

Shock Absorber for MX and Enduro
TTX Flow, MY18
and forward
Workshop Manual

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 ensure 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 mounting, usage and maintenance are not followed exactly.

Warning!

After installing the Öhlins product, take a test ride at low speed to ensure 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.

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 (N₂). Do not open, service or modify this product without proper education (authorized Öhlins dealer/distributor) and proper tools.

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.

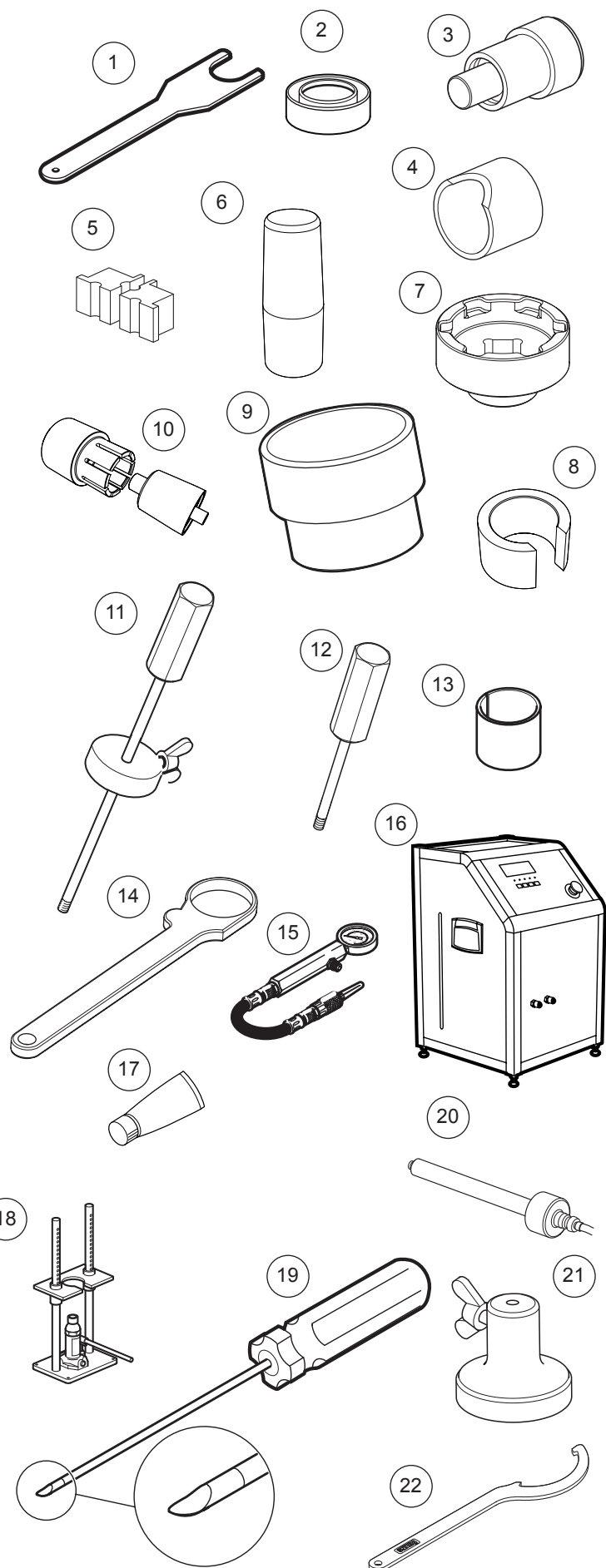
Note!

The Note Symbol indicates information that is important regarding procedures.

© Öhlins Racing AB. All rights reserved.

Any reprinting or unauthorized use without the written permission of Öhlins Racing AB is prohibited.

1 TOOLS



Pos	Part No	Description
1	00704-04	End Cap Tool
2	01746-03	Oil Retaining Cup
3	00721-01	Mandrel Ball Joints
4	00723-01	Sleeve for Mandrel Ball Joint
5	00727-03	Soft Jaws
6	01785-02	Guide Sleeve
7	01863-03	Socket for adjuster housing
8	01769-02	Push tool spacer
9	01798-01	Cylinder Tube Plug 46
	01798-05	Cylinder Tube Plug 50.6
10	01861-11	Piston band 46 tool kit
11	00720-02	Measure Pin
12	00720-03	Pin Tool
13	00737-05	Sleeve 56x49
	00737-25	Sleeve 70x55.5
	00737-22	Sleeve 70x65
14	00738-01	Spanner 56
	00738-02	Spanner 70
15	01781-01	Gas Filling Device
16	01840-02	Filling Machine (220V)
	01840-03	Filling Machine (110V)
17	00146-02	Red Grease
	00159-01	CaH Grease
18	00747-01	Spring Assembly Tool
19	00715-01	Sharp Screwdriver
20	01820-21	Vacuum Adapter Assy
21	01821-02	Retainer 49
	01821-03	Retainer 58
22	00710-02	C-Spanner
	01304-01/10	Shockabsorber Oil
		Plastic Hammer
		Screwdriver
		Torque Wrench
		Vice
		Oil Reservoir Container
		Rag
		Heat Gun
		Pliers
		Circlip Pliers
		Adjustable Wrench
		19 mm Socket
		19 mm Spanner
		10 mm Spanner
		Torx 20
		Torx 25
		Loctite 278
		Loctite 2701
		Loctite 603

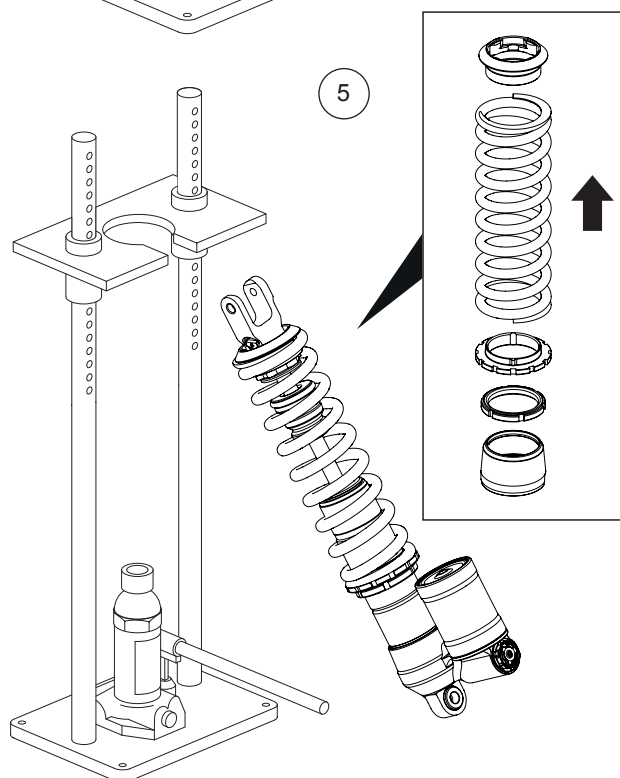
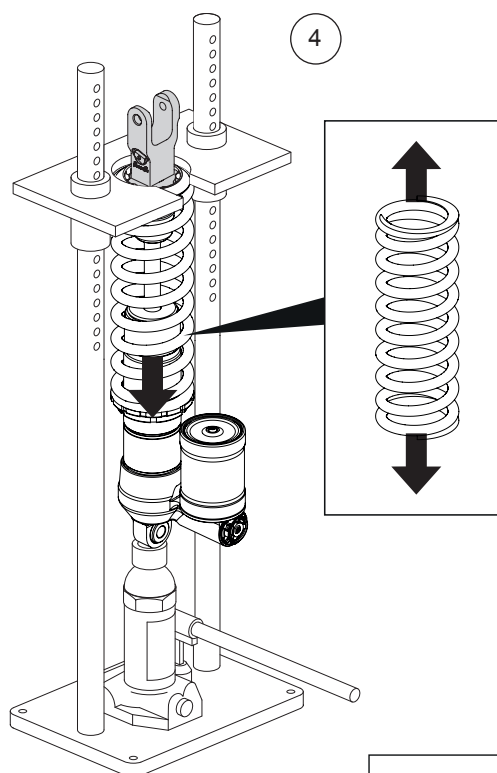
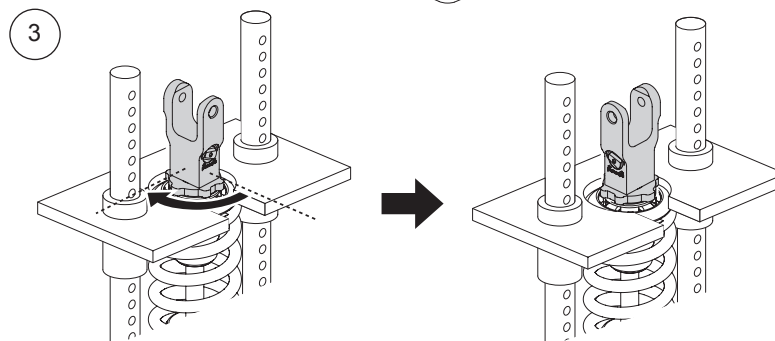
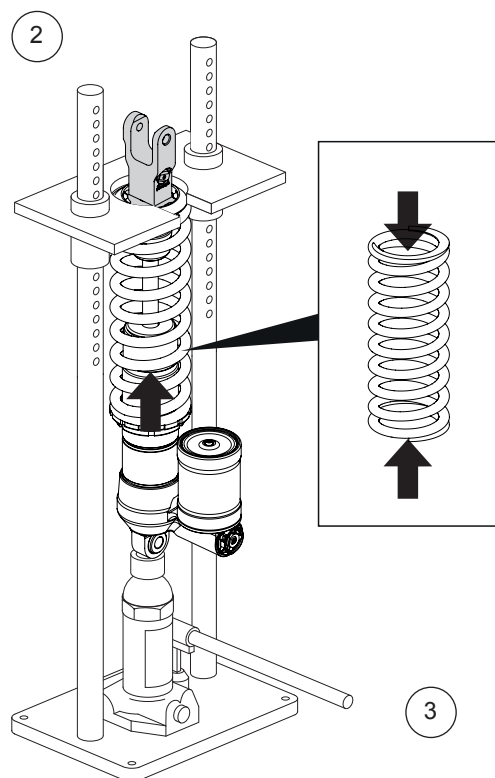
2 DISASSEMBLY

1 Remove Spring and spring platform

⚠ Warning!

Removing the spring can be hazardous. Contact an Öhlins Service Centre if you have any questions about removing the spring. The process requires certain Öhlins Tools, also, you must be authorized Öhlins Service Centre to perform this operation.

1. Measure and note spring installation length.
2. Remove spring clip using Spring Assembly Tool (00747-01) by pressing towards the spring clip.
3. Turn the end piece a quarter turn to unlock the spring clip.
4. Release press force of the Spring Assembly Tool and make sure the spring clip become loose from stop washer.
5. Take out the shock from Spring Assembly Tool and remove spring clip and spring.
6. Remove spring platform and preload lock nut. Use a C-spanner (00710-02).
7. On some models: Remove the protection sleeve.



2 DISASSEMBLY

2 Release Gas Pressure

⚠ Warning!

Do not perform any kind of service before releasing the gas pressure.

⚠ Warning!

Releasing gas pressure from a shock absorber can be hazardous.

1

Put the Shock Absorber in a Vice.

2

Note the compression and rebound clicks.

3

Remove the O-ring and the screw at the bottom of the Reservoir.
Use Torx T20.

4

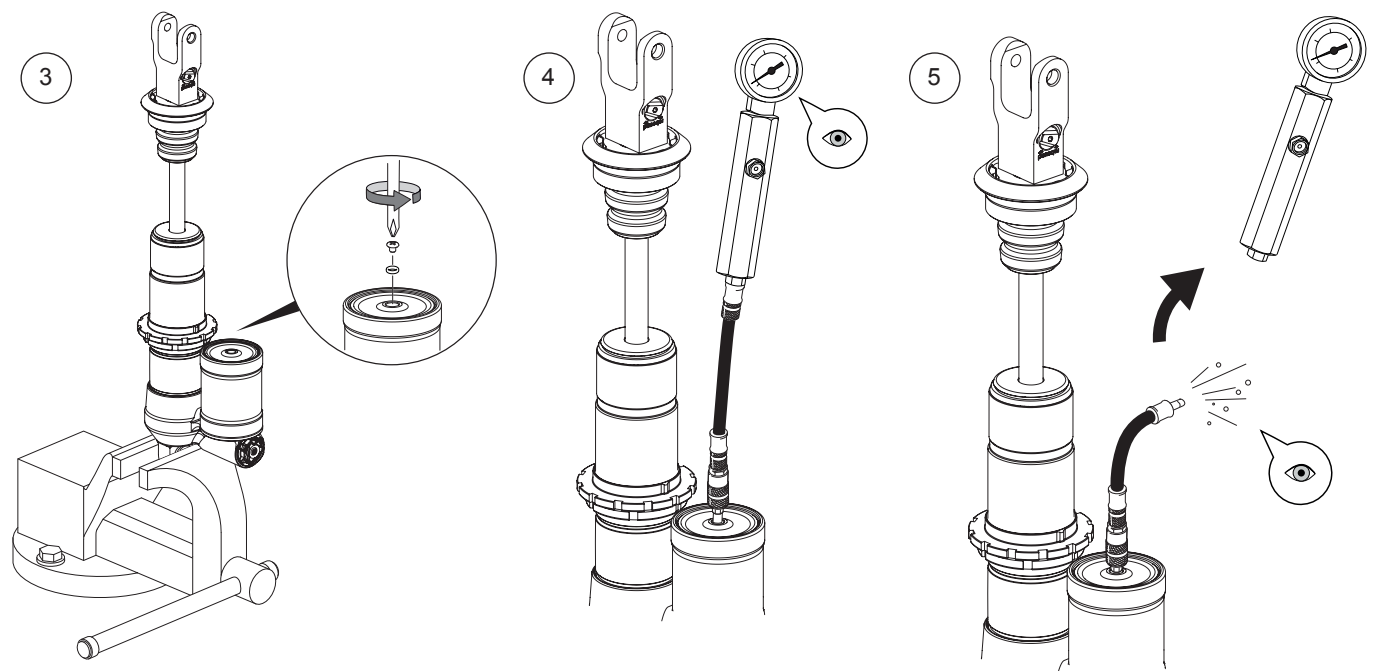
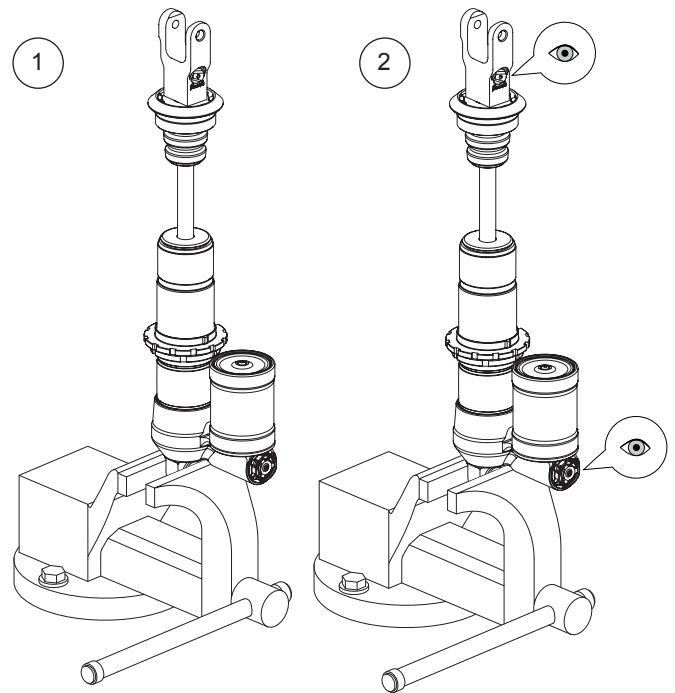
Insert Gas Filling Device (01781-01). Note the gas pressure.

5

Remove the pressure Gauge, and the gas pressure is released.

6

Remove Gas Filling Device (01781-01).



2 DISASSEMBLY

3 Remove Shaft

1
Loosen the End Cap. Use End Cap Tool (00704-04) and gently tap with a Plastic Hammer.

2
Press down the Seal Head using Push tool spacer (01769-02).

3
Use Screw Driver Sharp (00715-01) to remove circlip.

⚠ Caution!

Make sure not to scratch the surface below the Circlip.

4
Install Oil Retaining Cup (01746-03).

5
Remove the Shaft assembly from the Cylinder Tube. Use the displacement force according to instruction below to push out the Seal Head easier.

6
Remove the Reservoir End, see chapter "Disassemble Reservoir".

7
Screw Measure Pin (00720-02) into the Reservoir Piston and push the Reservoir Piston all the way down in the Reservoir. Insert circlip in the Reservoir to hold retainer in place.

👁 Note!

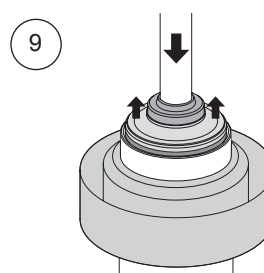
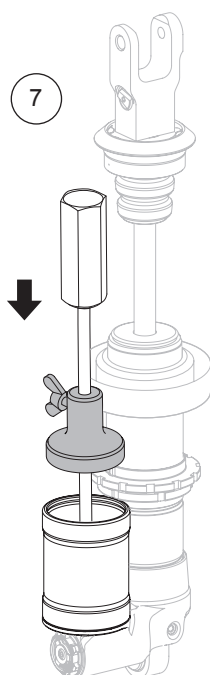
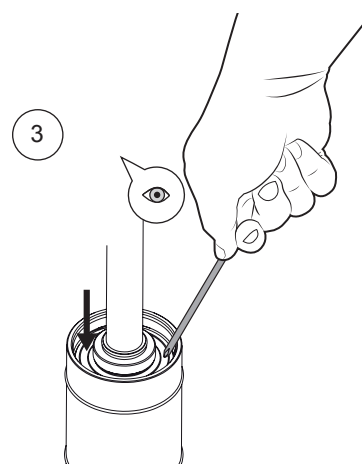
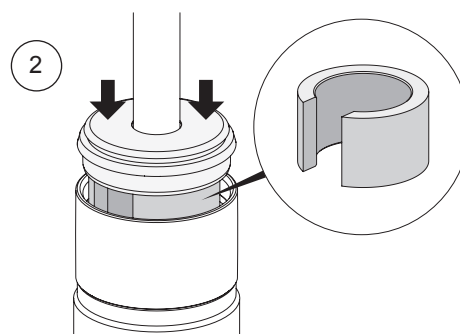
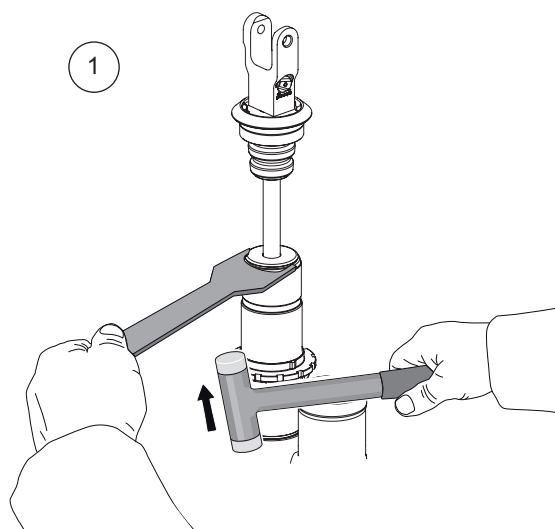
The Circlip that is used to hold the Reservoir End can be used.

8
Make sure the upper surface of the retainer touches the circlip. Tighten the retainer to measure pin and make sure it will not move.

9
Push down the Shaft and the Seal Head will come out smoothly.

10
Remove the Oil Retaining Cup.

11
Drain the shock absorber from oil.



2 DISASSEMBLY

4 Disassemble Shaft and End Piece

1
Put the shaft assembly in a Vice. Use Soft Jaws (00727-03).

2
On models with PDS:
Remove the PDS Piston assembly with lock nut and washer from the Shaft assembly.
Use a 19 mm Spanner.

On models without PDS:
Remove the lock nut from the shaft assembly.
Use a 19 mm Spanner.

3
Remove stop washer, rebound shim stack, piston and compression shim stack.

4
The stop washer underneath compression shim stack is press fitted to the shaft. Loosen the vice and slide the shaft so that the stop washer is resting towards the soft jaws. Tighten the vice enough to allow the shaft to slide in the soft jaws but doesn't fall off the vice grip. Then use a plastic hammer and gently tap on top of the shaft to loose the stop washer.

5
Remove spacer(s), seal head, end cap and bump rubber.

6
Remove the shaft jet using a flat screw driver.

7
Remove stop washer using a plastic hammer. Heating can be necessary.

8
Turn the Piston Shaft assembly around and fasten it in a Vice. Use Soft Jaws (00727-03).

9
Remove end piece by using a heat gun to loosen the Loctite and an adjustable spanner.

👁 Note!

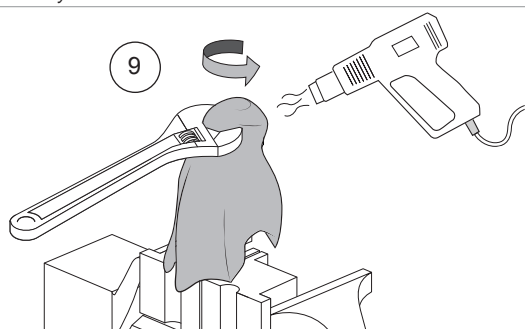
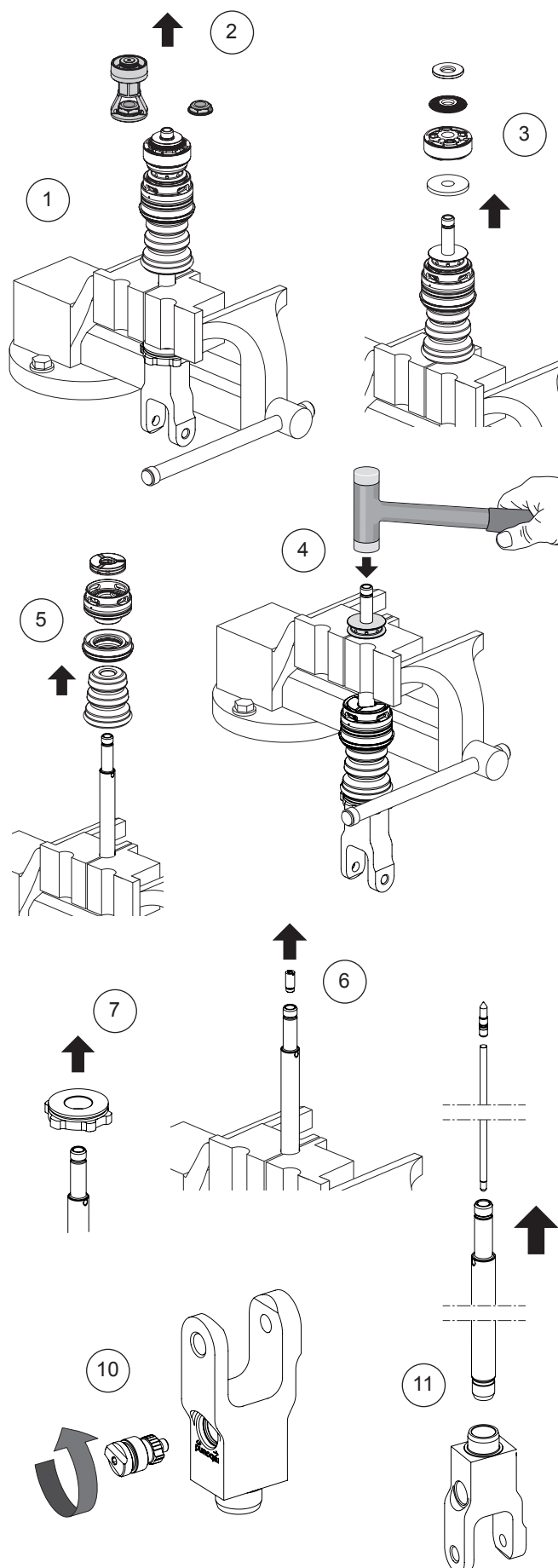
Use a cloth between the Adjustable Spanner and the End piece when removing to keep from damage.

10
Remove rebound adjuster turning it counter clockwise.

11
Remove Adjustment Shaft from Shaft.

👁 Note!

Clean all parts carefully.



2 DISASSEMBLY

5 Disassemble Reservoir

1

Press the Reservoir End down and push down the middle of the circlip, on the opposite end of the opening, with your fingers. The circlip ends will come out of their groove and the circlip can easily be removed.

⚠ Caution!

Make sure not to scratch the surface below the Circlip.

2

Remove the Reservoir End. Use Pin Tool (00720-03).

3

Remove the Reservoir Piston. Use Measure Pin (00720-02).

4

Drain the Reservoir from oil.

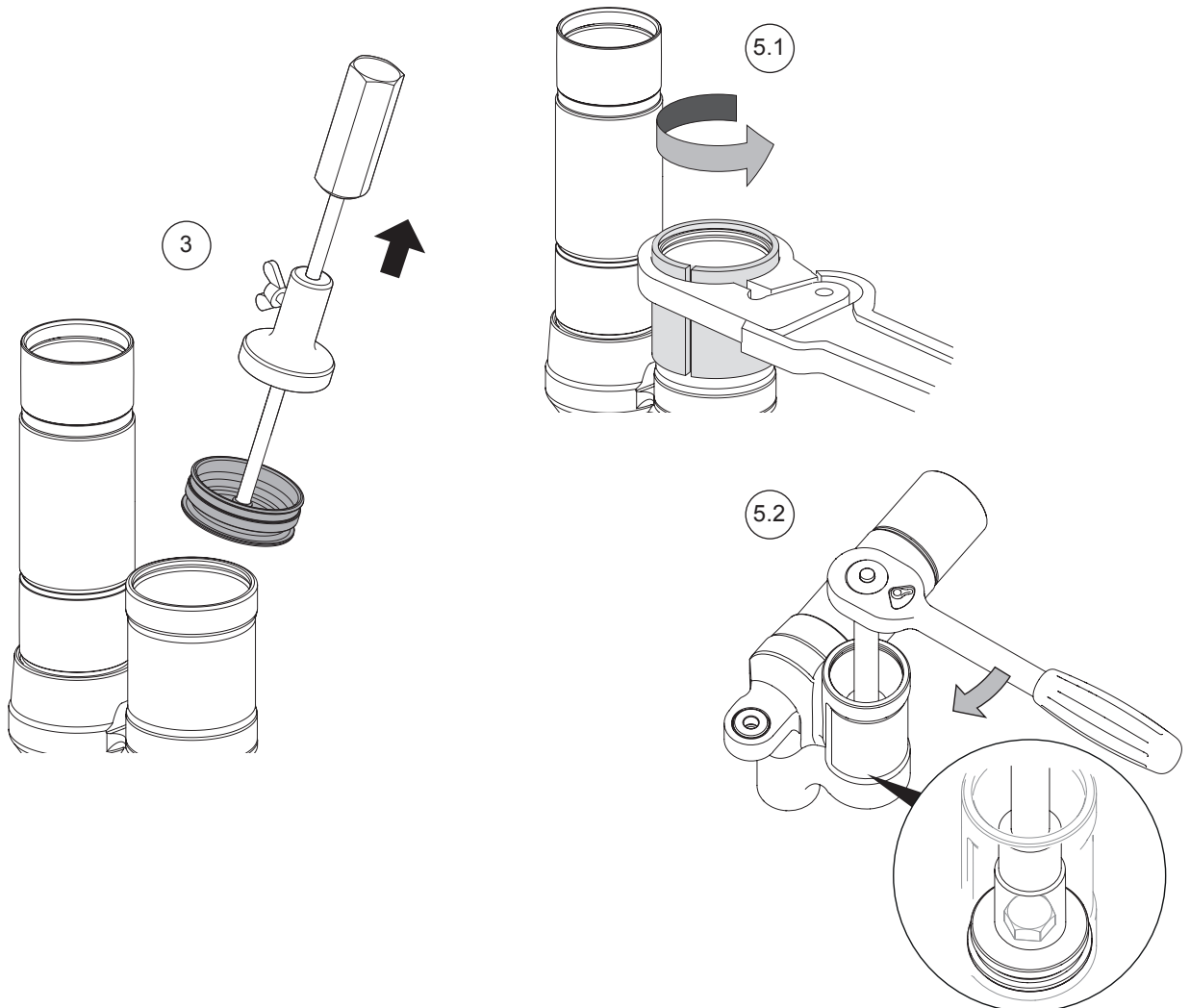
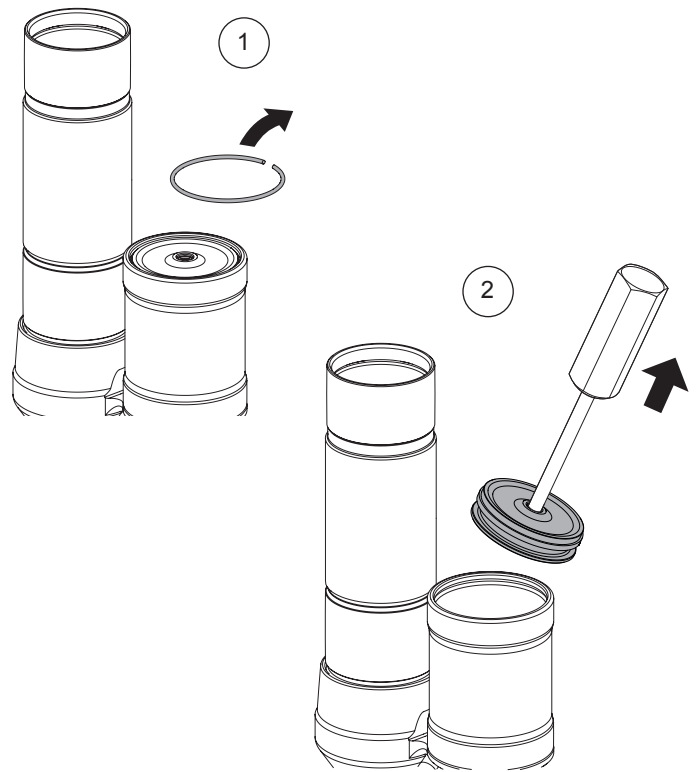
5.1 - Removable reservoir

Check for damage on Reservoir. If damaged, remove the Reservoir. For 58 mm reservoir: Use spanner (00738-02) with sleeve (00737-22). For 49 mm reservoir: Use spanner (00738-02) with sleeve (00737-25).

5.2 - Non-removable reservoir

Remove reservoir end M50 using a 19 mm socket inside the reservoir, loosen it clockwise.

Check for damage on Reservoir. If damaged, the whole cylinder head needs to be replaced.



2 DISASSEMBLY

6 Disassemble Compression and Flow Valve

👁 Note!

Make sure that the adjusters are fully open.

1

Put the Shock Absorber in a vice with the Compression Adjuster assembly facing up.

2

Remove the Compression Adjuster assembly, use a socket for adjuster housing (01863-03).

3

Remove the lock nut on the compression adjuster, use a 10 mm spanner. Remove valve and compression valve shim stack.

4

Turn adjuster needle fully closed and remove circlip. Use sharp screwdriver (00715-01). Remove adjuster needle and remove springs and balls.

👁 Note!

Make sure not to loose the balls (2 pcs) and the springs (2 pcs).

5

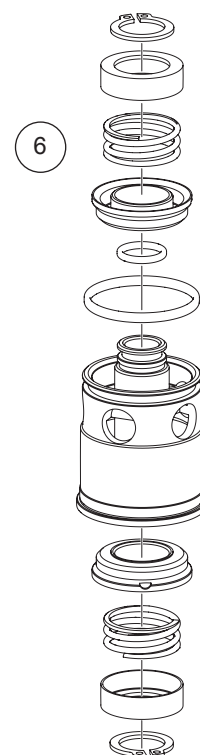
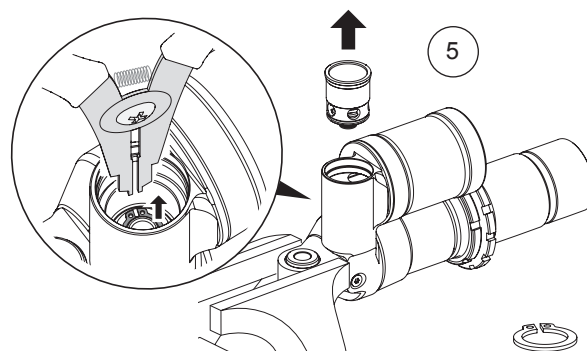
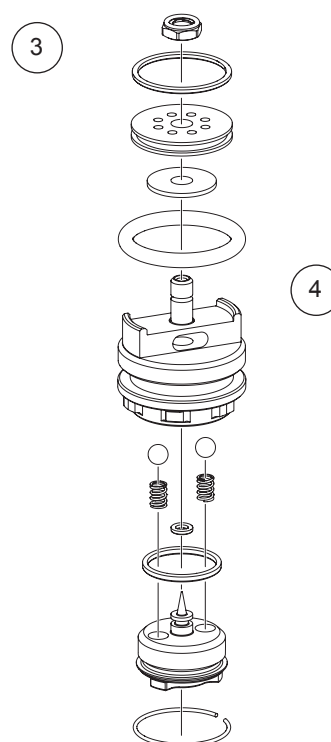
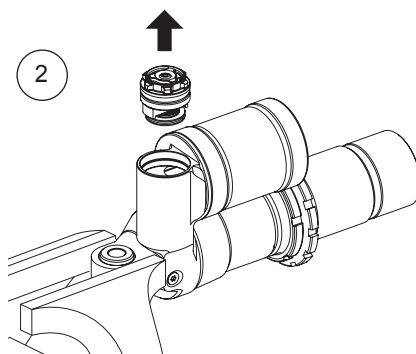
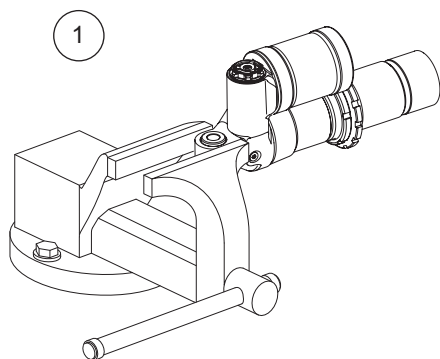
Remove the flow valve from cylinder head using a pair of circlip pliers gripping inside the middle hole (9mm). The inside surface of that hole can be scratched without loss of function.

⚠ Caution!

Make sure not to scratch the inside surface of the flow valve housing, that seals against the compression valve, since this might damage the sealing surface.

6

Remove circlips in both ends using a pair of circlip pliers. Remove check valve spring cup, check valve spring and check valve spool.



2 DISASSEMBLY

7 Disassemble Cylinder Tubes

1

Use a Heat Gun, Spanner (00738-02), Sleeve (00737-25) and plug (01798-05). Remove the Outer Tube.

2

Use spanner (00738-01), sleeve (00737-05) and plug (01798-01). Remove the cylinder tube.

8 Assemble Cylinder Tube

1

Install the cylinder tube, using spanner, sleeve and plug. Use torque 160 Nm.

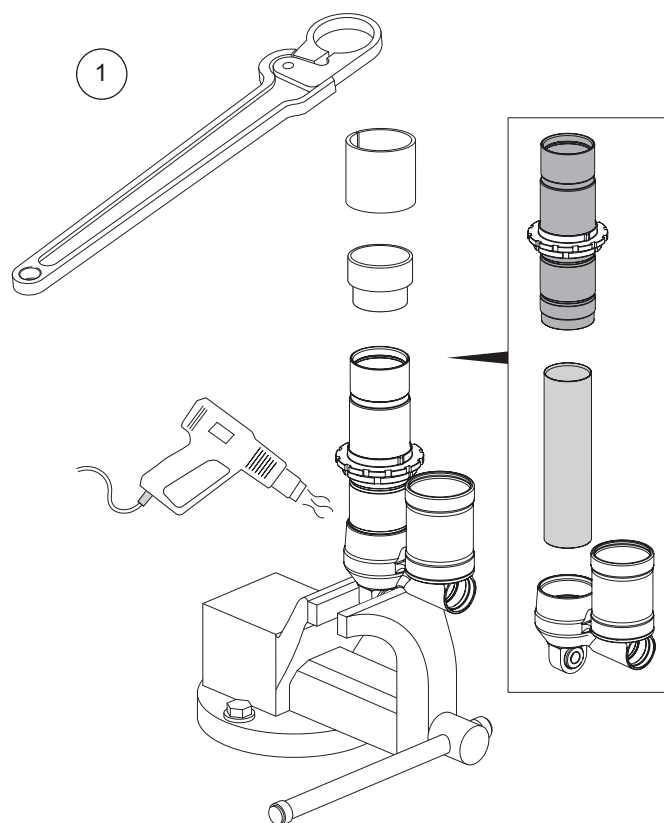
2

If reusing old outer tube:

Install the outer tube, using spanner, sleeve and plug. Use Loctite 2701 and tighten to torque 200 Nm.

If using new outer tube with preapplied Loctite:

Install the outer tube, using spanner, sleeve and plug. Tighten to torque 200 Nm.



2 DISASSEMBLY

9 Replace piston band

1

Cut off the old piston band using a snap-off blade knife or similar. Remove the o-rings.

2

Place piston band mandrel from piston band 46 tool kit (01861-11) on top of the piston and install 2 new o-rings.

3

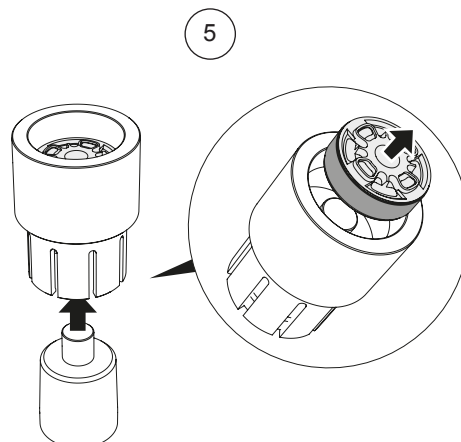
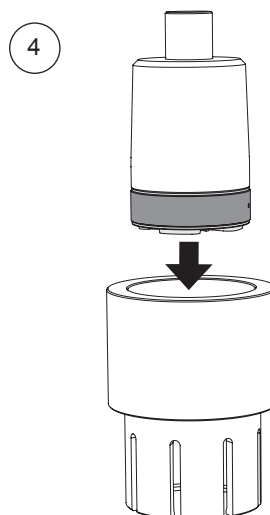
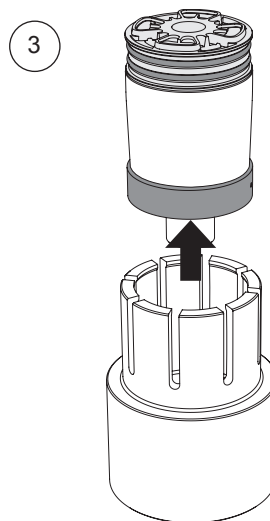
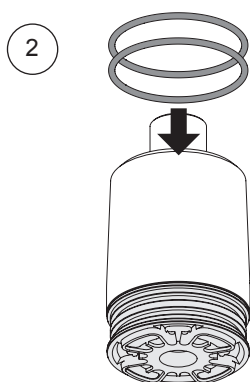
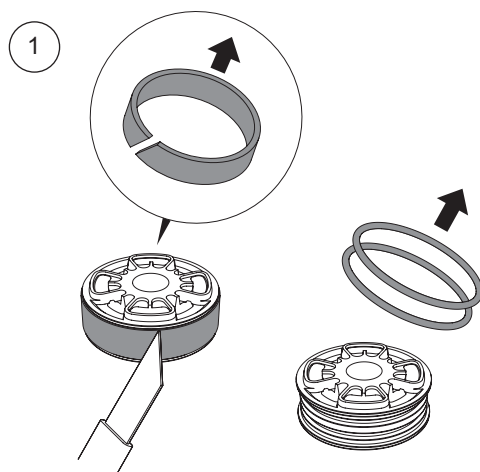
Place a new piston band on the mandrel and snap on the piston band using the piston band sleeve from the tool kit.

4

Push down the piston into the calibration pocket of the piston band sleeve using the piston band mandrel.

5

Use the piston band mandrel from other direction to push out the piston from the calibration pocket.



2 DISASSEMBLY

10 Disassemble Ball Joint

1

Remove the ball joint spacers. Use a hammer and a drift.

2

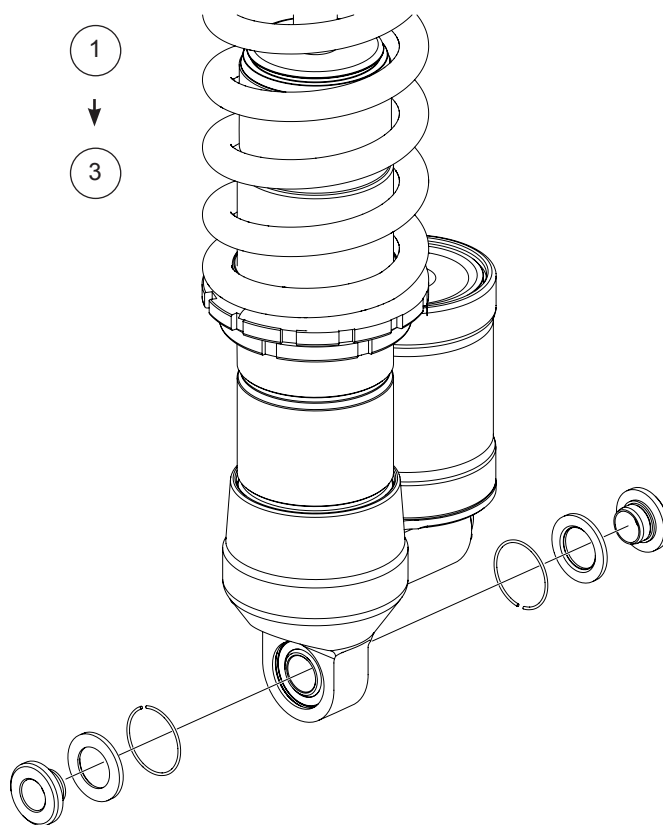
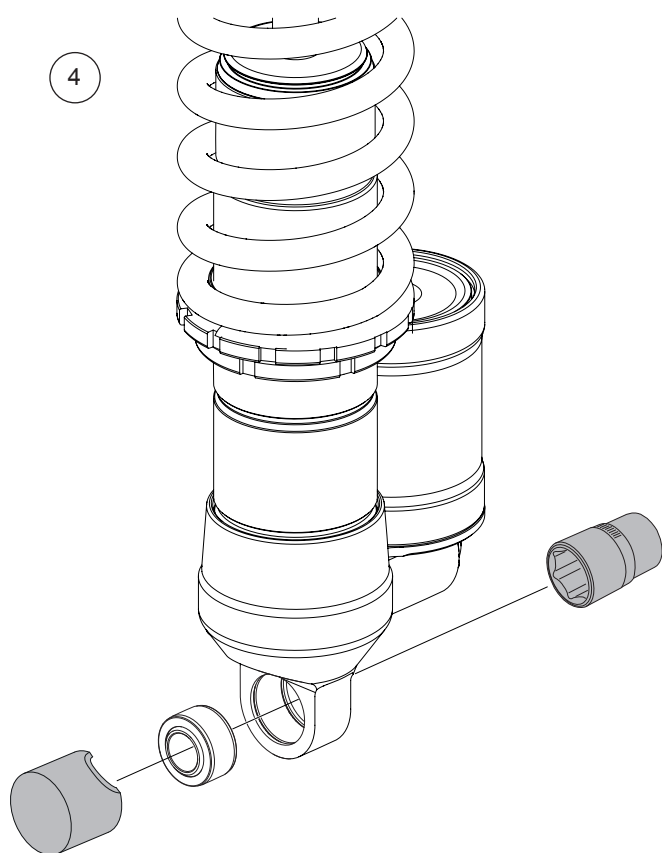
Remove the Ball Joint Seals.

3

Use a Sharp Screwdriver (00715-01) or a snap-off blade knife (or similar) to remove the two Circlips.

4

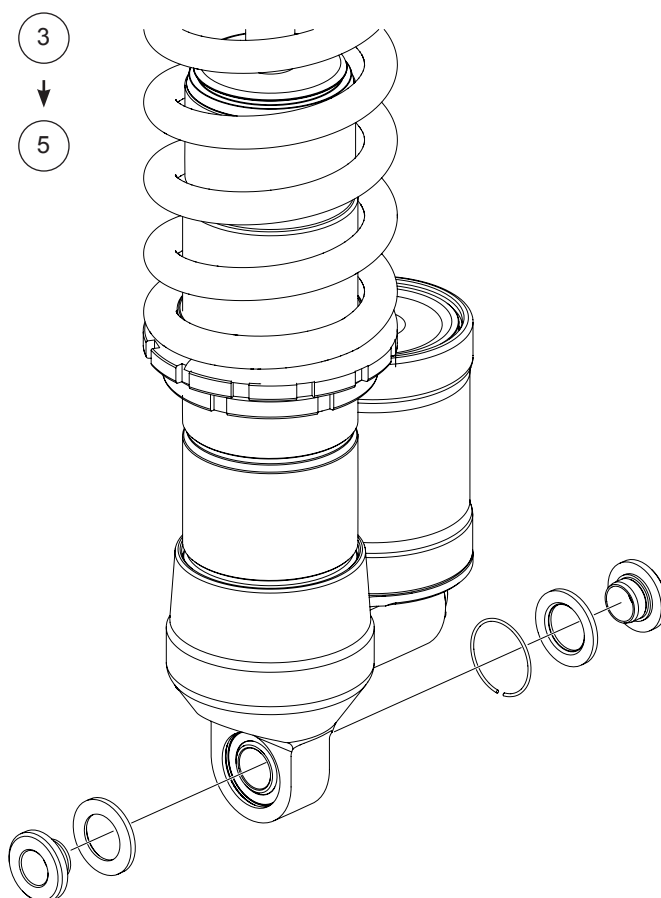
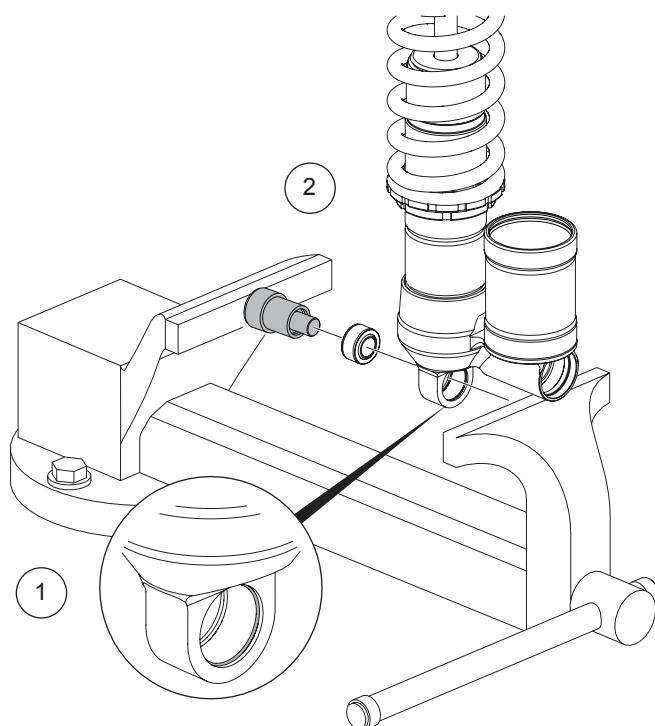
Use a suitable socket (e.g. 18 or 19 mm from your tool box) and Sleeve for Mandrel Ball Joint (00723-01) and a Vice to remove the Ball Joint.



3 ASSEMBLY

11 Assemble Ball Joint

- 1**
Mount one of the two circlips on the reservoir side.
- 2**
Use Mandrel Ball Joints (00721-01) and a Vice to mount the Ball Joint.
- 3**
Mount the second Circlip.
- 4**
Replace the Ball Joints Seal if necessary. Refit the two Ball Joint Seals.
- 5**
Push back the Ball Joint Spacers. Use a Vice or suitable press.



3 ASSEMBLY

12 Assemble Compression and Flow Valve

1

Replace the o-rings and apply CaH grease (00159-01) on them.

2

Put back check valve spool, check valve spring, check valve spring cup and install circlip. Use a pair of circlip pliers.

3

Put back flow valve into cylinder head.

4

Apply red grease (00146-02) on inner thread and click cavities of the adjuster housing.

5

Insert springs and balls into position of the adjuster needle.

👁 **Note!**

Make sure that none of the Balls falls out of the hole before inserting the adjuster needle into the adjuster housing.

6

Gently thread adjuster housing to the adjuster needle to fully closed position.

7

Mount circlip that locks the adjuster needle. Turn adjuster to fully open to make sure circlip is in position.

👁 **Note!**

Make sure that the clicks are ok.

8

Put back compression valve shim stack and valve to the adjuster housing.

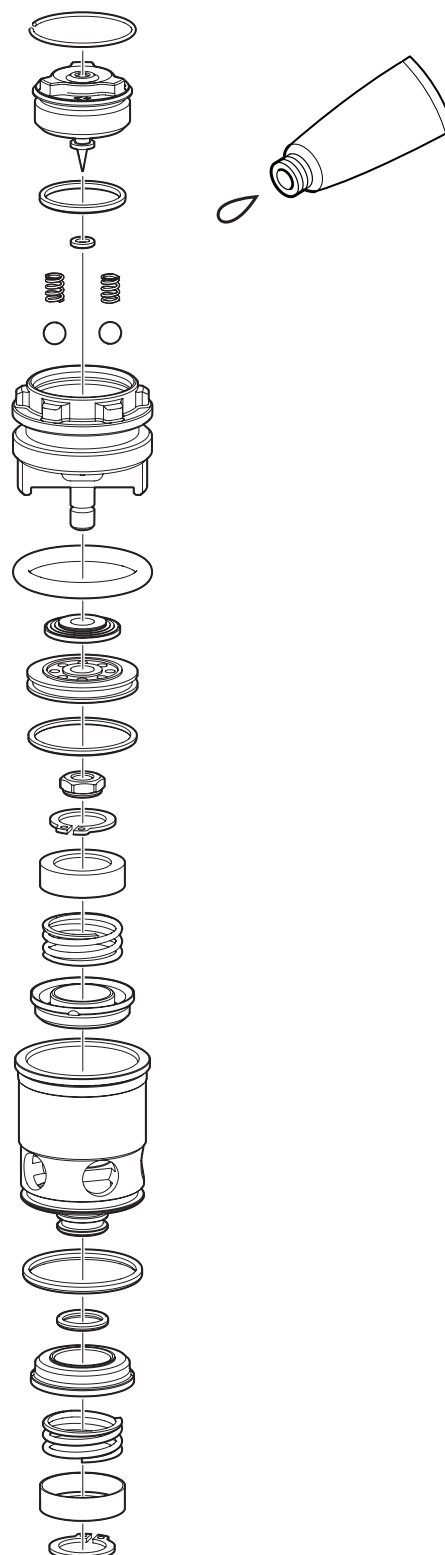
9

Thread lock nut to the adjuster needle, using a 10 mm spanner, tighten to torque 3 Nm.

10

Thread adjuster housing assembly into the cylinder head, using socket for adjuster housing (01863-03), tighten to torque 20 Nm.

1 → 10



3 ASSEMBLY

13 Assemble shaft and end piece

1

Put the Shaft in a Vice. Use Soft Jaws (00727-03).

2

Replace the o-rings and apply CaH grease (00159-01) on them.

3

Insert needle into shaft.

4

Thread shaft jet into shaft. Use Loctite 243 and torque 4 Nm.

5

Turn the Piston Shaft assembly around and fasten it in a Vice. Use Soft Jaws (00727-03).

6

Apply red grease (00146-02) on the adjustment shaft and insert into shaft.

7

If a new adjustment shaft is used: Insert adjustment pin into shaft. Use Loctite 603 between adjustment shaft and adjustment pin.

👁 Note!

If the rebound adjuster, end piece or shaft is replaced the adjustment shaft and pin need to be replaced.

8.1 - Rebound adjuster (knob)

Apply red grease (00146-02) on rebound adjuster thread, cams and o-ring.

9.1

Thread rebound adjuster into end piece until stop.

10.1

Back rebound adjuster counter clockwise to the position where the calibration plane is visible through the hole of end piece. Then back one more full turn counter clockwise. The adjuster shall be pointing downwards.

8.2 - Rebound adjuster (wheel)

Apply red grease (00146-02) on rebound adjuster cavities and o-rings.

9.2

Install rebound adjuster with adjuster retainer, o-rings and screw. Apply Loctite 2701 to the screw and tighten to torque 5 Nm.

10.2

Turn rebound adjuster to the position where the calibration plane is visible through the hole of end piece.

👁 Note!

This will calibrate the adjustment shaft and pin to correct length for correct click adjustment range.

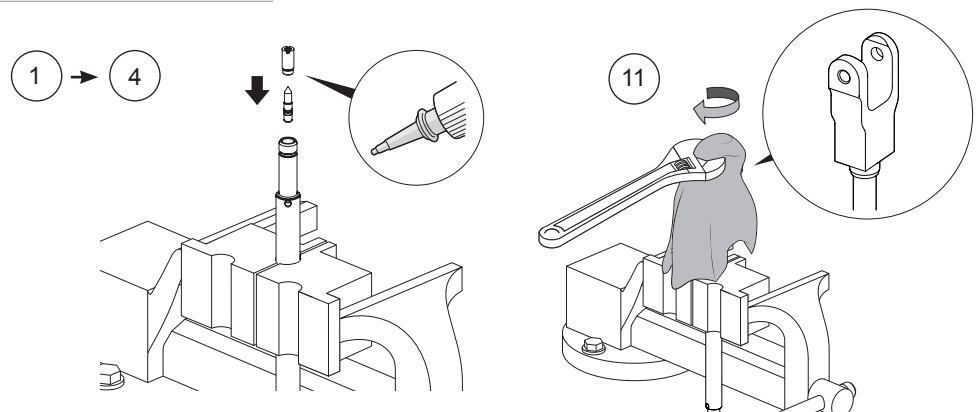
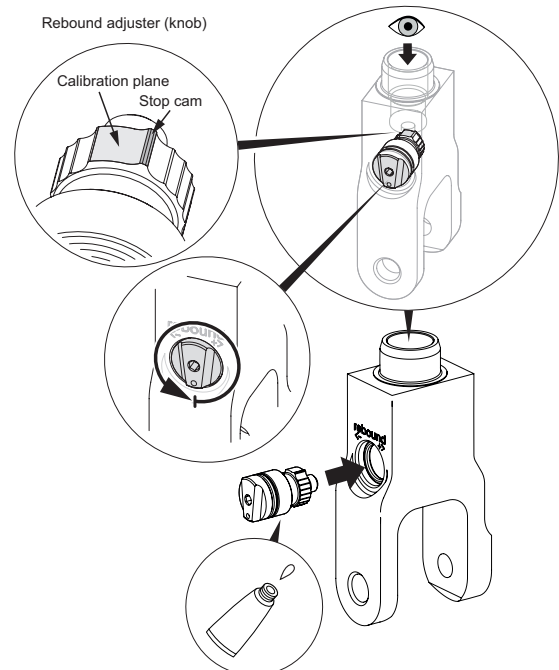
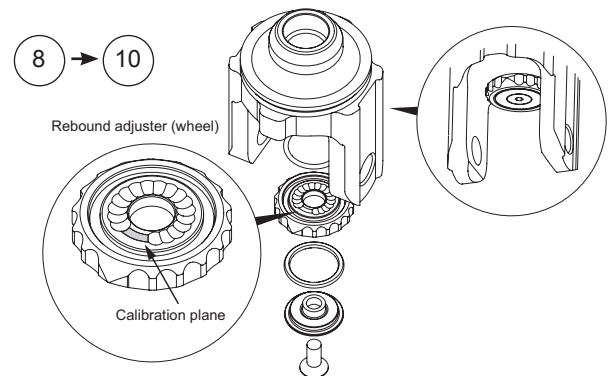
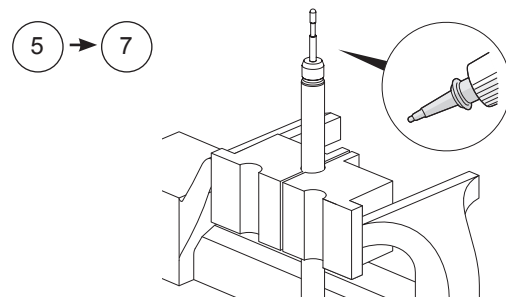
11

If reusing old end piece:

Apply Loctite 603 to shaft threads. Thread end piece to shaft using a cloth and adjustable spanner, tighten to torque 60 Nm.

If using new end piece with preapplied Loctite:

Thread end piece to shaft using a cloth and adjustable spanner, tighten to torque 60 Nm.



3 ASSEMBLY

12

Mount stop washer to end piece.

👁 Note!

Note orientation of stop washer, both rotation and direction.

13

Turn rebound adjuster clockwise so it fall down from the calibration plane to the most open click.

14

Turn the Piston Shaft assembly around again and fasten it in a Vice. Use Soft Jaws (00727-03).

15

Mount bump rubber and end cap to shaft.

16

Apply CaH Grease (00159-01) on lip seal of seal head. Use mounting sleeve (01785-02) to mount seal head to shaft.

17

Mount spacers(s), stop washer, compression shim stack, piston, rebound shim stack and stop washer.

18

On models with PDS:

Mount the PDS Piston assembly with washer and lock nut on the shaft assembly.

Use a 19 mm spanner to tightening torque 30 Nm.

Then loosen the PDS Piston assembly and tighten again to torque 30 Nm.

This will ensure correct press fit of stop washer to the shaft.

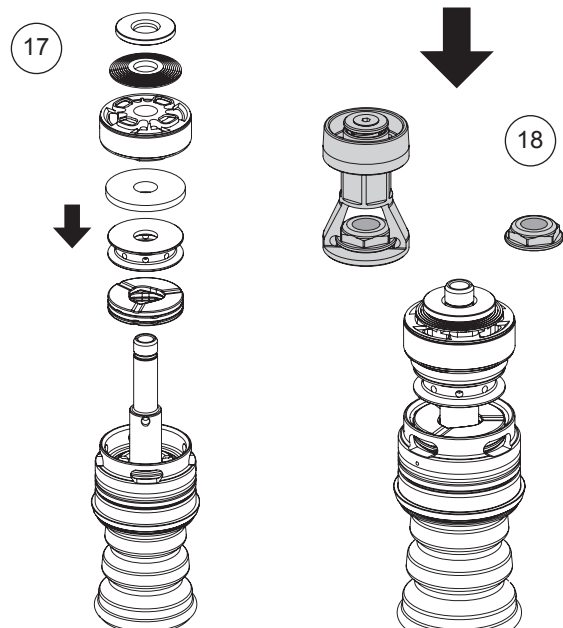
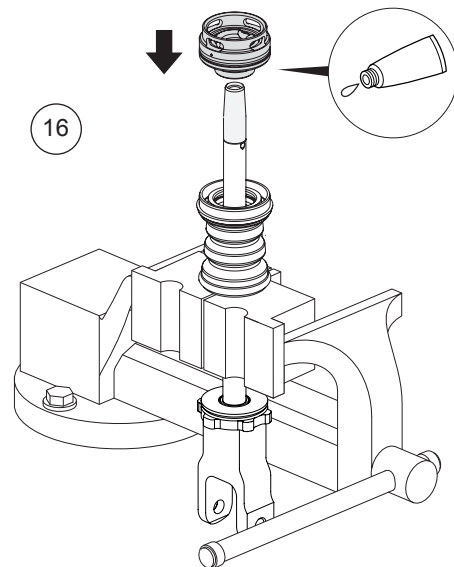
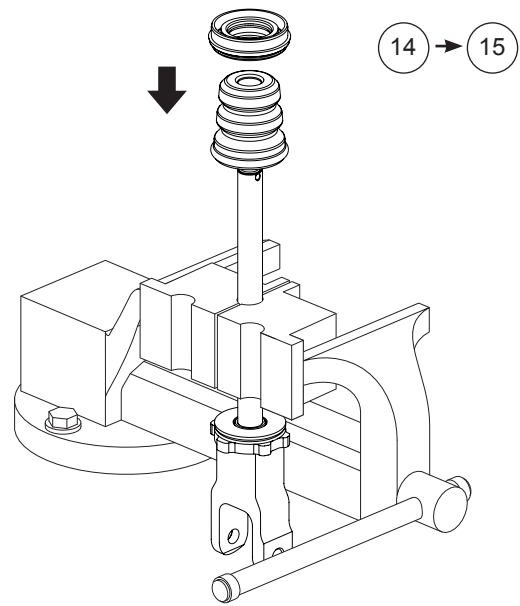
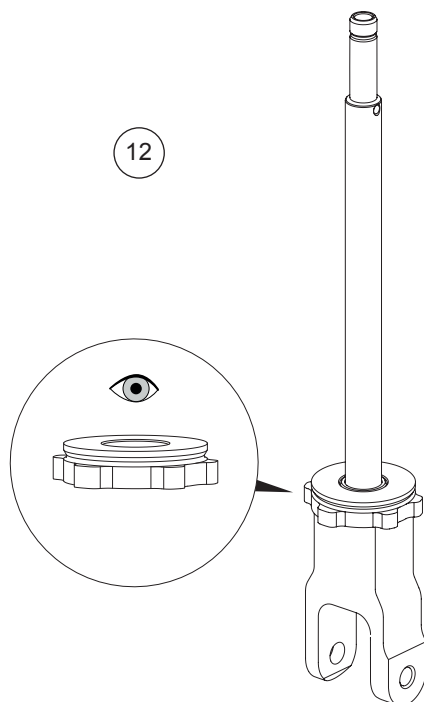
On models without PDS:

Mount the lock nut on the shaft assembly.

Use a 19 mm spanner to tightening torque 30 Nm.

Then loosen the lock nut and tighten again to torque 30 Nm.

This will ensure correct press fit of stop washer to the shaft.



3 ASSEMBLY

14 Assemble Reservoir

1.1 - Removable reservoir

If Reservoir is removed replace the O-ring between Reservoir Tube and Cylinder Head.

Apply CaH Grease (00159-01) on the O-ring.

1.2

For 58 mm reservoir: Apply CaH Grease (00159-01) on both threads of the reservoir adapter and thread it to the cylinder head. The 4 holes on reservoir adapter shall face upwards.

For 49 mm reservoir: Apply CaH Grease (00159-01) on threads of the cylinder head.

1.3

Mount the reservoir to cylinder head, tighten to torque 70 Nm.

For 58 mm reservoir: Use spanner (00738-02) with sleeve (00737-22).

For 49 mm reservoir: Use spanner (00738-02) with sleeve (00737-25)

2.1 - Non-removable reservoir

If reservoir end M50 is removed, replace O-ring between reservoir end M50 and cylinder head.

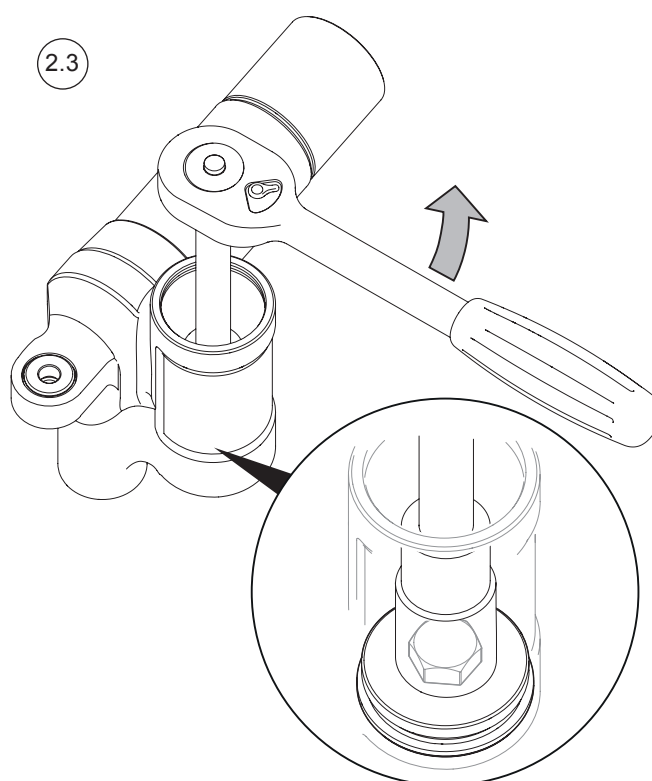
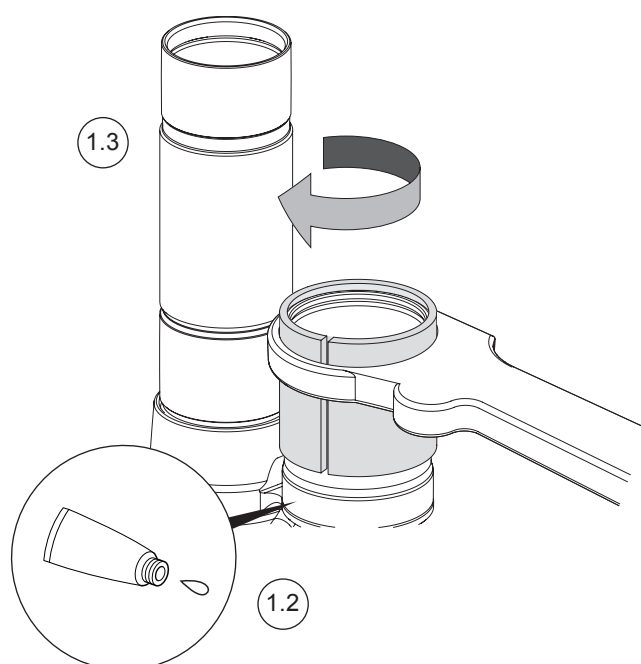
Apply CaH Grease (00159-01) on the O-ring.

2.2

Apply CaH Grease (00159-01) on the threads of the reservoir end M50.

2.3

Mount reservoir end M50 to cylinder head, tightening it counter-clockwise torque 70 Nm. Use a 19mm socket.



3 ASSEMBLY

4

Replace O-ring and Teflon Band on the Reservoir Piston. Apply CaH grease (00159-01) on the O-ring and the Teflon Band.

5

Mount reservoir piston and push it to bottom om reservoir. Apply a rich amount of CaH grease (00159-01) on reservoir walls right above reservoir piston.

6

Fill the damper with oil, see chapter "Fill oil".

7

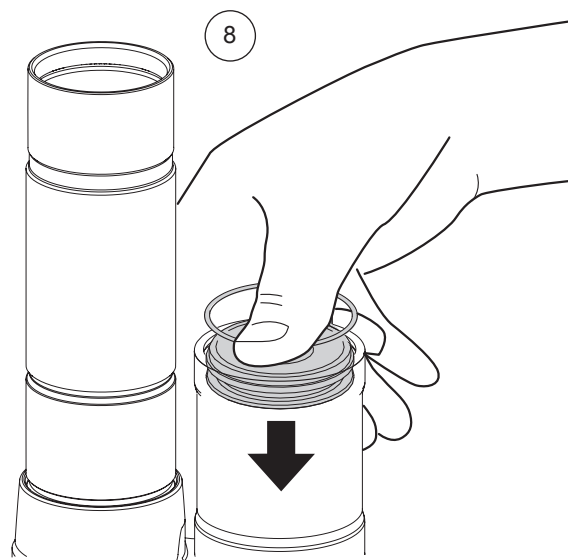
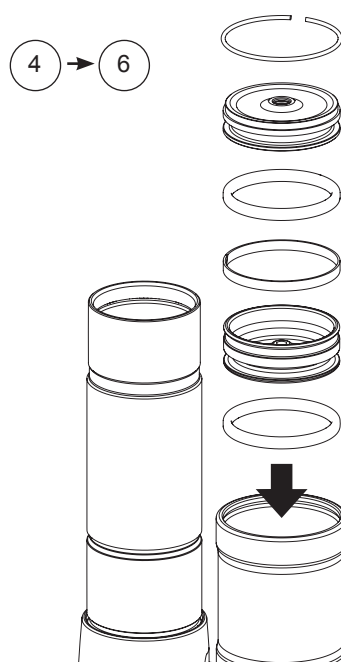
Replace the O-ring on the Reservoir end. Apply CaH Grease (00159-01) on the O-ring.

8

Put the Reservoir end into the Reservoir. Press it down with your thumb and at the same time install the Circlip above.

9

Charge with gas, see chapter "Charge with gas".



3 ASSEMBLY

15 Fill Oil

👁 Note!

Make sure that the Shock Absorber is depressurized.

👁 Note!

Make sure that the cylinder tubes, shaft assembly, compression valve assembly and reservoir is mounted correctly.

1

Open the compression and rebound adjusters fully.

2

Remove Filling screw. Use Torx T25.

👁 Note!

Some oil may come out of the filling hole when the screw is removed

3

Install the Vacuum Adapter Assy (01820-21) in the filling hole.

4

Make sure that Retainer (01821-02/-03) is installed on Measure Pin (00720-02).

👁 Note!

Spacer (01721-01) on Measure Pin (00720-02) needs to be removed before Retainer (01821-02/-03) is installed.

5

Apply a thin layer of CaH Grease (00159-01) inside the Reservoir.

6

Screw Measure Pin (00720-02) into the Reservoir Piston and push the Reservoir Piston all the way down in the Reservoir. Insert circlip in the Reservoir to hold retainer in place.

👁 Note!

The Circlip that is used to hold the Reservoir End can be used.

7

Loosen the retainer so it can slide along the measure pin.

8

Pull up the measure pin and gas piston according to spec card.

9

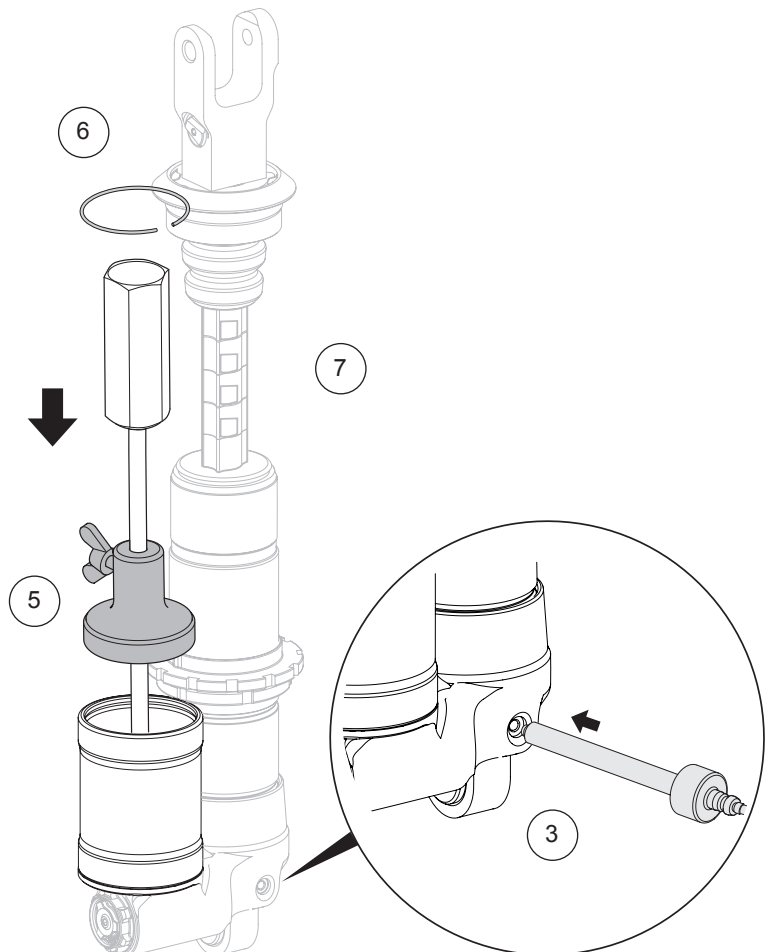
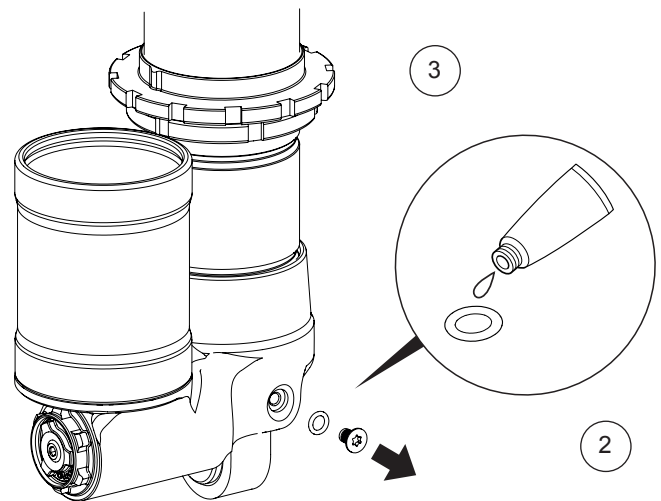
Make sure the upper surface of the retainer touches the circlip. Tighten the retainer to measure pin and make sure it will not move when filling with oil.

10

Use Spacers for example 01877 between the Bump Rubber and End Cap to lock the Shaft in fully extended position.

11

Use the Filling Machine (01840-02/-03) to fill the Shock Absorber according to separate manual for Filling Machine. Fill the Shock Absorber with Öhlins High demand shock fluid according to spec card.



3 ASSEMBLY

12

When filling is completed, disconnect the Shock Absorber from the Filling Machine.

13

Remove Vacuum Adapter Assy (01820-25) from the Shock Absorber.

14

Mount the Filling Screw. Use Torx T25.

Tightening torque 3 Nm.

Note!

Make sure the O-ring is in place before mounting the Screw.

15

Remove the Circlip from the Reservoir. Use Sharp Screwdriver (00715-01).

Note!

Be careful not to scratch the surface beneath the Circlip groove since this may damage the sealing surface.

16

Remove Measure Pin (00720-02) from the Separating Piston.

3 ASSEMBLY

16 Charge With Gas

⚠ Warning!

Working with pressurized gas can be hazardous. Use Nitrogen (N₂) gas only.

👁 Note!

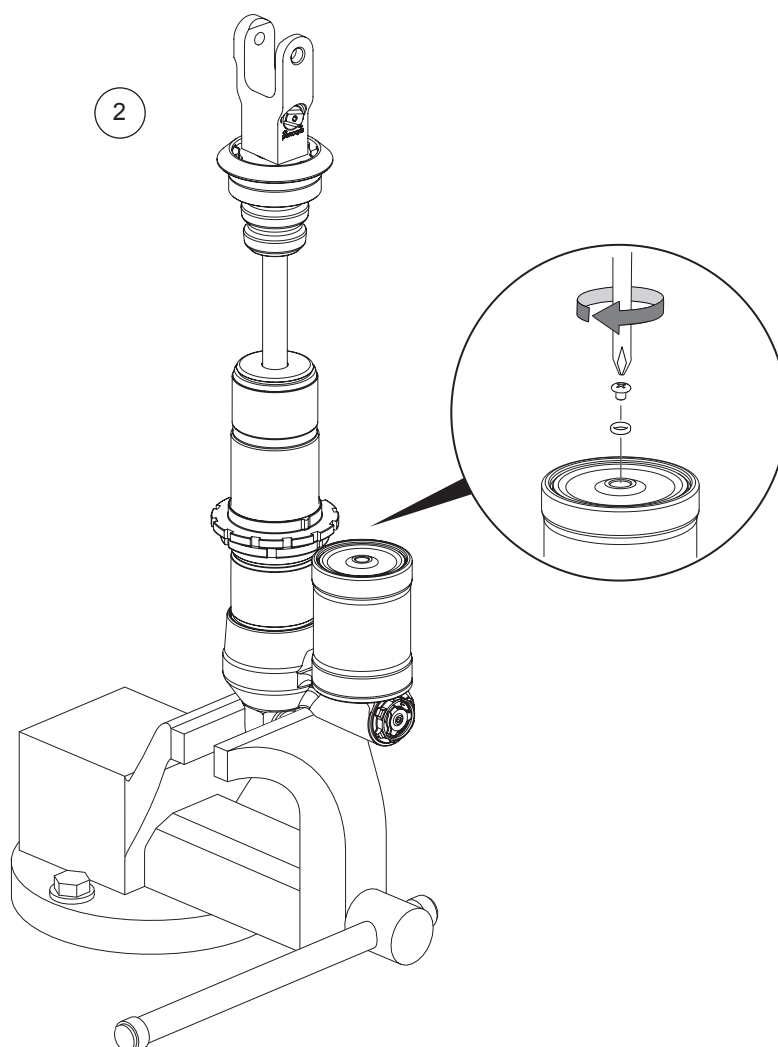
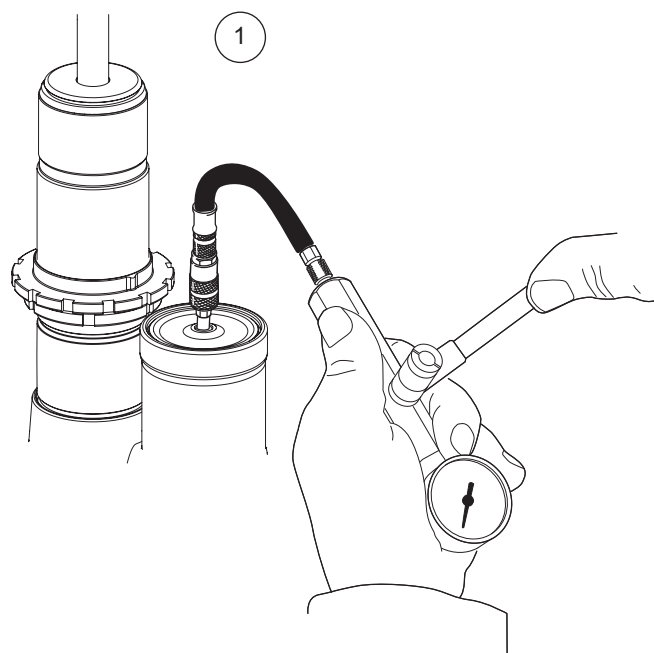
Before charging with gas the Reservoir End Eye must be installed, see chapter 15.

1

Charge with gas (Nitrogen N₂ only). Use Gas Filling Device (01781-01). Set the correct pressure according to the spec. card.

2

Install the Screw and O-ring to the Reservoir. Use Torx T20. Tightening torque 3 Nm.



Your Öhlins retailer:

Öhlins Racing AB
Box 722
SE-194 27, Upplands Väsby
Sweden

Phone: +46 (0)8 590 025 00
Fax: +46 (0)8 590 025 80
www.ohlins.com



www.ohlins.com