



## Safety signals

Important information concerning safety is distinguished in this manual by the following notations:



*The Safety alert symbol means:  
Caution! Your safety is involved.*

### **WARNING!**

*Failure to follow warning instructions could result in **severe or fatal injury** to anyone working with, inspecting or using the suspension, or to bystanders.*

### **CAUTION!**

*Caution indicates that special precautions must be taken to avoid damage to the suspension.*

### **NOTE!**

*This indicates information that is of importance with regard to procedures.*

## Introduction

All of Öhlins advanced suspension products are adapted to the brand and model. This means that length, travel spring action and damping characteristics, are tested individually just for the motorcycle that you have decided to fit with Öhlins suspension.

## Before installation

Öhlins Racing AB can not be held responsible for any damage whatsoever to suspension or vehicle, or injury to persons, if the instructions for fitting and maintenance are not followed exactly. Similarly, the warranty will become null and void if the instructions are not adhered to.

## Contents

Introduction .....	2
Before installation .....	2
Öhlins front fork FG 370 .....	3
Ajusters .....	4
Setting up your forks .....	5
Setting the pre-load .....	6
Changing springs .....	7
Changing seals .....	8
Dismantling the forks .....	9
Assembly of the forks .....	11
Troubleshooting .....	13
Oil level adjustment .....	14
Air spring characteristics .....	15
Technical information .....	15
Spare parts .....	16
Service tools .....	17

### **WARNING!**

*1. Installing a suspension, that is not approved by the vehicle manufacturer, may affect the stability of your vehicle. Öhlins Racing AB cannot be held responsible for any personal injury or damage whatsoever that may occur after fitting the suspension. Contact an Öhlins dealer or other qualified person for advice.*

*2. Please study and make certain that you fully understand all the mounting instructions and the owner's manuals before handling this suspension kit. If you have any questions regarding proper installation procedures, contact an Öhlins dealer or other qualified person.*

*3. The vehicle service manual must be referred to when installing the Öhlins suspension.*

### **NOTE**

*Öhlins products are subject to continual improvement and development. Consequently, although these instructions include the most up-to-date information available at the time of printing, there may be minor differences between your suspension and this manual. Please consult your Öhlins dealer if you have any questions with regard to the contents of the manual.*

### **NOTE!**

*During storage and transportation, especially at high ambient temperature, the oil and grease used for assembling may run out inside the packing and damage the expanded polystyrene packing material. This is not unusual and is in no way detrimental to the suspension.*

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## Öhlins front fork FG 370

The Öhlins front forks use a Cartridge system for damping. This gives a damping force which depends on the speed of the piston in the cartridge system.

The combination of spring and air-gap (oil level) gives a possibility to adjust the characteristic of the fork to suit different tracks and riders.

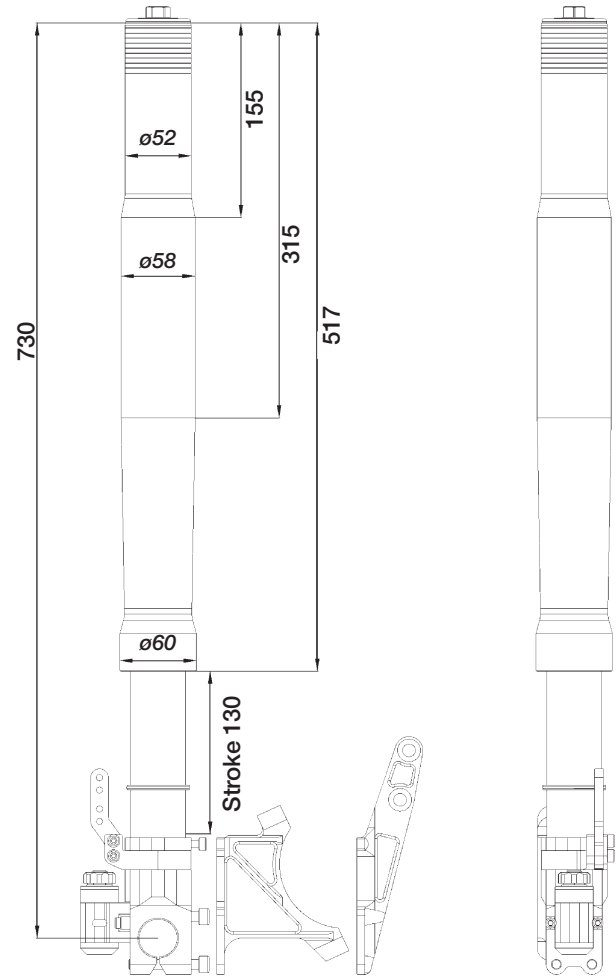
For example a soft spring in combination with a small air-gap (high oil level) gives a progressive action of the front forks.

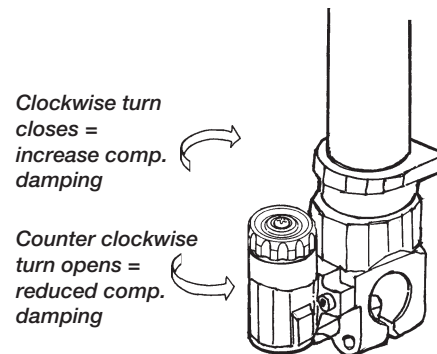
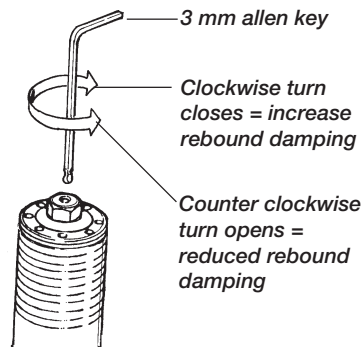
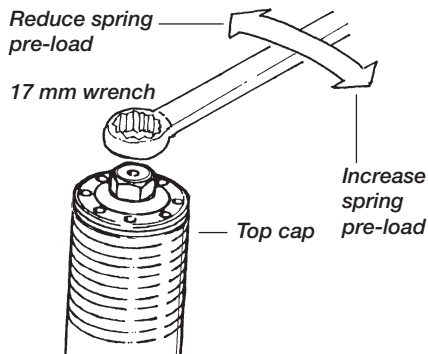
For better understanding, please refer to our oil level chart, see page 15.

A telescopic front fork is depending on a smooth friction-free action.

Make sure your front forks are serviced regularly and don't use strong solvents such as brake cleaner to clean the front forks. This will dry out the seals and steel tubes and cause friction.

Regularly, put a little Öhlins red grease (146-01) on the steel tube and work it in by pushing the forks up and down.





## Adjusters

Your Öhlins front fork superbike is provided with the following adjusters:

- **Spring pre-load adjuster**
- **Rebound damping adjuster**
- **Compression damping adjuster**

### Spring pre-load adjustment

Use a 17 mm wrench to turn the upper adjustment screw.

The adjustment range is 0-18 mm.

One turn on the adjustment screw will cause 1 mm change in spring preload.

Static sag 25-30 mm.

### Rebound adjustment

Adjust the rebound rate on the adjustment screws positioned at the top centre of the front forks. Use a hex key with a spherical head (use tool 794-01).

Adjustment range from closed valve (clockwise) until maximum open valve (counter clockwise) is 20 "clicks".

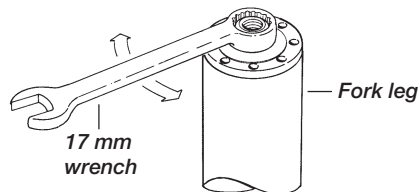
Recommended adjustment "click", from closed position. See specification card.

### Compression adjustment

Adjust the compression rate on the lower part of the front forks (compression valve). Use fingers only.

Adjustment range from closed valve (clockwise) to maximum open valve (counter clockwise) is 20 "clicks".

Recommended adjustment "clicks", from closed position. See specification card.



*Pre-load adjuster*

## Setting up your forks

Here is some basic guidelines, how to set up your Öhlins front forks. However you must remember that the front forks are just one part of your motorcycle and to get it to work properly, the whole motorcycle has to be set up according to your bikes manual.

### 1

Put your bike on a front stand and make sure it is properly secured and not will fall over. Remove the wheel and the brakes. Remove the original front fork legs and fit the Öhlins front fork. Refit the wheel and brakes.

### **NOTE!**

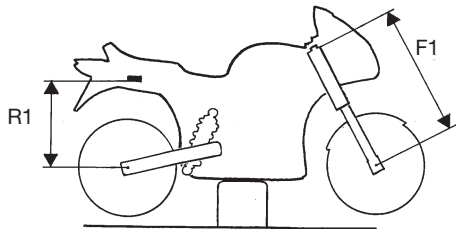
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*The lower triple clamp must not be tightened to more than 15-18 Nm. This is also important for the steering damper bracket, when located around the upper front leg. To high torque might deform the front fork leg.*

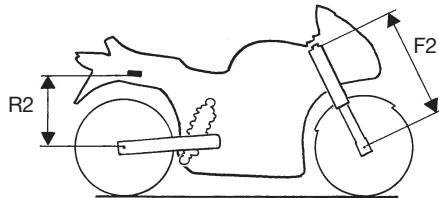
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### 2

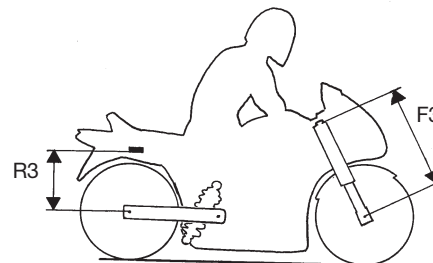
Set your initial pre-load of the spring, by using a 17 mm socket or wrench, until you get a static sag of 25-30 mm. Each turn gives 1 mm in pre-load, maximum pre-load is 18 mm.



A-D. Bike on a stand



E. Bike on the ground



F. Bike with rider on

## Setting the spring pre-load

### 3

Preload on the spring/springs is very important, because it affects the height of the motorcycle and the fork angle. Consequently, handling characteristics can be changed, even negatively.

Proceed as follows (it will be much easier if done by two persons):

- 1 Place the motorcycle on a stand.
- 2 Lift up the rear end to a fully extended position.
- 3 Measure the distance, e.g. from the lower edge of the rear mud guard or from a point marked by a piece of tape, immediately above the rear wheel axle, to the wheel axle. (R1)
- 4 Make a similar measurement on the front axle, e.g. from the bottom of the upper fork crown to the front wheel axle. The fork must also be fully extended. (F1)

- 5 Allow the motorcycle (without rider) to apply load on the springs and repeat the measuring procedure. (R2, F2)
- 6 Then take the same measurements with the rider and equipment on the motorcycle. It is important that the rider has a correct riding posture, so that the weight is balanced on the front and rear wheel in the same way as when riding. (R3, F3)

### 4

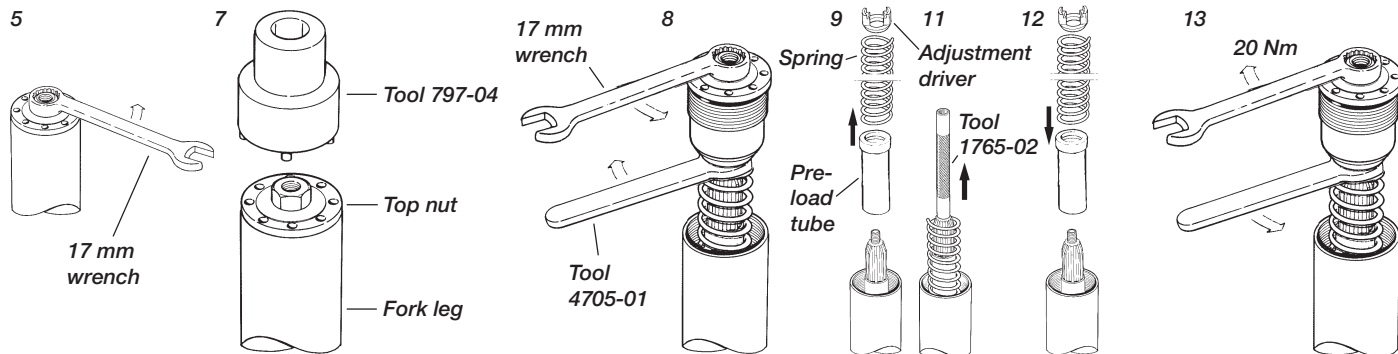
The measurements may not differ from the following sizes:

#### Without rider:

Rear: 5-15 mm (R1-R2)  
 Front: 25-30 mm (F1-F2)

#### With rider:

Rear: 30-40 mm (R1-R3)  
 Front: 35-50 mm (F1-F3)



## Changing springs

**5**

Unload the spring completely by turning the adjustment nut counter clockwise as far as possible. Use a 17 mm wrench or socket.

**6**

Loosen the screws that hold the fork legs in the upper triple clamps.

**7**

Loosen the top nut assembly (pos 1, page 16)  
Use tool 797-04.

**8**

Remove the top nut assembly from the piston shaft. Use a 17 mm wrench to the top and tool 4705-01 to the jam nut on the lower side of the top nut.

**9**

Remove the the adjustment driver (pos 2, page 16), the spring and the pre-load tube (pos 4, 5, page 16)

**10**

Check the oil level according to page 14, before the parts mentioned above are refitted.

### NOTE!

*Use Öhlins oil 1305-01 only.*

**11**

Install the tool 1765-02 on top of the piston shaft. Pull it out as far as possible and turn the compression adjustment screw fully clockwise. This will keep the piston rod in top position, which will make the continued assembly easier.

**12**

Refit the pre-load tube. Install the new spring and refit the adjustment driver.

**13**

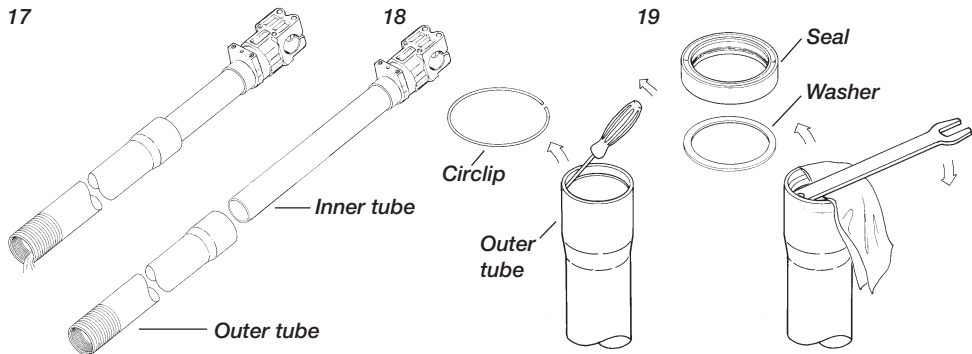
Refit the top nut assembly to the piston shaft. Tighten the jam nut to 20 Nm.

**14**

Refit the top nut into the fork leg. Tighten the upper triple clamps and adjust the preload, compression and rebound according to the above instructions.

### CAUTION!

*The top nut should only be tightened by hand into the fork leg. The tightening force of the triple clamp will hold it in locked position.*



## Changing seals

### 15

Remove the fork legs from the motorcycle. Put the fork legs in upright position for about 5 minutes to allow the oil to settle down.

### 16

Fasten the fork leg in a vice. Use soft jaws.

### 17

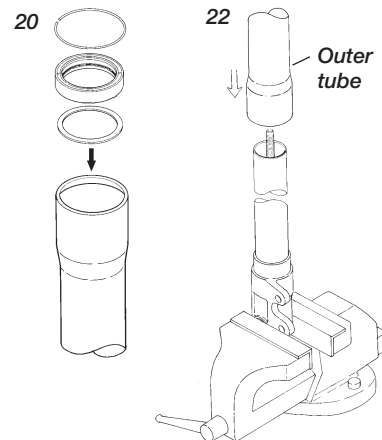
Carry out pos 5 to 9 in Changing springs, page 7. Free the fork leg and drain the oil.

### 18

Remove the outer tube, clean the seal and check the condition. If the seal is in good condition apply some red grease (146-01) to it. A damaged seal must be replaced.

### 19

First remove the circlip, then the seal and finally the seal washer.



### 20

Clean the parts and install the washer, the new seal with some red grease (146-01) applied to it and the circlip.

### 21

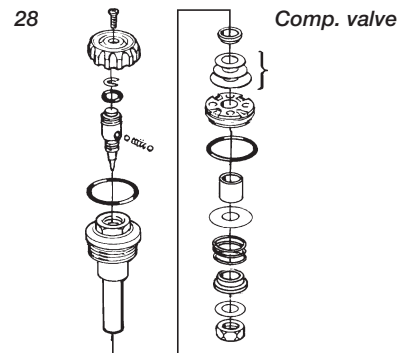
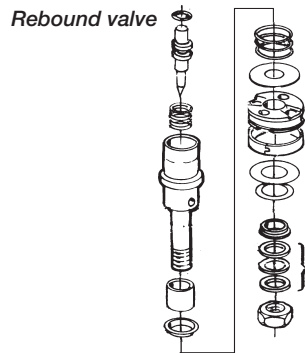
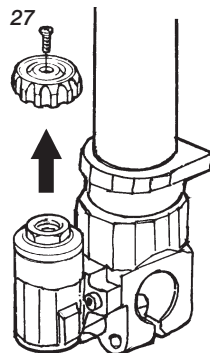
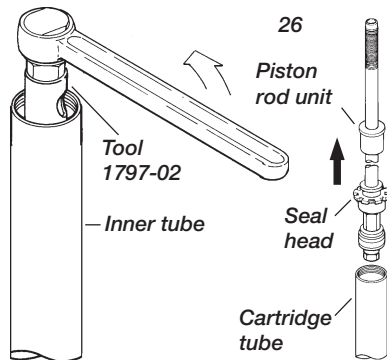
Apply a thin layer of Öhlins front fork oil (1305-01) to the seal and to the inner tube.

### 22

Carefully mount the outer tube (slide it completely down) install spring and set the oil level. Bleed by moving the piston slowly up and down to remove trapped air.

### 23

Repeat instructions 11 to 13 according to "Changing springs", page 7. Refit the front fork to the motorcycle and adjust the pre-load, compression and rebound.



## Dismantling the forks

### 24

Repeat instructions 15 to 17 of page 8 and remove the outer tube.

### 25

Fasten the inner tube on the fork bottom in a vice. Use soft jaws.

### 26

Unscrew the seal head (pos 8, page 17) from the cartridge tube and remove the piston rod unit (use tool 1797-02). Drain the remaining oil.

### 27

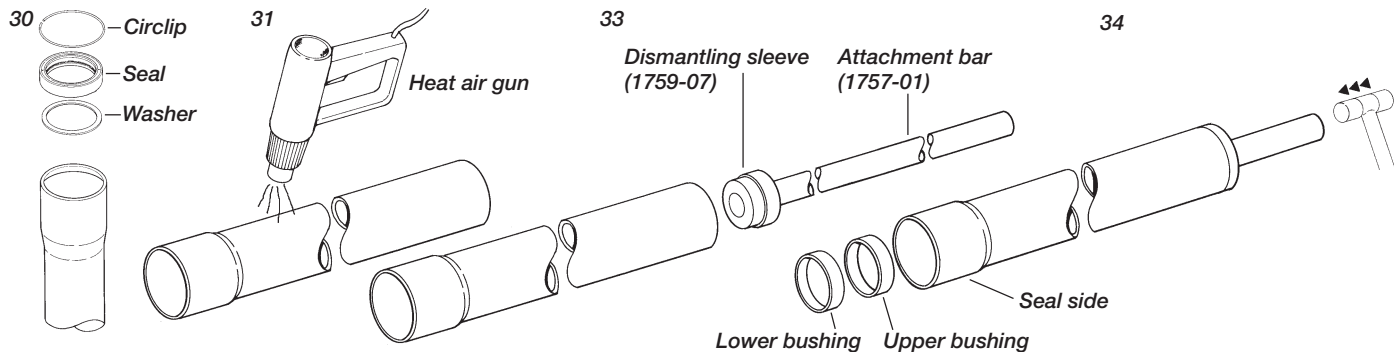
Remove the adjuster wheel of the compression valve. Remove the complete compression valve. Use a 17 mm wrench.

### 28

Remove the piston and the shims from the piston rod and compression valve. Place the shims in their correct position on the work bench.

### 29

Clean all parts thoroughly and dry with compressed air.



### 30

Remove the circlip, the seal and the washer.

### 31

Heat the tube where the bushings are positioned.  
Use a heat air gun.

### 32

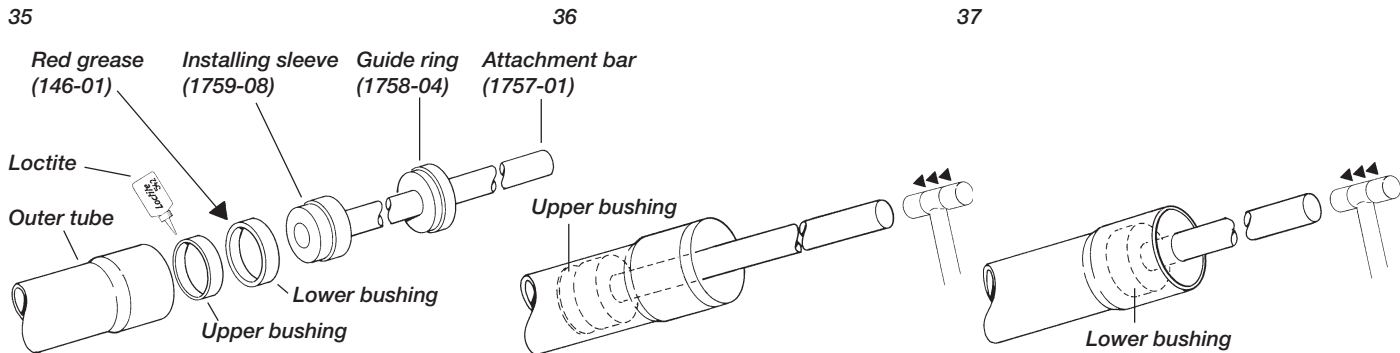
Put the outer tube standing up on a soft surface,  
seal side facing down.

### 33

Remove the bushings by pushing them out. Use  
attachment bar (1757-01) and dismantling sleeve  
(1759-07) from the top nut side.

### 34

Tap gently on the attachment bar with a heavy  
hammer, until the bushings are free and can be  
released from the seal side of the outer tube.



## Assembly of the forks

### 35

Put the tube standing up on a soft surface, seal side up. Fit the bushings from the seal side of the outer leg.

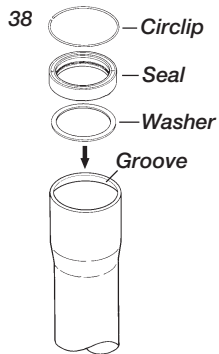
Install first the upper bushing then the lower one.

### 36

Use installing sleeve (1759-08), guide ring (1758-04) and attachment bar (1757-01) when installing the upper bushing. Apply Loctite 601 on the upper bushings. Tap the attachment bar until it reaches the correct position (stop against a shoulder).

### 37

When the upper bushing is in position, the lower bushing is to be installed the same way. Apply some red grease (146-01) to the bushing before installation.



**38**

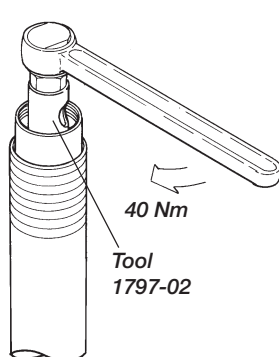
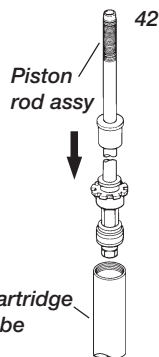
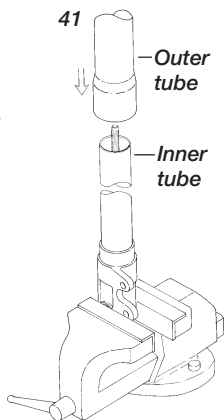
Apply a thin layer of Öhlins red grease (146-01) to the washer and to the sealing surfaces of the fork seal. Install the washer and the seal in the outer tube. Fit the circlip into the groove.

**NOTE!**

*It is important to use the correct grease in order to achieve optimum fork function.*

**39**

Install the piston and the shims on the piston rod and the compression valve. Tighten the 8 mm nut (pos 27, page 15) with a torque of 7 Nm. Check the piston ring for damages. Replace if necessary.



**40**

Install the compression valve assembly into the valve housing. Tighten to 20 Nm.

**41**

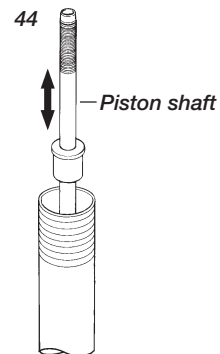
Apply some front fork oil 1305-01 to the inner steel tube surface and install the outer aluminium tube.

**CAUTION!**

*Be careful not to damage the fork leg seal.*

**42**

Install the complete piston rod into the cartridge tube. Tighten the seal head (pos 7, page 14) to 20 Nm. Use seal head tool (1797-02).



**43**

Measure the correct amount of Öhlins front fork oil (1305-01) according to the specification card and fill the oil into the front fork leg. The oil level must reach above the cartridge top.

**44**

Fit the pull-up top-out spring tool (1765-02) to the piston shaft and push the piston rod up and down and the oil will be sucked into the cartridge tube. Close the adjusters and check the function.

**45**

Repeat instruction 23 according to page 8.

## Troubleshooting

Below are a few examples of how to adjust for the most common road holding problems in Road Racing driving.

***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.***

- This is caused by the fact that the fork is working too low in the travel and reaches the progressive, hard part at the end of the travel.
- Put on more pre-load.
- 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 forks have no friction.
- Rear ride height is too high, too much rear spring pre-load.
- Lower the rear end by taking off pre-load from rear shock spring.

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

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

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

- Not enough rebound damping. Put on more damping.
- Too much rebound damping. If it at the same time feels harsh, take off some rebound damping.
- Too much compression damping. Also gives a harsh feeling. Take off some compression damping.

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

- Not enough rebound damping. Put on some more rebound damping.
- Too much pre-load. Take off some pre-load.
- Rear end is too soft. Put on a harder rear spring.
- Front end is too high. Lower the front end by pulling the fork legs through the triple clamps.

As mentioned in the beginning, the whole bike setup affects the front forks. Try to understand the feelings and work step by step.

---

### **NOTE!**

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*Our advice is to change only one thing at a time and do everything step by step.*

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## Oil level adjustment

Compared with conventional type of front forks, the upside down front forks are very sensitive to variations in oil level. Therefore, adjust the oil level with special care.

A change in the fork oil level will not affect the damping force at the early stage of the fork travel, but will have a great effect at the later stage.

### When the oil level is raised:

The air spring in the later half stage of travel is stronger, and make the front forks more progressive.

### When the oil level is lowered:

The air spring in the later half stage of travel is lessened, and thus the front fork less progressive.

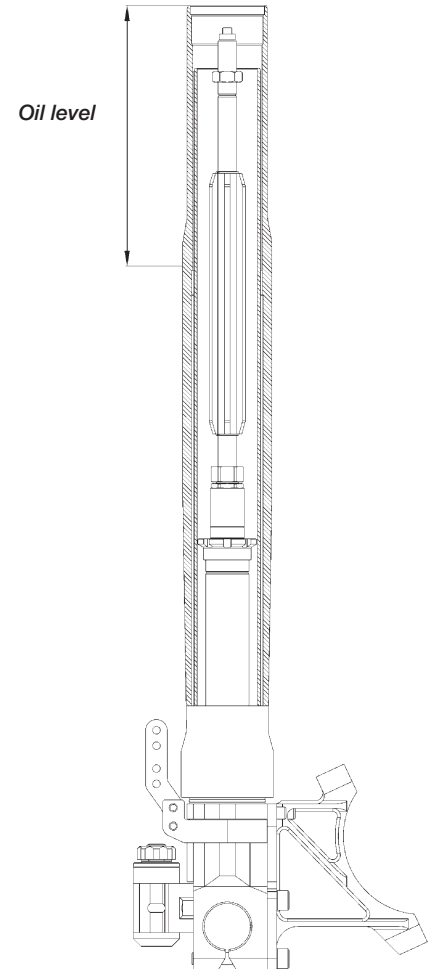
The oil level works most efficient at the end of the fork travel.

Air spring characteristics shown (see page 15), is a general card description to understand the difference when the oil level is changed.

### NOTE!

*Adjust the oil level in mm according to the figure with the fork fully compressed and with the spring mounted.*

*For the right STD-level, please see the specification card.*



## Air spring characteristics

Air inside the front fork works as a spring. The graph to the right shows the spring force related to stroke when the oil level is changed between 100 mm and 160 mm.

## Technical information

### **Fork length:**

730 mm.

### **Stroke:**

130 mm.

### **Free spring length:**

260 mm.

### **Rebound adjustment:**

Base setting 9-12 "clicks".

Maximum open valve 20 "clicks".

### **Compression adjustment:**

Base setting 6-16 "clicks".

Maximum open valve 20 "clicks".

### **Spring pre-load adjustment:**

0-18 mm (0-18 turns).

### **Spring rate:**

4744-95      9.5 N/mm (marking -95).

### **Optional springs supplied:**

4744-10      10.0 N/mm (marking -10)

4744-90      9.0 N/mm (marking -90)

### **Optional springs:**

4744-85      8.5 N/mm (marking -85)

4744-80      8.0 N/mm (marking -80)

### **Oil Capacity:**

Please see specification card.

Use Öhlins high performance front fork fluid No. 5 (1305-01) only.

### **Loctite glue:**

542 on the fork bottom thread.

601 on the upper bushing.

### **Tighten torque:**

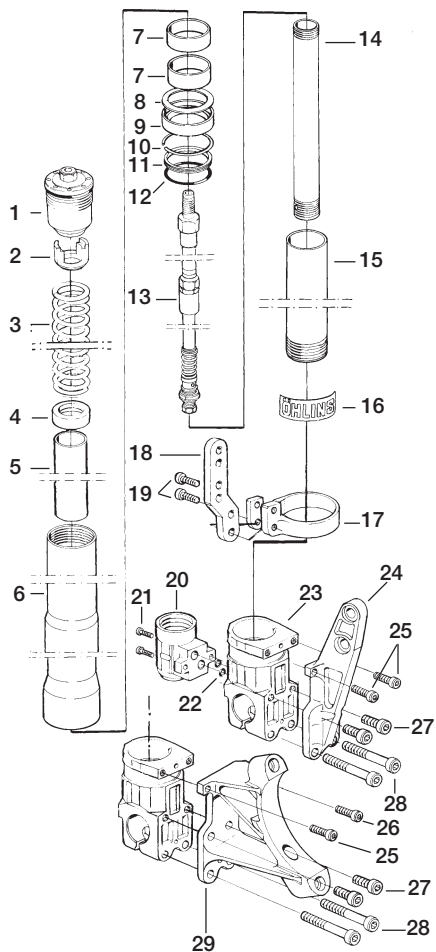
Triple clamp bolt 15-18 Nm.

### **Grease:**

Öhlins front fork grease 146-01 (red grease).

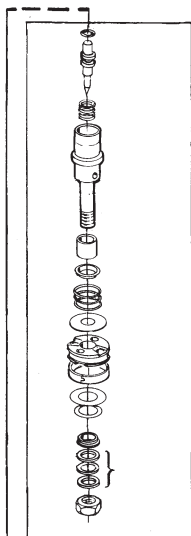
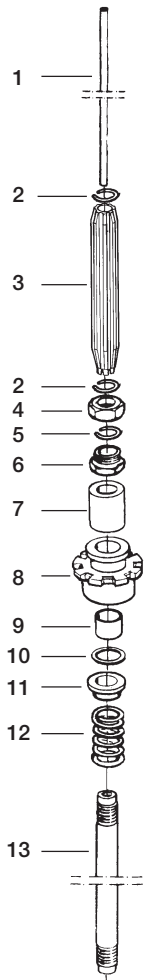
### **Service interval:**

Every 10 hours



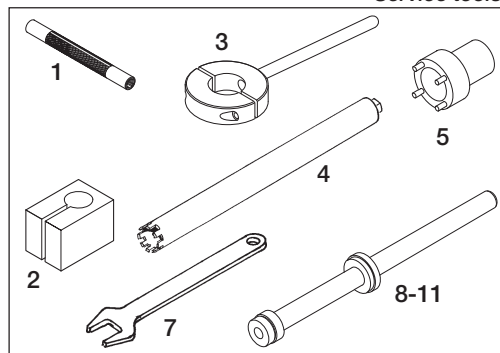
## Spare parts

Pos.	Part No.	Pcs.	Description	Type/remarks
1	04732-02	1	Top nut assembly	
2	01408-03	1	Adjustment driver	
3	04744-xx	1	Spring	
4	01438-04	1	Guide ring	
5	01460-13	1	Pre-load tube	
6	01900-03	1	Fork leg outer	
7	01683-02	1	Bushing, upper	
	01684-01	1	Bushing, lower	
8	04758-01	1	Washer	
9	04720-01	1	Seal	
10	04759-01	1	Circlip	
11	01564-04	1	Stroke indicator	
12	00338-63	1	O-ring	
13	-	-	Piston rod assy	(see page 14)
14	01656-01	1	Cylinder tube	
15	01699-02	1	Fork leg inner	
16	00194-10	1	Sticker	
17	01682-22	1	Fender ring RH	
	01682-21	1	Fender ring LH	
18	01678-06	1	Fender bracket	
19	01046-01	2	Bolt	
20	01694-03	1	Compr. valve housing	
21	01046-34	2	Bolt	
22	00338-07	2	O-ring	
23	01902-04	1	Fork bottom	
24	01593-05	1	Caliper bracket LH	
	01593-06	1	Caliper bracket RH	
25	01046-01	2	Bolt	For 01593-05/06
		1	Bolt	For 01593-07/08
26	01046-05	1	Bolt	For 01593-07/08
27	01046-22	2	Bolt	
28	01046-27	2	Bolt	
29	01593-07	1	Caliper bracket LH	
	01593-08	1	Caliper bracket RH	



Rebound valve  
(see page 18)

#### Service tools



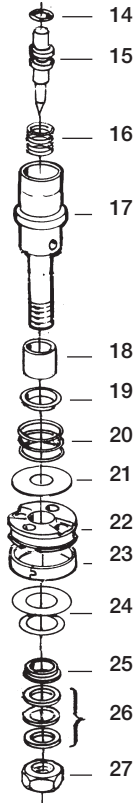
#### Spare parts

Pos.	Part No.	Pcs.	Description	Type/remarks
1	02366-06	1	Adjustment rod	
2	05009-12	2	Circlip	
3	02302-05	1	Spring guide	
4	04734-01	1	Lock nut	
5	01499-02	1	Circlip	
6	01649-01	1	Stop screw	
7	01580-01	1	Bump rubber	
8	01651-02	1	Seal head	
9	00110-01	1	Bushing	
10	01613-01	1	X-ring	
11	01653-01	1	Sleeve	
12	01585-11	1	Topout spring	
13	02367-04	1	Shaft	

#### Service tools

Pos.	Part No.	Pcs.	Description
1	01765-02	1	Pull-up top-out spring tool
2	00787-04	1	Cylinder tube tool (cartridge)
3	00786-05	1	Inner tube tool
4	01797-02	1	Seal head tool
5	00797-04	1	Top nut socket
6	00794-01	1	Hex key with spherical head
7	04705-01	1	Spanner
8	01757-01	1	Attachment bar
9	01759-07	1	Dismantling sleeve
10	01759-08	1	Installing sleeve
11	01758-04	1	Guide ring

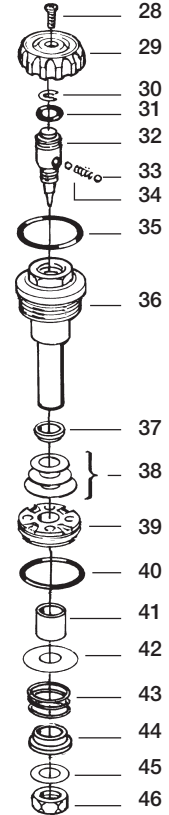
## Rebound valve



## Spare parts

Pos.	Part No.	Pcs	Description	Type/remarks
14	00438-31	1	O-ring	
15	01698-10	1	Rebound needle	
16	02322-01	1	Spring	
17	01654-03	1	Piston holder	
18	01669-01	1	Sleeve	
19	01672-01	1	Spring collar	
20	01671-02	1	Spring	
21	00530-22	1	Shims	
22	02061-01	1	Piston, rebound	
23	01447-02	1	Piston ring	
24	-	-	Shims	see spec card
25	00641-01	1	Clamp washer	
26	01674-01	3	Washer	
27	01675-01	1	Nut	
28	00828-01	1	Screw	
29	00820-01	1	Adjustment knob	
30	01473-02	1	Circlip	
31	00338-53	1	O-ring	
32	01242-04	1	Adjustment needle	
33	01248-01	1	Spring	
34	00884-04	2	Ball	
35	00438-02	1	O-ring	
36	01658-01	1	End piece	
37	00641-01	1	Clamp washer	
38	-	-	Shims	see spec card
39	01670-01	1	Piston	
40	00338-11	1	O-ring	
41	01669-01	1	Sleeve	
42	00530-22	1	Shim	
43	01693-01	1	Spring	
44	01672-01	1	Spring collar	
45	00120-01	1	Washer	
46	01675-01	1	Nut	

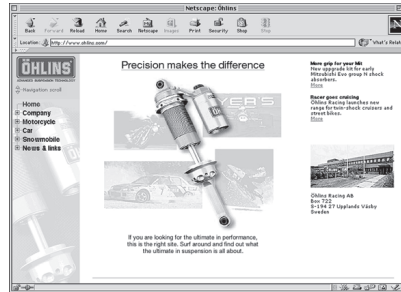
## Compression valve





# More info

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Öhlins Racing AB, Box 722, S-194 27 Upplands Väsby, Sweden  
Phone +46 8 590 025 00, Fax +46 8 590 025 80

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