2 July 2019

Agreement

Concerning the adoption of uniform conditions for periodical technical inspections of wheeled vehicles and the reciprocal recognition of such inspections

(Done at Vienna on 13 November 1997)

Addendum 4 - Rule No. 4

Date of entry into force: 10 June 2019

Uniform provisions for periodical technical inspections of motor vehicles equipped with electric or hybrid propulsion system(s) with regard their roadworthiness

This document is produced by the secretariat for information.
The authentic and legal binding text is: ECE/TRANS/WP.29/2017/135.

UNITED NATIONS

GE.19-11139(E)
1911139

Rule No. 4

on uniform provisions for periodical technical inspections of motor vehicles equipped with electric or hybrid propulsion system(s) with regard their roadworthiness

Contents

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 safety requirements of hybrid and electric vehicles;

1.2. Wheeled vehicles as defined in paragraph 2.4 used in international transports shall satisfy the requirements set out below when they are considered electric or hybrid according to the UN Regulation No. 100;

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 first registration after manufacture and the periodical technical inspections of wheeled vehicles in compliance with the provisions of Article 1 and Appendix 2 of the Agreement (see paragraph 2.1. above);

2.3. "*Periodical Technical Inspection*" means a periodical administrative uniform procedure by which the authorized technical Inspection Centres responsible for conducting the inspection tests declare, after carrying out the required verifications, that the wheeled vehicle submitted conforms to the requirements of this Rule;

2.4. "*Wheeled vehicle*" means motor vehicles of categories M_1, M_2, M_3, N_1, N_2 and N_3, as specified in Consolidated Resolution on the Construction of Vehicles (RE.3) (TRANS/WP.29/78/Rev.6, as amended), 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 the use of tools to dismantle or remove 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. "*Regulation*" means a Regulation annexed to the 1958 Geneva Agreement.

2.8. "*Inappropriate repair or modification*" means a repair or modification that adversely affects the road safety of the vehicle.

2.9. Hybrid and electric vehicles: according the scope or the Regulation No. 100.

2.10. Residual Energy Storage System (RESS) means the rechargeable energy storage system that provides electric energy for electric propulsion.

The REESS may include subsystem(s) together with the necessary ancillary systems for physical support, thermal management, electronic control and enclosures.

3. Periodicity of technical inspections

Vehicle categories	*Maximum inspection intervals*
Passenger-carrying motor vehicles: M_1, except taxis and ambulances Goods vehicles: N_1	Four years after the first entry into service of the first registration and every second two years thereafter
Passenger-carrying motor vehicles: M_2 above 3,500 kg and M_3 Goods vehicles: N_2 and N_3:	One year after the first registration (or if the vehicle is not required to be registered, date of first use) and annually thereafter

4. Technical inspection

Vehicles to which these provisions apply must undergo a periodic technical inspection in accordance with the annex hereafter together with the inspection defined in Rule 1, when applicable, and Rule 2 annexed to the 1997 Agreement.

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

5. Inspection requirements

The inspection shall cover at least the items listed below, provided they are installed in the vehicle.

6. Methods of inspection

The method of inspection set out in the annex shall be the minimum requirement. Where a method of inspection is given as visual, it means that in addition to looking at the items, the inspector can also handle them, evaluate noise, etc.

7. Main reasons for rejection and assessment of defects

Recommendations for the main reasons for rejection and the assessment of defects are also given in the annex. The three criteria for assessment of defects are defined as follows.

7.1. "*Minor defects*" (MiD) are technical defects that have no significant effect on the safety of the vehicle and other minor non-compliances. The vehicle does not have to be re-examined as it can reasonably be expected that the detected defects will be rectified without delay.

7.2. "*Major defects*" (MaD) are defects that may prejudice the safety of the vehicle and/or put other road users at risk and other more significant non-compliances. Further use of the vehicle on the road without repair of the detected defects is not allowed although it still may be driven to a place for repair and afterwards to a specified location for the repair to be checked.

7.3. "*Dangerous defects*" **(**DD) are defects that constitute a direct and immediate risk to road safety such that the vehicle should not be used on the road under any circumstances.

7.4. A vehicle having defects falling into more than one defect group should be classified according to the most serious defect. A vehicle showing several

defects of the same group can be classified in the next more serious group if their combined effect makes the vehicle more dangerous.

8. 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 and issuing the International Technical Inspection Certificates.

Annex

Minimum inspection requirements for electric and hybrid-electric vehicles

The inspection shall cover at least the items listed below.

Item	*Method*	*Main Reasons for Rejection*	*Defect Assessment*		
			MiD	*MaD*	*DD*
1. Electric Vehicle and Hybrid Electric Vehicle's electrical hazard marking as defined by UN Regulation No. 100 if required/fitted)	Visual inspection	(a) Missing or cannot be found (b) Incomplete or illegible (c) Not in accordance with vehicle documents or records		X X X	
2. Electric regenerative braking system	Visual inspection	(a) Components missing, damaged or corroded (b) Warning device malfunctioning (c) Warning device shows system malfunction		X X X	
3. Low voltage electrical wiring (as defined by UN Regulation No. 100)	Visual inspection with vehicle over a pit or on a hoist, including inside the engine compartment (if applicable)	(a) Wiring insecure or not adequately secured (b) Fixings loose, touching sharp edges, connectors likely to be disconnected (c) Wiring likely to touch hot parts, rotating parts or the ground, connectors disconnected (relevant parts for braking, steering) (d) Wiring slightly deteriorated (e) Wiring heavily deteriorated (f) Wiring extremely deteriorated (relevant parts for braking, steering). (g) Damaged or deteriorated insulation (h) Likely to cause a short-circuit fault (i) Imminent risk of fire, formation of sparks	X X X X	 X X X	 X X X

Item	*Method*	*Main Reasons for Rejection*	*Defect Assessment*		
			MiD	*MaD*	*DD*
4. Electric power train (as defined by UN Regulation No. 100)					
4.1. Residual Energy Storage System (RESS), e.g. Traction battery(ies)	Visual inspection with vehicle over a pit or on a hoist, including inside the engine compartment when appropriated	(a) Not in accordance with requirements		X	
		(b) Insecure or not adequately secured		X	
		(c) Insecure or not adequately secured with immediate risk of falling, short-circuit or chock hazard			X
		(d) Damaged or corroded components		X	
		(e) Damaged or corroded components with immediate risk of falling, short-circuit or chock hazard			X
		(f) Leaking			X
		(g) Shields not in place or damaged		X	
		(h) Shields not in place or damaged with immediate risk of falling, short-circuit or chock hazard			X
		(i) Damaged or deteriorated electrical insulation		X	
		(j) Damaged or deteriorated electrical insulation with immediate risk of falling, short-circuit or chock hazard			X
4.2. RESS management system if fitted / required, e.g. range information, state of charge indicator, battery thermal control.	Visual inspection when possible	(a) Not in accordance with requirements		X	
		(b) Components missing or damaged		X	
		(c) Components missing or damaged with immediate risk of falling, short-circuit or chock hazard			X
		(d) Warning device malfunctioning		X	
		(e) Warning device shows system malfunction		X	
		(f) Warning device shows critical system malfunction			X
		(g) Operation of RESS ventilation / cooling system impaired, e.g. blocking of ventilation holes, ducts, fluid leaks		X	
4.3. Electronic converters, motor and change control and wiring harness and connectors	Visual inspection with vehicle over a pit or on a hoist, including inside the engine compartment when appropriated	(a) Not in accordance with requirements		X	
		(b) Insecure or not adequately secured		X	
		(c) Insecure or not adequately secured with immediate risk of falling, short-circuit or chock hazard			X
		(d) Damaged or corroded components		X	
		(e) Damaged or corroded components with immediate risk of falling, short-circuit or chock hazard			X
		(f) Shields not in place or damaged		X	
		(g) Shields not in place or damaged with immediate risk of falling, short-circuit or chock hazard			X
		(h) Damaged or deteriorated electrical insulation		X	
		(i) Damaged or deteriorated electrical insulation with immediate risk of falling, short-circuit or chock hazard			X
4.4. Traction motor(s)	Visual inspection with vehicle over a pit or on a hoist, including inside the engine compartment when appropriated	(a) Not in accordance with requirements		X	
		(b) Insecure or not adequately secured		X	
		(c) Insecure or not adequately secured with immediate risk of falling, short-circuit or chock hazard			X
		(d) Damaged or corroded components		X	
		(e) Damaged or corroded components with immediate risk of falling, short-circuit or chock hazard			X
		(f) Shields not in place or damaged		X	

Item	*Method*	*Main Reasons for Rejection*	*Defect Assessment*		
			MiD	*MaD*	*DD*
		(g) Shields not in place or damaged with immediate risk of falling, short-circuit or chock hazard			X
		(h) Damaged or deteriorated electrical insulation		X	
		(i) Damaged or deteriorated electrical insulation with immediate risk of falling, short-circuit or chock hazard			X
4.5. Auxiliary power equipment, e.g. heating, defrosting	Visual inspection with vehicle over a pit or on a hoist, including inside the engine compartment when appropriated	(a) Not in accordance with requirements		X	
		(b) Insecure or not adequately secured		X	
		(c) Insecure or not adequately secured with immediate risk of falling, short-circuit or chock hazard			X
		(d) Damaged or corroded components		X	
		(e) Damaged or corroded components with immediate risk of falling, short-circuit or chock hazard			X
		(f) Shields not in place or damaged		X	
		(g) Shields not in place or damaged with immediate risk of falling, short-circuit or chock hazard			X
		(h) Damaged or deteriorated electrical insulation		X	
		(i) Damaged or deteriorated electrical insulation with immediate risk of falling, short-circuit or chock hazard			X
4.6. Service disconnect device	Visual inspection and voltage absence check, where possible without disassembling	(a) Insecure or not adequately secured		X	
		(b) Insecure or not adequately secured with imminent risk of short-circuit or chock hazard			X
		(c) Damaged or corroded components		X	
		(d) Damaged or corroded components with immediate risk of falling, short-circuit or chock hazard			X
		(e) Shields not in place or damaged		X	
		(f) Shields not in place or damaged with immediate risk of falling, short-circuit or chock hazard			X
		(g) Damaged or deteriorated electrical insulation		X	
		(h) Damaged or deteriorated electrical insulation with immediate risk of falling, short-circuit or chock hazard			X
		(i) Voltage presence			X
4.7. "Active driving possible mode" indicator and associated information signal if driver leaves vehicle in active driving possible mode if fitted / required	Visual inspection and by operation if possible	(a) Indicator / information signal not fitted in accordance with the requirements		X	
		(b) Indicator / information signal not functioning correctly		X	
4.8. "State of drive direction" indicator if fitted / required	Visual inspection and by operation	(a) Indicator not fitted in accordance with the requirements		X	
		(b) Indicator not functioning correctly		X	

Item	*Method*	*Main Reasons for Rejection*	*Defect Assessment*		
			MiD	*MaD*	*DD*
4.9. RESS external charging system if fitted/required					
4.9.1. Charging cable(s) if fitted/required and if possible	Visual inspection if possible	(a) Not in accordance with requirements		X	
		(b) Damaged or corroded components		X	
		(c) Damaged or corroded components with immediate risk of falling, short-circuit or chock hazard			X
		(d) Damaged or deteriorated electrical insulation		X	
		(e) Damaged or deteriorated electrical insulation with immediate risk of falling, short-circuit or chock hazard			X