



# Fifth Wheel and Kingpins

**Did you know? Fifth wheels and king pins should only be lubricated with Extreme Pressure grease (EP2) with Graphite additive.**

**Gentle coupling of fifth wheel to the trailer will prevent mis-coupling and damage to the semi-trailer rubbing plate and fifth wheel.**

## 1. When do I scrap a fifth wheel?

A fifth wheel is to be scrapped when one or more of the following conditions exist:-

- 1) The top plate of the fifth wheel is bent (convexly or concavely) by 2mm or more.
- 2) The top plate is worn down to the level of the bolt heads (JSK37C) or to the bottom level of the grease groove, anywhere on the wear area of the fifth wheel.
- 3) When the combination the fifth wheel is fitted to, was involved in an accident.
- 4) When a crack is visible anywhere in the top plate casting or the pedestals.

Please note that it is extremely dangerous practice to weld up and re-machine fifth wheel top plates when it is worn down or to bend fifth wheel top plates in a bending press in an attempt to straighten it.

## 2. How many tons can I haul with a fifth wheel?

The limitations are 65 tons with a 2" fifth wheel and 160 tons with a 3½" fifth wheel, but a true reflection of the draw value of a fifth wheel is to calculate the D-value.

The formula for calculating the D-value is as follows:-

$$D \text{ value} = 0.6 \times \frac{(mK \times mA)}{(mK + mA - a)} \times g(kN)$$

Where:

0.6 = constant

mK = GVM of truck tractor in tons

mA = GVM of semi-trailer in tons

a = Imposed load on the fifth wheel top plate

g = gravitational acceleration - 9,81 m.s<sup>-2</sup> (constant)

## 3. My driver complains about "knocking" between the semi-trailer kingpin and fifth wheel, what is wrong?

Any one of the following conditions can cause "knocking":-

- 1) Worn pedestal rubbers
- 2) A loose or worn kingpin
- 3) Worn fifth wheel wear parts (wearing ring, lock jaw and/or locking bar)
- 4) An incorrectly adjusted fifth wheel

## 4. Can I adjust my fifth wheel?

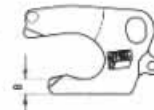
The JOST JSK37C, JSK36DV-S and JSK37CW can be adjusted infinitely in the direction of wear. The JOST JSK36C automatically adjusts, also infinitely in the direction of wear.

## 5. What are wear limits on the wear parts of fifth wheels and where are they measured?

Fifth wheel type	Dimension A		Dimension B	
	New	Limit	New	Limit
JSK37C JSK36DV-S	33,5	30,5	19	17,5
JSK37CW	42,5	40,5	19	17,5
JSK36C	33,5	30,5	20,8	19



Wearing Ring



Lock Jaw

## 6. I cannot un-couple the semi-trailer from the fifth wheel, what should I do?

Park the combination on a flat, level surface and attempt the un-coupling again. Should the un-coupling fail again, raise the semi-trailer by means of the telescopic trailer supports until light is just visible between the semi-trailer rubbing (skid) plate and fifth wheel top plate (+/- 2mm) and attempt to un-couple again.

If it is still not possible to un-couple, raise the telescopic trailer supports and reverse back the combination so that the truck tractor is positioned at an angle of 45 degrees to the semi-trailer. Raise the semi-trailer again as described above and attempt the un-coupling procedure again.

Should the un-coupling still fail, the only alternative is to undo the pedestal mounting bolts and to drive out the truck tractor. The fifth wheel can then be stripped from below to remove it from the semi-trailer kingpin.

# JOST

TELEPHONE: (011) 395 8500  
FAX: (011) 393 1508



**7. How hard should I couple the semi-trailer to the fifth wheel?**

ALWAYS couple gently. By coupling excessively hard you run the risk of mis-coupling and causing damage to the semi-trailer rubbing plate and fifth wheel.

**8. What checks can I perform to ensure that the semi-trailer is securely coupled to the fifth wheel?**

Once coupled, check that the handle has fully entered into the body of the top plate. Then check for a gap between the rubbing plate of the semi-trailer and the fifth wheel top plate. If the handle had entered into the body of the fifth wheel and there is no gap visible between the rubbing plate and fifth wheel top plate, the semi-trailer is securely coupled to the fifth wheel.

**9. What grease must I use when lubricating a fifth wheel and kingpin?**

Although a large number of maintenance personnel use a "multi-purpose" grease for most of their lubricating requirements, this practice will drastically reduce the life of a fifth wheel. The only grease that is to be used for lubricating fifth wheels and kingpins is Extreme Pressure grease (EP2) with Graphite additive.

**10. What are the control**

**dimensions of a 2" kingpin and, as most of the wear on a kingpin occurs in the direction of travel, can I turn the kingpin through 90° when it is worn down below the allowable limit?**

The accompanying sketch shows the control dimensions of a 2" kingpin. The dimensions in brackets denote the minimum wear dimension and, once the kingpin is worn down to these minimum dimensions, it should be replaced without delay.



JOST JSK37C fifth wheel worn down to below the allowable level.

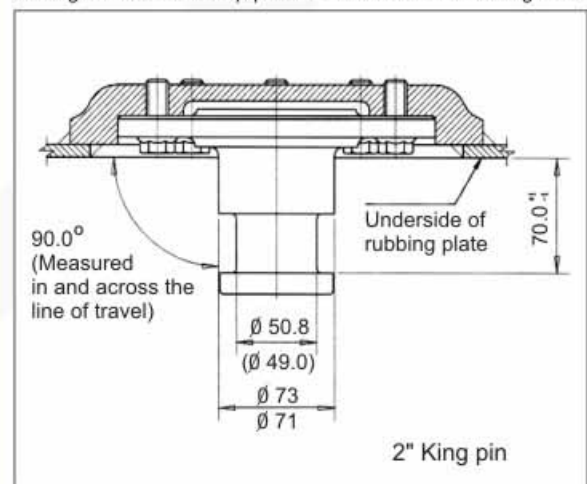


Excessively worn kingpin.

It is extremely dangerous practice to rotate kingpins through 90° when the kingpin is worn down to the minimum wear dimensions and this practice could result in the failure of the kingpin with catastrophic results.



Damage to 5th wheel top plate as a result of incorrect grease.



Minimum wear dimensions