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Item 5.4. of the provisional agenda

REVISED PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 110

(Specific components for CNG)

Submitted by the expert from the European Natural Gas Vehicle Association (ENGVA)

Note: The text reproduced below was prepared by the expert from ENGVA to amend the text of the Regulation with regard to the harmonization of fuelling connectors. This proposal reflects the agreement reached at the fifty-first GRPE session to insert a figure of the filling unit including the dimensions (ECE/TRANS/WP.29/GRPE/51, para. 33). It is mainly based on ECE/TRANS/WP.29/GRPE/2006/6/Rev.1 and is amended in a way that the dimensions of the filling unit will be mandatory for new type approvals of M1 and N1 vehicles. The use of the ISO standard is optional.

The modifications to the current text of the Regulation are marked in **bold** characters.

Note: This document is distributed to the Experts on Pollution and Energy only.

A. PROPOSAL

Insert a new paragraph 17.9.3., to read (including the insertion of a new footnote */):

"17.9.3. For vehicles of classes M1 and N1 the filling unit (receptacle) shall comply with the drawing specifications detailed in Figure 1 of Annex 4F.

***/ As defined in Annex 7 to the Consolidated Resolution on the Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev.1/Amend.2)."**

Annex 4F, amend to read:

"Annex 4F

PROVISIONS REGARDING THE APPROVAL OF THE FILLING UNIT (**Receptacle**)

1. Scope

The purpose of this annex is to determine the provisions regarding the approval of the filling unit.

2. The filling unit

2.1. The filling unit shall comply with the requirements laid down in paragraph 3. and shall have the dimensions of paragraph 4., if applicable.

2.2. Filling units designed in accordance with ISO 14469-1 first edition 2004-11-01 1/ and meeting all the requirements therein are deemed to fulfil the requirements of paragraphs 3. and 4. of this annex.

3. The filling unit test procedures

3.1. The filling unit shall be conform to the requirements of Class 0 and follow the test procedures in Annex 5 with the following specific requirements.

3.2. The material constituting the filling unit which is in contact with the CNG when the device is in service shall be compatible with the CNG. In order to verify this compatibility, the procedure of Annex 5D shall be used.

3.3. The filling unit shall be free from leakage at a pressure of 1.5 times the working pressure (MPa) (see Annex 5B).

3.4. The filling unit shall withstand a pressure of 33 MPa.

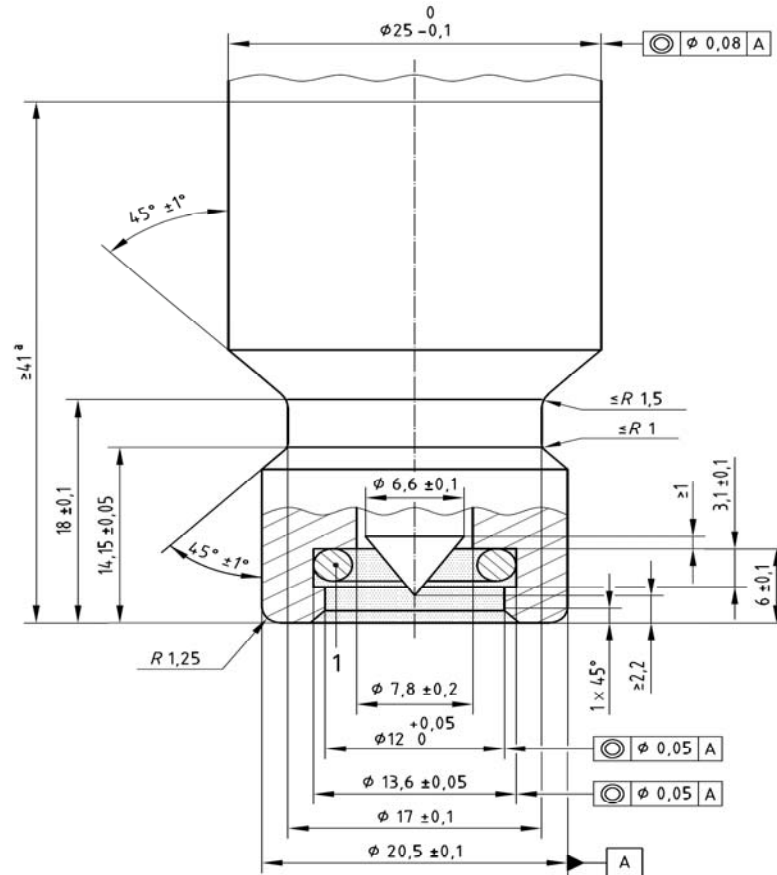
3.5. The filling unit shall be so designed as to operate at temperatures as specified in Annex 5O.

3.6. The filling unit shall withstand a number of 10,000 cycles in the durability test specified in Annex 5L.

4. Filling unit dimensions

4.1. Figure 1 shows the dimensions of the filling unit for vehicles of categories M1 and N1. 2/

Fig. 1: 20 MPa Filling unit (receptacle) for M1 and N1 vehicles



Key

This area shall be kept free of all components.

1 Sealing surface equivalent to No. 110 O-ring of dimensions:

9.19 mm ± 0.127 mm ID

2.62 mm ± 0.076 mm width

Sealing surface finish: 0.8 μm to 0.05 μm

Material hardness: 75 Rockwell (HRB 75) minimum

a Minimum length of the receptacle which is clear of provisions for attachment of receptacle or protective caps.

Dimensions in millimetres

Surface roughness \sqrt{Ra} 3.2 μm

1/ Road Vehicles compressed Natural Gas (CNG) refuelling connector – part 1: 20 MPa (200 bar) connector.

2/ As defined in Annex 7 to the Consolidated Resolution on the Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev.1/Amend.2)."

B. JUSTIFICATION

Today a number of different types of filling units (fuelling connectors) are exported all around the world. Customers who travel with their natural gas vehicles in different countries as well as CNG component suppliers require the harmonization of the fuelling connector. For drivers, it allows easy fuelling regardless of location and eliminates the need for adaptors to fit different fuelling connectors. For equipment suppliers, it means that only one fuelling connector design can apply to all markets, thus reducing the cost of manufacturing and the cost to the customer. Recently, approved ISO 14469-1 standard for 200 bar (20 MPa) connector for light-duty vehicles provides an opportunity to adopt a unique, worldwide recognized and approved fuelling connector.

This amendment proposes to adopt the ISO 14469-1 as the standard fuelling connector for 20 MPa service pressure CNG systems.

ISO is now also preparing a similar standard for heavy-duty CNG vehicles: ISO DIS 14469-2 "Road vehicles Compressed Natural Gas (CNG) refuelling connector" – part 2: 20 MPa (200 bar) connector size 2.
