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To:	Mr Jeppe TRANHOLM-MIKKELSEN, Secretary-General of the Council of the European Union
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Subject:	COMMISSION REGULATION (EU) .../... of XXX amending Regulation (EU) 2017/2400 as regards the determination of the CO ₂ emissions and fuel consumption of medium and heavy lorries and heavy buses and to introduce electric vehicles and other new technologies

Delegations will find attached document [\[...\]](#)(2021) XXX draft - D076241/1.

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COMMISSION REGULATION (EU) .../...

of **XXX**

amending Regulation (EU) 2017/2400 as regards the determination of the CO₂ emissions and fuel consumption of medium and heavy lorries and heavy buses and to introduce electric vehicles and other new technologies

(Text with EEA relevance)

COMMISSION REGULATION (EU) .../... of **XXX amending Regulation (EU) 2017/2400 as regards the determination of the CO₂ emissions and fuel consumption of medium and heavy lorries and heavy buses and to introduce electric vehicles and other new technologies**

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

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

Having regard to Regulation (EC) No 595/2009 of the European Parliament and of the Council of 18 June 2009 on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information¹, and in particular Article 4(3) and Article 5(4), point (e), thereof,

Whereas:

- (1) Commission Regulation (EU) 2017/2400² introduces a common method to objectively compare the performance of heavy-duty vehicles placed on the Union market as regards their CO₂ emissions and fuel consumption. It lays down provisions for the certification of components with an impact on CO₂ emissions and fuel consumption of heavy-duty vehicles, introduces a simulation tool for the purpose of determining and declaring CO₂ emissions and fuel consumption of those vehicles, and lays down, inter alia, requirements for Member States' authorities and manufacturers to verify the conformity of the certification of the components and the conformity of the simulation tool operation.
- (2) Regulation (EU) 2018/858 of the European Parliament and of the Council³ has moved the rules on access to vehicle on-board diagnostic information and vehicle repair and maintenance information from Regulation (EC) No 595/2009. In order to align the wording of Regulation (EU) 2017/2400 to the changed wording of Regulation (EC) No 595/2009, the references to on-board diagnostic information and vehicle repair and maintenance information need to be removed from Regulation (EU) 2017/2400.
- (3) Regulation (EU) 2017/2400 determines CO₂ emissions and fuel consumption of heavy lorries. However, in order to provide a better view on CO₂ emissions, CO₂ emissions of more vehicles need to be calculated. It is therefore necessary to determine CO₂ emissions and fuel consumption of other heavy duty vehicles, namely medium lorries and heavy buses.

¹ OJ L 188, 18.7.2009, p. 1.

² Commission Regulation (EU) 2017/2400 of 12 December 2017 implementing Regulation (EC) No 595/2009 of the European Parliament and of the Council as regards the determination of the CO₂ emissions and fuel consumption of heavy-duty vehicles and amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EU) No 582/2011 (OJ L 349, 29.12.2017, p. 1).

³ Regulation (EU) 2018/858 of the European Parliament and of the Council of 30 May 2018 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC) No 715/2007 and (EC) No 595/2009 and repealing Directive 2007/46/EC (OJ L 151, 14.6.2018, p. 1).

- (4) To appropriately cover future technologies, it is necessary to specify additional requirements for new technologies such as hybrid and pure electric vehicles, dual-fuel vehicles, waste heat recovery and advanced driver assistance systems.
- (5) As the on-road verification testing procedure has proved to be an important tool for the verification of calculations of CO₂ emissions and fuel consumption, it is appropriate for it to apply for medium lorries and new technologies. However, due to the complexities of the multi-stage production and approval system that applies for heavy buses, it is not possible at this moment to have the on-road verification testing procedure extended to them.
- (6) Some definitions and requirements in Regulation (EU) 2017/2400 need further clarification and corrections, including further alignment to the CO₂ emission performance standards for new heavy-duty vehicles laid down in Regulation (EU) 2019/1242 of the European Parliament and of the Council⁴.
- (7) In order to provide Member States, national authorities and economic operators with sufficient time to prepare for the application of the rules introduced by this Regulation, the date of application of this Regulation should be deferred.
- (8) As certain manufacturers may prefer to meet the requirements set out in this Regulation before its date of application, they should have the possibility to obtain a licence to operate the simulation tool and receive a certification for components in accordance with the rules introduced by this Regulation before its date of application.
- (9) For certain groups of vehicles and certain technologies the simulation tool required for the obligation to determine and declare CO₂ emissions and fuel consumption of new vehicles, will only be available after the general application date of this Regulation. In these cases the requirements can only be required from the moment of availability of the simulation tool. This is why some provisions of this Regulation shall only apply from a later date.
- (10) The measures provided for in this Regulation are in accordance with the opinion of the Technical Committee – Motor Vehicles,

HAS ADOPTED THIS REGULATION:

Article 1

Regulation (EU) 2017/2400 is amended as follows:

- (1) Articles 1 and 2 are replaced by the following:

‘Article 1

Subject matter

This Regulation complements the legal framework for the type-approval of motor vehicles and engines with regard to emissions established by Regulation (EU) No 582/2011 by laying down the rules for issuing licences to operate a simulation tool with a view to determining CO₂ emissions and fuel consumption of new vehicles to be sold, registered or put into service in the Union and for operating that simulation tool and declaring the CO₂ emissions and fuel consumption values thus determined.

⁴ Regulation (EU) 2019/1242 of the European Parliament and of the Council of 20 June 2019 setting CO₂ emission performance standards for new heavy-duty vehicles and amending Regulations (EC) No 595/2009 and (EU) 2018/956 of the European Parliament and of the Council and Council Directive 96/53/EC (OJ L 198, 25.7.2019, p. 202).

Article 2

Scope

1. Subject to Article 4, second paragraph, this Regulation shall apply to medium lorries, heavy lorries and heavy buses.

2. In the case of multi-stage type-approvals or individual approvals of medium and heavy lorries, this Regulation shall apply to base lorries.

In the case of heavy buses, this Regulation shall apply to primary vehicles, interim vehicles and to complete vehicles or completed vehicles.

3. This Regulation shall not apply to off-road vehicles, special purpose vehicles and off-road special purpose vehicles as defined, respectively, in Part A, points 2.1., 2.2. and 2.3., of Annex I to Regulation (EU) 2018/858 of the European Parliament and of the Council*.

* Regulation (EU) 2018/858 of the European Parliament and of the Council of 30 May 2018 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC) No 715/2007 and (EC) No 595/2009 and repealing Directive 2007/46/EC (OJ L 151, 14.6.2018, p. 1).²;

(2) Article 3 is amended as follows:

(a) the first paragraph is amended as follows:

(1) points 10, 11 and 12 are replaced by the following:

“(10) ‘axle’ means a component comprising all rotating parts of the driveline which transfer the driving torque coming from the propshaft to the wheels and changes the torque and speed with a fixed ratio and including the functions of a differential gear;

(11) ‘air drag’ means characteristic of a vehicle configuration regarding aerodynamic force acting on the vehicle in the direction of air flow and determined as a product of the drag coefficient and the cross sectional area for zero crosswind conditions;

(12) ‘auxiliaries’ means vehicle components including an engine fan, steering system, electric system, pneumatic system and Heating, Ventilation and Air Conditioning (HVAC) system whose CO₂ emissions and fuel consumption properties have been defined in Annex IX;”;

(2) points 15 to 18 are replaced by the following:

“(15) ‘zero emission heavy-duty vehicle’ (Ze-HDV) means ‘zero emission heavy-duty vehicle’ as defined in Article 3, point (11), of Regulation (EU) 2019/1242 of the European Parliament and of the Council;

(16) ‘vocational vehicle’ means a heavy-duty vehicle not intended for the delivery of goods and for which one of the following digits is used to supplement the bodywork codes, as listed in Appendix 2 to Annex I to Regulation (EU) 2018/858: 09, 10, 15, 16, 18, 19, 20, 23, 24, 25, 26, 27, 28, 31; or a tractor with a maximum speed not exceeding 79 km/h;

(17) ‘rigid lorry’ means a ‘lorry’ as defined in Part C, point 4.1, of Annex I to Regulation (EU) 2018/858, except for the lorries designed or constructed for the towing of a semi-trailer;

(18) ‘tractor’ means a ‘tractor unit for semi-trailer’ as defined in Part C, point 4.3, of Annex I to Regulation (EU) 2018/858”;

(3) paragraph 20 is replaced by the following:

“(20) ‘hybrid electric heavy-duty vehicle’ (He-HDV) means a hybrid heavy duty vehicle that, for the purpose of mechanical propulsion, draws energy from both of the following on-vehicle sources of stored energy or power: (i) a consumable fuel, and (ii) an electrical energy or power storage device;”;

(4) the following points (22) to (39) are added:

(22) “‘primary vehicle’ means a heavy bus in a virtual assembly condition determined for simulation purposes, for which the input data and input information as set out in Annex III is used;

(23) ‘manufacturer’s records file’ means a file produced by the simulation tool which contains manufacturer related information, a documentation of the input data and input information to the simulation tool and the results for CO₂ emissions and fuel consumption;

(24) ‘customer information file’ means a file produced by the simulation tool which contains a defined set of vehicle related information and the results for CO₂ emissions and fuel consumption as defined in Part II of Annex IV;

(25) ‘vehicle information file’ (VIF) means a file produced by the simulation tool for heavy buses to transfer the relevant input data, input information and simulation results to subsequent manufacturing stages following the method as described in point (2) of Annex I;

(26) ‘medium lorry’ means a vehicle of category N₂, as defined in Article 4(1), point (b)(ii), of Regulation (EU) 2018/858, with a technically permissible maximum laden mass exceeding 5 000 kg and not exceeding 7 400 kg;

(27) ‘heavy lorry’ means a vehicle of category N₂, as defined in Article 4(1), point (b)(ii), of Regulation (EU) 2018/858, with a technically permissible maximum laden mass exceeding 7 400 kg and a vehicle of category N₃, as defined in Article 4(1), point (b)(iii), of that Regulation;

(28) ‘heavy bus’ means a vehicle of category M₃, as defined in Article 4(1), point (a)(iii), of Regulation (EU) 2018/858, with a technically permissible maximum laden mass of more than 7 500 kg;

(29) ‘primary vehicle manufacturer’ means a manufacturer responsible for the primary vehicle;

(30) ‘interim vehicle’ means any further completion of a primary vehicle where a sub-set of input data and input information as

defined for the complete or completed vehicle in accordance with Table 1 and Table 3a of Annex III is added and/or modified;

- (31) ‘interim manufacturer’ means a manufacturer responsible for an interim vehicle;
- (32) ‘incomplete vehicle’ means ‘incomplete vehicle’ as defined in Article 3, point (25), of Regulation (EU) 2018/858;
- (33) ‘completed vehicle’ means ‘completed vehicle’ as defined in Article 3, point (26), of Regulation (EU) 2018/858;
- (34) ‘complete vehicle’ means ‘complete vehicle’ as defined in Article 3, point (27), of Regulation (EU) 2018/858;
- (35) ‘standard value’ is input data for the simulation tool for a component where certification of input data is applicable, but the component has not been tested to determine a specific value and which reflects the worst-case performance of a component;
- (36) ‘generic value’ is data used in the simulation tool for components or vehicle parameters where no component testing or declaration of specific values is foreseen and which reflects performance of average component technology or typical vehicle specifications;
- (37) ‘van’ means a ‘van’ as defined in Part C, point 4.2, of Annex I to Regulation (EU) 2018/858;
- (38) ‘application case’ means the different scenarios to be followed in the case of a medium lorry, heavy lorry, heavy bus that is a primary vehicle, heavy bus that is an interim vehicle, heavy bus that is a complete vehicle or completed vehicle for which different manufacturer provisions and functions are applicable in the simulation tool”;
- (39) ‘base lorry’ means a medium lorry or heavy lorry equipped at least with:
 - a chassis, engine, transmission, axles and tyres, in the case of pure internal combustion engine vehicles;
 - a chassis, electric machine system and/or integrated electric powertrain component, battery system(s) and/or capacitor system(s) and tyres, in the case of pure electric vehicles;
 - a chassis, engine, electric machine system and/or integrated electric powertrain component and/or integrated hybrid electric vehicle powertrain component type 1, battery system(s) and/or capacitor system(s) and tyres, in the case of hybrid electric heavy-duty vehicles.”;

(b) the second paragraph is deleted;

(3) Article 4 is replaced by the following:

‘Article 4

Vehicle groups

For the purpose of this Regulation, motor vehicles shall be classified in vehicle groups in accordance with Annex I, Tables 1 to 6.

Articles 5 to 23 do not apply to heavy lorries of vehicle groups 6, 7, 8, 13, 14, 15, 17, 18 and 19 as set out in Table 1 of Annex I, and to medium lorries of vehicle groups 51, 52, 55 and 56, as set out in Table 2 of Annex I and to any vehicle with a driven front axle in the vehicle groups 11, 12 and 16 as set out in Table 1 of Annex I.’;

- (4) in Article 5(3), the first sentence is replaced by the following:

‘The simulation tool shall be used for the purposes of determining CO₂ emissions and fuel consumption of new vehicles.’;
- (5) in Article 5, paragraph 5 is replaced by the following:

‘5. The hashing tools shall be used for establishing an unequivocal association between the certified CO₂ emission and fuel consumption related properties of a component, separate technical unit or system and its certification document, as well as for establishing an unequivocal association between a vehicle and its manufacturer's records file, vehicle information file and customer information file as referred to in Annex IV.’;
- (6) in Chapter 2, the title is replaced by the following:

‘LICENCE TO OPERATE THE SIMULATION TOOL FOR THE PURPOSES OF TYPE-APPROVAL WITH REGARD TO EMISSIONS’;
- (7) Article 6 is amended as follows:
 - (a) paragraph 1 is replaced by the following:

‘1. The vehicle manufacturer shall submit to the approval authority an application for a licence to operate the simulation tool for an application case with a view to determining CO₂ emissions and fuel consumption of new vehicles belonging to one or more vehicle groups (‘licence’). An individual licence shall apply to only a single such application case.

The application for a licence shall be accompanied by an adequate description of the processes set up by the vehicle manufacturer with a view to the operation of the simulation tool with respect to the application case concerned, as set out in point (1) of Annex II.’;
 - (b) paragraph 4 is replaced by the following:

‘4. The vehicle manufacturer shall submit the application for a licence to the approval authority at the latest together with the application for an EC type-approval of a vehicle with an approved engine system with regard to emissions pursuant to Article 7 of Regulation (EU) No 582/2011, with the application for an EC type-approval of a vehicle with regard to emissions pursuant to Article 9 of that Regulation, with an application for a whole-vehicle type-approval pursuant to Regulation (EU) 2018/858 or the application for a national individual vehicle approval. The approval of a pure electric engine system and the EC type-approval of a pure electric vehicle with regard to emissions referred to in the previous sentence is limited to the measurement of net engine power in accordance with Annex XIV to Regulation (EU) No 582/2011.

The application for a licence must concern the application case which includes the type of vehicle concerned by the application for EU type-approval.’;

(8) Article 7(1) is replaced by the following:

‘1. The approval authority shall grant the licence if the vehicle manufacturer submits an application in accordance with Article 6 and proves that the requirements laid down in Annex II are met with respect to the application case concerned.’;

(9) Article 8 is amended as follows:

(a) paragraph 1 is deleted;

(b) paragraph 3 is replaced by the following:

‘3. After obtaining the licence, the vehicle manufacturer shall notify the approval authority without delay of any changes to the processes set up by it for the purposes of the licence for the application case covered by the licence that may affect the accuracy, reliability and stability of those processes.’;

(10) Article 9 is amended as follows:

(a) paragraph 1 is replaced by the following:

‘1. A vehicle manufacturer shall determine the CO₂ emissions and fuel consumption of each new vehicle, with the exception of vehicle technologies listed in Appendix 1 to Annex III, to be sold, registered or put into service in the Union using the latest available version of the simulation tool referred to in Article 5(3). With regard to heavy buses the vehicle manufacturer or interim manufacturer shall use the method set out in Annex I, point (2).

For vehicle technologies listed in Appendix 1 to Annex III to be sold, registered or put into service in the Union, the vehicle manufacturer or interim manufacturer shall determine only the input parameters specified for those vehicles in the models set out in Table 5 of Annex III, using the latest available version of the simulation tool referred to in Article 5(3).

A vehicle manufacturer may operate the simulation tool for the purposes of this Article only if in possession of a licence granted for the application case concerned in accordance with Article 7. An interim manufacturer operates the simulation tool under the licence of a vehicle manufacturer.’;

(b) in paragraph 2, the following subparagraph is added:

‘Vehicle manufacturers of heavy buses additionally shall record the results of the simulation in the vehicle information file. Interim manufacturers of heavy buses shall record the vehicle information file.’;

(c) paragraph 3 is replaced by the following:

‘3. The vehicle manufacturer of medium lorries and heavy lorries shall create cryptographic hashes of the manufacturer's records file and of the customer information file.

The primary vehicle manufacturer shall create cryptographic hashes of the manufacturer's records file and of the vehicle information file.

The interim manufacturer shall create the cryptographic hash of the vehicle information file.

The vehicle manufacturer of complete vehicles or completed vehicles that are heavy buses, shall create cryptographic hashes of the manufacturer's records file, of the customer information file and of the vehicle information file.';

(d) paragraph 4 is amended as follows:

(1) the first subparagraph is replaced by the following:

'Lorries and complete vehicles or completed vehicles that are heavy buses to be registered, sold or to enter into service shall be accompanied by the customer information file drawn up by the manufacturer in accordance with the model set out in Part II of Annex IV.';

(2) the following subparagraph is added:

'Vehicle manufacturers of heavy buses shall make the vehicle information file available to the manufacturer of a subsequent step in the chain.';

(e) paragraph 5 is replaced by the following:

'5. Each vehicle accompanied by a certificate of conformity or, in the case of vehicles approved in accordance with Article 45 of Regulation (EU) 2018/858, an individual vehicle approval certificate, the certificate shall include an imprint of the cryptographic hashes referred to in paragraph 3 of this Article.';

(f) the following paragraph is added:

'6. In accordance with point 11 of Annex III, a manufacturer may transfer results of the simulation tool to other vehicles.';

(11) in Article 10(3), the following subparagraph is added:

'Where a malfunction of the simulation tool occurs at a step in the manufacturing chain of heavy buses prior to the complete or completed manufacturing steps, the obligation under Article 9(1) to operate the simulation tool at the subsequent manufacturing steps shall be postponed for a maximum of 14 calendar days after the date on which the manufacturer at the previous step made the vehicle information file available to the manufacturer of the complete or completed step.';

(12) in Article 11, paragraphs 1 and 2 are replaced by the following:

'1. The manufacturer's records file, the vehicle information file and the certificates on CO₂ emissions and fuel consumption related properties of the components, systems and separate technical units shall be stored by the vehicle manufacturer for at least 20 years after the production of the vehicle and shall be available, upon request, to the approval authority and to the Commission.

2. Upon request by an authorised entity of a Member State or by the Commission, the vehicle manufacturer shall provide, within 15 working days, the manufacturer's records file or the vehicle information file.';

(13) Article 12 is amended as follows:

(a) paragraph 1 is amended as follows:

(1) point (g) is replaced by the following:

'(g) air drag;';

(2) the following point (j) is added:

‘(j) electric powertrain components.’;

(b) paragraph 2 is replaced by the following:

‘2. The CO₂ emissions and fuel consumption related properties of the components, separate technical units and systems referred to in points (b) to (g), (i) and (j) of paragraph 1 of this Article shall be based either on the values determined, for each component, separate technical unit, system or if applicable their respective family, in accordance with Article 14 and certified in accordance with Article 17 (‘certified values’) or, in the absence of the certified values, on the standard values determined in accordance with Article 13.’;

(c) paragraphs 4 to 7 are replaced by the following:

‘4. The CO₂ emissions and fuel consumption related properties of auxiliaries shall be based on the generic values as implemented in the simulation tool and as allocated to a vehicle based on the input information to be determined in accordance with Annex IX.

5. In the case of a base lorry, the CO₂ emissions and fuel consumption related properties of components, separate technical units and systems referred to in paragraph 1, point (g), of this Article, which cannot be determined for the base lorries shall be based on the standard values. For components, separate technical units and systems referred to in paragraph 1, point (h), the technology with highest power losses shall be selected by the vehicle manufacturer.

6. In the case of vehicles exempted from the obligation to determine the CO₂ emissions and fuel consumption under Article 9(1), the simulation tool input data shall include the information set out in Table 5 of Annex III.

7. Where the vehicle is to be registered, sold or put into service with a complete set of snow tyres and a complete set of standard tyres, the vehicle manufacturer may choose which of the tyres to use for determining the CO₂ emissions. In the case of heavy buses, as long as the tyres used in the primary vehicle simulation are with the vehicle when it is registered, sold or put into service, addition of tyre sets to the vehicle shall not result in the obligation to conduct a new primary vehicle simulation in accordance with point 2 of Annex I.’;

(14) Article 13 is amended as follows:

(a) the heading is replaced by the following:

‘Standard values and generic values’;

(b) paragraphs 7 and 8 are replaced by the following:

‘7. For auxiliaries generic values are allocated by the simulation tool in accordance with the technologies selected in accordance with Annex IX.

8. The standard value for tyres shall be determined in accordance with Annex X, point 3.2.’;

(c) the following paragraph is added:

‘9. The standard values for electric powertrain components shall be determined in accordance with Appendices 8, 9 and 10 to Annex Xb.’;

- (15) Article 14 is amended as follows:
- (a) paragraphs 1 and 2 are replaced by the following:
 - ‘1. The values determined in accordance with paragraphs 2 to 10 of this Article may be used by the vehicle manufacturer as the simulation tool input data if they are certified in accordance with Article 17.
 - 2. The certified values for engines shall be determined in accordance with points 4, 5 and 6 of Annex V.’;
 - (b) the following paragraph 10 is added:
 - ‘10. The certified values for electric powertrain components shall be determined in accordance with points 4, 5 and 6 of Annex Xb.’;
- (16) Article 15 is amended as follows:
- (a) in paragraph 1, the following indents are added:
 - ‘- Appendix 3 to Annex V as regards engines, the certified values for the members of an engine family created in accordance with the family definition shall be derived in accordance with points 4, 5 and 6 of Annex V;
 - Appendix 13 to Annex Xb as regards the family concept of electric machine systems or integrated electric powertrain components, the certified values for the members of a family created in accordance with the family definition of electric machine systems, shall be derived in accordance with point 4 of Annex Xb.’;
 - (b) paragraph 2 is replaced by the following:
 - ‘2. For engines, the certified values for the members of an engine family shall be derived in accordance with points 4, 5 and 6 of Annex V.
 - For tyres, a family shall consist of one tyre type only.
 - For electric machine systems or integrated electric powertrain components, the certified values for the members of a family of electric machine systems shall be derived in accordance with point 4 of Annex Xb.’;
- (17) Article 16 is amended as follows:
- (a) paragraph 1 is replaced by the following:
 - ‘1. The application for certification of the CO₂ emissions and fuel consumption related properties of the component, separate technical unit and systems, or if applicable their respective families, shall be submitted to the approval authority.’;
 - (b) in paragraph 2, the following indent is added:
 - ‘Appendixes 2 to 6 to Annex Xb as regards electric powertrain components.’;
 - (c) paragraph 3 is replaced by the following:
 - ‘The application for certification shall be accompanied by an explanation of the elements of design of the component, separate technical unit and system, or if applicable their respective families concerned which have a non-negligible effect on the CO₂ emissions and fuel consumption related properties of the components, separate technical units or systems concerned.

The application shall also be accompanied by the relevant test reports issued by an approval authority, test results, and by a statement of compliance issued by an approval authority pursuant to point 2 of Annex IV to Regulation (EU) 2018/858.’;

(18) Article 17 is amended as follows:

(a) Paragraph 1 is replaced by the following:

‘1. If all the applicable requirements are met, the approval authority shall certify the values relating to the CO₂ emissions and fuel consumption related properties of the component, separate technical unit and system, or if applicable their respective families concerned.’;

(b) in paragraph 2, the following indent is added:

‘- Appendix 1 to Annex Xb as regards electric powertrain components.’ ;

(c) in paragraph 3, the following indent is added:

‘- Appendix 14 to Annex Xb as regards electric powertrain components.’;

(d) in paragraph 3, the second subparagraph is replaced by the following:

‘The approval authority shall not assign the same number to another component, separate technical unit and system, or if applicable their respective families. The certification number shall be used as the identifier of the test report.

(19) in Article 18(1), the first subparagraph is amended as follows:

(a) the first indent is replaced by the following:

‘Appendix 3 to Annex V as regards the family concept of engines, taking into account the requirements of Article 15(2);’;

(b) the following indent is added:

‘- Appendix 13 to Annex Xb as regards the family concept of electric machine systems or integrated electric powertrain components, taking into account the requirements of Article 15(2).’;

(20) Article 20 is amended as follows:

(a) paragraph 1, is amended as follows:

(1) the first subparagraph is replaced by the following:

‘The vehicle manufacturer shall take the necessary measures to ensure that the processes set up for the purpose of obtaining the licence for the simulation tool for the application case covered by the licence granted pursuant to Article 7 continue to be adequate for that purpose.’;

(2) in the second subparagraph, the first sentence is replaced by the following:

‘For medium lorries and heavy lorries, with the exception of He-HDV or PEV, the vehicle manufacturer shall, perform the verification testing procedure set out in Annex Xa on a minimum number of vehicles in accordance with that Annex, point 3.’;

(b) in paragraph 2, first subparagraph, the first sentence is replaced by the following:

‘The approval authority shall perform, four times per year, an assessment as referred to in point 2 of Annex II in order to verify whether the processes set up by the manufacturer for the purposes of determining CO₂ emissions and fuel consumption for all the application cases and vehicle groups covered by the licence continue to be adequate.’;

(21) Article 21 is amended as follows:

(a) paragraph 2 is replaced by the following:

‘2. The plan of remedial measures shall apply to all application cases and vehicle groups which have been identified by the approval authority in its request.’;

(b) paragraph 3 is amended as follows:

(1) the second subparagraph is replaced by the following:

‘The approval authority may require the vehicle manufacturer to issue a new manufacturer's records file, vehicle information file, customer information file and certificate of conformity on the basis of a new determination of CO₂ emissions and fuel consumption reflecting the changes implemented in accordance with the approved plan of remedial measures.’;

(2) the following subparagraphs are added:

‘The vehicle manufacturer shall take the necessary measures to ensure that the processes set up for the purpose of obtaining the licence to operate the simulation tool for all the application cases and vehicle groups covered by the licence granted pursuant to Article 7 continue to be adequate for that purpose.

For medium lorries and heavy lorries the vehicle manufacturer shall, perform the verification testing procedure set out in Annex Xa on a minimum number of vehicles in accordance with that Annex, point 3.’;

(22) Article 22(1) is amended as follows:

(a) the first subparagraph is replaced by the following:

‘The manufacturer shall take the necessary measures in accordance with Annex IV to Regulation (EU) 2018/858 to ensure that the CO₂ emissions and fuel consumption related properties of the components, separate technical units and systems listed in Article 12(1) which have been the subject of certification in accordance with Article 17 do not deviate from the certified values.’;

(b) in the second subparagraph, the following indent is added:

‘- the procedures laid down in points 1 to 4 of Appendix 12 to Annex Xb as regards electric powertrain components’;

(c) the third paragraph is replaced by the following:

‘3. The manufacturer shall ensure that at least one in every 25 procedures referred to in the second subparagraph of paragraph 1, or, with an exception for tyres, at least one procedure per year, relating to a component, separate technical unit and system, or if applicable their respective families is supervised by a different approval authority than the one which participated in the certification of CO₂ emissions and

fuel consumption related properties of the component, separate technical unit, system or if applicable their respective families concerned pursuant to Article 16.’;

(23) Article 23 is amended as follows:

(a) paragraph 2 is replaced by the following:

‘2. The plan of remedial measures shall apply to all the components, separate technical units and systems, or if applicable their respective families which have been identified by the approval authority in its request.’;

(b) in paragraph 3, the second subparagraph is replaced by the following:

‘The approval authority may require the vehicle manufacturer to issue a new manufacturer's records file, customer information file, vehicle information file and certificate of conformity on the basis of a new determination of CO₂ emissions and fuel consumption reflecting the changes implemented in accordance with the approved plan of remedial measures.’;

(c) paragraph 5 is replaced by the following:

‘5. The manufacturer shall keep a record of every component, separate technical unit or system recalled and repaired or modified and of the workshop which performed the repair or modification. The approval authority shall have access to such records on request during the implementation of the plan of the remedial measures and for a period of 5 years after the completion of its implementation.

The manufacturer shall store those records for 10 years.’;

(d) paragraph 6 is replaced by the following:

‘6. Where the plan of remedial measures has been rejected by the approval authority, or the approval authority establishes that the remedial measures are not being correctly applied, it shall take the necessary measures to ensure the conformity of CO₂ emissions and fuel consumption related properties of the component, separate technical unit and system, and if applicable their respective families concerned, or withdraw the certificate on CO₂ emissions and fuel consumption related properties.’;

(24) Article 24 is amended as follows:

(a) paragraph 1 is amended as follows:

(1) the introductory wording is replaced by the following:

‘Without prejudice to Article 10(3) of this Regulation, where the obligations referred to in Article 9 of this Regulation have not been complied with, Member States shall consider certificates of conformity for type approved vehicles to be no longer valid for the purposes of Article 48 of Regulation (EU) 2018/858, and, for type approved and individually approved vehicles, shall prohibit the registration, sale or entry into service of:’;

(2) the following points (d), (e) and (f) are added:

‘(d) vehicles in the groups 53 and 54, as defined in Table 2 of Annex I as from 1 July 2024;

(e) vehicles in the groups 31 to 40, as defined in Tables 4 to 6 of Annex I, as from 1 January 2025;

(f) vehicles in the group 1s as defined in Table 1 of Annex I, as from 1 July 2024.’;

(b) paragraphs 2 and 3 are replaced by the following:

‘2. The obligations referred to in Article 9 shall apply as follows:

(a) for vehicles in the groups 53 and 54, as defined in Table 2 of Annex I, with production date on or after 1 January 2024;

(b) for vehicles in the groups P31/32, P33/34, P35/36, P37/38 and P39/40 as defined in Table 3 of Annex I with production date on or after 1 January 2024;

(c) for heavy buses the simulation of the complete vehicle or completed vehicle as referred in point 2.1(b) of Annex I shall only be performed if the simulation of the primary vehicle as referred in point 2.1(a) of Annex I is available;

(d) for vehicles in the group 1s as defined in Table 1 of Annex I with production date on or after 1 January 2024;

(e) for vehicles in the groups 1, 2, 3, 4, 5, 9, 10, 4v, 5v, 9v, 10v, 11, 12, and 16, as defined in Table 1 of Annex I, other than those defined in points (f) and (g) of this paragraph, with production date on or after 1 January 2024;

(f) for vehicles in the groups 1, 2, 3, 4, 5, 9, 10, 4v, 5v, 9v, 10v, 11, 12, and 16, as defined in Table 1 of Annex I, which are equipped with a waste heat recovery system, as defined in point 2(8) of Annex V, provided that they are not ZE-HDVs, He-HDVs or dual-fuel vehicles;

(g) for dual-fuel vehicles in the groups 1, 2, 3, 4, 5, 9, 10, 4v, 5v, 9v, 10v, 11, 12, and 16 as defined in Table 1 of Annex I with production date on or after 1 January 2024; if they have a production date before 1 January 2024, the manufacturer may choose whether to apply Article 9.

For ZE-HDVs, He-HDVs and dual-fuel vehicles in the groups 1, 2, 3, 4, 5, 9, 10, 4v, 5v, 9v, 10v, 11, 12, and 16 as defined in Table 1 of Annex I in respect of which Article 9 has not been applied in conformity with points (a) to (g) of the first subparagraph of this paragraph, the vehicle manufacturer shall determine the input parameters specified for those vehicles in the models set out in Annex III, Table 5, using the latest available version of the simulation tool referred to in Article 5(3). In such case, the obligations referred to in Article 9 shall be deemed to be fulfilled for the purposes of paragraph 1 of this Article.

For the purposes of this paragraph, the production date shall mean the date of signature of the certificate of conformity and where no certificate of conformity has been issued, the date on which the vehicle identification number was affixed for the first time on the relevant parts of the vehicle.

3. Remedial measures under Articles 21(5) and 23(6) shall apply with regard to vehicles referred to in paragraph 1, points (a), (b) and (c), of this Article

pursuant to an investigation into a vehicle failure in the verification testing procedure set out in Annex Xa as from 1 July 2023 and with regard to vehicles referred to in paragraph 2, points (d) and (g), of this Article as from 1 July 2024.’;

- (25) Annex I is replaced by the text in Annex I to this Regulation;
- (26) Annex II is amended as set out in Annex II to this Regulation;
- (27) Annex III is replaced by the text in Annex III to this Regulation;
- (28) Annex IV is replaced by the text in Annex IV to this Regulation;
- (29) Annex V is amended as set out in Annex V to this Regulation;
- (30) Annex VI is amended as set out in Annex VI to this Regulation;
- (31) Annex VII is amended as set out in Annex VII to this Regulation;
- (32) Annex VIII is amended as set out in Annex VIII to this Regulation;
- (33) Annex IX is replaced by the text in Annex IX to this Regulation;
- (34) Annex X is amended as set out in Annex X to this Regulation;
- (35) Annex Xa is replaced by the text in Annex XI to this Regulation;
- (36) the text in Annex XII to this Regulation is inserted as Annex Xb.

Article 2

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

Article 3

This Regulation shall apply from 1 July 2022.

Notwithstanding the first paragraph of this Article, for the determination of CO₂ emissions and fuel consumption of vehicles in groups 1, 2, 3, 4, 5, 9, 10, 4v, 5v, 9v, 10v, 11, 12, and 16 defined in Annex I, Table 1, other than ZE-HDVs, He-HDVs, dual-fuel vehicles and vehicles, the engine of which has been certified with a waste heat recovery system, according to Article 9(1) of Regulation (EU) 2017/2400, this Regulation shall apply as of 1 January 2024.

Notwithstanding the first paragraph of this Article, Article 1, point (35), shall apply as of 1 January 2023.

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

Done at Brussels,

*For the Commission
The President
Ursula von der Leyen*