



Proposal for Regulation "Type-Approval Requirements for the general Safety of Motor Vehicles"

Position of the European Transport Safety Council

1. Introduction

The European Transport Safety Council (ETSC)¹ welcomes elements of the proposal for a Regulation which will improve vehicle safety published on the 23rd of May 2008. The introduction of mandatory vehicle safety technologies especially Electronic Stability Control will contribute to reducing the 42,000 annual deaths on Europe's roads.

2. Life saving potential of the Regulation

According to the European Commission's estimates the adoption of these measures would bring about substantial life saving potential. However ETSC regrets that the proposal which addresses road safety does not focus on reducing the factors that currently present the greatest risk to road safety, namely speed, alcohol and the non-use of seat belts. The technologies chosen which include Electronic Stability Control, Advance Emergency braking and Lane Departure Warning, are not those that would bring about maximum casualty reductions.

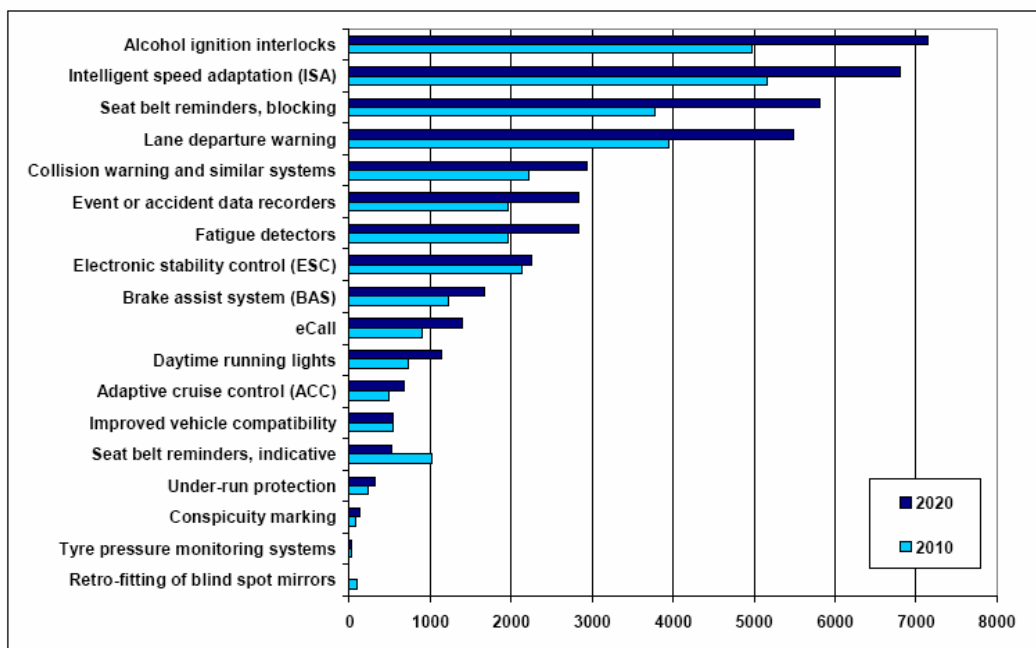
The new regulation has not been set by the safety potential of the various technologies. Even though the mentioned technologies for longer term introduction (automatic emergency braking and lane departure warning) can doubtlessly contribute to road safety it is important that future technologies focus on the largest contributors to road risk.

According to a study commissioned by DG TREN and referenced in the EC's impact assessment three other technologies score higher in potentially reducing fatalities (COWI 2006). These are technologies linked to the three

¹¹ The European Transport Safety Council (ETSC), founded in 1993 is a Brussels-based independent non-profit making organisation dedicated to the reduction of the number and severity of transport crashes in Europe. The ETSC seeks to identify and promote research-based measures with a high safety potential. It brings together 40 national and international organisations concerned with road safety from across Europe.

main risk factors and include, Intelligent Speed Adaption, Alcohol Inter-locks and Seat Belt Reminders². According to the study especially Seat Belt Reminders and event or accident recorders appear to be the most effective vehicle technologies, but it also appears that electronic stability control (ESC), intelligent speed adaption (ISA) and alcohol ignition interlocks are very promising (COWI 2006). The study also concluded that for HGVs under-run protection is considered to be the most cost-effective.

Figure 2 Reduction in the number of fatalities in EU-25 in 2010 and 2020

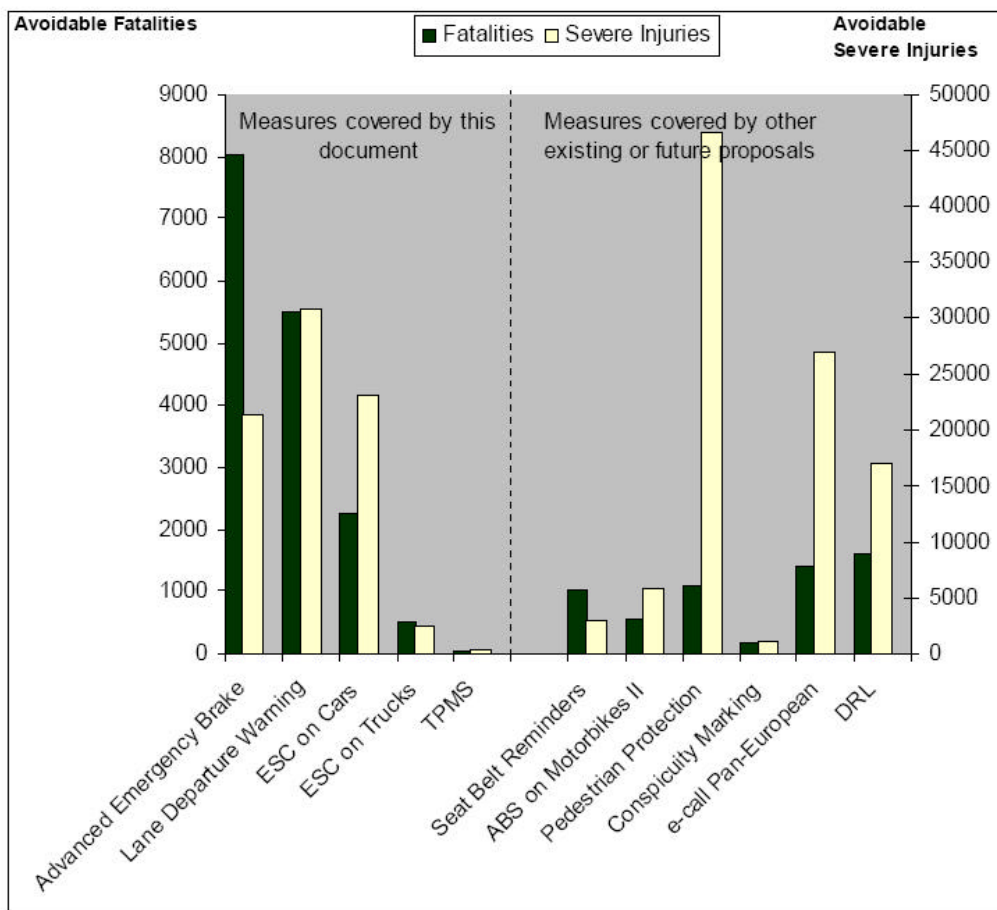


Cost-benefit assessment and prioritisation of vehicle safety technologies (COWI 2006)

From the above table we can see that alcohol interlocks, ISA and Seat Belt Reminders (blocking type) score far more highly in saving lives. Of the technologies included in the EC proposal only lane departure warnings score nearly as well in fourth place. ESC and under-run protection are far behind. This is not to say that the introduction of these other technologies are not worth pursuing but rather that their life saving potential is lower. In the next graph, from the EC's Impact assessment of the regulation, we can see that their introduction will save considerable numbers of lives.

² This is for the 'blocking' variant of seat belt reminder that does not allow the car to start in case of non-seat belt usage.

ANNEX I
POTENTIAL CASUALTY SAVINGS ACHIEVABLE THROUGH VARIOUS TECHNOLOGIES.



http://ec.europa.eu/enterprise/automotive/safety/sec_2008_1908_ia.pdf

The Three Technologies which should be included as a matter of priority:
Instead ETSC presses for the introduction of these three technologies.

i) Seat Belt Reminders

Seat belt reminders detect occupants and their seat belt use in all seating positions, and then create a series of alarms to alert the car occupant if he or

she is not belted. There are different types of seat belt reminders – some issue only visual warnings while others issue both visual and auditory warnings. As can be seen by the first table the potential to save lives that seat belt reminders that disable ignition are the most effective. But even audible seat belt reminders have a large life saving potential.

ETSC has undertaken a cost-benefit analysis for the mandatory introduction of audible seat belt reminders for front seats in 2004 (ETSC 2004). It was based on the assumption that roughly 50% of fatally injured front seat car occupants killed in the EU did not wear seat belts and that audible seat belt reminders for the front seat could increase seat belt wearing among front seat occupants to 97%. After twelve years of introduction, the costs would amount to about 11 million Euro while the benefit would be 66 million Euros. The cost-benefit ratio would be 1:6.

The CARS 21 High Level Group had included EU regulation on seat belt reminders in its 10 year road map for the automotive industry in Europe.

ii) Intelligent Speed Adaptation

Intelligent Speed Adaptation (ISA) is an Intelligent Transport System (ITS) which warns the driver about speeding, discourages the driver from speeding or prevents the driver from exceeding the speed limit (Regan et al, 2002 A). Information regarding the speed limit for a given location is usually identified from an onboard digital map in the vehicle. In terms of intervention level there are two major types of system – informative and supportive. An informative system gives the driver feedback in the form of a visual or an audio signal. A supportive system works in the form of increasing the upward pressure on the pedal or cancelling a driver's throttle demand if it demands more throttle than is required to drive at the speed limit.

A Swedish large-scale study of the effect of informative and supportive ISA, involving nearly 4,500 vehicles, shows that if everyone had informative ISA fitted, injury accidents could be reduced by 20% in urban areas (Biding 2002). A mandatory system also has very large potential to reduce fatal and serious accidents (Carsten et al 2001). Estimates by Carsten show that this mandatory ISA system, when combined with a dynamic speed limit regime, has the potential to reduce overall injury accidents by 36 %, fatal and serious injury accidents by 48% and fatal accidents by 59%.

iii) Alcohol Interlocks

Alcohol interlocks (also termed 'alcolocks') are devices that require the driver to take a breath test before starting the car. If the driver fails the test, the device locks the ignition of the car.

Experiences in the US and Canada have shown that alcohol inter-locks can lead to 40-95% reductions in the rate of drink driving repeat offences (ICADTS, 2001). Field trials have shown that there is a 28-65% lower conviction rate if there is an inter-lock installed in the vehicle, where the 65% lower rate is reached during the first year after installation (Beck et al 1999).

ETSC Recommendation:

The European Commission should make progress in introducing safety technologies that are linked more strongly to the risk factors. As one of the most cost effective of the three, Seat Belt Reminders should be included as a matter of priority. They should be standard equipment for front and rear seat occupants with audible and visual warnings in every new car.

3. Specific Comments on the Safety Technologies included in the Proposal

a) Mandatory Electronic Stability Control (ESC) systems

ESC for new car series and commercial vehicles are to be phased in from 2012, with all new cars being equipped by 2014. ESC acts on the braking or power systems of a vehicle to assist the driver in maintaining control of the vehicle in a critical situation (caused, for example, by poor road conditions or excessive speed during cornering). As well as saving casualties, the widespread use of ESC in vehicles could significantly reduce the traffic congestion caused by accidents involving large vehicles (Article 5). Large differences in fitment rates within the EU member states makes it even more important with legislation. In Sweden 96% of all new sold cars were fitted with ESC, while in many other EU countries the fitment rate may be below 30%.

ETSC: this is the most important of the proposed measures and should be adopted as a matter of priority. ESC can effectively prevent serious accidents by stabilising the vehicle in critical situations and preventing skidding. Several studies carried out show that ESC significantly reduces the number of

serious accidents. The wider use of ESC is therefore an important measure in increasing road safety.

b) Advance Emergency Braking (AEBS)

AEBS on large vehicles employing sensors to alert the driver when a vehicle is too close to the vehicle in front and, in certain situations, apply emergency braking to prevent or reduce the consequences of a collision (from 2013) (Article 6). The technology at present only exists in a few car producers and models. But just within a few years most manufacturers will have introduced such technology. This regulation would ensure a 100% penetration.

c) Lane Departure Warning (LDW)

LDW Systems on large vehicles assist drivers by warning them when their vehicle is in danger of leaving the lane unintentionally, mainly due to lack of driver attention (from 2013) (Article 6).

Lane changing represents 4 to 10 % of all crashes. Studies made in the US show that the Lane Keeping Device could reduce the number of impact by 37 % (Olsson, 2002). Times to collision during dangerous lane changes are normally much less than one second (ETSC In-Car Technology Report 2005).

ETSC: This is also welcomed but of all vehicle safety technology devices this is seen as lower priority.

d) Underrun Protection

The proposal in Article 6 (specific requirements relating to certain vehicles in categories N and O (HGVs and Trailers) does not introduce any changes but merely refers to existing UNECE requirements to introduce these changes for underrun protection from 2013.

Vehicles in N2, N3, shall be constructed to ensure that in the event of a front collision with another vehicle, the risk of injury to a vehicle occupant due to underrun is minimised.

N2, N3 and O3 and O4 shall be constructed to ensure that in the event of the vehicle being hit from the side by another vehicle or an unprotected road user, the risk of injury to that unprotected road user or a vehicle occupant due to underrun is minimised.

Front underrun protection systems

Due to the size and mass of heavy 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. Frontal car-to-truck collisions are the greatest problem in accidents where trucks are involved.

An EU requirement was introduced requiring mandatory rigid front underrun protection defining a rigid front underrun protection system for trucks with a gross weight over 3.5 tonnes (CEC, 2000a).

Rigid underrun protection is a step in the right direction, but, as these collisions normally take place at higher relative speeds where energy absorption is necessary on the truck, the new proposal should be extended with *energy absorbing* front underrun protection systems and should be compulsory within the European Union. Studies performed by EEVC WG 14 have shown that passenger cars can 'survive' a frontal truck collision with a relative speed of 75 km/h if the truck is equipped with an energy absorbing underrun protection system. Furthermore, these systems could reduce about 1,176 fatalities and 23,660 seriously injured car occupants in Europe per year. The monetary benefit is about 1,482 million Euro (The Safety of Vulnerable Road Users 2005, ETSC).

Side underrun protection in trucks

When heavy goods vehicles and vulnerable road users are side by side and the vehicle turns in their direction, the vulnerable road users are at risk of being run over by the vehicle.

Trucks and trailers have to be equipped with a protection system at the side as defined in the Council Directive 89/297/EEC. Apart from protecting car occupants in case of lateral collision with a truck, side underrun protection systems are also aimed at preventing pedestrians, bicycle riders and motorcyclists from falling under the wheels of the truck when it turns. The protection system fills the open space between the wheels: however, current legislation accepts an "open" frame (e.g. two planks on the side with a maximum distance of 30 cm). Therefore, under some circumstances, pedestrians and bicycle riders could be caught by such a side underrun protection system. Furthermore, for side collisions with motorbikes, the strength of current side underrun protection systems is insufficient.

It would be desirable for the existing requirements to be updated and to specify full area side underrun protection systems. Investigations have shown that improved side underrun protection systems could reduce fatalities to pedestrians and cyclists in such situations by about 45% (ETSC 2001b). In addition the strength requirement should be increased to accommodate side collisions with motorbikes (The Safety of Vulnerable Road Users 2005, ETSC).

Rear underrun protection systems

The Council Directive 70/221/EEC defines a rear underrun protection system for trucks and trailers with a gross weight of more than 3.5 tonnes. The regulation describes for example a ground clearance of 550 mm and test forces of maximum 25 kph, respectively 100 kN, depending on the test point.

An in-depth study of 58 car/truck collisions has shown that today's rear underrun protection systems are not sufficient, especially because of the large ground clearance and their insufficient strength. The ground clearance needs to be reduced to 400mm. Furthermore, the test forces need to be doubled. First conservative estimates of EEVC WG14 showed that improved rear underrun protection systems with a lower ground clearance as well as higher test forces would reduce fatally and severely injured car occupants by a third in rear underrun impacts in Europe. In addition, Working Group 14 has found that the costs for fatalities and severe injuries could be reduced by 69 -78 Million Euro.

ETSC Recommendation:

ETSC supports the mandatory fitment requirement for front underrun protection for vehicles in N2 and N3 and for side underrun for vehicles in N2, N3 and O3 and O4.

However steps should be taken to ensure that side protection closes off the open space between the wheels of the heavy goods vehicle for all new heavy goods vehicles. *Energy absorbing* front underrun protection for all heavy goods vehicles should also be introduced. Improved rear underrun protection systems with a lower ground clearance as well as higher test forces should also be introduced. These improvements would reduce fatally and severely injured car occupants in underrun impacts in Europe

e) Tyre Safety



There is no scientifically based evidence that lowering the rolling resistance of tyres on the market today could have a negative effect on safety. However, as it cannot be stated with absolute certainty that future tyre designs will not compromise safety (FEHRL report - quoted by the EC's Consultation document), all tyre models must be subjected to a stringent wet grip test. This concern stressed in the EC's impact assessment is also shared by ETSC.

To counter this concern in particular the current wet grip test should be improved to ensure a minimum safety standard. This test sees how well a tyre grips a wet road. ISO and UN-ECE working groups should already be given a mandate to improve the R117 test further, with a strict deadline from the Commission, and to be brought into the regulation as soon as the method is agreed. In parallel a labeling scheme should be developed and introduced showing bands for wet grip performance (A-D). This label should fill the gap in drivers' knowledge about tyres and raise consumer awareness on environmental and safety performance.

ETSC also supports the mandatory introduction of Tyre Pressure Monitoring Systems (TPMS) as efficient technologies to enhance road safety. TPMS alert the driver on the state of tyres' inflation.

ETSC Recommendation:

Given the above finding, ETSC strongly recommends further research in this field and to efforts to improve the R117 test for wet grip and tyre safety. Consumer information on safe tyres should be increased through the introduction of a labeling scheme.

5. Institutional implications of delegation of powers and authorities to the UN

In line with the recommendation of the CARS 21 report, the Regulation proposes the repeal of over 50 existing Directives and more than 100 amending Directives to be replaced where possible by references to United Nations Regulations.

ETSC is concerned about the implications of passing on its regulatory powers to the UN. The UNECE process excludes European Parliamentary inspection and amendment. Moreover due to the larger number of parties involved in the process the lowest common denominator is likely to set a lower bar for regulation. This may also have negative implications for high levels of safety



need for vehicles in the EU. The EU will lose its right of democratic scrutiny of new legislation, the Commission's role of "guardian of the Treaty" and right of initiative will be lost. ETSC would like the European Parliament to have a '*droit de regard*' on issues delegated to the UNECE.

If for reasons of "Better Regulation" this nevertheless is adopted ETSC would like to see changes to the UNECE system. The process should be made much more open and transparent to NGOs. Moreover this should include more consultation of independent safety experts who are not affiliated to industry or to the interests of particular Member States. These changes would ensure that safety is at the forefront of the UNECE process.

For more information:

Priorities for EU Motor Vehicle Design ETSC 2001

The Safety of Vulnerable Road Users in Southern, Eastern and Central European Countries ETSC 2005

In Car Enforcement Technologies Today ETSC, 2005

Seat Belt Reminders: Implementing advanced safety technology in Europe's Cars, ETSC, 2007

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