



*Öhlins Front Fork Cartridge Kit*

# **FKC 100-series**

**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

## **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, 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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Congratulations on your choice of purchasing the Öhlins FKC-kit. The goal with this kit was to create a high-end cartridge damping system with maximum comfort and a focus on vehicle control.

The FKC-kit features a high-end front fork cartridge damping system that vastly improves performance, comfort and vehicle control. Built on the race proven Öhlins NIX technology that was developed to maximize the damping performance available in the confines of a fork leg by separating the compression and rebound damping between the fork legs.

Each fork leg features an 8 mm steel shaft, an aluminum damper tube and a 25 mm piston.

Optional spring rates are available for individual rider weights, preferences and motorcycle use. For some models a lowering kit is also available.

## The FKC-kit in short

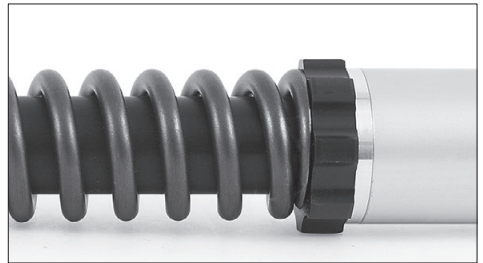
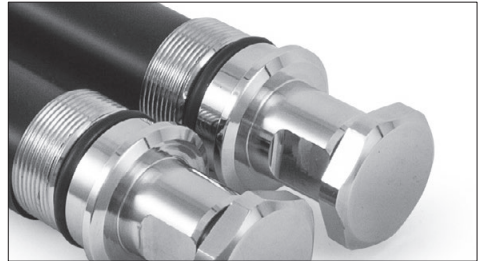
The compression and rebound cartridges are largely identical but work in opposite ways.

The cylinder tubes and the main pistons are positioned in opposite directions in the compression and rebound cartridges to achieve rebound damping force in one leg and compression in the other.

When you are riding your bike and the front fork moves, the fluid inside the fork leg is forced to flow through the compression and rebound pistons.

At a compression movement the fluid is forced through the compression shim stack and the bleed valve and at the same time through the rebound check valve.

At a rebound movement, the fluid is forced through the rebound shim stack and the bleed valve and through the compression check valve. The fluid displaced during these processes is directed into or out of the cylinder tubes through the holes.



## The piston

### Bleed valve

A small orifice that creates a flow restriction by its size.

### Shim valve

The fluid pressure must deflect thin steel washers (shims) to allow fluid to flow through the valve.

### Check valve

A spring preloaded shim that easily opens for return flow of fluid when the front fork movement changes direction.

### Function

The bleed valve and shim valve are used for building up damping force. At slow stroke speeds, the percentage going through the bleed valve is higher, and at fast strokes the shim valve takes care of most of the flow. The check valve, together with the bleed valve handle return flows.

If you want to change the damping characteristics, let an approved Öhlins dealer change the shim stack to adjust to your desired damping curve.

# 2 OIL LEVEL

## Oil level diagram

The diagram below shows two different types of curves of force that equal to a specific oil level. A change in the front fork oil level will not have an impact on the air spring force in the early stage of the movement but will have a greater effect in the later stage.

### High oil level

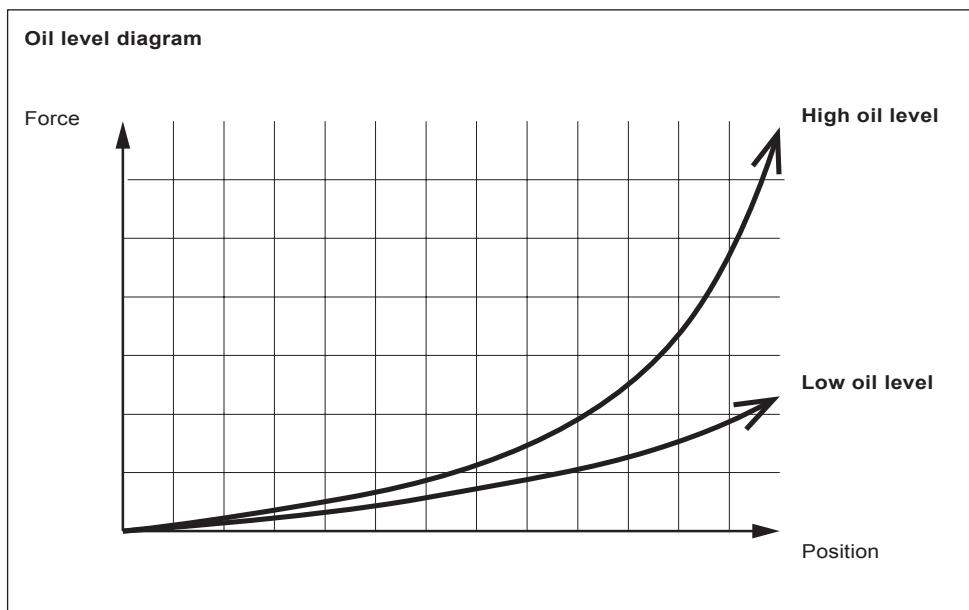
The air spring in the later half stage of travel is stronger which makes the front fork firmer.

### Low oil level

The air spring in the later half stage of travel is lessened which makes the front fork softer.

## Adjust oil level

The procedure for oil level change requires special knowledge and tools. As mentioned earlier, the oil level must be handled with special care. Contact an authorized Öhlins service center to change the oil level.



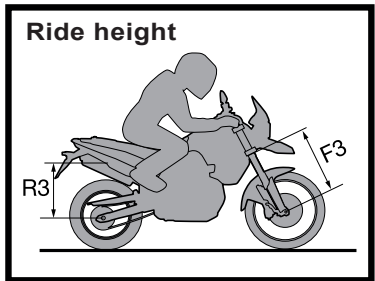
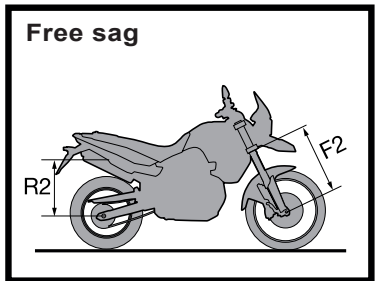
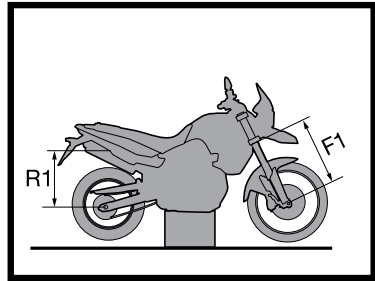
# 3 SETUP

## Measure sag

Spring preload - Free sag - Ride height

The spring preload directly affects the front fork angle and the motorcycle height. Therefore, when you setup your motorcycle the spring preload should be one of the first things to check.

1. Perform this procedure on a flat surface.
2. Place the motorcycle on a work stand so that both wheels are off the ground and the suspension is unloaded.
3. Use a piece of tape and mark a point immediately above the rear wheel axle.
4. Measure the distance from the marked point to a fixed point, for example the wheel axle (R1).
5. Measure the distance from the bottom of the upper triple clamp to a fixed point, for example the front wheel axle (F1).
6. Place the motorcycle on the ground so that the front and the rear suspension are slightly compressed.
7. Repeat the measure procedures (R2 and F2). Sit on the motorcycle in normal riding position and properly equipped in full riding gear. Repeat the measure procedure (R3 and F3).



Note measures			
R1		F1	
R2		F2	
R3		F3	

### Recommended measures

If no other recommendations are given in the Mounting instructions for your product, see the table below for recommended measures.

Sag pos.	Formula	Rec.
Free sag	$\frac{(F1-F2)}{\text{wheel travel}} \times 100$	~15-30 %
Ride height	$\frac{(F1-F3)}{\text{wheel travel}} \times 100$	~20-40 %

If the measures differ significantly you may need to adjust the spring preload or change the springs. Preload adjustment is not possible on all kits, please see the Mounting Instructions for your kit to find out more or contact an authorized Öhlins service center for advice.

### 👁 Note!

*On some FKC-kits you cannot adjust the spring preload.*

### ⚠ Warning!

*An incorrect spring rate can give a faulty front geometry leading to under or over steering and seriously affect the ground clearance and vehicle handling.*

# 4 INSPECTION AND MAINTENANCE

Preventive maintenance and periodic inspection procedures help to keep the front fork in proper condition. For additional service, please contact an authorized Öhlins service center.

## **⚠ Caution!**

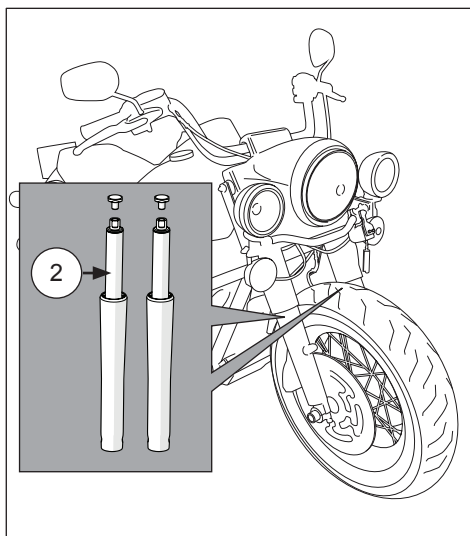
*Do not use strong detergents that can damage the front fork surfaces. Thinner and brake cleaner will dry out seals, increase the risk of friction, oil leakage and poor function.*

## **⚠ Caution!**

*Use Öhlins High Performance Front Fork fluid 01309-xx.*

### **Inspection points**

1. Examine the fork leg for external oil leakage.
2. Examine the inner fork leg for scratches, dents or other defects that can damage the seal and/or bushing.
3. Examine the fender brackets and the brake calliper attachments.
4. Examine the front fork attachments to the vehicle.



### **Inspection intervals**

Once a year or every 5000km.

### **Service interval**

Every second year or every 20 000 km.

Service at an authorized Öhlins service center.

### **Disposal**

Hand over your discarded Öhlins products to an authorized Öhlins service center for proper disposal.

Your Öhlins retailer:



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Box 722  
SE-194 27, Upplands Väsby  
Sweden

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