

# Owners Manual

Öhlins Enduro & Cross Country front forks 48 EXF



Including:

Setting up  
your bike

Fine-tuning

Service  
the fork

General  
handling set-up

Technical info

Spare parts



## 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 your motorcycle.

## Before installation

Öhlins Racing AB can not be held responsible for any damage whatsoever to front fork 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

|   |    |
|---|----|
| Safety signals .....                        | 2  |
| Introduction .....                          | 2  |
| Before installation .....                   | 2  |
| Tuning the suspension .....                 | 3  |
| Design .....                                | 3  |
| Settings .....                              | 4  |
| Setting the spring preload .....            | 4  |
| Fine tuning the bike .....                  | 5  |
| Preload adjustment .....                    | 7  |
| Changing springs .....                      | 9  |
| Assembling .....                            | 12 |
| Technical specification .....               | 14 |
| Spare parts .....                           | 15 |
| General handling set-up .....               | 18 |
| Change of high speed compression spring ... | 19 |
| Maintenance .....                           | 19 |

### **WARNING!**

1. *Installing a front fork, 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 front fork. 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 owners manuals before handling this front fork 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 front fork.*

### **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.*

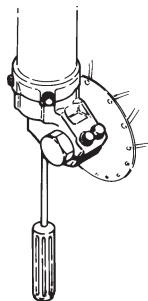
### **CAUTION**

*When delivered the front fork legs have no springs installed. Provided are two different spring pairs, rate 4.1 and 4.5 N/mm. If a rate of 4.3 N/mm is desired a combination is made by using a 4.1 N/mm spring in one fork leg and a 4.5 N/mm spring in the other fork leg. When the springs are mounted make sure that the spring support is fitted too. See Mounting Instructions for set-up data.*

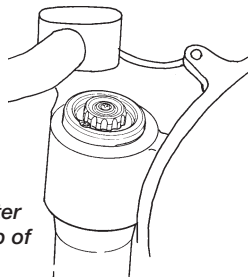
© Öhlins Racing AB.

All rights reserved.

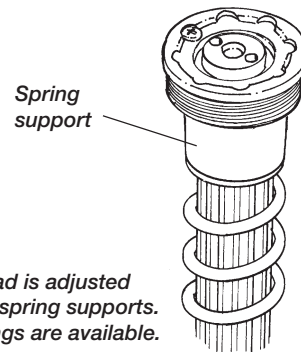
Any reprinting or unauthorized use without the written permission of Öhlins Racing AB is prohibited.  
Printed in Sweden.



1.  
*The compression adjuster is located at the bottom of the fork leg.*



2.  
*The rebound adjuster is located at the top of the fork leg.*



3.  
*Spring pre-load is adjusted with different spring supports. Optional springs are available.*

## Tuning the suspension

### **Motorcycle road holding qualities**

All motorcycles are designed with a suspension geometry that includes height and fork angle. The changing of components can affect this and it is therefore essential that the front and the rear ends match each other.

Changing to Öhlins suspension gives optimum performance only when both the front fork and the rear suspension interact properly. It is of the greatest importance that the front and rear loaded heights are within the specified values.

In the Mounting Instructions, see section: *Setting the spring pre-load.*

## Design

Öhlins new upside-down (USD) front fork is designed to combine the advantages of comfortable, safe conventional forks and rigid, light USD forks. The result is a unique combination of being rigid, precise in corners and during hard braking yet comfortable, forgiving during “over-landing” and in big bumps.

Your new Öhlins USD front fork has aluminium outer legs and 48 mm steel inner legs, with a polished surface for lowest possible friction.

The new USD fork features the Öhlins cartridge damping system.

The fork is fully adjustable with external adjuster for compression and rebound damping.

The compression adjuster is located at the bottom of the fork leg (Fig.1), the rebound adjuster at the top (Fig.2).

Spring pre-load is adjusted with spring supports of different heights (Fig.3), and optional springs are available to suit different tracks and riders.

In the legs there are also “air-springs” (the air

trapped above the oil) that work together with the “real” spring. You adjust the air-spring by raising or lowering the oil level in the legs.

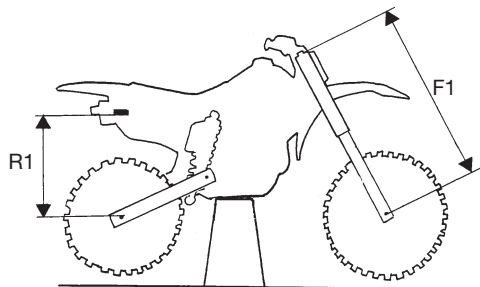
By using different combinations of springs and air-springs you can alter the characteristic of the fork. For example, a soft spring in combination with a small air-spring (high oil level) makes the fork progressive; see *Fine-tuning the bike.*

### **Marking**

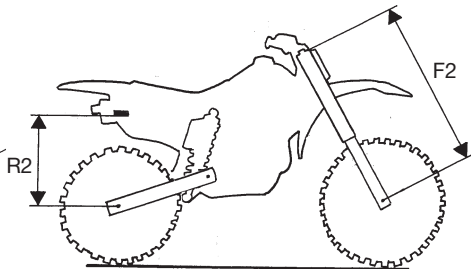
All Öhlins front forks are marked. You will find the part number on the inside of the fork bottom.

### **Recommended settings**

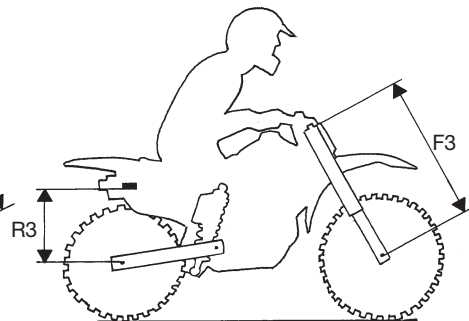
The front fork in your kit is adjusted to the Öhlins recommended setting for your bike. We advise you to use this as your start setting.



*Bike on a stand.*



*Bike on the ground.*



*Bike with rider on.*

## Settings

### Basic settings

Always ensure that the basic setting made by Öhlins is correct. It is adapted to the make and model (in its original state) and for a rider of average weight.

### WARNING

*Incorrect spring action can produce a fork angle that is too steep or too flat. This in turn will give a tendency for oversteering or understeering, which could seriously affect the handling characteristics of the motorcycle.*

The original setting of the front fork, when delivered from Öhlins, should always be a base when the settings are changed by use of the adjustment devices.

## Setting the spring pre-load

### Measuring

Pre-load 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):

- Place the motorcycle on a stand, so the front fork and the rear end are in fully extended position.
- Measure the distance, eg. from the lower edge of the rear mudguard or from a point marked by a piece of tape, immediately above the rear wheel axle, to the wheel axle (R1).
- Make a similar measurement on the front axle, e.g. from the bottom of the upper fork crown to the front wheel axle (F1).

- Allow the motorcycle (without rider) to apply load on the springs and repeat the measuring procedure (R2, F2).
- Then take the same measurements with the rider and equipment on the motorcycle (R3, F3). 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.

### Recommendations

Follow the recommendations given in the *Setup data* of the *Mounting Instructions*. If none are specified there, use the below recommendations.

#### Free sag: (R1-R2), (F1-F2)

**Rear:** 30±5 mm

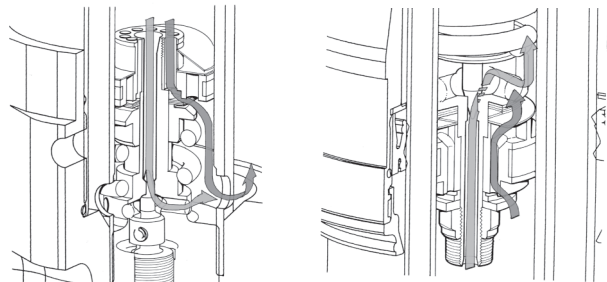
**Front:** 30±5 mm

#### Ride height: (R1-R3), (F1-F3)

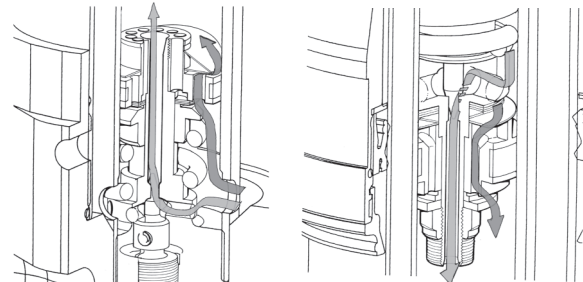
**Rear:** 30% of the total stroke

**Front:** 80±5 mm

### Compression stroke



### Rebound stroke



Flow in compression valve

Flow in rebound valve

Flow in compression valve

Flow in rebound valve

## Fine-tuning the bike

Learning how to use the adjusters will take time but you quickly appreciate them once you know the tricks. Even the specialists sometimes need a specialist!

With the adjusters you optimize the suspension for your riding style and the track you are competing on.

The same basic guidelines go for both the front fork and the rear shock absorber.

Too much compression damping will give you a harsh ride as your bike “jumps” along the track.

With too much rebound damping your bike will have difficulties with several bumps in a row. The suspension will not extend fast enough between bumps, your bike will ride lower and lower and eventually the suspension will bottom!

### External adjusters

On the Öhlins front fork the adjusters are bleed valves, completely separated from each other.

The compression bleed valve controls the flow

in the cartridge tube during the compression stroke, the rebound bleed valve controls the flow during the rebound stroke.

### CAUTION!

*Using too much force when closing the adjusters will destroy important sealing surfaces.*

Both the adjusters have a normal right-hand thread.

Click position zero (0) is when the adjusters are turned clockwise to fully closed.

The adjustment range, from fully closed until maximum open valve (anticlockwise), is 20 clicks. In order not to click in the wrong direction; always first close the adjuster, then dial-in the new setting.

### Making adjustments

To make improvements using the adjusters, it is important to understand the function of the front fork and the shock absorber and through testing learn how they effect the handling of your bike.

Make sure that you have the correct springs and the correct spring pre-load before making any adjustments. And always start with the Öhlins recommended settings.

### NOTE!

*See Mounting Instructions for recommended settings.*

### NOTE!

*Higher click numbers give less damping force.*

When making adjustments, keep notes, make adjustments one at a time...and in small steps.

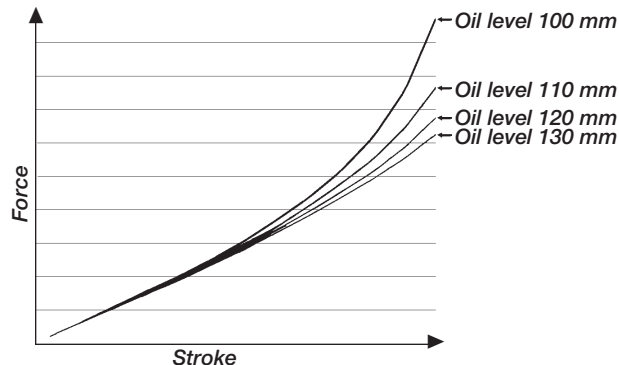
The adjusters should normally not be adjusted in steps of more than 2 clicks at a time and not outside the usable click range.

When you think you have made an improvement, go back to what you started with and double check to be sure. Pay attention to changes in conditions like tires, temperatures etc.

## Air spring

Fig. 4.

A change in oil level will effect the damp- ing forces, not in the early stage of fork travel but a great deal in the later stage.



In general, compression damping changes should be used to influence the bike's stability and re- sponse, while rebound damping changes should be used to influence comfort and traction.

When you need more damping force, you should mainly try to increase compression damping and use as little rebound damping as possible.

This usually means that you gain comfort and performance in handling.

## Oil level adjustment

As the air trapped between the oil and the top nut acts as an air-spring, a change in oil level will effect the damping forces. Not in the early stage of fork travel, but a great deal in the later stage.

A general description of how the oil level/air-spring effects the damping forces are shown in Fig.4.

The air-spring gives the Öhlins USD fork a progressive spring rate, preventing it from bottoming out hard.

By using different combinations of springs and oil levels/air-springs you can alter the characteristic of the fork and tailor it to suit different tracks and conditions.

## CAUTION!

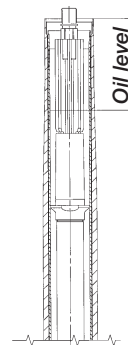
*The oil level must be the same in both front fork legs. Riding a bike with different oil levels will cause instability.*

## When the oil level is raised

The air-spring in the later half of travel is strong, and thus the front fork hard.

## When the oil level is lowered

The air-spring in the later half of travel is soft, and thus the front fork soft.



## Oil level

Fig. 5.

Oil level is measured from the top of the outer leg, with the top nut off, the fork fully compressed and no pre-load washer or spring installed.

## CAUTION!

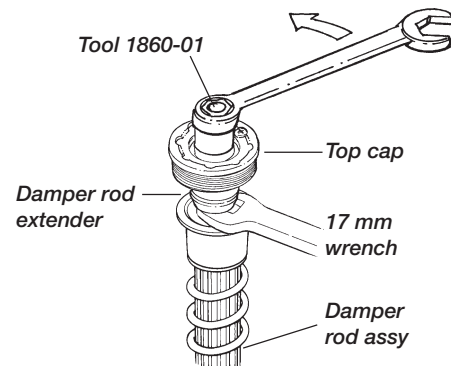
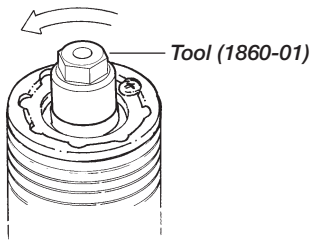
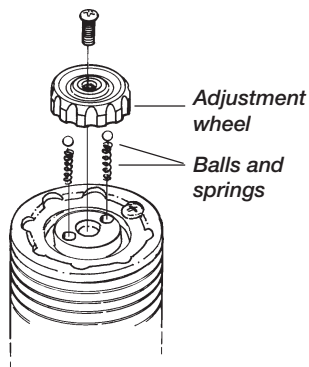
*Adjust the oil level with the fork leg fully com- pressed and no pre-load washer or spring installed.*

## NOTE!

*See Mounting Instructions for recommended oil level.*

The oil level is measured from the top of the outer leg, with the top nut off (Fig. 5).

Changes in oil level should be made in small steps. We recommend a change of 5 mm at a time and not outside the range of 80-130 mm.



## Pre-load adjustment

- 1 Put the bike on a stand and loosen the screws in the top fork crown that hold the fork legs.

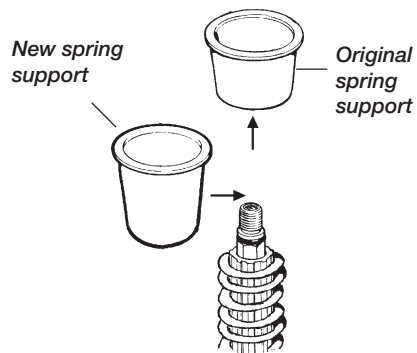
### NOTE!

*On most EX-bikes you have to remove the handle bar before you can unscrew the top cap.*

Remove the adjustment wheel, springs and balls from the top-cap.

- 2 Unscrew the top cap, use tool (1860-01). Put a box under the front wheel so that the springs are visible.

- 3 Remove the top cap from the damper rod extender. Use a 17mm wrench, and tool (1860-01).



- 4**  
Remove the original spring support.  
Install a new spring support to achieve the right static sag.

- 5**  
Fit the spring support and the top cap. Tighten the top cap and lock nut to a torque of 20 Nm.

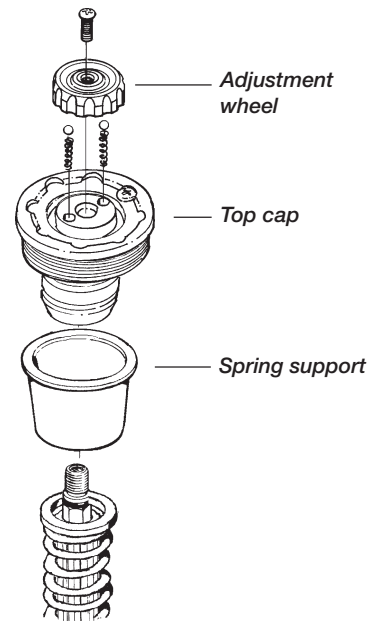
### CAUTION!

*The piston shaft must bottom in the top cap before the lock nut is tightened.*

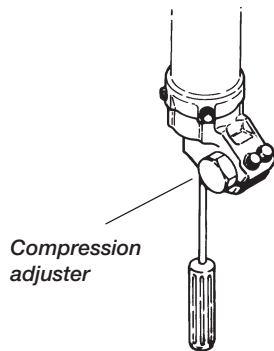
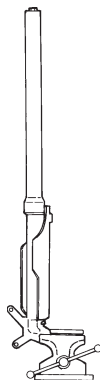
Refit the adjustment wheel.  
Tighten the bolt in the top fork crown to 20 Nm.

### NOTE!

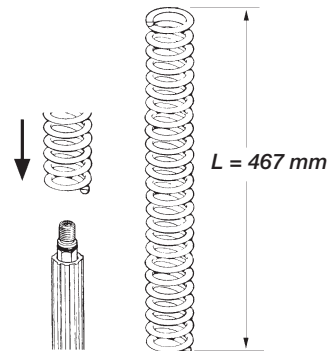
*The top nut only have to be tightened by hand without extending tool.*







Compression  
adjuster



## Changing springs

6

Follow instructions 1-4 on previous page and remove the spring. Do not install the spring support spacer.

7

### NOTE!

*Closing the compression and the rebound valves will keep the damper rod extended making it easier to install the new spring.*

Check the oil level according to page 6 and 10.

Pull out the damper rod as far as possible and then close the compression and the rebound valve (clockwise).

8

Install the new spring.

### NOTE!

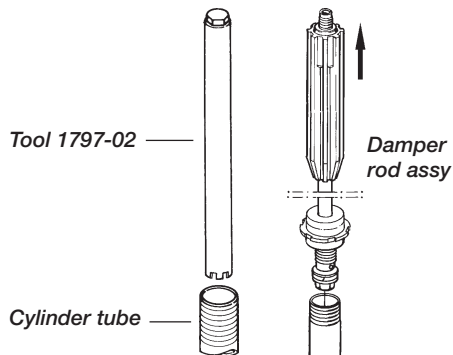
*Check the free length of the spring. Original length is 467 mm. If the spring length is under 460 mm the spring must be changed.*

Follow instruction 5 on previous page.

Adjust the compression and the rebound valves according to specification card.

Fit the fork legs to the motorcycle

Tightening torques: top fork crown 20 Nm and bottom fork crown 10 Nm.



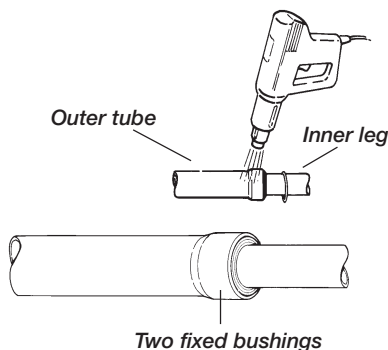
9

Perform steps 1-2 on page 7.

Loosen the cylinder tube cap, on top of the cylinder tube, with tool 1797-02.

Lift up the damper rod assembly and drain the oil.

Pull up the scraper with a screwdriver, release and remove the circlip.



10

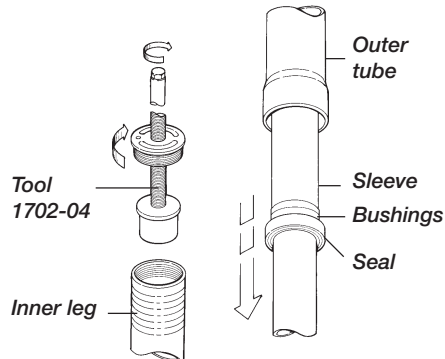
### CAUTION!

*The fork legs have two fixed bushings and one sliding bushing. Be very careful when disassembling the fork legs.*

Fasten the fork leg horizontally in a vice with soft jaws.

Use a hot air gun to warm up the outer leg where the bushings are located, at the bottom end of the outer leg.

A sleeve is mounted above the bushings to maintain the correct position.



11

Use the special tool 1702-04 to remove the bushings.

Install the tool in the top of the inner steel leg. Screw the top cap onto the tool and install the cap in the outer leg.

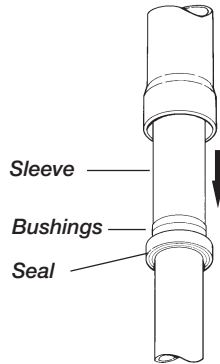
Rotate the tool to press out the bushings.

If tool 1702-04 is not available, push the inner steel leg to the bottom and then pull it back quickly, so that the fork is topping out hard.

Repeat this procedure until the seal and the bushings can be pulled out from the outer leg.

### CAUTION!

*This must be carried out with great care to avoid damages on surface and bushings.*

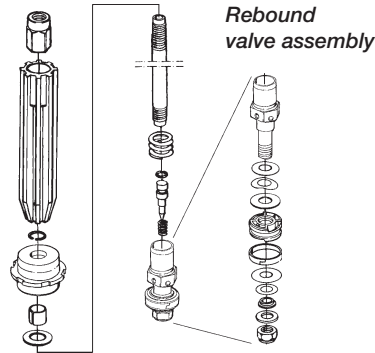


**12**

Remove the seals and bushings and check them for wear and damage. Replace if necessary.

### CAUTION!

*When removing the oil seal and bushings use a small plastic bag to cover the bushing attachment groove and edges of the inner tube, to avoid damage to the seals.*



**13**

Fasten the damper rod assembly in a vice with soft jaws.

### CAUTION !

*Fasten the damper rod assembly in a vice. Be careful not to tighten too hard. The piston rod is very delicate.*

Remove all parts from the piston holder.

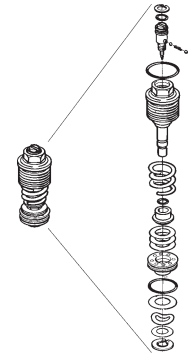
### NOTE!

*If the correct order is lost, use the specification card as a guide.*

Put them in the correct order on the bench. Clean all parts thoroughly.

Inspect all parts for wear and damage, replace if necessary.

Assemble the damper rod.



**Compression valve assembly  
3200-42**

**14**

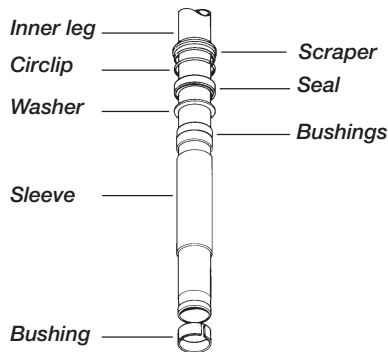
Remove the compression valve assembly from the fork bottom using a 23 mm socket.

Fasten the valve assembly with soft jaws in a vice.

Remove all parts from the valve body and put them in the right order on the bench. Clean all parts thoroughly.

Inspect all parts for wear and damage, replace if necessary.

Assemble the compression valve.



## Assembling

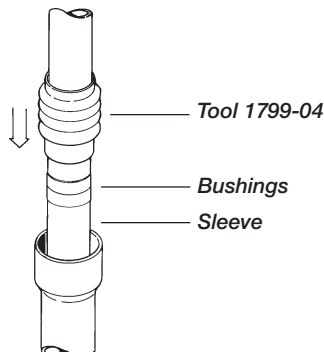
**15**

Apply a thin layer of Öhlins grease (170-01) on the scraper ring and on the sealing surface of the fork seal.

### CAUTION!

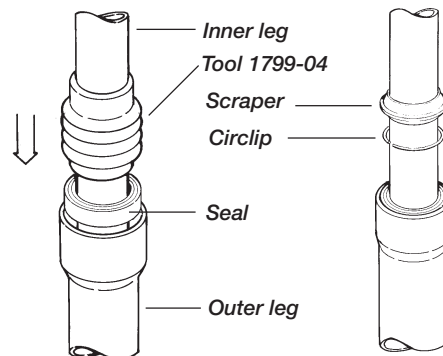
*When installing the oil seal and bushings use a small plastic bag to cover the bushing attachment groove and edges of the inner tube, to avoid damage to the seals.*

Mount the scraper, circlip, fork seal, support ring, the bushings and the sleeve on the inner steel leg.



**16**

Fasten the outer leg in a vice with soft jaws. Install the inner leg and mount the sleeve. Mount the bushings. Use tool 1799-04.

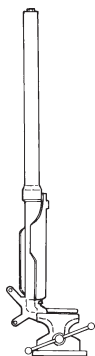


**17**

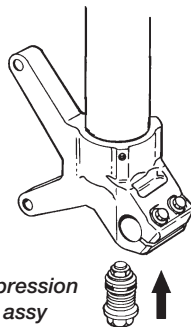
Apply some Öhlins grease (170-01) on the seals. Again, use tool 1799-04, flip it around to install the seal in the outer leg. Install the circlip and the scraper.

### CAUTION!

*Make sure the circlip is fitted correctly into the groove in the outer leg.*

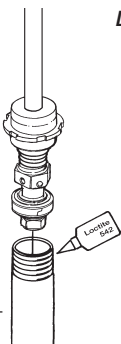


Compression  
valve assy

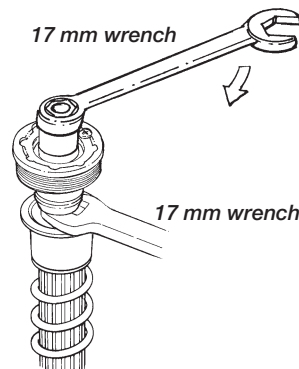
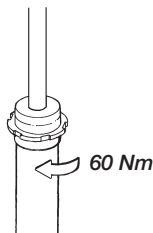


Cylinder  
tube cap

Cylinder  
tube



Damper rod assy



## 18

Fasten the fork leg, at the fork bottom, in a vice with soft jaws.

Install the compression valve assembly in the fork bottom.

Tightening torque 60 Nm.

Apply some front fork oil on the outer surface of the inner leg, and push the outer leg up and down a few times.

First, fill up the cartridge tube, then raise up the outer leg about 250 mm and add the remaining oil.

## 19

Install the damper rod assembly into the cylinder tube.

Use Loctite 542 on the cylinder tube cap.

Tighten with tool 1797-03.

Tightening torque 60 Nm.

Pump the damper rod up and down a few times to check that there is no air left.

Measure the correct amount of oil according to the specification card.

Pull out the damper rod as far as possible and close the compression and the rebound valves.

Install the spring and the spring support.

## 20

Install the fork top cap and the lock nut.

Tighten the top cap and the lock nut against each other, use tool 1860-01 or 1761-02. Tighten to 20 Nm.

Fit the fork legs on the motorcycle. Tighten the upper triple clamp to 20 Nm and the lower triple clamp to 10 Nm.

Adjust the compression and the rebound valves according to the specification card.

## Technical specifications

### Rebound and compression adjustment

Refer to mounting instruction for set-up data.  
Maximum open rebound and compression valve:  
20 clicks.

### Free Spring Length:

All forks: 467 mm (service limit 460 mm).

### Spring preload:

Maximum allowed adjustment  
range 4-8 mm (with optional spring supports).

### Spring rate:

(depending on models)

|                   |          |
|-------------------|----------|
| 2428-39: 3.9 N/mm | Optional |
| 2428-41: 4.1 N/mm | Included |
| 2428-43: 4.3 N/mm | Optional |
| 2428-45: 4.5 N/mm | Included |
| 2428-47: 4.7 N/mm | Optional |

### Settings:

Compressing adj. 14 clicks  
Rebound adj. 14 clicks

### Oil level:

Adjustment range: 80-130 mm.

## CAUTION!

*Use only Öhlins high performance front fork fluid  
No. 5 (1311-01).*

### Tighten torque:

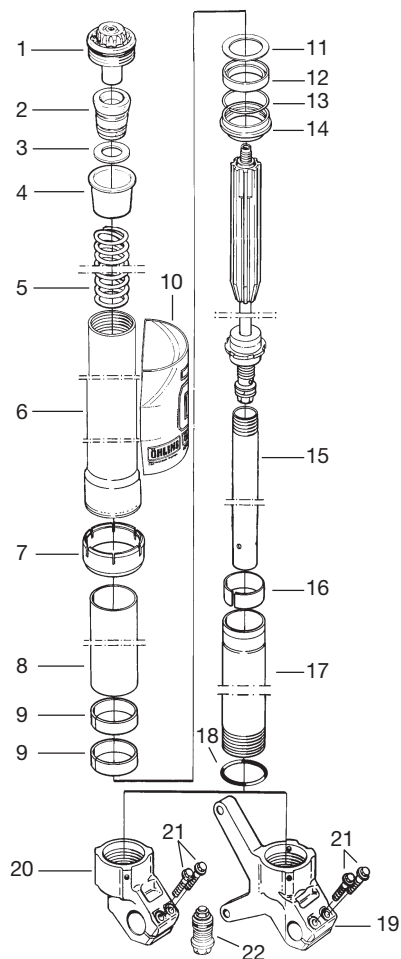
Fork top crown bolt: 20 Nm  
Fork bottom crown bolt: 10 Nm  
Compression valve: 60 Nm (Base valve).  
Cylinder tube cap (cartridge tube): 60 Nm  
Compression valve, 8 mm nut 8 Nm.  
Rebound valve, 8 mm nut 8 Nm.

### Grease:

Öhlins Front Fork grease 170-01.

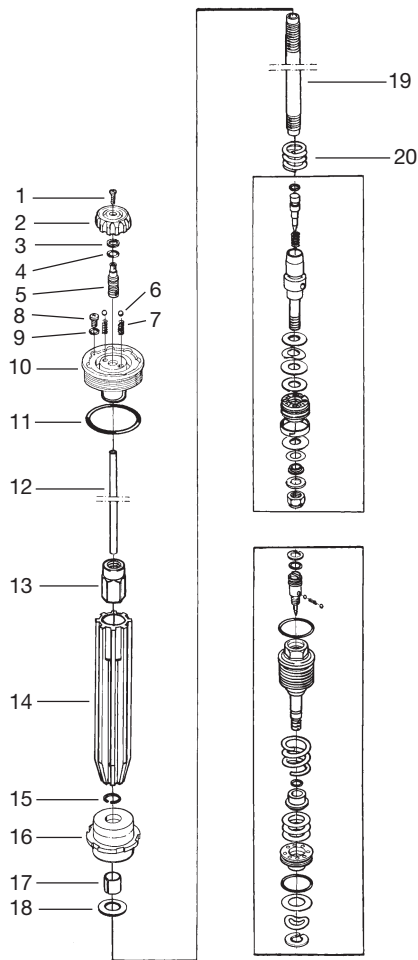
### Service Intervals:

Every 20 hours.



## Spare parts

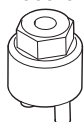
| Pos. | Part No. | Pcs. | Description             | Type/remarks          |
|------|----------|------|-------------------------|-----------------------|
| 1    | -        | 1    | Top Cap                 |                       |
| 2    | 02400-01 | 1    | Bump rubber             |                       |
| 3    | 02403-01 | 1    | Slide washer            |                       |
| 4    | 02436-04 | 1    | Spring support          | 4 mm pre-load         |
|      | 02436-08 | 1    | Spring support          | 8 mm pre-load (Optn.) |
| 5    | 02428-39 | 1    | Spring front fork       | 3,9 N/mm (Optn.)      |
|      | 02428-41 | 1    |                         | 4,1 N/mm (Incl.)      |
|      | 02428-43 | 1    |                         | 4,3 N/mm (Optn.)      |
|      | 02428-45 | 1    |                         | 4,5 N/mm (Incl.)      |
|      | 02428-47 | 1    |                         | 4,7 N/mm (Optn.)      |
| 6    |          | 1    | Fork leg outer          | see spec. card        |
| 7    | 02409-01 | 1    | Guide sleeve            |                       |
| 8    | 02431-01 | 1    | Sleeve                  |                       |
| 9    | 02427-02 | 2    | Bushing                 |                       |
| 10   | 02332-09 | 1    | Cover Sticker Öhlins    |                       |
| 11   | 02412-01 | 1    | Washer                  |                       |
| 12   | 02410-02 | 1    | Seal                    |                       |
| 13   | 02015-01 | 1    | Circlip                 |                       |
| 14   | 02411-02 | 1    | Scraper                 |                       |
| 15   | 02339-01 | 1    | Cylinder tube cartridge |                       |
| 16   | 02429-02 | 1    | Bushing upper           |                       |
| 17   | 02426-01 | 1    | Fork leg inner          |                       |
| 18   | 00438-16 | 1    | O-ring                  |                       |
| 19   |          | 1    | Fork bottom left        | see spec. card        |
| 20   |          | 1    | Fork bottom right       | see spec. card        |
| 21   | 02314-02 | 2    | Bolt fork bottom        |                       |
| 22   | -        | 1    | Base valve assy         | see page 13           |
| -    | 00195-01 | 2    | Sticker Öhlins          | white / transparent   |



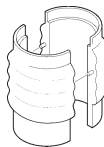
## Spare parts

| Pos. | Part No. | Pcs. | Description       | Type/remarks |
|------|----------|------|-------------------|--------------|
| 1    | 00828-01 | 1    | Screw             |              |
| 2    | 00820-01 | 1    | Adjustment knob   |              |
| 3    | 01473-06 | 1    | Circlip           |              |
| 4    | 00338-79 | 1    | O-ring            |              |
| 5    | 02405-01 | 1    | Adjustment screw  |              |
| 6    | 00884-01 | 2    | Ball              |              |
| 7    | 00833-01 | 2    | Spring            |              |
| 8    | 01050-01 | 1    | Screw             |              |
| 9    | 00338-59 | 1    | O-ring            |              |
| 10   | 02397-48 | 1    | Top cap           |              |
| 11   | 00438-61 | 1    | O-ring            |              |
| 12   | 02366-13 | 1    | Adjustment rod    |              |
| 13   | 02402-01 | 1    | Lock nut          |              |
| 14   | 02430-01 | 1    | Spring guide      |              |
| 15   | 01499-02 | 1    | Circlip           |              |
| 16   | 02527-48 | 1    | Cylinder tube cap |              |
| 17   | 00110-03 | 1    | Bushing           |              |
| 18   | 02528-01 | 1    | Washer            |              |
| 19   | 02393-01 | 1    | Shaft             |              |
| 20   | 02063-02 | 1    | Spring            |              |

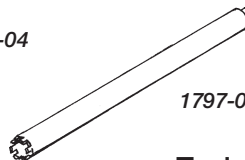
1860-01



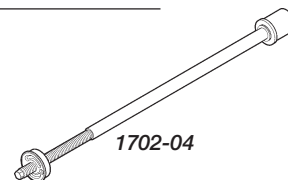
1799-04



1797-02



1702-04



## Tools

1860-01:

Top cap releasing tool

1863-01:

Base valve tool

1799-04:

Mounting sleeve

1797-02:

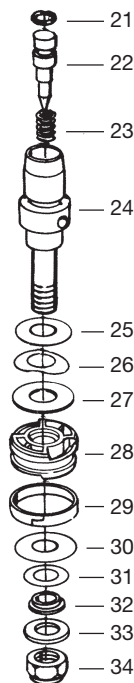
Cartridge tool

1702-04:

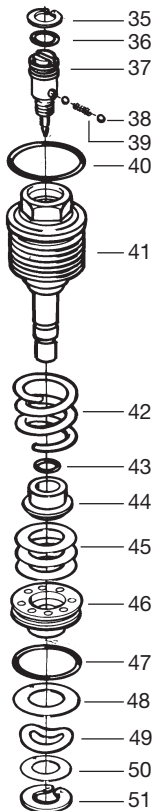
Bushing remove



## Reb. adj.



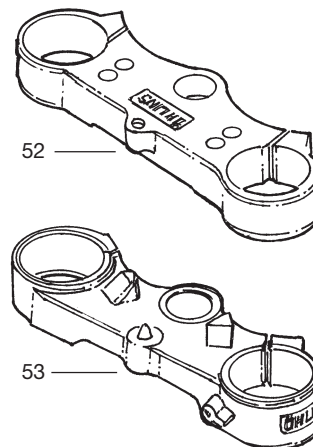
## Comp. adj.



## Spare parts

| Pos. | Part No. | Pcs. | Description         | Type/remarks   |
|------|----------|------|---------------------|----------------|
| 21   | 00438-31 | 1    | O-ring              |                |
| 22   | 02356-03 | 1    | Rebound needle      |                |
| 23   | 02322-01 | 1    | Spring              |                |
| 24   | 02320-03 | 1    | Piston holder       |                |
| 25   | 00530-18 | 1    | Shim                | see spec. card |
| 26   | 01149-01 | 1    | Wave washer         | see spec. card |
| 27   | -        | -    | Shims               | see spec. card |
| 28   | 02335-01 | 1    | Rebound piston      |                |
| 29   | 01447-02 | 1    | Piston ring         |                |
| 30   | -        | -    | Shim                | see spec. card |
| 31   | -        | -    | Shim                | see spec. card |
| 32   | 00641-xx | 1    | Clamp washer        | see spec. card |
| 33   | 00153-01 | 1    | Washer              |                |
| 34   | 00430-05 | 1    | Lock nut            |                |
| 35   | 01473-02 | 1    | Circlip             |                |
| 36   | 00338-53 | 1    | O-ring              |                |
| 37   | 01242-0x | 1    | Adjustment needle   | see spec. card |
| 38   | 00884-04 | 2    | Ball                |                |
| 39   | 01248-01 | 1    | Spring              |                |
| 40   | 00438-02 | 1    | O-ring              |                |
| 41   | 02413-xx | 1    | Base valve          | see spec. card |
| 42   | 04107-x0 | 1    | Spring              | see spec. card |
| 43   | 00438-52 | 1    | O-ring              |                |
| 44   | 02414-01 | 1    | Poppet valve        |                |
| 45   | -        | -    | Shim                |                |
| 46   | 02415-01 | 1    | Valve seat          |                |
| 47   | 00438-03 | 1    | O-ring              |                |
| 48   | 00520-23 | 1    | Shim                |                |
| 49   | 04105-01 | 1    | Wave washer         |                |
| 50   | 00530-18 | x    | Shim                | see spec. card |
| 51   | 05009-12 | 1    | Circlip             |                |
| 52   | 02443-02 | 1    | Triple clamp, upper | FGHO681        |
|      | 02448-02 | 1    | Triple clamp, upper | FGKA681        |
| 53   | 02443-01 | 1    | Triple clamp, lower | FGHO681        |
|      | 02448-01 | 1    | Triple clamp, lower | FGKA681        |

## Fork crowns



## General handling set-up

### ***Front end falls into the curves (oversteering) especially in sand.***

Steep front fork angle. Front end too low in comparison to rear end.

- Increase the front fork compression damping.
- Change to harder springs.
- Lower fork leg approximately 5 mm in the triple clamp.

### ***Front end "ploughs", understeers.***

Shallow front fork angle. Front end too high in comparison to rear end.

- Decrease the front fork compression damping.
- Raise the fork legs approximately 5 mm in the triple clamp.
- Change to softer fork springs.

### ***Front end unstable at high speed, unstable when accelerating out of curves.***

Front fork angle too steep. Front end too low in comparison to rear end.

- Lower the fork legs approximately 5 mm in triple clamp.
- Change the front fork springs to harder ones.

### ***Front end unstable during deceleration.***

Front fork angle too steep during braking. Front end too low or rear end too high.

- Increase the oil level in the front fork.
- Change to harder fork springs.
- Increase the front fork compression damping.

## Front suspension.

### ***Front fork travel is not used to its full capacity. Harsh feeling, front wheel grip is not satisfactory in bumpy turns.***

Suspension too hard.

- Decrease the front fork compression damping.
- Change to softer springs.

### ***Suspension bottoming, too soft during entire travel.***

Spring too weak or compression damping too soft.

- Increase oil level 5 mm.
- Increase compression damping.
- Change to stiffer springs.

### ***Suspension bottoming, but can handle smaller bumps.***

Damping force not progressive enough.

- Increase the oil level.

### ***Can handle smaller bumps but is too hard during the last part of the travel.***

Damping force is too progressive.

- Decrease the oil level.

### ***Front end feels low, initially feels soft, but is not bottoming.***

The initial spring rate is too soft or spring preload is too low.

- Increase the spring pre-load.

### ***Feels harsh over small bumps, but using full wheel travel.***

Too much spring pre-load or too much compression damping.

- Increase the oil level or change to softer springs.
- Decrease the compression damping.
- Decrease the spring pre-load.
- Clean the oil seals and scrapers. Use Öhlins grease 146-01 for regreasing.

### ***Can handle the first in a series of bumps but feels hard after a few more bumps. Frontal grip insufficient in rough and bumpy turns.***

Too much rebound damping.

- Decrease the rebound damping.

### ***Front end rebound too fast after a bump. Front wheel grip insufficient in bumpy curves.***

Not enough rebound damping, or too much spring pre-load

- Increase the rebound damping.
- Decrease the spring pre-load.

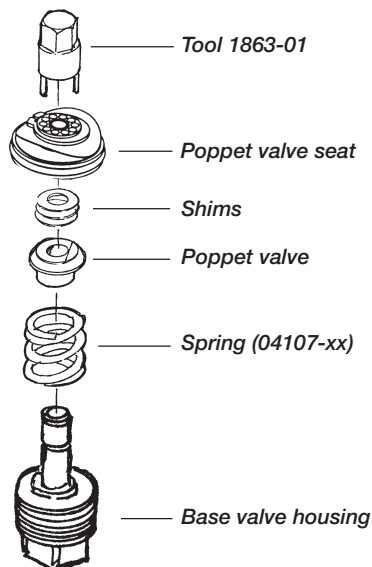
## Change of high speed compression spring

### NOTE!

*This change of spring HSC is recommended for heavier models, such as the 450's and some 250 4-stroke motorcycles. See the Öhlins Mounting Instructions for your specific model.*

**1**

Turn the fork leg upside down and fasten the fork bottom in a vise with soft jaws.



**2**

Remove the compression (base) valve. Use a 17 mm socket.

**3**

Fasten the valve in a vise with soft jaws.

**4**

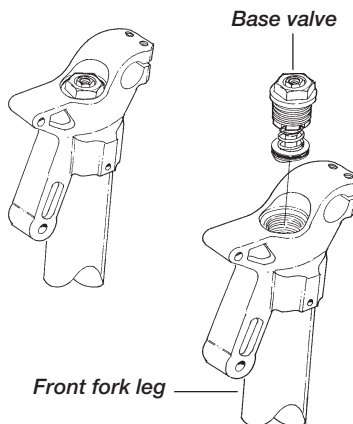
Use tool (1863-01) or a pair of pointed pliers to loosen the poppet valve seat and remove it together with the poppet valve and the spring.

**5**

Install the new spring, refit the poppet valve and the poppet valve seat. Tighten to a torque of 5 Nm.

**6**

Refit the valve unit to the fork bottom as described above. Tighten to a torque of 65 Nm.



## Maintenance

Telescopic front forks depend on a smooth, friction free action.

Make sure your forks are regularly serviced.

Do not use strong solvents, such as brake cleaner, to clean the front forks. This will dry out the seals and the steel tubes and cause friction or leakage.

### After every race

Clean externally and spray with an all-purpose oil after washing with detergent.

Check externally for damage.

Put a little Öhlins red grease (146-01) on the steel tubes and work it in by pushing the fork up and down.

### Every 20 hours

Dismantle the fork and check all parts for wear and damage, replace if necessary.

### NOTE!

*Discarded Öhlins products should be handled over to an authorized work shop or distributor for proper disposal.*

# More info

[www.ohlins.com](http://www.ohlins.com)



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

Your Öhlins dealer: