

### Correct Procedures for the Safe fitting and inflation of Truck Tyres

The purpose of this bulletin is to remind you of the importance of good safety procedures during tyre fitting.

A tyre and wheel assembly must be considered as a "pressure vessel" and as such has the potential for explosion with consequent risk of serious injury if best practice procedures are not followed.

During tyre fitting the main hazards are as follows:

1. Components of multi-piece wheels failing under pressure and being propelled away from the wheel assembly with considerable force.
2. Tyre failure due to a hidden defect, incorrect fitting or unsatisfactory repair. In this case an explosion occurs with the possibility of injury by the air blast and/or the violent reactions of the whole assembly.
3. Failure of the wheel under pressure resulting in the hazards outlined above.

In all cases the air will escape in an area that resembles a cone based at the wheel assembly. It is essential that any person involved with the assembly is kept out of this area.

Of these main hazards the first is most widely appreciated and use of safety devices guards against danger. The greatest single cause of injuries sustained in tyre fitting is the second hazard listed above and the worst injuries result when the failure of the tyre occurs on the side of the tyre nearest the floor or wall resulting in the wheel assembly being propelled in an upward or sideways direction.

#### Approaches to guard against hazards

##### 1 Multi-piece wheels

Whilst improved design particularly of locking rings has lessened the dangers it is still necessary to check the following.

- a) that correct matching components are being used.
- b) That rim nave flanges and locking rings are clean and free from rust, burrs or distortion. Particular attention must be made to ensure that the locking ring and channel into which it is secured are scrupulously clean. Repainting with protective paint should be considered but ensure that there is only a thin coat on surfaces mating with other wheels or brake drums.

##### 2 Single piece wheels

A full inspection of the complete wheel needs to be carried out, looking for any signs of cracks or excessive corrosion. Any cracked wheels should be discarded and no attempt made to be repair by welding. Such a weld will inevitably fail under the stresses imposed on the wheel in service. Alloy rim flanges in particular should be checked for wear as a worn flange might not adequately retain the bead under inflation. Rim manufacturers can supply a simple gauge to be used for this purpose.

##### 3 Tyre examination

This is a subject within itself and to be thorough a great deal of training and experience has to be called upon. The list below of items to check is by no means exhaustive, but is suggested as the basis to a common sense approach.

**This Bulletin should be considered as being of a general advisory nature only. In case of conflict with existing recommendations issued by a vehicle manufacturer, these latter recommendations should apply.**



## ADVISORY BULLETIN

### Tyres

- Cuts in tread and/or sidewall?
- Damage or distortion in the bead?
- Sidewall bulges or distortion?
- Penetration by foreign object (nail etc.)
- Casing creasing?
- Oil and fuel contamination?
- Condition of repairs?
- Is the tyre clean inside & completely free from contaminants?

### Tubes

- Is it the correct size & type?
- Creases?
- Old tubes thinning in some areas?
- Condition of repairs?
- Rust, grit, foreign matter on tube?

### Flaps

- Is it the correct size?
- Oil contamination?
- Rust & foreign matter?
- Creases and/or edges distorted?
- It is good general advice that a new tyre deserves a new tube and flap

It is good general advice that a new tyre deserves a new tube and flap. As with wheels, all the above components require the utmost cleanliness.

After looking at the hazards and checks to be made during fitting we now need to consider the same for inflation.

The general practice is to use upright safety cages in a workshop and a portable safety cage for site or roadside service.

Both types are effective in restraining locking rings and flanges provided the device is of suitable strength and design.

The amount of protection afforded from the results of a tyre burst is less than satisfactory. In the case of an upright safety cage the blast from a burst in the sidewall away from the wall has been known to injure persons standing up to 3 metres away in the path of the shock wave. A burst on the side wall of the tyre adjacent to the wall has been known to tear the cage from its fastenings. While a portable safety cage where the assembly is generally in a horizontal plane a burst in the lower sidewall of the tyre will throw the assembly violently upwards. Portable safety cages should therefore only be considered as effective protection against flying components and not a restraint in the event of a tyre burst, particularly if the burst occurs in the lower sidewall.

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### ADVICE ON INFLATING A TYRE

Inflate to 15 to 20 psi and ensure that the moving parts of a multi piece assembly are correctly positioned by tapping the components lightly with a hammer. In all cases check that the distance between the fitting line above the bead and the top edge of the flange is equal for the full circumference of the tyre. If there is any doubt at all deflate the tyre and refit. DO NOT increase the pressure in the hope that anything not quite right will correct itself. Having reach 15-20 psi satisfactorily place the assembly in the inflation cage whilst inflating to the final pressure.

**Whatever type of restraining system is used the priority is to keep the operative and any other person in the vicinity away from the area where the blast may occur.**

**Do Not** lean over the assembly during inflation.

**Do Not** sit or stand near the assembly.

**Do** use a clip on chuck at the end of the airline and fit & use a press button hand control that is at least 3 metres from the chuck valve.

This should ensure that the operator is clear from any blast that may occur.

We must all endeavour to promote this advice anywhere that truck tyres are fitted as it is the duty of everyone to ensure the health and safety of everyone in the industry..

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