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agenda item B.1.5.)

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 44
(Child restraints)

Transmitted by the expert from the European Association of Automotive Suppliers (CLEPA)

Note: The text reproduced below was transmitted by the expert from CLEPA as alternative proposals to those appearing in document TRANS/WP.29/GRSP/2001/13 covering proposals to introduce in Regulation No. 44 a type approval scheme (flow chart), including product qualification and specifying the conformity of production. It is based on a document distributed without a symbol (informal document No. 6) during the thirty-third session (TRANS/WP.29/GRSP/33, para. 27). The proposed new text is in bold type.

Note: This document is distributed to the Experts on Passive Safety only.

A. PROPOSAL

The list of contents,

Insert a new item 11., to read:

"**11. Production qualification .....**"

Items 11. to 16. (former), renumber as items 12. to 17.

Insert a new item, to read:

"**Annex 16 – Type approval scheme (flow chart ISO 9000:2000)**"

Annexes 16 to 21 (former), renumber as annexes 17 to 22.

The text of the Regulation,

Insert new paragraphs 2.37. to 2.39., to read:

"**2.37.** "**approval test**" **means a test to determine the extent to which a child restraint system type submitted for approval is capable of satisfying the requirements.**

2.38. "**production qualification test**" **means a test to determine whether the manufacturing system is able to produce child restraint systems, of the type submitted for type approval, that satisfy the requirements.**

2.39. "**routine testing**" **means the testing of a number of restraint systems selected randomly from production at the manufacturer to verify the extent to which they satisfy the requirements.**"

Paragraph 3.4., amend to read:

"**3.4.** **The competent authority shall verify the existence of satisfactory arrangements for ensuring effective control of conformity of production in accordance with the provisions of paragraph 11. and annex 16 before type-approval is granted.**"

Paragraphs 7.1.2.1. and 8.3.2, the reference to "annex 17", amend to read "**annex 18**".

Paragraph 8.1.3.6.3.2, the reference to "annex 21", amend to read "**annex 22**".

Paragraph 8.2.7., the reference to "annex 19", amend to read "**annex 20**".

Paragraph 8.2.1.3.2., amend to read:

"**8.2.1.3.2. Annex 21 shows a typical device...**"

Insert new paragraphs 11., to 11.3. to read:

"**11. PRODUCTION QUALIFICATION**

11.1. In order to make sure that the manufacturer's production system is satisfactory, the technical service, which conducted the type approval tests, must carry out tests to qualify production in accordance with paragraph 11.2.

11.2. Qualifying the production of child restraint systems.

The production of each new approved type of child restraint system must be subjected to production qualification tests. For this purpose, a random sample from the first production batch will be taken of 5 child restraint systems. The first batch is considered to be the production of the first block containing a minimum of 50 child restraint systems and a maximum of 1000 child restraint systems.

11.2.1. Dynamic tests.

11.2.1.1. Five child restraint systems in each mass group determined during approval tests must be subjected to the dynamic test described in paragraph 8.1.3. The technical service that conducted the approval tests chooses the worst case condition for a dynamic test for each mass group.

11.2.1.2. the results of the tests described in paragraph 11.2.1.1. must comply with the following two conditions:

No value shall exceed 1.05 L, and
X shall not exceed L,

where:

L= the limit value prescribed for each approval test,
X= the mean of the values.

11.2.1.3. If the sample of child restraints does not meet the requirements of paragraph 11.2.1.2. a further 5 samples shall be taken and if these 5 results do not comply, the type approval certificate will not be issued until appropriate corrective action is taken to restore conformity and re-tests have been completed to the satisfaction of the competent authority.

11.2.2. Markings

The technical service that conducted the approval tests verifies that the markings conform to the requirements of paragraph 4.

11.2.3. Instructions on installation and the instructions for use:

11.2.3.1. The technical service that conducted the approval tests shall verify that the instructions on installation and the instructions for use conform to paragraph 14.

11.3. The first batch shall not be dispatched until the requirements of paragraph 11.2. have been satisfied."

Paragraphs 11., 11.1. (former), renumber as paragraphs 12. and 12.1.

Paragraph 11.2. (former), renumber as paragraph 12.2. and amend the reference to "paragraph 11.1". to read "paragraph 12.1."

Paragraph 11.3. (former), renumber as paragraph 12.3.and amend to read:

"**12.3. The holder of the approval is responsible for the conformity of production procedures and he shall in particular:**"

Paragraphs 11.3.1. to 11.3.4. (former), renumber as paragraphs 12.3.1.to 12.3.4.

Paragraph 11.3.5. (former), renumber as paragraph 12.3.5. and amend the reference to "annex 16" to read "**annex 17**".

Paragraph 11.3.6. (former), renumber as paragraph 12.3.6.

Paragraphs 11.4. to 11.4.4. (former) renumber as paragraphs 12.4. to 12.4.4 and amend to read:

"**12.4. The competent authority, which has granted type approval, must verify the conformity control methods applicable to each production unit by periodic visits and random tests in accordance with the provisions of annex 16.**

12.4.1. At every visit, the test books and production survey records shall be presented to the visiting inspector. For companies not approved to ISO 9000:2000 (or equivalent standard) the inspector will also verify the continued effectiveness of the production quality control systems in maintaining conformity of production.

12.4.2. At every visit the inspector shall select samples at random, which will be tested at the manufacturer's facility. The minimum number of samples may be determined according to the results of the manufacturer's own verification. Samples shall be selected in such a way that each approved child restraint type is taken for random testing at least once every 2 years. The competent authority may carry out any test prescribed in this regulation.

12.4.3. When the quality level appears to be unsatisfactory, or when it seems necessary to verify the validity of the tests carried out in application of paragraph 12.4.2. the inspector shall select samples to be sent to the technical service which conducted the type-approval tests

12,4.4. The frequency of inspections authorized by the competent authority shall be 2 per year. In any case, where negative results are recorded during one of these inspections, the competent authority shall ensure that all necessary steps are taken to re-establish the conformity of production as rapidly as possible."

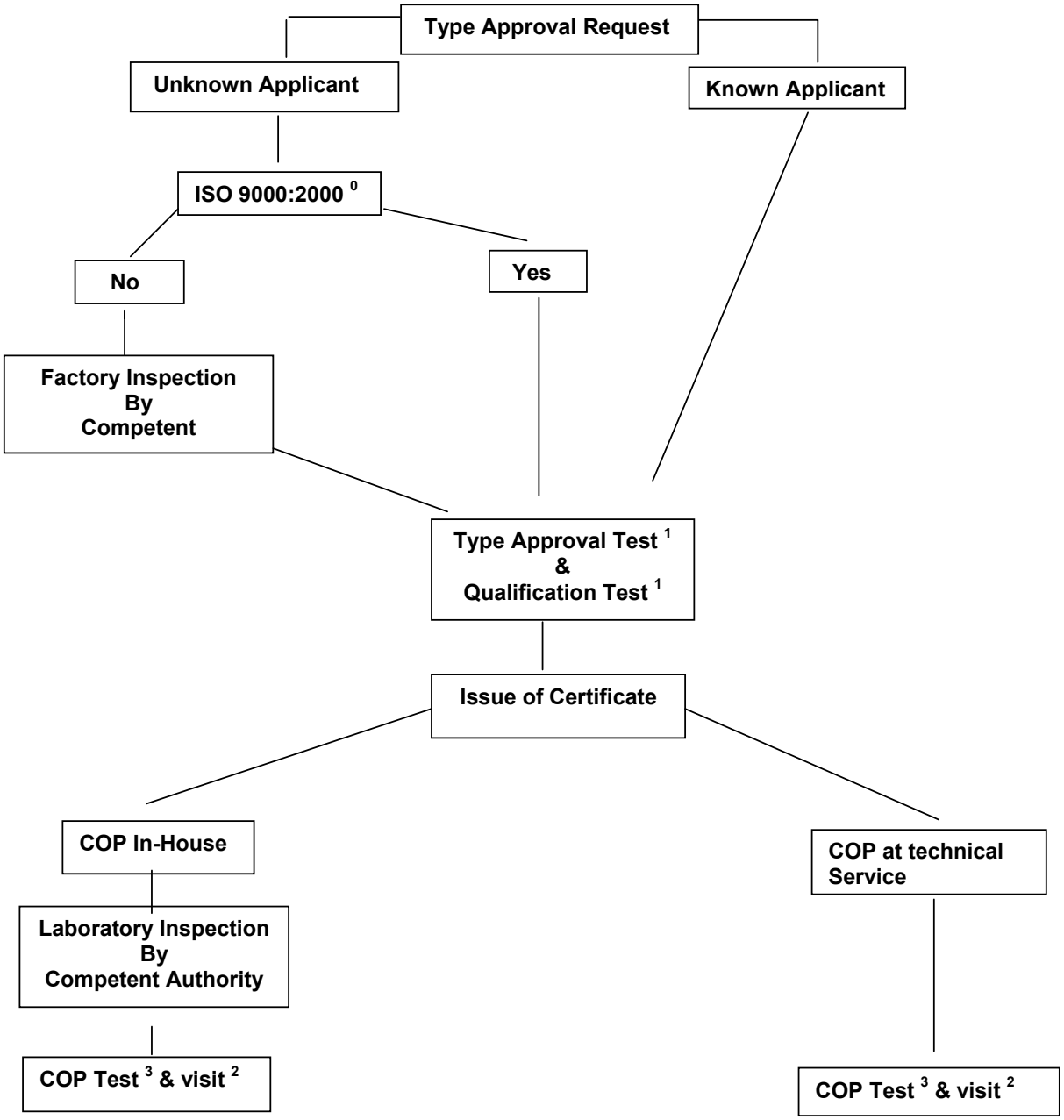
Paragraph 11.4.5. (former), to be deleted.

Paragraphs 12. to 16. (former), renumber as paragraphs 13. to 17.

Insert a new annex 16, to read:

"**Annex 16**

TYPE APPROVAL SCHEME (FLOW CHART ISO 9000:2000)



0) or an equivalent standard to this one

1) this test has to be witnessed by the technical service at an approved facility

2) visit to the manufacturer 2 times a year for inspection and random sampling by the Authority or technical service in accordance with paragraph 12.4.

3) tests in accordance with annex 17 on samples selected by the manufacturer and submitted to their in-house laboratory or a technical service.

Annex 16, renumber as annex 17.

Annex 17 (new), paragraph 2.2., amend to read:

"2.2. For "universal", "restricted" and "semi-universal" devices**, the holder of an approval shall be obliged to carry out continuous quality control on a statistical basis and by sampling. In agreement with the relevant authorities, the tests can be carried out by the technical service authorities or under the responsibility of the holder of an approval.**

2.2.2.1. The continuous control of child restraint systems is to commence after the production qualification.

2.2.2.2. The minimum frequency in order to verify compliance with the dynamic test according to paragraph 1.6. shall be 1 in 5,000 child restraint systems produced. However, in any case, there shall be at least one test performed for each four weeks of production.

The requirements set out in paragraphs 7.1.4.1.4. and 7.2.1.8.1.2. of this Regulation shall be met for each test. Furthermore for one test out of two, the other requirements set out in paragraphs 7.1.4. and 7.2.1.8.1. shall be met also.

A minimum frequency of one test per year shall be permitted where annual production is 1,000 child restraint systems or less. In this case the requirements set out in paragraphs 7.1.4. and 7.2.1.8.1. shall be met.

2.2.2.3. The child restraint systems shall be selected at random and the test configuration alternated so that all set up configurations are tested over a 2 year period.

2.2.2.4. The test results must not exceed L, where L is the limit value prescribed for each approval test."

Insert a new paragraph 2.4.1., to read:

"**2.4.1. Investigate the reasons for failure and take appropriate steps to re-establish conformity of production."**

Paragraphs 2.4.1. and 2.4.2. (former), renumber as paragraphs 2.4.2. and 2.4.3.

Annexes 17 to 21, renumber as annexes 18 to 22.

Annex 19 (new), paragraph 1., the reference to "annex 17", amend to read "**annex 18**".

* * *

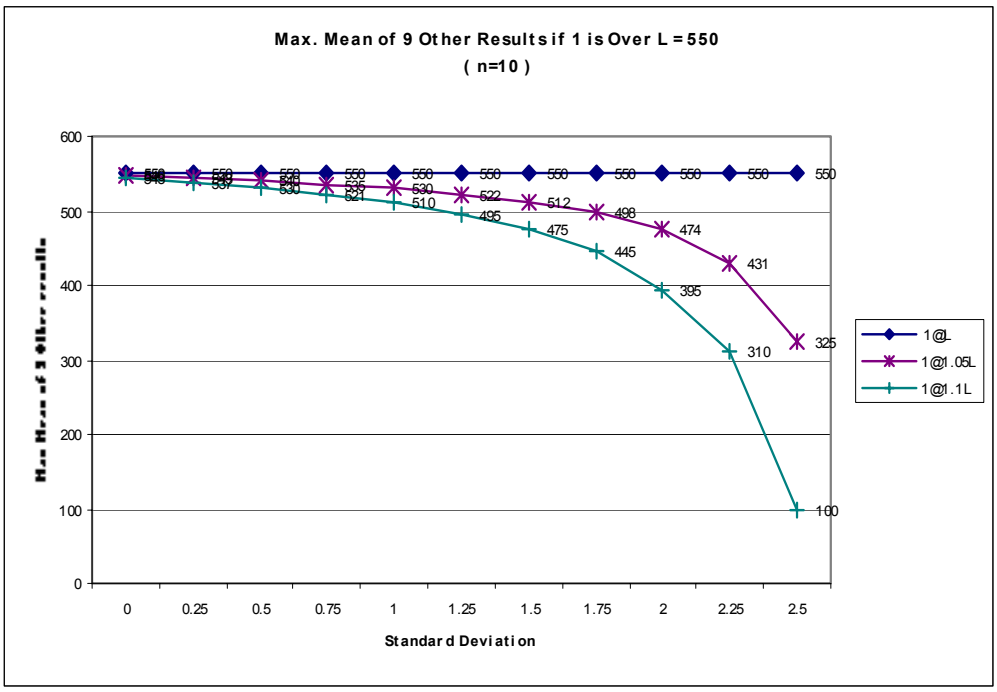
B. JUSTIFICATION

(Explanation of graphs relating to the proposal.)

The graphs are to illustrate the apparent absence of logic in the original proposal for the acceptance criteria for the dynamic test for Production Qualification, ie:

No value shall exceed 1.1 L, and X + 2.4S shall not exceed L, where:
L= the limit value prescribed for each approval test
X= the mean of the values
S= the standard deviation of the values

These graphs show, for either n = 10 or 5 samples, what would happen if one of the results for head forward movement exceeded the limit (i.e. L=550 mm).
For one result exceeding L, CLEPA calculated what the mean (X) of the remaining results would have to be to achieve the standard deviation requirement (X+2.4S) for various values of S.



The different curves show the relationship between the mean of the remaining results with:
- how much the single value exceeds the limit,
- the spread of the results, i.e. the number of standard deviations.

All this is to illustrate that, although the proposal is to allow results in excess of L, the other constraint implies that the remaining results would have to be unrealistically low to compensate.

This in practice is unrealistic, hence CLEPA believes that the logic may be flawed.

The proposal would be to reduce the allowable excess from 1.1L to 1.05L (i.e. from 605 mm to 577.5 mm if head movement is being considered) and require the mean of all results to be less than L. It is also felt that 10 samples is excessive and recommend 5.

This is illustrated by the following graph by the line Std Dev = 0 and it can be seen that if the one result that exceeds L is 1.05L (i.e. 577.5 mm), the mean of the other 4 results must be greater or equal to 543.5 mm.