

16 April 2004

AGREEMENT

**CONCERNING THE ADOPTION OF UNIFORM TECHNICAL PRESCRIPTIONS
FOR WHEELED VEHICLES, EQUIPMENT AND PARTS WHICH CAN BE FITTED
AND/OR BE USED ON WHEELED VEHICLES AND THE CONDITIONS FOR
RECIPROCAL RECOGNITION OF APPROVALS GRANTED ON THE BASIS OF
THESE PRESCRIPTIONS */**

(Revision 2, including the amendments which entered into force on 16 October 1995)

Addendum 109: Regulation No. 110

Amendment 2

Supplement 2 to the original version of the Regulation - Date of entry into force: 27 February 2004

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF:

- I. SPECIFIC COMPONENTS OF MOTOR VEHICLES USING COMPRESSED NATURAL GAS (CNG) IN THEIR PROPULSION SYSTEM;**
- II. VEHICLES WITH REGARD TO THE INSTALLATION OF SPECIFIC COMPONENTS OF AN APPROVED TYPE FOR THE USE OF COMPRESSED NATURAL GAS (CNG) IN THEIR PROPULSION SYSTEM**



UNITED NATIONS

*/ Former title of the Agreement:

Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958.

GE.04-21632

Throughout the Regulation and its annexes, amend the words "check valve" to read "non-return valve" (in French "soupape de contrôle" or "soupape antiretour" to read "clapet antiretour"; in Russian "stoporny klapan" to read "obratnyi klapan").

Throughout the Regulation and its annexes (French only), amend the words "CNG" to read "GNC" (including the figure in annex 6).

Insert a new paragraph 2.1.4., to read:

"2.1.4. "Operating temperatures" means maximum values of the temperature ranges, indicated in Annex 50, at which safe and good functioning of the specific component is ensured and for which it has been designed and approved."

Paragraph 2.2., amend to read:

"
(f) gas supply device
..... "

Paragraph 2.5. (French only).

Paragraph 2.9., amend to read:

"2.9. "Non-return valve" means "

Paragraph 2.17., amend to read:

"2.17. "Gas supply device"

Insert new paragraphs 2.17.1. and 2.17.2., to read:

"2.17.1. "Gas/air mixer" means a device for mixing the gaseous fuel and intake air for the engine.

2.17.2. "Gas injector" means a device for introducing gaseous fuel into the engine or associated intake system."

Paragraph 2.25., amend to read:

"2.25. "Type of components" as mentioned in paragraphs 2.6. to 2.23. above means components which do not differ in such essential respect as materials, working pressure and operating temperatures."

Paragraph 4.1., amend to read:

"4.1. The sample of specific component submitted for approval shall bear the trade name or mark of the manufacturer and the type, including one concerning designation regarding operating temperatures ("M" or "C" for moderate or cold temperatures as appropriate); and for flexible hoses"

Paragraph 4.3. (e)., amend the word "weight" to read "mass".

Paragraph 17.1.1., amend to read:

"17.1.1. The CNG system of the vehicle shall function in a good and safe manner at the working pressure and operating temperatures for which it has been designed and approved."

Paragraph 17.1.7.1., amend the reference to "paragraph 17.1.8." to read "paragraph 17.1.7."

Paragraph 17.1.7.2., amend the reference to "paragraph 17.1.8.1." to read "paragraph 17.1.7.1."

Paragraph 17.3.1.9., amend to read:

"17.3.1.9. Gas supply device;"

Paragraph 17.5.5.5., amend to read:

" permanent deformations. In this circumstances a leak not exceeding 100 cm³ per hour may be accepted."

Paragraph 17.10.2., amend to read:

"17.10.2. Vehicles with more than one fuel system shall have a fuel selection system to ensure that no more than one fuel at the same time is supplied to the engine for more than 5 seconds. "Dual-fuel" vehicles, using diesel as the primary fuel for igniting the air/gas mixture, are allowed in cases where these engines and vehicles meet mandatory emission standards."

Annex 1A.

Item 1.2.4.5.3., amend to read:

"1.2.4.5.3. Gas/air mixer: yes/no 1/"

Item 1.2.4.5.5., amend to read:

"1.2.4.5.5. Gas injector(s): yes/no 1/"

Insert new items 1.2.4.5.2.13., 1.2.4.5.3.8., 1.2.4.5.4.8., 1.2.4.5.5.7., 1.2.4.5.6.5., 1.2.4.5.8.1.6.,
1.2.4.5.8.2.5., 1.2.4.5.8.3.5., 1.2.4.5.8.4.5., 1.2.4.5.8.5.5., 1.2.4.5.8.6.5.,
1.2.4.5.9.6., 1.2.4.5.10.6., 1.2.4.5.11.6., 1.2.4.5.12.6., 1.2.4.5.13.6., 1.2.4.5.14.6.,
to read:

"..... Operating temperatures: 2/°C"

(e.g. "1.2.4.5.2.13. Operating temperatures: 2/°C")

Item 1.2.4.5.9.4., amend to read:

"1.2.4.5.9.4. Activation temperature: 2/°C"

Annex 1B,

Item 1.2.4.5.3., amend to read:

"1.2.4.5.3. Gas/air mixer: yes/no 1/"

Item 1.2.4.5.5., amend to read:

"1.2.4.5.5. Gas injector(s): yes/no 1/"

Insert new items 1.2.4.5.2.5., 1.2.4.5.3.6., 1.2.4.5.4.6., 1.2.4.5.5.5., 1.2.4.5.6.4., 1.2.4.5.8.1.5.,
1.2.4.5.8.2.5., 1.2.4.5.8.3.5., 1.2.4.5.8.4.5., 1.2.4.5.8.5.5., 1.2.4.5.8.6.5.,
1.2.4.5.9.5., 1.2.4.5.10.5., 1.2.4.5.11.5., 1.2.4.5.12.5., 1.2.4.5.13.5., 1.2.4.5.14.5.,
to read:

"..... Operating temperatures: 2/°C"

(e.g. "1.2.4.5.2.5. Operating temperatures: 2/°C")

Item 1.2.4.5.9.3., amend to read:

"1.2.4.5.9.3. Activation temperature: 2/°C"

Annex 2B,

Item 1., amend to read:

"
.....or receptacle 2/
Gas injector(s) 2/

Gas flow adjuster 2/
Gas/air mixer 2/
Electronic"

Annex 2B - Addendum,

Item 1.13., amend to read:

"1.13. Gas injector(s)
Working
....."

Item 1.15., amend to read:

"1.15. Gas/air mixer
Working
....."

Annex 2 C, Model A (French only), the reference to "Regulation No. 67" should read "Regulation No. 110"

Annex 2 D, (French only), amend the expression "GPL" to read "GNC"

Annex 3,

Table 6.3. column GNC-1 (English and Russian only), amend the value "450" to read "45"

Paragraph 11.1. (French only).

Annex 3 – Appendix A,

Item A.10. (English only), amend the reference to "cc/hr" to read "cm³/h"

Paragraph A.24., amend to read:

"A.24. Pressure relief device requirements

Pressure relief device specified by the manufacturer shall be shown to be compatible with the service conditions listed in paragraph 4. of annex 3 and through the following qualification tests:

- (a) One specimen shall be held at a controlled temperature of not less than 95 °C and a pressure not less than test pressure (30 MPa) for 24 hours. At the end of this test ..."

Add a new paragraph A.28., to read:

"A.28. 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 2000 cycles between 2 MPa and 26 MPa."

Annex 3, Appendix D, amend to read:

..

Marks stamped on shoulder or on labels of the cyclinder are:

- (a) "CNG only":
 (b) "DO NOT USE AFTER":
 (a) "Manufacturer's mark":
 (d) Serial and part number:
 (e) Working pressure in MPa:
"

Annex 4A,

Add a new paragraph 6., to read:

"6. The manual valve

- 6.1. The manual valve device in Class 0 shall be designed to withstand a pressure of 1.5 times the working pressure.
- 6.2. The manual valve device in Class 0 shall be designed to operate at a temperature from -40 °C to 85 °C."

Annex 4B,

Paragraph 1.5.2.2., amend to read:

"1.5.2.2. Test temperature: -40 °C ± 3 °C
or -20 °C ± 3 °C, if applicable."

Paragraph 1.6.2.2., amend to read:

"1.6.2.2. The sealing cone of swivel-nut type must be of the type with a half vertical angle of 45° ."
