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**EUROPEAN NEW CAR ASSESSMENT PROGRAMME
(EuroNCAP)**

EuroNCAP Protocol Changes January 2003

Frontal Impact

Changes now incorporated in version 4.0, January 2003

Section 2.2 After Test

Now reads:

- 2.2.1 *Before dummy removal measure the distance between all foot pedals and a fixed point in the footwell e.g. seat runner, seat mounting bolt. If access cannot be gained remove the dummies, according to Section 9.5, taking care not to disturb any pedals and then record the measurement. This measurement should be re-checked before the pedals are measured with the 3D measuring system. If the pedal has moved re-position the pedal using the measurement taken previously.*
- 2.2.2 (was 2.2.1) Remove the dummies according to Section 9.5 and remove the data acquisition and emergency abort equipment (if fitted) from the luggage compartment.

Section 3.2 Dummy Certification

Now reads:

Full details of the certification procedure for the Hybrid-III dummy are available elsewhere (see Part 572 Subpart E of US Department of Transportation Code of Federal Regulations). Details of the certification procedure of the TNO P1½ and P3 child dummies are available in the user documentation. *No manufacturer shall have access to any pre-test information regarding any of the test equipment to be used by Euro NCAP, or be permitted to influence its selection in any way.*

Section 4.1 Dummy Instrumentation

Now reads:

Lower Tibia ² (L & R)	Forces, F_x F_z (F_y)	12kN	4	4
	Moments, M_x M_y	400Nm	4	4
Total Channels per Dummy			36	36
Total Channels			72	

² Note that for both dummies the measurement of F_y is at the laboratory's discretion.

Section 6.4 Use of the Gabarit

Now reads:

A device known as a Gabarit (as defined in *ECE Regulation 16*) is used to check the compatibility of the vehicle with ECE Regulation 44.03 Universal child restraints.

Section 8 Still Photography

Now reads:

- 22 *Overall view of where the car has come to rest after impact (including barrier).
- 23 *To show position of all door latches and/or open doors.
- 24 *To show driver knee contacts with facia (airbag should be lifted if obscuring view).
- 25 *To show passenger knee contacts with facia (airbag should be lifted if obscuring view).
- 26 ^RHS rear seat belt anchorage with child restraint and P3 dummy in place.
- 27 ^LHS rear seat belt anchorage with child restraint and P1 ½ dummy in place.
- 28 *P3 dummy and restraint through RHS rear door.
- 29 *P1 ½ dummy and restraint through LHS rear door.

Side Impact

Changes now incorporated in version 4.0, January 2003

Adoption of EuroSID-2 dummy including revised certification and installation procedures.

Section 2.2 Certification

Now reads:

Full details of the ES-2 certification requirements are available in the document mentioned in Section 2.1.1, TRANS-WP29-GRSP-2002-11e, and the procedures followed are set out in the ES-2 Training Manual. Details of the certification procedure for P3 and P1½ dummies are available in the user documentation. *No manufacturer shall have access to any pre-test information regarding any of the test equipment to be used by Euro NCAP, or be permitted to influence its selection in any way.*

Section 5.5 Use of the Gabarit

Now reads:

A device known as a Gabarit (as defined in *ECE Regulation 16*) is used to check the compatibility of the vehicle with ECE Regulation 44.03 Universal child restraints.

Section 8 Still Photography

Now reads:

- 12 Car LHS, with camera centred on B-post waist, showing the rear passenger compartment.
- 13 **To show position of all door latches and/or open doors.*
- 14 Driver & seat through open driver's door to show driver compartment and position of seat relative to the sill.

Pole Impact

Changes now incorporated in version 4.0, January 2003

Adoption of EuroSID-2 dummy including revised certification and installation procedures.

Section 2.2 Certification

Now reads:

Full details of the ES-2 certification requirements are available in the document mentioned in Section 2.1.1, TRANS-WP29-GRSP-2002-11e, and the procedures followed are set out in the ES-2 Training Manual. Details of the certification procedure for P3 and P1½ dummies are available in the user documentation. *No manufacturer shall have access to any pre-test information regarding any of the test equipment to be used by Euro NCAP, or be permitted to influence its selection in any way.*

Section 7 Still Photography

Now reads:

- 7 Side view car/carrier non-impact side, showing full car.
- 8 **To show position of all door latches and/or open doors.*
- 9 ^ Side view through open driver's door on driver & seat to show driver compartment and position of seat relative to the sill.

Pedestrian Testing

Changes now incorporated in version 4.0, January 2003

Section 2.2 Bumper Reference Lines

Now reads:

2.2.7 Revised Figure 2.1b

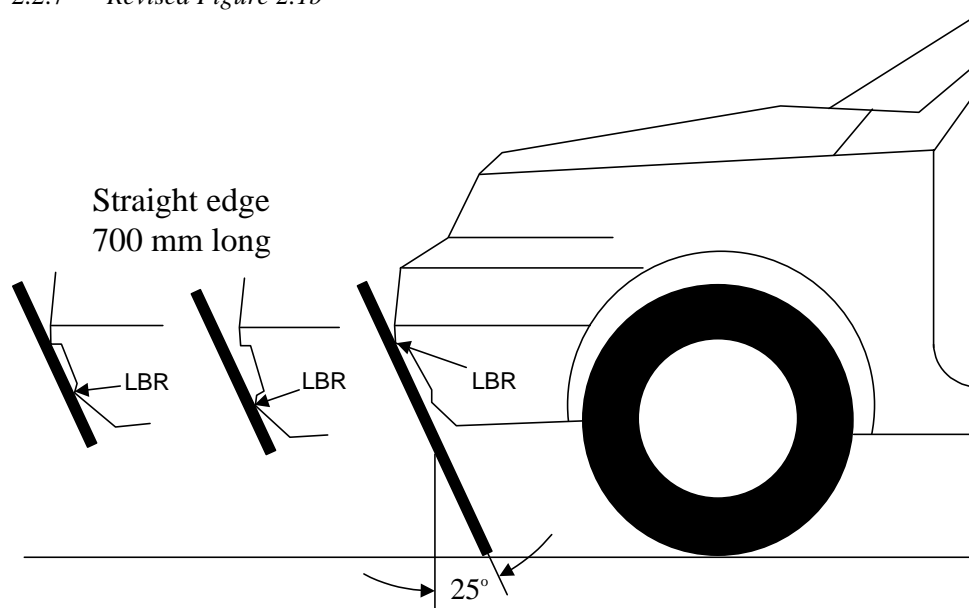


Figure 2.1b

Determination of Lower Bumper Reference Line

Section 3.4 Adult and Child Headforms

Now reads:

- 3.4.3.4 The projected points for the adult headform shall be a minimum of 82.5mm inside the Bonnet Side Reference Lines and a minimum of 165mm apart i.e. no two points (as represented on the bonnet surface) either within any sixth or in adjacent sixth should be less than 165mm apart. Where testing on an A-Pillar is involved the minimum distance inside the side reference line for the impact point does not apply. The impact point in this case may be on the side reference line.
- 3.4.3.5 *The spacing requirements (Sections 3.4.3.3, 3.4.3.4) are only applicable to impact points using the same impactor, i.e. adult and child impact points can be coincidental.*
- 3.4.3.6 Test at one location within each sixth which is considered to be the most potentially injurious structure within that sixth.

Notes:

For the headform area, impact points chosen on the glass, with no structure within range behind the glass, shall default to "green" (2 Points) and impact points chosen on the A-Pillar default to "red" (0 points) without testing. If the manufacturer provides data which shows otherwise a test shall be performed. *Any other parts of the car, within the periphery of a cylinder of diameter equal to that of the headform and having the same axis at the impact point, which may influence the protection of an impacting head, would also justify a test. See Figure 3.2, note the effect of gravity on the impactor has been ignored for the diagram, this should be considered in practice.*

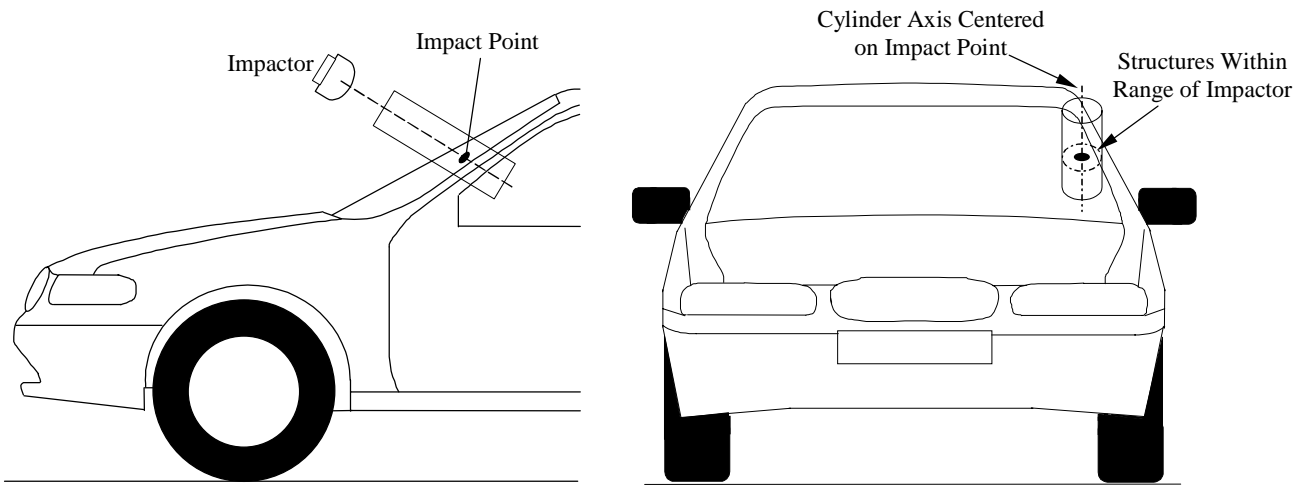


Figure 3.2
Structures within range of the impactor

Section 8.4 Test procedure – Pre Test

Now reads:

8.4.8 Addition of Figure 8.4

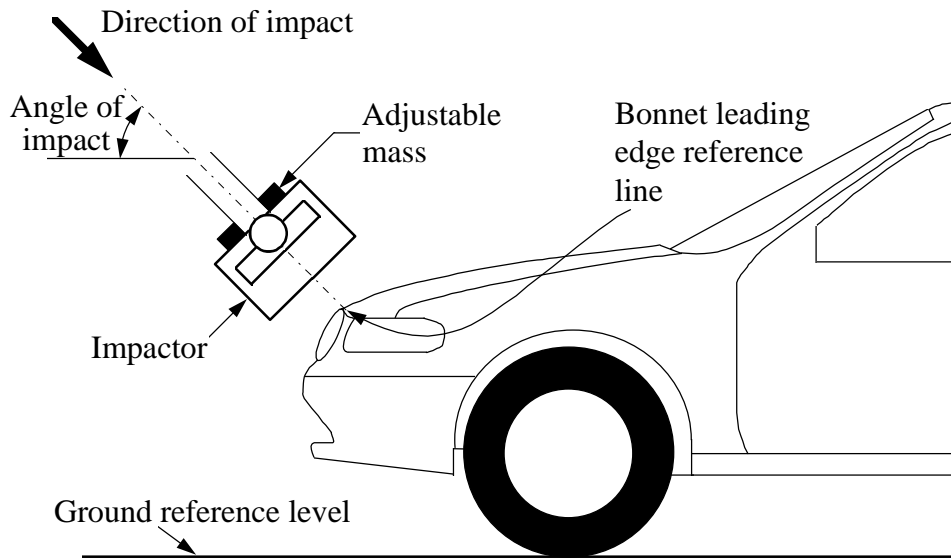


Figure 8.4
Upper Legform to Bonnet Leading Edge Test

Assessment Protocol

Changes now incorporated in version 4.0, January 2003

Section 11 Overall Assessments

Now reads:

In each case, the overall score is rounded to the nearest integer only after the front, side and pole impact scores have been added.

For example:

Front impact score = 7.51
Side impact score = 10.87
Total score = 18.38
Final score = 18 points

Relationship between Points and Stars for Frontal and Side Tests

The overall scores and the balance between side and front scores are then used to generate star ratings. Vehicles which perform very poorly in the frontal or side tests have their star rating restricted to show that they do not provide good all-round protection.

There will be a minimum number of points required in both the frontal and side impact (includes pole test) assessments to achieve a star rating. The following limits are applied after the individual test scores have been rounded:

Total Points and Balance Applied to Star Values

Provided there is a balance between the Frontal and Side Impacts the following applies:

33 - 40 points	5 stars
25 - 32 points	4 stars
17 - 24 points	3 stars
9 - 16 points	2 stars
1 - 8 points	1 star
0 points	0 stars

However if the balance is lacking then the following hurdles are applied:

<i>Minimum points required in each test:</i>	<i>Star rating:</i>
13 points	5
9 points	4
5 points	3
2 points	2

Pedestrian Impact

28 - 36 points	4 stars
19 - 27 points	3 stars
10 - 18 points	2 stars
1 - 9 points	1 star
0 points	0 stars