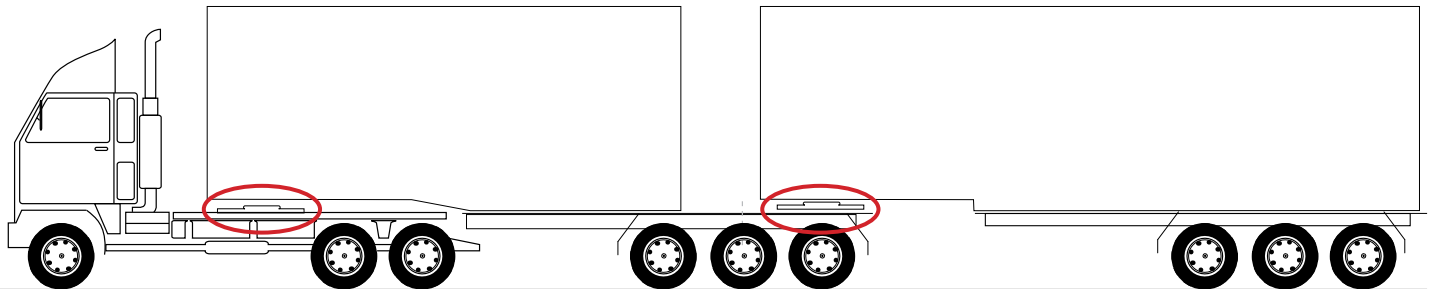




HEAVY VEHICLE SERVICING

INFORMATION

August 2015



SKID PLATE CORROSION INFORMATION SHEET

Keeping your heavy vehicles maintained regularly is sound business practice, ensuring vehicles use fuel efficiently and preventing avoidable, and costly, accidents or breakdowns.

While routine maintenance is straightforward, this section outlines any issues that are not always being addressed or go beyond routine maintenance requirements that all those with an interest in the safe operation of heavy vehicles need to be aware of.

HEAVY TRAILER KINGPIN AND SKID PLATE SECURITY

King pins and skid plates need appropriate inspection and maintenance. This is especially important where moisture and debris can accumulate above the upper surface of the skid plate and the design makes it difficult or even impossible for inspection to be carried out.

In these circumstances the potential for corrosion and eventual structural failure and resultant detachment from the towing vehicle is a significant risk. Operators, drivers and mechanics, as well as trailer designers, certifiers and vehicle inspectors, all need to take appropriate action to ensure trailer detachment does not occur.

This information sheet provides background information into the causes of skid plate corrosion and some practical advice to avoid king pin/skid plate failure by this mechanism.

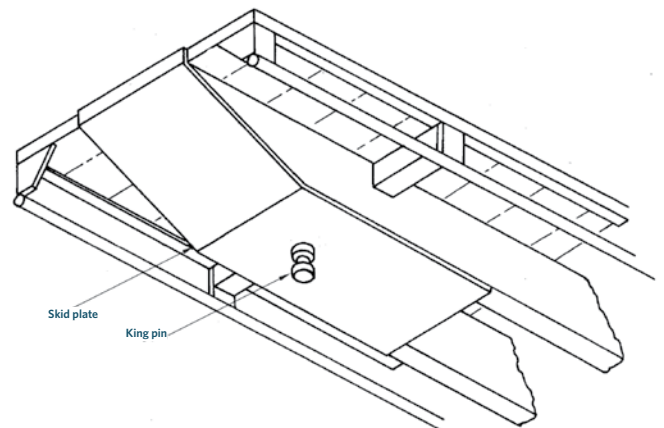
King pins

A king pin is a pin attached to the skid plate of a semi-trailer and used for connecting the semi-trailer to the fifth-wheel of a towing vehicle.

Skid plates

A skid plate is a structure forming part of the semi-trailer which houses the king pin and which sits on top of the fifth wheel to form the connection between the towing vehicle and the semi-trailer.

The design of the skid plate support structure should allow for the inspection of the king pin mounting, the inspection of the skid plate attachment to the trailer, and provide for drainage of moisture from above the skid plate so that the likelihood of corrosion is minimized. Ideally the design should include an inspection hatch and drain holes or snipes. Drain holes and snipes may be used for inspection via endoscope but an inspection hatch makes inspection simpler and easier and is the preferred method.



A typical skid plate and king pin design

Main causes of corrosion

- Moisture ingress through the trailer deck.
- Poor detailed design of skid plate and supporting structure where moisture is able to accumulate atop the skid plate.

Inspection of skid plates

While a skid plate and its associated king pin may look in serviceable condition when examined externally, closer inspection of the cavity above the king pin may identify signs that the attachment of the skid plate and/or king pin have been compromised through:

- Missing, damaged or corroded king pin securing bolts,
- Corrosion of the skid plate or surrounding supportive structure,
- Cracking of the skid plate or surrounding supportive structure.



On closer inspection, severe corrosion was identified around the skid plate support structure

TRANSPORT OPERATORS

Operators should:

- Assess their fleets and identify vehicles at risk from this problem (refrigerated semitrailers are higher risk vehicles)
- Establish causes of abnormal skid plate damage (eg distortion).
- Ensure that at risk semi-trailers are monitored and not operated if safety is being compromised.
- Keep inspection and maintenance records.
- Consider fitting an inspection hatch as these assist in the visual inspection of king pin security, removal of debris and the presence of corrosion.
- Contact a heavy vehicle specialist certifier for advice on adding drain holes or snipes in the skid plate supporting structure if there are none.



Checking for skid plate distortion

MAINTENANCE WORKSHOPS AND MECHANICS

Maintenance workshops and mechanics should:

- Establish causes of damage to skid plates and king pin mounts before repairs are carried out.
- Ensure the removal and fitting of king pins is carried out to manufacturer's instructions.
- Ensure all mating surfaces are clean and allow a flush fit with the mounting surfaces of the king pin. This is critical in maintaining the correct clamping force.
- Use a calibrated torque wrench to tighten to manufacturer's specification.
- Ensure that repair and maintenance records are kept.

TRAILER DESIGNERS AND CERTIFIERS

Designers and Certifiers should:

- Ensure that the requirements, which are in force in respect of king pin and skid plate design and certification, including repair and modifications, are complied with and the operator has the relevant technical and maintenance information.
- Ensure their designs include an inspection hatch and drain holes or snipes which allow inspection of the king pin and surrounding structure internally and enable any moisture to drain away.

VEHICLE INSPECTORS

Certificate of fitness (CoF) inspections include inspection requirements for king pins and skid plates. CoF inspectors should check the condition and security of king pins and their associated components according to the requirements.

A skid plate or skid-plate mounting:

- is not securely attached, or
- is cracked, distorted or has significantly deteriorated, or
- has corrosion damage within 150mm of the mounting points.

TYPES OF KING PINS

Bolt in mounted king pin

The king pin is bolted directly into the back plate and can be easily replaced from below.



Welded king pin

