



**DEPARTMENT OF MINERALS AND ENERGY
WESTERN AUSTRALIA**

SIGNIFICANT INCIDENT REPORT NO. 72

SPLIT WHEEL RIM - FATAL ACCIDENT

INCIDENT

A maintenance fitter received fatal, multiple injuries when a split rim tyre assembly exploded whilst being fitted to a BHB mobile crane. The tyre had been inflated to 150 kpa (22 psi) and the fitter had been instructed to install the water ballast. There was no witness to the fitter's actions prior to the explosion. It is known however, that the fitter did not introduce any water to the tyre and it is likely that the tyre was inflated above its previous pressure.

The outer section of the cast iron split rim ruptured allowing a sudden release of stored energy. The wheel components along with the victim were projected some 13 metres in the blast.

CAUSE

The precise cause of the incident is not certainly known, however the results of the blast were :

- Three out of the 8 rim assembly nuts were stripped from their studs.
- The flange section of the rim retained by these nuts broke free along with most of the outer rim section, which had fractured circumferentially.
- The detached outer rim section, together with the tyre and inner tube, were projected horizontally, striking the deceased.

COMMENTS AND PREVENTATIVE ACTION

Care must be exercised when assembling cast iron split rims with special attention to the following points:-

- i) The rim components should be carefully inspected prior to assembly, with particular attention given to wear in the rim assembly studs and nuts.
- ii) The rim assembly nuts should be tightened to the correct torque specifications.
- iii) Prior to inflating the tyre, a restraining device should be fitted.
- iv) The person inflating the tyre should not stand in front of the tyre, but in a safe position.
- v) The inflation device should incorporate a hand piece with a pressure gauge, flow control mechanism and sufficient hose to distance the operator from the inflation chuck.
- vi) Assembly and dismantling of split-rim components should be carried out with care and "shock loading" of vulnerable parts of the assembly (e.g. due to striking with heavy hammers) should be avoided.
- vii) Periodically, components should be checked for cracks.

J M Torlach
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SAFETY AWARENESS SAVES LIVES