UNITED NATIONS

E

Economic and Social Council

Distr.

GENERAL

TRANS/WP.29/2000/61
25 August 2000

ENGLISH
Original: ENGLISH and FRENCH

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations (WP.29)
(One-hundred-and-twenty-second session,
7-10 November 2000, agenda item 6.17.)

PROPOSAL FOR DRAFT SUPPLEMENT 1 THE 05 SERIES OF AMENDMENTS TO REGULATION No. 83

(Emissions of M_1 and N_1 categories of vehicles)

Transmitted by the Working Party on Pollution and Energy (GRPE)

Note: The text reproduced below was adopted by GRPE at its fortieth session, and is transmitted for consideration to WP.29 and to AC.1. It is based on document TRANS/WP.29/GRPE/2000/13, for the English text, and on a document without a symbol (informal document No. 3) distributed during the session, for the French text (TRANS/WP.29/GRPE/40, paras. 21 and 22). For both language versions, editorial corrections were made by the secretariat. The proposed amendments refer to the draft 05 series of amendments to Regulation No. 83 (document TRANS/WP.29/741).

Paragraph 5.1.5.1., amend to read:

"5.1.5.1. Any vehicle with an emission control computer shall include features to deter 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 parameters shall be resistant to tampering and afford a level of protection at least as good as the provisions in ISO DIS 15031-7, dated October 1998 (SAE J2186 dated October 1996), provided that the security exchange is conducted using the protocols and diagnostic connector as prescribed in paragraph 6.5. of annex II, appendix 1. 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."

Paragraph 5.1.5.5., amend to read:

"5.1.5.5. 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. Methods giving an adequate level of tamper protection will be approved by the authority."

Paragraph 11.1.5.1., amend to read (including the related three footnotes):

"11.1.5.1. Vehicles of category M_1 and N_1 and equipped with positive-ignition engines, shall be equipped with on-board diagnostic systems, as specified in paragraph 3.1. to annex 11 of this Regulation, on the dates shown in paragraph 11.1.2.

Vehicles of other categories shall, in place of the dates specified in paragraph 11.1.2., comply with the requirement for on-board diagnostic systems as follows:

(a) Vehicles of category M_1 equipped with compression-ignition engines, other than vehicles designed to carry more than six occupants (including the driver) or vehicles whose maximum mass exceeds 2,500 kg, from 1 January 2003 for new types and from 1 January 2004 for all types. */

(b) Vehicles of category M_1, (exempted by (a) above) and vehicles of category N_1 class I, equipped with compression-ignition engines, from 1 January 2005 for new types and from 1 January 2006 for all types. **/

(c) Vehicles in category N_1, classes II and III, equipped with compression-ignition engines, from 1 January 2006 for new types and 1 January 2007 for all types. ***/

_____

*/ An on-board diagnostic system fitted to a vehicle entering service prior to 1 January 2004 and equipped with a compression-ignition engine, shall satisfy the provisions of paragraphs 6.5.3. to 6.5.3.5. of annex 11, appendix 1.

**/ An on-board diagnostic system fitted to a vehicle approved prior to 1 January 2005 and equipped with a compression-ignition engine, shall satisfy the provisions of paragraphs 6.5.3. to 6.5.3.5. of annex 11, appendix 1.

***/ An on-board diagnostic system fitted to a vehicle approved prior to 1 January 2006 and equipped with a compression-ignition engine, shall satisfy the provisions of paragraphs 6.5.3. to 6.5.3.5. of annex 11, appendix 1.”

Paragraph 11.1.5.2., amend to read (French only).

Annex 7, Appendix 2, table entitled "Diurnal ambient temperature profile for the calibration of the enclosure and the diurnal emission test", amend to read (table “Alternative diurnal ambient temperature ...” not affected):

“

Diurnal ambient temperature profile for the calibration of the enclosure and the diurnal emission test			Alternative diurnal ambient temperature profile for the calibration of the enclosure in accordance with annex 7, appendix 1, paragraphs 1.2. and 2.3.9.	
Time (hours)		Temperature ($°C_i$)	Time (hours)	Temperature ($°C_i$)
Calibration	Test			
13	0/24	20.0	0	35.6
14	1	20.2	1	35.3
15	2	20.5	2	34.5
16	3	21.2	3	33.2
17	4	23.1	4	31.4
18	5	25.1	5	29.7
19	6	27.2	6	28.2
20	7	29.8	7	27.2
21	8	31.8	8	26.1
22	9	33.3	9	25.1
23	10	34.4	10	24.3
24/0	11	35.0	11	23.7
1	12	34.7	12	23.3
2	13	33.8	13	22.9
3	14	32.0	14	22.6
4	15	30.0	15	22.2
5	16	28.4	16	22.5
6	17	26.9	17	24.2
7	18	25.2	18	26.8
8	19	24.0	19	29.6
9	20	23.0	20	31.9
10	21	22.0	21	33.9
11	22	20.8	22	35.1
12	23	20.2	23	35.4
			24	35.6

”

Annex 11,

Insert new paragraphs 2.19. and 2.20., to read:

"2.19. "Repair information" means all information required for diagnosis, servicing, inspection, periodic monitoring or repair of the vehicle and which the manufacturers provide for their authorised dealers/repair shops. Where necessary, such information shall include service handbooks, technical manuals, diagnosis information (e.g. minimum and maximum theoretical values for measurements), wiring diagrams, the software calibration identification number applicable to a vehicle type, instructions for individual and special cases, information provided concerning tools and equipment, data record information and two-directional monitoring and test data. The manufacturer shall not be obliged to make available that information which is covered by intellectual property rights or constitutes specific know-how of manufacturers and/or OEM suppliers; in this case the necessary technical information shall not be improperly withheld.

2.20. "Deficiency" means, in respect of vehicle OBD systems, that up to two separate components or systems that are monitored contain temporary or permanent operating characteristics that impair the otherwise efficient OBD monitoring of those components or systems or do not meet all of the other detailed requirements for OBD. Vehicles may be type-approved, registered and sold with such deficiencies according to the requirements of paragraph 4 of this annex."

Paragraph 3.1.1., amend to read:

"3.1.1. Access to the OBD system required for the inspection, diagnosis, servicing or repair of the vehicle shall be unrestricted and standardised. All emission-related fault codes shall be consistent with paragraph 6.5.3.4. of appendix 1 to this annex."

Paragraph 3.2.2.2., amend to read:

"3.2.2.2. When a manufacturer can demonstrate to the authority that the detection of higher levels of misfire percentages is still not feasible, or that misfire cannot be distinguished from other effects (e.g. rough roads, transmission shifts, after engine starting; etc.) the misfire monitoring system may be disabled when such conditions exist."

Paragraph 3.3.2. and the table, amend to read:

"3.3.2. The OBD system shall indicate the failure of an emission-related component or system when that failure results in emissions exceeding the threshold limits given below:

		Reference mass (RM) (kg)	Mass of carbon monoxide (CO) L_1 (g/km)		Mass of total hydrocarbons (THC) L_2 (g/km)		Mass of oxides of nitrogen (NO_x) L_3 (g/km)		Mass of particulates (1) (PM) L_4 (g/km)
Category	Class		Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Diesel
M(2)	-	all	3.20	3.20	0.40	0.40	0.60	1.20	0.18
N_1(3)	I	RW ≤ 1305	3.20	3.20	0.40	0.40	0.60	1.20	0.18
	II	1305 < RW ≤ 1760	5.80	4.00	0.50	0.50	0.70	1.60	0.23
	III	1760 < RW	7.30	4.80	0.60	0.60	0.80	1.90	0.28

(1) For compression-ignition engines.

(2) Except vehicles the maximum mass of which exceeds 2,500 kg.

(3) And those category M vehicles which are specified in note (2)."

Paragraph 3.3.3.1., amend to read:

"3.3.3.1. reduction in the efficiency of the catalytic converter with respect to the emissions of HC only. Manufacturers may monitor the front catalyst alone or in combination with the next catalyst(s) downstream. Each monitored catalyst or catalyst combination shall be considered malfunctioning when the emissions exceed the HC threshold given in table in paragraph 3.3.2.;"

Paragraph 3.3.3.5., amend to read:

"3.3.3.5. unless otherwise monitored, any other emission-related power-train component connected to a computer, including any relevant sensors to enable monitoring functions to be carried out, shall be monitored for circuit continuity;"

Paragraph 3.3.4.5., amend to read:

"3.3.4.5. Unless otherwise monitored, any other emission-related power-train component connected to a computer shall be monitored for circuit continuity."

Paragraph 3.6.1., amend to read:

"3.6.1. The distance travelled by the vehicle while the MI is activated shall be available at any instant through the serial port on the standard link connector. 2/

_____

2/ This requirement is only applicable from 1 January 2003 to new vehicles with an electronic speed input to the engine management. It applies to all vehicles entering into service from 1 January 2005."

Paragraph 3.7.1., amend to read:

"3.7.1. If misfire at levels likely to cause catalyst damage (as specified by the manufacturer) is not present any more, or if the engine is operated after changes to speed and load conditions where the level of misfire will not cause catalyst damage, the MI may be switched back to the previous state of activation during the first driving cycle on which the misfire level was detected and may be switched to the normal activated mode on subsequent driving cycles. If the MI is switched back to the previous state of activation, the corresponding fault codes and stored freeze-frame conditions may be erased."

Insert new paragraphs 4. to 4.6., to read:

"4. REQUIREMENTS RELATING TO THE TYPE-APPROVAL OF ON-BOARD DIAGNOSTIC SYSTEMS

4.1 A manufacturer may request to the authority that an OBD system be accepted for type-approval even though the system contains one or more deficiencies such that the specific requirements of this annex are not fully met.

4.2. In considering the request, the authority shall determine whether compliance with the requirements of this annex is infeasible or unreasonable.

The authority shall take into consideration data from the manufacturer that details such factors as, but not limited to, technical feasibility, lead time and production cycles including phase-in or phase-out of engines or vehicle designs and programmed upgrades of computers, the extent to which the resultant OBD system will be effective in complying with the requirements of this directive and that the manufacturer has demonstrated an acceptable 3 level of effort toward compliance with the requirements of this Regulation.

4.2.1. The authority will not accept any deficiency request that includes the complete lack of a required diagnostic monitor.

4.2.2. The authority will not accept any deficiency request that does not respect the OBD threshold limits in paragraph 3.3.2.

4.3. In determining the identified order of deficiencies, deficiencies relating to paragraphs 3.3.3.1, 3.3.3.2 and 3.3.3.3. of this annex for positive-ignition engines and paragraphs 3.3.4.1, 3.3.4.2. and 3.3.4.3. of this annex for compression-ignition engines shall be identified first.

4.4 Prior to or at the time of type-approval, no deficiency shall be granted in respect of the requirements of paragraph 6.5, except paragraph 6.5.3.4. of appendix 1 to this annex.

4.5 Deficiency period

4.5.1. A deficiency may be carried-over for a period of two years after the date of type-approval of the vehicle type unless it can be adequately demonstrated that substantial vehicle hardware modifications and additional lead-time beyond two years would be necessary to correct the deficiency. In such a case, the deficiency may be carried-over for a period not exceeding three years.

4.5.2. A manufacturer may request that the original type-approval authority grant a deficiency retrospectively when such a deficiency is discovered after the original type-approval. In this case, the deficiency may be carried over for a period of two years after the date of notification to the type approval authority unless it can be adequately demonstrated that substantial vehicle hardware modifications and additional lead-time beyond two years would be necessary to correct the deficiency. In such a case, the deficiency may be carried-over for a period not exceeding three years.

4.6. The authority shall notify its decision in granting a deficiency request to all other Parties to the 1958 Agreement applying this Regulation."

Annex 11, appendix 1,

Paragraph 1., amend to read:

".....

When the vehicle is tested with the defective component or device fitted, the OBD system is approved if the MI is activated. The OBD system is also approved if the MI is activated below the OBD threshold limits."

Paragraph 2.1.2., amend to read:

2.1.2. preconditioning of the vehicle with a simulated malfunction over preconditioning specified in paragraph 6.2.1. or paragraph 6.2.2.”

Paragraph 6.3.1.5., amend to read:

"6.3.1.5. Electrical disconnection of the evaporative purge control device (if equipped). For this specific failure mode, the Type I test shall not be performed.”

Paragraph 6.5.1.2., amend to read:

“....

The signals shall be provided in standard units based on the specifications given in paragraph 6.5.3. Actual signals shall be

clearly identified separately from default value or limp-home signals."

Insert a new paragraph 6.5.1.5., to read:

"6.5.1.5. From 1 January 2003 for new types and from 1 January 2005 for all types of vehicles entering into service, the software calibration identification number shall be made available through the serial port on the standardised data link connector. The software calibration identification number shall be provided in a standardised format."

Paragraphs 6.5.3.1. to 6.5.3.6., amend to read:

"6.5.3.1. One of the following standards with the restrictions as described shall be used as the on-board to off-board communications link:

ISO 9141-2 'Road Vehicles - Diagnostic Systems - CARB Requirements for the Interchange of Digital Information';

ISO FDIS 11519-4 'Road Vehicles - Low Speed Serial Data Communication - Part 4: Class B Data Communication Interface (SAE J1850)'. Emission-related messages shall use the cyclic redundancy check and the three-byte header and not use inter-byte separation or checksums.

ISO FDIS 14230 - Part 4 'Road Vehicles?- Diagnostic Systems - Keyword Protocol 2000'.

ISO WD 15765-4 ‘Road vehicles – Diagnostic systems Diagnostics on CAN – Part 4: Requirements for emission related systems.’

6.5.3.2. Test equipment and diagnostic tools needed to communicate with OBD systems shall meet or exceed the functional specification given in ISO DIS 15031-4, dated June 1998 (SAE J1978, dated February 1998).

6.5.3.3. Basic diagnostic data, (as specified in paragraph 6.5.1.) and bi-directional control information shall be provided using the format and units described in ISO DIS 15031-5, dated October 1998 (SAE J1979, dated September 1997) and shall be available using a diagnostic tool meeting the requirements of ISO DIS 15031-4, dated June 1998 (SAE J1978, dated February 1998).

6.5.3.4. When a fault is registered, the manufacturer shall identify the fault using the most appropriate fault code consistent with those given in paragraph 6.3 of ISO DIS 15031-6, dated October 1998 (SAE J2012, dated July 1996), relating to "Power-train system diagnostic trouble codes" (P0 fault codes). If such identification is not possible the manufacturer may use diagnostic trouble codes according to paragraphs 5.3 and 5.6 of ISO DIS 15031-6, dated October 1998 (SAE J2012, dated July 1996) (P1 fault codes). The fault codes shall be fully accessible by standardised diagnostic equipment complying with the provisions of paragraph 6.5.3.2.

The note in paragraph 6.3 of ISO DIS 15031-6 (SAE J2012, dated July 1996) immediately preceding the list of fault codes in the same paragraph does not apply.

6.5.3.5. The connection interface between the vehicle and the diagnostic tester shall be standardised and shall meet all the requirements of ISO DIS 15031-3, dated December 1998 (SAE J1962, dated February 1998). The installation position shall be subject to agreement of the approval authority such that it is readily accessible by service personnel but protected from accidental damage during normal conditions of use.

6.5.3.6.1. The manufacturer shall also make accessible, where appropriate on payment, the technical information required for the repair or maintenance of motor vehicles unless that information is covered by an intellectual property right or constitutes essential, secret know-how which is identified in an appropriate form; in such case, the necessary technical information shall not be withheld improperly.

Entitled to such information is any person engaged in commercially servicing or repairing, road-side rescuing, inspecting or testing of vehicles or in the manufacturing or selling replacement or retro-fit components, diagnostic tools and test equipment."

_____