2.3. Propulsion of the impactor

The impactor may either be secured to a carriage (moving barrier) or form part of a pendulum.

2.4. Special provisions applicable where a moving barrier is used

2.4.1. If the impactor is secured to a carriage (moving barrier) by a restraining element, the latter must be rigid and be incapable of being deformed by the impact; the carriage shall at the moment of impact be capable of moving freely and no longer be subject to the action of the propelling device.

2.4.2. The velocity of the impact shall be between 35 and 38 km/h.

2.4.3. The aggregate weight (mass) of carriage and impactor shall be 1,100 ± 20 kg.

2.5. Special provisions applicable where a pendulum is used

2.5.1. The distance between the centre of the impacting surface and the axis of rotation of the pendulum shall be not less than 5 m.

2.5.2. The impactor shall be freely suspended by rigid arms rigidly secured to it. The pendulum so constituted shall be substantially incapable of being deformed by the impact.

2.5.3. Arresting gear shall be incorporated in the pendulum to prevent any secondary impact by the impactor on the test vehicle.

2.5.4. At the moment of impact the velocity of the centre of percussion of the pendulum shall be between 35 and 38 km/h.

2.5.5. The reduced mass "$m_r$" at the centre of percussion of the pendulum is defined as a function of the total mass "m", of the distance "a"* between the centre of percussion and the axis of rotation, and of the distance "1" between the centre of gravity and the axis of rotation, by the following equation:

$$m_r = m \cdot \frac{1}{a} \cdot$$

2.5.6. The reduced mass "$m_r$" shall be 1,100 ± 20 kg.

---

* It is recalled that the distance "a" is equal to the length of the synchronous pendulum of the pendulum under consideration.

2.6. General provisions relating to the mass and velocity of the impactor

If the test has been conducted at an impact velocity higher than those prescribed in paragraphs 2.4.2. and 2.5.4. and/or with a mass greater than those prescribed in paragraphs 2.4.3. or 2.5.6. and the vehicle has met the requirements prescribed, the test shall be considered satisfactory.

2.7. State of vehicle under test

2.7.1. The vehicle under test shall either be fitted with all the normal components and equipment included in its unladen kerb weight or be in such condition as to fulfil this requirement so far as the components and equipment of concern to the passenger compartment and the distribution of the weight of the vehicle as a whole, in running order, are concerned.

2.7.2. The fuel tank must be filled to at least 90% of its capacity with a liquid having density close to that of the fuel normalLy used. All other systems (break-fluid, header tanks, radiator, etc.) may be empty.

2.7.3. A gear may be engaged and the brakes may be applied.

2.7.4. If the manufacturer so requests, the following derogations shall be permitted:

2.7.4.1. The technical service responsible for conducting the test may allow the same vehicle as is used for tests prescribed by other Regulations (including tests capable of affecting its structure) to be used for the tests prescribed by this Regulation.

2.7.4.2. The vehicle may be weighted to an extent not exceeding 10% of its unladen kerb weight with additional weights rigidly secured to the structure in such a way as not to affect the behaviour of the structure of the passenger compartment during the test.

2.8. Measuring instruments

The instruments used to record the speed referred to in paragraphs 2.4.2. and 2.5.4. above shall be accurate to within 1%.

3. RESULTS

3.1. To measure the residual longitudinal space, the amount of longitudinal displacement of the vertical projection on the floor of the "R" point of the vehicle's rearmost seat in relation to a reference point on a non-deformed part of the vehicle structure shall be determined.

4. EQUIVALENT TEST METHODS

4.1. Equivalent test methods are permitted provided that the conditions referred to in this Regulation can be observed either entirely by means of the substitute test or by calculation from the results of the substitute test.

4.2. If a method other than that described in paragraph 2 above is used, its equivalence must be demonstrated.

---