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World Forum for Harmonization of Vehicle Regulations

Resolution R.E.6 on the administrative and technical provisions required for carrying out the technical inspections according to the technical prescriptions specified in Rules annexed to the 1997 Agreement*

Revision 1

This revised consolidated version of the Resolution on the administrative and technical provisions required for carrying out the technical inspections according to the technical prescriptions specified in Rules annexed to the 1997 Agreement (R.E.6) replaces ECE/TRANS/WP.29/1132 contains the amendments adopted by the World Forum for Harmonization of Vehicle Regulations (WP.29) at its 181st session (ECE/TRANS/WP.29/2019/120 and WP.29-182-13).

* Agreement concerning the adoption of uniform conditions for periodic technical inspection of wheeled vehicles and the reciprocal recognition of such inspections done in Vienna on 13 November 1997.



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Preamble

The Administrative Committee of the 1997 Agreement (AC.4),

Desiring to define uniform conditions on Periodical Technical Inspections of wheeled vehicles that ensures a high level of safety and protection of the environment,

Bearing in mind that the 1997 Agreement established on 13 November 1997 provides for the adoption of uniform conditions for periodical technical inspections of wheeled vehicles and the conditions for reciprocal recognition by Contracting Parties of the International Technical Inspection Certificates granted on the basis of these inspections,

Bearing in mind that the assessment of compliance with the technical prescriptions of Rules annexed to the 1997 Agreement requires the use of administrative and technical arrangements,

Bearing in mind that the inspections may take place in any of the territories of the Contracting Parties and at a variety of technical centres within those territories,

Bearing in mind that to facilitate the application of the Agreement, AC.4 has decided that the administrative and technical provisions, necessary for technical inspections should be comprehensively defined in terms of their essential characteristics and performance in a Resolution,

Bearing in mind that this Resolution does not hold regulatory status within Contracting Parties,

Recommends that Contracting Parties refer to this Resolution when establishing the suitability of their technical inspection regime when used for the assessment of compliance with the prescriptions of Rules in the framework of the 1997 Agreement.

I. Statement of technical rationale and justification

1. Harmonization of technical prescriptions of Contracting Parties with respect to roadworthiness of wheeled vehicles is the declared objective of the 1997 Agreements. An essential element of this objective is the confidence that the assessment of compliance is robust and not subject to variation depending upon the administrative and technical arrangements used in the assessment process.

2. At its seventy-seven session, the Inland Transport Committee (ECE/TRANS/248, para. 61) welcomed the discussions on the importance of periodic technical inspections and the 1997 Agreement for the sake of road safety and environmental protection, and requested the World Forum for Harmonization of Vehicle Regulations (WP.29) to consider the introduction of harmonized rules on testing equipment, on skills, training and certification of inspectors, as well as on supervision benefiting from recent achievements.

3. At its 165th session, WP.29 agreed to establish an informal working group on periodical technical inspections (IWG on PTI) to provide for a proper preparation of the proposals on development of the 1997 Vienna agreement provisions and alignment it with national legislations of the Contracting Parties.

4. At the 168th session of WP.29, the Co-Chairs of IWG on PTI, through informal document WP.29-168-05, presented proposals for development of the 1997 Agreement. WP.29 supported the approach, proposed by the IWG on PTI, when general obligations and responsibilities of the Contracting Parties necessary to arrange PTI shall be put into the 1997 Vienna Agreement text and the detailed recommendations for ensuring the objectivity and the high quality of the technical inspections, undertaken in accordance with the recommended methods specified in the Rules, will be prescribed by the Resolution.

5. WP.29 affirmed the approach at its 169th session and adopted the Resolution at its 171st session.

6. This Resolution is written to define the administrative and technical provisions for PTI regime and their preparation for use in a regulatory context.

7. The construction of this Resolution is designed to permit the addition of discrete addenda for each and any administrative and technical arrangements, as appropriate to the Agreement. Further elements may be included according to the nature of the specific provisions.

8. Additions to or amendments of the individual addenda are subject to the agreement of AC.4 as appropriate to the needs of the Agreement.

II. Resolution R.E.6 on the administrative and technical provisions required for carrying out the technical inspections according to the technical prescriptions specified in Rules annexed to the 1997 Agreement

1. Scope

1.1. This Resolution establishes minimum requirements for a regime of Periodic Technical Inspections (PTI) of vehicles used on public roads. This Resolution details specific administrative and technical provisions for PTI.

2. General provisions

2.1. This Resolution contains those details associated with any administrative and technical provisions that are necessary to establish regime of PTI appropriate for use in determining the compliance of the roadworthiness of a wheeled vehicle, within the Rules. These details are those associated with the technical inspection facilities and test equipment, the competence, training and certification of inspectors, provisions and procedures concerning supervising bodies.

2.2. The technical prescriptions for each administrative and technical provision can be found in a discrete paragraph of this Resolution.

2.3. The regulatory prescriptions for the use of the provisions can be found in the Agreement or in the individual Rule for which the provision is specified.

3. Minimum requirements concerning technical inspection facilities and test equipment

3.1. Facilities and equipment

3.1.1. Technical inspections undertaken in accordance with the recommended methods specified in Rules shall be carried out by using appropriate facilities and equipment. This may include, where applicable, the use of mobile test units. The test equipment that is necessary will depend on the design and categories of vehicles to be tested. Facilities and equipment shall comply with the following minimum requirements:

3.1.2. A test facility with adequate space for the evaluation of vehicles which meets the necessary health and safety requirements;

3.1.3. A test lane of sufficient size for each test, a pit or lift and, for vehicles having a maximum mass exceeding 3.5 tonnes, a device to lift a vehicle on one of the axles, equipped with appropriate lighting and, where necessary, with aeration devices;

3.1.4. For testing any vehicle, a roller brake tester capable of measuring, displaying and recording the braking forces and the air pressure in air brake systems in accordance with Annex A to standard ISO 21069-1 on the technical requirements of roller brake tester or equivalent standards;

- 3.1.5. For testing vehicles having a maximum mass not exceeding 3.5 tonnes, a roller brake tester in accordance with item 3.1.4, which may not include the recording of braking forces, pedal force and the air pressure in air brake systems and their display;
- or
- A plate brake tester equivalent to the roller brake tester in accordance with item 3.1.4, which may not include the recording capability of the braking forces, pedal force and the display of air pressure in air brake systems;
- 3.1.6. A deceleration recording instrument, while non-continuous measurement instruments must record/store measurements at least 10 times per second;
- 3.1.7. Facilities for the testing of air brake systems, such as manometers, connectors and hoses;
- 3.1.8. A wheel/axle load measuring device to determine the axle loads (optional facilities for measuring two-wheel loads¹, such as wheel weight pads and axle weight pads);
- 3.1.9. A device for testing the wheel-axle suspension (wheel play detector) without lifting the axle, meeting the following requirements:
- (a) The device must be equipped with at least two power-operated plates that can be moved in opposite sense in both the longitudinal and the transversal directions;
 - (b) The movement of the plates must be controllable by the operator from the testing position;
 - (c) For vehicles having a maximum mass exceeding 3.5 tonnes, the plates shall comply with the following technical requirements:
 - (i) Longitudinal and transversal movement of at least 95 mm, and
 - (ii) Longitudinal and transversal movement speed 5 cm/s to 15 cm/s;
- 3.1.10. A Class II sound level meter, if sound level is measured;
- 3.1.11. A 4-gas analyser;
- 3.1.12. A device for measuring the absorption coefficient with sufficient accuracy;
- 3.1.13. One headlamp aiming device allowing the setting of the headlight to be tested in accordance with the provisions for the setting of headlights of motor vehicles; the light/dark boundary must be easily recognisable in daylight (without direct sunlight);
- 3.1.14. A device for measuring the tread depth of tyres;
- 3.1.15. A device to connect to the electronic vehicle interface, such as an OBD scan tool;
- 3.1.16. A device to detect LPG/CNG/LNG leakage, if such vehicles are tested.
- Any of the above devices may be combined in one composite device, provided that this does not affect the accuracy of each device.
- 3.2. Calibration of equipment used for measurements
- Unless specified otherwise by the relevant the Contracting Party legislation, the interval between two successive calibrations may not exceed:
- (a) 24 months for the measurement of weight, pressure and sound level;

¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.6, para. 2. - www.unece.org/transport/standards/transport/vehicle-regulations-wp29/resolutions

- (b) 24 months for the measurement of forces;
- (c) 12 months for the measurement of gaseous emissions.

4. Minimum requirements concerning the competence, training and certification of inspectors

4.1. Competence

Before authorising an applicant for a position as inspector to carry out periodic technical inspections, Contracting Parties or competent authorities shall verify that that person:

- (a) Has a certified knowledge and understanding relevant for road vehicles in the following areas:
 - (i) Mechanics;
 - (ii) Dynamics;
 - (iii) Vehicle dynamics;
 - (iv) Combustion engines;
 - (v) Material and material processing;
 - (vi) Electronics;
 - (vii) Electrics;
 - (viii) Electronic vehicle components;
 - (ix) IT applications.
- (b) Has at least three years of documented experience or equivalent, such as documented mentorship or studies, and appropriate training in the road vehicle field set out above.

4.2. Initial and refresher training

Contracting Parties or competent authorities shall ensure that inspectors receive the appropriate initial and refresher training or undergo appropriate examination, including in theoretical and practical elements, to enable them to be authorised to carry out technical inspections.

The minimum contents of the initial and refresher training or appropriate examination shall include the following topics:

- (a) Initial training or appropriate examination
 - The initial training provided by the Contracting Party or by an authorised training centre of the Contracting Party shall cover at least the following topics:
 - (i) Vehicle technology:
 - a. Braking systems;
 - b. Steering systems;
 - c. Fields of vision;
 - d. Light installation, lighting equipment and electronic components;
 - e. Axles, wheels and tyres;
 - f. Chassis and bodywork;
 - g. Nuisance and emissions;
 - h. Additional requirements for special vehicles.

- (ii) Testing methods;
 - (iii) Assessment of deficiencies;
 - (iv) Legal requirements applicable on the vehicle condition for approval;
 - (v) Legal requirements relating to roadworthiness testing;
 - (vi) Administrative provisions relating to vehicle approval, registration and roadworthiness testing;
 - (vii) IT applications relating to testing and administration.
- (b) Refresher training or appropriate examination

Contracting Parties shall ensure that inspectors regularly receive refresher training or undergo an appropriate examination provided or set by the Contracting Party or by an authorised training centre of the Contracting Party.

Contracting Parties shall ensure that the contents of the refresher training or appropriate examination enable inspectors to maintain and refresh the requisite knowledge and skills in relation to the topics referred to in point (a), (i) to (vii) above.

4.3. Certificate of competence

The competent authorities or, where applicable, approved training centres shall provide a certificate or equivalent documentation to inspectors who fulfil the minimum competence and training requirements.

The certificate or equivalent documentation issued to an inspector authorised to carry out technical inspections shall include at least the following information:

- (a) Identification of the inspector (first name, surname);
- (b) Vehicle categories for which the inspector is authorised to carry out technical inspections;
- (c) Name of the issuing authority;
- (d) Date of issue.

5. Supervising bodies

Testing centres directly operated by a competent authority shall be exempted from the requirements regarding authorisation and supervision where the supervising body is part of the competent authority.

Provisions and procedures concerning supervising bodies established by Contracting Parties shall cover the following minimum requirements:

5.1. Tasks and activities of the supervising bodies

Supervising bodies shall perform at least the following tasks:

- (a) Supervision of testing centres:
 - (i) Checking whether the minimum requirements for premises and test equipment are met;
 - (ii) Verifying the mandatory requirements of the authorised entity;
- (b) Verifying training and examination of inspectors:
 - (i) Verifying the initial training of inspectors;
 - (ii) Verifying the periodic refresher training of inspectors;

- (iii) Periodic refresher training of supervising body examiners;
 - (iv) Conducting or supervising examinations.
- (c) Auditing:
 - (i) Pre-audit of testing centres prior to authorisation;
 - (ii) Periodic re-audit of testing centres;
 - (iii) Special audit in the case of irregularities;
 - (iv) Audit of training/examination centres.
- (d) Monitoring, using measures such as the following:
 - (i) E-testing of a statistically valid proportion of tested vehicles;
 - (ii) 'Mystery shopper' checks (use of defective vehicle optional);
 - (iii) Analysis of results of technical inspections (statistical methods);
 - (iv) Appeal tests;
 - (v) Investigation of complaints.
- (e) Validation of measurement results of technical inspections.
- (f) Proposing the withdrawal or suspension of authorisation of testing centres and/or of inspectors:
 - (i) Where the centre or inspector concerned does not fulfil a significant authorisation requirement;
 - (ii) Where major irregularities are detected;
 - (iii) Where there are continued negative audit results;
 - (iv) Where there is a loss of good repute on the part of the centre or inspector in question.

5.2. Requirements concerning the supervising body

Requirements applicable to the personnel employed by a supervising body shall cover the following areas:

- (a) Technical competence;
- (b) Impartiality;
- (c) Standards of qualification and training.

5.3. Contents of the rules and procedures

Each Contracting Party or its competent authority shall lay down the relevant rules and procedures, which shall include at least the following items:

- (a) Requirements concerning the authorisation and supervision of testing centres:
 - (i) Application for authorisation to operate as a testing centre;
 - (ii) Responsibilities of testing centres;
 - (iii) Pre-authorisation visit, or visits, to verify that all requirements are complied with;
 - (iv) Authorisation of testing centres;
 - (v) Periodic re-testing/audits of testing centres;
 - (vi) Periodic checks on testing centres to see whether they are continuing to comply with the applicable rules and procedures;
 - (vii) Evidence-based unannounced special checks or audits of testing centres;

- (viii) Analysis of test data to see whether evidence exists of non-compliance with the applicable rules and procedures;
 - (ix) Withdrawal or suspension of authorisations granted to testing centres.
- (b) Inspectors of testing centres:
- (i) Requirements to become a certified inspector;
 - (ii) Initial training, refresher training and examinations;
 - (iii) Withdrawal or suspension of certification of inspectors.
- (c) Equipment and premises:
- (i) Requirements for test equipment;
 - (ii) Requirements for testing premises;
 - (iii) Requirements for signage;
 - (iv) Requirements for maintenance and calibration of testing equipment;
 - (v) Requirements for computerised systems.
- (d) Supervising bodies:
- (i) Powers of the supervising bodies;
 - (ii) Requirements applicable to staff of supervising bodies.

6. Guidelines for performing initial technical roadside inspections

- 6.1. General approach
- 6.1.1. Technical roadside inspection is a form of vehicle assessment that makes considerable contribution towards ensuring in service compliance and a crucial element for the achievement of a continuous high level of roadworthiness of vehicles throughout their use.
- 6.1.2. In order to avoid unnecessary administrative burdens and costs, and to improve the efficiency of inspections, it should be possible for competent national authorities to select, as a priority, vehicles operated by undertakings not complying with road safety and environmental standards, while vehicles which are operated by responsible and safety-minded operators and properly maintained should be rewarded with less frequent inspections. The selection of vehicles for roadside inspection based on the risk profile of their operators could prove to be a useful tool for the purposes of checking high-risk undertakings more closely and more often.
- 6.1.3. The risk rating system shall provide the basis for a targeted selection of vehicles operated by undertakings with a poor record concerning compliance with vehicle maintenance and roadworthiness requirements. It shall take into account results from both periodic roadworthiness tests and technical roadside inspections.
- 6.1.4. The risk rating system shall consider the following parameters for determining a risk rating for the undertaking concerned:
- (a) Number of deficiencies;
 - (b) Severity of deficiencies;
 - (c) Number of technical roadside inspections or periodic and voluntary roadworthiness tests;

- (d) Time factor.
- 6.1.5. Contracting Parties should undertake the appropriate technical and administrative arrangements for the operation of risk rating systems.
- 6.1.6. For the attribution of a risk profile to an undertaking, Contracting Parties may use the criteria set out in section 6.6. to the guidelines. That information shall be used to check undertakings with a high-risk rating more closely and more often. The risk rating system shall be operated by the competent authorities of the Contracting Parties.
- 6.1.7. Contracting Parties may allow additional voluntary roadworthiness tests. Information on compliance with roadworthiness requirements obtained from voluntary tests may be taken into account in order to improve the risk profile of an undertaking.
- 6.1.8. The use of mobile inspection units reduces the delay and costs for operators as more detailed inspections can be performed directly at the roadside. The closest practicable testing centres and designated roadside inspection facilities may also be used to carry out more detailed inspections.
- 6.1.9. Personnel conducting technical roadside inspections should be appropriately trained or qualified, including for the purpose of carrying out visual inspections in an efficient manner. Inspectors performing more detailed technical roadside inspections should have at least the same skills and fulfil the same requirements as those performing roadworthiness tests in accordance with the 1997 Vienna Agreement. Contracting Parties should require inspectors carrying out inspections in designated roadside inspection facilities or using mobile inspection units to fulfil these or equivalent requirements approved by the competent authority.
- 6.1.10. Another aspect to take into account is that roadside inspections have to be performed on foreign as well as domestically registered vehicles. This creates some differences, namely on the availability of data that may be used for selection.
- 6.1.11. This means that the inspector has to define the extent of the inspection taking into account his/ her knowledge, experience and applicable legal framework.
- 6.1.12. This recommendation suggests the approach for vehicle selection and initial inspection of the vehicle and taking into consideration that the final content of the inspection is a decision for the inspector based on the actual condition of the vehicle.
- 6.1.13. The initial technical roadside inspection may be done in combination with other inspections, i.e. tachograph, the International Carriage of Dangerous Goods by Road (ADR), the International Carriage of Perishable Foodstuffs (ATP).
- 6.1.14. For the purposes of this guidelines:
- (a) “Operator” means a natural or legal person operating the vehicle as its owner or authorised to operate the vehicle by its owner;
- (b) “Mobile inspection unit” means a transportable system of test equipment needed to carry out more detailed technical roadside inspections, staffed by inspectors who are competent to carry out more detailed roadside inspection;
- (c) “Designated roadside inspection facility” means a fixed area for the performance of initial and/or more detailed technical roadside inspections which may also be equipped with permanently installed test equipment.
- 6.2. Steps of the process
- 6.2.1. The process of the initial technical roadside inspection is divided into the following steps:

- (a) Selection (section 6.3);
 - (b) Initial inspection (section 6.4);
 - (c) Outcome and consequences (section 6.5).
- 6.2.2. Selection is the process that identifies the vehicles on the road to be subjected to an initial inspection based on visual indications or intelligence that indicates that the vehicle may have roadworthiness deficiencies. Risk rating data should also be taken into account where available. Selection may be based on a view of the general condition of the vehicle, intelligence gathering, and unobtrusive drive-by emissions measurement by remote sensing devices. Remote sensing techniques may be used to identify overload, gross polluters, fuel leaks, overheating of brakes or other potential deficiencies of vehicles on the move, in combination of automatic registration plate recognition devices or not. Selection procedures do not prevent the random selection of vehicles for roadside inspections.
- 6.2.3. The initial inspection should mainly be based on visual facts, allowing for the possibility of a more in depth inspection where the inspector considers it appropriate.
- 6.2.4. The results of the initial inspection may lead to a statement on deficiencies as defined in the UN Rules, annexed to the 1997 Vienna Agreement:
- (a) No deficiencies;
 - (b) Minor deficiencies;
 - (c) Major deficiencies;
 - (d) Dangerous deficiencies;
 - (e) Or any combination of the above mentioned deficiencies.
- 6.2.5. Regardless of the deficiencies found, the inspector may decide that it is necessary to conduct a more detailed inspection. In such cases, he/she may also recommend the scope of that more detailed inspection.
- 6.3. Selection
- 6.3.1. When identifying vehicles that will be subject to an initial technical roadside inspection, inspectors may select, as a priority, vehicles operated by undertakings with a high-risk profile as referred to in risk rating systems. Vehicles may also be selected randomly for inspection, or where there is a suspicion that the vehicle presents a risk to road safety or to the environment.
- 6.3.2. The selection process depends very much on the availability of vehicle specific data, of resources and on the possibility of stopping vehicles on the road.
- 6.3.3. This is a non-exhaustive list of criteria that may be used for the selection of vehicles:
- (a) Risk rating related to the vehicle;
 - (b) Risk rating related to the operator;
 - (c) General condition of the vehicle (corrosion, insecure components, etc.);
 - (d) Any kind of misalignment, i.e. axles not following the same line or the vehicle tilting to one side. When assessing vehicle tilt, the inspector may take into consideration the kneeling system of some buses;
 - (e) Direct measurement of real-driving particulate emissions by remote sensing devices;
 - (f) Inoperative light/systems not working;
 - (g) Excessive visible smoke emission;
 - (h) Unusual noises or vibrations;

- (i) Abnormal speed;
 - (j) General behaviour of the driver;
 - (k) General behaviour of the vehicle;
 - (l) Evidence of fluid leaks;
 - (m) General condition of the cargo security.
- 6.3.4. Remote sensing techniques may be used to identify overload, gross polluters, fuel leaks, overheating of brakes or other potential deficiencies of vehicles on the move, in combination with automatic registration plate recognition devices or not. As such, selection should be conducted at sites where vehicles likely pass under load and their exhaust opacity can be visually scrutinized or their particulate emissions can be screened via remote sensing devices.
- 6.4. Initial technical roadside inspection
- 6.4.1. Check of the documents
- 6.4.1.1. The initial inspection shall start by checking the documents of the vehicle.
- 6.4.1.2. Documents to be requested from the driver if not available electronically are:
- (a) Proof of registration in case of international transport;
 - (b) Report of the last periodical inspection (where appropriate);
 - (c) Report of the last roadside inspection (where appropriate).
- 6.4.1.3. This does not exclude checking other relevant documents.
- 6.4.1.4. The previous inspection report may be used to define inspection items according to section 6.4.3.
- 6.4.1.5. Where the roadworthiness certificate or a roadside inspection report demonstrates that an inspection of one of the items listed in the UN Rules has been carried out in the course of the preceding three months, the inspector shall not check that item, except where such a check is justified on the grounds of an obvious deficiency. The way to identify if there is ground for an obvious deficiency may be the criteria for the initial selection defined in section 6.3.2 of this recommendation.
- 6.4.2. Visual assessment of the technical condition of the vehicle
- 6.4.2.1. Following the document check described in section 6.4.1, the inspector carries out a visual assessment of the general technical condition of the vehicle as viewed mainly from the outside of the vehicle. Entering the vehicle is to be decided by the inspector according to his/her criteria, and taking into account the national regulations on roadside inspection.
- 6.4.2.2. This visual inspection should be performed in an efficient manner, keeping in mind that the main purpose of the initial inspection is to assess the general condition of the vehicle and to decide whether the vehicle should undergo a more detailed technical inspection according to the Rules.
- 6.4.2.3. The inspector will undertake the checks according to the UN Rules. Also, the inspector shall verify, when possible, whether any deficiencies indicated in the previous inspection reports (roadside inspection report and roadworthiness certificate) have been rectified.
- 6.4.2.4. During this visual inspection, it is recommended that the inspector walks around the vehicle and looks for evidence of defects which could pose a threat to road safety and to the environment, such as, but not limited, to the following items:
- (a) Vehicle identification;
 - (b) General condition of the vehicle (body, chassis, etc.);

- (c) Condition of tyres and wheels;
 - (d) Condition of brake discs/drums where visible through the wheels;
 - (e) Rear view mirrors or vision devices;
 - (f) Horn;
 - (g) Glazing and view to the front;
 - (h) Dashboard tell-tales;
 - (i) Lights and markings;
 - (j) Windshield wipers;
 - (k) Side protection;
 - (l) Rear underrun protection;
 - (m) Spray suppression devices;
 - (n) Spare wheel mounting;
 - (o) Towing device where fitted;
 - (p) Air pipes/electrical connection from tractor to trailer;
 - (q) Leakage other than air conditioning condensed water;
 - (r) Unusual noises, air leaks;
 - (s) Visible smoke emission or unobtrusive drive-by emissions measurement;
 - (t) Fuel tank and filler cap;
 - (u) General condition of the interior of the vehicle – only for M2 and M3 vehicles and taking into account the considerations of entering the vehicle stated in the 1st paragraph of this section.
- 6.4.2.5. The inspection of the external part of the vehicle is to be performed by a visual inspection with the inspector and the vehicle at ground level. The inspection of the internal part of the vehicle is made close to the driver's seat and the inspector may enter the vehicle as stated above.
- 6.4.2.6. The criteria to be applied are those defined in the UN Rules.
- 6.4.3. Technical inspection by any method deemed appropriate
- 6.4.3.1. The initial inspection is mainly visual but the inspector may check an item using any method deemed appropriate. This may e.g. include access to on board diagnostics (OBD) information if available to the Inspector and in the vehicle, as well as the use of equipment such as infrared thermometers to check the temperature of brakes, scales to check the weight of the vehicle, portable opacimeters to check the exhaust emissions, on board diagnostics (OBD) access devices, etc.
- 6.4.3.2. The tests shall be carried out using techniques and equipment currently available, without the use of tools to dismantle or remove any part of the vehicle. The test may also include a verification as to whether the respective parts and components of the vehicle correspond to the safety and environmental requirements that were in force at the time of approval or, if applicable, at the time of retrofitting.
- 6.4.3.3. Where the design of the vehicle does not allow the application of the test methods laid down in the Rules, the test shall be conducted in accordance with the recommended test methods accepted by the competent authorities.
- 6.4.3.4. The inspector may also request that any deficiency be rectified without delay.
- 6.4.4. Cargo securing

- 6.4.4.1. The inspector may carry out a visual assessment of the securing of the vehicle's cargo in accordance with national regulations.
- 6.5. Outcome
- 6.5.1. The results of the initial inspection may lead to a statement on deficiencies as defined in the UN Rules annexed to the 1997 Agreement:
- (a) No deficiencies;
 - (b) Minor deficiencies;
 - (c) Major deficiencies;
 - (d) Dangerous deficiencies;
 - (e) Or any combination of the above-mentioned deficiencies.
- 6.5.2. Regardless of the deficiencies found, the inspector may decide that it is necessary to conduct a more detailed inspection. In such cases, he/she may also recommend the scope of that more detailed inspection.
- 6.5.3. The inspector decides, based on the findings of the initial inspection, whether the vehicle should be subject to a more detailed inspection. A more detailed inspection may for instance be justified in the following cases:
- (a) Vehicles identified as gross polluters by means of remote sensing techniques or emitting excessive visible smoke;
 - (b) Evidence of a potentially defective brake(s) either visual or with the use of temperature monitoring equipment;
 - (c) General condition of vehicle or several minor defects suggest that further roadworthiness defects may be found;
 - (d) Major and/or dangerous defects have already been found.
- 6.5.4. As an example, evidence suggests that the vehicle is running overweighted or that the load has moved.
- 6.5.5. Deficiencies of the identification of the vehicle may trigger the procedures related to stolen vehicles. This does not prevent the vehicle from being selected for a more detailed inspection based on other requirements or for other reasons.
- 6.6. Elements of the risk rating system
- 6.6.1. The risk rating system shall provide the basis for a targeted selection of vehicles operated by undertakings with a poor record concerning compliance with vehicle maintenance and roadworthiness requirements. It shall take into account results from both periodic roadworthiness tests and technical roadside inspections.
- 6.6.2. The risk rating System shall consider the following parameters for determining a risk rating for the undertaking concerned:
- (a) Number of deficiencies;
 - (b) Severity of deficiencies;
 - (c) number of technical roadside inspections or periodic and voluntary roadworthiness tests;
 - (d) Time factor.
- 6.6.3. The deficiencies shall be weighted according to their severity, using the following severity factors:
- (a) Dangerous deficiency = 40;
 - (b) Major deficiency = 10;
 - (c) Minor deficiency = 1.

6.6.4. The evolution of an undertaking's (vehicle's) situation shall be reflected by applying a lower weighting to "older" inspection results (deficiencies) than to more "recent" ones, using the following factors:

- (a) Year 1 = last 12 months = factor 3;
- (b) Year 2 = months 13-24 = factor 2;
- (c) Year 3 = months 25-36 = factor 1.

This shall only apply for the calculation of the overall risk rating.

6.6.5. The risk rating shall be calculated using the following formulas:

- (a) The formula for the overall risk rating:

$$RR = [(D Y1 \times 3) + (D Y2 \times 2) + (D Y3 \times 1)] / [\#C Y1 + \#C Y2 + \#C Y3]$$

Where,

RR = overall risk rating score

D Yi = total for the defects in year 1, 2, 3

D Y1 = (#DD x 40) + (#MaD x 10) + (MiD x 1) in year 1

#... = number of ...

DD = dangerous deficiencies

MaD = major deficiencies

MiD = minor deficiencies

C = checks (technical roadside inspections or periodic and voluntary roadworthiness tests) in year 1, 2, 3

- (b) The formula for the annual risk rating:

$$AR = [(\#DD \times 40) + (\#MaD \times 10) + (MiD \times 1)] / \#C$$

Where

AR = annual risk score

#... = number of ...

The annual risk shall be used to assess the evolution of an undertaking over the years.

6.6.6. The classification of undertakings (vehicles) based on the overall risk rating shall be performed in such a way that the following distribution within the listed undertakings (vehicles) is reached:

- (a) < 30 % low risk;
- (b) 30-80 % medium risk;
- (c) > 80 % high risk.