

SUSPENSION

APPLICATION

This inspection applies to all vehicles.

PROCEDURE AND STANDARDS

- Check all suspension components for condition and security.
- Insecurity of attachment points can best be assessed when the steering and/or brakes are operated.

LEAF SPRING SYSTEMS:

- Check correct alignment of leaves.
- The fail criteria is that the leaves are so misaligned that each leaf is not taking a reasonable proportion of the load, or that they are likely to foul other parts of the vehicle.
- A "U" bolt should be regarded as loose if there is clear visual evidence that it is not properly fulfilling its function of securing a spring and, before it can do so it needs remedial action.
- A leaf spring with a fracture or crack on the curled section which prevents the axle moving in the event of main leaf failure is a reason for failure.

SPRING PINS:

- Wear in pins & bushes: The maximum permissible wear in a pin and/or bush is 2 mm for a 12 mm diameter pin and 1/8 of the diameter for larger assemblies. For a threaded pin it is the diameter of the threaded part which should be taken into account when assessing wear. These criteria should not be used when checking rubber bushes which should be checked for deterioration of the rubber which could result in excessive movement.

- The maximum side play must not exceed 6 mm . This does not apply to a threaded pin and bush assembly or to rubber bushes or to single spring bogie suspensions.
- Security of spring pins: Where an anchor/shackle pin is secured at one end the maximum amount of movement at the free end should not exceed 1 mm for smaller assemblies, increasing to 2 mm for larger assemblies.

SLIPPER BRACKETS:

- Rebound pins where fitted as standard should be correctly located.
- Worn slipper brackets are a Reason for Failure when worn to the extent they could, at the time of the inspection, clearly affect the movement or correct location of the road spring (or have allowed the spring leaf to damage the chassis).

AIR/FLUID SYSTEMS:

- When assessing the significance of leaks it should be remembered that certain pneumatic components are subject to some degree of leakage. Slight seepage producing a thin film of oil on the component is not a Reason for Failure but any sign of dripping is unacceptable.
- Exposure of air bag structural cords is acceptable providing that they are not damaged to such an extent the unit is likely to fail.
- An air bag for holding a lift axle in the raised position must be considered against the same pass, fail criteria as any other suspension air bag.

Note: A fractured and or repaired air bag pedestal if performing satisfactorily and not damaging the air bag is not a Reason for Failure.

Note: Independent suspension should be jacked (where practical) to remove the weight from the suspension joints (suspension hanging freely).

Note: Scania vehicles with air suspension, have attachment points for a retaining chain, the omission of the chain is not a Reason for Failure.

COIL SPRINGS:

- Check for correct location.

ADJUSTABLE RADIUS AND PANHARD RODS:

- Check clamp bolts for security.

SHOCK ABSORBERS/ANTI ROLL BARS:

- Check shock absorbers for leaks. Slight seepage producing a thin film of fluid on a shock absorber is not a reason for failure but any sign of dripping is unacceptable.
- Check for the presence of shock absorbers and/or anti roll bars where fitted as standard equipment.
- Anti roll bar bushes repaired with resin are acceptable providing the repair is adequate resulting in the removal of the excess wear.

REASONS FOR FAILURE

	Deficiency Category
1. All suspension types. - An attachment point and/or bracket including linkages, balance beams, panhard rods, spring saddle etc.:	
a. Insecure.	MAJOR
b. Insecure to such an extent that detachment is likely	DANGEROUS
c. Disconnected.	DANGEROUS
d. Fractured or cracked.	MAJOR
e. So damaged, distorted or corroded that it adversely affects its function and obviously affects directional stability	DANGEROUS
f. Incorrectly located or fitted or a secondary spring leaf missing.	MAJOR
g. A main spring leaf, multiple spring leaves or any other type of suspension spring assembly missing.	DANGEROUS
h. Bolt or rivet missing.	MAJOR
i. Rubber or bonded bush deteriorated.	MAJOR
j. Defective such that a wheel could foul any other part of the vehicle	DANGEROUS
k. Wear in a spring pin, bush or mounting exceeding the prescribed limit.	MAJOR

l.	Wear in a spring pin, bush or mounting exceeding the prescribed limit which obviously affects directional stability.	DANGEROUS
m.	A ball joint dust cover deteriorated.	MINOR
n.	A ball joint dust cover missing, insecure, excessively damaged or severely deteriorated to the extent that it would no longer prevent the ingress of dirt etc.	MAJOR
o.	With an inappropriate repair which has seriously weakened the component.	MAJOR
p.	With an inappropriate repair which has seriously weakened the component and does not provide sufficient clearance to other vehicle parts or renders the suspension component inoperative.	DANGEROUS
q.	Unsafe modification.	MAJOR
r.	Unsafe modification to such an extent that there is insufficient clearance to other vehicle parts or the suspension component is inoperative.	MAJOR
s.	A suspension unit so weak that the body or other part of the vehicle is fouling the road wheels or is likely to do so if the vehicle is laden.	MAJOR
2.	Leaf Springs and Fixings	
a.	A fractured or cracked leaf or one repaired by welding.	MAJOR
b.	A fractured or cracked leaf or one repaired by welding, which obviously affects directional stability.	DANGEROUS
c.	Spring leaves splayed beyond the prescribed limits or fouling any other part of the vehicle.	MAJOR
d.	Movement in a spring fixing pin in excess of the prescribed limits.	MAJOR
e.	Slipper bracket rebound pin missing or incorrectly located.	MINOR
f.	Slipper bracket rebound pin missing or incorrectly located with spring displaced.	MAJOR
g.	Relative movement or displacement between a spring and the axle.	DANGEROUS
h.	A missing shackle or anchor pin.	MAJOR

i.	A missing shackle or anchor pin with obvious signs of movement.	DANGEROUS
j.	A worn slipper bracket.	MAJOR
k.	So corroded, pitted or seriously weakened that it is likely to fail.	MAJOR
l.	An insecure or missing locking device from a shackle or anchor pin.	MAJOR
3. Coil Springs and Torsion Bars:		
a.	Incomplete.	MAJOR
b.	Incomplete and which obviously affects directional stability	DANGEROUS
c.	Fractured, cracked or repaired by welding.	MAJOR
d.	Corroded, pitted, or seriously weakened so it is likely to fail.	MAJOR
e.	Torsion bar fixings with excessive free play, insecure, or an adjustment assembly incorrectly fitted and/or insecurely locked.	MAJOR
f.	Incorrectly located or fitted.	MAJOR
4. Air/Fluid Suspension System valves, Pipes, valve linkage, bellows and displacer/ accumulator Unit:		
a.	Displaced, deflated, so damaged/deteriorated that it is likely to fail.	MAJOR
b.	Fouled by other parts.	MAJOR
c.	With check strap missing or defective. (where fitted as standard)	MAJOR
d.	Insecure.	MAJOR
e.	Leaking.	MAJOR
f.	Leaking to such an extent that the function of the system is seriously affected.	DANGEROUS
g.	System inoperable	DANGEROUS

5. Bonded Suspension Units:
 - a. With failure of bonding between flexible element and metal so that part of the unit is likely to fail. MAJOR
 - b. Unit is so damaged or deteriorated that it is no longer capable of carrying out its proper function. MAJOR

6. Shock Absorber:
 - a. Missing from a vehicle on which it is a standard component. MAJOR
 - b. With an anchorage fractured or unit insecure or with sleeve damaged so that the unit is not functioning correctly. MAJOR
 - c. Leaking. MAJOR
 - d. With an excessively worn rubber bush or pivot. MAJOR
 - e. Linkage missing, linkage bracket cracked so that it is likely to fail, fractured or cracked or excessively worn. MAJOR

7. Anti roll bar:
 - a. Missing from a vehicle on which it is a standard component. MAJOR
 - b. Insecure. MAJOR
 - c. Fractured, cracked or severely distorted. MAJOR
 - d. So corroded or worn that its strength is seriously reduced. MAJOR

8. Anti roll bar linkage/bracket or bushes:
 - a. Missing from a vehicle on which it is a standard component or any of its associated linkage/brackets or bushes missing. MAJOR
 - b. Insecure MAJOR
 - c. Fractured, cracked, severely distorted or so corroded or worn that its strength is seriously reduced. MAJOR