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Global Registry

Created on 18 November 2004, pursuant to Article 6 of the Agreement Concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts Which can be Fitted and/or be Used on Wheeled Vehicles (ECE/TRANS/132 and Corr.1) done at Geneva on 25 June 1998

Addendum 4: Global technical regulation No. 4

Test procedure for compression-ignition (C.I.) engines and positive-ignition (P.I.) engines fuelled with natural gas (NG) or liquefied petroleum gas (LPG) with regard to the emission of pollutants

Amendment 1 - Corrigendum 2

Established in the Global Registry on 15 November 2012



UNITED NATIONS

Paragraph 9.3.2.7., correct to read:

"9.3.2.7. Air to fuel measurement

The air to fuel measurement equipment used to determine the exhaust gas flow as specified in paragraph 8.4.1.6. shall be a wide range air to fuel ratio sensor or lambda sensor of Zirconia type. The sensor shall be mounted directly on the exhaust pipe where the exhaust gas temperature is high enough to eliminate water condensation.

..."

Paragraph 9.3.8., correct to read:

"9.3.8. Efficiency of the non-methane cutter (NMC)

The NMC is used for the removal of the non-methane hydrocarbons from the sample gas by oxidizing all hydrocarbons except methane. Ideally, the conversion for methane is 0 per cent, and for the other hydrocarbons represented by ethane is 100 per cent. For the accurate measurement of NMHC, the two efficiencies shall be determined and used for the calculation of the NMHC emission mass flow rate (see para. 8.6.2.)."

Paragraph 9.4.6.1., correct to read:

"9.4.6.1. System response time

For the control of a partial flow dilution system, a fast system response is required. The transformation time for the system shall be determined by the procedure in paragraph 9.4.6.6. If the combined transformation time of the exhaust flow measurement (see para. 8.4.1.2.) and the partial flow system is ≤ 0.3 s, online control shall be used. If the transformation time exceeds 0.3 s, look ahead control based on a pre-recorded test run shall be used. In this case, the combined rise time shall be ≤ 1 s and the combined delay time ≤ 10 s.

..."

Paragraph 9.5.5., correct to read:

"9.5.5. Total system verification

The total accuracy of the CVS sampling system and analytical system shall be determined by introducing a known mass of a pollutant gas into the system while it is being operated in the normal manner. The pollutant is analyzed, and the mass calculated according to paragraph 8.5.2.3. except in the case of propane where a u factor of 0.000472 is used in place of 0.000480 for HC. Either of the following two techniques shall be used."

Annex 6, paragraph A.6.3., correct to read:

"A.6.3. Gaseous emissions (diesel fuel)

...

Step 3: Calculation of the instantaneous emission of each individual point of the cycle (paragraph 8.4.2.3.).

...

Step 4: Calculation of the mass emission over the cycle by integration of the instantaneous emission values and the u values from table 5 (para. 8.4.2.3.).

..."