

SSOW 16 - Safe System Of Work: Air Compressor

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PREVIOUS REVIEWS:	November 2002, April 2010
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1. Activity

This Safe System of Work covers the air pressure system at the Radstock Road Depot, which is used to inflate tyres. Compressed-air accidents e.g. from a ruptured or burst tyre or violent separation of the component parts of the wheel tend to result in serious injuries, including fatalities. Pressure of an air jet on the skin can cause severe internal damage and possible death due to air entering the blood vessels

2. Persons at Risk

Management / technical staff
Drivers
Loaders
Vehicle Maintenance Contractors / tyre fitters

3. Hazards

Explosion
Impact from compressed air

4. Procedures

a) Compressed Air Equipment

- The Pressure System is subject to a written scheme of examination agreed by a competent person (employed by the Council's Insurers), which covers:
 - every pressure vessel
 - all protective devices
 - those parts of pipelines and pipe work which, if they fail, may create danger

- A competent person examines the pressure system in accordance with the written scheme and records are kept
- Flexible airlines can be subject to physical damage and may deteriorate over time. This can cause them to rupture, particularly at connection points, which can lead to sudden discharge of compressed air and may cause unsupported lengths of hose to 'whip' or 'snake' dangerously. Employees using the air line should carry out a visual check for damage. If damage is suspected the Supervisor must be informed as soon as possible. The damaged air line should not be used until checked / replaced by a competent person
- Maintenance for any part of the whole pressure system is carried out as and when required following reports from the competent person or from employees.

b) Safety during tyre inflation

- The tyre inflator attachment is kept inside the Supervisor's office and drivers have to see a supervisor in order to use the equipment
- Inflated tyres contain a large amount of stored energy, which varies according to the inflation pressure and the surface area of the tyre (e.g. the sidewall of a Refuse Collection Vehicle commercial vehicle tyre has to withstand over 17 tonnes of force from compressed air before additional carriage weight is taken into account). If the tyre fails, an explosive force can be released at an angle of up to 45 degrees from the rupture (which is often, but not always, the face of the sidewall). This has resulted in numerous fatalities over the years. It is crucial that the airline hose between the clip-on chuck and the pressure gauge/control is long enough to allow the operator to stand outside the likely trajectory of any explosion during inflation
- The compressor is situated inside a concrete store in the middle of the yard and the air line comes through the wall of the building. The airline has a quick-release coupling that the tyre inflator and hose attach to. If when inflating a tyre a fault in the sidewall is detected the tyre must be deflated from outside the likely explosion trajectory. The valve connector should not require the operator to hold it place
- The pressure gauge/control valve should never be jammed in the open position, nor should 'unrestricted' airlines (i.e. without a gauge or pressure control device) be used to inflate any tyre. All air lines must have a "Deadman's Control" to prevent uncontrolled operation of the system
- Don't exceed the manufacturer's recommended tyre pressure for the size and rating of the tyre. Check to see if the wheel rim has a maximum pressure stamped on it. All new vehicles will have the pressures written on the wheel arches. If in doubt about the pressure ask the Supervisor

- Where air lines run cross walkways they should be protected to prevent damage and to minimise the tripping hazard
- Air lines must be protected from damage, and equipment stored safely

5. General Guidance

- Accidental or deliberate injection of material and/or compressed air, either through the skin or into a body orifice, may cause injuries that can be fatal. Internal organs rupture at low pressures in comparison with those of compressed airlines. Ordinary working clothes do not significantly restrict the penetration of compressed air into the body and no one should use compressed air to dust themselves down.

6. Personal Protective Equipment

Not applicable

7. Medical Requirements / Vaccinations

Not applicable

8. Training

- This SSOW is part of the Induction for new drivers and refresher training is provided at Drivers' meetings / CPC training.
- All employees are made aware of the hazards of compressed air and warned of the potential consequences of horseplay.

Related Documents	
	Reference:
Risk Assessments	
Operations within the depots	WC9
Proforma	
Pressure Systems Test Records	D11
Handbooks	
Driver's Handbook	January 2012