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# Status of the review of the General Safety and Pedestrian Safety Regulations

Reporting on new technologies and the way forward

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Directorate-General for Internal Market,  
Industry, Entrepreneurship and SMEs

Automotive and Mobility Industries Unit

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# EU Vehicle type-approval framework

- All vehicles placed on EU market must have a Whole Vehicle Type-Approval.
- Framework Directive 2007/46/EC.
- Prescribes mandatory rules for vehicles:
  - **Emissions requirements**
  - **General construction requirements**
  - **Safety requirements**

# Safety requirements in the EU

- In principle applicable for all categories of vehicles covered by the Framework:
  - **M<sub>1</sub> Passenger Car, M<sub>2</sub> Small Bus, M<sub>3</sub> Large Bus**
  - **N<sub>1</sub> Light Commercial Vehicle, N<sub>2</sub> Medium Size truck, N<sub>3</sub> Heavy Goods Vehicle**
  - **O<sub>1</sub>/O<sub>2</sub> Light Trailer, O<sub>3</sub>/O<sub>4</sub> Large Trailer**
- Detailed in 3 main legislative acts:
  - **General Safety Regulation (EC) No 661/2009**
  - **Pedestrian Safety Regulation (EC) No 78/2009**
  - **Hydrogen Vehicle Safety Reg (EC) No 79/2009**

# Regulation (EC) No 661/2009

- Main **type-approval requirements** for the **General Safety** of motor vehicles, trailers, components and separate technical units.
- Contains **detailed implementing measures** that are EU or UNECE Regulations for defined vehicle categories
- Phase-in mostly completed since 11/2014.
  - Electrical Safety, Electronic Stability Control, Advanced Emergency Braking on trucks and buses, Tyre Pressure Monitoring, Driver Safety-Belt Reminder, ISOFIX, ...

# Regulation (EC) No 78/2009

- **Pedestrian Safety Requirements**, child/adult headform impacts on bonnet, as well as legform impact on front bumper.
- Based on old Directive 2003/102/EC, but with more stringent requirements and mandatory **Brake Assist System (BAS)**.
- Still **being phased in**, specifically for heavy M<sub>1</sub> passenger cars (SUVs) and N1 light commercial vehicles (vans) since 2011 **to 2019**.

# Reporting obligations on safety

- General Safety and Pedestrian Safety Regulations require to **report** to the **European Parliament** and the **Council** on progress in the safety field.
- Including **monitoring** and **assessment** of new **advanced safety features**, their **cost effectiveness** and **feasibility** for possible inclusion in a future revision of the regulations on general vehicle safety and on the protection of pedestrians and other vulnerable road users.

# What we have done for the reporting

- Commission has undertaken a **preliminary study** with TRL (published March 2015):
  - **Review of possible considerations for legislation**
  - **New safety features that meet CARS 2020 criteria and the Road Safety 2011-2020 policy orientations**
  - **Indicative cost-benefits analysis of 55 possible measures that could be introduced in the EU**
- Outcome was '**short list**' for GSR and PSR reporting and thus the way forward in the EU.

# Preliminary study can be found here

- <http://bookshop.europa.eu/en/benefit-and-feasibility-of-a-range-of-new-technologies-and-unregulated-measures-in-the-field-of-vehicle-occupant-safety-and-protection-of-vulnerable-road-users-pbNB0714108/?CatalogCategoryID=r2yep20wGwsAAFL2xwhY3hG>



# Stakeholders that have been consulted (from 2014 onwards)

- ACEA (car industry)
- CLEPA (supplier industry)
- FIA (motorist interests)
- ETSC (transport safety)
- ANEC (consumer standardisation)
- Euro NCAP (consumer testing)
- Transport & Environment
- Transport for London
- ...
- Member States



# Status of the Commission Report

## Saving Lives: Boosting Car Safety in the EU

Reporting on the monitoring and assessment of advanced vehicle safety features, their cost effectiveness and feasibility for the review of the regulations on general vehicle safety and on the protection of pedestrians and other vulnerable road users

- **Adopted** by the **European Commission** on 12 December 2016
- [http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item\\_id=9029](http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=9029)

# General Safety Regulation

## Reporting on the Way Forward

- Instead of identifying safety problem in the field and working towards a solution, **list of available and feasible measures** was assessed.
- List of measures has been limited to those that are most likely to be **cost effective**.
- In depth cost effectiveness and impact on competitiveness is being checked at this moment, as the basis for **Impact Assessment**.
- Stakeholder engagements, public consultations.

# 19 Measures included in the Report

- Autonomous Emergency Braking
- Emergency Braking Display
- Intelligent Speed Assistance
- Lane Keeping Assist
- Driver Distraction/Drowsiness Monitoring
- Safety-Belt Reminder (all seats)
- Frontal Impact Crash Updates
- Side Impact Crash Updates
- Rear Impact Crash Introduction
- Alcohol Interlock Device Installation
- Crash Event Data Recorder
- Tyre Pressure Monitoring
- Truck Front End Design Program
- Truck Rear Underrun Protection
- Truck Lateral Protection
- Bus Fire Safety Program
- Pedestrian/Cyclist Detection
- Head impact on A-pillar/windscreen
- Reversing Detection

# Combined Key Active Safety Measures

– 1/9/2020

Mentioned mandatory dates in  
this presentation are indicative

For new vehicles: Plus 2-year period

- Automatic Emergency Braking System
  - $M_1, N_1$
- Lane Keep Assistance
  - $M_1, N_1$
- Driver Drowsiness and Distraction Monitoring
  - $M, N$
- Intelligent Speed Assistance
  - $M, N$

# Focus on Autonomous Emergency Braking Systems

- Autonomous Emergency Braking Systems for vehicle-to-vehicle collisions combines sensing of the environment ahead of the vehicle with the automatic activation of the brakes in order to mitigate or avoid a collision.
- From 1 November 2015, fitment of AEBS on new trucks and buses already mandatory in EU.
- Effective accident avoidance measure.
- Autonomous function (without driver input).

# Further Focus on AEBS

- Automatic Emergency Braking System
- For new types of vehicle:
- **1/9/2020** moving obstacle
- **1/9/2022** stationary obstacle
- **1/9/2024** pedestrian detection
- **1/9/2026** cyclist detection
- For new vehicles: **Plus 2-year** period
- $N_1$  (non  $M_1$  derived) vehicles: **2-year offset**

# Further Focus on Pedestrian Safety

- Automatic Emergency Braking System
- For new types of vehicle:
  - **1/9/2024** pedestrian detection
  - **1/9/2026** cyclist detection
- For new vehicles: **Plus 2-year** period
- $N_1$  (non  $M_1$  derived) vehicles: **2-year offset**



# Focus on Lane Keeping Assistance

- Lane Keeping Assist monitors the position of the vehicle with respect to the lane boundary and actively applies a torque to the steering wheel, or pressure to the brakes, when a lane departure is about to occur.
- Autonomous function (without driver input).
- From 1 November 2015, fitment of Lane Departure Warning System (i.e. not LKA) on new trucks and buses already mandatory in EU.
- LDWS gives off warning signal only.

# General Safety Measures – 1/9/2020

For new vehicles: Plus 2-year period

- Safety Belt Reminders
  - $M_1, N_1$  – on all seats /  $M_2, M_3, N_2, N_3$  – front seats only
- Emergency Braking Display
  - M, N
- Alcohol Interlock Devices Interface
  - M, N
- Crash Event Data Recorder
  - $M_1, N_1$
- Tyre Pressure Monitoring
  - M, N,  $O_3, O_4$

# General Safety Measures – 1/9/2020

For new vehicles: Plus 2-year period

- Frontal Crash Program Update
  - $M_1, N_1$
- Side Crash Program Update
  - $M_1, N_1$
- Rear Crash Testing Introduction
  - $M_1, N_1$

# Truck, trailer and Bus specific

– 1/9/2020

For new vehicles: Plus 2-year period

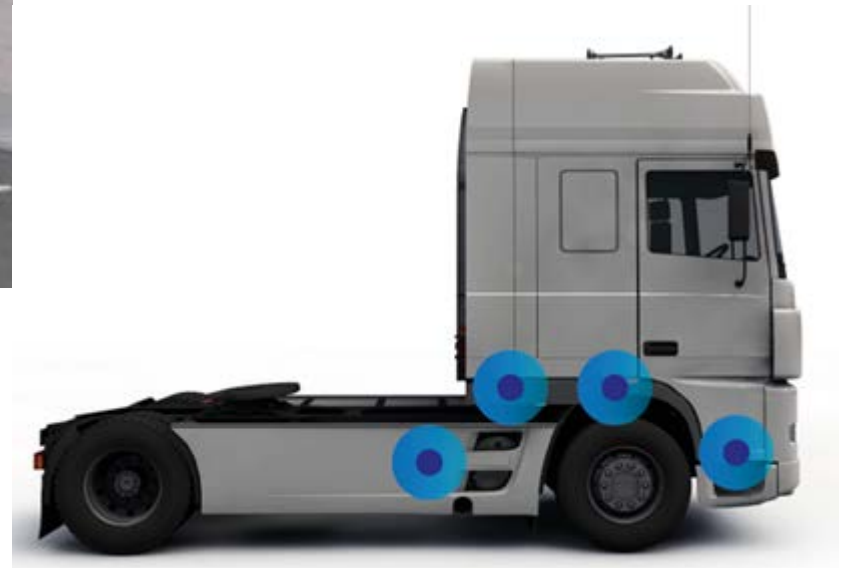
- Front End Blind Spot Cameras and Detection
  - M<sub>2</sub>, M<sub>3</sub>, N<sub>2</sub>, N<sub>3</sub>
- Upgrading Lateral Protection (elimination of exemptions)
  - N<sub>2</sub>, N<sub>3</sub>, O<sub>3</sub>, O<sub>4</sub>
- Upgrading Rear Underrun Protection
  - N<sub>2</sub>, N<sub>3</sub>, O<sub>3</sub>, O<sub>4</sub>
- Upgrading Front Underrun Protection\*
  - N<sub>2</sub>, N<sub>3</sub>
- Fire Safety for Buses
  - M<sub>2</sub>, M<sub>3</sub>

# Focus on Front End Blind Spot Cameras and Detection

- To protect Vulnerable Road Users, including pedestrians and cyclists involved in collisions.
- Indirect vision requirements exist: Mirrors.
- It takes a long time for drivers to scan and interpret images seen in mirrors.
- Camera systems paired with detection capability of pedestrians and cyclists around the cab to lessen the burden for drivers and to signal where dangerous situations arise.



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# Focus on Lateral Protection Upgrade

- Currently already mandatory on trucks and trailers, by direct application of UNECE Regulation No 73.
- Mainly to protect pedestrians and cyclist from being caught under (rear) wheels of trucks.
- Broad exemptions for Special Purpose Vehicles, notably Off-Road vehicles.
- Proposal to significantly reduce the number of exemptions that are currently permitted.



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# Focus on Front Underrun Upgrade

- Currently, front protection devices (e.g. bumpers) already mandatory on trucks by direct application of UNECE Regulation No 93.
- Proposal is not a direct result of accidents in the field, but a necessity to allow for alternative truck cab shapes (i.e. aerodynamic, rounded cabs).
- Current requirements focus on deflection versus force for flat device.
- Proposal to introduce dynamic testing with car crash simulation (trolley) and maximum deceleration levels.

# Pedestrian Safety

– 1/9/2020

For new vehicles: Plus 2-year period

- Reversing camera/detection
  - M, N, O<sub>3</sub>, O<sub>4</sub>

# Focus on Reversing Camera and Detection systems

- Sensing systems that increase the view of drivers or otherwise warn them of persons or obstacles behind reversing vehicles.
- Particularly vulnerable in this context are short, crouching or slow moving people, such as the elderly and children.
- Rear view camera is mandatory in the USA, because of running over of children while backing out of driveway.
- Consideration of cameras and detection systems for EU application.

# Pedestrian Safety M1, N1 – 1/9/2024

For new vehicles: Plus 2-year period  
N<sub>1</sub> (non M<sub>1</sub> derived): 2-year offset

- Automatic Emergency Braking System
  - Pedestrian detection
  - Cyclist detection (note: from 1/9/2026)
- Windscreen and A-Pillar Head Impact Test

# Focus on Windscreen and A-pillar head impacts

- Research shows that notably cyclists tend to impact their heads further rearward than pedestrians.
- Current head impact test zone is limited to the rear edge of the bonnet.
- Also pedestrian fatalities point to head contact with the windscreen and A-pillar region.
- Proposal to extend the test zone to include windscreen and A-pillar area.

# Truck and Bus Front End Design

– 1/9/2028

For new types of vehicle only

- Direct Vision Requirements
  - $M_2$ ,  $M_3$ ,  $N_2$ ,  $N_3$
- Front Underrun Protection device update
  - $N_2$ ,  $N_3$

Facilitation through DG MOVE's Maximum Authorised Weights and Dimensions Directive (EU) 2015/719 amending 96/53/EC



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# General Safety Regulation Revision Future Commission Proposal

- Proposal for revision is to follow **Q1-2018**.
- To contain the measures identified to be **cost effective**.
- Process to be started once implications of the **Impact Assessment** are clear.
- Again, stakeholder engagements, public consultations, etc.
- **After Commission adoption**, to be discussed in the **European Parliament** and the **Council**.



# Way forward of the General Safety and Pedestrian Safety Regulations

- Currently carrying out an **in depth cost and effectiveness analysis**, forming the basis for Impact Assessment for Commission Proposal to amend General Safety and Pedestrian Safety
- Looking at **combining/bundling technologies** (while not double counting costs and benefits).
- Assessing the **impact on competitiveness**.

# Next milestones

- Finalisation of cost/benefit study for Impact Assessment (March 2017)
- Open public consultation on the initiative (April to July)
- Finalisation of Impact Assessment (September)
- Regulatory Scrutiny Board (October)
- Inter-Service Consultation (December 2017)
- Adoption of Commission proposal (March 2018)

## For further information

<http://ec.europa.eu/growth/sectors/automotive>

- Status of EU legislation, links to Regulations and other useful information.

<https://circabc.europa.eu/w/browse/b2bc6bdb-7e39-48cd-9f16-079703cd82e6>

- Studies carried out by the Automotive and Mobility industries unit of DG GROW

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## Thanks for your attention