

## Vehicle Rollover and Other Serious Vehicle Incident Prevention

### Introduction

It is critical that the managers of both gas companies and transportation companies ensure that they have processes in place to reduce the risk of rollovers and other serious vehicle incidents, to avoid any impact on human life, human health, materials and the environment.

Vehicle incident investigations have shown that the majority of these incidents are avoidable. Many of the causes are related to:

- lack of training or knowledge;
- people's ability to react to high risk situations;
- human behaviour, for example non-compliance with rules or safe driving practices; or
- inadequate organisation and management processes.



Figure 1: A cylinder distribution vehicle rolled over.  
The driver died in the vehicle



Figure 2: A tank vehicle rolled over. The driver  
died in the vehicle

### Scope

This safety information provides advice on reducing the risk of a vehicle rollover and other serious incidents on the road.

## Definitions

ABS: anti-lock braking system.

ESP: electronic stability programme.

EBS: electronic braking system.

ESC: electronic stability control.

LDWS: lane departure warning system.

Rollover: where a vehicle or trailer has fallen onto its side or rotated more than 90 degrees.

## Learning more about rollover and serious incident prevention

1. Have any of your vehicles been involved in a rollover or other serious incident?
2. Does your business provide specific training on rollover prevention?
3. Does your business provide a clear training curriculum and a system to manage it? (i.e. participation at refreshing trainings)
4. Do you provide drivers with training on the vehicle technology (ABS, ESP, ESC, ESP and LDWS) fitted to your vehicles and trailers?

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

**THIS TRANSPORT SAFETY INFORMATION GIVES GUIDANCE ON MEASURES THAT SHOULD BE PUT IN PLACE TO REDUCE THE RISK OF A VEHICLE ROLLOVER OR OTHER SERIOUS INCIDENTS AND ACTIONS THAT WILL HELP TO IMPROVE SAFETY IN ROAD TRANSPORT.**

## Management processes and actions which can support the prevention of rollovers and other serious incidents:

- Contractor management (see EIGA Info TS 04, *Transport of Gases – Contractor Management*) [1].
- Speed management.
- Fatigue management (see EIGA Info TS 13, *Managing Driver Fatigue*) [2].
- Drugs and alcohol policy.
- Driver health programmes, for example stress, diet, exercise etc.
- Defensive driver training (theory and practice).
- Management policies to reduce the risk of in vehicle distraction when driving, for example use of cell phones, messaging systems, CB radios, eating / drinking when driving and satellite navigation systems (see EIGA Info TS 12, *In Vehicle Distraction Management*) [3].
- Monitoring of harsh braking, aggressive driving style (via tachograph / on board system).
- Education on active and passive driver assistance systems, for example cruise control, proximity sensors, ABS, ESP etc.
- Route planning, scheduling and risk assessment.
- Vehicle maintenance management (see EIGA Info TS 09, *Vehicle Specification and Maintenance*) [4].
- Incident investigation (see EIGA Info TS 06, *Vehicle Incident Investigation Management*) [5].
- Coaching or retraining after an incident or a near miss.

### Driver theoretical rollover and other serious incident prevention training

As a minimum the driver should receive training on theoretical subjects covering:

- effects of speed;
- effects of and avoiding fatigue;
- effects of drugs and alcohol;
- effects of driver health (for example stress, diet, exercise);
- vehicle stability (centre of gravity of the vehicle, liquid movement in a bulk tanker, weight distribution for loading of non-bulk vehicles);
- load securing (see EIGA Doc 52, *Load Securing of Class 2 Receptacles*) [6];
- steering and braking techniques;
- understanding of technology fitted to vehicles and trailers, for example cruise control, ABS, ESP, EBS, ESC, LDWS, fatigue warning control system (see EIGA Info TS 09) [4];
- effects of changes in road surface and weather conditions (see EIGA TP 28, *Safe Driving in Bad Weather Conditions*) [7];
- effects of bends, curves and changes in direction;
- defensive driving principles;
- in vehicle distractions; and
- importance of vehicle maintenance and driver pre-trip inspection of vehicle and equipment.

### Driver theoretical rollover and other serious incident prevention training

Practical training should contain some elements of the theoretical training referred to above but may not be identical, including:

- theory explaining the causes of rollovers, jack-knifing;
- theory on effects of emergency braking;
- practical braking and steering techniques;
- effects of in vehicle distraction;
- anti-skid and jack-knife prevention;
- vehicle stability (rollover prevention) systems, ability to feel the technology working;
- stopping distances, under varying conditions;
- dynamic shift of weight;
- cornering, single / series of bends; and
- transfer of forces.

Rollover prevention training is available from a small number of specialist providers across Europe. The content of a typical training programme can consist of a short classroom session followed by practical demonstration and driver hands on practical training using specially prepared vehicles within a controlled environment for example, skid pan, vehicle proving ground. For most drivers this is the first opportunity they have to carry out emergency braking with a fully loaded vehicle. Drivers are also taken through and beyond the point of rollover in complete safety without the risk of damage or injury.

This rollover prevention training described above is mainly dedicated to bulk vehicles and requires equipment and facilities which are not available everywhere in Europe. An alternative solution, such as training with simulators, which is similar in effectiveness, may also be considered.



Figure 3: Specifically prepared vehicle for practical rollover training

### Driver refresher training

Periodically, drivers should receive refresher training on both theoretical and practical rollover and serious incident avoidance.

### Other transport function personnel training

All personnel working directly or indirectly within the field of transport should also be provided with theory training relevant to their specific role in relation to rollover and serious incident avoidance (for example, managers, schedulers, supervisors, maintenance personnel and loaders).

### References

- [1] EIGA Info TS 04, *Transport of Gases – Contractor Management*, [www.eiga.eu](http://www.eiga.eu).
- [2] EIGA Info TS 13, *Managing Driver Fatigue*, [www.eiga.eu](http://www.eiga.eu).
- [3] EIGA Info TS 12, *In Vehicle Distraction Management*, [www.eiga.eu](http://www.eiga.eu).
- [4] EIGA Info TS 09, *Vehicle Specification and Maintenance*, [www.eiga.eu](http://www.eiga.eu).
- [5] EIGA Info TS 06, *Vehicle Incident Investigation Management*, [www.eiga.eu](http://www.eiga.eu).
- [6] EIGA Doc 52, *Load Securing of Class 2 Receptacles*, [www.eiga.eu](http://www.eiga.eu).
- [7] EIGA TP 28, *Safe Driving in Bad Weather Conditions*, [www.eiga.eu](http://www.eiga.eu).

### Further information

EIGA Info TS01, *Transport Safety Information, an Overview*, [www.eiga.eu](http://www.eiga.eu).

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