



Öhlins Front Fork Superbike

# FGR 300

Owner's Manual/ Spare Parts List/ Workshop Manual

# INTRODUCTION



*It was the 1970's, a young man named Kenth Öhlin spent most of his spare time pursuing his favourite sport: motocross.*

A careful observer, Kenth's attention was continually drawn to one specific detail - motocross bikes had more engine power than their suspension could handle. It was not long before Kenth realised that better performance could be achieved by improved wheel suspension.

Öhlins Racing was established in 1976, and just two years later the company won its first World Championship title. Despite being in the business for 30 years, the search for perfection and new functions is still the main focus of the company.

Congratulations! You are now the owner of an Öhlins Front Fork. More than two hundred World Championships and other major world titles are definitive proof that Öhlins products offer outstanding performance and reliability.

Every product has gone through rigorous testing and engineers have spent thousands of hours, doing their very best to use every possible experience from our 30 years within the racing sport. The product that you now have in your possession is pure racing breed that is built to withstand.

By installing this front fork on your bike you have made a clear statement... you are a serious rider with a focus on getting the maximal handling ability and outstanding feedback from your bike. Along comes the fact that your front fork will be a long lasting friend, delivering the very best of comfort and performance every time you go for a ride. Go explore!

# 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.*

### **Note!**

*This Manual shall be considered a part of the product and shall therefore accompany the product throughout its life cycle.*

## 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<sub>2</sub>). Do not open, service or modify this product without proper education (authorized Öhlins dealer/distributor) and proper tools.*

# CONTENTS

Introduction .....	1
Safety Precautions .....	2
Öhlins Front Fork FGR300 .....	4
Setting up the Front Fork .....	5
Adjust Spring Preload, Rebound and Compression ....	6
Technical Information .....	7
Spare Parts List .....	9
Workshop Section .....	13
Tools .....	14
1 Replace Spring .....	15
2 Disassemble Front Fork .....	16
3 Replace Seal .....	18
4 Replace Inner/Outer tube .....	19
5 Disassemble Shaft .....	21
6 Assemble Front Fork .....	22
7 Revalve .....	24
Oil level .....	25
Troubleshooting .....	26

# ÖHLINS FRONT FORK FGR 300

*The product in your hand is an artwork, prepared by our dedicated craftsmen at our Swedish facility in Upplands Väsby, Sweden. Its predecessors have battled their way on numerous race tracks in World Superbike, Supersport, Superstock and AMA, and the legacy continues in your front fork. Thousands of hours have been spent together with some of the best teams in the world to find the optimal design and functionality to give you as much performance as possible. You will feel the difference...be sure.*

*For the new FGR 300 Öhlins engineers set out a target to improve the already successful FGR 200 front fork in several areas, as development never stands still in racing.*

## Design

The outer tube is now reinforced making the FGR 300 stiffer and more robust.

This pressurized front fork, equipped with 25mm TTX technology is the very latest in front fork technology.

## New features on the FGR 300

- Stronger outer tubes
- Stiffer outer tube
- Lighter design
- New settings for better control



# SETTING UP THE FRONT FORK

## 👁 Note!

The front fork is just one part of your motorcycle. To make it work properly, set up your motorcycle according to your vehicle service manual.

## 1 Mount Öhlins Front Fork

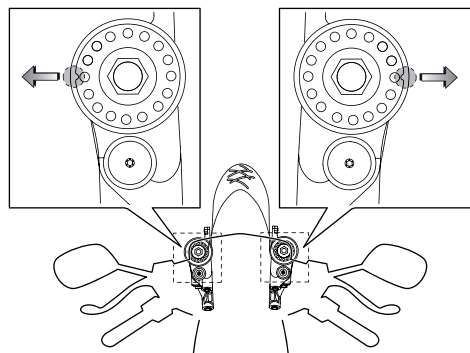
Put your motorcycle on a workstand and mount the Öhlins front fork with the splines facing out from the motorcycle (see figure below). Follow instructions in your vehicle service manual.

Lower triple clamp;

Tightening torque max. 12-15Nm

## 👉 Caution!

If the Steering damper bracket is located around the upper front leg, do not exceed 12-15Nm. Too high torque may deform the front fork leg, affecting the function negatively.



## 👁 Note!

See Chapter "Technical Information" for technical data for the FGR 300.

## 2 Check Ride Height

### 👁 Note!

The following procedure should be performed on a flat surface. We recommend that the following procedure should be performed by two persons.

### 2.1

Put the motorcycle on a stand.

Ensure that the shock absorber is fully extended.

### 2.2

Measure the distance from a point marked by a piece of tape, immediately above the rear wheel axle, to the wheel axle (R1).

### 2.3

Make a similar measurement on the front axle, for example, from the bottom of the upper triple clamp to a fixed point, for example the front wheel axle (F1). Make sure that the front fork is fully extended.

### 2.4

Put the motorcycle on the ground so that the front and the rear suspensions are slightly compressed. Repeat the measuring procedures (R2 and F2).

### 2.5

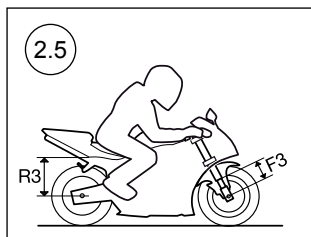
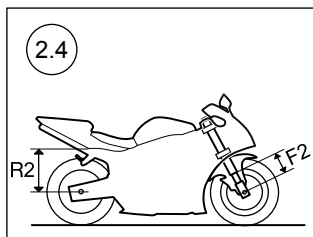
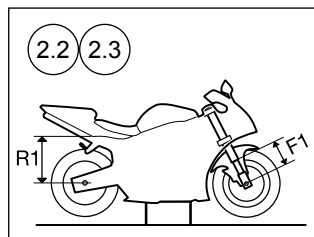
Sit on the motorcycle in normal riding position, properly outfitted in your riding gear. Correct riding position is important so that the weight is balanced on the front and rear wheel in the same way as when riding. Repeat the measuring procedure (R3, F3).

## 3

The measurements should not differ from the following:

Rear 30±5 mm (**R1-R3**)

Front 35±5 mm (**F1-F3**)



# SETTING UP THE FRONT FORK

4

If the measures differ significantly from the measures in step 3, you need to set the spring preload (see below).

## 👁 Note!

*The spring preload is very important since it affects the height of the motorcycle and the fork angle. Consequently, handling characteristics can be changed, even negatively.*

5

If the measures still differ, you may need to change spring. Contact an Öhlins dealer for advice.

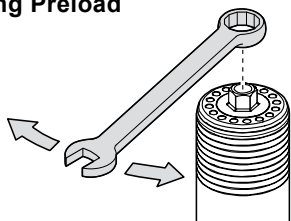
## ADJUST SPRING PRELOAD, REBOUND AND COMPRESSION

### Adjust Spring Preload

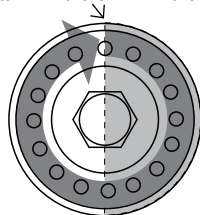
1. Use a 14 mm wrench.
2. Turn the nut on the top of the fork leg. Turn clockwise to increase spring preload, turn counter clockwise to decrease it.  
1 turn on the adjustment nut will change spring preload 1 mm.  
1 turn = 2 "clicks"  
1 "click" = ½ mm spring preload

Recommended static sag (F1-F2): 25-30 mm

### Spring Preload



1 turn = 2 clicks = 1mm change



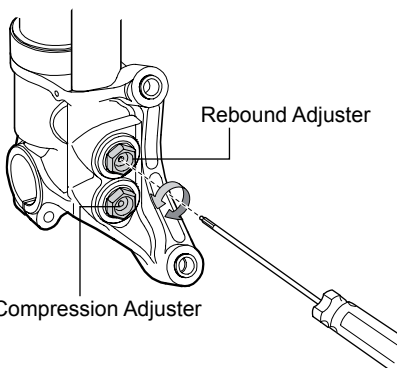
½ turn = 1 click = ½mm change

### Rebound and Compression Adjusters

1. Use tool 00794-01
2. Turn the adjuster screw(s) at the fork bottom. Turn the adjuster clockwise to fully closed.
3. Turn counter clockwise and count the clicks to set the adjuster.

Recommended adjustment "clicks" from closed position: See spec. card

### Rebound and Compression



Compression Adjuster

Rebound Adjuster

Turn clockwise to close valve

Turn counter clockwise to open valve

# TECHNICAL INFORMATION

## FGR 300

Front fork length/stroke	750/130 mm
Free spring length	260 mm

## Adjustment Range

Compression	~26 clicks
Rebound	~26 clicks
Spring preload	0-18 mm (0-18 turns)

The adjustment range from closed valve (clockwise) to maximum open valve (counter clockwise): approx. 26 clicks

## Spring rate

10.0 N/mm (mark -10) STD	04744-10
--------------------------	----------

## Optional springs

8.0 N/mm (mark -80)	04744-80
8.5 N/mm (mark -85)	04744-85
9.0 N/mm (mark -90)	04744-90
9.5 N/mm (mark -95)	04744-95*
10.5 N/mm (mark -05)	04744-05*
11.0 N/mm (mark -11)	04744-11*

\* supplied

## Oil capacity

See specification card. Use Öhlins Front Fork fluid 01309 only.

## Torque

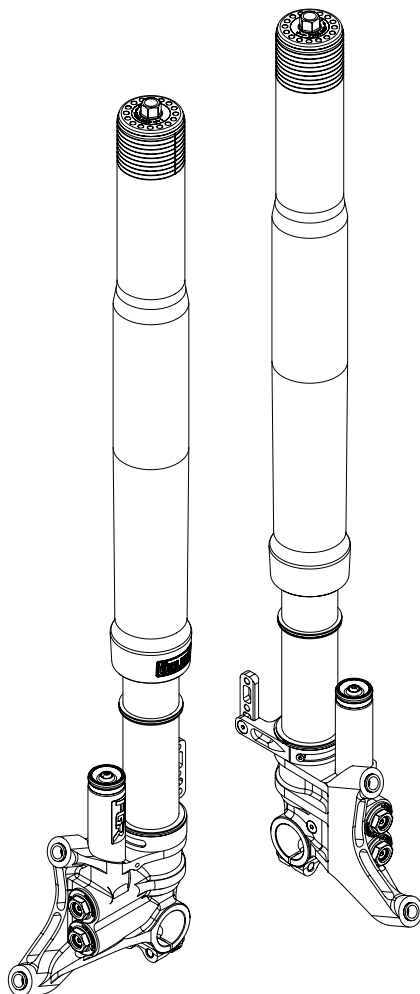
Lower triple clamp bolt	12-15 Nm (1-2-1)
Upper triple clamp bolt	18-22 Nm (1-2-1)
Front axle Clamp bolt	17-19 Nm (1-2-1)
Axle tolerances	Ø 30mm <sup>-0.02/-0.06</sup>

## 👁 Note!

*If your vehicle also is equipped with an Öhlins Steering Damper outer tube clamp;  
Tighten to: 12-15Nm*

## Service intervals

This product is designed for racing use only. Service and maintenance is recommended every 20 hours.



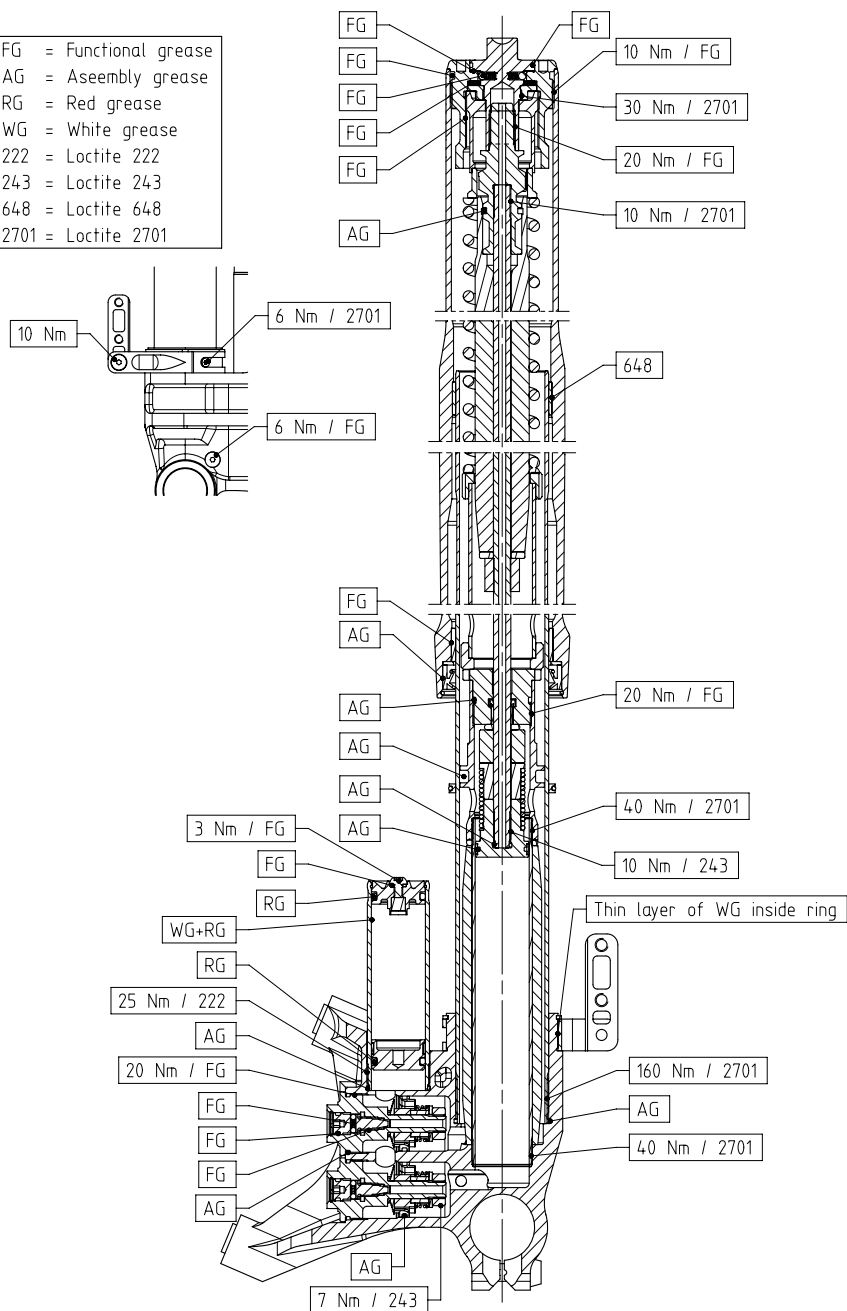
## Disposal

Discarded products should be handed over to an authorized Öhlins Service Centre for proper disposal.



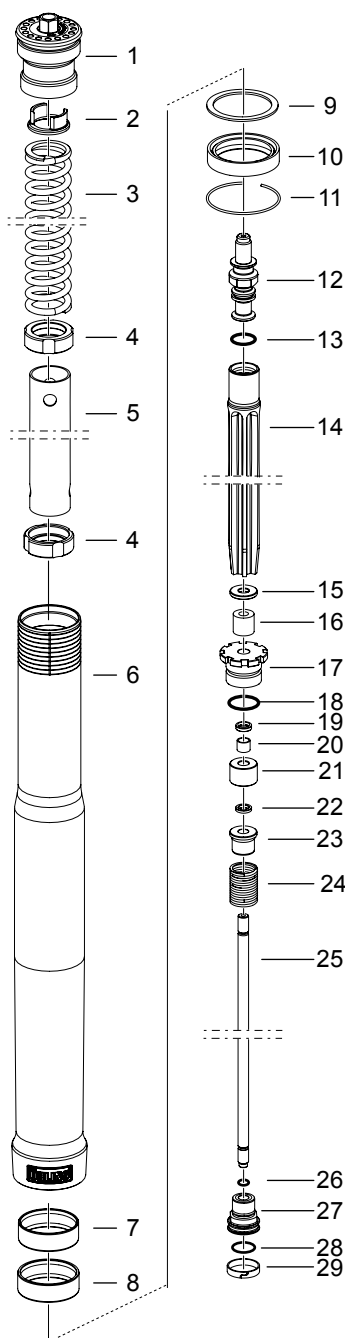
# TECHNICAL INFORMATION

FG = Functional grease  
 AG = Assembly grease  
 RG = Red grease  
 WG = White grease  
 222 = Loctite 222  
 243 = Loctite 243  
 648 = Loctite 648  
 2701 = Loctite 2701



# SPARE PARTS LIST

**Figure 1 Outer tube and Shaft**

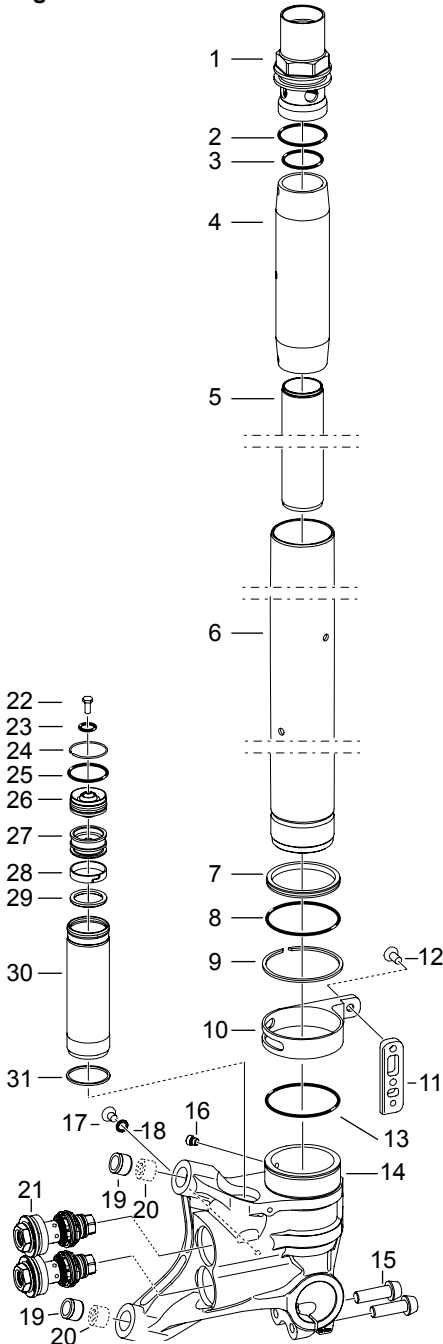


Pos	Part No	Pcs	Description	Notes
1-1	04732-11	2	Top nut assembly	See page 11
1-2	03316-02	2	Spring support	
1-3	04744-10	2	Spring, installed	25.5/260/10.0
	04744-95	2	Spring, supplied	25.5/260/9.5
	04744-05	2	Spring, supplied	25.5/260/10.5
	04744-11	2	Spring, supplied	25.5/260/11.0
1-4	01438-04	4	Guide ring	
1-5	01460-35	2	Preload tube	169 mm
1-6	01900-13	2	Outer tube	510 mm
1-7	01683-04	2	Bushing, upper	
1-8	01684-04	2	Bushing, lower	
1-9	04758-01	2	Washer	
1-10	04720-02	2	Seal	
1-11	04759-01	2	Circlip	
1-12	01901-08	2	Shaft extension	
1-13	00338-76	2	O-ring	
1-14	21666-01	2	Guide sleeve	
1-15	01582-22	2	Spacer	
1-16	01580-04	2	Bump rubber	
1-17	01651-15	2	Seal head	
1-18	00438-02	2	O-ring	
1-19	15428-01	2	Seal	
1-20	01056-09	2	Bushing	
1-21	01582-24	2	Spacer	15 mm
1-22	00638-81	2	O-ring	
1-23	01653-09	2	Sleeve	
1-24	21733-03	2	Top-out spring	
1-25	21734-01	2	Shaft	525.5 mm
1-26	00338-39	2	O-ring	
1-27	02061-07	2	TTX-piston	Ø 25 mm
1-28	00638-25	2	O-ring	
1-29	01447-02	2	Piston ring	

👁 Note! Pcs [pieces] applies for one pair of Front Fork legs

# SPARE PARTS LIST

**Figure 2 Inner tube and Fork Bottom**

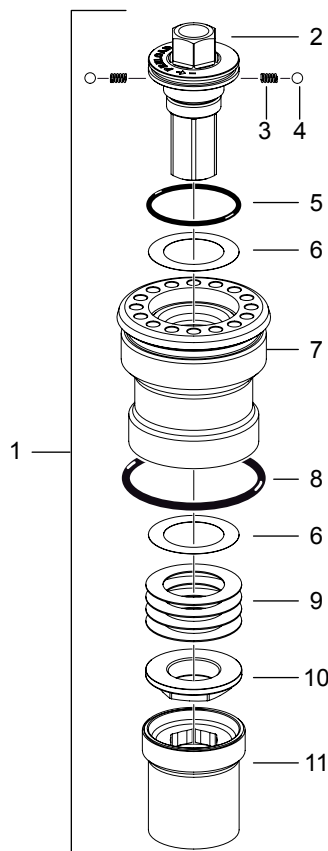


Pos	Part No	Pcs	Description	Notes
2-1	04809-04	2	Cylinder tube ext	
2-2	00438-75	2	O-ring	
2-3	00576-11	2	O-ring	
2-4	04807-04	2	Vol. Spacer	
2-5	01656-14	2	Cylinder tube	158mm
2-6	01703-01	2	Inner tube	528mm
2-7	01565-04	1	Stroke indicator	Right
2-8	00338-54	1	O-ring	Green
2-9	04759-02	2	Circlip	
2-10	01682-55	2	Fender bracket ring	
2-11	01678-14	2	Fender bracket	
2-12	00382-08	2	Screw	
2-13	00338-63	2	O-ring	
2-14	01902-29	1	Fork bottom	Left
	01902-30	1	Fork bottom	Right
2-15	01240-08	4	Screw	Titanium
2-16	04810-01	2	Stop screw	
2-17	00382-07	2	Screw	
2-18	00438-33	2	O-ring	
2-19	01669-02	4	Caliper sleeve	
2-20	01669-03	4	Spacer	Optional
2-21	-	2+2	Valve assy	See fig 4
2-22	01050-01	2	Screw	
2-23	00338-59	2	O-ring	
2-24	00557-01	2	Circlip	
2-25	00338-25	2	O-ring	
2-26	00161-12	2	Reservoir end assy	
2-27	02806-01	2	Gas piston	
2-28	01447-02	2	Piston ring	
2-29	00338-25	2	O-ring	
2-30	02814-03	2	Reservoir tube	95 mm
2-31	00338-72	2	O-ring	

👁 Note! Pcs [pieces] applies for one pair of Front Fork legs

# SPARE PARTS LIST

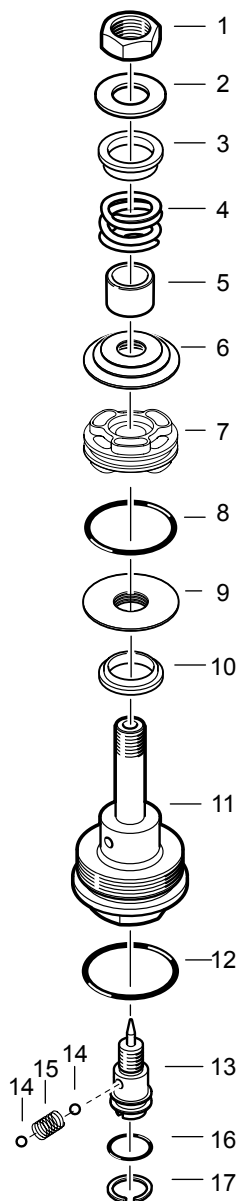
**Figure 3 Top Cap Assembly**



Pos	Part No	Pcs	Description	Notes
<b>3-1</b>	<b>04732-11</b>	<b>2</b>	<b>Top Cap Assy</b>	
3-2	03312-09	2	Adjuster	
3-3	03083-01	4	Spring	
3-4	00884-06	4	Ball	
3-5	00338-72	2	O-ring	
3-6	03309-01	4	Thin Shim	
3-7	03318-11	2	Housing	
3-8	00338-02	2	O-ring	
3-9	03317-01	8	Spring washer	
3-10	03313-01	2	Nut	
3-11	03315-05	2	Preload socket	

👁 Note! Pcs [pieces] applies for one pair of Front Fork legs

**Figure 4 Valve**

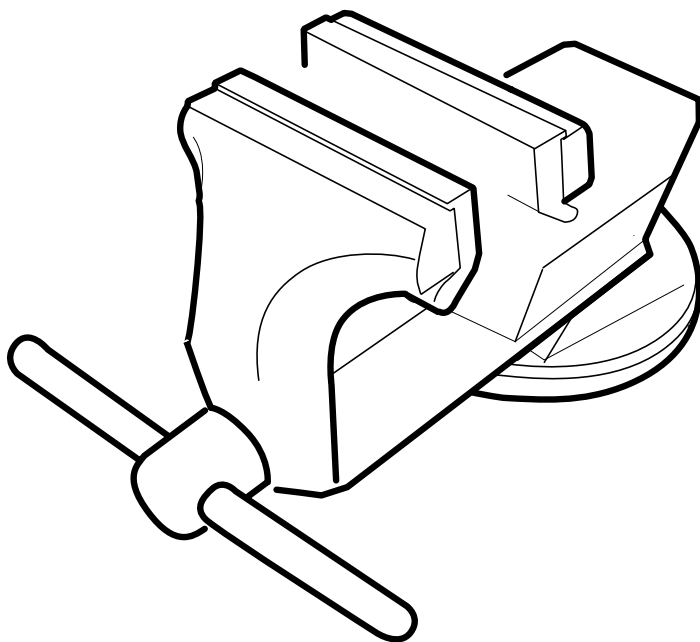


Pos	Part No	Pcs	Description	Notes
4-1	01657-01	4	Nut	<i>Aluminium</i>
4-2	00153-01	4	Washer	
4-3	01672-01	4	Spring collar	
4-4	-	-	Spring	<i>See spec. card</i>
4-5	01669-04	4	Sleeve	
4-6	-	-	Shim	<i>See spec. card</i>
4-7	02406-02	4	Piston	
4-8	00338-11	4	O-ring	
4-9	-	-	Shim stack	<i>See spec. card</i>
4-10	-	-	Clamp washer	<i>See spec. card</i>
4-11	01658-09	2	End piece	<i>Compression</i>
	01658-10	2	End piece	<i>Rebound</i>
4-12	00438-02	4	O-ring	
4-13	01242-16	4	Adjustment needle	
4-14	00884-02	8	Ball	$\varnothing 2,5$ mm
4-15	01474-01	4	Spring	
4-16	00338-53	4	O-ring	
4-17	01473-02	4	Circlip	

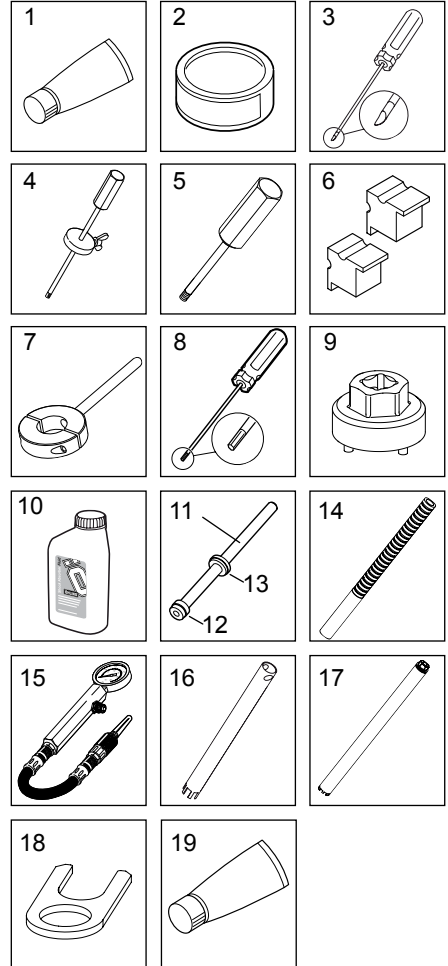
👁 Note! Pcs [pieces] applies for one pair of Front Fork legs

# WORKSHOP SECTION

Tools .....	14
1 - Replace Spring .....	15
2 - Disassemble Front Fork .....	16
3 - Replace Seal .....	18
4 - Replace Inner/Outer tube.....	19
5 - Disassemble Shaft.....	21
6 - Assemble Front Fork.....	22
7 - Revalve.....	24



Pos	Part No	Description	Notes
1	00146-01	Öhlins red grease	
2	00147-01	Öhlins white grease	
3	00715-01	Sharp screw driver	
4	00720-02	Measure pin	
5	00720-03	Pin tool	
6	00727-08	Soft jaws	
7	00786-05	Soft jaws clamp	ø 43
	00786-07	Soft jaws clamp	ø 29
8	00794-01	Screwdriver Allen key	3 mm
9	00797-08	Sleeve pin	
10	01309-01	Öhlins Front Fork fluid	
11	01757-01	Attachment bar tool	
12	01758-04	Bar guide	
13	01759-07	Bushing tool	Dismantling
	01759-08	Bushing tool	Installation
14	01765-03	Pull up tool	
15	01781-01	Gas filling device	
16	01797-04	Seal head tool	
17	01797-07	Seal head tool	
18	02810-01	Pull up holder tool	
19	00159-02	Functional grease	
19	00159-02	Assembly grease	
		Brass wire brush	
		Heat gun	
		Torque Wrench	3/8"
		Loctite 648	
		Loctite 222	
		Loctite 2701	
		Rag	
		Teflon tape	
		Torx wrench	T20
		Vice	
		Waste fluid container	
		Wire with hook	
		Wrench	14 mm
		Wrench	17 mm
		Wrench	19 mm
		Wrench	20 mm



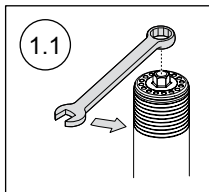
# 1 REPLACE SPRING

## 👁️ **Note!**

*This procedure can be performed with the front fork on the vehicle, front wheel off the ground.*

### 1.1

Release spring preload. Use a 14mm wrench. Turn the Adjustment nut counter clockwise until stop, make a note of position.

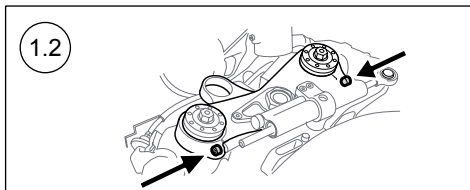


## 👉 **Caution!**

*Do not use the Preload adjuster to tighten or loosen the Top cap assembly.*

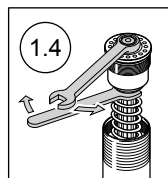
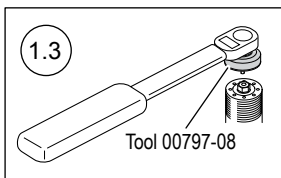
### 1.2

Loosen the screws attaching the fork legs in the upper triple clamp.



### 1.3

Loosen Top cap assembly from the Outer tube. Use Sleeve Pin tool (00797-08), lower the front so that the front fork is fully compressed.

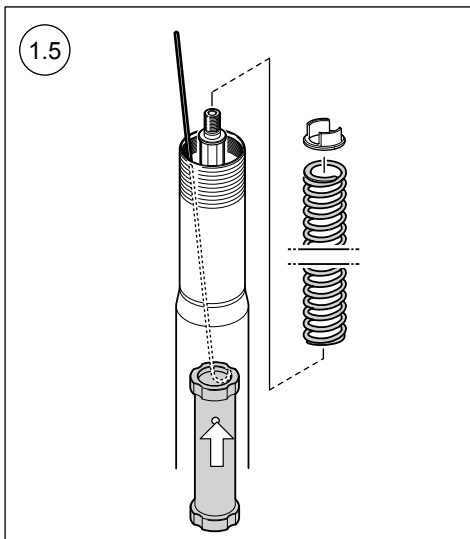


### 1.4

Remove Top cap assembly from the Shaft. Use a 14 mm wrench on the top cap and a 19 mm wrench on the Shaft.

### 1.5

Remove Spring support and Spring. Use a wire with a hook and carefully pull up Preload tube.



### 1.6

Check oil level according to Chapter *Oil level*.

### 1.7

Remount Preload tube, new Spring (marking facing up) and Spring support.

### 1.8

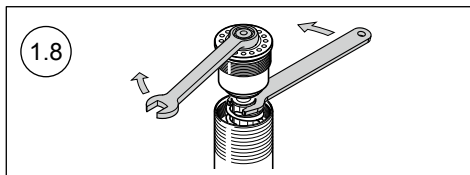
Remount the Top cap assembly on the Shaft. Tightening torque 20 Nm.

### 1.9

Apply Öhlins Functional grease (00159-02) on the Top cap thread and O-ring.

### 1.10

Remount Top cap into the outer tube, with the fork fully extended. Use Sleeve Pin tool (00797-08). See figure 1.3  
Tightening torque 10 Nm.



### 1.11

Tighten the upper triple clamp and reset the preload, see page 5.



## 2 DISASSEMBLE FRONT FORK

### 2.1

Loosen the upper clamp screws and loosen the top cap ½ turn use tool 00797-08. Remove the Front fork from the motorcycle.

### 2.2

Fasten the Fork leg in a vice with soft jaws.

### 2.3

Release spring preload. Use a 14 mm wrench. Turn the Adjustment nut counter clockwise until stop, make a note of position.

### Caution!

*Do not use the Preload adjuster to tighten or loosen the Top cap assembly.*

### 2.4

Loosen Top cap assembly from the Outer tube. Use Sleeve Pin tool (00797-08), push down the outer tube.

### 2.5

Remove Top cap assembly from the Shaft. Use a 14 mm wrench on the top cap and a 19 mm wrench on the Shaft.

### 2.6

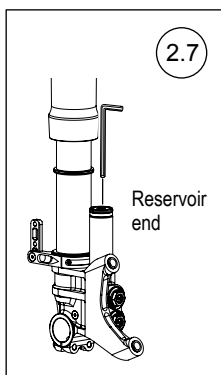
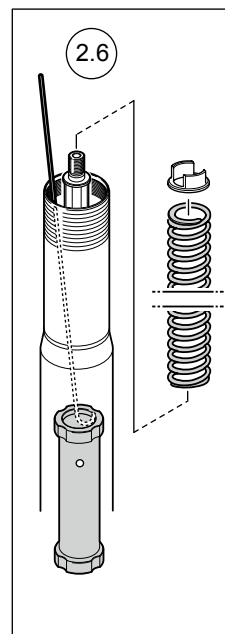
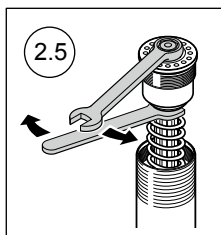
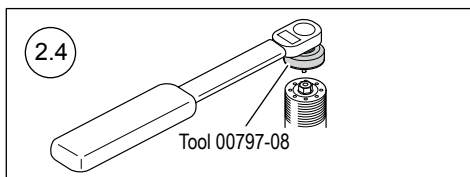
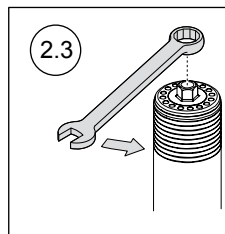
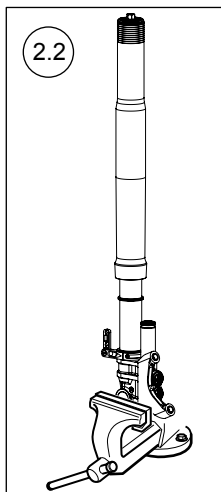
Remove Spring support and Spring. Use a wire with a hook and carefully pull up Preload tube.

### 2.7

Remove Screw and O-ring from the Reservoir end. Use a Torx wrench T20.

### 2.8

Count and note Adjuster settings. open the Adjusters to fully open.



# 2 DISASSEMBLE FRONT FORK

## ⚠ Warning!

Releasing high pressure gas can be hazardous.  
Do not perform any kind of service until gas pressure is completely released.

### 2.9

Release gas pressure. Insert tool 01781-01 in the Reservoir end through the Rubber membrane.

### 2.10

Use Pin tool (00720-03). Press the Reservoir end down to remove the Circlip, clean the circlip groove with a rag.

### 2.11

Remove the Reservoir end. Use Pin tool (00720-03).

### 2.12

Remove Shaft assembly from the fork leg.  
Use Seal Head tools (01797-04 and 01765-03).

### 2.13

Drain all oil from the fork leg.

### 2.14

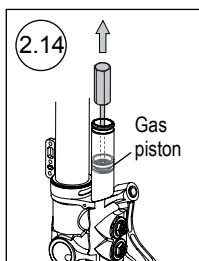
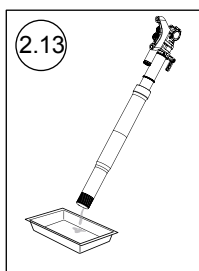
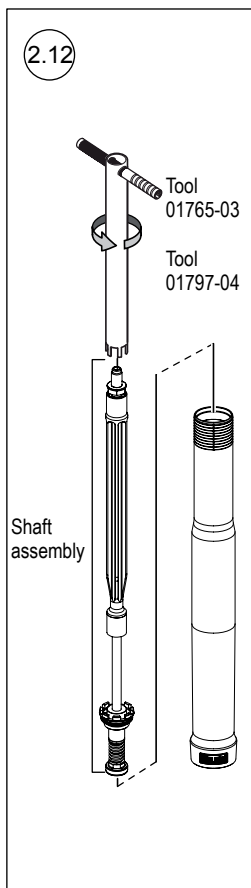
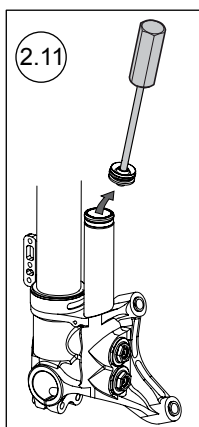
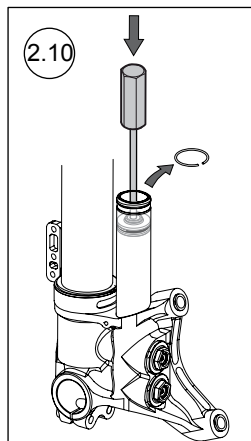
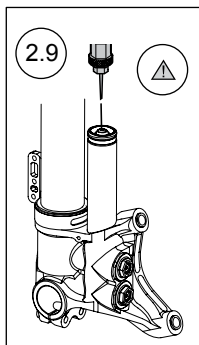
Remove Gas piston. Use Measure Pin (00720-02).

→ To Replace Seal

go to Chapter 3 *Replace Seal*.

→ To Disassemble Shaft assembly

go to Chapter 5 *Disassemble Shaft*.



# 3 REPLACE SEAL

## 3.1

Loosen the upper clamp screws and loosen the top cap ½ turn use tool 00797-08. Remove the Front fork from the motorcycle.

## 3.2

Remove Top cap and Shaft assembly according to Chapter 2 Disassemble Front Fork.

## 3.3

Remove the Outer tube.

## 3.4

Clean the Seal and check for damage.

## 3.5

If seal is damaged replace by removing the circlip, Seal and Washer.

## 3.6

Apply a thin layer of Assembly grease on the Washer and the outer surface of the Seal.

## 3.7

Mount the Washer and the Seal into the Outer tube. Mount the circlip into the groove.

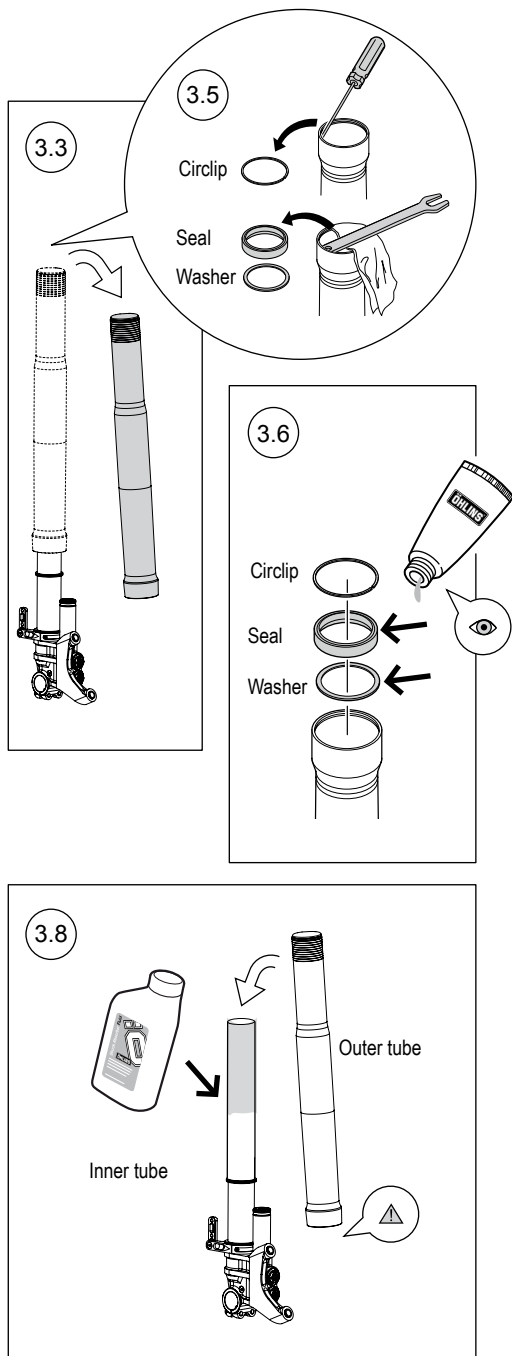
## 3.8

Apply some Öhlins Front Fork fluid (01309-01) on the inside of the seal and the outside of the inner tube, do not use grease inside the seal. Slide the Outer tube carefully on to the Inner tube.

### ⚠ Warning!

*Be careful - Not to damage the Fork seal!*

→ To reassemble Front Fork  
go to Chapter 6 Assemble Front Fork



# 4 REPLACE INNER/OUTER TUBE

## 4.1

Loosen the upper clamp screws and loosen the top cap ½ turn use tool 00797-08. Remove the Front fork from the motorcycle.

## 4.2

Remove Top cap and Shaft assembly according to Chapter 2 Disassemble Front Fork.

## 4.3

Remove the Outer tube.

## 4.4

Mount clamp tool (00786-05) on the Inner tube (Make sure both are clean), as high as possible above the lower ø5 mm oil bleed hole. Use a heat gun to heat up the fork bottom. Loosen and remove the Inner tube. Clean the thread from all Loctite. We recommend to replace the O-ring (00338-63).

## 4.5

Loosen and remove the Reservoir tube. Use Clamp tool (00786-07), Use a heat gun to heat up the fork bottom. Clean the thread thoroughly from Loctite. We recommend to replace the O-ring (00338-72).

## 4.6

Mount the new Reservoir. Using clamp tool (00786-07).

Loctite 222 (on the thread)

Tightening torque 25 Nm

## 4.7

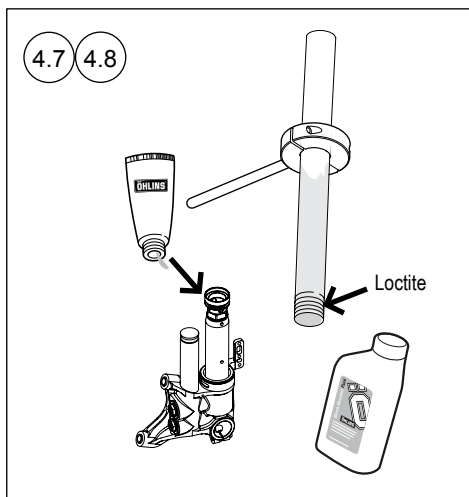
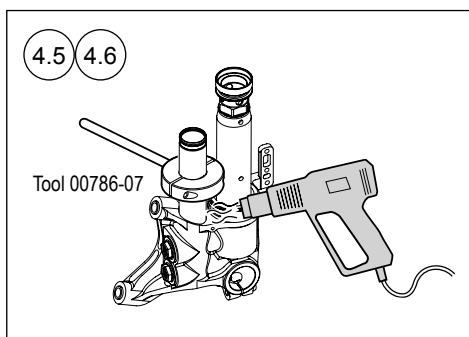
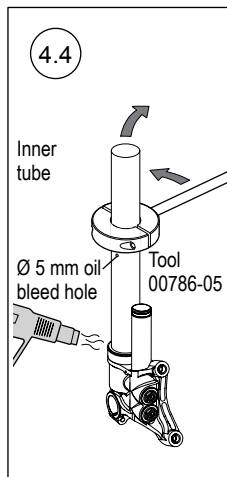
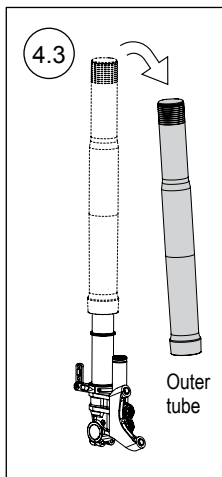
Mount the new Inner tube. Use clamp tool (00786-05) and make sure both tool and tube are clean. Install the tool as high as possible above the lower ø5 mm oil bleed hole. Apply Assembly grease on the O-ring on the Cylinder tube extension.

## 4.8

Apply a thin layer of Öhlins Front Fork fluid (01309-01) on the inside of the Inner tubes lower half. Carefully slide the Inner tube over the O-ring and on the Fork bottom thread.

Loctite 2701 (on the threads)

Tightening torque 160 Nm



# 4 REPLACE INNER/OUTER TUBE

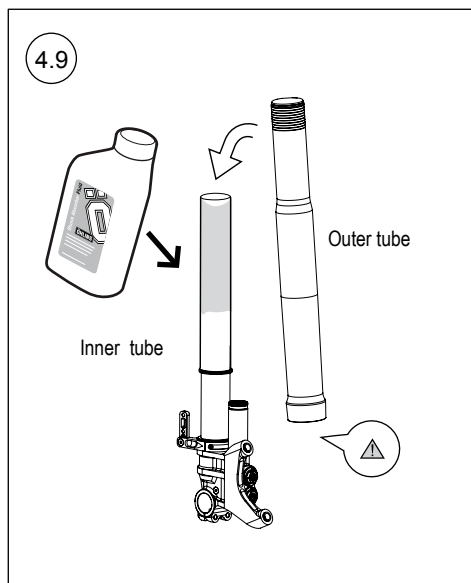
## 4.9

Apply some Öhlins fork fluid (01309-01) on the Inner tubes outer surface and inside the seal, do not use grease inside the seal. Slide the Outer tube carefully on to the Inner tube.

### **Warning!**

*Be careful - Not to damage the Fork seal!*

→ To reassemble Front Fork  
go to Chapter 6 *Assemble Front Fork*



# 5 DISASSEMBLE SHAFT

## 5.1

Loosen the upper clamp screws and loosen the top cap ½ turn use tool 00797-08. Remove the Front fork from the motorcycle.

## 5.2

Remove Top cap and Shaft assembly according to Chapter 2 Disassemble Front Fork.

## 5.3

Put the Shaft assembly in a vice. Use Soft Jaws Clamp (00727-08).

### **Caution!**

*Do not tighten the jaws too hard, the Shaft can be damaged.*

## 5.4

Remove Piston, Top-out spring and Sleeve in one unit. Use a 20 mm wrench.

## 5.5

Remove Spacers and O-ring.

## 5.6

Remove the Seal head from the Shaft. Check the Seal and the O-ring. Replace if necessary.

### **Caution!**

*Do not use sharp tools.*

## 5.7

Wrap Teflon tape around the Shaft thread (to protect the Seal). Apply Assembly grease on the tape and the Shaft end. Remount the Seal head on the shaft.

## 5.8

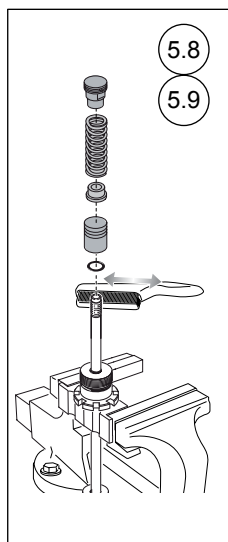
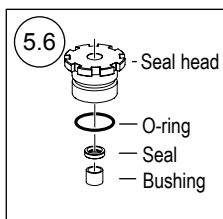
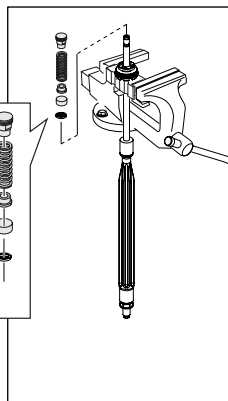
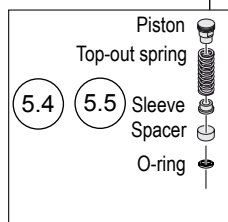
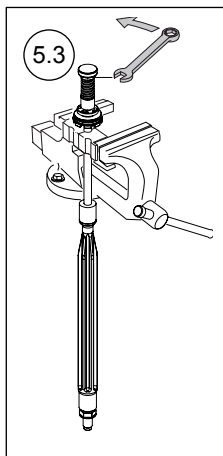
Use a brass wire brush to clean the Shaft from tape.

## 5.9

Remount the O-ring, Spacer, Sleeve, Top-out spring and Piston. Use a 20 mm wrench.

Loctite 243

Tightening torque (piston) 10 Nm



# 6 ASSEMBLE FRONT FORK

## 👁 **Note!**

*Use Öhlins Vacuum Filling Machine for best result.*

### 6.1

Open the Compression and Rebound adjusters to fully open.

### 6.2

Fill Öhlins Front Fork fluid (01309-01) up to the edge of the Reservoir. Carefully continue to fill until the oil level does not drop.

### 6.3

Use Measuring Pin (00720-02). Carefully push the Gas piston, with the Teflon band and O-ring installed, to the Reservoir bottom.

## 👁 **Note!**

*Ensure that there is no air between the Piston and the oil.*

### 6.4

Fill the inner tube with Öhlins Front Fork fluid (01309-01) to approximately 20-30 mm above the cylinder tube extension.

### 6.5

Carefully pump the Gas piston up and down 10-20 times to bleed the system.

### 6.6

Check the O-ring (00338-25) on the Reservoir end cap. Replace if necessary.

### 6.7

Use Pin tool (00720-03). Mount the Reservoir end cap into the Reservoir tube.

### 6.8

Remount the Circlip. Ensure that it stops in the intended groove.

## ⚠ **Warning!**

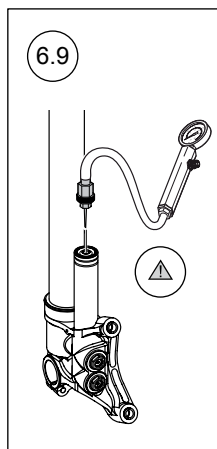
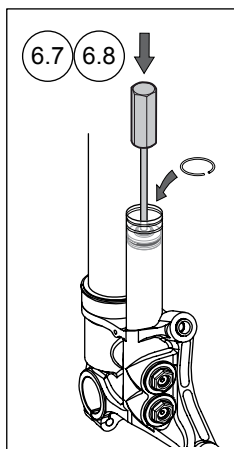
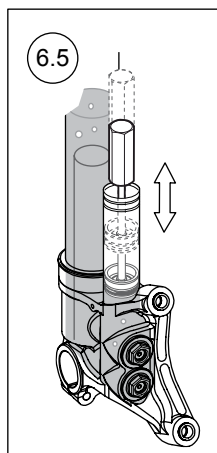
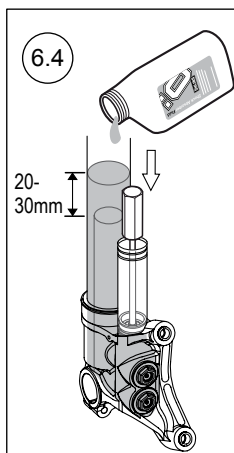
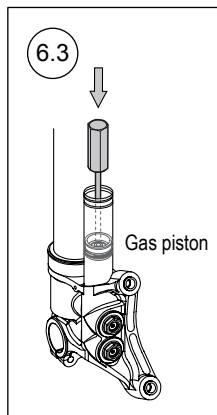
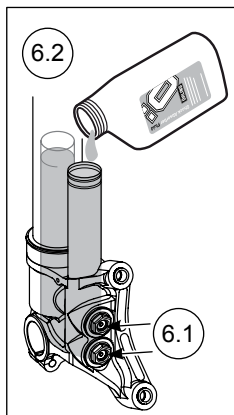
*Use nitrogen gas ( $N_2$ ) only! Using inflammable gas to pressurize the front fork can be hazardous. Use Pressure Gauge (01781-01).*

### 6.9

Dip the needle of Pressure Gauge (01781-01) in Assembly grease and insert the needle through the Gas filler valve. Charge with gas to the correct pressure, according to the spec. card.

## 👁 **Note!**

*Ensure that there is no leakage of gas or fluid.*



# 6 ASSEMBLE FRONT FORK

## 6.10

Mount Seal Head tool (01797-04) and Pull-up tool (01765-03) on the Shaft assembly. Pull the pull-up tool and push the Seal head tool at the same time to contract the Top-out spring.

## 6.11

Mount Pull-up Holder tool (02810-01) on Pull-up tool (01765-03) to keep the contraction. Apply Öhlins Functional grease (00159-02) on the Seal head thread and the O-ring.

## 6.12

Insert the Shaft assembly all the way down into the Cylinder tube. Tighten by hand.

## 6.13

Check Gas pressure again according to the spec. card.

## 6.14

Tighten the Gas filling screw and O-ring  
Tightening torque 3 Nm

## 6.15

Remove Pull-up Holder tool and Pull-up tool.  
Use tool Seal Head tool (01797-07).  
Tightening torque 20 Nm

## 6.16

Check oil level according to chapter *Oil level*.

## 6.17

Remount Preload tube, Spring (marking facing up) and Spring support.

## 6.18

Remount Top cap assembly on the Shaft.  
Tightening torque 20 Nm

## 6.19

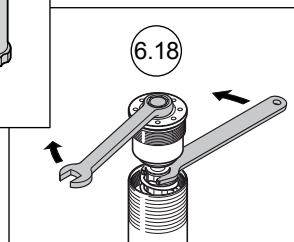
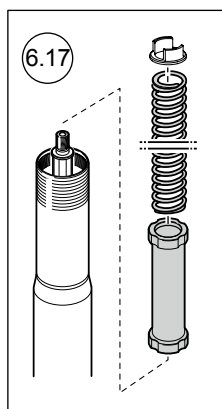
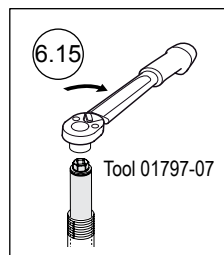
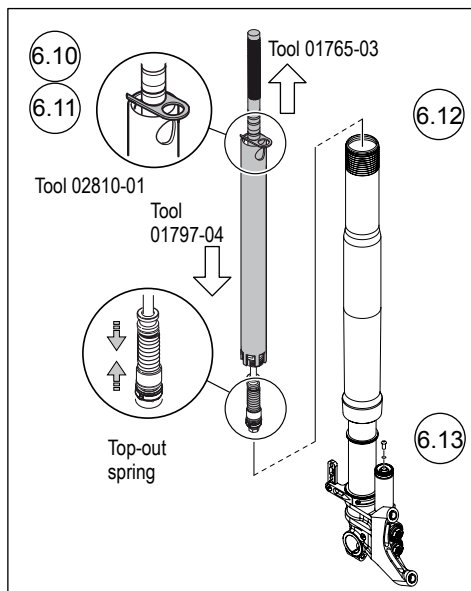
Apply Öhlins Functional grease (00159-02) on the Top cap thread and O-ring.

## 6.20

Use Sleeve Pin (00797-08). Remount the Top cap into the Outer tube, fork leg fully extended.  
Tightening torque 10 Nm

## 6.21

Adjust Preload, Compression and Rebound.





## 7.1

Release Gas pressure from the Reservoir. See Chapter 2, step 2.9.

## 7.2

Put the fork leg in horizontal position, in a vice with soft jaws.

### 👁 Note!

*Do not mix up the two valves, they must be installed in their intended valve housing. We recommend to remove one valve at a time to keep them apart.*

## 7.3

Remove one Valve. Use a 17 mm wrench. If you only intend to change setting without changing oil, please make sure to fill oil at the same time as you remove the valves, if not you can get an air trap below the adjuster.

## 7.4

Perform necessary service.

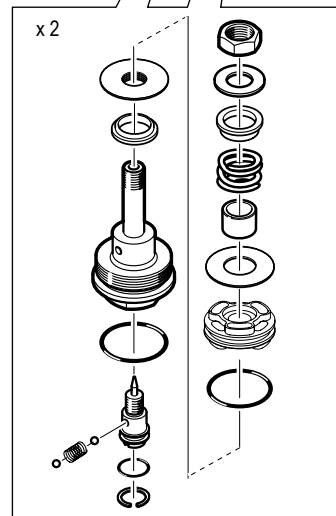
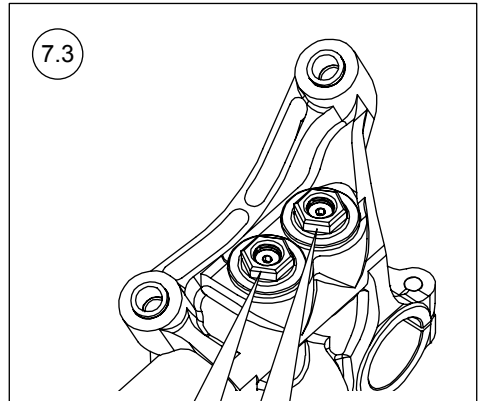
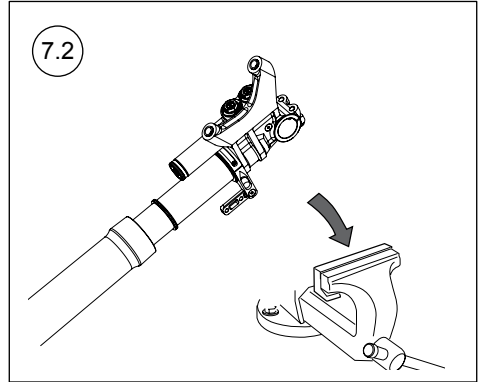
## 7.5

Add some Öhlins Front Fork fluid (01309-01) into the Valve housing. Remount the Valve. Tightening torque 20 Nm

## 7.6

Remove the other Valve. Perform necessary service. Remount the Valve (see step 7.5).

→ To pressurize Front Fork  
go to Chapter 6 *Assemble Front Fork*



# OIL LEVEL

*The Upside-down Front Fork is very sensitive to variations in oil level compared to the conventional type fork. Therefore, adjust the oil level with special care. A change in the fork oil level will not affect the spring force at the beginning of the fork travel, but will have a great effect at the end of the travel.*

## When the oil level is raised

The air spring in the later half stage of travel is stronger which makes the front fork more progressive.

## When the oil level is lowered

The air spring of the travel is reduced which makes the front fork less progressive.

### 👁 Note!

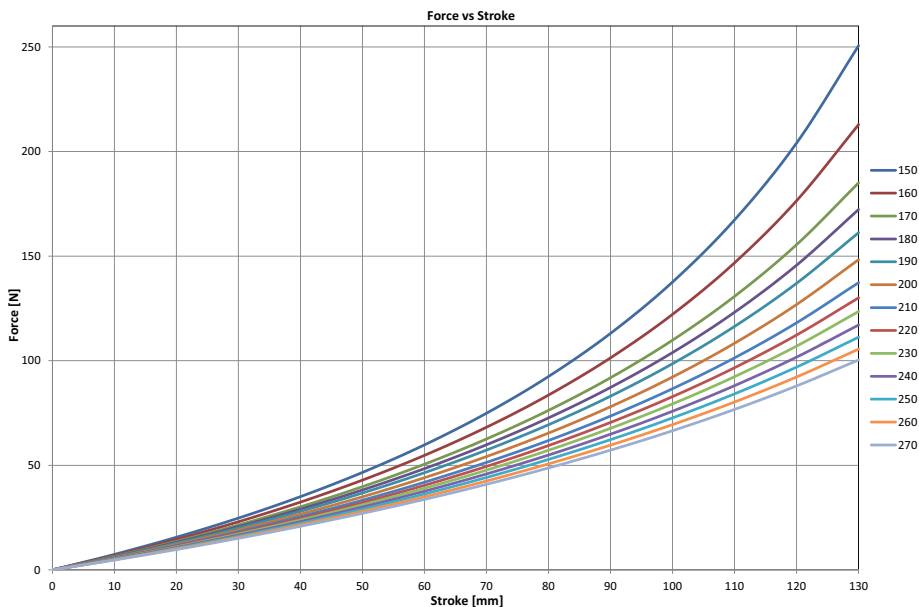
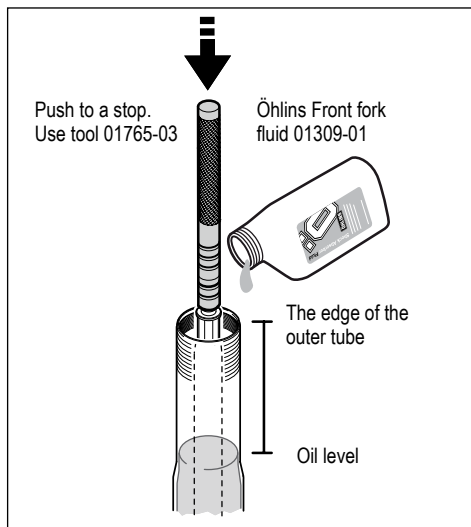
*Adjust the oil level according to the figure with the fork leg fully compressed (without spring and preload tube). For correct oil level - see specification card.*

### 👁 Note!

*The diagram below shows the air spring force for one fork leg.*

## Air spring characteristics

The air inside of the front fork works as a spring. The graph at the bottom of this page shows the spring force related to stroke when the oil level is changed between 100 mm and 260 mm. Oil level according to spec. card.



## Troubleshooting

The whole motorcycle setup affects the front fork. Make sure you understand how the front fork works, and make adjustments step by step.

### **Note!**

*Adjust only one thing at a time.*

*Below you will find a few examples of how to adjust for the most common stability problems in Road Racing driving.*

### 1

*The front wheel "chatters" entering a corner, the problem goes away, as soon as you let the brakes off, or when you get on the power.*

#### A

The fork is working too low in the travel and reaches the progressive, hard part at the end of the travel.

#### Try one of the following

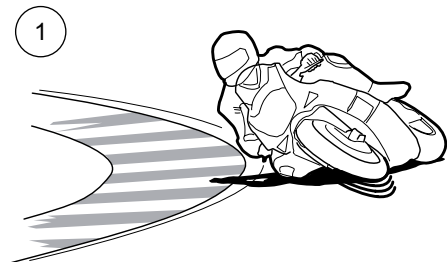
- Increase preload.
- Change to a harder spring.
- If a lot of stroke remains after riding, drop the oil level. See oil level chart.
- Make sure the front fork has no friction.

#### B

Rear ride height is too high, too much rear spring preload.

#### Try one of the following

- Lower the rear end by taking off preload from rear shock spring.



### 2

*The front wheel is jumping during the last part of braking.*

#### Try one of the following

- If a lot of stroke remains, the oil level is too high. Lower the oil level.
- If the fork is bottoming, install harder springs and keep the oil level.

### 3

*The front end feels unpredictable and unsafe in the middle of the corner (between braking and getting on power).*

#### Try one of the following

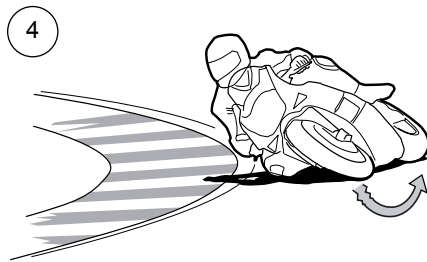
- Not enough rebound damping. Add more damping.
- Too much rebound damping. If it at the same time feels harsh, reduce rebound damping.
- Too much compression damping. Also gives a harsh feeling. Reduce compression damping.

### 4

*The front end loses grip coming out of a corner.*

#### Try one of the following

- Not enough rebound damping. Add more rebound damping.
- Too much preload. Reduce preload.
- Rear end is too soft. Install harder rear spring.
- Front end is too high. Lower the front end by pulling the fork legs through the triple clamps.



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