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[1] Text with EEA relevance

EN

Acts whose titles are printed in light type are those relating to day-to-day management of agricultural matters, and are generally valid for a limited period.

The titles of all other acts are printed in bold type and preceded by an asterisk.

II

(Non-legislative acts)

REGULATIONS

COMMISSION REGULATION (EU) No 64/2012

of 23 January 2012

amending Regulation (EU) No 582/2011 implementing and amending Regulation (EC) No 595/2009 of the European Parliament and of the Council with respect to emissions from heavy duty vehicles (Euro VI)

(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 information and amending Regulation (EC) No 715/2007 and Directive 2007/46/EC and repealing Directives 80/1269/EEC, 2005/55/EC and 2005/78/EC [1], and in particular Article 4(3), Article 5(4), Article 6(2) and Article 12 thereof,

Having regard to Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (Framework Directive) [2], and in particular Article 39(7) thereof,

Whereas:

(1) Regulation (EC) No 595/2009 establishes common technical requirements for the type-approval of motor vehicles and replacement parts with regard to their emissions and lays down rules for in-service conformity, durability of pollution control devices, on-board diagnostic (OBD) systems, measurement of fuel consumption and accessibility of vehicle repair and maintenance information.

(2) In accordance with Article 3(15) of Commission Regulation (EU) No 582/2011 of 25 May 2011 implementing and amending Regulation (EC) No 595/2009 of the European Parliament and of the Council with respect to emissions from heavy duty vehicles (Euro VI) and amending Annexes I and III to Directive 2007/46/EC of the European Parliament and of the Council [3], vehicles and engines are to be type-approved in accordance with Regulation (EC) No 595/2009 and its implementing measures only once measurement procedures for measuring PM number as set out in Annex I to Regulation (EC) No 595/2009, any specific provisions regarding multi-setting engines that are needed and provisions implementing Article 6 of Regulation (EC) No 595/2009 have been adopted. Therefore, it is appropriate to amend Regulation (EU) No 582/2011 in order to include such requirements.

(3) In accordance with Article 6 of Regulation (EC) No 595/2009, Articles 6 and 7 of Regulation (EC) No 715/2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information [4] shall apply *mutatis mutandis*. Therefore, it is appropriate to carry over to this Regulation the provisions on access to repair and maintenance information set out in Regulation (EC) No 715/2007 and its implementing measures. However, it is necessary to adapt those provisions in order to take into account the specificities of the heavy-duty vehicles.

(4) In particular, it is appropriate to adopt specific procedures for access to vehicle repair and maintenance information in accordance with Article 6(1) of Regulation (EC) No 595/2009 in the case of multi-stage type-approval. It is also appropriate to adopt specific requirements and procedures for access to vehicle repair and maintenance information in the case of customer adaptations and small volume production. Finally, it is appropriate to make reference to the specific standards for reprogramming developed for the heavy-duty vehicles.

[1] OJ L 188, 18.7.2009, p. 1.
[2] OJ L 263, 9.10.2007, p. 1.
[3] OJ L 167, 25.6.2011, p. 1.
[4] OJ L 171, 29.6.2007, p. 1.

(5) Application of the provisions on access to repair and maintenance information may be too burdensome for vehicle manufacturers in the short term with respect to certain systems which are carried over from old vehicle types to new vehicle types. It is therefore appropriate to introduce certain limited derogations from the general provisions on access to vehicle OBD and vehicle repair and maintenance information.

(6) Provisions on the access to OBD and vehicle repair and maintenance information for the purposes of the design and manufacture of automotive equipment for alternative fuel vehicles should be set once type-approval for such equipment becomes possible.

(7) In accordance with Council Directive 92/6/EEC of 10 February 1992 on the installation and use of speed limitation devices for certain categories of motor vehicles in the Community ([1]), speed limitation devices are to be installed by workshops or bodies approved by the Member States. In accordance with Council Regulation (EEC) No 3821/85 of 20 December 1985 on recording equipment in road transport ([2]), only approved workshops may calibrate recording equipment in motor vehicles. It is therefore appropriate to exclude the information concerning the reprogramming of control units for speed limitation devices and recording equipment from the provisions on giving access to repair and maintenance information.

(8) Regulation (EU) No 582/2011 should therefore be amended accordingly.

(9) 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) No 582/2011 is amended as follows:

(1) in Article 2, the following points (42), (43) and (44) are added:

'(42) "customer adaptation" means any change to a vehicle, system, component or separate technical unit made at the specific request of a customer and subject to approval;

(43) "vehicle OBD information" means information relating to an on-board diagnostic system for any electronic system on the vehicle;

(44) "carry-over system" means a system, as defined in Article 3(23) of Directive 2007/46/EC, carried over from an old type of vehicle to a new type of vehicles.';

(2) the following Articles 2a to 2h are inserted:

'Article 2a

Access to vehicle OBD and vehicle repair and maintenance information

1. Manufacturers shall put in place the necessary arrangements and procedures, in accordance with Article 6 of Regulation (EC) No 595/2009 and Annex XVII to this Regulation, to ensure that vehicle OBD and vehicle repair and maintenance information is accessible through websites using a standardised format in a readily accessible and prompt manner, and in a manner which is non-discriminatory compared to the provisions given or access granted to authorised dealers and repairers. Manufacturers shall also make training material available to independent operators and authorised dealers and repairers.

2. Approval authorities shall only grant type-approval after receiving from the manufacturer a Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information.

3. The Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information shall serve as the proof of compliance with Article 6 of Regulation (EC) No 595/2009.

4. The Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information shall be drawn up in accordance with the model set out in Appendix 1 of Annex XVII.

5. The vehicle OBD and vehicle repair and maintenance information shall include the following:

(a) an unequivocal identification of the vehicle, system, component or separate technical unit for which the manufacturer is responsible;

(b) service handbooks, including service and maintenance records;

(c) technical manuals;

(d) component and diagnosis information (such as minimum and maximum theoretical values for measurements);

([1]) OJ L 57, 2.3.1992, p. 27.
([2]) OJ L 370, 31.12.1985, p. 8.

(e) wiring diagrams;

(f) diagnostic trouble codes, including manufacturer specific codes;

(g) the software calibration identification number applicable to a vehicle type;

(h) information provided concerning, and delivered by means of, proprietary tools and equipment;

(i) data record information and two-directional monitoring and test data;

(j) standard work units or time periods for repair and maintenance tasks if they are made available to authorised dealers and repairers of the manufacturer either directly or through a third party;

(k) in case of multi-stage type-approval, the information required under Article 2b.

6. Authorised dealers or repairers within the distribution system of a given vehicle manufacturer shall be regarded as independent operators for the purposes of this Regulation to the extent that they provide repair or maintenance services for vehicles in respect of which they are not members of the vehicle manufacturer's distribution system.

7. The vehicle repair and maintenance information shall always be available, except as required for maintenance purposes of the information system.

8. For the purposes of manufacture and servicing of OBD-compatible replacement or service parts and diagnostic tools and test equipment, manufacturers shall provide the relevant vehicle OBD and vehicle repair and maintenance information on a non-discriminatory basis to any interested component, diagnostic tools or test equipment manufacturer or repairer.

9. The manufacturer shall make subsequent amendments and supplements to vehicle repair and maintenance information available on its websites at the same time they are made available to authorised repairers.

10. Where repair and maintenance records of a vehicle are kept in a central data base of the vehicle manufacturer or on its behalf, independent repairers, who have been approved and authorised as required in Section 2.2 of Annex XVII, shall have access to such record free of charge and under the same conditions as authorised repairers in order to be able to enter information on repair and maintenance which they have performed.

11. The manufacturer shall make available to interested parties the following information:

(a) relevant information to enable the development of replacement components which are critical to the correct functioning of the OBD system;

(b) information to enable the development of generic diagnostic tools.

For the purposes of point (a) of the first subparagraph, the development of replacement components shall not be restricted by any of the following:

(a) the unavailability of pertinent information;

(b) the technical requirements relating to malfunction indication strategies if the OBD thresholds are exceeded or if the OBD system is unable to fulfil the basic OBD monitoring requirements of this Regulation;

(c) specific modifications to the handling of OBD information to deal independently with vehicle operation on petrol or on gas;

(d) the type-approval of gas-fuelled vehicles that contain a limited number of minor deficiencies.

For the purposes of point (b) of the first subparagraph, where manufacturers use diagnostic and test tools in accordance with ISO 22900 Modular vehicle communication interface (MVCI) and ISO 22901 Open diagnostic data exchange (ODX) in their franchised networks, the ODX files shall be accessible to independent operators via the website of the manufacturer.

Article 2b

Multi-stage type-approval

1. In the case of multi-stage type-approval, as defined in Article 3(7) of Directive 2007/46/EC, the final manufacturer shall be responsible for providing access to vehicle OBD and vehicle repair and maintenance information regarding its own manufacturing stage(s) and the link to the previous stage(s).

In addition, the final manufacturer shall on its website provide independent operators with the following information:

(a) website address of the manufacturer(s) responsible for the previous stage(s);

(b) name and address of all the manufacturers responsible for the previous stage(s);

(c) type-approval number(s) of the previous stage(s);

(d) the engine number.

2. Each manufacturer responsible for a particular stage or stages of type-approval shall be responsible for providing through his website access to vehicle OBD and vehicle repair and maintenance information regarding the stage(s) of type-approval for which he is responsible and the link to the previous stage(s).

3. The manufacturer responsible for a particular stage or stages of type-approval shall provide the following information to the manufacturer responsible for the next stage:

(a) the Certificate of Conformity relating to the stage(s) for which he is responsible;

(b) the Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information, including its appendices;

(c) the type-approval number corresponding to the stage(s) for which he is responsible;

(d) the documents referred to in points (a), (b) and (c) as provided by the manufacturer(s) involved in the previous stage(s).

Each manufacturer shall authorise the manufacturer responsible for the next stage to pass the documents provided to the manufacturers responsible for any subsequent stages and the final stage.

In addition, on a contractual basis, the manufacturer responsible for a particular stage or stages of type-approval shall:

(a) provide the manufacturer responsible for the next stage with access to vehicle OBD and vehicle repair and maintenance information and interface information corresponding to the particular stage(s) for which he is responsible;

(b) provide, at the request of a manufacturer responsible for a subsequent stage of type-approval, with access to vehicle OBD and vehicle repair and maintenance information and interface information corresponding to the particular stage(s) for which he is responsible.

4. A manufacturer, including a final manufacturer, may only charge fees in accordance with Article 2f concerning the particular stage(s) for which he is responsible.

A manufacturer, including a final manufacturer, shall not charge fees for providing information relating to the website address or contact details of any other manufacturer.

Article 2c

Customer adaptations

1. By derogation from Article 2a, if the number of systems, components or separate technical units subject to a specific customer adaptation is lower than a total of 250 units produced worldwide, repair and maintenance information for the customer adaptation shall be provided in a readily accessible and prompt manner, and in a manner which is non-discriminatory compared to the provisions given or access granted to authorised dealers and repairers.

For the servicing and reprogramming of the electronic control units relating to the customer adaptation, the manufacturer shall make the respective proprietary specialist diagnostic tool or test equipment available to independent operators as provided to authorised repairers.

The customer adaptations shall be listed on the manufacturer's repair and maintenance information website and mentioned in the Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information at the time of type-approval.

2. Until 31 December 2015, if the number of systems, components or separate technical units subject to a specific customer adaptation is higher than 250 units worldwide, the manufacturer may derogate from the obligation under Article 2a to provide access to vehicle OBD and vehicle repair and maintenance information using a standardised format. Where the manufacturer makes use of such derogation, he shall provide access to vehicle OBD and vehicle repair and maintenance information in a readily accessible and prompt manner, and in a manner which is non-discriminatory compared to the provisions given or access granted to authorised dealers and repairers.

3. Manufacturers shall make the proprietary specialist diagnostic tool or test equipment to service the customer-adapted systems, components or technical units available to independent operators via sale and rent.

4. The manufacturer shall mention in the Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information at the time of type-approval the customer adaptations for which the obligation under Article 2a to provide access to vehicle OBD and vehicle repair and maintenance information using a standardised format is derogated from and any electronic control unit related to them.

Those customer adaptations and any electronic control unit related to them shall also be listed on the manufacturer's repair and maintenance information website.

Article 2d

Small volume manufacturers

1. By derogation from Article 2a, manufacturers whose worldwide annual production of a type of vehicle, system, component or separate technical unit subject to this Regulation is less than 250 units, shall provide access to repair and maintenance information in a readily accessible and prompt manner, and in a manner which is non-discriminatory compared to the provisions given or access granted to authorised dealers and repairers.

2. The vehicle, system, component and separate technical unit subject to paragraph 1 shall be listed on the manufacturer's repair and maintenance information website.

3. The approval authority shall inform the Commission of each type-approval granted to small volume manufacturers.

Article 2e

Carry-over systems

1. Until 30 June 2016, with respect to the carry-over systems listed in Appendix 3 to Annex XVII, the manufacturer may derogate from the obligation to reprogramme the electronic control units in accordance with the standards mentioned in Annex XVII.

Such a derogation shall be indicated on the Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information at the time of type-approval.

The systems for which a manufacturer derogates from the obligation to reprogramme the electronic control units in accordance with the standards mentioned in Annex XVII shall be listed on its repair and maintenance information website.

2. For the servicing and reprogramming of the electronic control units in the carry-over systems for which the manufacturer derogates from the obligation to reprogramme the electronic control units in accordance with the standards mentioned in Annex XVII, manufacturers shall ensure that the respective proprietary tool or equipment can be purchased or rented by independent operators.

Article 2f

Fees for access to vehicle repair and maintenance information

1. Manufacturers may charge reasonable and proportionate fees for access to the vehicle repair and maintenance information covered by this Regulation.

For the purposes of the first subparagraph, a fee shall be considered unreasonable or disproportionate if it discourages access by failing to take into account the extent to which the independent operator uses it.

2. Manufacturers shall make available vehicle repair and maintenance information, including transactional services such as reprogramming or technical assistance, on an hourly, daily, monthly, and yearly basis, with fees for access to such information varying in accordance with the respective periods of time for which access is granted.

In addition to time-based access, manufacturers may offer transaction-based access, for which fees are charged per transaction and not based on the time for which access is granted. Where both access systems are offered by manufacturers, independent repairers shall choose a preferred access system, either time-based or transaction-based

Article 2g

Compliance with the obligations regarding access to vehicle OBD and vehicle repair and maintenance information

1. An approval authority may, at any time, whether on its own initiative, on the basis of a complaint, or on the basis of an assessment by a technical service, check the compliance of a manufacturer with Regulation (EC) No 595/2009, this Regulation, and the terms of the Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information.

2. Where an approval authority finds that the manufacturer has failed to comply with his obligations regarding access to vehicle OBD and vehicle repair and maintenance information, the approval authority which granted the relevant type-approval shall take appropriate measures to remedy the situation.

Those measures may include withdrawal or suspension of type-approval, fines, or other measures adopted in accordance with Article 11 of Regulation (EC) No 595/2009.

3. The approval authority shall proceed to an audit in order to verify compliance by the manufacturer with the obligations concerning access to vehicle OBD and vehicle repair and maintenance information, if an independent operator or a trade association representing independent operators files a complaint to the approval authority.

4. When carrying out the audit, the approval authority may ask a technical service or any other independent expert to carry out an assessment to verify whether these obligations are met.

Article 2h

Forum on Access to Vehicle Information

The scope of application of the activities carried out by the Forum on Access to Vehicle Information established in accordance with Article 13(9) of Commission Regulation (EC) No 692/2008 (*) shall be extended to the vehicles covered by Regulation (EC) No 595/2009.

On the basis of evidence of deliberate or unintentional misuse of vehicle OBD and vehicle repair and maintenance information, the Forum shall advise the Commission on measures to prevent such misuse of information.

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(*) OJ L 199, 28.7.2008, p. 1.'

(3) Article 3 is amended as follows:

(a) paragraph 1 is replaced by the following:

'1. In order to receive an EC type-approval of an engine system or engine family as a separate technical unit, EC type-approval of a vehicle with an approved engine system with regard to emissions and vehicle repair and maintenance information, or an EC type-approval of a vehicle with regard to emissions and vehicle repair and maintenance information the manufacturer shall, in accordance with the provisions of Annex I, demonstrate that the vehicles or engine systems are subject to the tests and comply with the requirements set out in Articles 4 and 14 and in Annexes III to VIII, X, XIII, XIV and XVII. The manufacturer shall also ensure compliance with the specifications of reference fuels set out in Annex IX.';

(b) the following paragraphs 1a, 1b and 1c are inserted:

'1a. If the vehicle OBD and vehicle repair and maintenance information is not available, or does not conform to Article 6 of Regulation (EC) No 595/2009, Article 2a and, where relevant, Articles 2b, 2c and 2d of this Regulation, and Annex XVII to this Regulation, when the application for type-approval is made, the manufacturer shall provide that information within six months of the date set out in Article 8(1) of Regulation (EC) No 595/2009 or within six months of the date of type-approval, whichever date is later.

1b. The obligations to provide information within the dates referred to in paragraph 1a shall apply only if, following type-approval, the vehicle is placed on the market.

Where the vehicle is placed on the market more than six months after type-approval, the information shall be provided on the date on which the vehicle is placed on the market.

1c. The approval authority may presume that the manufacturer has put in place satisfactory arrangements and procedures with regard to access to vehicle OBD and vehicle repair and maintenance information, on the basis of a completed Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information, providing that no complaint was made, and that the manufacturer provides the certificate within the periods referred to in paragraph 1a.

If the certificate of compliance is not provided within that period, the approval authority shall take appropriate measures to ensure compliance.';

(c) paragraph 15 is deleted;

(4) Article 5 is amended as follows:

(a) the title is replaced by the following:

'*Article 5*

Application for EC type-approval of an engine system or engine family as a separate technical unit with regard to emissions and access to repair and maintenance information';

(b) in paragraph 4, point (g) is replaced by the following:

'(g) the Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information;';

(5) in Article 6, the title is replaced by the following:

'*Article 6*

Administrative provisions for EC type-approval of an engine system or engine family as a separate technical unit with regard to emissions and access to repair and maintenance information';

(6) in Article 7(4), point (d) is replaced by the following:

'(d) the Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information;';

(7) in Article 14(1), point (d) is replaced by the following:

'(d) the requirements with respect to the PEMS demonstration test at type-approval and any additional requirements with respect to off-cycle in-use vehicle testing, as provided for in this Regulation;';

(8) in Article 15(1), the first subparagraph is replaced by the following:

'The manufacturer shall ensure that replacement pollution control devices intended to be fitted to EC type-approved engine systems or vehicles covered by Regulation (EC) No 595/2009 are EC type-approved, as separate technical units in accordance with the requirements of this Article and of Articles 1a, 16 and 17.';

(9) in Article 16, paragraph 3 is replaced by the following:

'3. The manufacturer shall submit the Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information.';

(10) Annexes I, II, III, VI, X, XI and XIII are amended in accordance with Annex I to this Regulation;

(11) a new Annex XVII, the text of which is set out in Annex II to this Regulation, is added.

Article 2

This Regulation shall enter into force on the third day following 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, 23 January 2012.

For the Commission
The President
José Manuel BARROSO

ANNEX I

Annexes I, II, III, VI, X, XI and XIII to Regulation (EU) No 582/2011 are amended as follows:

(1) Annex I is amended as follows:

(a) point 1.2 is replaced by the following:

'1.2. Requirements on restricted fuel range type-approval in case of positive-ignition engines fuelled with natural gas or LPG

Fuel range restricted approval shall be granted subject to the requirements specified in points 1.2.1 to 1.2.2.2.';

(b) point 5.3.3 is replaced by the following:

'5.3.3. The conformity of the ECU torque signal to the requirements of points 5.2.2 and 5.2.3 shall be demonstrated with the parent engine of an engine family when determining the engine power in accordance with Annex XIV and when performing the WHSC test in accordance with Annex III and off-cycle laboratory testing at type-approval in accordance with Section 6 of Annex VI.';

(c) the following point 5.3.3.1 is inserted after point 5.3.3:

'5.3.3.1. The conformity of the ECU torque signal to the requirements of points 5.2.2 and 5.2.3 shall be demonstrated for each engine family member when determining the engine power in accordance with Annex XIV. For this purpose additional measurements shall be performed at several part load and engine speed operating points (for example at the modes of the WHSC and some additional random points).';

(d) in Appendix 4, the following Part 3 is added in the Models of information document:

'PART 3

ACCESS TO VEHICLE REPAIR AND MAINTENANCE INFORMATION

16.	ACCESS TO VEHICLE REPAIR AND MAINTENANCE INFORMATION
16.1.	Address of principal website for access to vehicle repair and maintenance information
16.1.1.	Date from which it is available (no later than six months from the date of type-approval)
16.2.	Terms and conditions of access to website
16.3.	Format of the vehicle repair and maintenance information accessible through website'

(e) in Appendix 5, in the addendum to EC type-approval certificate, the following point 1.4.4 is inserted after point 1.4.3:

'1.4.4. *PEMS demonstration test*

Table 6a

PEMS demonstration test

Vehicle type (e.g. M_3, N_3 and application e.g. rigid or articulated truck, city bus)						
Vehicle description (e.g. vehicle model, prototype)						
Pass-fail results ([7])	CO	THC	NMHC	CH_4	NO_x	PM mass
Work window conformity factor						
CO_2 mass window conformity factor						

Trip information	Urban	Rural	Motorway
Shares of time of the trip characterised by urban, rural and motorway operation as described in point 4.5 of Annex II to Regulation (EU) No 582/2011			
Shares of time of the trip characterised by accelerating, decelerating, cruising and stop as described in point 4.5.5 of Annex II to Regulation (EU) No 582/2011			

	Minimum	Maximum
Work window average power (%)		
CO_2 mass window duration (s)		
Work window: percentage of valid windows		
CO_2 mass window: percentage of valid windows		
Fuel consumption consistency ratio'		

(f) in Appendix 7, in the addendum to EC type-approval certificate, the following point 1.4.4. is inserted after point 1.4.3:

'1.4.4. *PEMS demonstration test*

Table 6a

PEMS demonstration test

Vehicle type (e.g. M_3, N_3 and application e.g. rigid or articulated truck, city bus)						
Vehicle description (e.g. vehicle model, prototype)						
Pass-fail results ([7])	CO	THC	NMHC	CH_4	NO_x	PM mass
Work window conformity factor						
CO_2 mass window conformity factor						

Trip information	Urban	Rural	Motorway
Shares of time of the trip characterised by urban, rural and motorway operation as described in point 4.5 of Annex II to Regulation (EU) No 582/2011			
Shares of time of the trip characterised by accelerating, decelerating, cruising and stop as described in point 4.5.5 of Annex II to Regulation (EU) No 582/2011			

	Minimum	Maximum
Work window average power (%)		
CO_2 mass window duration (s)		
Work window: percentage of valid windows		
CO_2 mass window: percentage of valid windows		
Fuel consumption consistency ratio'		

(2) Annex II is amended as follows:

(a) in point 10.1.12, the following points 10.1.12.5.1 to 10.1.12.5.5 are added:

'10.1.12.5.1. Results of the linear regression described in point 3.2.1 of Appendix 1 to this Annex including the slope of the regression line, m, coefficient of determination, r^2 and the intercept, b, of the y-axis of the regression line.

10.1.12.5.2. Result of the consistency check of the ECU data in accordance with point 3.2.2 of Appendix 1 to this Annex.

10.1.12.5.3. Result of the consistency check of the Brake-specific fuel consumption in accordance with point 3.2.3 of Appendix 1 to this Annex, including the calculated Brake-specific fuel consumption and the ratio of the calculated Brake-specific fuel consumption from the PEMS measurement and the declared Brake-specific fuel consumption for the WHTC test.

10.1.12.5.4. Result of the consistency check of the Odometer in accordance with point 3.2.4 of Appendix 1 to this Annex.

10.1.12.5.5. Result of the consistency check of the ambient pressure in accordance with point 3.2.5 of Appendix 1 to this Annex.';

(b) in Appendix 1, the following points 4.3.1.1, 4.3.1.2 and 4.3.1.3 are inserted after point 4.3.1:

'4.3.1.1. If the percentage of valid windows is less than 50 %, the data evaluation shall be repeated using longer window durations. This is achieved by decreasing the value of 0,2 in the formula given in point 4.3.1 by steps of 0,01 until the percentage of valid windows is equal to or greater than 50 %.

4.3.1.2. In any case, the lowered value in above formula shall not be lower than 0,15.

4.3.1.3. The test shall be void if the percentage of valid windows is less than 50 % at a maximum window duration calculated in accordance with points 4.3.1, 4.3.1.1 and 4.3.1.2.';

(c) in Appendix 4, point 2.2 is replaced by the following:

'2.2. If a point on the reference maximum torque curve as a function of the engine speed has not been reached during the ISC PEMS emissions testing, the manufacturer is entitled to modify the load of the vehicle and/or the testing route as necessary in order to perform that demonstration after the ISC PEMS emissions test has been completed.';

(3) in Annex III, the following point 2.1.1 is inserted after point 2.1:

'2.1.1. The requirements for measuring particle number shall be those set out in Annex 4C to UN/ECE Regulation No 49.';

(4) Annex VI is amended as follows:

(a) point 6 is amended as follows:

(i) the title is replaced by the following:

'6. OFF-CYCLE LABORATORY TESTING AND VEHICLE TESTING OF ENGINES AT TYPE-APPROVAL';

(ii) point 6.1.3 is replaced by the following:

'6.1.3. Section 7.3 of Annex 10 to UN/ECE Regulation No 49 shall be understood as follows:

In-use testing

A PEMS demonstration test shall be performed at type-approval by testing the parent engine in a vehicle using the procedure described in Appendix 1 to this Annex.

Additional requirements with respect to in-use vehicle testing will be specified at a later stage in accordance with Article 14(3) to Regulation (EU) No 582/2011.';

(iii) the following points 6.1.3.1 and 6.1.3.2 are inserted after point 6.1.3:

'6.1.3.1. The manufacturer may select the vehicle that shall be used for testing but the vehicle choice shall be subject to the agreement of the approval authority. The characteristics of the vehicle used for the PEMS demonstration test shall be representative for the category of vehicle intended for the engine system. The vehicle may be a prototype vehicle.

6.1.3.2. At the request of the approval authority, an additional engine within the engine family or an equivalent engine representing a different vehicle category may be tested in a vehicle.';

(b) the following Appendix 1 is added:

'Appendix 1

PEMS demonstration test at type-approval

1. INTRODUCTION

This Appendix describes the procedure for PEMS demonstration test at type-approval.

2. TEST VEHICLE

2.1. The vehicle used for demonstrating the PEMS demonstration test shall be representative for the vehicle category intended for the installation of the engine system. The vehicle may be a prototype vehicle or an adapted production vehicle.

2.2. The availability and conformity of the ECU data-stream information shall be demonstrated (for example following the provision of Section 5 of Annex II to this Regulation).

3. TEST CONDITIONS

3.1. **Vehicle payload**

The vehicle payload shall be 50-60 % of the maximum vehicle payload in accordance with Annex II.

3.2. **Ambient conditions**

The test shall be conducted under ambient conditions as described in point 4.2 of Annex II.

3.3. The engine coolant temperature shall be in accordance with point 4.3 of Annex II.

3.4. **Fuel, lubricants and reagent**

The fuel, lubricating oil and reagent for the exhaust after-treatment system shall follow the provisions of points 4.4 to 4.4.3 of Annex II.

3.5. **Trip and operational requirements**

The trip and operational requirements shall be those described in points 4.5 to 4.6.8 of Annex II.

4. EMISSIONS EVALUATION

4.1. The test shall be conducted and the test results calculated in accordance with Section 6 of Annex II.

5. REPORT

5.1. A technical report describing the PEMS demonstration test shall show the activities and results and give at least the following information:

(a) General information as described in points 10.1.1 to 10.1.1.14 of Annex II.

(b) Explanation as to why the vehicle(s) [1] used for the test can be considered to be representative for the category of vehicles intended for the engine system.

(c) Information about test equipment and test data as described in points 10.1.3 to 10.1.4.8 of Annex II.

(d) Information about the tested engine as described in points 10.1.5 to 10.1.5.20 of Annex II.

(e) Information about the vehicle used for the test as described in points 10.1.6 to 10.1.6.18 of Annex II.

(f) Information about the route characteristics as described in points 10.1.7 to 10.1.7.7 of Annex II.

(g) Information about instantaneous measured and calculated data as described in points 10.1.8 to 10.1.9.24 of Annex II.

(h) Information about averaged and integrated data as described in points 10.1.10 to 10.1.10.12 of Annex II.

(i) Pass-fail results as described in points 10.1.11 to 10.1.11.13 of Annex II.

(j) Information about test verifications as described in points 10.1.12 to 10.1.12.5 of Annex II.

(1) Vehicle or vehicles in the case of a secondary engine.';

(5) Annex X is amended as follows:

(a) in point 2.4.1, the third paragraph is replaced by the following:

'The manufacturer may either apply the complete provisions of this Annex and Annex XIII to this Regulation or the complete provisions of Annexes XI and XVI to Regulation (EC) No 692/2008.';

(b) point 2.4.2 is amended as follows:

(i) the heading is deleted;

(ii) the following paragraph is added:

'A manufacturer shall not be permitted to use the alternative provisions specified in this point for more than 500 engines per year.';

(c) point 2.4.3 is deleted;

(d) Appendix 2 is amended as follows:

(i) point 2.2.1 is replaced by the following:

'2.2.1. In arriving at an approval decision on the choice of the performance monitoring selected by the manufacturer, the approval authority shall consider technical information provided by the manufacturer.';

(ii) points 2.2.2.1 and 2.2.2.2 are replaced by the following:

'2.2.2.1. The qualification test is performed in the same way as specified in Section 6.3.2 of Annex 9B to UN/ECE Regulation No 49.

2.2.2.2. The decrease of performance of the component under consideration is measured and subsequently serves as the performance threshold for the parent engine of the OBD engine family.';

(iii) point 2.2.3 is replaced by the following:

'2.2.3. The performance monitoring criteria approved for the parent engine shall be considered to be applicable to all other members of the OBD engine family without further demonstration.';

(iv) the following points 2.2.4 and 2.2.4.1 are inserted after point 2.2.3:

'2.2.4. Upon agreement between the manufacturer and the approval authority, adaptation of the performance threshold to different members of the OBD engine family in order to cover different design parameters (for example EGR cooler size) shall be possible. Such agreement shall be based on technical elements showing its pertinence.

2.2.4.1. At the request of the approval authority, a second member of the OBD engine family may be subject to the approval process described in point 2.2.2.';

(v) point 2.3.1 is replaced by the following:

'2.3.1. For the purpose of demonstrating the OBD performance of the selected monitor of an OBD engine family, a deteriorated component shall be qualified on the parent engine of the OBD engine family in accordance with Section 6.3.2 of Annex 9B to UN/ECE Regulation No 49.';

(vi) the following point 2.3.2 is inserted after point 2.3.1:

'2.3.2. In case of a second engine tested in accordance with section 2.2.4.1, the deteriorated component shall be qualified on that second engine in accordance with Section 6.3.2 of Annex 9B to UN/ECE Regulation No 49.';

(6) Annex XI is amended as follows:

in Appendix 1, the following new Section is added in the Model of information document:

'**ACCESS TO VEHICLE REPAIR AND MAINTENANCE INFORMATION**

2.	ACCESS TO VEHICLE REPAIR AND MAINTENANCE INFORMATION
2.1.	Address of principal website for access to vehicle repair and maintenance information
2.1.1.	Date from which it is available (no later than six months from the date of type-approval)
2.2.	Terms and conditions of access to website
2.3.	Format of the vehicle repair and maintenance information accessible through website'

(7) Annex XIII is amended as follows:

(a) in point 2.1, the third paragraph is replaced by the following:

'The manufacturer may either apply the complete provisions of this Annex and Annex X to this Regulation or the complete provisions of Annexes XI and XVI to Regulation (EC) No 692/2008.';

(b) point 4.2 is replaced by the following:

'4.2. The vehicle on-board diagnostics (OBD) display system described in Annex 9B to UN/ECE Regulation No 49 and referred to in Annex X to this Regulation shall not be used for the purpose of providing the visual alarms described in Section 4.1. The warning shall not be the same as the warning used for the purposes of OBD (that is, the MI — malfunction indicator) or other engine maintenance. It shall not be possible to turn off the warning system or visual alarms by means of a scan-tool if the cause of the warning activation has not been rectified. Conditions for activation and deactivation of the warning system and visual alarms are described in Appendix 2 of this Annex.';

(c) in point 5.3, the first paragraph is replaced by the following:

'The low-level inducement system shall reduce the maximum available engine torque across the engine speed range by 25 % between the peak torque speed and the governor breakpoint as described in Appendix 3. The maximum available reduced engine torque below the peak torque speed of the engine before imposition of the torque reduction shall not exceed the reduced torque at that speed.';

(d) point 5.5 is replaced by the following:

'5.5. The driver inducement system shall be enabled as specified in Sections 6.3, 7.3, 8.5, and 9.4.';

(e) points 6.3.1 and 6.3.2 are replaced by the following:

'6.3.1. The low-level inducement system described in Section 5.3 shall be enabled, and subsequently activated in accordance with the requirements of that section, if the reagent tank level goes below 2,5 % of its nominally full capacity or a higher percentage at the choice of the manufacturer.

6.3.2. The severe inducement system described in Section 5.4 shall be enabled, and subsequently activated in accordance with the requirements of that section, if the reagent tank is empty (that is, the dosing system is unable to draw further reagent from the tank) or at any level below 2,5 % of its nominally full capacity at the discretion of the manufacturer.';

(f) points 7.3.1 and 7.3.2 are replaced by the following:

'7.3.1. The low-level inducement system described in Section 5.3 shall be enabled, and subsequently activated in accordance with the requirements of that section, if the reagent quality is not rectified within 10 engine operating hours after the activation of the driver warning system described in Section 7.2.

7.3.2. The severe inducement system described in Section 5.4 shall be enabled, and subsequently activated in accordance with the requirements of that section, if the reagent quality is not rectified within 20 engine operating hours after the activation of the driver warning system described in Section 7.2.';

(g) points 8.5.1 and 8.5.2 are replaced by the following:

'8.5.1. The low-level inducement system described in Section 5.3 shall be enabled, and subsequently activated in accordance with the requirements of that section, if an error in the reagent consumption or an interruption in reagent dosing is not rectified within 10 engine operating hours after the activation of the driver warning system specified in Sections 8.4.1 and 8.4.2.

8.5.2. The severe inducement system described in Section 5.4 shall be enabled, and subsequently activated in accordance with the requirements of that section, if an error in the reagent consumption or an interruption in reagent dosing is not rectified within 20 engine operating hours after the activation of the driver warning system in Sections 8.4.1 and 8.4.2.';

(h) point 9.2.2.1 is replaced by the following:

'9.2.2.1. A specific counter shall be attributed to an impeded EGR valve. The EGR valve counter shall count the number of engine operating hours when any DTC associated with an impeded EGR valve is confirmed to be active.';

(i) points 9.4.1 and 9.4.2 are replaced by the following:

'9.4.1. The low-level inducement system described in Section 5.3 shall be enabled, and subsequently activated in accordance with the requirements of that section, if a failure specified in Section 9.1 is not rectified within 36 engine operating hours after the activation of the driver warning system in Section 9.3.

9.4.2. The severe inducement system described in Section 5.4 shall be enabled, and subsequently activated in accordance with the requirements of that section, if a failure specified in Section 9.1 is not rectified within 100 engine operating hours after the activation of the driver warning system in Section 9.3.';

(j) Appendix 1 is amended as follows:

(i) point 3.2.3 is replaced by the following:

'3.2.3. For the purpose of demonstrating the activation of the warning system in case of failures that may be attributed to tampering, as defined in Section 9 of this Annex, the selection shall be performed in accordance with the following requirements:';

(ii) in point 3.3.6.2, points (a) and (b) are replaced by the following:

'(a) the warning system has been activated with a reagent availability greater or equal to 10 % of the capacity of the reagent tank;

(b) the "continuous" warning system has been activated with a reagent availability greater or equal to the value declared by the manufacturer according to the provisions of Section 6 of this Annex.';

(iii) point 3.4 is replaced by the following:

'3.4. The demonstration of the warning system activation is deemed to be accomplished for reagent level events if, at the end of each demonstration test performed in accordance with Section 3.2.1, the warning system has been properly activated.';

(iv) the following point 3.5 is inserted after point 3.4:

'3.5. The demonstration of the warning system activation is deemed to be accomplished for DTC triggered events if, at the end of each demonstration test performed in accordance with Section 3.2.1, the warning system has been properly activated and the DTC for the selected failure has got the status shown in table 1 in Appendix 2 of this Annex.';

(v) point 4.2 is replaced by the following:

'4.2. The test sequence shall demonstrate the activation of the inducement system in case of lack of reagent and in case of one of the failures defined in Sections 7, 8 or 9 of this Annex.';

(vi) in point 4.3, paragraph (a) is replaced by the following:

'(a) the approval authority shall select, in addition to the lack of reagent, one of the failures defined in Section 7, 8 or 9 of this Annex that has been previously used in the demonstration of the warning system;';

(vii) the introductory phrase of point 4.4 is replaced by the following:

'The manufacturer shall, in addition, demonstrate the operation of the inducement system under those failure conditions defined in Sections 7, 8 or 9 of this Annex which have not been chosen for use in demonstration tests described in Sections 4.1, 4.2 and 4.3.';

(viii) point 4.5.2 is replaced by the following:

'4.5.2. When the system is being checked for its reaction to the case of lack of reagent in the tank, the engine system shall be run until the reagent availability has reached a value of 2,5 % of the nominal full capacity of the tank or the value declared by the manufacturer in accordance with Section 6.3.1 of this Annex at which the low-level inducement system is intended to operate.';

(ix) point 4.6.4 is replaced by the following:

'4.6.4. The demonstration of the severe inducement system shall be deemed to be accomplished if, at the end of each demonstration test performed in accordance with Sections 4.6.2 and 4.6.3, the manufacturer has demonstrated to the type-approval authority that the required vehicle speed limitation mechanism has been activated.';

(x) point 5.2 is replaced by the following:

'5.2. When the manufacturer applies for an approval of an engine or engine family as a separate technical unit, the manufacturer shall provide the approval authority with evidence that the installation documentation package complies with the provisions of Section 2.2.4 of this Annex concerning the measures to ensure that the vehicle, when used on the road or elsewhere as appropriate, will comply with the requirements of this Annex regarding severe inducement.';

(xi) point 5.4.2 is replaced by the following:

'5.4.2. One of the failures defined in Sections 6 to 9 of this Annex shall be selected by the manufacturer, and shall be introduced or simulated on the engine system, as the manufacturer and the approval authority agree.';

(k) in Appendix 2, the introductory phrase of point 4.1.1 is replaced by the following:

'To comply with the requirements of this Annex, the system shall contain at least five counters to record the number of hours during which the engine has been operated while the system has detected any of the following:';

(l) in Appendix 5, in point 3.1, point (e) is replaced by the following:

'(e) number of warm-up cycles and number of engine operating hours since recorded "NO_x control information" was cleared due to service or repair;'.

ANNEX II

'ANNEX XVII

ACCESS TO VEHICLE OBD AND VEHICLE REPAIR AND MAINTENANCE INFORMATION

1. INTRODUCTION

1.1. This Annex lays down technical requirements for the accessibility of vehicle OBD and vehicle repair and maintenance information.

2. REQUIREMENTS

2.1. Vehicle OBD and vehicle repair and maintenance information available through websites shall follow the common standard referred to in Article 6(1) of Regulation (EC) No 595/2009. Until this standard is adopted, manufacturers shall provide vehicle OBD and vehicle repair and maintenance information in a standardised manner which is non-discriminatory compared to the provisions given or access granted to authorised dealers and repairers.

Those requiring the right to duplicate or republish the information shall negotiate directly with the manufacturer concerned. Information for training material shall also be available, but may be presented through other media than websites.

Information on all parts of the vehicle, with which the vehicle, as identified by the vehicle identification number (VIN) and any additional criteria such as wheelbase, engine output, trim level or options, is equipped by the vehicle manufacturer and which can be replaced by spare parts offered by the vehicle manufacturer to its authorised repairers or dealers or third parties by means of reference to original equipment (OE) parts number, shall be made available in a database which is easily accessible to independent operators.

This database shall comprise the VIN, OE parts numbers, OE naming of the parts, validity attributes (valid-from and valid-to dates), fitting attributes and, where applicable, structuring characteristics.

The information on the database shall be regularly updated. The updates shall include in particular all modifications to individual vehicles after their production if this information is available to authorised dealers.

2.2. Access to vehicle security features used by authorised dealers and repair shops shall be made available to independent operators under protection of security technology in accordance with the following requirements:

(a) data shall be exchanged ensuring confidentiality, integrity and protection against replay;

(b) the standard https//ssl-tls (RFC4346) shall be used;

(c) security certificates in accordance with ISO 20828 shall be used for mutual authentication of independent operators and manufacturers;

(d) the independent operator's private key shall be protected by secure hardware.

The Forum on Access to Vehicle Information referred to in Article 2h shall specify the parameters for fulfilling these requirements in accordance with the state of the art. The independent operator shall be approved and authorised for this purpose on the basis of documents demonstrating that he pursues a legitimate business activity and has not been convicted of any criminal activity.

2.3. Reprogramming of control units shall be conducted in accordance with either ISO 22900-2 or SAE J2534 or TMC RP1210B using non-proprietary hardware. Ethernet, serial cable or local area network (LAN) interface and alternative media like compact disc (CD), digital versatile disc (DVD) or solid state memory device for infotainment systems (e.g. navigation systems, telephone) may also be used, but on the condition that no proprietary communication software (e.g. drivers or plug-ins) and hardware is required. For the validation of the compatibility of the manufacturer-specific application and the vehicle communication interfaces (VCI) complying to ISO 22900-2 or SAE J2534 or TMC RP1210B, the manufacturer shall offer either a validation of independently developed VCIs or the information, and loan of any special hardware, required for a VCI manufacturer to conduct such validation himself. The conditions of Article 2f(1) shall apply to fees for such validation or information and hardware.

2.4. The requirements of section 2.3 shall not apply in the case of reprogramming of speed limitation devices and recording equipment.

2.5. All emission-related DTCs shall be consistent with Annex X.

2.6. For access to any vehicle OBD and vehicle repair and maintenance information other than that relating to secure areas of the vehicle, registration requirements for use of the manufacturer's website by an independent operator shall require only such information as is necessary to confirm how payment for the information is to be made. For information concerning access to secure areas of the vehicle, the independent operator shall present a certificate in accordance with ISO 20828 to identify himself and the organisation to which he belongs and the manufacturer shall respond with his own certificate in accordance with ISO 20828 to confirm to the independent operator that he is accessing a legitimate site of the intended manufacturer. Both parties shall keep a log of any such transactions indicating the vehicles and changes made to them under this provision.

2.7. Manufacturers shall indicate in their repair information websites the type-approval number by model.

2.8. If requested by the manufacturer, for vehicles of category M_1, M_2, N_1 and N_2 with a maximum permissible mass not exceeding 7,5 tonnes and M_3 Class I, Class II and Class A and Class B, as defined in Annex I to Directive 2001/85/EC, with a permissible mass not exceeding 7,5 tonnes, compliance with the requirements of Appendix 5 to Annex I and Annex XIV to Regulation (EC) No 692/2008 shall be considered equivalent to the compliance with this Annex.

2.9. The approval authority shall inform the Commission of the circumstances of each type-approval granted under Section 2.8.

Appendix 1

Manufacturer's Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information

(Manufacturer): …

(Address of the manufacturer): …

Certifies that

it provides access to vehicle OBD and vehicle repair and maintenance information in compliance with the provisions of:

— Article 6 of Regulation (EC) No 595/2009 and Article 2a of Regulation (EU) No 582/2011,

— Article 4(6) of Regulation (EU) No 582/2011,

— Annex I, Appendix 4, Section 16 of Regulation (EU) No 582/2011,

— Annex X, Section 2.1 of Regulation (EU) No 582/2011,

— Annex XVII of Regulation (EU) No 582/2011,

with respect to the types of vehicle, engine, pollution control device listed in attachment to this Certificate.

The following derogations are applied: Customer adaptations [1] — Small volume [1] — Carry-over systems [1].

The principal website address through which the relevant information may be accessed and which is hereby certified to be in compliance with the above provisions are listed in an attachment to this Certificate along with the contact details of the responsible manufacturer's representative whose signature is below.

Where applicable: The manufacturer hereby also certifies that it has complied with the obligation provided for in Article 3(1a) of Regulation (EU) No 582/2011 to provide the relevant information for previous approvals of these vehicle types no later than six months after the date of type-approval.

Done at ..... [Place]

On ..... [Date]

[Signature] [Position]

[1] Delete where not applicable.

Annexes:

— Website addresses,

— Contact details.

ANNEX I

to Manufacturer's Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information

Website addresses referred to by this Certificate:

ANNEX II

to Manufacturer's Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information

Contact details of the manufacturer's representative referred to by this Certificate:

Appendix 2

Vehicle OBD information

1. The information required in this Appendix shall be provided by the vehicle manufacturer for the purposes of enabling the manufacture of OBD-compatible replacement or service parts and diagnostic tools and test equipment.

2. Upon request, the following information shall be made available to any interested component, diagnostic tools or test equipment manufacturer, on a non-discriminatory basis:

— A description of the type and number of the preconditioning cycles used for the original type-approval of the vehicle.

— A description of the type of the OBD demonstration cycle used for the original type-approval of the vehicle for the component monitored by the OBD system.

— A comprehensive document describing all sensed components with the strategy for fault detection and MI activation (fixed number of driving cycles or statistical method), including a list of relevant secondary sensed parameters for each component monitored by the OBD system and a list of all OBD output codes and format used (with an explanation of each code and format) associated with individual emission-related power-train components and individual non-emission related components, where monitoring of the component is used to determine MI activation. In particular, in the case of vehicle types that use a communication link in accordance with ISO 15765-4 "Road vehicles — Diagnostics on controller area network (CAN) — Part 4: Requirements for emissions-related systems", a comprehensive explanation for the data given in service $ 05 Test ID $ 21 to FF and the data given in service $ 06, and a comprehensive explanation for the data given in service $ 06 Test ID $ 00 to FF, for each OBD monitor ID supported, shall be provided.

In case other communication protocols standards are used, equivalent comprehensive explanation shall be provided.

This information may be provided in the form of a table, as follows:

Component | Fault code | Monitoring strategy | Fault detection criteria | MI activation criteria | Secondary parameters | Preconditioning | Demonstration test |

Catalyst | P0420 | Oxygen sensor 1 and 2 signals | Difference between sensor 1 and sensor 2 signals | 3rd cycle | Engine speed, engine load, A/F mode, catalyst temperature | Two Type 1 cycles | Type 1 |

3. **Information required for the manufacture of diagnostic tools**

In order to facilitate the provision of generic diagnostic tools for multi-make repairers, vehicle manufacturers shall make available the information referred to in points 3.1, 3.2 and 3.3 through their repair information websites. That information shall include all diagnostic tool functions and all the links to repair information and troubleshooting instructions. The access to the information may be subject to the payment of a reasonable fee.

3.1. *Communication protocol information*

The following information shall be required indexed against vehicle make, model and variant, or other workable definition such as VIN or vehicle and systems identification:

(a) Any additional protocol information system necessary to enable complete diagnostics in addition to the standards prescribed in Point 4.7.3 of Annex 9B to UN/ECE Regulation No 49, including any additional hardware or software protocol information, parameter identification, transfer functions, "keep alive" requirements, or error conditions.

(b) Details of how to obtain and interpret all fault codes which are not in accordance with the standards prescribed in Point 4.7.3 of Annex 9B to UN/ECE Regulation No 49.

(c) A list of all available live data parameters, including scaling and access information.

(d) A list of all available functional tests, including device activation or control and the means to implement them.

(e) Details of how to obtain all component and status information, time stamps, pending DTC and freeze frames.

(f) Resetting adaptive learning parameters, variant coding and replacement component setup, and customer preferences.

(g) ECU identification and variant coding.

(h) Details of how to reset service lights.

(i) Location of diagnostic connector and connector details.

(j) Engine code identification.

3.2. *Test and diagnosis of OBD monitored components*

The following information shall be required:

(a) A description of tests to confirm its functionality, at the component or in the harness.

(b) Test procedure including test parameters and component information.

(c) Connection details including minimum and maximum input and output and driving and loading values.

(d) Values expected under certain driving conditions including idling.

(e) Electrical values for the component in its static and dynamic states.

(f) Failure mode values for each of the above scenarios.

(g) Failure mode diagnostic sequences including fault trees and guided diagnostics elimination.

3.3. *Data required to perform the repair*

The following information shall be required:

(a) ECU and component initialisation (in the event of replacements being fitted).

(b) Initialisation of new or replacement ECU's where relevant using pass-through (re-) programming techniques.

Appendix 3

List of carry-over systems covered by Article 2e

1. Climate systems	(a) Temperature control systems; (b) Engine-independent heater; (c) Engine-independent air-conditioning.
2. Systems for buses and coaches	(a) Door control systems; (b) Turntable control systems; (c) Interior light control.'

COMMISSION REGULATION (EU) No 65/2012

of 24 January 2012

implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council as regards gear shift indicators and amending Directive 2007/46/EC of the European Parliament and of the Council

(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 661/2009 of the European Parliament and of the Council of 13 July 2009 concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor [1] and in particular Article 14(1)(a) thereof,

Whereas:

(1) Regulation (EC) No 661/2009 requires the installation of gear shift indicators (GSI) on all vehicles, which are fitted with a manual gearbox, of category M_1 with a reference mass not exceeding 2 610 kg and vehicles to which type-approval is extended in accordance with Article 2(2) of Regulation (EC) No 715/2007 of the European Parliament and of the Council of 20 June 2007 on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information [2].

(2) Regulation (EC) No 661/2009 requires the technical details of its provisions on GSI to be defined by implementing legislation. It is now necessary to set out the specific procedures, tests and requirements for such type-approval of GSI.

(3) Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (Framework Directive) [3] should therefore be amended accordingly.

(4) 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

Scope

This Regulation applies to vehicles of category M_1 which comply with the following requirements:

— they are fitted with a manual gearbox,

— they have a reference mass not exceeding 2 610 kg or type-approval is extended to them in accordance with Article 2(2) of Regulation (EC) No 715/2007.

This Regulation does not apply to 'vehicles designed to fulfil specific social needs' as defined in Article 3(2)(c) of Regulation (EC) No 715/2007.

Article 2

Definitions

For the purposes of this Regulation, the following definitions shall apply in addition to the definitions set out in Regulation (EC) No 661/2009:

(1) 'vehicle type with regard to the GSI' means a group of vehicles, which do not differ with respect to functional characteristics of the GSI and the logic used by the GSI to determine when to indicate a gearshift point. Examples of different logics include, but are not limited to:

(i) upshifts indicated at specified engine speeds;

(ii) upshifts indicated when specific fuel consumption engine maps show that a specified minimum fuel consumption improvement will be delivered in the higher gear;

(iii) upshifts indicated when torque demand can be met in the higher gear;

(2) 'functional characteristics of the GSI' means the set of input parameters, such as engine speed, power demand, torque and their variation in time, determining the GSI indication and the functional dependence of the GSI indications on these parameters;

(3) 'operational mode of the vehicle' means a state of the vehicle, in which shifts between at least two forward gears may occur;

[1] OJ L 200, 31.7.2009, p. 1.
[2] OJ L 171, 29.6.2007, p. 1.
[3] OJ L 263, 9.10.2007, p. 1.

(4) 'manual mode' means an operational mode of the vehicle, where the shift between all or some of the gears is always an immediate consequence of an action of the driver;

(5) 'tailpipe emissions' means tailpipe emissions as defined in Article 3(6) of Regulation (EC) No 715/2007.

Article 3

Assessment of manual gearbox

For the purpose of assessing whether a gearbox meets the definition according to Article 3(16) of Regulation (EC) No 661/2009, a gearbox having at least one manual mode according to Article 2(4) of this Regulation shall be considered as a 'manual gearbox'. For this assessment, automatic changes between gears, which are performed not to optimise the operation of the vehicle but only under extreme conditions for reasons such as protecting or avoiding the stalling of the engine, are not considered.

Article 4

EC type-approval

1. Manufacturers shall ensure that vehicles placed on the market, which are covered by Article 11 of Regulation (EC) No 661/2009, are equipped with GSI in accordance with the requirements of Annex I to this Regulation.

2. To obtain an EC type-approval for the vehicles covered by Article 11 of Regulation (EC) No 661/2009, the manufacturer shall fulfil the following obligations:

(a) draw up and submit to the type-approval authority an information document in accordance with the model set out in Part 1 of Annex II to this Regulation;

(b) submit to the type-approval authority a declaration laying down that, according to the manufacturer's assessment, the vehicle complies with the requirements set out in this Regulation;

(c) present to the type-approval authority a certificate established in accordance with the model set out in Part 2 of Annex II to this Regulation;

(d) either

(i) submit to the type-approval authority the GSI gear shift points determined analytically as provided for in the last paragraph of point 4.1 to Annex I; or

(ii) submit to the technical service responsible for conducting the type-approval tests a vehicle which is representative of the vehicle type to be approved to enable the test described in point 4 of Annex I to be carried out.

3. Based on the elements provided by the manufacturer under points (a), (b) and (c) of paragraph 2 and the results of the type-approval test referred to in point (d) of paragraph 2, the type-approval authority shall assess compliance with the requirements of Annex I.

It shall issue an EC type-approval certificate according to the model set out in Part 3 of Annex II to this Regulation for the vehicles covered by Article 11 of Regulation (EC) No 661/2009 only if such compliance is established.

Article 5

Monitoring the effects of legislation

For the purpose of monitoring the effects of this Regulation and evaluating the need for further developments, manufacturers and type-approval authorities shall make available to the Commission, upon request, the information set out in Annex II. This information shall be treated in a confidential manner by the Commission and its delegates.

Article 6

Amendments to Directive 2007/46/EC

Annexes I, III, IV, VI and XI to Directive 2007/46/EC are amended in accordance with Annex III to this Regulation.

Article 7

Entry into force

This Regulation shall enter into force on the 20th day following 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, 24 January 2012.

For the Commission
The President
José Manuel BARROSO

ANNEX I

SPECIAL REQUIREMENTS FOR VEHICLES EQUIPPED WITH GEAR SHIFT INDICATORS (GSI)

1. **Characteristic of the GSI appearance**

1.1. The shift recommendation shall be provided by means of a distinct visual indication, for example a clear indication to shift up or up/down or a symbol that identifies the gear into which the driver should shift. The visible indication may be complemented by other indications, including audible ones, provided that these do not compromise safety.

1.2. The GSI must not interfere with or mask the identification of any tell-tale, control or indicator, which is mandated or supports the safe operation of the vehicle. Notwithstanding point 1.3, the signal shall be designed so that it does not distract the driver's attention and to avoid interfering with proper and safe vehicle operation.

1.3. The GSI shall be located in compliance with paragraph 5.1.2 of UNECE Regulation No 121. It shall be designed such that it can not be confused with any other tell-tale, control or indicator the vehicle is equipped with.

1.4. An information display device may be used to display GSI indications provided that they are sufficiently different from other indications so as to be clearly visible and identifiable by the driver.

1.5. Temporarily, the GSI indication may be automatically overridden or deactivated in exceptional situations. Such circumstances are those that may compromise the safe operation or integrity of the vehicle, including activation of traction or stability control systems, temporary displays from driver assistance systems or events relating to vehicle malfunctioning. The GSI shall resume normal operation after the exceptional situations ceased to exist, and within a delay of 10 seconds or longer, if justified by specific technical or behavioural reasons.

2. **Functional requirements for GSI (applicable to all manual modes)**

2.1. The GSI shall suggest changing the gear when the fuel consumption with the suggested gear is estimated to be lower than the current one giving consideration to the requirements laid down in points 2.2 and 2.3.

2.2. The GSI shall be designed to encourage an optimised fuel efficient driving style under reasonably foreseeable driving conditions. Its main purpose is to minimise the fuel consumption of the vehicle when the driver follows its indications. However, regulated tailpipe emissions shall not be disproportionately increased with respect to the initial state when following the indication of the GSI. In addition, following the GSI strategy should not have any negative effect on the timely functioning of pollution control devices, such as catalysts, after a cold start. For this purpose vehicle manufacturers should provide technical documentation to the type-approval authority, which describes the impact of the GSI strategy on the vehicle's regulated tailpipe emissions, under at least steady vehicle speed.

2.3. Following the indication of the GSI must not compromise the safe operation of the vehicle, e.g. to prevent stalling of the engine, insufficient engine braking or insufficient engine torque in the case of high power demand.

3. **Information to be provided**

3.1. The manufacturer shall provide the following information to the type-approval authority. The information shall be made available in the following two parts:

(a) the 'formal documentation package' that may be made available to interested parties upon request;

(b) the 'extended documentation package' that shall remain strictly confidential.

3.1.1. The formal documentation package shall contain:

(a) a description of the complete set of appearances of the GSIs which are fitted on vehicles being part of the vehicle type with regard to GSI, and evidence of their compliance with the requirements of point 1;

(b) evidence in the form of data or engineering evaluations, for example modelling data, emission or fuel consumption maps, emission tests, which adequately demonstrate that the GSI is effective in providing timely and meaningful shift recommendations to the driver in order to comply with the requirements of point 2;

(c) an explanation of the purpose, use and functions of the GSI in a 'GSI section' of the user manual accompanying the vehicle.

3.1.2. The extended documentation package shall contain the design strategy of the GSI, in particular its functional characteristics.

3.1.3. Notwithstanding the provisions of Article 5, the extended documentation package shall remain strictly confidential between the type-approval authority and the manufacturer. It may be kept by the type-approval authority, or, at the discretion of the type-approval authority, may be retained by the manufacturer. In the case the manufacturer retains the documentation package, that package shall be identified and dated by the type-approval authority once reviewed and approved. It shall be made available for inspection by the approval authority at the time of approval or at any time during the validity of the approval.

3.2. The manufacturer shall provide an explanation of the purpose, use and functions of the GSI in a 'GSI section' of the user manual accompanying the vehicle.

4. **The fuel economy impact of GSI recommended gear shift points shall be determined according to the following procedure:**

4.1. *Determination of vehicle speeds at which GSI recommends shifting up gears*

This test is to be performed on a warmed up vehicle on a chassis dynamometer according to the speed profile described in Appendix 1 to this Annex. The advice of the GSI is followed for shifting up gears and the vehicle speeds, for which the GSI recommends shifting, are recorded. The test is repeated 3 times.

V^n_{GSI} shall denote the average speed at which the GSI recommends shifting up from gear n (n = 1, 2, …, #g) into gear n + 1, determined from the 3 tests, where #g shall denote the vehicle's number of forward gears. For this purpose only GSI shift instructions in the phase before the maximum speed is reached are taken into account and any GSI instruction during the deceleration is ignored.

For the purposes of the following calculations V^0_{GSI} is set to 0 km/h and $V^{\#g}_{GSI}$ is set to 140 km/h or the maximum vehicle speed, whichever is smaller. Where the vehicle cannot attain 140 km/h, the vehicle shall be driven at its maximum speed until it rejoins the speed profile in Figure I.1.

Alternatively, the recommended GSI shift speeds may be analytically determined by the manufacturer based on the GSI algorithm contained in the extended documentation package provided according to point 3.1.

4.2. *Standard gear shift points*

V^n_{std} shall denote the speed at which a typical driver is assumed to shift up from gear n into gear n + 1 without GSI recommendation. Based on the gear shift points defined in the type 1 emission test [1] the following standard gear shift speeds are defined:

V^0_{std} = 0 km/h;

V^1_{std} = 15 km/h;

V^2_{std} = 35 km/h;

V^3_{std} = 50 km/h;

V^4_{std} = 70 km/h;

V^5_{std} = 90 km/h;

V^6_{std} = 110 km/h;

V^7_{std} = 130 km/h;

$V^8_{std} = V^{\#g}_{GSI}$;

V^n_{min} shall denote the minimum vehicle speed the vehicle can be driven in the gear n without stalling of the engine and V^n_{max} the maximum vehicle speed the vehicle can be driven in the gear n without creating damage to the engine.

If V^n_{std} derived from this list is smaller than V^{n+1}_{min}, then V^n_{std} is set to be V^{n+1}_{min}. If V^n_{std} derived from this list is greater than V^n_{max}, then V^n_{std} is set to be V^n_{max} (n = 1, 2, …, #g − 1).

If $V^{\#g}_{std}$ determined by this procedure is smaller than $V^{\#g}_{GSI}$, it shall be set to $V^{\#g}_{GSI}$.

[1] Defined in Annex 4a of UNECE Regulation No 83, 05 series of amendments.

4.3. *Fuel consumption speed curves*

The manufacturer shall supply the type-approval authority with the functional dependence of the vehicle's fuel consumption on the steady vehicle speed when driving with gear n according to the following rules.

FC^n_i shall denote the fuel consumption in terms of kg/h (kilograms per hour) when the vehicle is driven with the constant vehicle speed $v_i = i \times 5$ km/h − 2,5 km/h (where i is a positive integer number) in the gear n. These data shall be provided by the manufacturer for each gear n (n = 1, 2, …, #g) and $v^n_{min} \leq v_i \leq v^n_{max}$. These fuel consumption values shall be determined under identical ambient conditions corresponding to a realistic driving situation that may be defined by the vehicle manufacturer, either by a physical test or by an appropriate calculation model agreed between the approval authority and the manufacturer.

4.4. *Vehicle speed distribution*

The following distribution should be used for the probability P_i that the vehicle drives with a speed v, where $v_i - 2{,}5$ km/h $< v \leq v_i + 2{,}5$ km/h (i = 1, …, 28):

i	P_i	i	P_i
1	4,610535879	15	2,968643201
2	5,083909299	16	2,61326375
3	4,86818148	17	2,275220718
4	5,128313511	18	2,014651418
5	5,233189418	19	1,873070659
6	5,548597362	20	1,838715054
7	5,768706442	21	1,982122053
8	5,881761847	22	2,124757402
9	6,105763476	23	2,226658166
10	6,098904359	24	2,137249569
11	5,533164348	25	1,76902642
12	4,761325003	26	1,665033625
13	4,077325232	27	1,671035353
14	3,533825909	28	0,607049046

Where the maximum speed of the vehicle corresponds to step i and i < 28, the values of P_{i+1} to P_{28} shall be added to P_i.

4.5. *Determination of the model fuel consumption*

FC_{GSI} shall denote the fuel consumption of the vehicle when the driver follows the advice of the GSI:

$FC^{GSI}_i = FC^n_i$, where $V^{n-1}_{GSI} \leq v_i < V^n_{GSI}$ (for n = 1, …, #g) and $FC^{GSI}_i = 0$ if $v_i \geq V^{\#g}_{GSI}$

$$FC_{GSI} = \Sigma_{i=1}^{28} P_i \times FC^{GSI}_i/100$$

FC_{std} shall denote the fuel consumption of the vehicle when standard gear shift points are used:

$FC^{std}_i = FC^n_i$, where $V^{n-1}_{std} \leq v_i < V^n_{std}$ (for n = 1, …, #g) and $FC^{std}_i = 0$ if $v_i \geq V^{\#g}_{GSI}$

$$FC_{std} = \Sigma_{i=1}^{28} P_i \times FC^{std}_i/100$$

The relative saving of fuel consumption by following the advice of the GSI of the model is calculated as:

$$FC_{rel.\ Save} = (1 - FC_{GSI}/FC_{std}) \times 100\ \%$$

4.6. *Data records*

The following information shall be recorded:

— the values of V^n_{GSI} as determined according to point 4.1,

— the values FC^n_i of the fuel consumption speed curve as communicated by the manufacturer according to point 4.3,

— the values FC_{GSI}, FC_{std} and $FC_{rel.\ Save}$ as calculated according to point 4.5.

Appendix 1

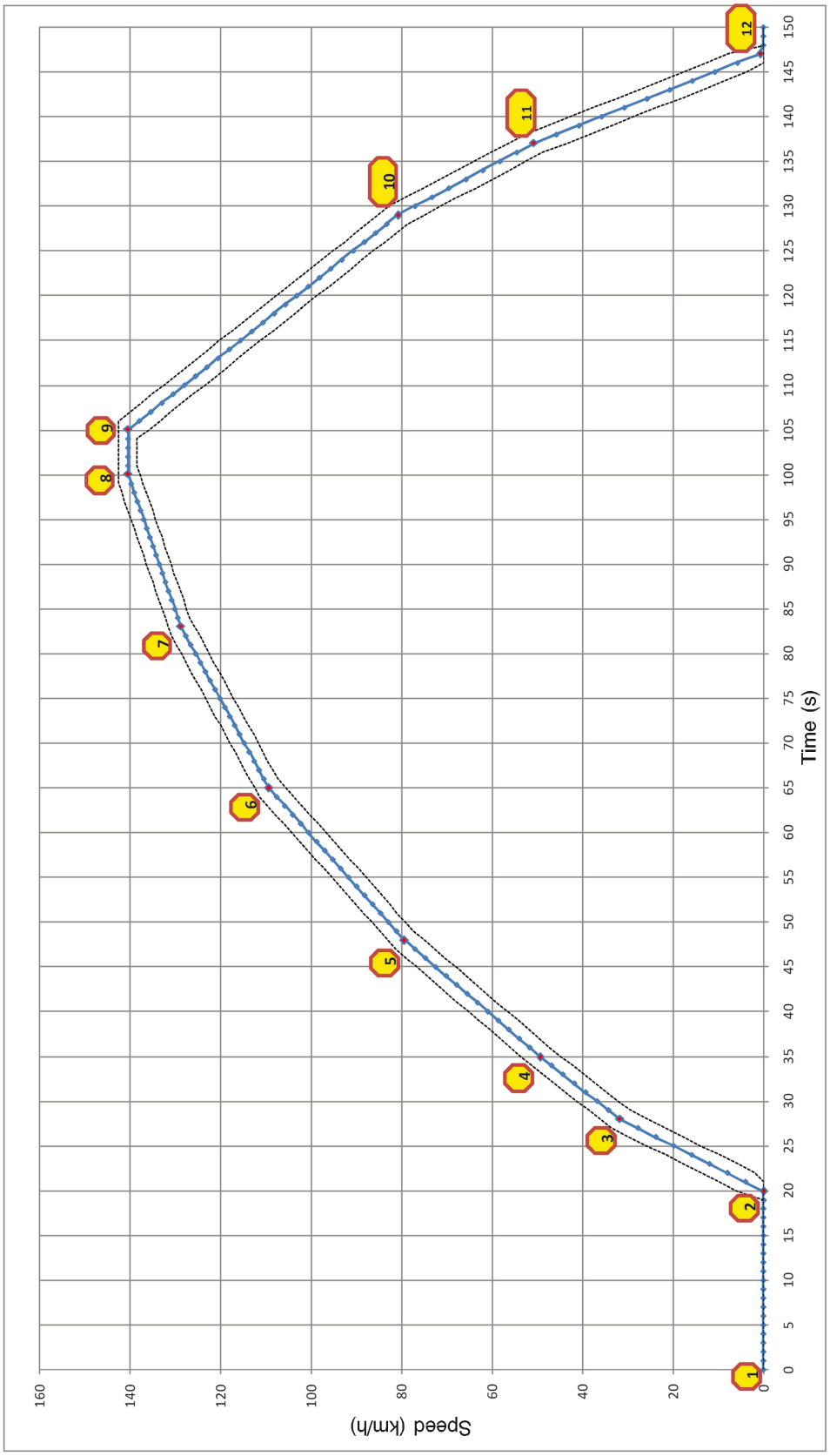
Description of vehicle speed profile referred to in point 4.1

No of operation	Operation	Acceleration (m/s^2)	Speed (km/h)	Cumulative time (s)
1	Idling	0	0	20
2	Acceleration	1,1	0-31,68	28
3		0,7	31,68-49,32	35
4		0,64	49,32-79,27	48
5		0,49	79,27-109,26	65
6		0,3	109,26-128,70	83
7		0,19	128,70-140,33	100
8	Steady state	0	140,33	105
9	Deceleration	– 0,69	140,33-80,71	129
10		– 1,04	80,71-50,76	137
11		– 1,39	50,76-0	147
12	Idling	0	0	150

The tolerances for deviation from this speed profile are defined in point 6.1.3.4 of Annex 4a of UNECE Regulation No 83, 05 series of amendments.

Figure I.1

Graphical representation of the speed profile referred to in point 4.1; solid line: speed profile; dashed lines: tolerances for deviation from this speed profile



The following table provides a second by second description of the speed profile. Where the vehicle is unable to attain 140 km/h, it shall be driven at its maximum speed until it rejoins the above speed profile.

Time (s)	Speed (km/h)	Time (s)	Speed (km/h)	Time (s)	Speed (km/h)
0	0,00	51	84,56	101	140,33
1	0,00	52	86,33	102	140,33
2	0,00	53	88,09	103	140,33
3	0,00	54	89,86	104	140,33
4	0,00	55	91,62	105	140,33
5	0,00	56	93,38	106	137,84
6	0,00	57	95,15	107	135,36
7	0,00	58	96,91	108	132,88
8	0,00	59	98,68	109	130,39
9	0,00	60	100,44	110	127,91
10	0,00	61	102,20	111	125,42
11	0,00	62	103,97	112	122,94
12	0,00	63	105,73	113	120,46
13	0,00	64	107,50	114	117,97
14	0,00	65	109,26	115	115,49
15	0,00	66	110,34	116	113,00
16	0,00	67	111,42	117	110,52
17	0,00	68	112,50	118	108,04
18	0,00	69	113,58	119	105,55
19	0,00	70	114,66	120	103,07
20	0,00	71	115,74	121	100,58
21	3,96	72	116,82	122	98,10
22	7,92	73	117,90	123	95,62
23	11,88	74	118,98	124	93,13
24	15,84	75	120,06	125	90,65
25	19,80	76	121,14	126	88,16
26	23,76	77	122,22	127	85,68
27	27,72	78	123,30	128	83,20
28	31,68	79	124,38	129	80,71
29	34,20	80	125,46	130	76,97
30	36,72	81	126,54	131	73,22
31	39,24	82	127,62	132	69,48
32	41,76	83	128,70	133	65,74
33	44,28	84	129,38	134	61,99
34	46,80	85	130,07	135	58,25
35	49,32	86	130,75	136	54,50
36	51,62	87	131,44	137	50,76
37	53,93	88	132,12	138	45,76
38	56,23	89	132,80	139	40,75
39	58,54	90	133,49	140	35,75
40	60,84	91	134,17	141	30,74
41	63,14	92	134,86	142	25,74
42	65,45	93	135,54	143	20,74
43	67,75	94	136,22	144	15,73
44	70,06	95	136,91	145	10,73
45	72,36	96	137,59	146	5,72
46	74,66	97	138,28	147	0,72
47	76,97	98	138,96	148	0,00
48	79,27	99	139,64	149	0,00
49	81,04	100	140,33	150	0,00
50	82,80				

ANNEX II

PART 1

Information document

MODEL

Information document No … relating to EC type-approval of a vehicle with regard to gear shift indicators.

The following information, if applicable, must be supplied in triplicate and include a list of contents. Any drawings must be supplied in appropriate scale and in sufficient detail on size A4 or on a folder of A4 format. Photographs, if any, must show sufficient detail.

If the systems, components or separate technical units have electronic controls, information concerning their performance shall be supplied.

Information set out in points 0, 3 and 4 of Appendix 3 to Annex I of Regulation (EC) No 692/2008 ([1]):

4.11. Gear shift indicator (GSI)

4.11.1. Acoustic indication available yes/no ([2]). If yes, description of sound and sound level at the driver's ear in dB(A). (Acoustic indication always switchable on/off): .....

4.11.2. Information according to point 4.6 of Annex I (manufacturer's declared value): .....

4.11.3. Information according to point 3.1.1 of Annex I: .....

4.11.4. Information according to point 3.1.2 of Annex I: .....

4.11.5. Photographs and/or drawings of the gear shift indicator instrument and brief description of the system components and operation: .....

4.11.6. Information on the GSI in the vehicle's user manual: .....

([1]) OJ L 199, 28.7.2008, p. 1.
([2]) Delete where not applicable

PART 2

MODEL

Manufacturer's certificate of compliance with the gear shift indicator's requirements

(Manufacturer):

(Address of the manufacturer):

Certifies that

The vehicle types listed in annex to this Certificate are in compliance with the provisions of Regulation (EU) No 65/2012 relating to gear shift indicators

Done at [..... Place]

On [..... Date]

[Signature] [Position]

Annexes:

— List of vehicle types to which this Certificate applies.

PART 3

EC type-approval certificate

MODEL

(maximum format: A4 (210 × 297 mm))

EC TYPE-APPROVAL CERTIFICATE

Stamp of EC type-approval authority

Communication concerning the

— EC type-approval ([1])

— extension of EC type-approval ([1])

— refusal of EC type-approval ([1])

— withdrawal of EC type-approval ([1])

of a type of a vehicle with regard to gear shift indicator

with regard to Regulation (EU) No 65/2012 as last amended by Regulation (EU) No …/2012 ([1])

EC type-approval number: .....

Reason for extension: .....

SECTION I

0.1. Make (trade name of manufacturer): .....

0.2. Type: .....

0.2.1. Commercial name(s), (if available): .....

0.3. Means of identification of type, if marked on the vehicle .....

0.3.1. Location of that marking: .....

0.4. Category of vehicle: .....

0.5. Name and address of manufacturer: .....

0.8. Name(s) and address(es) of assembly plant(s) .....

0.9. Name and address of the manufacturer's representative (if any) .....

([1]) Delete where not applicable

SECTION II

1. Additional information (where applicable): see addendum

2. Technical service responsible for carrying out the test and evaluations:

3. Date of test report:

4. Number of test report:

5. Information according to point 4.6 of Annex I to Regulation (EU) No 65/2012 (determined at type-approval):

6. Remarks (if any): see addendum

7. Place:

8. Date:

9. Signature:

Attachments: Information package
Test report
Additional information: …

Addendum to EC type-approval certificate No … concerning …

ANNEX III

AMENDMENTS TO FRAMEWORK DIRECTIVE 2007/46/EC

Directive 2007/46/EC is amended as follows:

1. In Annex I the following points are inserted:

'4.11. Gear shift indicator (GSI)

4.11.1. Acoustic indication available yes/no ([1]). If yes, description of sound and sound level at the driver's ear in dB(A). (Acoustic indication always switchable on/off)

4.11.2. Information according to point 4.6 of Annex I to Regulation (EU) No 65/2012 (manufacturer's declared value)

4.11.3. Photographs and/or drawings of the gear shift indicator instrument and brief description of the system components and operation:'

2. In Annex III the following points are inserted:

'4.11. Gear shift indicator (GSI)

4.11.1. Acoustic indication available yes/no ([1]). If yes, description of sound and sound level at the driver's ear in dB(A). (Acoustic indication always switchable on/off)

4.11.2. Information according to point 4.6 of Annex I to Regulation (EU) No 65/2012 (determined at type-approval)'

3. Part I of Annex IV is amended as follows:

(a) in the table, the following point 63.1 is inserted:

Subject	Regulatory act reference	Official Journal reference	Applicability									
			M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4
'63.1 Gear shift indicators	(EU) No 65/2012	L 28, 31.1.2012, p. 24.	X'									

(b) in the Appendix, in the table, the following point 63.1 is inserted:

	Subject	Regulatory act reference	Official Journal reference	M_1
'63.1	Gear shift indicators	(EU) No 65/2012	L 28, 31.1.2012, p. 24.	N/A'

4. In the Appendix to Annex VI, in the table, the following point 63.1 is inserted:

Subject	Regulatory act reference	As amended by	Applicable to versions
'63.1 Gear shift indicators	(EU) No 65/2012'		

5. Annex XI is amended as follows:

(a) In Appendix 1, in the table, the following point 63.1 is inserted:

Item	Subject	Regulatory act reference	$M_1 \leq 2\,500$ kg ([1])	$M_1 > 2\,500$ kg ([1])	M_2	M_3
'63.1	Gear shift indicators	(EU) No 65/2012	G	G'		

(b) In Appendix 2, in the table, the following point 63.1 is inserted:

Item	Subject	Regulatory act reference	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4
'63.1	Gear shift indicators	(EU) No 65/2012	G'									

(c) In Appendix 3, in the table, the following point 63.1 is inserted:

Item	Subject	Regulatory act reference	M_1
'63.1	Gear shift indicators	(EU) No 65/2012	G'

(d) In Appendix 4, in the table, between the columns headed 'Regulatory act reference' and 'M_2' a column 'M_1' is added and the following point 63.1 is inserted:

Item	Subject	Regulatory act reference	M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4
'63.1	Gear shift indicators	(EU) No 65/2012	G'									

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