

27 April 2018

Agreement

Concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations*

(Revision 3, including the amendments which entered into force on 14 September 2017)

Addendum 142– UN Regulation No. 143

Amendment 1

Supplement 1 to the original version of the Regulation – Date of entry into force: 10 February 2018

Uniform provisions concerning the approval of Heavy Duty Dual-Fuel Engine Retrofit Systems (HDDF-ERS) to be installed on heavy duty diesel engines and vehicles

This document is meant purely as documentation tool. The authentic and legal binding texts is: ECE/TRANS/WP.29/2017/66.



UNITED NATIONS

* Former titles of the Agreement:
Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958 (original version);
Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, done at Geneva on 5 October 1995 (Revision 2).

Annex 6,

Paragraph 10.1., amend to read:

"10.1. Tests and requirements

An engine representative of the desired extension of the application range shall be tested in accordance with the provisions set out in paragraph 5.2.2. or 10.1.1. at the choice of the dual-fuel engine retrofit system manufacturer. Engine tests in accordance with paragraph 5.2.2. are always required for the extension of an application range with an engine family equipped with EGR.

The tests in accordance with paragraph 10.1.1. shall be carried out on a representative engine equipped with a member of the dual-fuel engine retrofit system family.

The same tests shall be performed in diesel mode and in dual-fuel mode in such a way that the operating points and conditions are as similar as possible.

The NO_x, Non-Methane Hydrocarbons (NMHC), CO and PM emission test results in dual-fuel mode shall be lower than or equal to the results in diesel mode.

Alternatively, at the request of the engine retrofit system manufacturer, the following provisions apply:

- (a) As for Non-Methane Hydrocarbons (NMHC) and CO emissions only, the CO₂ specific emission results of the test in accordance with paragraph 10.1.1.1. in dual-fuel mode shall not exceed the applicable UN Regulation No. 49 original emission limits transposed into CO₂ specific emission limits with the following equation:

$$\text{CO}_2 \text{ specific emission limit} = 1.6 \times 1.5 \times \text{brake specific emission limit}$$

Where:

CO₂ specific emission limit is the equivalent limit expressed in [g/kgCO₂]

1.6 is the conversion factor from brake specific to CO₂ specific emissions

1.5 is the Conformity Factor

brake specific emission limit is the applicable Regulation No. 49 original emission limit expressed in [g/kWh]

- (b) The NO_x and PM emission test results in dual-fuel mode shall be lower than or equal to the results in diesel mode."