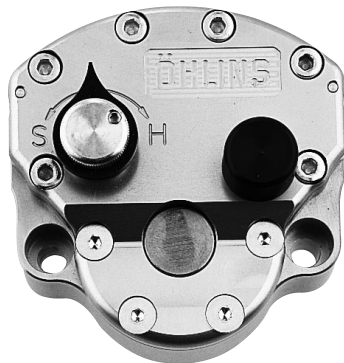


Owners Manual

MX & Enduro steering dampers SD 410, 420



Including:

Safety

Design
features

Basic
adjustments

Technical
information



Safety signals

Important information concerning safety is distinguished in this manual by the following notations:



*The Safety alert symbol means:
Caution! Your safety is involved.*

⚠ WARNING!

*Failure to follow warning instructions could result in **severe or fatal injury** to anyone working with, inspecting or using the suspension, or to bystanders.*

CAUTION!

Caution indicates that special precautions must be taken to avoid damage to the suspension.

NOTE!

This indicates information that is of importance with regard to procedures.

Introduction

Öhlins steering dampers are designed to withstand very tough treatment in conjunction with competitions. Many years experience and close cooperation with World Championship teams in motocross and enduro has helped us develop unique know-how.

Before installation

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

Similarly, the warranty will become null and void if the instructions are not adhered to.

© Öhlins Racing AB.

All rights reserved.

Any reprinting or unauthorized use without the written permission of Öhlins Racing AB is prohibited.

Printed in Sweden.

▲ WARNING!

1. Installing a steering damper, that is not approved by the vehicle manufacturer, may affect the stability of your vehicle. Öhlins Racing AB cannot be held responsible for any personal injury or damage whatsoever that may occur after fitting the steering damper. Contact an Öhlins dealer or other qualified person for advice.

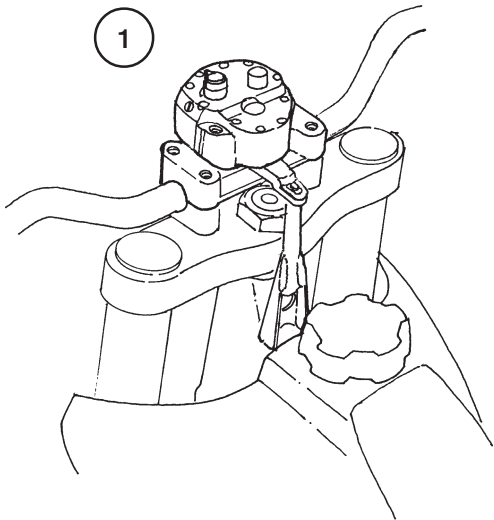
2. Please study and make certain that you fully understand all the mounting instructions and the owners manuals before handling this steering damper kit. If you have any questions regarding proper installation procedures, contact an Öhlins dealer or other qualified person.

3. The vehicle service manual must be referred to when installing the Öhlins steering damper.

Öhlins products are subject to continual improvement and development. Consequently, although these instructions include the most up-to-date information available at the time of printing, there may be minor differences between your suspension and this manual. Please consult your Öhlins dealer if you have any questions with regard to the contents of the manual.

NOTE!

During storage and transportation, especially at high ambient temperature, the oil and grease used for assembling may run out inside the packing and damage the expanded polystyrene packing material. This is not unusual and is in no way detrimental to the steering damper.



NOTE!

To avoid leakage of fluid, never open more than two whole turns. If damper pressure is off, ie, position 12 - 15, there will still be damping action in the event of fast movements because the high-speed valve will come into action.

Design

The Öhlins steering damper is a hydraulic damper that counteracts wobble, alleviates shock against the front wheel and prevents head shake/cast by the motorcycle, which gives safer riding.

The damper is fitted on the upper fork crown, in the centre over the steering stem (fig.1). When turning, and in the event of wobbling, shock, etc, the link arm of the damper is twisted, thus forcing fluid through three independently acting valve systems in the damper cover.

Setting

The steering damper has three external setting possibilities, ie, setting of the damper valve, high-speed valve and sweep valve, which regulate the damping area (fig.5).

Damper valve

Öhlins steering damper is delivered with the damping valve set in a basic position that gives maximum basic damping. For enduro and motocross it is suitable to set the damping valve in position 4-8, depending on the track and the rider.

Turn clockwise to increase damping and anticlockwise to reduce it (fig.6).

High speed valve

The high-speed valve (fig.7) is set between 1 1/4 to 2 turns from the bottom position, suitable for enduro, motocross and off-road. For all riding, the high-speed valve must be set screwed up at least 1 turn from the bottom.

Damping sweep controls

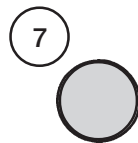
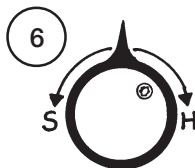
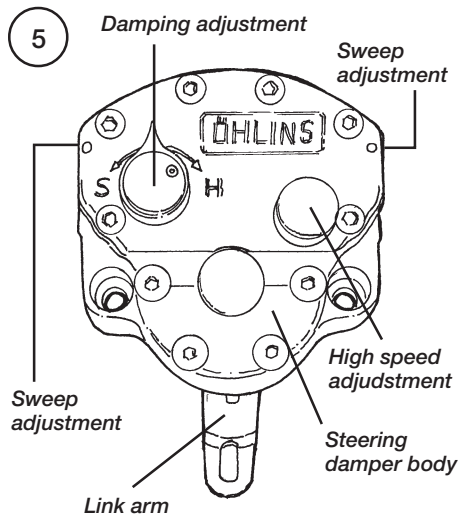
Damping sweep controls (fig.8) are located on each side off the damper body. Damping is in position 2, (12 o'clock), when delivered from Öhlins. This setting is fitted for enduro, motocross and off-road driving.

WARNING

Always ensure that valve setting is within the permitted ranges.

NOTE!

*Both damping sweep controls must always be set in identical positions.
Always use positions according to the clock.*



Sweep control valve

Located on the side of the unit

Position 1
9 o'clock



Position 2
12 o'clock



Position 3
3 o'clock



Position 4
6 o'clock



8

Damping range



Position 1
Damping 34°



Position 2
Damping 44°



Position 3
Damping 54°



Position 4
Damping 90°

Suitable starting position:

Motocross
Enduro
Off-Road

pos.1 or 2
pos.2 or 3
pos.2, 3 or 4

Maintenance and inspection

The steering damper is a precision instrument, with extremely fine tolerances. It is therefore essential that it is maintained in a correct manner. Maintenance and service should be carried out by an authorised agent.

- After washing the motorcycle wipe clean and spray with all-round oil.

NOTE!

Never subject to direct high-pressure flushing because water may otherwise penetrate the damper.

Ensure that there is no leakage of fluid.

Ensure that there is no visible damage to the housing and mounts.

Change the fluid regularly. In new dampers after 10 hours riding and then every 20 hours riding.

Use only recommended fluid that is tested and approved by us. We cannot guarantee fully acceptable operation using other fluids.

NOTE!

Regular maintenance and inspection counteracts possible malfunction.

If the steering damper needs service, Öhlins agents have the proper tools and know-how to solve all technical problems.

Technical data

External measures

Seals

Oil

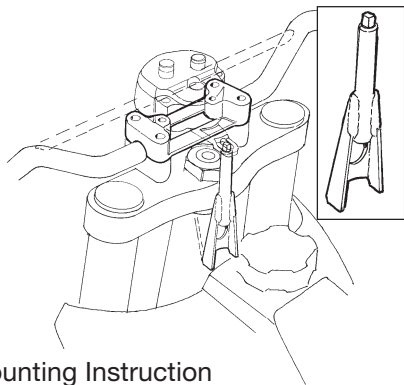
70x70x35 mm

Low friction type

Öhlins part no.

01306-01

Weld-on tower for Öhlins Off Road steering dampers



Mounting Instruction

- 1 Remove the original upper handlebar mounting clamps and the fuel tank of the motorcycle.
- 2 Install the one-piece upper handlebar mount provided. Tighten the bolts evenly to allow fine adjustment later. Keep the gap equal as shown in figure. According to the handle bar clamp mounting instruction.

8

3

Install the damper to the new handlebar mount. Use the two Allen bolts provided.

NOTE!

If the damper does not fit between the main bar and the crossbar, bow or bend the crossbar slightly to allow clearance. Minimum 40 mm is required.

4

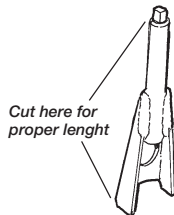
With the damper fitted and the handlebar bolts evenly seated, hold the weld-on tower temporarily in position. Mark where it must be cut for perfect fit between the frame and the link-arm of the damper.

NOTE!

The "tower pin" is not to be installed into the tower yet.

5

The weld-on tower can be cut at either end for proper length. Cutting at the top is usually the easiest way. Sometimes grinding at the base of the tower to match the frame is required.



CAUTION!

When installed the tower pin must reach 0.5 mm above the upper surface of the link-arm. This is specially important when handlebar has rubber mounted lower mounts, where handlebar is allowed to flex downwards. If the link-arm touches the frame bracket the damper can be damaged.

CAUTION!

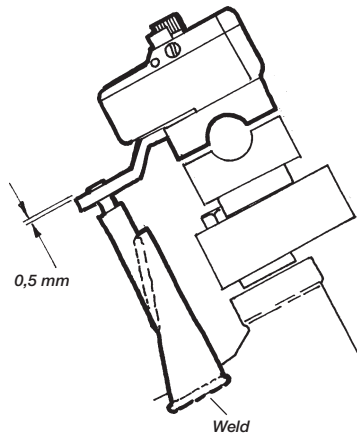
The weld-on tower is made of steel and can be welded with standard welding rod. This should be carried out by qualified personnel. Tig welding is preferred.. Gas welding requires carefull protection of the bearings and seals of the triple clamps.

6

With tower cut to correct height, deburr the hole in top before installing the tower pin. Grease the pin slightly before installation.

7

Weld the tower to the frame (tig welding recommended). Make welds om both sides of the tower. (A tower of correct height will need no additional holding devices to the frame)



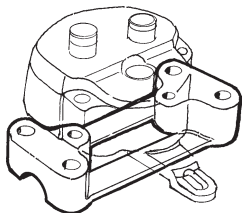
CAUTION!

To gain a strong weld it is of importance to carefully remove paint and debris.

WARNING!

Certain modifications can be necessary to install the weld-on tower. It is vital that the mounting instructions are carefully followed.

Handlebar clamp for Öhlins Off Road steering damper



Mounting instructions

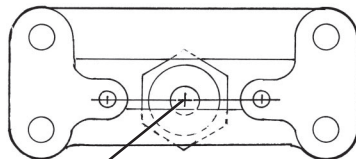
- 1 Replace the stock handlebar upper brackets mount with the handlebar clamp provided.

CAUTION!

It is vital that the centre of the steering damper mounting bolts are aligned with the centre of the steering stem

- 2 When the lower handlebar brackets are reversible, the brackets must be positioned according to the above mentioned caution.

Handlebar clamp



2

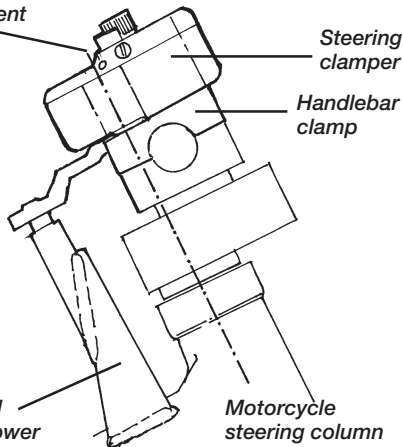
Alignment

Steering
clamper

Handlebar
clamp

Weld
on tower

Motorcycle
steering column



Steering damper

1

Attach the steering damper with the bolts enclosed.

NOTE!

The steering damper link arm should be at least 0.5 mm below the upper edge of the lower pin.

2

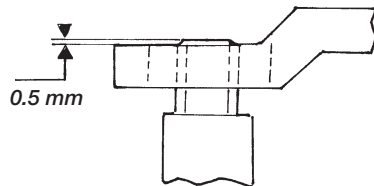
It is possible to make smaller adjustments with the four bolts holding the handlebar clamps. If the front bolts are tightened and the rear bolts are slackened the distance is decreased and vice versa.

NOTE!

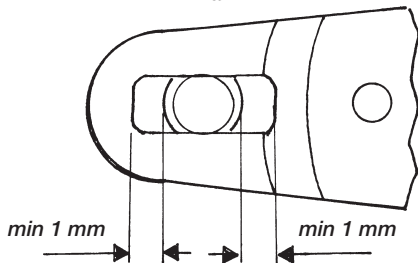
Ensure that the pin is in the middle of the link arm groove (fig.3).

CAUTION!

Make certain that the steering stops are working properly. If the damper acts as a stopper it can be damaged.



Link arm



NOTE!

Make sure that all bolts are tightened to the correct torque and that nothing fouls or restricts the handlebar when being turned to each side. When testing, the damper adjuster must be in soft damping position)



ADVANCED SUSPENSION TECHNOLOGY

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

Phone +46 8 590 025 00, fax +46 8 590 025 80.

E-mail: info@ohlins.se

www.ohlins.com