Technical Service Information

TSI–05–16–05

Date: September, 2005

Subject File: CAB

Subject: 9000i Cab Air Suspension Shock Absorber Leakage Identification

Model: 9200i

Model: 9400i

Model: 9900i

Model: 9900ix

Unit Code: 16WCJ

Unit Code: 16WGR

DESCRIPTION

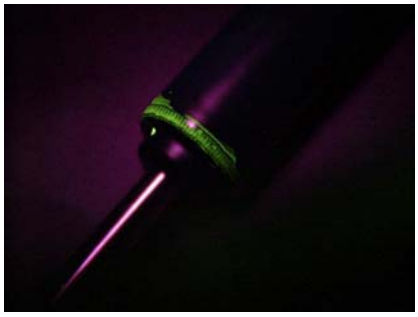
NOTICE

The information supplied herein has been furnished by the manufacturer and/or the supplier for use with its product. International Truck and Engine Corporation reprints this information based on representations made to the Company. While users are urged to carefully follow the instructions accompanying the product, International cannot accept any responsibility for user errors, or mishaps resulting from such errors, or from any misuse of the product.

WARNING – To avoid property damage, personal injury, or death, park the vehicle on a flat level surface, set the parking brake, turn the engine off, and chock the wheels.

Tenneco Automotive Shock Leakage Identification Service Bulletin

1) While within the warranty period Tenneco Automotive recommends replacing the defective shock only. If the other shock/s are performing fine they need not be replaced.
2) Tenneco Automotive shock absorber oil has yellow fluorescence in it. This shows up when a leaking shock is seen under black light. If the oil has other fluorescence color or none then the shock may not be leaking.



Shock with oil on the reserve tube

Shock with grease on reserve tube

3) Sometimes excess grease from the oil seal softens and burps out between the rod and seal on the top. With the some dust on the shock this quickly spreads on significant body of the shock absorber (reserve tube) and shock absorber could appear to be leaking. The grease has blue fluorescence to it.

Tenneco Automotive recommends following procedure to confirm shock absorber leakage at International Trucks or their dealerships

1) On report of a leaking shock Tenneco Automotive recommends performing a black light check to determine if this is a shock absorber oil leakage or other leakage per the explanation above. Portable black lights are readily available in the market.
2) If the above is true, differentiate between weeping and leaking shock absorber. Weepage, is acceptable and helps lubricate the rod to prevent premature wearing. Weepage often causes light accumulation of dust and dirt toward the top of the shock. Conversely, leaking can be identified by large drops of oil rolling down the side of the shock. Refer to picture below on weepage vs leakage.
3) If (2) cannot be confirmed
    a. Clean up the shock and ride the vehicle for some distance. If the shock is leaking, traces of shock oil should show up again on the outer tube of the shock. Also if the shock absorber is leaking it will not have any damping and cab will have a rough ride. If the cab ride is not rough, the cab shock may not be leaking but just weeping.
    b. A heavily leaking shock could also demonstrate oil coming out of the top seal even when the shock absorber is stroked multiple times by hand.
4) 1201-0054 (Tenneco Automotive OE16970) and 1201-0154 (Tenneco Automotive OE11256) are gas charged shocks. If the shocks are leaking they should not retain any gas in them. When fully compressed a leaking shock should not return to its extended length automatically. This is a very good check to

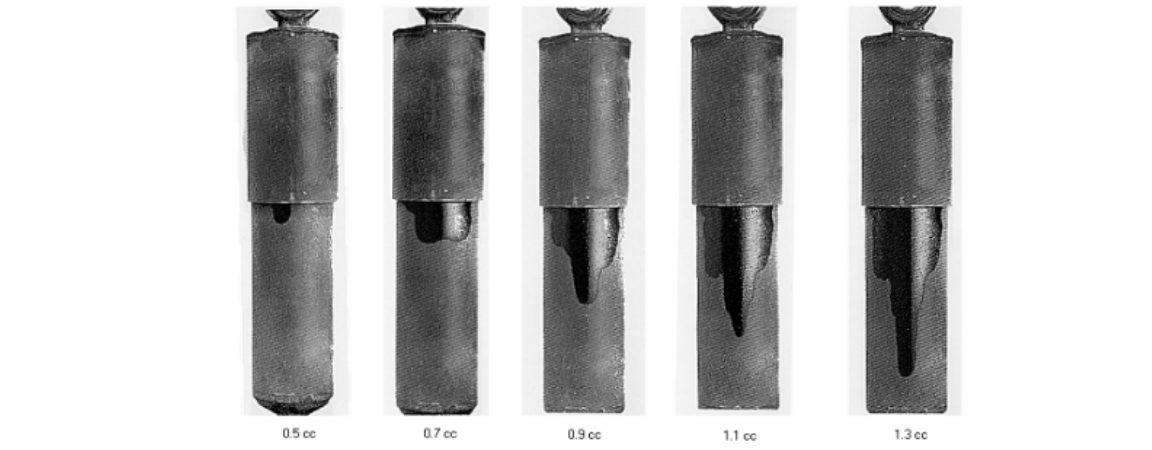
identify a leaking shock. Please note that this applies to above part numbers only since shock absorbers for other applications may not be gas charged

Weepage vs. Leakage

Weeping shocks are often mis-diagnosed as failures. Weepage is the process by which a very small amount of shock fluid which is clinging to the shock rod is pulled past the oil seal on the extension stroke. When the shock is compressed, some of the fluid is scrapped off by the oil seal and left on the outside of the shock absorber. Over time, the fluid can build up and run down the side of the shock absorber.

Weepage is acceptable and is necessary to the proper operation of the shock absorber. If the oil seal provided a "perfect" seal, the increased friction would cause the seal to heat up and melt. By allowing very small amount of fluid to pass through the seal the friction is lowered and less heat is build up. Many inspectors find it difficult to differentiate between a weeping shock and a leaking shock that needs to be replaced. Leakage is similar to weepage in appearance; however, a leaker has a lot more oil. A leaker will show clear streams of large streams of fluid flowing from upper seal area. The shock absorber will be visibly saturated in oil and this could also be accompanied by a thick damp layer of contamination.

Below is a group of photos showing acceptable weepage of a shock absorber. These are not failures and should not be replaced.



Although dramatic looking, the actual fluid loss of these shocks has little effect on it operation. This particular part number has 128 cc of oil inside which includes sufficient amount of reserve before having any negative impact on the damping capability.

Fluid dripping of the shock, a thick, wet layer of contaminants, and large streams of fluid along the shock body are signs of a failed shock absorber.