



Hot work on vehicle wheels

Engineering Sheet No 1



Introduction

This Information Sheet draws attention to a risk of serious or fatal injury if hot work is done on vehicle wheels to which tyres are still fitted.

The hazard

When a wheel rim or other steel parts of a vehicle wheel are welded or cut by the application of heat, there is a risk of explosion of any tyre which is attached to that wheel. There are two reasons for this:

- (1) the heat produced by welding or cutting can degrade rubber or tyre lubrication oils inside the tyre, giving off flammable vapours; and
- (2) where the tyre is pressurised, there is an increase in oxygen within the tyre, reducing the temperature at which the vapours will ignite.

There have been a number of fatal accidents due to the failure to consider this risk, which is particularly hazardous where hot work is done on large wheels, eg to earth moving vehicles.

Precautions

Under no circumstances should hot work be carried out on any wheel to which a tyre is fitted.

Even if a fitted tyre is deflated, the degradation of rubber and tyre lubrication oils can still occur, and flammable vapours can be ignited immediately on reinflation of the tyre. The increase in pressure and the extra oxygen, together with the ignition from the heat source, is sufficient to cause an explosion.

The inflation of tyres with nitrogen does not make hot work on wheels safe. The tyre may become partially pressurised with air either because of inadequate purging

at the start of inflation, or because air is used to maintain pressure.

All undertakings which deal with wheel repairs should ensure that the organisation and arrangements for this work include firm instruction that whatever the size of wheel to which a tyre is fitted, no hot work should ever be undertaken on the wheel itself, until the tyre has been removed. Supervision procedures should maintain a check that this instruction is followed at all times.

Further information

Guidance on a range of health and safety issues which may be encountered during motor vehicle repair can be found in *Health and safety in motor vehicle repair* HSG67 HSE Books 1991 ISBN 0 7176 0483 7.

Guidance on other aspects of work with vehicle tyres can be found in *Health and safety in tyre and exhaust fitting premises* HSG62 HSE Books 1991 ISBN 0 7176 1686 X.

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This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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