

O.L / Single Shot 2

Technical Manual

V2015.09_EN

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1 General

Validity

This manual describes the component specified on the front page and the footer. It is valid for the construction level of the component on the 2015-09-09. Deviations are possible and all items are subject to technical changes.

Safety

The safety instructions are classified as follows:

DANGER

...indicates a hazardous situation that, if not avoided, will result in death or serious injury.

CAUTION

...indicates a hazardous situation that, if not avoided, could result in a minor or moderate injury.

NOTICE

...indicates information considered important, but not hazard-related.



...characterizes further information, or information which supplement the respective steps.

Target Group

This manual is intended for end users and dealers.

It offers the possibility for experienced users to carry out small maintenance works on their own. If there are any doubts concerning the own skills, a DT Swiss service center should be contacted.

Warranty will expire if works are not done properly.

Layout

The cover page and the footing provide information about the type of product and manual as well as the version of the manual.

The backside provides a list of the DT Swiss service centers. A list of all DT Swiss service centers can be found at www.dtswiss.com.

This manual is intended for being printed as an A5 booklet. Only print this manual if electronic usage is not possible.

DT Swiss Manual Concept

The DT Swiss manuals are split into the following types of manuals:

- User Manual
Information for the end user on how to install and use the component.
- Technical Manual
Detailed information for the end user and the dealer on how to maintain the component, spare parts and technical data.

How to Use this Manual

The steps described in this manual must be carried out in the order they are shown. If steps are ignored or executed in a wrong order, the function of the component cannot be guaranteed.

Instructions begin with the table «Preparatory Steps» and end with the table «Closing Steps». The instructions in these tables must be carried out.

Moving parts, threads, O-rings and sealings must be greased before assembling.

Cross References

In order to simplify the use of this manual, some text is edited as hypertext. Whenever the text is formatted blue and underlined, it is a reference to a chapter. If the text is formatted black and underlined, it is a reference to a figure. After clicking you will be automatically redirected to the target of the reference.

Example: Click here: [chap. 1, page 4](#) to jump to the beginning of this chapter.

Warranty (Europe)

In addition to the general guarantee required by law, DT Swiss AG based in Biel/Switzerland, provides a guarantee for 24 months from the date of purchase. DT Swiss AG shall reject any liability for both indirect damage caused by accidents and consequential damage.

Any contradictory or extended national rights of the purchaser are not affected by this warranty. Place of performance and jurisdiction is Biel/Switzerland. Swiss law shall apply.

Submit any warranty claims to your retailer or a DT Swiss service center. Any defects recognized by DT Swiss AG as a warranty claim will be repaired or replaced by a DT Swiss service center.

Warranty and guarantee claims can only be made by the original purchaser with a valid sales receipt.

There shall be no claim under the guarantee for:

- Normal wear and tear caused by use of the components
- Incorrect assembly
- Incorrect or nonexistent maintenance
- Incorrectly completed repairs
- Use of unsuitable products
- Modification of components
- Incorrect use or misuse
- Carelessness
- Leasing, commercial use or use in competitions
- Damage caused by accidents
- Delivery and transport damage
- Modification, defacing or removal of the serial number

Limited Equipment Warranty USA

DT Swiss LTD makes every effort to assure that its product meets high quality and durability standards and warrants to the original retail consumer/purchaser of our product that each product is free from defects in materials and workmanship as follows:

2 YEAR LIMITED WARRANTY ON THIS DT SWISS PRODUCT. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities or to a lack of maintenance.

DT SWISS LTD LIMITS ALL IMPLIED WARRANTIES TO THE PERIOD OF TWO YEARS FROM THE DATE OF INITIAL PURCHASE AT RETAIL. EXCEPT AS STATED HEREIN, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS ARE EXCLUDED. SOME STATES MAY NOT ALLOW LIMITATIONS ON HOW LONG THE IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. DT SWISS LTD SHALL IN NO EVENT BE LIABLE FOR DEATH, INJURIES TO PEOPLE OR PROPERTY OR FOR INCIDENTAL, CONTINGENT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OF OUR PRODUCTS. SOME STATES MAY NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

To take advantage of this warranty, the product or part must be returned for examination, postage prepaid, to the dealer where you bought the product or to a DT Swiss service center. Proof of purchase date and an explanation of the complaint must accompany the product. If our inspection discloses a defect, DT Swiss will either repair or replace the product or refund the purchase price, if we cannot readily and quickly provide a repair or replacement. DT Swiss will return repaired product or replacement at DT Swiss expense, but if it is determined there is no defect, or that the defect resulted from causes not within the scope of this warranty, then the user must bear the cost of shipping. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Legal venue and place of performance is Biel (Switzerland). Swiss law shall apply. Subject to technical changes. Please keep the user manual and warranty for future use.

1.1 General Maintenance Information

Cleaning

For an optimal result of the maintenance works, every component that will be disassembled must be cleaned. Only cleaners which do not damage the components may be used. Especially the cleaning of O-rings and sealings requires mild cleaners. Always consider the instructions of the respective cleaner.

DT Swiss recommends the following cleaners:

- Motorex Rex
- Motorex Swissclean
- Motorex OPAL 2400, OPAL 3000, OPAL 5000

Use soap water or similar mild cleaners for external cleaning.

Tools

To ensure a damage-free mounting and dismounting of the components, only use the tools which are mentioned in this manual. The tools must be in good order and condition.

The usage of differing tools is up to the user. If components are being damaged by the usage of differing tools, the user is liable.

DT Swiss special tools are precision tools. Damage-free mounting and dismounting of the components can only be ensured, if the tools are working properly and if the conditions of the tools are perfect.

Always keep the tools in their original packaging or adequate devices to save them from damages.

Expendable Material

If special materials like grease or oil are needed, they will be specified in the table «Required Material» at the beginning of a chapter. The symbol «✘» refers to the table «Required Material» in the respective steps.

Environmental Protection

Whenever possible, waste has to be avoided. Waste, especially carbon, lubricants, cleaners and any other fluids must be disposed in an environmentally compatible manner.

Only print this manual if electronic usage is not possible.

Disclaimer

The operations described in this manual should only be performed by experts. The user is liable for any damage or consequential damage caused by wrong maintained or wrong installed components. If you have doubts, please contact a DT Swiss service center.

2 Description

2.1 Spring: NCS (Negative Coil Spring)

DT Swiss forks with NCS (Negative Coil Spring) technology use an air spring consisting of a positive air chamber and a negative steel spring. The negative spring counteracts to the pressure inside the positive air chamber. This way the negative spring improves the response characteristics drastically. The negative spring is designed to achieve a perfect spring rate, and therefore performance, irrespective of the rider weight.

2.2 Damping: Single Shot 2 / O.L

The O.D.L damping unit is a closed system. The damping oil is separated from the air in the fork by a preloaded floating piston. This prevents the oil from foaming and ensures a constant damping performance even on long, rough downhill.

The oil gets in contact with the inner wall of the stanchion. This leads to a better heat dissipation compared to a completely closed cartridge.

2.2.1 Compression

OPEN

Full functionality and sensibility of the fork can be attained in the mode «OPEN». This setup is mostly suitable for downhill, technical and rough uphill and comfortable rides on flat trails.

The low and high speed compression is preset and cannot be changed.

The setup of the low speed compression is rather firm. The sporty rider with an active riding style gets more feedback from the ground.

The firm setup of the high-speed compression leads to a controlled feeling even on hard hits, jumps or steps.

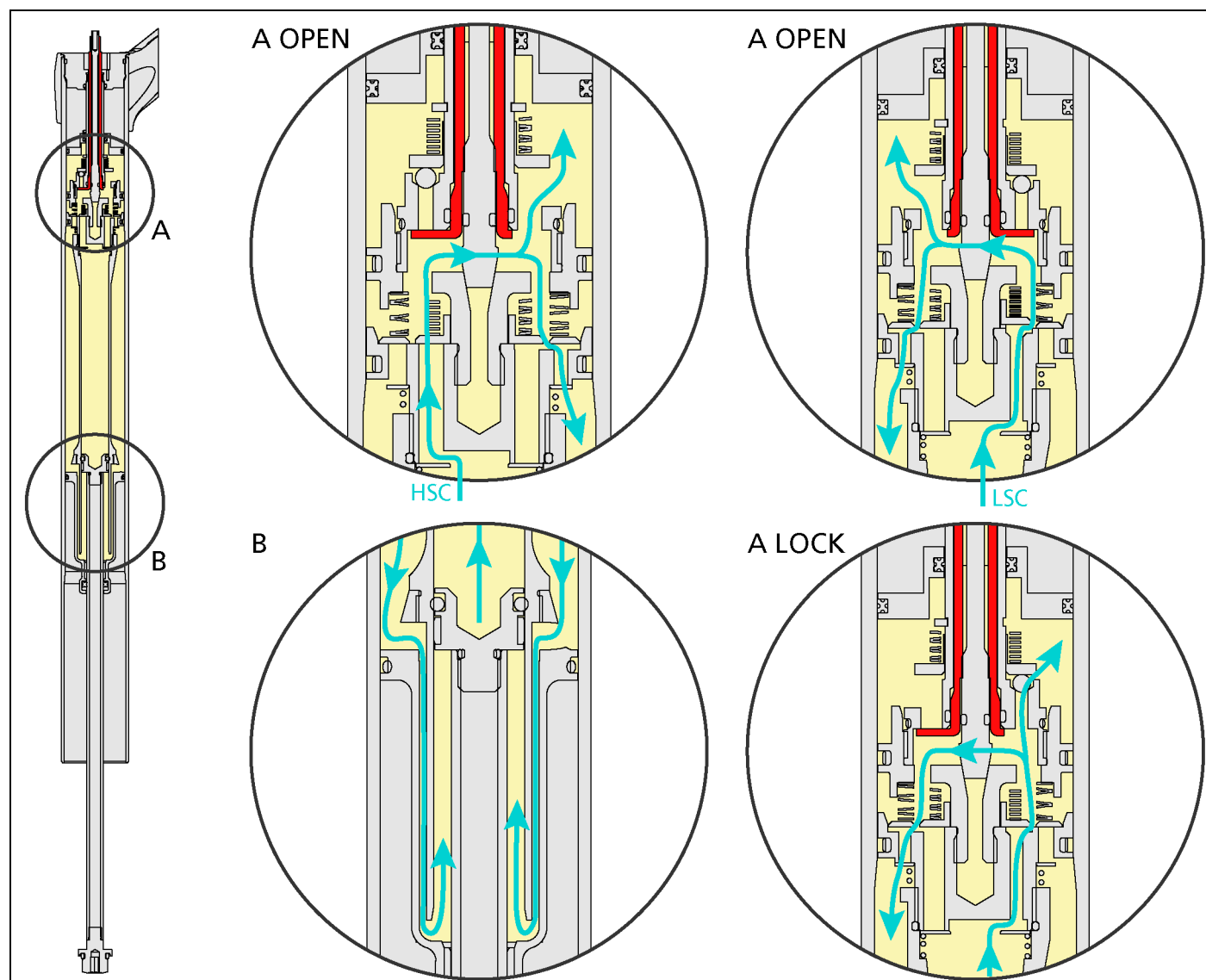
LOCK

The «LOCK» mode blocks the fork in fully extended position. This is mostly suitable for situations where no suspension is needed (for example riding on the road or connecting trails).

System-wise the fork allows a minimum movement due to expansion of the parts under pressure.

A blow-off valve protects rider and material from unexpected hits.

Function of the Compression Damping in Detail



When the fork deflects, the piston inside the oil chamber is pushed upwards. Oil flows through the damping unit. Some of the oil flows back into the space beneath the piston through a one way valve (see B). Thus the volume beneath the piston is smaller than above, only part of the displaced oil can flow into the space beneath the piston. The excess oil is pushed into the upper part of the damping unit. The preloaded floating piston creates a counter pressure to the inflowing oil.

In the «OPEN» mode (see A OPEN) the oil flows through the oil channel of the low-speed compression (LSC). The diameter of the oil channel increases the flowing resistance and is thus responsible for the low speed compression (LSC).

Additionally, the oil flows through the oil channel of the high-speed compression (HSC). A shim is placed at the end of the oil channel. This shim only opens when a defined oil pressure is attained. Oil which cannot flow through the oil channels of the LSC (because of fast deflection of the fork, and thus big displacement of the oil generated by the piston), flows through the oil channels of the HSC.

This ensures separate damping characteristics on small and medium or on fast deflection speeds.

When the «LOCK» mode is set (see A LOCK), a slider closes the oil channel to the upper part of the damping unit. The oil can only flow through the blow-off channel. A preloaded shim at the end of the blow-off channel opens the access to the upper part of the damping unit at a defined oil pressure.

The blow-off itself does not represent a damping function, it protects rider and material from big hits.

2.2.2 Rebound

Low Speed Rebound

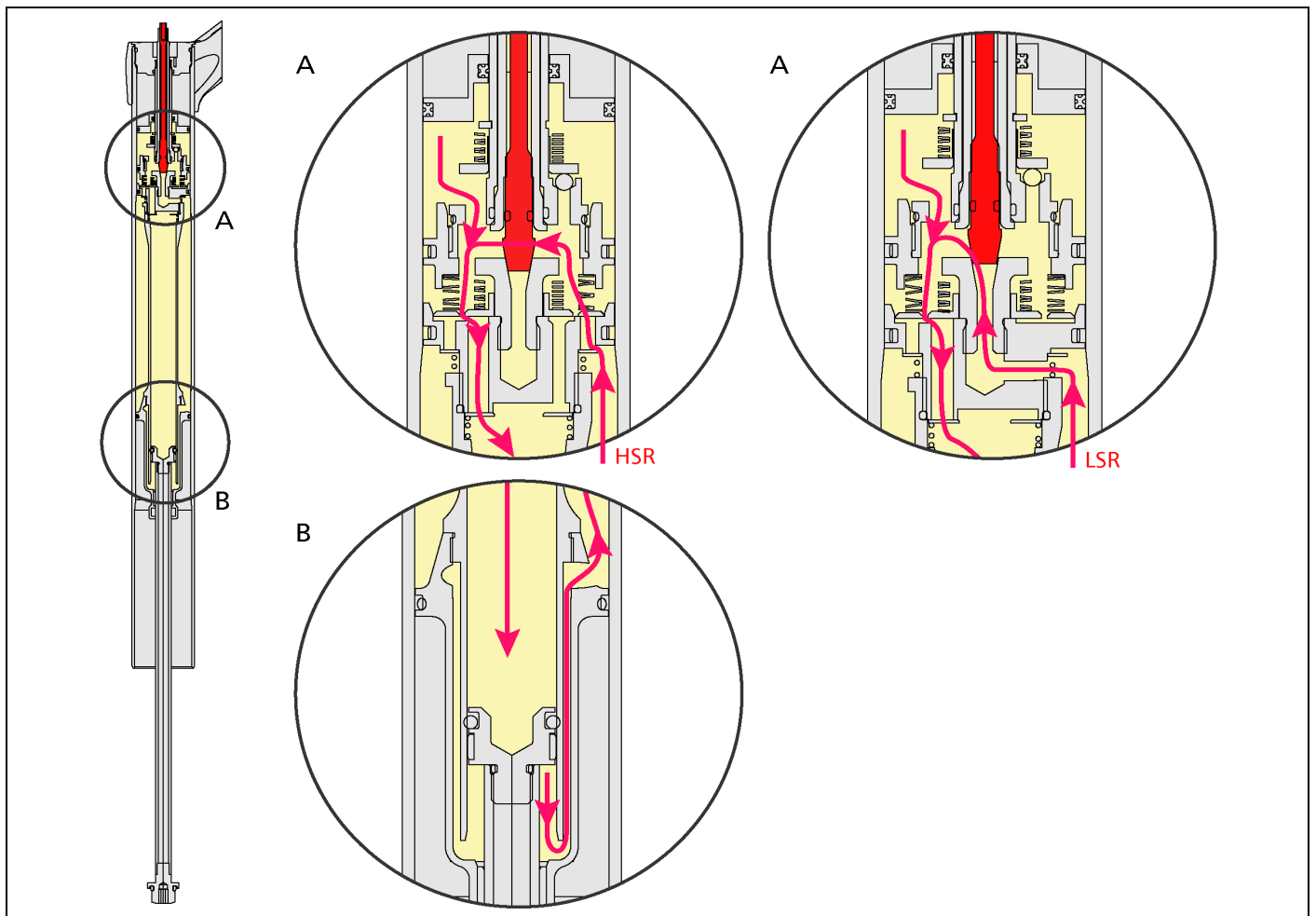
The low speed rebound can be adjusted with the red adjusting wheel on the fork crown (set up, see [chap. 4.2, page 24](#)).

Fast rebound speed after small hits leads to a sensible fork on fast trails and perfect grip in turns because the wheel gets contact to the ground immediately after hits.

High Speed Rebound

Medium rebound speed after big hits enables the fork to be ready for following hits. The rebound speed is not too fast so that the fork gives a controlled feeling after drops and steps.

Function of the Rebound Damping in Detail



The preloaded floating piston pushes the oil from the upper part of the damping unit into the oil chamber when the fork is released. Additionally the oil flows from the space beneath the piston through the damping unit into the space above the piston.

When the fork rebounds slowly, the oil flows through the oil channel of the low-speed rebound (LSR). An adjusting needle, which position can be adjusted with the red rebound wheel, controls the flowing resistance through the LSR oil channel (see A). The higher the flowing resistance, the higher the rebound damping.

Additionally, the oil flows through the oil channel of the high-speed rebound (HSR). A shim is placed at the end of the oil channel (see B). This shim only opens when a defined oil pressure is attained. Oil which cannot flow through the oil channels of the LSR (because of fast deflection of the fork and thus big displacement of the oil generated by the piston) flows through the oil channels of the HSR. This ensures separate damping characteristics on small and medium or on fast rebound speeds.

2.3 Remote Control Elements

2.3.1 Two In One Remote Lever

The Two In One remote lever is available as a single stage and a double stage version. For forks with O.L damping, a single stage or double stage lever can be used.

One single lever can operate a fork and a shock or only one of both.

Compatibility

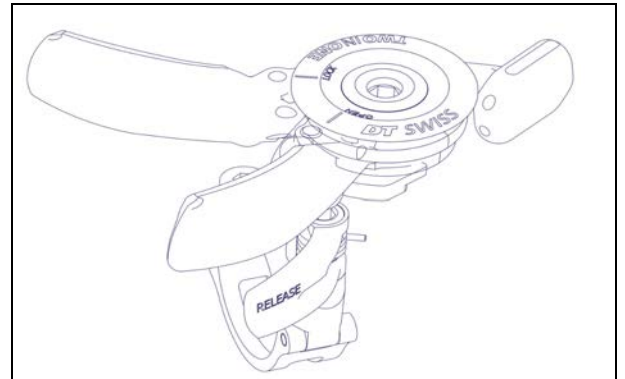
Compatibility and the possible combinations of the remote lever:

Shock	Fork	No DT Swiss Fork	DT Swiss Fork with Single Shot, Single Shot 2 or O.L Damping	DT Swiss Fork with Twin Shot or O.D.L. Damping
No DT Swiss Shock	-	-	Single Stage	Double Stage
M 210	Single Stage	Single Stage	Single Stage	Double Stage
M 212	Single Stage	Single Stage	Single Stage	Double Stage
X 313	Double Stage	Double Stage	Double Stage	Double Stage
X 313 Carbon	Double Stage	Double Stage	Double Stage	Double Stage

Function Single Stage

The single stage lever is designed to operate a DT Swiss fork with Single Shot, Single Shot 2 or O.L. damping system and/or a single stage DT Swiss shock (M 210 and M 212).

The functions of the components in the different positions of the lever can be found in the regarding manuals.

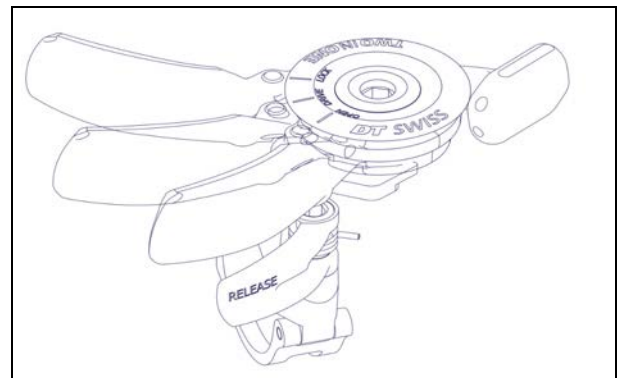


Function Double Stage

The double stage lever is designed to operate a DT Swiss fork with Twin Shot or O.D.L. damping system and/or a double stage DT Swiss shock (X 313 and X 313 carbon).

The double stage lever can also be used for single stage forks and/or shocks. In this case, the middle position has no function.

The functions of the components in the different positions of the lever can be found in the regarding manuals.



2.3.2 Lightweight Remote Lever

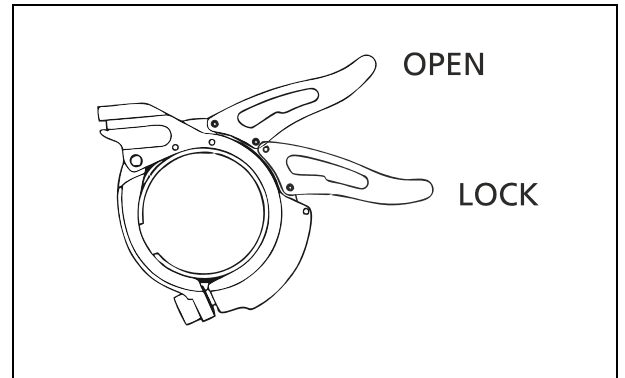
The remote lever is available as a single stage and a double stage version. For forks with O.L damping, a single stage lever must be used.

One single lever can operate a fork or a shock.

Function Single Stage

The single stage lever is designed to operate a DT Swiss fork with Single Shot, Single Shot 2 or O.L. damping system or a single stage DT Swiss shock (M 210 and M 212).

The functions of the components in the different positions of the lever can be found in the regarding manuals.



3 Installation

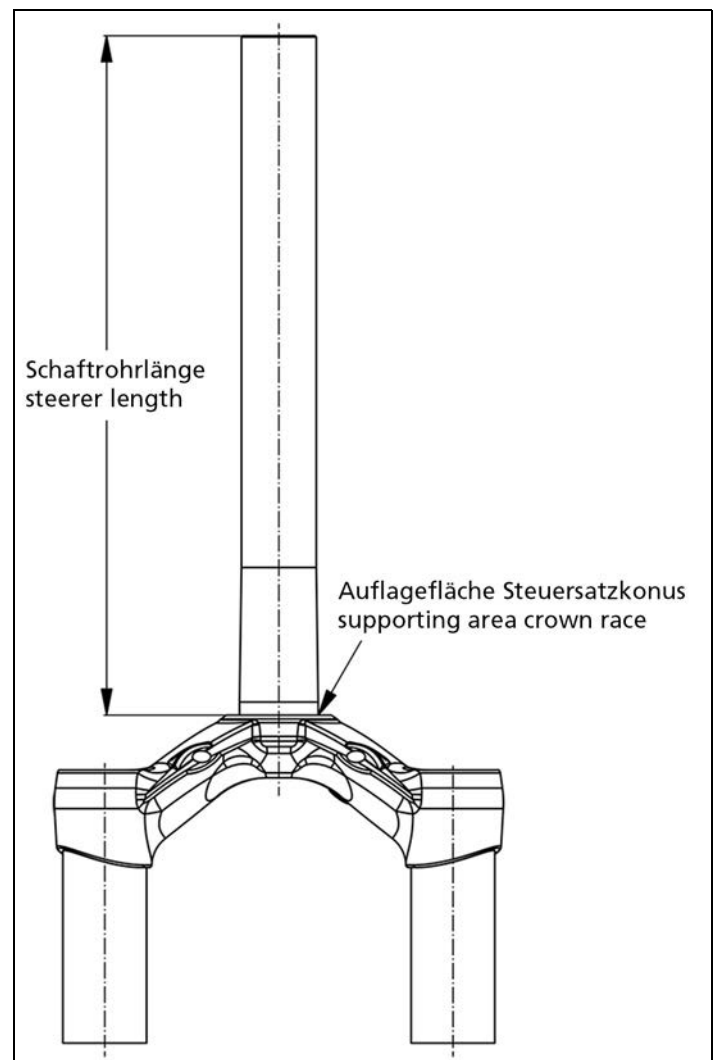
3.1 Shortening the Steerer

The length of the steerer essentially depends on the headset and the stem. It is mandatory to consult the instruction manual of the headset and the stem.

NOTE: When the headset and/or the stem will be exchanged, the new installation height can have an effect on the length of the steerer.

Preparatory Steps		Link
Dismount the fork from the bike.		
Required Material	Specification	Amount
star nut	for 1 1/8" steerers	1
pipe cutter	-	1
file	-	1

1. Dismount the crown race off the old fork.
2. Measure the length of the old fork's steerer. Ensure to measure the length from the support of the crown race to the end of the steerer.
3. Transfer the measured value to the new steerer.
4. Ensure, that the remaining clamping surface on the steerer complies the total height of the stem including a 5 mm spacer on top of the stem.
5. Cut the steerer to the desired length. DT Swiss recommends to use a pipe cutter.
6. Deburr the steerer on the inside and on the outside using a file.
7. Drive the start nut into the steerer using a suitable tool.



Closing Steps		Link
Install the fork.		see following

3.2 Installing the Fork

Preparatory Steps

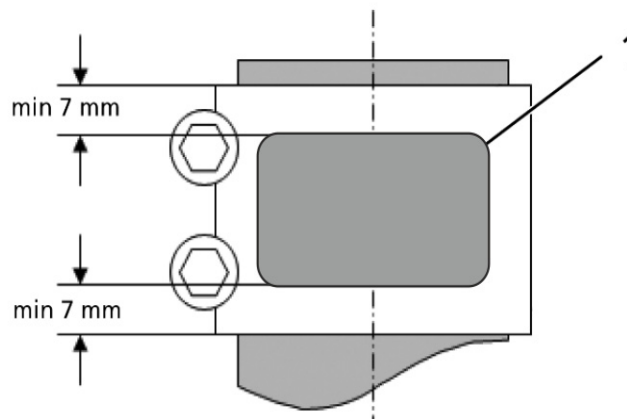
[Link](#)

Read the instructions of the stem manufacturer.

DANGER

Danger due to incorrect installation of the fork!

- Only use compatible headsets.
DT Swiss forks either have a straight steerer with a diameter of 28.6 mm (1 1/8") or a tapered steerer with a diameter of 39.82 mm (1.5") at the bottom and 28.6 mm (1 1/8") at the top. Only use a headset which is compatible with your steerer diameter.
- Only use crown race reducers of the respective headset manufacturer.
- DT Swiss forks are built for a stem clamp without thread. Do not add any holes or threading, nor make any kind of technical alterations to the fork.
- The steerer or the crown must not be damaged when assembling or using the DT Swiss fork. Special attention must be paid when fitting the headset crown race to the base of the steerer tube. The parts mounted on the fork should have no sharp edges.
- Do not use cotter style stems.
- The flange of the discontinuous clamp area of the stem must be at least 7 mm high (see following figure).



DANGER

Danger due to incorrect installation of the headset!

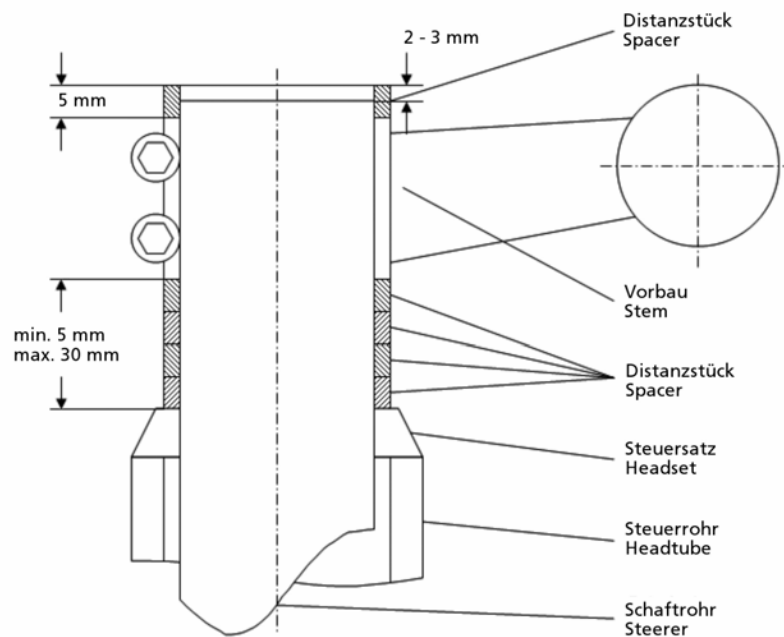
- The max. torque given by the manufacturer of the headset must not be exceeded.
- Stem and headset must be installed in accordance with the instructions of the respective manufacturer.
- The adjusting screw of the headset is intended for adjusting the play of the headset. The screw is not intended for fixing!
- The crown race must not have sharp edges. These edges causes scratches to the steerer and shortens the lifetime of the fork or induces a breakage of the steerer.
- The fork must not be damaged while installing. Damages shortens the lifetime of the fork and can cause a breakage.

DANGER

Danger due to incorrect installation of the headset!

For a faultless function, the following instructions must be followed:

- The spacers between headset and stem must be within the following limits:
 - minimum height: 5 mm
 - maximum height: 30 mm
- There must be a spacer on top of the stem with a height of 5 mm. This ensures that the stem is contacting the steerer with its entire surface.
- Ensure that the distance between the upper edge of the spacer and the steerer is big enough. Otherwise the play of the headset cannot be adjusted correctly. DT Swiss recommends a distance of 2 to 3 mm.



Installing the Crown Race

1. Aluminum steerer: Apply a thin layer of grease onto the contact area of steerer and crown race. DT Swiss recommends Motorex Langzeitfett 2000. Install the crown race in accordance with the instructions of the manufacturer.

Installing the Fork and the Stem

1. Install the fork to the frame.
2. Ensure that the headset crown race and the compliant headset are fitted together properly.
3. Install the upper part of the headset in accordance with the instructions of the manufacturer.

Installing the Stem and the Spacers

1. Add the spacers onto the steerer to set the desired height of the stem.
2. Slide the stem onto the steerer. Do not tighten the fixing screws.
3. Add the spacer to the top of the stem.
Note the restrictions regarding the height of the spacers between stem and headset (see above).

Adjusting the Bearing Play of the Headset

Adjust the bearing play in accordance with the instructions of the manufacturer.

Installing the Stem

Align the stem and tighten the fixing screws in accordance with the instructions of the manufacturer.

Closing Steps	Link
Install the brake.	chap. 3.3, page 17
Inflate the fork.	chap. 4.1, page 20

3.3 Installing the Brake

Preparatory Steps

not required

Link



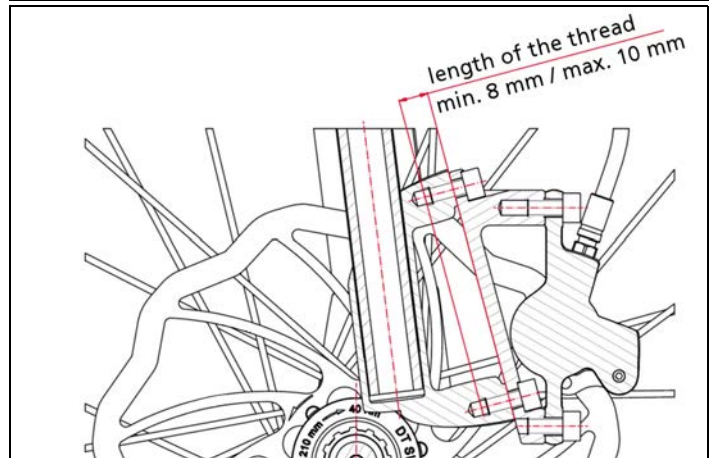
DT Swiss O.L. and Single Shot 2 forks are compatible with brake discs with a maximum diameter of 210 mm.

All DT Swiss Forks from 2009 on are equipped with Post Mount (PM) brake mounting standard for 160 mm. For usage of brake discs with a diameter bigger than 160 mm, an appropriate adapter is needed.

1. Install the brake lever in accordance to the instructions of the manufacturer.
2. Install the brake pipe like shown in the picture. Do not affix the brake pipe to the crown. Scratch areas must be protected by a suitable sticker.



3. Install the brake caliper.
4. Screw in the fixing screws and tighten them with a torque of min. 6 Nm and max. 10 Nm.
 - The max. torque must not exceed the specifications of the manufacturer.
 - The length of the thread must be min. 8 mm and max. 10 mm.



5. When using disc brakes without Center Lock adapter or disc brakes with a spider arm construction, a collision test must be made between the front wheel with mounted disc brake and the fork.
6. Install the brake in according to the instructions of the manufacturer.

Closing Steps

Install the front wheel and perform a braking test.

Link

see following

3.4 Installing the Front Wheel

Preparatory Steps

Link

not required

see following

DANGER

Risk of injury due to collision of the tire with parts of the fork!

A collision test must be performed after the front wheel was installed!

DANGER

Risk of injury due to damages of the fork caused by mounting of parts with sharp edges!

Mounting hubs, thru axles or quick releases with sharp edges can damage the fork. Such damages can lead to a sudden failure of the fork.

- Check hubs, thru axles or quick releases for sharp edges.
- Do not use hubs, thru axles or quick releases if there are sharp edges.
- DT Swiss recommends the usage of DT Swiss hubs and quick releases.

Using a RWS Thru Axle

1. Remove the RWS from the fork.
2. Grease the RWS and its thread.
3. Put the front wheel into the dropout of the fork.
4. Slide the RWS through the right dropout of the fork until the axle hits the thread in the left dropout.
5. Screw the RWS into the thread clockwise.
6. The lever of the RWS touches the fork lower during the last turns. When the lever touches the lower, lift the lever (1), turn the lever anti clockwise while lifted (2), release it (3) and continue fastening.
7. Repeat steps until the RWS is tightened.
8. Tighten the RWS with a min. torque of 15 Nm.



Using a Quick Release

Install the front wheel in accordance with the instructions of the manufacturer of the quick release.

Collision Test

1. Inflate the used tire to the max. pressure.
The max. pressure is given by either the tire or the rim. Decisive is the lower pressure of both components.
2. Release the air from the fork completely. Compress the fork completely.
3. Check if the tire touches any part of the fork while it is fully compressed. Is this the case, the tire or the wheel must not be used!
4. If necessary, reduce the tire pressure to the desired operating pressure.


Closing Steps	Link
Check the correct installation of the fork and function of the brake.	
Install a remote lever if required.	see following

4 Operation and Setting

4.1 Setting the Air Pressure

Recommended Air Pressure

The following air pressures are only reference values. The air pressure should be set to your personal preferences and to the correct SAG.

System Weight (Rider, Equipment and Bike) [lbs. / kg]	Travel			
	100 mm	120 mm	140 mm	150 mm
	Recommended Air Pressure [psi / bar]			
88 / 40	49 / 3.4	48 / 3.3	45 / 3.1	41 / 2.8
99 / 45	54 / 3.8	53 / 3.7	50 / 3.5	46 / 3.2
110 / 50	60 / 4.1	58 / 4.0	55 / 3.8	51 / 3.5
121 / 55	65 / 4.5	63 / 4.4	61 / 4.2	56 / 3.9
132 / 60	70 / 4.8	69 / 4.7	66 / 4.5	61 / 4.2
143 / 65	75 / 5.2	74 / 5.1	71 / 4.9	67 / 4.6
154 / 70	80 / 5.5	79 / 5.4	76 / 5.2	72 / 4.9
165 / 75	86 / 5.9	84 / 5.8	81 / 5.6	77 / 5.3
176 / 80	91 / 6.3	89 / 6.2	86 / 6.0	82 / 5.7
187 / 85	96 / 6.6	94 / 6.5	92 / 6.3	87 / 6.0
198 / 90	101 / 7.0	100 / 6.9	97 / 6.7	92 / 6.4
210 / 95	106 / 7.3	105 / 7.2	102 / 7.0	98 / 6.7
220 / 100	111 / 7.7	110 / 7.6	107 / 7.4	103 / 7.1
232 / 105	117 / 8.0	115 / 7.9	112 / 7.7	108 / 7.4
245 / 110	122 / 8.4	120 / 8.3	117 / 8.1	113 / 7.8
 max. air pressure [psi / bar]	174 / 12	174 / 12	174 / 12	174 / 12

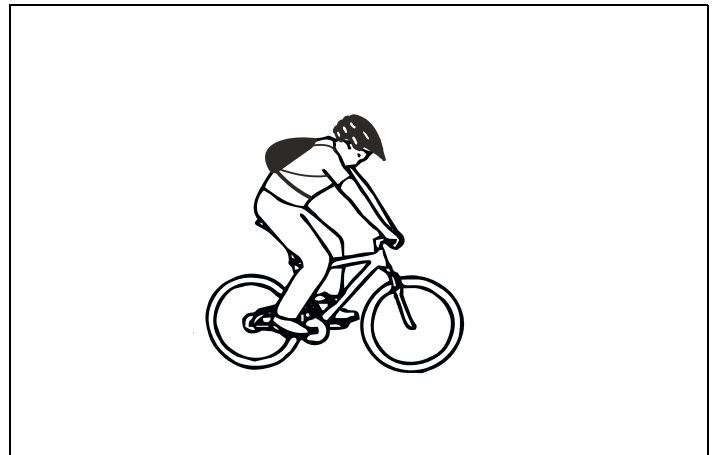
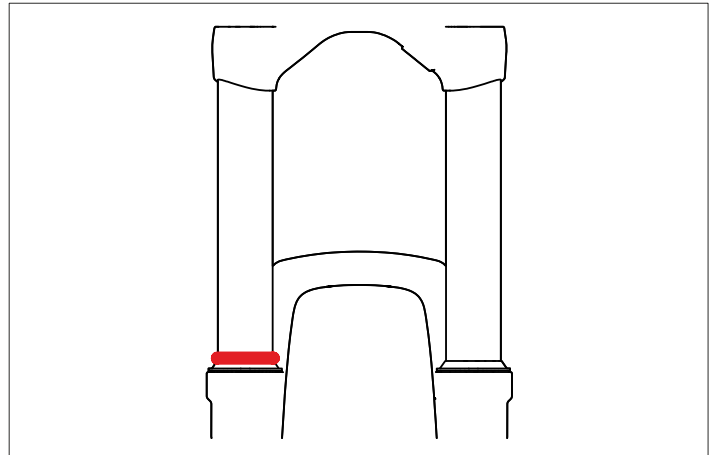
Setting the SAG (Negative-Travel)

The SAG is the amount of travel of which the fork will be compressed by the weight of the rider with full equipment. If the SAG is adjusted correctly, the front wheel can follow the ground during the ride better.

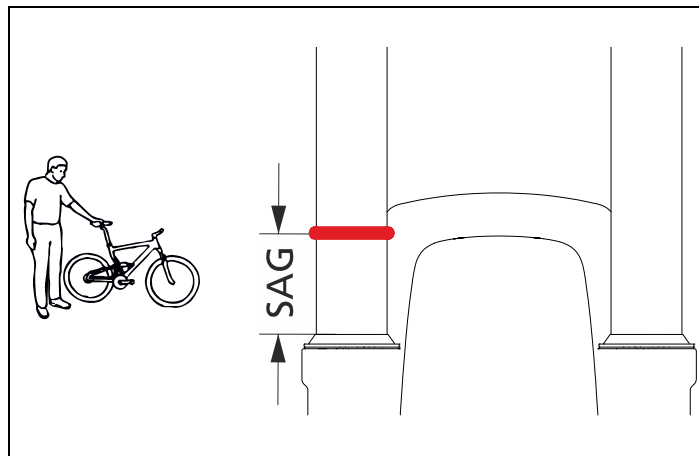
Riding Style	SAG [% of Travel]	SAG [mm] of Travel				
		100 mm	120 mm	130 mm	140 mm	150 mm
Cross Country / Race	15%	15 mm	18 mm	19.5 mm	21 mm	22.5 mm
Marathon / Tour	20%	20 mm	24 mm	26 mm	28 mm	30 mm
All Mountain / Enduro	25%	25 mm	30 mm	32.5 mm	35 mm	37.5 mm

To set the SAG, you should use the help of a second person.

- Switch the fork to position «OPEN».
 - Push the manual lever in position «OPEN» or
 - push the lever into position «OPEN» or
 - push the remote lever into position «OPEN».
- Push the O-ring on the right stanchion to the bottom, until it touches the wiper seal.
- Sit on the bike with full equipment (backpack, helmet, shoes...).
- Sit on the bike as you would sit during the ride.
 - The fork goes down because of your own weight.
 - Avoid impact loads.



5. Get off your bike and measure the distance between O-ring and wiper seal.
→ This measurement is called SAG.
→ The SAG should be between 15% and 25% of the full travel and can be adjusted depending on the riding style and use.



6. Set the air pressure if necessary (see following). Repeat steps above until the correct SAG is set.

Setting the Air Pressure

In all DT Swiss fork models, the air spring is located in the left stanchion. By adjusting the air pressure, the spring rate will be affected. The higher the air pressure, the harder the spring.

Adjusting the air pressure is possible by changing the air pressure. Adjusting the air pressure to the weight of the rider can slightly change the total length of the fork.

The air chamber is filled with a small amount of lubricating oil. Make sure that the valve is upwards during inflation or deflation.

NOTICE

Do not use the fork while the shock pump is mounted.

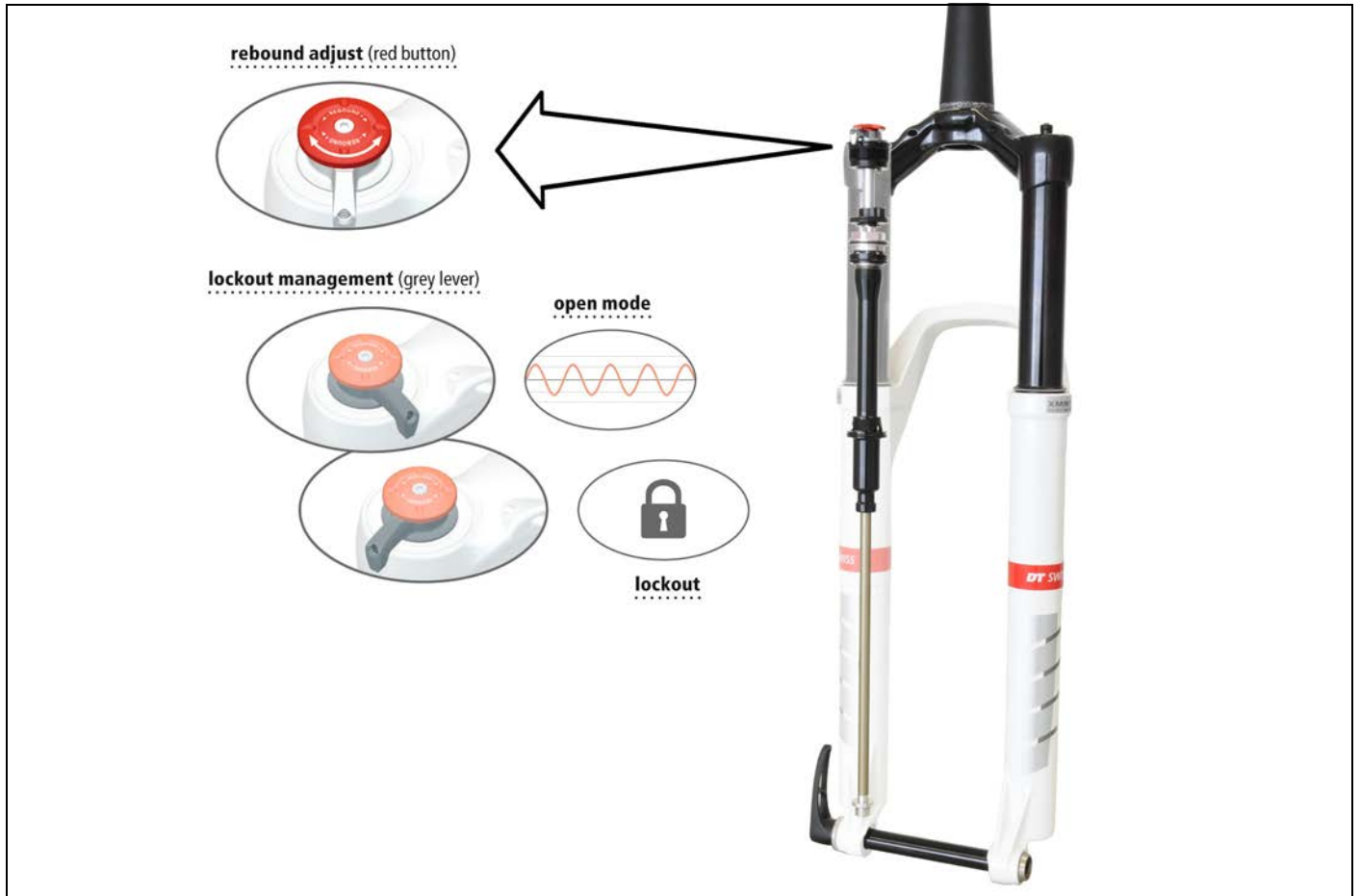
This may cause the shock pump to touch the frame and the thread of the valve to break off.

Only use a suitable shock pump to adjust the air pressure. We suggest to use the DT Swiss shock pump.

1. Position the fork resp. the bike so that the valve on the left upper stanchion is facing upwards.
2. Remove the valve cap.
3. Mount a suitable shock pump on to the valve.
4. Adjust the air pressure by in- or deflating.
→Check if the correct SAG is set (see above).
5. Screw the valve cap onto the valve.

4.2 Setting the Damping

The correct setting of the damping requires some patience but the full potential of the fork can only be attained, if the setting is perfect.



4.2.1 Rebound

The rebound controls the speed of the decompression movement.

To adjust the rebound damping, turn the red wheel on top of the right stanchion.

- Turn clockwise to increase the rebound damping.
- Turn anti-clockwise to decrease the rebound damping.



Rebound setup: 6 clicks based on a fully opened damping.

Based on this setup, the user can fine tune the damping to fit specific needs.

If the weight of the rider is more than 75 kg/165 lbs, the rebound should be closed a few more clicks. If the weight of the rider is clearly lower than 75 kg/165 lbs, the rebound should be opened a few more clicks.

If the rebound damping is too low, the front wheel decompresses too fast and loses the contact to the ground. If the rebound damping is too high, the front wheel cannot follow fast impacts and the suspension hardens. The aim of setting the rebound damping is to achieve the best setting possible, which meets the requirements of the terrain best. Rough, fast downhill requires a low rebound damping, while flowy downhill without big hits requires a higher damping.

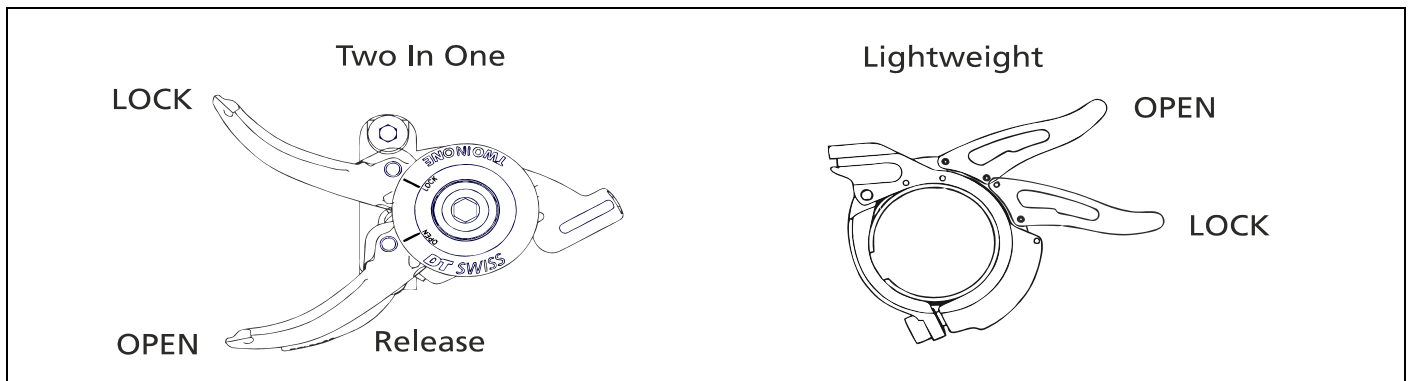
4.2.2 Lock Out

The lockout closes the compression damping circuit. The fork cannot be compressed anymore. A pressure control valve, called «blow-off», protects the system against damages caused by impacts on the fork while the lockout is activated. A whistling sound can be heard when the blow-off opens, this sound is normal and cannot be seen as a failure.

To activate the lockout turn the lever to position «LOCK».

4.3 Remote Lockout

i There are two different DT Swiss remote levers available: The lightweight lever and the Two In One lever. The lightweight lever may only control one fork, while the Two In One lever may control a fork and a shock at the same time (see also [chap. 4.3, page 25](#)).



Operating the Remote Unit

1. Activation of the lockout: Push the remote lever in «LOCK».
2. Deactivation of the lockout: Push the remote lever in «OPEN» (lightweight lever) or push the «Release» lever (Two In One lever).

Adjusting the Remote Unit

1. Deactivate the lockout function by pulling the remote lever to position «LOCK».
 - The cable of the remote lockout is loose.
2. Screw the adjustment screw of the pipe until block.
3. Unscrew the adjustment screw step by step to adjust the tension of the cable.
4. Control the lockout function by pushing the remote lever to position «LOCK». The adjustment is correct once the fork cannot be compressed anymore.

5 Converting the Control Elements



DT Swiss forks are available with manual or remote control elements. The following chapters describe the conversion between these versions and the installation of the remote levers.

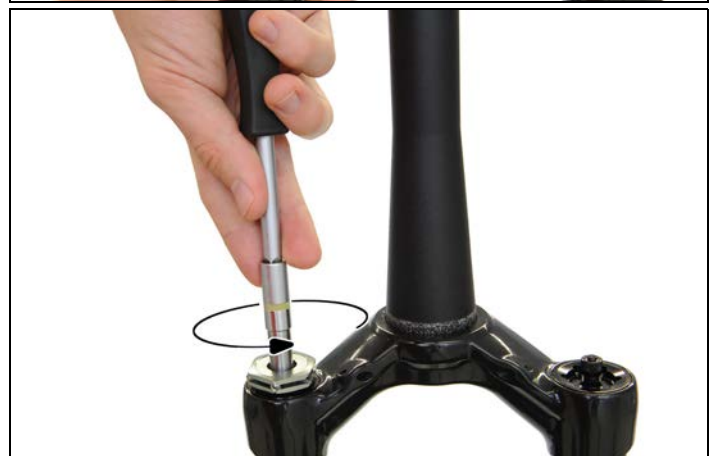
- Converting from remote to manual operation: [chap. 5.1, page 26](#)
- Converting from manual to remote operation: [chap. 5.2, page 30](#)
- Installing the Two In One remote lever: [chap. 5.3.2, page 35](#)
- Installing the lightweight remote lever: [chap. 5.3.1, page 34](#)

5.1 Converting from Remote to Manual Operation

Preparatory Steps		Link
Clean the fork.		
Check all functions of the fork.		
✂ Required Material	Specification	Amount
thread lock	Loctite 241 or Loctite 243	as required

Removing the Remote Control Elements

1. Hold the rebound wheel and unscrew the fixing screw using a T8 Torx-key. Holding the rebound wheel prevents that the rebound wheels gets stuck in the stop position.
2. Take off the rebound wheel and the fixing screw.
3. Unscrew the fixing nut of the remote wheel using an 8 mm hex-key.
4. Remove the nut.



5. Lift the remote wheel and remove it while performing a rotary motion.



6. Remove the spring.



7. Unscrew the stop screw of the remote wheel using a 2 mm Allen key.



Mounting the Manual Control Elements

1. Slide the spring into one of the holes.
2. Slide the second spring into the opposite hole.

3. Slide both pins onto the springs.

4. Put the rebound pin into the lockout position:
 - a) Put the rebound wheel onto the rebound pin.
 - b) Turn the rebound wheel anti clockwise until the stop.
 Caution: Do not turn the pin beyond the stop! Otherwise the pin might stuck.
 - c) Turn the rebound pin clockwise 70° until you feel a slight resistance. Don't turn beyond this resistance.
 - d) Remove the rebound wheel.

5. Put on the index plate
 The index points have different distances. The positioning must be like the accompanying picture. This position must not be changed during the following steps.



6. Put thread lock onto the thread of the fixing nut.
 - ✘ Required thread lock, see table on page 26.
7. Put on the lever and the fixing nut.
8. Turn the lever into the position «CLOSE».



9. Hold the lever and tighten the fixing nut with a torque of 3 Nm.



10. Check the function of the lever.
 - The lever must have two defined positions.
 - The lever must lock in these positions.
 - In the middle of the two positions, the lever must face into the driving direction.



11. Put thread lock onto the fixing screw.
 - ✘ Required thread lock, see table on page 26.
12. Put on the rebound wheel and its fixing screw.
13. Hold the rebound wheel and tighten the fixing screw with a torque of 0.25 Nm using a T8 Torx key.
14. Fully close the rebound and then turn back the wheel 6 clicks.



Closing Steps

Check all functions of the fork.

Link

5.2 Converting from Manual to Remote Operation

Preparatory Steps	Link
Clean the fork.	
Check all functions of the fork.	

Removing the Manual Control Elements

1. Hold the rebound wheel and unscrew the fixing screw using a T8 Torx-key.
2. Take off the rebound wheel and the fixing screw.



3. Unscrew the fixing nut of the lever using an 8 mm socket wrench.



4. Remove the nut and the lever.

5. Remove the index plate.



6. Remove both pins and both springs from the holes.



Mounting the Remote Control Elements

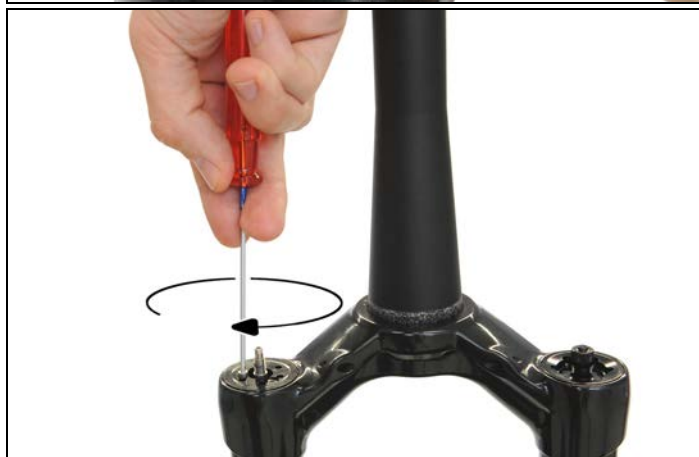
1. Put the rebound wheel onto the lockout pin and turn it anti clockwise until stop.
2. Remove the rebound wheel.



3. Put the long arm of the spring into the hole next to the rebound pin.



4. Put thread lock onto the thread of the stop screw.
✘ Required thread lock, see table on page 26.
5. Screw the stop screw into the thread next to the rebound pin.



6. Put the upper arm of the spring into the hole on the flat side of the remote wheel.
7. Put on the remote wheel, lift it approx. 3 mm and turn it clockwise 360° until the notch is positioned on top of the stop screw. Ensure that the rebound pin does not turn.
8. Push the remote wheel down and hold it in this position.
9. Put thread lock onto the thread of the fixing nut.
 - ✘ Required thread lock, see table on page 26.
10. Put on the fixing nut and tighten it with a torque of 3 Nm using an 8 mm socket wrench.
11. Check, if the remote wheel can be turned for about 70°.
12. Check the position of the indexation screw.
 - The screw has to face into drive direction.
13. If required, unscrew the screw and remove the spring and the ball.
14. Put the ball, the spring and the screw into the threaded bore facing in drive direction.
 - The head of the screw must be flush with the remote wheel.
15. Put thread lock onto the thread of the fixing screw.
 - ✘ Required thread lock, see table on page 26.
16. Put on the rebound wheel and its fixing screw.
17. Hold the rebound wheel and tighten the fixing screw with a torque of 0.25 Nm using a T8 Torx key.
18. Fully close the rebound and then turn back the wheel 6 clicks.



Closing Steps	Link
Install the remote lever.	chap. 5.3, page 34
Check all functions of the fork.	

5.3 Installing the Remote Lever



There are different DT Swiss remote levers available: The lightweight lever and the Two In One lever. The lightweight lever can only operate a single DT Swiss fork, while the Two In One lever can operate a DT Swiss fork and a DT Swiss Shock at the same time. Both levers are available as single stage and double stage versions. For a Single Shot fork, both versions can be used.

Preparatory Steps		Link
not required		
Required Material	Specification	Amount
cable	uncoated	ca. 70 cm
cable housing	Ø 4.2 mm	ca. 55 cm
carbon fitting lubricant		as required

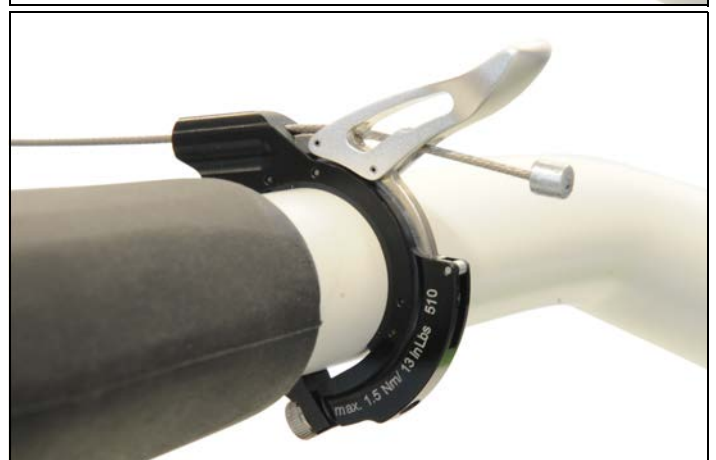
5.3.1 Installing the Remote Lever [Lightweight]



General Information: Lightweight-Lever

- The remote lever can only be used for DT Swiss forks.
- The remote lever can be installed on the right side or on the left side of the handlebar.
- The remote lever is designed for a handlebar diameter of 22.2 mm. If the diameter of the handlebar is smaller, the clamp of the remote lever cannot be fixed strong enough.

1. Carbon handlebars: Apply a thin layer carbon fitting lubricant to the contact area of remote lever and handlebar.
2. Put the remote lever onto the handlebar and tighten the fixing screw with a torque of 1.5 Nm.
3. Check the proper function of the remote lever and the control elements next to it. Whether the remote lever nor any other control element may be affected in its proper function.
4. Push the remote lever in the position «open» (see figure).
5. Cut the cable housing to the desired length. Check if the handlebar with the installed cable housing can be turned without being affected.
6. Put the cable into the remote lever. Only use uncoated cables!



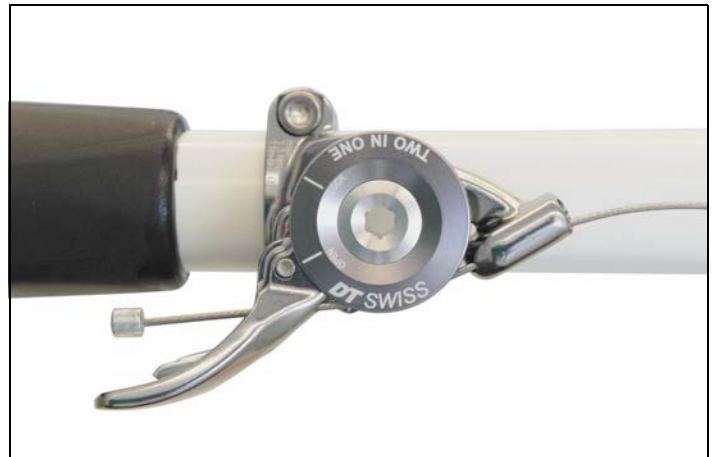
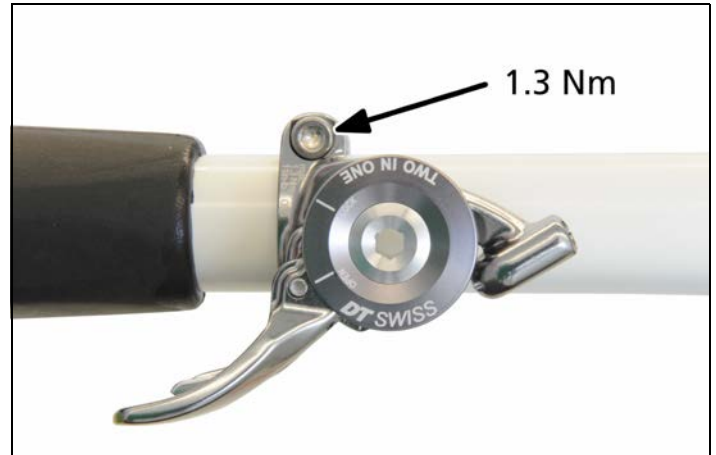
5.3.2 Installing the Remote Lever [Two In One]



General Information: Two In One Lever

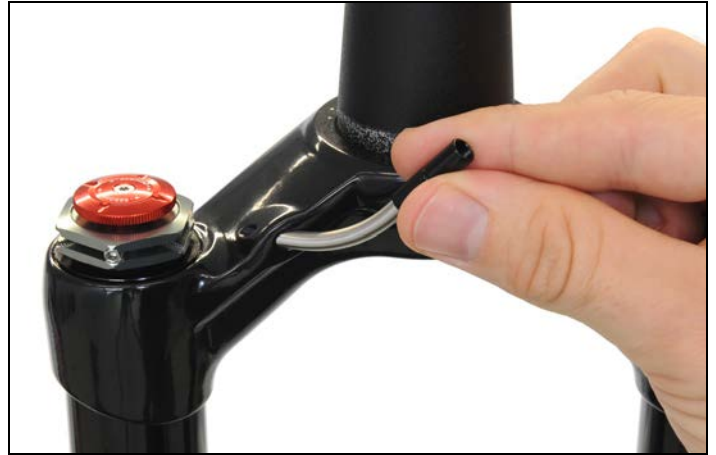
- The remote lever can be used for DT Swiss forks and/or DT Swiss shocks.
- The remote lever must be installed on the left top side of the handlebar.
- The remote lever is designed for a handlebar diameter of 22.2 mm. If the diameter of the handlebar is smaller, the clamp of the remote lever cannot be fixed strong enough.

1. Carbon handlebars: Apply a thin layer carbon fitting lubricant on the contact area of remote lever and handlebar.
2. Put the remote lever onto the handlebar and tighten the fixing screw with a torque of 1.3 Nm.
3. Check the proper function of the remote lever and the control elements next to it. Whether the remote lever nor any other control element may be affected in its proper function.
4. Push the remote lever in the position «open» (see figure).
5. Cut the cable housing to the desired length. Check if the handlebar with the installed cable housing can be turned without being affected.
6. Put the cable into the remote lever. Only use uncoated cables!



Installing the Pipe, Cable and Cable Housing

1. Put the pipe into the cable guide on the fork crown.
2. Screw in the adjusting screw of the pipe completely.
3. Slide the cut cable housing onto the cable.
4. Slide the cable housing into the remote lever and the pipe on the fork crown.
5. Unscrew the fixing screw.
Caution: The screw facing in driving direction is for indexing the rebound wheel and not for fixing the cable!
6. Put the cable through the pipe at the fork crown.
7. Ensure that the cable housing is fully pushed inside the pipe and the remote lever.
8. Put the cable through the pipe and around the rebound wheel.
9. Pull the cable and tighten the fixing screw with a max. torque of 1 Nm.
Caution: The screw facing in driving direction is for indexing the rebound wheel and not for fixing the cable!
10. Press the remote lever a few times.
11. Set the tension of the cable with the knurled screw at the pipe. In pos.2 the lever must lock completely and the lockout must be active.



12. Cut the cable to the desired length and attach a cable end cap.



Closing Steps

Link

The fork is installed completely. After setting the fork (see [chap. 4, page 20](#)), you should go for a ride!

6 Service and Care

6.1 Care

To ensure a long product life, follow the instructions below:

- Clean the fork with a damp cloth. Remove dirt between stanchion/lower unit.
- Never use aggressive cleaners that damage rubber materials (main seals)!
- Never use high pressure cleaners. Water and dirt can get into the system and damage it!
- Remove all visible, dried dirt from the area of the main seals. This will prevent dirt from getting into the fork.
- It is not necessary to grease the main seals. To get a good lubrication of the main seals, regularly turn your bike or fork upside down.
- After cleaning, lubricate the sliding surface of the remote lever on the handlebar.

6.2 Service Intervals



If service intervals are not respected, any warranty claims can be denied.

Action	Interval
Big service by a DT Swiss service center	annually or after 200 operating hours*
Small service (see following)	50 operating hours*
Check the fork for damages and faultless function	before and after each ride
Check proper fixation	before and after each ride
Check the air pressure	before each ride
Check the remote lever on the handlebar	after each ride
Clean with a soft cloth and a suitable cleaner, especially in the area of the main seals Do not use high pressure cleaners and aggressive cleaners!	after each ride

*If you use your bike in extreme conditions, you will have to service your components sooner.

6.3 Small Service

This manual only describes a small service. Further service works will be executed by a DT Swiss service center. A small service should be carried out in the following cases:






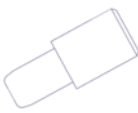
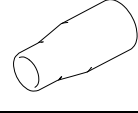
- bad performance
- after rides in extreme conditions
- after 50 operating hours
- after a crash to check the parts

DANGER

Danger to life due to wrong maintenance!

Incorrect maintenance or assembly can lead to unpredictable errors!

- Maintenance and assembly may only be done by a skilled professional.
- In case of any doubt, contact a DT Swiss service center.

Preparatory Steps		Link
Clean the fork.		
Check all functions of the fork.		
Soak 2 new foam rings in DT Swiss Lube Fluid.		
 Required Material	Specification	Amount
fork oil	 DT Swiss Lube Fluid 100 ml: 4064XXXXXXXXX000026	1 bottle à 100 ml
fork oil	 DT Swiss Fork Oil 100 ml: 4064XXXXXXXXX000024	1 bottle à 100 ml
grease	 Buzzy's Slick Honey 4.7 dl: 40341000AD02000001 OR  20 ml: TZXXXXXNSLICKS	as required
wiper seal kit Ø32 mm	contains 2 wipers, 2 foam rings, 2 O-rings FWKXXXXXXXXXX03718S	as required
special tool for SKF wiper seals Ø32 mm	 FWTXXXXXXXXXX013089S	1
O-ring protection tool	 FXTXXXXNXXXXX12618S	1
cleaner	see section „Cleaning“, page 6	as required

✂ Required Material	Specification	Amount
tire lever	solid	1
sand paper	grade 150	as required

Releasing the Air

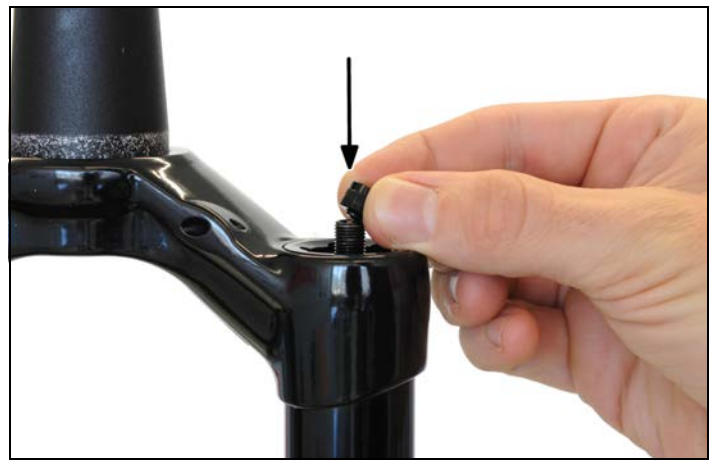
DANGER

Risk of injury due to high air pressure!

Air with high pressure can escape suddenly while dismantling the fork!

- Always release the air before starting any works.

1. Unscrew the valve cap.
2. Release the air completely by pressing the valve insert using the upper side of the valve cap.

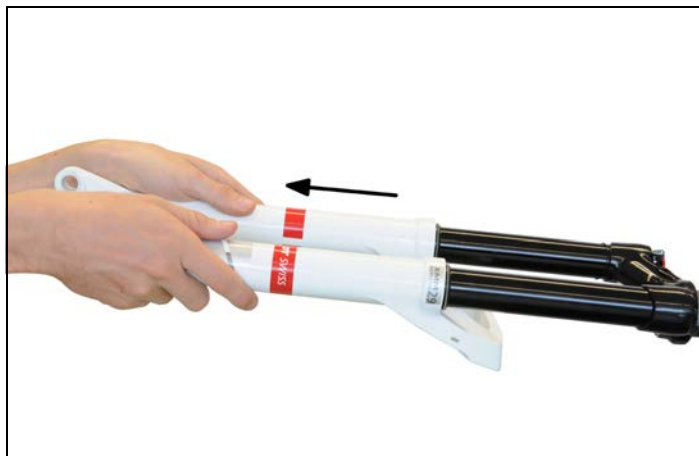


Dismounting the Lower Unit

1. Screw both hexagonal socket screws into the dropouts clockwise using a 4 mm Allen key.
2. Collect the leaking oil using a suitable container.



3. Remove the lowers carefully.
4. Collect the leaking oil using a suitable container.



Dismounting the Wiper Seals



The wiper seals should be replaced at least once a year. If they are worn out, they should be changed earlier.

1. If present, remove both spring rings from the wiper seals.



2. Remove both foam rings below the wiper seals.
→The foam rings should be replaced on every service.



3. Lever out the wiper seal using a metal tire lever.
Caution: The lowers must not be damaged. Remove the spring rings before dismounting the wiper seals.



4. Remove the wiper seals.



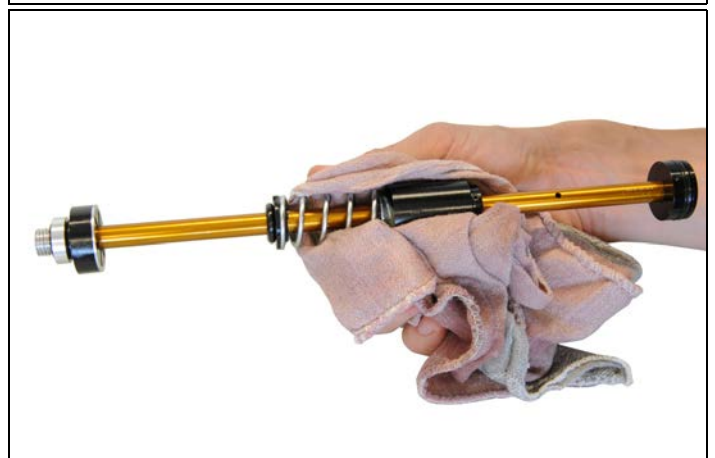
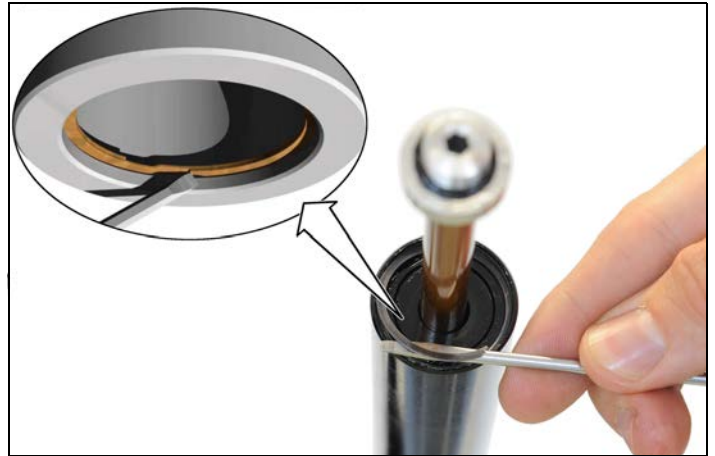
5. Remove the second wiper seal the same way.

Dismounting the NCS Unit

1. Check, if the air is released (see [Releasing the Air, S.40](#)).
2. Remove the Smalley ring:
 - a) Insert a small screwdriver (or s.th. similar) into the removal notch.
 - b) Pry out the first end of the ring.
 - c) Manually spiral the ring around until it is free from the groove.
3. Push the valve insert and remove the NCS unit.

→There is a small amount of lubrication oil inside the air chamber. If the valve insert faces downwards, the oil can escape through the valve.
4. Clean the NCS unit using a dry textile cloth.

→Do not use paper towels. Small fibers can lead to air leakages.

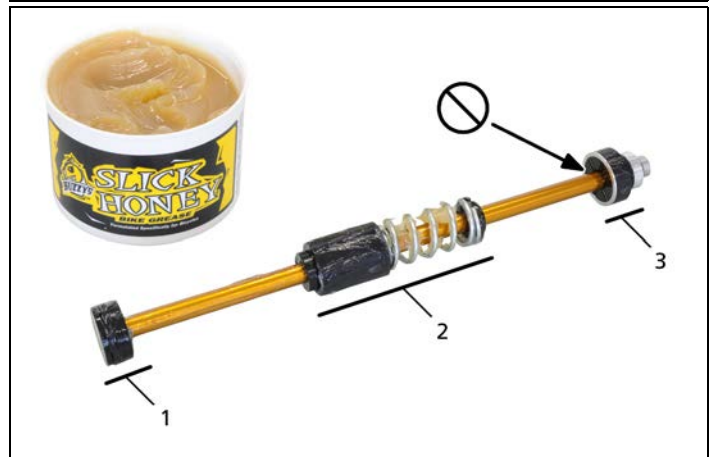


Mounting the NCS Unit

1. Clean the inner surface of the left stanchion and the whole outer surface using a dry cloth.
→To prevent leakages, there must be no fluffs or residues inside the stanchion.



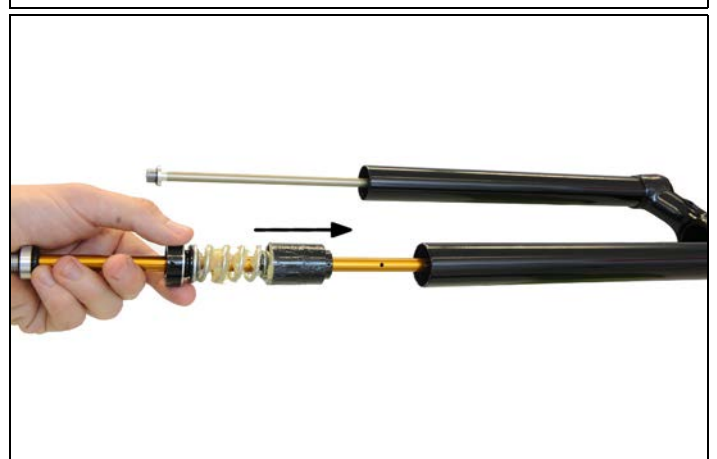
2. Grease the air piston (1), the spring unit (2) and the air chamber cap (3) of the NCS unit.
→There must be no grease on the inner surface (⊙) of the air chamber cap (3).
✘ Required grease, see table on page 39.



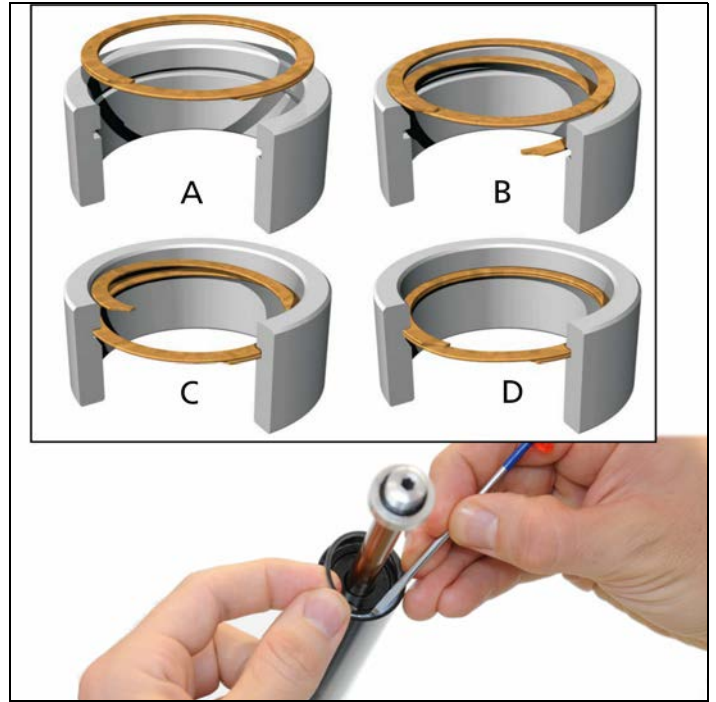
3. Position the upper unit so that the open end faces slightly upwards.
4. Fill 2 ml DT Swiss Factory Lube Fluid into the left stanchion.
✘ Required oil, see table on page 39.



5. Position the upper unit horizontally.
6. Slide the NCS unit into the left stanchion while pressing the valve insert.
→The lubrication oil filled in in the last step should not escape through the valve hole while inserting the NCS unit.



7. Put on the Smalley ring:
 - a) Place the ring on the lower end of the stanchion [A].
 - b) Separate the ring coils and insert one end of the ring into the groove [B].
 - c) Wind the ring by pressing down around the circumference until the entire ring is inserted into the groove. [C].
 - d) Check, if the ring is installed properly [D].
8. Check if the NCS unit is fixed properly.

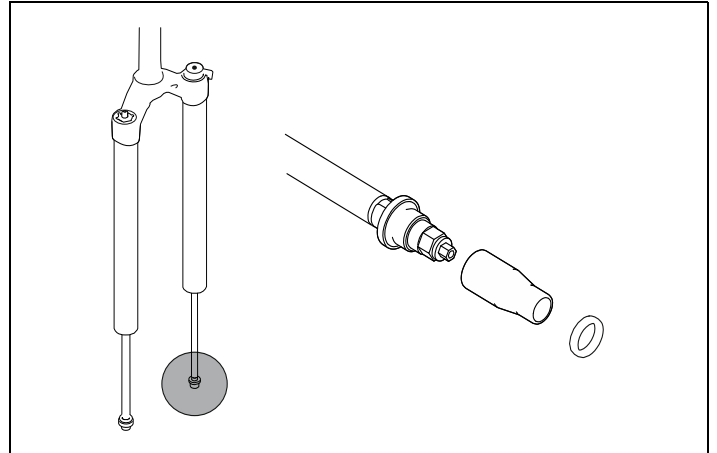


Changing the O-Rings of the Connecting Pieces

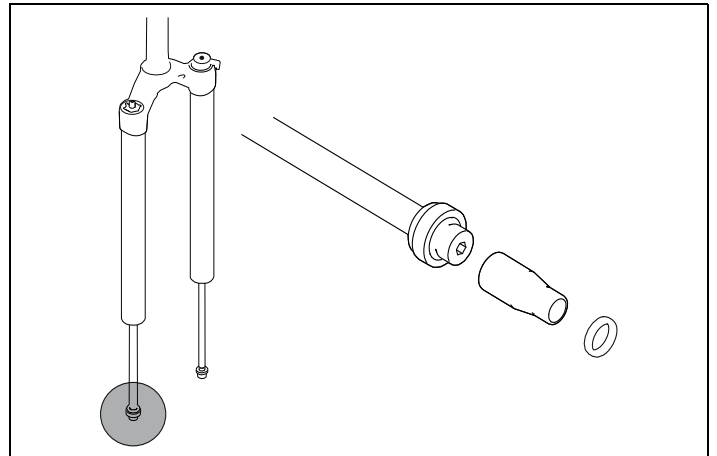


The O-rings of the connecting pieces should be changed every time the lower unit is dismantled.

1. Remove the O-ring from the connecting piece on the side of the damping unit.
2. Put the O-ring protection tool onto the thread of the connecting piece.
✂ Required tool, see table on page 39
3. Slide the new O-ring onto its seat on the connecting piece.
✂ Required material, see table on page 39
4. Remove the tool.



5. Remove the O-ring from the connecting piece on the side of the air spring.
6. Put the O-ring protection tool onto the thread of the connecting piece.
✂ Required tool, see table on page 39
7. Slide the new O-ring onto its seat on the connecting piece.
✂ Required material, see table on page 39
8. Remove the tool.



Mounting the Wiper Seals



If the wiper seals were not dismantled, the following chapter can be skipped. Next step: [Mounting the Lower Unit, S.49](#).

1. Hold the lower unit upside down and slightly grind the seats of both wiper seals using grade 150 sand paper.
 - Only remove the rubber abrasions.
 - The seat of the wiper seals must not be enlarged or damaged!



2. Clean the lower unit with an appropriate cleaner (see [section „Cleaning“, page 7](#)).
 - If you are using soap water, flush the lower unit with clear water after cleaning.
 - There must be no residual moisture inside the lower unit before re-mounting.
 - Only use lint-free textile cloths.
3. Slide the tool into the first wiper seal.



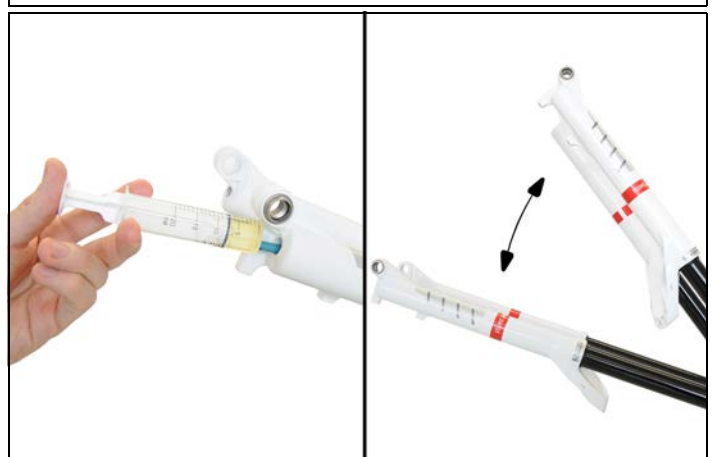
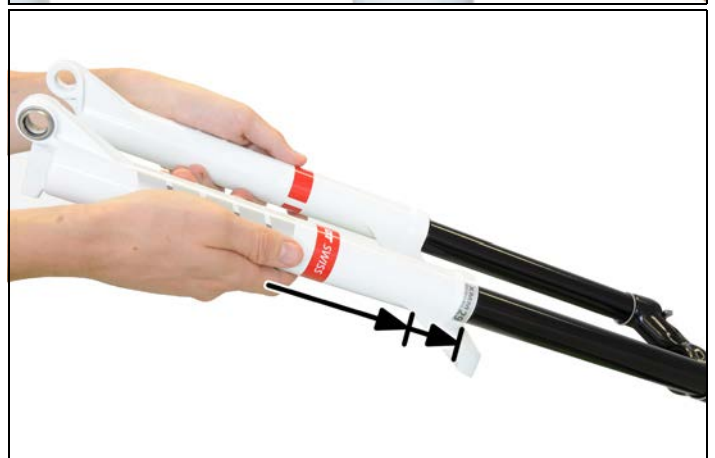
4. Carefully tap in the wiper seal.
5. Remove the tool from the wiper seal.



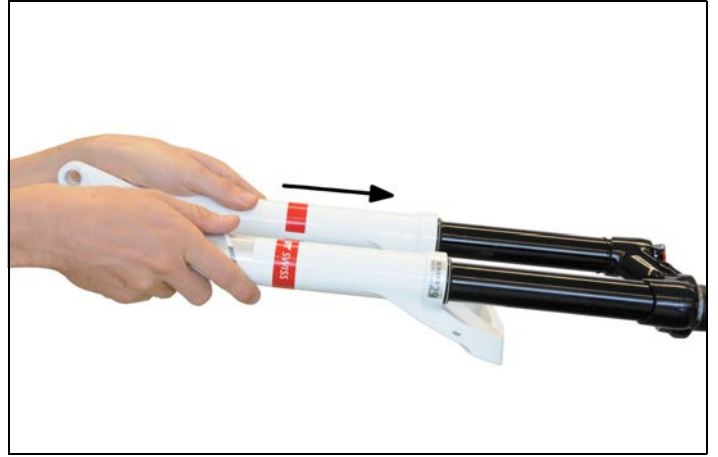
6. Mount the second wiper seal the same way.
7. Leave the lowers for minimum 15 minutes and allow the wiper seals to seat.

Mounting the Lower Unit

1. Clean the inside and the outside of the lower unit (see [Cleaning, 5.7](#)).
2. Put two new, in DT Swiss Lube Fluid soaked foam rings between the bushings and the wiper seals.
→Ensure that the foam rings are not twisted.
3. Slide the SAG O-ring onto the upper unit
4. Slide the lower unit about 2 cm onto the upper unit.
5. Fill 7 ml DT Swiss Fork Oil into the air side of the lower unit.
✘ Required oil, see table on page 39.
6. Fill 7 ml DT Swiss Fork Oil into the damping side of the lower unit.
✘ Required oil, see table on page 39.
7. Fix the fork between 40° and 70° for about 60 seconds to allow the bushings to be lubed.



8. Fully slide the lower unit onto the stanchions.



9. Screw both hexagonal socket screws into the lower unit anti clockwise using a 4 mm Allen key.

10. Tighten both hexagonal socket screws with a torque of 6 Nm.



Closing Steps

Link

Dispose the oil in an environmentally compatible manner.

Inflate the fork.

[chap. 4.1, page 20](#)

Clean the fork.

Check all functions of the fork.

The maintenance of the fork is complete. Enjoy the Ride!

7 Trouble Shooting



DANGER

Risk of injury due to a damaged fork!

If there are noticed damages or malfunctions, the fork must not be used!

- Contact a DT Swiss service center or your dealer to solve the problem.

Bedding-In Time

Some parts of the new fork may need some bedding-in or sagging-in time. Especially the bushings of a new fork may have a higher breakaway force. Therefore the fork may be uncomfortable. After about 20 hours of riding, the fork should be run in, and the effect will disappear.

After a Crash

After a crash the danger of damages is very high. Check your fork after each crash.

- Visual check: Check for damages such as cracks, breaks, oil leakages and scratches etc.
- Functional check: Check if all functions are working correctly.
- Acoustic check: Listen for unusual noises during slow riding or braking in a secure area.

Do not use a defective fork! Contact your local dealer or the responsible DT Swiss service center to repair the damage!

Bushing Clearance

DT Swiss forks use bushings in combination with oil lubrication. The function of the bushings is laid out for driving operation regarding an optimum of lubrication, thermal expansion of parts based on warming, manufacturing tolerances and the occurring loads. The bushing clearance is therefore necessary for the correct function of the fork and may be noticeable. A noticeable bushing clearance does not automatically mean an excessive wear out.

Trouble Shooting

Problem	Cause	Action
The fork is not responding properly.	The bedding-in time is not over.	Continue riding (bedding-in time is about 20 operating hours).
	The air pressure is too high.	Decrease the air pressure controlled using a suitable shock pump.
	The fork needs a small service.	Carry out a small service (see chap. 6.3, page 39) yourself or by your dealer or a DT Swiss service center.
The fork bottoms out on moderate bumps.	The air pressure is too low.	Increase the air pressure controlled using a suitable shock pump.
The full travel of the fork cannot be used.	Air pressure is too high.	Reduce the air pressure.
	Wrong measurement of the travel. Some forks do not use the full stroke of the stanchions.	Always measure the distance between wiper seal and SAG O-ring.
The fork does not rebound completely and hardens on fast repetitive bumps.	Too much rebound damping.	Decrease rebound damping.
The fork rebounds too fast, the front wheel loses contact to the ground after bumps or it slides in turns.	Not enough rebound damping.	Increase rebound damping.
Damping		
The lockout does not work well.	Leaks inside the cartridge.	Contact your local dealer or the responsible DT Swiss service center to solve this problem.
	Remote Lockout: The lockout cable is not tensioned correctly.	Check the proper fixation and the tension of the lockout cable.
The fork has free travel when the lockout is active.	When the blow-off opens while the fork is in the lockout mode and the rebound is fully closed, the oil cannot flow back.	Deactivate the lockout or open the rebound a few clicks.

If the problem can't be solved, contact a DT Swiss service center!

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