

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 roadworthiness 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 their vehicle will get them to their destination safely and reliably.

Development of future options for roadworthiness enforcement requires particular attention to:

- measures to ensure in-service conformity of vehicles or their systems and components type approved under the UN Regulations, attached to the 1958 Geneva Agreement;

- requirements for the performance of systems and components including automated/autonomous driving systems in all the relevant driving conditions outside of type approval testing boundaries;

 - application of new intelligent transport system (ITS) technologies in the field of PTI;

 - current roadworthiness standards and practices;

 - diagnostic, measurement and communication technologies;

 - access to the technical specifications of each individual vehicle and the data needed for verification of the functionality of safety and environment-related components;

 - all forms of vehicle assessment, including periodic technical inspection and roadside inspection;

 - the effect of vehicle roadworthiness enforcement on road safety, environmental protection and other outcomes.

II. Working items to be covered

1. Measures to ensure in-service conformity of vehicles or their systems and components type approved under the UN Regulations, attached to the 1958 Geneva Agreement

The need for roadworthiness 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 Geneva Agreement and the 1997 Vienna Agreement and measures to ensure in-service conformity of vehicles or their systems and components type approved under the UN Regulations, attached to the 1958 Geneva Agreement.

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;
- the version and integrity of the software, since almost all tampering practices also involve software modification;
- access to sensors' reading to check their plausibility; and
- access to actuators to check different working modes of the vehicle.

3. Proposals for establishment of requirements for the performance of vehicles, their equipment and systems including automated/autonomous driving systems in all the relevant driving conditions outside of type approval testing boundaries, including recommendations for methods of assessment

There is inherent risk that some systems, especially those relying on software, may be designed to work only in the limited conditions corresponding to those tested rather than in all the relevant driving conditions. The IWG should develop proposals for establishment of requirements for the performance of equipment and systems, including automated/autonomous driving systems, in all the relevant driving conditions other than those tested, as well as methods for their assessment.

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. Harmonization of these legal acts allows to improve 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.

6. Guidance for road-side technical inspections and enforcement

A range of measures is required that encourage continuous compliance including the use of targeted enforcement, incentives and disincentives and user education and training.

Roadside inspection is a form of vehicle assessment that makes considerable contribution towards achieving continuous 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 roadworthiness
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. Approval process of the Terms of Reference (ToR) for the IWG

March 2018: Submission of draft ToR of the IWG on PTI to WP.29 for approval

11. Measures to ensure in-service conformity of vehicles or their systems and components type approved under the UN Regulations, attached to the 1958 Geneva Agreement
A first case:

March 2019: Submission of the draft document

November 2019: Approval by WP.29

12. Measures to detect tampering: methods and supervision

November 2018: Submission of the draft document

June 2019: Approval by WP.29

13. Proposals for establishment of requirements for the performance of vehicles, their equipment and systems including automated/autonomous driving systems in all the relevant driving conditions outside of type approval testing boundaries, including recommendations for methods of assessment

March 2019: Submission of the draft document

November 2019: Approval by WP.29

14. 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

November 2018: Submission of the draft document to WP.29
December 2018: Submission of the draft document to WP.1 by WP.29
2019: Discussion in WP.1.

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

June 2019: Submission of the draft document¹

16. Guidance for road-side technical inspections and enforcement

November 2018: Submission of the draft document
March 2019: Approval by WP.29

17. Other

Necessary discussion will be made at appropriate times.

IV. Rules of procedure

18. 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.

¹ Final dates to be confirmed by the WP.29 Secretariat