Guideline to Evaluate Warranty Claims

Heavy-duty Shock Absorbers

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1) Inspection

It is recommended to inspect Sachs shocks visually during regular maintenance schedules, however at least:

- linehaul applications: every 100,000 miles
- vocational applications: every 50,000 miles

The visual inspection should include

- the shock itself (leakage, any irregularities)
- shock bushings
- tires (tire cupping)

The most common failures and their possible causes are compiled in this document. By understanding the cause you may be able to correct the problem, avoid future failures and ensure ride safety.

For further assistance please contact:

Sachs Automotive of America

(859) 647 – 84 47 Ivan Botello
or (248) 458 – 36 88 Jim C. King

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2) “Misting“

Appearance might be deceptive. A certain degree of vapor is normal and actually necessary for lubrication of the rod seal.

The inspection must not be conducted after drive in wet weather or a vehicle wash. Shock needs to be free from water.

“Misting“

OBSERVATION:

A precipitation of oil mist on the outside of the shock is visible.

Carefully touch shocks with dry finger. (Use caution: shocks may be hot!) If the finger remains dry, the shock is not leaking.

If in doubt, wipe shock clean and check again after a few days of operation.

CAUSE:

Oil vapor is necessary to lubricate the rod seal. At high operating temperatures this results in oil mist and precipitation.

EFFECT:

none

ACTION:

none

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3) „Leaker“

OBSERVATION

A shock is considered a „leaker“, if

- the reservoir tube (smaller diameter) is largely covered with oil
- finger gets wet, when touching shock (see „Misting“)

- after above finger test, shock exhibits a glossy film of oil and/or dirt, or an oil droplet forms on reservoir tube
- a film of oil is also visible in the upper area of the reservoir tube, after extension of the shock. If oil is only visible around the bottom, it likely stems from an outside source

CAUSE:

- worn, damaged or overheated seal

EFFECT:

- loss of oil
- loss of damping function
- loss of ride control and safety

ACTION:

replace leaking shock

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4) Noise - Rubber Bushings

Noise emitted during operation is not necessarily caused by defective shocks.

Therefore in case of noise issues:

Check all relevant suspension and axle components, e.g. rubber mounts, springs, jounce stops, bushings, steering.

Rubber bushing „worn“ or „deformed“

OBSERVATION:

- rubber bushing is visibly deformed or damaged
- eye (or „loop“) is eccentrically deformed
- sleeve is not centered within bushing

CAUSE:

- extensive use of rebound stop, incorrect ride height, shock may be too short for application

- extremely high conical angles, not suitable for this design

EFFECT:

noise, increased wear of shock and suspension

ACTION:

- verify ride height

- verify that shock is suitable for this application

- replace defective shock absorber

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5) Noise - Scratching Metal Dust Cover

Noise emitted during operation is not necessarily caused by defective shocks.

Therefore in case of noise issues:

Check all relevant suspension and axle components, e.g. rubber mounts, springs, jounce stops, bushings, steering.

„Metal dust cover scratches reservoir tube“

OBSERVATION:

- Paint scratched off reservoir tube

CAUSE:

- suspension is misaligned, shock is under unintended lateral or longitudinal preload

EFFECT:

- noise

- corrosion of reservoir tube

- subsequently wear of rod seal, leakage and loss of function

ACTION:

- check suspension, while vehicle is at design height

- replace shock only, if significant amount of paint is already scratched off or loss of oil is visible

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6) Degradation of Damping Performance

It is impossible to verify the correct damping characteristic of a shock absorber without a dynamometer. In the field, the following, more practical test can help to identify a shock, which is suspected to have failed:

1) Conduct test few minutes after operating the vehicle

2) Touch a metal element of the chassis to determine a reference temperature

3) Carefully touch the shock reservoir tube (lower tube, smaller diameter) on either side of the same axle to measure temperature of shock absorbers

4) Both shocks should be
   - warmer than the original reference point
   - similar in temperature

5) A cool or significantly colder shock absorber likely is a failure and needs to be replaced

6) After removal from the vehicle, the following may hint to the cause of failure:
   - Manually stroke shock several times in vertical position:
     no or delayed resistance would indicate a loss of damping force.
   - Shake shock upside down: rattling would indicate a broken internal component

7) A final determination can only be made by the manufacturer, using a dynamometer

Other indicators of damping force degradation include:

a) ride deterioration
b) deteriorated rubber attachments
c) uneven tire wear („tire cupping“)
d) excessive vibrations and premature wear on other vehicle components

EFFECT: Reduced ride control, comfort and safety

ACTION: Replace shock absorber