

Commission Delegated Regulation (EU) 2016/1824 of 14 July 2016 amending Delegated Regulation (EU) No 3/2014, Delegated Regulation (EU) No 44/2014 and Delegated Regulation (EU) No 134/2014 with regard, respectively, to vehicle functional safety requirements, to vehicle construction and general requirements and to environmental and propulsion unit performance requirements (Text with EEA relevance)

Changes to legislation: There are currently no known outstanding effects for the Commission Delegated Regulation (EU) 2016/1824, ANNEX II. (See end of Document for details)

ANNEX II

Amendments to Delegated Regulation (EU) No 44/2014

The Annexes to Delegated Regulation (EU) No 44/2014 are amended as follows:

- (1) Annex I is replaced by the following:

ANNEX I

List of UNECE regulations which apply on a compulsory basis

UNECE regulation No	Subject	Series of amendments	OJ reference	Applicability
10	Electromagnetic compatibility (EMC)	Supplement 1 to the 04 series of amendments	OJ L 254, 20.9.2012, p. 1.	L1e, L2e, L3e, L4e, L5e, L6e and L7e
62	Protection against unauthorised use	Supplement 2 to the 00 series of amendments	OJ L 89, 27.3.2013, p. 37.	L1e, L2e, L3e, L4e, L5e, L6e and L7e

Explanatory note: The fact that a component is included in this list does not make its installation mandatory. For certain components, however, mandatory installation requirements are laid down in other annexes to this Regulation.;

- (2) Annex II is amended as follows:
- (a) in point 2.3.1.1., ‘cylinder/piston combination’ is replaced by ‘cylinder, piston’;
 - (b) in point 2.3.1.2., ‘cylinder/piston combination’ is replaced by ‘cylinder, piston’;
 - (c) point 3.2.1.3. is replaced by the following:
 - 3.2.1.3. A marking with indication of the vehicle (sub-) category as defined in Articles 2 and 4 of, and Annex I to, Regulation (EU) No 168/2013 shall be legible on the pipes.;
 - (d) the following point 3.2.2.5. is inserted:
 - 3.2.2.5. For two-stroke engines, the maximum thickness of any gasket between the base of the cylinder and the crankcase, if any, may not exceed 0,5 mm, after mounting.;
 - (e) the following points 3.3., 3.3.1. and 3.3.2. are inserted:
 - 3.3. Continuous Variable Transmission (CVT)
 - 3.3.1. CVT Transmission covers, if available, shall be fixed by means of at a minimum 2 shear bolts or be disassembled only by using special tools.

- 3.3.2. The CVT mechanism intended to limit the drive ratio by limitation of the effective distance between two discs shall be fully integrated in one or both discs in such a way that it is impossible to modify the effective distance beyond a limit that would result in an increase of the maximum vehicle speed of more than 10 % of this maximum permissible vehicle speed without destroying the disc system. If the manufacturer employs interchangeable spacer rings in the CVT to adjust the maximum vehicle speed, the complete removal of these rings shall not increase the maximum vehicle speed with more than 10 %.
- (f) points 3.5., 3.5.1 and 3.5.2. are deleted;
- (g) points 4. to 4.2.3. are replaced by the following:
4. **Additional specific requirements for (sub-) categories L3e-A1 and L4e-A1**
- 4.1 Subcategory L3e-A1 and L4e-A1 vehicles shall comply with the requirements of either points 4.2. to 4.2.3., or points 4.3., 4.3.1. and 4.3.2., or points 4.4., 4.4.1. and 4.4.2., and with points 4.5., 4.6. and 4.7. In addition, they shall comply the requirements of points 3.2.2.1., 3.2.2.3., 3.2.2.4., 3.2.2.5., 3.2.3.1. and 3.2.3.3.
- 4.2. An irremovable sleeve must be located in the inlet conduit. If such a sleeve is located in the intake pipe, the latter shall be fixed to the engine block by means of shear-bolts or bolts removable only using special tools.
- 4.2.1. The sleeve shall have a minimum hardness of 60 HRC. In the restricted section it shall not exceed 4 mm in thickness.
- 4.2.2. Any interference with the sleeve aimed at removing or modifying it shall lead to either the destruction of the sleeve and its support or complete and permanent malfunctioning of the engine until it is restored to its approved condition.
- 4.2.3. A marking with indication of the vehicle (sub-) category as defined in Articles 2 and 4 of, and Annex I to, Regulation (EU) No 168/2013 shall be legible on the surface of the sleeve or not far from it.;
- (h) points 4.2.4. to 4.2.12. are deleted;
- (i) the following points 4.3. to 4.7. are inserted:
- 4.3. Each intake pipe shall be fixed with shear-bolts or bolts removable only using special tools. A restricted section, indicated on the outside, shall be located inside the pipes; at that point the wall shall be less than 4 mm in thickness, or 5 mm if composed of a flexible material such as rubber.
- 4.3.1. Any interference with the pipes aimed at modifying the restricted section shall lead to either the destruction of the pipes or complete and permanent malfunctioning of the engine until they are restored to their approved condition.

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- 4.3.2. A marking with indication of the vehicle (sub-) category as defined in Articles 2 and 4 of, and Annex I to, Regulation (EU) No 168/2013 shall be legible on the pipes.
- 4.4. The part of the inlet conduit located in the cylinder head shall have a restricted section. In the whole inlet passage, there shall not be a more restricted section (except the valve-seat section).
- 4.4.1. Any interference with the conduit aimed at modifying the restricted section shall lead to either the destruction of the pipe or complete and permanent malfunctioning of the engine until it is restored to its approved condition.
- 4.4.2. A marking with indication of the vehicle category as defined in Articles 2 and 4 of, and Annex I to, Regulation (EU) No 168/2013 shall be legible on the cylinder head.
- 4.5. The diameter of the restricted sections referred to in point 4.2. may vary according to the (sub-) category vehicle concerned.
- 4.6. The manufacturer shall supply the diameter(s) of the restricted section(s) and demonstrate to the approval authority and technical service that this restricted section is the most critical for the passage of gases, and that there is no other section which, if modified, could increase propulsion unit performance.
- 4.7. After mounting, the maximum thickness of a cylinder-head gasket shall not exceed 1,6 mm.;
- (j) point 5.1. is replaced by the following:
- 5.1 Any variant or version under the same type of vehicle of subcategory L3e-A2 or of subcategory L4e-A2 complying with the conversion requirements set out in point 4 of Annex III, shall not be derived from a L3e-A3 or L4e-A3 type, variant or version with a maximum net engine power and/or maximum continuous rated power more than twice the values set out in the classification of subcategories L3e-A2 or L4e-A2 in Annex I to Regulation (EU) No 168/2013 (e.g. 70 kW to 35 kW or lower, 50 kW to 35 kW or lower).;
- (k) the following point 5.2.2. is inserted:
- 5.2.2. fuel feed and delivery system;
- (l) points 5.2.3. to 5.2.6. are replaced by the following:
- 5.2.3. air intake system including air filter(s) (modification or removal);
- 5.2.4. the drive train;
- 5.2.5. the control unit(s) that control(s) the propulsion unit performance of the powertrain;
- 5.2.6. removal of any component (mechanical, electrical, structural, etc.) which limits full engine load leading to any change in the

propulsion unit performance approved in accordance with Annex II(A) to Regulation (EU) No 168/2013.;

- (m) point 5.2.7. is deleted;
- (n) the following points 6 to 6.5.2. are added:
 - 6. **Additional requirements for (sub)categories L1e, L2e, L3e-A1, L4e-A1 and L6e**
 - 6.1. The parts, equipment and components listed below shall be durably and indelibly marked with code number(s) and symbols assigned for identification purposes either by the vehicle manufacturer or by the manufacturer of such (replacement) parts, equipment or components. Such marking may take the form of a label provided that it remains legible in normal use and cannot be detached without being destroyed.
 - 6.2. The marking referred to in point 6.1. shall in principle be visible without dismantling the part in question or other parts of the vehicle. Where the bodywork or other parts of the vehicle obscure a marking, the vehicle manufacturer shall provide the competent authorities with indications for opening or dismantling the parts in question and the location of the marking.
 - 6.3. The characters, figures or symbols used shall be at least 2,5 mm in height and be easily legible.
 - 6.4. The parts, equipment and components referred to in point 6.1. are the following, for all (sub)categories:
 - 6.4.1. any electrical/electronic device for the purpose of combustion engine or electric propulsion motor management (ECU ignition module, injectors, intake air temperature etc.),
 - 6.4.2. carburettor or equivalent device,
 - 6.4.3. catalytic converter(s) (only if not integrated in the silencer),
 - 6.4.4. crankcase,
 - 6.4.5. cylinder,
 - 6.4.6. cylinder head,
 - 6.4.7. exhaust pipe(s) (if separate from the silencer),
 - 6.4.8. inlet pipe (if cast separately from the carburettor or cylinder or crankcase),
 - 6.4.9. intake silencer (air filter),
 - 6.4.10. restricted section (sleeve or other),
 - 6.4.11. noise abatement device (silencer(s)),
 - 6.4.12. transmission driven part (rear chain wheel (sprocket) or pulley),
 - 6.4.13. transmission driving part (front chain wheel (sprocket) or pulley).

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- 6.5. In addition, for categories L1e, L2e, and L6e, the following parts, equipment and components shall be marked in accordance with point 6.1.:
 - 6.5.1. transmission CVT,
 - 6.5.2. transmission controller.;
- (3) Annex III is amended as follows:
 - (a) points 4.2.5., 4.2.6. and 4.2.7. are replaced by the following:
 - 4.2.5. All other type-approval requirements than the ones listed in point 4.2.2., 4.2.3 and 4.2.4. and which are set out in Annex II to Regulation (EU) No 168/2013 shall be regarded as common and equal between the (L3e/L4e)-A2 and (L3e/L4e)-A3 motorcycle configurations and shall therefore only be tested and reported once for both performance configurations. In addition, test reports related to systems, components, separate technical units, and parts or equipment of the vehicle fulfilling the same type-approval requirements on both configurations shall be accepted for the type-approval of any of these configurations.
 - 4.2.6. One WVTA shall be issued for the category (L3e/L4e)-A2 configuration motorcycle having a unique type-approval number.
 - 4.2.7. One WVTA shall be issued for the category (L3e/L4e)-A3 configuration motorcycle having a unique type-approval number. Both type-approval numbers referred to in point 4.2.6. and in this point shall be stamped into the statutory plate in accordance with Article 39 of Regulation (EU) No 168/2013 and with Annex V to Regulation (EU) No 901/2014. In order to facilitate the conversion of subcategory (L3e/L4e)-A2 into the (L3e/L4e)-A3 configuration motorcycle and vice versa, a template for a corresponding vehicle manufacturer's statement shall be attached to the information folder in accordance with Appendix 24 of part B of Annex I to Regulation (EU) No 901/2014. In addition, the dedicated entries for both the L3e-A2 and L3e-A3 configurations on the certificate of conformity shall be provided by the vehicle manufacturer in accordance with the template set out in Annex IV of Regulation (EU) No 901/2014.;
 - (b) points 4.2.10. and 4.2.11. are replaced by the following:
 - 4.2.10. The Certificate of Conformity (CoC) shall be filled out in accordance with the requirements set out in point 1.7. of Annex IV to Regulation (EU) No 901/2014.
 - 4.2.11. Only one vehicle identification number (VIN) of the (L3e/L4e)-A2 and A3 motorcycle configuration shall be assigned to motorcycles which can be converted from subcategories (L3e/L4e)-A2 to (L3e/L4e)-A3 or vice versa. The statutory plate fitted on the vehicle shall contain this VIN and shall bear a clear indication of the stationary noise levels in both configurations as well as the maximum

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net or maximum continuous rated power in the (L3e/L4e)-A2 configuration.;

- (c) point 4.4.2 is deleted;
- (d) in point 6.1., the row relating to the requirement listed in Section (A2) of Annex II of Regulation (EU) No 168/2013 is replaced by the following:

Section (A2) of Annex II	Self-testing	Testing procedures on maximum design vehicle speed	Only for subcategories L3e, L4e and L5e and does not include any other propulsion unit performance testing.;
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- (4) Annex IV is amended as follows:

- (a) in point 4.1.1.3.1., ‘tailpipe and CO₂ emissions’ is replaced by ‘tailpipe pollutant and CO₂ emissions’;
- (b) in point 4.1.1.3.1.1., ‘tailpipe and CO₂ emissions’ is replaced by ‘tailpipe pollutant and CO₂ emissions’;
- (c) point 4.1.1.3.1.1.1.1 is replaced by the following:

If the durability method set out in Article 23(3a) of Regulation (EU) No 168/2013 is applicable, the deterioration factors shall be calculated from the type I emission test results up to and including full mileage referred to in Annex VII(A) to Regulation (EU) No 168/2013 and in accordance with the linear calculation method referred to in point 4.1.1.3.1.1.1.2. resulting in slope and offset values per emission constituent. The CoP pollutant emission results shall be calculated with the formula:

Equation 4-1:

$$\begin{aligned} \text{if } x \leq b \text{ then } y &= a \cdot x + b; \\ \text{if } x > b \text{ then } y &= x \end{aligned}$$

where:

- a = slope value determined according to test type V according to Annex V(A) to Regulation (EU) No 168/2013;
- b = offset value determined according to test type V according to Annex V(A) to Regulation (EU) No 168/2013;
- x = pollutant emission (HC, CO, NO_x, NMHC and PM if applicable) test result per emission constituent of a degreened vehicle (maximum accumulated 100 km after the first start on the production line) in mg/km.

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y = CoP emission result per pollutant emission constituent in mg/km. The average CoP results shall be lower than the pollutant emission limits set out in Annex VI(A) of Regulation (EU) No 168/2013.;

- (d) in point 4.1.1.3.1.1.3., ‘tailpipe and CO₂ emissions’ is replaced by ‘tailpipe pollutant and CO₂ emissions’;
 - (e) in point 4.1.1.3.1.1.2.2., ‘tailpipe and CO₂ emissions’ is replaced by ‘tailpipe pollutant and CO₂ emissions’;
 - (f) in point 4.1.1.3.1.1.2.3., ‘tailpipe and CO₂ emissions’ is replaced by ‘tailpipe pollutant and CO₂ emissions’;
 - (g) in point 4.1.1.3.2.1., ‘tailpipe and CO₂ emissions’ is replaced by ‘tailpipe pollutant and CO₂ emissions’;
 - (h) in point 4.1.1.3.2.3., ‘the tailpipe emission limits’ is replaced by ‘tailpipe pollutant emission limits’;
 - (i) in point 4.1.1.3.2.4., ‘Equation 4-2.’ is replaced by ‘Equation 4-3.’;
 - (j) in point 4.1.1.3.3.1., ‘tailpipe and CO₂ emissions’ is replaced by ‘tailpipe pollutant and CO₂ emissions’;
 - (k) in point 4.1.1.3.3.3., ‘tailpipe and CO₂ emissions’ is replaced by ‘tailpipe pollutant and CO₂ emissions’;
 - (l) in point 4.1.1.3.3.4., ‘Equations 4-3.’ is replaced by ‘Equations 4-4.’;
 - (m) in point 4.1.1.3.3.6., ‘Equations 4-4.’ is replaced by ‘Equations 4-5.’;
 - (n) in point 4.1.1.4., in the second, third and fifth subparagraph, ‘tailpipe and CO₂ emissions’ is replaced by ‘tailpipe pollutant and CO₂ emissions’;
- (5) Annex VIII is amended as follows:
- (a) the following points 1.1.1., 1.1.1.1. and 1.1.1.2. are inserted:
 - 1.1.1. Vehicles of categories L1e, L3e and L4e shall meet the following general requirements:
 - 1.1.1.1. Vehicles shall incorporate no pointed, sharp or protruding parts, pointing outwards, of such a shape, dimension, angle of direction and hardness that they increase the risk or seriousness of body lesions and lacerations suffered by any person struck or grazed by the vehicle in the event of an accident. Vehicles shall be designed so that parts and edges with which vulnerable road users such as pedestrians are likely to come into contact in the event of an accident comply with the requirements in points 1 to 1.3.8.
 - 1.1.1.2. All contactable projections or edges which are made of or covered with material such as soft rubber or soft plastic having a hardness of less than 60 Shore (A) are considered to meet the requirements

in points 1.3 to 1.3.8. The hardness measurement shall be carried out with the material fitted to the vehicle as intended.;

(b) Points 1.1.2. to 1.1.3.2. are replaced by the following:

1.1.2. Specific provisions for vehicles of categories L1e, L3e and L4e

1.1.2.1. Vehicles shall be assessed in accordance with the provisions in points 1.2 to 1.2.4.1.

1.1.2.2. In the case of vehicles fitted with a form of structure or panels intended to partially or fully enclose the rider, passenger or luggage or to cover certain vehicle components, the vehicle manufacturer may as an alternative choose to apply the relevant requirements of UNECE regulation No 26⁽¹⁾ as prescribed for vehicle category M1, covering either specific external projections or the full external surface of the vehicle. In such cases, particular attention shall be given to the required radii whereas the amount of projection of handles, hinges, push-buttons and aerials do not need to be checked.

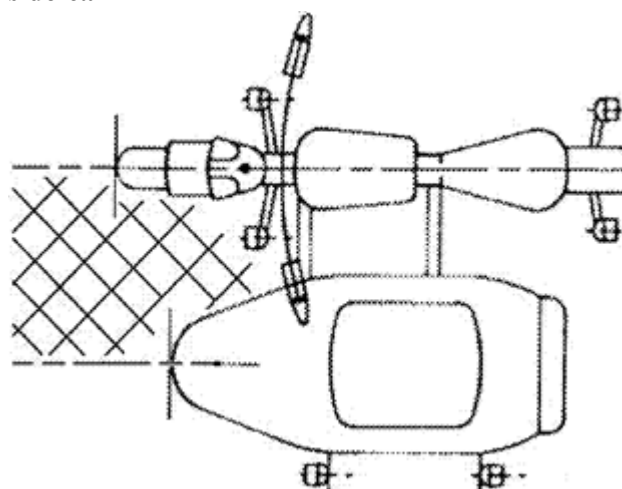
The relevant external projections assessed in conformity with this clause shall be clearly identified in the information document and any remaining external surface shall comply with the requirements of points 1. to 1.3.8.

1.1.3. Specific provisions for vehicles of category L4e

1.1.3.1. When the side-car is connected to the motorcycle, either permanently or in a detachable way, the space between the motorcycle and the side-car is exempted from assessment (see Figure 8-1).

Figure 8-1

Top-down view of category L4e motorcycle with side-car



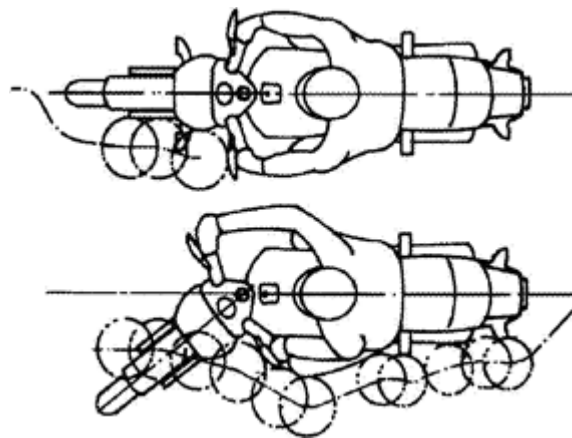
1.1.3.2. If the side-car can be detached from the motorcycle so that the motorcycle can be used without it, the motorcycle itself shall fulfil the requirements for solo motorcycles in points 1 to 1.3.8.;

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- (c) points 1.1.4. to 1.1.4.2. are deleted;
- (d) points 1.2.3. to 1.2.3.2. are replaced by the following:
 - 1.2.3. The testing device shall be moved from the front towards the rear of the vehicle, in a smooth motion, on both sides of it. If the testing device contacts the steering control or any parts mounted on it, it shall be rotated away into its fully locked position, during and after which the test continues. The testing device shall remain in contact with the vehicle or rider during the test (see Figure 8-2).

Figure 8-2

Test device movement zones



- 1.2.3.1. The front of the vehicle shall be the first point of contact and the testing device shall move sideways in an outward direction following the contour of the vehicle and the rider if applicable. The testing device shall also be allowed to move inward at a rate not exceeding the rate of rearward movement (i.e. at an angle of 45° in relation to the longitudinal median plane of the vehicle).
- 1.2.3.2. The hands and feet of the rider shall be pushed away by the testing device if it comes into direct contact with them and any relevant supports (e.g. foot supports) shall be allowed to freely rotate, fold, bend or flex as a result of contact with the testing device and assessed in all resulting intermediate positions.;
- (e) point 1.3.3.2. is replaced by the following:
 - 1.3.3.2. If a radius is applied to the upper edge, it shall not be larger than 0,70 times the thickness of the windscreen or fairing, as measured at the upper edge.;
- (f) point 1.3.5.2. is replaced by the following:
 - 1.3.5.2. The radius as applied to the leading edge of the front mudguard shall not be larger than 0,70 times the thickness of the mudguard, as measured at the leading edge (e.g. in case of a round bead on the edge of sheet metal, the diameter of the bead is taken as the relevant thickness).;

- (g) in point 2.1.2.1.1., the following second subparagraph is inserted:

In accordance with the first subparagraph, some portions of the kinds of vehicle concerned may be assessed with the external projections testing device (see Appendix 1) and the remaining portions shall be assessed with the sphere measuring 100 mm in diameter (see UNECE Regulation No 26). In such cases, particular attention shall be given to the required radii whereas the amount of projection of handles, hinges, push-buttons and aerials does not need to be checked.;

- (6) Annex IX is amended as follows:

- (a) point 2.2.1. is replaced by the following:

2.2.1. The tank shall be subjected to a hydraulic internal pressure test which shall be carried out on an isolated unit complete with all its accessories. The tank shall be completely filled with a non-flammable liquid having a density and a viscosity close to those of the fuel normally used, or with water. After all communication with the outside has been cut off, the pressure shall be gradually increased, through the pipe connection through which fuel is fed to the engine, to the internal pressure specified in point 1.2.9. and this pressure shall be maintained for at least 60 seconds.;

- (b) point 3.2.1. is replaced by the following:

3.2.1. The permeability test as part of type IV testing referred to in Part A of Annex V to Regulation (EU) No 168/2013 without having to take into account any diffusion measurements for the purpose of the test in accordance with this Annex, shall be carried out on a sufficient number of tanks for the purpose of testing in accordance with points 3.3 to 3.7.5.1. The total duration of the preconditioning procedure shall be composed of a pre-storage period of at least four weeks followed by a subsequent eight-week stabilised condition storage period.;

- (c) point 3.3.1. is replaced by the following:

3.3.1. The fuel tank is filled up to its total rated capacity with a mixture of 50 % water and 50 % ethylene glycol or with any other coolant which does not deteriorate the fuel tank material, the cryoscopic point of which is lower than $243 \pm 2 \text{ K}$ ($-30 \pm 2 \text{ °C}$).

The temperature of the substances contained in the fuel tank during the test shall be $253 \pm 2 \text{ K}$ ($-20 \pm 2 \text{ °C}$). The tank is cooled down to a corresponding ambient temperature. The fuel tank may also be filled with a suitably refrigerated liquid provided that it is left at the test temperature for at least an hour.

A pendulum is used for the test. Its impact head shall have the form of an equilateral triangular pyramid with a radius of curvature of 3,0 mm at its peak and edges. The freely moving mass of the pendulum shall have a mass of $15 \text{ kg} \pm 0,5 \text{ kg}$ and the exerted pendulum's energy shall not be less than 30,0 J for each impact on the fuel tank.

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The technical service may select any number of points on the fuel tank to be tested and these points shall reflect locations which are considered at risk as a result of the fitting of the tank and its position on the vehicle. Non-metal shielding shall be disregarded and frame tubing or chassis sections may be taken into account for the assessment of risk.

More than one fuel tank may be used for the completion of all impacts, provided that all fuel tanks to be used have undergone the permeability test.

There shall be no leakage of liquid following a single impact at any one of the tested points.;

(d) point 3.4.1. is replaced by the following:

3.4.1. The fuel tank shall be filled up to its total rated capacity, the test liquid used being water at 326 ± 2 K (53 ± 2 °C). The tank shall then be subjected to an internal pressure equal to twice the relative service pressure (design pressure) or an overpressure of 30 kPa, whichever is higher. The tank shall remain closed and pressurised for a period of not less than five hours at an ambient temperature of 326 ± 2 K (53 ± 2 °C).

The fuel tank shall not show signs of leakage and any temporary or permanent deformation which may arise shall not render it unusable. Account shall be taken of specific fitting conditions if the deformation of the tank is to be assessed.;

(e) point 3.5.1. is replaced by the following:

3.5.1. Six tensile test-pieces of approximately the same thickness are taken from flat or nearly flat faces of the completely new fuel tank. Their tensile strength and elastic limits are established at 296 ± 2 K (23 ± 2 °C) at an elongation rate of 50 mm/min. The obtained values shall then be compared with the tensile strength and elasticity values obtained from similar tests carried out using a fuel tank which has undergone the permeability test. The material shall be considered to be acceptable if the tensile strength differs by no more than 25 %.;

(f) point 3.6.1. is replaced by the following:

3.6.1. The fuel tank shall be fitted to a representative part of the vehicle and filled to 50 % of its total rated capacity with water at 293 ± 2 K (20 ± 2 °C). The test setup including the fuel tank shall then be placed in an ambient temperature of 343 ± 2 K (70 ± 2 °C) for 60 minutes, after which the fuel tank shall not display any permanent deformation or leaks and shall be in fully usable condition.;

(g) point 3.7.4.3. is replaced by the following:

3.7.4.3. The average combustion time (ACT) and average combustion length (ACL) shall be calculated if no sample out of ten or no more than one out of 20 has burnt up to the 100 mm mark.

Equation 9-1:

$$ACT(s) = \sum_{i=1}^n ((t_i - 30) / (n))$$

(note: n = number of samples)

The result is rounded up or down to the nearest five-second increment. However, an ACT of 0 seconds shall not be used. (i.e. if the combustion lasts between less than 2 seconds and 7 seconds, the ACT is 5 seconds; if the combustion lasts between 8 and 12 seconds, the ACT is 10 seconds; if the combustion lasts between 13 and 17 seconds, the ACT is 15 seconds, etc.).

Equation 9-2:

$$ACL(mm) = \sum_{i=1}^n \times ((100 - \text{unburnt length}_i) / (n))$$

(note: n = number of samples)

The result is expressed in relation to the nearest 5 mm increment (i.e. 'less than 5 mm' shall be stated if the combustion length is less than 2 mm and thus in no case can an ACL of 0 mm be given).

Where a single sample out of 20 burns up to or beyond the 100 mm mark, the combustion length (i.e. the value of (100 – unburnt length_i) for that sample) shall be taken as 100 mm.

Equation 9-3:

$$v_{\text{average combustion speed}} = \frac{ACL}{ACT}$$

in

$$\frac{mm}{s}$$

This value shall be compared against the requirement as laid down in points 3.7.5. to 3.7.5.1.;

- (7) In Annex XI, in Appendix 1, point 1.6. is replaced by the following:
- 1.6. Ground clearance
 - 1.6.1. For the purpose of measuring the ground clearance of an L-category vehicle type, the test vehicle shall be loaded to the actual mass.
 - 1.6.2. As an exception to point 1.6.1., for the purpose of measuring the ground clearance of a subcategory L3e-AxE vehicle type (x = 1, 2 or 3, two-wheel Enduro motorcycle) or a subcategory L3e- AxT vehicle type (x = 1, 2 or 3, two-wheel Trial motorcycle), the test Enduro or Trial motorcycle shall be loaded to its mass in running order.
 - 1.6.3. Any manually or automatically adjustable suspension system fitted to the vehicle, possibly resulting in a variable ground clearance, shall be put to its minimum setting allowing the minimum distance between vehicle and ground plane.
 - 1.6.4. The shortest distance between the ground plane and the lowest fixed point of the vehicle shall be measured between the axles and under the axle(s), if applicable in accordance with Appendix 1 to Annex II to Directive of the European Parliament and of the Council 2007/46/EC⁽²⁾. That minimum measured distance shall be regarded as the ground clearance of the vehicle.;
- (8) Annex XII is amended as follows:

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- (a) in point 2.2.2., Table 12-1 is replaced by the following:

TABLE 12-1

OBD stage II functions and associated requirements in the points of this Annex and Appendix 1

Topic	Point in this Annex and in Appendix 1
General disable criterion for degradation type of diagnostics in OBD stage II	3.2.1.1.
Catalytic converter monitoring	3.3.2.1.; 3.3.3.1.
EGR efficiency/flow monitoring	3.3.3.4.
In-use performance monitoring	2nd sub point of point 3.3. of Appendix 1, point 4 of Appendix 1
General OBD stage II requirement	3.3. of Appendix 1
Misfire detection	3.2.2.; 3.3.2.2.; 3.5.3.; 3.6.2.; 3.7.1.; 3.1.2. of Appendix 1
NOx after-treatment system monitoring	3.3.3.5.; 3.3.3.6.
Oxygen sensor deterioration monitoring	3.3.2.3.
Particulate filter monitoring	3.3.3.2.
Particulate matter (PM) emission monitoring	3.3.2.5.

- (b) points 3.2.2.1. and 3.2.2.1. are replaced by the following:

3.2.2.1. Manufacturers may adopt higher misfire percentage malfunction criteria than those declared to the authority, under specific engine speed and load conditions where it can be demonstrated to the authority that the detection of lower levels of misfire would be unreliable. In terms of OBD monitoring, it is that percentage of misfires out of a total number of firing events (as declared by the manufacturer) that would result in emissions exceeding the OBD thresholds set out in Section (B) of Annex VI to Regulation (EU) No 168/2013, or that percentage that could lead to an exhaust catalyst, or catalysts, overheating, causing irreversible damage.

3.2.2.2. When a manufacturer can demonstrate to the authority that the detection of higher levels of misfire percentages is still not feasible, or that misfire cannot be distinguished from other effects (e.g. rough roads, transmission shifts, after engine starting, etc.), the misfire monitoring system may be disabled when such conditions exist.;

- (c) in point 3.6., the last sentence is replaced by the following:

‘A fault code shall also be stored in the cases referred to in points 3.3.5. and 3.3.6.’;

- (d) point 3.6.1. is replaced by the following:

The distance travelled by the vehicle while the MI is activated shall be available at any moment through the serial port on the standardised diagnostic connector. By means of derogation for vehicles equipped with a mechanically operating odometer that does not allow input to the electronic control unit including such vehicles equipped with a CVT that does not allow for an accurate input to the electronic control unit, “distance travelled” may be replaced with “engine operation time” and shall be made available at any moment through the serial port on the standardised diagnostic connector.

- (e) points 4.3. and 4.4. are replaced by the following:

4.3. In the identified order of deficiencies, those relating to points 3.3.2.1, 3.3.2.2 and 3.3.2.3 for positive-ignition engines and points 3.3.3.1, 3.3.3.2 and 3.3.3.3 for compression-ignition engines shall be identified first.

4.4. Prior to, or at the time of, type-approval, no deficiency shall be granted with regard to the requirements set out in point 3. of Appendix 1, except the requirements laid down in point 3.11. of Appendix 1.;

- (f) the following point 4.7. is added:

The vehicle family criteria laid down in table 11-1 in point 3.1. of Annex XI to Regulation (EU) No 134/2014 with regard to test type VIII shall also be applicable for the functional on-board diagnostic requirements set out in this Annex.;

- (g) in Appendix 1, point 3.13. is replaced by the following:

Until a standardised connection interface for L-category vehicles has been adopted and published at ISO or CEN level and the reference of that technical standard is included in this Regulation, an alternative connection interface may be installed at the request of the vehicle manufacturer. Where such an alternative connection interface is installed, the vehicle manufacturer shall make available to test equipment manufacturers the details of the vehicle connector pin configuration free of charge. The vehicle manufacturer shall provide an adapter enabling connection to a generic scan tool. Such an adapter shall be of suitable quality for professional workshop use. It shall be provided upon request to all independent operators in a non-discriminating manner. Manufacturers may charge a reasonable and proportionate price for this adapter, taking into account the additional costs caused for the customer by this choice of the manufacturer. The connection interface and the adapter may not include any specific design elements which would require validation or certification before use, or which would restrict the exchange of vehicle data when using a generic scan tool.;

Changes to legislation: There are currently no known outstanding effects for the Commission Delegated Regulation (EU) 2016/1824, ANNEX II. (See end of Document for details)

- (h) in Appendix 2, in point 2.1., in Table Ap2-1, ‘Device operational/Device present’ is replaced by ‘Device not operational/Device not present’;
- (i) in Appendix 2, point 2.6.2. is replaced by the following:
- 2.6.2. monitoring of some of the items listed in Table Ap2-1 is physically not possible and a deficiency has been granted for this incomplete monitor. The comprehensive, technical justification why such an OBD monitor cannot run shall be added to the information folder.;
- (9) In Annex XIII the following point 1.4. is added:
- 1.4. The maximum pressures mentioned in points 1.2.1., 1.2.2., 1.2.3. and 1.3.1. may be exceeded during testing upon agreement with the vehicle manufacturer.;
- (10) In Annex XIV, point 1.5.1.5.1. is replaced by the following:
- 1.5.1.5.1. The plate shall be visible in the whole space within the following four planes:
- the two vertical planes touching the two lateral edges of the plate and forming an angle measured outwards to the left and to the right of the plate of 30° in relation to the longitudinal plane, parallel to the longitudinal median plane of the vehicle, passing through the centre of the plate;
 - the plane touching the upper edge of the plate and forming an angle measured upwards of 15° to the horizontal;
 - the horizontal plane through the lower edge of the plate.;
- (11) in Annex XVI, the following point 2.3.5.1. is inserted:
- 2.3.5.1. However, by way of derogation from points 1.2.1. and 2.3.5. a prop stand fitted to a vehicle of category L3e-A1E, L3e-A2E, L3e-A3E, L3e-A1T, L3e-A2T or L3e-A3T may swing back automatically when the prop stand is not being held or supported by a person..

Changes to legislation: There are currently no known outstanding effects for the Commission Delegated Regulation (EU) 2016/1824, ANNEX II. (See end of Document for details)

- (1) [OJ L 215, 14.8.2010, p. 27.](#)
- (2) Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (Framework Directive) ([OJ L 263, 9.10.2007, p. 1.](#));

Changes to legislation:

There are currently no known outstanding effects for the Commission Delegated Regulation (EU) 2016/1824, ANNEX II.