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Agenda item 26(a))

European Commission

Revision of the EU General Safety Regulation and Pedestrian Safety Regulation

17 May 2018 – GRSP 63rd session

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

Automotive and Mobility Industries Unit

The existing Framework

- Framework Directive 2007/46/EC – soon to be replaced with new and improved Type-Approval Framework Regulation (after dieselgate).
- Prescribes mandatory rules for vehicles including **vehicle safety requirements contained in the GSR adopted in 2009**

Vehicle safety requirements in the EU

- In principle applicable for all categories of vehicles covered by the Framework:
  - **Passenger Car, Small Bus, Large Bus**
  - **Light Commercial Vehicle, Medium Size truck, Heavy Goods Vehicle**
  - **Light Trailer, Large Trailer**
- Detailed mainly in General Safety Regulation (EC) No 661/2009 and Pedestrian Safety Regulation (EC) No 78/2009

Main achievements

- GSR introduced more advanced features such as **stability control**, **safety belt reminder**, **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).
- PSR introduced child/adult head impacts on **bonnet**, legs impact on **front bumper**, mandatory **Brake Assist System** (BAS).

State of play

- **GSR Phase-in mostly completed**, but **many exceptions** for heavy M_1 passenger cars (**SUVs**) and N_1 light commercial vehicles (**vans**).
- **PSR Phase-in mostly completed** from 2011 onwards, but not yet for heavy M_1 passenger cars (SUVs) and N_1 light commercial vehicles (vans), mandatory in 2019.

Reporting obligations

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

Studies

- **A preliminary study** (published March 2015) contained a review of over 50 possible safety features for legislation
- Outcome was 'short list' used for Commission Report ***Saving Lives: Boosting Car Safety in the EU*** adopted on 12/12/2016
- ***2* follow-up studies** to obtain individual cost-benefits and also for clusters of safety features
- **Finalisation of Impact Assessment**, passed the Regulatory Scrutiny Board in January 2018

The need for a revision

- 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 Hydrogen vehicle safety

	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 detection	Phase 1	Phase 1	Phase 1	Phase 1
Distraction recognition / prevention	Phase 2	Phase 2	Phase 2	Phase 2
Event (accident) data recorder	Phase 1	Phase 1	-	-
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

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	Passenger cars	Light commercial vehicles	Buses	Trucks and trailers
	M_1	N_1	M_2 & M_3	N_2 & N_3
Lane keeping assist (emergency lane keeping system that intervenes only in case of an imminent threat such as leaving the road, or leaving the lane with oncoming traffic)	Phase 1	Phase 1	already LDWS	already LDWS
Side crash protection updates	Phase 1	Phase 1	-	-
Reversing camera or detection system	Phase 1	Phase 1	Phase 1	Phase 1
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).

Alcohol Interlock Installation Facilitation

- Alcohol Interlock Devices require a vehicle operator to provide a breath sample or use a finger touch sensor and prevent the vehicle ignition from operating if alcohol above a pre-defined threshold is detected.
- Interlock Devices in all motor-vehicles is not part of the proposal.
- Requirements to facilitate easier fitment of aftermarket Alcohol Interlocks Devices.

Drowsiness and Distraction Monitoring and Detection

- 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.
- Permitted 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 with crash test with advanced dummies

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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)
- Camera based technology and/or map based info.
- Harmonisation of traffic signs preferable.

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Lane Keeping Assist

- 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 LKA 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 cameras as well as indirect devices e.g. detection systems for EU application.

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 realiable.
- 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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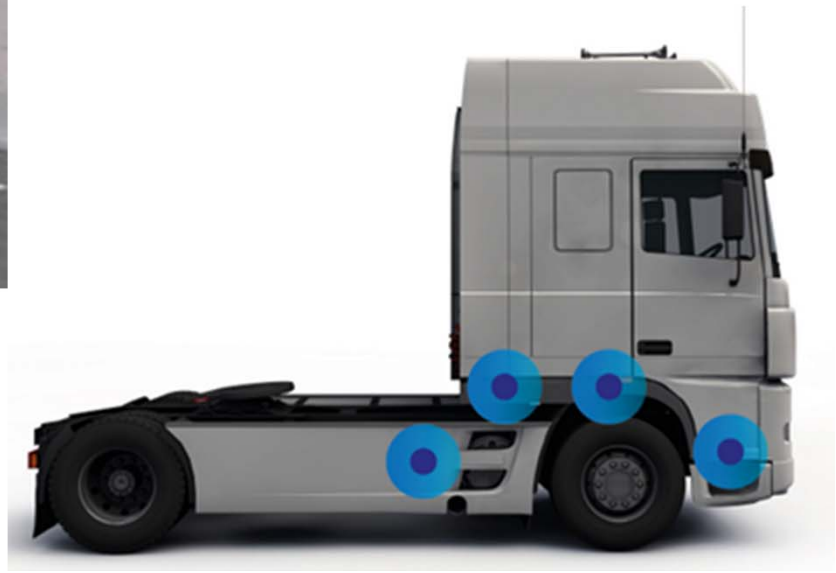

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Vulnerable Road User Improved Direct Vision by Truck/Bus Drivers

- 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 updated.

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Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	STU	Component
Requirements concerning RESTRAINT SYSTEMS, CRASH TESTING, FUEL SYSTEM INTEGRITY AND HIGH VOLTAGE ELECTRICAL SAFETY														
Interior fittings	UN Regulation No 21		A											
Seats and head restraints	UN Regulation No 17		A	A	A	A	A	A						
Bus seats	UN Regulation No 80			A	A									A
Safety-belt anchorages	UN Regulation No 14		A	A	A	A	A	A						
Safety-belts and restraint systems	UN Regulation No 16		A	A	A	A	A	A					A	A
Partitioning systems	UN Regulation No 126		X										B	
Child restraint anchorages	UN Regulation No 145		A											
Child restraint systems	UN Regulation No 44		A^1	A^1	A^1	A^1	A^1	A^1					A	A
Enhanced child restraint systems	UN Regulation No 129		X	X	X	X	X	X					B	B
Front underrun protection	UN Regulation No 93						A	A					A	A
Rear underrun protection	UN Regulation No 58		A	A	A	A	A	A	A	A	A	A	A	A

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Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	S T U	Com pon ent
Lateral protection	UN Regulation No 73						A	A			A	A		
Fuel tank safety	UN Regulation No 34		A	A	A	A	A	A	A	A	A	A	A	
Liquified petroleum gas safety	UN Regulation No 67		A	A	A	A	A	A						A
Compressed and liquified natural gas safety	UN Regulation No 110		A	A	A	A	A	A						A
Hydrogen safety	UN Regulation No 134		A	A	A	A	A	A						A
Hydrogen system material qualification		Annex V	A	A	A	A	A	A						A
In-use electric safety	UN Regulation No 100		A	A	A	A	A	A						
Frontal off-set impact	UN Regulation No 94	Applies to vehicle categories M_1 and N_1 with a maximum mass ≤ 3 500 kg	A			A								
Frontal full-width impact	UN Regulation No 137	Use of the anthropomorphic test device "Hybrid III" crash dummy is permitted until the test device for human occupant restraint "THOR" is available in the UN Regulation	B			B								
Protective steering	UN Regulation No 12		A			A							A	
Replacement airbag	UN Regulation No 114		X			X							B	
Cab impact	UN Regulation No 29					A	A	A						

Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	S T U	Component
Side impact	UN Regulation No 95	Applies to all vehicles of categories M_1 and N_1 including those with R point of the lowest seat > 700 mm from ground level	A			A								
Pole side impact	UN Regulation No 135		B			B								
Rear impact	UN Regulation No 34	Applies to vehicle categories M_1 and N_1 with a maximum mass ≤ 3 500 kg. Post-crash electrical safety requirements shall be ensured	A			A								
Requirements concerning PEDESTRIANS, CYCLISTS, VISION AND VISIBILITY														
Pedestrian leg and head protection	UN Regulation No 127		A			A								
Pedestrian and cyclist enlarged head impact zone	UN Regulation No 127	Child and adult headform test area are bounded by the "adult wrap-around-distance" of 2 500 mm or "windscreen rear reference line" whichever is more forward. Headform contact with A-pillars, windscreen header and cowl is excluded, but shall be monitored.	~~B~~ C			~~B~~ C								
Frontal protection system		Annex IV	X			X							A	

Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	STU	Component
Advanced emergency braking for pedestrian and cyclist			C			C								
Pedestrian and cyclist collision warning				B	B		B	B					B	
Blind spot information system				B	B		B	B					B	
Reversing safety			B	B	B	B	B	B	B	B	B	B	B	
Forward vision	UN Regulation No 125	Applies to vehicle categories M_1 and N_1	B			C								
Heavy duty direct vision				D	D		D	D						
Safety glazing	UN Regulation No 43		A	A	A	A	A	A	A	A	A	A		A
Defrost/demist			A	A^2	A^2	A^2	A^2	A^2						
Wash/wipe			A	A^3	A^3	A^3	A^3	A^3					A	
Indirect vision devices	UN Regulation No 46		A	A	A	A	A	A						A
Requirements concerning VEHICLE CHASSIS, BRAKING, TYRES AND STEERING														
Steering equipment	UN Regulation No 79		A	A	A	A	A	A	A	A	A	A		
Lane departure warning	UN Regulation No 130			A^4	A^4		A^4	A^4						
Emergency lane keeping			B			B								

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Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	STU	Component
Braking	UN Regulation No 13 UN Regulation No 13-H		A	A	A	A	A	A	A	A	A	A		
Replacement braking parts	UN Regulation No 90		X	X	X	X	X	X	X	X	X	X	A	
Brake assist	UN Regulation No 139		A			A								
Stability control	UN Regulation No 13 UN Regulation No 140		A	A	A	A	A	A	A	A	A	A		
Advanced emergency braking on heavy duty vehicles	UN Regulation No 131			A[4]	A[4]		A[4]	A[4]						
Advanced emergency braking on light duty vehicles			B			B								
Tyre safety and environmental performance	UN Regulation No 30 UN Regulation No 54 UN Regulation No 117		X	X	X	X	X	X	X	X	X	X		A
Spare wheels and run-flat systems	UN Regulation No 64		A[1]			A[1]								
Retreaded tyres	UN Regulation No 108 UN Regulation No 109		X	X	X	X	X	X	X	X	X	X		A
Tyre pressure monitoring for light duty	UN Regulation No 141	Applies to vehicle categories M_1 and N_1	A			B								
Tyre pressure monitoring for heavy duty				B	B		B	B			B	B		

Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	S T U	Com pon ent
Tyre installation	UN Regulation No 142	Applies to all vehicle categories	A	A	A	A	A	A	A	A	A	A		
Replacement wheels	UN Regulation No 124		X			X			X	X				B
Requirements concerning ON BOARD INSTRUMENTS, ELECTRICAL SYSTEM AND VEHICLE LIGHTING														
Audible warning	UN Regulation No 28		A	A	A	A	A	A						A
Radio interference (electromagnetic compatibility)	UN Regulation No 10		A	A	A	A	A	A	A	A	A	A	A	A
Protection against unauthorised use, cyber attacks, immobilizer and alarm systems	UN Regulation No 18 UN Regulation No 97 UN Regulation No 116		A	A[1]	A[1]	A	A[1]	A[1]					A	A
Speedometer	UN Regulation No 39		A	A	A	A	A	A						
Odometer	UN Regulation No 39		A	A	A	A	A	A						
Speed limitation devices	UN Regulation No 89			A	A		A	A						A
Intelligent speed assistance			B	B	B	B	B	B					B	
Identification of controls, tell-tales and indicators	UN Regulation No 121		A	A	A	A	A	A						
Heating systems	UN Regulation No 122		A	A	A	A	A	A	A	A	A	A		A

Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	S T U	Com pon ent
Light signalling devices	UN Regulation No 4 UN Regulation No 6 UN Regulation No 7 UN Regulation No 19 UN Regulation No 23 UN Regulation No 38 UN Regulation No 77 UN Regulation No 87 UN Regulation No 91		X	X	X	X	X	X	X	X	X	X		A
Road illumination devices	UN Regulation No 31 UN Regulation No 98 UN Regulation No 112 UN Regulation No 123		X	X	X	X	X	X						A
Retro-reflective devices	UN Regulation No 3		X	X	X	X	X	X	X	X	X	X		A
Light sources	UN Regulation No 37 UN Regulation No 99 UN Regulation No 128		X	X	X	X	X	X	X	X	X	X		A
Installation of light signalling, road illumination and retro-reflective devices	UN Regulation No 48		A	A	A	A	A	A	A	A	A	A		
Emergency Stop Signal			B	B	B	B	B	B	B	B	B	B		
Headlamp cleaners	UN Regulation No 45		A^1	A^1	A^1	A^1	A^1	A^1						A
Gear shift indicator			A											
Requirements concerning DRIVER AND SYSTEM BEHAVIOUR														

Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	STU	Component
Alcohol interlock installation facilitation			B	B	B	B	B	B						
Drowsiness and attention detection			B	B	B	B	B	B						
Advanced distraction recognition		Advanced distraction recognition may also cover drowsiness and attention detection. Distraction avoidance by technical means may also be taken into consideration as an alternative to advanced distraction recognition	C	C	C	C	C	C						
Driver availability monitoring			B[5]	B[5]	B[5]	B[5]	B[5]	B[5]						
Event (accident) data recorder			B	B[5]	B[5]	B	B[5]	B[5]					B	
Systems to replace driver's control			B[5]	B[5]	B[5]	B[5]	B[5]	B[5]						
Systems to provide the vehicle with information on state of vehicle and surrounding area			B[5]	B[5]	B[5]	B[5]	B[5]	B[5]						
Platooning			B[5]	B[5]	B[5]	B[5]	B[5]	B[5]						
Requirements concerning GENERAL VEHICLE CONSTRUCTION AND FEATURES														
Registration plate space			A	A	A	A	A	A	A	A	A	A		

Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	S T U	Com pon ent
Reversing motion			A	A	A	A	A	A						
Door latches and hinges	UN Regulation No 11		A			A	A	A						
Door entry steps, handholds and running boards			A			A	A	A						
External projections	UN Regulation No 26		A											
External projections of commercial vehicle cabs	UN Regulation No 61					A	A	A						
Statutory plate and vehicle identification number			A	A	A	A	A	A	A	A	A	A		
Towing devices			A	A	A	A	A	A						
Wheel guards			A											
Spray suppression systems						A	A	A	A	A	A	A		
Masses and dimensions			A	A	A	A	A	A	A	A	A	A		
Mechanical couplings	UN Regulation No 55 UN Regulation No 102		A^1	A^1	A^1	A^1	A^1	A^1	A	A	A	A		A
Vehicles intended for the transportation of dangerous goods	UN Regulation No 105					A	A	A	A	A	A	A		

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Subject	UN Regulations	Additional specific technical requirements	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4	S T U	Com pon ent
General bus construction	UN Regulation No 107			A	A									
Bus strength of superstructure	UN Regulation No 66			A	A									
Flammability in buses	UN Regulation No 118				A									A

- **A**: Carried over from current GSR, PSR or HSR
  - A applies as from 3 years after adoption, i.e. **immediately upon date of application**, for **all new vehicles**
- **B**: New requirement
  - B applies as from **3 years** after adoption for **new types** and as from **5 years** for **all new vehicles**
- **C**: New requirement
  - C applies as from **5 years / 7 years** after adoption
- **D**: New requirement
  - D applies as from **7 years / 10 years** after adoption

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

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

Automotive and Mobility Industries Unit

Thanks for your attention

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