

Distr.  
GENERAL

TRANS/WP.29/GRSP/2001/14  
4 September 2001

Original: ENGLISH

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

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

Working Party on Passive Safety (GRSP)

(Thirtieth session, 3-6 December 2001,  
agenda item 1.2.3.)

PROPOSAL FOR DRAFT 06 SERIES OF AMENDMENTS TO REGULATION No. 14  
(Safety-belt anchorage)

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. 14 the new anchorage system standard for 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. 21) during the twenty-ninth session (TRANS/WP.29/GRSP/29, para. 28).

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 copied from the International Standard ISO 13216-1:1999 are written in *italics*,
- (3) words removed from the original text of Regulation No. 14 are written between brackets and crossed out,
- (4) words added to the original text of Regulation No. 14 are written in **bold type**
- (5) words added (or removed) to the informal document No. 6 distributed at the twenty-eighth GRSP session are underlined (or crossed out).

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

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**A. PROPOSAL**

The title, amend to read:

"UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO SAFETY-BELT ANCHORAGES, ISOFIX ANCHORAGES SYSTEMS AND THE APPROVAL OF AFTERMARKET ISOFIX LOW ANCHORAGES"

Paragraph 1., amend to read:

"... of categories M and N 1/.

It also applies to ISOFIX anchorages systems intended for ISOFIX child restraint systems installed in vehicles of category M1 and N1 and aftermarket ISOFIX low anchorages."

Paragraph 2.2., amend to read:

"... to which the **safety belts** anchorages and the ISOFIX anchorages systems if any are attached and, if the anchorages ..."

Insert new paragraphs 2.17. to 2.22., to read:

- "2.17. "ISOFIX low anchorage" means one 6 mm diameter rigid round horizontal bar, extending from vehicle or seat structure to accept and restrain an ISOFIX child restraint system with ISOFIX attachments.
- 2.18. "ISOFIX anchorages systems" means a system including 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.
- 2.19. "ISOFIX attachment" means one of the two connections, fulfilling the requirements of Regulation No. 44, extending from the ISOFIX child restraint system structure, and compatible with an ISOFIX low anchorage.
- 2.20. "ISOFIX child restraint systems" means an ISOFIX child restraint systems intended which has to be attached to an ISOFIX anchorages systems .
- ~~2.21. "Seat bight" means the area close to the intersection of the surfaces of the vehicle seat cushion and the seat back.~~
- 2.22. "Static force application device (S-FAD)" means a test fixture that engages the vehicle ISOFIX anchorages system and that is used to verify their strength and the ability of the vehicle or seat structure to limit the rotation in a static test. The test fixture is described in figures 1 and 2.

Insert figures 1 and 2, to read:  
"

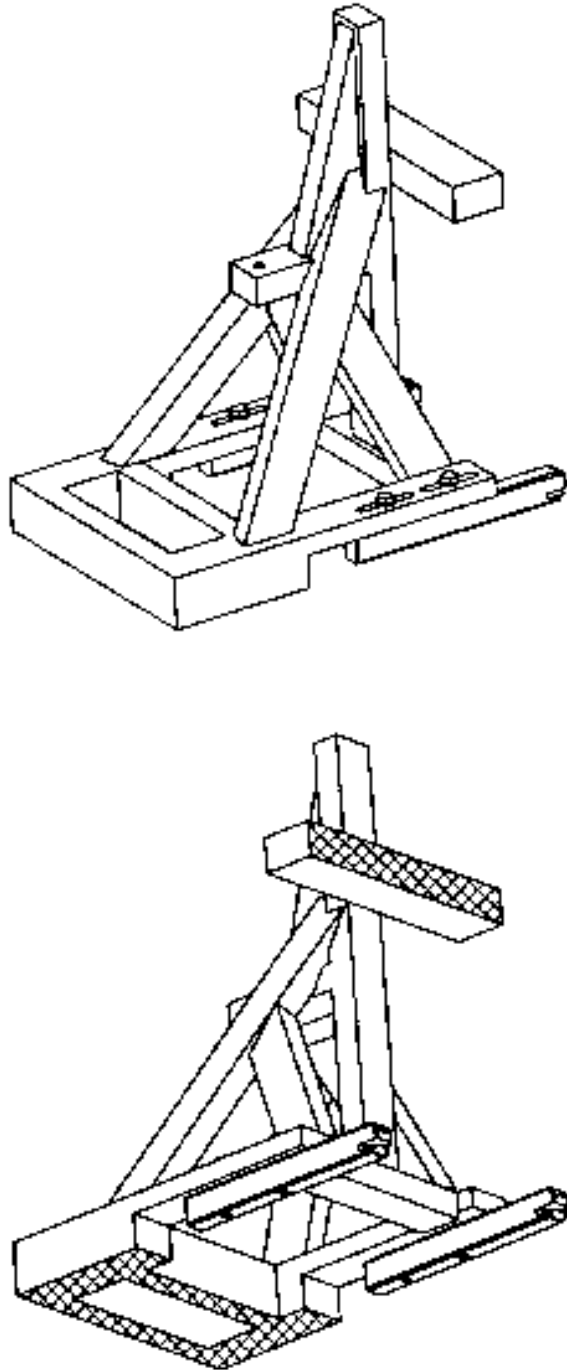


Figure 1: *Static force application device (S-FAD), isometric views*

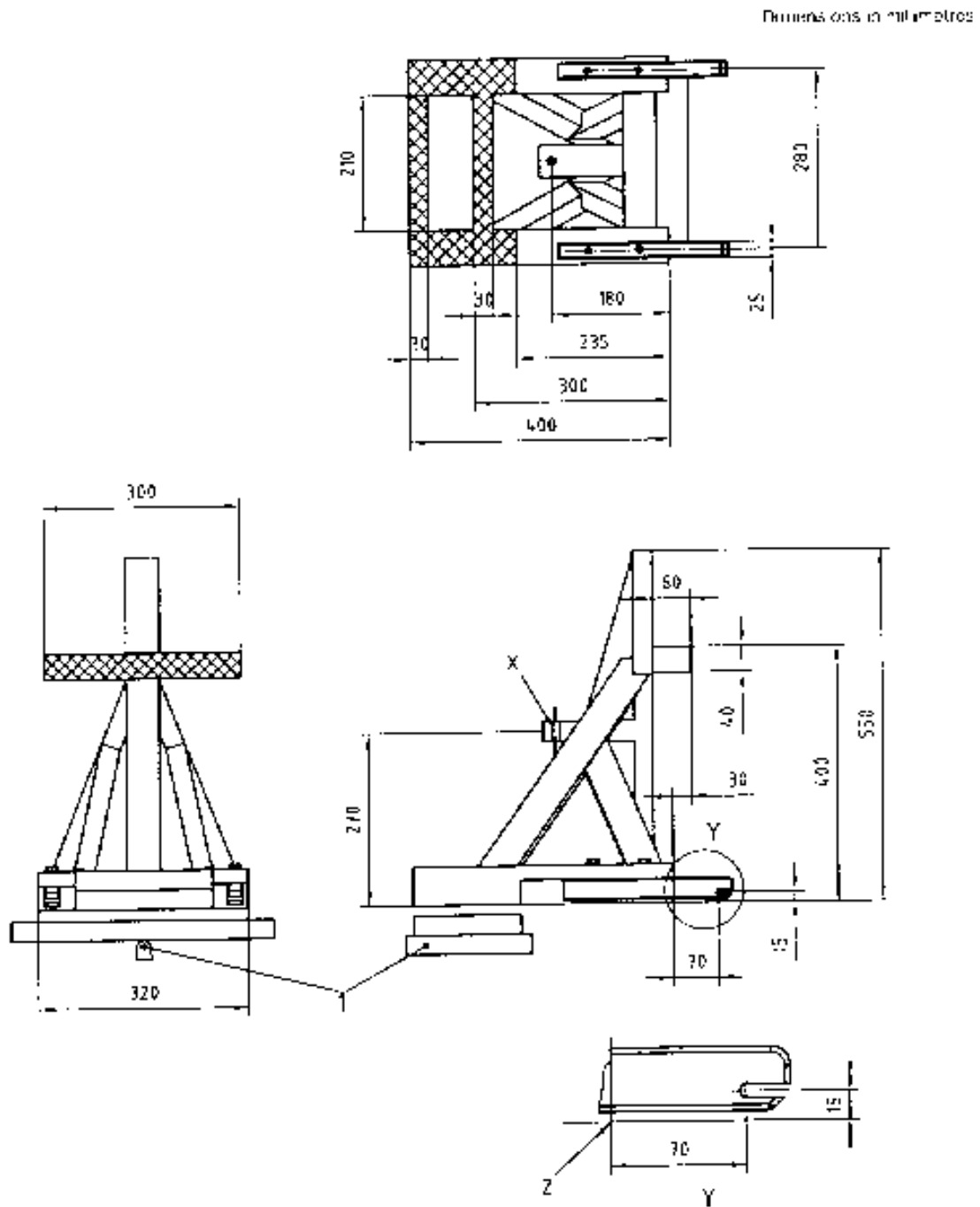


Figure 2: Static force application device (S-FAD), dimensions

*Stiffness of S-FAD: When attached to rigid anchorage bar(s) with the front cross member of the S-FAD supported by a rigid bar that is held at the centre by a longitudinal pivot 25 mm below the S-FAD base (to allow bending and twisting of the S-FAD base) the movement of point X shall not be greater than 2 mm in any direction when forces are applied in accordance with table No. 1 of paragraph 6.6.4. of this regulation. Any deformation of the ISOFIX anchorages system shall be excluded from the measurements (e.g. the stiffness requirements will be fulfilled when using a securely welded construction consisting of rectangular 3 mm steel tubing, and 6 mm thick load application plate)."*

Paragraph 3.1., amend to read:

"... with regard to the belt anchorages **and the ISOFIX anchorages systems if any** shall be submitted ..."

Paragraph 3.2.1., amend to read:

"... showing the positions of the belt anchorages **and of the ISOFIX anchorages systems if any**, the effective belt anchorages (where appropriate), and detailed drawings of the belt anchorages **and of the ISOFIX anchorages systems if any** and of the points ..."

Paragraph 3.2.2., amend to read:

"... of the belt anchorages **and of the ISOFIX anchorages systems if any;**"

Paragraph 3.2.3., amend to read:

"... of the belt anchorages **and of the ISOFIX anchorages systems if any;**"

Paragraph 3.2.4., amend to read:

"... of belt anchorages **and of the ISOFIX anchorages systems if any** affixed to the seat structure;"

Paragraph 3.3., amend to read:

"... for the belt anchorage test **and for the ISOFIX anchorages systems test if any** by the technical..."

Paragraph 4.2., amend to read:

"... Its first two digits (at present 06, corresponding to the 06 series of amendments)..."

Insert new paragraphs 5.2.2. to 5.2.2.6., to read:

"5.2.2 Any ISOFIX anchorages systems for ISOFIX child restraint systems shall be designed, made and situated as to:

5.2.2.1. ~~The~~ Any ISOFIX anchorages systems shall be 6 mm ± 0.1 mm diameter transverse horizontal 3/ rigid bar(s) which cover(s) two zones of 25 mm minimum effective length located on the same axis. For any ISOFIX anchorages systems, the distance between the centres of the two zones is 280 mm ± [to be defined] mm. ~~Any~~ The ISOFIX anchorages systems shall be supported so as to extend from the adjacent vehicle or seat structure.

3/ According to the vehicle reference system as described in annex 4, appendix 2.

5.2.2.2. For any ISOFIX anchorages system installed in the vehicle, it shall be verified the possibility to attach the ISOFIX child restraint systems according to Regulation No. 16.

5.2.2.3.1. Any ISOFIX anchorages systems shall be designed such as to enable the vehicle, in normal use, to comply with the provisions of this regulation.

Aftermarket ISOFIX low anchorages shall also comply, for all the vehicle types for which they are intended, with the provisions of this Regulation.

5.2.2.4. ISOFIX low anchorages shall be permanently in position or storable. In case of storable anchorages, the requirements relating to ISOFIX anchorages systems shall be fulfilled in the deployed position.

5.2.2.5. At least one anchorage bar (when deployed for use), one guidance fixture (when installed), or one seat marking feature shall be readily visible to the CRS installer.

5.2.2.6. ISOFIX low anchorages resistance is designed for any ISOFIX child restraint system of group of mass 0 ; 0+ and 1. Whatever ISOFIX child restraint system class is integral or non-integral as defined in Regulation No. 44. The ISOFIX anchorages systems may be used for group of mass 2 and 3 only in case of non-integral class ISOFIX child restraint systems."

Insert new paragraphs 5.3.10. to 5.3.10.1.3., to read:

"5.3.10. Minimum number of ISOFIX anchorages systems to be provided.

5.3.10.1. Any vehicle of category M1 must be equipped at least with two ISOFIX anchorages systems which satisfy the requirements of this Regulation.

- 5.3.10.1.1. If an ISOFIX anchorages system is installed at a front seating position protected with a frontal airbag, a de-activation device for this airbag shall be fitted.
- 5.3.10.1.2. Notwithstanding paragraph 5.3.10.1. only one ISOFIX anchorages system shall be provided on the front seat row in the case of the two following vehicle concepts:
- Either, no rear seat row is provided or,
  - There is not enough/sufficient space available between two seat rows measured as follows: with the seats and seat backs adjusted as specified in paragraph 5.3.10.1.2.1., the distance measured along a longitudinal horizontal line tangent to the highest point of the rear seat ~~bottom~~ cushion in the suitable longitudinal vertical plane, described in paragraph 5.3.10.1.2.2., between the rearward surface of the front seat back and the forward surface of the rear seat back is less than 720 mm.
- 5.3.10.1.2.1. Adjustable front seats are in the adjustment position midway between the forwardmost and rearmost positions, and if separately adjustable in a vertical direction, are at the lowest position. If an adjustment position doesn't exist midway between the forwardmost and rearmost positions, the closest adjustment position to the rear of the midpoint is used.  
Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer
- 5.3.10.1.2.2. In a vehicle equipped with front separate side by side seats, the vertical plane to be taken into account in paragraph 5.3.10.1.2. is located at the centreline of the driver's seat cushion.  
In a vehicle equipped with front bench seating, the reference vertical plane mentioned above passes through the centre of the steering wheel rim.
- 5.3.10.1.3. Notwithstanding 5.3.10.1. in case of integrated "built in" child restraint system(s) the number of ISOFIX anchorages systems to be provided shall be at least two minus the number of the integrated "built in" child restraint system(s)."

Paragraph 5.3.10. (former), renumber as paragraph 5.3.11.

Paragraph 6.1., amend to read:

"6.1. General for seat belt anchorages tests."

Paragraph 6.2., amend to read:

"6.2. Securing of the vehicle for seat belt anchorages tests and for ISOFIX anchorages systems tests."

Paragraph 6.2.1., amend to read:

"... as to strengthen the seat belt anchorages or the ISOFIX anchorages systems and their anchorage areas or to lessen ..."

Paragraph 6.3., amend to read:

"6.3. General test requirements for seat belt anchorages."

Paragraph 6.4., amend to read:

"6.4. Particular test requirements for seat belt anchorages."

Insert new paragraphs 6.6. to 6.6.5.1. to read:

"6.6. *Static test requirements ~~for ISOFIX anchorages systems.~~*

6.6.1. *The strength of the ISOFIX anchorages systems and the ability of the vehicle or seat structure to limit the rotation shall be tested applying the forces, as prescribed in paragraph 6.6.4., to the static force application device (S-FAD) with ISOFIX attachments well engaged. In the case that several ISOFIX anchorages systems are installed on a seat row, the test shall be carried out simultaneously with all the ISOFIX anchorages systems fitted on this seat row.*

6.6.2. *The test may be carried out either on a completely finished vehicle or on sufficient parts of the vehicle so as to be representative of the strength and rigidity of the vehicle structure.*

*Windows and doors may be fitted or not and closed or not.*

*Any fitting normally provided and likely to contribute to the vehicle structure may be fitted.*

*The test may be restricted to the ISOFIX anchorages systems relating to only one seat or group of seats on the condition that:*

- The ISOFIX anchorages systems concerned have the same structural characteristics as the ISOFIX anchorages systems relating to the other seats or group of seats and,*
- Where such ISOFIX anchorages systems are fitted totally or partially on the seat or group of seats, the structural characteristics of the seat or group of seats are the same as those for the other seats or groups of seats.*

6.6.3. *If the seats and head restraint are adjustable, they shall be placed in the position ~~recommended~~ specified by the car manufacturer as specified by the paragraph 11. of this Regulation.*



6.6.4. Forces, directions and excursion limits.

6.6.4.1. A force of 135N  $\pm$  15N shall be applied to the centre of the lower front crossbar of the S-FAD in order to adjust the fore-aft position of the S-FAD rearward extension to remove any slack or tension between the S-FAD and its support.

6.6.4.2. Forces shall be applied to the static force application device (S-FAD) in forward and lateral directions according to table 1.

Table 1: Directions of test forces

Forward	0° $\pm$ 5°	8 kN $\pm$ 0.25 kN
Lateral	75° $\pm$ 5° (to both sides of straight forward or if any worst case side)	5 kN $\pm$ 0.25 kN

Each of these tests may be performed on different structures if the manufacturer so requests.

Forces in the forward direction shall be applied with an initial force application angle of 10  $\pm$  5° above the horizontal. Lateral forces shall be applied horizontally 0°  $\pm$  5°. A pre-load force of 500 N  $\pm$  25 N shall be applied at the prescribe loading point X indicated in figure 2. Full application of the force shall be achieved within a period of 2 s or less. The force shall be maintained for a minimum period of 0.2 s.

6.6.4.3. Horizontal excursion (after pre-load) of point X during application of the 8 kN and 5 kN forces shall be within the limits specified in Table 2. Rotation (yaw) of the fixture during application of the 8 kN forward force shall not exceed [15°]. All measurements shall be made according to ISO6487 with CFC of 60 Hz or any equivalent method.

Table 2: Excursions limits

Force direction	Maximum excursion of point X of S-FAD
Forward	125 mm (longitudinal)
Lateral	125 mm (transversal)

6.6.4.4. Permanent deformation including partial rupture or breakage of any ISOFIX low anchorage or surrounding area shall not constitute failure if the required force is sustained for the specified time and if the maximum horizontal excursions are not exceeding the specified one's.

**6.6.5 Additional forces.**

**6.6.5.1. Seat inertia forces.**

For the installation position where the load is transferred into a vehicle seat assembly, and not directly into the vehicle structure, a test shall be carried out to ensure that the strength of the vehicle seat attachment to the vehicle structure is sufficient. In this test, in addition to the force of 8 kN  $\pm$  0.25 kN applied to point X, a force equal to 20 times the mass of the relevant parts of the seat assembly shall be applied horizontally and longitudinally in a forward direction to the seat or the relevant part of the seat assembly corresponding to the physical effect of the mass of the seat in question to the seat anchorages. The determination of the additional applied load or loads and the load distribution shall be made by the manufacturer and agreed by the Technical Service. No breakdown shall occur.

NOTE This test does not have to be performed in case any anchorage of the vehicle seat belt system is integrated to the vehicle seat structure, and the vehicle seat is already tested and approved to meet at least the above requirement."

Paragraph 7., amend to read:

"7. INSPECTION DURING AND AFTER STATIC TESTS FOR SAFETY BELT ANCHORAGES."

Paragraph 9.1., amend to read:

"... with regard to details affecting the characteristics of the **safety belt anchorages and the ISOFIX anchorages systems.**"

Paragraph 10.1., amend to read:

"... complied with or if its **safety-belt anchorages or the ISOFIX anchorages systems** failed to pass the checks prescribed ..."

Paragraph 11., amend to read:

"11. OPERATING INSTRUCTIONS"

Insert a new paragraph 11.1., to read:

"11.1. **The national authorities may require** the manufacturers of vehicles registered by them to state clearly in the instructions for operating the vehicle."

Paragraph 11.1. (former), renumber as paragraph 11.1.1.

Paragraph 11.2. (former), renumber as paragraph 11.1.2.

~~Insert a new paragraph 11.2., to read:~~

~~**11.2. The vehicle owner's handbook shall indicate:  
-The different ISOFIX anchorage systems, including any restrictions on the groups of mass (as defined in Regulation 44) for ISOFIX child restraint system that can be fitted,  
-Where applicable any restrictions on the simultaneous use of ISOFIX child restraint systems on adjacent seating positions,  
-Where applicable any restrictions on the adjustments of vehicle seats resulting from the fitting of an ISOFIX child restraint system.**~~

Paragraph 12., amend to read:

"... a type of safety belt anchorages ~~or a type of ISOFIX anchorages systems~~ approved in accordance with this Regulation ..."

Paragraphs 14.1. to 14.3., amend to read:

- "14.1 As from the official date of entry into force of the [05] 06 series of amendments, no Contracting Party...as amended by the [05] 06 series of amendments.
- 14.2. As from [2 years after the publication of the amendment] after the date of entry into force of the [05] 06 series of amendment to this Regulation, Contracting Parties applying this Regulation shall grant ECE approvals only if the requirements of this Regulation, as amended by the [05] 06 series of amendments are satisfied.
- 14.3. As from [5 years after the date for NT] after the date of entry into force of the [05] 06 series of amendment to this Regulation, Contracting Parties applying this Regulation may refuse to recognise approvals which were not granted in accordance with the [05] 06 series of amendments to this Regulation."

Annex 1,

The subtitle, amend to read:

"... of a vehicle type with regard to safety belt anchorages ~~and ISOFIX anchorages systems if any pursuant to,~~ or of aftermarket ISOFIX low anchorages pursuant to Regulation No. 14 3/"

Item 1., amend to read:

- "1. Trade name or mark of the power-driven vehicle, or of the aftermarket ISOFIX low anchorages manufacturer ..."

Item 10., amend to read:

"10. Vehicle or aftermarket ISOFIX low anchorages submitted for approval on ..."

Item 15., amend to read:

"15. Position of approval mark on vehicle or on aftermarket ISOFIX low anchorages on vehicle ..."

Item 19., amend to read:

"... drawings, diagrams and plans of the belt anchorages, of the - aftermarket - ISOFIX anchorages systems, if any, and of the vehicle structure;"

Item 20., amend to read:

"... photographs of the belt anchorages, of the - aftermarket - ISOFIX anchorages systems, if any, and of the vehicle structure."

3/ Only if the belt anchorage and the -aftermarket- ISOFIX anchorage systems, if any, are affixed on the seat or if the seat supports ...

Annex 2,

Annex 2, in the examples of the approval marks and in the captions below amend the approval number "052439" to read "062439" (3 times, related to Regulation No. 14). In addition, in the caption below Model A of the approval mark amend the words "05 series of amendments" to read "06 series of amendments". The caption below Model B of the approval mark amend to read as follows (footnote \*/ not modified):

"... on the dates on which these approvals were granted Regulation No. 14 included the 05 series of amendments and Regulation No. 24 was in its 03 series of amendments."

Replace the current reference [~~"14R 052439"~~] situated on the right of the second drawing of the approval mark by the following one "14R 062439"

\* \* \*

**B. JUSTIFICATION**

Re. para. 2.2.1.:

This definition is useless in this Regulation.

Re. para. 5.2.2.3.

Aftermarket ISOFIX low anchorages could be fitted, at the request of the car owner, in addition to the ones fitted by construction to comply with the present Regulation. For safety aspect, aftermarket ISOFIX low anchorages need to present the same performance as the original ones.

Re. para. 5.2.2.4.:

New paragraph added as agreed at the twenty-eighth session (TRANS/WP.29/GRSP/28, para. 23.)

Re. para. 5.2.2.5.:

Introduction of provisions to make easier the installation of the ISOFIX child restraint systems.

Re. para. 5.2.2.6.:

For non-integral class, the main forces of the children are transferred through the adult seat belt.

Re. para. 5.3.10.1.:

Proposal in accordance with several comments tabled at the twenty-eighth session. It is derived from the draft amendment of the European Community Directive 91/671/CEE.

Re. para. 6.6.1.:

Consequence of the rewording of the S-FAD definition as tabled in para. 2.22.

Re. para. 6.6.4.2.:

Paragraph derived from test procedure used for anchorage safety belt.

Re. para. 6.6.4.4.:

The excursions limits criteria need to be introduced in this paragraph in addition to the table 2.

Re. para. 6.6.5.1.:

The previous wording of this paragraph led to removing the additional test that has to be performed in case of seat inertia forces, as provided in ISO 13216-1. The second part of this paragraph uses the wording of Regulation No. 14-05 Supplement 2 for safety seat belt.

Re. para. ~~11.2.~~:

Instructions for installation are transferred to Regulation No. 16.

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