COMMISSION IMPLEMENTING REGULATION (EU) 2016/1789

of 7 September 2016

amending Implementing Regulation (EU) 2015/504 with regard to the administrative requirements for the approval and market surveillance of agricultural and forestry vehicles

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 167/2013 of the European Parliament and of the Council of 5 February 2013 on the approval and market surveillance of agricultural or forestry vehicles ([1]), and in particular Article 22(4), Article 25(2) and (3), Article 27(1), Article 33(2), Article 34(3), Article 35(4) and Article 53(8) thereof,

Whereas:

(1) Commission Implementing Regulation (EU) 2015/504 ([2]) lays down, inter alia, the templates for certain documents that are drawn up in the context of the approval and market surveillance of agricultural and forestry vehicles. It is necessary for the purposes of clarity and comprehensiveness that additional information on the maximum towable mass of the rear three-point lifting mechanism be indicated in the information document and in the certificate of conformity.

(2) In order to better identify a vehicle's category or subcategory, the maximum and minimum track width of each tyre combination should be stated in the information document.

(3) In order to increase the consistency and completeness of the information provided, the information

(4) The certificate of conformity should be simplified in order to reduce the burden on manufacturers.

(5) The information in the test results sheet related to braking should be extended and improved for the purposes of clarity and consistency.

(6) In order to provide assistance to the technical services when drawing up braking test reports, specific templates for those test reports should be provided.

(7) In order to improve the readability and clarity of the text, certain changes should be made to provisions containing contradictions or redundant information and certain references should be amended.

(8) Implementing Regulation (EU) 2015/504 should therefore be amended accordingly.

(9) In order to allow additional time for manufacturers and national authorities to achieve a timely application of the amendments provided for in this Regulation, this Regulation should enter into force as a matter of urgency, especially taking into account that Regulation (EU) No 167/2013 became applicable on 1 January 2016 and that related administrative requirements will become compulsory with regard to all new vehicles registered or placed on the market as from 1 January 2018.

(10) The measures provided for in this Regulation are in accordance with the opinion of the committee referred to in Article 69(1) of Regulation (EU) No 167/2013,

([1]) OJ L 60, 2.3.2013, p. 1.

([2]) Commission Implementing Regulation (EU) 2015/504 of 11 March 2015 implementing Regulation (EU) No 167/2013 of the European Parliament and of the Council with regard to the administrative requirements for the approval and market surveillance of agricultural and forestry vehicles (OJ L 85, 28.3.2015, p. 1).

HAS ADOPTED THIS REGULATION:

Article 1

Implementing Regulation (EU) 2015/504 is amended as follows:

(1) Annex I is amended in accordance with Annex I to this Regulation;

(2) Annex II is amended in accordance with Annex II to this Regulation;

(3) Appendix 1 to Annex III is amended in accordance with Annex III to this Regulation;

(4) Annex IV is amended in accordance with Annex IV to this Regulation;

(5) Annex V is amended in accordance with Annex V to this Regulation;

(6) Annex VII is amended in accordance with Annex VI to this Regulation;

(7) Annex VIII is amended in accordance with Annex VII to this Regulation.

Article 2

This Regulation shall enter into force on the day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 7 September 2016.

For the Commission
The President
Jean-Claude JUNCKER

ANNEX I

Annex I to Implementing Regulation (EU) 2015/504 is amended as follows:

(1) in the list of appendices, the row relating to Appendix 8 is replaced by the following:

'8	Model information document relating to EU type-approval of a type of (or a type of a vehicle with regard to) the installation of rear-view mirrors as a system'	

(2) Part A is amended as follows:

(a) in point 1.1., the following point (j) is added:

'(j) For vehicles of categories T2, T3 and T4.3 equipped with foldable ROPS with an automatic locking system, a certificate of the manufacturer stating that the preliminary test has been done according to the test procedure set out in point 5.5. of Part B3 of Annex IX to Commission Delegated Regulation (EU) No 1322/2014 (*).

(*) 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).'

(b) in point 2., in the Explanatory notes relating to the information folder sheet, explanatory note (5) is amended as follows:

'(5) For engines indicate the information relative to the engine type or the engine family type, as applicable without the type-approval extension number.'

(3) Part B is amended as follows:

(a) in point 3.1., Table 1-1 is replaced by the following:

'Table 1-1

Lists of systems, components and separate technical units which may be subject to an EU type-approval

LIST I — Environmental and propulsion unit performance requirements

Appendix	System or component/separate technical unit (STU)	Commission Delegated Regulation (EU) 2015/96 (*) Annex number	As amended by and/or at the stage of implementation
1	System: installation of an engine/engine family	II	
2	System: external sound level	III	
3	Component/STU: engine/engine family	I	

LIST II — Vehicle functional safety requirements

Appendix	System or component/separate technical unit (STU)	Commission Delegated Regulation (EU) 2015/208 Annex number	As amended by and/or at the stage of implementation
4	System: driver information	X	

5	System: installation of lighting and light-signalling devices	XII	
6	System: electro-magnetic compatibility	XV	
7	System: installation of audible warning device(s)	XVI	
8	System: installation of rear-view mirrors	IX	
9	System: installation of crawler undercarriage	XXXIII	
10	STU: electro-magnetic compatibility of electrical / electronic sub-assemblies	XV	
11	Component/STU: ballast masses	XXIII	
12	Component/STU: lateral and/or rear protective structure	XXVI / XXVII	
13	Component: tyre	XXX	
14	Component/STU: mechanical coupling	XXXIV	

LIST III — Vehicle braking requirements

Appendix	System or component/separate technical unit (STU)	Commission Delegated Regulation (EU) 2015/68 (**) Annex number	As amended by and/or at the stage of implementation
15	System: braking	II	

LIST IV — Vehicle construction and general type-approval requirements

Appendix	System or component/separate technical unit (STU)	Commission Delegated Regulation (EU) No 1322/2014 Annex number	As amended by and/or at the stage of implementation
16	System: driver's exposure to noise level	XIII	
17	System: seat-belt anchorages	XVIII	
18	System: protection against hazardous substances	XXIX	
19	STU: roll-over protective structure (ROPS)	VI / VII / VIII / IX / X	

20	STU: falling objects protective structure (FOPS)	XI	
21	Component/STU: driver's seat	XIV	
22	Component/STU: safety belts	XIX	
23	STU: protection against penetrating objects (OPS)	XX	

(*) Commission Delegated Regulation (EU) 2015/96 of 1 October 2014 supplementing Regulation (EU) No 167/2013 of the European Parliament and of the Council as regards environmental and propulsion unit performance requirements of agricultural and forestry vehicles (OJ L 16, 23.1.2015, p. 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).'

(b) point 5 is amended as follows:

(i) entry 1.6.1.1. is deleted;

(ii) the following entry 1.6.3. is inserted:

'1.6.3. The vehicle identification number of the type begins with: .....';

(iii) entry 2.5.1. is replaced by the following:

'2.5.1. Type-approval of: engine type/engine family[(4)]';

(iv) entry 3.3. is replaced by the following:

'3.3. Axles and wheels:';

(v) entry 4.1.2.1.2. is replaced by the following:

'4.1.2.1.2. In the case of a rigid drawbar or centre-axle R- or S-category vehicle indicate the vertical load on the front coupling point (S): ..... kg';

(vi) entry 4.1.2.2. is replaced by the following:

'4.1.2.2. Mass(es) and tyre(s)

Tyre combination No	Axle No	Tyre dimension incl load capacity index & speed category symbol	Rolling radius(1) [mm]	Tyre Load rating per tyre [kg]	Maximum permissible mass per axle [kg] (*)	Maximum permissible mass of the vehicle [kg] (*)	Maximum permissible vertical load on the coupling point [kg] (*) (**) (***)	Track width [mm]	
								Minimum	Maximum
1	1	…		…	…	…	…	…	…
	2	…		…	…	…	…	…	…
	…	…		…	…	…	…	…	…
2	1	…		…	…	…	…	…	…
	2	…		…	…	…	…	…	…
	…	…		…	…	…	…	…	…
…	1	…		…	…	…	…	…	…

Tyre combination No	Axle No	Tyre dimension incl load capacity index & speed category symbol	Rolling radius(1) [mm]	Tyre Load rating per tyre [kg]	Maximum permissible mass per axle [kg] (*)	Maximum permissible mass of the vehicle [kg] (*)	Maximum permissible vertical load on the coupling point [kg] (*) (**) (***)	Track width [mm]	
								Minimum	Maximum
	2	…		…	…	…	…	…	…
	…	…		…	…	…	…	…	…

(*) According to the tyre specification.
(**) Load transmitted to the reference centre of the coupling under static conditions, irrespective to the coupling device; if the maximum permissible vertical load on the coupling point depending on the coupling is indicated in this table, expand the table at the right side and indicate the identification of the coupling device in the header of the column; for R- or S-category vehicles this column(s) concerns the rear coupling devices if there is such a device.
(***) Value to be provided only if the maximum permissible vertical load on the coupling point is lower than indicated in entries 38.3 and 38.4';

(vii) entry 4.1.2.4. is deleted;

(viii) entry 4.1.3. is replaced by the following:

'4.1.3. Technically permissible towable mass(es) for T- or C-category vehicles for each chassis/ braking configuration of the R- or S-category vehicle (for R- and S-category vehicles, indicate the maximum permissible load(s) on the rear coupling point):

R- and S category vehicle / Brake	Drawbar	Rigid drawbar	Centre-axle
Unbraked (*)	…. kg	…. kg	…. kg
Inertia-braked	…. kg	…. kg	…. kg
Hydraulic braked	…. kg	…. kg	…. kg
Pneumatic braked	…. kg	…. kg	…. kg

(*) Calculated using the partially laden condition defined by the tractor manufacturer in agreement with the technical service set out in point 3.1.1.2 of Annex II to Commission Delegated Regulation (EU) 2015/68.'

(ix) entry 4.1.4. is replaced by the following:

'4.1.4. Total technically permissible mass(es) of the tractor (T- or C-category vehicle) and towed vehicle (R- or S-category vehicle) combination for each chassis/braking configuration of the R- or S-category vehicle:

R- and S category vehicle / Brake	Drawbar	Rigid drawbar	Centre-axle
Unbraked	…. kg	…. kg	…. kg
Inertia-braked	…. kg	…. kg	…. kg
Hydraulic braked	…. kg	…. kg	…. kg
Pneumatic braked	…. kg	…. kg	…. kg';

(x) entries 4.1.5. to 4.1.5.3. are deleted;

(xi) entry 4.2.1.3. is replaced by the following:

'4.2.1.3. Height (in running order)[33]';

(xii) the following entries 4.2.1.3.1. and 4.2.1.3.2. are inserted after entry 4.2.1.3.:

'4.2.1.3.1. Maximum ..... mm

4.2.1.3.2. Minimum ..... mm';

(xiii) entry 5.1.2.2. is deleted;

(xiv) entry 5.6. is replaced by the following:

'5.6. Actual forward movement of powered wheels corresponding to one complete revolution of the wheel: ..... mm';

(xv) entries 6.6. and 6.7. are replaced by the following:

'6.6. Rated speed: ..... min^{-1}

6.7. Maximum torque speed: ..... min^{-1}';

(xvi) entry 6.18., including all its sub-entries, is replaced by the following:

'6.18. **Fuel feed for diesel engines**

6.18.1. *Feed pump*

6.18.1.1 Pressure[7] … kPa or characteristic diagram: .....

6.18.2. *Injection system*

6.18.2.1. Pump

6.18.2.1.1. Make(s): …

6.18.2.1.2. Type(s): …

6.18.2.1.3. Delivery: … and … mm^3[7] per stroke or cycle at full injection at pump speed of: ..... rpm (rated) and: ..... rpm (maximum torque) respectively, or characteristic diagram: .....

6.18.2.1.3.1. Method used: on engine/on pump bench[4]

6.18.2.2. Injection advance:

6.18.2.2.1. Injection advance curve[7]: .....

6.18.2.2.2. Timing[7]: …

6.18.2.3. Injection piping:

6.18.2.3.1. Length: … mm

6.18.2.3.2. Internal diameter: … mm

6.18.2.4. Injector(s)

6.18.2.4.1. Make(s) …

6.18.2.4.2. Type(s): …

6.18.2.4.3. Opening pressure[7]: ..... kPa, or characteristic diagram: .....

6.18.2.5. Governor

6.18.2.5.1. Make(s) …

6.18.2.5.2. Type(s): …

6.18.2.5.3. Speed at which cut-off starts under full load[7]: ..... min^{-1}

6.18.2.5.4. Maximum no-load speed[7]: ..... min^{-1}

6.18.2.5.5. Idling speed[7]: ..... min^{-1}

6.18.2.6. Cold-start system

6.18.2.6.1. Make(s): …

6.18.2.6.2. Type(s): …

6.18.2.6.3. Description: …';

(xvii) entry 6.19.4.2. is replaced by the following:

'6.19.3.2. Type(s): …';

(xviii) entry 7.1.1. is replaced by the following:

'7.1.1. Combustion cycle: positive ignition/compression ignition[4]';

(xix) entries 8.6. and 8.7. are replaced by the following:

'8.6. Rated speed: ..... min^{-1}

8.7. Maximum torque speed: ..... min^{-1}';

(xx) entry 8.12.2., including all its sub-entries, is replaced by the following:

'8.12.2. Air

8.12.2.1. Blower: yes/no(4)

8.12.2.1.1. Characteristics of the blower. .....

8.12.2.1.2. Drive ratio(s) (if applicable): .....';

(xxi) entry 8.17., including all its sub-entries, is replaced by the following:

'8.17. **Measures taken against air pollution**

8.17.1. Device for recycling crankcase gases: yes/no[4]

8.17.2. Additional anti-pollution devices (if any):

8.17.2.1. Catalytic converter: yes/no[4]

8.17.2.1.1. Make: .....

8.17.2.1.2. Type .....

8.17.2.1.3. Number of catalytic converters and elements .....

8.17.2.1.4. Dimensions and volume of the catalytic converter(s): .....

8.17.2.1.5. Type of catalytic action .....

8.17.2.1.6. Total charge of precious metals: .....

8.17.2.1.7. Relative concentration: .....

8.17.2.1.8. Substrate (structure and material): .....

8.17.2.1.9. Cell density: .....

8.17.2.1.10. Type of casing for the catalytic converter(s): .....

8.17.2.1.11. Location of the catalytic converter(s) (place(s) and maximum/minimum distance(s) from engine: .....

8.17.2.1.12. Normal operating range: ..... K

8.17.2.1.13. Consumable reagent (where appropriate) .....

8.17.2.1.13.1. Type and concentration of reagent needed for catalytic action: .....

8.17.2.1.13.2. Normal operational temperature range of reagent: ..... K

8.17.2.1.13.3. International standard (if applicable): .....

8.17.2.1.14. NO_x sensor: yes/no[4]

8.17.2.1.15. Oxygen sensor: yes/no[4]

8.17.2.1.15.1. Make: .....

8.17.2.1.15.2. Type .....

8.17.2.1.15.3. Location: .....

8.17.2.1.16. Air injection: yes/no[4]

8.17.2.1.16.1. Type: pulse air/air pump/other[4] (if other specify: .....)

8.17.2.1.17. EGR: yes/no[4]

8.17.2.1.17.1. Characteristics (cooled/uncooled, high pressure/low pressure, etc.): .....

8.17.2.1.18. Particulate trap: yes/no[4]

8.17.2.1.18.1. Dimensions and capacity of the particulate trap: .....

8.17.2.1.18.2. Type and design of the particulate trap: .....

8.17.2.1.18.3. Location (place(s) and maximum/minimum distance(s) from engine: .....

8.17.2.1.18.4. Method or system of regeneration, description and/or drawing: .....

8.17.2.1.18.5. Normal operating temperature range: ..... K and pressure range: .....kPa

8.17.2.1.19. Other systems: yes/no[4]

8.17.2.1.19.1. Description and operation: .....';

(xxii) entry 8.18., including all its sub-entries, is replaced by the following:

'8.18. **Fuel feed for diesel engines**

8.18.1. *Feed pump*

8.18.1.1 Pressure[7] ..... kPa or characteristic diagram: .....

8.18.2. *Injection system*

8.18.2.1. Pump

8.18.2.1.1. Make(s): …

8.18.2.1.2. Type(s): …

8.18.2.1.3. Delivery: … and …mm^3[7] per stroke or cycle at full injection at pump speed of: … rpm (rated) and: … rpm (maximum torque) respectively, or characteristic diagram: .....

8.18.2.1.3.1. Method used: on engine/on pump bench[4]

8.18.2.2. Injection advance:

8.18.2.2.1. Injection advance curve[7]: .....

8.18.2.2.2. Timing[7]: .....

8.18.2.3. Injection piping:

8.18.2.3.1. Length: … mm

8.18.2.3.2. Internal diameter: … mm

8.18.2.4. Injector(s)

8.18.2.4.1. Make(s) …

8.18.2.4.2. Type(s): …

8.18.2.4.3. Opening pressure[7]: … kPa, or characteristic diagram: .....

8.18.2.5. Governor

8.18.2.5.1. Make(s) …

8.18.2.5.2. Type(s): …

8.18.2.5.3. Speed at which cut-off starts under full load[7]: ..... min^{-1}

8.18.2.5.4. Maximum no-load speed[7]: ..... min^{-1}

8.18.2.5.5. Idling speed[7]: ..... min^{-1}

8.18.2.6. Cold-start system

8.18.2.6.1. Make(s): …

8.18.2.6.2. Type(s): …

8.18.2.6.3. Description: …';

(xxiii) entry 8.19. is replaced by the following:

'8.19. **Fuel feed for petrol engines**';

(xxiv) entry 9., including all its sub-entries, is replaced by the following:

'9. ENERGY STORAGE DEVICE(S)[11]

9.1. Description: battery/capacitor/flywheel/generator(4)

9.2. Identification number: .....

9.3. Kind of electrochemical couple: .....

9.4. Energy stored

9.4.1. For battery, voltage: ..... and capacity: ..... Ah in 2h

9.4.2. For capacitor: … J

9.4.3. For flywheel/generator[4]: … J

9.4.3.1. Flywheel moment of inertia: … kg m^2

9.4.3.1.1. Additional moment of inertia if no gear is engaged: … kg m^2

9.5. Charger: on-board/external/without[4]';

(xxv) entry 10.4.4.1. is replaced by the following:

'10.4.4.1. Exhaust noise-abatement device containing fibrous materials: yes/no[4]';

(xxvi) entry 11., including all its sub-entries, is replaced by the following:

'11. DRIVE-TRAIN AND CONTROL[13]

11.1. Brief description and schematic drawing of the vehicle drive-train and its control system (gear shift control, clutch control or any other element of drive-train):

11.2. **Transmission**

11.2.1. Brief description and schematic drawing of gear shift system(s) and its control: …

11.2.2. Diagram and or drawing of the transmission system: .....

11.2.3. Type of transmission: mechanical/hydraulic/electric/other[4] (if other specify .....)

11.2.4. Brief description of the electrical/electronic components (if any): .....

11.2.5. Location relative to the engine: .....

11.2.6. Method of control: .....

11.2.7. Transfer box: with/without[4]

11.2.8. Type of gear shift system(s)[24]: .....

11.3. **Clutch (if any)**

11.3.1. Brief description and schematic drawing of the clutch and its control system:

11.3.2. Maximum torque conversion: .....

11.4. **Gear ratios**

Gear	Internal gearbox ratios (ratios of engine to gearbox output shaft revolutions)	Internal transfer box ratios (ratios of engine to transfer box output shaft revolutions)	Final drive ratio(s) (ratio of gearbox output shaft to driven wheel revolutions)	Total gear ratios	Ratio (engine speed/vehicle speed) for manual transmission only
Maximum for CVT (*)					
1					
2					
3					
Minimum for CVT (*)					
Reverse					
1					
…					

(*) Continuously variable transmission

11.5. **Differential lock**

11.5.1. Differential lock: yes/no/optional[4]';

(xxvii) entry 22.3.1. is replaced by the following:

'22.3.1. Photographs, drawings and/or an exploded view of the interior fittings, showing the parts in the passenger compartment and the materials used (with the exception of interior rear view mirrors), arrangement of controls, seats and their rear parts, head restraints, roof and opening roof, doors and window winders and other non-specified fittings: .....';

(xxviii) entry 25.5.2. is replaced by the following:

'25.5.2. Rated voltage or air pressure: ..... V / kPa(4)';

(xxix) entry 28., including all its sub-entries, is replaced by the following:

'28. REAR REGISTRATION PLATE(S) SPACE

28.1. Location of registration plate(s) (indicate variants where necessary; drawings may be used as appropriate):

28.1.1. Height above road surface, upper edge: .....mm

28.1.2. Height above road surface, lower edge: .....mm

28.1.3. Distance of the centre line from the longitudinal median plane of the vehicle: ..... mm

28.1.4. Dimensions (length x width): .....mm x .....mm

28.1.5. Inclination of the plane to the vertical: .....degr.

28.1.6. Angle of visibility in the horizontal plane: .....degr.'

(xxx) entry 29., including all its sub-entries, is replaced by the following:

'29. BALLAST MASSES

29.1. Detailed technical description (including photographs or drawings with dimensions) of the ballast masses and how they are mounted on the tractor:

29.2. Number of sets of ballast masses: .....

29.2.1. Number of components on each set: Set 1: ..... Set 2: .....Set .....

29.3. Mass of the components on each set: Set 1: .....kg Set 2: .....kg Set .....: .....kg

29.3.1. Total mass of each set: Set 1: .....kg Set 2: .....kg Set .....: .....kg

29.4. Total mass of ballast masses: .....kg

29.4.1. Distribution of these masses among the axles: .....kg

29.5. Material(s) and method of construction: .....';

(xxxi) entry 38.5. is replaced by the following:

'38.5. Description of the mechanical coupling:

Type (according to Appendix 1 of Annex XXXIV to Commission Delegated Regulation (EU) 2015/208):	…
Make:	…
Manufacturer's type designation:	…
Maximum horizontal load/D-Value[4][44]:	..... kg/kN[4]
Towable mass (T) [4][44]:	..... tonnes
Maximum permissible vertical load on the coupling point (S)[44]:	… kg
Photographs and scale drawings of the coupling device. These drawings shall in particular show the required dimensions in detail as well as the measurements for mounting the device.	
Short technical description of the coupling device specifying the type of construction and the material used.	
Type of Test	Static/Dynamic [4]
(EU) type-approval mark or -number of — drawbar eyes, coupling heads or similar coupling devices that shall be attached to the mechanical coupling (in the case of hinged or rigid drawbars) — type-approval mark or –number of mechanical couplings that shall be attached to the ladder frame /trailer hitch support (if restricted to certain types):	…';

(xxxii) the following entry 39.2. is inserted:

'39.2. Maximum towable mass[16]: ..... kg';

(xxxiii) entry 43.1. is replaced by the following:

'43.1. Brief description of the braking system(s) installed on the vehicle[55]: .....';

(xxxiv) entry 43.3. is deleted;

(xxxv) entry 43.6., including all its sub-entries, is replaced by the following:

'43.6. **Towed vehicle braking devices**

43.6.1. Towed vehicle braking control system technology: Hydraulic / Pneumatic / Electric/None[4]

43.6.2. Towed vehicle-brake actuating device (description, characteristics): .....

43.6.3. Description of the connectors, couplings and safety devices (including drawings, sketches and the identification of any electronic parts): .....

43.6.4. Connections type: Single line/Two-lines/None[4]

43.6.4.1. Supply pressure Hydraulic: Single line: ..... kPa Two lines: ..... kPa

43.6.4.2. Supply pressure Pneumatic: Two lines: ..... kPa

43.6.5. Presence of ISO 7638:2003 connector[15]: yes/no[4]';

(xxxvi) before the heading 'E. Information on vehicle construction', the following entries are inserted:

'43.A. TOWED VEHICLE AXLE AND BRAKE INFORMATION DOCUMENT WITH RESPECT TO THE ALTERNATIVE TYPE I AND TYPE III PROCEDURE

43.A.1. General

43.A.1.1. Name and address of axle or vehicle manufacturer:

43.A.2. Axle data

43.A.2.1. Manufacturer (name and address): .....

43.A.2.2. Type/variant: .....

43.A.2.3. Axle identifier: ID1- .....

43.A.2.4. Test axle load (F_e): ..... daN

43.A.2.5. Wheel and brake data according to the following figures 1A and 1B .....

43.A.3. Brake

43.A.3.1. General information

43.A.3.1.1. Make:

43.A.3.1.2. Manufacturer (name and address):

43.A.3.1.3. Type of brake (e.g. drum / disc):

43.A.3.1.3.1. Variant (e.g. S-cam, single wedge etc.):

43.A.3.1.4. Brake identifier: ID2-

43.A.3.1.5. Brake data according to the figures 2A and 2B:

43.A.3.2. Drum brake data

43.A.3.2.1. Brake adjustment device (external/integrated): .....

43.A.3.2.2. Declared maximum brake input torque C_{max}: ..... Nm

43.A.3.2.3. Mechanical efficiency: η = ...

43.A.3.2.4. Declared brake input threshold torque C0,dec: ..... Nm

43.A.3.2.5. Effective length of the cam shaft: ..... mm

43.A.3.3. Brake drum

43.A.3.3.1. Max diameter of friction surface (wear limit) ..... mm

43.A.3.3.2. Base material: .....

43.A.3.3.3. Declared mass: ..... kg

43.A.3.3.4. Nominal mass: ..... kg

43.A.3.4. Brake lining

43.A.3.4.1. Manufacturer and address .....

43.A.3.4.2. Make .....

43.A.3.4.3. Type .....

43.A.3.4.4. Identification (type identification on lining) .....

43.A.3.4.5. Minimum thickness (wear limit) ..... mm

43.A.3.4.6. Method of attaching friction material to brake shoe: .....

43.A.3.4.6.1. ..... Worst case of attachment (in the case of more than one):

43.A.3.5. Disc brake data

43.A.3.5.1. Connection type to the axle (axial, radial, integrated, etc.): .....

43.A.3.5.2. Brake adjustment device (external/integrated): .....

43.A.3.5.3. Max. actuation stroke: ..... mm

43.A.3.5.4. Declared maximum input force Th_{Amax}: ..... daN

43.A.3.5.4.1 Cmax = ThAmax · l_e : ..... Nm

43.A.3.5.5. Friction radius: r_e = ... mm

43.A.3.5.6. Lever length: l_e = ... mm

43.A.3.5.7. Input/output ratio (l_e/e_e): i = ...

43.A.3.5.8. Mechanical efficiency: η = ...

43.A.3.5.9. Declared brake input threshold force $Th_{A0,dec}$: ..... N

43.A.3.5.9.1. $C_{0,dec}$ = $Th_{A0,dec}$ · l_e : ..... Nm

43.A.3.5.10. Minimum rotor thickness (wear limit): ..... mm

43.A.3.6. Brake disc data .....

43.A.3.6.1. Disc type description: .....

43.A.3.6.2. Connection/mounting to the hub: .....

43.A.3.6.3. Ventilation (yes/no): .....

43.A.3.6.4. Declared mass: ..... kg

43.A.3.6.5. Nominal mass: ..... kg

43.A.3.6.6. Declared external diameter: ..... mm

43.A.3.6.7. Minimum external diameter: ..... mm

43.A.3.6.8. Inner diameter of friction ring: ..... mm

43.A.3.6.9. Width of ventilation channel (if appl.): ..... mm

43.A.3.6.10. Base material: .....

43.A.3.7. Brake pad data .....

43.A.3.7.1. Manufacturer and address: .....

43.A.3.7.2. Make:

43.A.3.7.3. Type: .....

43.A.3.7.4. Identification (type identification on pad back plate): .....

43.A.3.7.5. Minimum thickness (wear limit): ..... mm

43.A.3.7.6. Method of attaching friction material to pad back plate: .....

43.A.3.7.6.1. Worst case of attachment (in the case of more than one): .....

Figure 1A

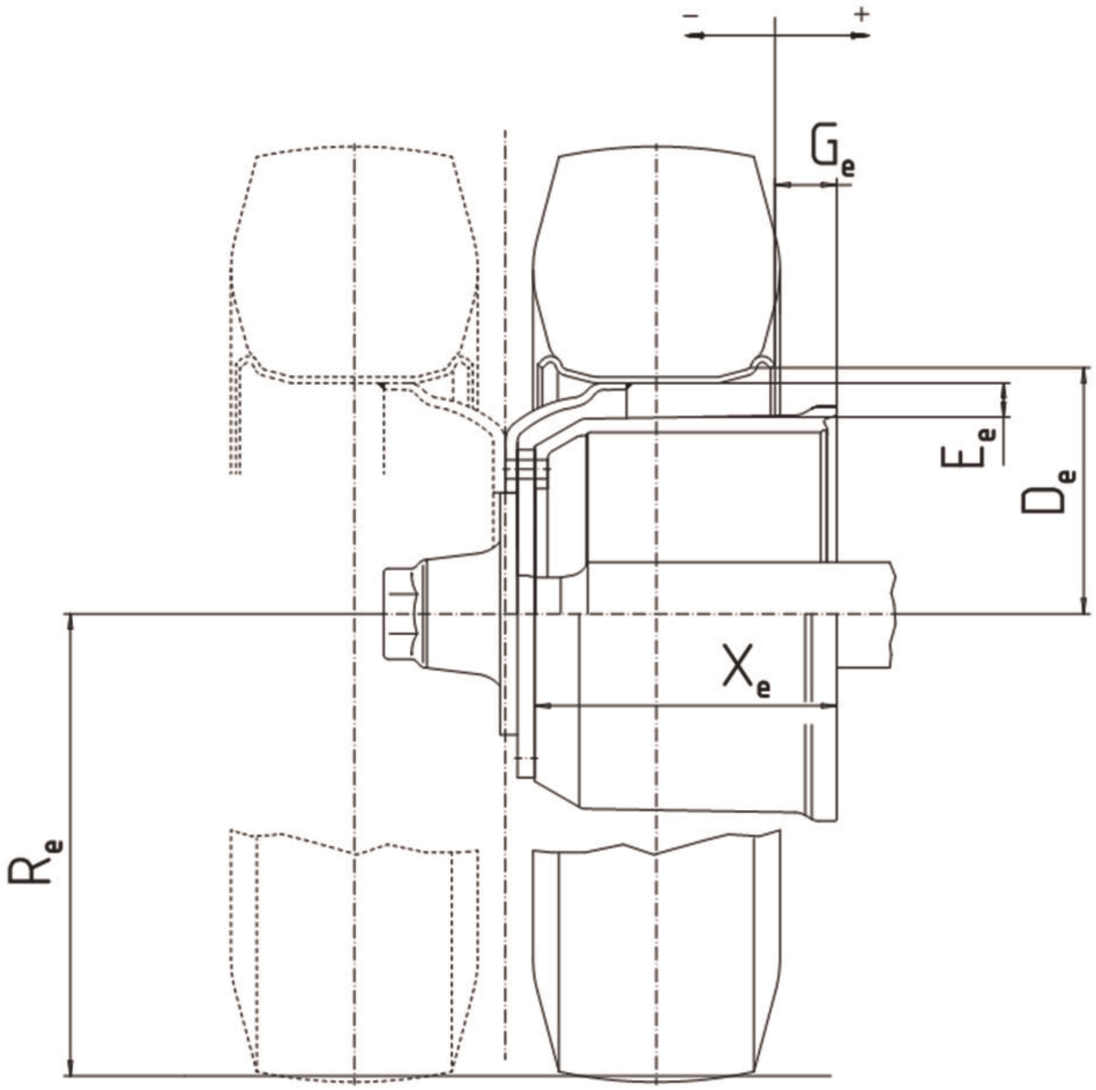


Figure 1B

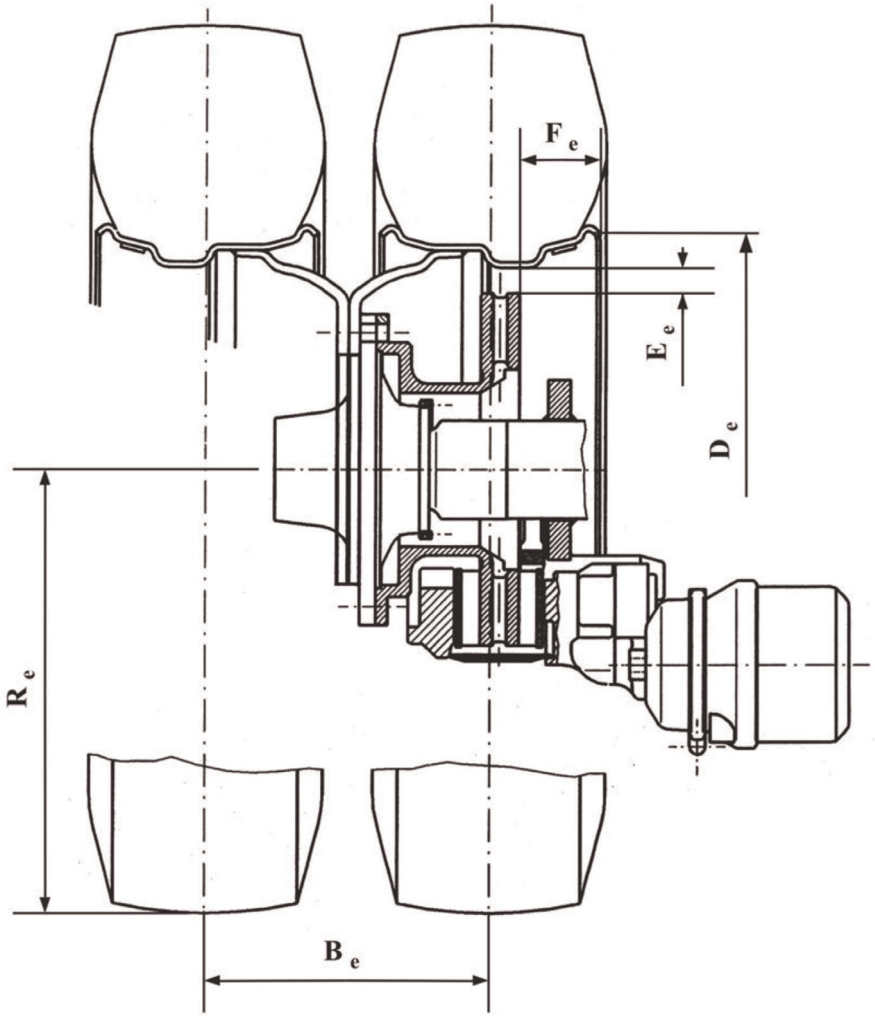


Figure 2A

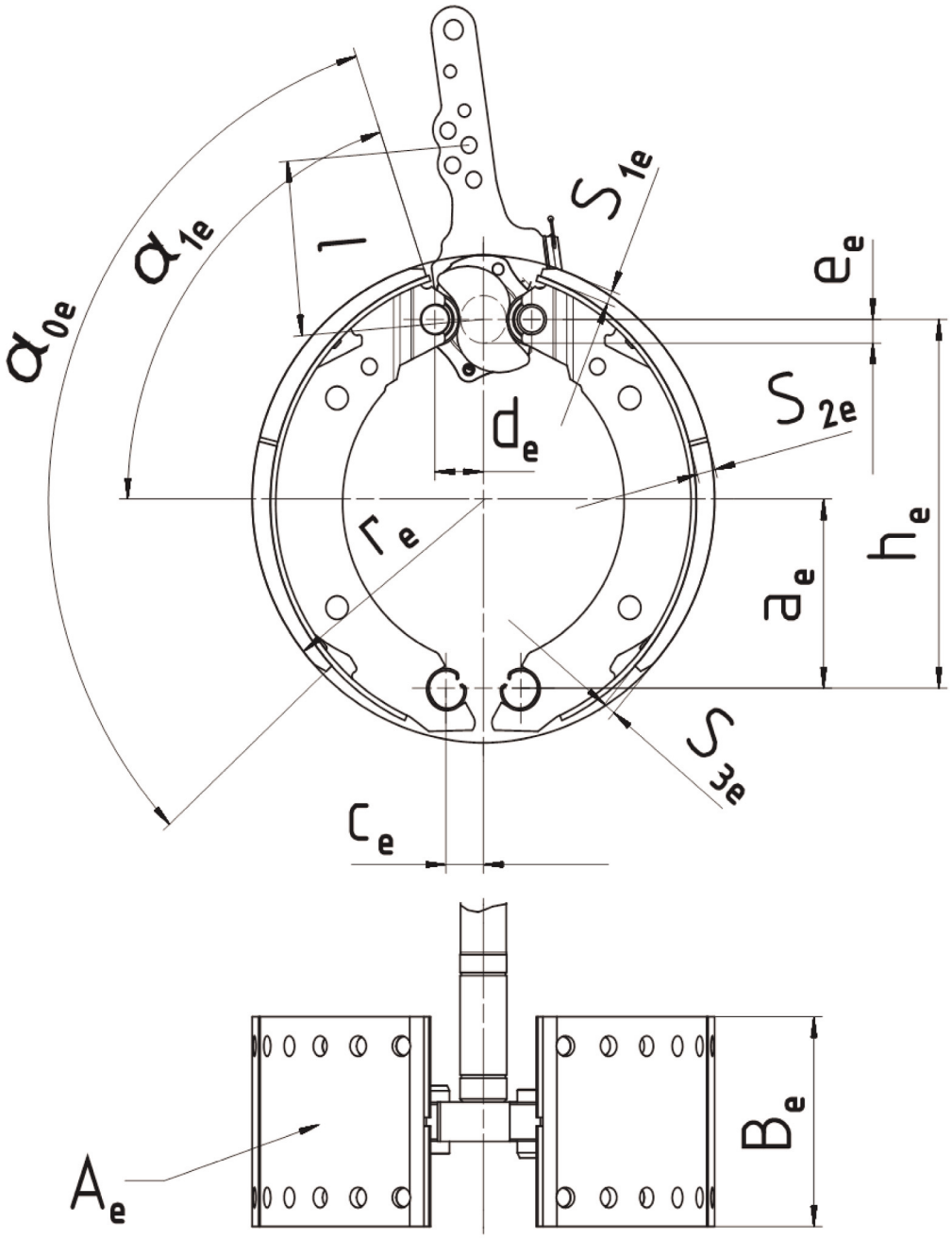
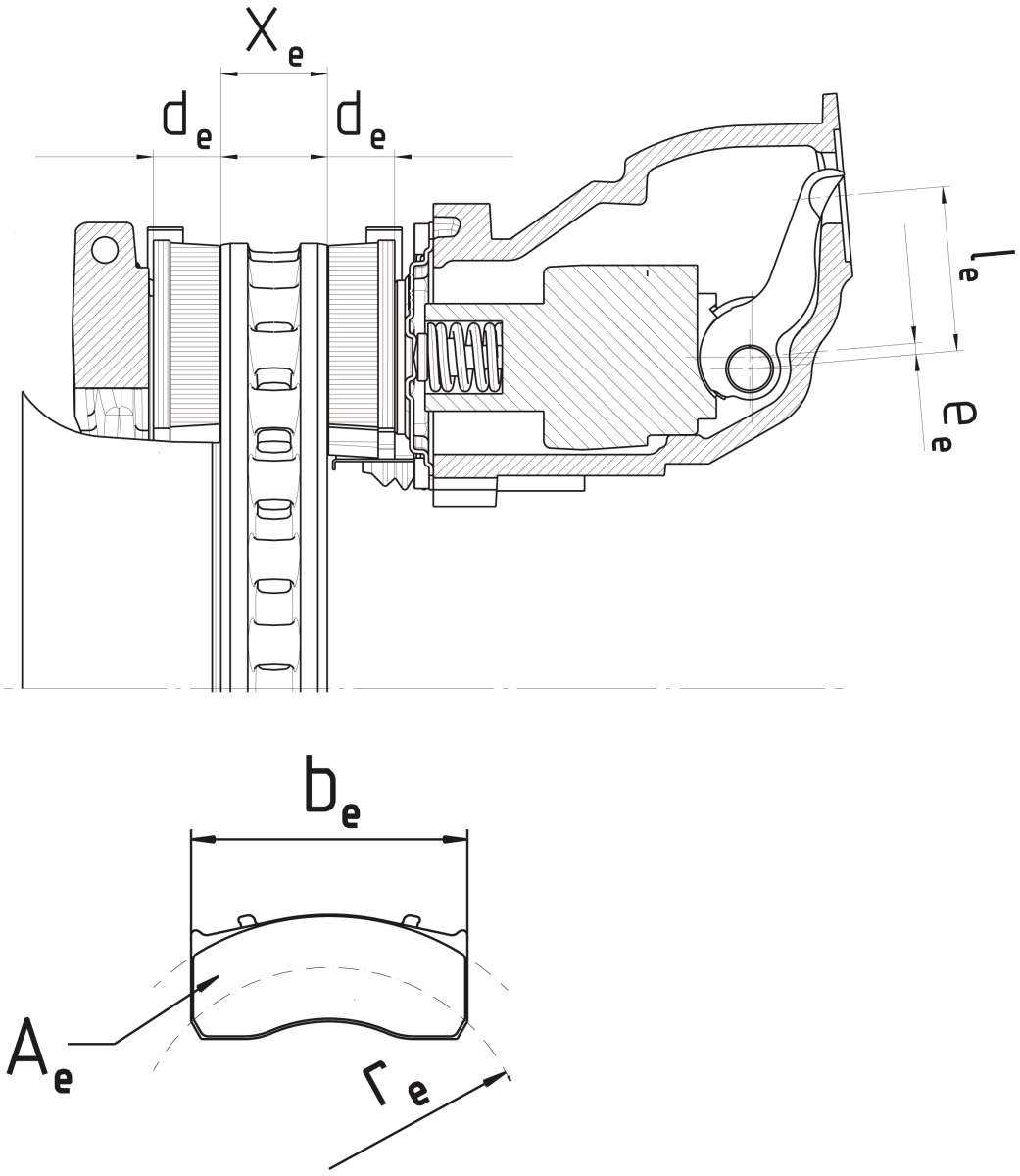


Figure 2B



xe (mm)	ae (mm)	he (mm)	ce (mm)	de (mm)	ee (mm)	α0e	α1e	be (mm)	re (mm)	Ae (cm2)	S1e (mm)	S2e (mm)	S3e (mm)’;

(xxxvii) entries 45.6.3.1. to 45.6.3.4. are replaced by the following:

'45.6.3.1. SAE J1939-13 (Serial control and communications vehicle network): yes/no[4]

45.6.3.2. ISO 11783-2 (Tractors and machinery for agriculture and forestry – Serial control and communications data network): yes/no[4]

45.6.3.3. ISO 15031-3 (Road vehicles – Communication between vehicle and external equipment for emissions-related diagnostics): yes/no[4]

45.6.3.4. ISO 13400-4 (Road vehicles – Diagnostic communication over Internet Protocol (DoIP))[4]: yes/no[4]';

(xxxviii) entry 46.2.1. is replaced by the following:

'46.2.1. In the case of roll bar: foldable/not foldable[4]';

(xxxix) entry 46.2.2., including all its sub-entries, is replaced by the following:

'46.2.2. In the case of foldable roll bar:

46.2.2.1. Folding operation: non-assisted / partially assisted / fully assisted[4]

46.2.2.2. In case of non-assisted or partially assisted folding operation:

46.2.2.2.1. Hand-operated foldable ROPS: with tools/ without tools[4]

46.2.2.2.2. Photographs and detailed technical drawings showing the grasping area and a lateral and top view of the accessible zones. Dimensions and maximum forces for actuating the ROPS must figure on the drawings: .....

46.2.2.3. In case of partially assisted or fully assisted folding operation, brief description of the assistance devices as well as of their control devices, if any, and their location: .....

46.2.2.4. Locking mechanism: manual/automatic[4]

46.2.2.4.1. For manual locking mechanisms, brief description of the locking mechanism and of its ergonomic design to avoid pinching or shearing hazards and to limit the force required for its operation: .....

46.2.2.4.2. For automatic locking mechanisms,

46.2.2.4.2.1. Brief description of the locking mechanism, its control devices, if any, and their location: .....

46.2.2.4.2.2. Manufacturers' certificate set out in Note 2 of point 5.5. of Part B3 of Annex IX to Commission Delegated Regulation (EU) No 1322/2014: yes/no[4]';

(xxxx) entry 49.4.1. is replaced by the following:

'49.4.1. Position of the driving seat: left/right/centre[4]';

(xxxxi) entry 49.5., including all its sub-entries, is replaced by the following:

'49.5. **Passenger seat(s)**

49.5.1. Number of passenger seats: .....

49.5.2. Location and arrangement[8]: .....

49.5.3. Dimensions of the passenger seat(s): .....

49.5.4. Main characteristics of the passenger seat(s): .....

49.5.5. Requirements under standard EN 15694:2009 (Agricultural and forestry tractors. Passenger seat. Requirements and test procedures) are met with relevant documentation included in the information document: yes/no/not applicable[4]

49.5.6. Requirements under standard EN 15997:2011 (All terrain vehicles (ATVs - Quads). Safety requirements and test methods) on passenger seats for ATV Type II vehicle are met with relevant documentation included in the information document: yes/no/not applicable[4]';

(xxxxii) entry 51.2., including all its sub-entries, is replaced by the following:

'51.2. **Main power take-off**

51.2.1. Position: front/rear/other[4] (if other specify: .....)

51.2.2. Revolutions per minute: ..... min^{-1}

51.2.2.1. Ratio of power take-off revolutions to that of the engine: .....

51.2.3. Optional: Power at the power take-off (PTO) at the rated speed(s) (in accordance with OECD Code 2[57] or ISO 789-1:1990 (Agricultural tractors – Test procedures – Part 1: Power tests for power take-off))

Rated speed PTO (min^{-1})	Corresponding engine speed (min^{-1})	Power (kW)
1-540	…	…
2-1 000	…	…
540E		
1 000E		

51.2.4. Power take-off guard (description, dimensions, drawings, photographs): .....';

(xxxxiii) entry 51.2.3. is replaced by the following:

'51.3.3. Optional: Power at the power take-off (PTO) at the rated speed(s) (in accordance with OECD Code 2[57] or ISO 789-1:1990 (Agricultural tractors – Test procedures – Part 1: Power tests for power take-off))

Rated speed PTO (min^{-1})	Corresponding engine speed (min^{-1})	Power (kW)
1-540	…	…
2-1 000	…	…'
540E		
1 000E		

(xxxxiv) entry 54.3. is replaced by the following:

'54.3. **Number and position of safety belts and seats on which they can be used, please fill out table below:**

Safety belt configuration and associated information

			Complete EU type-approval mark / ECE type-approval mark	Variant, if applicable	Belt adjustment device for height (indicate yes/no/ optional)
Driver's seat		L			
		C			
		R			

			Complete EU type-approval mark / ECE type-approval mark	Variant, if applicable	Belt adjustment device for height (indicate yes/no/ optional)
Passenger seat 1		L			
		C			
		R			
Passenger seat …		L			
		C			
		R			

L = left, C = centre, R = right';

(xxxxv) entry 57., including all its sub-entries, is replaced by the following:

'57. DRIVER-OPERATED CONTROL DEVICES INCLUDING IDENTIFICATION OF CONTROL DEVICES, TELL-TALES AND INDICATORS

57.1. Photographs and/or drawings of the arrangement of symbols and controls, tell-tales and indicators:

57.2. **Controls, tell-tales and indicators for which, when fitted, identification is mandatory, and symbols to be used for that purpose**

Symbol No	Device	Control / indicator available (*)	Identified by symbol (*)	Where (**)	Tell-tale available (*)	Identified by symbol (*)	Where (**)
1	Dipped-beam head lamps						
2	Main-beam head lamps						
3	Position (side) lamps						
4	Front fog lamps						
5	Rear fog lamp						
6	Headlamp levelling device						
7	Parking lamps						
8	Direction indicators						
9	Hazard warning						
10	Windscreen wiper						
11	Windscreen washer						
12	Windscreen wiper and washer						

Symbol No	Device	Control / indicator avail-able (*)	Identified by symbol (*)	Where (**)	Tell-tale avail-able (*)	Identified by symbol (*)	Where (**)
13	Headlamp cleaning device						
14	Windscreen demisting and defrosting						
15	Rear window demisting and defrosting						
16	Ventilating fan						
17	Diesel pre-heat						
18	Choke						
19	Brake failure						
20	Fuel level						
21	Battery charging condition						
22	Engine coolant temperature						
23	Malfunction indicator light (MI)						

(*) x = yes
– = no or not separately available
o = optional.
(**) d = directly on control, indicator or tell-tale
c = in close vicinity.

57.3. **Controls, tell-tales and indicators for which, when fitted, identification is optional, and symbols which shall be used if they are to be identified**

Symbol No	Device	Control / indicator avail-able (*)	Identified by symbol (*)	Where (**)	Tell-tale avail-able (*)	Identified by symbol (*)	Where (**)
1	Parking brake						
2	Rear window wiper						
3	Rear window washer						

Symbol No	Device	Control / indicator avail-able (*)	Identified by symbol (*)	Where (**)	Tell-tale avail-able (*)	Identified by symbol (*)	Where (**)
4	Rear window wiper and washer						
5	Intermittent wind-screen wiper						
6	Audible warning device						
7	Hood						
8	Seat belt						
9	Engine oil pressure						
10	Unleaded petrol						
11	…						
12	….						

(*) x = yes
– = no or not separately available
o = optional.
(**) d = directly on control, indicator or tell-tale
c = in close vicinity.

57.4. Brief description and schematic drawing of the locations, displacement, methods of operation and colour coding of the various control devices in the interior of the vehicle and showing for tractors without enclosed cab, how the accessibility to internal control devices from the ground has been avoided: .....

57.5. Brief description and schematic drawing of the locations, displacement, methods of operation and colour coding of the various control devices in the exterior of the vehicle and indicating the front and the rear hazard zones in accordance with Appendix 1 of Annex XXIII to Commission Delegated Regulation (EU) No 1322/2014: .....

57.6. Requirements under Annexes A and C of standard ISO 15077:2008 (Tractors and self-propelled machinery for agriculture – Operator controls – Actuating forces, displacement, location and method of operation) are met with relevant documentation included in the information document: yes/no[4]

57.7. Requirements under paragraph 4.5.3 of standard ISO 4254-1:2013 (Agricultural machinery – Safety – Part 1: General requirements), with the exception of fingertip operation control devices, are met with relevant documentation included in the information document: yes/no[4]

57.8. Requirements under standard EN 15997:2011 (All terrain vehicles (ATVs - Quads). Safety requirements and test methods) on throttle control and manual clutch control are met with relevant documentation included in the information document: yes/no/not applicable[4]

57.9. For vehicles of T- and C-category, requirements under standard ISO 10975:2009 (Tractors and machinery for agriculture – Auto-guidance systems for operator-controlled tractors and self-propelled machines – Safety requirements) are met with relevant documentation included in the information document: yes/no/not applicable[4]';

(c) Appendix 1 is amended as follows:

(i) entry 2.5.1. is replaced by the following:

'2.5.1. Type-approval of: engine type/engine family[4]';

(ii) entry 5.1.2.2. is deleted;

(iii) entries 6.6. and 6.7. are replaced by the following:

'6.6. Rated speed: ..... min^{-1}

6.7. Maximum torque speed: ..... min^{-1}';

(iv) entry 6.18., including all its sub-entries, is replaced by the following:

'6.18. **Fuel feed for diesel engines**

6.18.1. *Feed pump*

6.18.1.1 Pressure[7] ..... kPa or characteristic diagram: .....

6.18.2. *Injection system*

6.18.2.1. Pump

6.18.2.1.1. Make(s): …

6.18.2.1.2. Type(s): …

6.18.2.1.3. Delivery: … and ..... mm^3[7] per stroke or cycle at full injection at pump speed of: ..... rpm (rated) and: … rpm (maximum torque) respectively, or characteristic diagram: .....

6.18.2.1.3.1. Method used: on engine/on pump bench[4]

6.18.2.2. Injection advance:

6.18.2.2.1. Injection advance curve[7]: .....

6.18.2.2.2. Timing[7]: .....

6.18.2.3. Injection piping:

6.18.2.3.1. Length: … mm

6.18.2.3.2. Internal diameter: … mm

6.18.2.4. Injector(s)

6.18.2.4.1. Make(s) …

6.18.2.4.2. Type(s): …

6.18.2.4.3. Opening pressure[7]: … kPa, or characteristic diagram: .....

6.18.2.5. Governor

6.18.2.5.1. Make(s) …

6.18.2.5.2. Type(s): …

6.18.2.5.3. Speed at which cut-off starts under full load[7]: ..... min^{-1}

6.18.2.5.4. Maximum no-load speed[7]: ..... min^{-1}

6.18.2.5.5. Idling speed[7]: ..... min^{-1}

6.18.2.6. Cold-start system

6.18.2.6.1. Make(s): …

6.18.2.6.2. Type(s): …

6.18.2.6.3. Description: …';

(v) entry 7.1.1. is replaced by the following:

'7.1.1. Combustion cycle: positive ignition/compression ignition[4]';

(vi) entries 8.6. and 8.7. are replaced by the following:

'8.6. Rated speed: ..... min^{-1}

8.7. Maximum torque speed: ..... min^{-1}';

(vii) entry 8.12.2., including all its sub-entries, is replaced by the following:

'8.12.2. Air

8.12.2.1. Blower: yes/no[4]

8.12.2.1.1. Characteristics of the blower. .....

8.12.2.1.2. Drive ratio(s) (if applicable): .....';

(viii) entry 8.17., including all its sub-entries, is replaced by the following:

'8.17. **Measures taken against air pollution**

8.17.1. Device for recycling crankcase gases: yes/no[4]

8.17.2. Additional anti-pollution devices (if any):

8.17.2.1. Catalytic converter: yes/no[4]

8.17.2.1.1. Make: .....

8.17.2.1.2. Type .....

8.17.2.1.3. Number of catalytic converters and elements .....

8.17.2.1.4. Dimensions and volume of the catalytic converter(s): .....

8.17.2.1.5. Type of catalytic action .....

8.17.2.1.6. Total charge of precious metals: .....

8.17.2.1.7. Relative concentration: .....

8.17.2.1.8. Substrate (structure and material): .....

8.17.2.1.9. Cell density: .....

8.17.2.1.10. Type of casing for the catalytic converter(s): .....

8.17.2.1.11. Location of the catalytic converter(s) (place(s) and maximum/minimum distance(s) from engine: .....

8.17.2.1.12. Normal operating range: .....K

8.17.2.1.13. Consumable reagent (where appropriate) .....

8.17.2.1.13.1. Type and concentration of reagent needed for catalytic action: .....

8.17.2.1.13.2. Normal operational temperature range of reagent: ..... K

8.17.2.1.13.3. International standard (if applicable): .....

8.17.2.1.14. NOx sensor: yes/no[4]

8.17.2.1.15. Oxygen sensor: yes/no[4]

8.17.2.1.15.1. Make: .....

8.17.2.1.15.2. Type .....

8.17.2.1.15.3. Location: .....

8.17.2.1.16. Air injection: yes/no[4]

8.17.2.1.16.1. Type: pulse air/air pump/other(4) (if other specify: .....)

8.17.2.1.17. EGR: yes/no[4]

8.17.2.1.17.1. Characteristics (cooled/uncooled, high pressure/low pressure, etc.): .....

8.17.2.1.18. Particulate trap: yes/no[4]

8.17.2.1.18.1. Dimensions and capacity of the particulate trap: .....

8.17.2.1.18.2. Type and design of the particulate trap: .....

8.17.2.1.18.3. Location (place(s) and maximum/minimum distance(s) from engine: .....

8.17.2.1.18.4. Method or system of regeneration, description and/or drawing: .....

8.17.2.1.18.5. Normal operating temperature range: ..... K and pressure range: ..... kPa

8.17.2.1.19. Other systems: yes/no[4]

8.17.2.1.19.1. Description and operation:..... .'

(ix) entry 8.18., including all its sub-entries, is replaced by the following:

'8.18. **Fuel feed for diesel engines**

8.18.1. *Feed pump*

8.18.1.1 Pressure[7] ..... kPa or characteristic diagram: .....

8.18.2. *Injection system*

8.18.2.1. Pump

8.18.2.1.1. Make(s): .....

8.18.2.1.2. Type(s): .....

8.18.2.1.3. Delivery: ..... and ..... mm^3[7] per stroke or cycle at full injection at pump speed of: ..... rpm (rated) and: ..... rpm (maximum torque) respectively, or characteristic diagram: .....

8.18.2.1.3.1. Method used: on engine/on pump bench[4]

8.18.2.2. Injection advance:

8.18.2.2.1. Injection advance curve[7]: .....

8.18.2.2.2. Timing[7]: .....

8.18.2.3. Injection piping:

8.18.2.3.1. Length: ..... mm

8.18.2.3.2. Internal diameter: ..... mm

8.18.2.4. Injector(s)

8.18.2.4.1. Make(s) .....

8.18.2.4.2. Type(s): .....

8.18.2.4.3. Opening pressure[7]: ..... kPa, or characteristic diagram: .....

8.18.2.5. Governor

8.18.2.5.1. Make(s) .....

8.18.2.5.2. Type(s): .....

8.18.2.5.3. Speed at which cut-off starts under full load[7]: ..... min^{-1}

8.18.2.5.4. Maximum no-load speed[7]: ..... min^{-1}

8.18.2.5.5. Idling speed[7]: ..... min^{-1}

8.18.2.6. Cold-start system

8.18.2.6.1. Make(s): .....

8.18.2.6.2. Type(s): .....

8.18.2.6.3. Description: .....';

(x) entry 8.19. is replaced by the following:

'8.19. **Fuel feed for petrol engines**';

(d) Appendix 2 is amended as follows:

(i) entry 2.5.1. is replaced by the following:

'2.5.1. Type-approval of: engine type/engine family[4]';

(ii) entry 5.1.2.2. is deleted;

(iii) entry 10.4.4.1. is replaced by the following:

'10.4.4.1. Exhaust noise-abatement device containing fibrous materials: yes/no[4]';

(e) Appendix 3 is amended as follows:

(i) the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(ii) entry 2.5.1. is replaced by the following:

'2.5.1. Type-approval of: engine type/engine family[4]';

(iii) entries 6.6. and 6.7. are replaced by the following:

'6.6. Rated speed: ..... min^{-1}

6.7. Maximum torque speed: ..... min^{-1}';

(iv) entry 6.18., including all its sub-entries, is replaced by the following:

'6.18. **Fuel feed for diesel engines**

6.18.1. *Feed pump*

6.18.1.1 Pressure[7] … kPa or characteristic diagram: .....

6.18.2. *Injection system*

6.18.2.1. Pump

6.18.2.1.1. Make(s): …

6.18.2.1.2. Type(s): …

6.18.2.1.3. Delivery: … and ..... mm^3[7] per stroke or cycle at full injection at pump speed of: … rpm (rated) and: ..... rpm (maximum torque) respectively, or characteristic diagram: .....

6.18.2.1.3.1. Method used: on engine/on pump bench[4]

6.18.2.2. Injection advance:

6.18.2.2.1. Injection advance curve[7]: .....

6.18.2.2.2. Timing[7]: .....

6.18.2.3. Injection piping:

6.18.2.3.1. Length: … mm

6.18.2.3.2. Internal diameter: … mm

6.18.2.4. Injector(s)

6.18.2.4.1. Make(s) …

6.18.2.4.2. Type(s): …

6.18.2.4.3. Opening pressure[7]: … kPa, or characteristic diagram: .....

6.18.2.5. Governor

6.18.2.5.1. Make(s) …

6.18.2.5.2. Type(s): …

6.18.2.5.3. Speed at which cut-off starts under full load[7]: ..... min^{-1}

6.18.2.5.4. Maximum no-load speed[7]: ..... min^{-1}

6.18.2.5.5. Idling speed[7]: ..... min^{-1}

6.18.2.6. Cold-start system

6.18.2.6.1. Make(s): …

6.18.2.6.2. Type(s): …

6.18.2.6.3. Description: …';

(v) entry 6.19.4.2. is replaced by the following:

'6.19.3.2. Type(s): .....';

(vi) entry 7.1.1. is replaced by the following:

'7.1.1. Combustion cycle: positive ignition/compression ignition[4]';

(vii) entries 8.6. and 8.7. are replaced by the following:

'8.6. Rated speed: ..... min^{-1}

8.7. Maximum torque speed: ..... min^{-1}';

(viii) entry 8.12.2., including all its sub-entries, is replaced by the following:

'8.12.2. Air

8.12.2.1. Blower: yes/no[4]

8.12.2.1.1. Characteristics of the blower. .....

8.12.2.1.2. Drive ratio(s) (if applicable): .....';

(ix) entry 8.17., including all its sub-entries, is replaced by the following:

'8.17. **Measures taken against air pollution**

8.17.1. Device for recycling crankcase gases: yes/no[4]

8.17.2. Additional anti-pollution devices (if any):

8.17.2.1. Catalytic converter: yes/no[4]

8.17.2.1.1. Make: .....

8.17.2.1.2. Type .....

8.17.2.1.3. Number of catalytic converters and elements .....

8.17.2.1.4. Dimensions and volume of the catalytic converter(s): .....

8.17.2.1.5. Type of catalytic action .....

8.17.2.1.6. Total charge of precious metals: .....

8.17.2.1.7. Relative concentration: .....

8.17.2.1.8. Substrate (structure and material): .....

8.17.2.1.9. Cell density: .....

8.17.2.1.10. Type of casing for the catalytic converter(s): .....

8.17.2.1.11. Location of the catalytic converter(s) (place(s) and maximum/minimum distance(s) from engine: .....

8.17.2.1.12. Normal operating range: .....K

8.17.2.1.13. Consumable reagent (where appropriate) .....

8.17.2.1.13.1. Type and concentration of reagent needed for catalytic action: .....

8.17.2.1.13.2. Normal operational temperature range of reagent: ..... K

8.17.2.1.13.3. International standard (if applicable): .....

8.17.2.1.14. NO_x sensor: yes/no[4]

8.17.2.1.15. Oxygen sensor: yes/no[4]

8.17.2.1.15.1. Make: .....

8.17.2.1.15.2. Type .....

8.17.2.1.15.3. Location: .....

8.17.2.1.16. Air injection: yes/no[4]

8.17.2.1.16.1. Type: pulse air/air pump/other[4] (if other specify: .....)

8.17.2.1.17. EGR: yes/no(4)

8.17.2.1.17.1. Characteristics (cooled/uncooled, high pressure/low pressure, etc.): .....

8.17.2.1.18. Particulate trap: yes/no[4]

8.17.2.1.18.1. Dimensions and capacity of the particulate trap: .....

8.17.2.1.18.2. Type and design of the particulate trap: .....

8.17.2.1.18.3. Location (place(s) and maximum/minimum distance(s) from engine: .....

8.17.2.1.18.4. Method or system of regeneration, description and/or drawing: .....

8.17.2.1.18.5. Normal operating temperature range: ..... K and pressure range: .....kPa

8.17.2.1.19. Other systems: yes/no[4]

8.17.2.1.19.1. Description and operation: .....';

(x) entry 8.18., including all its sub-entries, is replaced by the following:

'8.18. **Fuel feed for diesel engines**

8.18.1. *Feed pump*

8.18.1.1 Pressure[7] ..... kPa or characteristic diagram: .....

8.18.2. *Injection system*

8.18.2.1. Pump

8.18.2.1.1. Make(s): .....

8.18.2.1.2. Type(s): .....

8.18.2.1.3. Delivery: ... and ... mm^3[7] per stroke or cycle at full injection at pump speed of: ... rpm (rated) and: ..... rpm (maximum torque) respectively, or characteristic diagram: .....

8.18.2.1.3.1. Method used: on engine/on pump bench[4]

8.18.2.2. Injection advance:

8.18.2.2.1. Injection advance curve[7]: .....

8.18.2.2.2. Timing[7]: .....

8.18.2.3. Injection piping:

8.18.2.3.1. Length: ..... mm

8.18.2.3.2. Internal diameter: ..... mm

8.18.2.4. Injector(s)

8.18.2.4.1. Make(s) .....

8.18.2.4.2. Type(s): .....

8.18.2.4.3. Opening pressure[7]: ..... kPa, or characteristic diagram: .....

8.18.2.5. Governor

8.18.2.5.1. Make(s) .....

8.18.2.5.2. Type(s): .....

8.18.2.5.3. Speed at which cut-off starts under full load[7]: ..... min^{-1}

8.18.2.5.4. Maximum no-load speed[7]: ..... min^{-1}

8.18.2.5.5. Idling speed[7]: ..... min^{-1}

8.18.2.6. Cold-start system

8.18.2.6.1. Make(s): .....

8.18.2.6.2. Type(s): .....

8.18.2.6.3. Description: .....';

(xi) entry 8.19. is replaced by the following:

'8.19. **Fuel feed for petrol engines**';

(f) in Appendix 7 entry 25.5.2. is replaced by the following:

'25.5.2. Rated voltage or air pressure: ..... V / kPa[4]';

(g) in Appendix 8, the title is replaced by the following:

'*Appendix 8*

Model information document relating to EU type-approval of a type of (or a type of a vehicle with regard to) the installation of rear-view mirrors as a system'

(h) Appendix 9 is amended as follows:

(i) entry 3.3. is replaced by the following:

'3.3. Axles and wheels:';

(ii) entry 4.1.2.1.2. is replaced by the following:

'4.1.2.1.2. In the case of a rigid drawbar or centre-axle R- or S-category vehicle indicate the vertical load on the front coupling point (S): ..... kg';

(iii) entries 4.1.2.2. and 4.1.2.4. are deleted;

(iv) entry 4.1.3. is replaced by the following:

'4.1.3. Technically permissible towable mass(es) for T- or C-category vehicles for each chassis/ braking configuration of the R- or S-category vehicle (for R- and S-category vehicles, indicate the maximum permissible load(s) on the rear coupling point):

R- and S category vehicle / Brake	Drawbar	Rigid drawbar	Centre-axle
Unbraked (*)	…. kg	…. kg	…. kg
Inertia-braked	…. kg	…. kg	…. kg
Hydraulic braked	…. kg	…. kg	…. kg
Pneumatic braked	…. kg	…. kg	…. kg

(*) Calculated using the partially laden condition defined by the tractor manufacturer in agreement with the technical service set out in point 3.1.1.2 of Annex II to Commission Delegated Regulation (EU) 2015/68.'

(v) entry 4.1.4. is replaced by the following:

'4.1.4. Total technically permissible mass(es) of the tractor (T- or C-category vehicle) and towed vehicle (R- or S-category vehicle) combination for each chassis/braking configuration of the R- or S-category vehicle:

R- and S category vehicle / Brake	Drawbar	Rigid drawbar	Centre-axle
Unbraked	…. kg	…. kg	…. kg
Inertia-braked	…. kg	…. kg	…. kg
Hydraulic braked	…. kg	…. kg	…. kg
Pneumatic braked	…. kg	…. kg	…. kg';

(vi) entries 4.1.5. to 4.1.5.3. are deleted;

(i) Appendix 10 is amended as follows:

(i) the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(ii) entry 24.1. is replaced by the following:

'24.1. Schedule describing all projected combinations of relevant vehicle electrical/electronic systems or ESAs, body styles[60], variations in body material , general wiring arrangements, engine variations, left-hand/right-hand drive versions and wheelbase versions:.....';

(j) Appendix 11 is amended as follows:

(i) the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(ii) entry 29., including all its sub-entries, is replaced by the following:

'29. BALLAST MASSES

29.1. Detailed technical description (including photographs or drawings with dimensions) of the ballast masses and how they are mounted on the tractor:

29.2. Number of sets of ballast masses: .....

29.2.1. Number of components on each set: Set 1: ..... Set 2: ..... Set .....: .....

29.3. Mass of the components on each set: Set 1: .....kg Set 2: .....kg Set ..... kg

29.3.1. Total mass of each set: Set 1: .....kg ..... Set 2: ..... kg Set ..... kg

29.4. Total mass of ballast masses: .....kg

29.4.1. Distribution of these masses among the axles: ..... kg

29.5. Material(s) and method of construction: .....';

(k) Appendix 12 is amended as follows:

(i) the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(l) Appendix 13 is amended as follows:

(i) the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(m) Appendix 14 is amended as follows:

(i) the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(ii) entry 38.1. is replaced by the following:

'38.1. Photographs and dimensional drawings of the mechanical coupling, its installation on the vehicle and its coupling with the device installed on the towed vehicle: .....';

(iii) entry 38.5. is replaced by the following:

'38.5. Description of the mechanical coupling:

Type (according to Appendix 1 of Annex XXXIV to Commission Delegated Regulation (EU) 2015/208):	…
Make:	…
Manufacturer's type designation:	…
Maximum horizontal load/D-Value[4][44]:	..... kg/kN[4]
Towable mass (T) [4][44]:	..... tonnes
Maximum permissible vertical load on the coupling point (S)[44]:	… kg

Photographs and scale drawings of the coupling device. These drawings shall in particular show the required dimensions in detail as well as the measurements for mounting the device.	
Short technical description of the coupling device specifying the type of construction and the material used.	
Type of Test	Static/Dynamic [4]
(EU) type-approval mark or -number of — drawbar eyes, coupling heads or similar coupling devices that shall be attached to the mechanical coupling (in the case of hinged or rigid drawbars) — type-approval mark or –number of mechanical couplings that shall be attached to the ladder frame /trailer hitch support (if restricted to certain types):';	…';

(n) Appendix 15 is amended as follows:

(i) entry 3.3. is replaced by the following:

'3.3. Axles and wheels:';

(ii) entry 4.1.2.1.2. is replaced by the following:

'4.1.2.1.2. In the case of a rigid drawbar or centre-axle R- or S-category vehicle indicate the vertical load on the front coupling point (S): ..... kg';

(iii) entry 4.1.2.4. is deleted;

(iv) entry 4.1.3. is replaced by the following:

'4.1.3. Technically permissible towable mass(es) for T- or C-category vehicles for each chassis/ braking configuration of the R- or S-category vehicle (for R- and S-category vehicles, indicate the maximum permissible load(s) on the rear coupling point):

R- and S category vehicle / Brake	Drawbar	Rigid drawbar	Centre-axle
Unbraked (*)	…. kg	…. kg	…. kg
Inertia-braked	…. kg	…. kg	…. kg
Hydraulic braked	…. kg	…. kg	…. kg
Pneumatic braked	…. kg	…. kg	…. kg

(*) Calculated using the partially laden condition defined by the tractor manufacturer in agreement with the technical service set out in point 3.1.1.2 of Annex II to Commission Delegated Regulation (EU) 2015/68.'

(v) entry 4.1.4. is replaced by the following:

'4.1.4. Total technically permissible mass(es) of the tractor (T- or C-category vehicle) and towed vehicle (R- or S-category vehicle) combination for each chassis/braking configuration of the R- or S-category vehicle:

R- and S category vehicle / Brake	Drawbar	Rigid drawbar	Centre-axle
Unbraked	…. kg	…. kg	…. kg
Inertia-braked	…. kg	…. kg	…. kg
Hydraulic braked	…. kg	…. kg	…. kg
Pneumatic braked	…. kg	…. kg	…. kg';

(vi) entries 4.1.5. to 4.1.5.3. are deleted;

(vii) entry 5.1.2.2. is deleted;

(viii) entries 6.6. and 6.7. are replaced by the following:

'6.6. Rated speed: ..... min^{-1}

6.7. Maximum torque speed: ..... min^{-1}';

(ix) the following entries 7., 7.1. and 7.1.1. are inserted:

'7. ESSENTIAL CHARACTERISTICS OF THE ENGINE FAMILY

7.1. Common parameters(5 6)

7.1.1. Combustion cycle: positive ignition/compression ignition(4)';

(x) entry 9., including all its sub-entries, is replaced by the following:

'9. ENERGY STORAGE DEVICE(S)(11)

9.1. Description: battery/capacitor/flywheel/generator(4)

9.2. Identification number: .....

9.3. Kind of electrochemical couple: .....

9.4. Energy stored

9.4.1. For battery, voltage: ..... and capacity: ..... Ah in 2h

9.4.2. For capacitor: ..... J

9.4.3. For flywheel/generator(4): ..... J

9.4.3.1. Flywheel moment of inertia: ..... kg m^2

9.4.3.1.1. Additional moment of inertia if no gear is engaged: ..... kg m^2

9.5. Charger: on-board/external/without(4)';

(xi) entry 11., including all its sub-entries, is replaced by the following:

'11. DRIVE-TRAIN AND CONTROL(13)

11.1. Brief description and schematic drawing of the vehicle drive-train and its control system (gear shift control, clutch control or any other element of drive-train):

11.2. **Transmission**

11.2.1. Brief description and schematic drawing of gear shift system(s) and its control: .....

11.2.2. Diagram and or drawing of the transmission system: .....

11.2.3. Type of transmission: mechanical/hydraulic/electric/other(4) (if other specify .....)

11.2.4. Brief description of the electrical/electronic components (if any): .....

11.2.5. Location relative to the engine: .....

11.2.6. Method of control: .....

11.2.7. Transfer box: with/without[4]

11.2.8. Type of gear shift system(s)[24]: .....

11.3. **Clutch (if any)**

11.3.1. Brief description and schematic drawing of the clutch and its control system:

11.3.2. Maximum torque conversion: .....

11.4. **Gear ratios**

Gear	Internal gearbox ratios (ratios of engine to gearbox output shaft revolutions)	Internal transfer box ratios (ratios of engine to transfer box output shaft revolutions)	Final drive ratio(s) (ratio of gearbox output shaft to driven wheel revolutions)	Total gear ratios	Ratio (engine speed/vehicle speed) for manual transmission only
Maximum for CVT (*) 1 2 3					
Minimum for CVT* Reverse 1 …					
(*) Continuously variable transmission					

11.5. **Differential lock**

11.5.1. Differential lock: yes/no/optional[4],;

(xii) entry 43.1. is replaced by the following:

'43.1. Brief description of the braking system(s) installed on the vehicle[55]: .....';

(xiii) entry 43.3. is deleted;

(xiv) entry 43.6., including all its sub-entries, is replaced by the following:

'43.6. **Towed vehicle braking devices**

43.6.1. Towed vehicle braking control system technology: Hydraulic / Pneumatic / Electric/None[4]

43.6.2. Towed vehicle-brake actuating device (description, characteristics): .....

43.6.3. Description of the connectors, couplings and safety devices (including drawings, sketches and the identification of any electronic parts): .....

43.6.4. Connections type: Single line/Two-lines/None[4]

43.6.4.1. Supply pressure Hydraulic: Single line: ..... kPa Two lines: ..... kPa

43.6.4.2. Supply pressure Pneumatic: Two lines: ..... kPa

43.6.5. Presence of ISO 7638:2003 connector[15]: ..... yes/no[4],;

(xv) the following entries are added:

‘43.A TOWED VEHICLE AXLE AND BRAKE INFORMATION DOCUMENT WITH RESPECT TO THE ALTERNATIVE TYPE I AND TYPE III PROCEDURE

43.A.1. General

43.A.1.1. Name and address of axle or vehicle manufacturer:

43.A.2. Axle data

43.A.2.1. Manufacturer (name and address): .....

43.A.2.2. Type/variant: .....

43.A.2.3. Axle identifier: ID1- .....

43.A.2.4. Test axle load (Fe): ..... daN

43.A.2.5. Wheel and brake data according to the following figures 1A and 1B

43.A.3. Brake

43.A.3.1. General information

43.A.3.1.1. Make:

43.A.3.1.2. Manufacturer (name and address):

43.A.3.1.3. Type of brake (e.g. drum / disc):

43.A.3.1.3.1. Variant (e.g. S-cam, single wedge etc.):

43.A.3.1.4. Brake identifier: ID2-

43.A.3.1.5. Brake data according to the figures 2A and 2B:

43.A.3.2. Drum brake data

43.A.3.2.1. Brake adjustment device (external/integrated): .....

43.A.3.2.2. Declared maximum brake input torque C_{max}: ..... Nm

43.A.3.2.3. Mechanical efficiency: η = ...

43.A.3.2.4. Declared brake input threshold torque $C_{0,dec}$: ..... Nm

43.A.3.2.5. Effective length of the cam shaft: ..... mm

43.A.3.3. Brake drum

43.A.3.3.1. Max diameter of friction surface (wear limit) ..... mm

43.A.3.3.2. Base material: .....

43.A.3.3.3. Declared mass: ..... kg

43.A.3.3.4. Nominal mass: ..... kg

43.A.3.4. Brake lining

43.A.3.4.1. Manufacturer and address .....

43.A.3.4.2. Make .....

43.A.3.4.3. Type .....

43.A.3.4.4. Identification (type identification on lining) .....

43.A.3.4.5. Minimum thickness (wear limit) ..... mm

43.A.3.4.6. Method of attaching friction material to brake shoe: .....

43.A.3.4.6.1. ..... Worst case of attachment (in the case of more than one):

43.A.3.5. Disc brake data

43.A.3.5.1. Connection type to the axle (axial, radial, integrated, etc.): .....

43.A.3.5.2. Brake adjustment device (external/integrated): .....

43.A.3.5.3. Max. actuation stroke: ..... mm

43.A.3.5.4. Declared maximum input force Th_{Amax}: ..... daN

43.A.3.5.4.1 $Cmax = Th_{Amax} \cdot l_e$: ..... Nm

43.A.3.5.5. Friction radius: r_e = ... mm

43.A.3.5.6. Lever length: l_e = ... mm

43.A.3.5.7. Input/output ratio (l_e/e_e): i = ...

43.A.3.5.8. Mechanical efficiency: η = ...

43.A.3.5.9. Declared brake input threshold force $Th_{A0,dec}$: ..... N

43.A.3.5.9.1. $C_{0,dec} = Th_{A0,dec} \cdot l_e$: ..... Nm

43.A.3.5.10. Minimum rotor thickness (wear limit): ..... mm

43.A.3.6. Brake disc data .....

43.A.3.6.1. Disc type description: .....

43.A.3.6.2. Connection/mounting to the hub: .....

43.A.3.6.3. Ventilation (yes/no): .....

43.A.3.6.4. Declared mass: ..... kg

43.A.3.6.5. Nominal mass: ..... kg

43.A.3.6.6. Declared external diameter: ..... mm

43.A.3.6.7. Minimum external diameter: ..... mm

43.A.3.6.8. Inner diameter of friction ring: ..... mm

43.A.3.6.9. Width of ventilation channel (if appl.): ..... mm

43.A.3.6.10. Base material: .....

43.A.3.7. Brake pad data .....

43.A.3.7.1. Manufacturer and address: .....

43.A.3.7.2. Make:

43.A.3.7.3. Type: .....

43.A.3.7.4. Identification (type identification on pad back plate): .....

43.A.3.7.5. Minimum thickness (wear limit): ..... mm

43.A.3.7.6. Method of attaching friction material to pad back plate: .....

43.A.3.7.6.1. Worst case of attachment (in the case of more than one): .....

Figure 1A

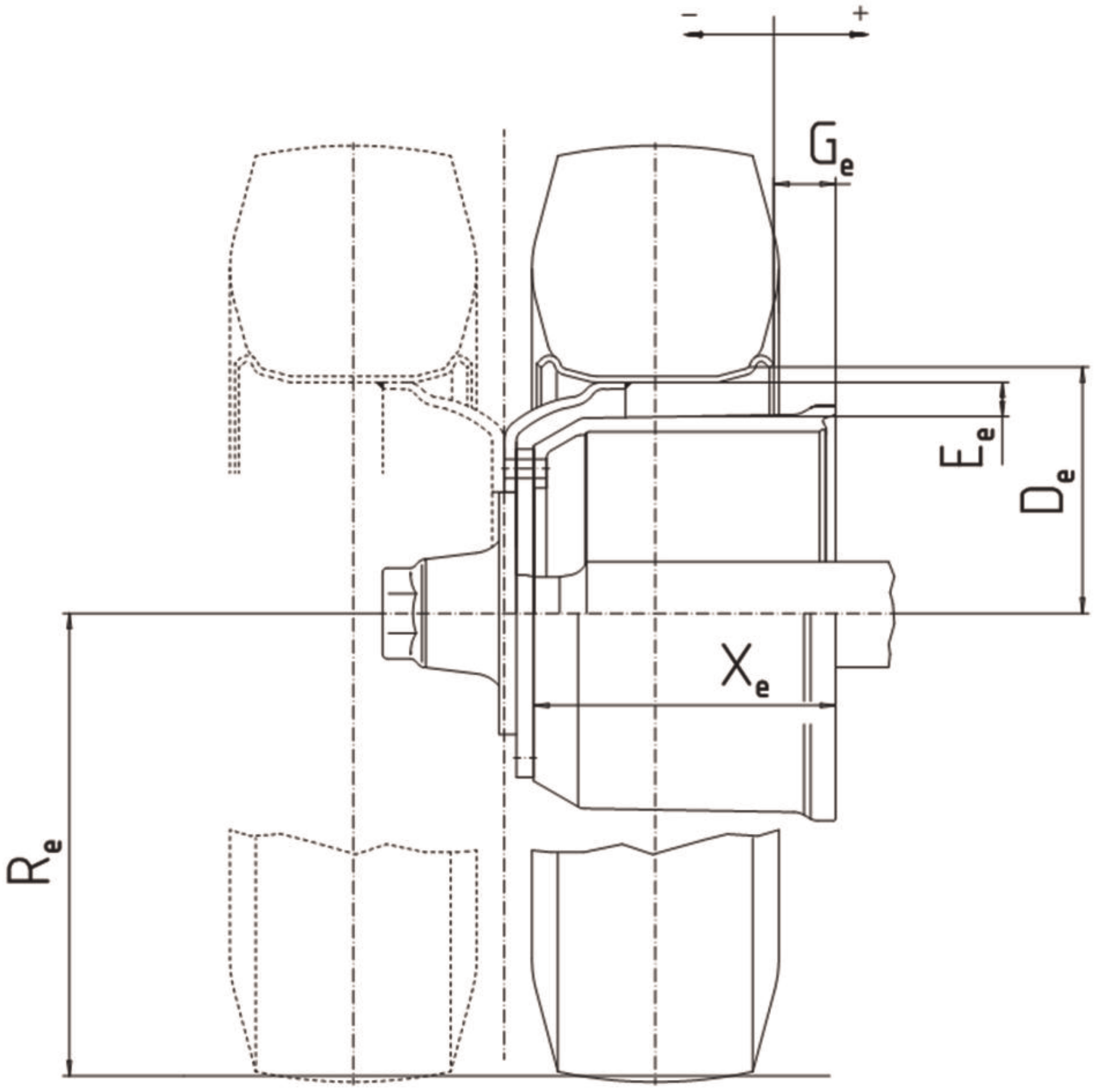


Figure 1B

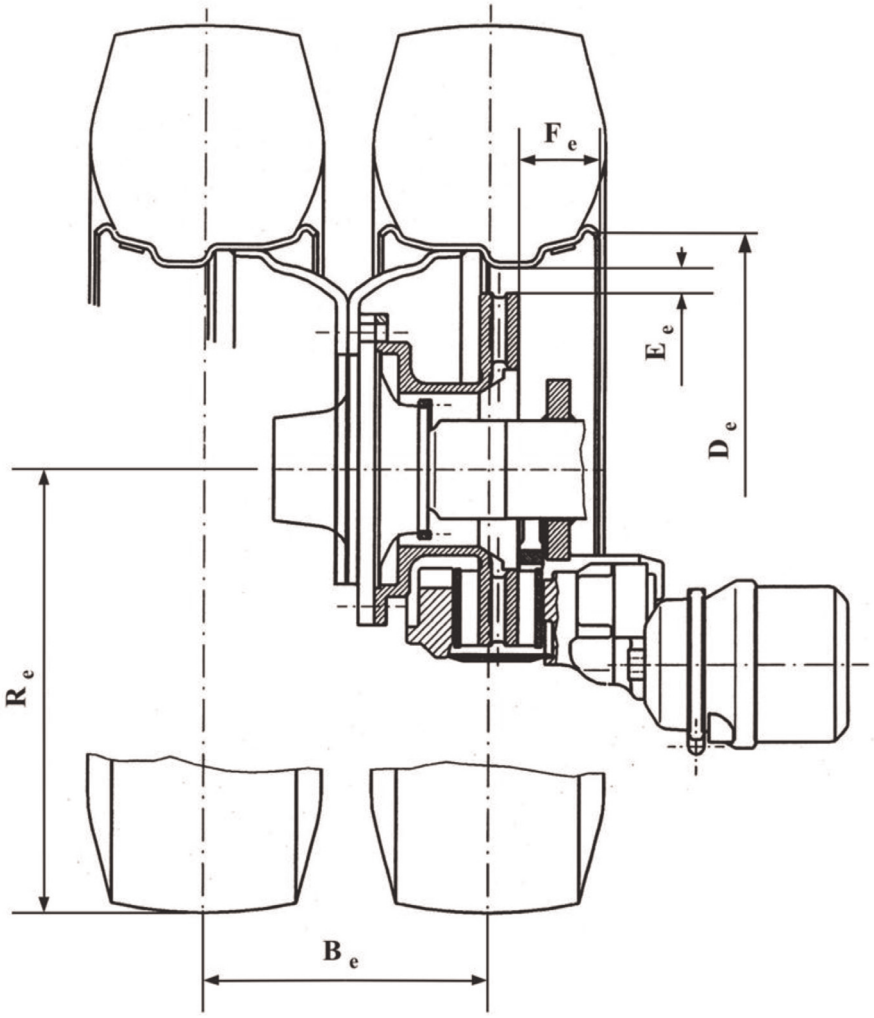


Figure 2A

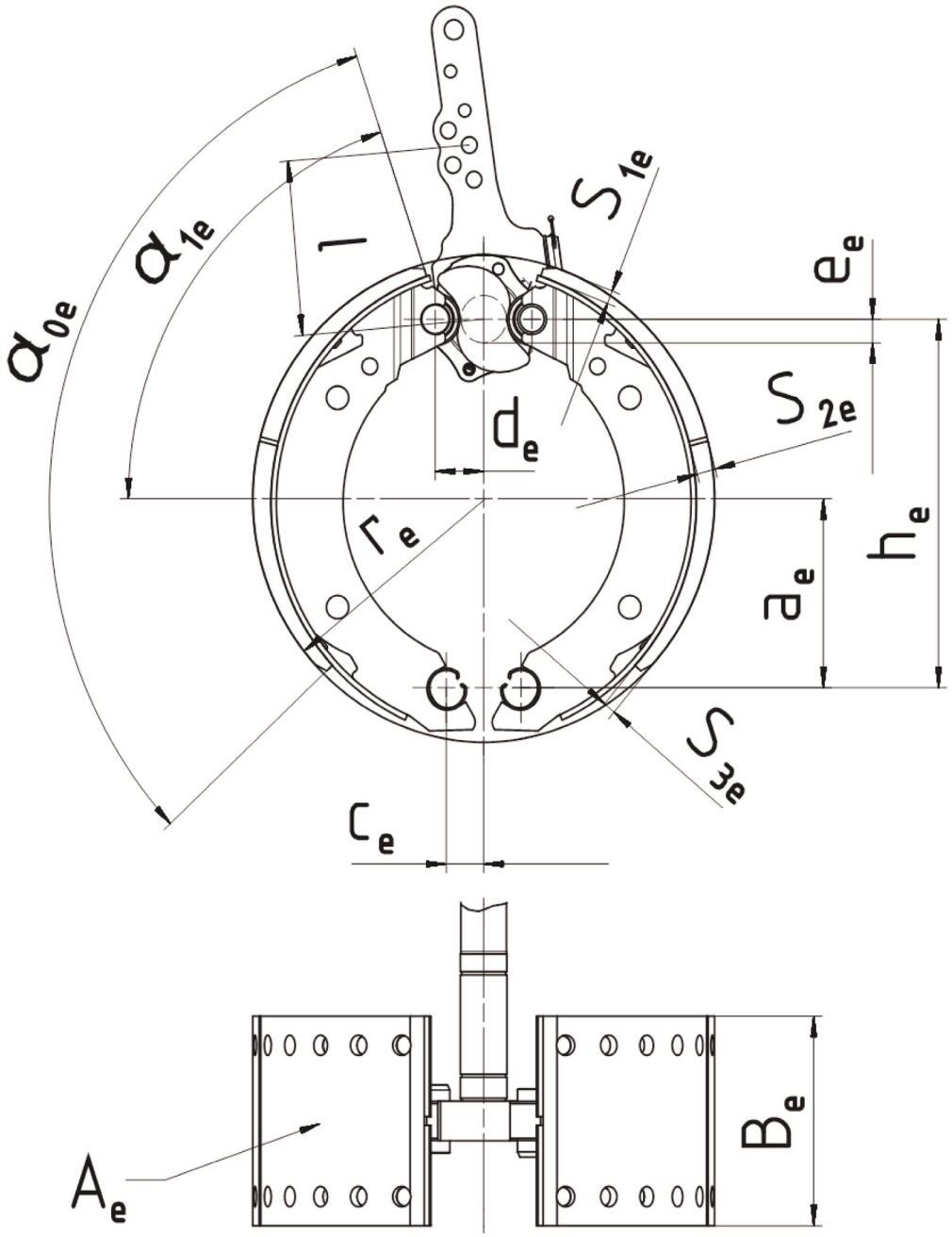
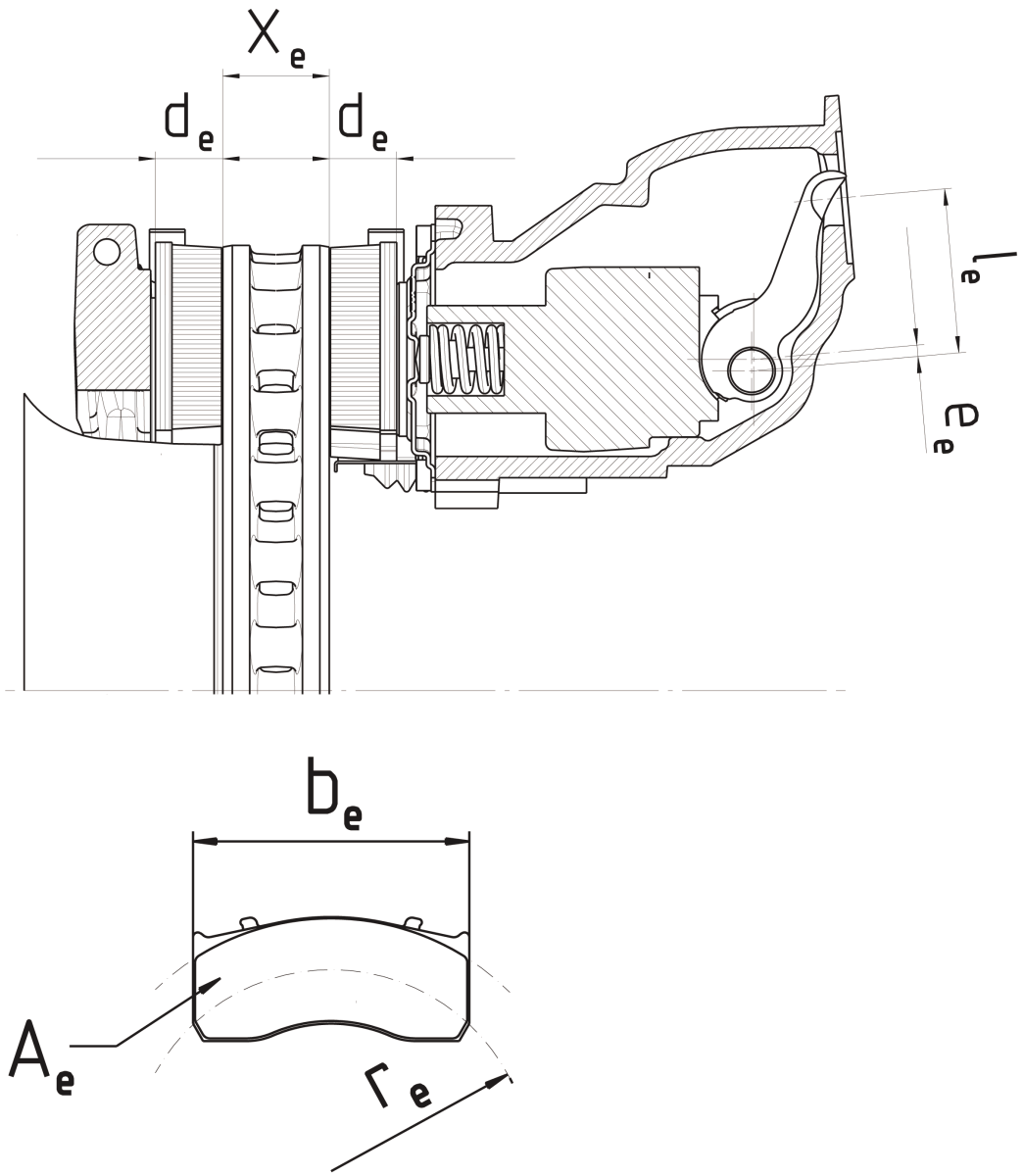


Figure 2B



xe (mm)	ae (mm)	he (mm)	ce (mm)	de (mm)	ee (mm)	α0e	α1e	be (mm)	re (mm)	Ae (cm2)	S1e (mm)	S2e (mm)	S3e (mm)’;

(o) Appendix 19 is amended as follows:

(i) the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(ii) entry 46.2.1. is replaced by the following:

'46.2.1. In the case of roll bar: foldable/not foldable[4]';

(iii) entry 46.2.2., including all its sub-entries, is replaced by the following:

'46.2.2. In the case of foldable roll bar:

46.2.2.1. Folding operation: non-assisted / partially assisted / fully assisted[4]

46.2.2.2. In case of non-assisted or partially assisted folding operation:

46.2.2.2.1. Hand-operated foldable ROPS: with tools/ without tools[4]

46.2.2.2.2. Photographs and detailed technical drawings showing the grasping area and a lateral and top view of the accessible zones. Dimensions and maximum forces for actuating the ROPS must figure on the drawings: .....

46.2.2.3. In case of partially assisted or fully assisted folding operation, brief description of the assistance devices as well as of their control devices, if any, and their location: .....

46.2.2.4. Locking mechanism: manual/automatic[4]

46.2.2.4.1. For manual locking mechanisms, brief description of the locking mechanism and of its ergonomic design to avoid pinching or shearing hazards and to limit the force required for its operation: ...

46.2.2.4.2. For automatic locking mechanisms,

46.2.2.4.2.1. Brief description of the locking mechanism, its control devices, if any, and their location: .....

46.2.2.4.2.2. Manufacturers' certificate set out in Note 2 of point 5.5. of Part B3 of Annex IX to Commission Delegated Regulation (EU) No 1322/2014: yes/no[4]';

(p) in Appendix 20, the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(q) Appendix 21 is amended as follows:

(i) the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(ii) entry 49.4.1. is replaced by the following:

'49.4.1. Position of the driving seat: left/right/centre[4]';

(r) Appendix 22 is amended as follows:

(i) the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(ii) entry 54.3. is replaced by the following:

'54.3. **Number and position of safety belts and seats on which they can be used, please fill out table below:**

Safety belt configuration and associated information

			Complete EU type-approval mark / ECE type-approval mark	Variant, if applicable	Belt adjustment device for height (indicate yes/no/ optional)
Driver's seat		L			
		C			
		R			
Passenger seat 1		L			
		C			
		R			
Passenger seat …		L			
		C			
		R			

L = left, C = centre, R = right';

(s) in Appendix 23, the following entry 2.2.4. is inserted:

'2.2.4. For components and separate technical units, location and method of attachment of the type-approval mark(s) (if available)[19]: .....';

(r) Appendix 24 is replaced by the following:

'*Appendix 24*

Manufacturer's declaration on anti-tampering of powertrain and speed-limitation device

Manufacturer's declaration on anti-tampering of powertrain and speed-limitation device

A duly-completed version of this statement shall be included in the information folder.

The undersigned: [..... (full name and position)]

2.3. Company name and address of manufacturer: .....

2.3.2. Name and address of the manufacturer's authorised representative (if any) [1]: .....

Hereby declares that:

2.1. Make(s) (trade name(s) of manufacturer: .....

2.4.1. Type [2]: .....

2.4.2. Variant(s) [2]: .....

2.4.3. Version(s) ([2]): .....

2.4.4 Commercial name(s) (if available): .....

2.4.5. Category, subcategory and speed index of vehicle ([3]): .....

Will not market interchangeable components which could involve an increase in the propulsion performance of the vehicle variant

Place: ..... Date: .....

Signature: ..... Name and position in the company: .....

Explanatory notes relating to Appendix 24

(Footnote markers, footnotes and explanatory notes not to be stated on the Manufacturer's declaration)

([1]) Delete the entry if not applicable.
([2]) Indicate the alphanumeric code Type-Variant-Version or "TVV" allocated to each type, variant and version as set out in point 2.3 of Part B of Annex I to this Regulation. For the identification of variant and versions it may be employed the matrix set out in point 2.2 of Part B of Annex I to this Regulation.
([3]) Classified according to Article 4 of Regulation (EU) No 167/2013, the coding shall be indicated, e.g. "T4.3a" for a low-clearance tractor with a maximum design speed below or equal to 40 km/h.'

(s) the explanatory notes relating to the information document are amended as follows:

(i) explanatory note (9) is replaced by the following:

'(9) Indicate fuel type by the following codes:

P: petrol

B5: diesel

E5: petrol E5

M: mixture (for two stroke engines)

O: other.'

(ii) the following explanatory note (11) is inserted:

'(11) Excluding SLI batteries that supply electric energy for starting, lighting and ignition.'

(iii) explanatory note (14) is replaced by the following:

'(14) 'A': for a three-point belt;

'B': for a lap belt;

'S': for special types of belt (in this case provide specific information on the nature of these types under observation in entry 53.4.1.);

'Ar', 'Br' or'Sr': for a belt incorporating an inertia reel retractor;

'Are', 'Bre' and 'Sre': for a belt equipped with an inertia reel retractor and an energy-absorption device on at least one anchorage.'

(iv) the following explanatory notes (15) and (16) are inserted:

'(15) Only applicable to T- and C-category vehicles authorized to tow R- or S-category vehicles if fitted with a hydraulic energy storage device.'

'(16) Indicate the maximum towable mass on the lower link arms of the rear three-point lifting mechanism or the rear three-point lifting mechanism itself, as declared by the manufacturer.'

(v) explanatory note (24) is replaced by the following:

'(24) Indicate the type of gear shift system(s) by the following codes:

A: automatic

M1: manual

M2: manual automated

C: continuous variable transmission (CVT)

W: wheel-hub engine

O: other (indicate…)';

(vi) explanatory note (26) is replaced by the following:

'(26) Indicate the layout of the cylinders by following codes:

LI: in line

V: in V

O: opposed-cylinder engine

S: single-cylinder engine

R: rotatory piston engine. ';

(vii) explanatory note (48) is replaced by the following:

'(48) For R- and S-category vehicles indicate the overhang of the front coupling point. ';

(viii) explanatory note (49) is replaced by the following:

'(49) For engines indicate the information relative to the engine type or the engine family type, as applicable without the type-approval extension number.'

(ix) explanatory note (52) is replaced by the following:

'(52) When the tractor is fitted with different optional seats or has a reversible driver's position (reversible seat and steering wheel), the dimensions in relation to the seat index points (SIP 1, SIP 2, etc.) shall be measured for each case.'

ANNEX II

In Annex II to Implementing Regulation (EU) 2015/504, in the explanatory notes relating to Annex II, explanatory note (4) is replaced by the following:

'(4) For engines indicate the information relative to the engine type or the engine family type, as applicable without the type-approval extension number.'

ANNEX III

Appendix 1 to Annex III to Implementing Regulation (EU) 2015/504 is amended as follows:

(1) Section 2 is amended as follows:

(a) Model 1 is amended as follows:

(i) under the heading 'General construction characteristics', entry 3.4.4. is replaced by the following:

'3.4.4. Steering by[33a]:

— changing the speed between the left-hand side and right-hand side track trains: yes/no[1]

— pivoting of two opposite or all four track trains: yes/no[1]

— articulation of the front and rear part of the vehicle around a central vertical axis: yes/no[1]

— articulation of the front and rear part of the vehicle around a central vertical axis and changing the direction of the wheels on the wheeled axle: yes/no[1]';

(ii) under the heading 'General construction characteristics', entries 37.2. and 3.4.2. (Type of chassis) are deleted;

(iii) under the heading 'Constructions characteristics for special purposes', entry 58.3. is replaced by the following:

'58.3. Vehicle equipped with a cab classified for protection against hazardous substances of category: 2/3/4[1][35] and a Dust filter/ Aerosol filter/ Vapour filter[1][36] with regard to protection against hazardous substances[33n].';

(iv) under the heading 'Masses', entry 4.1.2.2. is replaced by the following:

'4.1.2.2. Mass(es) and tyre(s)

Tyre combination No	Axle No	Tyre dimension incl load capacity index & speed category symbol	Rolling radius[1] [mm]	Tyre Load rating per tyre [kg]	Maximum permissible mass per axle [kg] (*)	Maximum permissible mass of the vehicle [kg] (*)	Maximum permissible vertical load on the coupling point [kg] (*) (**) (***)	Track width [mm]	
								Minimum	Maximum
1	1	…		…	…	…	…	…	…
	2	…		…	…	…	…	…	…
	…	…		…	…	…	…	…	…
2	1	…		…	…	…	…	…	…
	2	…		…	…	…	…	…	…
	…	…		…	…	…	…	…	…
…	1	…		…	…	…	…	…	…

Tyre combination No	Axle No	Tyre dimension incl load capacity index & speed category symbol	Rolling radius(1) [mm]	Tyre Load rating per tyre [kg]	Maximum permissible mass per axle [kg] (*)	Maximum permissible mass of the vehicle [kg] (*)	Maximum permissible vertical load on the coupling point [kg] (*) (**) (***)	Track width [mm]	
								Minimum	Maximum
	2	…		…	…	…	…	…	…
	…	…		…	…	…	…	…	…

(*) According to the tyre specification.
(**) Load transmitted to the reference centre of the coupling under static conditions, irrespective to the coupling device; if the maximum permissible vertical load on the coupling point depending on the coupling is indicated in this table, expand the table at the right side and indicate the identification of the coupling device in the header of the column; for R- or S-category vehicles this column(s) concerns the rear coupling devices if there is such a device.
(***) Value to be provided only if the maximum permissible vertical load on the coupling point is lower than indicated in entries 38.3 and 38.4';

(v) under the heading 'Masses', entries 4.1.3. and 4.1.4. are replaced by the following:

'4.1.3. Technically permissible towable mass(es) for each chassis/ braking configuration of the R- or S-category vehicle:

R- and S category vehicle / Brake	Drawbar	Rigid drawbar	Centre-axle
Unbraked	.... kg	.... kg	.... kg
Inertia-braked	.... kg	.... kg	.... kg
Hydraulic braked	.... kg	.... kg	.... kg
Pneumatic braked	.... kg	.... kg	.... kg

4.1.4. Total technically permissible mass(es) of the tractor (T- or C-category vehicle) and towed vehicle (R- or S-category vehicle) combination for each chassis/braking configuration of the R- or S-category vehicle:

R- and S category vehicle / Brake	Drawbar	Rigid drawbar	Centre-axle
Unbraked	.... kg	.... kg	.... kg
Inertia-braked	.... kg	.... kg	.... kg
Hydraulic braked	.... kg	.... kg	.... kg
Pneumatic braked	.... kg	.... kg	.... kg';

(vi) under the heading 'Masses', entry 4.1.5.1. is deleted;

(vii) all entries under the heading 'Ballast masses' are replaced by the following:

'29.2. Number of sets of ballast masses: .....

29.2.1. Number of components on each set: Set 1: ..... Set 2: ..... Set …

29.4. Total mass of ballast masses: .....kg';

(viii) under the heading 'Main dimensions', entry 4.2.1.3. is replaced by the following:

'4.2.1.3. Height (in running order)[33]: maximum ..... mm minimum ..... mm';

(ix) under the heading 'Main dimensions', entry 4.2.2.8. is replaced by the following:

'4.2.2.8. Track width[17]: Maximum: Axle 1 ..... mm Axle 2 ..... mm Axle ..... mm

Minimum: Axle 1 ..... mm Axle 2 ..... mm Axle ..... mm';

(x) under the heading 'General powertrain characteristics', entry 5.1.1.3. is replaced by the following:

'5.1.1.1. Declared maximum design vehicle speed: ..... km/h ';

(xi) under the heading 'General powertrain characteristics', entry 5.1.2.2. is replaced by the following entry 5.1.2.1.:

'5.1.2.1. Declared rearward maximum design vehicle speed: ..... km/h';

(xii) under the heading 'Engine', entry 2.2.2. is replaced by the following:

'2.2.2. Type-approval number without extension: .....';

(xiii) under the heading 'Engine', entry 2.5.4.1. is deleted;

(xiv) under the heading 'Engine', the following entry 7.1.1. is added:

'7.1.1. Combustion cycle: positive ignition/compression ignition[1]';

(xv) under the heading 'Gearbox', entries 11.4.1., 11.5. and 11.5.1. are deleted;

(xvi) under the heading 'Gearbox', the following entry 11.2.8. is added:

'11.2.8. Type of gear shift system(s)[22]: .....';

(xvii) all entries under the heading 'Braking' are replaced by the following:

'43.4.6. Electronic braking system: yes/no/optional[1]

43.5.1. Braking transmission : mechanical/ hydrostatic without power assistance / power – assisted / fully powered transmission[1]

43.5.3. Locking of left and right braking controls: .....

43.6.1. Towed vehicle braking control system technology: Hydraulic / Pneumatic / Electric/None[1]

43.6.4. Connections type: Single line/Two-lines/None[1]

43.6.4.1. Supply pressure Hydraulic: Single line: ..... kPa Two lines: ..... kPa

43.6.4.2. Supply pressure Pneumatic: ..... Two lines: ..... kPa

43.6.5. Presence of ISO 7638:2003 connector[33p]: yes/no[1];

(xviii) under the heading 'Rollover protective structure (ROPS)', entry 46.1. is replaced by the following:

'46.1. Equipment of ROPS: compulsory/optional/standard[1];

(xix) under the heading 'Rollover protective structure (ROPS)', entries 46.2.1. and 46.2.2. are replaced by the following:

'46.2.1. In the case of roll bar: foldable/not foldable[1]

46.2.2. In the case of foldable roll bar:

46.2.2.1. Folding operation: non-assisted / partially assisted / fully assisted[1];

46.2.2.2.1. Hand-operated foldable ROPS: with tools/ without tools[4]

46.2.2.4. Locking mechanism: manual/automatic[1];

(xx) under the heading 'Seating positions (saddles and seats)', entry 49.5.1. is replaced by the following:

'49.5.1. Number of passenger seats: .....';

(xxi) the heading 'Load platform(s)', including all entries under that heading, is replaced by the following:

'**Load platform(s)[33d]**

33.1.1. Length of the load platform(s): ..... mm

33.1.2. Width of load platform(s): ..... mm

33.1.3. Height of load platform(s) above the ground: ..... mm

33.2. Safe load carrying capacity of load platform declared by manufacturer: ..... kg';

(xxii) the heading 'Lighting and light-signalling devices' and entry 21.1. are deleted;

(xxiii) under the heading 'Mechanical couplings', entry 38.4. is replaced by the following:

'38.3. Rear mechanical coupling

Type (according to Appendix 1 of Annex XXXIV to Commission Delegated Regulation (EU) 2015/208):	…	…	…
Make:	…	…	…
Manufacturer's type designation:	…	…	…
(EU) type-approval mark or -number:	…	…	…

Maximum horizontal load/D-Value[4][44]:			.... kg/kN[4]	.... kg/kN[4]	.... kg/kN[4]
Towable mass (T) [4][44]:			.... tonnes	.... tonnes	.... tonnes
Maximum permissible vertical load on the coupling point[44]:			… kg	… kg	… kg
Position of coupling point[62]	height above ground,	minimum	… mm	… mm	… mm
		maximum	… mm	… mm	… mm
	distance from vertical plane passing through the axis of the rear axle	minimum	… mm	… mm	… mm
		maximum	… mm	… mm	… mm’;

(xxiv) under the heading ‘Three-point lifting mechanism’, the following entry 39.2. is added:

‘39.2. Maximum towable mass[23]: ..... kg’;

(xxv) all entries under the heading ‘Power take-off(s)’ are replaced by the following:

‘51.2. Main PTO: Position: front/rear/other[1] (if other specify: .....)

51.3. Secondary PTO[33]: Position: front/rear/other[1] (if other specify:.....)

51.2.3. Optional[33]: Power at the power take-off (PTO) at the rated speed(s) [in accordance with OECD Code 2[26] or ISO 789-1:1990 (Agricultural tractors — Test procedures — Part 1: Power tests for power take-off)]

Rated speed PTO (min^{-1})	Corresponding engine speed (min^{-1})		Power (kW)	
	Main PTO	Secondary PTO [33]	Main PTO	Secondary PTO [33]
1-540	…	…	…	…
2-1 000	…	…	…	…
540E	…	…	…	…
1 000E’;	…	…	…	…

(b) Model 2 is amended as follows:

(i) under the heading ‘Masses’, entry 4.1.2.1.2. is replaced by the following:

‘4.1.2.1.2. Vertical load on the front coupling point (S)[33h]:’.....kg ..... kg

(ii) under the heading ‘Masses’, entry 4.1.2.2. is replaced by the following:

‘4.1.2.2. Mass(es) and tyre(s)

Tyre combination No	Axle No	Tyre dimension incl load capacity index & speed category symbol	Rolling radius(1) [mm]	Tyre Load rating per tyre [kg]	Maximum permissible mass per axle [kg] (*)	Maximum permissible mass of the vehicle [kg] (*)	Maximum permissible vertical load on the coupling point [kg] (*) (**) (***)	Track width [mm]	
								Minimum	Maximum
1	1	…		…	…	…	…	…	…
	2	…		…	…	…	…	…	…
	…	…		…	…	…	…	…	…
2	1	…		…	…	…	…	…	…
	2	…		…	…	…	…	…	…
	…	…		…	…	…	…	…	…
…	1	…		…	…	…	…	…	…
	2	…		…	…	…	…	…	…
	…	…		…	…	…	…	…	…

(*) According to the tyre specification.
(**) Load transmitted to the reference centre of the coupling under static conditions, irrespective to the coupling device; if the maximum permissible vertical load on the coupling point depending on the coupling is indicated in this table, expand the table at the right side and indicate the identification of the coupling device in the header of the column; for R- or S-category vehicles this column(s) concerns the rear coupling devices if there is such a device.
(***) Value to be provided only if the maximum permissible vertical load on the coupling point is lower than indicated in entries 38.3 and 38.4';

(iii) under the heading 'Masses', entry 4.1.3. is replaced by the following:

'4.1.3. Maximum permissible load(s) on the rear coupling point for towing a second R- or S-category vehicle for each chassis/ braking configuration of the mentioned second vehicle(33e):

R- and S category vehicle Brake	Drawbar	Rigid drawbar	Centre-axle
Unbraked	…. kg	…. kg	…. kg
Inertia-braked	…. kg	…. kg	…. kg
Hydraulic braked	…. kg	…. kg	…. kg
Pneumatic braked	…. kg	…. kg	…. kg';

(iv) under the heading 'Masses', entry 4.1.5.2. is deleted;

(v) under the heading 'Main dimensions', entry 4.2.1.3. is replaced by the following:

'4.2.1.3. Height (in running order)(33): maximum ..... mm ..... minimum ..... mm';

(vi) under the heading 'Main dimensions', entry 4.2.2.8. is replaced by the following:

'4.2.2.8. Track width(17): Maximum: Axle 1 ..... mm Axle 2 ..... mm Axle ..... mm

Minimum: Axle 1 ..... mm Axle 2 ..... mm Axle ..... mm';

(vii) all entries under the heading 'Braking' are replaced by the following:

'43.4.6. Electronic braking system: yes/no/optional(1)

43.5.1. Braking transmission: mechanical/ hydrostatic without power assistance / power – assisted / fully powered transmission(1)

43.6.1. Towed vehicle braking control system technology: Hydraulic / Pneumatic / Electric/None(1)

43.6.4. Connections type: Single line/Two-lines/None(1)

43.6.4.1. Supply pressure Hydraulic: ..... Single line: ..... kPa ..... Two lines: ..... kPa

43.6.4.2. Supply pressure Pneumatic: ..... Two lines: … kPa';

(viii) the heading 'Load platform(s)', including all entries under that heading, are replaced by the following:

'**Load platform(s)(33d)**

33.1.1. Length of the load platform(s):..... mm

33.1.2. Width of load platform(s):..... mm

33.1.3. Height of load platform(s) above the ground:..... mm

33.2. Safe load carrying capacity of load platform declared by manufacturer: ..... kg';

(ix) the heading 'Lighting and light-signalling devices' and entry 21.1. are deleted;

(c) the explanatory notes relating to Appendix 1 are amended as follows:

(i) explanatory notes (20) to (23) are replaced by the following:

'(20) Indicate fuel type by the following codes:

P: petrol

B5: diesel

E5: petrol E5

M: mixture (for two stroke engines)

O: other.

(21) Indicate the layout of the cylinders by following codes:

LI: in line

V: in V

O: opposed-cylinder engine

S: single-cylinder engine

R: rotatory piston engine.

(22) Indicate the type of gear shift system(s) by the following codes:

A: automatic

M1: manual

M2: manual automated

C: continuous variable transmission (CVT)

W: wheel-hub engine

O: other (indicate…)

(23) Indicate the maximum towable mass on the lower link arms of the rear three-point lifting mechanism or the rear three-point lifting mechanism itself, as declared by the manufacturer.'

(ii) explanatory note (24) is deleted;

(iii) explanatory note (33) is replaced by the following:

'(33) Delete this entry of the certificate of conformity if not applicable to the vehicle.'

(iv) explanatory note (33d) is replaced by the following:

'(33d) Only applicable to vehicles fitted with load platform(s).'

(v) the following explanatory note (33p) is inserted:

'(33p) Only applicable to T- and C-category vehicles authorized to tow R- or S-category vehicles if fitted with a hydraulic energy storage device.'

(vi) explanatory note (37) is deleted.

ANNEX IV

Annex IV to Implementing Regulation (EU) 2015/504 is amended as follows:

(1) point 2.1.1. is replaced by the following:

'2.1.1. The information on the plate shall be clearly legible, indelible and shall contain the following information in the order given below and in accordance with one of the two alternative models set out in Appendix 1:'

(2) point 2.1.1.8. is replaced by the following:

'2.1.1.8. Technically permissible towable mass(es) for each chassis/ braking configuration of the towed R- or S-category vehicle in accordance with entry 4.1.3 of the information document data entries laid down in Part B of Annex I to this Regulation[(2)], in the following format: "B-1" unbraked, "B-2" inertia braked, "B-3" hydraulic braked, "B-4" pneumatic braked, "T-1" drawbar, "T-2" rigid drawbar, "T-3" centre-axle;'

(3) point 4.1.1.8. is replaced by the following:

'4.2.1.8. Technically permissible towable mass(es) for each chassis/ braking configuration of the towed R- or S-category vehicle in accordance with entry 4.1.3 of the information document data entries laid down in Part B of Annex I to this Regulation[(2)], in the following format: "B-1" unbraked, "B-2" inertia braked, "B-3" hydraulic braked, "B-4" pneumatic braked, "T-1" drawbar, "T-2" rigid drawbar, "T-3" centre-axle;'

(4) Appendix 1 is replaced by the following:

'Appendix 1

Examples of the statutory plate

1. MODEL A for a T1b-category vehicle

SOFIA TRAKTOR WERKE.

T1b

e6*167/2013*01223

5DRH123UPAX000001

5 590 kg

A-1: 2 390 kg

A-2: 3 200 kg

	T-1	T-2	T-3
B-1	3 000 kg	4 000 kg	2 000 kg
B-2	3 000 kg	4 000 kg	2 000 kg
B-3	6 000 kg	8 000 kg	4 000 kg
B-4	12 000 kg	15 000 kg	9 000 kg

2. MODEL B alternative to MODEL A for a T1b-category vehicle

SOFIA TRAKTOR WERKE.
T1b
e6*167/2013*01223
5DRH123UPAX000001
5 590 kg
A-1: 2 390 kg
A-2: 3 200 kg

	T-1	T-2	T-3
B-1	3 000 kg	4 000 kg	2 000 kg
B-2	3 000 kg	4 000 kg	2 000 kg
B-3	6 000 kg	8 000 kg	4 000 kg
B-4	12 000 kg	15 000 kg	9 000 kg

3. MODEL C for stage 1 of a C2a-category vehicle

JEAN NICOLE TRACTORS Ltd.
C2a STAGE 1
e3*167/2013*14863
ZFS159000AZ000055
820 kg
A-1: 366 kg
S-2: 454 kg P: 255 kPa

	T-1	T-2	T-3
B-1	1 000 kg	2 000 kg	1 000 kg
B-2	1 000 kg	2 000 kg	1 000 kg
B-3	2 000 kg	3 000 kg	2 000 kg
B-4	4 000 kg	5 000 kg	4 000 kg

4. MODEL D alternative to MODEL C for stage 1 of a C2a-category vehicle

JEAN NICOLE TRACTORS Ltd.
C2a STAGE 1
e3*167/2013*14863
ZFS159000AZ000055
820 kg
A-1: 366 kg
S-2: 454 kg P: 255 kPa

	T-1	T-2	T-3
B-1	1 000 kg	2 000 kg	1 000 kg
B-2	1 000 kg	2 000 kg	1 000 kg
B-3	2 000 kg	3 000 kg	2 000 kg
B-4	4 000 kg	5 000 kg	4 000 kg

5. MODEL E for a rigid drawbar R2a-category vehicle

REMORQUES HENSCHLER SA.

R2a

e12*167/2013*00053

YA9EBS37009000005

2 050 kg

A-0: 1 100 kg

A-1: 850 kg

A-2: 1 200 kg

	T-1	T-2	T-3
B-1	1 000 kg	1 000 kg	1 000 kg
B-2	1 000 kg	1 000 kg	1 000 kg
B-3	2 000 kg	2 000 kg	2 000 kg
B-4	2 000 kg	2 000 kg	2 000 kg

6. MODEL F alternative to MODEL E for a rigid drawbar R2a-category vehicle

REMORQUES HENSCHLER SA.

R2a

e12*167/2013*00053

YA9EBS37009000005

2 050 kg

A-0: 1 100 kg

A-1: 850 kg

A-2: 1 200 kg'.

	T-1	T-2	T-3
B-1	1 000 kg	1 000 kg	1 000 kg
B-2	1 000 kg	1 000 kg	1 000 kg
B-3	2 000 kg	2 000 kg	2 000 kg
B-4	2 000 kg	2 000 kg	2 000 kg

ANNEX V

Annex V to Implementing Regulation (EU) 2015/504 is amended as follows:

(1) in Appendix 1, in section III, entry 2.1. is replaced by the following:

'2.1. The approval is granted in accordance with Article 35 of Regulation (EU) No 167/2013 and the validity of the approval is thus limited to dd/mm/yyyy[6].'

(2) Appendix 2 is amended as follows:

(a) in section III, entry 4.1. is replaced by the following:

'4.1. The approval is granted in accordance with Article 35 of Regulation (EU) No 167/2013 and its validity is thus limited to dd/mm/yyyy[6].'

(b) Section 2 is replaced by the following:

'SECTION 2

This EU type-approval concerns incomplete and completed vehicles, variants or versions.

1. Previous stage(s) approval(s) for the vehicles.

Stage	EU type-approval number	Dated	Applicable to (as appropriate)	Variants and versions which are complete or completed (as appropriate)[9]
1 (base vehicle)				
2				

2. List of requirements applicable to the approved incomplete vehicle type, variant, taking account of the scope and latest amendment to each of the regulatory acts listed below[10].

Item	Subject	Regulatory act reference	As amended by and/or stage of implementation	Applicable to variants
				'

(3) in Appendix 4, in section III, entry 2.1. is replaced by the following:

'2.1. The approval is granted in accordance with Article 35 of Regulation (EU) No 167/2013 and the validity of the approval is thus limited to dd/mm/yyyy[6].'

(4) in Appendix 5, in section III, entry 2.1. is replaced by the following:

'2.1. The approval is granted in accordance with Article 35 of Regulation (EU) No 167/2013 and the validity of the approval is thus limited to dd/mm/yyyy[4].'

ANNEX VI

In Annex VII to Implementing Regulation (EU) 2015/504, in Appendix 1, point 4 is replaced by the following:

'4. **Braking performance**

Measured according to Annex II to Commission Delegated Regulation (EU) 2015/68, as last amended by Commission Delegated Regulation (EU) …/…[(1)(3)]

Table I

	Axles of the vehicle			Reference axles		
	Static mass (P)[1]	Braking force needed at wheels	Speed	Test mass (P_e) (*)	Braking force developed at wheels	Speed
	kg	N	km/h	kg	N	km/h
Axle 1						
Axle 2						
Axle 3						
Axle 4						

(*) See point 2.1. of Appendix 1 to Annex VII of Regulation (EU) 2015/68.

Table II

Total mass of the vehicle submitted for approval	kg
Braking force needed at wheels	*N*
Retarding torque needed at main shaft of endurance braking system	Nm
Retarding torque obtained at main shaft of endurance braking system (according to diagram)	Nm

Table III

Reference axle ..... Report No. ..... Date .....
..... (copy attached)

	Type-I	Type-III
Braking force per axle (N) (See point 4.2.1. of Appendix 1 to Annex VII to Regulation (EU) 2015/68)		
Axle 1 Axle 2 Axle 3	T_1 = ... % F_e T_2 = ... % F_e T_3 = ... % F_e	T_1 = ... % F_e T_2 = ... % F_e T_3 = ... % F_e
Predicted actuator stroke (mm) (See point 4.3.1.1. of Appendix 1 to Annex VII to Regulation (EU) 2015/68)		
Axle 1 Axle 2 Axle 3	s_1 = ... s_2 = ... s_3 = ...	s_1 = ... s_2 = ... s_3 = ...

<table>
<tr><td>Average thrust output (N)
(See point 4.3.1.2. of Appendix 1 to Annex VII to Regulation (EU) 2015/68)</td><td colspan="2"></td><td></td></tr>
<tr><td>Axle 1
Axle 2
Axle 3</td><td colspan="2">Th_{A1} = ...
Th_{A2} = ...
Th_{A3} = ...</td><td>Th_{A1} = ...
Th_{A2} = ...
Th_{A3} = ...</td></tr>
<tr><td>Braking performance (N)
(See point 4.3.1.4. of Appendix 1 to Annex VII to Regulation (EU) 2015/68)</td><td colspan="2"></td><td></td></tr>
<tr><td rowspan="2">Axle 1
Axle 2
Axle 3</td><td colspan="2">T_1 = ...
T_2 = ...
T_3 = ...</td><td>T_1 = ...
T_2 = ...
T_3 = ...</td></tr>
<tr><td>Type-0 subject towed vehicle test result (E)</td><td>Type-I hot (predicted)</td><td>Type-III hot (predicted)</td></tr>
<tr><td>Braking performance of vehicle
(See points 2.3.3, 2.4.3 and 2.5.5 of Annex II to Regulation (EU) 2015/68)</td><td></td><td></td><td>’.</td></tr>
</table>

ANNEX VII

Annex VIII to Implementing Regulation (EU) 2015/504 is amended as follows:

(1) Point 1.1. is replaced by the following:

'1.1. For each of the regulatory acts listed in Annex I to Regulation (EU) No 167/2013, the template of the test reports shall be drawn up by the technical service in accordance with its rules of good practice.'

(2) the following points 3.3. to 3.4.2. are added:

'3.3. Test reports on braking

The models of the test reports for braking are set out in Appendices 1 to5.

3.4. Additional information to be stated in model test report form for the alternative procedures for Type-I and Type-III tests for towed vehicle brakes (Annex VII, Appendix 1 to Regulation (EU) 2015/68)set out in Appendix 1

3.4.1. Test report number

The test report number consists of two parts: a base part and a suffix which identifies the issue level of the test report.

3.4.1.1. The base part, consisting of a maximum of 20 characters, and suffix shall be clearly separated from each other using e.g. a dot or slash.

3.4.1.2. The base part of the test report number shall only cover brakes with the same brake identifier and the same brake factor.

3.4.2. Test code

In addition to the test report number a "test code" consisting of up to eight characters (e.g. ABC123) shall indicate the test results applicable to the identifiers and the test specimen, which is described by the details given in point 3.7. of Appendix 1 to Annex VII to Regulation (EU) 2015/68.'

(3) the following Appendices 1 to 5 are added:

'Appendix 1

Model test report form for the alternative procedures for Type-I and Type-III tests for towed vehicle brakes (Annex VII, Appendix 1 to Regulation (EU) 2015/68)

Test Report No. .....

Base part: ID4- .....

Suffix: .....

1. General .....

1.1. Axle manufacturer (name and address): .....

1.1.1. Make of axle manufacturer: .....

1.2. Brake manufacturer (name and address): .....

1.2.1. Brake identifier ID2-: .....

1.2.2. Automatic brake adjustment device: integrated/non-integrated (*)

1.3. Manufacturer's Information Document:

2. Test Record

The following data has to be recorded for each test:

2.1. Test code: .....

2.2. Test specimen: (precise identification of the variant tested related to the Manufacturer's Information Document.)

2.2.1. Axle

2.2.1.1. Axle identifier: ID1- .....

2.2.1.2. Identification of tested axle: .....

2.2.1.3. Test axle load (Fe identifier): ID3- ..... daN

2.2.2. Brake

2.2.2.1. Brake identifier: ID2- .....

2.2.2.2. Identification of tested brake: .....

2.2.2.3. Maximum stroke capability of the brake (**): .....

2.2.2.4. Effective length of the cam shaft[3]: .....

2.2.2.5. Material variation as per point 3.8 (m) of Appendix 1 to Annex VII to Regulation (EU) 2015/68: .....

2.2.2.6. Brake drum / disc (*) .....

2.2.2.6.1. Actual test mass of disc / drum (*): .....

2.2.2.6.2. Nominal external diameter of disc (**): .....

2.2.2.6.3. Type of cooling of the disc ventilated/non-ventilated (*)

2.2.2.6.4. With or without integrated hub (*)

2.2.2.6.5. Disc with integrated drum – with or without parking brake function (*) (**)

2.2.2.6.6. Geometric relationship between disc friction surfaces and disc mounting: .....

2.2.2.6.7. Base material: .....

2.2.2.7. Brake lining or pad (*)

2.2.2.7.1. Manufacturer: .....

2.2.2.7.2. Make: .....

2.2.2.7.3. Type: .....

2.2.2.7.4. Method of attachment of the lining / pad on the brake shoe / back plate (*): .....

2.2.2.7.5. Thickness of back plate, weight of shoes or other describing information (Manufacturer's Information Document) (*): .....

2.2.2.7.6. Base material of brake shoe / back plate (*): .....

2.2.3. Automatic brake adjustment device (not applicable in the case of integrated automatic brake adjustment device) (*)

2.2.3.1. Manufacturer (name and address): .....

2.2.3.2. Make: .....

2.2.3.3. Type: .....

2.2.3.4. Version: .....

2.2.4. Wheel(s) (dimensions see Figures 1A and 1B in the information document of towed vehicle axle and brake with respect to the alternative procedures for Type I and Type III tests)

2.2.4.1. Reference tyre rolling radius (R_e) at test axle load (F_e): .....

2.2.4.2. Data of the fitted wheel during testing:

Tyre size	Rim size	X_e (mm)	D_e (mm)	E_e (mm)	G_e (mm)

2.2.5. Lever length le: .....

2.2.6. Brake actuator

2.2.6.1. Manufacturer: .....

2.2.6.2. Make: .....

2.2.6.3. Type: .....

2.2.6.4. (Test) Identification number: .....

2.3. Test results (corrected to take account of rolling resistance of $0{,}01 \cdot F_e$ and $0{,}02 \cdot F_e$ respectively)

2.3.1. In the case of vehicles of categories

— R1, R2, S1

— 'R3a/R4a/S2a' (***)

— 'R3b/R4b/S2b' where the sum of the technically permissible masses per axle does not exceed 10 000 kg (***)

Depending on the maximum design speed and assumed rolling resistance of 0,01 or 0,02 in the following Tables A to C apply:

2.3.1.1 Considered rolling resistance coefficient R = 0,01 (covering also towed vehicles specified in point 2.3.1. above with a maximum design speed exceeding 40 km/h)

Table A: Applicable for all towed vehicle as specified in paragraph 2.3.1 above Test type	0	I	
Appendix 1 to Annex VII of Regulation (EU) 2015/68, point:	3.5.1.4.	3.5.2.2. or 3.5.2.3.	3.5.2.4.
Test speed	40	40	40
Brake actuator pressure p_e		—	
Braking time	—	2,55	—
Brake force developed T_e			
Brake efficiency T_e/F_e			
Actuator stroke s_e		—	
Brake input torque C_e		—	
Brake input threshold torque $_{C0,e}$			

2.3.1.2 Considered rolling resistance coefficient R = 0,02 (covering towed vehicles Ra and Sa specified in point 2.3.1. above with a maximum design speed not exceeding 40 km/h)

Table B: Alternative test procedure applicable for all towed vehicle of categories Ra and Sa Test type	0	I	
Annex VII, Appendix 2, paragraph:	3.5.1.4.	3.5.2.2. or 3.5.2.3.	3.5.2.4.

Table B: Alternative test procedure applicable for all towed vehicle of categories Ra and Sa Test type	0	I	
Test speed	40	40	40
Brake actuator pressure p_e		—	
Braking time	—	2,55	—
Brake force developed T_e			
Brake efficiency T_e/F_e			
Actuator stroke s_e		—	
Brake input torque C_e		—	
Brake input threshold torque $C_{0,e}$			

2.3.1.3 Considered rolling resistance coefficient R = 0,02 (covering towed vehicles Ra and Sa specified in point 2.3.1. above with a maximum design speed not exceeding 30 km/h)

Table C: Alternative test procedure in the case of towed vehicle with $v_{max} \leq 30$ km/h Test type	0	I	
Appendix 1 to Annex VII of Regulation (EU) 2015/68, point:	3.5.1.4.	3.5.2.2. or 3.5.2.3.	3.5.2.4.
Test speed	30	30	30
Brake actuator pressure p_e		—	
Braking time	—	3,90	—
Brake force developed T_e			
Brake efficiency T_e/F_e			
Actuator stroke s_e		—	
Brake input torque C_e		—	
Brake input threshold torque $C_{0,e}$			

2.3.2. In the case of vehicles of categories

— 'R3a/R4a/S2a' (***)

— 'R3b/R4b/S2b' where the sum of the technically permissible masses per axle does not exceed 10 000 kg (***)

— R3b/R4b/S2b' where the sum of the technically permissible masses per axle exceeds 10 000 kg

Test type	0	III	
Appendix 1 to Annex VII of Regulation (EU) 2015/68, point:	3.5.1.4.	3.5.3.1.	3.5.3.2.
Test speed initial km/h	60		60
Test speed finalkm/h			

Test type	0	III	
Brake actuator pressure p_e		—	
Number of brake applications -	—	20	—
Duration of braking cycle s	—	60	—
Brake force developed T_e daN			
Brake efficiency T_e/F_e -			
Actuator stroke se mm		—	
Brake input torque Ce Nm		—	
Brake input threshold torque C0,e Nm		—	

3. Application range

The application range specifies the axle/brake variants that are covered in this test report, by showing which variables are covered by the individual test codes.

4. This test has been carried out and the results reported in accordance with Appendix 1 to Annex VII to Regulation (EU) 2015/68.

At the end of the test described in point 3.6. of Appendix 1 to Annex VII of Regulation (EU) 2015/68, the requirements of point 2.2.2.8.1. of Annex I to Regulation (EU) 2015/68 were deemed to be fulfilled / not fulfilled (*).

Technical Service (****) carrying out the test

Signed: ..... Date: .....

5. Approval Authority (****)

Signed: ..... Date: .....

(*) Strike out what does not apply.
(**) Applies to disc brakes only.
(***) Where these vehicles have been subject to the Type III test (compare point 2.3.1. or 2.3.2.+).
(****) To be signed by different persons even when the Technical Service and Approval Authority are the same or alternatively a separate Approval Authority authorization issued with the report.

Appendix 2

Model test report form for an alternative automatic brake adjustment device as prescribed in point 3.7.5. of Appendix 1 to Annex VII to Regulation (EU) 2015/68

Test report No. .....

1. Identification

1.1. Axle:

Make: .....

Type: .....

Model: .....

Test axle load (F_e identifier): ID3- ..... daN

Test Report No. for the alternative procedures for Type-I and Type-III tests for towed vehicle brakes (Annex VII, Appendix I to Regulation (EU) 2015/68) .....

1.2. Brake:

Make: .....

Type: .....

Model: .....

Brake lining: .....

Make/Type: .....

1.3. Actuation: .....

Manufacturer: .....

Type (cylinder/diaphragm) (*): .....

Model: .....

Lever length (l): ..... mm

1.4. Automatic brake adjustment device:

Manufacturer (name and address): .....

Make: .....

Type: .....

Version: .....

2. Record of test results

2.1. Performance of the automatic brake adjustment device

2.1.1. Hot performance of service braking systems determined according to the test defined in point 3.6.2.1. (a) of Appendix 1 to Annex VII of Regulation (EU) 2015/68: ..... per cent

or

Actuator stroke s_A determined according to the test defined in point 3.6.2.1. (b) of Appendix 1 to Annex VII of Regulation (EU) 2015/68: ..... mm

2.1.2. Free running according to point 3.6.3. of Appendix 1 to Annex VII of Regulation (EU) 2015/68: yes / no (*)

3. Name of Technical Service/Type Approval Authority (*) conducting the test: .....

4. Date of test: .....

5. This test has been carried out and the results reported in accordance with paragraph 3.6.2 of Appendix 1 to Annex VII of Regulation (EU) 2015/68

6. At the end of test mentioned in point 5 the requirements of point 2.2.2.8.1. of Annex I to Regulation (EU) 2015/68 were deemed to be: Fulfilled / Not fulfilled (*)

7. Technical Service (**) carrying out the test

Signed: ..... Date: .....

8. Approval Authority (**)

Signed: ..... Date: .....

(*) Strike out what does not apply.

(**) To be signed by different persons even when the Technical Service and Approval Authority are the same or alternatively a separate Approval Authority authorization issued with the report.

Appendix 3

Test report on inertia-braking system control device

1. Manufacturer .....

2. Make

3. Type

4. Characteristics of towed vehicles for which control device intended by manufacturer:

4.1. mass G'_A = kg

4.2. permissible static vertical force at towing-device head ..... N

4.3. towed vehicle with rigid drawbar/multi-axled towed vehicle with pivoted drawbar (*)

5. Brief description

(List of attached plans and dimensioned drawings)

6. Diagram showing principle of control

7. Travel s = ... mm

8. Reduction ratio of control device:

8.1. with mechanical transmission device (*)

i_{Ho} = from ..... to..... (**)

8.2. with hydraulic transmission device (*)

i_h = from ..... to..... (**)

F_{HZ} (**) = ... cm

Travel of master cylinder s_{Hz} ..... mm

Spare travel of master cylinder s''_{Hz} ..... mm

9. Test results: .....

9.1. Efficiency

with mechanical transmission device (*) η_H = ...

with hydraulic transmission device (*) η_H = ...

9.2. Supplementary force K = ... N

9.3. Maximum compressive force D_1 = ... N

9.4. Maximum tractive force D_2 = ... N

9.5. Force threshold K_A = ... N

9.6. Loss of travel and spare travel: .....

where the position of the drawing device has an effect (*) s_o = mm .....

with a hydraulic-transmission device (*) $s'' = s''_{Hz} \cdot i_h$ = ... mm

9.7. Effective (useful) travel of control s′ = ... mm

9.8. An overload protector according to point 3.6. of Annex VIII of Regulation (EU) 2015/68 is provided/not provided (*)

9.8.1. If the overload protector is fitted before the transmission lever of the control device

9.8.1.1. Threshold force of the overload protector D_{op} = ... N

9.8.1.2. Where the overload protector is mechanical (*) max. force which the inertia control device can develop

$P'_{max}/i_{Ho} = P_{op\_max}$ = ... N

9.8.1.3. Where the overload protector is hydraulic (*) the pressure which the inertia control device can develop

$p'_{max}/i_h = p_{op\_max}$ = ... N/cm^2

9.8.2. If the overload protector is fitted after the transmission lever of the control device

9.8.2.1. Threshold force on the overload protector where the overload protector is mechanical (*) ..... $D_{op}.i_{Ho}$ = N

where the overload protector is hydraulic (*) $D_{op}.i_h$ = ... N

9.8.2.2. Where the overload protector is mechanical (*)

max force which the inertia control device can develop

$P'_{max} = P_{op\_max}$ = ... N

9.8.2.3. Where the overload protector is hydraulic (*)

the pressure which the inertia control device can develop

$p'_{max} = p_{op\_max}$ = ... N/cm^2

10. The control device described above complies/does not comply (*) with the requirements of points 3, 4 and 5 of Annex VIII of Regulation (EU) 2015/68.

Signed: ..... Date: .....

11. This test has been carried out and the results reported in accordance with relevant provisions of Annex VIII of Regulation (EU) 2015/68.

Technical Service (***) carrying out the test

Signed: ..... Date: .....

12. Approval Authority (***)

Signed: ..... Date: .....

(*) Strike out what does not apply.
(**) State lengths whose ratio was used to determine i_{Ho} or i_h.
(***) To be signed by different persons even when the Technical Service and Approval Authority are the same or alternatively a separate Approval Authority authorization issued with the report.

Appendix 4

Test report on the brake

1. Manufacturer .....

2. Make .....

3. Type .....

4. Permissible 'maximum mass' per wheel G_{Bo} = ... kg

5. Braking torque M* (as specified by the manufacturer according to point 2.2.23. of Annex VIII of Regulation (EU) 2015/68) = ... Nm

6. Dynamic tyre rolling radius

   R_{min} = ... m; R_{max} = ... m

7. Brief description

   (List of plans and dimensioned drawings)

8. Diagram showing principle of brake

9. Test result:

mechanical brake (*)	*hydraulic brake* (*)
9.1. Reduction ratio i_g = ... (**) (***)	9.1.A. Reduction ratio i'_g = ... (***)
9.2. Lift (application travel) s_B = ... mm	9.2.A. Lift (application travel) s_B = ... m
9.3. Prescribed lift (prescribed application travel) s_{B*} = ... mm	9.3.A. Prescribed lift (prescribed application travel) s_{B*} = ... mm
9.4. Retraction force P_o = ... N	9.4.A. Retraction pressure p_o= ..... N/cm^2
9.5. Coefficient (characteristic) ρ = ... m	9.5.A. Coefficient (characteristic) ρ' = ... m
9.6. An overload protector according to point 3.6. of Annex VIII of Regulation (EU) 2015/68 is/is not provided[4]	9.6.A. An overload protector according to paragraph 3.6. of Annex VIII of Regulation (EU) 2015/68 is/is not provided[4]
9.6.1. Braking torque activating the overload protector M_{op} = ... Nm	9.6.1.A. Braking torque activating the overload protector M_{op} = ... Nm
9.7. Force for M* P* = ... N	9.7.A. Pressure for M* p* = ... N/cm^2

9.8.A. Surface area of wheel cylinder

F_{RZ} = ... cm^2

9.9.A. (for disk brakes)

Fluid volume absorption

V_{60} = ... cm^3

9.10. Service brake performance when the towed vehicle moves rearwards (see figures 6 and 7 of Appendix 1 to Annex VIII of Regulation (EU) 2015/68)

9.10.1. Maximum Fig 6 braking torque M_r = ... Nm

9.10.1.A Maximum Fig 7 braking torque M_r = ... Nm

9.10.2. Maximum permissible travel s_r = ... mm

9.10.2.A Maximum permissible fluid volume absorbed V_r = ... cm^3

9.11. Further brake characteristics when the towed vehicle moves rearwards (see figures 6 and 7 of Appendix 1 to Annex VIII of Regulation (EU) 2015/68)

9.11.1. Brake-retraction force P_{or} = ... N

9.11.1.A Brake-retraction pressure p_{or} = ... N/cm^2

9.11.2. Brake characteristic ρ_r = ... m

9.11.2.A Brake characteristic ρ'_r = ... m

9.12. Tests according to point 7.5. of Annex VIII of Regulation (EU) 2015/68, if applicable (corrected to take account of the rolling resistance corresponding to $0{,}01 \cdot g \cdot G_{Bo}$)

9.12.1. Brake test Type-0

Test speed = ... km/h

Braking ratio = ...%

Control force = ... N

9.12.2. Brake test Type-I

Test speed = ... km/h

Sustained braking ratio = ... %

Braking time = ... minutes

Hot performance = ... %

(expressed as a per cent of the above Type-0 test result in point 9.12.1.)

Control force = ... N

10. The above brake does / does not (*) conform to the requirements of paragraphs 3 and 6 of the testing conditions for vehicles fitted with inertia braking systems described in Annex VIII of Regulation (EU) 2015/68.

The brake may / may not (*) be used for an inertia braking system without an overload protector.

Date: ..... Signature: .....

11. This test has been carried out and the results reported in accordance with relevant provisions of Annex VIII of Regulation (EU) 2015/68.

Technical Service (****) carrying out the test

Date: ..... Signature: .....

12. Approval Authority (****)

Date: ..... Signature: .....

_____

(*) Strike out what does not apply.
(**) State lengths used to determine i_g or i'_g
(***) State lengths whose ratio was used to determine iHo or ih.
(****) To be signed by different persons even when the Technical Service and Approval Authority are the same or alternatively a separate Approval Authority authorization issued with the report.

Appendix 5

Test report on the compatibility of the inertia brake control device, the transmission and the brakes on the towed vehicle

1. Control device .....

described in the attached test report (see test report on inertia-braking system control device)

Reduction ratio selected:

i_{Ho} (*) = ... (**) or i_h (*) = ... (**)

2. Brakes described in the attached test report

3. Transmission devices on the towed vehicle

3.1. Brief description with diagram showing principle

3.2. Reduction ratio and efficiency of the mechanical-transmission device on the towed vehicle

i_{H1} (*) = ... (**)

η_{H1} (*) = ...

4. Towed vehicle

4.1. Manufacturer

4.2. Make .....

4.3. Type .....

4.4. Type of drawbar connection: towed vehicle with rigid drawbar/multi-axled towed vehicle with pivoted drawbar (*)

4.5. Number of brakes n =

4.6. Technically permissible maximum mass G_A = kg

4.7. Dynamic tyre rolling radius R* = m

4.8. Permissible thrust on coupling

$D^* = 0{,}10 \cdot g \cdot G_A$ (*) = N

or

$D^* = 0{,}067 \cdot g \cdot G_A$ (*) = N

4.9. Required braking force $B^* = 0{,}50 \cdot g \cdot G_A$ = N

4.10. Brake force $B = 0{,}49 \cdot g \cdot G_A$ = N

5. Compatibility - Test results

5.1. Force threshold $100 \cdot K_A/(g \cdot G_A)$ =

5.2. $100 \cdot D_1/(g \cdot G_A)$ =

5.3. $100 \cdot D_2/(g \cdot G_A)$ = ...

5.4. G′A = ... kg

5.5. $G_B = n \cdot G_{Bo}$ = ... kg

5.6. Braking torque of the brakes $n \cdot M^* /(B \cdot R)$ = ...

5.6.1. An overload protector within the meaning of point 3.6. of Annex VIII of Regulation (EU) 2015/68 is / is not (*) fitted on the inertia control device / on the brakes (*)

5.6.1.1 where the overload protector is mechanical on the inertia control device (*)

$n \cdot P^* /(iH1 \cdot \eta H1 \cdot P'max)$ = ...

5.6.1.2 where the overload protector is hydraulic on the inertia control device (*)

p* / p′max = ...

5.6.1.3 if the overload protector is on the inertia control device:

threshold force Dop/D* = ...

5.6.1.4 if the overload protector is fitted on the brake:

threshold torque $n \cdot Mop/(B \cdot R)$ = ...

5.7. Inertia braking system with mechanical transmission device (*)

5.7.1. $iH = iHo \cdot iH1$ = ...

5.7.2. $\eta H = \eta Ho \cdot \eta H1$ = ...

5.7.3. $\left[\frac{B \cdot R}{\rho} + n.\ P_o\right] \cdot \frac{1}{(D^* - K\ .\eta_H)}$ = ...

5.7.4. $\frac{s'}{s_B * \ \cdot i_g}$ = ...

5.7.5. Ratio s′/iH = ...

when the towed vehicle moves rearward

5.7.6. For the braking torque when the towed vehicle moves rearward including rolling resistance

$0{,}08 \cdot g \cdot G_A \cdot R$ = ... Nm

5.8. Inertia braking system with hydraulic transmission device (*)

5.8.1. ih/FHZ = ...

5.8.2. $\left[\frac{B \cdot R}{n.\ \rho'} + p_o\right] \cdot \frac{1}{(D^* - K\ .\eta_H)}$ = ...

5.8.3. $\frac{s'}{2s_B * \ \cdot n \cdot F_{RZ} \cdot i_{g'}}$ = ...

5.8.4. s/ih = ...

5.8.5. Ratio s′/FHZ = ...

when the towed vehicle moves rearward

5.8.6. For the braking torque when the towed vehicle moves rearward including rolling resistance

$0{,}08 \cdot g \cdot G_A \cdot R$ = ... Nm

6. Differential travel at park brake compensator

6.1.1. Maximum permissible compensator travel (forward) scf = ... mm

6.1.2. Maximum permissible compensator travel (rearward) scr = ... mm

6.1.3. Maximum permissible differential compensator travel scd = ... mm

7. The inertia braking system described above complies/does not comply (*) with the requirements of points 3. to 10. of Annex VIII of Regulation (EU) 2015/68.

Signature: ..... Date: .....

8. This test has been carried out and the results reported in accordance with relevant provisions of Annex VIII of Regulation (EU) 2015/68.

Technical Service (***) carrying out the test

Signature: ..... Date: .....

(*) Strike out what does not apply.
(**) State lengths used to determine i_g or i'_g
(***) To be signed by different persons even when the Technical Service and Approval Authority are the same or alternatively a separate Approval Authority authorization issued with the report.'.