

Input – Mr. W. Gaupp

Winfried GauppEmail: wgaupp@tuev-nord.de

Tel.: +49 (0)201/825-4139

Fax: +49 (0)201/825-4185

16.04.2010

Informal paper with respect to agenda item

3.3.3 Considerations about amending Annex 21 of ECE-R13**“ O n o n e v e h i c l e ”** requirement, paragraph 2.1.3 and 2.2.3

If a manufacturer wants a type approval for a vehicle for which a “Vehicle Stability Function” (VSF) is required than the Technical Service (TS) has to submit to the Type Approval Authority a report which shows that paragraph 2.1.3 (motor vehicle) or paragraph 2.2.3 (trailer) has been complied with.

T h e s e t w o p a r a g r a p h s r e q u i r e :

*“The vehicle stability function shall be demonstrated to the Technical Service by dynamic manoeuvres **on one** vehicle. This may be realized by a comparison of results obtained with the vehicle stability function enabled and disabled for a given load condition. As an alternative to carrying-out dynamic manoeuvres for other vehicles and other load conditions, fitted with the same vehicle stability system, **the results from actual vehicle tests or computer simulations may be submitted.**”*

For a concrete vehicle type this means that a Technical Service (TS) has to demonstrate to the Type Approval Authority that at least for **one** variant **of a given vehicle type** practical tests (dynamic vehicle manoeuvre) have been carried out.

There are motor vehicle manufacturers who may produce only a few vehicles (N3) of a vehicle type. These are very special vehicles which are sold in different European countries for which the customers sometimes require a proper European type approval. If these vehicles are not excluded from the EVSC requirement, also for these vehicles the fulfilment of Annex 21 (dynamic manoeuvres on at least **one** vehicle) has to be shown.

Input – Mr. W. Gaupp

It is obvious, that a Test Report cannot include in general for a concrete variant of such very small series vehicle types dynamic vehicle tests.

Thus one big task of the AMEVSC group has to be to define appropriate requirements where also these kind of vehicles types can be covered by a test report without having carried out actual vehicle tests of a vehicle of these types.

Also for trailers there is a need to amend paragraph 2.2.3 of Annex 21.

Today, we interpret that e.g. a practical test with a three-axle semi-trailer of a vehicle **type A** may also be taken for the homologation of a three-axle semi-trailer of a vehicle **type B** with similar design characteristics.

However, the wording of paragraph 2.2.3 of Annex 21 - **strictly speaking** - does not permit such an interpretation.

One has to interpret that “one vehicle” can only mean “one vehicle (variant)” of a given vehicle type for which a type approval is sought.

If “one vehicle” could mean **any** vehicle (same or different vehicle type) than paragraph 2.1.3 (motor vehicle) and paragraph 2.2.3 (trailer) of Annex 21 would lose any meaning and would be totally incomprehensible. Then, one practical test in the whole world on any vehicle would be enough to fulfil the “on any vehicle” requirement for all other vehicles for which a type approval is sought.

Since ECE-Regulation No. 13 is a type approval regulation, “vehicle” always means a vehicle of the vehicle type for which an approval is applied for.

In the table below examples are shown to reflect when - in the strict sense of interpretation of paragraph 2.1.3 (motor vehicle) and paragraph 2.2.3 (trailer) of Annex 21- these requirements are fulfilled or not.

The examples in the tables below show that the wording of the current paragraphs 2.1.3 and 2.2.3 of Annex 21 is **totally unrealistic and needs urgent improvement.** To require for each vehicle type a practical tests means in reality that it makes little sense to allow an Annex 19 Test Report or simulations to be used within a type approval procedure for a **specific** vehicle type.

Input – Mr. W. Gaupp

Abbreviations and Definitions used in the following tables

BSA	<p>Vehicles with a brake system “A” which have similar design characteristics (masses, dimensions, brake system, etc) and are comparable with respect to the VSF performance</p> <p>BSA1, BSA2, BSA3, etc. variants of BSA with insignificant deviations with respect to the VSF performance.</p> <p>However, BSA1, BSA2, BSA3 represent three different vehicle types in the meaning of paragraph 2.2 of ECE-Regulation No. 13 (due to different engine type, drive ratios, tyre dimensions, number and arrangement of the axles, etc.).</p>
BSB	Vehicle with a brake system “B” with design characteristics which are not comparable with BSA (with respect to the VSF performance)
M1	Vehicle manufacturer 1
M2	Vehicle manufacturer 2
O4_S_1	<p>Name of vehicle type: O4_S_1*</p> <p>* “Vehicle Type” here in the meaning of paragraph 2.2 of ECE-Regulation No. 13)</p> <p>This is a semi-trailer with one axle of vehicle category 4</p>
O4_S_2	<p>Name of vehicle type: O4_S_2</p> <p>This is a semi-trailer with two axle of vehicle category 4</p>
O4_S_3	<p>Name of vehicle type: O4_S_3</p> <p>This is a semi-trailer with three axles of vehicle category 4</p>
O4_F_2	<p>Name of vehicle type: O4_F_2</p> <p>This is a full trailer with two axles of vehicle category 4</p>
O4_F_3	<p>Name of vehicle type: O4_F_3</p> <p>This is a full trailer with three axles of vehicle category 4</p>
O4_C_1	<p>Name of vehicle type: O4_C_1</p> <p>This is a centre-axle trailer with one axle of vehicle category 4</p>
O4_C_2	<p>Name of vehicle type: O4_C_2</p> <p>This is a centre-axle trailer with two axles of vehicle category 4</p>
O4_C_3	<p>Name of vehicle type: O4_C_3</p> <p>This is a centre-axle trailer with three axles of vehicle category 4</p>
VehT	Vehicle Type (in the meaning of paragraph 2.2 of ECE-Regulation No. 13) for which a Type Approval is applied

Input – Mr. W. Gaupp

VSF	Vehicle Stability Function
VT	Vehicle test
VT_one	Only one vehicle test on one test vehicle of the vehicle type
VT_all	All relevant vehicle configurations are covered by vehicle tests
Sim	Simulation in addition to vehicle test(s)

VehT	VT_one	VT_all	Sim	Notes
Motor vehicles	Permissible test combinations			
N3_M1_BSA1	Yes	No	Yes	At least one VT is required
N3_M1_BSA2	No	Yes	No	
N3_M1_BSA3	No	Yes	No	
N3_M2_BSA1	Yes	No	Yes	At least one VT is required
N3_M2_BSA2	No	Yes	No	
N3_M2_BSA3	No	Yes	No	
N3_M2_BSB1	Yes	No	Yes	At least one VT is required
N3_M2_BSB2	No	Yes	No	
N3_M2_BSM3	No	Yes	No	
	Not permissible test combinations for VehT "N3_M1_BSA1"			
N3_M1_BSA1	No	No	Yes	N3_M1_BSA1 is another VehT than N3_M1_BSA2 A practical test on at least one vehicle is still required for VehT N3_M1_BSA1
N3_M1_BSA2	No	Yes	Yes	
N3_M1_BSA1	No	No	Yes	N3_M1_BSA1 is another VehT than N3_M2_BSA1 Although both vehicle types are more or less identical with each other a practical test on at least one vehicle is still required for VehT N3_M1_BSA1
N3_M2_BSA1	No	Yes	Yes	

Input – Mr. W. Gaupp

VehT	VT_one	VT_all	Sim	Notes
Trailers	Permissible test combinations			
O4_S_1	Yes	No	Yes	At least one VT is required
O4_S_2	No	Yes	No	
O4_S_3	No	Yes	No	
O4_F_2	Yes	No	Yes	At least one VT is required
O4_F_3	Yes	No	Yes	
O4_C_1	Yes	No	Yes	At least one VT is required
O4_C_2	No	Yes	No	
O4_C_3	No	Yes	No	
	Not permissible test combinations for VehT O4_S_1 and O4_S_2			
O4_S_1	No	No	Yes	O4_S_3 tests cannot be used for vehicle type approvals for VehT O4_S_1 and O4_S_2
O4_S_2	No	No	Yes	
O4_S_3	No	Yes	Yes	
	Not permissible test combinations for VehT O4_C_3			
O4_C_3	No	No	Yes	VehT O4_C_3 is another VehT than O4_S_3
O4_S_3	No	Yes	Yes	It cannot be assumed that Annex 21 makes the same concession as Annex 19 (semi-trailer tests cover also centre-axle trailer test)