



FG 620, FG 621

Front fork conventional 43

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. More than three 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 since 1976 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 FRONT FORK

Introduction

The product in your hand is an artwork, prepared by our dedicated craftsmen at our facility in Upplands Väsby, Sweden. Its predecessors have battled their way on numerous race tracks in World Superbike, Supersport, Superstock and AMA and the legacy continues in your front fork. Thousands of hours have been spent together with some of the best teams in the world to find the optimal design and functionality to give you as much performance, comfort and confidence as possible. You will feel the difference...be sure.

Design

The DNA of this front fork originates in the most prestigious race series in the world. We have used exclusive racing components from our R&D department to increase the performance of the front fork. Our engineers that work on a daily basis with the top riders in the world often hear the word "feeling" and "control" when they debrief after tests and races.

We wanted to pour as much of these important factors into your front fork and, as a result, the front fork gives you improved "brake support" and "tire feel" when riding. For all of you that have your mind set on doing some serious racing we have some really good news.

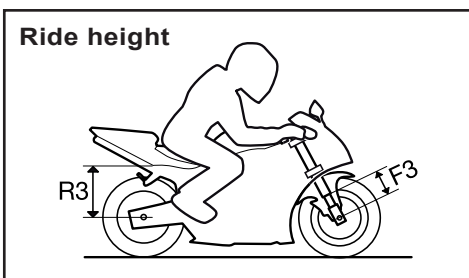
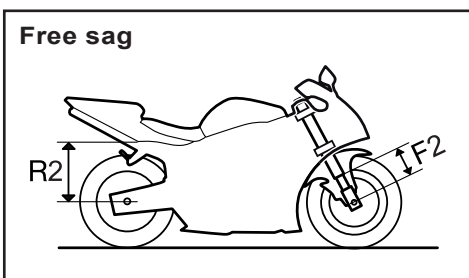
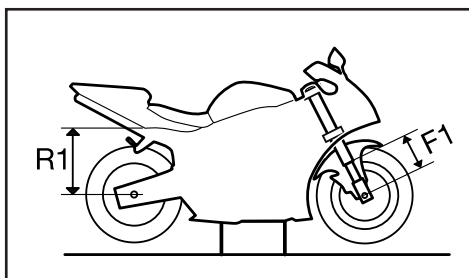
2 SETTING UP YOUR FRONT FORK

Measure sag

Main spring preload - Free sag - Ride height

The main spring preload directly affects the front fork angle and the motorcycle height. Therefore, when you setup your motorcycle the main 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 straight above the rear wheel axle.
4. Measure the distance from the marked point to a fixed point, for example the wheel axle (R1). When measuring, make sure that the shock absorber is fully extended.
5. Measure the distance from the wheel axle to a fixed point, for example to the outer tube (F1). When measuring, make sure that the front fork is fully extended.
6. Place the motorcycle on the ground so that the front and the rear suspension are slightly compressed.
7. Repeat the measurement procedures (R2 and F2). Sit on the motorcycle in normal riding position and properly equipped in full riding gear. Repeat the measurement procedures (R3 and F3).



Note measurements			
R1		F1	
R2		F2	
R3		F3	

Recommended measurements

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 measurements differ significantly you may need to adjust the main spring preload or change the springs. Please see the Mounting Instructions for your front fork to find out more or contact an authorized Öhlins service center for advice.

⚠ Warning!

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

3 ADJUSTMENTS

3.1 - Adjusters

• Compression damping adjuster

Left hand side front fork leg.

• Rebound damping adjuster

Right hand side front fork leg.

Adjust Compression and Rebound;

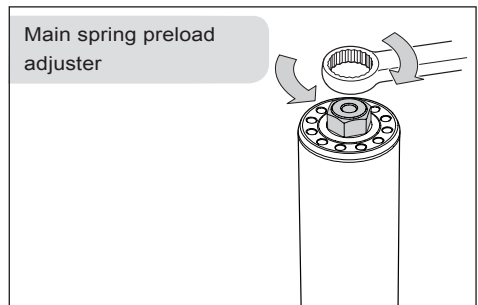
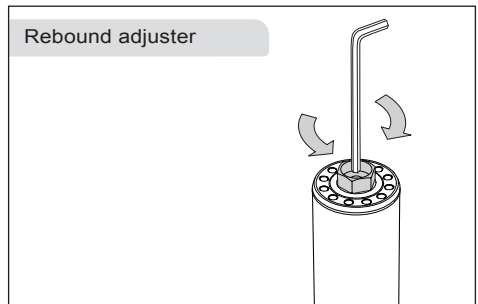
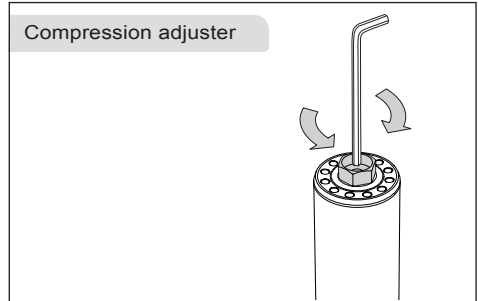
Use a 3 mm hex key. Adjustment range from fully closed valve (clockwise) to fully open valve (counterclockwise) is about 25 “clicks”. Set the recommended “clicks” from closed position according to the Mounting Instructions for your product.

• Main spring preload adjuster

Use a 17 mm wrench to turn the outer adjuster. Maximum adjustment range is 15 mm. Turn clockwise to increase and counterclockwise to decrease the preload. One turn corresponds to 1 mm change in preload.

3.2 - Main spring

Due to variations in ride style, track conditions, body shape etc. the main spring is often a subject for additional fine-tuning.



3 ADJUSTMENTS

3.3 - Suspension fluid level

⚠ Caution!

Use only Öhlins high performance suspension fluid (01309-xx).

Suspension fluid level diagram

The diagram below shows reaction force curves at two different fluid levels. A change in the fluid level will mainly affect the air spring force and rate at the end of the front fork travel.

High fluid level

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

Low fluid level

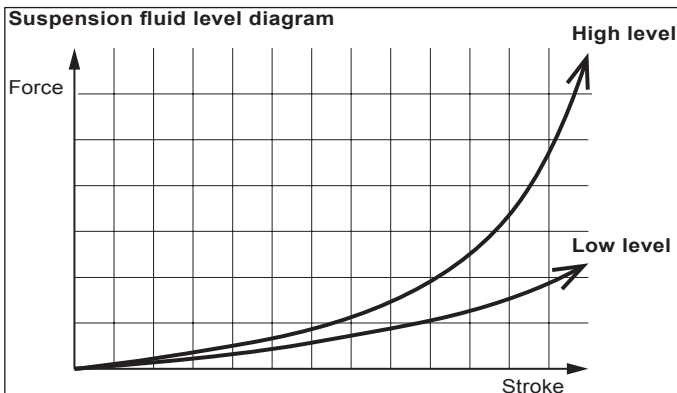
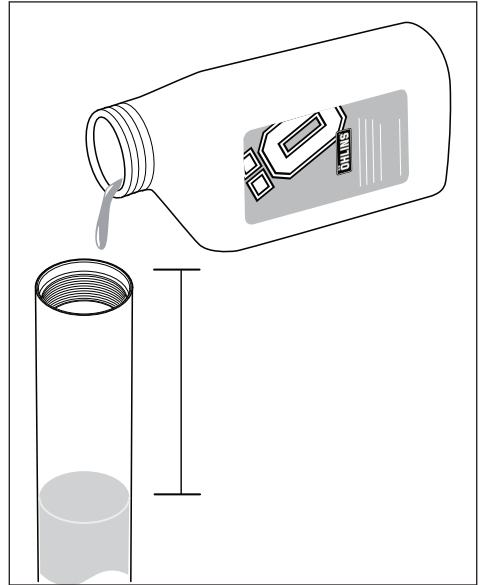
The air spring in the later half stage of travel is lessened which makes the front fork more linear.

Adjust suspension fluid level

👁 Note!

When measuring fluid level, remove main spring and associated parts according to chapter 4, make sure shaft assembly and outer tube are in their bottom positions. Measure fluid level with a ruler. See set-up data and suspension fluid level-force diagram in the Mounting Instructions.

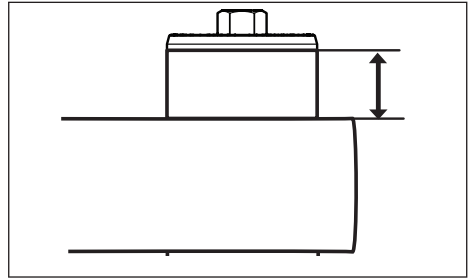
The diagram in the Mounting Instructions shows several curves where each curve corresponds to a specific fluid level. For recommended fluid level, see the Mounting Instructions. **If the Mounting Instructions was not included with your Front Fork, please contact an Öhlins dealer.**



3 ADJUSTMENTS

3.4 - Front fork leg position

The front fork leg position changes the ride height at the front. To measure the front fork leg position; measure the distance between the outer tube and the upper triple clamp. For recommended front fork leg position, see the Mounting Instructions.



4 CHANGING THE MAIN SPRING/S AND CHECKING OR ADJUSTING THE FRONT FORK FLUID LEVEL

⚠ Warning!

This procedure requires high technical knowledge and/or experience of working with front forks. If you feel any insecurity regarding this procedure, contact an Öhlins dealer for advice. See the Vehicle Service Manual.

⚠ Warning!

Spring compression creates a potential danger because of the violent force that loaded springs are capable of. Beware of this when you work with the front fork.

1

Put the motorcycle on a workstand so that the front wheel barely touches the ground.

⚠ Warning!

Make sure the vehicle is securely supported so that it will not fall over.

2

Remove front fender, brake calipers, speed sensor (if present) and front wheel.

3

Release main spring preload by turning adjuster counter clockwise until it stops.

[17 mm wrench]

4

Note front fork leg position.

5

Loosen upper triple clamp.

6

Loosen (do not remove) top cap ½ turn.

[00797-09 top cap tool]

7

Loosen lower triple clamp.

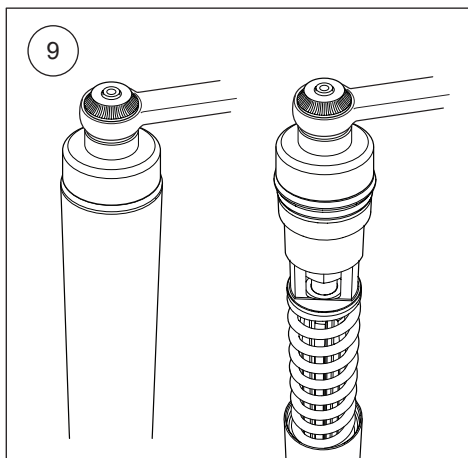
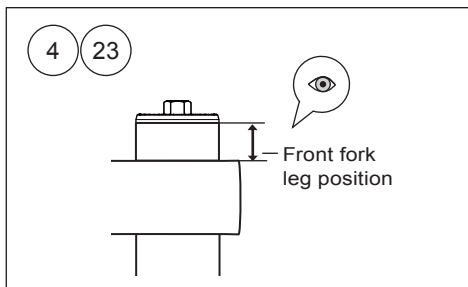
8

Remove front fork legs from triple clamps.

9

Loosen top cap from inner tube.

[00797-09 top cap tool]



4 CHANGING THE MAIN SPRING/S AND CHECKING OR ADJUSTING THE FRONT FORK FLUID LEVEL

10

Loosen top cap and remove it from shaft.
[17 mm and 19 mm wrench]

11

Remove adjustment rod.

12

Remove nut and spring seat from shaft.

13

Remove main spring from front fork leg.

14

Measure suspension fluid level and adjust if necessary, see chapter 3.3.

Suspension fluid level shall be set with preload tube installed.

15

Install special tool on shaft.
[01765-09 shaft extension tool]

16

Install main spring.

17

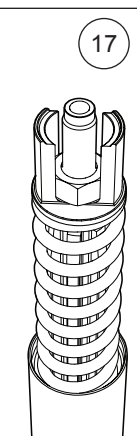
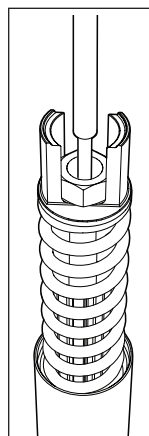
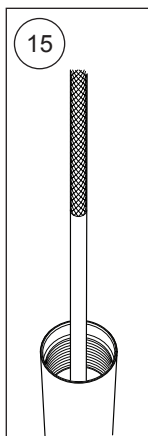
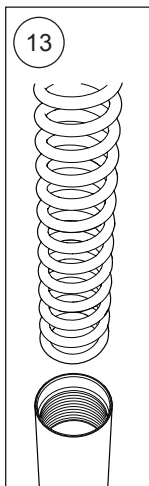
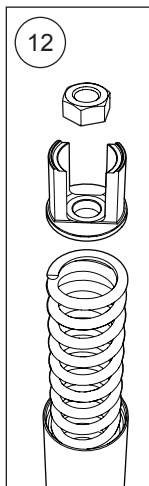
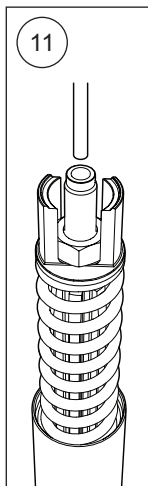
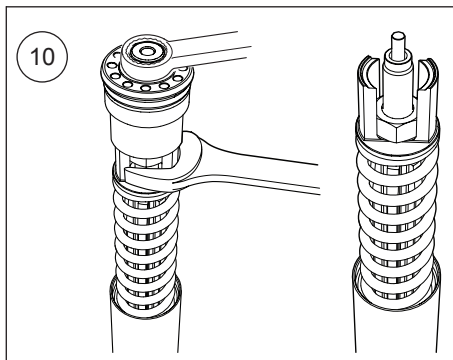
Pull up shaft. Install spring seat and nut. Adjust the shaft nut until bottomed.

18

Remove shaft tool.

19

Make sure compression and rebound bleed and main spring preload adjusters are fully opened, counterclockwise, before installing top cap.



4 CHANGING THE MAIN SPRING/S AND CHECKING OR ADJUSTING THE FRONT FORK FLUID LEVEL

20

Install top cap on shaft until stop

Note!

Make sure the top cap is completely bottomed.

21

Use a tool 17 mm socket for the preload adjuster and a 19 mm wrench to tighten the shaft nut to the top cap.

[torque 16-21 Nm]

22

Install top cap to inner tube at fully extended position.

[torque 15-25 Nm].

23

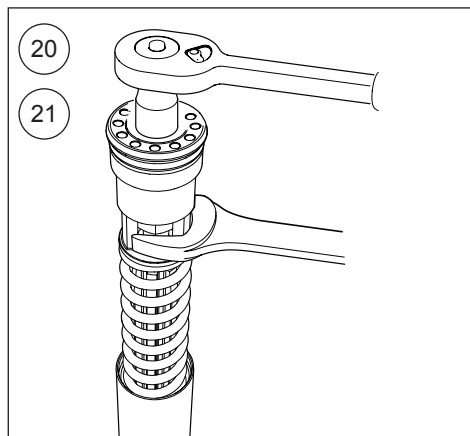
Set compression, rebound and main spring adjusters **[according to chapter setup data in Mounting Instructions]**.

24

Install front fork legs in vehicle at position marked in point 4, or at recommended front fork leg position **[according to chapter setup data in Mounting Instructions]**.

25

Remaining installation **[instructions according to vehicle service manual]**.





5 TECHNICAL SPECIFICATIONS

Compression adjustment

Maximum open valve about 25 clicks.

Rebound adjustment

Maximum open valve about 25 clicks.

Main spring preload adjustment

0 - 15 turns (0 - 15 mm).

Main spring rate

See Mounting Instructions for your specific Front Fork.

Suspension fluid level

See Mounting Instructions for your specific Front Fork.

6 INSPECTION AND MAINTENANCE

Caution!

Use only Öhlins high performance suspension fluid (01309-xx).

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, leakage and poor function.

Inspection points

1. Examine the front fork for external fluid leakage.
2. Examine the front fork inner tube 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 5000 km.

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.



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