Shock Absorber TJ2, TJ3, TJ3GP

User Manual –

This user manual contains all the relevant information regarding the correct use and maintenance of TJ2, TJ3 and TJ3GP shock absorbers.

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Important Informations

IMPORTANT	
	Constantly referring to this manual ensures the best performance, a long-lasting shock absorber and ensures avoiding the most common cause of inconvenience and accidents that could happen during its use or maintenance. Repeatedly using our products in extreme conditions requires more frequent servicing. Using unrecommended high-pressure washing methods, using unrecommended spare parts, solvents and lubricants not recommended by Formula reduce the life span of our products.

IMPORTANT	
	Formula recommends only ORIGINAL spare parts and lubricant products Do not attempt assembly and disassembly operations on this product. Formula recommends consulting servicing technicians for these activities and finding eventual cracks, deformations, or evidence of damage due to fatigue or wear: if the inspection shows the presence of such problems, even if minor, immediately replace the component – with no attempts of repair.

SAFETY INFORMATION	
Formula HSE Health-Safety-Environment	Always wear nitrile gloves and safety glasses when working on the shock absorber. Ensure correct disposal of waste materials and liquids. Always ensure the shock absorber's reservoir is depressurized and the spring preload is loosened when requested in the manual. Servicing the shock absorber with a preloaded spring and a pressurized reservoir can cause severe or fatal injuries

Safety Guidelines

- Regularly check the spring ensuring there is no damage and replace it if necessary.
- Accidents and excessive or improper use of the bike can alter the structural integrity of the shock absorbers, greatly affecting their life span;
- Parts that have been bent or damaged following an accident must be replaced immediately with original Formula spare parts.
- Formula products and tools could be incompatible with third-party products or tools and vice-versa. Before using third-party items, ensure compatibility with a qualified technician or a tool manufacturer. The company declines any responsibility for malfunctions caused by improper tool use.
- The shock absorber's user is aware that there are risks from riding a bike, including, but not limited to, failure of the bike components which could lead to accidents with personal injuries or death.
- By buying and using the shock absorber, the user explicitly accepts, voluntarily and consciously and knows the risks, including passive negligence from Formula, such as hidden defects and exempts Formula from their responsibility in the highest measure allowed by the law against any damage derived from their use.

Maintenance Intervals

To keep the rear shock absorber efficient during normal usage and ensure proper maintenance, follow the maintenance intervals chosen by Formula:

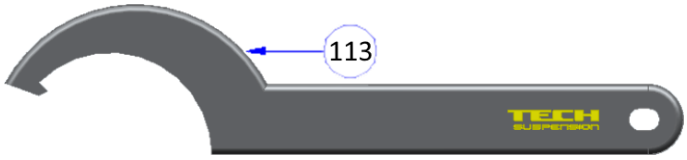
Procedure	Before and After any use	Every 8 Hours 1 Month	Every 35 Hours 3 Month	Every 100 Hours 1 Year
Washing with water and mild soap. Visual inspection.	X			
Shock SAG and spring preload check		X		
Reservoir pressure check			X	
Oil change and inspection				X

Use the table below to keep track of the spring preload measurement and return to the pre-service settings once the servicing has been completed:

Date	Spring Preload Measure	Notes

Required Tools

Descrizione	Posizione	Q.ty	Part number
Preload Shock Ring Key Tool	113	1	080033201
This tool is sold separately			



- Hex key:
  - 2 mm – Compression Control;
  - 2,5 mm – Screw for the Rebound knob;
  - 6 mm – Rebound Control (without knob);
- Formula Grease;
- Bench vise.

Shock Absorber Installation and Interference Check

After buying the TJ Shock Absorber it's necessary to ensure there are no interferences between the shock absorber and the bike's chassis for the entirety of the shock absorber travel. The check must be performed without the spring and the knob (if assembled).

Shock Absorber Characteristic

Rebound Control

1. All TJ Shock Absorbers allow controlling the rebound thanks to a knob on the shock absorber's head. The knob allows for a regulation of up to 24 "clicks" settings;

⚠ Do not use the 2,5 mm hex key to control the rebound: only use the knob. Controlling the rebound by using the knob's screw could cause malfunctions. If it's impossible to control the rebound manually with the knob, it must be disassembled with a 2,5 mm hex key and the rebound control must be performed with a 6 mm hex key.

2. This adjustment affects the 2nd phase of the shock absorber which happens after the compression phase. The extension range is strictly related to the stiffness of the spring used (N/mm): a spring with a higher stiffness has a higher restoring force, consequentially the shock absorber will require a higher hydraulic force;
3. In order to increase the rebound, rotate the knob CLOCKWISE (+);

4. The higher the stiffness, the faster the rebound for the same amount of "clicks". For example, moving from a spring with 68,7 Nm to one with 73,6 N/mm, to obtain the same rebound it's necessary to rotate clockwise the know by one or two clicks. Vice-versa for springs with lower stiffness.

⚠ It's not always possible to control the rebound. Get in touch with a specialized technician before working on the bike and disassemble the shock absorber to avoid activities that could compromise its proper function.

-End of Procedure-

Compression Regulation (TJ3/TJ3GP)

1. The regulation of the compression is a feature exclusive to the TJ3 and TJ3GP shock absorbers;
2. The compression phase is the first event that happens after landing on the ground for example. The compression range can be influenced by the spring. Screw the cap CLOCKWISE with a 2 mm hex key to increase the hydraulic force the shock absorber exercises when compressed; this allows for increased hydraulic support on the rear side of the bike;
3. Rotating the cap ANTI-CLOCKWISE will provide smaller support on the rear.

-End of Procedure-

SCAN ME
YouTube Video

Required tools:

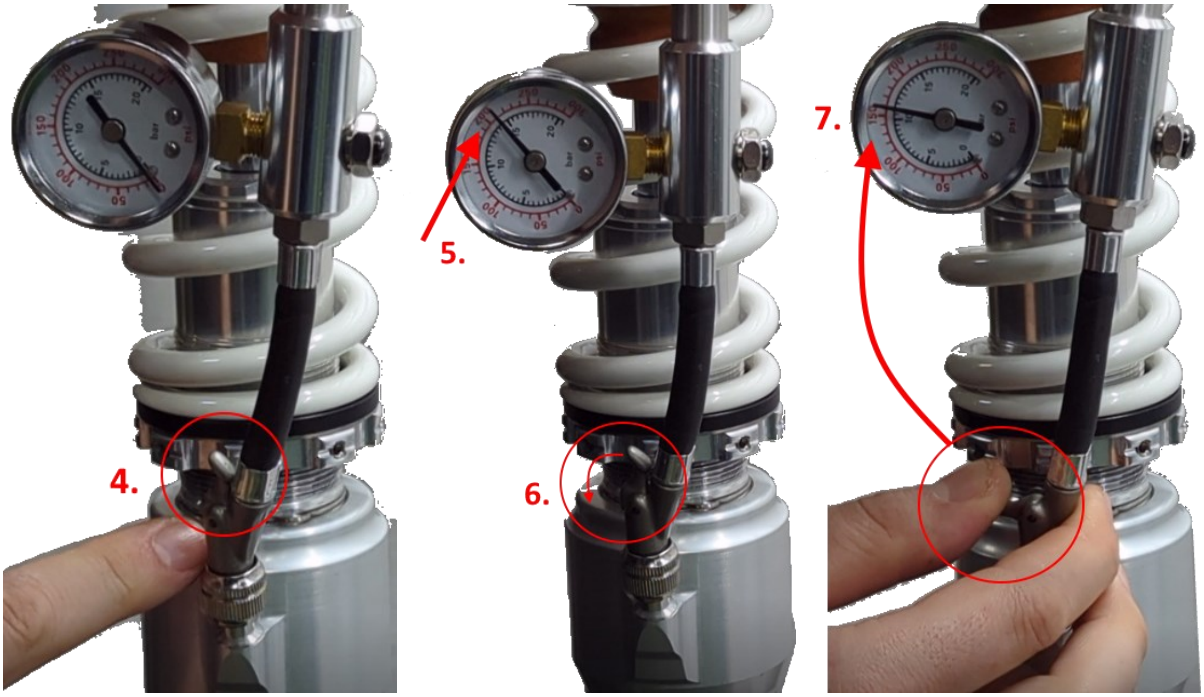
Bench vise, Formula Pump.

Procedure:

You can find the complete tutorial on Formula's YouTube channel.

1. Remove the uniball spacers and place the shock absorber in a bench vise;
2. ⚠ It's highly recommended to use a Formula Pump. Using different tools could cause issues;

3. Unscrew the reservoir cap;
4. Screw the air pump to the reservoir valve without enabling the valve duct;
5. Pressurise the pump at 200 psi;
6. Enable the valve duct and the pressure in the pump will be normalised with the pressure inside the reservoir;
7. Check the pressure and ensure it's between 10 and 12 bar;



⚠ If the pressure is lower than 10 bars, inflate the shock absorber with nitrogen. Do not use air to inflate the shock absorber as it could affect its performance and correct functioning.

8. If the pressure is correct, close the pump valve duct and remove the pump. Screw the reservoir cap;
9. Remove the shock absorber from the bench vise and reassemble the uniball spacers.

-End of Procedure-

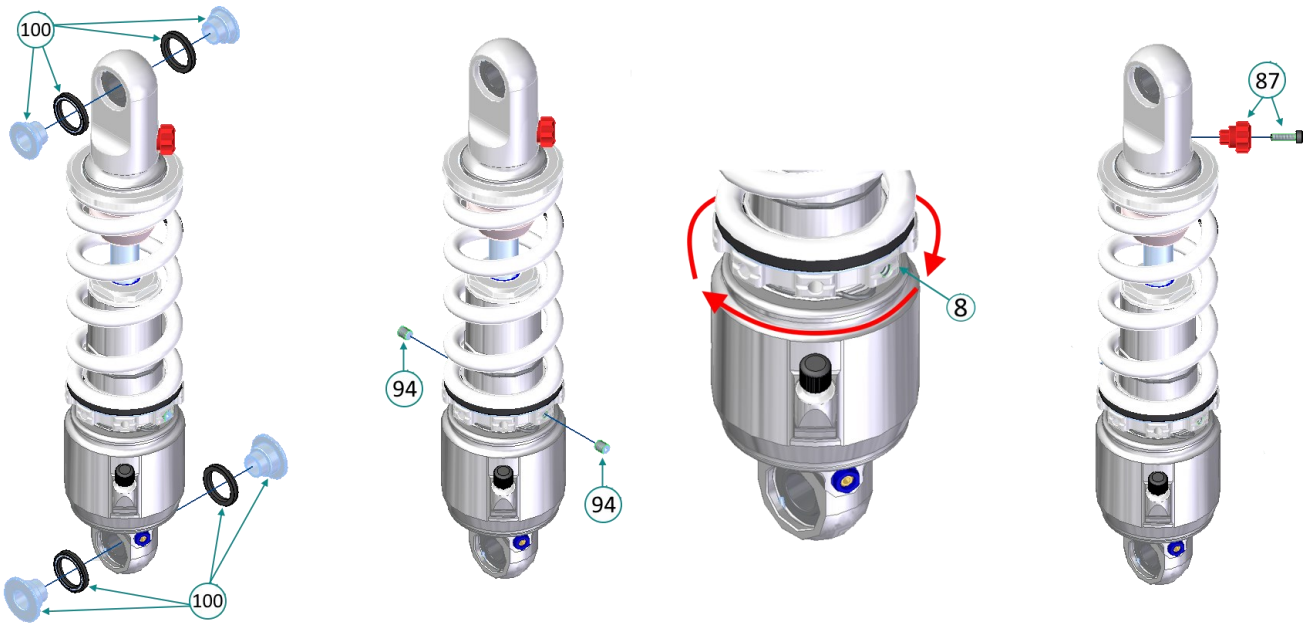
Spring Adjustment & Replacement

Required tools:

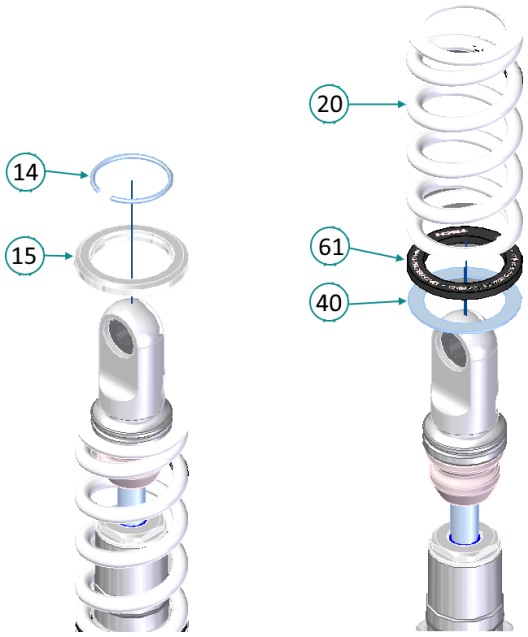
Bench vise, Formula Grease, Hex key 2,5 mm.

Procedure:

1. Remove the uniball spacers (100). Check the state of spacers and dust seals before proceeding. Place the shock absorber in a bench vise with plastic jaws to prevent damage. Measure and track the preload spring;
2. Unscrew the preload ring grub screws (94) and unscrew the spring regulation ring (8) until the spring is moving freely;
3. Disassembly the rebound knob (87) by unscrewing its screw with a 2,5 mm hex key;



4. Remove the seeger ring (14) and the ring spring support (15);
5. Extract the shock absorber's spring (20), the preload spacer (61) and the washer spring (40);



6. Clean the shock absorber with isopropyl alcohol and ensure there are no oil leaks or damages. Get in touch with customer support if there are anomalies;

7. Replace the spring (20) and the spacer (61) if necessary. The spacer (61) is sold with a laser marking that shows the spring it needs to be coupled with in order to ensure that the maximum preload is 10 mm. Using a different spacer could compromise the preload range and the proper function of the spring. As it's possible to see in the photo, each spacer is coupled with the respective spring:

Refer to the table below:

Spring Code (20)	K (N/mm)	Pre-Load Spacer Code (61)	Spacer Height (mm)	
090821251	83,6	042032015	1,5	Each spacer must be coupled with the respective spring
090801231	78,7	042032030	3	
090781211	73,6	042032045	4,5	
090761191	68,7	042032060	6	
090741171	63,6	042032075	7,5	

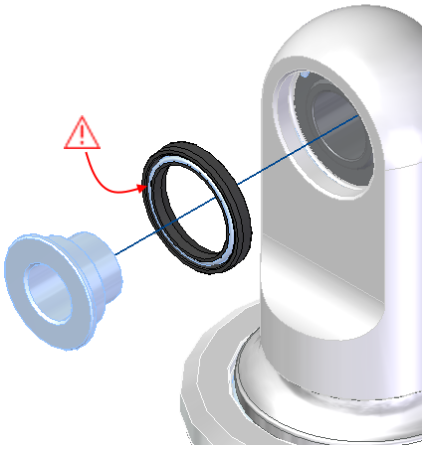
8. Assembly the washer spring (40), the preload spacer (61) and the spring (20);
9. Set the spring preload with the measure recorded in step n°1. Screw the preload ring grub screws with a 2,5 mm hex key with a tightening torque of 4 Nm;
10. Assembly the rebound knob (87), apply Loctite 242 on the thread of its screw and tighten it with 10 Nm;
11. Reassemble the uniball spacers.

-End of Procedure-

Procedure:

1. The shock absorber is supplied with dust seals and spacers already assembled;

2. If they need to be disassembled and replaced, ensure that during the dust seal assembly, its spring stays in place and does not get damaged;
3. Apply Formula grease on the outer diameters of the dust seal and assemble it in its housing;
4. Assemble the uniball spacers.



-End of Procedure-

Troubleshooting

Problem	Cause	Solution
Following a jump the rear end of the bike dashes me forward	Rebound regulation is too open	Rotate clockwise the rebound with 1/2 click and try again
The spring can rotate axially on the shock absorber	Preload lower than the minimum allowed (10 mm)	Rotate clockwise the shock preload ring
The shock absorber feels slow and is too supportive on the rear end, the bike is too unbalanced towards the front end	Spring too preloaded or compression too slow	Rotate anti-clockwise the shock preload ring or rotate anti-clockwise the compression regulator with 1/2 click
I can't obtain the compression I want by working on the entire preload	Spring too soft or too stiff	Change the spring
Backlash on the extension regulator	The screw is loose	Tighten the screw
Metallic noise between the bike and the shock absorber	No clearance or backlash between the components	Visually inspect the shock absorber. Inspect the couplings based on the bike manufacturer's specifications. Inspect the uniball and verify the correct functioning
The shock absorber is too soft and the setting seems to be different than usual	Check the reservoir pressure	If the pressure is correct and the issue isn't solved, do not use the shock absorber. Get in touch with customer support for inspection and servicing
Oil leakage	Leakage from the seals	Do not use the shock absorber. Get in touch with customer support for inspection and servicing
Scratched stem	Debris or accidents have carved the anodized surface	
Noise/Whistle coming from the shock absorber hydraulics	Pressure below the required specs or air inside the ducts	
The performance of the shock absorber changes too quickly	Excessive use of the damping. Exhausted oil or the presence of air inside the ducts. Excessive ambient temperature or overheating caused by the bike	

Warranty and Conditions

1. The following warranty has a duration of 24 months starting from the date of purchase which must be proved with a receipt.
2. The validity of this warranty is covered by a "complaint procedure" as follows:
    a. The complaint must be sent within 8 days after the defect has been found;
    b. Each complaint must be sent to the Formula reseller where the product was bought. The complaint acceptance is of exclusive competence of Formula if the product has been bought directly from Formula;
    c. Formula will receive potentially defective products exclusively from Formula resellers with the required documentation.

If the procedure is not compliant, the claim won't be considered; in that case, the returned item will be preserved for 30 days to be sent back to the owner, if the item does not get returned it will be destroyed.

3. This warranty does not apply to damage derived from:
    a. Transportation or incorrect assembly;
    b. Improper use of the product;
    c. Not original spare parts;
    d. Improper maintenance of the product, washing with aggressive products, corrosive agents, the prolonged exposition to solvents;
    e. Altering, damaging or removing the serial number or production number;
    f. Modifying the product without Formula's consent;
    g. Normal wear.
4. Retail sellers, wholesale sellers, importers or anyone outside of Formula cannot modify this warranty in any way.
5. This warranty refers to the European Union's Consumer guarantees. Further implementations of this warranty will refer to Italy's Consumer guarantees. Any legal controversy will be handled by Prato (Italy) Courthouse.

https://www.rideformula.com/it/

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