Truck Driver Killed While Inflating Tire

INCIDENT

A truck driver was killed while he was inflating a tire. Preliminary investigations point to the employee sustained fatal injuries when the tire he was inflating, exploded.

NEED TO KNOW

Inflating a tire in the workplace sound likes a routine function without a great deal of danger. But this perception is illusory because the hazards of the task can be deadly.

BUSINESS / REGULATIONS

Inflated tires, particularly truck tires, contain a large amount of stored energy. Tires are designed to withstand this, but if they are damaged or have been used while flat (or significantly underinflated), they may fail. Tire damage due to underinflation cannot always be detected by external inspection. If a tire fails during inflation, the explosive force can be released resulting in a destructive air blast and the ejection of high-speed particles. If the wheel is not restrained, it can fly through the air. The rapid release of this explosive force from a ruptured tire can result in serious injuries or even death.

Prosecutions and compliance

In 2014, a company accepted an enforceable undertaking with a total minimum expenditure of $207,401 as an alternative to prosecution. This was after a worker received serious facial fractures and another minor leg injury when they attempted to fit and inflate a tire to a damaged truck rim. The tire exploded as it was being inflated.

STATISTICS

On average each year there are 36 workers’ compensation claims

accepted for injuries relating to being hit or trapped or by an explosion involving vehicle wheels and tires.

From 2013 to May 2019, WHSQ has been notified of 23 events involving exploding tires and issued seven statutory notices relating to the risk of tire explosions.

PREVENTION

Health and safety risks must be managed to eliminate danger. However, if it's not reasonably practicable to eliminate the risk, then it should be minimized using the hierarchy of controls. This can be achieved by doing one or more of the following:

- Substituting the hazard with one that is of lesser risk – for example, if a truck tire has been identified as underinflated while in use, do not immediately re-inflate the tire. Instead, fully deflate the tire and replace the wheel with a spare and have the tire inspected by a competent person to determine if it is safe to put back into service.
- Isolating the hazard from workers:
- deflating tires prior to them being removed from the machinery or vehicle and inflating tires in a safety cage or other portable restraint device.
- never reach into the cage during inflation or deflation and always position the body to one side of it.
- Implementing engineering controls – for example, by fitting:
- a long enough air hose with a clip-on valve nozzle and remote pressure gauge for workers to stay outside of an exclusion zone (i.e. the potential trajectory or explosion zone), and
- a remote dump valve that is capable of rapidly deflating the tire in an emergency.
- Any remaining risk must then be minimized by using administrative controls. For example:
- have a regular tire maintenance schedule which checks tires for condition, matching, pressure, tread depth and wear patterns, as well as rims for corrosion or cracking.
- always follow the recommended tire servicing procedures and

ensure all workers undertaking these procedures are trained and follow them.
- inform, train and supervise staff in safe personal positioning and safe procedures during tire inflation including actions when a potential tire failure is identified.
- potential trajectory paths from a failure and exclusion zones have been identified.
- the wheel is inspected for damage and corrosion prior to the refitting of tires.
- tires (new or used) are inspected for defects.
- workers stand outside of any exclusion zones.
- tires are only inflated to the recommended pressure.
- all safety cages, air-lines and associated equipment are suitable for the task and maintained in a safe working condition.

If a residual risk remains, it must be minimized so far as reasonably practicable by using personal protective equipment (PPE). For example, wearing protective goggles or face shields when working on wheels or tires.

SAFE TIRE INFLATION – Do's and Don'ts

- DON'T lean over the assembly during inflation.
- DON'T sit or stand near the assembly.
- DON'T use valve connectors that require the operator to hold them in place.
- DON'T exceed the manufacturer's recommended tire pressure for the size and rating of the tire.
- DON'T use airlines not fitted with either a pressure gauge or pressure control device.
- DON'T allow the control valve to be jammed open (which would allow the operator to leave the inflating tire unattended).
- DO use a clip-on chuck to connect the airline with a quick release valve (i.e. dump valve) at the operator's end (this allows tire deflation from a safe distance if problems occur)
- DO ensure the airline hose is long enough to allow the

operator to stay outside the likely explosion trajectory during inflation.

- DO use enough bead lubricant when seating the tire.