

Submitted by the expert from France

Informal document GRSP-55-21-Rev.1  
(55th GRSP, 19-23 May 2014,  
agenda item 16)

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## **Proposal for 03 series of amendments to Regulation No. 94 (Frontal collision)**

**Submitted by the expert from France as Chair of the Informal Working  
Group on Frontal Impact \***

The text reproduced below was prepared by the expert from France in response to the request of GRSP (ECE/TRANS/WP29/GRSP/54, para. 23) concerning amendments of Regulation No. 94. **and introduces all the modifications needed in UN Regulation No. 94 (Frontal Impact) that were suggested by the experts of the informal working group on Frontal Impact (IWG FI).** The modifications to the text of the UN Regulation are marked in bold for new characters. **This document supersedes ECE/TRANS/WP.29/GRSP/2014/06.**

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\* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, programme activity 02.4), 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.

## I. Proposal

*Paragraph 2.13 to 2.14, deleted:*

- ~~2.13. "Child restraint" means an arrangement of components which may comprise a combination of straps or flexible components with a securing buckle, adjusting devices, attachments, and in some cases a supplementary chair and/or an impact shield, capable of being anchored to a power driven vehicle. It is so designed as to diminish the risk of injury to the wearer, in the event of a collision or of abrupt deceleration of the vehicle by limiting the mobility of the wearer's body.~~
- ~~2.14. "Rearward facing" means facing in the direction opposite to the normal direction of travel of the vehicle.]~~

*Paragraph 3.1, amend to read:*

- 3.1. The application for approval of a vehicle type with regard to the protection of the occupants of the **front** seats in the event of a frontal collision (**offset deformable barrier test**) shall be submitted by the vehicle manufacturer or by his duly accredited representative.

*Paragraph 4.2., amend to read:*

- "4.2. ... (at present ~~02 03~~ corresponding to the ~~02 03~~ series of amendments) ..."

*Paragraphs 5.1.2 to 5.1.3., deleted:*

- ~~5.1.2. When the protective system for the front seating positions includes belts, the belt components shall meet the requirements of Regulation No. 16.~~
- ~~5.1.3. Seating positions where a dummy is installed and the protective system includes belts, shall be provided with anchorage points conforming to Regulation No. 14.]~~

*Paragraph 5.2.1.2, amend to read:*

- 5.2.1.2 The **Neck Injury Criteria for neck (NIC)** shall not exceed the following values:

*Paragraph 5.2.1.4., amend to read:*

- "5.2.1.4. The thorax compression criterion, (ThCC) shall not exceed **50 42 mm**;"

*Paragraph 5.2.2, amend to read:*

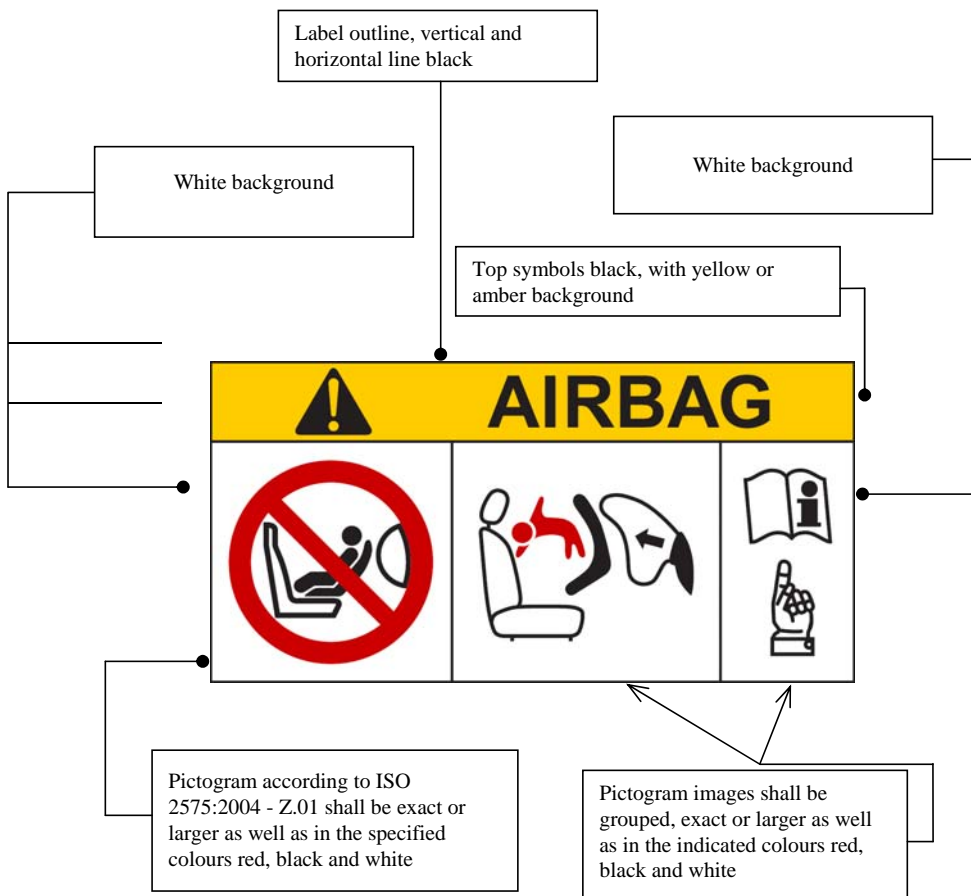
- 5.2.2 **After the test** the residual steering wheel displacement, when measured at the centre of the steering wheel hub, shall not exceed 80 mm in the upwards vertical direction and 100 mm in the rearward horizontal direction.

Paragraphs 6.1.2 to 6.2.3, deleted:

~~6.1.2. For a vehicle fitted with a passenger airbag intended to protect occupants other than the driver, this information shall consist of the warning label described in paragraph 6.2. below.~~

~~6.2. A vehicle fitted with one or more passenger frontal protection airbags shall carry information about the extreme hazard associated with the use of rearward facing child restraints on seats equipped with airbag assemblies.~~

~~6.2.1. As a minimum, this information shall consist of a label containing clear warning pictograms as indicated below:~~



The overall dimensions shall be at least 120 x 60 mm or the equivalent area.

- ~~————— The label shown above may be adapted in such a way that the layout differs from the example above; however, the content shall meet the above prescriptions.~~
- 6.2.2. ~~In the case of a frontal protection airbag on the front passenger seat, the warning shall be durably affixed to each face of the passenger front sun visor in such a position that at least one warning on the sun visor is visible at all times, irrespective of the position of the sun visor. Alternatively, one warning shall be located on the visible face of the stowed sun visor and a second warning shall be located on the roof behind the visor, so, at least one warning is visible all times. It shall not be possible to easily remove the warning label from the visor and the roof without any obvious and clearly visible damage remaining to the visor or the roof in the interior of the vehicle.~~
- ~~————— In the case of a frontal protection airbag for other seats in the vehicle, the warning must be directly ahead of the relevant seat, and clearly visible at all times to someone installing a rear facing child restraint on that seat. The requirements of this paragraph and paragraph 6.2.1. do not apply to those seating positions equipped with a device which automatically deactivates the frontal protection airbag assembly when any rearward facing child restraint is installed.~~
- 6.2.3. ~~Detailed information, making reference to the warning, shall be contained in the owner's manual of the vehicle; as a minimum, the following text in all official languages of the country or countries where the vehicle could reasonably be expected to be registered (e.g. within the territory of the European Union, in Japan, in Russian Federation or in New Zealand, etc.), shall at least include:~~
- ~~"NEVER use a rearward facing child restraint on a seat protected by an ACTIVE AIRBAG in front of it, DEATH or SERIOUS INJURY to the CHILD can occur"~~
- ~~The text shall be accompanied by an illustration of the warning label as found in the vehicle. The information shall be easily found in the owner's manual (e.g. specific reference to the information printed on the first page, identifying page tab or separate booklet, etc.)~~
- ~~————— The requirements of this paragraph do not apply to vehicles of which all passenger seating positions are equipped with a device which automatically deactivates the frontal protection airbag assembly when any rearward facing child restraint is installed.]~~

*Paragraph 7.1, amend to read:*

- 7.1. Any modification affecting the structure, the number of **front** seats, the interior trim or fittings, or the position of the vehicle controls or of mechanical parts which might affect the energy-absorption capability of the front of the vehicle shall be brought to the notice of the Type Approval Authority granting approval. The Type Approval Authority may then either:

*Paragraph 7.1.2.2, amend to read:*

- 7.1.2.2. If the modifications concern only the interior fittings, if the mass does not ~~[differ]~~ **increase** by more than 8 per cent and if the number of front seats initially provided in the vehicle remains the same, the following shall be carried out:

Paragraph 11.9., amend to read:

- “11.9. Approvals of the vehicles to the 01 series of amendments to this Regulation which are not affected by the 02 series of amendments shall remain valid and Contracting Parties applying the Regulation shall continue to accept them. **Contracting Parties applying the Regulation shall continue to accept approvals to the 01 series of amendments to this Regulation, for the vehicles which are not affected by the 02 series of amendments.**”

Insert new paragraphs 11.11. to 11.15, to read:

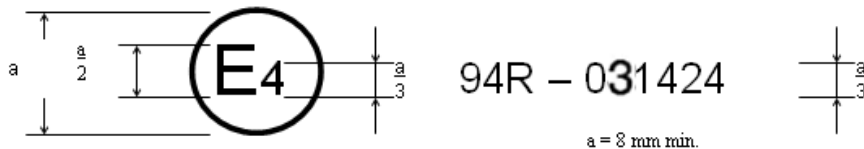
- “11.11. As from the official date of entry into force of the 03 series of amendments, no Contracting Party applying this Regulation shall refuse to grant UN approval under this Regulation as amended by the 03 series of amendments.
- 11.12. As from 1 September [2018], Contracting Parties applying this Regulation shall grant UN approvals only to those types of vehicle which comply with the requirements of this Regulation as amended by the 03 series of amendments.
- 11.13. Contracting Parties applying this UN Regulation shall not refuse to grant extensions of UN approvals for existing types which have been granted according to the preceding series of amendments to this UN Regulation.
- 11.14. Contracting Parties applying the Regulation shall continue to accept approvals to the 01 series of amendments to the Regulation, granted before 23 June 2013 or 2014, as foreseen in paragraph 11.5 above.
- 11.15. Contracting Parties applying the Regulation shall continue to accept approvals to the 02 series of amendments to the Regulation, granted before 1 September [2018].”

”

## Annex 2- ARRANGEMENTS OF APPROVAL MARKS

Model A and paragraph to amend :

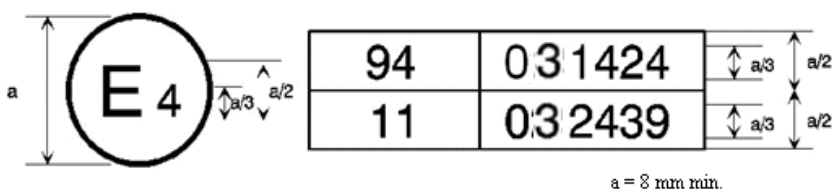
Model A  
(See paragraph 4.4. of this Regulation)



The above approval mark affixed to a vehicle shows that the vehicle type concerned has, with regard to the protection of the occupants in the event of a frontal collision, been approved in the Netherlands (E4) pursuant to Regulation No. 94 under approval number 0231424. The approval number indicates that the approval was granted in accordance with the requirements of Regulation No. 94 as amended by the 02 03 series of amendments.

*Model B and paragraph to amend :*

Model B  
(See paragraph 4.5. of this Regulation)



... The first two digits of the approval numbers indicate that, at the dates when the respective approvals were granted, Regulation No. 94 incorporated the 02 03 series of amendments and Regulation No. 11 incorporated the 02 03 series of amendments.

### Annex 3 – Test procedure

*Paragraph 1.4.3.10 to amend:*

- 1.4.3.10. Head restraints adjustable for height shall be in their ~~uppermost~~ **appropriate** position.

*Paragraph 1.4.3.1 to amend:*

- 1.4.3.1. Position of steering wheel

The steering wheel, if adjustable, shall be placed in the normal position indicated by the manufacturer or, **in the absence of any particular recommendation by the manufacturer**, midway between the limits of its range(s) of adjustment. At the end of the propelled travel, the steering wheel shall be left free, with its spokes in the position which according to the manufacturer corresponds to straight-ahead travel of the vehicle.

*Paragraph 1.4.3.3 to amend:*

- 1.4.3.3. Gear-change lever

The gear-change lever shall be in the neutral position. **If the vehicle is propelled by its own engine, then the gear-change level shall be defined by the manufacturer.**

Paragraph 2.1.1, footnote 1 to amend:

2. Dummies
- 2.1. Front seats
- 2.1.1. A dummy corresponding to the specifications for HYBRID III 50<sup>th</sup> <sup>1/</sup> meeting the specifications for its adjustment shall be installed in the driver seat in accordance with the conditions set out in Annex 5.

Field Code Changed

**Annex 4** title to amend:

### ~~Head Performance Criterion (HPC) and 3 ms head acceleration~~ Performance criteria

Paragraphs 1 to 1.1, to amend:

1. Head Performance Criterion (HPC<sub>36</sub>)
- 1.1. The Head Performance Criterion (HPC<sub>36</sub>) is considered to be satisfied when, during the test, there is no contact between the head and any vehicle component.

Paragraphs 2 to 2.1, to amend:

2. **Neck Injury Criteria for neck (NIC)**
- 2.1. These criteria are determined by ~~the compressive axial force, the axial tensile force and the fore/aft shear forces at the head/neck interface, expressed in kN and measured according to paragraph 5.2.2. of Annex 3 and by the duration of these forces expressed in ms.~~

Paragraph 2.3, deleted:

- ~~2.3. The neck flexion bending moment, expressed in Nm, shall be recorded.~~

<sup>1/</sup> The technical specifications and detailed drawings of 50<sup>th</sup> Hybrid III shall correspond to those included in the **Mutual Resolution 1**.

## Annex 5

Paragraph 2.4.3.2, to amend:

### 2.4.3.2. Pelvic angle

As determined using the pelvic angle gauge (GM) drawing 78051-532 incorporated by reference in Part 572 as defined in Mutual Resolution N° 1, which is inserted into the "H" point gauging hole of the dummy, the angle measured from the horizontal on the 76.2 mm (3 inch) flat surface of the gauge shall be 22.5 degrees plus or minus 2.5 degrees.

Paragraph 2.8, to amend:

- 2.8. The temperature of the dummy and the system of measuring instruments shall be stabilized before the test and maintained so far as possible within a range between 19 °C and 22.2 °C.

Field Code Changed

*Paragraph 3 amend to read:*

3. *The dummy jacket shall be installed at the appropriate position where the bolt hole of the neck lower bracket and the work hole of the dummy jacket should be at the same position. With the test dummy at its designated seating position, as specified by the appropriate requirements of paragraphs 2.1. to 2.6. and 3.1 to 3.6 above, place the belt around the test dummy and fasten the latch. Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor horizontally at a position via the centre of the dummy and allow it to retract. Repeat this operation four times. The shoulder belt should be at the position between the area which shall not be taken off from shoulder and shall not contact with the neck. The seat belt path shall be positioned: for HIII 50th Male, the hole of the outer side dummy jacket shall not be fully hidden by the seat belt. Apply a 9 to 18 N tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer for normal use in the owner's manual for the vehicle. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the rewind force of the retractor.*

*Where the safety belt and safety belt anchorages are located such that the belt does not lie as required above then the safety belt may be manually adjusted and retained by tape.*



## Annex 8

Paragraphs 4 to 4.3 delete, and renumber paragraphs 5 to 6:

- 4. Data processing
- 4.1. Filtering
- ...

## II. Justification

In parallel with the introduction of a new regulation concerning a frontal collision with focus on the restraint system, some amendments are needed in ECE R94 to improve the protection of older occupants.

**The text of R94 was aligned with R13x.**

Deleted: [4. . Recording]¶  
4.1. . Analogue magnetic recorder¶  
. Tape speed should be stable to within not more than 0.5 per cent of the tape speed used. The signal-to-noise ratio of the recorder should not be less than 42 dB at the maximum tape speed. The total harmonic distortion should be less than 3 per cent and the linearity error should be less than 1 per cent of the measurement range.¶  
4.2. . Digital magnetic recorder¶  
. Tape speed should be stable to within not more than 10 per cent of the tape speed used.¶  
4.3. . Paper tape recorder¶  
. In case of direct data recording the paper speed in mm/s should be at least 1.5 times the number expressing  $F_H$  in Hz. In other cases the paper speed should be such that equivalent resolution is obtained.¶  
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Deleted: 5