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ANNEXES 1 to 6

ANNEXES

to the

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/... and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009

{SEC(2018) 270 final} - {SWD(2018) 190 final} - {SWD(2018) 191 final}

ANNEX I

List of UN Regulations referred to in Article 4(2)

Regulation Number	Subject	Series of amendments published in the OJ	OJ Reference	Scope covered by the UN Regulation
1	Headlamps emitting an asymmetrical passing beam and/or driving beam equipped with filament lamps R2 and/or HS1	02 series of amendments	OJ L 177, 10.7.2010, p. 1	M, N ^(a)
3	Retro-reflecting devices for power-driven vehicles	Supplement 12 to the 02 series of amendments	OJ L 323, 6.12.2011, p. 1	M, N, O
4	Illumination of rear-registration plates of power-driven vehicles and their trailers	Supplement 15 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 7	M, N, O
6	Direction indicators for power-driven vehicles and their trailers	Supplement 25 to the 01 series of amendments	OJ L 213, 18.7.2014, p. 1.	M, N, O
7	Front and rear position (side) lamps, stop-lamps and end-outline marker lamps for power-driven vehicles and their trailers	Supplement 23 to the 02 series of amendments	OJ L 285, 30.9.2014, p. 1.	M, N, O
8	Motor vehicles headlamps (H1, H2, H3, HB3, HB4, H7, H8, H9, HIR1, HIR2 and/or H11)	05 series of amendments Corrigendum 1 to Revision 4	OJ L 177, 10.7.2010, p. 71	M, N ^(a)
10	Electromagnetic compatibility	Supplement 01 to the 05 series of	OJ L 41, 17.2.2017, p. 1	M, N, O

		amendments		
11	Door latches and door retention components	Supplement 2 to the 03 series of amendments	OJ L 120, 13.5.2010, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
12	Protection of the driver against the steering mechanism in the event of impact	Supplement 1 to the 04 series of amendments	OJ L 89, 27.3.2013, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
13	Braking of vehicles and trailers	Supplement 13 to the 11 series of amendments	OJ L 42, 18.2.2016, p. 1.	M ₂ , M ₃ , N, O ^(b)
13-H	Braking of passenger cars	Supplement 16 to the original version of the Regulation	OJ L 335, 22.12.2015, p. 1.	M ₁ , N ₁
14	Safety-belt anchorages, ISOFIX anchorages systems and ISOFIX top tether anchorages	Supplement 5 to the 07 series of amendments	OJ L 218, 19.8.2015, p. 27 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N
16	Safety-belts, restraint systems, child restraint systems and ISOFIX child restraint systems	Supplement 2 to the 07 series of amendments	OJ L 109, 27.4.2018, p. 1	M, N
17	Seats, their anchorages and any head restraints	08 series of amendments	OJ L 230, 31.8.2010, p. 81 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N

18	Protection of motor vehicles against unauthorized use	Supplement 2 to the 03 series of amendments	OJ L 120, 13.5.2010, p. 29	M ₂ , M ₃ , N ₂ , N ₃
19	Power-driven vehicle front fog lamps	Supplement 6 to the 04 series of amendments	OJ L 250, 22.8.2014, p. 1	M, N
20	Headlamps emitting an asymmetrical passing beam or a driving beam or both and equipped with halogen filament lamps (H4)	03 series of amendments	OJ L 177, 10.7.2010, p. 170	M, N ^(a)
21	Interior fittings	Supplement 3 to the 01 series of amendments	OJ L 188, 16.7.2008, p. 32	M ₁
23	Reversing lights for power-driven vehicles and their trailers	Supplement 19 to the original version of the Regulation	OJ L 237, 8.8.2014, p. 1	M, N, O
25	Head restraints (headrests), whether or not incorporated in vehicle seats	04 series of amendments Corrigendum 2 to Revision 1	OJ L 215, 14.8.2010, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁
26	External projections	Supplement 1 to the 03 series of amendments	OJ L 215, 14.8.2010, p. 27	M ₁
28	Audible warning devices and signals	Supplement 3 to the original version of the Regulation	OJ L 323, 6.12.2011, p. 33	M, N
29	Protection of the occupants of the cab of a commercial vehicle	03 series of amendments	OJ L 304, 20.11.2010, p. 21 <i>[PO: scheduled for</i>	N

			<i>translation in 2018, please update the references when available]</i>	
30	Pneumatic tyres for motor vehicles and their trailers (Class C1)	Supplement 16 to the 02 series of amendments	OJ L 307, 23.11.2011, p. 1	M, N, O
31	Power-driven vehicle's sealed-beam headlamps (SB) emitting an European asymmetrical passing beam or a driving beam or both	Supplement 7 to the 02 series of amendments	OJ L 185, 17.7.2010, p. 15	M, N
34	Prevention of fire risks (liquid fuel tanks)	Supplement 1 to the 03 series of amendments	OJ L 231, 26.8.2016, p. 41	M, N, O
37	Filament lamps for use in approved lamp units of power-driven vehicles and their trailers	Supplement 42 to the 03 series of amendments	OJ L 213, 18.07.2014, p. 36	M, N, O
38	Rear fog lamps for power-driven vehicles and their trailers	Supplement 15 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 20	M, N, O
39	Speedometer equipment including its installation	Supplement 5 to the original version of the Regulation	OJ L 120, 13.5.2010, p. 40	M, N
43	Safety glazing materials	Supplement 2 to the 01 series of amendments	OJ L 42, 12.2.2014, p. 1	M, N, O
44	Restraining devices for child occupants of power-driven vehicles ("child restraint system")	Supplement 10 to the 04 series of amendments	OJ L 265, 30.9.2016, p. 1	M, N
45	Headlamps cleaners	Supplement	<i>[PO: scheduled for</i>	M, N

		11 to the 01 series of amendments	<i>translation in 2018, please update the references when available]</i>	
46	Devices for indirect vision and their installation	Supplement 1 to the 04 series of amendments	OJ L 237, 8.8.2014, p. 24	M, N
48	Installation of lighting and light-signalling devices on motor vehicles	Supplement 7 to the 06 series of amendments	OJ L 265, 30.09.2016, p. 125	M, N, O (°)
54	Pneumatic tyres for commercial vehicles and their trailers (Classes C2 and C3)	Supplement 17 to the original version of the Regulation	OJ L 307, 23.11.2011, p. 2	M, N, O
55	Mechanical coupling components of combinations of vehicles	Supplement 1 to the 01 series of amendments	OJ L 227, 28.8.2010, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N, O (°)
58	Rear underrun protective devices (RUPDs) and their installation; Rear underrun protection (RUP)	Supplement 3 to the 02 series of amendments	OJ L 89, 27.3.2013, p. 34 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N, O
61	Commercial vehicles with regard to their external projections forward of the cab's rear panel	Supplement 1 to the original version of the Regulation	OJ L 164, 30.6.2010, p. 1	N
64	Temporary-use spare unit, run-flat tyres/system (and tyre pressure monitoring system)	Corrigendum 1 to the 02 series of amendments	OJ L 310, 26.11.2010, p. 18	M ₁ , N ₁

66	Strength of the superstructure of large passenger vehicles	02 series of amendments	OJ L 84, 30.3.2011, p. 1	M ₂ , M ₃
67	Motor vehicles using LPG	Supplement 14 to the 01 series of amendments	OJ L 285, 20.10.2016, p. 1	M, N
73	Lateral protection of goods vehicles	01 series of amendments	OJ L 122, 8.5.2012, p. 1	N ₂ , N ₃ , O ₃ , O ₄
77	Parking lamps for power-driven vehicles	Supplement 14 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 21	M, N
79	Steering equipment	Supplement 3 to the 01 series of amendments Corrigendum	OJ L 137, 27.5.2008, p. 25	M, N, O
80	Seats of large passenger vehicles	03 series of amendments to the Regulation	OJ L 226, 24.8.2013, p. 20 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₂ , M ₃
87	Daytime running lamps for power-driven vehicles	Supplement 15 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 24	M, N
89	Speed limitation devices	Supplement 2 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 25	M, N ^(d)
90	Replacement brake lining assemblies and drum brake linings for power-driven vehicles and their trailers	02 series of amendments	OJ L 185, 13.7.2012, p. 24	M, N, O
91	Side-marker lamps for	Supplement	OJ L 4, 7.1.2012, p.	M, N, O

	motor vehicles and their trailers	13 to the original version of the Regulation	27	
93	Front underrun protective devices (FUPDs) and their installation; front underrun protection (FUP)	Original version of the Regulation	OJ L 185, 17.7.2010, p. 56	N ₂ , N ₃
94	Protection of occupants in the event of a frontal collision	03 series of amendments	OJ L 35, 8.2.2018, p. 1	M ₁
95	Protection of occupants in the event of a lateral collision	Supplement 4 to the 03 series of amendments	OJ L 183, 10.7.2015, p. 91	M ₁ , N ₁
97	Vehicle Alarm Systems (VAS)	Supplement 6 to the 01 series of amendments	OJ L 122, 8.5.2012, p. 19	M ₁ , N ₁ (°)
98	Motor vehicle headlamps equipped with gas-discharge light sources	Supplement 4 to the 01 series of amendments	OJ 176, 14.6.2014, p. 64	M, N
99	Gas-discharge light sources for use in approved gas-discharge lamp units of power-driven vehicles	Supplement 9 to the original version of the Regulation	OJ L 285, 30.09.2014, p. 35	M, N
100	Electric safety	Supplement 1 to the 02 series of amendments	OJ L 87, 31.3.2015, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N
102	Close-coupling device (CCD); fitting of an approved type of CCD	Original version of the Regulation	OJ L 351, 30.12.2008, p. 44	N ₂ , N ₃ , O ₃ , O ₄
104	Retro-reflective markings (heavy and	Supplement 7 to the original	OJ L 75, 14.3.2014,	M ₂ , M ₃ , N,

	long vehicles)	version	p. 29	O ₂ , O ₃ , O ₄
105	Vehicles for the carriage of dangerous goods	05 series of amendments	OJ L 4, 7.1.2012, p. 30	N,O
107	M ₂ and M ₃ vehicles	Supplement 1 to the 07 series of amendments	OJ L 52 of 23.2.2018, p.1	M ₂ , M ₃
108	Retreated tyres for passenger cars and their trailers	Supplement 1 to the original version of the Regulation	OJ L 181, 4.7.2006, p. 1	M ₁ , O ₁ , O ₂
109	Retreated tyres for commercial vehicles and their trailers	Supplement 2 to the original version of the Regulation	OJ L 181, 4.7.2006, p. 1	M ₂ , M ₃ , N, O ₃ , O ₄
110	Specific components for CNG	Supplement 2 to 01 series of amendments	OJ L 166, 30.6.2015, p. 1	M, N
112	Motor vehicle headlamps emitting an asymmetrical passing beam or a driving beam or both and equipped with filament lamps and/or LED modules	Supplement 4 to the 01 series of amendments	OJ L 250, 22.8.2014, p. 67	M, N
114	Replacement airbag	Original version of the Regulation	OJ L 373, 27.12.2006, p. 272	M ₁ , N ₁
115	LPG and CNG retrofit systems	Supplement 6 to the original version of the Regulation	OJ L 323, 7.11.2014, p. 91	M, N
116	Protection of motor vehicles against unauthorized use	Supplement 3 to the original version of the Regulation	OJ L 45, 16.2.2012, p. 1	M ₁ , N ₁ (°)
117	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling	Supplement 8 to the 02 series of amendments	OJ L 218, 12.08.2016, p. 1	M, N, O

	resistance (Classes C1, C2 and C3)			
118	Fire resistance of interior materials in buses	Supplement 1 to the 02 series of amendments	OJ L 102, 21.4.2015, p.67 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₃
119	Cornering lamps	Supplement 3 to the 01 series of amendments	OJ L 89, 25.3.2014, p. 101	M, N
121	Location and identification of hand controls, tell-tales and indicators	01 series of amendments	OJ L 5, 8.1.2016, p. 9	M, N
122	Heating system of vehicles	Supplement 1 to the original version of the Regulation	OJ L 164, 30.6.2010, p. 231 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N, O
123	Adaptive front-lighting systems (AFS) for motor vehicles	Supplement 4 to the original version of the Regulation	OJ L 222, 24.8.2010, p. 1	M, N
124	Replacement wheels	Original version of the Regulation	OJ L 375, 27.12.2006, p. 568	M ₁ , N ₁ , O ₁ , O ₂
125	Forward field of vision	Supplement 1 to the 01 series of amendments	OJ L 20, 25.1.2018, p. 16	M ₁
126	Partitioning systems	Original series	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁
127	Pedestrian safety	02 series	<i>[PO: scheduled for</i>	M ₁ , N ₁

			<i>translation in 2018, please update the references when available]</i>	
128	Light Emitting Diode (LED) light sources	Supplement 2 to the original version of the Regulation	OJ L 162, 29.5.2014, p. 43	M, N, O
129	Enhanced child restrained systems	Supplement 2 to the original version of the Regulation	OJ L 97, 29.03.2014, p. 21	M, N
130	Lane departure warning	Original version of the Regulation	OJ L 178, 18.06.2014, p. 29	M ₂ , M ₃ , N ₂ , N ₃ ^(f)
131	Advanced emergency braking	Supplement 1 to 01 series of amendments	OJ L 214, 19.07.2014, p. 47	M ₂ , M ₃ , N ₂ , N ₃ ^(f)
134	Hydrogen safety	Supplement 2 to the original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N
135	Pole side impact	Supplement 1 to the 01 series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
137	Frontal full-width impact	01 series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁
139	Brake assist	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
140	Stability control	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when</i>	M ₁ , N ₁

			<i>available]</i>	
141	Tyre pressure monitoring	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
142	Tyre installation	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁
[145]	Child restraint anchorages	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁

Notes to the table

The series of amendments indicated in the table reflects the version that has been published in the *Official Journal* and is without prejudice to the series of amendments that shall be complied with on the basis of the transitional provisions provided therein.

Compliance with a series of amendments adopted after the particular series indicated in the table shall be accepted as an alternative.

The dates specified in the relevant series of amendments of the UN Regulations listed in the table, as regards the obligations of Contracting Parties to the ‘Revised 1958 Agreement’¹, linked to first registration, entry into service, making available on the market, sale, the recognition of type-approvals, and any similar provisions, apply on a compulsory basis for the purposes of Articles 48 and 50 of Regulation (EU) 2018/... except where alternative dates are specified in Article 14 of this Regulation in which case those alternative dates are to be followed instead.

In certain instances, a UN Regulation listed in the table provides in its transitional provisions that as from a specified date, Contracting Parties to the ‘Revised 1958 Agreement’ applying a certain series of amendments to that UN Regulation shall not be obliged to accept or may refuse to accept, for the purpose of national or regional type-approval, a type approved in accordance with a preceding series of amendments, or wording with similar intention and meaning. This shall be construed as a binding provision for national authorities to consider the certificates of conformity to be no longer valid for the purposes of Article 48 of Regulation (EU) 2018/..., except where alternative dates are specified in Annex II of this Regulation in which case those alternative dates are to be followed instead.

¹ Council Decision of 27 November 1997 with a view to accession by the European Community to the Agreement of the United Nations Economic Commission for Europe concerning the adoption of uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted to and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions (‘Revised 1958 Agreement’) (OJ L 346, 17.12.1997, p. 78).

- (^a) UN Regulation Nos 1, 8 and 20 are not applicable for EU type-approval of vehicles.
- (^b) The mandatory fitting of a stability control function is required in accordance with the UN Regulations. However, it is also mandatory for vehicles of category N₁.
- (^c) Where it is declared by the vehicle manufacturer that a vehicle is suitable for towing loads (point 2.11.5. of the information document referred to in Article 24(1) of Regulation (EU) 2018/...) and any part of a suitable mechanical coupling device, whether fitted or not to the type of motor-vehicle, could (partly) obscure any lighting component and/or the space for mounting and fixing the rear registration plate, the following shall apply:
- the motor-vehicle's user instructions (e.g. owner's manual, vehicle handbook) shall clearly specify that installation of a mechanical coupling device that cannot be easily removed or repositioned is not permitted;
 - the instructions shall also clearly specify that, when fitted, a mechanical coupling device must always be removed or repositioned when it is not in use; and
 - in the case of vehicle system type-approval according to UN Regulation 55, it shall be ensured that the removal, repositioning and/or alternate location provisions are also fully complied with as regards lighting installation and space for mounting and fixing the rear registration plate .
- (^d) Only Speed Limitation Devices (SLD) and the mandatory installation of SLD on vehicles of category M₂, M₃, N₂ and N₃ are concerned.
- (^e) Devices to prevent unauthorised use shall be fitted on vehicles of categories M₁ and N₁ and immobilizer systems shall be fitted on vehicles of category M₁.
- (^f) See explanatory note ⁴ to the table in Annex II.

ANNEX II

List of the requirements referred to in Article 4(5) and the dates referred to in Article 14

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
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

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	Com pon ent
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			B								
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	S T U	Com pon ent
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								

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
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	S T U	Com pon ent
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		

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

Notes to the table

A: Date for the prohibition of the registration of vehicles, as well as the placing on the market and entry into service of components and separate technical units:

[PO: Please insert the date of application of this Regulation]

B: Date for refusal to grant EU type-approval:

[PO: Please insert the date of application of this Regulation]

Date for the prohibition of the registration of vehicles, as well as the placing on the market and entry into service of components and separate technical units:

[PO: Please insert the date 24 months after the date of application of this Regulation]

C: Date for refusal to grant EU type-approval:

[PO: Please insert the date 24 months after the date of application of this Regulation]

Date for the prohibition of the registration of vehicles, as well as the placing on the market and entry into service of components and separate technical units:

[PO: Please insert the date 48 months after the date of application of this Regulation]

D: Date for refusal to grant EU type-approval:

[PO: Please insert the date 48 months after the date of application of this Regulation]

Date for the prohibition of the registration of vehicles, as well as the placing on the market and entry into service of components and separate technical units:

[PO: Please insert the date 84 months after the date of application of this Regulation]

X: The component or separate technical unit in question applies to the vehicle categories as indicated.

¹ Compliance is required if fitted.

² Vehicles of this category shall be fitted with an adequate windscreen defrosting and demisting device.

³ Vehicles of this category shall be fitted with adequate windscreen washing and wiping devices.

⁴ The following vehicles are exempted:

- semi-trailer towing vehicles of category N₂ with a maximum mass exceeding 3,5 tonnes but not exceeding 8 tonnes;
- vehicles of categories M₂ and M₃ of Class A, Class I and Class II as defined in paragraph 2.1 of UN Regulation No 107;
- articulated buses of category M₃ of Class A, Class I and Class II as defined in paragraph 2.1 of UN Regulation No 107;
- off-road vehicles of categories M₂, M₃, N₂ and N₃;
- special purpose vehicles of categories M₂, M₃, N₂ and N₃; and
- vehicles of categories M₂, M₃, N₂ and N₃ with more than three axles.

⁵ Compliance is required in case of automated vehicles.

ANNEX III

Amendments to Annex II to Regulation (EU) 2018/...

Annex II to Regulation (EU) 2018/... is amended as follows:

(1) in the table in Part I, in the entry for item 3A, the reference in the third column to 'Regulation (EC) No 661/2009' is replaced by the following:

'Regulation (EU) 2019/...*⁺

* Regulation (EU) 2019/... of the European Parliament and of the Council of [...] on type-approval requirements for motor vehicles and their trailers, and for systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/... and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009 [OJ ..., p...]

and each subsequent reference to 'Regulation (EC) No 661/2009' throughout Annex II is replaced by a reference to 'Regulation (EU) 2019/...', unless otherwise provided in the succeeding provisions of this Annex;

(2) Part I is amended as follows:

(a) the table is amended as follows:

(i) the following entry is inserted in the appropriate place by item number:

'55A	Pole side impact	Regulation (EU) 2019/... ⁺ UN Regulation No 135	X			X';								
------	------------------	---	---	--	--	-----	--	--	--	--	--	--	--	--

(ii) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127	X			X								X';
-----	-----------------------	---	---	--	--	---	--	--	--	--	--	--	--	-----

(iii) the entries for items 62 and 63 are replaced by the following:

⁺ [OP: Please insert relevant details in the text and in the footnote.]

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X	X	X	X	X	X					X
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾ ;

(iv) the entries for items 65 and 66 are replaced by the following:

'65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131		X	X		X	X					
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130		X	X		X	X';					

(b) the explanatory notes are amended as follows:

(i) explanatory notes 3 and 4 are replaced by the following:

'⁽³⁾ The fitting of vehicle stability function is required in accordance with Article 4(5) of Regulation (EU) 2019/...⁺

'⁽⁴⁾ The fitting of an electronic stability control system is required in accordance with Article 4(5) of Regulation (EU) 2019/...⁺

(ii) explanatory note 9A is replaced by the following:

'^(9A) The fitting of a tyre pressure monitoring system is required in accordance with Article 5(1) of Regulation (EU) 2019/...⁺;

(iii) explanatory note 15 is replaced by the following:

'⁽¹⁵⁾ Compliance with Regulation (EU) 2019/...⁺ is mandatory. However, type-approval under this specific item is not envisaged as it merely represents the collection of individual items listed elsewhere in the table that make reference to Regulation (EU) 2019/...⁺;

(3) in Appendix 1 of Part I, Table 1 is amended as follows:

(a) the entry for item 46A is replaced by the following:

'46A	Installation of tyres	Regulation (EU)		B';
------	-----------------------	-----------------	--	-----

		2019/... ⁺ UN Regulation No 142		
--	--	---	--	--

(b) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127		A';
-----	-----------------------	---	--	-----

(c) the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134		X
63	General safety	Regulation (EU) 2019/... ⁺		Compliance with Regulation (EU) 2019/... ⁺ is mandatory. However, type-approval under this specific item is not envisaged as it merely represents the collection of individual items listed elsewhere in the table that make reference to Regulation (EU) 2019/... ⁺ ;

(4) in the explanatory notes to Table 1 of Appendix 1, the final paragraph is deleted;

(5) in Appendix 1 of Part I, Table 2 is amended as follows:

(a) the entry for item 46A is replaced by the following:

'46A	Installation of tyres	Regulation (EU) 2019/... ⁺ UN Regulation No 142		B';
------	-----------------------	---	--	-----

(b) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU)		A';
-----	-----------------------	-----------------	--	-----

		2019/... ⁺ UN Regulation No 127		
--	--	---	--	--

(c) the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134		X
63	General safety	Regulation (EU) 2019/... ⁺		Compliance with Regulation (EU) 2019/... ⁺ is mandatory. However, type-approval under this specific item is not envisaged as it merely represents the collection of individual items listed elsewhere in the table that make reference to Regulation (EU) 2019/... ⁺ ;

(6) in Appendix 2 of Part I, point 4 is amended as follows:

(a) the table headed 'Part I: Vehicles belonging to category M₁' is amended as follows:

(i) the entry for item 58 is replaced by the following:

'58	UN Regulation No 127 Regulation (EU) 2019/... ⁺ (Pedestrian protection)	Vehicles shall be fitted with an electronic antilock braking system acting on all wheels. The requirements of UN Regulation No 127 shall apply. Any frontal protection system shall either be an integral part of the vehicle and thus compliant with the requirements of UN Regulation No 127 or be type-approved as separate technical unit';
-----	--	--

(ii) the following entry is inserted in the appropriate place by item number:

'62	UN Regulation No 134 Regulation (EU) 2019/... ⁺ (Hydrogen system)	The requirements of UN Regulation No 134 shall apply. Alternatively, it shall be demonstrated that the vehicle complies with: - Substantive requirements of Regulation (EC) No 79/2009 in its version applicable on [<i>PO: Please insert the date immediately preceding the date of application of this Regulation</i>]; - Attachment 100 – Technical Standard For Fuel Systems Of Motor Vehicle Fueled By
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		<p>Compressed Hydrogen Gas (Japan);</p> <ul style="list-style-type: none"> - GB/T 24549-2009 Fuel cell electric vehicles – safety requirements (China); - International standard ISO 23273:2013 Part 1: Vehicle functional safety and Part 2: Protection against hydrogen hazards for vehicles fuelled with compressed hydrogen; or - SAE J2578 – General Fuel Cell Vehicle Safety’;
--	--	---

(b) the table headed ‘Part II Vehicles belonging to category N₁’ is amended as follows:

(i) the entry for item 58 is replaced by the following:

'58	UN Regulation No 127 Regulation (EU) 2019/... ⁺ (Pedestrian protection)	<p>Vehicles shall be fitted with an electronic antilock braking system acting on all wheels.</p> <p>The requirements of UN Regulation No 127 shall apply.</p> <p>Any frontal protection system shall either be an integral part of the vehicle and thus compliant with the requirements of UN Regulation No 127 or be type-approved as separate technical unit’;</p>
-----	--	--

(ii) the following entry is inserted in the appropriate place by item number:

'62	UN Regulation No 134 Regulation (EU) 2019/... ⁺ (Hydrogen system)	<p>The requirements of UN Regulation No 134 shall apply.</p> <p>Alternatively, it shall be demonstrated that the vehicle complies with:</p> <ul style="list-style-type: none"> - Substantive requirements of Regulation (EC) No 79/2009 in its version applicable on [<i>PO: Please insert the date immediately preceding the date of application of this Regulation</i>]; - Attachment 100 – Technical Standard For Fuel Systems Of Motor Vehicle Fueled By Compressed Hydrogen Gas (Japan); - GB/T 24549-2009 Fuel cell electric vehicles – safety requirements (China); - International standard ISO 23273:2013 Part 1: Vehicle functional safety and Part 2: Protection against hydrogen hazards for vehicles fuelled with compressed hydrogen; or - SAE J2578 – General Fuel Cell Vehicle Safety’;
-----	--	--

(7) in Part II, in the table, the entries for items 58, 65 and 66 are deleted;

(8) Part III is amended as follows:

(a) in Appendix 1, the table is amended as follows:

(i) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127	X	X';						
-----	-----------------------	---	---	-----	--	--	--	--	--	--

(ii) the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X	X	X	X				
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾

(iii) the entries for items 65 and 66 are replaced by the following:

'65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131						N/A	N/A	
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130						N/A	N/A';	

(b) in Appendix 2, the table is amended as follows:

(i) the following entry is inserted in the appropriate place by item number:

'55A	Pole side impact	Regulation (EU) 2019/... ⁺ UN Regulation No 135	N/A					N/A';										
------	------------------	---	-----	--	--	--	--	-------	--	--	--	--	--	--	--	--	--	--

(ii) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127	N/A					N/A';										
-----	-----------------------	---	-----	--	--	--	--	-------	--	--	--	--	--	--	--	--	--	--

(iii) the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation	X	X	X	X	X	X										
-----	-----------------	--	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--

		No 134										
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾

(iv) the entries for items 65 and 66 are replaced by the following:

'65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131		N/A	N/A		N/A	N/A				
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130		N/A	N/A		N/A	N/A';				

(c) Appendix 3 is amended as follows:

(i) in the table, the following entry is inserted in the appropriate place by item number:

'55A	Pole side impact	Regulation (EU) 2019/... ⁺ UN Regulation No 135										N/A';
------	------------------	---	--	--	--	--	--	--	--	--	--	-------

(ii) in the table, the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127										G';
-----	-----------------------	---	--	--	--	--	--	--	--	--	--	-----

(iii) in the table, the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134										X
63	General safety	Regulation (EU) 2019/... ⁺										X ⁽¹⁵⁾ ';

(iv) the following point is added:

'5. Points 1. to 4.2. also apply to vehicles of category M₁ that are not categorised as special purpose vehicles but are wheelchair accessible.';

(d) in Appendix 4, the table is amended as follows:

(i) the following entry is inserted in the appropriate place by item number:

'55A	Pole side impact	Regulation (EU) 2019/... ⁺ UN Regulation No 135			A';							
------	------------------	---	--	--	-----	--	--	--	--	--	--	--

(ii) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127			A';							
-----	-----------------------	---	--	--	-----	--	--	--	--	--	--	--

(iii) the entries for items 62, 63, 65 and 66 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X	X	X	X	X					
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾
65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131	N/A	N/A		N/A	N/A					
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130	N/A	N/A		N/A	N/A';					

(e) in Appendix 5, in the table, the entries for items 62, 63, 65 and 66 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾

65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131	N/A
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130	N/A';

(f) in Appendix 6, in the table, the entries for items 62, 63, 65 and 66 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X	
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾
65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131	N/A	
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130	N/A';	

(g) the Explanatory Notes are amended as follows:

(i) the explanatory note for X is replaced by the following:

'X The requirements set out in the relevant regulatory act are applicable.';

(ii) explanatory notes 3 and 4 are replaced by the following:

'⁽³⁾ The fitting of vehicle stability function is required in accordance with Article 4(5) of Regulation (EU) 2019/...⁺

'⁽⁴⁾ The fitting of an electronic stability control system is required in accordance with Article 4(5) of Regulation (EU) 2019/...⁺;

(iii) explanatory note 9A is replaced by the following:

'^(9A) Applies only if vehicles are fitted with equipment covered by UN Regulation No 64. However, tyre pressure monitoring system is compulsory in accordance with Article 5(1) of Regulation (EU) 2019/...⁺;

(iv) explanatory note 15 is replaced by the following:

'⁽¹⁵⁾ Compliance with Regulation (EU) 2019/...⁺ is mandatory. However, type-approval under this specific item is not envisaged as it merely represents the collection of individual items listed elsewhere in the relevant table.';

(v) explanatory notes 16 and 17 are deleted.

ANNEX IV

Frontal protection systems fitted as original equipment to vehicles of categories M₁ and N₁ or made available on the market as separate technical units intended for such vehicles

1. Provisions for the approval of frontal protection systems

1.1. A frontal protection system intended as original equipment shall be approved in accordance with UN Regulation 127 and be considered as an integral part of the relevant vehicle.

1.2. A frontal protection system intended as separate technical unit shall fulfil the following requirements:

1.2.1. Frontal protection systems shall be accompanied by information that describes the exact vehicle type, variant and version for which it is type-approved and shall be accompanied by detailed installation instructions providing sufficient information for a competent person to be able to install it properly on the vehicle. The instructions shall be provided in all the official languages of the Union.

1.2.2. All tests shall be carried out either with the frontal protection system mounted on a vehicle of the type, variant and version for which it is intended or on a test frame closely representing the essential outer front-end dimensions of the intended vehicle. When using a test frame, it is not permitted that, apart from the initial mounting points, the frontal protection system makes contact with the frame during testing. Contact of the legform or headform testing device with the frame during testing is also not permitted. In case of such contact, the test in question shall instead be carried out with the frontal protection system mounted on the relevant vehicle type, variant and version.

1.2.3. For frontal protection systems to be mounted on vehicles resulting in a lower frontal protection system height at the test position which ≥ 425 mm and < 500 mm either the tests according to point 1.2.4. or 1.2.5. shall apply, at the choice of the manufacturer. Where the height < 425 mm, the tests in accordance with 1.2.4. shall apply. Where the height ≥ 500 mm, the tests in accordance with 1.2.5. shall apply.

1.2.4. The flexible lower legform tests on the frontal protection system shall be carried out in accordance with the relevant provisions laid down in UN Regulation 127 for the 'bumper test area' compliance tests where this is understood to be for the purpose of the frontal protection system legform test area, including applying the relevant injury criteria requirements. However, the corners of the frontal protection system shall be taken into account and no relaxation zone shall apply. The test points shall be clearly identified in the test report.

1.2.5. The upper legform tests on the frontal protection system shall be carried out in accordance with the relevant provisions laid down in UN Regulation 127 for the 'bumper test area' compliance tests where this is understood to be for the purpose of the frontal protection system legform test area, including applying the relevant injury criteria requirements. However, the corners of the frontal protection system shall be taken into account. The test points shall be clearly identified in the test report.

1.2.6. A minimum of three child headform impact tests in accordance with point 1.2.7. shall be carried out at all positions on the frontal protection system that are considered by the technical service to be the worst case. The tests shall be carried out to different types of

structure, where these vary throughout the area to be assessed. The test points shall be clearly identified in the test report and shall be chosen directly onto the frontal protection system where the relevant part or parts are located beyond a wrap-around distance (WAD) of 900 mm considered with the intended vehicle type, variant and version in its normal ride attitude.

1.2.7. The tests shall be carried out in accordance with the relevant provisions laid down in UN Regulation 127 for 'child headform test area' compliance tests where this is understood to be for the purpose of the frontal protection system child headform test area. However, the head injury criteria (HIC) recorded shall not exceed 1 000 in all cases. The test points shall be clearly identified in the test report.

2. Markings

2.1. Each frontal protection system shall be clearly and indelibly marked with the trade name, make or trade mark and type designation as well as the EU type-approval mark for which the space shall be sufficient.

ANNEX V

Hydrogen-powered vehicles, their hydrogen systems and hydrogen components

1. Scope

This Annex applies to hydrogen-powered vehicles of categories M and N including their hydrogen systems and hydrogen components.

1.1. Materials used in compressed hydrogen vehicle systems.

1.1.1. The materials used in hydrogen systems, components and containers shall be compatible with hydrogen when they are in contact with it in liquid and/or gaseous state. The material tables of SAE J 2579 B2 shall apply where appropriate. Incompatible materials shall not be in contact with each other.

1.1.2. Steels

Steels for containers and liners shall conform to the material requirements of sections 6.1 to 6.4 of standard EN 9809-1 or sections 6.1. to 6.3. of standard EN 9809-2 as appropriate.

1.1.3. Stainless steels

Stainless steels for containers and liners shall conform to sections 4.1. to 4.4. of standard EN 1964-3.

1.1.3.1. Welded stainless steels for liners of containers shall conform to sections 4.1. to 4.3. as well as sections 6.1., 6.2. and 6.4. of standard EN 13322-2 as appropriate.

1.1.4. Aluminium alloys

Aluminium alloys for containers and liners shall conform to the material requirements of sections 6.1. and 6.2. of international standard ISO 7866:2012.

1.1.4.1. Welded aluminium alloys for liners of containers shall conform to sections 4.2. and 4.3. as well as sections 4.1.2. and 6.1. of standard EN 12862.

1.1.5. Plastic liner materials

The material for plastic liners of hydrogen storage containers may be thermosetting or thermoplastic.

1.1.6. Fibres

The manufacturer of the container shall keep on file for the intended life of the container design the published specifications for composite materials including principal test results, i.e. tensile test, the material manufacturer's recommendations for storage, conditions and shelf life.

The manufacturer of the container shall keep on file, for the intended life of each batch of containers, the fibre manufacturer's certification that each shipment conforms to the manufacturer's specifications for the product.

1.1.6.1. Resins

The polymeric material for impregnation of the fibres may be thermosetting or thermoplastic resin.

1.1.7. Hydrogen compatibility test

This test is not required for

- steels that conform to paragraphs 6.3. and 7.2.2 of standard EN 9809-1;
- aluminium alloys that conform to paragraph 6.1. of international standard ISO 7866:2012; and
- in case of fully wrapped containers with a non-metallic liner.

For other metallic containers, liners and components, where their maximum allowable working pressure > 2.0 MPa, hydrogen compatibility of the material, including that of welds, shall be demonstrated in accordance with international standard ISO 11114-1 and ISO 11114-4 with the tests carried out in hydrogen environments as anticipated in service (e.g. in case of 70 MPa systems, the hydrogen compatibility testing is carried out in 70 MPa environment at the temperature of -40°C).

1.1.7.1. Test procedure for containers used in vehicles

At the appropriate ambient temperature, use hydrogen to pressure cycle for 3,0 times the number of manufacturer declared filling cycles, either:

- the container between $\leq 2,0$ MPa and $\geq 1,25$ times the nominal working pressure; or
- the liner between the pressure levels that shall provide an equivalent liner wall stress as would be present at $\leq 2,0$ Mpa and $\geq 1,25$ times the nominal working pressure for the container.

The container or liner shall not fail before the test is completed.

1.1.7.2 Test procedure for components used in hydrogen systems

If a component is exposed to pressure due to refilling operations, then filling cycles shall be used. If a component is exposed to pressure due to the operation of the vehicle (e.g. switching of vehicle activation device) then duty cycles shall be used.

At the appropriate ambient temperature, use hydrogen to pressure cycle for 3,0 times the number of manufacturer declared filling cycles or 2,0 times the number of manufacturer declared duty cycles, components between the pressure levels that shall provide an equivalent component stress as would be present at $\leq 2,0$ Mpa and $\geq 1,25$ times either the maximum allowable working pressure or the nominal working pressure for the container, as appropriate.

The component shall not fail before the test is completed.

1.1.8. For the purpose of point 1.1.7. to 1.1.7.2., the number of manufacturer declared filling cycles shall be as laid down in UN Regulation 134, i.e. at least 11 000 and the number of manufacturer declared duty cycles shall be at least 37 500.

1.1.9. The technical service shall verify all items above and the test results shall be

documented in detail in the test report.

The manufacturer shall also keep the test results on file throughout the anticipated service life of all components, containers and systems as made available on the market.

- 1.2. The fuelling receptacle of compressed hydrogen gas vehicles shall conform to international standard ISO 17268:2012 (or later revisions) and be compatible with specification H35, H35HF, H70 or H70HF depending on its nominal working pressure and specific application.
- 1.3. The specific components installed on compressed hydrogen gas vehicles shall be type-approved in accordance with the provisions set out in UN Regulation 134. In addition to the type-approval mark and information required by UN Regulation 134 for specific components, they shall also be marked with the nominal working pressure (NWP) and, if located downstream of the first pressure regulator, the maximum allowable working pressure (MAWP).
- 1.4. Vehicles with liquefied hydrogen systems shall be approved in accordance with Article 39 of Regulation (EU) 2018/... concerning exemptions for new technologies or new concepts, based on UN Global technical regulation on hydrogen and fuel cell vehicles No 13, part II, section 7.
 - 1.4.1. The materials used in hydrogen components, containers and systems shall be compatible with hydrogen when they are in contact with it in liquid and/or gaseous state. This shall be demonstrated in accordance with international standard ISO 11114-1 and ISO 11114-4 insofar relevant and possible, with the tests carried out in hydrogen environments as anticipated in service. The technical service shall verify all these items and the test results shall be documented in detail in the test report.

ANNEX VI

Transitional provisions referred to in Article 13(3)

UN Regulation	Specific requirements	Final date for registration of non-compliant vehicles as well as sale or entry into service of non-compliant components ⁽¹⁾
29	Commercial vehicle cab strength	29 January 2021
	Vehicles of category N shall comply with the Regulation	
142	Tyre installation	31 October 2018
	Vehicles of categories O ₁ , O ₂ , O ₃ and O ₄ shall have class C1 or C2 tyres complying with Stage 2 rolling resistance requirements	
	Tyre installation	31 October 2020
	Vehicles of categories O ₃ and O ₄ shall have class C3 tyres complying with Stage 2 rolling resistance requirements	
117	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling resistance	30 April 2019
	Tyres of classes C1, C2 and C3 shall comply with Stage 2 rolling sound emission requirements	
	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling resistance	30 April 2019
	Tyres of class C3 shall comply with Stage 1 rolling resistance requirements	
	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling resistance	30 April 2021
	Tyres of classes C1 and C2 shall comply with Stage 2 rolling resistance requirements	
	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling resistance	30 April 2023
	Tyres of class C3 shall comply with Stage 2 rolling	

	resistance requirements	
127	Pedestrian safety performance	23 August 2019
	Vehicles of categories M ₁ with a maximum mass > 2 500 kg and N ₁	

Notes to the table

- (¹) The dates as laid down in Regulation (EC) No 661/2009 in respect of types of vehicle, system and component complying with the requirements in its version applicable on [*PO: Please insert the date immediately preceding the date of application of this Regulation*] and Regulation (EC) No 78/2009 in respect of types of vehicle and system complying with the requirements in its version applicable on [*PO: Please insert the date immediately preceding the date of application of this Regulation*].