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DRAFT REVISION 1 OF RULE No. 1 ANNEXED TO THE 1997 AGREEMENT

(Periodical technical inspections of wheeled vehicles with regard
to the protection of the environment)

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

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RULE No. 1

Revision 1

UNIFORM PROVISIONS FOR PERIODICAL TECHNICAL INSPECTIONS OF WHEELED
VEHICLES WITH REGARD TO THE PROTECTION OF THE ENVIRONMENT

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ANNEX - Minimum inspection requirements

1. SCOPE

- 1.1. For the purpose of Article 1 of the Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of such Inspections, the items to be inspected are related to road safety and environmental requirements;
- 1.2. Wheeled vehicles used in international transport shall satisfy the requirements set out below;
- 1.3. Contracting Parties may decide to extend the requirement of paragraph 1.2. above also to vehicles used in domestic transport.

2. DEFINITIONS

For the purpose of this Rule,

- 2.1. "Agreement" means the 1997 Vienna Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of such Inspections;
- 2.2. "International Technical Inspection Certificate" means a certificate about the periodical technical inspections of wheeled vehicles in compliance with the provisions of Article 1 and Appendix 2 of the Agreement;
- 2.3. "Periodical Technical Inspection" means a periodical uniform procedure by which the authorized technical Inspection Centres responsible for conducting the inspection tests verify that the wheeled vehicle submitted complies with at least the requirements of this Rule;
- 2.4. "Wheeled vehicle" means motor vehicles of categories M2, M3, N2 and N3, as specified in Consolidated Resolution R.E.3. (TRANS/WP.29/78/Rev.1/Amend.2), used in international transport whose permissible maximum mass exceeds 3,500 kg, except those used for the carriage of passengers and having not more than eight seats in addition to the driver's seat;
- 2.5. "Verification" means the proof of compliance with the requirements set out in the annex to this Rule through tests and checks carried out using techniques and equipment currently available, and without dismantling or removing any part of the vehicle;
- 2.6. "1958 Geneva Agreement" means the Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be fitted and/or used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals granted on the basis of these Prescriptions, done at Geneva on 20 March 1958 and amended as of 16 October 1995;
- 2.7. "UNECE Regulation" means a Regulation annexed to the 1958 Geneva Agreement.

3. PERIODICITY OF TECHNICAL INSPECTIONS

Vehicle Categories	Inspection Intervals
Passenger-carrying motor vehicles: M2 above 3,500 kg and M3	One year after the first registration and annually thereafter
Goods vehicles: N2 and N3	

4. TECHNICAL INSPECTION

Vehicles to which these provisions apply must undergo a periodic technical inspection in accordance with the annex hereafter.

Following verification, the compliance with at least the provisions of this annex shall be confirmed by the International Technical Inspection Certificate.

5. INSPECTION REQUIREMENTS

The inspection shall cover:

- 5.1. the identification of the vehicle;
- 5.2. exhaust emissions;
- 5.3. noise emissions;
- 5.4. other safety and environment related items listed in paragraph 5. of the annex hereafter.

6. NAMES AND ADDRESSES

The Contracting Parties to the Agreement applying this Rule shall communicate to the United Nations Secretariat basic information on administrative authorities responsible for supervising the inspection tests.

Annex

MINIMUM INSPECTION REQUIREMENTS

1. SCOPE

The inspection shall cover at least the items listed below.

2. IDENTIFICATION OF THE VEHICLE

Items to be checked/tested:
Registration plate
Chassis number

3. ENVIRONMENTAL NUISANCES

3.1. EXHAUST EMISSIONS

3.1.1. Vehicles with positive-ignition engines3.1.1.1. Vehicles with positive-ignition engines and fuelled by petrol, exhaust system

3.1.1.1.1. Where the exhaust emissions are not controlled by an advanced emission control system such as a three-way catalytic converter that is lambda-probe controlled:

3.1.1.1.1.1. Visual inspection of the exhaust system in order to check that it is complete and in a satisfactory condition and that there are no leaks.

3.1.1.1.1.2. Visual inspection of any emission control equipment fitted by the manufacturer in order to check that it is complete and in a satisfactory condition and that there are no leaks.

3.1.1.1.2. Where the exhaust emissions are controlled by an advanced emission control system such as a three-way catalytic converter that is lambda-probe controlled:

3.1.1.1.2.1. Visual inspection of the exhaust system in order to check that it is complete and in a satisfactory condition and that there are no leaks.

3.1.1.1.2.2. Visual inspection of any emission control equipment fitted by the manufacturer in order to check that it is complete and in a satisfactory condition and that there are no leaks.

3.1.1.2. Vehicles with positive-ignition engines and fuelled by petrol, no advanced control, CO content

Where the exhaust emissions are not controlled by an advanced emission control system such as a three-way catalytic converter that is lambda-probe controlled:

After a reasonable period of engine conditioning (taking account of manufacturer's recommendations) the carbon monoxide (CO) content of the exhaust gases is measured when the engine is idling (no load).

The maximum permissible CO content in the exhaust gases is that stated by the vehicle manufacturer. Where this information is not available or where the Contracting Parties' competent authorities decide not to use it as a reference value, the CO content must not exceed the following:

- (a) for vehicles registered or put into service for the first time before 1 October 1986: — 4.5 per cent vol.;
- (b) for vehicles registered or put into service for the first time after 1 October 1986: — 3.5 per cent vol.

3.1.1.3. Vehicles with positive-ignition engines and fuelled by petrol with advanced control, CO content

Where the exhaust emissions are controlled by an advanced emission control system such as a three-way catalytic converter that is lambda-probe controlled:

3.1.1.3.1. Determination of the efficiency of the vehicle's emission control system by measuring the lambda value and the CO content of the exhaust gases in accordance with paragraph 4. or with the procedures proposed by the manufacturers and approved at the time of type-approval. For each of the tests the engine is conditioned in accordance with the vehicle manufacturer's recommendations.

3.1.1.3.2. Exhaust pipe emissions — limit values

The maximum permissible CO content in the exhaust gases is that stated by the vehicle manufacturer. Where this information is not available the CO content must not exceed the following:

- (a) Measurement at engine idling speed:
The maximum permissible CO content in the exhaust gases must not exceed 0.5 per cent vol. and for vehicles that conform to the limit values shown in Row A or Row B of the table in paragraph 5.3.1.4. of Regulation No. 83, Revision 2 or later amendments the maximum CO content must not exceed 0.3 per cent vol. Where identification to Regulation No. 83, Revision 2 is not possible then the above shall apply to vehicles registered or first put into service after 1 July 2002.

- (b) Measurement at high idle speed (no load), engine speed to be at least $2,000 \text{ min}^{-1}$:
CO content: maximum 0.3 per cent vol. and for vehicles that conform to the limit values shown in Row A or Row B of the table in paragraph 5.3.1.4. of Regulation No. 83, Revision 2 or later amendments the maximum CO content must not exceed 0.2 per cent vol. Where identification to Regulation No. 83, Revision 2 is not possible then the above shall apply to vehicles registered or first put into service after 1 July 2002.
Lambda: 1 ± 0.03 or in accordance with the manufacturer's specifications.
- (c) For motor vehicles equipped with on-board diagnostic systems (OBD) in accordance with Regulation No. 83, Revision 2 and subsequent amendments Contracting Parties may, as an alternative to the test specified in sub-paragraph (i) above, establish the correct functioning of the emission system through the appropriate reading of the OBD device and simultaneous checking of the proper functioning of the OBD system.

3.1.2. Vehicles with compression ignition engines

3.1.2.1. Vehicles with compression ignition engines, exhaust system

Visual inspection of any emission control equipment fitted by the manufacturer in order to check that it is complete and in a satisfactory condition and that there are no leaks.

3.1.2.2. Vehicles with compression ignition engines, smoke

3.1.2.2.1. Exhaust gas opacity to be measured during free acceleration (no load from idle up to cut-off speed) with gear lever in neutral and clutch engaged.

3.1.2.2.2. Vehicle preconditioning:

3.1.2.2.2.1. Vehicles may be tested without preconditioning although for safety reasons checks should be made that the engine is warm and in a satisfactory mechanical condition.

3.1.2.2.2.2. Except as specified in paragraph 3.1.2.2.4.5., no vehicle will be failed unless it has been preconditioned according to the following requirements.

- (a) Engine shall be fully warm, for instance the engine oil temperature measured by a probe in the oil level dipstick tube to be at least $80 \text{ }^\circ\text{C}$, or normal operating temperature if lower, or the engine block temperature measured by the level of infrared radiation to be at least an equivalent temperature. If, owing to vehicle configuration, this measurement is impractical, the establishment of the engine's normal operating temperature may be made by other means, for example by the operation of the engine-cooling fan.

- (b) Exhaust system shall be purged by at least three free acceleration cycles or by an equivalent method.

3.1.2.2.3. Test procedure:

3.1.2.2.3.1. Engine, and any turbo-charged fitted, to be at idle before the start of each free acceleration cycle. For heavy-duty diesels, this means waiting for at least 10 seconds after the release of the throttle.

3.1.2.2.3.2. To initiate each free acceleration cycle, the throttle pedal must be fully depressed quickly and continuously (in less than one second) but not violently, so as to obtain maximum delivery from the injection pump.

3.1.2.2.3.3. During each free acceleration cycle, the engine shall reach cut-off speed or, for vehicles with automatic transmissions, the speed specified by the manufacturer or if this data is not available then two thirds of the cut off speed, before the throttle is released. This could be checked, for instance by monitoring engine speed or by allowing a sufficient time to elapse between initial throttle depression and release, which in the case of vehicles categories M2, M3, N2 and N3, should be at least two seconds.

3.1.2.2.4. Limit values

3.1.2.2.4.1. The level of concentration must not exceed the level recorded on the plate pursuant to Regulation No. 24, Revision 2.

3.1.2.2.4.2. Where this information is not available or where Contracting Parties' competent authorities decide not to use it as a reference, the level of concentration must not exceed the level stated by the manufacturer or the limit values of the coefficient of absorption that are as follows:

Maximum coefficient of absorption for:

- (a) naturally aspirated diesel engines = 2.5 m^{-1} ;
- (b) turbo-charged diesel engines = 3.0 m^{-1} ;
- (c) a limit of 1.5 m^{-1} shall apply to the following vehicles that conform to the limit values shown in:
 - (i) Row B of the table in paragraph 5.3.1.4. of Regulation No. 83, Revision 2 - (Light Duty Vehicle Diesel - Euro 4);
 - (ii) Row B1 of the tables in paragraph 5.2.1. of Regulation No. 49, Revision 3, Amendment 1 - (Heavy Duty Vehicle Diesel - Euro 4);
 - (iii) Row B2 of the tables in paragraph 5.2.1. of Regulation No. 49, Revision 3, Amendment 1 - (Heavy Duty Vehicle Diesel - Euro 5);

(iv) Row C of the tables in paragraph 5.2.1. of Regulation No. 49, Revision 3, Amendment 1- (Heavy Duty Vehicle - EEV);

or limit values in later amendments of Regulation No. 83, or limit values in later amendments of Regulation No. 49.

Where identification to paragraph 5.3.1.4. of Regulation No. 83, Revision 2 or to paragraph 5.2.1. of Regulation No. 49, Revision 3, Amendment 1 is not possible, then the above shall apply to vehicles registered or first put into service after 1 July 2008.

3.1.2.2.4.3. Vehicles registered or put into service for the first time before 1 January 1980 are exempted from these requirements.

3.1.2.2.4.4. Vehicles shall only be failed if the arithmetic means of at least the last three free acceleration cycles are in excess of the limit value. This may be calculated by ignoring any measurements that depart significantly from the measured mean, or the result of any other statistical calculation that takes account of the scattering of the measurements. Contracting Parties may limit the maximum number of test cycles.

3.1.2.2.4.5. To avoid unnecessary testing, Contracting Parties may, by way of exception from the provisions of paragraph 3.1.2.2.4.4., fail vehicles which have measured values significantly in excess of the limit values after less than three free acceleration cycles or after the purging cycles (or equivalent) specified in sub-paragraph 3.1.2.2.2.(b). Equally to avoid unnecessary testing, Contracting Parties may, by way of exception from the provisions of 3.1.2.2.4.4., pass vehicles which have measured values significantly below the limit values after less than three free acceleration cycles or after the purging cycles (or equivalent) specified in sub-paragraph 3.1.2.2.2.(b).

3.2. TEST EQUIPMENT

Vehicle emissions are tested using equipment designed to establish accurately whether the limit values prescribed or indicated by the manufacturer have been complied with.

4. NOISE EMISSIONS

ITEMS	PRINCIPAL REASONS FOR REJECTION
Noise suppression system	- missing (partially or completely) or seriously defective

5. OTHER SAFETY AND ENVIRONMENT-RELATED ITEMS

ITEMS	PRINCIPAL REASONS FOR REJECTION
Hydraulic braking system	- leaking
