



*Öhlins Shock Absorber for MX & Enduro*  
***TTX FLOW***

**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 for almost 40 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 product. 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 almost 40 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 product on your vehicle you have made a clear statement... you are a serious rider or driver 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.*



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# 1 SPRING

## Install the spring

### **Note!**

*Install the spring on the shock absorber before you install the shock absorber on the vehicle.*

**1**

Measure the spring free length (A).

**2**

Loosen the lock nut so that you can move the spring platform as far up as needed to install the spring.

**3**

Put the shock absorber up-side-down in a vice. Install the spring.

**4**

Install the spring clip by sliding it over the end piece and the stop washer. See view from above for unlocked orientation.

**5**

Turn the spring clip or the end piece 90° and pull it back to the stop washer. See view from above for locked orientation.

### **Note!**

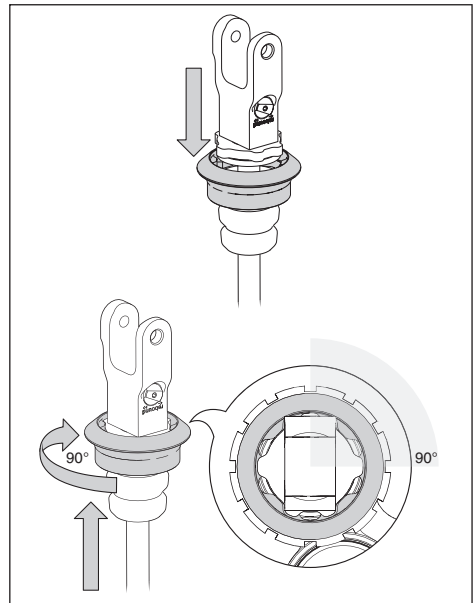
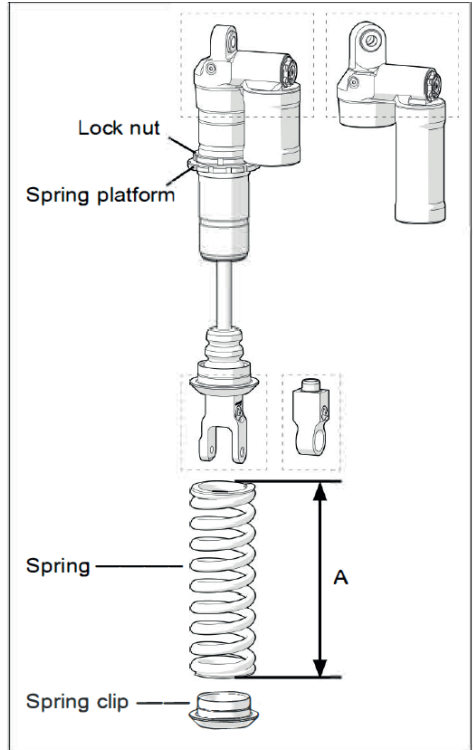
*If a spring assembly tool is used, the spring can be compressed by pushing on the spring clip and rotate the end piece to reach locked orientation.*

**6**

Measure the spring length. Adjust the spring preload to the recommended setup data, find it in the Mounting Instruction.

### **Caution!**

*Tighten the preload lock nut before riding the vehicle.*



# 1 SPRING

## Setting preload

1

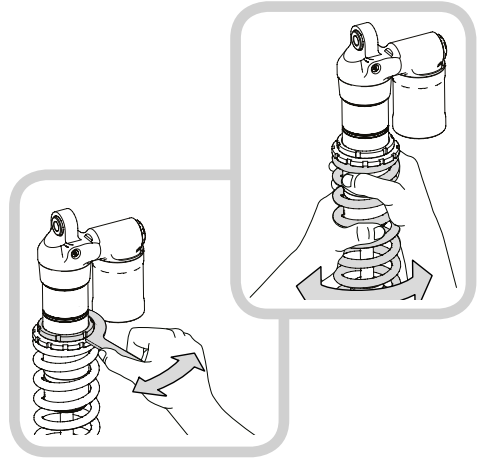
Loosen the preload lock nut. Use a C-spanner.

2

Turn the spring by hand to the desired position. The spring platform has a grip function, therefore, by turning the spring you will move the spring platform.

3

Tighten the preload lock nut.



# 2 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

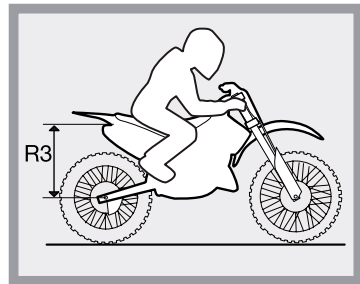
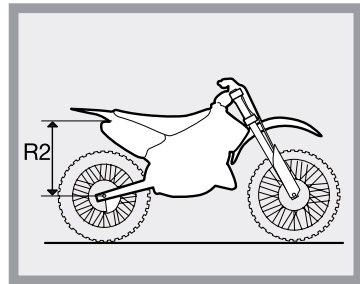
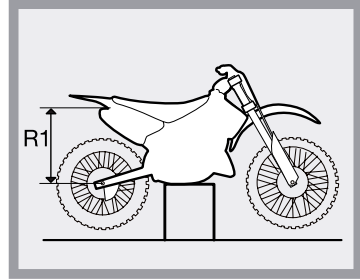
Measure the distance from the marked point to a fixed point, for example the wheel axle.

### 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 Öhlins dealer 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 SETUP

## Stability and Traction

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 both 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 very important that the front and the rear loaded heights are within the specified values.

## Front Fork Springs

To optimize the stability and traction of your motorcycle the front fork must match the rear suspension. Öhlins Racing has a variety of front fork springs available for a large number of motorcycle models.

The springs in combination with the Öhlins shock absorbers contribute to superior stability and traction. See the Öhlins Recommendation List by contacting your nearest Öhlins dealer or using our web site.



## ⚠ Warning!

*If there are no matching springs for your motorcycle model, use the original springs, however, they must be in good condition and not fatigued.*

## 👁 Note!

*Change the fluid in the front fork every 20 hours*

## Prepare the Settings

By adjusting the shock absorber and testing by trial and error you can learn how the different settings affect your motorcycle.

Always begin your setting by taking a test ride with all adjustments at their recommended basic setting. Choose a short run of varying character, for example with long as well as sharp bends, hard as well as soft bumps. Stay on the same run and adjust only one setting at a time.

## Recommended Adjustment Range

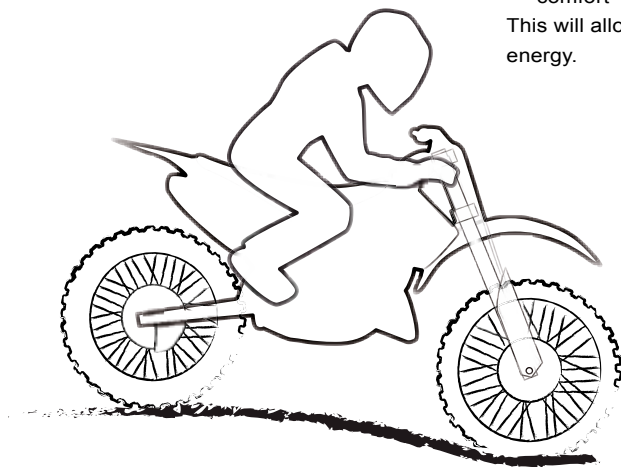
Rebound and compression damping:  $\pm 5$  clicks from original (basic) setting.

When you setup your bike you need to do it together with the front fork and on all types of tracks that you want to optimize, there are no setups that will be 100% perfect on all tracks, compromises need to be made.

## Keep priority at:

- safe feeling
- stability
- comfort

This will allow you to ride safer and use less energy.



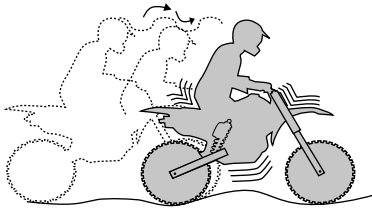


# 2 SETUP

## Start with the rebound adjuster

If the bike feels loose and is transferring a lot of movement during acceleration and braking and/or if the bike feels nervous over bumpy sections close the rebound adjuster two [2] clicks. (If you are close to perfect setup click one click at the time.

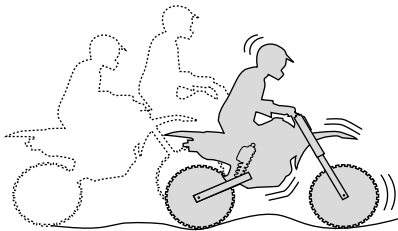
If the bike feels hard, harsh (no comfort) and is difficult to enter corners with or does not stay in line over bumpy sections, open the rebound adjuster two clicks.



### If the vehicle feels

- unstable
- loose
- bouncy

*Increase rebound damping*



### If the vehicle feels

- hard
- bumpy

*Decrease rebound damping*

If you have got a good feeling for the bike with spring, preload and the ride height feels OK but the bike runs low and packs down under acceleration bumps, with lost line and/or lost comfort and traction, open the rebound adjuster two [2] clicks.

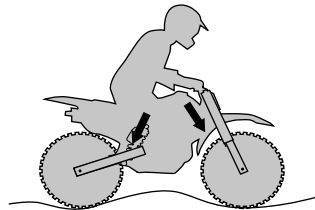
If the bike is nervous and moving a lot or has a high feeling entering corners, close the rebound adjuster two [2] clicks. Fine tune one [1] click at the time. Test run and make the necessary adjustments. For original rebound setting see the Mounting Instructions for your shock absorber.

## Low speed compression damping

The low speed adjuster is used to control the chassi movement towards the ground.

If you feel that the shock absorber feels soft, spongy or the bike feels unstable for example when going in to a corner, close two clicks (clockwise).

If you feel that the bike feels hard and have poor traction, open two clicks (counter-clockwise).



### If the vehicle

- feels soft
- feels low
- is bottoming

*Increase compression damping*

# 3 ADJUSTERS

Compression damping controls the energy absorption when the shock absorber is being compressed, thus controls how easy the shock absorber compresses when you hit a bump.

Rebound damping controls the energy absorption when the shock absorber is being extended and controls how fast the shock absorber returns to its normal position after being compressed.

## 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 Öhlins dealer for advice. To adjust the static sag you need to change to a softer or harder spring rate.

## ⚠ Caution!

*Do not use force, delicate sealing surfaces can be damaged.*

## Compression damping adjuster (A)

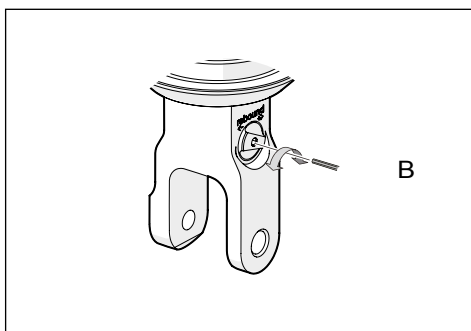
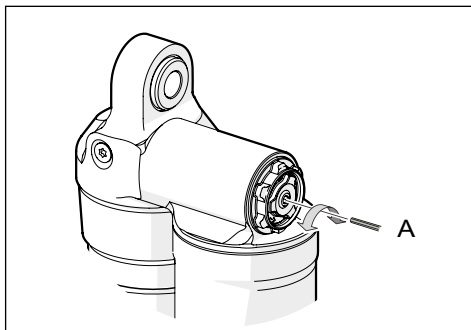
Use a 3 mm allen key or by hand adjust the compression damping adjuster.

## Rebound Damping Adjuster (B)

Use a 3 mm allen key or by hand adjust the rebound damping adjuster.

## 👁 Note!

*Since the rebound adjuster is designed to compensate for temperature changes, the number of clicks will differ slightly between a cold and a warm shock absorber. The recommended setting is at room temperature.*



# 4 INSPECTION AND MAINTENANCE

*Preventive maintenance and regular inspection reduces the risk of functional disturbance. If there is any need for additional service, please contact an authorized Öhlins workshop.*

## Cleaning

Clean the shock absorber externally with a soft detergent. Use compressed air. Be careful that all dirt is removed. Lift the bump rubber and clean the area below. Keep the shock absorber clean and spray it with oil (WD40, CRC 5-56 or equivalent) after washing.

## ⚠ Caution!

*Never spray water directly into the adjuster knobs and/or the ball joints.*

## Inspection

1. Check ball joints for possible excessive play or stiction.
2. Check the piston shaft for leakage and damage.
3. Check the shock absorber body for external damage.
4. Check the reservoir for external damage that can restrict the floating piston from moving freely.
5. Check for excessive wear of rubber components.
6. Check the attachment points of the shock absorber to the vehicle.

## Recommended Service Intervals

*MX/Enduro:* When used under race conditions every 20 hours of operation.

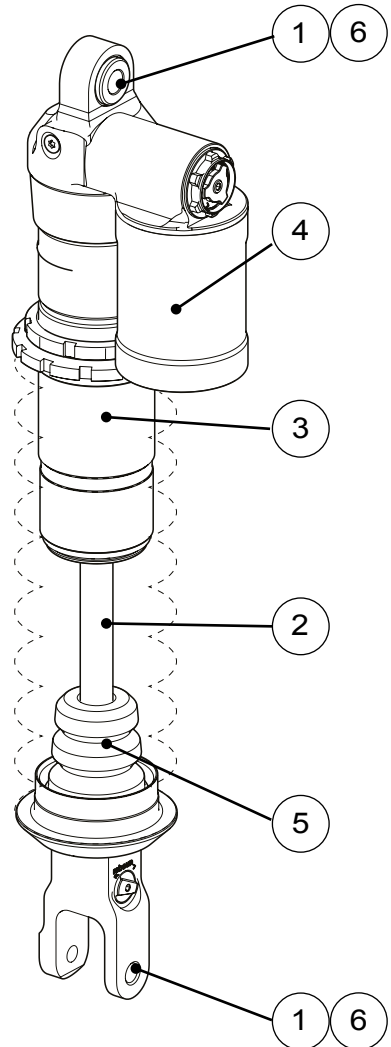
*Off-Road:* Every year.

## Disposal

Discarded Öhlins products should be handed over to an authorized Öhlins workshop or distributor for proper disposal.

## 👁 Note!

*The Öhlins shock absorber should only be filled with the Öhlins Shock Absorber Fluid, part no 01304-01. Contact your Öhlins dealer for advise.*



## ⚠ Warning!

*Never alter the gas pressure. Special purpose charging equipment and access to nitrogen is required.*

Your Öhlins retailer:

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Box 722  
SE-194 27, Upplands Väsby  
Sweden

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