



*Öhlins Cartridge Kit for MX & Enduro*  
**TTX 22**

**Owner's Manual**



*Öhlins Headquarters Upplands Väsby, Sweden*

### **Öhlins Racing AB - The Story**

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

Being a careful observer, Kenth's attention was continuously 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 since 1976, the search for perfection and new functions is still the main focus of the company.

Congratulations! You are now the owner of an Öhlins product. Houndreds of World Championships and other major world titles are definitive proof that Öhlins suspension 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 long time 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 product on your vehicle 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 vehicle. Along comes the fact that your Öhlins product 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 dealer.*

### **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.*

### **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.*

## 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.*

### **Note!**

*When working with the Öhlins product, always read the vehicle service manual.*

### **Note!**

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



# CONTENTS

Safety precautions .....	3
1 Setup .....	5
2 Spring preload .....	6
3 Fluid volume .....	7
4 Adjusters .....	8
5 Spring change.....	9
6 Inspection and maintenance .....	11

# 1 SETUP

## Check sag and ride height

1

Work on a flat surface. Put the motorcycle on a workstand so that both wheels are off the ground and the suspension is unloaded.

2

Mark, for example with a piece of tape, a point immediately above the rear wheel axle.

### 3 Measure R1

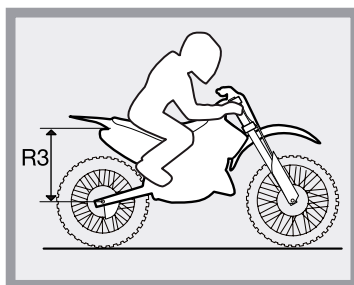
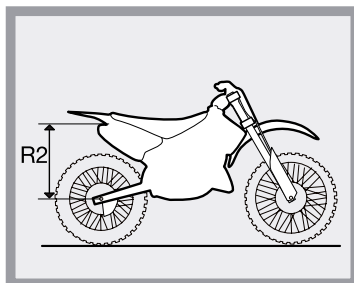
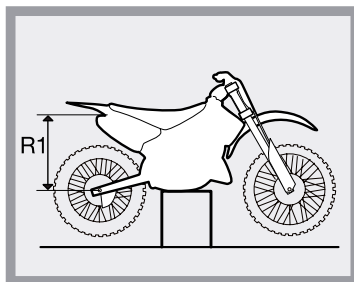
Measure the distance from the marked point to a fixed point, for example the wheel axle.

### 4 Measure R2

Put the motorcycle on the ground so that the rear suspensions is slightly compressed. Repeat the measurement process.

### 5 Measure R3

Sit on the motorcycle in normal riding position, properly outfitted in your riding gear. Repeat the measurement process.



Note measures	
R1	
R2	
R3	

### Recommended measures

See the recommended free sag and ride height measures in the Öhlins Mounting Instructions for the shock absorber or in the vehicle service manual.

If the ride height still differs from the recommendations, you may need to change spring, contact an Authorized Öhlins Service center for advice.

### **⚠ Warning!**

*Incorrect spring rate may produce a fork angle that is too steep or too flat. This in turn can lead to a tendency for over- och understeering, which could seriously affect the handling characteristics of the motorcycle.*

# 2 SPRING PRELOAD

Fork springs may differ in length. Thus we recommend to measure the preload on each fork leg and install the required preload washers to get the correct measure.

Preload less than 0 mm will make the fork springs loose when the front wheel is off the ground, which can increase the risk of wear inside the fork.

## **Caution!**

*Preload washers must be placed below the spring, otherwise they will restrict fluid flow and the fork may break.*

Measure the spring preload according to the steps 1-5 and see the figure below:

1

Measure A

Fork outer tube slid down to stop. The internal spring will prevent the gas pressure from extending the cartridge, thus you must extend the cartridge with your hand 0-4 mm.

2

Measure B

3

Measure C

4

Calculate preload:

$$\text{Preload} = B - A - C$$

	Note measure
A	
B	
C	
Preload B-A-C =	

**Example: 445-300-135= 10**

equal to 10 mm preload.

5

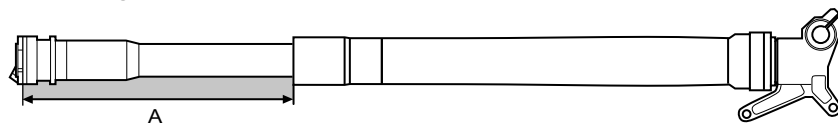
For recommended preload refer to the setup data in the Mounting Instructions or contact an Authorized Öhlins Service Center for advice. To adjust the preload you add or remove washers below the spring.

## **Note!**

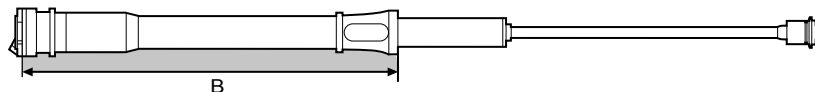
*See Mounting Instruction for recommended total spring installation length.*

### Measure the spring preload

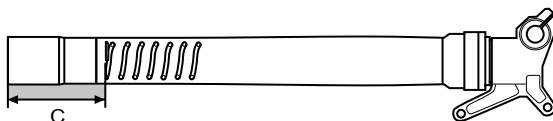
1



2



3



# 3 FLUID VOLUME

Proper fluid volume is a balance between sufficient bottoming resistance and comfort. Larger fluid volume will give better bottoming resistance, but might reduce comfort over smaller bumps.

## Bottoming issues

Increase fluid volume in steps of 10 ml until unpleasant bottoming no longer occurs, or until comfort on rest of the track becomes too harsh.

## Harsh fork

Try to decrease fluid volume in steps of 10 ml to gain comfort until harshness no longer occurs or bottoming resistance gets too low.

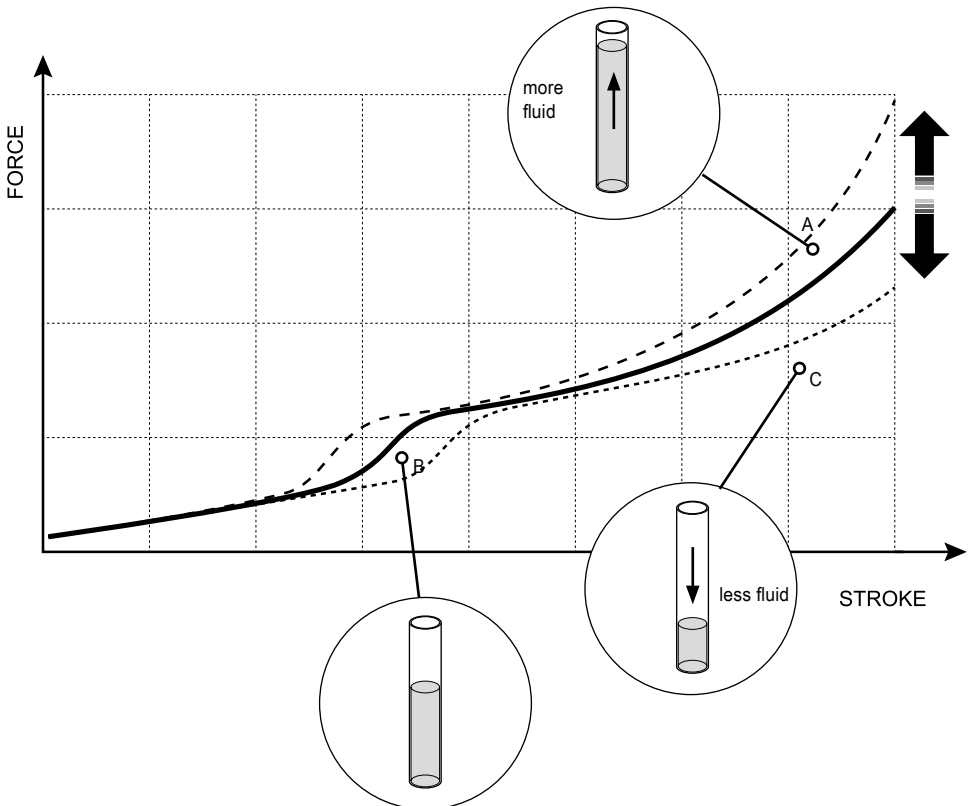
Additionally, less fluid volume will let the fork dive longer into the stroke during braking before additional damping effect stiffens up the stroke, see position C in the figure below.

Very fast riders may appreciate the additional damping from a higher fluid volume on all parts of the track, as this keeps the fork running higher in the stroke, withstanding their additional forces due to their higher velocities.

For recommended fluid and fluid volume refer to the setup data in the Mounting Instructions or contact an Authorized Öhlins Service Center for advice.

## 👁 Note!

*Since small amounts of fluid have great influence on the performance, make sure to service a fork that leaks immediately. We highly recommend to have an Authorized Öhlins Service Center service the fork. When you drain the fork, it is very important to let all fluid drain out to obtain a proper fluid volume in the fork after service.*

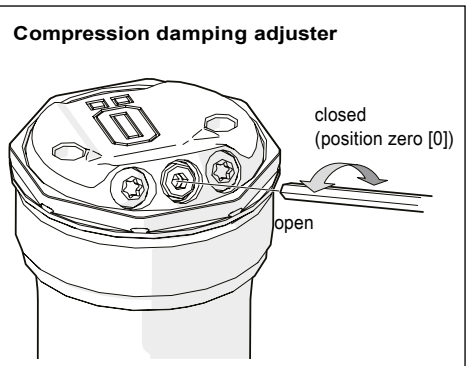


# 4 ADJUSTERS

## Compression damping adjuster

Use a 3 mm Allen key to adjust the compression damping adjuster.

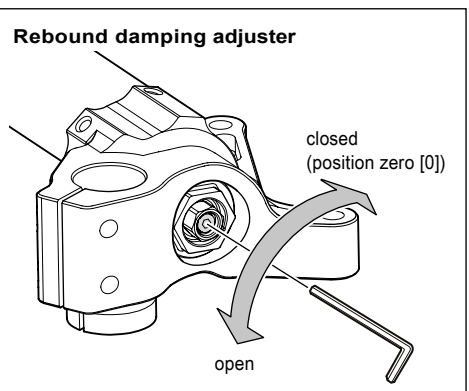
Clockwise for increased compression damping and counter clockwise for decreased compression damping.



## Rebound damping adjuster

Use a 3 mm Allen key to adjust the rebound damping adjuster.

Clockwise for increased rebound damping and counter clockwise for decreased rebound damping.



## To set

The adjusters have a normal right hand thread. Turn the damping adjusters gently clockwise to fully closed (pos. zero [0]). To open, turn counter clockwise, and count the clicks until you reach the recommended number. For recommended clicks see the Setup data in the Mounting instructions or contact an Authorized Öhlins Service Center for advice.

## ⚠ Caution!

*Turn the adjusters gently not to damage delicate sealing surfaces.*



# 5 SPRING CHANGE

## **Note!**

*Loosen, do not remove, the top cap from the outer tube when the fork leg is still fixed by the lower triple clamp.*

**1**

Remove the front fork according to vehicle service manual.

**2**

Use a 50 mm octagon fork cap tool to unscrew the top cap from the outer tube.

**3**

Use a pair of pliers to remove the security snapping at the bottom of the fork. Turn clockwise to loosen the shaft end of the cartridge kit using a 12 mm socket.

**4**

Insert the end plug (01890-01) into the fork bottom. The end plug will keep the fluid in the fork while you change the spring.

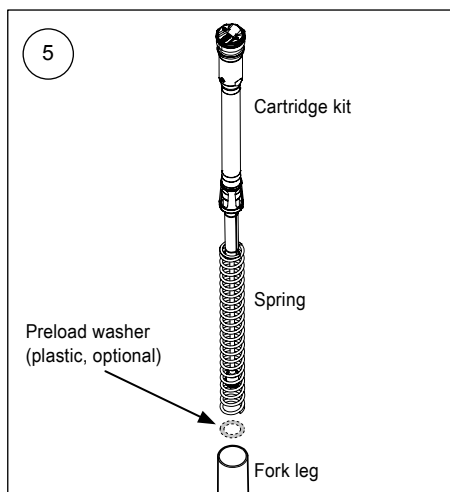
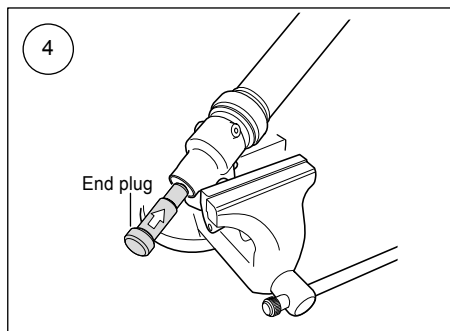
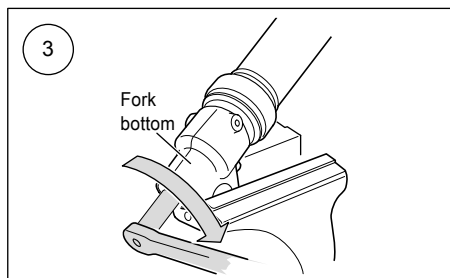
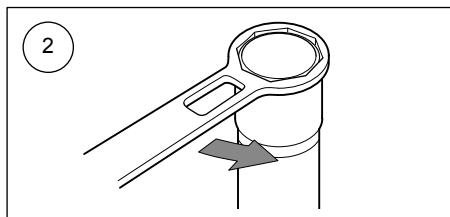
**5**

Remove the cartridge kit from the fork leg, change the spring. Note the plastic preload washer/s, if any.

## **Note!**

*Place the preload washer/s below the spring, at the bottom end of the fork leg.*

**Continues on next page**



# 5 SPRING CHANGE

- 6**  
Apply some grease on the threads of the shaft end.
- 7**  
Install the cartridge kit into the fork leg and push out the end plug (01890-01).
- 8**  
Tighten the shaft end counter clockwise into the fork bottom, tighten to 18 Nm.
- 9**  
Insert the security snap-ring.
- 10**  
Use a 50 mm octagon fork cap tool to gently tighten the top cap, tighten to maximum 10 Nm.
- 11**  
Install the front fork and all other removed parts according to vehicle service manual.

**👁 Note!**

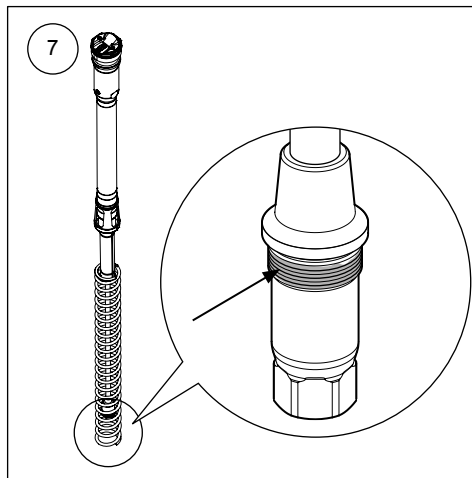
*Make sure to tighten the triple clamps to the correct torque.*

**👁 Note!**

*Make sure to install all removed parts as they were before.*

**👁 Note!**

*If you, after you have changed the spring, experience problems like bottoming or that the front fork works far down in the stroke, this may be caused by loss of fluid when you changed the spring. Add Öhlins Front fork fluid in steps of 10 ml at a time until the symptoms are gone.*



# 6 INSPECTION AND MAINTENANCE

Preventive maintenance and regular inspection reduces the risk of poor performance. If there is any need for additional service, please contact an Öhlins dealer.

## Breather plug

Aerate the front fork at regular intervals:

1

Place the motorcycle on a work stand so that the front wheel is off the ground.

2

Loosen the Breather plug to release too much pressure in the front fork. Make sure to tighten the breather plug after.

## Remove and inspect the cartridge

1

Disassemble the fork leg, see Spring change, steps 1-4.

2

Remove the cartridge and examine for wear or damage, replace parts if needed.

## **Caution!**

*When you compress the damper cartridge fully, fluid might escape from top cap side hole.*

3

Assemble the fork leg, see Spring change, steps 6-11.

## Recommended Service Intervals

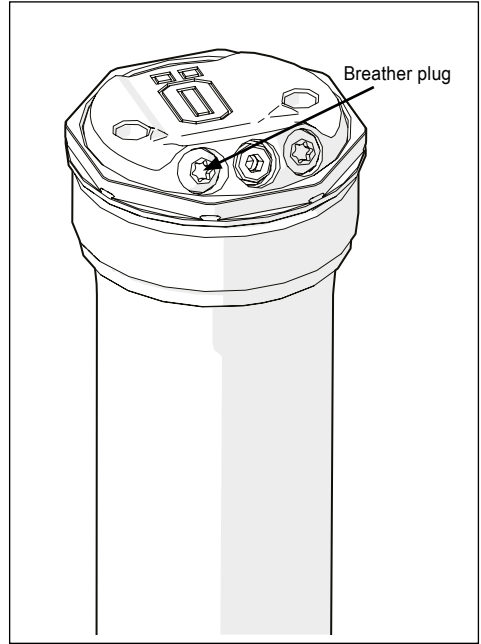
See separate service schedule or contact an Authorized Öhlins Service Center.

## **Warning!**

*We strongly advise to let an Öhlins dealer perform service on the damper cartridge.*

## Disposal

Hand over your discarded Öhlins products to an Öhlins Distributor for proper disposal.



Your Öhlins retailer:

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

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



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