



**Economic and Social
Council**

Distr.
GENERAL

ECE/TRANS/WP.29/2007/26/Corr.1
20 June 2007

ENGLISH ONLY

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations

One-hundred-and-forty-second session
Geneva, 26-29 June 2007
Item 4.2.4. of the provisional agenda

1958 AGREEMENT

Consideration of draft amendments to existing Regulations

Proposal for the 05 series of amendments to Regulation No. 49
(Emissions of C.I. and P.I. (NG and LPG) engines)

Submitted by the Working Party on Pollution and Energy

Corrigendum

Throughout the Regulation and its annexes, amend "Regulation No. 24, 02 series of amendments" to read "Regulation No. 24, 03 series of amendments".

Page 5, paragraphs 1.1. and 1.2., correct to read:

- "1.1. This Regulation applies to vehicles of categories M and N 1/ and their engines, as shown in table A, with regard to the tests foreseen for these engines in table B. **It also applies to the installation of these engines on vehicles.**

Table A: APPLICABILITY

Vehicle category <u>1/</u>	Maximum mass	Positive-ignition engines			Compression-ignition engines	
		Petrol	NG ^(a)	LPG ^(b)	Diesel	Ethanol
M ₁	≤ 3.5 t	-	-	-	-	-
	> 3.5 t	-	R49	R49	R49	R49
M ₂	-	-	R49	R49	R49 or R83 ^{(c)(d)}	R49
M ₃	-	-	R49	R49	R49	R49
N ₁	-	-	R49 or R83 ^(d)	R49 or R83 ^(d)	R49 or R83 ^(d)	R49
N ₂	-	-	R49	R49	R49 or R83 ^{(c)(d)}	R49
N ₃	-	-	R49	R49	R49	R49

^(a) Natural Gas.

^(b) Liquefied Petroleum Gas.

^(c) Regulation No. 83 applies only for vehicles with a reference mass ≤ 2,840 kg as an extension of an approval given for a vehicle of categories M₁ or N₁. 1/

^(d) "R49 or R83" means that manufacturers can obtain type approval according to this Regulation or to Regulation No. 83, see paragraph 1.2.

Table B: REQUIREMENTS

	Positive-ignition engines			Compression-ignition engines	
	Petrol	NG	LPG	Diesel	Ethanol
Gaseous pollutants	-	Yes	Yes	Yes	Yes
Particulates	-	Yes ^(a)	Yes ^(a)	Yes	Yes
Smoke	-	-	-	Yes	Yes
Durability	-	Yes	Yes	Yes	Yes
In-service-conformity	-	Yes	Yes	Yes	Yes
OBD	-	Yes ^(b)	Yes ^(b)	Yes	Yes

^(a) **Only applicable to stage C in Table 2 of paragraph 5.2.1.**

^(b) **Application dates according to paragraph 5.4.2.**

1.2. Equivalent approvals

The following do not need to be approved according to this Regulation, if they are part of a vehicle approved according to Regulation No. 83:

- (a) compression-ignition engines to be mounted in vehicles of categories N₁, N₂ and M₂ 1/ fuelled with diesel;
- (b) positive-ignition engines fuelled with natural gas (NG) or liquefied petroleum gas (LPG) to be mounted in vehicles of category N₁. 1/

- (c) **vehicles of categories N₁, N₂ and M₂ 1/ fitted with compression - ignition engines fuelled with diesel and vehicles of category N₁ 1/ fitted with positive-ignition engines fuelled with natural gas (NG) or liquefied petroleum gas (LPG).**"

Page 6, paragraph 2., correct to read:

"2.1. For the purposes of this Regulation, the following definitions shall apply:

"approval of an engine (engine family)" means the approval of an engine type (engine family) with regard to the level of the emission of gaseous and particulate pollutants, **smoke and the on-board diagnostic (OBD) system;**

"**approval of a vehicle**" means the approval of vehicle type with regard to the level of the emission of gaseous and particulate pollutants and smoke by its engine as well as the on-board diagnostic (OBD) system and the engine installation on the vehicle;

"**rated speed**" means the maximum full load engine speed allowed by the governor, or, if such a governor is not present, the speed at which the maximum power is obtained from the engine, as specified by the manufacturer in paragraph 2. of Appendix 2 to Annex 1.

"**vehicle type**" means a category of power driven vehicles which do not differ in such essential respects as the vehicle and engine characteristics as specified in Annex 1 of this Regulation.

"auxiliary emission control strategy (AECS)" means"

Page 16, paragraph 3.1.1., correct to read:

"3.1.1. The application for approval of an engine type or engine family with regard to the **requirements listed in table B, paragraph 1.1.** shall be submitted by the engine manufacturer or by a duly accredited representative.

Should the application concern an engine equipped with an on-board diagnostic (OBD) system, the requirements of paragraph 3.4. shall be fulfilled."

Page 16, paragraph 3.2.1., correct to read:

"3.2.1. The application for approval of a vehicle type with regard to **the requirements for its engine, or engine family, listed in table B of paragraph 1.1. and the installation of the engine on the vehicle** shall be submitted by the vehicle manufacturer or by a duly accredited representative.

Should the application concern an engine equipped with an on-board diagnostic (OBD) system, the requirements of paragraph 3.4. shall be fulfilled."

Page 17, insert a new paragraph 3.2.4., to read:

"3.2.4. A vehicle conforming to the "vehicle type" characteristics defined in Annex 1 shall be submitted to the technical service responsible for conducting the approval tests defined in paragraphs 5 and 6."

Page 17, paragraph 3.3.1., correct to read:

"3.3.1. The application for approval of a vehicle **type with regard to the installation of an approved engine on the vehicle** shall be submitted by the vehicle manufacturer or by a duly accredited representative."

Page 17, insert a new paragraph 3.3.4., to read:

"3.3.4. A vehicle conforming to the "vehicle type" characteristics defined in Annex 1 shall be submitted to the technical service responsible for conducting the approval tests defined in paragraph 6."

Page 17, paragraph 3.4.1., correct to read:

"3.4.1. The application for approval **of a vehicle or** an engine (engine family) equipped with an on-board diagnostic (OBD) system shall be accompanied by the information required in paragraph 9. of Appendix 1 to Annex 1 (description of the (parent) engine) and/or paragraph 6. of Appendix 3 to Annex 1 (description of an engine type within the family) together with:"

Page 32, paragraph 5.2.1., correct to read:

"5.2.1. Limit Values

The specific mass of the carbon monoxide, of the total hydrocarbons, of the oxides of nitrogen and of the particulates as determined on the ESC test and of the smoke opacity, as determined on the ELR test, shall not exceed the amounts shown in table 1.

The specific mass of the carbon monoxide, of the non-methane hydrocarbons, of the methane, of the oxides of nitrogen and of the particulates as determined on the ETC test shall not exceed the amounts shown in table 2.

....."

Page 33, paragraph 5.3.1.1., correct to read:

"5.3.1.1. 100,000 km or five years, whichever is the sooner, in the case of engines to be fitted to vehicles of category N₁, **M₁ > 3.5 tons** and M₂;"

Page 37, paragraph 5.5.3.2., correct "in table 1" to read "in the **tables**".

Page 41, paragraph 5.5.7.3., correct the reference "in paragraph 14.2.3." to read "in paragraphs **13.2.3.** and **13.3.3.**".

Page 44, paragraph 6.1.3., correct to read:

"6.1.3. power absorbed by the **engine-driven equipment** shall not exceed that specified for the approved engine in Annex 2A."

Page 44, insert a new paragraph 6.1.4., to read:

"**6.1.4. volume of the exhaust system shall not differ by more than 40 per cent of that specified for the approved engine in Annex 2A.**"

Pages 44 and 45, paragraphs 7.1.1. to 7.1.12., should be deleted.

Page 81, Annex 1 - Appendix 4, item 4., correct to read:

"4. Power absorbed by the **engine-driven equipment** as specified in and under the operation conditions of Regulation No. 24, 03 series of amendments, Annex 10, paragraph **5.1. 1/**.

Equipment	Power absorbed (kW) at various engine speeds						
	Idle	Low Speed	High Speed	Speed A ^(a)	Speed B ^(a)	Speed C ^(a)	Ref. Speed ^(b)
Engine-driven equipment (See paragraph 5.1. of Regulation No. 24/03, Annex 10).							

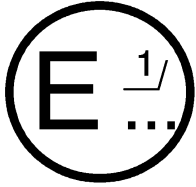
^(a) ESC test.

^(b) ETC test only.

1/ Data shall be specified for each member of family."

Page 84, Annex 2A, correct to read :

"Annex 2A



COMMUNICATION
 (maximum format: A4 (210 x 297 mm))

issued by: Name of administration:

concerning: 2/ APPROVAL GRANTED
 APPROVAL EXTENDED
 APPROVAL REFUSED
 APPROVAL WITHDRAWN
 PRODUCTION DEFINITELY DISCONTINUED

of a compression-ignition (C.I.) engine type **or family** (Diesel or Ethanol), or a positive-ignition (P.I.) engine type **or family** (NG or LPG), 2/ as a separate technical unit with regard to the emission of pollutants pursuant to Regulation No. 49, 05 series of amendments

Approval No. Extension No.

1. Trade name or mark of the engine:
2. Engine type / Engine family:
- 2.1 Manufacturer's code as marked on the engine 3/:
3. Combustion type: compression-ignition/positive-ignition 2/
- 3.1. Type of fuel:.....
4. Manufacturer's name and address:.....
5. If applicable, name and address of manufacturer's representative:

6. Maximum allowable intake depression 3/: kPa
7. Maximum allowable back-pressure 3/: kPa
8. Maximum permissible power absorbed by the engine-driven equipment 3/:
 Idle: kW; Low Speed: kW; High Speed: kW
 Speed A: kW; Speed B: kW; Speed C: kW;
 Reference Speed: kW
- 9. Volume of exhaust system: cm³**
10. Restrictions of use (if any):.....
11. Emission levels of the engine/parent engine 2/
- 11.1. Emission stage (according to table in paragraph 4.6.3.)
- 11.2. ESC test (if applicable):
 Deterioration factor (DF): calculated/fixed 2/

Specify the DF values and the emissions on the ESC test in the table below:

ESC test				
DF:	CO	THC	NOx	PT
Emissions	CO (g/kWh)	THC (g/kWh)	NOx (g/kWh)	PT (g/kWh)
Measured:				
Calculated with DF:				

11.3. ELR test (if applicable):
smoke value: m⁻¹

11.4. ETC test:
Deterioration factor (DF): calculated/fixed 2/

ETC test					
DF:	CO	NMHC	CH ₄	NOx	PT
Emissions	CO (g/kWh)	NMHC (g/kWh) <u>2</u> /	CH ₄ (g/kWh) <u>2</u> /	NOx (g/kWh)	PT (g/kWh) <u>2</u> /
Measured with regeneration:					
Measured without regeneration:					
Measured/weighted:					
Calculated with DF:					

12. Engine submitted for tests on:
13. Technical service responsible for conducting the approval tests:
14. Date of test report issued by that service:
15. Number of the test report issued by that service:
16. Site of approval mark on the engine:
17. **Reasons for extension:**
18. Place:
19. Date:
20. Signature:
21. The following documents, bearing the approval number shown above, are annexed to this communication:
One copy of Annex 1 to this Regulation completed and with the drawings and diagrams referred to attached.

1/ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

2/ Strike out what does not apply.

3/ **For each member of the family."**

Page 88, Annex 2B, correct to read:

"Annex 2B

COMMUNICATION
(maximum format: A4 (210 x 297 mm))



issued by: Name of administration:
.....
.....
.....

concerning: 2/ APPROVAL GRANTED
 APPROVAL EXTENDED
 APPROVAL REFUSED
 APPROVAL WITHDRAWN
 PRODUCTION DEFINITELY DISCONTINUED

of a vehicle type with regard to the emission of pollutants by the engine pursuant to Regulation No. 49

Approval No. Extension No.

1. Trade name or mark of the engine:.....
- 1.1. Make and type of the engine:
- 1.2. Manufacturer's code as marked on the engine:.....

2. Vehicle make and type:
3. Vehicle manufacturer's name and address:.....
4. If applicable, name and address of vehicle manufacturer's representative:.....
.....
5. Maximum allowable intake depression: kPa
6. Maximum allowable back-pressure: kPa
7. Maximum permissible power absorbed by the engine-driven equipment:
Idle: kW; Low Speed: kW; High Speed: kW
Speed A: kW; Speed B: kW; Speed C: kW;
Reference Speed: kW

8. **Volume of the exhaust system:** **cm³**

9. Emission levels of the engine/parent engine
- 9.1. Emission stage (according to table in paragraph 4.6.3.)
- 9.2. ESC test (if applicable):

Deterioration factor (DF): calculated/fixed 2/

Specify the DF values and the emissions on the ESC test in the table below:

ESC test				
DF:	CO	THC	NOx	PT
Emissions	CO (g/kWh)	THC (g/kWh)	NOx (g/kWh)	PT (g/kWh)
Measured:				
Calculated with DF:				

9.3. ELR test (if applicable):
smoke value: m⁻¹

9.4. ETC test:
Deterioration factor (DF): calculated/fixed 2/

ETC test					
DF:	CO	NMHC	CH ₄	NOx	PT
Emissions	CO (g/kWh)	NMHC (g/kWh) <u>2/</u>	CH ₄ (g/kWh) <u>2/</u>	NOx (g/kWh)	PT (g/kWh) <u>2/</u>
Measured with regeneration:					
Measured without regeneration:					
Measured/weighted:					
Calculated with DF:					

10. Engine submitted for tests on:
11. Technical service responsible for conducting the approval tests:
12. Date of test report issued by that service:
13. Number of test report issued by that service:
14. Approval number of the engine/engine family, if approved as a separate technical unit:
15. Site of approval mark on the vehicle/engine 2/:
16. **Reasons for extension:**
17. Place:
18. Date:
19. Signature:

1/ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

2/ Strike out what does not apply."
