



Vehicle Certification  
Agency Europe

VCA Europe S.r.l.  
Point - Polo per l'Innovazione Tecnologica  
Via Pasubio, 5  
24044 Dalmine (BG)  
Italy  
enquiries@vca-europe.com |  
europe.vehicle-certification-agency.gov.uk

Report Number: ESB605378/XLB004893  
Issue 01 replacing all previous issues

This test report shall not be reproduced except in full, without  
written approval of the technical service.



ISP N° 0178 E

Membro degli Accordi di Mutuo Riconoscimento  
EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

## Inspection/Test Report: WAV Seats, Belts, Belt Anchorages and WTORS

### Legislation

Regulation (EU) 2018/858 Consolidated to Commission Delegated Regulation (EU) 2021/1445,  
Annex II, Part III, Appendix 3  
Item 19A (Footnote W5)

### Inspection/Test Details

Location of Inspection/Test: Braunability Unwin House, The Horseshoe, Coat Rd, Martock  
TA12 6EY  
Date(s) of Inspection/Test: 06<sup>th</sup> July 2023  
VCA Representative(s): Calum McGowan-Franklin  
Inspectors Home Office Location: VCA HQ  
Manufacturer's Representative(s): Paul Nieuwenhuis  
Reason for Report: Report Only

### Manufacturer Details

Name and Address: Tripod Mobility B.V.  
Collseweg 10  
5674 TR Nuenen / The Netherlands  
Type: ETP / ETO / ETT / ETN  
Commercial Description: Rifter / Partner / Berlingo / Doblo / Combo  
(Life) / Proace (City) Tripod  
Category: M1 SH (Special Purpose Vehicle, Wheelchair Accessible)

### Conclusion

The above-mentioned vehicle / engine / component was tested in accordance with the above  
mentioned legislation and was found to comply in all respects listed in this report. This report  
relates only to the items tested.

Witness Engineer  
Signature:

Name: Calum McGowan - Franklin  
Position: Type Approval Engineer  
Date: 12 July 2023

Stefano Savarese  
Technical Manager  
21 September 2023

### List of Annexes

Annex	No of Pages	Subject
I	1	Comparison of vehicle and WTORS test geometry
II	62	Information Document No. ETX-14R-16R-17R-0010



**Vehicle Certification  
Agency Europe**

VCA Europe S.r.l.  
Point - Polo per l'Innovazione Tecnologica  
Via Pasubio, 5  
24044 Dalmine (BG)  
Italy  
enquiries@vca-europe.com |  
europe.vehicle-certification-agency.gov.uk



ISP N° 0178 E

Membro degli Accordi di Mutuo Riconoscimento  
EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

**Report Number: ESB605378/XLB004893**  
**Issue 01 replacing all previous issues**

This test report shall not be reproduced except in full, without  
written approval of the technical service.

## Issue Record

Issue 0 is original report  
Issue 1 update to include new table view and edited Test Report.

*Note: Include reason for reissue, date of reissue, who has reissued.*

## Worst Case Rationale

Tripod mobility convert at Stage 2 a Wheelchair Accessible Vehicle (WAV) with a rear wheelchair position.

A WTORS test was conducted out of vehicle on a rig with representative geometry but NOT representative of anchorage strength.

Test comprised 85kg J hook belts at 85kg wheelchair mass.

- Front WTORS, 85kg J hooks – Braunability- EF3CJ- Electric front tie down 3m cov J hook, Quantity \*2
- Rear WTORS, 85Kg J hooks – Braunability – BQEPJ-Quattro bolt EX PL J hook tie downs, quantity \*2

WTORS material test not conducted within the scope of this assessment.

*Note: Include information on variants and versions this report covers, as applicable. Supporting documents may be annexed to this report.*

## Significant Interpretations, Alternative Test Methods, New Technologies

Not Applicable

## Inspection/Tests Required

Seats, their anchorages and any head restraints (Item 15A):  
Safety-belt anchorages, Isofix anchorages systems and Isofix top tether anchorages (Item 19A):  
Safety-belts, restraint systems, child restraint systems and Isofix child restraint systems (Item 31A):  
WTORS Anchorages:  
WTORS Components – Dynamic Test  
WTORS Components– Material Tests

Yes, NA, See Report ... / Approval ... / Annex ...

NA
NA
NA
Yes
Yes
NA

## Vehicle/Component Specification



Vehicle Certification  
Agency Europe

VCA Europe S.r.l.



## Vehicle Certification Agency Europe

VCA Europe S.r.l.  
Point - Polo per l'Innovazione Tecnologica  
Via Pasubio, 5  
24044 Dalmine (BG)  
Italy  
enquiries@vca-europe.com |  
europe.vehicle-certification-agency.gov.uk



ISP N° 0178 E

Membro degli Accordi di Mutuo Riconoscimento  
EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

Report Number: ESB605378/XLB004893  
Issue 01 replacing all previous issues

This test report shall not be reproduced except in full, without  
written approval of the technical service.

Vehicle Type/Variant/Version:  
Wheelchair Front Tie-down  
Details:  
Wheelchair Rear Tie-down  
Details:  
Occupant Restraint Details:

Not Applicable
85kg J hooks – Braunability- EF3CJ- Electric front tie down 3m cov J hook
85Kg J hooks – Braunability – BQEPJ-Quattro bolt EX PL J hook tie downs
SBT-11040-A

### Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the  
vehicle component tested and covers all variants and versions agreed in the worst  
case rationale.

Yes

Information document uploaded to job folder and identified by job number.

Yes

### Facility and Equipment Checks

Facility Appraisal reference and date:  
*Reference and date if formal; state if ad-hoc appraisal).*

Mandatory FA not applicable

Calibration certificates are traceable to national or international standards of  
measurement, where available:

Yes

Calibration certificates checked and valid, recorded in the following table:

Yes

### Equipment

Description	Make	Model	Serial number	Calibration due date
Tape measure	Festool	5m	TM035	20/03/24
Scales	Gram precision	C3-1t	0000441848	16/06/24
Inclinometer	-	-	K686391	22/07/23

\*Specify calibrated date + (interval) or calibration due date.

### Software used in Testing

Description	Make	Version
-	-	-



**Vehicle Certification  
Agency Europe**

VCA Europe S.r.l.  
Point - Polo per l'Innovazione Tecnologica  
Via Pasubio, 5  
24044 Dalmine (BG)  
Italy  
enquiries@vca-europe.com |  
europe.vehicle-certification-agency.gov.uk

**Report Number: ESB605378/XLB004893**  
**Issue 01 replacing all previous issues**

This test report shall not be reproduced except in full, without  
written approval of the technical service.



ISP N° 0178 E

Membro degli Accordi di Mutuo Riconoscimento  
EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

## Inspection/Test Requirements

**Complies  
Yes / NA**

**Seats (Item 15A) – Not Applicable**

**Seatbelt Anchorages (Item 19A) – Not Applicable**

**Seatbelt Installation (Item 31A) – Not Applicable**

### WTORS Anchorages

(Anchorage strength may be tested using either the dynamic or static options below.)

#### General Requirements

Footnote W3

Longitudinal plane of the intended wheelchair-travelling position is parallel to the longitudinal plane of the vehicle.

Yes

Footnote W3

Appropriate information is made available to the vehicle owner that, in order to be capable of withstanding the forces transmitted by the tie-down mechanism during the various driving conditions, a wheelchair with a structure meeting the relevant part of ISO 7176-19:2008 is recommended.

Yes

#### Dynamic Testing

2018/858, Ann II,  
Part III, App 3,  
4.1.

The full assembly of the WTORS system is tested by an in-vehicle dynamic test in accordance with the specified paragraphs and Annex of ISO 10542-1:2012, testing all components/anchorages simultaneously, using a vehicle body-in-white or representative structure.

NA

2018/858, Ann II,  
Part III, App 3,  
4.2.

The component parts of the WTORS meet the relevant requirements of ISO 10542- 1:2012 and paragraphs 5.1, 5.3 and 5.4. These requirements are deemed to have been met in respect of the occupant restraint if it is approved in accordance with UN Regulation No 16.06.

Yes

#### Geometric Requirements

2018/858, Ann II,  
Part III, App 3,  
1.2.

The wheelchair occupant's lower belt anchorages are located in accordance with UNECE Regulation 14-07, paragraph 5.4.2.2, relative to Point P on the SWC when placed in the travelling position designated by the manufacturer (between 30 and 80degrees from the horizontal).

Yes

2018/858, Ann II,  
Part III, App 3,  
1.2.

The upper actual anchorage(s) are located at least 1,100 mm above the horizontal plane, passing through the points of contact between

Yes



Vehicle Certification  
Agency Europe

VCA Europe S.r.l.



the rear tyres of the SWC and the vehicle floor. This condition is still  
satisfied after the static/dynamic strength test.

## WTORS Components – Dynamic Test

### Dynamic Test Set-up

ISO10542, Ann A, 4.2.(a)	Wheelchair design meets characteristics specified in Annex E.	Yes
ISO10542, Ann A, 4.2.(b)	Hybrid III dummy used with mass of 77.7 kg. Close-fitting cotton clothes worn and static resistance of all joints set to 1g.	Yes
2018/858, Ann II, Part III, App 3, 3.3.1.	<del>Test carried out in representative vehicle body structure*</del> OR All anchorages on sled set-up are within an absolute linear distance of 50 mm from those on the vehicle* <i>*Strikethrough, as appropriate.</i> <i>Note: There is no tolerance on the SWC P-point with respect to the declared travelling position of the wheelchair and so measurements of anchorage positions should be normalised to give the P-point as the origin in both sets of measurements.</i>	Yes
VCA	In the case of out-of-vehicle tests, comparison of anchorage positions is attached to the report as an Annex.	Yes
ISO10542, Ann A, 5.7. VCA	Wheelchair reference plane parallel to vehicle longitudinal plane (+/- 3°). Where the wheelchair does not rest on a horizontal surface, this attitude is replicated on the sled, wherever possible.	Yes
ISO10542, Ann A, 5.8.	Tie-downs installed and tensioned, as per manufacturer's instructions.	Yes
ISO10542, Ann A, 5.12.	ATD is positioned upright in the SWC and symmetrical about its centreline with the pelvis as far back on the seat as possible and hands resting on thighs.	Yes
ISO10542, Ann A, 5.14.-5.18.	Occupant restraint installed, as per manufacturer's instructions.	Yes
ISO10542, Ann E, E.2.1	Tyre pressures set to 320 <sup>+30</sup> / <sub>-0</sub> kPa.	Yes

### Dynamic Test Results

ISO10542, Ann A, 4.1.(c)	Sled velocity change: <div>49.0 km/h</div> Requirement: 48 <sup>-0</sup> / <sub>+2</sub> km/h	Yes
ISO10542, Ann A, 4.1.(d)	Acceleration pulse conforms to ISO 10542 requirements. Requirement: > 0g for 75 ms; > 15 g for 40 ms; > 20 g for 15 ms	Yes



## Vehicle Certification Agency Europe

VCA Europe S.r.l.  
Point - Polo per l'Innovazione Tecnologica  
Via Pasubio, 5  
24044 Dalmine (BG)  
Italy  
enquiries@vca-europe.com |  
europe.vehicle-certification-agency.gov.uk

Report Number: ESB605378/XLB004893  
Issue 01 replacing all previous issues

This test report shall not be reproduced except in full, without  
written approval of the technical service.



ISP N° 0178 E

Membro degli Accordi di Mutuo Riconoscimento  
EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

ISO10542, 5.2.3.(a)	ATD retained in seat of SWC.	Yes
ISO10542, 5.2.3.(b)	SWC is in an upright position on the impact sled.	Yes
ISO10542, 5.2.3.(c)	No WTORS component became detached or separated.	Yes
ISO10542, 5.2.3.(d)	Tools not required for release of SWC from tie-down system.	Yes
ISO10542, 5.2.3.(e)	Tools not required for release of ATD from restraint system.	Yes
ISO10542, 5.2.3.(f)	No part of the WTORS exhibits signs of tearing, fragmentation, fracture, or complete failure (unless designed to do so, e.g. load limiting webbing).	Yes
ISO10542, 5.2.3.(g)	WTORS exhibits no dangerous roughness, sharp edges or protrusions likely to increase the risk of injury.	Yes



**Vehicle Certification  
Agency Europe**

VCA Europe S.r.l.  
Point - Polo per l'Innovazione Tecnologica  
Via Pasubio, 5  
24044 Dalmine (BG)  
Italy  
enquiries@vca-europe.com |  
europe.vehicle-certification-agency.gov.uk

**Report Number: ESB605378/XLB004893**  
**Issue 01 replacing all previous issues**

This test report shall not be reproduced except in full, without  
written approval of the technical service.



ISP N° 0178 E

Membro degli Accordi di Mutuo Riconoscimento  
EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

ISO10542,  
5.2.2.(a)

Movement of the SWC and ATD is within limits:

Yes

- Horizontal excursion of SWC:	149.29	mm	Limit: 200
- Horizontal excursion of ATD knee:	181.67	mm	Limit: 375
- Horizontal excursion of ATD head:	603.77	mm	Limit: 650

ISO10542,  
5.2.2.(b)

Horizontal excursion of ATD knee is at least 1.1 times excursion of  
SWC.

1.22

Remarks (condition of anchorages after test):

All anchorages held solid – some slight deformation at stalk  
anchorage point.

## WTORS Components – Material Tests – Not considered under this report

### ECE Regulation 16/Environmental/Material Tests

ISO10542, 5.1.1.

ECE regulation tests as specified in the table below have been  
carried out and passed for all component parts of the WTORS, as  
applicable.

Yes

Test report details or other reference:

See UTAC report PV\_21-09066 stored in Job folder with associated  
documentation.

ISO10542, 5.1.2.

Burn rate of webbing and padding does not exceed 100 mm/min.

Yes





## Vehicle Certification Agency Europe

VCA Europe S.r.l.  
Point - Polo per l'Innovazione Tecnologica  
Via Pasubio, 5  
24044 Dalmine (BG)  
Italy  
enquiries@vca-europe.com |  
europe.vehicle-certification-agency.gov.uk

Report Number: ESB605378/XLB004893  
Issue 01 replacing all previous issues

This test report shall not be reproduced except in full, without  
written approval of the technical service.



ISP N° 0178 E

Membro degli Accordi di Mutuo Riconoscimento  
EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

Subclause	Component	Subject	ECE R 16 tests referenced	Application <sup>a</sup>
6.2.1.1	rigid parts	sharp edges	—	OR + WTD
6.2.1.2	rigid parts	corrosion	7.2	OR + WTD
6.2.1.4	rigid parts	cold impact test	7.5.4	OR + WTD
6.2.2.1	buckles	correct use and size	—	OR
6.2.2.2	buckles	closing/releasing	7.8.2	OR
6.2.2.3	buckles	cold mating	7.5.3	OR
6.2.2.4	buckles	repeated testing	7.7	OR
6.2.3.2	adjustment devices	micro-slip	7.3	OR
6.2.3.4	belt-adjusting device	force	7.5.6	OR + WTD
6.2.5	various belt retractors	performance	7.2, 7.6.1 to 7.6.4	OR
6.2.6	preloading devices	performance	7.2, 7.9.2	OR
6.3.1	belts	general specs	7.4.3	OR
6.3.2	belts	strength	7.4.1.1, 7.4.2	OR + WTD
6.3.3	belts	strength	7.4.1, 7.4.2	OR + WTD
6.4.2	belts	strength	7.4.1.6, 7.4.2, 7.5	OR + WTD

<sup>a</sup> OR = occupant restraint, WTD = wheelchair tiedown.

### Webbing Slippage Tests

ISO10542, 5.3. Strap type adjustment mechanisms show slippage of no greater than 25 mm when tested in accordance with Annex C or ECE R16.

Yes

### Partial Engagement Test

ISO10542, 5.4. & Ann D All parts of the WTORS with potential to be partially engaged separate from this condition, with a force of no greater than 22 <sup>+2/-0</sup> N, applied for a maximum of 3 <sup>+0.5/-0</sup> seconds.

Yes

Description of components and subjected to the above test and manner of partial engagement (with photographs, if applicable):

See UTAC report PV\_21-09066 stored in Job folder with associated documentation.

### WTORS Occupant Restraint Installation

2018/858, Ann II,  
Part III, App 3,  
2.3.

R16.06, 8.2.2.

Belt(s) are installed so that, when properly worn, they will work satisfactorily and reduce the risk of bodily injury in the event of an accident. In particular, they are installed so that the:

Yes

R16.06, 8.2.2.1.

Straps are not liable to assume a dangerous configuration;

Yes





## Vehicle Certification Agency Europe

VCA Europe S.r.l.  
Point - Polo per l'Innovazione Tecnologica  
Via Pasubio, 5  
24044 Dalmine (BG)  
Italy  
enquiries@vca-europe.com |  
europe.vehicle-certification-agency.gov.uk

Report Number: ESB605378/XLB004893  
Issue 01 replacing all previous issues

This test report shall not be reproduced except in full, without  
written approval of the technical service.



ISP N° 0178 E

Membro degli Accordi di Mutuo Riconoscimento  
EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

R16.06, 8.2.2.2.	Danger of a correctly positioned belt slipping from the shoulder of a wearer as a result of his/her forward movement is reduced to a minimum;	Yes
R16.06, 8.2.2.3.	Risk of the strap deteriorating through contact with sharp rigid parts of the vehicle or seat structure is reduced to a minimum;	Yes
R16.06, 8.2.2.4.	Safety belt provided for each wheelchair position is such as to be readily available for use, including after a seat (or wheelchair) has been displaced/folded and then restored.	Yes
R16.06, 8.3.1.	Rigid parts do not increase the risk of injury in the event of an accident.	Yes
R16.06, 8.3.2.	Device for releasing the buckle is clearly visible to and within easy reach of the wearer, and designed so that it cannot be opened inadvertently or accidentally. It is located so that it is readily accessible to a rescuer in an emergency.	Yes
R16.06, 8.3.2.	Both when not under load and when sustaining the wearer's weight, the buckle is capable of being released by the wearer with a single simple movement of either hand in one direction.	Yes
R16.06, 8.3.2.	If the buckle is in contact with the wearer, the parts of the buckle likely to contact the body of the wearer presents a section of not less than 20 cm <sup>2</sup> and at least 46 mm in width, measured in a plane situated at a maximal distance of 2.5 mm from the contact surface.	Yes
R16.06, 8.3.3.	Belt either adjusts automatically to fit or is designed so that the manual adjusting device is readily accessible to the wearer, is convenient and easy to use, and may be tightened with one hand.	Yes
R16.06, 8.3.4.	Belts incorporating retractors are installed so that they operate correctly and stow the strap efficiently.	Yes

### Remarks

None.



Vehicle Certification  
Agency Europe

VCA Europe S.r.l.  
Point - Polo per l'Innovazione Tecnologica  
Via Pasubio, 5  
24044 Dalmine (BG)  
Italy  
enquiries@vca-europe.com |  
europe.vehicle-certification-agency.gov.uk

Report Number: ESB605378/XLB004893  
Issue 01 replacing all previous issues

This test report shall not be reproduced except in full, without  
written approval of the technical service.



ISP N° 0178 E

Membro degli Accordi di Mutuo Riconoscimento  
EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

## Annex I – Comparison of Vehicle and WTORS Test Geometry

Measured with arbitrary datum													
		Vehicle				WTORS Test							
		X	Y	Z		X	Y	Z					
Front left		2387	-355	245		-1225	-215	385					
Front right		2387	355	245		-1225	500	385					
Rear left		3579	-150	-17		0	0	125					
Rear right		3579	150	-17		0	300	125					
LB		3434	-480	267		-135	-332	406					
LNB		3369	480	267		-197	620	406					
Upper		3425	429	1398		-168	590	1540					
Reel		3434	480	267		-135	620	406					
P point		3125	0	591		-460	150	700					
Corrected to make P-point the origin (0,0,0) in both cases													
		Vehicle				WTORS Test				Difference			
		X	Y	Z		X	Y	Z		X	Y	Z	Abs
Front left*		-738	-355	-346		-765	-365	-315		27	10	-31	42
Front right*		-738	355	-346		-765	350	-315		27	5	-31	41
Rear left		454	-150	-608		460	-150	-575		-6	0	-33	34
Rear right		454	150	-608		460	150	-575		-6	0	-33	34
LB		309	-480	-324		325	-482	-294		-16	2	-30	34
LNB^		244	480	-324		263	470	-294		-19	10	-30	37
Upper		300	429	807		292	440	840		8	-11	-33	36
Reel^		309	480	-324		325	470	-294		-16	10	-30	35