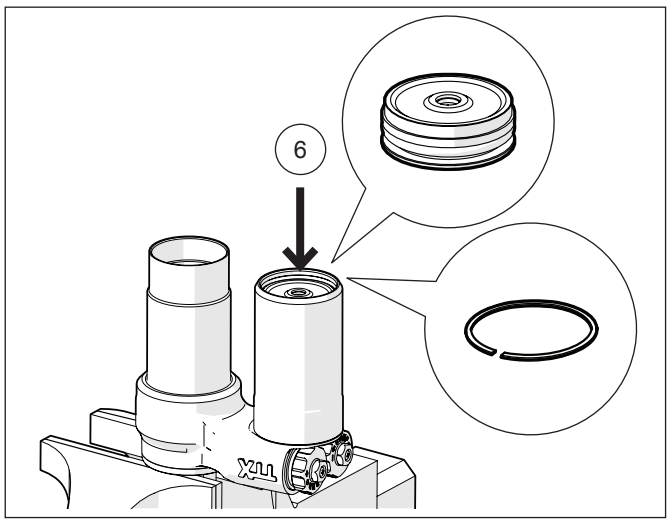


6.1.6.3
Insert the gas piston and the measure pin (00720-02) in the reservoir. Insert the circlip to hold the measure pin in place.

6.1.6.4
Use the filling machine (01840-02/-03) to fill the shock absorber with oil. See the user manual (07221-02). Use only Öhlins high performance shock fluid (01304-01).

6.1.6.5
Remove the circlip.
Remove the measure pin (00720-02).

6.1.6.6
Insert the reservoir end cap into the reservoir. Press it down with your thumb and insert the circlip in the groove.



6.1.6.7
Pressurize - see chapter 3.2.

6.2 Reservoir service - TTX36IL

6.2.1 Disassemble the reservoir - TTX36IL

6.2.1.1

Use a 3 mm Allen key to remove the screws. Apply heat with a heat gun if needed.

6.2.1.2

Remove the top eye.

6.2.1.3

Use the end cap tool (01894-01) and a 19 mm wrench to remove the end cap.

6.2.1.4

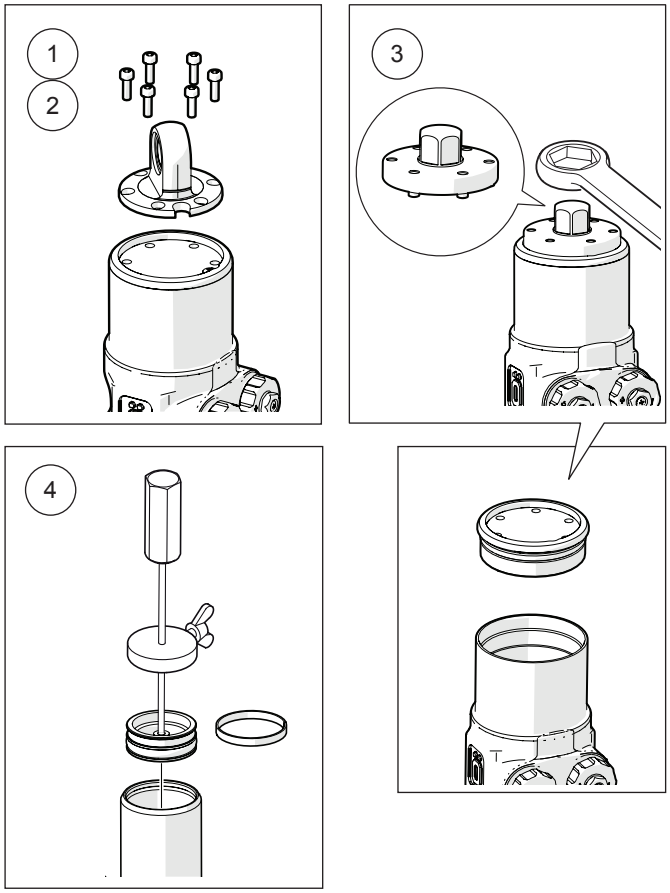
Use the measure pin (00720-02) to remove the gas piston.

Caution!

When you remove the gas piston, the piston band will fall out. Make sure not to lose it.

6.2.1.5

Clean the gas piston and the inner surface of the reservoir.
Replace the O-ring on the gas piston.



6.2.2 Remove the reservoir tube - TTX36IL

6.2.2.1

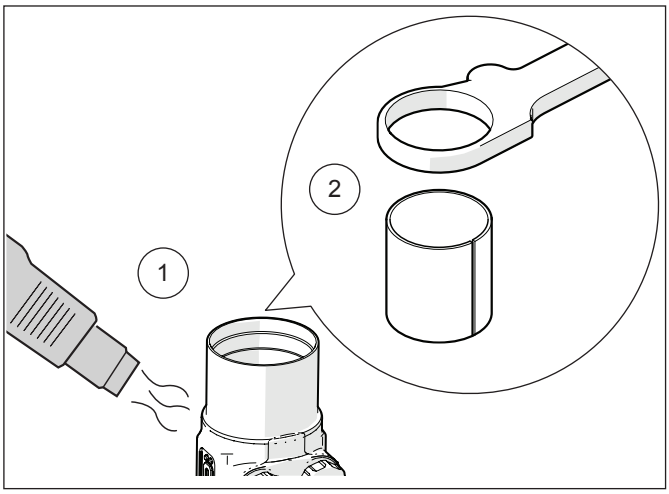
Apply heat with a heat gun to break down the threadlocker.

6.2.2.2

Use the sleeve (00737-23) and the spanner (00738-02) to remove the reservoir tube.

6.1.2.2

Clean the threads.



6.2.3 Install the reservoir tube - TTX36IL

6.2.3.1

Apply threadlocker (01791-05) on the reservoir tube.

6.2.3.2

Use the sleeve (00737-23) and the spanner (00738-02) to install the reservoir tube.
Tighten to 140 Nm.

6.2.4 Assemble the reservoir - TTX36IL

6.2.4.1
Apply function grease (00159-01) on the gas piston O-ring and on the inner surface of the reservoir.

6.2.4.2
Insert the gas piston into the reservoir.

6.2.4.3
Insert the positioning tool (01859-XX) into the reservoir. Screw it in all the way down until stop.

	Oil level (mm)
Street and race (non-frequent service)	12
Race (frequent service intervals)	7

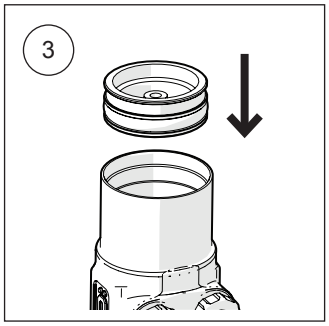
6.2.4.4
Use the filling machine (01840-02/-03) to fill the shock absorber with oil. See the user manual (07221-02). Use only Öhlins high performance shock fluid (01304-01).

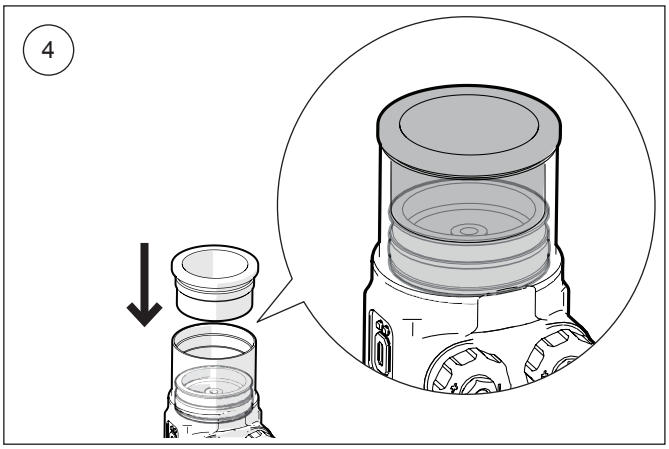
6.2.4.5
Remove the positioning tool (01859-XX).

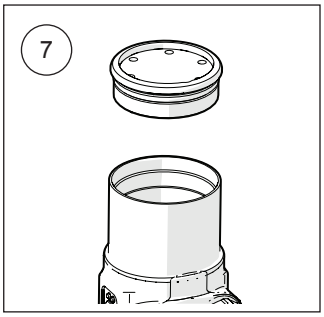
6.2.4.6
Apply function grease (00159-01) on the threads of the end cap and on the upper edge of the cylinder head.

6.2.4.7
Use the end cap tool (01894-01) and a torque wrench with a 19 mm socket to install the end cap.
Tighten to 70 Nm.

6.2.4.8
Pressurize - see chapter 3.2.







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