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agenda item 2.)

PROPOSAL FOR DRAFT 04 SERIES OF AMENDMENTS TO REGULATION No. 16  
(Safety-belts)

Revision 1

Transmitted by the Expert from France

Note: The text reproduced below was prepared by the expert from France in order to introduce into Regulation No. 16 the provisions for the installation of the ISOFIX child restraint systems (CRS) prepared by the International Organization for Standardization (ISO). It is based on a document distributed without a symbol (informal document No. 14) during the thirtieth session (TRANS/WP.29/GRSP/30, para. 45).

The text is presented as follows:

- (1) "ISOFIX" is used as a qualified adjective in order to simplify the modification redaction and to allow child restraint system users to be able to identify ISOFIX restraints without any doubt,
- (2) words added to the original text of Regulation No. 16 are written in **bold type**,
- (3) words added (or removed) to document TRANS/WP29/GRSP/2001/15 are underlined (or crossed out).

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

GE.02-

A. PROPOSAL

The title of the Regulation, amend to read:

"UNIFORM PROVISIONS CONCERNING THE APPROVAL OF:  
I. SAFETY-BELTS, RESTRAINT SYSTEMS, CHILD RESTRAINT SYSTEMS AND ISOFIX CHILD  
RESTRAINT SYSTEMS FOR OCCUPANTS OF POWER-DRIVEN VEHICLES  
II . VEHICLES EQUIPPED WITH SAFETY-BELTS, RESTRAINT SYSTEMS  
AND CHILD RESTRAINT SYSTEMS"

Paragraph 1., amend to read:

"1. This regulation applies to safety belts and restraint systems which are designed for installation ... individual fittings, by persons of adult build occupying forward or rearward-facing seats. It also applies to child restraint systems and ISOFIX child restraint systems designated for installation in vehicles of category M1."

Insert new paragraphs 2.11. to 2.14., to read:

"2.11. "ISOFIX child restraint systems" means a child restraint which has to be attached to to an ISOFIX anchorage system."

2.12. "ISOFIX Position" means a system which allows to install either:  
- a universal ISOFIX forward facing child restraint system as defined in Regulation No. 44 (i.e. using an ISOFIX anchorage system and an ISOFIX top tether anchorage),  
- a semi-universal, or a specific, ISOFIX forward facing child restraint system as defined in Regulation No. 44 (i.e. using an ISOFIX anchorage system and other(s) anti-rotation device(s),  
- a semi-universal, or a specific, ISOFIX rearward facing child restraint system as defined in Regulation No. 44 (i.e. using an ISOFIX anchorage system and other(s) anti-rotation device(s).

2.13. "ISOFIX anchorage system" means a system made of two ISOFIX low anchorages, which is designed for attaching an ISOFIX child restraint system. The rotation of the ISOFIX child restraint system must be limited.

2.14. "ISOFIX top tether anchorage" means a feature, such as a bar, located in a defined zone, designed to accept an ISOFIX top tether strap connector and transfer its restraint forces to the vehicle structure."

Paragraphs 2.11. to 2.27. (former), renumber as paragraphs 2.15. to 2.31.

Paragraph 8.2.1., amend to read:

"8.2.1. Safety-belts, restraint systems and ISOFIX child restraint systems recommended by the manufacturer as in table of appendix 3, shall be fixed to anchorages conforming to the specifications of Regulation No. 14, such as the design and dimensional characteristics, the number of anchorages, the strenght requirements."

Paragraph 8.2.2., amend to read:

"8.2.2. The safety-belts, restraint systems, child restraint systems and ISOFIX child restraint systems recommended by the manufacturer as in tables of appendix 3 shall be so installed that they will work satisfactorily and ..... "

Paragraph 8.2.2.3., amend to read:

" .....vehicle or seat structure or ISOFIX child restraint systems recommended by the manufacturer as in table of appendix 3 is reduced to a minimum."

Paragraph 8.3.5., amend to read:

" ..... of annex 17. Any vehicle of category M1 or N1 must be equipped at least with two ISOFIX anchorage systems; at least two of them shall be equipped with an ISOFIX top tether anchorage. One of the two ISOFIX position shall be installed at the second seat row. The first ISOFIX position shall allow at least the installation of one out of the two forward-facing fixture as defined in appendix 2 of annex 17; the second ISOFIX position allowing at least the installation of one out of the three rear-facing fixture as defined in appendix 2 of annex 17. For this second ISOFIX position, in case where the installation of rear-facing fixture is not possible on the second row of seats of the vehicle due to its design, the installation of one out of the five fixtures is allowed in any position of the vehicle."

~~Insert a new paragraph 8.3.6., to read:~~

~~"8.3.6. For any ISOFIX anchorages system installed in the vehicle, it shall be verified the possibility to attach the ISOFIX child restraint system. For this verification, the seats, the seats back and adjustable head restraints, if fitted, will be placed according to the positions specified by the car manufacturer. The device used for this verification is defined by the car manufacturer in compliance with annex 17 of this Regulation."~~

Annex 17,

Paragraph 1.1., amend to read:

" .....  
.....

- (a) ... for child restraints of the "universal" category (see paragraph 1.2. below), ~~for /] and for ISOFIX child restraint systems (see paragraph 1.3. below) as specified below the table of the appendix 1;~~
  - (b) Indicate that the seat position is suitable for ISOFIX child restraint systems of the universal category (see paragraph 1.2. below)
  - (c) Provide a list of ISOFIX child restraint systems or child restraint systems of the "semi-universal", "restricted" or "vehicle specific" categories, suitable for that vehicle seating position, ..."
  - (d) Provide any combination of (a), (b), (c) and (d), or
  - (e) ...
- ... forward-facing child restraint systems, this shall be indicated.

~~, Where applicable any restriction on the simultaneous use of ISOFIX child restraint systems on adjacent positions and the possible restrictions on the adjustment of the seats, the seats back and adjustable head restraints, if fitted, shall be so reported.~~

Tables in a suitable format for this information are given in appendix 3 to this annex"

Paragraph 1.2., amend to read:

- "1.2. A child restraint or ISOFIX child restraint system of the universal category means a child restraint approved to the "universal" category of ECE Regulation No. 44, ~~04~~ series of amendments. Seat positions which are indicated by the vehicle manufacturer as being suitable for the installation of child restraints or ISOFIX child restraints systems of the "universal" category shall comply with the provisions of appendix 1 or 2 to this annex. Where applicable any restriction on the simultaneous use of ISOFIX child restraint systems on adjacent positions and/or between ISOFIX positions and adult seating positions shall be reported in the table.

~~Insert a new paragraph 1.3., to read:~~

- ~~"1.3. ISOFIX child restraint systems mean a child restraint system approved with Regulation No. 44 which has to be attached to an ISOFIX anchorages system approved with Regulation No. 14."~~

Annex 17 - Appendix 1,

Paragraph 3.3., amend to read:

"... and met. This alternative position shall be included as an information in the table given in appendix 3 to this annex."

Insert a new appendix 2 to annex 17, to read:

"Annex 17 - Appendix 2

PROVISIONS CONCERNING THE INSTALLATION OF FORWARD-FACING AND REAR-FACING CRF  
INSTALLED ON ISOFIX ANCHORAGE POSITIONS

1. General
- 1.1. The test procedure and the requirements in this appendix shall be used to determine the suitability of ISOFIX positions for the installation of ISOFIX child restraint systems.
- 1.2. The tests may be carried out in the vehicle or in a representative part of the vehicle.
2. Test procedure
- 2.1. Adjust the seat to its fully rearward and lowest position.
- 2.2. Adjust the seat-back angle to the manufacturer's design position and the head restraint in the lowest and rearmost position. In the absence of any specification an angle of 25 degrees from the vertical, or the nearest fixed position of the seat-back, should be used.
- 2.3. Set the shoulder anchorage to the lowest position
- 2.4. Place a cotton cloth on the seat-back and cushion.
- 2.5. Place the fixture (as described in paragraph 8.3.5.) on the vehicle seat.
- 2.6. Attach the fixture on to the ISOFIX anchorage system.
- 2.7. Allow the ISOFIX child restraint latches to pull the fixture towards the seat back.

2.8. Push rearwards on the centre of the front of the fixture with a force of 100 N ± 10 N, applied parallel to the lower surface, and remove the force.

2.9. Push vertically downwards on the centre of the upper surface of the fixture with a force of 100 N ± 10 N, and remove the force.

3. Requirements

3.1. The base of the fixture shall contact both the forward and rearward parts of the seat cushion surface.

3.2. The ISOFIX top tether anchorage, if any, shall remain accessible and its strap adjustable.

3.3. Should the vehicle seat belt used in conjunction with the semi-universal ISOFIX child restraint systems, the correct installation shall be checked.

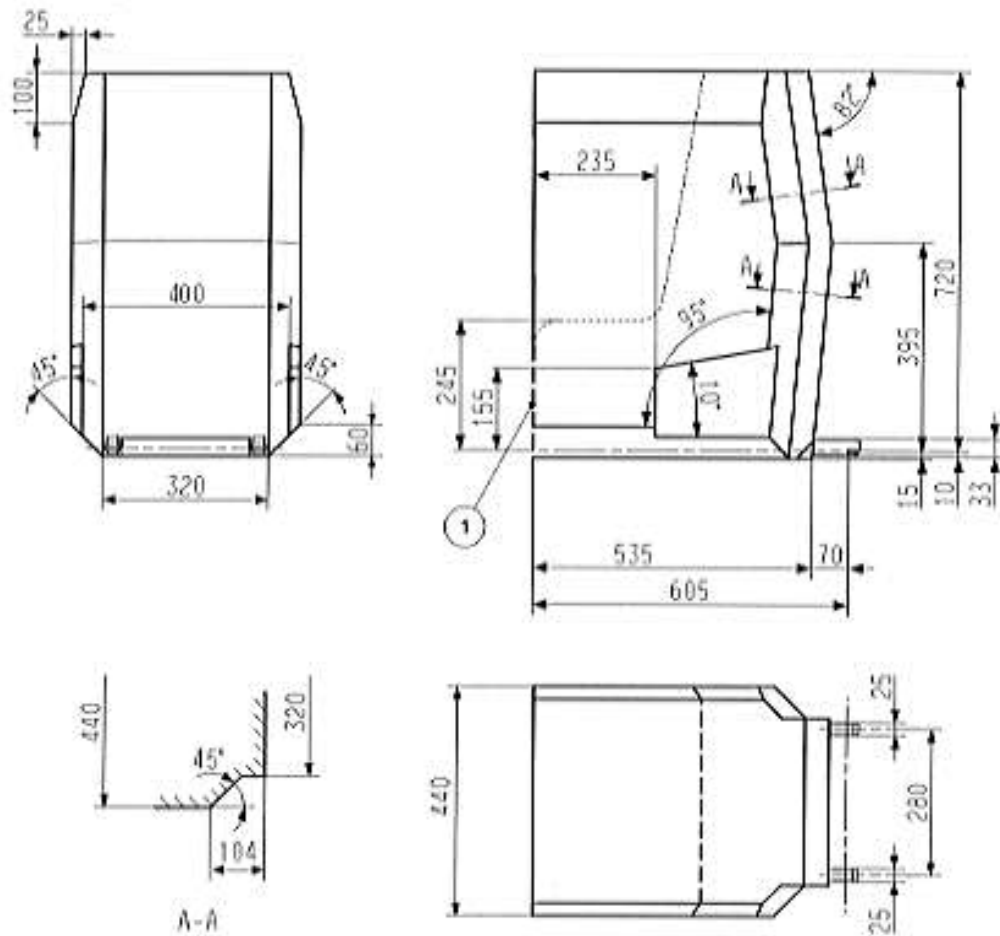
3.4. Should the above requirements not be met with the adjustments indicated in paragraph 2 above, the seat, the seat-back, the head restraint and safety-belt anchorages may be adjusted to an alternative position designated by the manufacturer for normal use at which the above installation procedure shall be repeated and the requirements verified and met. This alternative position shall be included as an information in the table given in appendix 3 to this annex.

4. ISOFIX fixture

- ISO 1: Full Height Forward Facing toddler CRS
- ISO 2: Reduced Height Forward Facing toddler CRS
- ISO 3: Full Size Rearward Facing toddler CRS
- ISO 4: Reduced Size Rearward Facing toddler CRS
- ISO 5: Rearward Facing infant CRS

<u>Mass group</u>	<u>Fixture</u>
<u>0 - up to 10 kg</u>	<u>ISO 5</u>
<u>0+ - up to 13 kg</u>	<u>ISO 3</u>
	<u>ISO 4</u>
	<u>ISO 5</u>
<u>1 - 9 to 18 kg</u>	<u>ISO 1</u>
	<u>ISO 2</u>
	<u>ISO 3</u>
	<u>ISO 4</u>
<u>1+ - 15 to 22 kg</u>	<u>ISO 1</u>
	<u>ISO 2</u>

**4.1 - Full height forward facing toddler child restraint systems fixture**

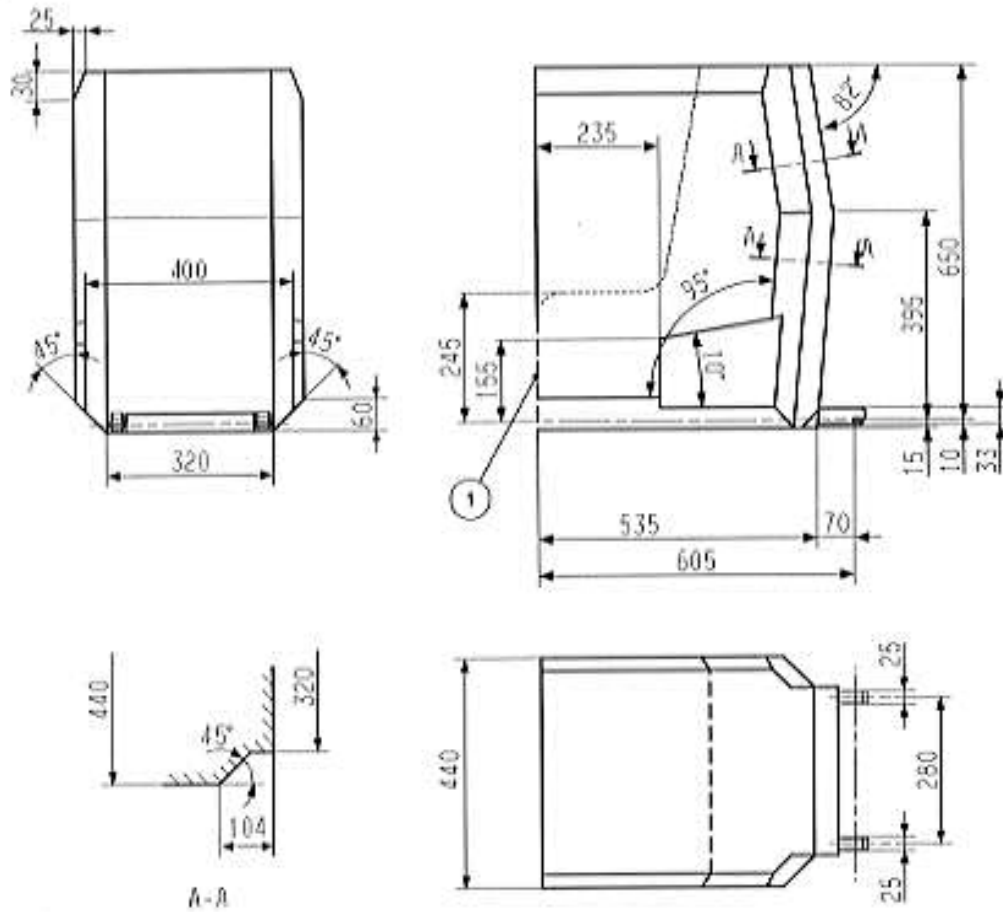


**Key**

- 1 Area where a support leg, or similar, is allowed to protrude

**Figure 1 - ISO 1 envelope dimensions for a full-size forward facing toddler CRS height 720 mm**

4.2 - Reduced size forward facing toddler child restraint systems fixture

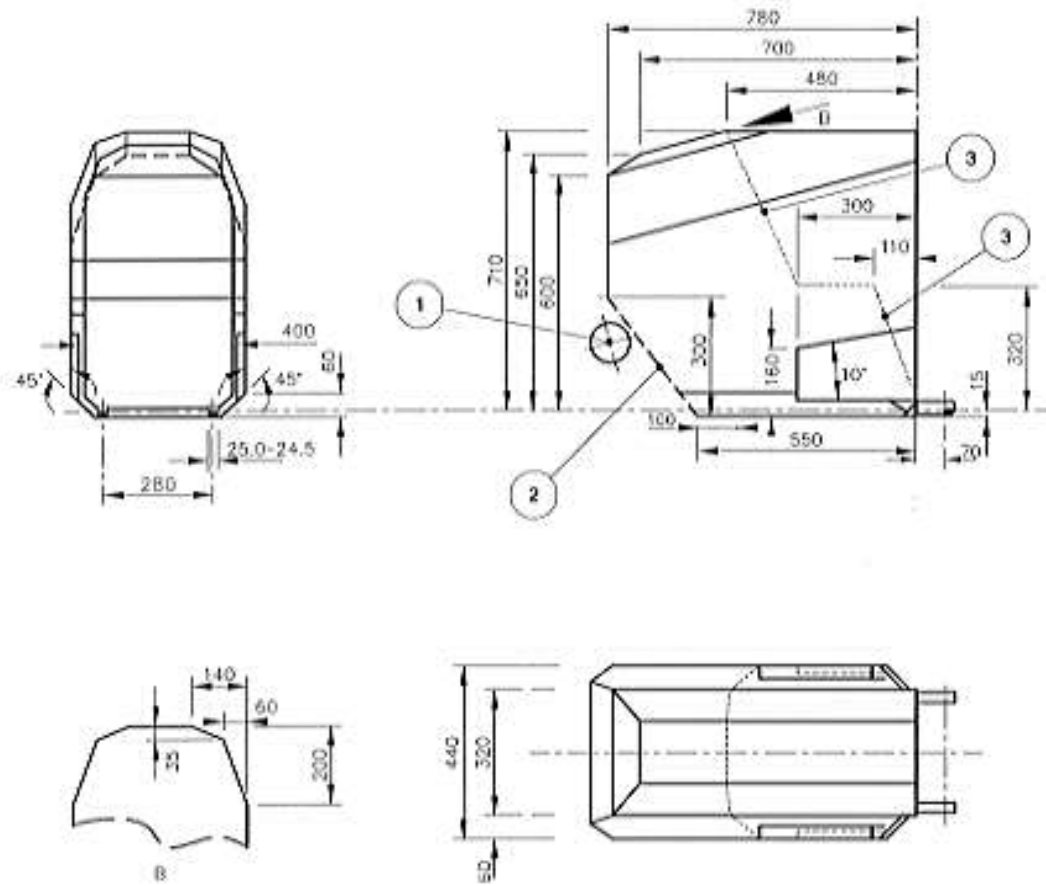


**Key**

- 1 Area where a support leg, or similar, is allowed to protrude

Figure 2 - ISO 2 envelope dimensions for a reduced-size forward-facing toddler CRS, height 650 mm

**4.3 - Full size rearward forward facing toddler child restraint systems fixture**



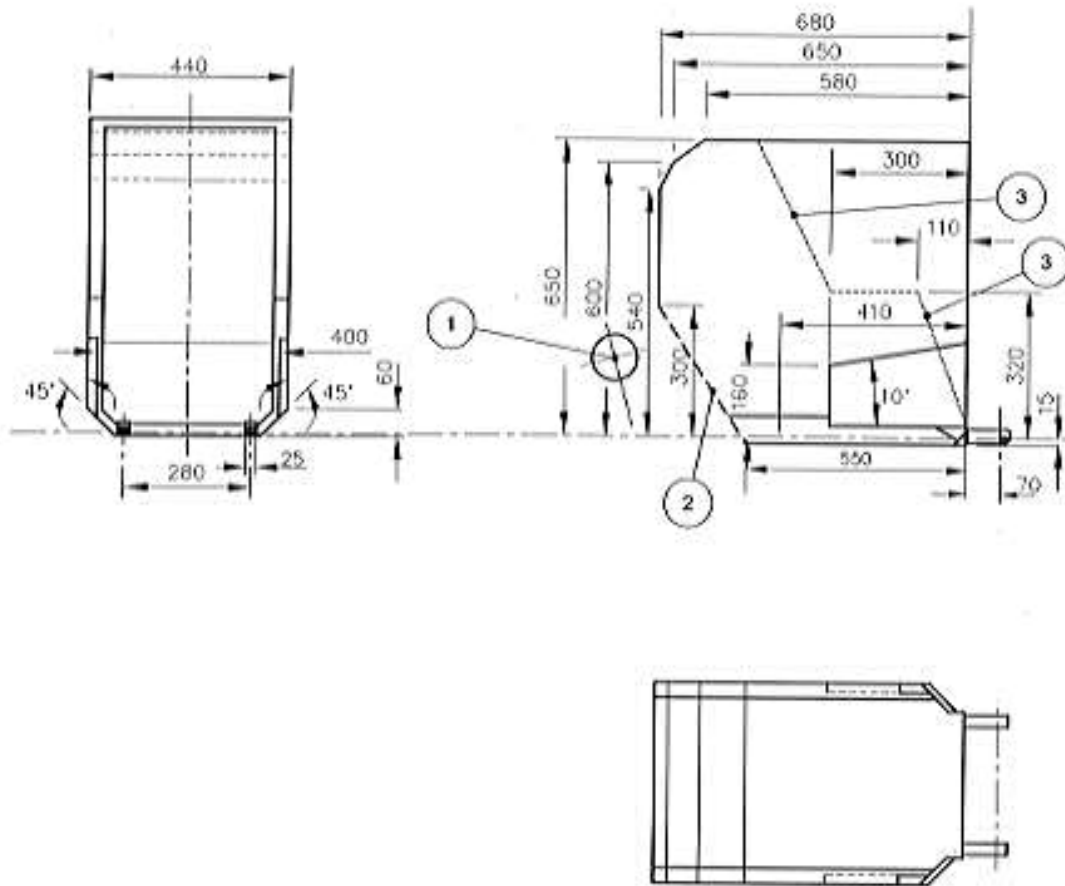
**Key**

- 1 ECE R.44 test bar position
- 2 Dashed line marks area where a support leg, or similar, is allowed to protrude
- 3 The backwards limitation (to the right in the figure) is ultimately given by the forward-facing envelope in Figure 1

**Figure 3 - ISO 3 envelope dimensions for a full-size rearward facing toddler CRS**



4.4 - Reduced size rearward facing toddler child restraint systems fixture

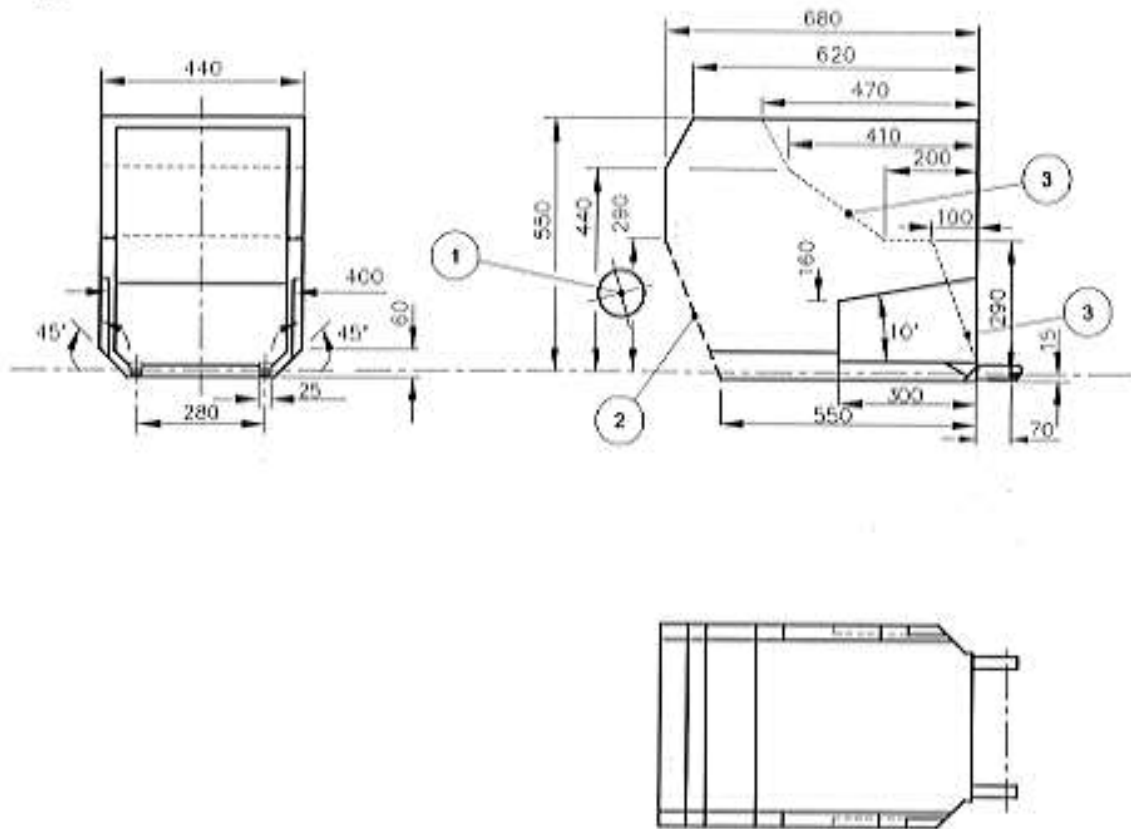


**Key**

- 1 ECE R.44 test bar position
- 2 Dashed line marks area where a support leg, or similar, is allowed to protrude
- 3 The backwards limitation (to the right in the figure) is ultimately given by the forward-facing envelope in Figure 1

Figure 4 - ISO 4 envelope dimensions for a reduced-size rearward-facing toddler CRS

4.5 - rearward facing infant child restraint systems fixture



**Key**

- 1 ECE R.44 test bar position
- 2 Dashed line marks area where a support leg, or similar, is allowed to protrude
- 3 The backwards limitation (to the right in the figure) is ultimately given by the forward-facing envelope in Figure 1

Figure 5 - ISO 5 envelope dimensions for a rearward facing infant CRS

Annex 17 - Appendix 2 (former), renumber as appendix 3,

The table, amend to read:

**"Table 1 -  
Child restraint systems installed with a safety belt equipment of the vehicle**

Mass Group	Seating position (or other site)				
	Front Passenger	Rear Outboard	Rear Centre	Intermediate Outboard	Intermediate Centre
0 - up to 10 Kg					
0+ - up to 13 kg					
I - 9 to 18 kg					
<b>I+ - 15 to 22 kg</b>					
II - 15 to 25 kg					
III - 22 to 36 kg					

"

Insert a new table 2, to read:

**"Table 2  
Forward facing and rearward facing fixtures installed on ISOFIX positions**

Mass Group	Fixture	Seating position (or other site)				
		Front Passenger	Rear Outboard	Rear Centre	Intermediate Outboard	Intermediate Centre
<u>carrycot</u>	<u>specific</u>					
0 - up to 10 Kg	ISO 5					
0+ - up to 13 kg	ISO 5					
	ISO 4					
	ISO 3					
I - 9 to 18 kg	ISO 4					
	ISO 3					
	ISO 2					
	ISO 1					
I+ - 15 to 22 kg	ISO 2					
	ISO 1					
II - 15 to 25 kg	<u>specific</u>					
III - 22 to 36 kg	<u>specific</u>					

The key of letters, amend to read:

"Key of letters to be inserted in the above tables

IUF = suitable for ISOFIX universal category CRS approved for use in the mass group

IL = suitable for particular ISOFIX child restraint systems given on the attached list. These restraints may be of the "specific vehicle", "restricted" or "semi-universal" categories.

X = seat position not suitable for children in this mass group."