

Draft Terms of Reference of the Informal Working Group on Periodical Technical Inspections (IWG on PTI)

I. Introduction

The digitalisation of mobility creates new requirements to be met by vehicle safety and infrastructure. Connected vehicles are designed to allow a wireless connection or communication possibly relating to automated driving technologies with external devices, cars, networks or services.

Software of the vehicles, and specifically over the air updates of the software lead to a new situation where modification to functions and performance can easily be realized on large scale. This is an important difference with the traditional situation where a vehicle can be changed on individual basis at a specific location.

Malfunction of, or tampering with, engine management systems, catalytic converters and related technologies that are significantly reducing emission levels result in higher emissions and the loss of the benefits of the vehicle emission regulations.

This increased reliance on advanced technology requires future options for in service compliance¹ enforcement to be developed by the Informal Working Group on Periodical Technical Inspections (IWG on PTI) taking into consideration:

- a shift towards sustainability of transport systems, where all aspects of vehicle use need to be considered, including safety, the environment, mobility, efficiency, productivity and personal security;
- the major advances in vehicle technology that are leading to safer, more environmentally sustainable vehicles;
- the increased complexity of vehicles and the need for them to be properly maintained throughout their life;
- the opportunities afforded by advanced on-board and off-board measurement systems to reduce the cost of compliance;
- increased public expectations that vehicles will get them to their destination safely and reliably;
- development of future options for in service compliance enforcement requires particular attention to:
 - o measures to ensure in service compliance of vehicles or their systems and components, including those that are type approved under the UN Regulations, attached to the 1958 and 1998 Geneva Agreements, as appropriate;
 - o when necessary, to develop relevant requirements for the performance of systems and components including automated / autonomous driving systems for in service compliance;

¹ In-service compliance includes certain requirements that are laid down by type-approval requirements at the date of first registration or first entry into service as well as retrofitting obligations or national legislation

- application of new intelligent transport system (ITS) technologies in the field of PTI;
- current roadworthiness standards and practices;
- electronic vehicle interface, measurement and communication technologies;
- access, under well-defined and agreed pre-conditions, to the technical specifications of each individual vehicle and the data needed for objective verification of the functionality of the safety and environment related systems [whether or not the safety and environment-related systems are functioning]²;
- development of in service compliance vehicle assessment methods for periodical technical inspection and where appropriate, road side inspection;
- the effect of vehicle in service compliance enforcement on road safety, environmental protection and other outcomes.

II. Working items to be covered

1. Development of measures to be submitted for adoption by the WP.29 to ensure in service compliance of vehicles or their systems and components including those that are type approved under the UN Regulations, attached to the 1958 and 1998 Geneva Agreements.

The need for in service compliance enforcement is greater than ever because road safety and environmental protection are now more reliant on the correct functioning of technologies. The role of PTI needs to encompass the preservation of the benefits of the new technologies and systems. There shall be provided the appropriate coordination between the 1958 and 1998 Geneva Agreement and the 1997 Vienna Agreement and measures to ensure in-service compliance of vehicles or their systems and components type approved under the UN Regulations, attached to the 1958 and 1998 Geneva Agreements. Type approval regulations developed by the respective working parties (GR) may consider inputs of this group where they foresee technical means to enable PTI assessment of the compliance of vehicles in use. The role of PTI is to verify in service vehicle compliance.

2. Measures to detect tampering: methods and supervision

The ways to identify tampering of safety and environment related components and systems have to be considered, including but not limited to, the following:

- further development of inspection techniques;
- in coordination with the activities under the 1958 and 1998 Agreements and especially the issue of software identification and Over the Air Updates, the version and integrity of the software, since tampering practices may also involve software modification;
- when appropriate, and taking into account cybersecurity and intellectual property rights, access to the relevant sensors' readings and actuators.

3. When necessary, to develop relevant requirements to verify the performance of systems and components, including automated / autonomous driving systems, for in service compliance

The IWG should develop proposals for establishment of requirements for in service compliance verification of the performance of equipment and systems, including automated/autonomous driving systems, in all the relevant driving conditions, as well as other than those tested, and methods for their assessment.

² The wording proposed by OICA. The group couldn't agree on this point. To be discussed during WP.29-175/

4. Consistency between the provisions of the 1968 Vienna Convention and the technical provisions for vehicles against the rules in the framework of the 1997 Vienna Agreement

Requirements for periodical technical inspection are prescribed by UN legal acts, including the 1968 Vienna Convention on road traffic, the 1997 Vienna Agreement and the UN Consolidated Resolution R.E.1. Where necessary and possible, the rules for periodical technical inspections among the various Agreements, Conventions and Resolutions should be harmonised to allow improved safety and sustainability of road transport and exclude legislative obstacles for technological developments.

5. Solutions in the PTI field to support the safe operation of highly automated and autonomous vehicles

WP.29 will develop an approach for the approval of automated driving systems (ADS). It is a complex problem covering technical inspections of the systems in use. The IWG on PTI should follow the development on ITS and propose pragmatic and effective solutions in the PTI field needed to support the safe operation of highly automated and autonomous vehicles. The solution should be achieved through a pragmatic way that on one hand leaves controlled flexibility for industry and on the other hand defines reasonable requirements/principles to ensure a safe operation of ADS. The IWG on PTI should consequently carefully follow-up the activities under the 1958 and 1998 Agreements and provide its expertise where needed.

6. Guidance for road-side technical inspections and enforcement

A range of measures is required that encourage in service compliance including the use of targeted enforcement, incentives, disincentives, user education and training. Roadside inspection is a form of vehicle assessment that makes considerable contribution towards ensuring in service compliance.

7. Guidance for education and attestation of experts implementing PTI, supervision for PTI quality and supervision of testing centers

The item should be put into the agenda to be considered when requested.

8. Uniform provisions for periodical technical inspections of wheeled agricultural and forestry tractors with regard to their in service compliance

The item should be put into the agenda to be considered when requested.

9. Others

- (i) Consideration of guidance regarding PTI when requested to WP29 by GRs
- (ii) Exchange of views and information from each Contracting Party about the most advanced technology, equipment and methods, including, such as research results including field tests, information on the national legal system and measures, events, conventions, etc.
- (iii) Exchange of views and information on PTI will also be taken forward. This latter activity might be concurrent with above discussion on PTI.
- (iv) Necessary discussion will be made at appropriate terms.

- (v) Consider further items to be treated by the IWG or the WP.29.

III. Timeline

10. The IWG on PTI outlines its plan (including working items to be covered, any steps, deliverables and expected timelines) to be approved by the WP.29.

IV. Rules of procedure

11. The following rules of procedure describe the functioning principles of the IWG:
- (a) Following the Rules of Procedure of WP.29. Chapter 1, Rule 1, the IWG is open to all experts from any country or organization of WP.29 and its subsidiary bodies.
 - (b) Two Co-Chairs (Netherland and the Russian Federation) and a Secretary (CITA) will manage the IWG.
 - (c) The working language of the IWG will be English.
 - (d) All documents and/or proposals shall be submitted to the secretary of the IWG in a suitable electronic format, preferably in line with the UNECE guidelines in advance of the meetings. The IWG may refuse to discuss any item or proposal which has not been circulated 5 working days in advance of the scheduled meetings.
 - (e) Meetings of the IWG shall be held in relation with WP.29 and its subsidiary groups sessions schedule. Additional meetings will be organized upon request.
 - (f) An agenda and related documents will be circulated to all members of the IWG in advance of all scheduled meetings.
 - (g) The work process will be developed by consensus. When consensus cannot be reached, the Co-Chairs of the IWG shall present the different points of view of the IWG to WP.29. The Co-Chairs may seek guidance from WP.29 as appropriate.
 - (h) The progress of the IWG will be routinely reported to WP.29 orally or with an informal document by the Co-Chairs.
 - (i) All documents shall be distributed in digital format. The specific PTI section on the UNECE website shall be used for this purpose.
 - (j) Draft meeting minutes will be available after each meeting, and presented for approval at the following one.
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