

# BOSS

SUSPENSION



DEVILLE 35 : since year 2017



Service manual



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## 1 Environment

Mountain biking is a marvelous sport which gives you a lot of happiness. However it is potentially a source of environmental conflict with other people.

A responsible behavior when using your bicycle automatically defuses problems and conflicts.

To ensure the sustainability of the mountain bike sport, be sure that you stay in the legal framework, be respectful towards the environment and recognize the rights of the others.



## 2 Glossary of terms

**Base Valve:** Base valves are located at the base of the fork leg or on the shock's reservoir and generally function to control high speed compression. Base valves or "BV" are fixed & the piston that is attached to a shaft is referred to as the mid-valve or "MV". Both forks and shocks can have a "BV" and a "MV".

**Bottoming Out:** When your suspension reaches the end of its travel on an impact. You generally want to reach full bottom on occasion but NOT all the time. Continual bottoming can wreak havoc on the suspension system leading to breakage.

**Closed cartridge dampers:** "Closed cartridge dampers" are the opposite of "Open bath dampers", in a closed system the oil is solely contained within a cartridge tube, and does not flow into the fork leg. Therefore, additional oil or lubricant is added to the inside of the leg to lubricate the seals and bushings.

**Compression Damping:** This is what gives your bike it's feeling of plushness, or stiffness. Compression determines how fast the suspension can compress when hitting a bump. If your suspension is too "stiff", the system won't compress fast enough to absorb a bump force. When there is not enough damping, the bike has soft, mushy feeling to it and will compress through its travel with little damping resistance.

**Fork Oil Level:** The level of oil inside the fork. It's typically measured in cc's by fully compressing the fork without the spring installed. It is used in tuning the amount of air contained inside the fork. Since compressing air acts like a spring, raising the oil level leaves less room for air, resulting in a rising rate throughout the fork's travel.

**Free Sag:** The amount the bike settles under its own weight without the rider. With mountain bikes becoming lighter and lighter, free sag is really not a critical tuning element but still worth mentioning.

**High-Speed Damping:** Damping feature that controls fast suspension movements. High-speed damping comes into effect on fast, rough, technical trails, g-outs, hard landings. HSD refers to the shaft speed of the suspension and not the actual riding speed. HSD is controlled through a high speed oil circuit best located in the base valve.

**Low-Speed Damping:** Damping feature to control slower vertical movements such as climbing or slower paced trails and bumpy whoop sections. A good example of low speed is rolling slowly over a large rock and riding to its downside, this is where the suspension will fully compress but at a slower rate and low speed compression circuit comes into play. LSD refers to the shaft speed of the suspension and not the actual riding speed. LS damping is best controlled through a low speed oil circuit and or shim stack.

**Mid-Valve:** Mid valves are located on the piston shaft and function in the middle part of the stroke. Mid valves can play an important function in keeping a long travel fork from diving too far into its travel. Mid valves "MV" functions when oil passes through the "MV" from one side of the chamber to the other. The rebound valve is also located on the "MV".

**Negative Spring:** A negative spring functions to control the return of the suspension when it reaches full extension. Negative springs can be air, coil spring, rubber bumper or a combination of both. A negative spring also functions to soften the “top out feel” when the wheel/suspension rapidly extends and it also helps initiate compression providing a smoother or more sensitive initial feel. An adjustable negative spring offers the greatest tuning range for rider’s weight, for example a heavy rider will need a higher or stiffer spring to resist pre-compression, but the high spring rate may also completely compress the negative spring rendering it ineffective to control top out.

**Open Bath Dampers:** Open Bath refers to a cartridge that is NOT closed and allows oil to flow from the inside of the damper to the outside of the cartridge or inside of the fork legs. Open Bath Dampers use oil for damping, lubrication, cooling, and end stroke “ramp up” or “progression”. But the downside of all this oil is the added weight of all the excess oil that is used to fill the entire fork leg.

**Packing:** An issue caused from too much rebound damping. When a series of bumps are encountered, the suspension doesn’t rebound fast enough to absorb the next bump. The suspension keeps compressing more and more after each bump and it gives the rider a very harsh feeling and even loss of traction and control because the wheels no longer follows the contour of the terrain.

**Platform Damping:** A platform is generally referred to as resistance to initial suspension compression usually generated by pedaling or rider induced forces. A platform can be achieved by various methods and usually the best way to limit suspension “bobbing” is to restrict oil flow through the low speed circuit. Depending on what technology you have and there are various designs out there, choking off the low speed circuit can be achieved by either adjusting a pressure spring on the shim stack, adjusting the depth of a bleed needle or changing the size of an orifice via a slide. These are just a few of the most common methods to deliver platform damping feel to improve pedaling efficiency.

**Rebound Damping:** Once your suspension has hit a bump and compresses, now it’s time for your rebound damping to kick in. Rebound controls how fast the fork extends back from compression to keep the wheel on the ground. Rebound can affect your traction as well. Too much rebound damping will keep the suspension compressed when it should be extending to stay on the ground on the downside of a bump, and the wheel will lose contact with the ground. This is called “Packing”. Too little rebound damping will cause the suspension to “bounce” and “hop” also causing a loss of traction and control. Proper rebound control is equally important as compression and it is very important to properly tune this performance feature. The rebound valve is best located on the “MV” with a tapered shim stack controlling oil flow. Damping systems that use orifice or small holes to control damping simply cannot control the dynamics of high performance suspension.

**Spring Preload:** The preload ring or collar compresses the shock or fork spring and either shortens or extends the spring to its original length. Preload is used to adjust the suspension to the correct range of operation within the suspension’s travel- more spring preload will raise the bike up and less preload will lower it.

**Spring Type:** Springs can either be coil or air and both are widely used in mountain bike suspension systems. Springs work to resist pre-compression of the suspension under the rider’s weight and is independent of the compression system which refers to damping. Too stiff of a spring rate delivers a harsh and uncontrolled feel, if your spring rate is too soft, the suspension will sit too far into its travel and will feel mushy and easily bottom out. It’s important to have the correct spring rate for each rider and setting up “SAG” will determine whether you have the correct rate or not.

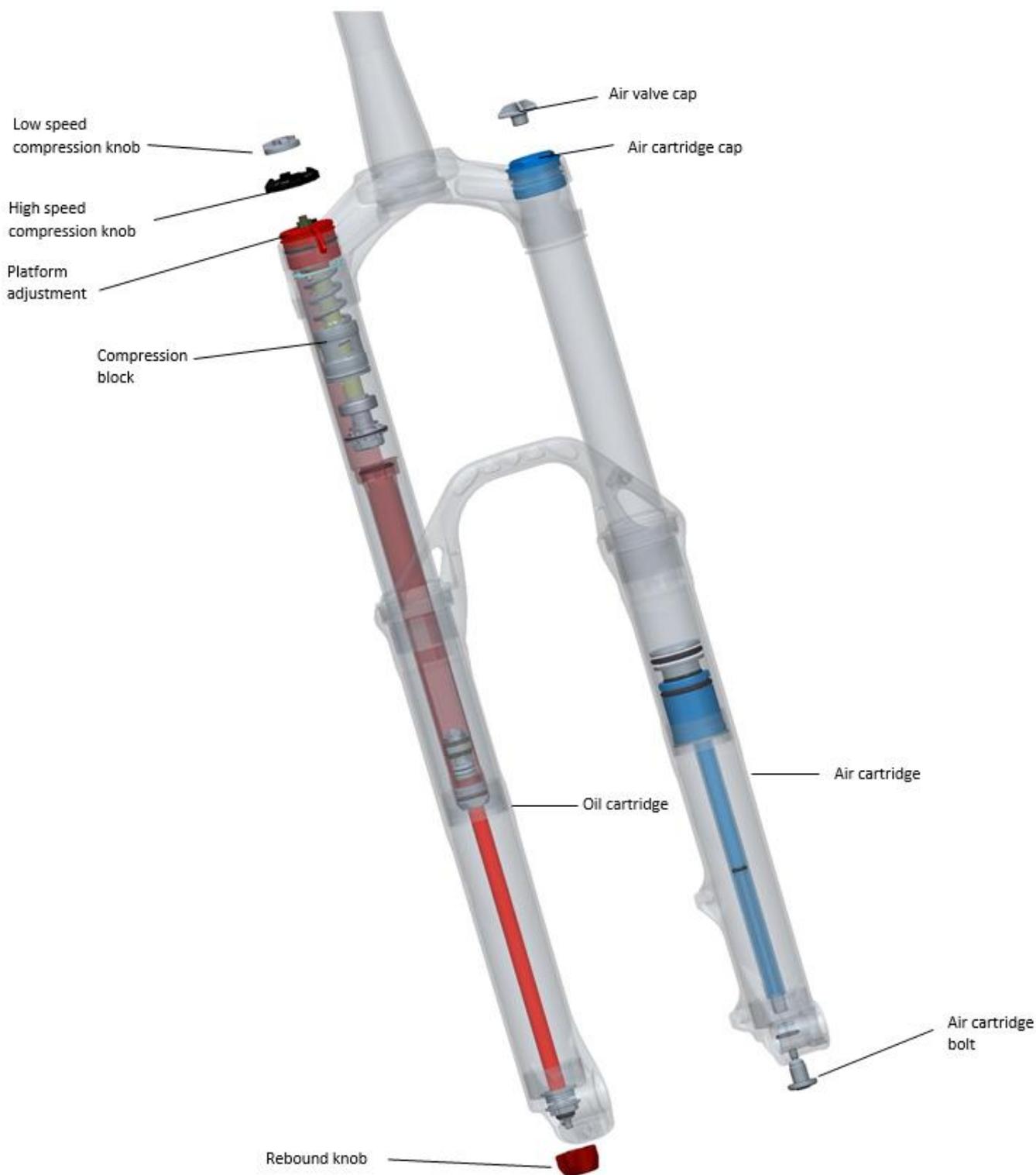
**Stiction:** Or static friction, is a term that describes friction that occurs from parts rubbing or gliding across one another. For example, on both the rebound and compression stroke, the stanchion tubes must glide against the bushings, O-rings, seals, and other parts. The parts that come in contact with one another create friction and when a bending load is applied the stiction can increase causing the suspension to bind and feel notchy. Stiction can also dramatically increase after seals become dry resulting in the loss of small bump sensitivity.

**Twin Tube Dampers:** Twin Tube systems generally combine the technology of an “Open Bath” Damper and a “Closed Cartridge” system. With a Twin Tube design, the cartridge damper is inside of a tube (hence twin tube) allowing oil to flow from the cartridge damper into and from the twin tube providing additional oil flow and damping performance without the added weight of “excess” oil that is needed to fill the fork leg.

**Valving:** The mechanical hardware that creates compression or rebound damping. Valving is a combination of check valves, holes, ports, shims, springs, etc. The best valving arises out of piston with a series of tapered shim stacks which are very thin high quality steel “washers” that when combined together produce a smooth yet linear flex pattern when oil flows around them. Shims provide the resistance to the oil flowing through the piston at various speeds. The lower amount of shims used typically means the damping quality is less. Systems that use one or two shims deliver a harsh feel on high speed hits, unfortunately, many so-called high performance suspension designs use very few shims and/or only small holes to control damping forces. If your clickers are ineffective or have a very small range, this is due to improper piston & shim stack design.

### 3 Exploded views of the fork

#### 3.1 DEVILLE 35 140 / 160 / 170



## 4 BOS Suspension Service

### 4.1 SAFETY

While working on BOS suspension please wear appropriate safety equipment's as apron, safety gloves and glasses.



When manipulating suspension oil, please wear nitrile gloves and glasses.

### 4.2 CLEANLINESS

When servicing your BOS suspension, be sure that you are working in conditions that will not affect the performance:

- Work in dust free environment
- Work on clean and organized workstation
- Use aluminum soft jaws to protect the equipment when using a vice
- Do not scratch any of the surface when using tools
- Clean elements when your disassemble them
- Drop sub-assemblies on your station in order to easily find how to reassemble them together
- Wear long sleeves is recommended or shaved arms

If you are servicing your BOS suspension outside a workshop, you should have at least:

- Avoid dust and air flow around your working area
- A clean tarpaulin to place underneath the suspension on the floor
- A bicycle repair stand to lock and maintain the suspension
- An oil pan
- All necessary tools listed below

### 4.3 TOOLS REQUIRED FOR SERVICE

**Cleaning + Safety:**

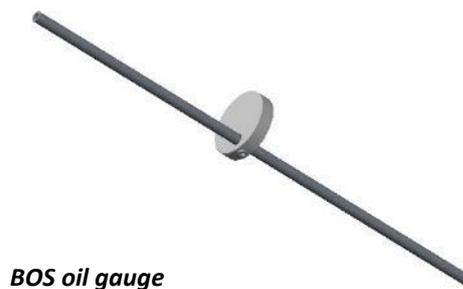
- Safety glasses
- Nitrile gloves
- Apron
- Bottlebrush
- Clean, lint-free rags
- Long plastic or wooden dowel
- Oil pan
- Spray bottle
- Soap (+ hot water)
- Pressure washer
- Isopropyl alcohol
- Oil fountain (optional)

**Standard tools:**

- 1.3 / 1.5 / 2.5 / 4 / 5mm hex wrenches
- 13 / 14 / 26mm open end wrenches
- 10mm socket
- Socket wrench
- Syringe
- Bench vise with aluminum soft jaws
- Large internal retaining ring pliers
- Torque wrench
- 21mm socket (6 sides)
- Small grounded screwdriver
- Air pump
- Downhill tire lever or 22mm open wrench
- Bicycle stand (optional)
- Rubber mallet & Hammer
- Universal grease
- Reglet (metallic ruler)
- Graduated pitcher

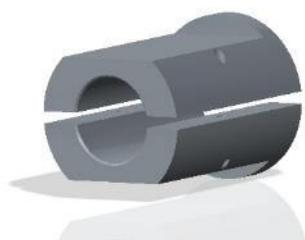
**BOS specific tools:**

- 26mm grounded socket / ref. 151108-O-084
- Oil level gauge / ref. 150707-SEO-002
- BOS seal installation tools / ref. 151108-SEO-001
- Half shell Ø21 / ref. 150707-O-060
- Air clip verification / ref. 151815-O-014
- BOS suspension vise block / ref. 151815-O-012
- BOS Push air shaft / ref. 150707-O-063
- BOS slide bushing extractor / ref. 150707-SE-003A
- Half shell Ø10 / ref. 150707-O-058



*BOS half shell*

*BOS lower slide bushing tool*

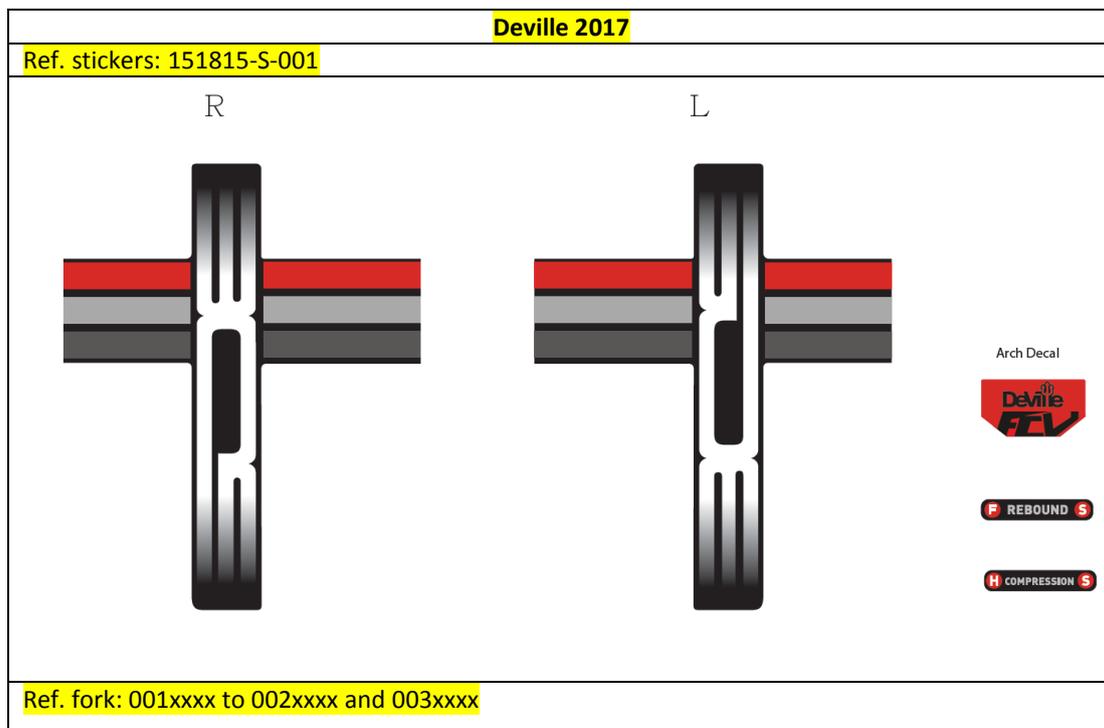


#### 4.4 COMPONENTS REQUIRED FOR SERVICE

For operations on the suspension, you may have to order components according to the table below:

| Operations  | Components  | Quantity                       | Step by step     |
|---|---|--------------------------------|------------------|
| Basic Service:<br>Change lubrication Oil  | Bio Oil   | 0.25 L                         | § 6.1, 6.2, 6.4: |
| Complete service:<br>Change lubrication Oil<br>Traveler checker replacement<br>Scraper seals replacement<br>Change cartridge oil<br>Main piston O-ring replacement<br>Air piston O-ring replacement<br>Stickers replacement | Bio Oil<br>DEVILLE service kit<br>ref. 151108-SE-002<br>AMX1<br>Kit stickers* | 0.25 L<br>1<br>1<br>0.08L<br>1 | § 6.1, 6.2, 6.4: |
| Slide bushings replacement  | DEVILLE bushing kit   | 1                              | § 6.3            |
| Stickers replacement  | Kit stickers*   | 1                              | § 6.6            |

\*Choose your sticker kit following this table:



*OEM stickers exists, please contact BOS for more information.*

#### 4.5 PERIODICAL SERVICE INFORMATION

To ensure that your fork will keep its best performance, be sure to respect the following program:

| Item                |                      | Every ride | Every 6 months | Every year | Every two years |
|---------------------|----------------------|------------|----------------|------------|-----------------|
| Clean fork exterior |                      | x          |                |            |                 |
| Basic Service       | Wet/Muddy conditions |            | x              |            |                 |
|                     | Racing/frequent use  |            | x              |            |                 |
|                     | Dry/dusty conditions |            |                | x          |                 |
| Complete service    | Wet/Muddy conditions |            |                | x          |                 |
|                     | Racing/frequent use  |            |                | x          |                 |
|                     | Dry/dusty conditions |            |                |            | x               |
| Inspect Bushings    | Wet/Muddy conditions |            |                | x          |                 |
|                     | Racing/frequent use  |            | x              |            |                 |
|                     | Dry/dusty conditions |            |                |            | x               |

#### 4.6 FLUID TABLE

| Serial n° | Product        | Cartridge         |                |          | Lubrication                |                         |          |
|-----------|----------------|-------------------|----------------|----------|----------------------------|-------------------------|----------|
|           |                | Oil quantity (ml) | Oil level (mm) | Oil type | Oil quantity left air (ml) | Oil quantity right (ml) | Oil type |
| 001xxxx   | DEVILLE 35 150 | -                 | 70             | AMX1     | 10                         | 45                      | Bi Oil   |
| 002xxxx   | DEVILLE 35 160 | -                 | 70             | AMX1     | 10                         | 45                      | Bi Oil   |
| 003xxxx   | DEVILLE 35 170 | -                 | 70             | AMX1     | 10                         | 45                      | Bi Oil   |

Traveler for service control (printable document)

**General information:**

Product Designation: \_\_\_\_\_ Serial number: \_\_\_\_\_

Owner of the product: \_\_\_\_\_ Date of service: \_\_\_\_\_

Technician: \_\_\_\_\_ VISA: \_\_\_\_\_ Shop Order #: \_\_\_\_\_

**Customer initial settings:**

| Pressure (psi) | Low speed (clicks) | High speed (clicks) | Rebound (clicks) |
|----------------|--------------------|---------------------|------------------|
|                |                    |                     |                  |

**Services check list**

Basic service operations:

Cleaning:  YES  NO – Note: \_\_\_\_\_

Oil change:  YES  NO – Note: \_\_\_\_\_

Basic control:  YES  NO – Note: \_\_\_\_\_

Travel checker replacement:  YES  NO – Note: \_\_\_\_\_

Complete service operations:

Cleaning:  YES  NO – Note: \_\_\_\_\_

Lubrication Oil change:  YES  NO – Note: \_\_\_\_\_

Complete control:  YES  NO – Note: \_\_\_\_\_

Travel checker replacement:  YES  NO – Note: \_\_\_\_\_

Dust seals replacement:  YES  NO – Note: \_\_\_\_\_

Cartridge oil replacements:  YES  NO Note: \_\_\_\_\_

Main piston O-ring replacement:  YES  NO Note: \_\_\_\_\_

Air piston O-ring replacement:  YES  NO – Note: \_\_\_\_\_

Stickers replacement:  YES  NO – Note: \_\_\_\_\_

Slide bushing replacement

**Comments / Parts changed:**

\_\_\_\_\_

\_\_\_\_\_

## 5 Operations Summary

### 5.1 STEP BY STEP CHART

For all BOS suspension's service, the following chart is followed:

1. Receive the suspension
  - a. Fill the traveler included in this manual page 8
  - b. Attribute a shop order #, apply this # on the traveler and on the suspension thanks to a tape
2. Control the suspension
  - a. Oil leakages
  - b. General condition (scratches, damages...)
  - c. Establish a potential quotation for repairing the suspension
  - d. Check settings consistency
3. Clean the suspension. There is multiple way to clean:
  - a. Pressure washing
  - b. Hot water + soap
  - c. Oil bath + brush
  - d. Alcohol spray
4. Note the customer's settings of the suspension. You could use page 11 of this manual to do so.
5. Disassemble the suspension following the §6 – Step by Step
6. Clean the sub-assemblies and control them when removing from the suspension
7. Change parts, reassemble and control the suspension
8. Apply back the suspension's settings.
9. Clean the suspension before packaging
10. Complete traveler with all information and join it with the suspension

### 5.2 HOW TO USE THIS DOCUMENT?

The diagram illustrates the layout of a service manual page for step 4 and step 5. Annotations with red arrows point to various elements:

- Step number in the routine:** Points to the number '4' in a blue box at the start of step 4.
- Color code referring to service type (see page 8):** Points to the red and blue color coding next to the step number.
- Localization of the step on the suspension:** Points to a small image of the suspension fork assembly.
- Additional Caution or Information linked to the step:** Points to a black box labeled 'INFORMATION' containing the text: 'Deflating slowly the fork will allow balancing of the air chambers.'
- Tool(s) required for the step:** Points to the 'Tools required' section for step 4, which lists 'n/a (by hand)'.
- Pictures describing the steps:** Points to a large photograph of a hand in a blue glove working on the suspension valve.

Below step 4, the manual shows step 5 with its own set of annotations:

- Localization of the step on the suspension:** Points to a small image of the suspension fork assembly.
- Tool(s) required for the step:** Points to the 'Tools required' section for step 5, which lists 'Air pump'.
- Pictures describing the steps:** Points to a series of three small numbered photographs (1, 2, 3) showing the disassembly process.

## 6 Step by Step

### 6.1 CLEANING

Cleaning is very important and part of the BOS service. Do not forget the cleaning steps during service.

- 1** Inspect the fork:
- Check eventual loose
  - Control parts damaged
  - Seek for oil leakages (see picture)
- If one of those inspection points shows that something needs to be replaced, you should quote it to the customer and replace it.



Tool(s) required :

- n/a (by hand)



- 2** Clean the fork:
- Washer.
- OR (if not equipped):
- Hot water + soap.



Tool(s) required :

- Washer
- Soap



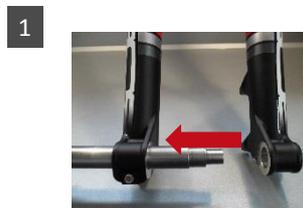
## 6.2 DISASSEMBLE

- 1** Unscrew the axle screw.  
Remove the wheel axle.  
Clean and wheel axle.  
Use sand paper to remove rust on the wheel axle if necessary.



Tool(s) required :  
- 6 mm HEX wrench  
- 600 sand paper

- 2** Place the fork on the vise block.  
Screw the axle screw to tighten the fork on the vise block.



Tool(s) required :  
- BOS suspension vise block / ref. 151815-O-012  
- 6 mm HEX wrench

- 3** Loosen the air valve cap.  
Clean it.  
Store it.

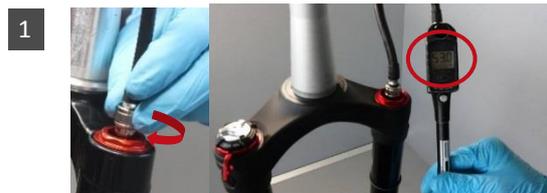


Tool(s) required :  
- n/a (by hand)

- 4 Connect air pump on the valve.  
 Read the pressure.  
 Save this information on the traveler (page 9 of this manual).  
 Deflate slowly the fork by pushing the grey button.

**INFORMATION**

Deflating slowly the fork will allow balancing of the air chambers.



Tool(s) required :

- Air pump

- 5 the rebound setting:
- Screw clockwise the knob
  - While screwing, count the number of clicks until the stop
  - Write down the number of clicks on the traveler (page 9 of this manual)
  - Re-open the 5 clic the rebound (that will help you for bleeding process)



Tool(s) required :

- n/a (by hand)



- 6 Save the low speed compression setting (grey knob):
- Screw clockwise the knob
  - While screwing, count the number of clicks until the stop
  - Write down the number of clicks on the traveler (page 9 of this manual)
- Unscrew the grey knob (anticlockwise) at its maximum.



Tool(s) required :

- n/a (by hand)



- 7 Save the high speed compression setting (red knob):
- Screw clockwise the knob
  - While screwing, count the number of clicks until the stop
  - Write down the number of clicks on the traveler (page 11 of this manual)
- Unscrew the black knob (anticlockwise) at its maximum.

**INFORMATION**

The grey knob will turn with the black one. This is normal!



Tool(s) required :

- n/a (by hand)



- 8 Loosen the air cartridge bolt.  
Clean the bolt and seals (x2).  
Store it.

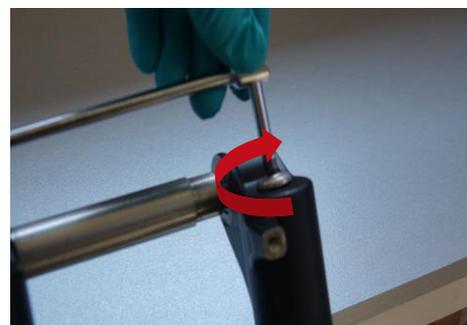
**CAUTION**

While loosening the bolt, oil may drop from the bottom of the fork.  
Be sure to apply oil pan under the fork.



Tool(s) required :

- 5mm HEX wrench

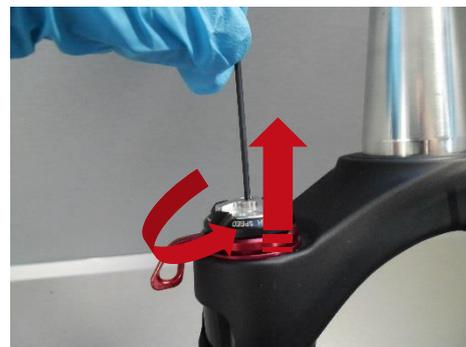


- 9 Use the 2.5mm HEX wrench to loosen the screw of the grey knob.  
Clean the knob + screw.  
Store it.



Tool(s) required :

- 2.5mm HEX wrench



**10** Use the 1.3mm HEX wrench to loosen the screw of the black knob.  
Clean the knob + screw.  
Store it.



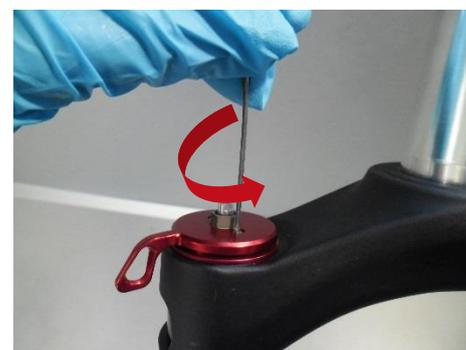
**CAUTION**

If the screw is too tight, heat the knob and try again.



Tool(s) required :  
- 1.3 mm HEX wrench

**11** Use 1.5mm HEX wrench to loosen the two screws of the platform adjustment.  
Clean the platform adjustment + screw (x2).  
Store it.



Tool(s) required :  
- 1.5 mm HEX wrench

**12** Reverse the fork to remove rebound adjustment.  
Use the 1.5mm HEX wrench to loosen the screw of the red knob  
Clean the knob + screw.  
Store-it.



Tool(s) required :  
- 1.5 mm HEX wrench

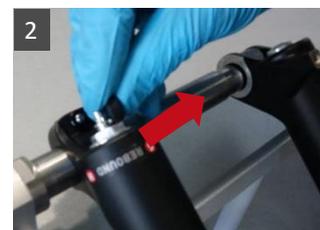
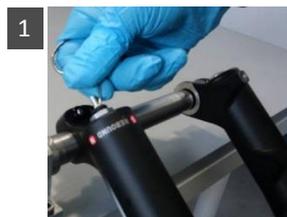
Remove O-ring.  
13 Use magnet to remove ball.

**CAUTION**

There is ball under O-ring take care, don't lose it.



Tool(s) required :  
- Magnet



14 Loosen the oil cartridge nut.

**CAUTION**

While loosen the oil cartridge nut, oil leakage may appears.



Tool(s) required :  
- Socket wrench  
- 21mm socket



15 Disassemble the oil cartridge from the chassis  
Loosen the cartridge from the crown.  
Remove slowly the cartridge from the chassis, clean it.

Tool(s) required :  
- Socket wrench  
- 26mm socket



- 16 Place the oil cartridge on the assembly support.  
 Maintain by hand the oil cartridge then unscrew the compression bloc thanks to socket wrench.  
 Check the O-ring and store it.



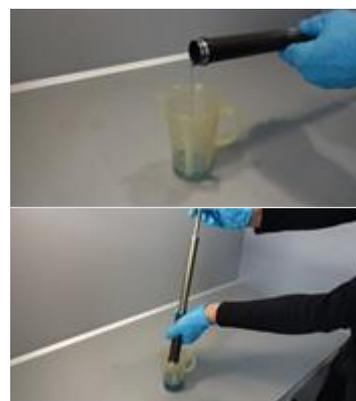
**CAUTION**

When you take off the compression block of the cartridge, Oil may drop from the cartridge. Be sure to apply oil pan under the cartridge.



Tool(s) required :  
 - 26mm Socket wrench.

- 17 Empty the oil in the cartridge on pitcher.  
 Clean the cartridge tube.  
 Store it.



Tool(s) required :

- 18 Remove the stanchions from the fork by lifting it up.  
 Clean and inspect the stanchions.  
 Store it.



Tool(s) required :  
 - n/a (by hand)

- 19 Place an oil pan under the fork.  
 Rotate back the fork to its normal position.  
 Oil will drop from the bottom of the casting.

**CAUTION**

Rotate slowly the fork to avoid splash.



Tool(s) required :

- n/a (by hand)

- 20 Firstly, remove retaining ring screw then Place the tips of large retaining ring pliers into the eyelets of the retaining ring.  
 Press firmly on the pliers and remove the retaining ring.

**CAUTION**

Scratches on the air shaft will reduce spring performance.  
 Maximum attention should be taken while removing retaining ring.



Tool(s) required :

- 2.5 mm HEX wrench
- Large retaining ring pliers

- 21 Clean the stanchions:  
 - Spray isopropyl alcohol inside and outside stanchions.  
 - Clean with a rag outside the stanchions.  
 - Wrap a rag around a long dowel to clean inside stanchions.

**CAUTION**

Scratches on stanchions will generate oil leakages.  
 Maximum attention should be taken while cleaning stanchions.



Tool(s) required :

- Spray of isopropyl alcohol
- Rag
- Long dowel

- 22** Remove the scraper seals from the casting:
- Place the inferior beak of the open wrench under the seal.
  - Pry on the seal itself to remove the scraper seal from the casting.
  - Do the same operation on the other seal.



Tool(s) required :

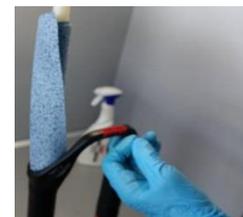
- 22mm open wrench

- 23** Clean the casting:
- Oil fountain with brush + bottlebrush.
  - Washer.
- OR (if not equipped):
- Isopropyl alcohol + brush + bottle brush.
  - Hot water + soap.



Tool(s) required :

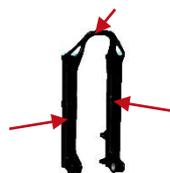
- Oil fountain with brush
- Bottlebrush
- Washer
- Isopropyl alcohol + brush
- Soap



- 24** Take off the stickers from the casting:
- Peel off the sticker from the casting by hand (you could use a plastic tool to start in an angle).
  - Clean the casting with isopropyl alcohol and rag.

**INFORMATION**

Doing this operation after HOT washing will make it easier to remove the adhesive.

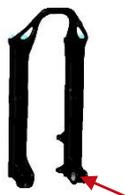


Tool(s) required :

- Spray of isopropyl alcohol
- Rag

### 6.3 SLIDE BUSHINGS REPLACEMENT

- 1 Place the fork on the vise block.  
Rotate the fork at 45° in front of you.



Tool(s) required :

- BOS suspension vise block / ref. 151815-O-012

- 2 Take the slide bushing extractor tool.  
*This tool is used for DEVILLE and DIZZY models. Locate the DEVILLE side.*  
Unscrew the middle nut to push it away from the DEVILLE side.  
Place the aluminum brace on the tool.



Tool(s) required :

- BOS slide bushing extractor / ref. 150707-SE-003A



- 3 Place the washer parallel to the ground.  
Push the tool inside the casting until the washer is under the lower bushing.  
Once the washer is located under the lower bushing, pull back on the tool.  
The washer will then be locked under the lower bushing.  
Keep traction on the tool while screwing the nut until it touch the tool.



Tool(s) required :

- BOS slide bushing extractor / ref. 150707-SE-003A

- 4** Maintain the central nut with a 16mm or 17mm open wrench.  
Place a 16mm open wrench at the bottom of the tool.  
Unscrew (anticlockwise) the bottom of the tool.  
You will feel that the lower slide bushing will release from its housing.  
Keep traction on the tool to keep washer under this bushing.



Tool(s) required :

- 2x 16mm open wrench
- OR
- 1x 16mm & 1x 17mm open wrenches

- 5** Pull on the tool until the lower bushing will stop on the upper bushing.  
Keep traction on the tool while screwing the nut until it touch the tool.



Tool(s) required :

- BOS slide bushing extractor / ref. 150707-SE-003A

- 6** Maintain the central nut with a 16mm open wrench.  
Place another 16mm open wrench at the bottom of the tool.  
Unscrew (anticlockwise) the bottom of the tool.  
Both lower and upper slide bushings will come out from the casting.  
Repeat steps 3 to 5 for the other side.



Tool(s) required :

- 2x 16mm open wrench

**7** Clean the tool and throw away the old bushings

Clean the casting:

- Oil fountain with brush + bottlebrush
- OR (if not equipped):
- Isopropyl alcohol + brush + bottlebrush



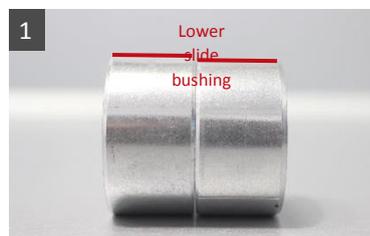
Tool(s) required :

- Oil fountain with brush
- Bottlebrush
- Oil type WD40

**8** **Lower slide bushing are thinner than upper slide bushings.**

Take lower slide bushing and orient its joint inside the fork.  
Drop it inside the casting.  
Do the same for the other lower slide bushing.

Upper  
slide  
bushing



**2**



Joint  
inside



Tool(s) required :

- n/a (by hand)

**9** Take the lower slide bushing tool and insert it inside the casting.

Place the strike tip on the tool.  
Hit the tool with the rubber mallet to insert the bushing.  
Stop to strike the tool once it touch the casting.  
Repeat these operations for the other side of the casting.

**1**



**2**



Tool(s) required :

- BOS lower slide bushing tool / ref. 151815-O-001
- Rubber mallet

- 10 Insert the upper slide bushing and the strike tip on the tool.  
Place the tool on the casting and orient its joint to the outside of the fork.  
Hit the tool with the rubber mallet to insert the bushing.  
Stop to strike the tool once it touch the casting.  
Repeat these operations for the other side of the casting.

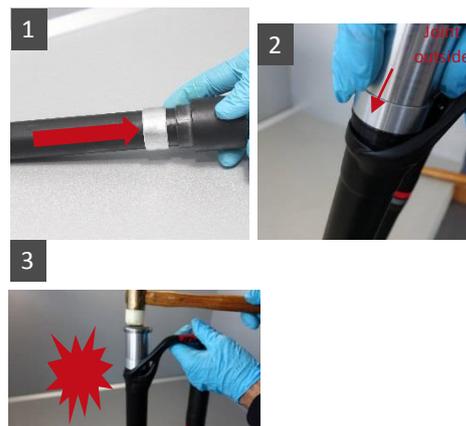
**INFORMATION**

Joints from lower and upper bushings should be mounted opposite.



Tool(s) required :

- BOS upper slide bushing tool / ref. 151815-O-002
- Rubber mallet



## 6.4 REASSEMBLE

- 1** Take the air shaft with pistons.  
 Change the O-ring of the piston mounted at the end of the shaft.  
 Slide a small screwdriver grounded (remove sharp edges) between the O-ring and the piston, and extract it.



Tool(s) required :

- Small screwdriver grounded

- 2** Take a new O-ring.  
 Insert one side in the groove by hand and maintain it.  
 Use a small screwdriver grounded to insert the other side of the O-ring into the groove.  
 Keep your screwdriver between the shaft and the O-ring and turn around the shaft 2-3 times. This will ensure that the O-ring is not twisted on itself.



Tool(s) required :

- Small screwdriver grounded

- 3** Apply universal grease on this piston + O-ring with a reglet.  
 Remove excess of grease.



Tool(s) required :

- Universal grease
- Reglet

*The groove should be full of grease!*

- 4** Insert the air shaft inside the left stanchion, greased piston first.  
 Firmly push by hand on the second piston.  
 You should feel that the piston went through a "click".  
 Check if you see the groove in the stanchion to place the retaining ring.



**CAUTION**

Do not use tools to push the pistons, only by hand!



Tool(s) required :

- n/a (by hand)

- 5** Take a new retaining ring.  
 Place the tips of the large internal retaining ring pliers into the eyelets of the retaining ring.



**CAUTION**

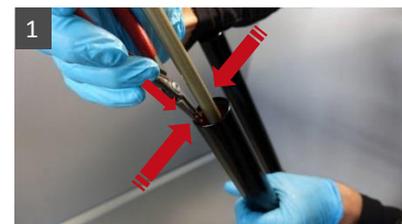
Sharp edges of the retaining ring should face up once mounted!



Tool(s) required :

- Large retaining ring pliers

- 6** Press firmly the pliers and insert one side of the retaining ring.  
 Push the other side inside the groove, if necessary, you could use a small screwdriver.  
 Rotate the retaining ring in its groove to ensure that the retaining ring is properly seated inside the groove.  
 Use special tool to verify that the retaining ring is in correct position inside the groove.  
 Screw the screw between the eyelets of the retaining ring



Tool(s) required :

- Large retaining ring pliers
- Small screwdriver
- Verify retaining ring tools / ref. 151815-O-014
- 2.5 HEX wrench

- 7 Push the air valve at the top of the fork.  
Push the air cartridge inside the stanchion at the maximum.

**CAUTION**

*The air shaft should not exceed the stanchion more than 2-3cm.*



Tool(s) required :

- n/a (by hand)



- 8 Remove the travel checker O-ring.  
Place a new travel checker O-ring:  
- Hold one side of the O-ring on the stanchion  
- Pull the O-ring to insert it on the stanchion



Tool(s) required :

- n/a (by hand)



- 9 Degrease the scraper seal groove on the casting.  
Use isopropyl alcohol and rag to clean the groove.

**CAUTION**

Greasy surface will generate scraper seal extraction while riding!



Tool(s) required :

- Spray of isopropyl alcohol
- Rag



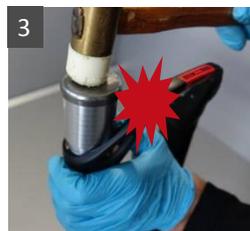
10 Take the upper slide bushing tool and apply the scraper seal tool & the strike tip.

Place a new scraper seal on the tool and apply the tool on the casting.

Hit the tool until the scraper seal has touched all around the casting. Repeat operations for the other scraper seal.

**CAUTION**

Do not squeeze the scraper seal, stop hitting once it touch the casting. Ensure the contact between the scraper seal and the casting.



Tool(s) required :

- BOS lower slide bushing tool / ref. 151815-O-002
- BOS scraper seal tool / ref. 151815-O-003
- Rubber mallet

11 Change the upper O-ring in the floating piston.

Change the main piston O-ring.

Keep your screwdriver between the shaft and the O-ring and turn around the shaft 2-3 times. This will ensure that the O-ring is not twisted on itself.

Add white grease on it



Tool(s) required :

- Small screwdriver grounded

12 Present the stanchions slantwise on the scraper seals. Push and straighten the stanchions to insert them into the casting. Compress the fork at its maximum.



Tool(s) required :

- n/a (by hand)

- 13** Fill the oil cartridge with new oil.(level page 7)  
 Bleed the shaft by slowly moving it into the cartridge.  
 Then pull it quickly  
 Repeat this operation until you this no bubble in the upper tube oil.



Tool(s) required :

- pitcher



- 14** Place the oil cartridge on the assembly support.  
 Maintain by hand the oil cartridge then screw the compression bloc thanks to socket wrench.



Tool(s) required :

- 26mm Socket wrench.
- Assembly support

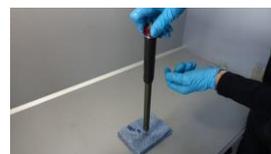


- 15** Once you're cartridge is closed.  
 Close completely the Compression knob (black knob).  
 Compress the cartridge until you heard a little noise then release pressure.  
 Repeat this operation until cartridge bottom out.  
 Then empty the excess of oil by the little hole on the upper tube.

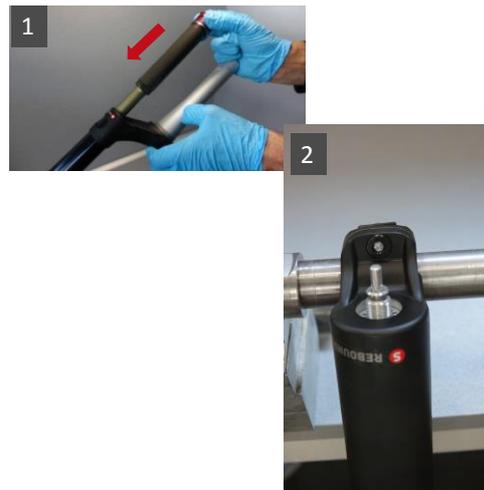


Tool(s) required :

- n/a (by hand)



16 Reassemble the oil cartridge on the casting.



Tool(s) required :

-n/a (by hand)

17 Degrease and clean the bottom of the oil cartridge (seal and thread).

Degrease and clean the bottom of the casting

Insert the oil cartridge in the fork.

Screw the oil cartridge nut on the first threads.



Tool(s) required :

- Spray of isopropyl alcohol
- Rag

18 Take X ml\* of Bi oil in a graduated syringe. (\*see page 7)

Then screw the upper cartridge tube in the fork.



Tool(s) required :

- Syringe
- Socket wrench
- 26 mm socket

19 Rotate the fork upside down.  
Screw the oil cartridge nut with the torque wrench.



Tool(s) required :

- Torque wrench
- 21mm socket



*Torque = 10Nm*

20 Put O-ring in the groove at the end of the shaft  
Use the magnet to put ball and in the hole with grease.



Tool(s) required :

- Magnet



21 Put complete oil cartridge inside the casting.  
Locate the hole on the shaft, then place the red knob rebound on the fork with the screw in front of the hole  
Gently screw the knob. Turn the knob until you feel that the screw fall in the hole.  
Tighten the screw.



Tool(s) required :

- 1,5mm HEX wrench



*No torque – tighten gently*

**22** Put back the customer settings on the red knobs by unscrewing and counting the clicks.



Tool(s) required :

- n/a (by hand)

**23** Screw the platform adjustment with two screws.  
 Locate the hole on the shaft, then place the black knob( high speed ) on the fork with the screw in front of the hole  
 Gently screw the knob with 1.3mm HEX wrench. Turn the knob until you feel that the screw fall in the hole.  
 Tighten the screw  
 Screw the grey knob (low speed) on the fork with 2mm HEX wrench.

1



2



3



Tool(s) required :

- 1.3mm HEX wrench  
 - 2mm HEX wrench

*No torque – tighten to contact*

**24** Put back the customer settings on the knobs by unscrewing and counting the clicks.



Tool(s) required :

- By hand

25 Place the fork horizontally.  
Empty the oil from the syringe into the "air" fork for Lubrication. (oil level page 7)

**CAUTION**

Keep the suspension horizontal until the air cartridge bolt has not been tighten.



Tool(s) required :

- Syringe

26 Connect the air pump on the fork.  
Increase pressure until the air shaft touch the casting.

**CAUTION**

Keep the suspension horizontal until the air cartridge bolt has not been tighten.



Tool(s) required :

- 

27 Apply grease by hand on the air cartridge bolt and O-rings.  
Screw the bolt in the shaft with a torque wrench + 5mm HEX socket.  
Increase pressure until the user pressure has been reached.

**CAUTION**

Keep the suspension horizontal until the air cartridge bolt has not been tighten.



Tool(s) required :

- Air pump
- Torque wrench
- 5mm HEX socket



*Torque = 10Nm*

2

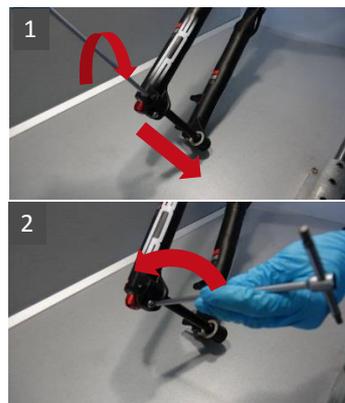
28

Screw wheel axle back on the fork.



Tool(s) required :

- n/a (by hand)



29

Clean the fork:  
- Washer.



OR (if not equipped):  
- Hot water + soap.



Tool(s) required :

- Washer  
- Soap



## STICKERS REPLACEMENT

### 1 If stickers replacement starts from scratch:

Clean the fork:

- Washer.

OR (if not equipped):

- Hot water + soap.

If stickers replacement is part of the complete service:

Go to step 3



Tool(s) required :

- Washer
- Soap

### 2 Take off the stickers from the casting:

- Peel off the sticker from the casting by hand (you could use a plastic tool to start in an angle).

- Clean the casting with isopropyl alcohol and rag.

*Doing this operation after washing with washer OR hot water will make it easier to remove the adhesive.*



Tool(s) required :

- Spray of isopropyl alcohol
- Rag

### 3 Place new stickers back on the fork.

Clean the fork.

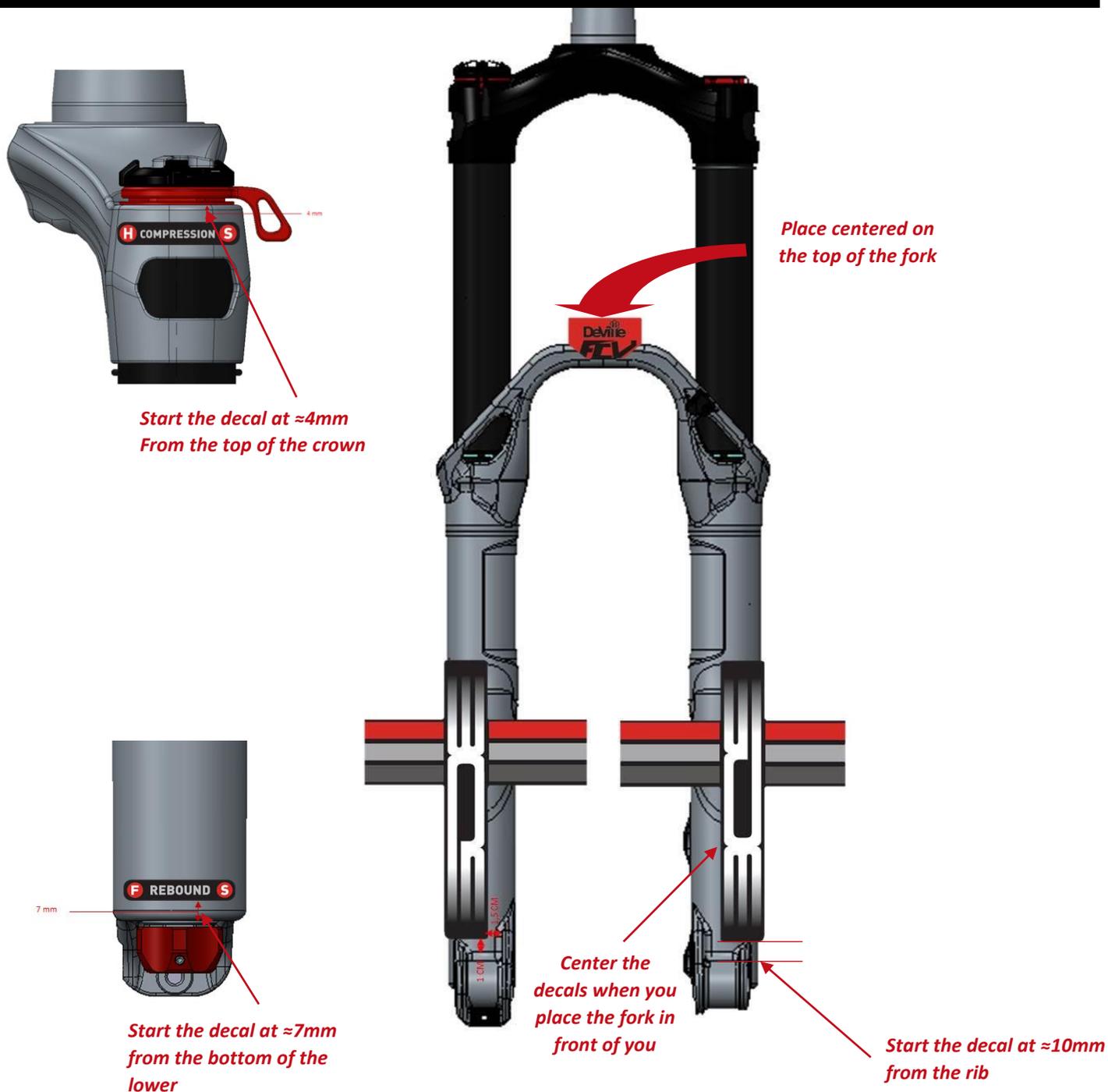
*See "§7 - Stickers Templates" section for more information on how to apply a sticker.*



Tool(s) required :

- n/a (by hand)

## 7 Stickers templates



## 8 Additional Information

### 8.1 AIR SETTINGS

| Weight (Kg/lbs.)   | 55/120 | 65/143 | 75/165 | 85/187 | 95/210 | 105/132 |
|--------------------|--------|--------|--------|--------|--------|---------|
| Air pressure (psi) | 43     | 54     | 61     | 67     | 72     | 75      |

### 8.2 HYDRAULIC SETTINGS



To start setting your fork, turn clockwise completely the knobs (=click 0). Then turn counterclockwise one click at a time.

#### Basic click:

Low-speed compression: 10 clicks

High-speed compression: 10 clicks

Rebound: 14 clicks

### 8.3 F.A.Q.

#### **My fork loses pressure when I remove the pump, what can I do?**

Check the valve core tightness using a Schrader valve core tool.

#### **My fork has negative travel, is this normal?**

The BOS air spring is designed to lower the engagement threshold as much as possible. Therefore, it is possible on some bikes that there will be a small negative travel.

#### **Where can I buy original stickers or a valve cap?**

These items and more are available in our online store.

#### **My fork has bushing play from new, what should I do?**

The unique bushing alignment and tolerance on BOS forks results in less friction, more sensitivity, and some bushing play from new. If the bushing play feels abnormally excessive, please contact a BOS certified service center for expertise.

#### **My fork is lowering as I deflate it, what is happening?**

When you deflate the fork by the Schrader valve, you are only emptying the positive air chamber. The negative air chamber stays under pressure and exerts an opposing force on the air piston and pulls the fork down. To avoid this phenomenon, deflate the fork in steps of 30-40 PSI and equalize the air chambers between steps (compress and release the fork 5-10 times over the first 20mm – 1 inch) of travel.

#### **I just inflated my fork for the first time and it is really hard, what can I do?**

Have you equalized your fork's air chambers? If not, check how it's done in the setup section of your product's user manual.

Did you change your fork's settings? Check that your low-speed and high-speed compression are at our recommended base settings given in the setup section of your product's user manual.

If you've equalized your fork, you may have some internal pressure from the production process. You can eliminate this pressure by slipping a thin zip tie between your left dust seal and your stanchion until you hear the sound of air escaping. Then reset your pressure and equalize your air chambers.

If you've tried all that and your fork is still hard, email customer service and they'll give you a hand.

**My fork was upside down or on its side and now it feels like there's no hydraulic control.**

Your cartridge has depurged – air has entered the hydraulic system. Open bath cartridges like the one used in your fork allow air to mix with oil. The cartridge purges itself as you ride. You can purge the fork even faster by cycling it through its full travel 5-10 times.

If it is becoming increasingly difficult to purge your cartridge, it may be time for an oil change. Contact your closest BOS authorized service center for a basic or a full service.

**I have about 5mm of travel unused when I ride normally.**

Our forks are designed to be very progressive at the end of travel to give you a bottomless feeling. This means that those last couple millimeters of travel might only be used on the biggest hits or when you case a landing. You can think of them as insurance to get you out of the trickiest situations. If you have more than about 5% of your travel unused, try lowering your air pressure by 5PSI and check your compression settings. If your compression settings are much harder than our recommended values, try bringing them closer to the base settings in your product's user manual.

**I have grease/oil coming out of my brand new fork seals.**

This is not unusual at the beginning of the life of a fork. Clean off the stanchions and the seals and it will stop after a few rides.

**My fork has been sitting for a couple of weeks and some oil came out of the seal when I rode it the first time.**

BOS seals can let out a little bit of oil when they have been sitting and dried out. Wipe off any oil, and none more will come out when the seal is lubricated again.

**I have grease/oil coming out of my used fork seals.**

It's time for a service! Contact your nearest BOS authorized service center for a full service.

**But I haven't reached your recommended service interval yet.**

Our recommended service intervals cannot cover 100% of customer's usage cases. Use in wet, muddy conditions; storage out in the sun; frequent use; or improper care can all cause your seals to wear out more quickly.

*For any other questions, please refer to our FAQ page at <http://www.bosmtb.com/faq.html> or send us a message at [customerservice@bosmtb.com](mailto:customerservice@bosmtb.com).*