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IRU POSITION ON ADVANCED ACCIDENT PREVENTION SYSTEMS

Unanimously adopted by the IRU Commission on Road Safety (CSR) on 18 September 2009.

IRU Position on advanced accident prevention systems for heavy commercial vehicles.

IRU Position

I. ANALYSIS

In recent years we have seen three revolutions in vehicle development. The first one was the development of bigger and stronger engines, the second one a revolution of safety features and the third one, which is happening now and will continue to develop in the future, is a technological revolution - advanced technology based accident prevention systems are high on the agenda.

1. What are advanced accident prevention systems?

Advanced accident prevention systems are highly technical active crash avoidance devices which help the driver – and, increasingly, help the vehicle itself - to avoid collisions. In contrast to active safety devices, passive safety devices are developed to minimise the severity of an accident, such as airbags and head restraints.

2. Examples of advanced accident prevention systems

There are many accident prevention systems, such as infra-red night vision systems, lane departure warning systems, electronic brake force distribution, emergency brake assistants and cornering brake control. All of these systems are based in general on vehicle to vehicle communication, vehicle to infrastructure communication and vehicle to driver communication. Below is a description of two typical examples of accident prevention systems.

(a) Driver fatigue monitoring

Exhaustion and fatigue can sometimes lead to drivers falling asleep while driving. The driver monitoring system monitors the driver's exhaustion level and can activate autonomous emergency breaking.

For developing benchmark data, a sensor is embedded in eye gear to monitor eye movement. This motion is recorded and can be used to determine a routine movement of the eye and allows identification of any variation from the routine movement.

Under real-life driving conditions eye movement is monitored and the information is processed in the vehicle. If a variation from the routine movement is determined to exceed a threshold, the system causes the vehicle to sound an alarm intended to alert the driver. If the

eye movement recorded after the alarm has sounded does not indicate a return to the routine movement, it is determined that the driver is incapacitated. Subsequently, another alarm is sounded and the vehicle will be stopped.

(b) Ultrasonic Sensor Based Blind Spot Accident Prevention System

When this blind spot detection device detects a vehicle, obstacle or bystander, the device triggers an alarm. If the obstacle's presence is still detected after a time delay, a second level of visual and audible alarms are triggered to alert the system operator of the dangerous situation and finally the vehicle will be stopped automatically.

3. Who develops advanced accident prevention systems?

Most of the research and development on accident prevention systems is carried out by vehicle manufacturers. In addition, large research projects, such as the European Commission's Highly Automated Vehicles for Intelligent Transport project (HAVE-IT) http://www.haveit-eu.org, look into the development of active accident prevention systems. In addition, even in those international research projects the driving force behind the technological developments are vehicle manufacturers.

4. Evaluation

Advanced accident prevention systems can benefit road safety by reducing accident numbers and the severity of accidents. Equally, there are potential benefits for transport operators, such as a reduction in accidents resulting in less vehicle downtime and lower insurance premiums.

However, there are also considerable negative aspects. The key argument against most of the systems is that they do not effectively target the main cause of an accident involving heavy commercial vehicles. For truck accidents the main cause of an accident has been scientifically established through the ETAC study. To recall, according to the ETAC study the main causes of accidents are: not respecting intersection rules, non-adapted speed and use of an improper manoeuvre when changing lanes. In fact, most of the accident prevention systems are justified by manufacturers through in-house accident analysis and not through internationally recognised research.

Another area of concern is that the development of the various systems is not coordinated, which might have a considerable impact on driver-vehicle communication. In fact, if the driver receives regular warning signals he may start ignoring them.

In the same respect, one should look at the transport operator's acceptability of most accident prevention systems, as experience shows that these systems are often not appreciated.

Furthermore, advanced accident prevention systems might contribute to a false sense of safety, by which the safety benefits of the system would be offset through irresponsible driving.

Lastly, research on accident prevention and piloting of technology is often used as a backdoor to the influencing and development of technical legislation, meaning there is a clear lack of transparency in the drafting of legislation.

II. IRU POSITION

For the IRU and its Member Associations, road safety is a high priority and the industry supports all road safety measures that effectively target the main cause of accidents involving heavy commercial vehicles.

All accident prevention systems should undergo a transparent and industry-wide cost benefit and operational analysis.

All accident avoidance device systems should be harmonised and standardised before they are distributed on the market.

All accident avoidance device systems should be analysed regarding their interaction with each other and with the driver.

Until the above mentioned concerns are completely addressed the purchase of accident prevention systems must remain optional.

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