



Inspection/Test Report: Seats, their Anchorages and any Head Restraints Vehicles of Category M1

Legislation

UNECE Regulation 17.09 to Supplement 1

Inspection/Test Details

Location of Inspection/Test: Braunability UK, The Horseshoe, Martock, TA12 6EY, UK
Date of Inspection/Test: 03-04 August 2021
VCA Representative(s): Fraser Coulter
Inspectors 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
Commercial Description: Berlingo REC / Rifter REC /
Combo Life REC / Proace City REC
Category: M1 SPV (WAV)

Conclusion

The above mentioned vehicle was tested in accordance with the above mentioned legislation and was found to comply in all respects. This report relates only to the items tested.

Witness Engineer Signature:

Name: Fraser Coulter
Position: Type Approval Engineer
Date: 09 August 2021

List of Annexes

| Annex | No of Pages | Subject |
|-------|-------------|---------------------------|
| I | 8 | Braunability Test Reports |
| II | 112 | Info Doc |

Issue Record





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

Issue 0 is original report

Worst Case Rationale

Testing to cover both fixed and quick release seat fittings in the Tripod conversions of the Berlingo/ Rifter/Combo/ Proace. For more details on seat mechanisms refer to annex II, info document.

Due to symmetrical nature of conversion with the fixed seat being tested on one side (LH) and the quick release being on the opposing side (RH) this test also covers the seats fitted in mirror image.

T-12929- Rearward
T-12930-Forward

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

Inspection/Tests Required

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

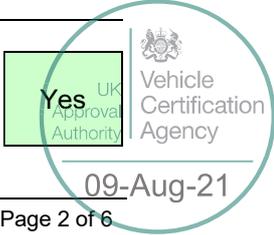
Table with 2 columns: Test Name and Result. Rows include General Requirements (Yes), Special Requirements (Not covered), Mounting of Head Restraints (Not covered), Head Restraints secured to the Vehicle Structure (Not applicable), Removal and Displacement of Head Restraints (Not covered), Approval marking (Not covered), Tests & Measurements: Head Restraint Dimensions (Not covered), Energy Absorption/Dissipation (Impact) Tests (Not covered), Moment Arm Test - Seats without Head Restraints (Not applicable), Moment Arm Test - Seats with Head Restraints (Not covered), Dynamic Test (Yes), Luggage Retention Tests (Not applicable).

Vehicle Specification

Vehicle Identification Number: Representative BiW

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the vehicle tested and covers all variants and versions agreed in the worst case rationale. Information document uploaded to job folder and identified by job number.





Facility and Equipment Checks

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

Yes

Facility Appraisal reference and date (if applicable)

Not Applicable

| Equipment | Serial / Certificate No. | Calibration due* |
|------------------|--------------------------|-------------------|
| Data Acquisition | UIG133 | 04 September 2021 |
| Accelerometers | UIG 108 | 21 September 2021 |
| | UIG 275 | 21 September 2021 |
| | UIG125 | 21 September 2021 |
| | UIG 276 | 21 September 2021 |
| Inclinometer | UIG246 | 23 July 2022 |

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

Inspection/Test Requirements

Complies
Yes / NA

General Requirements

| | | |
|--------|--|-----|
| 5.1.1. | Vehicle is of category M1 and has no side-facing seats installed. | Yes |
| 5.1.2. | Vehicle is not an ambulance or for use by the armed services, civil defence, fire services or forces responsible for maintaining public order. | Yes |
| | H-points and seat-back angles are as specified. | Yes |
| 6.2.1 | Tests carried out simultaneously, where appropriate. | Yes |
| 5.2.1. | Adjustment and displacement systems lock automatically. | Yes |
| 5.2.2. | The unlocking control for a displacement system is placed on the outside of the seat close to the door and is easily accessible, even to the occupant of the seat immediately behind. <i>Applies only to a seat for which the seat or one of its parts can be displaced and/or rotated to permit easy access of occupants to the space behind the seat.</i> | NA |
| 5.2.4. | Padding and radii of the seat are satisfactory. | NA |

Special Requirements

Special Requirements for Seats fitted or Capable of being fitted with Head Restraints
See page 2





Mounting of Head Restraints

See page 2

Head Restraints secured to the Vehicle Structure

See page 2

Removal and Displacement of Head Restraints

See page 2

Approval Marking

See page 2

Tests & Measurements

See page 2

Head Restraint Dimensions

See page 2

Energy Absorption/Dissipation (Impact) Tests

See page 2

Moment Arm Test - Seats without Head Restraints

Strength of the Seat-back and its Adjustment Systems for seats not fitted/incapable of being fitted with Head Restraints

See page 2

Moment Arm Test - Seats with Head Restraints

Strength of the Seat-back and its Adjustment Systems for seats fitted/capable of being fitted with Head Restraints

See page 2



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

Dynamic Test

Strength of the Seat Anchorage and Adjustment, Locking and Displacement Systems

| | | |
|----------------|------------|---------------------------------|
| 6.3.1., 6.3.2. | Test type: | - Deceleration test. * |
| 6.3.1., 6.3.2. | | Acceleration test. * |
| 6.3.5. | | Collision test. * |

* Strikethrough as appropriate

Collision test

Collision test report number: Not Applicable

Remarks, including brief description of test equipment:

Deceleration/acceleration test

Brief description of test equipment: Bungee powered Decel Sled

| | | |
|--------|--|-----|
| 6.1. | Seat test setup is appropriate: | Yes |
| 6.1.2 | - Tests of all seats with their locking mechanism and installations. * | |
| 6.1.2. | - Test of single seat of type with locking mechanism and installation identical or symmetrical with respect to another on the vehicle. * | |
| 6.1.3 | - Each seat with adjustable head restraint is tested with the restraint placed in the highest position allowed by its adjustment system. * | |
| 6.3.3 | Test for each folding seat is in the position of use by its occupant. * | |
| 6.1.4 | | |

* Strikethrough as appropriate

Details:

Test of both rigid and fixed seats placed wither side of cut floor, the vehicle is symmetrical relative to the seat mounting.

| | | |
|---------------|---|----|
| 6.3.3.-6.3.4. | Seats are adjusted as specified in paragraphs 6.1.1, 6.3.3 and 6.3.4. | NA |
|---------------|---|----|

| | | |
|--------|---|--|
| 6.1.1. | Details of manufacturer's specification for seat-back angle if not 25°: Seat back angles are fixed | |
|--------|---|--|

| | | |
|--------|--|-----|
| 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 | Where the rearmost row seats are subjected to a deceleration (or acceleration) imitating a frontal impact with curve remaining within the corridor in Annex 9, this also meets the requirement for 20 g for 30ms. 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 seats can be staggered. | Yes |
|----------------------|---|-----|





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

6.3.2. Seats are subjected to a 20 g deceleration (or acceleration) for 30 ms, imitating a rear collision. Yes

Test Results

6.2.1 No failure in the seat frame, seat anchorage, adjustment and Yes
5.2.5 displacement systems or their locking devices during/after the test.

| Dynamic (Deceleration/acceleration) Test Results | | | |
|---|-----------|-------------------|--|
| <i>Extend/reduce table as required</i> | | | |
| Run No | Direction | Time at 20 g (ms) | Remarks <i>(Comments on damage, sharp edges, etc)</i> |
| T-12929 | Rearward | 41.9 | No damage or sharp edges |
| T-12930 | Forward | 42.5 | No damage or sharp edges |

Luggage Retention Tests

See page 2

Inspection/Test Results

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. Yes
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.

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 Yes

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

Remarks

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



| | |
|----------------|----------------|
| Test Number: | T-12929 |
| Test Date: | 8/3/2021 |
| Test Engineer: | Ben Cox |
| Test House: | UDL |
| Witness 1: | Gavin Pike |
| Witness 2: | Fraser Coulter |

| | |
|-----------|---------------------|
| Customer: | Braunability UK ltd |
| Address: | Unwin House |
| | Coat Road |
| | Martock |
| | Somerset |
| | UK |
| | TA12 6EY |

| Test Objectives & Setup Details: | |
|---|--|
| Tripod Peugeot Riffter rearwards VCA live test REG 17 | |

| Equipment Used In Test: | | |
|-------------------------|---------------|-----------|
| Component | Description | Post Test |
| Occupant Restraint | N/A | N/A |
| Anchorage Type | N/A | N/A |
| 3rd Point Restraint | N/A | N/A |
| Anchorage Type | N/A | N/A |
| Front Tie-Down | N/A | N/A |
| Anchorage Type | N/A | N/A |
| Rear Tie-Down | N/A | N/A |
| Anchorage Type | N/A | N/A |
| Combined System | N/A | N/A |
| Anchorage Type | N/A | N/A |
| | | |
| Wheelchair | N/A | N/A |
| ATD | 50th %ile N/A | N/A |

| Instrumentation: | | | |
|------------------|------------------------------|----------|---------------------|
| Type | Variet | Unwin ID | Last Calibration |
| Data Aquisition | BR00476 | UIG 133 | 09/04/2020 |
| Accelerometer | Sled Accelerometer (UIG 125) | UIG 125 | 09/21/2020 10:27:17 |
| Accelerometer | Sled Accelerometer (UIG 276) | UIG 276 | 09/21/2020 10:31:31 |
| Accelerometer | Sled Accelerometer (UIG 275) | UIG 275 | 12/03/2019 12:59:26 |
| Accelerometer | Sled Accelerometer (UIG108) | UIG108 | 09/21/2020 10:28:46 |

Instrumentation Calibrated Annually



Post Test Observations According to Reg 17

| | | |
|---|---|------|
| a | ATD Shall be retained in seat of the SWC | N/A |
| b | The SWC shall remain in an upright position on the impact sled | N/A |
| c | No WTORS anchorage components or securement end fittings shall be detached or separated | Pass |
| d | Release of the SWC from the wheelchair tie-down shall not require the use of tools | N/A |
| e | Release of the ATD from the occupant restraint shall not require the use of tools | N/A |
| f | No part of the WTORS shall exhibit visible signs of tearing, fragmentation, fracture or complete failure of any load-bearing part unless such parts are intended to fail in a manner that limits the forces on the occupant | Pass |
| g | The WTORS shall exhibit no dangerous roughness, sharp edges or protrusions likely to increase the risk of injury to the occupant | Pass |
| h | The force required to open the buckle of any tie down or occupant restraint components shall not exceed 60N when tested as specified by 6.2.2.5 of ECE R16:1996, in accordance with the procedures of 7.8 | Pass |

During Test Observations According to Reg 17

| | | Result | Complies? |
|---|---|-------------|-----------|
| a | The horizontal excursion of the test wheelchair P-Point (Xwc) shall not exceed 200mm | ??? | ??? |
| b | The horizontal excursion of the ATD Knee (Xknee) shall not exceed 375mm | ??? | ??? |
| c | The horizontal excursion of the ATD Head (Xhead) shall not exceed 650mm | ??? | ??? |
| d | The WTORS shall prevent the wheelchair from imposing forward loads on the occupant Ratio of Xknee / XWC to be greater than or equal to 1.1 | ??? | ??? |
| e | Inbound velocity (delta V 48kph +2 -0) | 49.0 km.h-1 | Passed |
| f | Cumulative Time to hold 20g (>15ms) | 41.9 ms | Passed |
| h | Cumulative Time to hold 15g (>40ms) | 45.5 ms | Passed |

Test Pass or Fail Overall

Pass

Notes

Passed with good pulse



Test Photos T-12929



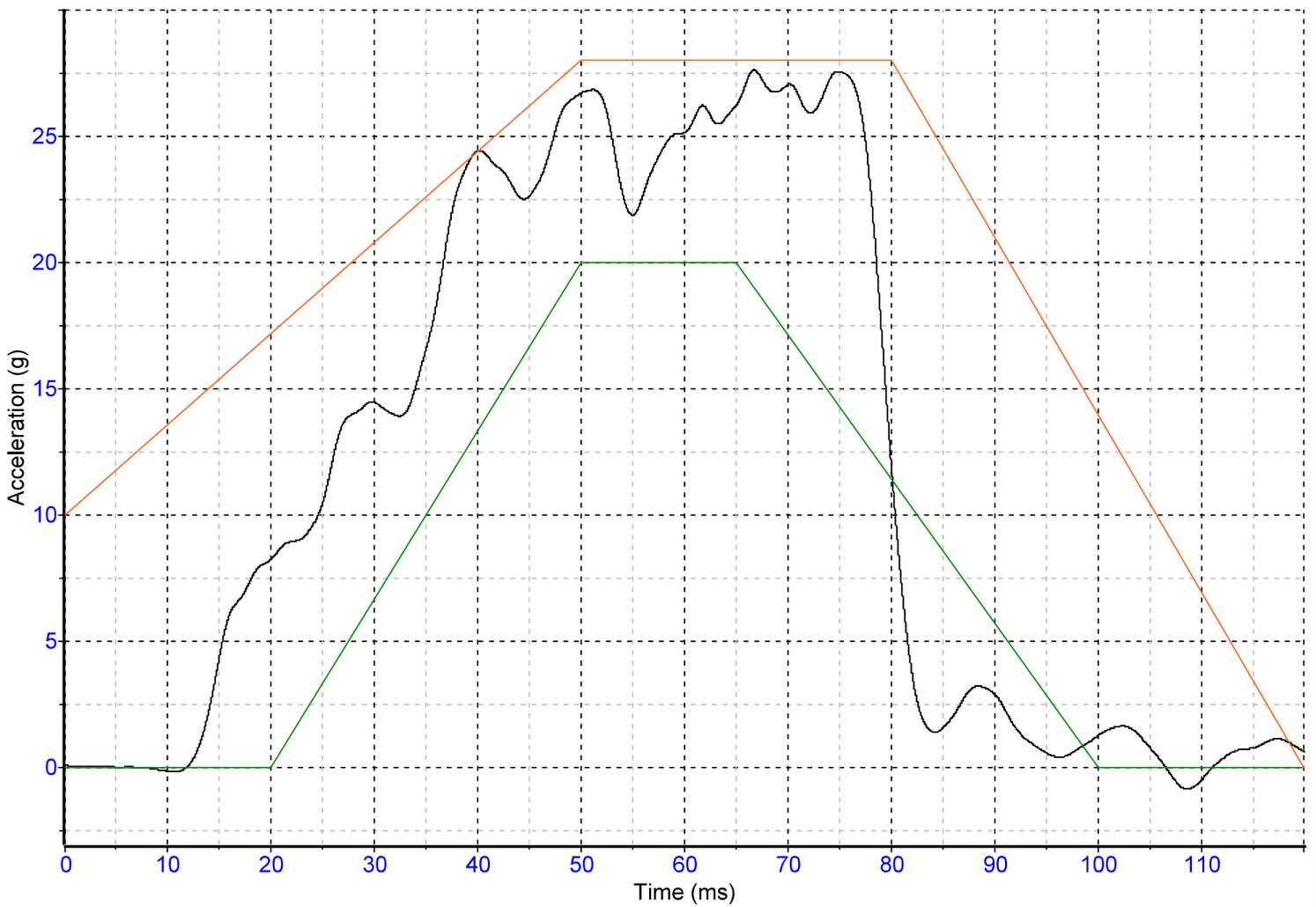
Pre Test



Post Test



Pulse Graph for Deceleration to Reg 17 T-12929



Time at 20g (Single Peak) : 41.9 ms [t1 : 36.7 ms, t2 : 78.6 ms] (Cumulative) : 41.9 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 | N/A |
| 5.2.6 | No release of the locking systems shall occur during the test | N/A |
| 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

Passed with good pulse



| | |
|----------------|----------------|
| Test Number: | T-12930 |
| Test Date: | 8/3/2021 |
| Test Engineer: | Gavin Pike |
| Test House: | UDL |
| Witness 1: | Ben Cox |
| Witness 2: | Fraser Coulter |

| | |
|-----------|----------------------|
| Customer: | Tripod International |
| Address: | Tripod Mobility |
| | Collseweg 10 |
| | 5674 Nuenen |
| | Netherlands |
| | 0 |
| | 0 |

Test Objectives & Setup Details:
Tripod Peugeot Riffter Forwards VCA live test REG 17

| Equipment Used In Test: | | |
|-------------------------|---------------|-----------|
| Component | Description | Post Test |
| Occupant Restraint | N/A | N/A |
| Anchorage Type | N/A | N/A |
| 3rd Point Restraint | N/A | N/A |
| Anchorage Type | N/A | N/A |
| Front Tie-Down | N/A | N/A |
| Anchorage Type | N/A | N/A |
| Rear Tie-Down | N/A | N/A |
| Anchorage Type | N/A | N/A |
| Combined System | N/A | N/A |
| Anchorage Type | N/A | N/A |
| | | |
| Wheelchair | N/A | N/A |
| ATD | 50th %ile N/A | N/A |

| Instrumentation: | | | |
|------------------|------------------------------|----------|---------------------|
| Type | Variet | Unwin ID | Last Calibration |
| Data Aquisition | BR00476 | UIG 133 | 09/04/2020 |
| Accelerometer | Sled Accelerometer (UIG 125) | UIG 125 | 09/21/2020 10:27:17 |
| Accelerometer | Sled Accelerometer (UIG 276) | UIG 276 | 09/21/2020 10:31:31 |
| Accelerometer | Sled Accelerometer (UIG 275) | UIG 275 | 12/03/2019 12:59:26 |
| Accelerometer | Sled Accelerometer (UIG108) | UIG108 | 09/21/2020 10:28:46 |

Instrumentation Calibrated Annually



Post Test Observations According to Reg 17

| | | |
|---|---|------|
| a | ATD Shall be retained in seat of the SWC | N/A |
| b | The SWC shall remain in an upright position on the impact sled | N/A |
| c | No WTORS anchorage components or securement end fittings shall be detached or separated | Pass |
| d | Release of the SWC from the wheelchair tie-down shall not require the use of tools | N/A |
| e | Release of the ATD from the occupant restraint shall not require the use of tools | N/A |
| f | No part of the WTORS shall exhibit visible signs of tearing, fragmentation, fracture or complete failure of any load-bearing part unless such parts are intended to fail in a manner that limits the forces on the occupant | Pass |
| g | The WTORS shall exhibit no dangerous roughness, sharp edges or protrusions likely to increase the risk of injury to the occupant | Pass |
| h | The force required to open the buckle of any tie down or occupant restraint components shall not exceed 60N when tested as specified by 6.2.2.5 of ECE R16:1996, in accordance with the procedures of 7.8 | Pass |

During Test Observations According to Reg 17

| | | Result | Complies? |
|---|---|-------------|-----------|
| a | The horizontal excursion of the test wheelchair P-Point (Xwc) shall not exceed 200mm | ??? | ??? |
| b | The horizontal excursion of the ATD Knee (Xknee) shall not exceed 375mm | ??? | ??? |
| c | The horizontal excursion of the ATD Head (Xhead) shall not exceed 650mm | ??? | ??? |
| d | The WTORS shall prevent the wheelchair from imposing forward loads on the occupant Ratio of Xknee / XWC to be greater than or equal to 1.1 | ??? | ??? |
| e | Inbound velocity (delta V 48kph +2 -0) | 48.9 km.h-1 | Passed |
| f | Cumulative Time to hold 20g (>15ms) | 42.5 ms | Passed |
| h | Cumulative Time to hold 15g (>40ms) | 47.9 ms | Passed |

Test Pass or Fail Overall

Pass

Notes

AI held and pulse was good



Test Photos T-12930



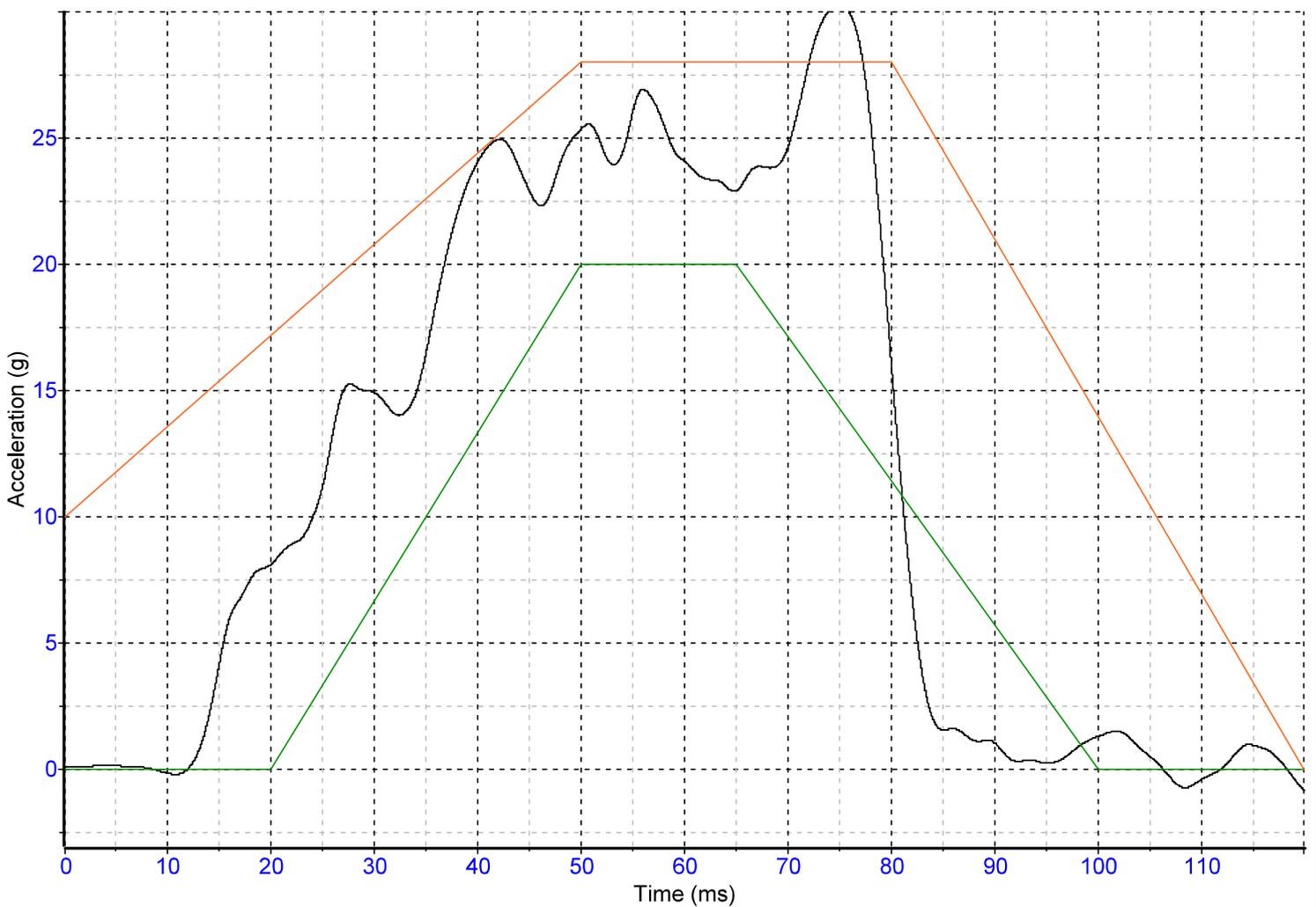
Pre Test



Post Test



Pulse Graph for Deceleration to Reg 17 T-12930



Time at 20g (Single Peak) : 42.5 ms [t1 : 36.8 ms, t2 : 79.2 ms] (Cumulative) : 42.5 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 | N/A |
| 5.2.6 | No release of the locking systems shall occur during the test | N/A |
| 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

AI held and pulse was good

