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Europe on the Move

New safety features in your car

Improved direct vision
for trucks and detection
of pedestrians and cyclists

Safety glass in case of a crash,
for pedestrians and cyclists

Event data recorder

Drowsiness and distraction
monitoring

Lane keeping
assistance

Advanced emergency braking

Intelligent speed
assistance

Improved
seatbelts

Reversing
camera



Revision of the EU General Safety Regulation and Pedestrian Safety Regulation

24 June 2019
Roadworthiness Committee

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The existing EU vehicle Framework

- All vehicles for sale in Member States have to be **EU type-approved**
- Prescribes mandatory rules for vehicles including notably **environmental** performance and **vehicle safety** requirements
- Type-Approval **Framework** Directive 2007/46/EC currently applies
- Soon to be replaced with **new and improved** Regulation (EU) 2018/858 (post-dieselgate)
- New for 9/2020 **market surveillance** obligations

Vehicle safety requirements in the EU

- In principle applicable for all categories of vehicles covered by the Framework:
 - **M₁ Passenger Car, M₂ Small Bus, M₃ Large Bus**
 - **N₁ Light Commercial Vehicle, N₂ Medium Size truck, N₃ Heavy Goods Vehicle**
 - **O₁/O₂ Light Trailer, O₃/O₄ Large Trailer**
- Detailed in 2 main legislative acts:
 - **General Safety Regulation (EC) No 661/2009**
 - **Pedestrian Safety Regulation (EC) No 78/2009**

Regulation (EC) No 661/2009

- GSR introduced more advanced features such as **stability control, safety belt reminder, ISOFIX, electric shock protection, ...**
- Also **Advanced Emergency Braking** and **Lane Departure Warning** on all new trucks and buses
- Measures still being phased in until 2023 (tyres noise, rolling resistance, etc)
- All **measures are carried** over in the revised GSR

Regulation (EC) No 78/2009

- **Pedestrian Safety Requirements**, child/adult headform impacts on bonnet, as well as legform impact on front bumper
- Mandatory **Brake Assist System** (BAS)
- **Frontal Protection System** “Bull-Bars” are specifically regulated
- Still **being phased in**, specifically for heavy M₁ passenger cars (SUVs) and N₁ light commercial vehicles (vans) since 2011 **to 2019**

Need for action to improve safety

- Improvement of annual number of **road deaths** stagnating since 2013, **EU targets** will not be reached
- Clear call from numerous **stakeholders** for Commission to take action through revising vehicle safety rules
- Malta Valletta **declaration of ministers**
- Repeated **request for action** by **EP** for resolute and determined action by the Commission

The way forward (1)

- New **Commission proposal on General Vehicle Safety** was adopted as part of the 3rd Mobility Package on 17 May 2018.
- Focus on new accident avoidance systems and improved active and passive safety measures, both for **Occupant protection** in frontal, side and rear impact as well as for **pedestrian and cyclist protection** in frontal, side and rear impacts.
- All details available here
http://europa.eu/rapid/press-release_IP-18-3708_en.htm

The way forward (2)

- An ambitious strategy that will cover **all categories of vehicles**.
- A proposal that will pave the way to Connected and Automated Driving and **focus on the human factor**
- Part of the **Safe System approach** (Road and Tunnel safety)
- Simplification by combining current separate legislation on GSR, PSR and also the regulation on Hydrogen vehicle safety

The way forward (3)

- Political agreement reached in trilogues, COREPER and EP plenary vote took place in March/April.
- EP Corrigendum procedure: i.e. agreement is closed, lawyer-linguist checks ongoing.
- Formal adoption September/October, publication and entry into force end of November 2019
- Phase 1 → 05/2022 new models, 05/2024 for all new vehicles
- Phase 2 → 05/2024 new models, 05/2024 for all new vehicles
- Phase 3 → 11/2025 new models, 11/2028 for all new vehicles

	Passenger cars	Light commercial vehicles	Buses	Trucks and trailers
	M ₁	N ₁	M ₂ & M ₃	N ₂ & N ₃
Advanced emergency braking (cars/vans)	Phase 1	Phase 1	already	already
Advanced emergency braking for pedestrians and cyclists	Phase 2	Phase 2	-	-
Alcohol interlock installation facilitation	Phase 1	Phase 1	Phase 1	Phase 1
Drowsiness and attention warning	Phase 1	Phase 1	Phase 1	Phase 1
Distraction warning / prevention	Phase 2	Phase 2	Phase 2	Phase 2
Event (accident) data recorder	Phase 1	Phase 1	Phase 3	Phase 3
Emergency stop signal	Phase 1	Phase 1	Phase 1	Phase 1
Frontal crash protection updates	Phase 1	Phase 1	-	-
Head impact zone enlargement for pedestrians and cyclists (to include the windscreen area)	Phase 2	Phase 2	-	-
Intelligent speed assistance (through non-intrusive haptic feedback)	Phase 1	Phase 1	Phase 1	Phase 1

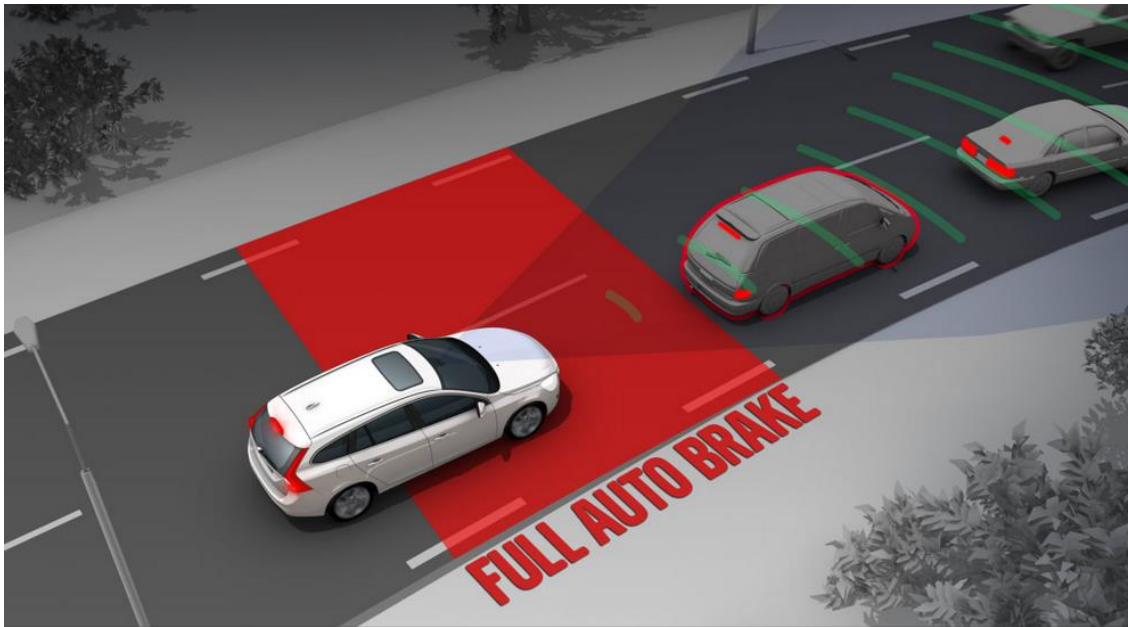
	Passenger cars	Light commercial vehicles	Buses	Trucks and trailers
	M ₁	N ₁	M ₂ & M ₃	N ₂ & N ₃
Emergency lane keeping system (required to intervene only in last moment of an imminent threat such as leaving the road, or leaving the lane with oncoming traffic)	Phase 1	Phase 1	n/a already LDWS	n/a already LDWS
Side crash protection updates	Phase 1	Phase 1	-	-
Reversing camera or detection system	Phase 1	Phase 1	Phase 1	Phase 1 (trailers n/a)
Tyre pressure monitoring system	already	Phase 1	Phase 1	Phase 1
Vulnerable road user detection and warning on front and side of vehicle (trucks and buses)	-	-	Phase 1	Phase 1
Vulnerable road user improved direct vision from driver's position (trucks and buses)	-	-	Phase 3	Phase 3
Rear crash protection updates	Phase 1	Phase 1	-	-

Advanced 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).

Advanced Emergency Braking

- Brakes for other cars in first phase, stops for pedestrians and cyclists in second phase



Alcohol Interlock Installation Facilitation

- Alcohol Interlock Devices need a vehicle operator to provide a breath sample or e.g. use a finger touch sensor and prevent the vehicle ignition from operating if alcohol above a pre-defined threshold is detected.
- Interlock Devices themselves for motor-vehicles are not required.
- Requirements to facilitate easier fitment of aftermarket Alcohol Interlocks Devices by
 - a) installation scheme information sheet
 - b) standardised connector socket

Drowsiness, Attention and Distraction Warning

- Increasingly autonomous functions may stimulate over-reliance by drivers to 'watch the road' by themselves.
- Distraction because of 'connected vehicles' and 'smartphone use' while driving.
- Technology available that monitors erratic steering behaviour.
- Technology available that instantly detects inattention.
- Technology available to prevent distraction.

Event (Accident) Data Recorder

- Crash Event Data Recorders record a range of vehicle data over a short timeframe before, during and after a triggering, usually by the deployment of an airbag, caused by a vehicle crash. The EDR stores critical crash-related information such as vehicle speed, state of restraints and braking systems as well as other relevant vehicle data at the time of the collision.
- Need for detailed assessment of effectiveness of (new) safety measures.
- Need for much better EU-wide in depth accidentology data.

Emergency Stop Signal

- Emergency Braking Display or Emergency Stop Signal provides rapid blinking stop lamps (4 Hz) in case of high retardation or ABS activation.
- Currently available on motor-vehicles.
- Detailed rules already exist on 'if-fitted' basis.

Frontal Crash Protection Updates

- Currently, only frontal off-set crash 40% overlap mandatory for passenger cars with permissible total mass of up to 2,5 tonnes (2500 kg).
- To abolish the above 2,5 tonnes exemption (notably for SUVs).
- To include light commercial vehicles (notably delivery vans).
- Introduction of full width crash test with advanced dummies for improved (softer) restraint systems, notably for the more vulnerable elderly.



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Pedestrian/cyclist windscreen hits

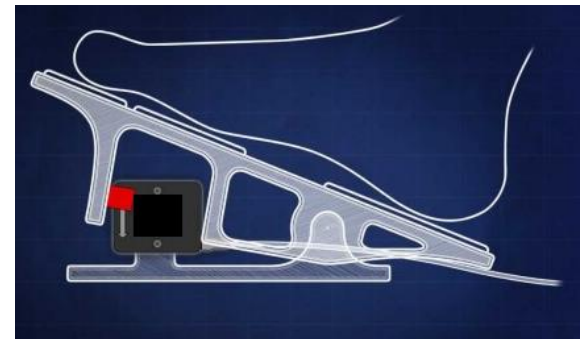
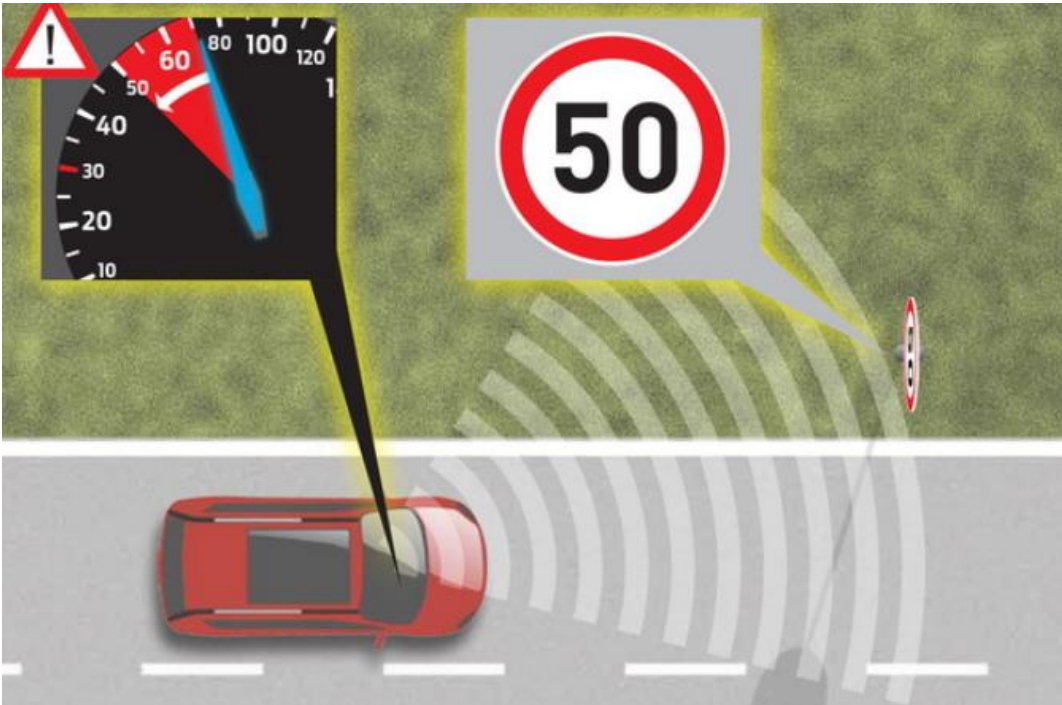
- Research shows that notably cyclists tend to impact their heads further rearward than pedestrians.
- Current head impact test zone is limited to the rear edge of the bonnet.
- Also pedestrian fatalities point to head contact with the windscreen between A-pillar region.
- To extend the test zone to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

Intelligent Speed Assistance

- Assistance function versus advisory function.
- System to work with the driver, by prompting, not going against the driver (driver always in full control of speed)
- EP insisted on additional on/off switch (compromise)
- Camera based technology and/or map based info.
- Harmonisation and improvement of traffic signs preferable, or even necessary also for future wide scale Automated Driving...?

Intelligent Speed Assistance

- NOT a big-brother speed limiter – gives feedback to the driver and can always be overridden.



Emergency Lane Keeping System

- 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 while on collision course with imminent impact.
- Autonomous function (without driver input).
- From 1 November 2015, fitment of Lane Departure Warning System (i.e. not ELKS as above) on new trucks and buses already mandatory in EU.

Side Crash Protection Updates

- Currently mandatory for passenger cars and light commercial vehicles, provided that the seating position is low (hip point not below 700 mm above ground level).
- Assesses occupant injuries, but also fuel system integrity and high voltage electric safety after a side impact.
- To abolish the exemptions to ensure safety of rescue workers and post-crash fire prevention.
- To add Pole Side Impact test.

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.
- Consideration of camera/monitor systems as well as indirect devices e.g. sonar detection systems.

Tyre Pressure Monitoring

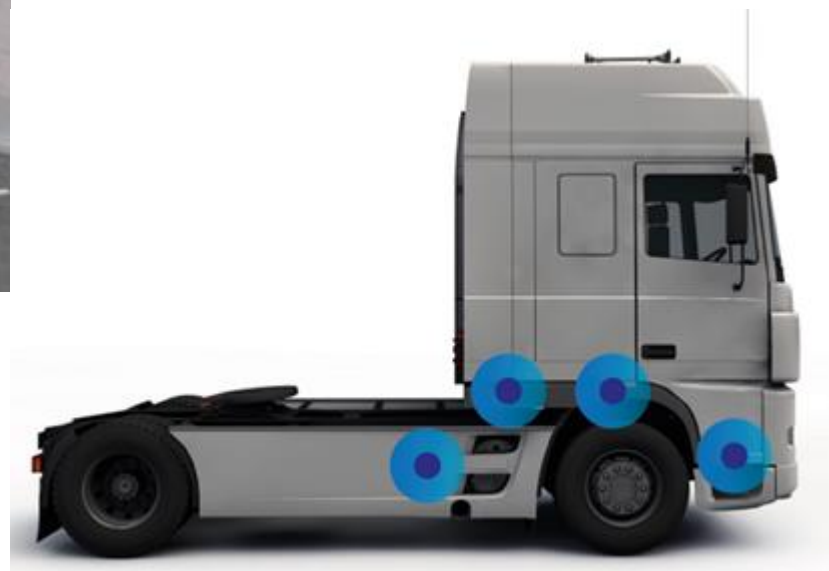
- Tyre Pressure Monitoring Systems (TPMS) report tyre-pressure information to the driver of the vehicle, either via a gauge, a pictogram display, or a simple low-pressure warning light.
- Currently mandatory for passenger cars.
- Proposed expansion to all motor-vehicles as well as large trailers.
- Technology neutral: indirect or direct TPMS, provided that the system is reliable.
- Must work under normal road and driving conditions.

Vulnerable Road User Detection and Warning for the front and side

- 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 multiple external mirrors.
- Camera/monitor systems and/or detection systems for pedestrians and cyclists around the cab to lessen the burden for drivers and to clearly signal where dangerous situations arise.



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Vulnerable Road User Improved Direct Vision by Truck/Bus Drivers

- Improving direct vision and awareness of pedestrians and cyclists in close proximity of the driver's cab, by the driver.
- Eye contact by pedestrian or cyclist, for confirmation of being seen.
- In low speed manoeuvres, driving forward and while turning a corner.
- Structural changes required to truck cabs.



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Rear Crash Protection Updates

- Rear crash test is actually not mandatory in EU.
- Comprehensive requirements exist in other world regions based on UNECE Regulation No 34.
- R34 is applied in the EU on a mandatory basis, but only the parts for component level testing (i.e. fuel tank)
- To assess fuel system integrity but also high voltage electric safety after a rear impact.
- No electric safety included yet. To be included.

Concluding remarks concerning Roadworthiness and Periodical Technical inspections

- In principle, vehicle safety regulations do not contain specific provisions for RWI and PTI.
- However, a simple system functionality check or system error check is foreseen by means of the (obligatory) warning tell-tale in the instrument cluster.

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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Thank you for your attention