



Vehicle Certification
Agency Europe

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Report Number: ESA564411/
XLA003008 R17

Issue: 0



ISP N° 0178 E

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Inspection/Test Report: Seats, their Anchorages and any Head Restraints Vehicles of Category M₁, N₁, N₂ or N₃ and of Category M₂ or M₃ for seats not covered by UN Regulation 80.

Legislation

Regulation (EU) 2018/858, Annex II, Part III, Appendix 3, Item 15A

Inspection/Test Details

Location of Inspection/Test: Braunability UK, the Horseshoe, Martock, TA12 6EY
Date of Inspection/Test: 6 June 2022
VCA Representative(s): Fraser Coulter
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: XFKT
Commercial Description: Kangoo / Townstar / Citan 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: Fraser Coulter
Position: Senior Type Approval
Engineer
Date: 9 June 2022

Kevin Bridges
Technical Manager
16 August 2022

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List of Annexes

Annex	No of Pages	Subject
I	2	Graphs
II	54	Info Doc

Issue Record

Issue 0 is original report

Worst Case Rationale

Test report to cover "Resistance to Inertia Effects Test" only for Tripod alternative second row seats within the Renault Kangoo/Mercedes-Benz Citan/ Nissan Townstar.

Forward and rearward dynamic tests conducted with one fixed and one removable seat mounted in each of outboard positions.

For more information refer to information document attached as annex II

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

None

Inspection/Tests Required

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

General Requirements	Not Applicable
Seats of Vehicles of Category M1	Not Applicable
Seats of Vehicles of other than Category M1	Not Applicable
Seats with Head Restraints – All Categories	Not Applicable
Approval marking	Not Applicable
Tests & Measurements:	
Radius and Padding Checks	Not Applicable
Seat Strength Test - Seats without Head Restraints	Not Applicable
Head Restraint Dimensions	Not Applicable
Gap between Head Restraint and Seat Back	Not Applicable
Head Restraints - Removal and Displacement	Not Applicable
Head Restraints - Installed Height	Not Applicable
Head Restraints - Static Maximum Backset	Not Applicable
Head Restraints - Non-use Positions	Not Applicable
Energy Dissipation (Impact) Test	Not Applicable
Static Performance Tests:	
Energy Absorption (Impact) Test	Not Applicable



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Displacement Test - Seats with Head Restraints	Not Applicable
Head Restraint Anchorage/Seat Back Strength Test	Not Applicable
Adjustable Head Restraint Height Retention Test	Not Applicable
Dynamic Tests	Yes
Resistance to Inertia Effects Test	Yes
Collision Test	Not Applicable
Dynamic Performance Test	Not Applicable
Luggage Retention Tests	Not Applicable

Vehicle Specification

Vehicle Identification Number:	Representative BiW
Variant details:	All

Component Specification

		Seat and Head Restraint Installation	
Row & Position		Seat Type <i>Indicate type and orientation</i>	Head Restraint * <i>Adjustable, Fixed, Integral, Removable or none [See VCA TI-SAHR-0002]</i>
2	Outboard	Tripod fixed and Tripod Removable	Adjustable

* Includes head restraints attached to the vehicle
[Extend/amend/reduce table as required]

Manufacturer's Documentation

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

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



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Equipment

Description	Make	Model	Serial number	Calibration due date
Data Acquisition	DTS	SLICE	UIG133	09/07/2022
Accelerometer	Endevco	2262A-200	UIG108	16/08/2022
	Strainsense	GCS-D1S-250-L5M	UIG276	
	Endevco	2262A-200	UIG125	13/08/2022
	Strainsense	GCS-D1S-250-L5M	UIG275	
Tape Measure	Stanley	5m	BE048	06/09/2022
Pressure Gauge	Kennedy	12 Bar	UIG289	20/01/2023

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

Software used in Testing

Description	Make	Version
Sliceware	DTS	1.08.0868
Trackimage	Genuine Intel	3.6.3

Inspection/Test Requirements

Complies
Yes / NA

Where the requirements are stated as being applicable to "each seat", unless otherwise indicated, these may be demonstrated on one such seat where this may be shown to be representative of all within a related group.

General Requirements

See page 2

Seats of Vehicles of Category M₁

See page 2

Seats of Vehicles of other than Category M₁

See page 2

Seats with Head Restraints – All Categories

See page 2

Approval Marking

Note: May not be possible to assess during seat testing and may need to be established on a completed vehicle

See page 2



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Tests & Measurements

Provisions for all Tests

6.1.1	Each adjustable seat-back is in a position corresponding to a rearward inclination as close as possible to 25° from the vertical of the torso reference line, unless otherwise specified by the manufacturer.	NA
6.1.2.	When a seat, its locking mechanism and its installation are identical or symmetrical with respect to another on the vehicle, only one such seat is tested. <i>This applies to head restraints too, provided that all aspects are alike</i>	Yes
6.1.3.	Each test on an adjustable head restraint is conducted with the head restraint placed in the most unfavourable position (generally, the highest position) allowed by its adjusting system.	Yes
6.1.4.	Folding seats are tested in the position of use by occupants.	NA
6.1.5.	When demonstrating compliance with Paras 5.6 to 5.8, any adjustable support is positioned in its most rearward or opened design position.	NA
VCA Annex 3	Wherever the seat is to be adjusted so that its H-point coincides with the R-point and its adjustable seat back is to be set at the design seat back angle, this is done in accordance with the procedure in R.E.3 Annex 1. Where this results in the use of any median positioning, a report covering this attached as an Annex.	NA

Radius and Padding Checks

See page 2

Seat Strength Test - Seats without Head Restraints

See page 2

Head Restraint Dimensions

See page 2

Gap between Head Restraint and Seat Back

See page 2

Head Restraints - Static Maximum Backset

See page 2

Head Restraints - Installed Height

See page 2

Head Restraints - Removal and Displacement

See page 2

Head Restraints - Non-use Positions

See page 2

Energy Dissipation (Impact) Test

See page 2



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Static Performance Tests.

(The alternative to a dynamic test with BIORID III dummy installed)

See page 2

Dynamic Tests

Resistance to Inertia Effects Test

Strength of the Seat Anchorage and Adjustment, Locking and Displacement Systems (Deceleration/Acceleration Test)

Ann 7, 1.

All seats (or seat examples) may be tested together, as required

Ann 7, 1.1.

Each seat is mounted on the vehicle body for which it is designed

Yes

Ann 7, 1.1.

The vehicle body is firmly anchored on a test trolley as prescribed.

Yes

Ann 7, 1.2.

The method used for anchoring the vehicle body on the test trolley does not result in a reinforcement of the seat anchorages.

Yes

Ann 7, 1.3.
6.1.1

Each seat and its parts are adjusted and locked with adjustable seat back locked in a position corresponding to a rearward inclination as close as possible to 25° from the vertical of the torso reference line. Unless otherwise specified by the manufacturer.

Yes

6.1.1.

Details of manufacturer's specification for seat-back angle if not 25°:

Fixed Angle

Ann 7, 1.3.
6.1.1

All possible positions of the seat(s) or group of seats are covered by placing seat(s) as follows:

NA

6.3.3

~~One seat is fixed with longitudinal adjustment one notch or 10 mm rearward of the most forward normal position, with any cushion on a seat with independent vertical adjustment placed in its highest position. Another seat is fixed with longitudinal adjustment one notch or 10 mm forward of the most rearward normal position, with any cushion on a seat with independent vertical adjustment placed in its lowest position.*~~

6.3.4

~~Neither of the foremost or rearmost positions is the worst for the distribution of the forces on the locking devices and seat anchorages; seat(s) is/are placed in the least favourable position(s).*~~
~~Seats are placed in various positions in between and including ones one notch or 10 mm rearward or forwards respectively of the foremost and rearmost longitudinal adjustments, with any cushions on seats with independent vertical adjustment placed in highest and lowest positions, so as to represent worst cases.*~~

* Strikethrough as appropriate



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Remarks on seat placement:

Seats have no lateral displacement, locking mechanism however is situated requires handle being pulled towards rear of vehicle

6.3.3	Each adjustable head restraint is placed in the most unfavourable position (generally the highest position) allowed by its adjusting system	Yes
Ann 7, 1.4.	Where the seats of a group do not present essential differences in the sense of Para 2.2, the tests are carried out with one seat adjusted to its foremost position and the other seat adjusted to its rearmost position.	NA
Ann 7, 1.5.	The trolley deceleration or acceleration is measured with data channels of frequency class (CFC) 60 corresponding to the characteristics of International Standard ISO 6487 (2002).	Yes

Brief description of test equipment:

Bungee powered declaration sled

6.3.1.	Seats are subjected to a 20 g deceleration (or acceleration) for 30 ms, imitating a frontal collision.	Yes
6.3.1. Ann 9, 3.1	Simulated frontal collision test is performed in conjunction with a Luggage Retention test: frontal impact curve remains within the corridor defined in Annex 9, which also meets the requirement for 20 g for 30ms. <i>Note: This permits the frontal impact test to be achieved in conjunction with a Luggage Retention test; however, for rearmost seats, this combined test should only be performed without the seats "staggered" longitudinally, and it may be necessary to perform separate tests where longitudinally-adjustable seats can be staggered.</i>	NA
6.3.2.	Seats are subjected to a 20 g deceleration (or acceleration) for 30 ms, imitating a rear collision.	Yes

Remarks

No visible signs of damage, and locking mechanism remain unaffected



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Test Results

6.3.1 2.3.2	Each acceleration/deceleration pulse meets the specified requirements	Yes
6.2.1 5.2.5	No failure in the seat frame, seat anchorage, adjustment and displacement systems or their locking devices during/after the test.	Yes

Collision Test

Collision of the complete vehicle against a rigid barrier

See page 2

Dynamic Performance Test

(Dynamic test with BIORID II Dummy). Alternative to the tests for compliance with the Static Requirements of Para 5.7

See page 2

Luggage Retention Tests

Protection of Occupants from Displaced Luggage

See page 2

Inspection/Test Results Summary

This section covers general observations arising from the tests and may be duplicated to cover each individual test, or be used as a summary covering all tests.

For results covering specific tests, see the tables within the relevant sections.

5.2.4.	Except for rearmost seats, back-to-back seats or seats compliant with Regulation No. 21, the relevant parts of the surface of the rear parts of seats exhibit no dangerous roughness or sharp edges likely to increase the risk of severity of injury to the occupants.	Yes
5.2.5.	No failure in the seat frame, seat anchorage, adjustment and displacement systems or locking devices during or after the tests. <i>Note: Permanent deformations, including ruptures, may be accepted, provided that these do not increase the risk of injury in the event of a collision and prescribed loads were sustained.</i>	Yes
5.2.6.	No release of the locking systems occurs during the tests.	Yes
5.2.7.	After the tests, the displacement systems intended for permitting or facilitating the access of occupants are in working order	NA
5.5.4	No rigid or dangerous parts projected from the Head restraint padding or attachments to the vehicle as a result of the pressure exerted during the tests.	Yes



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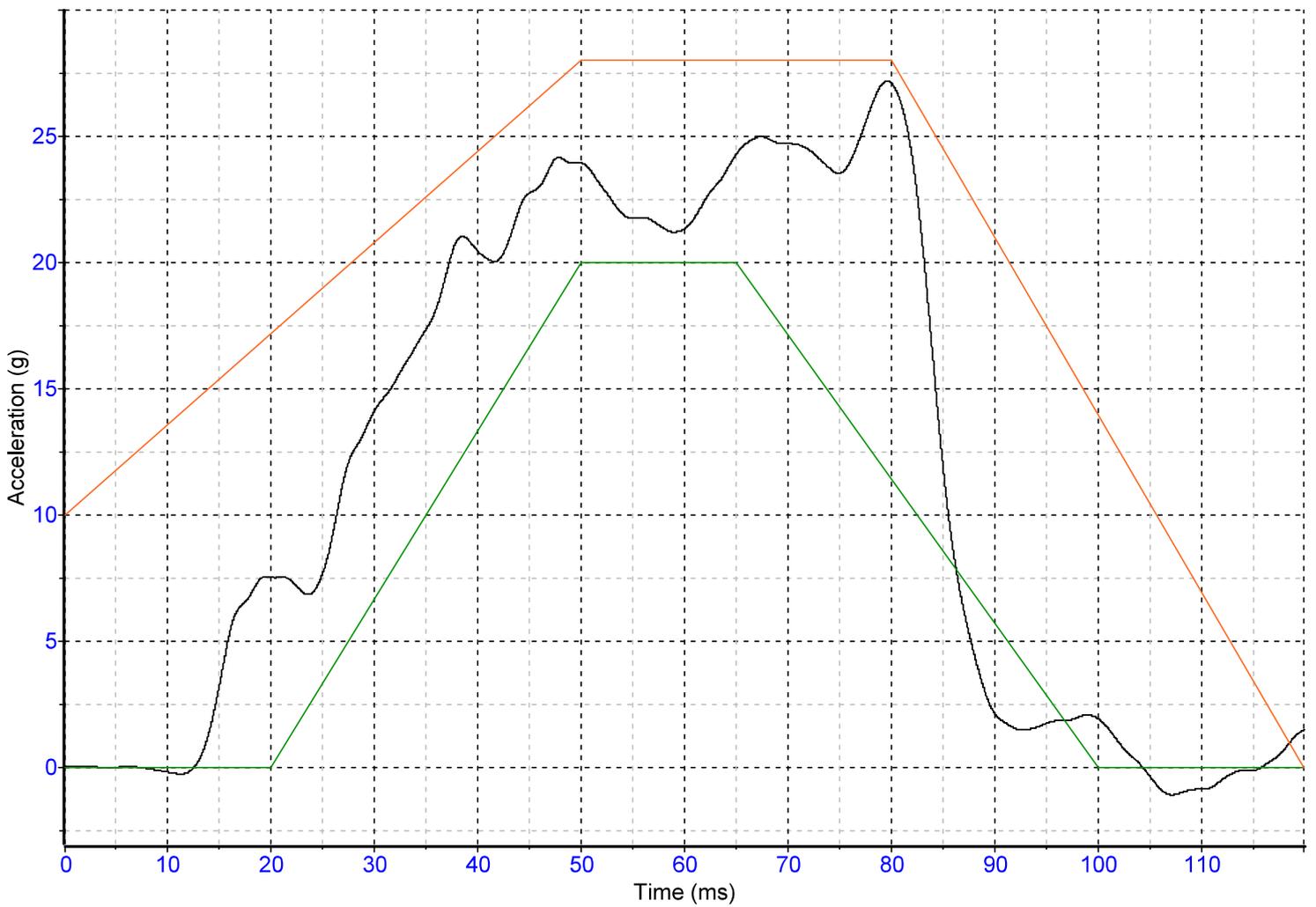
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Remarks

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.

Pulse Graph for Deceleration to Reg 17 T-13121



Time at 20g (Single Peak) : 45.9 ms [t1 : 37.2 ms, t2 : 83.2 ms] (Cumulative) : 45.9 ms

Test Pass or Fail Overall

5.2.5	No failure shall be shown in the seat frame or in the seat anchorage, the adjustment and displacement systems or their locking devices	Pass
5.2.6	No release of the locking systems shall occur during the test	Pass
5.2.7	After the tests, the displacement systems intended for permitting or facilitating the access of occupants shall be in working order; they shall be capable, at least once, of being unlocked and shall permit the displacement of the seat or the part of the seat for which they are intended	Pass

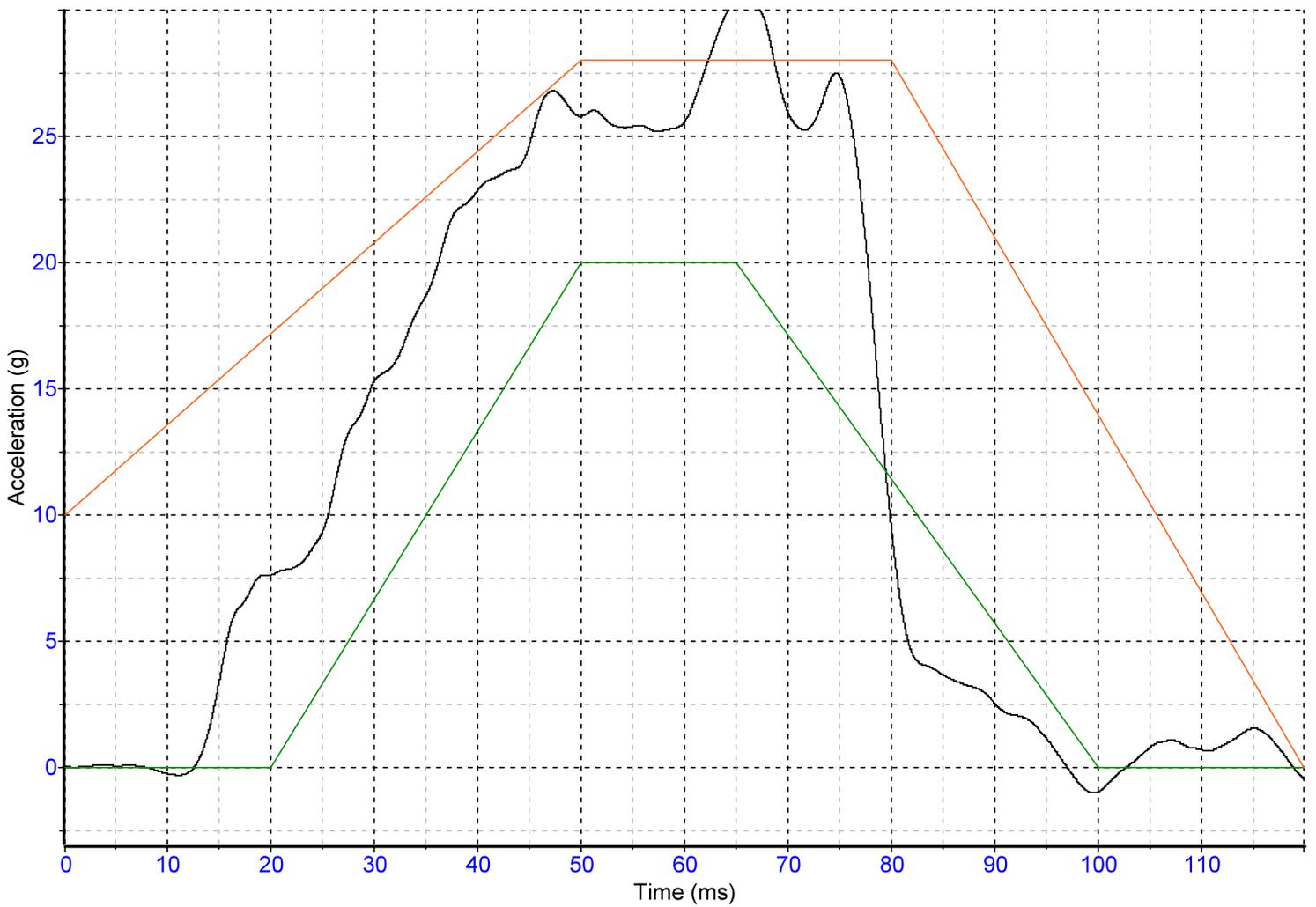
Test Pass or Fail Overall

Pass

Notes

Pulse was good and all held without problems

Pulse Graph for Deceleration to Reg 17 T-13122



Time at 20g (Single Peak) : 41.5 ms [t1 : 36.2 ms, t2 : 77.7 ms] (Cumulative) : 41.5 ms

Test Pass or Fail Overall

5.2.5	No failure shall be shown in the seat frame or in the seat anchorage, the adjustment and displacement systems or their locking devices	Pass
5.2.6	No release of the locking systems shall occur during the test	Pass
5.2.7	After the tests, the displacement systems intended for permitting or facilitating the access of occupants shall be in working order; they shall be capable, at least once, of being unlocked and shall permit the displacement of the seat or the part of the seat for which they are intended	Pass

Test Pass or Fail Overall

Pass

Notes

Pulse was good and all held without problems.