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Regulation No. 129 (Enhanced Child Restraint Systems)

Proposal for Supplement 2 to the 02 series of amendments to Regulation No. 129

Submitted by the expert from France*

The text reproduced below was prepared by the expert from France, on behalf of the informal group on Child Restraints Systems and updates the latest version of Regulation No 129. The modifications to the current text of the UN Regulation are marked in bold for new or 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 paragraph 4.9., to read:

"**4.9.** **An impact shield that is not permanently attached to the seat shall have a permanently attached label to indicate the brand and model of the ECRS to which it belongs and the size range. The minimum size of the label shall be [40 x 40] mm.**"

Insert new paragraph 4.10., to read:

"**4.10.** **Enhanced Child Restraint Systems shall have a permanently attached label to inform the user of the appropriate method of restraint of the child over the entire stature range declared by the manufacturer.**

The label shall be visible to the person installing the child restraint in a vehicle, with a minimum size of [40 x 60 mm]. The label shall feature a pictogram of each restraint configuration adjacent to the stature range."

Paragraph 6.2.1.4., amend to read:

"6.2.1.4. To prevent submarining, either by impact or through restlessness, a crotch strap shall be required on all integral forward-facing restraints incorporating an integral harness belt system. **Enhanced Child Restraint Systems which incorporate a shield instead of a harness shall ensure that the shield extends across the full width of the child's body and sits low on the pelvis.**"

Paragraph 6.2.1.8., amend to read:

"6.2.1.8. With the crotch strap attached and in its longest position if adjustable, it shall not be possible to adjust the lap strap to lie above the pelvis of both the smallest and largest dummy within the size range covered by the approval. For all forward-facing restraints, it shall not be possible to adjust the lap strap to lie above the pelvis of both the smallest and largest dummy within the size range covered by the approval.

An impact shield shall be adjustable so that it comes in contact with the pelvis and abdomen of the smallest and largest dummy within the size range covered by the approval, leaving no gap between the impact shield and the dummy."

Paragraph 6.3.2.1., amend to read:

"6.3.2.1. Internal geometric characteristics

The Technical Service conducting the approval tests shall verify that the internal dimensions of the Enhanced Child Restraint System conform to the requirements of Annex 18. The minimum dimensions for shoulder breadth, hip breadth and sitting height shall be fulfilled simultaneously for any stature within the size range declared by the manufacturer.

Integral Enhanced Child Restraint System shall also fulfil the minimum and maximum dimensions of shoulder height, for any stature within the size range declared by the manufacturer.

Integral Enhanced Child Restraint Systems that feature an impact shield shall be capable of being adjusted to fulfil:

(a) The 5th percentile upper leg thickness and 5th percentile abdomen depth, simultaneously to the 5th percentile shoulder height;

(b) The 95th percentile upper leg thickness and 95th percentile abdomen depth, simultaneously to the 95th percentile shoulder breadth, hip breadth and sitting height;

for any stature within the size range declared by the manufacturer.

Non-integral Enhanced Child Restraint System shall also fulfil the maximum dimensions of shoulder height, for any stature within the size range declared by the manufacturer."

Paragraph 6.6.2.1., amend to read:

"6.6.2.1. For all devices with backrests, the areas defined in Annex 14 to this Regulation, when tested according to Annex 13, shall give a peak acceleration of less than 60 g. This requirement applies also to areas of impact shields which are in the head strike area **as defined in Annex 14**."

Insert new paragraph 6.6.4.1.8., to read:

"**6.6.4.1.8. In the case of a convertible integral Enhanced Child Restraint System that is equipped with a means of restraining the child that is intended for one orientation only, the dynamic test shall be carried out as follows:**

6.6.4.1.8.1. With the means of restraint used in the orientation for which it is intended, and

6.6.4.1.8.2. With the means of restraint used in the orientation for which it is not intended, unless a mechanism is provided to prevent such incorrect use."

Paragraph 6.6.5.1., amend to read:

"6.6.5.1. Buckle assemblies, retractors, adjusters and lock-off devices that are liable to be affected by temperature, shall be subject to the temperature test specified in paragraph 7.2.7. below. **This requirement is applicable to any such components that are found on the Enhanced Child Restraint System, regardless of the means of restraint.**"

Paragraph 6.7., amend to read:

"6.7. Provisions applicable to individual components of the restraint

This paragraph is applicable to any such components that are found on the Enhanced Child Restraint System, regardless of the means of restraint."

Paragraph 6.7.1.8.2., amend to read:

"6.7.1.8.2. Depending on the mass limit declared by the manufacturer, a ~~harness~~ buckle shall withstand:"

Paragraph 6.7.2.7., amend to read:

"6.7.2.7. An adjuster mounted directly on the Child Restraint System shall be capable of withstanding repeated operation and shall, before the dynamic test prescribed in paragraph 7.1.3. undergo a test comprising 5,000 ± 5 cycles as specified in paragraph 7.2.6.**1.**

An adjuster mounted on a strap shall be capable of withstanding repeated operation and shall, before the dynamic test prescribed in paragraph 7.1.3. undergo a test comprising 5,000 ± 5 cycles that applies

the principles of the test specified in paragraph 7.2.3. This test shall be defined by the Technical Service in consultation with the manufacturer."

Paragraph 14.3.5., amend to read:

"14.3.5. It shall be recommended that any straps holding the restraint to the vehicle should be tight, that any support-leg should be in contact with the vehicle floor, that any straps **or impact shields** restraining the child should be adjusted to the child's body, and that straps should not be twisted;."

Paragraph 14.3.6., amend to read:

"14.3.6. 'The importance of ensuring that any lap strap is worn low down, **and that any impact shield installed properly,** so that the pelvis is firmly engaged, shall be stressed;"

Annex 14, amend to read:

"Annex 14

Method of defining head impact area of devices with backrests **or impact shields** and for rearward-facing devices defining the minimum size of side wings

1. **Head impact area**

1.1. Definition of backrest head impact area

Place the device on the test bench described in….

1.2. Definition of impact shield head impact area

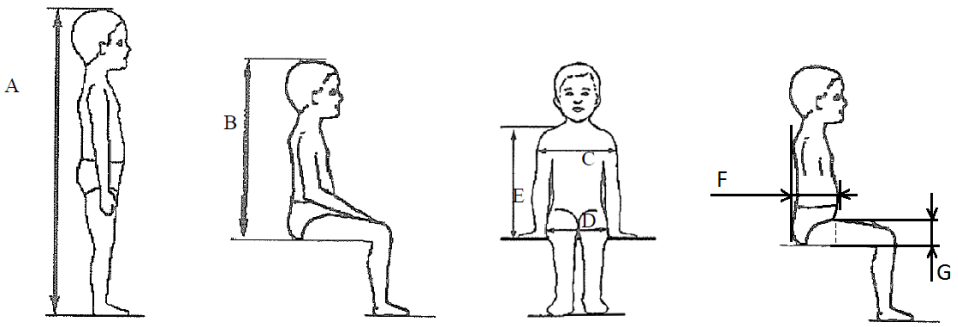
The impact shield head impact area is the whole upper surface of the impact shield."

Annex 18, amend to read:

"Annex 18

Geometrical dimensions of Enhanced Child Restraint Systems

Figure 1.



	Min.	*Min.*	*Min.*	*Min.*	*Max*	***Min.***	***Max***		***Minimum***	***Minimum***
Stature	*Sitting height cm*	*Shoulder breadth cm*	*Hip breadth cm*	*Shoulder height cm*	*Shoulder height cm*	***Abdomen depth cm***	***Abdomen depth cm***		***Upper leg thickness cm***	***Upper leg thickness cm***
A	B	C	D	E1	E2	**F1**	**F2**		**G1**	**G2**
	95%ile	95%ile	95%ile	5%ile	95%ile	**5%ile**	**95%ile**		**5%ile**	**95%ile**
40	NA	NA	NA	NA	NA	**NA**	**NA**		**NA**	**NA**
45	39.0	12.1	14.2	27.4	29.0	**NA**	**NA**		**NA**	**NA**
50	40.5	14.1	14.8	27.6	29.2	**NA**	**NA**		**NA**	**NA**
55	42.0	16.1	15.4	27.8	29.4	**NA**	**NA**		**NA**	**NA**
60	43.5	18.1	16.0	28.0	29.6	**NA**	**NA**		**NA**	**NA**
65	45.0	20.1	17.2	28.2	29.8	**NA**	**NA**		**NA**	**NA**
70	47.1	22.1	18.4	28.3	30.0	**NA**	**NA**		**NA**	**NA**
75	49.2	24.1	19.6	28.4	31.3	**12,5**	**15,1**		**5,7**	**8,4**
80	51.3	26.1	20.8	29.2	32.6	**12,7**	**15,7**		**5,8**	**8,4**
85	53.4	26.9	22.0	30.0	33.9	**12,9**	**16,2**		**5,9**	**8,5**
90	55.5	27.7	22.5	30.8	35.2	**13,1**	**16,8**		**6,2**	**8,5**
95	57.6	28.5	23.0	31.6	36.5	**13,3**	**17,8**		**6,5**	**8,9**
100	59.7	29.3	23.5	32.4	37.8	**13,5**	**18,2**		**6,5**	**9,6**
105	61.8	30.1	24.9	33.2	39.1	**13,6**	**18,8**		**6,6**	**10,3**
110	63.9	30.9	26.3	34.0	40.4	**13,9**	**19,6**		**6,6**	**10,3**
115	66.0	32.1	27.7	35.5	41.7	**13,9**	**19,9**		**6,6**	**10,4**
120	68.1	33.3	29.1	37.0	43.0	**14,3**	**20,2**		**6,8**	**10,5**
125	70.2	33.3	29.1	38.5	44.3	**14,7**	**20,7**		**7,5**	**10,9**
130	72.3	33.3	29.1	40.0	46.1	**NA**	**NA**		**NA**	**NA**
135	74.4	33.3	29.1	41.5	47.9	**NA**	**NA**		**NA**	**NA**
140	76.5	34.2	29.6	43.0	49.7	**NA**	**NA**		**NA**	**NA**
145	78.6	35.3	30.8	44.5	51.5	**NA**	**NA**		**NA**	**NA**
150	81.1	36.4	32.0	46.3	53.3	**NA**	**NA**		**NA**	**NA**

…"

II. Justification

The proposed amendments to the text have been developed to authorise the type approval of integral and non-integral Enhanced Child Restraint Systems equipped with impact shield as restraint device.