

ANNEX I

Amendments to certain Annexes to Regulation (EC) No 692/2008

(1) Annex I is amended as follows:

(a) point 2.3.1 is replaced by the following:

2.3.1. Any vehicle with an emission control computer shall include features to prevent modification, except as authorised by the manufacturer. The manufacturer shall authorise modifications if these modifications are necessary for the diagnosis, servicing, inspection, retrofitting or repair of the vehicle. Any reprogrammable computer codes or operating parameter shall be resistant to tampering and afford a level of protection at least as good as the provisions in ISO 15031-7; dated 15 March 2001 (SAE J2186 dated October 1996). Any removable calibration memory chips shall be potted, encased in a sealed container or protected by electronic algorithms and shall not be changeable without the use of specialised tools and procedures. Only features directly associated with emissions calibration or prevention of vehicle theft may be so protected.;

(b) Figure I.2.4 is replaced by the following:

FIGURE I.2.4.

Application of test requirements for type approval and extensions

	Vehicles with positive ignition engines including hybrids					Vehicles with C.I. engines including hybrids				
	Mono fuel		Bi fuel ^a			Flex fuel ^a	Flex fuel	Mono fuel		
Reference fuel	Petrol (E5)	LPG	NG/ Biomethane	Hydrogen	Petrol (E5)	Petrol (E5)	Petrol (E5)	Petrol (E5)	Diesel (B5)	Diesel (B5)
					LPG	NG/ Biomethane	Hydrogen	Ethanol (E85)	Biodiesel	
Gaseous pollutants (Type 1 test)	Yes	Yes	Yes		Yes (both fuels)	Yes (both fuels)	Yes (petrol only) ^b	Yes (both fuels)	Yes (B5 only) ^b	Yes
Particulate mass & Particle number (Type 1 test)	Yes	—	—		Yes (petrol only)	Yes (petrol only)	Yes (petrol only) ^b	Yes (both fuels)	Yes (B5 only) ^b	Yes

a Where a bi fuel vehicle is combined with a flex fuel vehicle, both test requirements are applicable.

b This provision is temporary, further requirements for biodiesel and hydrogen shall be proposed later on.

c Test on petrol only before the dates set out in Article 10(6) of Regulation (EC) No 715/2007. The test will be performed on both fuels after these dates. The E75 test reference fuel specified in Annex IX Section B shall be used.

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1 test)										
Idle emissions (Type 2 test)	Yes	Yes	Yes		Yes (both fuels)	Yes (both fuels)	Yes (petrol only) ^b	Yes (both fuels)	—	—
Crankcase emissions (Type 3 test)	Yes	Yes	Yes		Yes (petrol only)	Yes (petrol only)	Yes (petrol only) ^b	Yes (petrol)	—	—
Evaporative emissions (Type 4 test)	—	—	—		Yes (petrol only)	Yes (petrol only)	Yes (petrol only) ^b	Yes (petrol)	—	—
Durability (Type 5 test)	Yes	Yes	Yes		Yes (petrol only)	Yes (petrol only)	Yes (petrol only) ^b	Yes (petrol)	Yes (B5 only) ^b	Yes
Low temperature emissions (Type 6 test)	Yes	—	—		Yes (petrol only)	Yes (petrol only)	Yes (petrol only) ^b	Yes (both fuels) ^c		
In-service conformity	Yes	Yes	Yes		Yes (both fuels)	Yes (both fuels)	Yes (petrol only) ^b	Yes (both fuels)	Yes (B5 only) ^b	Yes
On-board diagnostics	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
CO₂ emissions and fuel consumption	Yes	Yes	Yes		Yes (both fuels)	Yes (both fuels)	Yes (petrol only)	Yes (both fuels)	Yes (B5 only) ^b	Yes
Smoke opacity	—	—	—		—	—	—	—	Yes (B5 only) ^b	Yes;

a Where a bi fuel vehicle is combined with a flex fuel vehicle, both test requirements are applicable.

b This provision is temporary, further requirements for biodiesel and hydrogen shall be proposed later on.

c Test on petrol only before the dates set out in Article 10(6) of Regulation (EC) No 715/2007. The test will be performed on both fuels after these dates. The E75 test reference fuel specified in Annex IX Section B shall be used.

- (c) in Appendix 3, point 3.4.8 is replaced by the following:
- 3.4.8. Vehicle electric range ... km (according to Annex 9 to UN/ECE Regulation No 101);
- (d) in Appendix 4, point 3.2 is replaced by the following:

3.2. Terms and conditions of access (i.e. duration of access, price of access on a hourly, daily, monthly, annual and per-transaction basis) to websites referred to in point 3.1): ...;

(e) in Appendix 6, the following is added to key of table 1:

Euro 5b emissions standard	=	Full Euro 5 emission requirements including revised measurement procedure for particulates, particle number standard and flex fuel vehicle low temperature emission testing with biofuel.
Euro 6b emissions standard	=	Full Euro 6 emission requirements including revised measurement procedure for particulates, particle number standard and flex fuel vehicle low temperature emission testing with biofuel.
Euro 5 OBD standards	=	Base Euro 5 OBD requirements excluding in-use-performance ratio (IUPR), NO _x monitoring for petrol vehicles and tightened PM threshold limits for diesel.
Euro 6 OBD standards	=	Full Euro 6 OBD requirements.;

(2) Annex III is amended as follows:

(a) point 3.1 is replaced by the following:

3.1. The technical requirements shall be those set out in Annex 4 to UN/ECE Regulation No 83 with the exceptions set out in points 3.2 to 3.12. As from the dates set out in the second sentence of Article 10(6) of Regulation (EC) No 715/2007 the mass of particulate matter (PM) and the number of particles (P) shall be determined according the emission test procedure set out in Section 6 of Annex 4a to UN/ECE Regulation No 83, series of amendments 05, supplement 07, using the test equipment described in points 4.4 and 4.5 thereof, respectively.;

(b) in point 3.4, the following is added:

For ethanol (E75) (C₁H_{2,61}O_{0,329}) d = 0,886 g/l;

(c) the table in point 3.8 is replaced by the following:

Fuel	X
Petrol (E5)	13,4
Diesel (B5)	13,5
LPG	11,9
NG/biomethane	9,5
Ethanol (E85)	12,5

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Ethanol (E75)	12,7
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- (d) in point 3.10, the following is added:
- $Q_{\text{THC}} = 0,886$ in the case of ethanol (E75);
- (e) the following point 3.14 is added:
- 3.14. As from the dates laid down in Article 2 of Commission Directive 2008/89/EC⁽¹⁾ the daytime running lamps of the vehicle as defined in Section 2 of UN/ECE Regulation No 48⁽²⁾ shall be switched on during the test cycle. The vehicle tested shall be equipped with the daytime running lamp system that has the highest electrical energy consumption among the daytime running lamp systems, which are fitted by the manufacturer to vehicles in the group represented by the type-approved vehicle. The manufacturer shall supply appropriate technical documentation to the type-approval authorities in this respect.;
- (3) in Annex IV, point 2.2 of Appendix 1 is replaced by the following:
- 2.2. The atomic ratios specified in point 5.3.7.3 shall be understood as follows:
- Hcv = Atomic ratio of hydrogen to carbon
- for petrol (E5) 1,89
 - for LPG 2,53
 - for NG/biomethane 4,0
 - for ethanol (E85) 2,74
 - for ethanol (E75) 2,61
- Ocv = Atomic ratio of oxygen to carbon
- for petrol (E5) 0,016
 - for LPG 0,0
 - for NG/biomethane 0,0
 - for ethanol (E85) 0,39
 - for ethanol (E75) 0,329;
- (4) in Annex VIII, point 2.3 is replaced by the following:
- 2.3. The limit values referred to in point 5.3.5.2 of UN/ECE Regulation No 83 relate to the limit values set out in Annex 1, Table 4, to Regulation (EC) No 715/2007.;
- (5) at the end of Annex IX, Section B, the text ‘Reference fuel specification to be developed in advance of the dates set out in Article 10(6) of Regulation (EC) No 715/2007’ shall be replaced by the following table:

‘Parameter	Unit	Limits ^a		Test method ^b
		Minimum	Maximum	
Research octane number, RON		95	—	EN ISO 5164
Motor octane number, MON		85	—	EN ISO 5163
Density at 15 °C	kg/m ³	report		EN ISO 12185

Vapour pressure	kPa	50	60	EN ISO 13016-1 (DVPE)
Sulphur content ^{cd}	mg/kg	—	10	EN ISO 20846 EN ISO 20884
Oxidation stability	minutes	360	—	EN ISO 7536
Existent gum content (solvent washed)	mg/100ml	—	4	EN ISO 6246
Appearance shall be determined at ambient temperature or 15 °C whichever is higher		Clear and bright, visibly free of suspended or precipitated contaminants		Visual inspection
Ethanol and higher alcohols ^g	% (V/V)	70	80	EN 1601 EN 13132 EN 14517
Higher alcohols (C ₃ – C ₈)	% (V/V)	—	2	
Methanol		—	0,5	
Petrol ^e	% (V/V)	Balance		EN 228
Phosphorus	mg/l	0,3 ^f		EN 15487 ASTM D 3231
Water content	% (V/V)	—	0,3	ASTM E 1064 EN 15489
Inorganic chloride content	mg/l	—	1	ISO 6227 — EN 15492
pHe		6,5	9	ASTM D 6423 EN 15490
Copper strip corrosion (3h at 50 °C)	Rating	Class 1		EN ISO 2160
Acidity (as acetic acid CH ₃ COOH)	% (m/m)		0,005	ASTM D1613 EN 15491
	mg/l		40	
Carbon/hydrogen ration		report		
Carbon/oxygen ration		report		

^a The values referred to in the specifications are “true values”. When establishing the value limits, the terms of ISO 4259 Petroleum products — Determination and application of precision data in relation to methods of test were applied. When fixing a minimum value, a minimum difference of 2R above zero was taken into account. When fixing a maximum and minimum value, the minimum difference used was 4R (R = reproducibility). Notwithstanding this procedure, which is

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necessary for technical reasons, fuel manufacturers shall aim for a zero value where the stipulated maximum value is 2R and for the mean value for quotations of maximum and minimum limits. Where it is necessary to clarify whether fuel meets the requirements of the specifications, the ISO 4259 terms shall be applied.

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|----------|---|
| b | In cases of dispute, the procedures for resolving the dispute and interpretation of the results based on test method precision, described in EN ISO 4259 shall be used. |
| c | In cases of national dispute concerning sulphur content, either EN ISO 20846 or EN ISO 20884 shall be called up similar to the reference in the national annex of EN 228. |
| d | The actual sulphur content of the fuel used for the Type 6 test shall be reported. |
| e | The unleaded petrol content may be determined as 100 minus the sum of the percentage content of water and alcohols. |
| f | There shall be no intentional addition of compounds containing phosphorus, iron, manganese, or lead to this reference fuel. |
| g | Ethanol to meet specification of EN 15376 is the only oxygenate that shall be intentionally added to this reference fuel.' |

(6) Annex XI is amended as follows:

(a) the following point 2.14 is added:

2.14. As from 1 September 2011, in deviation from point 3.3.5 of Annex 11 to UN/ECE Regulation No 83, a particulate trap, where fitted as a separate unit or integrated into a combined emission control device, shall always be monitored at least for total failure or removal if the latter resulted in exceeding the applicable emission limits. It shall also be monitored for any failure that would result in exceeding the applicable OBD threshold limits.;

(b) point 3.3 is replaced by the following:

3.3. The approval authority shall not accept any deficiency request that includes the complete lack of a required diagnostic monitor or of mandated recording and reporting of data related to a monitor.;

(c) Appendix 1 is amended as follows:

(i) points 3.1.7 and 3.1.8 are replaced by the following:

3.1.7. The manufacturer shall demonstrate to the approval authority and, upon request, to the Commission that these statistical conditions are satisfied for all monitors required to be reported by the OBD system according to point 3.6 of this Appendix not later than 18 months after the entry onto the market of the first vehicle type with IUPR in an OBD family and every 18 months thereafter. For this purpose, for OBD families consisting of more than 1 000 registrations in the Union, that are subject to sampling within the sampling period, the process described in Annex II shall be used without prejudice to the provisions of point 3.1.9 of this Appendix.

In addition to the requirements set out in Annex II and regardless of the result of the audit described in Section 2 of Annex II, the authority granting the approval shall apply the in-service conformity check for IUPR described in Appendix 1 to Annex II in an appropriate number of randomly determined cases. "In an appropriate number of randomly determined cases" means, that this measure has a dissuasive effect on non-compliance with the requirements of Section 3 of this Annex or the provision of manipulated, false or non-representative data for the audit. If no special circumstances apply and can be demonstrated by the type-

approval authorities, random application of the in-service conformity check to 5 % of the type approved OBD families shall be considered as sufficient for compliance with this requirement. For this purpose, type-approval authorities may find arrangements with the manufacturer for the reduction of double testing of a given OBD family as long as these arrangements do not harm the dissuasive effect of the type-approval authority's own in-service conformity check on non-compliance with the requirements of Section 3 of this Annex. Data collected by Member States during surveillance testing programmes may be used for in-service conformity checks. Upon request, type-approval authorities shall provide data on the audits and random in-service conformity checks performed, including the methodology used for identifying those cases, which are made subject to the random in-service conformity check, to the Commission and other type-approval authorities.

3.1.8. For the entire test sample of vehicles the manufacturer must report to the relevant authorities all of the in-use performance data to be reported by the OBD system according to point 3.6 of this Appendix in conjunction with an identification of the vehicle being tested and the methodology used for the selection of the tested vehicles from the fleet. Upon request, the type-approval authority granting the approval shall make these data and the results of the statistical evaluation available to the Commission and other approval authorities.;

(ii) the following point 3.1.10 is added:

3.1.10. Non-compliance with the requirements of point 3.1.6 established by tests described in points 3.1.7 or 3.1.9 shall be considered as an infringement subject to the penalties set out in Article 13 of Regulation (EC) No 715/2007. This reference does not limit the application of such penalties to other infringements of other provisions of Regulation (EC) No 715/2007 or this Regulation, which do not explicitly refer to Article 13 of Regulation (EC) No 715/2007.;

(iii) in point 3.3.2, the following points (e) and (f) are added:

(e) without prejudice to requirements for the increment of denominators of other monitors the denominators of monitors of the following components shall be incremented if and only if the driving cycle started with a cold start:

- (i) liquid (oil, engine coolant, fuel, SCR reagent) temperature sensors;
- (ii) clean air (ambient air, intake air, charge air, inlet manifold) temperature sensors;
- (iii) exhaust (EGR recirculation/cooling, exhaust gas turbo-charging, catalyst) temperature sensors;

(f) the denominators of monitors of the boost pressure control system shall be incremented if the all of the following conditions are met:

- (i) the general denominator conditions are fulfilled;

- (ii) the boost pressure control system is active for a time greater than or equal to 15 seconds.;
- (iv) point 3.6.2 is replaced by the following:
 - 3.6.2. For specific components or systems that have multiple monitors, which are required to be reported by this point (e.g. oxygen sensor bank 1 may have multiple monitors for sensor response or other sensor characteristics), the OBD system shall separately track numerators and denominators for each of the specific monitors except those monitoring for short circuit or open circuit failures and report only the corresponding numerator and denominator for the specific monitor that has the lowest numerical ratio. If two or more specific monitors have identical ratios, the corresponding numerator and denominator for the specific monitor that has the highest denominator shall be reported for the specific component.;
- (7) Annex XII is amended as follows:
 - (a) point 2.3 is replaced by the following:
 - 2.3. Point 5.2.4 of UN/ECE Regulation No 101 shall read:
 - (1) density: measured on the test fuel according to ISO 3675 or an equivalent method. For petrol, diesel, biodiesel and ethanol (E85 and E75) the density measured at 15 °C will be used; for LPG and natural gas/biomethane a reference density shall be used, as follows:
 - 0,538 kg/litre for LPG,
 - 0,654 kg/m³ for NG (³)
 - (2) hydrogen-carbon-oxygen ratio: fixed values shall be used which are:
 - C₁H_{1,89}O_{0,016} for petrol,
 - C₁H_{1,86}O_{0,005} for diesel,
 - C₁H_{2,525} for LPG (liquefied petroleum gas),
 - CH₄ for NG (natural gas) and biomethane,
 - C₁H_{2,74}O_{0,385} for ethanol (E85),
 - C₁ H_{2,61} O_{0,329} for ethanol (E75).;
 - (b) the following point 3.5 is added:
 - 3.5. During the test cycle used for determining the CO₂ emissions and fuel consumption of the vehicle the provision of point 3.14 of Annex III shall apply.;
- (8) Annex XIV is amended as follows:
 - (a) in point 2.1, the following is added:

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 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.;

(b) points 2.2 and 2.3 are replaced by the following:

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 according to the following requirements:

- (i) data shall be exchanged ensuring confidentiality, integrity and protection against replay;
- (ii) the standard [https//ssl-tls](https://ssl-tls) (RFC4346) shall be used;
- (iii) security certificates in accordance with ISO 20828 shall be used for mutual authentication of independent operators and manufacturers;
- (iv) the independent operator's private key shall be protected by secure hardware.

The Forum on Access to Vehicle Information provided for by paragraph 9 of Article 13 will specify the parameters for fulfilling these requirements according to the state-of-the-art.

The independent operator shall be approved and authorised for this purpose on the basis of documents demonstrating that they pursue a legitimate business activity and have not been convicted of relevant criminal activity.

2.3. Reprogramming of control units of vehicles manufactured later than 31 August 2010 shall be conducted in accordance with either ISO 22900 or SAE J2534, regardless of the date of type approval. For the validation of the compatibility of the manufacturer-specific application and the vehicle communication interfaces (VCI) complying to ISO 22900 or SAE J2534, 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 7(1) of Regulation (EC) No 715/2007 apply to fees for such validation or information and hardware.

For vehicles manufactured before 1 September 2010 the manufacturer may offer either full reprogramming in accordance with ISO 22900 or SAE J2534 or reprogramming via the sale or lease of its own proprietary tool. In the latter case independent operators must get access in a non-discriminatory, prompt and proportionate way, and the tool must be provided in a usable form. The provisions of Article 7 of Regulation (EC) No 715/2007 shall apply to fees for the access to these tools.;

(c) point 2.8 is replaced by the following:

- 2.8. Manufacturers shall establish fees for hourly, daily, monthly, annual and per-transaction access to their repair and maintenance information websites, which are reasonable and proportionate.;
- (9) Annex XVI is amended as follows:
- (a) in point 6.2, the following is added:
- For the purposes of this point these situations are presumed to occur, if the applicable NO_x emission limit of Table 1 of Annex I to Regulation (EC) No 715/2007, multiplied by a factor of 1,5, is exceeded. By way of exception, for a vehicle approved to the interim Euro 6 OBD threshold limits of point 2.3.2 of Annex XI to this Regulation, those situations are presumed to occur if the applicable NO_x emission limit of Table 2 of Annex I to Regulation (EC) No 715/2007 is exceeded by 100 mg or more. NO_x emissions during the test to demonstrate compliance with these requirements shall be not more than 20 % higher than the values referred to in the first and second sentence.;
- (b) point 7.1 is replaced by the following:
- 7.1. Where reference is made to this point, non-erasable Parameter Identifiers (PID) shall be stored identifying the reason for and the distance travelled by the vehicle during the inducement system activation. The vehicle shall retain a record of the PID for at least 800 days or 30 000 km of vehicle operation. The PID shall be made available via the serial port of a standard diagnostic connector upon request of a generic scan tool according to the provisions of point 6.5.3.1 of Appendix 1 to Annex 11 to UN/ECE Regulation No 83 and point 2.5 of Appendix 1 to Annex XI to this Regulation. From the dates referred to in Article 17, the information stored in the PID shall be linked to the period of cumulated vehicle operation, during which it has occurred, with an accuracy of not less than 300 days or 10 000 km.;
- (10) in Annex XVIII, point 3.4.8 is replaced by the following:
- 3.4.8. Vehicle electric range ... km (according to Annex 9 to UN/ECE Regulation No 101).

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- (1) OJ L 257, 25.9.2008, p. 14.
- (2) OJ L 135, 23.5.2008, p. 1.;