

## THE NETHERLANDS

## TEST REPORT

Concerning vehicles with regard to safety-belt anchorages in accordance with  
ECE Regulation number 14.09 Supplement 2 and as specified by  
Commission Regulation (EU) 2018/858 Annex II, Part III, Appendix 3.

**Test report number** : RDW-14R-0128394

0.1. Make : Peugeot / Citroën / Opel / Vauxhall / Toyota / Fiat

0.2. Type : ETP / ETO / ETT / ETN

0.3. Category of vehicle : M1 (SH)

0.4. Name and address of the manufacturer : Tripod Mobility B.V.  
Collseweg 10  
5674 TR Nuenen  
The Netherlands

**General** : The vehicle type as described in the document below has been inspected in  
accordance with the requirements laid down in the above-mentioned regulation.  
See documentation " ETX-14R-16R-17R-0010 ", dated 5 May 2023

**Tests** : The tests have been carried out according to the above-mentioned regulation. The  
tested system is representative in terms of the type to be approved.

**Conclusion** : The type of vehicle does/~~does not~~ comply with the stated requirements of the  
above-mentioned regulation.

**Tests conducted on** : 5 July 2023

**By** : S.D. Hulscher

Zoetermeer (NL), 19 October 2023  
The test engineer,



S.D. Hulscher



## List of contents

## Page

Reason for testing	3
Worst case description	3
Explanation of the modification(s)	3
General information of the representative test object	3
General test information	3
Used test equipment	3
Remarks	4
Specifications	5
General specifications	5
Minimum number of belt anchorages to be provided	5
Location of belt anchorages	6
Dimensions of threaded anchorage holes	6
Test of the wheelchair tie down and occupant-restraint anchorages	7
General requirements	7
General requirements	7
Test results	10
Test 1: Tests of the wheelchair position safety belt anchorages in forward direction	10
Test 2: Tests of the wheelchair position safety belt anchorages in rearward direction	11
Test 3: Tests of the wheelchair position safety belt anchorages in rearward direction	12

## List of attached diagrams

## Page

<b>Diagram 1</b>	Test 1: Tests of the wheelchair position safety belt anchorages in forward direction	13
<b>Diagram 2</b>	Test 2: Tests of the wheelchair position safety belt anchorages in rearward direction	14
<b>Diagram 3</b>	Test 3: Tests of the wheelchair position safety belt anchorages in rearward direction	15

Disclaimer: This test report shall not be reproduced except in full, without written approval of the Technical Service. Only authenticated copies of this test report shall be submitted.



## Reason for testing

Addition of a new lowered floor for electric variant/versions.

## Worst case description

N/A; all configurations have been tested.

## Explanation of the modification(s)

The base vehicle has been modified to a wheelchair accessible vehicle with a lowered floor, additional 3<sup>rd</sup> row seating positions and wheelchair position. Alternative of 2<sup>nd</sup> row OEM seats are TR04S single bucket seats. The TR04S single bucket seats are available in fixed mounting or removable mounting for L1 and L2 vehicle body. The wheelchair position is fitted with a restraint system which consist of a restraint system for the wheelchair and a restraint system for the wheelchair occupant. 1<sup>st</sup> row of seats is not affected by the changes.

## General information of the representative test object

Make and type of the vehicle	: Peugeot / Citroën / Opel / Vauxhall / Toyota / Fiat ETP / ETO / ETT / ETN
Type of bodywork and number of doors	: AF (Special purpose vehicle); 5
Vehicle category	: M1 (SH)
Number of seating positions on 1 <sup>st</sup> seating row	: see 1st stage approval
Number of seating positions on 2 <sup>nd</sup> seating row	: max. 3
Number of seating positions on 3 <sup>rd</sup> seating row	: max. 2 foldable seats or 1 wheelchair position
Description of seating position(s) solely for use when the vehicle is stationary	: N/A

## General test information

Inspected by	: S.D. Hulscher
Place	: Nuenen, The Netherlands
Date	: 5 July 2023

## Used test equipment

Item	Required accuracy	Identification number (make and type)
load cell cylinder 1	+/- 2.5 %	TU/e Tripod 4; s/n TRK 4-02
load cell cylinder 3	+/- 2.5 %	TU/e Tripod 4; s/n TRK 4-06
load cell cylinder 5	+/- 2.5 %	TU/e Tripod 4; s/n TRK 4-07
load cell cylinder 6	+/- 2.5 %	TU/e Tripod 4; s/n TRK 4-05
load cell cylinder 7	+/- 2.5 %	TU/e Tripod 4; s/n TRK 4-04



## Remarks

This report is a supplement of previously issued reports RDW-14R-0071704, RDW-14R-0076638, RDW-14R-0084532, RDW-14R-0085714, RDW-14R-0098771, RDW-14R-0103777 and RDW-14R-0126533 and can be used in combination with them.

ISOFIX and i-Size for 1st stage test remain valid, see test results of 1st stage.

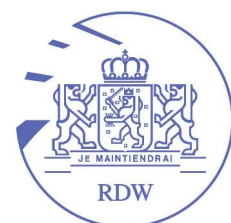
ISOFIX and i-Size is not applicable for 2nd stage TR04S seats.

ISOFIX for 2nd stage TriflexAIR remain valid and i-Size is not applicable for 2nd stage TriflexAIR seats.

The WTORS restraints comply with the requirements as laid down in Regulation (EU) 2018/858 Annex II, Part III, Appendix 3, item A4. See test report ESB605378, dated 21 September 2023.

For all not by the modification effected items see approval(s)/ test report(s) listed in stage 1 approval. Relevant data and approval(s) valid for donor vehicle and completed vehicle if applicable:

<u>Make</u>	<u>Type</u>	<u>Approval</u>
Peugeot / Citroën / Fiat	ETP / ETN	E2*14R09/??*18021*??
Opel / Vauxhall	ETO / ETN	E2*14R09/??*18020*??
Toyota	ETT / ETN	E2*14R09/??*19228*??



## 5 Specifications

### 5.2. General specifications

- 5.2.1. Anchorages for safety-belts shall be so designed, made and situated as to:
- 5.2.1.1. Enable the installation of a suitable safety-belt : pass
- The belt anchorages of the front outboard positions shall be suitable for safety-belts incorporating a retractor and pulley, taking into consideration in particular the strength characteristics of the belt anchorages <sup>(1)</sup> : pass
- If the anchorages are suitable only for particular types of safety-belts, these types shall be stated on the certificate : N/A
- 5.2.1.2. Reduce to a minimum the risk of the belt's slipping when worn correctly : pass
- 5.2.1.3. Reduce to a minimum the risk of strap damage due to contact with sharp rigid parts of the vehicle or seat structures : pass
- 5.2.1.4. Enable the vehicle, in normal use, to comply with the provisions of this Regulation : pass
- 5.2.1.5. For anchorages which take up different positions to allow persons to enter the vehicle and to restrain the occupants, the specifications shall apply to the anchorages in the effective restraint position : N/A

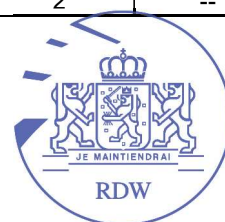
### 5.3. Minimum number of belt anchorages to be provided

- 5.3.1. Any vehicle in categories M and N <sup>(2)</sup> shall be equipped with safety-belt anchorages which satisfy the requirements of this Regulation : pass
- 5.3.1.1. The anchorages of a harness belt system approved as a S-type belt (with or without retractor(s)) according to UNECE R16 shall comply with the requirements, but the additional anchorage or anchorages provided for the fitting of a crotch strap (assembly) are exempted from the strength and location requirements of this Regulation : N/A
- 5.3.2. The minimum number of safety-belt anchorages for each forward, rearward and side-facing seating position shall be those specified below : see test results

Vehicle category	Forward facing seating positions				Rearward facing	Side facing		
	Outboard		Centre					
	Front	Other	Front	Other				
M1	3	3	3	3	2	--		
M2 ≤ 3.5 tonnes	3	3	3	3	2	--		
M2 > 3.5 tonnes	3 ◇	3 or 2 ††	3 or 2 ††	3 or 2 ††	2	--		
M3	3 ◇	3 or 2 ††	3 or 2 ††	3 or 2 ††	2	2		
N1	3	3 or 2 Ø	3 or 2 *	2	2	--		
N2 & N3	3	2	3 or 2 *	2	2	--		

key symbols:

- Ø Refers to paragraph 5.3.3. of UNECE R14  
 \* Refers to paragraph 5.3.4. of UNECE R14  
 † Refers to paragraph 5.3.5. of UNECE R14  
 ◇ Refers to paragraph 5.3.7. of UNECE R14



<sup>(1)</sup> Unless the manufacturer supplies the vehicle equipped with other types of safety-belts which incorporate retractors.

<sup>(2)</sup> Except those vehicles of categories M2 or M3 which belong to Classes I or A1.

- 5.3.6. For all seats, intended solely for use or seating intended solely for use when the vehicle is stationary as well as for all the seats of any vehicle which are not covered by items 5.3.1. to 5.3.4., no belt anchorages are required <sup>(3)</sup> : N/A
- 5.3.7. In the case of the upper deck of a double-deck vehicle, the requirements for the centre front seating position shall apply also in the outboard front seating positions : N/A
- 5.3.8. In the case of seats capable of being turned to or placed in other orientations, for use when the vehicle is stationary, the requirements of item 5.3.1. shall apply only to those orientations designated for normal use when the vehicle is travelling on a road <sup>(4)</sup> : N/A
- 5.4. Location of belt anchorages**
- 5.4.1. General
- 5.4.1.1. The belt anchorages for any one belt may be located either wholly in the vehicle structure or in the seat structure or any other part of the vehicle or dispersed between these locations : see test results
- 5.5. Dimensions of threaded anchorage holes**
- 5.5.1. An anchorage shall have a threaded hole of 7/16 inch (20 UNF 2B) : pass
- 5.5.2. If the vehicle is fitted by the manufacturer with safety-belts which are attached to all anchorages prescribed for the seat in question, these anchorages need not meet the requirement set out in item 5.5.1., provided that they comply with the other provisions of this Regulation : N/A
- In addition, the requirement set out in item 5.5.1 shall not apply to additional anchorages which is/are intended for a harness belt <sup>(5)</sup> : N/A
- 5.5.3. It shall be possible to remove the safety-belt without damaging the anchorage : pass



<sup>(3)</sup> However, if the vehicle is fitted with anchorages for such seats, these anchorages must comply with the provisions of this Regulation. Any anchorage intended solely for use in conjunction with a disabled person's belt, or any other restraint system according to UNECE R107.02, Annex 8, do not need to conform to the requirements of this Regulation.

<sup>(4)</sup> A note to this effect shall be included in the information document.

<sup>(5)</sup> These anchorage(s) complies/comply with the requirements laid down in item 5.4.3.6. if it lie(s) behind the transverse plane passing through the reference line and is/are located:

- In the case of a single anchorage, within the area common to two dihedrals defined by the verticals passing through points J1 and J2 as defined in paragraph 5.4.3.1. of this Regulation and whose horizontal sections are shown in Figure 2 of Annex 3 of this Regulation;
- In the case of two anchorages, within whichever of the above defined dihedrals is suitable, provided that each anchorage is not more than 50 mm distant from the symmetrically-located, mirror-image position of the other anchorage about plane P, as defined in paragraph 5.1.6. of the seat in question.

**Test of the wheelchair tie down and occupant-restraint anchorages**

**2. General requirements**

2.1. Each wheelchair location shall be provided with anchorages to which a wheelchair tie-down and occupant restraint system (WTORS) shall be fitted. : pass

2.2. The wheelchair occupant's lower belt anchorages shall be located in accordance with UN Regulation No 14.07, paragraph 5.4.2.2, relative to Point P on the SWC, when placed in the travelling position designated by the manufacturer. The upper actual anchorage(s) shall be located at least 100 mm above the horizontal plane passing through the points of contact between the rear tyres of the SWC and the vehicle floor. That condition shall still be satisfied after the test carried out in accordance with point 3. : pass

**3. General requirements**

3.1. Wheelchair occupant restraint anchorages

3.1.1. The wheelchair occupant restraint anchorages shall resist the static forces prescribed for occupant restraint anchorages in UN Regulation No 14.07, simultaneously with the static forces applied to the wheelchair tie-down anchorages as specified in point 3.2. : see test results

3.2. Wheelchair tie-down anchorages

The wheelchair tie-down anchorages shall resist the following forces, for at least 0,2 seconds, applied via the SWC (or a suitable surrogate wheelchair having a wheelbase, seat height and tie-down attachment points in accordance with the specification for the SWC), at a height of 300 +/- 100 mm from the surface on which the SWC rests:

3.2.1. In the case of a forward-facing wheelchair, a simultaneous force, coincident with the force applied to the occupant restraint anchorages, of 24,5 kN, and : see test results

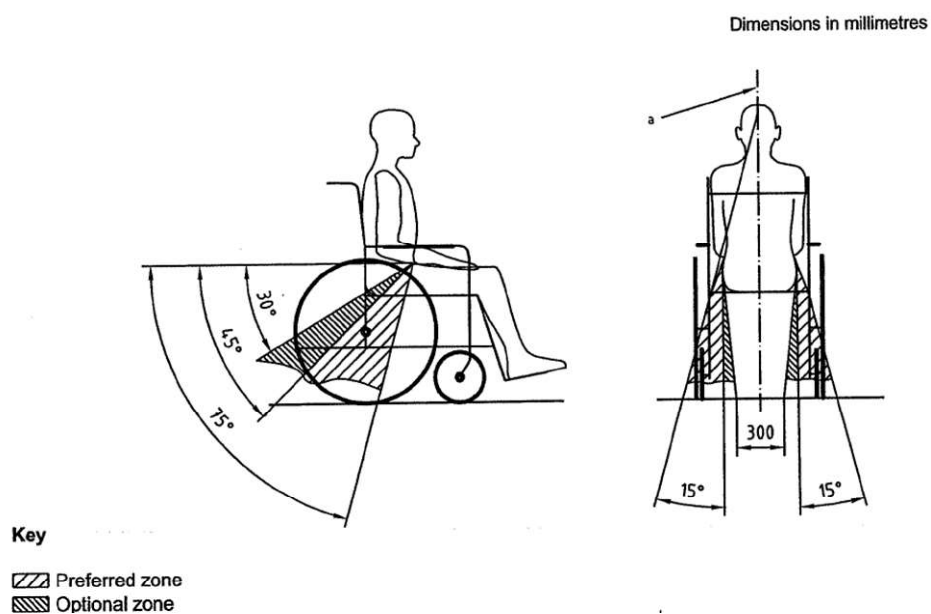
3.2.2. a second test applying a static force of 8,2 kN directed towards the rear of the vehicle. : see test result

3.2.3. In the case of a rearward-facing wheelchair, a simultaneous force, coincident with the force applied to the occupant restraint anchorages, of 8,2 kN, and : N/A

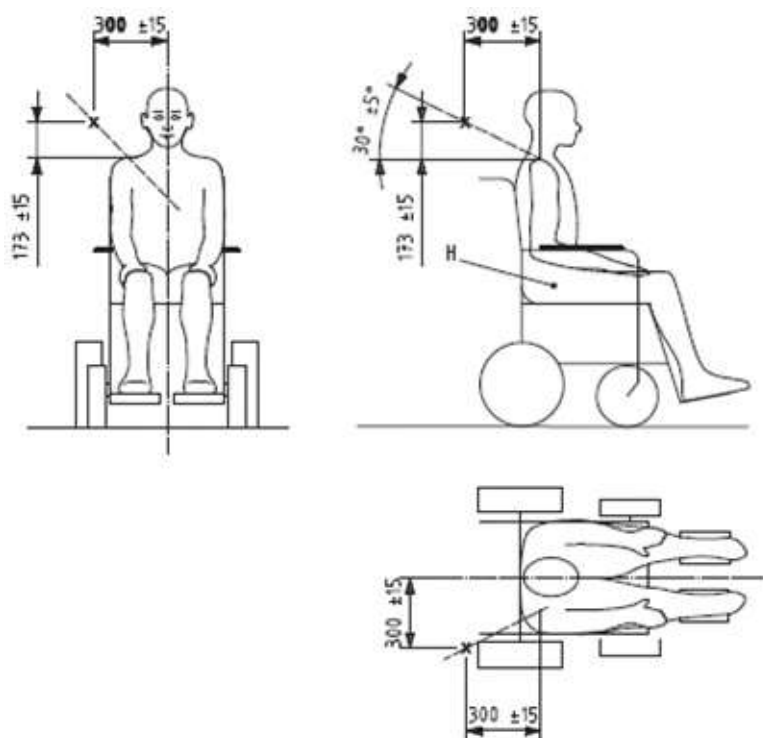
3.2.4. a second test applying a static force of 24,5 kN directed towards the front of the vehicle : N/A



*Preferred and optional angles for pelvic / lap restraints*

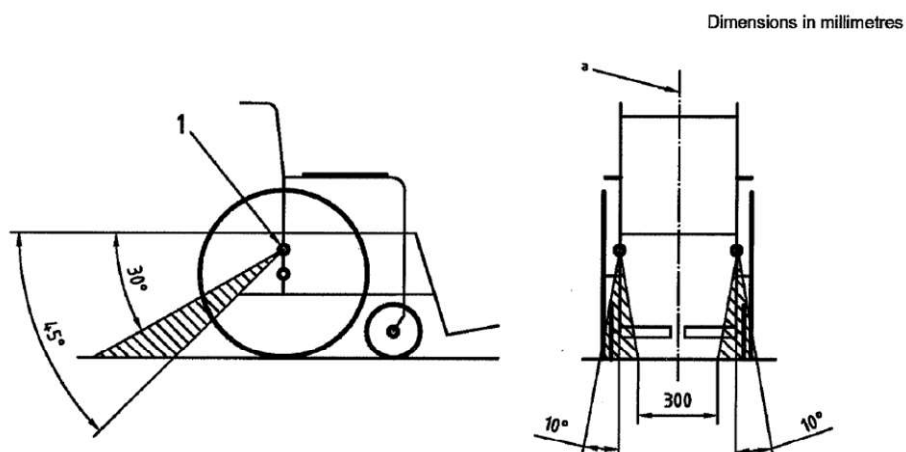


*Preferred and optional angles for torso restraints*

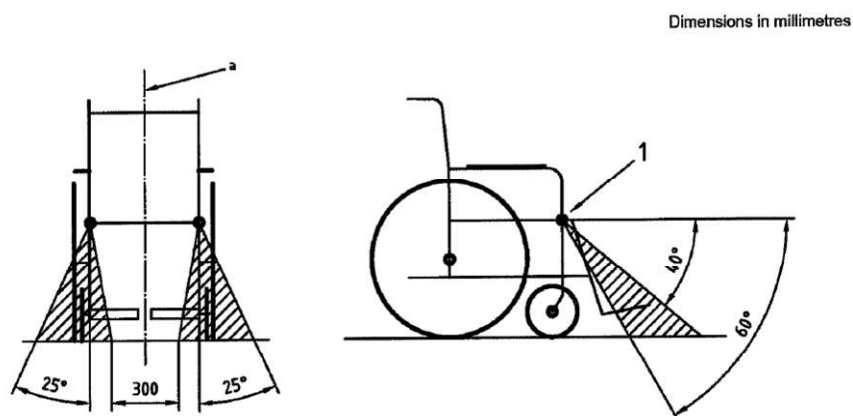




*Preferred angles of rear wheelchair-tiedown straps and locations of tiedown anchor points*



*Preferred angles of front wheelchair-tiedown straps and locations of tiedown anchor points*



## Test results

### Test 1: Tests of the wheelchair position safety belt anchorages in forward direction

#### Description of test object and test setup

Body style	: AF (MPV)
State of the body	: body-in-white
Securing of the body to the test platform	: by means of mounting supports at rear and front end
Number of wheelchair seating positions	: 1
Longitudinal position of the seat during the test	
- center seat	: Wheelchair positioned in P-point
Type of safety belt that can be fitted	
- center	: Ar

Location of belt anchorages	vehicle structure	seat structure
center seat	lower outboard	Ar
	lower inboard	Ar
	upper	Ar

#### Dimension S <sup>(6)</sup>

- center : 199 mm

#### Vertical distance between

- center R-point and the upper effective point : 482 mm

### Measurements during the strength test

wheelchair in P-point position			
		center	requirements
Tractive force	lap belt [daN]	1384.8	(7)(8)
	torso belt [daN]	1359.7	
Angle of tractive force	lap belt [°]	8.8	10° ± 5°
	torso belt [°]	11.3	
Extra force for wheelchair [daN]		2555.3	(9)
Angle of extra force for wheelchair [°]		1.2	0° ± 5°
Diagram		1	

Forward displacement of the effective upper belt anchorage in case it is located on the seat structure

- Is the effective upper belt anchorage displaced forward of the required plane <sup>(10)</sup> : N/A
- If the displacement exceeds the above-mentioned limitation, the manufacturer shall demonstrate that there is no danger to the occupant, i.e. performing a test according to UNECE R94 or a sled test with the corresponding pulse : N/A

### Measurements after the strength test

Distance between the lower belt anchorage points <sup>(11)</sup>

- center seating position : 325 mm

Vertical distance between the R-point and the upper effective point(s) <sup>(12)</sup>

- center seating position : 501 mm

After the test, it shall be possible to actuate the displacement and release systems manually to enable all occupants to leave the vehicle : N/A



<sup>(6)</sup> The value of S shall not be less than 140 mm.

<sup>(7)</sup> A test load of 1350 daN (M1 + N1), 675 daN (except for M3 and N3) and 450 daN (M3 and N3) ± 20 daN shall be applied, in case of a lap belt a test load of 2225 daN (M1 + N1), 1110 daN (except for M3 and N3) and 740 daN (M3 and N3) ± 20 daN shall be applied.

<sup>(8)</sup> A test load of 1350 daN (M1 + N1), 675 daN (except that for M3 and N3) and 450 daN (M3 and N3) ± 20 daN shall be applied.

<sup>(9)</sup> In the case of a forward-facing wheelchair, a simultaneous force, coinciding with the force applied to the occupant restraint anchorages, of 24,5 kN. In the case of a rearward-facing wheelchair, a simultaneous force, coincident with the force applied to the occupant restraint anchorages, of 8,2 kN.

<sup>(10)</sup> Only applicable to vehicles of category M1 with a maximum mass not exceeding 2.5 t; plane passing through the R-point and point C. Applicable to all other vehicles; a transverse plane inclined 10° in forward direction and passing through the R-point.

<sup>(11)</sup> A minimum distance of 350 mm and 120 mm from median longitudinal plane through the seat is required.

<sup>(12)</sup> A minimum height of 450 mm above the R-point and in some cases 500 mm, see Regulation, is required.

## Test 2: Tests of the wheelchair position safety belt anchorages in rearward direction

### Description of test object and test setup

Body style	: AF (MPV)
State of the body	: body-in-white
Securing of the body to the test platform	: by means of mounting supports at rear and front end
Number of wheelchair seating positions	: 1
Longitudinal position of the seat during the test	
- center seat	: Wheelchair positioned in P-point
Type of safety belt that can be fitted	
- center	: N/A
Dimension S <sup>(13)</sup>	
- center	: N/A
Vertical distance between	
- center R-point and the upper effective point	: N/A

### Measurements during the strength test

wheelchair in P-point position			
		center	requirements
Tractive force	lap belt [daN]	--	N/A
	torso belt [daN]	--	
Angle of tractive force	lap belt [°]	--	N/A
	torso belt [°]	--	
Extra force for wheelchair [daN]		845.8	<sup>(14)</sup>
Angle of extra force for wheelchair [°]		0.5	0° ± 5°
Diagram		2	

Forward displacement of the effective upper belt anchorage in case it is located on the seat structure

- Is the effective upper belt anchorage displaced forward of the required plane <sup>(15)</sup> : N/A
- If the displacement exceeds the above-mentioned limitation, the manufacturer shall demonstrate that there is no danger to the occupant, i.e. performing a test according to UNECE R94 or a sled test with the corresponding pulse : N/A

### Measurements after the strength test

Distance between the lower belt anchorage points <sup>(16)</sup>

- center seating position : N/A

Vertical distance between the R-point and the upper effective point(s) <sup>(17)</sup>

- center seating position : N/A

After the test, it shall be possible to actuate the displacement and release systems manually to enable all occupants to leave the vehicle : N/A



<sup>(13)</sup> The value of S shall not be less than 140 mm.

<sup>(14)</sup> In the case of a forward-facing wheelchair, a simultaneous force, coinciding with the force applied to the occupant restraint anchorages, of 8.2 kN. In the case of a rearward-facing wheelchair, a simultaneous force, coincident with the force applied to the occupant restraint anchorages, of 24.5 kN

<sup>(15)</sup> Only applicable to vehicles of category M<sub>1</sub> with a maximum mass not exceeding 2.5 t; plane passing through the R-point and point C.

Applicable to all other vehicles; a transverse plane inclined 10° in forward direction and passing through the R-point.

<sup>(16)</sup> A minimum distance of 350 mm and 120 mm from median longitudinal plane through the seat is required.

<sup>(17)</sup> A minimum height of 450 mm above the R-point and in some cases 500 mm, see Regulation, is required.

### Test 3: Tests of the wheelchair position safety belt anchorages in rearward direction

#### Description of test object and test setup

Body style	: AF (MPV)
State of the body	: body-in-white
Securing of the body to the test platform	: by means of mounting supports at rear and front end
Number of wheelchair seating positions	: 1
Longitudinal position of the seat during the test	
- center seat	: Wheelchair positioned in P-point
Type of safety belt that can be fitted	
- center	: N/A
Dimension S <sup>(18)</sup>	
- center	: N/A
Vertical distance between	
- center R-point and the upper effective point	: N/A

#### Measurements during the strength test

wheelchair in P-point position			
		center	requirements
Tractive force	lap belt [daN]	--	N/A
	torso belt [daN]	--	
Angle of tractive force	lap belt [°]	--	N/A
	torso belt [°]	--	
Extra force for wheelchair [daN]		1246.9	1225 daN
Angle of extra force for wheelchair [°]		0.8	0° ± 5°
Diagram		3	

Forward displacement of the effective upper belt anchorage in case it is located on the seat structure

- Is the effective upper belt anchorage displaced forward of the required plane <sup>(19)</sup> : N/A
- If the displacement exceeds the above-mentioned limitation, the manufacturer shall demonstrate that there is no danger to the occupant, i.e. performing a test according to UNECE R94 or a sled test with the corresponding pulse : N/A

#### Measurements after the strength test

Distance between the lower belt anchorage points <sup>(20)</sup>

- center seating position : N/A

Vertical distance between the R-point and the upper effective point(s) <sup>(21)</sup>

- center seating position : N/A

After the test, it shall be possible to actuate the displacement and release systems manually to enable all occupants to leave the vehicle : N/A



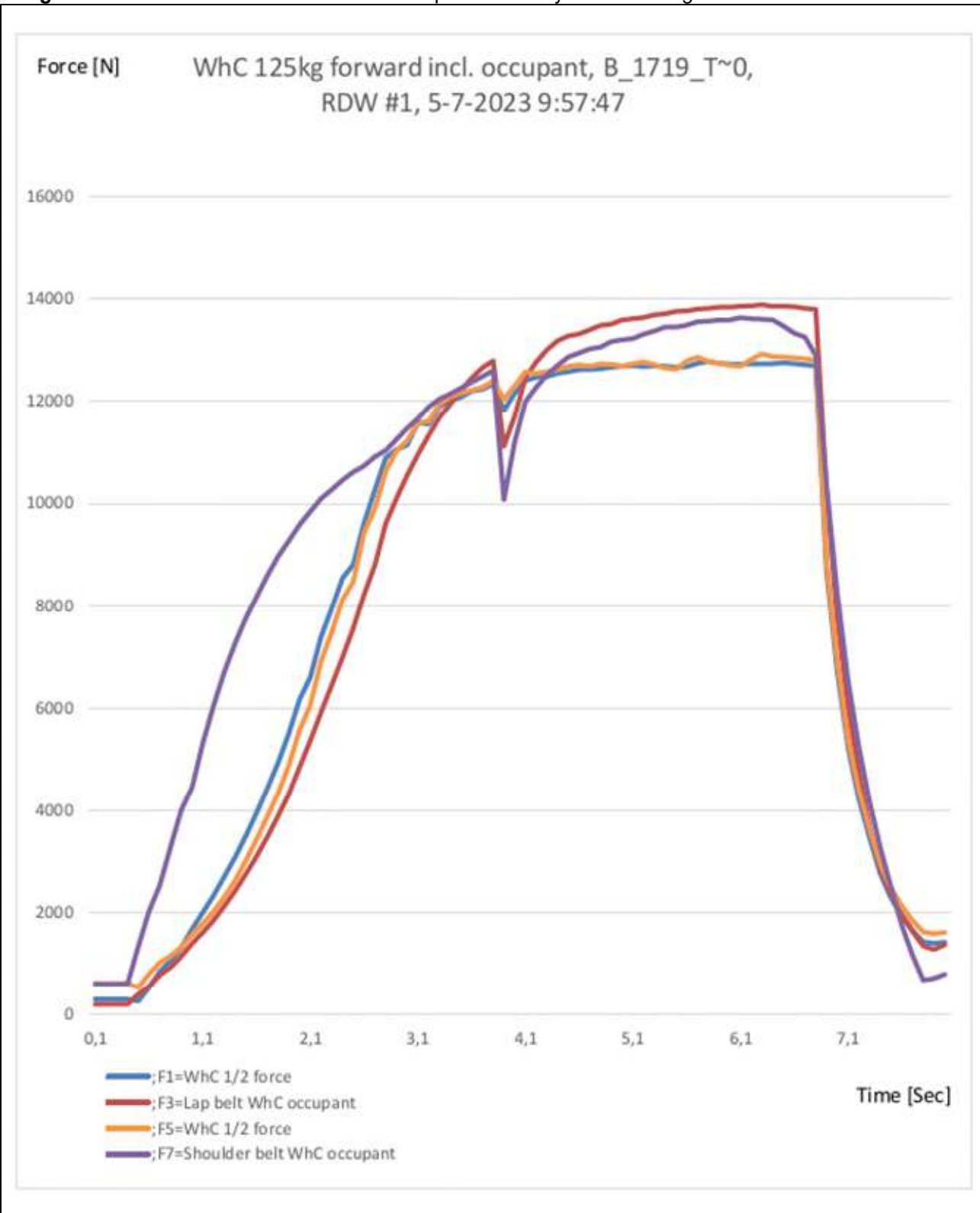
<sup>(18)</sup> The value of S shall not be less than 140 mm.

<sup>(19)</sup> Only applicable to vehicles of category M<sub>1</sub> with a maximum mass not exceeding 2.5 t; plane passing through the R-point and point C. Applicable to all other vehicles; a transverse plane inclined 10° in forward direction and passing through the R-point.

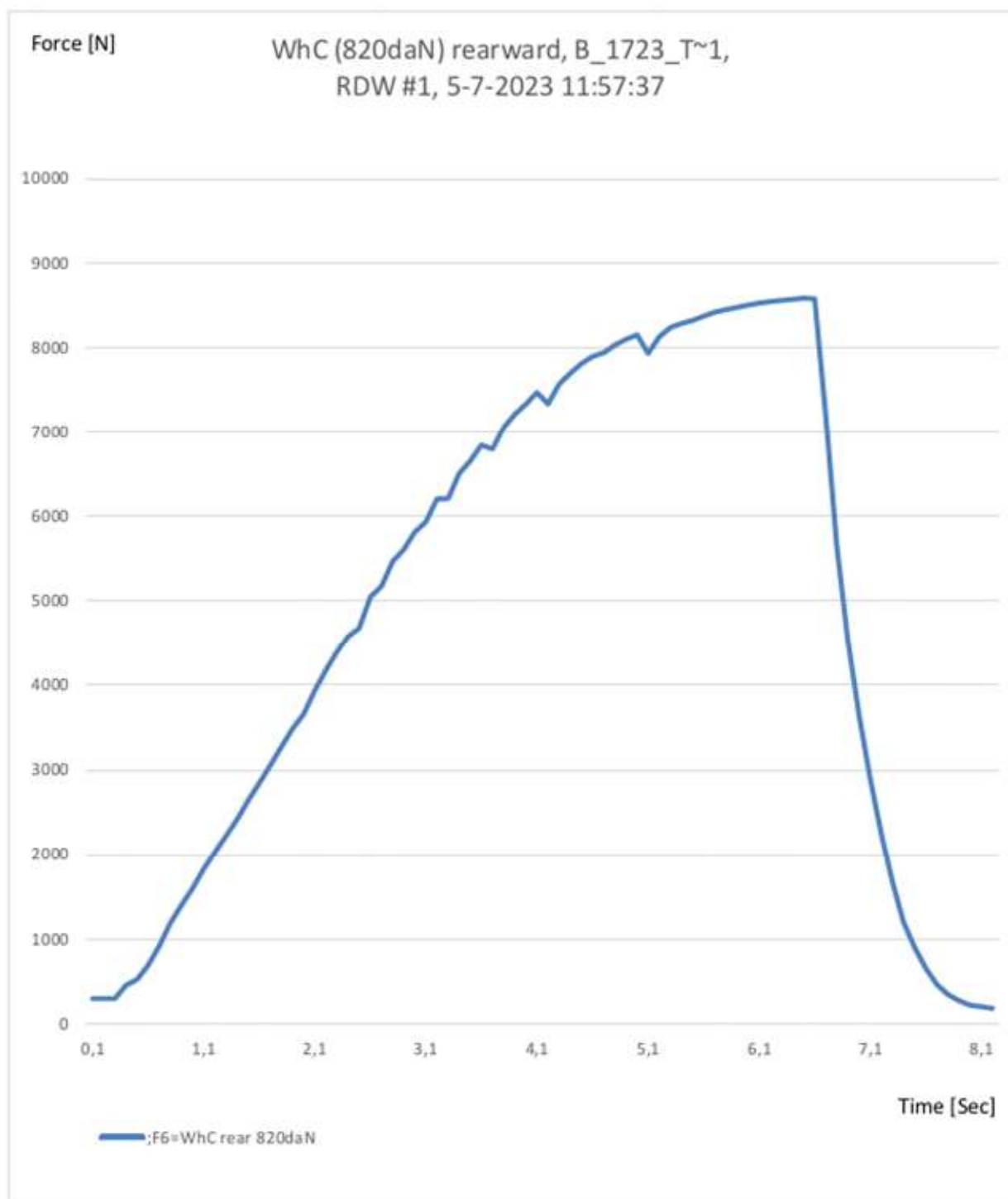
<sup>(20)</sup> A minimum distance of 350 mm and 120 mm from median longitudinal plane through the seat is required.

<sup>(21)</sup> A minimum height of 450 mm above the R-point and in some cases 500 mm, see Regulation, is required.

**Diagram 1** Test 1: Tests of the wheelchair position safety belt anchorages in forward direction



**Diagram 2** Test 2: Tests of the wheelchair position safety belt anchorages in rearward direction



**Diagram 3** Test 3: Tests of the wheelchair position safety belt anchorages in rearward direction

