

## The Safety of Heavy Duty Vehicles

Buses and trucks, the so-called heavy duty vehicles, represent an important share of road traffic. Their volume is expected to increase in Europe as will road traffic in general in the years to come. Reversing the trend in the number of accidents involving heavy duty vehicles is a challenge which, if succeeded, will bring an important contribution to the achievement of the EU target of halving road deaths by 2010.

### **Limiting the speed of heavy duty vehicles**

Speed influences both the risk of crashing and its consequences. In addition, an accident in which a truck or a bus is involved causes more severe harm than a normal accident. Because of their sheer mass, heavy commercial vehicles involved in multiple vehicle accidents cause very high rates of death and injury to other road users. Speed control of buses and trucks is therefore a vital aspect of road safety.

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In November 2002 the European Parliament and the Council adopted legislation (Directive 2002/85/EC) on the installation and the use of speed limitation devices for all vehicles over 3.5 tonnes and for all vehicles carrying eight or more passengers. This Directive applies as of 2005 for new vehicles and as of 2008 for vehicles registered after 1 October 2001.

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### **Drink-driving and heavy duty vehicles**

Another cause of severe accidents by bus and truck drivers is the abuse of alcohol by them. Particularly in the case of a bus, a very high number of victims are likely to be involved. Some European countries and manufacturers particularly target the implementation of alcohol interlocks (or alcolocks) in the bus and truck sector in order to substantially reduce the number of alcohol-related accidents.

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In a trial running from 1999 to 2002 in **SWEDEN**, 300 alcolocks were installed in commercial passenger and goods transport. Manufacturers such as Volvo and Toyota have also started offering systematically the installation of alcohol interlocks in trucks as a dealer option.

The Swedish Parliament is currently drafting legislation to make the installation of alcolocks obligatory in all new trucks and buses from 2010 on. Meanwhile, more and more transport companies install alcolocks voluntarily in their fleet. They expect this "quality assurance" feature to give them a competitive advantage over

other transport companies. It has been estimated that currently about 5-6,000 vehicles are equipped with interlocks in Sweden and all trucks of 3.5 tons and over, which are contracted by the Swedish Road Administration for more than 100 hours per year will have to be fitted with alcolocks from 2007 on. The goal set by the government is to require alcolocks in all governmental transport services at some point around 2010.

Trials with truck and bus companies were also started in **SPAIN** and **GERMANY** in 2005 as part of an EU financed research project.

### **Seat belts in heavy duty vehicles**

The dimensions of coaches and trucks usually provide drivers of heavy vehicles with greater protection against injury in accidents than occupants of smaller vehicles. However, even in this case, the use of seat belts will mitigate the consequences of the impact of an accident on drivers. Even more in the case of buses, all passengers are more exposed to the risk of injury if unbuckled. The sudden braking and turning manoeuvres can lead to passengers hitting the interior of the bus or each other, or falling out of their seats. Seat belts in heavy duty vehicles are hence intended both at drivers and passengers to reduce the probability of injury to them and to make the injuries which occur at least less severe.

In May 2006, new European legislation (Directive 2003/20/EC) will come into force extending the obligatory use of seat belts to occupants of all motor vehicles, including trucks and coaches. The Directive will not apply to urban buses.

### **Curbing fatigue at the wheel**

Research suggests that driver fatigue is a significant factor in approximately 20% of commercial transport crashes and shows that more than a half of long-haul drivers have at some time fallen asleep at the wheel.<sup>1</sup> Peak levels of fatigue-related crashes at night are often 10 times higher than daytime levels. Research in France on the working hours and habits of truck drivers showed that their risk of crashes related to fatigue increased when they were driving at night, when the length of their working day had increased and when they were working irregular hours.<sup>2</sup>

A new proposal for a Regulation on driving and rest times, tabled in 2003 and linking driving time to the provisions of the Working Time Directive, is currently discussed by the EU institutions.

In addition, the introduction of the digital tachograph initially planned to be introduced on 5 August 2005 but now postponed until 1 January 2006, is going to support efforts made to control driving and rest times. This type of measure device can record data over a longer period than the mechanical tachograph and will also significantly reduce the possibility of fraud.

### Blind spot mirrors

Every year a large number of vulnerable road users are killed or severely injured when trucks turn right. The main cause of these accidents is the bad visibility field of the truck driver on the right side of the vehicle, the so-called blind spots.

The mirror systems to solve this problem for trucks were first regulated in the Council Directive 71/127/EEC. Trucks with a gross weight over 7.5 tonnes have to be equipped with two mirrors outside on both sides of the vehicle, one mirror outside with a wide angle and a special mirror for the right side to recognise bicycle riders or pedestrians on the right handside. Based on real accident investigations it became apparent that the view out of trucks was still restricted.

In November 2003, the European Parliament and Council adopted Directive 2003/97/EC on rear view mirrors and supplementary indirect vision systems for motor vehicles. This Directive will improve vulnerable road users' safety by upgrading the performance of rear view mirrors and by accelerating the introduction of new technologies that increase the field of indirect vision for drivers.

**Cost benefit analysis:** The European Commission has estimated that the benefits of retrofitting lateral blind spot mirrors to existing goods vehicles over 3.5 t are approximately four times higher than the costs.

### Compatibility between heavy goods vehicles and other road users

Due to the size and mass of heavy good vehicles, the problem of compatibility with other road users is a serious matter. Trucks are stiff, heavy and high and may pose a serious threat to the occupants of other vehicles and to vulnerable road users.

EU requirements have been introduced mandating front, rear and side underrun protection for trucks with a gross weight over 3.5 tonnes.<sup>3</sup>

The current standards can however be largely improved. Research has shown that energy absorbing front underrun protection systems could save more than 1,000 fatalities per year, improved rear underrun protection systems could save a third of related fatalities per year and improved side underrun protection systems could save 45% of related vulnerable road users fatalities per year.<sup>4</sup>

The European Commission has committed through the 3rd Road Safety Action Programme to adapt the front, side and rear-end impact Directives to technical progress.

### References

- 1 ETSC (2001) The role of driver fatigue in commercial road transport crashes.
- 2 Hamelin, P. (1987) Lorry drivers' time habits in work and their involvement in traffic accident.
- 3 Directives 2000/40, 70/221 and 89/297 respectively.
- 4 ETSC (2001) Priorities for EU motor vehicle safety design.