



Roberto Nuti Spa – User’s Troubleshooting





This short User's Troubleshooting is designed to help when determining the cause of shock absorber's failure

The vast majority of premature failures and consequent warranty returns found are not caused by faulty products, but are caused by a lack of suspension maintenance, incorrect installation or other associated problems.

Therefore, it is necessary to have a full understanding of the specific defects arising from unprofessional installation and possible factory defects of shock absorbers.

Before installing a new shock absorber, it is recommended to carefully examine the cause of the failure.

If the cause is not rectified, this will result in the failure of the newly installed shock absorber.





Visual method for diagnosis of shock absorbers

- ✓ This is the most common method, which allows, in most cases, to find out the true reasons for failures of shock absorbers.
- ✓ Using this method it is possible to accurately determine the causes of damage and destruction inside of the shock absorber.
- ✓ **It is important to know that one of the most common defects in the internal parts of the shock absorber is their natural wear.**
- ✓ When using a visual method of diagnosis, it is often necessary to remove the shock absorber installed on the truck, which usually entails significant work and, consequently, costs.
- ✓ **It should be noted that when a shock absorber is at work, oil 'mist' on its body and rod is considered to be a norm. But there should be no drops and leaks of oil on a body or a rod**

The names and numbers of third party manufacturers are used to identify the equivalent SABO product and such use does not imply any connection with such manufacturers.



Shox - inspection & troubleshooting guide



The information below are designed to help when servicing your shock absorber.

Shock absorbers are subjected to continuous wear. Stress and strain caused by pot-holes, rough terrain, heavy loads, trailers and also environmental impact such as dirt, wetness and gritting salt, exacerbate the process of wear and tear.

Depending on the mileage, the chassis becomes increasingly 'softer' as the efficiency of the shock absorbers declines.

This table shows defects, which can be diagnosed using this method. Typically, this diagnostic method is supplemented with visual inspection of shock absorbers.

Feeling when driving	Possible causes
Truck suspension is too soft (vehicle is unstable when turning, 'floats' on the road, or rocks back and forth)	Shock absorbers, that do not match the vehicle, are installed
	Subjective driver's experience
	Absence of the shock absorber fluid in the working chamber of the shock absorber
	Valve assembly of shock absorber is worn out
	Internal damages of the shock absorber
Truck suspension is too stiff (truck 'jumps' even on small bumps, bumps in the road pass to the body)	Shock absorber mount is torn off
	Subjective driver's experience
	Installed inappropriate shocks absorber or springs
	Shock absorber is 'jammed'
Knocking noise from the suspension	Shock absorber 'froze'
	Free play in mounting elements of shock absorber
	Internal defect of the shock-absorber
	The defect is associated with other elements of the suspension
Knocking noise from the suspension	Shock absorber mount is torn off

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Shox - inspection & troubleshooting guide



This table shows the major defects, which can arise at installation of new shock absorbers, as well as the types of factory defects.

Observed defect	Cause	Actions
Visible oil drops or leaks on a body and a rod of the new shock absorber	If after wiping drops do not resume, then this is the shock absorber lubrication	Shock absorber is repaired
Visible oil drops or leaks on a body and a rod of mounted shock absorber	Visible mechanical damage on the chrome plated rod of the shock absorber - traces of non-compliance with installation technology, resulting in rupture of the rod seals	Replacement of the shock absorber
	Visible abrasion on the chrome plated rod of the shock absorber - skew at installation of the shock absorber, resulting in rupture of the rod seals	Replacement of the shock absorber
	Factory defect	Replacement of the shock absorber
At installation of new shock absorbers there is a knocking noise in a suspension bracket	Due to the increased stiffness of the suspension bracket, the load on all of its elements increases too	Diagnostics of a suspension bracket and replacement of defective components
	Insufficient tightening torques for mounting of shock absorber assemblies	Checking the tightening torques. Replacement of shock absorber mounting assemblies, in case of damage
	The cartridge is not rigidly fixed inside the damper strut	Disassemble and assemble the strut mount in compliance with the installation technology
	Mudguard is not fixed	Remove the shock absorber and mount it in compliance with the installation technology
	Factory defect	Replacement of the shock absorber
The 'pumping' of a new shock absorber is the failure	Air in the working cylinder of the shock-absorber. The shock absorber was stored in horizontal position	Shock absorber is repaired. The problem itself is no longer observed after several cycles of compression/rebound
	Factory defect	Replacement of the shock absorber
The shock absorber is too stiff, soft or has too short of a stroke.	Mounted shock absorber is not appropriate for this truck model	Use the services of professionals when choosing a shock absorber
Rod break at installation	Failure to comply with the tightening torque recommended in the repair manual	Replacement of the shock absorber
Rod break at operation	Skew of the shock absorber at installation	Replacement of the shock absorber

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The information below is a guide designed to help when determining the most common cause of shox failure.

Oily shock absorbers



Appearance

- Leaks in the piston rod sealing system result in oil loss in the shock absorber

Possible causes

- Early wear/damaged oil seal or bushing due to overextension (wrong application)
- Early wear from extreme working conditions/load, pot-holed road, etc)
- damaged piston rod

Possible consequences:

Shox decreasing in damping performance

Suggestions

It should be noted that when a shock absorber is at work, oil 'mist' on its body and rod is considered to be a norm. But there should be no drops and leaks of oil on a body or a rod.

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Piston rod damaged

Possible causes

- problems during installation (counter-pressing with inappropriate tools)
- defective dust cover
- Damage from stone chipping

Possible consequences:

- leakage or oil loss (the scratched piston rod causes abrasion to the piston rod sealing system)

Suggestions

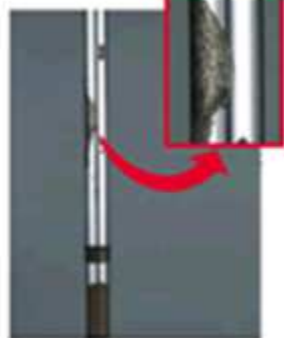
- Installation instructions must be observed
- Make sure the dust cover is fitted correctly.
- Do not counter-press with tongs, and always use appropriate tools



Chrome peeled off on piston rod.



Damage on surface of piston rod as in photo.



Damage on one side of surface of piston rod as in photo.

Appearance

- **Scratches and corrosion on the sensitive piston rod surface (slide face).**

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Severed thread



Possible causes

- problems during installation (use of impact wrench)
- non-observance of torque specification
- Suspension system misalignment

Possible consequences:

- complete failure
- noises during shock strut compression and rebound
- restriction of driving and braking safety
- loud rattling

Appearance

- Fastening of the shock absorber is missing.

Suggestions

Installation instructions must be observed

An impact wrench must not be used during piston rod assembly.

The locking torque must be observed.

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Rubber bushes torn or worn out



APPEREANCE

- Noise develops during shock strut compression/rebound (e.g.rattling,squeaking).

Possible causes

- wear (material fatigue)
- frequent excessive loading e.g. overload, trailer, driving on rough terrain
- braced installation

Possible consequences:

- complete failure
- noises during shock strut compression and rebound
- restriction of driving and braking safety
- loud rattling

Suggestions

Installation instructions must be observed

restricted driving and braking safety –replace of the shox(s)

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Welding breakage



APPEREANCE

- Detachment of parts, complete loss of functionality

Possible causes

- wear (material fatigue)
- Continuous internal collision during opening
- Max tensile strenght applied locally higher than the mech. characteristics of the weld bead (over-extension)

Possible consequences:

- Complete shox failure

Suggestions

Installation instructions must be observed (verify shox application)
restricted driving and braking safety –replace of the shox(s)

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Washer: Snatched and Bended



APPEREANCE

- **Damaged parts, complete loss of functionality**

Possible causes

- wear (material fatigue)
- Continuous internal collision during opening
- tensile strenght applied locally higher than mech.characteristics of weld bead

Possible consequences:

- Complete shox failure

Suggestions

Installation instructions must be observed (verify shox application)
restricted driving and braking safety –replace of the shox(s)

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