

Safety and health alert

13/97 Split ring wheel fatality

Incident

An 18-year-old labourer was killed in April at Toodyay when the split ring from a wheel which he was fitting to a low loader came free and hit him in the chest and head.

Prior to the incident the deceased had fitted the rim with a new tyre and tube, inflated the tyre to 760kpa (110 psi) and arranged for the wheel to be carried to where the low loader was parked on the other side of the factory.

The deceased had fitted a tyre of incorrect size to the rim, and the rim showed signs of wear and scale. The rim assembly was manufactured in 1942 and was of a three-piece type. The ring and split ring had been riveted together.

Factors

The exact cause of the split ring coming loose is not known, however it is alleged that:

- the split ring assembly had not been seated correctly;
- the tyre was an incorrect size for the rim;
- the training of the deceased was inadequate, and therefore the supervision was also inadequate;
- the procedure for fitting the tyre was poor; and
- the equipment provided for the fitting of the tyre did not allow a safe system of work to be used.

Recommendations

Two areas of concern identified were the fitting of the tyre and installation of the wheel onto the axle. Attention must be given to:

1. The provision of suitable equipment and a safe system of work to remove and fit the tyre to the rim. Suitable equipment should include a tyre cage, tyre pressure gauge in the airline, soft headed hammer (not steel), suitable rim cleaning equipment and a chart that provides details of tyre–rim compatibility.
2. Whenever a tyre is replaced, rims must be inspected for defects such as rust, distortions, cracks and imperfections before a new tyre is fitted.
3. Wheels must be placed into a restraining device (safety cage) before inflation.
4. The person inflating the tyre must stand to the side of the wheel in a safe position, and not in the trajectory line of the split ring. Note the diagrams below.
5. The airline should incorporate a hand piece with gauge and be a sufficient distance from the valve stem attachment so the fitter is in a safe position while inflating the tyre, should the split ring part with the wheel.
6. Inflation should be undertaken in stages, not more than 70kpa (10psi) at a time. (While AS 4457-1997 does not apply to these rims it is recommended initial inflation should be nominally 35kpa.) The ring should then be checked for correct seating.



7. When fitting the wheel to the axle hub, the fitter should not sit or crouch in the unprotected trajectory line of the split ring.
8. Always consider the trajectory line of the split ring components and rim during any stage of dismantling, re-assembling and fitting of wheels to a vehicle. DON'T be unprotected and in the path at any stage.

NEVER allow an untrained unsupervised person to undertake the fitting of tyres to a split ring rim.

Further Information

Further information can be obtained from the WorkSafe internet site www.worksafe.wa.gov.au, or by contacting customer service on 1300 307 877 or email: safety@docep.wa.gov.au.

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