National Operational Guidance

Control measure - Manage pressurised air systems

Control measure knowledge

Pneumatic systems that may impact on stability can be broken down into two primary systems:

- Pneumatic suspension units found mainly in large goods vehicles (LGVs), rail stock and some aircraft
- Pneumatic braking systems found on rail, some aircraft and road vehicles

The hazard posed by the pneumatic suspension unit may be as a result of normal wear and tear in use, or from damage sustained in a collision, fire or similar potentially catastrophic event. While personnel are working around them, operating these units may cause potential failure unless properly assessed and controlled.

The hazards posed by pneumatic suspension units include:

- Projectile
- Impact
- Noise
- Entrapment due to chassis or axle dropping (a lift axle)

Braking systems on rail vehicles use compressed air as the force to push blocks on to wheels or pads on to discs. The compressed air is transmitted along the train through a brake pipe. Changing the level of air pressure in the pipe causes a change in the state of the brake on each vehicle. It can apply the brake, release it, or hold it 'on' after a partial application.

Pneumatic systems found on aircraft are sometimes used for:

- Brakes
- Opening and closing doors
- Driving hydraulic pumps, alternators, starters, water injection pumps, etc.
- Operating emergency devices
- Suspension systems

Identify any mechanical interlocks or built-in safety systems that can assist fire and rescue service personnel working in the vicinity of these systems. Any loss of integrity in the unit will result in the vehicle chassis or axle lowering and a potential blast hazard from the suddenly released compressed air.

The hazards posed by an air braking system include:

- Unexpected movement of the vehicle or craft
- Stored energy release (especially from spring brake chamber or parking brake)
- Entrapment due to uncontrolled movement

Strategic actions

Fire and rescue services should:

- Provide tactical guidance and support arrangements to ensure personnel are aware of the hazards and procedures associated with pressurised air systems
- Have arrangements for using specialist equipment and/or other agencies to assist with managing pressurised air systems

Tactical actions

Incident commanders should:

- Carry out reconnaissance of the incident at the earliest opportunity, to identify and assess the presence and integrity of pressurised air systems
- Liaise with the driver, operator or responsible person to gain further information regarding the operation and isolation of pressurised air systems
- Identify and communicate hazards relating to pressurised systems to all responders
- Establish appropriate cordon control arrangements to restrict access to areas where there are risks relating to pressurised air systems