

bitubo®
RACE SUSPENSION



QUALITY SYSTEM CERTIFICATED
UNI EN ISO 9001:2008
50 100 9149

ISTRUZIONI MONT. E REGOLAZ.
CARTUCCIA JBH
MOUNT. & SETTING MANUAL JBH
CARTR.

Rev. 02
del 08/06/2018

Mod. ISTR – JBH
Pag. 1 / 36

CODICE BITUBO - BITUBO CODE

NUMERO MATRICOLA - SERIAL NUMBER

HD004JBH12WO

Gambale forcella <i>Fork leg</i>	Schemi <i>Scheme</i>	Cost. molla <i>Spring rate</i> (Kg/mm)	Cost. molla interna <i>Top Out</i> <i>Spring rate</i> (kg/mm)	Precarico <i>Preload</i> (giri / turns)	Smorzamento <i>Damper</i> (clicks)	Qtà. olio <i>Oil qty.</i> (ml)	Sfilamento fork <i>Fork strip out</i> Q (mm)	Differenza interasse dall'originale. <i>Length difference from</i> <i>the original.</i> (mm)
COMPRESSION	GR50208	0.75	ORIGINAL	4	15	380	ORIGINAL	0
REBOUND	GR50209	0.75	ORIGINAL	4	15	380		

Product code :

HD004JBH12WO

Vehicle :

HARLEY DAVIDSON:

FLHXS STREET GLIDE SPECIAL 2014-2016
FLHX STREET GLIDE 2014-2016
FLHTK ULTRA LIMITED 2014-2016
FLHTCU TC ULTRA CLASSIC TWIN COOLED 2014-2016
FLHTCU ULTRA CLASSIC 2014-2016
FLHRC ROAD KING CLASSIC 2014-2016
FLHR ROAD KING 2015-2016
FLTRXS ROAD GLIDE SPECIAL 2015-2016
FLTRX ROAD GLIDE 2015-2016
FLTRU ROAD GLIDE ULTRA 2016



Contents

Basic set – up	Pag. 1
Introduction	Pag. 21
Safety	Pag. 22
Maintenance	Pag. 23
Adjustments	From pag. 24
Shortening	From pag. 26
Installation instructions	From pag. 28
SAG measurement	From pag. 34
Problems and solutions	From pag. 35

Dear Customer,

We wish to thank and congratulate you on your choice.

The suspension you purchased is the fruit of an experience born at the beginning of the Seventies, when our Company gave an innovative push to suspension technology with the legendary Bitubo shock absorbers.

Since then, Bitubo has been present on the world market with the best range of bike suspensions and special applications.

The sport results in the GP, SBK and Championships in various countries, as well as the ABE type approval by the German TÜV are confirmation of the quality and reliability achieved by all our products.

Bitubo has transferred all the technology that makes these shock absorbers a product unique in design and performance from competitions to your bike.

From today you too will be able to recognize in our brand a synonym of safety and driving emotion.

Have a good trip.

Legend of symbols

Warning

Non-compliance with the instructions and/or procedures might cause serious injuries or death.

Attention

Non-compliance with the instructions and/or procedures might damage the product or the vehicle.

Note

Shows a point of interest or a suggestion to carry out an operation comfortably and efficiently.

Safety

Warning

The cartridge is designed to be used only on the road and its use off road might irreversibly affect its operation and, consequently, the control of the vehicle.

Warning

We recommend you have the cartridge installed on your bike in a BITUBO Service Centre or Authorized Workshop.

It is extremely dangerous to assemble/dismantle bike parts if you do not have the necessary knowledge and skills.

Warning

Bitubo is not liable for the installation of the product carried out incorrectly or not in compliance with the instructions in this manual.

Bitubo is not responsible for any modifications of the product by third parties that are not included in this manual or not authorized in writing.

Warning

The cartridge contains Nitrogen gas in pressure.

Attenzione

The warranty of the product stops if it is mounted wrongly or modified without written approval by Bitubo.

Note

In the absence of specific instructions for the assembly, follow the procedures described in the bike Manufacturer's Technical Manuals.

Note

We advise you to keep this manual in a safe place since it contains information on the initial setup as well as the serial number that is needed should you need to avail yourself of the Guarantee.

Maintenance

Cleaning and lubricating your fork prevents its early wear and tear and increases its performances longer.



Attenzione

On cleaning the bike, pay attention not to turn the water jet at high pressure directly to the oil fork seals and to the upper cartridge caps.



Attenzione

Clean the fork and the upper caps with not aggressive cleaner.



Note

We recommend you check the correct operation of the cartridge every 10,000 Km or anyway at least once a year.



Note

We advise you to have the cartridge overhauled in a BITUBO Authorized Service Centre every 24 months or 20,000 km.



Attention

We recommend the efficiency of the cartridge is checked periodically by checking the damping forces with all open or all closed hydraulic adjustments. A positive result corresponds to a variation in damping force.



Note

To obtain the maximum performance of the purchased product, BITUBO recommends you use BITUBO lubricants.

Maintenance and periodic checks are recommended to be made by a Bitubo Service Centre (see list of official Service Centres and Worldwide importers in our website www.bitubo.com)



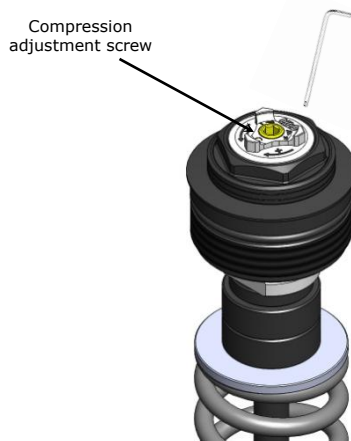
Note

The sequences of images used for the following instructions are illustrative only and may not represent the specific vehicle.

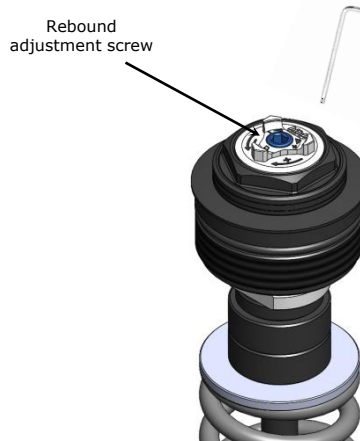
ADJUSTMENTS

The "JBH" version cartridge is provided with spring preload adjustment, compression damping force and extension damping force.

*Left fork leg
With Compression adjustment*



*Right fork leg
With Rebound adjustment*



Both adjustments can be performed with a common male hex key with a 4mm spherical head.

To increase the damping force, just rotate the adjustment screw in a clockwise direction (↻); to decrease it, in an anticlockwise direction (↺).

Both the extension and compression adjustments are provided with 20 clicks. C

Attention

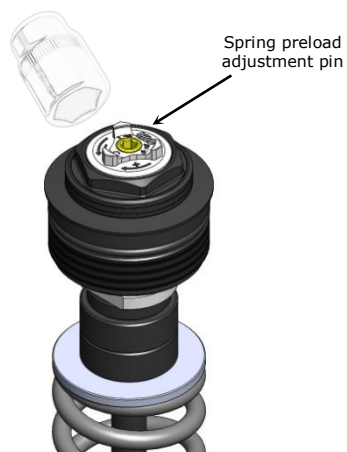
If not all clicks are possible, do not exercise excessive force with the male hex key. We advise you to go to the BITUBO Service Centre or Authorized Workshop to have the product checked.

Attention

We recommend no variations of more than ± 2 clicks in respect of the shipping settings are made so as not to change the vehicle behaviour significantly.

To make adjustments outside the above interval, we recommend you make use of the experience of the BITUBO Service Centre or an Authorized Workshop.

*Left fork leg
With Compression adjustment*



*Right fork leg
With Rebound adjustment*



The adjustment of the spring preload can be made with a common 17mm hexagonal bushing.

To increase the damping force, just rotate the adjustment screw in a clockwise direction (↻); to decrease it, in an anticlockwise direction (↺).

1 complete turn of the bushing corresponds to 1mm spring preload. The product maximum adjustment is 10mm.

⚠ Attention

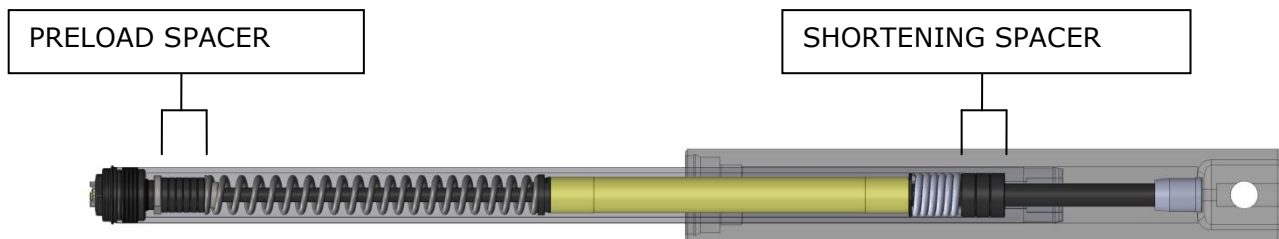
We recommend no variations of more than $\pm 3\text{mm}$ in respect of the shipping settings are made so as not to change the vehicle behaviour significantly.

To make adjustments outside the above interval, we recommend you make use of the experience of the BITUBO Service Centre or an Authorized Workshop.

SHORTENING

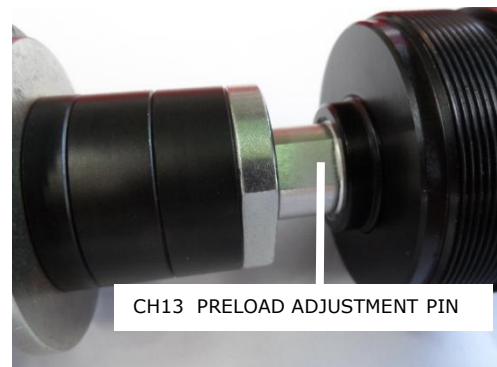
Inside the pack you will find a KIT of spacers that will allow you to shorten the fork:
GR5701

Shortening	Preload spacer	Shortening spacer
-10mm	REMOVE 1x5mm	ADD 1x10mm
-20mm	REMOVE 1x5mm REMOVE 1x10mm	ADD 2x10mm
-30mm	REMOVE 1x5mm REMOVE 2x10mm	ADD 3x10mm

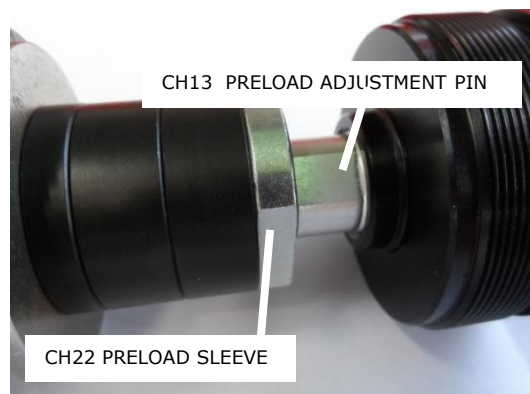


ASSEMBLING INSTRUCTIONS:

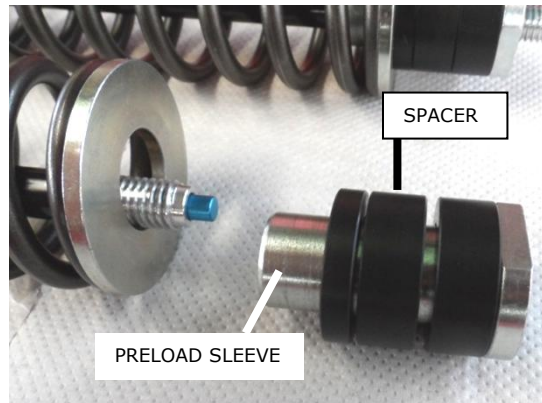
1. Preload the spring until the preload adjustment pin comes out of the 13mm key housing.



2. Loosen and unscrew the cap holding the 13mm key of the preload adjustment pin and the 22mm key of the preload sleeve.



3. Unscrew the preload sleeve the shims are inserted into.



4. According to the selected length reduction, remove the number of shims shown in the table.

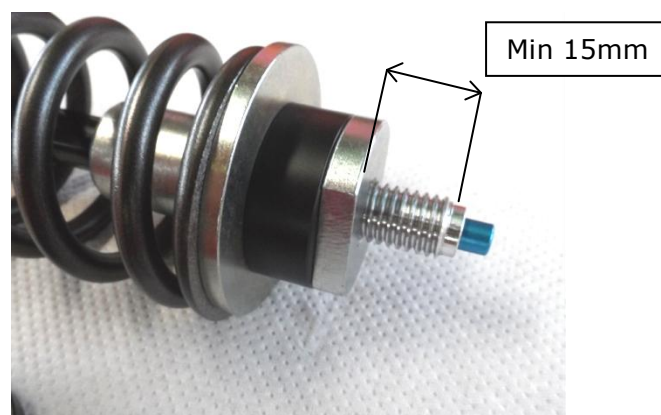


5. Refit the preload sleeve and any remaining shims.
Ensure you screw the preload sleeve in for the whole thread of the stem so as to avoid any type of length or adjustment variation.

! Attention

It is possible for the spring not to be preloaded. Check only that there is no interference with the preload sleeve.

Once fitted onto the fork leg the preload will be correct again.

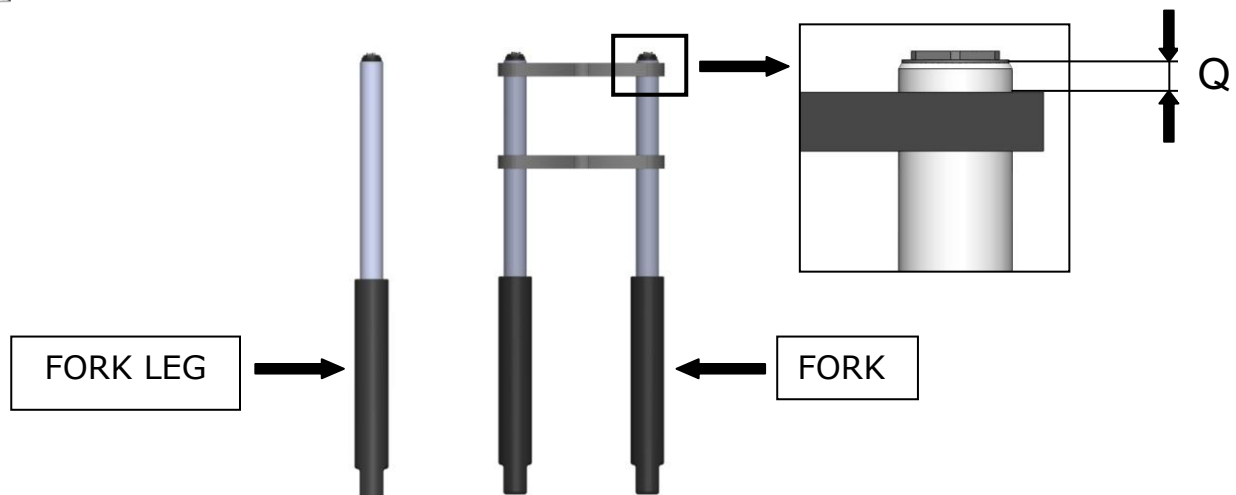


6. Screw in and tighten the cap, carrying out the operations listed in point 2.
7. Reset the initial preload.

INSTALLATION INSTRUCTIONS



Note



Necessary equipment:

GENERIC:

- Sockets:
CH 1/2 in
CH 3/4 in
CH 9/16 in
CH 17 mm
CH 1-3/8 in
- Bi-hexagonal sockets:
CH 10mm
- Combination Wrenches:
CH 13mm
CH 22mm
- Allen key:
CH 1/4 in
CH 5/16 in
CH 4mm
CH 6mm
CH 12mm
- Torx key:
T45
T20

OPTIONAL:

- 00473: Stopping rod

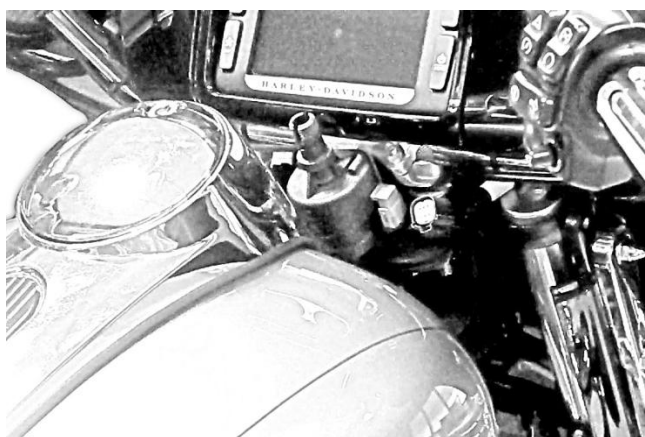
1. Position the vehicle safely, checking that the front wheel is off the ground.



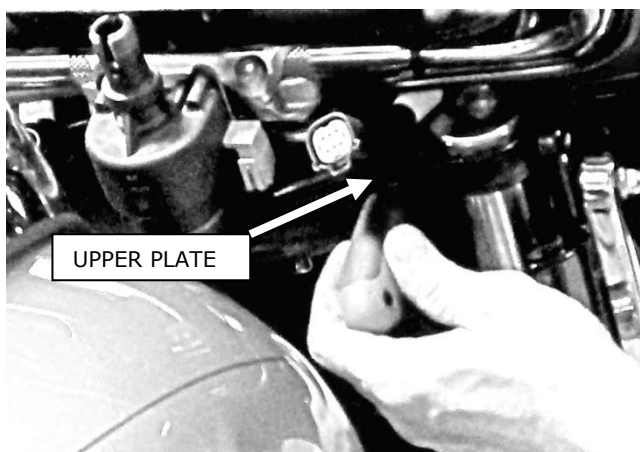
2. Remove the wheel and all the devices connected to the fork following the instructions in the original service's manual of the vehicle.

⚠ Attenzione

Pay particular attention to removing the ignition lock of the vehicle. Refer, in scrupulous manner, the instructions in the service's manual of the vehicle.



3. Make a note of the position of the fork leg compared to the top plate.
4. Loosen in sequence: upper plate, fork caps (without unscrewing them) and lower plate.



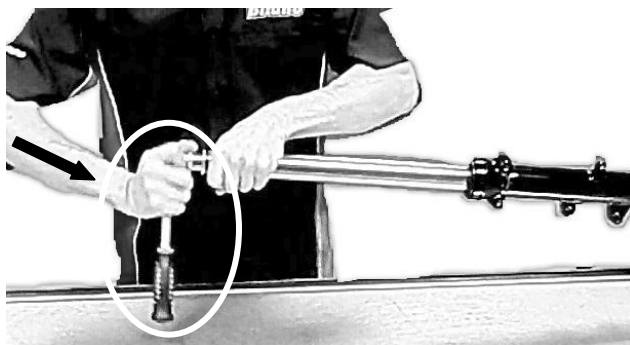
5. Continue by pulling out and dismantling the fork legs of the bike.



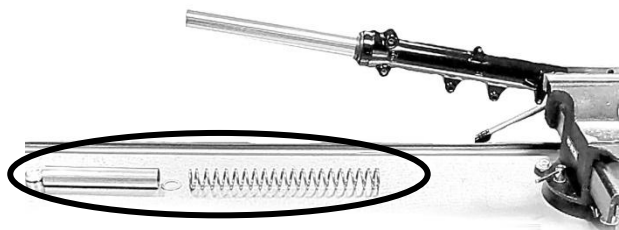
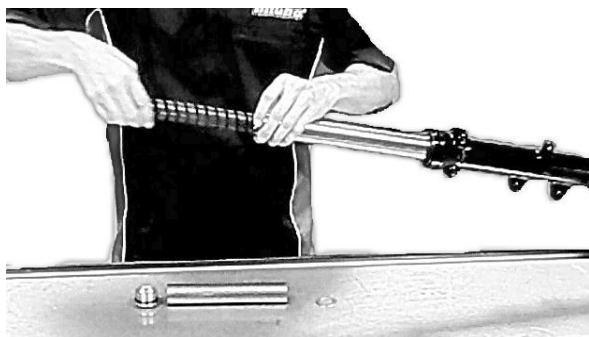
6. Unscrew the top cap from the stem.

! Attention

In unscrewing the fork caps, pay attention to the preload of the spring that might be quite high and therefore dangerous.



7. Remove the original spacers and spring.



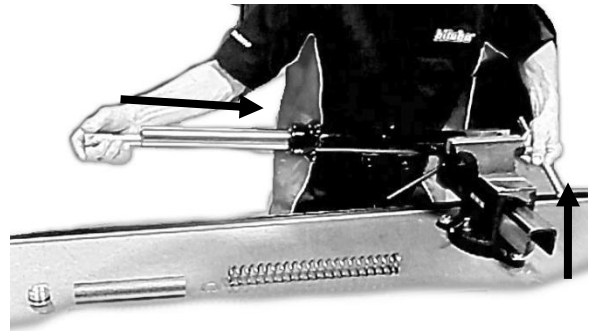
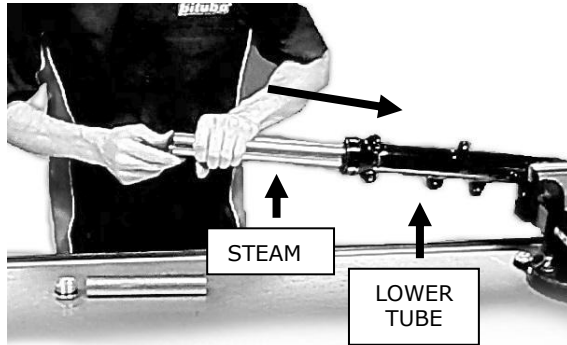
8. Overturn the fork leg and empty the oil from the lower tube.

! Attention

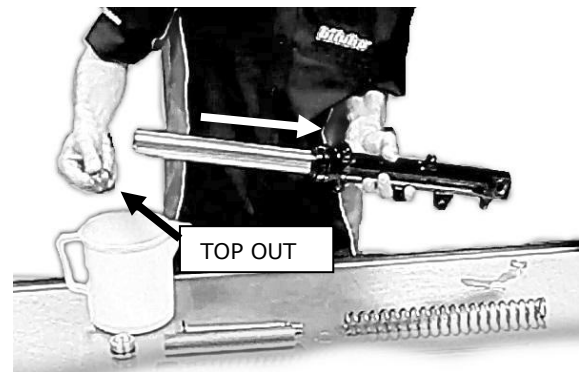
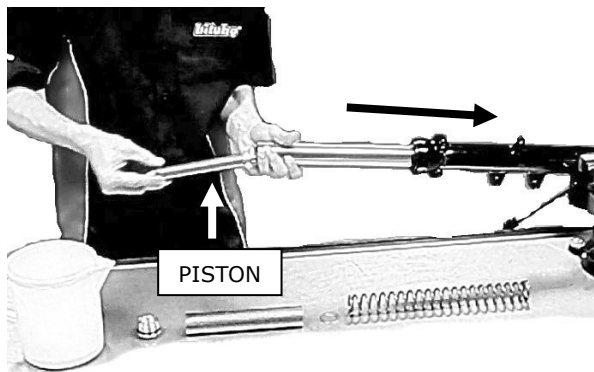
Let the legs drain for at least 10 minutes to make sure they are totally empty.



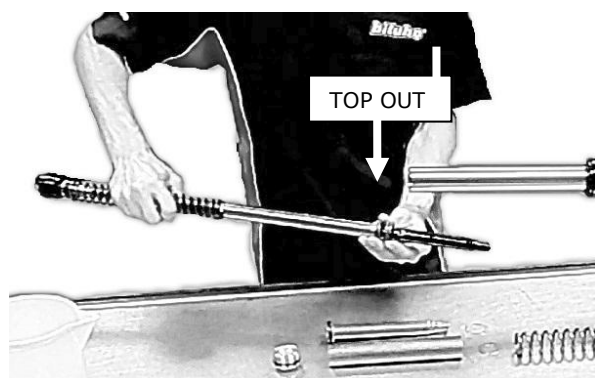
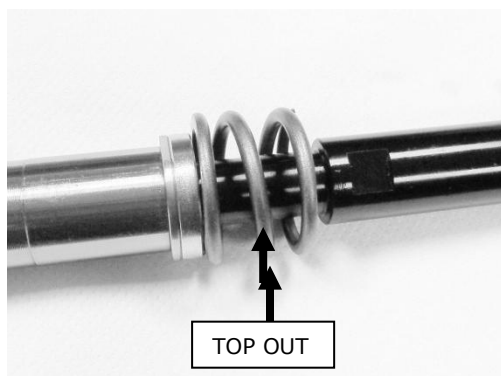
9. We recommend you check the fork stem and lower tube slide correctly without any friction and do not seize.
10. Bring the stem against the bottom of the lower tube and, paying attention to keep everything still, keep the original piston pressed, if necessary with tool 00473, and unscrew the Allen screw and respective washer, positioned in the lower hole of the foot near the wheel pin.



11. Holding the stem at the bottom of the lower tube, take the original piston out with the original top out.



12. Insert the original top out into the lower spacer of the BITUBO cartridge. If you want to use the length reduction KIT, insert also the respective spacers, checking the table in the SHORTENING section (pag. 26).



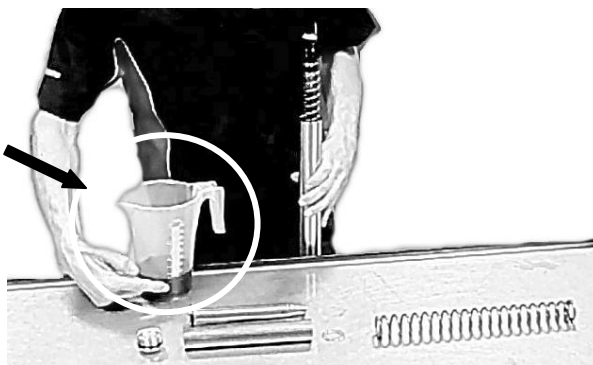
13. Holding the stem on the bottom of the lower tube, insert the BITUBO cartridge into the fork and fix it with the original Allen screw and washer, tightening correctly to the torque stated by the manufacturer.



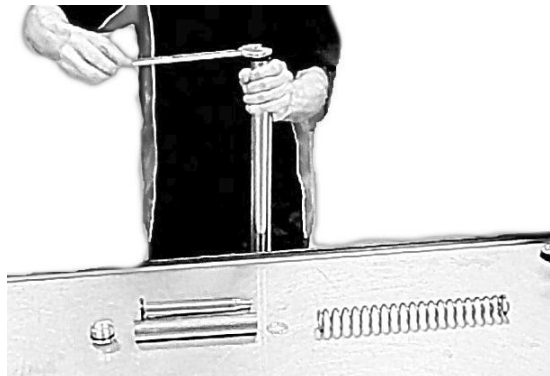
14. Position the cartridge vertically. Pour Bitubo oil code 997630, for the quantity refer to the table "1" in the BASE SET-UP section (pag.1). Perform some compressions and extensions of the fork tube to allow the oil to load correctly.

! Attention

The quantity of oil is critical to the proper functioning of the Bitubo KIT. Keep to the indicated quantity.



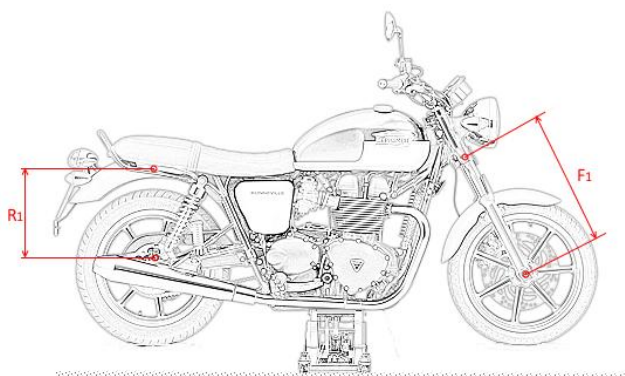
15. If the length reduction KIT has not been used, refer to the table in the SHORTENING section (pag. 26) to reduce the preload correctly.
16. Bring the fork stem near the top cap and screw it in until it stops, without tightening.



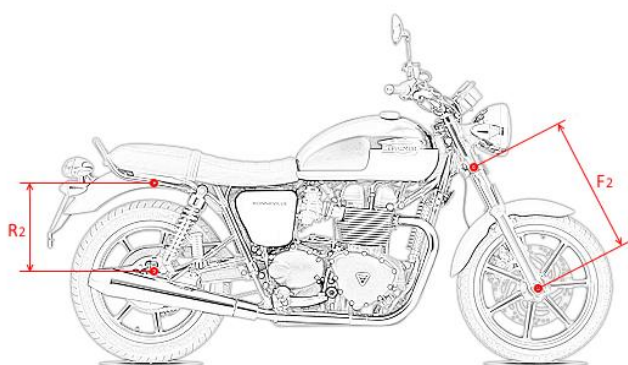
17. Make hydraulic adjustments and spring preload before installing the fork leg on the bike. The limited space between the handlebar and upper caps does not facilitate access to settings.

18. Once the fork has been reassembled onto the bike, tighten the lower plate making sure the fork is positioned as it was originally.
19. Tighten the cartridge cap as well as the upper plate cap to the torques stated in the user's manual.

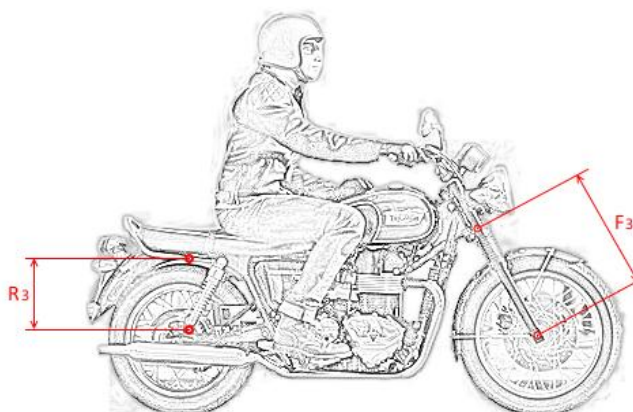
SAG MEASUREMENT



- 1) Raise the bike (swingarm unloaded and wheel off the ground) and compress the top out, forcing the complete extension of the control linkage of the back suspension. Repeat the operation for the forecarriage.
- 2) Identify two reference points on the vertical of the wheel pin: one in the centre of the wheel pin, the other fixed to the bike seat post frame. Both points must be precise and well defined in order to repeat the operation a few times. Repeat the operation for the forecarriage.
- 3) Measure the distance between R1 and F1.



- 4) Rest the bike with both wheels on the ground, slowly compress the suspension a couple of times letting it extend freely.
- 5) Measure the new distance between R2 and F2 (STATIC SAG).
- 6) $R2-R1$ (static sag) suggest should be included between 5mm - 10mm.
 $F2-F1$ (static sag) suggest should be included between 15mm - 25mm.



- 7) Measure again with the driver on the bike in driving position (RIDER SAG).
- 8) $R3-R1$ (rider sag) suggest should be included between 15 - 25mm.
 $F3-F1$ (rider sag) suggest should be included between 20 - 35mm.

In order to decrease the value of static sag, you shall increase the spring preload adjusting; on the other hand, in order to increase the static sag, you shall decrease the spring preload.

PROBLEMS AND SOLUTIONS

Find below some problems you might experience in using the suspension and their respective solutions:

A

Forward suspension excessive vibrations into the bend, disappearing on brake release or acceleration.

Do the following:

- Increase the spring preload by 2 - 3 turns
- Use a harder spring Replace the cartridge spring with a harder one.
- Check the fork plates are aligned correctly and the lower leg is fixed onto the front wheel pin.
- Back shock absorber springs too preloaded, unscrew ring-nut by 2 - 3 turns.

B

The front wheel "jumps" while braking.

Do the following:

- If the fork is not compressed in the last third of the stroke it means the oil level is too high: reduce the oil level by 15 grams.
- If the fork hits the end of stroke, increase the spring preload.

C

The front suspension loses grip out of the bend.

Do the following:

- Lack of damping in extension: close the "R" adjustment by 2 - 3 clicks
- Excessive spring preload: reduce the preload by 2 turns.
- Back suspension too soft: preload the back spring by 3 turns.
- The fork has not been positioned at the right level in the fixing plates: check assembly is correct.

D

The bike is too rigid and tends to jump on bumps.

Do the following:

- Springs are very likely too preloaded: reduce the preload by 2 turns.
- Excessive compression damping: open the "C" adjustment by 2 - 3 clicks.
- Extension damping too closed: open the "R" adjustment by 2 - 3 clicks.

E

Feeling of instability on the handlebar when 2 people are travelling.

Do the following:

- Lack of shock absorber support: increase spring preload by 2 - 3 turns.
- Insufficient damping: close the "C" and "R" adjustments by 1 - 2 clicks.

F

Feeling of heavy steering and poor manoeuvrability when 2 people are travelling.

Do the following:

- Increase the spring cartridge preload by 2 - 3 turns.
- Open the "R" adjustment by 1 - 2 clicks.

**Note**

We wish to remind you that suspensions interact with each other. Whenever the front suspension is adjusted, the back suspension will undergo a consequent effect and vice versa.

**Note**

Sometimes problems are more than one. Our advice is to make an adjustment at a time so that you can feel its effect better.

**Note**

All the above information refer to a vehicle:

- in good condition
- with tyres in good condition and inflated to the correct value
- with efficient brake system
- with forecarriage checked and lubricated to the fifth wheel wear level and axle tightening.