ECE No. 79.01: Steering Equipment Technical requirement

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JAPAN AUTOMOBILE STANDARDS INTERNATIONALIZATION CENTER

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1. The main purpose of this regulation

Steering is the first tool to control vehicle by passenger.

2. Scope

1. SCOPE

1.1. This Regulation applies to the steering equipment of vehicles of categories M, N and O.

	M1	M2	M3
No. of wheels	4≤		
Seating capacity	≤9	9<	9<
Vehicle mass	N.A.	GVM(*) ≤ 5 tons	5 tons < GVM

	N1	N2	N3
No. of wheels	4≤		
Seating capacity	N.A.		
Vehicle mass	GVM≤ 3.5 ton	3.5 <GVM≤ 12 ton	12 ton<GVM

	O1	O2	O3	O4
No. of wheels	N.A.			
Seating capacity	N.A.			
Vehicle mass	GVM≤ 0.75 ton	0.75 <GVM≤ 3.5 ton	3.5 <GVM≤ 10 ton	10 ton<GVM

As defined in Annex 7 of the Consolidated Resolution on the Construction of Vehicles (R.E.3)

3. Requirement

5.1. General provisions

5.1.1. ~ 5.1.3.

- easy and safe handling of vehicle up to its maximum design speed
- tendency to self-center
- cornering stability and steering effort ⇨ Test provisions
- ability to travel along a straight section at the maximum design speed of the vehicle
  - without unusual steering correction
  - without unusual vibration in the steering system
- correspondence between direction of operation of the steering control and the intended change of direction of the vehicle
- continuous relationship between the steering control deflection and the steering angle

3. Requirement

5.1. General provisions

5.1.4. ~ 5.1.8.

- capability to withstand the stresses arising during normal operation
- no limitation to the maximum steering angle by any part of the steering transmission
- no adverse affection to the steering equipment and the electrical control lines by magnetic or electric fields (conformity to R10)
- no deterioration in the performance of the basic steering system by Advanced driver assistance steering systems
- locking device for adjustable components of steering transmission
- steered wheels shall not be solely the rear wheels

3. Requirement

5.1. General provisions

5.1.9. ~ 5.1.10.

- ensured performance in case of other systems failure that shear energy supply
- application of Annex 6 to the safety aspects of electronic vehicle control systems

5.2. Special provisions for trailers

5.2.1. ~ 5.2.2.

- requirements in paragraph 6.3 ⇨Test provisions
- alignment of the trailer and towing vehicle in straight ahead driving

3. Requirement

5.3. Failure provisions and performance

5.3.1. General

- ample design, easy access for maintenance and safety features equal to other essential components for all mechanical parts
- fulfillment of requirements of paragraphs 5.1.2., 5.1.3. and 6.2.1.
- clear notification of failure in a transmission other than purely mechanical to the vehicle driver
- priority to shared energy source/supply and capability to meet the requirements of paragraphs 5.3.2. and 5.3.3.

3. Requirement

5.3. Failure provisions and performance

5.3.2. Power assisted steering systems

- no immediate changes in steering angle for the engine stop or a part of the transmission fail
- fulfillment of requirements of paragraphs 6. ➡ Test provisions

5.3.3. Full power steering systems

- speed limitation not to exceed 10km/h
- fulfillment of requirements of paragraphs 6. ➡ Test provisions
- capability of 24 "figure of eight" maneuvers in case of the energy source failure of the control transmission
- no immediate changes in steering angle and capability to meet requirements of paragraphs 6. after 25 "figure of eight" maneuvers

3. Requirement

5.4. Warning signals

5.4.1. General provisions

- clear signal for not mechanical fault resulting steering function impair
  - deliberate application of vibration in the steering system
  - increase in steering force in the case of a motor vehicle
- acoustic or optical warning for the stored energy/fluid drops in the energy/storage reservoir in case of shared energy source

5.4.2. Special provisions for full-power steering equipment

- a red warning signal for the main steering equipment defect
- a yellow warning signal indicating an electrically detected defect
- symbol J 04, ISO/IEC registration number 7000-2441 as defined in ISO 2575: 2000

3. Requirement

5.5. Provisions for the periodic technical inspection of steering equipment

5.5.1. ~ 5.5.2.

- operation check without disassembly
- a simple way to verify the correct operational status of Electronic Systems

Thank you!