Commission Regulation (EC) No 692/2008 of 18 July 2008 implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council 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 (Text with EEA relevance)

ANNEX I

ADMINISTRATIVE PROVISIONS FOR EC TYPE-APPROVAL

1. ADDITIONAL REQUIREMENTS FOR GRANTING OF EC TYPE-APPROVAL

[F1 1.1. Additional requirements for mono fuel gas vehicles, bi-fuel gas vehicles and flex fuel H2NG vehicles.**]**

1.1.1. For the purposes of section 1.1 the following definitions shall apply:

[F1 1.1.1.1. A family means a group of vehicle types fuelled by LPG, NG/biomethane, H2NG, identified by a parent vehicle.**]**

1.1.1.2. A parent vehicle means a vehicle that is selected to act as the vehicle on which the self adaptability of a fuelling system is going to be demonstrated, and to which the members of a family refer. It is possible to have more than one parent vehicle in a family.

1.1.1.3. A member of the family means a vehicle that shares the following essential characteristics with its parent:

(a) It is produced by the same vehicle manufacturer;

(b) It is subject to the same emission limits;

(c) If the gas fuelling system has a central metering for the whole engine, it has a certified power output between 0,7 and 1,15 times that of the engine of the parent vehicle;

(d) If the gas fuelling system has an individual metering per cylinder, it has a certified power output per cylinder between 0,7 and 1,15 times that of the engine of the parent vehicle;

(e) If fitted with a catalyst system, it has the same type of catalyst i.e. three-way, oxidation, de NO_x;

(f) It has a gas fuelling system (including the pressure regulator) from the same system manufacturer and of the same type: induction, vapour injection (single point, multipoint), liquid injection (single point, multipoint);

(g) This gas fuelling system is controlled by an ECU of the same type and technical specification, containing the same software principles and control strategy. The vehicle may have a second ECU compared to the parent vehicle, provided that the ECU is only used to control the injectors, additional shut-off valves and the data acquisition from additional sensors.

With regard to the requirements referred to in point (c) and (d), in the case where a demonstration shows two gas fuelled vehicles could be members of the same family with the exception of their certified power output, respectively P_1 and P_2 ($P_1 < P_2$), and both are tested as if they were parent vehicles, the family relation will be considered valid for any vehicle with a certified power output between $0,7 \times P_1$ and $1,15 \times P_2$.

[F1 1.1.2. In case of vehicles fuelled by LPG, NG/biomethane, H2NG, EC type-approval is granted subject to the following requirements:**]**

1.1.2.1. For the type-approval of a parent vehicle, the parent vehicle shall demonstrate its capability to adapt to any fuel composition that may occur across the market. In the case of LPG there are variations in C3/C4 composition. In the case of natural gas

there are generally two types of fuel, high calorific fuel (H-gas) and low calorific fuel (L-gas), but with a significant spread within both ranges; they differ significantly in Wobbe index. These variations are reflected in the reference fuels.

[[F2]In the case of a flex fuel H2NG vehicle, the composition range may vary from 0 % hydrogen to a maximum percentage of hydrogen within the mixture, which shall be specified by the manufacturer. The parent vehicle shall demonstrate its capability to adapt to any percentage, within the range specified by the manufacturer. It shall also demonstrate its capability to adapt to any NG/biomethane composition that may occur across the market, regardless of the percentage of hydrogen in the mixture.**]**

Textual Amendments

F2 Inserted by Commission Regulation (EU) No 630/2012 of 12 July 2012 amending Regulation (EC) No 692/2008, as regards type-approval requirements for motor vehicles fuelled by hydrogen and mixtures of hydrogen and natural gas with respect to emissions, and the inclusion of specific information regarding vehicles fitted with an electric power train in the information document for the purpose of EC type-approval (Text with EEA relevance).

[[F1]1.1.2.2. In the case of vehicles fuelled by LPG, NG/biomethane, the parent vehicle shall be tested in the type 1 test on the two extreme gas reference fuels set out in Annex IX. In the case of NG/biomethane, if the transition from one gas fuel to the other gas fuel is, in practice, aided through the use of a switch, this switch shall not be used during type-approval.

In the case of flex fuel H2NG vehicles, the parent vehicle shall be tested in the type 1 test with the following fuel compositions:

— 100 % H-gas.

— 100 % L-gas.

— The mixture of H-gas and the maximum percentage of hydrogen specified by the manufacturer.

— The mixture of L-gas and the maximum percentage of hydrogen specified by the manufacturer.

1.1.2.3. The vehicle is considered to conform if, under the tests and reference fuels mentioned in point 1.1.2.2, the vehicle complies with the emission limits.

1.1.2.4. In the case of vehicles fuelled by LPG or NG/biomethane, the ratio of emission results ‘r’ shall be determined for each pollutant as follows:

Type of fuel	Reference fuels	Calculation of ‘r’
LPG	fuel A	$r = \frac{B}{A}$
	fuel B	
NG/Biomethane	fuel G20	$r = \frac{G25}{G20}$
	fuel G25**]**	

[[F2]1.1.2.5. In the case of flex fuel H2NG vehicles, two ratios of emission results ‘r_1’ and ‘r_2’, shall be determined for each pollutant as follows:

Type of fuel	Reference fuels	Calculation of ‘r’

NG/biomethane	fuel G20	$r_1 = \frac{G25}{G20}$
	fuel G25	
H2NG	Mixture of hydrogen and G20 with the maximum percentage of hydrogen specified by the manufacturer	$r_2 = \frac{H2G25}{H2G20}$
	Mixture of hydrogen and G25 with the maximum percentage of hydrogen specified by the manufacturer**]**	

1.1.3. **[**[F1]For the type-approval of a mono- fuel gas vehicle and bi-fuel gas vehicles operating in gas mode, fuelled by LPG or NG/biomethane, as a member of the family, a type 1 test shall be performed with one gas reference fuel. This reference fuel may be either of the gas reference fuels. The vehicle is considered to comply if the following requirements are met:**]**

(a) the vehicle complies with the definition of a family member as defined in section 1.1.1.3;

(b) if the test fuel is the reference fuel A for LPG or G20 for NG/Biomethane, the emission result for each pollutant shall be multiplied by the relevant factor 'r' calculated in section 1.1.2.4 if r > 1; if r < 1, no correction is needed;

(c) if the test fuel is the reference fuel B for LPG or G25 for NG/Biomethane, the emission result for each pollutant shall be divided by the relevant factor 'r' calculated in section 1.1.2.4 if r < 1; if r > 1, no correction is needed;

(d) on the manufacturer's request the type 1 test may be performed on both reference fuels, so that no correction is needed;

(e) the vehicle shall comply with the emission limits valid for the relevant category for both measured and calculated emissions;

(f) if repeated tests are made on the same engine the results on reference fuel G20, or A, and those on reference fuel G25, or B, shall first be averaged; the 'r' factor shall then be calculated from these averaged results;

(g) during the type 1 test the vehicle shall only use petrol for a maximum of 60 seconds when operating in gas mode.

[[F2]1.1.4. For the type-approval of a flex fuel H2NG vehicle as a member of a family, two type 1 tests shall be performed, the first test with 100 % of either G20 or G25, and the second test with the mixture of hydrogen and the same NG/biomethane fuel used during the first test, with the maximum hydrogen percentage specified by the manufacturer.

The vehicle tested in accordance with the first paragraph shall be considered as complying if, in addition to requirements set out in points (a), (e) and (g) of point 1.1.3., the following requirements are met:

(a) if the NG/biomethane fuel is the reference fuel G20, the emission result for each pollutant shall be multiplied by the relevant factors (r_1 for the first test and r_2

for the second test), calculated in section 1.1.2.5, if the relevant factor > 1; if the correspondent relevant factor < 1, no correction is needed;

(b) if the NG/biomethane fuel is the reference fuel G25, the emission result for each pollutant shall be divided by the correspondent relevant factor (r_1 for the first test and r_2 for the second test) calculated in accordance with point 1.1.2.5, if the correspondent relevant factor < 1; if the correspondent relevant factor > 1, no correction is needed;

(c) on the manufacturer's request the type 1 test must be performed with the four possible combinations of reference fuels, according to section 1.1.2.5, so that no correction is needed;

(d) if repeated tests are made on the same engine the results on reference fuel G20, or H2G20, and those on reference fuel G25, or H2G25 with the maximum hydrogen percentage specified by the manufacturer, shall first be averaged; the 'r_1' and 'r_2' factors shall then be calculated from these averaged results.**]**

Textual Amendments

F1 Substituted by Commission Regulation (EU) No 630/2012 of 12 July 2012 amending Regulation (EC) No 692/2008, as regards type-approval requirements for motor vehicles fuelled by hydrogen and mixtures of hydrogen and natural gas with respect to emissions, and the inclusion of specific information regarding vehicles fitted with an electric power train in the information document for the purpose of EC type-approval (Text with EEA relevance).

1.2. Additional requirements for flex fuel vehicles

1.2.1. For the type-approval of a flex fuel ethanol or biodiesel vehicle, the vehicle manufacturer shall describe the capability of the vehicle to adapt to any mixture of petrol and ethanol fuel (up to an 85 % ethanol blend) or diesel and biodiesel that may occur across the market.

1.2.2. For flex fuel vehicles, the transition from one reference fuel to another between the tests shall take place without manual adjustment of the engine settings.

2. ADDITIONAL TECHNICAL REQUIREMENTS AND TESTS

2.1. Small volume manufacturers

2.1.1. List of legislative acts referred to in Article 3(3):

Legislative Act	**Requirements**
The California Code of Regulations, Title 13, Sections 1961(a) and 1961(b)(1)(C) (1) applicable to 2001 and later model year vehicles, 1968.1, 1968.2, 1968.5, 1976 and 1975, published by Barclay's Publishing	Type-approval must be granted under the California Code of Regulations applicable to the most recent model year of light-duty vehicle.

2.2. Inlets to fuel tanks

2.2.1. The inlet orifice of the petrol or ethanol tank shall be designed so that it prevents the tank from being filled from a fuel pump delivery nozzle that has an external diameter of 23,6 mm or greater.

2.2.2. Section 2.2.1 shall not apply to a vehicle for which both of the following conditions are satisfied:

(a) the vehicle is designed and constructed so that no device designed to control the emission of gaseous pollutants is adversely affected by leaded petrol, and

(b) the vehicle is conspicuously, legibly and indelibly marked with the symbol for unleaded petrol specified in ISO 2575:2004 in a position immediately visible to a person filling the fuel tank. Additional markings are permitted.

2.2.3. Provision shall be made to prevent excess evaporative emissions and fuel spillage caused by a missing fuel filler cap. This may be achieved by using one of the following:

(a) an automatically opening and closing, non-removable fuel filler cap,

(b) design features which avoid excess evaporative emissions in the case of a missing fuel filler cap,

(c) any other provision which has the same effect. Examples may include, but are not limited to, a tethered filler cap, a chained filler cap or one utilizing the same locking key for the filler cap as for the vehicle's ignition. In this case the key shall be removable from the filler cap only in the locked condition.

2.3. Provisions for electronic system security

[[F3]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.**]**

Textual Amendments

F3 Substituted by Commission Regulation (EU) No 566/2011 of 8 June 2011 amending Regulation (EC) No 715/2007 of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as regards access to vehicle repair and maintenance information (Text with EEA relevance).

2.3.2. Computer-coded engine operating parameters shall not be changeable without the use of specialized tools and procedures (e. g. soldered or potted computer components or sealed (or soldered) computer enclosures).

2.3.3. In the case of mechanical fuel-injection pumps fitted to compression-ignition engines, manufacturers shall take adequate steps to protect the maximum fuel delivery setting from tampering while a vehicle is in service.

2.3.4. Manufacturers may apply to the approval authority for an exemption to one of the requirements of Section 2.3 for those vehicles which are unlikely to require protection. The criteria that the approval authority shall evaluate in considering an exemption shall

include the current availability of performance chips, the high-performance capability of the vehicle and the projected sales volume of the vehicle.

2.3.5. Manufacturers using programmable computer code systems (e.g. electrical erasable programmable read-only memory, EEPROM) shall deter unauthorised reprogramming. Manufacturers shall include enhanced tamper-protection strategies and write-protect features requiring electronic access to an off-site computer maintained by the manufacturer ', to which independent operators shall also have access using the protection afforded in Section 2.3.1. and Section 2.2. of Annex XIV. Methods giving an adequate level of tamper protection shall be approved by the approval authority.

[F4 2.4. **Application of tests**

2.4.1. Figure I.2.4 illustrates the application of the tests for type-approval of a vehicle. The specific test procedures are described in Annexes II, III, IV, V, VI, VII, VIII, X, XI, XII, XVI(1) and XX.

FIGURE I.2.4

Application of test requirements for type-approval and extensions

Vehicle category	**Vehicles with positive ignition engines including hybrids**									**Vehicles with compression ignition engines including hybrids**		**Pure electric vehicles**	**Hydrogen Fuel cell vehicles**
	Mono fuel				**Bi-fuel**[a]			**Flex-fuel**[a]		**Flex fuel**	**Mono fuel**		
Reference fuel	Petrol (E5/ E10)[e]	LPG	NG/ Biomethane	Hydrogen	Petrol (E5/ E10)[e] LPG	Petrol (E5/ E10)[e] NG/ Biomethane	Petrol (E5/ E10)[e] Hydrogen	Petrol (E5/ E10)[e] Ethanol (E85)	NG/ Biomethane H_2NG	Diesel (B5/ B7)[e] Biodiesel	Diesel (B5/ B7)[e]	—	—
Gaseous pollutants (Type 1 test)	Yes	Yes	Yes	Yes[d]	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)[d]	Yes (both fuels)	Yes (both fuels)	Yes (B5/ B7 only)[be]	Yes	—	—
Particulate mass and particulate number (Type 1 test)	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (both fuels)	—	Yes (B5/ B7 only)[be]	Yes	—	—
[F5 Gaseous pollutants, RDE	Yes	Yes	Yes	Yes[d]	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes ((both fuels)	Yes	—	—

(Type 1A test)													
Particulate number, RDE (Type 1A test)[f]	Yes	—	—	—	Yes (both fuels)	Yes (both fuels	Yes (both fuels	Yes (both fuels)	—	Yes (both fuels)	Yes	—	—]
Idle emissions (Type 2 test)	Yes	Yes	Yes	—	Yes (both fuels)	Yes (both fuels)	Yes (petrol only)	Yes (both fuels)	Yes (NG/ biomethane only)	—	—	—	—
Crankcase emissions (Type 3 test)	Yes	Yes	Yes	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (NG/ biomethane only)	—	—	—	—
Evaporative emissions (Type 4 test)	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	—	—	—	—	—
Durability (Type 5 test)	Yes	Yes	Yes	Yes	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (NG/ biomethane only)	Yes (B5/ B7 only)[be]	Yes	—	—
Low temperature emissions (Type 6 test)	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes[c] (both fuels)	—	—	—	—	—
In-service conformity	Yes	Yes	Yes	Yes	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (B5/ B7 only)[be]	Yes	—	—
On-board diagnostics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	—	—
CO_2 emissions, fuel consumption, electric energy consumption	Yes	Yes	Yes	Yes	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (B5/ B7 only)[be]	Yes	Yes	Yes

and electric range													
Smoke opacity	—	—	—	—	—	—	—	—	—	Yes (B5/B7 only)[be]	Yes	—	—
Engine power	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

a	When 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 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.
d	Only NO_x emissions shall be determined when the vehicle is running on hydrogen.
e	Upon the choice of the manufacturer vehicles with positive and compression ignition engines may be tested with either E5 or E10 and either B5 or B7 fuels, respectively. However: — Not later than sixteen months after the dates set out in Article 10(4) of Regulation (EC) No 715/2007, new type - approvals shall only be performed with E10 and B7 fuels, — Not later than three years after the dates set out in Article 10(5) of Regulation (EC) No 715/2007, all new vehicles shall be type-approved with E10 and B7 fuels.
f	**[**[F5]The particulate number RDE test only applies to vehicles for which Euro 6 PN emission limits are defined in Table 2 of Annex I to Regulation (EC) No 715/2007.**]**

Textual Amendments

F5 Inserted by Commission Regulation (EU) 2016/427 of 10 March 2016 amending Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 6) (Text with EEA relevance).

I[F6]*Explanatory note*:

The dates of application of the reference fuels E10 and B7 for all new vehicles have been set out to minimise the test burden. If, however, technical evidence for vehicles certified with E5 or B5 reference fuels showing significantly higher emissions when tested with E10 or B7 is established, the Commission should make a proposal advancing these introduction dates.**]]**

Textual Amendments

F4 Substituted by Commission Regulation (EU) No 136/2014 of 11 February 2014 amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and Commission Regulation (EU) No 582/2011 as regards emissions from heavy duty vehicles (Euro VI) (Text with EEA relevance).

3. EXTENSIONS TO TYPE-APPROVALS

3.1. Extensions for tailpipe emissions (type 1, type 2 and type 6 tests)

3.1.1. Vehicles with different reference masses

3.1.1.1. The type-approval shall be extended only to vehicles with a reference mass requiring the use of the next two higher equivalent inertia or any lower equivalent inertia.

3.1.1.2. For category N vehicles, the approval shall be extended only to vehicles with a lower reference mass, if the emissions of the vehicle already approved are within the limits prescribed for the vehicle for which extension of the approval is requested.

3.1.2. Vehicles with different overall transmission ratios

3.1.2.1. The type-approval shall be extended to vehicles with different transmission ratios only under certain conditions.

3.1.2.2. To determine whether type-approval can be extended, for each of the transmission ratios used in the type 1 and type 6 tests, the proportion,

$$E = (V_2 - V_1)/V_1$$

shall be determined where, at an engine speed of 1 000 rpm, V_1 is the speed of the vehicle-type approved and V_2 is the speed of the vehicle type for which extension of the approval is requested.

3.1.2.3. If, for each transmission ratio, $E \leq 8$ %, the extension shall be granted without repeating the type 1 and type 6 tests.

3.1.2.4. If, for at least one transmission ratio, $E > 8$ %, and if, for each gear ratio, $E \leq 13$ %, the type 1 and type 6 tests shall be repeated. The tests may be performed in a laboratory chosen by the manufacturer subject to the approval of the technical service. The report of the tests shall be sent to the technical service responsible for the type-approval tests.

3.1.3. Vehicles with different reference masses and transmission ratios

The type-approval shall be extended to vehicles with different reference masses and transmission ratios, provided that all the conditions prescribed in 3.1.1 and 3.1.2 are fulfilled.

3.1.4. Vehicles with periodically regenerating systems

The type-approval of a vehicle type equipped with a periodically regenerating system shall be extended to other vehicles with periodically regenerating systems, whose parameters described below are identical, or within the stated tolerances. The extension shall only relate to measurements specific to the defined periodically regenerating system.

3.1.4.1. Identical parameters for extending approval are:

(1) Engine,

(2) Combustion process,

(3) Periodically regenerating system (i.e. catalyst, particulate trap),

(4) Construction (i.e. type of enclosure, type of precious metal, type of substrate, cell density),

(5) Type and working principle,

(6) Dosage and additive system,

(7) Volume ± 10 per cent,

(8) Location (temperature ± 50 °C at 120 km/h or 5 per cent difference of max. temperature/pressure).

3.1.4.2. Use of Ki factors for vehicles with different reference masses

The Ki factors developed by the procedures in section 3 of Annex 13 of UN/ECE Regulation No 83 for type-approval of a vehicle type with a periodically regenerating system, may be used by other vehicles which meet the criteria referred to in section 3.1.4.1 and have a reference mass within the next two higher equivalent inertia classes or any lower equivalent inertia.

3.1.5. Application of extensions to other vehicles

When an extension has been granted in accordance with 3.1.1 to 3.1.4, such a type-approval shall not be further extended to other vehicles.

3.2. Extensions for evaporative emissions (type 4 test)

3.2.1. The type-approval shall be extended to vehicles equipped with a control system for evaporative emissions which meet the following conditions:

3.2.1.1. The basic principle of fuel/air metering (e.g. single point injection) is the same.

3.2.1.2. The shape of the fuel tank and the material of the fuel tank and liquid fuel hoses is identical.

3.2.1.3. The worst-case vehicle with regard to the cross-section and approximate hose length shall be tested. Whether non-identical vapour/liquid separators are acceptable is decided by the technical service responsible for the type-approval tests.

3.2.1.4. The fuel tank volume is within a range of ± 10 %.

3.2.1.5. The setting of the fuel tank relief valve is identical.

3.2.1.6. The method of storage of the fuel vapour is identical, i.e. trap form and volume, storage medium, air cleaner (if used for evaporative emission control), etc.

3.2.1.7. The method of purging of the stored vapour is identical (e.g. air flow, start point or purge volume over the preconditioning cycle).

3.2.1.8. The method of sealing and venting of the fuel metering system is identical.

3.2.2. The type-approval shall be extended to vehicles with:

3.2.2.1. different engine sizes;

3.2.2.2. different engine powers;

3.2.2.3. automatic and manual gearboxes;

3.2.2.4. two and four wheel transmissions;

3.2.2.5. different body styles; and

3.2.2.6. different wheel and tyre sizes.

3.3. Extensions for durability of pollution control devices (type 5 test)

3.3.1. The type-approval shall be extended to different vehicle types, provided that the vehicle, engine or pollution control system parameters specified below are identical or remain within the prescribed tolerances:

3.3.1.1. Vehicle:

Inertia category: the two inertia categories immediately above and any inertia category below.

Total road load at 80 km/h: + 5 % above and any value below.

3.3.1.2. Engine

(a) engine cylinder capacity (± 15 %),

(b) number and control of valves,

(c) fuel system,

(d) type of cooling system,

(e) combustion process.

3.3.1.3. Pollution control system parameters:

(a) Catalytic converters and particulate filters:

number of catalytic converters, filters and elements,

size of catalytic converters and filters (volume of monolith ± 10 %),

type of catalytic activity (oxidizing, three-way, lean NO_x trap, SCR, lean NO_x catalyst or other),

precious metal load (identical or higher),

precious metal type and ratio (± 15 %),

substrate (structure and material),

cell density,

temperature variation of no more than 50 K at the inlet of the catalytic converter or filter. This temperature variation shall be checked under stabilized conditions at a speed of 120 km/h and the load setting of the type 1 test.

(b) Air injection:

with or without

type (pulsair, air pumps, other(s))

(c) EGR:

with or without

type (cooled or non cooled, active or passive control, high pressure or low pressure).

3.3.1.4. The durability test may be carried out using a vehicle, which has a different body style, gear box (automatic or manual) and size of the wheels or tyres, from those of the vehicle type for which the type-approval is sought.

3.4. Extensions for on-board diagnostics

3.4.1. The type-approval shall be extended to different vehicles with identical engine and emission control systems as defined in Annex XI, Appendix 2. The type-approval shall be extended regardless of the following vehicle characteristics:

(a) engine accessories;

(b) tyres;

(c) equivalent inertia;

(d) cooling system;

(e) overall gear ratio;

(f) transmission type; and

(g) type of bodywork.

3.5. Extensions for CO_2 emissions and fuel consumption

3.5.1. Vehicles powered by an internal combustion engine only, except vehicles equipped with a periodically regenerating emission control system.

3.5.1.1. The type-approval shall be extended to vehicles differing with regard to the following characteristics, if the CO_2 emissions measured by the technical service do not exceed the type-approval value by more than 4 % for vehicles of category M and 6 % for vehicles of category N:

— reference mass,

— technically permissible maximum laden mass,

— type of bodywork as defined in Section C of Annex II of Directive 2007/46/EC,

— overall gear ratios,

— engine equipment and accessories.,

3.5.2. Vehicles powered by an internal combustion engine only and equipped with a periodically regenerating emission control system

3.5.2.1. The type-approval shall be extended to vehicles, differing with regard to the characteristics given in Section 3.5.1.1 above, but not exceeding the family characteristics of UN/ECE Regulation No 101[(2)], Annex 10, if the CO_2 emissions measured by the technical service do not exceed the type approved value by more than 4 % for vehicles of category M and 6 % for vehicles of category N, and where the same Ki factor is applicable.

3.5.2.2. The type-approval shall be extended to vehicles with a different Ki factor, if the CO_2 emissions measured by the technical service do not exceed the type approved value by more than 4 % for vehicles of category M and 6 % for vehicles of category N.

3.5.3. Vehicles powered by an electric power train only

Extensions shall be granted after agreement with the technical service responsible for conducting the tests.

3.5.4. Vehicles powered by a hybrid electric power train

The type-approval shall be extended to vehicles differing with regard to the following characteristics, if the CO_2 emissions and the electric energy consumption measured by the technical service do not exceed the type approved value by more than 4 % for vehicles of category M and 6 % for vehicles of category N:

— reference mass,

— Technically permissible maximum laden mass,

— Type of bodywork as defined in Section C of Annex II of Directive 2007/46/EC,

— With respect to a change in any other characteristic extensions may be granted after agreement with the technical service responsible for conducting the tests.,

3.5.5. Extension of type-approval of vehicles of category N within a family:

3.5.5.1. For vehicles of category N that are approved as members of a vehicle family using the procedure in Section 3.6.2, the type-approval shall be extended to vehicles from within the same family only if the technical service estimates that the fuel consumption of the new vehicle does not exceed the fuel consumption of the vehicle on which the family's fuel consumption is based.

Type-approvals may also be extended to vehicles which:

— are up to 110 kg heavier than the family member tested, provided that they are within 220 kg of the lightest member of the family,

— have a lower overall transmission ratio than the family member tested due solely to a change in tyre sizes, and,

— conform with the family in all other respects.,

3.5.5.2. For vehicles of category N that are type-approved as members of a vehicle family using the procedure in point 3.6.3, the type-approval can be extended to vehicles from within the same family without additional testing only if the technical service estimates that the fuel consumption of the new vehicle falls within the limits made up of those two vehicles in the family that have the lowest and the highest fuel consumption, respectively.

3.6. Type-approval of vehicles of category N within a family for fuel consumption and CO_2 emissions

Vehicles of category N shall be type-approved within a family as defined in point 3.6.1 using one of the two alternative methods described in points 3.6.2 and 3.6.3.

3.6.1. N vehicles may be grouped together into a family for the purposes of measurement of fuel consumption and CO_2 emissions if the following parameters are identical or within the specified limits:

3.6.1.1. Identical parameters shall be the following:

— manufacturer and type as defined in section I of Appendix 4,

— engine capacity,

— emission control system type,

— fuel system type as defined in point 1.10.2 of Appendix 4.,

3.6.1.2. The following parameters shall be within the following limits:

— transmission overall ratios (no more than 8 % higher than the lowest) as defined in point 1.13.3 of Appendix 4,

— reference mass (no more than 220 kg lighter than the heaviest),

— frontal area (no more than 15 % smaller than the largest),

— engine power (no more than 10 % less than the highest value).

3.6.2. A vehicle family, as defined in point 3.6.1, may be approved with CO_2 emission and fuel consumption data that are common to all members of the family. The technical service shall select for testing the member of the family which the service considers to have the highest CO_2 emission. The measurements shall be performed as described in Annex XII, and the results according to the method described in section 5.5 of UN/ECE Regulation No 101 shall be used as type-approval values that are common to all members of the family.

3.6.3. Vehicles that are grouped in a family as defined in point 3.6.1 may be approved with individual CO_2 emission and fuel consumption data for each of the family members. The technical service shall select for testing the two vehicles, which the service considers to have the highest and the lowest CO_2 emissions respectively. The measurements shall be performed as described in Annex XII. If the manufacturer's data for these two vehicles falls within the tolerance limits described in section 5.5 of UN/ECE Regulation No 101, the CO_2 emissions declared by the manufacturer for all members of the vehicle family can be used as type-approval values. If the manufacturer's data do not fall within the tolerance limits, the results according to the method described in section 5.5 of UN/ECE Regulation No 101 shall be used as type-approval values and the technical service shall select an appropriate number of other family members for additional tests.

4. CONFORMITY OF PRODUCTION

4.1. Introduction

4.1.1. Where applicable the tests of types 1, 2, 3, 4, the test for OBD, the test for CO_2 emissions and fuel consumption and the test for smoke opacity shall be performed, as described in section 2.4. The specific procedures for conformity of production are set out in the sections 4.2 to 4.10.

4.2. Checking the conformity of the vehicle for a type 1 test

4.2.1. The type 1 test shall be carried out on a vehicle of the same specification as described in the type-approval certificate. When a type 1 test is to be carried out for a vehicle type-approval that has one or several extensions, the type 1 tests shall be carried out either on the vehicle described in the initial information package or on the vehicle described in the information package relating to the relevant extension.

4.2.2. After selection by the approval authority, the manufacturer shall not undertake any adjustment to the vehicles selected.

4.2.2.1. Three vehicles shall be selected at random in the series and tested as described in Annex III to this Regulation. The deterioration factors shall be used in the same way. The limit values are set out in Tables 1 and 2 of Annex I to Regulation (EC) No 715/2007.

4.2.2.2. If the approval authority is satisfied with the production standard deviation given by the manufacturer in accordance with Annex X to Directive 2007/46/EC, the tests shall be carried out according to Appendix 1 of this Annex.

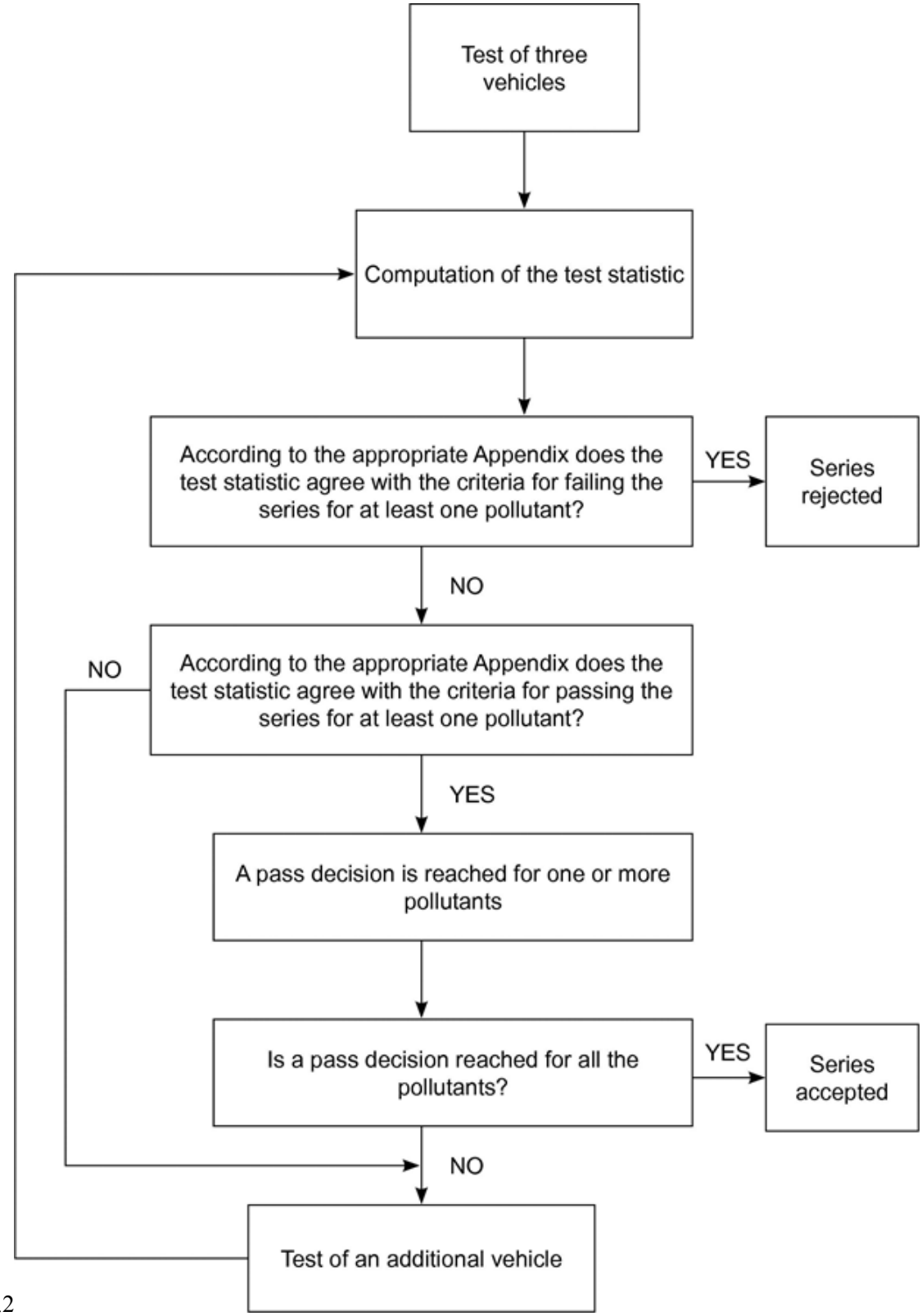
If the approval authority is not satisfied with the production standard deviation given by the manufacturer in accordance with Annex X to Directive 2007/46/EC, the tests shall be carried out according to Appendix 2 of this Annex.

4.2.2.3. The production of a series shall be deemed to conform or not to conform on the basis of a sampling test of the vehicles once a pass decision is reached for all the pollutants or a fail decision is reached for one pollutant, according to the test criteria applied in the appropriate appendix.

When a pass decision has been reached for one pollutant, that decision shall not be changed by any additional tests carried out to reach a decision for the other pollutants.

If no pass decision is reached for all the pollutants and no fail decision is reached for one pollutant, a test shall be carried out on another vehicle (see Figure I.4.2).

Figure



I.4.2

4.2.3. Notwithstanding the requirements of Annex III, the tests shall be carried out on vehicles coming straight off the production line.

4.2.3.1. However, at the request of the manufacturer, the tests may be carried out on vehicles which have completed:

(a) A maximum of 3 000 km for vehicles equipped with a positive ignition engine;

(b) A maximum of 15 000 km for vehicles equipped with a compression ignition engine.

The running-in procedure shall be conducted by the manufacturer, who shall undertake not to make any adjustments to these vehicles.

4.2.3.2. If the manufacturer wishes to run in the vehicles, ('x' km, where $x \leq 3\,000$ km for vehicles equipped with a positive ignition engine and $x \leq 15\,000$ km for vehicles equipped with a compression ignition engine), the procedure shall be the following:

(a) the pollutant emissions (type 1) shall be measured at zero and at 'x' km on the first tested vehicle;

(b) the evolution coefficient of the emissions between zero and 'x' km shall be calculated for each of the pollutant:

Emissions 'x' km/Emissions zero km

This may be less than 1; and

(c) the other vehicles shall not be run in, but their zero km emissions shall be multiplied by the evolution coefficient. In this case, the values to be taken shall be:

(i) the values at 'x' km for the first vehicle;

(ii) the values at zero km multiplied by the evolution coefficient for the other vehicles.

4.2.3.3. All these tests shall be conducted with commercial fuel. However, at the manufacturer's request, the reference fuels described in Annex IX may be used.

4.3. Checking the conformity of the vehicle for CO_2 emissions

4.3.1. If a vehicle type has had one or several extensions, the tests shall be carried out on the vehicle(s) described in the information package which accompanied the first type-approval application, or on the vehicle described in the information package that accompanied the relevant extension.

4.3.2. If the approval authority is not satisfied with the auditing procedure of the manufacturer, points 3.3 and 3,4 of Annex X to Directive 2007/46/EC shall apply.

4.3.3. For the purpose of this section and Appendices 1 and 2, the term 'pollutant' shall include the regulated pollutants (given in Tables 1 and 2 of Annex I to Regulation (EC) No 715/2007) and the emission of CO_2.

4.3.4. The conformity of the vehicle for CO_2 emissions shall be determined in accordance with the procedure described in point 4.2.2. with the following exceptions:

4.3.4.1. The provisions of Section 4.2.2.1 shall be replaced by the following:

Three vehicles shall be randomly taken in the series and tested as described in Annex XII.

4.3.4.2. The provisions of Section 4.2.3.1 shall be replaced by the following:

However, at the request of the manufacturer, the tests may be carried out on vehicles which have completed a maximum of 15 000 km.

In this case, the running-in procedure shall be conducted by the manufacturer, who shall undertake not to make any adjustments to these vehicles.

4.3.4.3. The provisions of Section 4.2.3.2 shall be replaced by the following:

If the manufacturer wishes to run in the vehicles, ('x' km, where x ≤ 15 000 km), the procedure shall be the following:

(a) the pollutant emissions shall be measured at zero and at 'x' km on the first tested vehicle;

(b) the evolution coefficient of the emissions between zero and 'x' km shall be calculated for each of the pollutant:

Emissions 'x' km/Emissions zero km

This may be less than 1; and

(c) the other vehicles shall not be run in, but their zero km emissions shall be multiplied by the evolution coefficient. In this case, the values to be taken shall be:

(i) the values at 'x' km for the first vehicle;

(ii) the values at zero km multiplied by the evolution coefficient for the other vehicles.

4.3.4.4. The provisions of Section 4.2.3.3 shall be replaced by the following:

The reference fuels described in Annex IX of this Regulation, shall be used for testing.

4.3.4.5. When checking the conformity of vehicle for CO_2 emissions, as an alternative to the procedure mentioned in Section 4.3.4.3, the vehicle manufacturer may use a fixed evolution coefficient EC of 0,92 and multiply all values of CO_2 measured at zero km by this factor.

[F7 4.3.5. Vehicle fitted with eco-innovations

[F8 4.3.5.1. In the case of a vehicle type fitted with one or more eco-innovations, within the meaning of Article 12 of Regulation (EC) No 443/2009 for M_1 vehicles or Article 12 of Regulation (EU) No 510/2011 for N_1 vehicles, the conformity of production shall be demonstrated with respect to the eco-innovations, by performing the tests provided for in the Commission Decision(s) approving the eco-innovation(s) in question.**]**

Textual Amendments

F8 Substituted by Commission Regulation (EU) 2015/45 of 14 January 2015 amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as regards innovative technologies for reducing CO2 emissions from light commercial vehicles (Text with EEA relevance).

4.3.5.2. Points 4.3.1, 4.3.2 and 4.3.4 shall apply.**]**

Textual Amendments

F7 Substituted by Commission Regulation (EU) No 195/2013 of 7 March 2013 amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as concerns innovative technologies for reducing CO2 emissions from light passenger and commercial vehicles (Text with EEA relevance).

4.4. Vehicles powered by an electric power train only

Measures to ensure the conformity of production with regard to electric energy consumption shall be checked on the basis of the description in the type-approval certificate set out in Appendix 4 to this Annex.

4.4.1. The holder of the approval shall, in particular:

4.4.1.1. Ensure the existence of procedures for the effective control of production quality;

4.4.1.2. Have access to the equipment necessary for checking conformity with each approved type;

4.4.1.3. Ensure that the data concerning the test result are recorded and that the annexed documents are available during a period to be agreed with the administrative service;

4.4.1.4. Analyse the results of each type of test so as to monitor and ensure the consistency of the characteristics of the product, taking into account the variations admissible in industrial manufacture;

4.4.1.5. Make sure that for each type of vehicle tests referred to in Annex XII to this Regulation are carried out; notwithstanding the requirements of paragraph 2.3.1.6 of Annex 7 of UN/ECE Regulation No 101, at the request of the manufacturer, the tests shall be carried out on vehicles which have not travelled any distance;

4.4.1.6. Make sure that any collections of samples or test pieces demonstrating non-conformity with the type test under consideration is followed by a subsequent sampling and a further test. All necessary steps shall be taken to re-establish the conformity of production.

4.4.2. The approval authorities may verify at any time the methods applied in each production unit.

4.4.2.1. In every inspection, the records of tests and production monitoring shall be communicated to the visiting inspector.

4.4.2.2. The inspector may select at random the samples to be tested in the manufacturer's laboratory. The minimum number of samples shall be determined on the basis of the results of the manufacturer's own checks.

4.4.2.3. When the quality standard does not seem satisfactory or when it seems necessary to verify the validity of the tests conducted under Section 4.4.2.2, the inspector shall collect samples to be sent to the technical service which carried out the approval tests.

4.4.2.4. The approval authorities may carry out all the tests set out in this Regulation.

4.5. Vehicles powered by a hybrid electric power train

4.5.1. Measures to ensure the conformity of production with regard to CO_2 emissions and electric energy consumption from hybrid electric vehicles shall be checked on the

basis of the description in the type-approval certificate conforming to the model in Appendix 4.

4.5.2. The control of production conformity shall be based on an assessment made by the approval authority of the manufacturer's auditing procedure in order to ensure conformity of the vehicle type with respect to the emission of CO_2 and the electric energy consumption.

4.5.3. If the approval authority is not satisfied with the standard of the manufacturer's auditing procedure, it shall require that verification tests be carried out on vehicles in production.

4.5.4. Conformity for CO_2 emissions shall be checked using the statistical procedures described in Section 4.3 and Appendices 1 and 2. Vehicles shall be tested according to the procedure referred to in Annex XII.

4.6. Checking the conformity of the vehicle for a type 3 test

4.6.1. If a type 3 test is to be carried out, it shall be conducted on all vehicles selected for the type 1 conformity of production test set out in section 4.2. The conditions laid down in Annex V shall apply.

4.7. Checking the conformity of the vehicle for a type 4 test

4.7.1. If a type 4 test is to be carried out, it shall be conducted in accordance with Annex VI.

4.8. Checking the conformity of the vehicle for On-board Diagnostics (OBD)

4.8.1. If a verification of the performance of the OBD system is to be carried out, it shall be conducted in accordance with the following requirements:

4.8.1.1. When the approval authority determines that the quality of production seems unsatisfactory, a vehicle shall be randomly taken from the series and subjected to the tests described in Appendix 1 to Annex XI.

4.8.1.2. The production shall be deemed to conform if this vehicle meets the requirements of the tests described in Appendix 1 to Annex XI.

4.8.1.3. If the vehicle taken from the series does not satisfy the requirements of section 4.8.1.1, a further random sample of four vehicles shall be taken from the series and subjected to the tests described in Appendix 1 to Annex XI. The tests may be carried out on vehicles which have been run in for no more than 15 000 km.

4.8.1.4. The production shall be deemed to conform if at least 3 vehicles meet the requirements of the tests described in Annex XI, Appendix 1.

[[F1]4.9. Checking the conformity of a vehicle fuelled by LPG, natural gas or H2NG**]**

[[F1]4.9.1. Tests for conformity of production may be performed with a commercial fuel of which the C3/C4 ratio lies between those of the reference fuels in the case of LPG, or of which the Wobbe index lies between those of the extreme reference fuels in the case of NG or H2NG. In that case a fuel analysis shall be presented to the approval authority.**]**

4.10. Checking the conformity of vehicle for smoke opacity

4.10.1. Conformity of the vehicle with the approved type as regards the emission of pollutants from compression ignition engines shall be verified on the basis of the results listed in the Addendum to the type-approval certificate set out in point 2.4 of Appendix 4.

4.10.2. In addition to point 10.1, where a check is carried out on a vehicle taken from the series, the tests shall be carried out as follows:

4.10.2.1 A vehicle which has not been run in shall be subjected to the test under free acceleration described in section 4.3 of Appendix 2 to Annex IV. The vehicle shall be deemed to conform to the approved type if the absorption coefficient determined does not exceed by more than 0·5 m^{-1} the figure shown in the approval mark.

4.10.2.2 If the figure determined in the test referred to in point 4.10.2.1. exceeds by more than 0·5 m^{-1} the figure shown in the approval mark, a vehicle of the type considered or its engine shall be subjected to the test at steady speeds over the full-load curve, as described in section 4.2 of Appendix 2 to Annex IV. The emission levels shall not exceed the limits prescribed in Annex 7 to UN/ECE Regulation No 24[(3)].

Appendix 1

Verification of conformity of production — First statistical method

1. The first statistical method shall be used to verify the production conformity for the type 1 test when the manufacturer's production standard deviation is satisfactory. The applicable statistical method is set out in Appendix 1 to UN/ECE Regulation No 83. The exceptions to these procedures are the following:

1.1. In paragraph 3, the reference to paragraph 5.3.1.4 shall be understood as reference to the applicable table of Annex I to Regulation (EC) No 715/2007.

1.2. In paragraph 3, the reference to Figure 2 shall be understood as reference to Figure I.4.2 of Regulation (EC) No 692/2008.

Appendix 2

Verification of conformity of production — Second statistical method

1. The second statistical method shall be used to verify the production conformity requirements for the type 1 test when the manufacturer's evidence of production standard deviation is either unsatisfactory or unavailable. The applicable statistical method is set out in Appendix 2 to UN/ECE Regulation No 83, The exceptions to these procedures are the following:

1.1. In paragraph 3, the reference to paragraph 5.3.1.4 shall be understood as reference to the applicable table of Annex I to Regulation (EC) No 715/2007.

Appendix 3

MODEL

INFORMATION DOCUMENT No …

relating to EC type-approval of a vehicle with regard to emissions and access to vehicle repair and maintenance information

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 must be supplied.

0. GENERAL

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[4][5]

0.3.1. Location of that marking:

0.4. Category of vehicle[6]:

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. GENERAL CONSTRUCTION CHARACTERISTICS OF THE VEHICLE

1.1. Photographs and/or drawings of a representative vehicle:

1.3.3. Powered axles (number, position, interconnection):

2. MASSES AND DIMENSIONS[7] (in kg and mm)

(Refer to drawing where applicable)

2.6. Mass of the vehicle with bodywork and, in the case of the towing vehicle of a category other than M_1, with coupling device, if fitted by the manufacturer, in running order, or mass of the chassis or chassis with cab, without bodywork and/or coupling device if the manufacturer does not fit the bodywork and/or coupling device (including liquids, tools, spare wheel, if fitted, and driver and, for buses and coaches, a crew member if there is a crew seat in the vehicle)[8] (maximum and minimum for each variant):

2.8. Technically permissible maximum laden mass stated by the manufacturer[9][10]

[F9 2.17. Vehicle submitted to multi-stage type-approval (only in the case of incomplete or completed vehicles of category N_1 within the scope of Regulation (EC) No 715/2007): yes/no(4)

2.17.1. Mass of the base vehicle in running order: kg

2.17.2. Default added mass, calculated in accordance with Section 5 of Annex XII to Regulation (EC) No 692/2008: … kg]

Textual Amendments

F9 Inserted by Commission Regulation (EU) No 143/2013 of 19 February 2013 amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as regards the determination of CO2 emissions from vehicles submitted to multi-stage type-approval (Text with EEA relevance).

[F10 3. PROPULSION ENERGY CONVERTER (k)

3.1. Manufacturer of the propulsion energy converter(s):

3.1.1. Manufacturer's code (as marked on the propulsion energy converter or other means of identification):]

3.2. Internal combustion engine

3.2.1.1. Working principle: positive ignition/compression ignition(4) …

four stroke/two stroke/rotary cycle(4) …

3.2.1.2. Number and arrangement of cylinders:

3.2.1.2.1. Bore(11): mm

3.2.1.2.2. Stroke(11): mm

3.2.1.2.3. Firing order:

3.2.1.3. Engine capacity (s): … cm^3

3.2.1.4. Volumetric compression ratio(12)

3.2.1.5. Drawings of combustion chamber, piston crown and, in the case of positive ignition engine, piston rings:

3.2.1.6. Normal engine idling speed(12) … min^{-1}

3.2.1.6.1. High engine idling speed(12) … min^{-1}

3.2.1.7. Carbon monoxide content by volume in the exhaust gas with the engine idling(12) … as stated by the manufacturer (positive ignition engines only)

[F10 3.2.1.8. Rated engine power (n): … kW at … min^{-1} (manufacturer's declared value)]

3.2.1.9. Maximum permitted engine speed as prescribed by the manufacturer: … min-1

3.2.1.10. Maximum net torque(13): Nm at … min^{-1} (manufacturer’s declared value)

[F1 3.2.2. Fuel]

[F2 3.2.2.1. Light-duty vehicles: Diesel/Petrol/LPG/NG or Biomethane/Ethanol (E85) /Biodiesel / Hydrogen/H2NG] (4)(14)

[F10 3.2.2.1.1. RON, unleaded:]

3.2.2.3. Fuel tank inlet: restricted orifice/label (4)

3.2.2.4. Vehicle fuel type: Mono fuel, Bi fuel, Flex fuel

3.2.2.5. Maximum amount of biofuel acceptable in fuel (manufacturer's declared value): … % by volume

3.2.4. Fuel feed

3.2.4.2. By fuel injection (compression ignition only): yes/no (4)

[F10 3.2.4.2.1. System description (common rail/unit injectors/distribution pump etc.):]

3.2.4.2.2. Working principle: direct injection/pre-chamber/swirl chamber (4)

[F10 3.2.4.2.3. Injection/Delivery pump]

3.2.4.2.3.1. Make(s):

3.2.4.2.3.2. Type(s):

3.2.4.2.3.3. Maximum fuel delivery (4)(12) mm^3/stroke or cycle at an engine speed of: … min^{-1} or, alternatively, a characteristic diagram:

3.2.4.2.3.5. Injection advance curve (12):

[F10 3.2.4.2.4. Engine speed limitation control]

3.2.4.2.4.2. Cut-off point

3.2.4.2.4.2.1. Cut-off point under load … min^{-1}

3.2.4.2.4.2.2. Cut-off point without load … min^{-1}

3.2.4.2.6. Injector(s)

3.2.4.2.6.1. Make(s):

3.2.4.2.6.2. Type(s):

3.2.4.2.7. Cold start system

3.2.4.2.7.1. Make(s):

3.2.4.2.7.2. Type(s):

3.2.4.2.7.3. Description:

3.2.4.2.8. Auxiliary starting aid

3.2.4.2.8.1. Make(s):

3.2.4.2.8.2. Type(s):

3.2.4.2.8.3. System description:

3.2.4.2.9. Electronic controlled injection: yes/no[4]

3.2.4.2.9.1. Make(s):

3.2.4.2.9.2. Type(s):

[F10 3.2.4.2.9.3. Description of the system]

3.2.4.2.9.3.1. Make and type of the control unit:

3.2.4.2.9.3.2. Make and type of the fuel regulator:

3.2.4.2.9.3.3. Make and type of air-flow sensor:

3.2.4.2.9.3.4. Make and type of fuel distributor:

3.2.4.2.9.3.5. Make and type of throttle housing:

[F10 3.2.4.2.9.3.6. Make and type or working principle of water temperature sensor:

3.2.4.2.9.3.7. Make and type or working principle of air temperature sensor:

3.2.4.2.9.3.8. Make and type or working principle of air pressure sensor:]

3.2.4.3. By fuel injection (positive ignition only): yes/no[4]

3.2.4.3.1. Working principle: intake manifold (single-/multi-point[4])/direct injection/other (specify)[4]

3.2.4.3.2. Make(s):

3.2.4.3.3. Type(s):

3.2.4.3.4. System description, in the case of systems other than continuous injection give equivalent details:

3.2.4.3.4.1. Make and type of the control unit:

[F10 3.2.4.3.4.5. Make and type or working principle of air-flow sensor:]

3.2.4.3.4.6. Make and type of micro switch:

3.2.4.3.4.8. Make and type of throttle housing:

[F10 3.2.4.3.4.9. Make and type or working principle of water temperature sensor:

3.2.4.3.4.10. Make and type or working principle of air temperature sensor:

3.2.4.3.4.11. Make and type or working principle of air pressure sensor:]

[F10 3.2.4.3.5. Injectors]

3.2.4.3.5.1. Make(s):

3.2.4.3.5.2. Type(s):

3.2.4.3.6. Injection timing:

3.2.4.3.7. Cold start system

3.2.4.3.7.1. Operating principle(s):

3.2.4.3.7.2. Operating limits/settings[4][12]:

3.2.4.4. Feed pump

3.2.4.4.1. Pressure[12]: … kPa or characteristic diagram[12]:

3.2.5. Electrical system

3.2.5.1. Rated voltage: V, positive/negative ground[4]

3.2.5.2. Generator

3.2.5.2.1. Type:

3.2.5.2.2. Nominal output: … VA

3.2.6. Ignition

3.2.6.1. Make(s):

3.2.6.2. Type(s):

3.2.6.3. Working principle:

3.2.6.4. Ignition advance curve[12]:

3.2.6.5. Static ignition timing[12]: … degrees before TDC

3.2.7. Cooling system: liquid/air[4]

3.2.7.1. Nominal setting of the engine temperature control mechanism:

3.2.7.2. Liquid

3.2.7.2.1. Nature of liquid:

3.2.7.2.2. Circulating pump(s):yes/no[4]

3.2.7.2.3. Characteristics, or

3.2.7.2.3.1. Make(s):

3.2.7.2.3.2. Type(s):

3.2.7.2.4. Drive ratio(s):

3.2.7.2.5. Description of the fan and its drive mechanism:

3.2.7.3. Air

3.2.7.3.1. Blower: yes/no[4]

3.2.7.3.2. Characteristics:, or

3.2.7.3.2.1. Make(s):

3.2.7.3.2.2. Type(s):

3.2.7.3.3. Drive ratio(s):

3.2.8. Intake system

3.2.8.1. Pressure charger: yes/no[(4)]

3.2.8.1.1. Make(s):

3.2.8.1.2. Type(s):

3.2.8.1.3. Description of the system (e.g. maximum charge pressure: … kPa, wastegate if applicable):

3.2.8.2. Intercooler: yes/no[(4)]

3.2.8.2.1. Type: air-air/air-water[(4)]

3.2.8.3. Intake depression at rated engine speed and at 100 % load (compression ignition engines only)

Minimum allowable: kPa

Maximum allowable: kPa

3.2.8.4. Description and drawings of the inlet pipes and their accessories (plenum chamber, heating device, additional air intakes, etc.):

3.2.8.4.1. Intake manifold description (include drawings and/or photos):

3.2.8.4.2. Air filter, drawings: … or

3.2.8.4.2.1. Make(s):

3.2.8.4.2.2. Type(s):

3.2.8.4.3. Intake silencer, drawings: … or

3.2.8.4.3.1. Make(s):

3.2.8.4.3.2. Type(s):

3.2.9. Exhaust system

3.2.9.1. Description and/or drawing of the exhaust manifold:

3.2.9.2. Description and/or drawing of the exhaust system:

3.2.9.3. Maximum allowable exhaust back pressure at rated engine speed and at 100 % load (compression ignition engines only): kPa

3.2.10. Minimum cross-sectional areas of inlet and outlet ports:

3.2.11. Valve timing or equivalent data

3.2.11.1. Maximum lift of valves, angles of opening and closing, or timing details of alternative distribution systems, in relation to dead centres. For variable timing system, minimum and maximum timing:

3.2.11.2. Reference and/or setting ranges[(4)]:

3.2.12. Measures taken against air pollution

3.2.12.1. Device for recycling crankcase gases (description and drawings):

[F10 3.2.12.2. Pollution control devices (if not covered by another heading)

3.2.12.2.1. Catalytic converter]

3.2.12.2.1.1. Number of catalytic converters and elements (provide the information below for each separate unit):

3.2.12.2.1.2. Dimensions, shape and volume of the catalytic converter:

3.2.12.2.1.3. Type of catalytic action:

3.2.12.2.1.4. Total charge of precious metals:

3.2.12.2.1.5. Relative concentration:

3.2.12.2.1.6. Substrate (structure and material):

3.2.12.2.1.7. Cell density:

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

3.2.12.2.1.9. Location of the catalytic converter(s) (place and reference distance in the exhaust line):

3.2.12.2.1.10. Heat shield: yes/no[4]

F11 3.2.12.2.1.11. . . . . .

3.2.12.2.1.11.1. . . . . .

3.2.12.2.1.11.2. . . . . .

3.2.12.2.1.11.3. . . . . .

3.2.12.2.1.11.4. . . . . .

3.2.12.2.1.11.5. . . . . .

3.2.12.2.1.11.6. . . . . .

3.2.12.2.1.11.7. . . . . .

3.2.12.2.1.11.8. . . . . .

3.2.12.2.1.11.9. . . . . .

3.2.12.2.1.11.10. . . . . .

Textual Amendments

F11 Deleted by Commission Regulation (EU) 2017/1151 of 1 June 2017 supplementing Regulation (EC) No 715/2007 of the European Parliament and of the Council 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, amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) No 1230/2012 and repealing Commission Regulation (EC) No 692/2008 (Text with EEA relevance).

3.2.12.2.1.1. Make of catalytic converter:

3.2.12.2.1.2. Identifying part number:

[F10 3.2.12.2.2. Sensors

3.2.12.2.2.1. Oxygen sensor: yes/no(4)

3.2.12.2.2.1.1. Make:

3.2.12.2.2.1.2. Location:

3.2.12.2.2.1.3. Control range:

3.2.12.2.2.1.4. Type or working principle: …

3.2.12.2.2.1.5. Identifying part number: …]

3.2.12.2.3. Air injection: yes/no(4)

3.2.12.2.3.1. Type (pulse air, air pump etc.):

3.2.12.2.4. Exhaust gas recirculation: yes/no(4)

[F10 3.2.12.2.4.1. Characteristics (make, type, flow, high pressure / low pressure / combined pressure, etc.):

3.2.12.2.4.2. Water-cooled system (to be specified for each EGR system e.g. low pressure / high pressure / combined pressure: yes/no](4)

[F10 3.2.12.2.5. Evaporative emissions control system (petrol and ethanol engines only): yes/no(4)

3.2.12.2.5.1. Detailed description of the devices:

3.2.12.2.5.2. Drawing of the evaporative emissions control system:

3.2.12.2.5.3. Drawing of the carbon canister:

3.2.12.2.5.4. Mass of dry charcoal: … g

3.2.12.2.5.5. Schematic drawing of the fuel tank with indication of capacity and material (petrol and ethanol engines only): …

3.2.12.2.5.6. Description and schematic of the heat shield between tank and exhaust system: …

[F12 3.2.12.2.5.7. Permeability factor(4): …]]

Textual Amendments

F12 Inserted by Commission Regulation (EU) 2018/1832 of 5 November 2018 amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) 2017/1151 for the purpose of improving the emission type approval tests and procedures for light passenger and commercial vehicles, including those for in-service conformity and real-driving emissions and introducing devices for monitoring the consumption of fuel and electric energy (Text with EEA relevance).

3.2.12.2.6. Particulate trap: yes/no(4)

3.2.12.2.6.1. Dimensions, shape and capacity of the particulate trap:

3.2.12.2.6.2. Type and design of the particulate trap:

3.2.12.2.6.3. Location (reference distance in the exhaust line):

F11 3.2.12.2.6.4. . . . . .

3.2.12.2.6.4.1. . . . . .

3.2.12.2.6.4.2. . . . . .

3.2.12.2.6.4.3. . . . . .

3.2.12.2.6.4.4. . . . . .

[F10 3.2.12.2.6.4. Make of particulate trap: …

3.2.12.2.6.5. Identifying part number: …]

3.2.12.2.7. On-board-diagnostic (OBD) system: (yes/no)(4)

3.2.12.2.7.1. Written description and/or drawing of the MI:

3.2.12.2.7.2. List and purpose of all components monitored by the OBD system:

3.2.12.2.7.3. Written description (general working principles) for:

3.2.12.2.7.3.1. Positive-ignition engines(4)

3.2.12.2.7.3.1.1. Catalyst monitoring(4):

3.2.12.2.7.3.1.2. Misfire detection(4):

3.2.12.2.7.3.1.3. Oxygen sensor monitoring(4):

3.2.12.2.7.3.1.4. Other components monitored by the OBD system(4):

3.2.12.2.7.3.2. Compression-ignition engines(4)

3.2.12.2.7.3.2.1. Catalyst monitoring(4):

3.2.12.2.7.3.2.2. Particulate trap monitoring(4):

3.2.12.2.7.3.2.3. Electronic fuelling system monitoring(4):

3.2.12.2.7.3.2.4. Other components monitored by the OBD system(4):

3.2.12.2.7.4. Criteria for MI activation (fixed number of driving cycles or statistical method):

3.2.12.2.7.5. List of all OBD output codes and formats used (with explanation of each):

3.2.12.2.7.6. The following additional information 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.

The information given in this section shall be repeated in Appendix 5 to this Annex (vehicle OBD information appendix to the EC type-approval certificate):

3.2.12.2.7.6.1. A description of the type and number of the pre-conditioning cycles used for the original type-approval of the vehicle.

3.2.12.2.7.6.2. 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.

3.2.12.2.7.6.3. 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. A list of all OBD output codes and format used (with an explanation of each) 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, a comprehensive explanation for the data given in service $05 Test ID $21 to FF and the data given in service $06 shall be provided. 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 $06 Test ID $00 to FF, for each OBD monitor ID supported, shall be provided.

3.2.12.2.7.6.4. The information required by this section may, for example, be defined by completing a table as follows, which shall be attached to this Annex.

Component	Fault code	Monitoring strategy	Fault detection criteria	MI activation criteria	Secondary parameters	Preconditioning	Demonstration test
Catalyst	PO420	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

[F10 3.2.12.2.8. Other system:]

[F13 3.2.12.2.10. Periodically regenerating system: (provide the information below for each separate unit)

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

3.2.12.2.10.2. The number of Type 1 operating cycles, or equivalent engine test bench cycles, between two cycles where regenerative phases occur under the conditions equivalent to Type 1 test (Distance ‘D’ in Figure A6.App1/1 in Appendix 1 to Sub-Annex 6 of Annex XXI to Regulation (EU) 2017/1151 or figure A13/1 in Annex 13 to UN/ECE Regulation 83 (as applicable)): …

3.2.12.2.10.2.1.

Applicable Type 1 cycle: (indicate the applicable procedure: Annex XXI, Sub-Annex 4 or UN/ECE Regulation 83): …

3.2.12.2.10.3. Description of method employed to determine the number of cycles between two cycles where regenerative phases occur: …

3.2.12.2.l.4. Parameters to determine the level of loading required before regeneration occurs (i.e. temperature, pressure etc.): …

3.2.12.2.l.5. Description of method used to load system in the test procedure described in paragraph 3.1., Annex 13 to UN/ECE Regulation 83: …

Textual Amendments

F13 Inserted by Commission Regulation (EU) 2017/1151 of 1 June 2017 supplementing Regulation (EC) No 715/2007 of the European Parliament and of the Council 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, amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) No 1230/2012 and repealing Commission Regulation (EC) No 692/2008 (Text with EEA relevance).

3.2.12.2.l. Catalytic converter systems using consumable reagents (provide the information below for each separate unit) yes/no[4]

3.2.12.2.l.1. Type: …

3.2.12.2.l.2. Normal operational temperature range of reagent: …

3.2.12.2.l.3. International standard: …

3.2.12.2.l.4. Frequency of reagent refill: continuous/maintenance (where appropriate):

3.2.12.2.l.5. Reagent indicator: (description and location)

3.2.12.2.l.6. Reagent tank

3.2.12.2.l.6.1. Capacity: …

3.2.12.2.l.6.2. Heating system: yes/no[4]

3.2.12.2.l.6.2.1. Description or drawing

3.2.12.2.l.7. Reagent control unit: yes/no[4]

3.2.12.2.l.7.1. Make: …

3.2.12.2.l.7.2. Type: …

3.2.12.2.l.8. Reagent injector (make, type and location): …]

3.2.13. Location of the absorption coefficient symbol (compression ignition engines only):

3.2.14. Details of any devices designed to influence fuel economy (if not covered by other items):

3.2.15. LPG fuelling system: yes/no[4]

[F10 3.2.15.1. Type-approval number according to Regulation (EC) No 661/2009 (OJ L 200, 31.7.2009, p. 1)]

3.2.15.2. Electronic engine management control unit for LPG fuelling

3.2.15.2.1. Make(s):

3.2.15.2.2 Type(s):

3.2.15.2.3 Emission-related adjustment possibilities:

3.2.15.3. Further documentation

3.2.15.3.1 Description of the safeguarding of the catalyst at switch-over from petrol to LPG or back:

3.2.15.3.2 System lay-out (electrical connections, vacuum connections compensation hoses, etc.):

3.2.15.3.3 Drawing of the symbol:

3.2.16. NG fuelling system: yes/no[4]

[F10 3.2.16.1 Type-approval number according to Regulation (EC) No 661/2009 (OJ L 200, 31.7.2009, p. 1)]

3.2.16.2. Electronic engine management control unit for NG fuelling

3.2.16.2.1 Make(s):

3.2.16.2.2 Type(s):

3.2.16.2.3 Emission-related adjustment possibilities:

3.2.16.3. Further documentations

3.2.16.3.1 Description of the safeguarding of the catalyst at switch-over from petrol to NG or back:

3.2.16.3.2 System lay-out (electrical connections, vacuum connections compensation hoses, etc.):

3.2.16.3.3 Drawing of the symbol:

[F2 3.2.18. Hydrogen fuelling system: yes/no[4]

3.2.18.1. EC type-approval number according to Regulation (EC) No 79/2009:

3.2.18.2. Electronic engine management control unit for hydrogen fuelling

3.2.18.2.1 Make(s):

3.2.18.2.2 Type(s):

3.2.18.2.3 Emission-related adjustment possibilities:

3.2.18.3. Further documentation

3.2.18.3.1 Description of the safeguarding of the catalyst at switch-over from petrol to hydrogen or back:

3.2.18.3.2 System lay-out (electrical connections, vacuum connections compensation hoses, etc.):

3.2.18.3.3 Drawing of the symbol:

3.2.19. H2NG fuelling system: yes/no[4]

3.2.19.1. Percentage of hydrogen in the fuel (the maximum specified by the manufacturer):

3.2.19.2. EC type-approval number according to UN/ECE Regulation No 110[15]

3.2.19.3. Electronic engine management control unit for H2NG fuelling

3.2.19.3.1. Make(s):

3.2.19.3.2. Type(s):

3.2.19.3.3. Emission-related adjustment possibilities:

3.2.19.4. Further documentation

3.2.19.4.1. Description of the safeguarding of the catalyst at switch-over from petrol to H2NG or back:

3.2.19.4.2. System lay-out (electrical connections, vacuum connections compensation hoses, etc.):

3.2.19.4.3. Drawing of the symbol:]

[F2[F10 3.3. Electric machine]

3.3.1. Type (winding, excitation): …

[F4 3.3.1.1. Maximum hourly output: kW

(manufacturer's declared value)

3.3.1.1.1. Maximum net power ([a])kW

(manufacturer's declared value)

3.3.1.1.2. Maximum 30 minutes power (a)kW

(manufacturer's declared value)]

3.3.1.2. Operating voltage:… V

[F10 3.3.2. REESS]

3.3.2.1. Number of cells:

3.3.2.2. Mass: kg

3.3.2.3. Capacity: … Ah (Amp-hours)

3.3.2.4. Position:]

[F10 3.4. Combinations of propulsion energy converters]

3.4.1. Hybrid Electric Vehicle: yes/no[4]

3.4.2. Category of Hybrid Electric vehicle

Off Vehicle Charging/Not Off Vehicle Charging[4]

3.4.3. Operating mode switch: with/without[4]

3.4.3.1. Selectable modes

3.4.3.1.1. Pure electric: yes/no[(4)]

3.4.3.1.2. Pure fuel consuming: yes/no[(4)]

3.4.3.1.3. Hybrid modes: yes/no[(4)]

(if yes, short description)

[[F10]3.4.4. Description of the energy storage device: (REESS, capacitor, flywheel/generator)**]**

3.4.4.1. Make(s):

3.4.4.2. Type(s):

3.4.4.3. Identification number:

3.4.4.4. Kind of electrochemical couple: ….

[[F10]3.4.4.5. Energy: … (for REESS: voltage and capacity Ah in 2 h, for capacitor: J, …)**]**

3.4.4.6. Charger: on board/external/without[(4)]

[[F10]3.4.5. Electric machine (describe each type of electric machine separately)**]**

3.4.5.1. Make:

3.4.5.2. Type: ….

3.4.5.3. Primary use: traction motor/generator

3.4.5.3.1. When used as traction motor: monomotor/multimotors (number):

3.4.5.4. Maximum power: kW

3.4.5.5. Working principle:

3.4.5.5.1. direct current/alternating current/number of phases:

3.4.5.5.2. separate excitation/series/compound[(4)]

3.4.5.5.3. synchronous/asynchronous[(4)]

3.4.6. Control unit

3.4.6.1. Make(s):

3.4.6.2. Type(s):

3.4.6.3. Identification number:

3.4.7. Power controller

3.4.7.1. Make:

3.4.7.2. Type:

3.4.7.3. Identification number:

[F1 3.4.8. Vehicle electric range … … km (in accordance to Annex 9 to UN/ECE Regulation No 101]**(16)**

3.4.9. Manufacturer's recommendation for preconditioning:

[F10 3.5. Manufacturer's declared values for determination of CO_2 emissions/fuel consumption/ electric consumption/electric range and details of eco-innovations (where applicable)]**(17)**

3.5.1. CO_2 mass emissions (provide for each reference fuel tested)

3.5.1.1. CO_2 mass emissions (urban conditions): … g/km

3.5.1.2. CO_2 mass emissions (extra-urban conditions): … g/km

3.5.1.3. CO_2 mass emissions (combined): … g/km

3.5.2. Fuel consumption (provide for each reference fuel tested)

[F1 3.5.2.1. Fuel consumption (urban conditions) … l/100 km or m^3/100 km or kg/100 km**(4)**

3.5.2.2. Fuel consumption (extra-urban conditions) … l/100 km or m^3/100 km or kg/100 km**(4)**

3.5.2.3. Fuel consumption (combined) … l/100 km or m^3/100 km or kg/100 km]**(4)**

[F14 [F4 3.5.3. Electric energy consumption for electric vehicles]

3.5.3.1. Type/Variant/Version of the baseline vehicle as defined in Article 5 of Implementing Regulation (EU) No 725/2011**(18)**

[F6 3.5.3.1. Electric energy consumption for pure electric vehicles … Wh/km]

3.5.3.2. Interactions existing between different eco-innovations: yes/no**(19)**

[F6 3.5.3.2. Electric energy consumption for externally chargeable hybrid electric vehicles

3.5.3.2.1. Electric energy consumption (Condition A, combined) Wh/km

3.5.3.2.2. Electric energy consumption (Condition B, combined) Wh/km

3.5.3.2.3. Electric energy consumption (weighted combined) Wh/km]

3.5.3.3. Emissions data related to the use of eco-innovations**(20)(21)**

Decision approving the eco-innovation[a]	**Code of the eco-innovation**[b]	**1.CO_2 emissions of the baseline vehicle(g/km)**	**2.CO_2 emissions of the eco-innovation**	**3.CO_2 emissions of the baseline vehicle under**	**4.CO_2 emissions of the eco-innovation vehicle**	**5.Usage factor (UF)i.e. temporal share of technology**	**CO_2 emissions savings** $((1-2)-(3-4))\times 5$

a	Number of the Commission Decision approving the eco-innovation.
b	Assigned in the Commission Decision approving the eco-innovation.
c	Under agreement of the type-approval authority, if modelling is applied instead of the type 1 test-cycle, this value shall be the one provided by the modelling methodology.
d	Sum of the emission s saving of each individual eco-innovation.]

			vehicle(g/km)	**type 1 test-cycle[c]**	**under type 1 test-cycle(= 3.5.1.3)**	**usage in normal operation conditions**	
xxxx/201x[a]							
Total CO_2 emissions saving (g/km)[d]							

a	Number of the Commission Decision approving the eco-innovation.
b	Assigned in the Commission Decision approving the eco-innovation.
c	Under agreement of the type-approval authority, if modelling is applied instead of the type 1 test-cycle, this value shall be the one provided by the modelling methodology.
d	Sum of the emission s saving of each individual eco-innovation.]

Textual Amendments

F14 Substituted by Commission Regulation (EU) No 171/2013 of 26 February 2013 amending Annexes I and IX, replacing Annex VIII to Directive 2007/46/EC of the European Parliament and of the Council 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), and amending Annexes I and XII to Commission Regulation (EC) No 692/2008 implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council 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 (Text with EEA relevance).

[F15]3.5.4. Electric energy consumption for externally chargeable hybrid electric vehicles

3.5.4.1. . . . . .

3.5.4.2. . . . . .

3.5.4.3. . . . . .

Textual Amendments

F15 Deleted by Commission Regulation (EU) No 136/2014 of 11 February 2014 amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and Commission Regulation (EU) No 582/2011 as regards emissions from heavy duty vehicles (Euro VI) (Text with EEA relevance).

[[F16][F8]3.5.6. Vehicle fitted with an eco-innovation within the meaning of Article 12 of Regulation (EC) No 443/2009 for M_1 vehicles or Article 12 of Regulation (EU) No 510/2011 for N_1 vehicles: yes/no[(22)].

3.5.6.1. Type/Variant/Version of the baseline vehicle as referred to in Article 5 of Regulation (EU) No 725/2011 for M_1 vehicles or Article 5 of Regulation (EU) No 427/2014 for N_1 vehicles[(23)].]

3.5.6.2. Interactions existing between different eco-innovations: yes/no[(22)]

3.5.6.3. Emissions data related to the use of eco-innovations[24][25]

Decision approving the eco-innovation[a]	Code of the eco-innovation[b]	1.CO_2 emissions of the baseline vehicle (g/km)	2.CO_2 emissions of the eco-innovation vehicle (g/km)	3.CO_2 emissions of the baseline vehicle under type 1 test-cycle[c]	4.CO_2 emissions of the eco-innovation vehicle under type 1 test-cycle (= 3.5.1.3)	5.Usage factor (UF)i.e. temporal share of technology usage in normal operation conditions	CO_2 emissions savings $((1-2)-(3-4))\times 5$
xxxx/201x[a]							
Total CO_2 emissions saving (g/km)[d]							

a	Number of the Commission Decision approving the eco-innovation.
b	Assigned in the Commission Decision approving the eco-innovation.
c	Under agreement of the type-approval authority, if modelling is applied instead of the type 1 test-cycle, this value shall be the one provided by the modelling methodology.
d	Sum of the emissions saving of each individual eco-innovation.]

Textual Amendments

F16 Inserted by Commission Regulation (EU) No 195/2013 of 7 March 2013 amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as concerns innovative technologies for reducing CO2 emissions from light passenger and commercial vehicles (Text with EEA relevance).

3.6. Temperatures permitted by the manufacturer

3.6.1. Cooling system

3.6.1.1. Liquid cooling

Maximum temperature at outlet: K

3.6.1.2. Air cooling

3.6.1.2.1. Reference point: …

3.6.1.2.2. Maximum temperature at reference point: K

3.6.2. Maximum outlet temperature of the inlet intercooler: K

3.6.3. Maximum exhaust temperature at the point in the exhaust pipe(s) adjacent to the outer flange(s) of the exhaust manifold: K

3.6.4. Fuel temperature

Minimum: K

Maximum: K

3.6.5. Lubricant temperature

Minimum: K

Maximum: K

3.8. Lubrication system

3.8.1. Description of the system

3.8.1.1. Position of the lubricant reservoir:

3.8.1.2. Feed system (by pump/injection into intake/mixing with fuel, etc.)[4]

3.8.2. Lubricating pump

3.8.2.1. Make(s):

3.8.2.2. Type(s):

3.8.3. Mixture with fuel

3.8.3.1. Percentage:

3.8.4. Oil cooler: yes/no[4]

3.8.4.1. Drawing(s): …, or

3.8.4.1.1. Make(s):

3.8.4.1.2. Type(s):

Textual Amendments

F10 Substituted by Commission Regulation (EU) 2017/1151 of 1 June 2017 supplementing Regulation (EC) No 715/2007 of the European Parliament and of the Council 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, amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) No 1230/2012 and repealing Commission Regulation (EC) No 692/2008 (Text with EEA relevance).

4. TRANSMISSION[26]

4.3. Moment of inertia of engine flywheel:

4.3.1. Additional moment of inertia with no gear engaged:

[[F10]4.4. Clutch(es)**]**

4.4.1. Maximum torque conversion:

4.5. Gearbox

4.5.1. Type (manual/automatic/CVT (continuously variable transmission))[4]

[[F10]4.6. Gear ratios

Gear	Internal gearbox ratios (ratios of engine to gearbox output shaft revolutions)	Final drive ratio(s) (ratio of gearbox output shaft to driven wheel revolutions)	Total gear ratios
Maximum for CVT			
1			
2			
3			
…			
Minimum for CVT			]

6. SUSPENSION

[F10 6.6. Tyres and wheels

6.6.1. Tyre/wheel combination(s)

6.6.1.1. Axles

6.6.1.1.1. Axle 1:

6.6.1.1.1.1. Tyre size designation

6.6.1.1.2. Axle 2:

6.6.1.1.2.1. Tyre size designation

etc.

6.6.2. Upper and lower limits of rolling radii

6.6.2.1. Axle 1:

6.6.2.2. Axle 2:

etc.

6.6.3. Tyre pressure(s) as recommended by the vehicle manufacturer: kPa]

9. BODYWORK

[F10 9.1. Type of bodywork using the codes defined in Part C of Annex II of Directive 2007/46/EC:]

9.10.3. Seats

9.10.3.1. Number:

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 6 months from the date of type approval):

16.2. Terms and conditions of access to website referred to in Section 16.1:

16.3. Format of vehicle repair and maintenance information accessible through website referred to in Section 16.1:

Appendix to information document

INFORMATION ON TEST CONDITIONS

1. Spark plugs

1.1. Make:

1.2. Type:

1.3. Spark-gap setting:

2. Ignition coil

2.1. Make: ….

2.2. Type:

3. Lubricant used

3.1. Make:

3.2. Type:

(state percentage of oil in mixture if lubricant and fuel mixed)

4 Dynamometer load setting information (repeat information for each dynamometer test)

4.1. Vehicle bodywork type (variant/version)

4.2. Gearbox type (manual/automatic/CVT)

4.3. Fixed load curve dynamometer setting information (if used)

4.3.1. Alternative dynamometer load setting method used (yes/no)

4.3.2. Inertia mass (kg):

4.3.3. Effective power absorbed at 80km/h including running losses of the vehicle on the dynamometer (kW)

4.3.4. Effective power absorbed at 50km/h h including running losses of the vehicle on the dynamometer (kW)

4.4. Adjustable load curve dynamometer setting information (if used)

4.4.1. Coast down information from the test track.

4.4.2. Tyres make and type:

4.4.3. Tyre dimensions (front/rear):

4.4.4. Tyre pressure (front/rear) (kPa):

4.4.5. Vehicle test mass including driver (kg):

4.4.6. Road coast down data (if used)

V (km/h)	**V_2 (km/h)**	**V_1 (km/h)**	**Mean corrected coast down time (s)**
120			
100			
80			
60			
40			
20			

4.4.7. Average corrected road power (if used)

V (km/h)	**CPcorrected (kW)**
120	
100	
80	
60	
40	
20	

Appendix 4

MODEL OF EC TYPE-APPROVAL CERTIFICATE

(Maximum format: A4 (210 × 297 mm))

EC TYPE-APPROVAL CERTIFICATE

Stamp of administration

Communication concerning the:

— EC type-approval[27],

— extension of EC type-approval[27],

— refusal of EC type-approval[27],

— withdrawal of EC type-approval[27],

— of a type of system/type of a vehicle with regard to a system[27] with regard to Regulation (EC) No 715/2007[28] and Regulation (EC) No 692/2008[29]

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[30]

0.3.1. Location of that marking:

0.4. Category of vehicle[31]

0.5. Name and address of manufacturer:

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

0.9. Representative of the manufacturer: ….

SECTION II

1. Additional information (where applicable): (see addendum)

2. Technical service responsible for carrying out the tests:

3. Date of test report:

4. Number of test report:

5. Remarks (if any): (see addendum)

6. Place:

7. Date:

8. Signature:

Attachments:	Information package. Test report.

Addendum to EC type-approval certificate No …

concerning the type-approval of a vehicle with regard to emissions and access to vehicle repair and maintenance information according to Regulation (EC) No 715/2007

1. Additional information

1.1. Mass of the vehicle in running order:

1.2. Maximum mass:

1.3. Reference mass:

1.4. Number of seats:

1.6. Type of bodywork:

1.6.1. for M_1, M_2: saloon, hatchback, station wagon, coupé, convertible, multipurpose vehicle(32)

1.6.2. for N_1, N_2: lorry, van(32)

1.7. Drive wheels: front, rear, 4 x 4(32)

1.8. Pure electric vehicle: yes/no(32)

1.9. Hybrid electric vehicle: yes/no(32)

1.9.1. Category of Hybrid Electric vehicle: Off Vehicle Charging/Not Off Vehicle charging(32)

1.9.2. Operating mode switch: with/without(32)

1.10. Engine identification:

1.10.1. Engine displacement:

1.10.2. Fuel supply system: direct injection/indirect injection(32)

1.10.3. Fuel recommended by the manufacturer:

1.10.4. Maximum power: kW at min'

1.10.5. Pressure charging device: yes/no(32)

1.10.6. Ignition system: compression ignition/positive ignition(32)

1.11. Power train (for pure electric vehicle or hybrid electric vehicle)(32)

1.11.1. Maximum net power: … kW, at: … to … min^{-1}

1.11.2. Maximum thirty minutes power: … kW

[F6 1.11.3 Maximum net torque: … Nm, at … min^{-1}]

1.12. Traction battery (for pure electric vehicle or hybrid electric vehicle)

1.12.1. Nominal voltage: V

1.12.2. Capacity (2 h rate): Ah

1.13. Transmission: …,

1.13.1. Type of gearbox: manual/automatic/variable transmission[32]

1.13.2. Number of gear ratios:

1.13.3. Total gear ratios (including the rolling circumferences of the tyres under load): road speeds per 1 000 min^{-1} (km/h)

First gear:	Sixth gear:
Second gear:	Seventh gear:
Third gear:	Eighth gear:
Fourth gear:	Overdrive:
Fifth gear:	

1.13.4. Final drive ratio:

1.14. Tyres: …,, …

Type: … Dimensions:

Rolling circumference under load:

Rolling circumference of tyres used for the Type 1 test

2. Test results

2.1. Tailpipe emissions test results

Emissions classification: Euro 5/Euro 6[32]

Type 1 test results, where applicable

Type approval number if not parent vehicle[32]:

Type 1 Result	**Test**	**CO(mg/km)**	**THC(mg/km)**	**NMHC(mg/km)**	**NO_x(mg/km)**	**THC + NO_x(mg/km)**	**Particulates(mg/km)**	**Particles(#/km)**
Measured[d]	1							
	2							

a	Where applicable.
b	Not applicable.
c	Mean value calculated by adding mean values (M.Ki) calculated for THC and NO_x.
d	Round to 2 decimal places.
e	Round to 4 decimal places.
f	Round to 1 decimal place more than limit value.

	3							
Measured mean value (M)[ad]								
Ki[ae]						[b]		
Mean value calculated with Ki (M.Ki)[d]						[c]		
DF[ae]								
Final mean value calculated with Ki and DF (M.Ki.DF)[f]								
Limit value								

a Where applicable.

b Not applicable.

c Mean value calculated by adding mean values (M.Ki) calculated for THC and NO_x.

d Round to 2 decimal places.

e Round to 4 decimal places.

f Round to 1 decimal place more than limit value.

Information about regeneration strategy

D — number of operating cycles between 2 cycles where regenerative phases occur:

d — number of operating cycles required for regeneration:

Type 2: %

Type 3:

Type 4: g/test

Type 5:	— Durability test: whole vehicle test/bench ageing test/none[a] — Deterioration factor DF: calculated/assigned[a] — Specify the values:

a Delete where not applicable (there are cases where nothing needs to be deleted when more than one entry is applicable.)

[F7Type 6	**CO (g/km)**	**THC (g/km)**
Measured value		**]**

[F7 2.1.1. For bi fuel vehicles, the type 1 table shall be repeated for both fuels. For flex fuel vehicles, when the type 1 test is to be performed on both fuels according to Figure I.2.4 of Annex I to Regulation (EC) No 692/2008, and for vehicles running on LPG or NG/Biomethane, either mono fuel or bi fuel, the table shall be repeated for the different reference gases used in the test, and an additional table shall display the worst results obtained. When applicable, in accordance with sections 1.1.2.4 and 1.1.2.5 of Annex I to Regulation (EC) No 692/2008, it shall be shown if the results are measured or calculated.**]**

2.1.2. Written description and/or drawing of the MI:

2.1.3. List and function of all components monitored by the OBD system:

2.1.4. Written description (general working principles) for:

2.1.4.1. Misfire detection(33):

2.1.4.2. Catalyst monitoring(33):

2.1.4.3. Oxygen sensor monitoring(33):

2.1.4.4. Other components monitored by the OBD system(33):

2.1.4.5. Catalyst monitoring(34):

2.1.4.6. Particulate trap monitoring(34):

2.1.4.7. Electronic fuelling system actuator monitoring(34):

2.1.4.8. Other components monitored by the OBD system:

2.1.5. Criteria for MI activation (fixed number of driving cycles or statistical method):

2.1.6. List of all OBD output codes and formats used (with explanation of each):

2.2. Emissions data required for roadworthiness testing

Test	**CO value(% vol)**	**Lambda**[a]	**Engine speed(min-)**	**Engine oil temperature(°C)**
Low idle test		N/A		
High idle test				

a Delete where not applicable (there are cases where nothing needs to be deleted when more than one entry is applicable.)

2.3. Catalytic converters yes/no(32)

2.3.1. Original equipment catalytic converter tested to all relevant requirements of this Regulation yes/no(32)

2.4. Smoke opacity test results(32)

2.4.1. At steady speeds: See technical service test report number:

2.4.2. Free acceleration tests

2.4.2.1. Measured value of the absorption coefficient: … m^{-1}

2.4.2.2. Corrected value of the absorption coefficient: … m^{-1}

2.4.2.3. Location of the absorption coefficient symbol on the vehicle:

2.5. CO_2 emissions and fuel consumption test results

2.5.1. Internal combustion engine vehicle and Not Externally Chargeable (NOVC) Hybrid Electric Vehicle

2.5.1.1. CO_2 mass emissions (provide declared values for each reference fuel tested)

2.5.1.1.1. CO_2 mass emissions (urban conditions): … g/km

2.5.1.1.2. CO_2 mass emissions (extra-urban conditions): … g/km

2.5.1.1.3. CO_2 mass emissions (combined): … g/km

2.5.1.2. Fuel consumption (provide declared values for each reference fuel tested)

2.5.1.2.1. Fuel consumption (urban conditions): … 1/100 km[(35)]

2.5.1.2.2. Fuel consumption (extra-urban conditions): … 1/100 km

2.5.1.2.3. Fuel consumption (combined): … 1/100 km[(35)]

2.5.1.3. For vehicles powered by an internal combustion engine only which are equipped with periodically regenerating systems as defined in paragraph 6 of Article 2 of this Regulation, the test results shall be multiplied by the factor Ki as specified in Annex 10 to UN/ECE Regulation 101.

2.5.1.3.1. Information about regeneration strategy for CO_2 emissions and fuel consumption

D — number of operating cycles between 2 cycles where regenerative phases occur:

d — number of operating cycles required for regeneration:

	urban	**extra urban**	**combined**
Ki Values for CO_2 and fuel consumption[a]			

a Round to 4 decimal places.

2.5.2. Pure electric vehicles[(32)]

2.5.2.1. Electric energy consumption (declared value).

2.5.2.1.1. Electric energy consumption: Wh/km

2.5.2.1.2. Total time out of tolerance for the conduct of the cycle: … sec

2.5.2.2. Range (declared value): km

2.5.3. Externally chargeable (OVC) Hybrid Electric Vehicle:

2.5.3.1. CO_2 mass emission (Condition A, combined)[36]: g/km

2.5.3.2. CO_2 mass emission (Condition B, combined)[36]: g/km

2.5.3.3. CO_2 mass emission (weighted, combined)[36]: g/km

2.5.3.4. Fuel consumption (Condition A, combined)[36]: … l/100 km

2.5.3.5. Fuel consumption (Condition B, combined)[36]: … l/100 km

2.5.3.6. Fuel consumption (weighted, combined)[36]: … l/100 km

2.5.3.7. Electric energy consumption (Condition A, combined)[36]: Wh/km

2.5.3.8. Electric energy consumption (Condition B, combined)[36]: Wh/km

2.5.3.9. Electric energy consumption (weighted and combined)[36]: Wh/km

2.5.3.10. Pure electric range: km

[[F7]2.6. Test results of eco-innovations[37][38]

Decision approving the eco-innovation[a]	**Code of the eco-innovation**[b]	**1.CO_2 emissions of the baseline vehicle (g/km)**	**2.CO_2 emissions of the eco-innovation vehicle (g/km)**	**3.CO_2 emissions of the baseline vehicle under type 1 test-cycle**[c]	**4.CO_2 emissions of the eco-innovation vehicle under type 1 test-cycle (= 3.5.1.3)**	**5.Usage factor (UF)i.e. temporal share of technology usage in normal operation conditions**	**CO_2 emissions savings** $((1-2)-(3-4))\times 5$
xxxx/201x							
Total CO_2 emissions saving (g/km)[d]							

a	Number of the Commission Decision approving the eco-innovation.
b	Assigned in the Commission Decision approving the eco-innovation.
c	If modelling is applied instead of the type 1 test-cycle, this value shall be the one provided by the modelling methodology.
d	Sum of the emissions saving of each individual eco-innovation.

2.6.1. General code of the eco-innovation(s)[39]: …**]**

3. Vehicle repair information

3.1. Address of website for access to vehicle repair and maintenance information: …

3.1.1. Date from which it is available (up to 6 months from the date of type approval):

[F3 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):]

3.3. Format of vehicle repair and maintenance information accessible through website referred to in Section 3.1:

3.4. Manufacturer's certificate on access to vehicle repair and maintenance information provided: …

[F4 4. Power measurement

Maximum engine net power of internal combustion engine, net power and maximum 30 minutes power of electric drive train

4.1. Internal combustion engine net power

4.1.1. Engine speed (rpm)

4.1.2. Measured fuel flow (g/h)

4.1.3. Measured torque (Nm)

4.1.4. Measured power (kW)

4.1.5. Barometric pressure (kPa)

4.1.6. Water vapour pressure (kPa)

4.1.7. Intake air temperature (K)

4.1.8. Power correction factor when applied

4.1.9. Corrected power (kW)

4.1.10. Auxiliary power (kW)

4.1.11. Net power (kW)

4.1.12. Net torque (Nm)

4.1.13. Corrected specific fuel consumption (g/kWh)

4.2. Electric drive train(s):

4.2.1. Declared figures

4.2.2. Maximum net power: … kW, at … min^{-1}

4.2.3. Maximum net torque: … Nm, at … min^{-1}

4.2.4. Maximum net torque at zero speed: …. Nm

4.2.5. Maximum 30 minutes power: … kW

4.2.6. Essential characteristics of the electric drive train

4.2.7. Test DC voltage: … V

4.2.8. Working principle:

4.2.9. Cooling system:

4.2.10. Motor: liquid/air[40]

4.2.11. Variator: liquid/air]0

[F6 5. Remarks:]

Appendix 5

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:

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

2.2. 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;

2.3. 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) 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, a comprehensive explanation for the data given in service $ 05 Test ID $ 21 to FF and the data given in service $ 06 shall be provided. 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 $ 06 Test ID $ 00 to FF, for each OBD monitor ID supported, 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 the points 3.1 to 3.3. through their repair information web-sites. This information shall include all diagnostic tool functions and all the links to repair information and troubleshooting instructions. The access to this 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 Annex XI Section 4, 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 not in accordance with the standards prescribed in Annex XI Section 4:

(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 6

EC Type –Approval Certification Numbering System

1. Section 3 of the EC type-approval number issued according to Article 6(1) shall be composed by the number of the implementing regulatory act or the latest amending regulatory act applicable to the EC type-approval. **[**F17This number shall be followed by one or more characters reflecting the different categories in accordance with Table 1.**]** These alphabetical characters shall also distinguish the Euro 5 and 6 emission limit values to which the approval was granted.

Textual Amendments

F17 Substituted by Commission Regulation (EU) No 459/2012 of 29 May 2012 amending Regulation (EC) No 715/2007 of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 6) (Text with EEA relevance).

[F4TABLE 1

Character	Emissions standard	OBD standard	Vehicle category and class	Engine	Implementation date: new types	Implementation date: new vehicles	Last date of registration
A	Euro 5a	Euro 5	M, N_1 class I	PI, CI	1.9.2009	1.1.2011	31.12.2012
B	Euro 5a	Euro 5	M_1 to fulfil specific social needs (excluding M_1G)	CI	1.9.2009	1.1.2012	31.12.2012
C	Euro 5a	Euro 5	M_1G to fulfil specific social needs	CI	1.9.2009	1.1.2012	31.8.2012
D	Euro 5a	Euro 5	N_1 class II	PI, CI	1.9.2010	1.1.2012	31.12.2012
E	Euro 5a	Euro 5	N_1 class III, N_2	PI, CI	1.9.2010	1.1.2012	31.12.2012
F	Euro 5b	Euro 5	M, N_1 class *I*	PI, CI	1.9.2011	1.1.2013	31.12.2013
G	Euro 5b	Euro 5	M_1 to fulfil	CI	1.9.2011	1.1.2013	31.12.2013

			specific social needs (excluding M_1G)				
H	Euro 5b	Euro 5	N_1 class II	PI, CI	1.9.2011	1.1.2013	31.12.2013
I	Euro 5b	Euro 5	N_1 class III, N_2	PI, CI	1.9.2011	1.1.2013	31.12.2013
J	Euro 5b	Euro 5+	M, N_1 class I	PI, CI	1.9.2011	1.1.2014	31.8.2015
K	Euro 5b	Euro 5+	M_1 to fulfil specific social needs (excluding M_1G)	CI	1.9.2011	1.1.2014	31.8.2015
L	Euro 5b	Euro 5+	N_1 class II	PI, CI	1.9.2011	1.1.2014	31.8.2016
M	Euro 5b	Euro 5+	N_1 class III, N_2	PI, CI	1.9.2011	1.1.2014	31.8.2016
N	Euro 6a	Euro 6-	M, N_1 class I	CI			31.12.2012
O	Euro 6a	Euro 6-	N_1 class II	CI			31.12.2012
P	Euro 6a	Euro 6-	N_1 class III, N_2	CI			31.12.2012
Q	Euro 6b	Euro 6-	M, N_1 class I	CI			31.12.2013
R	Euro 6b	Euro 6-	N_1 class II	CI			31.12.2013
S	Euro 6b	Euro 6-	N_1 class III, N_2	CI			31.12.2013
T	Euro 6b	Euro 6- plus IUPR	M, N_1 class I	CI			31.8.2015
U	Euro 6b	Euro 6- plus IUPR	N_1 class II	CI			31.8.2016
V	Euro 6b	Euro 6- plus IUPR	N_1 class III, N_2	CI			31.8.2016

W	Euro 6b	Euro 6-1	M, N_1 class I	PI, CI	1.9.2014	1.9.2015	31.8.2018
X	Euro 6b	Euro 6-1	N_1 class II	PI, CI	1.9.2015	1.9.2016	31.8.2019
Y	Euro 6b	Euro 6-1	N_1 class III, N_2	PI, CI	1.9.2015	1.9.2016	31.8.2019
ZA	Euro 6c	Euro 6-1	M, N_1 class I	PI, CI			31.8.2018
ZB	Euro 6c	Euro 6-1	N_1 class II	PI, CI			31.8.2019
ZC	Euro 6c	Euro 6-1	N_1 class III, N_2	PI, CI			31.8.2019
⌊[F10]ZD	Euro 6c	Euro 6-2	M, N1 class I	PI, CI			31.8.2018
ZE	Euro 6c	Euro 6-2	N1 class II	PI, CI			31.8.2019
ZF	Euro 6c	Euro 6-2	N1 class III, N2	PI, CI			31.8.2019
ZG	Euro 6d-TEMP	Euro 6-2	M, N1 class I	PI, CI			31.8.2018
ZH	Euro 6d-TEMP	Euro 6-2	N1 class II	PI, CI			31.8.2019
ZI	Euro 6d-TEMP	Euro 6-2	N1 class III, N2	PI, CI			31.8.2019
ZJ	Euro 6d	Euro 6-2	M, N1 class I	PI, CI			31.8.2018
ZK	Euro 6d	Euro 6-2	N1 class II	PI, CI			31.8.2019
ZL	Euro 6d	Euro 6-2	N1 class III, N2	PI, CI			31.8.2019
ZX	n.a.	n.a.	All vehicles	Battery full electric	1.9.2009	1.1.2011	31.8.2019
ZY	n.a.	n.a.	All vehicles	Battery full electric	1.9.2009	1.1.2011	31.8.2019
ZZ	n.a.	n.a.	All vehicles using certificates according to point	PI, CI	1.9.2009	1.1.2011	31.8.2019⌋

			2.1.1 of Annex I				

Key:

'Euro 5a' emissions standard	=	excludes revised measurement procedure for particulate matter, particle number standard and flex fuel vehicle low temperature emission testing with biofuel;
'Euro 5b' emissions standard	=	Full Euro 5 emission requirements including revised measurement procedure for particulate matter, particle number standard for CI vehicles and flex fuel vehicle low temperature emission testing with biofuel;
'Euro 6a' emissions standard	=	excludes revised measurement procedure for particulate matter, particle number standard and flex fuel vehicle low temperature emission testing with biofuel;
'Euro 6b' emissions standard	=	Euro 6 emission requirements including revised measurement procedure for particulate matter, particle number standards (preliminary values for PI vehicles) and flex fuel vehicle low temperature emission testing with biofuel;
'[F18 Euro 6c' emissions standard	=	Full Euro 6 emission requirements but without quantitative RDE requirements, i.e. Euro 6b emission standard, final particle number standards for PI vehicles, use of E10 and B7 reference fuel (where applicable) assessed on regulatory lab test cycle and RDE testing for monitoring only (no NTE emission limits applied);
'Euro 6d-TEMP' emissions standard	=	Full Euro 6 emission requirements, i.e. Euro 6b emission standard, final particle number standards for PI vehicles, use of E10 and B7 reference fuel (where applicable) assessed on regulatory lab test cycle and RDE testing against temporary conformity factors;]
'[F19 Euro 6d' emissions standard	=	Full Euro 6 emission requirements, i.e. Euro 6b emission standard, final particle number standards for PI vehicles, use of E10 and B7 reference fuel (where applicable) assessed on regulatory lab test cycle and RDE testing against final conformity factors;]
'Euro 5' OBD standard	=	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 5+' OBD standard	=	includes relaxed in use performance ratio (IUPR), NO_x monitoring for petrol vehicles and tightened PM threshold limits for diesel;
'Euro 6-' OBD standard	=	relaxed OBD threshold limits;
'Euro 6- plus IUPR' OBD standard	=	includes relaxed OBD threshold limits and relaxed in use performance ratio (IUPR);
'Euro 6-1' OBD standard	=	Full Euro 6 OBD requirements but with preliminary OBD threshold limits as defined in point 2.3.4 of Annex XI and partially relaxed IUPR;
'Euro 6-2' OBD standard	=	Full Euro 6 OBD requirements but with final OBD threshold limits as defined in point 2.3.3 of Annex XI.]

Textual Amendments

F18 Inserted by Commission Regulation (EU) 2016/646 of 20 April 2016 amending Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 6) (Text with EEA relevance).

F19 Substituted by Commission Regulation (EU) 2016/646 of 20 April 2016 amending Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 6) (Text with EEA relevance).

2. Examples of type–approval certification numbers.

2.1. An example is provided below of a first approval without any extensions of an Euro 5 light passenger vehicle. The approval was granted to the base regulation and its implementing regulation so the forth component is 0001. The vehicle is of category M_1 represented by letter A. The approval was issued by the Netherlands:

e4*715/2007*692/2008A*0001*00

2.2. This second example shows a fourth approval for the second extension of an Euro 5 light passenger vehicle of category M_1G meeting the special social needs requirements (letter C). The approval was granted to the base regulation and an amending regulation in the year 2009 and was issued by Germany:

e1*715/2007*…/2009C*0004*02

Appendix 7

Manufacturer's certificate of compliance with the OBD in-use performance requirements

(Manufacturer): .....

(Address of the manufacturer): .....

Certifies that

— The vehicle types listed in attachment to this Certificate are in compliance with the provisions of section 3 of Appendix 1 to Annex XI of Regulation (EC) No 692/2008 relating to the in-use performance of the OBD system under all reasonably foreseeable driving conditions

— The plan(s) describing the detailed technical criteria for incrementing the numerator and denominator of each monitor attached to this Certificate are correct and complete for all types of vehicles to which this Certificate applies.

Done at [..... Place]

On [..... Date]

.....

[Signature of the Manufacturer's Representative]

Annexes:

— List of vehicle types to which this Certificate applies,

— Plan(s) describing the detailed technical criteria for incrementing the numerator and denominator of each monitor, as well as plan(s) for disabling numerators, denominators and general denominator.

(**1**) **[**[F4]Specific test procedures for hydrogen and flex fuel biodiesel vehicles will be defined at a later stage.**]**

(**2**) OJ L 158, 19.6.2007, p. 34

(**3**) OJ L 326, 24.11.2006, p. 1.

(**4**) Delete where not applicable (there are cases where nothing needs to be deleted when more than one entry is applicable).

(**5**) If the means of identification of type contains characters not relevant to describe the vehicle, component or separate technical unit types covered by this information document, such characters shall be represented in the documentation by the symbol.?. (e.g. ABC??123??).

(**6**) Classified according to the definitions listed in Annex II, Section A.

(**7**) (e) Where there is one version with a normal cab and another with a sleeper cab, both sets of masses and dimensions are to be stated.

(**8**) The mass of the driver and, if applicable, of the crew member is assessed at 75 kg (subdivided into 68 kg occupant mass and 7 kg luggage mass according to ISO Standard 2416-1992), the fuel tank is filled to 90 % ant the other liquid containing systems (except those for used water) to 100 % of the capacity specified by the manufacturer.

(**9**) For trailers or semi-trailers, and for vehicles coupled with a trailer or a semi-trailer, which exert a significant vertical load on the coupling device or the fifth wheel, this load, divided by standard acceleration of gravity, is included in the maximum technical permissible mass.

(**10**) Please fill in here the upper and lower values for each variant.

(**11**) This figure must be rounded off to the nearest tenth of a millimetre.

(**12**) Specify the tolerance.

(**13**) **[**[F4]Determined in accordance with the requirements of Annex XX to this Regulation.**]**

(**14**) **[**[F2]Vehicles can be fuelled with both petrol and a gaseous fuel but, where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol, will be regarded for the test as vehicles which can only run on a gaseous fuel.**]**

(**15**) **[**[F2]OJ L 72, 14.3.2008, p. 113.**]**

(**16**) **[**[F1]OJ L 158, 19.6.2007, p. 34.**]**

(**17**) **[**[F10]Determined in accordance with the requirements of Directive 80/1268/EEC.**]**

(**18**) **[**[F14]If applicable.**]**

(**19**) **[**[F14]Delete where not applicable.**]**

(**20**) **[**[F14]Repeat the table for each reference fuel tested.**]**

(**21**) **[**[F14]Expand the table if necessary, using one extra row per eco-innovation.**]**

(**22**) **[**[F16]**[**[F8]Delete where not applicable.**]]**

(**23**) **[**[F16]**[**[F8]If applicable.**]]**

(**24**) **[**[F16]Repeat the table for each reference fuel tested.**]**

(**25**) **[**[F16]Expand the table if necessary, using one extra row per eco-innovation.**]**

(**26**) (v) The specified particulars are to be given for any proposed variants.

(**27**) Delete where not applicable (there are cases where nothing needs to be deleted when more than one entry is applicable)

(**28**) OJ L 171, 29.6.2007, p. 1.

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

(**30**) If the means of identification of type contains characters not relevant to describe the vehicle, component or separate technical unit types covered by this information, such characters shall be represented in the documentation by the symbol '?' (e.g. ABC??123??)

(**31**) As defined in Annex II, Section A

(**32**) Delete where not applicable (there are cases where nothing needs to be deleted when more than one entry is applicable.)

(**33**) For vehicles equipped with positive-ignition engines.

(**34**) For compression-ignition engine vehicles

(**35**) For vehicle fuelled with gas the unit is replaced by m^3/km.

(**36**) Measured over the combined cycle, i.e. Part One (urban) and Part Two (extra urban) together

(**37**) **[**[F7]Repeat the table for each reference fuel tested.**]**

(**38**) **[**[F7]Expand the table if necessary, using one extra row per eco-innovation.**]**

(**39**) **[**[F7]The general code of the eco-innovation(s) shall consist of the following elements, each separated by a blank space:

— Code of the type-approval authority as set out in Annex VII to Directive 2007/46/EC;

— Individual code of each eco-innovation fitted in the vehicle, indicated in chronological order of the Commission approval decisions.
(E.g. the general code of three eco-innovations approved chronologically as 10, 15 and 16 and fitted to a vehicle certified by the German type approval authority should be: 'e1 10 15 16')**]**

(**40**) **[**[F4]Delete where not applicable.**]**

Textual Amendments

F1 Substituted by Commission Regulation (EU) No 630/2012 of 12 July 2012 amending Regulation (EC) No 692/2008, as regards type-approval requirements for motor vehicles fuelled by hydrogen and mixtures of hydrogen and natural gas with respect to emissions, and the inclusion of specific information regarding vehicles fitted with an electric power train in the information document for the purpose of EC type-approval (Text with EEA relevance).

F2 Inserted by Commission Regulation (EU) No 630/2012 of 12 July 2012 amending Regulation (EC) No 692/2008, as regards type-approval requirements for motor vehicles fuelled by hydrogen and mixtures of hydrogen and natural gas with respect to emissions, and the inclusion of specific information regarding vehicles fitted with an electric power train in the information document for the purpose of EC type-approval (Text with EEA relevance).

F4 Substituted by Commission Regulation (EU) No 136/2014 of 11 February 2014 amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and Commission Regulation (EU) No 582/2011 as regards emissions from heavy duty vehicles (Euro VI) (Text with EEA relevance).

F7 Substituted by Commission Regulation (EU) No 195/2013 of 7 March 2013 amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as concerns innovative technologies for reducing CO2 emissions from light passenger and commercial vehicles (Text with EEA relevance).

F8 Substituted by Commission Regulation (EU) 2015/45 of 14 January 2015 amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as regards innovative technologies for reducing CO2 emissions from light commercial vehicles (Text with EEA relevance).

F10 Substituted by Commission Regulation (EU) 2017/1151 of 1 June 2017 supplementing Regulation (EC) No 715/2007 of the European Parliament and of the Council 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, amending Directive 2007/46/EC of the

European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) No 1230/2012 and repealing Commission Regulation (EC) No 692/2008 (Text with EEA relevance).

F14 Substituted by Commission Regulation (EU) No 171/2013 of 26 February 2013 amending Annexes I and IX, replacing Annex VIII to Directive 2007/46/EC of the European Parliament and of the Council 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), and amending Annexes I and XII to Commission Regulation (EC) No 692/2008 implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council 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 (Text with EEA relevance).

F16 Inserted by Commission Regulation (EU) No 195/2013 of 7 March 2013 amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as concerns innovative technologies for reducing CO2 emissions from light passenger and commercial vehicles (Text with EEA relevance).

Status:
Point in time view as at 31/01/2020.

Changes to legislation:
There are currently no known outstanding effects for the Commission Regulation (EC) No 692/2008, ANNEX I.