REPORT NUMBER: 208-MGA-2022-005

VEHICLE SAFETY COMPLIANCE TESTING
FOR
FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)
FMVSS 305, ELECTROLYTE SPILLAGE & ELECTRICAL SHOCK PROTECTION

FORD MOTOR CO.
2022 FORD MUSTANG MACH-E MPV
NHTSA NO.: C20220204

PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105

TEST DATE: AUGUST 23, 2022

FINAL REPORT DATE: SEPTEMBER 27, 2022

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVENUE, S.E., NVS-220
WASHINGTON, D.C. 20590

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number 693JJ919D000012.

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Prepared by: Jose Galvez Date: September 27, 2022
Jose Galvez, Project Engineer

Reviewed by: David Winkelbauer Date: September 27, 2022
David Winkelbauer, Facility Director

FINAL REPORT ACCEPTED BY OVSC:

Accepted By: Syed Rahman
COR

Acceptance Date: September 27, 2022

Technical Report Documentation Page

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17. Key Words Frontal Impact 56 kmph Vehicle Safety Compliance Testing FMVSS 208, “Occupant Crash Protection” FMVSS 212, “Windshield Mounting” FMVSS 219, (partial), “Windshield Zone Intrusion” FMVSS 305, “Electrolyte Spillage & Electrical Shock Protection”		*18. Distribution Statement* Copies of this report are available from the following: U.S. Department of Transportation National Highway Traffic Safety Administration Technical Information Services (TIS), Mail Code: NIO-120 1200 New Jersey Avenue, S.E. Washington, D.C. 20590 Phone: 202-366-2588	
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SECTION 1
PURPOSE OF COMPLIANCE TESTS

This Federal Motor Vehicle Safety Standard 208 compliance test is part of a program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No.: 693JJ919D000012. The purpose of this test was to determine whether the subject vehicle, a 2022 Ford Mustang Mach-E, NHTSA No.: C20220204, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 305, “Electric Powered Vehicles: Electrolyte Spillage and Electrical Shock Protection.” The compliance test was conducted in accordance with OVSC Laboratory Test Procedure No.: TP208-14 dated April 16, 2008.

SECTION 2

TESTS PERFORMED

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Dates:	8/38/22

The following checked items indicate the tests that were performed:

- [ ] 1. Rear seating position seat belts
- [ ] 2. Air bag labels (S4.5.1)
- [ ] 3. Readiness indicator (S4.5.2)
- [ ] 4. Passenger air bag manual cut-off device (S4.5.4)
- [ ] 5. Lap belt lockability (S7.1.1.5)
- [ ] 6. Seat belt warning system (S7.3)
- [ ] 7. Seat belt contact force (S7.4.3)
- [ ] 8. Seat belt latch plate access (S7.4.4)
- [ ] 9. Seat belt retraction (S7.4.5)
- [ ] 10. Seat belt guides and hardware (S7.4.6)
- [ ] 11. Air bag suppression telltale (S19.2.2)
- [ ] 12. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R)
- [ ] 13. Suppression tests with Newborn infant (Part 572, Subpart K)
- [ ] 14. Suppression tests with 3-year-old dummy (Part 572, Subpart P)
- [ ] 15. Suppression tests with 6-year-old dummy (Part 572, Subpart N)
- [ ] 16. Test of Reactivation of the passenger air bag system with an unbelted 5th percentile female dummy
- [ ] 17. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R)
- [ ] 18. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P)
- [ ] 9. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N)
- [ ] 20. Low risk deployment test with 5th female dummy (Part 572, Subpart O)
- [x] 21. Impact Tests
  - [ ] Frontal Oblique
    - [ ] Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
    - [ ] Unbelted 50th male dummy driver and passenger (32 to 56 kmph) (S5.1.2(a)(1) or S5.1.2(b))
  - [x] Frontal 0°
    - [x] Belted 50th male dummy driver (0 to 56 kmph (S5.1.1(b)(2))
    - [x] Belted 50th male dummy passenger (0 to 56 kmph) (S5.1.1.(b)(2))
    - [ ] Belted 5th female dummy driver (0 to 56 kmph) (S16.1(a)(2))
    - [ ] Belted 5th female dummy passenger (0 to 56 kmph) (S16.1(a)(2))
    - [ ] Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2(b))
    - [ ] Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2(b))
    - [ ] Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
    - [ ] Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
  - [ ] 40% Offset 0° Belted 5th female dummy driver and passenger (0 to 56 kmph) (S18.1)
- [ ] 22. FMVSS 204 Indicant Test
- [x] 23. FMVSS 212 Indicant Test
- [x] 24. FMVSS 219 Indicant Test
- [ ] 25. FMVSS 301 Frontal Test
- [x] 26. FMVSS 305 Frontal Indicant Test

For the crash tests, the vehicle was instrumented with 8 accelerometers. The data from the vehicle and dummies were sampled at 10,000 samples per second and processed as specified in SAE J211/1 MAR95 and FMVSS 208, S4.13.

The dynamic tests were recorded using high-speed digital video.

The vehicle appears to meet the performance requirements to which it was tested.

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Date:	8/23/22

56 kmph Frontal Crash

Impact Angle:	0°			
Belted Dummies:	X	Yes		No

Speed Range:		0 to 40 kmph		32 to 40 kmph
		0 to 48 kmph	X	0 to 56 kmph

Test Speed (kmph):	55.1	Test Weight (kg):	2040.3

Driver Dummy:		5th female	X	50th male
Passenger Dummy:		5th female	X	50th male

50th Percentile Male Frontal Crash Test
Vehicles certified to S5.1.1(b)(1), S5.1.1(b)(2), S5.1.2(a)(2), or S5.1.2(b)

Injury Criteria	Max. Allowable Injury Assessment Values	Driver	Passenger
HIC15	700	154	258
N_{te}	1.0	0.1	0.3
N_{tf}	1.0	0.2	0.1
N_{ce}	1.0	0.1	0.1
N_{cf}	1.0	0.1	0.1
Neck Tension	4170 N	899	658
Neck Compression	4000 N	169	79
Chest g	60 g	37	44
Chest Displacement	63 mm	21	29
Left Femur	10,000 N	1333	217
Right Femur	10,000 N	1339	56

SECTION 4

DISCUSSION OF TESTS

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Dates:	8/23/22

At the request of the COR two onboard high-speed video cameras were added: Passenger Outboard Angle and Passenger Over Shoulder.

The 2022 Ford Mustang Mach-E (C20220204) was tested to FMVSS 305 in conjunction with the FMVSS 208 frontal impact. The test was performed in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedures TP-305-01 to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 305, “Electric Powered Vehicles: Electrolyte Spillage and Electrical Shock Protection”.

Based on the test results, the 2022 Ford Mustang Mach-E (C20220204) appears to meet the requirements of FMVSS 305 testing.

SECTION 5

TEST DATA SHEETS

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Dates:	8/23/22

DATA SHEET 1

COTR VEHICLE WORK ORDER

Test Vehicle: 2022 Ford Mustang Mach-E NHTSA No.: C20220204
Test Program: FMVSS 208 Compliance Test Dates: 8/23/22

COTR Signature: Syed Rahaman

Test to be performed for this vehicle are checked below:

- ☐ 1. Rear Seating Position Seat Belts
- ☐ 2. Air Bag Labels (S4.5.1)
- ☐ 3. Readiness Indicator (S4.5.2)
- ☐ 4. Passenger Air Bag Manual Cut-off Device (S4.5.4)
- ☐ 5. Lap Belt Lockability (S7.1.1.5)
- ☐ 6. Seat Belt Warning System (S7.3)
- ☐ 7. Seat Belt Contact Force (S7.4.3)
- ☐ 8. Seat Belt Latch Plate Access (S7.4.4)
- ☐ 9. Seat Belt Retraction (S7.4.5)
- ☐ 10. Seat Belt Guides and Hardware (S7.4.6)
- ☐ 11. Air bag suppression telltale (S19.2.2)
- ☐ 12. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) using the following indicated child restraints (mid-height seat position):

Section B – Rear Facing (unbelted and belted rear facing, unbelted forward facing)

☐ Century Smart Fit 4543	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Cosco Arriva 22-013	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Evenflo Discovery Adjust Right 212	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Graco Infant 8457	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Graco Snugride	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Peg Perego Viaggio	☐ Full Rearward	☐ Mid Position	☐ Full Forward

Section C – Convertible (unbelted and belted rear facing, unbelted and belted forward facing)

☐ Britax Roundabout E9L02	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Cosco High Back Booster 22-209	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Cosco Summit Deluxe 22-262	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Cosco Touriva 02519	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Evenflo Generations 352	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Evenflo Medallion 254	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Evenflo Tribute V 379	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Graco ComfortSport	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Graco Platinum Cargo	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Graco Safeseat Step 2	☐ Full Rearward	☐ Mid Position	☐ Full Forward

- ☐ 13. Suppression tests with newborn infant (Part 572, Subpart K) using the following indicated child restraints (mid-height seat position).

Section A – Car Bed (Belted)

☐ Angel Guard Angel Ride	☐ Full Rearward	☐ Mid Position	☐ Full Forward

14. Suppression tests with 3-year-old dummy (Part 572, Subpart P) using the following indicated child restraints where a child restraint is required (mid-height seat position):

Section C – Convertible (Belted forward-facing)

Britax Roundabout E9L02	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 22-209	Full Rearward	Mid Position	Full Forward
Cosco Summit Deluxe 22-262	Full Rearward	Mid Position	Full Forward
Cosco Touriva 02519	Full Rearward	Mid Position	Full Forward
Evenflo Generations 352	Full Rearward	Mid Position	Full Forward
Evenflo Medallion 254	Full Rearward	Mid Position	Full Forward
Evenflo Tribute V 379	Full Rearward	Mid Position	Full Forward
Graco ComfortSport	Full Rearward	Mid Position	Full Forward
Graco Platinum Cargo	Full Rearward	Mid Position	Full Forward
Graco Safeseat Step 2	Full Rearward	Mid Position	Full Forward

Section D – Toddler/Belt Positioning Booster (Belted)

Britax Roadster 9004	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 22-209	Full Rearward	Mid Position	Full Forward
Cosco Summit Deluxe 22-262	Full Rearward	Mid Position	Full Forward
Evenflo Generations 352	Full Rearward	Mid Position	Full Forward
Evenflo Right Fit 245	Full Rearward	Mid Position	Full Forward
Graco Platinum Cargo	Full Rearward	Mid Position	Full Forward

15. Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required (mid-height position).
(Appendix H, Data Sheet 19H and 20H)

Section C – Convertible (Belted forward-facing)

Britax Roundabout E9L02	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 22-209	Full Rearward	Mid Position	Full Forward
Cosco Summit Deluxe 22-262	Full Rearward	Mid Position	Full Forward
Cosco Touriva 02519	Full Rearward	Mid Position	Full Forward
Evenflo Generations 352	Full Rearward	Mid Position	Full Forward
Evenflo Medallion 254	Full Rearward	Mid Position	Full Forward
Evenflo Tribute V 379	Full Rearward	Mid Position	Full Forward
Graco ComfortSport	Full Rearward	Mid Position	Full Forward
Graco Platinum Cargo	Full Rearward	Mid Position	Full Forward
Graco Safeseat Step 2	Full Rearward	Mid Position	Full Forward

Section D – Toddler/Belt Positioning Booster (Belted)

Britax Roadster 9004	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 22-209	Full Rearward	Mid Position	Full Forward
Evenflo Right Fit 245	Full Rearward	Mid Position	Full Forward

16. Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following positions (mid-height seat position):

Sitting on seat with back against seat back (S22.2.2.1)
Full Rearward Mid Position Full Forward

Sitting on seat with back against reclined seat back (S22.2.2.2)
Full Rearward Mid Position Full Forward

Sitting on seat with back not against seat back (S22.2.2.3)
Full Rearward Mid Position Full Forward

Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
Full Rearward Mid Position Full Forward

Standing on seat, facing forward (S22.2.2.5)
Full Rearward Mid Position Full Forward

Kneeling on seat facing forward (S22.2.2.6)
Full Rearward Mid Position Full Forward

Kneeling on seat facing rearward (S22.2.2.7)
Full Rearward Mid Position Full Forward

Lying on seat (S22.2.2.8)
Full Rearward Mid Position Full Forward

17. Suppression tests with representative 3-year-old child in the following positions (mid-height seat position):

Sitting on seat with back against seat back (S22.2.2.1)
Full Rearward Mid Position Full Forward

Sitting on seat with back against reclined seat back (S22.2.2.2)
Full Rearward Mid Position Full Forward

Sitting on seat with back not against seat back (S22.2.2.3)
Full Rearward Mid Position Full Forward

Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
Full Rearward Mid Position Full Forward

Standing on seat, facing forward (S22.2.2.5)
Full Rearward Mid Position Full Forward

Kneeling on seat facing forward (S22.2.2.6)
Full Rearward Mid Position Full Forward

Kneeling on seat facing rearward (S22.2.2.7)
Full Rearward Mid Position Full Forward

Lying on seat (S22.2.2.8)
Full Rearward Mid Position Full Forward

18. Suppression tests with 6-year-old dummy (Part 572, Subpart N) using the following indicated child restraints where a child restraint is required (mid-height seat position):

Section D

Britax Roadster 9004	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 22-209	Full Rearward	Mid Position	Full Forward
Cosco Summit Deluxe 22-262	Full Rearward	Mid Position	Full Forward
Evenflo Generations 352	Full Rearward	Mid Position	Full Forward
Evenflo Right Fit 245	Full Rearward	Mid Position	Full Forward
Graco Platinum Cargo	Full Rearward	Mid Position	Full Forward

19. Suppression tests with representative 6-year-old child using the following indicated child restraints where a child restraint is required (mid-height seat position):

Section D

Britax Roadster 9004	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 22-209	Full Rearward	Mid Position	Full Forward
Cosco Summit Deluxe 22-262	Full Rearward	Mid Position	Full Forward
Evenflo Generations 352	Full Rearward	Mid Position	Full Forward
Evenflo Right Fit 245	Full Rearward	Mid Position	Full Forward
Graco Platinum Cargo	Full Rearward	Mid Position	Full Forward

20. Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following positions (mid-height seat position):

Sitting on seat with back against seat back (S22.2.2.1)

Full Rearward Mid Position Full Forward

Sitting on seat with back against reclined seat back (S22.2.2.2)

Full Rearward Mid Position Full Forward

Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)

Full Rearward Mid Position Full Forward

Sitting back in the seat and leaning on the right front passenger door (S24.2.3)

Full Rearward Mid Position Full Forward

21. Suppression tests with representative 6-year-old child in the following positions (mid-height seat position):

Sitting on seat with back against seat back (S22.2.2.1)

Full Rearward Mid Position Full Forward

Sitting on seat with back against reclined seat back (S22.2.2.2)

Full Rearward Mid Position Full Forward

Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)

Full Rearward Mid Position Full Forward

Sitting back in the seat and leaning on the right front passenger door (S24.2.3)

22. Test of Reactivation of the Passenger Air Bag System with an Unbelted 5th percentile female dummy (S20.3, 22.3, S24.3) (mid-height seat position). Perform this test after the following suppression tests: After each restraint.

23. Test of Reactivation of the Passenger Air Bag System with a representative 5th percentile female (S20.3, 22.3, S24.3) (mid-height seat position). Perform this test after the following suppression tests: After each restraint.

24. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) using the following indicated child restraints (full forward, mid-height seat position)(S20.4):

Section B

Century Smart Fit 4543
Cosco Arriva 22-013
Evenflo Discovery Adjust Right 212
Graco Infant 8457
Graco Snugride
Peg Perego Viaggio

Section C

Britax Roundabout E9L02
Cosco Touriva 02519
Evenflo Medallion 254
Evenflo Tribute V 379
Graco ComfortSport

[ ] 25. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) in the following positions:
- [ ] Position 1 (rearmost, lowest seat position)
- [ ] Position 2 (mid-height seat position)

[ ] 26. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) in the following positions:
- [ ] Position 1(rearmost, lowest seat position)
- [ ] Position 2 (mid-height seat position)

[ ] 27. Low risk deployment test with 5th female dummy (Part 572, Subpart O) in the following positions:
- [ ] Position 1 (mid-height seat position)
- [ ] Position 2 (mid-height seat position)

[X] 28. Impact Tests
- [ ] Frontal Oblique Impact Angle: Test Speed:
  - [ ] Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
  - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
  - [ ] Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a)(2) or S5.1.2(b))
- [X] Frontal 0° - Test Speed: 55.1 kmph
  - [X] Belted 50th male dummy driver (0 to 56 kmph (S5.1.1(b)(2))
  - [X] Belted 50th male dummy passenger (0 to 56 kmph) (S5.1.1.(b)(2))
  - [ ] Belted 5th female dummy driver (0 to 56 kmph) (S16.1(a)(2))
  - [ ] Belted 5th female dummy passenger (0 to 56 kmph) (S16.1(a)(2))
  - [ ] Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2(b))
  - [ ] Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2(b))
  - [ ] Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
  - [ ] Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
- [ ] 40% Offset 0° Belted 5th female dummy driver and passenger (0 to 40 kmph) (S18.1) Test Speed:

[ ] 29. FMVSS 204 Indicant Test
[X] 30. FMVSS 212 Indicant Test
[X] 31. FMVSS 219 Indicant Test
[ ] 32. FMVSS 301 Frontal Indicant Test
[X] 33. FMVSS 305 Frontal Indicant Test

DATA SHEET 2

REPORT OF VEHICLE CONDITION

Test Vehicle: 2022 Ford Mustang Mach-E NHTSA No.: C20220204
Test Program: FMVSS 208 Compliance Test Date: 8/23/22

CONTRACT NO.: 693JJ919D000012 Date: 8/30/2022
FROM (Lab and rep name): MGA Research Corporation
TO: NHTSA, OVSC, NSA-31

PURPOSE: (X) Initial Receipt ( ) Received via Transfer ( ) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2022 / Ford / Mustang Mach-E / MPV
MANUFACTURE DATE: 04/22

NHTSA NO.	C20220204	GVWR:	2495 kg (5500 lbs)
BODY COLOR:	Star White Metallic	GAWR (Fr):	1166 kg (2570 lbs)
VIN:	3FMTK1SS1NMA20494	GAWR (Rr):	1370 kg (3020 lbs)

ODOMETER READINGS:	ARRIVAL (miles):	6	DATE:	7/13/22
	COMPLETION (miles):	7	DATE:	8/23/22

PURCHASE PRICE: ($) $49,085.00

DEALER'S NAME: Ferrario Ford
2472 Corning Rd, Elmira, NY 14903

A. All options listed on window sticker are present on the test vehicle:
_X_Yes ___No
B. Tires and wheel rims are new and the same as listed: _X_Yes ___No
C. There are no dents or other interior or exterior flaws: _X_Yes ___No
D. The vehicle has been properly prepared and is in running condition:
_X_Yes ___No
E. Keyless remote is available and working: _X_ Yes ___No
F. The glove box contains an owner's manual, warranty document, consumer information, and extra set of keys: _X_Yes ___No
G. Proper fuel filler cap is supplied on the test vehicle: _X_Yes ___No
H. Using permanent marker, identify vehicle with NHTSA number and FMVSS test type(s) on roof line above driver door or for school buses, place a placard with NHTSA number inside the windshield and to the exterior front and rear side of bus:
_X_Yes ___No
I. Place vehicle in storage area: _X_Yes ___No
J. Inspect the vehicle's interior and exterior, including all windows, seats, doors, etc. to confirm that each system is complete and functional per the manufacturer's specifications. Any damage, misadjustment, or other unusual condition that could influence the test program or test results shall be recorded. Report any abnormal condition to the NHTSA COTR before beginning any test:
_X_Vehicle OK ___Conditions reported below in comment section

Identify the letter above to which any of the following comments apply.
Comments:_____

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: FMVSS 208, 212, 219, 305

VEHICLE: 2022 Ford Mustang Mach-E NHTSA NO.: C20220204

REMARKS:

Equipment that is no longer on the test vehicle as noted on previous page:

None

Explanation for equipment removal:

Not Applicable

Test Vehicle Condition:

35 mph frontal impact damage- front suspension & structure damaged, hood & front quarter panels damaged, air bags & pretensioners deployed

RECORDED BY: Jose Galvez DATE: 8/30/2022

APPROVED BY: David Winkelbauer DATE: 8/30/2022

# #

RELEASE OF TEST VEHICLE

The vehicle described above is released from MGA to be delivered to:

Date: Time: Odometer:

Lab Rep’s Signature:

Title:

Carrier/Customer Rep:

Date:

DATA SHEET 3

CERTIFICATION LABEL AND TIRE PLACARD INFORMATION

Test Vehicle: 2022 Ford Mustang Mach-E
Test Program: FMVSS 208 Compliance
Test Technician: Ben Storey

NHTSA No.: C20220204
Test Date: 8/23/22

Certification Label (Part 567)	
Manufacturer:	Ford Motor Co.
Date of Manufacture:	04/22
VIN:	3FMTK1SS1NMA20494
Vehicle Certified As (Pass. Car/MPV/Truck/Bus):	MPV
Front Axle GVWR:	1166 kg (2570 lbs)
Rear Axle GVWR:	1370 kg (3020 lbs)
Total GVWR:	2495 kg (5500 lbs)

Tire Placard for Motor Vehicles with GVWR of 10,000 lb or Less and Passenger Cars (571.110)	
Vehicle Capacity Weight:	445 kg (983 lbs)
Designated Seating Capacity Front:	2
Designated Seating Capacity Rear:	3
Total Designated Seating Capacity:	5
Recommended Cold Tire Inflation Pressure Front:	270 kpa (39 psi)
Recommended Cold Tire Inflation Pressure Rear:	270 kpa (39 psi)
Recommended Tire Size:	225/55R19
Tire Size on Vehicle:	225/55R19

Signature: Ben Storey

Date: 8/23/22

DATA SHEET 15

H-POINT DETERMINATION FOR 50TH PERCENTILE MALE DUMMY

Test Vehicle: 2022 Ford Mustang Mach-E
Test Program: FMVSS 208 Compliance
Test Technician: Keegan Strockis

NHTSA No.: C20220204
Test Date: 8/23/22

X Driver Designated Seating Position __Passenger Designated Seating Position

X 1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
__N/A – No lumbar adjustment

X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment

X 3. Use all the seat controls that have any effect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position. (8/31/95 legal interpretation to Hogan and Hartson)

X 4. Use all the seat controls that have any effect on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position. (8/31/95 legal interpretation to Hogan and Hartson)

X 5. **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interpretation to Hogan and Hartson)

X 6. Move the seat to the mid position.

X 7. While maintaining the mid position, move the seat to its lowest position. **Mark** the height position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 8. Visually **mark** the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer.
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle 3.0° on Headrest Post

X 9. Is the seat a bucket seat?
X Yes, go to 10 and skip 11
__No, go to 11 and skip 10

X 10. Bucket seats:
Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

__11. Bench seats (complete ONLY the one that is applicable to the seat being marked):

11.1 Driver Seat
Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)

11.2 Passenger Seat
Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)
Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _____
Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _____

X 12. Place a 910 mm^2 piece of muslin cotton cloth over the seat area. (The muslin cloth shall be comparable to 48 threads/in^2 and density of 2.85 lb/yd.) Tuck the muslin cloth in a sufficient amount to prevent hammocking of the material.

X 13. Place the seat and back assembly of the H-Point machine at the centerline of the seat as determined in item 10 or 11.

X 14. Install the lower leg, and foot segments.

X 15. Set the length of the lower leg segment at 16.3 inches and the length of the thigh bar at 15.8 inches.

X 16. Leg and foot placement.

X 16.1 Driver Designated Seating Position.

X 16.1.1 Insert the pin so that the foot angle is never less than 87 degrees.

X 16.1.2 Place the right foot on the undepressed accelerator pedal with the sole of the foot on the pedal and the heel as far forward as allowable. Do not place the heel on the toe board.

X 16.1.3 Adjust the left leg to be the same distance from H-point machine centerline as the right leg.

X 16.1.4 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.
X Foot on toe board.
__Foot on floor pan.

__16.2 Passenger Designated Seating Position.

__16.2.1 Insert the pin so that the foot angle is never less than 87 degrees.

__16.2.2 Space the lower legs 10.6 inches apart, equally spaced about the centerline of the H-point machine.

__16.2.3 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

__Foot on toe board.
__Foot on floor pan.

__16.2.4 With the T-bar level, place the right foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

__Foot on toe board.
__Foot on floor pan.

X 17. Apply the lower leg weights.

X 18. Apply the thigh weights.

X 19. Tilt the back pan forward against the forward stop and draw the H-point machine away from the seatback using the T-bar.

X 20. Repositioning the back pan.

X 20.1 Allow the H-point machine to slide rearward until a forward horizontal restraining load on the T-bar is no longer required due to the seat pan contacting the seat back.

__The seat pan does not slide rearward. Go to 20.2

_20.2 Slide the H-point machine rearward by a horizontal rearward load applied at the T-bar until the seat pan contacts the seat back.

X 21. Apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

X 22. Again apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

X 23. Carefully return the back pan to the seat back.

X 24. Install the right and left buttock weights.

X 25. Install the eight torso weights alternately the installation between right and left.

X 26. Tilt the back pan forward until the stop is contacted.

X 27. Rock the H-point from side to side over a 10 degree arc (5 degrees to each side of the vertical centerline) for three complete cycles. Restrain the T-bar during rocking so that the seat pan does not change position. Minimize any inadvertent exterior loads applied in a vertical or fore-aft direction. The feet are free to move during this rocking motion.

X 28. Without applying a forward or lateral load lift the right foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

X 29. Lower the right foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor, toe board, or undepressed accelerator pedal.

X 30. Without applying a forward or lateral load lift the left foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

X 31. Lower the left foot until the heel is in contact with the floor pan and the ball of the foot is In contact with the floor or toe board.

X 32. Is the seat pan level?

X Yes. Go to 34

__ No. Go to 33

__33. Apply a sufficient lateral load to the top of the seatback pan to level the H-point machine seat pan on the seat.

X 34. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, return the seatback pan to the seatback.

X 35. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, apply sufficient rearward force perpendicular to the back angle bar just above the torso weights to increase the hip angle 3 degrees. Minimize the exterior downward or side forces applied to the H-point machine. Release the force. Repeat this step until the hip angle readout is identical. Complete as many force applications as necessary and record the results in the following table:

Force Application	Hip Angle
1	98
2	100
3	100
4	
5	

X 36. Is the H-point machine level?

X Yes, go to 37.

__No, re-level. Go back to item 26 and repeat using a new data sheet.

X 37. Record the H-point location.
Describe and mark the measuring reference point.

Driver H-Point	
HP to Floor Z	207
HP to Hinge X	763
HP to Sill Y	262
HP to Striker X	196
HP to Dash X	536
HP to Header Z	774

H-Point Machine	
Left Knee	110
Right Knee	110
Left Foot Angle	90°
Right Foot Angle	87°
Left Leg	185
Right Leg	185
Hip Angle	100°
Back Angle	23°

Signature: Keegan Stracker Date: 8/23/22

I certify that I have read and performed each instruction.

DATA SHEET 15

H-POINT DETERMINATION FOR 50TH PERCENTILE MALE DUMMY

Test Vehicle: 2022 Ford Mustang Mach-E NHTSA No.: C20220204
Test Program: FMVSS 208 Compliance Test Date: 8/23/22
Test Technician: Keegan Strockis

__Driver Designated Seating Position X Passenger Designated Seating Position

X 1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
X N/A – No lumbar adjustment

X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment

X 3. Use all the seat controls that have any effect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position. (8/31/95 legal interpretation to Hogan and Hartson)

X 4. Use all the seat controls that have any effect on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position. (8/31/95 legal interpretation to Hogan and Hartson)

X 5. **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interpretation to Hogan and Hartson)

X 6. Move the seat to the mid position.

X 7. While maintaining the mid position, move the seat to its lowest position. **Mark** the height position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 8. Visually **mark** the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer.
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle 3.0° on Headrest Post

X 9. Is the seat a bucket seat?
X Yes, go to 10 and skip 11
__No, go to 11 and skip 10

X 10. Bucket seats:
Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

__11. Bench seats (complete ONLY the one that is applicable to the seat being marked):

_11.1 Driver Seat
Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)

_11.2 Passenger Seat
Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)

Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _____

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _____

X 12. Place a 910 mm^2 piece of muslin cotton cloth over the seat area. (The muslin cloth shall be comparable to 48 threads/in^2 and density of 2.85 lb/yd.) Tuck the muslin cloth in a sufficient amount to prevent hammocking of the material.

X 13. Place the seat and back assembly of the H-Point machine at the centerline of the seat as determined in item 10 or 11.

X 14. Install the lower leg, and foot segments.

X 15. Set the length of the lower leg segment at 16.3 inches and the length of the thigh bar at 15.8 inches.

X 16. Leg and foot placement.

__16.1 Driver Designated Seating Position.

__16.1.1 Insert the pin so that the foot angle is never less than 87 degrees.

__16.1.2 Place the right foot on the undepressed accelerator pedal with the sole of the foot on the pedal and the heel as far forward as allowable. Do not place the heel on the toe board.

__16.1.3 Adjust the left leg to be the same distance from H-point machine centerline as the right leg.

__16.1.4 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

__Foot on toe board.
__Foot on floor pan.

X 16.2 Passenger Designated Seating Position.

X 16.2.1 Insert the pin so that the foot angle is never less than 87 degrees.

X 16.2.2 Space the lower legs 10.6 inches apart, equally spaced about the centerline of the H-point machine.

X 16.2.3 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

X Foot on toe board.
__ Foot on floor pan.

X 16.2.4 With the T-bar level, place the right foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

X Foot on toe board.
__ Foot on floor pan.

X 17. Apply the lower leg weights.

X 18. Apply the thigh weights.

X 19. Tilt the back pan forward against the forward stop and draw the H-point machine away from the seatback using the T-bar.

X 20. Repositioning the back pan.

X 20.1 Allow the H-point machine to slide rearward until a forward horizontal restraining load on the T-bar is no longer required due to the seat pan contacting the seat back.

__The seat pan does not slide rearward. Go to 20.2

__20.2 Slide the H-point machine rearward by a horizontal rearward load applied at the T-bar until the seat pan contacts the seat back.

X 21. Apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

X 22. Again apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

X 23. Carefully return the back pan to the seat back.

X 24. Install the right and left buttock weights.

X 25. Install the eight torso weights alternately the installation between right and left.

X 26. Tilt the back pan forward until the stop is contacted.

X 27. Rock the H-point from side to side over a 10 degree arc (5 degrees to each side of the vertical centerline) for three complete cycles. Restrain the T-bar during rocking so that the seat pan does not change position. Minimize any inadvertent exterior loads applied in a vertical or fore-aft direction. The feet are free to move during this rocking motion.

X 28. Without applying a forward or lateral load lift the right foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

X 29. Lower the right foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor, toe board, or undepressed accelerator pedal.

X 30. Without applying a forward or lateral load lift the left foot off the floor the minimum Amount necessary until no additional forward foot movement is obtained.

X 31. Lower the left foot until the heel is in contact with the floor pan and the ball of the foot is In contact with the floor or toe board.

X 32. Is the seat pan level?

X Yes. Go to 34

__ No. Go to 33

__33. Apply a sufficient lateral load to the top of the seatback pan to level the H-point machine seat pan on the seat.

X 34. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, return the seatback pan to the seatback.

X 35. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, apply sufficient rearward force perpendicular to the back angle bar just above the torso weights to increase the hip angle 3 degrees. Minimize the exterior downward or side forces applied to the H-point machine. Release the force. Repeat this step until the hip angle readout is identical. Complete as many force applications as necessary and record the results in the following table:

Force Application	Hip Angle
1	98
2	99
3	
4	
5	

X 36. Is the H-point machine level?

X Yes, go to 37.

__No, re-level. Go back to item 26 and repeat using a new data sheet.

X 37. Record the H-point location.
Describe and mark the measuring reference point.

Passenger H-Point	
HP to Floor Z	218
HP to Hinge X	773
HP to Sill Y	257
HP to Striker X	186
HP to Dash X	521
HP to Header Z	766

H-Point Machine	
Left Knee	103
Right Knee	103
Left Foot Angle	92°
Right Foot Angle	94°
Left Leg	132
Right Leg	135
Hip Angle	99°
Back Angle	23°

Signature: Keegan Stracks Date: 8/23/22

I certify that I have read and performed each instruction.

DATA SHEET 32

VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Date:	8/23/22
Test Technician:	Ben Storey		

IMPACT ANGLE:	0° Frontal					
BELTED DUMMIES (YES/NO):	YES					
TEST SPEED:		32 to 40 kmph		0 to 48 kmph	X	0 to 56 kmph
DRIVER DUMMY:			5th female	X		50th male
PASSENGER DUMMY:			5th female	X		50th male

NA	1.	Fill the transmission with transmission fluid to the satisfactory range.
NA	2.	Drain fuel from vehicle.
NA	3.	Run the engine until fuel remaining in the fuel delivery system is used and the engine stops.
NA	4.	Record the useable fuel tank capacity supplied by the COTR.
NA		Useable Fuel Tank Capacity supplied by COTR: Not Applicable Electric Vehicle
NA	5.	Record the fuel tank capacity supplied in the owner's manual.
NA		Useable Fuel Tank Capacity in owner's manual: Not Applicable Electric Vehicle
NA	6.	Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," or gasoline, fill the fuel tank.
NA		Amount Added: Not Applicable Electric Vehicle
X	7.	Fill the coolant system to capacity.
X	8.	Fill the engine with motor oil to the Max. Mark on the dip stick.
X	9.	Fill the brake reservoir with brake fluid to its normal level.
X	10.	Fill the windshield washer reservoir to capacity.
X	11.	Inflate the tires to the tire pressure on the tire placard. If no tire placard is available, inflate the tires to the recommended pressure in the owner's manual.

Tire placard pressure:	RF:	39 psi	LF:	39 psi	RR:	39 psi	LR:	39 psi
Owner's manual pressure:	RF:	39 psi	LF:	39 psi	RR:	39 psi	LR:	39 psi
Actual inflated pressure:	RF:	39 psi	LF:	39 psi	RR:	39 psi	LR:	39 psi

X	12.	Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight).

Right Front (kg):	479.9	Right Rear (kg):	533.0
Left Front (kg):	547.0	Left Rear (kg):	480.4
Total Front (kg):	1026.9	Total Rear (kg):	1013.4
% Total Weight:	50.3	% Total Weight:	49.7
UVW = TOTAL FRONT PLUS TOTAL REAR (KG):			2040.3

X	13.	UVW Test Vehicle Attitude: (All dimensions in millimeters)
X	13.1	Mark a point on the vehicle above the center of each wheel.
X	13.2	Place the vehicle on a level surface.
X	13.3	Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements.

RF:	781	LF:	778	RR:	783	LR:	776

X	14.	Calculate the Rated Cargo and Luggage Weight (RCLW): 105 kg

X 14.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?

X X Yes, go to 14.3
No, go to 14.2

14.2 VCW = Gross Vehicle Weight - UVW

VCW = _____ - _____ = _____

X 14.3 VCW = 445 kg (983 lbs)

X 14.4 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?
X Yes, go to 14.6
No, go to 14.5 and skip 14.6

14.5 DSC = Total number of seat belt assemblies = _____

X 14.6 DSC = 5

X 14.7 RCLW = VCW - (68 kg x DSC) = 445 kg - (68 kg x 5) = 105 kg

X 14.8 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jamb)?
X Yes, if the calculated RCLW is greater than 136 kg, use 136 kg as the RCLW. (S8.1.1)
No, use the RCLW calculated in 14.7

X 15. Fully Loaded Weight (100% fuel fill): 2302.0 kg

X 15.1 Place the appropriate test dummy in both front outboard seating positions.

Driver: _ 5th female X 50th male
Passenger: _ 5th female X 50th male

X 15.2 Load the vehicle with the RCLW from 14.7 or 14.8 whichever is applicable.

X 15.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1(d))

X 15.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

Right Front (kg):	511.7	Right Rear (kg):	630.9
Left Front (kg):	577.9	Left Rear (kg):	581.5
Total Front (kg):	1089.6	Total Rear (kg):	1212.4
% Total Weight:	47.3	% Total Weight:	52.7
% GVW	46.7	% GVW	54.9
(% GVW = Axle GVW divided by Vehicle GVW)			
Fully Loaded Weight = Total Front Plus Total Rear (kg):			2302.0

X 16. Fully Loaded Test Vehicle Attitude: (All dimensions in millimeters)

X 16.1 Place the vehicle on a level surface.

X 16.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13.1 above) and record the measurements.

RF:	783	LF:	769	RR:	766	LR:	768

NA 17. Drain the fuel system.

NA 18. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," fill the fuel tank to 92 - 94 percent of useable capacity.

NA Fuel tank capacity x .94 = 0 liters (0 gallons) Not Applicable Electric Vehicle

NA Amount added: 0 liters (0 gallons) Not Applicable Electric Vehicle

NA 19. Crank the engine to fill the fuel delivery system with Stoddard solvent.

X 20. Calculate the test weight range.

X 20.1 Calculated Weight = UVW (see 12 above) + RCLW (see 14 above) + 2x(dummy weight)

2301.3 kg = 2040.3 kg + 105.0 kg + 156.0 kg

X 20.2 Test Weight Range = Calculated Weight (- 4.5 kg, - 9 kg.)
Max. Test Weight = Calculated Test Weight - 4.5 kg = 2296.8 kg
Min. Test Weight = Calculated Test Weight - 9 kg = 2292.3 kg

X 21. Remove the RCLW from the cargo area.

X 22. Drain transmission fluid, engine coolant, motor oil, and windshield washer fluid from the test vehicle so that Stoddard solvent leakage from the fuel system will be evident.

X 23. Vehicle Components Removed For Weight Reduction:
None

X 24. Secure the equipment and ballast in the load carrying area and distribute it, as nearly as possible, to obtain the proportion of axle weight indicated by the gross axle weight ratings and center it over the longitudinal centerline of the vehicle.

X 25. If necessary, add ballast to achieve the actual test weight.
[ ] N/A
[X] Weight of Ballast: 35.4 kg

X 26. Ballast, including test equipment, must be contained so that it will not shift during the impact event or interfere with data collection or interfere with high-speed film recordings or affect the structural integrity of the vehicle or do anything else to affect test results. Care must be taken to assure that any attachment hardware added to the vehicle is not in the vicinity of the fuel tank or lines.

X 27. Record the vehicle weight at each wheel to determine the actual test weight.

Right Front (kg):	518.0	Right Rear (kg):	620.5
Left Front (kg):	587.4	Left Rear (kg):	569.3
Total Front (kg):	1105.4	Total Rear (kg):	1189.8
% Total Weight:	48.2	% Total Weight:	51.8
% GVW	46.7	% GVW	54.9
(% GVW = Axle GVW divided by Vehicle GVW)			
TOTAL FRONT PLUS TOTAL REAR (kg):			2295.2

X 28. Is the test weight between the Max Weight and the Min. Weight (See 20.2)?
[X] Yes
[ ] No, explain why not.

X 29. Test Weight Vehicle Attitude: (all dimensions in millimeters)

X 29.1 Place the vehicle on a level surface.

X 29.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13 above) and record the measurements.

RF:	781	LF:	769	RR:	768	LR:	772

X 30. Summary of test attitude

X 30.1 AS DELIVERED:

RF:	781	LF:	778	RR:	783	LR:	776

AS TESTED:

RF:	781	LF:	769	RR:	768	LR:	772

FULLY LOADED:

RF:	783	LF:	769	RR:	766	LR:	768

[X] 30.2 Is the “as tested” test attitude equal to or between the “fully loaded” and “as delivered” attitude?

[X] Yes

[ ] No, explain why not.

REMARKS:

Signature: _____ Date: 8/23/22

I certify that I have read and performed each instruction.

DATA SHEET 33

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2022 Ford Mustang Mach-E
Test Program: FMVSS 208 Compliance
Test Technician: Ben Storey

NHTSA No.: C20220204
Test Date: 8/23/22

IMPACT ANGLE:	0° Frontal					
BELTED DUMMIES (YES/NO):	YES					
TEST SPEED:		32 to 40 kmph		0 to 48 kmph	X	0 to 56 kmph
DRIVER DUMMY:			5th female	X		50th male
PASSENGER DUMMY:			5th female	X		50th male

X 1. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the left front outboard seating position intersects the left rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.

X 2. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the right front outboard seating position intersects the right rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.

X 3. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect at the top of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.

X 4. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect the bottom of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.

X 5. Install an accelerometer on the right front brake caliper to record x-direction accelerations. Record the location on the following chart.

X 6. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the top of the instrument panel. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.

X 7. Install an accelerometer on the left front brake caliper to record x-direction accelerations. Record the location on the following chart.

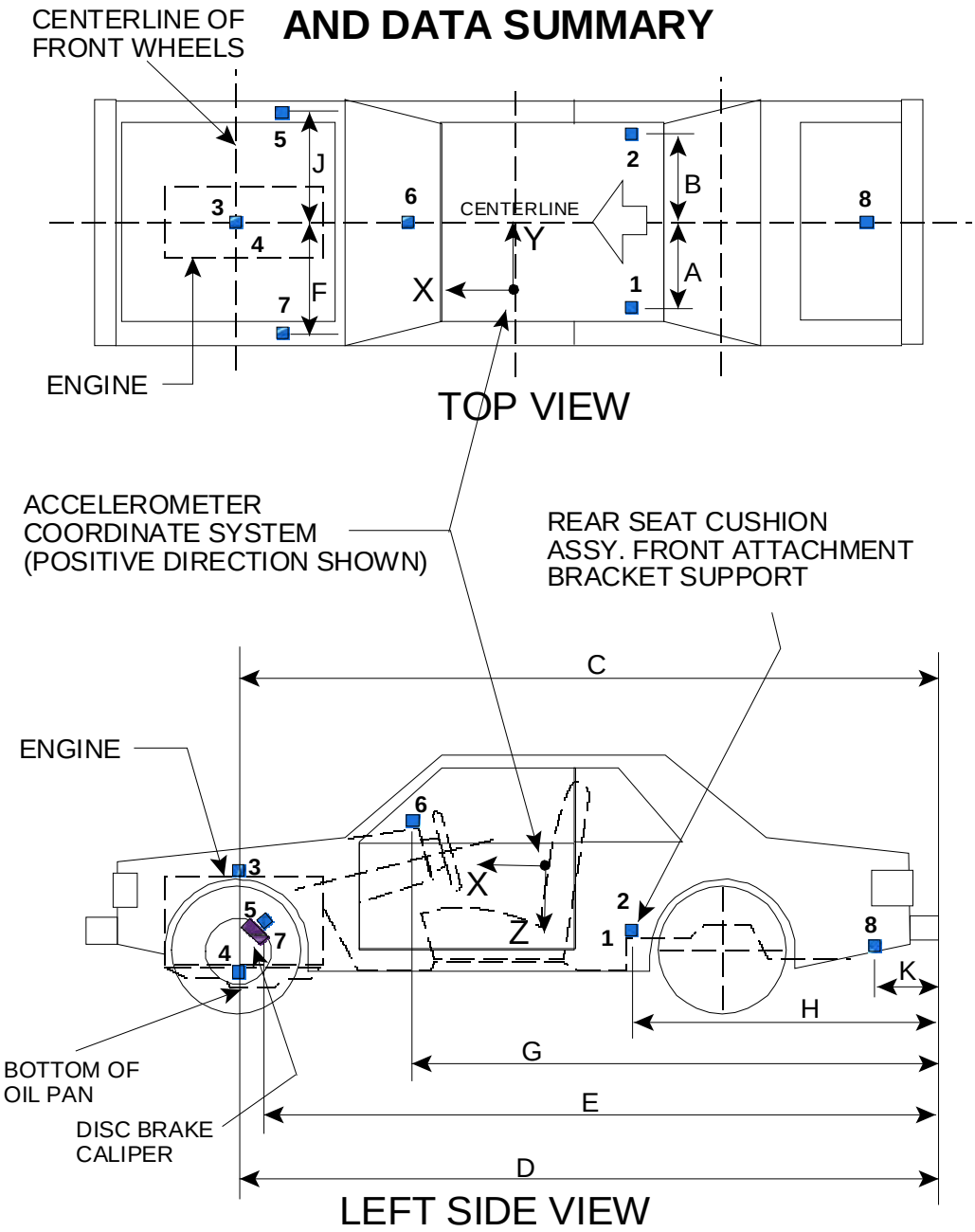
X 8. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart.

REMARKS:

I certify that I have read and performed each instruction.

Signature: Ben Storey Date: 8/23/22

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



Dimensions Corresponding To The Letters “A” Through “K” (Excluding “I”) Are Recorded In The Table On The Following Page.
Accelerometers Corresponding To The Numbers 1 Through 8 Are Specified On The Preceding Page.

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENTS

DIMENSION	LENGTH (mm)	
PRETEST VALUES		
A (LH Rear Seat Xmbr)	350	
B (RH Rear Seat Xmbr)	350	
C (Engine Top)	3723	
D (Engine Bottom)	3828	
E (Caliper)	Right Side: 3951	Left Side: 3951
F (Left Caliper)	765	
G (IP)	2930	
H (Seat)	1732	
J (Right Caliper)	765	
K (Trunk)	908	
POST TEST VALUES		
A (LH Rear Seat Xmbr)	350	
B (RH Rear Seat Xmbr)	350	
C (Engine Top)	3610	
D (Engine Bottom)	3685	
E (Caliper)	Right Side: 3805	Left Side: 3835
F (Left Caliper)	804	
G (IP)	2805	
H (Seat)	1661	
J (Right Caliper)	774	
K (Trunk)	799	

DATA SHEET 34

PHOTOGRAPHIC TARGETS

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Date:	8/23/22
Test Technician:	Ben Storey		

IMPACT ANGLE:	0° Frontal					
BELTED DUMMIES (YES/NO):	YES					
TEST SPEED:		32 to 40 kmph		0 to 48 kmph	X	0 to 56 kmph
DRIVER DUMMY:			5th female	X		50th male
PASSENGER DUMMY:			5th female	X		50th male

X	1.	**FMVSS 208 vehicle targeting requirements** (See Figures 28A and 28B)
X	1.1	Targets A1 and A2 are on flat rectangular panels.
X	1.2	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the front on the outboard sides of A1 and A2. The center of each circular target is 100 mm from the one next to it.
X		Distance between targets (mm): 100 mm
X	1.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the back on the outboard sides of on A1 and A2. The center of each circular target is 100 mm from the one next to it.
X		Distance between targets (mm): 100 mm
X	1.4	The distance between the first circular target at the front of A1 and A2 and the last circular target at the back of A1 and A2 is at least 915 mm.
X		Distance between the first and last circular targets (mm): 915 mm
X	1.5	Firmly fix target A1 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy.
X	1.6	Firmly fix target A2 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy.
X	1.7	Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the driver door. The centers of each circular target are at least 610 mm apart.
X		Distance between targets (mm): 610 mm
X	1.8	Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the passenger door. The centers of each circular target are at least 610 mm apart.
X		Distance between targets (mm): 610 mm
X	1.9	Place tape with squares having alternating colors on the top portion of the steering wheel.
X	1.10	Chalk the bottom portion of the steering wheel.
X	1.11	Is this an offset test?
		Yes, continue with this section
X		**No, go to 2.**
	1.12	Measure the width of the vehicle.
		Vehicle width (mm):
	1.13	Find the centerline of the vehicle. (½ of the vehicle width)
	1.14	Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the centerline of the vehicle.
	1.15	Apply 25 mm wide tape with alternating black and yellow squares parallel to and on each side of the line found in 1.14. The edge of each tape shall be 50 mm from the line found in 1.14. The tape shall extend from the bottom of the bumper to the front edge of the windshield. (Figure 28D)

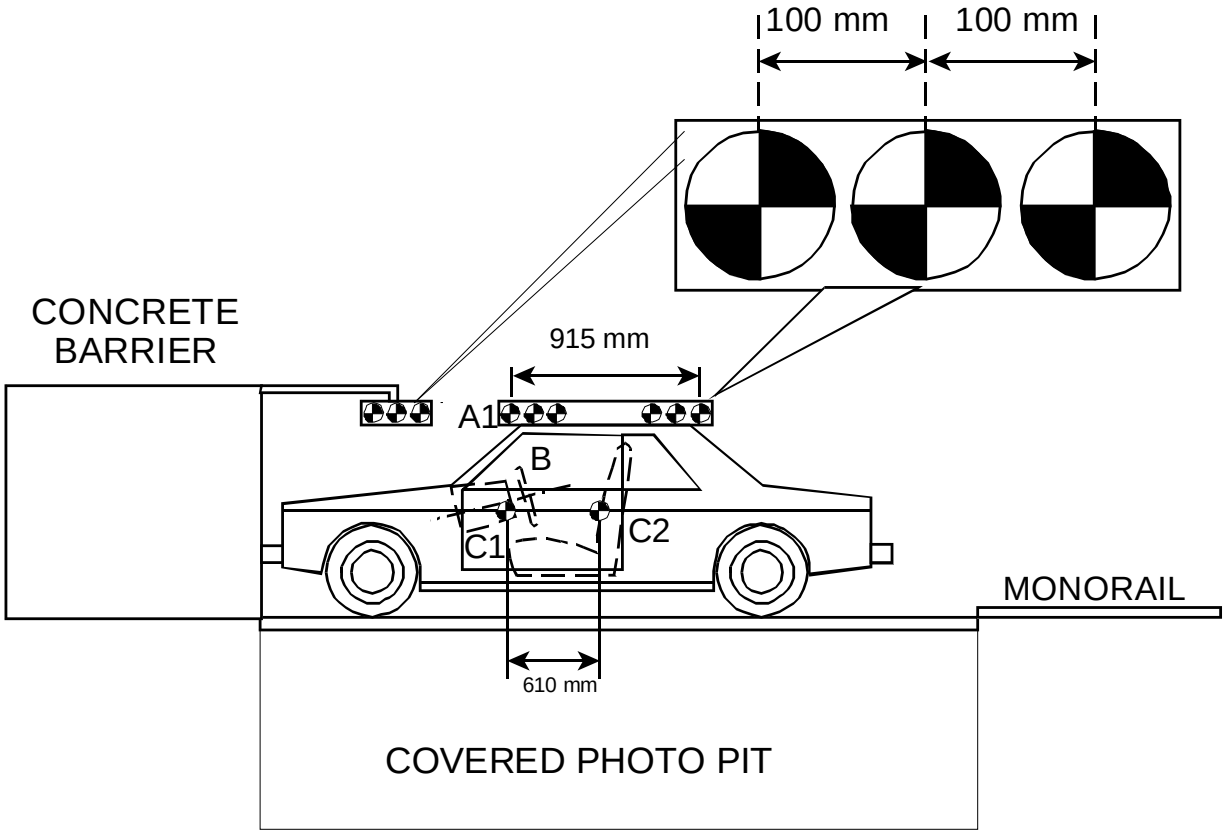
X	2.	**Barrier Targeting**
X	2.1	Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy.
X	2.2	Targets D1 and D2 are on a rectangular panel.
X	2.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted on the sides of the rectangular panel away from the longitudinal centerline of the vehicle. The center of each circular target is 100 mm from the one next to it.
X		Distance between circular targets on D1 (mm): 100 mm
X		Distance between circular targets on D2 (mm): 100 mm
X	3.	**FMVSS 208 Dummy Targeting Requirements**
X	3.1	Place a circular target with black and yellow quadrants on both sides of the driver dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
X	3.2	Place a circular target with black and yellow quadrants on both sides of the passenger dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
X	3.3	Place a circular target with black and yellow quadrants on the outboard shoulder of the driver dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
X	3.4	Place a circular target with black and yellow quadrants on the outboard shoulder of the passenger dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
X	4.	**FMVSS 204 Targeting Requirements**
X	4.1	Is an FMVSS 204 indicant test ordered on the "COTR Vehicle Work Order?" ☐ Yes, continue with this form. X No, this form is complete.
	4.2	Resection panel (Figure 28C)
	4.2.1	The panel deviates no more than 6 mm from perfect flatness when suspended vertically.
	4.2.2	The 8 targets on the panel are circular targets at least 90 mm in diameter and with black and yellow quadrants.
	4.2.3	The center of each of the 4 outer targets are placed within 1 mm of the corners of a square measuring 914 mm on each side.
	4.2.4	Locate another square with 228 mm sides and with the center of this square coincident with the center of the 914 mm square.
	4.2.5	The center of the 4 inner targets are placed at the midpoints of each of the 228 mm sides.
	4.3	Place a circular target at least 90 mm in diameter and with black and yellow quadrants on a material (cardboard, metal, etc.) that can be taped to the top of the steering column.
	4.4	Tape the target from 4.3 to the top of the steering column in a manner that does not interfere with the movement of the steering column in a crash.

REMARKS:

Signature: Ben Stoner _____ Date: 8/23/22

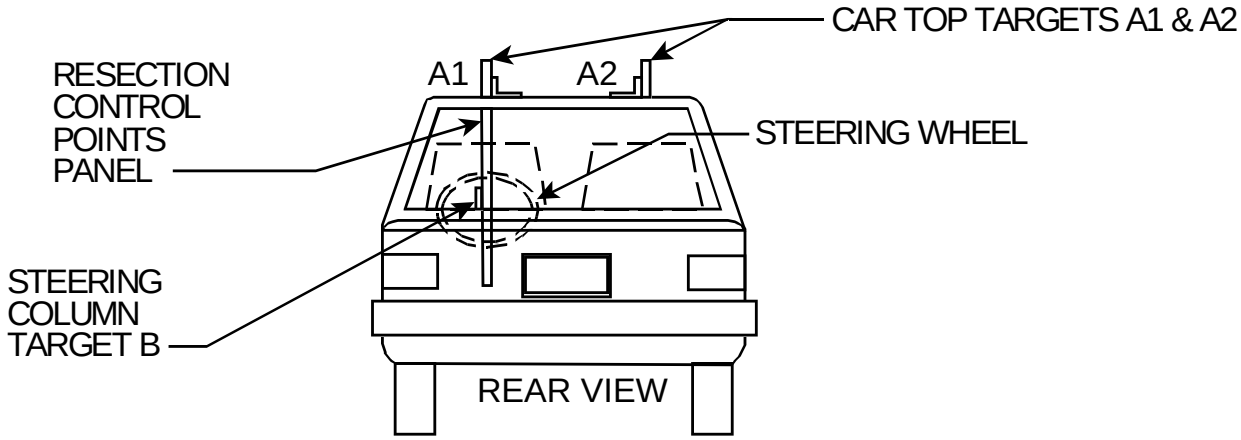
I certify that I have read and performed each instruction.

REFERENCE PHOTO TARGETS

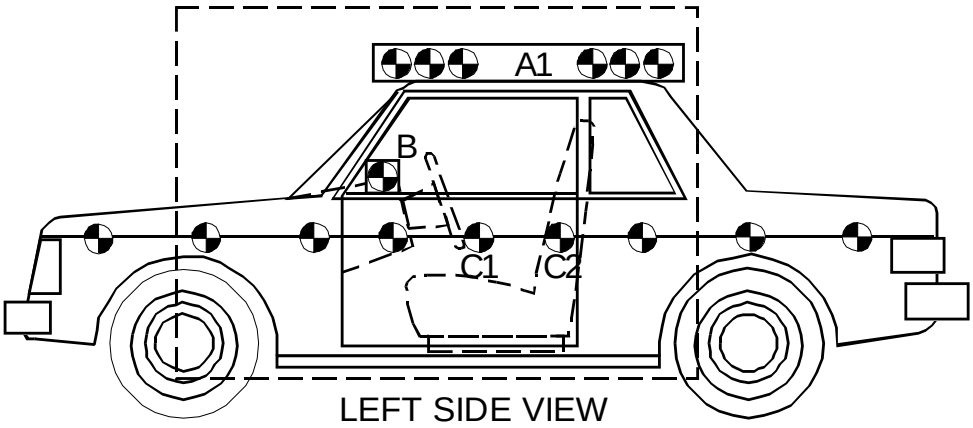


LEFT SIDE VIEW

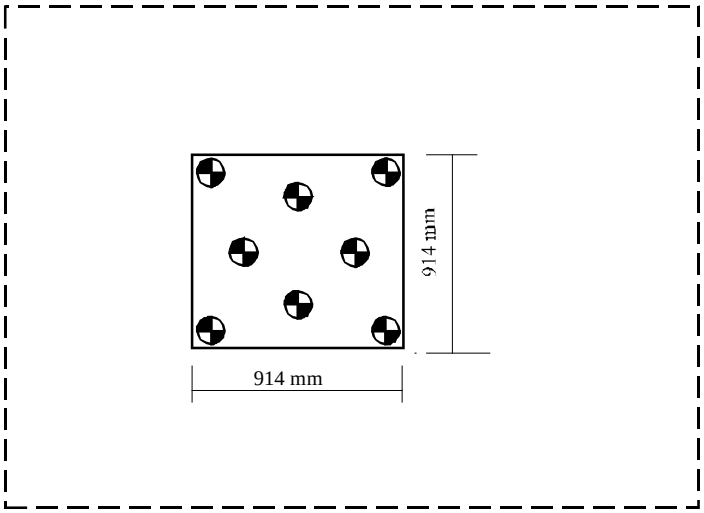
RESECTION PANEL TARGETING ALIGNMENT



TEST RUN STEERING COLUMN CAMERA VIEW OF TYPICAL TIME ZERO VEHICLE POSITION



PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW



LEFT SIDE VIEW

DATA SHEET 35

CAMERA LOCATIONS

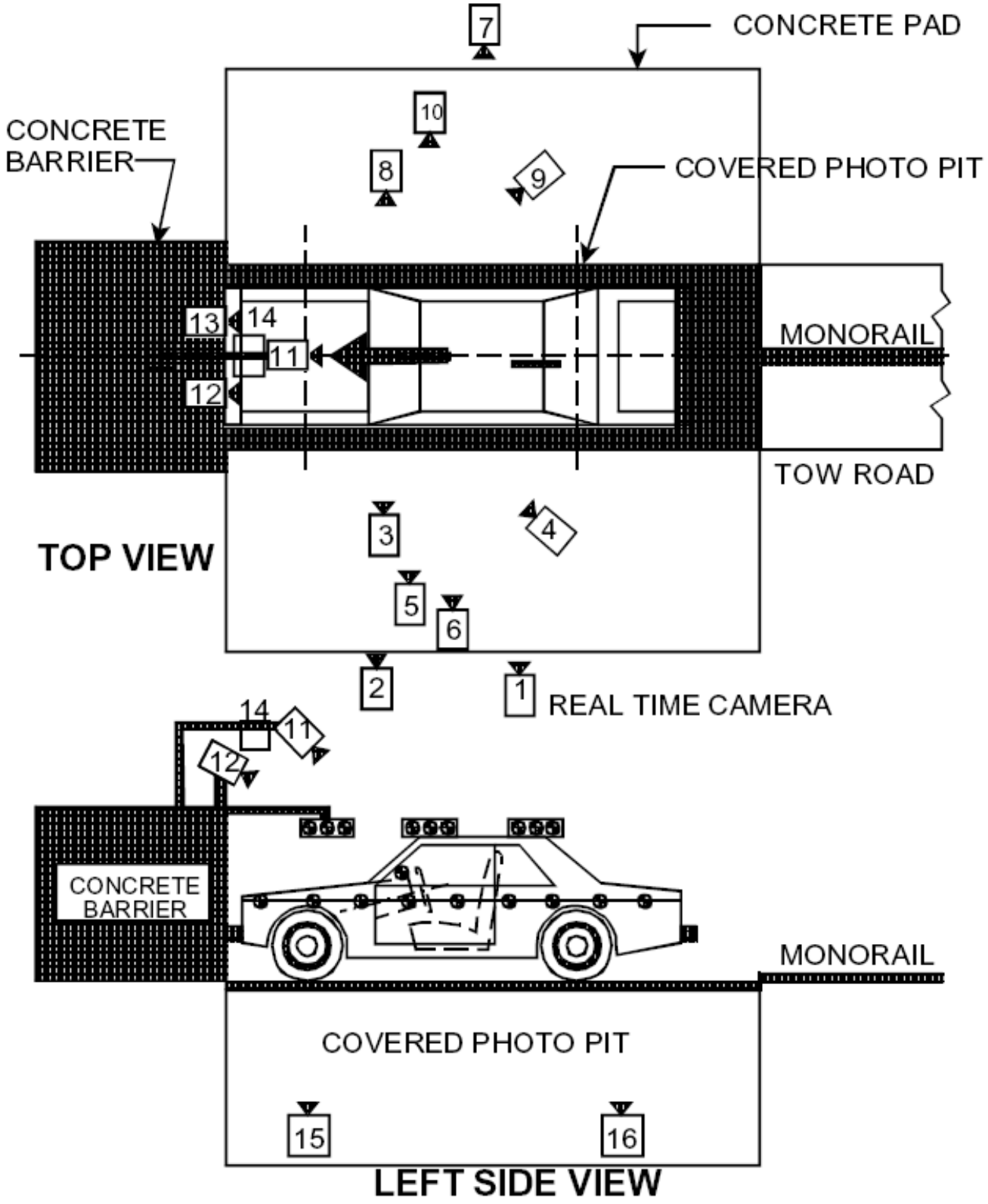
Test Vehicle: 2022 Ford Mustang Mach-E
Test Program: FMVSS 208 Compliance

NHTSA No.: C20220204
Test Date: 8/23/22
Time: 10:30 am

CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			LENS (mm)	SPEED (fps)
		X	Y	Z		
1	Real Time Left Side View				13	30
2	Left Side View (Barrier face to front seat backs)	1220	-5770	1280	24	1000
3	Left Side View (Driver)	1650	-7160	1960	50	1000
4	Left Side View (B-post aimed toward center of steering wheel)	7500	-5800	1980	75	1000
5	Left Side View (Steering Column)	1080	-5690	1240	50	1000
6	Left Side View (Steering Column)	960	-5690	780	50	1000
7	Right Side View (Overall)	2170	6180	1260	16	1000
8	Right Side View (Passenger)	1570	6790	1960	50	1000
9	Right Side View (Angle)	7700	5430	1900	75	1000
10	Right Side View (Front door)	1220	5570	1300	24	1000
11	Front View Windshield	130	0	2310	16	1000
12	Front View Driver	60	-370	2230	25	1000
13	Front View Passenger	60	370	2230	25	1000
14	Overhead Barrier Impact View	3070	0	6820	16	1000
15	Pit Camera Engine View	970	0	-3340	24	1000
16	Pit Camera Fuel Tank View	3280	0	-3340	24	1000
17	Passenger Outboard Angle				12	1000
18	Passenger Over Shoulder				12	1000

*COORDINATES:
+X - forward of impact plane
+Y - right of monorail centerline
+Z - above ground level

CAMERA POSITIONS FOR FMVSS 208



DATA SHEET 36

APPENDIX F
DUMMY POSITIONING PROCEDURES FOR DRIVER TEST DUMMY CONFORMING TO SUBPART E OF PART 572

Test Vehicle: 2022 Ford Mustang Mach-E
Test Program: FMVSS 208 Compliance
Test Technician: Keegan Strockis

NHTSA No.: C20220204
Test Date: 8/23/22

IMPACT ANGLE:	0° Frontal					
BELTED DUMMIES (YES/NO):	YES					
TEST SPEED:		32 to 40 kmph		0 to 48 kmph	X	0 to 56 kmph
DRIVER DUMMY:			5th female	X		50th male
PASSENGER DUMMY:			5th female	X		50th male

_X_1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
_ N/A – No lumbar adjustment

_X_2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment

_X_3. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position. (8/31/95 legal interpretation to Hogan and Hartson)

_X_4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position. (8/31/95 legal interpretation to Hogan and Hartson)

_X_5. **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interpretation to Hogan and Hartson)

_X_6. Move the seat to the mid position.

_X_7. While maintaining the mid position, move the seat to its lowest position. **Mark** the height position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.
__ N/A - No cushion angle adjustment
Manufacturers seat cushion angle: Lowest
Tested seat cushion angle: Lowest

_X_8. Visually **mark** the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer.
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle: 3.0° on Headrest Post
Tested seat back angle: 3.0° on Headrest Post

_X_9. Is the seat a bucket seat?

_X_Yes, go to 10 and skip 11

__No, go to 11 and skip 10

_X_10. Bucket seats:

Locate and **mark** the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

__11. Bench seats:

Locate and **mark** the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)

_X_12. If adjustable, set the head restraint at the full up position. (S8.1.3) If there are adjustments other than vertical, adjust them as recommended by the manufacturer.

__N/A – No head restraint adjustment

_X_13. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)

__N/A – No adjustable upper seat belt anchorage

Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0

Tested anchorage position: 0 of 4; Upper-most defined as 0

_X_14. Place adjustable pedals in the full forward position.

_X_N/A – the pedals are not adjustable.

_X_15. Is the steering wheel adjustable up and down and/or in and out?

_X_Yes – go to 16

___No – go to 19

_X_16. Find and **mark** each up and down position. Label three of the positions with the following: H for highest, M for mid-position (if there is no mid-position, label the next lowest adjustment position), and L for lowest.

__N/A – steering wheel is not adjustable up and down

_X_17. Find and **mark** each in and out position. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the next rearmost adjustment position), and R for rearmost.

___N/A – steering wheel is not adjustable in and out.

_X_18. Set the steering wheel hub at the geometric center of the full range of driving positions including any telescoping positions.

_X_19. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 10 or 11 and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)

_X_20. Rest the thighs on the seat cushion. (S10.5)

_X_21. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined in Data Sheet 15. (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)

0.275" horizontal inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)
0.090" vertical inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)
21.7° pelvic angle (20° to 25°)

_X_22. Is the head level within ± 0.5°? (S10.1)

_X_ Yes, go to 23
__ No, go to 22.1

___22.1 Adjust the position of the H-point. (S10.1)

___22.2 Is the head level within ± 0.5°? (S10.1)

__Yes, record the following, then go to 23. ___ No, go to 22.3
__horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
__vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
__pelvic angle (20° to 25°) (S10.4.2.2)

___22.3 Adjust the pelvic angle. (S10.1)

____22.4 Is the head level within ± 0.5°? (S10.1)

__Yes, record the following, then go to 23. ___ No, go to 22.5
__horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
__vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
__pelvic angle (20° to 25°) (S10.4.2.2)

___22.5 Adjust the neck bracket of the dummy the minimum amount necessary from the nonadjusted "0" setting until the head is level within ± 0.5°. (S10.1) Record the following, then go to 23.

___ horizontal inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)
___ vertical inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)
___ pelvic angle (20° to 25°)

_X_23. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.

10.6" measured distance (10.6 inches) (S10.5)

_X_24. Can the right foot be placed on the accelerator?

_X_ Yes, go to 24.1 and skip 24.2
__ No, go to 24.2

_X_24.1. To the extent practicable keep the right thigh and the leg in a vertical plane (S10.5) while resting the foot on the undepressed accelerator pedal with the rearmost point of the heel on the floor pan in the plane of the pedal. (S10.6.1.1)

_X_24.2 Initially set the foot perpendicular to the leg and then place it as far forward as possible in the direction of the pedal centerline with the rearmost point of the heel resting on the floor pan. (S10.6.1.1)

_X_24.2.1 Move the adjustable pedal to its most rearward position or until the right foot is flat on the pedal, whichever occurs first. (S10.6.1.1)

_X_N/A – the accelerator pedal is not adjustable

_X_25. Does the vehicle have a foot rest?

_X_Yes, go to 25.1

___No, go to 25.2

_X_25.1 With the left thigh and leg in a vertical plane, place the left foot on the foot rest with the heel resting on the floor pan. (S10.6.1.2)

_X_25.1.1 Is the left foot elevated above the right foot?

___Yes, go to 25.2 and position the foot off the foot rest

_X_No, go to 26

___25.2 Check the ONLY one of the following that applies

__The left foot reaches the toeboard without adjusting the foot or leg. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard, skip 25.3 (S10.6.1.2)

__The left foot reaches the toeboard but contacts the brake or clutch pedal and must be rotated to avoid pedal contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard. The foot was rotated about the leg to avoid pedal contact, skip 25.3 (S10.6.1.2)

__The left foot reaches the toeboard but contacts the brake or clutch pedal and the foot and leg must be rotated to avoid pedal contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard. The foot was rotated about the leg and the leg was rotated outboard about the hip the minimum distance necessary to avoid pedal contact, skip 12.3 (S10.6.1.2)

___N/A – the foot does not reach the toeboard, go to 25.3

___25.3 Check the ONLY one of the following that applies

___The left foot did not contact the brake or clutch pedal. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5). Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan. (S10.6.1.2)

__The left foot did contact the brake or clutch pedal and the foot was rotated to avoid contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5). Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan and rotate the foot the minimum amount to avoid pedal contact. (S10.6.1.2)

__The left foot did contact the brake or clutch pedal and the foot was rotated about the leg and the leg was rotated outboard about the hip the minimum distance necessary to avoid pedal contact. Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan and rotate the foot about the leg and the thigh and leg outboard about the hip the minimum distance necessary to avoid pedal contact. (S10.6.1.2)

_X_26. Place the right upper arm adjacent to the torso with the centerline as close to a vertical plane as possible. (S10.2.1)

_X_27. Is the driver seat belt used for this test?
X Yes, continue
__No, go to 28

_X_27.1 Fasten the seat belt around the dummy.

_X_27.2 Remove all slack from the lap belt portion. (S10.9)

_X_27.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

_X_27.4 Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
3 pound load applied

_X_27.5 Is the belt system equipped with a tension-relieving device?
__Yes, continue
X No, go to 28

___27.6 Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9).

_X_28. Place the left upper arm adjacent to the torso with the centerline as close to a vertical plane as possible. (S10.2.1)

_X_29. Place the right hand with the palm in contact with the steering wheel at the rim's horizontal centerline and with the thumb over the steering wheel. (S10.3.1)

_X_30. Place the left hand with the palm in contact with the steering wheel at the rim's horizontal centerline and with the thumb over the steering wheel. (S10.3.1)

_X_31. Tape the thumb of each hand to the steering wheel by using masking tape with a width of 0.25 inch. The length of the tape shall only be enough to go around the thumb and steering wheel one time.

Signature: Keegan Stracks Date: 8/23/22

I certify that I have read and performed each instruction.

DATA SHEET 36

APPENDIX F
DUMMY POSITIONING PROCEDURES FOR PASSENGER TEST DUMMY CONFORMING TO SUBPART E OF PART 572

Test Vehicle: 2022 Ford Mustang Mach-E
Test Program: FMVSS 208 Compliance
Test Technician: Keegan Strockis

NHTSA No.: C20220204
Test Date: 8/23/22

IMPACT ANGLE:	0° Frontal					
BELTED DUMMIES (YES/NO):	YES					
TEST SPEED:		32 to 40 kmph		0 to 48 kmph	X	0 to 56 kmph
DRIVER DUMMY:			5th female	X		50th male
PASSENGER DUMMY:			5th female	X		50th male

_X_1. The seat is a bench seat for which the adjustments have already been made for the driver and there are no independent adjustments that can be made for the passenger. Go to 12.
_X_N/A- the passenger seat adjusts independently of the driver seat.

_X_2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
_X_N/A – No lumbar adjustment

_X_3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
_X_N/A – No additional support adjustment

_X_4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position. (8/31/95 legal interpretation to Hogan and Hartson)

_X_5. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position. (8/31/95 legal interpretation to Hogan and Hartson)

_X_6. **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interpretation to Hogan and Hartson)

_X_7. Move the seat to the mid position.

_X_8. While maintaining the mid position, move the seat to its lowest position. **Mark** the height position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.
_X_N/A - No cushion angle adjustment
Manufacturers seat cushion angle: Fixed
Tested seat cushion angle: Fixed

_X_9. Visually **mark** the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer.

Manufacturer's design seat back angle: 3.0° on Headrest Post
Tested seat back angle: 3.1° on Headrest Post

_X_10. Is the seat a bucket seat?
_X_Yes, go to 11 and skip 12
___No, go to 12 and skip 11

_X_11. Bucket seats:
Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

__12. Bench seats:
Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)
Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _____
Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _____

_X_13. If adjustable, set the head restraint at the full up position. (S8.1.3) If there are adjustments other than vertical, adjust them as recommended by the manufacturer.
__N/A – No head restraint adjustment

_X_14. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)
__N/A – No adjustable upper seat belt anchorage
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

_X_15. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 11 or 12 and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)

_X_16. Rest the thighs on the seat cushion. (S10.5)

_X_17. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)
0.040" horizontal inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)
0.180" vertical inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)
23.3 ° pelvic angle (20° to 25°)

_X_18. Is the head level within ± 0.5°? (S10.1)
_X_ Yes, go to 19
___ No, go to 18.1

___18.1 Adjust the position of the H-point. (S10.1 and S10.4.2.1)

___18.2 Is the head level within ± 0.5°? (S10.1)

__Yes, record the following, then go to 19. ___No, go to 18.3

__ Horizontal inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)

__ Vertical inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)

__ Pelvic angle (20° to 25°) (S10.4.2.2)

___18.3 Adjust the pelvic angle. (S10.1)

___18.4 Is the head level within ± 0.5°? (S10.1)

__Yes, record the following, then go to 19. ____No, go to 18.5

__ Horizontal inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)

__ Vertical inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)

__ Pelvic angle (20° to 25°)

___18.5 Adjust the neck bracket of the dummy the minimum amount necessary from the nonadjusted "0" setting until the head is level within ± 0.5°. (S10.1) Record the following, then go to 19.

____Horizontal inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)

____Vertical inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)

___ Pelvic angle (20° to 25°) (S10.4.2.2)

_X_19. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.

_10.6°_ measured distance (10.6 inches) (S10.5)

_X_20. Check the only one of the following that applies:

_X_To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, place the feet on the toeboard with the heels resting on the floor pan as close as possible to the intersection of the floor pan and toeboard.

___The feet cannot be placed flat on the toeboard. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heels resting on the floor pan.

___The vehicle has a wheelhouse projection. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heels resting on the floor pan. Do not set the feet on the wheelhouse projection.

___The vehicle has a wheelhouse projection and the feet cannot be placed on the toeboard. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heel resting on the floor pan. Do not set the feet on the wheelhouse projection.

_X_21. Place the left upper arm in contact with the seat back and side of the torso. (S10.2.2)

_X_22. Is the passenger seat belt used for this test?
_X_Yes, continue
___ No, go to 23

_X_22.1 Fasten the seat belt around the dummy.

_X_22.2 Remove all slack from the lap belt portion. (S10.9)

_X_22.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

_X_22.4 Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
3 pound load applied

_X_22.5 Is the belt system equipped with a tension relieving device?
__Yes, continue
_X_ No, go to 23

___ 22.6 Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9). Go to 23.

_X_23. Place the right upper arm in contact with the seat back and side of the torso. (S10.2.2)

_X_24. Place the left hand palm in contact with the outside of the left thigh and the little finger in contact with the seat cushion. (S10.3.2)

_X_25. Place the right hand palm in contact with the outside of the right thigh and the little finger in contact with the seat cushion. (S10.3.2)

Signature: Keegan Stracke Date: 8/23/22

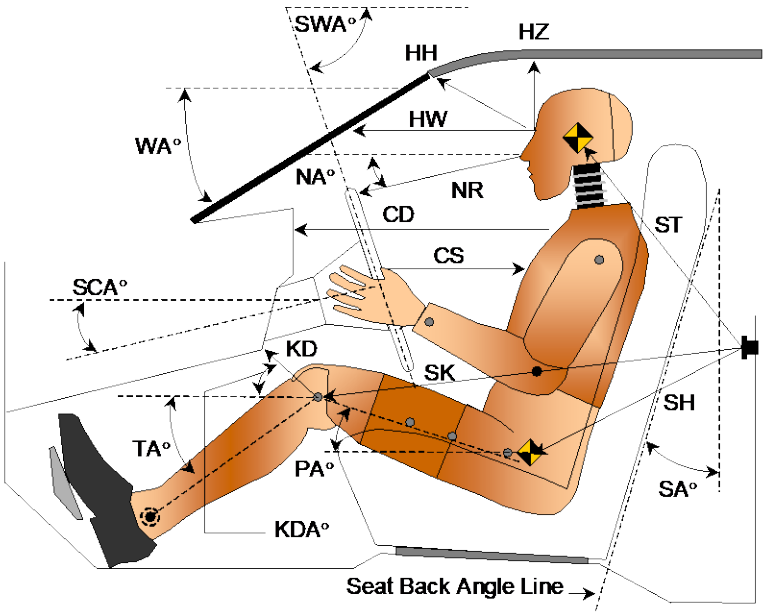
I certify that I have read and performed each instruction.

DATA SHEET 37

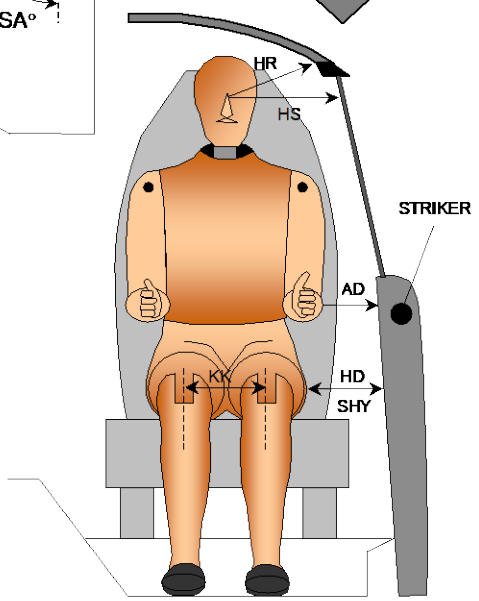
DUMMY MEASUREMENTS

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Date:	8/23/22
Test Technician:	Keegan Strockis		

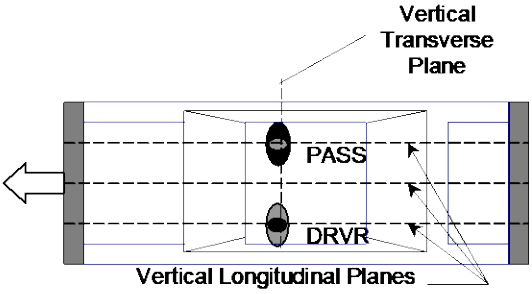
DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



AD	Arm to Door
HD	H-Point to Door
HR	Head to Side Header
HS	Head to Side Window
KK	Knee to Knee
SHY	Striker to H-Point (Y Axis)



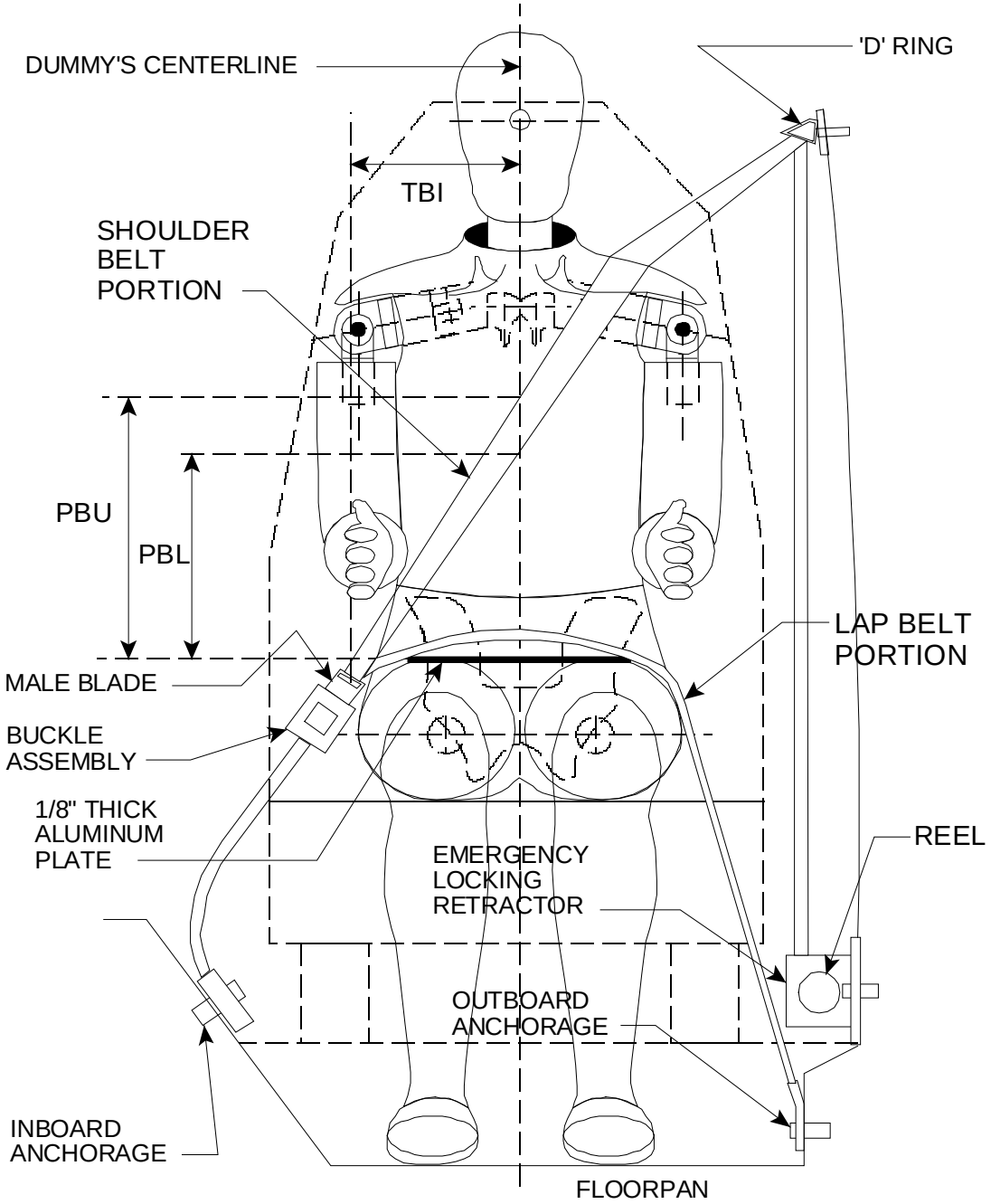
CD	Chest to Dash
CS	Chest to Steering Wheel Hub
HH	Head to Header
HW	Head to Windshield
HZ	Head to Roof
KDA	Knee to Dash Angle
KDL	Left Knee to Dash
KDR	Right Knee to Dash
NA	Nose to Rim Angle
NR	Nose to Rim
PA	Pelvic Angle
RA	Rim to Abdomen
SA	Seat Back Angle
SCA	Steering Column Angle
SH	Striker to H-Point
SK	Striker to Knee
ST	Striker to Head
SWA	Steering Wheel Angle
TA	Tibial Angle
WA	Windshield Angle



TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver SN 403		Passenger SN 401	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		27.8		
SWA	Steering Wheel Angle		66.0		
SCA	Steering Column Angle		24.0		
SA	Seat Back Angle (On Head Rest Post)		3.0		3.1
HZ	Head to Roof (Z)	206		194	
HH	Head to Header	371	17.7	388	20.0
HW	Head to Windshield	669	0.0	662	0.0
HR	Head to Side Header (Y)	226		216	
NR	Nose to Rim	381	11.2		
CD	Chest to Dash	547		499	
CS	Chest to Steering Hub	300	4.8		
RA	Rim to Abdomen	183	0.0		
KDL	Left Knee to Dash	174	31.2	173	
KDR	Right Knee to Dash	173		185	34.1
PA	Pelvic Angle		21.7		23.3
TA	Tibia Angle		51.7		47.1
KK	Knee to Knee (Y)	310		270	
SK	Striker to Knee	580	94.6	568	91.4
ST	Striker to Head	444	12.2	551	9.1
SH	Striker to H-Point	211	114.4	195	114.9
SHY	Striker to H-Point (Y)	289		297	
HS	Head to Side Window	340		347	
HD	H-Point to Door (Y)	144		144	
AD	Arm to Door (Y)	135		67	
AA	Ankle to Ankle	325		212	

SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	345	335
PBL - Top surface of reference to belt lower edge	mm	255	250

DATA SHEET 38

CRASH TEST

Test Vehicle: 2022 Ford Mustang Mach-E
Test Program: FMVSS 208 Compliance
Test Technician: Keegan Strockis

NHTSA No.: C20220204
Test Date: 8/23/22

IMPACT ANGLE:	0° Frontal					
BELTED DUMMIES (YES/NO):	YES					
TEST SPEED:		32 to 40 kmph		0 to 48 kmph	X	0 to 56 kmph
DRIVER DUMMY:			5th female	X		50th male
PASSENGER DUMMY:			5th female	X		50th male

X 1. Vehicle underbody painted.
X 2. The speed measuring devices are in place and functioning.
X 3. The speed measuring devices are 1.0 m from the barrier (spec. 1.5 m) and 30 cm from the barrier (spec. is 30 cm)
X 4. Convertible top is in the closed position.
   X N/A, not a convertible
X 5. Instrumentation and wires are placed so motion of dummies during impact is not affected.
X 6. Tires inflated to pressure on tire placard or if it does not have a tire placard because it is not a passenger car, then inflated to the tire pressure specified in the owner information.
   270 kpa front left tire 270 kpa specified on tire placard or in owner information
   270 kpa front right tire 270 kpa specified on tire placard or in owner information
   270 kpa rear left tire 270 kpa specified on tire placard or in owner information
   270 kpa rear right tire 270 kpa specified on tire placard or in owner information
X 7. Time zero contacts on barrier in place.
X 8. Pre test zero and shunt calibration adjustments performed and recorded.
X 9. Dummy temperature meets requirements of section 12.2 of the test procedure.
X 10. Vehicle hood closed and latched.
X 11. Transmission placed in neutral.
X 12. Parking brake off.
X 13. Are the heads still level?
   X Yes, go to 14
   No, Adjust dummy so that head is at the angle recorded in the Appendix F or G data sheets and then continue.
X 14. Ignition in the ON position.
X 15. Doors closed and latched but not locked.
X 16. Post test zero and shunt calibration checks performed and recorded.
X 17. Actual test speed 55.1 kmph
X 18. Vehicle rebound from the barrier 35 cm
X 19. Describe whether the doors open after the test and what method is used to open the doors.
   X Left Front Door: Door remained closed and latched; Door opened without tools.
   X Right Front Door: Door remained closed and latched; Door opened without tools.
   X Left Rear Door: Door remained closed and latched; Door opened without tools.
   X Right Rear Door: Door remained closed and latched; Door opened without tools.

X 20. Describe the contact points of the dummy with the interior of the vehicle.

X Driver Dummy: Head to Air Bag and Headrest; Chest to Air Bag; Knees to Knee Air Bag.

X Passenger Dummy: Head to Air Bag and Headrest; Chest to Air Bag; Knees to Glovebox.

REMARKS:

Signature: Keegan Stracker Date: 8/23/22

I certify that I have read and performed each instruction.

DATA SHEET 40

ACCIDENT INVESTIGATION MEASUREMENTS

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Date:	8/23/22
Test Technician:	Ben Storey		

IMPACT ANGLE:	0° Frontal					
BELTED DUMMIES (YES/NO):	YES					
TEST SPEED:		32 to 40 kmph		0 to 48 kmph	X	0 to 56 kmph
DRIVER DUMMY:			5th female	X		50th male
PASSENGER DUMMY:			5th female	X		50th male

Vehicle Year/Make/Model/Body Style:	2022 Ford Mustang Mach-E MPV
VIN:	3FMTK1SS1NMA20494
Wheelbase:	2986 mm
Build Date:	04/22
Vehicle Size Category:	5
Test Weight:	2040.3 kg
Front Overhang:	864 mm
Overall Width:	1847 mm
Overall Length Center:	4718 mm

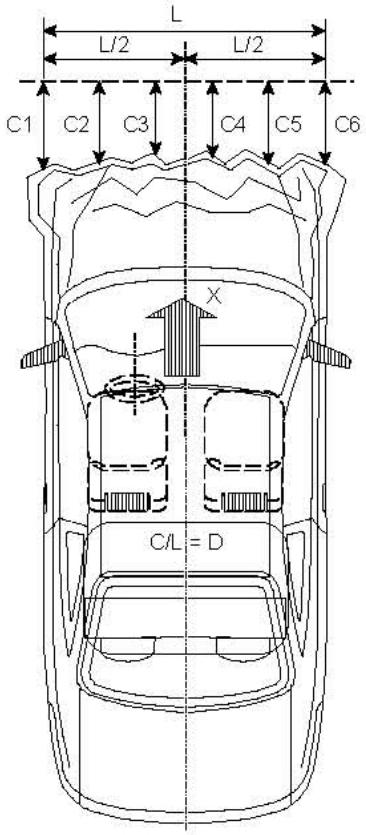
Accelerometer Data	
Location:	As per measurements on Data Sheet 33
Linearity:	>99.9%

Integration Algorithm:	Trapezoidal
Vehicle Impact Speed:	55.1 kmph
Time of Separation:	121.6 ms
Velocity Change:	62.8 kmph

CRUSH PROFILE

Collision Deformation Classification: 12FDEW2
Midpoint of Damage: Vehicle Longitudinal Centerline
Damage Region Length (mm): 1524
Impact Mode: Frontal Barrier

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4574	4103	471
C2	Crush zone 2 at left side	mm	4693	4059	634
C3	Crush zone 3 at left side	mm	4718	4090	628
C4	Crush zone 4 at right side	mm	4718	4069	649
C5	Crush zone 5 at right side	mm	4693	4026	667
C6	Crush zone 6 at right side	mm	4574	4054	520



REMARKS:

Signature: Ben Stoney Date: 8/23/22

I certify that I have read and performed each instruction.

DATA SHEET 41

WINDSHIELD MOUNTING (FMVSS 212)

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Date:	8/23/22
Test Technician:	Ben Storey		

IMPACT ANGLE:	0° Frontal					
BELTED DUMMIES (YES/NO):	YES					
TEST SPEED:		32 to 40 kmph		0 to 48 kmph	X	0 to 56 kmph
DRIVER DUMMY:			5th female	X		50th male
PASSENGER DUMMY:			5th female	X		50th male

1. Pre-Crash

[X] 1.1 Describe from visual inspection how the windshield is mounted and describe any trim material.

Retained with glue, rubber and plastic trim

[X] 1.2 Mark the longitudinal centerline of the windshield.

[X] 1.3 Measure pre-crash A, B, and C for the left side and record in the chart below.

[X] 1.4 Measure pre-crash C, D, and E for the right side and record in the chart below.

[X] 1.5 Measure from the edge of the retainer or molding to the edge of the windshield.

[X] Dimension G (mm): 7 mm

2. Post Crash

[X] 2.1 Can a single thickness of copier type paper (as small a piece as necessary) slide between the windshield and the vehicle body?

- [X] No - Pass. Skip to the table of measurements, complete it by repeating the pre-crash measurements in the post crash column, and calculate the retention percentage, which will be 100%.
- [ ] Yes, go to 2.2

[ ] 2.2 Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body.

[ ] 2.3 Measure and record post-crash A, B, C, D, E, and F such that the measurements do not include any of the parts of the windshield where the paper slides between the windshield and the vehicle body.

[ ] 2.4 Calculate and record the percent retention for the right and left side of the windshield.

[ ] 2.5 Is total right side percent retention less than 50%?

- [ ] Yes, Fail
- [ ] No, Pass

[ ] 2.6 Is total left side percent retention less than 50%?

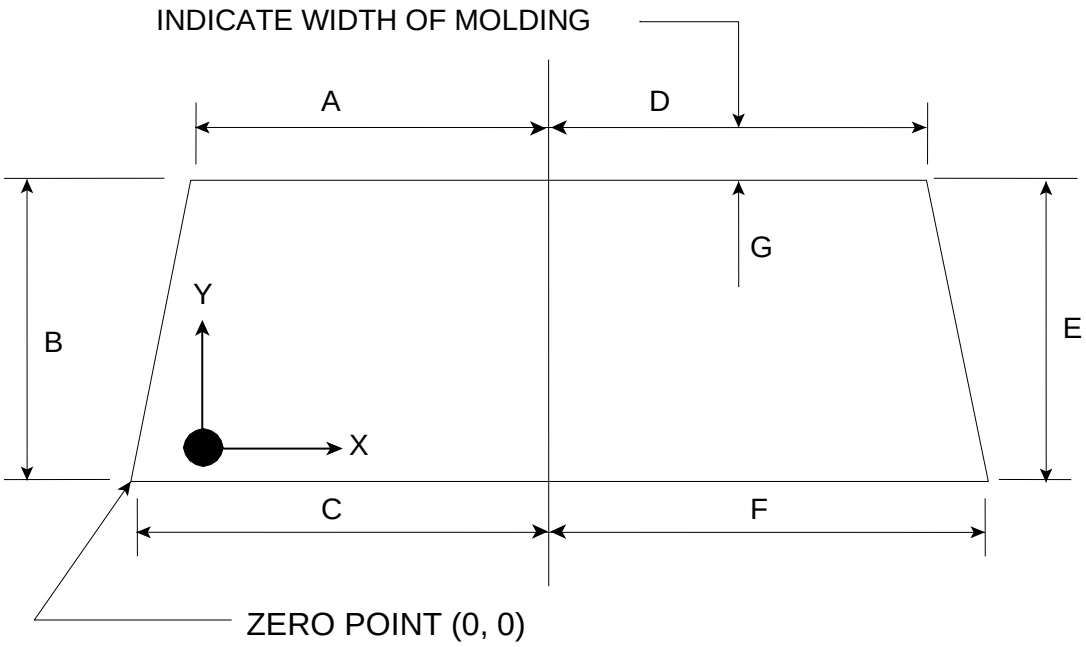
- [ ] Yes, Fail
- [ ] No, Pass

WINDSHIELD RETENTION MEASUREMENTS

	Dimension	Pre-Crash (mm)	Post-Crash (mm)	Percent Retention (Post-Test ÷ Pre-Crash)
Left Side	A	642	642	100%
	B	790	790	100%
	C	794	794	100%
	Total	2226	2226	100%
Right Side	D	642	642	100%
	E	790	790	100%
	F	794	794	100%
	Total	2226	2226	100%

Indicate area of mounting failure: NONE

FRONT VIEW OF WINDSHIELD



REMARKS:

Signature: Ben Stoney Date: 8/23/22

I certify that I have read and performed each instruction.

DATA SHEET 42

WINDSHIELD ZONE INTRUSION (FMVSS 219)

Test Vehicle:	2022 Ford Mustang Mach-E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Date:	8/23/22
Test Technician:	Ben Storey		

IMPACT ANGLE:	0° Frontal					
BELTED DUMMIES (YES/NO):	YES					
TEST SPEED:		32 to 40 kmph		0 to 48 kmph	X	0 to 56 kmph
DRIVER DUMMY:			5th female	X		50th male
PASSENGER DUMMY:			5th female	X		50th male

This standard specifies limits for the displacement of vehicle components into the windshield area during a frontal barrier impact test at any speed up to and including 48 kmph.

X 1. Place a 165 mm diameter rigid sphere, with a mass of 6.8 kg on the instrument panel so that it is simultaneously touching the instrument panel and the windshield. (571.219 S6.1(a))

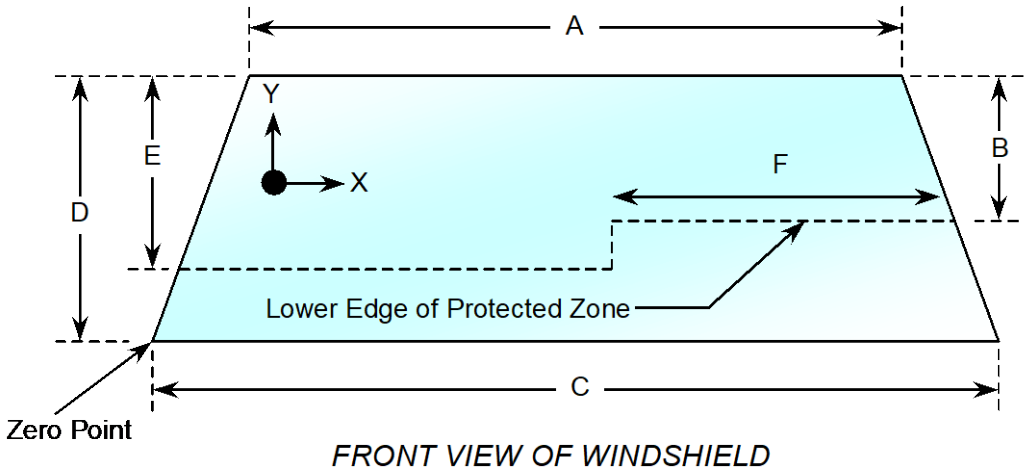
X 2. Roll the sphere from one side of the windshield to the other while marking on the windshield where the sphere contacts the windshield. (571.219 S6.1(b))

X 3. From the outermost contactable points on the windshield draw a horizontal line to the edges of the windshield. (571.219 S6.1(b))

X 4. Draw a line on the inner surface of the windshield that is 13 mm below the line determined in items 2 and 3.

X 5. After the crash test, record any points where a part of the exterior of the vehicle has marked, penetrated, or broken the windshield.

Provide all dimensions necessary to reproduce the protected area.



FRONT VIEW OF WINDSHIELD

WINDSHIELD DIMENSIONS

Item	Units	Value
A	mm	1284
B	mm	469
C	mm	1588
D	mm	790
E	mm	467
F	mm	630

AREA OF PROTECTED ZONE FAILURES:

B. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one which is normally in contact with the windshield.

X	Y
NONE	

C. Provide coordinates of the area beneath the protected zone template that the inner surface of the windshield was penetrated by a vehicle component.

X	Y
NONE	

REMARKS:

I certify that I have read and performed each instruction.

Signature: Ben Stoney Date: 8/23/22

FMVSS 305
ELECTRIC POWERED VEHICLES: ELECTROLYTE SPILLAGE AND ELECTRICAL SHOCK PROTECTION

This electric vehicle, a 2022 Ford Mustang Mach E (NHTSA No. C20220204), in conjunction with the FMVSS 208, was tested to FMVSS 305.

The test was performed in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedures TP-305-01 to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 305, “Electric Powered Vehicles: Electrolyte Spillage and Electrical Shock Protection”.

Based on the test results, the 2022 Ford Mustang Mach E appears to meet the partial requirements of FMVSS 305 testing.

If a measured voltage was zero and resulted in a division by zero “Zero Volts” was reported. This condition is considered being compliant as stated in TP-305-01 12.4 F.

The following data sheets document the results of the FMVSS 305 test.

DATA SHEET 1

ELECTRIC VEHICLE PROPULSION SYSTEM

Test Vehicle: 2022 Ford Mustang Mach E
Test Program: FMVSS 208 Compliance
Test Technician: Jordan Haynes

NHTSA No.: C20220204
Test Date: 8/23/22

VEHICLE PROPULSION SYSTEM

Type of Electric Vehicle (Electric/Hybrid):	Electric
Propulsion Battery Type:	Lithium Ion
Nominal Voltage (V):	350.4 V
Physical Location of Automatic Propulsion Battery Disconnect:	Inside the Electric energy storage system
Auxiliary Battery Type:	12 V Lead Acid Battery

DATA SHEET 2

ELECTRIC ENERGY STORAGE CONVERSION / DEVICE SYSTEM DATA (COTR SUPPLIED DATA)

Electrolyte Fluid Type:	Carbonate Fluid	
Electrolyte Fluid Specific Gravity:	~1.1 g/cm^3	
Electrolyte Kinematic Viscosity (centistokes):	~3cP	
Electrolyte Fluid Color:	Colorless	
Electric Energy Storage/Conversion System Coolant Type, Color, Specific Gravity (if applicable):	Ford Motorcraft Yellow Pre-Diluted (50/50) Part Number: VC13DLG (13DL)	
Location of Battery Modules:		Inside Passenger Compartment
	X	Outside Passenger Compartment
	The high voltage battery is mounted on the underside of the vehicle.	
Electric Energy Storage/Conversion System State of Charge:		Maximum State of Charge
	X	Range of Normal Operating Voltage
Maximum	N/A	
Test Voltage - No less than 95% of maximum State of Charge:	N/A	
Range of Normal Operating Voltage:	202-403 Volts	
Test Voltage – Within Normal Operative Voltage Range:	395.9 Volts	
Test Vehicle Equipped with Electrical Isolation Monitoring	Not Stated	

VEHICLE CHASSIS GROUND POINT(S) LOCATION(S)

Details of Vehicle Chassis Ground Point(s) & Location(s)	The Body Structure was used as Vehicle Ground

ELECTRIC ENERGY STORAGE/CONVERSION TEST POINTS

Details of Electric Energy Storage/Conversion System Test Points:	At the Traction Side of the Propulsion Battery System at the Positive and Negative Locations

DATA SHEET 3

PRE-IMPACT ELECTRIC ISOLATION MEASUREMENTS & CALCULATIONS

Test Vehicle:	2022 Ford Mustang Mach E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Date:	8/23/22
Test Technician:	Jordan Haynes		

VOLTMETER INFORMATION

Make:	Fluke
Model:	177
Serial Number:	57580164
Internal Impedance Value (MΩ):	50 MΩ
Resolution (V):	.001 Volts
Last Calibration Date:	06/21/2022

ELECTRIC ENERGY STORAGE/CONVERSION SYSTEM VOLTAGE

Measurement shall be made with Energy Storage/Conversion System connected to the vehicle propulsion system, and the vehicle in the "ready-to-drive" (propulsion system energized) position.

If voltage measurement is not at the voltage or within the normal operating voltage range specified by the manufacturer, the battery must be charged.

Vb (V):	395.9

ELECTRIC ENERGY STORAGE/CONVERSION SYSTEM TO VEHICLE CHASSIS

Vehicle chassis point(s) determined and supplied to contractor by COTR.

V1 (V):	261.0
V2 (V):	138.2

ELECTRIC ENERGY STORAGE / CONVERSION SYSTEM TO VEHICLE CHASSIS ACROSS RESISTOR

The known resistance Ro (in ohms) should be approximately 500 times the normal operating voltage of the vehicle (in volts) per SAE J1766.

Ro (Ω):	226,100 Ω

V1 (V) Pre-Impact:	261.0
V2 (V): Pre-Impact:	138.2

DATA SHEET 3 (CONTINUED)

PRE-IMPACT ELECTRICAL ISOLATION MEASUREMENTS & CALCULATIONS

ELECTRICAL ISOLATION MEASUREMENT

Note: If measured voltage is zero and results in a division by zero, record “Zero Volts”. This “zero voltage” condition is considered as being compliant.

V1’ (V):	23.6
Ri1 = Ro (1 + V2/V1) [(V1-V1’)/V1’]	
Ri1 (Ω):	3,478,719
V2’ (V):	21.4
Ri2 = R0 (1 + V1/V2) [(V2-V2’)/V2’]	
Ri2 (Ω):	3,564,611
Ri = The lesser of Ri1 and Ri2	
Ri Pre-Test (Ω):	3,478,719
Ri/Vb (Ω/V):	8787
Minimum Electrical Isolation Value is 500 Ω/V	

Note: Measurements completed within 15 minutes prior to impact.

Is the measured Electrical Isolation Value:	Yes, Pass	No, Fail
≥500 Ω/V without electrical isolation monitoring	X	
≥100 Ω/V with electrical isolation monitoring		

DATA SHEET 4

POST-IMPACT DATA

Test Vehicle:	2022 Ford Mustang Mach E	NHTSA No.:	C20220204
Test Program:	FMVSS 208 Compliance	Test Date:	8/23/22
Test Technician:	Jordan Haynes		

VOLTMETER INFORMATION

Make:	Fluke
Model:	177
Serial Number:	57580164
Internal Impedance Value (MΩ):	50 MΩ
Nominal Propulsion Battery Voltage (Vb) (V):	350.4
Resolution (V):	.001 Volts
NOTE: Record V1, V2, V1', V2' voltage measurements at a minimum of 5 seconds after impact.	

ELECTRIC ENERGY STORAGE/CONVERSION SYSTEM VOLTAGE LOCATION OF MEASUREMENT

Measurement is made from the side of the automatic disconnect connected to the electric powertrain.

Vb (V):	21.1

ELECTRIC ENERGY STORAGE/CONVERSION SYSTEM VOLTAGE

V1 =	8.6	V	Impact Time:	0	Minutes	47	s
V2 =	7.0	V	Impact Time:	0	Minutes	55	s
V1' =	0.4	V	Impact Time:	1	Minutes	10	s
V2' =	0.5	V	Impact Time:	1	Minutes	06	s

ELECTRICAL ISOLATION MEASUREMENT

Note: If measured voltage is zero and results in a division by zero, record "Zero Volts". This "zero voltage" condition is considered as being compliant.

Ri1 = Ro (1 + V2/V1) [(V1-V1')/V1']							
Ri1 =	8,407,765	Ω	Impact Time:	1	Minutes	10	s
Ri2 = Ro (1 + V1/V2) [(V2-V2')/V2']							
Ri2 =	6,550,440	Ω	Impact Time:	1	Minutes	06	s
Ri = The lesser of Ri1 and Ri2							
Ri =	6,550,440	Ω	Impact Time:	1	Minutes	06	s
Ri/Vb = electrical Isolation Value/Nominal Battery Voltage							
Minimum Electrical Value is 500 Ω/V							
Ri/Vb =	16,546	Ω/V	Impact Time:	1	Minutes	06	s

Is the measured Electrical Isolation Value:	Yes, Pass	No, Fail
≥500 Ω/V without electrical isolation monitoring	X	
≥100 Ω/V with electrical isolation monitoring		

DATA SHEET 4 (CONTINUED)

POST-IMPACT DATA

ELECTRIC ENERGY STORAGE/CONVERSION DEVICE

	Inside Passenger Compartment	Outside Passenger Compartment
Location of Electric Energy Storage/Conversion Device:		X

	Yes, Pass	No, Fail
All Components of Electrical Energy Storage/Conversion Device remained attached to the vehicle with at least one mounting location.	X	

Describe Electric Energy Storage/Conversion Device movement within the passenger compartment [Supply photographs as appropriate]:
No Movement

	Yes, Fail	No, Pass
Has the Electric Energy Storage/Conversion Device moved within the passenger compartment?		X

Describe intrusion of an outside Electric Energy Storage/Conversion Device into the passenger compartment [Supply photographs as appropriate]:
No Movement

	Yes, Fail	No, Pass
Has an outside Electric Energy Storage/Conversion Device intruded into the passenger compartment?		X

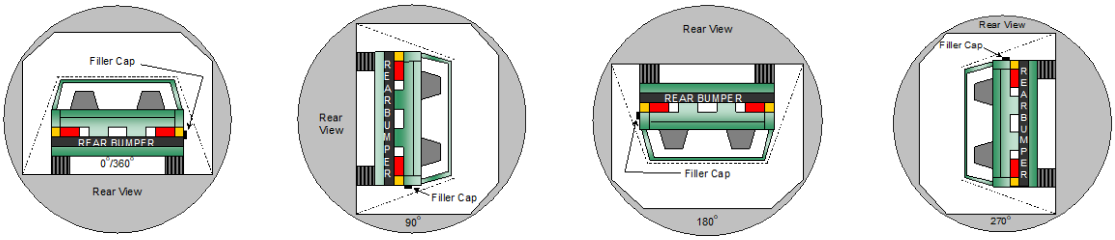
	Yes, Fail	No, Pass
Is Electric Energy Storage/Conversion Device electrolyte spillage visible in the passenger compartment?		X

DATA SHEET 5

STATIC ROLLOVER TEST DATA

Test Vehicle: 2022 Ford Mustang Mach E
Test Program: FMVSS 208 Compliance
Test Technician: Jordan Haynes

NHTSA No.: C20220204
Test Date: 8/23/22



0/360 **90** **180** **270**

REAR VIEW

DETERMINATION OF ELECTRIC ENERGY STORAGE / CONVERSION DEVICE ELECTROYTE COLLECTION TIME PERIOD

Rollover Stage	Rotation Time (spec. 1-3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	56	seconds	5	minutes	6	minutes	56	seconds	7	minutes
90° - 180°	1	minutes	57	seconds	5	minutes	6	minutes	57	seconds	7	minutes
180° - 270°	1	minutes	51	seconds	5	minutes	6	minutes	51	seconds	7	minutes
270° - 360°	1	minutes	58	seconds	5	minutes	6	minutes	58	seconds	7	minutes

ACTUAL TEST VEHICLE ELECTRIC ENERGY STORAGE/CONVERSION DEVICE ELECTROLYTE SPILLAGE

Rollover Stage	Electric Energy Storage/Conversion Device Electrolyte Spillage (L)	Spillage Location
0° to 90°	0	Not Applicable
90° to 180°	0	Not Applicable
180° to 270°	0	Not Applicable
270° to 360°	0	Not Applicable

Total Spillage: 0 L

	Yes, Fail	No, Pass
Is the total spillage of Electric Energy Storage/Conversion Device electrolyte greater than 5.0 Liters?		X
Is Electric Energy Storage/Conversion Device electrolyte spillage visible in the passenger compartment?		X

DATA SHEET 5 (CONTINUED)

STATIC ROLLOVER TEST DATA

VOLTMETER INFORMATION

Make:	Fluke
Model:	177
Serial Number:	57580164
Internal Impedance Value (MΩ):	50 MΩ
Nominal Electric Energy Storage/Conversion Device Voltage (Vb) (V):	350.4
Record V1, V2, V1', V2' voltage measurements at the start of each successive increment of 90°, 180°, 270°, and 360° of the static rollover test.	

ELECTRICAL ISOLATION MEASUREMENT

V1 =	0.0	V	0°	Time:		Minutes		s
V1 =	0.0	V	90°	Time:	2	Minutes	56	s
V1 =	0.0	V	180°	Time:	3	Minutes	08	s
V1 =	0.0	V	270°	Time:	2	Minutes	59	s
V1 =	0.0	V	360°	Time:	2	Minutes	59	s
V2 =	0.0	V	0°	Time:		Minutes		s
V2 =	0.0	V	90°	Time:	3	Minutes	00	s
V2 =	0.0	V	180°	Time:	3	Minutes	12	s
V2 =	0.0	V	270°	Time:	3	Minutes	06	s
V2 =	0.0	V	360°	Time:	3	Minutes	03	s
V1' =	0.0	V	0°	Time:		Minutes		s
V1' =	0.0	V	90°	Time:	3	Minutes	04	s
V1' =	0.0	V	180°	Time:	3	Minutes	18	s
V1' =	0.0	V	270°	Time:	3	Minutes	11	s
V1' =	0.0	V	360°	Time:	3	Minutes	07	s
V2' =	0.0	V	0°	Time:		Minutes		s
V2' =	0.0	V	90°	Time:	3	Minutes	09	s
V2' =	0.0	V	180°	Time:	3	Minutes	23	s
V2' =	0.0	V	270°	Time:	3	Minutes	14	s
V2' =	0.0	V	360°	Time:	3	Minutes	10	s
Vb =	0.0	V	0°	Time:		Minutes		s
Vb =	0.0	V	90°	Time:	3	Minutes	12	s
Vb =	0.0	V	180°	Time:	3	Minutes	26	s
Vb =	0.0	V	270°	Time:	3	Minutes	18	s
Vb =	0.0	V	360°	Time:	2	Minutes	56	s

DATA SHEET 5 (CONTINUED)

STATIC ROLLOVER TEST DATA

ELECTRICAL ISOLATION CALCULATION

Note: If measured voltage is zero and results in a division by zero, record “Zero Volts”. This “zero voltage” condition is considered as being compliant.

Ri1 = Ro (1 + V2/V1) [(V1-V1’)/V1’]								
Ri1 =	Zero Volts	Ω	0°	Time:		Minutes		s
Ri1 =	Zero Volts	Ω	90°	Time:	3	Minutes	04	s
Ri1 =	Zero Volts	Ω	180°	Time:	3	Minutes	18	s
Ri1 =	Zero Volts	Ω	270°	Time:	3	Minutes	11	s
Ri1 =	Zero Volts	Ω	360°	Time:	3	Minutes	07	s
Ri2 = Ro (1 + V1/V2) [(V2-V2’)/V2’]								
Ri2 =	Zero Volts	Ω	0°	Time:		Minutes		s
Ri2 =	Zero Volts	Ω	90°	Time:	3	Minutes	09	s
Ri2 =	Zero Volts	Ω	180°	Time:	3	Minutes	23	s
Ri2 =	Zero Volts	Ω	270°	Time:	3	Minutes	14	s
Ri2 =	Zero Volts	Ω	360°	Time:	3	Minutes	10	s
Ri = The lesser of Ri1 and Ri2								
Ri =	Zero Volts	Ω	0°	Time:		Minutes		s
Ri =	Zero Volts	Ω	90°	Time:	3	Minutes	04	s
Ri =	Zero Volts	Ω	180°	Time:	3	Minutes	18	s
Ri =	Zero Volts	Ω	270°	Time:	3	Minutes	11	s
Ri =	Zero Volts	Ω	360°	Time:	3	Minutes	07	s
Ri/Vb = Electrical Isolation Value/Nominal Battery Voltage Minimum Electrical Isolation Value is 500 Ω /V								
Ri/Vb =	Zero Volts	Ω/V	0°	Time:		Minutes		s
Ri/Vb =	Zero Volts	Ω/V	90°	Time:	3	Minutes	04	s
Ri/Vb =	Zero Volts	Ω/V	180°	Time:	3	Minutes	18	s
Ri/Vb =	Zero Volts	Ω/V	270°	Time:	3	Minutes	11	s
Ri/Vb =	Zero Volts	Ω/V	360°	Time:	3	Minutes	07	s

Is the measured Electrical Isolation Value:	Yes, Pass	No, Fail
≥500 Ω/V without electrical isolation monitoring	X	
≥100 Ω/V with electrical isolation monitoring		

APPENDIX A

CRASH TEST DATA

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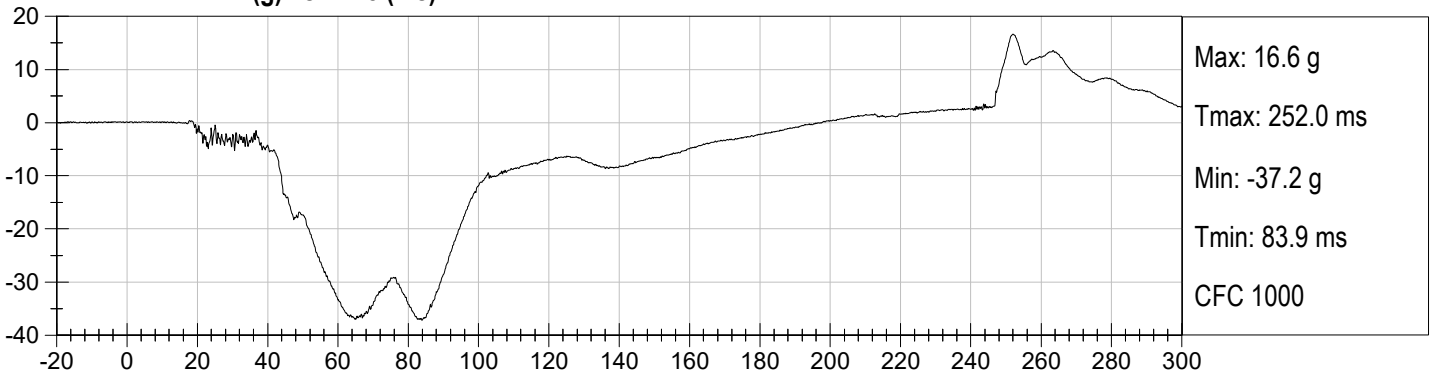
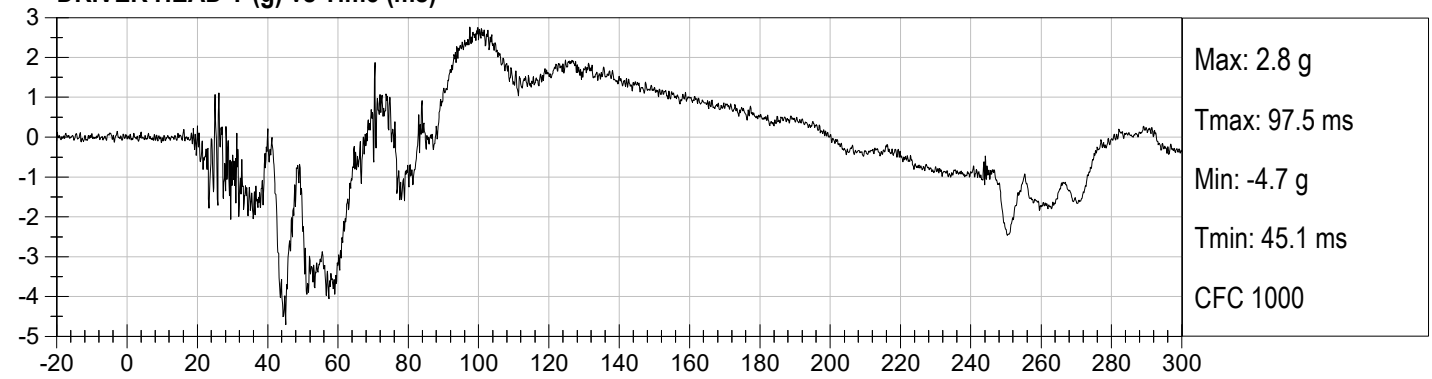
DRIVER HEAD X (g) vs Time (ms)

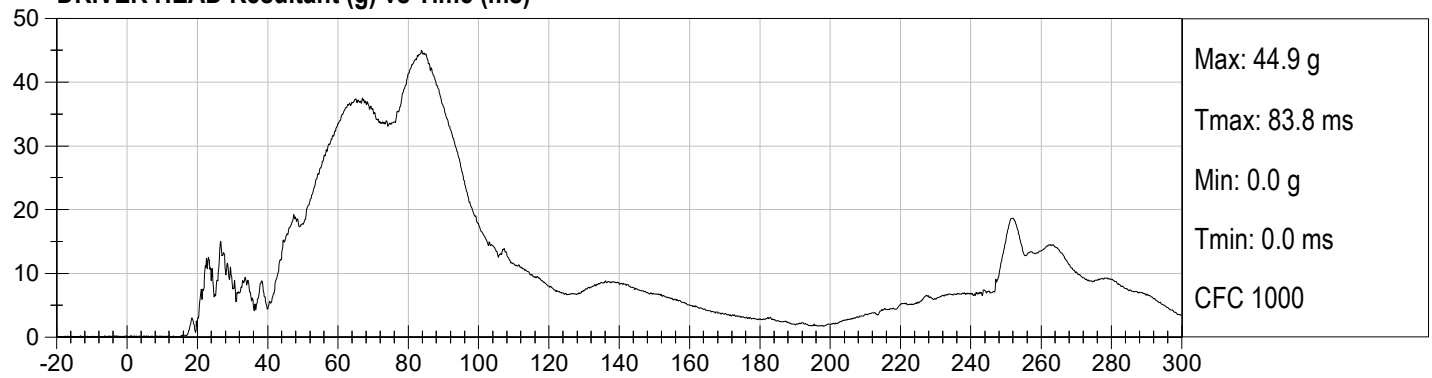


DRIVER HEAD Y (g) vs Time (ms)

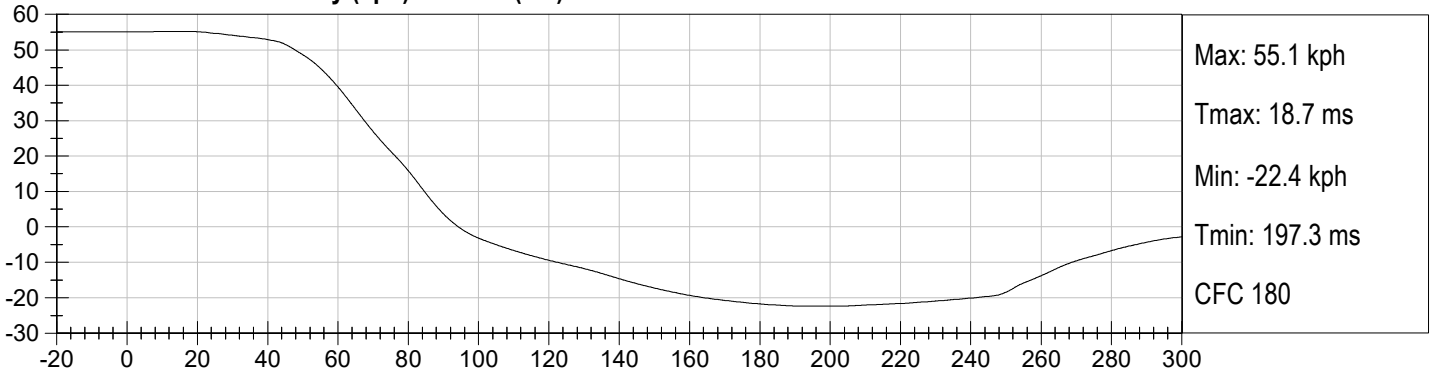


DRIVER HEAD Z (g) vs Time (ms)

DRIVER HEAD Resultant (g) vs Time (ms)



DRIVER HEAD X Velocity (kph) vs Time (ms)



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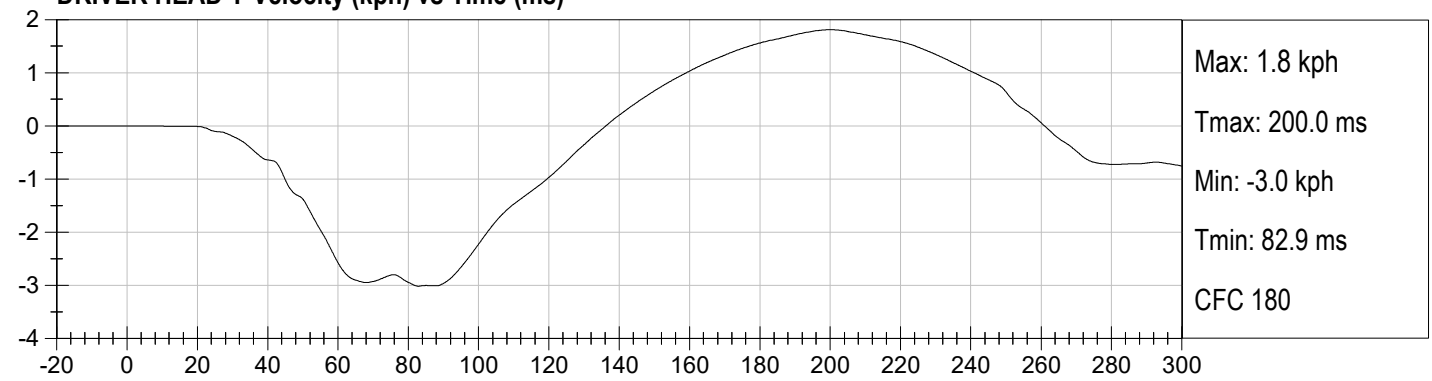
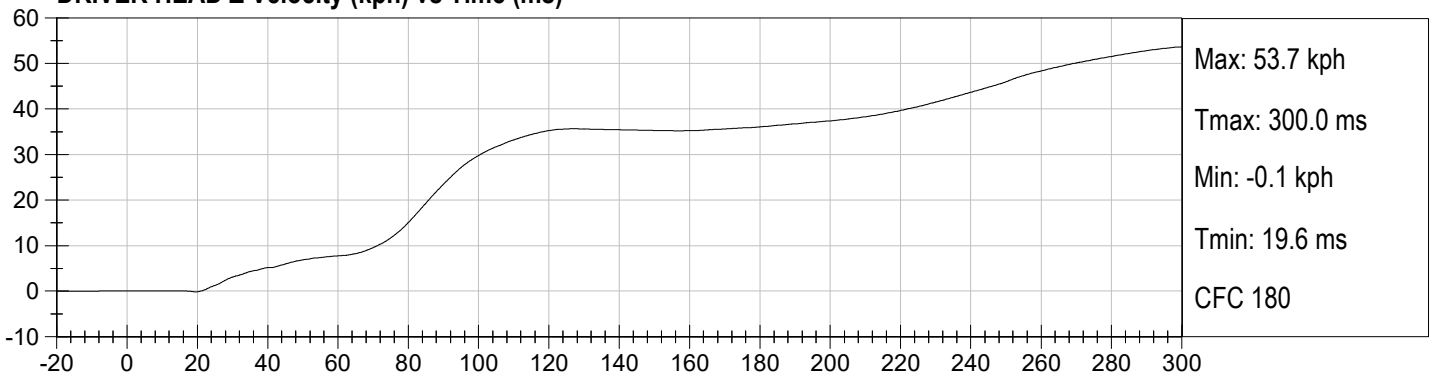
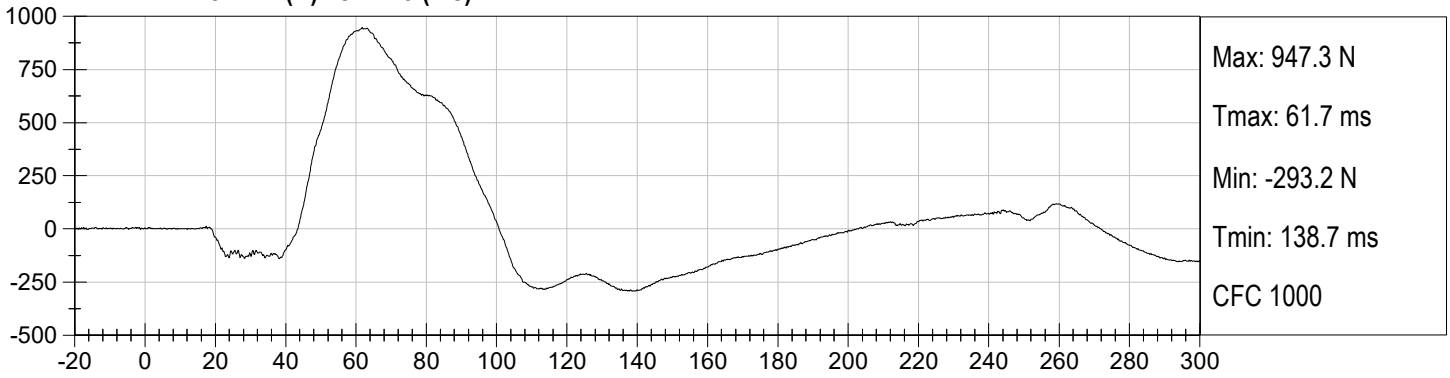


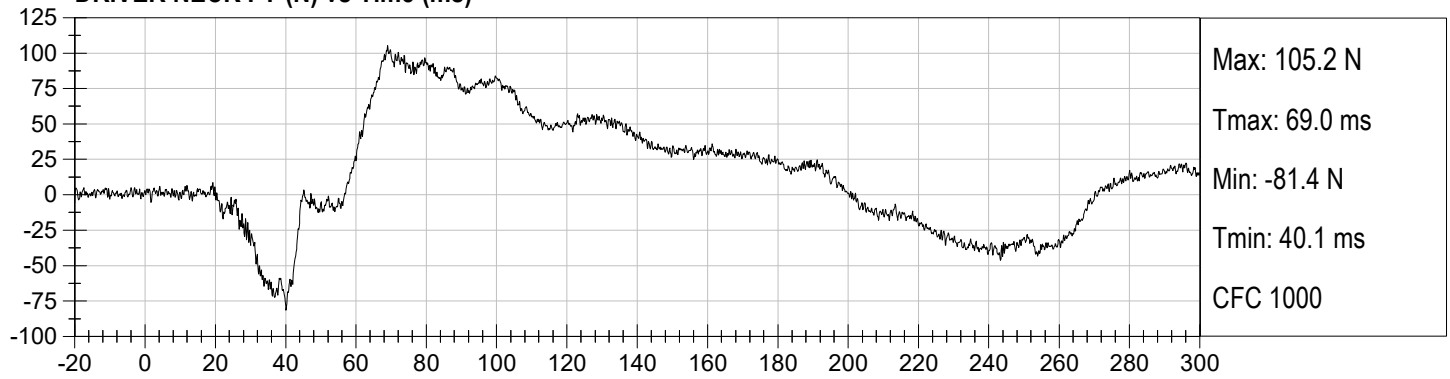
DRIVER HEAD Z Velocity (kph) vs Time (ms)



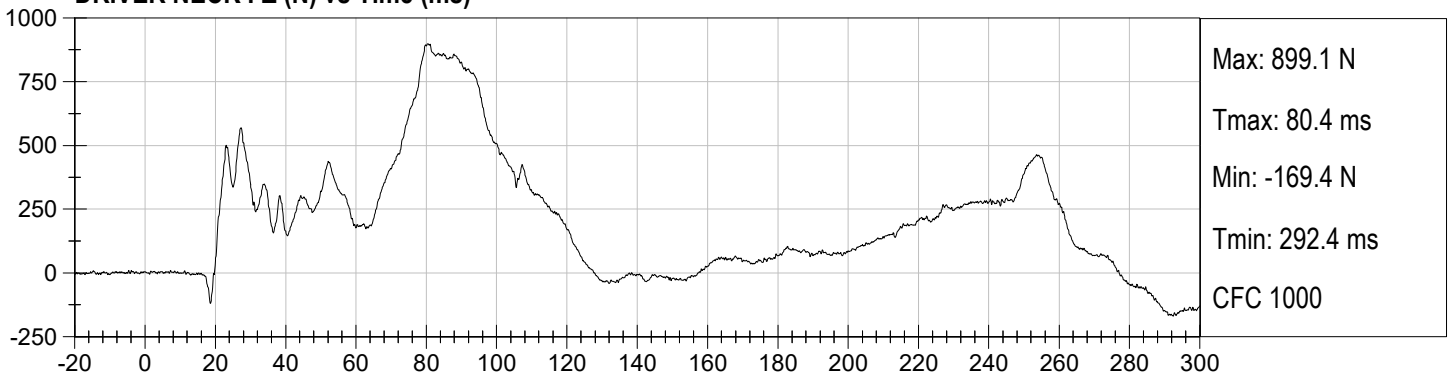
DRIVER NECK FX (N) vs Time (ms)



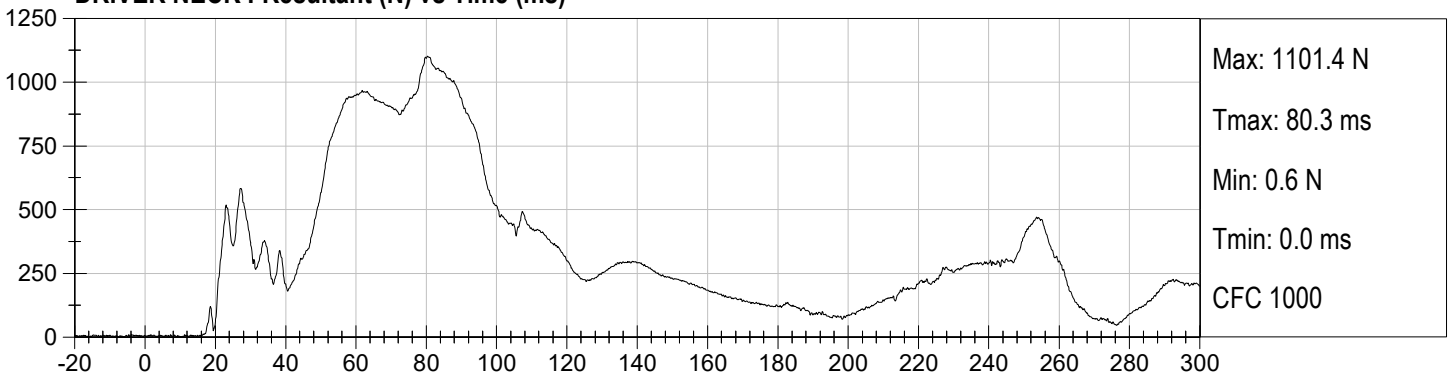
DRIVER NECK FY (N) vs Time (ms)



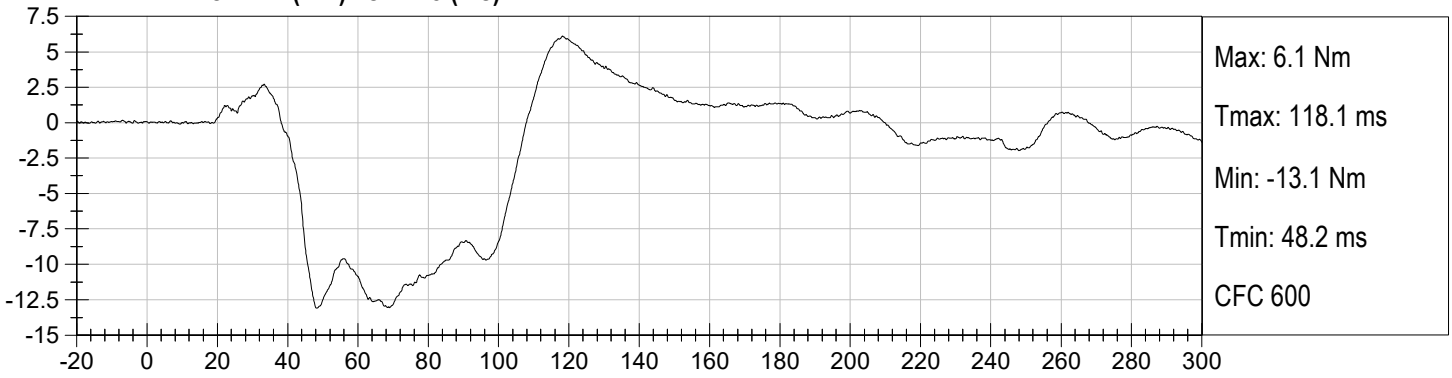
DRIVER NECK FZ (N) vs Time (ms)



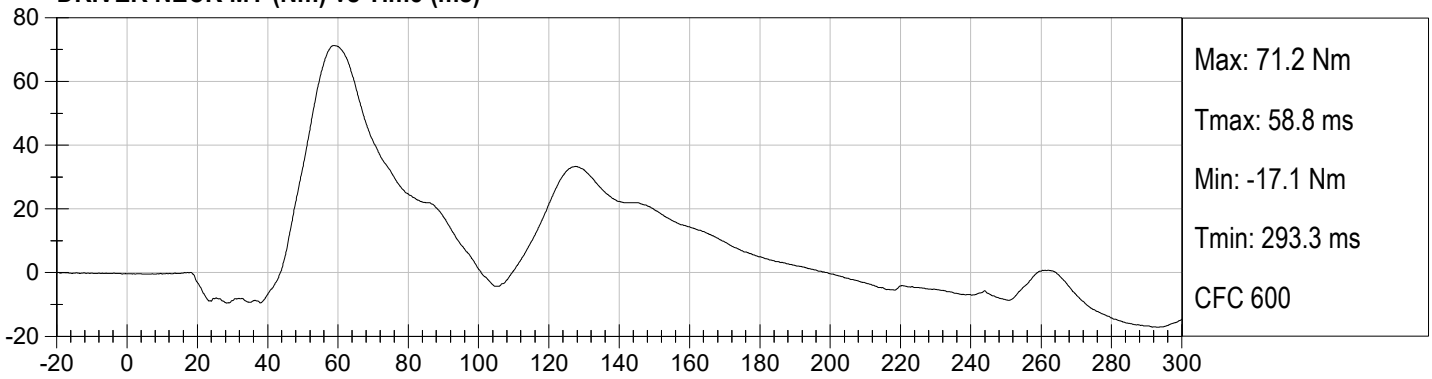
DRIVER NECK FResultant (N) vs Time (ms)



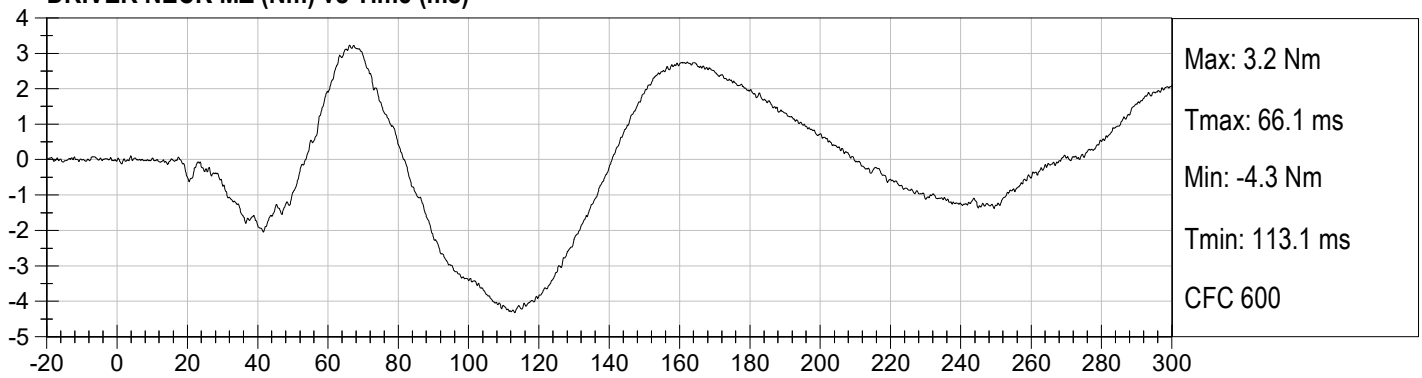
DRIVER NECK MX (Nm) vs Time (ms)



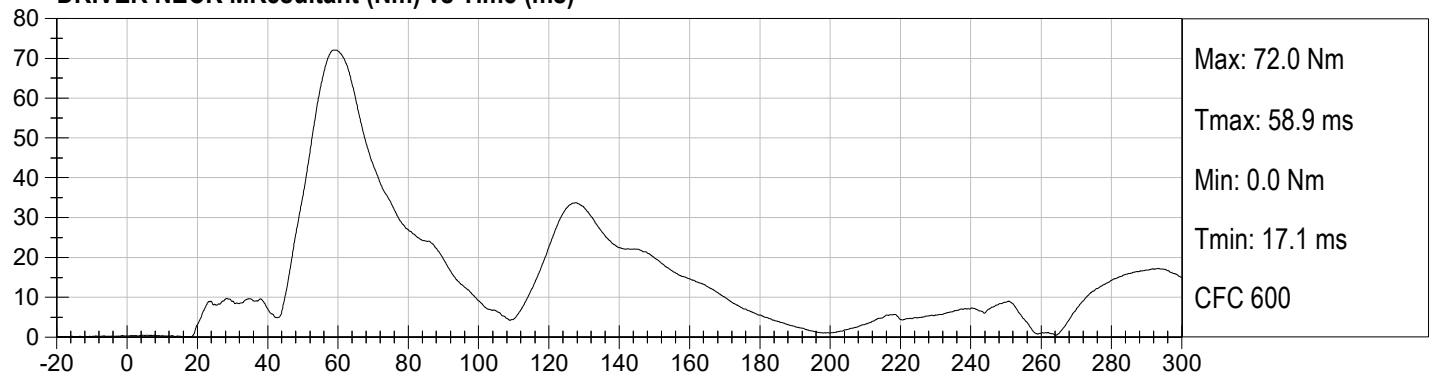
DRIVER NECK MY (Nm) vs Time (ms)



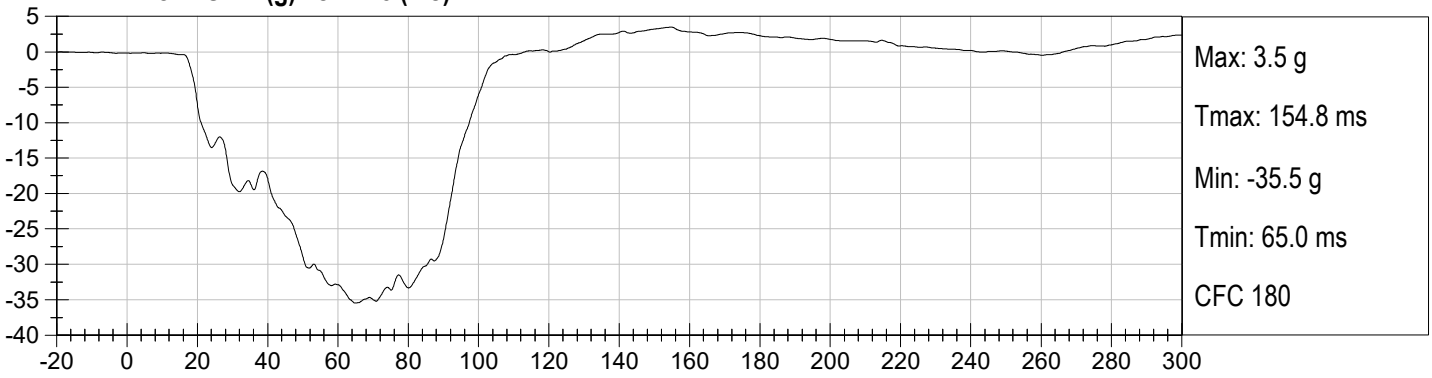
DRIVER NECK MZ (Nm) vs Time (ms)



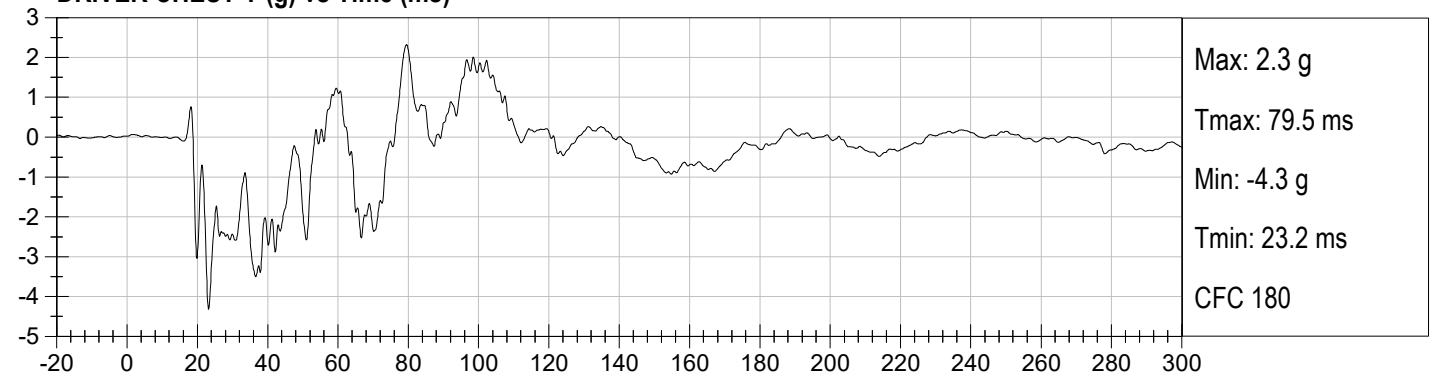
DRIVER NECK MResultant (Nm) vs Time (ms)



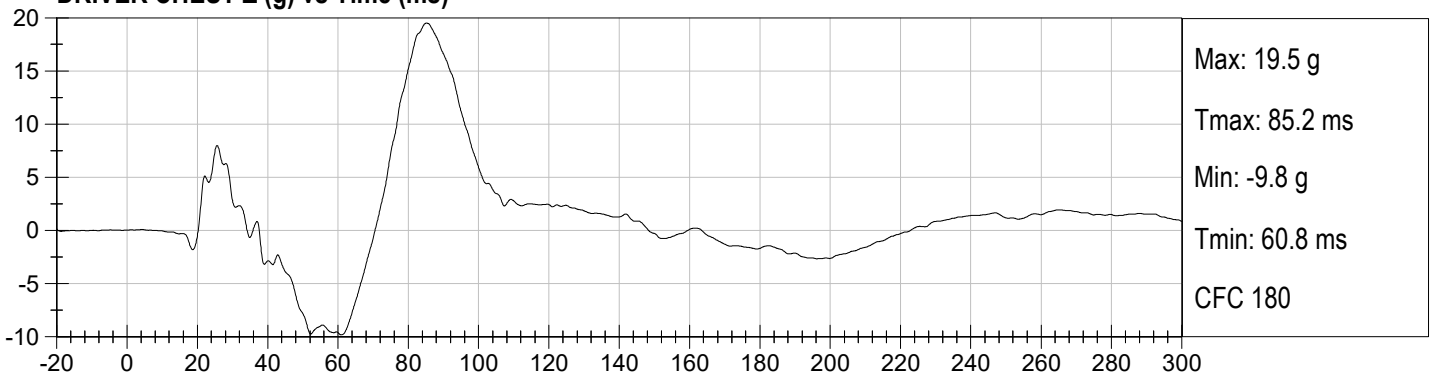
DRIVER CHEST X (g) vs Time (ms)



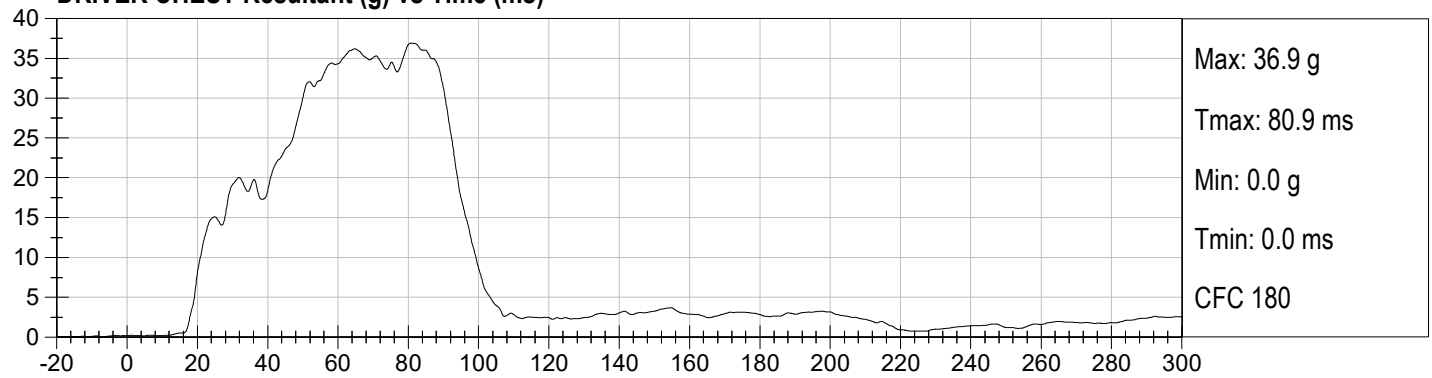
DRIVER CHEST Y (g) vs Time (ms)



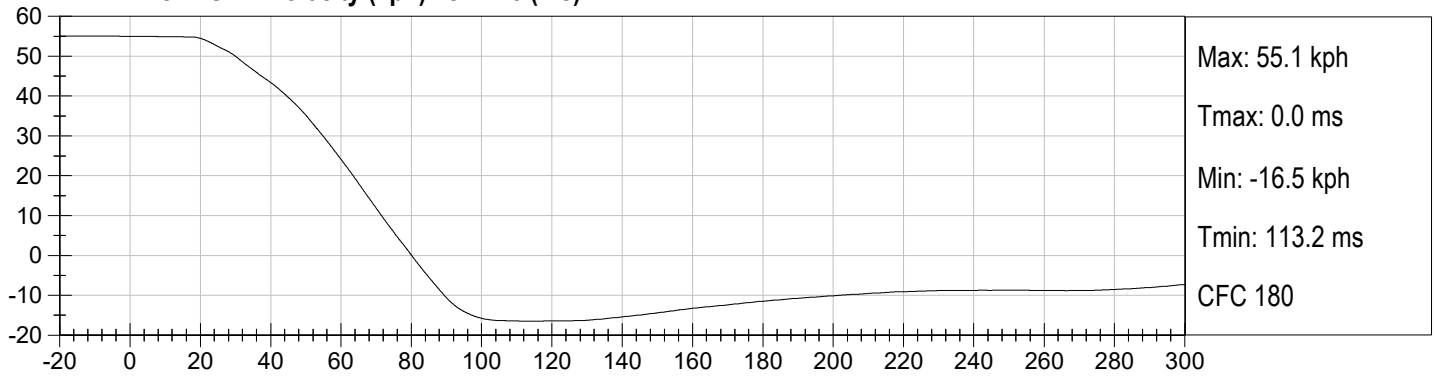
DRIVER CHEST Z (g) vs Time (ms)



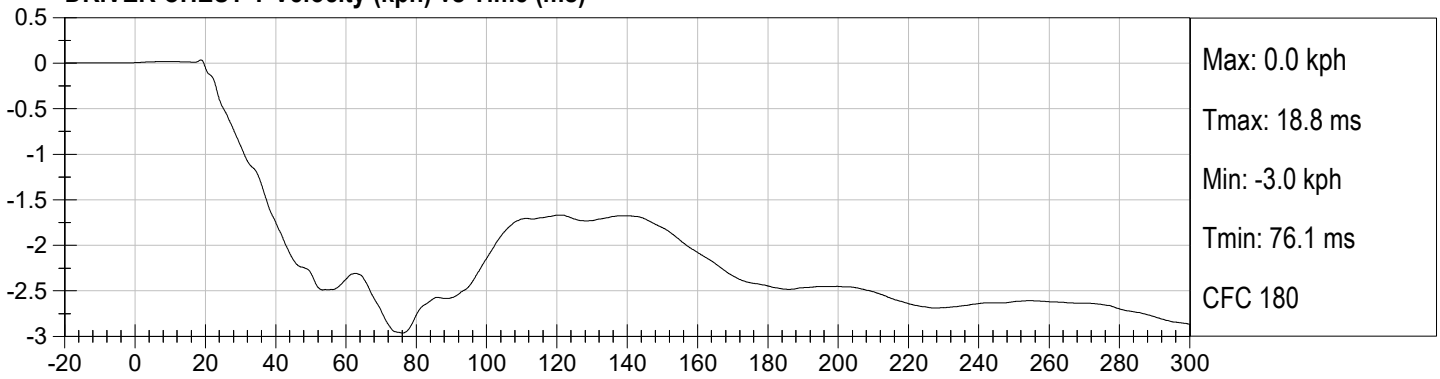
DRIVER CHEST Resultant (g) vs Time (ms)



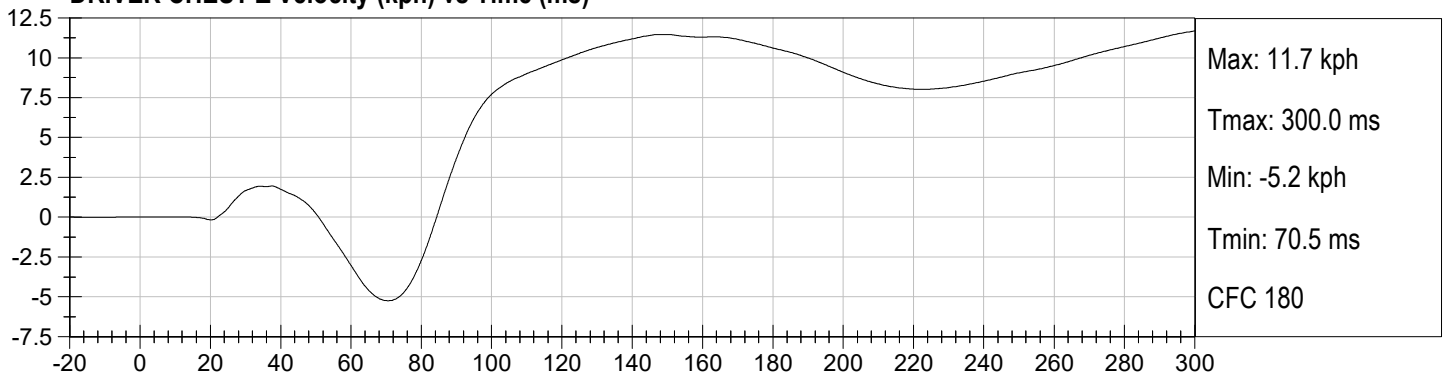
DRIVER CHEST X Velocity (kph) vs Time (ms)



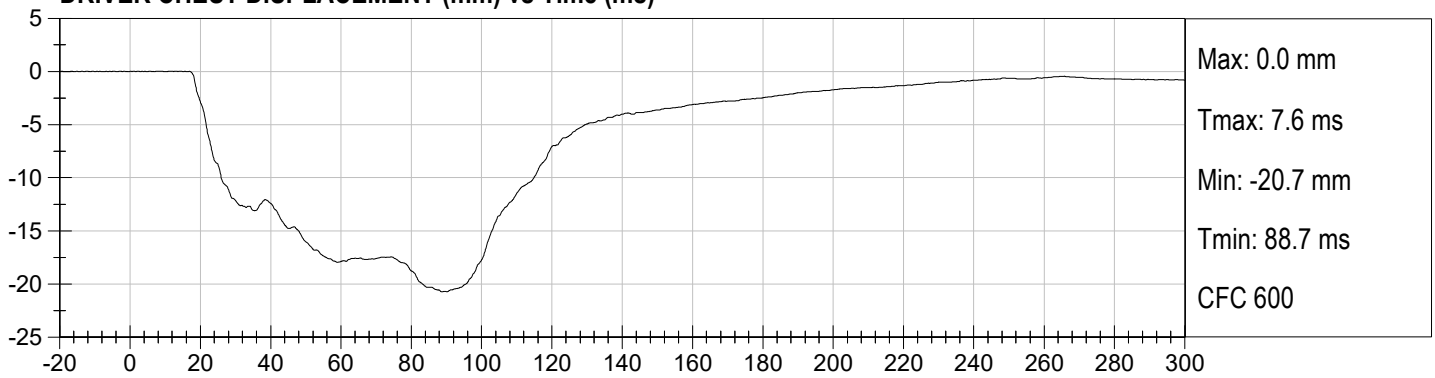
DRIVER CHEST Y Velocity (kph) vs Time (ms)



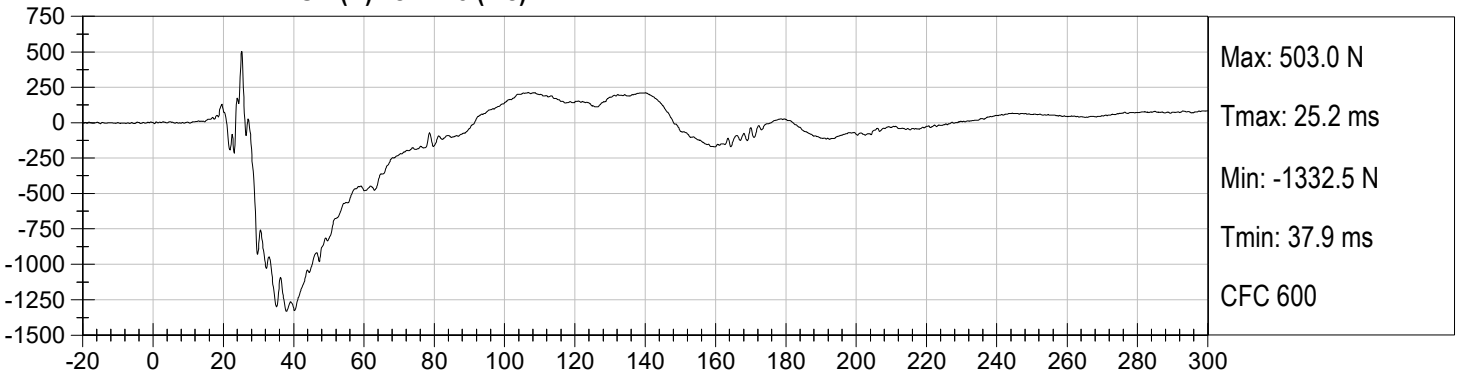
DRIVER CHEST Z Velocity (kph) vs Time (ms)



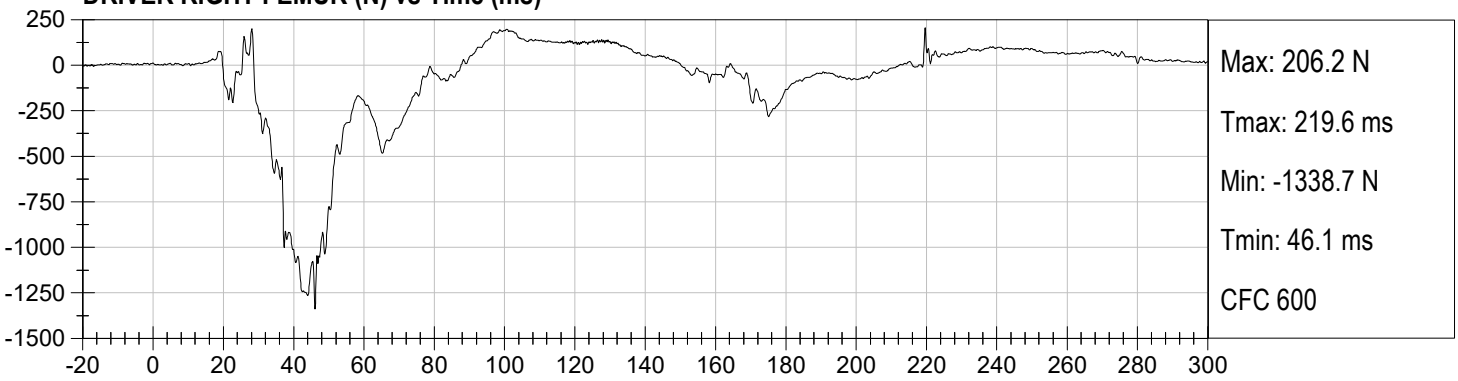
DRIVER CHEST DISPLACEMENT (mm) vs Time (ms)



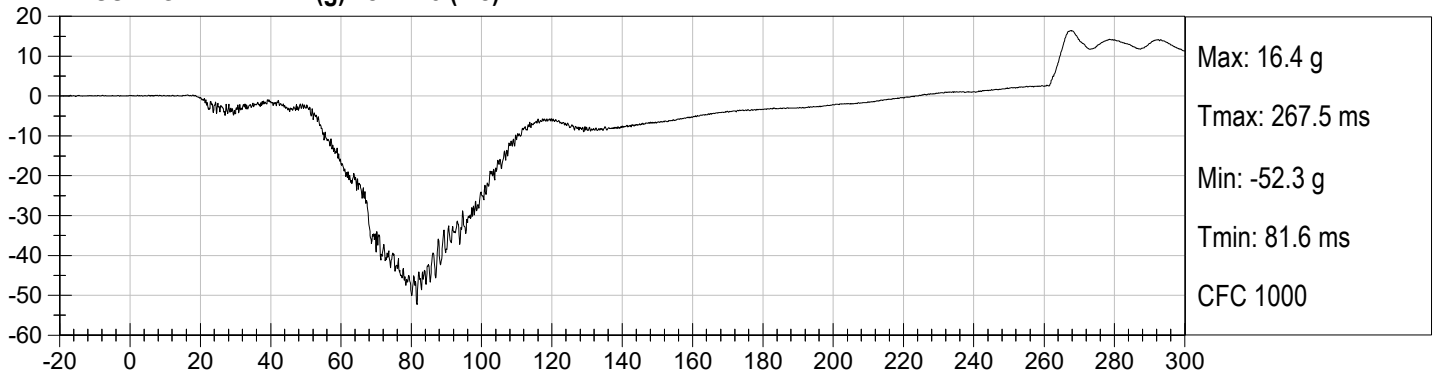
DRIVER LEFT FEMUR (N) vs Time (ms)



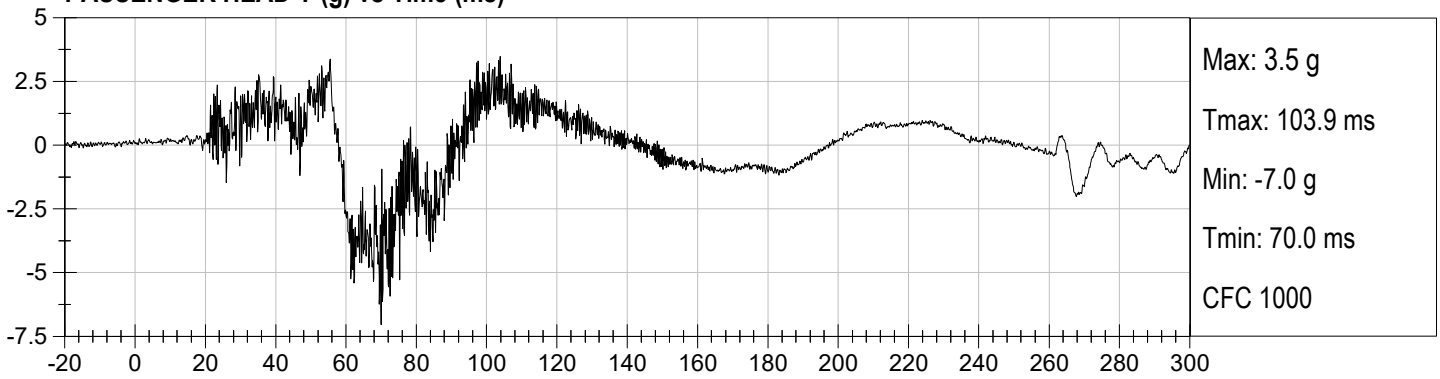
DRIVER RIGHT FEMUR (N) vs Time (ms)



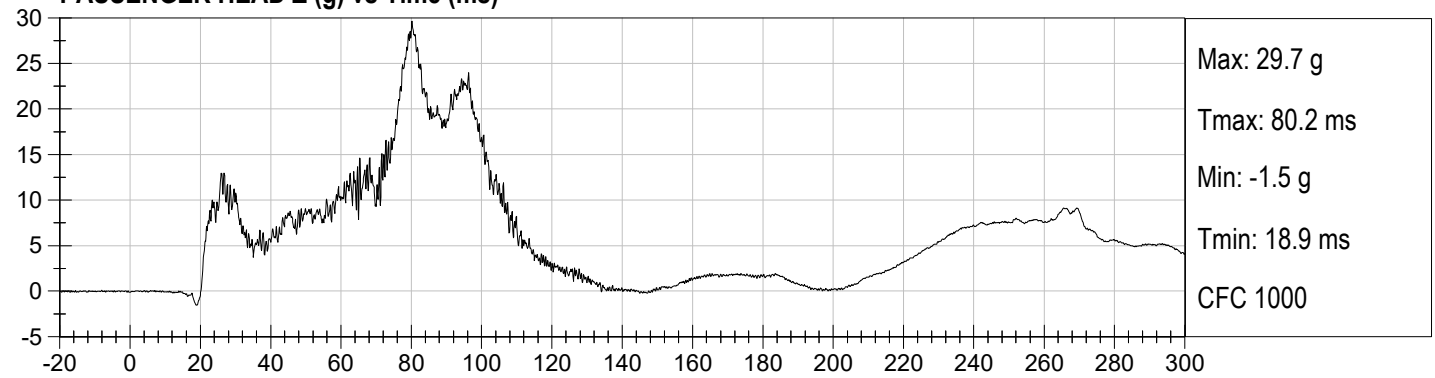
PASSENGER HEAD X (g) vs Time (ms)



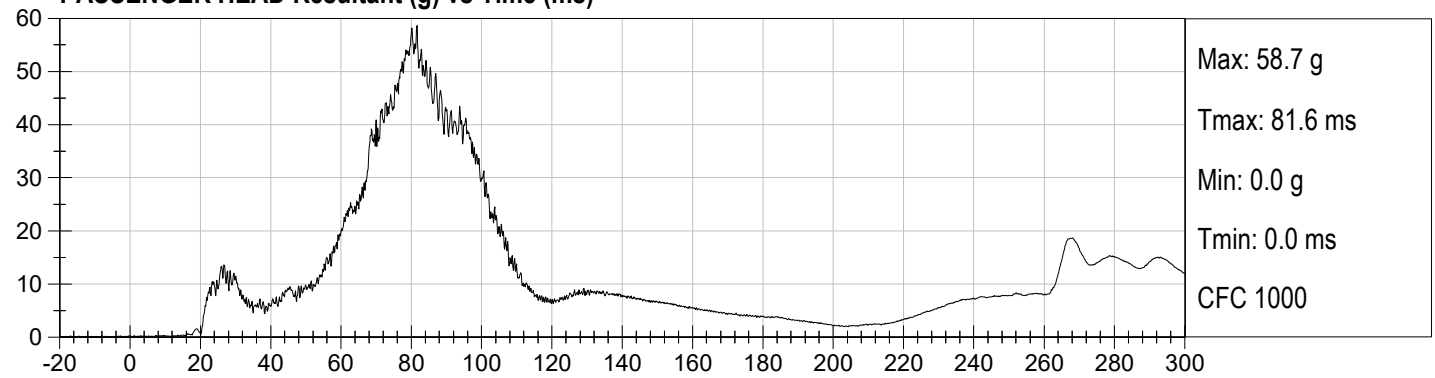
PASSENGER HEAD Y (g) vs Time (ms)



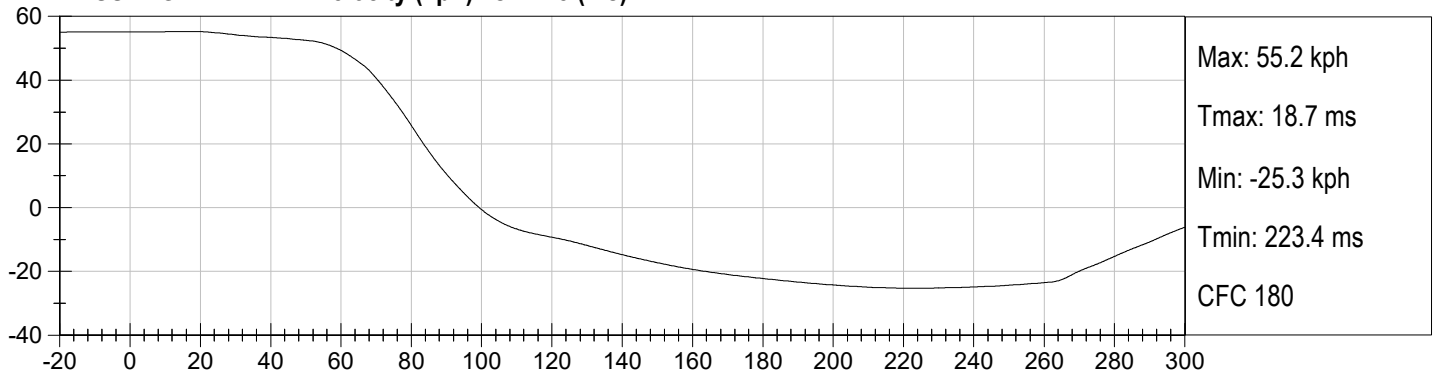
PASSENGER HEAD Z (g) vs Time (ms)



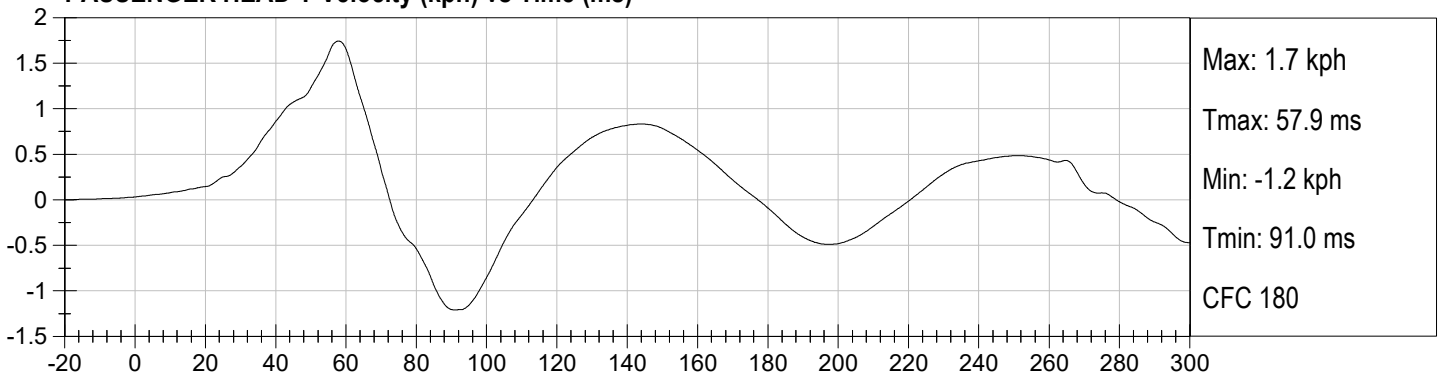
PASSENGER HEAD Resultant (g) vs Time (ms)



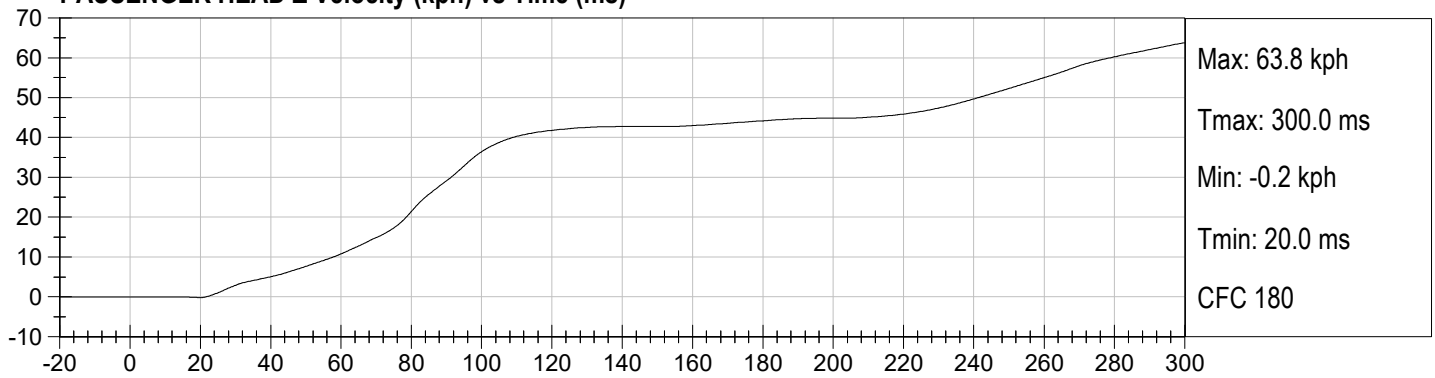
PASSENGER HEAD X Velocity (kph) vs Time (ms)



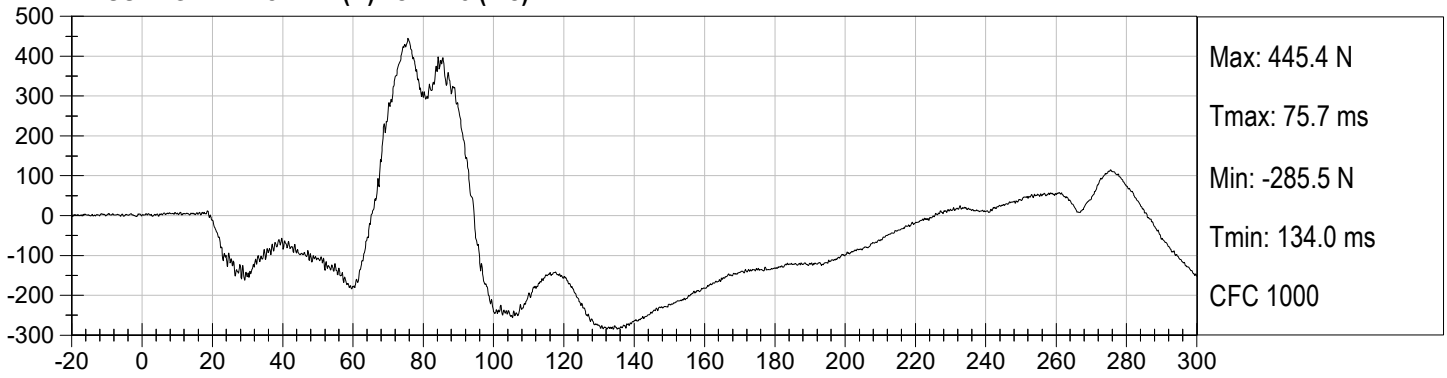
PASSENGER HEAD Y Velocity (kph) vs Time (ms)



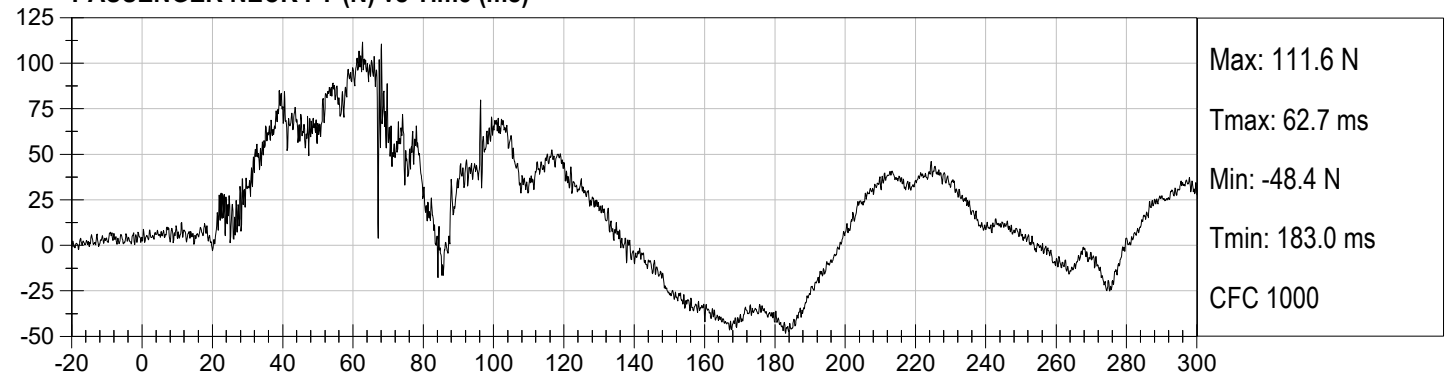
PASSENGER HEAD Z Velocity (kph) vs Time (ms)



PASSENGER NECK FX (N) vs Time (ms)

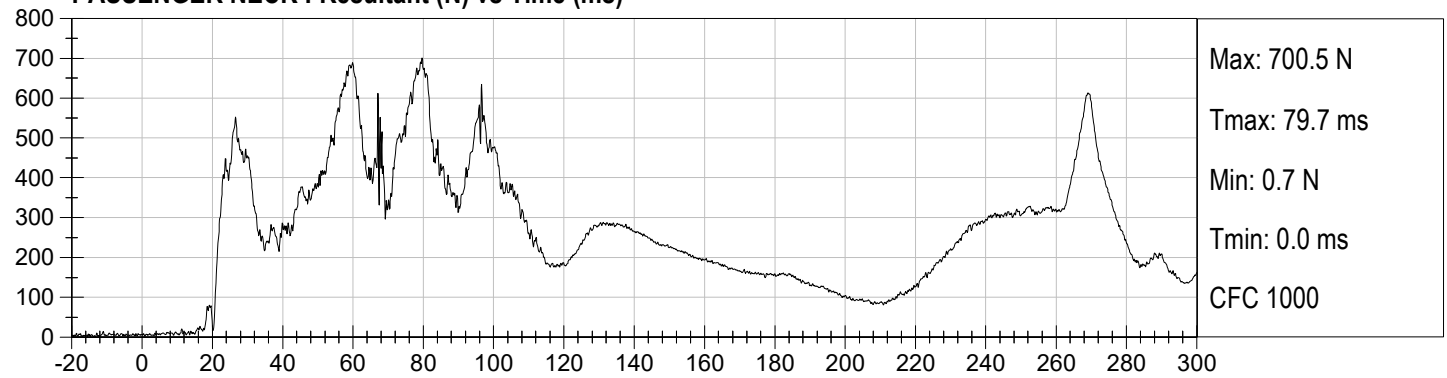


PASSENGER NECK FY (N) vs Time (ms)



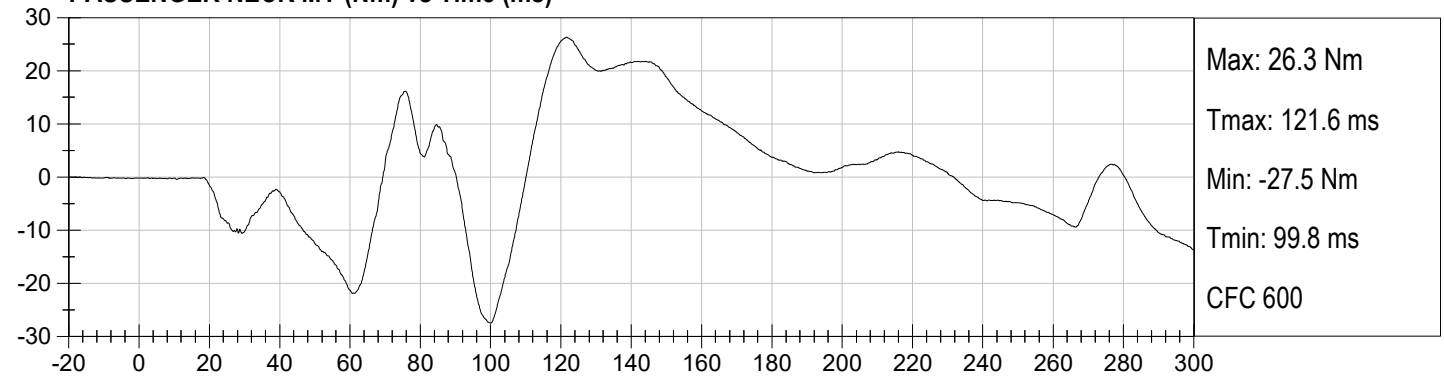
PASSENGER NECK FZ (N) vs Time (ms)

PASSENGER NECK FResultant (N) vs Time (ms)

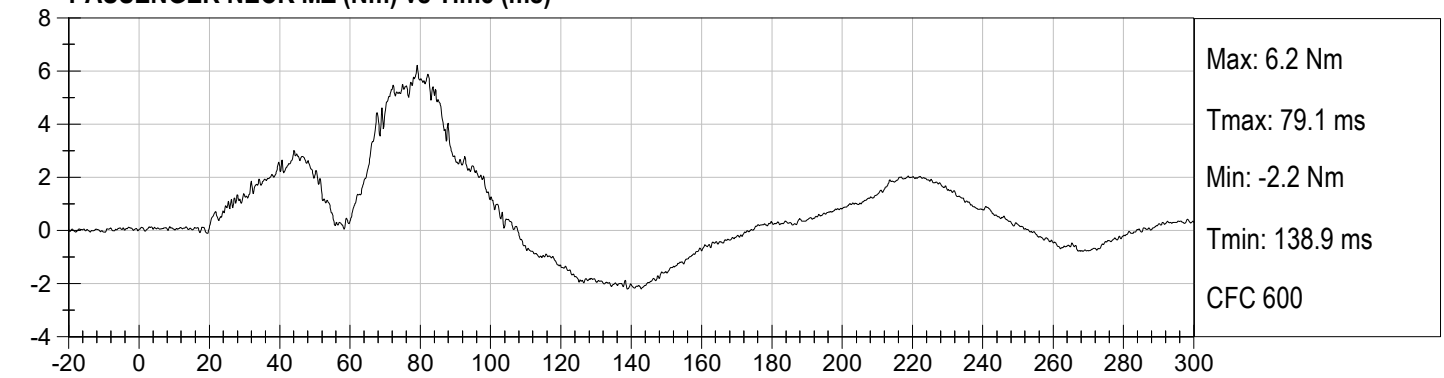


PASSENGER NECK MX (Nm) vs Time (ms)

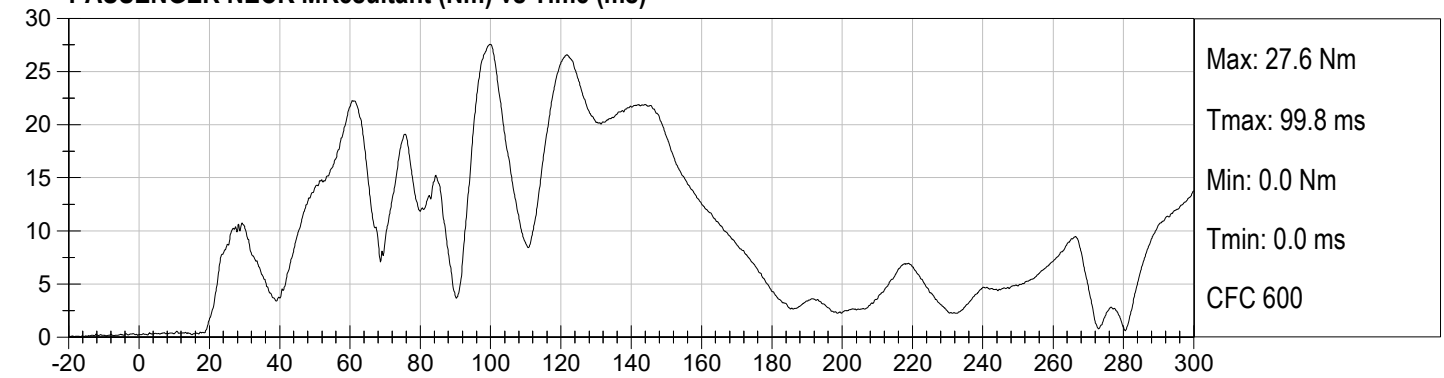
PASSENGER NECK MY (Nm) vs Time (ms)



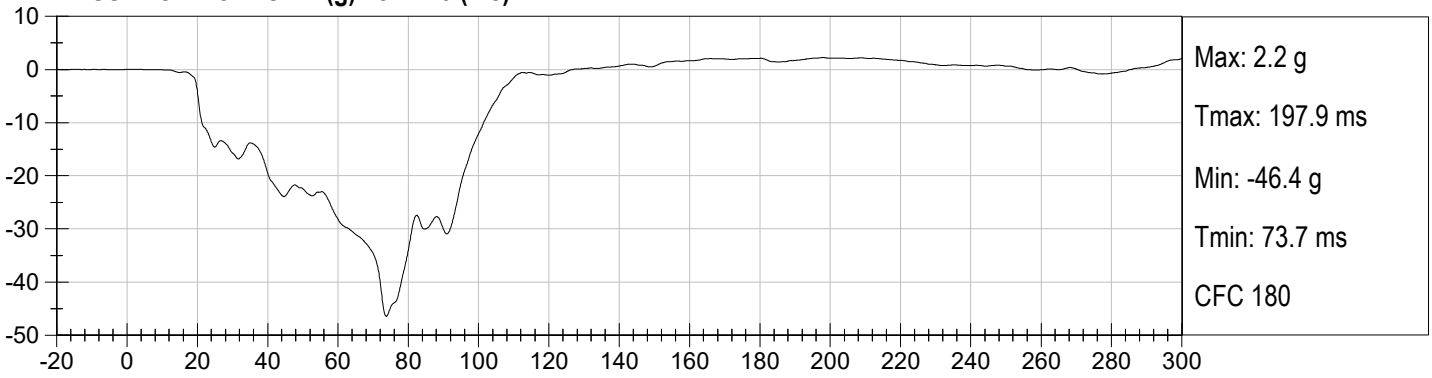
PASSENGER NECK MZ (Nm) vs Time (ms)



PASSENGER NECK MResultant (Nm) vs Time (ms)

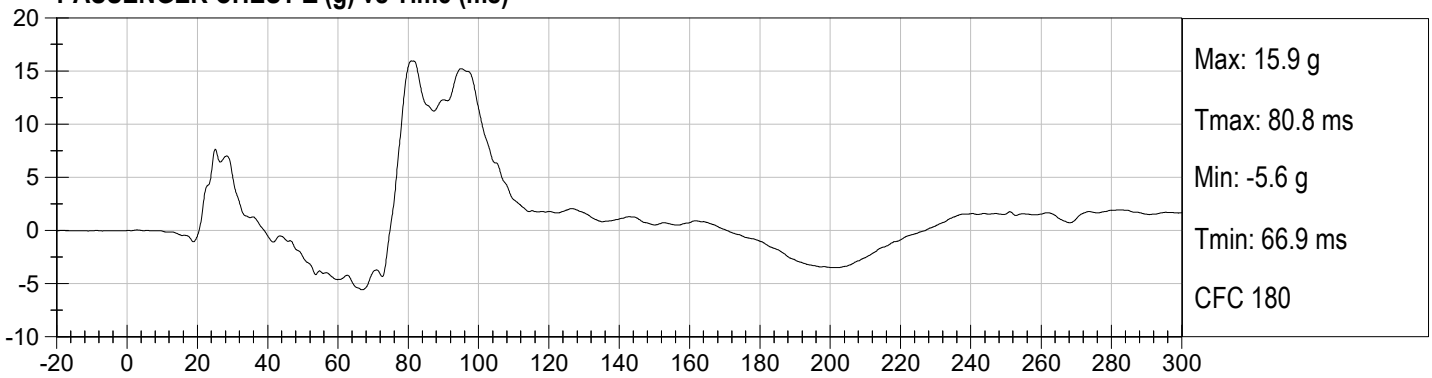


PASSENGER CHEST X (g) vs Time (ms)

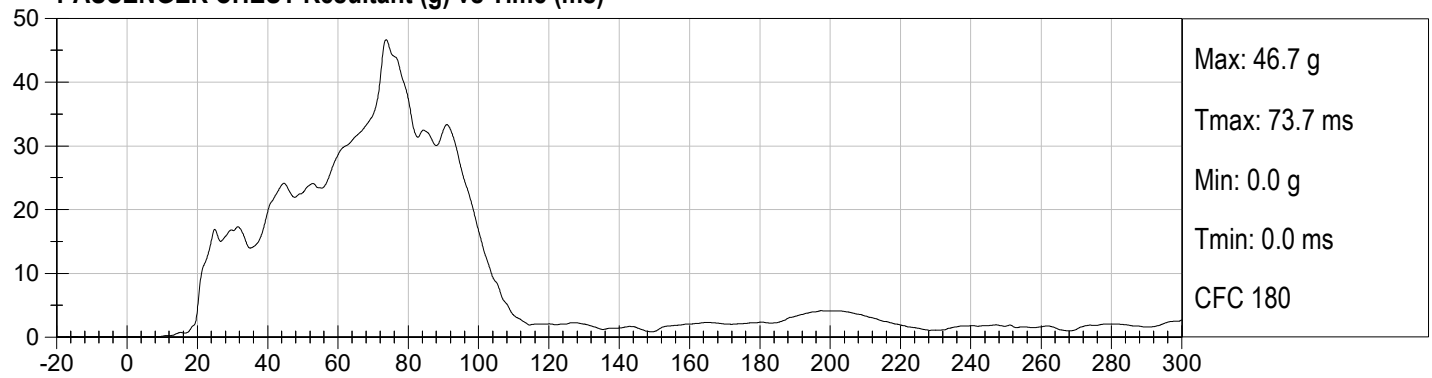


PASSENGER CHEST Y (g) vs Time (ms)

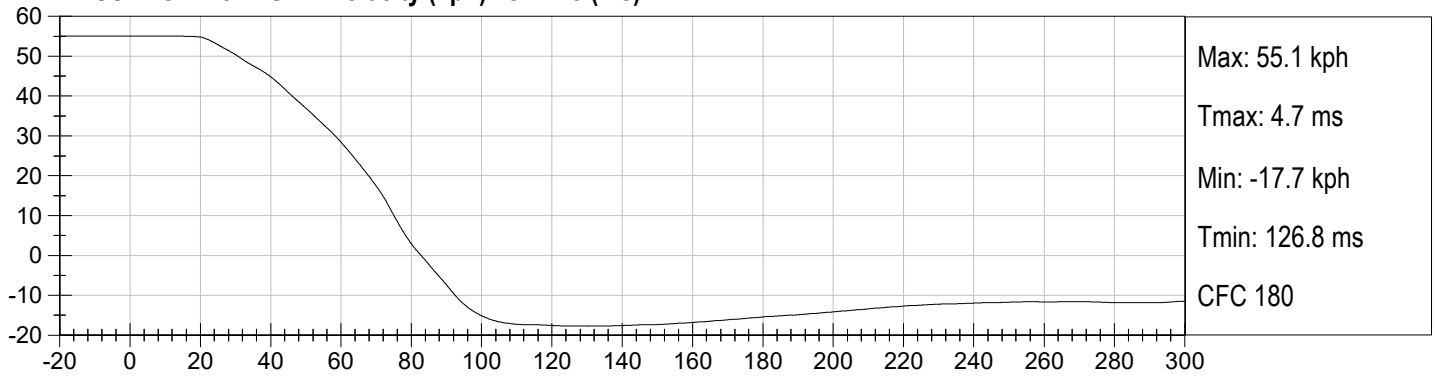
PASSENGER CHEST Z (g) vs Time (ms)



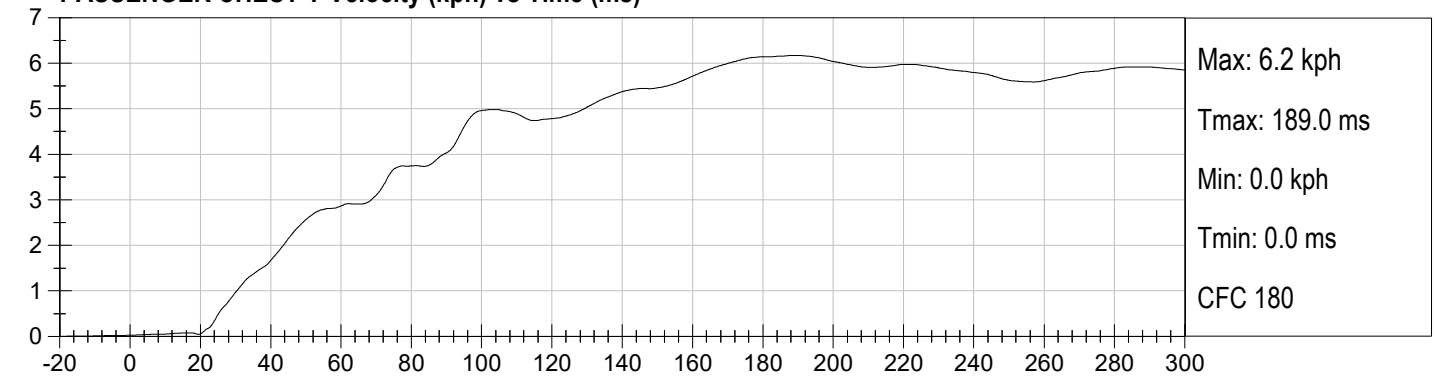
PASSENGER CHEST Resultant (g) vs Time (ms)



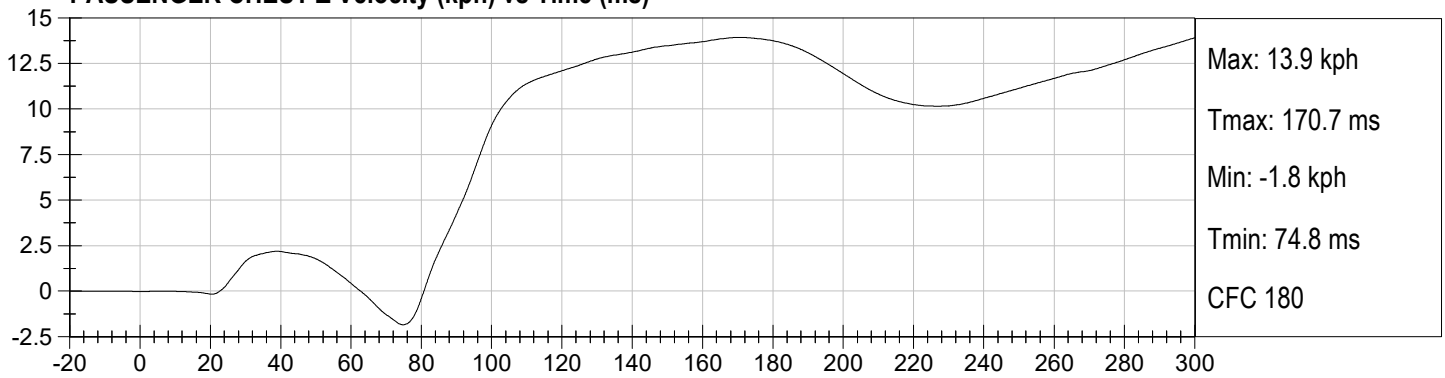
PASSENGER CHEST X Velocity (kph) vs Time (ms)



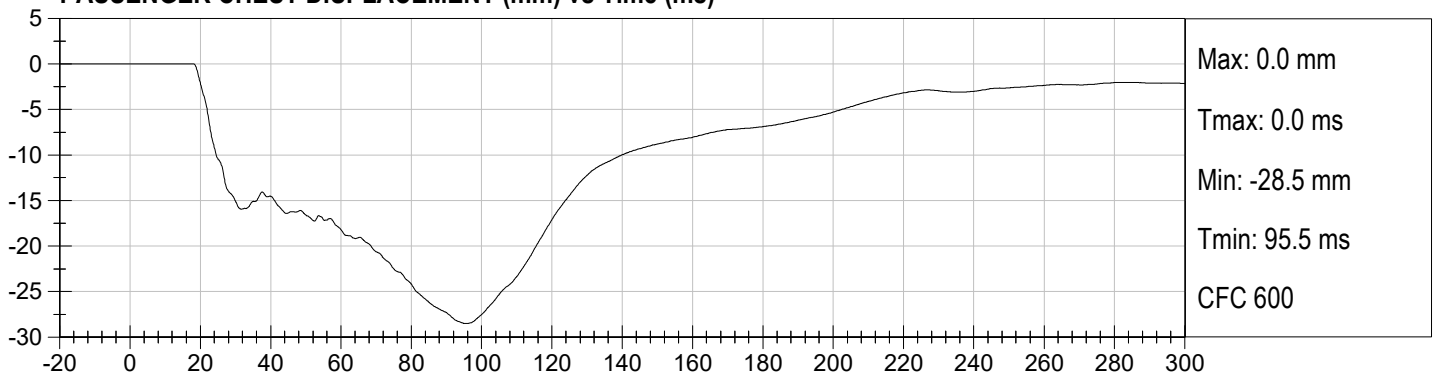
PASSENGER CHEST Y Velocity (kph) vs Time (ms)



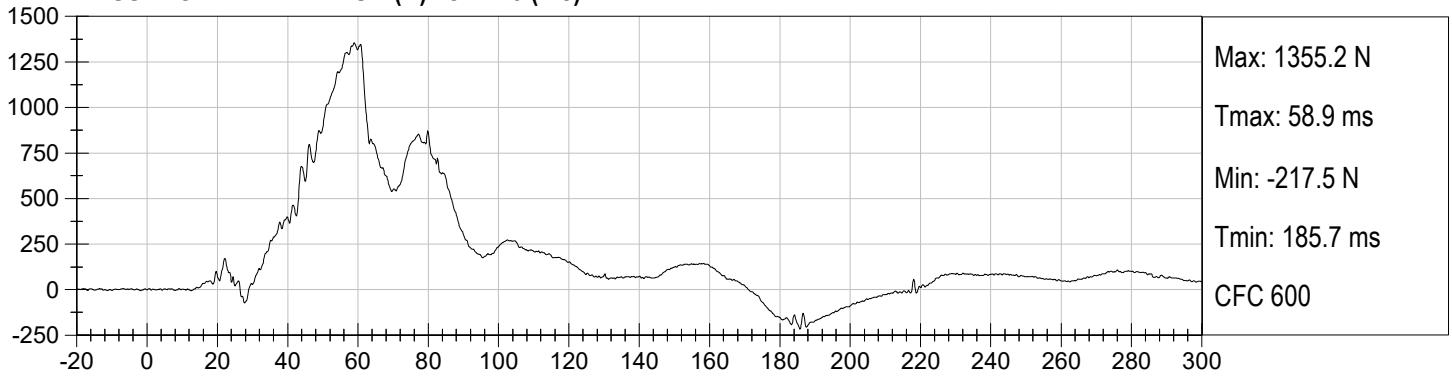
PASSENGER CHEST Z Velocity (kph) vs Time (ms)



PASSENGER CHEST DISPLACEMENT (mm) vs Time (ms)

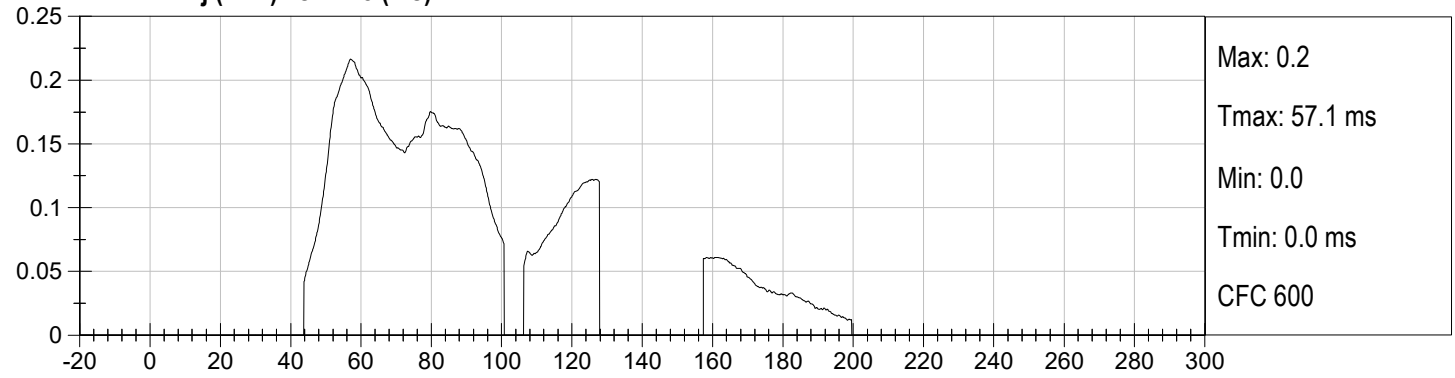


PASSENGER LEFT FEMUR (N) vs Time (ms)

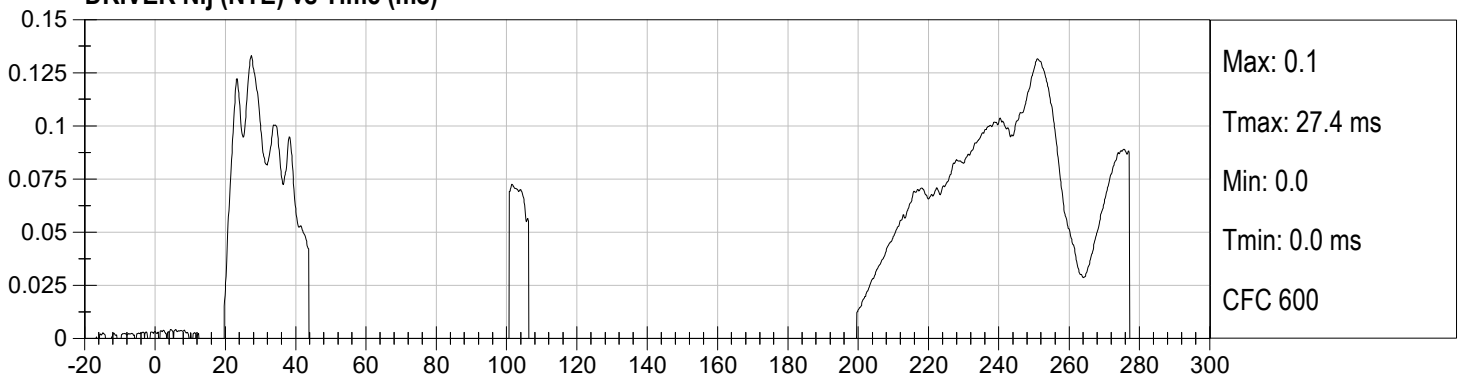


PASSENGER RIGHT FEMUR (N) vs Time (ms)

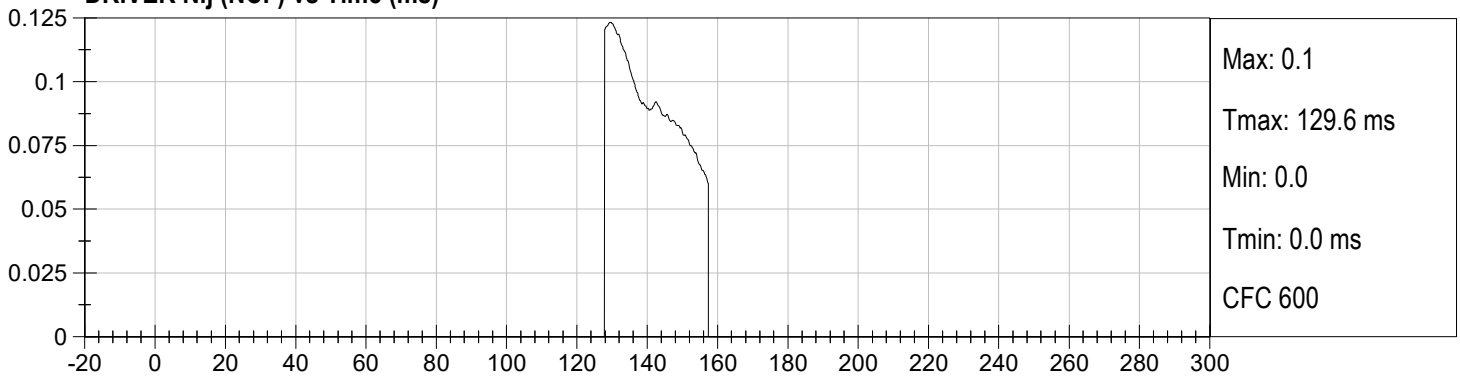
DRIVER Nij (NTF) vs Time (ms)



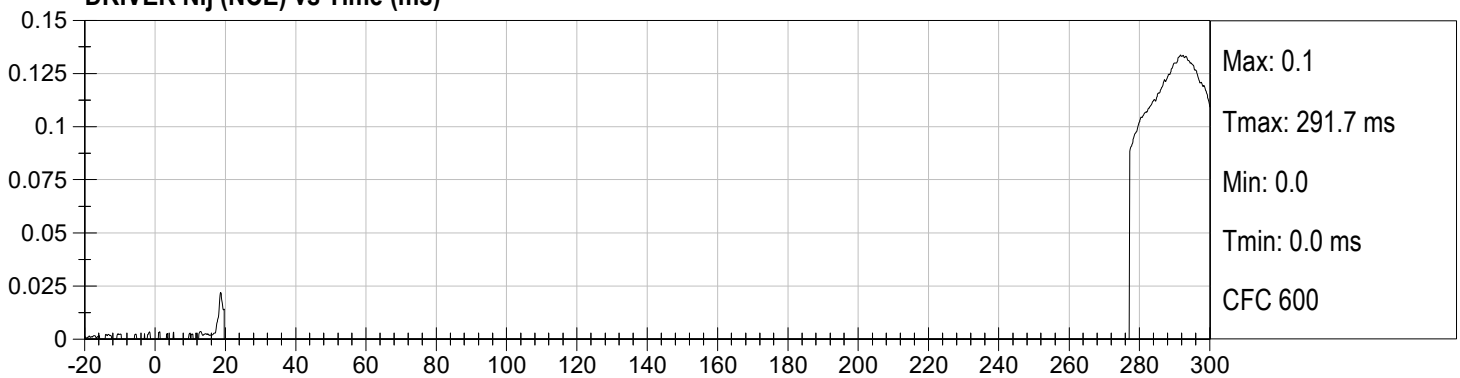
DRIVER Nij (NTE) vs Time (ms)



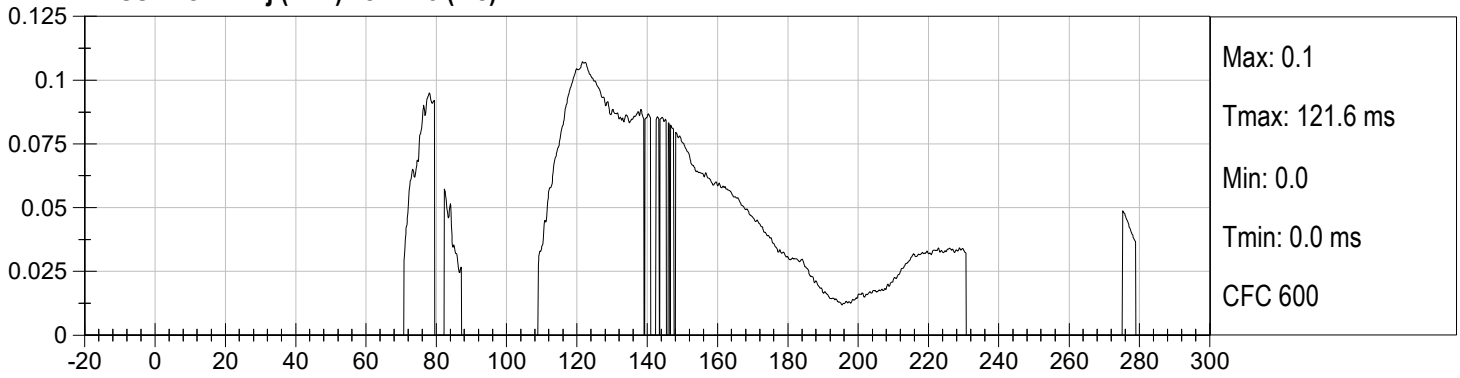
DRIVER Nij (NCF) vs Time (ms)



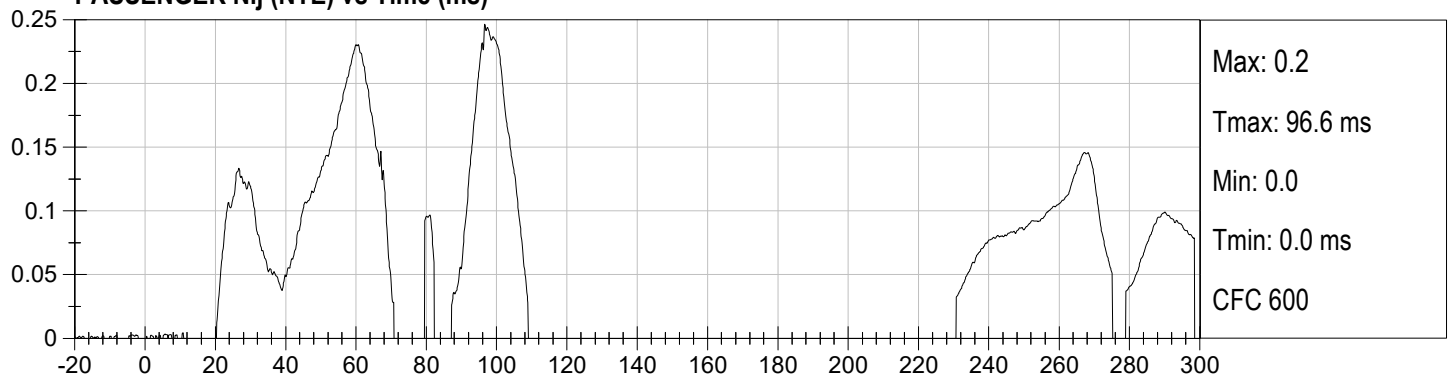
DRIVER Nij (NCE) vs Time (ms)



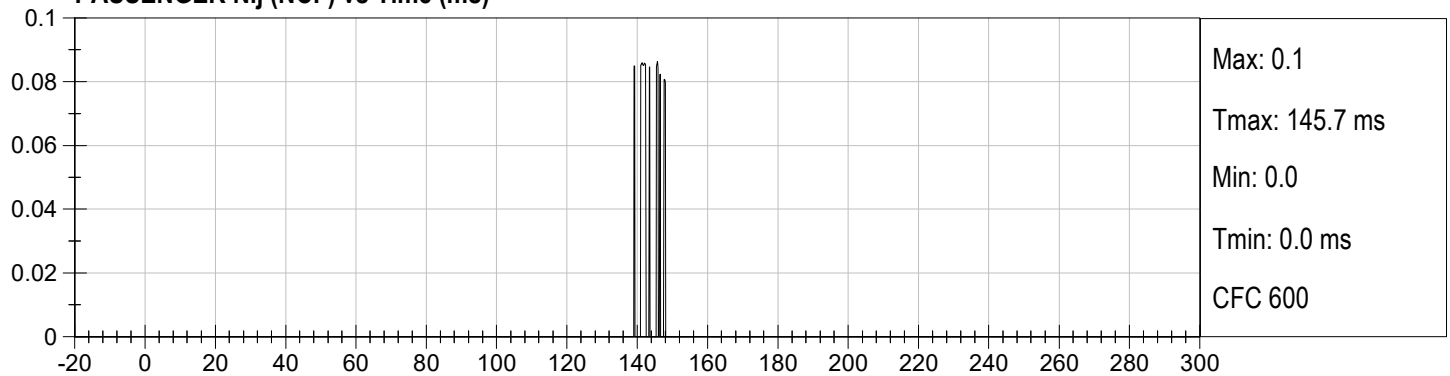
PASSENGER Nij (NTF) vs Time (ms)



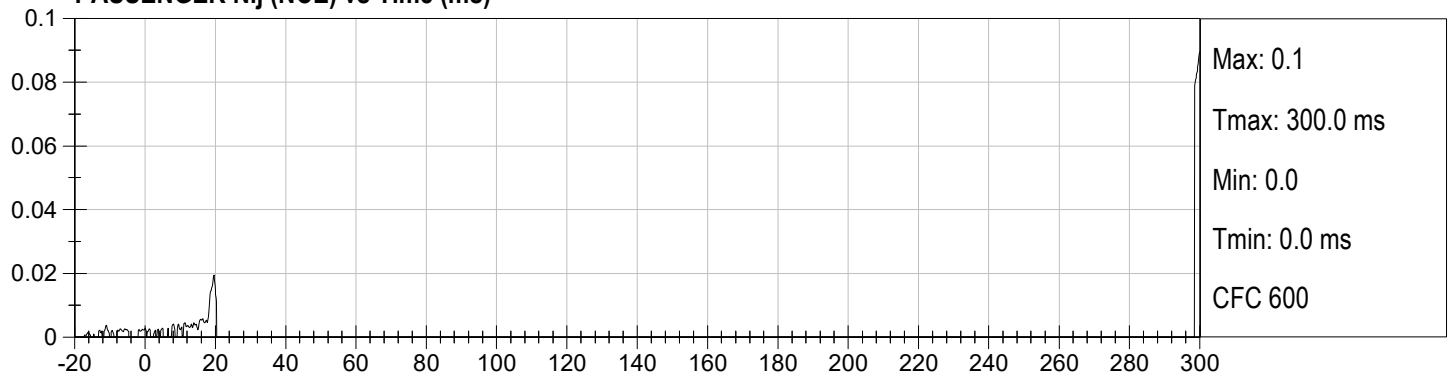
PASSENGER Nij (NTE) vs Time (ms)



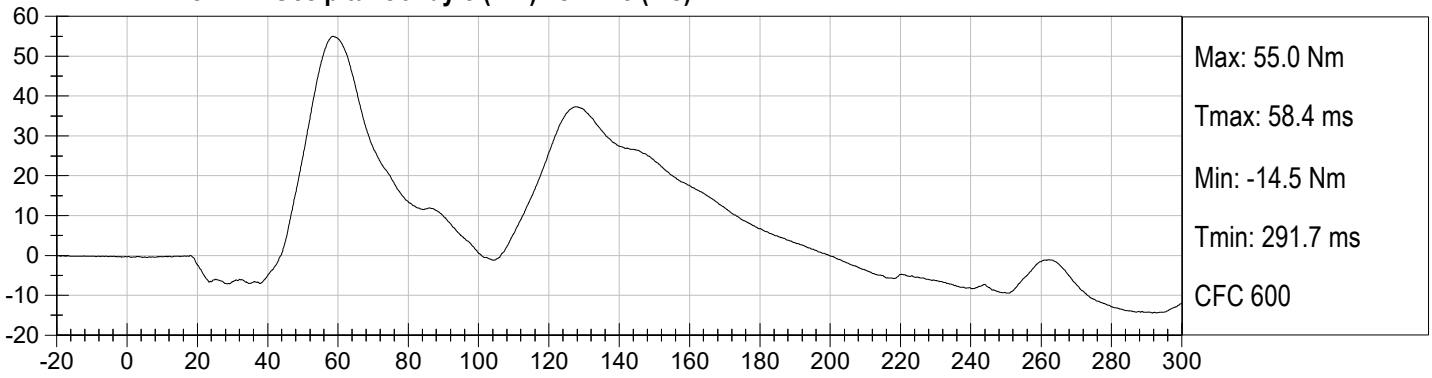
PASSENGER Nij (NCF) vs Time (ms)



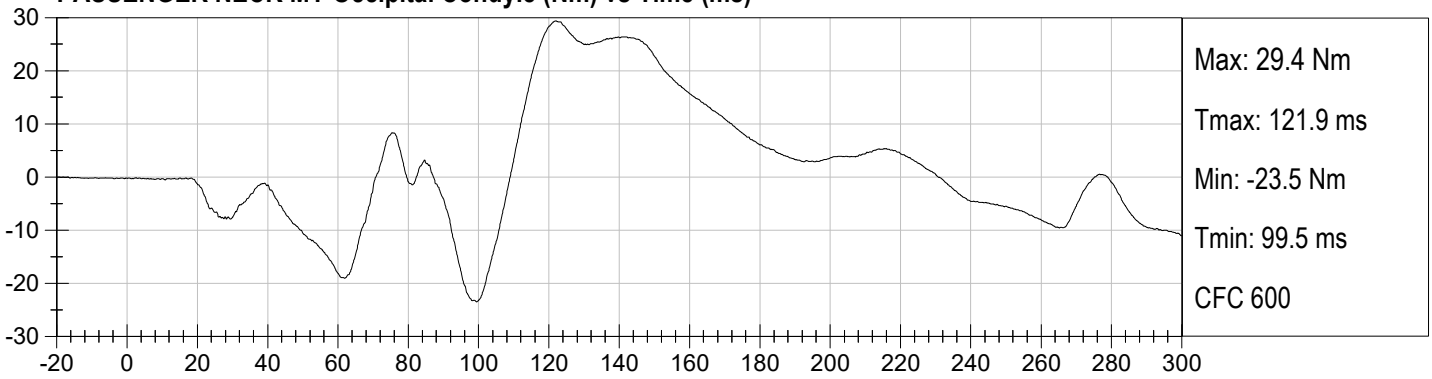
PASSENGER Nij (NCE) vs Time (ms)



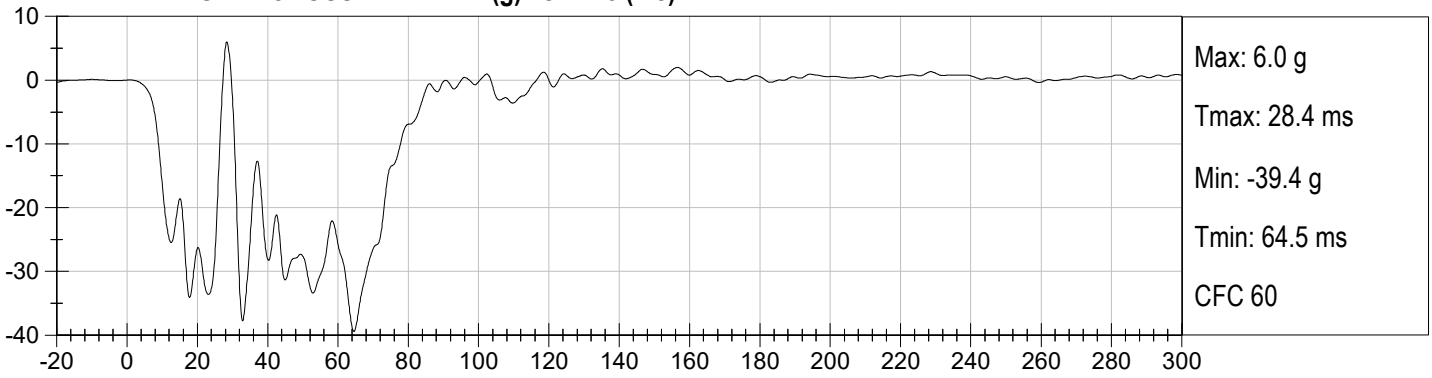
DRIVER NECK MY Occipital Condyle (Nm) vs Time (ms)



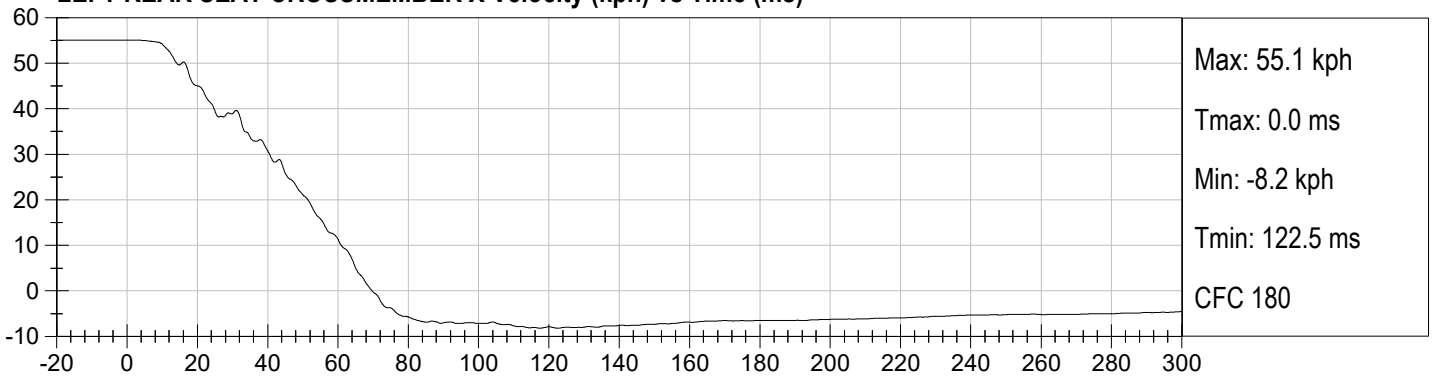
PASSENGER NECK MY Occipital Condyle (Nm) vs Time (ms)



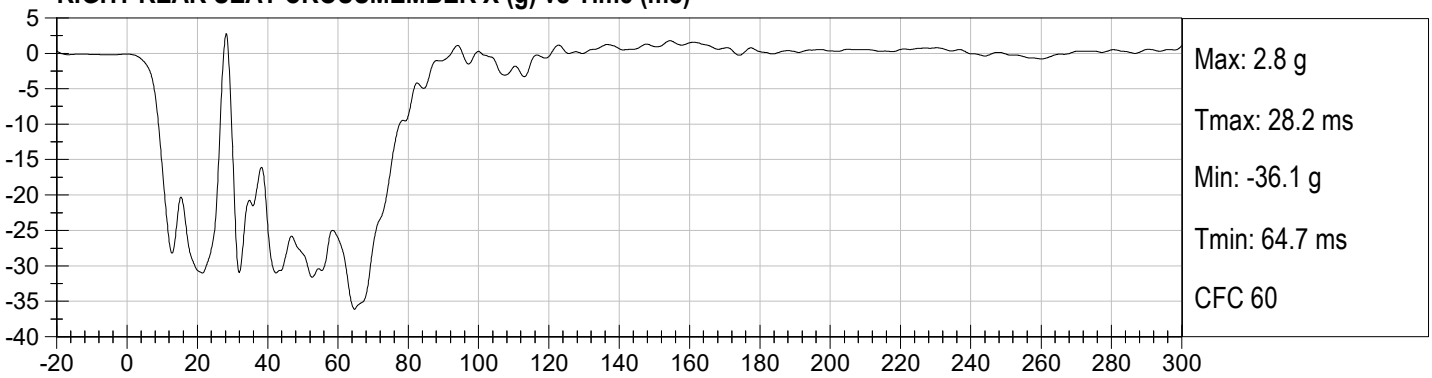
LEFT REAR SEAT CROSSMEMBER X (g) vs Time (ms)



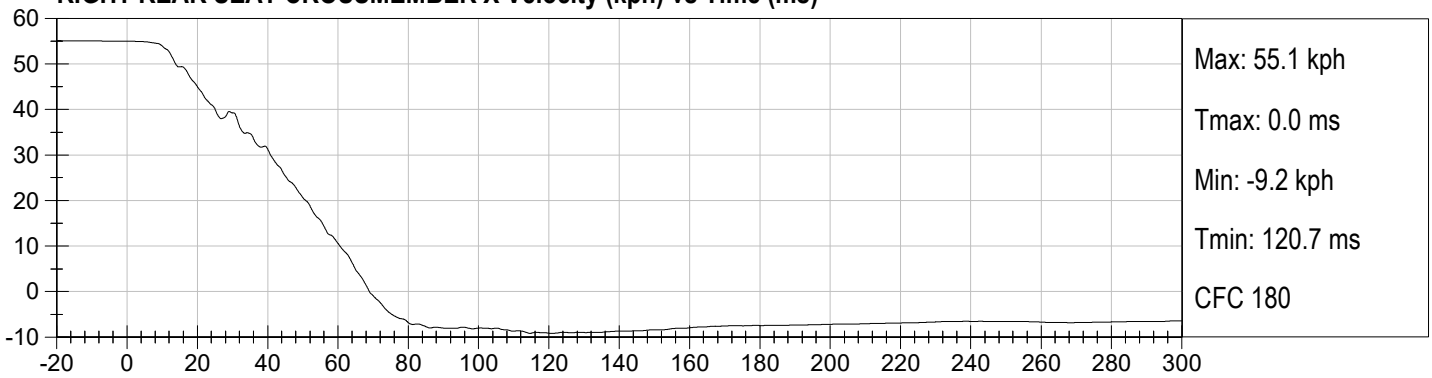
LEFT REAR SEAT CROSSMEMBER X Velocity (kph) vs Time (ms)



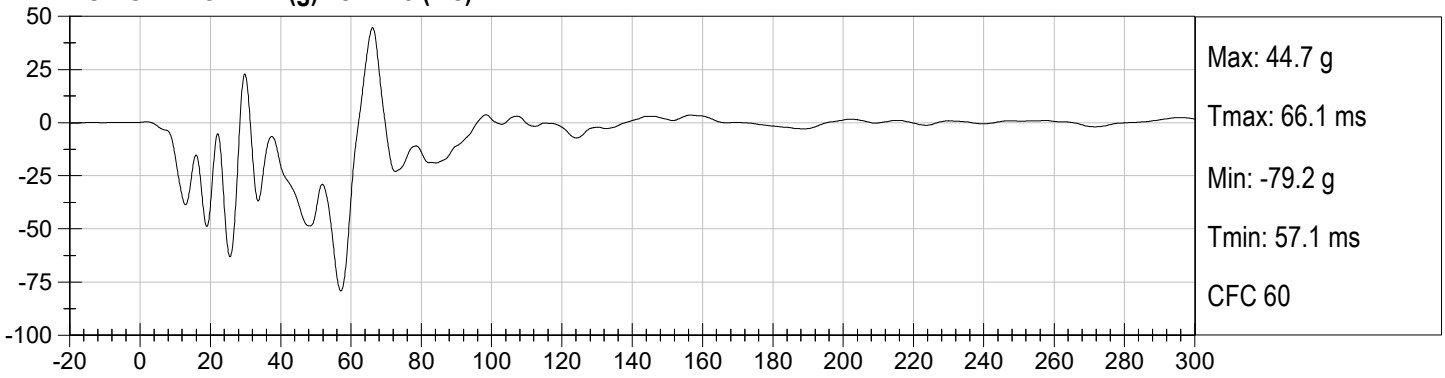
RIGHT REAR SEAT CROSSMEMBER X (g) vs Time (ms)



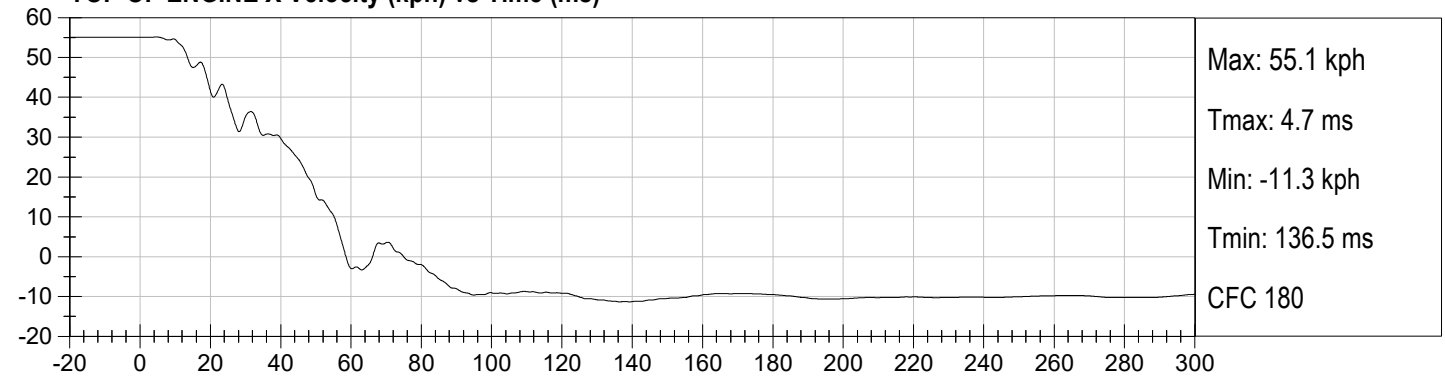
RIGHT REAR SEAT CROSSMEMBER X Velocity (kph) vs Time (ms)



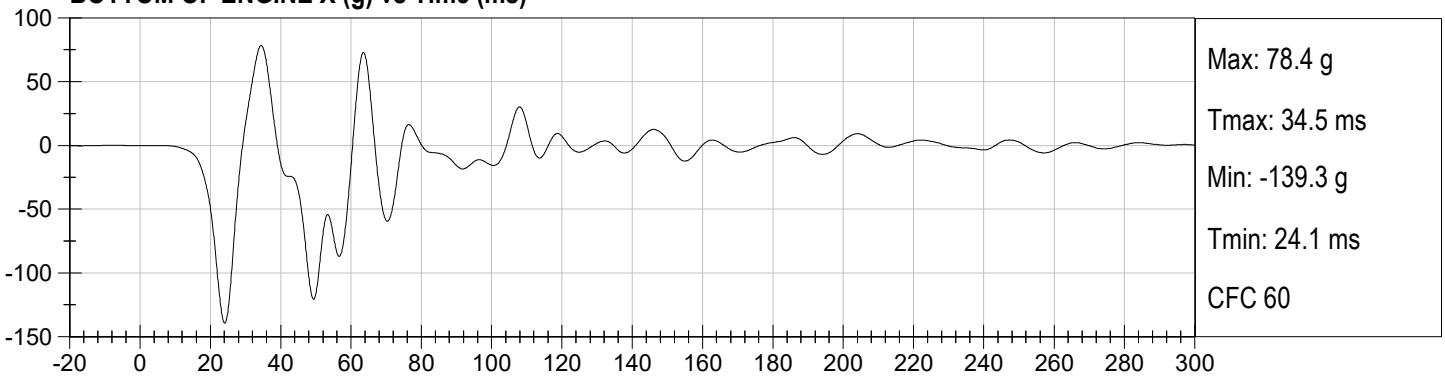
TOP OF ENGINE X (g) vs Time (ms)



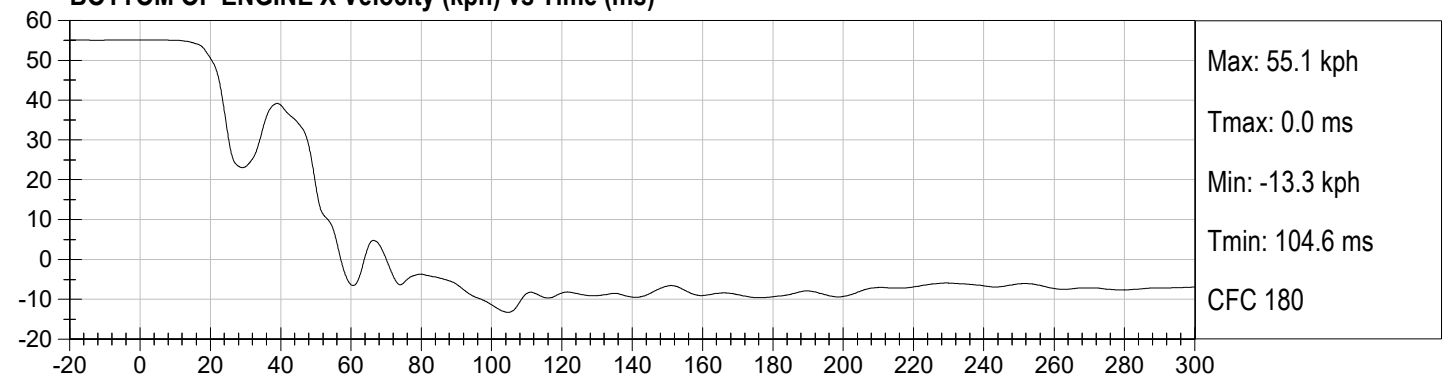
TOP OF ENGINE X Velocity (kph) vs Time (ms)



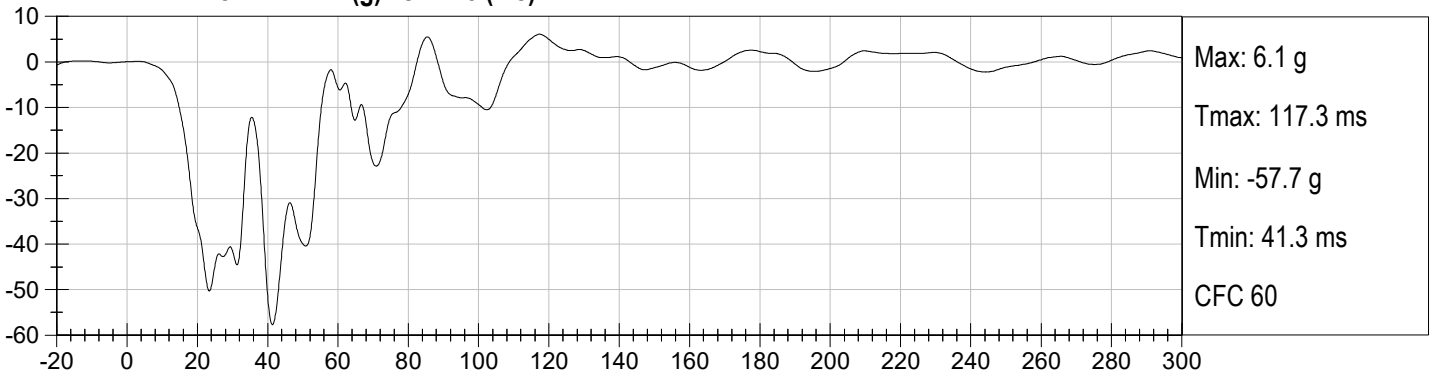
BOTTOM OF ENGINE X (g) vs Time (ms)



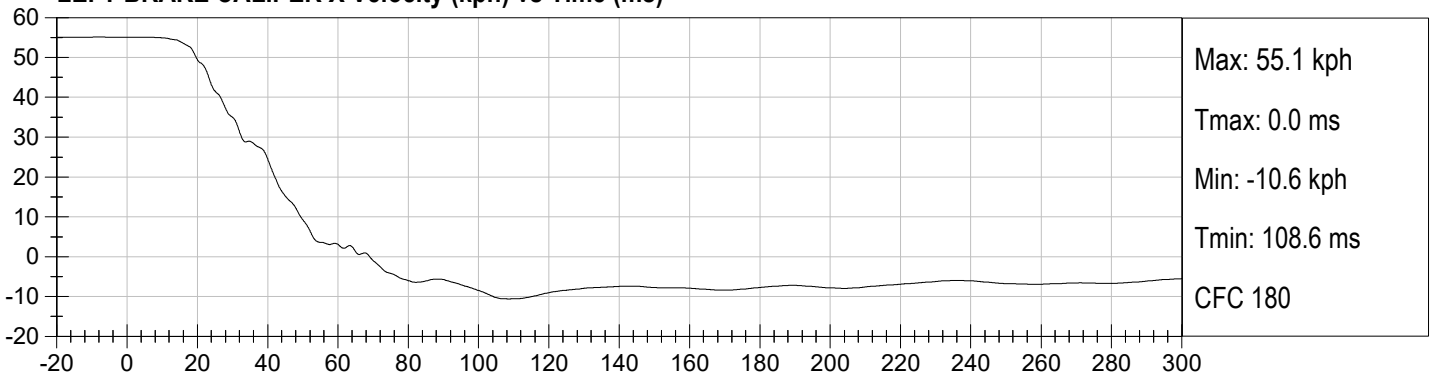
BOTTOM OF ENGINE X Velocity (kph) vs Time (ms)



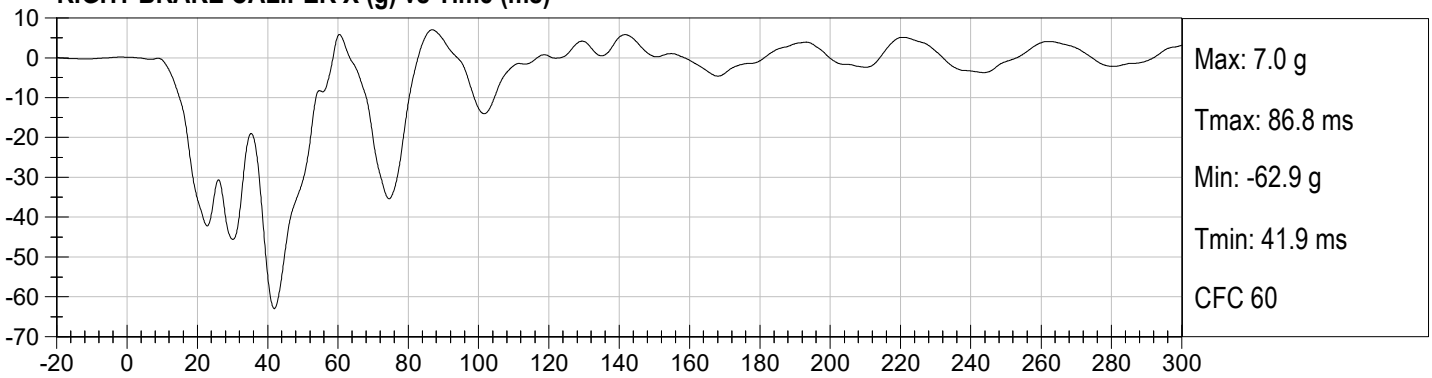
LEFT BRAKE CALIPER X (g) vs Time (ms)



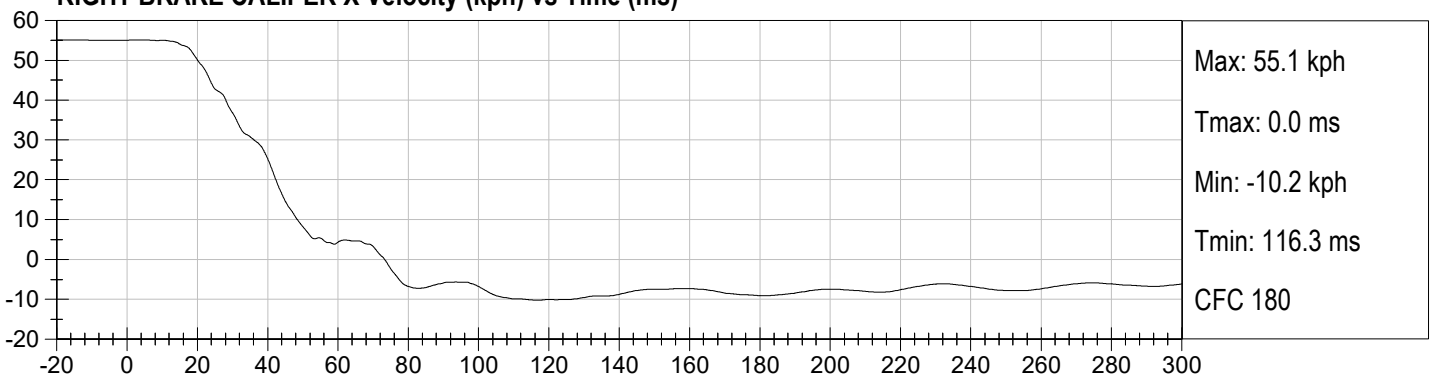
LEFT BRAKE CALIPER X Velocity (kph) vs Time (ms)



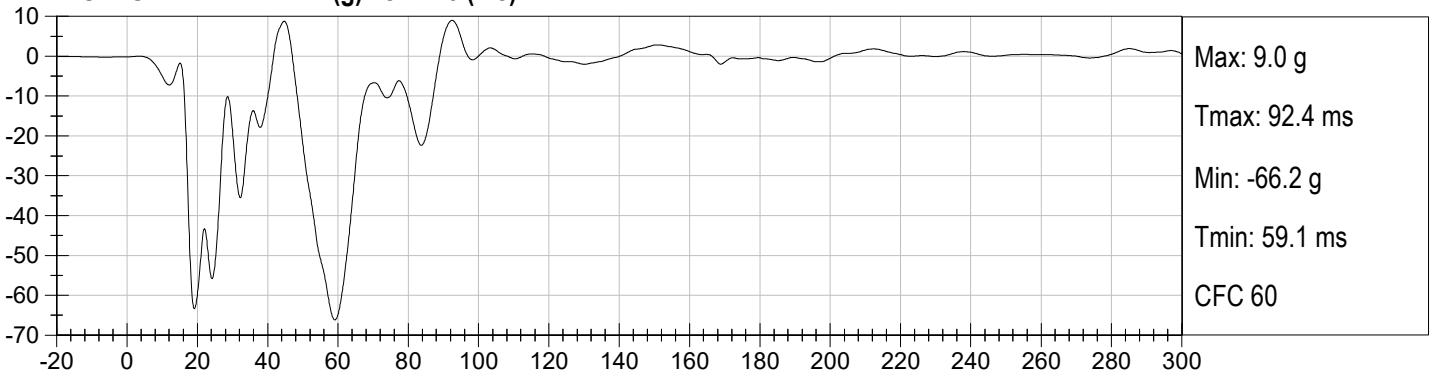
RIGHT BRAKE CALIPER X (g) vs Time (ms)



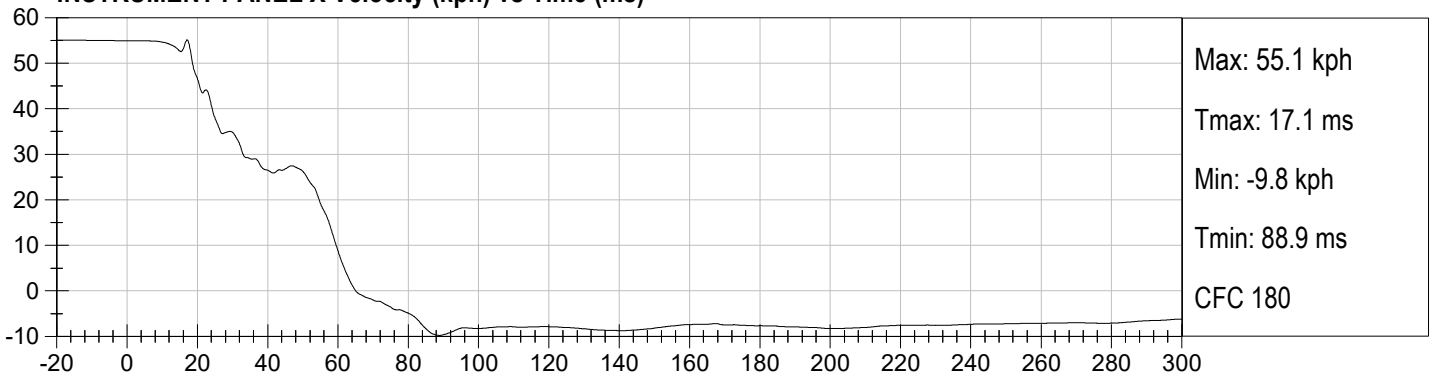
RIGHT BRAKE CALIPER X Velocity (kph) vs Time (ms)



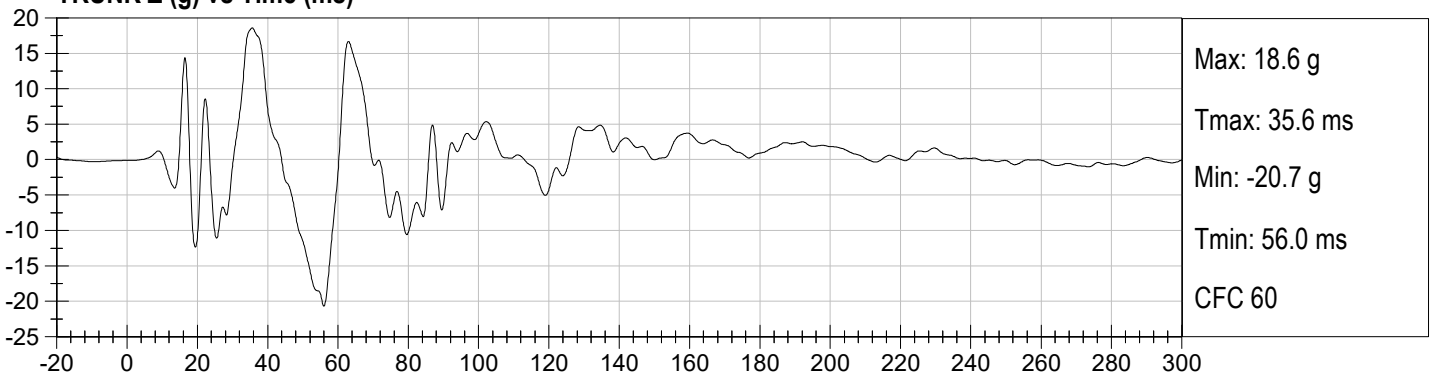
INSTRUMENT PANEL X (g) vs Time (ms)



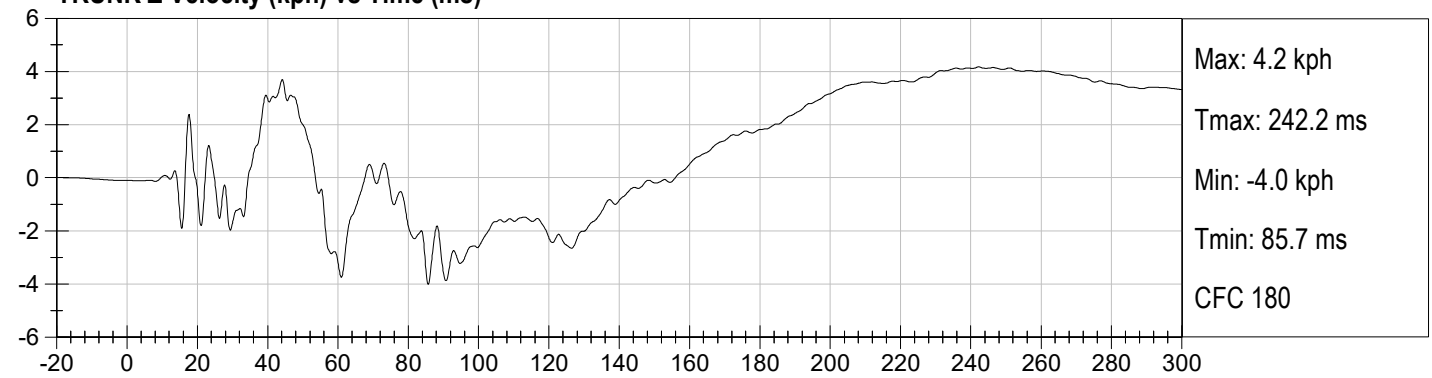
INSTRUMENT PANEL X Velocity (kph) vs Time (ms)



TRUNK Z (g) vs Time (ms)



TRUNK Z Velocity (kph) vs Time (ms)



APPENDIX B

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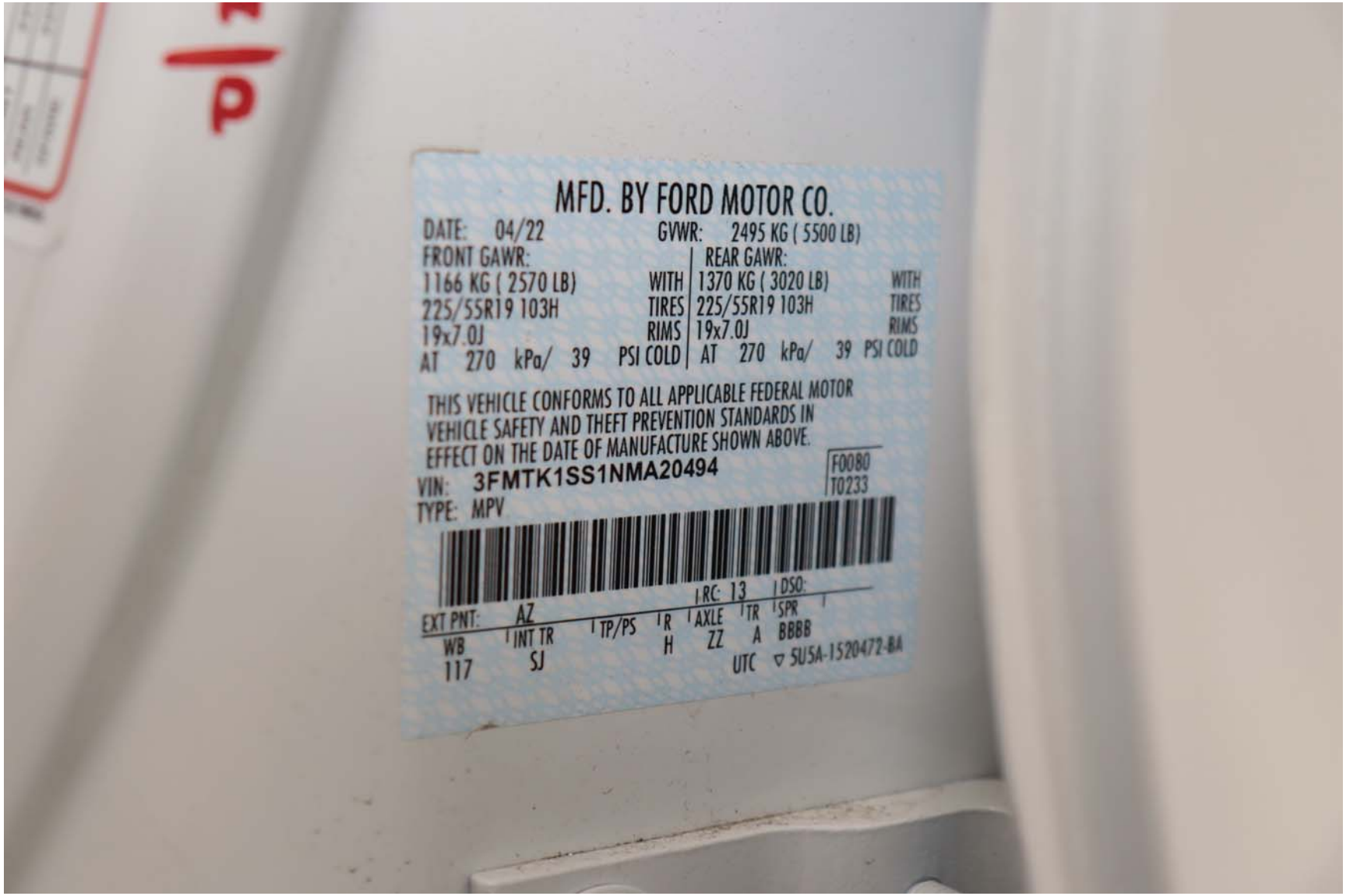


Photo No. 1. Vehicle Certification Label

Photo No. 2. Tire Placard

Photo No. 3. Pre-Test Front View of Test Vehicle

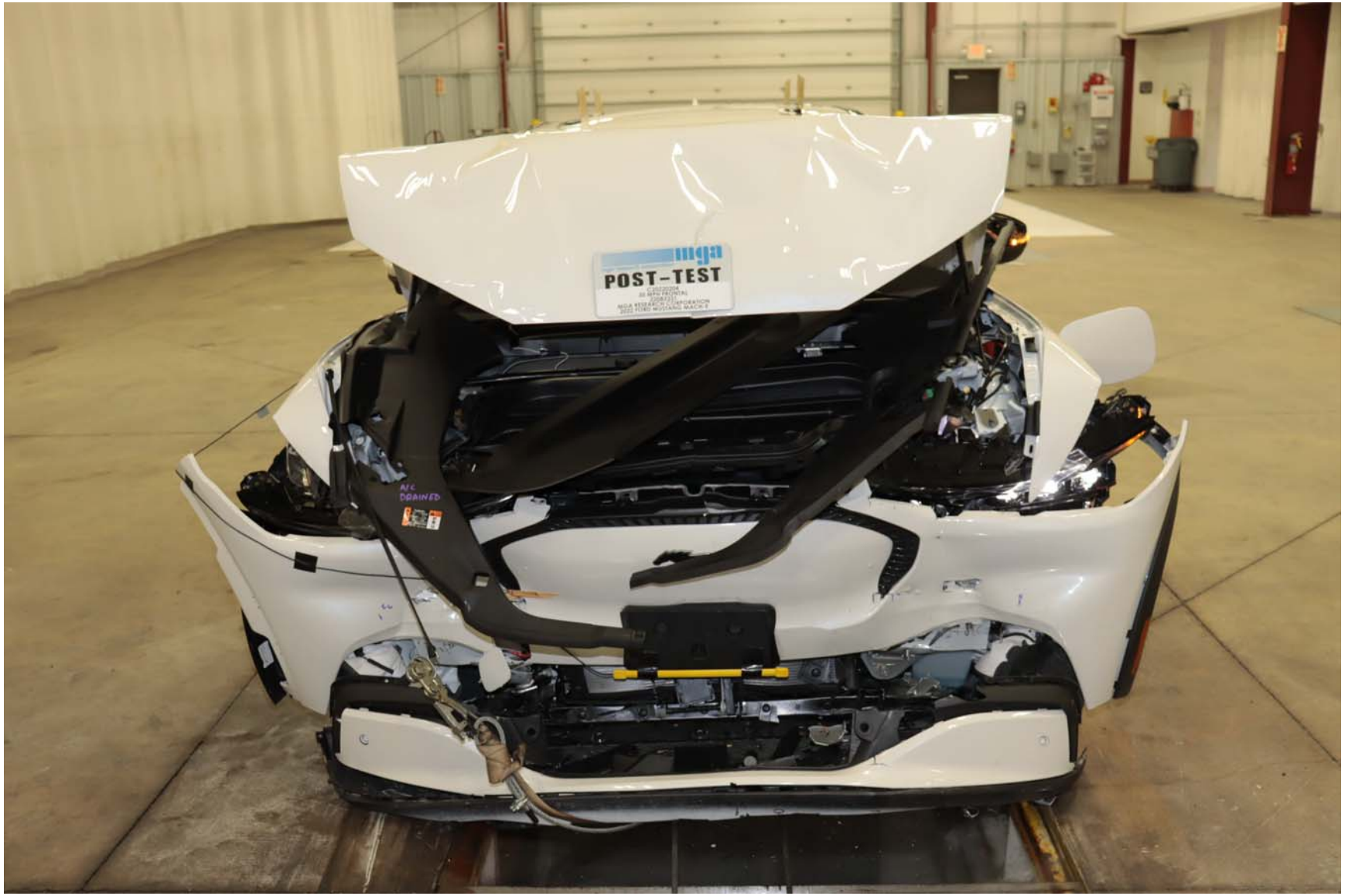


Photo No. 4. Post-Test Front View of Test Vehicle

Photo No. 5. Pre-Test Left Side View of Test Vehicle

Photo No. 6. Post-Test Left Side View of Test Vehicle

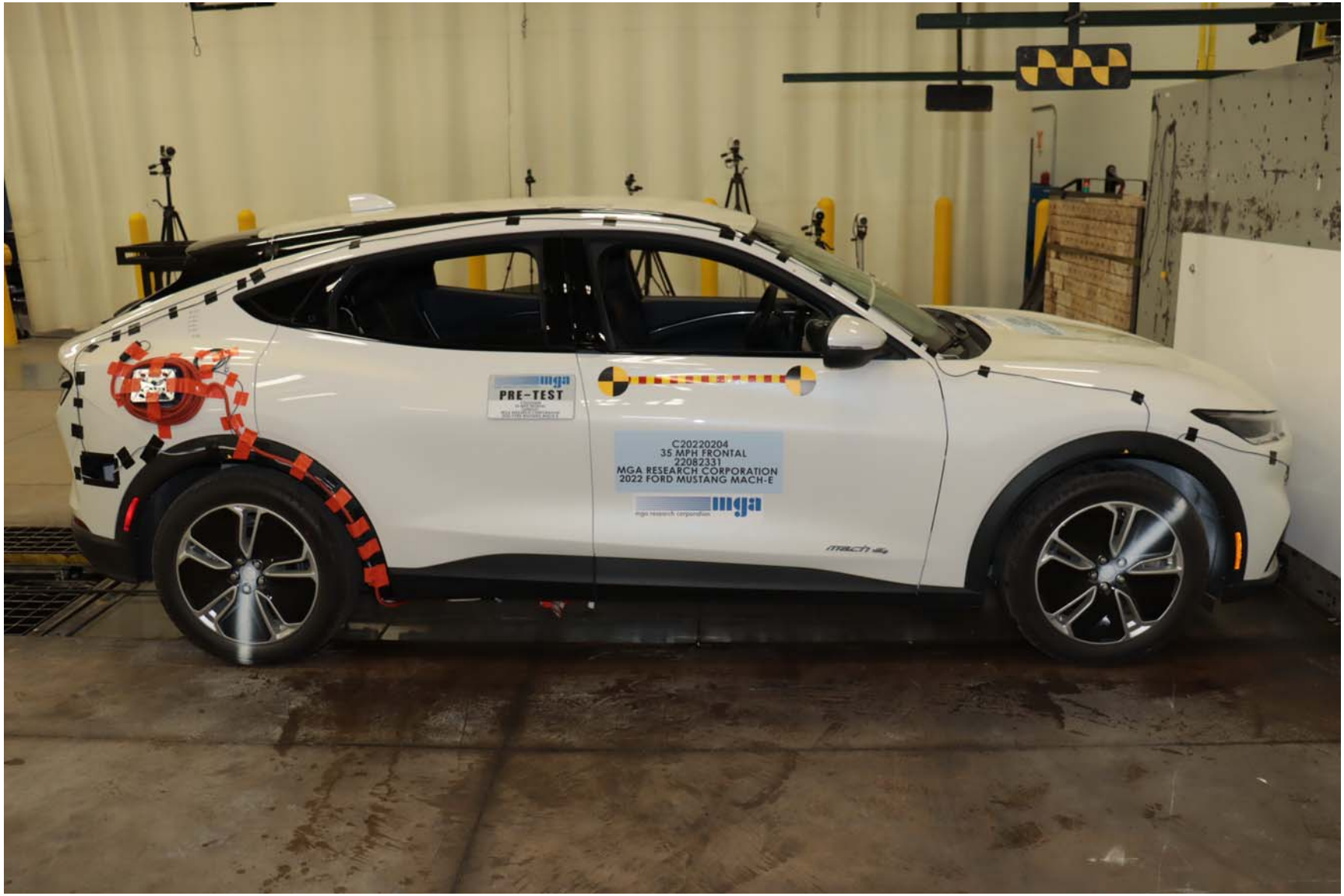


Photo No. 7. Pre-Test Right SIde View of Test Vehicle

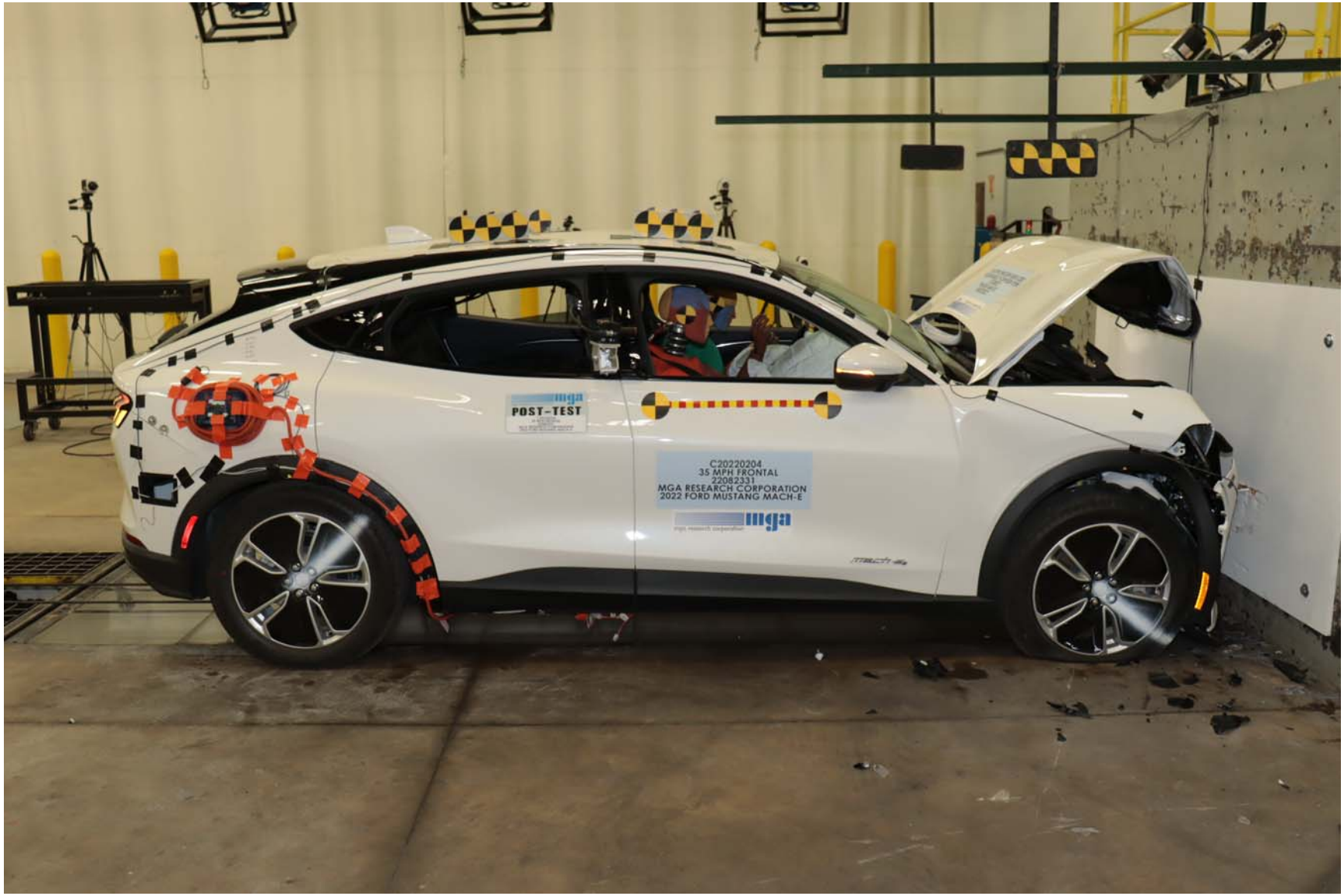
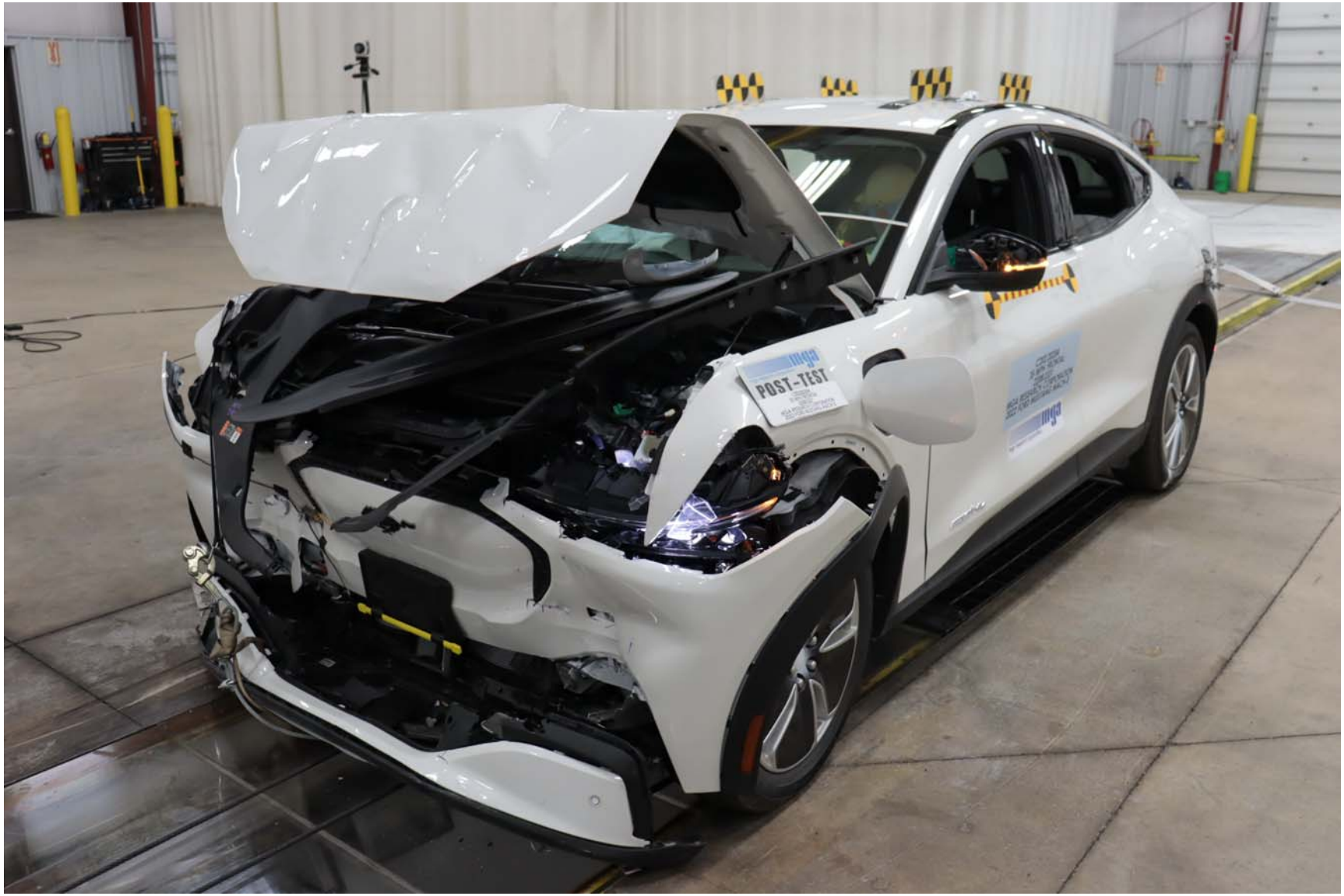


Photo No. 8. Post-Test Right Side View of Test Vehicle

Photo No. 9. Pre-Test Left Front Three-Quarter View of Test Vehicle



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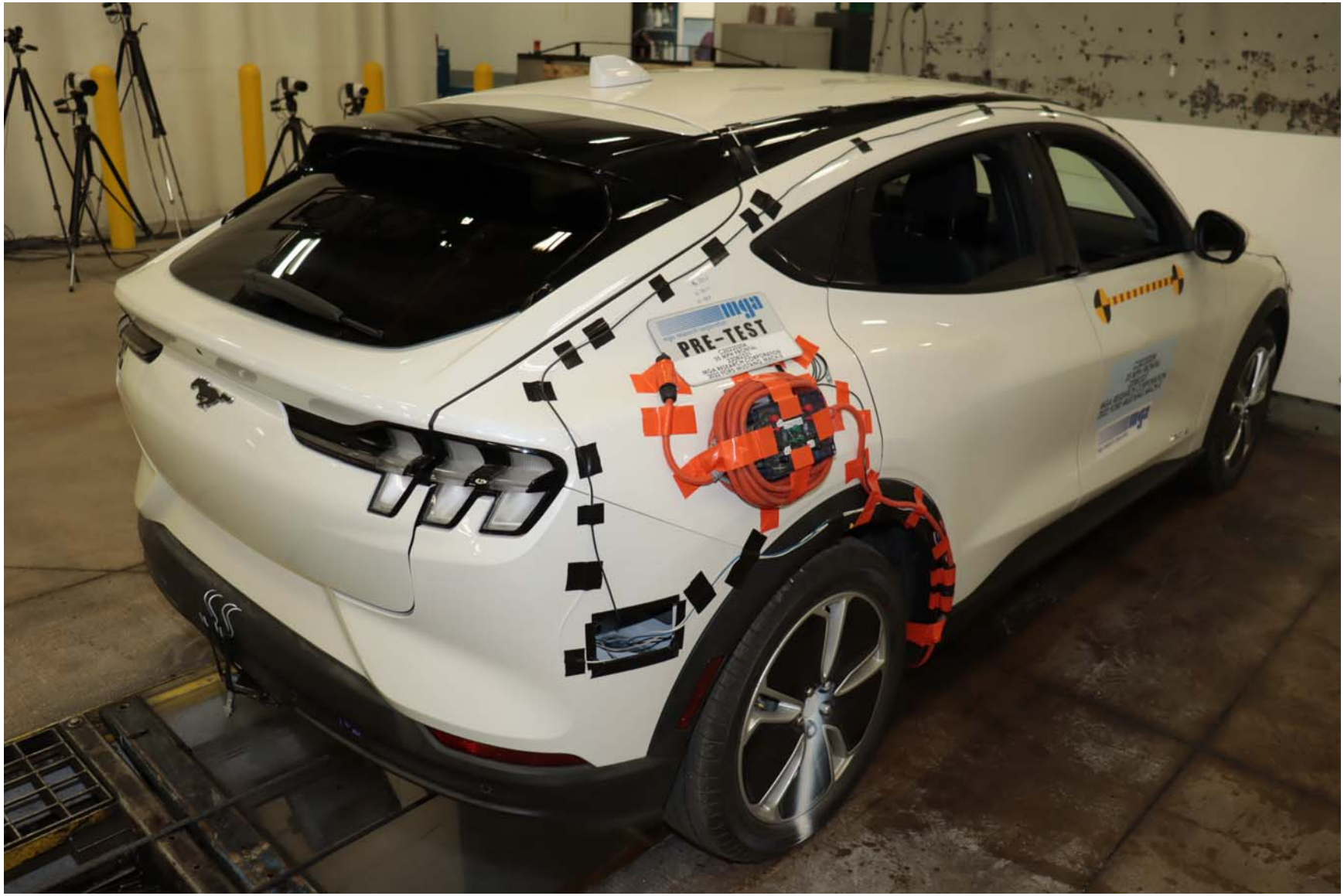

Photo No. 13. Pre-Test Right Rear Three-Quarter View of Test Vehicle

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Photo No. 16. Post-Test Left Rear Three-Quarter View of Test Vehicle

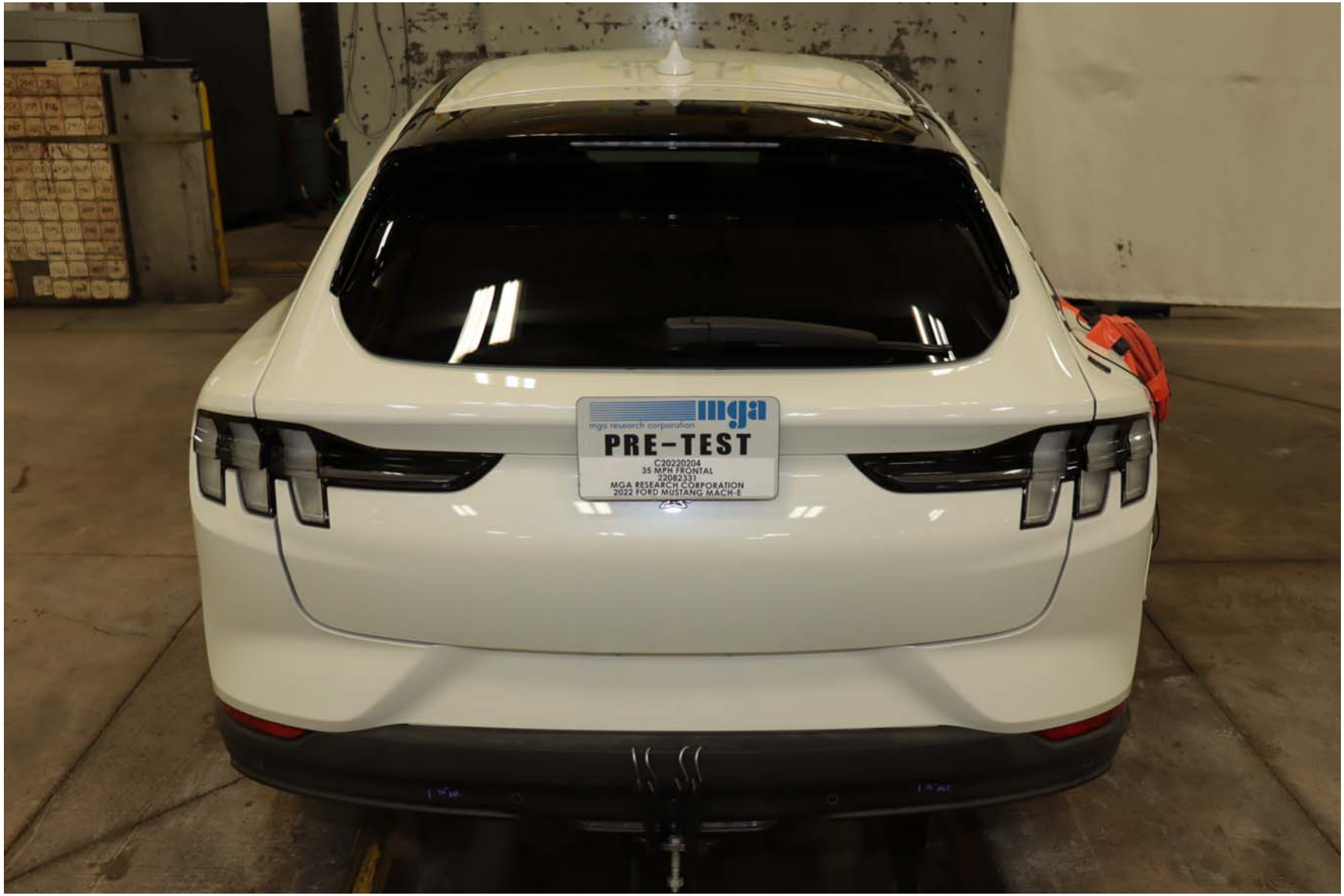

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Photo No. 22. Post-Test Frunk Compartment View

Photo No. 23. Pre-Test Charging Port View

Photo No. 24. Post-Test Charging Port View

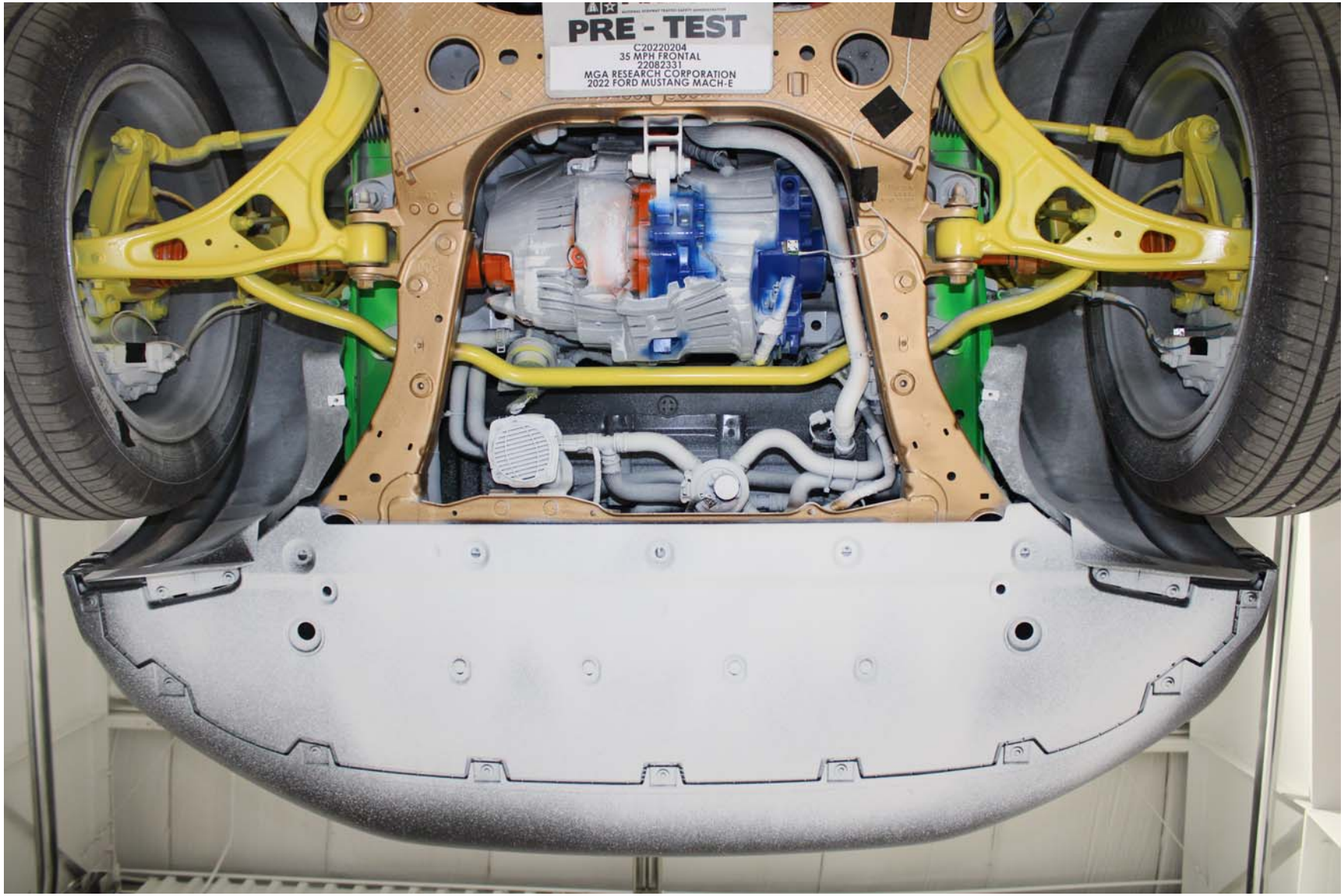
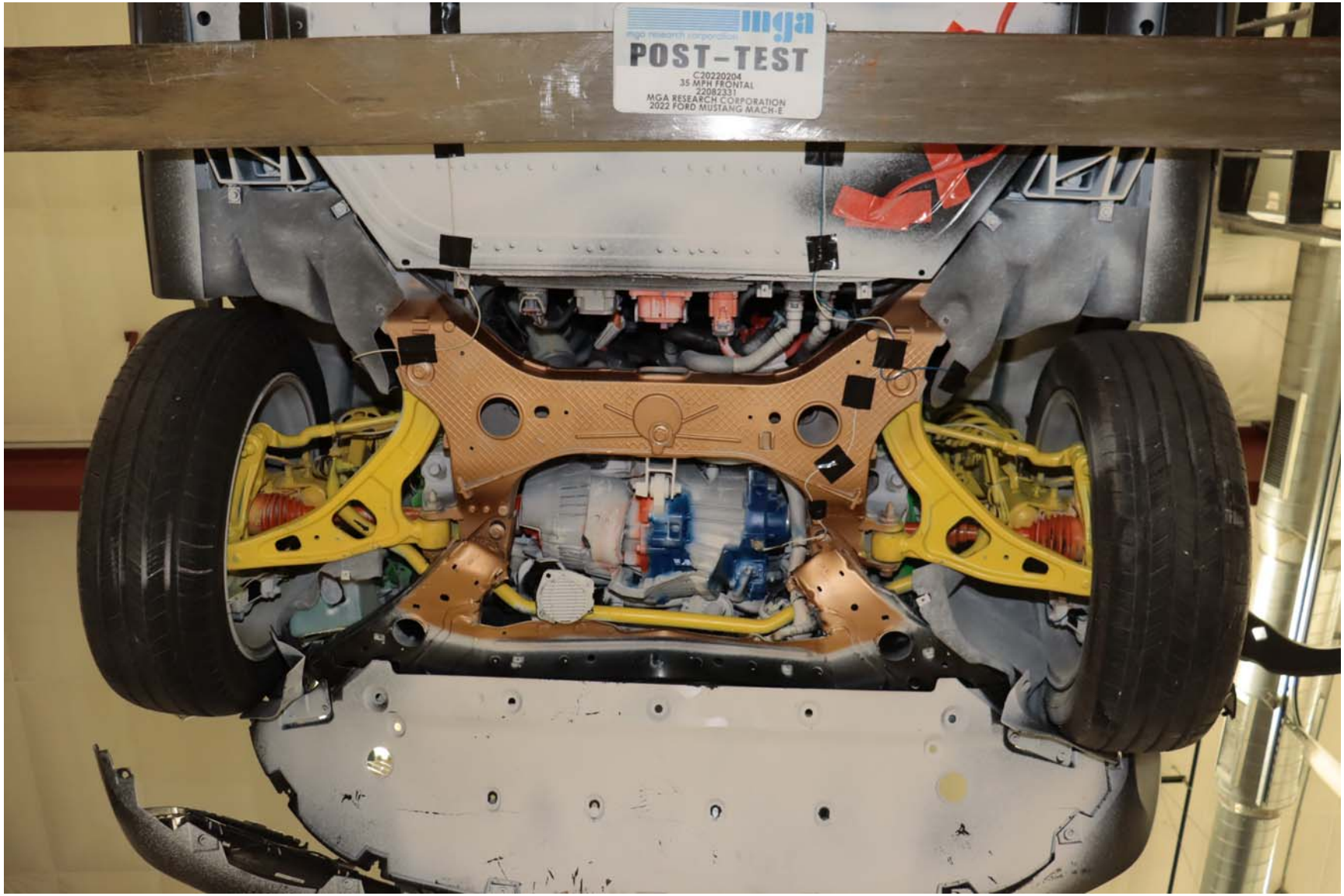


Photo No. 25. Pre-Test Front Underbody View



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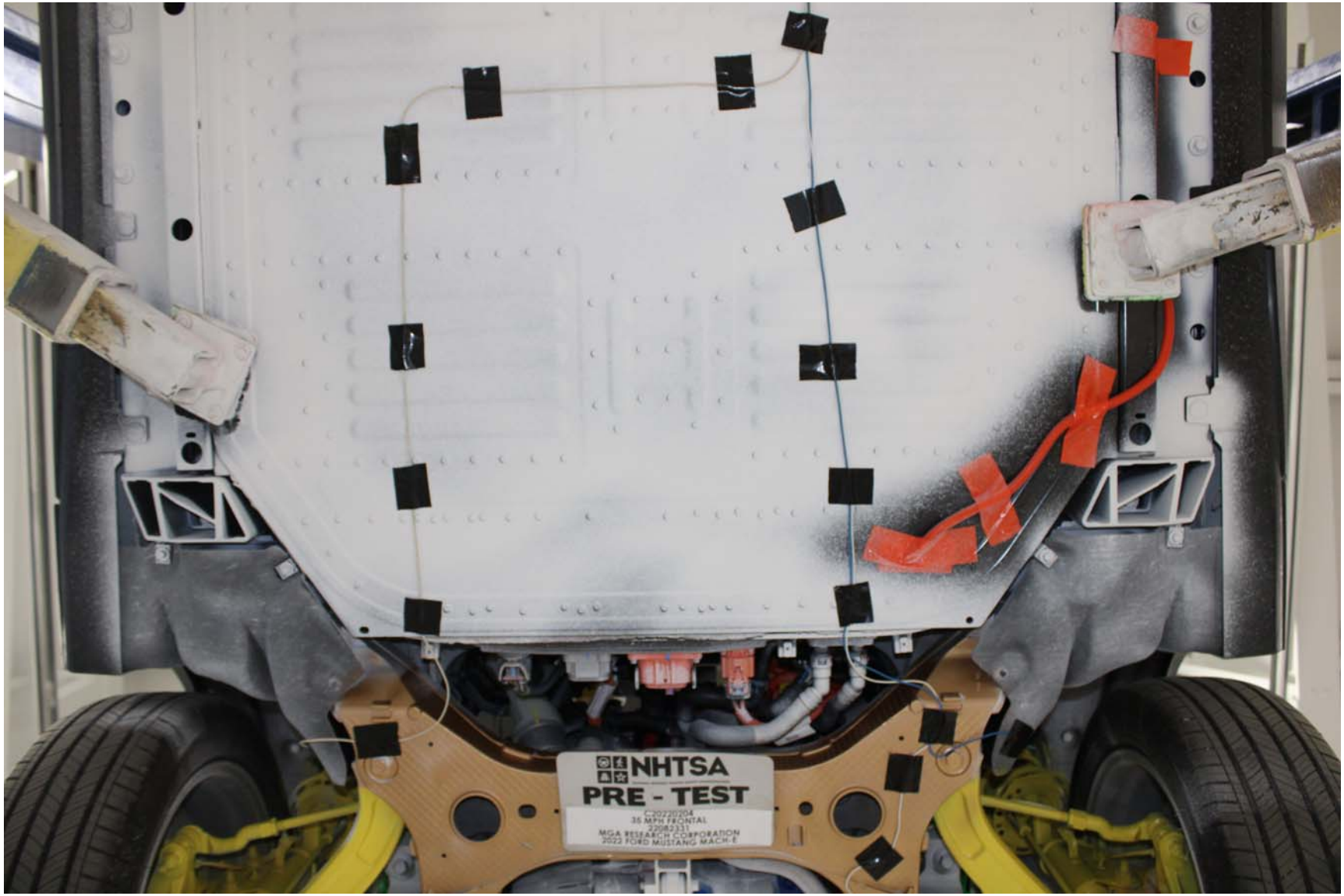

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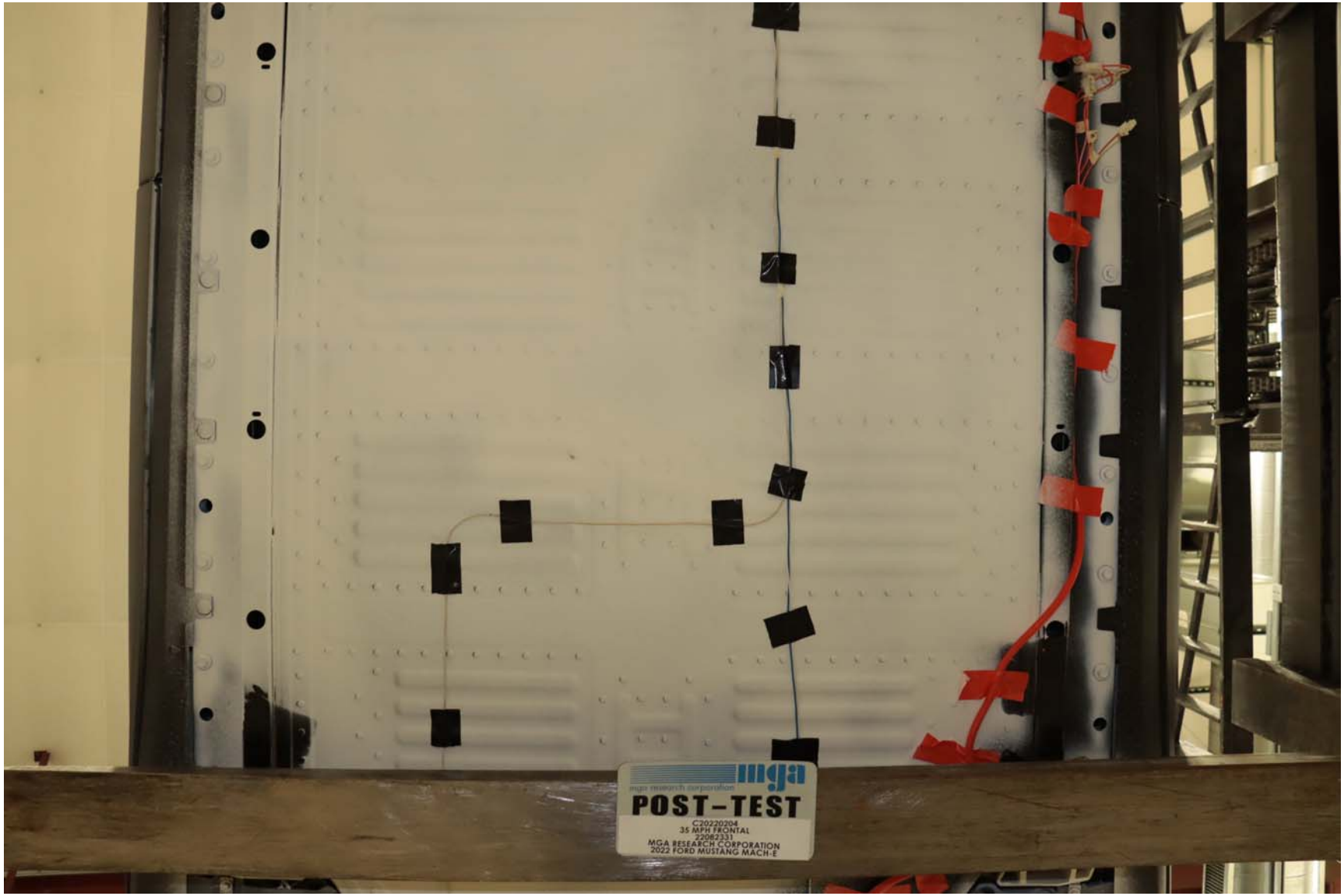

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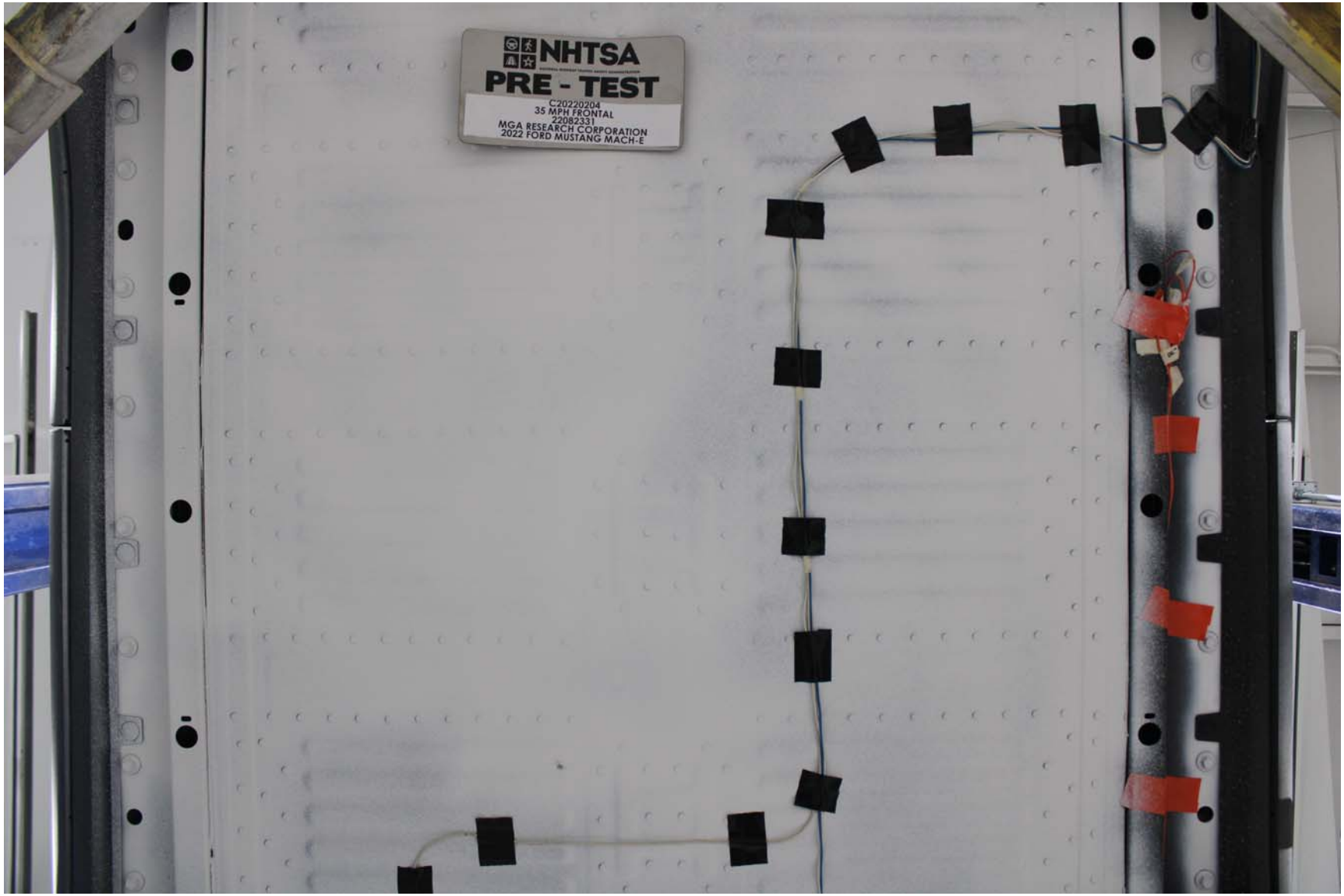

Photo No. 29. Pre-Test Mid Rear Underbody View

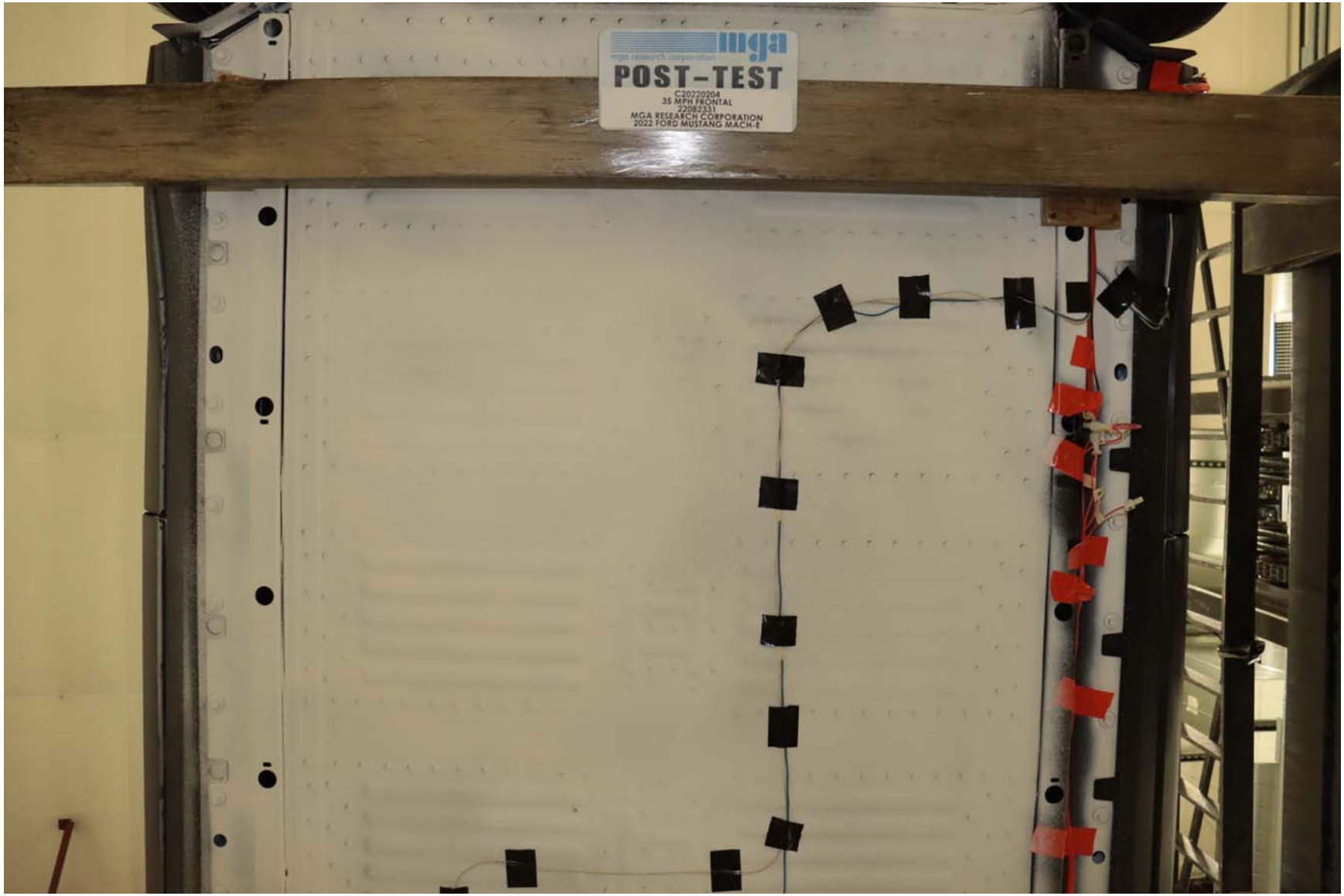

Photo No. 30. Post-Test Mid Rear Underbody View

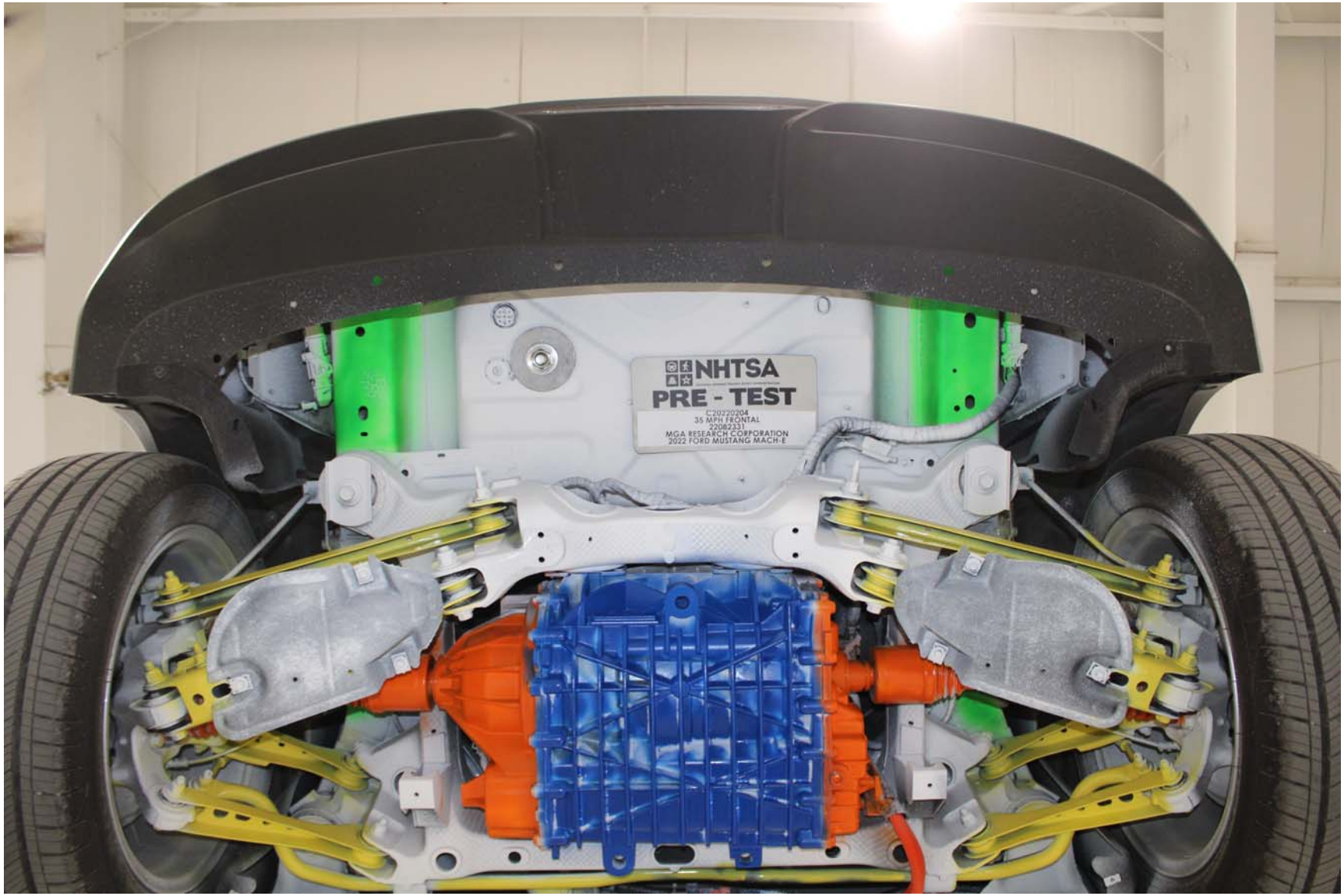

Photo No. 31. Pre-Test Rear Underbody View

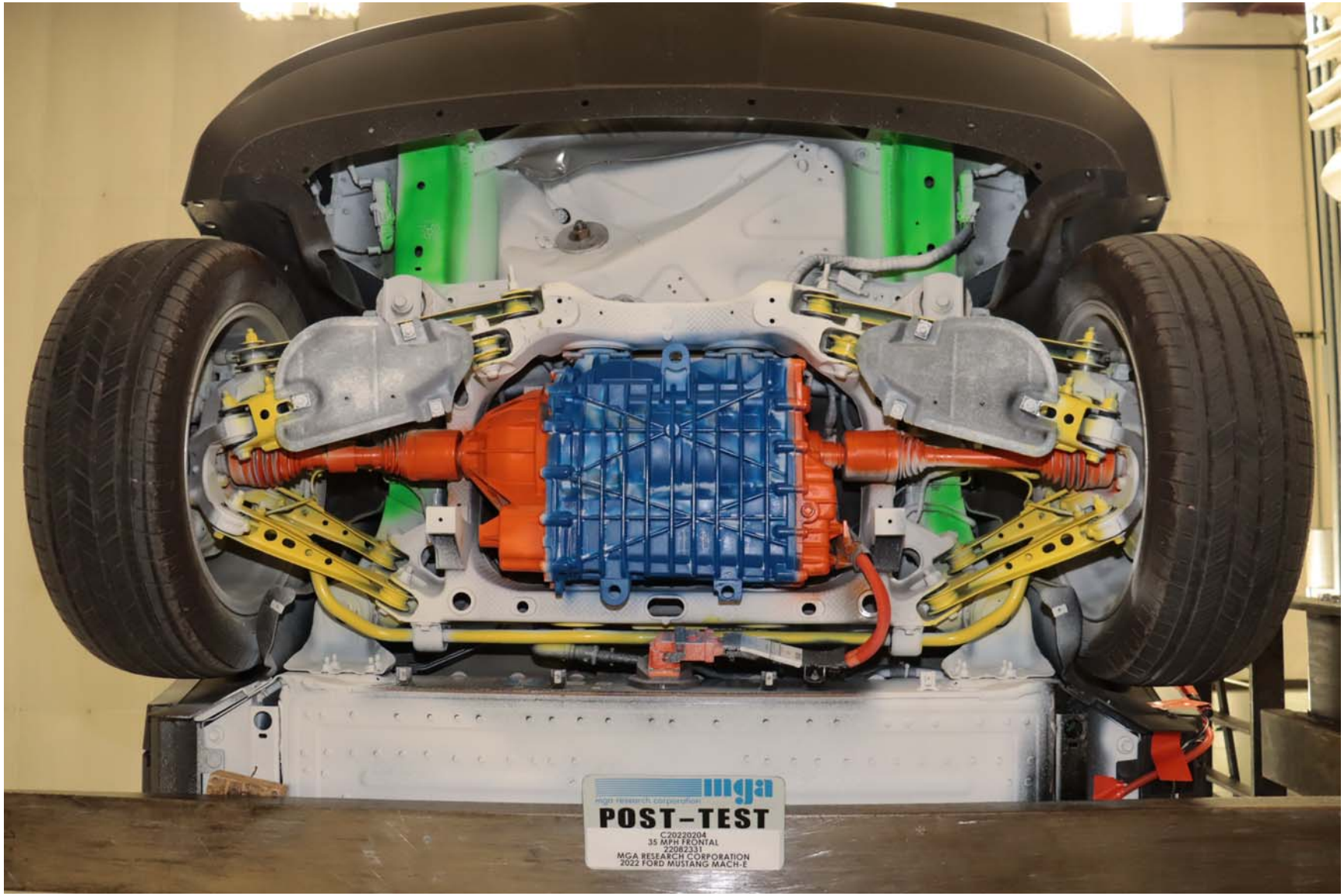

Photo No. 32. Post-Test Rear Underbody View

Photo No. 33. Pre-Test Driver Dummy Front View (head position)

Photo No. 34. Post-Test Driver Dummy Front View (head position)

Photo No. 35. Pre-Test Driver Dummy Position Left Side View

Photo No. 36. Post-Test Driver Dummy Position Left Side View

Photo No. 37. Pre-Test Driver Dummy Position Left Side View (door open)

Photo No. 38. Post-Test Driver Dummy Position Left Side View (door open)

Photo No. 39. Pre-Test Driver Dummy Seat Position

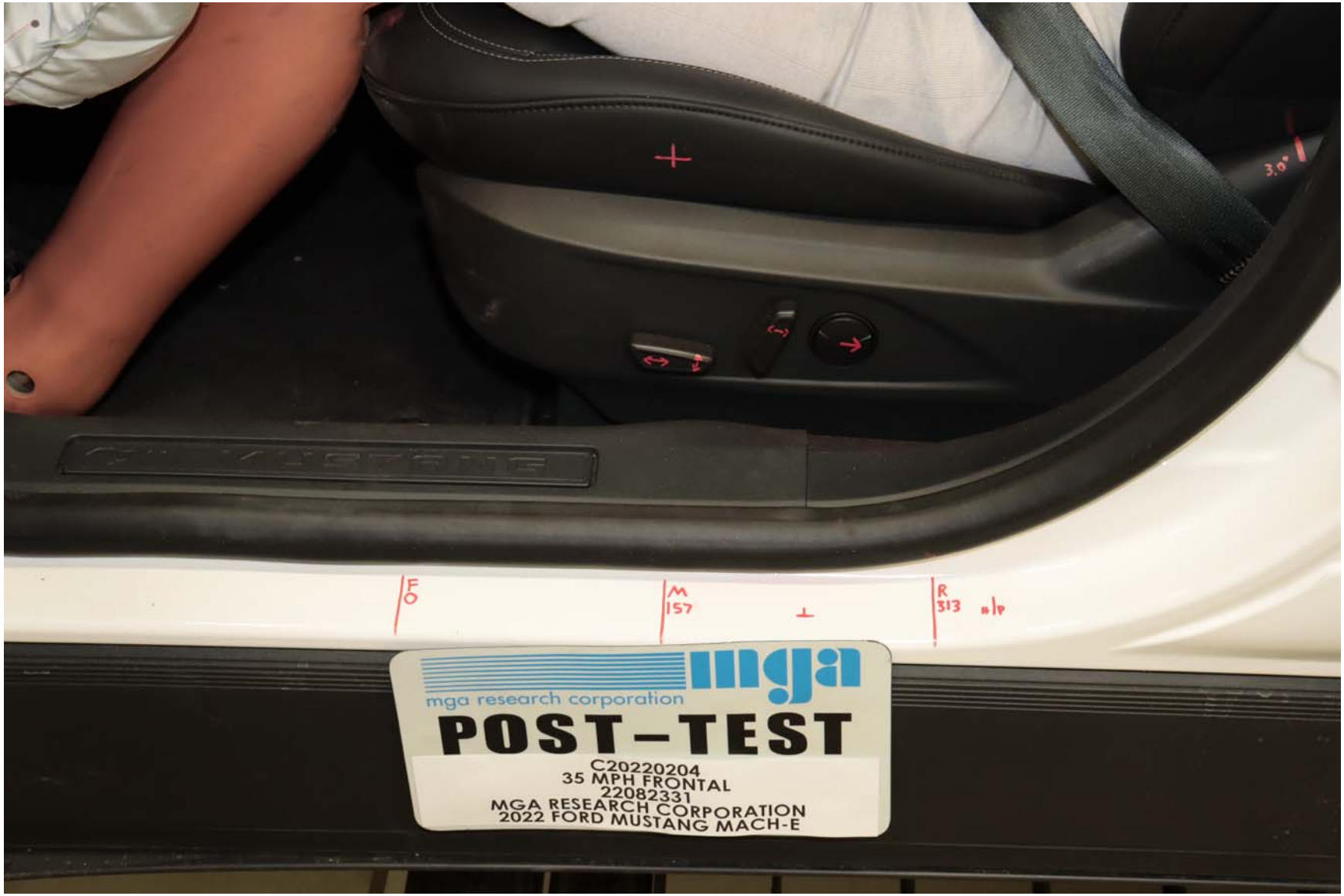

Photo No. 40. Post-Test Driver Dummy Seat Position

Photo No. 41. Pre-Test Driver Dummy Feet Position

Photo No. 42. Post-Test Driver Dummy Feet Position

Photo No. 43. Pre-Test Drive Side Knee Bolster View

Photo No. 44. Post-Test Driver Side Knee Bolster View

Photo No. 45. Post-Test Driver Dummy Airbag Contact

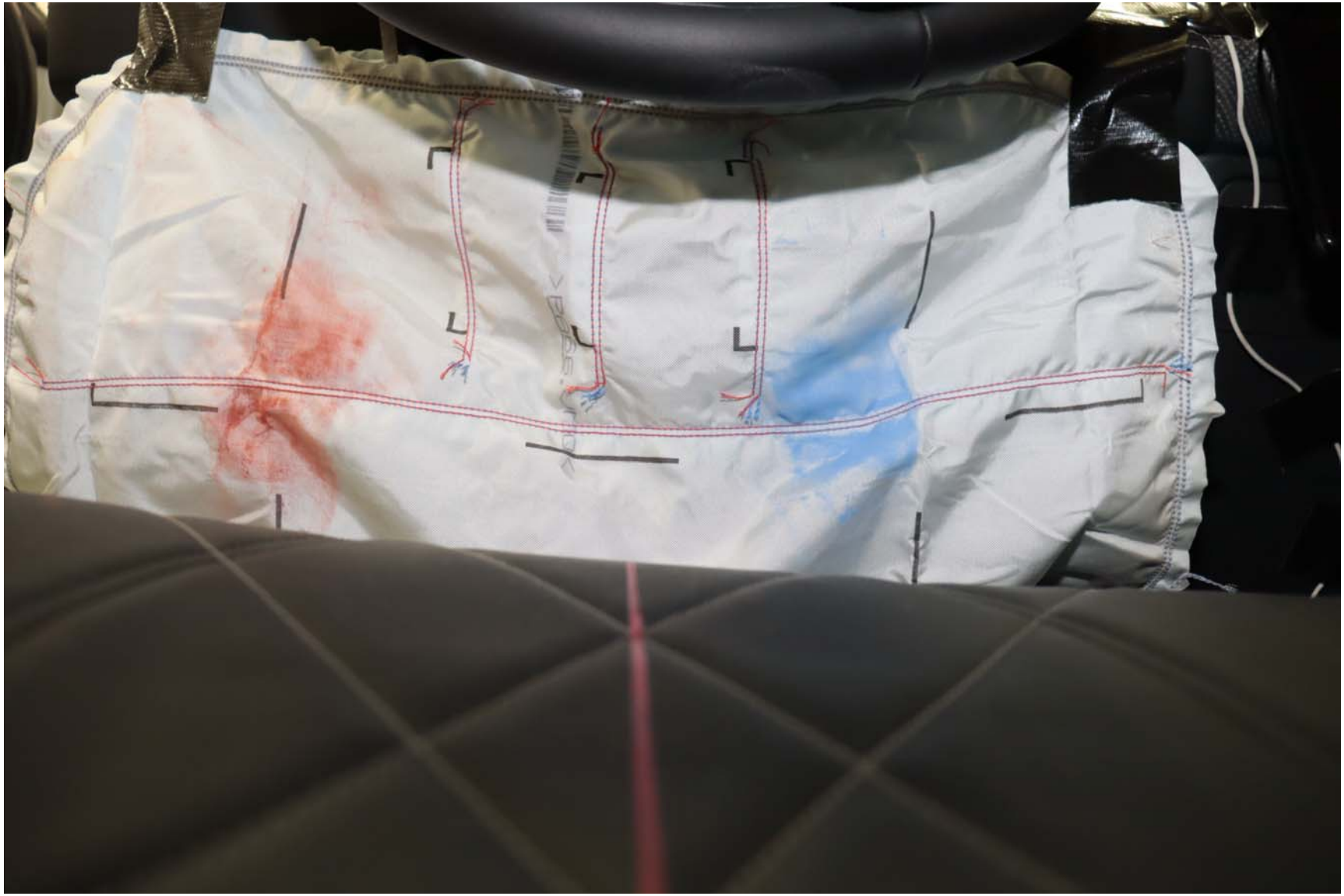

Photo No. 46. Post-Test Driver Dummy Knee Contact

Photo No. 47. Post-Test Driver Dummy Head Contact (headrest)

Photo No. 48. Pre-Test Passenger Dummy Front View (head position)

Photo No. 49. Post-Test Passenger Dummy Front View (head position)

Photo No. 50. Pre-Test Passenger Dummy Position Right Side View

Photo No. 51. Post-Test Passenger Dummy Position Right Side View

Photo No. 52. Pre-Test Passenger Dummy Position Right Side View (door open)

Photo No. 53. Post-Test Passenger Dummy Position Right Side View (door open)

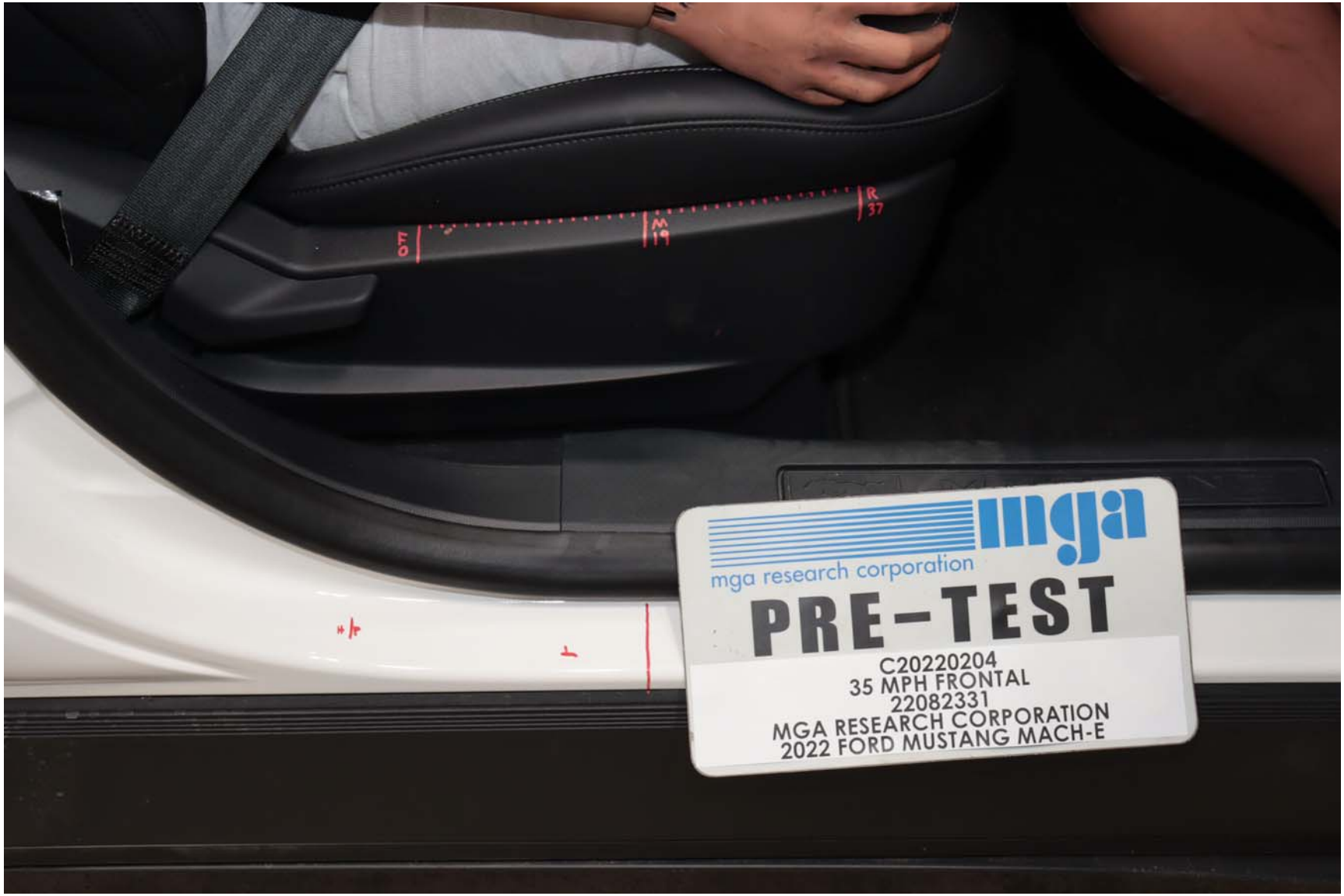

Photo No. 54. Pre-Test Passenger Dummy Seat Position

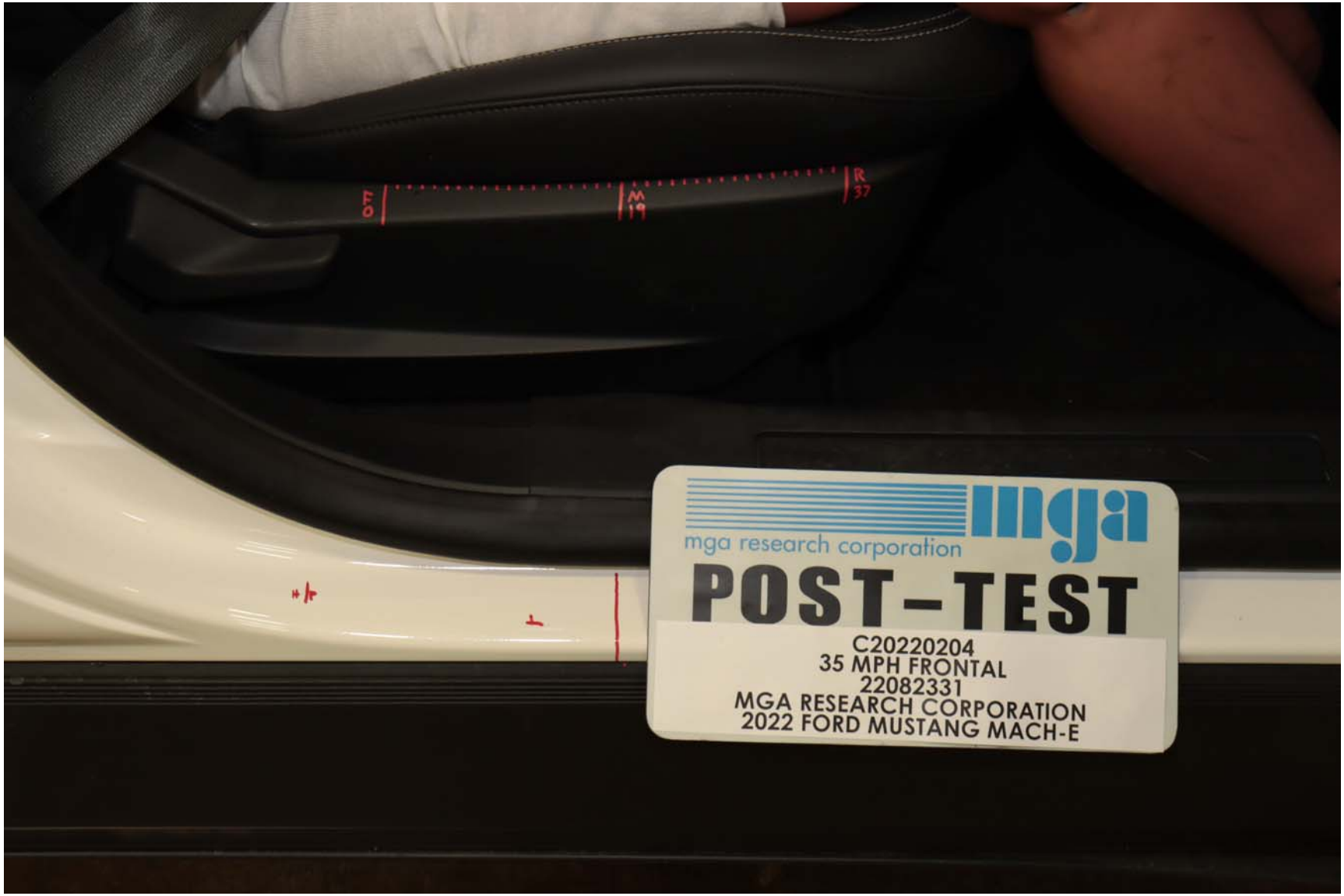

Photo No. 55. Post-Test Passenger Dummy Seat Position

Photo No. 56. Pre-Test Passenger Dummy Feet Position

Photo No. 57. Post-Test Passenger Dummy Feet Position

Photo No. 58. Pre-Test Passenger Side Knee Bolster View

Photo No. 59. Post-Test Passenger Side Knee Bolster View

Photo No. 60. Post-Test Passenger Dummy Airbag Contact

Photo No. 61. Post-Test Passenger Dummy Knee Contact

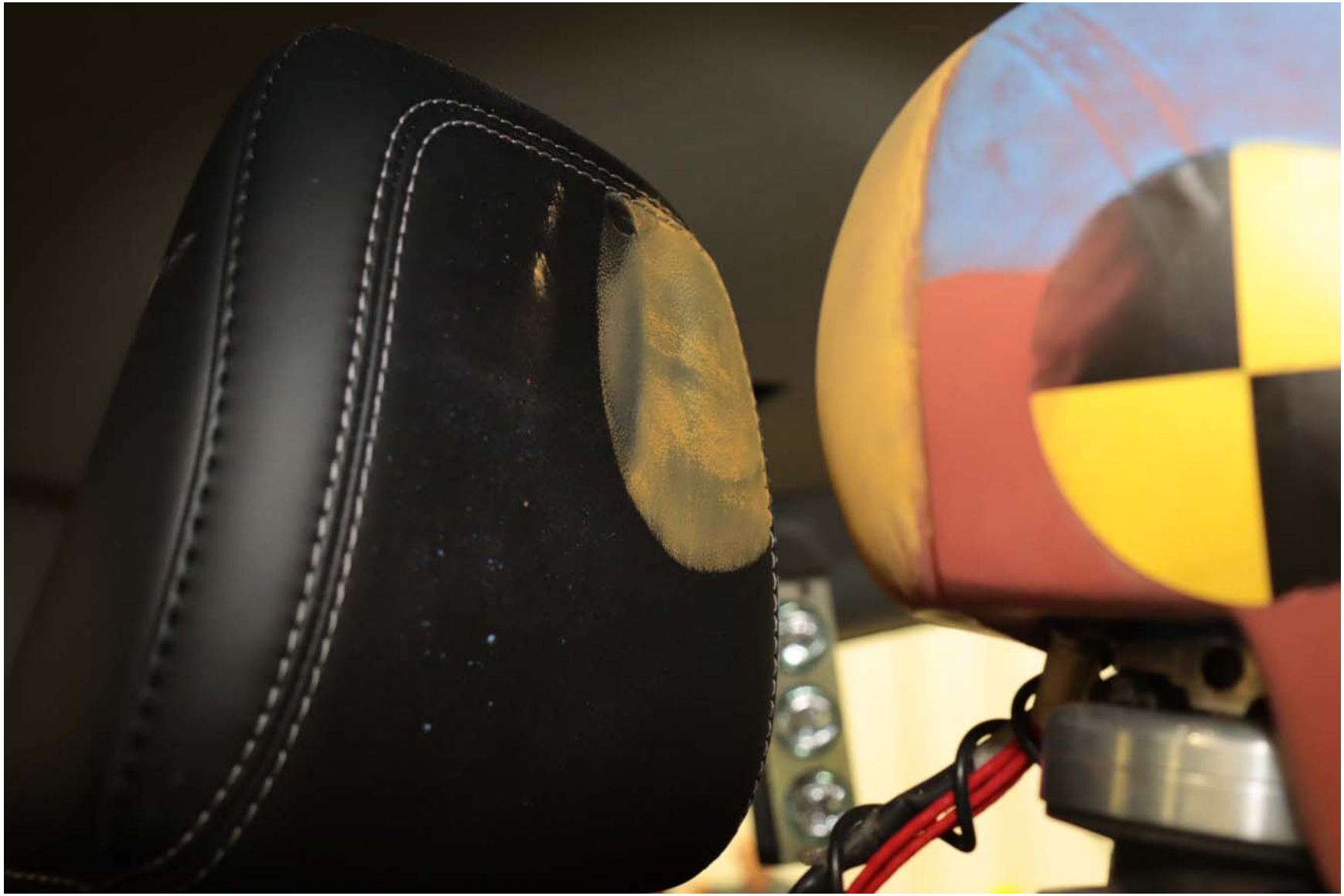

Photo No. 62. Post-Test Passenger Dummy Head Contact (headrest)

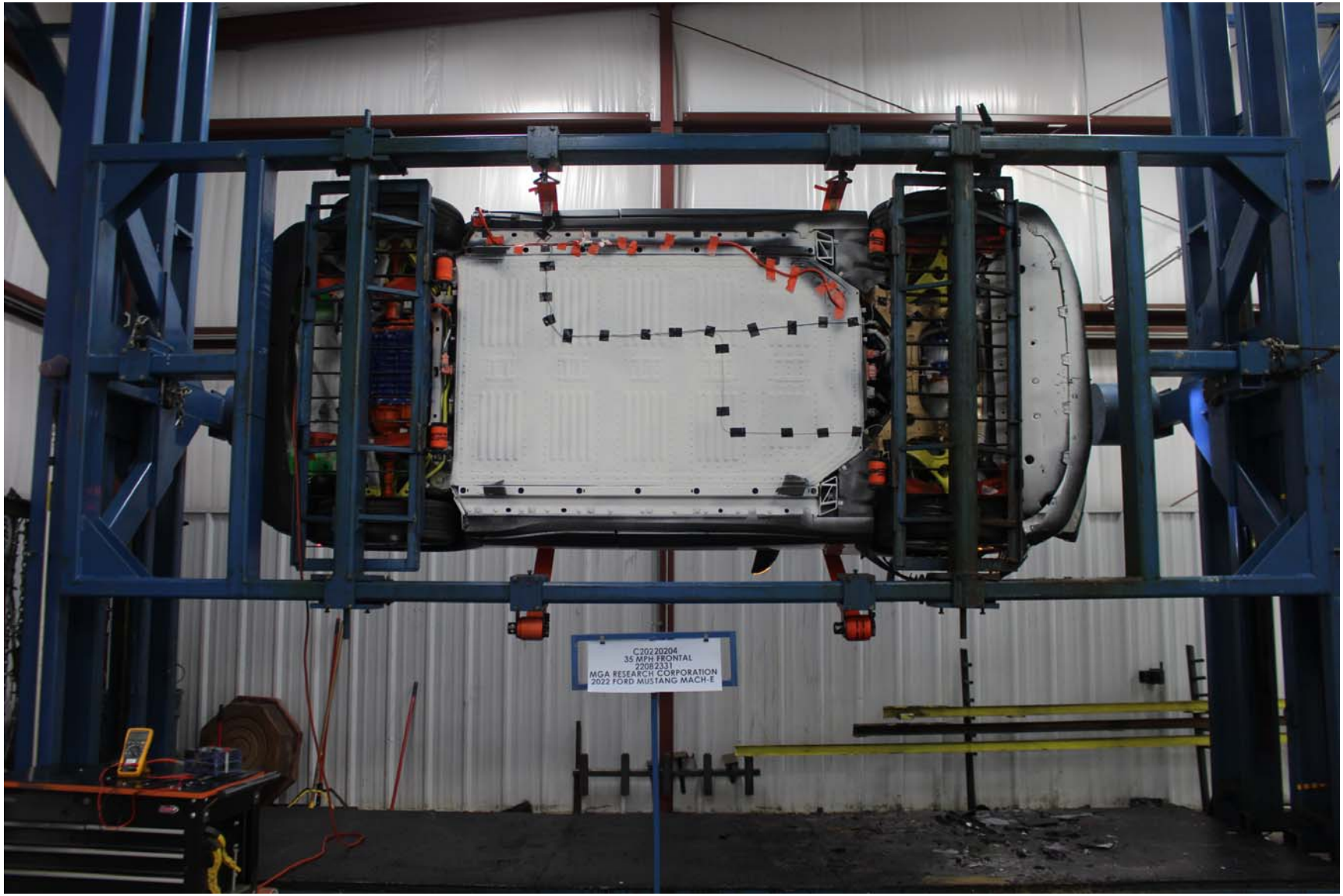

Photo No. 63. Rollover 90 Degrees

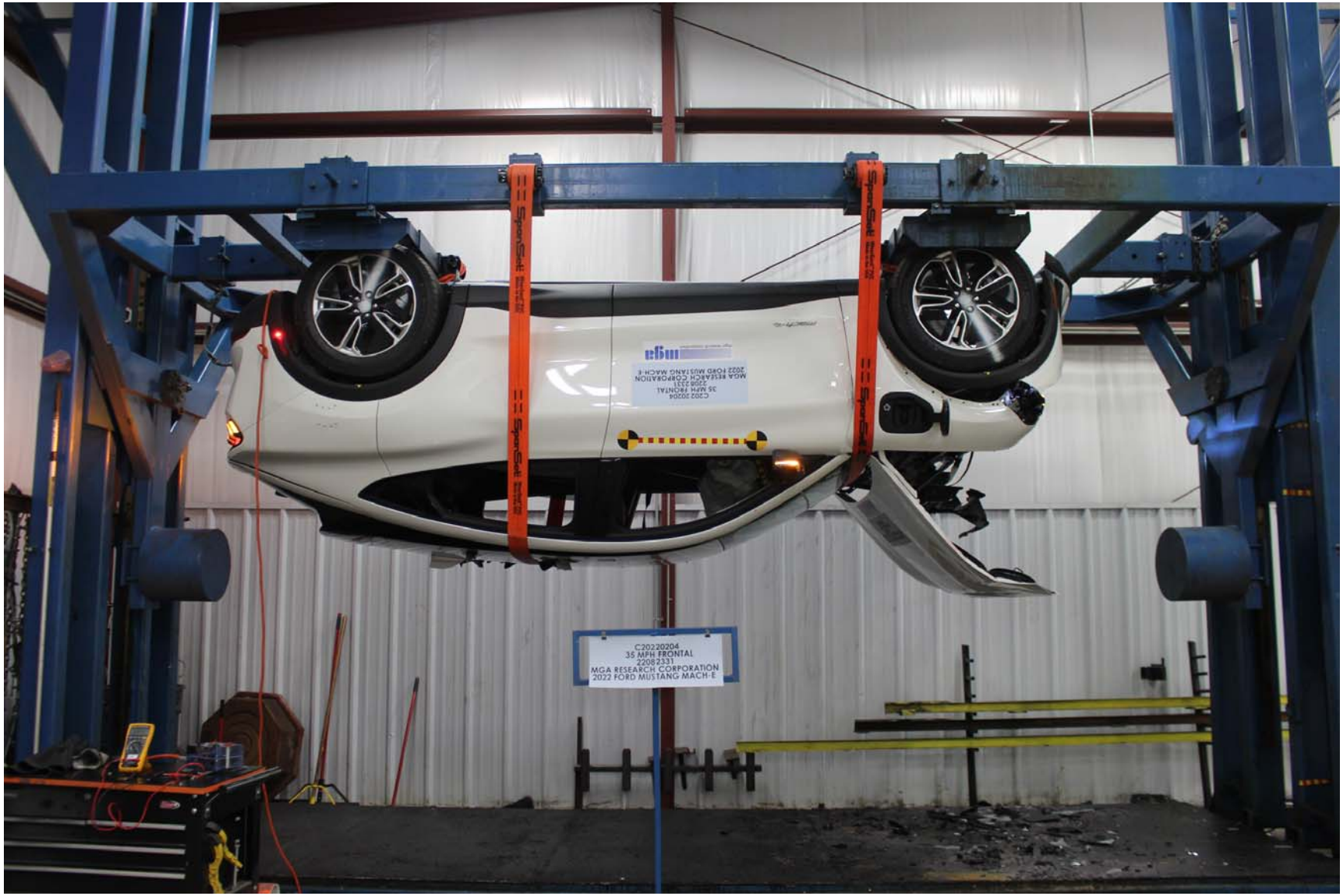

Photo No. 64. Rollover 180 Degrees

Photo No. 65. Rollover 270 Degrees

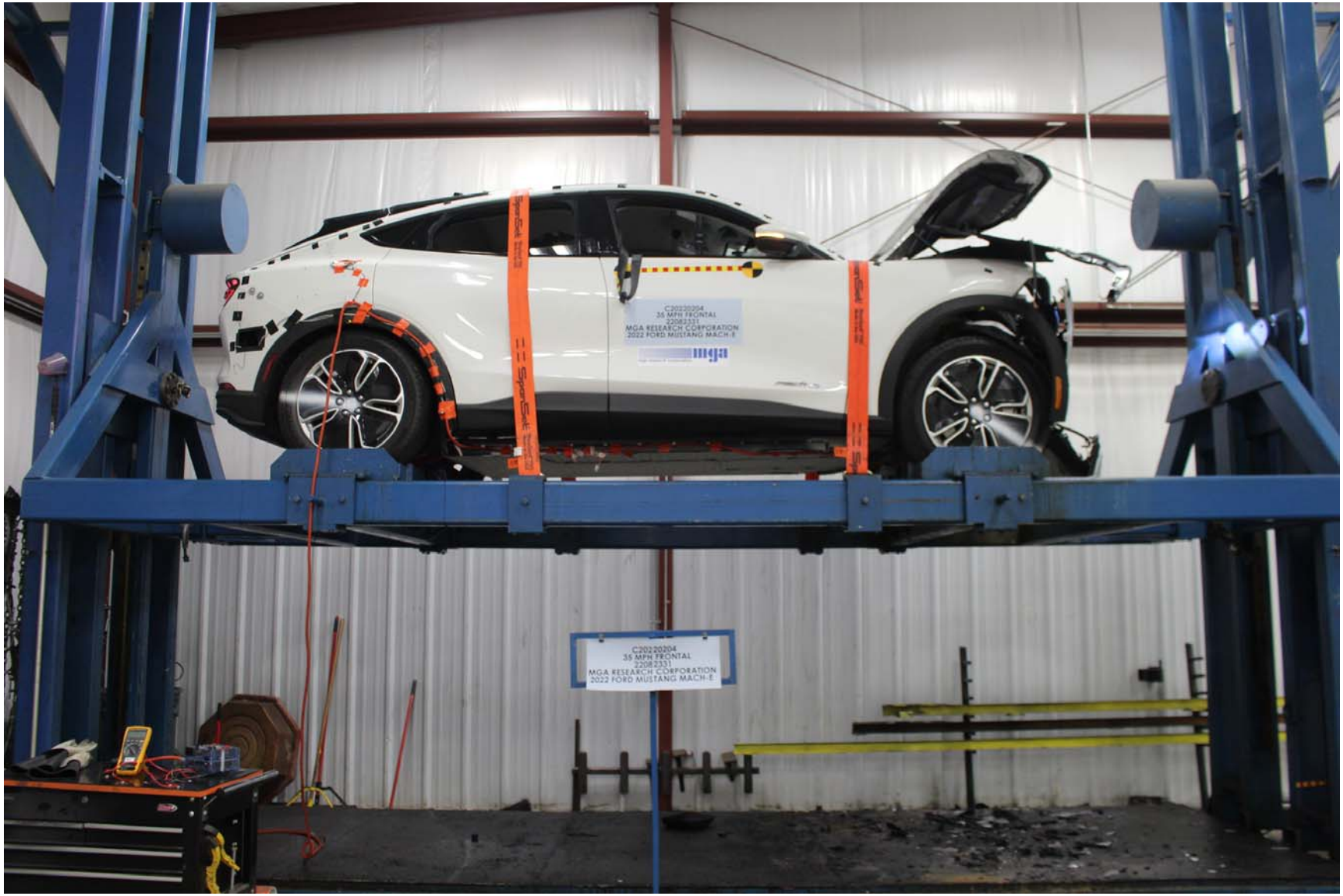

Photo No. 66. Rollover 360 Degrees

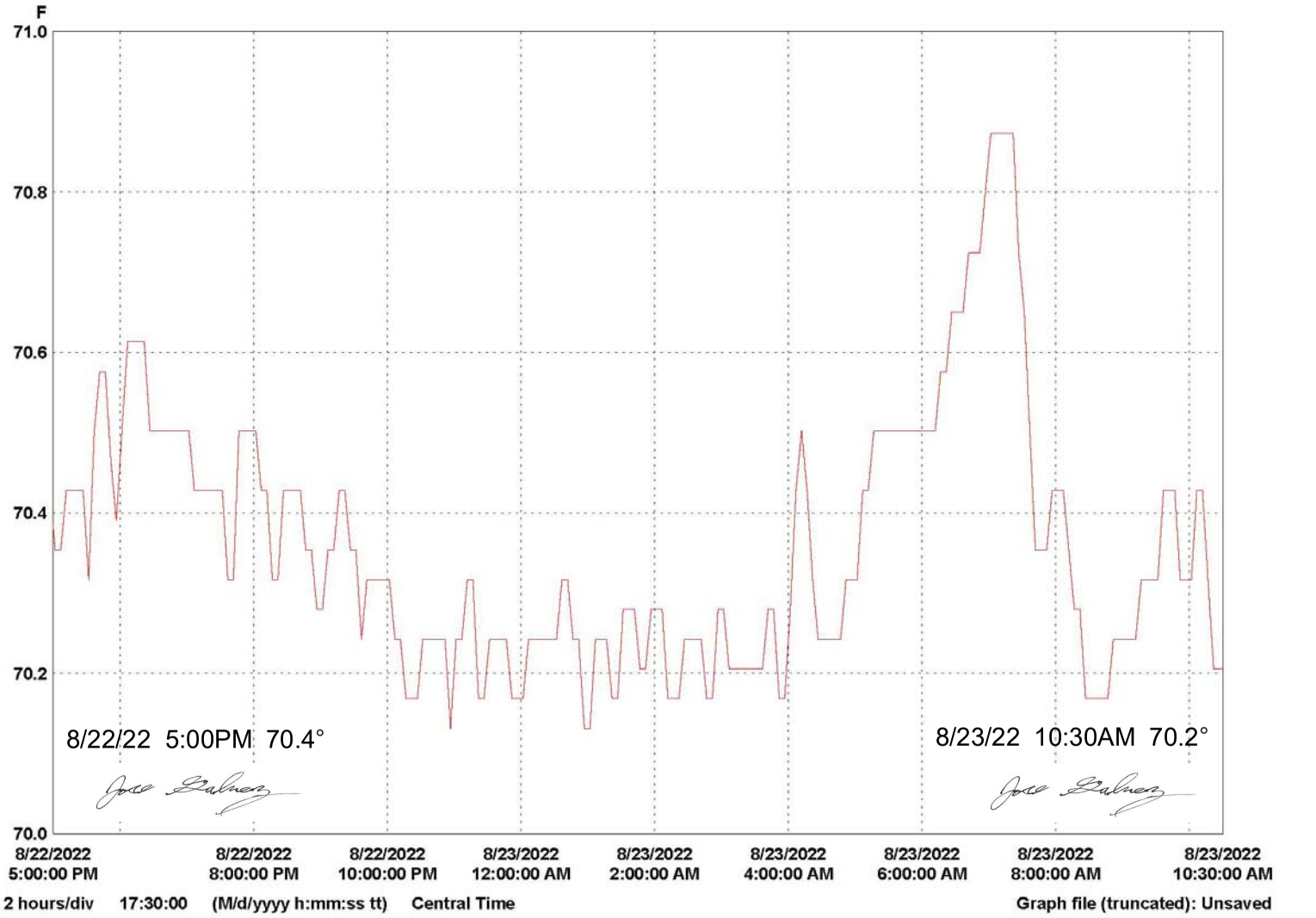

Photo No. 67. Temperature Plot

Photo No. 68. High Voltage Warning Label

Photo No. 69. Pre-Test Manual Low Voltage Service Disconnect in Place

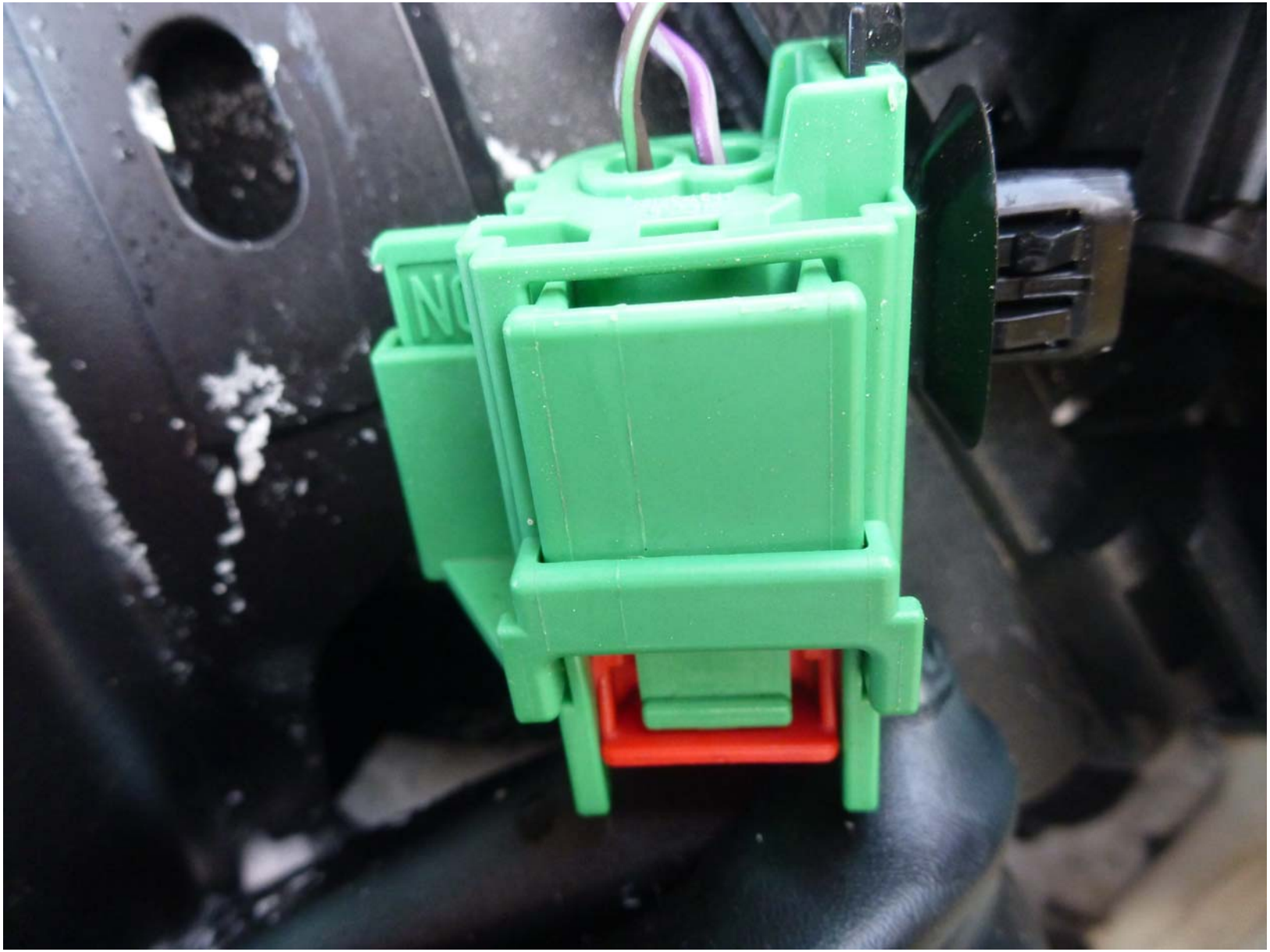

Photo No. 70. Post-Test Manual Low Voltage Service Disconnect in Place

Photo No. 71. Pre-Test Manual Low Voltage Service Disconnect Removed

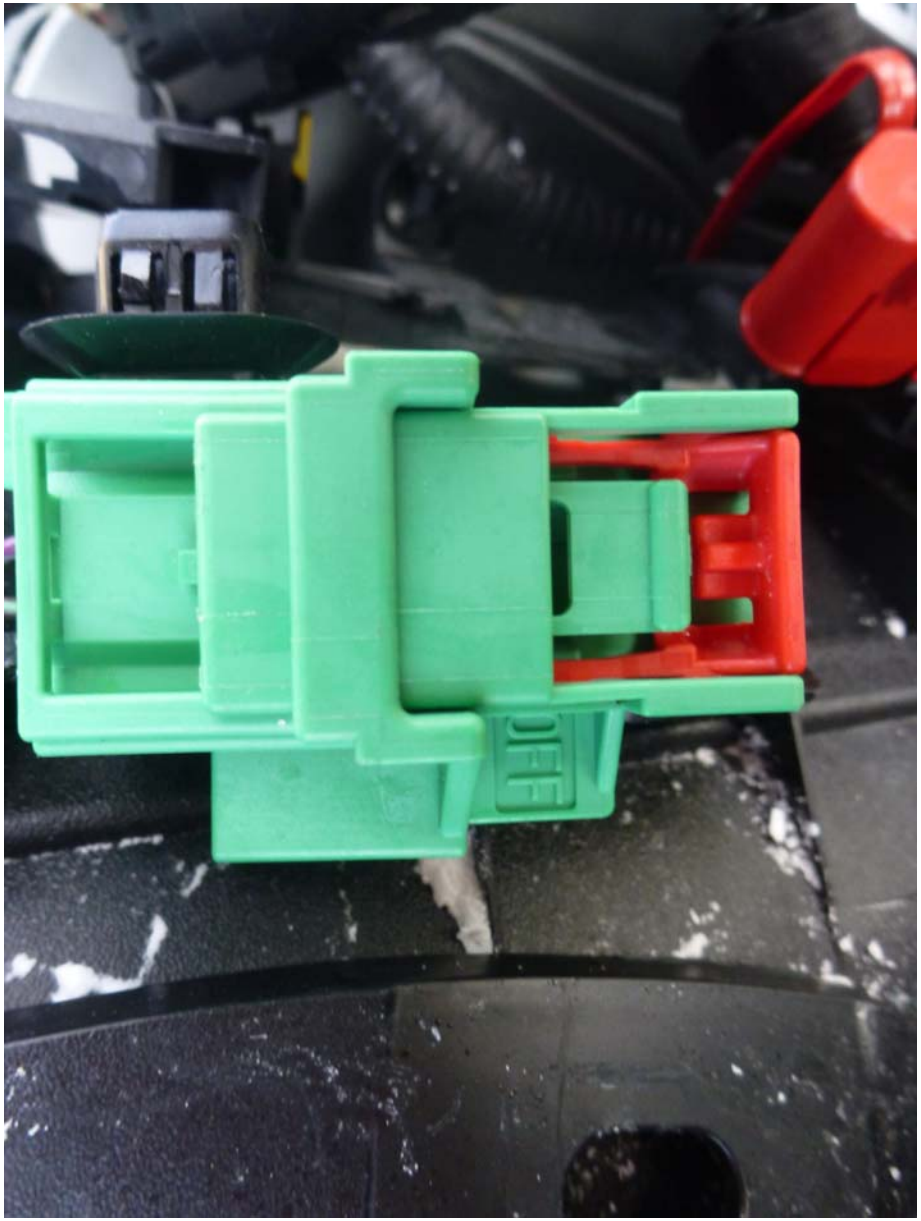

Photo No. 72. Post-Test Manual Low Voltage Service Disconnect Removed

Photo No. 73. Pre-Test Voltage Monitoring Leads Attached to Electric Energy Storage System

Photo No. 74. Pre-Test Voltage Monitoring Leads Exit From Inside Electric Energy Storage System

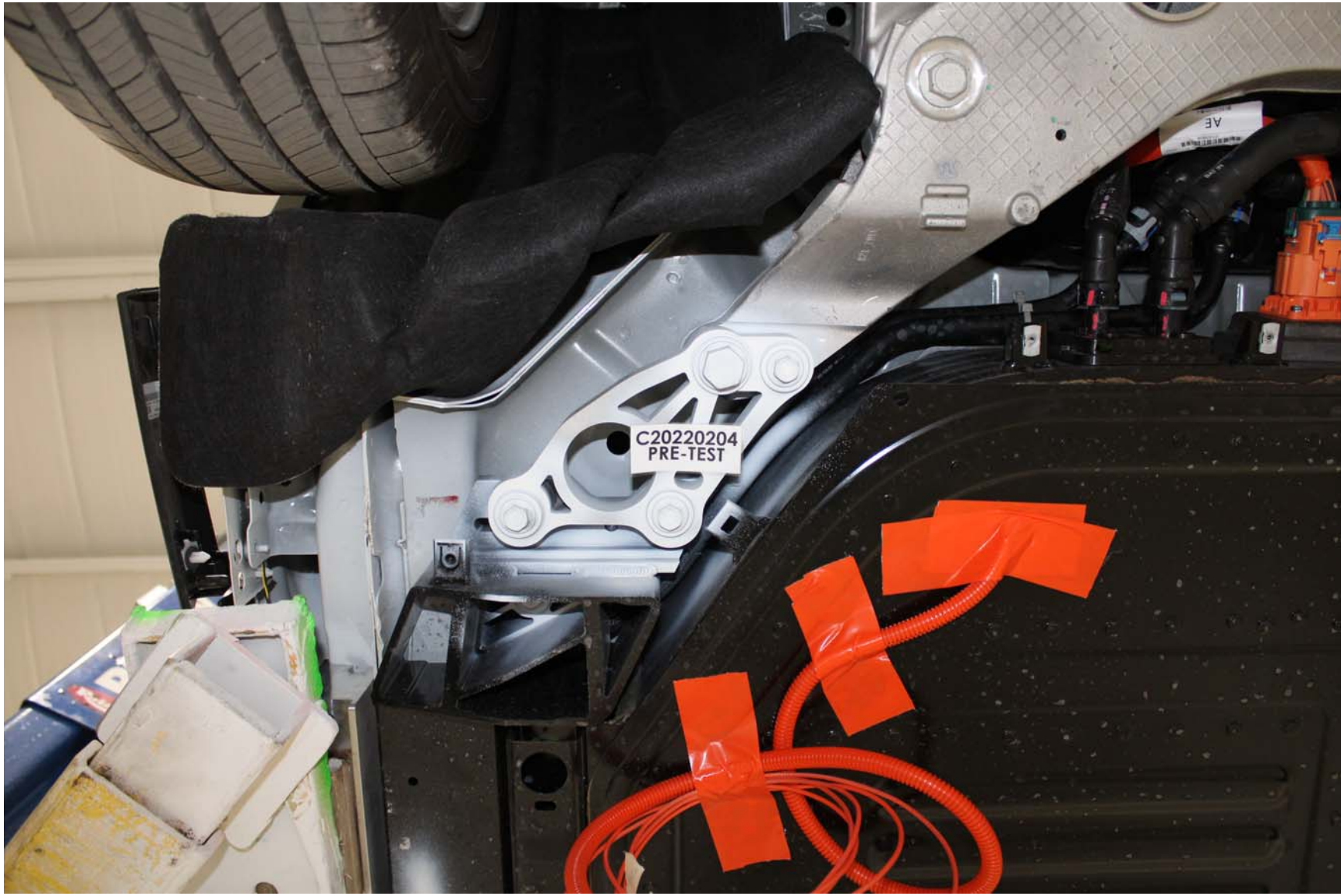

Photo No. 75. Pre-Test Voltage Monitoring Leads Exit From Outside Electric Energy Storage System

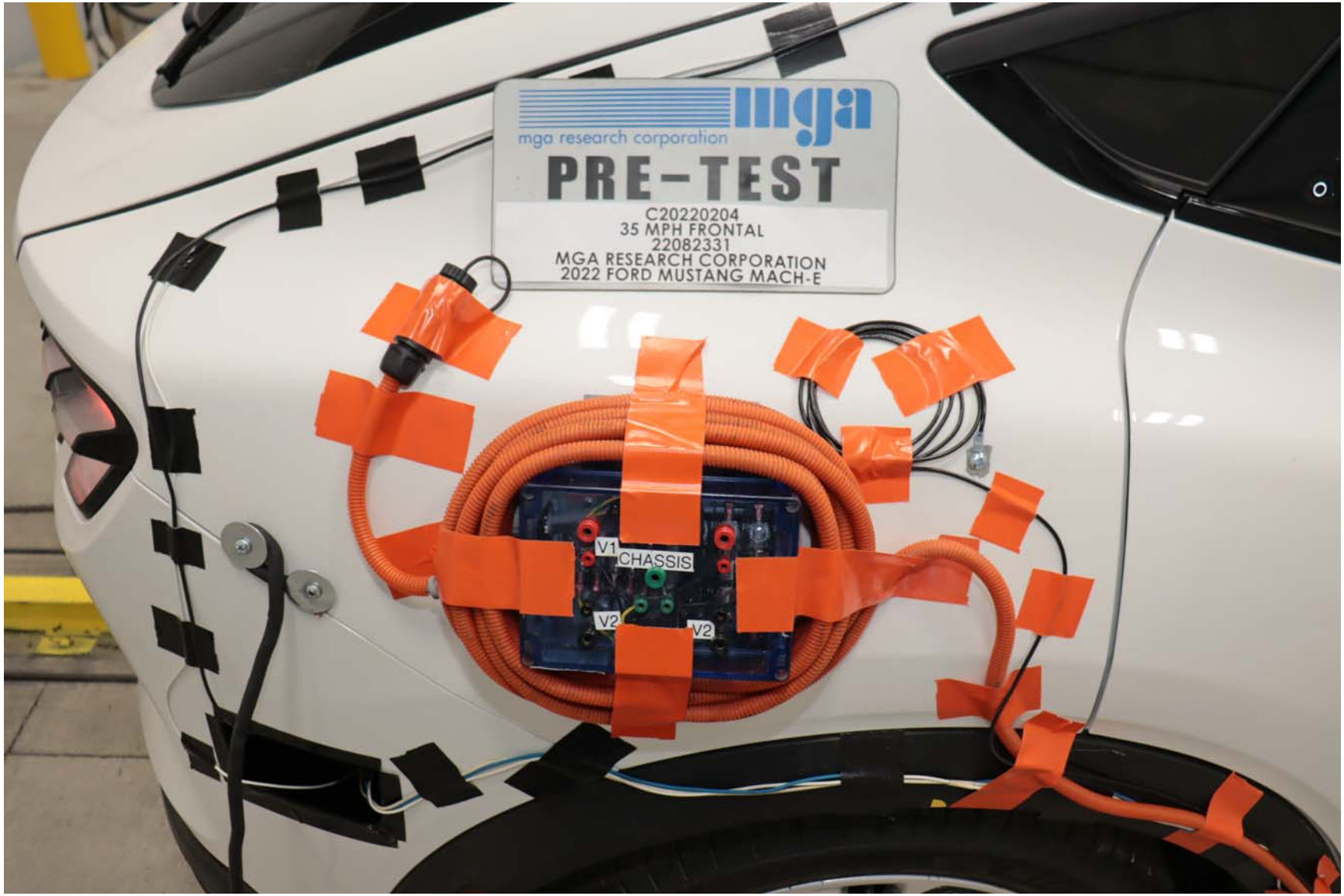

Photo No. 76. Pre-Test View of Installed Isolation Interface Port

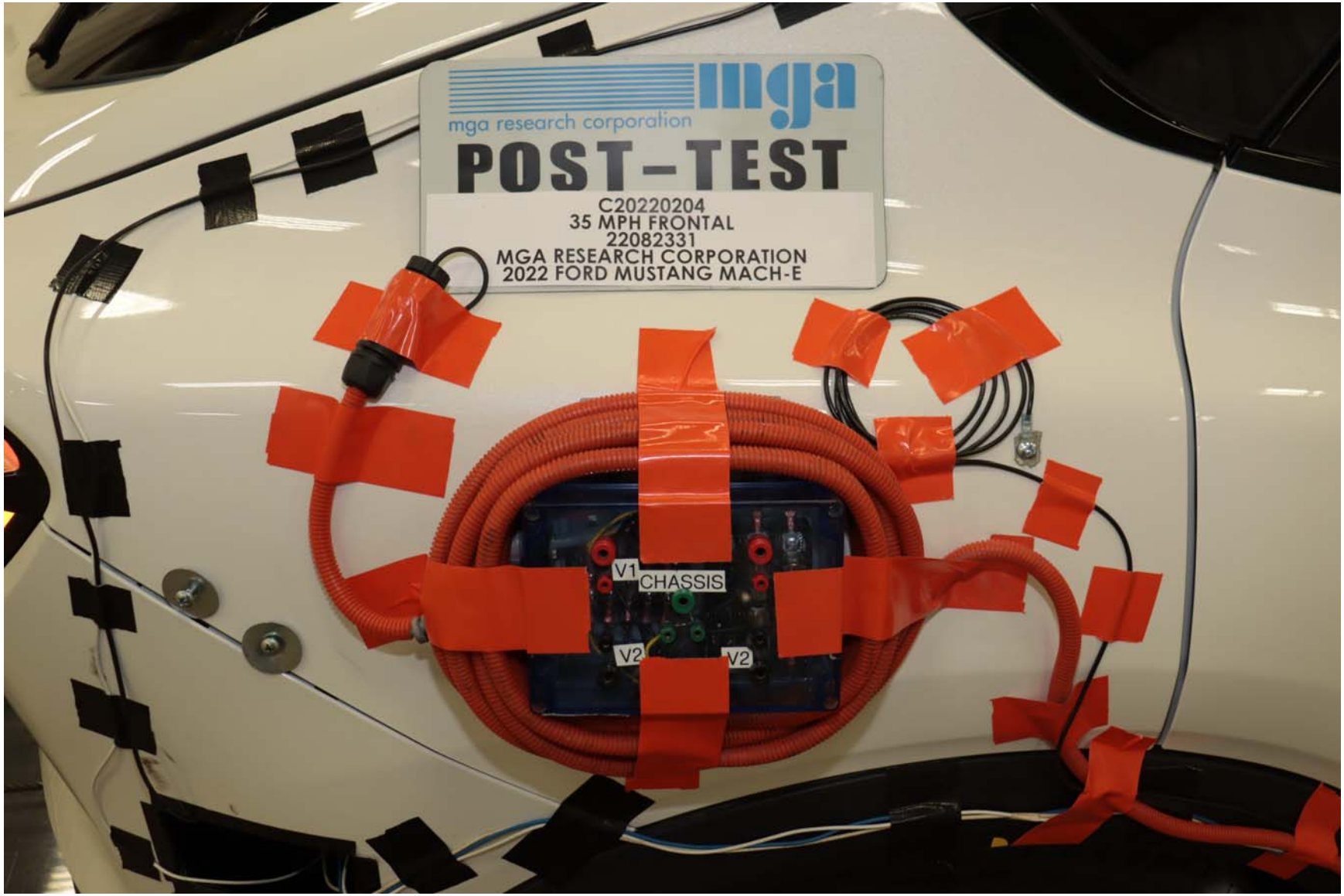

Photo No. 77. Post-Test View of Installed Isolation Interface Port

APPENDIX C

INSTRUMENTATION CALIBRATION

INSTRUMENTS FOR DRIVER DUMMY NO.: 403

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AGH90	Endevco	04/05/2022
Head Y	AH5J3	Endevco	04/05/2022
Head Z	C12885	Endevco	04/05/2022
Neck Load Cell	N7489	Denton	05/09/2022
Chest X	AGH74	Endevco	04/05/2022
Chest Y	AH5D9	Endevco	04/05/2022
Chest Z	AH5L1	Endevco	04/05/2022
Chest Displacement	403	Humanetics	04/04/2022
Left Femur Load Cell	F3138	Humanetics	04/04/2022
Right Femur Load Cell	F3137	Humanetics	04/04/2022

INSTRUMENTS FOR PASSENGER DUMMY NO.: 401

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	C12811	Endevco	04/05/2022
Head Y	C12853	Endevco	04/05/2022
Head Z	AL6Y2	Endevco	04/05/2022
Neck Load Cell	N1145	Denton	07/15/2022
Chest X	AGH55	Endevco	04/05/2022
Chest Y	AGH70	Endevco	04/05/2022
Chest Z	AGH72	Endevco	04/05/2022
Chest Displacement	401	Humanetics	04/05/2022
Left Femur Load Cell	F2026	Denton	04/04/2022
Right Femur Load Cell	F2027	Denton	04/04/2022

VEHICLE INSTRUMENTS

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	T32166	Endevco	07/18/2022
Right Rear Seat Crossmember X	A416944	MSI	08/16/2022
Top of Engine X	T29885	Endevco	07/18/2022
Bottom of Engine X	T25636	Endevco	07/18/2022
Right Brake Caliper X	PCB1126	PCB	08/01/2022
Instrument Panel X	T32182	Endevco	07/18/2022
Left Brake Caliper X	A390916	MSI	08/01/2022
Trunk Z	A416927	MSI	08/16/2022