



STRENGTH STATIC TESTS. ANCHORAGES OF WHEELCHAIR TIEDOWN AND OCCUPANT RESTRAINT SYSTEMS.

1. DESCRIPTION

These Tests verify the strength of the anchorage points in the vehicle structure of the wheelchair tiedown and occupant restraint systems.

Specimen test shall be representative of the vehicle structure where anchorage points are positioned. The procedure used to attach the vehicle structure during the tests, shall not increase strength of the anchorages nor decrease normal deformation of the vehicle structure.

Anchorages of wheelchair tiedown and occupant restraint systems shall be mounted similarly conditions of use.

Anchorages of occupant restraint systems shall meet the requirements of ISO 10542 Standard concerning positions of anchorage points.

2. TEST EQUIPMENT

- Traction devices for force application in the occupant restraint system according to Annex 5 of Regulation 14R03ECE (seat belts anchorages).
- Surrogate wheelchair. Surrogate geometry shall be ISO 10542 surrogate wheelchair geometry. It shall have a linkage to apply the test force, in the same position of the center of gravity of the ISO 10542 surrogate wheelchair. It shall be made to attach wheelchair tiedown systems in a similar manner to those of conditions of use. It shall not exhibit permanent deformations after the Test.

3. TEST PROCEDURE

Two tests shall be made, first: applying forces towards the front of the vehicle and second: applying forces towards the rear of the vehicle.

Frontal Configuration

Forces shall be applied in the occupant restraint systems (see Table I) and in the center of gravity of the surrogate wheelchair (see Table II).

Devices for force application in the occupant restraint system according to Annex 5 of Regulation 14R03ECE (seat belts anchorages) shall be used. If upper occupant restraint system is a harness, a device simulating torso occupant shall be used.

Figure A 1 show a diagram of the Test set-up and the forces directions.

Forces shall be applied simultaneously and shall be maintained for a period of not less than 200 ms.

	M3 Vehicles	M2 Vehicles
pelvic seat belt only	740±20 daN	1110±20 daN
pelvic and torso seat belts	450±20 daN, pelvic 450±20 daN, torso	675±20 daN, pelvic 675±20 daN, torso

Table I : Occupant restraint system forces. (Frontal configuration).

	M3 Vehicles	M2 Vehicles
center of gravity of surrogate wheelchair	740±20 daN	1110±20 daN

Table II : Surrogate wheelchair force. (Frontal configuration).

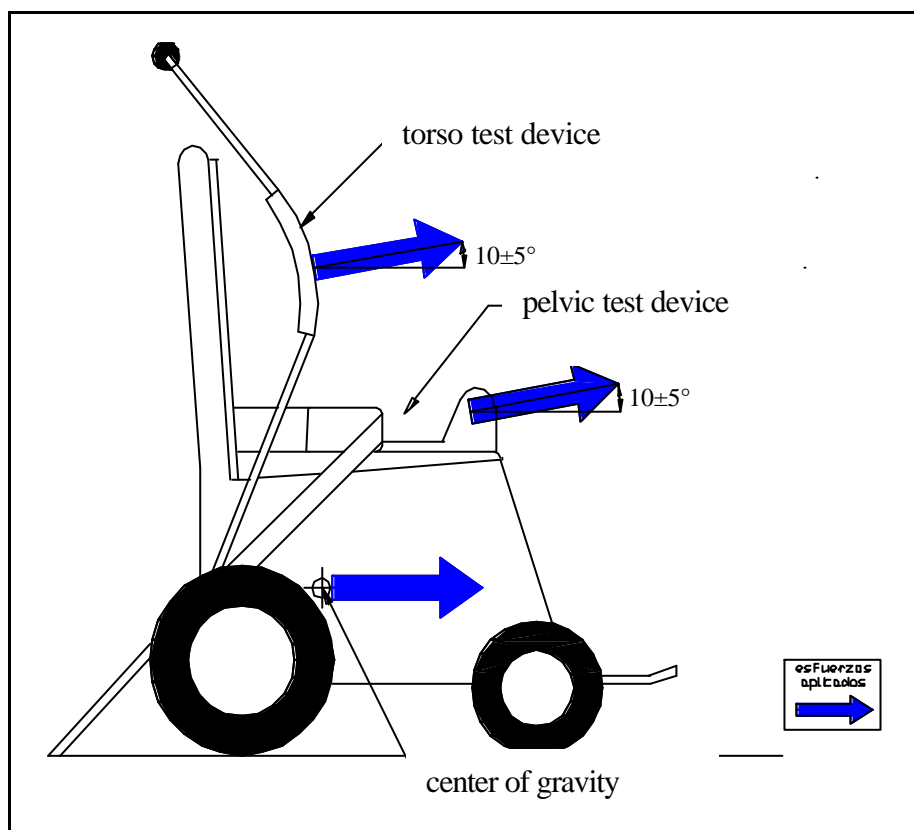


Figure A 1 : Diagram of the Test Set-up (Frontal configuration). (Although wheelchair tiedown is not shown, surrogate wheelchair shall be restrained with its tiedown system).



Rear Configuration

Forces shall be applied in the wheelchair backrest (see Table III) and in the center of gravity of the surrogate wheelchair (see Table IV). Forces shall be applied in the horizontal plane of the vehicle towards the rear of the vehicle. Backrest force shall be applied 195 mm above the surrogate wheelchair seat.

Forces shall be applied simultaneously and shall be maintained for a period of not less than 200 ms.

	M3 Vehicles	M2 Vehicles
Backrest wheelchair (h=195 mm)	360±20 daN	540±20 daN

Table III : Wheelchair backrest force. (Rear configuration).

	M3 Vehicles	M2 Vehicles
center of gravity of surrogate wheelchair	300±20 daN	445±20 daN

Table IV : Surrogate wheelchair force. (Rear configuration).

4. TEST RESULTS

Wheelchair tiedown and occupant restraint systems anchorages shall meet after the tests:

No wheelchair tiedown and occupant restraint systems anchorage components or securement end fittings shall be detached or separated.

Permanent deformations, including partial rupture or breakage of the restraint system shall not constitute failure if the required force is sustained for the specified time (200 ms).

Where applicable, the locking device enabling the wheelchair to leave the vehicle shall be operable by hand after removal of the traction force.

Surrogate wheelchair shall be in an upright position.

If permanent deformations occur, relative angles of occupant restraint systems shall meet ISO 10542 requirements.