

Ducati 2002 – 2003 ST4s SHOWA FORK OIL REPACEMENT

Record the suspension settings of the front fork assembly prior to disassembly.

Preload _____ Rebound _____ Compression _____

Your settings may change with the disassembly and assembly process.

Remove bodywork from the machine, including front fender.

Remove the calipers and front wheel.

Loosen the three triple clamp SHCS, one side only. Lets start with rider's LH side.

Mark the distance from the bottom of the top triple clamp to a reference mark. A mark chosen here was the beginning of a different machining pass. Fig 1.

Distance _____

Place the LH fork assembly a distance down from the bottom of the top triple clamp. This distance should allow for wrenches to gain access to the upper plug's 32mm hex. Fig 2.

Remove the small circlip from the top of the damping rod. Near the rebound adjustment brass slotted fastener.

Lessen the preload by wrenching the 22mm hex of the adjuster. It can be removed from the upper plug without worry of it flying due to any spring load.

Break the 32mm hex loose from the fork tube. It should not be very tight, but it might not be able to be removed via hand.

Remove the LH fork assembly from the machine.

Ensure that the area you are working in is clean and free from sand, hairs, metal chips.

There are two tools that are needed to proceed. One is a device to push down the spring joint and the other is a plate that prevents the spring joint from returning to its original location due to spring load. Drawings are attached to this document should you want to make these tools. Fig 3.

Note that oil can spill out from the top of the opened fork tube.

Use the pusher tool to move the spring joint down and expose the hex nut that fastens the upper plug to the damping rod. Once the hex nut is exposed, place the plate between the hex nut and the top of the tube. Fig 4, 5.

Remove the upper plug. Be careful that there are small plastic and delicate metal rods in the upper plug that can be easily damaged or lost. Fig 5, 6, 7.

Remove the spring joint and then the spring. Fig 8.

The oil can then be poured out. Gently pump the fork leg upside down while over a pan to catch oil. Oil is captured internally and pumping it will ensure that most of the oil has been removed. Oil will squirt out of the small orifice at the top of the damping rod.

If the oil is very dirty, you may want to pour in some inexpensive lightweight oil and pump the fork tube and leg. Then remove that sacrificial oil.

Clean the components prior to the re-assembly process.

Fork oil is poured in and measured from the top of the fork tube to the top of the oil. No spring, spring joint are inserted for this measurement, see Fig. 9, 10. Pour in about half .492 cc of either 5w or stock 7.5w oil into the fork leg and pump the fork leg to allow the oil to enter internal cavities. Pour in the remainder of the oil. The distance of the oil to the top of the fork tube is 132mm for the Showa used on the ST4s.

At assembly, watch that new oil will squirt out the orifice at the top of the damping rod whenever the damping rod is pulled out. Thus changing the level that you tried to make accurate. Reduce the oil loss risk by inserting the spring and spring joint, then fasten the upper plug assembly onto the damping rod prior to compressing the spring joint with the pusher tool. This should keep the oil within the fork assembly.

Re-assemble in the reverse order and perform the above steps to the rider's RH fork tube.



Fig 1. Measure location of fork tube.



Fig 2. Break upper plug loose while fork tube clamped.

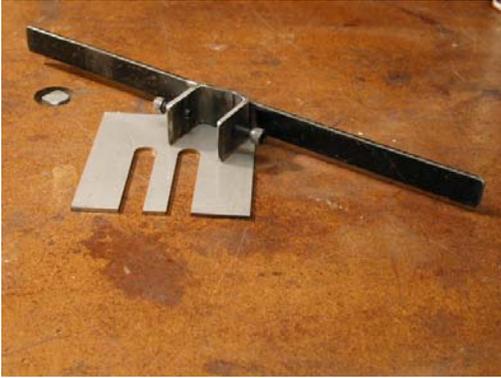


Fig 3. Tools make it easy.



Fig 4. Top of the fork assembly.

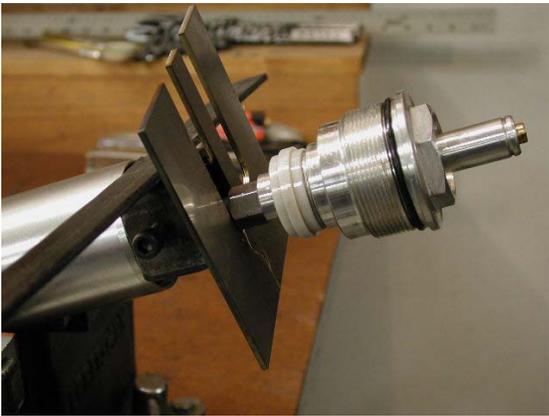


Fig 5. Hex nut exposed.

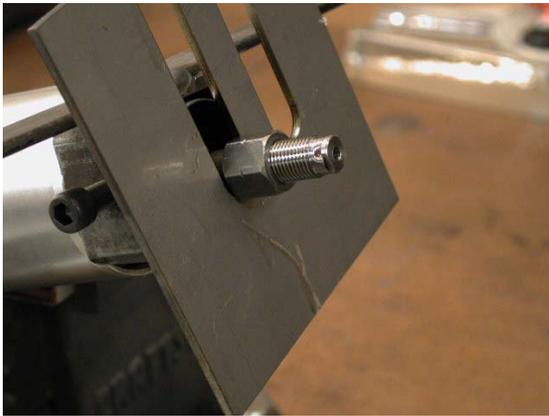


Fig 6. Top of rod with orifice.



Fig 7. Upper plug assy. Note small parts.



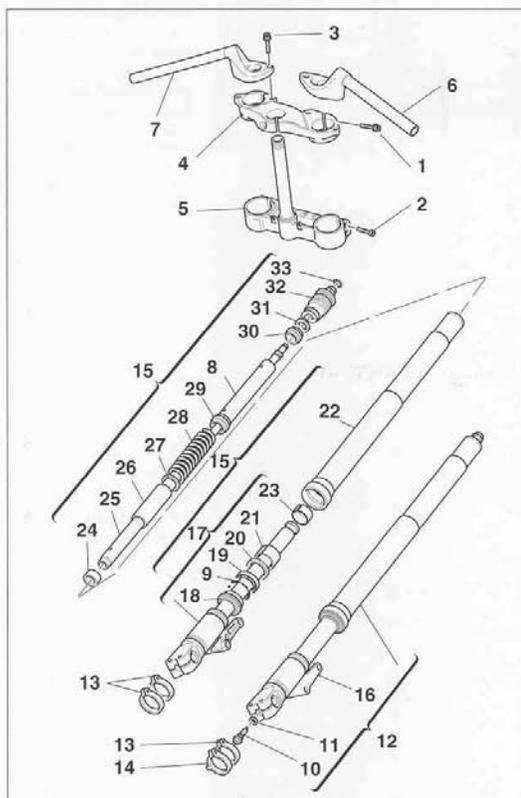
Fig 8. Spring and tube.

- 1 Vite
- 2 Vite
- 3 Vite
- 4 Testa di sterzo
- 5 Base di sterzo
- 6 Semimanubrio destro
- 7 Semimanubrio sinistro
- 8 Giunto molla
- 9 Anello
- 10 Vite di regolazione
- 11 Rondella speciale
- 12 Assieme gamba sinistra
- 13 Fascetta
- 14 Fascetta
- 15 Assieme gamba destra
- 16 Scorrevole sinistro completo
- 17 Scorrevole destro completo
- 18 Parapolvere
- 19 Anello di tenuta
- 20 Scodellino
- 21 Boccole
- 22 Fodero esterno
- 23 Boccole
- 24 Anello di centraggio
- 25 Cartuccia ammortizzatore
- 26 Collare elastico
- 27 Rondella speciale
- 28 Molla
- 29 Segmento
- 30 Distanziale
- 31 Rosetta
- 32 Tappo completo
- 33 Anello elastico di arresto

- 1 Screw
- 2 Screw
- 3 Screw
- 4 Steering head
- 5 Bottom yoke
- 6 Right handlebar
- 7 Left handlebar
- 8 Spring joint
- 9 Seal
- 10 Adjuster screw
- 11 Special washer
- 12 Left leg unit
- 13 Clamp
- 14 Clamp
- 15 Right leg unit
- 16 Complete left slider
- 17 Complete right slider
- 18 Dust seal
- 19 Oil seal
- 20 Retainer
- 21 Bushing
- 22 Outer sleeve
- 23 Bushing
- 24 Centering ring
- 25 Damper cartridge
- 26 Spring collar
- 27 Special washer
- 28 Spring
- 29 Ring
- 30 Spacer
- 31 Washer
- 32 Complete plug
- 33 Spring stop ring

2 - FORCELLA ANTERIORE

2 - FRONT FORK

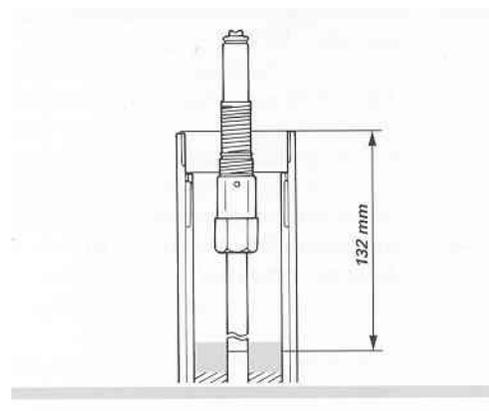


Importante
 I riferimenti in grassetto all'interno di questo capitolo indicano che i particolari richiamati non sono presenti nelle immagini a fianco del testo, ma devono essere ricercati nella presente tavola esplosa.

Caution
 Bold reference numbers in this section identify parts not shown in the figures next to the text. Look up the exploded view diagram.

Fig 9. Fork components

Fig 10. Fork oil height



Reassembly of the front wheel:

Ensure that the axle will slide into both RH and LH forks with minimum force. If you must force the axle through to the LH fork, the fork legs are not at the same level. Readjust the fork legs with respect to each other.

Make sure that the speedo drive ring is in the wheel before putting the wheel on the bike. The speedo ring has two tangs that line up with two grooves in the speedo drive unit.

Now place the wheel between the forks and insert the axle from the RH side and also place the speedo drive onto the axle. Rotate the axle to line up the holes in it with the compression adjusters in each fork.

Make sure you line up the speedo unit properly so that the tab on the lower LH fender mount fits into the outer groove of the speedo.

Once the axle is in, put on the axle nut hand tight. Put the calipers back on at this point.

Tighten the axle nut with a wrench, but not fully and ensure that the axle is seated against the RH wheel's inner bearing race. Tighten the two RH axle clamp bolts just enough to stop the axle from turning. Fully tighten the axle nut. Fully tighten the LH axle clamp bolts.

Loosen the two RH axle clamp bolts that you previously tightened.

Remove the bike off the front stand. Pump the front brake lever a few times to seat the disc pads. Next, bounce the suspension up and down till you are sure that the RH fork has had a chance to stabilize into position.

Tighten the two RH fork clamp bolts.

