Cake Kalk Suspension Manual

ÖHLINS
ADVANCED SUSPENSION TECHNOLOGY

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 continously 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 more than 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 more than 40 years within the racing sport.

The product that you now have in your possession is pure racing breed that is built to withstand.

SAFETY PRECAUTIONS

General Warnings

Note!

The front fork and the shock absorber are important parts 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 the vehicle manufacturer before using the product.

Note!

Öhlins Racing AB can not be held responsible for any damage to the front fork, shock absorber, vehicle, other property or injury to persons, if the instructions for usage and maintenance are not followed exactly.

⚠ 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 Cake 0 Emission AB.

Note!

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

⚠ 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, front fork, or to bystanders.

Caution!

The Caution Symbol means: Special precautions must be taken to avoid damage to the front fork and shock absorber.

Note!

The Note Symbol indicates information that is important regarding procedures.

⚠ Warning!

The shock absorber contains pressurized nitrogen gas (N_2). Do not open, service or modify the shock absorber without proper education and proper tools. Service must only be done by an authorized Öhlins service center.

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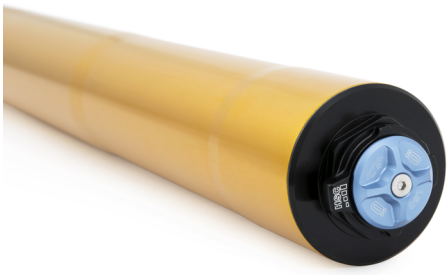
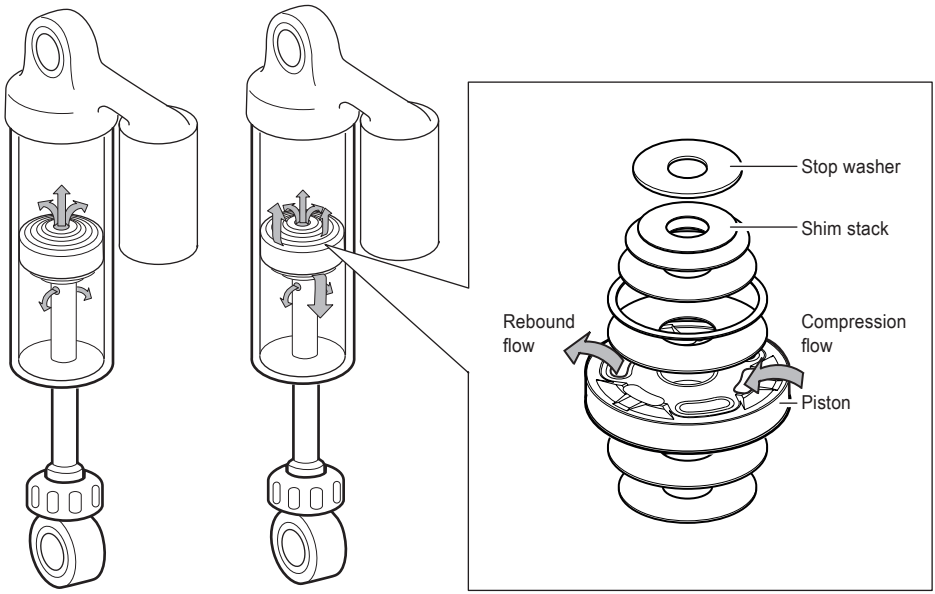


Compression damping

When movement of the motorcycle causes compression of the front fork/shock absorber, the fluid flows through the needle valve (combined compression and rebound valve) in the piston rod. If the velocity of the compression movement is high, i.e., in the case of rapid compression, this will not be sufficient and consequently the shims underneath the piston will open to allow for a greater rate of flow. The fluid that is displaced by the volume of the piston rod is forced into the external reservoir via a separate compression valve. The separating piston is displaced, thus increasing the gas pressure.

Rebound damping

When the spring forces the front fork/shock absorber to extend again, the fluid flows back through the needle valve. The fluid flowing into the chamber is forced by the pressure of the gas back into the front fork/shock absorber via a separate non-return valve. If the piston velocity is high, the shims on top of the piston will also open to allow the fluid to flow through.



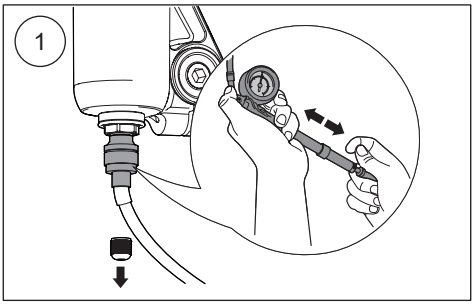
FRONT FORK FFCA
AIR SPRING PRESSURES

To set the air pressures

Put the motorcycle on a stand so the front wheel is off the ground.

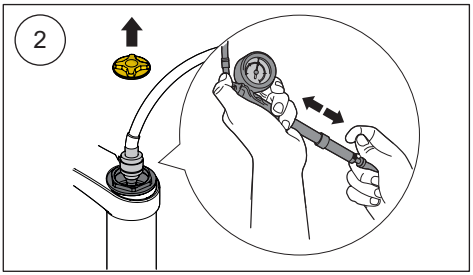
1. Set ramp up chamber air pressure (If existing on your fork)*

Unscrew the cap on the bottom of the right front fork leg and connect the air pump to the lower valve (ramp up chamber). Pump to recommended pressure. Disconnect the air pump and tighten the air cap.



2. Set main chamber air pressure

Unscrew top air cap on the right front fork leg and connect the air pump to the main chamber valve. Pump to recommended pressure. Compress and extend the fork 10 times to equalize the pressure in the fork leg. If the pressure has decreased, then pump to recommended pressure. Disconnect the air pump and tighten the air cap.
The recommended pressures can be seen in chapter Setup Data.



⚠ Warning!

Maximum pressure

FRONT FORK FFCA		
Lower valve (ramp up chamber) pressure*	250	psi
Top air cap (main chamber) pressure	160	psi

* The ramp up chamber pressure is only necessary to be set on the first generations of front forks: FFCA 101 and FFCA 102 (There is no lower air pressure valve on FFCA 103).

FRONT FORK FFCA DAMPING ADJUSTERS

Compression damping controls the energy absorption when the front fork is being compressed, thus controls how easily the front fork compresses when you hit a bump.

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

To set the adjusters

Turn the adjuster clockwise to fully closed position. Then, turn counter clockwise to open, and count the clicks until you reach the recommended number of clicks. The recommended number of clicks can be seen in chapter Setup Data.

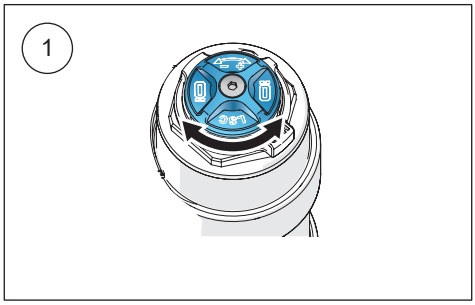
Caution!

Turn gently not to damage delicate sealing surfaces. Tighten with your hand only.

Compression damping adjuster

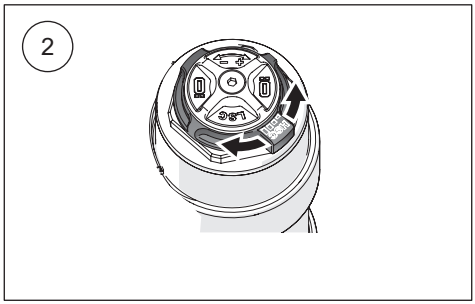
1. Adjust low speed

To adjust, turn the blue coloured adjuster on the top of the left front fork leg. Turn clockwise to increase damping, turn counter clockwise to decrease.



2. Adjust high speed

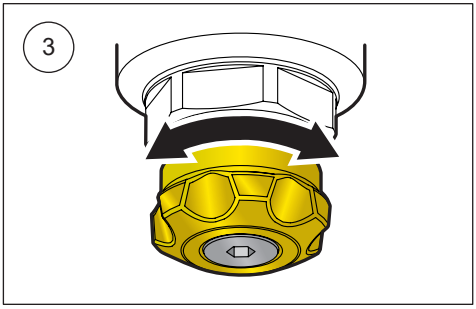
To adjust, turn the black coloured adjuster on the top of the left front fork leg. Turn clockwise to increase damping, turn counter clockwise to decrease.



Rebound damping adjuster

3. Adjust rebound

Turn the gold coloured adjuster on the bottom of the left front fork leg. Turn clockwise to increase damping, turn counter clockwise to decrease.



SHOCK ABSORBER TTX22M
SPRING PRELOAD

To set spring preload

Put the motorcycle on a stand so the rear wheel is off the ground.

1

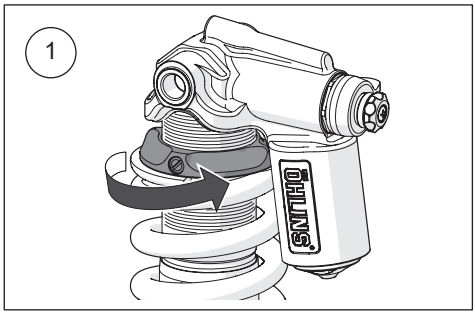
Loosen the plastic stop screws and turn the spring seat to move it towards the cylinder head, until the spring seat is free from the spring.

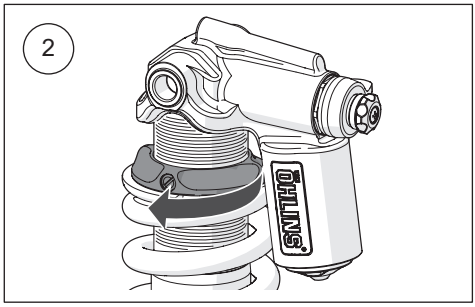
2

Turn the spring seat against the spring.
Set the recommended preload according to the chapter Setup Data. Gently tighten the plastic stop screws to lock the adjuster in place.

Note!

Very low torque is required to achive the required function.





SHOCK ABSORBER TTX22M
DAMPING ADJUSTERS

Compression damping controls the energy absorption when the shock absorber is being compressed, thus controls how easily 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

The adjusters have a normal right hand thread. Turn the adjuster clockwise to fully closed position (position zero [0]). Then, turn counter clockwise to open, and count the clicks until you reach the recommended number of clicks. The recommended number of clicks can be seen in chapter Setup Data.

Caution!

Turn gently not to damage delicate sealing surfaces. Tighten with your hand only.

Compression damping adjuster

1. Adjust low speed

To adjust, turn the blue colored adjuster on the side of the cylinder head. Turn clockwise to increase damping, turn counter clockwise to decrease.

2. Adjust high speed

To adjust, turn the black colored adjuster on the side of the cylinder head.

Position	Damping level
1	soft
2	medium
3	hard

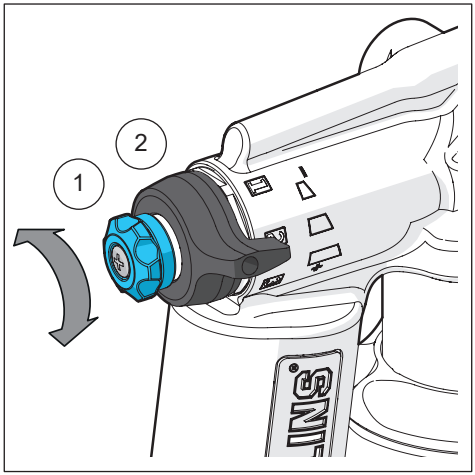
Rebound damping adjuster

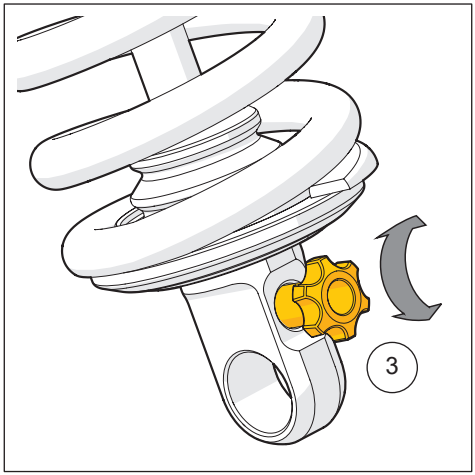
3. Adjust rebound

Turn the gold colored adjuster on the end eye/ bracket. Turn clockwise to increase damping, turn counter clockwise to decrease.

Note!

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





SETUP DATA

Recommended setup

FRONT FORK FFCA		
Lower valve (ramp up chamber) pressure	250	psi
Top air cap (main chamber) pressure	140	psi
Low speed compression	7	clicks
High speed compression	2	position
Rebound	7	clicks

SHOCK ABSORBER TTX22M		
Spring preload	3	mm (turns)
Low speed compression	7	clicks
High speed compression	2	position
Rebound	3	clicks

⚠ Warning!

Maximum pressure

FRONT FORK FFCA		
Lower valve (ramp up chamber) pressure	250	psi
Top air cap (main chamber) pressure	160	psi

Maximum preload

SHOCK ABSORBER TTX22M		
Spring preload	9	mm (turns)

Maintenance and regular inspection reduces the risk of poor performance. If there is any need for additional service, contact an authorized service center.

Cleaning

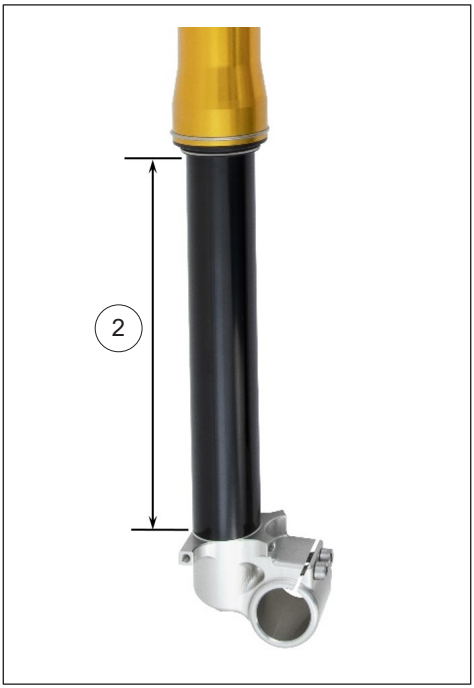
Clean the front fork and the shock absorber externally with a mild detergent. Use compressed air. Make sure to remove all dirt after every ride. Lift the shock absorber´s bump rubber and clean the area below. Keep the shock absorber clean and spray it with oil (WD40, CRC 5-56 or equivalent) after washing.

Caution!

Do not spray water directly on the adjuster knobs.

Caution!

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



FRONT FORK FFCA

Maintenance		Interval
1	Check the air pressure and the front fork for external fluid leakage.	Every ride
2	Put the bike on a stand with the front wheel hanging of the ground and measure the visible inner tube length.	Every ride
3	Check the front fork inner tube for scratches, dents or other defects that can damage the seal and/or bushing.	Every ride
4	Check the fender brackets and the brake calliper attachments.	Every ride
5	Check the front fork attachments to the vehicle.	Every ride

Service	Interval/ Criteria
Air spring service	Visible inner tube length is less than 195 mm
Trail riding offroad, full service	50 hours / annually
Public road, full service	10 000 km / annually

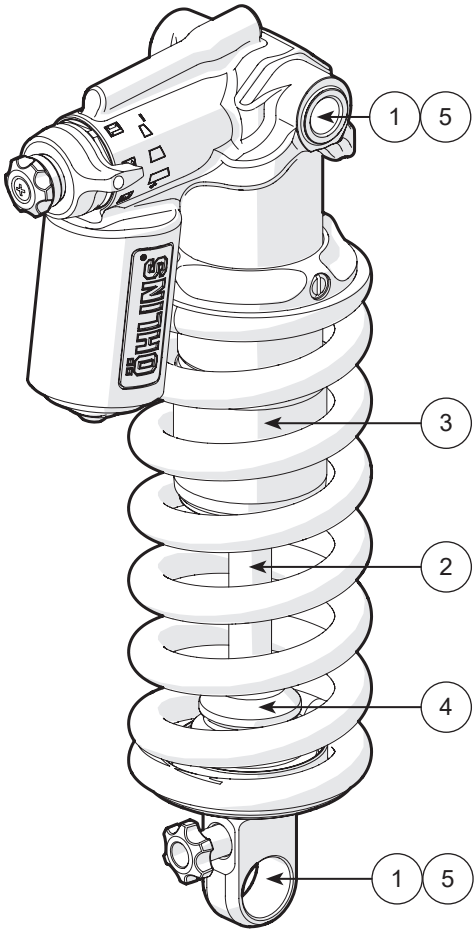
Shock absorber TTX22M

Note!

The Öhlins shock absorber must only be filled with Öhlins Shock Absorber Fluid, part no. (01304-01). Contact an authorized service center for advice.

⚠ Warning!

Do not change the gas pressure. Proper Knowledge, special purpose charging equipment and access to nitrogen is required.



Maintenance		Interval
1	Check the mounting hardware for possible excessive play or stiction.	Every ride
2	Check the piston shaft for leakage and/or damage.	Every ride
3	Check the shock absorber body for external damage.	Every ride
4	Check the rubber components for wear.	Every ride
5	Check the attachment points of the shock absorber to the vehicle.	Every ride

Service	Interval
Trail riding offroad	50 hours / annually
Public road	10 000 km / annually

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