

Informal Document No. **GRSP-34-8**  
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Agenda item B.1.5.)

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations (WP.29)

Working Party on Passive Safety (GRSP)

**PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 44**

(Child restraints)

Transmitted by the Expert from France

Note: The text reproduced below was prepared by an ad-hoc group in order to revise document TRANS/WP.29/GRSP/2001/13 introducing in Regulation No. 44 the type approval scheme (flow chart), including the product qualification and specifying the conformity of production.

Addition to the text appears in **bold type**.

Suppression to the text appears in ~~**crossed bold type**~~.

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

The list of contents,

Insert a new item 11, to read:

"11. Product qualification ....."

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

Insert a new annex 164, to read:

"Annex 164 - Type approval scheme (flow chart ISO 9002 ~~1994~~)"

The text of the Regulation,

Insert new paragraphs 2.2937 to 2.3039., to read:

- 2.2937. "type 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.
- 2.2938. "production quality~~ification~~ test", means a test to determine whether the manufacturer is able to produce a child restraint system in conformity with the child restraint systems submitted for type approval.
- 2.3039. "Routine testing", means the testing of a number of restraint systems selected from a single batch to verify the extent to which they satisfy the requirements."

Paragraph 3.4., amend to read:

- 3.4. The ~~competent~~ approval authority of a Contracting Party shall **must** verify - before granting type approval - the existence of satisfactory arrangements **and procedures in order to ensure for ensuring** effective control ~~of the conformity of production in accordance with the provision of paragraph 11. and annex 16 before type approval is granted~~ so that child restraint systems, equipment or parts when in production conform to the approved type.

Insert new paragraphs 6.3. and 6.4 to read :

- 6.3 Control of Markings
- 6.3.1 The technical service conducting the approval tests shall verify that the markings conform to the requirements of paragraph 4.
- 6.4 Control of Instructions on Installation and the Instructions for Use
- 6.4.1. The technical service conducting the approval tests shall verify that the instructions on installation and the instructions for use conform to paragraph 15.

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

Amend paragraph 7.1.4.1.10.1.2, to read:

7.1.4.1.10.1.2 ... without anti-rotation device in use. This requirement does not apply when a permanent and non-adjustable support leg is used as an anti-rotation device. **This requirement does not apply to the Qualification of Production test requirement. (paragraph. 11)**

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

~~Paragraph 8.2.7., the reference to "Figure 1, annex 19", amend to read "Figure 1, annex 20".~~

~~Paragraph 8.2.1.3.2., amend to read:~~

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

Add a new paragraph 9.4, to read:

9.4           The test report shall record the verification of markings and of instructions on installation and use.

Insert a new paragraph 11., 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 **of categories "universal", "semi-universal", and "restricted"** must be subjected to production qualification tests.

For this purpose, a random sample of [5] child restraint systems will be taken from the first **production** batch.

The first **production** batch is considered to be the production of the first block containing a minimum of [50] child restraint systems and a maximum of [5000] child restraint systems.

11.2.1.      Dynamic tests

11.2.1.1.    [105] child restraint systems ~~in a group~~ must be subjected to the dynamic test described in paragraph 8.1.3. [The technical service that conducted the type approval tests **shall** choose the ~~worst case~~ conditions ~~for a dynamic test for each group determined during approval tests~~ that produced the maximum horizontal head excursion during the type approval dynamic tests]. All the [5] child restraint systems shall be tested under the same conditions.

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

~~No value shall exceed 1.1 L, and~~

~~$X + 2.4 S$  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~~

~~The value of 2.4 specified above is only valid for series of tests applied to at least 10 child restraint systems, tested under the same conditions.~~

For each test described in 11.2.1.1 the horizontal head excursion and chest accelerations shall be measured.

11.2.1.3.

~~No Contracting Party applying this Regulation shall apply the criterion  $X + 2.4 S$  shall not exceed L as contained in paragraph 11.2.1.2., to values as measured in accordance with paragraphs 8.1.3.1.1.4.3. and 8.1.3.1.1.4.4.]~~

a) The maximum horizontal head excursion results shall comply with the following two conditions:-

No value shall exceed 1.05 L, and

$X + S$  shall not exceed L,

Where: L= the limit value prescribed

X= the mean of the values

S= the standard deviation of the values

b) The chest acceleration results shall comply with the requirements of paragraph 7.1.4.2.1 and, in addition, the  $X + S$  condition in 11.2.1.3 a) shall be applied to the 3ms clipped resultant chest acceleration results (as defined in 7.1.4.2.1) and recorded for information only.

11.2.2. **Control of Markings**

11.2.2.1 The technical service that conducted the approval tests ~~verifies~~ **shall verify** that the markings conform to the requirements of paragraph 4.

11.2.3. **Control of Instructions on Installation and the Instructions for Use**

11.2.3.1. The technical service that conducted the approval tests ~~verifies~~ **shall verify** that the instructions on installation and the instructions for use conform to paragraph 145.

~~Paragraph 11. and 11.1 (former), renumber as paragraph 12. and 12.1.~~

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

~~Paragraph 11.3. (former), renumber as paragraphs 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 11.4.2. (former), renumber as paragraphs 12.3.1. to 12.4.2.~~

~~Paragraph 11.4.3. (former), renumber as paragraph 12.4.3. and the reference to "paragraph 11.4.2." amend to read "paragraph 12.4.2."~~

~~Paragraph 11.4.5. (former), renumber as paragraphs 12.4.5., and amend to read:~~

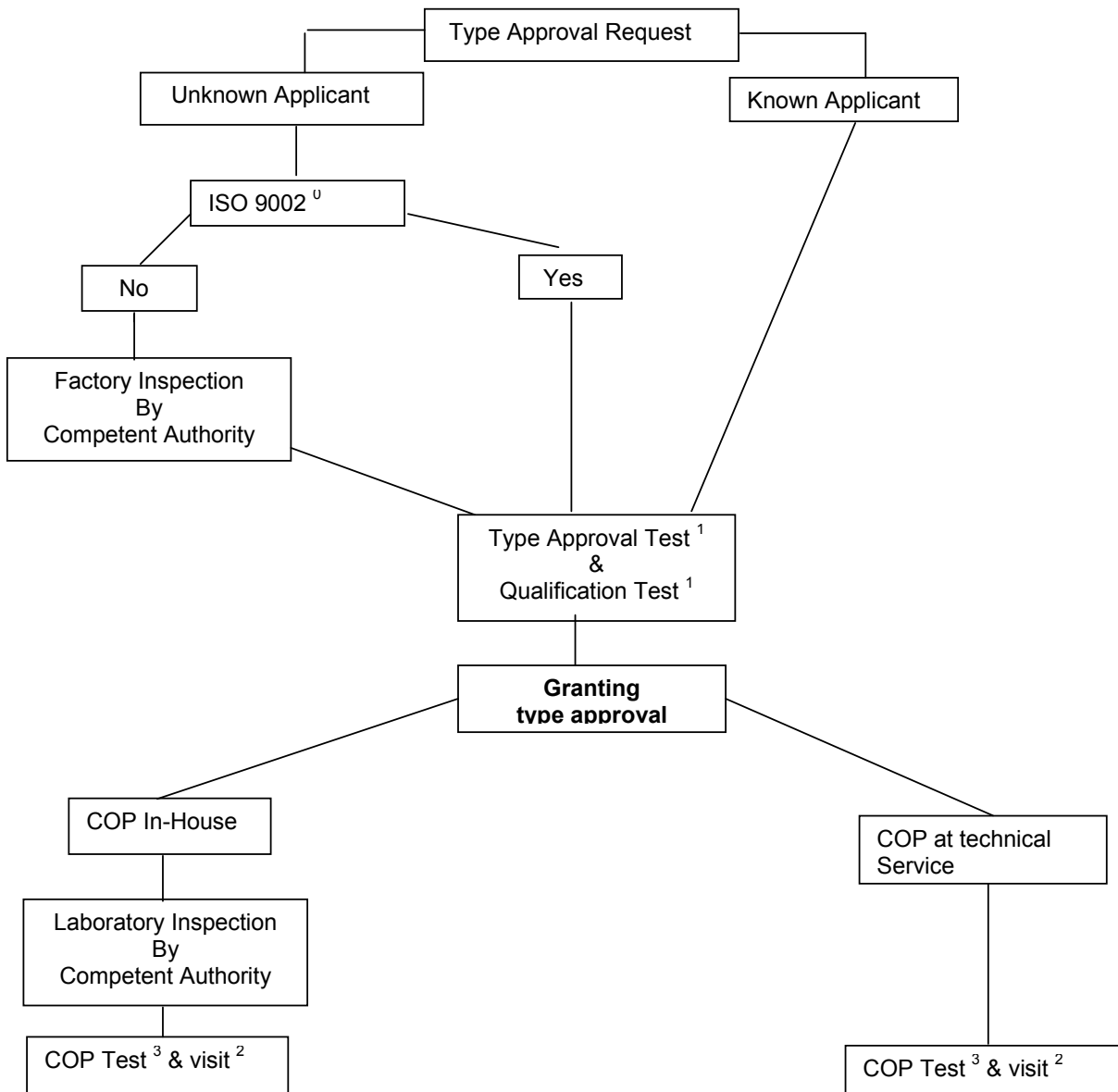
~~"12.4.5. — The relevant authorities must conduct inspections according to annex 16. The normal frequency of inspections authorised by competent authority shall be two per year. In the case where negative results are recorded during one of these inspections, the competent authority shall ensure that all necessary steps are taken to re-establish the conformity of production as rapidly as possible."~~

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

Insert a new annex 164, to read :

**"Annex 164**

**TYPE APPROVAL SCHEME (FLOW CHART ISO 9002 1994)**



- 0) or an equivalent standard to this one
- 1) this tests have to be done at technical service
- 2) visit ~~of~~ to the manufacturer for inspection and random sampling by the Authority or technical service
  - a) if there is no ISO 9002: 32 times a year
  - b) if there is an ISO 9002: 1 times a year
- 3) tests in accordance ~~to 4.5.~~ with Annex 17 6
  - a) if there is no ISO 9002:
    - i. of the Authority or technical service during the visit of footnote 2a
    - ii. of the manufacturer between the visits of footnote 2b
  - b) if there is an ISO 9002: taken by the manufacturer, procedure checked during visit of footnote 2b.

Annex 16. ~~(former), renumber as annex 17, and:~~

Amend paragraph 2.1., to read:

"2.1. The frequency of testing to the requirements of paragraphs 1.1. to 1.5. **and 1.7.** shall be on a statistically controlled and random basis in accordance with one of the regular quality assurance procedure, **and must be conducted at least once per year.**"

Paragraph 2.2. amend to read:

"2.2. Minimum conditions for the control of conformity of child restraint systems ~~except the boosters without seat back and the boosters with seat back but without harness~~ of categories "Universal", "Semi Universal" and "Restricted", **in relation to the dynamic tests according to paragraph 1.6.**

In accordance with the relevant authorities, the holder of an approval will supervise the control of conformity following the method of batch control (paragraph 2.2.1.) or following the method of continuous control (paragraph 2.2.2.).

2.2.1. Batch control for the child restraint systems

2.2.1.1. The holder of an approval must divide the child restraint systems into batches which are as uniform as possible in regard to raw material or intermediate products involved in their manufacture (different colour of shell, different manufacture of harness ...) and in regard to production conditions. The numbers in a batch must not exceed [5000] units.

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.

2.2.1.2. A sample must be taken in each batch in accordance with the provisions of paragraph 2.2.1.4. from a minimum of 20 per cent of the batch quantity, which has to be produced of the actual batch.

2.2.1.3. The characteristic of the child restraint systems and the number of dynamic tests to be conducted are given in paragraph 2.2.1.4.

2.2.1.4. In order to be accepted, a batch of child restraint systems must satisfy the following conditions:

Number in the batch	Number of samples/child restraint systems characteristics	Combined number of samples	Acceptance criteria	Rejection criteria	Degree of control rigour
N < [500]	1st = 1MH+ <del>1LH</del> + <del>2MM</del> 2nd = 1MH+ <del>1LH</del> + <del>2MM</del>	<del>8</del> 1 2	0 1	<del>2-</del> 2	Normal
500] < N < [5000]	1st = 1MH+1LH+ <del>2MM</del> 2nd = 1MH+1LH+ <del>2MM</del>	<del>10</del> 2 4	0 1	2 2	Normal
N < [500]	1st = <del>2MH</del> + <del>2LH</del> + <del>3MM</del> 2nd = <del>2MH</del> + <del>2LH</del> + <del>3MM</del>	<del>16</del> 2 4	0 1	2 2	Strengthened
50] < N < [5000]	1st = <del>2MH</del> + <del>2LH</del> + <del>5MM</del> 2nd = <del>2MH</del> + <del>2LH</del> + <del>5MM</del>	<del>26</del> 4 8	0 <del>3</del> 1	<del>3</del> 2 <del>4</del> 2	Strengthened

Note :

MH signifies harder configuration (the least good results obtained in approval or extension of approval)

~~MM signifies the most manufactured configuration~~

LH signifies less hard configuration (the best results obtained in approval or extension of approval)

This dual sampling plan functions as follows:

For a normal control, if the first sample does not contain any defective units the batch is accepted without testing a second sample. If it contains two defective units the batch is rejected.

Finally, if it contains one defective unit a second sample is extracted and it is the cumulative number, which must satisfy the condition of column 5 of the table above.

There is a change from normal control to strengthened control if, out of 5 consecutive batches, two are rejected. Normal control is resumed if 5 consecutive batches are accepted.

If any batch is rejected, the production is considered to be non-conforming and the batch shall not be released.

If 2 consecutive batches subjected to the strengthened control are rejected, the provisions of paragraph 13. are applied.

2.2.1.5. The control of child restraint systems conformity is undertaken starting with the batch manufactured after the first batch which was subjected to production qualification.

2.2.1.6. The test results described in paragraph 2.2.1.4. shall not exceed L, where L is the limit value prescribed for each approval test.

2.2.2. Continuous control

2.2.2.1. 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.

2.2.2.2. The samples must be taken in accordance with the provisions of paragraph 2.2.2.4.



- 2.2.2.3. The characteristic of the child restraint systems is taken at random and the tests to be carried out are described in paragraph 2.2.2.4.
- 2.2.2.4. For the production to be considered conform, the dynamic tests of continuous control shall meet the following requirements.

Child restraint systems taken	Degree of control rigour
[0.02] % means one child restraint system taken from every [5000] manufactured	Normal
[0.05] % means one child restraint system taken from every [2000] manufactured	Strengthened

This dual sampling plan functions as follows:

If the child restraint system is considered to conform, the production conforms.

If the child restraint system does not meet the requirements, a second child restraint system shall be taken,

If the second child restraint system ~~conforms~~ **meet the requirements**, the production conforms,

If both **(the first and the second)** child restraint systems do not meet the requirements, the production does not conform and child restraint systems that are likely to present the same failure shall be withdrawn **and necessary steps shall be taken to re-establish the conformity of the production.**

Strengthened control will replace normal control if, out of [10000] child restraint systems ~~taken manufactured~~ consecutively, the production has to be withdrawn twice.

Normal control is resumed if [10000] child restraint systems ~~taken manufactured~~ consecutively are considered to conform.

If production subjected to the strengthened control has been withdrawn on two consecutive occasions, the provisions of paragraph 13. are applied.

- ~~2.2.2.5. The remainder of the tests, not specified in the table above but which have to be conducted in order to obtain approval, must be conducted at least once per year.~~
- 2.2.2.65. The continuous control of child restraint systems is undertaken starting after the production qualification.
- 2.2.2.76. The test results described in paragraph 2.2.2.4. **must shall** not exceed L, where L is the limit value prescribed for each approval test."

~~Paragraph 2.2. (former), renumber as paragraph 2.3., and amend to read~~

~~"2.3. For ["universal", "restricted" and "semi-universal" devices,] boosters without seat back and boosters with seat back but without harness 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.~~

~~[However 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.]"~~

~~Paragraph 2.3. (former), renumber as paragraph 2.4.~~

~~Paragraph 2.3.1. (former), renumber as paragraph 2.4.1. and amend to read:~~

~~"... to either paragraph 2.3., on a test seat, or paragraph 2.4., in a vehicle body shell."~~

~~Paragraph 2.4. (former), renumber as paragraph 2.5., and amend to read :~~

~~"2.5. Where a [test sample] booster without seat back or a booster with seat back but without harness fails a particular test to which it has been subjected, a further test to the same requirement shall be carried out on at least three other samples. In the case of dynamic tests if one of the latter fails the test, the holder of the approval or his duly accredited representative shall:"~~

~~Paragraphs 2.4.1. (former), renumber as paragraph 2.5.1.~~

~~Paragraph 2.4.2. (former), renumber as paragraph 2.5.2. and the reference to "paragraph 2.3." amend to read "paragraph 2.4."~~

~~Paragraph 2.5. (former), renumber as paragraph 2.6.~~

~~Annexes 17 to 21 (former), renumber as annexes 18 to 22.~~

~~Annex 18, paragraph 1., the reference to "annex 17", amend to read "annex 18".~~

Add a new paragraph 2.3.2.

2.3.2. Where a test sample fails a particular test to which it has been subjected, a further test to the same requirement shall be carried out on at least three other samples. In the case of dynamic tests if one of the latter fails, the production is considered to be non-conforming and the frequency shall be raised to the higher one if the lower one was used according to paragraph 2. 3 and necessary steps shall be taken to re-establish the conformity of the production.

Paragraph 2.4. amend to read

2. 4.           When production is found to be non-conforming according to paragraphs 2.2.1.4., 2.2.2.4. or 2.3.2. , the holder of the approval or his duly accredited representative shall:

Delete paragraph 2.4.2

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