

Steering

6-1 Steering and suspension systems



Summary of legislation

Applicable legislation

- Land Transport Rule: Steering Systems 2001

Condition

1. The steering system (**Note 1**) and associated systems and components that directly or indirectly affect the directional control of the vehicle must be:
 - a) sound and in good condition, and
 - b) strong, durable, and fit for their purpose, taking into account whether adverse effects have resulted from a loss of integrity of any protective system used by a relevant component.

Performance

2. The steering system and associated systems and components that directly or indirectly affect the directional control of the vehicle must provide the vehicle with safe, efficient, convenient and sensitive control.

Reasons for rejection

Condition

1. A **steering linkage or joint**:
 - a) is insecure, or
 - b) is damaged, significantly corroded, distorted or cracked, or
 - c) shows signs of welding or heating after original manufacture, or
 - d) has play beyond manufacturer's specifications, or
 - e) does not operate smoothly without roughness or stiffness, or
 - f) is fouling on the vehicle structure, wheel tyre or brake system component.
2. A **steering arm or associated component**:
 - a) is insecure, or
 - b) is damaged, significantly corroded, distorted or cracked, or
 - c) shows signs of welding or heating after original manufacture.
3. A **kingpin or outer ball joint**:
 - a) is insecure, or
 - b) is damaged, significantly corroded, distorted or cracked, or
 - c) shows signs of welding or heating after original manufacture, or
 - d) has play beyond the manufacturer's specifications, or
 - e) does not operate smoothly without roughness or stiffness.
4. A **lock-stop** is loose or damaged.
5. A **steering component mounting point**:
 - a) is insecure, or
 - b) has corrosion damage (**Note 2**), buckling or fractures within 150 mm of a mounting point (**Figure 6-1-1**).
6. A **suspension component**:
 - a) is insecure, or
 - b) is damaged, significantly corroded, distorted or cracked, or
 - c) shows signs of welding or heating after original manufacture, or
 - d) has play beyond manufacturer's specifications, or
 - e) does not operate smoothly without roughness or stiffness, or
 - f) has excessive leakage of damping fluid, or
 - g) shows excessive play, roughness or stiffness in a strut upper support bearing.

Reasons for rejection

7. There is corrosion damage (**Note 2**) within 150 mm of a suspension component mounting point.

Performance

8. During operation:
 - a) the vehicle veers significantly to one side, or
 - b) the vehicle requires unreasonable force to steer, or
 - c) the steering is unreasonably stiff or rough.

Note 1 Definition

Steering system means those components, parts and systems that connect the driver's controls to the vehicle's wheels or tracks by means of which the direction of motion of a vehicle is controlled.

Note 2 Corrosion damage is where the metal has been eaten away, which is evident by pitting. The outward signs of such corrosion damage is typically displayed by the lifting or bubbling of paint. In extreme cases, the area affected by the corrosion damage will fall out and leave a hole.

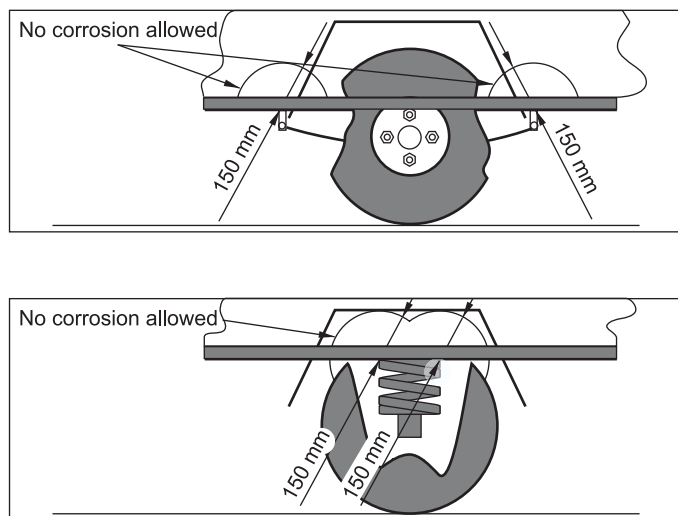


Figure 6-1-1. Corrosion limits around front or rear suspension anchorages

Summary of legislation

Applicable legislation

- Land Transport Rule: Vehicle Dimensions and Mass 2002
- Land Transport Rule: Heavy Vehicles 2004

Permitted equipment

1. A trailer may be fitted with a ballrace turntable.

Condition

2. Refer to general vehicle pages.
3. The suspension system must have adequate strength for all conditions of loading and operation for which the vehicle was constructed.
4. A ballrace turntable must be securely fastened and within safe tolerance of its original condition.

Performance

5. Refer to general vehicle pages.
6. The suspension system must have performance characteristics for all conditions of loading and operation for which the vehicle was constructed.

Modification and repair

7. A modification or repair that affects the steering or suspension system must be inspected and certified by a HVS certifier of category HVEC, HVMC or HVIC, unless the vehicle:
 - a) excluded from the requirement for HVS certification (**Table 6-1-1**), and
 - b) has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.

Reasons for rejection

Condition

1. General vehicle pages.
2. A ballrace turntable:
 - a) is not securely fastened, eg bolts or fasteners are loose, or
 - b) is worn beyond manufacturer's tolerances, or
 - c) is cracked or distorted, or
 - d) is corroded or deteriorated so that it is no longer safe.

Performance

3. General vehicle pages.

Modification and repair

4. A modification or repair affects the steering and suspension system and:
 - a) is not excluded from the requirements for HVS certification (**Table 6-1-1**), or
 - b) the modification is not for the purpose of law enforcement or the provision of emergency services, or
 - c) is missing proof of HVS certification, ie:
 - i. the vehicle was modified or repaired before the last CoF inspection and no LANDATA record has been entered, or
 - ii. the vehicle was modified or repaired since the last CoF inspection and no valid LT400 form from a HVS certifier of category HVEC, HVMC or HVIC has been presented.

Table 6-1-1. Requirements for HVS certification

HVS certification is required	HVS certification is not required
<ol style="list-style-type: none"> 1. A steering or suspension system that is modified, including a replacement system that is not identical to the system fitted by the vehicle manufacturer. 2. The steering system of a vehicle to which a second steering axle is fitted to form a twin-steer axle set. 3. Any components showing successive repairs. 	<ol style="list-style-type: none"> 1. Any modification or repair likely to have been carried out before 1/1/1997. (Modifications and repairs before this date generally required certification but for inspection purposes no evidence of this is required.) 2. Any repair or modification not listed in the left-hand column unless the vehicle inspector considers that certification is required because the modification or repair has affected the vehicle's safety performance (a second opinion from an expert may be needed, eg the manufacturer's representative, reputable workshop).

Note 1 Definition

Ballrace turntable means a device incorporating a low friction ball bearing fitted between two substantial structural components of a vehicle to enable rotational motion between those components about a vertical axis.

