REPORT NUMBER: 208-MGA-2023-001

VEHICLE SAFETY COMPLIANCE TESTING
FOR
FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)
FMVSS 301, FUEL SYSTEM INTEGRITY

MAZDA TOYOTA MANUFACTURING, U.S.A. , INC.
2023 MAZDA CX-50 MPV
NHTSA NO.: C20235400

PREPARED BY:
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BURLINGTON, WI 53105

TEST DATES: JANUARY 24, 2023 – MAY 19, 2023

FINAL REPORT DATE: JULY 26, 2023

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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FINAL REPORT ACCEPTED BY OVSC:

Accepted By: Syed Rahman
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Acceptance Date: July 26, 2023

Technical Report Documentation Page

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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 2023 Mazda CX-50, NHTSA No.: C20235400, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity". 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: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Dates: 1/24/23-5/19/23

The following checked items indicate the tests that were performed:

- [X] 1. Rear seating position seat belts
- [X] 2. Air bag labels (S4.5.1)
- [X] 3. Readiness indicator (S4.5.2)
- [X] 4. Passenger air bag manual cut-off device (S4.5.4)
- [X] 5. Lap belt lockability (S7.1.1.5)
- [X] 6. Seat belt warning system (S7.3)
- [X] 7. Seat belt contact force (S7.4.3)
- [X] 8. Seat belt latch plate access (S7.4.4)
- [X] 9. Seat belt retraction (S7.4.5)
- [X] 10. Seat belt guides and hardware (S7.4.6)
- [X] 11. Air bag suppression telltale (S19.2.2)
- [X] 12. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R)
- [X] 13. Suppression tests with Newborn infant (Part 572, Subpart K)
- [X] 14. Suppression tests with 3-year-old dummy
- [X] 15. Suppression tests with 6-year-old dummy
- [X] 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)
- [ ] 19. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N)
- [X] 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 40 kmph) (S5.1.2(a)(1) or S5.1.2(b))
  - [X] Frontal 0°
    - [ ] Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
    - [X] Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
    - [ ] Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
    - [ ] Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or 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)
- [ ] 22. FMVSS 204 Indicant Test
- [X] 23. FMVSS 212 Indicant Test
- [X] 24. FMVSS 219 Indicant Test
- [X] 25. FMVSS 301 Indicant Frontal Test
- [ ] 26. FMVSS 305 Indicant Frontal 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: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 3/15/23

5th Percentile Female Low Risk Deployments

5th Percentile Female SN 510 Position 1 (Chin On Module) 3/15/23

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	32
Peak Nij (Nte)	1.0	0.3
Time (ms)	NA	106.6
Peak Nij (Ntf)	1.0	0.3
Time (ms)	NA	33.6
Peak Nij (Nce)	1.0	0.3
Time (ms)	NA	173.1
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	217.8
Neck Tension	2070 N	432
Neck Compression	2520 N	213
Chest g	60 g	12
Chest Displacement	52 mm	9
Left Femur	6805 N	53
Right Femur	6805 N	56

Second stage fire time of 100 ms; Injuries calculated on 0 ms to 225 ms

5th Percentile Female SN 510 Position 2 (Chin On Rim) 3/15/23

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	13
Peak Nij (Nte)	1.0	0.3
Time (ms)	NA	13.4
Peak Nij (Ntf)	1.0	0.1
Time (ms)	NA	83.8
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	206.4
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	96.0
Neck Tension	2070 N	548
Neck Compression	2520 N	110
Chest g	60 g	17
Chest Displacement	52 mm	22
Left Femur	6805 N	40
Right Femur	6805 N	53

Second stage fire time of 100 ms; Injuries calculated on 0 ms to 225 ms

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 5/19/23

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):	55.5	Test Weight (kg):	1850.7

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	152	152
N_{te}	1.0	0.1	0.2
N_{tf}	1.0	0.2	0.1
N_{ce}	1.0	0.1	0.2
N_{cf}	1.0	0.2	0.1
Neck Tension	4170 N	1140	451
Neck Compression	4000 N	213	407
Chest g	60 g	36	44
Chest Displacement	63 mm	23	22
Left Femur	10,000 N	1102	1163
Right Femur	10,000 N	1066	966

SECTION 4

DISCUSSION OF TESTS

Test Vehicle:	2023 Mazda CX-50	NHTSA No.:	C20235400
Test Program:	FMVSS 208 Compliance	Test Dates:	1/24/23-5/19/23

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

The frontal impact Left Front Half high speed video was corrupted prior to the +100 ms event time. No video is available before 100 ms.

SECTION 5

TEST DATA SHEETS

Test Vehicle:	2023 Mazda CX-50	NHTSA No.:	C20235400
Test Program:	FMVSS 208 Compliance	Test Dates:	1/24/23-5/19/23

DATA SHEET 1

COTR VEHICLE WORK ORDER

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Dates: 1/24/23-5/19/23

COTR Signature: Syed Rahaman

Test to be performed for this vehicle are checked below:

X	1.	Rear Seating Position Seat Belts
X	2.	Air Bag Labels (S4.5.1)
X	3.	Readiness Indicator (S4.5.2)
X	4.	Passenger Air Bag Manual Cut-off Device (S4.5.4)
X	5.	Lap Belt Lockability (S7.1.1.5)
X	6.	Seat Belt Warning System (S7.3)
X	7.	Seat Belt Contact Force (S7.4.3)
X	8.	Seat Belt Latch Plate Access (S7.4.4)
X	9.	Seat Belt Retraction (S7.4.5)
X	10.	Seat Belt Guides and Hardware (S7.4.6)
X	11.	Air bag suppression telltale (S19.2.2)
X	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
X	Cosco Arriva 22-013	X	Full Rearward	X	Mid Position	X	Full Forward
	Evenflo Discovery Adjust Right 212		Full Rearward		Mid Position		Full Forward
	Graco Infant 8457		Full Rearward		Mid Position		Full Forward
X	Graco Snugride	X	Full Rearward	X	Mid Position	X	Full Forward
X	Peg Perego Viaggio	X	Full Rearward	X	Mid Position	X	Full Forward

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

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

X	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)

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

X	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)					
X		Britax Roundabout E9L02	X	Full Rearward	X	Mid Position	X Full Forward
		Cosco High Back Booster 22-209		Full Rearward		Mid Position	Full Forward
X		Cosco Summit Deluxe 22-262	X	Full Rearward	X	Mid Position	X 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
X		Evenflo Tribute V 379	X	Full Rearward	X	Mid Position	X Full Forward
		Graco ComfortSport		Full Rearward		Mid Position	Full Forward
		Graco Platinum Cargo		Full Rearward		Mid Position	Full Forward
X		Graco Safeseat Step 2	X	Full Rearward	X	Mid Position	X Full Forward
		Section D – Toddler/Belt Positioning Booster (Belted)					
		Britax Roadster 9004		Full Rearward		Mid Position	Full Forward
X		Cosco High Back Booster 22-209	X	Full Rearward	X	Mid Position	X Full Forward
		Cosco Summit Deluxe 22-262		Full Rearward		Mid Position	Full Forward
X		Evenflo Generations 352	X	Full Rearward	X	Mid Position	X 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

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

- [X] Sitting on seat with back against seat back (S22.2.2.1)
  - [X] Full Rearward [X] Mid Position [X] Full Forward
- [X] Sitting on seat with back against reclined seat back (S22.2.2.2)
  - [X] Full Rearward [X] Mid Position [X] Full Forward
- [X] Sitting on seat with back not against seat back (S22.2.2.3)
  - [X] Full Rearward [X] Mid Position [X] Full Forward
- [X] Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
  - [X] Full Rearward [X] Mid Position [X] Full Forward
- [X] Standing on seat, facing forward (S22.2.2.5)
  - [X] Full Rearward [X] Mid Position [X] Full Forward
- [X] Kneeling on seat facing forward (S22.2.2.6)
  - [X] Full Rearward [X] Mid Position [X] Full Forward
- [X] Kneeling on seat facing rearward (S22.2.2.7)
  - [X] Full Rearward [X] Mid Position [X] 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

[X] 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
- [X] Cosco High Back Booster 22-209 — [X] Full Rearward [X] Mid Position [X] Full Forward
- [ ] Cosco Summit Deluxe 22-262 — [ ] Full Rearward [ ] Mid Position [ ] Full Forward
- [X] Evenflo Generations 352 — [X] Full Rearward [X] Mid Position [X] 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

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

- [X] Sitting on seat with back against seat back (S22.2.2.1)
  - [X] Full Rearward [X] Mid Position [X] Full Forward
- [X] Sitting on seat with back against reclined seat back (S22.2.2.2)
  - [X] Full Rearward [X] Mid Position [X] Full Forward
- [X] Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
  - [X] Full Rearward [X] Mid Position [X] Full Forward
- [X] Sitting back in the seat and leaning on the right front passenger door (S24.2.3)
  - [X] Full Rearward [X] Mid Position [X] 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)

[X] 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)

[X] 27. Low risk deployment test with 5th female dummy (Part 572, Subpart O) in the following positions:
- [X] Position 1 (mid-height seat position)
- [X] 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: 55.5 kmph
  - [ ] Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
  - [ ] Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
  - [ ] Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a)(1))
  - [ ] Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a)(1))
  - [ ] Belted 5th female dummy driver and passenger (0 to 56 kmph) (S16.1(a)(2))
  - [X] Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
  - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
  - [ ] Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
  - [ ] Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or 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

[X] 32. FMVSS 301 Frontal Indicant Test

[ ] 33. FMVSS 305 Frontal Indicant Test

DATA SHEET 2

REPORT OF VEHICLE CONDITION

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Dates: 1/24/23-5/19/23

CONTRACT NO.: 693JJ919D000012 Date: 5/26/23
FROM (Lab and rep name): MGA Research Corporation
TO: NHTSA, OVSC, NSA-31

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

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2023 / Mazda / CX-50 / MPV
MANUFACTURE DATE: 09/22

NHTSA NO.	C20235400	GVWR:	2199 kg (4848 lbs)
BODY COLOR:	Jet Black Mica	GAWR (Fr):	1133 kg (2498 lbs)
VIN:	7MMVABCM5PN118331	GAWR (Rr):	1079 kg (2379 lbs)

ODOMETER READINGS: ARRIVAL (miles): 777 DATE: 1/20/23
COMPLETION (miles): 778 DATE: 5/19/23
PURCHASE PRICE: ($) $41,507.00
DEALER'S NAME: Jenkins Auto Group
1740 SW College Rd Ocala, FL 34471

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, 301

VEHICLE: 2023 Mazda CX-50 NHTSA NO.: C20235400

REMARKS:

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

Cargo Cover, Spare Tire and Tool Kit

Explanation for equipment removal:

Components removed for instrumentation installation and to meet target weight.

Test Vehicle Condition:

35 mph frontal impact damage- front suspension & structure damaged, hood & front quarter panels damaged, radiator damaged, air bags & pretensioners deployed, Stoddard in fuel system

RECORDED BY:	Jose Galvez	DATE:	5/26/23
APPROVED BY:	David Winkelbauer	DATE:	5/26/23

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

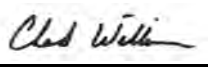
CERTIFICATION LABEL AND TIRE PLACARD INFORMATION

Test Vehicle: 2023 Mazda CX-50
Test Program: FMVSS 208 Compliance
Test Technician: Chad Williams

NHTSA No.: C20235400
Test Date: 5/19/23

Certification Label (Part 567)	
Manufacturer:	Mazda Toyota Manufacturing, U.S.A. , INC.
Date of Manufacture:	09/22
VIN:	7MMVABCM5PN118331
Vehicle Certified As (Pass. Car/MPV/Truck/Bus):	MPV
Front Axle GVWR:	1133 kg (2498 lbs)
Rear Axle GVWR:	1079 kg (2379 lbs)
Total GVWR:	2199 kg (4848 lbs)

Tire Placard for Motor Vehicles with GVWR of 10,000 lb or Less and Passenger Cars (571.110)	
Vehicle Capacity Weight:	385 kg (850 lbs)
Designated Seating Capacity Front:	2
Designated Seating Capacity Rear:	3
Total Designated Seating Capacity:	5
Recommended Cold Tire Inflation Pressure Front:	250 kpa (36 psi)
Recommended Cold Tire Inflation Pressure Rear:	250 kpa (36 psi)
Recommended Tire Size:	255/65R17
Tire Size on Vehicle:	255/65R17

Signature:  Date: 5/19/23

DATA SHEET 4

REAR SEATING POSITION SEAT BELTS

Test Vehicle: 2023 Mazda CX-50
Test Program: FMVSS 208 Compliance
Test Technician: Jose Galvez

NHTSA No.: C20235400
Test Date: 1/24/23

	Yes	No
Do all rear seating positions have Type 2 seat belts?	X	

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a Type 2 seat belt was not installed.

REMARKS:

Signature: Date: 1/24/23

DATA SHEET 5

AIR BAG LABELS (S4.5.1)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

[X] 1. Air Bag Maintenance Label and Owner's Manual Instructions: (S4.5.1(a))

[X] 1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?
- [ ] Yes (Go to 1.2)
- [X] No (Go to 2)

[ ] 1.2 Does the vehicle have a label specifying air bag maintenance or replacement?
- [ ] Yes – Pass
- [ ] No – Fail

[ ] 1.3 Does the label contain one of the following?
- [ ] Yes – Pass
- [ ] No – Fail

Check applicable schedule:

__ Schedule on label specifies month and year (Record date_____)

__ Schedule on label specifies vehicle mileage (Record mileage_____)

__ Schedule on label specifies interval measured from date on certification label (Record interval_____)

[ ] 1.4 Is the label permanently affixed within the passenger compartment such that it cannot be removed without destroying or defacing the label or vehicle part? (3/19/01 legal interpretation to Todd Mitchell)
- [ ] Yes – Pass
- [ ] No – Fail

[ ] 1.5 Is the label lettered in English?
- [ ] Yes – Pass
- [ ] No – Fail

[ ] 1.6 Is the label in block capitals and numerals?
- [ ] Yes – Pass
- [ ] No – Fail

[ ] 1.7 Are the letters and numerals at least 3/32 inches high?
- [ ] Yes – Pass
- [ ] No – Fail

[ ] 1.8 Does the owner's manual set forth the recommended schedule for maintenance or replacement?

[X] 2. Does the owner's manual: (S4.5.1(f))

[X] 2.1 Include a description of the vehicle's air bag system in an easily understandable format?
- [X] Yes – Pass
- [ ] No – Fail

[X] 2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating position?
- [X] Yes – Pass
- [ ] No – Fail

[X] 2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating position?
- [X] Yes – Pass
- [ ] No – Fail

X 2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?
- X Yes – Pass
- ☐ No – Fail

X 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to ensure maximum safety protection for those occupants?
- X Yes – Pass
- ☐ No – Fail

X 2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?
- X Yes – Pass
- ☐ No – Fail

X 2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? (Obtain answer to this question from the COTR) (S4.5.1(f)(2))
- X Yes – (Go to 2.7.1)
- ☐ No – (Go to 3.)

X 2.7.1 Explain the proper functioning of the advanced air bag system? (S4.5.1(f)(2))
- X Yes – Pass
- ☐ No – Fail

X 2.7.2 Provide a summary of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2))
- X Yes – Pass
- ☐ No – Fail

X 2.7.3 Present and explain the main components of the advanced passenger air bag system? (S4.5.1(f)(2)(i))
- X Yes – Pass
- ☐ No – Fail

X 2.7.4 Explain how the components function together as part of the advanced passenger air bag system? (S4.5.1(f)(2)(ii))
- X Yes – Pass
- ☐ No – Fail

X 2.7.5 Contain the basic requirements for proper operation, including an explanation of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2)(iii))
- X Yes – Pass
- ☐ No – Fail

X 2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2, or 23.2 (automatic suppression)?
- X Yes, continue with 2.7.6
- ☐ No, go to 2.7.7

X 2.7.6.1 Contain a complete description of the passenger air bag suppression system installed in the vehicle, including a discussion of any suppression zone? (S4.5.1(f)(2)(iv))
- X Yes – Pass
- ☐ No – Fail

X 2.7.6.2 Discuss the telltale light, specifying its location in the vehicle and explaining when the light is illuminated?
- X Yes – Pass
- ☐ No – Fail

X 2.7.7 Explain the interaction of the advanced passenger air bag system with other vehicle components, such as seat belts, seats or other components? (S4.5.1(f)(2)(v))
- X Yes – Pass
- ☐ No – Fail

X 2.7.8 Summarize the expected outcomes when child restraint systems, children and small teenagers or adults are both properly and improperly positioned in the passenger seat, including cautionary advice against improper placement of child restraint systems? (S4.5.1(f)(2)(vi))

X Yes – Pass
 No – Fail

X 2.7.9 Provide information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that my affect the advanced air bag system? (S4.5.1(f)(2)(vii))

X Yes – Pass
 No – Fail

X 3. Sun Visor Air Bag Warning Label (S4.5.1(b)): Vehicles certified to meet the requirements of S19, S21 and S23. (S4.5.1(b)(3))

X 3.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(3)) (3/19/01 legal interpretation to Todd Mitchell)

X Driver Side, Yes – Pass
 Driver Side, No – Fail
X Passenger Side, Yes – Pass
 Passenger Side, No – Fail

X 3.2 Does the label conform in content to the label shown in Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) **(Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement: "Never put a rear-facing child seat in the front." (S4.5.1(b)(3)(v)))**

Figure 11. Sun Visor Label Visible when Visor is in Down Position.

Figure 6b. Sun Visor Label Visible When Visor is in Down Position.

X Driver Side, Yes – Pass
 Driver Side, No – Fail
X Passenger Side, Yes – Pass
 Passenger Side, No – Fail

[X] 3.3 Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(3)(i))

- [X] Driver Side, Yes – Pass
- [ ] Driver Side, No – Fail
- [X] Passenger Side, Yes – Pass
- [ ] Passenger Side, No – Fail

[X] 3.4 Is the message area white with black text? (S4.5.1(b)(3)(ii))

- [X] Driver Side, Yes – Pass
- [ ] Driver Side, No – Fail
- [X] Passenger Side, Yes – Pass
- [ ] Passenger Side, No – Fail

[X] 3.5 Is the message area at least 30 cm^2? (S4.5.1(b)(3)(ii))

The message area consists of the total label area minus the yellow heading area and the pictogram. The pictogram is enclosed on the left side and bottom by the edge of the label. The top edge of the pictogram area is defined by a horizontal line midway between the uppermost edge of the pictogram and the lowermost edge of the text. The right side of the pictogram is defined by a vertical line midway between the rightmost edge of the pictogram and the left most edge of the text, including any bullets. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Driver Side: Length 40 mm, Width 107 mm
Passenger Side: Length 40 mm, Width 107 mm
Driver actual message area 42.8 cm^2
Passenger actual message area 42.8 cm^2

- [X] Driver Side, Yes – Pass
- [ ] Driver Side, No – Fail
- [X] Passenger Side, Yes – Pass
- [ ] Passenger Side, No – Fail

[X] 3.6 Is the pictogram black on a white background? (S4.5.1(b)(3)(iii))

- [X] Driver Side, Yes – Pass
- [ ] Driver Side, No – Fail
- [X] Passenger Side, Yes – Pass
- [ ] Passenger Side, No – Fail

[X] 3.7 Is the pictogram at least 30 mm in length? (S4.5.1(b)(3)(iii))

Driver side: Length: 33 mm
Passenger side: Length: 33 mm

- [X] Driver Side, Yes – Pass
- [ ] Driver Side, No – Fail
- [X] Passenger Side, Yes – Pass
- [ ] Passenger Side, No – Fail

[X] 3.8 Is the same side of the sun visor that contains the air bag warning label free of other information with the exception of the air bag maintenance label and/or the rollover-warning label? (S4.5.1(b)(5)(i))

- [X] Driver Side, Yes – Pass
- [ ] Driver Side, No – Fail
- [X] Passenger Side, Yes – Pass
- [ ] Passenger Side, No – Fail

[X] 3.9 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label and/or the rollover-warning label? (S4.5.1(b)(5)(ii))

- [X] Driver Side, Yes – Pass
- [ ] Driver Side, No – Fail
- [X] Passenger Side, Yes – Pass
- [ ] Passenger Side, No – Fail

[X] 3.10 Does the driver side visor contain a rollover-warning label on the same side of the visor as the air bag warning label?

___Yes (go to 3.10.1)
_X_ (go to 4., skipping 3.10.1 through 3.10.3)

[ ] 3.10.1 Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?

___Yes (go to 3.10.2 and skip 3.10.3)
___No (go to 3.10.3 and skip 3.10.2)

[ ] 3.10.2 Is the shortest distance from the border of the rollover label to the border of the air bag warning label at least 1 cm? (575.105 (d)(1)(iv)(B))

_____actual distance
___Yes -Pass __**No-FAIL**

[ ] 3.10.3 Is the shortest distance from any of the lettering or graphics on the rollover-warning label to any of the lettering or graphics of the air bag warning label at least 3 cm? (575.105 (d)(1)(iv)(A))

_____actual distance
___Yes-Pass __**No-FAIL**

[X] 4. Air Bag Alert Label (S4.5.1(c) (A “Rollover Warning Label” or “Rollover Alert Label” may be on the same side of the driver’s sun visor as the “Air Bag Alert Label.” 575.105(d))

[X] 4.1 Is the Sun Visor Warning Label visible when the sun visor is in the stowed position?

- [X] **If yes for driver and passenger, go to 5**.
- [X] Driver Side, Yes
- [ ] Driver Side, No
- [X] Passenger Side, Yes
- [ ] Passenger Side, No

[ ] 4.2 Is the air bag alert label permanently affixed (including permanent marking on the visor material or molding into the visor material) to the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(c)) (3/19/01 legal interpretation to Todd Mitchell)

- [ ] Driver Side, Yes – Pass
- [ ] Driver Side, No – Fail
- [ ] Passenger Side, Yes – Pass
- [ ] Passenger Side, No – Fail

[ ] 4.3 Is the air bag alert label visible when the visor is in the stowed position? (S4.5.1(c))

- [ ] Driver Side, Yes – Pass
- [ ] Driver Side, No – Fail
- [ ] Passenger Side, Yes – Pass
- [ ] Passenger Side, No – Fail

☐ 4.4 Does the label conform in content to the label shown in Figure 6C? (S4.5.1(c))

Figure 6c. Sun Visor Label Visible When Visor is in Up Position.

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☐ 4.5 Is the message area black with yellow text? (S4.5.1(c)(1))

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☐ 4.6 Is the message area at least 20 cm^2? (S4.5.1(c)(1)) **The message area consists of the black part of the label.**

Driver Side: Length_____, Width_____
Passenger Side: Length_____, Width_____
Actual message area _____ cm^2

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☐ 4.7 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2))

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☐ 4.8 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2))

Driver Side: Diameter _____mm

Passenger Side: Diameter _____mm

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

X 5. Label on the Dashboard: Vehicles certified to meet the requirements of S19, S21 and S23?

X 5.1 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(3))

- ☐ Yes – Pass **The label was missing and it could not be determined when it was removed. Therefore it was not evaluated.**
- ☐ No – Fail

☐ 5.2 Is the label clearly visible from all front seating positions? (S4.5.1(e)(3))

- ☐ Yes – Pass
- ☐ No - Fail

5.3 Does the label conform in content to the label shown in Figure 12? (S4.5.1(e)(3)) **Vehicles without back seats may omit the statement: "The back seat is the safest place for children." Vehicles without back seats or too small to accommodate a rear-facing child restraint consistent with S4.5.4.1 as determined in DATA SHEET 7 may omit the statement "Never put a rear-facing child seat in the front." (S4.5.1(e)(3)(iii)))**

Yes – Pass
No - Fail

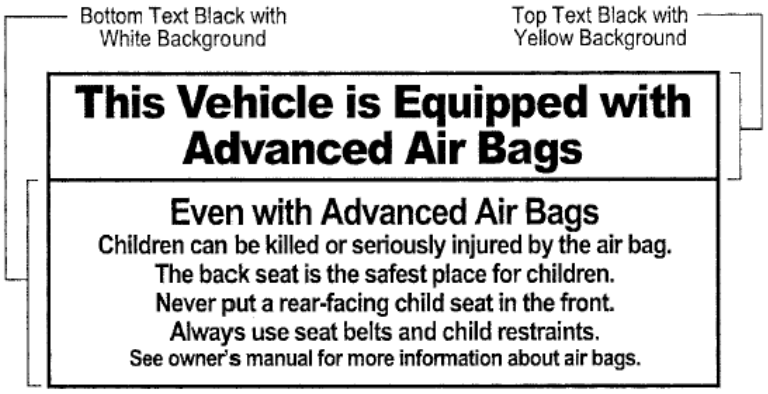


Figure 12. Removable Label on Dash.

5.4 Is the heading area yellow with black text? (S4.5.1(e)(3)(i))

Yes – Pass
No - Fail

5.5 Is the message white with black text? (S4.5.1(e)(3)(ii))

Yes – Pass
No - Fail

5.6 Is the message area at least 30 cm^2? (S4.5.1(e)(3)(ii)) **The message area consists of the total label area minus the yellow heading area. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)**

Length ___ mm, Width ___ mm

Actual message area ___ cm^2

Yes – Pass
No - Fail

I certify that I have read and performed each instruction.

Signature: _____ Date: 1/24/23

DATA SHEET 6

FMVSS 208 READINESS INDICATOR (S4.5.2)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement. (11/8/94 legal interpretation to Lawrence F. Hennegerger on behalf of Breed)

[X] 1. Is the system totally mechanical? **(If Yes, this Data Sheet is complete).**
- [ ] Yes
- [X] No

[X] 2. Describe the location of the readiness indicator: *Right Side of Instrument Cluster*

[X] 3. Is the readiness indicator clearly visible to the driver?
- [X] Yes – Pass
- [ ] No - Fail

[X] 4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided on a label or in the owner's manual?
- [X] Yes – Pass
- [ ] No - Fail

[X] 5. Does the vehicle have an on-off switch for the passenger air bag?
- [ ] If Yes (go to 6)
- [X] If No (this form is complete)

[ ] 6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position?
- [ ] Yes – Pass
- [ ] No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jose Galvez Date: 1/24/23

DATA SHEET 7

PASSENGER AIR BAG MANUAL CUT-OFF DEVICE (S4.5.4)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

[X] 1. Is the vehicle equipped with an on-off switch that deactivates the air bag installed at the right front outboard seating position?
- [ ] Yes, go to 2
- [X] No, this sheet is complete

[ ] 2. Does the vehicle have any forward-facing rear designated seating positions? (S4.5.4.1(a))
- [ ] Yes, go to 3
- [ ] No, go to 4

[ ] 3. Verification there is room for a child restraint in the rear seat behind the driver's seat. (S4.5.4.1(b))

[ ] 3.1 Using all the controls that affect the fore-aft movement of the seat, move the seat to the rearmost position. Mark this position.
- [ ] N/A – the seat does not have fore-aft adjustment

[ ] 3.2 Using all the controls that affect the fore-aft movement of the seat, move the seat to the foremost position. Mark this position.
- [ ] N/A – the seat does not have fore-aft adjustment

[ ] 3.3 Move the seat to the middle of the foremost and rearmost positions. (S8.1.2)
- [ ] N/A – the seat does not have a fore-aft adjustment

[ ] 3.4 If the driver's seat height is adjustable, use all the controls that affect height to put it in the lowest position while maintaining the middle fore-aft position. (S8.1.2)
- [ ] N/A – No seat height adjustment

[ ] 3.5 Position the driver's seat 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

[ ] 3.6 The driver's seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1(b) and S8.1.3)
- [ ] N/A – No seat back angle adjustment
- [ ] Manufacturer's design driver's seat back angle _____
- [ ] Tested driver's seat back angle _____

[ ] 3.7 Is the driver seat a bucket seat?
- [ ] __ Yes, go to 3.7.1 and skip 3.7.2.
- [ ] __ No, go to 3.7.2 and skip 3.7.1.

[ ] 3.7.1 Bucket seats:

[ ] 3.7.1.1 Locate and mark a vertical Plane B through the longitudinal centerline of the driver's seat cushion. The longitudinal centerline of a bucket seat cushion is determined at SgRP. (S16.3.1.10) (S4.5.4.1(b)(1))

[ ] 3.7.1.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion behind the driver's seat. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the driver's seat.
- _____ mm distance
- _____ less than 720 mm – Pass
- _____ more than 720 mm – **FAIL**

Go to 4

[ ] 3.7.2 Bench seats (including split bench seats):

[ ] 3.7.2.1 Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline. (S4.5.4.1(b)(2))

☐ 3.7.2.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the front seat.

____ mm distance
____ less than 720 mm – Pass
____ more than 720 mm - **FAIL**

Go to 4

☐ 4. Does the device turn the air bag on and off using the vehicle's ignition key? (S4.5.4.2)

☐ Yes – Pass
☐ No – Fail

☐ 5. Is the on-off device separate from the ignition switch? (S4.5.4.2)

☐ Yes – Pass
☐ No – Fail

☐ 6. Is there a telltale light that comes on when the passenger air bag is turned off? (S4.5.4.2)

☐ Yes – Pass
☐ No – Fail

☐ 7. Telltale light (S4.5.4.3)

☐ 7.1 Is the light yellow? (S4.5.4.3(a))

☐ Yes – Pass
☐ No – Fail

☐ 7.2 Are the words "PASSENGER AIR BAG OFF" or "PASS AIR BAG OFF" (S4.5.4.3(b))
☐ 7.2.1 on the telltale?

☐ Yes – Pass, go to 7.3
☐ No – go to 7.2.2

☐ 7.2.2 Within 25 mm of the telltale?
☐ Measurement from the edge of the telltale light (mm):

☐ Yes – Pass
☐ No – Fail

☐ 7.3 Does the telltale remain illuminated while the air bag is turned off? (S4.5.4.3c))
(Leave the air bag off for 5 minutes.)

☐ Yes – Pass
☐ No – Fail

☐ 7.4 Is the telltale illuminated while the air bag is turned on? (S4.5.4.3(d))

☐ Yes – Fail
☐ No – Pass

☐ 7.5 Is the telltale combined with the air bag readiness indicator? (S4.5.4.3(e))

☐ Yes – Fail
☐ No – Pass

☐ 8. Owner's Manual
☐ 8.1 Does the owner's manual contain complete instructions on the operation of the on-off switch? (S4.5.4.4(a))

☐ Yes – Pass
☐ No – Fail

8.2 Does the owner's manual contain a statement that the on-off switch should only be used when a member of one of the following risk groups is occupying the right front passenger seating position? (S4.5.4.4(b))

Infants:	there is no back seat
	the rear seat is too small to accommodate a child restraint
	there is a medical condition that must be monitored constantly
Children aged 1 to 12:	there is no back seat
	space is not always available in the rear seat
	there is a medical condition that must be monitored constantly
Medical condition:	medical risk causes special risk for passenger
	greater risk for harm than with the air bag on

☐ Yes – Pass
☐ No – Fail

8.3 Does the owner's manual contain a warning about the safety consequences of using the on-off switch at other times?

☐ Yes – Pass
☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Date: 1/24/23

DATA SHEET 8

LAP BELT LOCKABILITY

Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle:	2023 Mazda CX-50	NHTSA No.:	C20235400
Test Program:	FMVSS 208 Compliance	Test Date:	1/24/23
Test Technician:	Jose Galvez		

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Front Passenger

[ ] N/A – No retractor is at this position
[ ] N/A – The retractor is an automatic locking retractor ONLY

[X] 1. Record test fore-aft seat position: **REAR** (S7.1.1.5(c)(1)) (Any position is acceptable)

[X] 2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5(a))
- [X] Yes – Pass
- [ ] No – Fail

[X] 3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))
- [X] Yes – Pass
- [ ] No – Fail

[X] 4. Place any adjustable seat belt anchorage in the lowest adjustment position.
- [ ] N/A The anchorage is not adjustable.

[X] 5. Buckle the seat belt. (S7.1.1.5(c)(1))

[X] 6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

[X] 7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

[X] 8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
- [X] Yes (go to 8.1)
- [ ] No (go to 9)

[X] 8.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system? (S7.1.1.5(b))
- [X] Yes – Pass
- [ ] No – Fail

[X] 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 54 ¾

X 11. Readjust the belt system so that the webbing between points A and B is at ½ the maximum length of the webbing. (S7.1.1.5(c)(3))

X 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle: 10° (spec. 5 - 15 degrees)

X 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B: 23 ½ inches

X 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 15 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 23 ¾ inches (S7.1.1.5(c)(6))

X 15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled.

X 16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle: 10° (spec. 5 - 15 degrees)

X 17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B: 4 ¾ inches

X 18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 15 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 5 ½ inches (S7.1.1.5(c)(6))

X 19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

X 14 – 13 = 23 ¾ - 23 ½ = ¼ inch;

X 18 – 17 = 5 ½ – 4 ¾ = ¾ inches;

X Yes – Pass

☐ No – Fail

X 20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

X 10-14 = 54 ¾ - 23 ¾ = 31 inches;

X 10-18 = 54 ¾ - 5 ½ = 49 ¼ inches

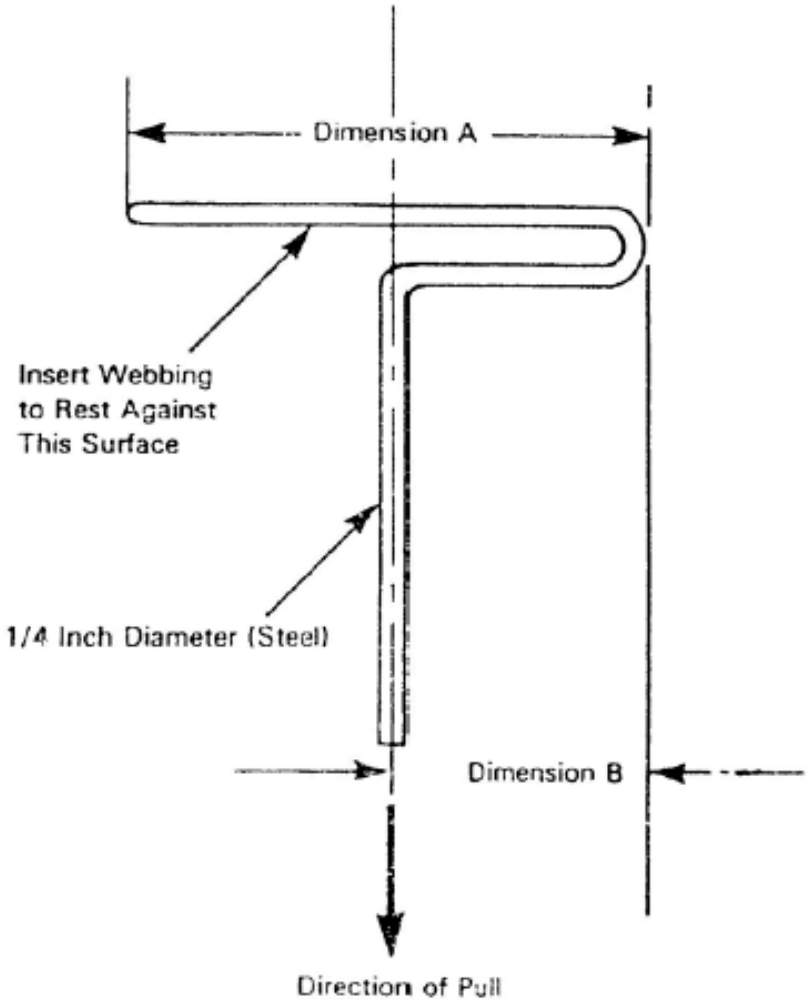
X Yes – Pass

☐ No – Fail

REMARKS:

Signature: _____ Date: 1/24/23

I certify that I have read and performed each instruction.



Dimension A - Width of Webbing Plus 1/2 Inch

Dimension B - 1/2 of Dimension A

Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY

Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Left Rear Passenger

[ ] N/A – No retractor is at this position
[ ] N/A – The retractor is an automatic locking retractor ONLY

[X] 1. Record test fore-aft seat position: **FIXED**
(S7.1.1.5(c)(1)) (Any position is acceptable)

[X] 2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5(a))
- [X] Yes – Pass
- [ ] No – Fail

[X] 3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))
- [X] Yes – Pass
- [ ] No – Fail

[X] 4. Place any adjustable seat belt anchorage in the lowest adjustment position.
- [X] N/A The anchorage is not adjustable.

[X] 5. Buckle the seat belt. (S7.1.1.5(c)(1))

[X] 6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

[X] 7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

[X] 8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
- [X] Yes (go to 8.1)
- [ ] No (go to 9)

[X] 8.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system? (S7.1.1.5(b))
- [X] Yes – Pass
- [ ] No – Fail

[X] 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 59 ¼

X 11. Readjust the belt system so that the webbing between points A and B is at ½ the maximum length of the webbing. (S7.1.1.5(c)(3))

X 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle: 10° (spec. 5 - 15 degrees)

X 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B: 27 inches

X 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 15 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 27 ¾ inches (S7.1.1.5(c)(6))

X 15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled.

X 16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle: 10° (spec. 5 - 15 degrees)

X 17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B: 10 inches

X 18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 15 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 10 ½ inches (S7.1.1.5(c)(6))

X 19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

X 14 – 13 = 27 ¾ - 27 = ¾ inch;

X 18 – 17 = 10 ½ - 10 = ½ inch;

X Yes – Pass

☐ No – Fail

[X] 20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

[X] 10-14 = 59 ¼ - 27 ¾ = 31 ½ inches;

[X] 10-18 = 59 ¼ - 10 ½ = 48 ¾ inches;

[X] Yes – Pass

[ ] No – Fail

REMARKS:

Signature: _____ Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 8

LAP BELT LOCKABILITY

Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Center Rear Passenger

[ ] N/A – No retractor is at this position
[ ] N/A – The retractor is an automatic locking retractor ONLY
[X] 1. Record test fore-aft seat position: **FIXED** (S7.1.1.5(c)(1)) (Any position is acceptable)
[X] 2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5(a))
  [X] Yes – Pass
  [ ] No – Fail
[X] 3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))
  [X] Yes – Pass
  [ ] No – Fail
[X] 4. Place any adjustable seat belt anchorage in the lowest adjustment position.
  [X] N/A The anchorage is not adjustable.
[X] 5. Buckle the seat belt. (S7.1.1.5(c)(1))
[X] 6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
[X] 7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
[X] 8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
  [X] Yes (go to 8.1)
  [ ] No (go to 9)
[X] 8.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system? (S7.1.1.5(b))
  [X] Yes – Pass
  [ ] No – Fail
[X] 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 73 ¼

X 11. Readjust the belt system so that the webbing between points A and B is at ½ the maximum length of the webbing. (S7.1.1.5(c)(3))

X 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle: 10° (spec. 5 - 15 degrees)

X 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B: 37 ¼ inches

X 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 15 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 38 ¼ inches (S7.1.1.5(c)(6))

X 15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled.

X 16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle: 10° (spec. 5 - 15 degrees)

X 17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B: 7 ¾ inches

X 18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 15 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 8 inches (S7.1.1.5(c)(6))

X 19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

X 14 – 13 = 38 ¼ - 37 ¼ = 1 inch;

X 18 – 17 = 8 – 7 ¾ = ¼ inch;

X Yes – Pass

☐ No – Fail

[X] 20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

[X] 10-14 = 73 ¼ - 38 ¼ = 35 inches;

[X] 10-18 = 73 ¼ - 8 = 65 ¼ inches

[X] Yes – Pass

[ ] No – Fail

REMARKS:

Signature: _____ Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 8

LAP BELT LOCKABILITY

Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Right Rear Passenger

[ ] N/A – No retractor is at this position
[ ] N/A – The retractor is an automatic locking retractor ONLY

[X] 1. Record test fore-aft seat position: **FIXED** (S7.1.1.5(c)(1)) (Any position is acceptable)

[X] 2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5(a))
- [X] Yes – Pass
- [ ] No – Fail

[X] 3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))
- [X] Yes – Pass
- [ ] No – Fail

[X] 4. Place any adjustable seat belt anchorage in the lowest adjustment position.
- [X] N/A The anchorage is not adjustable.

[X] 5. Buckle the seat belt. (S7.1.1.5(c)(1))

[X] 6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

[X] 7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

[X] 8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
- [X] Yes (go to 8.1)
- [ ] No (go to 9)

[X] 8.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system? (S7.1.1.5(b))
- [X] Yes – Pass
- [ ] No – Fail

[X] 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 59 ¼

X 11. Readjust the belt system so that the webbing between points A and B is at ½ the maximum length of the webbing. (S7.1.1.5(c)(3))

X 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle: 10° (spec. 5 - 15 degrees)

X 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B: 25 ¼ inches

X 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 15 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 26 inches (S7.1.1.5(c)(6))

X 15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled.

X 16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle: 10° (spec. 5 - 15 degrees)

X 17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B: 10 ½ inches

X 18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 15 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 11 ¼ inches (S7.1.1.5(c)(6))

X 19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

X 14 – 13 = 26 – 25 ¼ = ¾ inches;

X 18 – 17 = 11 ¼ – 10 ½ = ¾ inches;

X Yes – Pass

No – Fail

[X] 20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

[X] 10-14 = 59 ¼ - 26 = 33 ¼ inches;

[X] 10-18 = 59 ¼ - 11 ¼ = 48 inches

[X] Yes – Pass

[ ] No – Fail

REMARKS:

Signature: _____ Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 9

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

X 1. The occupant is in the driver's seat.
X 2. The seat belt is in the stowed position.
X 3. The key is in the "on" or "start" position.
X 4. The time duration of the audible signal beginning with key "on" or "start" is
X 8 seconds.
X 5. The occupant is in the driver's seat.
X 6. The seat belt is in the stowed position.
X 7. The key is in the "on" or "start" position.
X 8. The time duration of the warning light beginning with key "on" or "start" is
X Stays On seconds.
X 9. The occupant is in the driver's seat.
X 10. The seat belt is in the latched position and with at least 4 inches of belt webbing extended.
X 11. The key is in the "on" or "start" position.
X 12. The time duration of the warning light beginning with key "on" or "start" is
X 0 seconds.
X 13. Complete the following table with the data from 4, 8, and 12 to determine which option is used.

		Warning light	Warning light specification	Audible signal	Audible signal specification*
S7.3 (a)(1)	Belt stowed & key on or start	Item 8: Stays On	60 seconds minimum	Item 4: 8	4 to 8 seconds
S7.3 (a)(2)	Belt latched & key on or start	Item 12: 0	4 to 8 seconds		
	Belt stowed & key on or start	Item 8: Stays On	4 to 8 seconds	Item 4: 8	4 to 8 seconds

* 49 USCS @ 30124 does NOT allow an audible signal to operate for more than 8 seconds.
A voluntary audible signal after the 4 to 8 second required signal may be provided. It must be differentiated from the required signal (5/25/2001 legal interpretation to Longacre and Associates).

X 14. The seat belt warning system meets the requirements of (manufacturers may comply with either section).
- X S7.3 (a)(1)
- S7.3 (a)(2)
- FAIL – Does NOT meet the requirements of either option.

X 15. Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2))
- Fasten Seat Belts
- Fasten Belts
- X Symbol 101 -
- FAIL – Does not use any of the above wording or symbol.

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jose Galvez Date: 1/24/23

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Front Driver

X 1. Does the vehicle incorporate a webbing tension-relieving device?
- [ ] Yes (this form is complete)
- [X] No (continue with this check sheet)

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)
- [ ] 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. Is the fore-aft position of the seat adjustable?
- [ ] No – go to 5
- [X] Yes – go to 4.1

X 4.1 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 4.2 Use all the seat controls that have any affects 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 4.3 **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 4.1 and 4.2. (8/31/95 legal interpretation to Hogan and Hartson)

X 4.4 Move the seat to the mid position.

X 4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 5. Is the seat back angle adjustable?
- [ ] No- go to 6
- [X] Yes- go to 5.1

X 5.1 Set and mark 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
- [X] Manufacturer's design seat back angle: 5.9° on Headrest Post
- [X] Tested seat back angle: 5.9° on Headrest Post

X 6. Is the seat a bucket seat?

X Yes, go to 6.1 and skip 6.2

☐ No, go to 6.2 and skip 6.1

X 6.1 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)

☐ 6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

☐ 6.2.1 Driver Seat

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)

☐ 6.2.2 Front Outboard Passenger Seat

Locate and **mark** 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. _____

☐ 6.2.3 Rear designated seating positions

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.

X 7. Position the test dummies according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

X 8. Fasten the seat belt latch.

X 9. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

X 10. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

X Contact Force (lb): **0.5**

X 0.0 to 0.7 pounds – Pass

☐ **Greater than 0.7 pounds - FAIL**

REMARKS:

Signature: Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Front Passenger

X 1. Does the vehicle incorporate a webbing tension-relieving device?
- [ ] Yes (this form is complete)
- [X] No (continue with this check sheet)

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. Is the fore-aft position of the seat adjustable?
- [ ] No – go to 5
- [X] Yes – go to 4.1

X 4.1 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 4.2 Use all the seat controls that have any effects 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 4.3 **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 4.1 and 4.2. (8/31/95 legal interpretation to Hogan and Hartson)

X 4.4 Move the seat to the mid position.

X 4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 5. Is the seat back angle adjustable?
- [ ] No- go to 6
- [X] Yes- go to 5.1

X 5.1 Set and mark 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
- [X] Manufacturer's design seat back angle: 6.6° on Headrest Post
- [X] Tested seat back angle: 6.6° on Headrest Post

X 6. Is the seat a bucket seat?

X Yes, go to 6.1 and skip 6.2

☐ No, go to 6.2 and skip 6.1

X 6.1 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)

☐ 6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

☐ 6.2.1 Driver Seat

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)

☐ 6.2.2 Front Outboard Passenger Seat

Locate and **mark** 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. _____

☐ 6.2.3 Rear designated seating positions

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.

X 7. Position the test dummies according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

X 8. Fasten the seat belt latch.

X 9. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

X 10. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

X Contact Force (lb): **0.6**

X 0.0 to 0.7 pounds – Pass

☐ **Greater than 0.7 pounds - FAIL**

REMARKS:

Signature: Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger

X 1. Does the vehicle incorporate a webbing tension-relieving device?
- [ ] Yes (this form is complete)
- [X] No (continue with this check sheet)

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. Is the fore-aft position of the seat adjustable?
- [X] No – go to 5
- [ ] Yes – go to 4.1

[ ] 4.1 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)

[ ] 4.2 Use all the seat controls that have any effects 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)

[ ] 4.3 **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 4.1 and 4.2. (8/31/95 legal interpretation to Hogan and Hartson)

[ ] 4.4 Move the seat to the mid position.

[ ] 4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 5. Is the seat back angle adjustable?
- [X] No- go to 6
- [ ] Yes- go to 5.1

[ ] 5.1 Set and mark 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: _____
- [ ] Tested seat back angle: _____

X 6. Is the seat a bucket seat?

- [ ] Yes, go to 6.1 and skip 6.2
- [X] No, go to 6.2 and skip 6.1

[ ] 6.1 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)

X 6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

[ ] 6.2.1 Driver Seat

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)

[ ] 6.2.2 Front Outboard Passenger Seat

Locate and **mark** 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 6.2.3 Rear designated seating positions

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.

X 7. Position the test dummies according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

X 8. Fasten the seat belt latch.

X 9. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

X 10. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

X Contact Force (lb): **0.6**

- [X] 0.0 to 0.7 pounds – Pass
- [ ] **Greater than 0.7 pounds - FAIL**

REMARKS:

Signature: _____ Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Center Rear Passenger

X 1. Does the vehicle incorporate a webbing tension-relieving device?
- [ ] Yes (this form is complete)
- [X] No (continue with this check sheet)

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. Is the fore-aft position of the seat adjustable?
- [X] No – go to 5
- [ ] Yes – go to 4.1

[ ] 4.1 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)

[ ] 4.2 Use all the seat controls that have any effects 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)

[ ] 4.3 **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 4.1 and 4.2. (8/31/95 legal interpretation to Hogan and Hartson)

[ ] 4.4 Move the seat to the mid position.

[ ] 4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 5. Is the seat back angle adjustable?
- [X] No- go to 6
- [ ] Yes- go to 5.1

[ ] 5.1 Set and mark 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: _____
- [ ] Tested seat back angle: _____

X 6. Is the seat a bucket seat?

- [ ] Yes, go to 6.1 and skip 6.2
- [X] No, go to 6.2 and skip 6.1

[ ] 6.1 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)

X 6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

[ ] 6.2.1 Driver Seat

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)

[ ] 6.2.2 Front Outboard Passenger Seat

Locate and **mark** 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 6.2.3 Rear designated seating positions

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.

X 7. Position the test dummies according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

X 8. Fasten the seat belt latch.

X 9. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

X 10. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

X Contact Force (lb): **0.5**

- [X] 0.0 to 0.7 pounds – Pass
- [ ] **Greater than 0.7 pounds - FAIL**

REMARKS:

Signature: _____ Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger

X 1. Does the vehicle incorporate a webbing tension-relieving device?
- [ ] Yes (this form is complete)
- [X] No (continue with this check sheet)

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. Is the fore-aft position of the seat adjustable?
- [X] No – go to 5
- [ ] Yes – go to 4.1

[ ] 4.1 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)

[ ] 4.2 Use all the seat controls that have any effects 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)

[ ] 4.3 **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 4.1 and 4.2. (8/31/95 legal interpretation to Hogan and Hartson)

[ ] 4.4 Move the seat to the mid position.

[ ] 4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 5. Is the seat back angle adjustable?
- [X] No- go to 6
- [ ] Yes- go to 5.1

[ ] 5.1 Set and mark 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: _____
- [ ] Tested seat back angle: _____

X 6. Is the seat a bucket seat?

- [ ] Yes, go to 6.1 and skip 6.2
- [X] No, go to 6.2 and skip 6.1

[ ] 6.1 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)

X 6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

[ ] 6.2.1 Driver Seat

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)

[ ] 6.2.2 Front Outboard Passenger Seat

Locate and **mark** 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 6.2.3 Rear designated seating positions

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.

X 7. Position the test dummies according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

X 8. Fasten the seat belt latch.

X 9. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

X 10. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

X Contact Force (lb): **0.6**

- [X] 0.0 to 0.7 pounds – Pass
- [ ] **Greater than 0.7 pounds - FAIL**

REMARKS:

Signature: _____ Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 11

LATCH PLATE ACCESS (S7.4.4)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test all front outboard seat belts **other than those in** walk-in van-type vehicles and those at front outboard designated seating positions in **passenger cars**. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Front Driver

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. Is the fore-aft position of the seat adjustable?
- [ ] No – go to 4
- [X] Yes – go to 3.1

X 3.1 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 3.2 While maintaining the forward most position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 4. Is the seat back angle adjustable?
- [ ] No- go to 5
- [X] Yes- go to 4.1

X 4.1 Set and mark 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
- [X] Manufacturer's design seat back angle: 5.9° on Headrest Post
- [X] Tested seat back angle: 5.9° on Headrest Post

X 5. Is the seat a bucket seat?
- [X] Yes, go to 5.1 and skip 5.2
- [ ] No, go to 5.2 and skip 5.1

X 5.1 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)

[ ] 5.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

[ ] 5.2.1 Driver Seat

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)

[ ] 5.2.2 Front Outboard Passenger Seat

Locate and **mark** 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] 6. Position the test dummy using the procedures in Appendix F. (Some modifications to the positioning procedure may need to be made because the seat is in the forward most position. Note on the Appendix F positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy). **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

[X] 7. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.

[X] 8. Attach the inboard reach string to the base of the head following the instructions on Figure 3.

[X] 9. Attach the outboard reach string to the torso sheath following the instructions on Figure 3.

[X] 10. Place the latch plate in the stowed position.

[X] 11. Extend the inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

[X] Yes – Pass

[ ] No

[X] 12. Extend the outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

[X] Yes – Pass

[ ] No

[X] 13. Is the latch plate within the inboard (item 11) or outboard (item 12) reach envelope?

[X] Yes – Pass

[ ] No – Fail

[X] 14. Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?

[X] Yes – Pass

[ ] No – Fail

REMARKS:

Signature: _____ Date: 1/24/23

I certify that I have read and performed each instruction.

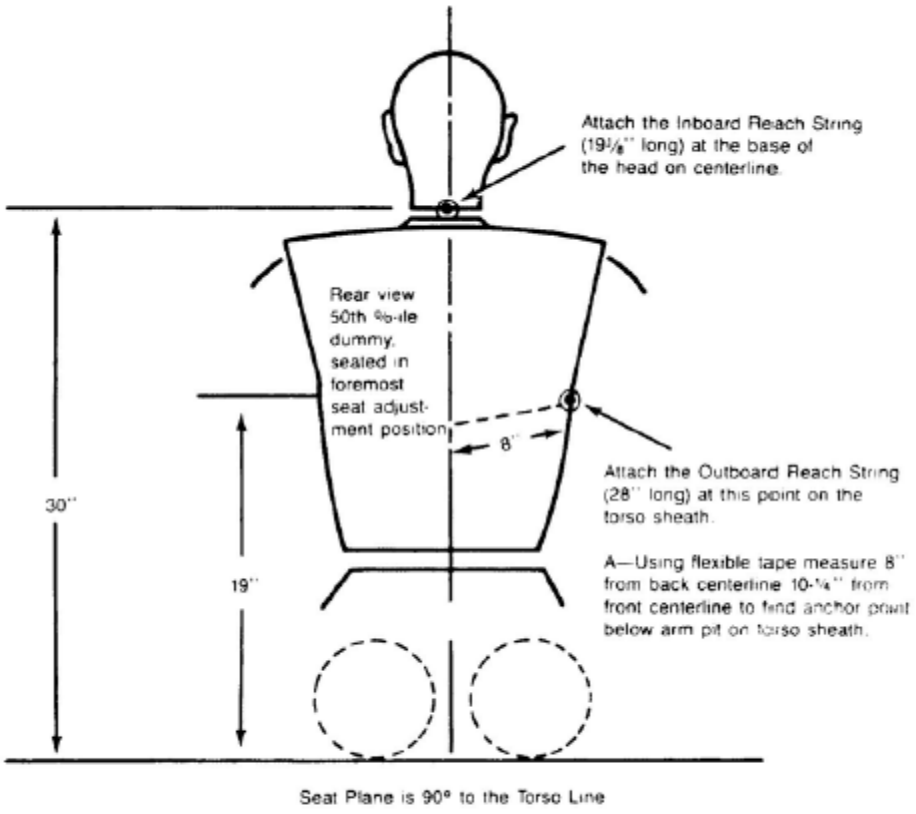


Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart E Test Device

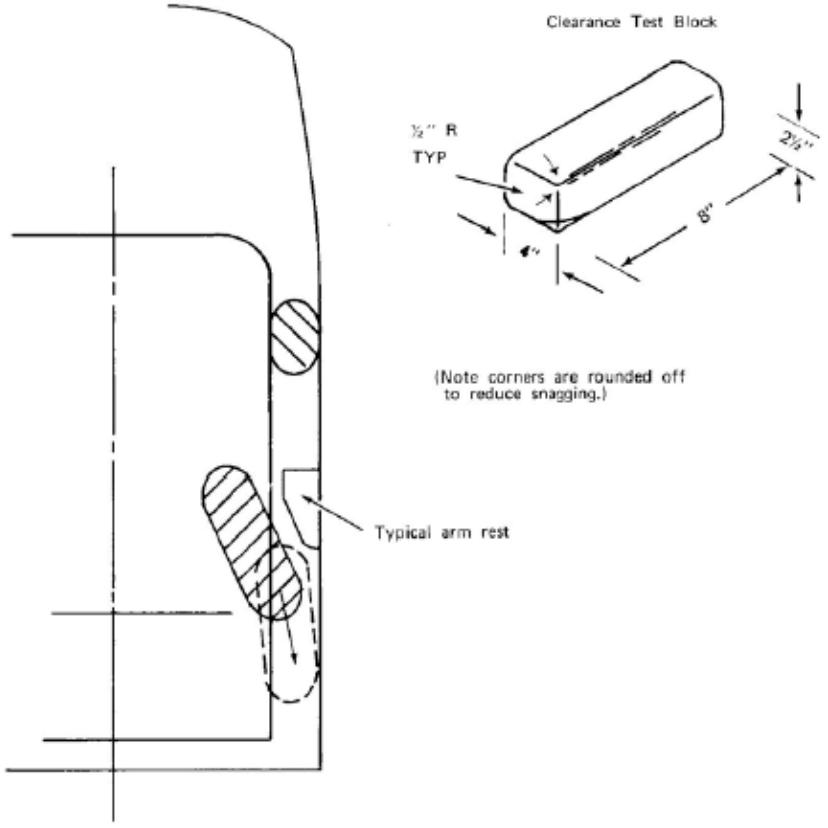


Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

DATA SHEET 11

LATCH PLATE ACCESS (S7.4.4)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test all front outboard seat belts **other than those in** walk-in van-type vehicles and those at front outboard designated seating positions in **passenger cars**. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Front Passenger

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. Is the fore-aft position of the seat adjustable?
- ☐ No – go to 4
- X Yes – go to 3.1

X 3.1 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 3.2 While maintaining the forward most position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 4. Is the seat back angle adjustable?
- ☐ No- go to 5
- X Yes- go to 4.1

X 4.1 Set and mark 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
- X Manufacturer's design seat back angle: 6.6° on Headrest Post
- X Tested seat back angle: 6.6° on Headrest Post

X 5. Is the seat a bucket seat?
- X Yes, go to 5.1 and skip 5.2
- ☐ No, go to 5.2 and skip 5.1

X 5.1 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)

☐ 5.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

☐ 5.2.1 Driver Seat

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)

[ ] 5.2.2 Front Outboard Passenger Seat

Locate and **mark** 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] 6. Position the test dummy using the procedures in Appendix F. (Some modifications to the positioning procedure may need to be made because the seat is in the forward most position. Note on the Appendix F positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy). **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

[X] 7. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.

[X] 8. Attach the inboard reach string to the base of the head following the instructions on Figure 3.

[X] 9. Attach the outboard reach string to the torso sheath following the instructions on Figure 3.

[X] 10. Place the latch plate in the stowed position.

[X] 11. Extend the inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

[X] Yes – Pass

[ ] No

[X] 12. Extend the outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

[X] Yes – Pass

[ ] No

[X] 13. Is the latch plate within the inboard (item 11) or outboard (item 12) reach envelope?

[X] Yes – Pass

[ ] No – Fail

[X] 14. Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?

[X] Yes – Pass

[ ] No – Fail

REMARKS:

Signature: _____ Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 12

SEAT BELT RETRACTION (S7.4.5)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test all front outboard seat belts, except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Front Driver

X 1. Is the vehicle a passenger car or walk-in van-type vehicle?
- [ ] Yes, this form is complete
- [X] No

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)
- [ ] 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. Is the fore-aft position of the seat adjustable?
- [ ] No – go to 5
- [X] Yes – go to 4.1

X 4.1 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 4.2 Use all the seat controls that have any affects 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 4.3 **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 4.1 and 4.2. (8/31/95 legal interpretation to Hogan and Hartson)

X 4.4 Move the seat to the mid position.

X 4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 5. Is the seat back angle adjustable?
- [ ] No- go to 6
- [X] Yes- go to 5.1

X 5.1 Set and mark 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
- [X] Manufacturer's design seat back angle: 5.9° on Headrest Post
- [X] Tested seat back angle: 5.9° on Headrest Post

X 6. Is the seat a bucket seat?
- [X] Yes, go to 6.1 and skip 6.2
- [ ] No, go to 6.2 and skip 6.1

[X] 6.1 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)

[ ] 6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

[ ] 6.2.1 Driver Seat
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)

[ ] 6.2.2 Front Outboard Passenger Seat
Locate and **mark** 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] 7. Position the Part 572 Subpart E test dummy according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

[X] 8. Fasten the seat belt around the dummy.

[X] 9. Remove all slack from the lap belt portion. (S10.9)

[ ] N/A, the seat does not have a fore-aft adjustment

[X] 10. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

[X] 11. Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
Pound load applied: 3

[X] 12. Is the belt system equipped with a tension relieving device?

[ ] Yes, continue

[X] No, go to 14

[ ] 13. Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9).

[X] 14. Check the statement that applies to this test vehicle:

[X] 14.1 The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.

[ ] Yes – Pass go to 16

[X] No – go to 14.2

[X] 14.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.

[X] Yes – Pass go to 15

[ ] No – go to 14.3

[ ] 14.3 [ ] Neither 14.1 nor 14.2 apply.

[ ] Fail

[X] 15. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?

[X] Yes – Pass

[ ] No – Fail

[X] 16. If this test vehicle has an open body (without doors) and has a belt system with a tension relieving device, does the belt system fully retract when the tension-relieving device is deactivated?

- [X] N/A – Not an open body vehicle
- [ ] Yes – Pass
- [ ] No – Fail

REMARKS:

Signature: Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 12

SEAT BELT RETRACTION (S7.4.5)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test all front outboard seat belts, except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Front Passenger

X 1. Is the vehicle a passenger car or walk-in van-type vehicle?
- [ ] Yes, this form is complete
- [X] No

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. Is the fore-aft position of the seat adjustable?
- [ ] No – go to 5
- [X] Yes – go to 4.1

X 4.1 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 4.2 Use all the seat controls that have any effects 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 4.3 **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 4.1 and 4.2. (8/31/95 legal interpretation to Hogan and Hartson)

X 4.4 Move the seat to the mid position.

X 4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 5. Is the seat back angle adjustable?
- [ ] No- go to 6
- [X] Yes- go to 5.1

X 5.1 Set and mark 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
- [X] Manufacturer's design seat back angle: 6.6° on Headrest Post
- [X] Tested seat back angle: 6.6° on Headrest Post

X 6. Is the seat a bucket seat?
- [X] Yes, go to 6.1 and skip 6.2
- [ ] No, go to 6.2 and skip 6.1

[X] 6.1 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)

[ ] 6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

[ ] 6.2.1 Driver Seat

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)

[ ] 6.2.2 Front Outboard Passenger Seat

Locate and **mark** 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] 7. Position the Part 572 Subpart E test dummy according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

[X] 8. Fasten the seat belt around the dummy.

[X] 9. Remove all slack from the lap belt portion. (S10.9)

[ ] N/A, the seat does not have a fore-aft adjustment

[X] 10. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

[X] 11. Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
Pound load applied: 3

[X] 12. Is the belt system equipped with a tension relieving device?

[ ] Yes, continue

[X] No, go to 14

[ ] 13. Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9).

[X] 14. Check the statement that applies to this test vehicle:

[X] 14.1 The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.

[ ] Yes – Pass go to 16

[X] No – go to 14.2

[X] 14.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.

[X] Yes – Pass go to 15

[ ] No – go to 14.3

[ ] 14.3 [ ] Neither 14.1 nor 14.2 apply.

[ ] Fail

[X] 15. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?

[X] Yes – Pass

[ ] No – Fail

[X] 16. If this test vehicle has an open body (without doors) and has a belt system with a tension relieving device, does the belt system fully retract when the tension-relieving device is deactivated?

- [X] N/A – Not an open body vehicle
- [ ] Yes – Pass
- [ ] No – Fail

REMARKS:

Signature: Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Front Driver

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
[ ] Yes, go to 5 [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
[ ] Yes – Pass [ ] No – Fail
Identify the part(s) on top or above the seat.
[ ] Seat belt latch plate [ ] Buckle [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?
[ ] Yes – Pass [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail [ ] N/A – Rear seat

REMARKS:

Signature: Jose Galvez Date: 1/24/23

I certify that I have read and performed each instruction.

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Front Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
[ ] Yes, go to 5 [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
[ ] Yes – Pass [ ] No – Fail
Identify the part(s) on top or above the seat.
[ ] Seat belt latch plate [ ] Buckle [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?
[ ] Yes – Pass [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail [ ] N/A – Rear seat

REMARKS:

Signature: Date: 1/24/23
I certify that I have read and performed each instruction.

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
[ ] Yes, go to 5 [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
[ ] Yes – Pass [ ] No – Fail
Identify the part(s) on top or above the seat.
[ ] Seat belt latch plate [ ] Buckle [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?
[ ] Yes – Pass [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail [ ] N/A – Rear seat

REMARKS:

Signature: Date: 1/24/23
I certify that I have read and performed each instruction.

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Center Rear Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
[X] Yes, go to 5 [ ] No, this form is complete

[X] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
[X] Yes – Pass [ ] No – Fail
Identify the part(s) on top or above the seat.
[X] Seat belt latch plate [X] Buckle [ ] Seat belt webbing

[X] 6. Are the remaining two seat belt parts accessible under normal conditions?
[X] Yes – Pass [ ] No – Fail

[X] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
[X] Yes – Pass [ ] No – Fail

[X] 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
[X] Yes – Pass [ ] No – Fail

[X] 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
[X] Yes – Pass [ ] No – Fail

[X] 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
[X] Yes – Pass [ ] No – Fail [ ] N/A – Rear seat

REMARKS:

Signature: _____ Date: 1/24/23
I certify that I have read and performed each instruction.

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 1/24/23
Test Technician: Jose Galvez

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
[ ] Yes, this form is complete [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
[ ] Yes, go to 5 [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
[ ] Yes – Pass [ ] No – Fail
Identify the part(s) on top or above the seat.
[ ] Seat belt latch plate [ ] Buckle [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?
[ ] Yes – Pass [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail

[ ] 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
[ ] Yes – Pass [ ] No – Fail [ ] N/A – Rear seat

REMARKS:

Signature: _____ Date: 1/24/23
I certify that I have read and performed each instruction.

DATA SHEET 15

H-POINT DETERMINATION FOR 50TH PERCENTILE MALE DUMMY

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 5/19/23
Test Technician: Keegan Strockis

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 5.9° 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.
__Foot on toe board.
X 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	96
2	97
3	97
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	198
HP to Hinge X	719
HP to Sill Y	265
HP to Striker X	208
HP to Dash X	483
HP to Header Z	795

H-Point Machine	
Left Knee	106
Right Knee	104
Left Foot Angle	89°
Right Foot Angle	103°
Left Leg	175
Right Leg	173
Hip Angle	97°
Back Angle	23°

Signature: Keegan Strackes Date: 5/19/23

I certify that I have read and performed each instruction.

DATA SHEET 15

H-POINT DETERMINATION FOR 50TH PERCENTILE MALE DUMMY

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 5/19/23
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 6.6° 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	99
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.

Passenger H-Point	
HP to Floor Z	223
HP to Hinge X	734
HP to Sill Y	272
HP to Striker X	194
HP to Dash X	499
HP to Header Z	772

H-Point Machine	
Left Knee	101
Right Knee	102
Left Foot Angle	110°
Right Foot Angle	108°
Left Leg	135
Right Leg	135
Hip Angle	100°
Back Angle	24°

Signature: Keegan Stracker Date: 5/19/23

I certify that I have read and performed each instruction.

DATA SHEET 16

AIR BAG SUPPRESSION TELLTALE (S19.2.2)

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 2/1/23
Test Technician: Jose Galvez

X 1. Is the vehicle certified to any suppression performance standards of FMVSS 208?
X Yes - go to 2
__No - this form is complete

X 2. Does telltale emit yellow light when the air bag is suppressed? (S19.2.2(a))
X Yes - Pass ___**NO - FAIL**

X 3. Are the words “PASSENGER AIR BAG OFF” or “PASS AIR BAG OFF” (S19.2.2(b))

X 3.1 on the telltale? (S19.2.2(b))
_X Yes - Pass, go to 4
__ No - go to 3.2

__3.2 Within 25 mm of the telltale? (S19.2.2 (b)) __ mm from the edge of the telltale light
__Yes - Pass ___**NO - FAIL**

X 4. Is the telltale separate from the air bag readiness indicator? (S19.2.2(c))
X Yes - Pass ___**NO - FAIL**

X 5. Is the telltale within the interior of the vehicle? (S19.2.2 (d))
X Yes - Pass ___**NO - FAIL**

X 6 Is the telltale forward of and above the design H-point of both the driver’s and the front outboard passenger’s seat when the seats are in their forward most seating positions? (S19.2.2 (d))
X Yes - Pass ___**NO - FAIL**

X 7. Is the telltale away from surfaces that can be used for temporary or permanent storage of objects that could obscure the telltale from either the driver’s or front outboard passenger’s view? (S19.2.2 (d))
X Yes - Pass ___**NO - FAIL**

X 8. Is the telltale located so that it is not obscured from the driver or front outboard passenger by a rear-facing child restraint in Appendix A installed in the front outboard passenger seat? (S19.2.2 (d))
X Yes - Pass ___**NO - FAIL**

X 9. Is the telltale visible or recognizable during the night? (S19.2.2 (e))
X Yes - Pass ___**NO - FAIL**

X 10. Is the telltale visible or recognizable during the day? (S19.2.2 (e))
X Yes - Pass ___**NO - FAIL**

X 11. If there is a visibility adjustment, do all the adjustment levels make the telltale visible and recognizable? (S19.2.2 (g))
__ N/A-No visibility adjustment
_X Yes - Pass ___**NO - FAIL**

X 12. Does the telltale remain illuminated while the air bag is suppressed? (S19.2.2 (h)) (Leave the air bag suppressed for 5 minutes.)
X Yes - Pass ___**NO - FAIL**

X 13. Is the telltale off while the air bag is activated? (S19.2.2 (h)) (Leave the air bag activated for 5 minutes.)
X Yes - Pass ___**NO - FAIL**

Signature: Jose Galvez Date: 2/1/23

I certify that I have read and performed each instruction.

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Cosco
CHILD RESTRAINT MODEL:	Arriva 22-049 (same as model 22-013)
DATE OF MANUFACTURE:	8-20-2008

Base: _X_ On __Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward	N/A	Won't Fit
	Middle 17*	133	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward	N/A	Won't Fit
	Middle 17*	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward 15*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward or Middle Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Cosco
CHILD RESTRAINT MODEL:	Arriva 22-049 (same as model 22-013)
DATE OF MANUFACTURE:	8-20-2008

Base: __On _X_Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward	N/A	Won't Fit
	Middle 23*	129	Suppressed
	Rearward	130	Suppressed
Unbelted Rear Facing	Forward	N/A	Won't Fit
	Middle 24*	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward 7*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward or Middle Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

Successful unbelted 5th percentile Female Dummy reactivation was performed with the seat in the Middle position. (SN 506)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Snugride
DATE OF MANUFACTURE:	5-24-2007

Base: X On __Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward	N/A	Won't Fit
	Middle 17*	132	Suppressed
	Rearward	130	Suppressed
Unbelted Rear Facing	Forward	N/A	Won't Fit
	Middle 19*	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward 7*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward or Middle Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Snugride
DATE OF MANUFACTURE:	5-24-2007

Base: __On _X_ Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward	N/A	Won't Fit
	Middle 19*	129	Suppressed
	Rearward	131	Suppressed
Unbelted Rear Facing	Forward	N/A	Won't Fit
	Middle 20*	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward 8*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward or Middle Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

Successful unbelted 5th percentile Female Dummy reactivation was performed with the seat in the Rearward position. (SN 506)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Peg Perego
CHILD RESTRAINT MODEL:	Viaggio
DATE OF MANUFACTURE:	8-27-2007

Base: _X_ On __Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward 10*	128	Suppressed
	Middle	127	Suppressed
	Rearward	130	Suppressed
Unbelted Rear Facing	Forward 13*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward 11*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Peg Perego
CHILD RESTRAINT MODEL:	Viaggio
DATE OF MANUFACTURE:	8-27-2007

Base: __On _X_ Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward 14*	133	Suppressed
	Middle	129	Suppressed
	Rearward	130	Suppressed
Unbelted Rear Facing	Forward	N/A	Won't Fit
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

Successful unbelted 5th percentile Female Dummy reactivation was performed with the seat in the Rearward position. (SN 506)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout E9L02
DATE OF MANUFACTURE:	7-2-2008

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	127	Suppressed
	Middle	129	Suppressed
	Rearward	127	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward 9*	133	Suppressed
	Middle	131	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward 15*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

Successful unbelted 5th percentile Female Dummy reactivation was performed with the seat in the Middle position. (SN 506)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN:	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Cosco
CHILD RESTRAINT MODEL:	Summit Deluxe High Back Booster 22-262
DATE OF MANUFACTURE:	8-9-2007

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	127	Suppressed
	Middle	127	Suppressed
	Rearward	128	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Rear Facing	Forward 14*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

Successful unbelted 5th percentile Female Dummy reactivation was performed with the seat in the Forward position. (SN 506)

The Cosco Summit Deluxe 22-262 does not have a rear facing belt path.

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN:	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Tribute V 379
DATE OF MANUFACTURE:	6-20-2008

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	132	Suppressed
	Middle	133	Suppressed
	Rearward	130	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward 5*	133	Suppressed
	Middle	130	Suppressed
	Rearward	130	Suppressed
Unbelted Rear Facing	Forward 9*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

Successful unbelted 5th percentile Female Dummy reactivation was performed with the seat in the Rearward position. (SN 506)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN:	JG
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Toddler SafeSeat Step 2
DATE OF MANUFACTURE:	5-24-2007

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	129	Suppressed
	Middle	129	Suppressed
	Rearward	127	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Rear Facing	Forward 15*	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

* The CRS would not fit in this Forward Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

Successful unbelted 5th percentile Female Dummy reactivation was performed with the seat in the Middle position. (SN 506)

The Graco Toddler SafeSeat Step 2 does not have a rear facing belt path.

DATA SHEET 18 SUMMARY

Suppression Test Using Newborn Infant Dummy (Part 572, Subpart K)
Section A Car Bed

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	Newborn Infant	DUMMY SERIAL NO.:	003

CAR BED NAME:	Angel Guard
CAR BED MODEL:	Angel Ride
DATE OF MANUFACTURE:	4-15-2008

Base: __On __Off _X_ N/A-Restraint does not have a removable base
(A car bed with a removable base shall be treated as two separate models, i.e. this form and test procedure will be completed with the base on and then repeated on a new form with the base off.

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Result
Belted	Forward	Suppressed
	Middle	Suppressed
	Rearward	Suppressed

Successful unbelted 5th percentile Female Dummy reactivation was performed with the seat in the Forward position. (SN 506)

DATA SHEET 19 SUMMARY

Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Belt Positioning Booster

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	032

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 22-209
DATE OF MANUFACTURE:	10-7-2008

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing Without Harness	Forward	18	Suppressed
	Middle	17	Suppressed
	Rearward	17	Suppressed
Belted Forward Facing Cinched With Harness	Forward	133	Suppressed
	Middle	130	Suppressed
	Rearward	130	Suppressed

Successful unbelted 5th percentile Female Dummy reactivation was performed with the seat in the Rearward position. (SN 506)

DATA SHEET 19 SUMMARY

Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	032

BOOSTER SEAT NAME:	Evenflo
BOOSTER SEAT MODEL:	Generations 352
DATE OF MANUFACTURE:	10-5-2006

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing Without Harness	Forward	16	Suppressed
	Middle	18	Suppressed
	Rearward	15	Suppressed
Belted Forward Facing Cinched With Harness	Forward	129	Suppressed
	Middle	129	Suppressed
	Rearward	130	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)

DATA SHEET 20 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	032

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout E9L02
DATE OF MANUFACTURE:	7-2-2008

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward 4*	133	Suppressed
	Middle	129	Suppressed
	Rearward	129	Suppressed

* The CRS would not fit in this Forward Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)

DATA SHEET 20 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	032

CHILD RESTRAINT NAME:	Cosco
CHILD RESTRAINT MODEL:	Summit Deluxe High Back Booster 22-262
DATE OF MANUFACTURE:	8-9-2007

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing Cinched With Harness	Forward	128	Suppressed
	Middle	128	Suppressed
	Rearward	127	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)

DATA SHEET 20 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	032

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Tribute V 379
DATE OF MANUFACTURE:	6-20-2008

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	129	Suppressed
	Middle	127	Suppressed
	Rearward	127	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)

DATA SHEET 20 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	032

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Toddler SafeSeat Step 2
DATE OF MANUFACTURE:	5-24-2007

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward 7*	129	Suppressed
	Middle	127	Suppressed
	Rearward	131	Suppressed

* The CRS would not fit in this Forward Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 33 = Full Rearward; 33 Total Detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

DATA SHEET 21 SUMMARY

Suppression Test Using an Unbelted 3 Year Old Dummy (Part 572, Subpart P)
No CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN:	JG
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	032

Test Summary

Position	Seat Slide	Seat Back Angle **	Result
Position 1 Sitting on seat with back against seat back	Forward	5.7° on HRP	Suppressed
	Middle	5.7° on HRP	Suppressed
	Rearward	5.7° on HRP	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward	29.7° on HRP	Suppressed
	Middle	29.7° on HRP	Suppressed
	Rearward	29.7° on HRP	Suppressed
Position 3 Sitting on seat with back not against seat back	Forward	5.7° on HRP	Suppressed
	Middle	5.7° on HRP	Suppressed
	Rearward	5.7° on HRP	Suppressed
Position 4 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	5.7° on HRP	Suppressed
	Middle	5.7° on HRP	Suppressed
	Rearward	5.7° on HRP	Suppressed
Position 5 Standing on seat, facing forward	Forward	5.7° on HRP	Suppressed
	Middle	5.7° on HRP	Suppressed
	Rearward	5.7° on HRP	Suppressed
Position 6 Kneeling on seat, facing forward	Forward	5.7° on HRP	Suppressed
	Middle	5.7° on HRP	Suppressed
	Rearward	5.7° on HRP	Suppressed
Position 7 Kneeling on seat, facing rearward	Forward	5.7° on HRP	Suppressed
	Middle	5.7° on HRP	Suppressed
	Rearward	5.7° on HRP	Suppressed
Position 8 Lying on seat. (Three designated seating positions only)	Forward	N/A	N/A
	Middle	N/A	N/A
	Rearward	N/A	N/A

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)

** The manufacturer's design seat back angle was 6.6° on Headrest Post which equaled 5.7° on Headrest Post (HRP). When the vehicle passenger seat was reclined 25° the seat back angle on the HRP was 29.7°.

DATA SHEET 22 SUMMARY

Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	155

CHILD RESTRAINT NAME:	Cosco
CHILD RESTRAINT MODEL:	High Back Booster 22-209
DATE OF MANUFACTURE:	10-7-2008

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	12	Suppressed
	Middle	14	Suppressed
	Rearward	12	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

DATA SHEET 22 SUMMARY

Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN(S):	JG
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	155

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Generations
DATE OF MANUFACTURE:	10-5-2006

Manufacturer's design seat back angle: 6.6° on Headrest Post
Tested seat back angle: 5.7° on Headrest Post
Manufacturer's specified anchorage position: 0 of 4; Upper-most defined as 0
Tested anchorage position: 0 of 4; Upper-most defined as 0

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	18	Suppressed
	Middle	17	Suppressed
	Rearward	18	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

DATA SHEET 23 SUMMARY

Suppression Tests Using an Unbelted 6 Year Old Dummy (Part 572, Subpart N) (S24.2.1)
No CRS

NHTSA NO.:	C20235400	TEST DATE:	2/1/23
LABORATORY:	MGA	TECHNICIAN:	JG
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	155

Test Summary

Position	Seat Slide	Seat Back Angle **	Result
Position 1 Sitting on seat with back against seat back	Forward	5.7° on HRP	Suppressed
	Middle	5.7° on HRP	Suppressed
	Rearward	5.7° on HRP	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward	29.7° on HRP	Suppressed
	Middle	29.7° on HRP	Suppressed
	Rearward	29.7° on HRP	Suppressed
Position 3 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	5.7° on HRP	Suppressed
	Middle	5.7° on HRP	Suppressed
	Rearward	5.7° on HRP	Suppressed
Position 4 Sitting on seat with back against seat back then leaning on the door	Forward	5.7° on HRP	Suppressed
	Middle	5.7° on HRP	Suppressed
	Rearward	5.7° on HRP	Suppressed

** The manufacturer's design seat back angle was 6.6° on Headrest Post which equaled 5.7° on Headrest Post (HRP). When the vehicle passenger seat was reclined 25° the seat back angle on the HRP was 29.7°.

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female Dummy (Part 572, Subpart O) (S26) Position 1 - Chin On Module (S26.2)

NHTSA NO.:	C20235400	TEST DATE:	3/15/23
LABORATORY:	MGA	TECHNICIAN:	JG JC
DUMMY TYPE:	5th Percentile Female	DUMMY SERIAL NO.:	510

Manufacturer's design seat back angle: 5.9° on Headrest Post
Tested seat back angle: 5.5° on Headrest Post
Tested seat position: Full Aft

Tested steering wheel angle: 25.0°
Thorax cavity angle: 31.1°
Bottom of chin height: 1 mm – Above Plane F Module Height

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	100.0	100.0

5th Percentile Female SN 510 Position 1 (Chin On Module) 3/15/23

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	32
Peak Nij (Nte)	1.0	0.3
Time (ms)	NA	106.6
Peak Nij (Ntf)	1.0	0.3
Time (ms)	NA	33.6
Peak Nij (Nce)	1.0	0.3
Time (ms)	NA	173.1
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	217.8
Neck Tension	2070 N	432
Neck Compression	2520 N	213
Chest g	60 g	12
Chest Displacement	52 mm	9
Left Femur	6805 N	53
Right Femur	6805 N	56

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11 (d))
Injuries calculated on 0 ms to 225 ms.

The original equipment parts were used for this deployment.

DATA SHEET 30 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female Dummy (Part 572, Subpart O) (S26) Position 2 - Chin On Rim (S26.3)

NHTSA NO.:	C20235400	TEST DATE:	3/15/23
LABORATORY:	MGA	TECHNICIAN:	JG JC
DUMMY TYPE:	5th Percentile Female	DUMMY SERIAL NO.:	510

Manufacturer's design seat back angle: 5.9° on Headrest Post
Tested seat back angle: 5.5° on Headrest Post
Tested seat position: Full Aft

Tested steering wheel angle: 24.3° *
Thorax cavity angle: 30.4°
Chin Point height: 3 mm – Below Steering Wheel Target

Note: The chin on rim steering wheel target is 10 mm below the highest point on the steering wheel

*The dummy contacted the windshield with the steering wheel at mid position. The steering controls were adjusted to lower the upper steering wheel rim the necessary amount to bring the Chin Point coincident with the upper steering wheel rim. The rear thorax cavity was adjusted along with the steering wheel angle.

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	100.0	100.0

5th Percentile Female SN 510 Position 2 (Chin On Rim) 3/15/23

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	13
Peak Nij (Nte)	1.0	0.3
Time (ms)	NA	13.4
Peak Nij (Ntf)	1.0	0.1
Time (ms)	NA	83.8
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	206.4
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	96.0
Neck Tension	2070 N	548
Neck Compression	2520 N	110
Chest g	60 g	17
Chest Displacement	52 mm	22
Left Femur	6805 N	40
Right Femur	6805 N	53

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11 (d))
Injuries calculated on 0 ms to 225 ms.

A service replacement air bag and the original equipment parts were used for this deployment.

DATA SHEET 32

VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

Test Vehicle: 2023 Mazda CX-50
Test Program: FMVSS 208 Compliance
Test Technician: Chad Williams

NHTSA No.: C20235400
Test Date: 5/19/23

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.	Fill the transmission with transmission fluid to the satisfactory range.
X	2.	Drain fuel from vehicle.
X	3.	Run the engine until fuel remaining in the fuel delivery system is used and the engine stops.
X	4.	Record the useable fuel tank capacity supplied by the COTR.
X		Useable Fuel Tank Capacity supplied by COTR: 60.2 liters (15.9 gallons)
X	5.	Record the fuel tank capacity supplied in the owner's manual.
X		Useable Fuel Tank Capacity in owner's manual: 60.2 liters (15.9 gallons)
X	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.
X		Amount Added: 60.2 liters (15.9 gallons)
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:	36 psi	LF:	36 psi	RR:	36 psi	LR:	36 psi
Owner's manual pressure:	RF:	36 psi	LF:	36 psi	RR:	36 psi	LR:	36 psi
Actual inflated pressure:	RF:	36 psi	LF:	36 psi	RR:	36 psi	LR:	36 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):	478.5	Right Rear (kg):	339.7
Left Front (kg):	489.0	Left Rear (kg):	349.7
Total Front (kg):	967.5	Total Rear (kg):	689.4
% Total Weight:	58.4	% Total Weight:	41.6
UVW = TOTAL FRONT PLUS TOTAL REAR (KG):			1656.9

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:	793	LF:	782	RR:	802	LR:	798

X	14.	Calculate the Rated Cargo and Luggage Weight (RCLW): 45 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 = 385 kg (850 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) = 385 kg - (68 kg x 5) = 45 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): 1858.4 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):	513.9	Right Rear (kg):	401.9
Left Front (kg):	523.9	Left Rear (kg):	418.7
Total Front (kg):	1037.8	Total Rear (kg):	820.6
% Total Weight:	55.8	% Total Weight:	44.2
% GVW	51.5	% GVW	49.1
(% GVW = Axle GVW divided by Vehicle GVW)			
Fully Loaded Weight = Total Front Plus Total Rear (kg):			1858.4

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:	779	LF:	770	RR:	781	LR:	777

X 17. Drain the fuel system.

X 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.

X Fuel tank capacity x .94 = 60.2 liters (15.9 gallons) x .94 = 56.6 liters (14.9 gallons)

X Amount added: 55.3 liters (14.75 gallons) 92.8%

X 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)

1857.9 kg = 1656.9 kg + 45.0 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 = 1853.4 kg
Min. Test Weight = Calculated Test Weight - 9 kg = 1848.9 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:
Cargo Cover, Spare Tire and Tool Kit

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: 46.3 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):	515.7	Right Rear (kg):	401.5
Left Front (kg):	511.2	Left Rear (kg):	422.3
Total Front (kg):	1026.9	Total Rear (kg):	823.8
% Total Weight:	55.5	% Total Weight:	44.5
% GVW	51.5	% GVW	49.1
(% GVW = Axle GVW divided by Vehicle GVW)			
TOTAL FRONT PLUS TOTAL REAR (kg):			1850.7

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:	784	LF:	782	RR:	781	LR:	777

X 30. Summary of test attitude

X 30.1 AS DELIVERED:

RF:	793	LF:	782	RR:	802	LR:	798

AS TESTED:

RF:	784	LF:	782	RR:	781	LR:	777

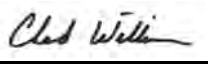
FULLY LOADED:

RF:	779	LF:	770	RR:	781	LR:	777

[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: 5/19/23

I certify that I have read and performed each instruction.

DATA SHEET 33

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2023 Mazda CX-50
Test Program: FMVSS 208 Compliance
Test Technician: Chad Williams

NHTSA No.: C20235400
Test Date: 5/19/23

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.

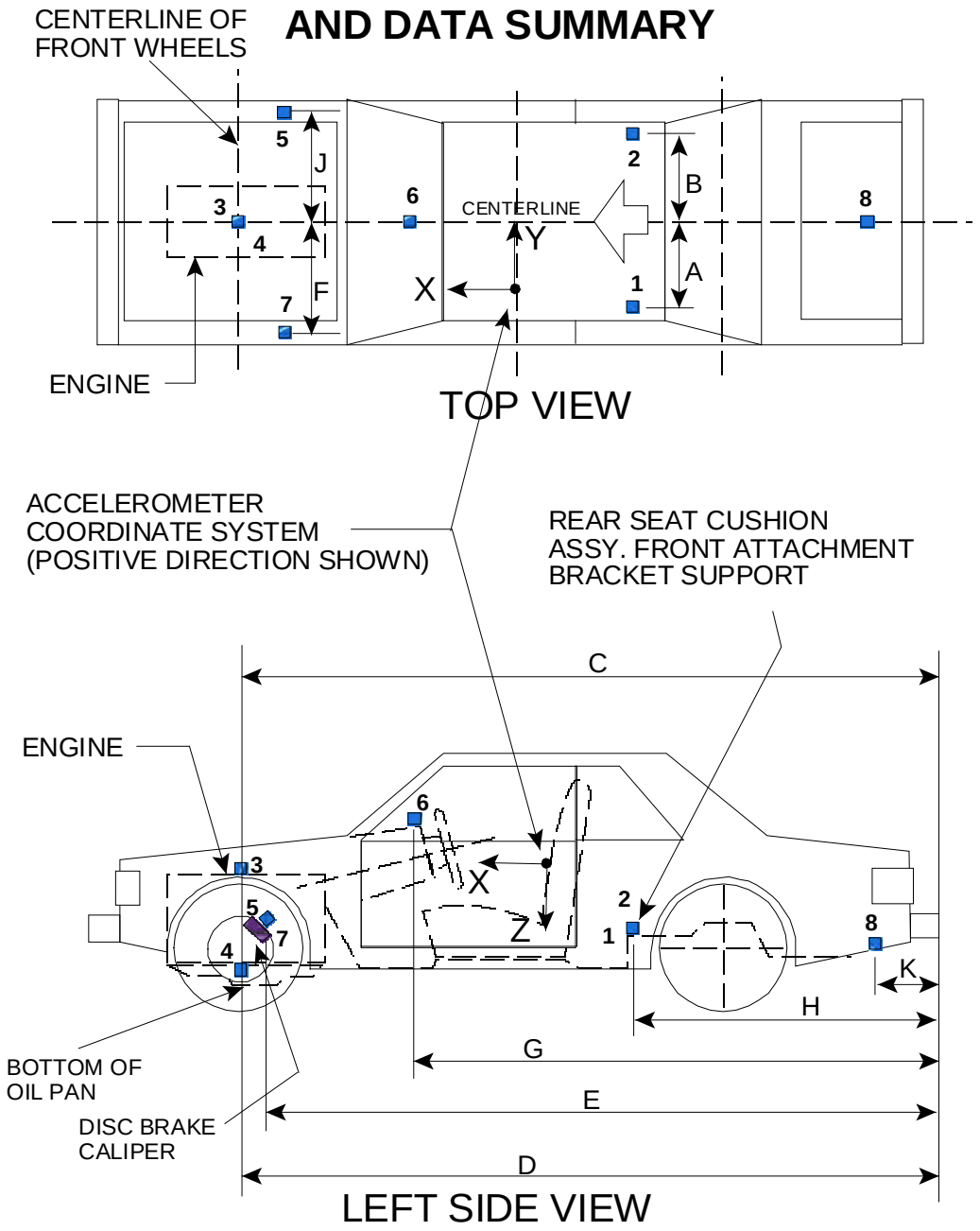
X 8. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart.

REMARKS:

I certify that I have read and performed each instruction.

Signature: Chad Williams Date: 5/19/23

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)	405	
B (RH Rear Seat Xmbr)	405	
C (Engine Top)	3764	
D (Engine Bottom)	3782	
E (Caliper)	Right Side: 3869	Left Side: 3869
F (Left Caliper)	701	
G (IP)	2921	
H (Seat)	1809	
J (Right Caliper)	701	
K (Trunk)	1018	
POST TEST VALUES		
A (LH Rear Seat Xmbr)	405	
B (RH Rear Seat Xmbr)	405	
C (Engine Top)	3360	
D (Engine Bottom)	3800	
E (Caliper)	Right Side: 3827	Left Side: 3770
F (Left Caliper)	666	
G (IP)	2818	
H (Seat)	1809	
J (Right Caliper)	712	
K (Trunk)	1018	

DATA SHEET 34

PHOTOGRAPHIC TARGETS

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 5/19/23
Test Technician: Chad Williams

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): 613 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)

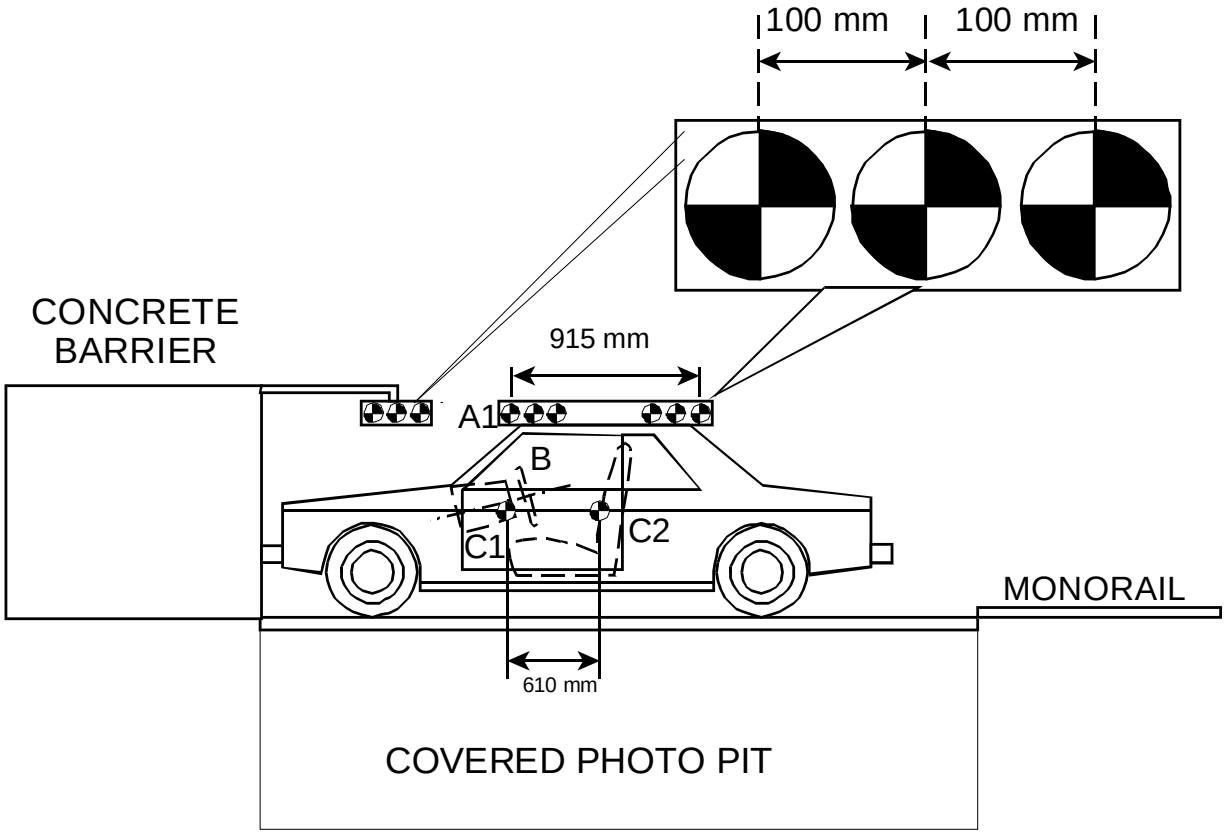
X	2.	**Barrier Targeting**
X	2.1	Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with 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: Chad Wells Date: 5/19/23

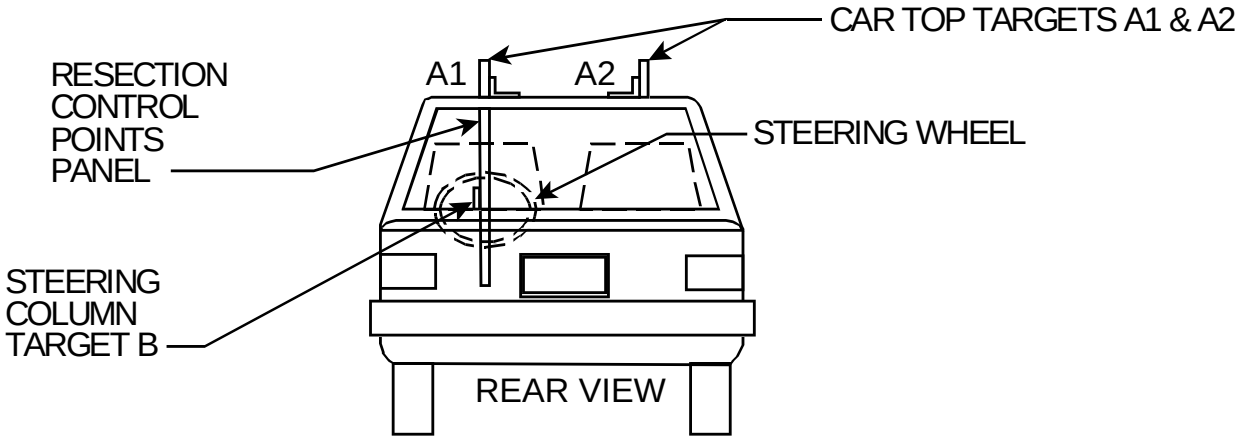
I certify that I have read and performed each instruction.

REFERENCE PHOTO TARGETS

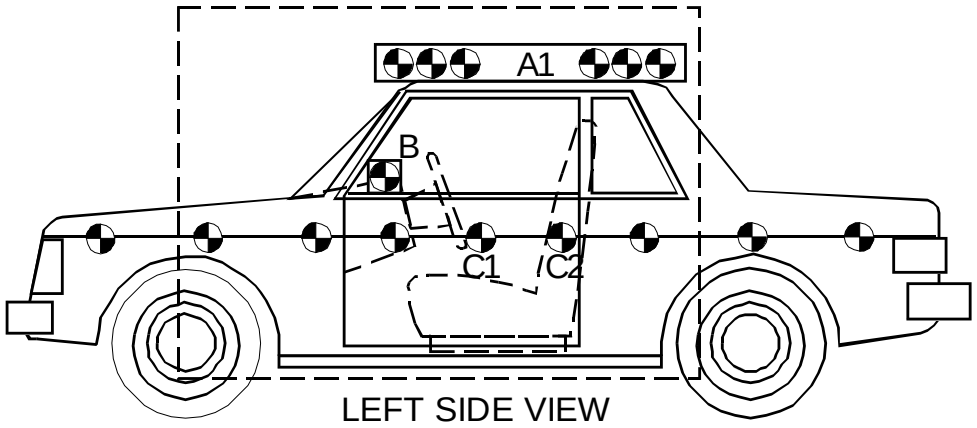


LEFT SIDE VIEW

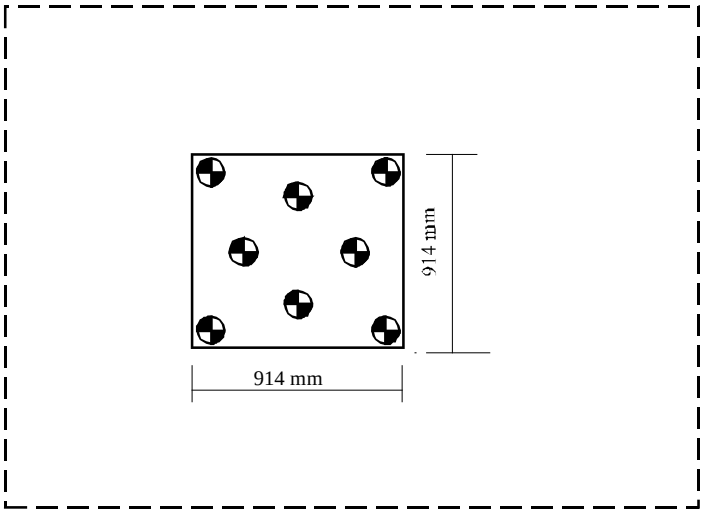
RESECTION PANEL TARGETING ALIGNMENT



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

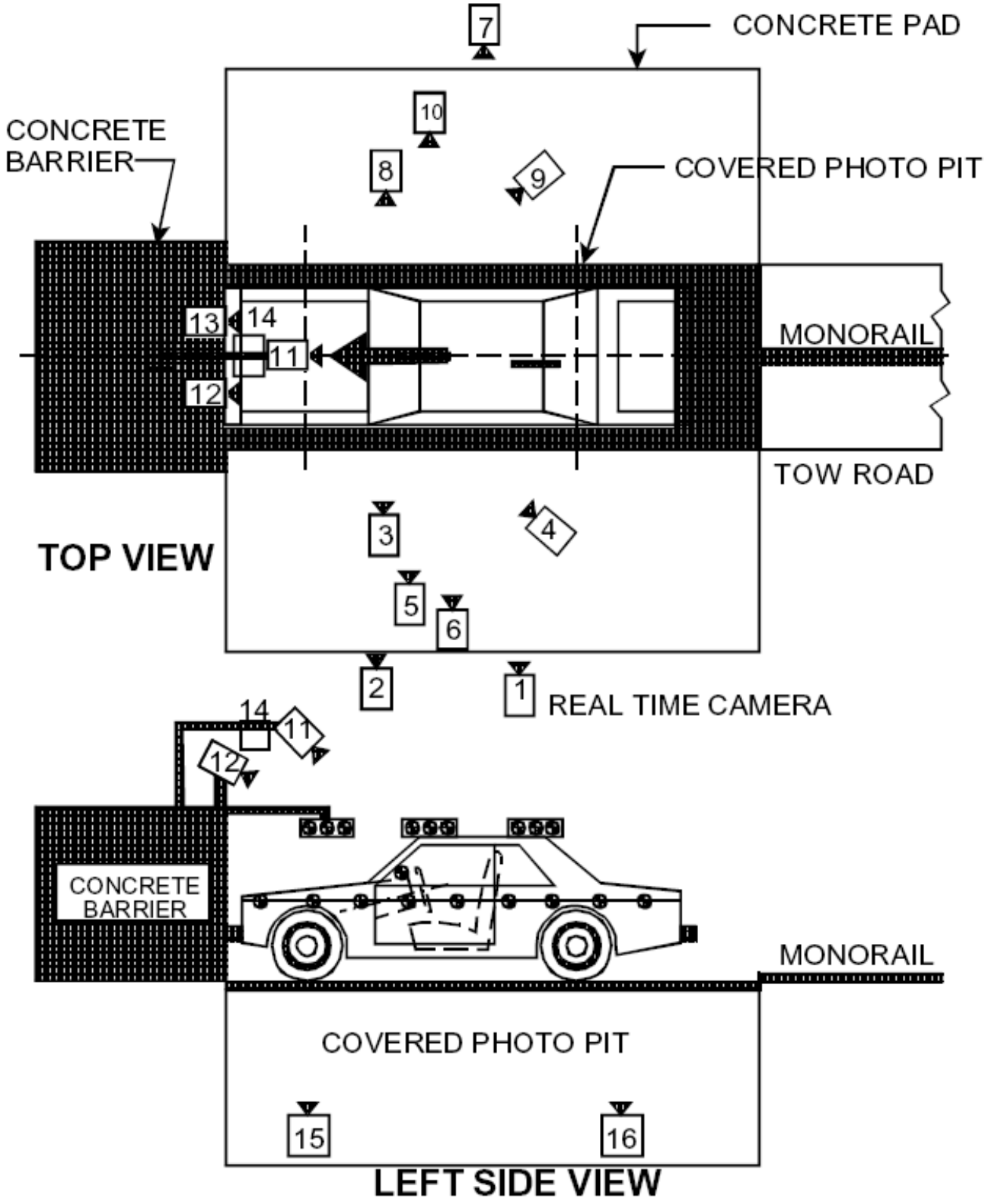
Test Vehicle: 2023 Mazda CX-50
Test Program: FMVSS 208 Compliance

NHTSA No.: C20235400
Test Date: 5/19/23
Time: 10:00 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)	1475	5650	1330	24	1000
3	Left Side View (Driver)	2000	6875	2075	50	1000
4	Left Side View (B-post aimed toward center of steering wheel)	7515	5535	2115	75	1000
5	Left Side View (Steering Column)	1070	5470	1235	50	1000
6	Left Side View (Steering Column)	1045	5615	805	50	1000
7	Right Side View (Overall)	2105	-5630	1425	16	1000
8	Right Side View (Passenger)	1700	-5575	1980	50	1000
9	Right Side View (Angle)	7430	-5630	1995	75	1000
10	Right Side View (Front door)	1325	-6910	1440	24	1000
11	Front View Windshield	-45	0	2310	11	1000
12	Front View Driver	-45	370	2230	25	1000
13	Front View Passenger	-165	-370	2230	25	1000
14	Overhead Barrier Impact View	3085	0	6820	11	1000
15	Pit Camera Engine View	1300	0	-3340	24	1000
16	Pit Camera Fuel Tank View	3475	0	-3340	24	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: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 5/19/23
Test Technician: Keegan Strockis

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: Mid
Tested seat cushion angle: Mid

_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: 5.9° on Headrest Post
Tested seat back angle: 5.9° 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)

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

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

24.2° 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)

___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)

___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)

___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: 5/19/23

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: 2023 Mazda CX-50
Test Program: FMVSS 208 Compliance
Test Technician: Keegan Strockis

NHTSA No.: C20235400
Test Date: 5/19/23

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: ____
Tested seat cushion angle: ____

_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: 6.6° on Headrest Post
Tested seat back angle: 7.1° 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)
0.340" vertical inches from the point 0.25 below the determined H-point (0.5" max.) (S10.4.2.1)
22.7 ° 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.

_X_ 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 Stracker Date: 5/19/23

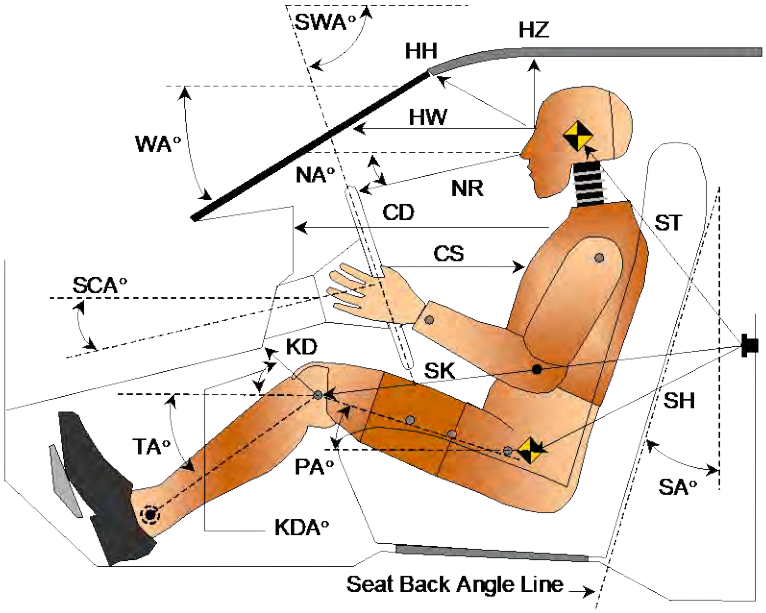
I certify that I have read and performed each instruction.

DATA SHEET 37

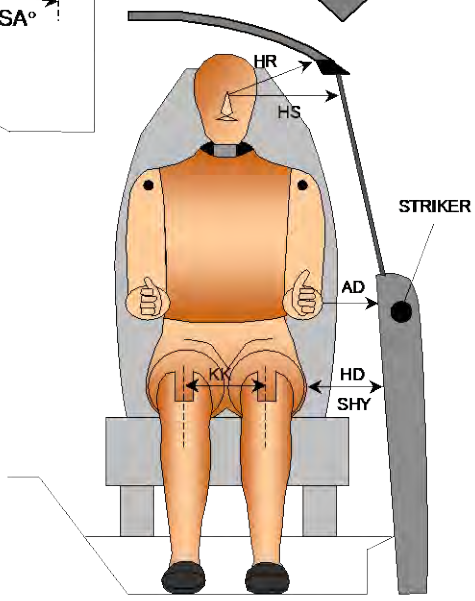
DUMMY MEASUREMENTS

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 5/19/23
Test Technician: Keegan Strockis

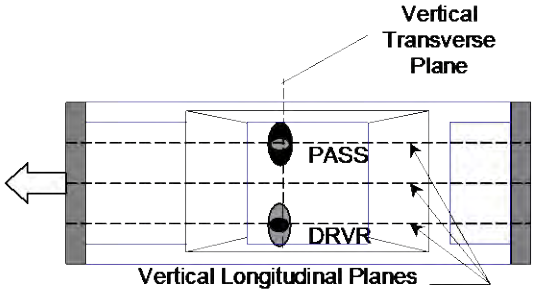
DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



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)



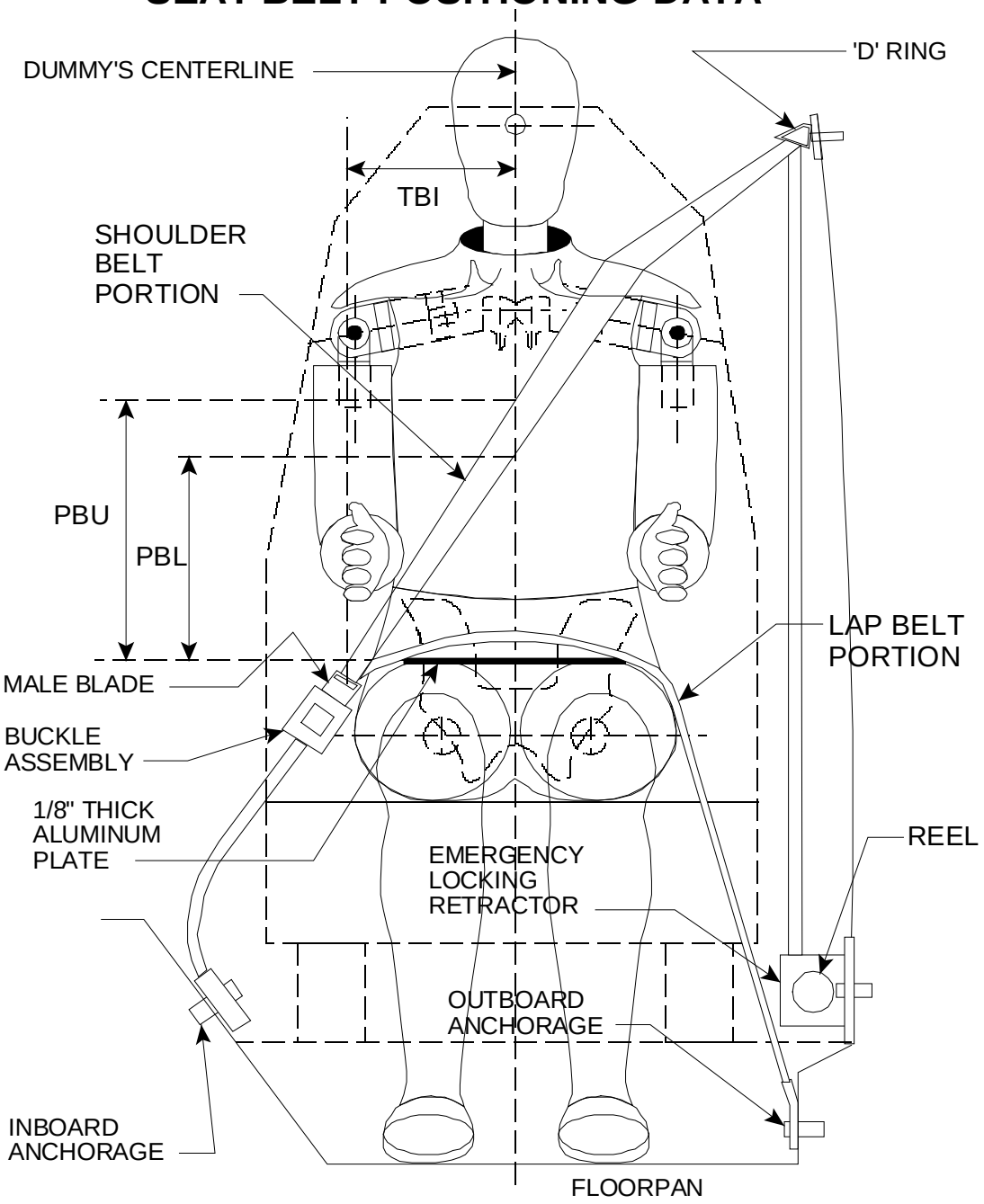
CD	Chest to Dash
CS	Chest to Steering Wheel Hub
HH	Head to Header
HW	Head to Windshield
HZ	Head to Roof
KDA	Knee to Dash Angle
KDL	Left Knee to Dash
KDR	Right Knee to Dash
NA	Nose to Rim Angle
NR	Nose to Rim
PA	Pelvic Angle
RA	Rim to Abdomen
SA	Seat Back Angle
SCA	Steering Column Angle
SH	Striker to 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 401		Passenger SN 403	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		23.9		
SWA	Steering Wheel Angle		65.7		
SCA	Steering Column Angle		24.3		
SA	Seat Back Angle (On Head Rest Post)		5.9		7.1
HZ	Head to Roof (Z)	176		153	
HH	Head to Header	236	30.5	317	26.0
HW	Head to Windshield	640	0.0	608	0.0
HR	Head to Side Header (Y)	234		221	
NR	Nose to Rim	404	6.7		
CD	Chest to Dash	550		502	
CS	Chest to Steering Hub	320	0.3		
RA	Rim to Abdomen	197	0.0		
KDL	Left Knee to Dash	166	32.6	174	
KDR	Right Knee to Dash	180		179	33.1
PA	Pelvic Angle		24.2		22.7
TA	Tibia Angle		46.5		45.2
KK	Knee to Knee (Y)	343		270	
SK	Striker to Knee	587	99.5	577	98.5
ST	Striker to Head	462	8.5	485	7.6
SH	Striker to H-Point	293	131.4	263	131.2
SHY	Striker to H-Point (Y)	258		277	
HS	Head to Side Window	348		335	
HD	H-Point to Door (Y)	143		143	
AD	Arm to Door (Y)	120		53	
AA	Ankle to Ankle	330		206	

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	380	370
PBL - Top surface of reference to belt lower edge	mm	305	280

DATA SHEET 38

CRASH TEST

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 5/19/23
Test Technician: Keegan Strockis

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.
250 kpa front left tire 250 kpa specified on tire placard or in owner information
250 kpa front right tire 250 kpa specified on tire placard or in owner information
250 kpa rear left tire 250 kpa specified on tire placard or in owner information
250 kpa rear right tire 250 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 55.5 kmph
X 18. Vehicle rebound from the barrier 180 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, Headrest; Chest to Air Bag; Knees to Knee Air Bag.

[X] Passenger Dummy: Head to Air Bag, Headrest; Chest to Air Bag; Knees to Knee Air Bag.

REMARKS:

Signature: Keegan Stracke Date: 5/19/23

I certify that I have read and performed each instruction.

DATA SHEET 40

ACCIDENT INVESTIGATION MEASUREMENTS

Test Vehicle: 2023 Mazda CX-50
Test Program: FMVSS 208 Compliance
Test Technician: Chad Williams

NHTSA No.: C20235400
Test Date: 5/19/23

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:	2023 Mazda CX-50 MPV
VIN:	7MMVABCM5PN118331
Wheelbase:	2823 mm
Build Date:	09/22
Vehicle Size Category:	4
Test Weight:	1850.7 kg
Front Overhang:	900 mm
Overall Width:	1931 mm
Overall Length Center:	4720 mm

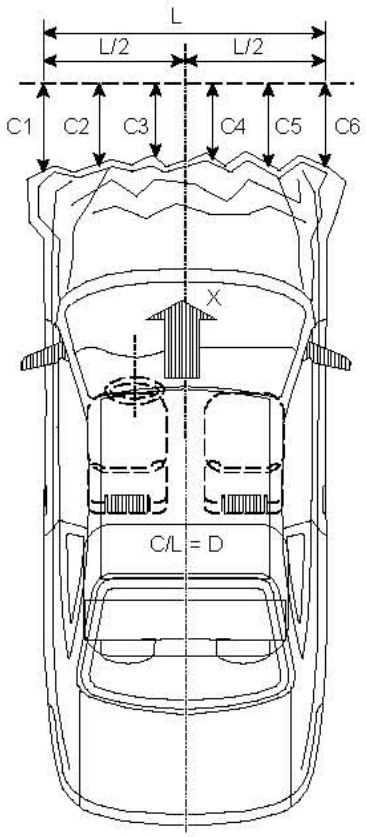
Accelerometer Data	
Location:	As per measurements on Data Sheet 33
Linearity:	>99.9%

Integration Algorithm:	Trapezoidal
Vehicle Impact Speed:	55.5 kmph
Time of Separation:	118.8 ms
Velocity Change:	62.7 kmph

CRUSH PROFILE

Collision Deformation Classification: 12FDEW2
Midpoint of Damage: Vehicle Longitudinal Centerline
Damage Region Length (mm): 1520
Impact Mode: Frontal Barrier

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4532	4018	514
C2	Crush zone 2 at left side	mm	4659	4058	601
C3	Crush zone 3 at left side	mm	4720	4100	620
C4	Crush zone 4 at right side	mm	4720	4103	617
C5	Crush zone 5 at right side	mm	4659	4043	616
C6	Crush zone 6 at right side	mm	4532	4057	475



REMARKS:

Signature: _____ Date: 5/19/23

I certify that I have read and performed each instruction.

DATA SHEET 41

WINDSHIELD MOUNTING (FMVSS 212)

Test Vehicle: 2023 Mazda CX-50
Test Program: FMVSS 208 Compliance
Test Technician: Chad Williams

NHTSA No.: C20235400
Test Date: 5/19/23

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

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): 9 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

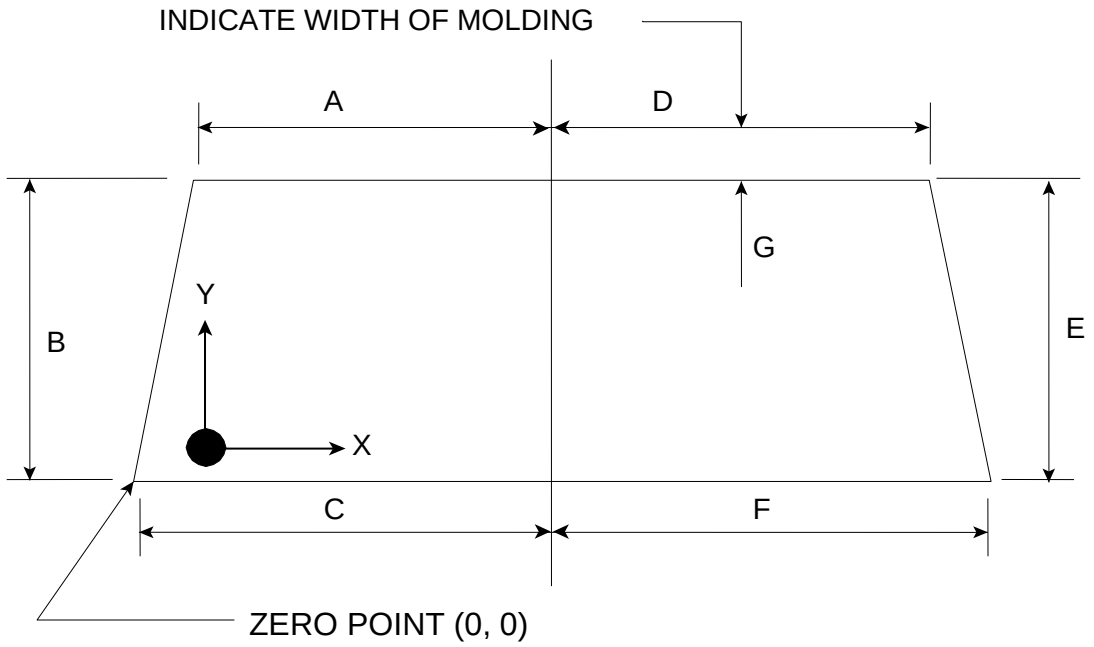
No, Pass

WINDSHIELD RETENTION MEASUREMENTS

	Dimension	Pre-Crash (mm)	Post-Crash (mm)	Percent Retention (Post-Test ÷ Pre-Crash)
Left Side	A	613	613	100%
	B	872	872	100%
	C	734	734	100%
	Total	2219	2219	100%
Right Side	D	613	613	100%
	E	872	872	100%
	F	734	734	100%
	Total	2219	2219	100%

Indicate area of mounting failure: NONE

FRONT VIEW OF WINDSHIELD



REMARKS:

Signature: Chad Wilson Date: 5/19/23

I certify that I have read and performed each instruction.

DATA SHEET 42

WINDSHIELD ZONE INTRUSION (FMVSS 219)

Test Vehicle: 2023 Mazda CX-50
Test Program: FMVSS 208 Compliance
Test Technician: Chad Williams

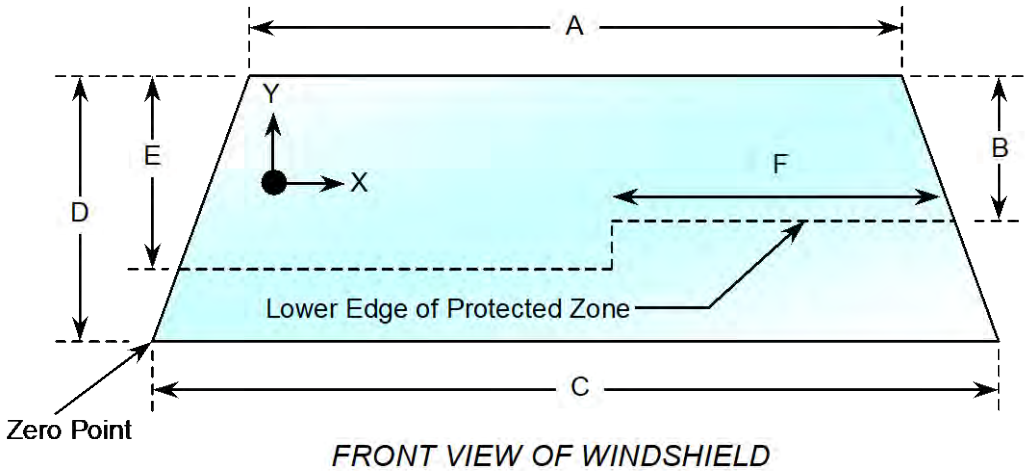
NHTSA No.: C20235400
Test Date: 5/19/23

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	1226
B	mm	394
C	mm	1468
D	mm	872
E	mm	473
F	mm	539

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.

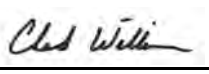
X	Y
NONE	

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:  Date: 5/19/23

DATA SHEET 43

FUEL SYSTEM INTEGRITY (FMVSS 301)

Test Vehicle:	2023 Mazda CX-50	NHTSA No.:	C20235400
Test Program:	FMVSS 208 Compliance	Test Date:	5/19/23
Test Technician:	Chris Roach		

TYPE OF IMPACT:	35 mph Belted 0° Frontal

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0 grams
(Maximum Allowable = 28 grams)

B. For the 5 minute period after motion ceases: 0 grams
(Maximum Allowable = 142 grams)

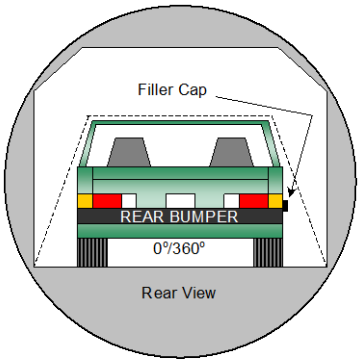
C. For the following 25 minutes: 0 grams
(Maximum Allowable = 28 grams/minute)

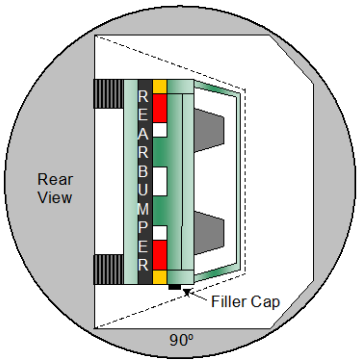
D. Spillage: None

DATA SHEET 43

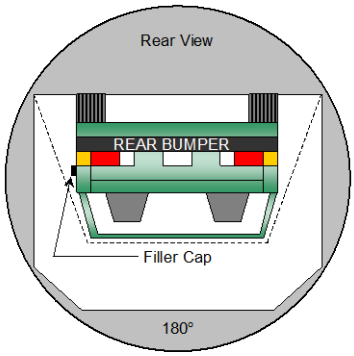
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2023 Mazda CX-50 NHTSA No.: C20235400
Test Program: FMVSS 208 Compliance Test Date: 5/19/23

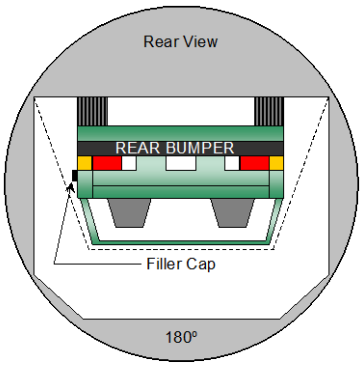




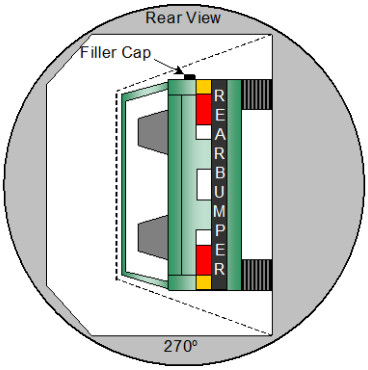
0° to 90°

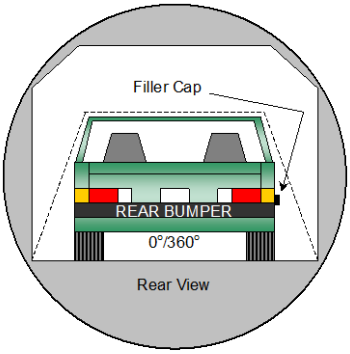


90° to 180°



180° to 270°





270° to 360°

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: **None**

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (grams)
0° to 90°	95	315	0
90° to 180°	92	320	0
180° to 270°	85	315	0
270° to 360°	89	323	0

APPENDIX A

CRASH TEST DATA

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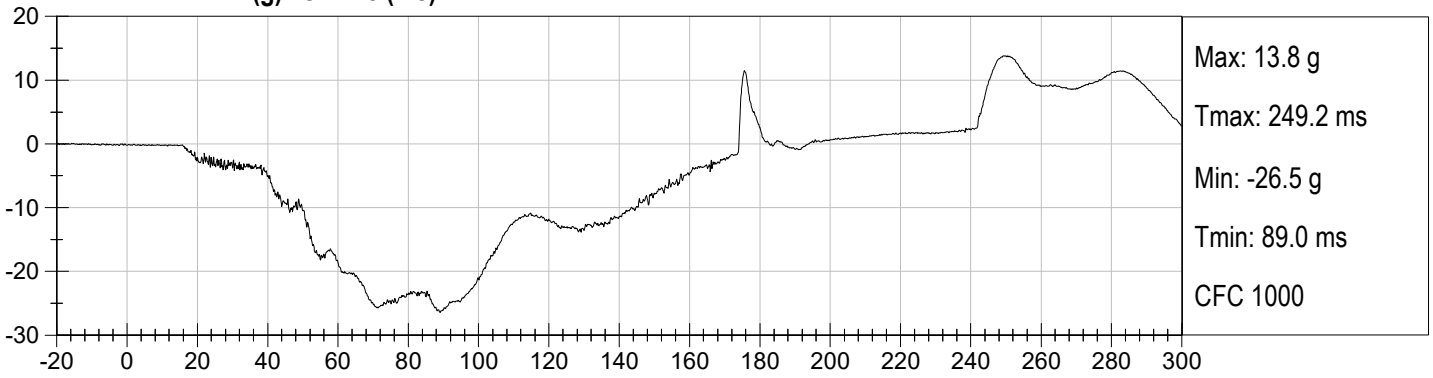
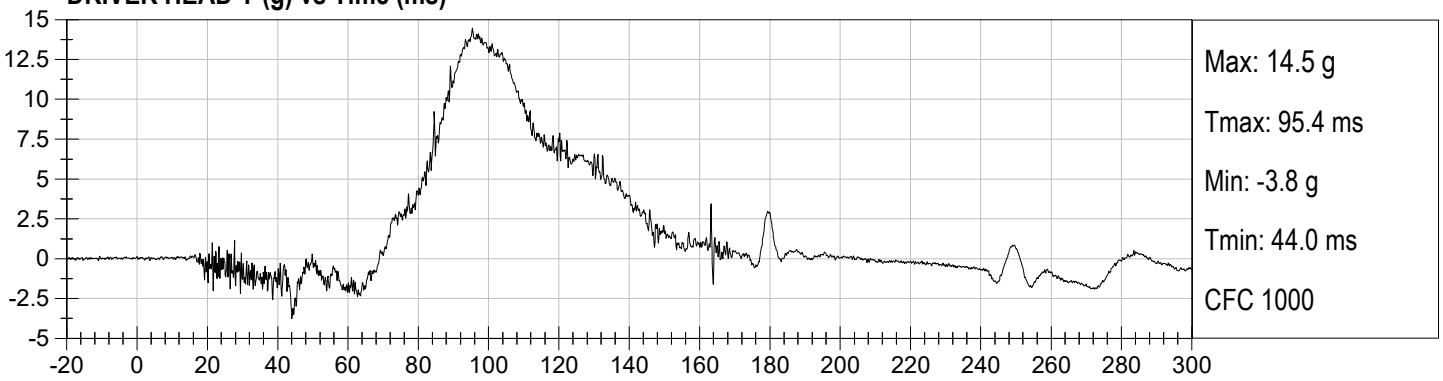
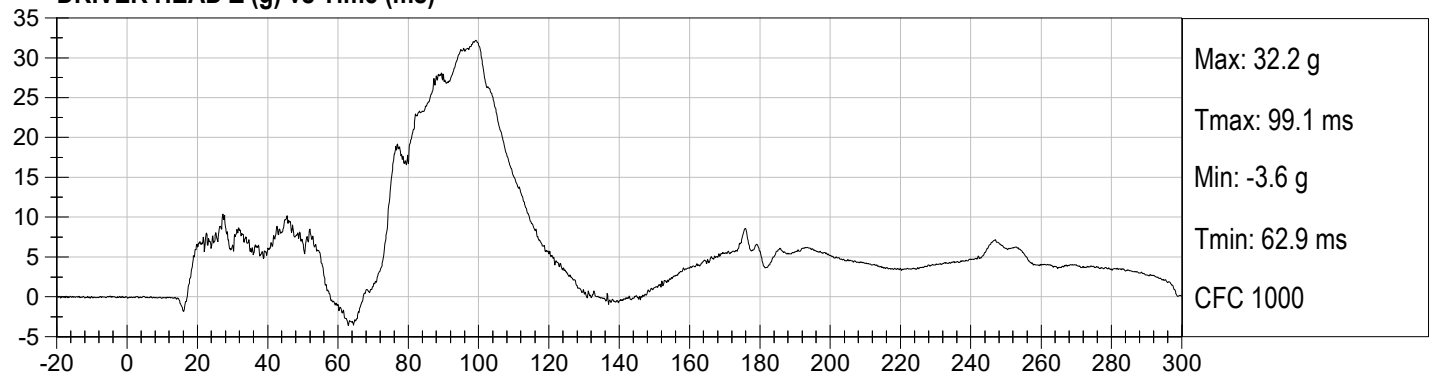
DRIVER HEAD X (g) vs Time (ms)



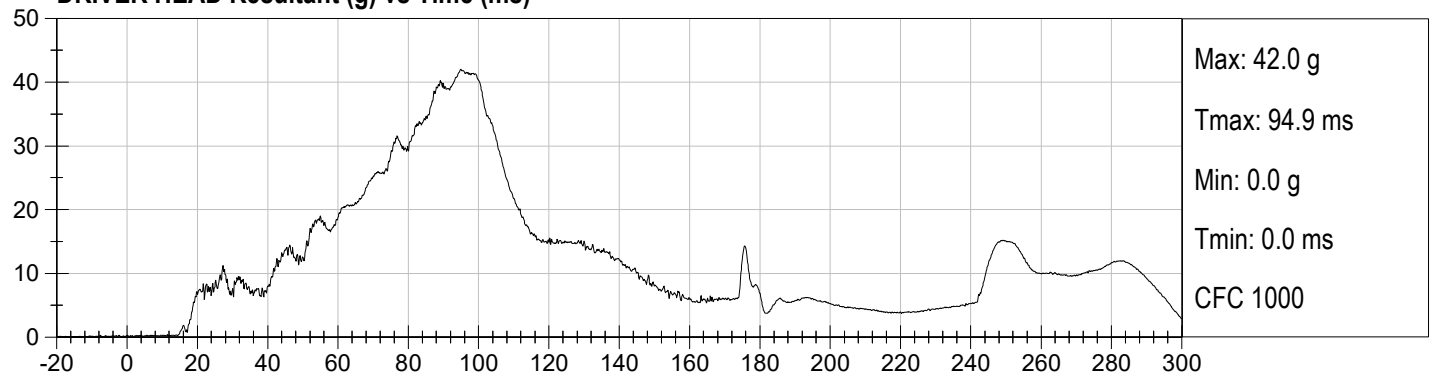
DRIVER HEAD Y (g) vs Time (ms)



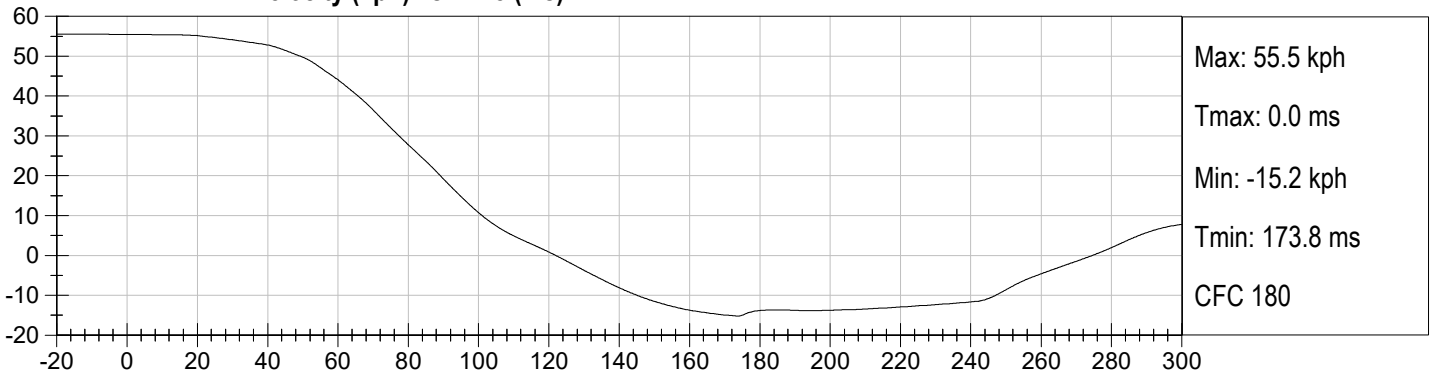
DRIVER HEAD Z (g) vs Time (ms)



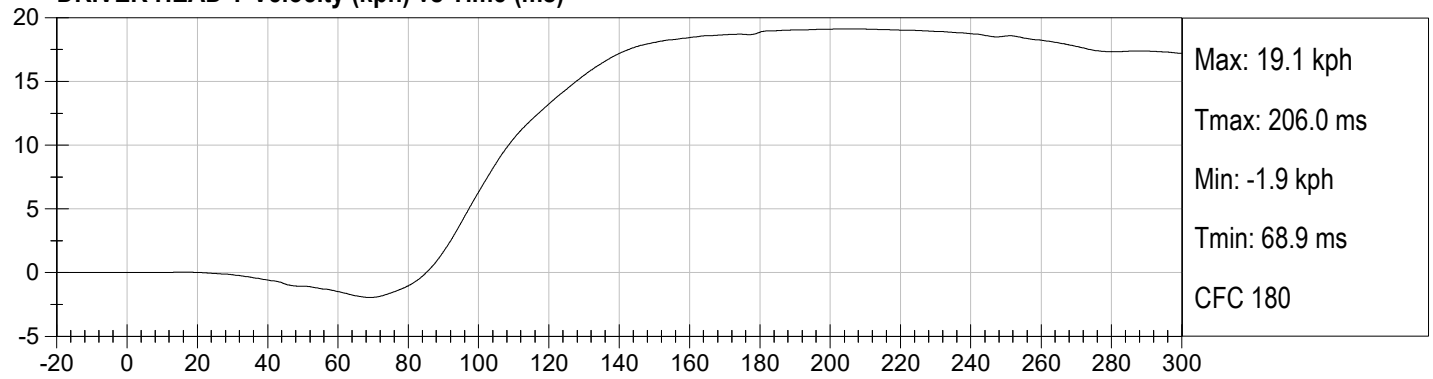
DRIVER HEAD Resultant (g) vs Time (ms)



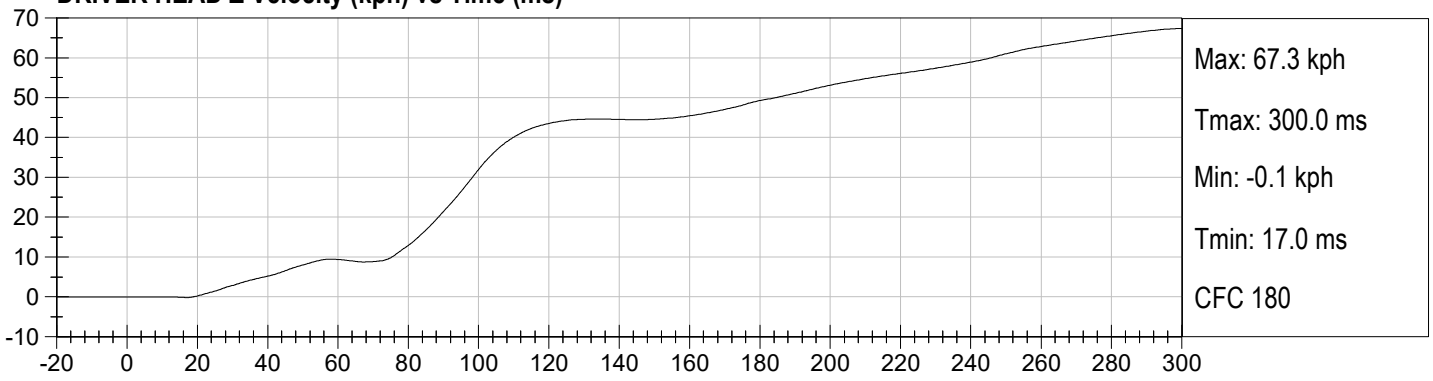
DRIVER HEAD X Velocity (kph) vs Time (ms)



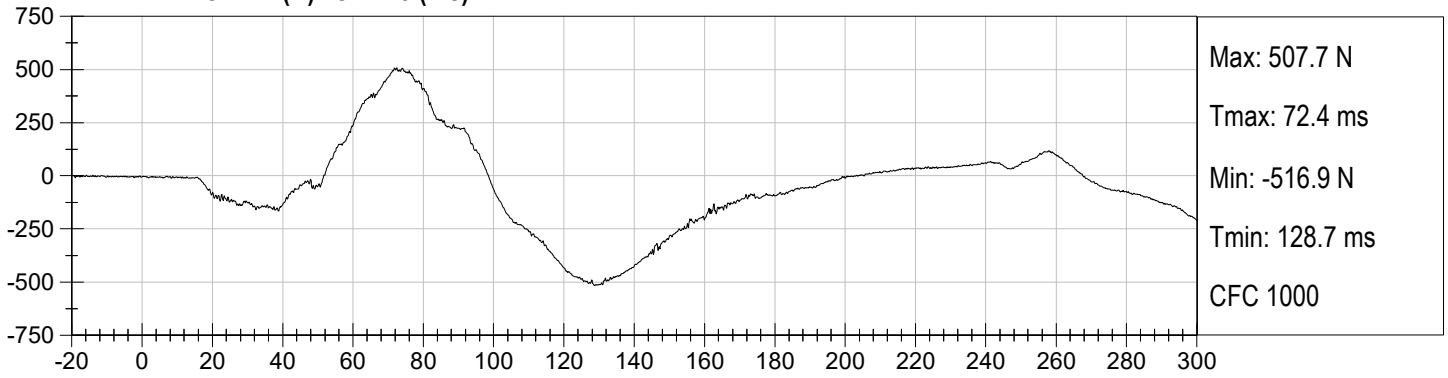
DRIVER HEAD Y Velocity (kph) vs Time (ms)



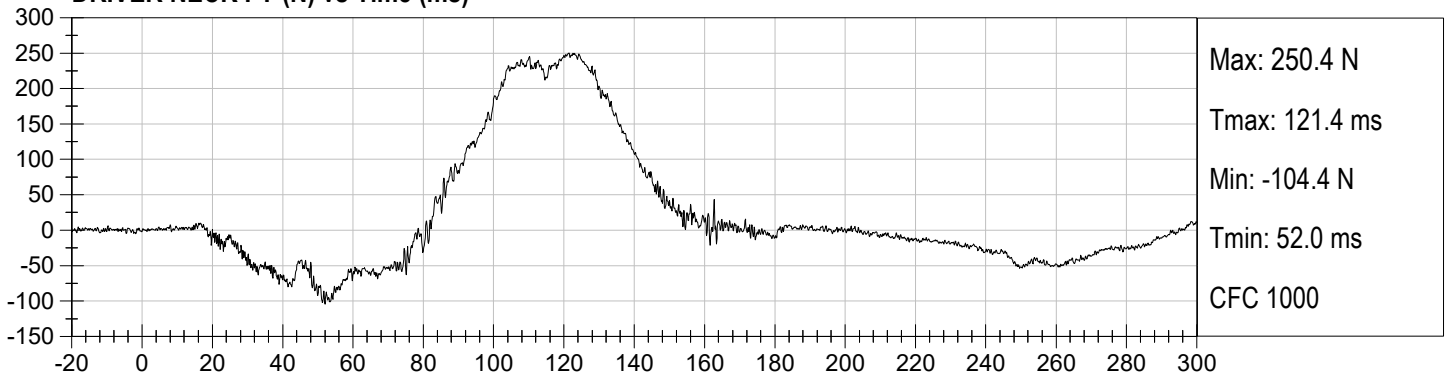
DRIVER HEAD Z Velocity (kph) vs Time (ms)



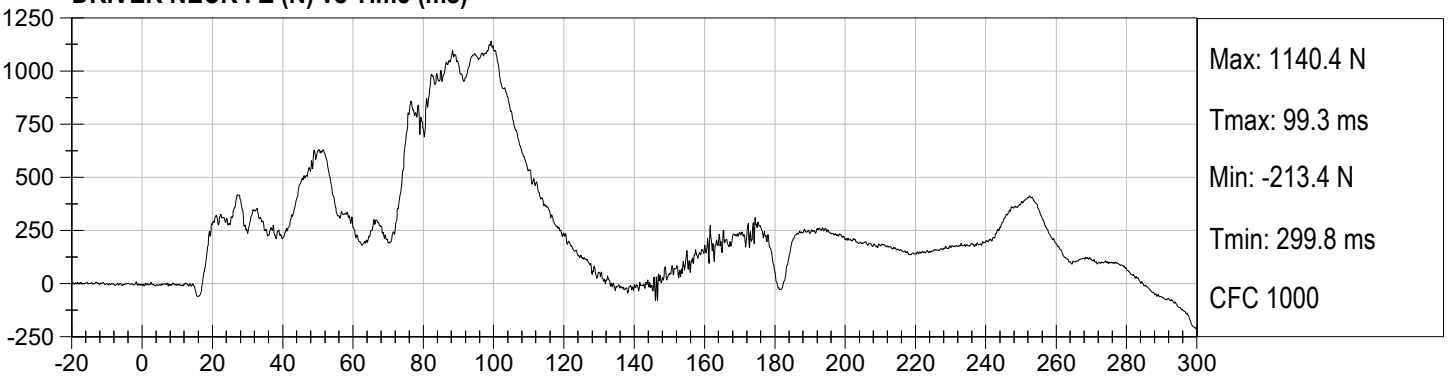
DRIVER NECK FX (N) vs Time (ms)



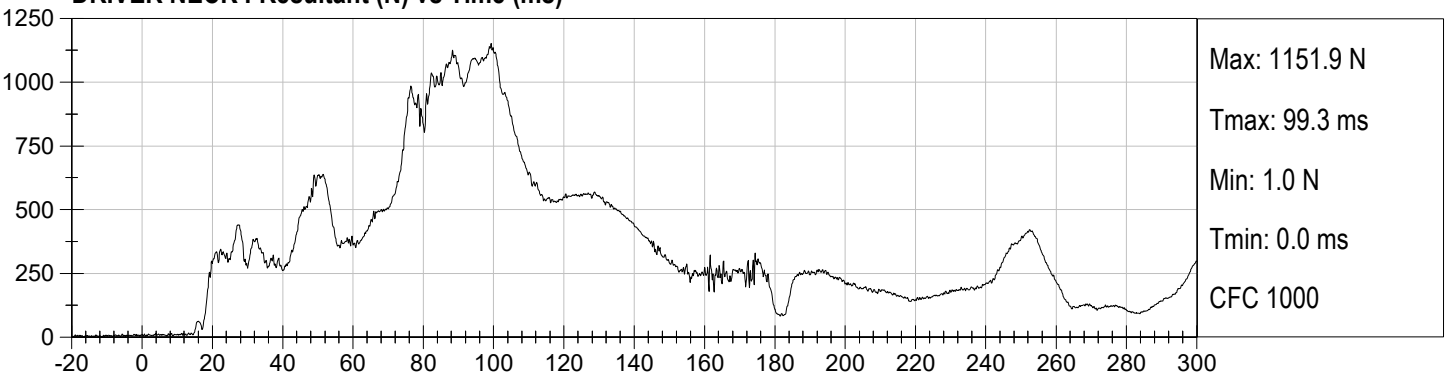
DRIVER NECK FY (N) vs Time (ms)



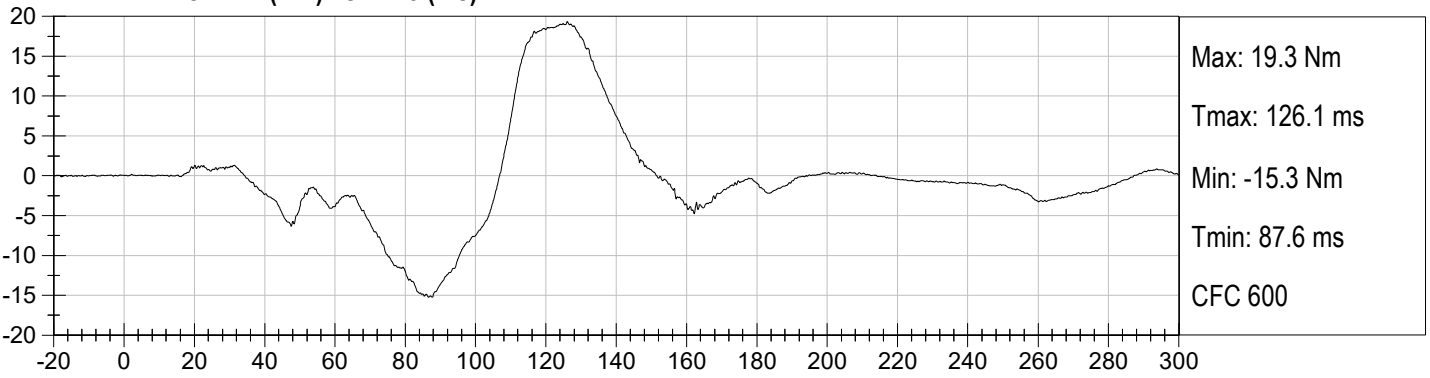
DRIVER NECK FZ (N) vs Time (ms)



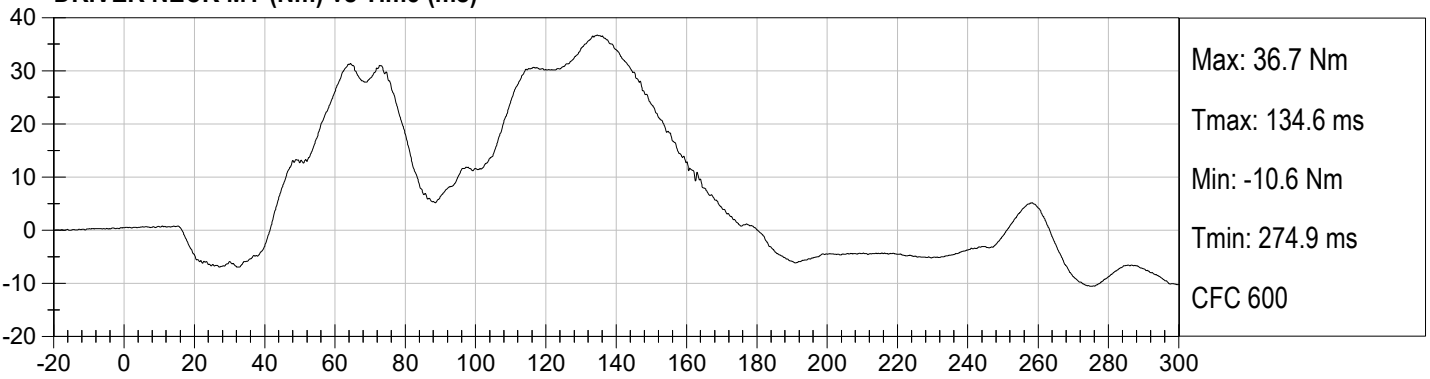
DRIVER NECK FResultant (N) vs Time (ms)



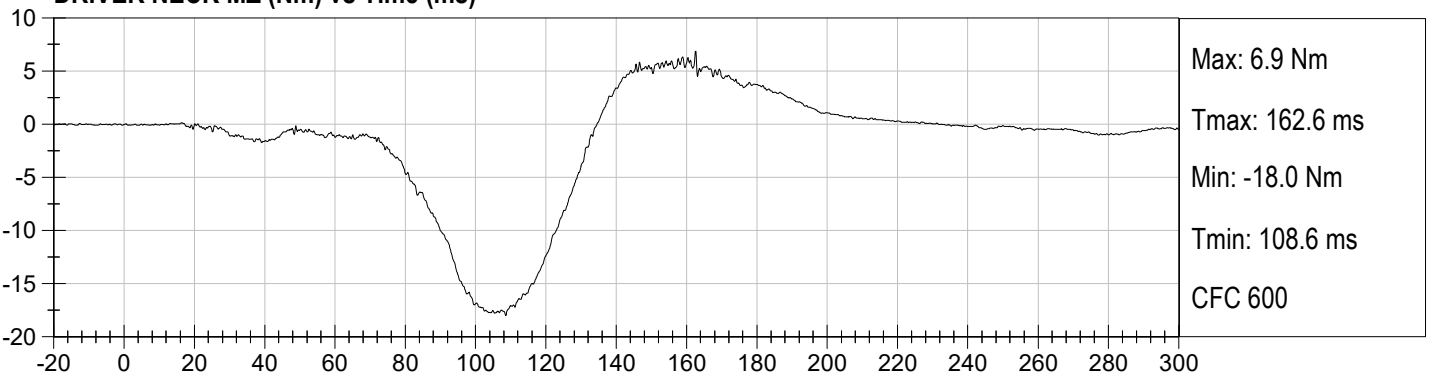
DRIVER NECK MX (Nm) vs Time (ms)



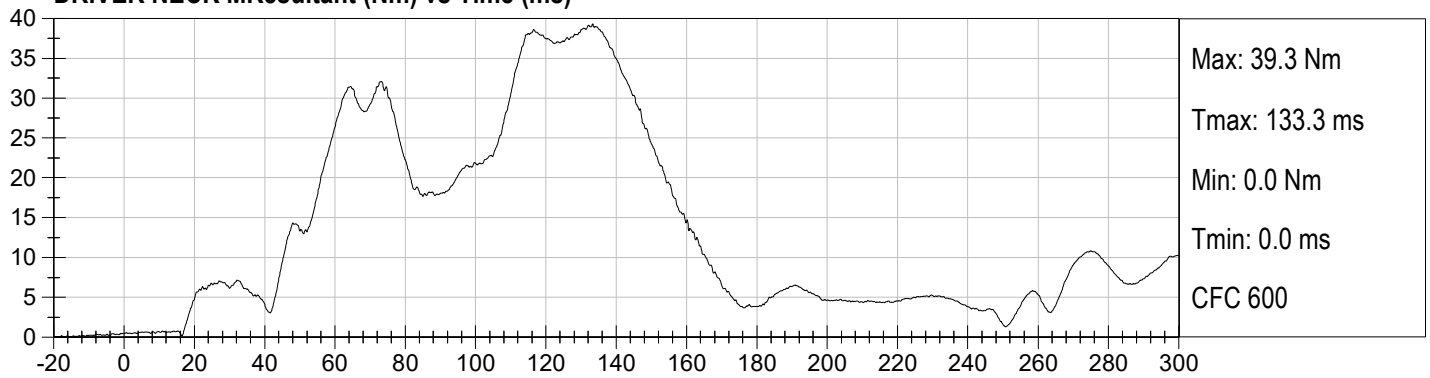
DRIVER NECK MY (Nm) vs Time (ms)



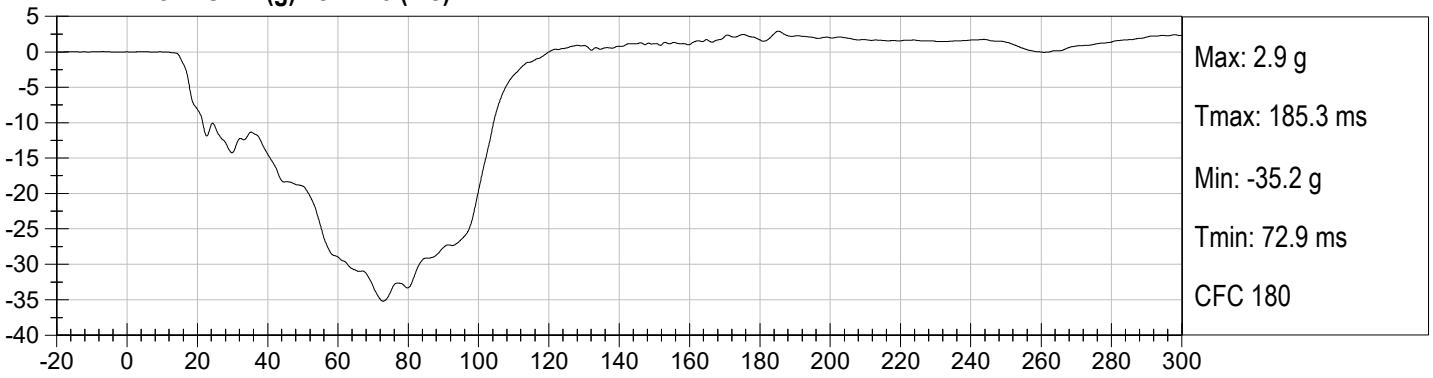
DRIVER NECK MZ (Nm) vs Time (ms)



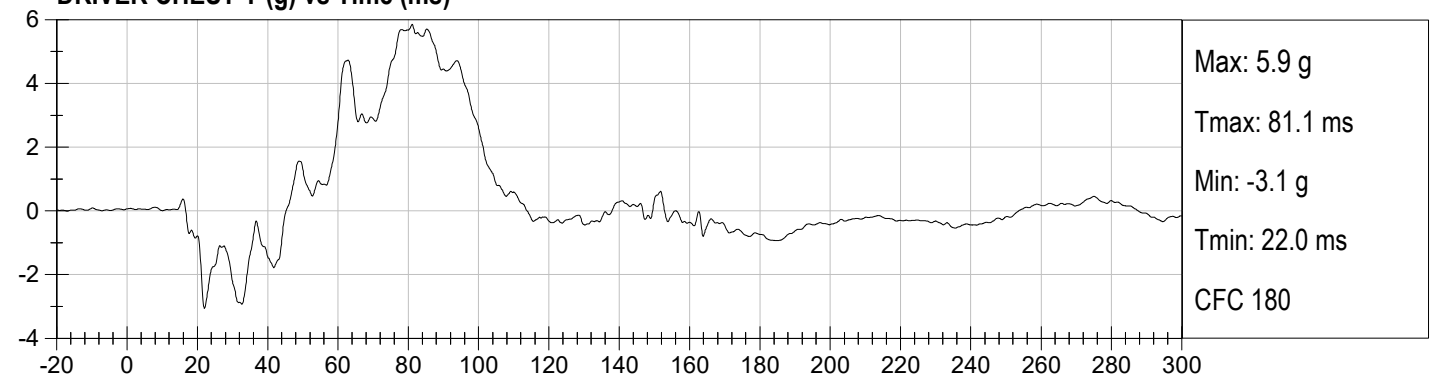
DRIVER NECK MResultant (Nm) vs Time (ms)



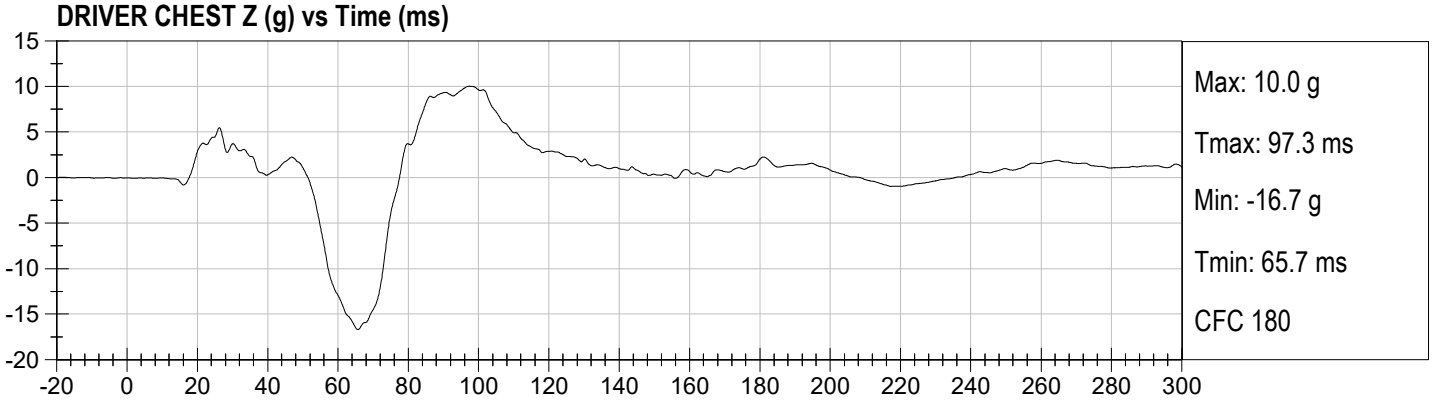
DRIVER CHEST X (g) vs Time (ms)



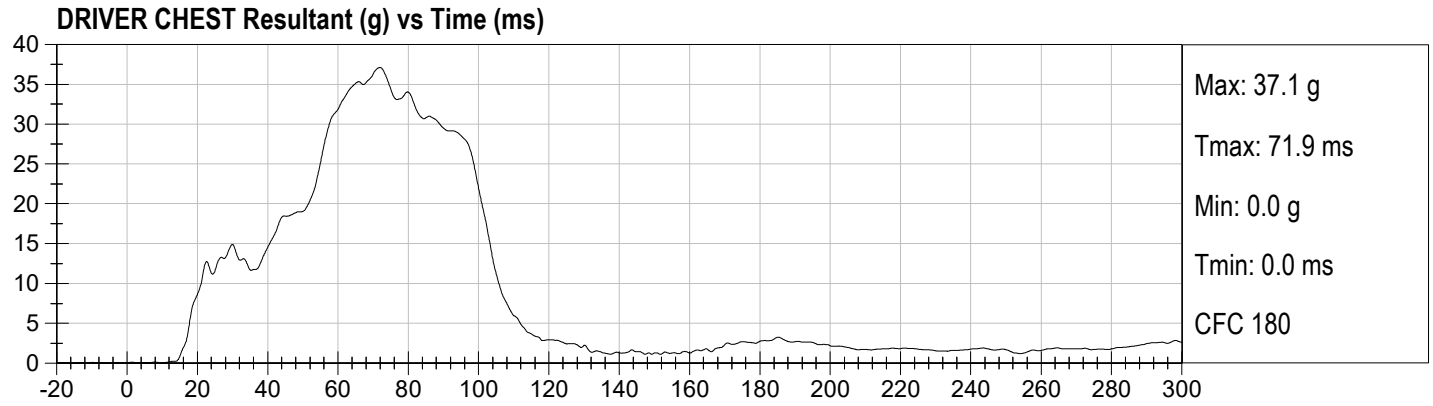
DRIVER CHEST Y (g) vs Time (ms)



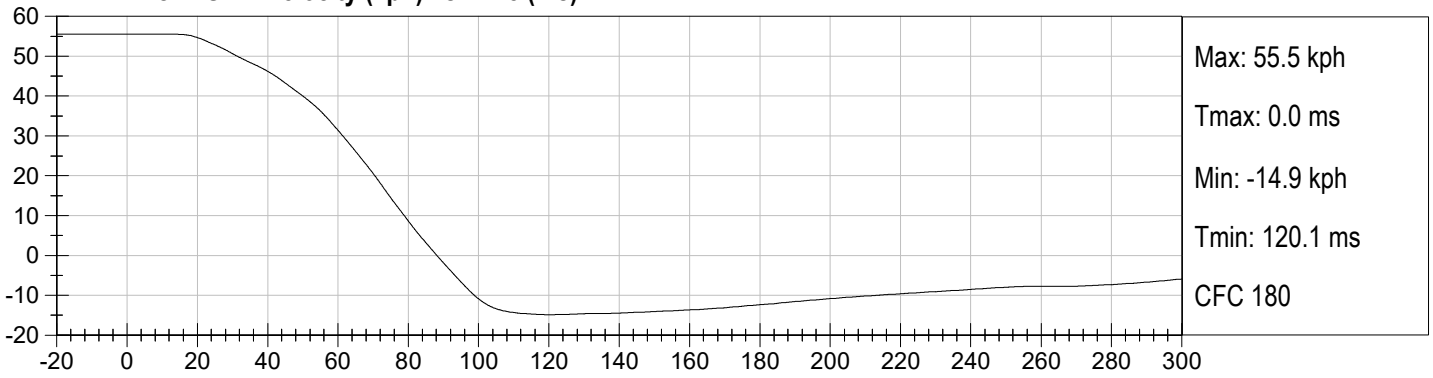
DRIVER CHEST Z (g) vs Time (ms)



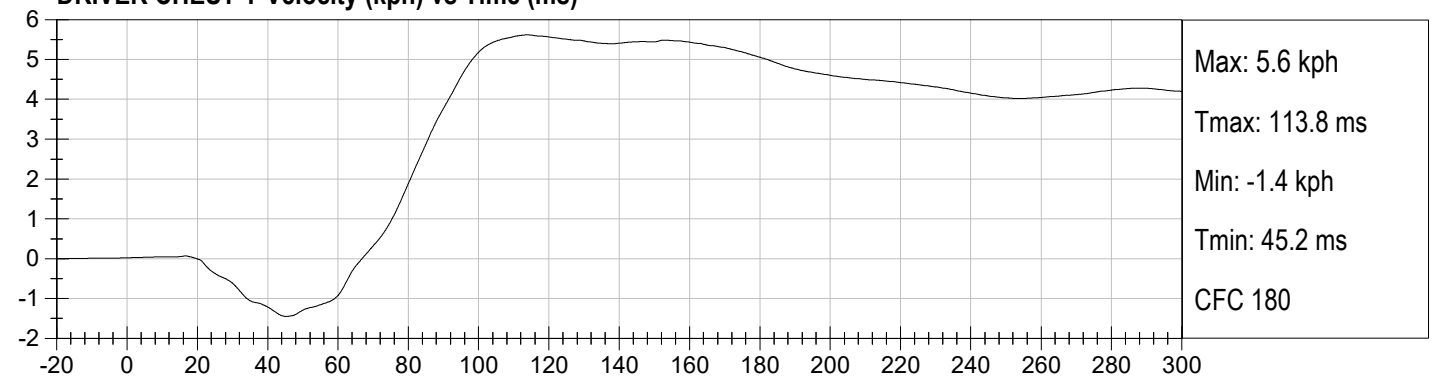
DRIVER CHEST Resultant (g) vs Time (ms)



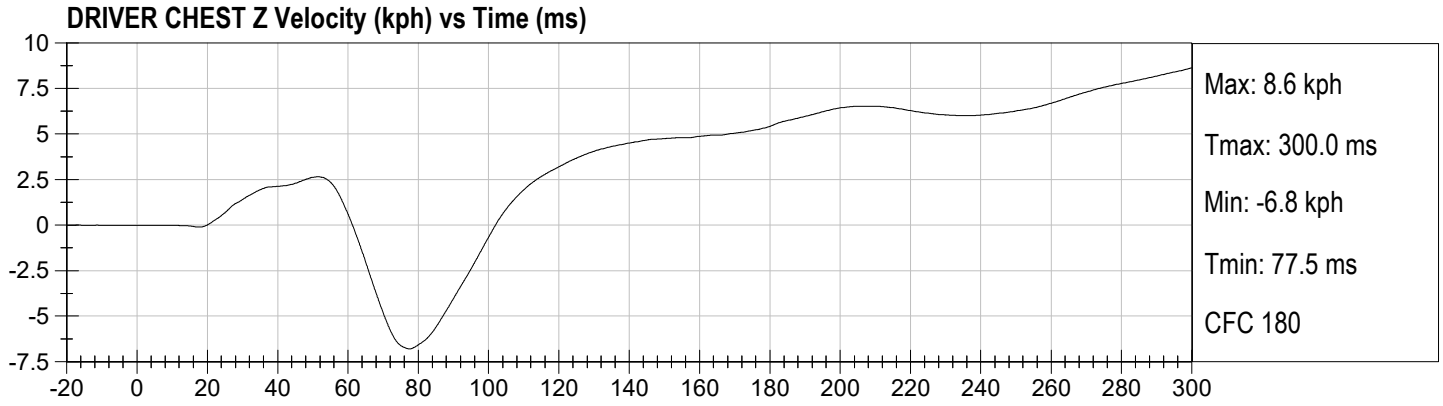
DRIVER CHEST X Velocity (kph) vs Time (ms)



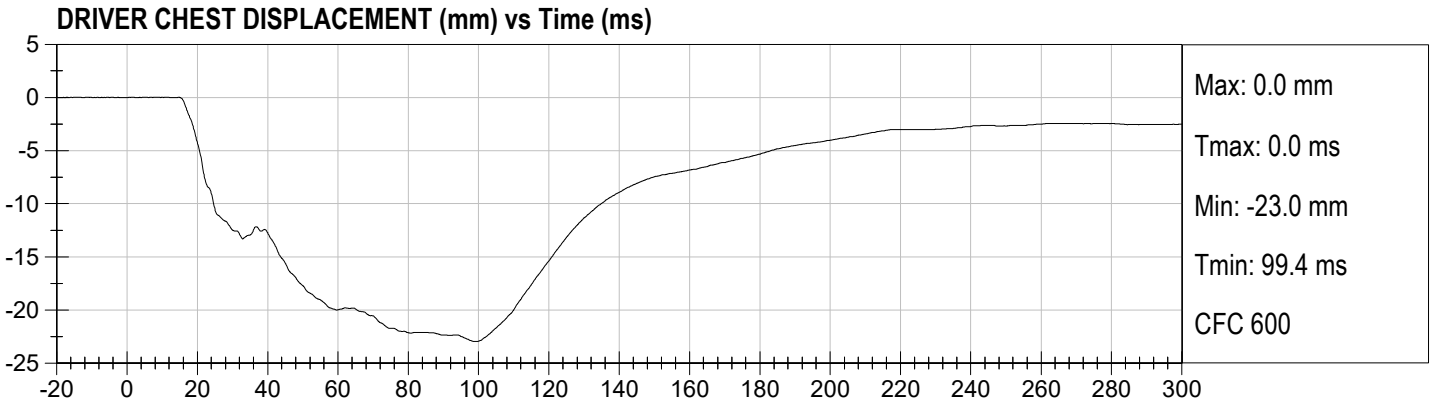
DRIVER CHEST Y Velocity (kph) vs Time (ms)



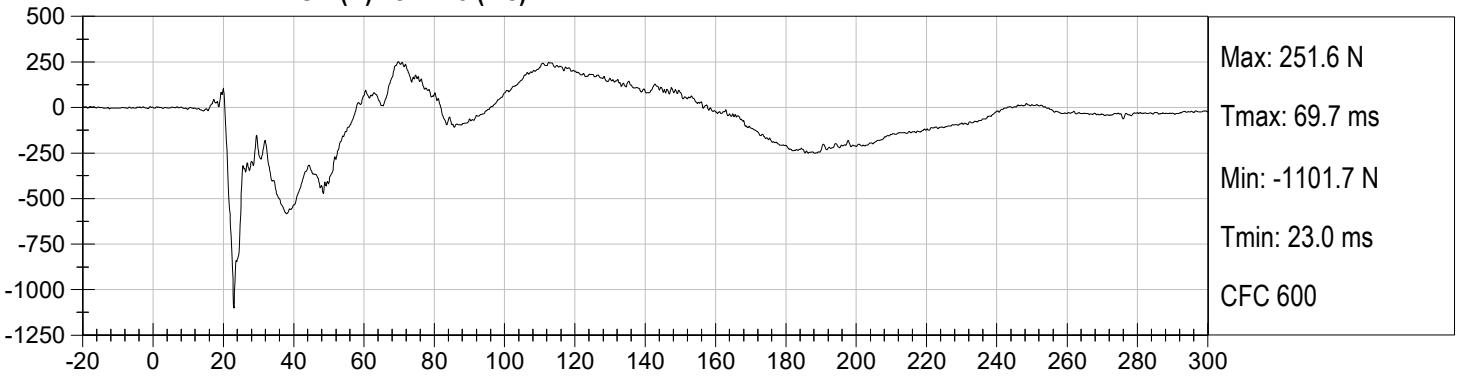
DRIVER CHEST Z Velocity (kph) vs Time (ms)



DRIVER CHEST DISPLACEMENT (mm) vs Time (ms)

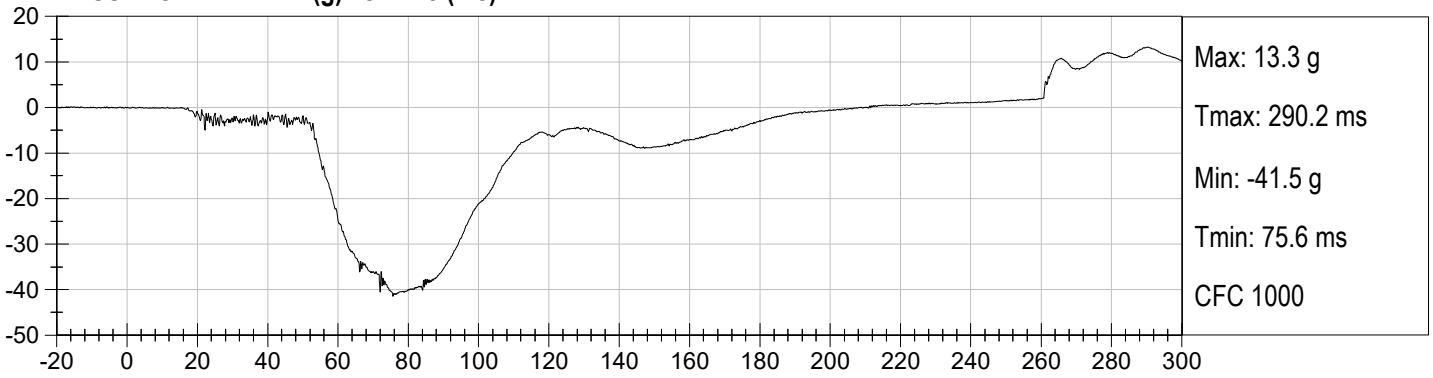


DRIVER LEFT FEMUR (N) vs Time (ms)

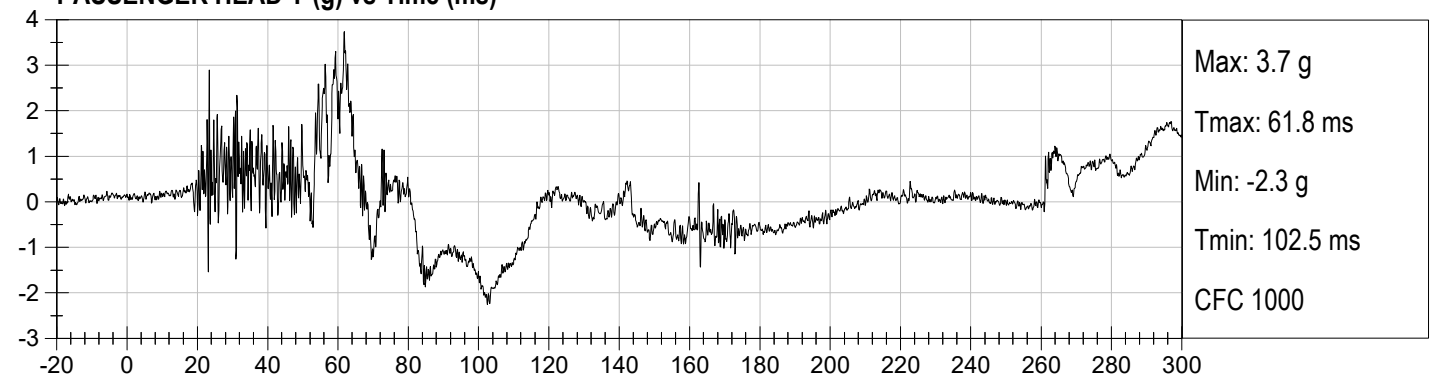


DRIVER RIGHT FEMUR (N) vs Time (ms)

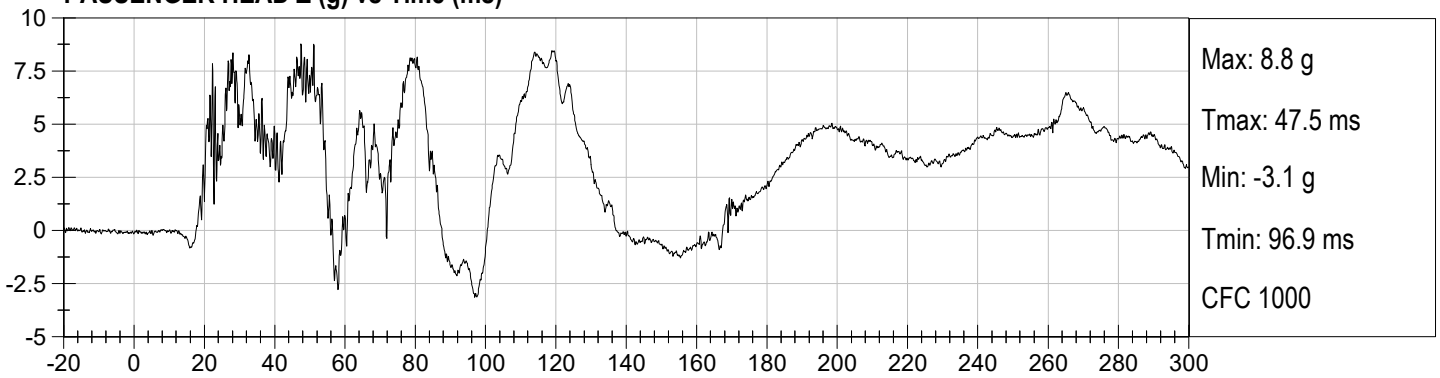
PASSENGER HEAD X (g) vs Time (ms)



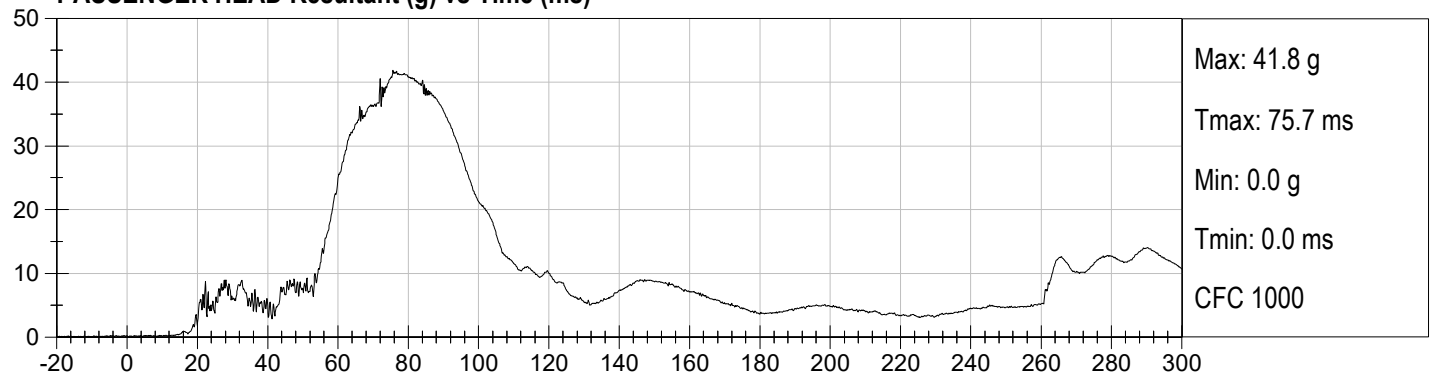
PASSENGER HEAD Y (g) vs Time (ms)



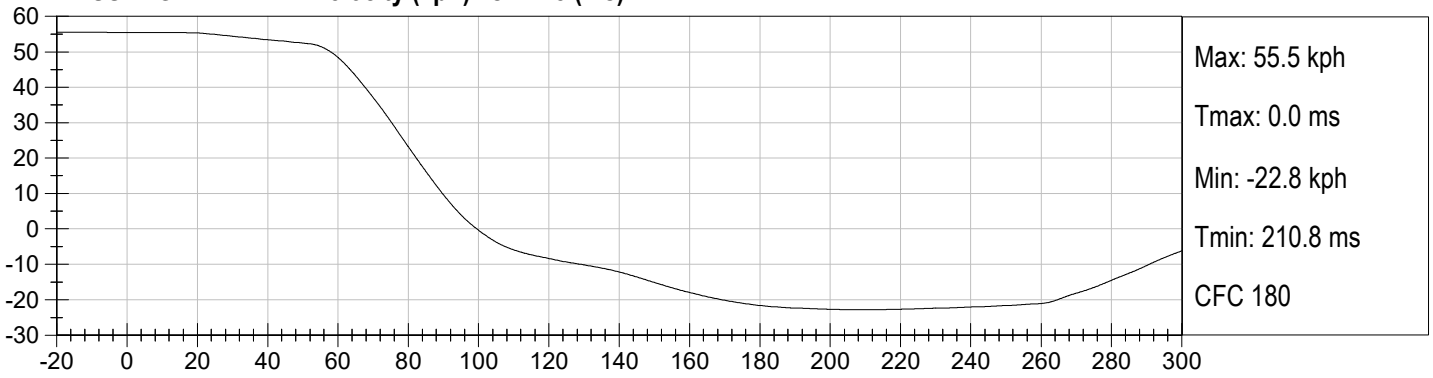
PASSENGER HEAD Z (g) vs Time (ms)



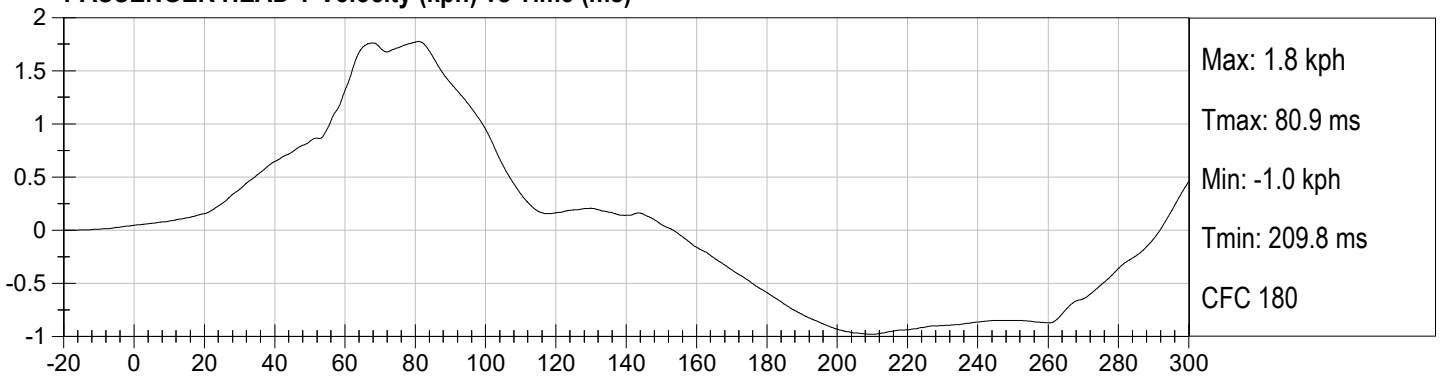
PASSENGER HEAD Resultant (g) vs Time (ms)



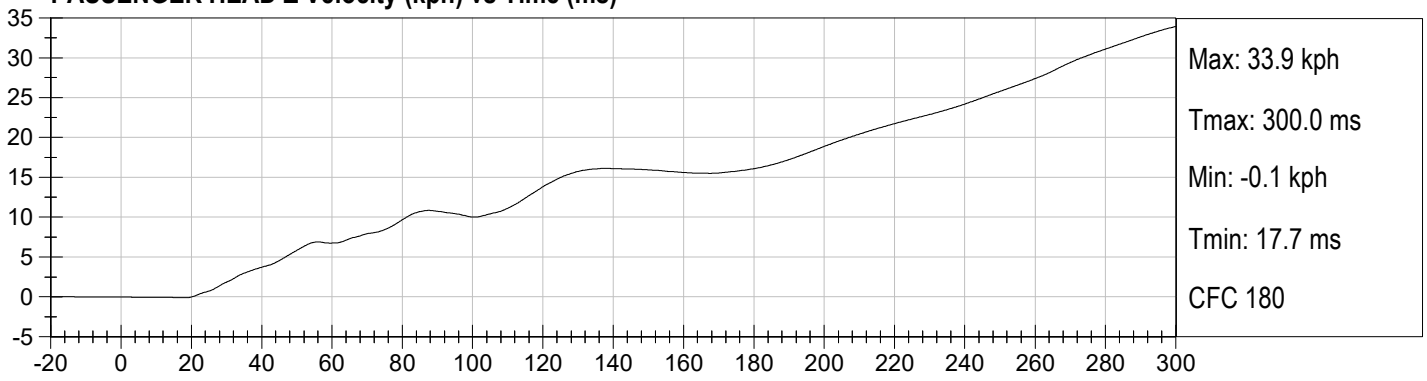
PASSENGER HEAD X Velocity (kph) vs Time (ms)



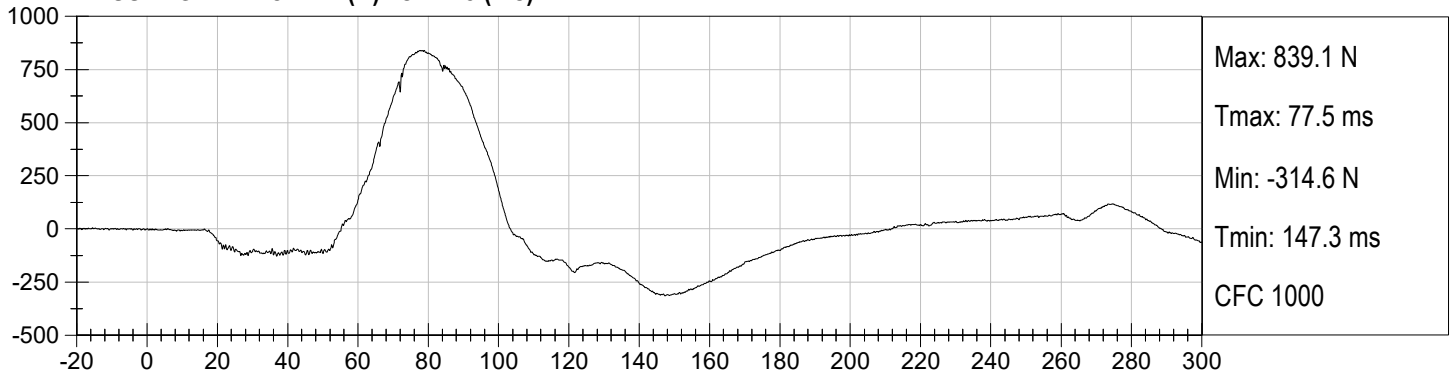
PASSENGER HEAD Y Velocity (kph) vs Time (ms)



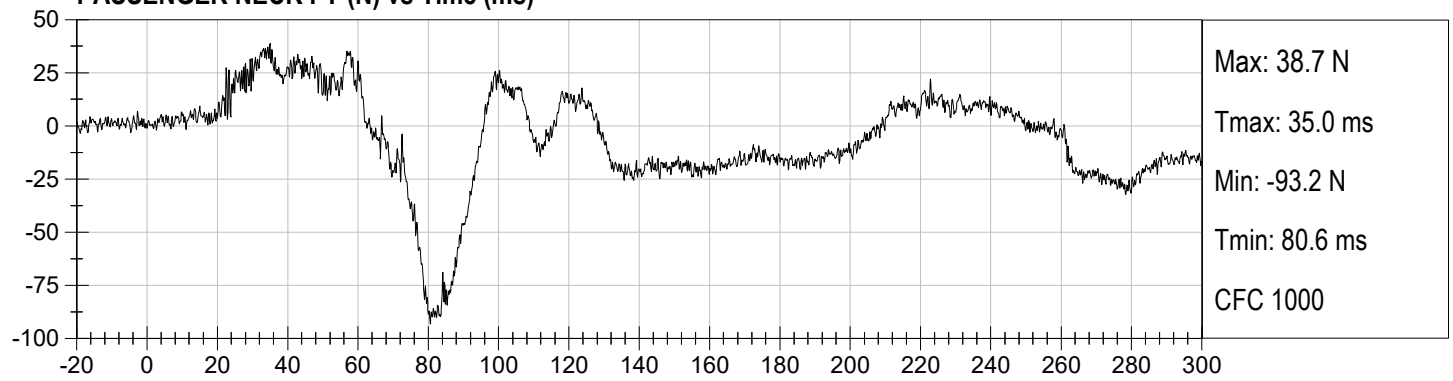
PASSENGER HEAD Z Velocity (kph) vs Time (ms)



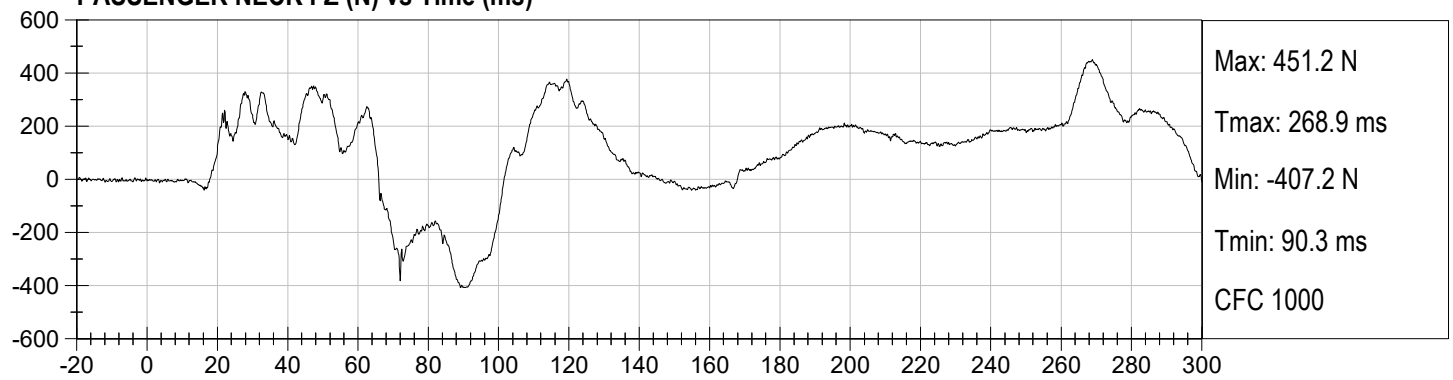
PASSENGER NECK FX (N) vs Time (ms)



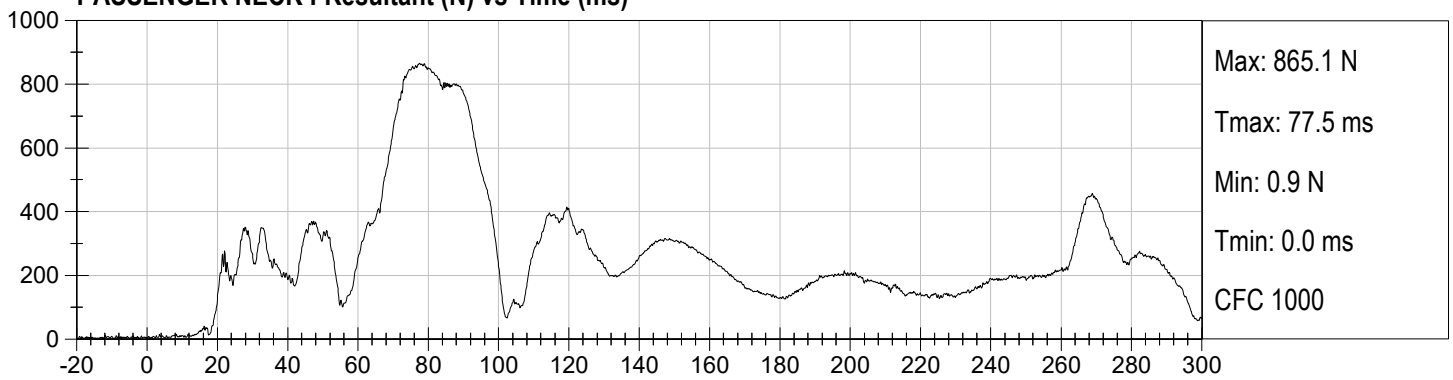
PASSENGER NECK FY (N) vs Time (ms)



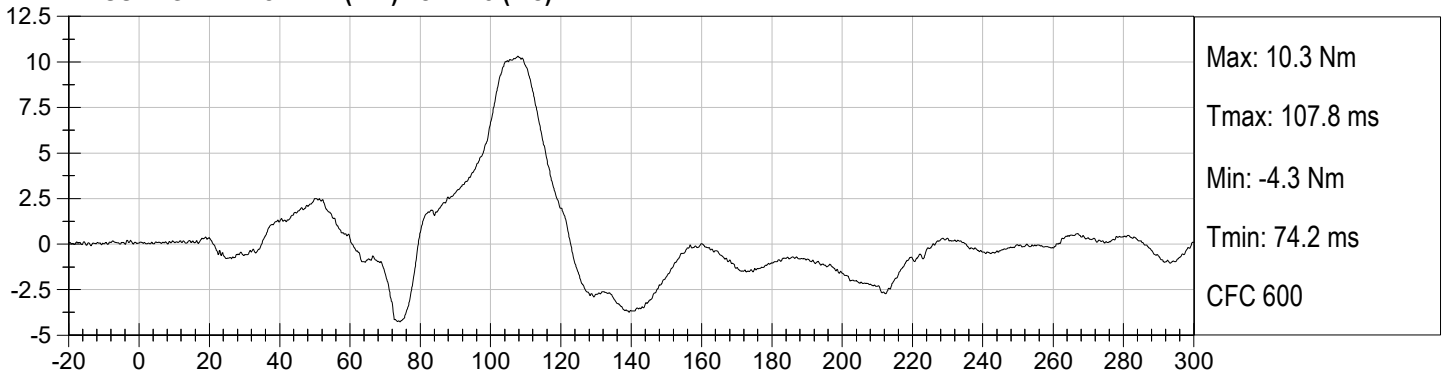
PASSENGER NECK FZ (N) vs Time (ms)



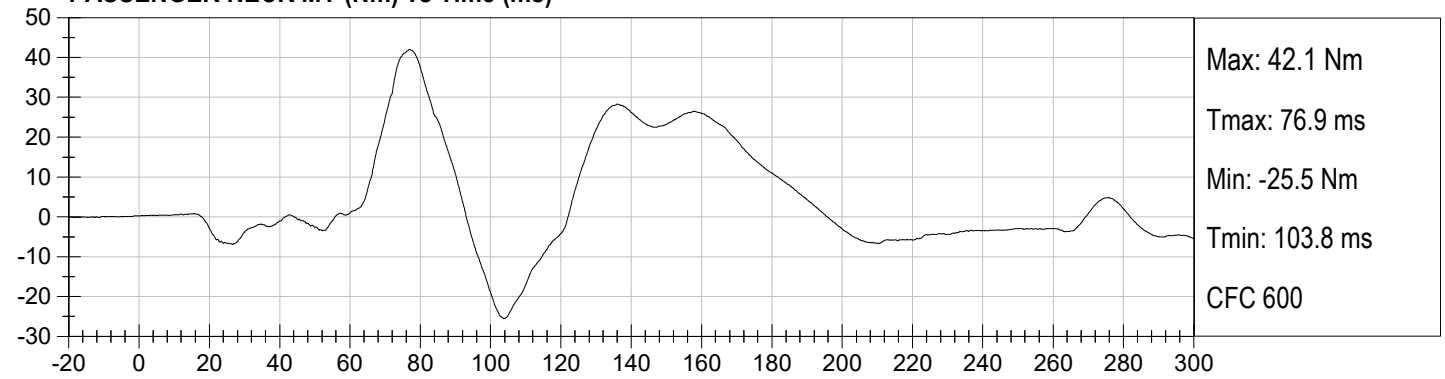
PASSENGER NECK FResultant (N) vs Time (ms)



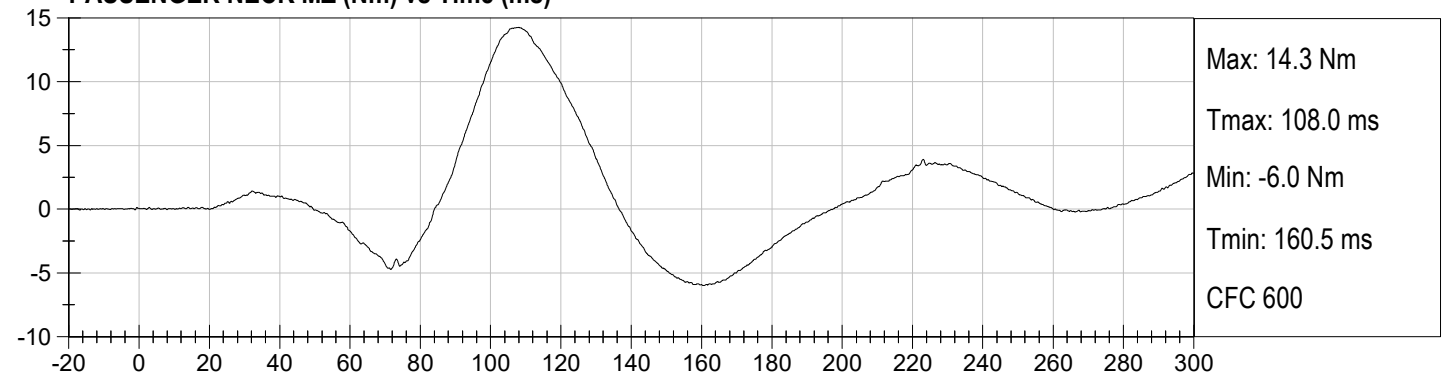
PASSENGER NECK MX (Nm) vs Time (ms)



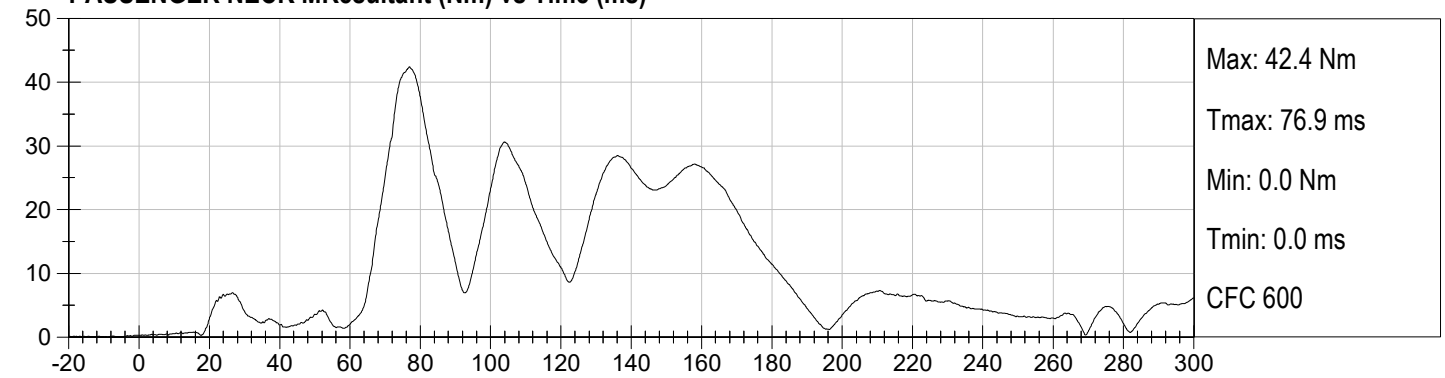
PASSENGER NECK MY (Nm) vs Time (ms)



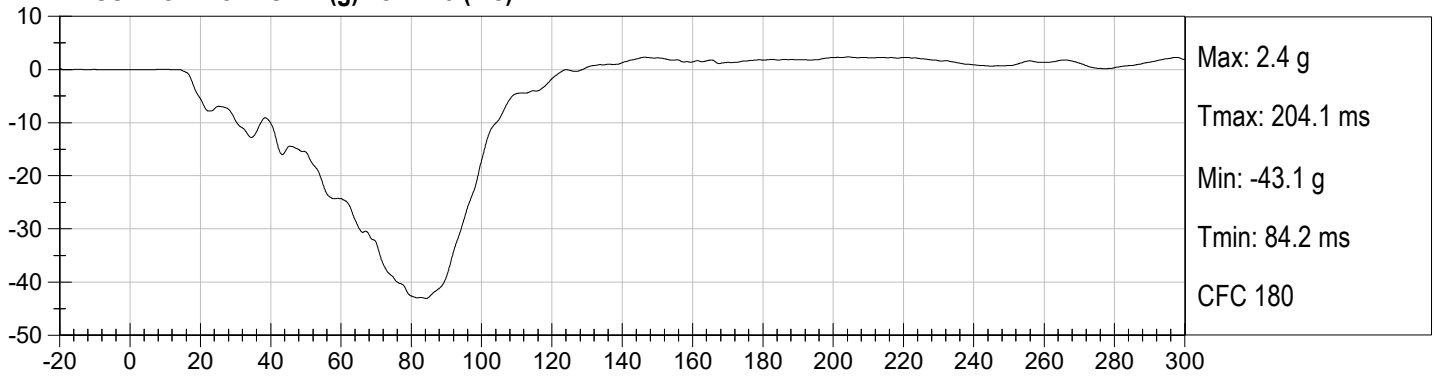
PASSENGER NECK MZ (Nm) vs Time (ms)



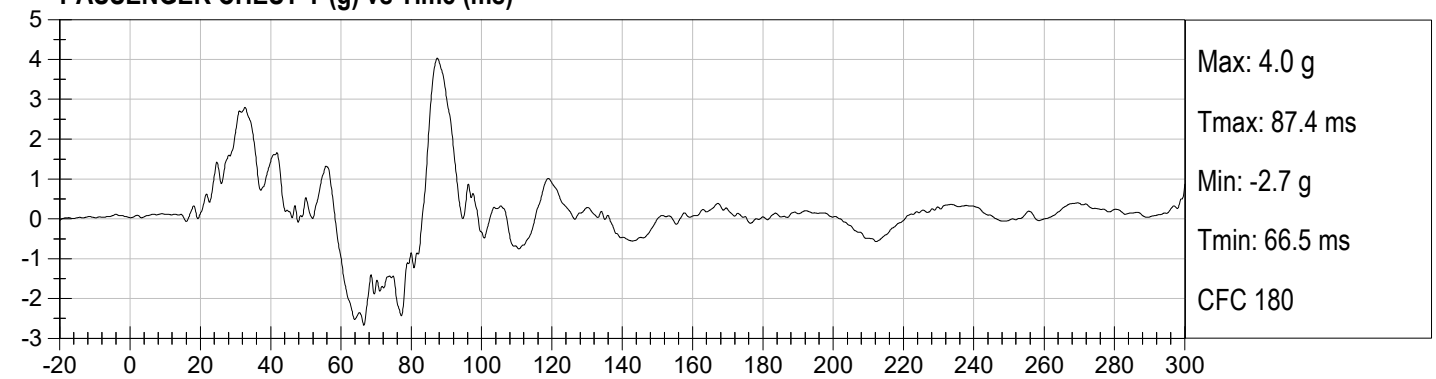
PASSENGER NECK MResultant (Nm) vs Time (ms)



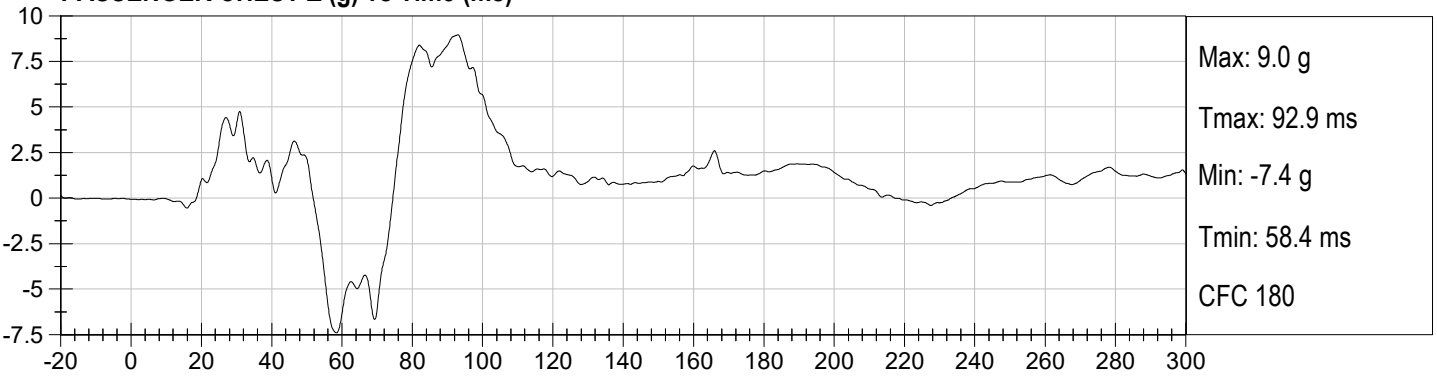
PASSENGER CHEST X (g) vs Time (ms)



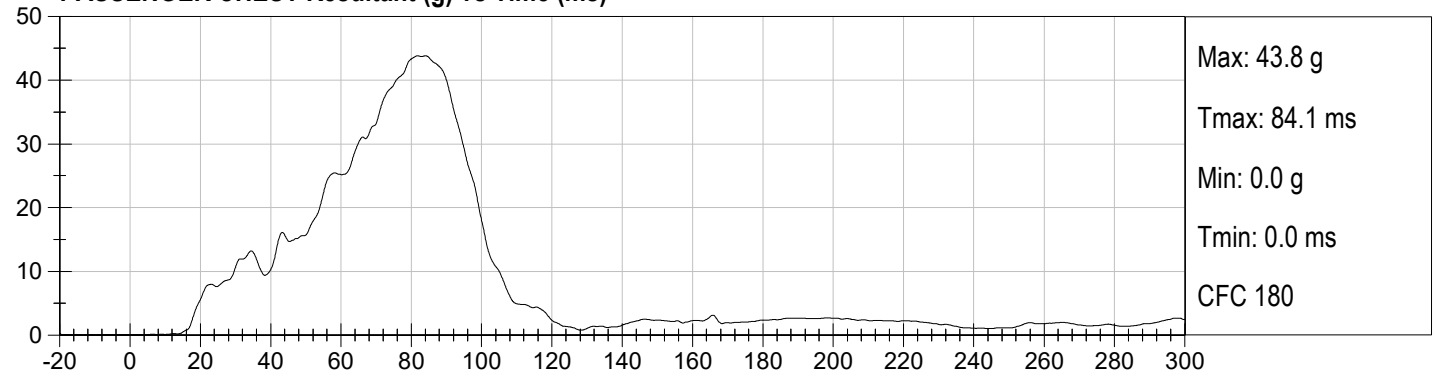
PASSENGER CHEST Y (g) vs Time (ms)



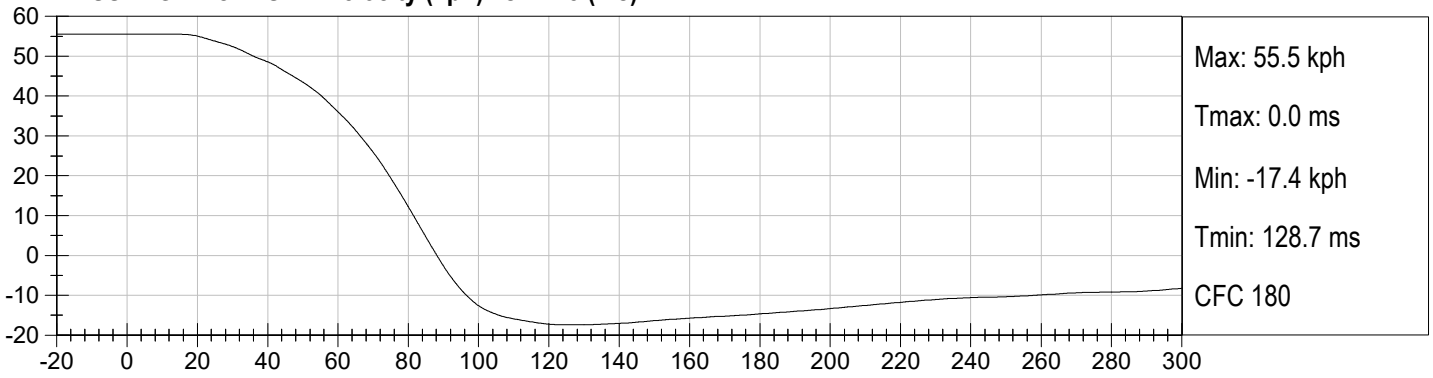
PASSENGER CHEST Z (g) vs Time (ms)



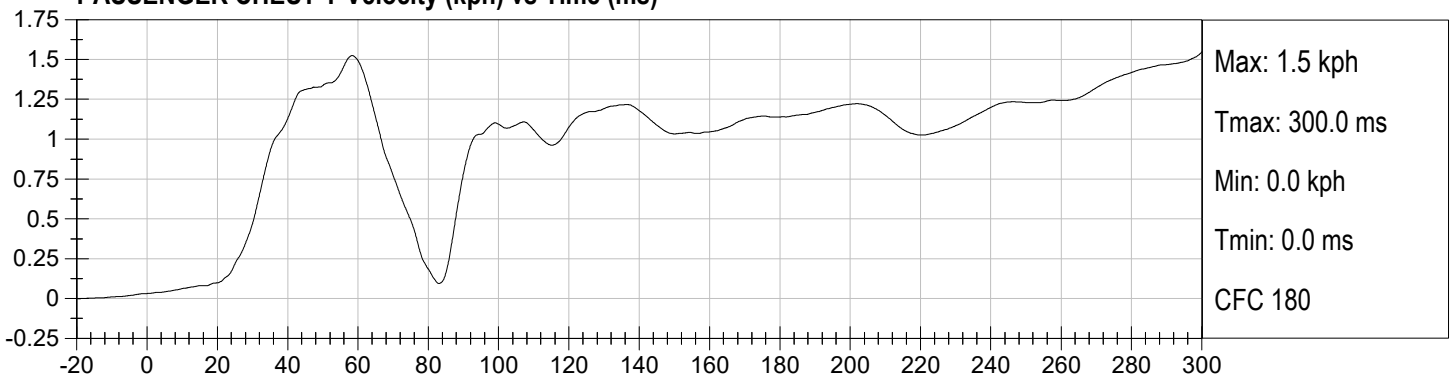
PASSENGER CHEST Resultant (g) vs Time (ms)



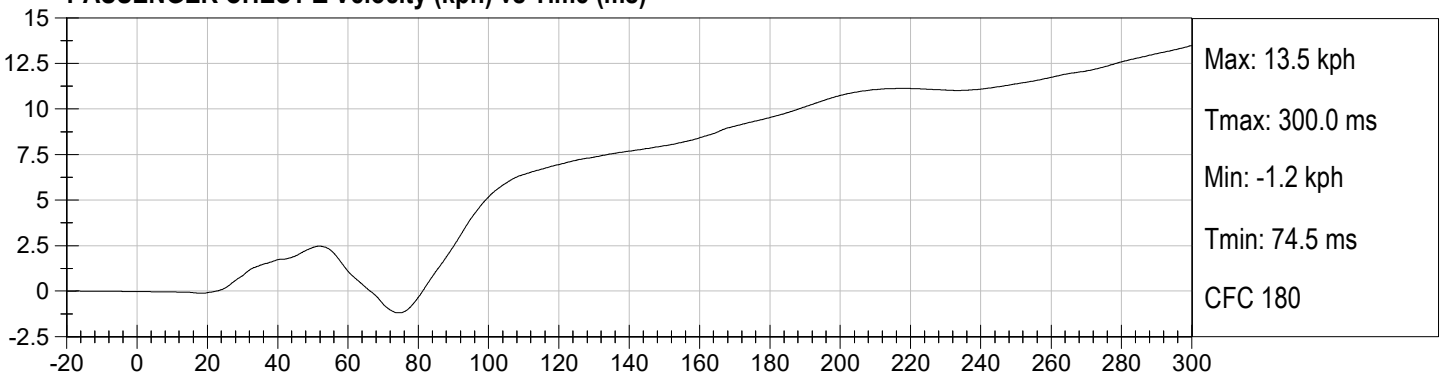
PASSENGER CHEST X Velocity (kph) vs Time (ms)



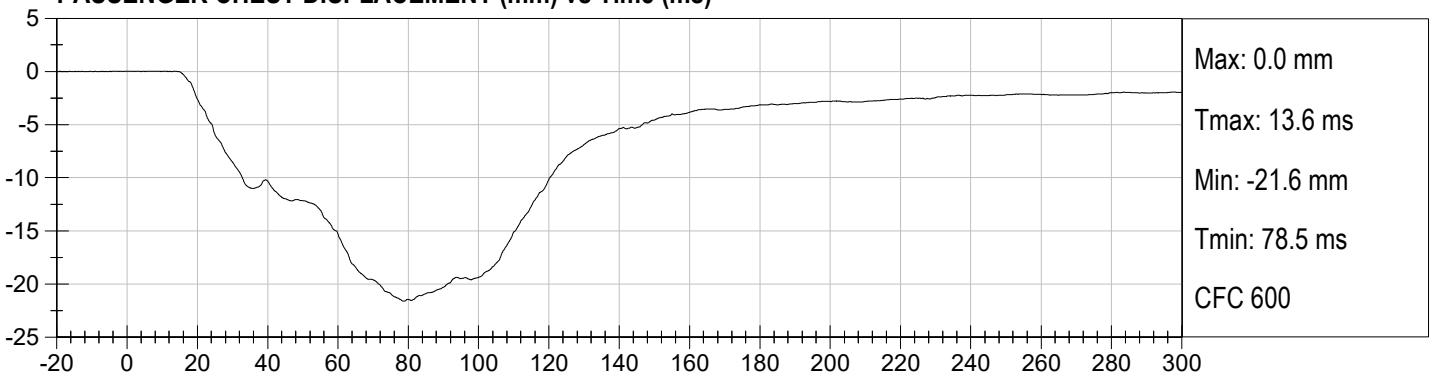
PASSENGER CHEST Y Velocity (kph) vs Time (ms)



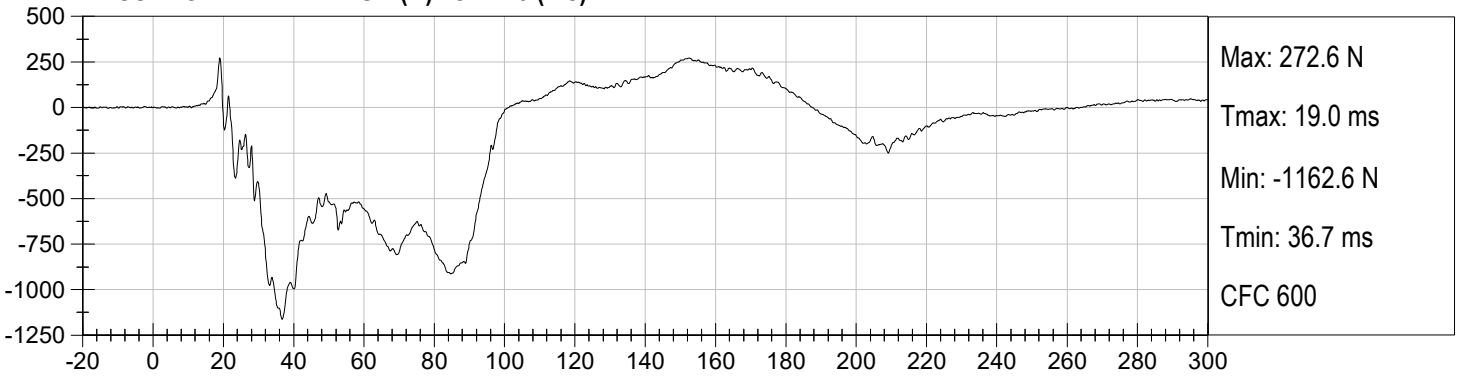
PASSENGER CHEST Z Velocity (kph) vs Time (ms)



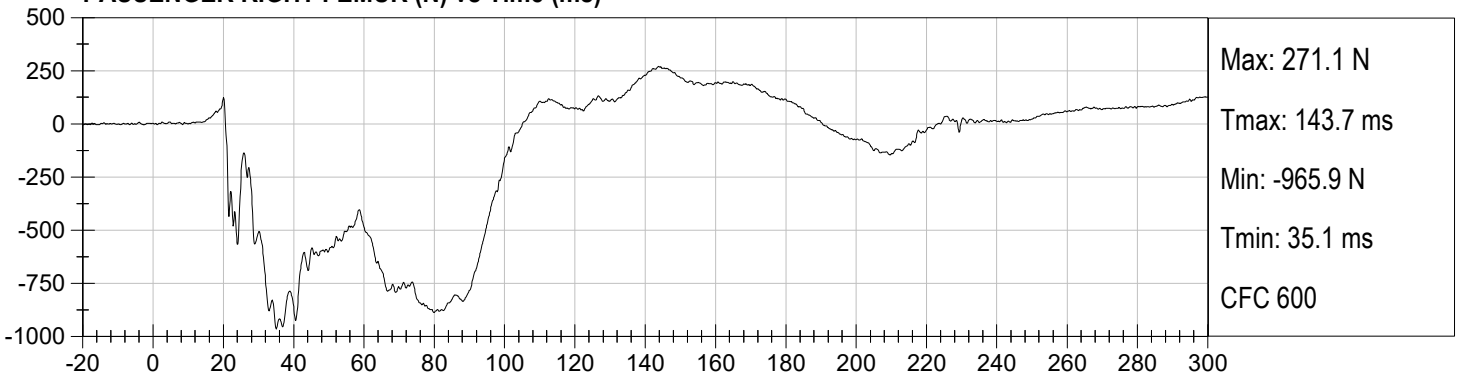
PASSENGER CHEST DISPLACEMENT (mm) vs Time (ms)



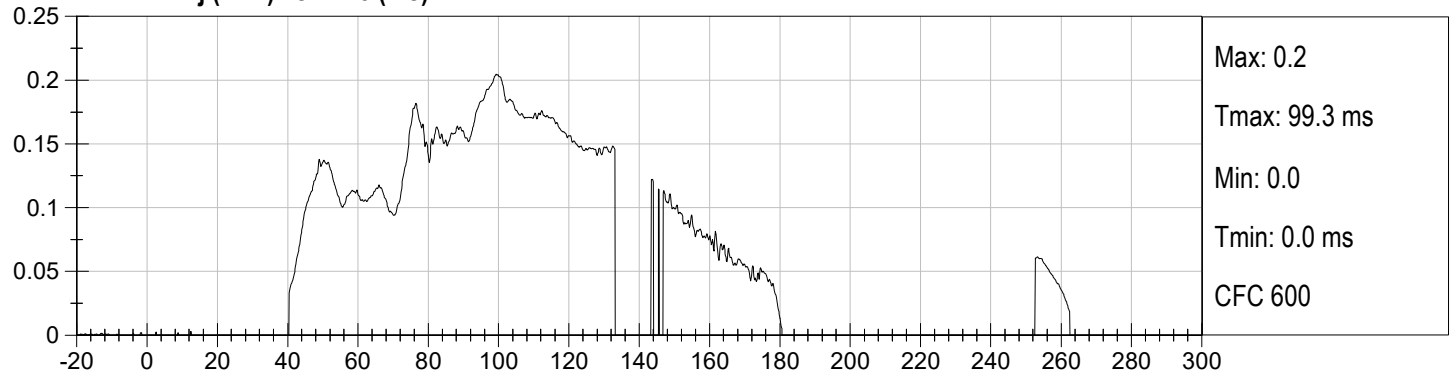
PASSENGER LEFT FEMUR (N) vs Time (ms)



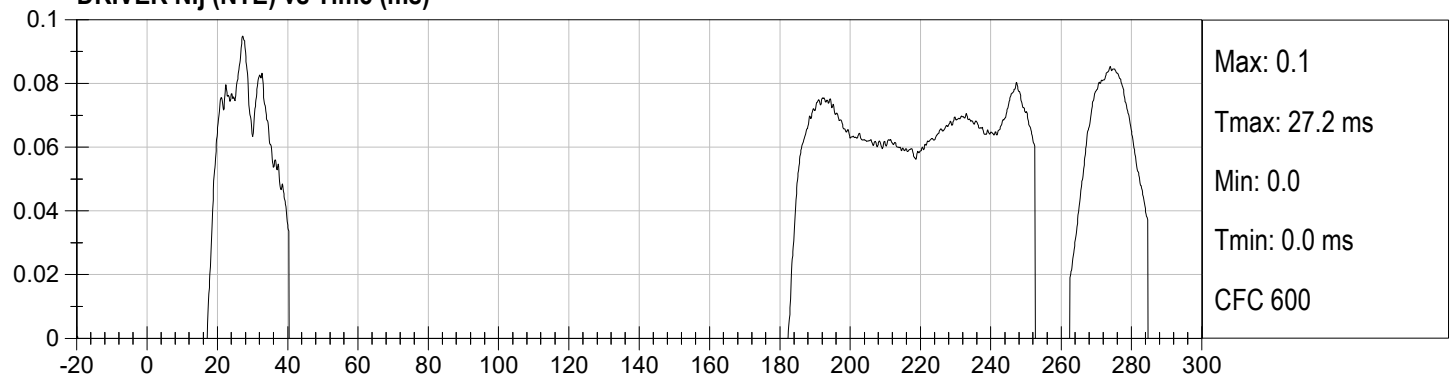
PASSENGER RIGHT FEMUR (N) vs Time (ms)



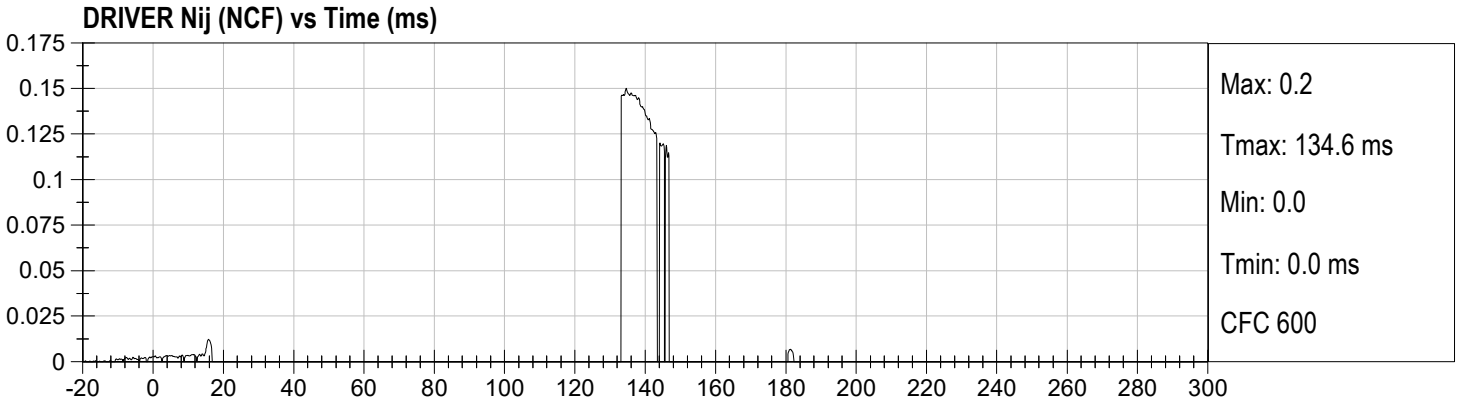
DRIVER Nij (NTF) vs Time (ms)



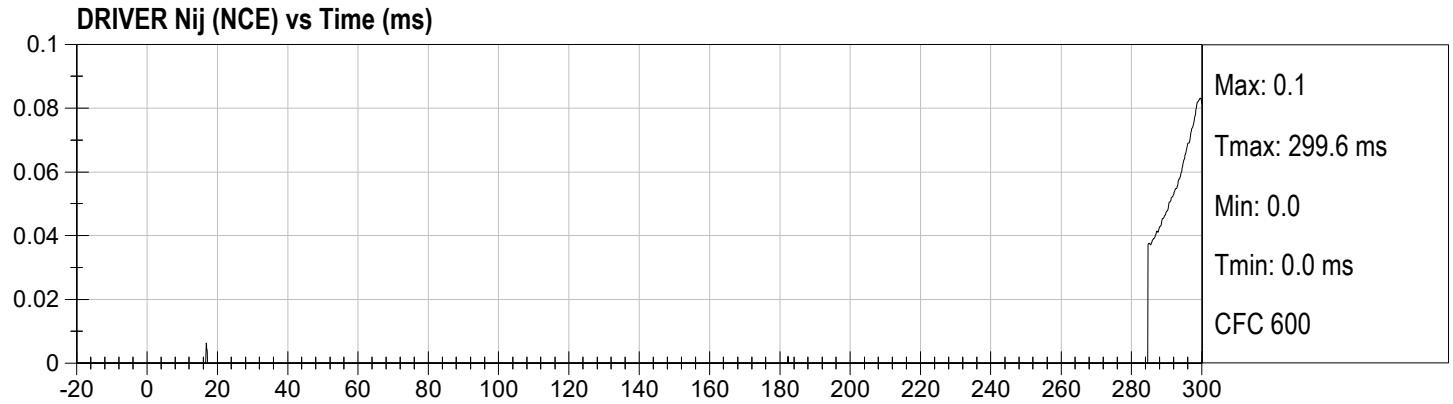
DRIVER Nij (NTE) vs Time (ms)



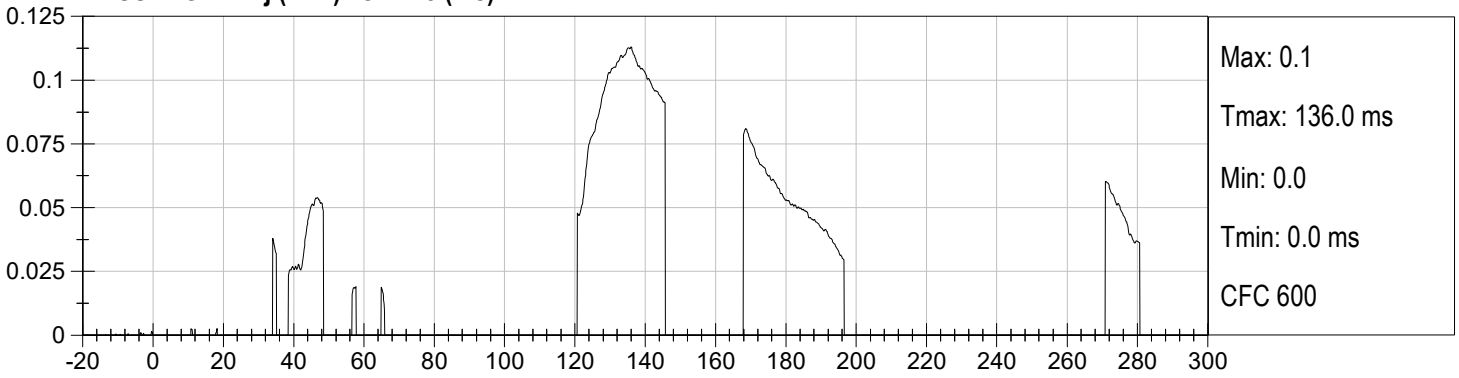
DRIVER Nij (NCF) vs Time (ms)



DRIVER Nij (NCE) vs Time (ms)



PASSENGER Nij (NTF) vs Time (ms)



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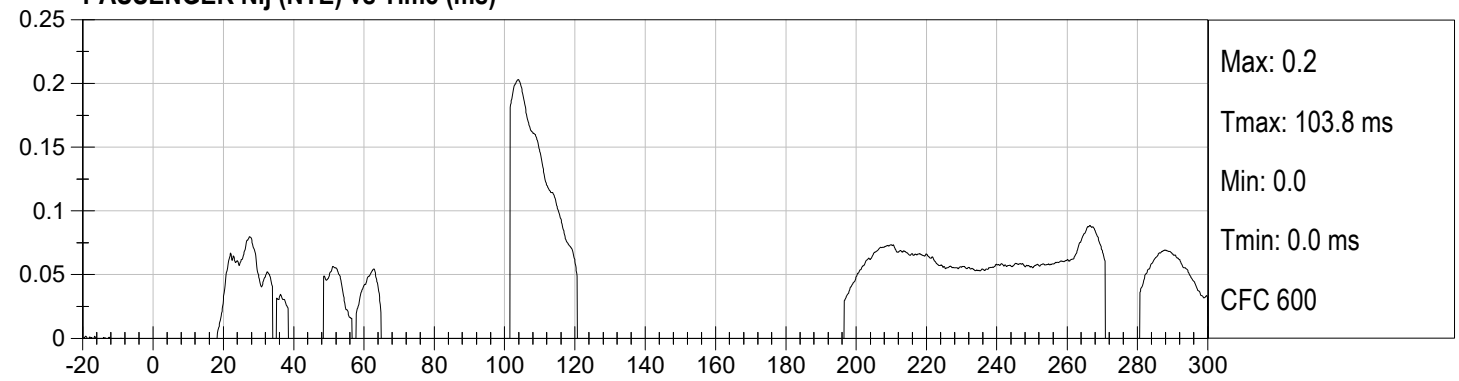

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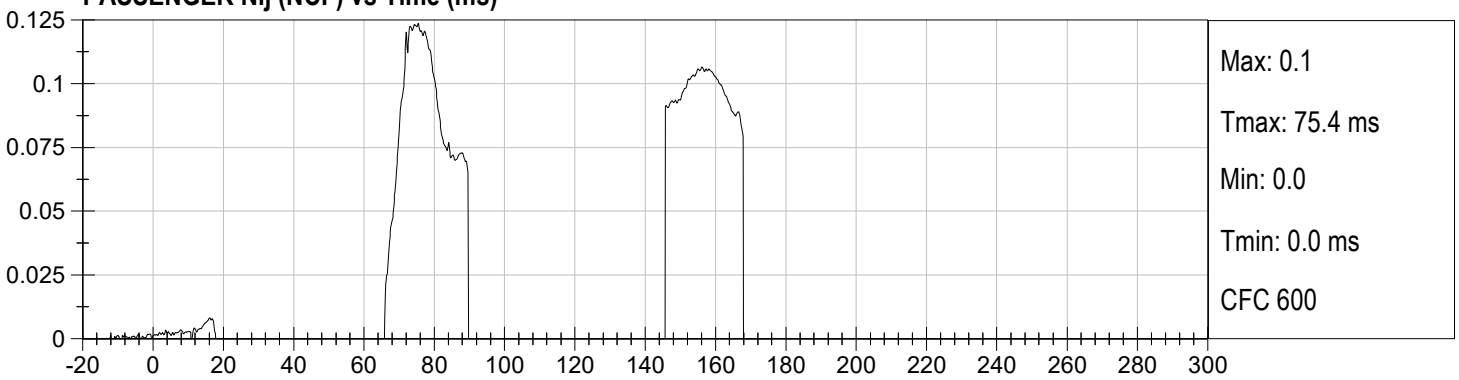

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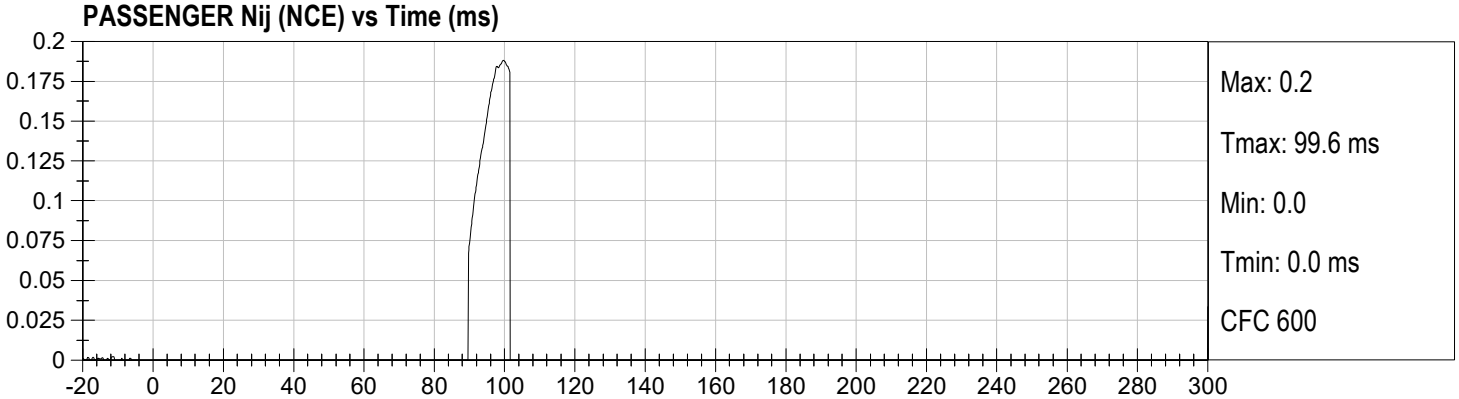
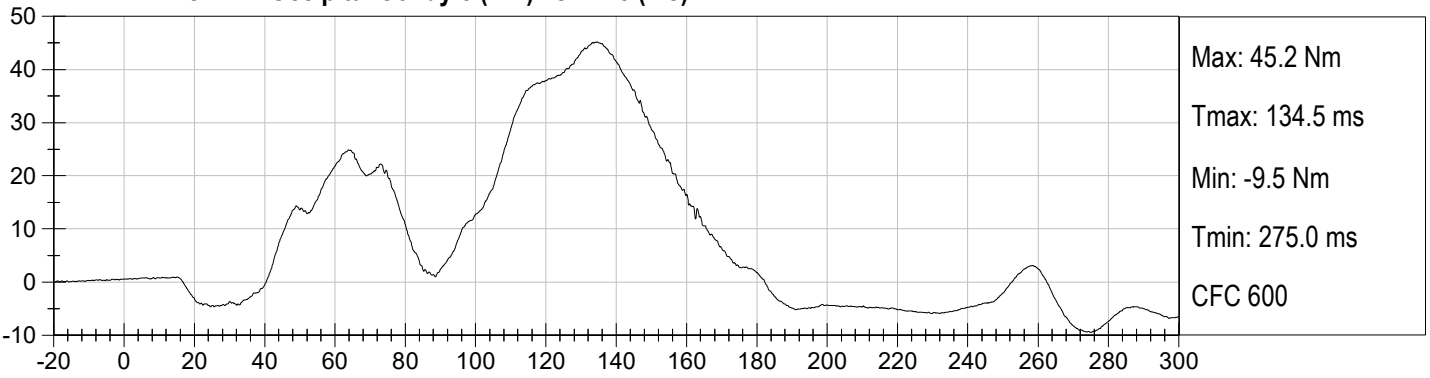
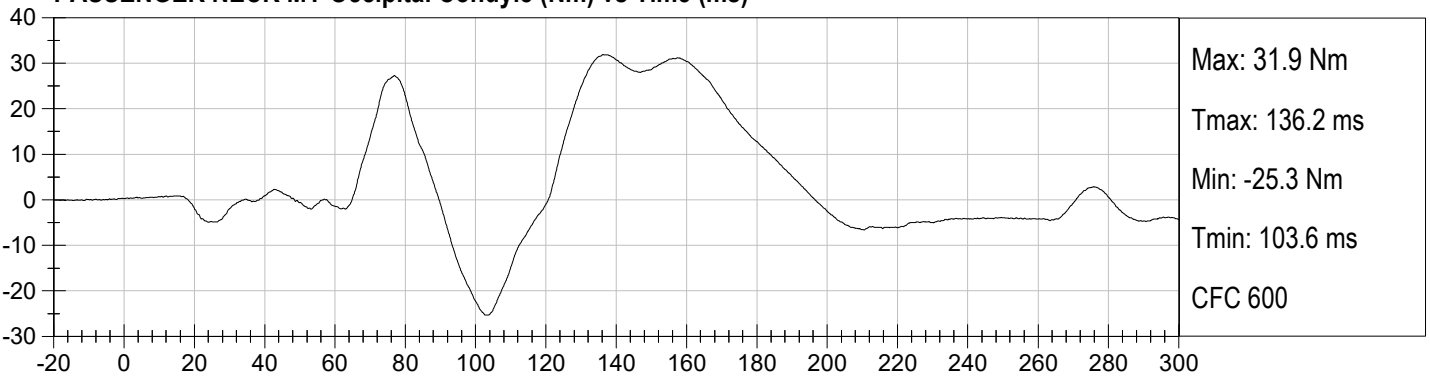


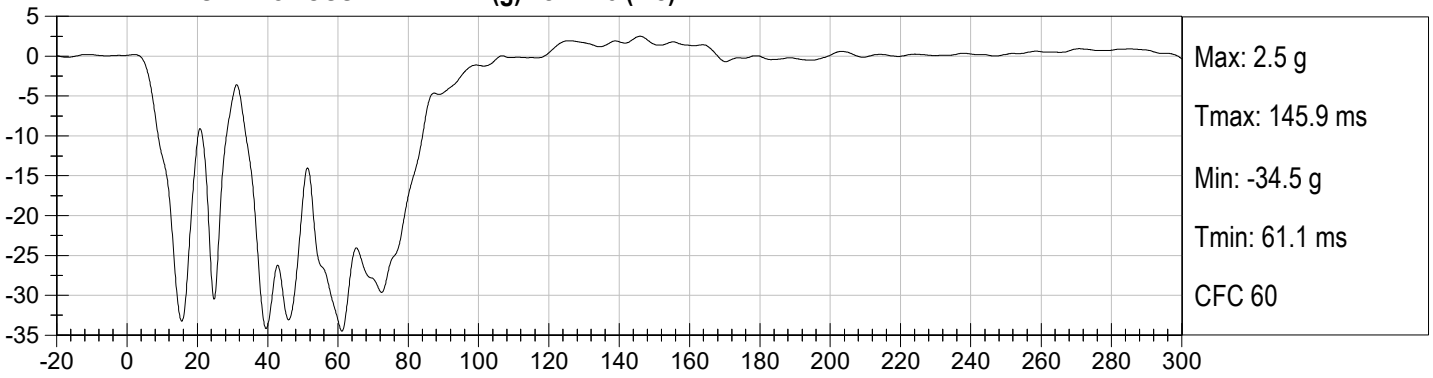
DRIVER NECK MY Occipital Condyle (Nm) vs Time (ms)



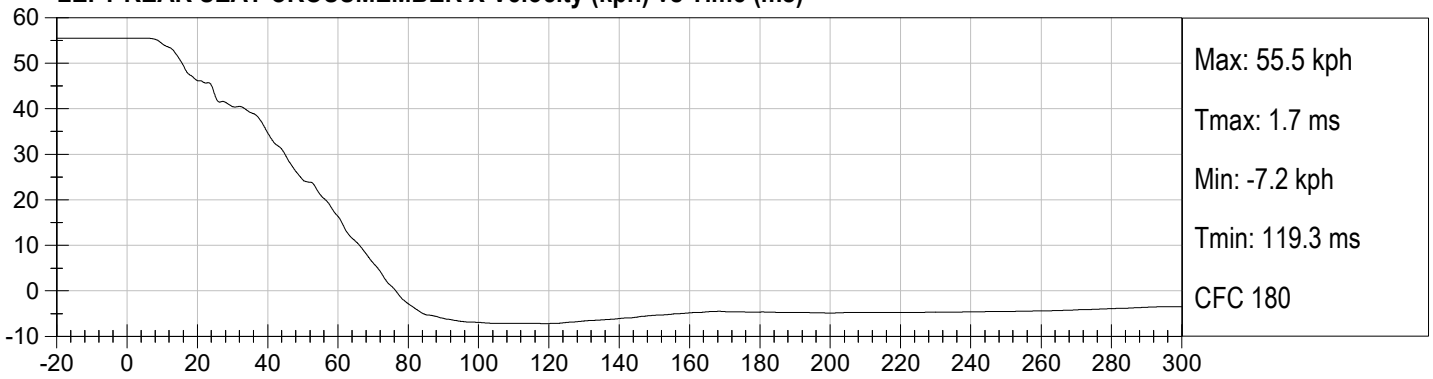
PASSENGER NECK MY Occipital Condyle (Nm) vs Time (ms)



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



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



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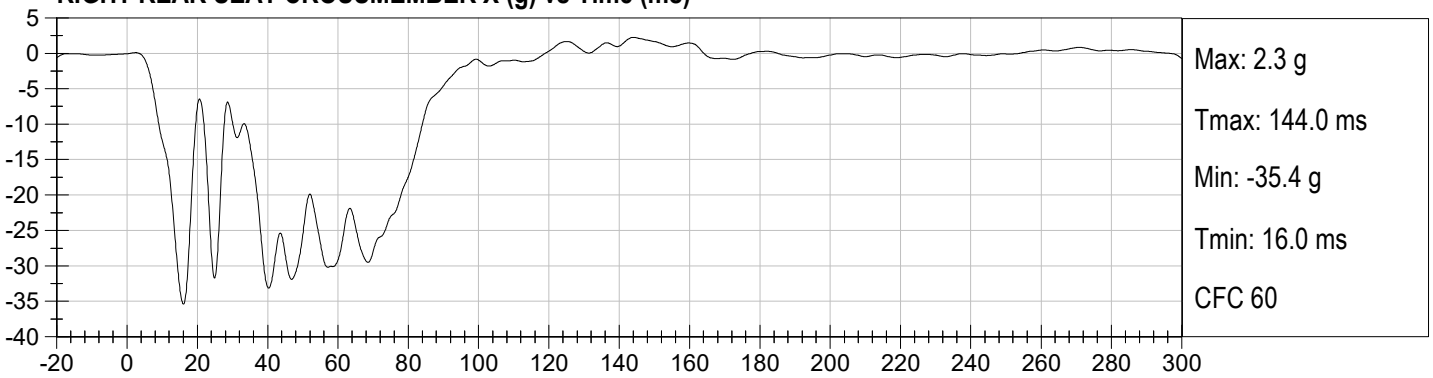

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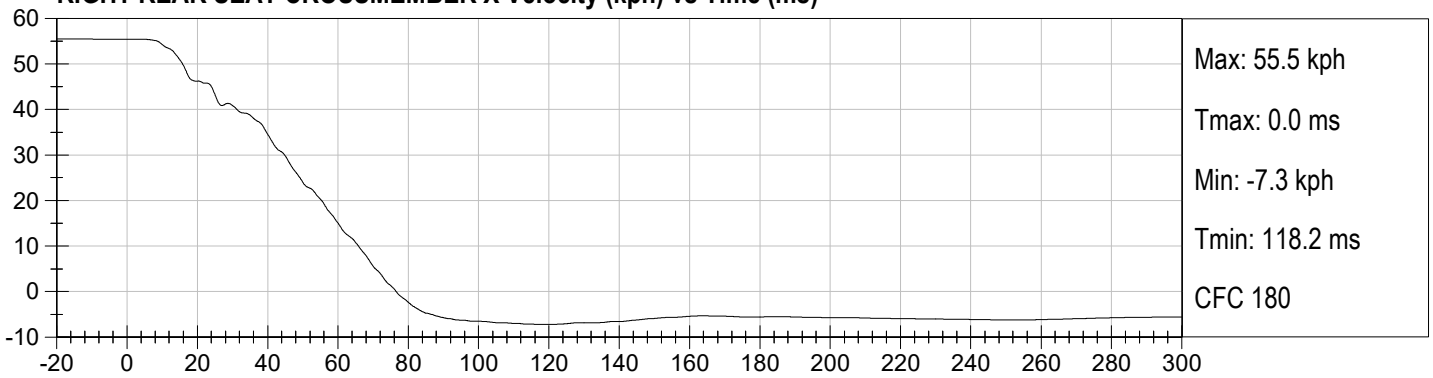
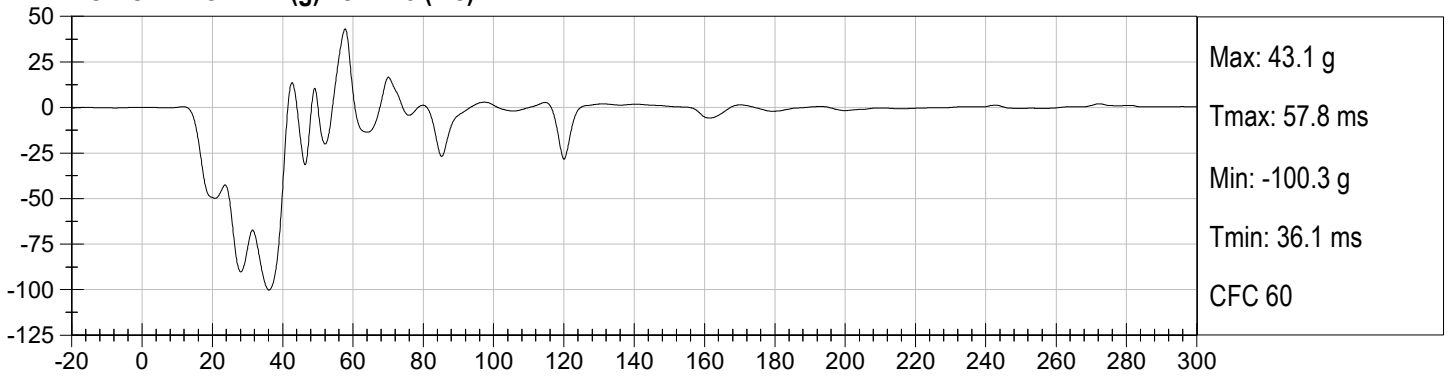
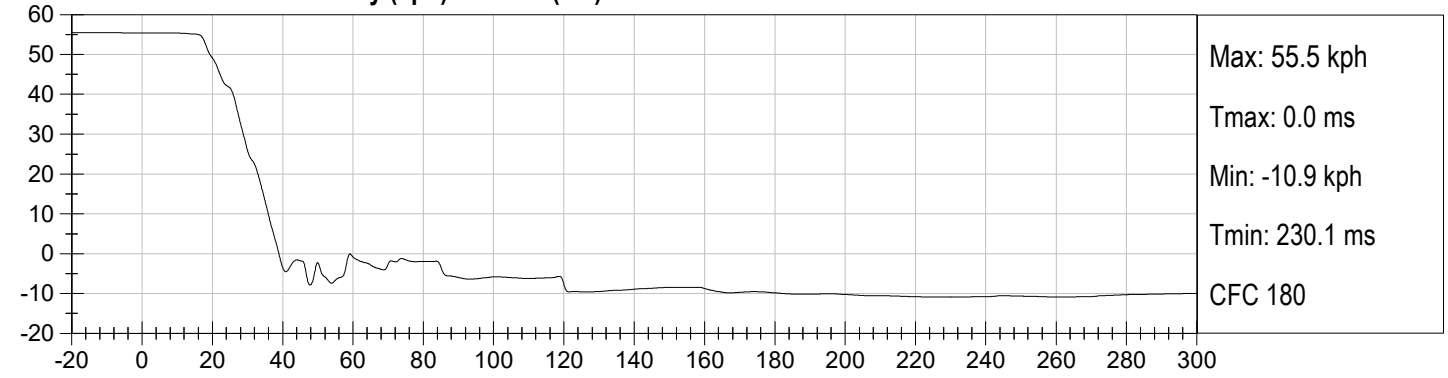


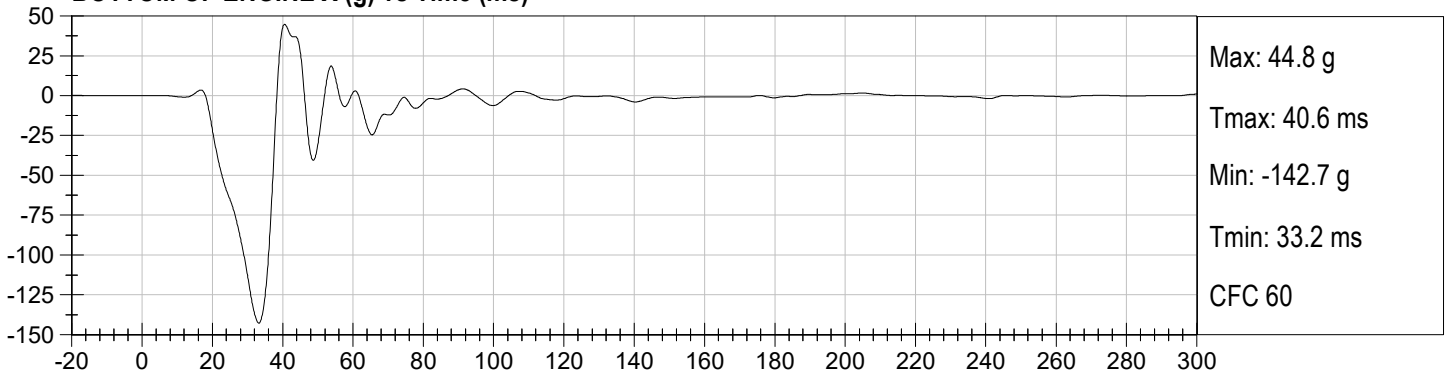
TOP OF ENGINE X (g) vs Time (ms)



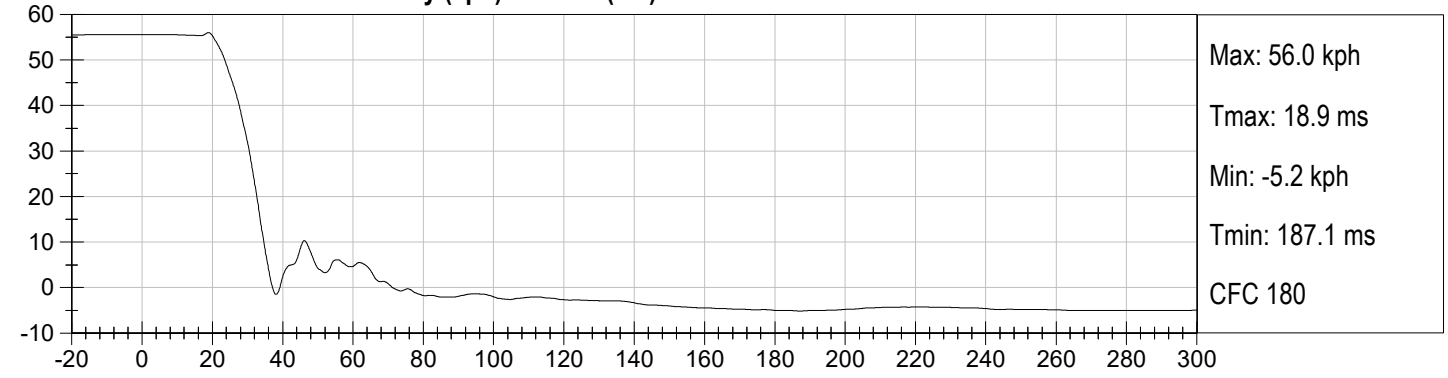
TOP OF ENGINE X Velocity (kph) vs Time (ms)



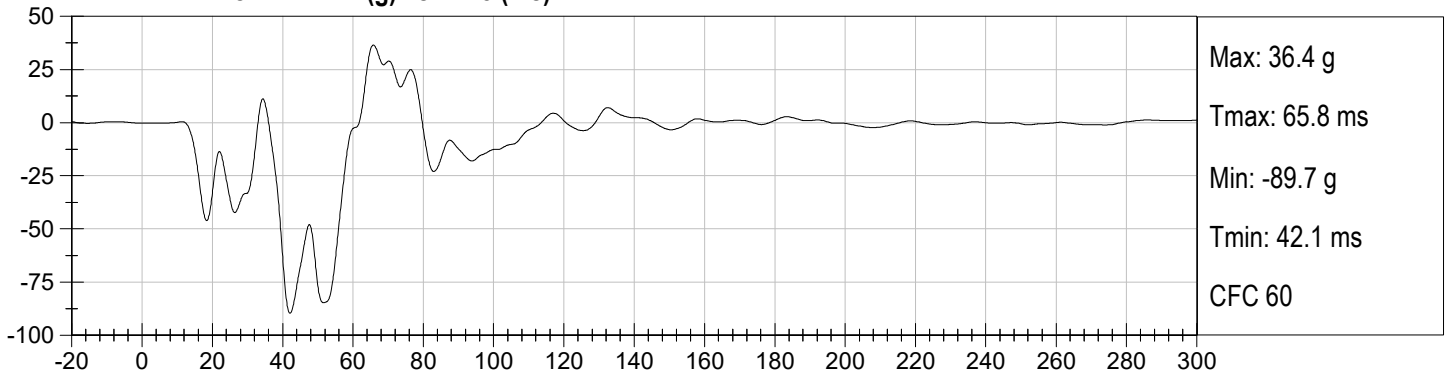
BOTTOM OF ENGINE X (g) vs Time (ms)



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



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



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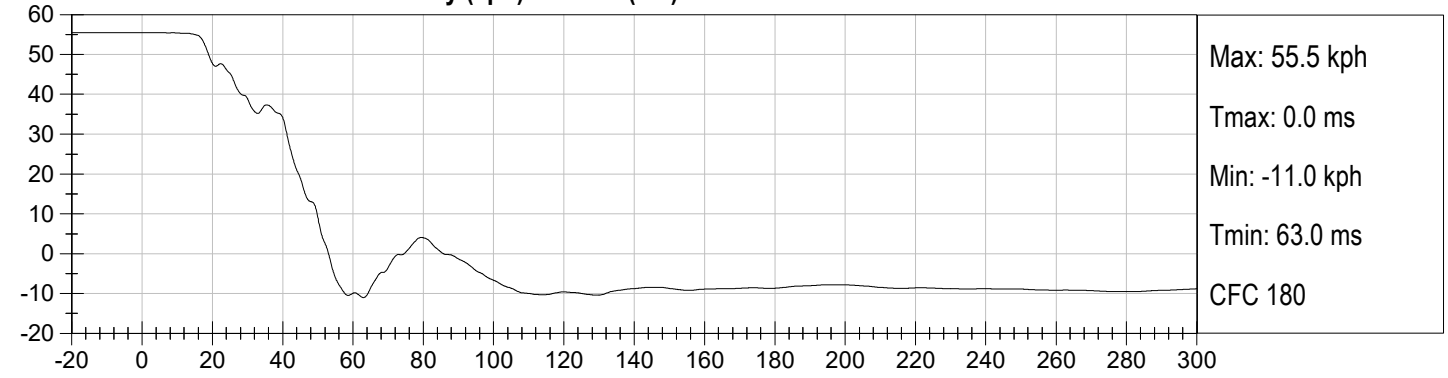

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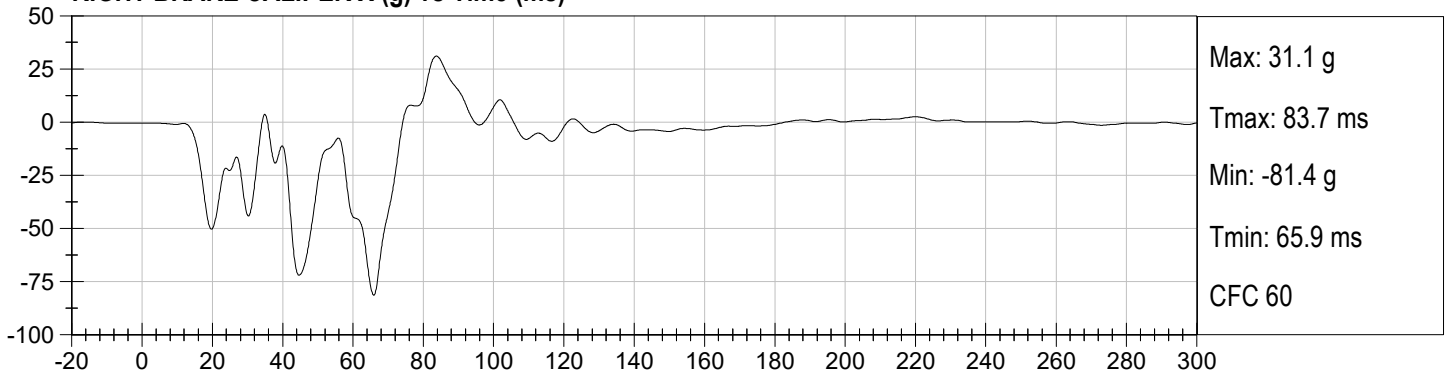
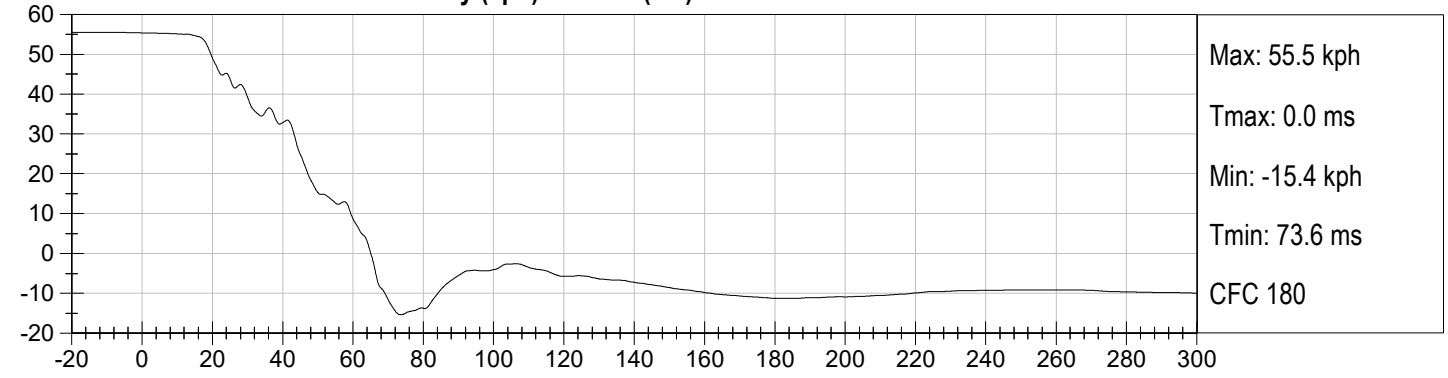
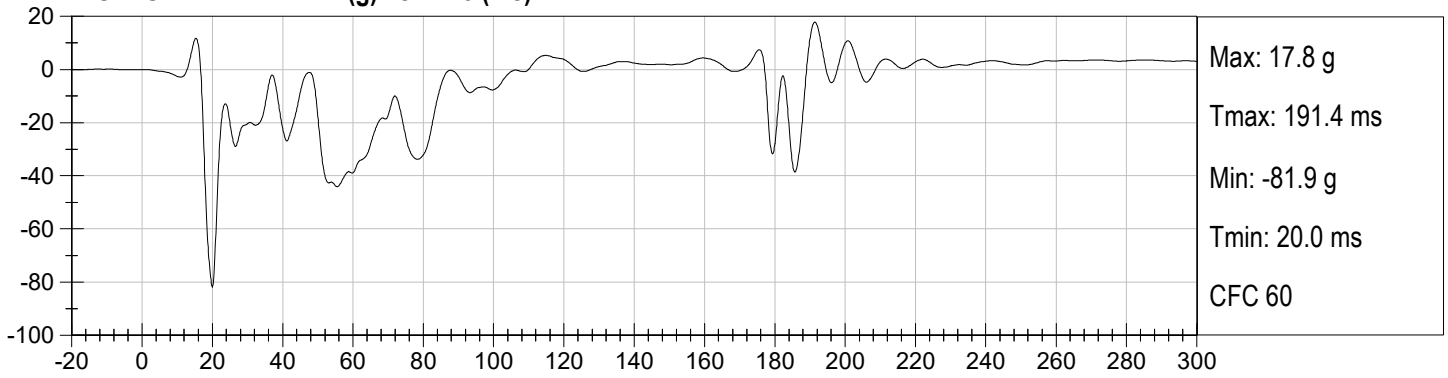


RIGHT BRAKE CALIPER X Velocity (kph) vs Time (ms)

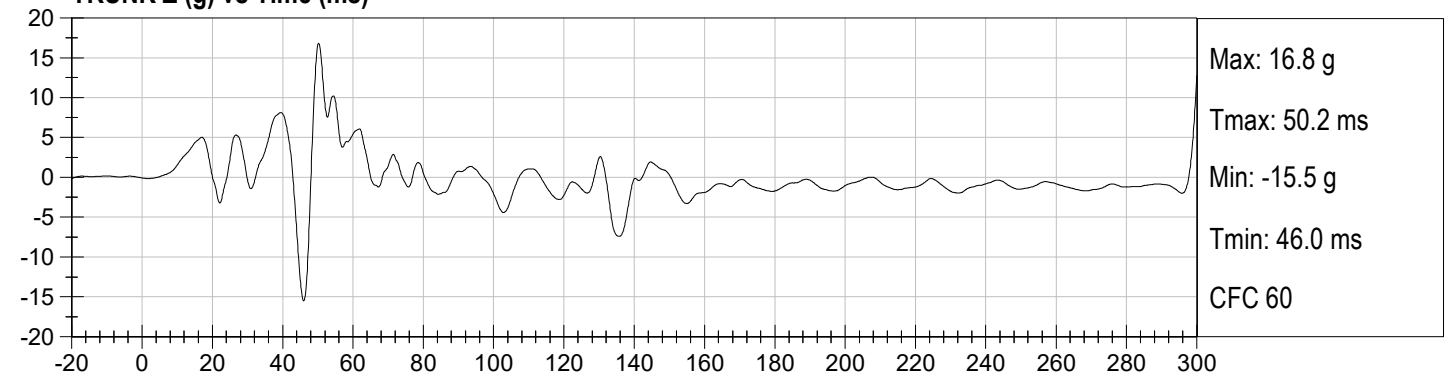


INSTRUMENT PANEL X (g) vs Time (ms)

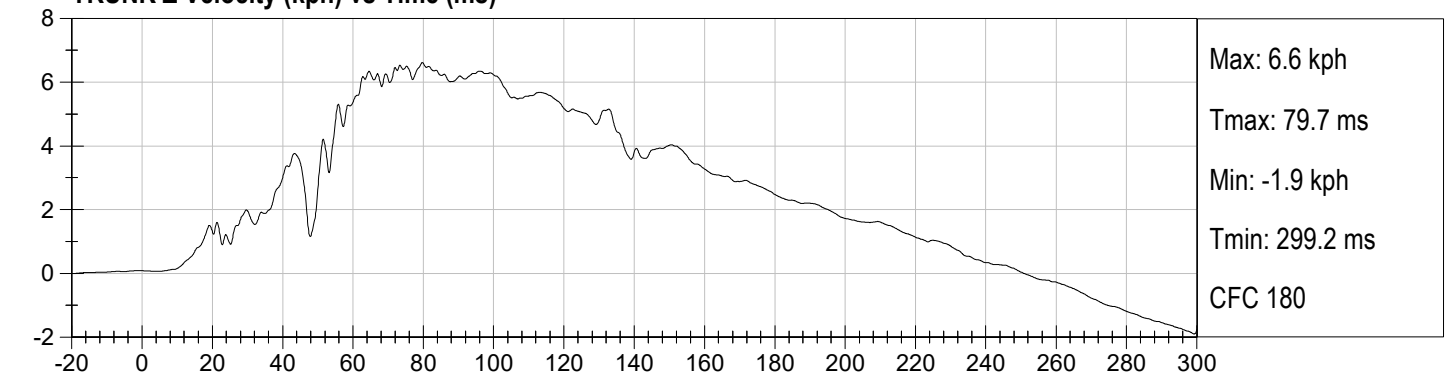


INSTRUMENT PANEL X Velocity (kph) vs Time (ms)

TRUNK Z (g) vs Time (ms)



TRUNK Z Velocity (kph) vs Time (ms)



APPENDIX B

LOW RISK TEST DATA

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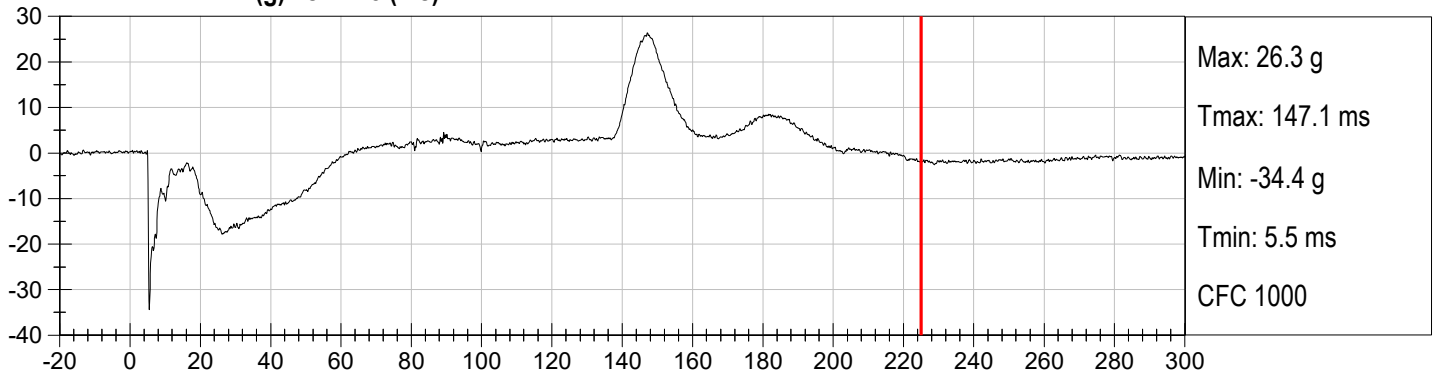
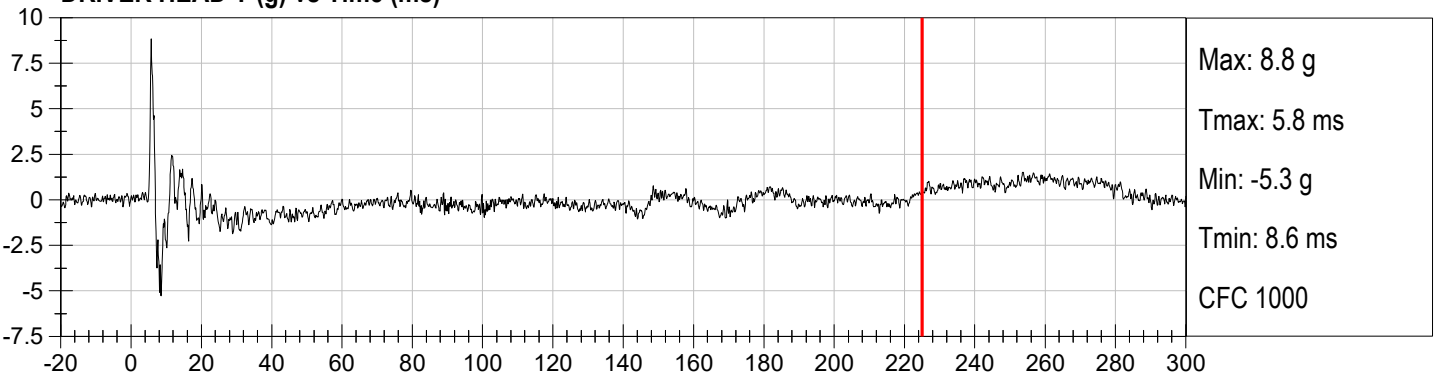
Injury Values Calculated between 0ms and 225ms

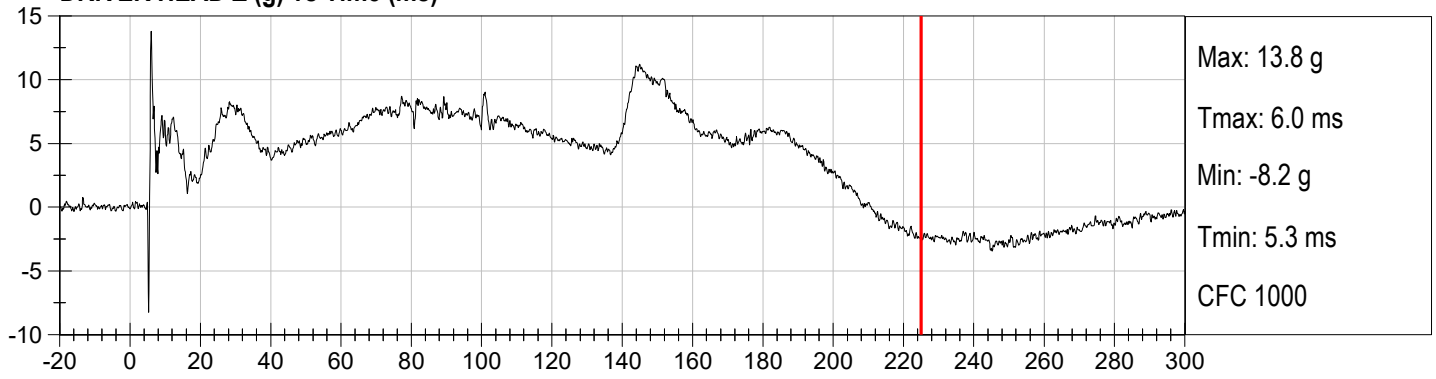
DRIVER HEAD X (g) vs Time (ms)



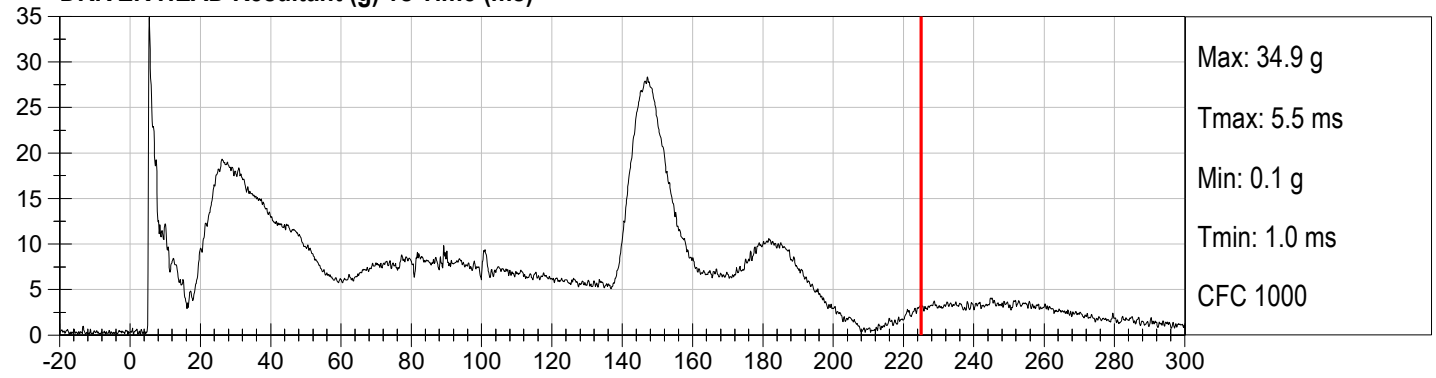
DRIVER HEAD Y (g) vs Time (ms)



DRIVER HEAD Z (g) vs Time (ms)

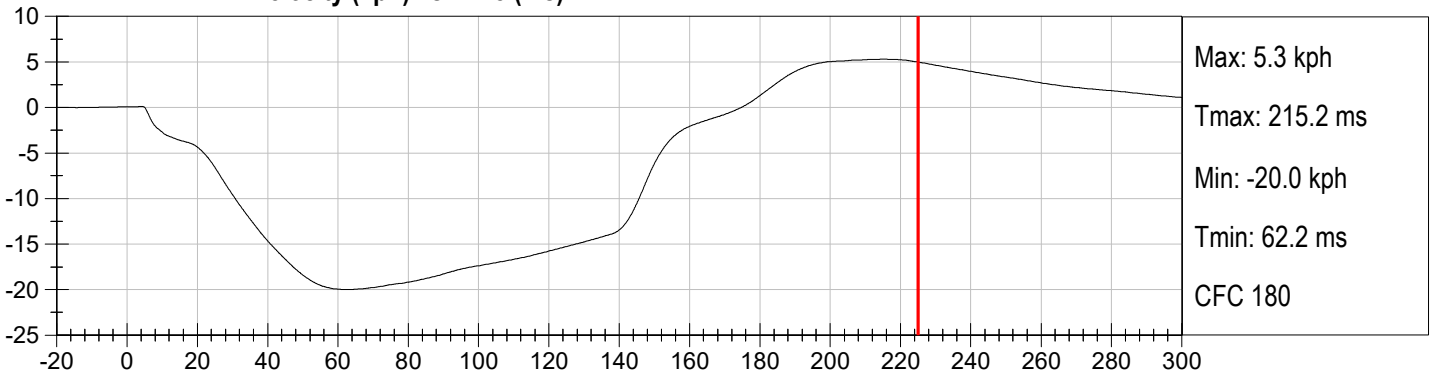


DRIVER HEAD Resultant (g) vs Time (ms)

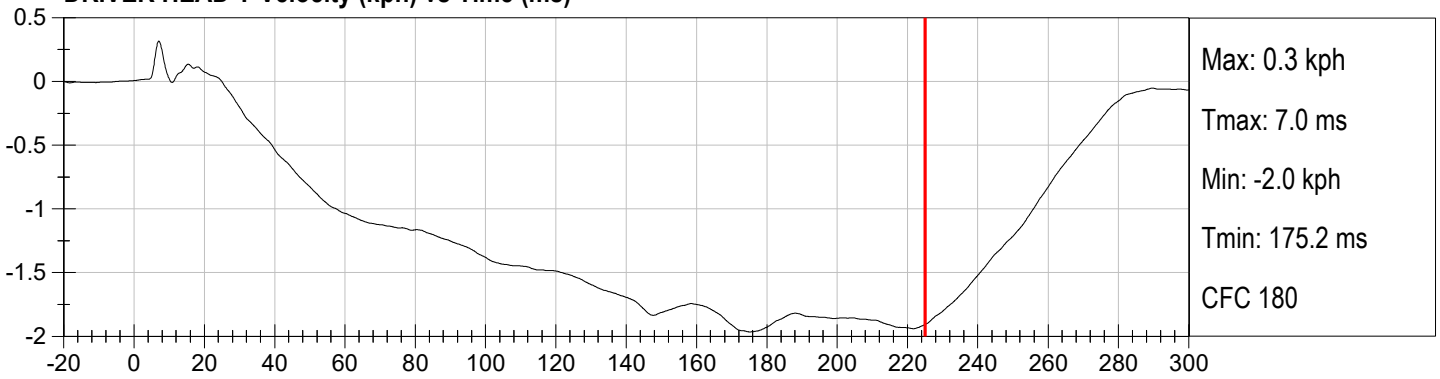


Injury Values Calculated between 0ms and 225ms

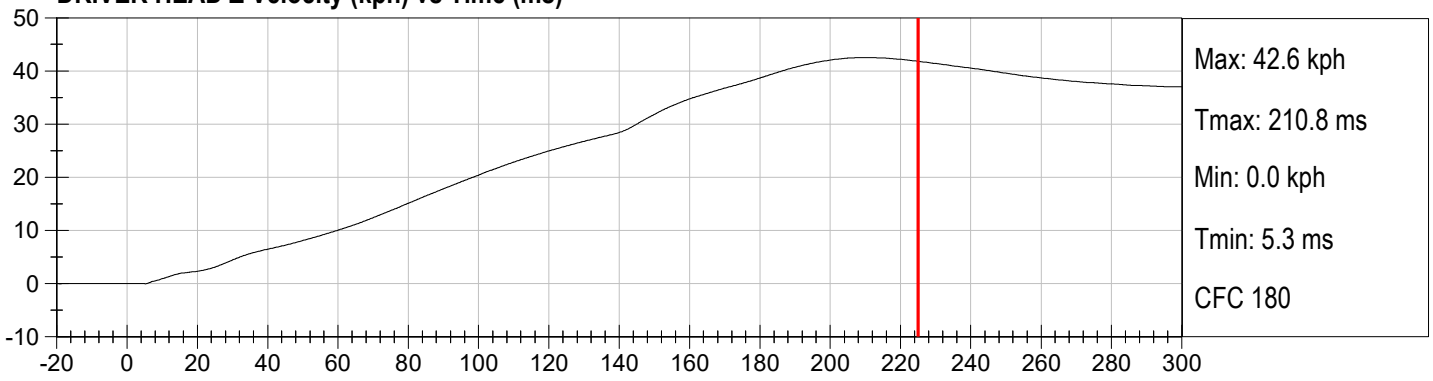
DRIVER HEAD X Velocity (kph) vs Time (ms)



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

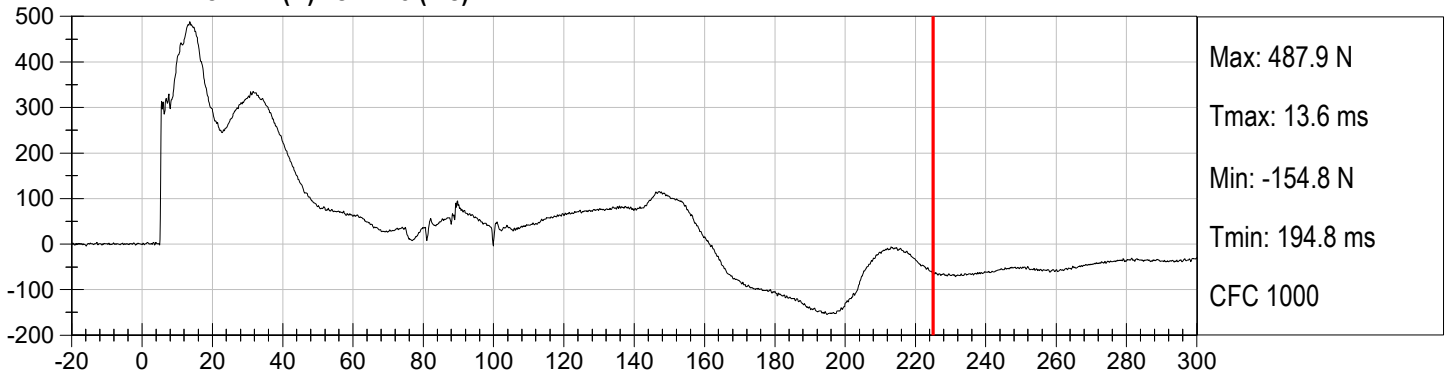


DRIVER HEAD Z Velocity (kph) vs Time (ms)

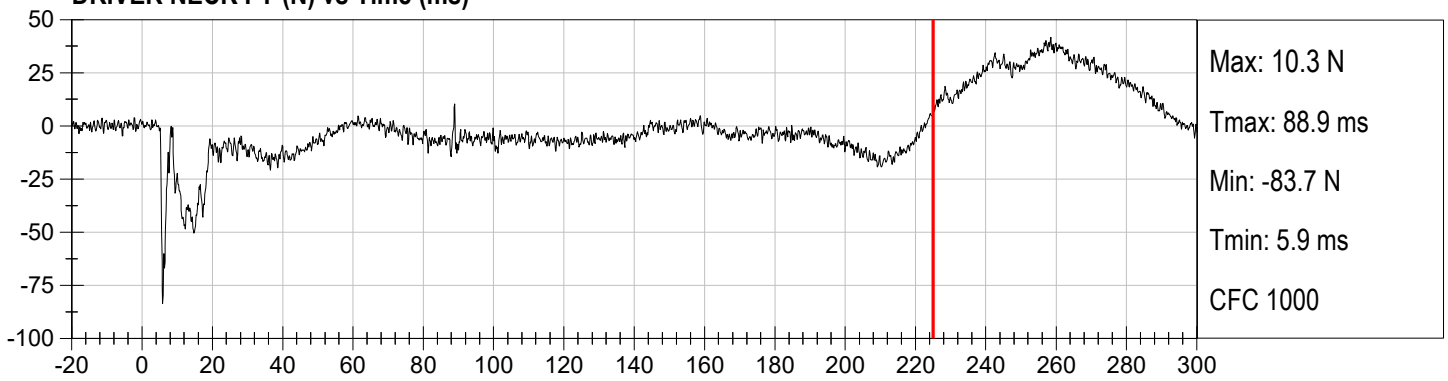


Injury Values Calculated between 0ms and 225ms

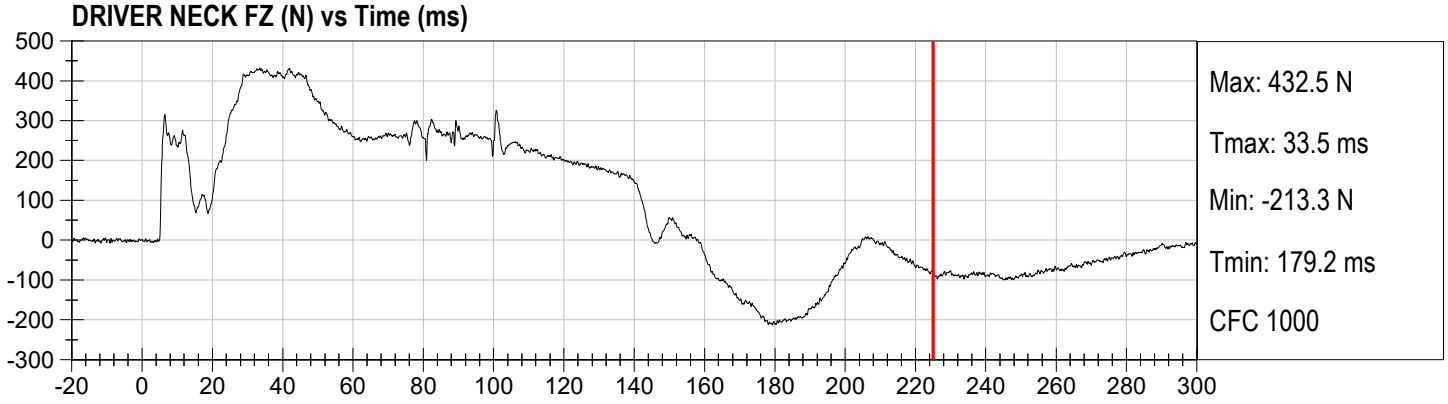
DRIVER NECK FX (N) vs Time (ms)



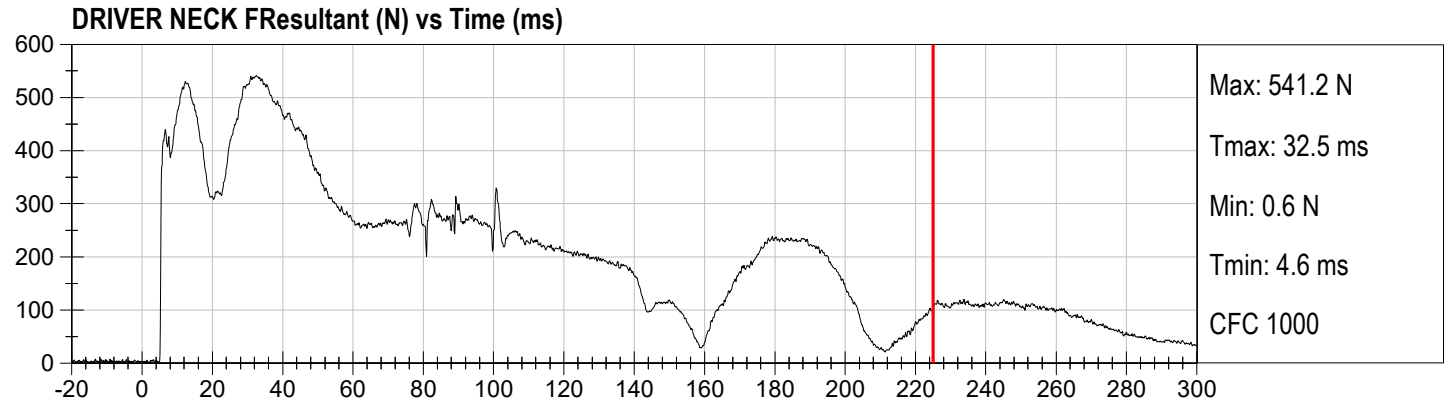
DRIVER NECK FY (N) vs Time (ms)



DRIVER NECK FZ (N) vs Time (ms)

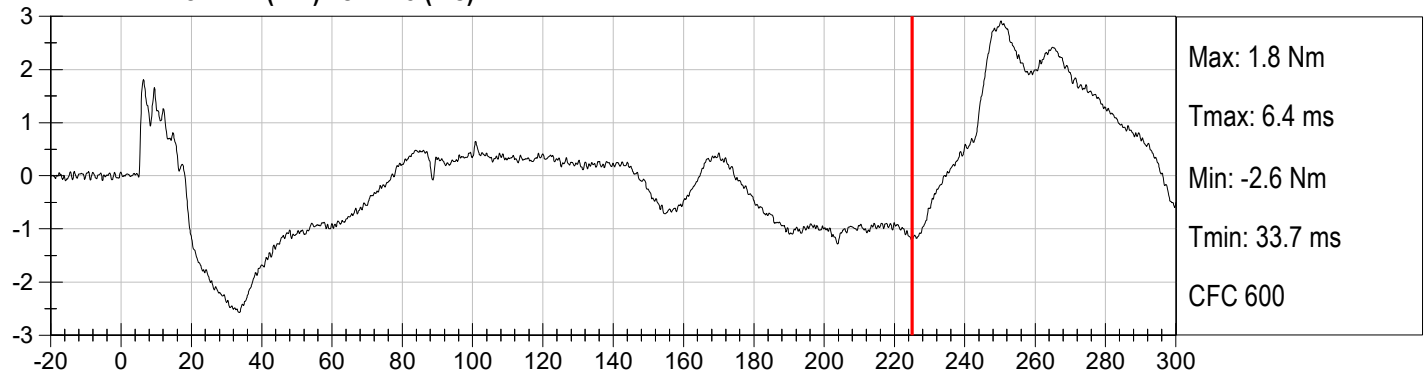


DRIVER NECK FResultant (N) vs Time (ms)

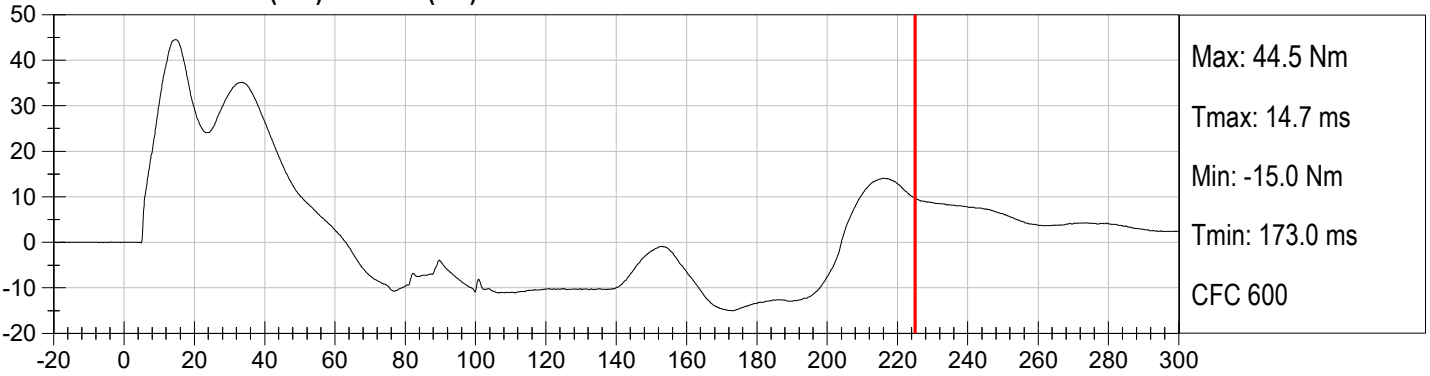


Injury Values Calculated between 0ms and 225ms

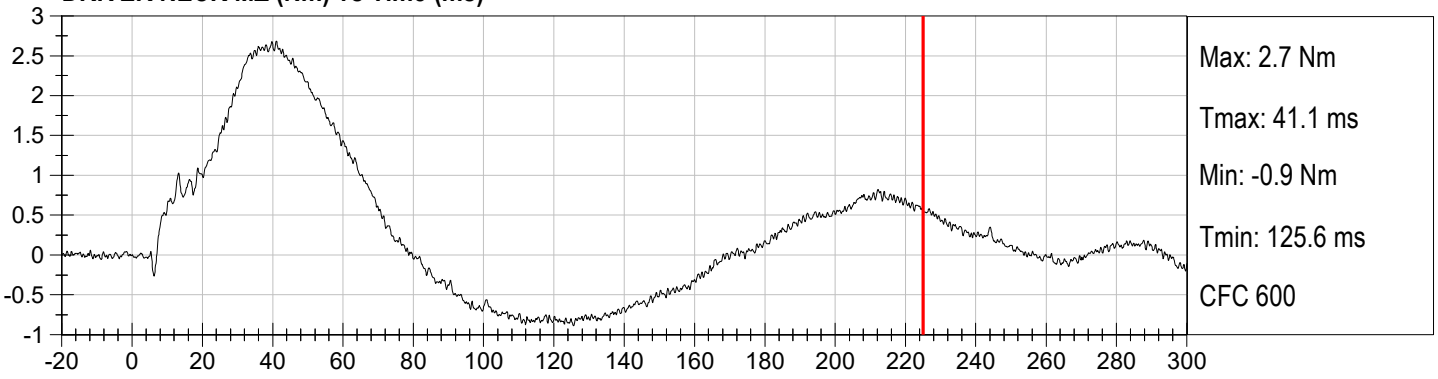
DRIVER NECK MX (Nm) vs Time (ms)



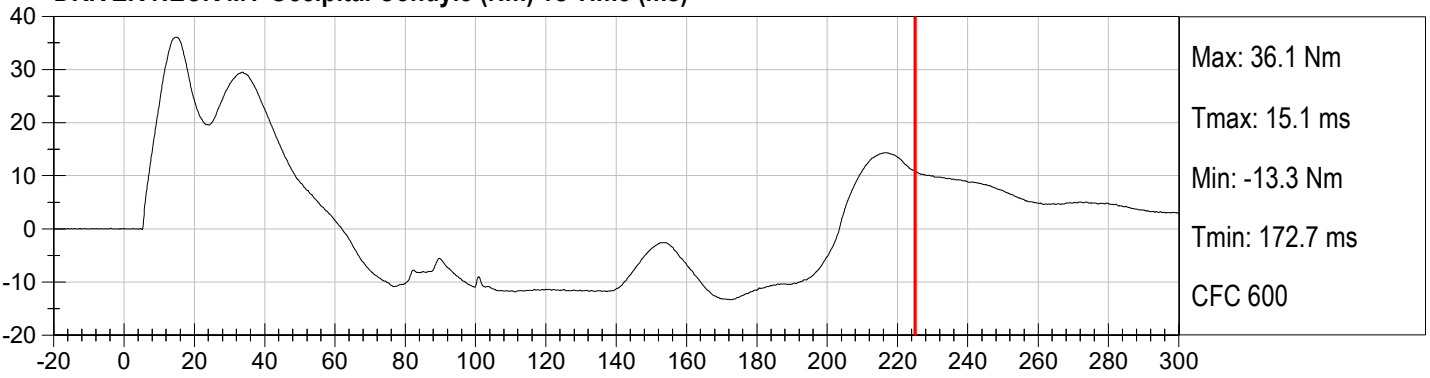
DRIVER NECK MY (Nm) vs Time (ms)



DRIVER NECK MZ (Nm) vs Time (ms)

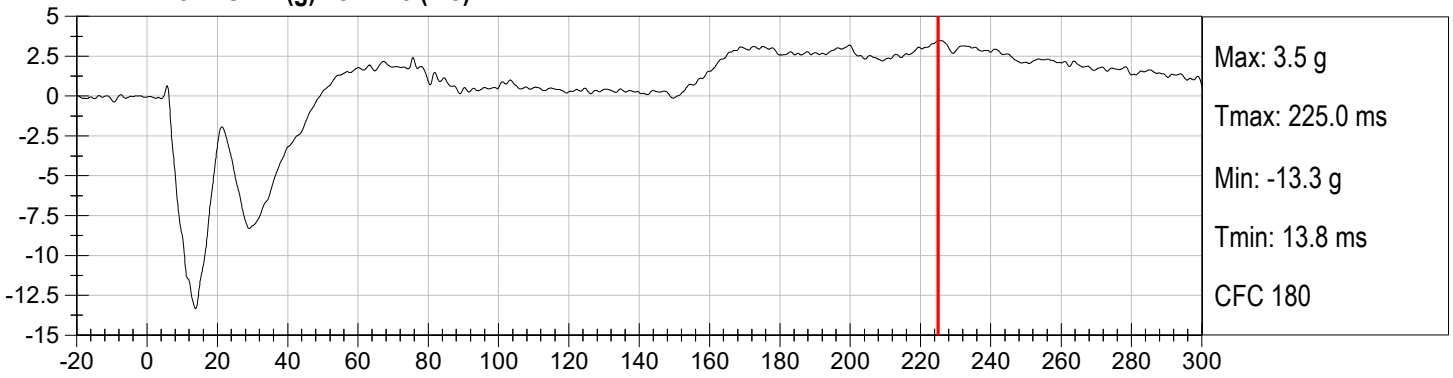


DRIVER NECK MY Occipital Condyle (Nm) vs Time (ms)

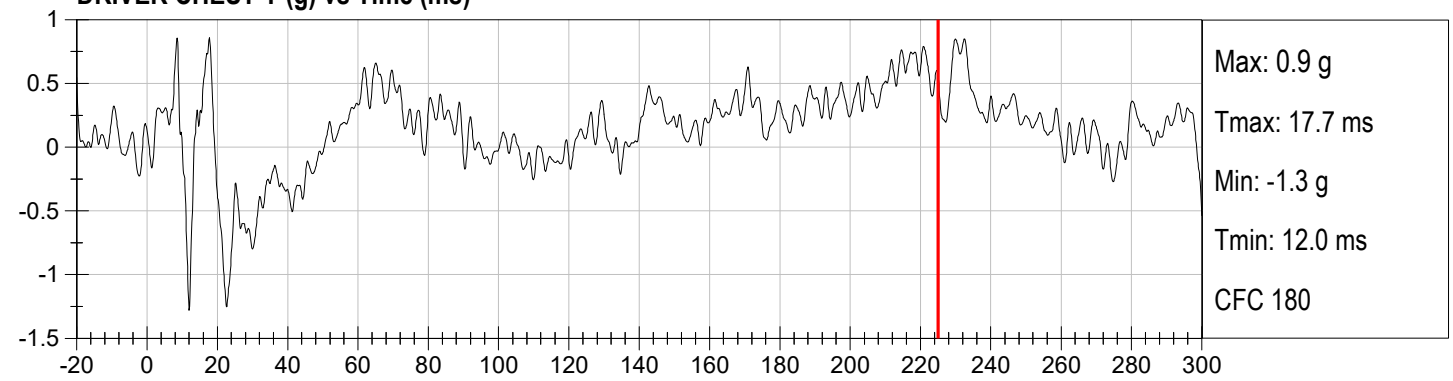


Injury Values Calculated between 0ms and 225ms

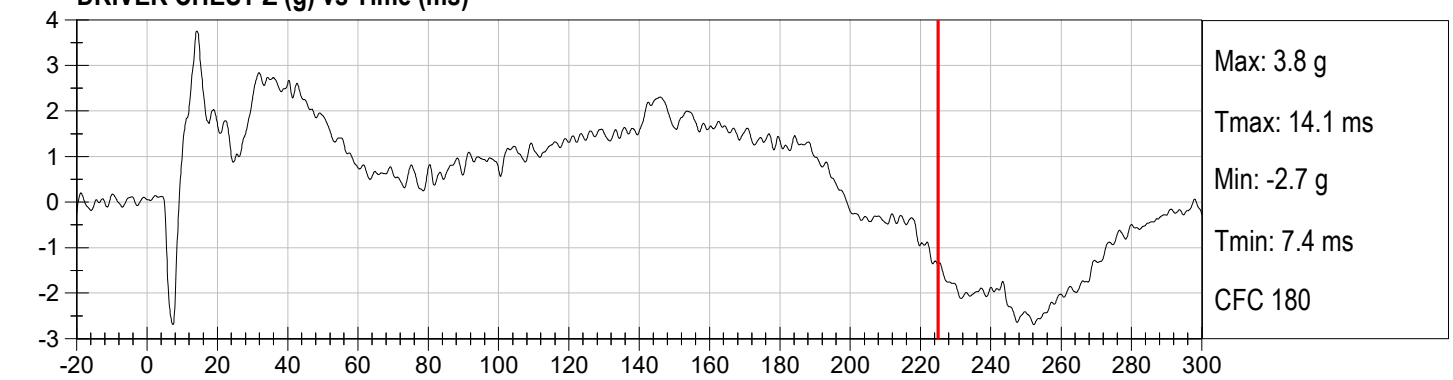
DRIVER CHEST X (g) vs Time (ms)



DRIVER CHEST Y (g) vs Time (ms)



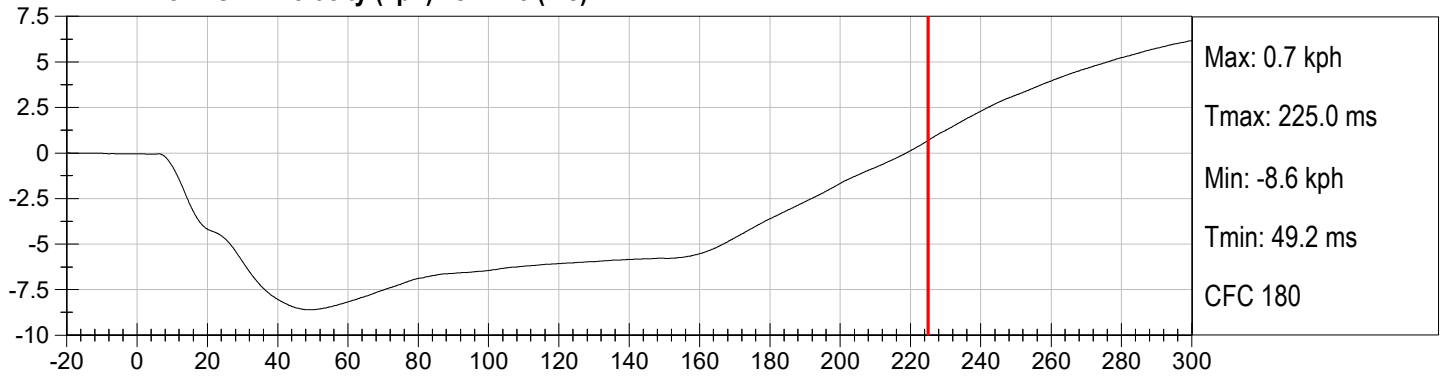
DRIVER CHEST Z (g) vs Time (ms)



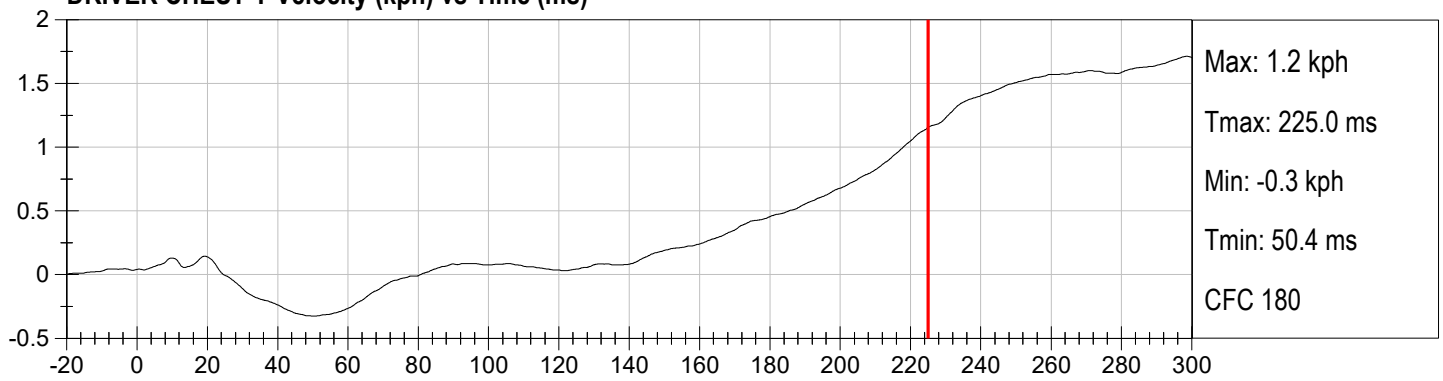
DRIVER CHEST Resultant (g) vs Time (ms)

Injury Values Calculated between 0ms and 225ms

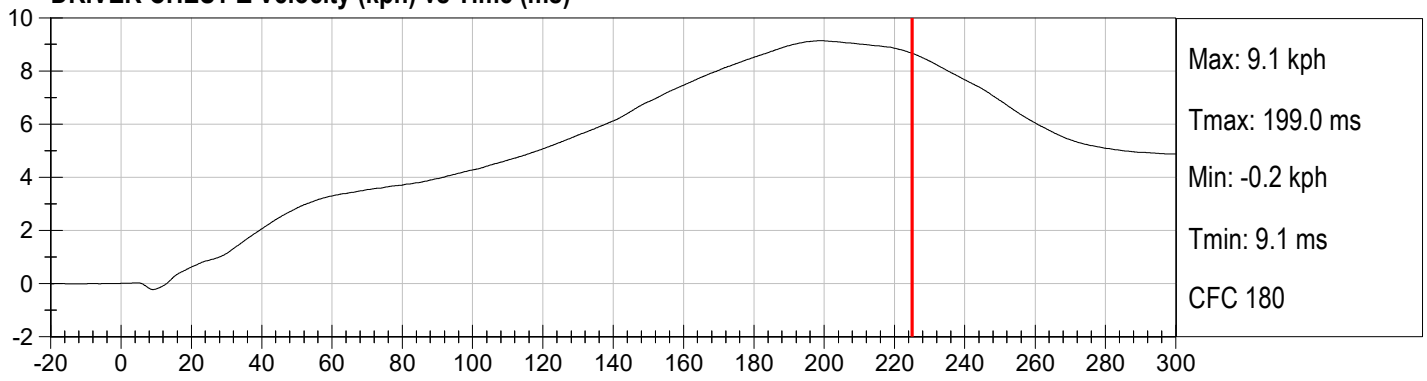
DRIVER CHEST X Velocity (kph) vs Time (ms)



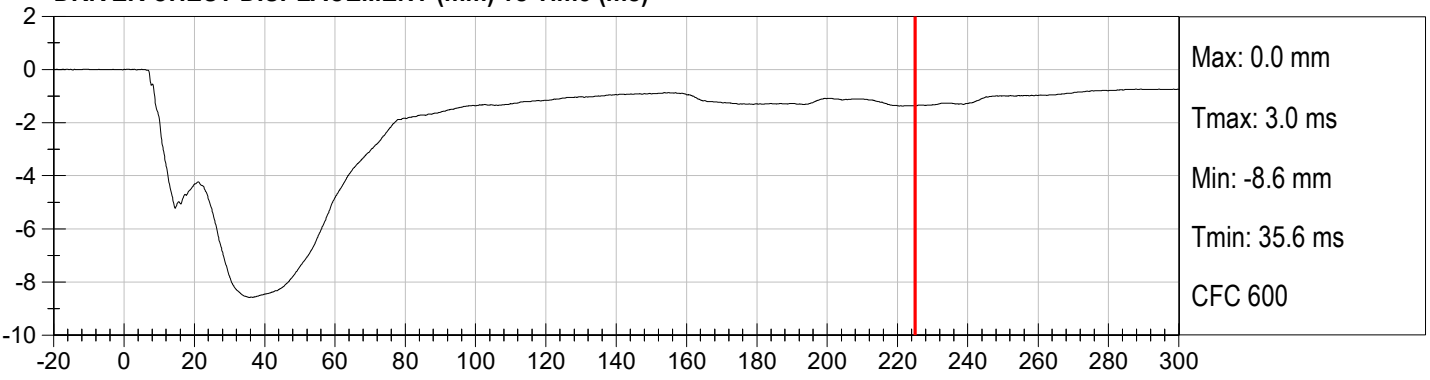
DRIVER CHEST Y Velocity (kph) vs Time (ms)



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

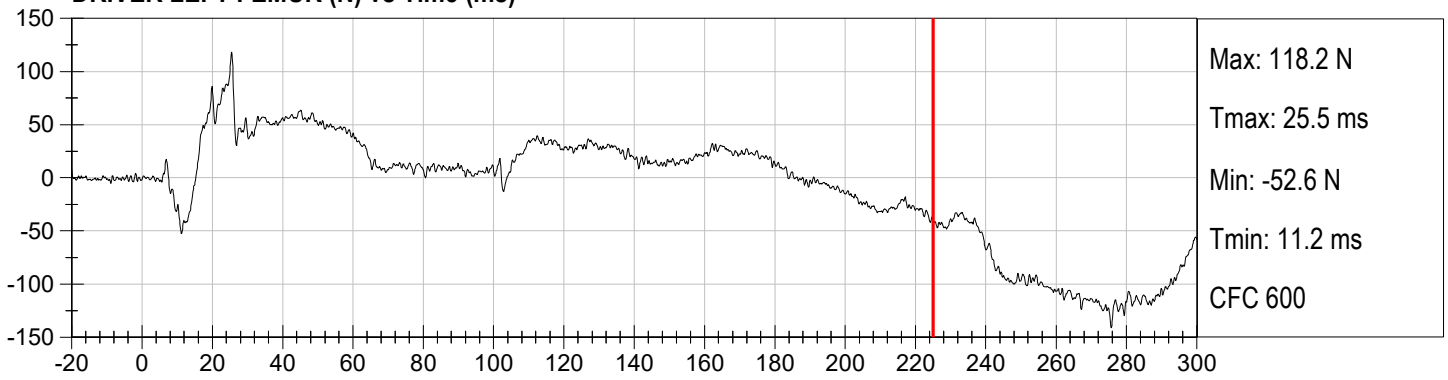


DRIVER CHEST DISPLACEMENT (mm) vs Time (ms)

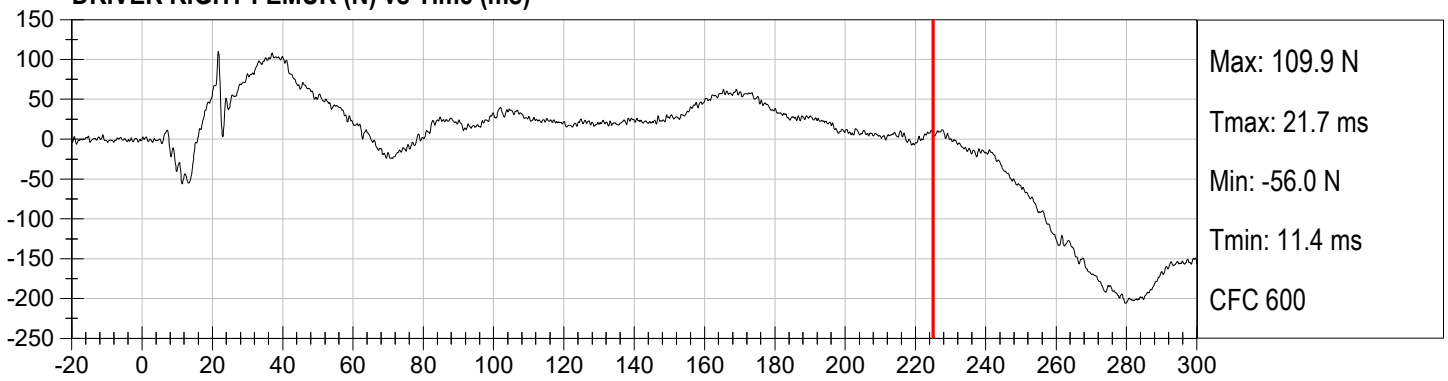


Injury Values Calculated between 0ms and 225ms

DRIVER LEFT FEMUR (N) vs Time (ms)

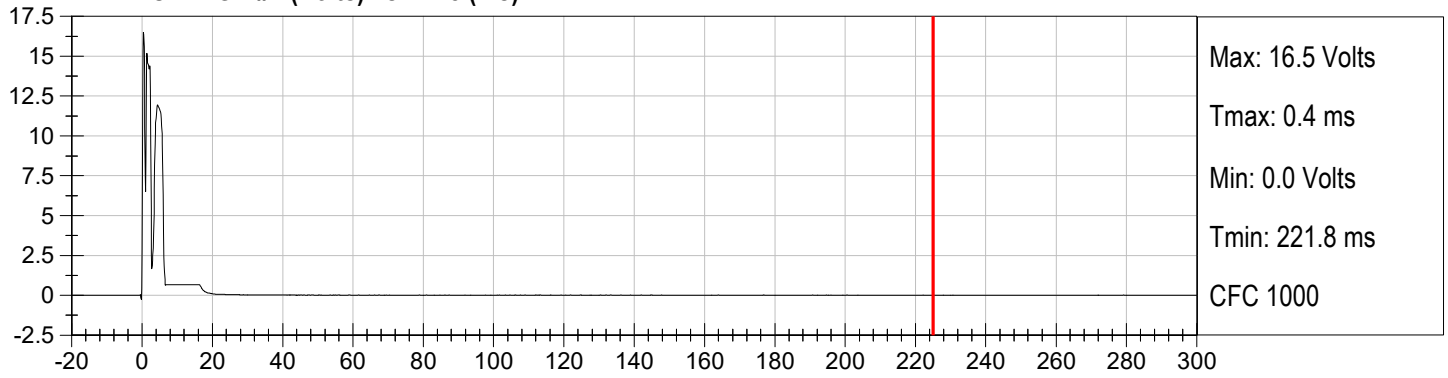


DRIVER RIGHT FEMUR (N) vs Time (ms)

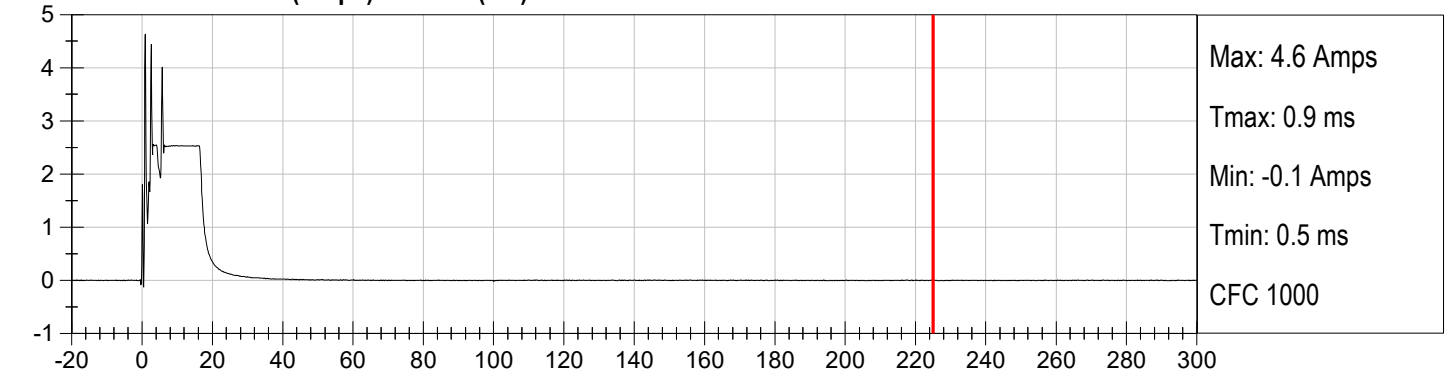


Injury Values Calculated between 0ms and 225ms

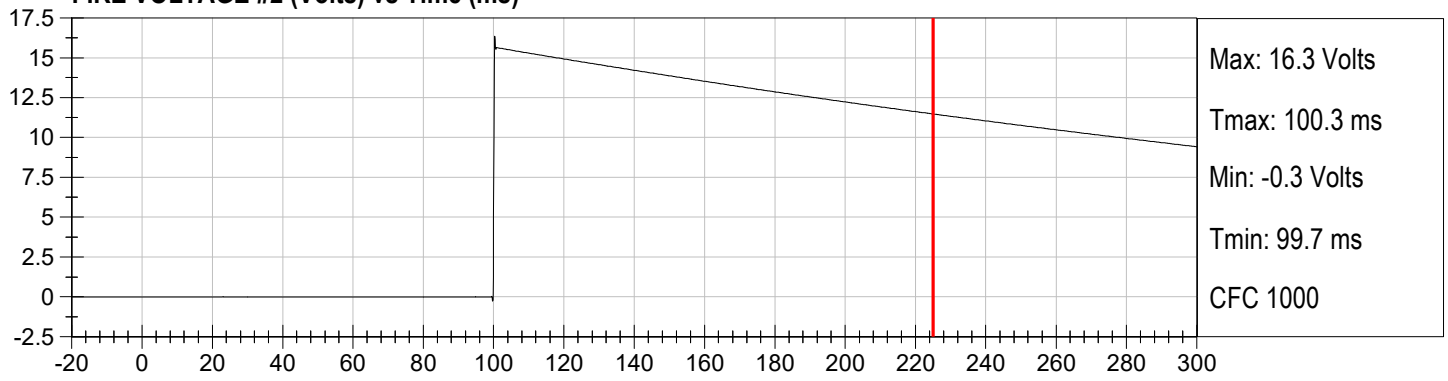
FIRE VOLTAGE #1 (Volts) vs Time (ms)



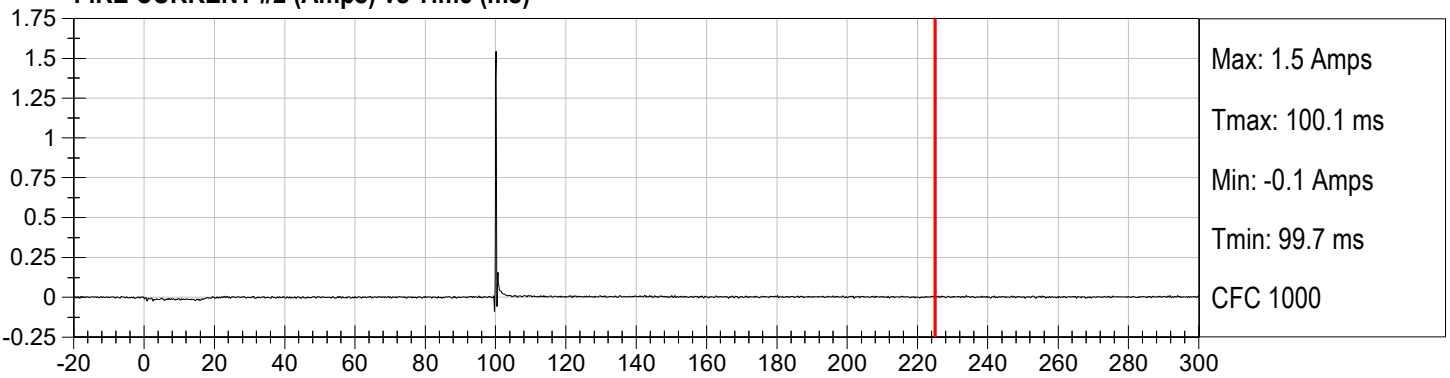
FIRE CURRENT #1 (Amps) vs Time (ms)



FIRE VOLTAGE #2 (Volts) vs Time (ms)

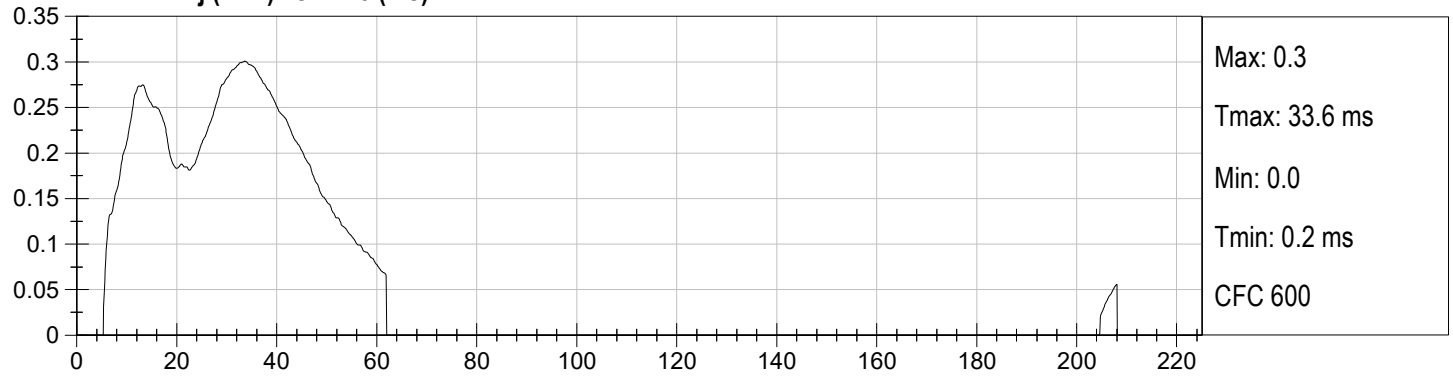


FIRE CURRENT #2 (Amps) vs Time (ms)

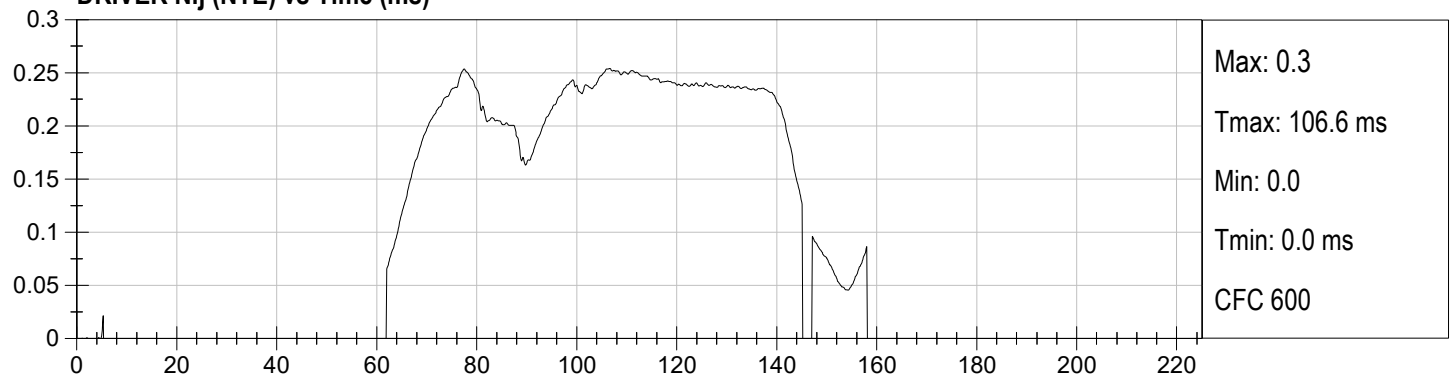


Injury Values Calculated between 0ms and 225ms

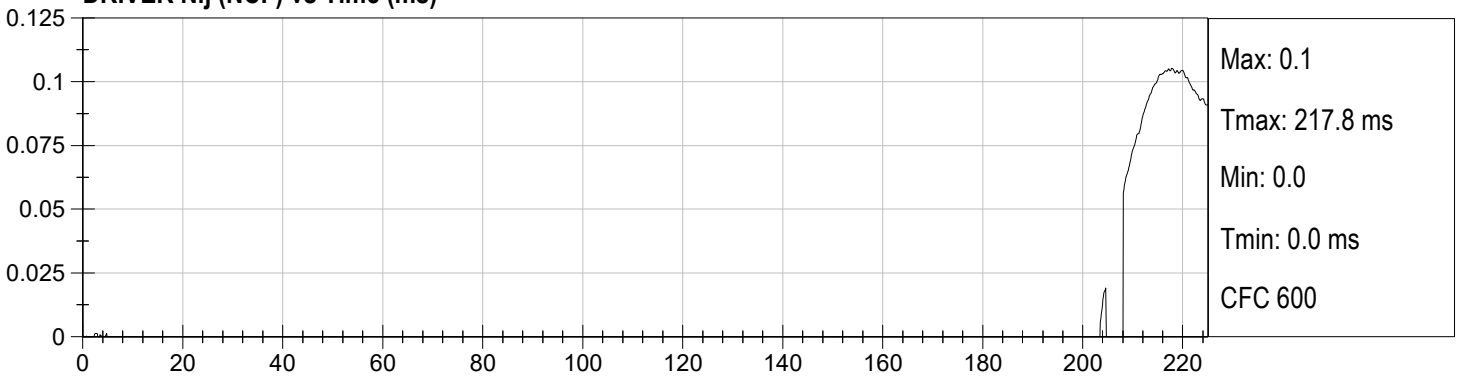
DRIVER Nij (NTF) vs Time (ms)



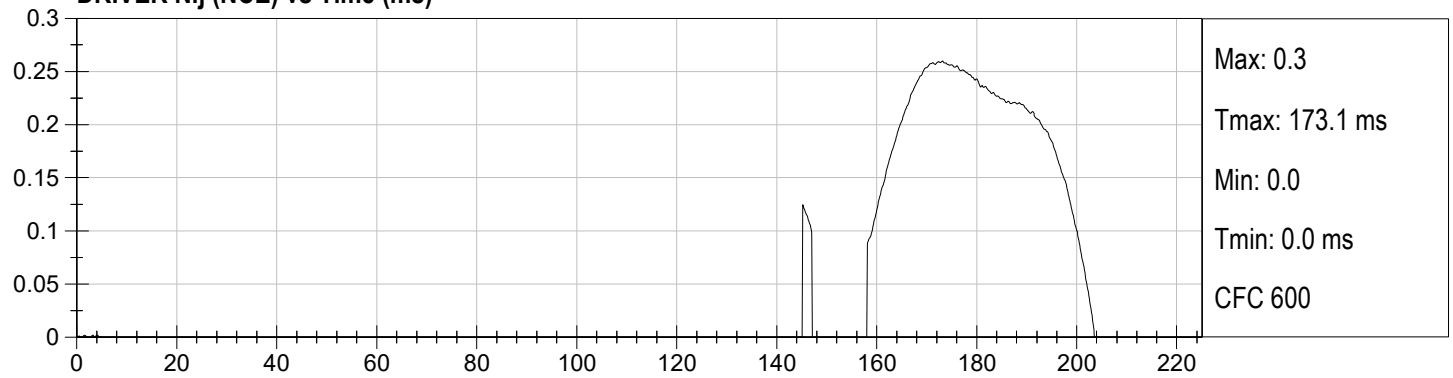
DRIVER Nij (NTE) vs Time (ms)



DRIVER Nij (NCF) vs Time (ms)

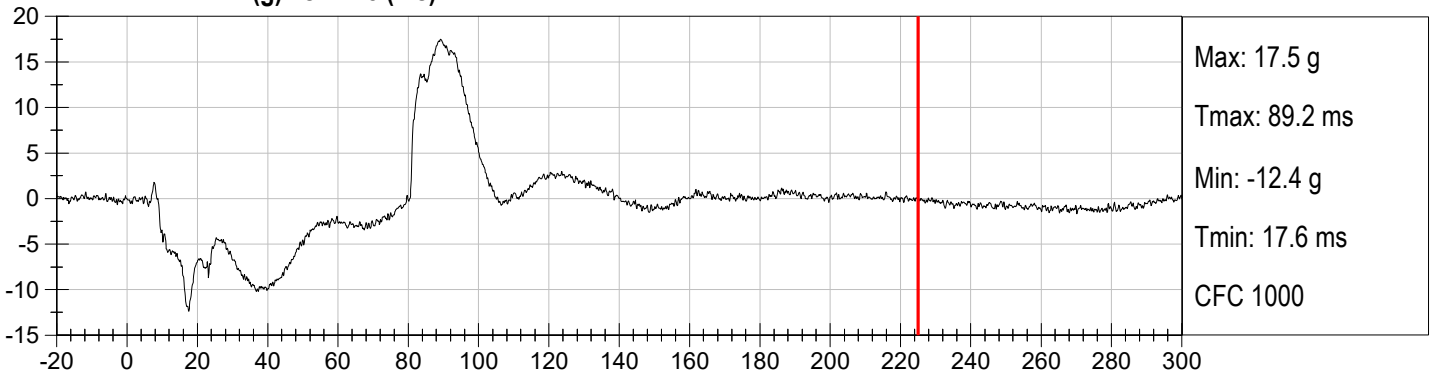


DRIVER Nij (NCE) vs Time (ms)

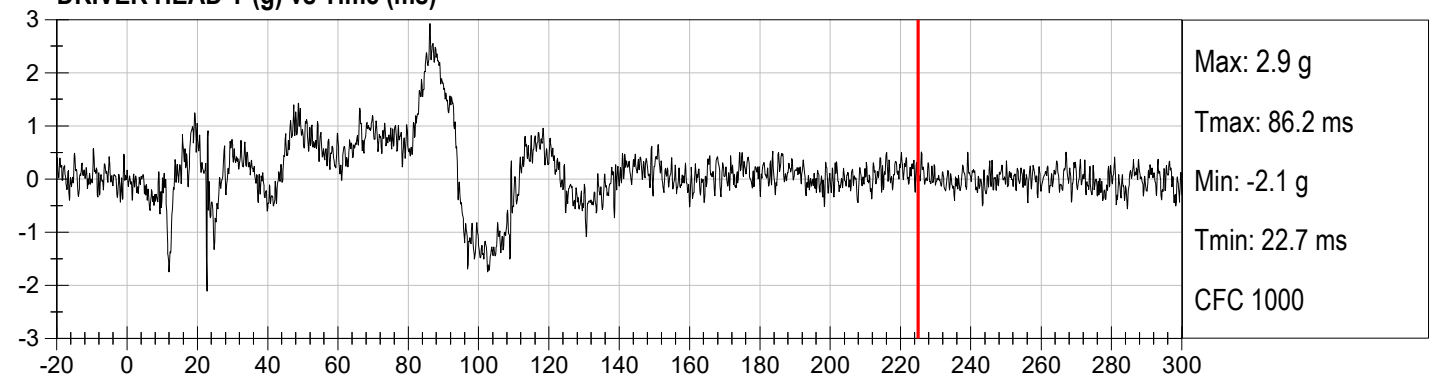


Injury Values Calculated between 0ms and 225ms

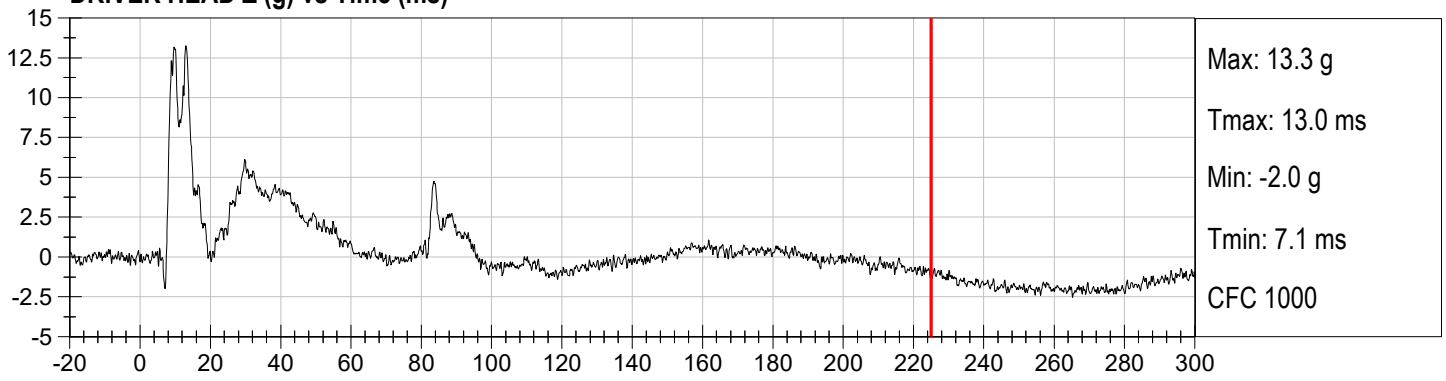
DRIVER HEAD X (g) vs Time (ms)



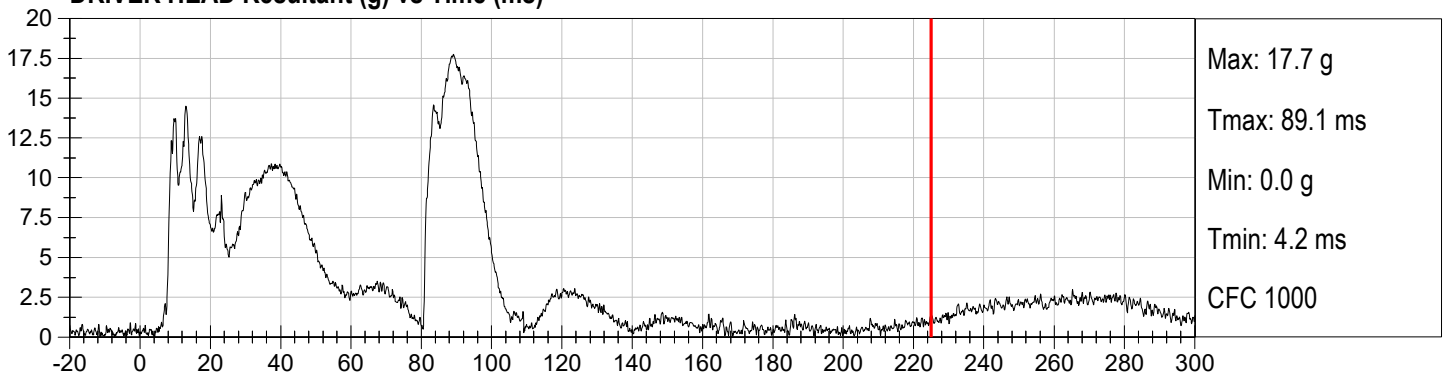
DRIVER HEAD Y (g) vs Time (ms)



DRIVER HEAD Z (g) vs Time (ms)

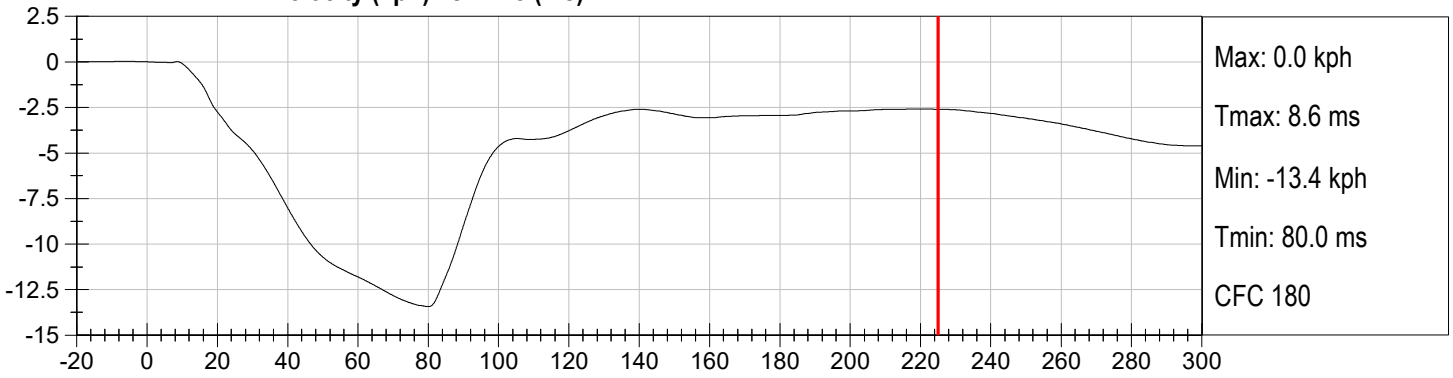


DRIVER HEAD Resultant (g) vs Time (ms)

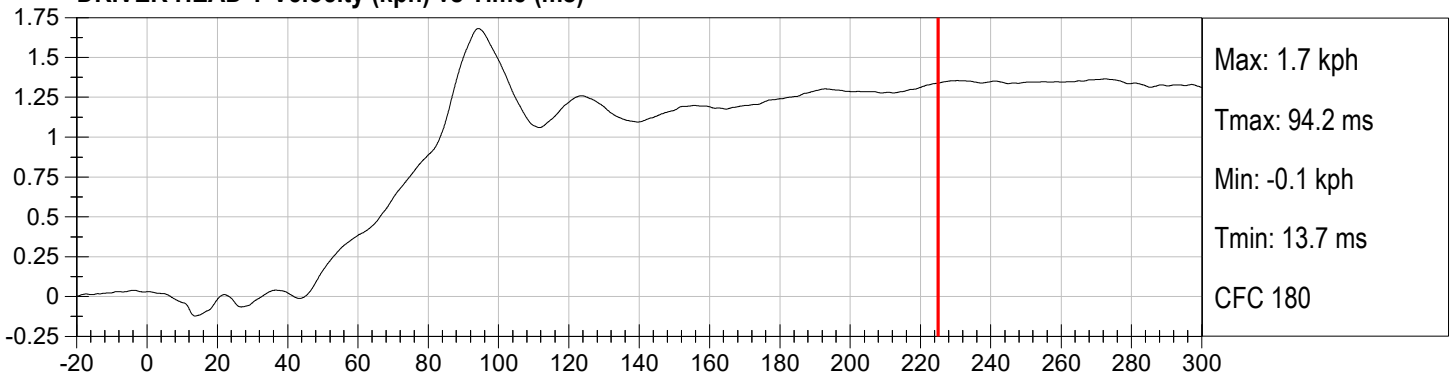


Injury Values Calculated between 0ms and 225ms

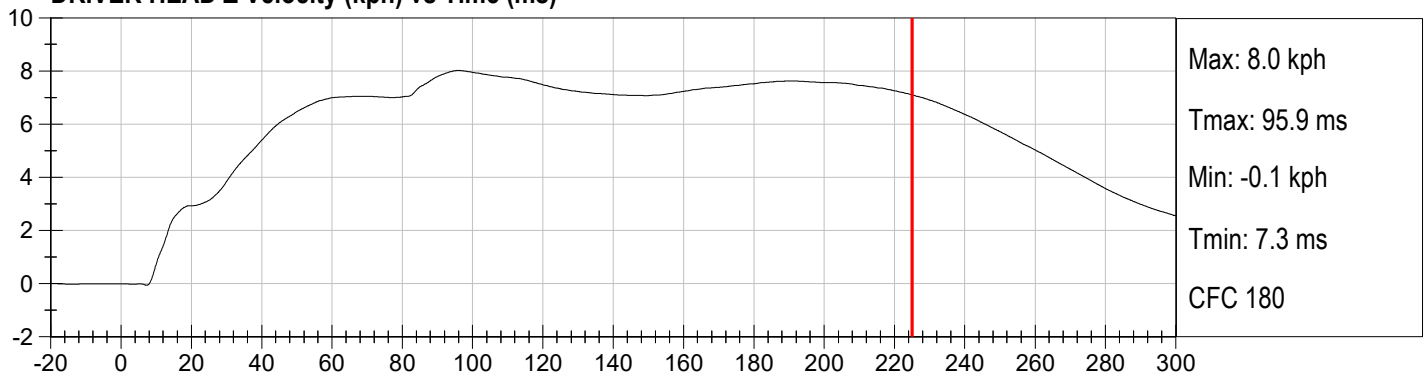
DRIVER HEAD X Velocity (kph) vs Time (ms)



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

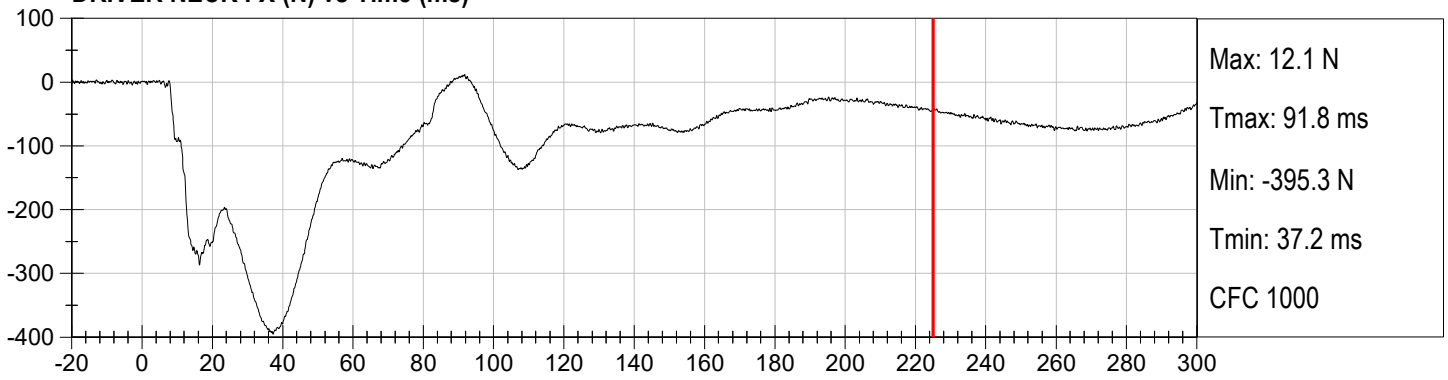


DRIVER HEAD Z Velocity (kph) vs Time (ms)

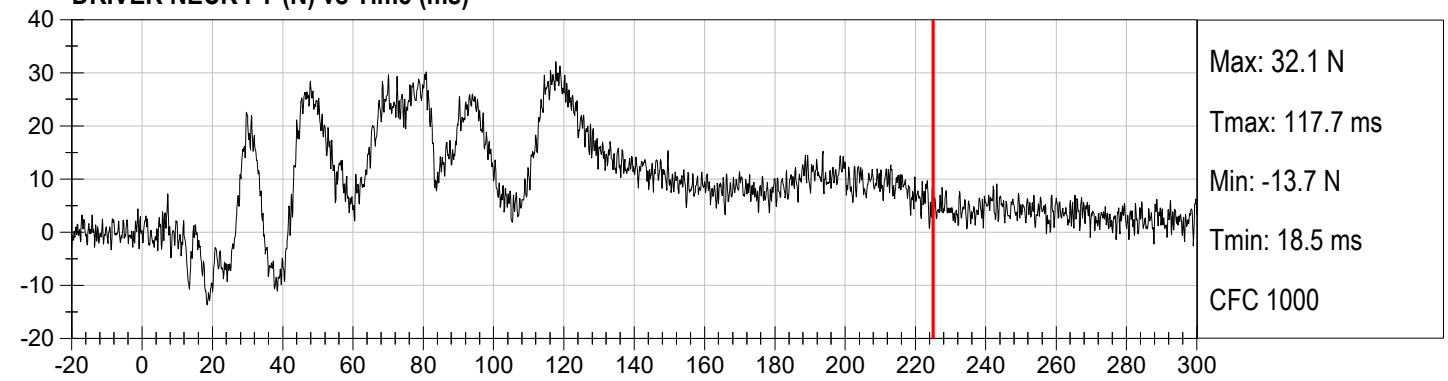


Injury Values Calculated between 0ms and 225ms

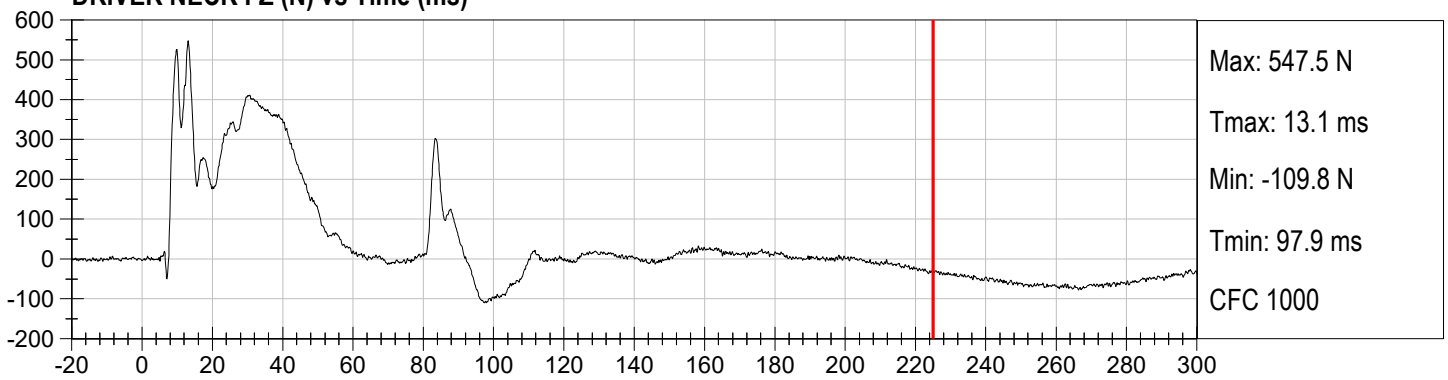
DRIVER NECK FX (N) vs Time (ms)



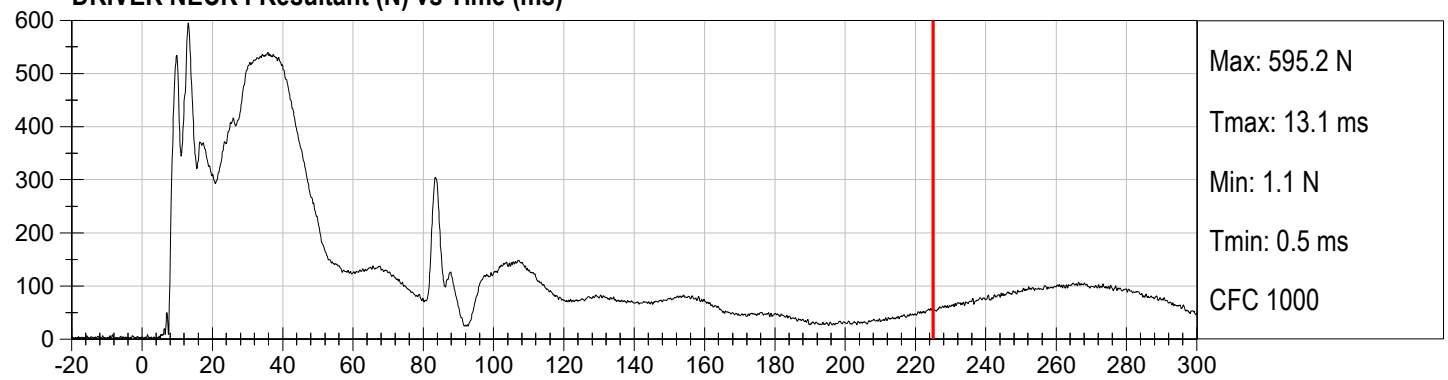
DRIVER NECK FY (N) vs Time (ms)



DRIVER NECK FZ (N) vs Time (ms)

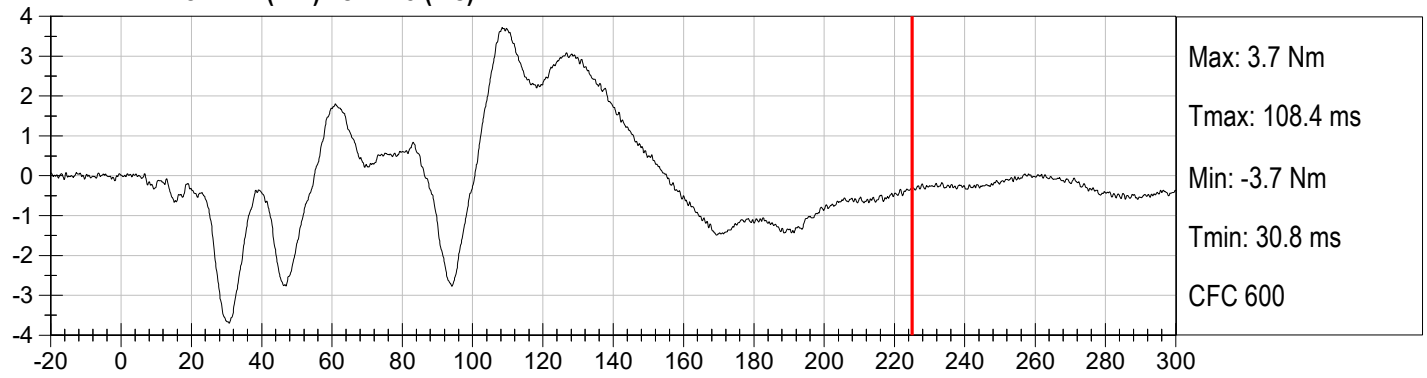


DRIVER NECK FResultant (N) vs Time (ms)

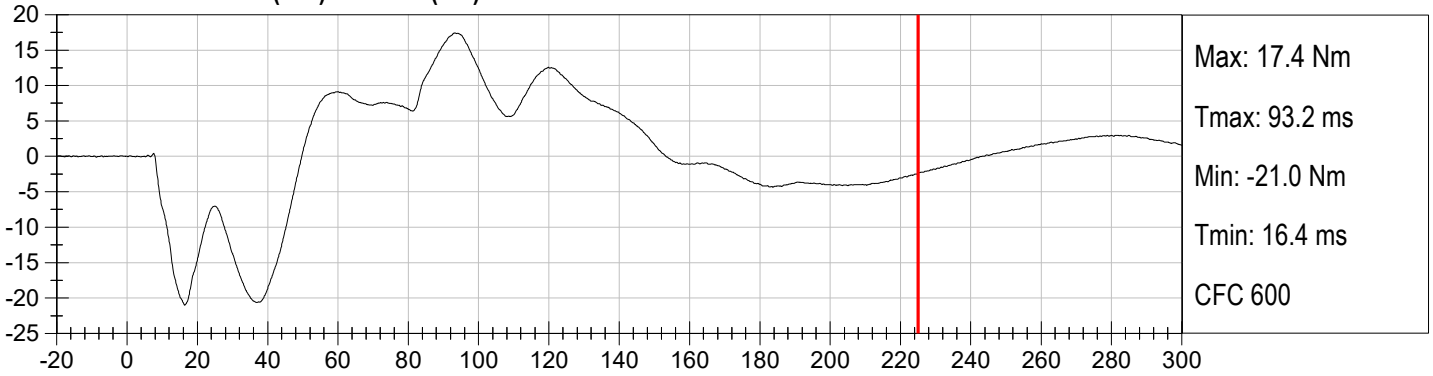


Injury Values Calculated between 0ms and 225ms

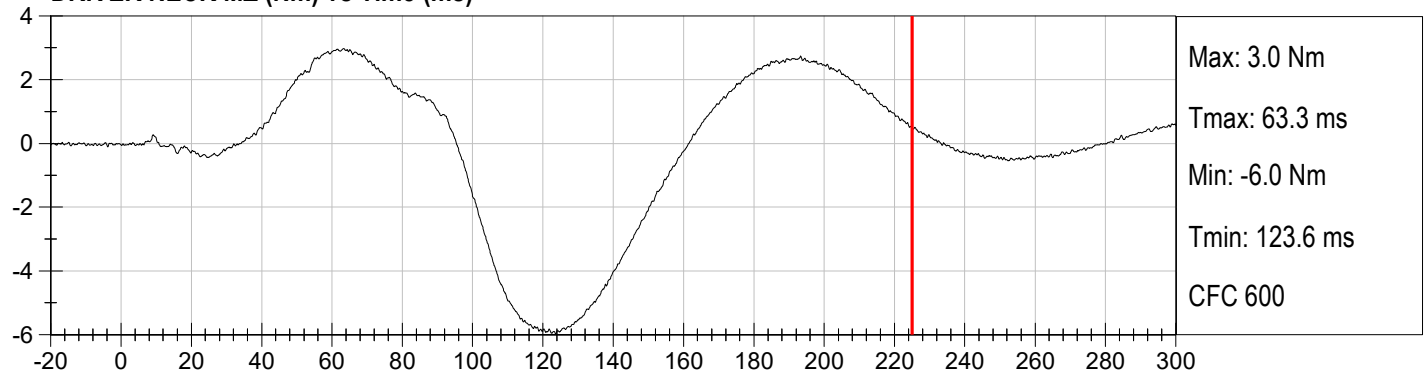
DRIVER NECK MX (Nm) vs Time (ms)



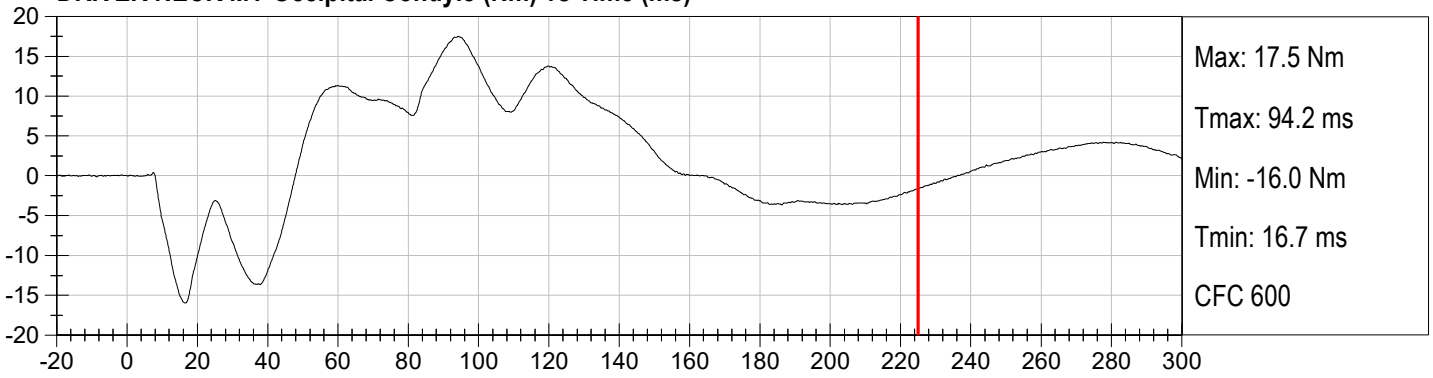
DRIVER NECK MY (Nm) vs Time (ms)



DRIVER NECK MZ (Nm) vs Time (ms)

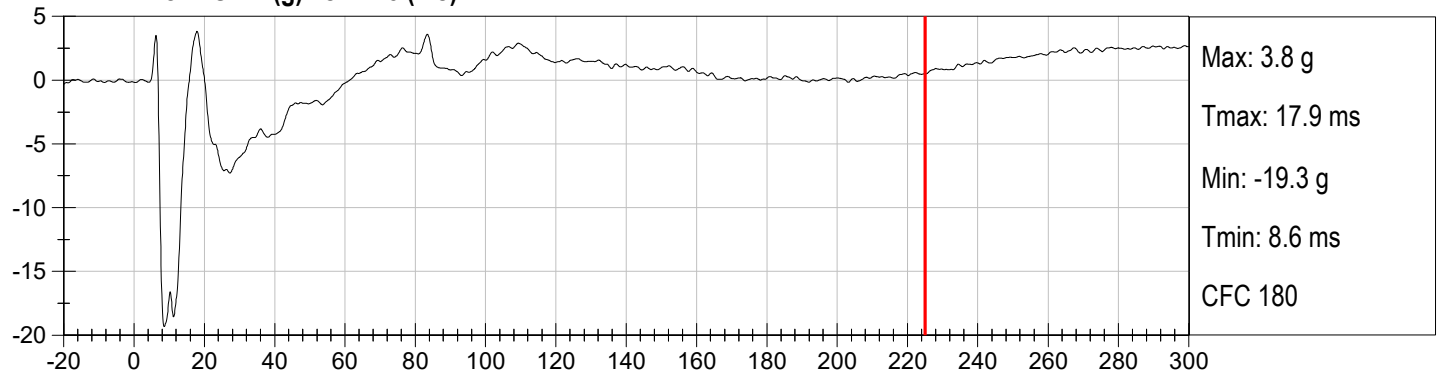


DRIVER NECK MY Occipital Condyle (Nm) vs Time (ms)

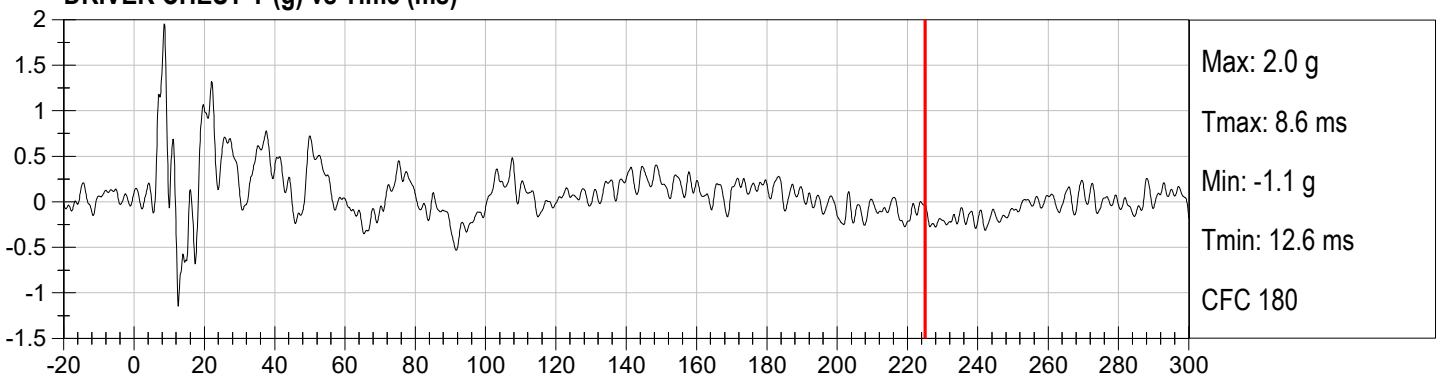


Injury Values Calculated between 0ms and 225ms

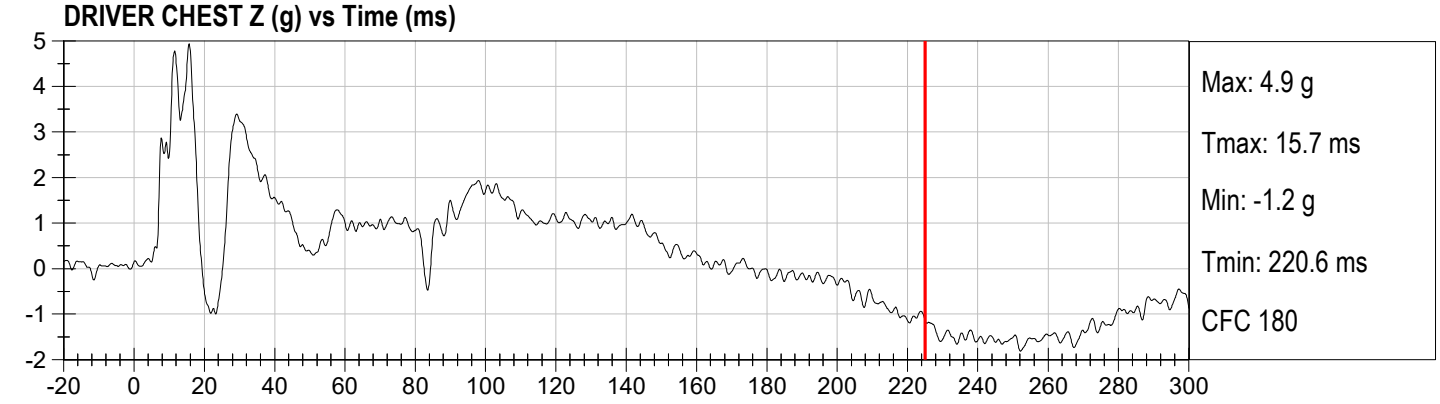
DRIVER CHEST X (g) vs Time (ms)



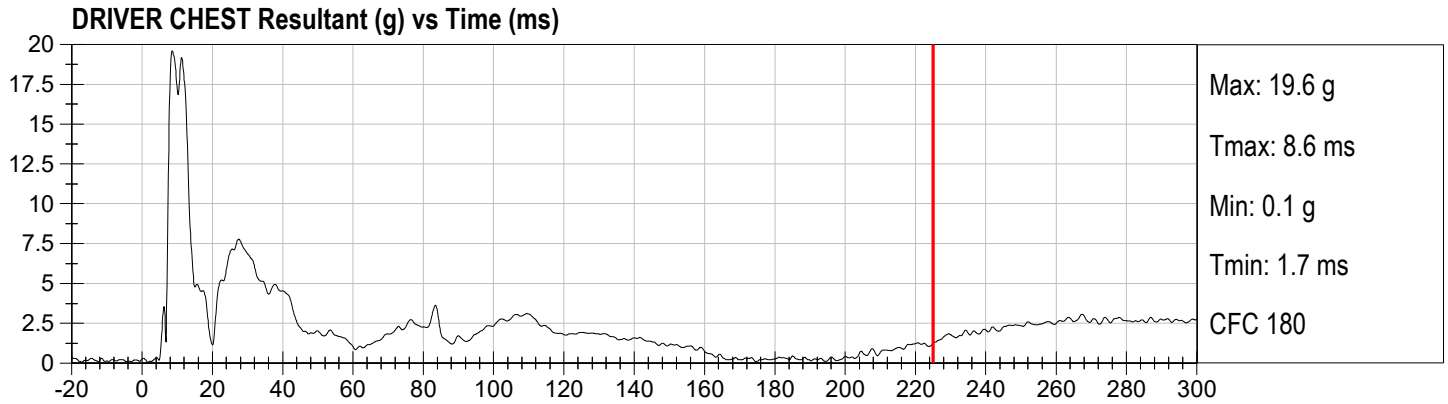
DRIVER CHEST Y (g) vs Time (ms)



DRIVER CHEST Z (g) vs Time (ms)

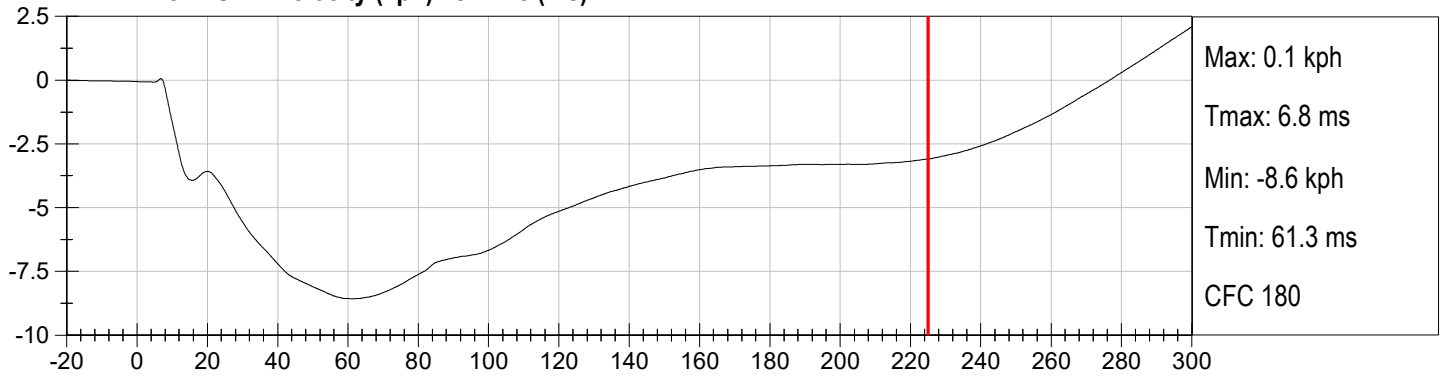


DRIVER CHEST Resultant (g) vs Time (ms)

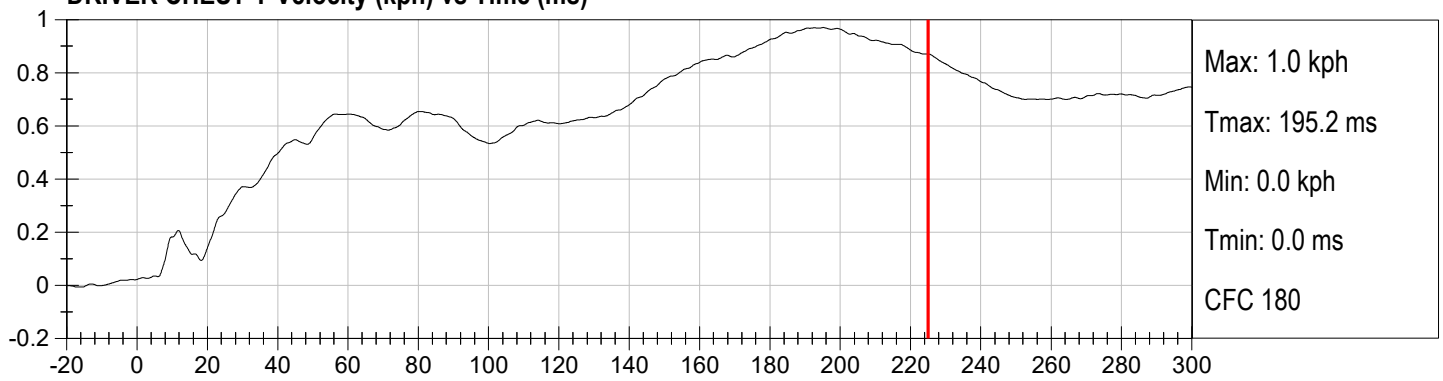


Injury Values Calculated between 0ms and 225ms

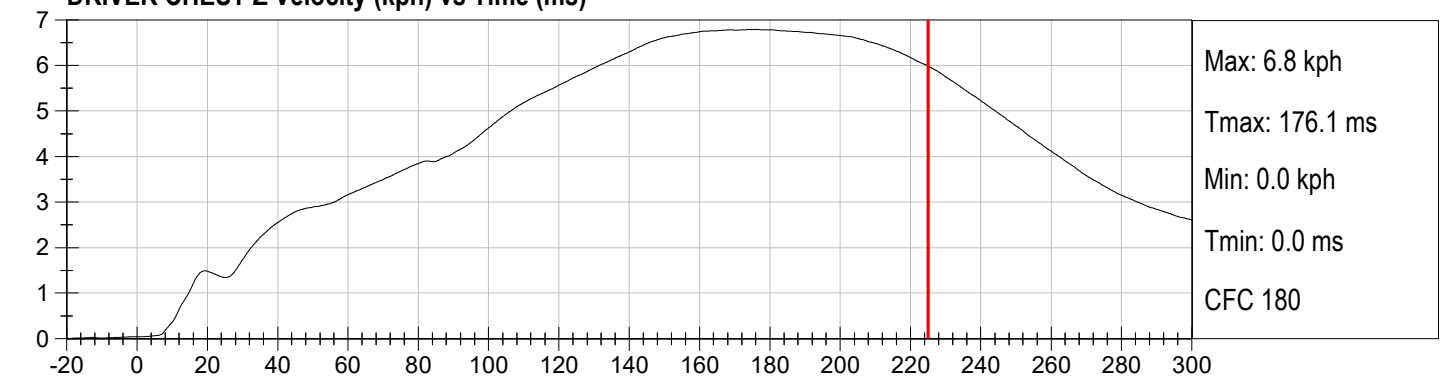
DRIVER CHEST X Velocity (kph) vs Time (ms)



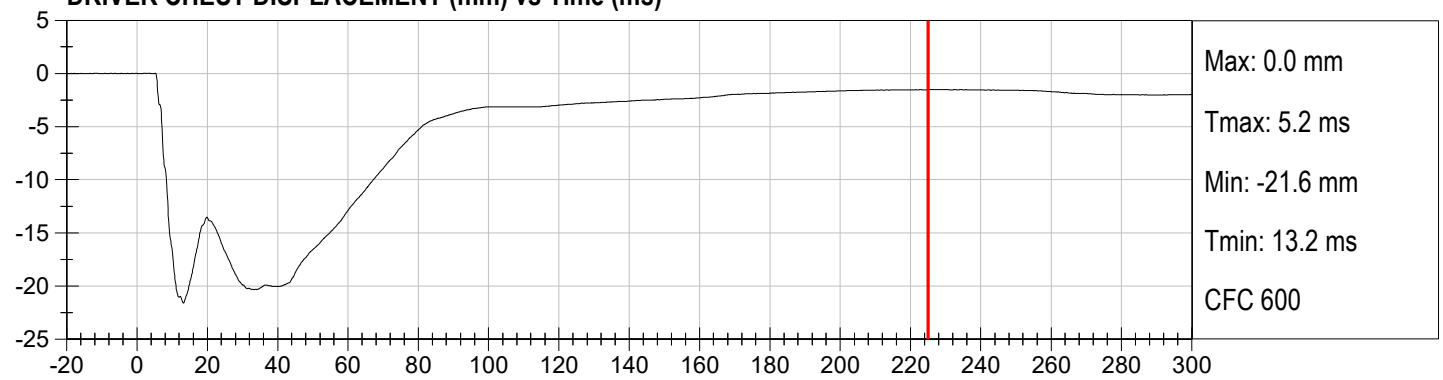
DRIVER CHEST Y Velocity (kph) vs Time (ms)



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



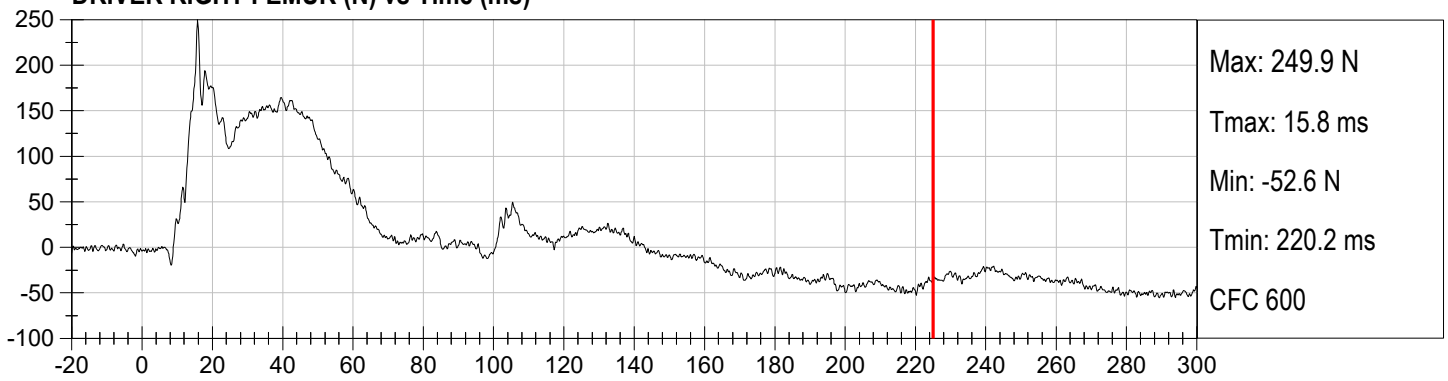
DRIVER CHEST DISPLACEMENT (mm) vs Time (ms)



Injury Values Calculated between 0ms and 225ms

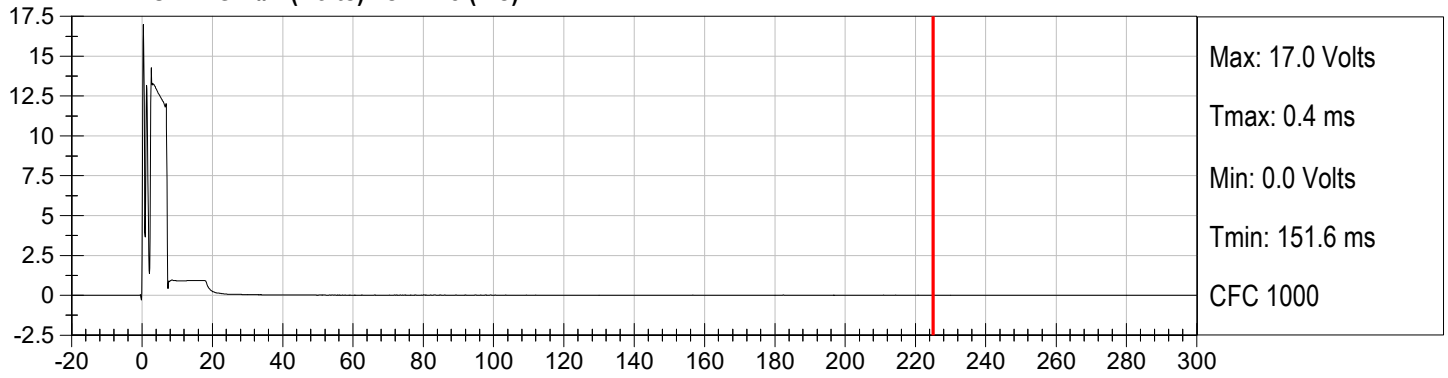
DRIVER LEFT FEMUR (N) vs Time (ms)

DRIVER RIGHT FEMUR (N) vs Time (ms)

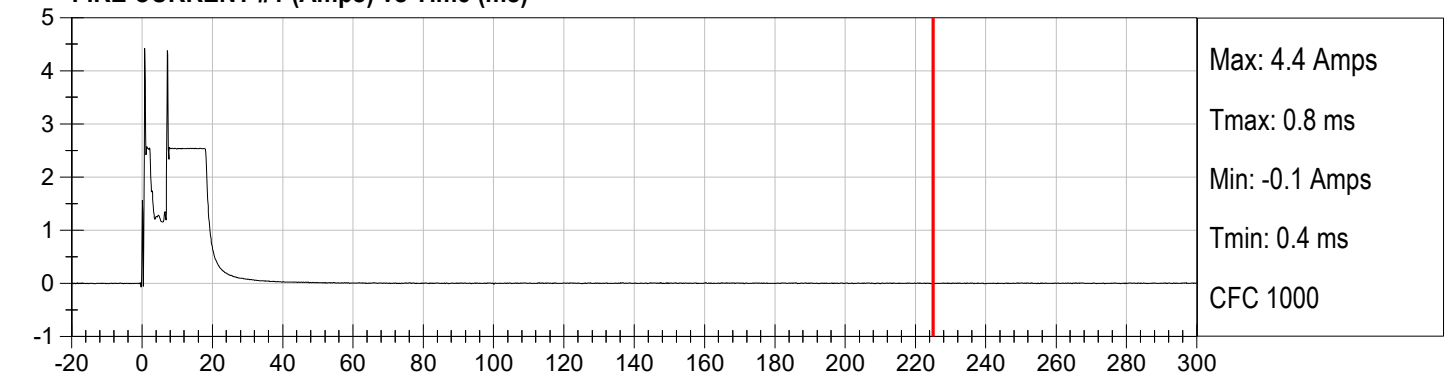


Injury Values Calculated between 0ms and 225ms

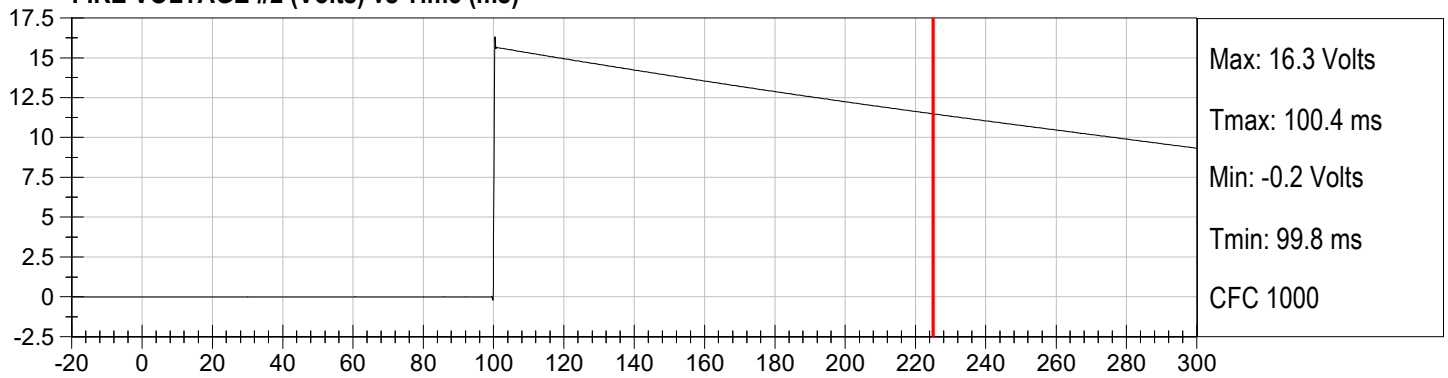
FIRE VOLTAGE #1 (Volts) vs Time (ms)



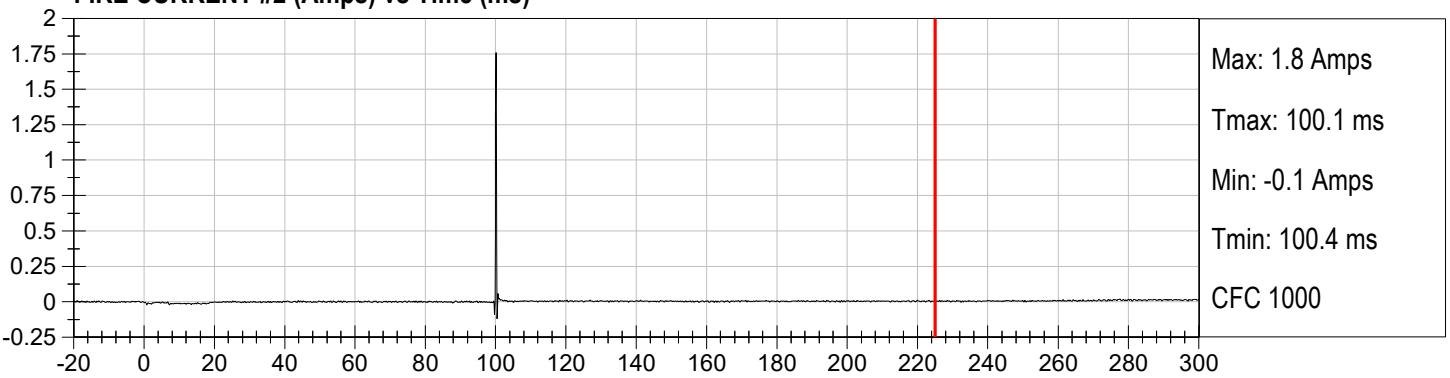
FIRE CURRENT #1 (Amps) vs Time (ms)



FIRE VOLTAGE #2 (Volts) vs Time (ms)

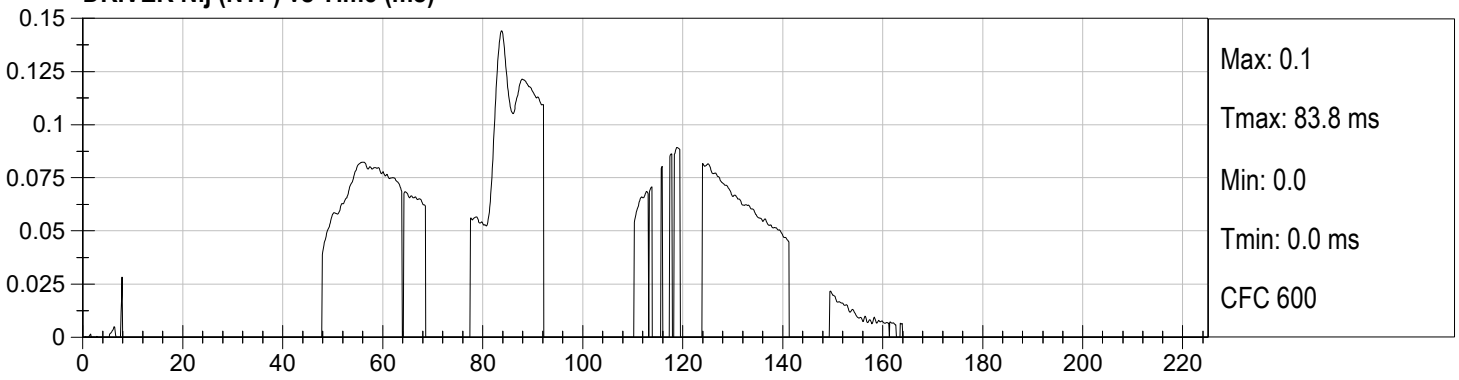


FIRE CURRENT #2 (Amps) vs Time (ms)

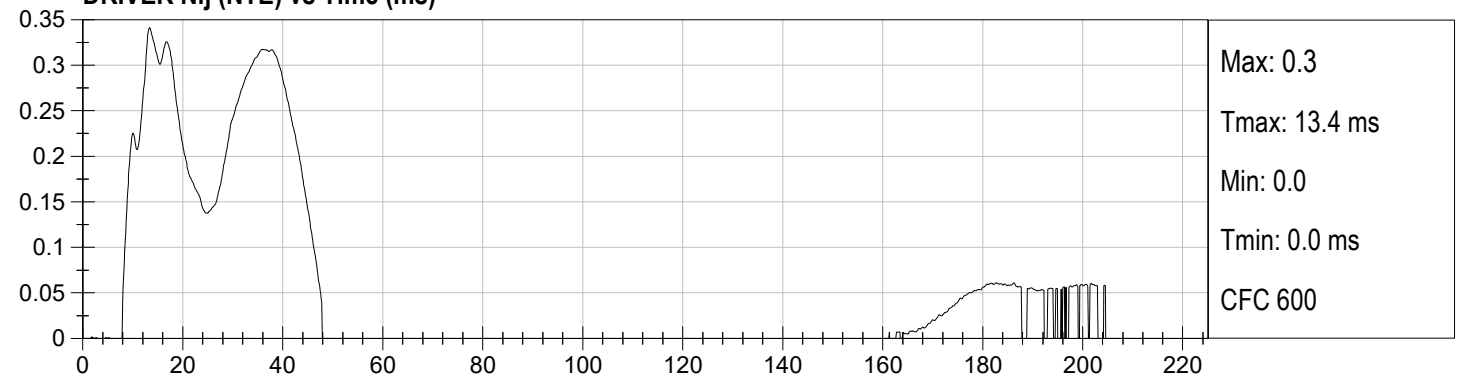


Injury Values Calculated between 0ms and 225ms

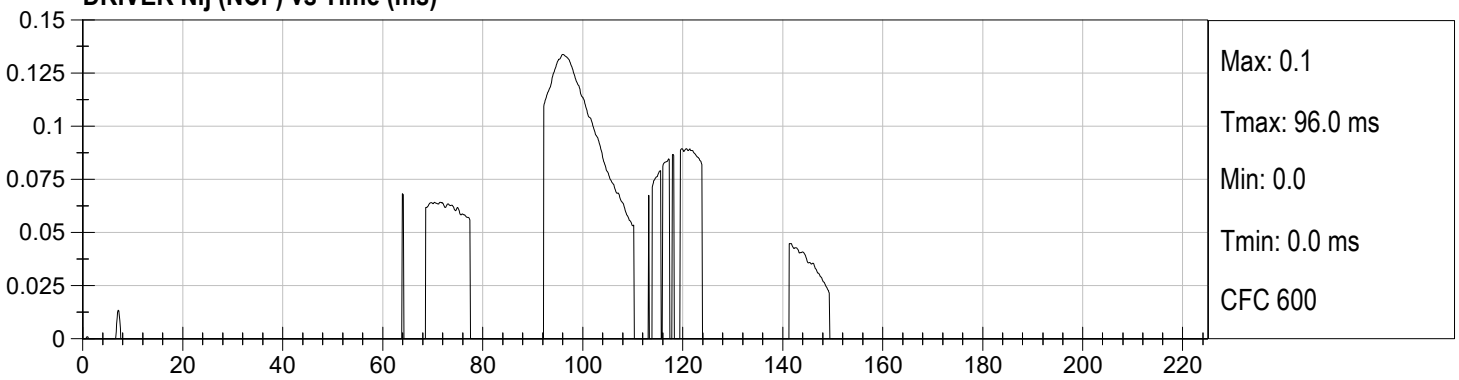
DRIVER Nij (NTF) vs Time (ms)



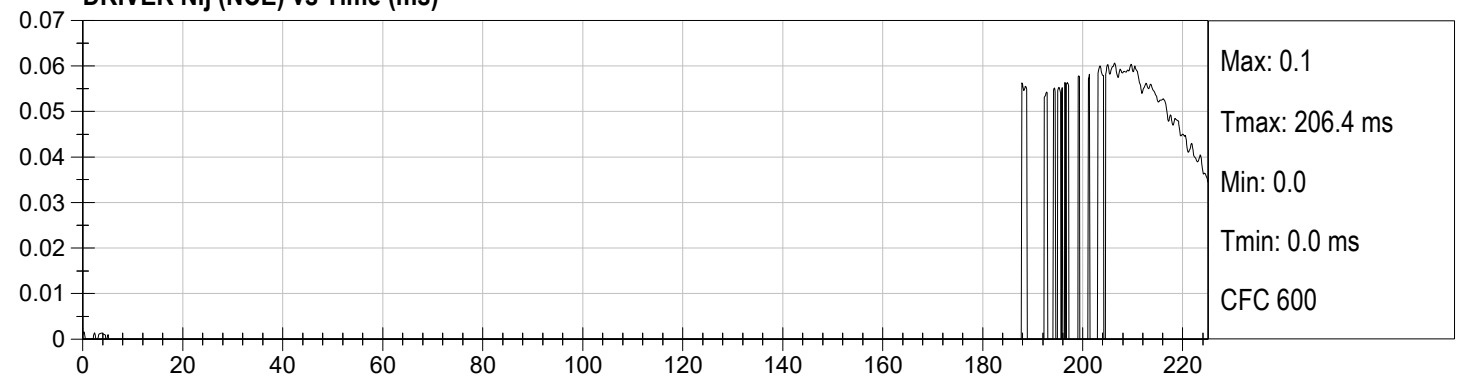
DRIVER Nij (NTE) vs Time (ms)



DRIVER Nij (NCF) vs Time (ms)



DRIVER Nij (NCE) vs Time (ms)



APPENDIX C

CRASH TEST PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

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Photo No. 2.	Tire Placard	C-2
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Photo No. 5.	Pre-Test Left Side View of Test Vehicle	C-5
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Photo No. 7.	Pre-Test Right Side View of Test Vehicle	C-7
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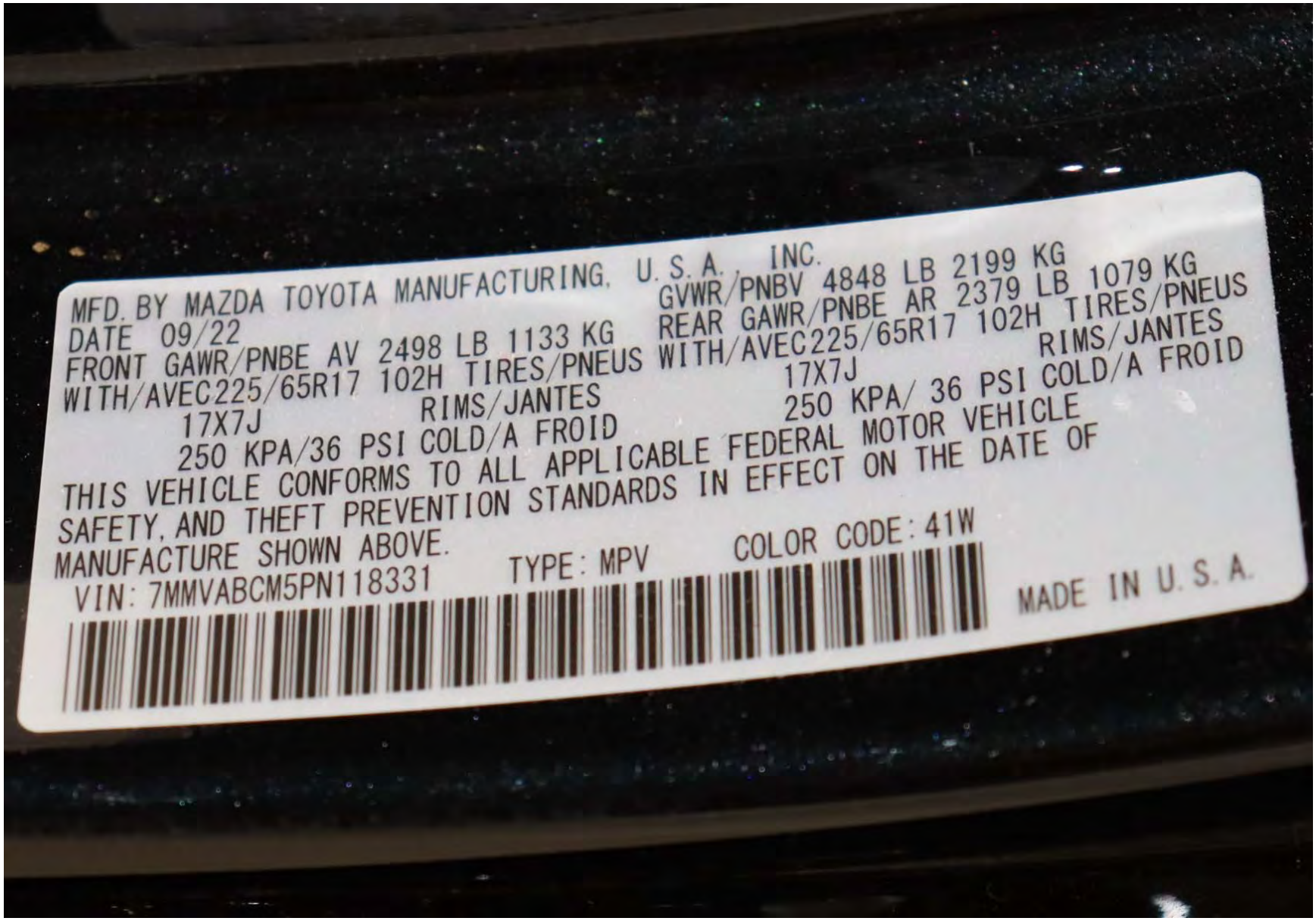

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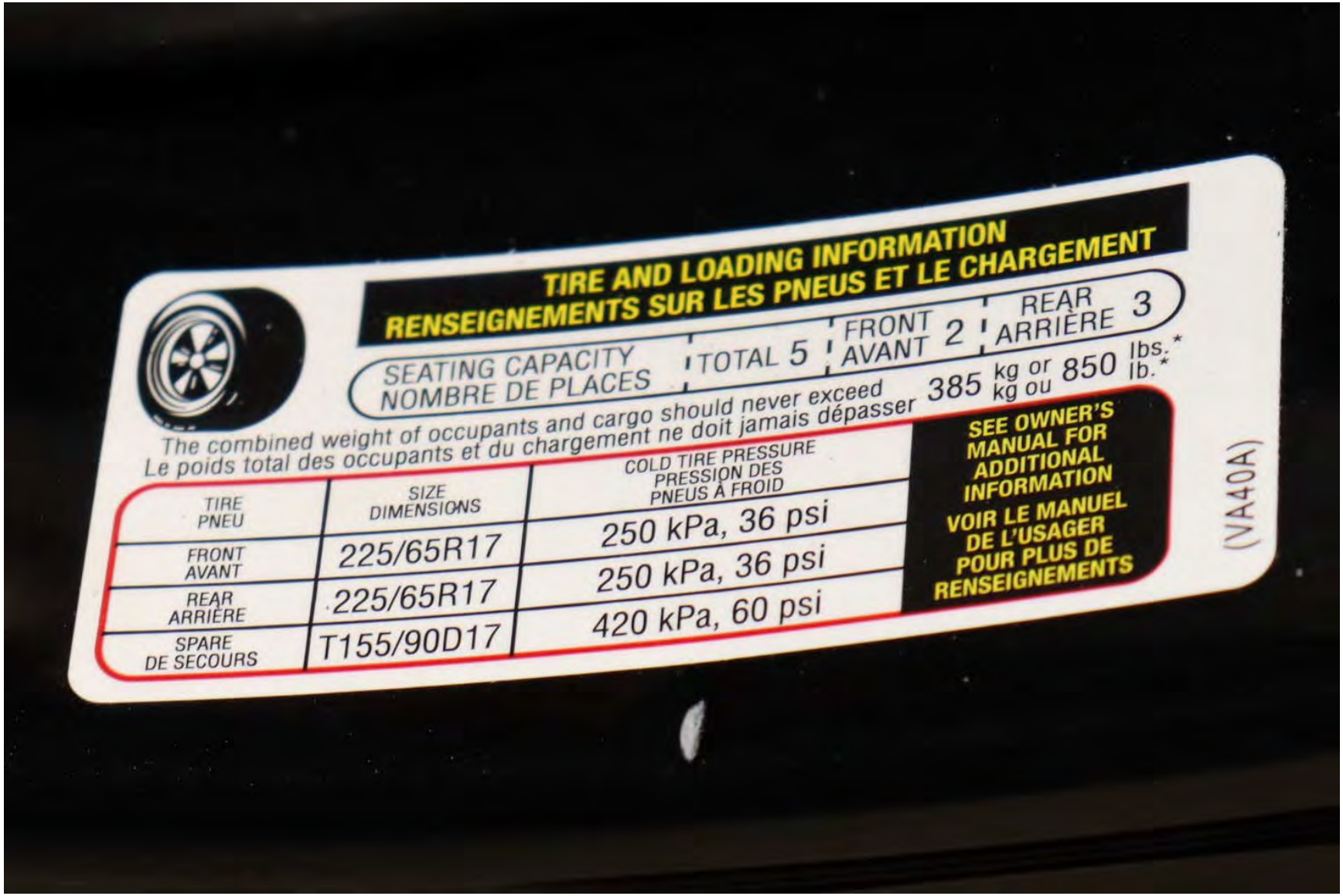

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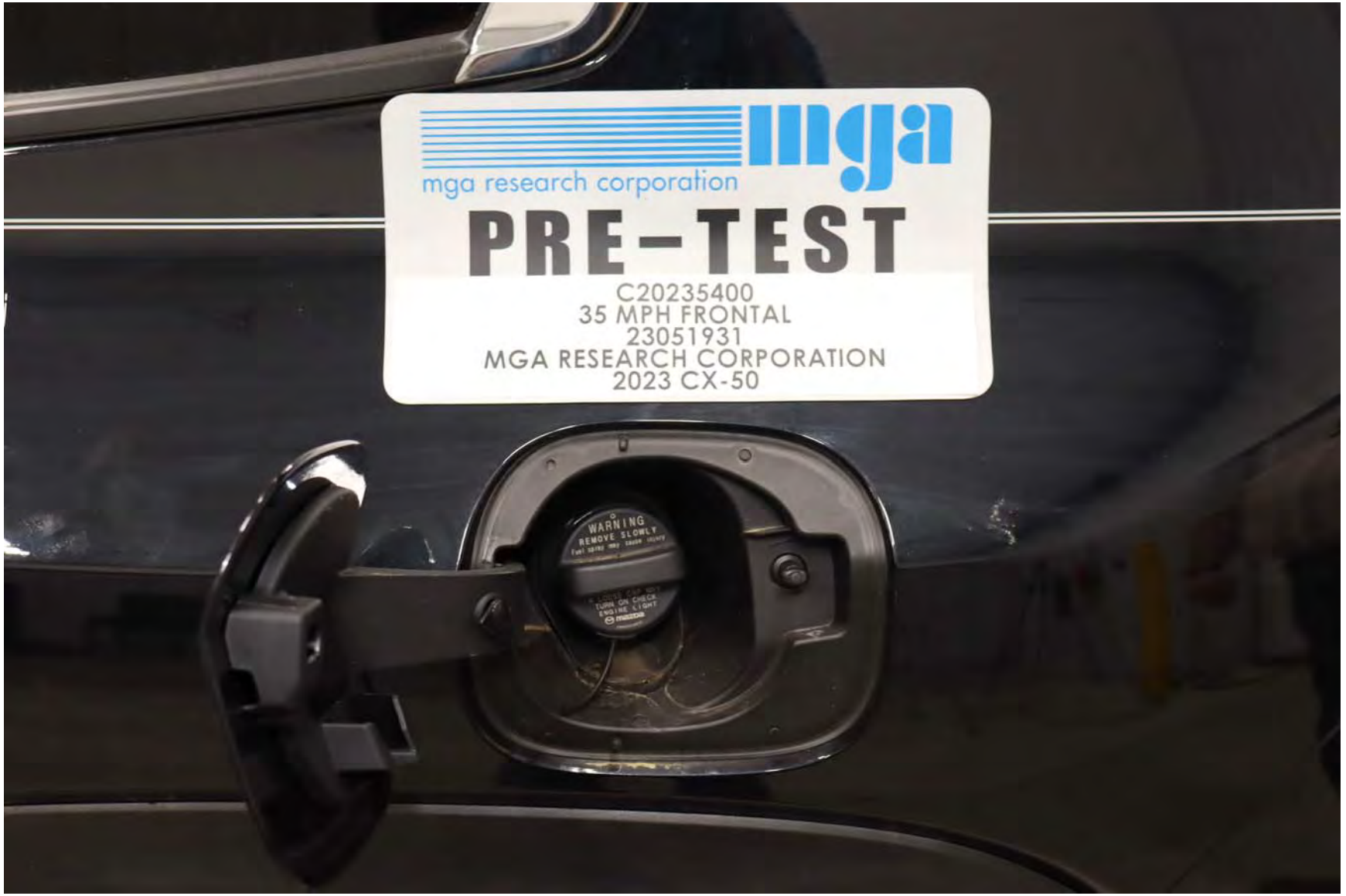

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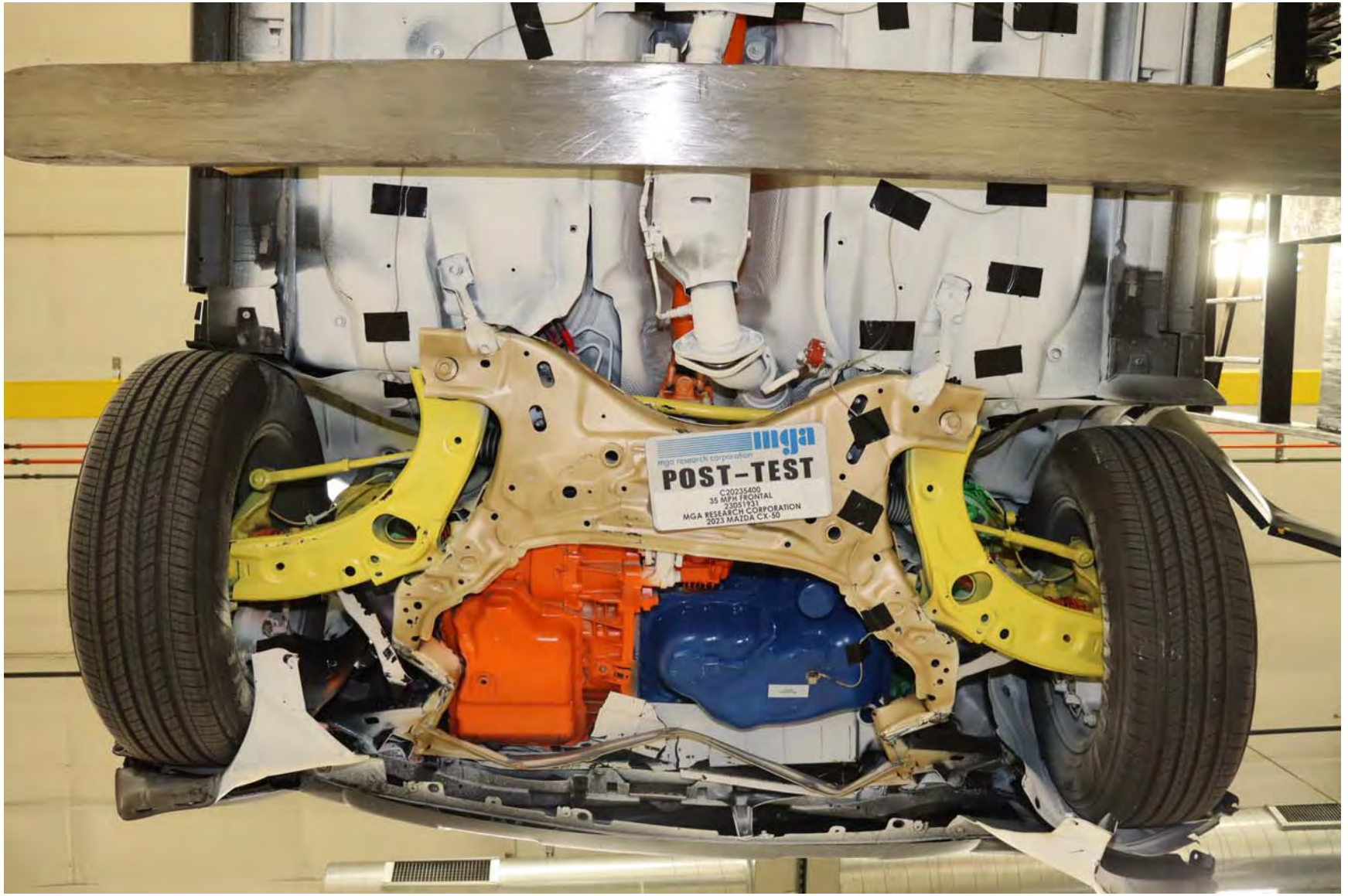

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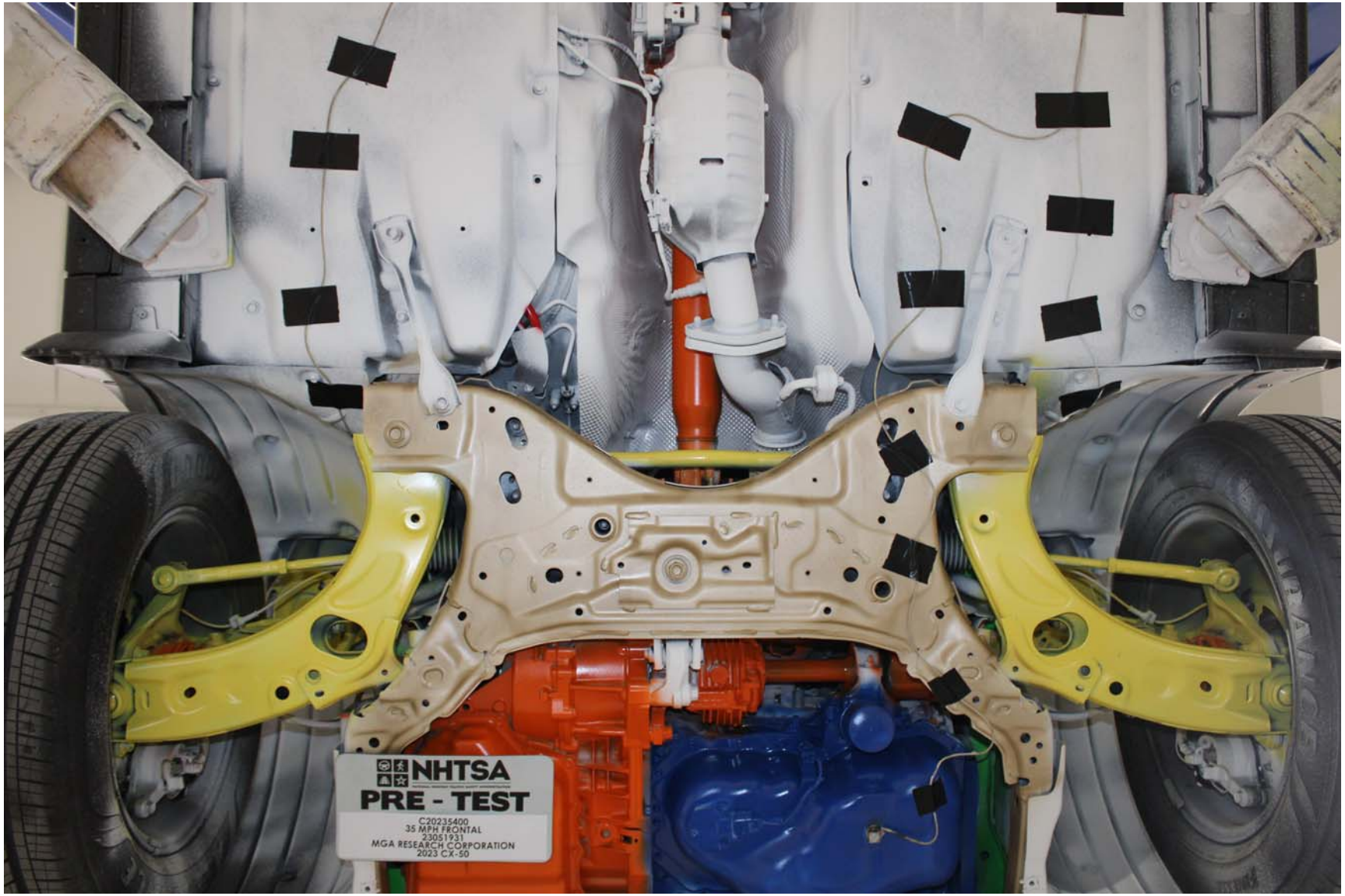

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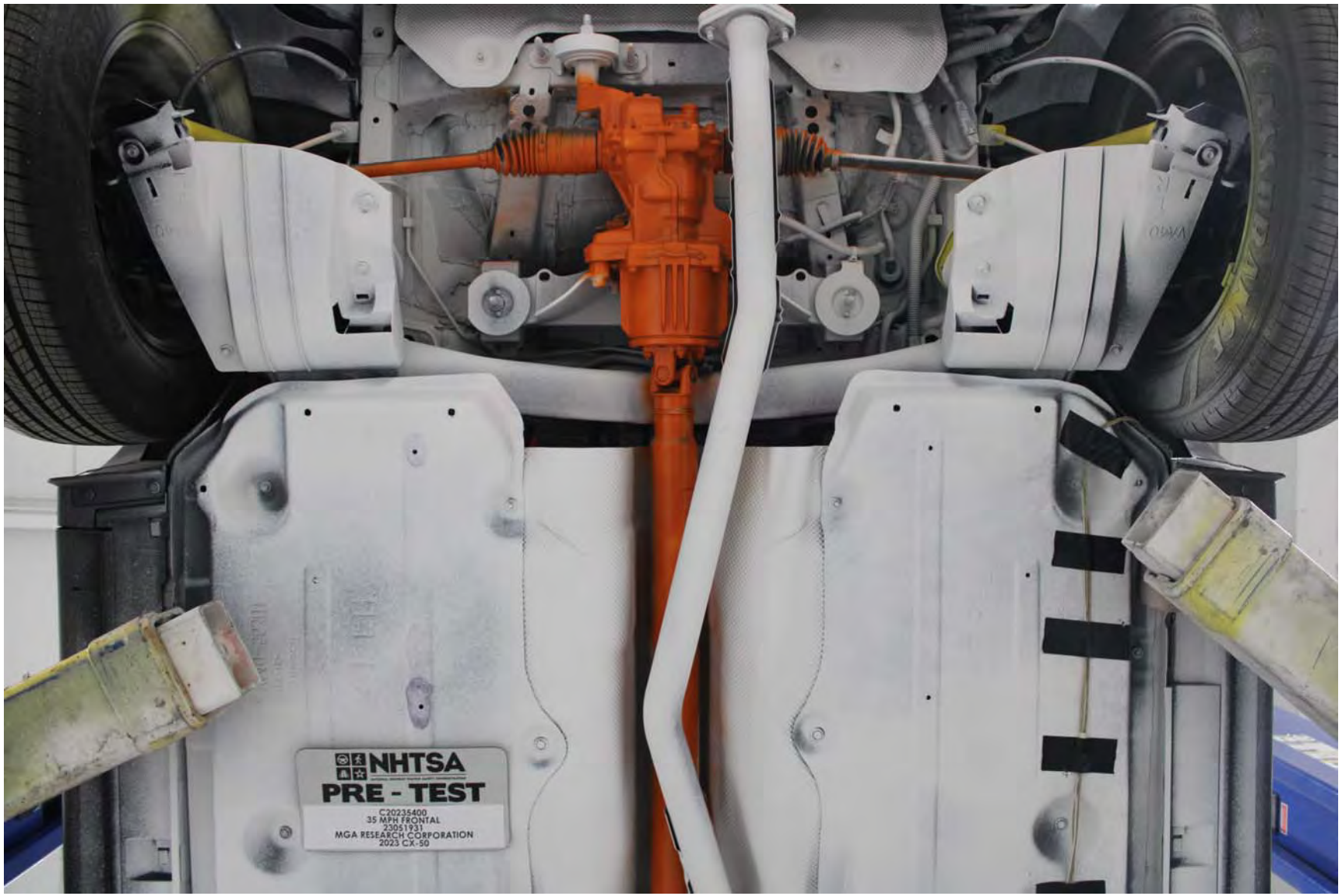

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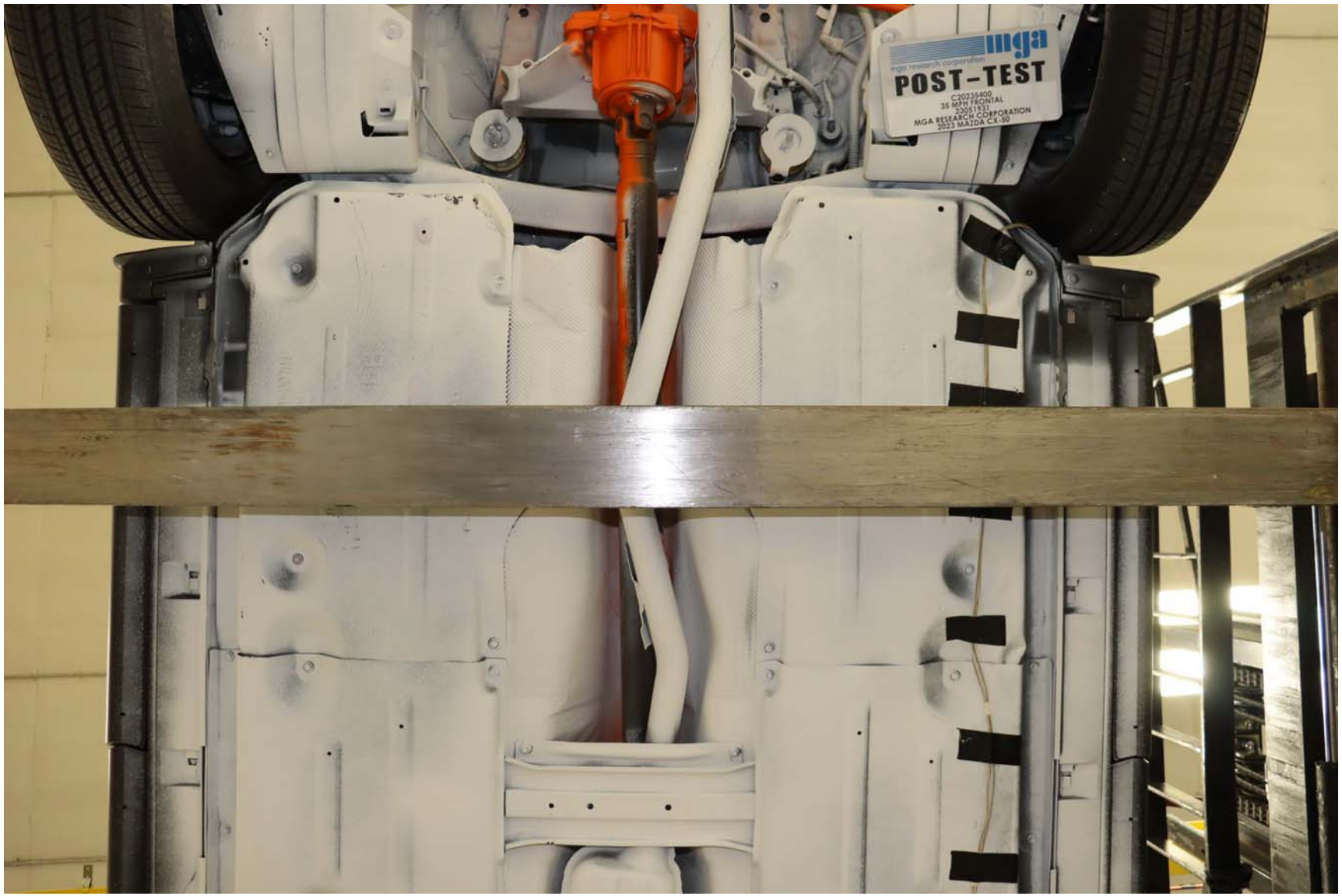

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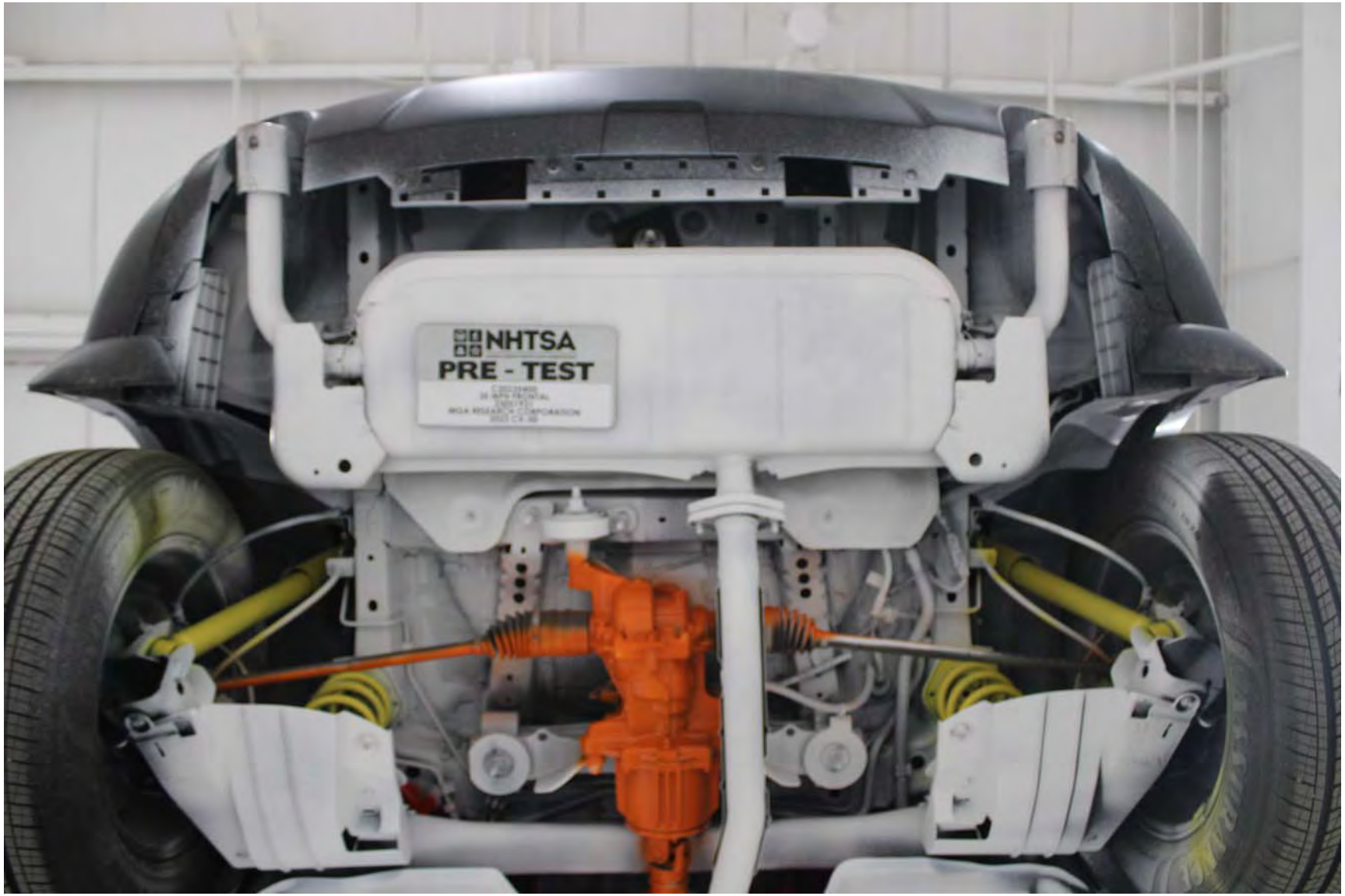

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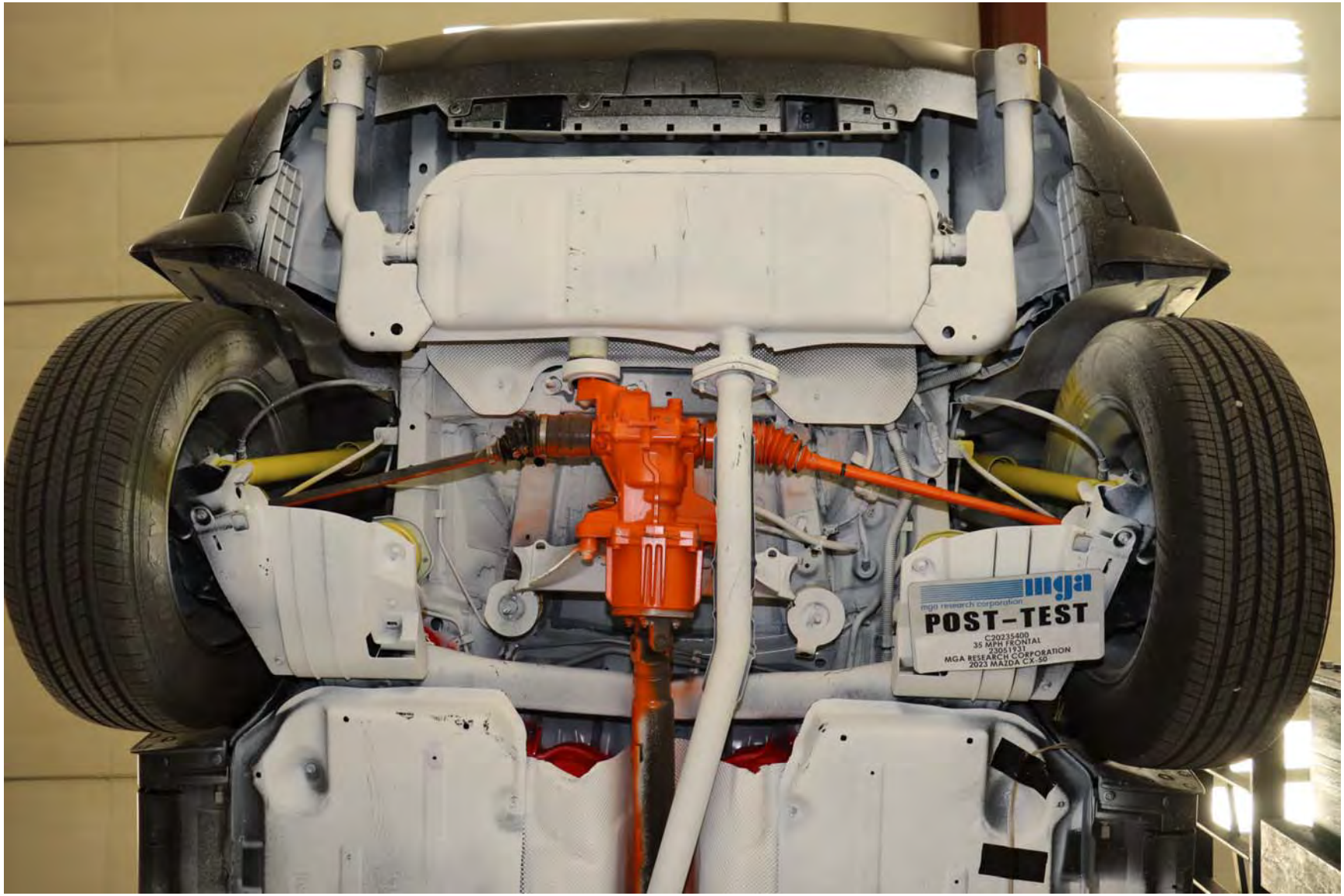

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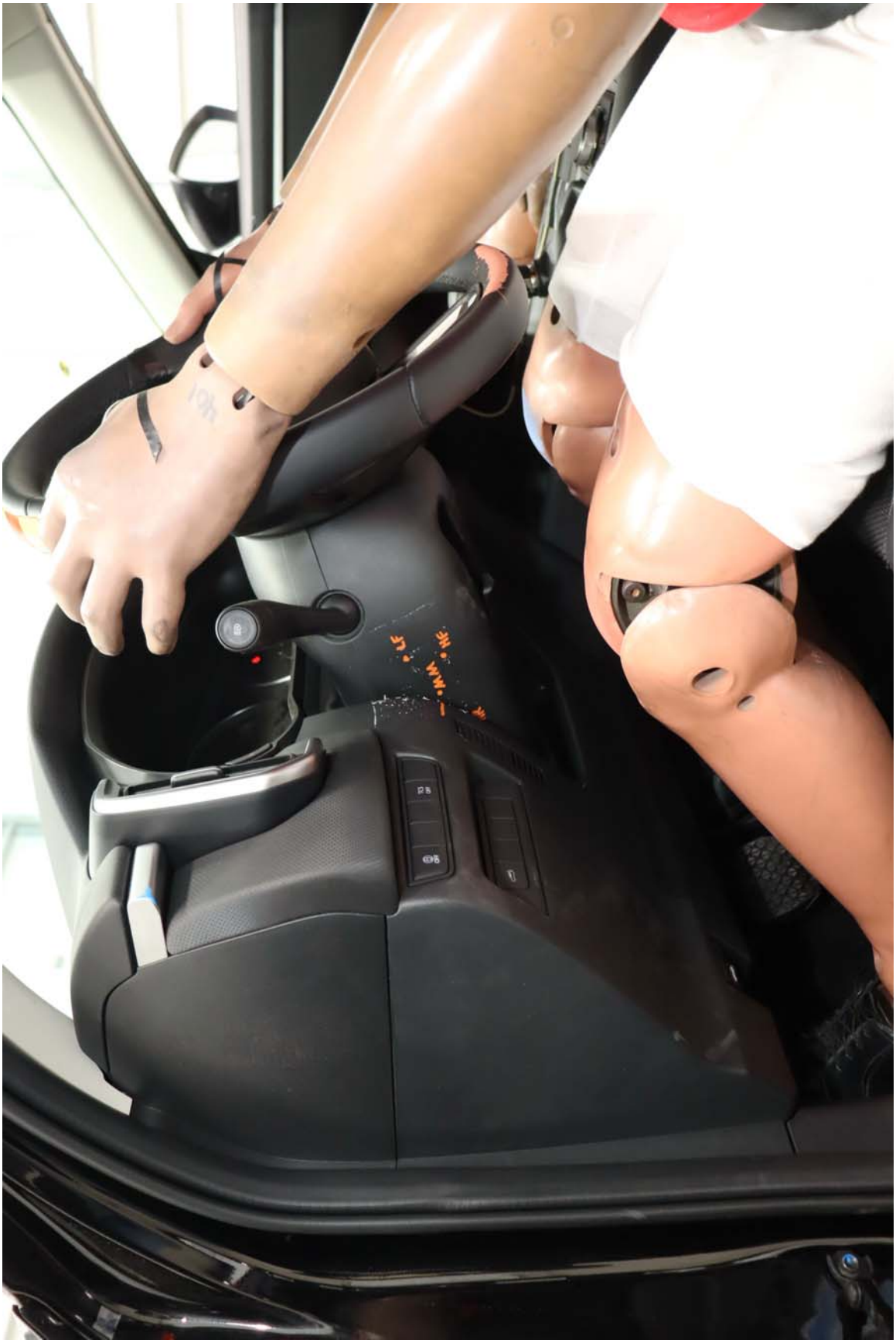

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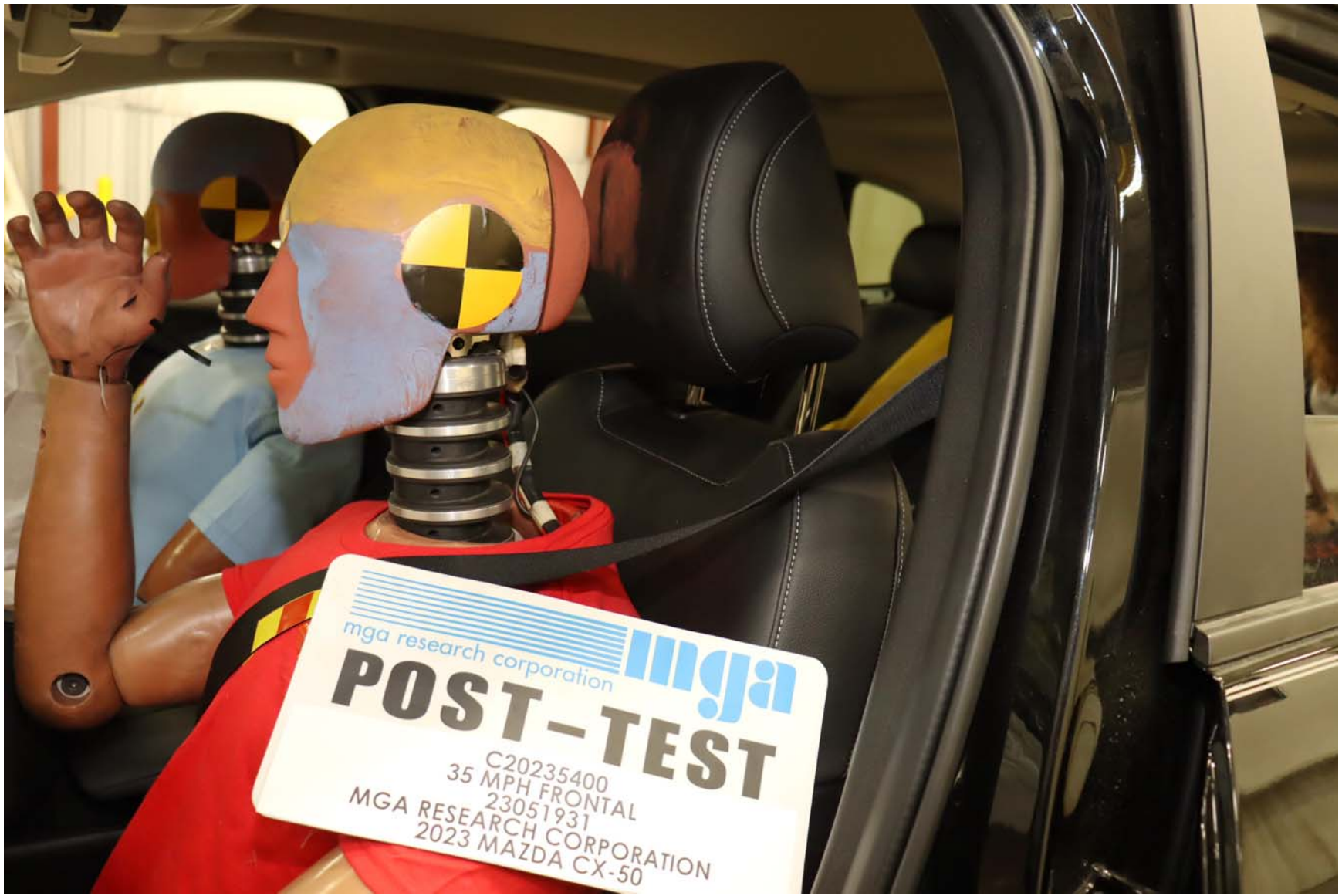

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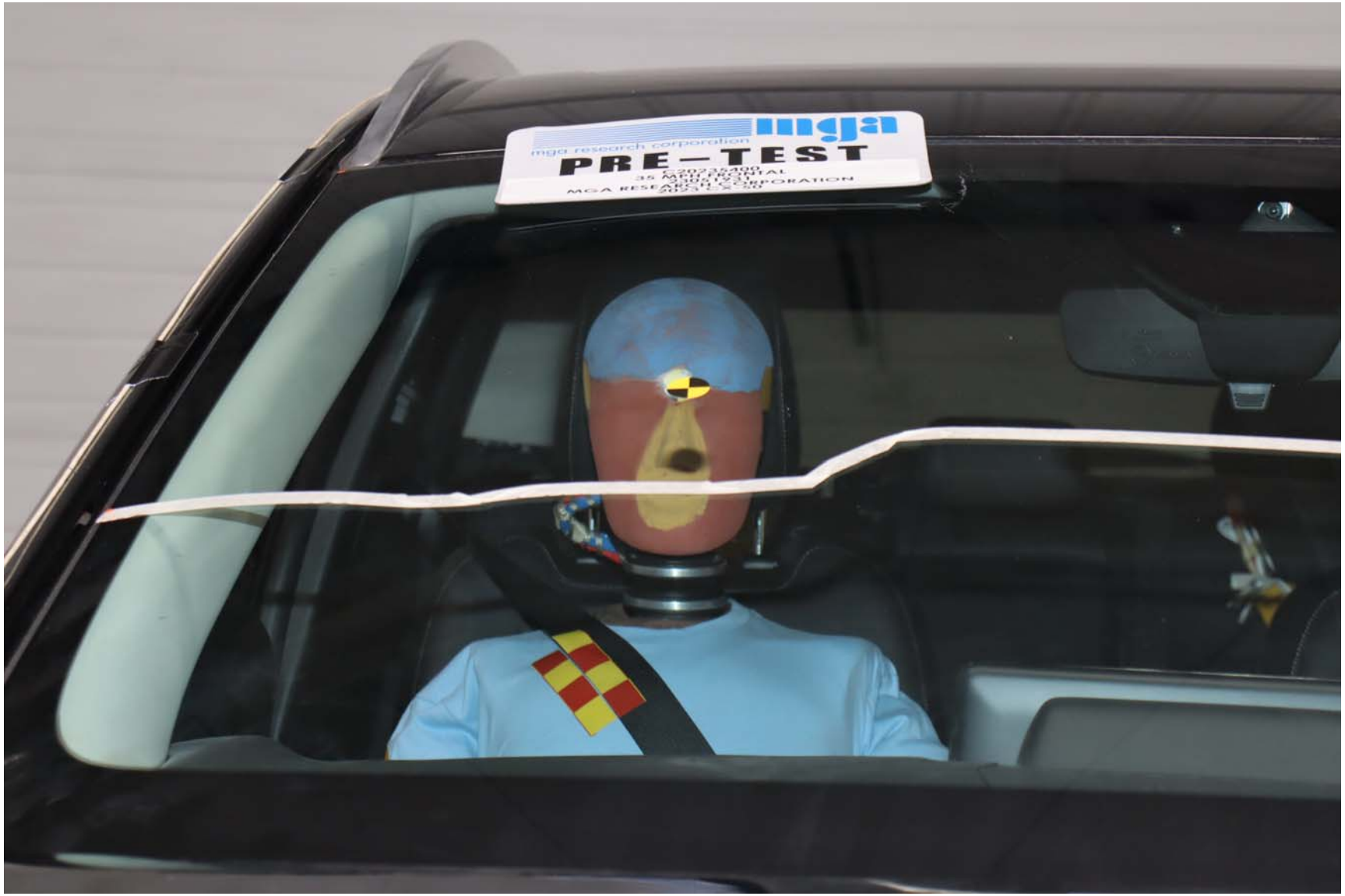

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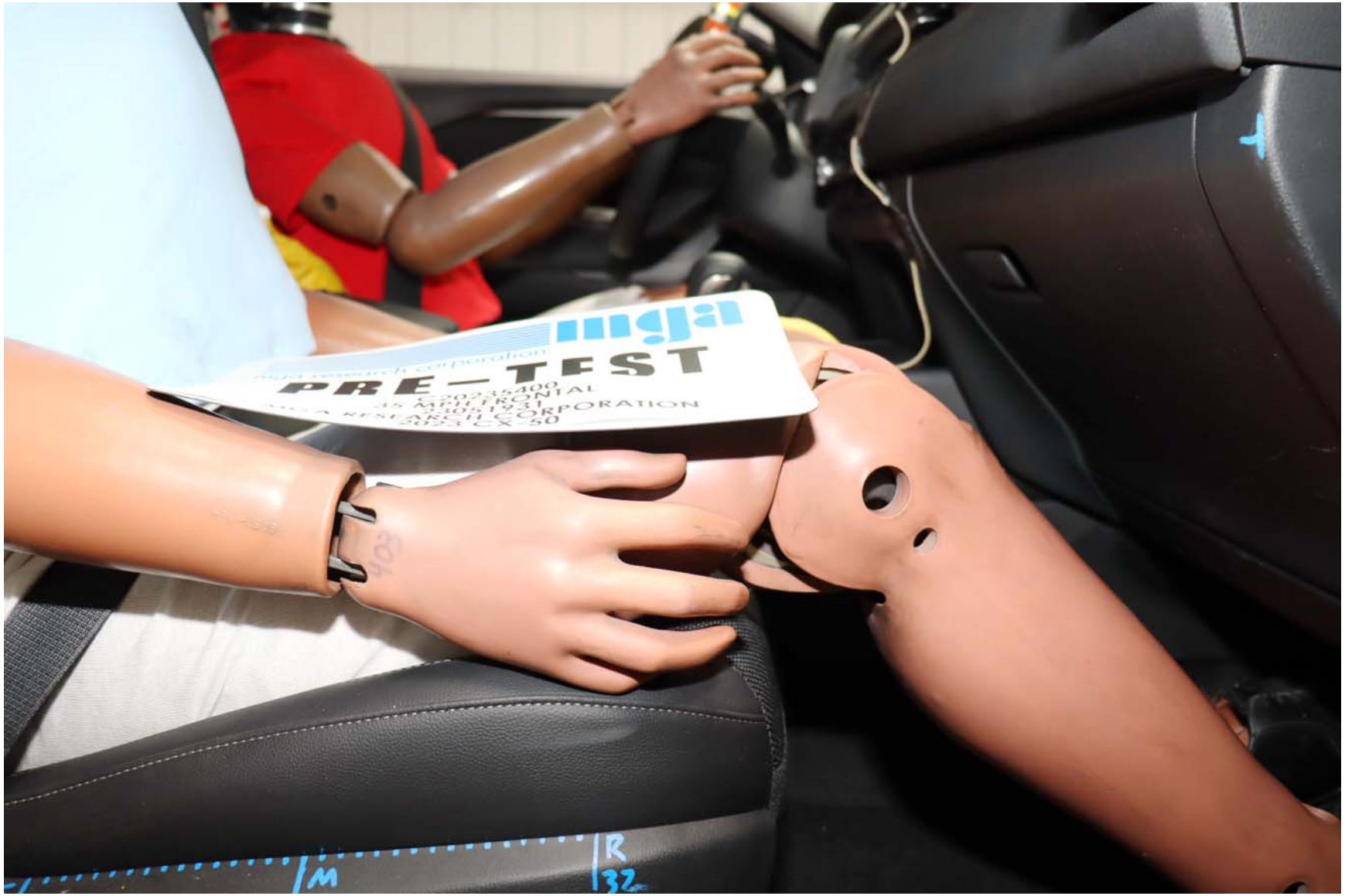

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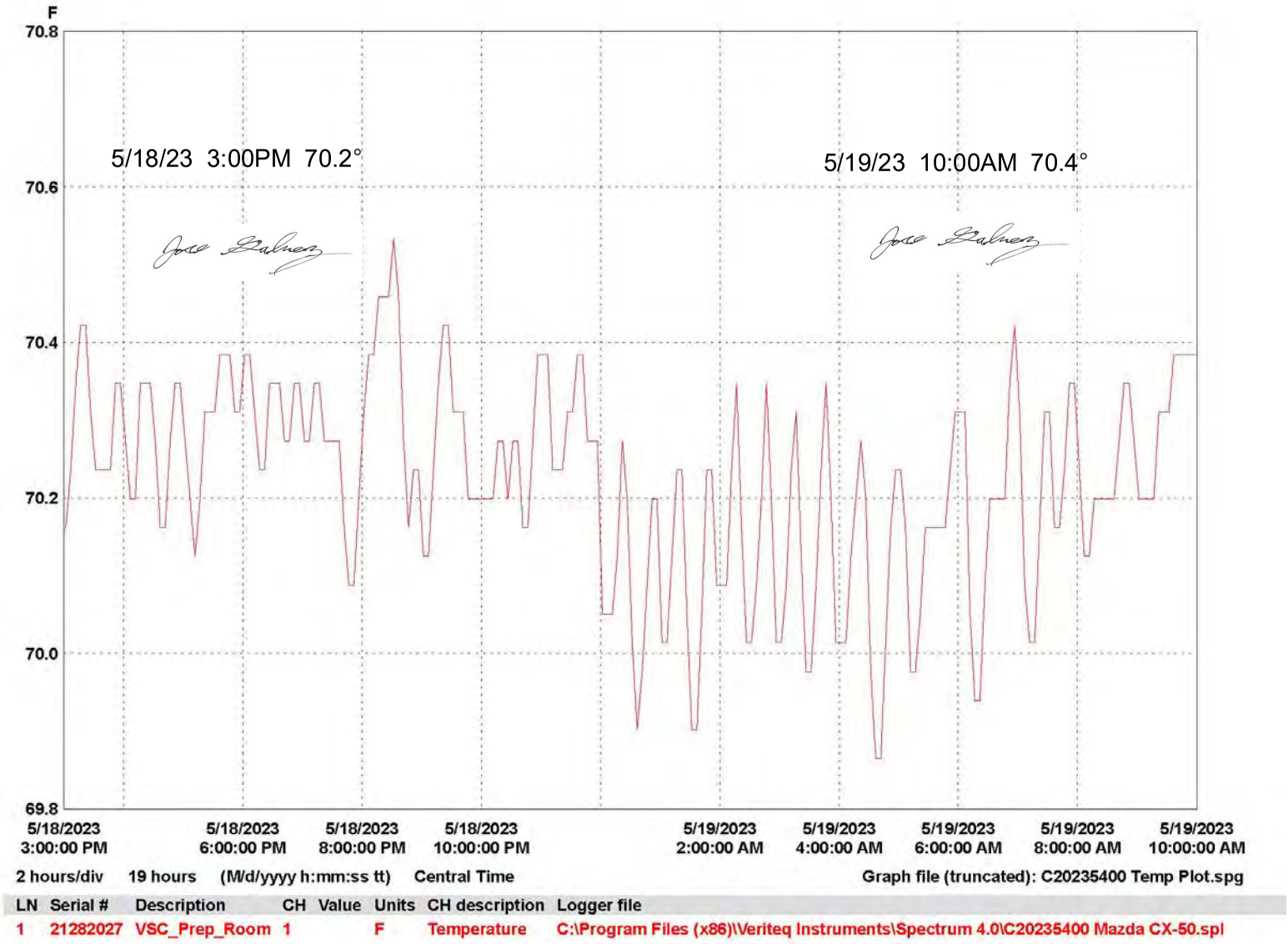

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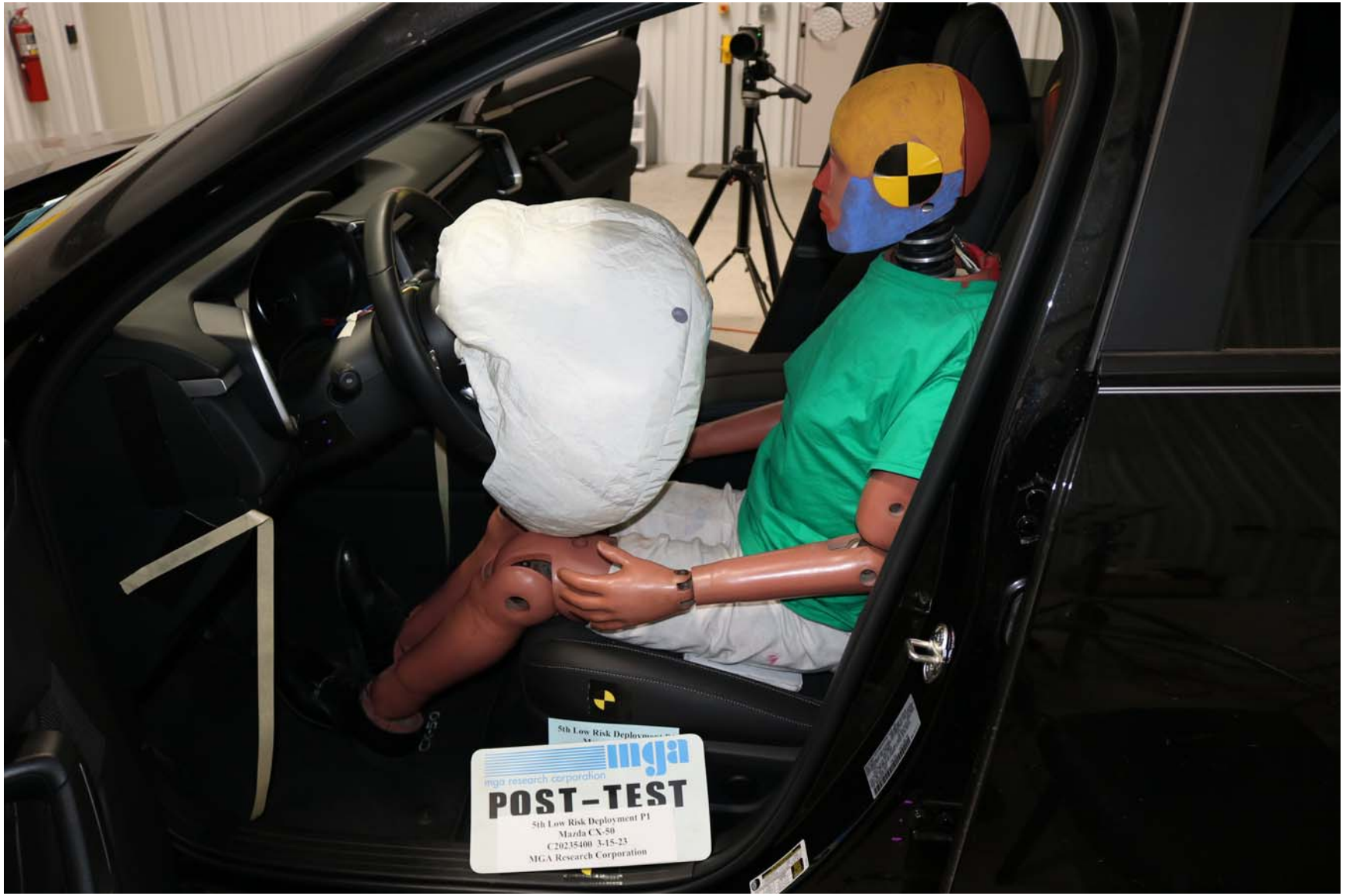

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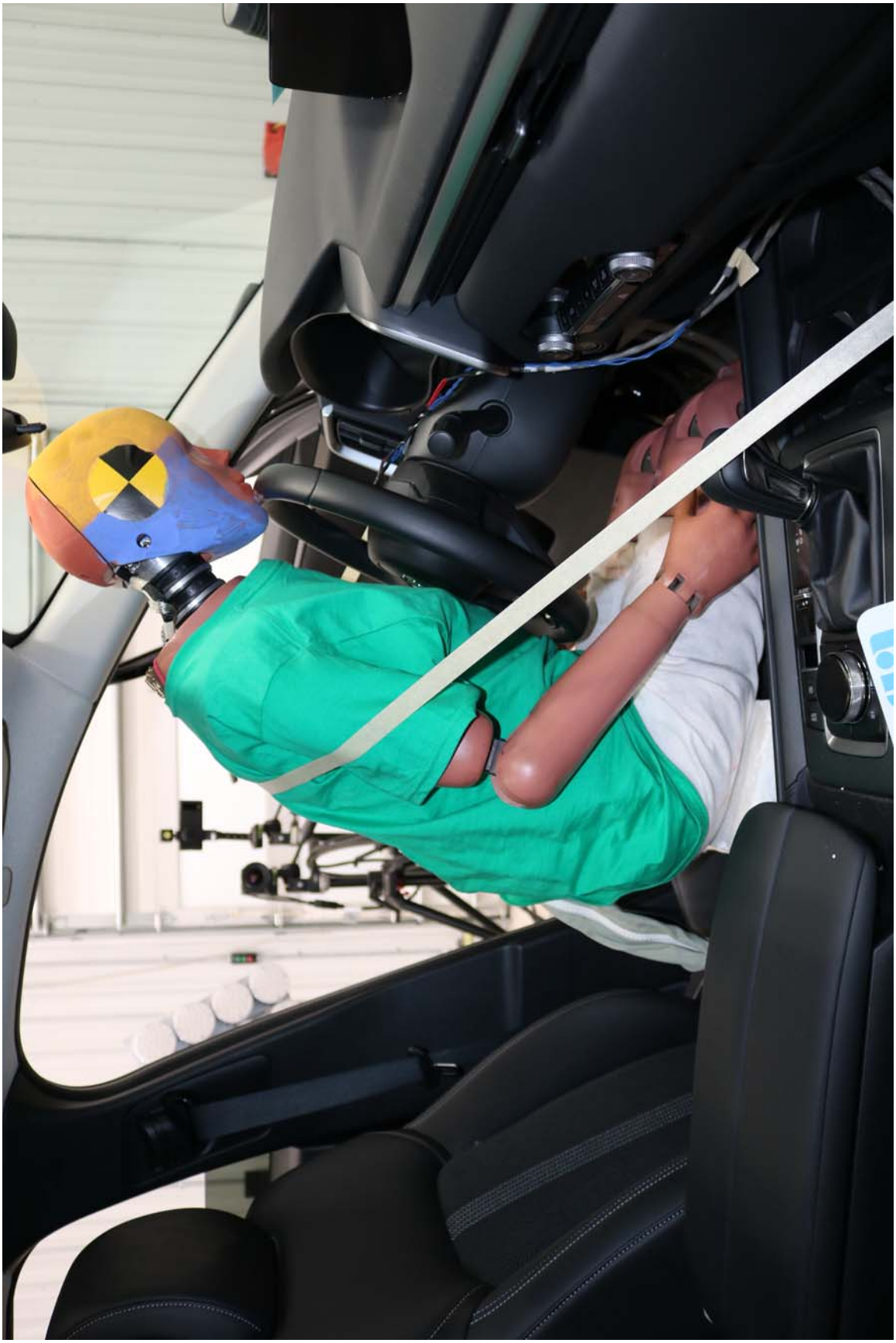

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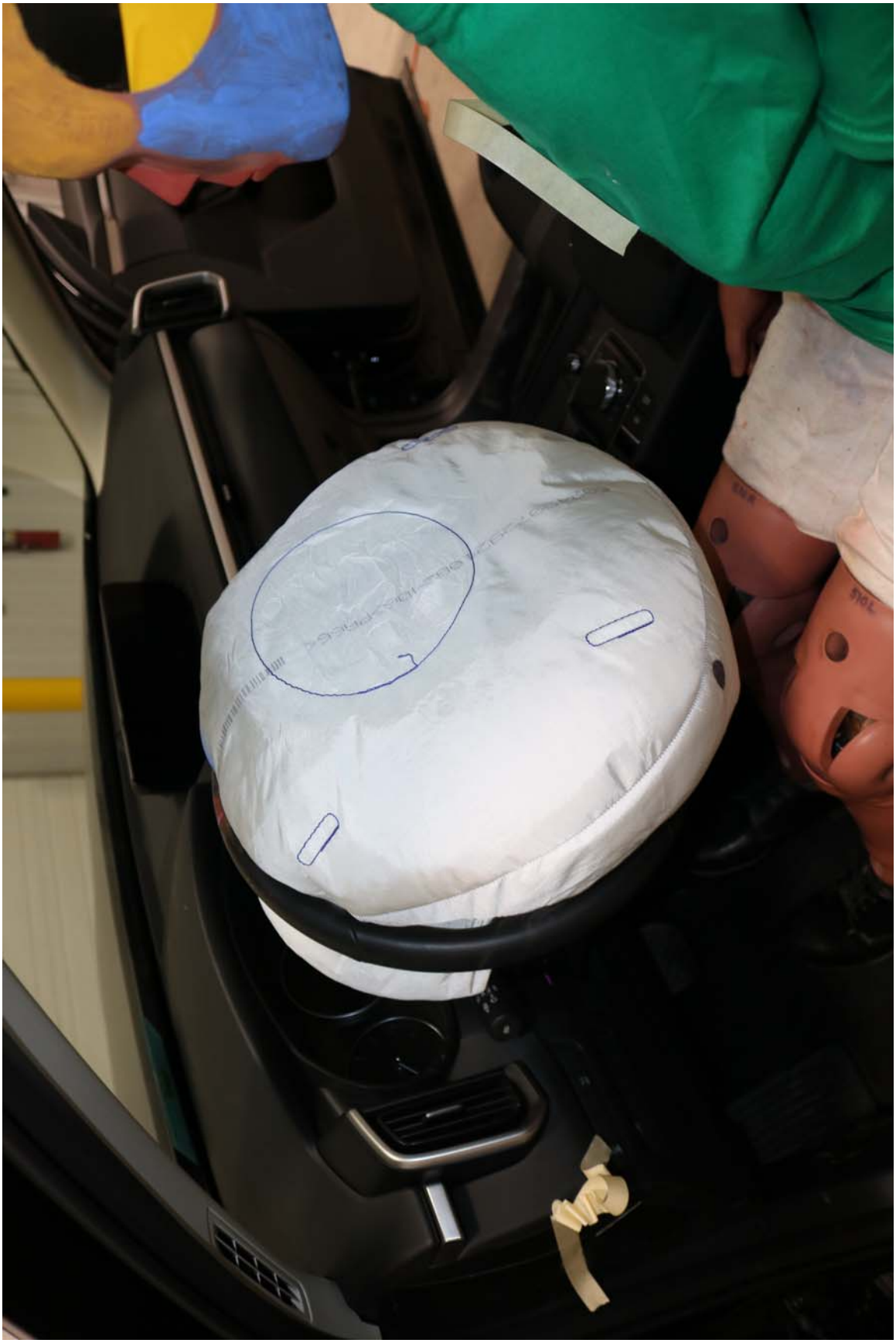

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Angel Guard Angel Ride Car Bed Belted, Forward Seat Track

Angel Guard Angel Ride Car Bed Belted, Middle Seat Track

Angel Guard Angel Ride Car Bed Belted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track

Cosco Arriva WBase, Belted, Rear Facing, Middle Seat Track

Cosco Arriva WBase, Belted, Rear Facing, Rearward Seat Track

Cosco Arriva WBase, Unbelted, Rear Facing, Middle Seat Track

Cosco Arriva WBase, Unbelted, Rear Facing, Rearward Seat Track

Cosco Arriva WBase, Unbelted, Forward Facing, Forward Seat Track

Cosco Arriva WBase, Unbelted, Forward Facing, Middle Seat Track

Cosco Arriva WBase, Unbelted, Forward Facing, Rearward Seat Track

Cosco Arriva WOut Base, Belted, Rear Facing, Middle Seat Track

Cosco Arriva WOut Base, Belted, Rear Facing, Rearward Seat Track

Cosco Arriva WOut Base, Unbelted, Rear Facing, Middle Seat Track

Cosco Arriva WOut Base, Unbelted, Rear Facing, Rearward Seat Track

Cosco Arriva WOut Base, Unbelted, Forward Facing, Forward Seat Track

Cosco Arriva WOut Base, Unbelted, Forward Facing, Middle Seat Track

Cosco Arriva WOut Base, Unbelted, Forward Facing, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track

Graco Snugride WBase, Belted, Rear Facing, Middle Seat Track

Graco Snugride WBase, Belted, Rear Facing, Rearward Seat Track

Graco Snugride WBase, Unbelted, Rear Facing, Middle Seat Track

Graco Snugride WBase, Unbelted, Rear Facing, Rearward Seat Track

Graco Snugride WBase, Unbelted, Forward Facing, Forward Seat Track

Graco Snugride WBase, Unbelted, Forward Facing, Middle Seat Track

Graco Snugride WBase, Unbelted, Forward Facing, Rearward Seat Track

Graco Snugride WOut Base, Belted, Rear Facing, Middle Seat Track

Graco Snugride WOut Base, Belted, Rear Facing, Rearward Seat Track

Graco Snugride WOut Base, Unbelted, Rear Facing, Middle Seat Track

Graco Snugride WOut Base, Unbelted, Rear Facing, Rearward Seat Track

Graco Snugride WOut Base, Unbelted, Forward Facing, Forward Seat Track

Graco Snugride WOut Base, Unbelted, Forward Facing, Middle Seat Track

Graco Snugride WOut Base, Unbelted, Forward Facing, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track

Peg Perego Viaggio WBase, Belted, Rear Facing, Forward Seat Track

Peg Perego Viaggio WBase, Belted, Rear Facing, Middle Seat Track

Peg Perego Viaggio WBase, Belted, Rear Facing, Rearward Seat Track

Peg Perego Viaggio WBase, Unbelted, Rear Facing, Forward Seat Track

Peg Perego Viaggio WBase, Unbelted, Rear Facing, Middle Seat Track

Peg Perego Viaggio WBase, Unbelted, Rear Facing, Rearward Seat Track

Peg Perego Viaggio WBase, Unbelted, Forward Facing, Forward Seat Track

Peg Perego Viaggio WBase, Unbelted, Forward Facing, Middle Seat Track

Peg Perego Viaggio WBase, Unbelted, Forward Facing, Rearward Seat Track

Peg Perego Viaggio WOut Base, Belted, Rear Facing, Forward Seat Track

Peg Perego Viaggio WOut Base, Belted, Rear Facing, Middle Seat Track

Peg Perego Viaggio WOut Base, Belted, Rear Facing, Rearward Seat Track

Peg Perego Viaggio WOut Base, Unbelted, Rear Facing, Middle Seat Track

Peg Perego Viaggio WOut Base, Unbelted, Rear Facing, Rearward Seat Track

Peg Perego Viaggio WOut Base, Unbelted, Forward Facing, Forward Seat Track

Peg Perego Viaggio WOut Base, Unbelted, Forward Facing, Middle Seat Track

Peg Perego Viaggio WOut Base, Unbelted, Forward Facing, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track

Britax Roundabout Forward Facing Belted, Forward Seat Track

Britax Roundabout Forward Facing Belted, Middle Seat Track

Britax Roundabout Forward Facing Belted, Rearward Seat Track

Britax Roundabout Forward Facing Unbelted, Forward Seat Track

Britax Roundabout Forward Facing Unbelted, Middle Seat Track

Britax Roundabout Forward Facing Unbelted, Rearward Seat Track

Britax Roundabout Rear Facing Belted, Forward Seat Track

Britax Roundabout Rear Facing Belted, Middle Seat Track

Britax Roundabout Rear Facing Belted, Rearward Seat Track

Britax Roundabout Rear Facing Unbelted, Forward Seat Track

Britax Roundabout Rear Facing Unbelted, Middle Seat Track

Britax Roundabout Rear Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track

Cosco Summit Deluxe Forward Facing Belted, Forward Seat Track

Cosco Summit Deluxe Forward Facing Belted, Middle Seat Track

Cosco Summit Deluxe Forward Facing Belted, Rearward Seat Track

Cosco Summit Deluxe Forward Facing Unbelted, Forward Seat Track

Cosco Summit Deluxe Forward Facing Unbelted, Middle Seat Track

Cosco Summit Deluxe Forward Facing Unbelted, Rearward Seat Track

Cosco Summit Deluxe Rear Facing Unbelted, Forward Seat Track

Cosco Summit Deluxe Rear Facing Unbelted, Middle Seat Track

Cosco Summit Deluxe Rear Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track

Evenflo Tribute Forward Facing Belted, Forward Seat Track

Evenflo Tribute Forward Facing Belted, Middle Seat Track

Evenflo Tribute Forward Facing Belted, Rearward Seat Track

Evenflo Tribute Forward Facing Unbelted, Forward Seat Track

Evenflo Tribute Forward Facing Unbelted, Middle Seat Track

Evenflo Tribute Forward Facing Unbelted, Rearward Seat Track

Evenflo Tribute Rear Facing Belted, Forward Seat Track

Evenflo Tribute Rear Facing Belted, Middle Seat Track

Evenflo Tribute Rear Facing Belted, Rearward Seat Track

Evenflo Tribute Rear Facing Unbelted, Forward Seat Track

Evenflo Tribute Rear Facing Unbelted, Middle Seat Track

Evenflo Tribute Rear Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track

Graco Toddler SafeSeat Step 2 Forward Facing Belted, Forward Seat Track

Graco Toddler SafeSeat Step 2 Forward Facing Belted, Middle Seat Track

Graco Toddler SafeSeat Step 2 Forward Facing Belted, Rearward Seat Track

Graco Toddler SafeSeat Step 2 Forward Facing Unbelted, Forward Seat Track

Graco Toddler SafeSeat Step 2 Forward Facing Unbelted, Middle Seat Track

Graco Toddler SafeSeat Step 2 Forward Facing Unbelted, Rearward Seat Track

Graco Toddler SafeSeat Step 2 Rear Facing Unbelted, Forward Seat Track

Graco Toddler SafeSeat Step 2 Rear Facing Unbelted, Middle Seat Track

Graco Toddler SafeSeat Step 2 Rear Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track

3-Year-Old Forward Facing Britax Roundabout Cinched With Harness, Forward Seat Track

3-Year-Old Forward Facing Britax Roundabout Cinched With Harness, Middle Seat Track

3-Year-Old Forward Facing Britax Roundabout Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track

3-Year-Old Forward Facing Cosco Summit Deluxe Cinched With Harness, Forward Seat Track

3-Year-Old Forward Facing Cosco Summit Deluxe Cinched With Harness, Middle Seat Track

3-Year-Old Forward Facing Cosco Summit Deluxe Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track

3-Year-Old Forward Facing Evenflo Tribute Cinched With Harness, Forward Seat Track

3-Year-Old Forward Facing Evenflo Tribute Cinched With Harness, Middle Seat Track

3-Year-Old Forward Facing Evenflo Tribute Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track

3-Year-Old Forward Facing Graco Toddler Safeseat Step 2 Cinched With Harness, Forward Seat Track

3-Year-Old Forward Facing Graco Toddler Safeseat Step 2 Cinched With Harness, Middle Seat Track

3-Year-Old Forward Facing Graco Toddler Safeseat Step 2 Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track

3-Year-Old Cosco High Back Booster Belted, Forward Seat Track

3-Year-Old Cosco High Back Booster Belted, Middle Seat Track

3-Year-Old Cosco High Back Booster Belted, Rearward Seat Track

3-Year-Old Cosco High Back Booster Cinched With Harness, Forward Seat Track

3-Year-Old Cosco High Back Booster Cinched With Harness, Middle Seat Track

3-Year-Old Cosco High Back Booster Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track

3-Year-Old Evenflo Generations Belted, Forward Seat Track

3-Year-Old Evenflo Generations Belted, Middle Seat Track

3-Year-Old Evenflo Generations Belted, Rearward Seat Track

3-Year-Old Evenflo Generations Cinched With Harness, Forward Seat Track

3-Year-Old Evenflo Generations Cinched With Harness, Middle Seat Track

3-Year-Old Evenflo Generations Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track

6-Year-Old Cosco High Back Booster Belted, Forward Seat Track

6-Year-Old Cosco High Back Booster Belted, Middle Seat Track

6-Year-Old Cosco High Back Booster Belted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track

6-Year-Old Evenflo Generations Belted, Forward Seat Track

6-Year-Old Evenflo Generations Belted, Middle Seat Track

6-Year-Old Evenflo Generations Belted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track

3-Year-Old Unbelted, Forward Seat Track, Position 1

3-Year-Old Unbelted, Forward Seat Track, Position 2

3-Year-Old Unbelted, Forward Seat Track, Position 3

3-Year-Old Unbelted, Forward Seat Track, Position 4

3-Year-Old Unbelted, Forward Seat Track, Position 5

3-Year-Old Unbelted, Forward Seat Track, Position 6

3-Year-Old Unbelted, Forward Seat Track, Position 7

3-Year-Old Unbelted, Middle Seat Track, Position 1

3-Year-Old Unbelted, Middle Seat Track, Position 2

3-Year-Old Unbelted, Middle Seat Track, Position 3

3-Year-Old Unbelted, Middle Seat Track, Position 4

3-Year-Old Unbelted, Middle Seat Track, Position 5

3-Year-Old Unbelted, Middle Seat Track, Position 6

3-Year-Old Unbelted, Middle Seat Track, Position 7

3-Year-Old Unbelted, Rearward Seat Track, Position 1

3-Year-Old Unbelted, Rearward Seat Track, Position 2

3-Year-Old Unbelted, Rearward Seat Track, Position 3

3-Year-Old Unbelted, Rearward Seat Track, Position 4

3-Year-Old Unbelted, Rearward Seat Track, Position 5

3-Year-Old Unbelted, Rearward Seat Track, Position 6

3-Year-Old Unbelted, Rearward Seat Track, Position 7

Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track

6-Year-Old Unbelted, Forward Seat Track, Position 1

6-Year-Old Unbelted, Forward Seat Track, Position 2

6-Year-Old Unbelted, Forward Seat Track, Position 3

6-Year-Old Unbelted, Forward Seat Track, Position 4

6-Year-Old Unbelted, Middle Seat Track, Position 1

6-Year-Old Unbelted, Middle Seat Track, Position 2

6-Year-Old Unbelted, Middle Seat Track, Position 3

6-Year-Old Unbelted, Middle Seat Track, Position 4

6-Year-Old Unbelted, Rearward Seat Track, Position 1

6-Year-Old Unbelted, Rearward Seat Track, Position 2

6-Year-Old Unbelted, Rearward Seat Track, Position 3

6-Year-Old Unbelted, Rearward Seat Track, Position 4

Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track

APPENDIX F

INSTRUMENTATION CALIBRATION

INSTRUMENTS FOR DRIVER DUMMY NO.: 401

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	C12811	Endevco	5/8/23
Head Y	C12853	Endevco	5/8/23
Head Z	AL6Y2	Endevco	5/8/23
Neck Load Cell	N1562	Humanetics	4/11/23
Chest X	AGH55	Endevco	5/8/23
Chest Y	AGH70	Endevco	5/8/23
Chest Z	AGH72	Endevco	5/8/23
Chest Displacement	401	Humanetics	5/3/23
Left Femur Load Cell	F2027	Denton	5/15/23
Right Femur Load Cell	F2026	Denton	5/15/23

INSTRUMENTS FOR PASSENGER DUMMY NO.: 403

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AGH74	Endevco	5/8/23
Head Y	AH5D9	Endevco	5/8/23
Head Z	AH5L1	Endevco	5/8/23
Neck Load Cell	N2039	Denton	4/5/23
Chest X	AH5J3	Endevco	5/8/23
Chest Y	AGH90	Endevco	5/8/23
Chest Z	C12885	Endevco	5/8/23
Chest Displacement	403	Humanetics	5/3/23
Left Femur Load Cell	F3138	Humanetics	5/15/23
Right Femur Load Cell	F3137	Humanetics	5/15/23

INSTRUMENTS FOR LOW RISK 5TH FEMALE DUMMY NO.: 510 (P1 & P2)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P79575	Endevco	11/16/22
Head Y	P79577	Endevco	11/16/22
Head Z	P79578	Endevco	11/16/22
Neck Load Cell	N1145	Denton	2/15/23
Chest X	P88335	Endevco	11/16/22
Chest Y	P93609	Endevco	11/16/22
Chest Z	P88334	Endevco	11/16/22
Chest Displacement	510	Humanetics	11/16/22
Left Femur Load Cell	F1827	Denton	11/16/22
Right Femur Load Cell	F1826	Denton	11/16/22

VEHICLE INSTRUMENTS

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	A391164	MSI	2/2/23
Right Rear Seat Crossmember X	A403840	MSI	3/29/23
Top of Engine X	A383772	MSI	12/15/22
Bottom of Engine X	A381207	MSI	2/2/23
Left Brake Caliper X	A340183	MSI	11/22/22
Right Brake Caliper X	T33482	Endevco	4/5/23
Instrument Panel X	A370347	MSI	3/8/23
Trunk Z	A405526	MSI	1/9/23