Informal Document GRSP-64-06
(64th GRSP, 11-14 December 2018,
agenda item 19)

D-E Plane Assessment

Explanatory notes related to formal documents GRSP/2018/ 19 through 22 submitted by Spain @ GRSP 63rd Session supersided by Inf. Docs. GRSP-64-02 to GRSP-64-05

R129 HEAD EXCURSION REQUIREMENTS

6.6.4.4.1.1.

Forward facing ECRS

Head excursion: No part of the head of the dummy shall pass beyond the planes BA, DA and **DE**.

Except for booster seats when testing using **Q10** dummy where:

(a) The value in relation to the DA plane is 840 mm; and

(b) The value in relation to the BA plane is 550 mm; and

(c)The rebound phase is not considered for the assessment of the plane DA and **DE**.

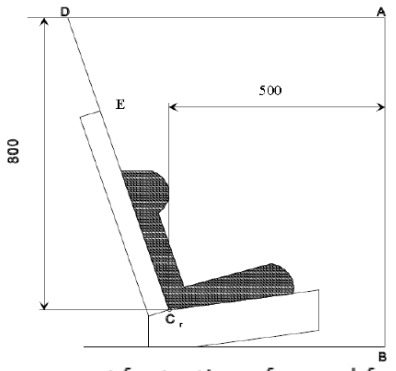


Figure 1 Arrangement for testing a forward-facing device

6.6.4.4.1.2.

Rearward-facing ECRS and carrycots:

6.6.4.4.1.2.1.

Head excursion: no part of the head of the dummy shall pass beyond the planes FD, FG and **DE**.

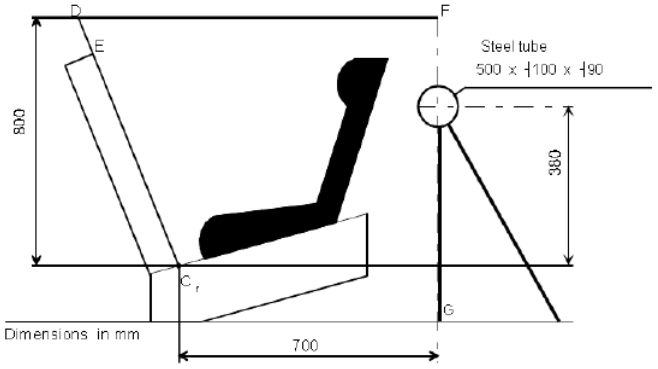


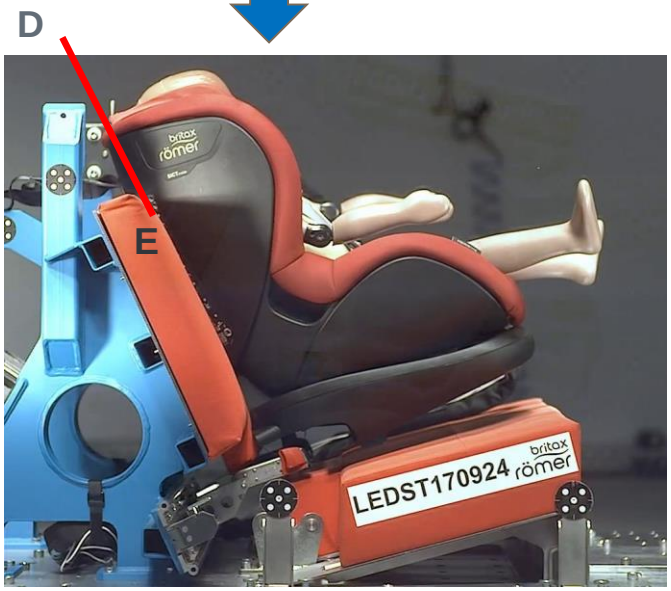
Figure 2 Arrangement for testing a rearward-facing device, not supported by the dashboard

R129 REARWARD FACING

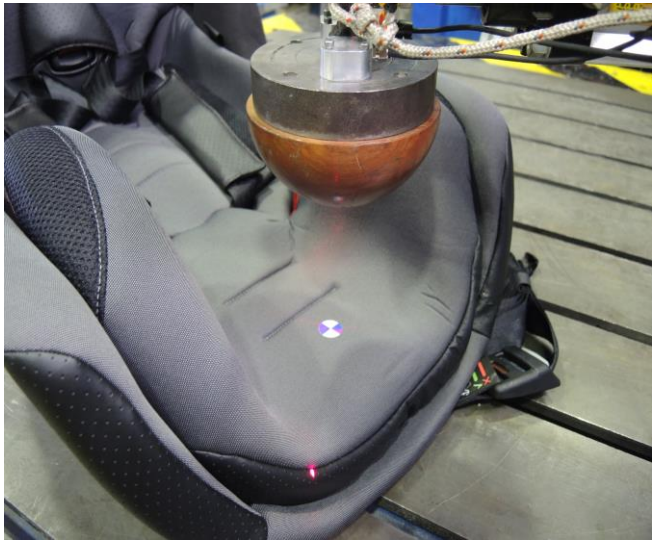
- D-E plane assessment existed in R44 for RF CRS
- If dummy's head crosses D-E plane it would have no protection from CRS
- Understand reason for this D-E plane assessment to apply to RF CRS

R129 FORWARD FACING

- R129 applies D-E plane assessment to Forward Facing ECRS
- For integral & non-integral CRS dummy's head often crosses D-E plane - but usually CRS structure (head res) behind headt



- CRS headrest material drop tested for energy absorption properties



- Forward Facing CRS will usually have a headrest to protect the child's head from contact with the vehicle
- TSG proposal
  - Only check D-E plane for rearward facing CRS tests (as per R44)

R129 PROPOSAL

Proposal for the 00 and 01 series of amendments

Paragraph 6.6.4.4.1.1., amend to read:

"6.6.4.4.1.1. Forward facing Enhanced Child Restraint Systems

Head excursion: No part of the head of the dummy shall pass beyond the planes BA, DA and DE as defined in Figure 1 below.

This shall be judged up to 300 ms or the moment that the dummy has come to a definitive standstill whatever occurs first.

For all forward facing Enhanced Child Restraint Systems, the head of the dummy may pass beyond the DE plane, if there is part of the child restraint structure, i.e. head pad or backrest, behind the head of the dummy, at the point the head passes the DE plane."

R129 PROPOSAL

Proposal for the 02 and 03series of amendments

Paragraph 6.6.4.4.1.1., amend to read*:*

6.6.4.4.1.1. Forward facing Enhanced Child Restraint Systems
Head excursion: No part of the head of the dummy shall pass beyond the planes BA DA DE as defined in Figure 1 below.

This shall be judged up to 300 ms or the moment that the dummy has come to a definitive standstill whatever occurs first.

Except for booster seats when testing using Q10 dummy where:
(a) The value in relation to the DA plane is 840 mm; and
(b) The value in relation to the BA plane is 550 mm; and
(c) The rebound phase is not considered for the assessment of the plane DA and DE.

For all forward facing Enhanced Child Restraint Systems, the head of the dummy may pass beyond the DE plane, if there is part of the child restraint structure, i.e. head pad or backrest, behind the head of the dummy, at the point the head passes the DE plane.

R129 PROPOSAL

Justification

1. The assessment of the DE plane only applies to rearward facing Child Restraint Systems (CRS) in UN Regulation No. 44. The DE plane assessment remains relevant for rearward facing child restraints in UN Regulation No. 129.

2. For forward facing child restraints, there is often structure of the child restraint, (either head pad or backrest) behind the head of the dummy at the point the DE plane is passed. The energy absorption properties of this structure will have been tested using the test method described in UN Regulation No. 129. Therefore this structure would provide protection to the child's head.

3. It is therefore not necessary to assess the DE plane for forward facing child restraints that maintain structure of the child restraint behind the head of the dummy.