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REPEAT SIGNIFICANT INCIDENTS – NO. 6
EXPLODING TYRES ON MOBILE EQUIPMENT

Below are brief details of 4 incidents, all involving the failure of tyres or tyre rims. Please review these incidents for similar potential at your site.

EXTERNAL FATAL INCIDENT- FATALITY WHILE INFLATING TRUCK TYRE

An operator was inflating a front tyre on a truck when the lock ring on the front wheel flew off hitting the operator in the face. The operator was rushed to hospital, where he died. Basic causes included:

- Operator was positioned directly in front of tyre.
- Tyre pressure not checked prior to inflation.

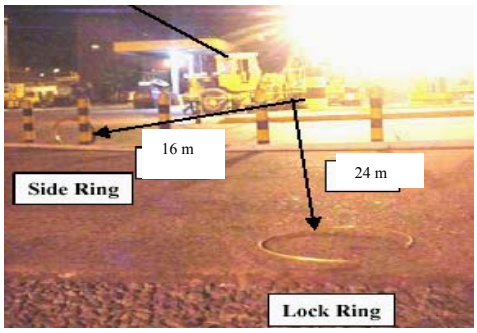
http://significantincidents.bhpbilliton.net/fndItem.asp?id=448&Type=Incident

TYRE BLOW OUT IN CAT 789

The front tyre of a CAT 789 truck Exploded whilst the truck was moving and loaded with ore. The operator heard a loud noise and felt he was losing control of the truck. He was able to control the truck without pulling the brakes after approx 64 m. Basic causes included:

- Tyre was not fit for purpose.
- Inadequate inspection and maintenance.

http://significantincidents.bhpbilliton.net/fndItem.asp?id=1180&Type=Incident



FREE MOVING MOBILE EQUIPMENT

The side and lock ring from the front right hand side wheel assembly of a front end loader blew up after the tyre pressure was topped up from +/- 35/40 psi to 50 psi. The side ring (20 kg) was projected 10 meters hitting the ground and rolled another 6 meters stopping against a fence. The lock ring (2kg) was projected 24 meters. Basic causes included:

- Low tyre pressure (less than 80%) allowed the lock ring to loosen.
- Daily checklist does not require checking of tyre pressure.
- Although tyre manufacturer specifies tyres with more than a 20% pressure drop be disassembled, inspected and inflated in a safety cage, this requirement not followed.

http://significantincidents.bhpbilliton.net/fndItem.asp?id=415&Type=Incident

EXTERNAL FATAL INCIDENT - CATASTROPHIC HAUL PAK TYRE AND RIM DISASSEMBLY

A tyre fitter was removing the wheel cleats when there was a sudden release of inflation air from the left inside rear (position 4) tyre. The outside (position 3) tyre and rim assembly was propelled off the wheel hub for a distance of approximately 12 metres. The tyre fitter died soon after being removed from under the tyre. Basic causes included:

- Tyres not deflated prior to loosening wheel nuts.
- Rapid uncontrolled release of air pressure from inner tyre

http://significantincidents.bhpbilliton.net/fndItem.asp?id=1231&Type=Incident

LEARNINGS FOR MANAGEMENT INCLUDE:

- Rigorous systems and procedures must be in place to control the risk of exploding tyres that should address the following:
  - Brief contact with powerlines can cause one or more tyres to explode immediately or possibly hours later.
  - Procedures must be in place to deal with tyres that have deflated by more than 20% of the recommended pressure.
  - If possible eliminate the use of multi piece tyre and rim assemblies.
  - Only use trained and competent personnel.

LEARNINGS FOR OPERATORS INCLUDE:

- Always follow site procedures for maintaining and changing tyres.
- Always position yourself away from the tyre and rim during inflation.
- Regularly check tyres for the correct pressure.
- Always deflate a tyre prior to loosening any wheel nuts.
- Never inflate a tyre if it is less than 80 % of its cold pressure setting, the tyre should be disassembled, inspected and inflated in a safety cage.
- Never apply a heat source to a tyre rim/hub until the tyre has been removed from the rim/hub assembly.