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Item 7 of the provisional agenda

Regulation No. 67 (LPG vehicles)**Proposal for Supplement 15 to the 01 series of amendments to Regulation No. 67 (LPG vehicles)****Submitted by the expert from Poland***

The text reproduced below was prepared by the expert from Poland to clarify, in UN Regulation No. 67 on Liquefied Petroleum Gas (LPG) vehicles, the definition of type approved accessories for LPG container. It is based on informal document GRSG-111-17 distributed during the 111th session of the Working Party on General Safety Provisions (GRSG) (see report ECE/TRANS/WP.29/GRSG/90, para. 26). The modifications to the current text of UN Regulation No. 67 are marked in bold characters for new and strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2016–2017 (ECE/TRANS/254, para. 159 and ECE/TRANS/2016/28/Add.1, cluster 3.1), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

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I. Proposal

Insert new paragraphs 2.21. to 2.23.2., to read:

"2.21. "Type of multivalve" means a multivalve which does not differ in respect to the following characteristics:

- (a) the set of accessories;
- (b) the design and material of the body;
- (c) the design and the material of pressure relief valve (PRV) (if used), except for the modification described in paragraph 2.21.1.(a) below;
- (d) the design and the material of fusible plug (if used), except for the modification described in paragraph 2.21.1.(b) below;
- (e) the design and the material of 80 per cent stop valve (if used), except for the modification described in paragraph 2.21.1.(c) below.

2.21.1. "Version of multivalve" means a multivalve which is adapted to operate in different types of containers:

- (a) PRV modifications may only concern the length of the tube connecting the valve with the space above the surface of the liquid phase of the LPG;
- (b) Fusible plug modifications may only concern the length of the tube connecting the valve with the space above the surface of the liquid phase of the LPG;
- (c) 80 per cent stop valve can only be modified to ensure that the valve operates properly in accordance with the requirements specified in paragraph 6.15.1.3. on all containers on which it is intended to be fitted;

if the Technical Service responsible for conducting the approval tests, considers that it is strictly necessary and does not deteriorate the safety of operation.

2.22. "Type of a PRV" means a PRV which does not differ in respect to the design and the material, except for the modification described in paragraph 2.22.1.

2.22.1. "Version of a PRV" means a PRV which is adopted for operating in different types of containers.

Adaptation of a PRV may only concern the length of the tube connecting the valve with the space above the surface of the liquid phase of the LPG and the method of a PRV installation, for example change the type of thread or the diameter of the mounting socket, if the Technical Service responsible for conducting approval tests consider that it is strictly necessary and does not deteriorate safety of operation.

2.23. "Fusible plug" (temperature triggered) means a device, which becomes permanently open when the temperature exceeds a predetermined value, designed to release the LPG fuel from the container in the event of a fire.

2.23.1. **"Type of fusible plug"** means a fusible plug which does not differ in respect to the design and the material, except for the modification described in paragraph 2.23.2.

2.23.2. **"Version of fusible plug"** means a fusible plug which is adopted for operating in different types of containers.

Adaptation of a fusible plug may only concern the length of the tube connecting the valve with the space above the surface of the liquid phase of the LPG fuel and the method of fusible plug installation, for example change the type of thread or the diameter of the mounting socket, if the Technical Service responsible for conducting approval tests considers that it is strictly necessary and does not deteriorate the safety of operation."

Paragraphs 6.15.8.5. and 6.15.8.6., amend to read:

6.15.8.5. The ~~pressure relief device (fuse)~~ **fusible plug** shall be designed to open at a temperature of 120 ± 10 °C.

6.15.8.6. The ~~pressure relief device (fuse)~~ **fusible plug** shall be designed to have, when opened, a flow capacity of:

....."

Paragraph 17.3.1.13., amend to read:

17.3.1.13. Pressure relief device (~~fuse~~)."

Insert a new paragraph 22.6., to read:

"22.6. As from 12 months after the official date of entry into force of this Regulation, as amended by Supplement XX to the 01 series of amendments, Contracting Parties applying this Regulation shall grant approvals only if the component to be approved meets the requirements of this Regulation as amended by Supplement XX to 01 series of amendments."

Annex 1

Insert new items 1.2.4.5.8.4. to 1.2.4.5.8.4.6., to read:

- 1.2.4.5.8.4. Fusible plug**
- 1.2.4.5.8.4.1. Make(s):**
- 1.2.4.5.8.4.2. Type(s):**
- 1.2.4.5.8.4.3. Description and drawings:**
- 1.2.4.5.8.4.4. Operating temperature:**
- 1.2.4.5.8.4.5. Material:**
- 1.2.4.5.8.4.6. Flow rate in standard condition:**"

Items 1.2.4.5.8.4. to 1.2.4.5.8.8.3. (former), renumber as items 1.2.4.5.8.5. to 1.2.4.5.8.9.3.

Annex 2B, item 1., amend to read:

1. LPG equipment

.....

Pressure relief device

Fusible plug

Remotely controlled service valve with excess flow valve

....."

Annex 3

Paragraph 7.4., amend to read:

"7.4. Design temperature:

The ~~fuse~~ **fusible plug** has to be designed to open at a temperature of 120 ± 10 °C"

Paragraph 7.7., amend to read:

"7.7. ~~Pressure relief device (fuse)~~ **The fusible plug** requirements:

~~Pressure relief device (fuse)~~ **The fusible plug** specified by the manufacturer shall be shown to be compatible with the service conditions by means of the following tests:

....."

Annex 10, paragraph 2.6.2., letter (b), amend to read:

"2.6.2. Container set-up

.....

(b) Shielding shall be used to prevent direct flame impingement on the fusible plug (~~PRD~~) if present. The shielding shall not be in direct contact with the fusible plug (~~PRD~~).

....."

II. Justification

A. INTRODUCTION

1. This proposal concerns amendments to the UN Regulation No. 67 on definitions of the LPG container type approved accessories. The correction is intended to facilitate the coordination of the approval of the LPG container and its approved accessories.

2. The proposal does not introduce any changes in technical requirements or changes in the test methodology. The proposed changes are intended to prevent the possibility of improper selection of accessories for the tank, which could arise due to lack of clear provisions of type-approval certificates issued for accessories fitted to the container.

B. PROBLEM DESCRIPTION

3. According to the UN Regulation No. 67 approval of the LPG container and its accessories are separate and independent type approval procedures. Thus, for each component, an individual type-approval certificate is issued.

4. However in the case of a bonfire test, the LPG container type-approval process requires a check of the behaviour of the container together with its accessories. The function of accessories is to empty the container fast enough to limit the maximum pressure and in this way to protect the container wall from bursting.
 5. Approval of a set of accessories that can be fixed to the container is confirmed by the bonfire test positive results. This assures that the equipment has been properly selected for the LPG container size and construction. After this test it is possible to create a list of type approved accessories for specified container (Regulation No. 67, Annex 10, para 2.6).
 6. Due to technical progress design of the container, accessories are constantly changing. Therefore, research is carried out and new extensions of type-approvals are granted. The lack of type definition with respect to accessories creates a possibility for introducing any technical change to the previously approved products within the same type approval.
 7. Therefore, it is acceptable to change the design of the components responsible for the safety of the container (PRV and thermal fuse) after its approval as container accessories. In formal terms, everything is under control. The new version of the accessories should not be installed on the container until the device is introduced into the list of approved accessories of container.
 8. The manufacturer is obliged to mark the product with the type approval number, but is not obligated to mark it with the number of extension (Regulation No. 67, para 4.1). This means that holding in the hand a component approved according to Regulation No. 67 you cannot be sure of the actual extension of approval.
 9. Moreover, the same type of component may represent two or more devices of fundamentally different construction. They may also be approved as two versions of the same type. The manufacturer is obliged to mark the product with the type and type approval number, but not with the version (Regulation No. 67, para 4.1).
 10. By presenting these proposals, the expert from Poland intends to specify clearly the limits of construction changes carried out in the framework of one type of approved devices, especially for the modifications, which are relevant for the approval of LPG container.
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