



Safety Transport Information

Prepared by WG-17 Transport Safety

Safety Info TS 09/19

Vehicle Specification and Maintenance

Introduction

Commercial vehicle transport is one of the highest risk activities in the industry. The main cause for incidents during transport operations is human behaviour (e.g. poor driving, poor management, see EIGA Info TS 07, *Human behaviour within Transport Operations* [1]). However, sub-standard, unsafe or defective transport equipment can also result in or increase the risk of incidents.

When deciding on the specification of transport equipment, specifically vehicles, it is important to be aware that there are elements of vehicle design that are mandatory, and those that are not.

Each Gas Company and/or its nominated contractor should have suitable engineering standards/specifications in place as reference documents when ordering transport equipment. Additional safety equipment over and above mandatory requirements fitted by the original equipment manufacturer should also be considered.

Vehicles that do not meet the mandatory requirements shall be considered for upgrade or removal from service.

In addition to the periodic inspections required by the legislation, a robust preventive maintenance plan shall be in place to keep all transport equipment in a safe and road worthy condition.

Scope

This publication gives an overview on the most commonly available vehicle related safety equipment. The aim of this publication is to inform the reader on pieces of equipment that can either be mandatory due to legislation or can be considered to improve the safety performance although not mandated.

Since opinions differ on the effectiveness and necessity of certain elements/systems this publication does not give recommendations on which non-mandatory elements/systems should be used.

Outside of the scope are equipment and systems related to activities other than “driving” in the broader sense (e.g. transfilling, loading).

Furthermore, this publication gives advice on how to manage the maintenance of transport equipment. Outside of the scope are mandatory checks (e.g. periodic inspections of tanks and vehicles), but also maintenance of transfilling equipment (e.g. hoses, couplings, pumps).

Definitions

- TSI – Transport Safety Information.
- Contractor is used to denote contractor, sub-contractor, carrier or haulier.
- Commercial vehicle – Any vehicle that transports product for commercial gain.
- Transport equipment – Prime movers or motive units, rigid tankers, tank-semitrailers, battery-vehicles, ISO containers and multi element gas containers (MEGC).
- “Managers”, “drivers” and “employees” refer to Gases Company employees and employees of contractors.

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Learning more about vehicle specification and maintenance.

1. Are you aware which transport safety equipment / systems are mandatory?
2. Do you have a specification defining which transport safety equipment / systems shall be installed in your transport equipment?
3. Is there a process in place to check that all new vehicles are equipped with the specified elements/systems?
4. Do you have a maintenance plan for transport equipment in place?

If the answer to any of the questions above is “no”, then you should consider taking action!

THIS TRANSPORT SAFETY INFORMATION SHEET DESCRIBES HOW THE OVERALL SAFETY PERFORMANCE CAN BE IMPROVED BY VEHICLE DESIGN AND VEHICLE MAINTENANCE PROGRAMS.

General

All new purchased vehicles and equipment used for the transport of dangerous goods within Europe shall meet the latest versions of EU Directives and EU Whole Vehicle Type Approval.

The following list is a summary of safety equipment / systems that are either legally required, or should be considered, when purchasing new vehicles or upgrading / refurbishing existing equipment. Due to the fact that transport safety equipment and systems are continually developing, this list is not exhaustive.

Transport safety equipment and systems

Item	Description/Comments
3-point seat belt	Ensures protection during deceleration or in case of accidents.
Air bags	Can reduce the risk and level of injury in the event of a collision.
Adjustable seat / steering wheel	Vehicles must have adjustment for driver's height and reach. Improved ergonomics promote non-constraining driving positions.
Acoustic warning device (“horn”)	Enables the driver to warn his surrounding of danger.
Radio with AM/FM/CD	Receives traffic/weather bulletins and company safety messages. <i>Note: Can cause distraction and should be used with care.</i>
Heating (incl. night heaters) / cooling	Helps keep the cabin in suitable condition concerning temperature.
Mirrors	Mirrors help the driver improve his all-round view. <i>Note: Mirrors are mandated by legislation. Additional non-mandatory mirrors can further improve safety.</i>
Battery isolator switch for vehicles transporting hazardous goods	Vehicle safety and security for transporting dangerous and/or hazardous goods as classified by UN Model Regulations, fitted to ADR FL approved vehicles.
Securely fitted fire extinguisher	To extinguish minor fires. Their quantity and capacity are specified in ADR
Rear under-run protection	Prevention of smaller vehicles travelling beneath the vehicle during rear end collision.
Side under-run protection	Prevention of cyclists and smaller vehicles travelling beneath the vehicle during side collision <i>Note: Only relevant for medium and heavy duty vehicles.</i>
Lifting axle	Actuates on the air bellows of the axles to redistribute load to other axles in order to improve manoeuvrability of the vehicle.
King pin safety devices	Warning devices that can assist the driver in the correct coupling procedures.

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Item	Description/Comments
	<i>Note: They cannot fully guarantee correct coupling.</i>
Lighting system	All necessary lighting (according to legislation) helps the driver see his surrounding and improves the visibility of the vehicle. <i>Note: Additional non-mandatory lighting (e.g. xenon lights) can further improve safety.</i>
High visibility (conspicuity) markings	All necessary high visibility or conspicuity markings improve the visibility of the vehicle.
Audible reversing warning	Alerts pedestrians or cyclists to reversing vehicle.
Proximity sensors or cameras	Indicated distances to objects/obstructions. Aids manoeuvring in congested high-risk environments where vehicles operate in close proximity to other vehicles and people.
Engine or exhaust brake / retarder	Supplementary, wear free braking assistance device.
Automated transmission	Provides flexibility between automatic or manual gear changing which can reduce distraction for driver in heavy traffic and dynamic road conditions.
Power steering	Assists manoeuvrability at slow road speeds.
Tachograph	Records driving and resting hours to control driver fatigue. In the EU it is a legal requirement that this is a digital tachograph. Analogue tachographs may still be used in other regions.
Speed limiter	Prevents excessive road speeds. <i>Note: This is the speed limiter installed by the vehicle manufacturer according to national legislation and not the limiter which can be activated by the driver.</i>
Adaptive (Active) cruise control	Keeps the vehicle at a constant speed when activated and adjusts the speed depending on the proximity as the vehicle comes closer to slower moving vehicles ahead of it.
Lane guard	Can emit an acoustic signal or vibration within the steering wheel that warns the driver when he unintentionally leaves a lane or leaves a lane without indicating.
Non-slip throttle, brake and clutch pedals	Assists vehicle control – especially in wet conditions.
ABS	Anti-lock Braking System (ABS) prevents the wheels from locking if the brakes are applied with too much force or the road conditions provide too little traction.
ESC (also ESP or VSP)	Electronic stability control (ESC) helps control the traction of the vehicles by automatically adjusting the individual wheel's speed.
EBS	Electronic Braking Systems (EBS) is the later generation of braking to the older ABS systems.
RSS	Roll stability support (RSS) works on the trailer's air suspension, regulating the pressure in the suspension such that the vehicle leans less to the side when driving through corners.
Emergency brake assist (full brake detected)	Electronically increases braking pressure when the driver executes a full brake.
Active brake assist (obstacle detected)	Starts to activate the brake on behalf of the driver when vehicle system detects close proximity to obstacles.