



Economic Commission for Europe**Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on General Safety Provisions****127th session**

Geneva, 15–19 April 2024

Item 9 of the provisional agenda

UN Regulation No. 147 (Mechanical couplings for Agricultural Vehicles)**Proposal for Supplement 1 to the Original Series of
Amendments to UN Regulation No. 147 (Mechanical
Couplings for Agricultural Vehicles)****Submitted by the expert from the United Kingdom of Great Britain and
Northern Ireland***

The text reproduced below was submitted by the expert from the United Kingdom to amend UN Regulation No. 147. This amendment aims to remove the possibility of different technical requirements being applied by Type Approval Authorities when mechanical couplings for agricultural tractors with a maximum speed in excess of 60 km/h are submitted for type approval testing. The amendment would align requirements with European Union approvals which are accepted to be technically correct in design and safe to use at all speeds. This is achieved by the removal of the clause in annex 6 that requires different technical requirements for mechanical couplings to be used on agricultural tractors with a maximum speed in excess of 60 km/h. The modifications to the current text of the UN Regulation are strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2024 as outlined in proposed programme budget for 2024 (A/78/6 (Sect. 20), table 20.5), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



I. Proposal

Paragraph 1.1. of Annex 6, amend to read:

"1.1. Samples of coupling devices shall be tested for both strength and function. With coupling devices, the strength shall be verified by a dynamic test. The strength of the mechanical coupling shall be established by alternating traction on a test bed. Should the design of the mechanical coupling (e.g. excessive play, towing hook) make it impossible to carry out the test with an alternating test load, the test load may also be applied on a rising basis in the direction of traction or pressure, whichever is the greater. In certain cases, additional static tests may be necessary. Instead of the dynamic test, mechanical couplings of classes i, q and r intended to be mounted to agricultural vehicles with a maximum design speed not exceeding 40 km/h may be tested according to 3.3.3.2. of this Annex (static test). ~~Mechanical couplings of all classes intended to be mounted to agricultural vehicles with a maximum design speed exceeding 60 km/h shall be tested in accordance with Annex 6 of Regulation 55.01.~~ In addition, the type approval authority or technical service may waive a dynamic or static test if the simple design of a component makes a theoretical check possible in case of coupling classes d, e, f, i, j and class s similar to this coupling classes. Theoretical checks may also be carried out to determine worst case conditions. In all cases, theoretical checks shall ensure the same quality of results as with dynamic or static testing. In cases of doubt it is the results of physical testing that are overriding."

II. Justification

1. UN Regulation No. 147 entered into force on 2 January 2019. The 60 km/h speed threshold can result in inconsistency of application by Type Approval Authorities when approving couplings for T1b tractors with a maximum speed in excess of 60 km/h.
2. The current text of UN Regulation 147, annex 6. paragraph 1.1. requires agricultural vehicles with a maximum design speed exceeding 60 km/h to be tested in accordance with annex 6 of UN Regulation No. 55, 01 series of amendments. The majority of these couplings are neither listed nor described in UN Regulation 55. The Type Approval Authorities must therefore classify them as Class S and apply the closest equivalent test. This means different requirements may be applied for couplings to be placed on the market.
3. Some tests of UN Regulation No. 55, 01 series of amendments require asynchronous or alternating forces or both to be applied during testing. UN Regulation No. 147 testing uses synchronous forces, or forces applied on a rising basis in the direction of traction. Most of UN Regulation No. 147 coupler types do not lend themselves to UN Regulation No. 55, 01 series of amendments test method due to the permitted amount of free play, therefore testing is very challenging.
4. UN Regulation No. 147 Class g (pick-up hitch hook) is a good example. The nature of the design will cause the drawbar eye to move during testing. UN Regulation No. 147, annex 6, paragraph 1.1. provides "Should the design of the mechanical coupling (e.g. excessive play, towing hook) make it impossible to carry out the test with an alternating test load, the test load may be applied on a rising basis in the direction of traction or pressure, whichever is greater". UN Regulation No, 55, 01 series of amendments does not contain this clause making it impractical to test hitch types of UN Regulation No. 147.
5. UN Regulation No. 147 contains all the design and test requirements for the extensive array of mechanical couplings used on agricultural vehicles. It also mirrors the technical design and test requirements of alternative regulations, e.g. annex XXXIV of the European Commission Delegated Regulation (EU) 2015/208. This EU Regulation is applied throughout the European Union for Whole Vehicle Type Approval of Category T1b tractors and does not have a maximum speed limit of 60 km/h.