

Commission Delegated Regulation (EU) 2016/1788 of 14 July 2016 amending Regulation (EU) No 167/2013 of the European Parliament and of the Council as regards the list of requirements for vehicle EU type-approval, and amending and correcting Commission Delegated Regulations (EU) No 1322/2014, (EU) 2015/96, (EU) 2015/68 and (EU) 2015/208 with regard to vehicle construction and general requirements, to environmental and propulsion unit performance requirements, to vehicle braking requirements and to vehicle functional safety requirements (Text with EEA relevance)

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**Changes to legislation:** There are currently no known outstanding effects for the Commission Delegated Regulation (EU) 2016/1788, ANNEX V. (See end of Document for details)

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## ANNEX V

Annexes I, III, V, VII, X, XII to XV, XVII, XIX, XX, XXII, XXV to XXXI, XXXIII and XXXIV to Delegated Regulation (EU) 2015/208 are amended as follows:

(1) Annex I is amended as follows:

(a) above the row with Regulation Number 3, the following row is inserted:

1	Lighting installation	Incorporating all valid text up to 02 series of amendments	<a href="#">OJ L 177, 10.7.2010, p. 1</a>	T and C;
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(b) above the row with Regulation Number 7, the following row is inserted:

6	Lighting, light signalling devices and their light sources	Supplement 18 to the 01 series of amendments Corrigendum 1 to Supplement 18 Supplement 19 to the 01 series of amendments	<a href="#">OJ L 177, 10.7.2010, p. 40</a>	T, C, R and S;
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(c) above the row with Regulation Number 10, the following row is inserted:

8	Lighting installation	Incorporating all valid text up to 05 series of amendments Corrigendum 1 to Revision 4 of the Regulation	<a href="#">OJ L 177, 10.7.2010, p. 71</a>	T and C;
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(d) above the row with Regulation Number 21, the following row is inserted:

20	Lighting installation	Incorporating all valid text up to 03 series of amendments	<a href="#">OJ L 177, 10.7.2010, p. 170</a>	T and C;
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(e) above the row with Regulation Number 25, the following row is inserted:

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23	Lighting, light signalling devices and their light sources	Supplement 17 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 18	T, C, R and S
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(f) above the row with Regulation Number 79, the following row is inserted:

77	Lighting installation	Supplement 14 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 21	T, C, R and S;
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(2) in Annex III, point 2.6 is replaced by the following:

2.6. In order for approval authorities may calculate their maximum theoretical speed, the manufacturer shall specify as a guide the gear ratio, the actual forward movement of the powered wheels corresponding to one complete revolution, and the rpm at maximum power output or the cut-off initiation speed under full load with the throttle fully open, whichever is higher, and the speed governor, if fitted, adjusted as laid down by the manufacturer. The maximum theoretical speed shall be calculated without the tolerances referred to in point 2.5.

(3) Annex V is amended as follows:

(a) section 1 is replaced by the following:

#### 1. Definitions

For the purposes of this Annex, the definitions in section 1 of Annex XXXIII shall apply. The following definitions shall also apply:

(b) point 2.3 is amended as follows:

(i) the first sentence is replaced by the following:

The requirements set out in point 2.2 are not applicable to C-category tractors with steel track chains equipped with differential steering.

(ii) the third sentence is replaced by the following:

If the steering system is combined with the braking system, the requirements laid down in Commission Delegated Regulation (EU) 2015/68<sup>(1)</sup> shall apply.

(c) in point 3.4.1.1 the fourth sentence is replaced by the following:

Without prejudice to the requirements laid down in Delegated Regulation (EU) 2015/68, if there is a hydraulic connection between the hydraulic steering equipment and the hydraulic braking equipment, and if both are

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supplied from the same energy source, the force required to activate the steering equipment shall not exceed 40 daN if either of the systems should fail.

- (4) in Annex VII, point 2 is replaced by the following:
2. The part concerning the vision beside the tractor, in ISO 5721-2:2014 on the field of vision to the side and to the rear of agricultural tractors. The requirements of point 5.1.3 of ISO 5721-2:2014 may be fulfilled by a combination of direct and indirect view.
- (5) Annex X is replaced by the following:

## ANNEX X

### Requirements on driver information systems

#### 1. Definitions

“Virtual terminals” means electronic on-board information systems with display screens that provide an operator with visual information on the performance of the vehicle and its systems, and that allow the operator to monitor and control various functions via a touch screen or keypad.

#### 2. Requirements

- 2.1 Driver information systems shall be designed so as to minimize distraction of the driver whilst conveying the necessary information
- 2.2 Information provided in a non-language format on a digital screen shall meet the requirements of ISO 3767: part 1 (1998 +A2:2012) and part 2 (2008).

- (6) Annex XII is amended as follows:

- (a) section 3 is replaced by the following:

#### 3. Approval

The templates of the documents referred to in points 2.1 to 2.4, to be submitted during the EU type-approval process, shall be those set out in Annex I of Implementing Regulation (EU) 2015/504.

- (b) section 4 is replaced by the following:

#### 4. Approval number and markings

Each vehicle approved in accordance with the requirements set out in this Annex shall be assigned an approval number and marking, in accordance with the model set out in Annex IV of Implementing Regulation (EU) 2015/504.

- (c) points 6.1 and 6.1.1 are replaced by the following:

- 6.1. Main-beam headlamps (UNECE Regulations Nos 1, 8, 20, 98, 112 and 113, as referenced in Annex I to this Regulation)
  - 6.1.1. Presence: Mandatory for tractors with maximum design speed exceeding 40 km/h. Optional for other tractors. Main-beam

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headlamps are prohibited on R- and S-category vehicles. Main-beam head lamps, as prescribed in UNECE Regulation No 1, as referenced in Annex I, are only allowed on tractors with maximum design speed not exceeding 40 km/h. Main-beam head lamps, as prescribed in UNECE Regulations Nos 1, 8 and 20, as referenced in Annex I, are only allowed on new tractor types until 31 December 2020 and are only allowed on new tractors until 31 December 2022.

- (d) point 6.2 is replaced by the following:
  - 6.2. Dipped-beam headlamps (UNECE Regulations Nos 1, 8, 20, 98, 112 and 113, as referenced in Annex I to this Regulation);
- (e) point 6.2.1 is replaced by the following:
  - 6.2.1. Presence: Tractors shall be equipped with dipped-beam headlamps. Dipped-beam headlamps are prohibited on R- and S-category vehicles. Dipped-beam head lamps, as prescribed in UNECE Regulation No 1, as referenced in Annex I, are only allowed on tractors with maximum design speed not exceeding 40 km/h. Dipped-beam head lamps, as prescribed in UNECE Regulations Nos 1, 8 and 20, as referenced in Annex I, are only allowed on new tractor types until 31 December 2020 and are only allowed on new tractors until 31 December 2022.
- (f) point 6.25.5.1.2 is replaced by the following:
  - 6.25.5.1.2 The other two retro-reflectors shall keep within a maximum height of 2 500 mm above the ground and shall comply with point 6.25.5.1.
- (7) Annex XIII is amended as follows:
  - (a) in section 1, the second paragraph is replaced by the following:

Definitions for the protection of drive components, in accordance with the requirements laid down in Article 20 of Commission Delegated Regulation (EU) No 1322/2014<sup>(2)</sup>, are valid for this Annex.
  - (b) in Part 2, point 1.1 is replaced by the following:
    - 1.1. Interior parts of the passenger compartment excluding the side doors, with all doors, windows and access lids in the closed position;
  - (c) in point 1.1.3.2 of Part 2, the following sentence is added:

This requirement shall not apply to parts of control devices and of casings between their switches, which protrude less than 5 mm, but the outward facing angles of such parts shall be blunted, save where such parts protrude less than 1,5 mm.
  - (d) in point 3.1 of Part 2, the second paragraph is replaced by the following:

If the panels and components, etc., are covered with materials softer than 60 Shore A hardness, the procedure for the measuring of projections described in the first paragraph shall apply only after the removal of such materials.

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- (e) in section 4 of Part 2, the heading is replaced by the following:  
Apparatus and procedure for application of points 1.1.3 and 1.1.4;
- (f) Part 4 is replaced by the following:

#### PART 4

##### Seat belts

The requirements laid down in Article 21 of Delegated Regulation (EU) No 1322/2014 shall apply.

- (8) Annex XIV is replaced by the following:

#### ANNEX XIV

##### Requirements on vehicle exterior and accessories

#### 1. Definitions

For the purposes of this Annex, the definitions in section 1 of Annex XII and in section 1 of Annex XXXIII shall apply. The following definitions shall also apply:

- 1.1. “External surface” means the outside of the vehicle including wheels, tracks, doors, bumpers, bonnet, access means, tanks, mudguards, exhaust system.
- 1.2. “Radius of curvature” means the radius of the arc of a circle which comes closest to the rounded form of the component under consideration.
- 1.3. “Extreme outer edge“ of the vehicle means, in relation to the sides of the vehicle, the plane parallel to the median longitudinal plane of the vehicle coinciding with its outer lateral edge, account not being taken of the projection:
  - (a) of tyres near their point of contact with the ground, and connections for tyre pressure gauges and tyre inflating/deflating devices/ducts;
  - (b) of any anti-skid devices which may be mounted on the wheels;
  - (c) of rear-view mirrors, including their support;
  - (d) of side direction indicator lamps, end outline marker lamps, front and rear position (side) lamps, parking lamps, retro-reflectors, signalling panels and SMV rear marking plates;
  - (e) of articulation structures on foldable ROPS of T2, C2, T3 and C3 category tractors;
  - (f) of mechanical, electrical, pneumatic or hydraulic connections, and their supports on the sides of tractors.

#### 2. Scope

- 2.1. This Annex shall apply to those parts of the external surface which, with the vehicle in the laden condition, equipped with tyres of the highest diameter

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or set of tracks of the highest vertical dimension, for which it is approved, with all doors, windows and access lids etc., in the closed position, are:

- 2.1.1. at a height of less than 0,75 m, the parts forming only at the sides of the vehicle the extreme outer edge in each vertical plane perpendicular to the length axis of the vehicle, with the exemption of those parts with distance greater than 80 mm from the side extreme outer edge of the vehicle and towards its median longitudinal plane, when the vehicle is equipped with the tyres or set of tracks, described in point 2.1, giving the least track width; if more than one tyre or set of tracks, described in point 2.1, exist, the one giving the minimum vehicle width shall be considered;
- 2.1.2. at the sides and at a height between 0,75 and 2 m, all parts, except:
  - 2.1.2.1. the parts that cannot be contacted by a sphere with a diameter of 100 mm, when approaching horizontally in each vertical plane perpendicular to the length axis of the vehicle; the displacement of the sphere shall not exceed 80 mm, starting from the extreme outer edge of each of the left and right side of the vehicle and towards its median longitudinal plane, when the vehicle is equipped with the tyres or set of tracks, described in point 2.1, giving the least track width; if more than one tyre or set of tracks, described in point 2.1, exist, the one giving the minimum vehicle width shall be considered;
- 2.2. The purpose of these provisions is to reduce the risk or seriousness of bodily injury to a person hit by the exterior of the vehicle or brushing against it in the event of a collision. This is valid both when the vehicle is stationary and in motion.
- 2.3. This annex does not apply to exterior rear-view mirrors, including their support.
- 2.4. This Annex does not apply neither to the track chains nor to the parts of the tracks that are inside of the vertical plane formed by the extreme outer edge of the track belt or track chain of vehicles of category C.
- 2.5. This Annex does not apply to the parts of the wheels and of the wheel guards that are inside of the vertical plane formed by the exterior lateral wall of the tyres.
- 2.6. This Annex does not apply to steps and rungs, including their support, mentioned in points 3.3. and 4.2. of Annex XV to Delegated Regulation (EU) No 1322/2014.
- 2.7. This annex does not apply to mechanical, electrical, pneumatic or hydraulic connections, including their supports, mounted on the sides of tractors.
- 2.8. This annex does not apply to articulation structures on foldable ROPS of T2, C2, T3 and C3 category tractors.
3. **Requirements**
  - 3.1. The external surface of the vehicle shall not exhibit, directed outwards, any pointed or sharp parts, rough surfaces, or any projections of such shape, dimensions, direction or hardness as to be likely to increase the risk or

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seriousness of bodily injury to a person hit by the external surface or brushing against it in the event of a collision.

- 3.2. The external surfaces on each side of the vehicle shall not exhibit, directed outwards, any parts likely to catch on pedestrians, cyclists or motor cyclists.
- 3.3. No protruding part of the external surface shall have a radius of curvature less than 2,5 mm or each external part with edges shall be positioned with respect to the longitudinal axis so that the outside face of such part shall be flat and without edges and on a plane parallel with the vertical plane containing the longitudinal axis. This requirement shall not apply to parts of the external surface which protrude less than 5 mm, but the outward facing angles of such parts shall be blunted, save where such parts protrude less than 1,5 mm.
- 3.4. Protruding parts of the external surface, made of a material of hardness not exceeding 60 shore A, may have a radius of curvature less than 2,5 mm. The hardness measurement by the Shore A procedure may be replaced by a hardness value declaration from the manufacturer of the component.
- 3.5. Vehicles equipped with hydro-pneumatic, hydraulic or pneumatic suspension or a device for automatic levelling according to load shall be tested with the vehicle in the laden condition.
- 3.6. For connecting structures on ROPS of T2, C2, T3 and C3 category tractors only point 3.1 shall apply.
- 3.7. For side direction indicator lamps, end outline marker lamps, front and rear position (side) lamps, parking lamps, retro-reflectors, signalling panels, working lamps, SMV rear marking plates, including their supports, only points 3.1 and 3.2 shall apply.
- 3.8. Exposed implements on vehicles of categories R and S that have sharp edges or teeth when set in road transport mode and that are already covered by Directive 2006/42/EC are exempted from complying with points 3.1 to 3.5. For exposed areas of any other part of vehicles of categories R and S with maximum design speed exceeding 60 km/h, points 3.1 to 3.5 shall apply. For exposed areas of any other part of vehicles of categories R and S with maximum design speed not exceeding 60 km/h, only points 3.1 and 3.2 shall apply.

(9) in Annex XV, Part 2 is amended as follows:

- (a) points 1.1.1 and 1.1.2 are replaced by the following:
  - 1.1.1. The application for approval of a vehicle type, with regard to its electromagnetic compatibility pursuant to Articles 24 and 26 of Regulation (EU) No 167/2013 and Annex I to Implementing Regulation (EU) 2015/504 shall be submitted by the vehicle manufacturer.
  - 1.1.2. The vehicle manufacturer shall submit the information document, the model of which is set out in Annex I to Implementing Regulation (EU) 2015/504.
- (b) in point 1.1.4, the second sentence is replaced by the following:



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This vehicle shall represent the vehicle type specified in the information document set out in Article 2 of Implementing Regulation (EU) 2015/504.

- (c) in point 1.2.1, the first sentence is replaced by the following:
- The application for approval of a type of ESA with regard to its electromagnetic compatibility pursuant to Articles 24 and 26 of Regulation (EU) No 167/2013 and Article 2 of Implementing Regulation (EU) 2015/504 shall be submitted by the vehicle manufacturer or by the manufacturer of the ESA.
- (d) point 1.2.2 is replaced by the following:
- 1.2.2. The vehicle manufacturer shall submit the information document, the model of which is set out in Annex I to Implementing Regulation (EU) 2015/504.
- (e) point 1.2.6 is replaced by the following:
- 1.2.6. Where applicable, any restrictions on use shall be identified. Any such restrictions shall be included in the information document referred to in Article 2 of Implementing Regulation (EU) 2015/504 or in the EU type-approval certificate referred to in Annex V of Implementing Regulation (EU) 2015/504.
- (f) point 2.1 is replaced by the following:
- 2.1. Every ESA conforming to a type approved pursuant to this Regulation shall bear an EU type-approval mark in accordance with Article 5 of Implementing Regulation (EU) 2015/504 and Annex XX to this Regulation.
- (g) point 3.3.2.4 is replaced by the following:
- 3.3.2.4. Notwithstanding the limits defined in points 3.3.2.1, 3.3.2.2 and 3.3.2.3, if, during the initial step described in point 1.3 of Part 4, the signal strength measured at the vehicle broadcast radio antenna is less than 20 dB microvolts/m (10 microvolts/m) over the frequency range 88 to 108 MHz, then the vehicle shall be deemed to comply with the limits for narrowband emissions and no further testing shall be required.
- (10) in Annex XVII, points 1.1 and 1.2 are replaced by the following:
- 1.1. Tractors with cab shall be fitted with a heating system which complies with this Annex. Tractors with cab may be fitted with air conditioning systems. Where fitted, such systems shall comply with this Annex.
- 1.2. The heating system, in combination with the cab ventilation, shall be able to defrost and demist the windscreen. Heating and cooling systems shall be tested in accordance with sections 8 and 9, paragraphs 8.1.1 to 8.1.4 and 9.1.1 to 9.1.4 of ISO 14269-2:2001, respectively. During the test, system controls shall be set according to the manufacturer's specifications. The test reports shall be included into the information document.
- (11) Annex XIX is amended as follows:

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- (a) point 2.6.1 is replaced by the following:
    - 2.6.1. If the height of the upper edge of the plate from the ground surface does not exceed 1,20 m, the plate shall be visible in the whole space included within the following four planes:
      - (a) 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° to the longitudinal median plane of the vehicle;
      - (b) the plane touching the upper edge of the plate and forming an angle measured upwards of 15° to the horizontal;
      - (c) the horizontal plane through the lower edge of the plate.
  - (b) the following point 2.6.1.a is inserted:
    - 2.6.1.a. If the height of the upper edge of the plate from the ground surface exceeds 1,20 m, the plate shall be visible in the whole space included within the following four planes:
      - (a) 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° to the longitudinal median plane of the vehicle;
      - (b) the plane touching the upper edge of the plate and forming an angle measured upwards of 15° to the horizontal;
      - (c) the plane touching the lower edge of the plate and forming an angle measured downwards of 15° to the horizontal.
  - (c) point 2.6.2 is replaced by the following:
    - 2.6.2. No structural element, even when fully transparent, shall be located in the space described in points 2.6.1 and 2.6.1a.
- (12) Annex XX is amended as follows:
- (a) points 2.1 and 2.2 are replaced by the following:
    - 2.1. All agricultural or forestry vehicles shall be provided with the plate and inscriptions described in the following points. The plate and inscriptions shall be attached by the manufacturer.
    - 2.2. All components or separate technical units conforming to a type approved pursuant to Regulation (EU) No 167/2013 shall bear an EU type-approval mark described in point 6 of this Annex or a mark provided in Article 34(2) of that Regulation and set out in Article 5 of Implementing Regulation (EU) 2015/504.
  - (b) points 3.1 and 3.2 are replaced by the following:
    - 3.1. A statutory plate, modelled as set out in Annex IV to Implementing Regulation (EU) 2015/504, shall be firmly attached in a conspicuous and readily accessible position on a part normally

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not subject to replacement during normal use, regular maintenance or repair (e.g. due to accident damage). It shall show clearly and indelibly the information specified in the model for the EU type-approval mark set out in Annex IV to Implementing Regulation (EU) 2015/504.

3.2. The manufacturer may give additional information below or to the side of the prescribed inscriptions, outside a clearly marked rectangle enclosing only the information required by Annex IV of Implementing Regulation (EU) 2015/504.

(c) point 4.3 is replaced by the following:

4.3. It shall be marked on the chassis or other similar structure, where possible on the front right-hand side of the vehicle.

(d) section 5 is replaced by the following:

#### 5. Characters

The characters specified in the model for the EU type-approval mark set out Annex IV to Implementing Regulation (EU) 2015/504 shall be used for the markings referred to in sections 3 and 4.

(e) in section 6, the first sentence is replaced by the following:

Every separate technical unit or component, conforming to a type in respect of which EU separate technical unit or component type-approval has been granted in accordance with Chapter V of Regulation (EU) No 167/2013, shall bear an EU separate technical unit or component type-approval mark, pursuant to Article 34(2) of that Regulation and in accordance with Article 5 of Implementing Regulation (EU) 2015/504.

(13) Annex XXII is amended as follows:

(a) in point 1, the second paragraph is replaced by the following:

For the purposes of this Annex, definitions of ‘drawbar towed vehicle’ and ‘rigid drawbar towed vehicle’, set out in Article 2 of Delegated Regulation (EU) 2015/68, shall apply.

The following definitions shall also apply:

(b) point 1.2 is replaced by the following:

1.2. ‘Technically permissible maximum mass per axle’ means the mass corresponding to the maximum permissible static vertical load transmitted to the ground by the wheels of the axle or track undercarriages, on the basis of the construction features of the axle and of the vehicle and their design performances irrespective from the load capacity of the tyres or tracks.

(c) point 2.3.2 is replaced by the following:

2.3.2. For vehicles of categories R and S imposing a significant static vertical load on the tractor (rigid drawbar towed vehicle and centre-axle towed vehicle), the maximum permissible mass of the vehicle shall be considered to be the sum of the maximum permissible

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masses per axle and shall be applicable for type-approval purposes, instead of the corresponding maximum permissible mass mentioned in the third column of Table 1. The significant static vertical load on the tractor shall be taken into account in the type-approval of the tractor as laid down in point 2.3.1.

- (14) in section 3 of Annex XXV, the second paragraph is replaced by the following:
- If necessary, measure(s) for charge dissipation shall be provided. However, no charge dissipation system is required for fuel tanks designed for containing a fuel with a flash point of at least 55 °C. The flash point shall be determined in accordance with ISO 2719:2002.
- (15) in Annex XXVI, section 1 is replaced by the following:
- 1. General**
- Vehicles of category R covered by this Regulation shall be designed so as to provide effective protection against underrunning from the rear by vehicles of categories M<sub>1</sub> and N<sub>1</sub><sup>(9)</sup>. They shall comply with the requirements set out in sections 2 and 3 of this Annex, shall be granted a type-approval certificate set out in Annex V to Implementing Regulation (EU) 2015/504 and the EU type-approval mark, set out in point 5.2 of Annex IV to that Regulation, shall be affixed to the rear protective structure.
- (16) in Annex XXVII, points 2.4.1.1 and 2.4.1.2 are replaced by the following:
- 2.4.1.1. on a drawbar trailer: not more than 500 mm to the rear of the transverse vertical plane tangential to the rearmost part of the tyre on the wheel immediately forward of the guard;
- 2.4.1.2. on a rigid drawbar trailer or centre-axle trailer: in the area forward of the transverse plane passing through the centre of the front axle but not more than the front of the bodywork, if any, to ensure the normal manoeuvrability of the trailer.
- (17) in Annex XXVIII, section 7 is replaced by the following:
- 7. Length of the platform for tractors of categories T4.3 and T2**
- 7.1. For tractors of category T4.3, the length of the platform shall not exceed 2,5 times the maximum front or rear track of the tractor, whichever is the larger.
- 7.2. For tractors of category T2, the length of the platform shall not exceed 1,8 times the maximum front or rear track of the tractor, whichever is the larger.
- (18) Annex XXIX is amended as follows:
- (a) in section 3, the first paragraph is replaced by the following:
- The towing device shall be of the slotted-jaw type or a winch suitable for its application. The opening at the centre of the locking pin shall be 60 mm + 0,5/- 1,5 mm and the depth of the jaw measured from the centre of the pin shall be 62 mm - 0,5 / +5 mm.
- (b) section 5 is replaced by the following:
- 5. Instructions**

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The correct use of the towing device shall be explained in the Operator's manual, in accordance with the requirements laid down in Article 25 of Delegated Regulation (EU) No 1322/2014.

- (19) Annex XXX is amended as follows:
- (a) point 2.2.4.3 is replaced by the following:
    - 2.2.4.3. The relevant information concerning load and speed indices as well as the applicable tyre inflation pressures shall be stated clearly in the instruction manual of the vehicle in order to ensure that suitable replacement tyres with an appropriate load capacity shall be fitted when necessary, once the vehicle has been put into service.
  - (b) point 2.2.6.2 is replaced by the following:
    - 2.2.6.2. In case of "Improved Flexion Tyre" or "Very High Flexion Tyre" classified in category of use "Tractor – Drive wheel" (marked with prefix IF or VF) operated at speeds up to a maximum speed of 10 km/h fitted to a vehicle equipped with a "Front end loader", the maximum load on a tyre shall not exceed 1,40 times the load corresponding to the load index marked on the tyre and the relevant reference pressure shall be increased by 80 kPa.
  - (c) point 2.2.6.3 is replaced by the following:
    - 2.2.6.3. Where tyres classified in category of use "Tractor – Drive wheel" are marked with speed symbols D or A8 and fitted to agricultural trailers operating at speeds between 25 km/h and 40 km/h, the maximum load on a tyre shall not exceed 1,20 times the load corresponding to the load index marked on the tyre.
- (20) in Annex XXXI, point 1.1 is replaced by the following:
- 1.1. Tb and Rb category vehicles shall be equipped with wheel guards (parts of the bodywork, mudguards, etc.).
- (21) Annex XXXIII is amended as follows:
- (a) points 1.1, 1.2 and 1.3 are replaced by the following:
    - 1.1. "Track undercarriage" means a system comprising at least two of the following items: track rollers, track idler and track driver, with a continuous track chain or track belt running around them.
    - 1.2. "Track rollers" means the cylinders in the track undercarriage that transmit the mass of the vehicle and track undercarriage to the ground via the track belt or track chain.
    - 1.3. "Track belt" means a continuous flexible rubber like belt, reinforced internally to enable the tractive forces.
  - (b) the following points 1.6, 1.7, 1.8 and 1.9 are inserted:
    - 1.6. "Track idler" means sprockets or pulleys in the track undercarriage that do not transmit torque to the track belt or track chain, their main function being the tensioning of the track chain or track belt;

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- track idlers may also create the ramp up/down angles in the track geometry.
- 1.7. “Track driver” means the sprocket or cage wheel in the track undercarriage that transmit torque from the vehicle drive system to the track belt or track chain.
- 1.8. “Track chain” means a continuous metallic chain which engages with the track driver and where each link is with a transversal metallic track shoe, the latter optionally padded with a rubber strip for road surface protection.
- 1.9. Figures illustrating definitions set out in points 1.2, 1.6 and 1.7:  
;
- (c) points 2.1.1, 2.1.2 and 2.1.3 are replaced by the following:
- 2.1.1. Vehicles with maximum design speed not exceeding 15 km/h shall be equipped either with track chains or with track belts.
- 2.1.2. Vehicles with a maximum design speed exceeding 15 km/h and not exceeding 40 km/h shall be equipped with track belts only.
- 2.1.3. Vehicles with a maximum design speed exceeding 40 km/h shall be equipped with track belts only.
- (d) points 3.1 and 3.2 are replaced by the following:
- 3.1. Vehicles with a maximum design speed of not less than 15 km/h shall be equipped with track belts.
- 3.2. Track undercarriages shall be non-damaging to roads. Vehicles with track undercarriages are non-damaging to roads if the limits set out in points 3.3 to 3.5 are not exceeded and the contact surface of the track undercarriage with the road pavement is composed of an elastomeric material (such as rubber, etc.).
- (e) point 3.3.1 is replaced by the following:
- 3.3.1. Track chains;
- (f) point 3.3.1.2 is replaced by the following:
- 3.3.1.2. For vehicles with a combination of wheeled axles and tracks, the load acting through the wheeled axles with the vehicle in the laden condition shall be measured using suitable weigh pads and subtracted from the overall maximum permissible mass to calculate P. Alternatively, the manufacturer’s declared maximum combined load for the track undercarriages may be substituted for the maximum permissible vehicle mass.
- (g) point 3.3.2 is replaced by the following:
- 3.3.2. Track belts;
- (h) point 3.3.2.2 is replaced by the following:

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- 3.3.2.2. For vehicles with a combination of wheeled axles and tracks, the load acting through the wheeled axles with the vehicle in the laden condition shall be measured using suitable weigh pads and subtracted from the overall maximum permissible mass to calculate P. Alternatively, the manufacturer's declared maximum combined load for the track undercarriages may be substituted for the maximum permissible vehicle mass.
- (i) points 3.9.1.1 and 3.9.1.2 are replaced by the following:
- 3.9.1.1. For vehicles with only one track undercarriage at each side, the steering function shall be performed by changing the speed between the left-hand side and right-hand side track undercarriages.
- 3.9.1.2. For vehicles with two track undercarriages at each side, the steering function shall be performed by articulation of the front and rear part of the vehicle around a central vertical axis or by pivoting of two opposite or all four track undercarriages.
- (j) point 3.9.2.1 is replaced by the following:
- 3.9.2.1. The steering function shall be performed by articulation of the front and rear part of the vehicle around a central vertical axis or by articulation of all track undercarriages.
- (22) Annex XXXIV is amended as follows:
- (a) point 1.3 is replaced by the following:
- 1.3. "Reference centre of mechanical coupling on tractor" means the point on the pin axis which is equidistant from the wings in the case of a fork and the point resulting from the intersection of the plane of symmetry of the hook with the generatrix of the concave part of the hook at the level of contact with the ring when this is in the traction position.
- (b) the following point 1.3.a is inserted:
- 1.3.a. "Reference centre of mechanical coupling on towed vehicle" means, for coupling devices with a cylindrical or rounded head, the point of intersection between the vertical axis passing through the centre of the device hole and the centreline plane of the cylindrical or rounded device head, and, for coupling devices with spherical head, the point of the geometric centre of the spherical cavity.
- (c) point 1.4 is replaced by the following:
- 1.4. "Height above ground of mechanical coupling on tractor" means the distance between the horizontal plane through the reference centre of the mechanical coupling on tractor and the horizontal plane on which the wheels of the tractor are resting.
- (d) point 2.2 is replaced by the following:
- 2.2. The mechanical coupling components on the vehicle shall conform to the dimensional and strength requirements in point 3.1 and point

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- 3.2 and the requirements for the vertical load on the coupling point in point 3.3.
- (e) in point 2.6, the first paragraph is replaced by the following:
- For mechanical couplings on tractors, the drawbar ring shall be capable of tilting horizontally at least 60° on both sides of the longitudinal axis of a non-built-in coupling device. In addition, vertical mobility of 20° upwards and downwards is required at all times. (See also Appendix 1.)
- (f) points 2.7 and 2.8 are replaced by the following:
- 2.7. For mechanical couplings on tractors, the jaw shall permit the drawbar rings to swivel axially at least 90° to the right or left around the longitudinal axis of the coupling with a fixed braking momentum of between 30 and 150 Nm.
- The towing hook, no-swivel clevis coupling, ball coupling and pin (piton) coupling shall allow the drawbar ring to swivel axially at least 20° to the right or left around the longitudinal axis of the coupling.
- 2.8. For mechanical couplings on tractors, in order to prevent unintentional uncoupling from the hitch ring, the distance between the towing hook or ball head or pin (piton) tip and the keeper (clamping device) shall not exceed 10 mm at the maximum design load.
- (g) in point 3.3.1, the second sentence is replaced by the following:
- However, it shall not exceed 3 000 kg, except for the ball coupling, where the maximum value shall not exceed 4 000 kg.
- (h) in point 3.4.1, the first paragraph is replaced by the following:
- For mechanical couplings on tractors, all tractors with a technically permissible maximum laden mass exceeding 2,5 tonnes shall be fitted with a trailer coupling having a ground clearance satisfying one of the following relations:
- (i) points 4.1 and 4.2 are replaced by the following:
- 4.1. A vehicle representative of the vehicle type to be approved, on which a coupling device, duly approved, is mounted is submitted to the technical services responsible for conducting the type-approval tests.
- 4.2. The technical service responsible for conducting the type-approval tests checks whether the approved type of coupling device is suitable for mounting on the type of vehicle for which type-approval is requested. In particular, it ascertains that the attachment of the coupling device corresponds to that which was tested when the EU component type-approval was granted.
- (j) in point 4.3, the second indent is replaced by the following:



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- a short technical description of the coupling device specifying the kind of construction and the material used,
- (k) points 4.5.2 and 4.5.3 are replaced by the following:
  - 4.5.2. it is suitable for mounting on the type of vehicle for which the extension of the EU type-approval is requested;
  - 4.5.3. the attachment of the coupling device on the vehicle corresponds to that which was presented when EU component type-approval was granted.
- (l) point 4.6 is replaced by the following:
  - 4.6. A certificate, which template is set out in Annex V of Implementing Regulation (EU) 2015/504, is annexed to the EU type-approval certificate for each type-approval or type-approval extension which has been granted or refused.
- (m) point 4.7 is replaced by the following:
  - 4.7. If the application for EU type-approval for a type of vehicle is made at the same time as the request for EU component type-approval for a coupling device on a vehicle for which EU type-approval is requested, then points 4.1 and 4.2 are unnecessary.
- (n) point 5.1.2 is replaced by the following:
  - 5.1.2. EU component type-approval mark conforming to the model set out in Annex IV of Implementing Regulation (EU) 2015/504;
- (o) the following section 8 is added:
  - 8. The following vehicles may be fitted with couplings intended to be connected with the three-point hitch or the lower link arms of the tractor:
    - (a) vehicles of category Sa;
    - (b) interchangeable towed equipment of category Ra intended mainly to process materials in the meaning of Article 3 (9) of Regulation (EU) No 167/2013;
    - (c) vehicles of category Ra of a difference of laden and unladen mass of less than 2 tons.

If the vehicles referred to in the first paragraph are fitted with couplings intended to be connected with the three-point hitch or the lower link arms of the tractor, the parts of these systems shall meet the dimensional requirements of section 5 of ISO 730:2009, Amd.1: 2014.

The manufacturer's calculations or test results on the strength of the parts of the couplings, as part of compliance with Directive 2006/42/EC, shall be provided to the technical service, instead of the test results in point 3.2 of this Annex. The technical

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service shall verify the accuracy of the manufacturer's calculations or test results. Appropriate information with regard to safe coupling and fixing of the lower links vertically and laterally as well as the material quality of the spare parts and the permissible play shall be given in the operator's manual.

- (p) Appendix 1 is amended as follows:
- (i) the parts entitled 'Mechanical coupling types on tractors' and 'Mechanical coupling types on towed vehicles' are replaced by the following:
- Mechanical couplings on agricultural and forestry vehicles**
- Mechanical couplings on tractors
- "Clevis mechanical coupling": see Figures 1 and 2.
- "No-swivel clevis mechanical coupling": see Figure 1d.
- "Towing hook": see Figure 1 – "Hitch-hook dimensions" in ISO 6489-1:2001.
- "Tractor drawbar": see Figure 3.
- "Ball mechanical coupling": see Figure 4.
- "Pin (piton) mechanical coupling": see Figure 5.
- Tractor drawbar dimensions shall comply with those of the following categories of ISO 6489-3:2004:
- Category (0) (pin 18); compatible with ISO 5692-3, shape W (22 mm hole).
- Category (1) (pin 30); compatible with ISO 5692-3, shape X (35 mm ring); ISO 5692-2:2002 (40 mm hole); ISO 8755:2001 (40 mm hole).
- Category (2) (pin 30); compatible with ISO 5692-3, shape X (35 mm ring); ISO 5692-2:2002 (40 mm hole); ISO 8755:2001 (40 mm hole).
- Category (3) (pin 38); compatible with ISO 5692-1:2004 (50 mm ring); ISO 5692-3:2011 shape Y (50 mm hole); ISO 20019:2001.
- Category (4) (pin 50); compatible with ISO 5692-3:2011 shape Z (68 mm hole).
- Mechanical couplings on towed vehicles
- "Hitch rings" according to ISO 5692-1:2004 (50 mm hole, 30 mm ring diameter).
- "Hitch rings" according to ISO 20019:2001 (50 mm hole centre, 30 to 41 mm ring diameter).
- "Swivel hitch rings" according to ISO 5692-3:2011.

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“Coupling rings” according to ISO 5692-2:2002 (40 mm socket).

“Drawbar eye” according to ISO 8755:2001 (40 mm hole).

“Drawbar eye” according to ISO 1102:2001 (50 mm hole).

“Coupling device” according to ISO 24347:2005 (80 mm ball diameter).

- (ii) the title of Figure 4 is replaced by the following:  
**Ball coupling (corresponding to ISO 24347:2005)**
- (iii) the title of Figure 5 is replaced by the following:  
**Pin (piton) coupling (corresponding to ISO 6489-4:2004)**
- (iv) Table 2 is replaced by the following:

TABLE 2

Coupling component on the tractor	Coupling component on the towed vehicle
Corresponding to ISO 6489-1:2001 (towing hook)	Corresponding to ISO 5692-1:2004 (hitch ring, 50 mm hole centre, 30 mm ring diameter) or to ISO 20019:2001 (hitch ring, 50 mm hole centre, 30 to 41 mm ring diameter) or to ISO 5692-3:2011 (swivel hitch rings; compatible only with shape Y, 50 mm hole)
Corresponding to ISO 6489-5:2011 (no-swivel clevis coupling)	Corresponding to ISO 5692-3:2011 (swivel hitch rings)
Corresponding to ISO 6489-2:2002 (clevis coupling)	Corresponding to ISO 5692-2:2002 (coupling ring, 40 mm socket) or to ISO 8755:2001 (40 mm drawbar eye) or to ISO 1102:2001 (50 mm drawbar eye, compatible only with ISO 6489-2:2002, shape A – non-automatic)
Corresponding to ISO 6489-3:2004 (drawbar)	Appropriate coupling mentioned in this column that fits the drawbar dimensions of the tractor mentioned in this Appendix or corresponding to Sa vehicles’ hitch rings and attachment to tractor drawbars according to ISO 21244:2008.

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Corresponding to ISO 24347:2005 (ball mechanical coupling)	Corresponding to ISO 24347:2005 (80 mm ball diameter)
Corresponding to ISO 6489-4:2004 (piton coupling)	Corresponding to ISO 5692-1:2004 (hitch ring, 50 mm hole centre, 30 mm ring diameter) or to ISO 5692-3:2011 (swivel hitch rings; compatible only with shape Y, 50 mm hole);

(q) Appendix 2 is amended as follows:

(i) in point 3.1, the first, the second and the third paragraphs are replaced by the following:

The test force shall be applied to the mechanical couplings being tested beneath an angle formed by the position of the vertical test load  $F_v$  vis-à-vis the horizontal test load  $F_h$  in the direction of the median longitudinal plane passing from top front to bottom rear.

The test force shall be applied at the usual point of contact between the mechanical coupling on the tractor and the corresponding one on the towed vehicle.

The play between the mechanical coupling on the tractor and the corresponding one on the towed vehicle shall be kept to a minimum.

(ii) in point 3.1, the fifth paragraph is replaced by the following:

Should the design of the mechanical coupling (e.g. excessive play, towing hook) make it impossible to carry out the test with an alternating test load, the test load may also be applied on a rising basis in the direction of traction or pressure, whichever is the greater.

(iii) the following point 3.3 is added:

### 3.3. Load application

For components of the mechanical coupling on tractor or towed vehicle, the load is applied using the components of one corresponding mechanical coupling on respectively towed vehicle or tractor as permitted by the combinations listed in Table 2 of Appendix 1.

(r) Appendix 3 is amended as follows:

(i) point 1.2 is replaced by the following:

### 1.2. Test preparation

The tests shall be carried out on a special machine, with the mechanical coupling and any structure coupling it to the body of

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the vehicle attached to a rigid structure by means of the same components used to mount it on the vehicle.

- (ii) in point 1.4.2, the first paragraph is replaced by the following:

The data recorded for plotting the load/deformation curve under traction, or the graph of that curve provided by the printer linked to the traction machine, shall be based on the application of increasing loads only, starting from 500 daN, in relation to the reference centre of the mechanical coupling on tractor or towed vehicle.

- (iii) in point 1.5, the first paragraph is replaced by the following:

The test referred to in point 1.4.2 shall be preceded by a test in which a load of three times the maximum permissible vertical force (in daN, equal to  $g \cdot S/10$ ) recommended by the manufacturer is applied in a gradually increasing manner, starting from an initial load of 500 daN, to the reference centre of the mechanical coupling on tractor or towed vehicle..

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- (1) Commission Delegated Regulation (EU) 2015/68 of 15 October 2014 supplementing Regulation (EU) No 167/2013 of the European Parliament and of the Council with regard to vehicle braking requirements for the approval of agricultural and forestry vehicles ([OJ L 17, 23.1.2015, p. 1](#)).<sup>2</sup>
- (2) Commission Delegated Regulation (EU) No 1322/2014 of 19 September 2014 supplementing and amending Regulation (EU) No 167/2013 of the European Parliament and of the Council with regard to vehicle construction and general requirements for the approval of agricultural and forestry vehicles ([OJ L 364, 18.12.2014, p. 1](#)).<sup>2</sup>
- (3) As defined in Part A of Annex II to Directive 2007/46/EC.<sup>2</sup>

**Changes to legislation:**

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