



**Economic and Social
Council**

Distr.
GENERAL

ECE/TRANS/WP.29/2008/99
24 July 2008

Original: ENGLISH

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations

One-hundred-and-forty-sixth session
Geneva, 11-14 November 2008
Item 4.2.28 of the provisional agenda

1958 AGREEMENT

Consideration of draft amendments to existing Regulations

Proposal for Supplement 8 to Regulation No. 110
(Specific components for compressed natural gasses (CNG))

Submitted by the Working Party on General Safety Provisions */

The text reproduced below was adopted by the Working Party on General Safety Provisions (GRSG) at its ninety-fourth session (ECE/TRANS/WP.29/GRSG/73, para. 37). It is based on ECE/TRANS/WP.29/GRPE/2007/13, as amended by para. 37 of the report. It is submitted to WP.29 and AC.1 for consideration.

*/ In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance performance of vehicles. The present document is submitted in conformity with that mandate.

Paragraph 2.2., insert new item (v), to read:

- "2.2. ...
 (u) ventilation hose,
 (v) pressure relief device (PRD) (pressure triggered)."

Paragraph 2.22., amend to read:

"2.22. "Pressure relief device (PRD) (temperature triggered)" means a one time use device triggered by excessive temperature which vents gas to protect the cylinder from rupture."

Insert a new paragraph 2.27., to read:

"2.27. "Pressure relief device (PRD) (pressure triggered) (this device sometimes is referred to as "burst disc")" means a one time use device triggered by excessive pressure which prevents a pre-determined upstream pressure being exceeded."

Paragraphs 6.4. to 6.11., amend the table to read:

"

Paragraph	Component	Annex
6.4.	Automatic valve Check valve or non-return valve Pressure relief valve Pressure relief device (temperature triggered) Excess flow valve Pressure relief device (pressure triggered)	4A
6.5.	Flexible fuel
...

"

Insert a new paragraph 17.3.2.6., to read:

"17.3.2.6. PRD (pressure triggered)."

Insert new paragraphs 17.5.6. to 17.5.6.2., to read:

"17.5.6. PRD (pressure triggered)

17.5.6.1. The PRD (pressure triggered) shall be activated and shall vent the gas independently from the PRD (temperature triggered).

17.5.6.2. The PRD (pressure triggered) shall be fitted to the fuel container(s) in such a manner that it can discharge into the gas-tight housing if that gas-tight housing fulfils the requirements of paragraph 17.5.5."

Annex 1A, insert new items 1.2.4.5.16. to 1.2.4.5.16.6., to read:

- "1.2.4.5.16. PRD (pressure triggered): yes/no 1/
- 1.2.4.5.16.1. Make(s):
- 1.2.4.5.16.2. Type(s):
- 1.2.4.5.16.3. Description and drawings:.....
- 1.2.4.5.16.4. Activation pressure: 2/ MPa
- 1.2.4.5.16.5. Material:
- 1.2.4.5.16.6. Operating temperatures: 2/ °C"

Annex 1B,

Insert new items 1.2.4.5.16. to 1.2.4.5.16.6., to read:

- "1.2.4.5.16. PRD (pressure triggered): yes/no 1/
- 1.2.4.5.16.1. Make(s):
- 1.2.4.5.16.2. Type(s):
- 1.2.4.5.16.3. Activation pressure: 2/ MPa
- 1.2.4.5.16.4. Material:
- 1.2.4.5.16.5. Operating temperatures: 2/ °C"

Items 1.2.4.5.16. to 1.2.4.5.16.5. (former), renumber as items 1.2.4.5.17. to 1.2.4.5.17.5.

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

- "1. CNG component considered:
-
- Pressure relief device (PRD) (temperature triggered) 2/
-
- CNG filter(s) 2/
- PRD (pressure triggered) 2/"

Annex 2B, Addendum,

Insert new items 1.19. to 1.19.2., to read:

- "1.19. PRD (pressure triggered)
- 1.19.1. Working pressure(s): 2/ MPa
- 1.19.2. Material:..... "

Annex 3, Appendix A,

Paragraph A.15.4., amend to read:

"A.15.4. Temperature and pressure measurements

Surface temperatures shall be less than 25 square mm.

The pressure inside the cylinder shall be measured by a pressure sensor without modify the configuration of the system under test.

Thermocouple temperatures and ..."

Paragraph A.28., should be deleted.

Annex 4A,

The title, amend to read:

"PROVISIONS REGARDING THE APPROVAL OF THE AUTOMATIC VALVE, NON RETURN VALVE, PRESSURE RELIEF VALVE, PRESSURE RELIEF DEVICE (TEMPERATURE TRIGGERED), EXCESS FLOW VALVE, MANUAL VALVE AND THE PRESSURE RELIEF DEVICE (PRESSURE TRIGGERED)"

Add a new paragraph 6.3., to read: (content of former Annex 3, Appendix A, paragraph A.28.)

"6.3. Manual valve device requirements

One specimen shall be submitted to a fatigue test at a pressure cycling rate not to exceed 4 cycles per minute as follows:

(i) held at 20 °C while pressured for 2,000 cycles between 2 MPa and 26 MPa."

Add new paragraphs 7. to 7.4.2.2.2., to read:

"7. Pressure relief device (pressure triggered)

7.1. The materials constituting the PRD (pressure triggered) which are in contact with the CNG when operating, shall be compatible with the test CNG. In order to verify this compatibility, the procedure described in Annex 5D shall be used.

7.2. Operating specifications

7.2.1. The PRD (pressure triggered) of Class 0, shall be so designed to operate at temperatures as specified in the Annex 5O.

7.2.2. The burst pressure shall be 34 MPa \pm 10 per cent at ambient temperature and at the maximum operating temperature as indicated in Annex 5O.

7.3. The device has to comply with the test procedures for the Class components, specified in the scheme in Figure 1-1 of paragraph 2. of this Regulation, except overpressure, internal leakage and external leakage.

7.4. PRD (pressure triggered) requirements.

7.4.1. Continued operation

7.4.1.1. Test procedure

Cycle the PRD (pressure triggered) according to Table 3, with water between 10 per cent and 100 per cent of the working pressure, at a maximum cyclic rate of 10 cycles per minute and a temperature of 82 °C \pm 2 °C or 57 °C \pm 2 °C.

Table 3 — Test temperatures and cycles

Temperature [°C]	Cycles
82	2,000
57	18,000

7.4.1.2. Requirements

7.4.1.2.1. At the completion of the test, the component shall not leak more than 15 cm³/hour when submitted to a gas pressure equal to the maximum working pressure at ambient temperature and at the maximum operating temperature as indicated in Annex 5O.

7.4.1.2.2. At the completion of the test, the PRD (pressure triggered) burst pressure shall be 34 MPa \pm 10 per cent at ambient temperature and at the maximum operating temperature as indicated in Annex 5O.

7.4.2. Corrosion resistance test

7.4.2.1. Test procedure

The PRD (pressure triggered) shall be subjected to the test procedure described in Annex 5E, except the leakage test.

7.4.2.2. Requirements

7.4.2.2.1. At the completion of the test, the component shall not leak more than 15 cm³/hour when submitted to a gas pressure equal to the maximum working pressure at ambient temperature and at the maximum operating temperature as indicated in Annex 5O.

- 7.4.2.2.2. At the completion of the test, the PRD (pressure triggered) burst pressure shall be $34 \text{ MPa} \pm 10$ per cent at ambient temperature and at the maximum operating temperature as indicated in Annex 5O."
