

Stored energy release: Two fatalities with tyres (IOGP)

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An IOGP member reports two separate incidents, both with fatal outcomes and related to maintenance/changing of tyres on vehicles.

Whilst not strictly marine related, the incidents represent opportunities to highlight risk areas that we might recognize better. See [here](#) for details.

What happened?

Both incidents happened during routine maintenance of heavy trucks in a controlled logistics environments. Tyre inflation pressures were as per manufacturers' recommendations, in the order of 130 psi.

In the first incident, a contracted tyre technician was fatally struck by a heavy vehicle tyre and a tyre rim which ejected after a sudden failure. A new tyre was already mounted on the one-piece rim after having been previously inflated inside a safety cage, and it was resting outside the cage waiting installation on a truck. A maintenance technician noticed some air leaking from it and approached it. While the technician was inspecting/troubleshooting the tyre the wheel parted, releasing the rim which hit the technician on the head.

In the second incident, an employee was fatally struck by a heavy vehicle tyre rim during maintenance. A driver was loosening the lug nuts of a heavy vehicle wheel that had been reported defective by a previous shift driver, with the intention of replacing it with a spare. The rim catastrophically failed and cracked in two, releasing the tyre and part of the rim with explosive force and projecting the driver several metres away.

Following the incidents, prior damage was noted on the tyre rims in both cases. This may either have occurred through wear and tear during rough terrain driving or potentially through driving with a partially deflated tyre. Subsequent wider inspection of tyres and tyre rims revealed that such cases were not limited to the incident vehicles in isolation.

What went wrong?

- Workers were in the Line of Fire from a pressure hazard and had not recognised this as a risk.
- The tyres were not deflated before work on the troubleshooting task began.
- In one incident, the wheel was removed from its cage without inspection of the rim seat area.
- Previous damage had been sustained and not recognised.
- Manufacturer's recommendations for inspection had not been followed.
- **Lessons were not learned from the first incident, leading to a similar**

IOGP Life Saving Rules:



Bypassing safety controls



Line of fire

fatality in the second incident.

Actions and recommendations

The IOGP member made the following corrective actions and recommendations:

- Reinforced Line of Fire awareness with all personnel.
- Procured and raised awareness of tools and methods that enable personnel to perform any activities related to tyres, such as inflation and deflation, away from the Line of Fire.
- Performed immediate tyre and tyre rim inspections across the fleet of vehicles and verify inclusion of both tyres and tyre rims in vehicle inspection programs.
- Raised awareness of:
 - the need to deflate tyres before removal from the vehicle.
 - the general risk of pressure release particularly from tyres.
- Reinforced the requirement to monitor for “weak signals” with respect to possible problems with tyres and tyre rim construction during driving and be ready to **stop the job** in case anomalies are noted.
- Ensure learnings from previous incidents are in fact learned.

Members may wish to refer to:

IMCA short video “Line of Fire”

Working with hoses and pressure

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