

26 March 2018

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## **Agreement**

### **Concerning the Adoption of Harmonized Technical United Nations Regulations 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 United Nations Regulations\***

(Revision 3, including the amendments which entered into force on 14 September 2017)

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#### **Addendum 15 – UN Regulation No. 16**

#### **Revision 8 - Amendment 5**

Supplement 9 to the 06 series of amendments – Date of entry into force: 10 February 2018

#### **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, safety-belt reminder, restraint systems, child restraint systems, ISOFIX child restraint systems and i-Size child restraint systems**

This document is meant purely as documentation tool. The authentic and legal binding text is: ECE/TRANS/WP.29/2017/59



**UNITED NATIONS**

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\* Former titles 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 (original version); 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, done at Geneva on 5 October 1995 (Revision 2).

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Annex 17, insert a new Appendix 5 to read:

"Annex 17 Requirements for the installation of safety-belts and restraint systems for adult occupants of power-driven vehicles on forward facing seats, for the installation of ISOFIX child restraint systems and i-Size child restraint systems. ...

Appendix 5: Installation of booster seat fixtures"

*Text of the Regulation,*

*Paragraph 2.30., amend to read*

"2.30. "ISOFIX child restraint system" means a child restraint system, fulfilling the requirements of UN Regulation No. 44 or UN Regulation No. 129, which has to be attached to an ISOFIX anchorages system, fulfilling the requirements of UN Regulation No. 14."

*Paragraph 2.38., amend to read:*

"2.38. "Child restraint fixture" (CRF) means a fixture according to one of the-ISOFIX fixtures defined in paragraph 4. of annex 17 - appendix 2 of this Regulation, and particularly whose dimensions are given from figure 1 to figure 8 in the previous mentioned paragraph 4. Those child restraint fixtures (CRF) are used, in this Regulation, to check which ISOFIX child restraint systems size envelopes classes mentioned in UN Regulation No. 44 or in UN Regulation No. 129 can be accommodated on the vehicle ISOFIX positions. Also one of the CRF, the so-called ISO/F2, which is described in figure 2 of the previous mentioned paragraph 4, is used in UN Regulation No. 14 to check the location and the possibility of access to any ISOFIX anchorages system.

Or a fixture, according to one of the two "booster seat" fixtures defined in Annex 17, Appendix 5 of this Regulation, and particularly whose dimensions are given in figures 2 and 3 of Annex 17, Appendix 5. These fixtures are used, in this Regulation, to check which booster seat size envelopes mentioned in UN Regulation No. 129 can be accommodated on vehicle seating positions, if any."

*Paragraph 2.40., amend to read:*

"2.40. "i-Size seating position" means a seating position, if any defined by the vehicle manufacturer, which is designed to accommodate i-Size child restraint systems, as defined in UN Regulation No. UN Regulation No. 129, and fulfils the requirements defined in this Regulation."

*Paragraph 6.4.1.4.1.2., amend to read*

"6.4.1.4.1.2. In the case of any other occupant, contact of the head or of the chest with any rigid part of the vehicle in front of the manikin is not allowed. Additionally contact of the manikins head with its knees is not allowed.

For this assessment the seat of the tested manikin and, if applicable, the seat in front of the manikin shall be considered to be in the positions specified in paragraph 7.7.1.6. below. With the exception of the deployed structure of an airbag assembly defined in para. 2.8., non-rigid material of < 50 Shore A hardness may be removed in order to demonstrate that covered or padded rigid parts are not contacted by the head or the chest of the manikin during the test."

*Paragraph 8.2.1.*, amend to read:

"8.2.1. Safety-belts, restraint systems, and ISOFIX child restraint systems as well as i-Size child restraint systems according to Annex 17 - Appendix 3, shall be fixed to anchorages and in case of i-Size child restraint systems, supported by a vehicle floor contact surface, conforming to the specifications of UN Regulation No. UN Regulation No. 14, such as the design and dimensional characteristics, the number of anchorages, and the strength requirements."

*Paragraph 8.2.2.*, amend to read:

"8.2.2. The safety-belts, restraint systems and child restraint systems recommended by the manufacturer according to Annex 17 -Appendix 3, shall be so installed that they will work satisfactorily and reduce the risk of bodily injury in the event of an accident. In particular, they shall be so installed that: ..."

*Paragraph 8.2.2.3.*, amend to read:

"8.2.2.3. The risk of the strap deteriorating through contact with sharp parts of the vehicle or seat structure, and child restraint systems recommended by the manufacturer according to Annex 17 - Appendix 3, is reduced to a minimum."

*Paragraph 8.3.5.*, amend to read:

"8.3.5. In order to inform the vehicle user(s) of the provisions made for the transport of children, vehicles of categories M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub> and N<sub>1</sub> shall meet the information requirements of Annex 17. Any vehicle of category M<sub>1</sub> shall be equipped with ISOFIX positions, in accordance with the relevant prescriptions of UN Regulation No. UN Regulation No. 14.

The first ISOFIX position shall allow at least the installation of one out of the three forward-facing fixtures as defined in appendix 2 of Annex 17; the second ISOFIX position shall allow at least the installation of one rear-facing fixtures as defined in Appendix 2 of Annex 17. For this second ISOFIX position, in case where the installation of the rear-facing fixture is not possible on the second row of seats of the vehicle due to its design, the installation of one fixture is allowed in any position of the vehicle."

*Paragraph 8.3.6.*, amend to read:

"8.3.6. Any i-Size seating position shall allow the installation of the ISOFIX child restraint fixture "ISO/F2X", "ISO/R2", and the support leg installation assessment volume as defined in Appendix 2 of Annex 17, as well as the booster seat fixture "ISO/B2" as defined in Appendix 5 of Annex 17, without the ISOFIX attachments (see detail B). It shall be possible to occupy all adjacent i-Size seating positions simultaneously. This is deemed to be demonstrated when the vertical median planes of individual adjacent positions are at least 440 mm apart."

*Insert a new paragraph 15.3.9.*, to read:

"15.3.9. Until 1 September 2018, no Contracting Parties applying this Regulation shall refuse to grant type approvals to the 06 series of amendments without taking into account Supplement 9 to the 06 series of amendments."

*Annex 17,*

*Paragraph 1.1.,* amend to read:

- "1.1. The vehicle manufacturer ...  
...  
In addition to the above defined information for the vehicle user, the vehicle manufacturer shall make available the information as defined by Appendix 3 of this Annex. For example, this information can be included in separate Annexes of the vehicle handbook, or in technical descriptions of the vehicle or on a dedicated webpage. The location of this information shall be provided in the vehicle handbook."

*Paragraph 1.2.,* amend to read:

- "1.2. A child restraint system, of the universal category means a child restraint approved to the "universal" category of UN Regulation No. 44, Supplement 5 to 03 series of amendments (or subsequent amendments).  
  
Seating positions, which are indicated by the vehicle manufacturer as being suitable for the installation of child restraints systems of the universal category shall comply with the provisions of Appendix 1 to this annex."

*Paragraph 1.3.,* amend to read:

- "1.3. An ISOFIX child restraint means a child restraint approved to UN Regulation No. 44, Supplement 5 to 03 series of amendments or to UN Regulation No. 129 (or subsequent amendments). Positions, which are indicated by the vehicle manufacturer as being suitable for the installation of ISOFIX child restraints systems shall comply with the provisions of Appendix 2 to this annex."

*Paragraph 1.4.,* amend to read:

- "1.4. An i-Size child restraint means .... Seating positions, which are indicated by the vehicle manufacturer as being suitable for the installation of i-Size child restraints systems shall comply with the provisions of Appendix 2 and Appendix 5 to this annex."

*Appendix 2,*

*Paragraph 2.3.,* amend to read:

- "2.3. Place cotton clothes on the seat-back and cushion, if needed."

*Paragraph 3.1.,* amend to read:

- "3.1. It has to be possible to accommodate the CRF(s), with or without i-Size support leg installation assessment volume, without interference with the vehicle interior. The CRF base shall have a pitch angle of  $15^\circ \pm 10^\circ$ , above the horizontal plane passing through the ISOFIX anchorages system. ISOFIX attachments, according to detail Y of figures 1 to 9, may adjust longitudinally between -10 mm to +70 mm to facilitate the interference check. The figures are showing the most extended positions."

*Paragraph 3.3.,* amend to read:

- "3.3. Should the above requirements not be met .... These alternative positions shall be described in the vehicle handbook and with the additional information specified in table 2 and/or 3 given in Appendix 3 to this annex. ..."

Paragraph 4., amend to read:

- "4. ISOFIX child restraint system size envelope fixtures:
- ISO/F3: Full-Height Forward Facing toddler CRS
  - ISO/F2: Reduced-Height Forward Facing toddler CRS
  - ISO/F2X: Reduced-Height Forward Facing toddler CRS
  - ISO/R3: Full-Size Rearward Facing toddler CRS
  - ISO/R2: Reduced-Size Rearward Facing toddler CRS
  - ISO/R2X: Reduced-Size Rearward Facing toddler CRS
  - ISO/R1: Rearward Facing infant CRS
  - ISO/L1: Left Lateral Facing position CRS (carry-cot)
  - ISO/L2: Right Lateral Facing position CRS (carry-cot)

The fixtures above shall be constructed with a mass between 10 and/or 13 kg +/- 1 kg and shall be of suitable durability and stiffness to satisfy the functional requirements, following the table below:

<i>CRF</i>	<i>Mass (kg)</i>	<i>Tolerance (kg)</i>
R1 <sup>a</sup>	10	± 1
R2 / R2X <sup>a</sup>	10	± 1
R3	13	± 1
L1 / L2	13	± 1
F2 / F2X <sup>a</sup>	13	± 1
F3	13	± 1

<sup>a</sup> ISOFIX base mass taken into account.

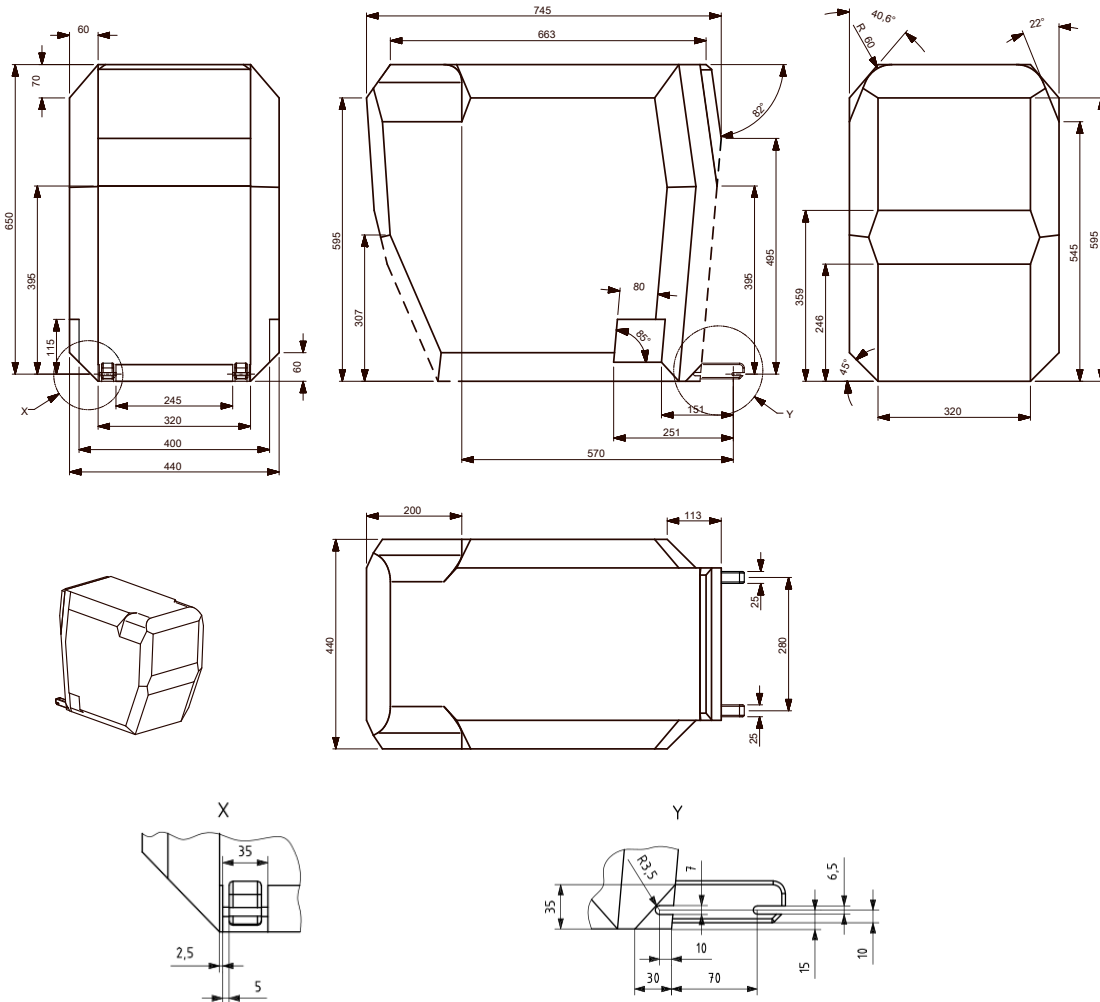
"

Appendix 2, insert a new paragraph 4.7. and a new Figure 7 to read:

"4.7. Rearward facing infant child restraint systems envelope ISO/R2X

Figure 7

**Reduced-Size Rearward Facing toddler CRS Envelope dimensions for a reduced-size rearward-facing CRS, modified for improved compatibility with the vehicle interior**



(all dimensions in millimeters)

**Key**

- 1 Limits in the rearward and upward directions
- 2 Dashed lines mark the area where an anti-rotation device, or similar (e.g. rebound bar), is allowed to protrude
- 3 The backward limitation (to the right in the figure) is given by the forward-facing envelope in Figure 2
- 4 For further specifications of the connector area, see detail Y and ISO 13216-1:1999, Figures 2 and 3"

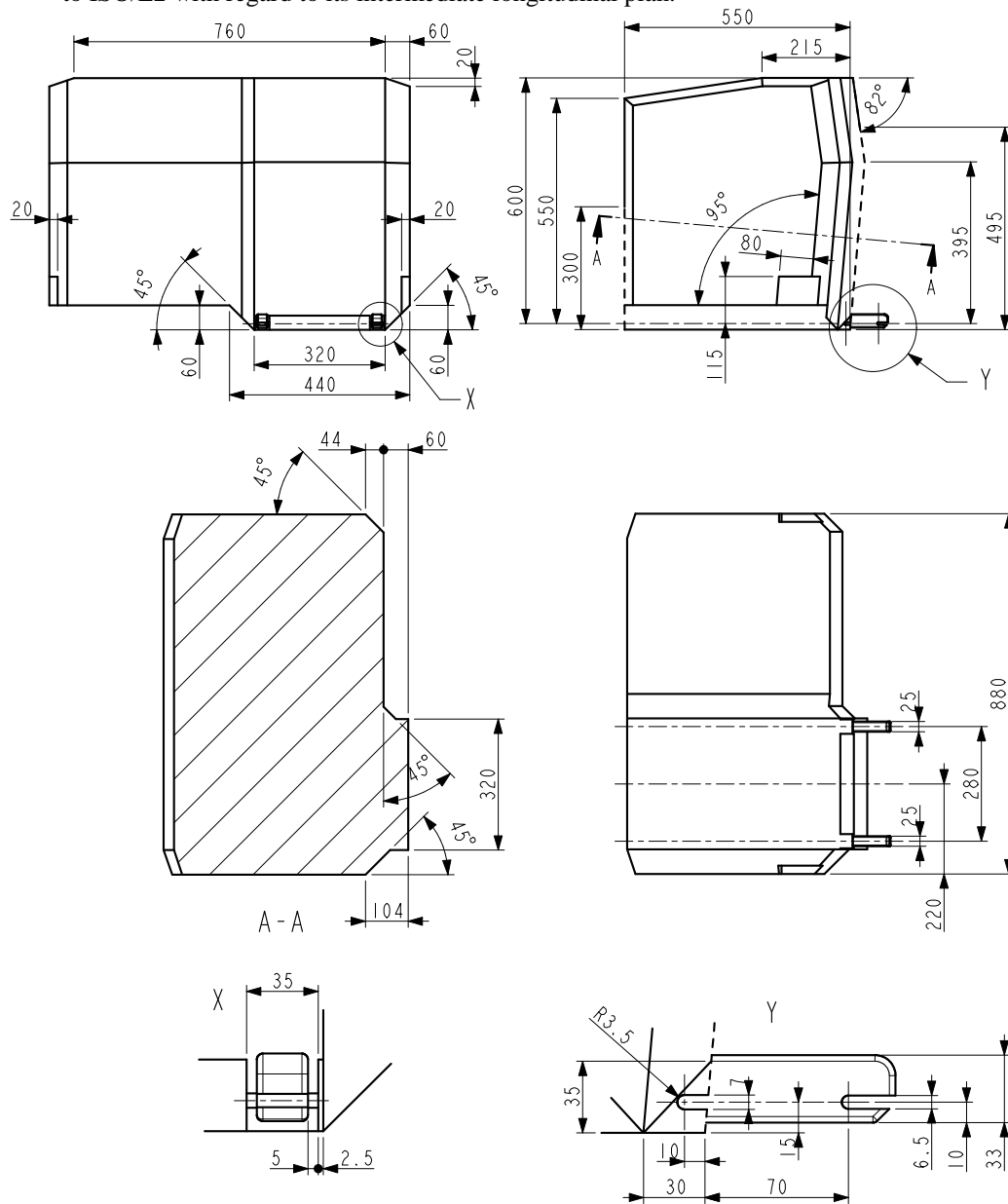
Appendix 2, paragraph 4.7.(former), renumber as paragraph 4.8. and amend to read:

"4.8. Lateral facing child restraint systems envelope

Figure 8

**Envelope dimensions for lateral facing position CRS - ISO/L1- or symmetrically opposite - ISO/L2 (figure shown)**

Note: The envelope for a left lateral-facing infant CRS (ISO/L1) has dimensions symmetric to ISO/L2 with regard to its intermediate longitudinal plan.



(all dimensions in millimetres)

**Key**

- 1 Limits in the rearward and upward directions
- 2 Dashed lines mark the area where an anti-rotation device, or similar (e.g. rebound bar), is allowed to protrude."

Figures 8 and 9, renumber as Figures 9 and 10.

Appendix 3., Table 1, amend to read:

"...

Seat position number	Seating position								
	1	2	3	4	5	6	7	8	9
Seating position suitable for universal belted (yes/ no)									
i-Size seating position (yes/ no)									
Seating position suitable for lateral fixture (L1/ L2)									
Largest suitable rearward facing fixture (R1/ R2X/ R2/ R3)									
Largest suitable forward facing fixture (F1/ F2X /F2/ F3)									
Largest suitable booster fixture (B2/B3)									

..."

Annex 17, insert a new Appendix 5 to read:

## "Annex 17 – Appendix 5

### **Provisions on the installation of forward-facing booster seat child restraint systems of universal and specific categories installed on vehicle seating positions or i-Size seating positions**

1. General
  - 1.1. The test procedure and the requirements in this appendix shall determine the suitability of seating positions for installing booster seat fixtures ISO/B2 or ISO/B3, without ISOFIX attachments. Where the vehicle manufacturer has indicated that the vehicle position(s) will accommodate a particular CRF, then it shall be assumed that smaller CRFs of the same orientation can also be accommodated.
  - 1.2. The tests may be carried out in the vehicle or in a representative part of the vehicle. Compliance with this requirement can be proven by a physical test or computer simulation or representative drawings.
2. Test procedure

i-Size positions in the vehicle, defined by the vehicle manufacturer, shall be checked to ensure that the ISO/B2 fixture listed in paragraph 4 of this Appendix can be accommodated, at least without ISOFIX connections.



- 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. In the absence of any specification, a torso angle of 25° from the vertical, or the nearest fixed position of the seat-back, should be used.
- 2.3. When checking a CRF, on a rear seat, the vehicle seat located in front of this rear seat may be adjusted longitudinally forward but not further than the mid position between its rearmost and foremost positions. The seat backrest angle may also be adjusted, but not to a more upright angle than corresponding to a torso angle of 15°. If the front seat is adjustable in height, adjust to the manufacturer's specification. In the absence of any specification, adjust the front seat to mid-height position, or the nearest position to mid height.
- 2.4. If necessary, head restraints may be adjusted or removed, if possible.
- 2.5. Set the shoulder anchorage to the position defined by the vehicle manufacturer.
- 2.6. Place cotton cloths on the seat-back and cushion, if needed.
- 2.7. Remove the ISOFIX attachments from the CRF, or retract them to a position fully inside the backseat line (reference line E, Figure 2 or 3).
- 2.8. Place the fixture (as described in Figure 2 or 3 of this appendix) on the vehicle seat. The top of the fixture may touch the vehicle roof. Compression of the seat cushion is allowed to move the fixture into position.
- 2.9. Arrange the seat belt through the CRF in approximately the correct position, and then fasten the buckle. Ensure that all webbing slack is removed. The fixture shall be restrained by the vehicle's seat belt.
- 2.10. Ensure that the fixture is located with its centreline on the apparent centreline of the seating position  $\pm 25$  mm with its centreline parallel with the centreline of the vehicle seat. The roll angle  $\alpha$  (see figure 1) shall be within  $0^\circ \pm 5^\circ$
- 2.11. Push rearwards on the centre of the front of the fixture with a force  $100 \text{ N} \pm 10 \text{ N}$ , applied parallel to the lower surface, and remove the force.
- 2.12. When possible, push vertically downwards on the centre of the upper surface of the fixture with a force of  $100 \text{ N} \pm 10 \text{ N}$ , and remove the force.
3. Requirements
  - 3.1. It shall be possible to secure the fixture in the seating position using the 3-point seat belt and to buckle up the seat belt.
  - 3.2. The roll angle  $\alpha$  as shown in Figure 1 shall be equal to or less than  $5^\circ$ .
  - 3.3. The base of the fixture shall be in contact with the seat cushion, and the back face of the fixture shall be in contact with the seat back or head restraint. Full contact with the seat is not necessary, "gaps" due to the vehicle seats contours are permitted as shown by the arrows in Figure 1. The booster seat envelope is equipped with an adjustable backrest. Compatibility with the vehicle seating position shall be achieved in at least one position of the backrest range shown in Figure 2 or Figure 3.
  - 3.4. Should the above requirements not be met with the adjustments indicated in paragraphs 2.1. to 2.12. above, the seat, seat-back 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 again verified and met. This alternative position shall be described according to paragraph 1.1 of Annex 17 and in detailed technical information specified in Appendix 3.

4. Booster seat child restraint system fixtures:
- (a) ISO/B2: Booster seat, reduced width 440 mm (figure 2)
  - (b) ISO/B3: booster seat, full width 520 mm (figure 3)

The fixtures above shall be constructed with a mass of 7 kg  $\pm$  0,2 kg and shall be of suitable durability and stiffness to satisfy the functional requirements.

Figure 1  
**Positioning in seat**

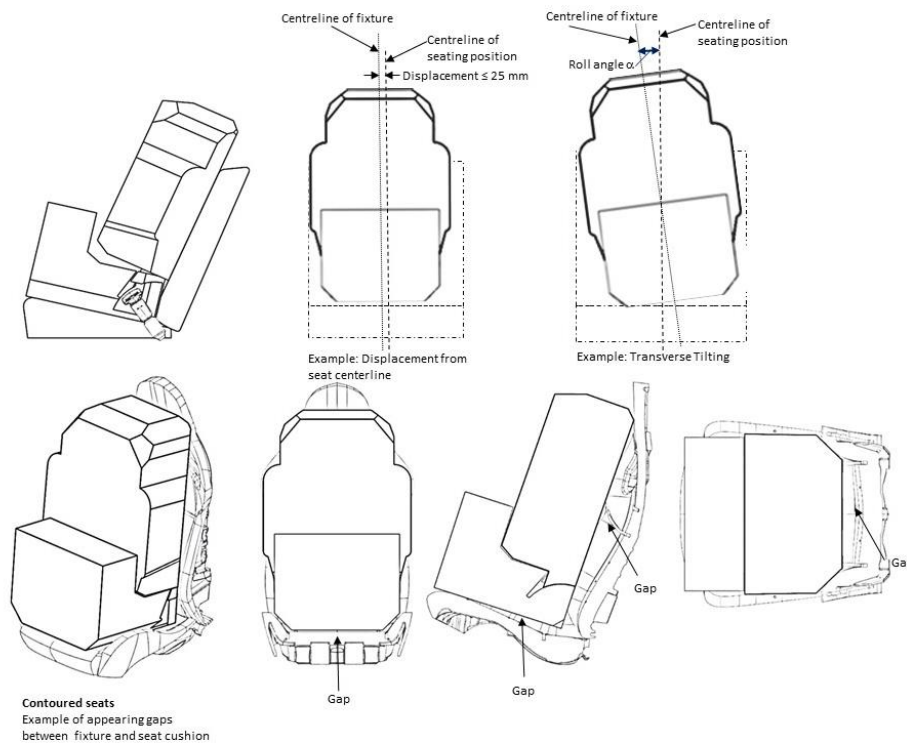
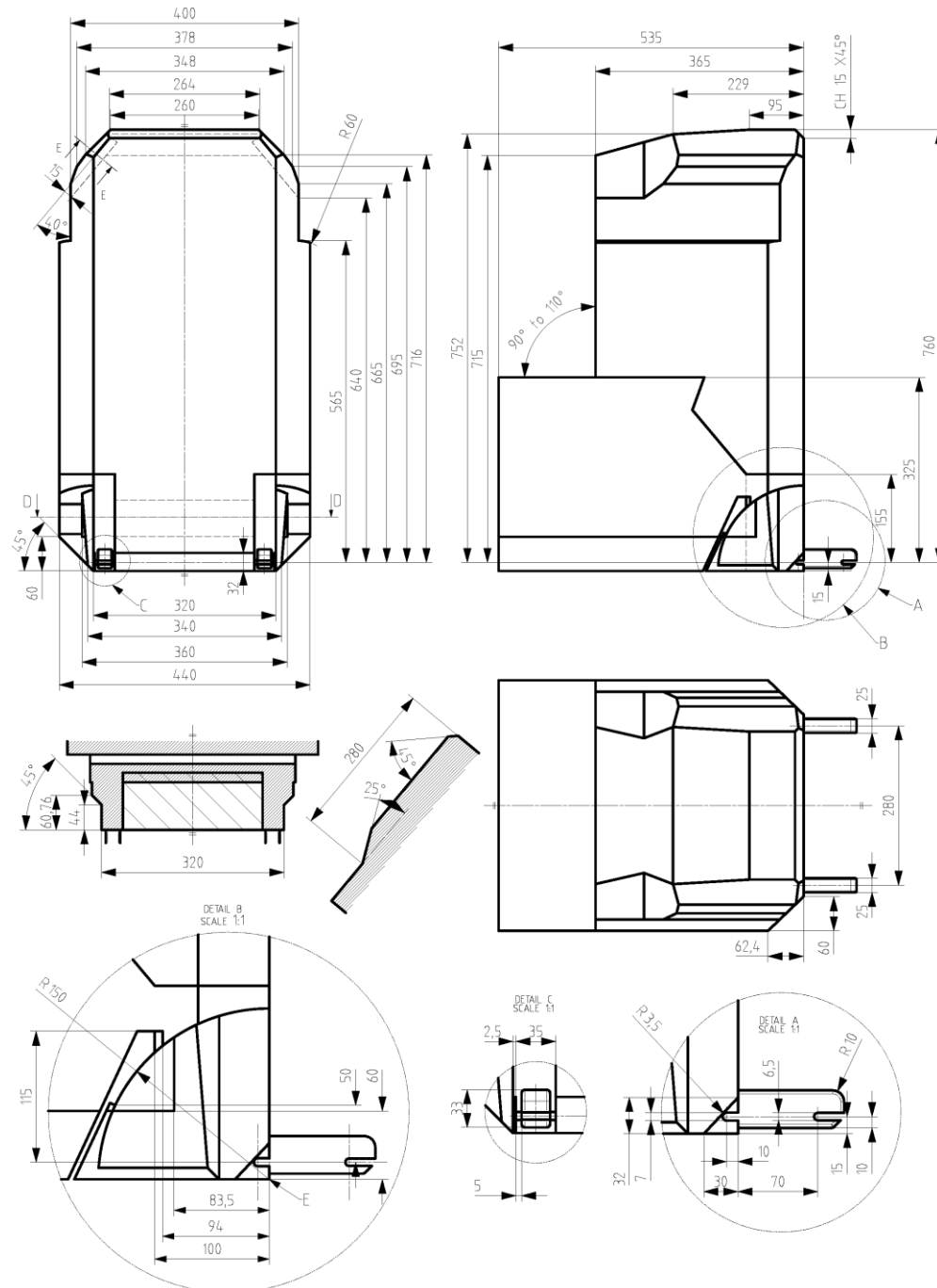


Figure 2

**ISO/B2: Envelope dimensions for booster seat, reduced width 440 mm - without ISOFIX, or with connectors removed or stowed within the body of the fixture (behind line E, as defined by detail B)**

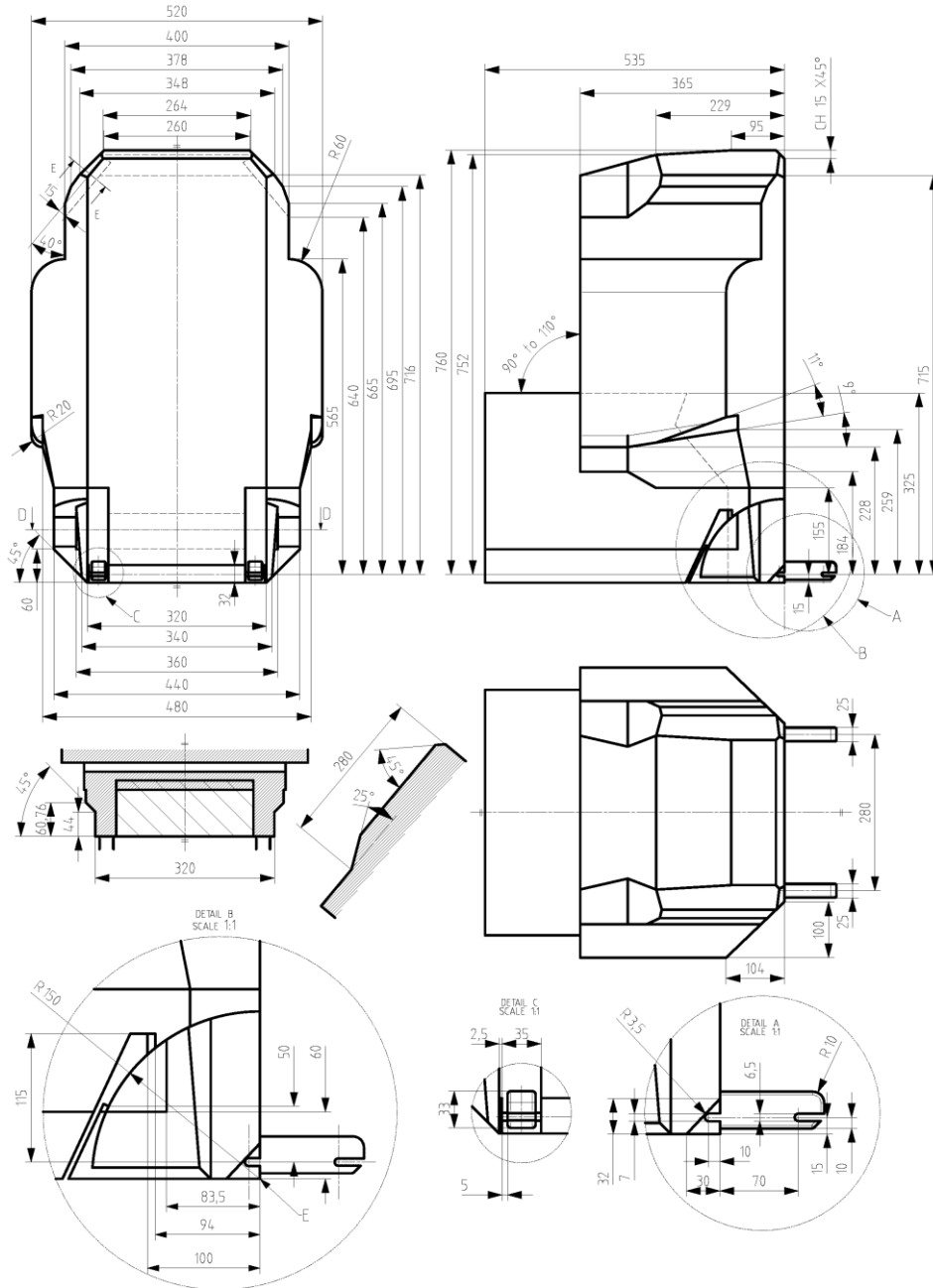


(all dimensions in millimetres)

**Key**

E is the Reference axle of rotation of the backrest (90° to 110°) and reference line for retraction/stowing of ISOFIX

Figure 3  
**ISO/B3 - Envelope dimensions for booster seat, full width 520 mm - without ISOFIX,  
 or with connectors removed or stowed within the body of the fixture (behind line E, as  
 defined by detail B)**



(all dimensions in millimetres)

**Key**

E is the reference axle of rotation of the backrest (90° to 110°) and reference line for retraction/stowing of ISOFIX"