

FINAL REPORT NUMBER: SPNCAP-TRC-24-001

**NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST**

**FORD MOTOR CO.
2024 Ford Mustang Coupe
NHTSA NUMBER: M20240206**

**PREPARED BY:
Transportation Research Center Inc.
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P. O. Box B-67
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Report Date: October 23, 2024

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NRM-110
1200 New Jersey Ave, SE
Washington, D.C. 20590**

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Report Prepared By: ILO Project Operations Group

Report Approved By: _____



John Shultz

Approval Date: October 23, 2024

FINAL REPORT ACCEPTANCE BY OCWS:

Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

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COTR, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

Technical Report Documentation Page

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15. Supplemental Notes																															
16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2024 Ford Mustang Coupe, in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on May 8, 2024. The impact velocity was 32.09 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 21.5° C. The test vehicle's post-test maximum crush was 333 mm at Level 3. The test or target vehicle's performance is given below: <table border="1"> <thead> <tr> <th></th><th><u>Unit</u></th><th><u>Threshold</u></th><th><u>Front SID-IIs</u></th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆):</td><td>NA</td><td>1000</td><td><u>282.750</u></td></tr> <tr> <td>Resultant Lower Spine Acceleration:</td><td>g's</td><td>82</td><td><u>34.840</u></td></tr> <tr> <td>Total Pelvic Force:</td><td>N</td><td>5525</td><td><u>2292.270</u></td></tr> <tr> <td colspan="4">(sum of acetabular and iliac forces)</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38*</td><td><u>19.190</u></td></tr> <tr> <td>Maximum Abdomen Rib Deflection</td><td>mm</td><td>45*</td><td><u>17.740</u></td></tr> </tbody> </table> * Proposed IARV The doors on the struck side did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					<u>Unit</u>	<u>Threshold</u>	<u>Front SID-IIs</u>	Head Injury Criteria (HIC ₃₆):	NA	1000	<u>282.750</u>	Resultant Lower Spine Acceleration:	g's	82	<u>34.840</u>	Total Pelvic Force:	N	5525	<u>2292.270</u>	(sum of acetabular and iliac forces)				Maximum Thoracic Rib Deflection	mm	38*	<u>19.190</u>	Maximum Abdomen Rib Deflection	mm	45*	<u>17.740</u>
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave Washington, DC 20590																													
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SECTION 1

TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY24 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. 693JJ920D000018. The purpose of this test is to generate comparative side impact performance in a 2024 Ford Mustang Coupe manufactured by FORD MOTOR CO. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated March 2020.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a model year 2024 Ford Mustang Coupe. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.09 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on May 8, 2024. Pre-test and post-test photographs of the test vehicle and the side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated March 2020. Camera locations and other pertinent camera information are included in this report.

The Part 572V (SID-IIs) dummy was instrumented accordingly:

- Primary and Redundant Head CG Triaxial Accelerometers
- Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
- Abdomen Upper and Lower Rib Displacement Potentiometers
- Lower Spine (T12) Triaxial Accelerometers
- Iliac Load Cell
- Acetabulum Load Cell

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. Appendix D contains the test equipment and instrumentation calibration data.

Injury readings for the SID-IIs dummy were recorded as follows:

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)	NA	1000	282.750
Lower Spine Acceleration Resultant	G	82	34.840
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2292.270
Maximum Thoracic Rib Deflection	mm	38*	19.190
Maximum Abdominal Rib Deflection	mm	45*	17.740

* Proposed IARV

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Torso Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	Yes	No
Seat Belt Load Limiter	Yes	Yes	Yes	No
Other	No	N/A	No	N/A

GENERAL COMMENTS

Left Floor Sill Acceleration (Y)

Left B-Pillar Sill Acceleration (Y)

Left Lower B-Pillar Acceleration (Y)

Left Mid B-Pillar Acceleration (Y)

Firewall Center Acceleration (Y)

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Ford Mustang Coupe
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
 Test Date: 5/8/2024

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20240206
Model Year	2024
Make	Ford
Model	Mustang
Body Style	Passenger Car
VIN	1FA6P8TH2R5121799
Body Color	Carbonized Gray Metallic
Odometer Reading (km/mi)	23.6 mi
Engine Displacement (L)	2.3
Type/No. Cylinders	Inline/4
Engine Placement	Front
Transmission Type	Automatic
Transmission Speeds	10
Overdrive	No
Final Drive	Rear
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	N/A
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Pass. Load Limiter	Yes
Other	No

Does owner's manual provide instructions to turn off automatic door locks?

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Co
Date of Manufacturer	12/23
Vehicle Type	Passenger Car

GVWR (kg)	2050
GAWR Front (kg)	1007
GAWR Rear (kg)	1091

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	2	0	4
Vehicle Capacity Weight (VCW) (kg)				285.0
DSC X 68.0 kg				272.0
Rated Cargo and Luggage Weight (RCLW) (kg)				13.0

VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	Yes	N/A	N/A		N/A	Yes	N/A
Rear or Second Row Seat	Yes	N/A	N/A	N/A	Yes	N/A	N/A
Third row seat	N/A	N/A	N/A	N/A	N/A	N/A	N/A

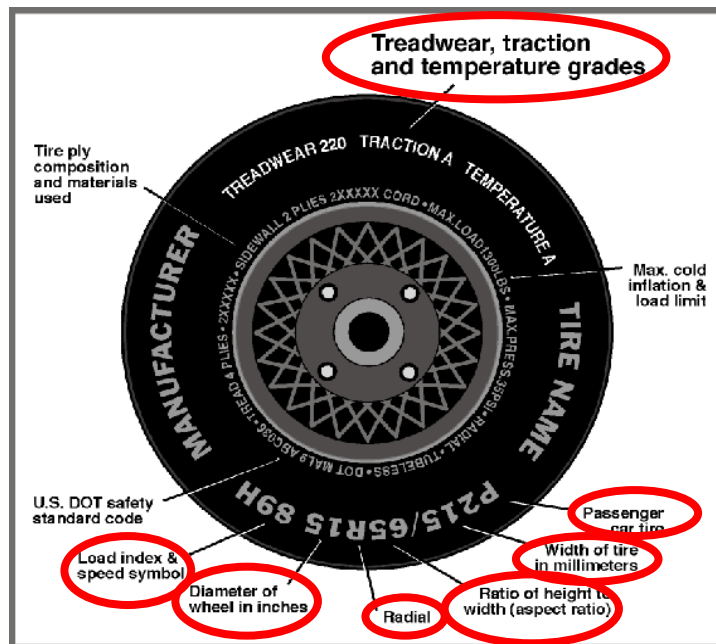
DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Ford Mustang Coupe

NHTSA No.: M20240206

Test Program: SPNCAP Side Impact

Test Date: 5/8/2024

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	220	220
Recommended Tire Size	235/50R18	235/50R18
Tire Size on Vehicle	235/50R18	235/50R18
Tire Manufacturer	Continental	Continental
Tire Model	ProContact Rx	ProContact Rx
Treadwear	400	400
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	4	4
Load Index/Speed Symbol	97W	97W
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Left	1A3 0FB EF7 4723	1A3 0FB EF7 4723
DOT Safety Code Right	1A3 0FB EF7 4723	1A3 0FB EF7 4823

DATA SHEET NO. 1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Ford Mustang Coupe NHTSA No.: M20240206
 Test Program: SPNCAP Side Impact Test Date: 5/8/2024

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	220	220	220	220
Tire Placard	kPa	220	220	220	220
Owner's Manual	kPa	220	220	220	220
As Tested	kPa	220	220	220	220

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	442.2	368.6		455.8	378.8		463.4	394.4	
Right	kg	440.0	376.0		431.8	414.4		440.2	390.6	
Ratio	%	54.2	45.8		52.8	47.2		53.5	46.5	
Totals	kg	882.2	744.6	1626.8	887.6	793.2	1680.8	903.6	785.0	1688.6

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1626.8	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	13.0	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1688.8	(A+B+C)

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to 9 kg)? ☒ YES ☐ NO

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	0.1	0	0.0	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	0.3	0.2	0.2	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	0.0	0	0.0	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	-0.4	-0.5	-0.5	Yes
Vehicle CG (Aft of Front Axle)	mm	1245	1284	1264	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	-3	-6	13	

*ND=Nose Down (-), NU=Nose Up (+) **LD=Left Down (-), LU=Left Up (+)

*** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements. Indicate "Yes" or "No" for "Meets Requirements".

DATA SHEET NO. 1 (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2024 Ford Mustang CoupeNHTSA No.: M20240206Test Program: SPNCAP Side ImpactTest Date: 5/8/2024**WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW**

Component Description	Weight (kg)
Ballast: Steel plate	3.2
Components Removed: None	0.0

Test height adjustable suspension setting, if applicable:

N/A

TEST SURFACE MARKINGS

	Distance from 75° Impact Location Line (mm)
Fore 25 mm target	1835
Aft 25 mm target	1830

DATA SHEET NO. 2

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2024 Ford Mustang Coupe

NHTSA No.: M20240206

Test Program: SPNCAP Side Impact

Test Date: 5/8/2024

SEAT POSITIONING

The driver seat, front center seat (if applicable), and right front passenger's seat should be set to the forward-most, mid-height, mid-angle position. The struck-side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rear-most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL(°)		
	Max.	Min.	Mid
Driver Seat	23.5	14.5	19
Front Passenger Seat	22.2	22.0	22.1
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	31.4	31.4
Non-Struck Side Rear Seat	Fixed	31.4	31.4
Rear Center Seat*	N/A	N/A	N/A

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore/Aft	Forward-Most
Driver Seat	19.0	92	Max	80	95	110
			Mid	65	75	92
			Min	50	55	75
Front Passenger Seat	22.1	125	Max	Fixed	Fixed	Fixed
			Mid	104	116	125
			Min	Fixed	Fixed	Fixed
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2024 Ford Mustang Coupe

NHTSA No.: M20240206

Test Program: SPNCAP Side Impact

Test Date: 5/8/2024

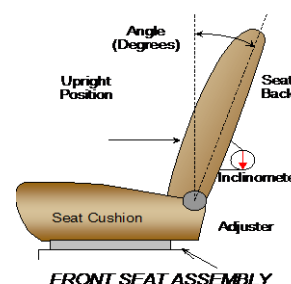
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detent*
Driver Seat	274	N/A	0	Full Forward
Front Passenger Seat	255	38	0	Full Forward
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	N/A	N/A
Non-Struck Side Rear Seat	Fixed	N/A	N/A	N/A
Rear Center Seat*	N/A	N/A	N/A	N/A

* If applicable.

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1. For the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	19.0	N/A	1.9	N/A
Front Passenger Seat	54	18	2.6	6
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	N/A	N/A
Non-Struck Side Rear Seat	Fixed	N/A	N/A	N/A
Rear Center Seat*	Fixed	N/A	N/A	N/A

* If applicable.

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted with the information provided by the manufacturer on Form No. 1

	Total # of Positions	Placed in Position #
Driver Seat	Fixed	Fixed

HEAD RESTRAINT ADJUSTMENT

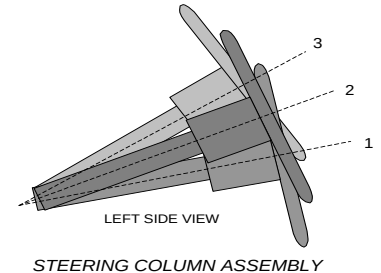
Head restraints are adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	4	4

DATA SHEET NO. 2 (CONTINUED)**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA**Test Vehicle: 2024 Ford Mustang CoupeNHTSA No.: M20240206Test Program: SPNCAP Side ImpactTest Date: 5/8/2024**STEERING COLUMN ADJUSTMENT**

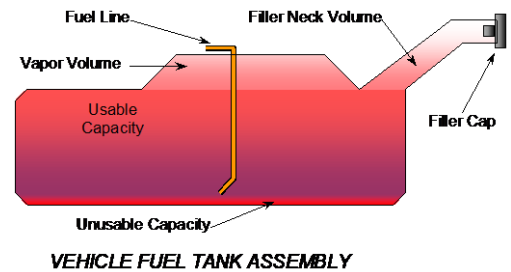
Steering wheel and column adjustments are made so that the steering wheel geometric locus it describes when moved through its full range of motion.

	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	19.2	
Geometric Center, Position No. 2	22.0	
Uppermost, Position No. 3	24.8	
Telescoping Steering Wheel Travel		62
Test Position	22.0	31

**FUEL PUMP**

Describe the fuel pump type, details about how it operates and the location of the fuel filler neck:

Fuel pump cycles for a brief period when key is moved to on position, but does not pump fuel unless engine is running. They system also primes at door open for 1 second.

**FUEL TANK CAPACITY**

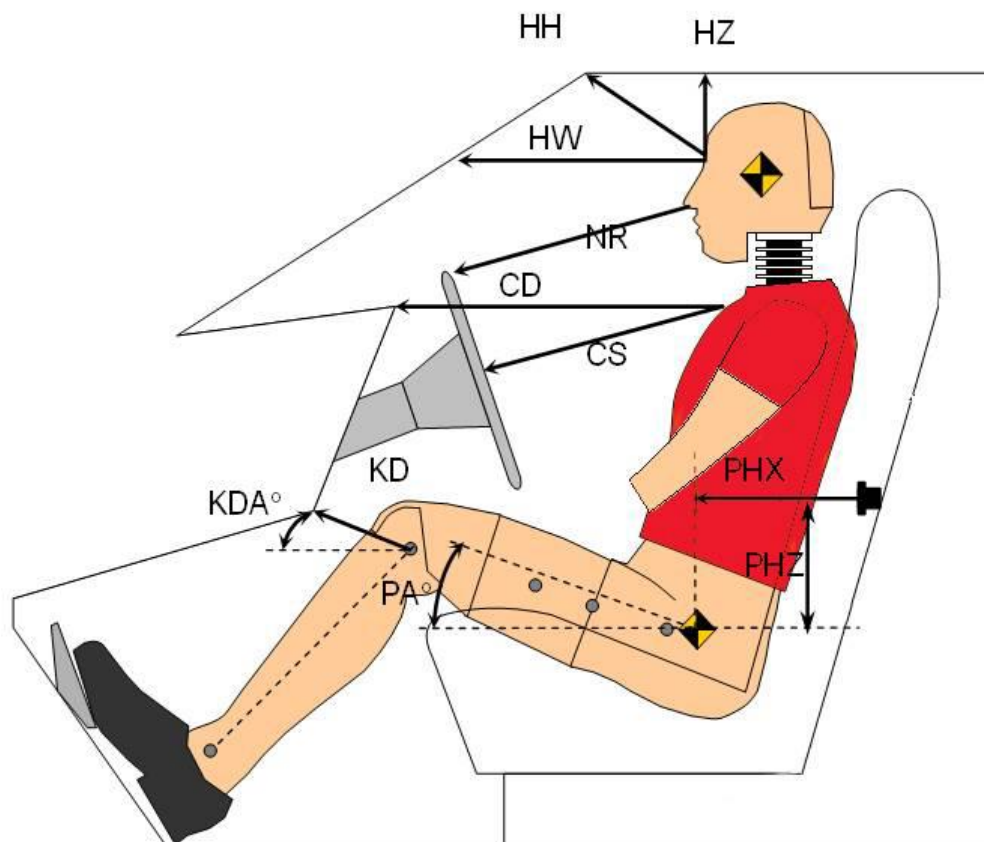
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	60.9
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	60.9
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	56.7
Actual Amount of Solvent Used in Test	56.7
1/3 of Usable Capacity	20.3

Is the Actual Amount of Solvent Used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated in on Form No. 1? ☒ YES ☐ NO

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Ford Mustang Coupe
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
 Test Date: 5/8/2024

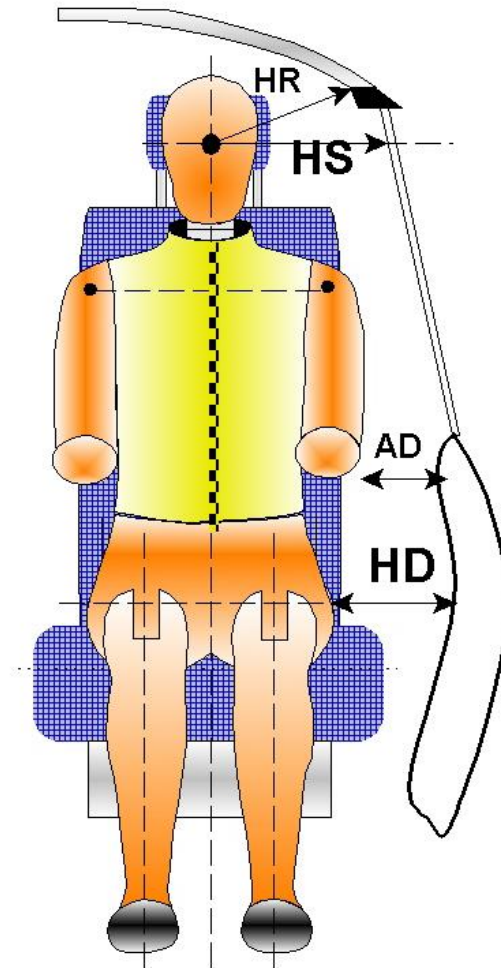


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	227	
HW	Head to Windshield	520	
HZ	Head to Visor	138	
NR	Nose to Rim	229	
CD	Chest to Dashboard	470	
CS	Chest to Steering Wheel	172	
KDL/KDLA°	Left Knee to Dash	162	11.3
KDR/KDRA°	Right Knee to Dash	152	11.1
PAX°	Pelvic Tilt Angle (X-axis)		18.5
PAY°	Pelvic Tilt Angle (Y-axis)		0.8
PHX	Hip Point to Striker (X-Axis)	584	
PHZ	Hip Point to Striker (Z-Axis)	165	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Ford Mustang Coupe
Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
Test Date: 5/8/2024

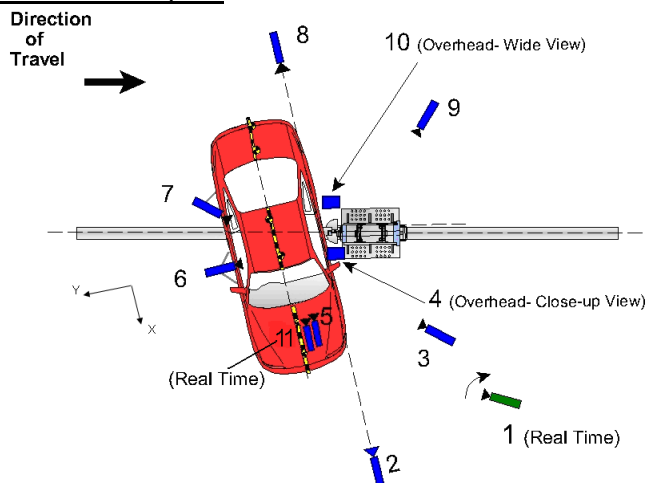


Code	Measurement Description	Length (mm)
HR	Head to Side Header	216
HS	Head to Side Window	373
AD	Arm to Door	131
HD	Hip Point to Door	170

DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2024 Ford Mustang Coupe
Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
Test Date: 5/8/2024



REFERENCE: (from point of impact for X and Y; from ground for Z)
+ X = Forward of vehicle, + Y = Right of vehicle, + Z = Down

Camera No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real time (24-30 fps) pan view of impact				Zoom	30
2	Front ground level – impact view	5330	-30	-1500	20	1000
3	Impact side 45° – forward pole view	6124	-121	-1900	20	1000
4	Overhead Close-up view of impact	-50	-120	-1120	50	1000
5	Onboard – dummy front view				8.5	1000
6	Onboard – dummy side view				8.5	1000
7	Onboard – dummy rear oblique view				8.5	1000
8	Rear ground level – impact view	-3169	-1780	-1390	20	1000
9	Impact side 45° – rearward pole view	-3190	-2770	-1550	20	1000
10	Overhead wide view of impact	0	0	-4650	12.5	1000
11	Real time dummy front view				Zoom	60

All measurements accurate to +/- 6 mm.

NOTE: Vehicle was at a 75° angle to the rigid pole.

If applicable, explain why camera(s) did not run: Camera Nos. 8 & 9 did not run due to a damaged ethernet cable.

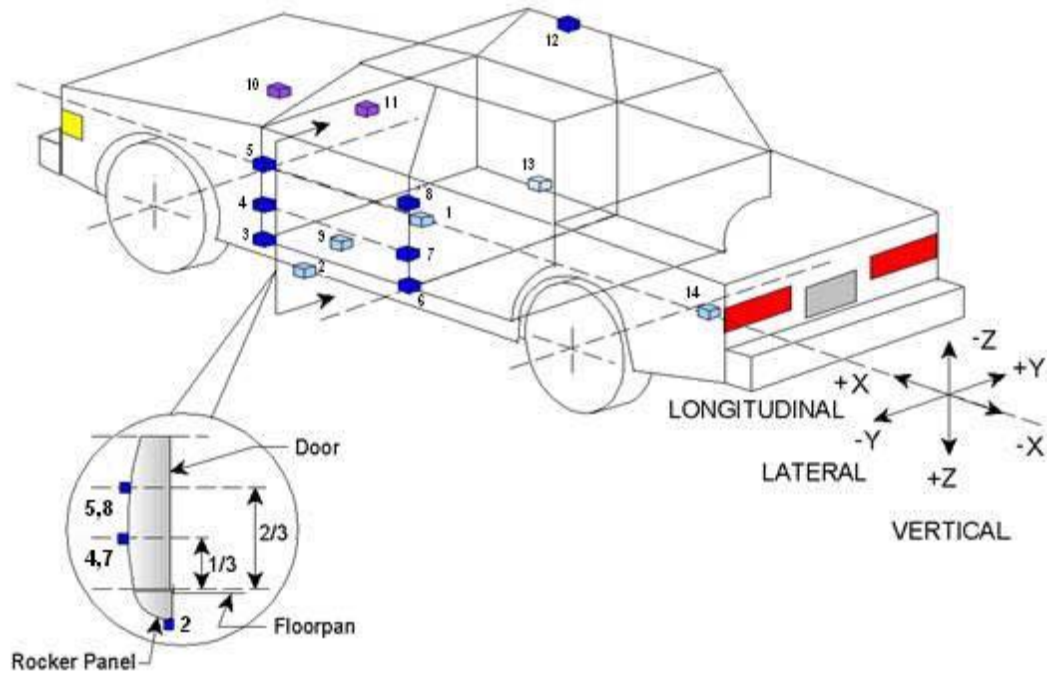
INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	8
TOTAL	42

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2024 Ford Mustang Coupe
Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
Test Date: 5/8/2024



Accelerometer/Sensor Location				
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2849	135	-456
2	Left Floor Sill	2733	-656	-296
3	A-Pillar Sill	3088	-696	-420
4	A-Pillar Low	3080	-810	-483
5	A-Pillar Mid	3098	-808	-600
6	B-Pillar Sill	1971	-726	-480
7	B-Pillar Low	1818	-734	-757
8	B-Pillar Mid	1814	-744	-935
9	Driver Seat Track	2322	-578	-270
10	Engine Top	3966	15	-892
11	Firewall	3471	-42	-858
12	Right Roof	2155	548	-1353
13	Right Floor Sill	2737	651	-197
14	Rear Floorpan	996	-2	-500

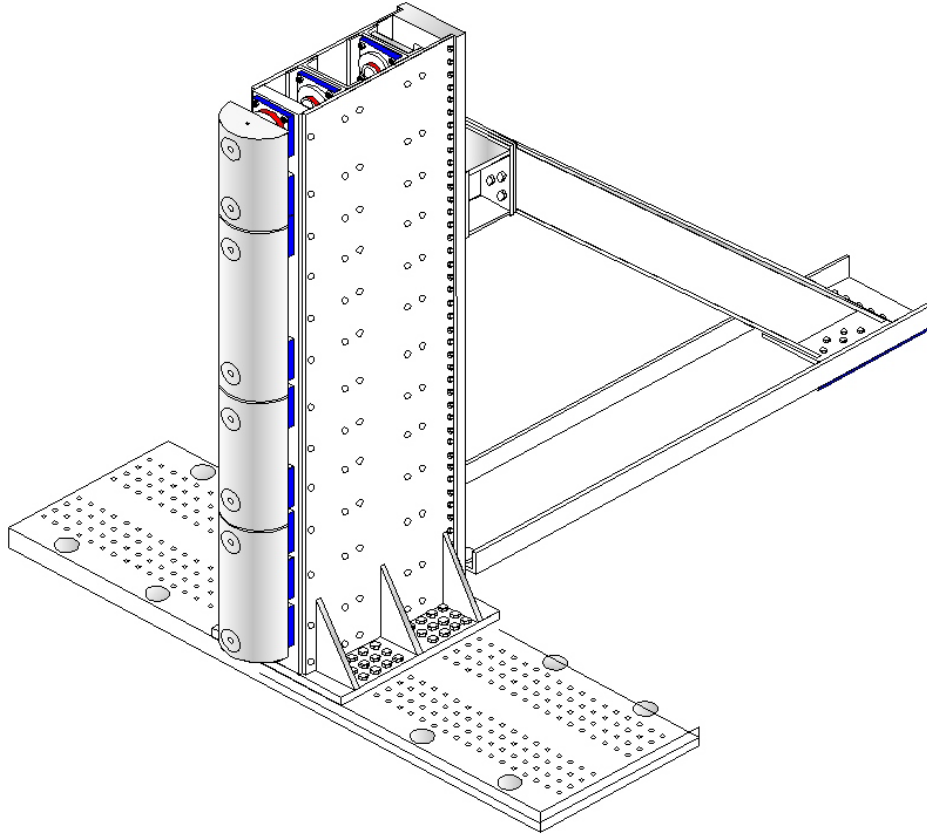
Reference: X - Test Vehicle Rear Bumper (+ forward)
Y - Test Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2024 Ford Mustang Coupe
Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
Test Date: 5/8/2024

FOIL 300K RIGID POLE



Load Cell Locations	
ID	Height From Top of Carrier (mm)
1	87
2	468
3	648
4	978
5	1168
6	1651
7	1816
8	2057

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2024 Ford Mustang Coupe
Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
Test Date: 5/8/2024

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	SCAB
Top of Head	Side Header
Left Side of Head	SCAB
Back of Head	SCAB
Left Shoulder	SAB
Upper Torso	SAB, Seat Bolster
Lower Torso	SAB, Seat Bolster
Left Hip	SAB
Left Knee	Door Panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	Yes	N/A	Yes	N/A	Yes
Total Separation from Vehicle at Hinges or Latches	No	N/A	No	N/A	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	N/A	No	N/A	No
Disengaged from Latched Position	No	N/A	No	N/A	No
Latch Separated from Striker	No	N/A	No	N/A	No
Jammed Shut	Yes	N/A	No	N/A	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	N/A	No	N/A
Seat Disengagement from Floor pan	No	N/A	No	N/A
Seat Back Movement from Initial Position	No	N/A	No	N/A
Seat Back Collapse	No	N/A	No	N/A

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	Cracked throughout
Side Window Damage	Blown out
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST-TEST OBSERVATIONS

Test Vehicle: 2024 Ford Mustang Coupe
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
 Test Date: 5/8/2024

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side (Driver)		Struck Side (Rear Passenger)	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Torso Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	Yes	No
Seat Belt Load Limiter	Yes	Yes	Yes	No
Other	No	N/A	No	N/A

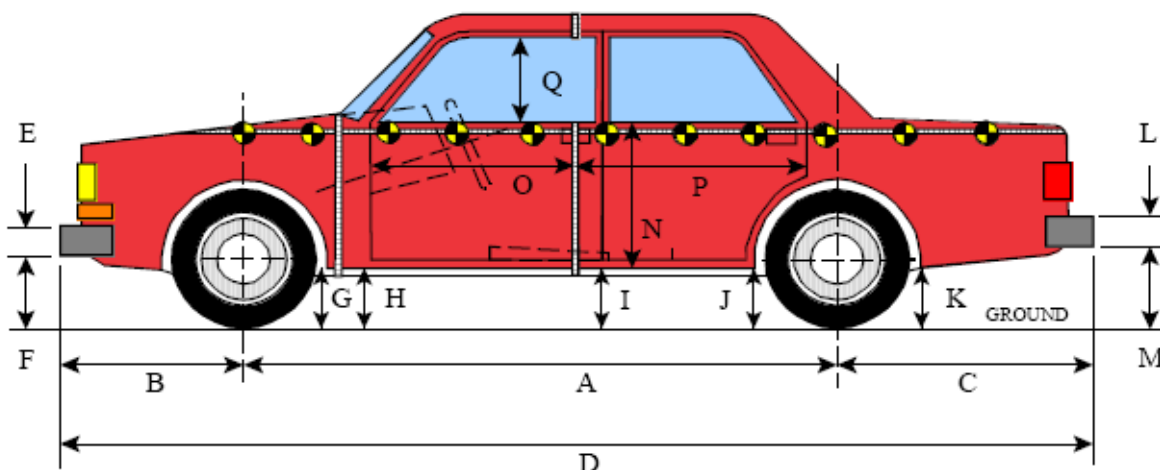
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1345
Actual Impact Point (Aft of Front Axle)	mm		1352
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	-7
Angle Between Vehicle's Longitudinal Centerline and Line of Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.09
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.08

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2024 Ford Mustang Coupe
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
 Test Date: 5/8/2024



LEFT SIDE VIEW

All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

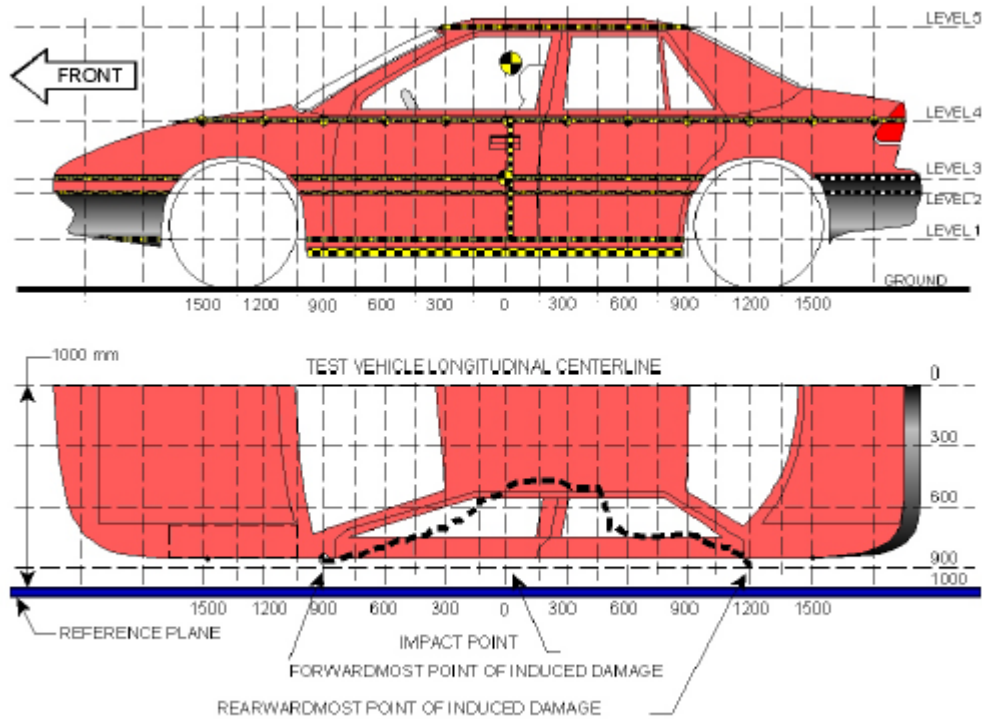
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2720	2681	-39
B	Front Axle to Front Surface of Vehicle	941	1001	60
C	Rear Axle to Rear Surface of Vehicle	1140	1120	-20
D	Total Length at Centerline	4801	4802	1
E	Front Bumper Thickness	104	104	0
F	Front Bumper Bottom to Ground	400	448	48
G	Sill Height at Front Wheel Well	250	250	0
H	Sill Height at Front Door Leading Edge	268	280	12
I	Sill Height at B-Pillar	278	288	10
J1	Sill Height at Rear Wheel Well	218	256	38
J2	Pinch Weld Height at Rear Wheel Well	147	174	27
K	Sill Height Aft of Rear Wheel Well	247	275	28
L	Rear Bumper Thickness	40	40	0
M	Rear Bumper Bottom to Ground	438	459	21
N	Sill Height to Bottom of Front Window Sill	735	737	2
O	Front Door Leading Edge to Impact CL	627	560	-67
P	Rear Door Trailing Edge to Impact CL	775	585	-190
Q	Front Window Opening	340	298	-42
R	Right Side Length	4456	4452	-4
S	Left Side Length	4456	4410	-46
T	Vehicle Width at B-Pillars	1809	1806	-3
U	Front Wheel Track Width	1588	1556	-32
V	Rear Wheel Track Width	1664	1650	-14

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 Ford Mustang Coupe
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
 Test Date: 5/8/2024



NOTE: All measurements are in millimeters (mm)

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	338	314	0
2	Occupant H-Point	541	331	0
3	Mid-Door	616	333	0
4	Window Sill	892	276	0
5	Window Top	1282	98	-150

NOTE: The above measurements should be taken along the vertical impact reference line. Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 Ford Mustang Coupe
Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
Test Date: 5/8/2024

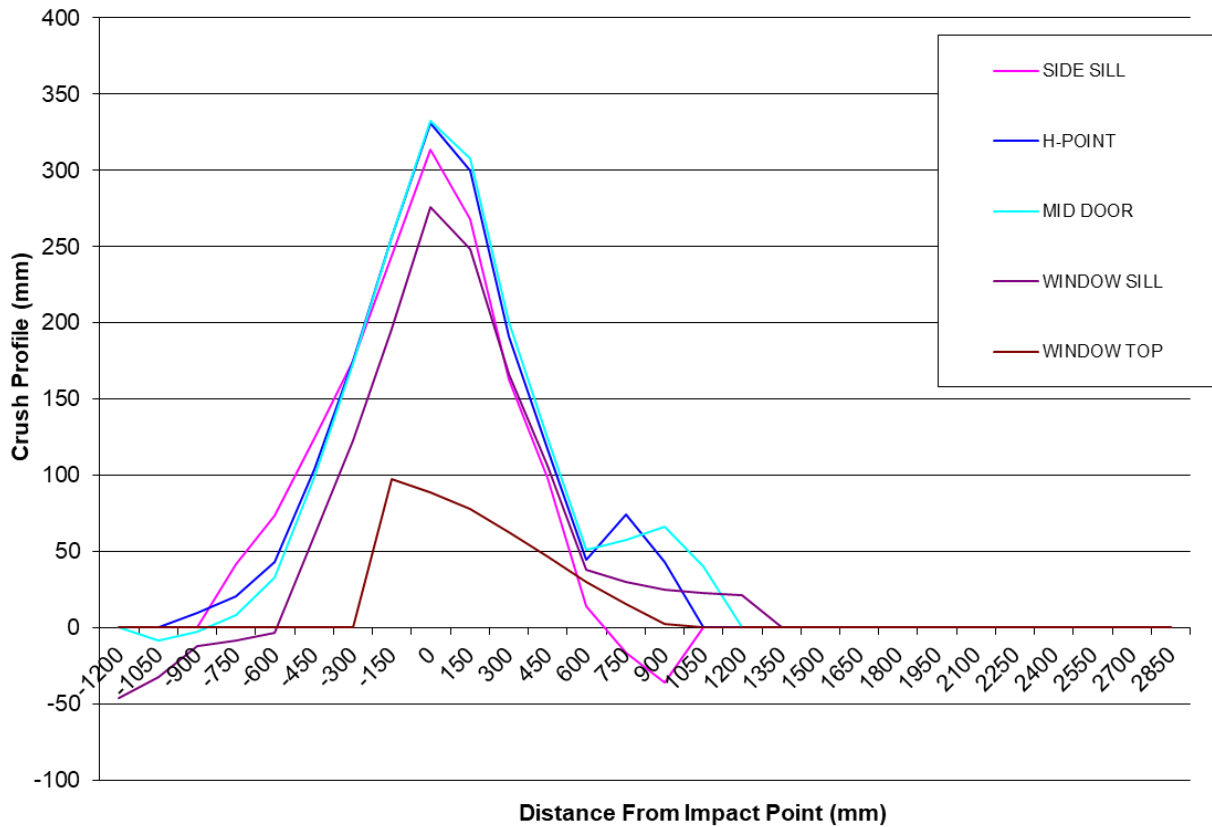
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1350	0	0	0	854	0	0	0	0	912	0	0	0	0	-58	0
-1200	0	0	0	859	0	0	0	0	905	0	0	0	0	-46	0
-1050	0	0	936	861	0	0	0	945	893	0	0	0	-9	-32	0
-900	911	927	926	864	0	892	917	929	876	0	19	10	-3	-12	0
-750	899	920	922	866	0	857	899	914	875	0	42	21	8	-9	0
-600	896	919	922	869	0	822	875	889	872	0	74	44	33	-3	0
-450	894	918	921	868	0	770	814	822	808	0	124	104	99	60	0
-300	889	916	920	866	0	714	741	746	744	0	175	175	174	122	0
-150	887	914	918	866	628	642	658	662	670	530	245	256	256	196	98
0	885	911	916	865	647	571	580	583	589	558	314	331	333	276	89
150	884	908	914	861	644	616	609	606	613	566	268	299	308	248	78
300	883	906	912	856	637	720	715	711	690	575	163	191	201	166	62
450	881	904	909	851	631	783	787	784	745	585	98	117	125	106	46
600	879	902	907	846	622	865	857	856	807	592	14	45	51	39	30
750	887	904	905	840	606	904	830	847	809	591	-17	74	58	31	15
900	916	931	925	854	582	952	888	859	829	579	-36	43	66	25	3
1050	0	0	950	877	0	0	0	910	854	0	0	0	40	23	0
1200	0	0	0	890	0	0	0	0	869	0	0	0	0	21	0
1350	0	0	0	854	0	0	0	0	912	0	0	0	0	-58	0

NOTE: Pre-test measurements are taken when the vehicle is in the “As Tested” weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point. The final distance from impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy’s head.

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 Ford Mustang Coupe
Test Program: SPNCAP Side Impact

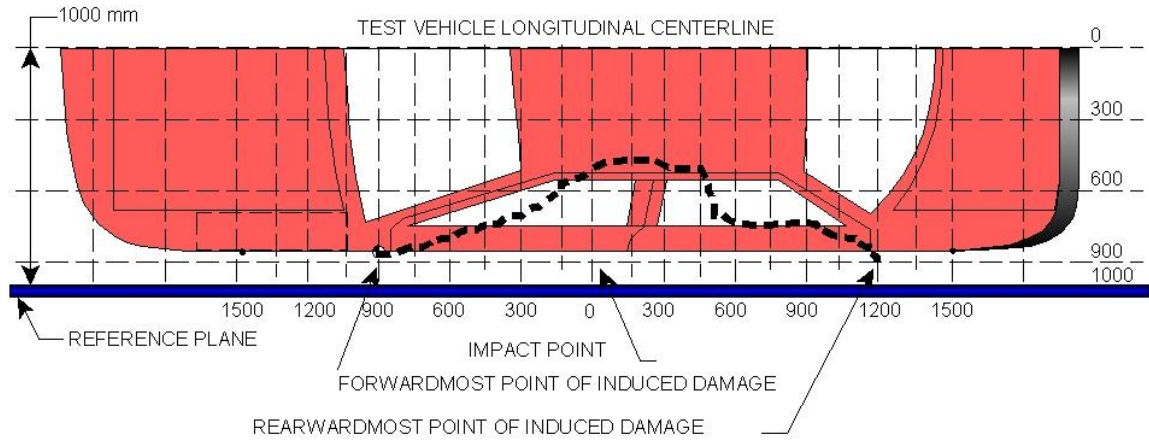
NHTSA No.: M20240206
Test Date: 5/8/2024



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2024 Ford Mustang Coupe
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240206
 Test Date: 5/8/2024



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	1200	4	869	890	21
2	750	2	830	904	74
3	300	3	711	912	201
4	0	3	583	916	333
5	-450	1	770	894	124
6 ¹	-900	1	892	911	0

¹ DPD 6 is defined as zero crush since the crush does not extend to the end of the vehicle.

DATA SHEET NO. 12

FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2024 Ford Mustang Coupe

NHTSA No.: M20240206

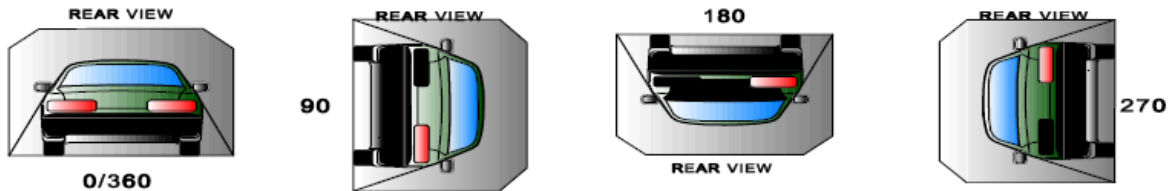
Test Program: SPNCAP Side Impact

Test Date: 5/8/2024

Test Time: 15:30 Temperature: 21.8°C

- A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable is 1 ounce)
- B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable is 5 ounces)
- C. For the following 25 minutes: 0 oz.
(Maximum allowable is 1 ounce/minute)
- D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	90	330	420
90 to 180	90	330	840
180 to 270	90	330	1260
270 to 360	90	330	1680

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

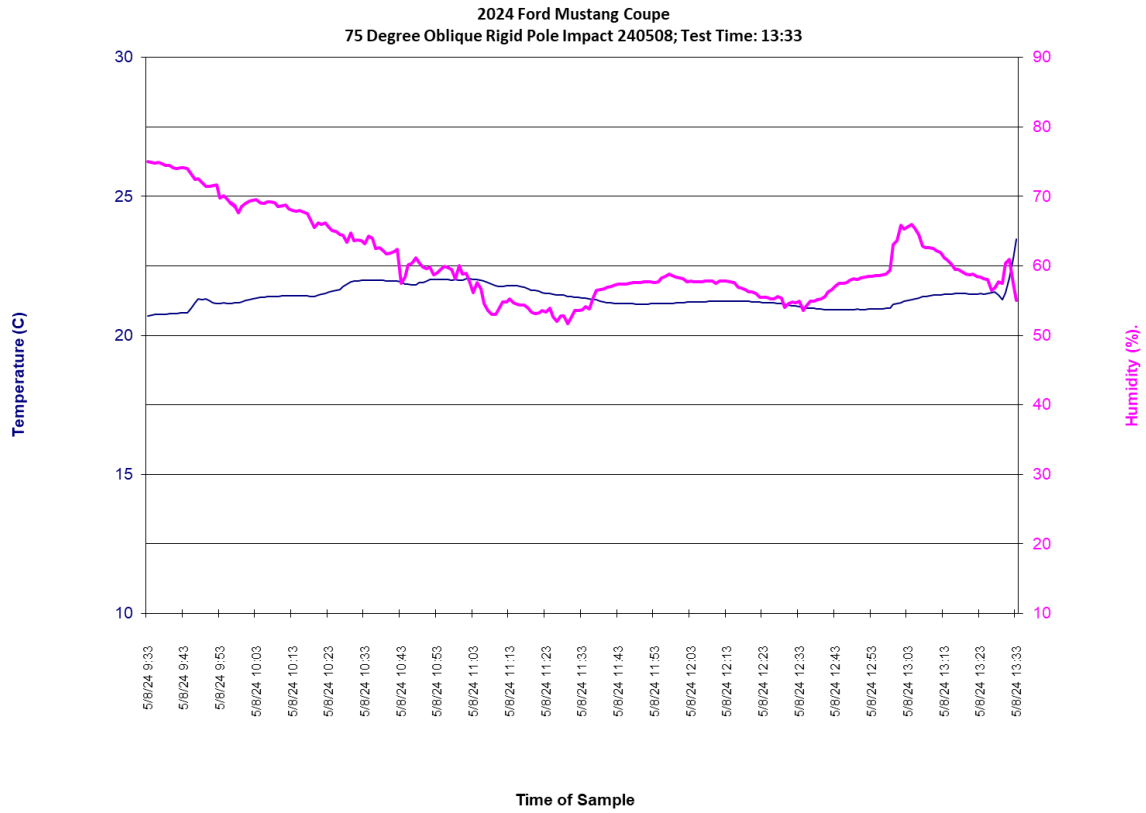
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	0
90 to 180	0	0	0	0
180 to 270	0	0	0	0
270 to 360	0	0	0	0

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0 to 90	None
90 to 180	None
180 to 270	None
270 to 360	None

DATA SHEET NO. 13
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2024 Ford Mustang Coupe NHTSA No.: M20240206
Test Program: SPNCAP Side Impact Test Date: 5/8/2024



APPENDIX A
PHOTOGRAPHS

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2	As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-4
3	Pre-Test Frontal View of Test Vehicle	A-5
4	Post-Test Frontal View of Test Vehicle	A-5
5	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-6
6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-6
7	Pre-Test Left Side View of Test Vehicle	A-7
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20	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-13
21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-14
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23	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-15
24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-16
25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-16
26	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-17
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30	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-19
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39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-23
40	Pre-Test Dummy and Door Clearance View	A-24
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48	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-28
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54	Post-Test Inner Rear Passenger Torso Air Bag Deployment View	A-31
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71	Monroney Label	A-40
72	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-40
73	Post-Test View of Shattered Vehicle Inner Door Panel	A-41



No. 001 As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



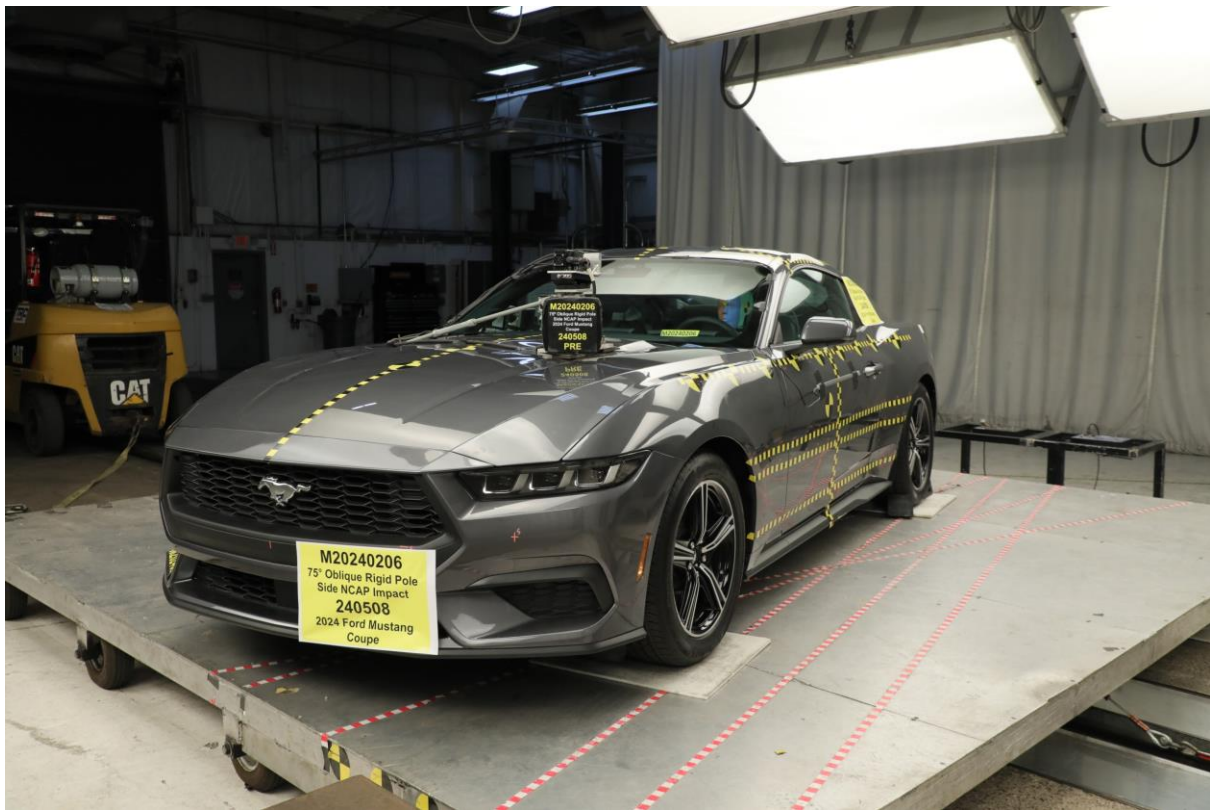
No. 002 As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



No. 003 Pre-Test Frontal View of Test Vehicle



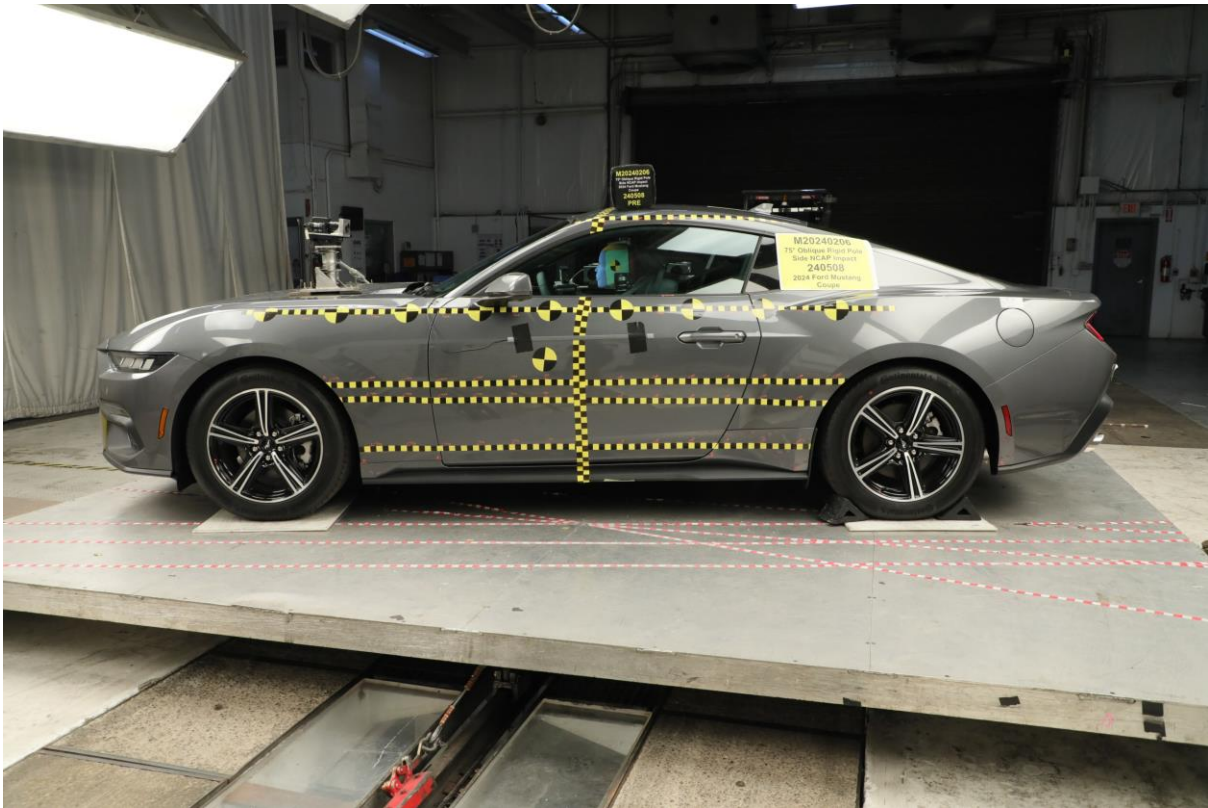
No. 004 Post-Test Frontal View of Test Vehicle



No. 005 Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



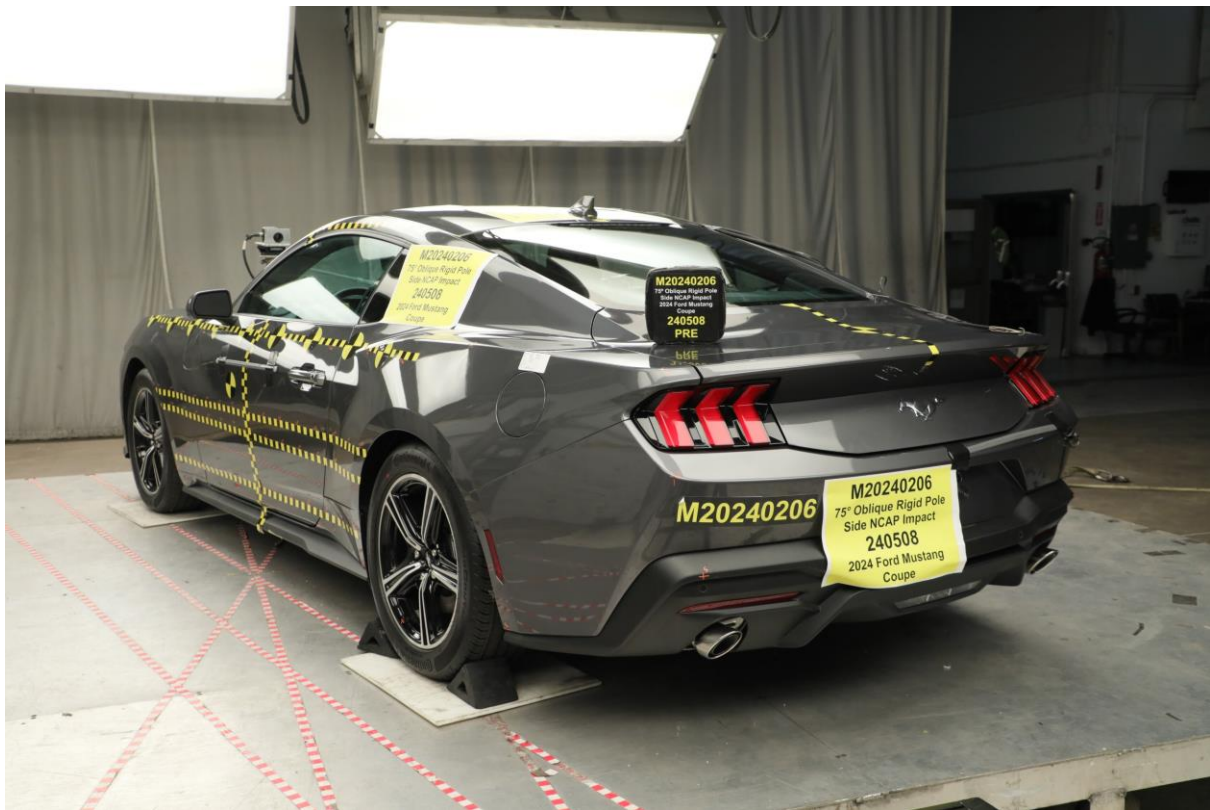
No. 006 Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



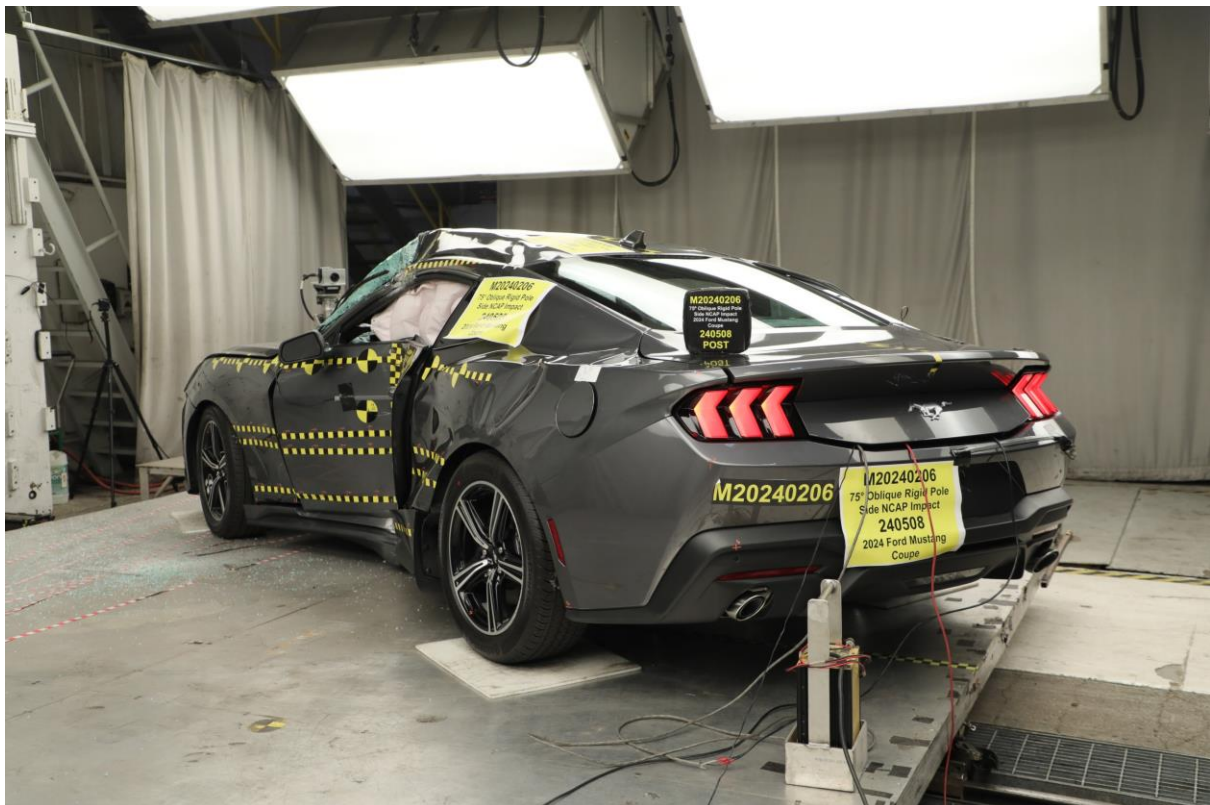
No. 007 Pre-Test Left Side View of Test Vehicle



No. 008 Post-Test Left Side View of Test Vehicle



No. 009 Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



No. 010 Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



No. 011 Pre-Test Rear View of Test Vehicle



No. 012 Post-Test Rear View of Test Vehicle



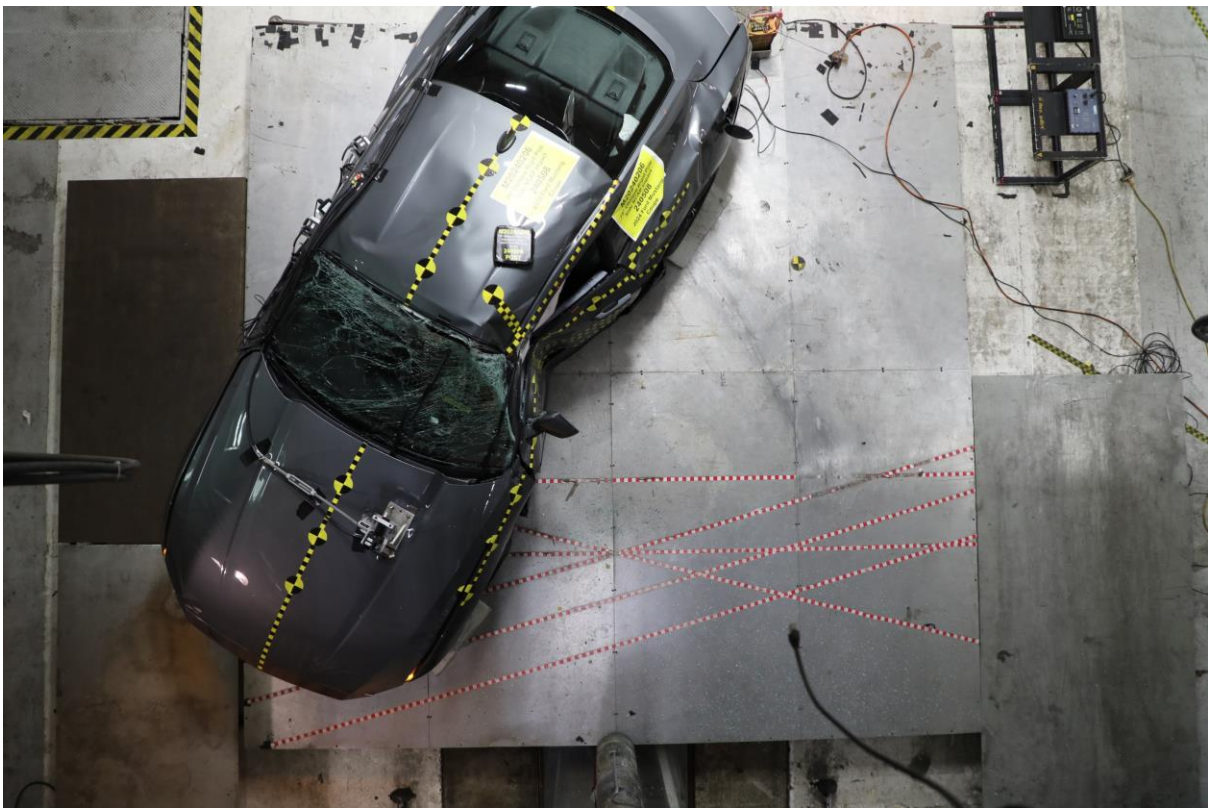
No. 013 Pre-Test Right Side View of Test Vehicle



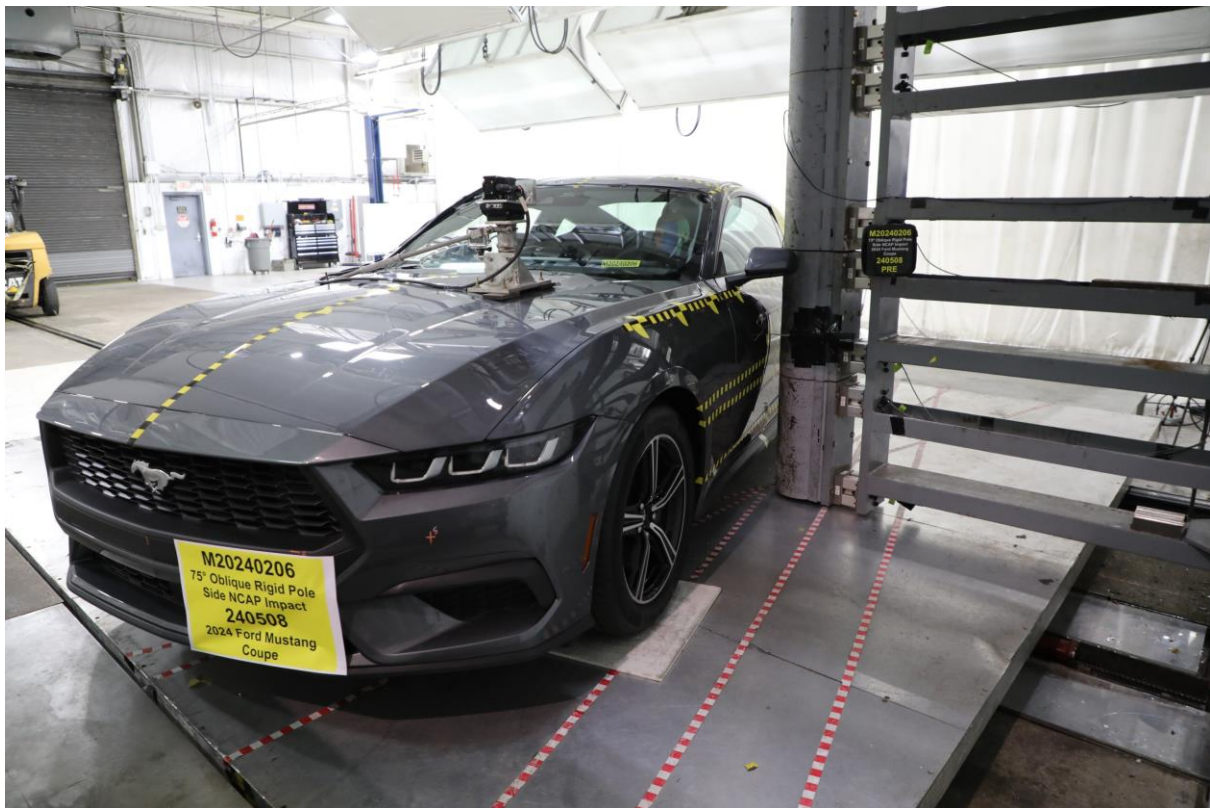
No. 014 Post-Test Right Side View of Test Vehicle



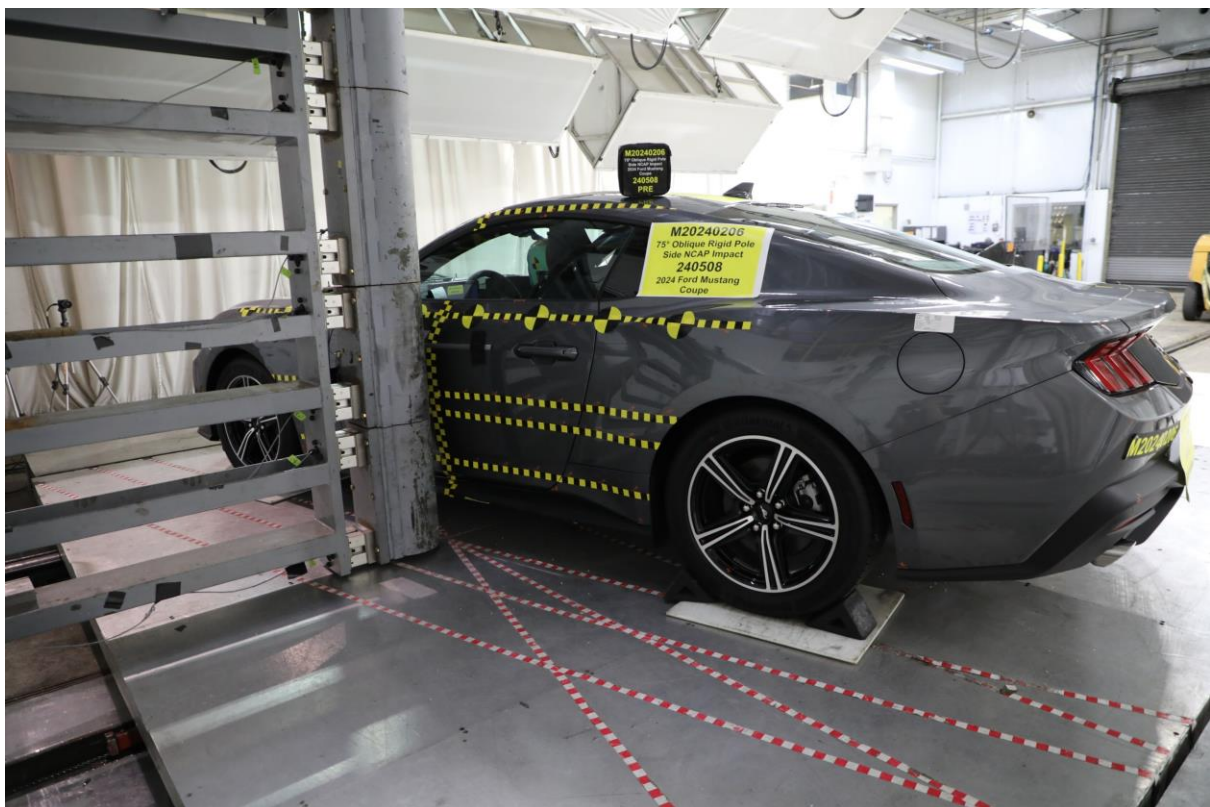
No. 015 Pre-Test Overhead View of Test Area



No. 016 Post-Test Overhead View of Test Area



No. 017 Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



No. 018 Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



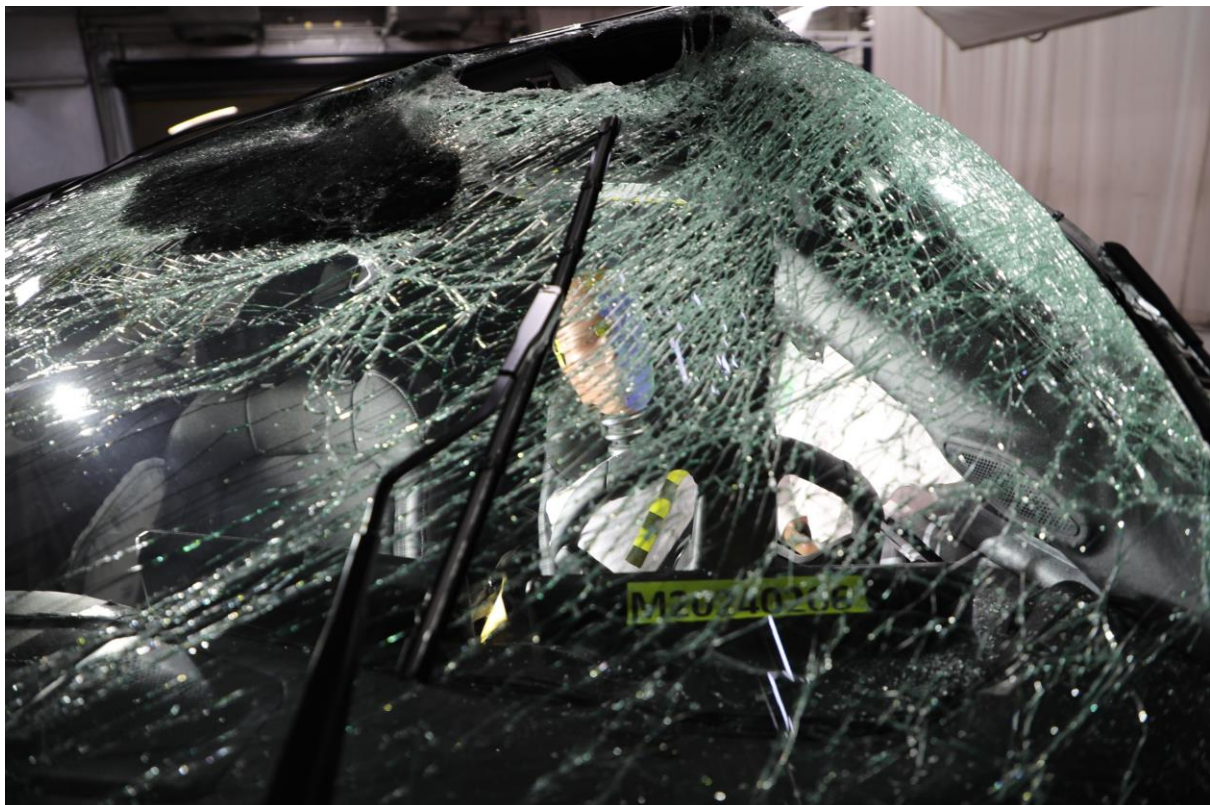
No. 019 Pre-Test Close-Up View of Impact Point Target



No. 020 Post-Test Close-Up View of Impact Point Target Showing Impact Location



No. 021 Pre-Test Front Close-Up View of Dummy Head and Chest



No. 022 Post-Test Front Close-Up View of Dummy



No. 023 Pre-Test Left Side View of Dummy Showing Belt and Chalking

Intentionally Left Blank



No. 024 Pre-Test Left Side View of Dummy Shoulder and Door Top View



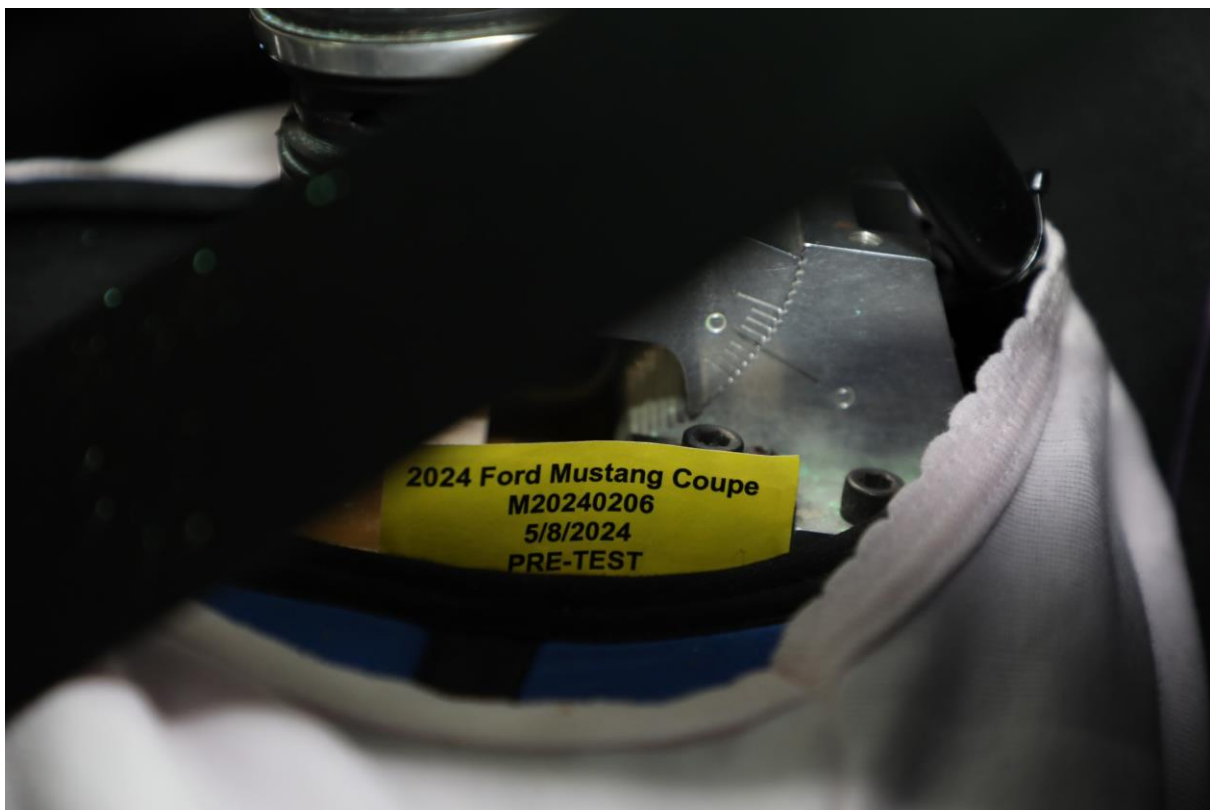
No. 025 Post-Test Left Side View of Dummy Shoulder and Door Top View



No. 026 Pre-Test Front View of Seat Back Prior to Dummy Positioning



No. 027 Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



No. 030 Pre-Test Left Side View of Dummy Neck Showing Position of Adjustable Neck Bracket



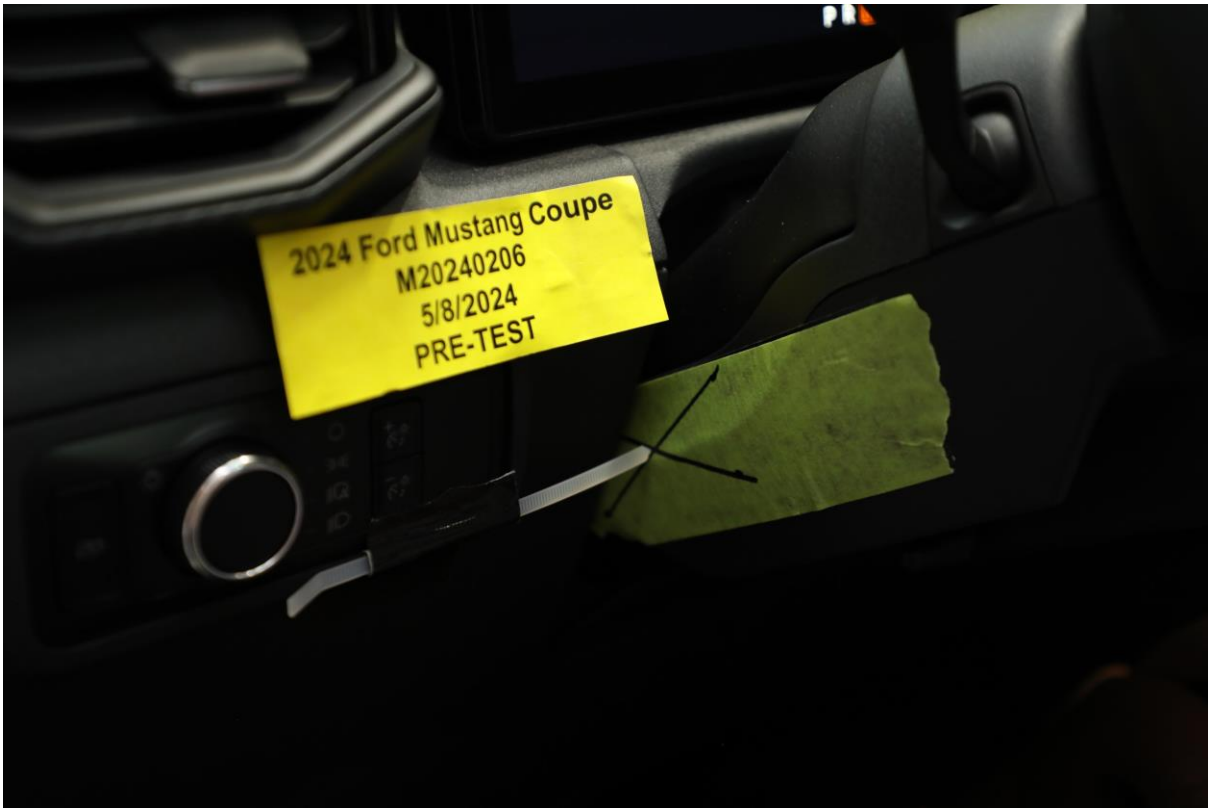
No. 031 Pre-Test Left Side View of Dummy Head Showing Dummy Head is Level



No. 032 Pre-Test Placement of Dummy Feet



No. 033 Pre-Test View of Belt Anchorage for Dummy



No. 034 Pre-Test Left Side View of Steering Wheel



No. 035 Pre-Test View of Disengaged Parking Brake



No. 036 Pre-Test View of Parking Brake



No. 037 Pre-Test Close-Up Left Side View of Driver Seat Track



No. 038 Pre-Test Close-Up Left Side View of Driver Seat Back



No. 039 Pre-Test Close-Up View of Driver Seat Back or Head Restraint



No. 040 Pre-Test Dummy and Door Clearance View



No. 041 Post-Test Dummy and Door Clearance View



No. 042 Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment

No. 043 Post-Test Right Side View of Dumm



y and Front Seat of Occupant Compartment



No. 044 Pre-Test Inner Door Panel View

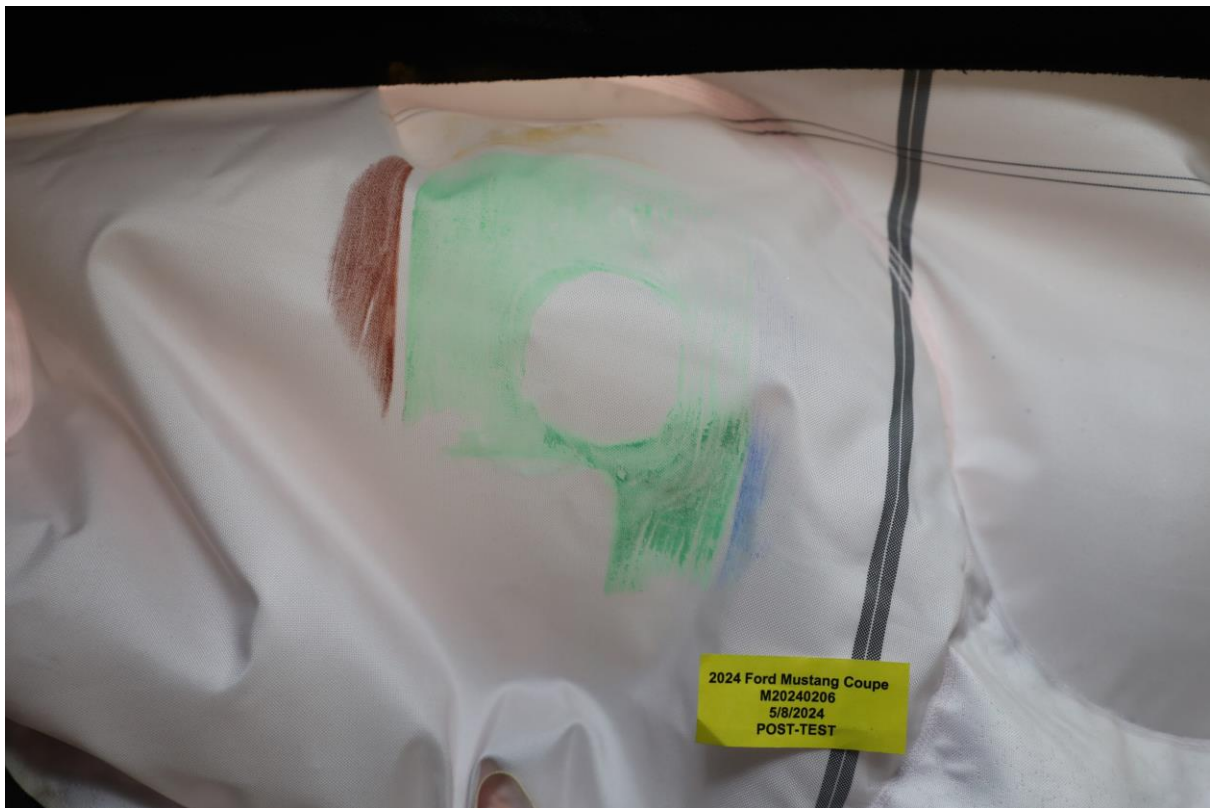


No. 045 Post-Test Inner Door Panel View Showing Dummy Contact Location



No. 046 Post-Test Dummy Close-Up Head Contact with Vehicle Interior View

Intentionally Left Blank



No. 047 Post-Test Dummy Close-Up Head Contact with Side Airbag View



No. 048 Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



No. 049 Post-Test Dummy Close-Up Torso Contact with Side Airbag View



No. 050 Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



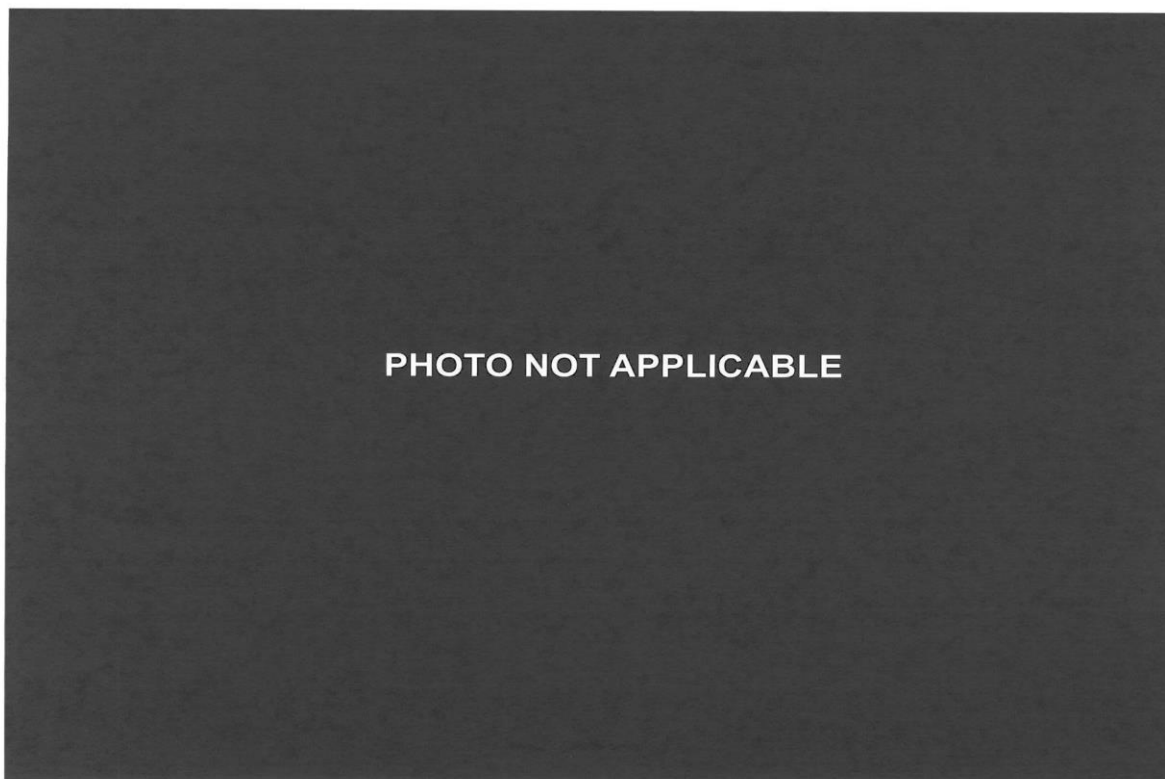
No. 051 Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



No. 052 Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



No. 053 Post-Test Right Side View of Dummy and Rear Seat of Occupant Compartment



No. 054 Post-Test Inner Rear Passenger Torso Air Bag Deployment View



No. 055 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



No. 056 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



No. 057 Close-Up View of Vehicle Certification Label



No. 058 Close-Up View of Vehicle Tire Information Placard or Label



No. 059 Pre-Test Pole Barrier Front View



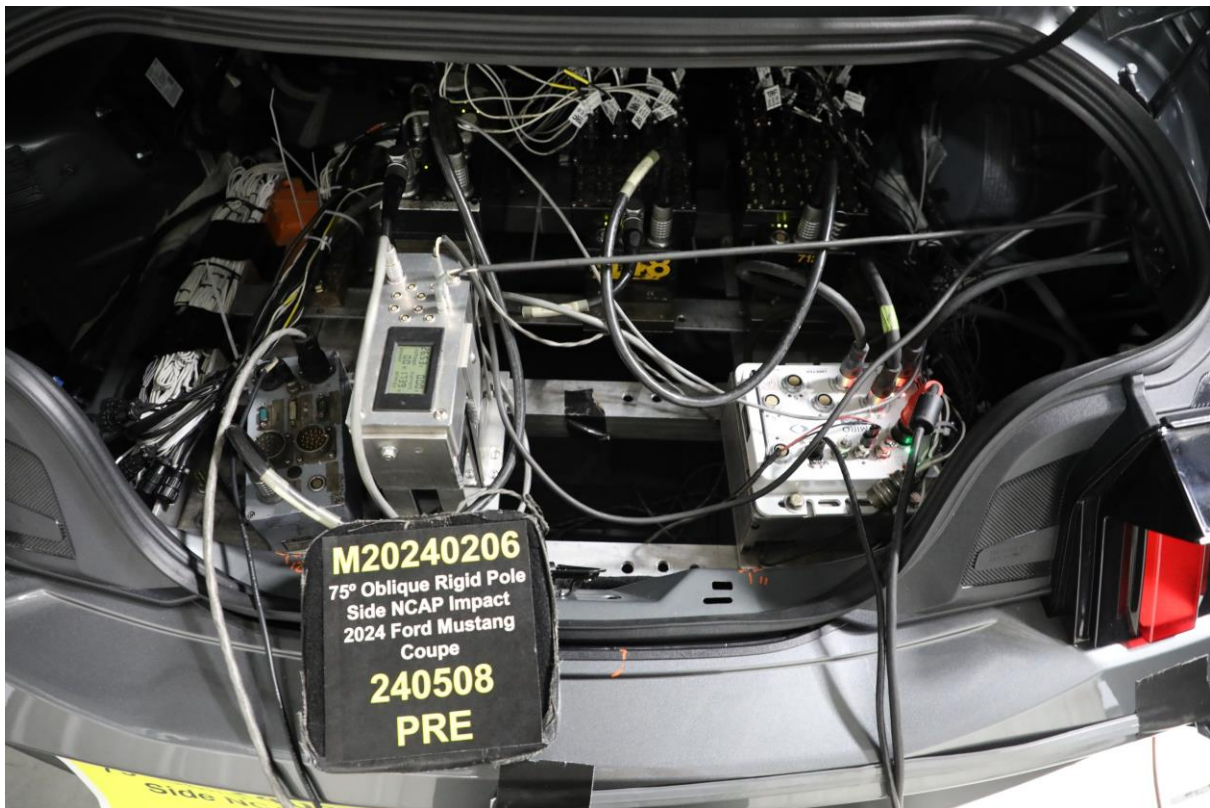
No. 060 Post-Test Pole Barrier Front View



No. 061 Pre-Test Pole Barrier Side View



No. 062 Post-Test Pole Barrier Side View



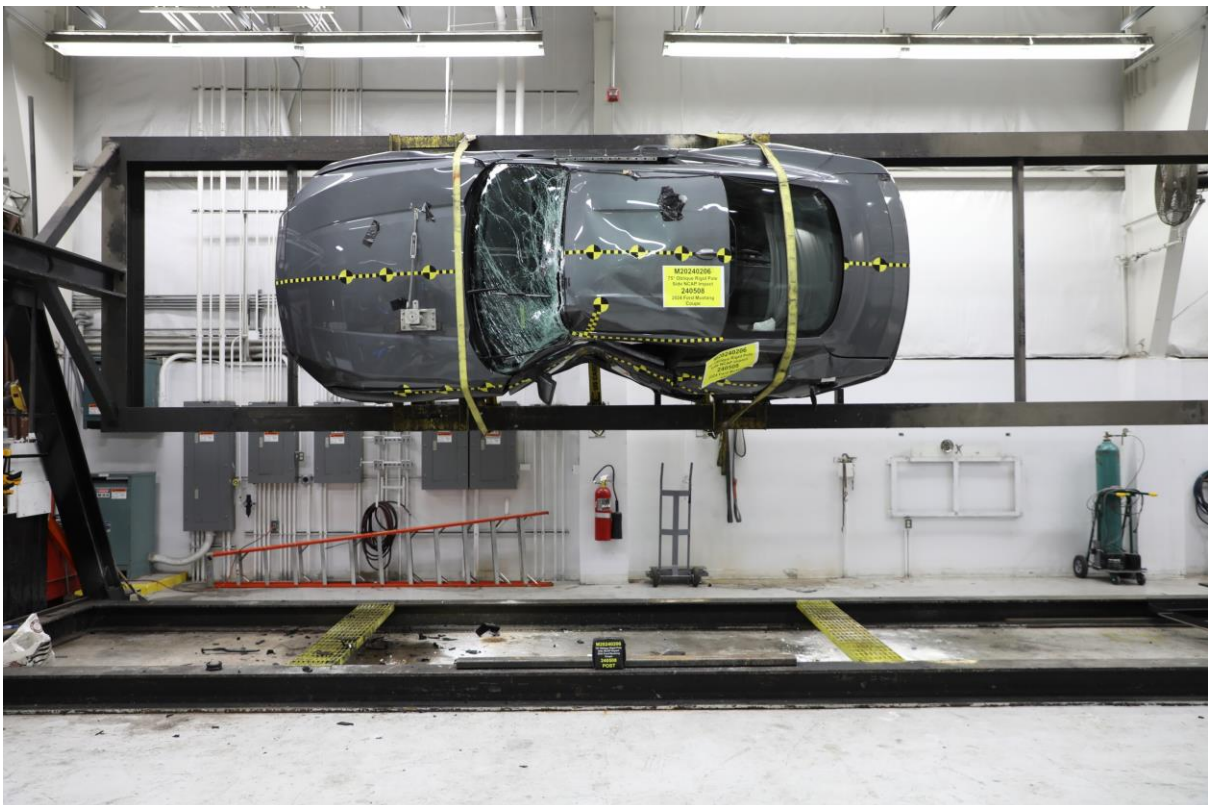
No. 063 Pre-Test Ballast View



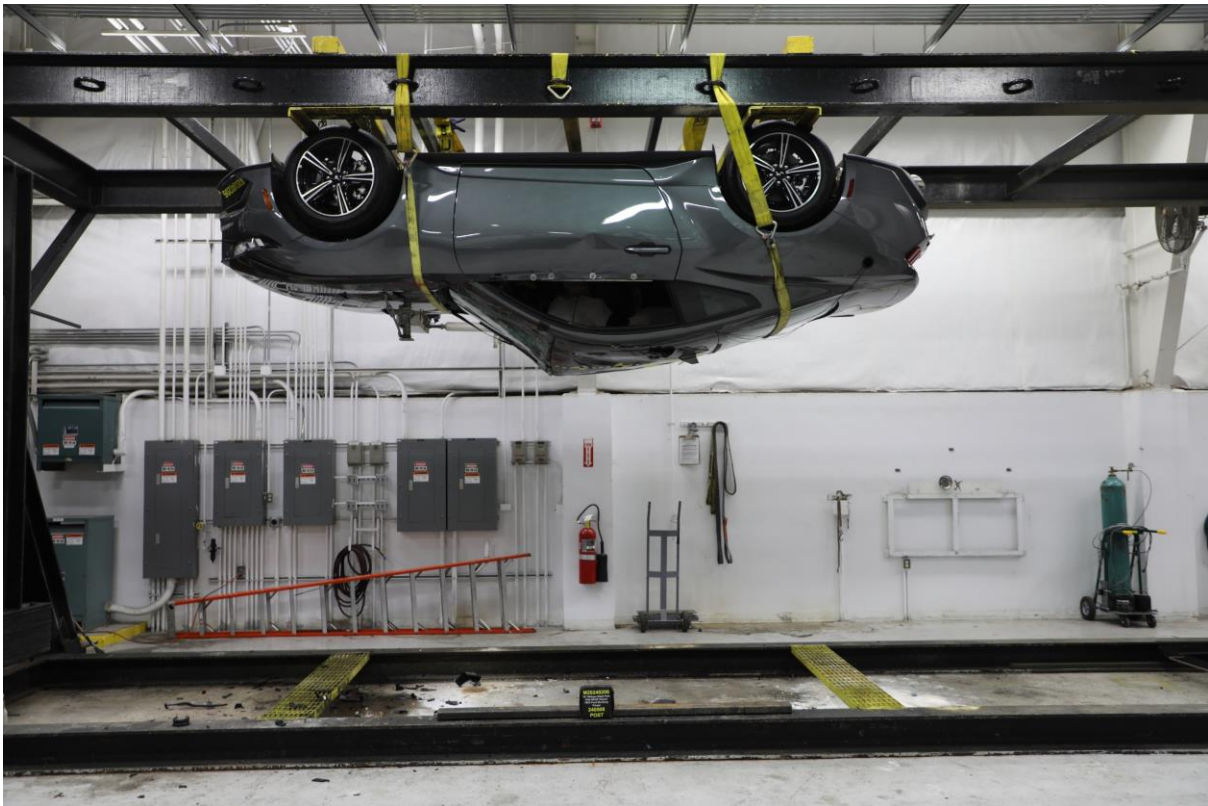
No. 064 Post-Test Primary and Redundant Speed Trap Read Out



No. 065 FMVSS No. 301 Static Rollover 0 Degrees



No. 066 FMVSS No. 301 Static Rollover 90 Degrees



No. 067 FMVSS No. 301 Static Rollover 180 Degrees



No. 068 FMVSS No. 301 Static Rollover 270 Degrees



No. 069 FMVSS No. 301 Static Rollover 360 Degrees



No. 070 Impact Event

VEHICLE DESCRIPTION
MUSTANG
2024 ECOBOOST COUPE
4-PASSENGER SPORTS CAR
2.3L ECOBOOST 315HP
10-SPEED AUTOMATIC TRANS

R5 121799

EXTERIOR
CARBONIZED GRAY METALLIC

INTERIOR
BLACK ONYX CLOTH/VINYL TRIM

STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE

EXTERIOR
• EASY FUEL® CAPLESS FILLER
• HEADLAMPS - AUTO LAMP (ON/OFF)
• HEADLAMPS - LED WITH SIGNATURE LIGHTING
• MIRRORS - POWER GLASS/MANUAL FOLD
• TAILLAMPS - LED W/SEQUENTIAL TURN SIGNAL
• WIPERS - RAIN-SENSING

INTERIOR
• 12.4" LCD DIG INSTR CLUSTER
• 13.2" LCD CENTERSTACK SCREEN
• TOUCH UP/DOWN DRIVPASS WIN
• CENTER CONSOLE W/ARMREST
• FLAT BOTTOM STRG WH - VINYL
• SMART CHARGING USB PORTS
• SPLIT FOLD REAR SEAT
• 18.1 TELESCOPE STR COLUMN
• WINDOWS - GLOBAL OPEN

FUNCTIONAL
• ELECTRONIC PWR ASST STEER
• FORD CO PILOT360™
• FORDPASS™ CONNECT AGW-FI
• INDEPENDENT REAR SUSPENSION
• INTELLIGENT ACCESS W/PUSH BUTTON START
• LIMITED SLIP REAR AXLE
• REAR PARKING SENSORS
• REAR VIEW CAMERA
• SELECTABLE DRIVE MODES
• SYNC4
• TRACK APPS™

SAFETY/SECURITY
• ADVANCED TRAC™
• AIRBAGS - DRIVER/PASS KNEE
• AIRBAGS - DUAL STAGE FRONT
• AIRBAGS - FRONT SEAT MOUNTED SIDE IMPACT
• AIRBAGS - SIDE AIR CURTAIN
• BODY TIRE PRESS MONIT EYES
• LATCH CHILD SAFETY SYSTEM
• PERIMETER ALARM
• SECURILOCK PASS ANTI THEFT
• SOS POST CRASH ALERT SYS

WARRANTY
• 5YR/60,000 BUMPER TO BUMPER
• 5YR/60,000 POWERTRAIN
• 5YR/100,000 ROADSIDE ASSIST

INCLUDED ON THIS VEHICLE
EQUIPMENT GROUP 101A
• DUAL-ZONE ELEC AUTO TEMP CTRL
• SIRIUSXM W/ 360L

OPTIONAL EQUIPMENT/OTHER
18" MCHD AL W/REAR BL PTD PKT
3.15 RATIO LIMITED SLIP AXLE
235/50ZR 18 BSW ALL-SEAS TIRE
SPOILER DELETE
FRONT LICENSE PLATE BRACKET

MSRP
2,600.00

PRICE INFORMATION
BASE PRICE \$30,120.00
TOTAL OPTIONS/OTHER 2,600.00
TOTAL VEHICLE & OPTIONS/OTHER \$32,720.00
DESTINATION & DELIVERY 1,435.00

MSRP
2,600.00

SOLD TO
Apple Ford
8600 Stanford Blvd
Columbia MD 21045

27B 030

RAMP ONE
CA03

FINAL ASSEMBLY PLANT
FLAT ROCK

TOTAL MSRP \$35,115.00

METHOD OF FINANCING
CONVOY

ITEM #
27-8208 O/T 2

Whether you decide to lease or finance your vehicle, you'll find the choices that are right for you. See your dealer for details or visit www.ford.com/finance.

PM081 N RA 2X 445 000348 12 08 23

EPA DOT

Fuel Economy and Environment

Gasoline Vehicle

Fuel Economy
26 MPG
combined city highway
3.8 gallons per 100 miles

You spend \$750 more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$2,100

Fuel Economy & Greenhouse Gas Rating
5

Smog Rating
7

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and costs \$8,700 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.60 per gallon. MPG is miles per gallon city equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel economy.gov
Calculate personalized estimates and compare vehicles

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated
Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash Driver Not Rated, Passenger Not Rated
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

Side Crash Front seat Not Rated, Rear seat Not Rated
Based on the risk of injury in a side impact.

Rollover Not Rated
Based on the risk of rollover in a single-vehicle crash.

Star ratings range from 1 to 5 stars (★★★★★), with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA). www.safercar.gov or 1-888-327-4236

1FAGP8THDR5121799

WARNING: Operating, servicing and maintaining a passenger vehicle, pickup truck, van, or off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

Insist on Ford Protect! The only extended service plan fully backed by Ford and honored at every Ford dealership in the U.S., Canada and Mexico. See your Ford dealer or visit www.FordOwner.com.

SCAN OR TEXT 1FAGP8THDR5121799 TO 480089

No. 071 Monroney Label

No. 072 Head Restraint Use and Adjustment Information

f

Front Seats

- Bend your legs slightly so that you can press the pedals fully.
- Position the shoulder strap of the seatbelt over the center of your shoulder and position the lap strap tightly across your hips.

Make sure that your driving position is comfortable and that you can maintain full control of your vehicle.

MANUAL SEATS

HEADRESTRAINT COMPONENTS

The head restraints consist of:

- A An energy absorbing head restraint.
- B Guide sleeve adjust and release button.
- C Two steel stems.

ADJUSTING THE HEAD RESTRAINT

WARNING: Fully adjust the head restraint before you sit in or operate your vehicle. This will help minimize the risk of neck injury in the event of a crash. Do not adjust the head restraint when your vehicle is moving.

WARNING: The head restraint is a safety device. Whenever possible it should be installed and properly adjusted when the seat is occupied. Failure to adjust the head restraint properly could reduce its effectiveness during certain impacts.

WARNING: Adjust the head restraints for all passengers before you drive your vehicle. This will help minimize the risk of neck injury in the event of a crash. Do not adjust the head restraints when your vehicle is moving.

Note: Adjust the seat backrest to an upright driving position before adjusting the head restraint. Adjust the head restraint so that the top of it is level with the top of your head and as far forward as possible. Make sure that you remain comfortable. If you are extremely tall, adjust the head restraint to its highest position.

Pull the head restraint up to raise it.

To lower the head restraint:

- Press and hold the adjust and release button.
- Push the head restraint down.

130

2024 Mustang (CZJ) Canada/United States of America, enUSA, Edition date: 202312, DOM

rom Vehicle Owner Manual

A-40

PHOTO NOT APPLICABLE

No. 073 Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

No.	Description	Page
1	Driver Head Acceleration (X) vs. Time	B-4
2	Driver Head Acceleration (Y) vs. Time	B-4
3	Driver Head Acceleration (Z) vs. Time	B-4
4	Driver Head Acceleration Resultant vs. Time	B-4
5	Driver Lower Spine T12 Acceleration (X) vs. Time	B-5
6	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-5
7	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-5
8	Driver Lower Spine T12 Acceleration Resultant vs. Time	B-5
9	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-6
10	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-6
11	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-6

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at: www.nhtsa.gov.

Additional Driver Dummy Instrumentation Data

Driver Head Acceleration (X) Redundant
 Driver Head Acceleration (Y) Redundant
 Driver Head Acceleration (Z) Redundant
 Driver Upper Thorax Rib Deflection (Y)
 Driver Middle Thorax Rib Deflection (Y)
 Driver Lower Thorax Rib Deflection (Y)
 Driver Upper Abdomen Rib Deflection (Y)
 Driver Lower Abdomen Rib Deflection (Y)
 Driver Head Angular Velocity (X)
 Driver Head Angular Velocity (Y)
 Driver Head Angular Velocity (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (X)
Load Cell Pole Barrier #2 Force (X)
Load Cell Pole Barrier #3 Force (X)
Load Cell Pole Barrier #4 Force (X)
Load Cell Pole Barrier #5 Force (X)
Load Cell Pole Barrier #6 Force (X)
Load Cell Pole Barrier #7 Force (X)
Load Cell Pole Barrier #8 Force (X)

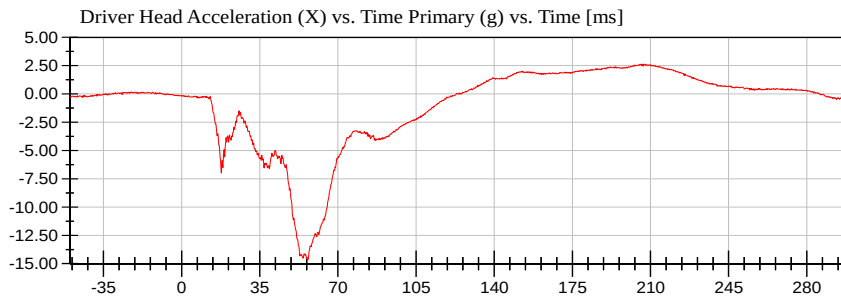
NHTSA

Test Lab: CTF

Test Number: 240508 (M20240206)

Position #1 SID IIs Dummy (297)

Test Date: 05/08/2024



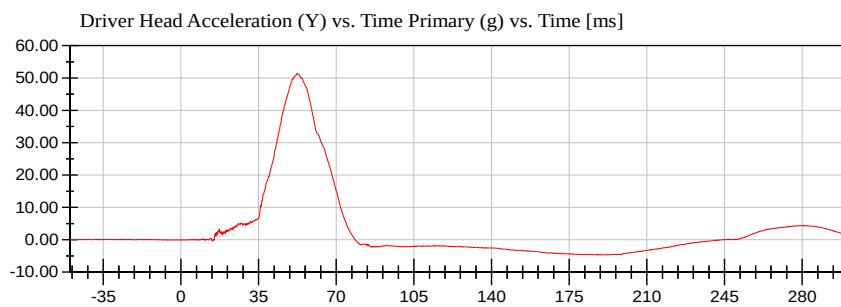
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<Min>

-14.66 g at 56.48 ms

CFC_1000



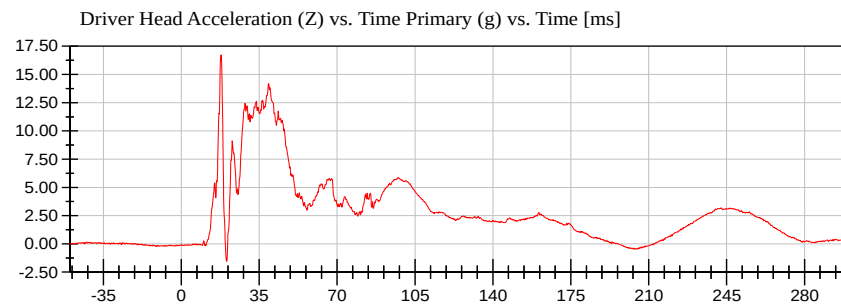
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<Min>

-4.73 g at 187.60 ms

CFC_1000



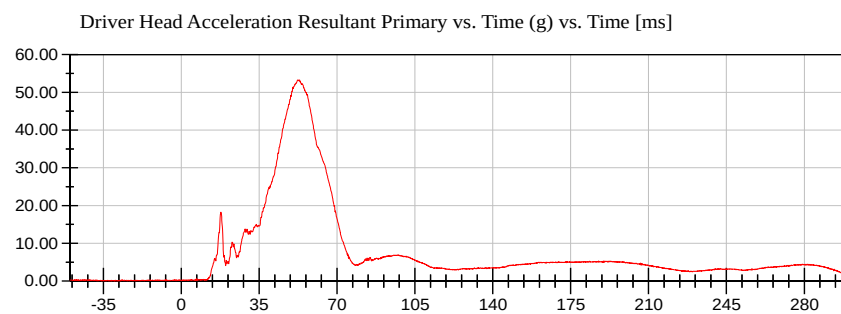
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16.73 g at 17.92 ms

<Min>

-1.55 g at 20.40 ms

CFC_1000



<Max>

53.28 g at 52.32 ms

<Min>

0.03 g at -32.00 ms

Prefiltered_> CFC 1000



NHTSA

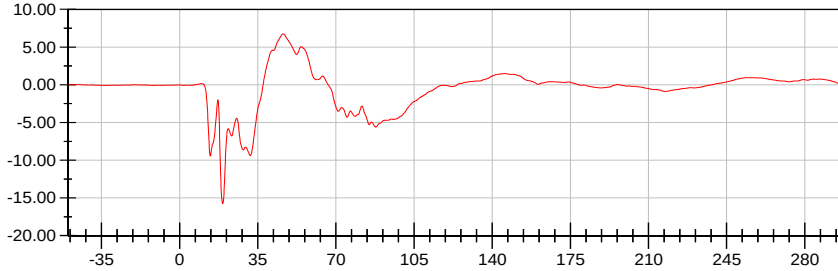
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Test Number: 240508 (M20240206)

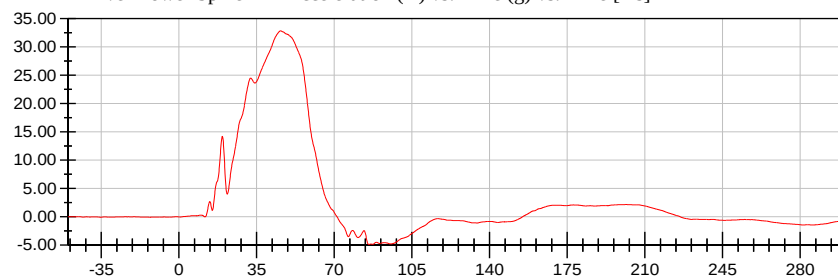
Position #1 SID IIs Dummy (297)

Test Date: 05/08/2024

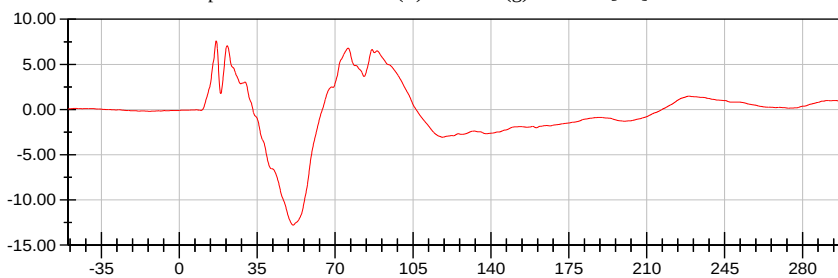
Driver Lower Spine T12 Acceleration (X) vs. Time (g) vs. Time [ms]



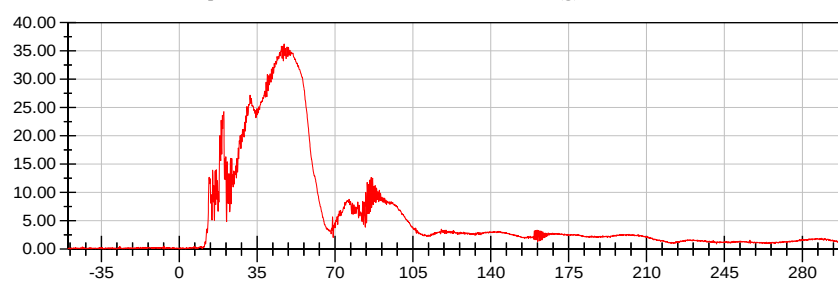
Driver Lower Spine T12 Acceleration (Y) vs. Time (g) vs. Time [ms]



Driver Lower Spine T12 Acceleration (Z) vs. Time (g) vs. Time [ms]



Driver Lower Spine T12 Acceleration Resultant vs. Time (g) vs. Time [ms]



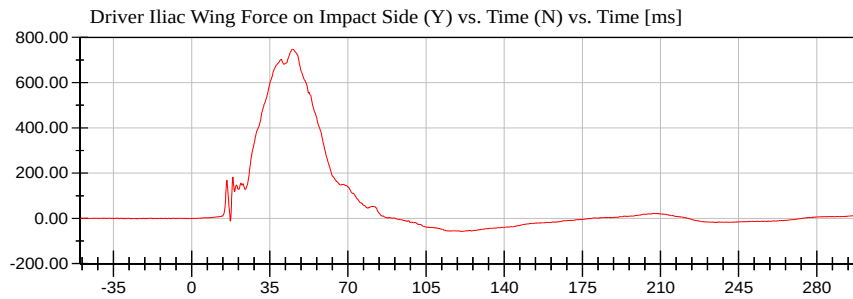
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Test Lab: CTF

Test Number: 240508 (M20240206)

Position #1 SID IIs Dummy (297)

Test Date: 05/08/2024



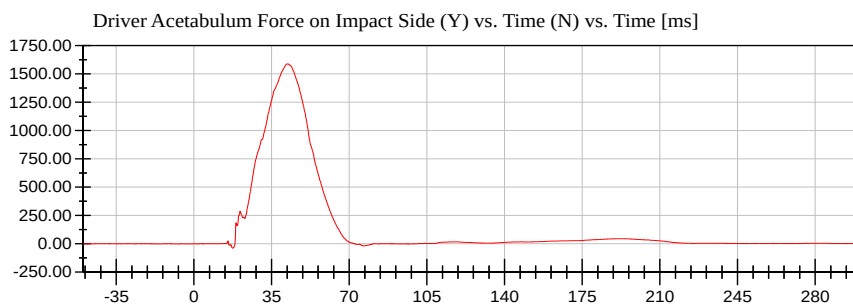
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747.10 N at 44.96 ms

<Min>

-57.70 N at 120.96 ms

CFC_600



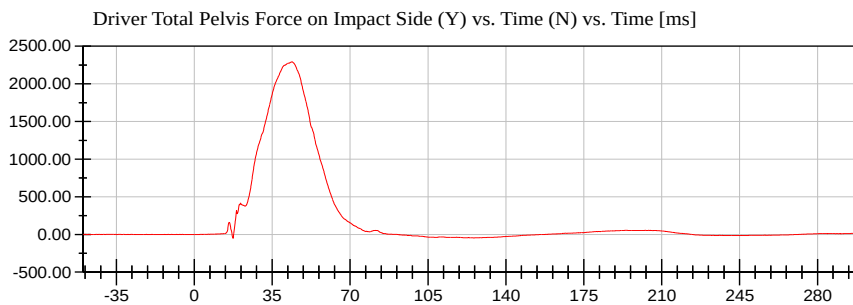
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1,589.16 N at 42.32 ms

<Min>

-39.95 N at 17.52 ms

CFC_600



<Max>

2,292.27 N at 43.92 ms

<Min>

-51.26 N at 17.44 ms

CFC_600



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS
SID-IIs (Driver) Dummy
Description

Table 1. External Measurements

Table 2. Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)
Head (X) Acceleration (G's) vs. Time (ms)
Head (Y) Acceleration (G's) vs. Time (ms)
Head (Z) Acceleration (G's) vs. Time (ms)

Table 3. Lateral Neck Pendulum Test

Pendulum Velocity (m/s) vs. Time (ms)
Flexion Angle (°) vs. Time (ms)
Moment About Occipital Condyle (Nm) vs. Time (ms)

Table 4. Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)

Table 5. Thorax (With Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 6. Thorax (Without Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 7. Abdomen Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 8. Pelvis Plug Quasi-Static Test (Optional*)

Table 9. Pelvis Acetabulum Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Acetabulum Force (N) vs. Time (ms)

Table 10. Pelvis Iliac Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Iliac Force (N) vs. Time (ms)

Pre-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 66

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	147	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	223	Yes
P	Foot Length (left)	216.0 - 232.0	223	Yes
Q	Hip Breadth	313.0 - 323.0	319	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	485	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	877	Yes
Z	Waist Circumference	761.0 - 791.0	781	Yes

Revised 9/29/2005

Report Number: 297_S2F66

Page 29 of 31



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 66-1

Test Date: 4/29/2024

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	136.0 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-1.7 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.17 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: 1330

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.29.2024 13:21:58 232

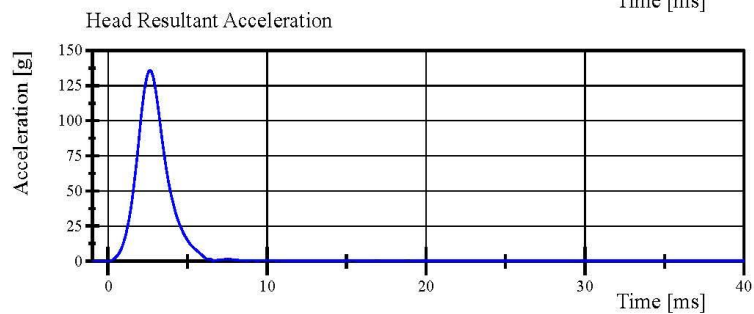
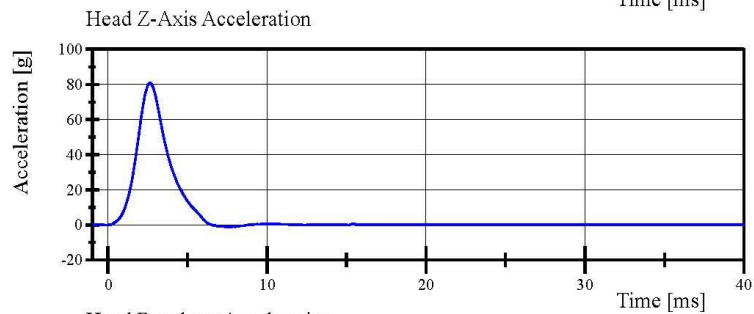
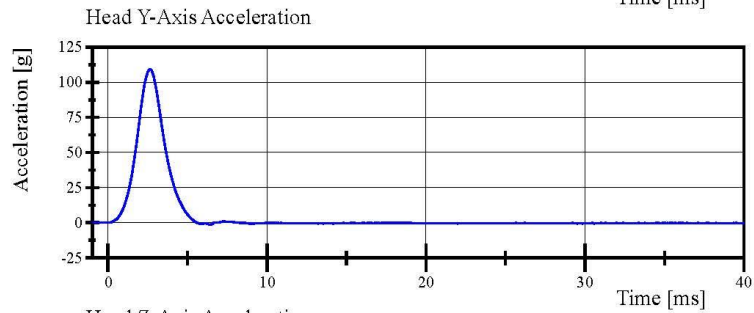
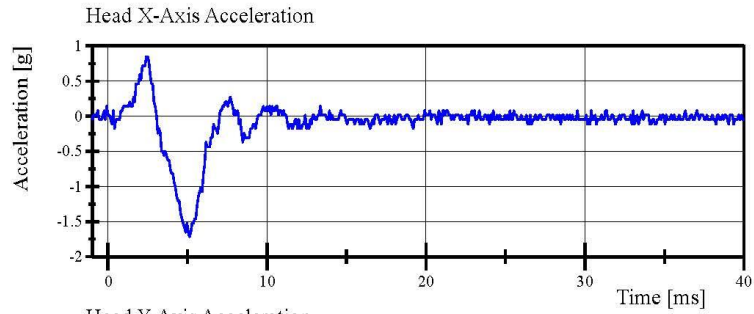


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIS Serial No. 297 Certification No. 66-1

Test Date: 4/29/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.29.2024 13:23:47 232



Transportation Research Center Inc.

Left Lateral Neck

SID II s Serial No. 297 Certification No. 66-2

Test Date: 4/29/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.616 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.354 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.465 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.678 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.702 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.839 m/s	Yes
Maximum Headform Flexion			
Peak	(-71) - (-81) deg	-79.5 deg	Yes
Time of Peak	50 - 70 ms	66.2 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	40.9 N·m	Yes
Decay to 0 N·m	102 - 126 ms	120.6 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 779

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04/29/2024 15:10:34 751

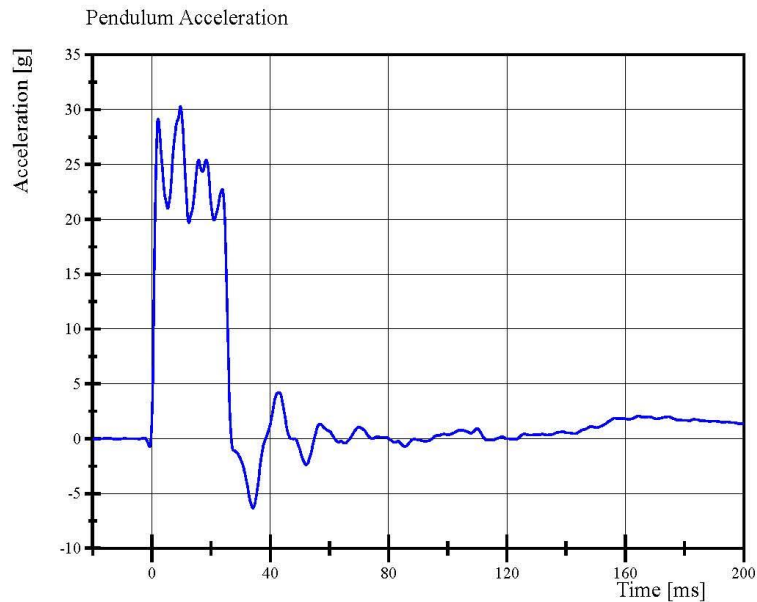


Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 297 Certification No. 66-2

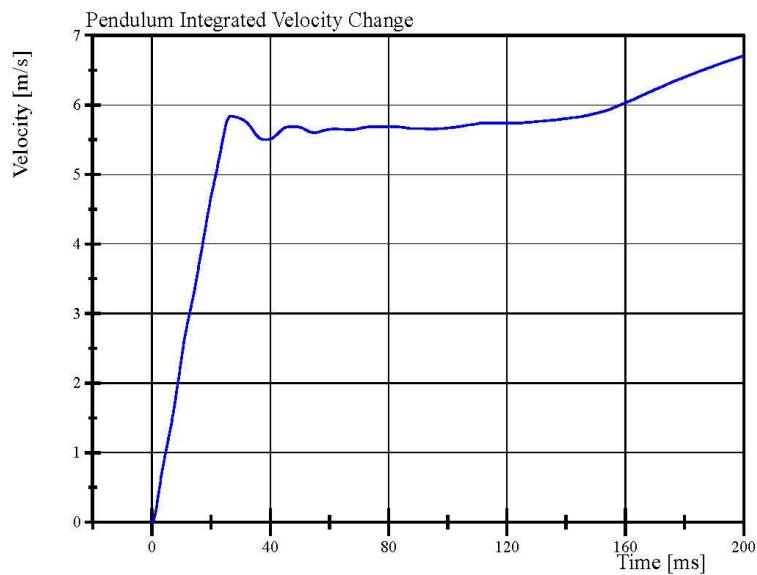
Test Date: 4/29/2024



Filter Class: CFC_180

Max: 30.3 g at 9.7 ms

Min: -6.3 g at 34.2 ms



Filter Class: CFC_180

Max: 6.7 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.29.2024 15:11:33 751

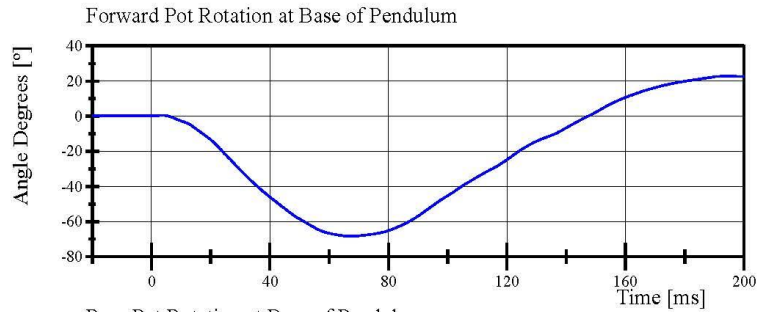


Transportation Research Center Inc.

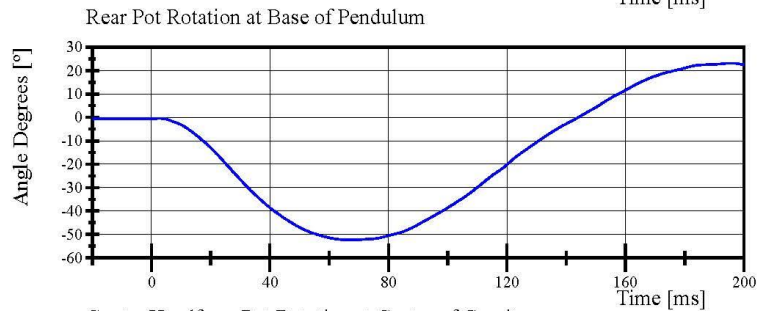
Left Lateral Neck

SID IIS Serial No. 297 Certification No. 66-2

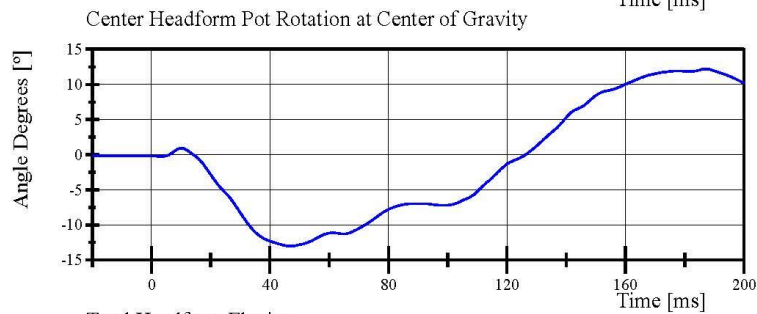
Test Date: 4/29/2024



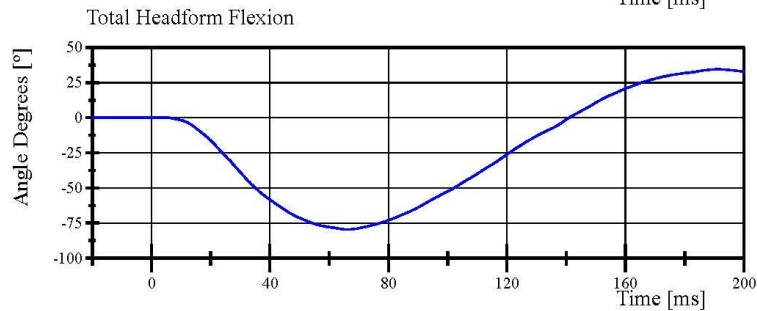
Filter Class: CFC_60
Max: 22.8 ° at 194.5 ms
Min: -68.3 ° at 67.5 ms



Filter Class: CFC_60
Max: 23.1 ° at 195.8 ms
Min: -52.4 ° at 67.2 ms



Filter Class: CFC_60
Max: 12.2 ° at 187.1 ms
Min: -13.0 ° at 46.9 ms



Filter Class: CFC_60
Max: 34.4 ° at 191.1 ms
Min: -79.5 ° at 66.2 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.29.2024 15:11:34 751

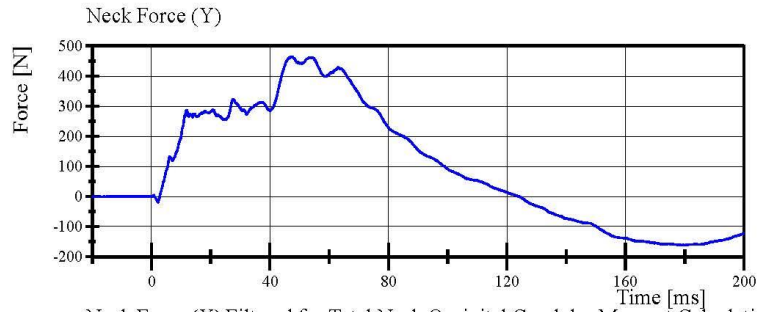


Transportation Research Center Inc.

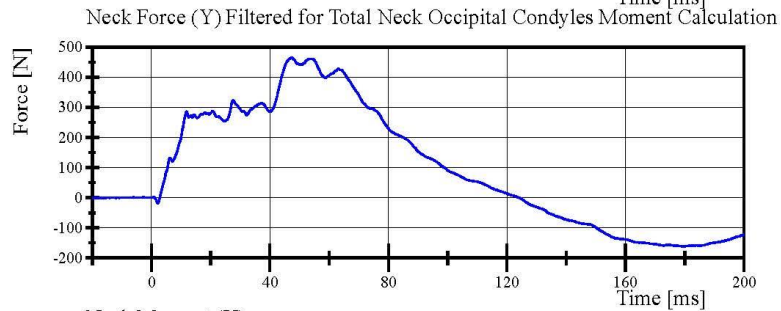
Left Lateral Neck

SID IIS Serial No. 297 Certification No. 66-2

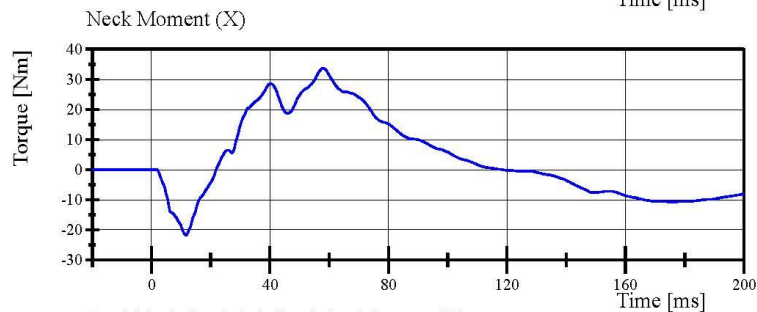
Test Date: 4/29/2024



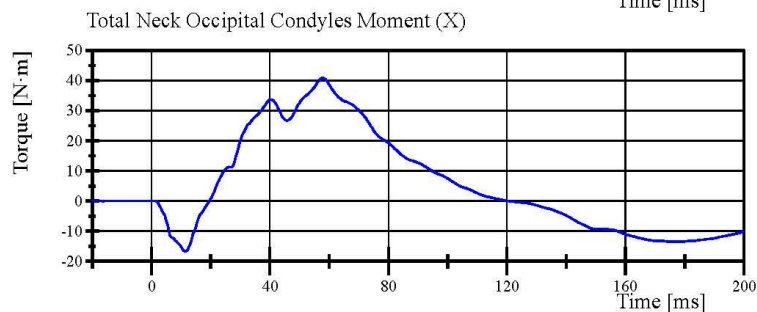
Filter Class: CFC_1000
Max: 465.2 N at 47.2 ms
Min: -161.9 N at 179.1 ms



Filter Class: CFC_600
Max: 464.6 N at 47.3 ms
Min: -161.5 N at 179.2 ms



Filter Class: CFC_600
Max: 33.7 Nm at 57.9 ms
Min: -21.7 Nm at 11.8 ms



Filter Class: Without_(Constar
Max: 40.9 N·m at 57.7 ms
Min: -16.7 N·m at 11.4 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.29.2024 15:11:34 751



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIS Serial No. 297 Certification No. 66-1
Test Date: 4/30/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	64 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.3 g	Yes
Shoulder Displacement	28 - 37 mm	31.5 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	18.5 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: 940L

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 10:36:21 867

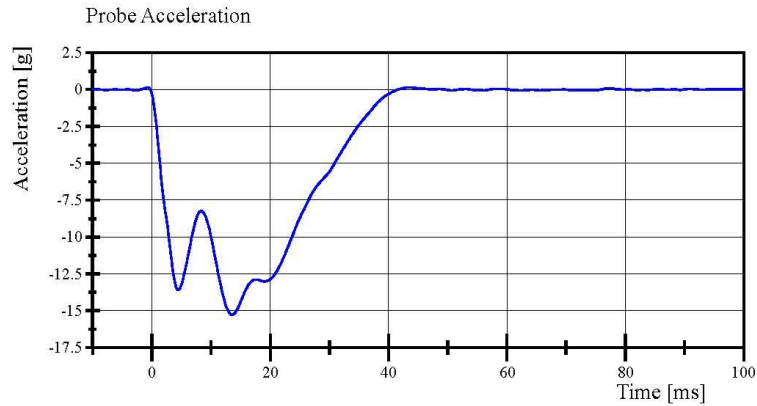


Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 66-1

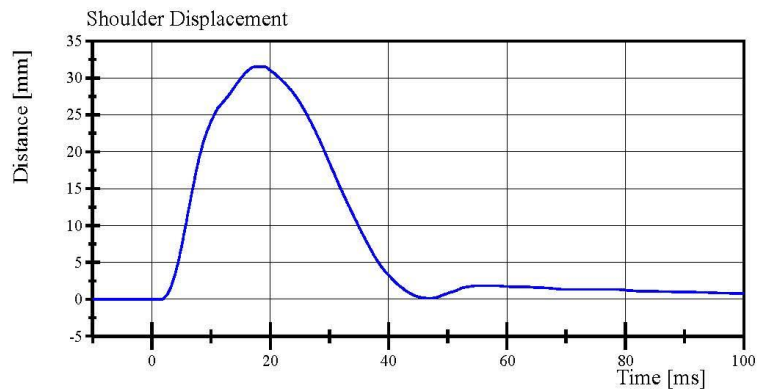
Test Date: 4/30/2024



Filter Class: CFC_180

Max: 0.2 g at 43.4 ms

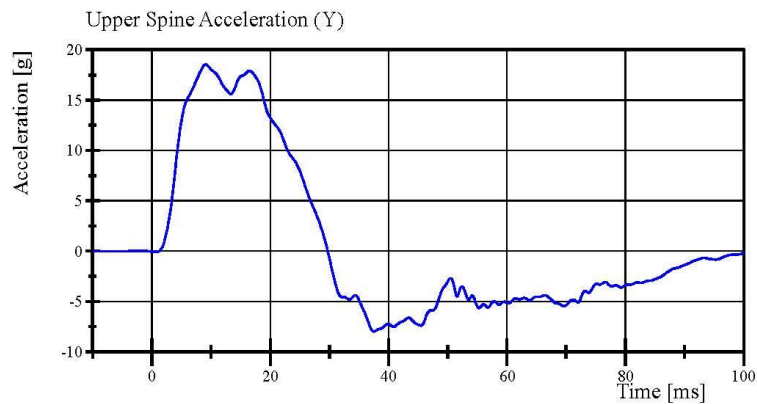
Min: -15.3 g at 13.5 ms



Filter Class: CFC_600

Max: 31.5 mm at 18.7 ms

Min: -0.0 mm at 1.5 ms



Filter Class: CFC_180

Max: 18.5 g at 9.1 ms

Min: -8.0 g at 37.5 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 10:37:07 867



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIS Serial No. 297 Certification No. 66-1
Test Date: 4/30/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.720 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.1 g	Yes
Shoulder Displacement	31 - 40 mm	36.7 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.5 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.9 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.0 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	35.1 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.5 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3355 259

Upper Thorax Rib S/N: DM5020

Middle Thorax Rib S/N: DM5021

Lower Thorax Rib S/N: DM5022

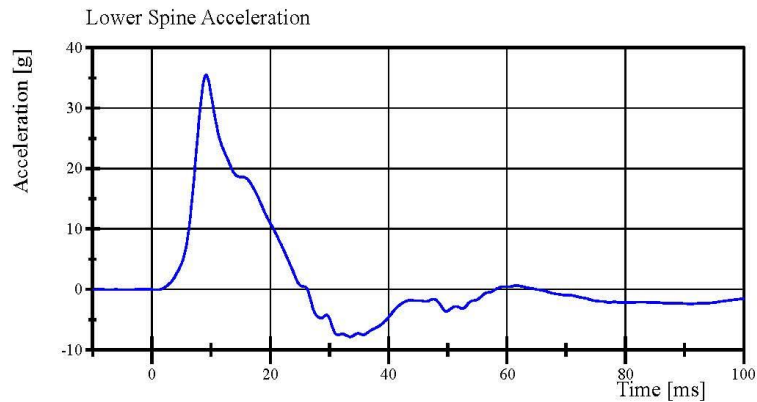
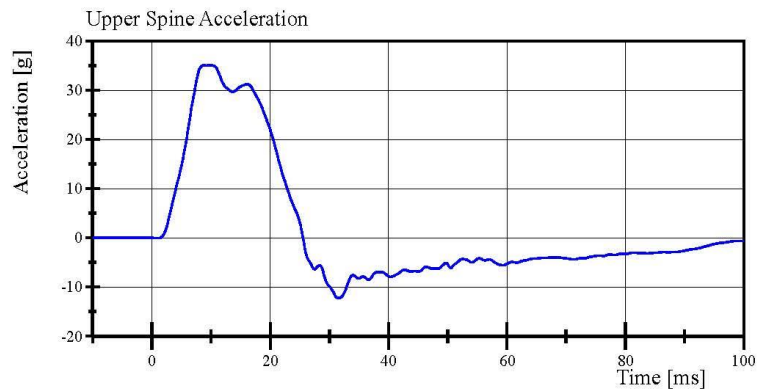
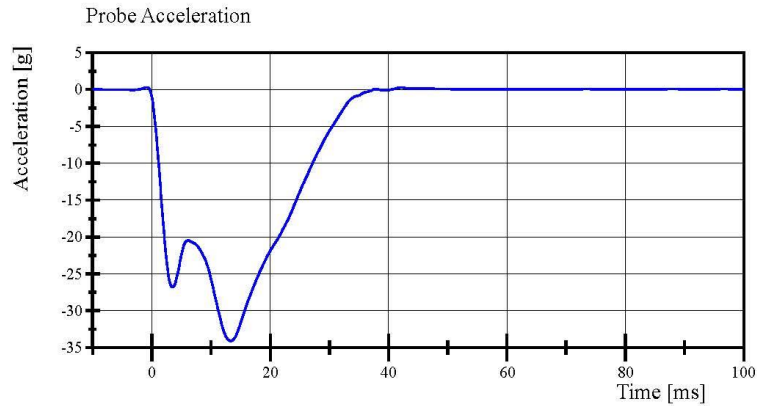
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 14:49:59 666



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 66-1
Test Date: 4/30/2024



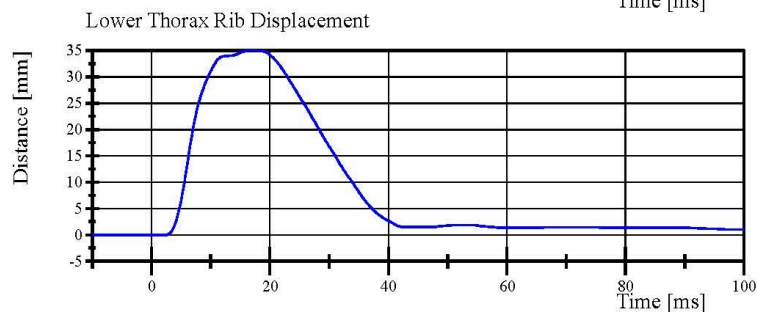
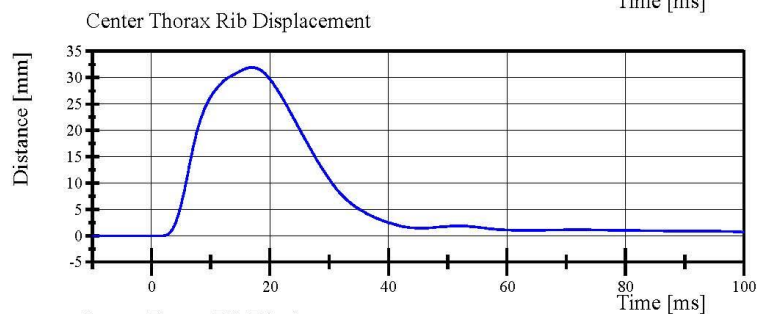
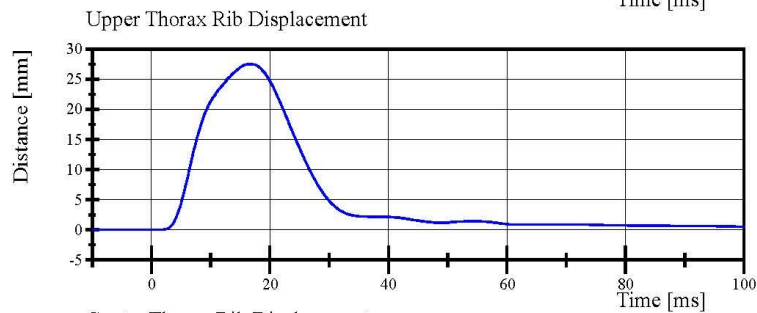
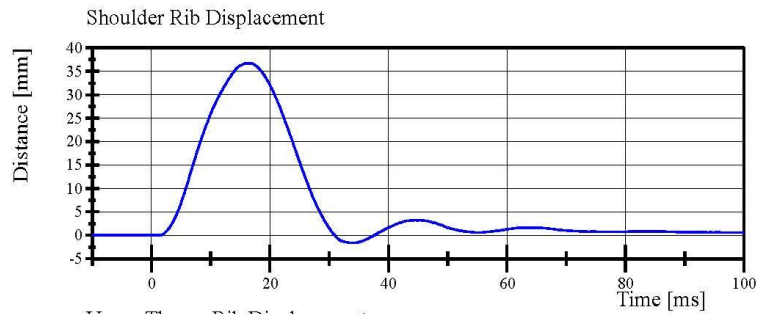
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 14:50:46 666



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 66-1
Test Date: 4/30/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 14:50:46 666



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIS Serial No. 297 Certification No. 66-1
Test Date: 4/30/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.343 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.4 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	38.1 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	42.6 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.6 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.2 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.4 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib S/N: 180-3362 DP6492

Middle Thorax Rib S/N: 180-3362 DP6493

Lower Thorax Rib S/N: 180-3362 DP7664

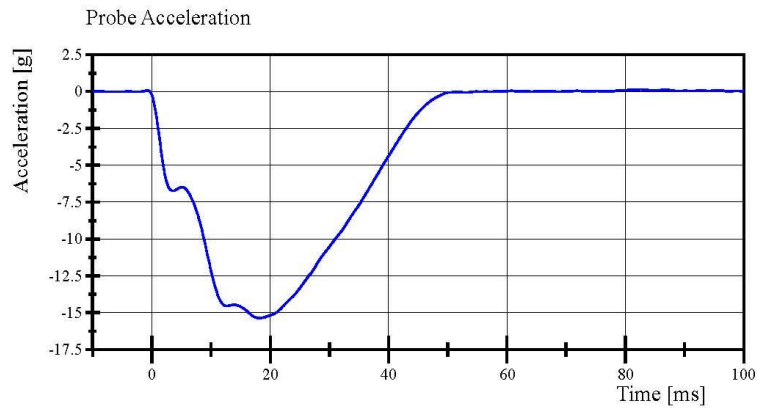
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 10:53:05 890

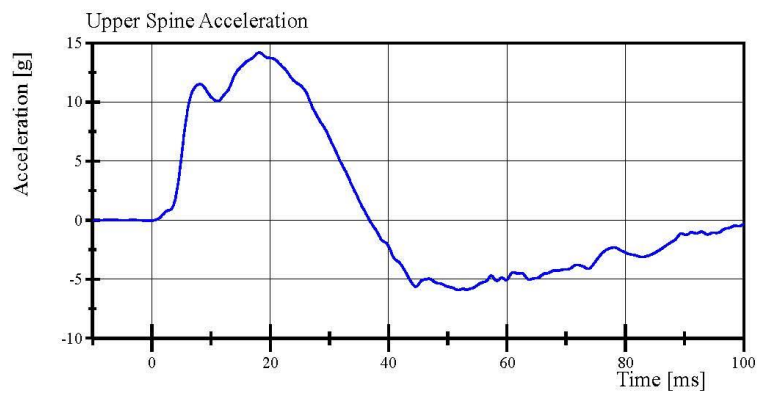


Transportation Research Center Inc.

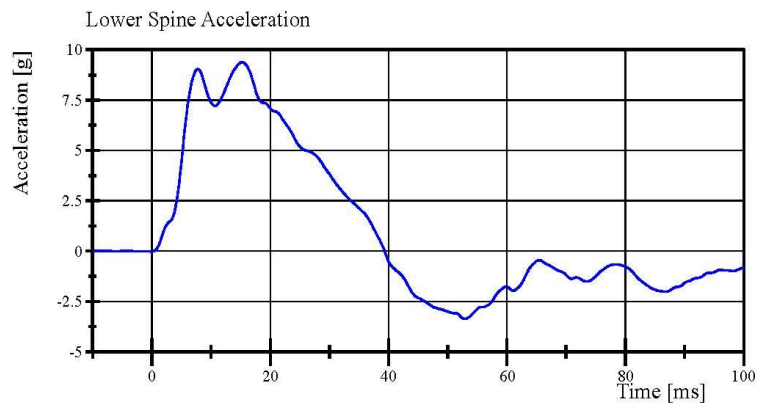
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 66-1
Test Date: 4/30/2024



Filter Class: CFC_180
Max: 0.1 g at 82.6 ms
Min: -15.4 g at 18.2 ms



Filter Class: CFC_180
Max: 14.2 g at 18.2 ms
Min: -5.9 g at 51.8 ms



Filter Class: CFC_180
Max: 9.4 g at 15.2 ms
Min: -3.4 g at 52.9 ms

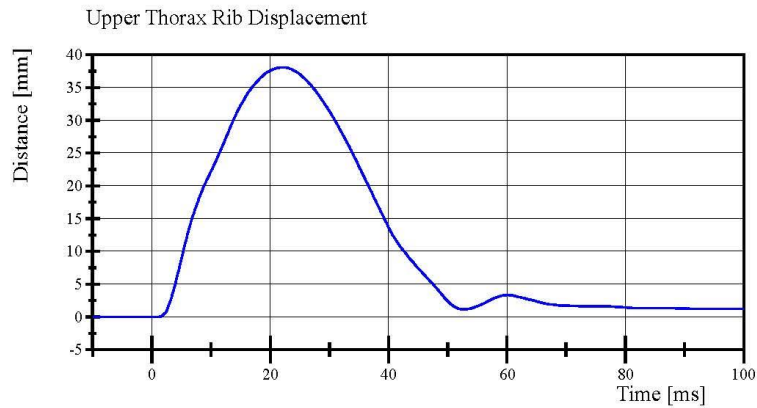
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 10:53:57 890

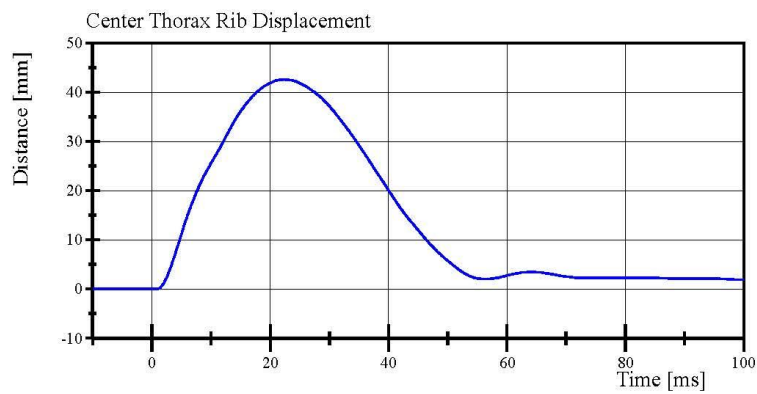


Transportation Research Center Inc.

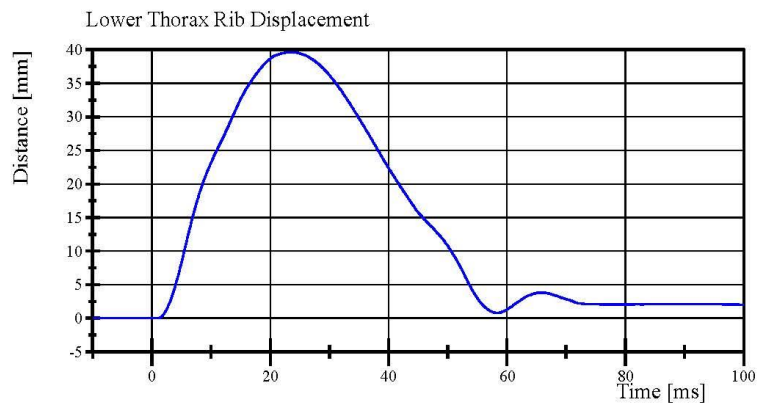
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 66-1
Test Date: 4/30/2024



Filter Class: CFC_600
Max: 38.1 mm at 22.1 ms
Min: -0.0 mm at -0.4 ms



Filter Class: CFC_600
Max: 42.6 mm at 22.3 ms
Min: -0.0 mm at 0.6 ms



Filter Class: CFC_600
Max: 39.6 mm at 23.0 ms
Min: -0.0 mm at -0.5 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 10:53:58 890



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 66-1

Test Date: 4/30/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	63 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.1 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	42.0 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	39.2 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.57 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: DM7281

Lower Abdominal Rib S/N: DM7275

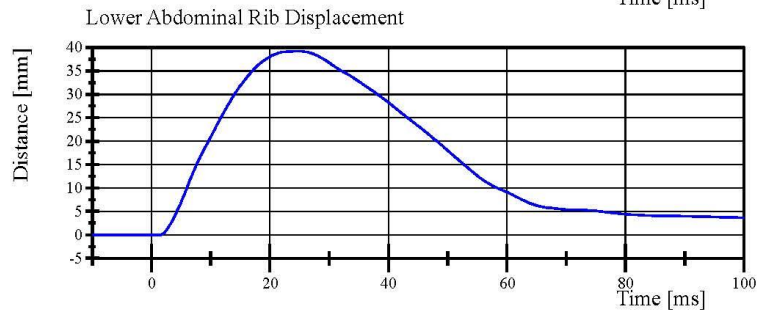
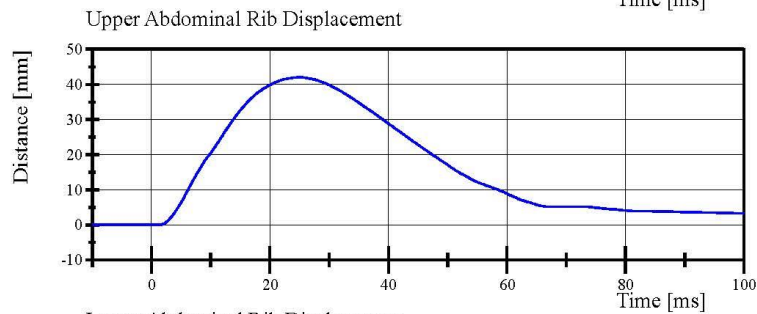
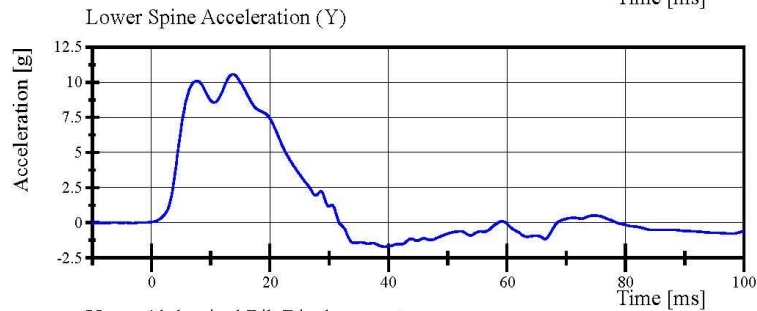
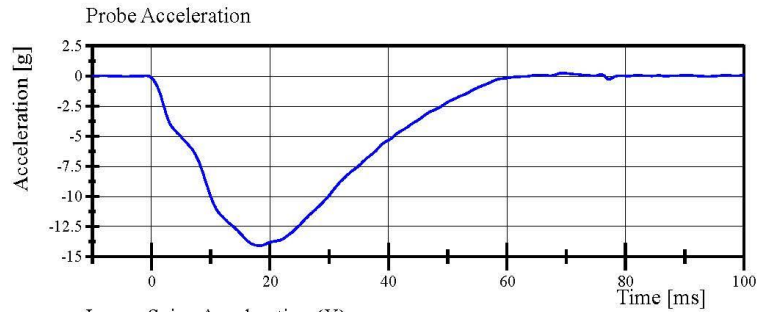
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 10:45:00 717



Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 66-1
Test Date: 4/30/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 10:46:09 717



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 66-2

Test Date: 4/30/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.24 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-41.8 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	36.7 g	Yes
Iliac Force	4,100 - 5,100 N	5,012.7 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 14:11:52 715

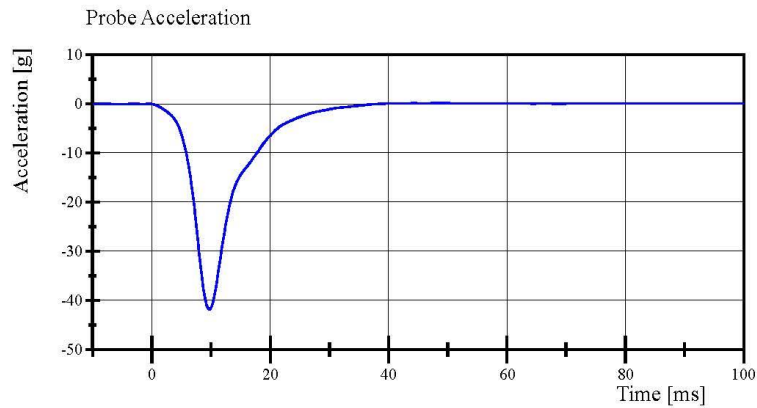


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 66-2

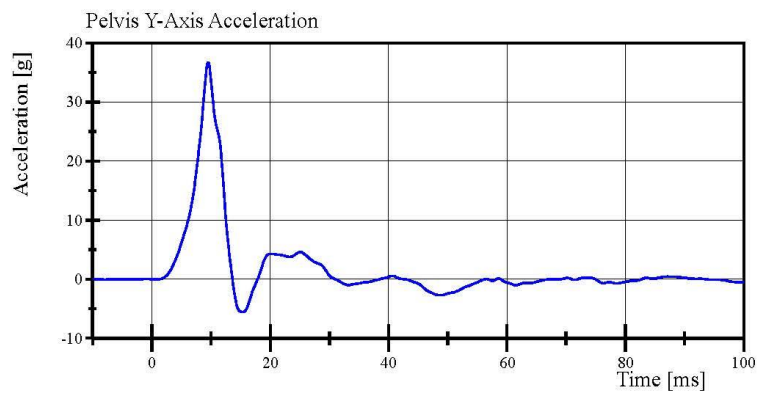
Test Date: 4/30/2024



Filter Class: CFC_180

Max: 0.2 g at 48.7 ms

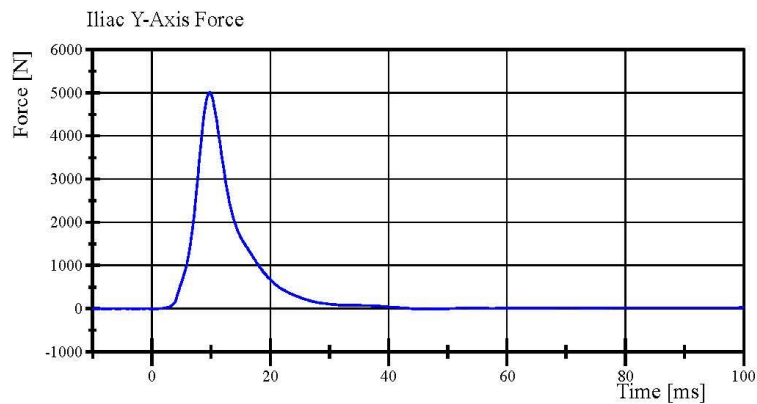
Min: -41.8 g at 9.7 ms



Filter Class: CFC_180

Max: 36.7 g at 9.5 ms

Min: -5.6 g at 15.4 ms



Filter Class: CFC_600

Max: 5,012.7 N at 9.8 ms

Min: -13.2 N at 45.9 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 14:12:47 715



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 66-1

Test Date: 4/30/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.64 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.85 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.6 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,693.5 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

Pelvis Plug Info:

Manufacturer: Saco

S/N: 14594

Cal Date: 20201221

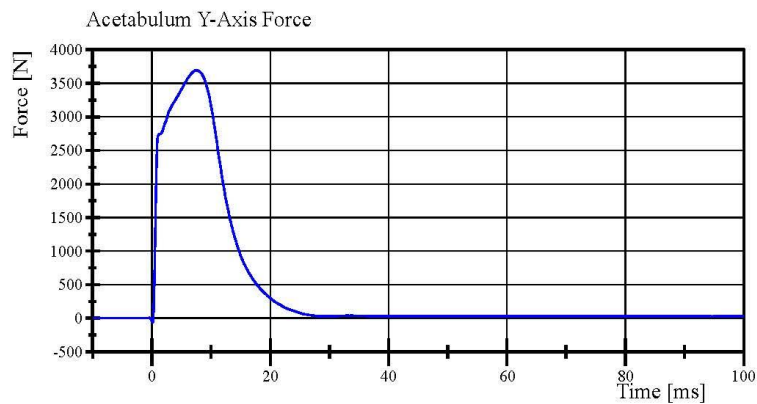
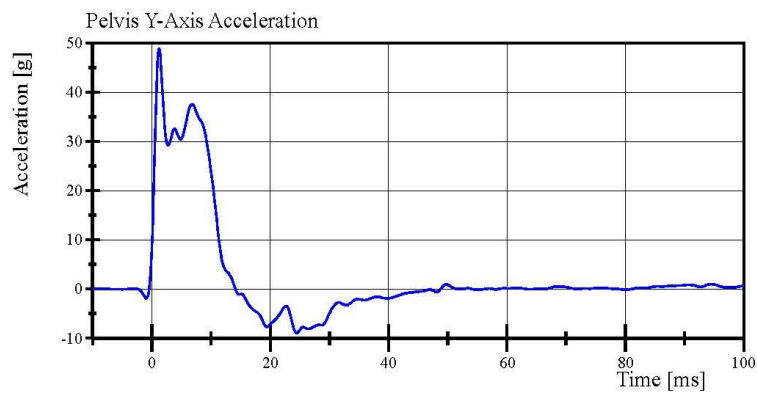
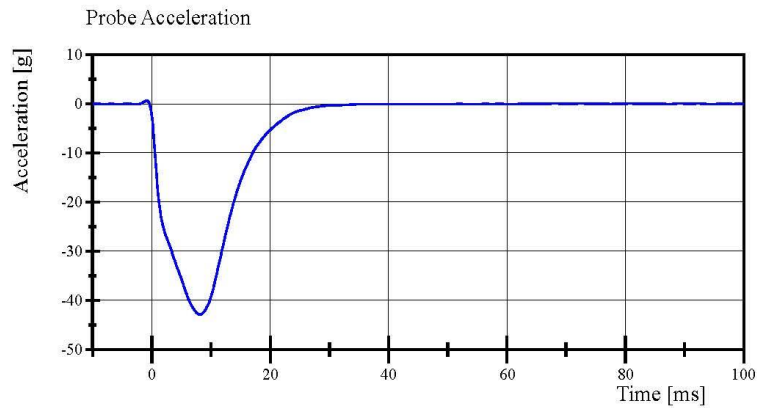
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 11:56:22 479



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 66-1
Test Date: 4/30/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.30.2024 11:58:09 479



Post-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 67

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	147	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	223	Yes
P	Foot Length (left)	216.0 - 232.0	223	Yes
Q	Hip Breadth	313.0 - 323.0	319	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	485	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	877	Yes
Z	Waist Circumference	761.0 - 791.0	781	Yes

Revised 9/29/2005

Report Number: 297_S2F67

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Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 67-1

Test Date: 5/9/2024

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	125.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-1.8 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.31 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: 1330

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 12:56:37 234

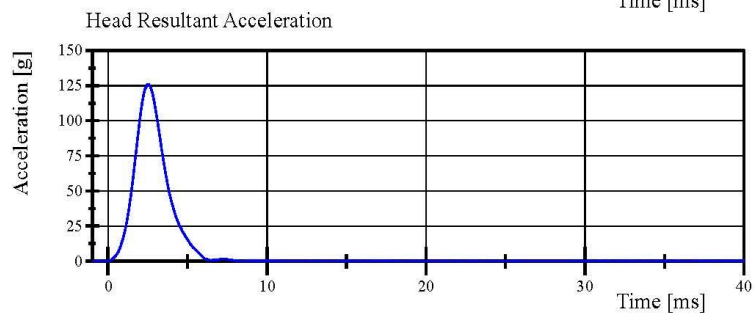
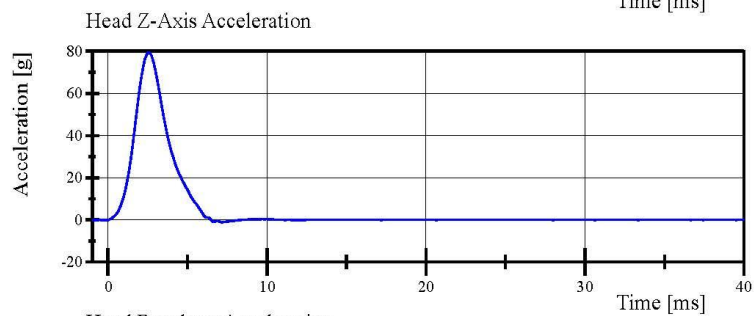
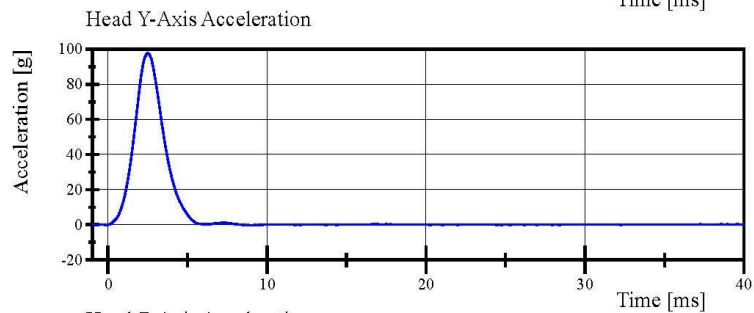
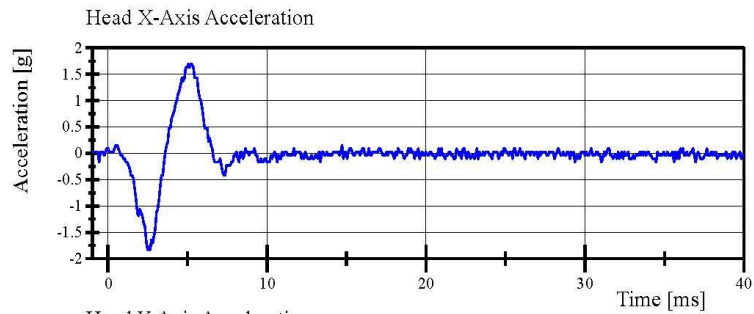


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 67-1

Test Date: 5/9/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 12:57:07 234



Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 297 Certification No. 67-1

Test Date: 5/9/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.617 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.295 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.336 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.511 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.515 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.800 m/s	Yes
Maximum Headform Flexion			
Peak	(-71) - (-81) deg	-77.9 deg	Yes
Time of Peak	50 - 70 ms	64.9 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	39.7 N·m	Yes
Decay to 0 N·m	102 - 126 ms	120.6 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 779

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 13:43:21 753

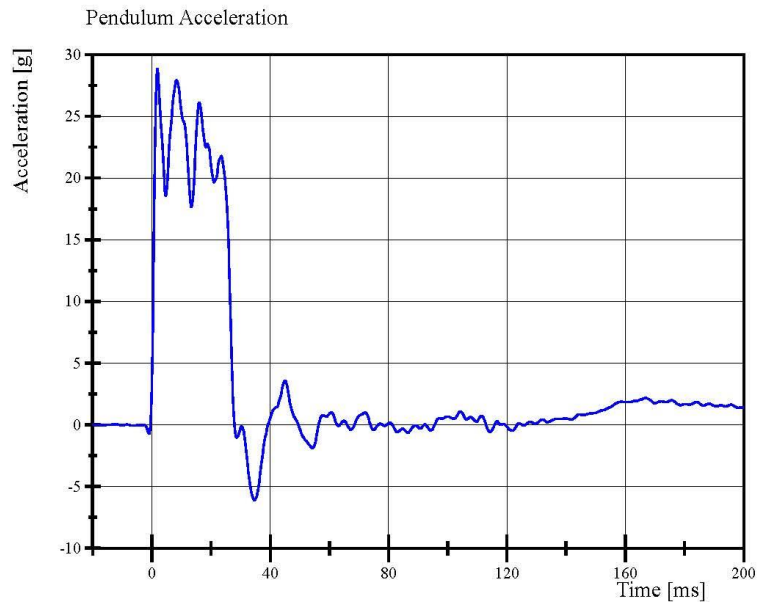


Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 297 Certification No. 67-1

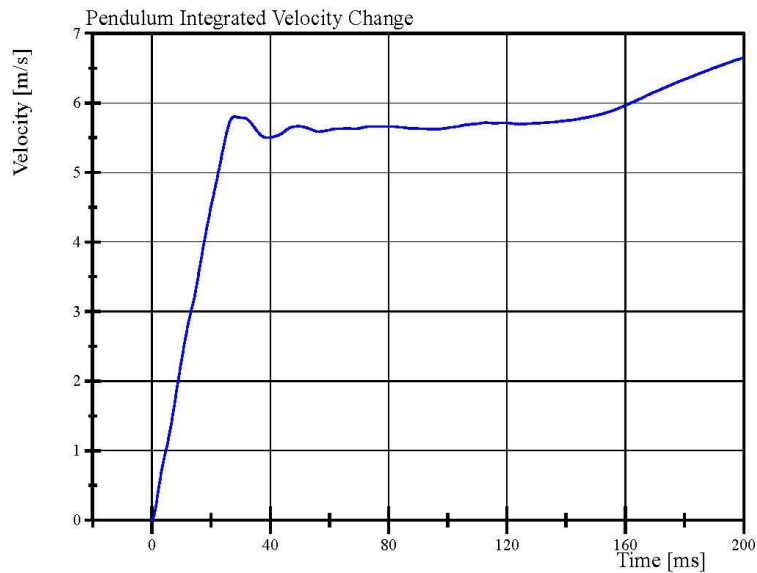
Test Date: 5/9/2024



Filter Class: CFC_180

Max: 28.9 g at 1.8 ms

Min: -6.1 g at 34.6 ms



Filter Class: CFC_180

Max: 6.7 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 13:43:49 753

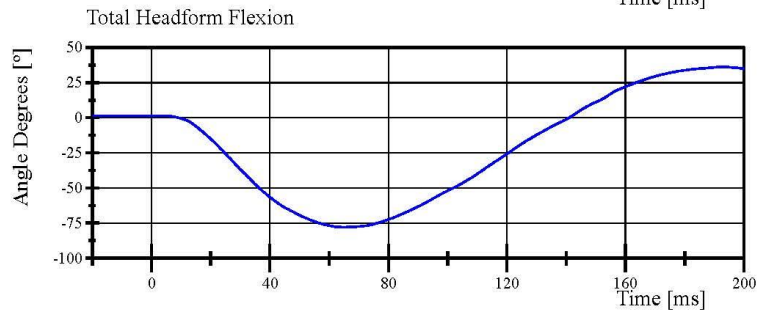
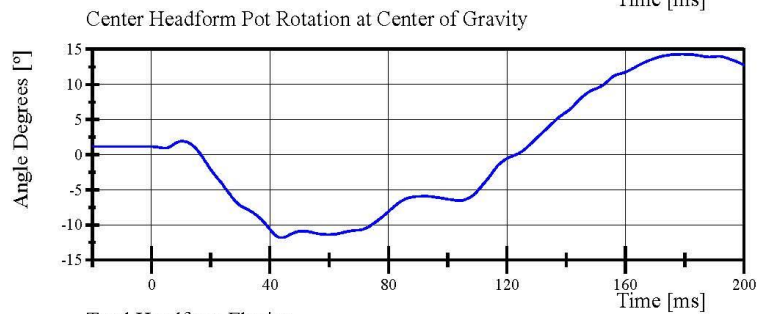
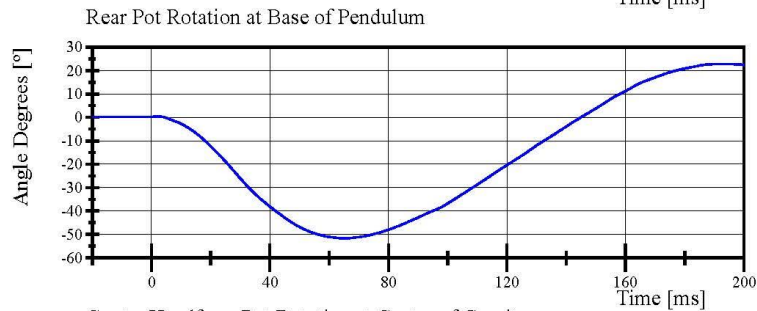
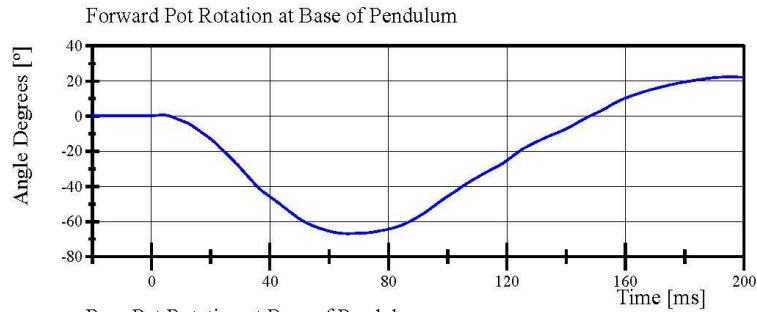


Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 297 Certification No. 67-1

Test Date: 5/9/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 13:43:49 753

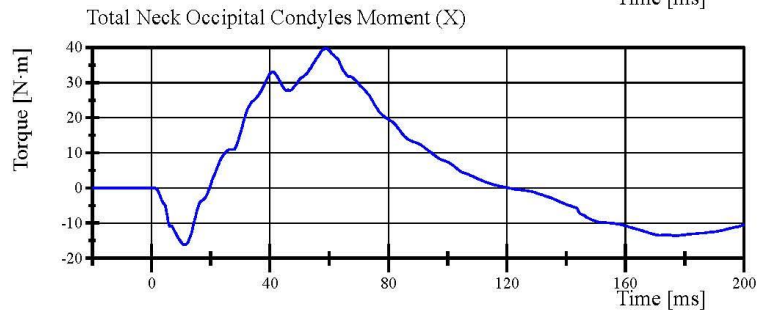
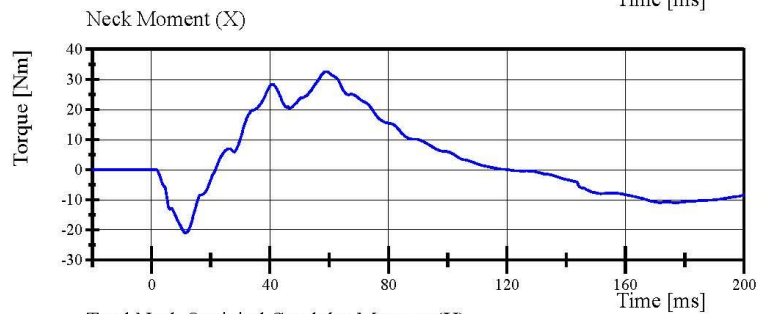
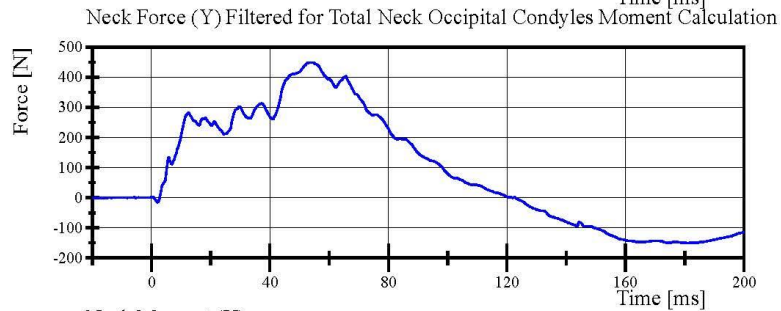
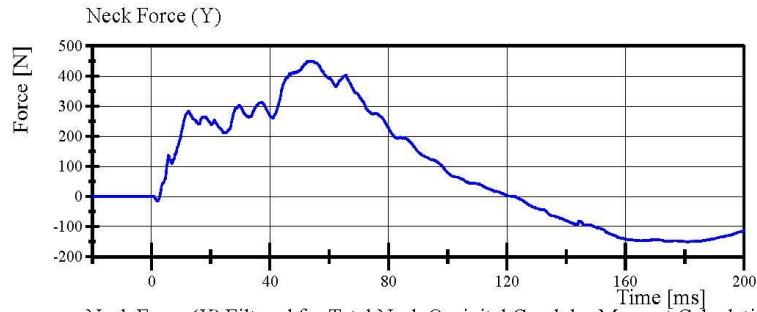


Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 297 Certification No. 67-1

Test Date: 5/9/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 13:43:50 753



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIS Serial No. 297 Certification No. 67-1
Test Date: 5/9/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.0 g	Yes
Shoulder Displacement	28 - 37 mm	31.1 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.6 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: 940L

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 14:42:54 852

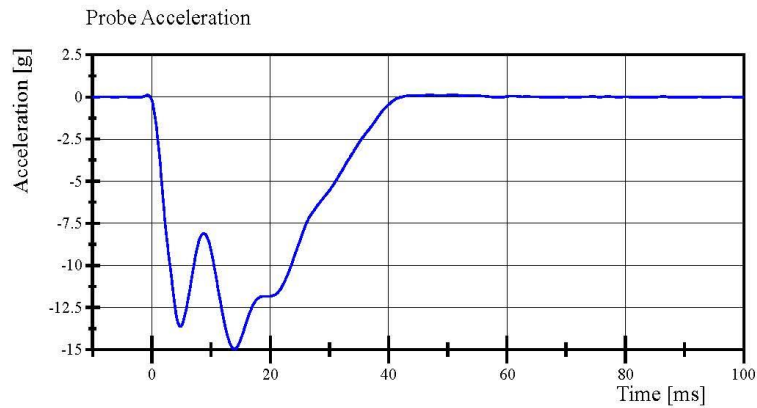


Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 67-1

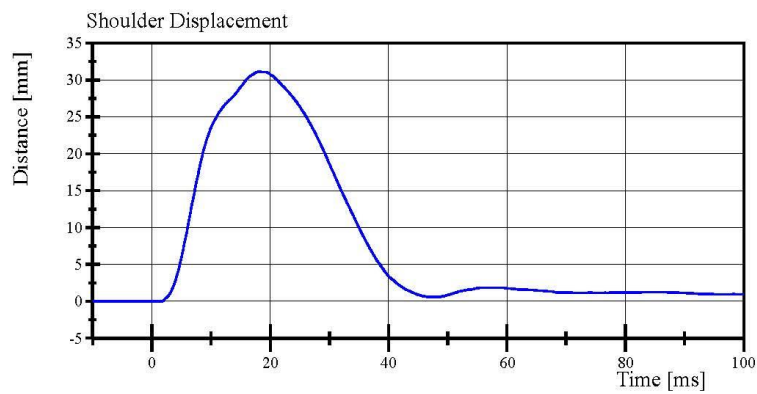
Test Date: 5/9/2024



Filter Class: CFC_180

Max: 0.1 g at 46.8 ms

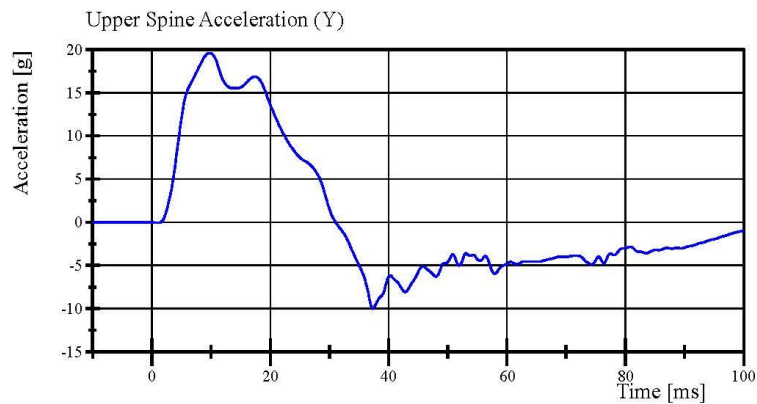
Min: -15.0 g at 13.9 ms



Filter Class: CFC_600

Max: 31.1 mm at 18.1 ms

Min: -0.0 mm at 1.5 ms



Filter Class: CFC_180

Max: 19.6 g at 9.8 ms

Min: -10.0 g at 37.4 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 14:43:21 852



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIS Serial No. 297 Certification No. 67-1
Test Date: 5/9/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.720 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.5 g	Yes
Shoulder Displacement	31 - 40 mm	37.8 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.9 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.7 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	34.2 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.6 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	34.8 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3355 259

Upper Thorax Rib S/N: DM5020

Middle Thorax Rib S/N: DM5021

Lower Thorax Rib S/N: DM5022

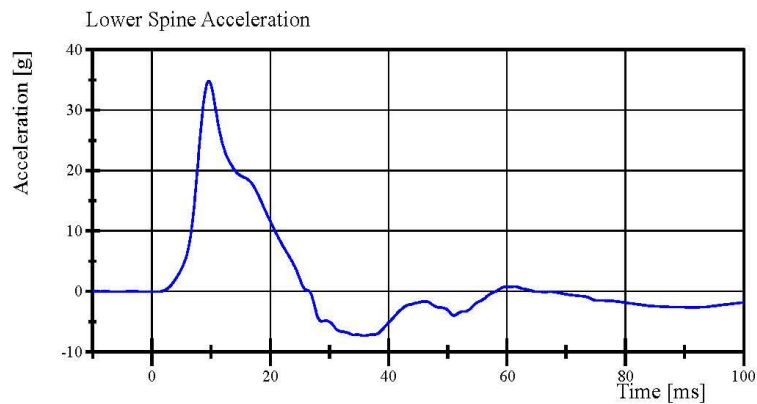
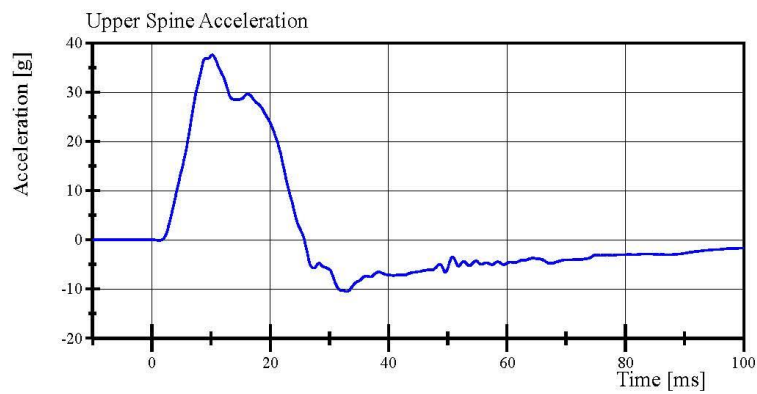
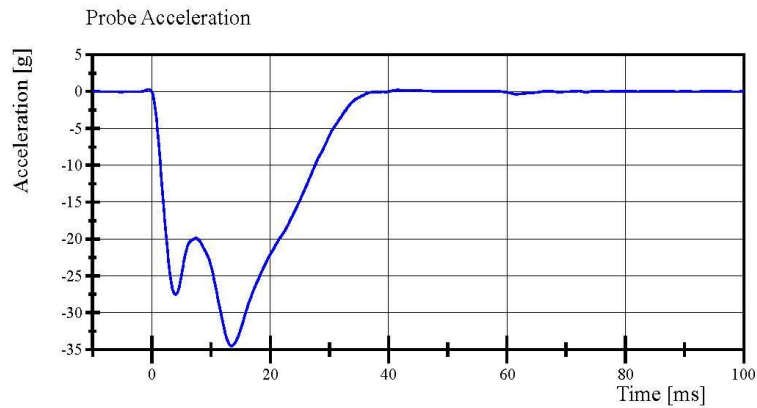
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 15:29:10 612



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 67-1
Test Date: 5/9/2024



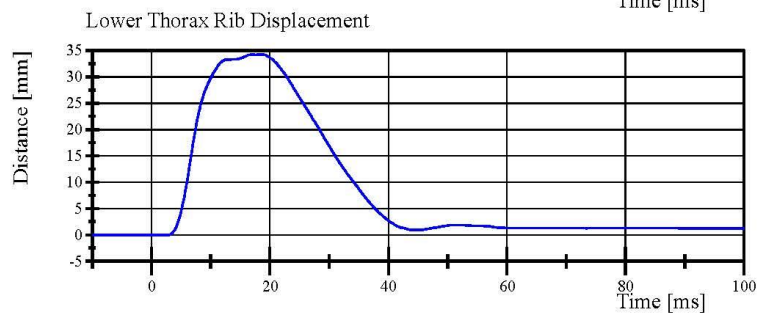
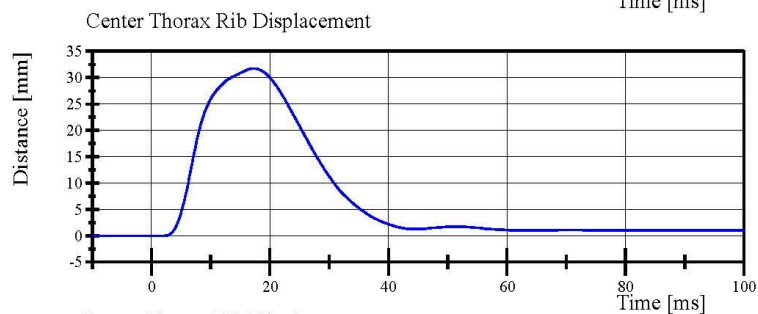
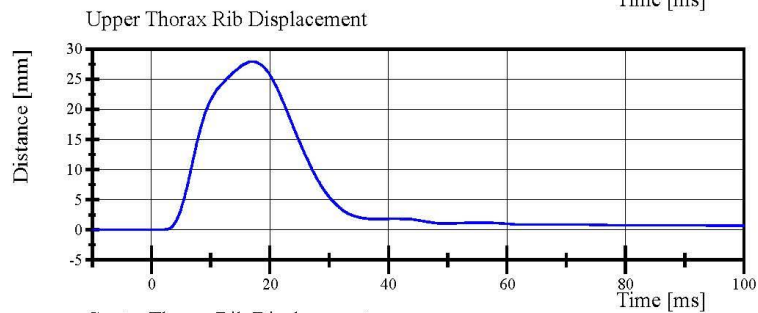
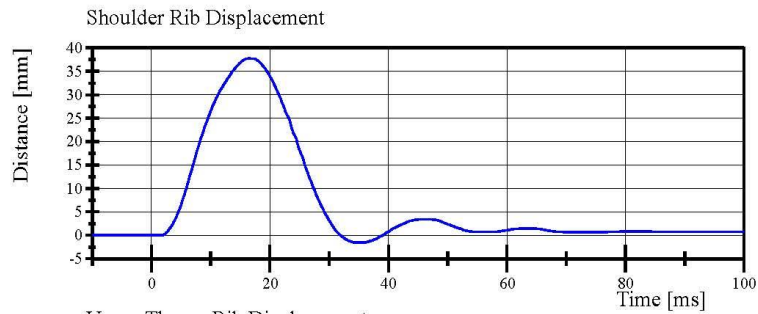
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 15:29:46 612



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 67-1
Test Date: 5/9/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 15:29:46 612



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIS Serial No. 297 Certification No. 67-1
Test Date: 5/9/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.357 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.5 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.3 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	42.4 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	40.4 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	13.8 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.2 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib S/N: 180-3362 DP6492

Middle Thorax Rib S/N: 180-3362 DP6493

Lower Thorax Rib S/N: 180-3362 DP7664

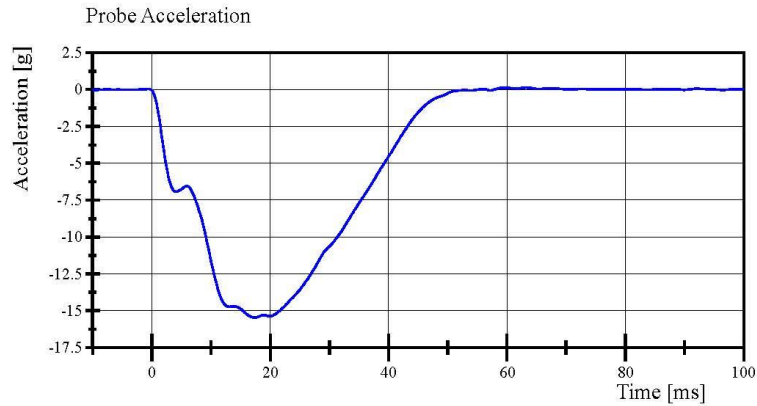
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with Polarity in accordance with J211

05.09.2024 14:58:48 801

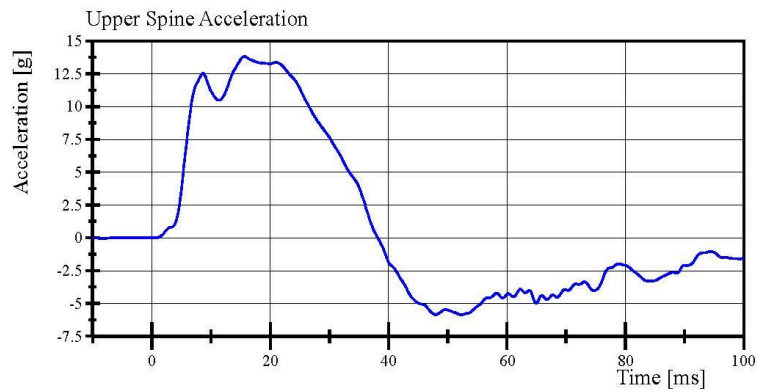


Transportation Research Center Inc.

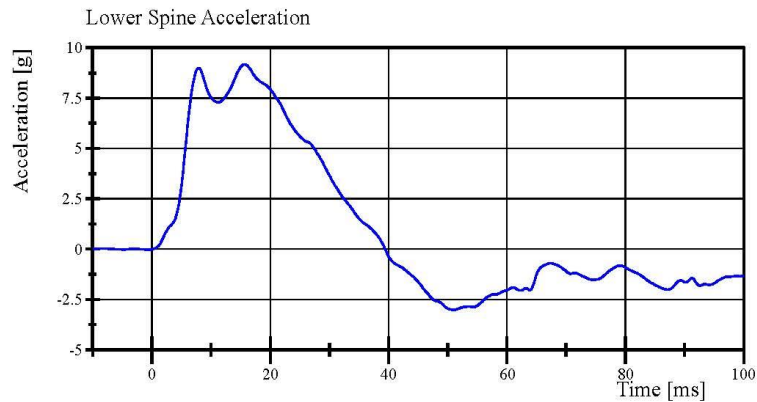
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 67-1
Test Date: 5/9/2024



Filter Class: CFC_180
Max: 0.1 g at 63.2 ms
Min: -15.5 g at 17.3 ms



Filter Class: CFC_180
Max: 13.8 g at 15.7 ms
Min: -5.9 g at 52.2 ms



Filter Class: CFC_180
Max: 9.2 g at 15.7 ms
Min: -3.0 g at 51.0 ms

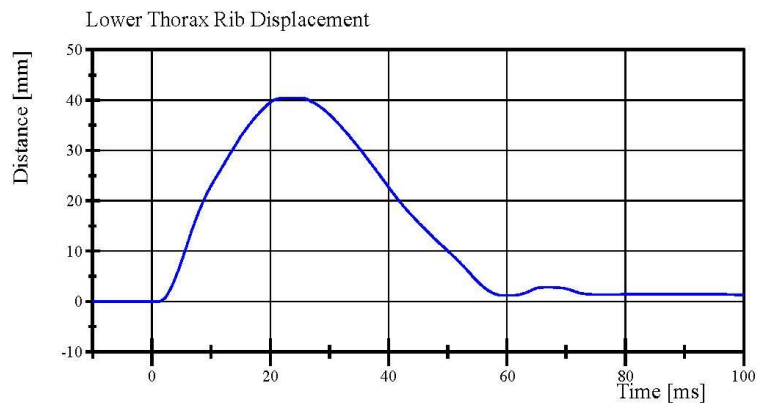
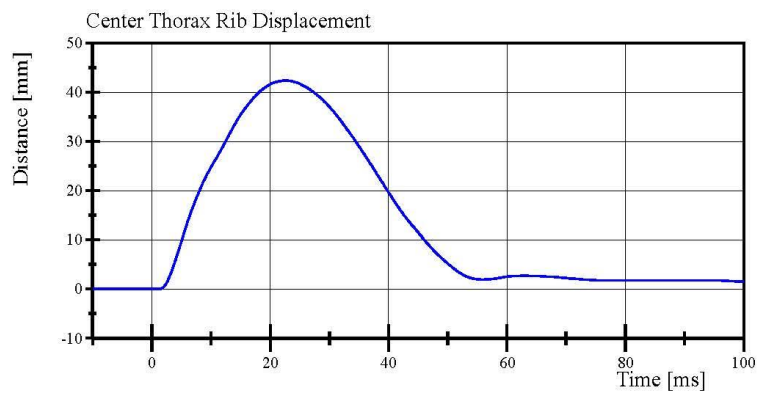
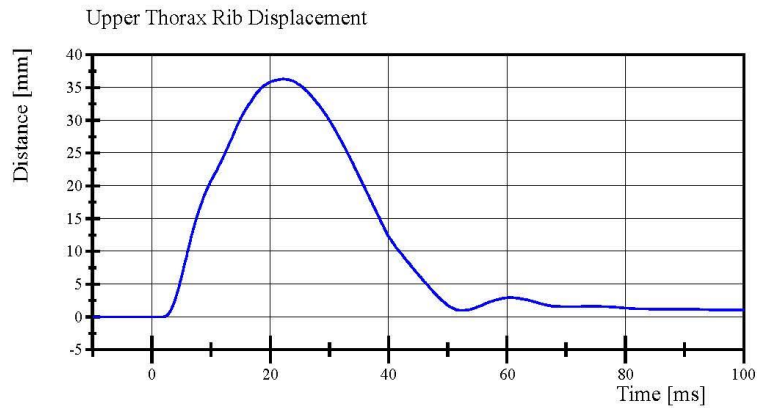
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 14:59:23 801



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 67-1
Test Date: 5/9/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 14:59:23 801



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 67-2

Test Date: 5/10/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-13.8 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	41.6 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	37.8 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.01 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: DM7281

Lower Abdominal Rib S/N: DM7275

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.10.2024 07:38:47 667

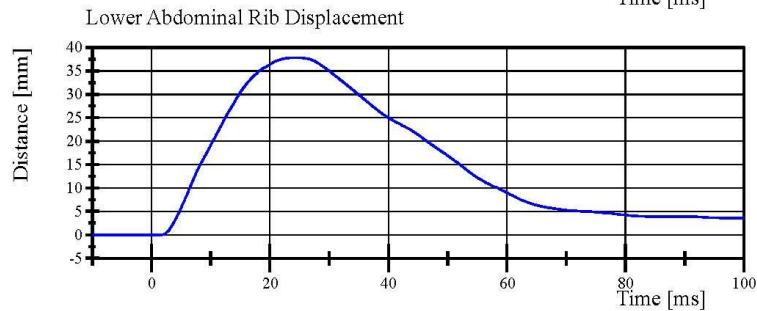
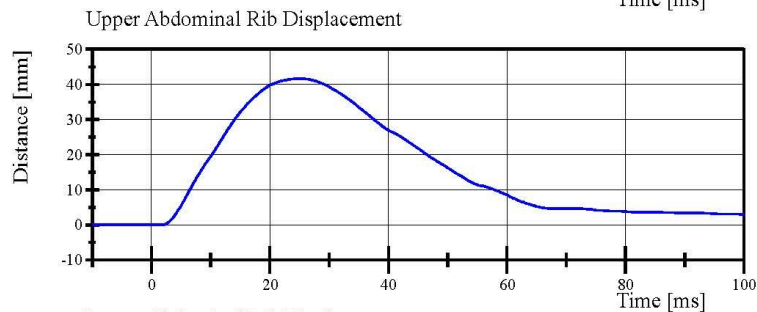
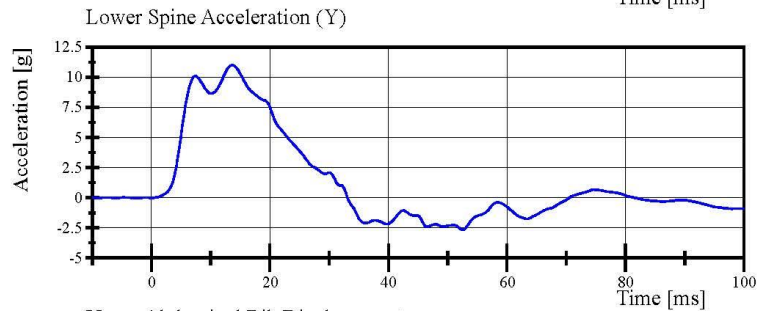
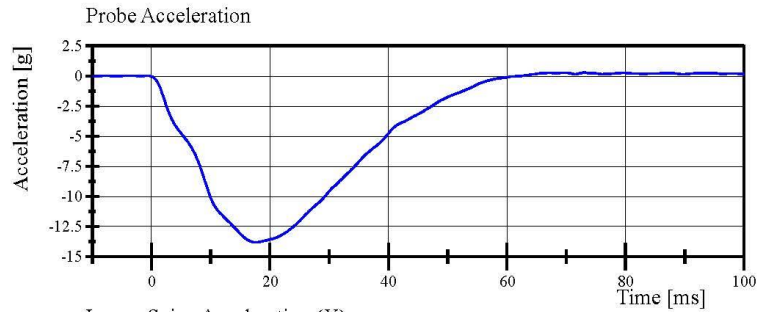


Transportation Research Center Inc.

Left Lateral Abdomen

SID IIS Serial No. 297 Certification No. 67-2

Test Date: 5/10/2024



Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.10.2024 07:39:15 667



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 67-1

Test Date: 5/10/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-42.3 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	34.2 g	Yes
Iliac Force	4,100 - 5,100 N	4,962.4 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.10.2024 07:48:52 656

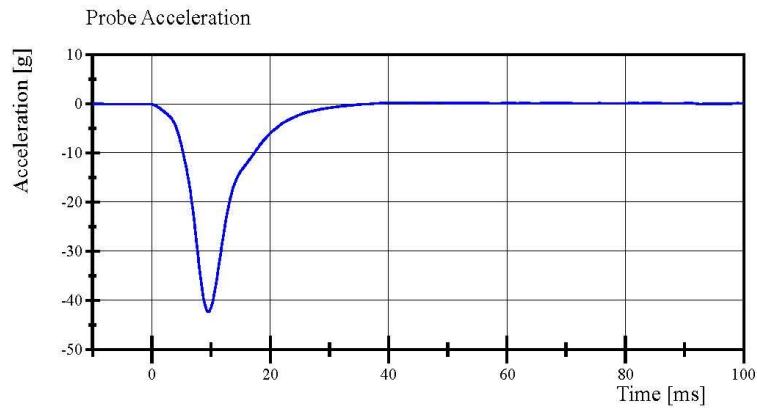


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 67-1

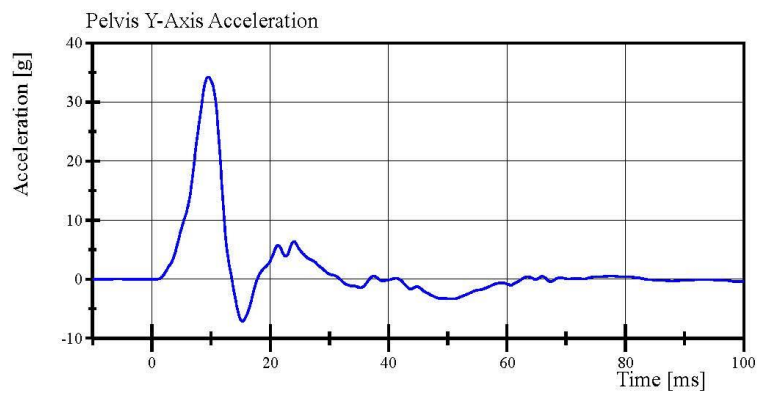
Test Date: 5/10/2024



Filter Class: CFC_180

Max: 0.3 g at 40.7 ms

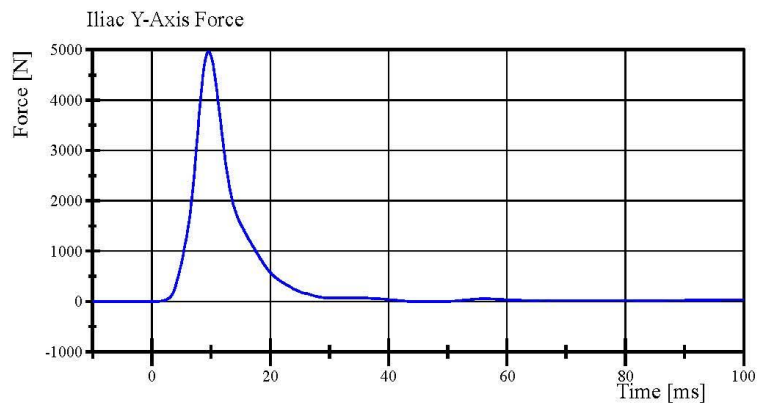
Min: -42.3 g at 9.5 ms



Filter Class: CFC_180

Max: 34.2 g at 9.5 ms

Min: -7.1 g at 15.3 ms



Filter Class: CFC_600

Max: 4,962.4 N at 9.6 ms

Min: -6.9 N at 47.5 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.10.2024 07:49:17 656



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 67-1

Test Date: 5/9/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.62 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.63 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.0 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,698.3 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

Pelvis Plug Info:

Manufacturer: Saco

S/N: 14623

Cal Date: 20201221

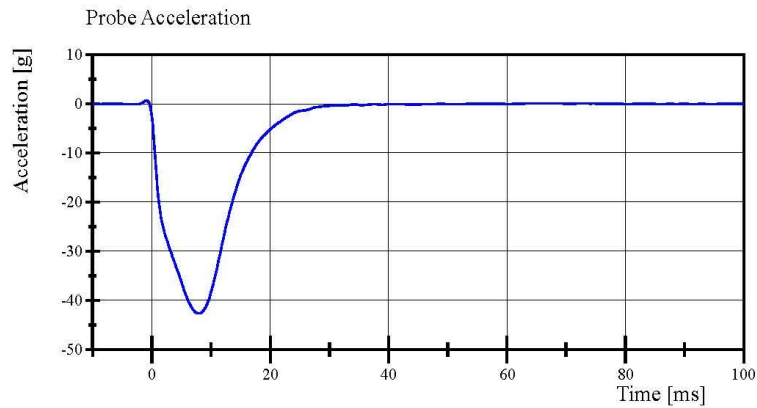
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 14:31:23 450

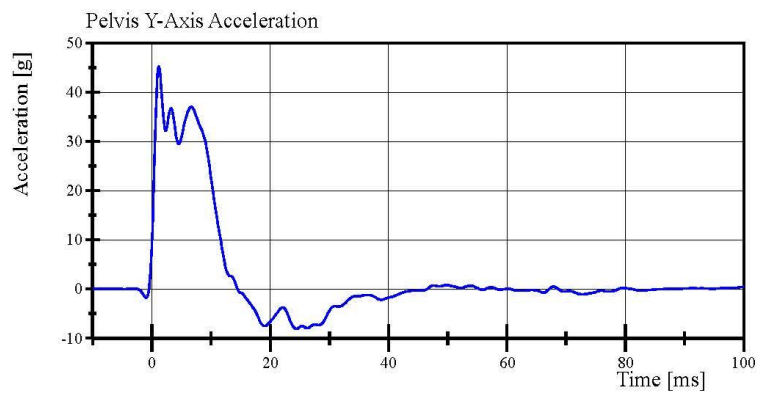


Transportation Research Center Inc.

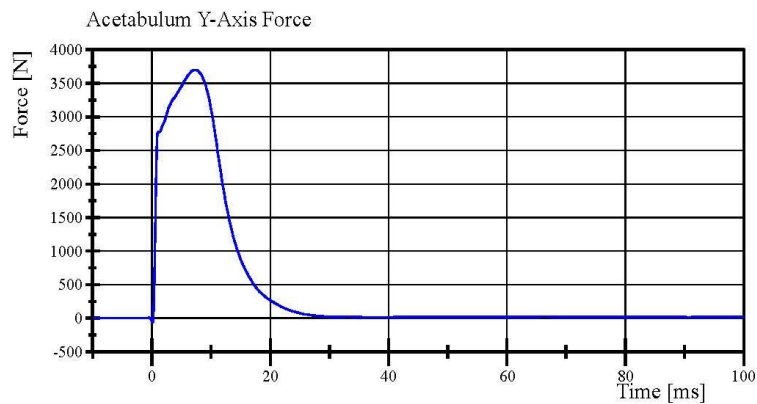
Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 67-1
Test Date: 5/9/2024



Filter Class: CFC_180
Max: 0.7 g at -0.9 ms
Min: -42.6 g at 7.9 ms



Filter Class: CFC_180
Max: 45.2 g at 1.2 ms
Min: -8.1 g at 24.4 ms



Filter Class: CFC_600
Max: 3,698.3 N at 7.3 ms
Min: -64.8 N at 0.1 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.09.2024 14:32:32 450



APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 297			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P93539	Endevco	26-Apr-2024
				Y	P93549	Endevco	26-Apr-2024
				Z	P93776	Endevco	26-Apr-2024
Displacement Potentiometers	Shoulder		Y	N/A	N/A	N/A	
	Thoracic Rib	Upper	Y	023	Servo	26-Apr-2024	
		Middle	Y	063	Servo	26-Apr-2024	
		Lower	Y	043	Servo	26-Apr-2024	
	Abdominal Rib	Upper	Y	1152	Servo	26-Apr-2024	
		Lower	Y	051	Servo	26-Apr-2024	
Lower Spine Accelerometers (T12)				X	P94425	Endevco	26-Apr-2024
				Y	P91522	Endevco	26-Apr-2024
				Z	P91511	Endevco	26-Apr-2024
Acetabulum Load Cell				Y	235-FY	FTSS	26-Apr-2024
Iliac Wing Load Cell				Y	320-FY	Denton	26-Apr-2024
Pelvis Plug (struck side)					14590	Saco	21-Dec-2020
Pelvis Plug (non-struck side)					14595	Saco	21-Dec-2020

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A349788	Measurement Specialties	22-Mar-2024
Vehicle Center of Gravity	Y	A367452	Measurement Specialties	22-Mar-2024
Vehicle Center of Gravity	Z	A318453	Measurement Specialties	22-Mar-2024
Left Floor Sill	Y	A298374	Measurement Specialties	25-Mar-2024
A-Pillar Sill	Y	A298323	Measurement Specialties	25-Mar-2024
A-Pillar Low	Y	A400097	Measurement Specialties	22-Mar-2024
A-Pillar Mid	Y	A349782	Measurement Specialties	22-Mar-2024
B-Pillar Sill	Y	A349806	Measurement Specialties	22-Mar-2024
B-Pillar Low	Y	A377501	Measurement Specialties	21-Mar-2024
B-Pillar Mid	Y	A298558	Measurement Specialties	22-Mar-2024
Driver Seat	Y	A300416	Measurement Specialties	22-Mar-2024
Engine Top	X	A318460	Measurement Specialties	27-Mar-2023
Engine Top	Y	A349795	Measurement Specialties	25-Mar-2024
Firewall	Y	A297050	Measurement Specialties	22-Mar-2024
Right Roof	Y	A298329	Measurement Specialties	22-Mar-2024
Right Floor Sill	Y	A400122	Measurement Specialties	22-Mar-2024
Rear Floor Pan	X	A377538	Measurement Specialties	25-Mar-2024
Rear Floor Pan	Y	A300452	Measurement Specialties	22-Mar-2024

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DK7091S	Humanetics	4-Jan-2024
Load Cell 2	DK7120S	Humanetics	4-Jan-2024
Load Cell 3	DK7118S	Humanetics	4-Jan-2024
Load Cell 4	DK7124S	Humanetics	4-Jan-2024
Load Cell 5	DK7111S	Humanetics	4-Jan-2024
Load Cell 6	DK7126S	Humanetics	4-Jan-2024
Load Cell 7	DK7112S	Humanetics	4-Jan-2024
Load Cell 8	DK7074S	Humanetics	4-Jan-2024