REPORT NUMBER: TR-P29125-03-NC

MOVING BARRIER TO VEHICLE CRASH TESTING IN SUPPORT OF NHTSA FRONTAL OBLIQUE OFFSET PROGRAM

FMVSS NO. 214 MOVING DEFORMABLE BARRIER INTO LEFT FRONT OF A 2007 FORD FIVE HUNDRED SEL – 10% OFFSET-OBLIQUE 15°

NHTSA No: R70209

PREPARED BY:

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DECEMBER 23, 2009

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION / RITA / VOLPE CENTER

55 BROADWAY / RVT-92

CAMBRIDGE, MA 02142-1093

This final test report was prepared for the U.S. Department of Transportation / RITA / Volpe National Transportation Systems Center, in response to Contract Number DTRT57-05-D30106.

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Approval Date: February 26, 2010

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
TR-P29125-03-NC		

4. Title and Subtitle
Final Report of a Moving Barrier to Vehicle Crash Test of a
2007 Ford Five Hundred SEL 4-Door Sedan
NHTSA No. R70209

5. Report Date
January 12, 2010

6. Performing Organization Code
KAR

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TR-P29125-03-NC

9. Performing Organization Name and Address
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10. Work Unit No.

11. Contract or Grant No.
DTRT57-05-D30106

12. Sponsoring Agency Name and Address
U. S. Department of Transportation / RITA / Volpe Center
55 Broadway / RVT-92
Cambridge, MA 02142-1093

13. Type of Report and Period Covered
Final Test Report

14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

A test was conducted in accordance with instructions outlined in Task Order DTRTV-T9001 in which a FMVSS 214 barrier moving at 125.1 km/h impacted a stationary 2007 Ford Five Hundred SEL 4-Door Sedan. The Ford Five Hundred was positioned 15 degrees relative to the moving barrier, with the barrier impacting 10.1 percent of the left side of the vehicle. Data indicant of FMVSS 208, 212, 219 (partial), 301 and foot well intrusion performance was collected. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on December 23, 2009.

The impact velocity of the moving barrier was 125.1 km/h. The Ford Five Hundred was positioned at an angle of 15.0 degrees and the offset was 740 mm from the centerline of the vehicle to the left edge of the barrier. The test vehicle's maximum exterior post-test crush was 412 mm to the left of the vehicle centerline. The dummies Injury Assessment Values are as follows:

Measurement Description	Units	Driver ATD		Left Rear Passenger	
		Threshold	Result	Threshold	Result
Head Injury Criteria (HIC_{15})	N/A	700.0	2561.9	700.0	823.3
3 ms Head Clip	g	80.0	139.2		
3 ms Thorax Clip	g	60.0	139.5		
3 ms Chest Clip	g			60.0	42.9
Neck Tension	N	2520	3579.2	2620	1908.9
Neck Compression	N	-3600	-1053.4	-2520	-137.9
Left Femur Force	N	-10000	-13299.1	-6805	-936.3
Right Femur Force	N	-10000	-3607.7	-6805	-378.0

17. Key Words
2007 Ford Five Hundred SEL 4-Door Sedan
NHTSA No. R70209
15°, 50% Offset
125 km/h / 78 mph
50th THOR NT

18. Distribution Statement
Copies of this report are available from:
National Highway Traffic Safety Admin.
1200 New Jersey Ave., SE
Room W43-410
Washington, DC 20590

19. Security Classification of this report	20. Security Classification of this page	21. No. of Pages	22. Price
UNCLASSIFIED	UNCLASSIFIED	503	

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SECTION 1
PURPOSE AND TEST PROCEDURE

1.1 PURPOSE

This 125 km/h (78 mph) test was conducted in support of the National Highway Traffic Safety Administration's (NHTSA) Frontal Oblique Offset Program, under contract number DTRT57-05-D30106. The purpose of this test is to evaluate vehicle and occupant responses in a frontal oblique offset crash test.

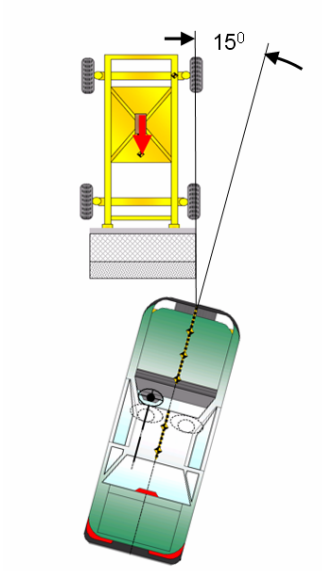
1.2 TEST PROCEDURE

This test was conducted in accordance with the instructions set forth by NHTSA/Volpe for a 15°, 50% offset moving barrier to vehicle impact, outlined in Task Order (TO) DTRTV-T9001. Data was obtained indicant of Federal Motor Vehicle Safety Standard (FMVSS) 208 – "Occupant Crash Protection", FMVSS 212 – "Windshield Mounting", FMVSS 219 (partial) – "Windshield Zone Intrusion", and FMVSS 301 – "Fuel System Integrity", in addition to the requirements of TO DTRTV-T90001. During the test the moving barrier became un-tethered from the guidance system and impacted the test vehicle at an actual offset of 10%.

SECTION 2
SUMMARY OF TEST

2.1 SUMMARY

A model year 2007 Ford Five Hundred SEL 4-door sedan was impacted on the left front corner by an FMVSS 214 Moving Deformable Barrier. The test vehicle was stationary and positioned at a target angle of 15° and an offset of 50% to the line of forward motion of the MDB. The MDB was towed down the test track in a full forward direction, without any crabbing, and impacted the test vehicle at a velocity of 125.1 km/h (77.7 mph). Actual impact location was approximately 740 mm left of vehicle centerline, making it an approximately 10.1% offset at 15.0°.



The test vehicle mass was 1891.5 kg (4171 lbs), and the MDB mass was 1500.5 kg (3309 lbs). The test was conducted by KARCO Engineering, LLC. on December 23, 2009.

The test was documented by two (2) real time and fifteen (15) high-speed video cameras. Camera locations and other pertinent data are located in Data Sheet No. 18 of this report. Pre- and post-test photographs of the test vehicle, the MDB and the test setup were taken using a digital still camera. Photographic documentation of the test is presented in Appendix A of this report.

One 50% adult male THOR NT anthropomorphic test device (ATD) (Serial No.: 0006) was seated in the left front (driver's) seating position and one Part 572O 5% adult female ATD (Serial No.: 630) was seated in the left rear seating position. Both ATD's were positioned according to instructions specified in FMVSS 208, the driver for a Part 572E 50% adult male Hybrid III ATD and the rear passenger for a Part 572O 5% adult female Hybrid III ATD. The driver was restrained with a 3-point seat belt and a dual stage frontal airbag. The left rear passenger was restrained with a 3-point seat belt.

One-hundred ninety-two (192) channels of data from the two ATD's, test vehicle and MDB were collected using a TDAS data acquisition system. Appendix B contains dummy response data plots, as well as vehicle and MDB response data plots.

There was 31.1% total windshield retention, with 24.8 % and 37.4% retention on the left and right sides respectively. There appeared to be no intrusion into the protected zone of the windshield during any portion of the impact test.

The maximum static crush of the exterior of the vehicle was 412 mm at DPD 2 to the left of the vehicle's centerline. The maximum crush of the underlying structure was 690 mm at DPD 3 of the upper radiator support, to the left of the vehicle's centerline. The maximum static crush on the left side of the vehicle was 382 mm at level 2, 1350 mm rearward of the front of the vehicle. Full vehicle measurements are presented in Section 3 of this report.

All four vehicle doors remained closed and latched during the test. All four doors were jammed shut as a result of the impact. The left front door skin separated from the majority of the door frame. The trunk remained closed and operational.

The driver ATD's visible contact points are as follows: the head contacted the airbag, left hand, door panel, side header and headrest; the chest contacted the airbag and steering wheel; both the left and right knees contacted the knee bolster. The driver ATD had the following damage: the left tibia compliant bushing broke, the left femur ball joint broke.

The left rear passenger ATD's visible contact points are as follows: the head contacted the door panel and headrest; the torso had no contact; the left knee contacted the right hand and b-pillar; the right knee contacted the driver's seatback and the b-pillar.

OCCUPANT INJURY CRITERIA SUMMARY

Measurement Description	Units	Driver ATD		Passenger ATD	
		Threshold	Result	Threshold	Result
Head Injury Criteria (HIC_{15})	n/a	700	2561.9	700	823.3
3 ms Head Clip	g	80	139.2		
3 ms Thorax Clip	g	60	139.5		
3 ms Chest Clip	g				38.7
Neck Tension	N	2,520	3579.2	2,620	1908.9
Neck Compression	N	-3,600	-1053.4	-2,520	137.9
Left Femur Force	N	-10,000	-13299.1	-6,805	-936.3
Right Femur Force	N	-10,000	-3607.7	-6,805	-378.0

SECTION 3

DATA SHEETS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

CONVERSION FACTORS USED IN THE REPORT

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4535
Linear Velocity	Impact Velocity	mile/h	km/h	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressures	lbf/in^2	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	^oF	^oC	=(tf -32)/1.8
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf•ft	Nm	1.355

DATA SHEET NO. 1

CRASH TEST SUMMARY

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
MDB Velocity at Impact	km/h	125.1
Impact Angle	°	15.0
MDB Test Weight	kg	1500.5
Vehicle Test Weight	kg	1891.5
MDB Maximum Static Crush	mm	463
Vehicle Maximum Static Crush	mm	412
Actual Vehicle Offset From Centerline	mm	740 [1]

MDB SPECIFICATIONS

Measurement Description	Units	Value
Overall Width of Framework Carriage	mm	1252
Overall Length, Including Honeycomb Face	mm	4115
Wheelbase of Framework Carraige	mm	2590
CG Location Aft of Front Axle	mm	1233

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Left	463
B	Top of Bumper	533	800	Left	311
C	Mid Level	686	800	Left	367
D	Top of Stack	813	800	Left	374

DOOR OPENING AND SEAT TRACK DATA

Description	Driver Side	Passenger Side
Front Door Opening	Remained closed and latched, jammed shut, door skin partially separated	Remained closed and latched, jammed shut
Rear Door Opening	Remained closed and latched, jammed shut	Remained closed and latched, jammed shut
Seat Track Shift (mm)	Unmeasureable	
Seat Back Failure	No	No

[1] – Offset is measured from the left edge of the MDB to the centerline of the vehicle.

DATA SHEET NO. 1 … (CONTINUED)

CRASH TEST SUMMARY

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations
Pillar Performance	No separation occurred
Sill Separation	Left side sill separated from floorpan between the A- and B-pillars [2]
Windshield Damage	Broken, separated from frame [3]
Window Damage	Left front window broke in door
Other Notable Effects	None

TEST DUMMY DATA

Description	Driver	Rear Passenger
Dummy Type / Serial No.	THOR 50th NT, S/N 0006	P572O, 5% Adult Female, S/N: 630
Lower Legs	Left: 0039, Right: 0109	
Head Contact	Airbag, Left Hand, Door Panel, Side Header, Headrest	Door Panel, C-Pillar, Headrest
Chest Contact	Airbag, Steering Wheel	None
Abdomen Contact	None	None
Left Knee Contact	Knee Bolster	Right Hand, B-Pillar
Right Knee Contact	Knee Bolster	Driver's Seatback, B-Pillar
Dummy Damage	Left Compliant Bushing Broke, Left Femur Ball Joint Broke	None

VIDEO COVERAGE

Camera Type	Number
Real Time	2
High-Speed Off-Board	10
High-Speed MDB On-Board	1
High-Speed Vehicle On-Board	4
Total	17

DATA CHANNELS

Description	Number
Driver ATD Sensors	119
Driver ATD Contact Switches	3
Rear Passenger ATD Sensors	36
Belt Assessment Sensors	4
MDB Structure Accelerometers	6
Vehicle Structure Accelerometers	22
Airbag Sensors	2
Total	192

[2] – See figures 310 and 324 of Appendix A.

[3] – See Figures 319 through 323 of Appendix A

DATA SHEET NO. 1 … (CONTINUED)

CRASH TEST SUMMARY

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

DATA CHANNEL ANOMALIES

Channel	Description	Axis	Problem
26	Driver Rear Neck Spring Force		Channel failed, no data
49	Driver Upper Abdomen Deflection		Channel failed at 102.3 ms
54	Driver Right DGSP Rotation	Y	Questionable data
69	Driver Right Acetabulum Force	Z	Channel failed at 179.8 ms
83	Driver Left Tibia	X	Channel failed at 45.1 ms
84	Driver Left Tibia	Y	Channel failed at 45.1 ms
88	Driver Left Ankle Rotation	X	Channel failed at 74.9 ms
89	Driver Left Ankle Rotation	Y	Channel failed at 74.9 ms
90	Driver Left Ankle Rotation	Z	Channel failed at 74.9 ms
100	Driver Left Lower Tibia Moment	Y	Channel failed at 45.4 ms
120	Driver Lap Belt Force		Channel failed at 65.9 ms
167	Vehicle Engine Top	X	Channel failed, no data
168	Vehicle Engine Bottom	X	Channel failed, no data
169	Vehicle Left Brake Caliper	X	Channel failed at 48.8 ms
172	Vehicle Driver Left Mid Seat Track	X	Channel failed at 72.4 ms
177	Vehicle Brake Pedal	Y	Channel failed at 54.9 ms
179	Vehicle Foot Rest	X	Channel failed at 54.9 ms
180	Vehicle Foot Rest	Y	Channel failed at 37.4 ms
182	Driver Foot Rest Contact		Channel failed, no data

DATA SHEET NO. 2

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	R70209	Rear Disc	Yes
Make	Ford	Anti-Lock Brakes	Yes
Model	Five Hundred SEL	All Wheel Drive	No
Model Year	2007	Power Steering	Yes
Body Style	4-Door Sedan	Driver Front Airbag	Yes
VIN	1FAFP24157G101417	Driver Side Torso Airbag	No
Color	Black	Driver Side Head Airbag	No
Delivery Date	12/11/2009	Driver Curtain/Airbag	No
Odometer (Miles)	43,864	Rear Pass. Airbag	No
Dealer	Karplus	Rear Pass. Side Airbag	No
Transmission	6-Speed Automatic	Rear Pass. Head Airbag	No
Final Drive	Front	Rear Pass. Curtain/Airbag	No
Type/No. Cyl.	V6	Pre-Tensioners	Yes
Engine Disp. (L)	3.0	Load Limiters	Yes
Engine Placement	Transverse	Bucket Seats	Yes
Roof Rack	No	Air Cond.	Yes
Sunroof/T-Top	No	AM/FM CD	Yes
Tinted Glass	No	Tilt Steering	Yes
Traction Control	No	Automatic Door Locks	Yes
Power Brakes	Yes	Power Windows	Yes
Front Disc	Yes	Power Seats	Yes

Does Owners Manual provide instructions to turn off automatic door locks. Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Co.	GVWR (kg)	2,186
		GAWR Front (kg)	1,150
Date of Manufacture	May-06	GAWR Rear (kg)	1,068

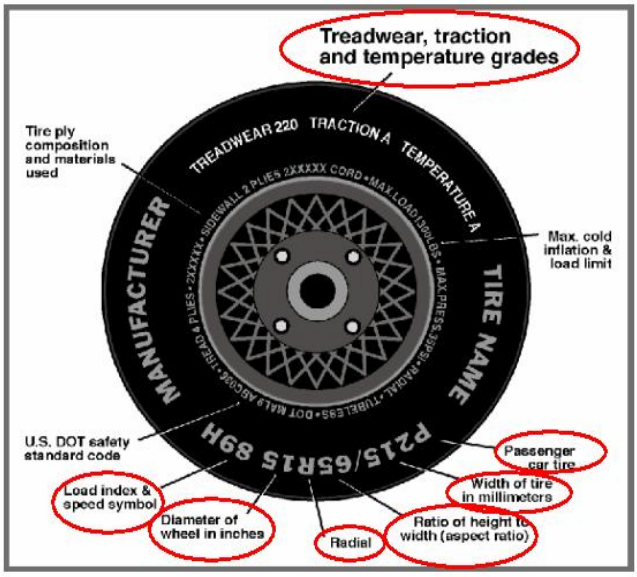
VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number of Occupants	2	3		5
Capacity Weight (VCW) (kg)				430.0
Cargo Weight (RCLW) (kg)				89.8

DATA SHEET NO. 2 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



TIRE DATA

Description	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Tire Pressure (kPa)	220	220
Recommended Tire Size	P215/60R17	P215/60R17
Actual Tire Size	P215/60R17	P215/60R17
Tire Manufacturer	Continental	Continental
Tire Model	Conti Touring Contact	Conti Touring Contact
Load Range	690	690
Treadware Rating	560	560
Traction Rating	A	A
Temperature Rating	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	95T	95T
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	A3KT 3MT	A3KT 3MT
DOT Safety Code Right	A3KT 3MT	A3KT 3MT

DATA SHEET NO. 2 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	502.0	338.0	840.0	547.0	448.5	995.5
Right	kg	496.0	325.0	821.0	487.5	408.5	896.0
Ratio	%	60.1	39.9	100.0	54.7	45.3	100.0
Total	kg	998.0	663.0	1661.0	1034.5	857.0	1891.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1661.0
Weight of 1 THOR 50th NT ATD	kg	101.0
Weight of 1 P572O ATD	kg	56.0
Rated Cargo/Luggage Wt (RCLW)	kg	89.8
Calculated Vehicle Target Wt (TVTW)	kg	1907.8 [4]

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	735	741	757	755	1145
As Tested	mm	727	740	699	714	1300

GENERAL TEST VEHICLE DATA

Vehicle Wheelbase (mm):	2869
Weight of Ballast Secured in Cargo Area (kg):	13.5
Weight of Items Removed (kg):	28.5
Vehicle Components Removed:	Spare Tire, Jack and Tools, Trunk Liner, Left Rear Window

FUEL SYSTEM DATA

Fuel System Capacity From Owner's Manual (L):	75.70
Actual Test Volume with Entire Fuel System Filled (L):	70.40
Test Fluid Type:	Stoddard Solvent
Kinematic Viscosity:	per ASTM D 484-71
Type of Vehicle Fuel Pump:	Electric

[4] – COTR requested Test Weight of 1891 kg.

DATA SHEET NO. 2 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

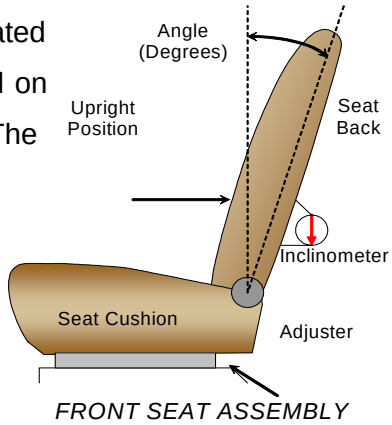
Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

NOMINAL DESIGN RIDING POSITION

The driver seat back is positioned to the manufacturer's designated angle. The procedure is as follows: a digital inclinometer is placed on the seat back 330 mm (13 in.) above the seat back pivot point. The left rear passenger seat back is fixed.

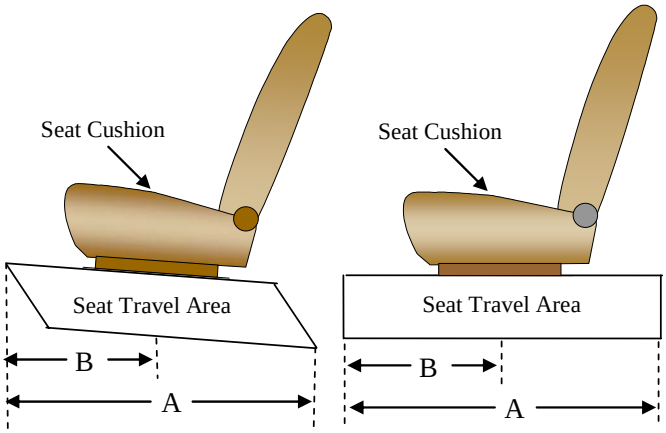
Description	Value
Driver w/Seated Dummy	17.1°
Left Rear Passenger w/Seated Dummy	Fixed



SEAT FORE/AFT POSITIONS

Total seat travel is measured from forward most possible position to the rearmost possible position. The driver seat is set to the longitudinal mid position, with the seat in the lowest possible height position. The left rear passenger seat is not adjustable horizontally or vertically.

Seating Position	Total Fore-Aft Travel	Test Position
Driver Seat	244 mm	122 mm
Left Rear Passenger Seat	Fixed	Fixed



SEAT BELT UPPER ANCHORAGE

The driver's seat belt upper anchorage is placed in the nominal design riding position for a 50th percentile adult male. The left rear passenger seat belt upper anchorage is fixed. Position number one (1) is considered the uppermost position.

Seating Position	Total No. of Positions	Test Position
Driver Seat	5	1
Left Rear Passenger Seat	Fixed	Fixed

DATA SHEET NO. 2 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

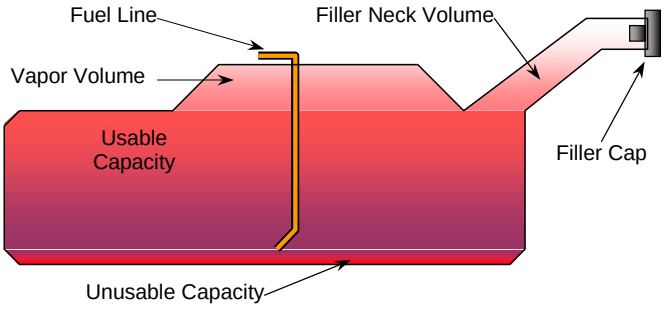
Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

FUEL TANK CAPACITY DATA

Description	Units	Value
Usable Capacity of "Standard Tank"	L	75.70
Usable Capacity of "Optional" Tank	L	
Allowable Capacity used for FMVSS 301	L	69.64 to 71.16
Actual Amount of Solvent used	L	70.40

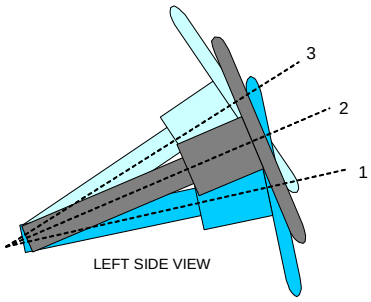
The test vehicle is equipped with an electric fuel pump. The fuel pump will operate when the key is in the "ON" position or when the engine is activated. The fuel filler door is located on the right rear fender. The standard fuel tank occupies the area under the rear seat.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured. The vehicle's steering column did not telescope.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONS

Description	Tilt Angle (°)	Fore/Aft Position (mm)
Lowermost positon No. 1	21.3	
Geometric center position No. 2	24.1	
Uppermost position No. 3	26.9	

DATA SHEET NO. 3

POST-IMPACT OBSERVATIONS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	No	
Knee Airbag	No		No	
Side Torso Airbag	No		No	
Side Head Airbag	No		No	
Curtain Airbag	No		No	
Pre-Tensioners	Yes	Yes	No	
Load Limiters	Yes	Yes	No	

MBD IMPACT DATA

Measurement Description	Units	Value	
Horizontal Offset from Target	mm		[5]
Vertical Offset from Target	mm		[5]
Impact Angle	°	15.0	

VEHICLE STATIC CRUSH

Measured Parameter	Units	Value
Left Side	mm	1108
Centerline	mm	219
Right Side	mm	-34

[5] – Measurement unavailable

DATA SHEET NO. 4

OCCUPANT INJURY ASSESSMENT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

DRIVER ANTHROPOMORPHIC TEST DEVICE

Location	Metric	Description	SAE Filter Class	Max	Min
Head	Alpha-x	Angular acceleration (rad/sec^2)	simon	9846.7	-6267.4
	Alpha-y	Angular acceleration (rad/sec^2)	simon	4490.5	-15370.0
	Alpha-z	Angular acceleration (rad/sec^2)	simon	22005.0	-4386.2
	Alpha-res	Angular acceleration - resultant (rad/sec^2)	simon	24088.5	
	Wx	Angular velocity (rad/sec)	simon	15.4	-19.9
	Wy	Angular velocity (rad/sec)	simon	31.7	-54.0
	Wz	Angular velocity (rad/sec)	simon	60.3	-33.4
	Wres	Angular velocity - resultant (rad/sec)	simon	73.5	
	HIC36	36 ms clip	1000	2561.9	
	HIC15	15 ms clip	1000	2561.9	
	SFC	Skull fracture correlate	simon	169.9	
	CSDM	Cumulative strain (Tolerance = 0.05)	simon	1.00	
	CSDM	Cumulative strain (Tolerance = 0.10)	simon	0.99	
	CSDM	Cumulative strain (Tolerance = 0.15)	simon	0.85	
	Head CG G's	Head resultant CG acceleration, 3 ms clip (g's)	1000	139.2	
Neck	Fx at OC	UNLC Fx transferred to OC, neck system (N)	1000	499.1	-408.4
	Fz	UNLC Fz, neck system Tension (N)	1000	3579.3	-1053.4
	Fz	UNLC Fz, neck system Compression (N)	1000	3579.3	-1053.4
	My at OC	UNLC My transferred to OC, neck system Flexion (N-m)	FX 1000, MY 600	21.6	-13.5
	My at OC	UNLC My transferred to OC, neck system Extension (N-m)	FX 1000, MY 600	21.6	-13.5
	Fx_OC	On head acting through total neck section, (N)	1000	448.2	-1374.4
	Fy_OC	On head acting through total neck section, (N)	1000	391.7	-2019.3
	Fz_OC	On head acting through total neck section, (N)	1000	1133.7	-3394.5
	Mx_OC	On head acting through total neck section, (Nm)	600	21.6	-112.9
	My_OC	On head acting through total neck section, (Nm)	600	21.5	-13.6
	Mz_OC	On head acting through total neck section, (Nm)	600	41.6	-13.7
	Fx_head	On head acting through O.C. joint only (N)	1000	441.7	-1197.5
	Fz_head	On head acting through O.C. joint only (N)	1000	1133.7	-3394.4
	My_head	On head acting through O.C. joint only (Nm)	600	21.6	-13.5

DATA SHEET NO. 4 … (CONTINUED)

OCCUPANT INJURY ASSESSMENT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

DRIVER ANTHROPOMORPHIC TEST DEVICE … (CONTINUED)

Location	Metric	Description	SAE Filter Class	Max	Min
Chest	UR x	Upper Crux x-defl , Right (mm)	180	0.2	-32.5
	UR y	Upper Crux y-defl , Right (mm)	180	14.7	-7.9
	UR z	Upper Crux x-defl , Right (mm)	180	9.7	-13.3
	UR d	Upper Crux "d" displacement , Right (mm)	180	1.9	-30.9
	UL x	Upper Crux x-defl , Left (mm)	180	0.2	-44.4
	UL y	Upper Crux y-defl , Left (mm)	180	15.2	-16.5
	UL z	Upper Crux x-defl , Left (mm)	180	6.8	-54.7
	UL d	Upper Crux "d" displacement , Left (mm)	180	13.5	-6.5
	LR x	Lower Crux x-defl , Right (mm)	180	11.5	-6.8
	LR y	Lower Crux y-defl , Right (mm)	180	2.6	-5.2
	LR z	Lower Crux x-defl , Right (mm)	180	5.9	-40.5
	LR d	Lower Crux "d" displacement , Right (mm)	180	6.9	-38.7
	LL x	Lower Crux x-defl , Left (mm)	180	4.2	-19.4
	LL y	Lower Crux y-defl , Left (mm)	180	35.0	-3.3
	LL z	Lower Crux x-defl , Left (mm)	180	20.9	-15.0
	LL d	Lower Crux "d" displacement , Left (mm)	180	10.2	-19.3
	Chest CG G's	Chest CG acceleration, 3 ms clip, (G's)	180	139.5	
Abdomen	Up x	Max upper string pot (mm)	180	33.8	-0.6
	Up V*C	Upper viscous criteria	180	0.3	
	LR x	Lower right x-deflection (mm)	180	-58.2	0.1
	LR y	Lower right y-deflection (mm)	180	-0.5	12.5
	LR z	Lower right z-deflection (mm)	180	-0.4	13.1
	LR V*C	Right viscous criterion based on x-deflection	180	0.5	
	LL x	Lower left x-deflection (mm)	180	-57.5	0.1
	LL y	Lower left y-deflection (mm)	180	-6.2	9.1
	LL z	Lower left z-deflection (mm)	180	-10.6	4.8
	LL V*C	Left viscous criterion based on x-deflection	180	0.7	
Pelvis	CG res.	Pelvis cg resultant acceleration (G)	1000	145.3	
Acetabulum	R Fx	Right Fx force (N)	600	2728.6	-1588.1
	R Fy	Right Fy force (N)	600	3622.2	-1797.3
	R Fz	Right Fz force (N)	600	434.8	-1665.0
	R Rres.	Resultant of Fx, Fy, Fz (N)	600	4388.9	
	L Fx	Left Fx force (N)	600	1257.3	-11551.6
	L Fy	Left Fy force (N)	600	3843.8	-4434.7
	L Fz	Left Fz force (N)	600	2025.8	-1898.3
	L Rres.	Resultant of Fx, Fy, Fz (N)	600	12201.0	

DATA SHEET NO. 4 … (CONTINUED)

OCCUPANT INJURY ASSESSMENT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

DRIVER ANTHROPOMORPHIC TEST DEVICE … (CONTINUED)

Location	Metric	Description	SAE Filter Class	Max	Min
Femur	R Fx	Right Fz force (N)	600	1483.2	-3607.7
	R Mx	Right Mx moment (Nm)	600	57.1	-235.5
	R My	Right My moment (Nm)	600	89.9	-17.9
	R Mres	Resultant of Mx and My only (not Mz) (Nm)	600	241.5	
	L Fx	Left Fz force (N)	600	2975.8	-13299.1
	L Mx	Left Mx moment (Nm)	600	219.9	-427.9
	L My	Left My moment (Nm)	600	189.9	-330.3
	L Mres	Resultant of Mx and My only (not Mz) (Nm)	600	537.9	
Knee	R knee	Knee displacement (mm)	180	0.4	-3.8
	L knee	Knee displacement (mm)	180	1.3	-7.5
Tibia	RU Fz	Right upper axial force (N)	600	400.6	-3413.9
	RL Fz	Right lower axial force (N)	600	268.6	-3517.6
	RU My	Right upper bending moment (Nm)	600	10.3	-164.1
	RL My	Right lower bending moment (Nm)	600	17.1	109.6
	RU Index	Right upper tibia index	600	1.1	
	RL Index	Right lower tibia index	600	0.8	
	LU Fz	Left upper axial force (N)	600	2672.4	-6205.9
	LL Fz	Left lower axial force (N)	600	1354.9	-7495.6
	LU My	Left upper bending moment (Nm)	600	106.2	-240.9
	LL My	Left lower bending moment (Nm)	600	5.0	196.3
	LU Index	Left upper tibia index	600	1.9	
	LL Index	Left lower tibia index	600	2.7	
Ankle	R ankle Fx	Ankle X Force (N)	600	105.8	-2614.3
	R ankle Fy	Ankle Y Force (N)	600	1613.0	-759.5
	R ankle Fz	Ankle Z Force (N)	600	281.2	-3477.5
	R ankle Mx	Ankle Mx Moment (Nm)	180	70.7	-53.4
	R ankle My	Ankle My Moment (Nm)	180	164.8	-38.1
	R inversion	Rotation about ankle X-axis, subtalar joint (deg)	180	20.2	-36.3
	R dors	Rotation about ankle Y-axis joint (deg)	180	11.0	-40.2
	L ankle Fx	Ankle X Force (N)	600	478.0	-2491.4
	L ankle Fy	Ankle Y Force (N)	600	2445.0	-1705.0
	L ankle Fz	Ankle Z Force (N)	600	1325.0	-7417.0
	L ankle Mx	Ankle Mx Moment (Nm)	180	76.0	-451.7
	L ankle My	Ankle My Moment (Nm)	180	112.9	-44.3
	L inversion	Rotation about ankle X-axis, subtalar joint (deg)	180	2.4	-37.2
	L dors	Rotation about ankle Y-axis joint (deg)	180	26.3	-3.5

DATA SHEET NO. 4 … (CONTINUED)

OCCUPANT INJURY ASSESSMENT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Description	Axis	Units	Max	Time (ms)	Min	Time (ms)
Driver Head CG	X	g	10.6	266.5	-170.3	83.0
Driver Head CG	Y	g	222.9	82.8	-6.9	77.9
Driver Head CG	Z	g	101.4	82.7	-6.7	70.3
Driver Top Head Array	X	g	34.3	76.3	-117.5	83.6
Driver Top Head Array	Y	g	281.0	83.2	-17.9	76.4
Driver Left Side Head Array	X	g	9.4	266.4	-166.8	82.5
Driver Left Side Head Array	Z	g	87.7	82.2	-6.3	176.0
Driver Rear Head Array	Y	g	146.3	82.5	-29.3	77.9
Driver Rear Head Array	Z	g	80.2	84.2	-63.1	76.4
Driver Head CG Redundant	X	g	10.7	266.1	-144.5	82.5
Driver Head CG Redundant	Y	g	217.7	82.8	-7.5	77.9
Driver Head CG Redundant	Z	g	100.8	82.7	-6.3	70.3
Driver Upper Neck Force	X	N	499.1	77.3	-408.4	100.1
Driver Upper Neck Force	Y	N	392.0	70.3	-2028.2	83.6
Driver Upper Neck Force	Z	N	3579.2	80.8	-1053.4	264.9
Driver Upper Neck Moment	X	Nm	69.2	83.9	-22.3	259.4
Driver Upper Neck Moment	Y	Nm	29.0	97.3	-12.8	76.9
Driver Upper Neck Moment	Z	Nm	15.5	184.7	-41.3	98.8
Driver Lower Neck Force	X	N	455.2	241.5	-1353.3	79.6
Driver Lower Neck Force	Y	N	448.2	84.5	-1127.6	73.6
Driver Lower Neck Force	Z	N	3680.9	80.7	-1580.8	265.7
Driver Lower Neck Moment	X	Nm	32.3	165.2	-60.0	246.3
Driver Lower Neck Moment	Y	Nm	46.9	81.1	-96.7	262.4
Driver Lower Neck Moment	Z	Nm	17.5	179.7	-47.2	99.2
Driver Front Neck Spring Force		N	1279.5	261.4	-68.8	73.3
Driver Rear Neck Spring Force		N	0.0	0.0	0.0	0.0
Driver Occipital Condyle Rotation		°	15.8	98.4	-4.0	150.5
Driver Upper Spine T1	X	g	24.9	86.3	-116.4	78.1
Driver Upper Spine T1	Y	g	112.6	74.7	-15.5	170.3
Driver Upper Spine T1	Z	g	29.3	85.1	-34.0	72.4
Driver Thorax	X	g	13.1	111.2	-114.8	73.7
Driver Thorax	Y	g	118.2	75.7	-12.3	68.2
Driver Thorax	Z	g	13.3	59.9	-34.9	68.8

DATA SHEET NO. 4 … (CONTINUED)

OCCUPANT INJURY ASSESSMENT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Description	Axis	Units	Max	Time (ms)	Min	Time (ms)
Driver Lower Spine T12	X	g	21.9	108.3	-73.3	76.6
Driver Lower Spine T12	Y	g	88.8	79.8	-15.8	105.2
Driver Lower Spine T12	Z	g	16.7	108.6	-60.8	68.7
Driver Upper Left CRUX Base Rotation		°	143.5	52.1	104.7	280.9
Driver Upper Left CRUX Middle Rotation		°	210.3	144.4	189.7	54.8
Driver Upper Left CRUX Elbow Rotation		°	157.1	56.3	128.0	304.2
Driver Lower Left CRUX Base Rotation		°	160.4	243.1	134.6	86.0
Driver Lower Left CRUX Middle Rotation		°	152.6	79.7	140.0	130.1
Driver Lower Left CRUX Elbow Rotation		°	131.1	71.2	99.5	82.6
Driver Upper Right CRUX Base Rotation		°	181.9	279.5	170.4	87.4
Driver Upper Right CRUX Middle Rotation		°	135.4	82.8	107.2	258.0
Driver Upper Right CRUX Elbow Rotation		°	168.0	263.5	131.4	83.5
Driver Lower Right CRUX Base Rotation		°	185.5	76.2	171.1	145.7
Driver Lower Right CRUX Middle Rotation		°	277.9	196.8	258.5	80.6
Driver Lower Right CRUX Elbow Rotation		°	295.9	85.0	250.7	271.1
Driver Upper Abdomen Deflection		mm	33.8	80.7	-0.6	103.7
Driver Left DGSP Deflection	X	mm	107.6	85.1	52.8	0.0
Driver Left DGSP Rotation	Y	°	173.6	68.5	166.2	54.6
Driver Left DGSP Rotation	Z	°	159.0	52.0	146.3	86.4
Driver Right DGSP Deflection	X	mm	111.7	80.7	52.0	0.6
Driver Right DGSP Rotation	Y	°	178.2	48.1	170.1	290.0
Driver Right DGSP Rotation	Z	°	160.0	43.2	147.5	77.9
Driver Thoracic Spine Force	X	N	1071.7	80.0	-2214.7	73.1
Driver Thoracic Spine Force	Y	N	2868.3	74.4	-951.5	151.6
Driver Upper Thoracic Spine Force	Z	N	5932.6	82.9	-2210.8	68.7
Driver Upper Thoracic Spine Moment X	X	Nm	61.4	129.9	-298.7	75.5
Driver Upper Thoracic Spine Moment Y	Y	Nm	47.0	80.4	-116.5	67.0
Driver Pelvis	X	g	34.3	104.6	-117.9	70.8
Driver Pelvis	Y	g	83.9	69.1	-52.6	62.1
Driver Pelvis	Z	g	25.7	62.3	-49.5	74.9
Driver Left Acetabulum Force	X	N	1257.3	45.3	-11551.6	70.5
Driver Left Acetabulum Force	Y	N	3843.8	56.2	-4434.7	61.4
Driver Left Acetabulum Force	Z	N	2025.8	55.5	-1898.3	74.1

DATA SHEET NO. 4 … (CONTINUED)

OCCUPANT INJURY ASSESSMENT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Description	Axis	Units	Max	Time (ms)	Min	Time (ms)
Driver Right Acetabulum Force	X	N	2728.6	73.8	-1588.1	55.1
Driver Right Acetabulum Force	Y	N	3622.2	61.6	-1797.3	80.8
Driver Right Acetabulum Force	Z	N	434.8	77.5	-1665.0	138.8
Driver Left Femur Force	X	N	1221.2	62.0	-364.9	68.6
Driver Left Femur Force	Y	N	3412.8	56.0	-1277.3	62.0
Driver Left Femur Force	Z	N	2975.8	73.6	-13299.1	54.2
Driver Left Femur Moment	X	Nm	219.9	62.6	-427.9	56.4
Driver Left Femur Moment	Y	Nm	189.9	45.5	-330.3	55.8
Driver Left Femur Moment	Z	Nm	133.2	74.4	-219.2	53.2
Driver Right Femur Force	X	N	735.3	55.9	-95.3	98.7
Driver Right Femur Force	Y	N	1835.8	63.3	-109.5	53.5
Driver Right Femur Force	Z	N	1483.2	80.9	-3607.7	55.2
Driver Right Femur Moment	X	Nm	57.1	94.4	-235.5	63.2
Driver Right Femur Moment	Y	Nm	89.9	54.9	-17.9	151.3
Driver Right Femur Moment	Z	Nm	47.9	92.8	-71.9	69.3
Driver Left Knee Deflection		mm	1.3	76.9	-7.5	54.5
Driver Left Tibia	X	g	42.6	42.3	-190.1	43.8
Driver Left Tibia	Y	g	199.0	44.5	-41.0	41.9
Driver Left Foot	X	g	410.1	53.7	-253.8	43.5
Driver Left Foot	Y	g	634.4	42.9	-753.2	52.9
Driver Left Foot	Z	g	408.7	45.9	-436.5	53.0
Driver Left Ankle Rotation	X	°	2.4	5.5	-37.2	45.7
Driver Left Ankle Rotation	Y	°	26.3	46.7	-3.5	7.7
Driver Left Ankle Rotation	Z	°	18.3	45.8	-16.3	73.4
Driver Left Upper Tibia Force	X	N	1506.0	44.6	-1223.2	56.3
Driver Left Upper Tibia Force	Y	N	579.3	63.5	-2365.2	44.7
Driver Left Upper Tibia Force	Z	N	2672.4	54.4	-6205.9	44.9
Driver Left Upper Tibia Moment	X	Nm	81.9	45.5	-228.3	44.8
Driver Left Upper Tibia Moment	Y	Nm	106.2	51.5	-240.9	44.7
Driver Left Lower Tibia Force	X	N	406.2	58.5	-1653.3	44.6
Driver Left Lower Tibia Force	Y	N	636.9	49.5	-1598.1	45.3
Driver Left Lower Tibia Force	Z	N	1354.9	55.7	-7495.6	44.7
Driver Left Lower Tibia Moment	X	Nm	125.2	56.5	-467.5	44.9
Driver Left Lower Tibia Moment	Y	Nm	5.0	45.7	-196.3	44.2

DATA SHEET NO. 4 … (CONTINUED)

OCCUPANT INJURY ASSESSMENT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Description	Axis	Units	Max	Time (ms)	Min	Time (ms)
Driver Right Knee Deflection		mm	0.4	112.0	-3.8	58.2
Driver Right Tibia	X	g	40.2	54.0	-141.9	50.8
Driver Right Tibia	Y	g	187.1	51.3	-43.1	77.9
Driver Right Foot	X	g	83.3	71.5	-450.7	50.8
Driver Right Foot	Y	g	279.1	51.9	-65.5	70.9
Driver Right Foot	Z	g	253.6	52.1	-202.4	50.3
Driver Right Ankle Rotation	X	°	20.2	166.1	-36.3	53.4
Driver Right Ankle Rotation	Y	°	11.0	72.6	-40.2	113.5
Driver Right Ankle Rotation	Z	°	2.5	55.4	-21.6	77.0
Driver Right Upper Tibia Force	X	N	906.7	51.2	-141.5	63.9
Driver Right Upper Tibia Force	Y	N	640.0	72.4	-1118.8	59.0
Driver Right Upper Tibia Force	Z	N	400.6	90.1	-3413.9	54.6
Driver Right Upper Tibia Moment	X	Nm	69.0	79.1	-143.4	51.7
Driver Right Upper Tibia Moment	Y	Nm	10.3	399.6	-164.1	51.5
Driver Right Lower Tibia Force	X	N	96.1	105.2	-1582.2	50.7
Driver Right Lower Tibia Force	Y	N	1035.2	59.0	-1126.6	52.8
Driver Right Lower Tibia Force	Z	N	268.6	89.2	-3517.6	54.6
Driver Right Lower Tibia Moment	X	Nm	73.7	79.9	-74.1	59.1
Driver Right Lower Tibia Moment	Y	Nm	17.1	53.1	-109.6	50.3
Driver Lap Belt Force		N	1529.5	47.3	-51.0	70.2
Driver Shoulder Belt Force		N	3573.8	69.9	-35.4	193.4
LR Passenger Head CG	X	g	12.7	325.9	-76.3	111.4
LR Passenger Head CG	Y	g	79.1	107.1	-2.8	180.7
LR Passenger Head CG	Z	g	58.2	104.7	-2.7	46.0
LR Passenger Top Head Array	X	g	15.4	331.4	-98.4	111.2
LR Passenger Top Head Array	Y	g	131.8	107.1	-5.6	85.6
LR Passenger Left Side Head Array	X	g	12.3	326.8	-76.3	111.3
LR Passenger Left Side Head Array	Z	g	59.3	105.2	-2.2	47.4
LR Passenger Front Head Array	Y	g	94.3	107.1	-3.1	190.3
LR Passenger Front Head Array	Z	g	61.8	105.3	-6.7	123.2
LR Passenger Head CG Redundant	X	g	12.6	325.0	-75.7	111.3
LR Passenger Head CG Redundant	Y	g	79.2	107.1	-2.0	179.2
LR Passenger Head CG Redundant	Z	g	57.6	104.6	-1.9	45.9

DATA SHEET NO. 4 … (CONTINUED)

OCCUPANT INJURY ASSESSMENT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

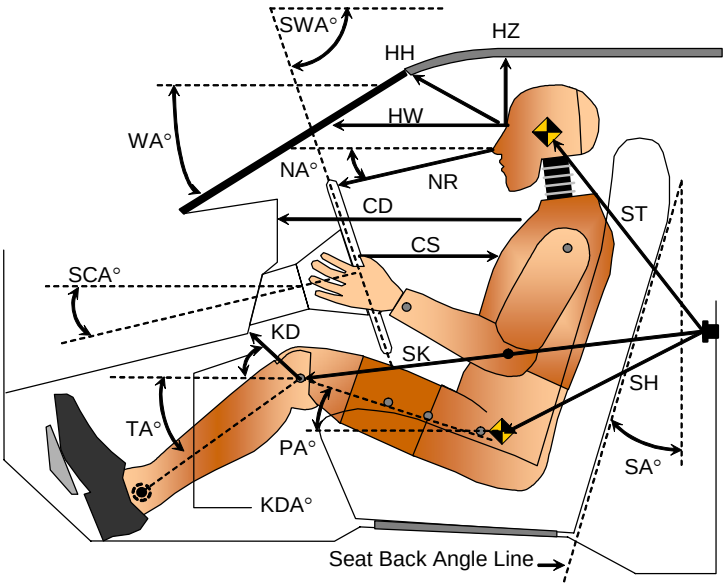
Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Description	Axis	Units	Max	Time (ms)	Min	Time (ms)
LR Passenger Upper Neck Force X	X	N	208.7	44.2	-893.1	106.2
LR Passenger Upper Neck Force Y	Y	N	496.2	112.5	-65.9	183.3
LR Passenger Upper Neck Force Z	Z	N	1908.9	105.1	-137.9	46.5
LR Passenger Upper Neck Moment X	X	Nm	6.0	95.2	-18.2	113.7
LR Passenger Upper Neck Moment Y	Y	Nm	29.7	122.6	-26.4	103.9
LR Passenger Upper Neck Moment Z	Z	Nm	13.5	129.4	-5.9	190.9
LR Passenger Lower Neck Force X	X	N	1402.2	107.6	-122.7	289.0
LR Passenger Lower Neck Force Y	Y	N	599.8	104.4	-95.8	204.5
LR Passenger Lower Neck Force Z	Z	N	1896.6	100.3	-327.4	137.8
LR Passenger Lower Neck Moment X	X	Nm	98.0	108.7	-14.0	191.7
LR Passenger Lower Neck Moment Y	Y	Nm	137.3	112.0	-32.4	335.8
LR Passenger Lower Neck Moment Z	Z	Nm	27.0	104.4	-17.3	158.9
LR Passenger Chest X Primary	X	g	7.2	317.7	-37.3	96.6
LR Passenger Chest Y Primary	Y	g	24.1	100.7	-1.1	297.4
LR Passenger Chest Z Primary	Z	g	10.8	83.5	-10.7	133.0
LR Passenger Chest X Redundant	X	g	7.2	317.5	-37.3	96.7
LR Passenger Chest Y Redundant	Y	g	24.5	97.0	-1.1	297.0
LR Passenger Chest Z Redundant	Z	g	10.3	83.7	-10.7	133.4
LR Passenger Chest Deflection		mm	0.2	150.5	-13.1	100.5
LR Passenger Pelvis X Primary	Y	g	6.8	126.4	-45.7	98.0
LR Passenger Pelvis Y Primary	Z	g	19.1	107.8	-2.1	170.0
LR Passenger Pelvis Z Primary	X	g	3.4	333.2	-16.9	106.1
LR Passenger Left Femur Force Z	Z	N	868.6	61.3	-936.3	102.1
LR Passenger Right Femur Force Z	Z	N	2384.8	89.1	-378.0	97.4
LR Passenger Lap Belt Force		N	4118.4	87.5	-17.4	317.4
LR Passenger Shoulder Belt Force		N	3300.7	104.3	-44.1	328.0

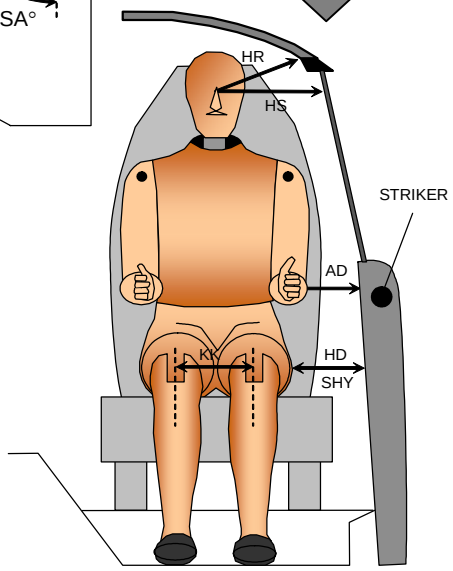
DATA SHEET NO. 5

DUMMY POSITIONING DATA

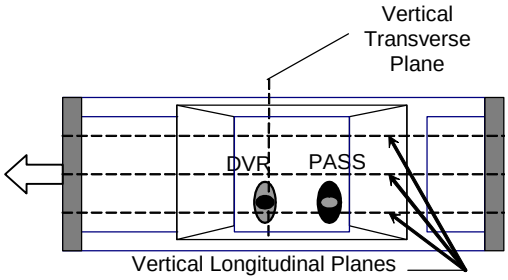
Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



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



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



DATA SHEET NO. 5 … (CONTINUED)

DUMMY POSITIONING DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Left Rear Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		24.9		
SWA	Steering Wheel Angle		65.5		
SCA	Steering Column Angle		24.5		
SA	Seat Back Angle		17.1		Fixed
HZ	Head to Roof (Z)	-438	35.6	55	10.1
HH	Head to Header	800	40.3		
HR	Head to Side Header	245	88.7	172	61.2
NR	Nose to Rim	611	43.1		
CD	Chest to Dash	418	54.3		
CS	Chest to Steering Hub	419	58		
RA	Rim to Abdomen	82	87.1		
KDL	Left Knee to Dash / Seat Back	651	29.4	1559	15.4
KDR	Right Knee to Dash / Seat Back	566	53.4	1899	26.6
PA	Pelvis Angle		23.4		24.0
TA	Tibia Angle		32.7		7.6
KK	Knee to Knee	18		46	
SK	Striker to Knee	444	78.5	1712	4.9
ST	Striker to Head	1017	78.3	1030	6.7
SH	Striker to H-Point	1146	24.1	1970	12.9
SHY	Striker to H-Point (Y)	1705		559	
HS	Head to Side Window	-11		138	
HD	H-Point to Door	34		89	
AD	Arm to Door	108		165	

DATA SHEET NO. 5 … (CONTINUED)

DUMMY POSITIONING DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

TEST DUMMY POINT LOCATIONS

Description	Driver			Left Rear Passenger		
	X	Y	Z	X	Y	Z
Head CG	2639	484	1224	1607	432	1123
Bridge of Nose	2738	402	1215	1709	356	1108
Tip of Nose	2741	403	1177	1729	358	1085
Chin	2741	402	1097	1711	360	1010
Hip Point	2802	560	539	1786	85	557
Left Knee	3187	584	705	2123	460	607
Right Knee	3209	295	721	2126	296	605
Left Ankle	3431	543	366	2309	454	326
Right Ankle	3447	250	377	2299	268	335
Front Outboard Seat Anchor Bolt	3065	552	288			
Center of Striker	2549	814	698	1526	810	818

Reference Planes: X – Rear of Vehicle Centerline, X+ forward

Y – Vehicle Centerline, Y+ left

Z – Ground, Z+ up

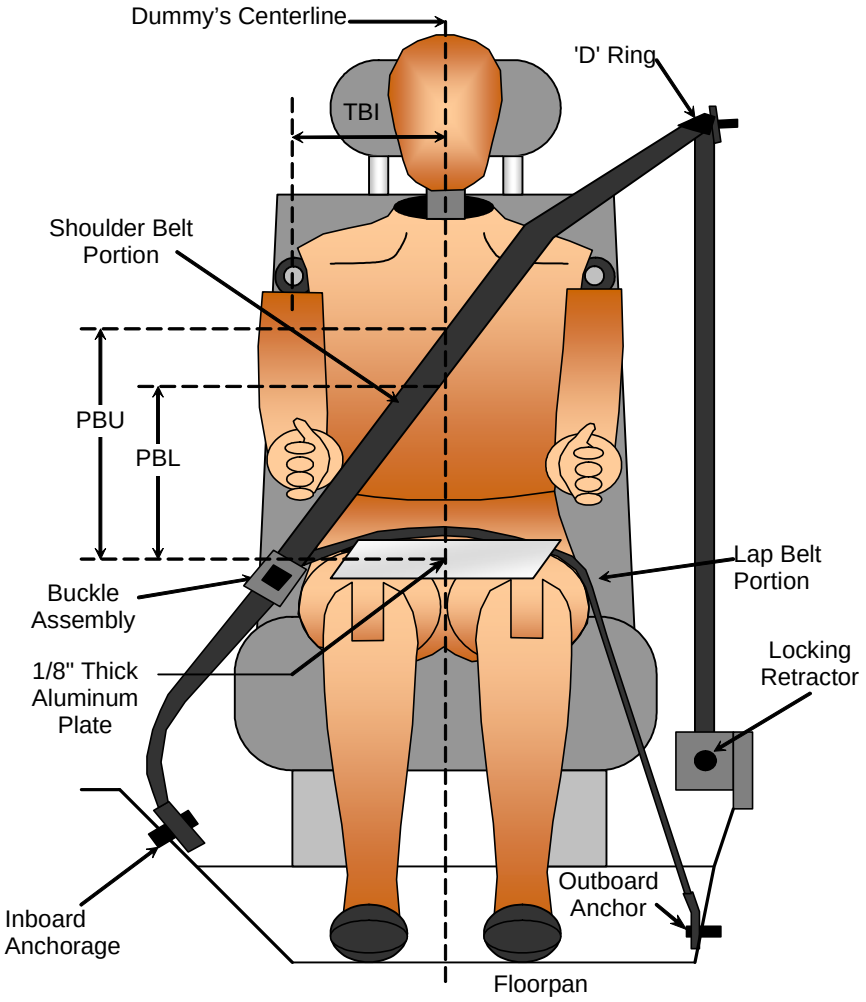
All measurements in millimeters

DATA SHEET NO. 6

SEAT BELT POSITIONING DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09



SEAT BELT POSITIONING MEASUREMENTS

Code	Measured Parameter	Units	Driver	Left Rear Passenger
TBI	Dummy C/L to Lap/Shoulder Belt Intersect	mm	221	198
PBU	Top Surface of Reference to Belt Upper	mm	356	301
PBL	Top Surface of Reference to Belt Lower	mm	284	224

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Accelerometer Description	Axes	Location		
		X	Y	Z
Left Rear Sill	X,Y	960	740	370
Right Rear Sill	X,Y	960	-740	370
Vehicle CG	X,Y,Z	1118	0	380
Engine Top	X	3240	10	780
Engine Bottom	X	3080	-80	160
Left Front Brake Caliper	X	3030	780	350
Right Front Brake Caliper	X	3030	-780	350
Instrument Panel	X	2130	0	910
Driver Seat Track	X	1530	640	365
Accelerator Pedal	X,Y,Z	2460	190	480
Brake Pedal	X,Y,Z	2400	370	420
Foot Rest	X,Y,Z	2440	540	390

Reference Planes: X – Front of Vehicle Centerline, X+ forward

Y – Vehicle Centerline, Y+ left

Z – Ground Plane, Z+ up

All measurements in millimeters

DATA SHEET NO. 8

VEHICLE ACCELEROMETER DATA SUMMARY

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

No.	Accelerometer Description	Axis	Units	Max	Time (ms)	Min	Time (ms)
1	Left Rear Sill	X	g	62.4	36.8	-33.8	42.4
2		Y	g	31.3	56.6	-9.1	77.1
4	Right Rear Sill	X	g	31.0	40.5	-1.7	221.9
5		Y	g	25.3	57.1	-6.7	78.6
7	Vehicle CG	X	g	37.0	53.4	-27.4	44.1
8		Y	g	56.6	86.8	-21.9	105.4
9		Z	g	40.9	90.3	-31.3	46.9
10	Engine Top	X	g	0.0	0.0	0.0	0.0
11	Engine Bottom	X	g	0.0	0.0	0.0	0.0
12	Left Front Brake Caliper	X	g	411.3	42.8	-240.8	37.2
13	Right Front Brake Caliper	X	g	44.6	58.7	-19.3	50.0
14	Instrument Panel	X	g	107.1	51.2	-74.1	91.7
15	Driver Seat Track	X	g	43.8	37.2	-85.1	66.0
16	Accelerator Pedal	X	g	100.0	41.4	-41.1	70.0
17		Y	g	95.1	66.2	-92.9	54.7
18		Z	g	30.6	53.9	-106.9	47.8
19	Brake Pedal	X	g	300.3	48.2	-34.7	89.4
20		Y	g	111.7	44.2	-371.6	48.9
21		Z	g	51.4	53.0	-159.3	48.2
22	Foot Rest	X	g	250.1	39.2	-139.3	48.9
23		Y	g	48.4	36.2	-2.1	42.1
24		Z	g	55.0	59.5	-71.5	43.0

DATA SHEET NO. 9

MOVING DEFORMABLE BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

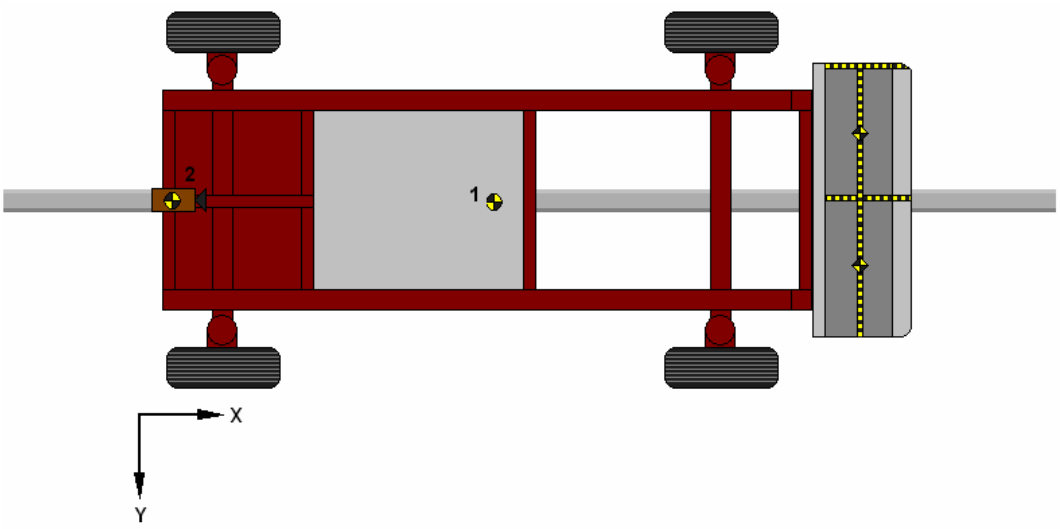
MDB ACCELEROMETER LOCATIONS

Description	Location (mm)		
	X	Y	Z
MDB CG	-1195	0	-430
MDB Rear Centerline	-2920	0	-840

Reference Planes: X – MDB Front Axle

Y – MDB Centerline

Z – Ground Plane



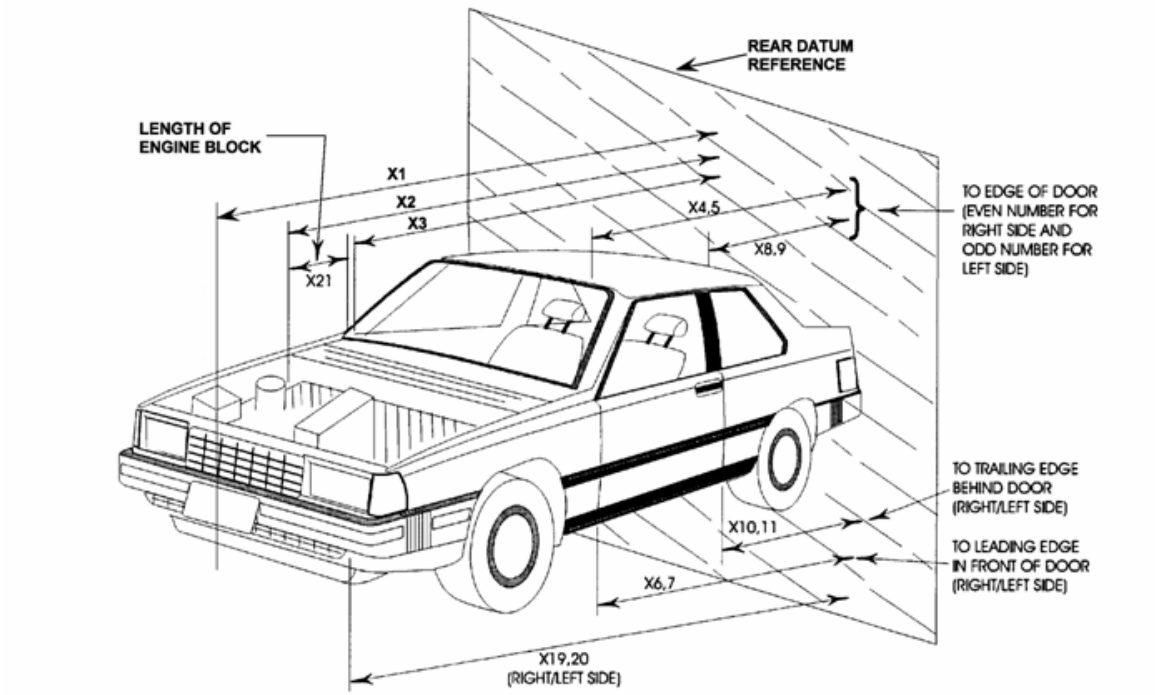
No.	Accelerometer Description	Axis	Units	Max	Time (ms)	Min	Time (ms)
1	MDB CG	X	g	3.7	206.4	-42.4	40.6
2		Y	g	19.8	45.7	-13.5	60.5
3		Z	g	46.7	125.0	-49.1	115.6
4	MDB Rear Centerline	X	g	25.3	111.8	-59.5	43.5
5		Y	g	39.9	63.0	-12.3	196.2
6		Z	g				[6]

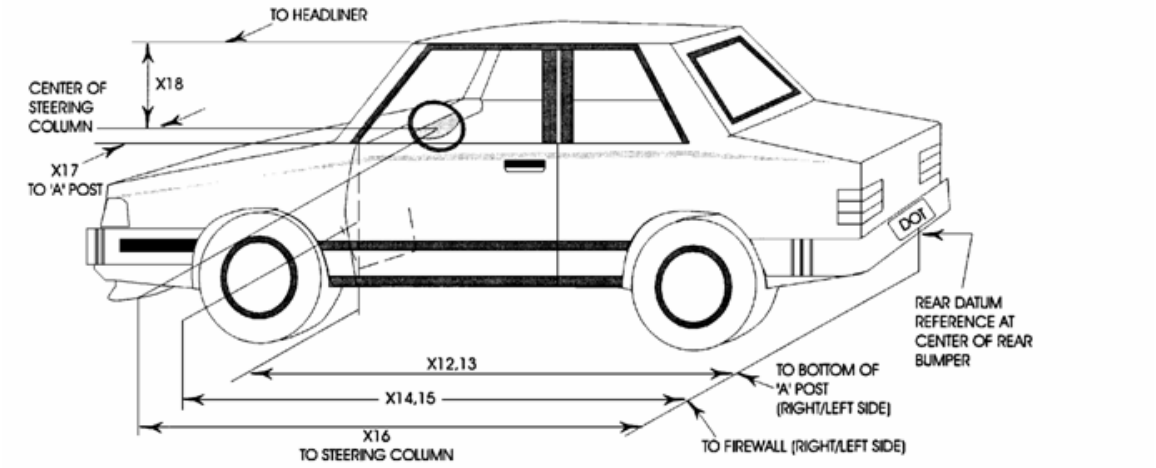
[6] – Channel failed, no data.

DATA SHEET NO. 10

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09





DATA SHEET NO. 10 … (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

VEHICLE MEASUREMENT TABLE

No.	Description	Pre-Test	Post-Test	Difference
1	Total Vehicle Length at Centerline	5092	4873	-219
2	RSOV to Front of Engine	4566	4420	-146
3	RSOV to Firewall Centerline	4023	3871	-152
4	RSOV to Leading Edge of Right Door	3550	3559	9
5	RSOV to Leading Edge of Left Door	3557	2930	-627
6	RSOV to Lower Leading Edge of Right Door	3515	3522	7
7	RSOV to Lower Leading Edge of Left Door	3523	2989	-534
8	RSOV to Upper Leading Edge of Right Door	3535	3547	12
9	RSOV to Upper Leading Edge of Left Door	3544	2966	-578
10	RSOV to Lower Trailing Edge of Right Door	2463	2466	3
11	RSOV to Lower Trailing Edge of Left Door	2469	2288	-181
12	RSOV to Bottom of Right A-Pillar	3512	3520	8
13	RSOV to Bottom of Left A-Pillar	3521	2942	-579
14	RSOV to Firewall on Right Side	3927	4047	120
15	RSOV to Firewall on Left Side	3931	3578	-353
16	RSOV to Steering Column	3076	2842	-234
17	Center of Steering Column to Left A-Pillar	433	367	-66
18	Center of Steering Column to Headliner	432	254	-178
19	RSOV to Right Side of Front Bumper	4373	4407	34
20	RSOV to Left Side of Front Bumper	4377	3269	-1108
21	Engine Block Length	537	527	-10
RD	RSOV to Right Side of Dash	3246	3250	4
CD	RSOV to Center of Dash	3246	3100	-146
LD	RSOV to Left Side of Dash	3254	2880	-374

RSOV = Rear Surface of Vehicle

All measurements in millimeters

DATA SHEET NO. 10 … (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

VEHICLE STRUCTURAL MEASUREMENT TABLE

No.	Description	Pre-Test	Post-Test	Difference
1	Total Vehicle Length	5092	4892	-200
2	Total Vehicle Width	1866	1842	-24
3	Bumper Top Height	539	620	81
4	Bumper Bottom Height	377	460	83
5	Longitudinal Member Top Height	520	670	150
6	Longitudinal Member Bottom Height	400	555	155
7	Distance Between Longitudinal Members	930	1025	95
8	Longitudinal Member Width	105	110	5
9	Engine Top Height	759	845	86
10	Engine Bottom Height	177	226	49
11	Engine and Gearbox Width	773	756	-17
12	Front Bumper to Engine Distance	526	-190	-716
13	Front Shock Absorber Fixing Height	875	949	74
14	Hood Leading Edge Height	785	934	149
15	Front Shock Absorber Fixing Width	1251	1135	-116
16	Front Bumper to Front Axle Distance	1007	1217	210
17	Front Axle to A-Pillar Distance	564	714	150
18	A-Pillar to B-Pillar Distance	1024	508	-516
19	B-Pillar to Rear Axle Distance	1281	1256	-25
20	B-Pillar to C-Pillar Distance	822	801	-21
21	Roof Sill Bottom Height	1416	1322	-94
22	Roof Sill Top Height	1463	1370	-93
23	Floor Sill Bottom Height	255	168	-87
24	Floor Sill Top Height	287	259	-28

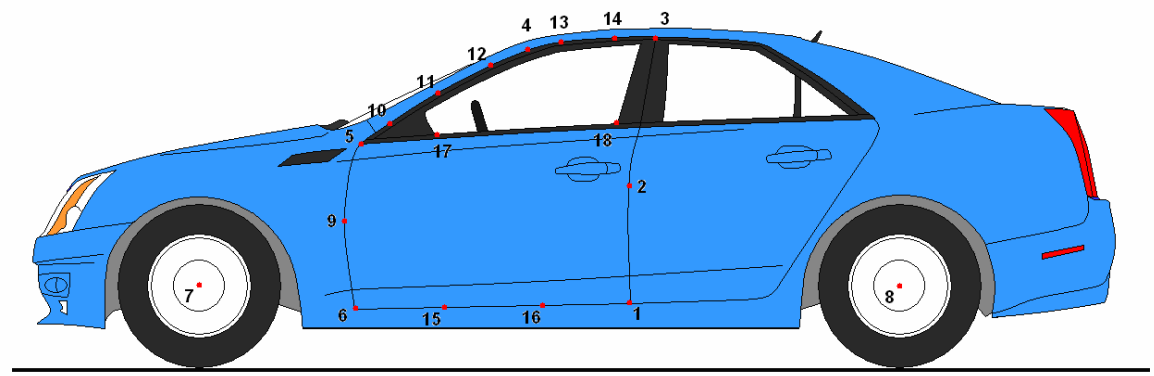
All measurements in millimeters

DATA SHEET NO. 10 … (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09



LEFT FRONT DOOR JAM MEASUREMENTS

Point	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2765	771	321	2701	793	253	-64	22	-68
2	2502	795	876	2456	769	778	-46	-26	-98
3	2373	639	1415	2390	636	1332	17	-3	-83
4	2915	675	1335	2921	656	1199	6	-19	-136
5	3481	783	935	2989	549	911	-492	-234	-24
6	3436	776	338	2945	429	298	-491	-347	-40
7	4085	895	294	3656	863	187	-429	-32	-107
8	1216	880	306	1179	886	307	-37	6	1
9	3471	787	638	2942	475	632	-529	-312	-6
10	3416	755	1026	2981	593	1052	-435	-162	26
11	3262	740	1151	3219	681	975	-43	-59	-176
12	3104	709	1247	3102	671	1093	-2	-38	-154
13	2762	656	1376	2773	644	1257	11	-12	-119
14	2545	642	1410	2561	638	1310	16	-4	-100
15	3236	768	287	2939	436	263	-297	-332	-24
16	2993	766	287	2907	595	231	-86	-171	-56
17	3288	851	942	2828	753	898	-460	-98	-44
18	2535	843	974	2247	1234	923	-288	391	-51

NOTE: Points 1 through 6 and 9 through16 are taken in the door frame area. Points 17 and 18 are taken on the outer door surface.

Reference Planes: X – Rear of Vehicle Centerline, X+ forward
Y – Vehicle Centerline, Y+ left
Z – Ground, Z+ up

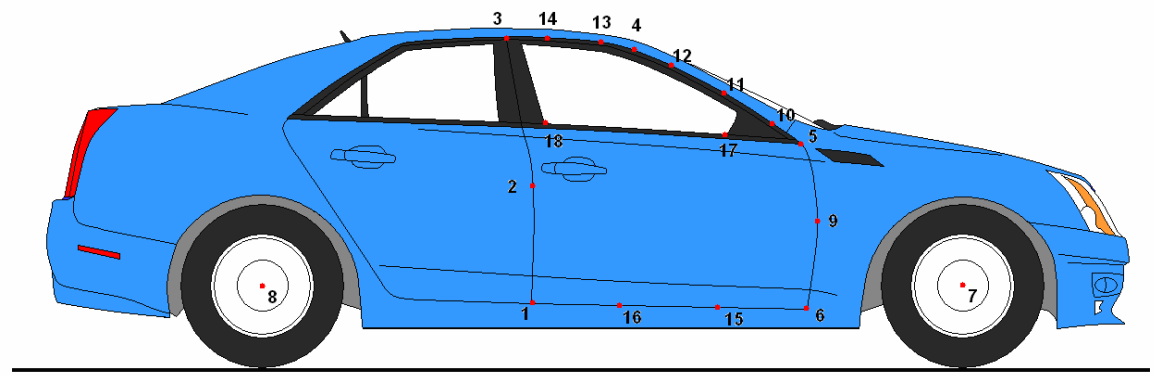
All measurements in millimeters

DATA SHEET NO. 10 … (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09



RIGHT FRONT DOOR JAM MEASUREMENTS

Point	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3535	-859	951	3547	-882	934	12	-23	-17
2	2487	-854	327	2488	-807	322	1	47	-5
3	2689	-833	374	2691	-792	368	2	41	-6
4	2557	-647	1413	2575	-635	1411	18	12	-2
5	3260	-758	1159	3268	-772	1149	8	-14	-10
6	3473	-809	947	3480	-832	933	7	-23	-14
7	3927	-603	873	4047	-272	953	120	331	80
8	967	-964	623	975	-954	628	8	10	5
9	3396	-775	1042	3403	-800	1029	7	-25	-13
10	3101	-722	1253	3114	-727	1245	13	-5	-8
11	2934	-687	1332	2949	-685	1324	15	2	-8
12	2782	-665	1378	2800	-658	1372	18	7	-6
13	2363	-642	1420	2382	-629	1422	19	13	2
14	2503	-832	859	2510	-804	853	7	28	-6
15	3465	-822	715	3476	-824	701	11	-2	-14
16	3411	-829	333	3412	-797	321	1	32	-12
17	2464	-957	399	2465	-942	380	1	15	-19
18	2463	-898	239	2466	-868	218	3	30	-21

NOTE: Points 1 through 6 and 9 through16 are taken in the door frame area. Points 17 and 18 are taken on the outer door surface.

Reference Planes: X – Rear of Vehicle Centerline, X+ forward
Y – Vehicle Centerline, Y+ left
Z – Ground, Z+ up

All measurements in millimeters

DATA SHEET NO. 11

TEST VEHICLE STRUCTURAL CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Description	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
Lower Bumper Beam 1	4986	-568	562	5004	-225	646	18	343	84
Lower Bumper Beam 2	4356	-944	627	4520	-744	760	164	200	133
Lower Bumper Beam 3	4901	663	430	4383	923	608	-518	260	178
Lower Bumper Beam 4	4960	396	389	4553	711	566	-407	315	177
Lower Bumper Beam 5	4974	127	396	4670	470	559	-304	343	163
Lower Bumper Beam 6	4973	-141	395	4774	223	549	-199	364	154
Upper Bumper Beam 1	4958	-411	399	4865	-30	536	-93	381	137
Upper Bumper Beam 2	4896	-680	446	4907	-307	558	11	373	112
Upper Bumper Beam 3	4902	666	539	4370	917	718	-532	251	179
Upper Bumper Beam 4	4963	396	540	4533	696	715	-430	300	175
Upper Bumper Beam 5	4977	127	542	4651	455	705	-326	328	163
Upper Bumper Beam 6	4974	-143	546	4754	206	696	-220	349	150
Upper Radiator Support 1	4958	-410	550	4845	-46	683	-113	364	133
Upper Radiator Support 2	4894	-681	553	4892	-321	661	-2	360	108
Upper Radiator Support 3	4595	665	813	3905	698	877	-690	33	64
Upper Radiator Support 4	4760	398	819	4194	594	918	-566	196	99
Upper Radiator Support 5	4761	127	824	4360	376	944	-401	249	120
Upper Radiator Support 6	4758	-144	827	4490	136	943	-268	280	116
Front of Hood 1	4761	-411	823	4607	-105	927	-154	306	104
Front of Hood 2	4597	-682	824	4568	-416	883	-29	266	59
Front of Hood 3	4694	665	838	4170	889	1003	-524	224	165
Front of Hood 4	4881	396	787	4439	704	941	-442	308	154
Front of Hood 5	4918	124	810	4568	464	942	-350	340	132
Front of Hood 6	4921	-145	807	4662	210	934	-259	355	127
Steel Bumper Beam 1	5201	-883	808	5434	60	722	233	943	-86
Steel Bumper Beam 2	5199	-882	810	5912	-144	620	713	738	-190
Steel Bumper Beam 3	3637	1417	831	3330	1295	944	-307	-122	113
Steel Bumper Beam 4	3589	887	294	2954	559	310	-635	-328	16
Steel Bumper Beam 5	3441	884	294	2909	636	300	-532	-248	6
Steel Bumper Beam 6	3291	887	296	2872	771	321	-419	-116	25

All measurements in millimeters

DATA SHEET NO. 11 … (CONTINUED)

TEST VEHICLE STRUCTURAL CRUSH MEASUREMENTS

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

Notes: Upper and Lower Bumper Beam measurement points were taken on the foam material of the bumper.

See Figures 305 through 312 of Appendix A for photographs of the crush measurements.

Reference Planes: X – Rear of Vehicle Centerline, X+ forward

Y – Vehicle Centerline, Y+ left

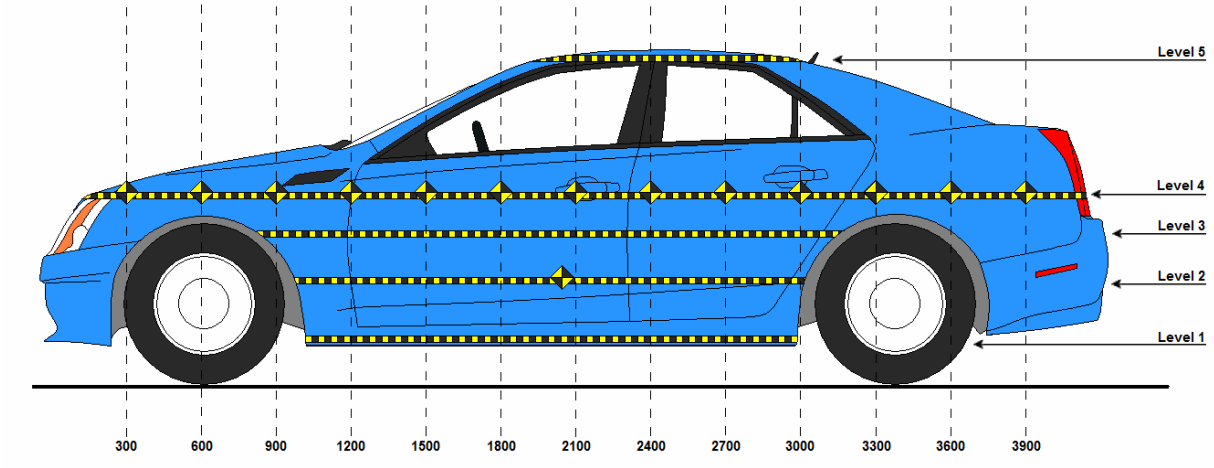
Z – Ground, Z+ up

DATA SHEET NO. 12

TEST VEHICLE SIDE CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09



Level	Description	Height Above Ground
1	Sill Top	294
2	Occupant H-Point	529
3	Mid-Door	598
4	Vehicle Length	755
5	Window Top	1469

All measurements in millimeters

DATA SHEET NO. 12… (CONTINUED)

TEST VEHICLE SIDE CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
0															
150															
300															
450															
600				649					695					46	
750				623					681					58	
900				589					740					151	
1050				578					778					200	
1200				586					839					253	
1350		571	567	591			953	933	842			382	366	251	
1500	613	581	580	586		941	906	906	815		328	325	326	229	
1650	616	578	576	580		864	808	802	760		248	230	226	180	
1800	613	575	573	577		729	692	684	674		116	117	111	97	
1950	613	574	571	574		618	576	557	566		5	2	-14	-8	
2100	612	572	570	572		511	453	444	446		-101	-119	-126	-126	
2250	612	571	569	571		404	332	323	334		-208	-239	-246	-237	
2400	613	570	568	580		301	211	201	209		-312	-359	-367	-371	
2550	613	570	567	570	886	212	602	611	585	878	-401	32	44	15	-8
2700	615	571	569	572	881	625	602	635	586	878	10	31	66	14	-3
2850	617	573	570	573	880	608	574	599	591	878	-9	1	29	18	-2
3000	619	575	573	575	886	597	558	562	597	882	-22	-17	-11	22	-4
3150	621	577	575	578		592	556	555	558		-29	-21	-20	-20	
3300	622	580	578	582		586	554	559	571		-36	-26	-19	-11	
3450	616	578	577	587		608	564	558	578		-8	-14	-19	-9	
3600			566	586				557	567				-9	-19	
3750			531	576				-61	572				-592	-4	
3900			649	573				695	596				46	23	
4050			623	607				681	623				58	16	
4200			589	629				740	633				151	4	
4350			578	641				778	644				200	3	
4500			586	654				839	659				253	5	

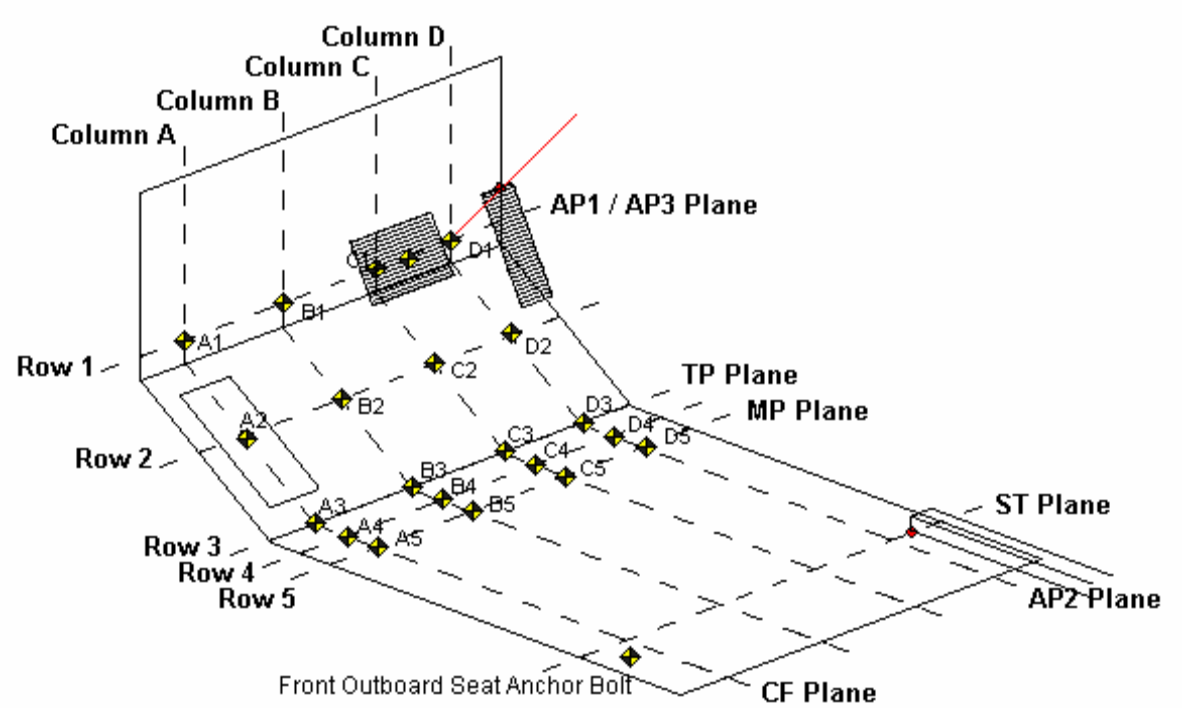
All measurements in millimeters

DATA SHEET NO. 13

TEST VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

STANDARD NHTSA FLOORPAN MEASUREMENTS



AP1: Y-Z Plane passing through D1

AP2: X-Z Plane passing through D1

AP3: X-Y plane passing through D1

MP: Y-Z plane, halfway between the ST plane and AP1 plane

CF Plane: X-Z plane passes through center of footrest.

BP Plane: X-Z plane passes through center of brake pedal

TP Plane: Y-Z plane, intersection of BP Plane and the intersection of the toe pan and floorboard

Column A: intersection of vehicle and CF plane

Column D: Intersection of vehicle and AP2 plane

Row 1: intersection of the vehicle and the AP3 Plane

Row 3: intersection of the vehicle and TP plane

Row 5: intersection of the vehicle and MP plane

Row 2: evenly spaced between row 1 and 3

Row 4: evenly spaced between row 3 and 5

DATA SHEET NO. 13 … (CONTINUED)

TEST VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Point	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	X	X	Y	Z
A1	3065	554	221	2825	360	309	-240	-194	88
A2	3657	518	133	3256	306	167	-401	-212	34
A3	3626	525	254	3235	310	283	-391	-215	29
A4	3532	525	308	3182	260	358	-350	-265	50
A5	3455	528	306	3098	199	341	-357	-329	35
B1	3383	529	306	3092	190	349	-291	-339	43
B2	3709	437	176	3355	292	205	-354	-145	29
B3	3627	439	254	3309	272	305	-318	-167	51
B4	3528	436	304	3250	213	362	-278	-223	58
B5	3454	436	305	3206	177	327	-248	-259	22
C1	3380	437	307	3146	162	351	-234	-275	44
C2	3712	353	185	3424	258	230	-288	-95	45
C3	3625	351	254	3380	223	322	-245	-128	68
C4	3531	349	303	3337	154	380	-194	-195	77
C5	3458	348	304	3249	145	358	-209	-203	54
D1	3382	346	303	3185	139	397	-197	-207	94
D2	3726	185	191	3559	176	254	-167	-9	63
D3	3642	184	258	3525	137	346	-117	-47	88
D4	3533	183	298	3472	93	396	-61	-90	98
D5	3460	182	298	3300	84	345	-160	-98	47
Left IP	3284	508	-238	2967	173	-172	-317	-335	66
Right IP	3275	211	-253	3077	67	-126	-198	-144	127
Steering Column	3077	360	-429	2822	362	310	-255	2	739
Outboard Seat Bolt	3065	554	221	2825	360	309	-240	-194	88
Brake Pedal	3540	332	109	3221	250	123	-319	-82	14

Reference Planes: X – Rear of Vehicle at Centerline, X+ forward

Y – Vehicle Centerline, Y+ left

Z – Ground, Z+ up

All measurements in millimeters

DATA SHEET NO. 13 … (CONTINUED)

TEST VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

ADDITIONAL FLOORPAN MEASUREMENT POINTS (NON-STANDARD)

PRE-TEST

POST-TEST

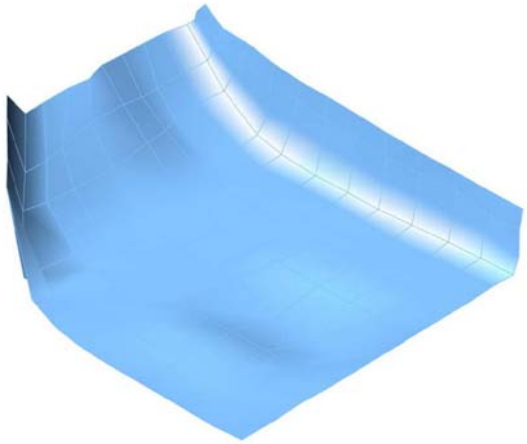
DATA SHEET NO. 13 … (CONTINUED)

TEST VEHICLE INTRUSION MEASUREMENTS

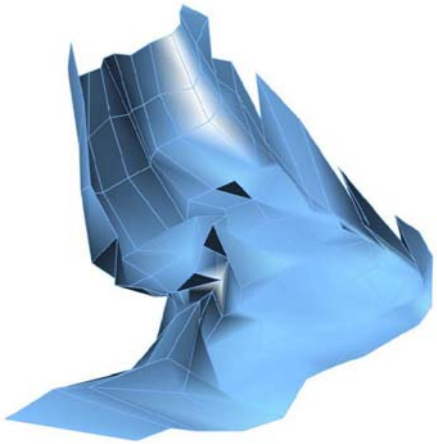
Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

ADDITIONAL FLOORPAN MEASUREMENT POINTS (NON-STANDARD)

PRE-TEST



POST-TEST



Reference Planes: X – Rear of Vehicle Centerline, X+ forward

Y – Vehicle Centerline, Y+ left

Z – Ground, Z+ up

DATA SHEET NO. 13 … (CONTINUED)

TEST VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Point No.	Row	Pre-Test			Post-Test			Difference		
		X	Y	Z	X	Y	Z	X	Y	Z
1	A	1975	-290	214	1993	-404	158	18	-114	-56
2	A	1973	-326	209	1983	-439	157	10	-113	-52
3	A	1980	-354	193	1988	-470	145	8	-116	-48
4	A	1981	-368	189	1987	-484	144	6	-116	-45
5	A	1979	-412	190	1978	-526	151	-1	-114	-39
6	A	1979	-449	191	1972	-562	159	-7	-113	-32
7	A	1979	-481	191	1966	-593	167	-13	-112	-24
8	A	1979	-510	192	1962	-623	173	-17	-113	-19
9	A	1978	-535	194	1957	-646	179	-21	-111	-15
10	A	1980	-556	193	1953	-666	184	-27	-110	-9
11	A	1990	-611	258	2005	-698	278	15	-87	20
12	A	1991	-681	270	2001	-770	272	10	-89	2
13	A	1953	-858	284	1981	-947	254	28	-89	-30
14	B	2050	-286	212	2065	-470	63	15	-184	-149
15	B	2057	-318	212	2062	-503	62	5	-185	-150
16	B	2067	-378	204	2057	-562	78	-10	-184	-126
17	B	2067	-430	187	2037	-613	81	-30	-183	-106
18	B	2066	-457	185	2030	-637	91	-36	-180	-94
19	B	2065	-523	185	2014	-696	117	-51	-173	-68
20	B	2062	-549	181	2004	-718	124	-58	-169	-57
21	B	2060	-591	182	1994	-756	141	-66	-165	-41
22	B	2055	-606	186	1988	-767	151	-67	-161	-35
23	B	2048	-632	189	1981	-786	167	-67	-154	-22
24	B	2051	-685	256	2060	-779	265	9	-94	9
25	B	2046	-758	275	2047	-852	265	1	-94	-10
26	B	2050	-856	290	2082	-958	226	32	-102	-64
27	C	2136	-286	214	2143	-495	40	7	-209	-174
28	C	2140	-345	196	2128	-558	48	-12	-213	-148
29	C	2151	-422	195	2126	-591	49	-25	-169	-146
30	C	2154	-468	194	2108	-677	73	-46	-209	-121
31	C	2148	-526	186	2087	-729	91	-61	-203	-95
32	C	2147	-572	183	2071	-770	100	-76	-198	-83
33	C	2149	-619	188	2066	-809	123	-83	-190	-65
34	C	2146	-658	191	2069	-830	153	-77	-172	-38
35	C	2148	-713	194	2076	-868	190	-72	-155	-4
36	C	2135	-731	195	2138	-863	255	3	-132	60
37	C	2135	-762	246	2127	-909	291	-8	-147	45
38	C	2137	-801	291	2127	-876	292	-10	-75	1
39	C	2141	-867	301	2129	-989	190	-12	-122	-111

All measurements in millimeters

DATA SHEET NO. 13 … (CONTINUED)

TEST VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Point No.	Row	Pre-Test			Post-Test			Difference		
		X	Y	Z	X	Y	Z	X	Y	Z
40	D	2228	-286	216	2212	-532	78	-16	-246	-138
41	D	2233	-383	193	2183	-627	59	-50	-244	-134
42	D	2236	-433	189	2181	-675	43	-55	-242	-146
43	D	2236	-475	194	2175	-715	40	-61	-240	-154
44	D	2245	-523	187	2171	-763	55	-74	-240	-132
45	D	2244	-572	187	2158	-806	74	-86	-234	-113
46	D	2243	-617	189	2147	-845	92	-96	-228	-97
47	D	2237	-659	192	2149	-855	132	-88	-196	-60
48	D	2239	-715	196	2157	-884	182	-82	-169	-14
49	D	2235	-748	200	2159	-894	214	-76	-146	14
50	D	2238	-781	251	2234	-897	273	-4	-116	22
51	D	2240	-816	292	2225	-935	309	-15	-119	17
52	D	2245	-879	309	2197	-1013	260	-48	-134	-49
53	E	2297	-286	218	2244	-554	130	-53	-268	-88
54	E	2297	-384	194	2217	-651	107	-80	-267	-87
55	E	2292	-478	195	2209	-737	67	-83	-259	-128
56	E	2288	-525	190	2191	-777	55	-97	-252	-135
57	E	2286	-558	189	2190	-811	55	-96	-253	-134
58	E	2297	-613	191	2184	-865	74	-113	-252	-117
59	E	2294	-659	193	2184	-895	107	-110	-236	-86
60	E	2299	-715	196	2190	-925	158	-109	-210	-38
61	E	2302	-753	199	2199	-942	190	-103	-189	-9
62	E	2305	-783	207	2208	-960	231	-97	-177	24
63	E	2300	-796	252	2294	-918	284	-6	-122	32
64	E	2299	-828	298	2279	-953	325	-20	-125	27
65	E	2302	-862	334	2274	-989	359	-28	-127	25
66	F	2372	-288	216	2225	-558	163	-147	-270	-53
67	F	2374	-381	201	2237	-627	134	-137	-246	-67
68	F	2383	-472	197	2255	-724	85	-128	-252	-112
69	F	2375	-532	198	2248	-782	83	-127	-250	-115
70	F	2374	-565	197	2249	-815	88	-125	-250	-109
71	F	2369	-617	198	2246	-865	101	-123	-248	-97
72	F	2366	-658	200	2247	-904	107	-119	-246	-93
73	F	2363	-711	202	2246	-945	137	-117	-234	-65
74	F	2361	-763	207	2249	-975	174	-112	-212	-33
75	F	2360	-810	217	2254	-989	217	-106	-179	0
76	F	2358	-832	246	2271	-993	263	-87	-161	17
77	F	2369	-840	305	2345	-973	343	-24	-133	38
78	F	2365	-871	348	2330	-1004	382	-35	-133	34

All measurements in millimeters

DATA SHEET NO. 13 … (CONTINUED)

TEST VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Point No.	Row	Pre-Test			Post-Test			Difference		
		X	Y	Z	X	Y	Z	X	Y	Z
79	G	2441	-296	216	2284	-555	131	-157	-259	-85
80	G	2439	-382	205	2302	-636	111	-137	-254	-94
81	G	2437	-472	201	2304	-717	94	-133	-245	-107
82	G	2435	-533	199	2302	-777	108	-133	-244	-91
83	G	2435	-568	200	2303	-811	116	-132	-243	-84
84	G	2434	-613	200	2304	-854	124	-130	-241	-76
85	G	2434	-658	200	2307	-900	131	-127	-242	-69
86	G	2434	-707	201	2312	-947	136	-122	-240	-65
87	G	2436	-762	204	2314	-998	161	-122	-236	-43
88	G	2437	-817	211	2316	-1035	204	-121	-218	-7
89	G	2438	-845	253	2326	-1052	251	-112	-207	-2
90	G	2438	-868	291	2338	-1058	283	-100	-190	-8
91	G	2448	-889	322	2359	-1072	321	-89	-183	-1
92	H	2514	-343	216	2352	-580	132	-162	-237	-84
93	H	2514	-412	212	2367	-648	128	-147	-236	-84
94	H	2513	-430	201	2367	-668	128	-146	-238	-73
95	H	2529	-446	203	2384	-679	136	-145	-233	-67
96	H	2529	-578	204	2389	-808	157	-140	-230	-47
97	H	2526	-635	205	2389	-866	165	-137	-231	-40
98	H	2524	-690	205	2393	-920	170	-131	-230	-35
99	H	2524	-738	206	2395	-965	180	-129	-227	-26
100	H	2522	-781	206	2396	-1009	188	-126	-228	-18
101	H	2510	-819	210	2387	-1047	196	-123	-228	-14
102	H	2505	-857	256	2382	-1083	243	-123	-226	-13
103	H	2499	-878	292	2377	-1106	280	-122	-228	-12
104	H	2498	-897	322	2383	-1113	312	-115	-216	-10
105	I	2529	-345	243	2354	-582	161	-175	-237	-82
106	I	2534	-412	247	2368	-647	169	-166	-235	-78
107	I	2543	-433	237	2390	-658	163	-153	-225	-74
108	I	2557	-451	223	2403	-680	162	-154	-229	-61
109	I	2554	-579	220	2404	-807	182	-150	-228	-38
110	I	2556	-635	221	2413	-861	186	-143	-226	-35
111	I	2555	-687	224	2419	-913	192	-136	-226	-32
112	I	2557	-737	224	2427	-963	197	-130	-226	-27
113	I	2556	-783	226	2428	-1006	211	-128	-223	-15
114	I	2548	-832	230	2422	-1055	219	-126	-223	-11
115	I	2541	-858	267	2417	-1083	256	-124	-225	-11
116	I	2539	-878	296	2415	-1102	284	-124	-224	-12
117	I	2537	-898	322	2414	-1121	311	-123	-223	-11

All measurements in millimeters

DATA SHEET NO. 13 … (CONTINUED)

TEST VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Point No.	Row	Pre-Test			Post-Test			Difference		
		X	Y	Z	X	Y	Z	X	Y	Z
118	J	2551	-351	283	2351	-596	206	-200	-245	-77
119	J	2554	-412	284	2366	-647	211	-188	-235	-73
120	J	2571	-438	269	2398	-663	205	-173	-225	-64
121	J	2591	-457	249	2425	-681	200	-166	-224	-49
122	J	2593	-582	244	2429	-805	219	-164	-223	-25
123	J	2590	-634	248	2431	-856	227	-159	-222	-21
124	J	2588	-690	250	2442	-912	229	-146	-222	-21
125	J	2587	-741	250	2450	-963	230	-137	-222	-20
126	J	2589	-801	250	2462	-1020	237	-127	-219	-13
127	J	2589	-839	259	2461	-1057	251	-128	-218	-8
128	J	2585	-859	282	2459	-1078	274	-126	-219	-8
129	J	2583	-875	305	2457	-1093	298	-126	-218	-7
130	J	2585	-890	324	2457	-1103	319	-128	-213	-5
131	K	2575	-356	330	2359	-587	255	-216	-231	-75
132	K	2578	-413	329	2371	-643	260	-207	-230	-69
133	K	2605	-443	307	2404	-675	254	-201	-232	-53
134	K	2631	-468	279	2449	-688	243	-182	-220	-36
135	K	2636	-584	278	2463	-798	259	-173	-214	-19
136	K	2631	-635	284	2455	-851	273	-176	-216	-11
137	K	2631	-689	282	2471	-904	271	-160	-215	-11
138	K	2630	-750	287	2480	-964	278	-150	-214	-9
139	K	2632	-800	290	2494	-1015	281	-138	-215	-9
140	K	2627	-849	290	2499	-1062	284	-128	-213	-6
141	K	2626	-862	301	2499	-1076	296	-127	-214	-5
142	K	2623	-872	314	2496	-1084	310	-127	-212	-4
143	K	2625	-883	325	2496	-1094	321	-129	-211	-4
144	L	2594	-364	364	2359	-594	295	-235	-230	-69
145	L	2609	-417	379	2368	-642	307	-241	-225	-72
146	L	2644	-449	357	2407	-674	311	-237	-225	-46
147	L	2687	-495	329	2468	-710	316	-219	-215	-13
148	L	2686	-578	326	2497	-786	317	-189	-208	-9
149	L	2681	-635	328	2494	-842	327	-187	-207	-1
150	L	2687	-687	327	2508	-893	331	-179	-206	4
151	L	2686	-752	330	2518	-957	337	-168	-205	7
152	L	2681	-808	327	2525	-1014	334	-156	-206	7
153	L	2667	-858	319	2529	-1064	324	-138	-206	5
154	L	2667	-866	323	2531	-1070	327	-136	-204	4
155	L	2666	-871	325	2532	-1077	327	-134	-206	2
156	L	2663	-877	328	2533	-1085	329	-130	-208	1

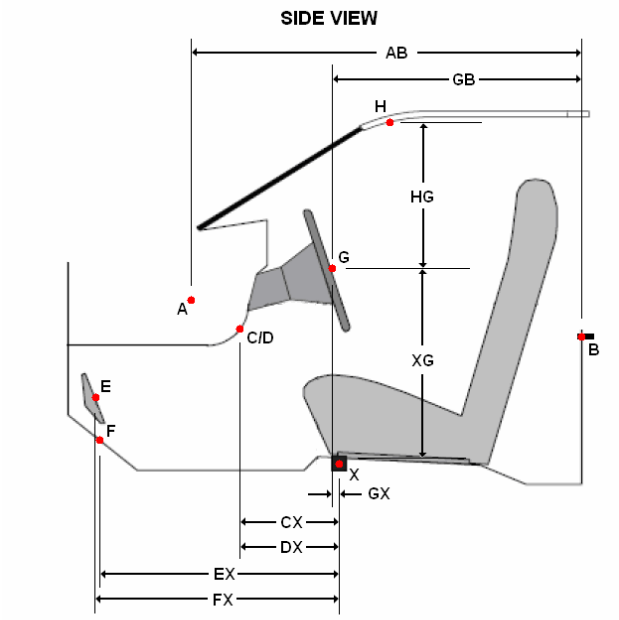
All measurements in millimeters

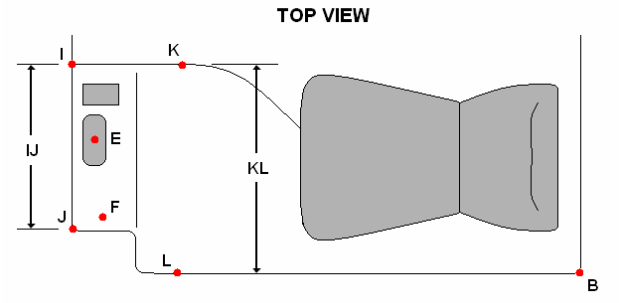
DATA SHEET NO. 13 … (CONTINUED)

TEST VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09





DRIVER COMPARTMENT INTRUSION

Description	Driver's Side			Passenger's Side		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
AB	971	456	-515	969	967	-2
GB	526	357	-169	712	640	-72
CX	220	124	-96	215	126	-89
DX	212	237	25	217	173	-44
EX	476	379	-97			
FX	476	247	-229	562	529	-33
GX	12	1	-11	198	131	-67
XG	651	747	96	571	559	-12
HG	432	254	-178	501	491	-10
IJ	488	461	-27			
KL	462	362	-100			

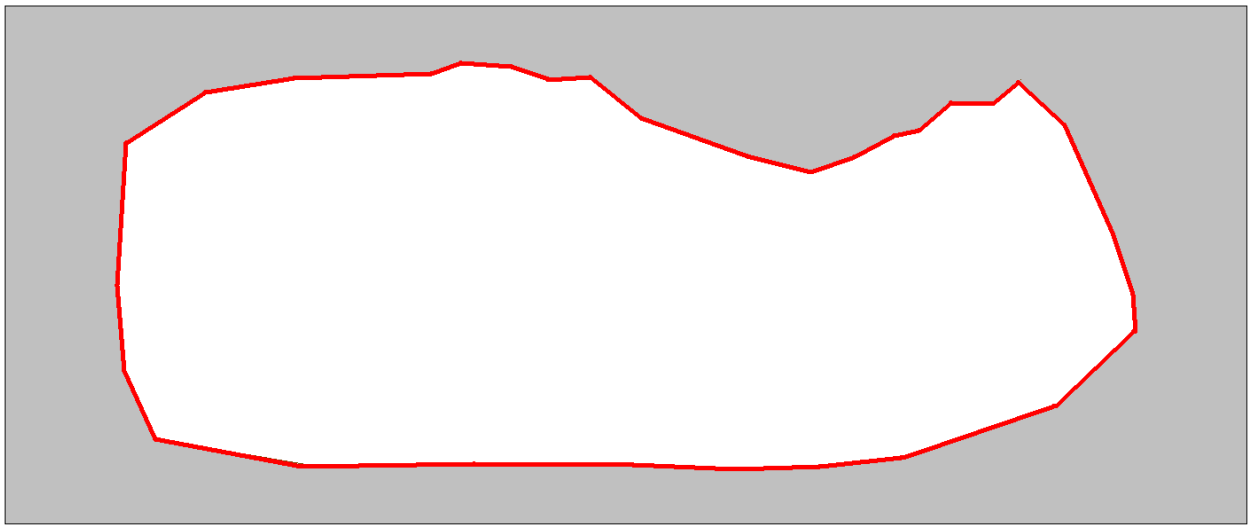
All measurements in millimeters

DATA SHEET NO. 14 … (CONTINUED)

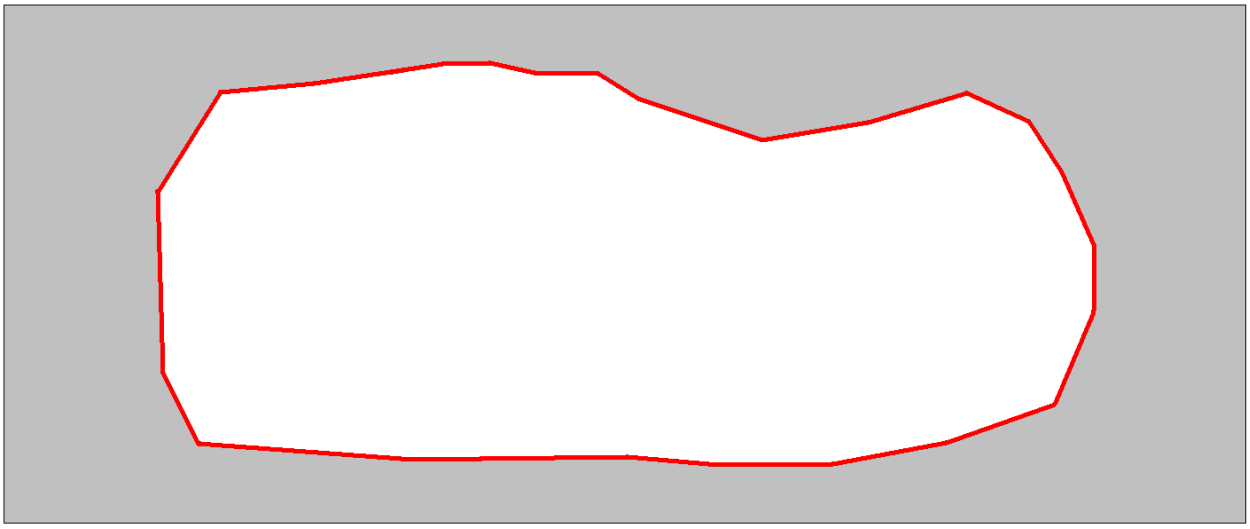
EXTERIOR PROFILE MEASUREMENTS

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

LEVEL 1



LEVEL 2



NOTE: No Pre-Test Measurements Available.

DATA SHEET NO. 14 … (CONTINUED)

EXTERIOR PROFILE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

LEVEL 1

Point	Pre-Test			Post-Test			Difference		
No.	X	Y	Z	X	Y	Z	X	Y	Z
1				4518	-630	608			
2				3784	-883	607			
3				3369	-931	607			
4				3086	-933	608			
5				2817	-934	609			
6				2449	-917	610			
7				1784	-911	605			
8				895	-918	600			
9				168	-792	607			
10				26	-471	606			
11				-13	-62	603			
12				34	633	613			
13				428	887	617			
14				856	954	617			
15				1496	972	619			
16				1655	1023	619			
17				1881	1004	620			
18				2065	946	621			
19				2274	950	621			
20				2442	821	620			
21				2527	751	620			
22				3021	577	580			
23				3203	525	579			
24				3334	497	583			
25				3546	574	582			
26				3740	665	586			
27				3865	703	582			
28				4020	835	584			
29				4214	827	580			
30				4346	933	585			
31				4353	941	577			
32				4563	719	579			
33				4685	465	577			
34				4798	186	580			
35				4896	-102	580			
36				4907	-268	582			

DATA SHEET NO. 14 … (CONTINUED)

EXTERIOR PROFILE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

LEVEL 2

Point	Pre-Test			Post-Test			Difference		
No.	X	Y	Z	X	Y	Z	X	Y	Z
1				4461	-640	814			
2				3927	-824	807			
3				3387	-929	803			
4				2852	-934	812			
5				2371	-897	807			
6				1882	-897	815			
7				1484	-903	810			
8				1307	-911	803			
9				903	-880	807			
10				314	-821	821			
11				150	-482	810			
12				135	-42	808			
13				127	378	793			
14				424	862	785			
15				864	902	782			
16				1277	958	783			
17				1512	1001	782			
18				1722	1001	781			
19				1960	955	752			
20				2248	960	728			
21				2438	837	781			
22				3040	640	781			
23				3569	715	777			
24				3839	808	741			
25				4030	863	783			
26				4327	723	788			
27				4494	476	790			
28				4647	118	790			
29				4646	-191	792			

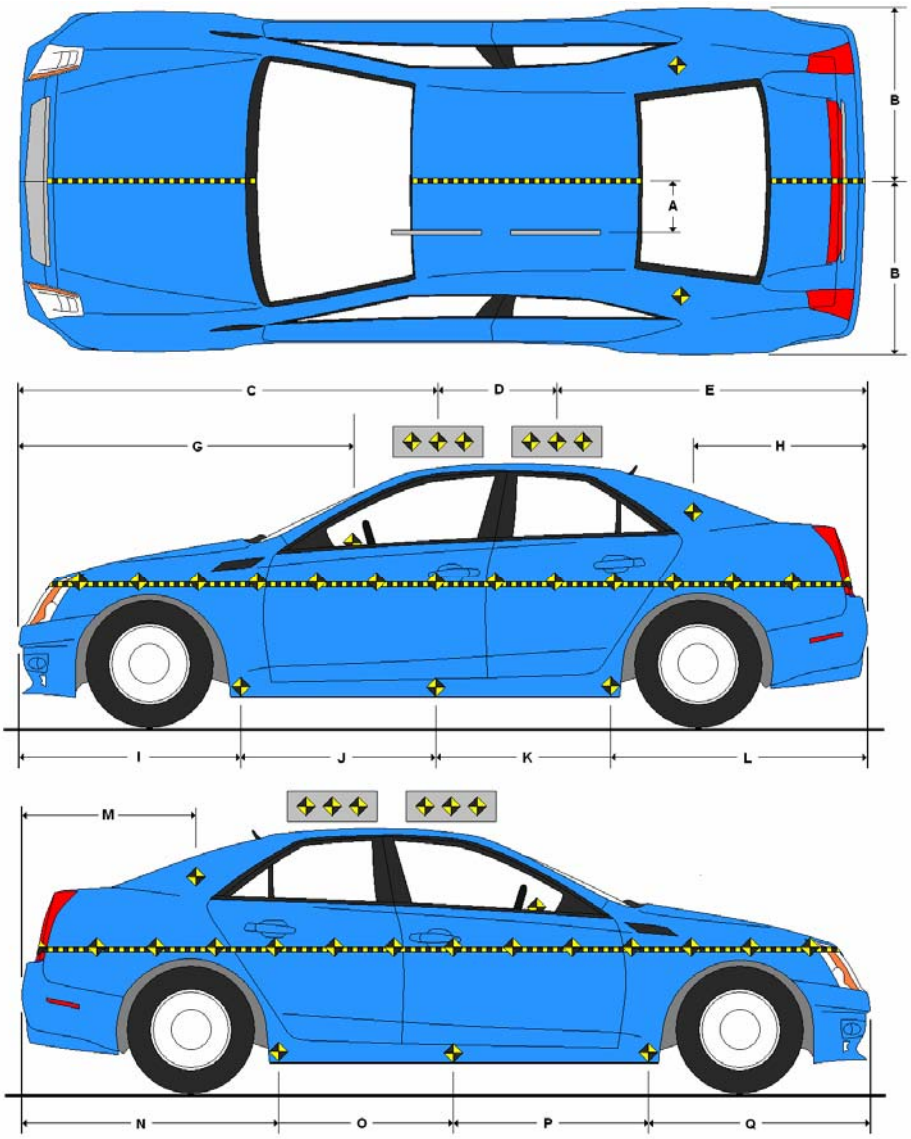
DATA SHEET NO. 15

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Item	Value
A	425
B	933
C	2351
D	2134
E	2130
F	
G	1843
H	1486
I	1488
J	954
K	957
L	1692
M	1480
N	1688
O	950
P	957
Q	1496



ADDITIONAL PHOTOGRAPHIC REFERENCE DATA

Description	Value	Notes
Driver's Door Panel Reference Target Spacing	305	Visible in Camera View No. 5
Passenger's Door Panel Reference Target Spacing	305	Visible in Camera View No. 9
Overhead Reference Panel Spacing	152	Visible in Camera View No. 7
Left and Right Side Vehicle Targets	300	Visible in left and right side views
Top Vehicle Targets	305	Visible in Camera Views No. 6,7

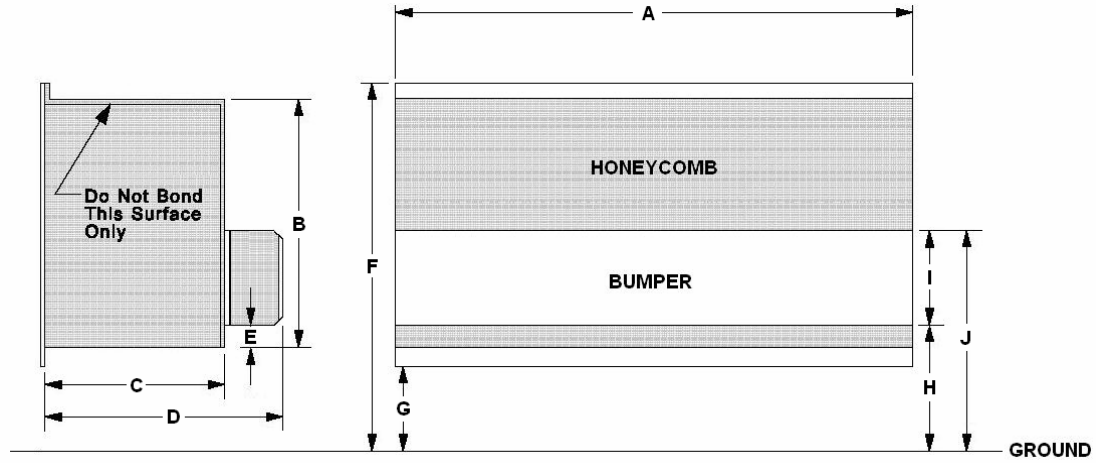
All measurements in millimeters

DATA SHEET NO. 16

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09



MDB SETUP MEASUREMENTS

Letter	Description	Target	Value
A	Barrier Width	1676	1676
B	Barrier Height	559	560
C	Barrier Body Length	381	383
D	Total Barrier Length	483	485
E	Bumper Height Above Bottom of Barrier	51	50
F	Top of Barrier Flange Above Ground	838	840
G	Bottom of Barrier Flange Above Ground	279	282
H	Bottom of Bumper Above Ground	330	333
I	Bumper Height	203	205
J	Top of Bumper Above Ground	533	535

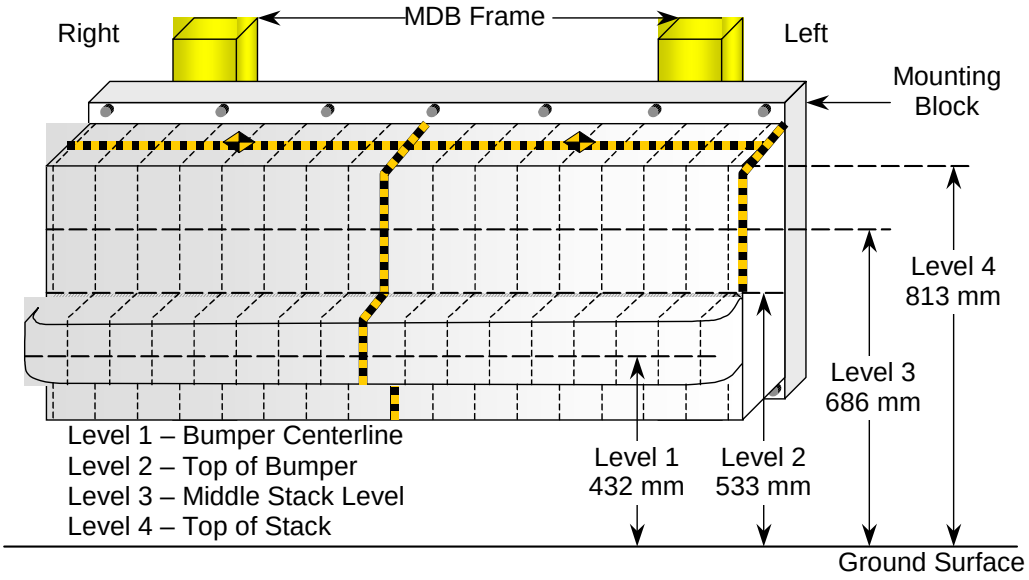
All measurements in millimeters

DATA SHEET NO. 16 … (CONTINUED)

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09



DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								CL	Distance Left of Center							
	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
1	58	49	36	33	40	44	50	53	61	71	100	153	265	300	360	405	518
2	281	282	276	280	284	287	293	298	299	306	319	337	335	418	465	531	620
3	199	203	207	211	216	219	223	227	231	238	253	256	282	340	396	444	620
4	189	190	194	199	202	206	210	214	217	222	228	257	354	410	482	517	620

All measurements in millimeters

DATA SHEET NO. 17

POST-TEST AIRBAG DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Description	Units	Driver	Right Front Passenger
Number of Vent Holes		2	
Size of Vent Holes	mm	30	
Shape of Vent Holes		Round	
Total Vent Area	mm^2	707	
Length of Deflated Bag (if Square)	mm		
Width if Deflated Bag (if Square)	mm		
Diameter of Deflated Bag (if Round)	mm	470	
Airbag Tethered		No	
Length of Tethers	mm		

DATA SHEET NO. 18

ACCIDENT INVESTIGATION DATA

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

VEHICLE INFORMATION

VIN:	1FAFP24157G101417	Wheelbase (mm):	2869
Vehicle Size Category:	4-Door Sedan	Test Weight (kg):	1891.5

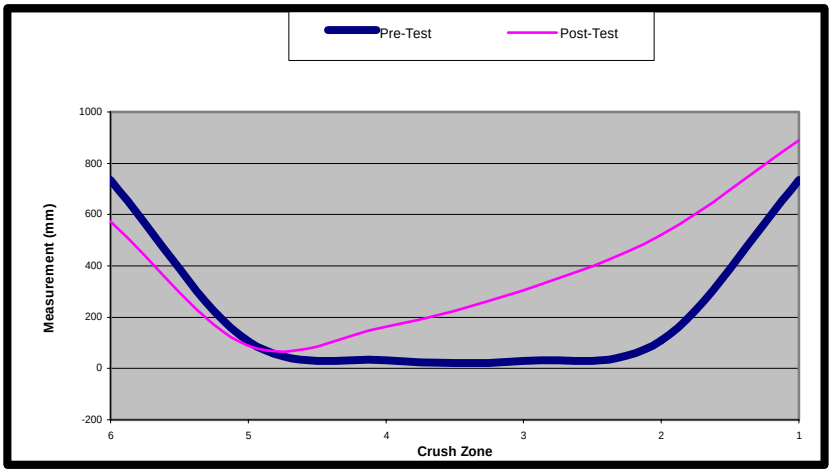
ACCELEROMETER DATA

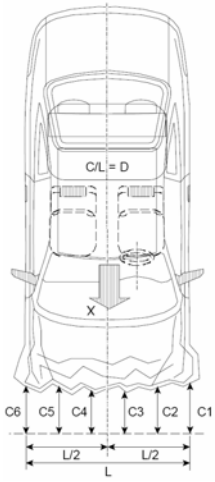
Accelerometer Location:	CG		
Cal. Procedure/Interval:	6 month/drop test		
Integration Algorithm:	NHTSA Standard	Linearity:	Good
Impact Velocity (km/h):	125.09		
Velocity Change (km/h):	42.2	Time of Separation (msec):	N/A

CRUSH PROFILE

Collision Damage Classification:	11FLAS2	Midpoint of Damage:	N/A
Damage Region Length:	1871	Impact Mode:	15°, 50% Offset

No.	Meaurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side of Vehicle	mm	735	890	155
C2	Crush Zone 2 at Left Side of Vehicle	mm	108	520	412
C3	Crush Zone 3 at Left Side of Vehicle	mm	30	304	274
C4	Crush Zone 4 at Right Side of Vehicle	mm	32	163	131
C5	Crush Zone 5 at Right Side of Vehicle	mm	106	88	-18
C6	Crush Zone 6 at Right Side of Vehicle	mm	736	572	-164



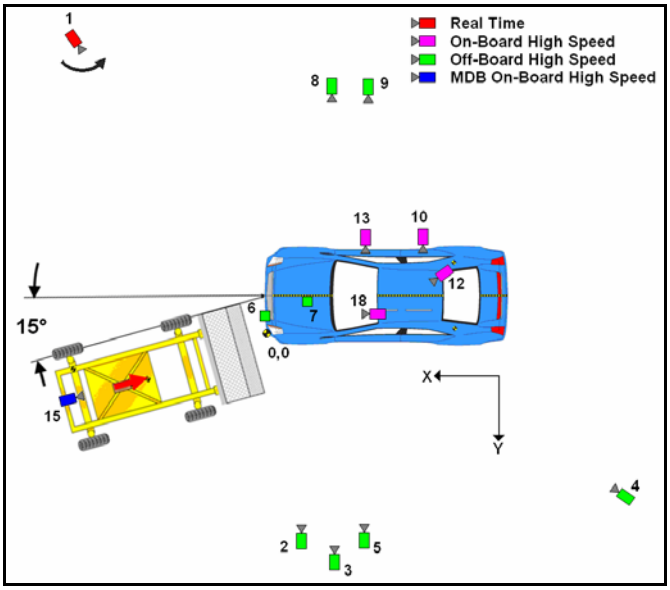


DATA SHEET NO. 19

VIDEO COVERAGE DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09



View No.	Description	Location (m)			Angle (°)	Lens (mm)	Frame Rate
		X	Y	Z			
1	Real Time Panning	5.96	33.45	2.15			30
2	Overall Left Side	-0.99	-12.67	1.13	0	24	1000
3	Left Side	-0.88	-13.15	1.15	0	35	1000
4	Driver and Interior	8.97	-12.53	2.76	-5	ZOOM	1000
5	Left Tight Target Driver to IP Contact	-2.52	-12.53	1.13	0	85	1000
6	Overhead - Impact Point	-0.27	-0.38	7.17	90	50	1000
7	Overhead - Overall	-0.35	0.27	7.63	90	14	1000
8	Right Side	5.23	13.91	1.17	0	35	1000
9	Overall Right Side	5.96	13.15	1.16	0	24	1000
10	Rear Occupant Side, On-Board	3.27	1.18	1.23	-1	10	1000
11	Right Passenger and Interior View						[7]
12	Driver Over Shoulder, On-Board	3.24	0.63	1.45	-2	12.5	1000
13	Driver Side, On-Board	2.37	1.18	1.21	-1	10	1000
14	Driver Front View from MDB						[7]
15	Windshield View from MDB						
16	Pit View of Engine	0.94	-0.10	-1.82	-90	8.5	1000
17	Pit View of Fuiel Tank	3.02	-0.61	-1.93	-90	12.5	1000
18	Driver Lower Leg, On-Board	0.18	0.80	0.27	0	8.5	1000

Reference Planes: X – Impact Point, X+ forward on vehicle
Y – Impact Point, Y+ left on vehicle
Z – Ground, Z+ up

[7] – Camera not required by COTR.

DATA SHEET NO. 20

FMVSS 212 / 219 SUMMARY

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

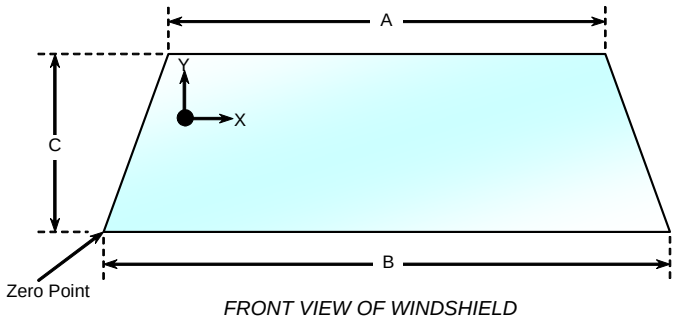
Windshield mounting details: windshield glass is secured to the vehicle frame with rubber cement type adhesive and rubber molding.

The standard requires that the post-test retention measurement be a minimum of 75% of the pre-test total periphery measurements for vehicles not equipped with passive occupant restraints, and 50% for each side of the windshield for vehicles that are equipped with passive occupant restraints.

Temperature of windshield molding during the test: 13.3° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Units	Pre-Test	Post-Test	% Retention
Left Side	mm	2311	574	24.8%
Right Side	mm	2311	864	37.4%
Total	mm	4622	1438	



FRONT VIEW OF WINDSHIELD

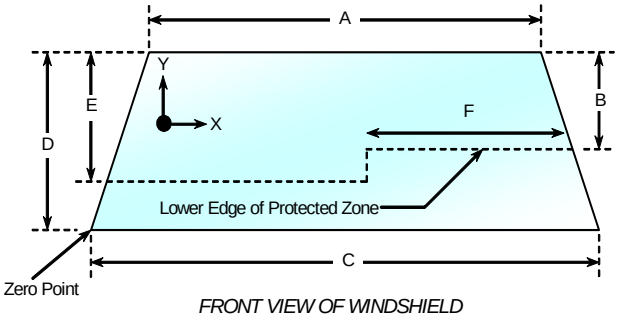
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1327	18
B	mm	1655	70
C-Left	mm	820	18
C-Right	mm	820	18

DATA SHEET NO. 20 … (CONTINUED)

FMVSS 212 / 219 SUMMARY

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



WINDSHIELD AND PROTECTED ZONE

Item	Units	Value
A	mm	1327
B	mm	466
C	mm	1655
D	mm	820
E	mm	535
F	mm	570

AREA OF PROTECTED ZONE FAILURES

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

X	Y

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

X	Y

DATA SHEET NO. 21

FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09

Temperature at Time of Impact: 13.3° C Test Time: 12:46 PM

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable = 1 oz.)

B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable = 5 oz.)

C. For the following 25 minutes: 0 oz.
(Maximum allowable = 1 oz./minute)

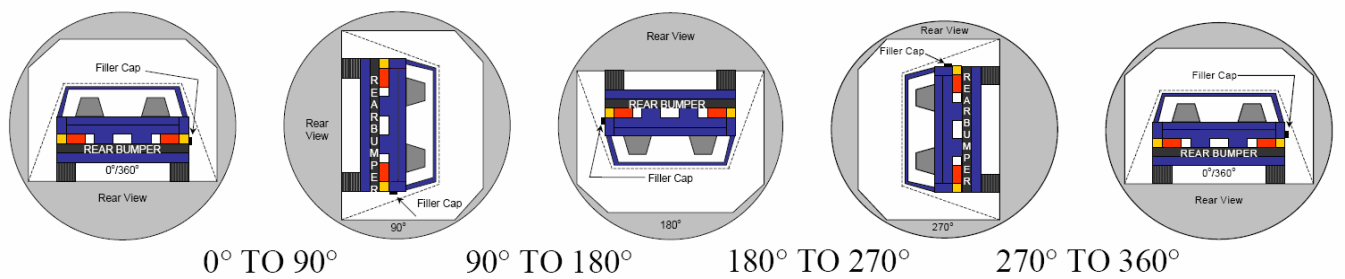
D. Spillage: No spillage occurred

DATA SHEET NO. 22

FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door Sedan NHTSA No.: R70209

Test Program: 80 mph, 15°, 10% Offset MDB to Vehicle Test Date: 12/23/09



0° TO 90° 90° TO 180° 180° TO 270° 270° TO 360°

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard solvent spillage: No spillage occurred

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	81	300	381
90° To 180°	79	300	379
180° To 270°	83	300	383
270° To 360°	86	300	386

FMVSS 301 SPILLAGE TABLE

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

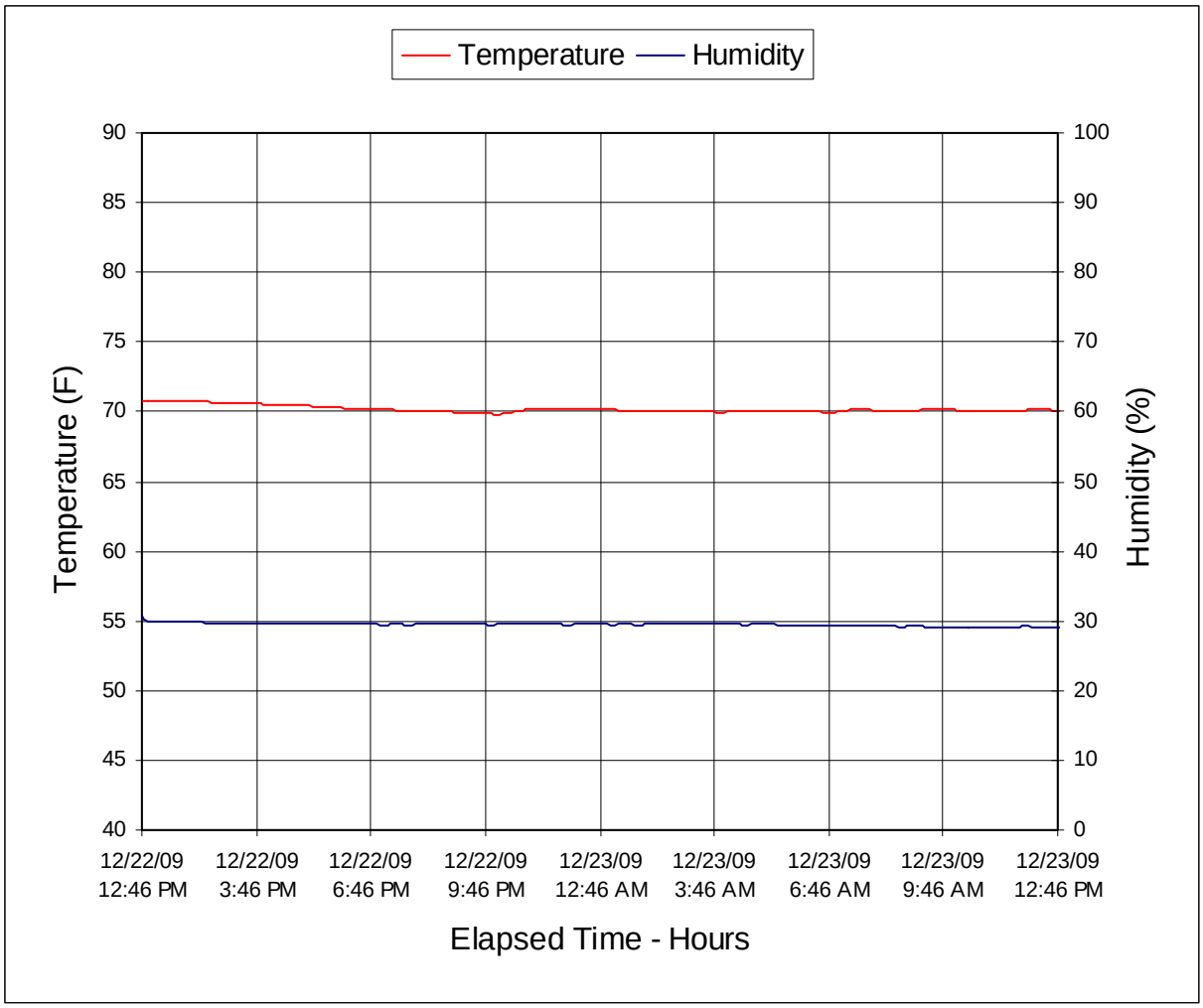
SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° To 90°	None
90° To 180°	None
180° To 270°	None
270° To 360°	None

DATA SHEET NO. 23

DUMMY / VEHICLE TEMPERATURE STABILIZATION

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



APPENDIX A
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Figure A-1: Test Vehicle, Right Front ¾ View, As-Received

Figure A-2: Test Vehicle, Left Rear ¾ View, As-Received

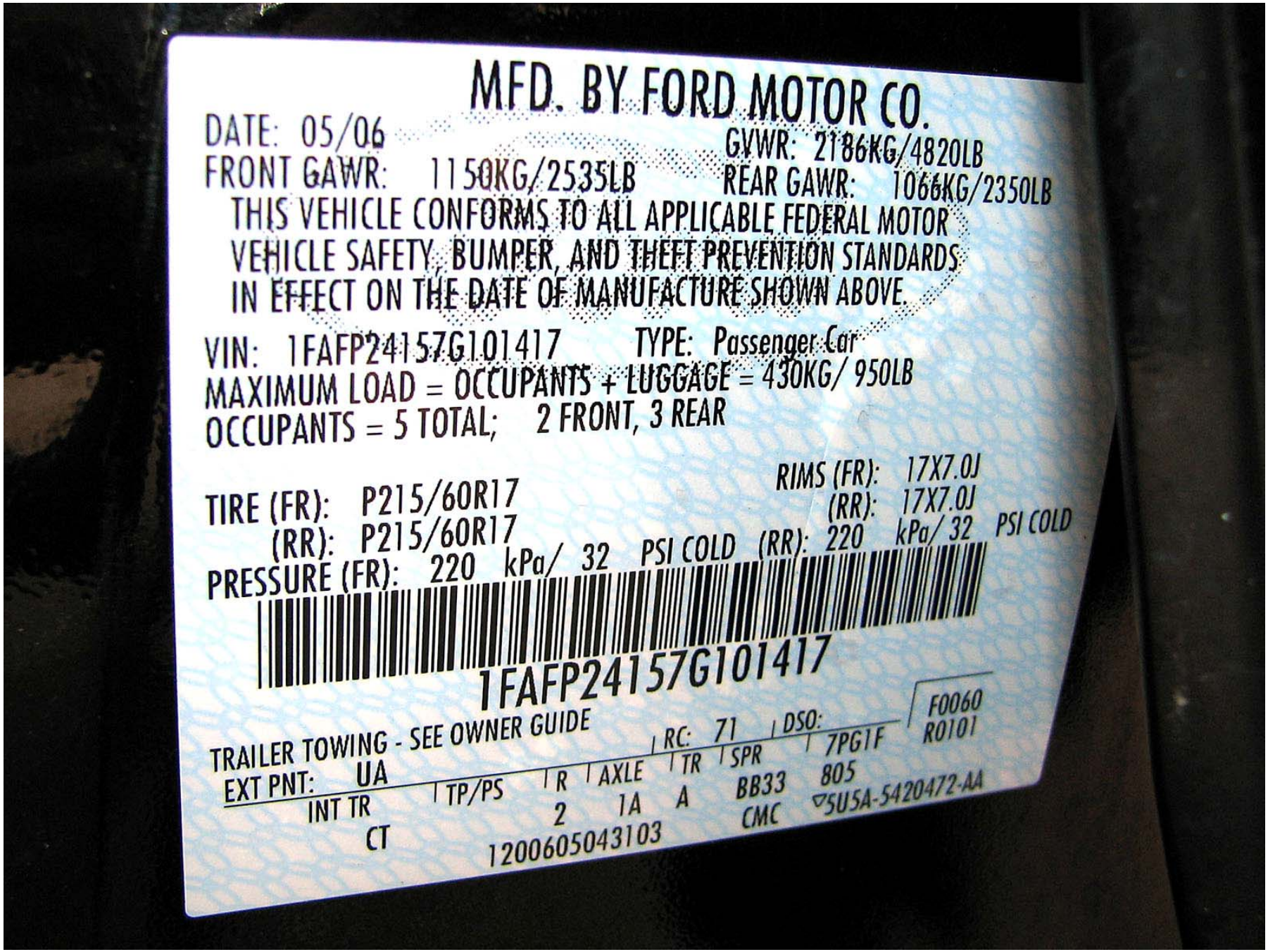

Figure A-3: Test Vehicle Manufacturer's Label

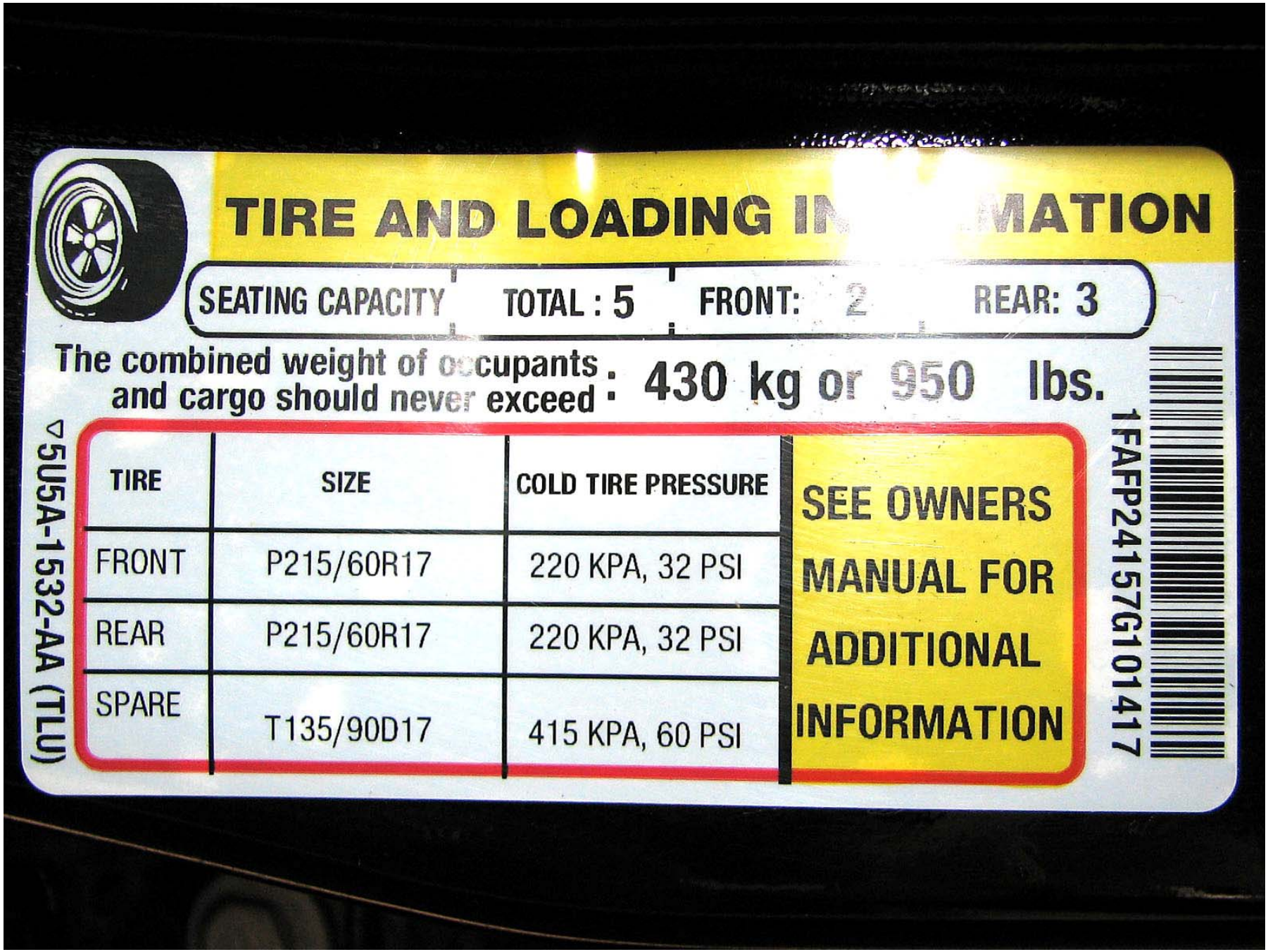

Figure A-4: Test Vehicle Tire Placard

Figure A-5: Test Vehicle Pre-Test Front View

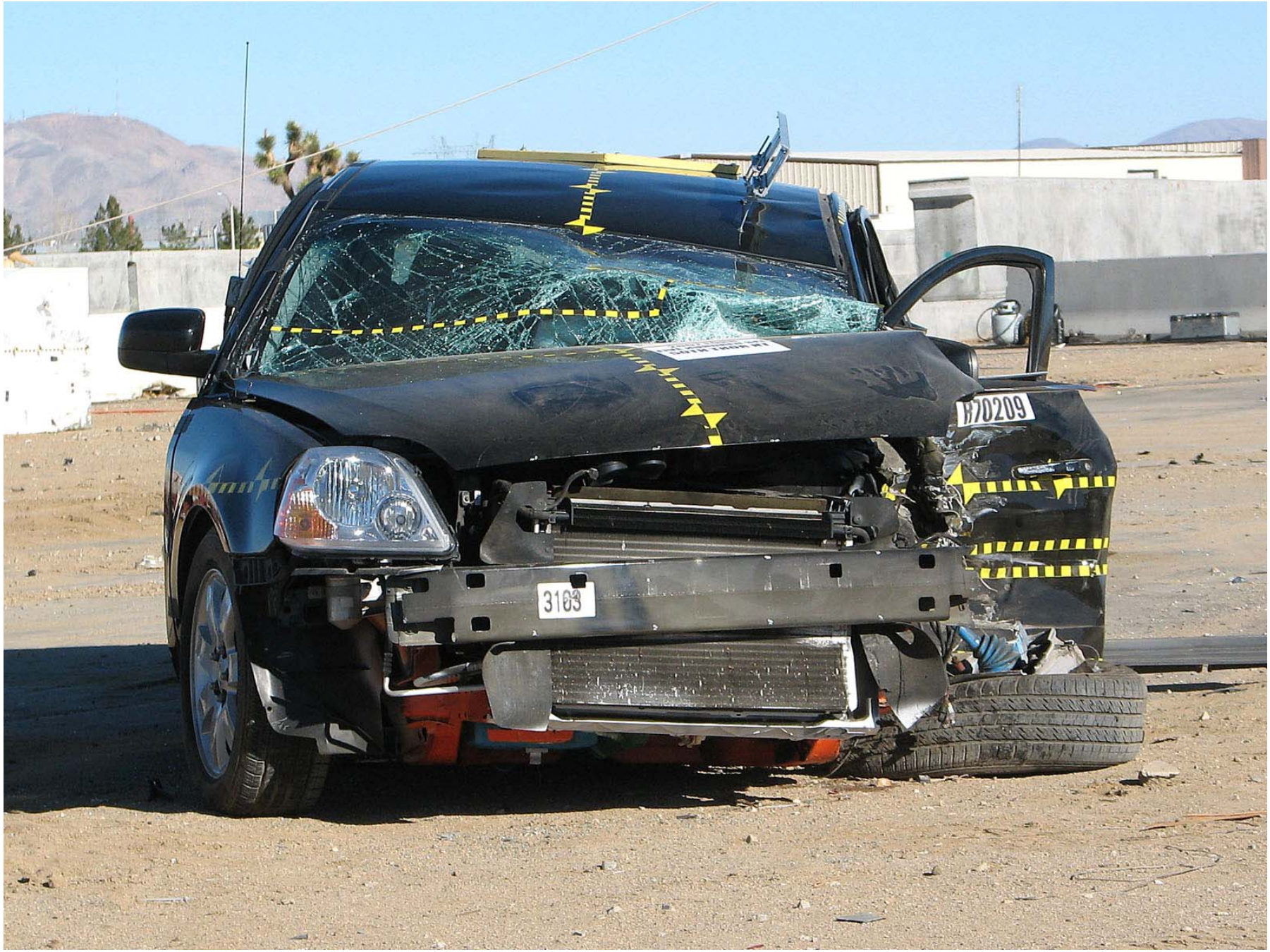

Figure A-6: Test Vehicle Post-Test Front View

Figure A-7: Test Vehicle Pre-Test Left Front ¾ View

Figure A-8: Test Vehicle Post-Test Left Front ¾ View

Figure A-9: Test Vehicle Pre-Test Left Side View

Figure A-10: Test Vehicle Post-Test Left Side View

Figure A-11: Test Vehicle Pre-Test Left Rear ¾ View

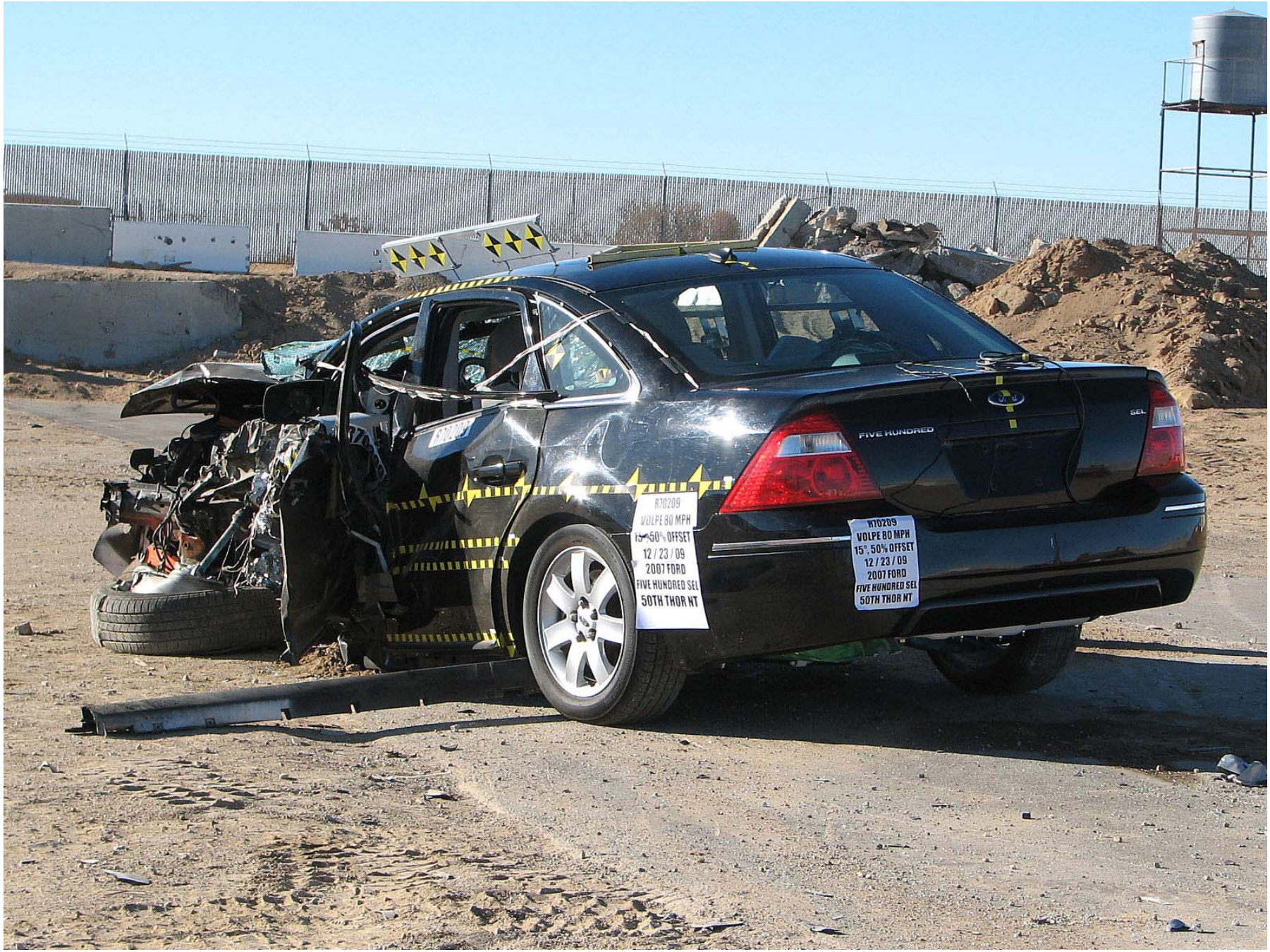

Figure A-12: Test Vehicle Post-Test Left Rear ¾ View

Figure A-13: Test Vehicle Pre-Test Rear View

Figure A-14: Test Vehicle Post-Test Rear View

Figure A-15: Test Vehicle Pre-Test Right Rear ¾ View

Figure A-16: Test Vehicle Post-Test Right Rear ¾ View

Figure A-17: Test Vehicle Pre-Test Right Side View

Figure A-18: Test Vehicle Post-Test Right Side View

Figure A-19: Test Vehicle Pre-Test Right Front ¾ View

Figure A-20: Test Vehicle Post-Test Right Front ¾ View

Figure A-21: Test Vehicle Pre-Test Overhead View

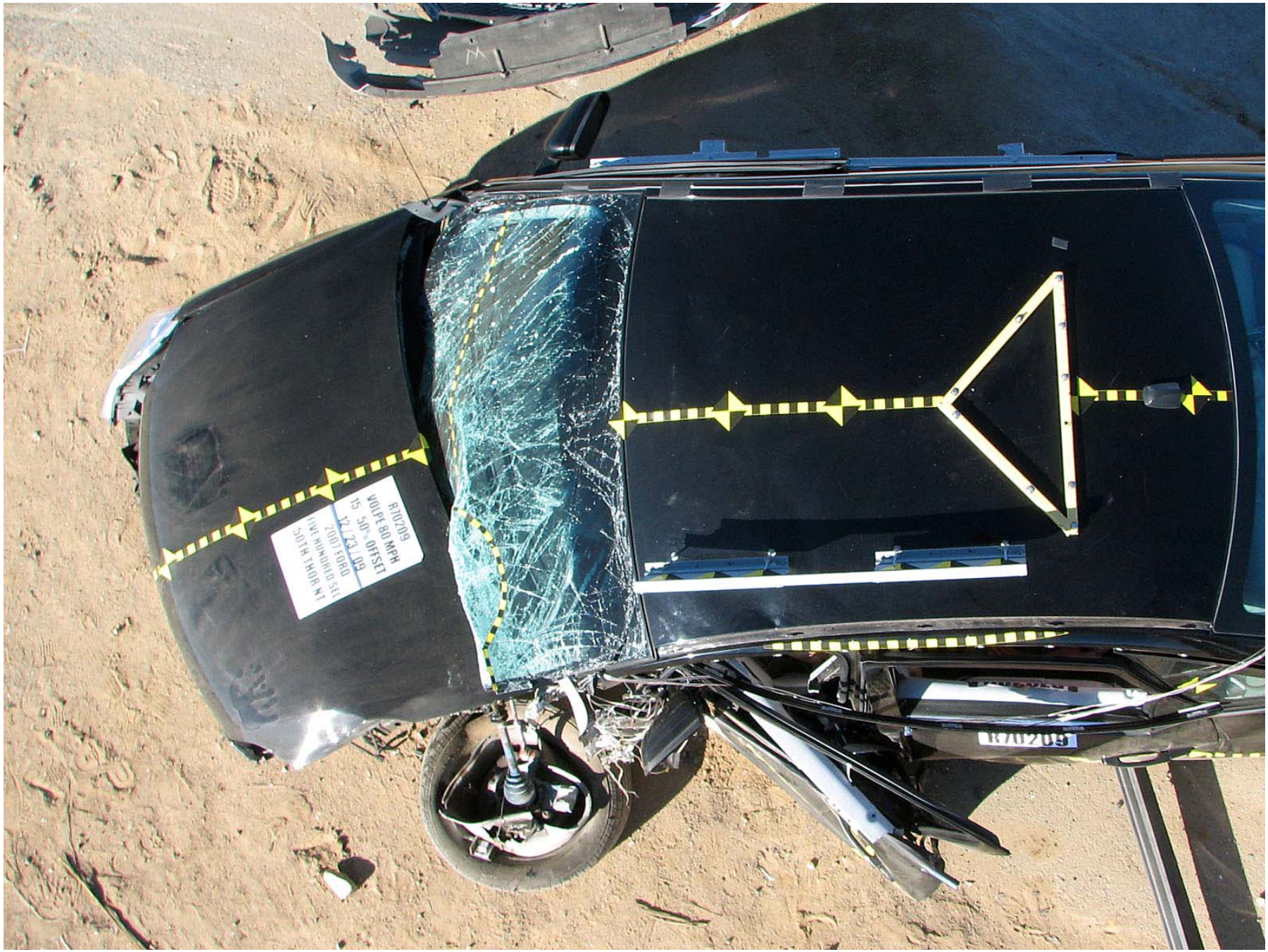

Figure A-22: Test Vehicle Post-Test Overhead View

Figure A-23: Test Vehicle Pre-Test Overhead Close-Up View

Figure A-24: Test Vehicle Post-Test Overhead Close-Up View

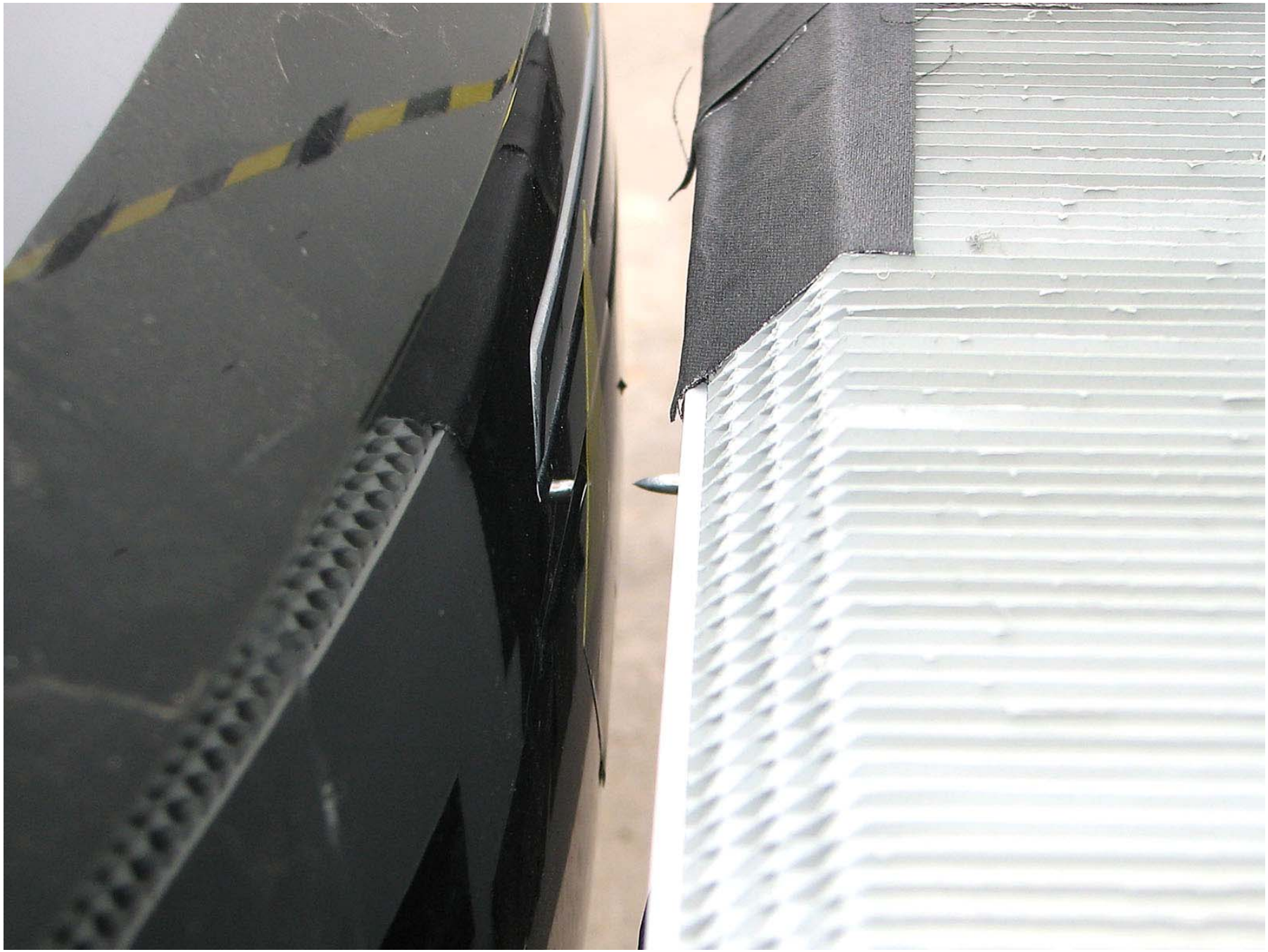

Figure A-25: Test Vehicle Pre-Test Impact Point Marker

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Figure A-26: Test Vehicle Post-Test Impact Point Marker

Figure A-27: Test Vehicle Pre-Test Impact Point Marker

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Figure A-28: Test Vehicle Post-Test Impact Point Marker

Figure A-29: Test Vehicle Pre-Test Front ¾ View of Left Side Doors

Figure A-30: Test Vehicle Post-Test Front ¾ View of Left Side Doors

Figure A-31: Test Vehicle Pre-Test Rear ¾ View of Left Side Doors

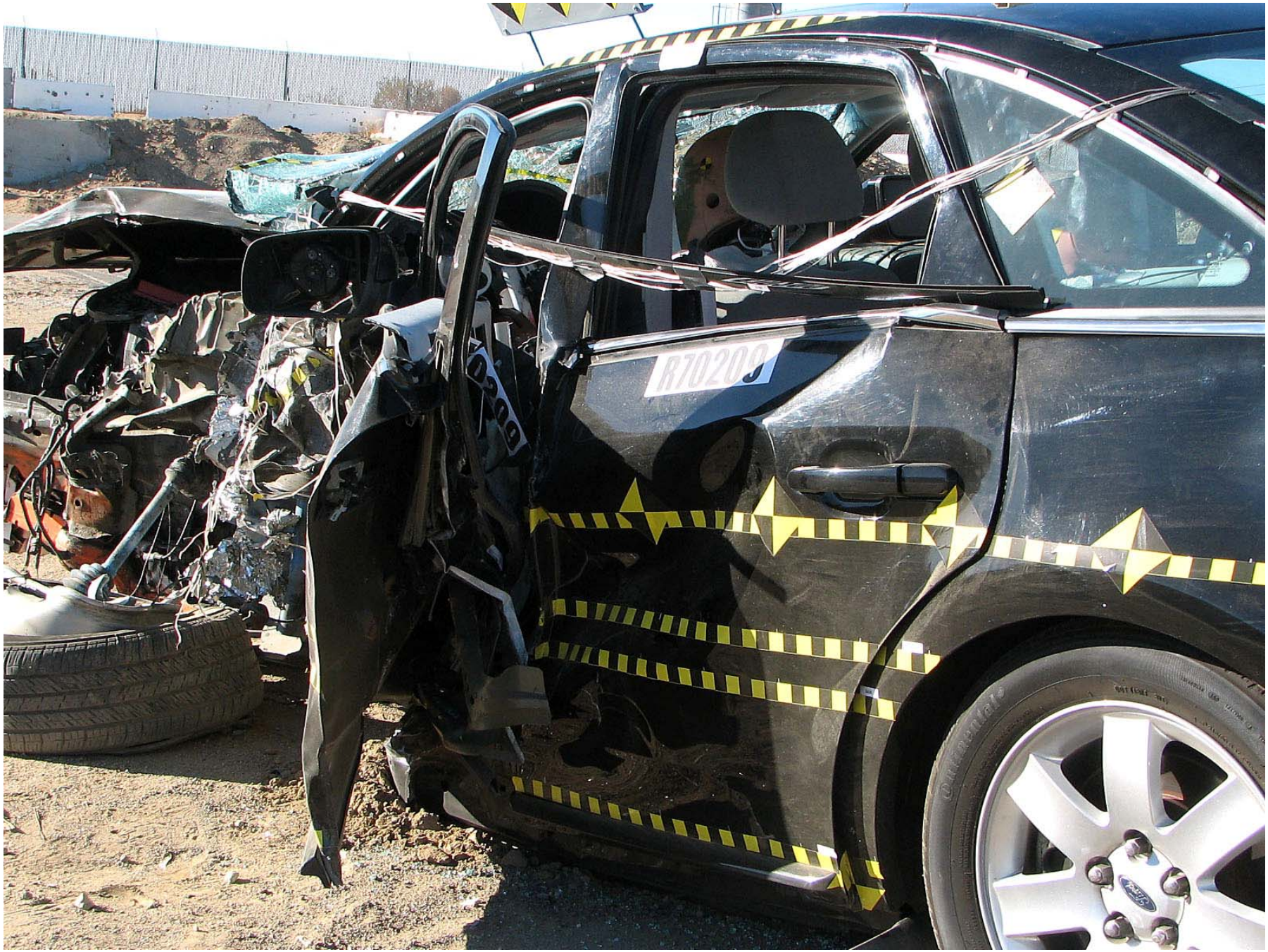

Figure A-32: Test Vehicle Post-Test Rear ¾ View of Left Side Doors

Figure A-33: Test Vehicle Pre-Test Front ¾ View of Right Side Doors

Figure A-34: Test Vehicle Post-Test Front ¾ View of Right Side Doors

Figure A-35: Test Vehicle Pre-Test Rear ¾ View of Right Side Doors

Figure A-36: Test Vehicle Post-Test Rear ¾ View of Right Side Doors

Figure A-37: Test Vehicle Pre-Test Left Front Door

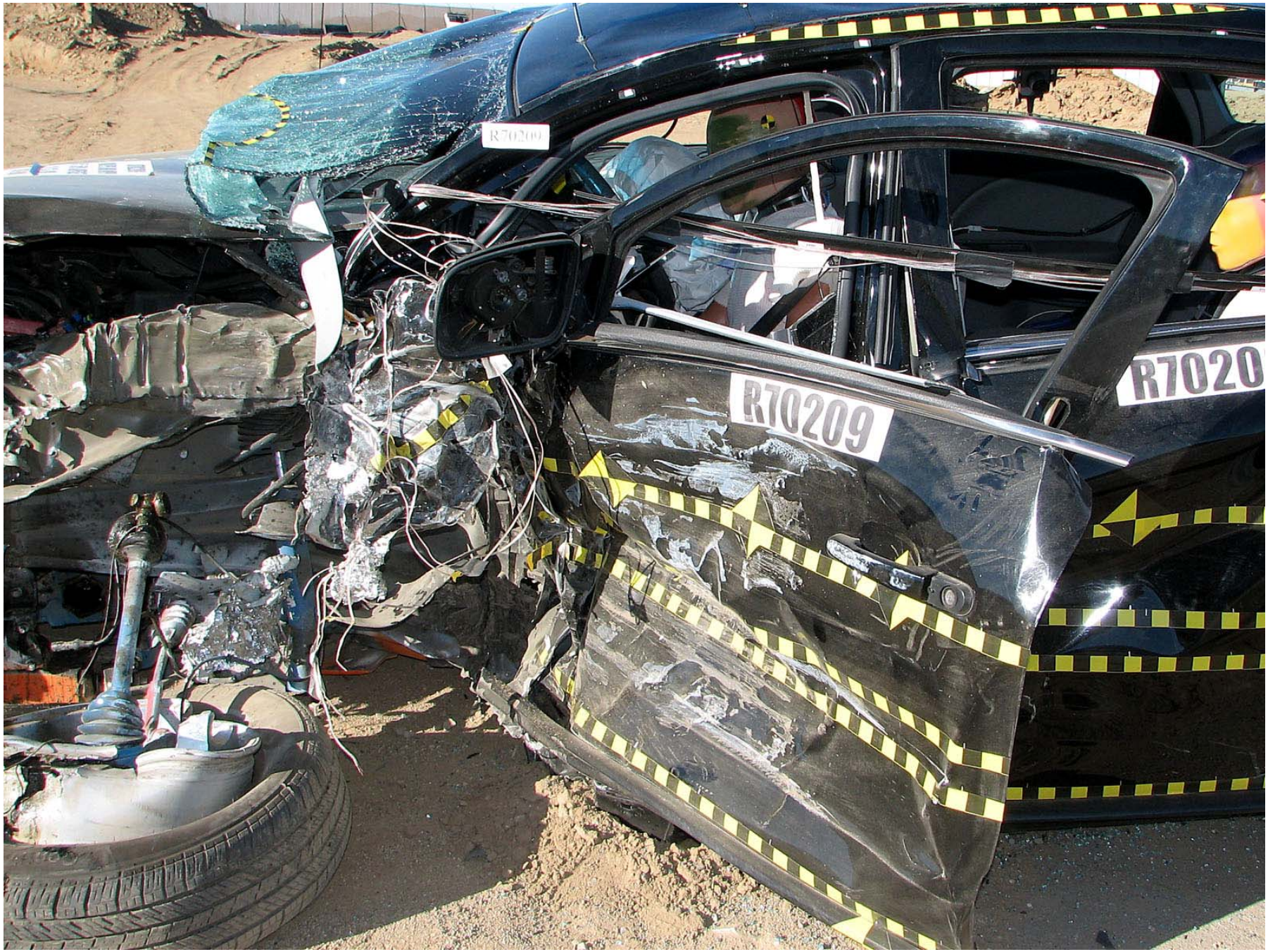

Figure A-38: Test Vehicle Post-Test Left Front Door

Figure A-39: Test Vehicle Pre-Test Left Rear Door

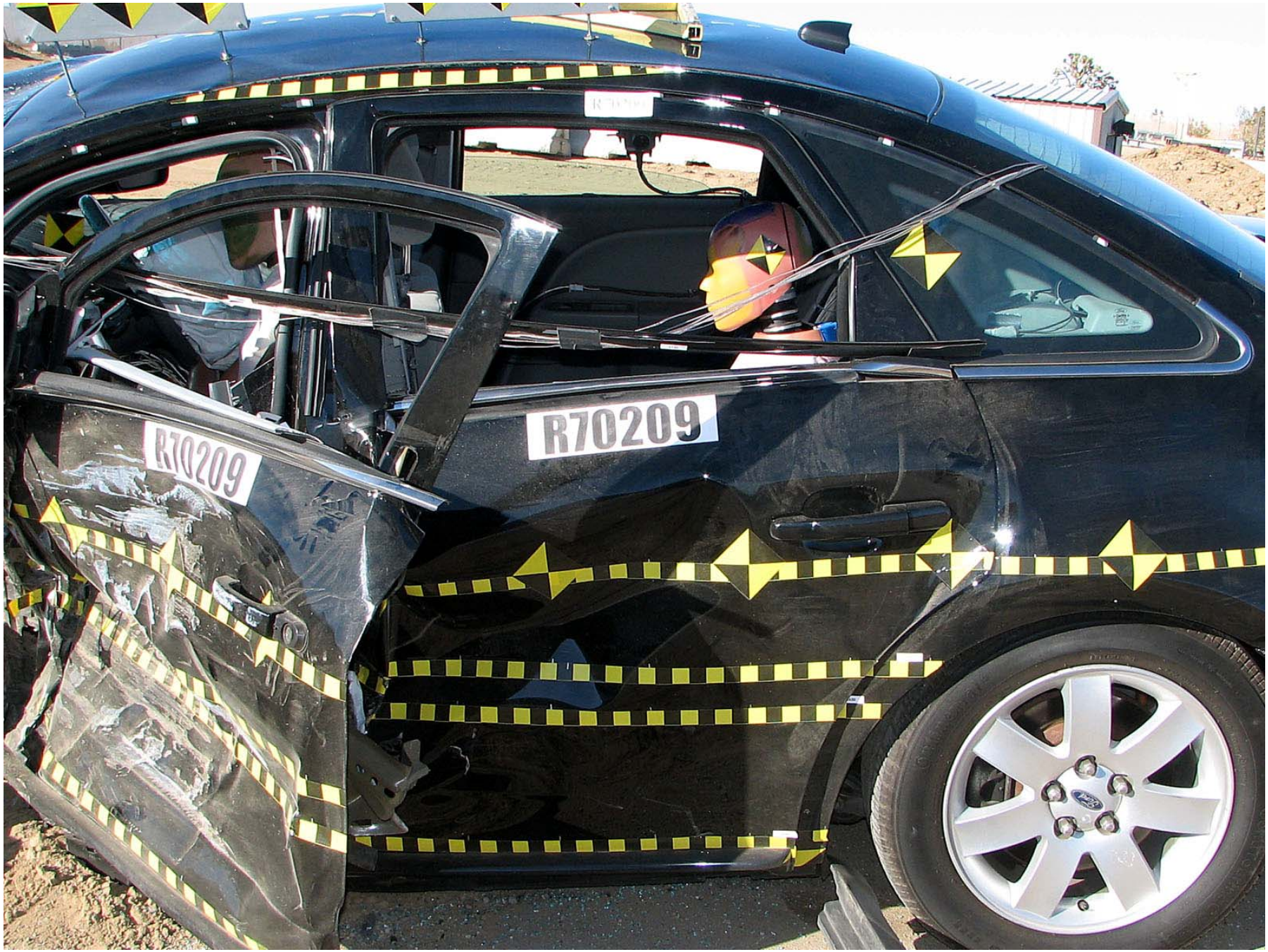

Figure A-40: Test Vehicle Post-Test Left Rear Door

Figure A-41: Test Vehicle Pre-Test Right Front Door

Figure A-42: Test Vehicle Post-Test Right Front Door

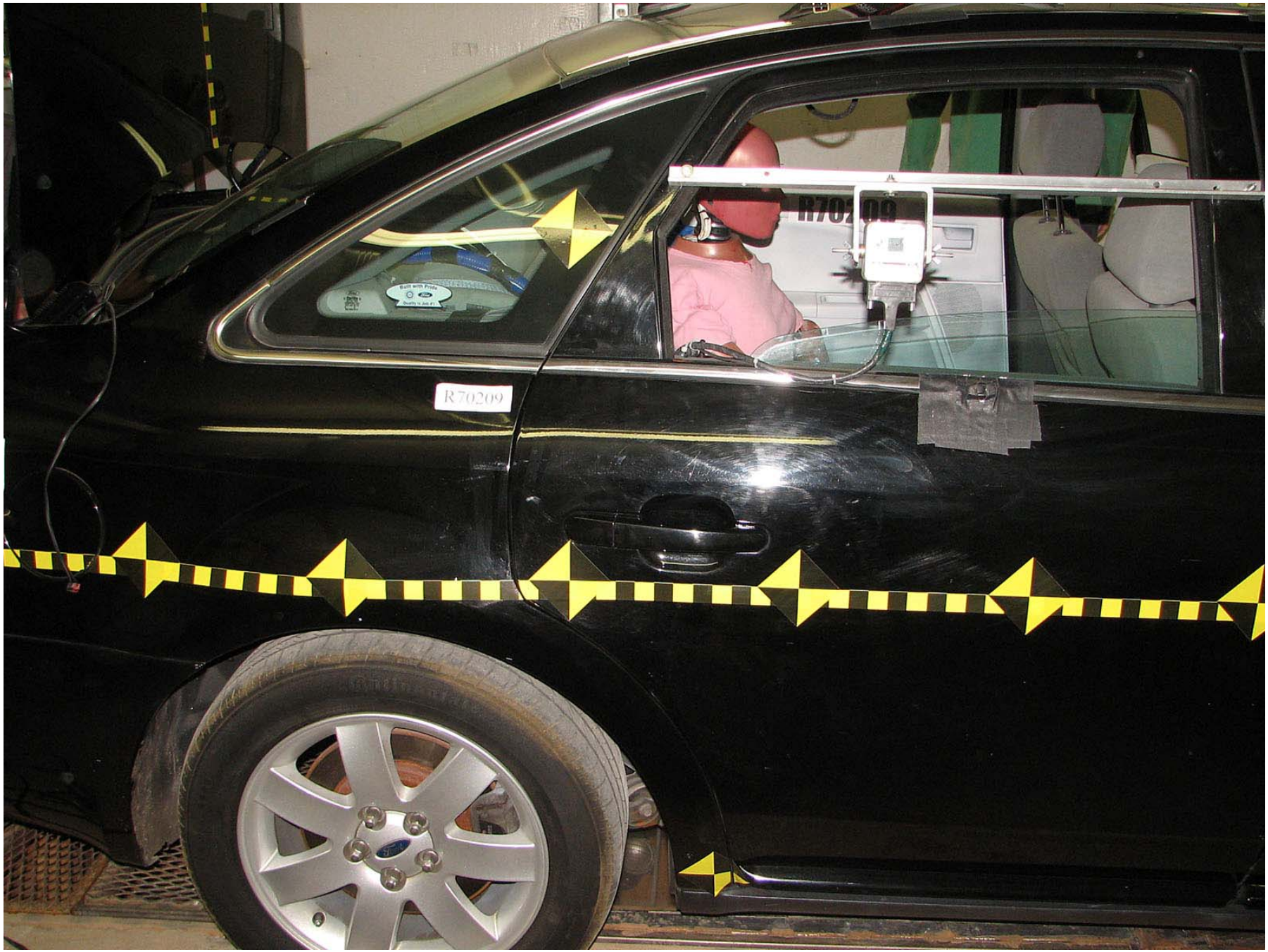

Figure A-43: Test Vehicle Pre-Test Right Rear Door

Figure A-44: Test Vehicle Post-Test Right Rear Door

Figure A-45: Test Vehicle Pre-Test Windshield View

Figure A-46: Test Vehicle Post-Test Windshield View

Figure A-47: Test Vehicle Pre-Test Engine Compartment View

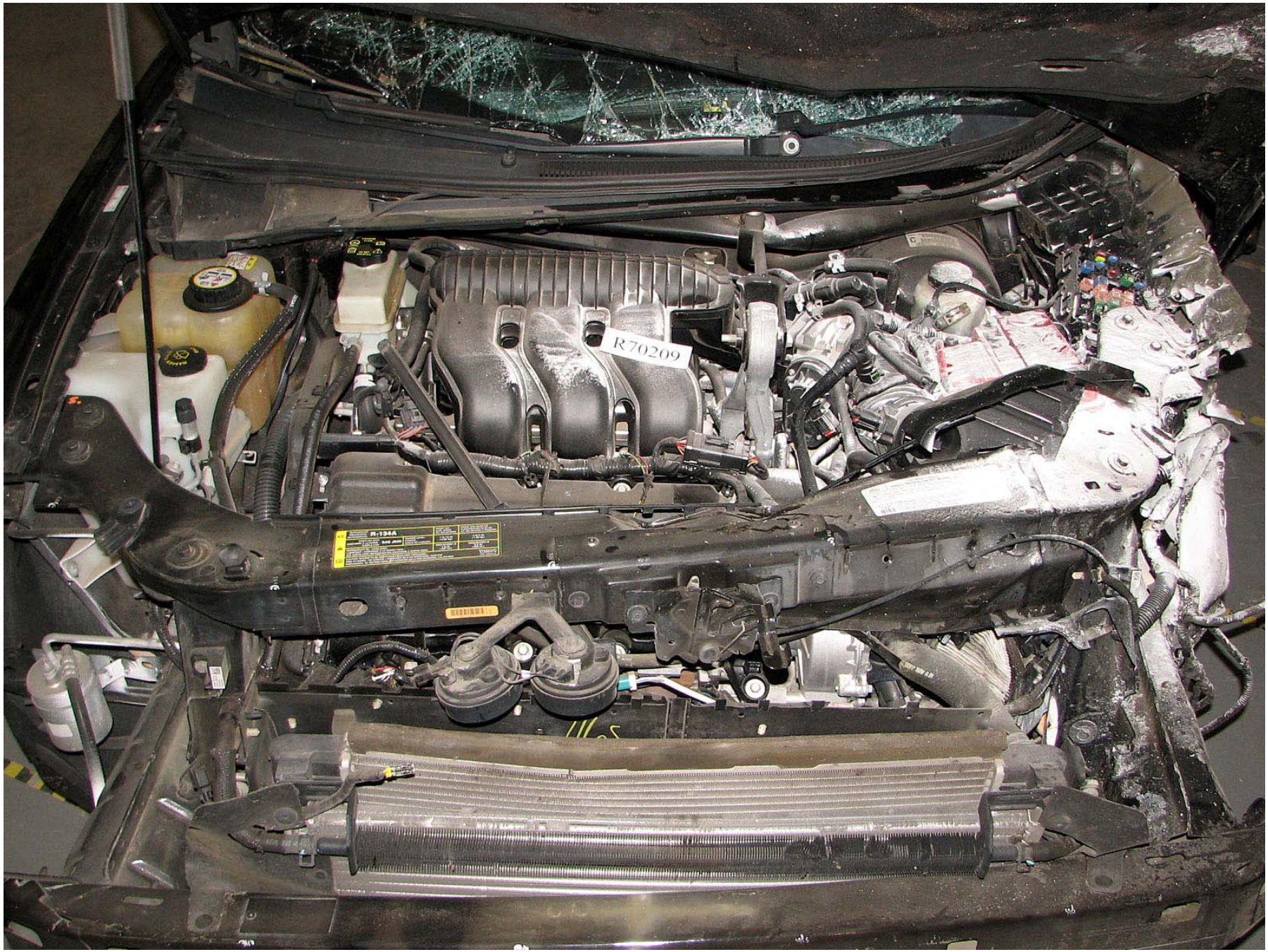

Figure A-48: Test Vehicle Post-Test Engine Compartment View

Figure A-49: Test Vehicle Pre-Test Fuel Filler Cap View

Figure A-50: Test Vehicle Post-Test Fuel Filler Cap View

Figure A-51: Test Vehicle Pre-Test Left Side A-Pillar Side View

Figure A-52: Test Vehicle Post-Test Left Side A-Pillar Side View

Figure A-53: Test Vehicle Pre-Test Left Side A-Pillar Rear ¾ View

Figure A-54: Test Vehicle Post-Test Left Side A-Pillar Rear ¾ View

Figure A-55: Test Vehicle Pre-Test Left Side B-Pillar Side View

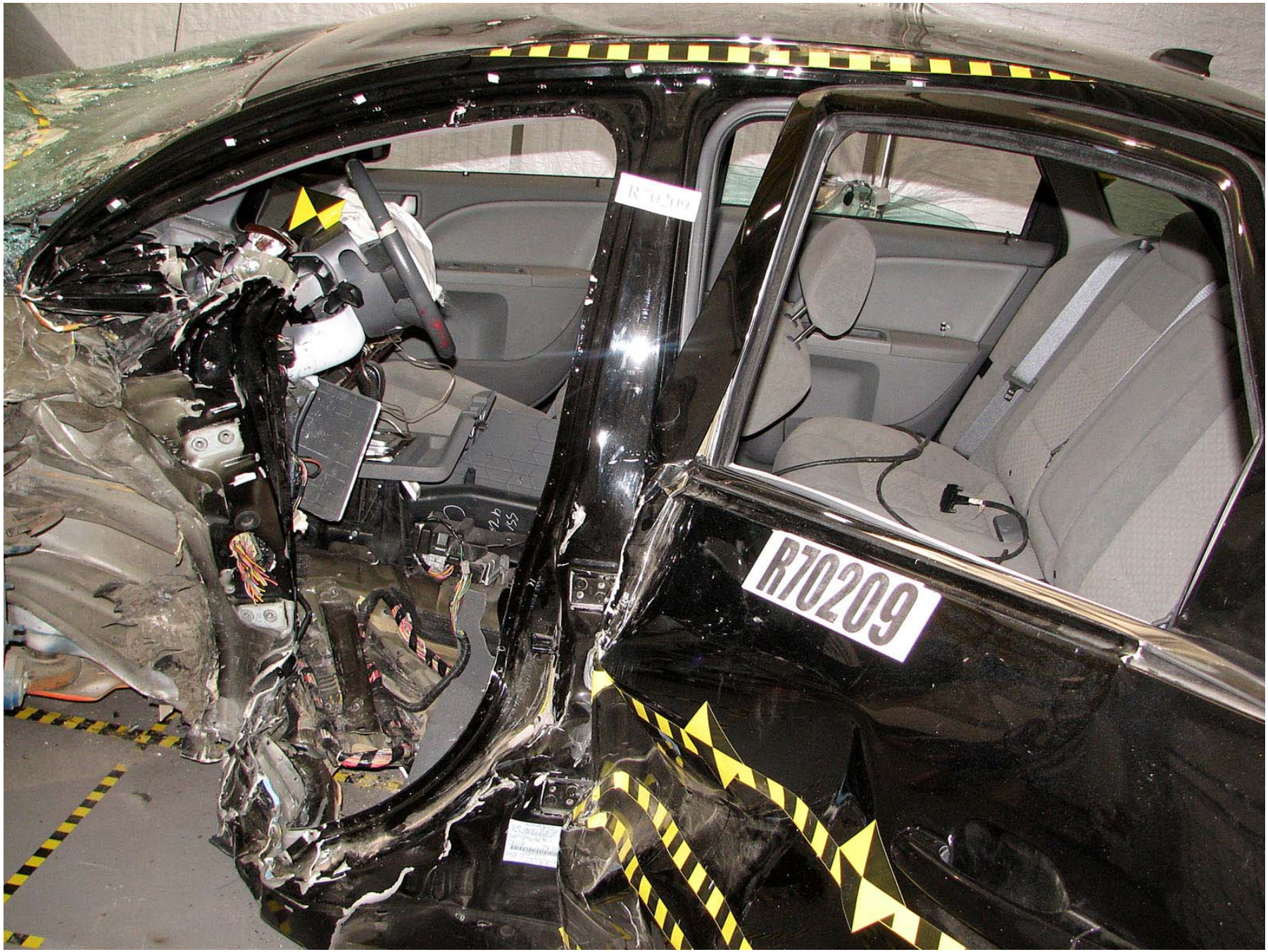

Figure A-56: Test Vehicle Post-Test Left Side B-Pillar Side View

Figure A-57: Test Vehicle Pre-Test Left Side B-Pillar Rear ¾ View

Figure A-58: Test Vehicle Post-Test Left Side B-Pillar Rear ¾ View

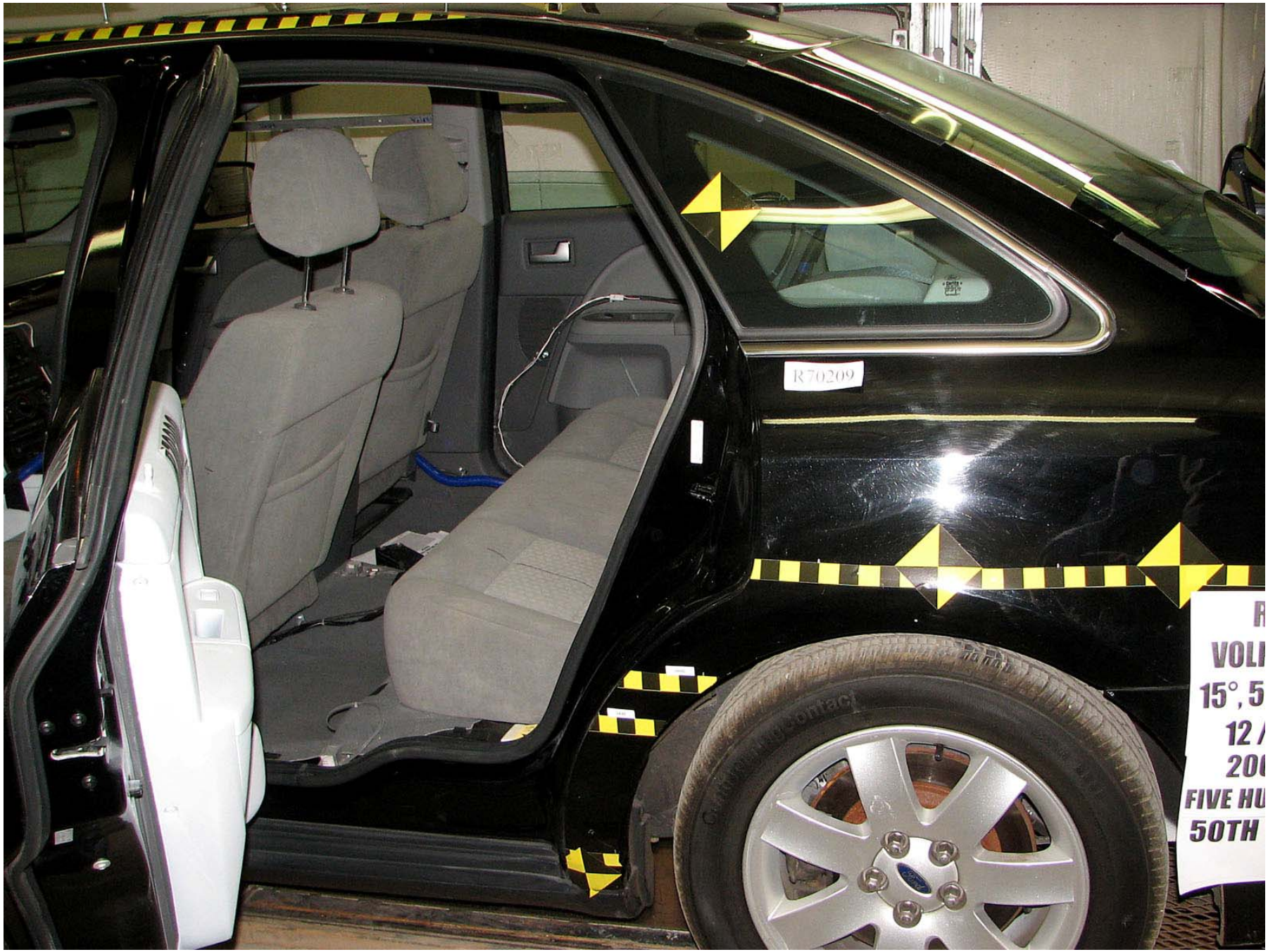

Figure A-59: Test Vehicle Pre-Test Left Side C-Pillar Side View

Figure A-60: Test Vehicle Post-Test Left Side C-Pillar Side View

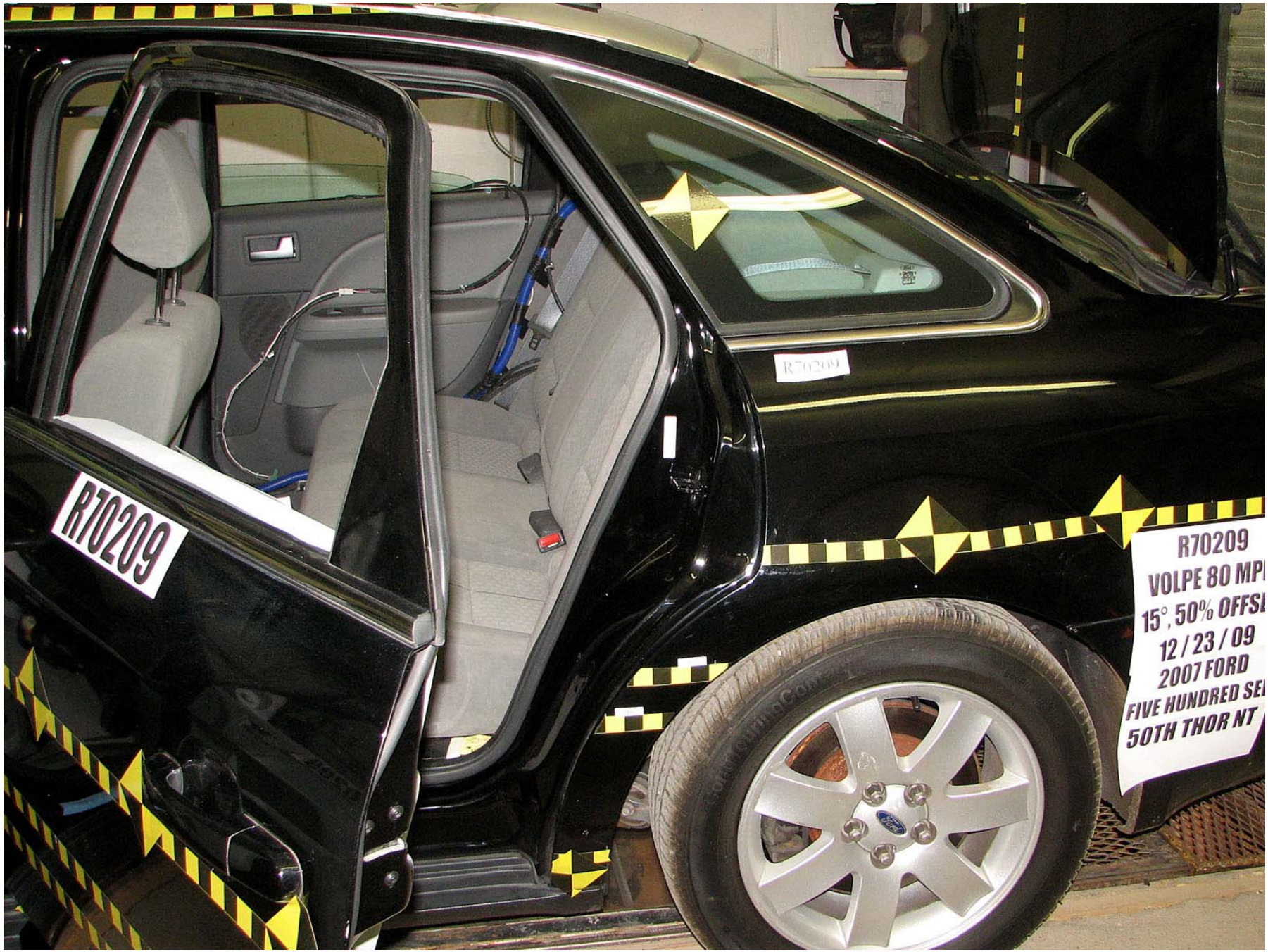

Figure A-61: Test Vehicle Pre-Test Left Side C-Pillar Front ¾ View

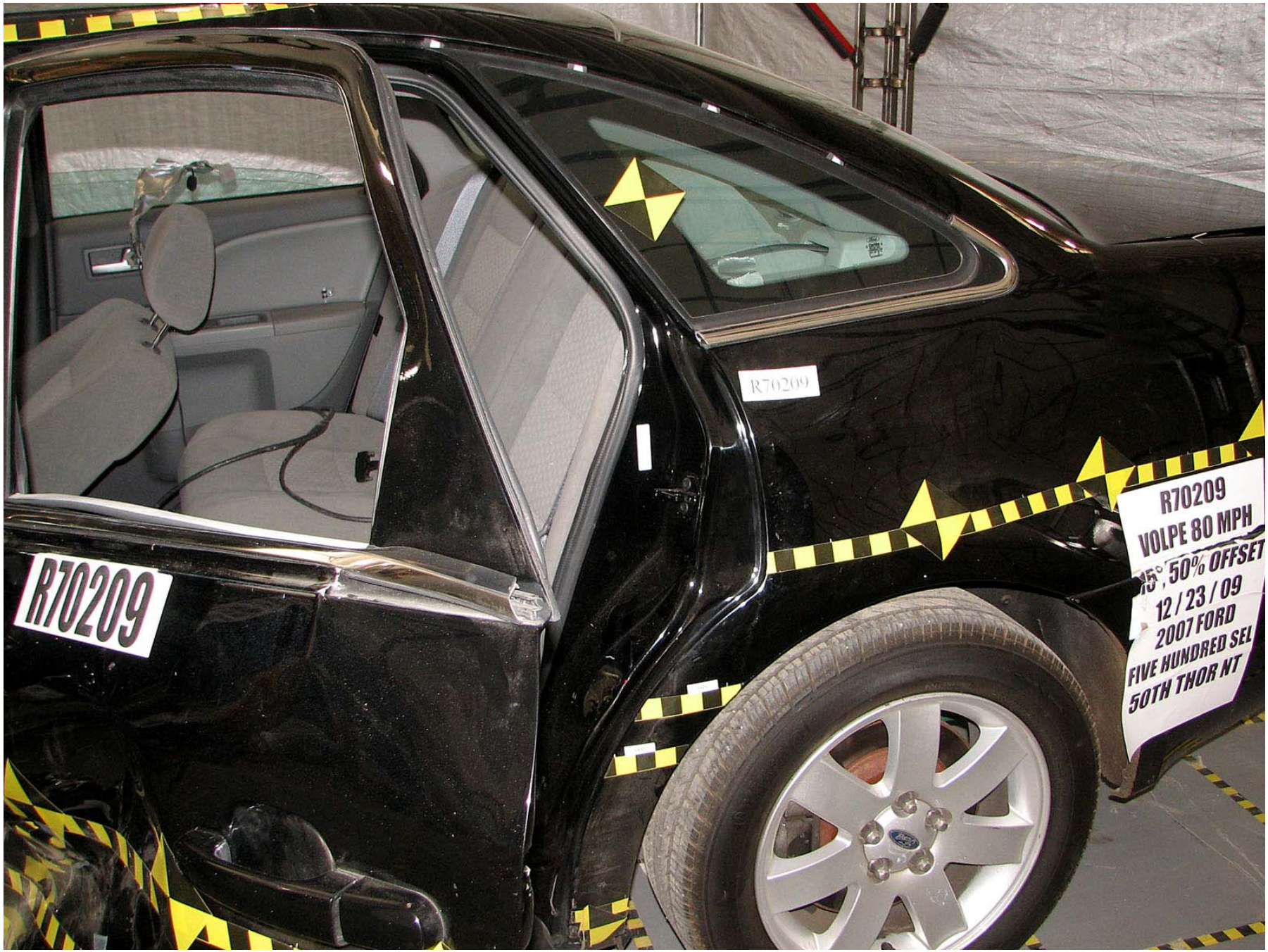

Figure A-62: Test Vehicle Post-Test Left Side C-Pillar Front ¾ View

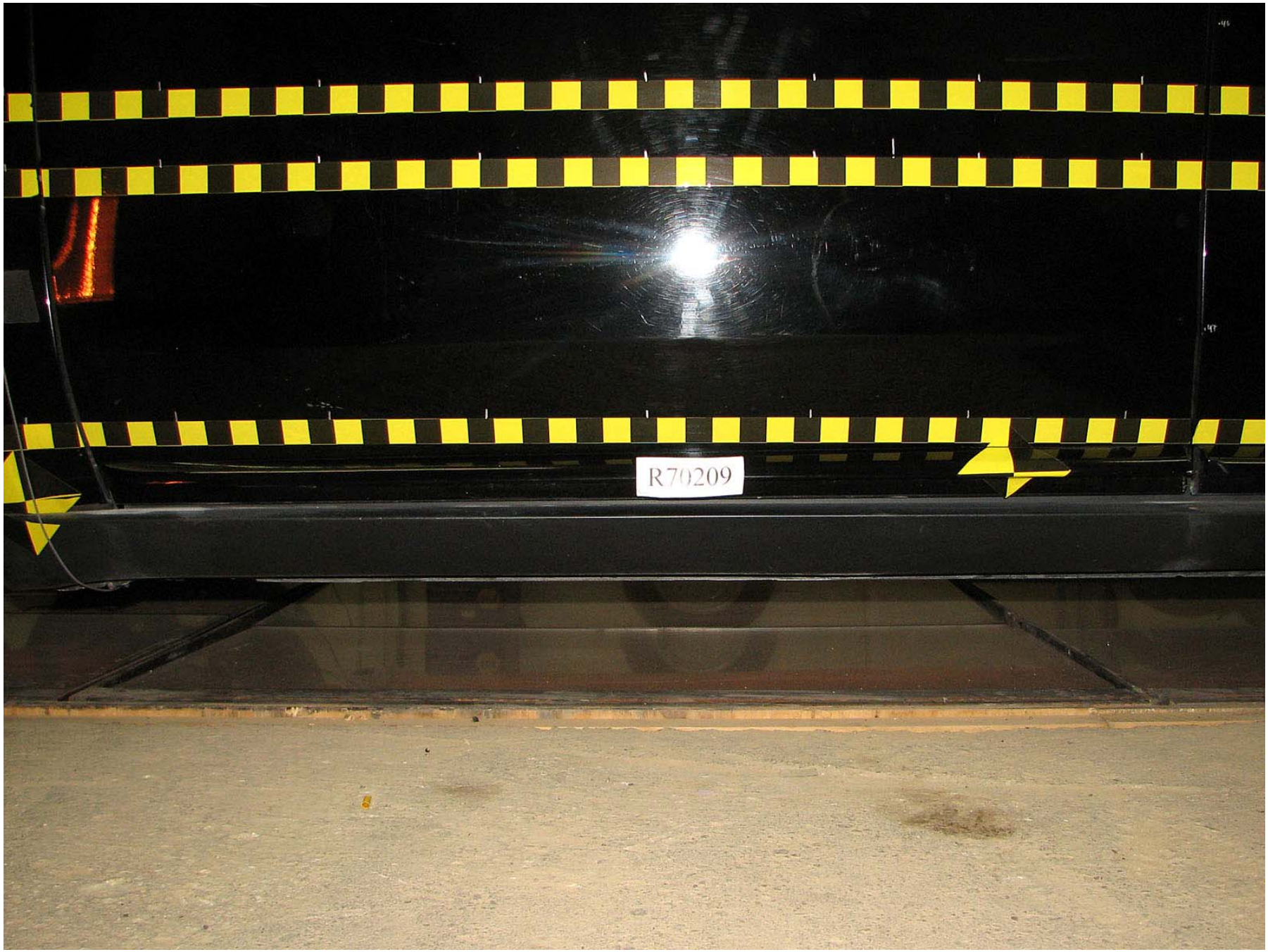

Figure A-63: Test Vehicle Pre-Test Left Front Sill Side View, Door Closed

Figure A-64: Test Vehicle Post-Test Left Front Sill Side View, Door Closed

Figure A-65: Test Vehicle Pre-Test Left Front Sill Side View, Door Open

Figure A-66: Test Vehicle Post-Test Left Front Sill Side View, Door Open

Figure A-67: Test Vehicle Pre-Test Left Front Sill Rear ¾ View, Door Closed

Figure A-68: Test Vehicle Post-Test Left Front Sill Rear ¾ View, Door Closed

Figure A-69: Test Vehicle Pre-Test Left Front Sill Rear ¾ View, Door Open

Figure A-70: Test Vehicle Post-Test Left Front Sill Rear ¾ View, Door Open

Figure A-71: Test Vehicle Pre-Test Left Rear Sill Side View, Door Closed

Figure A-72: Test Vehicle Post-Test Left Rear Sill Side View, Door Closed

Figure A-73: Test Vehicle Pre-Test Left Rear Sill Side View, Door Open

Figure A-74: Test Vehicle Post-Test Left Rear Sill Side View, Door Open

Figure A-75: Test Vehicle Pre-Test Left Rear Sill Rear ¾ View, Door Closed

Figure A-76: Test Vehicle Post-Test Left Rear Sill Rear ¾ View, Door Closed

Figure A-77: Test Vehicle Pre-Test Left Rear Sill Rear ¾ View, Door Open

Figure A-78: Test Vehicle Post-Test Left Rear Sill Rear ¾ View, Door Open

Figure A-79: Test Vehicle Pre-Test Right Side A-Pillar Side View

Figure A-80: Test Vehicle Post-Test Right Side A-Pillar Side View

Figure A-81: Test Vehicle Pre-Test Right Side A-Pillar Rear ¾ View

Figure A-82: Test Vehicle Post-Test Right Side A-Pillar Rear ¾ View

Figure A-83: Test Vehicle Pre-Test Right Side B-Pillar Side View

Figure A-84: Test Vehicle Post-Test Right Side B-Pillar Side View

Figure A-85: Test Vehicle Pre-Test Right Side B-Pillar Rear ¾ View

Figure A-86: Test Vehicle Post-Test Right Side B-Pillar Rear ¾ View

Figure A-87: Test Vehicle Pre-Test Right Side C-Pillar Side View

Figure A-88: Test Vehicle Post-Test Right Side C-Pillar Side View

Figure A-89: Test Vehicle Pre-Test Right Side C-Pillar Front ¾ View

Figure A-90: Test Vehicle Post-Test Right Side C-Pillar Front ¾ View

Figure A-91: Test Vehicle Pre-Test Right Front Sill Side View, Door Closed

Figure A-92: Test Vehicle Post-Test Right Front Sill Side View, Door Closed

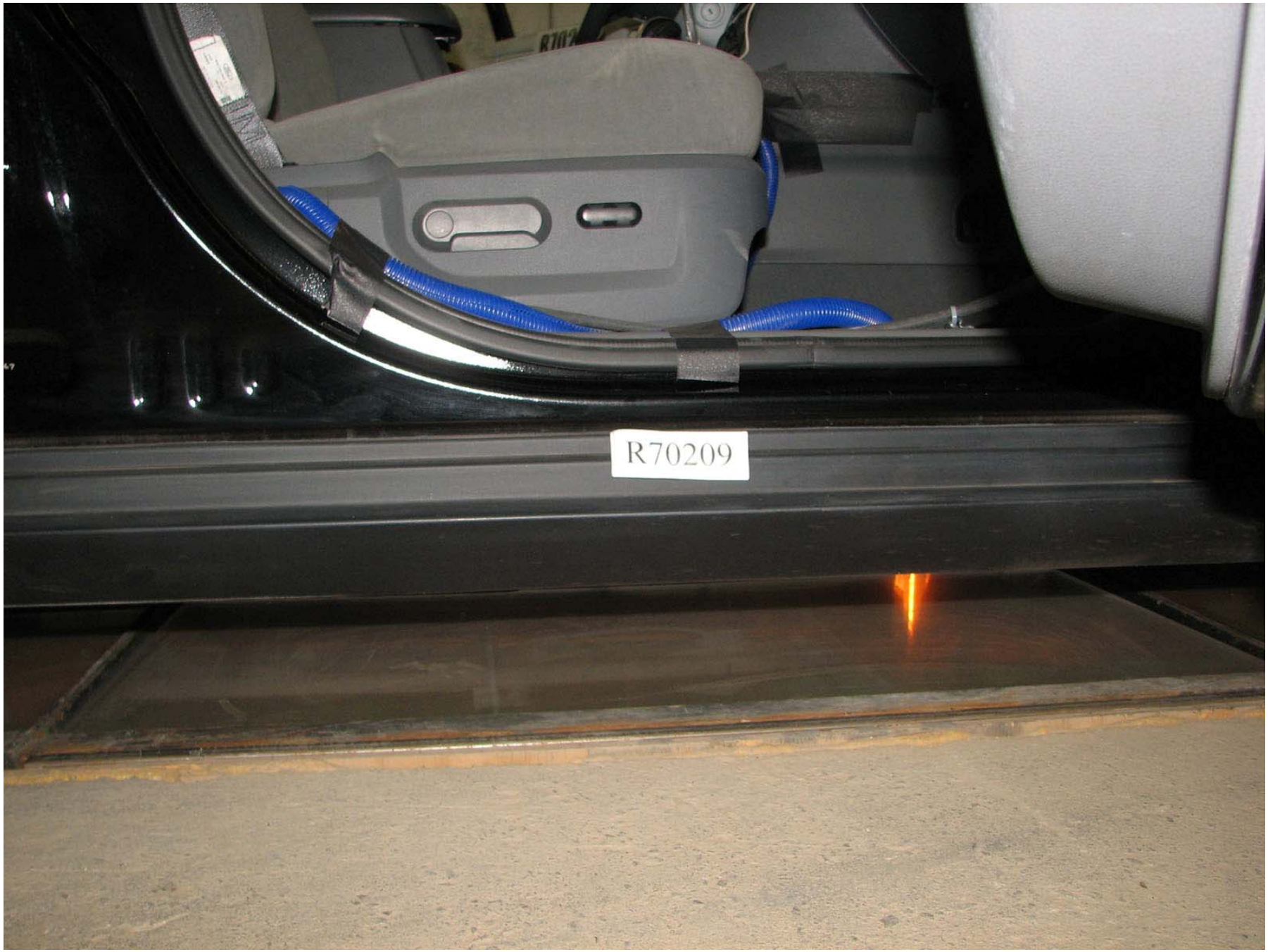

Figure A-93: Test Vehicle Pre-Test Right Front Sill Side View, Door Open

Figure A-94: Test Vehicle Post-Test Right Front Sill Side View, Door Open

Figure A-95: Test Vehicle Pre-Test Right Front Sill Rear ¾ View, Door Closed

Figure A-96: Test Vehicle Post-Test Right Front Sill Rear ¾ View, Door Closed

Figure A-97: Test Vehicle Pre-Test Right Front Sill Rear ¾ View, Door Open

Figure A-98: Test Vehicle Post-Test Right Front Sill Rear ¾ View, Door Open

Figure A-99: Test Vehicle Pre-Test Right Rear Sill Side View, Door Closed

Figure A-100: Test Vehicle Post-Test Right Rear Sill Side View, Door Closed

Figure A-101: Test Vehicle Pre-Test Right Rear Sill Side View, Door Open

Figure A-102: Test Vehicle Post-Test Right Rear Sill Side View, Door Open

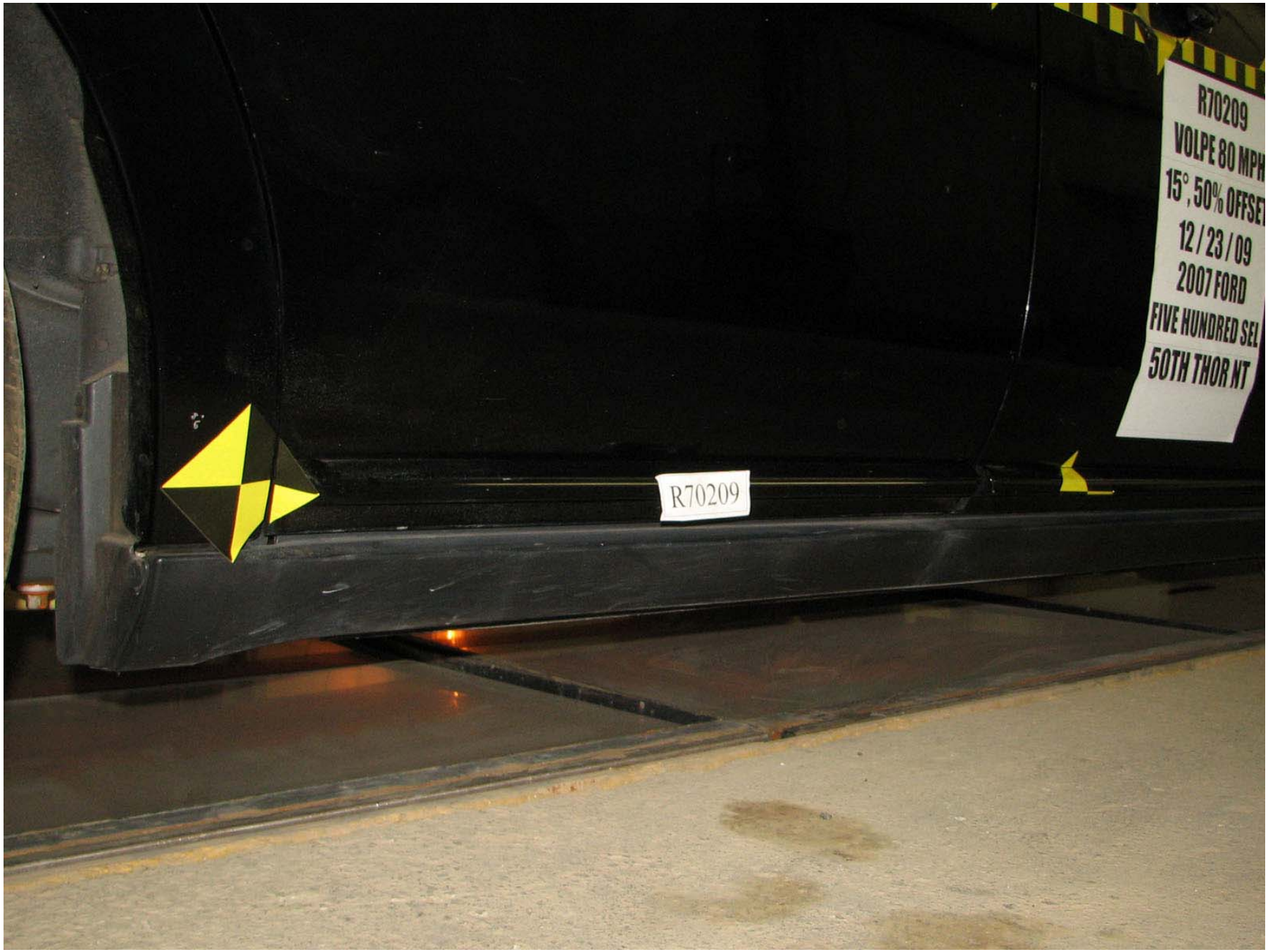

Figure A-103: Test Vehicle Pre-Test Right Rear Sill Rear ¾ View, Door Closed

Figure A-104: Test Vehicle Post-Test Right Rear Sill Rear ¾ View, Door Closed

Figure A-105: Test Vehicle Pre-Test Right Rear Sill Rear ¾ View, Door Open

Figure A-106: Test Vehicle Post-Test Right Rear Sill Rear ¾ View, Door Open

Figure A-107: Test Vehicle Pre-Test Left Front Wheel Side View

Figure A-108: Test Vehicle Post-Test Left Front Wheel Side View

Figure A-109: Test Vehicle Pre-Test Left Front Wheel Front ¾ View

Figure A-110: Test Vehicle Post-Test Left Front Wheel Front ¾ View

Figure A-111: Test Vehicle Pre-Test Left Front Wheel Rear ¾ View

Figure A-112: Test Vehicle Post-Test Left Front Wheel Rear ¾ View

Figure A-113: Test Vehicle Pre-Test Left Front Wheel Top View

Figure A-114: Test Vehicle Post-Test Left Front Wheel Top View

Figure A-115: Test Vehicle Post-Test Left Front Wheel A-Pillar/Rocker Contact

Figure A-116: Test Vehicle Post-Test Left Front Wheel Damage (Outside)

Figure A-117: Test Vehicle Post-Test Left Front Wheel Damage (Inside)

Figure A-118: Test Vehicle Post-Test Left Front Wheel Damage (Inside)

Figure A-119: Test Vehicle Post-Test Left Front Wheel Damage (Inside)

Figure A-120: Test Vehicle Pre-Test Right Front Wheel Side View

Figure A-121: Test Vehicle Post-Test Right Front Wheel Side View

Figure A-122: Test Vehicle Pre-Test Right Front Wheel Front ¾ View

Figure A-123: Test Vehicle Post-Test Right Front Wheel Front ¾ View

Figure A-124: Test Vehicle Pre-Test Right Front Wheel Rear ¾ View

Figure A-125: Test Vehicle Post-Test Right Front Wheel Rear ¾ View

Figure A-126: Test Vehicle Pre-Test Right Front Wheel Top View

Figure A-127: Test Vehicle Post-Test Right Front Wheel Top View

Figure A-128: Test Vehicle Post-Test Right Front Wheel A-Pillar/Rocker Contact

Figure A-129: Test Vehicle Post-Test Right Front Wheel A-Pillar/Rocker Contact

Figure A-130: Test Vehicle Post-Test Right Front Wheel A-Pillar/Rocker Contact

Figure A-131: Test Vehicle Post-Test Right Front Wheel Damage (Outside)

Figure A-132: Test Vehicle Post-Test Right Front Wheel Damage (Inside)

Figure A-133: Test Vehicle Pre-Test Left Front Wheel Well (Tire On)

Figure A-134: Test Vehicle Post-Test Left Front Wheel Well

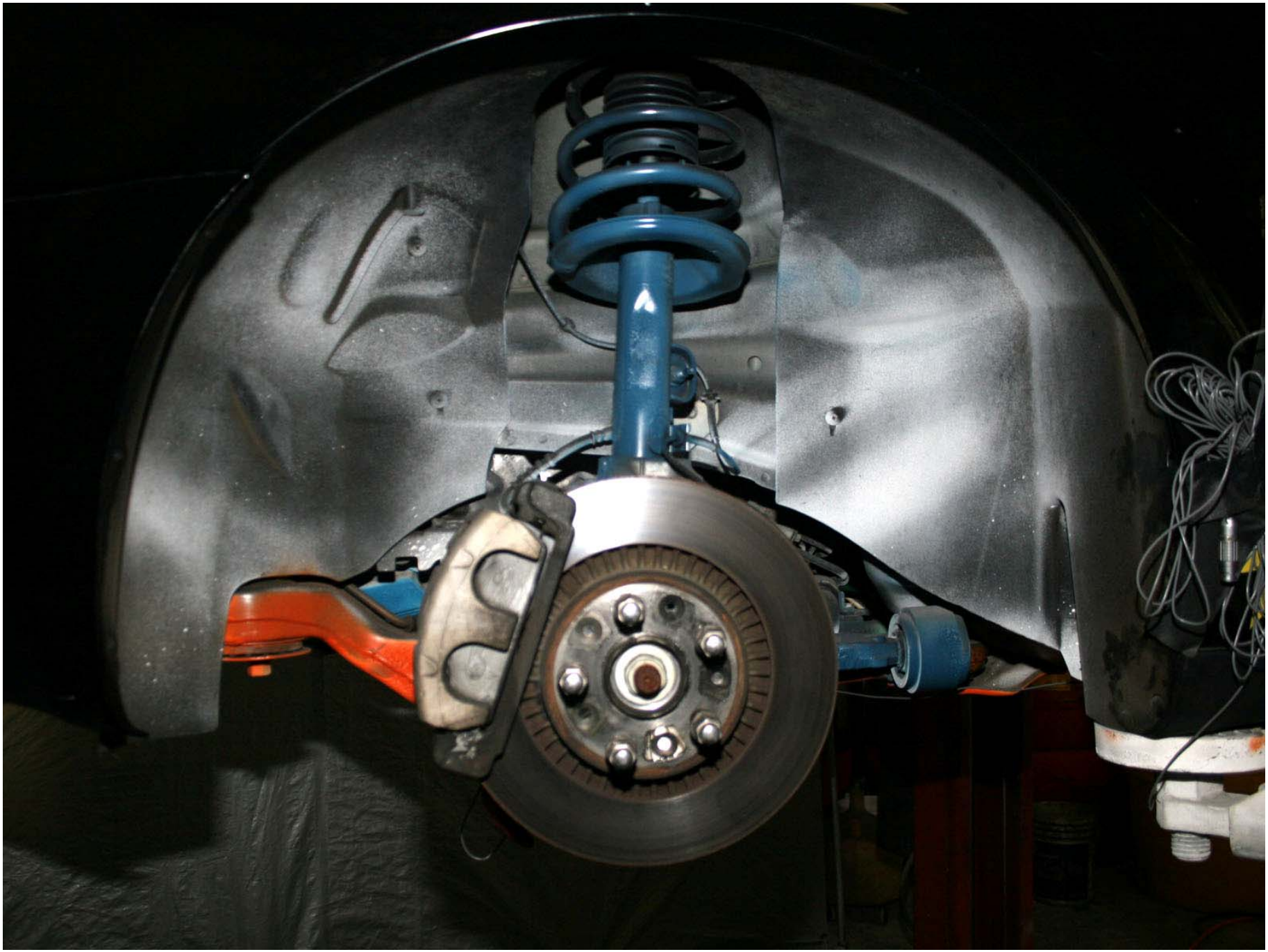

Figure A-135: Test Vehicle Pre-Test Left Front Wheel Well (Tire Off)

Figure A-136: Test Vehicle Post-Test Left Front Wheel Well (Tire Off)

Figure A-137: Test Vehicle Pre-Test Left Front Wheel Well (Tire Off), Inner Fender Removed

Figure A-138: Test Vehicle Post-Test Left Front Wheel Well (Tire Off), Inner Fender Removed

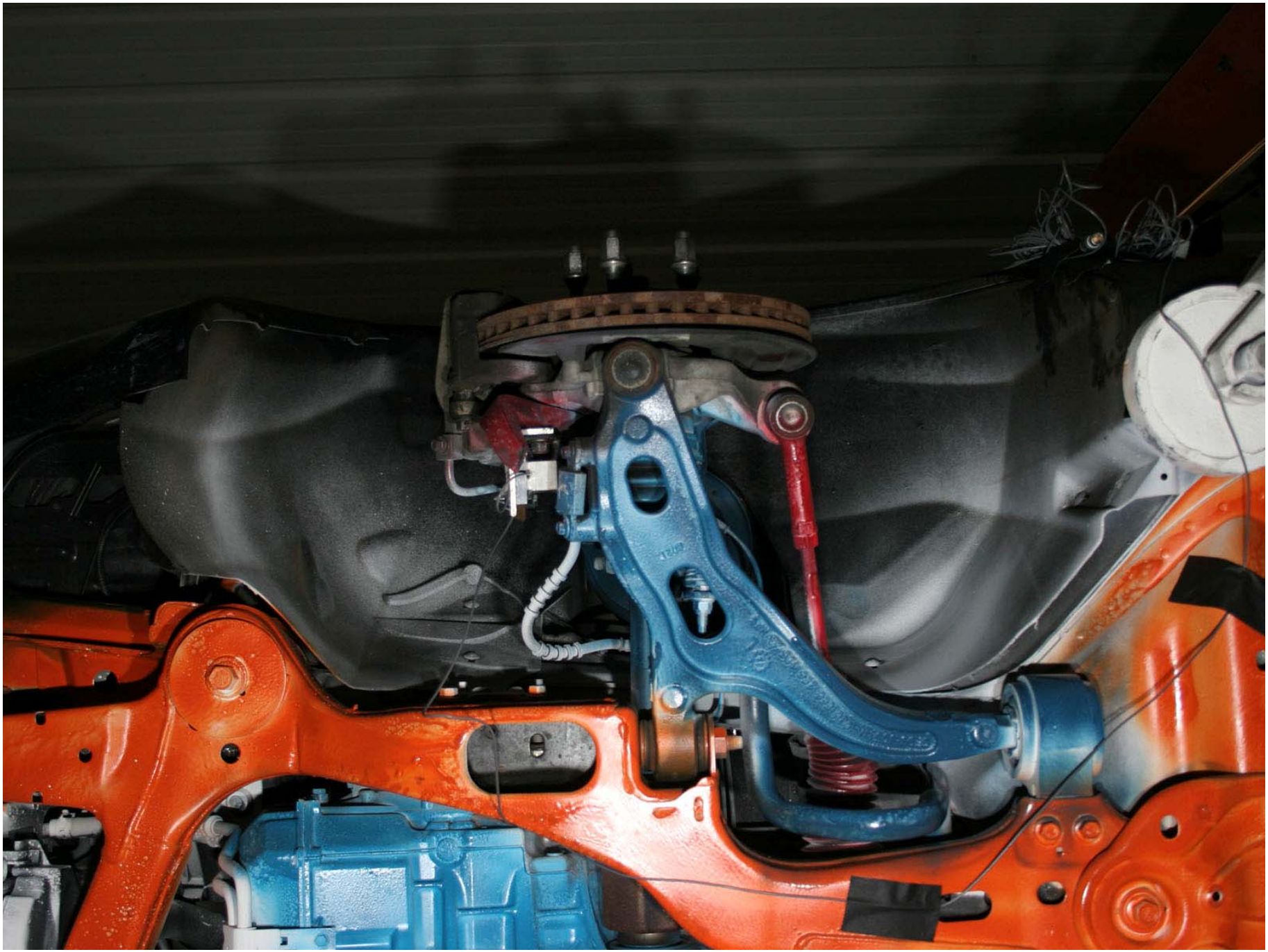

Figure A-139: Test Vehicle Pre-Test Left Inner Fender Well View

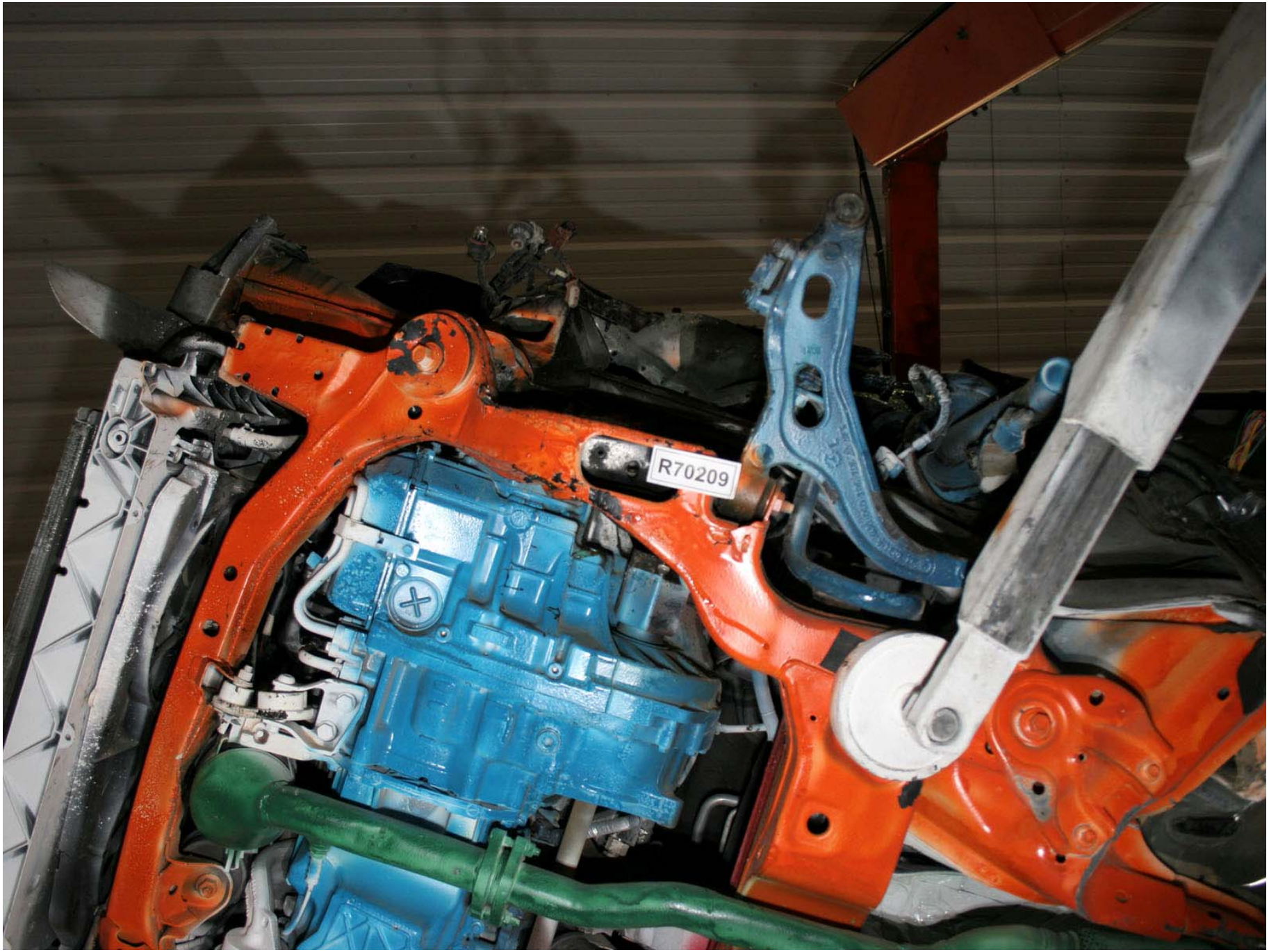

Figure A-140: Test Vehicle Post-Test Left Inner Fender Well View

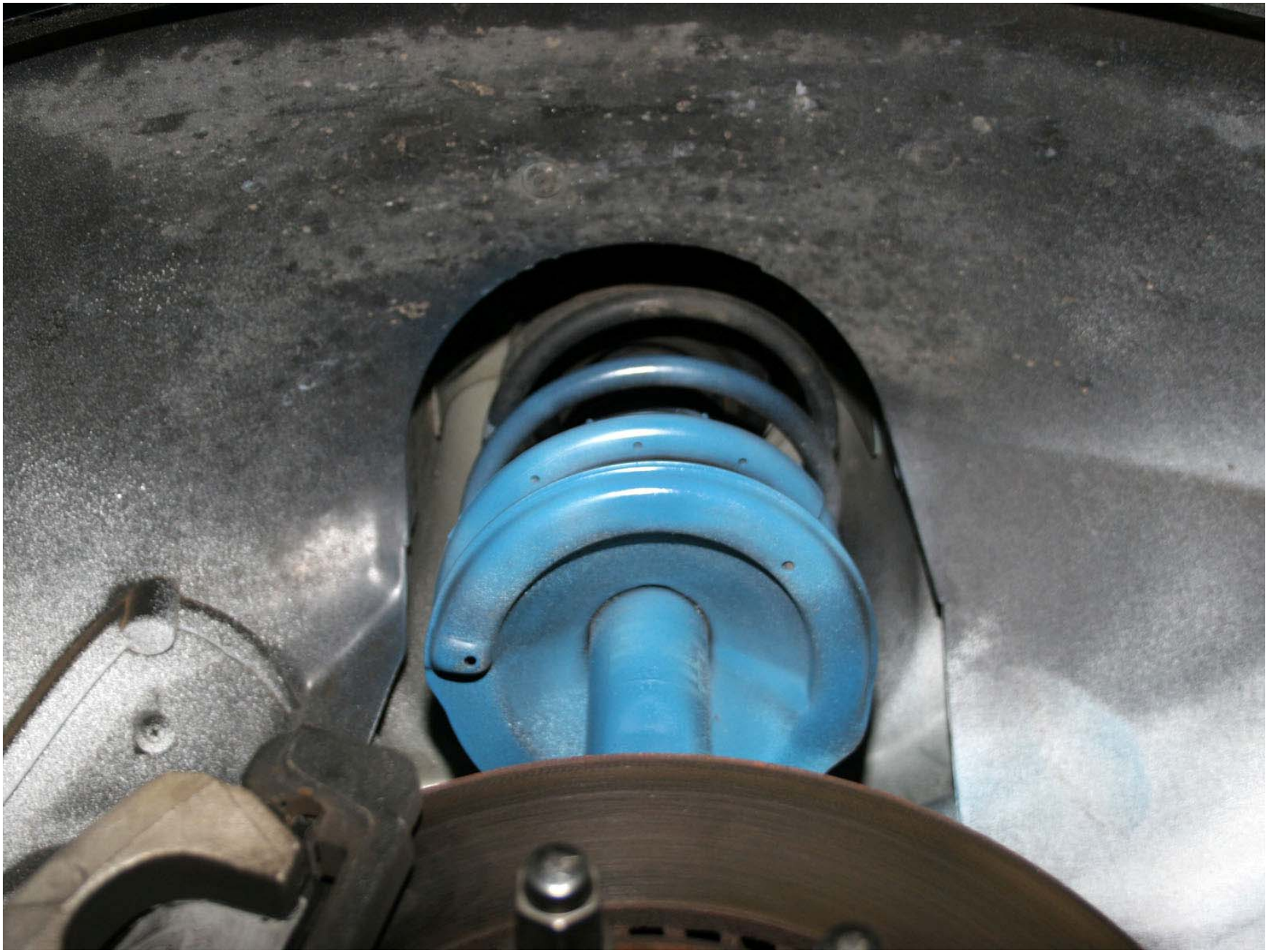

Figure A-141: Test Vehicle Pre-Test Left Inner Fender Well View

Figure A-142: Test Vehicle Post-Test Left Inner Fender Well View

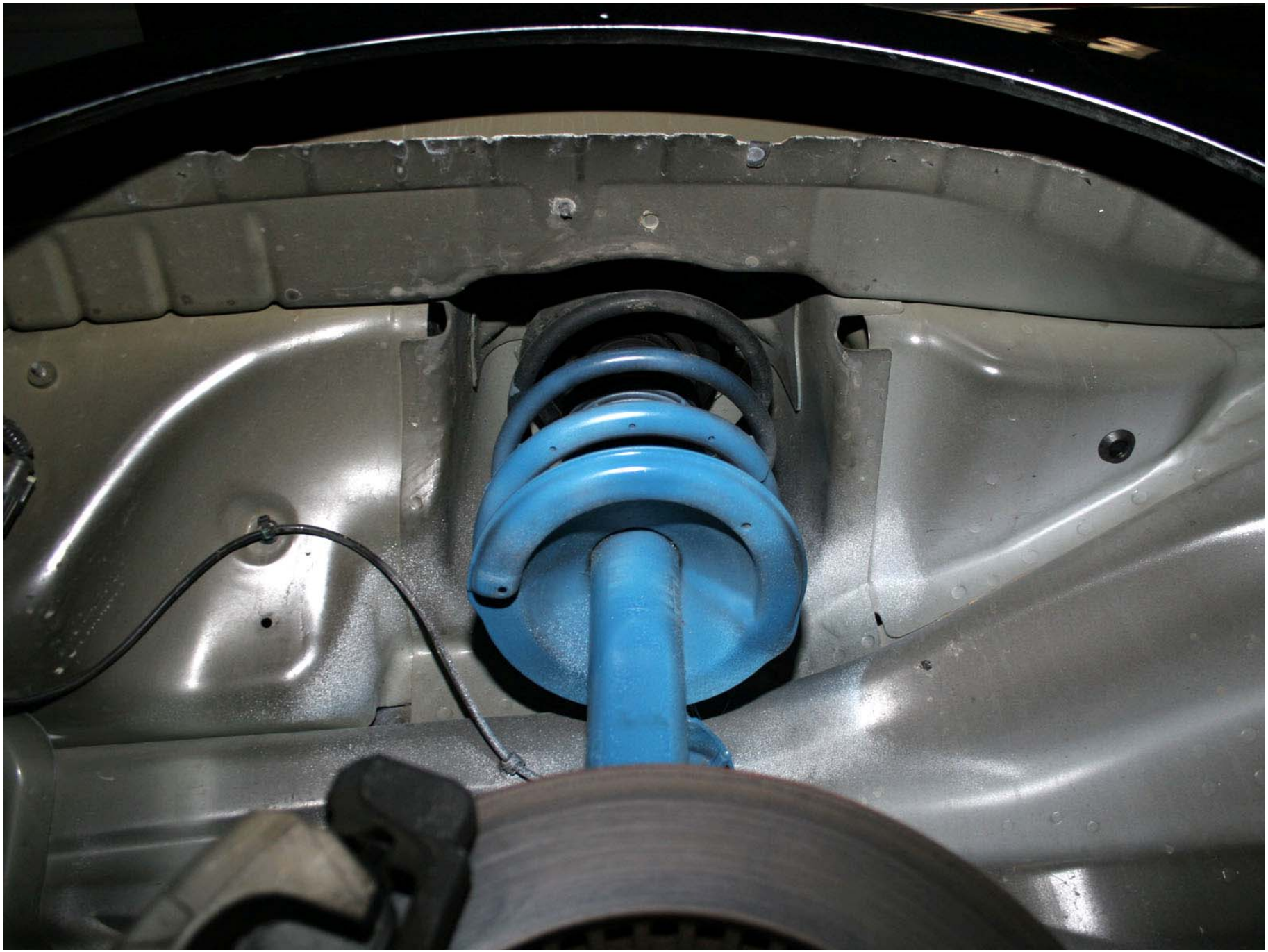

Figure A-143: Test Vehicle Pre-Test Left Inner Fender Well View

Figure A-144: Test Vehicle Post-Test Left Inner Fender Well View

Figure A-145: Test Vehicle Pre-Test Top Fender View

Figure A-146: Test Vehicle Post-Test Top Fender View

Figure A-147: Test Vehicle Pre-Test Left Front Frame Rail View

Figure A-148: Test Vehicle Post-Test Left Front Frame Rail View

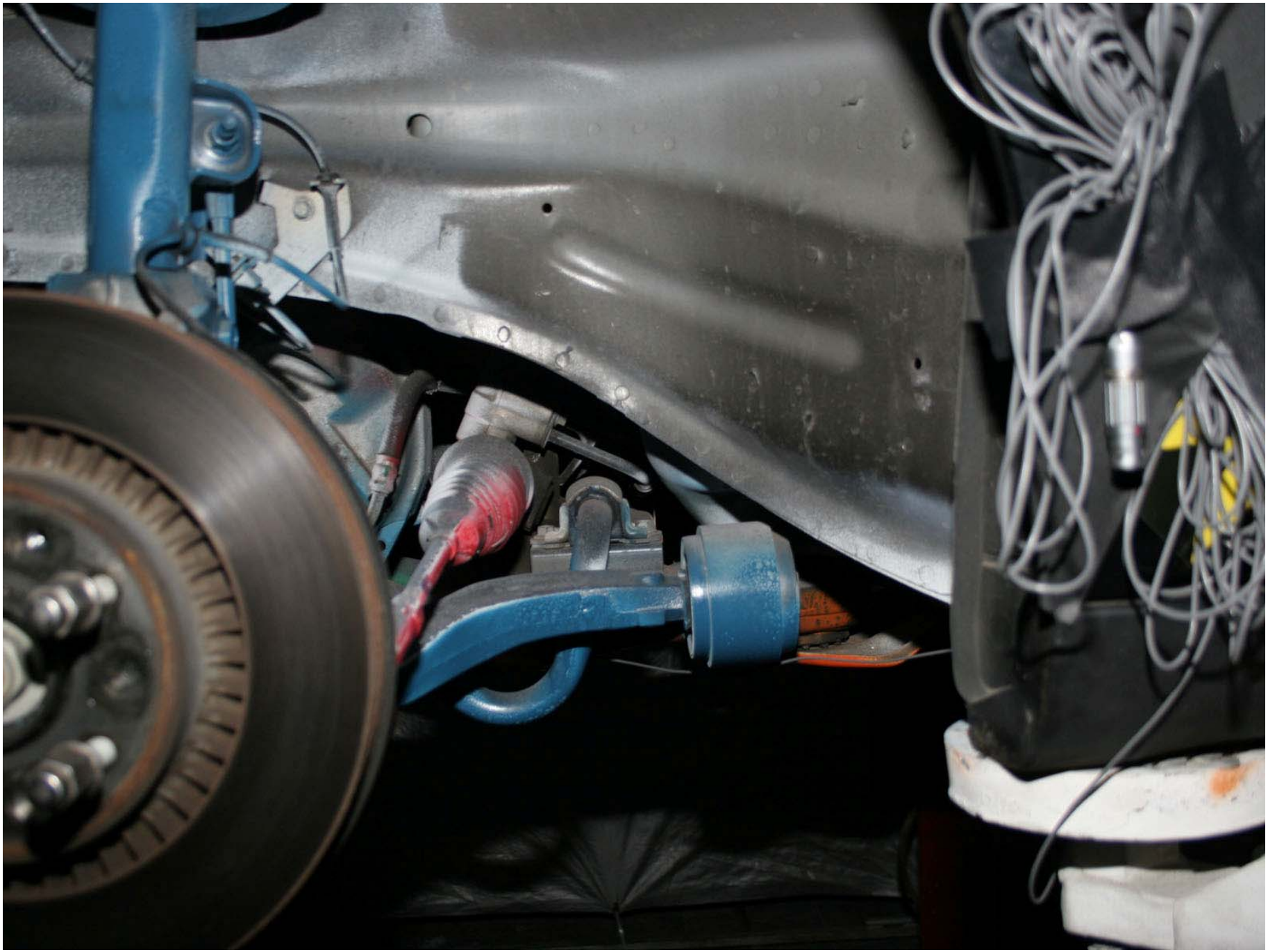

Figure A-149: Test Vehicle Pre-Test Left Front Frame Rail View

Figure A-150: Test Vehicle Post-Test Left Front Frame Rail View

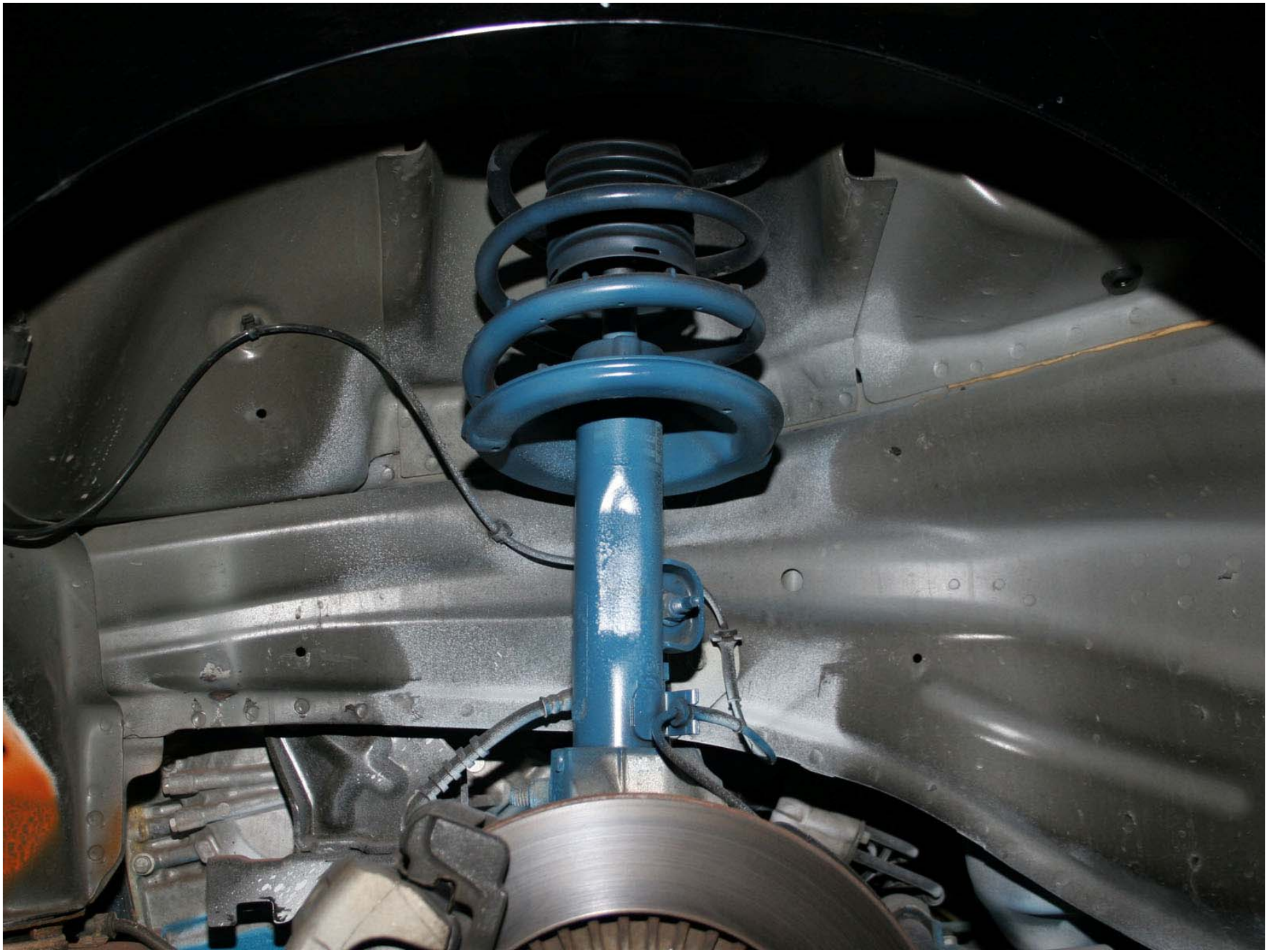

Figure A-151: Test Vehicle Pre-Test Left Front Frame Rail View

Figure A-152: Test Vehicle Post-Test Left Front Frame Rail View

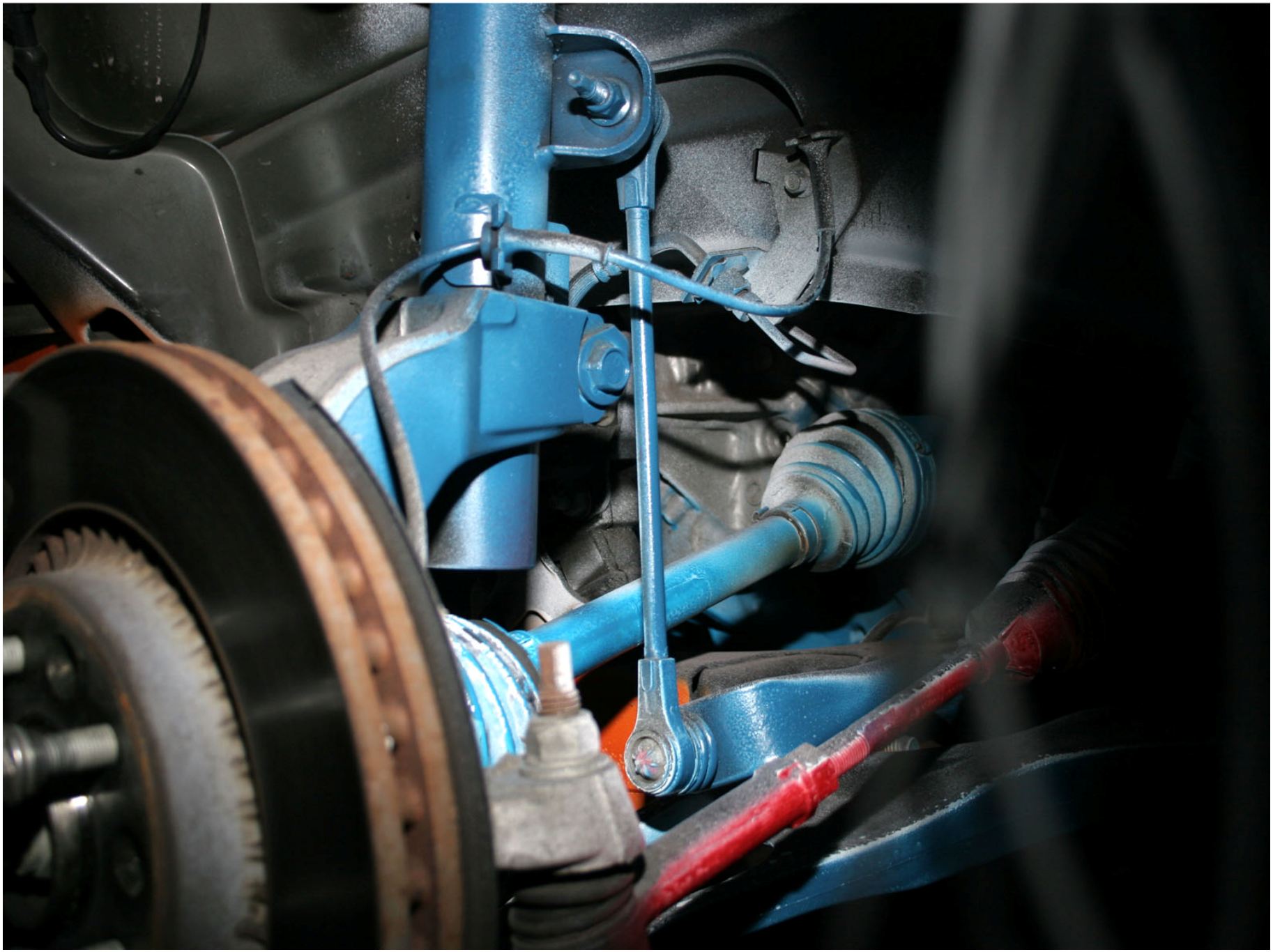

Figure A-153: Test Vehicle Pre-Test Left Side Tie Rod and Sway Bar Attachments Points

Figure A-154: Test Vehicle Post-Test Left Side Tie Rod and Sway Bar Attachments Points

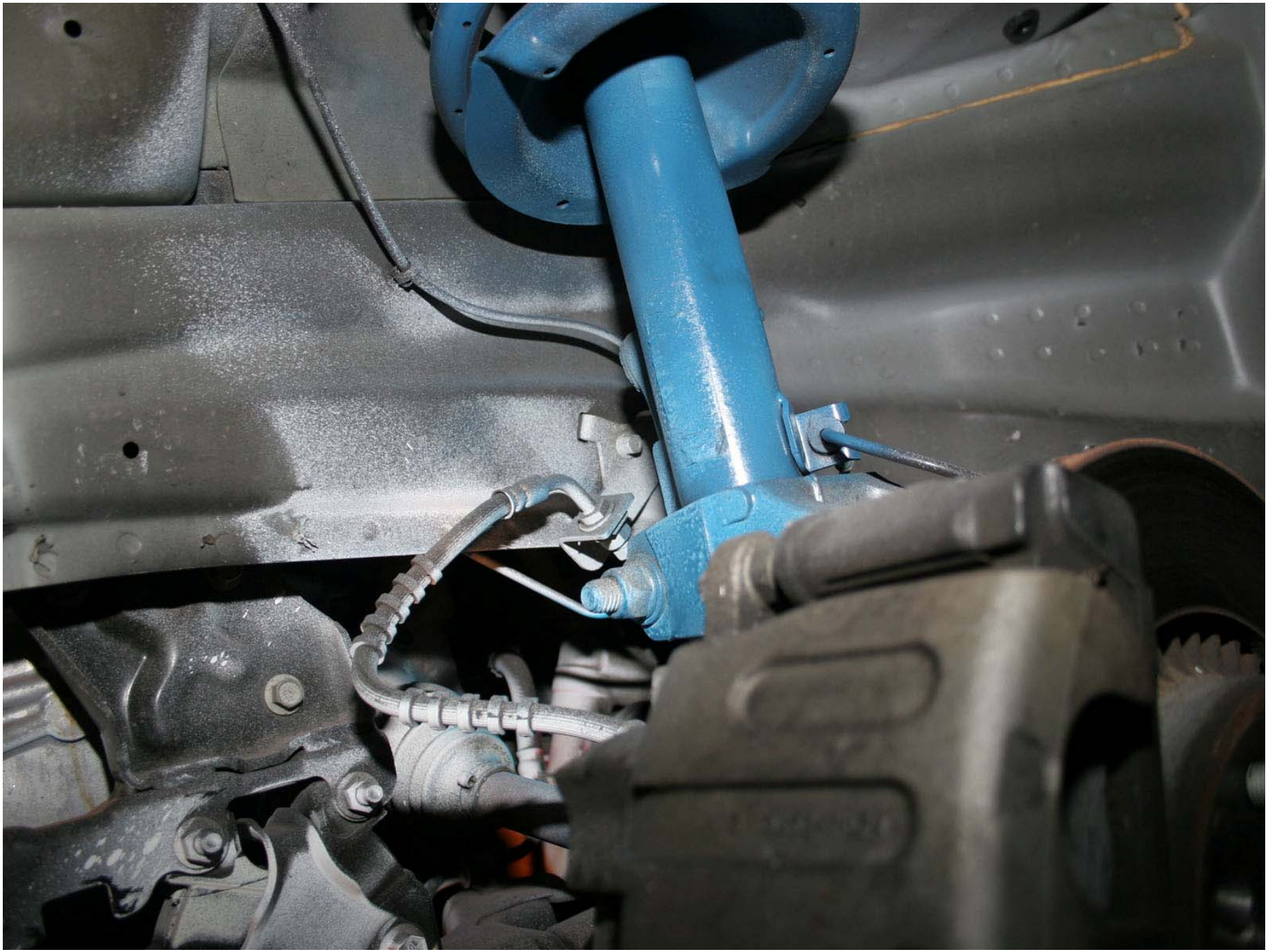

Figure A-155: Test Vehicle Pre-Test Left Side Upper Sway Bar Attachment Point

Figure A-156: Test Vehicle Post-Test Left Side Upper Sway Bar Attachment Point

Figure A-157: Test Vehicle Pre-Test Left Side Frame to A-Pillar Joint

Figure A-158: Test Vehicle Post-Test Left Side Frame to A-Pillar Joint

Figure A-159: Test Vehicle Pre-Test Left Side Crush Initiators

Figure A-160: Test Vehicle Post-Test Left Side Crush Initiators

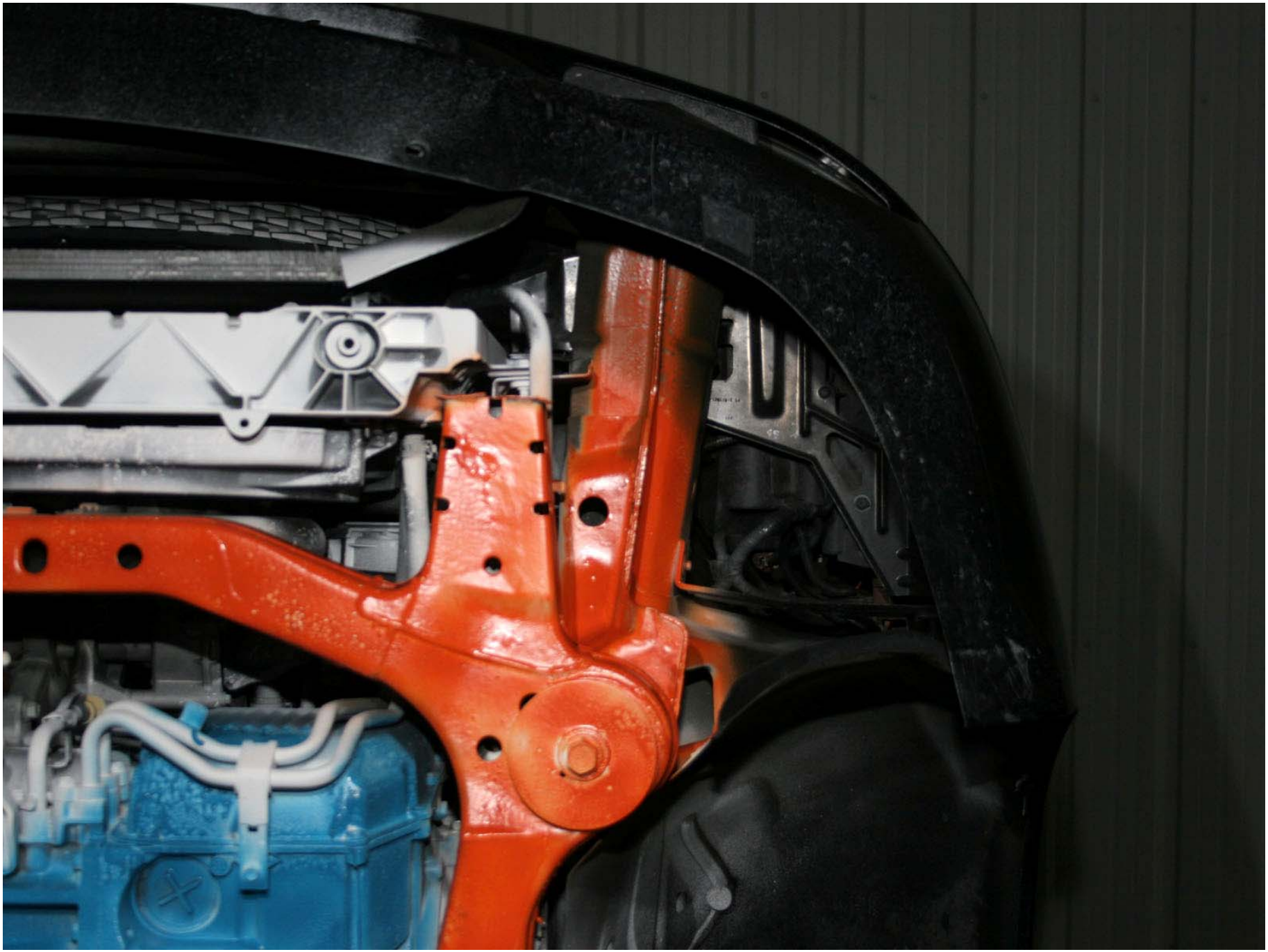

Figure A-161: Test Vehicle Pre-Test Left Side Crush Initiators

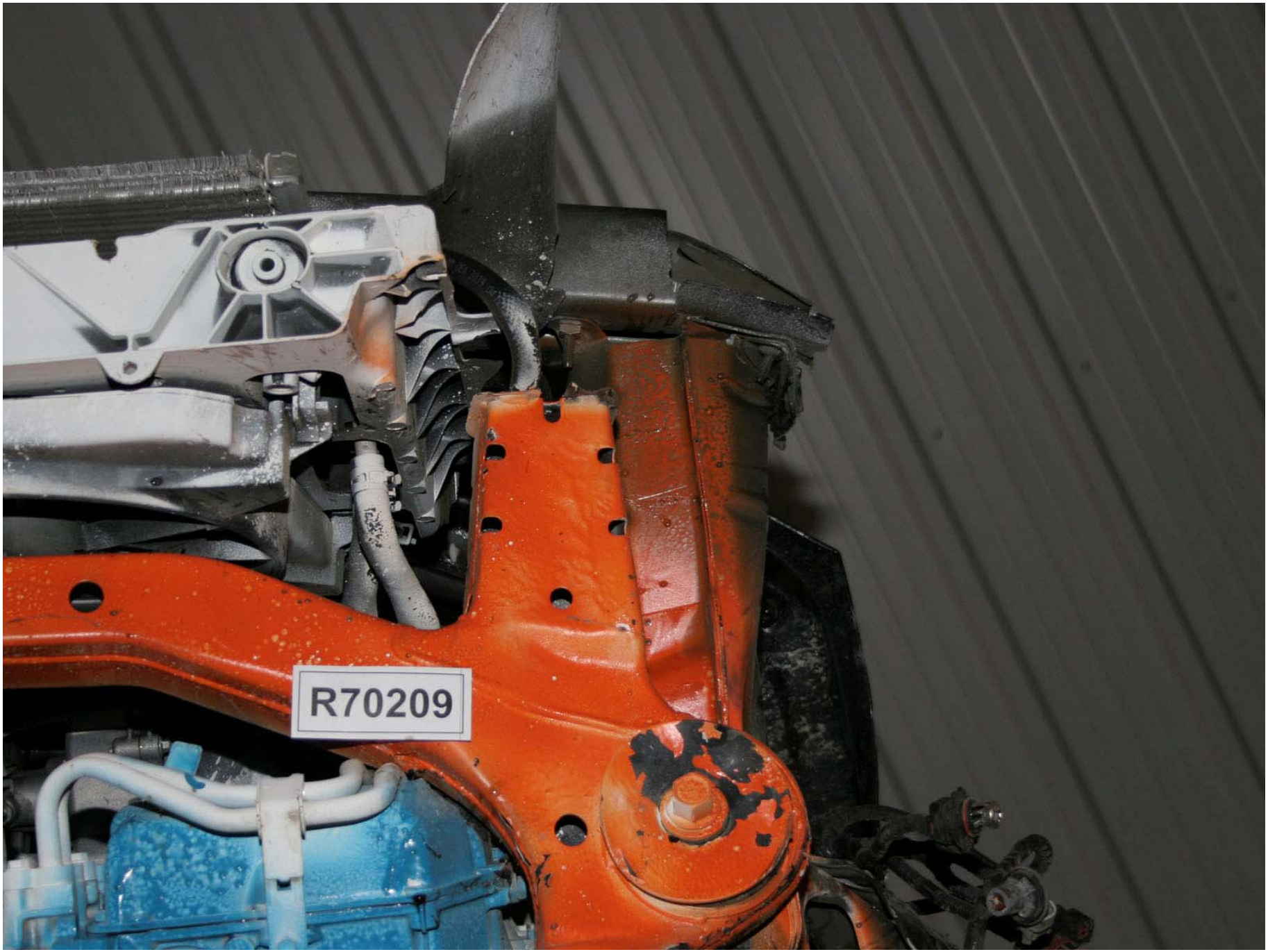

Figure A-162: Test Vehicle Post-Test Left Side Crush Initiators

Figure A-163: Test Vehicle Pre-Test Left Side Bumper Attachment Point

Figure A-164: Test Vehicle Post-Test Left Side Bumper Attachment Point

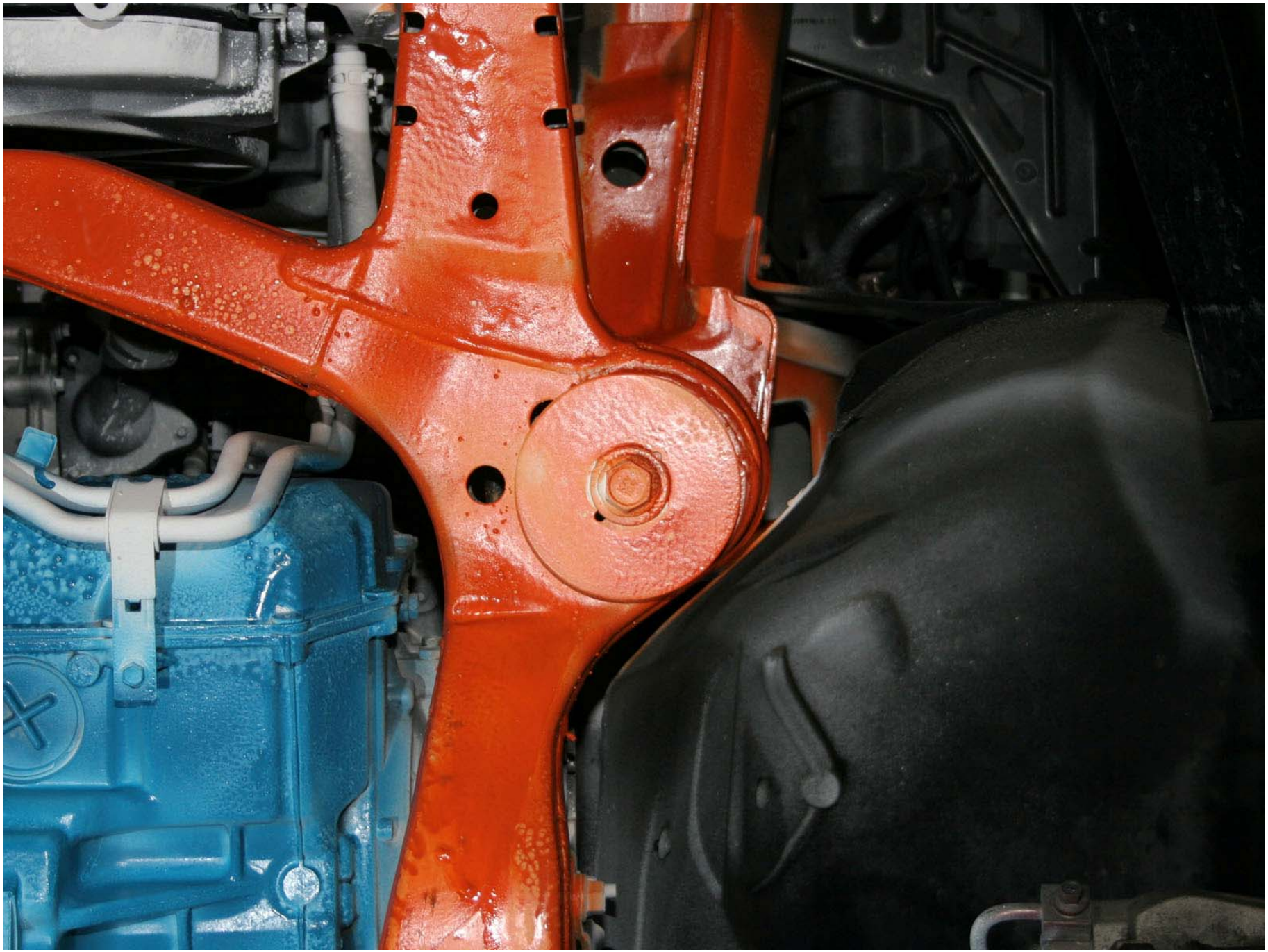

Figure A-165: Test Vehicle Pre-Test Left Front Sub-Frame Mounting Point

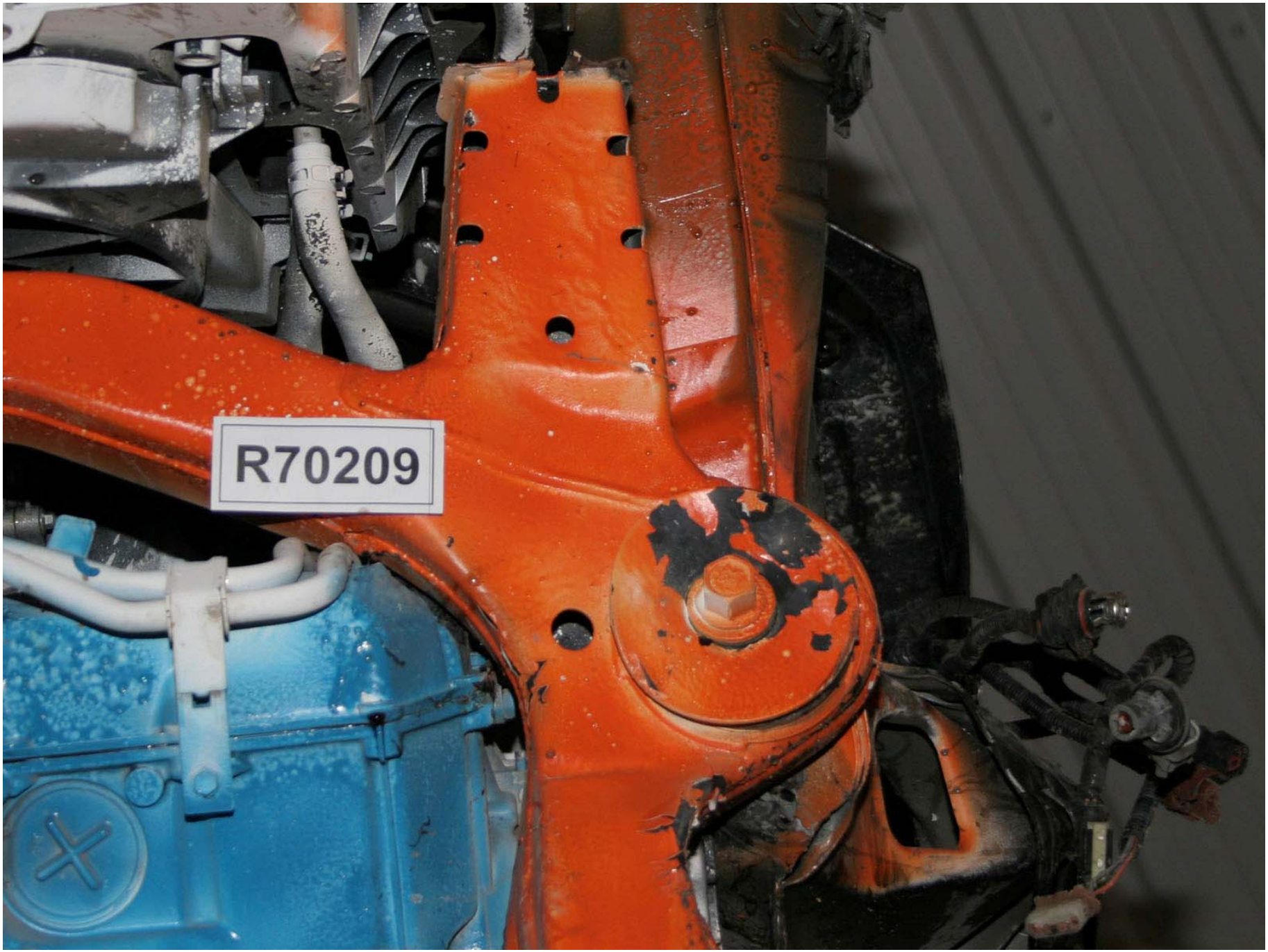

Figure A-166: Test Vehicle Post-Test Left Front Sub-Frame Mounting Point

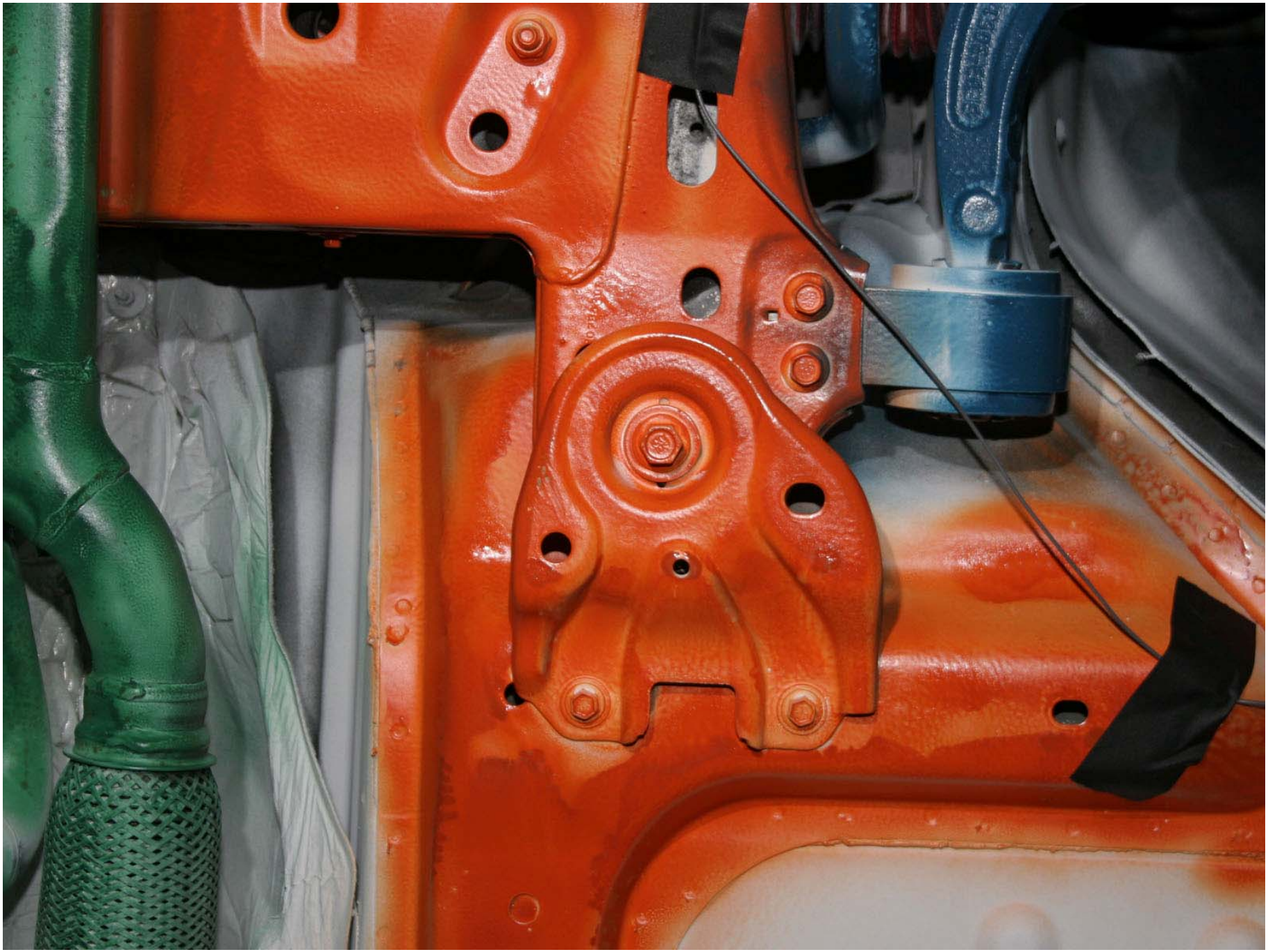

Figure A-167: Test Vehicle Pre-Test Left Rear Sub-Frame Mounting Point

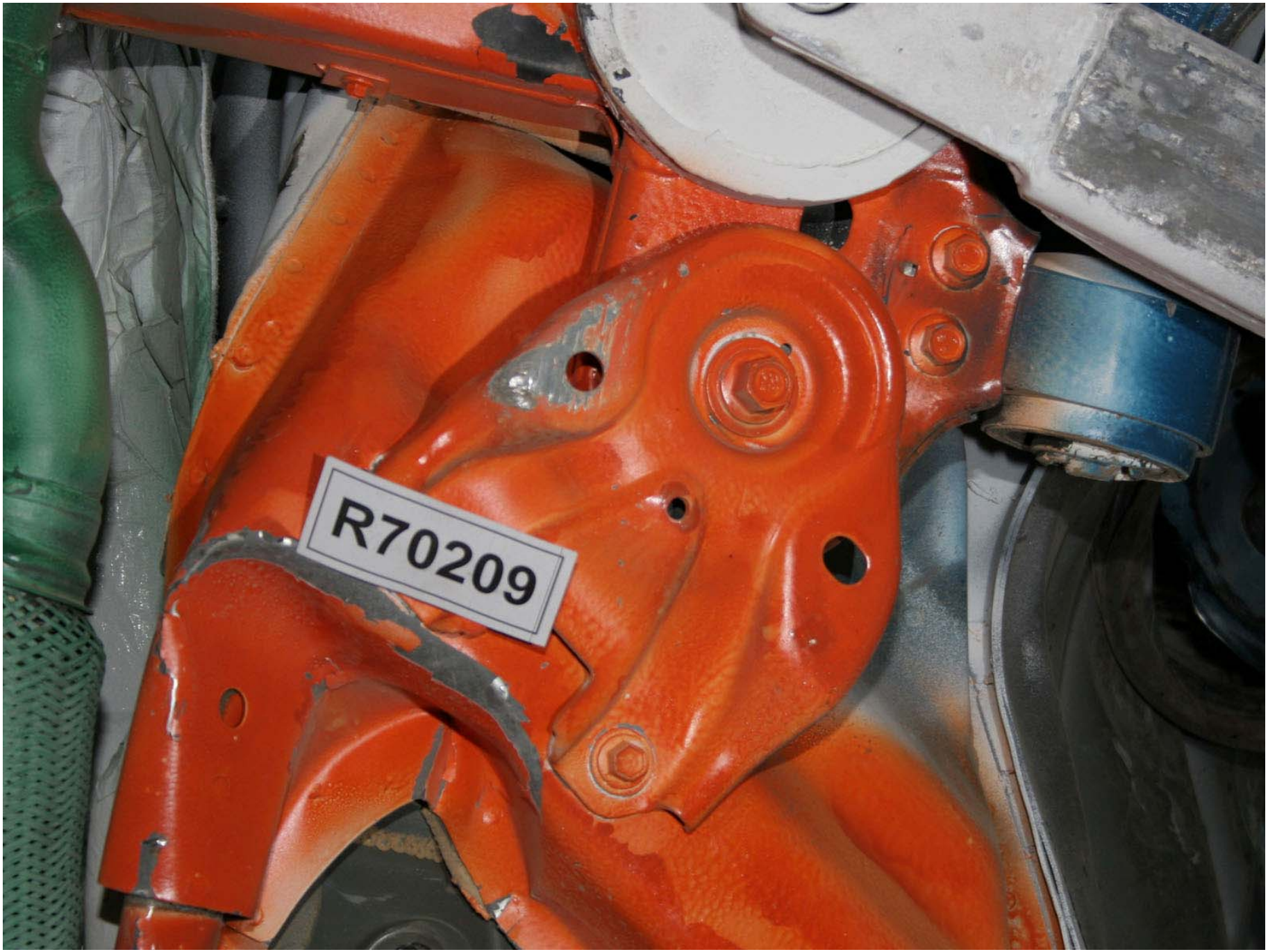

Figure A-168: Test Vehicle Post-Test Left Rear Sub-Frame Mounting Point

Figure A-169: Test Vehicle Pre-Test Right Front Wheel Well (Tire On)

Figure A-170: Test Vehicle Post-Test Right Front Wheel Well (Tire On)

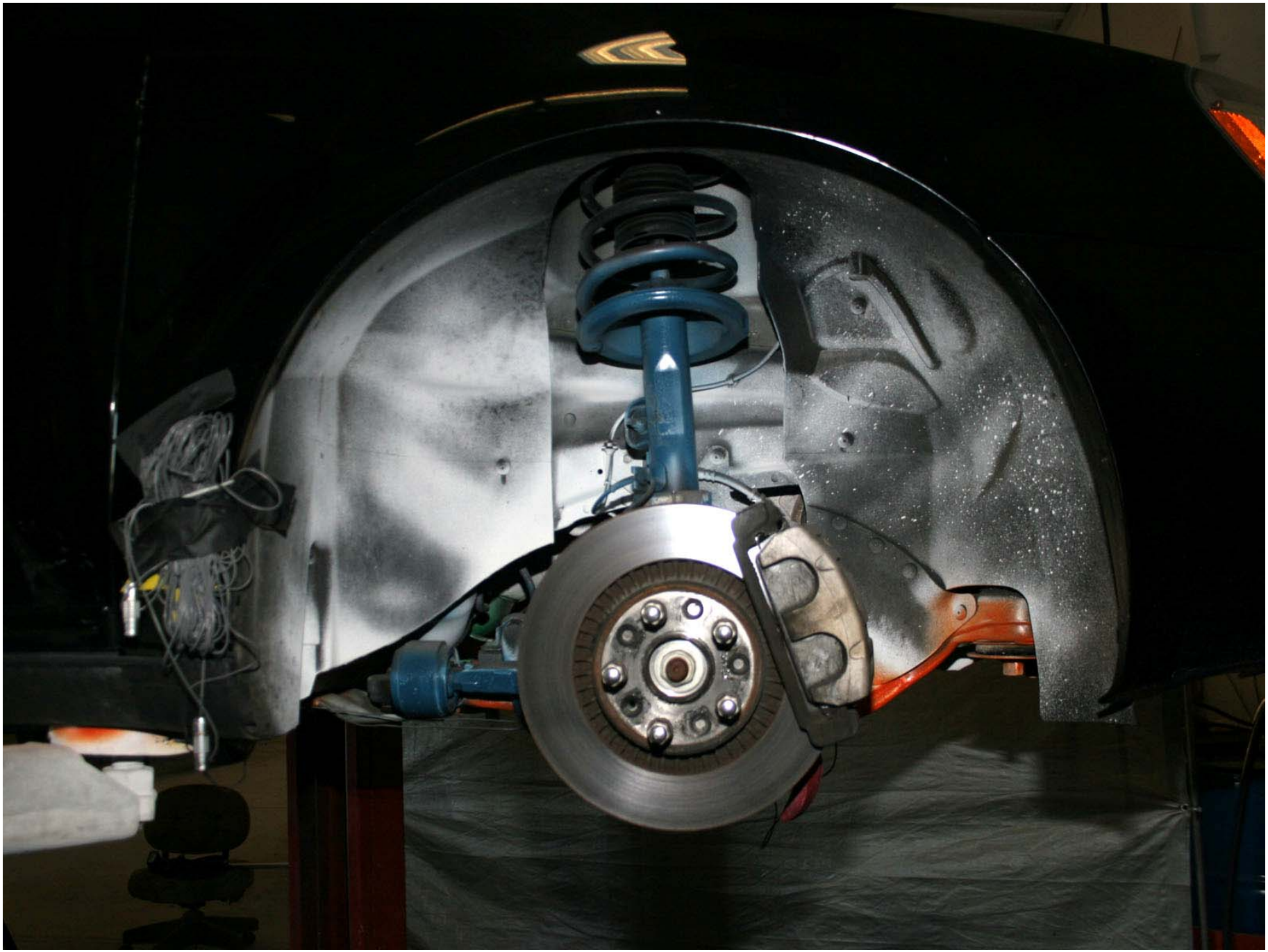

Figure A-171: Test Vehicle Pre-Test Right Front Wheel Well (Tire Off)

Figure A-172: Test Vehicle Post-Test Right Front Wheel Well (Tire Off)

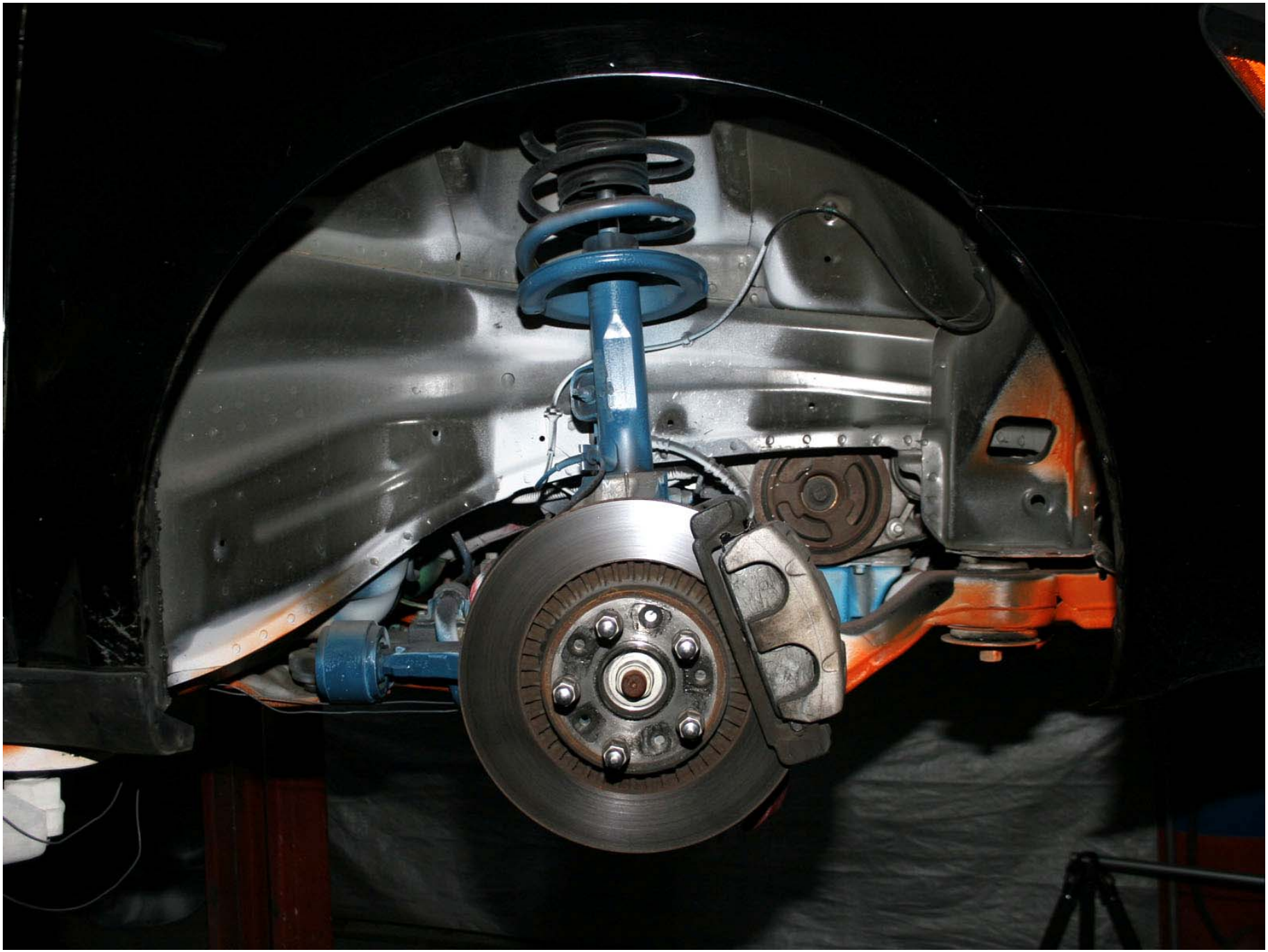

Figure A-173: Test Vehicle Pre-Test Right Front Wheel Well (Tire Off), Inner Fender Removed

Figure A-174: Test Vehicle Post-Test Right Front Wheel Well (Tire Off), Inner Fender Removed

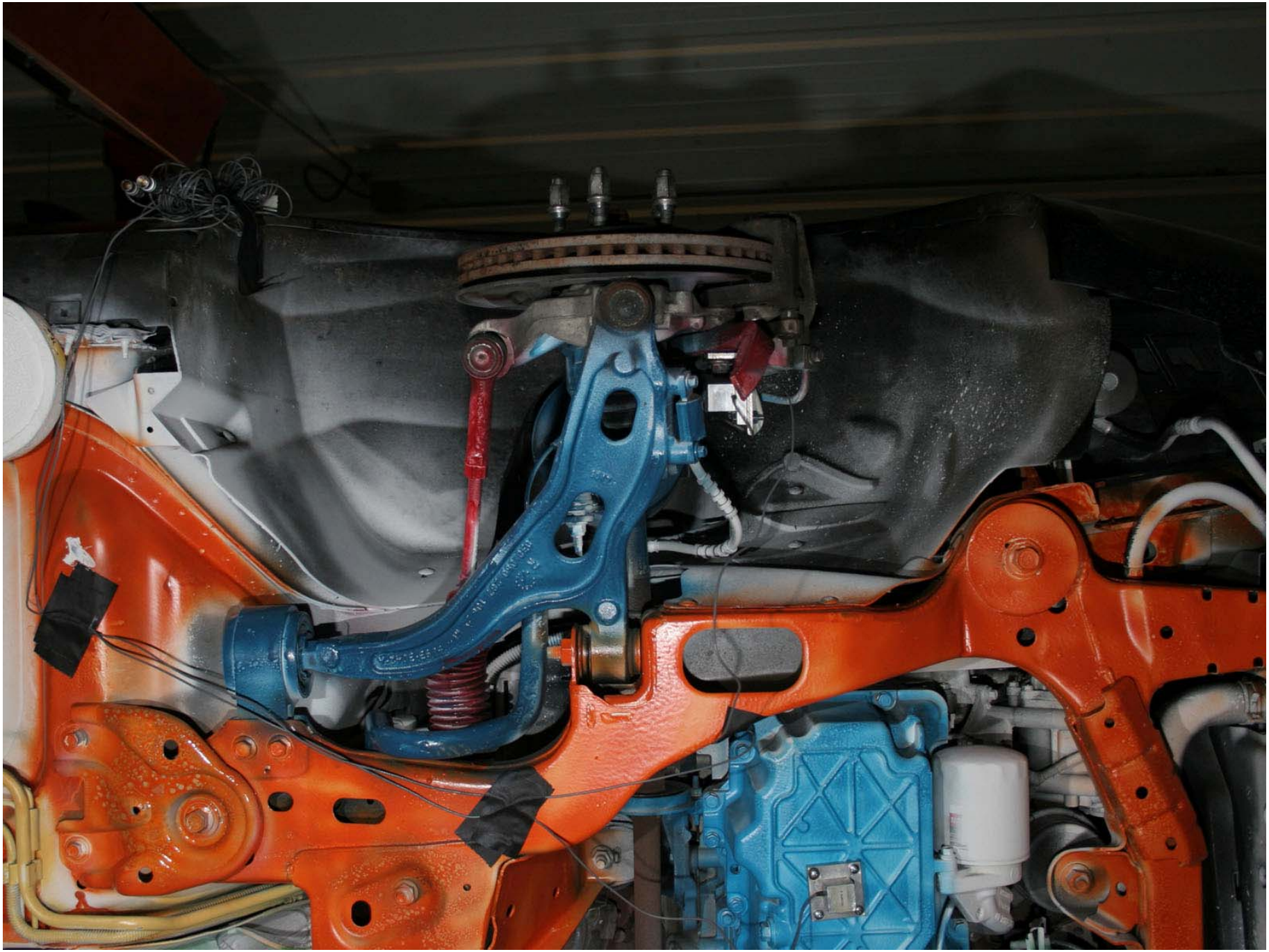

Figure A-175: Test Vehicle Pre-Test Right Inner Fender Well View

Figure A-176: Test Vehicle Post-Test Right Inner Fender Well View

Figure A-177: Test Vehicle Pre-Test Right Inner Fender Well View

Figure A-178: Test Vehicle Post-Test Right Inner Fender Well View

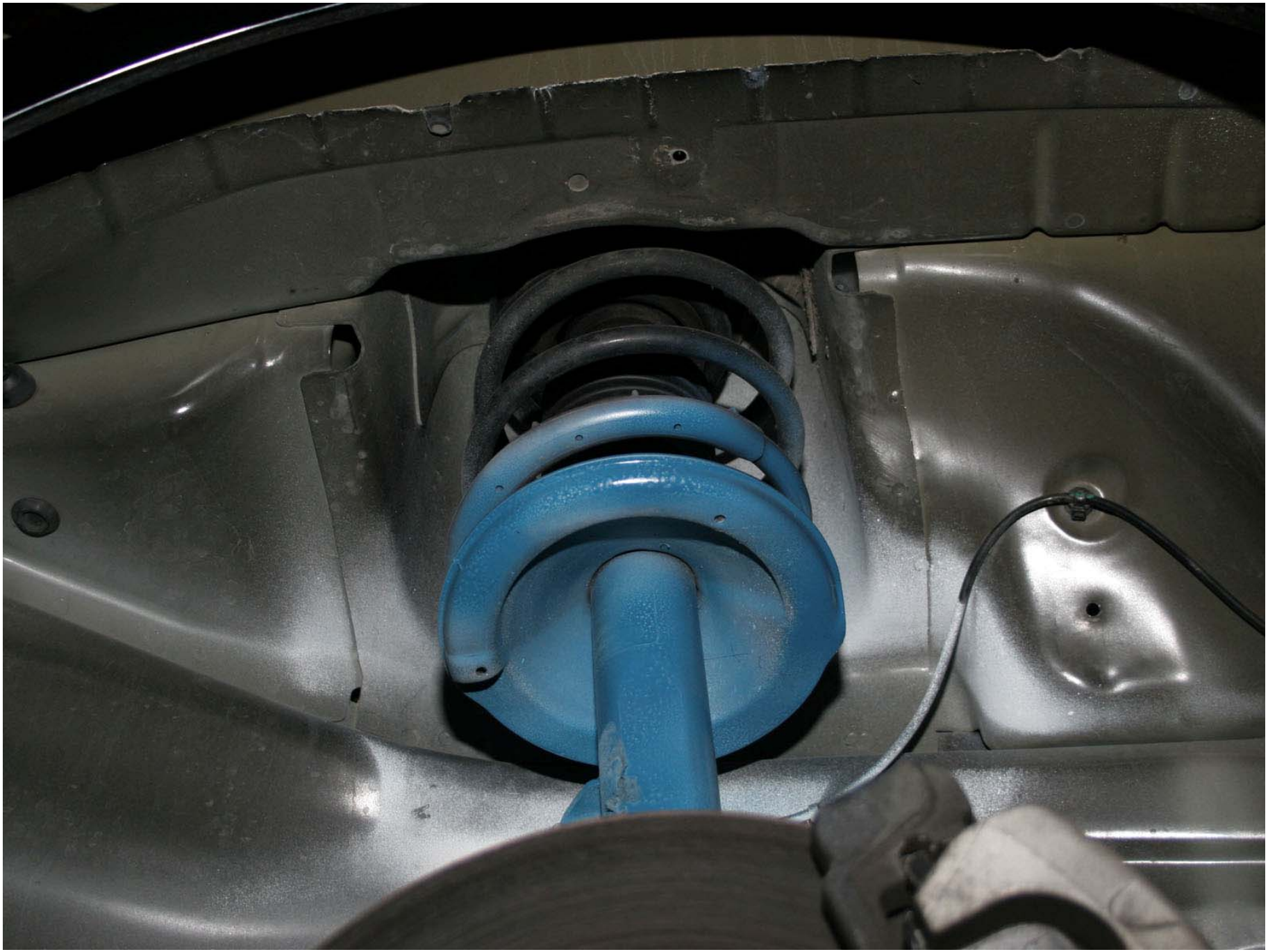

Figure A-179: Test Vehicle Pre-Test Right Inner Fender Well View

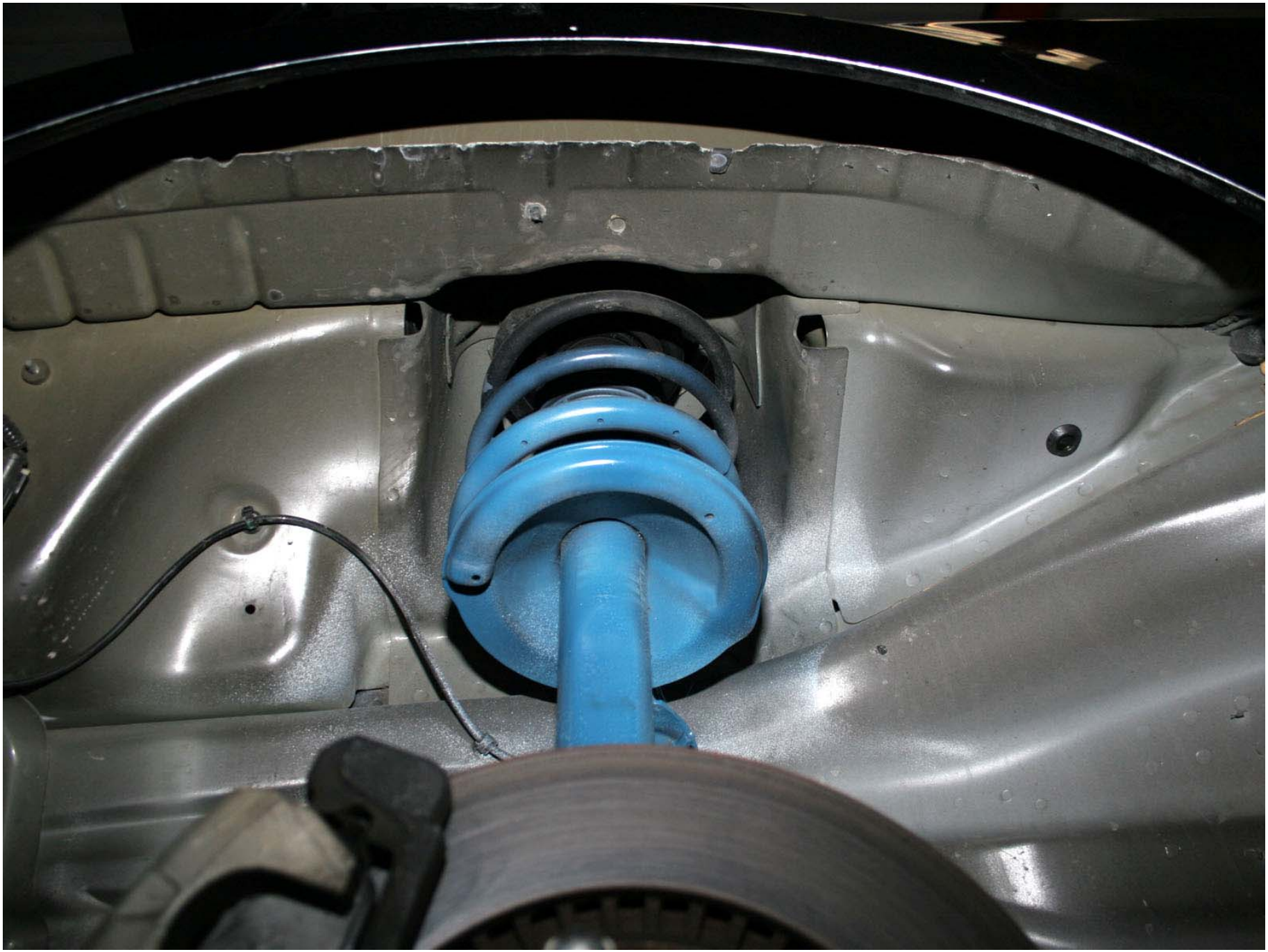

Figure A-180: Test Vehicle Post-Test Right Inner Fender Well View

Figure A-181: Test Vehicle Pre-Test Top Fender View

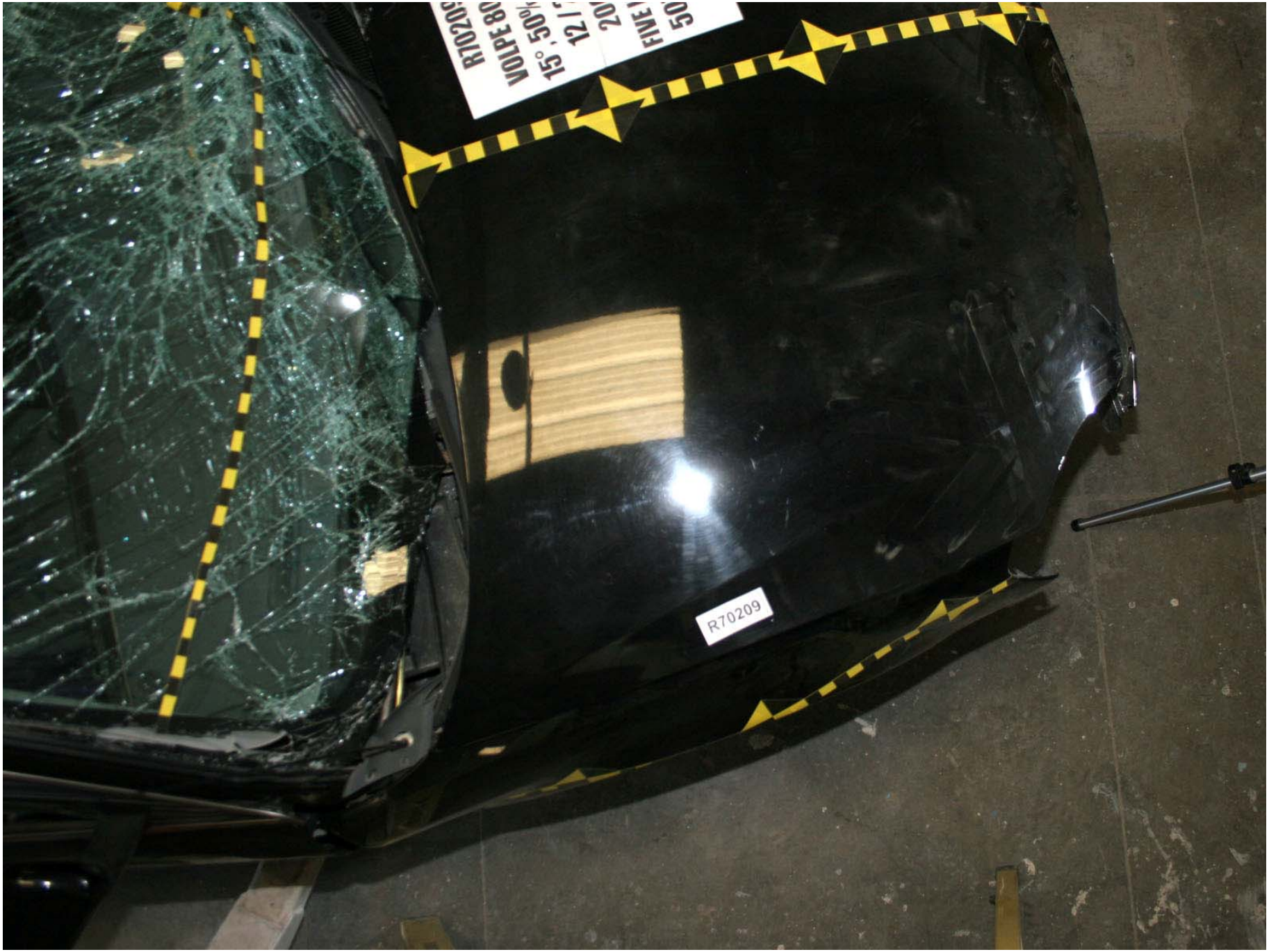

Figure A-182: Test Vehicle Post-Test Top Fender View

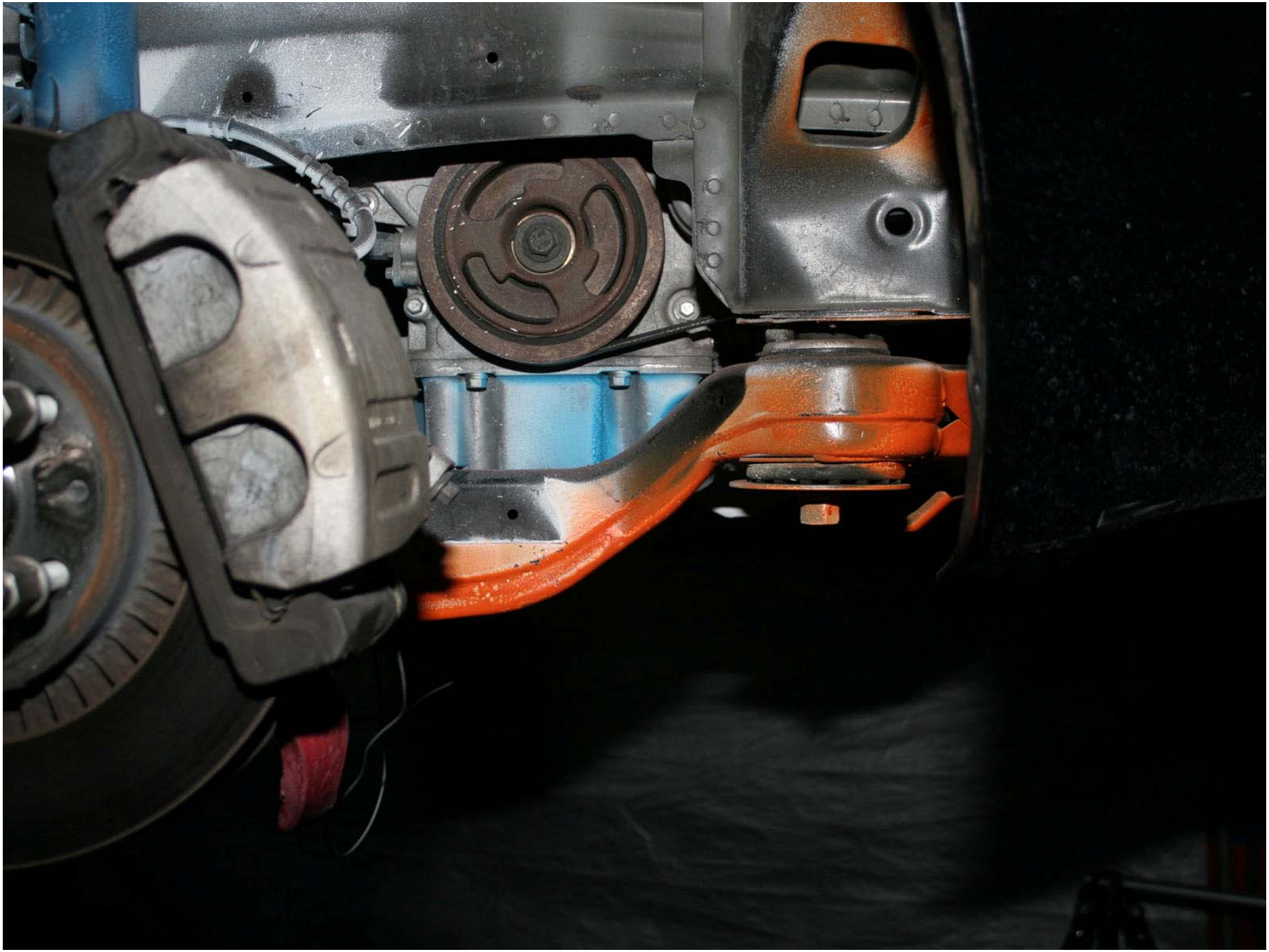

Figure A-183: Test Vehicle Pre-Test Right Front Frame Rail View

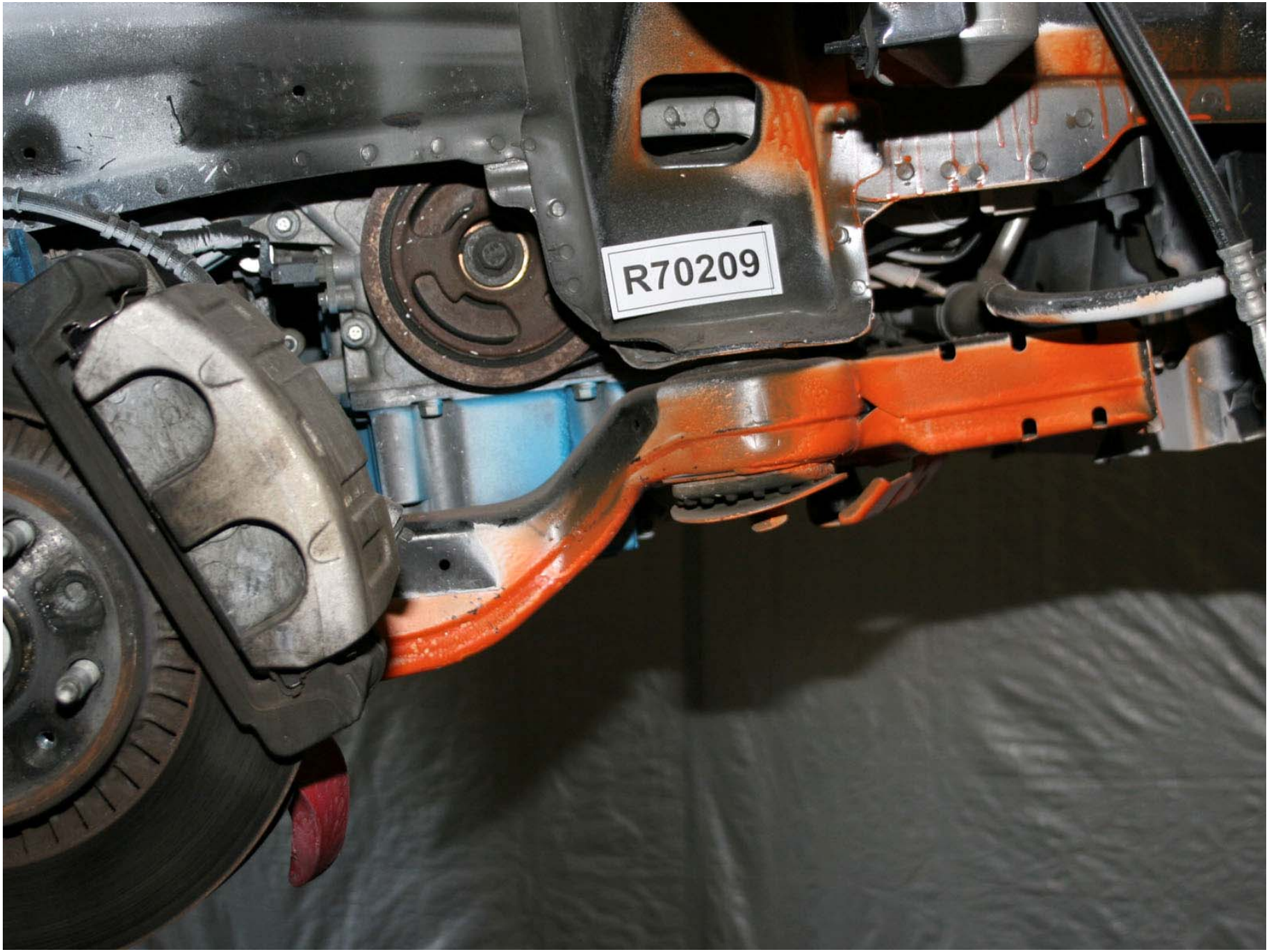

Figure A-184: Test Vehicle Post-Test Right Front Frame Rail View

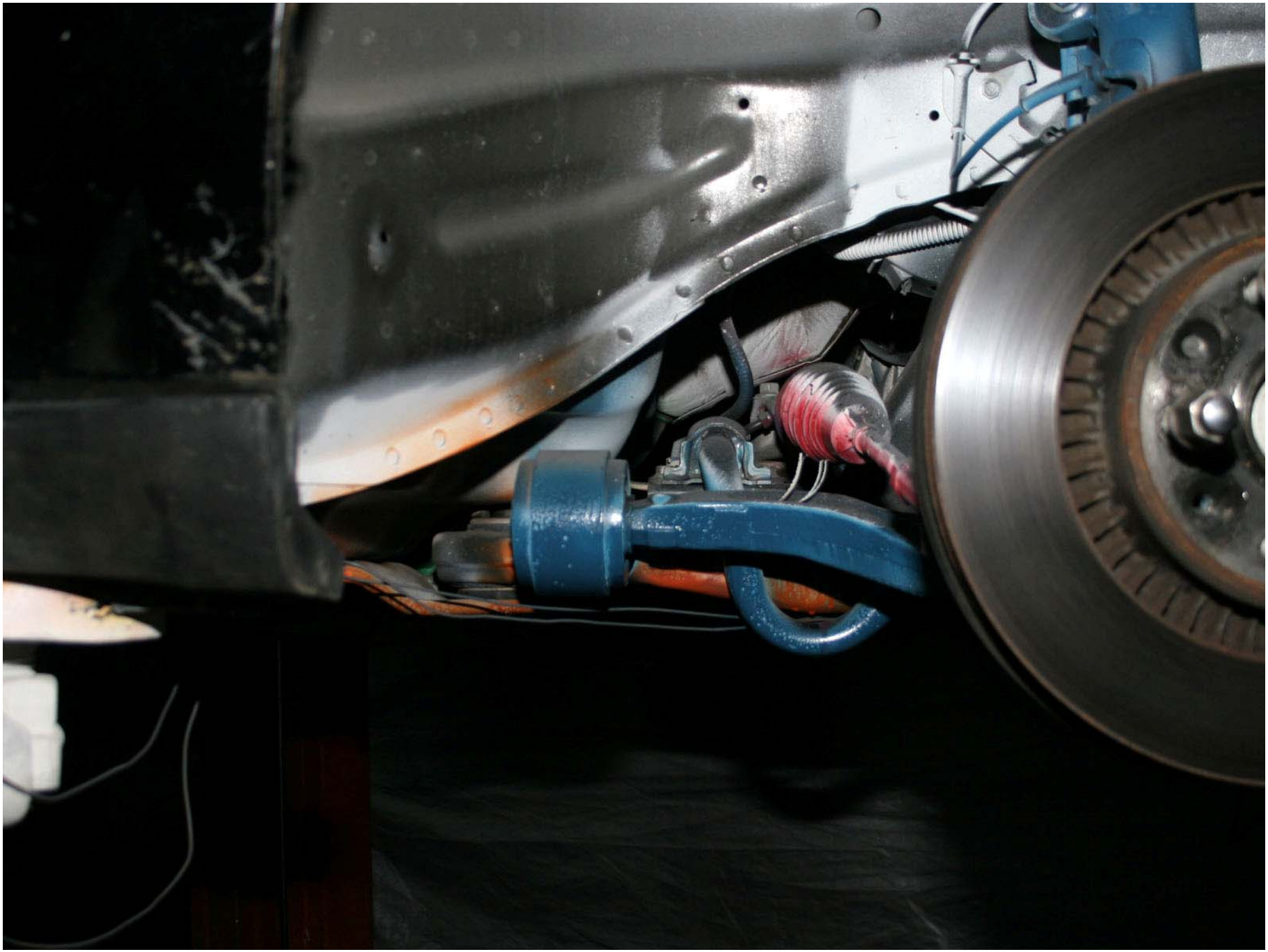

Figure A-185: Test Vehicle Pre-Test Right Front Frame Rail View

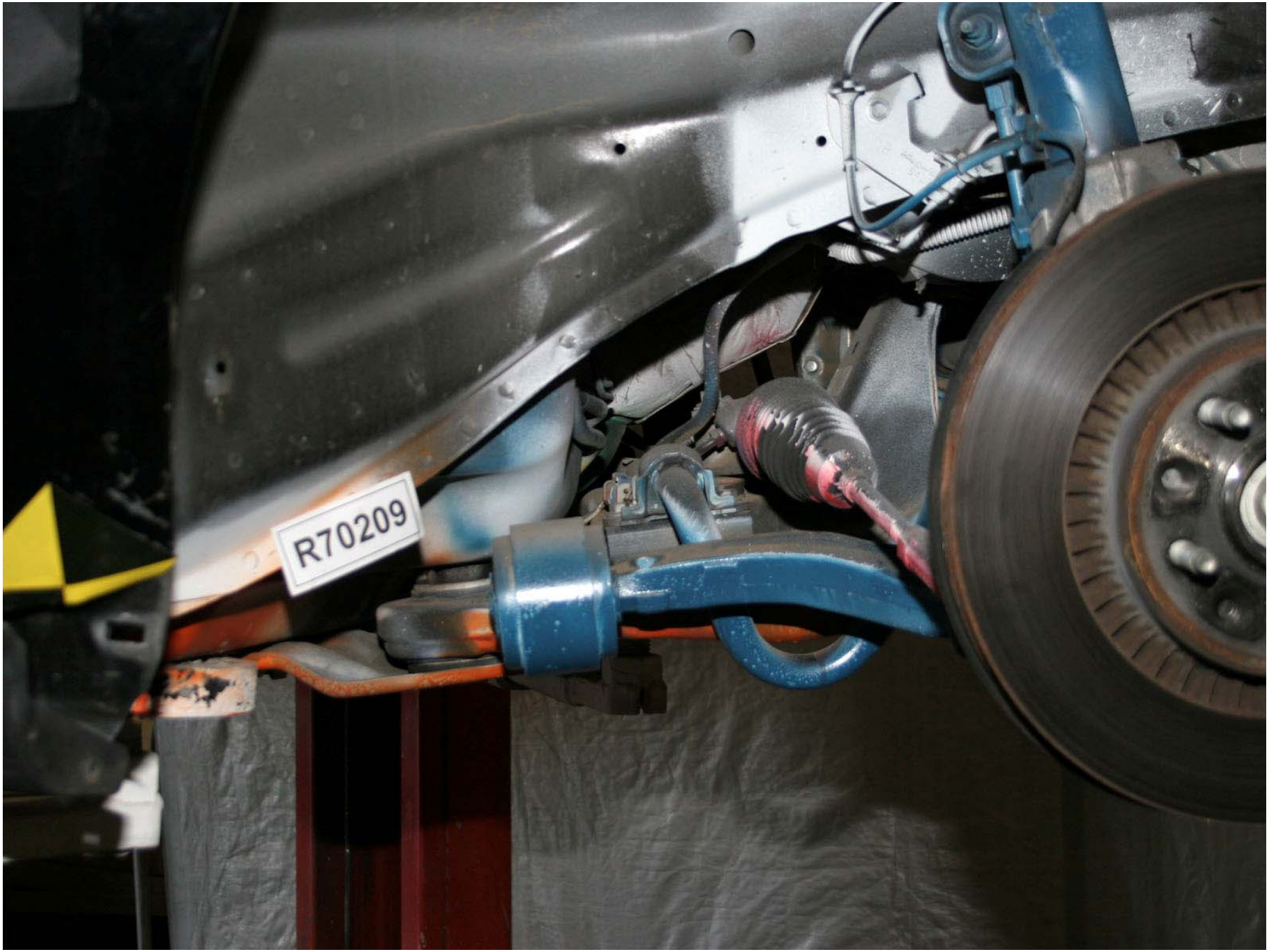

Figure A-186: Test Vehicle Post-Test Right Front Frame Rail View

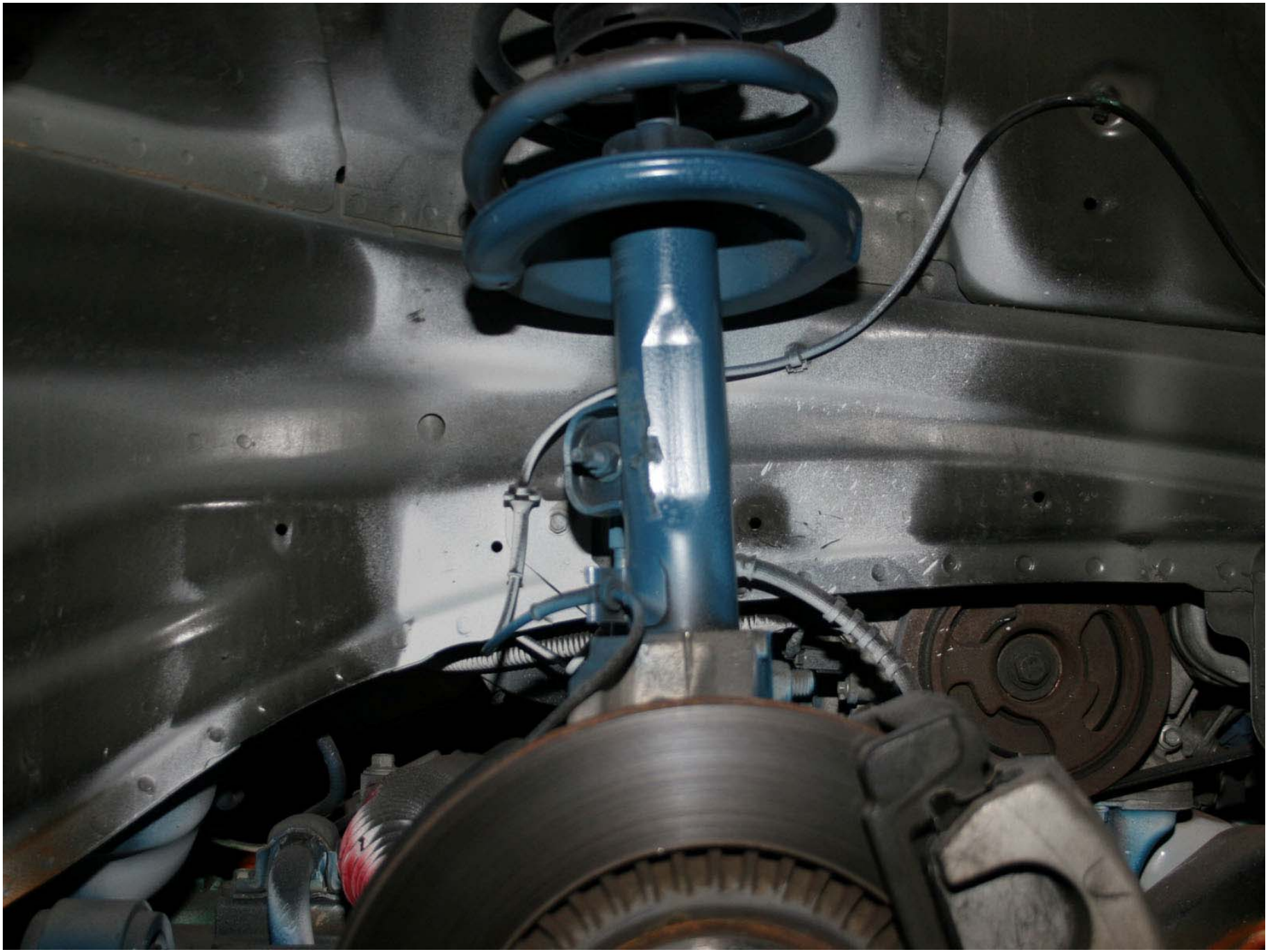

Figure A-187: Test Vehicle Pre-Test Right Front Frame Rail View

Figure A-188: Test Vehicle Post-Test Right Front Frame Rail View

Figure A-189: Test Vehicle Pre-Test Right Side Frame to A-Pillar Joint

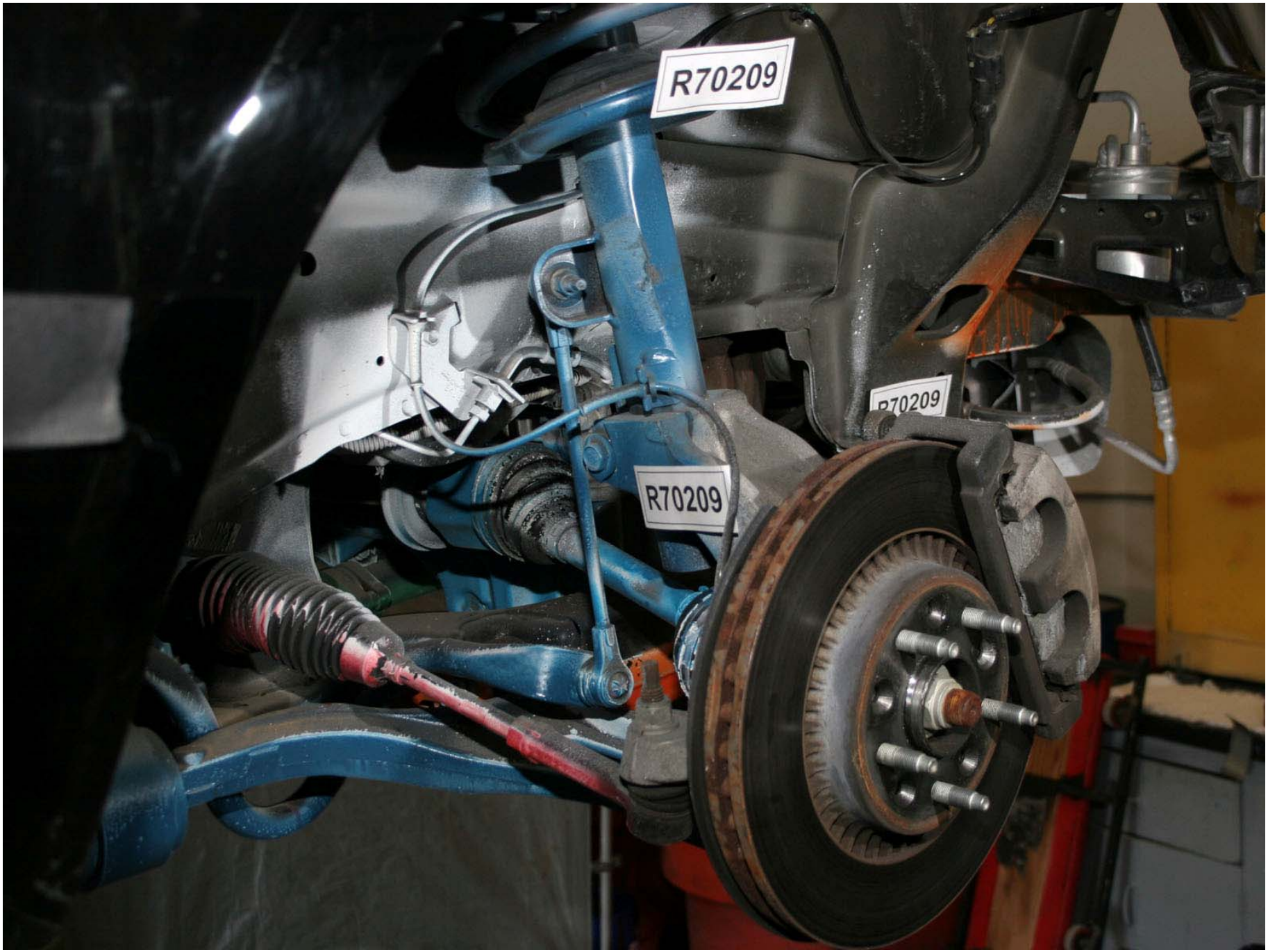

Figure A-190: Test Vehicle Post-Test Right Side Frame to A-Pillar Joint

Figure A-191: Test Vehicle Pre-Test Right Side Tie Rod and Sway Bar Attachments Points

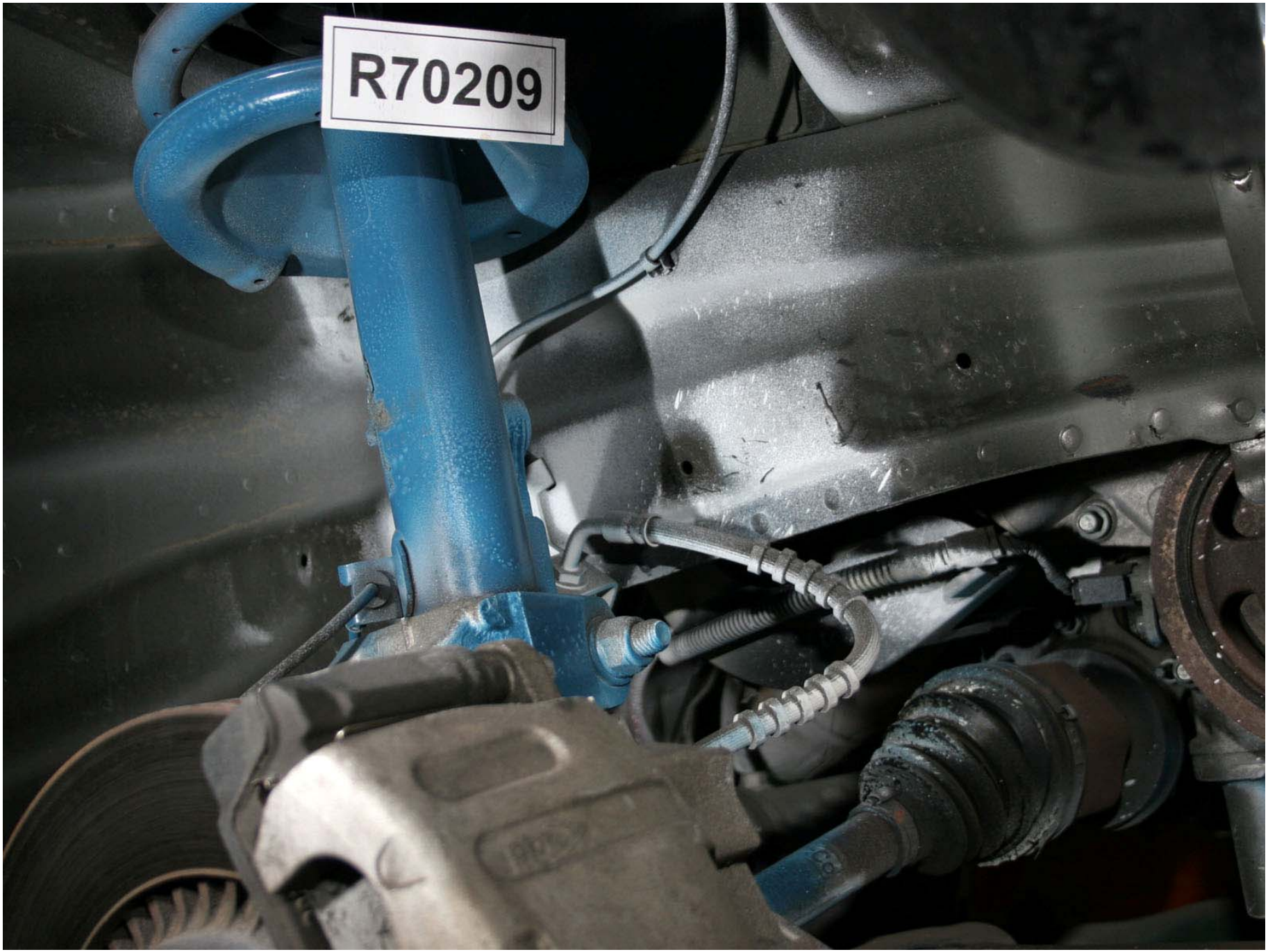

Figure A-192: Test Vehicle Post-Test Right Side Tie Rod and Sway Bar Attachments Points

Figure A-193: Test Vehicle Pre-Test Right Side Upper Sway Bar Attachment Point

Figure A-194: Test Vehicle Post-Test Right Side Upper Sway Bar Attachment Point

Figure A-195: Test Vehicle Pre-Test Right Side Crush Initiators

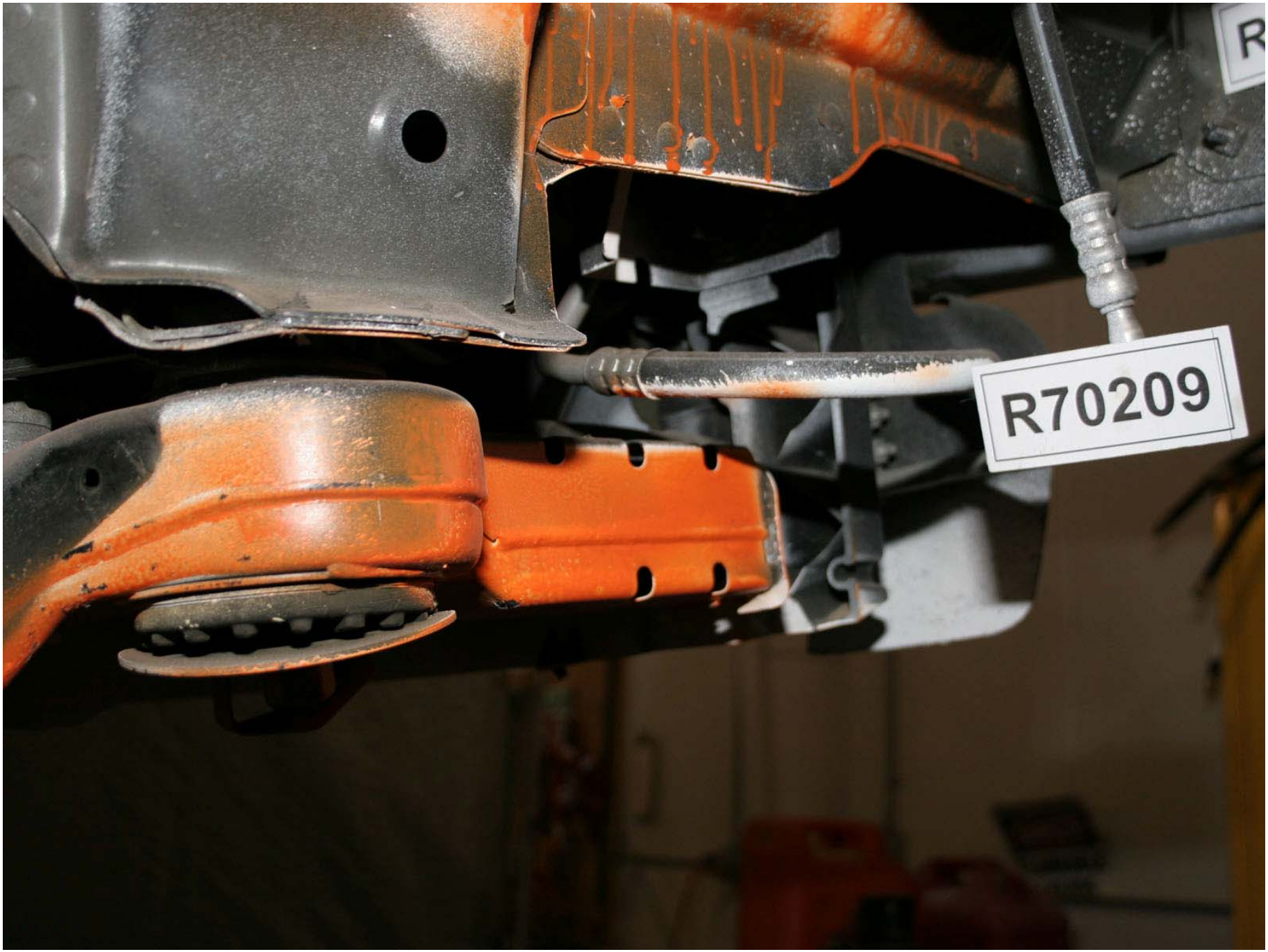

Figure A-196: Test Vehicle Post-Test Right Side Crush Initiators

Figure A-197: Test Vehicle Pre-Test Right Side Crush Initiators

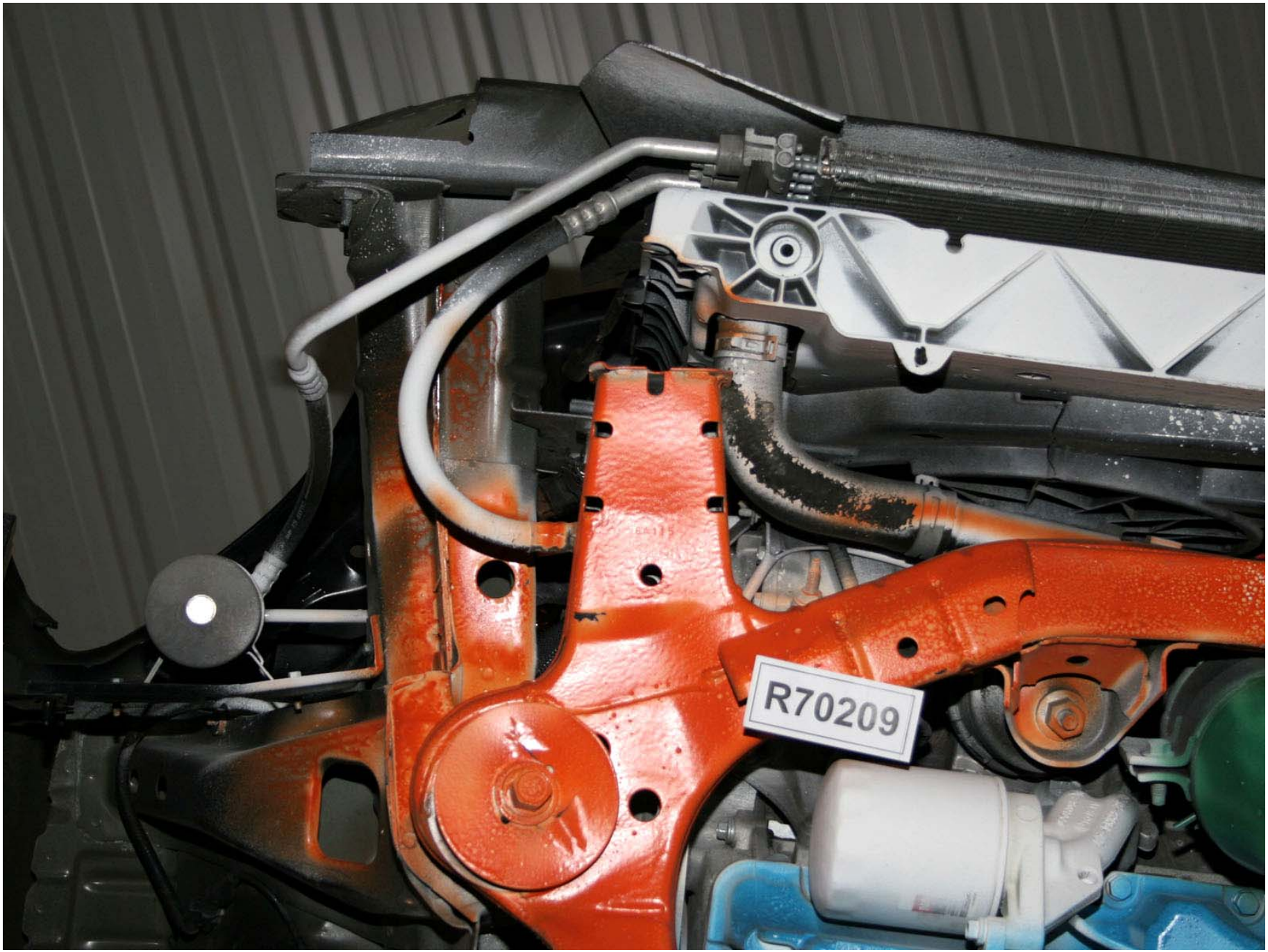

Figure A-198: Test Vehicle Post-Test Right Side Crush Initiators

Figure A-199: Test Vehicle Pre-Test Right Side Bumper Attachment Point

Figure A-200: Test Vehicle Post-Test Right Side Bumper Attachment Point

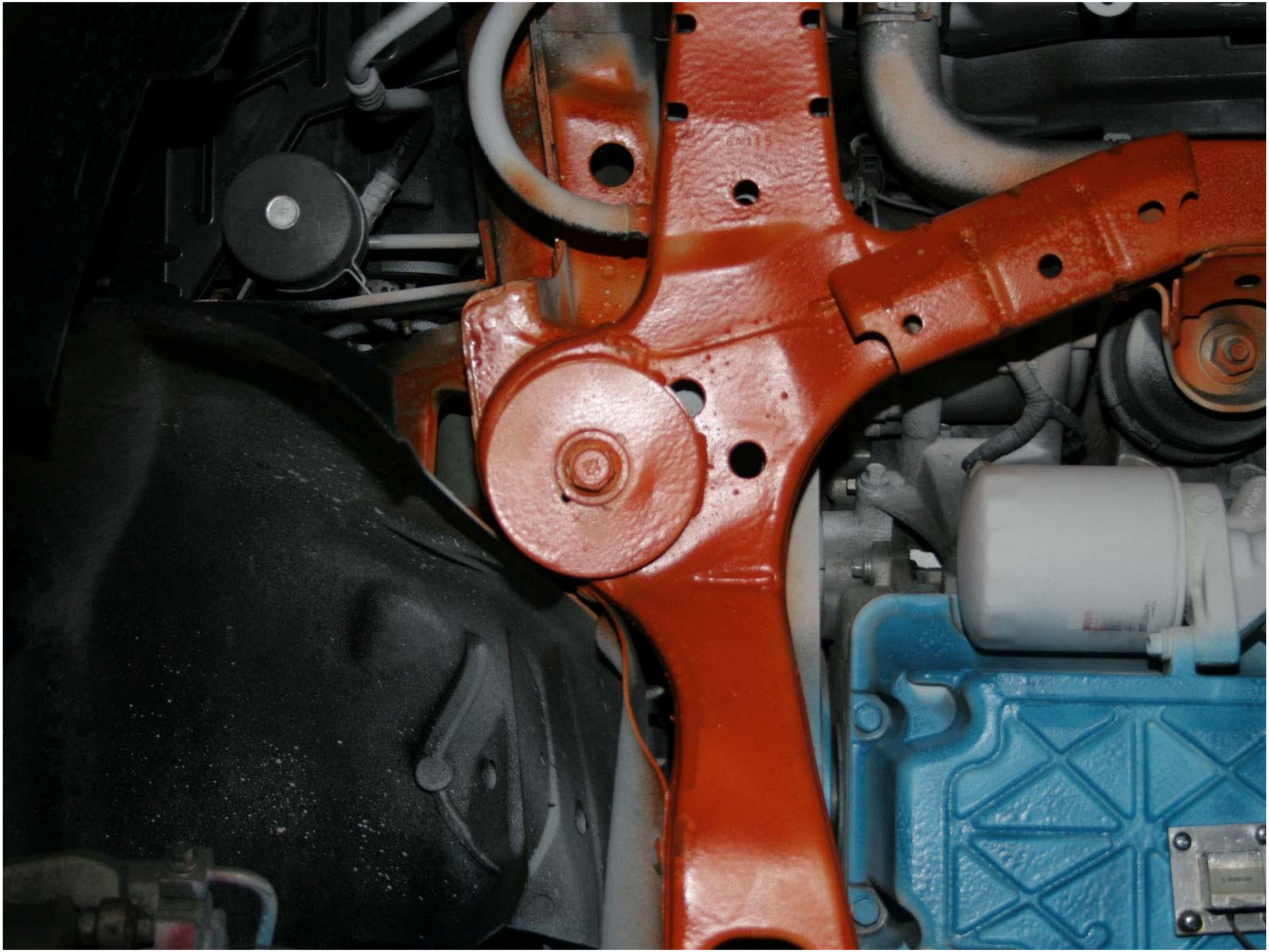

Figure A-201: Test Vehicle Pre-Test Right Front Sub-Frame Mounting Point

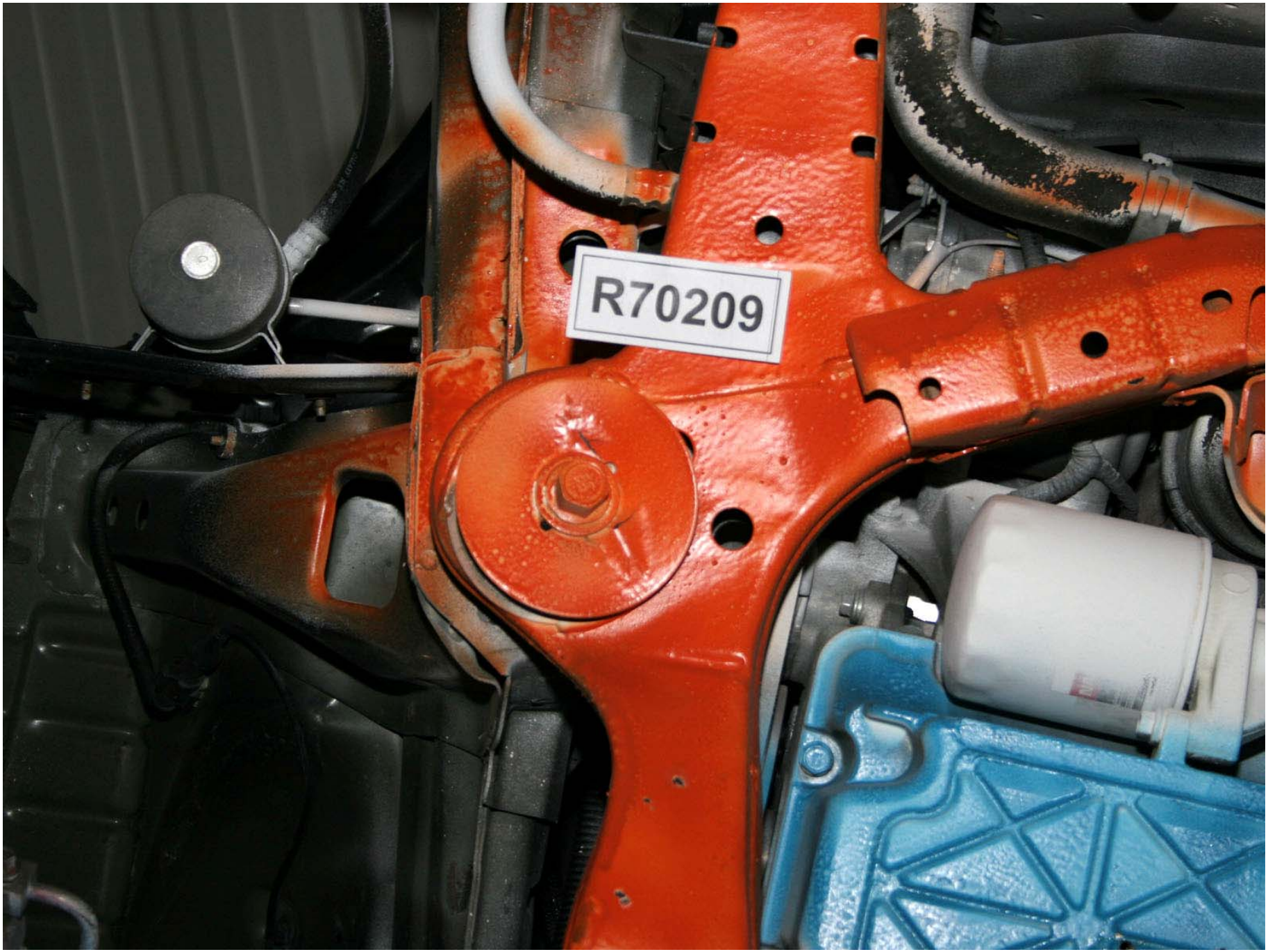

Figure A-202: Test Vehicle Post-Test Right Front Sub-Frame Mounting Point

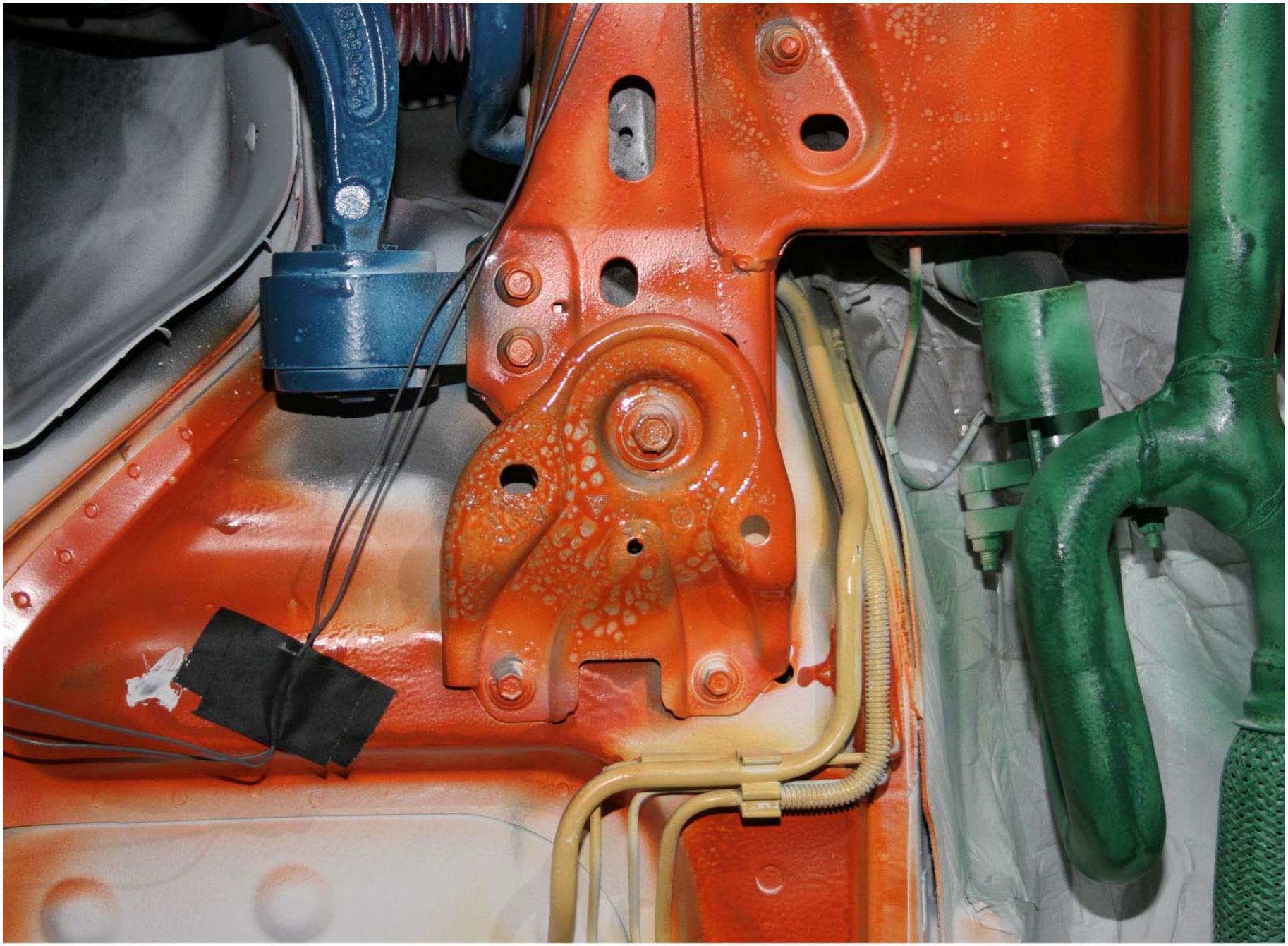

Figure A-203: Test Vehicle Pre-Test Right Rear Sub-Frame Mounting Point

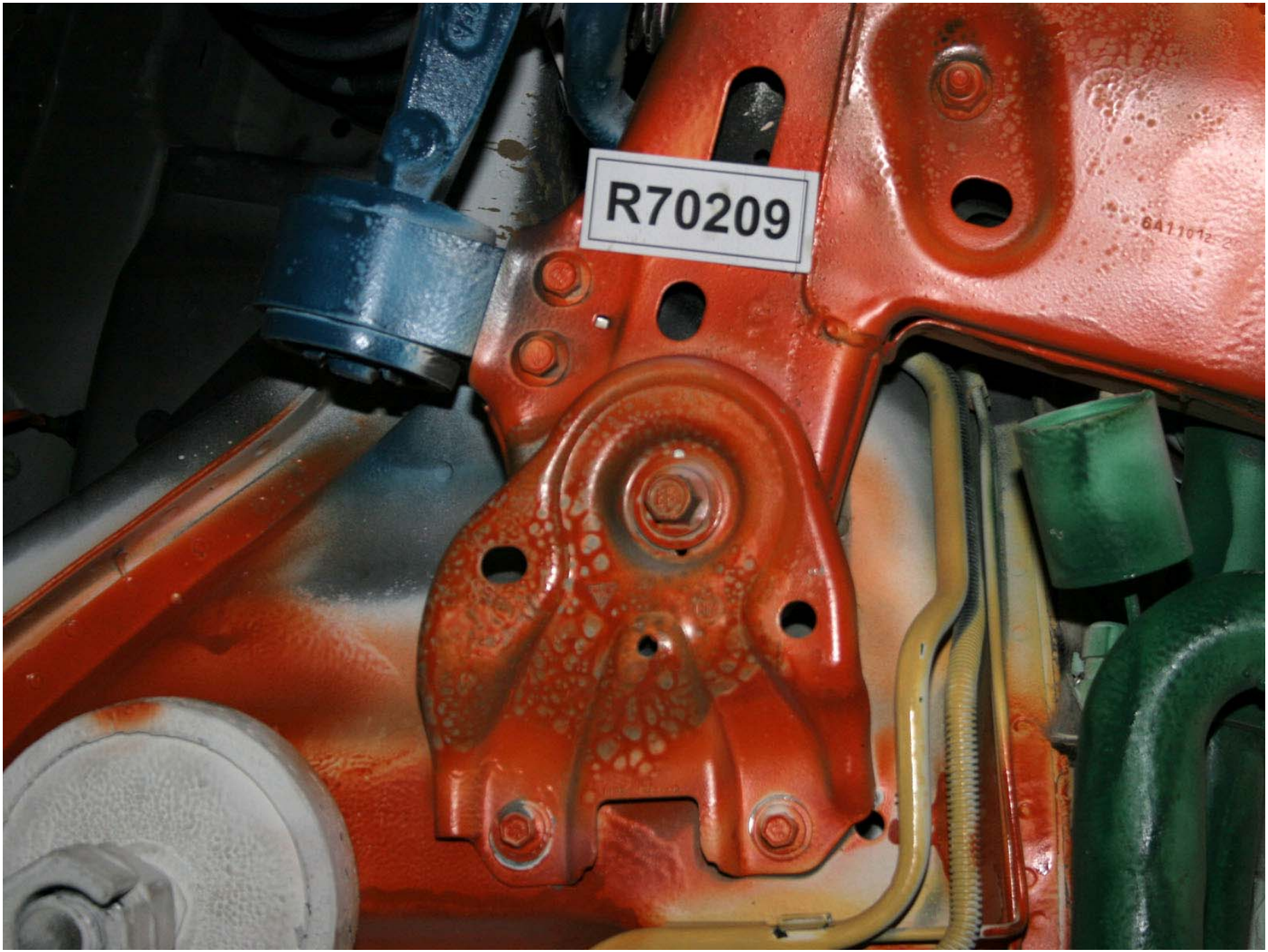

Figure A-204: Test Vehicle Post-Test Right Rear Sub-Frame Mounting Point

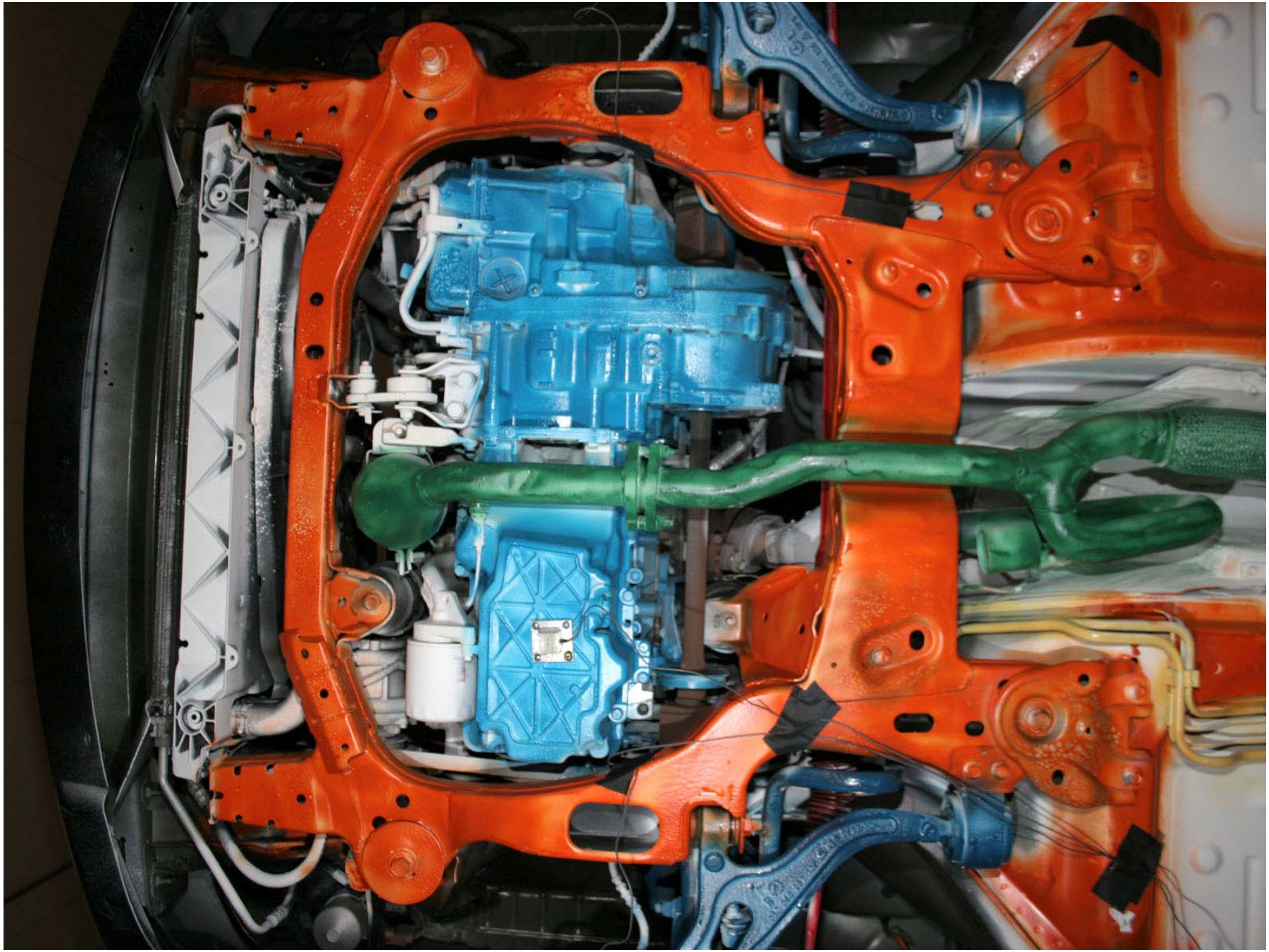

Figure A-205: Test Vehicle Pre-Test Front Underbody

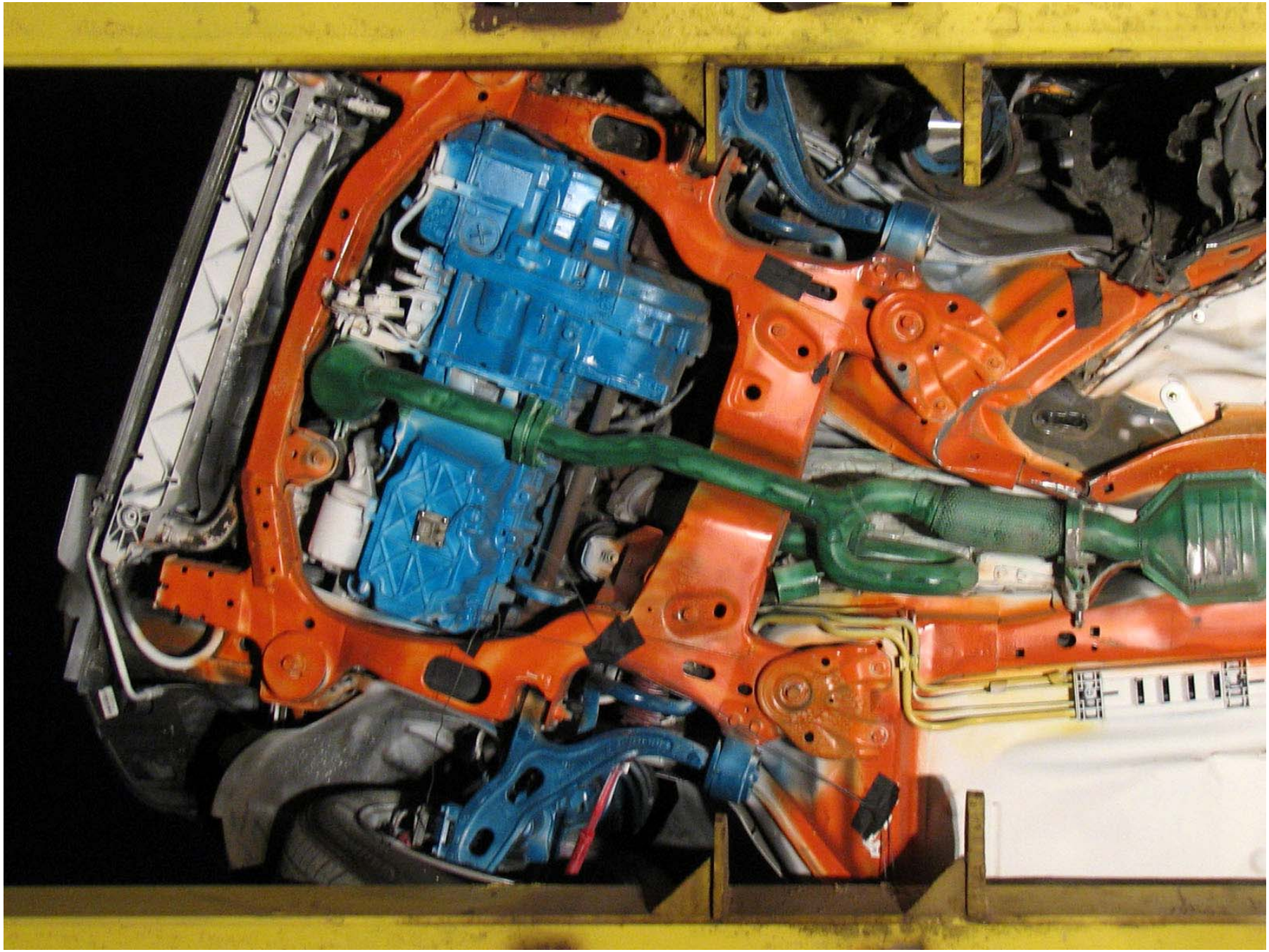

Figure A-206: Test Vehicle Post-Test Front Underbody

Figure A-207: Test Vehicle Pre-Test Mid Underbody

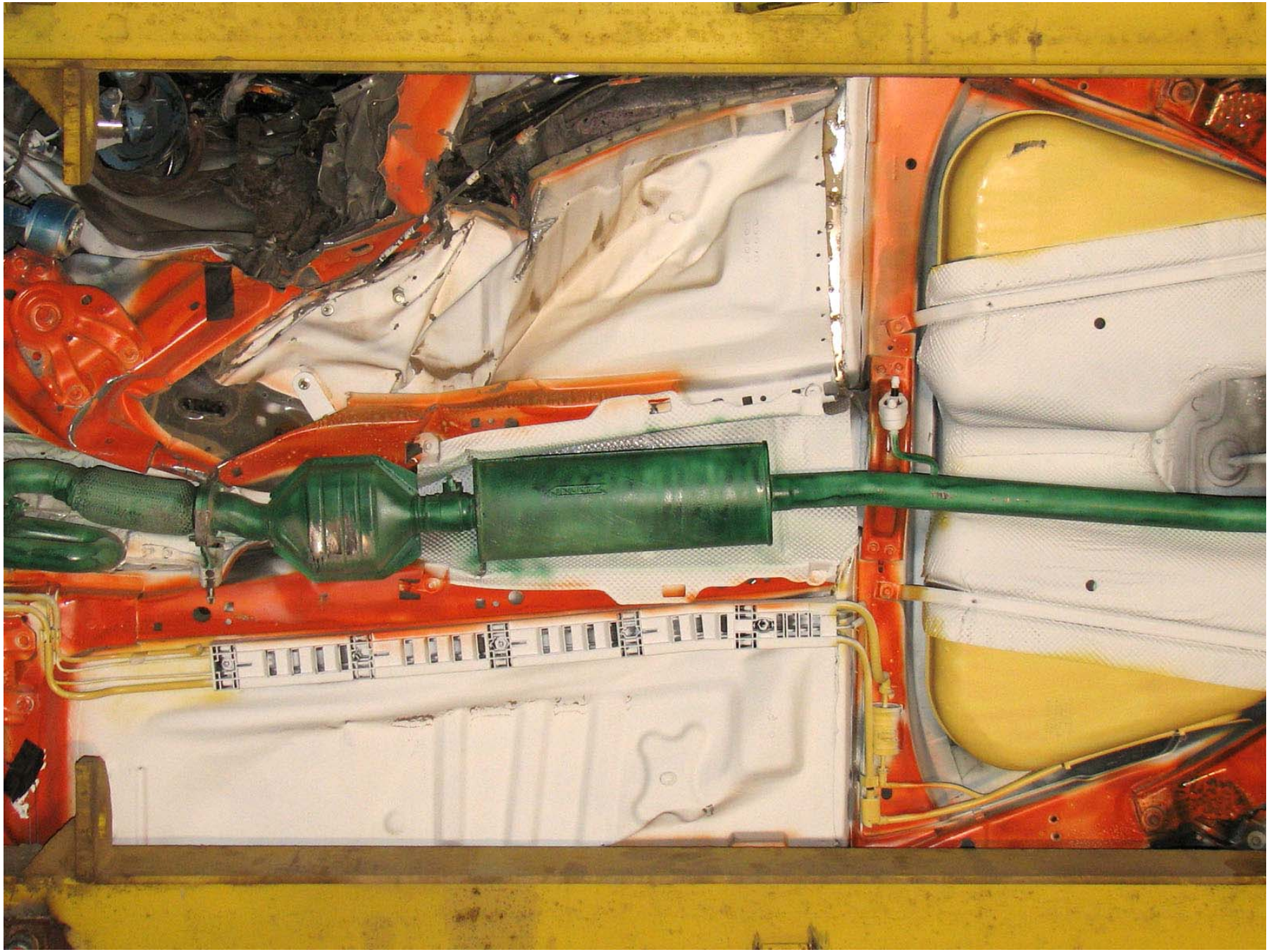

Figure A-208: Test Vehicle Post-Test Mid Underbody

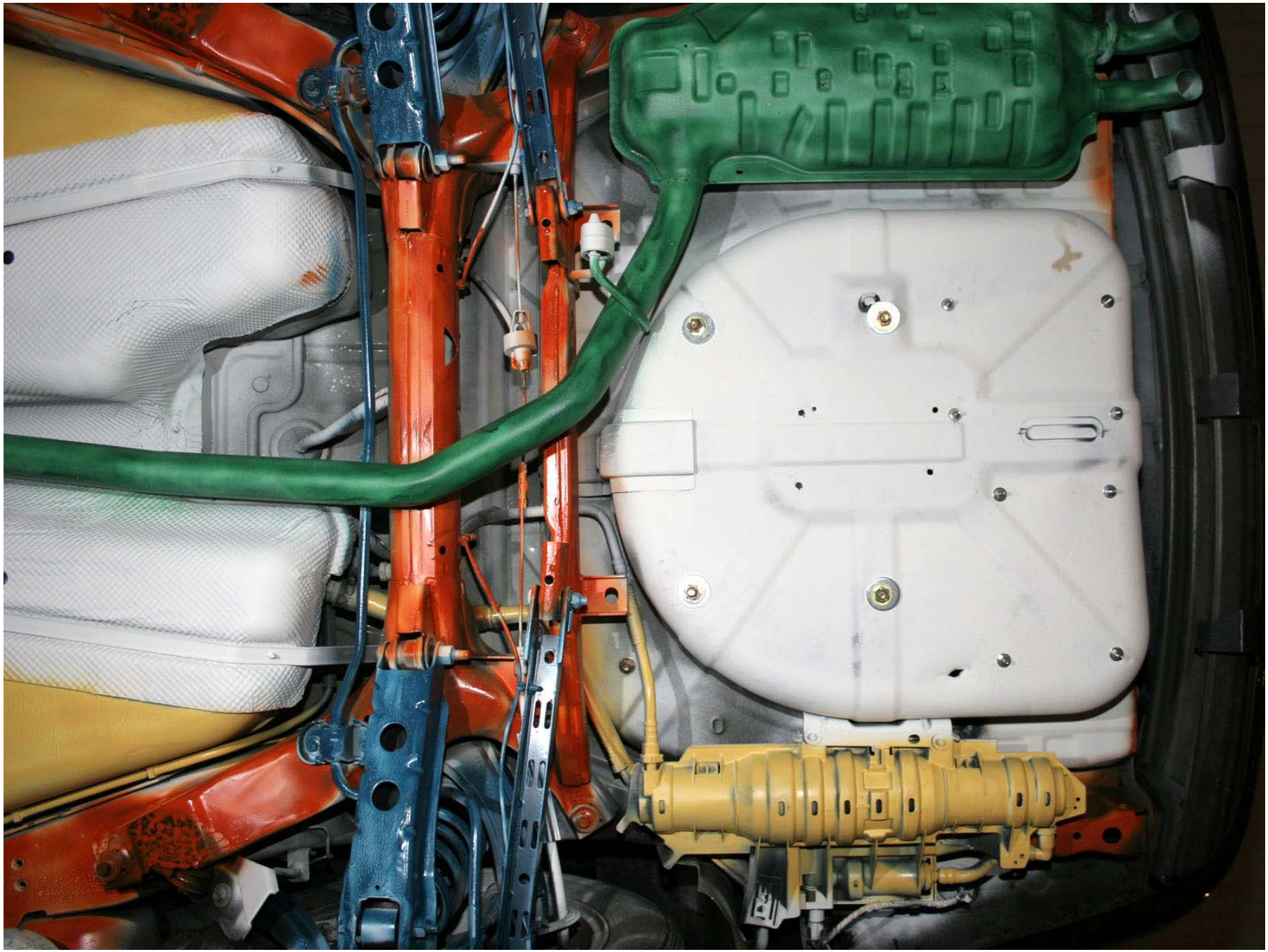

Figure A-209: Test Vehicle Pre-Test Rear Underbody

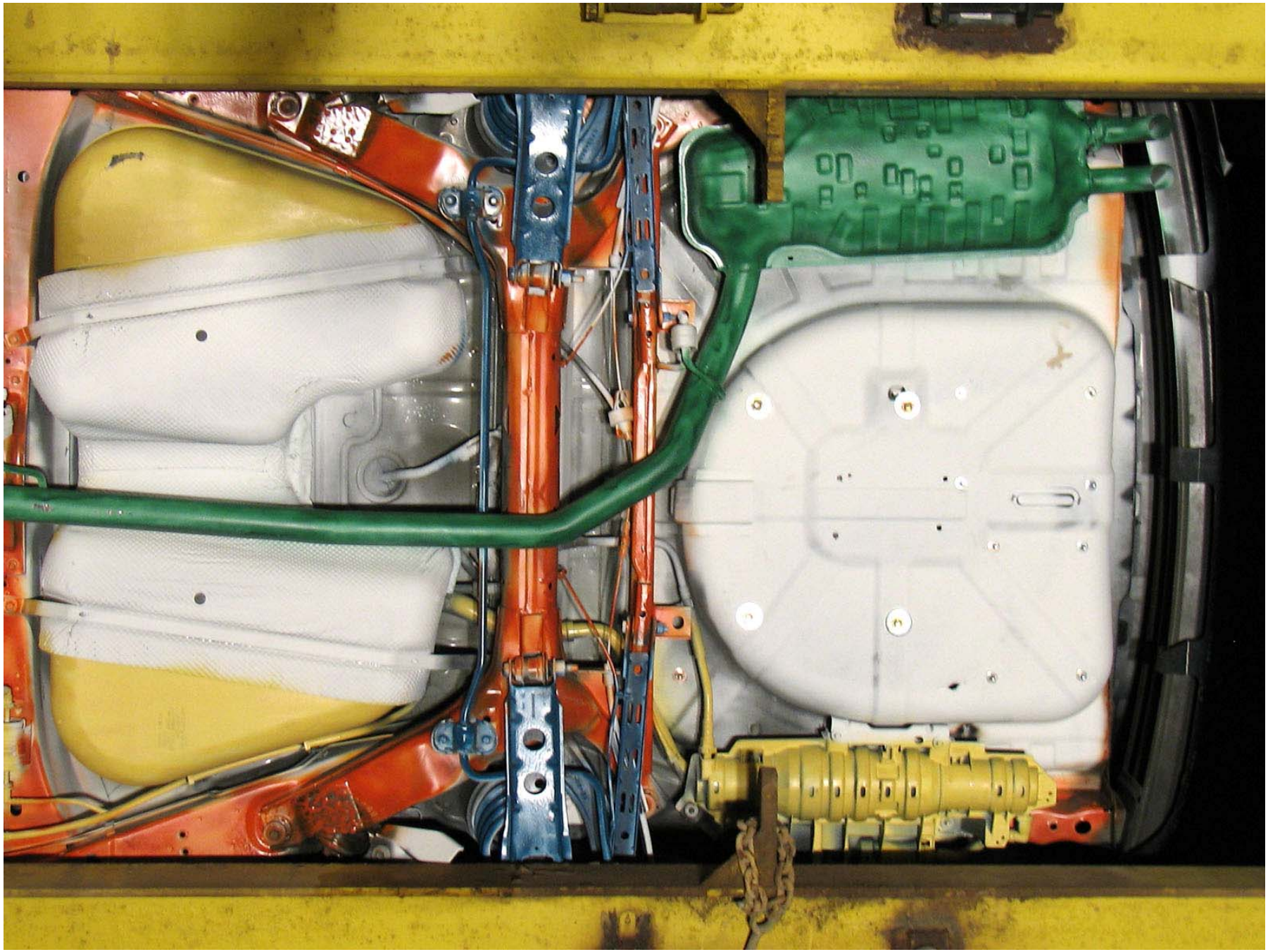

Figure A-210: Test Vehicle Post-Test Rear Underbody

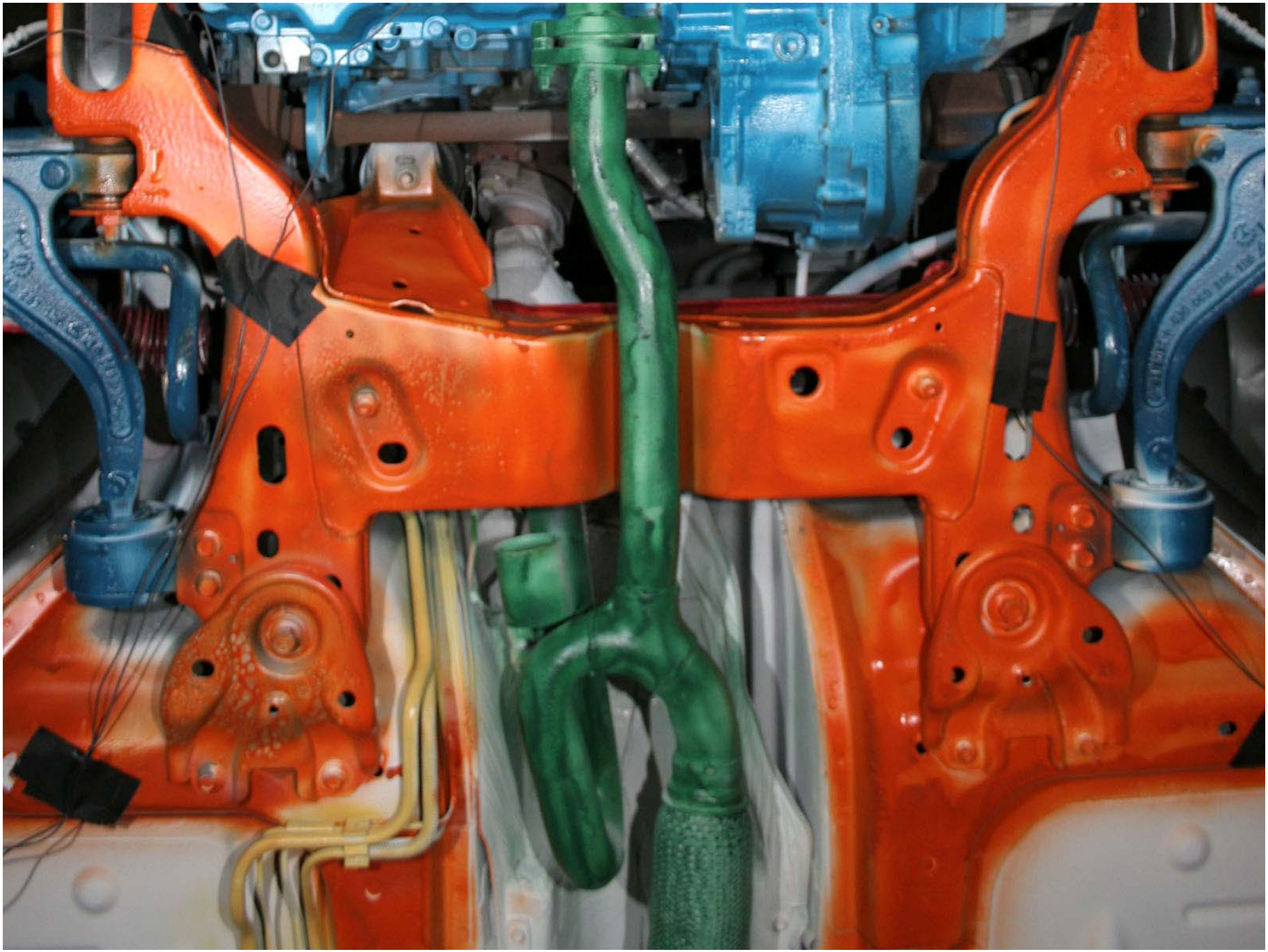

Figure A-211: Test Vehicle Pre-Test Steering Rack and Sway Bar View

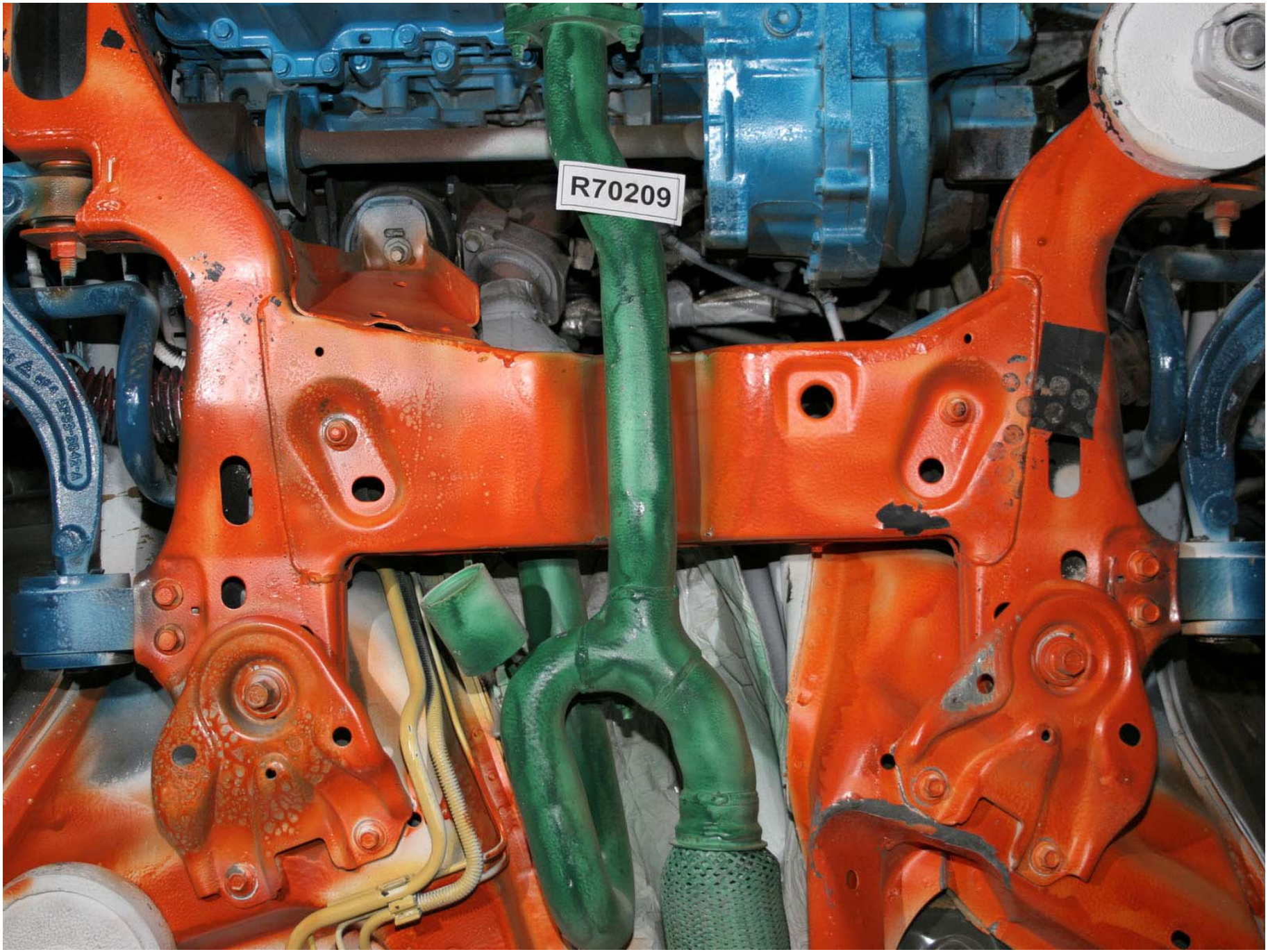

Figure A-212: Test Vehicle Post-Test Steering Rack and Sway Bar View

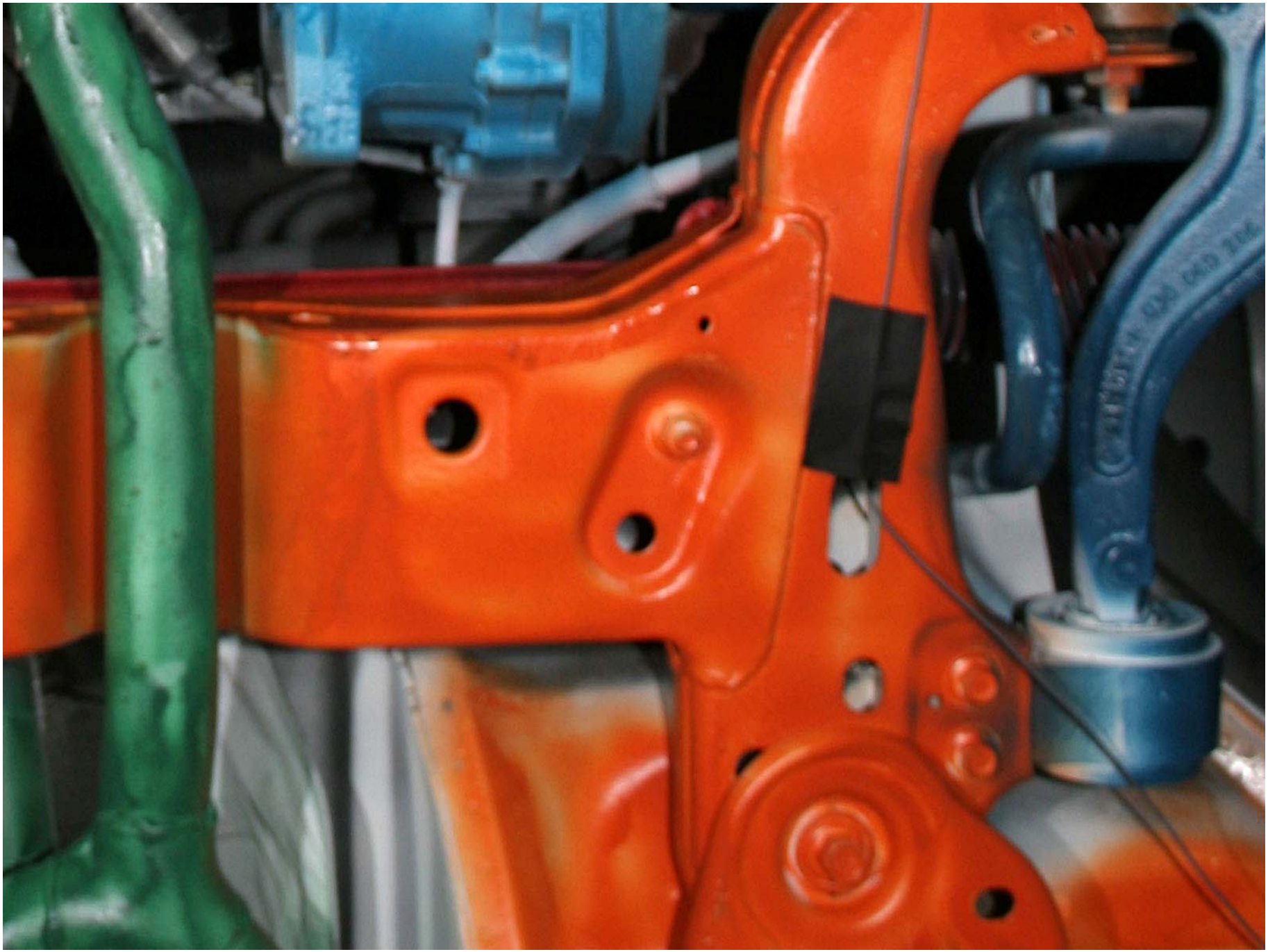

Figure A-213: Test Vehicle Pre-Test Steering Rack Left Side Mounting Bolt

Figure A-214: Test Vehicle Post-Test Steering Rack Left Side Mounting Bolt

Figure A-215: Test Vehicle Pre-Test Steering Rack Right Side Mounting Bolt

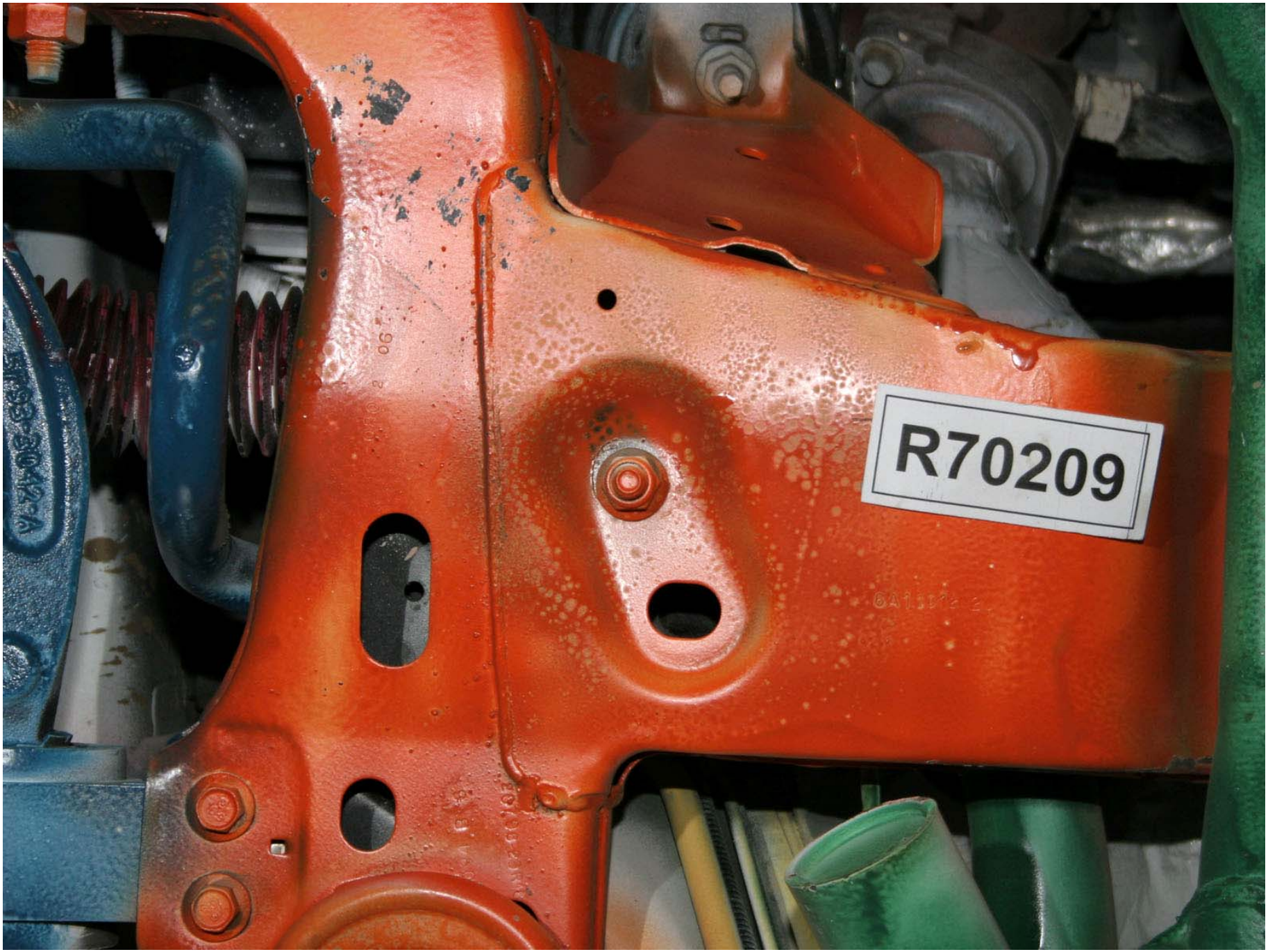

Figure A-216: Test Vehicle Post-Test Steering Rack Right Side Mounting Bolt

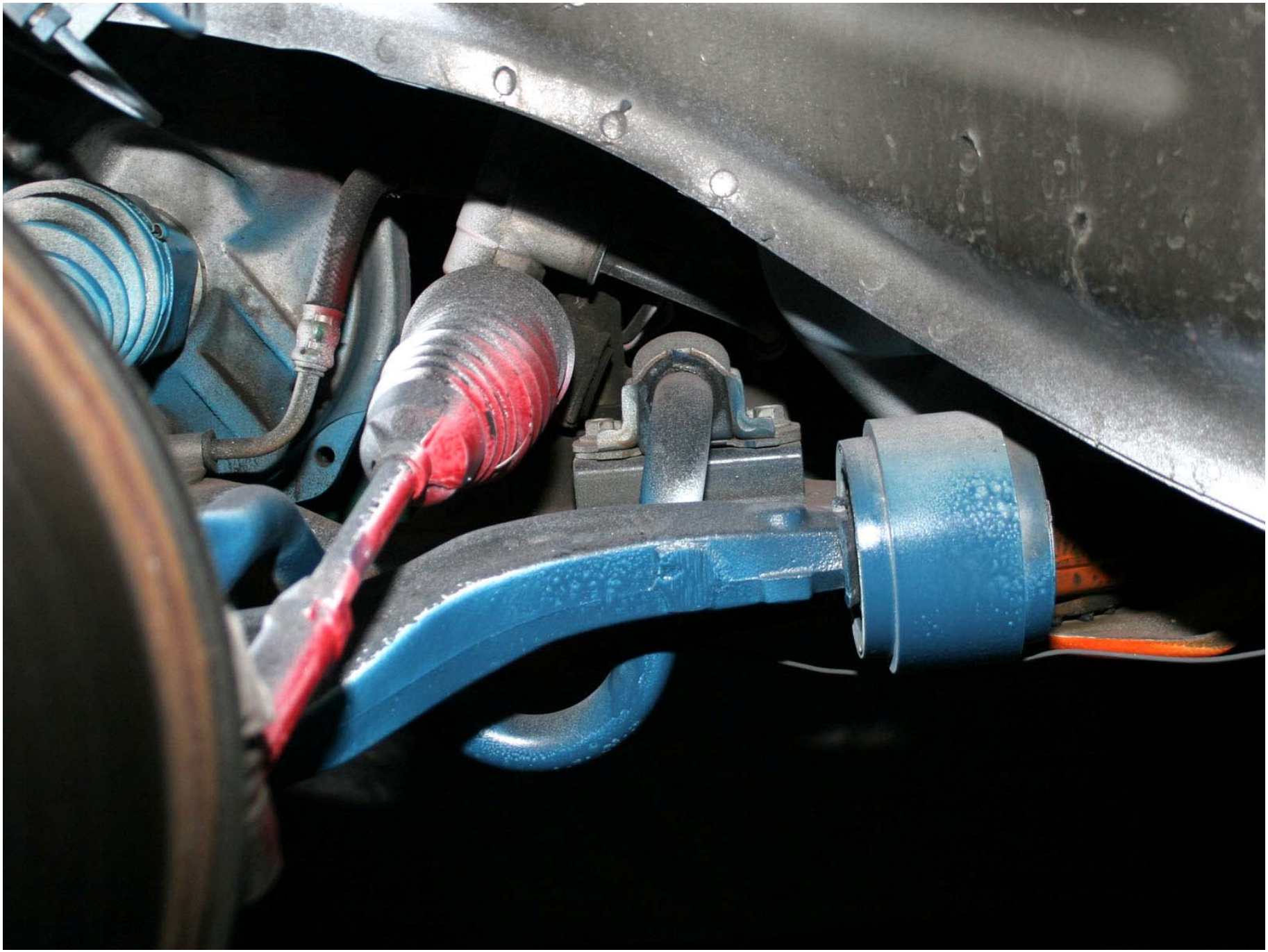

Figure A-217: Test Vehicle Pre-Test Sway Bar Left Side Mounting Bolts

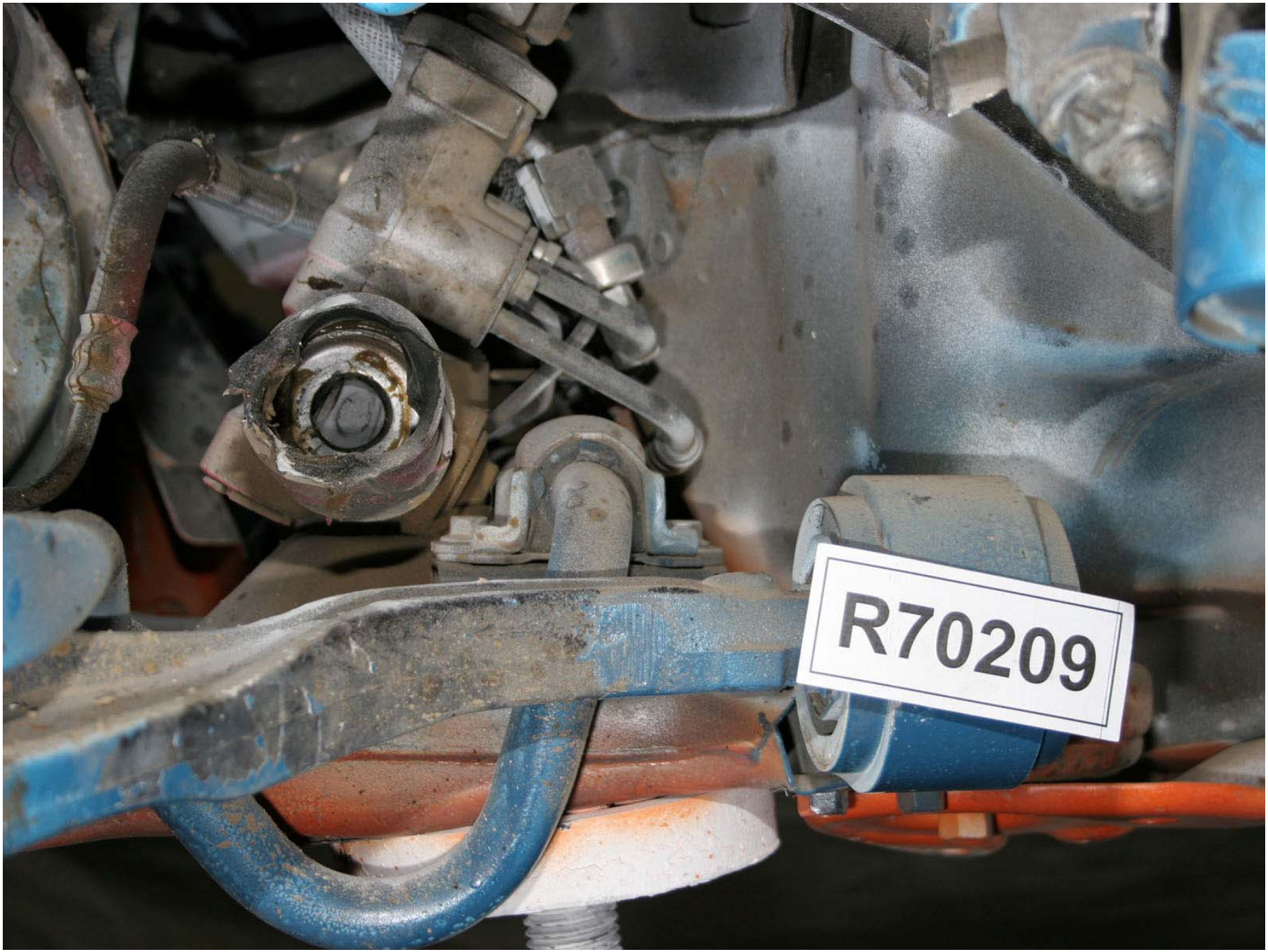

Figure A-218: Test Vehicle Post-Test Sway Bar Left Side Mounting Bolts

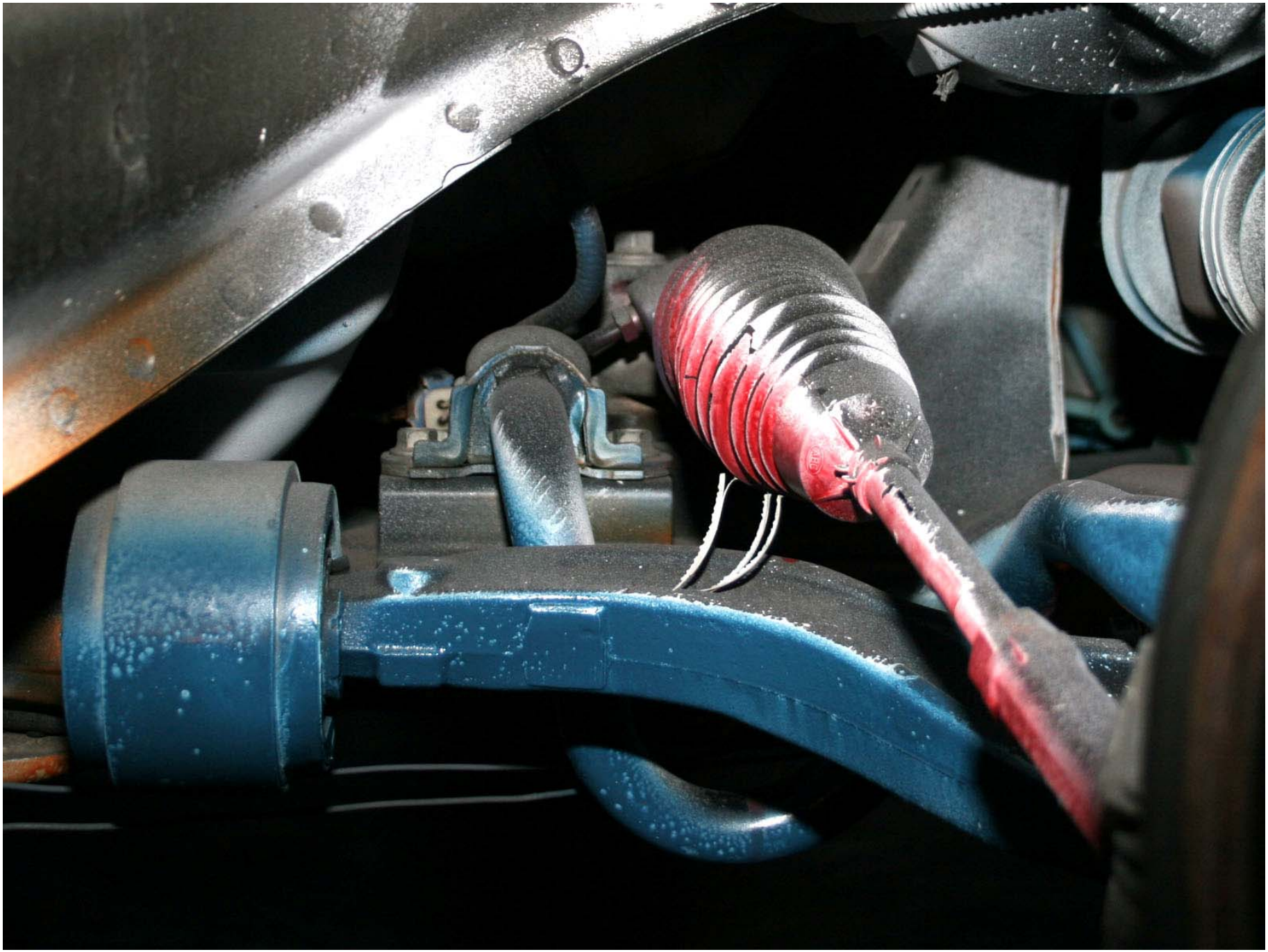

Figure A-219: Test Vehicle Pre-Test Sway Bar Right Side Mounting Bolts

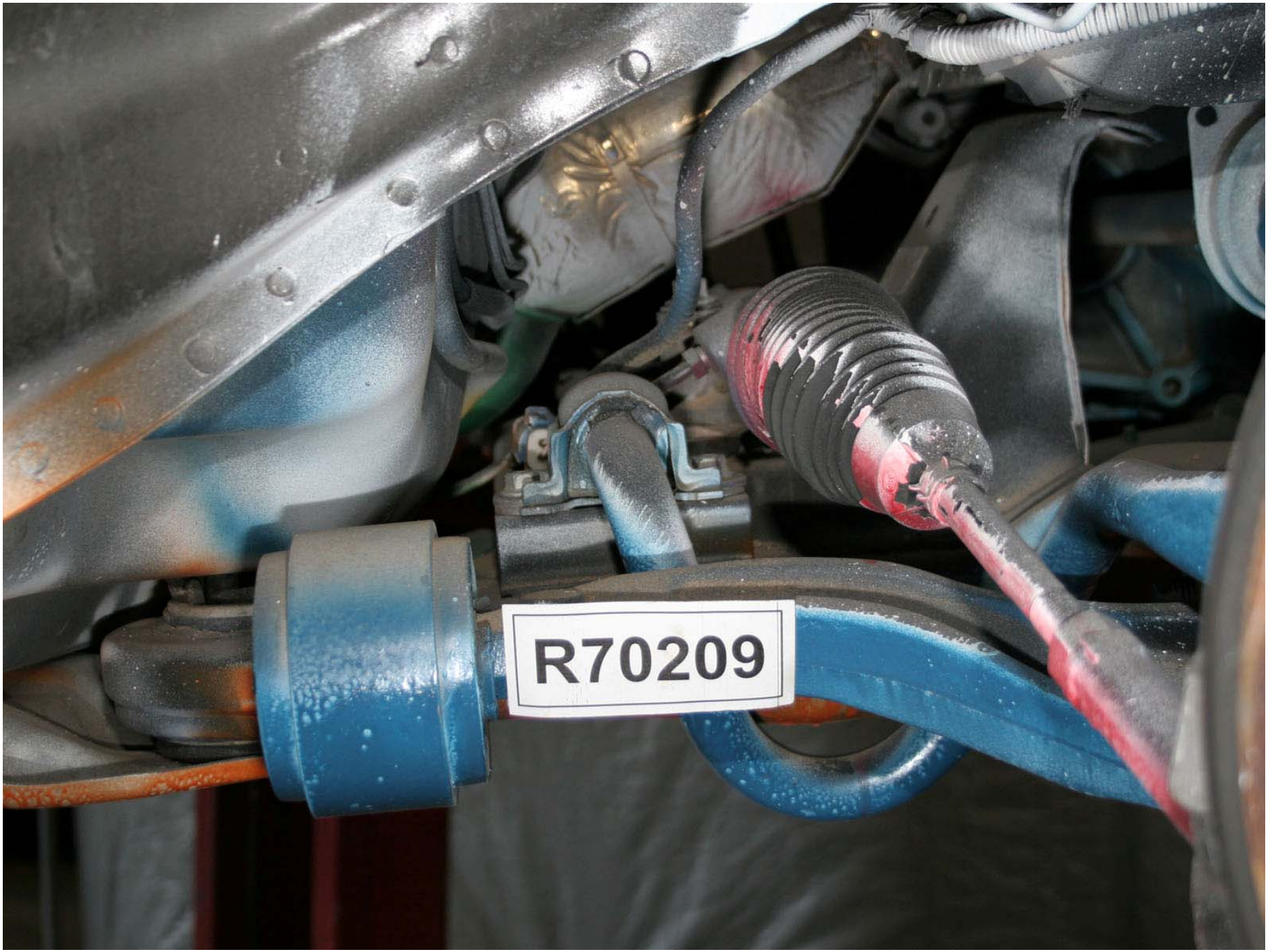

Figure A-220: Test Vehicle Post-Test Sway Bar Right Side Mounting Bolts

Figure A-221: Test Vehicle Pre-Test Front Door Panel

Figure A-222: Test Vehicle Post-Test Front Door Panel

Figure A-223: Test Vehicle Pre-Test Driver Dummy Right Side View

Figure A-224: Test Vehicle Post-Test Driver Dummy Right Side View

Figure A-225: Test Vehicle Pre-Test Driver Dummy Front View

Figure A-226: Test Vehicle Post-Test Driver Dummy Front View

Figure A-227: Test Vehicle Pre-Test Driver Dummy Left Side View (Door Open)

Figure A-228: Test Vehicle Post-Test Driver Dummy Left Side View (Door Open)

Figure A-229: Test Vehicle Pre-Test Driver Dummy Abdomen Front View

Figure A-230: Test Vehicle Post-Test Driver Dummy Abdomen Front View

Figure A-231: Test Vehicle Pre-Test Driver Dummy Abdomen Side View

Figure A-232: Test Vehicle Post-Test Driver Dummy Abdomen Side View

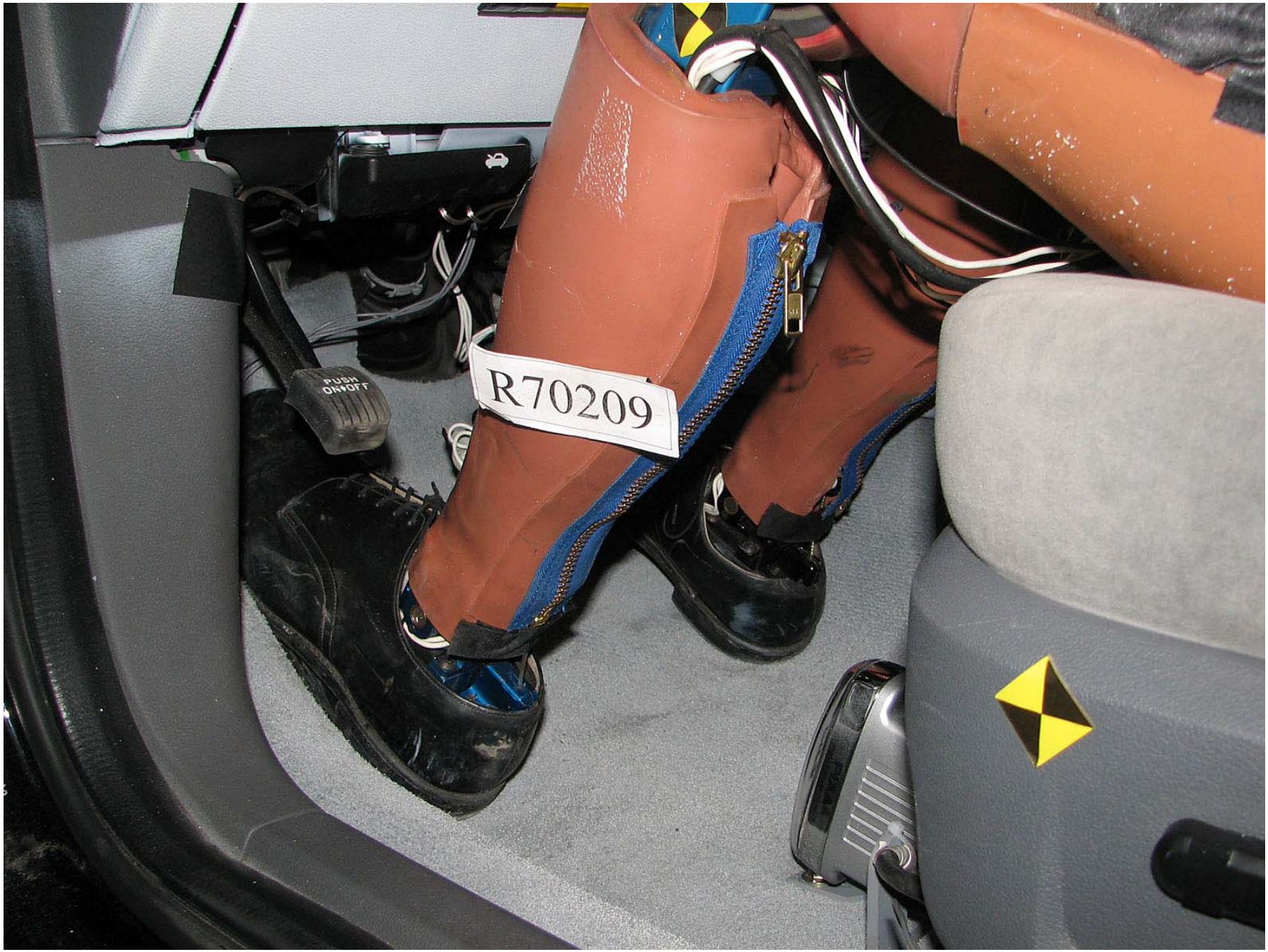

Figure A-233: Test Vehicle Pre-Test Driver Dummy Feet Positioning

Figure A-234: Test Vehicle Pre-Test Driver Dummy Feet Positioning

Figure A-235: Test Vehicle Pre-Test Driver Dummy Feet Positioning

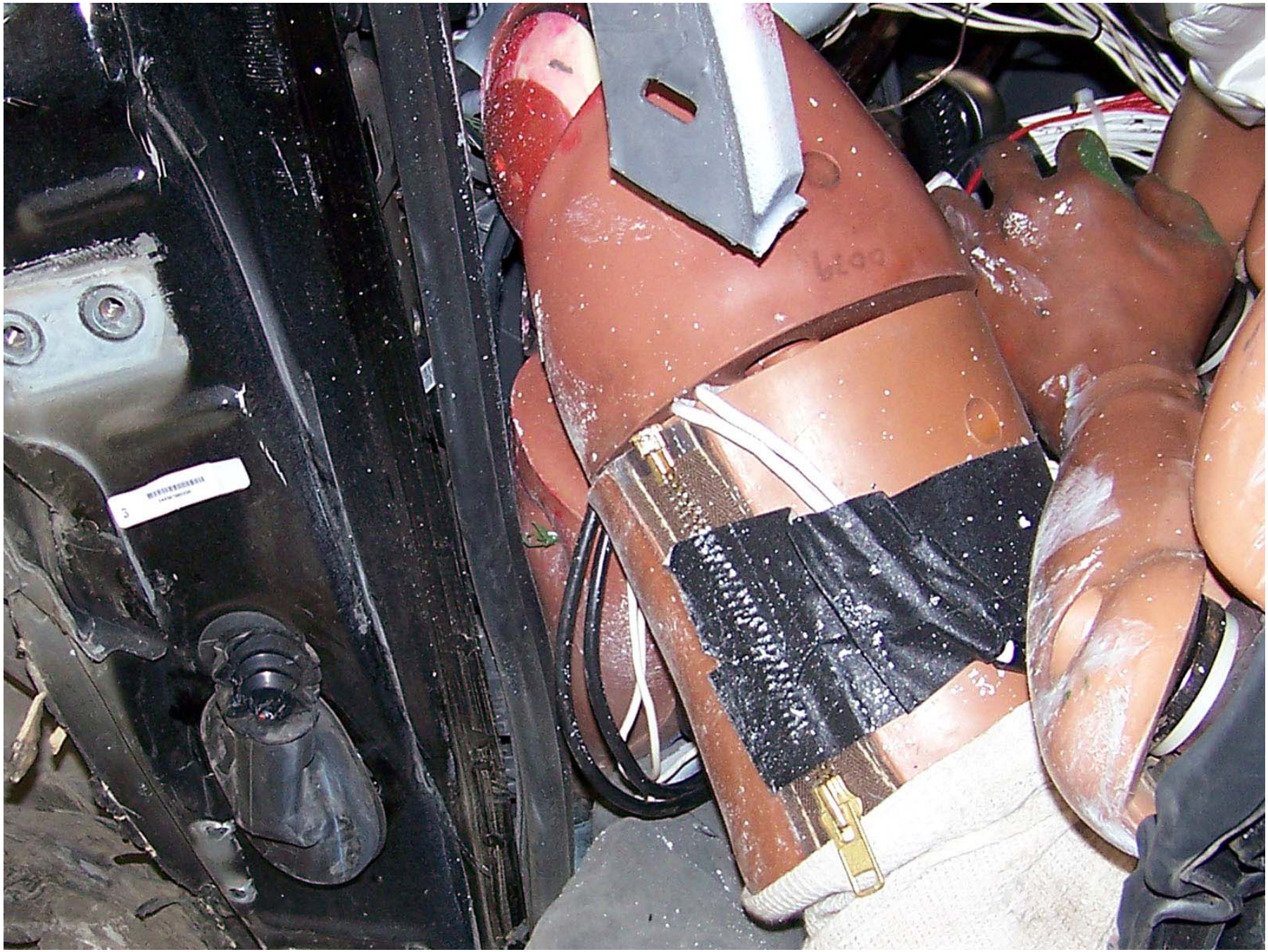

Figure A-236: Test Vehicle Post-Test Driver Dummy Feet Positioning

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Figure A-237: Test Vehicle Post-Test Driver Dummy Feet Positioning

Photograph Not Available

Figure A-238: Test Vehicle Post-Test Driver Dummy Feet Positioning

Figure A-239: Test Vehicle Pre-Test Driver Dummy Left Side View (Through Window)

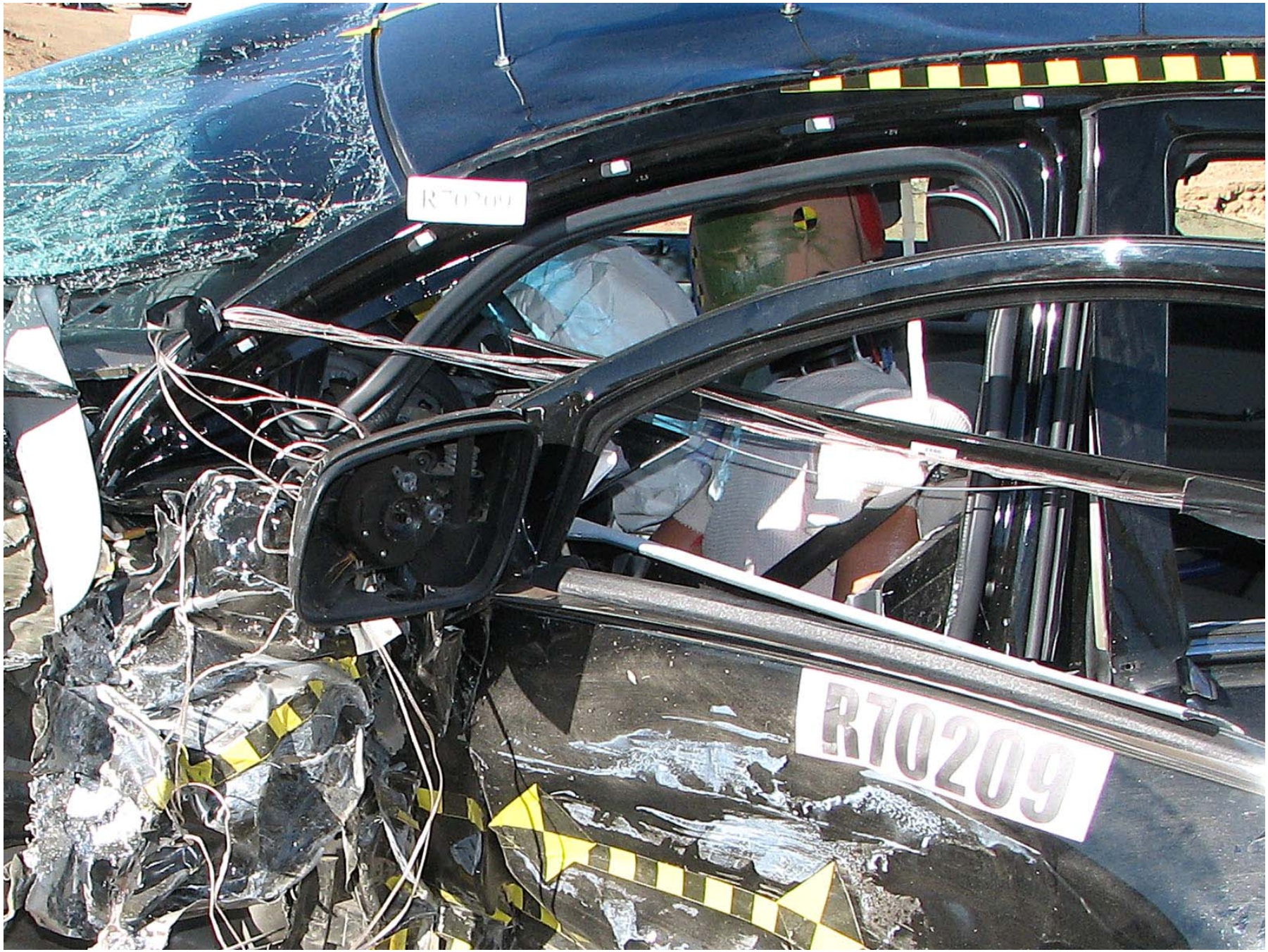

Figure A-240: Test Vehicle Post-Test Driver Dummy Left Side View (Through Window)

Figure A-241: Test Vehicle Pre-Test Driver Dummy Clearance from Door

Figure A-242: Test Vehicle Post-Test Driver Dummy Clearance from Door

Figure A-243: Test Vehicle Pre-Test Driver's Side Knee Bolster

Figure A-244: Test Vehicle Post-Test Driver's Side Knee Bolster

Figure A-245: Test Vehicle Post-Test Driver's Side Knee Bolster, Left ¾ View

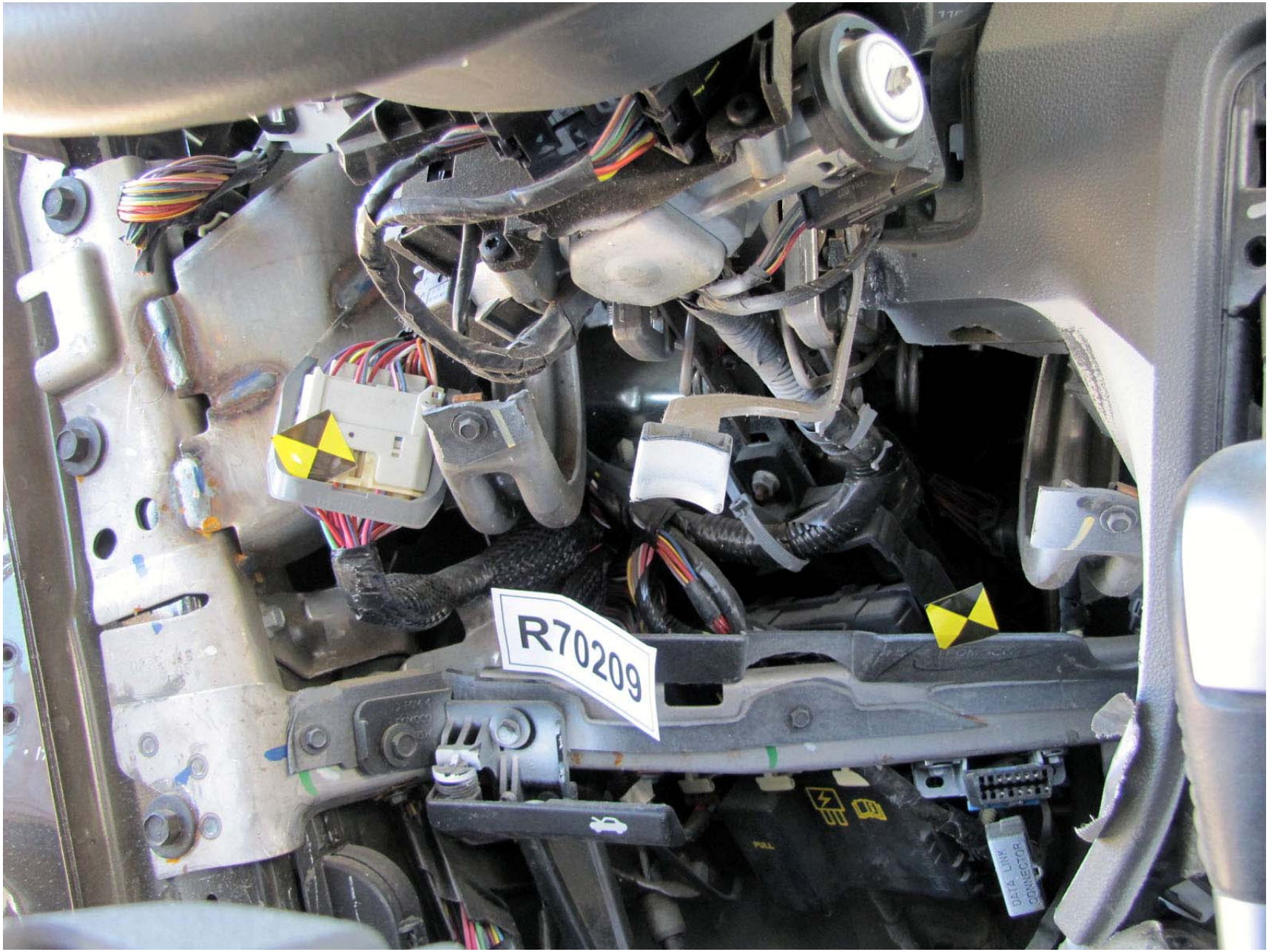

Figure A-246: Test Vehicle Post-Test Driver's Side Knee Bolster, Right ¾ View

Figure A-247: Test Vehicle Post-Test Driver's Side Knee Bolster

Figure A-248: Test Vehicle Post-Test Driver's Side Knee Bolster

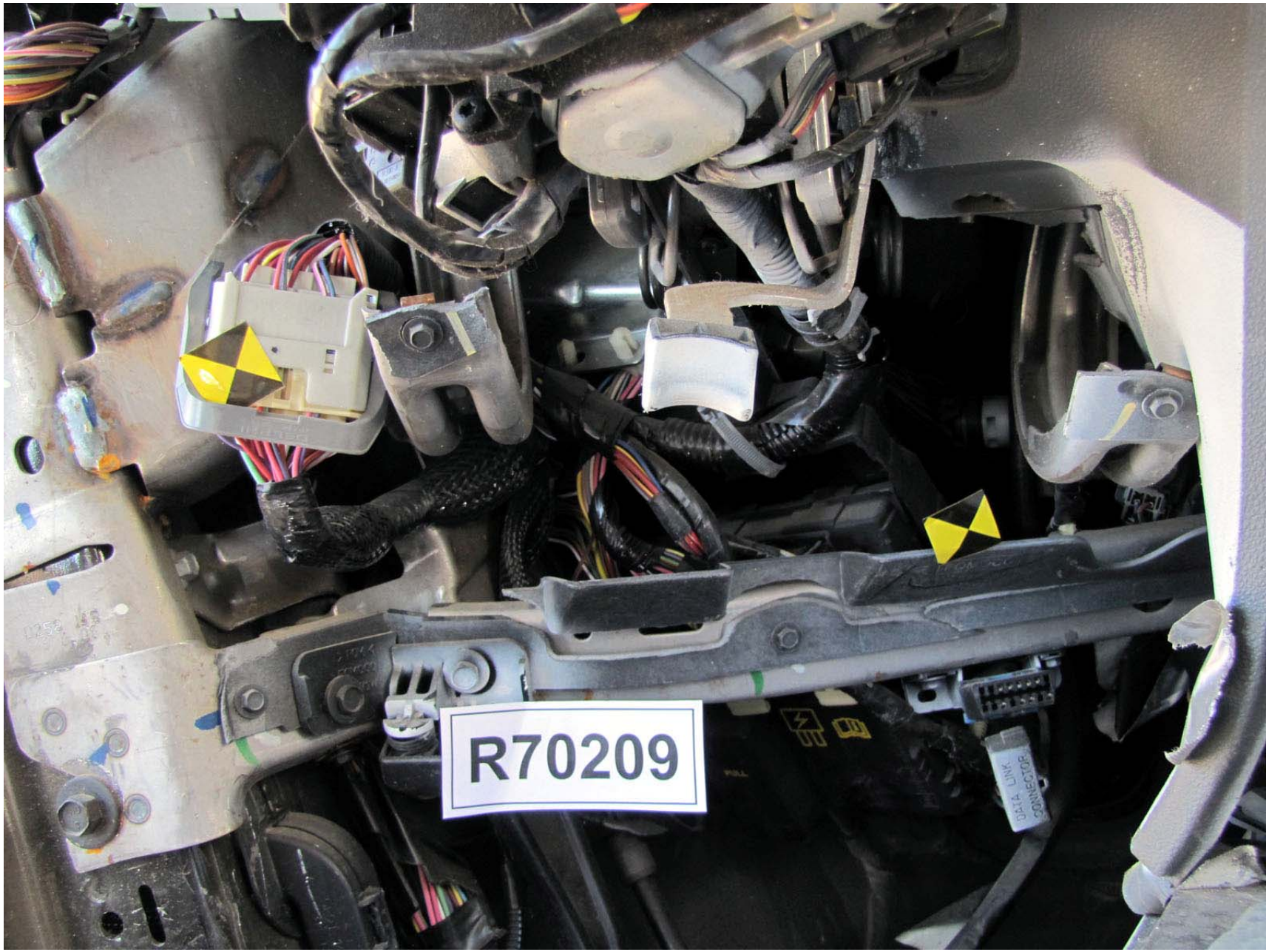

Figure A-249: Test Vehicle Post-Test Driver's Side Knee Bolster

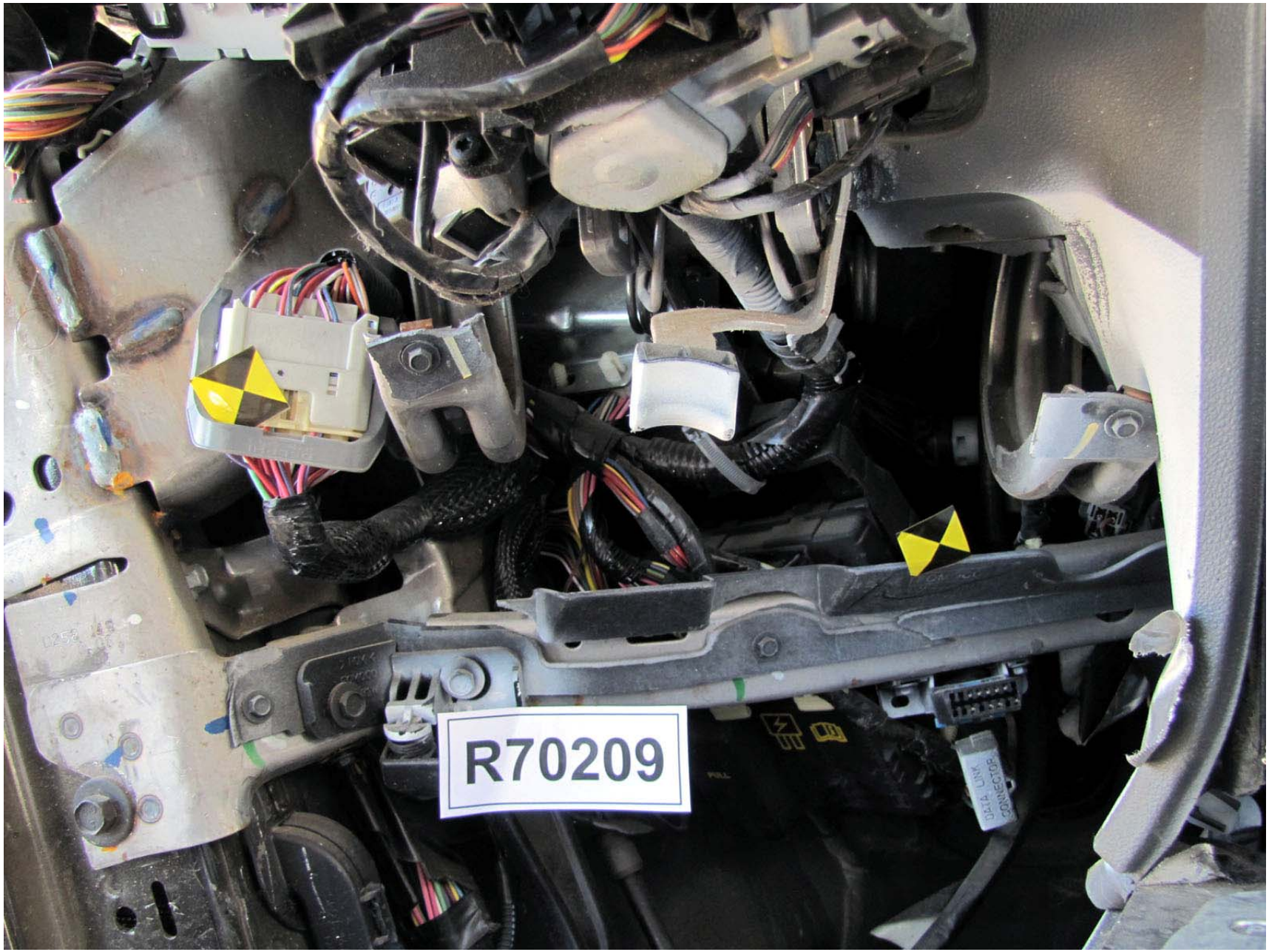

Figure A-250: Test Vehicle Post-Test Driver's Side Knee Bolster

Figure A-251: Test Vehicle Pre-Test Driver Dummy Head

Figure A-252: Test Vehicle Post-Test Driver Dummy Head

Figure A-253: Test Vehicle Post-Test Driver Dummy Contact, Airbag

Figure A-254: Test Vehicle Post-Test Driver Dummy Contact, A-Pillar

Figure A-255: Test Vehicle Post-Test Driver Dummy Contact, Side Header

Figure A-256: Test Vehicle Post-Test Driver Dummy Contact, Sun Visor

Figure A-257: Test Vehicle Post-Test Driver Dummy Contact, Headrest

Figure A-258: Test Vehicle Pre-Test Rear Door Panel

Figure A-259: Test Vehicle Post-Test Rear Door Panel

Figure A-260: Test Vehicle Pre-Test Passenger Dummy Right Side View

Figure A-261: Test Vehicle Post-Test Passenger Dummy Right Side View

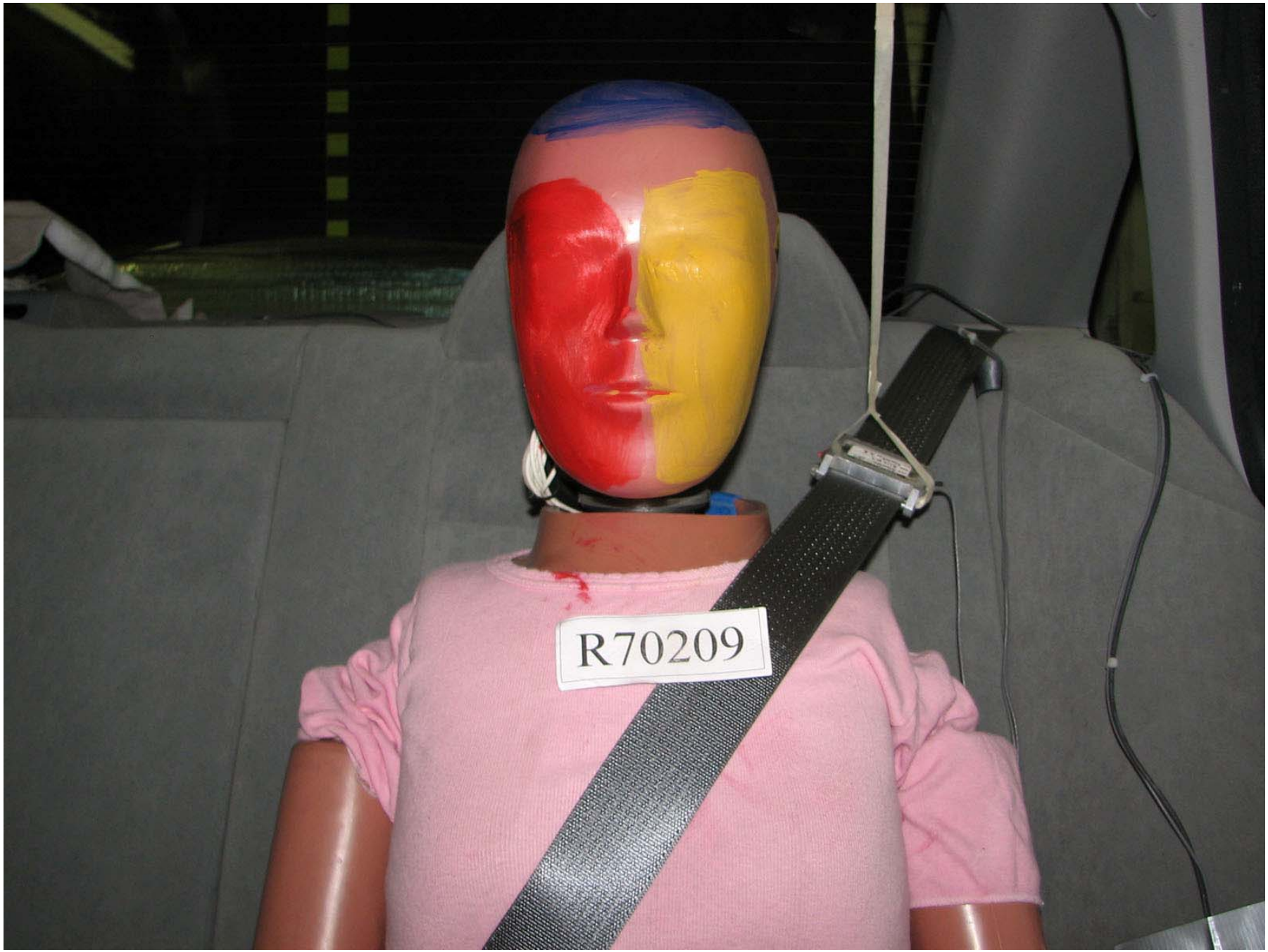

Figure A-262: Test Vehicle Pre-Test Passenger Dummy Front View

Figure A-263: Test Vehicle Post-Test Passenger Dummy Front View

Figure A-264: Test Vehicle Pre-Test Passenger Dummy Left Side View (Door Open)

Figure A-265: Test Vehicle Post-Test Passenger Dummy Left Side View (Door Closed)

Figure A-266: Test Vehicle Pre-Test Passenger Dummy Feet Positioning

Figure A-267: Test Vehicle Pre-Test Passenger Dummy Feet Positioning

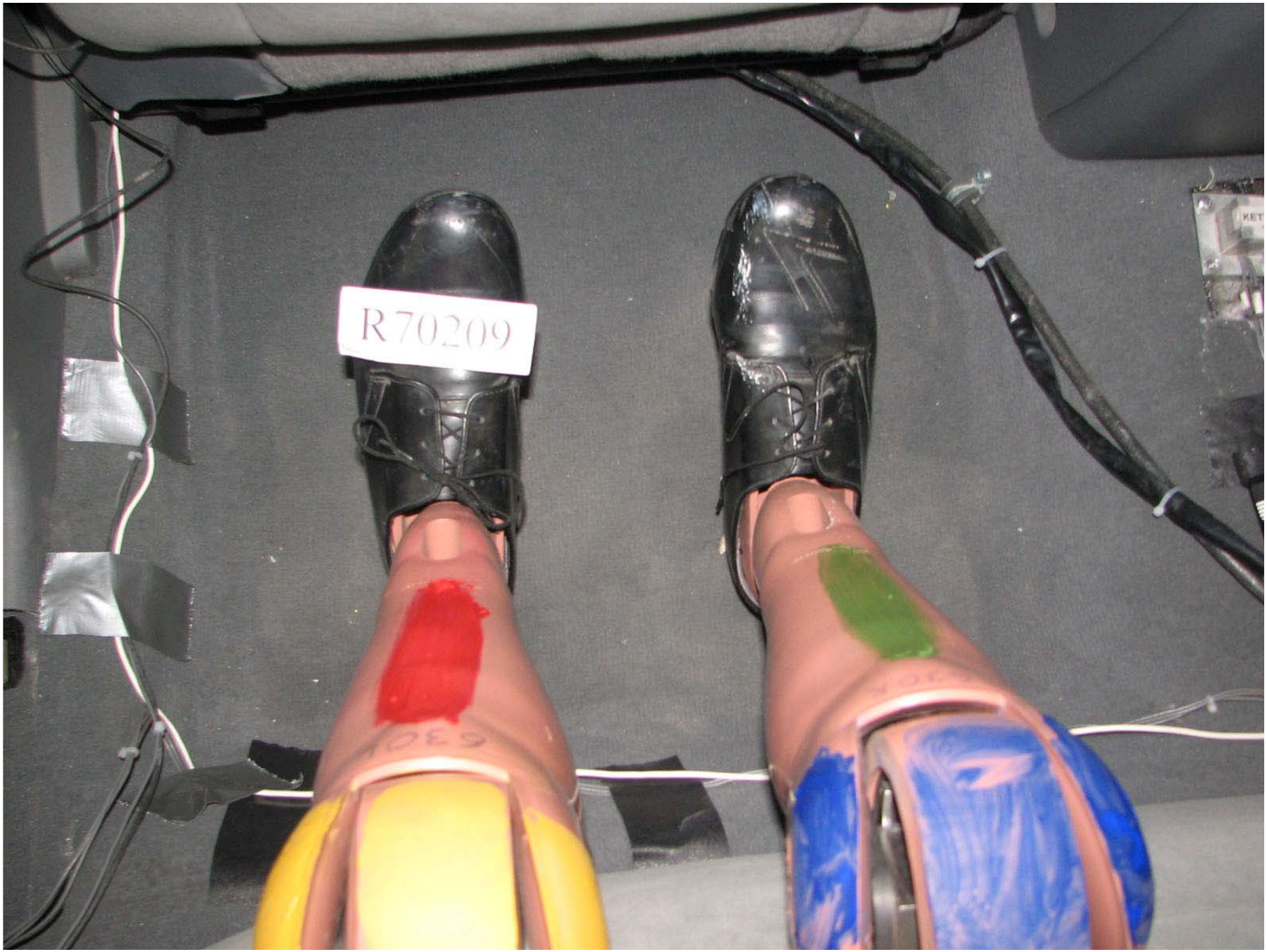

Figure A-268: Test Vehicle Pre-Test Passenger Dummy Feet Positioning

Figure A-269: Test Vehicle Pre-Test Passenger Dummy Feet Positioning

Figure A-270: Test Vehicle Post-Test Passenger Dummy Feet Positioning

Figure A-271: Test Vehicle Post-Test Passenger Dummy Feet Positioning

Figure A-272: Test Vehicle Post-Test Passenger Dummy Feet Positioning

Figure A-273: Test Vehicle Pre-Test Passenger Dummy Left Side View (Through Window)

Figure A-274: Test Vehicle Post-Test Passenger Dummy Left Side View (Through Window)

Figure A-275: Test Vehicle Pre-Test Passenger Dummy Clearance from Door

Figure A-276: Test Vehicle Post-Test Passenger Dummy Clearance from Door

Figure A-277: Test Vehicle Pre-Test Passenger's Side Knee Bolster

Figure A-278: Test Vehicle Post-Test Passenger's Side Knee Bolster

Figure A-279: Test Vehicle Pre-Test Passenger Dummy Head

Figure A-280: Test Vehicle Post-Test Passenger Dummy Head

Figure A-281: Test Vehicle Post-Test Passenger Dummy Contact, Seat Back

Figure A-282: Test Vehicle Post-Test Passenger Dummy Contact, Door Panel

Figure A-283: Test Vehicle Post-Test Passenger Dummy Contact, C-Pillar

Figure A-284: Test Vehicle Post-Test Passenger Dummy Contact, C Pillar Panel Removed

Figure A-285: Test Vehicle Pre-Test Driver Floorpan

Figure A-286: Test Vehicle Post-Test Driver Floorpan

Figure A-287: Test Vehicle Pre-Test Driver Floorpan Left ¾ View, Seat Cushion Height

Figure A-288: Test Vehicle Post-Test Driver Floorpan Left ¾ View, Seat Cushion Height

Figure A-289: Test Vehicle Pre-Test Driver Floorpan Left ¾ View, Sill Height

Figure A-290: Test Vehicle Post-Test Driver Floorpan Left ¾ View, Sill Height

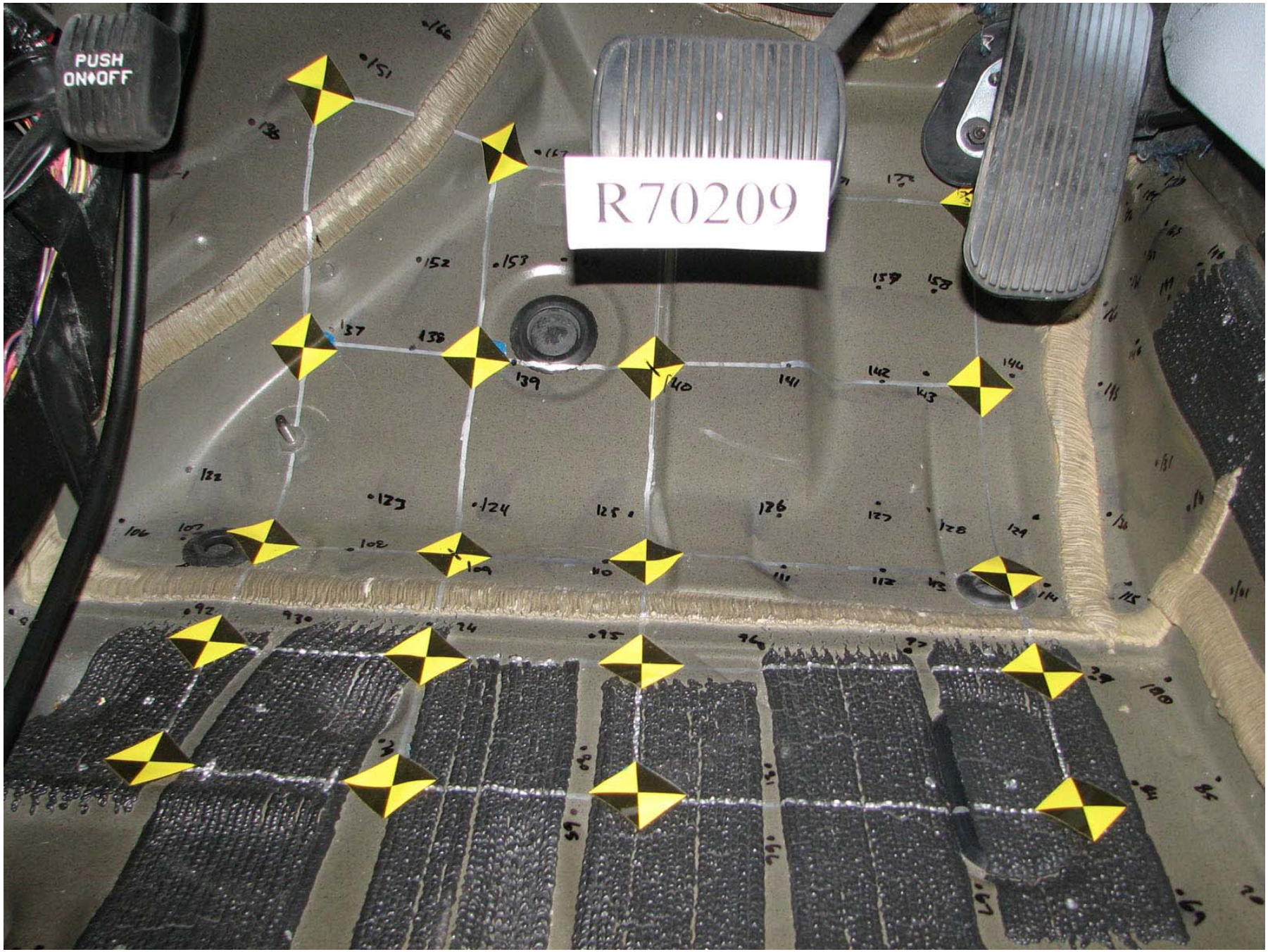

Figure A-291: Test Vehicle Pre-Test Driver Floorpan, Seat Cushion Height

Figure A-292: Test Vehicle Post-Test Driver Floorpan, Seat Cushion Height

Figure A-293: Test Vehicle Pre-Test Driver Floorpan, Sill Height

Figure A-294: Test Vehicle Post-Test Driver Floorpan, Sill Height

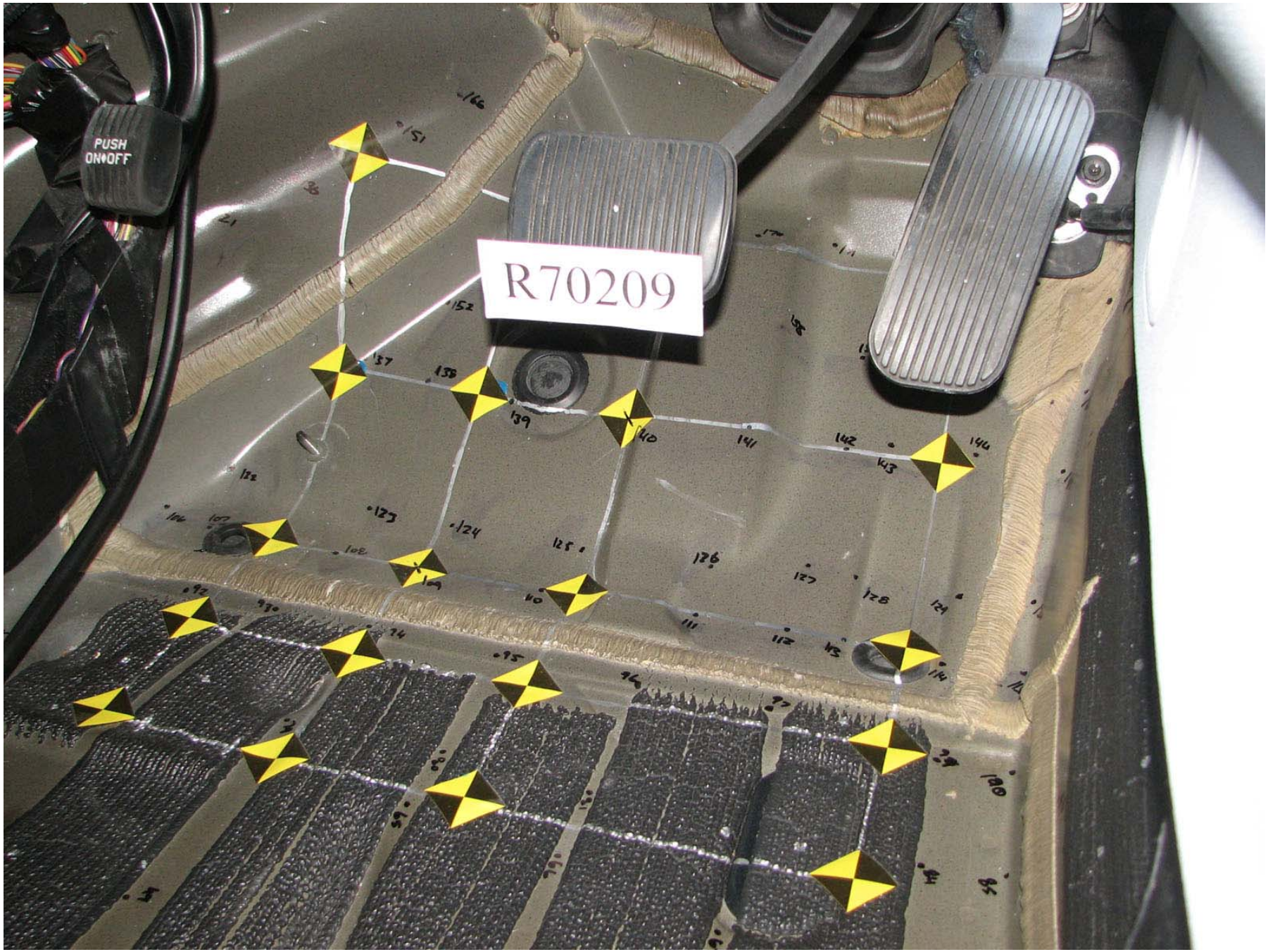

Figure A-295: Test Vehicle Pre-Test Driver Floorpan Right ¾ View, Seat Cushion Height

Figure A-296: Test Vehicle Post-Test Driver Floorpan Right ¾ View, Seat Cushion Height

Figure A-297: Test Vehicle Pre-Test Driver Floorpan Right ¾ View, Sill Height

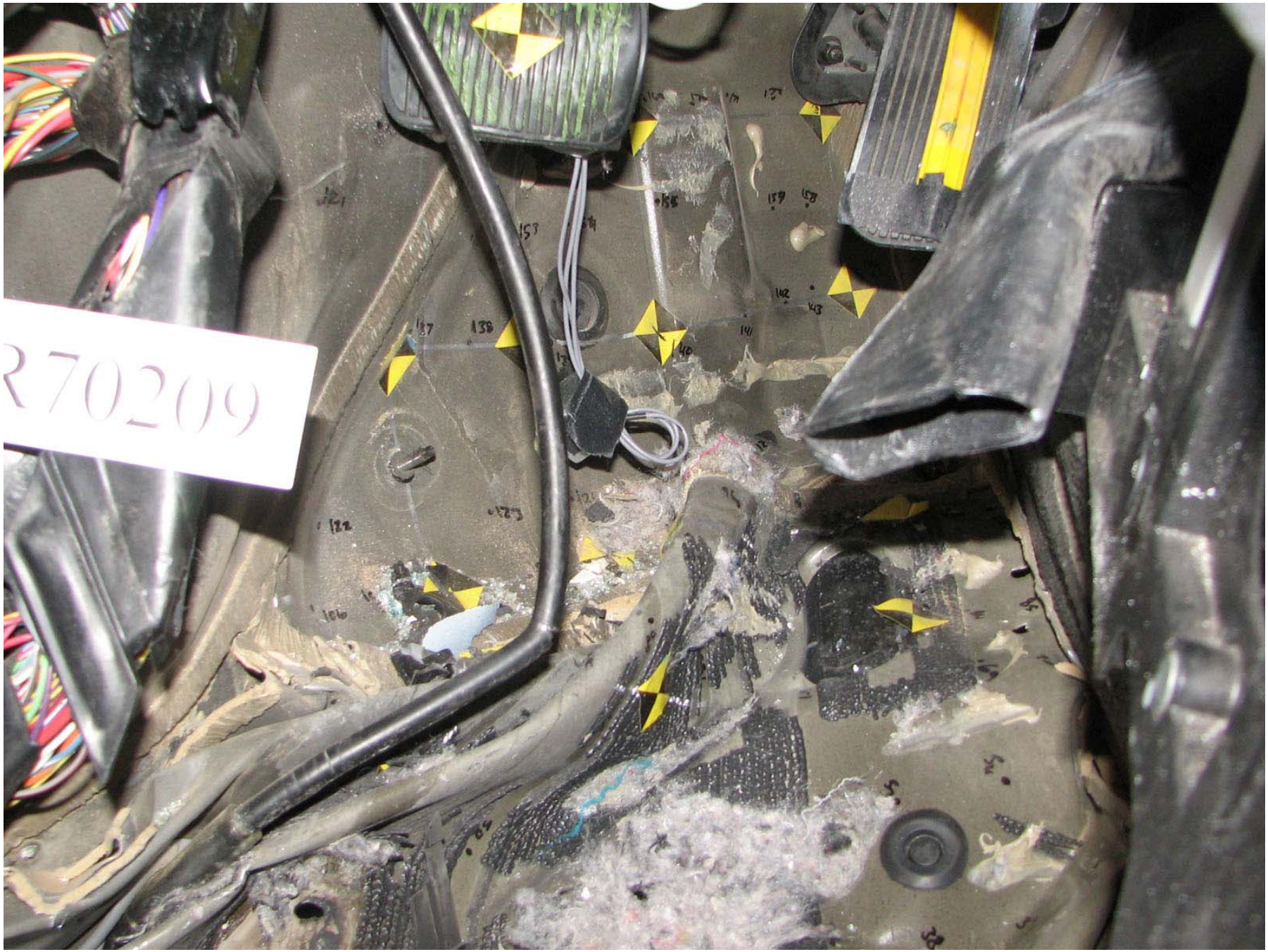

Figure A-298: Test Vehicle Post-Test Driver Floorpan Right ¾ View, Sill Height

Figure A-299: Test Vehicle Pre-Test Accelerator Pedal, Seat Cushion Height

Figure A-300: Test Vehicle Post-Test Accelerator Pedal, Seat Cushion Height

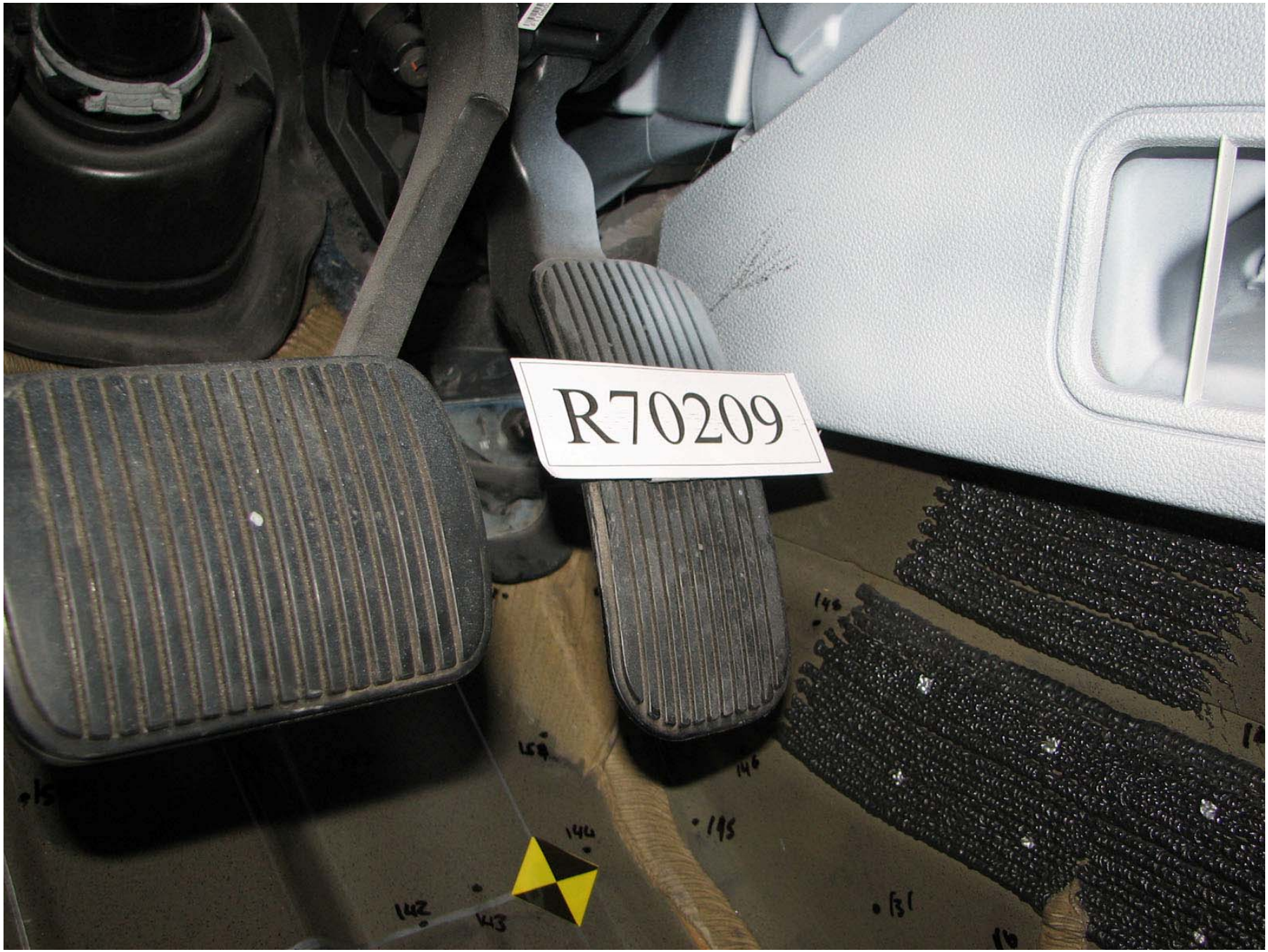

Figure A-301: Test Vehicle Pre-Test Accelerator Pedal Side View, In Front of Brake Pedal

Figure A-302: Test Vehicle Post-Test Accelerator Pedal Side View, In Front of Brake Pedal

Figure A-303: Test Vehicle Pre-Test Accelerator Pedal Side View, Behind Brake Pedal

Figure A-304: Test Vehicle Post-Test Accelerator Pedal Side View, Behind Brake Pedal

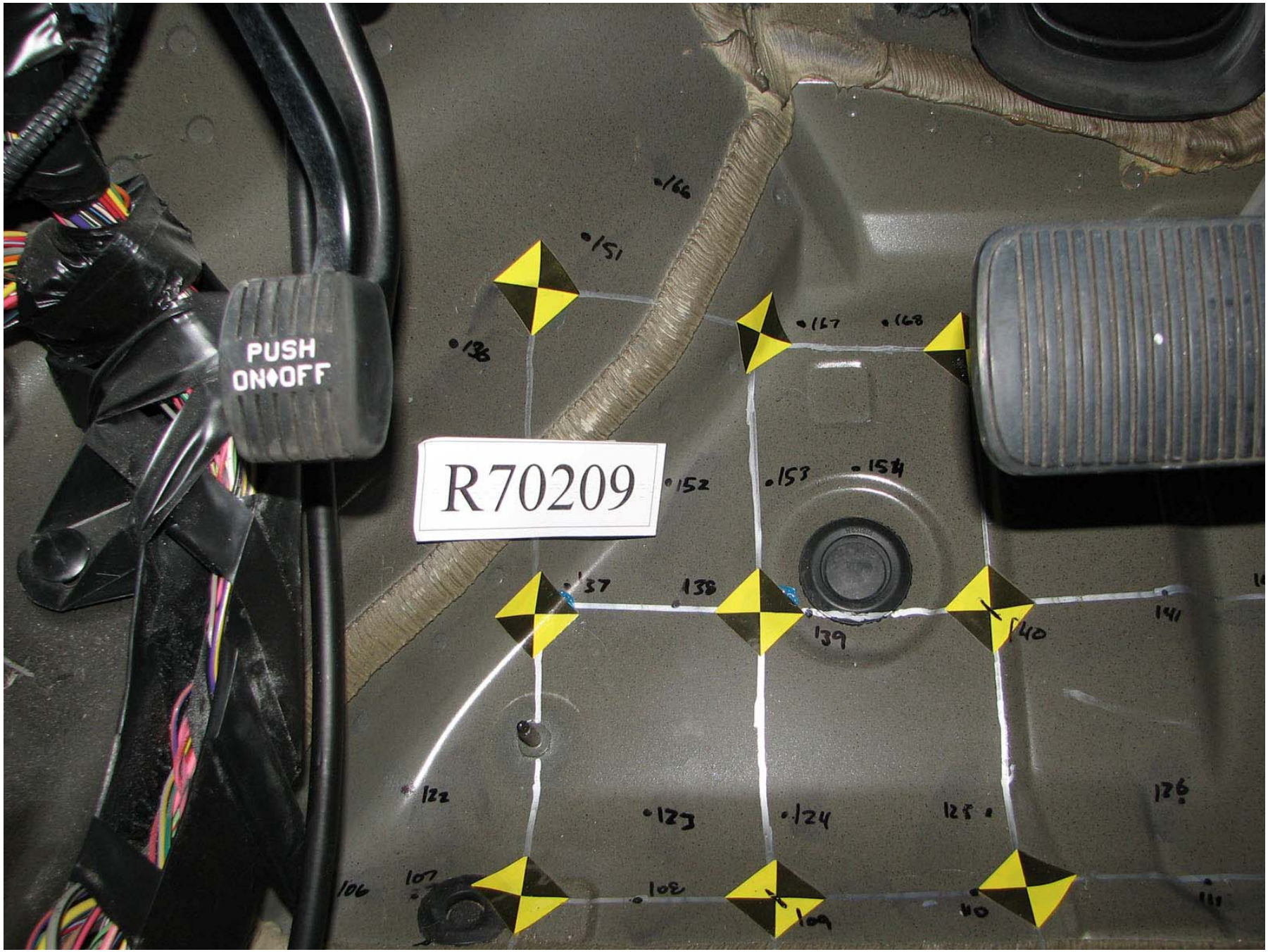

Figure A-305: Test Vehicle Pre-Test Foot Rest, Seat Cushion Height

Figure A-306: Test Vehicle Post-Test Foot Rest, Seat Cushion Height

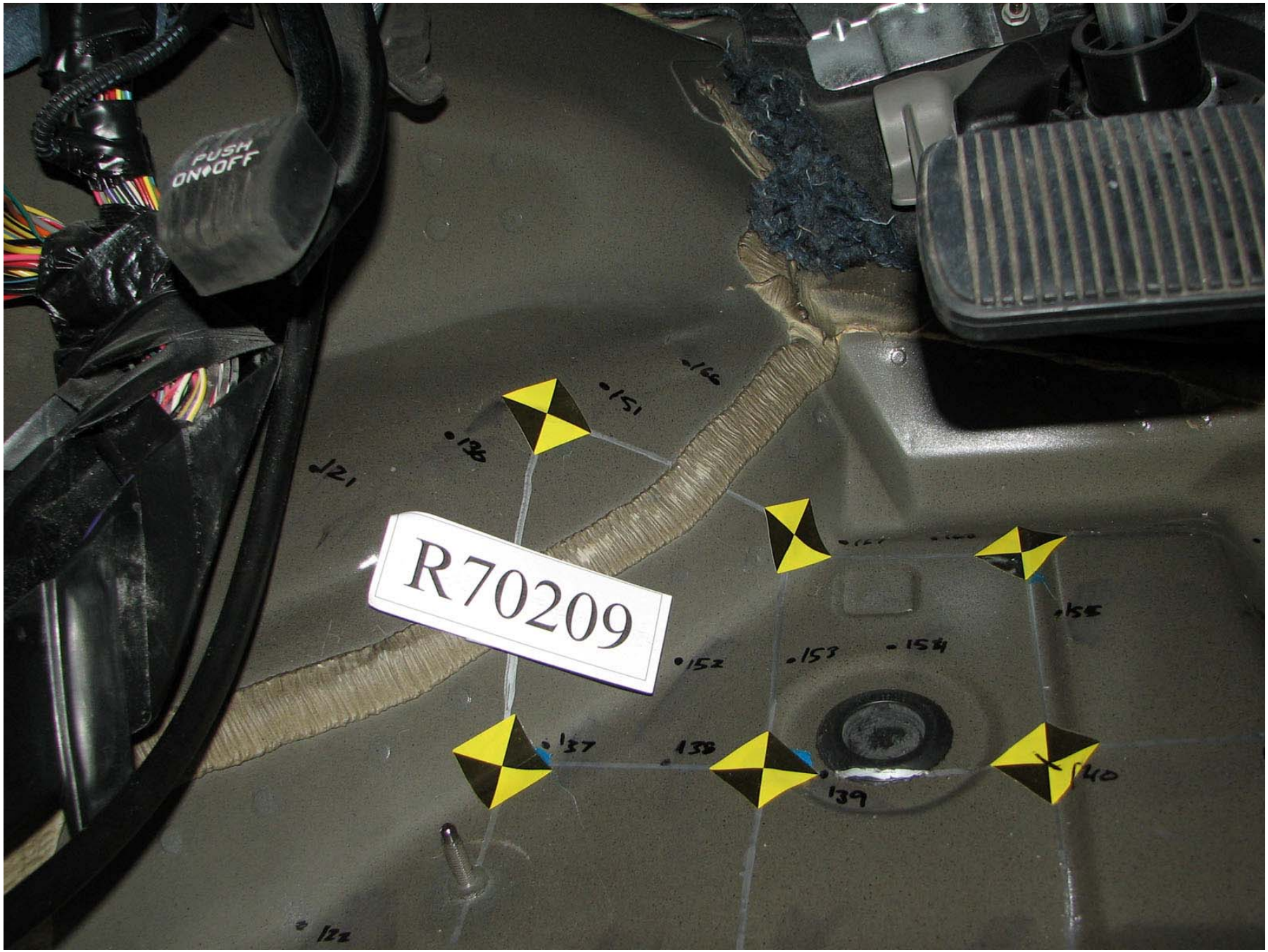

Figure A-307: Test Vehicle Pre-Test Foot Rest, Sill Height

Figure A-308: Test Vehicle Post-Test Foot Rest, Sill Height

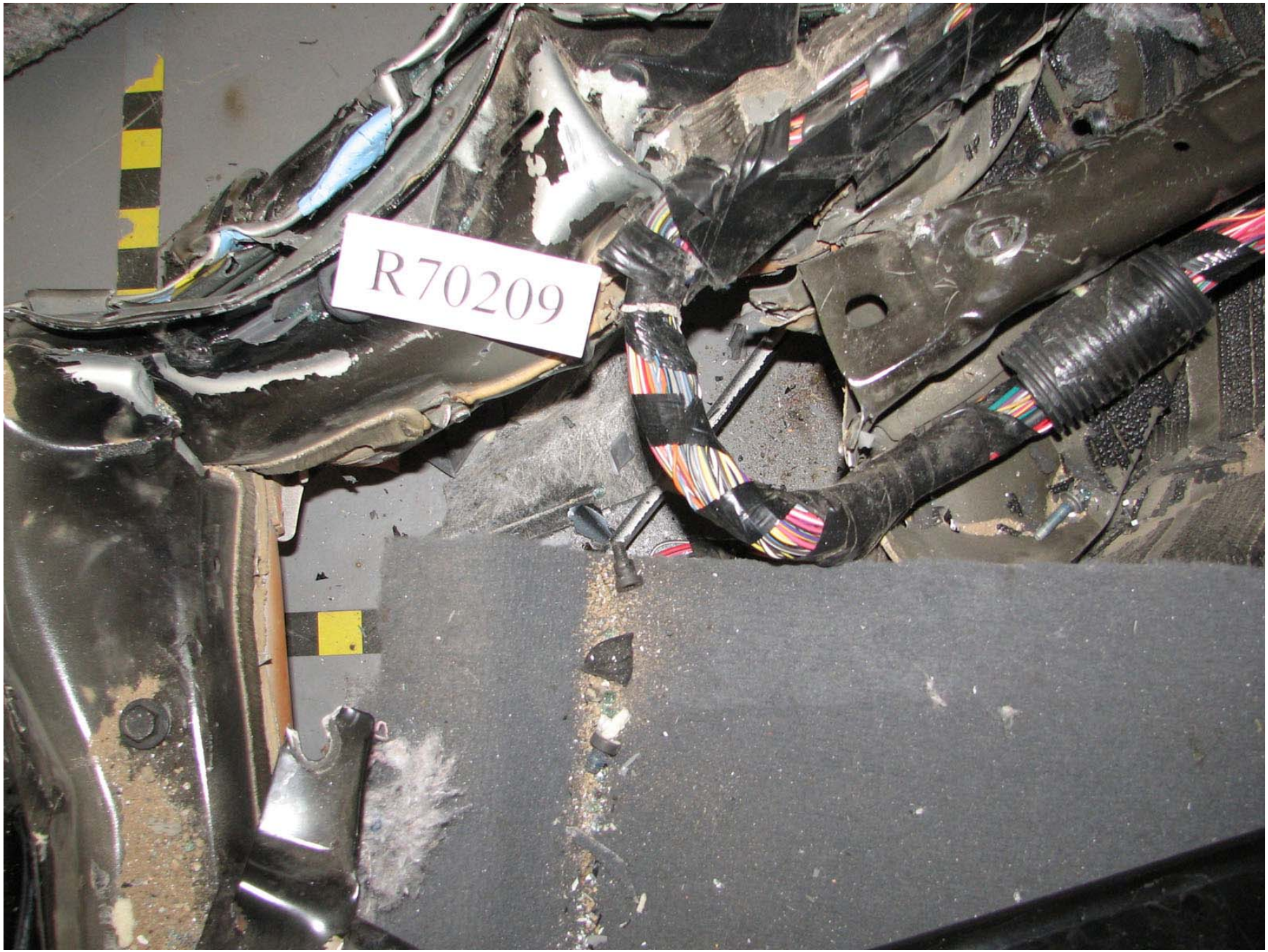

Figure A-309: Test Vehicle Post-Test Driver Floorpan and Left Front Sill

Figure A-310: Test Vehicle Pre-Test Structural Member Crush Measurement

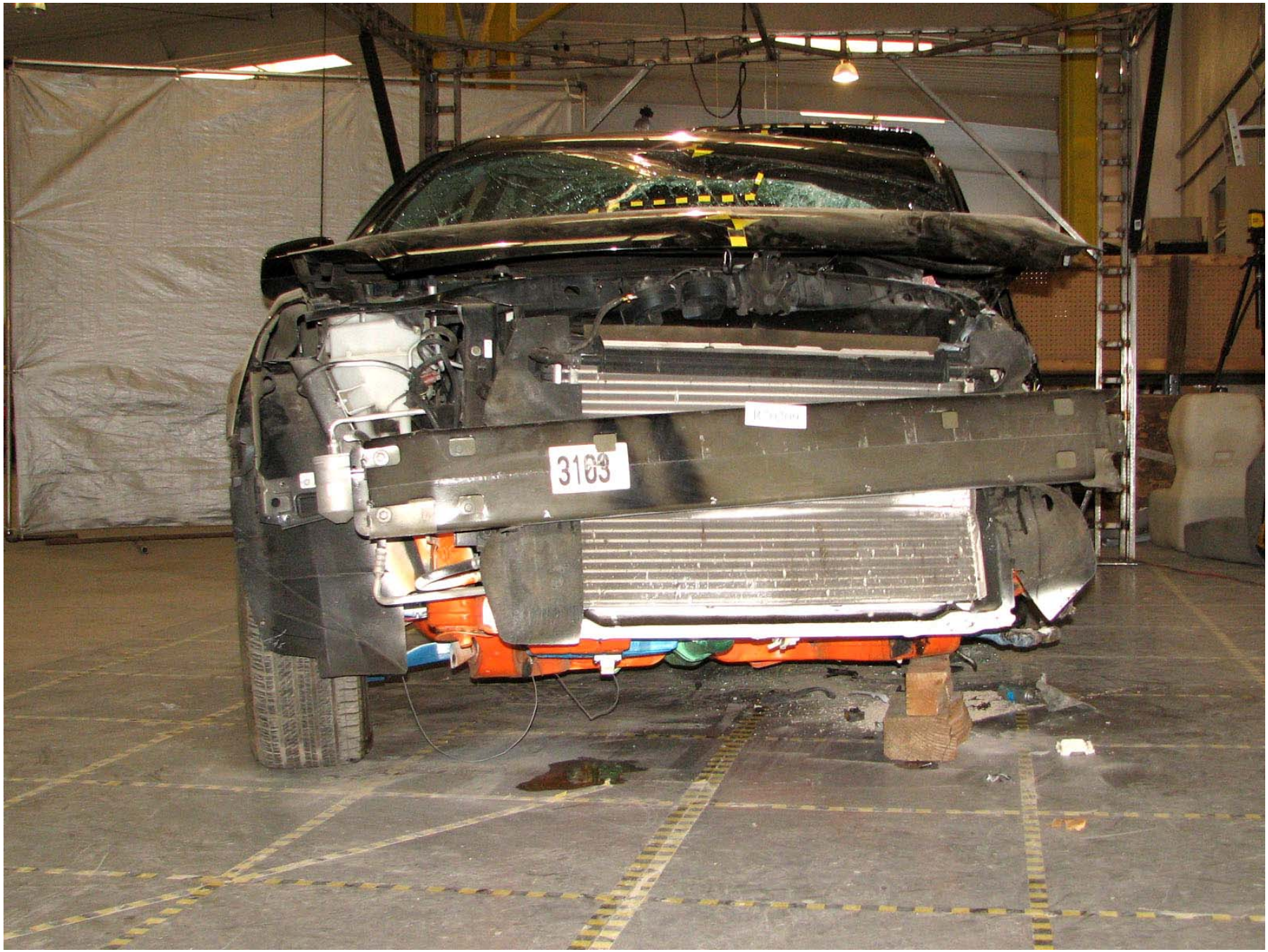

Figure A-311: Test Vehicle Post-Test Structural Member Crush Measurement

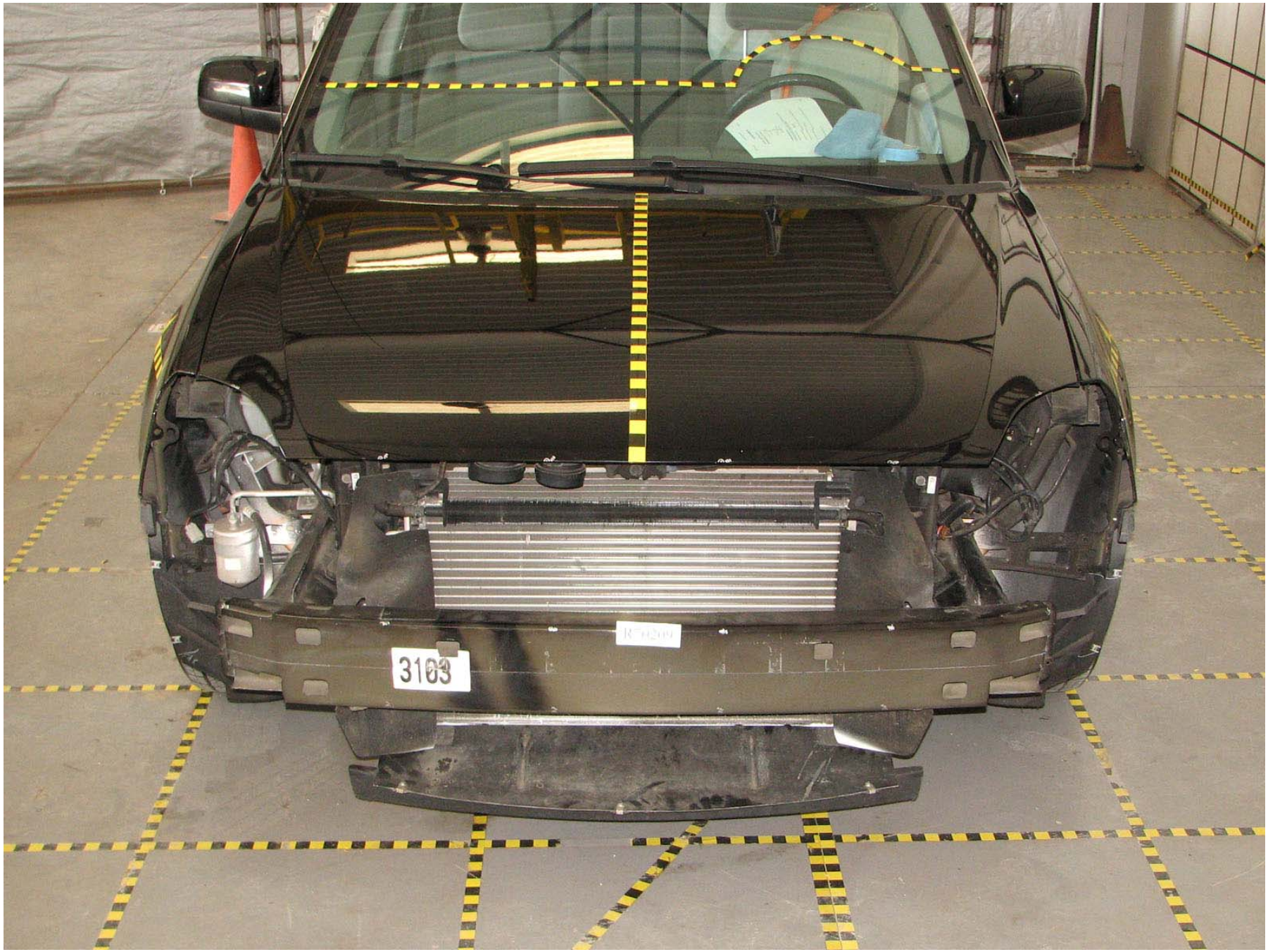

Figure A-312: Test Vehicle Pre-Test Structural Member Crush Measurement

Figure A-313: Test Vehicle Post-Test Structural Member Crush Measurement

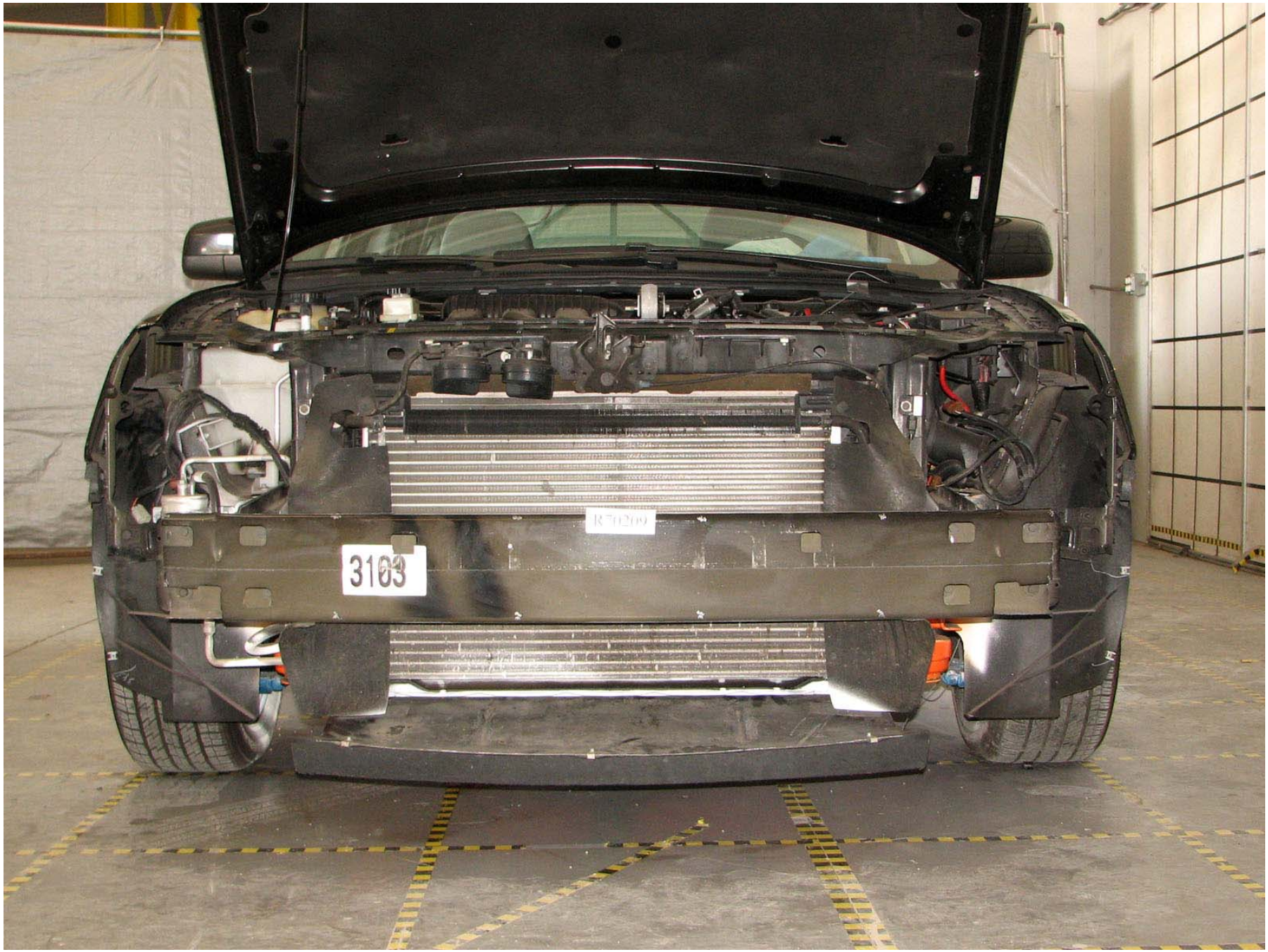

Figure A-314: Test Vehicle Pre-Test Structural Member Crush Measurement

Figure A-315: Test Vehicle Post-Test Structural Member Crush Measurement

Figure A-316: Test Vehicle Pre-Test Structural Member Crush Measurement

Figure A-317: Test Vehicle Post-Test Structural Member Crush Measurement

Figure A-318: Test Vehicle Post-Test Windshield Separation

Figure A-319: Test Vehicle Post-Test Windshield Separation

Figure A-320: Test Vehicle Post-Test Windshield Separation

Figure A-321: Test Vehicle Post-Test Windshield Separation

Figure A-322:

Figure A-323: Test Vehicle Post Test Driver Floorpan Separation at Sill

Figure A-324: Test Vehicle Pre-Test Front View of Deformable Barrier

Figure A-325: Test Vehicle Post-Test Front View of Deformable Barrier

Figure A-326: Test Vehicle Pre-Test Top View of Deformable Barrier

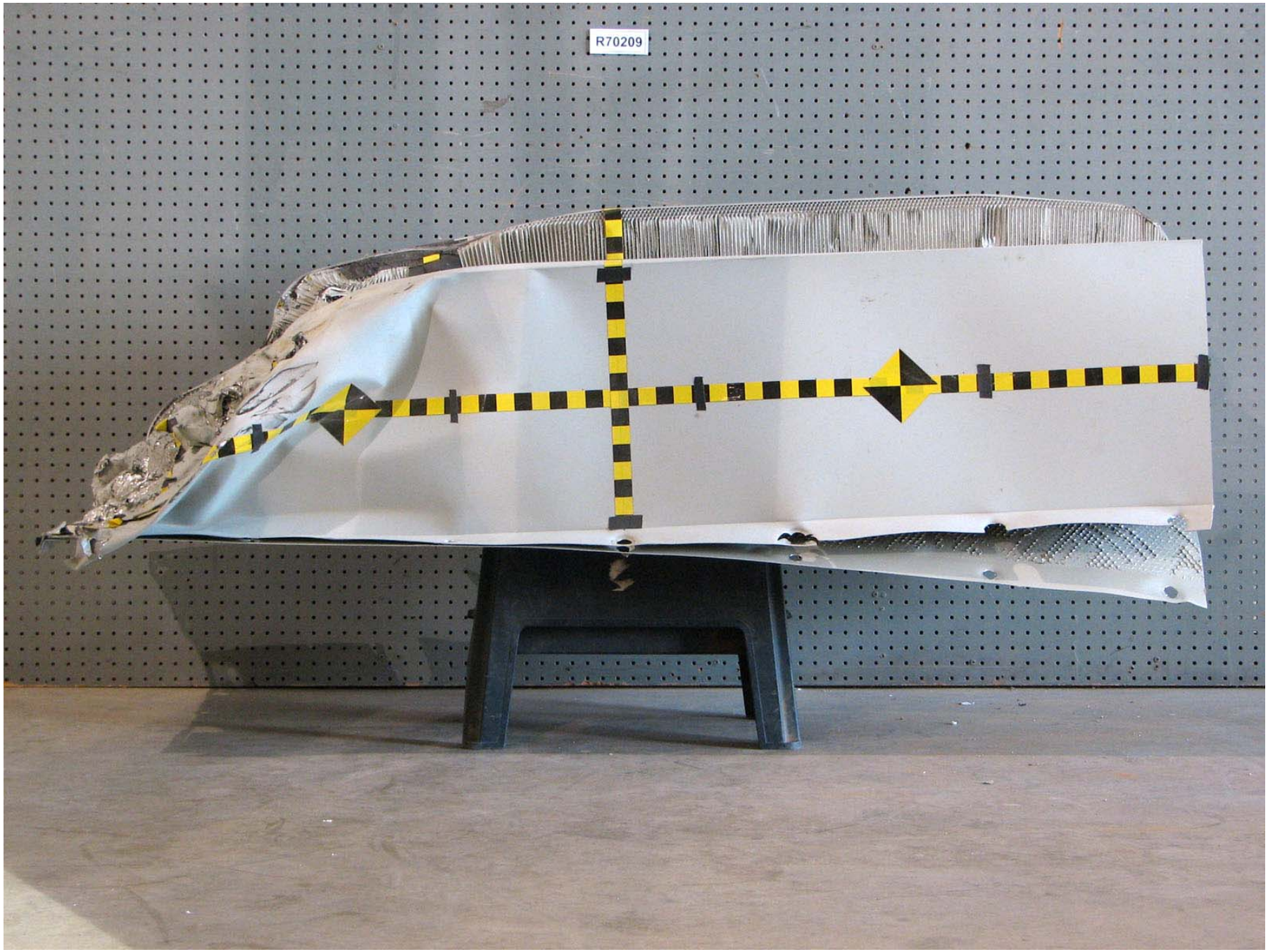

Figure A-327: Test Vehicle Post-Test Top View of Deformable Barrier

Figure A-328: Test Vehicle Pre-Test Right Side View of Deformable Barrier

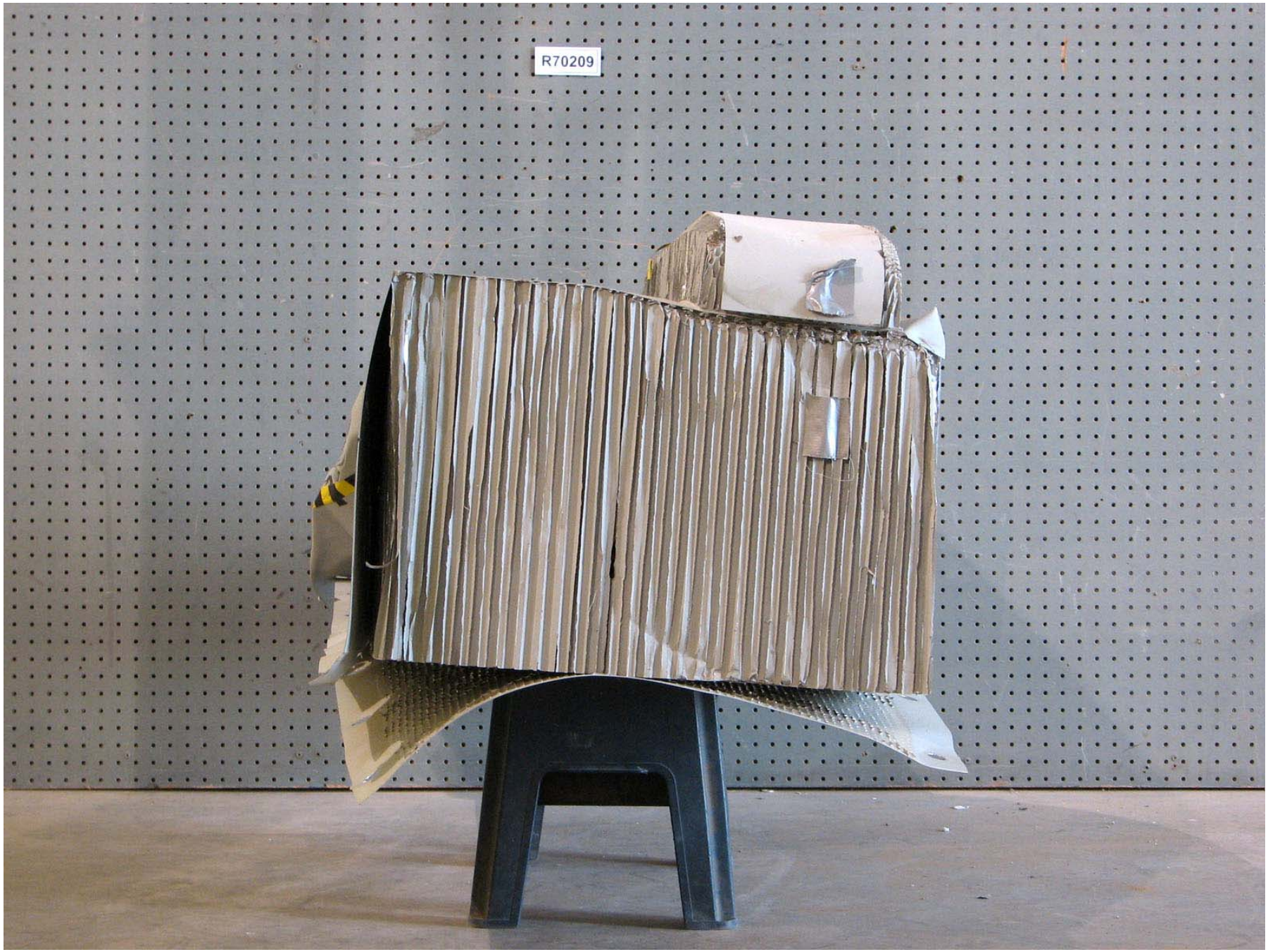

Figure A-329: Test Vehicle Post-Test Right Side View of Deformable Barrier

Figure A-330: Test Vehicle Pre-Test Left Side View of Deformable Barrier

Figure A-331: Test Vehicle Post-Test Left Side View of Deformable Barrier

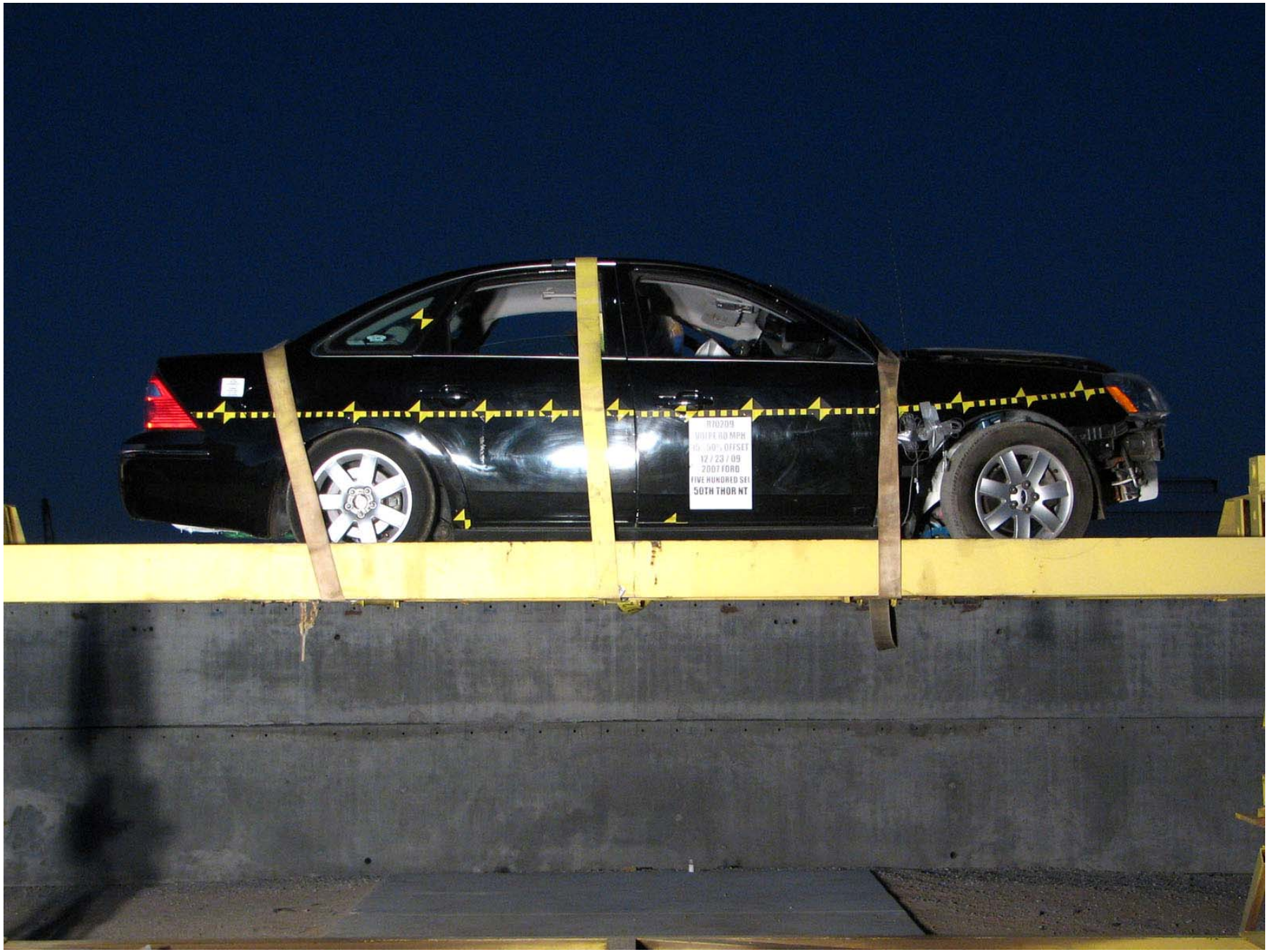

Figure A-332: Test Vehicle on Rollover Device (0°)

Figure A-333: Test Vehicle on Rollover Device (90°)

Figure A-334: Test Vehicle on Rollover Device (180°)

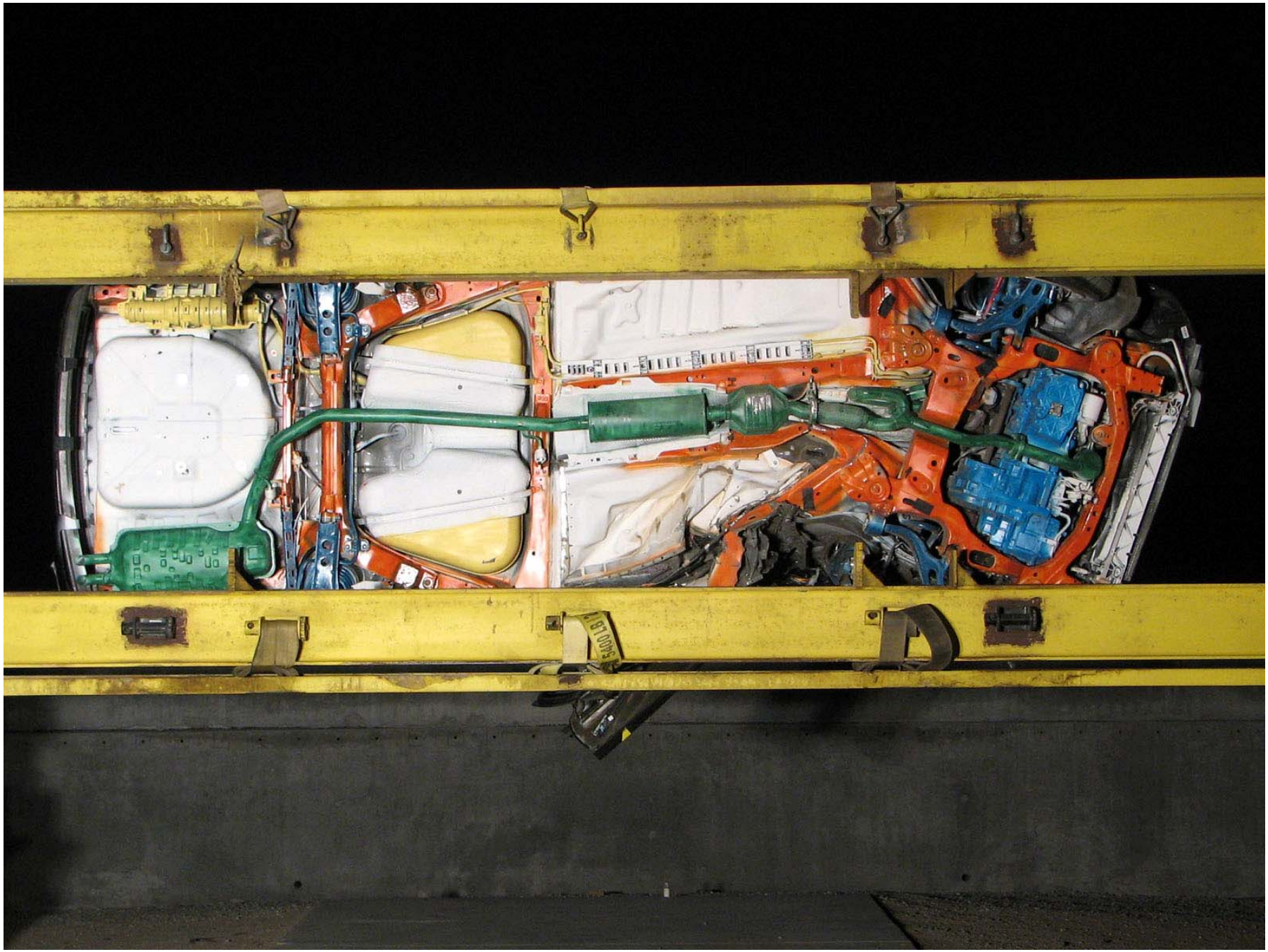

Figure A-335: Test Vehicle on Rollover Device (270°)

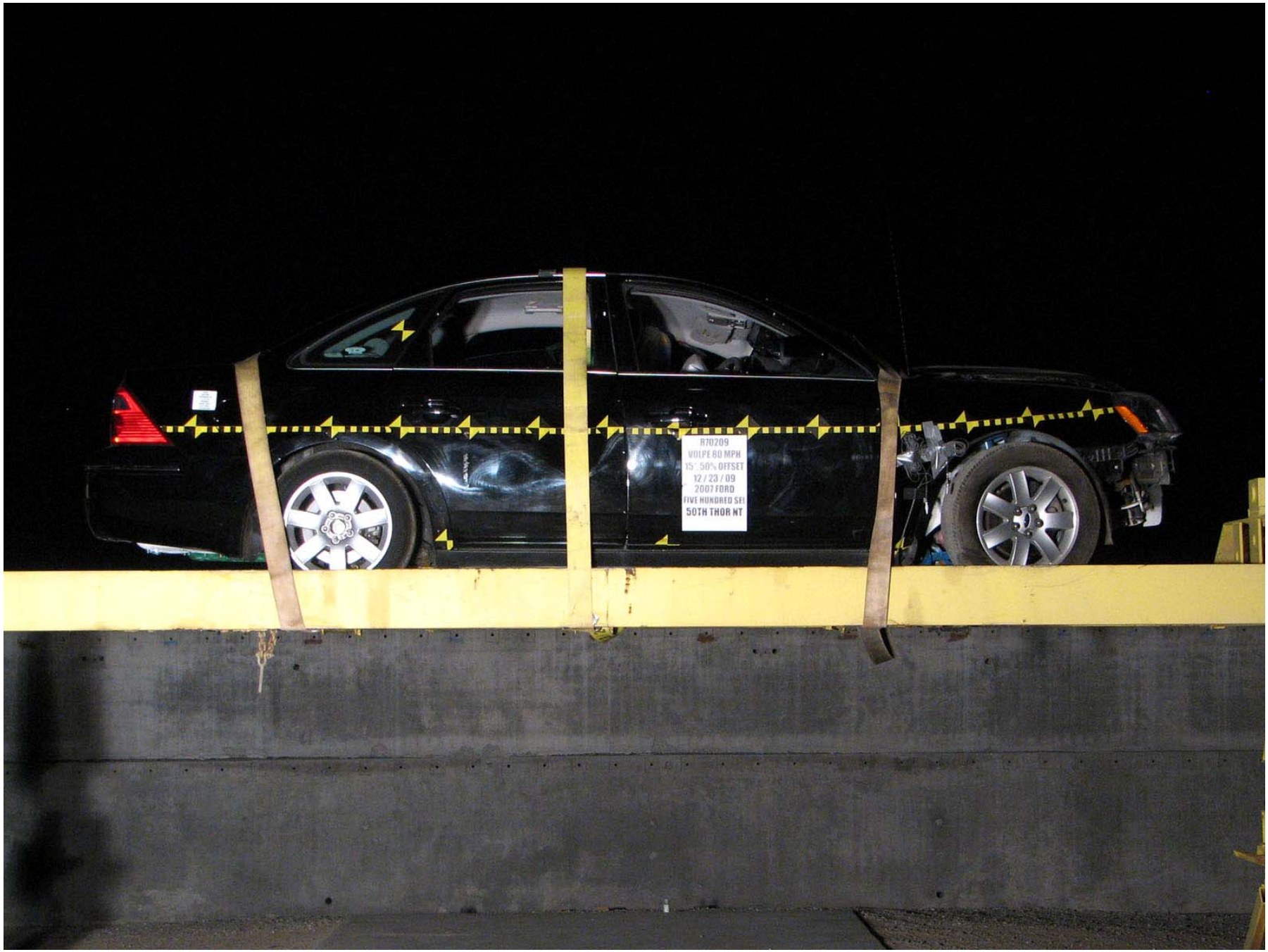

Figure A-336: Test Vehicle on Rollover Device (360°)

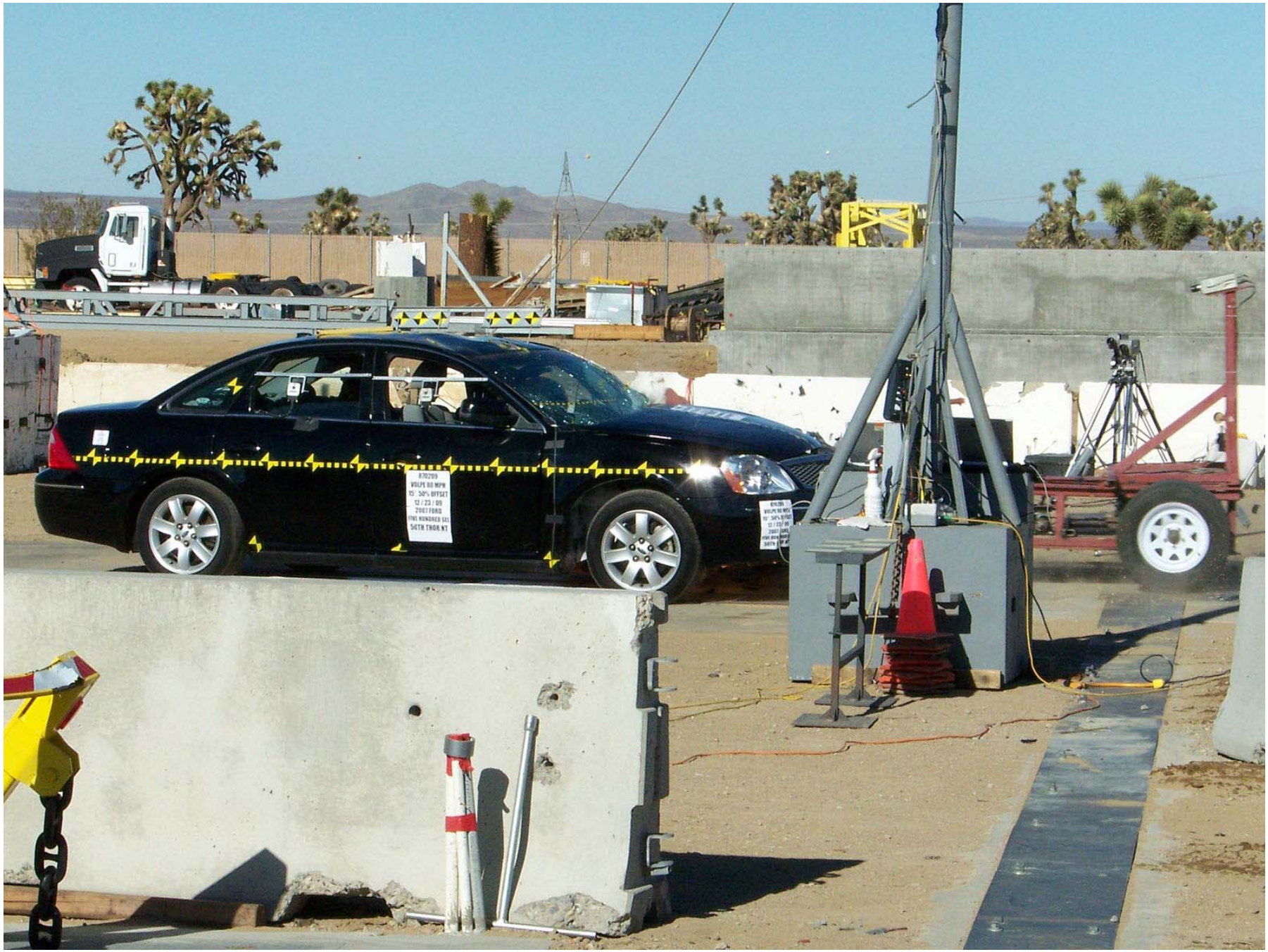

Figure A-337: Test Vehicle Impact

APPENDIX B
DATA PLOTS

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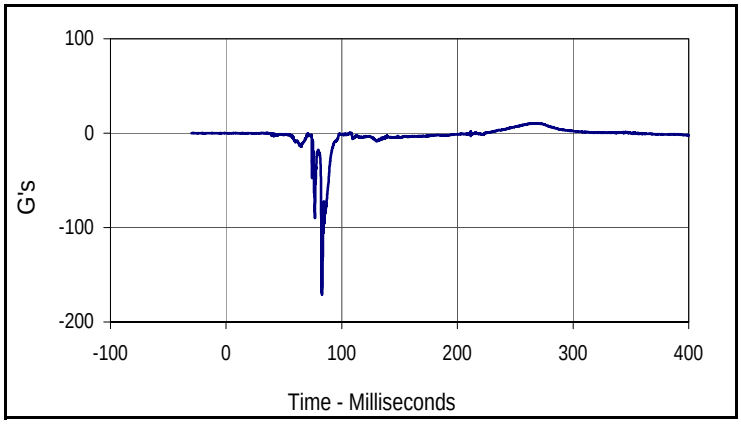
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



Curve Description			
Driver Head CG X			
CURNO	Type	SAE Class	Units
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Max	Time	Min	Time
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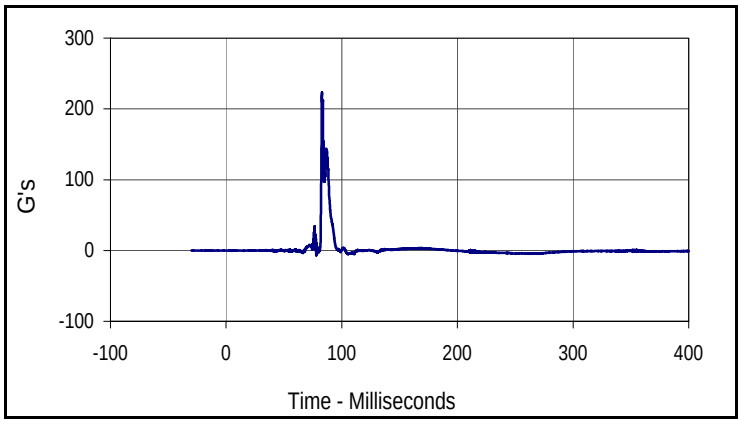

Curve Description			
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Max	Time	Min	Time
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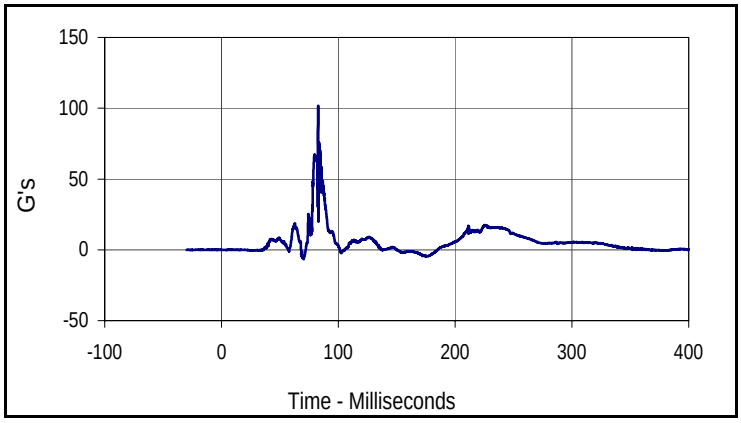

Curve Description			
Driver Head CG Z			
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Max	Time	Min	Time
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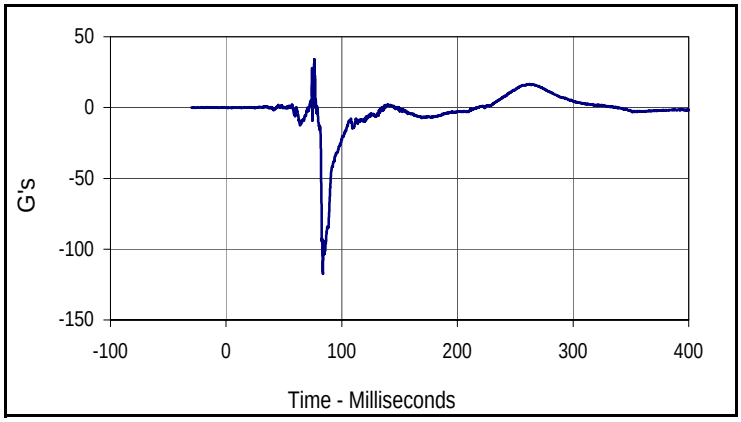
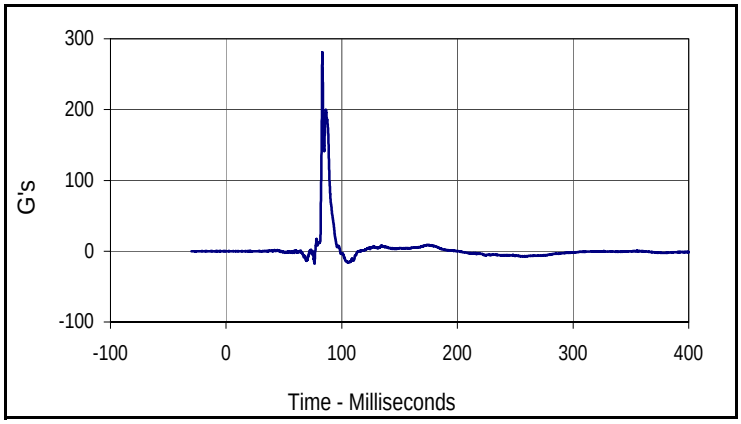
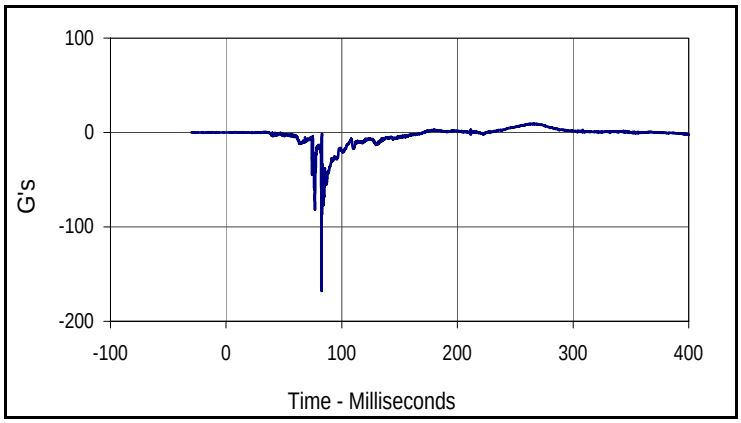


Curve Description			
Driver Top Head Array X			
CURNO	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
34.3	76.3	-117.5	83.6

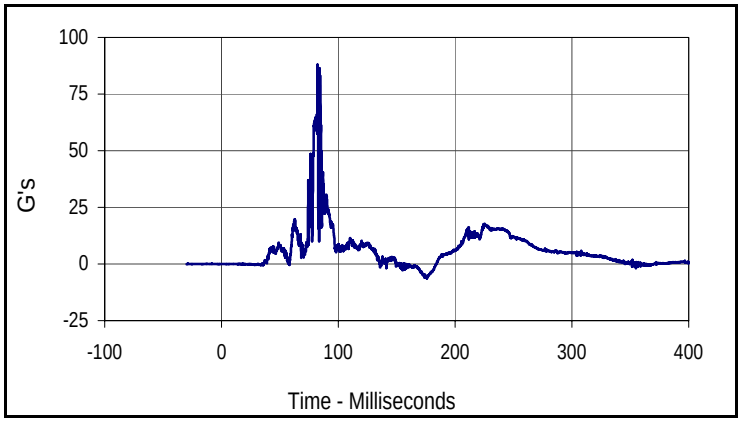
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



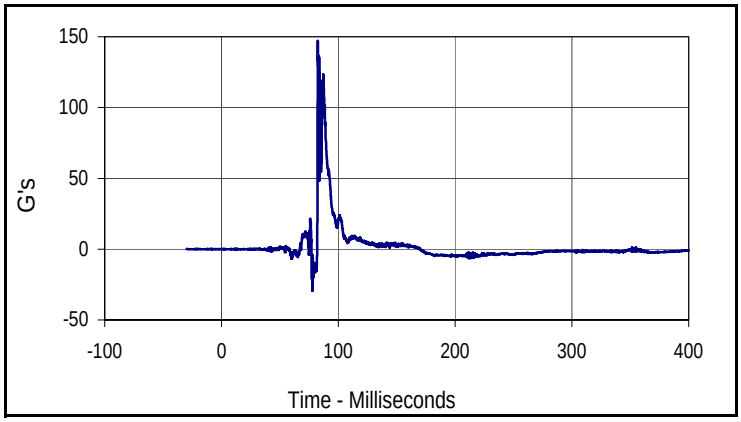
Curve Description			
Driver Top Head Array Y			
CURNO	Type	SAE Class	Units
005	FIL	1000	G's
Max	Time	Min	Time
281.0	83.2	-17.9	76.4



Curve Description			
Driver Left Side Head Array X			
CURNO	Type	SAE Class	Units
006	FIL	1000	G's
Max	Time	Min	Time
9.4	266.4	-166.8	82.5

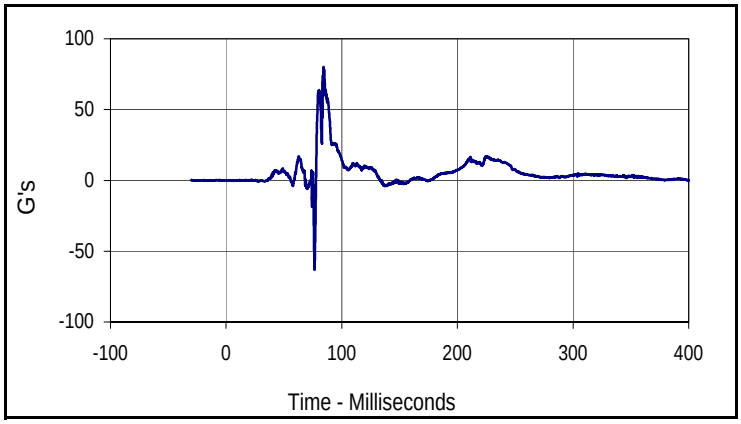


Curve Description			
Driver Left Side Head Array Z			
CURNO	Type	SAE Class	Units
007	FIL	1000	G's
Max	Time	Min	Time
87.7	82.2	-6.3	176.0

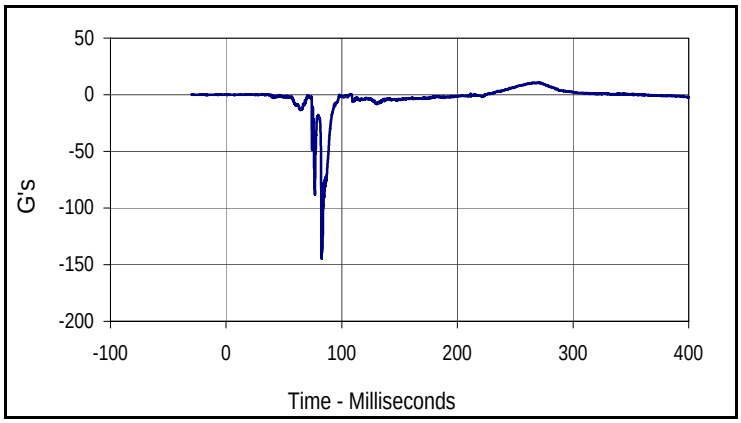


Curve Description			
Driver Rear Head Array Y			
CURNO	Type	SAE Class	Units
008	FIL	1000	G's
Max	Time	Min	Time
146.3	82.5	-29.3	77.9

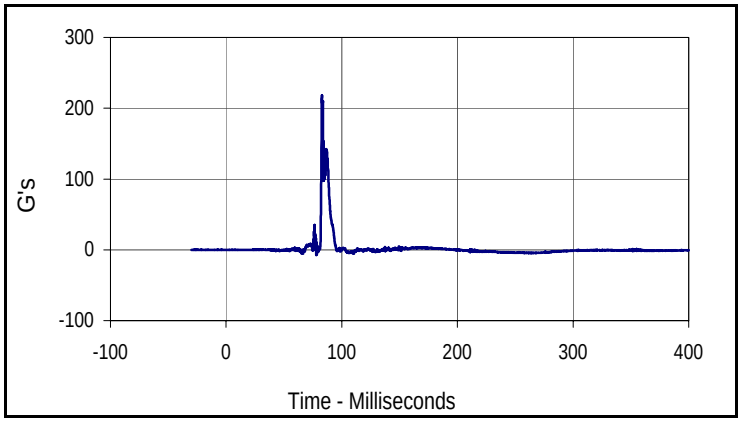
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



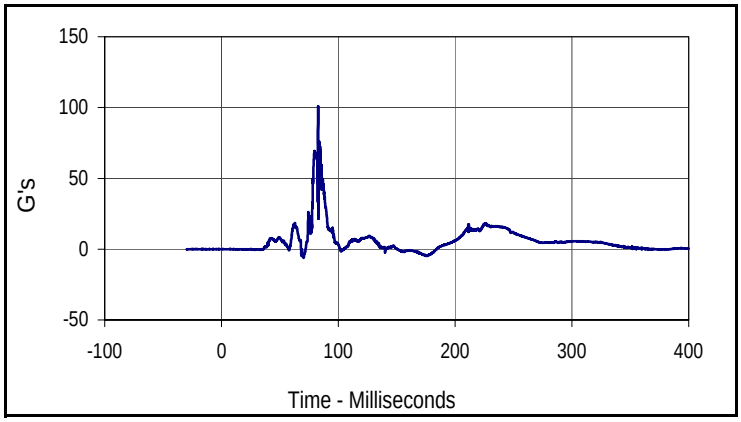
Curve Description			
Driver Rear Head Array Z			
CURNO	Type	SAE Class	Units
009	FIL	1000	G's
Max	Time	Min	Time
80.2	84.2	-63.1	76.4



Curve Description			
Driver Head CG X Redundant			
CURNO	Type	SAE Class	Units
010	FIL	1000	G's
Max	Time	Min	Time
10.7	266.1	-144.5	82.5

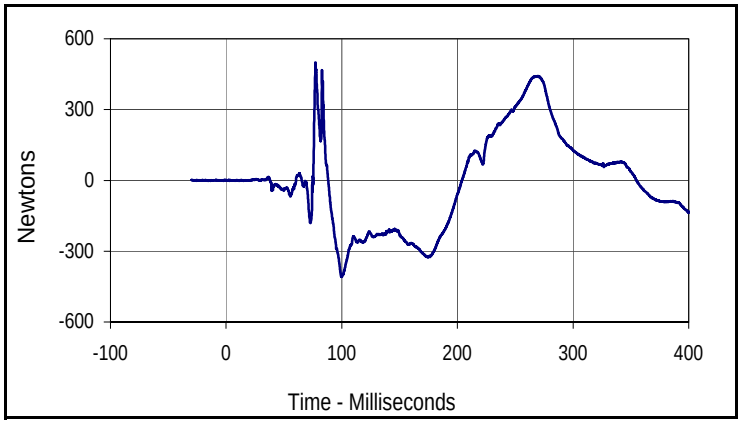


Curve Description			
Driver Head CG Y Redundant			
CURNO	Type	SAE Class	Units
011	FIL	1000	G's
Max	Time	Min	Time
217.7	82.8	-7.5	77.9

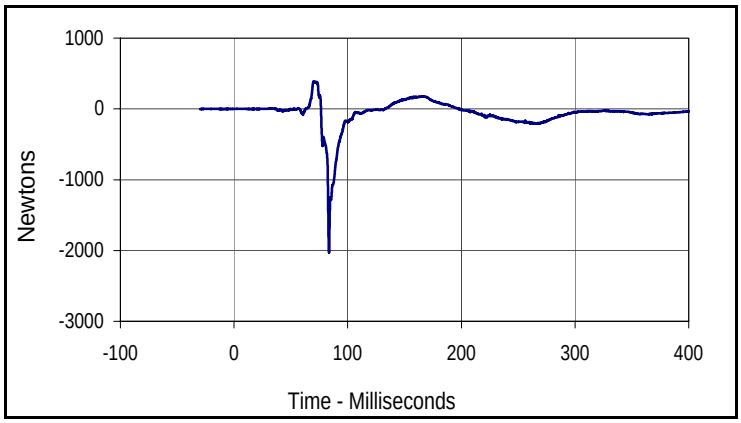


Curve Description			
Driver Head CG Z Redundant			
CURNO	Type	SAE Class	Units
012	FIL	1000	G's
Max	Time	Min	Time
100.8	82.7	-6.3	70.3

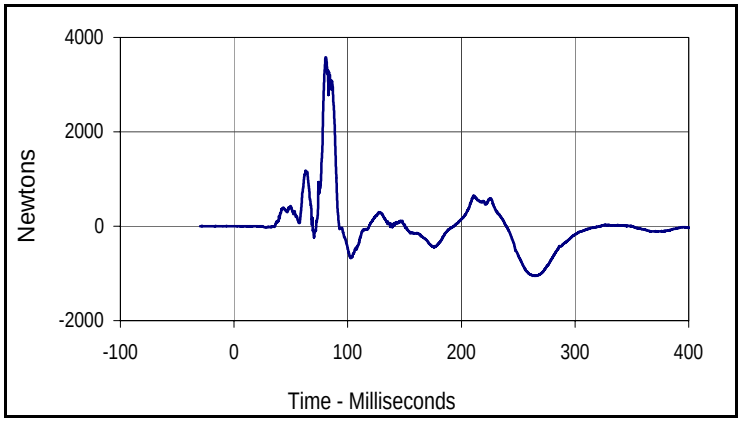
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



Curve Description			
Driver Upper Neck Force X			
CURNO	Type	SAE Class	Units
013	FIL	1000	Newtons
Max	Time	Min	Time
499.1	77.3	-408.4	100.1

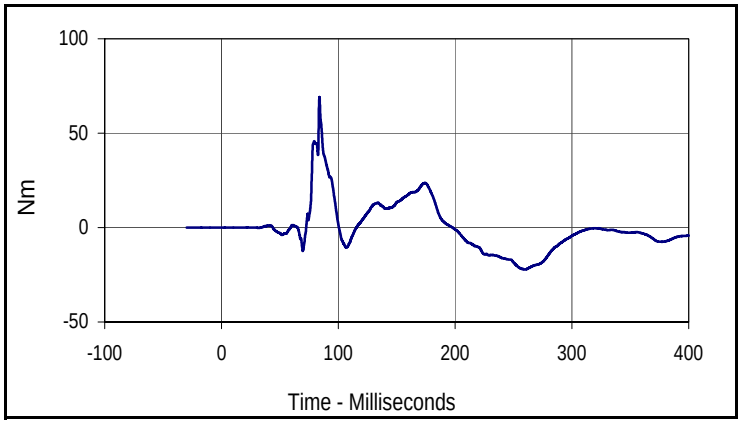


Curve Description			
Driver Upper Neck Force Y			
CURNO	Type	SAE Class	Units
014	FIL	1000	Newtons
Max	Time	Min	Time
392.0	70.3	-2028.2	83.6

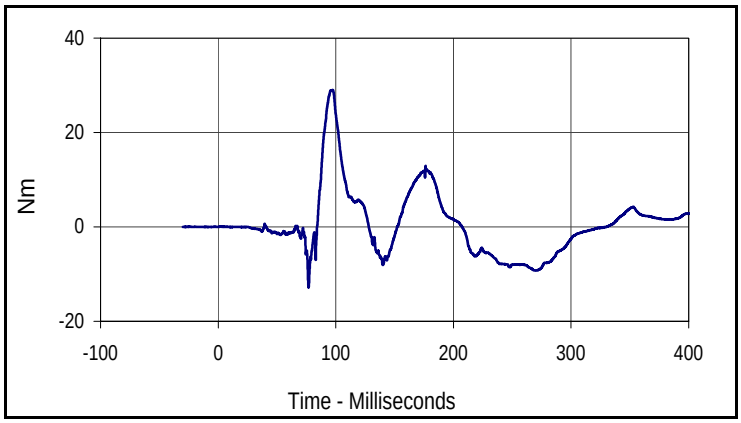


Curve Description			
Driver Upper Neck Force Z			
CURNO	Type	SAE Class	Units
015	FIL	1000	Newtons
Max	Time	Min	Time
3579.2	80.8	-1053.4	264.9

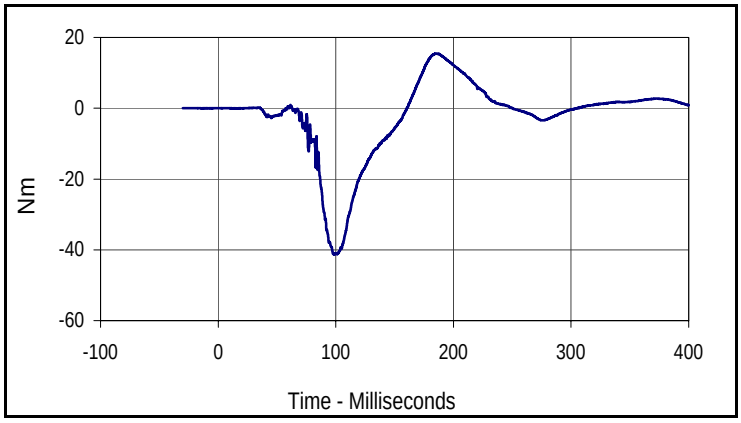
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



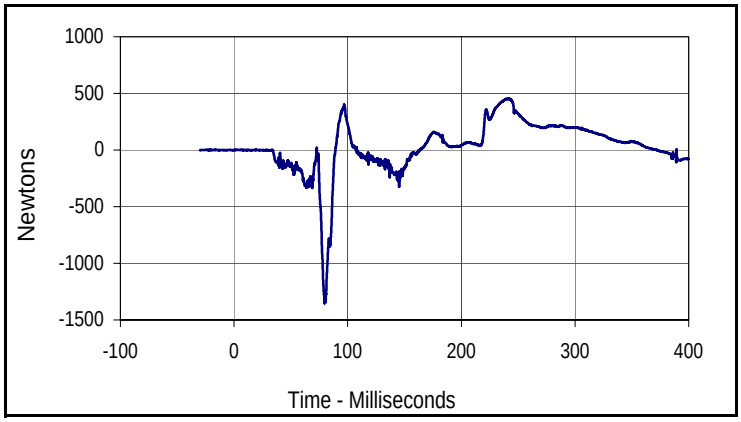
Curve Description			
Driver Upper Neck Moment X			
CURNO	Type	SAE Class	Units
016	FIL	600	Nm
Max	Time	Min	Time
69.2	83.9	-22.3	259.4



Curve Description			
Driver Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
017	FIL	600	Nm
Max	Time	Min	Time
29.0	97.3	-12.8	76.9

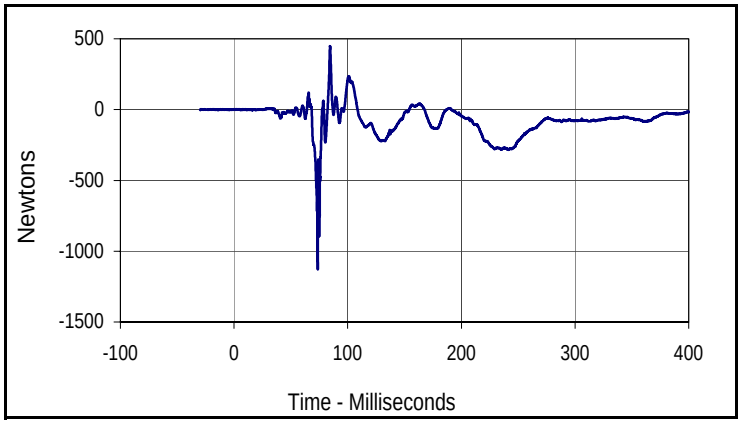


Curve Description			
Driver Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
018	FIL	600	Nm
Max	Time	Min	Time
15.5	184.7	-41.3	98.8

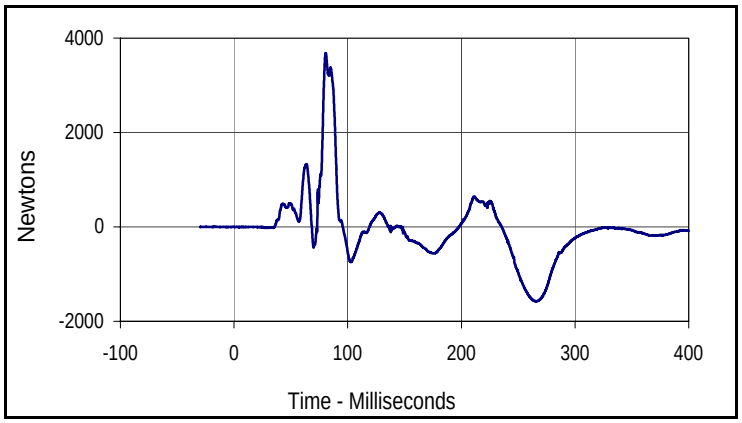


Curve Description			
Driver Lower Neck Force X			
CURNO	Type	SAE Class	Units
019	FIL	1000	Newtons
Max	Time	Min	Time
455.2	241.5	-1353.3	79.6

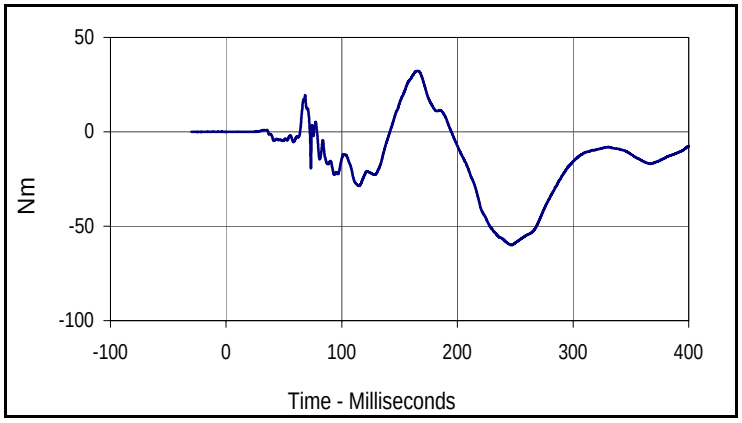
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



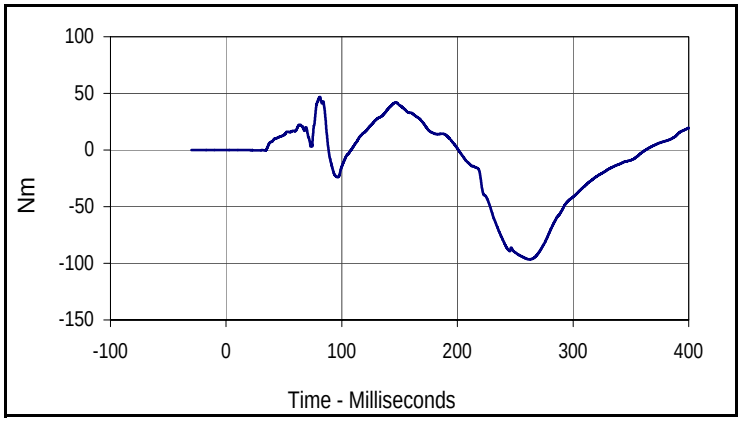
Curve Description			
Driver Lower Neck Force Y			
CURNO	Type	SAE Class	Units
020	FIL	1000	Newtons
Max	Time	Min	Time
448.2	84.5	-1127.6	73.6



Curve Description			
Driver Lower Neck Force Z			
CURNO	Type	SAE Class	Units
021	FIL	1000	Newtons
Max	Time	Min	Time
3680.9	80.7	-1580.8	265.7

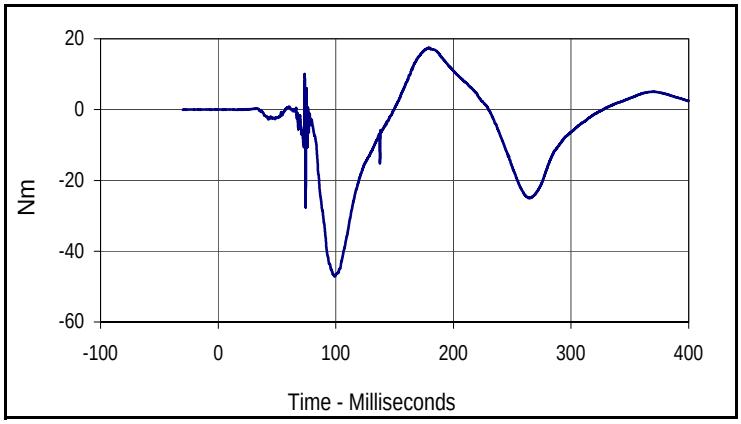


Curve Description			
Driver Lower Neck Moment X			
CURNO	Type	SAE Class	Units
022	FIL	600	Nm
Max	Time	Min	Time
32.3	165.2	-60.0	246.3

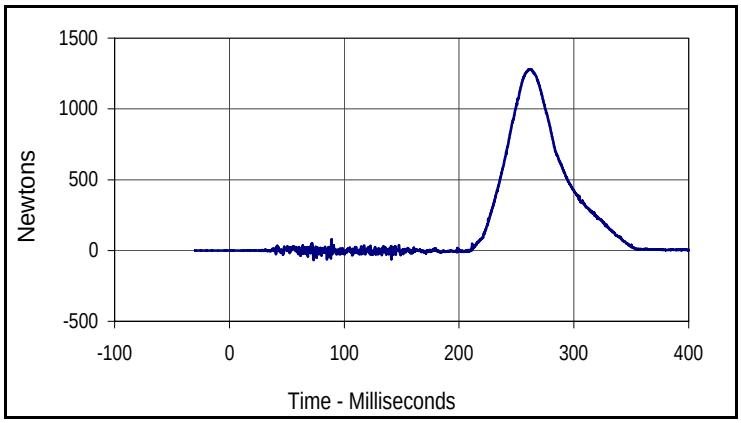


Curve Description			
Driver Lower Neck Moment Y			
CURNO	Type	SAE Class	Units
023	FIL	600	Nm
Max	Time	Min	Time
46.9	81.1	-96.7	262.4

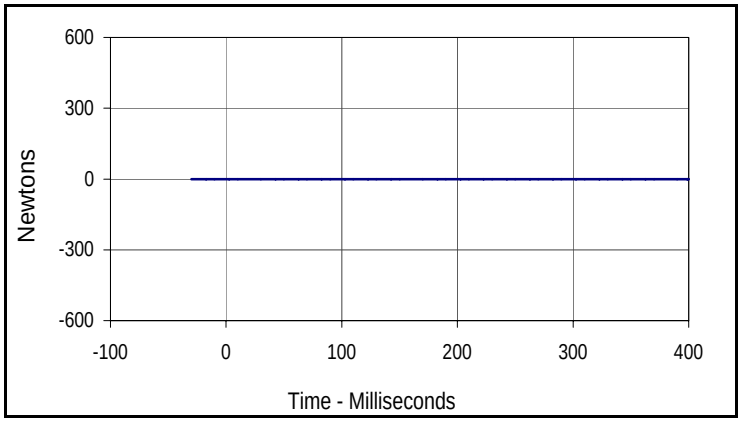
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



Curve Description			
Driver Lower Neck Moment Z			
CURNO	Type	SAE Class	Units
024	FIL	600	Nm
Max	Time	Min	Time
17.5	179.7	-47.2	99.2

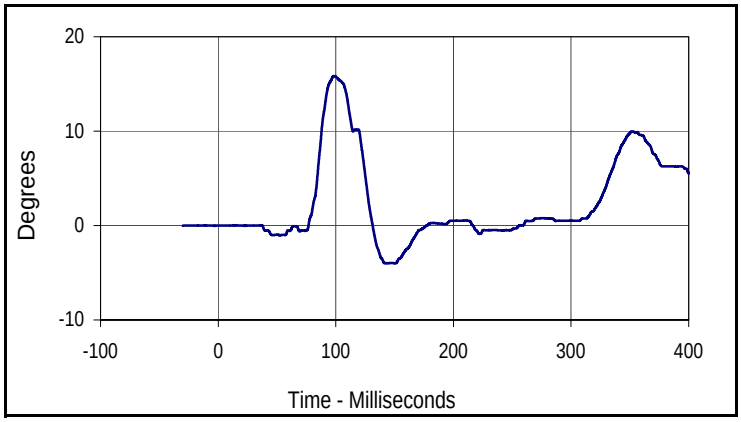


Curve Description			
Driver Front Neck Spring Force			
CURNO	Type	SAE Class	Units
025	FIL	1000	Newtons
Max	Time	Min	Time
1279.5	261.4	-68.8	73.3



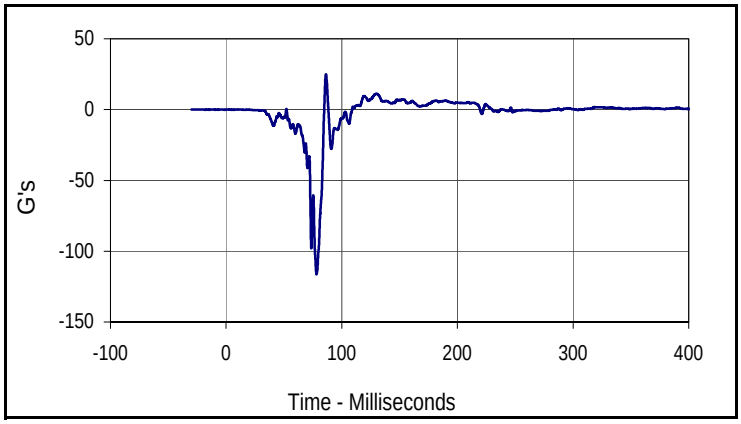
Curve Description			
Driver Rear Neck Spring Force			
CURNO	Type	SAE Class	Units
026	FIL	1000	Newtons
Max	Time	Min	Time
0.0	0.0	0.0	0.0

* Channel failed, no data

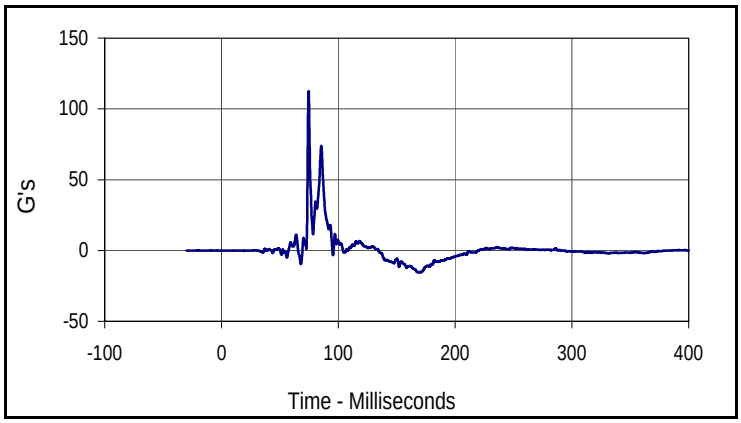


Curve Description			
Driver Occipital Condyle Rotation			
CURNO	Type	SAE Class	Units
027	FIL	180	Degrees
Max	Time	Min	Time
15.8	98.4	-4.0	150.5

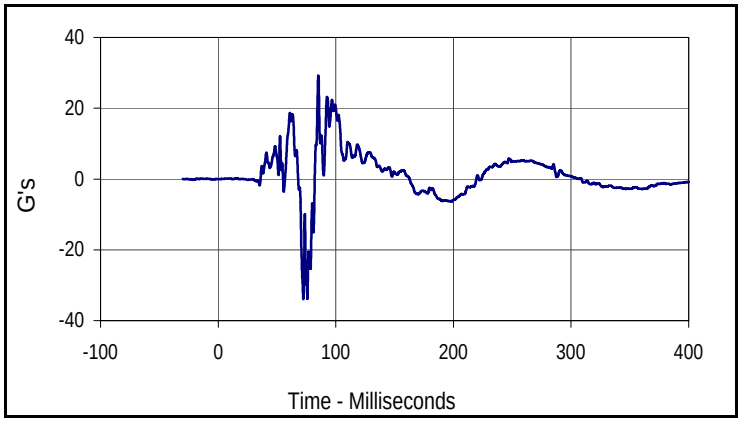
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



Curve Description			
Driver Upper Spine T1 X			
CURNO	Type	SAE Class	Units
028	FIL	180	G's
Max	Time	Min	Time
24.9	86.3	-116.4	78.1

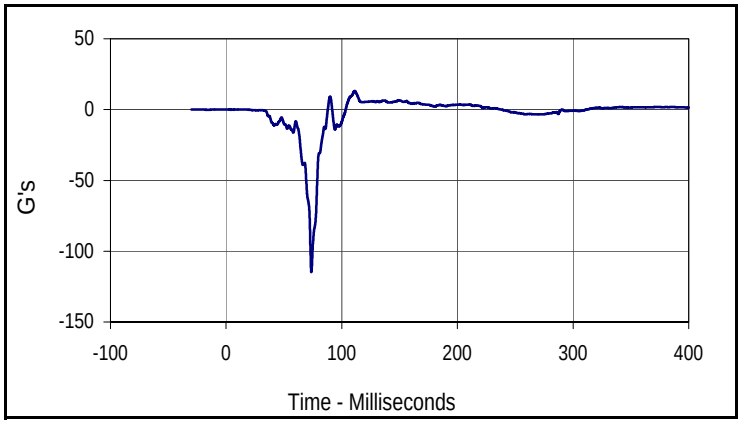


Curve Description			
Driver Upper Spine T1 Y			
CURNO	Type	SAE Class	Units
029	FIL	180	G's
Max	Time	Min	Time
112.6	74.7	-15.5	170.3

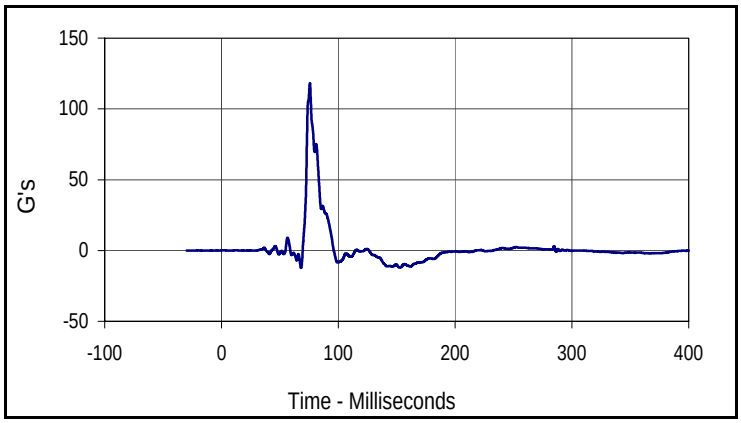


Curve Description			
Driver Upper Spine T1 Z			
CURNO	Type	SAE Class	Units
030	FIL	180	G's
Max	Time	Min	Time
29.3	85.1	-34.0	72.4

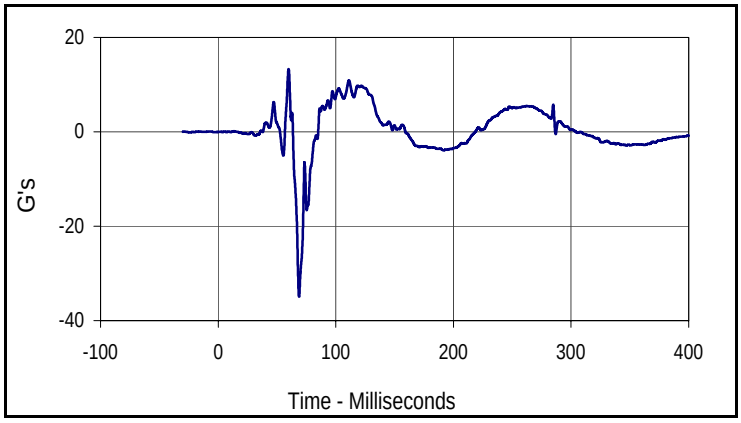
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



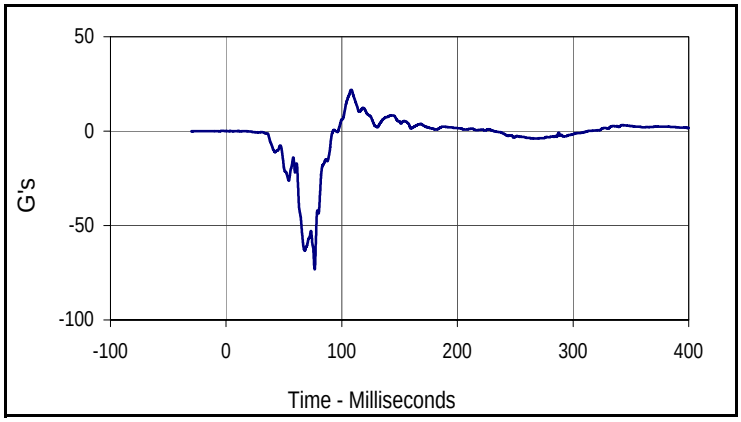
Curve Description			
Driver Thorax X			
CURNO	Type	SAE Class	Units
031	FIL	180	G's
Max	Time	Min	Time
13.1	111.2	-114.8	73.7



Curve Description			
Driver Thorax Y			
CURNO	Type	SAE Class	Units
032	FIL	180	G's
Max	Time	Min	Time
118.2	75.7	-12.3	68.2

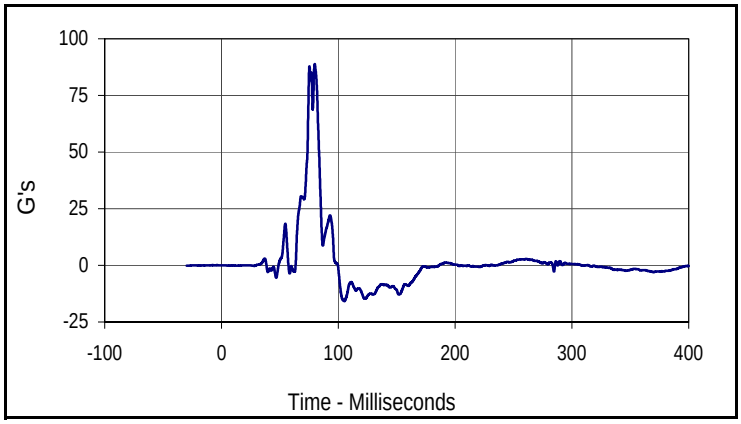


Curve Description			
Driver Thorax Z			
CURNO	Type	SAE Class	Units
033	FIL	180	G's
Max	Time	Min	Time
13.3	59.9	-34.9	68.8

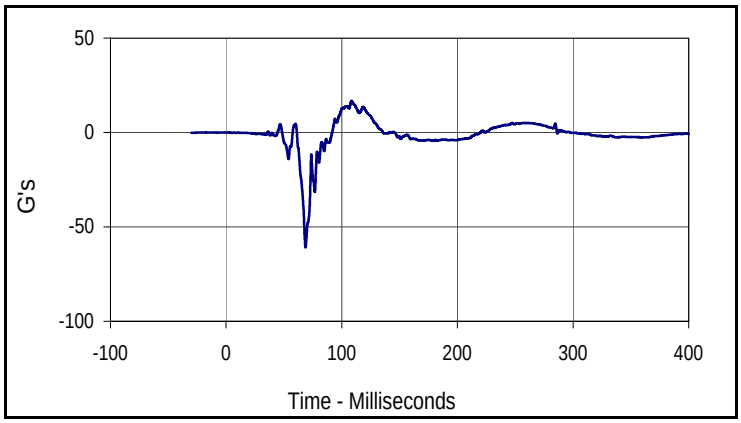


Curve Description			
Driver Lower Spine T12 X			
CURNO	Type	SAE Class	Units
034	FIL	180	G's
Max	Time	Min	Time
21.9	108.3	-73.3	76.6

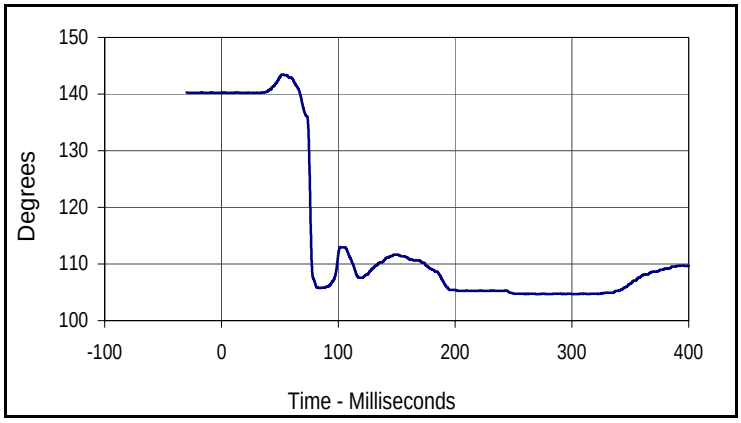
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



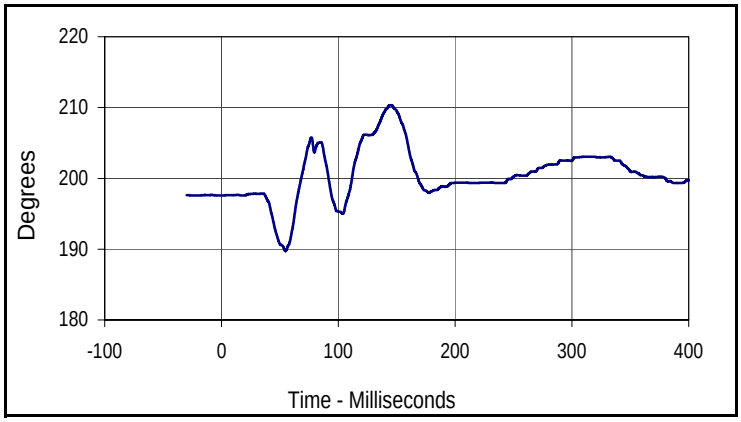
Curve Description			
Driver Lower Spine T12 Y			
CURNO	Type	SAE Class	Units
035	FIL	180	G's
Max	Time	Min	Time
88.8	79.8	-15.8	105.2



Curve Description			
Driver Lower Spine T12 Z			
CURNO	Type	SAE Class	Units
036	FIL	180	G's
Max	Time	Min	Time
16.7	108.6	-60.8	68.7

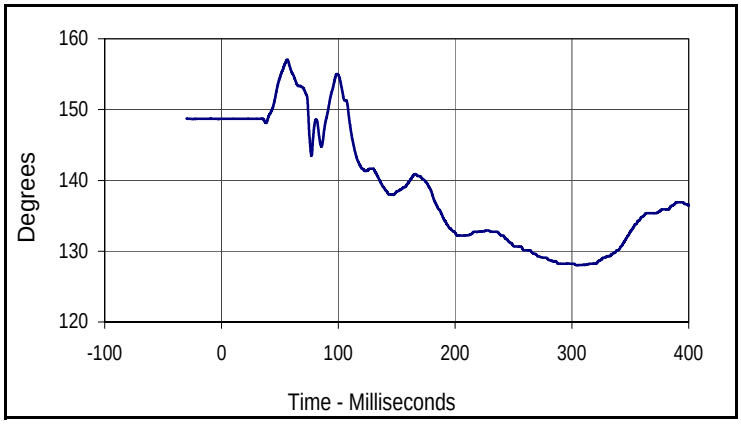


Curve Description			
Driver Upper Left CRUX Base Rotation			
CURNO	Type	SAE Class	Units
037	FIL	180	Degrees
Max	Time	Min	Time
143.5	52.1	104.7	280.9

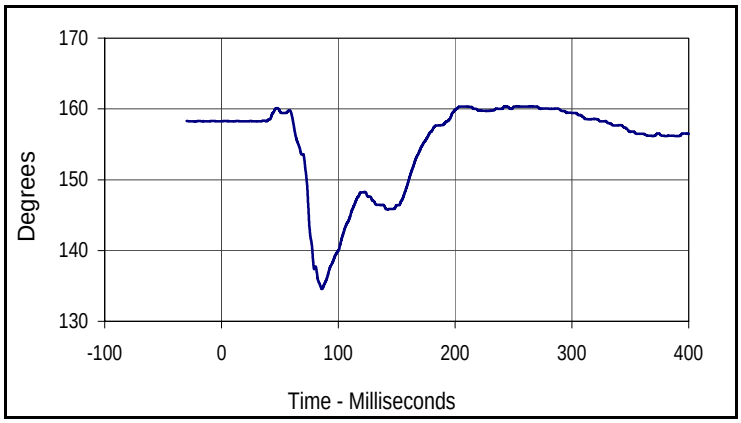


Curve Description			
Driver Upper Left CRUX Middle Rotation			
CURNO	Type	SAE Class	Units
038	FIL	180	Degrees
Max	Time	Min	Time
210.3	144.4	189.7	54.8

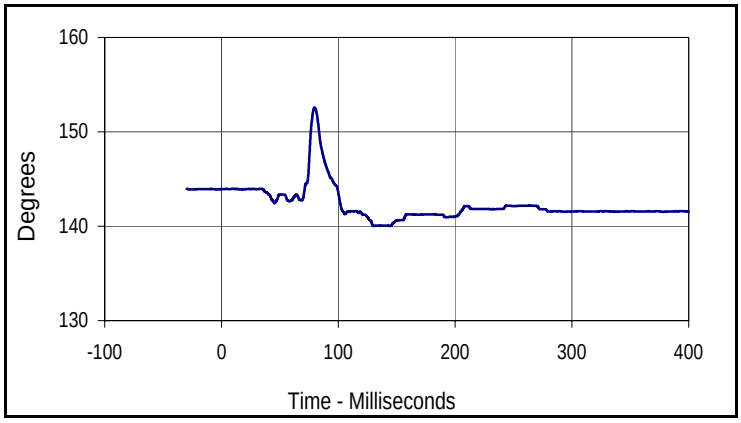
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



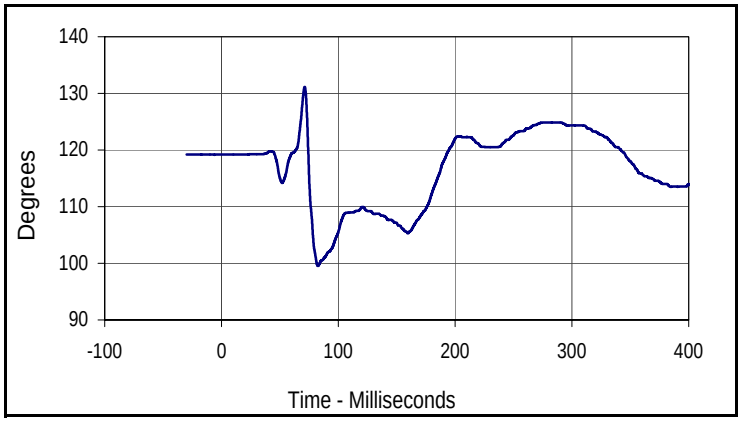
Curve Description			
Driver Upper Left CRUX Elbow Rotation			
CURNO	Type	SAE Class	Units
039	FIL	180	Degrees
Max	Time	Min	Time
157.1	56.3	128.0	304.2



Curve Description			
Driver Lower Left CRUX Base Rotation			
CURNO	Type	SAE Class	Units
040	FIL	180	Degrees
Max	Time	Min	Time
160.4	243.1	134.6	86.0

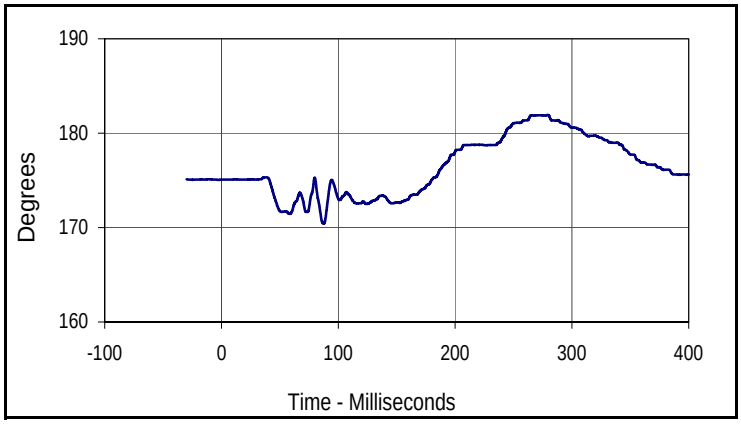


Curve Description			
Driver Lower Left CRUX Middle Rotation			
CURNO	Type	SAE Class	Units
041	FIL	180	Degrees
Max	Time	Min	Time
152.6	79.7	140.0	130.1

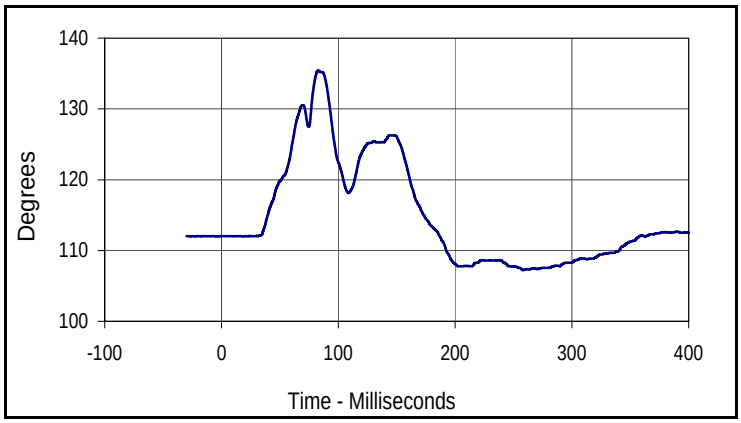


Curve Description			
Driver Lower Left CRUX Elbow Rotation			
CURNO	Type	SAE Class	Units
042	FIL	180	Degrees
Max	Time	Min	Time
131.1	71.2	99.5	82.6

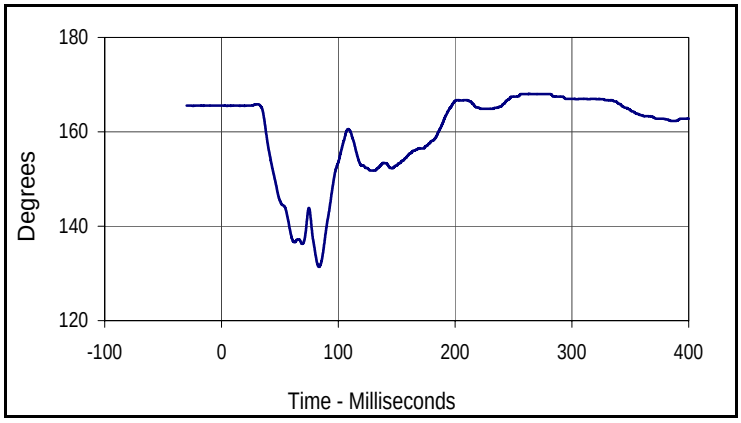
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



Curve Description			
Driver Upper Right CRUX Base Rotation			
CURNO	Type	SAE Class	Units
043	FIL	180	Degrees
Max	Time	Min	Time
181.9	279.5	170.4	87.4

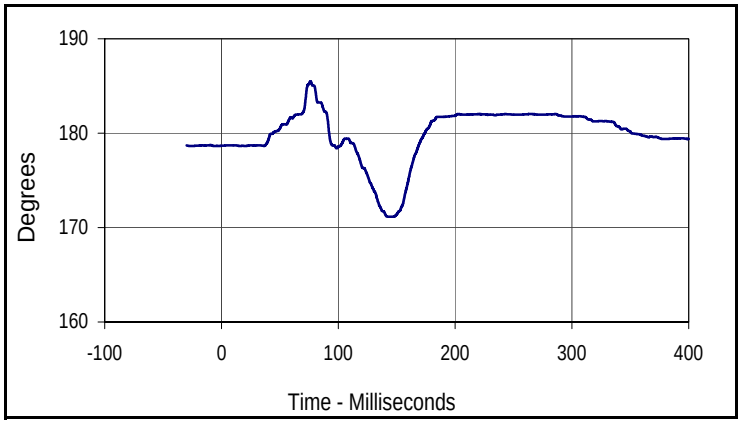


Curve Description			
Driver Upper Right CRUX Middle Rotation			
CURNO	Type	SAE Class	Units
044	FIL	180	Degrees
Max	Time	Min	Time
135.4	82.8	107.2	258.0

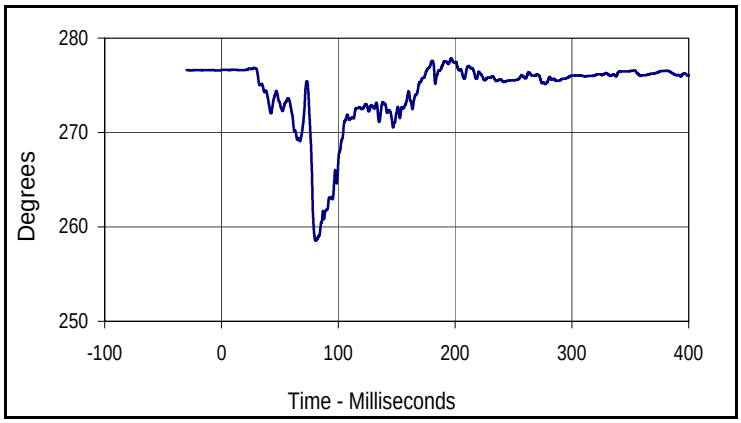


Curve Description			
Driver Upper Right CRUX Elbow Rotation			
CURNO	Type	SAE Class	Units
045	FIL	180	Degrees
Max	Time	Min	Time
168.0	263.5	131.4	83.5

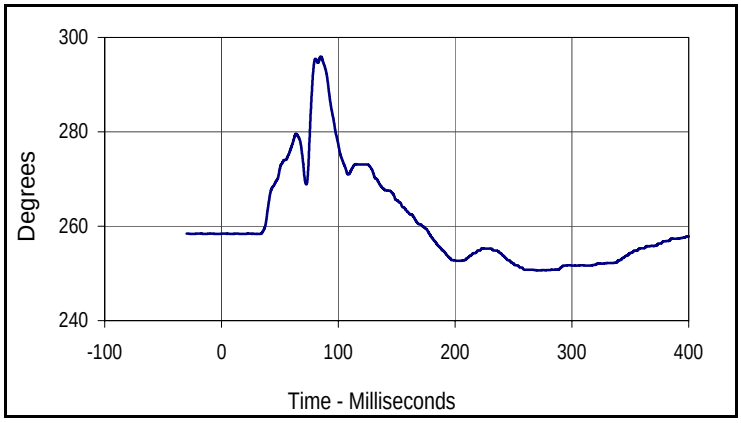
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



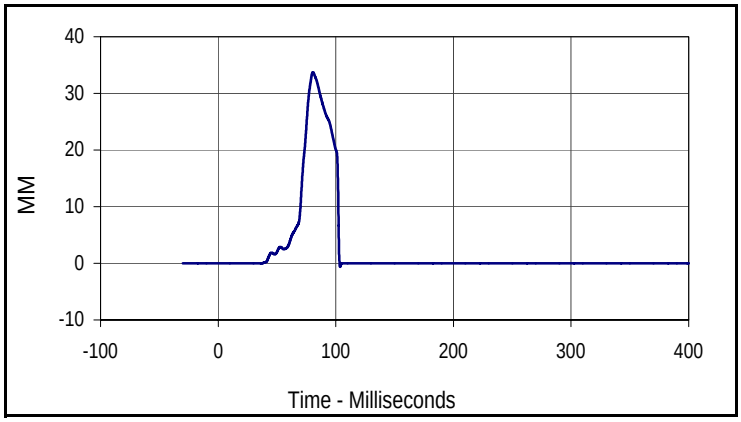
Curve Description			
Driver Lower Right CRUX Base Rotation			
CURNO	Type	SAE Class	Units
046	FIL	180	Degrees
Max	Time	Min	Time
185.5	76.2	171.1	145.7



Curve Description			
Driver Lower Right CRUX Middle Rotation			
CURNO	Type	SAE Class	Units
047	FIL	180	Degrees
Max	Time	Min	Time
277.9	196.8	258.5	80.6

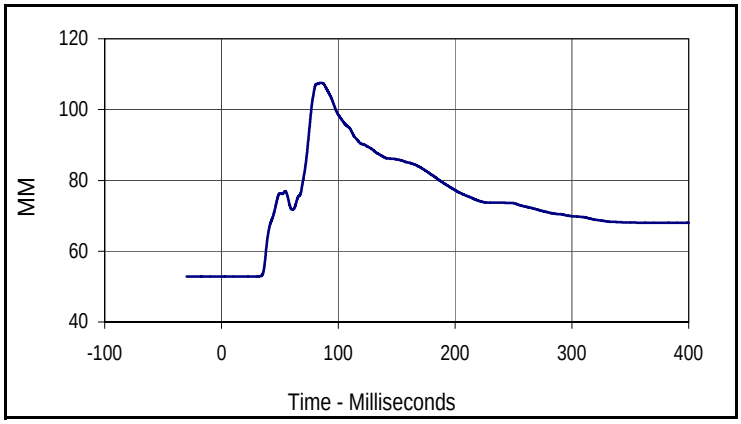


Curve Description			
Driver Lower Right CRUX Elbow Rotation			
CURNO	Type	SAE Class	Units
048	FIL	180	Degrees
Max	Time	Min	Time
295.9	85.0	250.7	271.1

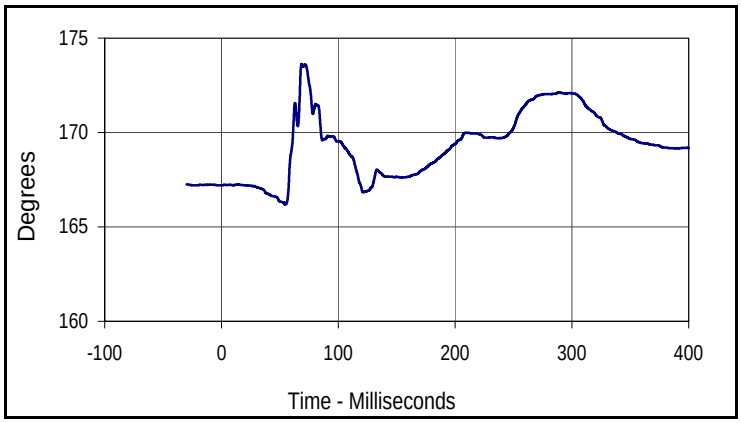


Curve Description			
Driver Upper Abdomen Deflection			
CURNO	Type	SAE Class	Units
049	FIL	180	MM
Max	Time	Min	Time
33.8	80.7	-0.6	103.7

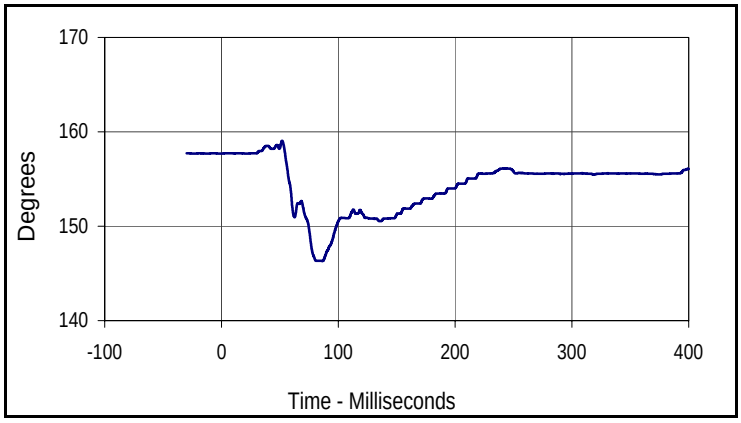
* Channel failed at 102.3 msec.



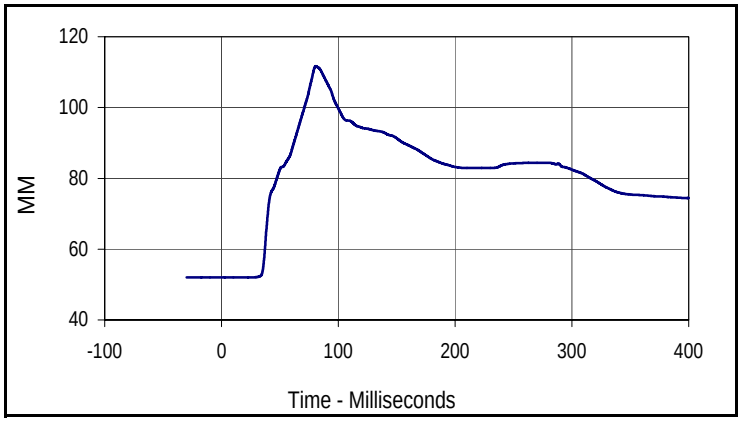
Curve Description			
Driver Left DGSP X Deflection			
CURNO	Type	SAE Class	Units
050	FIL	180	MM
Max	Time	Min	Time
107.6	85.1	52.8	0.0



Curve Description			
Driver Left DGSP Y Rotation			
CURNO	Type	SAE Class	Units
051	FIL	180	Degrees
Max	Time	Min	Time
173.6	68.5	166.2	54.6

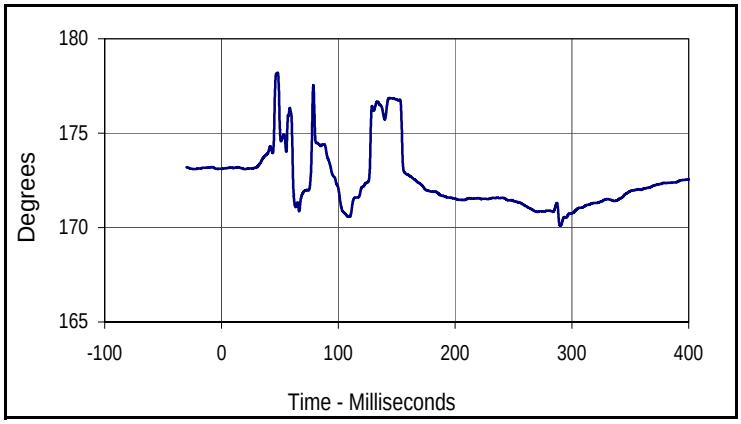


Curve Description			
Driver Left DGSP Z Rotation			
CURNO	Type	SAE Class	Units
052	FIL	180	Degrees
Max	Time	Min	Time
159.0	52.0	146.3	86.4

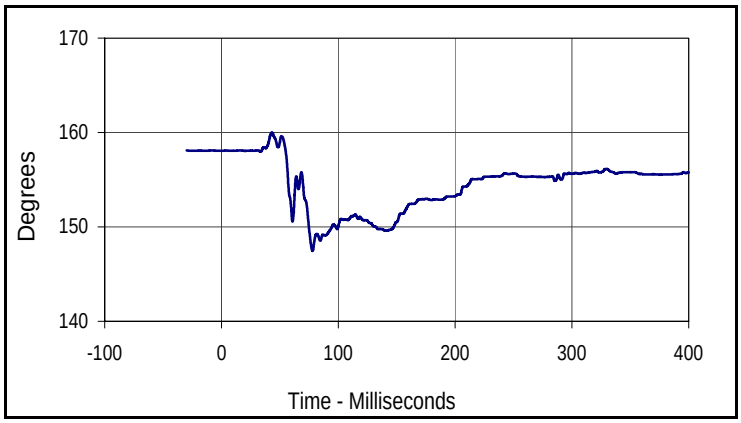


Curve Description			
Driver Right DGSP X Deflection			
CURNO	Type	SAE Class	Units
053	FIL	180	MM
Max	Time	Min	Time
111.7	80.7	52.0	0.6

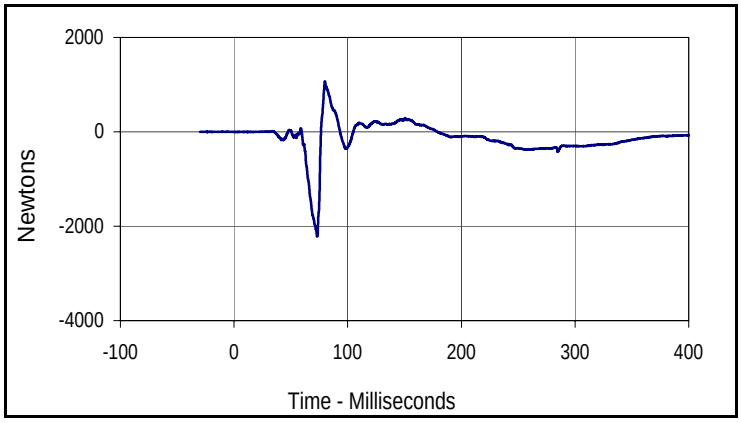
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



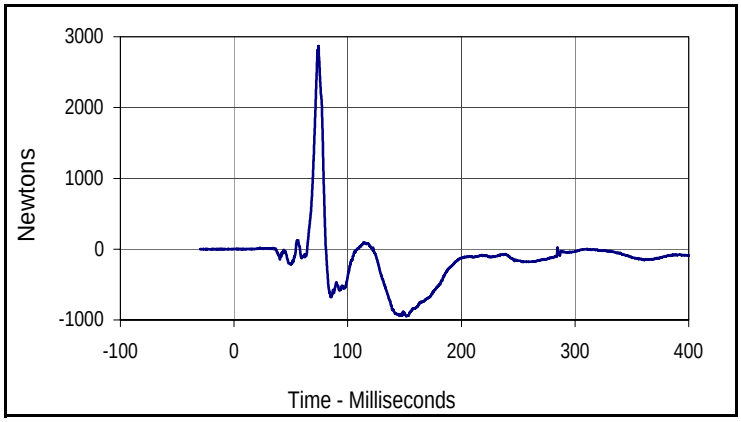
Curve Description			
Driver Right DGSP Y Rotation			
CURNO	Type	SAE Class	Units
054	FIL	180	Degrees
Max	Time	Min	Time
178.2	48.1	170.1	290.0



Curve Description			
Driver Right DGSP Z Rotation			
CURNO	Type	SAE Class	Units
055	FIL	180	Degrees
Max	Time	Min	Time
160.0	43.2	147.5	77.9

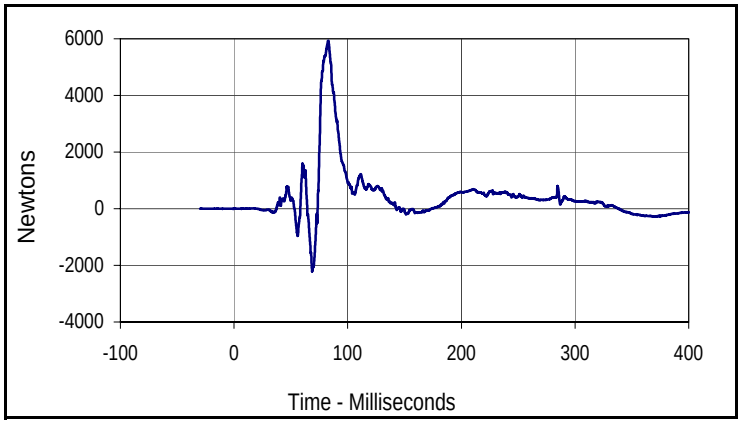


Curve Description			
Driver Thoracic Spine Force X			
CURNO	Type	SAE Class	Units
056	FIL	600	Newtons
Max	Time	Min	Time
1071.7	80.0	-2214.7	73.1

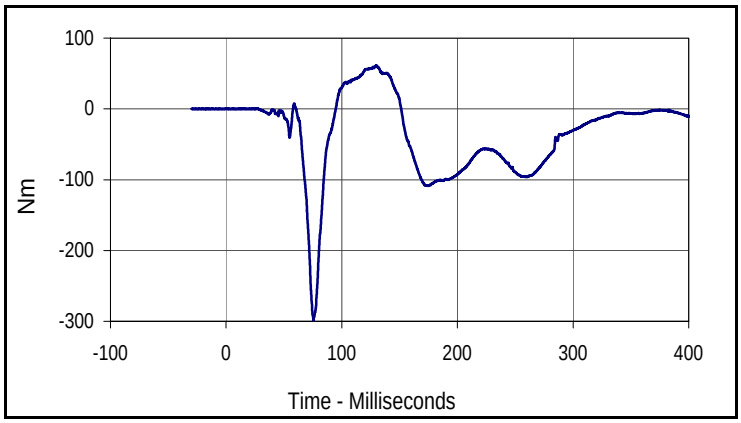


Curve Description			
Driver Thoracic Spine Force Y			
CURNO	Type	SAE Class	Units
057	FIL	600	Newtons
Max	Time	Min	Time
2868.3	74.4	-951.5	151.6

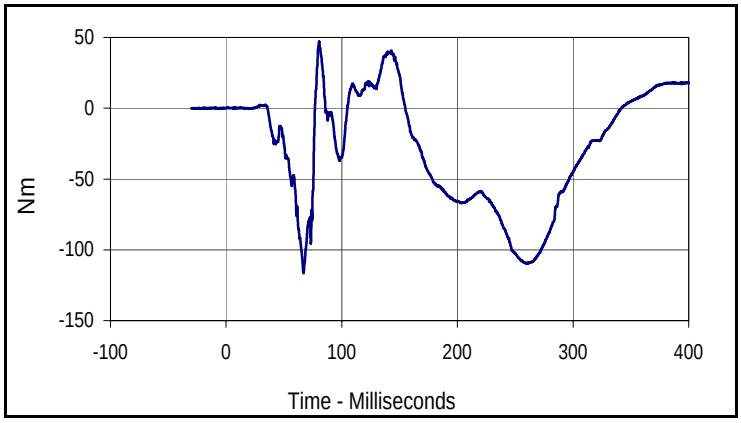
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



Curve Description			
Driver Upper Thoracic Spine Force Z			
CURNO	Type	SAE Class	Units
058	FIL	600	Newtons
Max	Time	Min	Time
5932.6	82.9	-2210.8	68.7

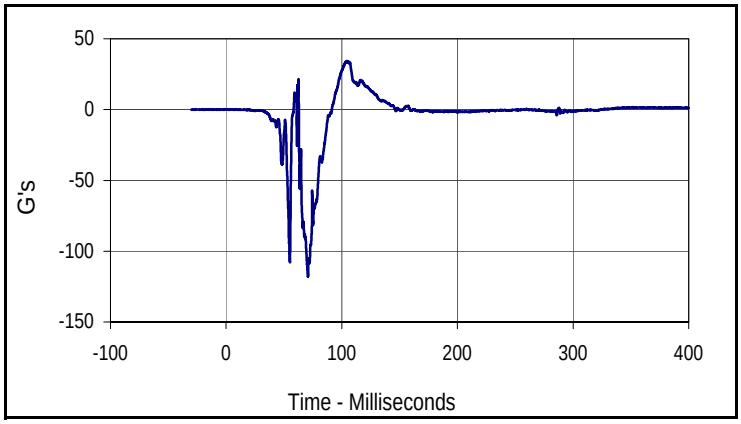


Curve Description			
Driver Upper Thoracic Spine Moment X			
CURNO	Type	SAE Class	Units
059	FIL	600	Nm
Max	Time	Min	Time
61.4	129.9	-298.7	75.5

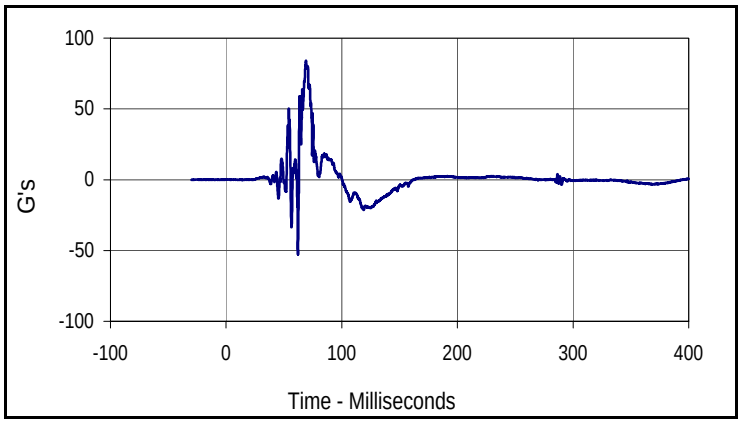


Curve Description			
Driver Upper Thoracic Spine Moment Y			
CURNO	Type	SAE Class	Units
060	FIL	600	Nm
Max	Time	Min	Time
47.0	80.4	-116.5	67.0

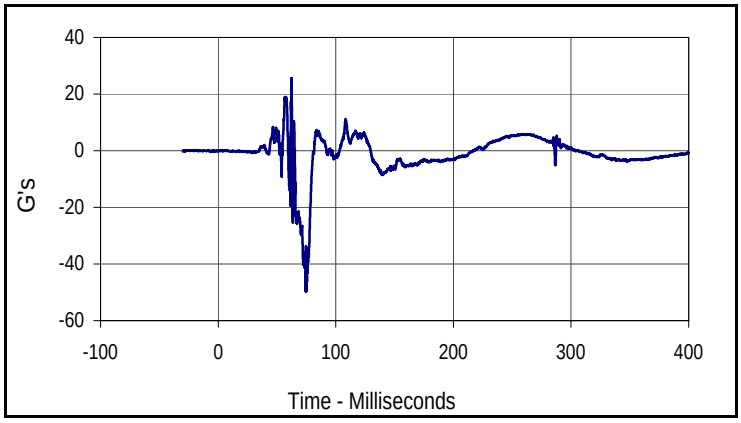
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



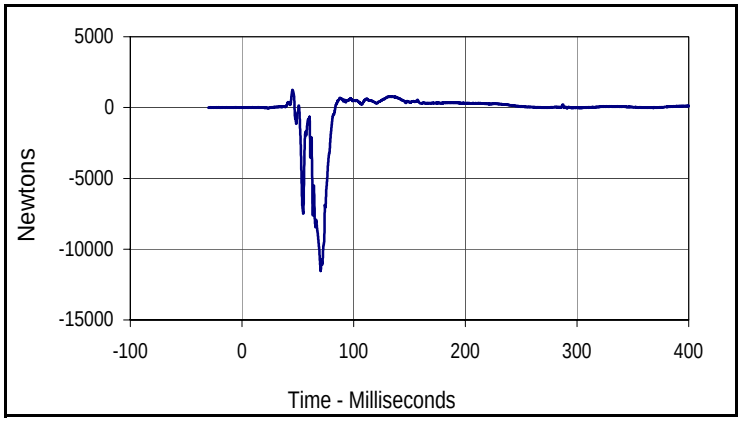
Curve Description			
Driver Pelvis X			
CURNO	Type	SAE Class	Units
061	FIL	1000	G's
Max	Time	Min	Time
34.3	104.6	-117.9	70.8



Curve Description			
Driver Pelvis Y			
CURNO	Type	SAE Class	Units
062	FIL	1000	G's
Max	Time	Min	Time
83.9	69.1	-52.6	62.1

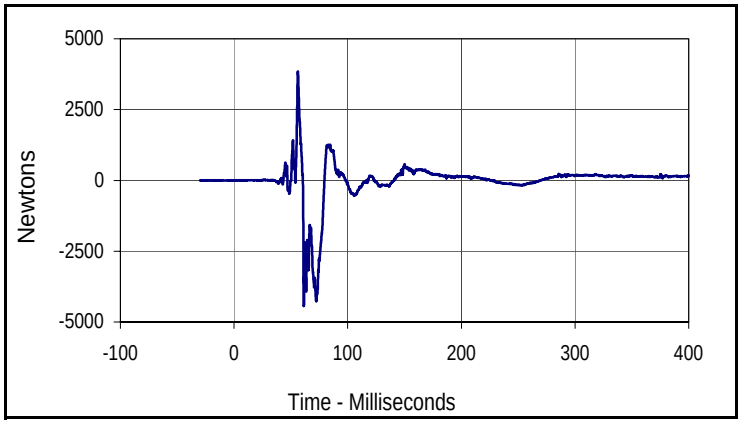


Curve Description			
Driver Pelvis Z			
CURNO	Type	SAE Class	Units
063	FIL	1000	G's
Max	Time	Min	Time
25.7	62.3	-49.5	74.9

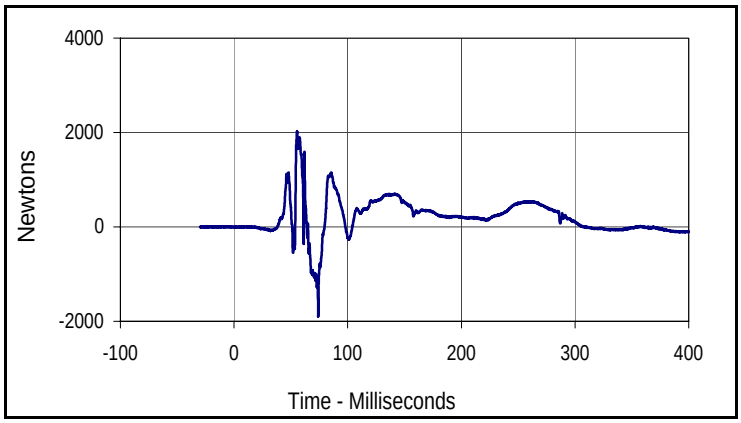


Curve Description			
Driver Left Acetabulum Force X			
CURNO	Type	SAE Class	Units
064	FIL	600	Newtons
Max	Time	Min	Time
1257.3	45.3	-11551.6	70.5

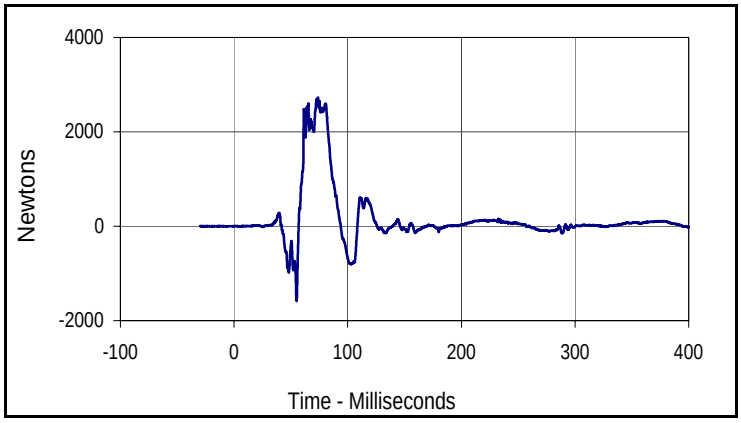
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



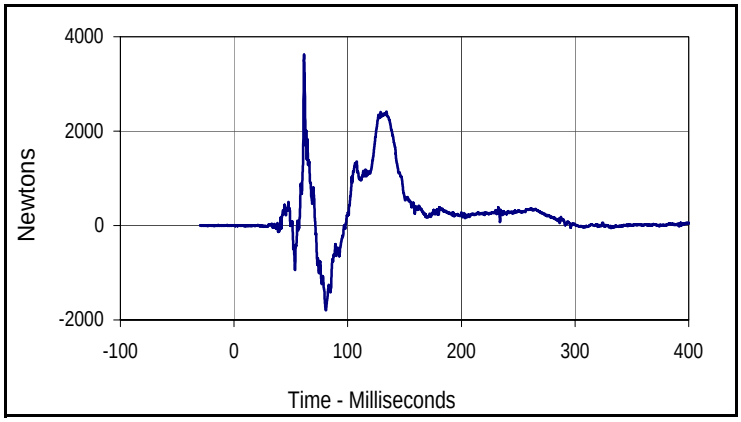
Curve Description			
Driver Left Acetabulum Force Y			
CURNO	Type	SAE Class	Units
065	FIL	600	Newtons
Max	Time	Min	Time
3843.8	56.2	-4434.7	61.4



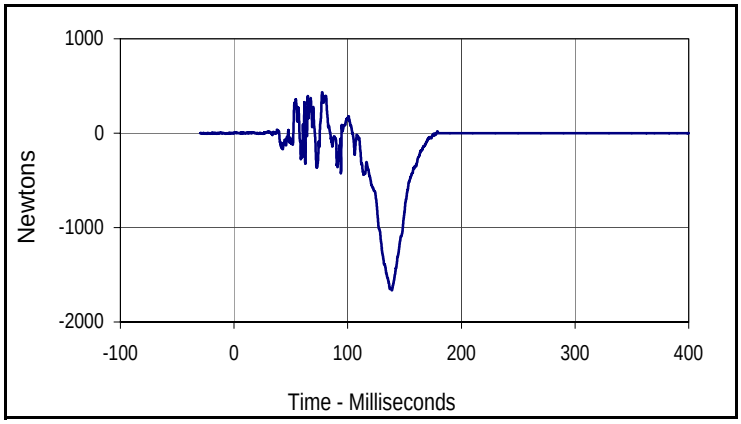
Curve Description			
Driver Left Acetabulum Force Z			
CURNO	Type	SAE Class	Units
066	FIL	600	Newtons
Max	Time	Min	Time
2025.8	55.5	-1898.3	74.1



Curve Description			
Driver Right Acetabulum Force X			
CURNO	Type	SAE Class	Units
067	FIL	600	Newtons
Max	Time	Min	Time
2728.6	73.8	-1588.1	55.1

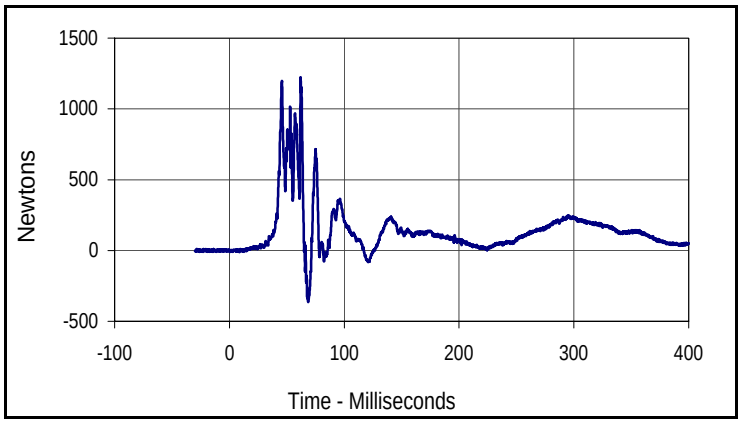


Curve Description			
Driver Right Acetabulum Force Y			
CURNO	Type	SAE Class	Units
068	FIL	600	Newtons
Max	Time	Min	Time
3622.2	61.6	-1797.3	80.8

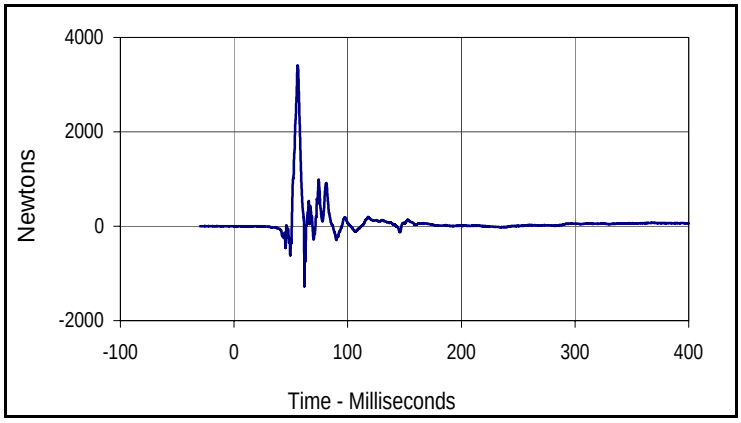


Curve Description			
Driver Right Acetabulum Force Z			
CURNO	Type	SAE Class	Units
069	FIL	600	Newtons
Max	Time	Min	Time
434.8	77.5	-1665.0	138.8

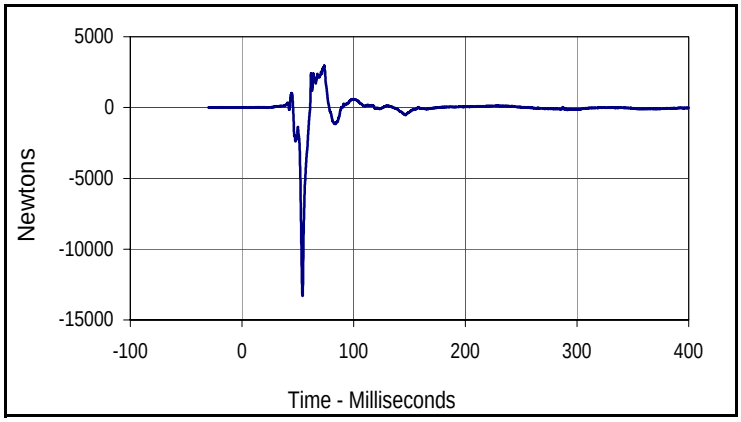
* Channel failed at 179.8 msec.



Curve Description			
Driver Left Femur Force X			
CURNO	Type	SAE Class	Units
070	FIL	600	Newtons
Max	Time	Min	Time
1221.2	62.0	-364.9	68.6

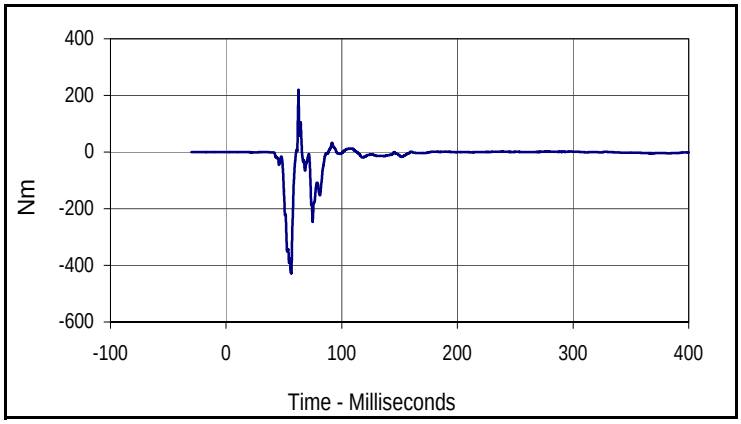


Curve Description			
Driver Left Femur Force Y			
CURNO	Type	SAE Class	Units
071	FIL	600	Newtons
Max	Time	Min	Time
3412.8	56.0	-1277.3	62.0

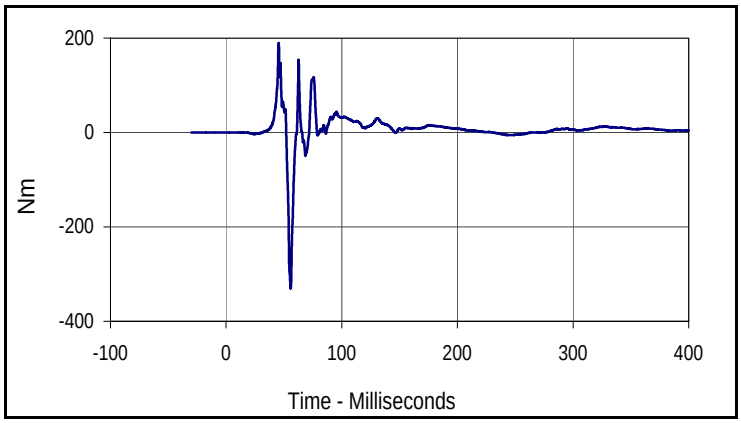


Curve Description			
Driver Left Femur Force Z			
CURNO	Type	SAE Class	Units
072	FIL	600	Newtons
Max	Time	Min	Time
2975.8	73.6	-13299.1	54.2

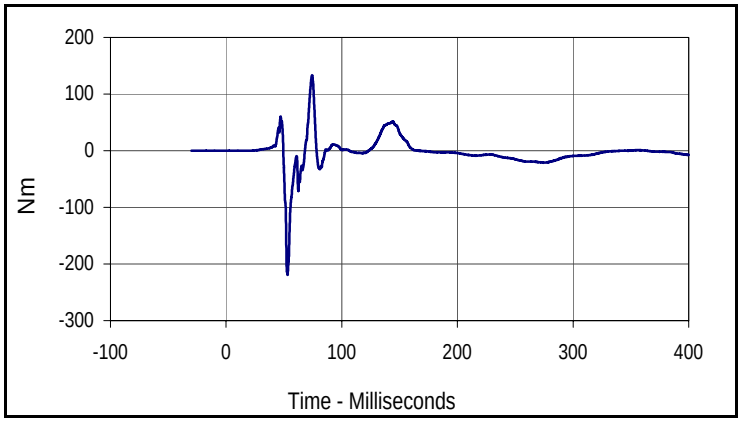
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



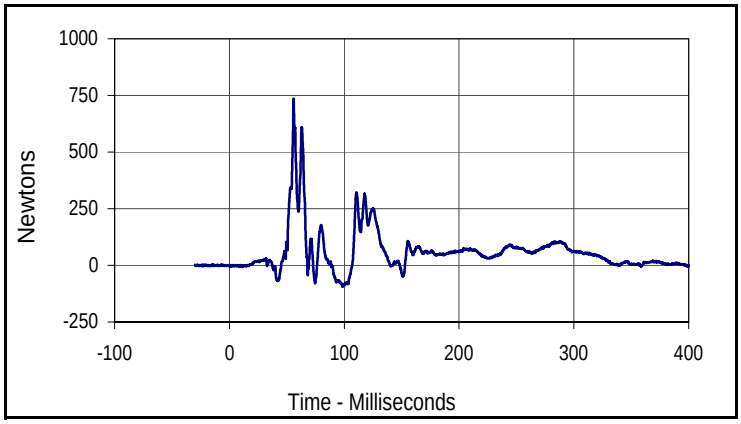
Curve Description			
Driver Left Femur Moment X			
CURNO	Type	SAE Class	Units
073	FIL	600	Nm
Max	Time	Min	Time
219.9	62.6	-427.9	56.4



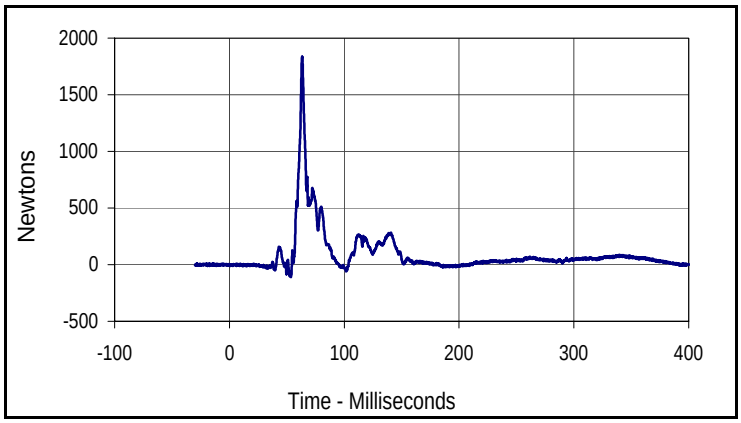
Curve Description			
Driver Left Femur Moment Y			
CURNO	Type	SAE Class	Units
074	FIL	600	Nm
Max	Time	Min	Time
189.9	45.5	-330.3	55.8



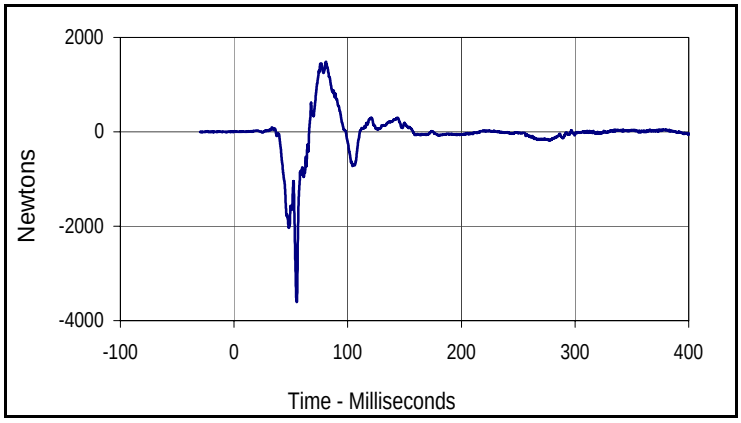
Curve Description			
Driver Left Femur Moment Z			
CURNO	Type	SAE Class	Units
075	FIL	600	Nm
Max	Time	Min	Time
133.2	74.4	-219.2	53.2



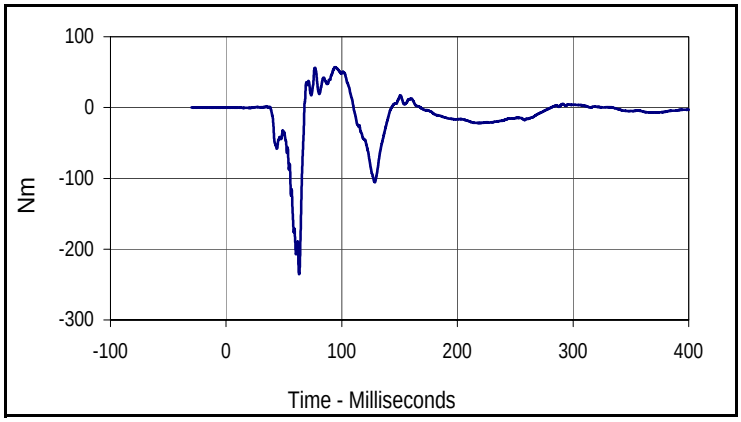
Curve Description			
Driver Right Femur Force X			
CURNO	Type	SAE Class	Units
076	FIL	600	Newtons
Max	Time	Min	Time
735.3	55.9	-95.3	98.7



Curve Description			
Driver Right Femur Force Y			
CURNO	Type	SAE Class	Units
077	FIL	600	Newtons
Max	Time	Min	Time
1835.8	63.3	-109.5	53.5

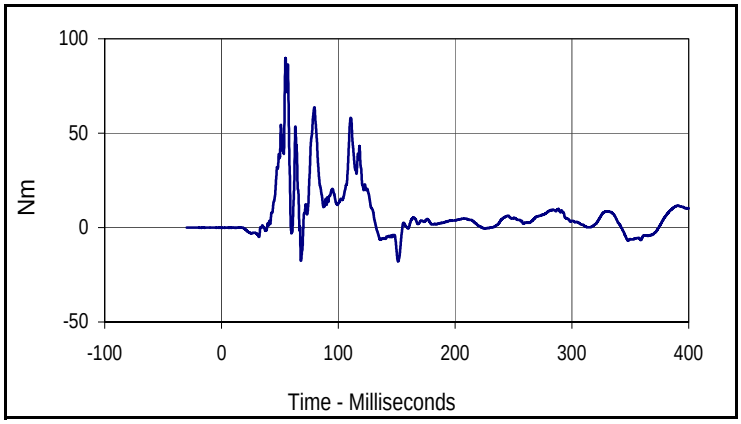


Curve Description			
Driver Right Femur Force Z			
CURNO	Type	SAE Class	Units
078	FIL	600	Newtons
Max	Time	Min	Time
1483.2	80.9	-3607.7	55.2

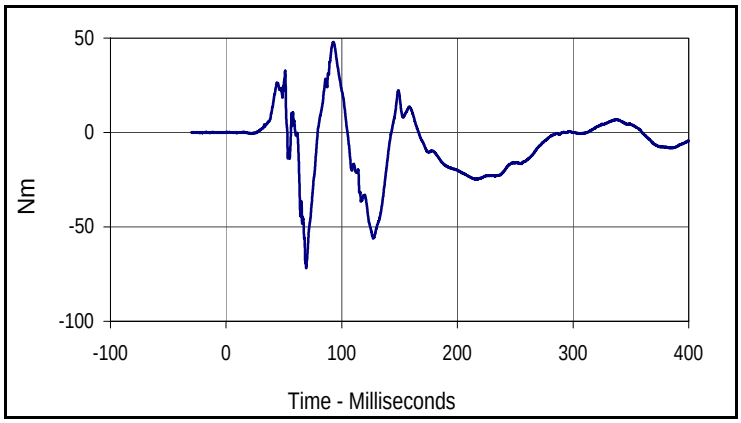


Curve Description			
Driver Right Femur Moment X			
CURNO	Type	SAE Class	Units
079	FIL	600	Nm
Max	Time	Min	Time
57.1	94.4	-235.5	63.2

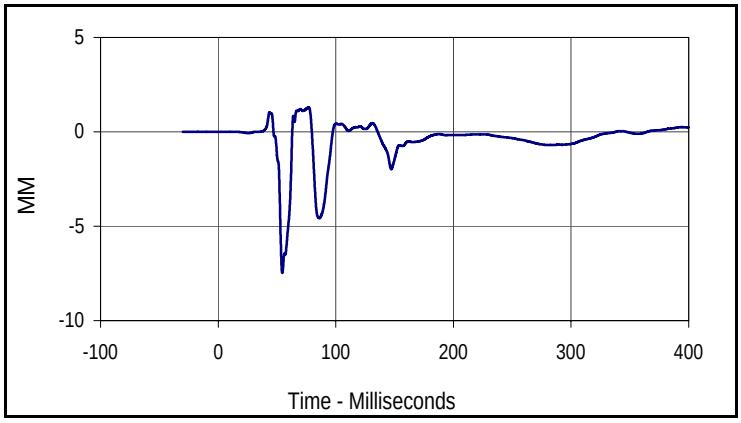
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



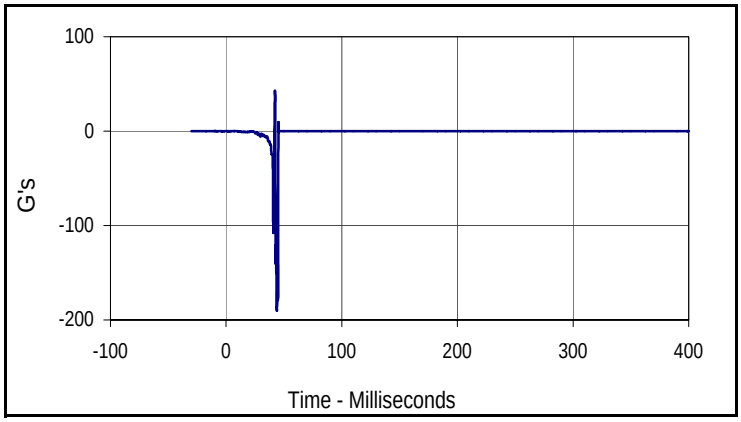
Curve Description			
Driver Right Femur Moment Y			
CURNO	Type	SAE Class	Units
080	FIL	600	Nm
Max	Time	Min	Time
89.9	54.9	-17.9	151.3



Curve Description			
Driver Right Femur Moment Z			
CURNO	Type	SAE Class	Units
081	FIL	600	Nm
Max	Time	Min	Time
47.9	92.8	-71.9	69.3



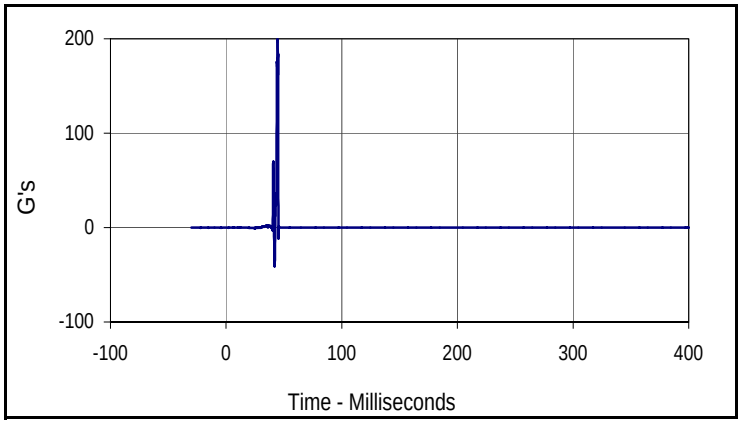
Curve Description			
Driver Left Knee Deflection			
CURNO	Type	SAE Class	Units
082	FIL	180	MM
Max	Time	Min	Time
1.3	76.9	-7.5	54.5



Curve Description			
Driver Left Tibia X			
CURNO	Type	SAE Class	Units
083	FIL	1000	G's
Max	Time	Min	Time
42.6	42.3	-190.1	43.8

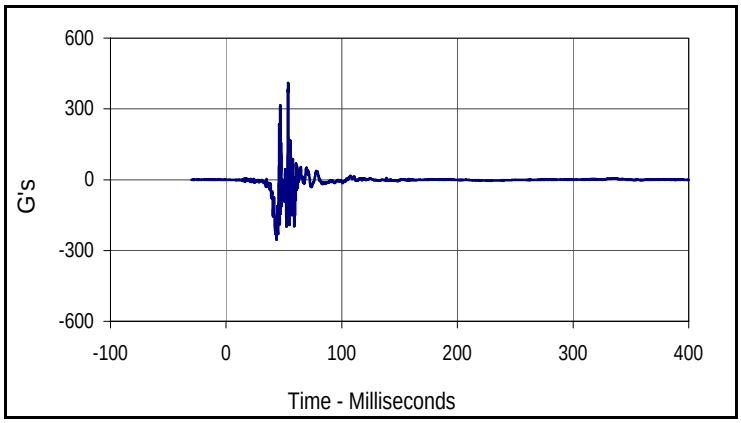
* Channel failed at 45.1 msec.

Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

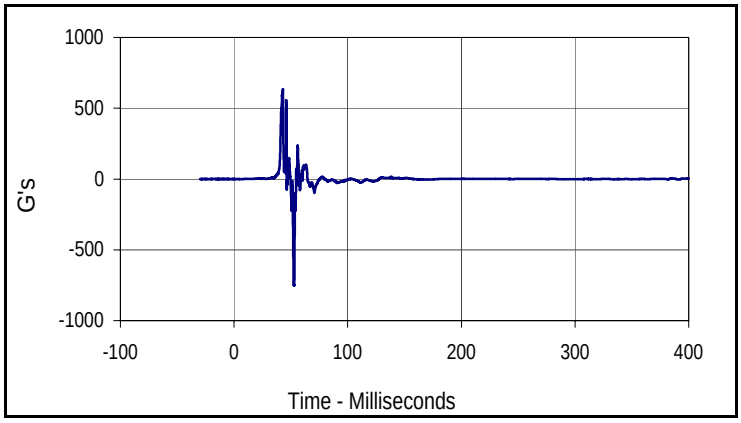


Curve Description			
Driver Left Tibia Y			
CURNO	Type	SAE Class	Units
084	FIL	1000	G's
Max	Time	Min	Time
199.0	44.5	-41.0	41.9

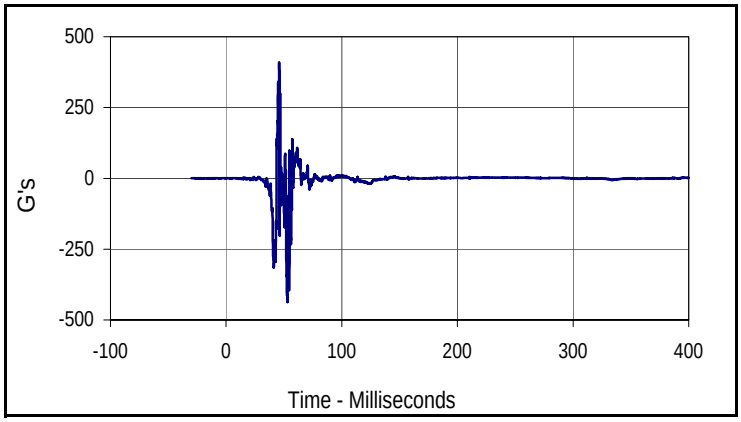
* Channel failed at 45.1 msec.



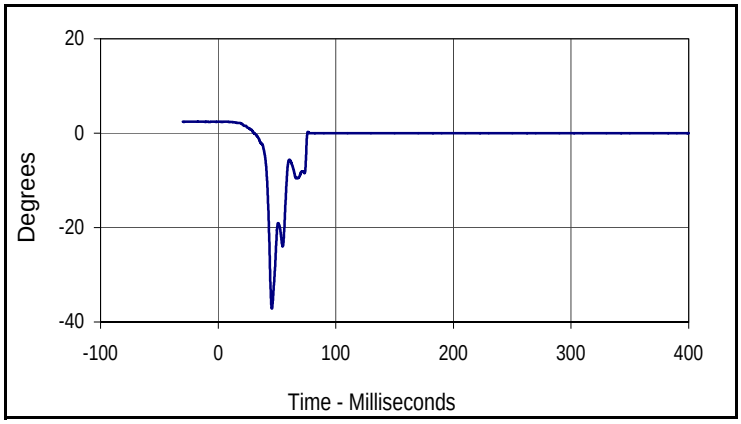
Curve Description			
Driver Left Foot X			
CURNO	Type	SAE Class	Units
085	FIL	1000	G's
Max	Time	Min	Time
410.1	53.7	-253.8	43.5



Curve Description			
Driver Left Foot Y			
CURNO	Type	SAE Class	Units
086	FIL	1000	G's
Max	Time	Min	Time
634.4	42.9	-753.2	52.9

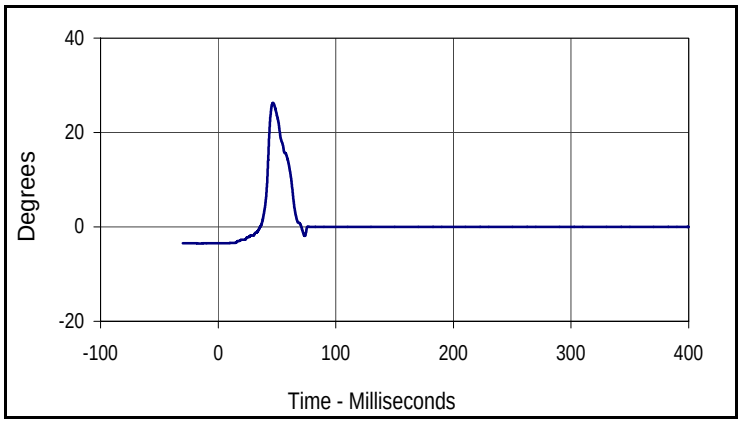


Curve Description			
Driver Left Foot Z			
CURNO	Type	SAE Class	Units
087	FIL	1000	G's
Max	Time	Min	Time
408.7	45.9	-436.5	53.0



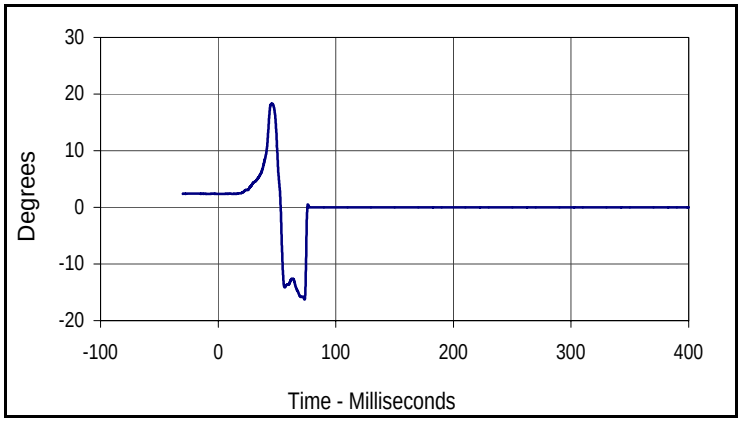
Curve Description			
Driver Left Ankle Rotation X			
CURNO	Type	SAE Class	Units
088	FIL	180	Degrees
Max	Time	Min	Time
2.4	5.5	-37.2	45.7

* Channel failed at 74.9 msec.



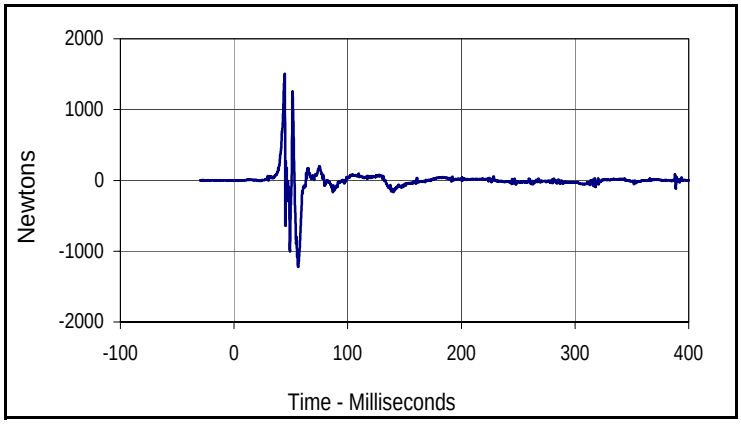
Curve Description			
Driver Left Ankle Rotation Y			
CURNO	Type	SAE Class	Units
089	FIL	180	Degrees
Max	Time	Min	Time
26.3	46.7	-3.5	7.7

* Channel failed at 74.9 msec.

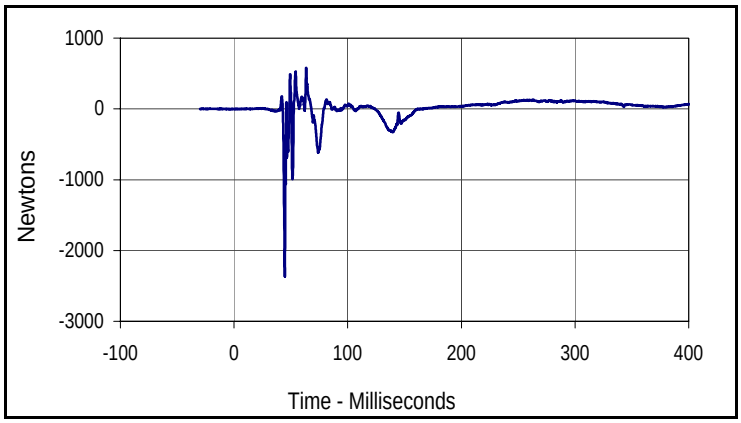


Curve Description			
Driver Left Ankle Rotation Z			
CURNO	Type	SAE Class	Units
090	FIL	180	Degrees
Max	Time	Min	Time
18.3	45.8	-16.3	73.4

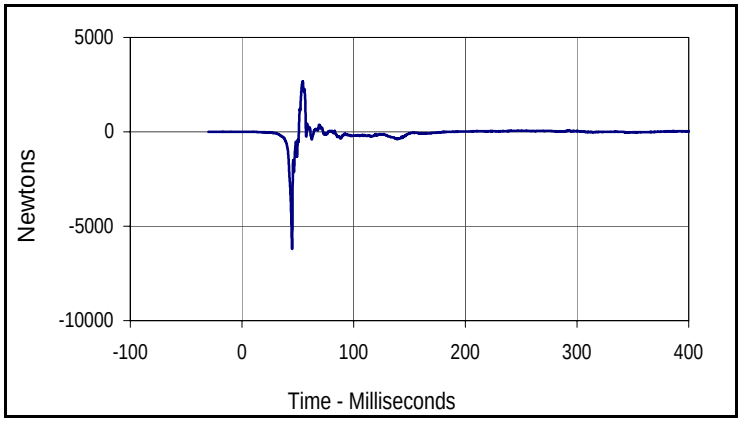
* Channel failed at 74.9 msec.



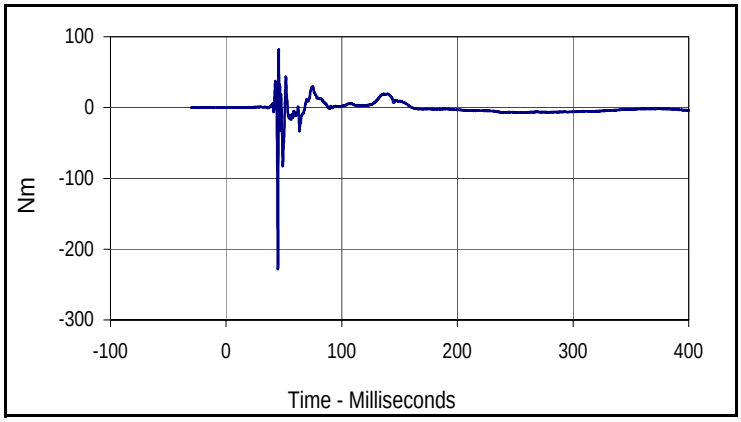
Curve Description			
Driver Left Upper Tibia Force X			
CURNO	Type	SAE Class	Units
091	FIL	600	Newtons
Max	Time	Min	Time
1506.0	44.6	-1223.2	56.3



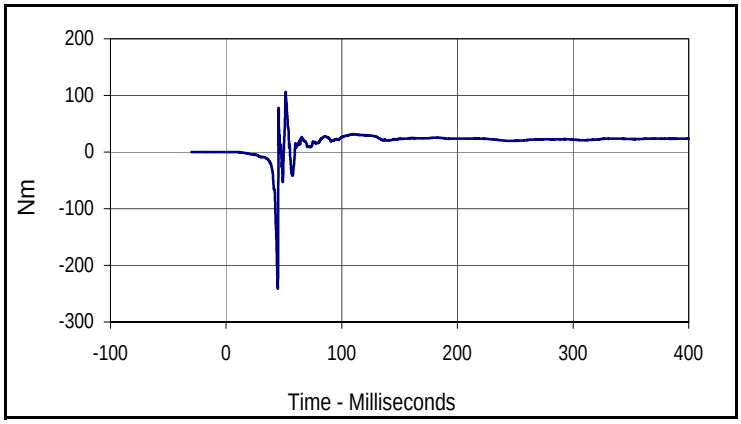
Curve Description			
Driver Left Upper Tibia Force Y			
CURNO	Type	SAE Class	Units
092	FIL	600	Newtons
Max	Time	Min	Time
579.3	63.5	-2365.2	44.7



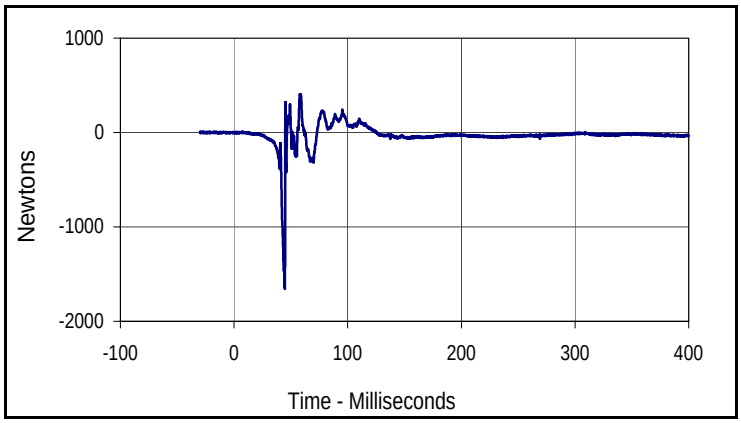
Curve Description			
Driver Left Upper Tibia Force Z			
CURNO	Type	SAE Class	Units
093	FIL	600	Newtons
Max	Time	Min	Time
2672.4	54.4	-6205.9	44.9



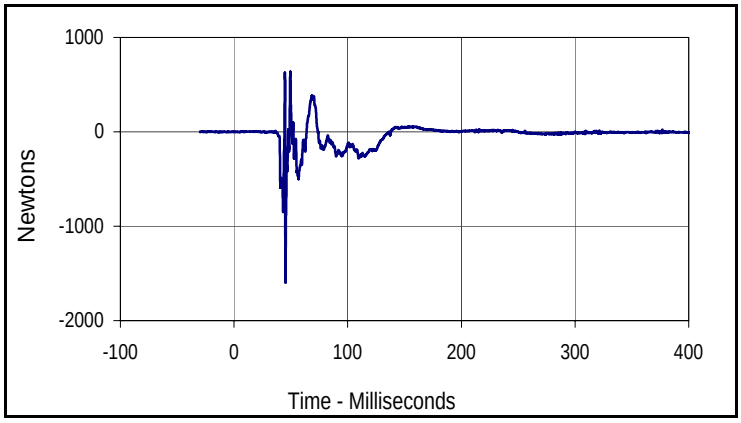
Curve Description			
Driver Left Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
094	FIL	600	Nm
Max	Time	Min	Time
81.9	45.5	-228.3	44.8



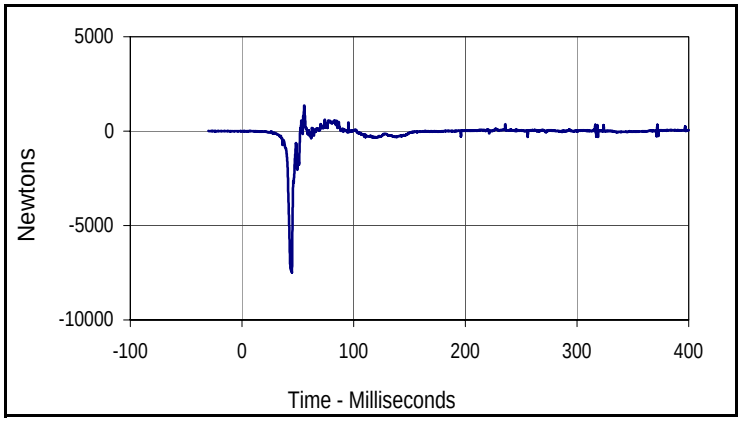
Curve Description			
Driver Left Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
095	FIL	600	Nm
Max	Time	Min	Time
106.2	51.5	-240.9	44.7



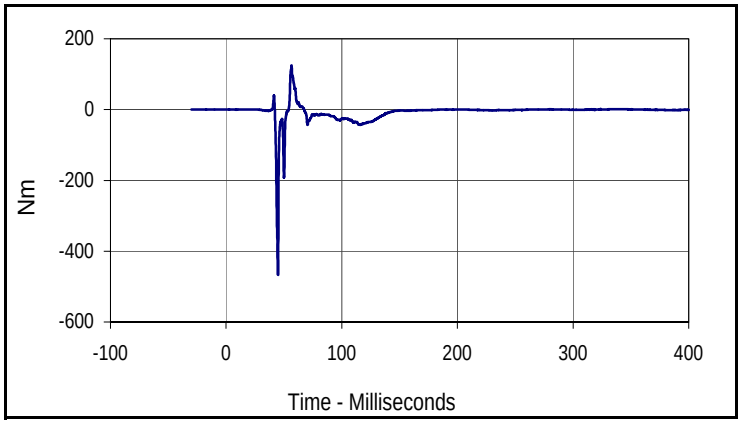
Curve Description			
Driver Left Lower Tibia Force X			
CURNO	Type	SAE Class	Units
096	FIL	600	Newtons
Max	Time	Min	Time
406.2	58.5	-1653.3	44.6



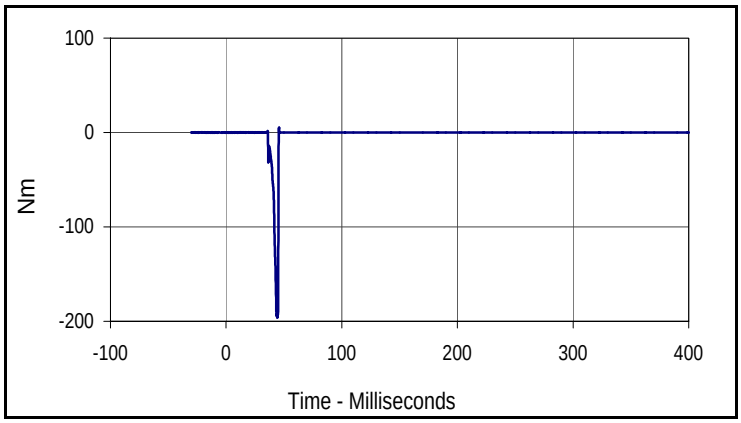
Curve Description			
Driver Left Lower Tibia Force Y			
CURNO	Type	SAE Class	Units
097	FIL	600	Newtons
Max	Time	Min	Time
636.9	49.5	-1598.1	45.3



Curve Description			
Driver Left Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
098	FIL	600	Newtons
Max	Time	Min	Time
1354.9	55.7	-7495.6	44.7

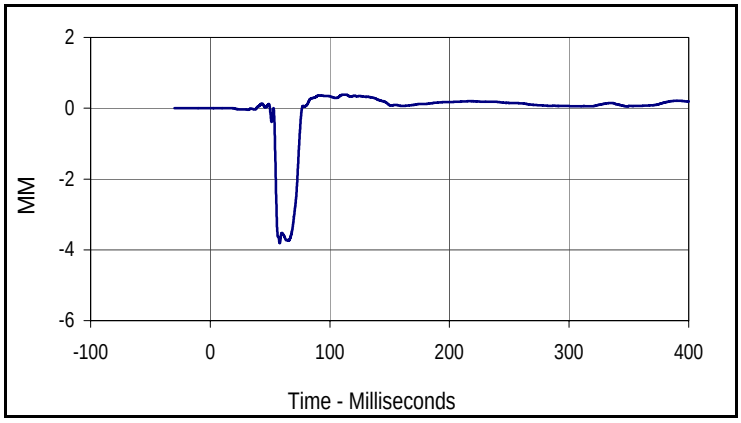


Curve Description			
Driver Left Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
099	FIL	600	Nm
Max	Time	Min	Time
125.2	56.5	-467.5	44.9

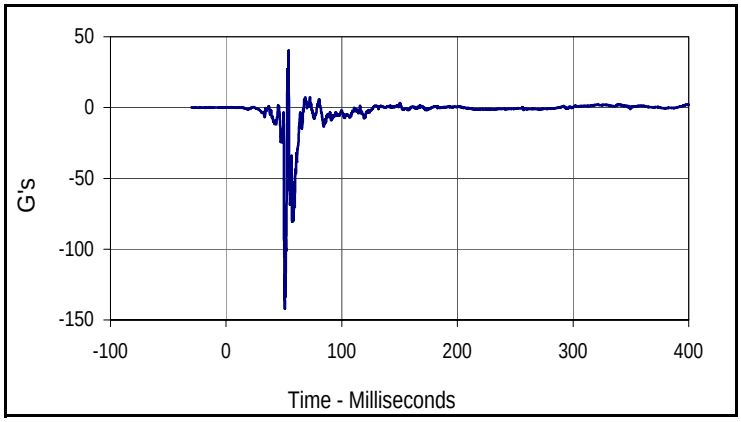


Curve Description			
Driver Left Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
100	FIL	600	Nm
Max	Time	Min	Time
5.0	45.7	-196.3	44.2

* Channel failed at 45.4 msec.

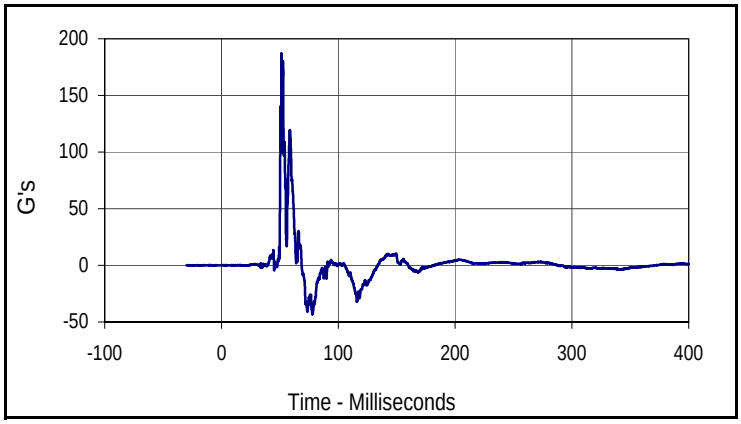


Curve Description			
Driver Right Knee Deflection			
CURNO	Type	SAE Class	Units
101	FIL	180	MM
Max	Time	Min	Time
0.4	112.0	-3.8	58.2

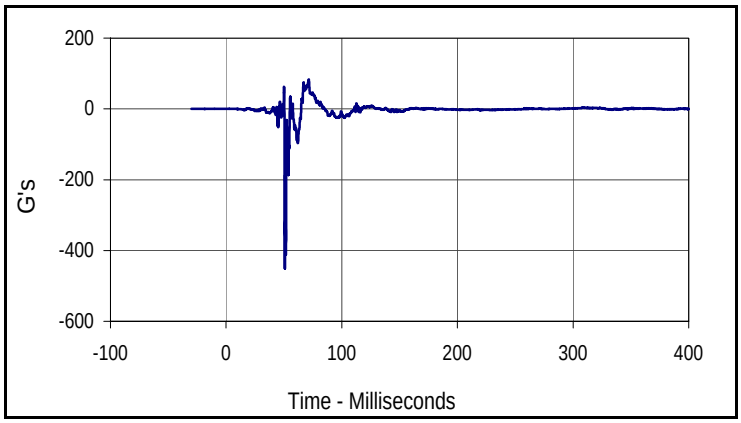


Curve Description			
Driver Right Tibia X			
CURNO	Type	SAE Class	Units
102	FIL	1000	G's
Max	Time	Min	Time
40.2	54.0	-141.9	50.8

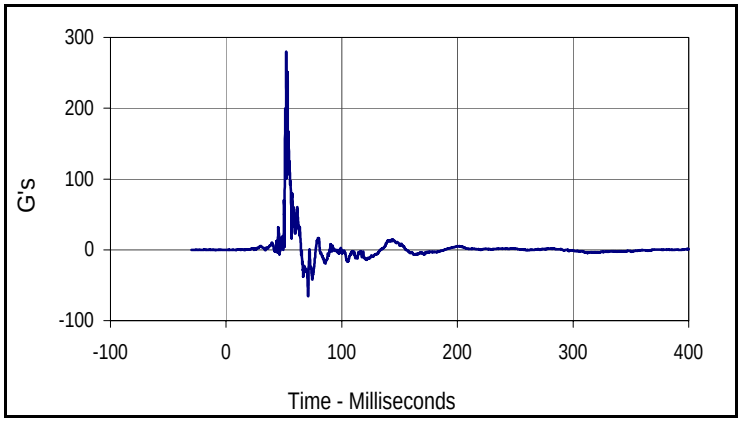
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



Curve Description			
Driver Right Tibia Y			
CURNO	Type	SAE Class	Units
103	FIL	1000	G's
Max	Time	Min	Time
187.1	51.3	-43.1	77.9

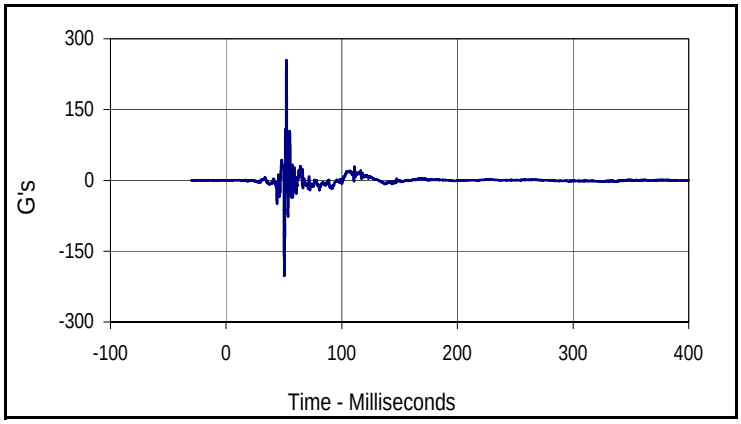


Curve Description			
Driver Right Foot X			
CURNO	Type	SAE Class	Units
104	FIL	1000	G's
Max	Time	Min	Time
83.3	71.5	-450.7	50.8

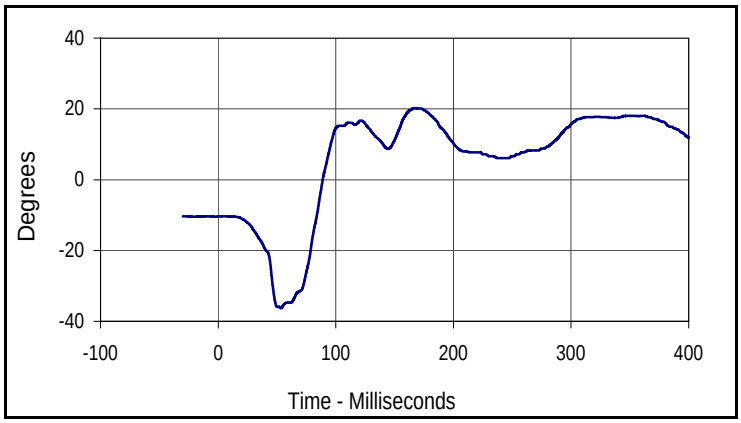


Curve Description			
Driver Right Foot Y			
CURNO	Type	SAE Class	Units
105	FIL	1000	G's
Max	Time	Min	Time
279.1	51.9	-65.5	70.9

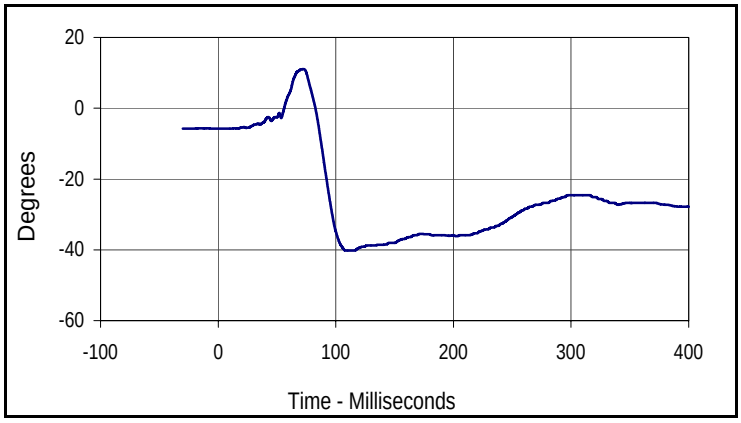
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



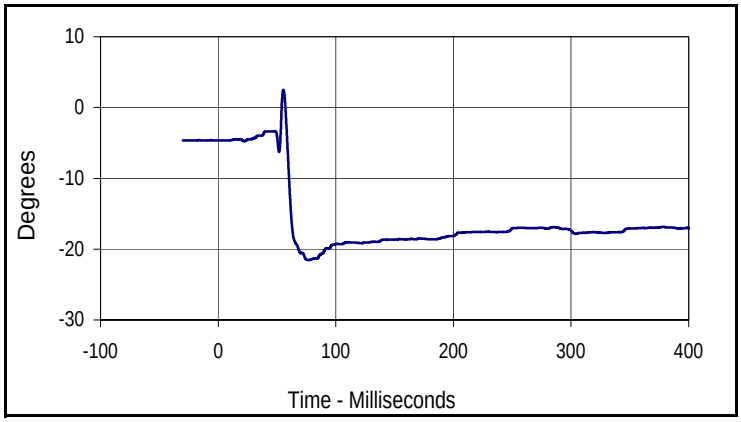
Curve Description			
Driver Right Foot Z			
CURNO	Type	SAE Class	Units
106	FIL	1000	G's
Max	Time	Min	Time
253.6	52.1	-202.4	50.3



Curve Description			
Driver Right Ankle Rotation X			
CURNO	Type	SAE Class	Units
107	FIL	180	Degrees
Max	Time	Min	Time
20.2	166.1	-36.3	53.4

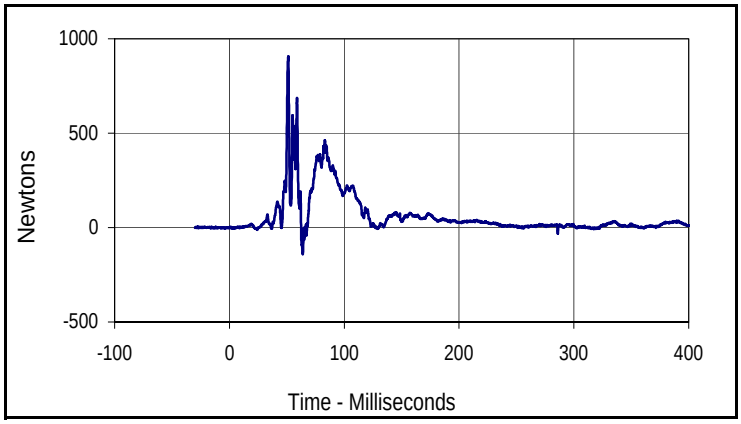


Curve Description			
Driver Right Ankle Rotation Y			
CURNO	Type	SAE Class	Units
108	FIL	180	Degrees
Max	Time	Min	Time
11.0	72.6	-40.2	113.5

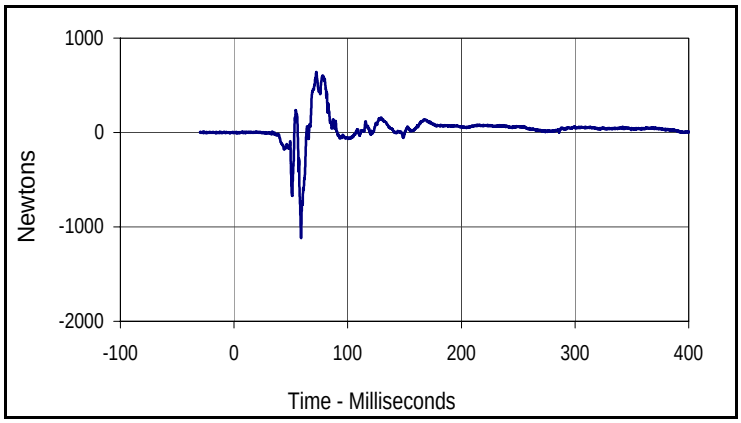


Curve Description			
Driver Right Ankle Rotation Z			
CURNO	Type	SAE Class	Units
109	FIL	180	Degrees
Max	Time	Min	Time
2.5	55.4	-21.6	77.0

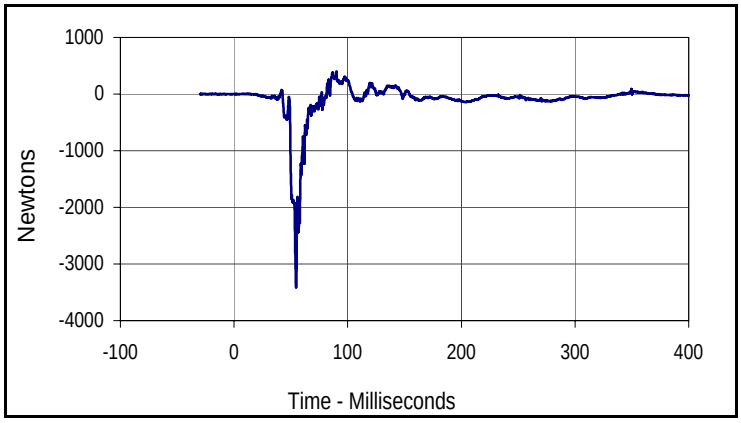
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



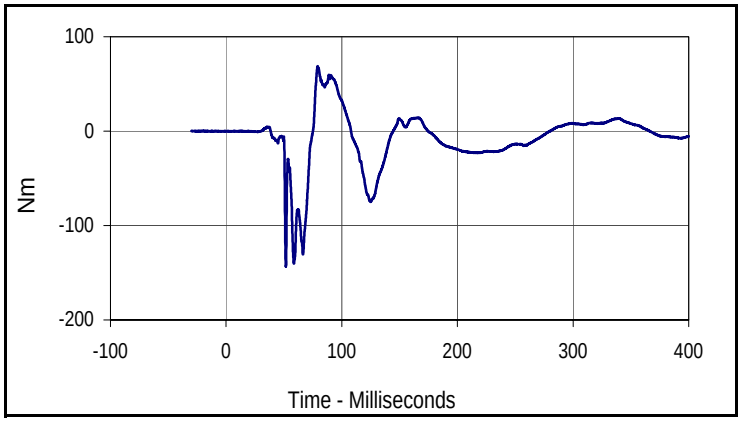
Curve Description			
Driver Right Upper Tibia Force X			
CURNO	Type	SAE Class	Units
110	FIL	600	Newtons
Max	Time	Min	Time
906.7	51.2	-141.5	63.9



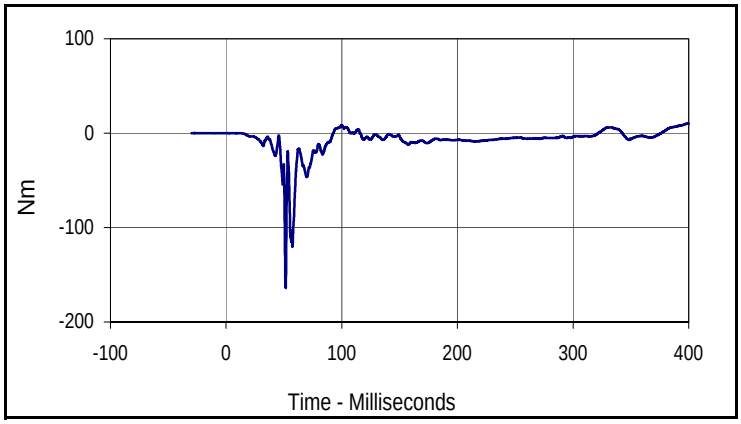
Curve Description			
Driver Right Upper Tibia Force Y			
CURNO	Type	SAE Class	Units
111	FIL	600	Newtons
Max	Time	Min	Time
640.0	72.4	-1118.8	59.0



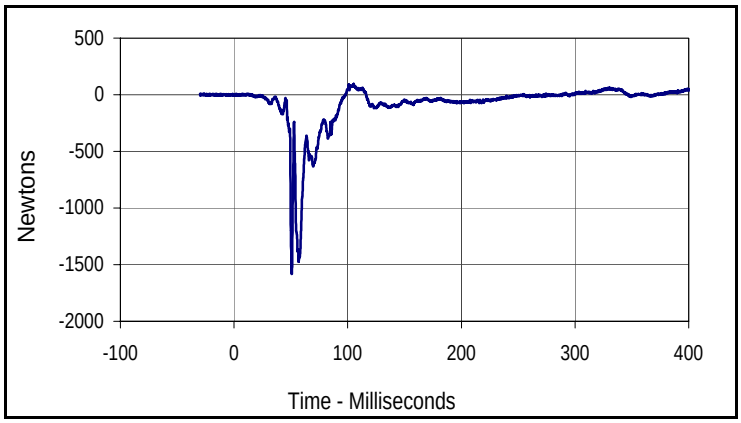
Curve Description			
Driver Right Upper Tibia Force Z			
CURNO	Type	SAE Class	Units
112	FIL	600	Newtons
Max	Time	Min	Time
400.6	90.1	-3413.9	54.6



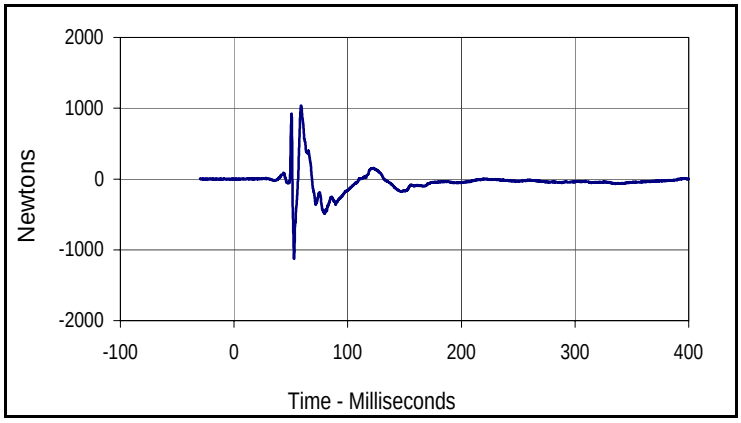
Curve Description			
Driver Right Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
113	FIL	600	Nm
Max	Time	Min	Time
69.0	79.1	-143.4	51.7



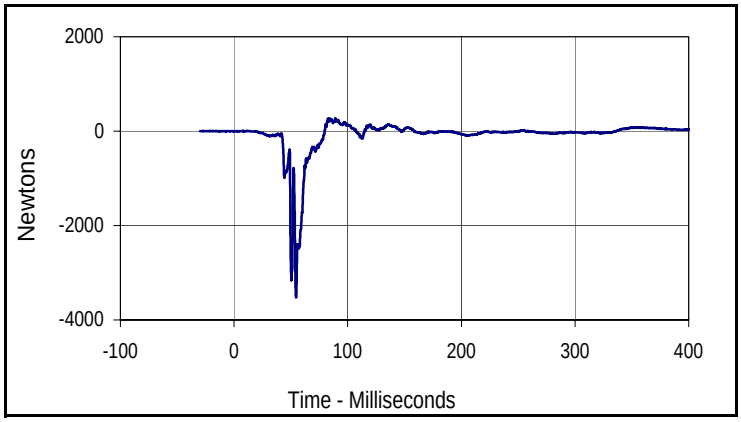
Curve Description			
Driver Right Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
114	FIL	600	Nm
Max	Time	Min	Time
10.3	399.6	-164.1	51.5



Curve Description			
Driver Right Lower Tibia Force X			
CURNO	Type	SAE Class	Units
115	FIL	600	Newtons
Max	Time	Min	Time
96.1	105.2	-1582.2	50.7

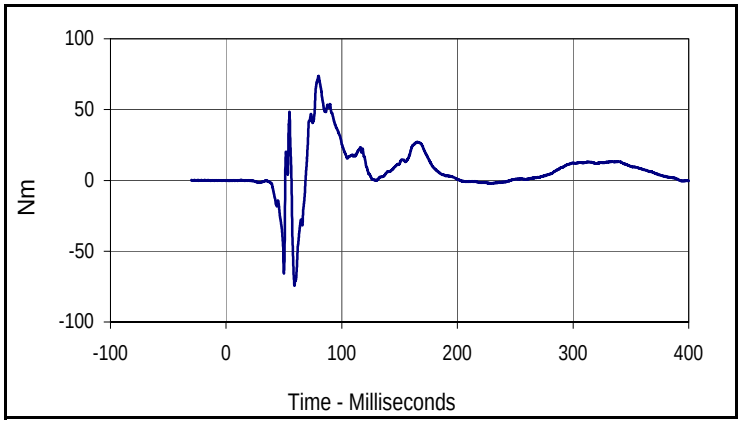


Curve Description			
Driver Right Lower Tibia Force Y			
CURNO	Type	SAE Class	Units
116	FIL	600	Newtons
Max	Time	Min	Time
1035.2	59.0	-1126.6	52.8

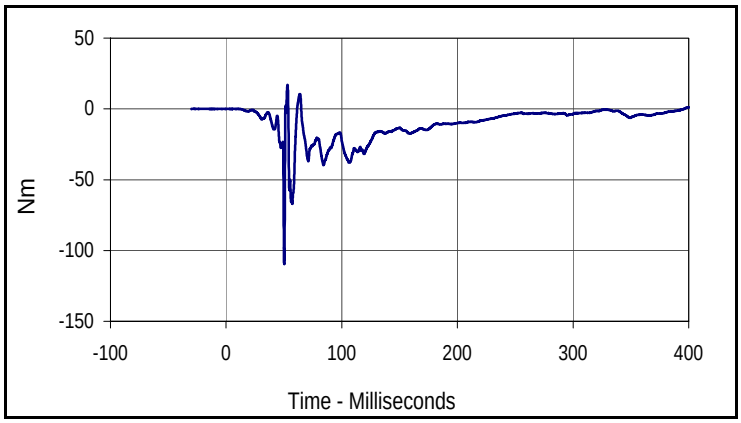


Curve Description			
Driver Right Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
117	FIL	600	Newtons
Max	Time	Min	Time
268.6	89.2	-3517.6	54.6

Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

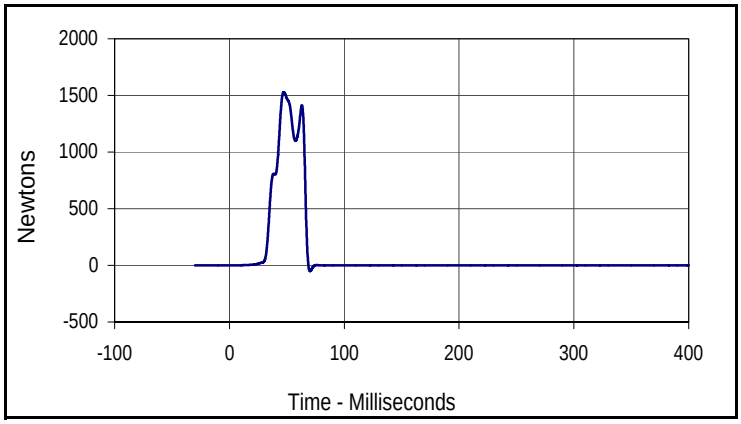


Curve Description			
Driver Right Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
118	FIL	600	Nm
Max	Time	Min	Time
73.7	79.9	-74.1	59.1



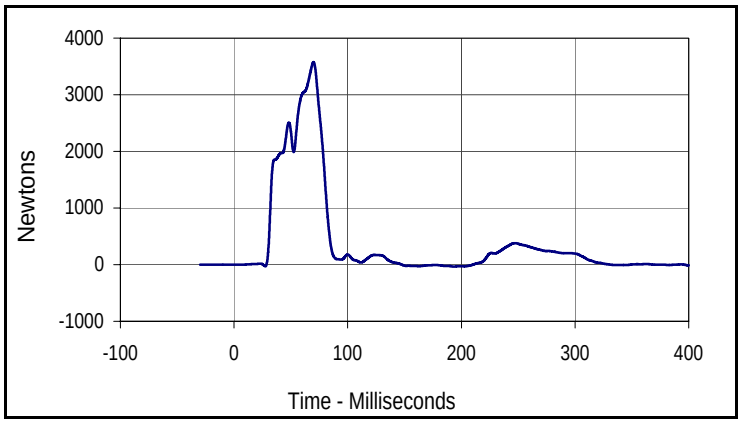
Curve Description			
Driver Right Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
119	FIL	600	Nm
Max	Time	Min	Time
17.1	53.1	-109.6	50.3

Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



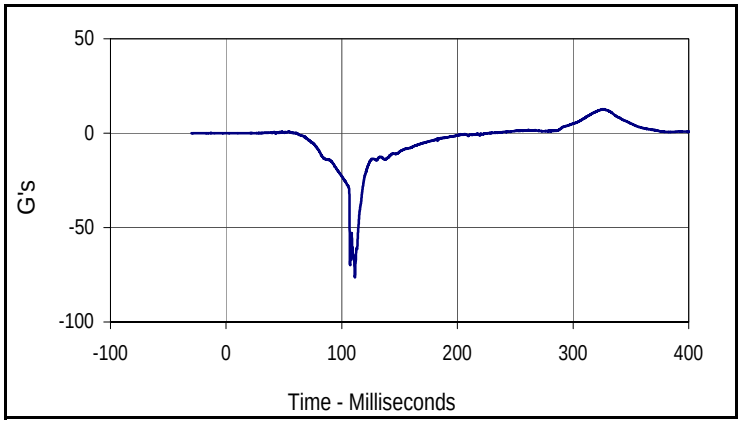
Curve Description			
Driver Lap Belt Force			
CURNO	Type	SAE Class	Units
120	FIL	60	Newtons
Max	Time	Min	Time
1529.5	47.3	-51.0	70.2

* Channel failed at 65.9 msec.

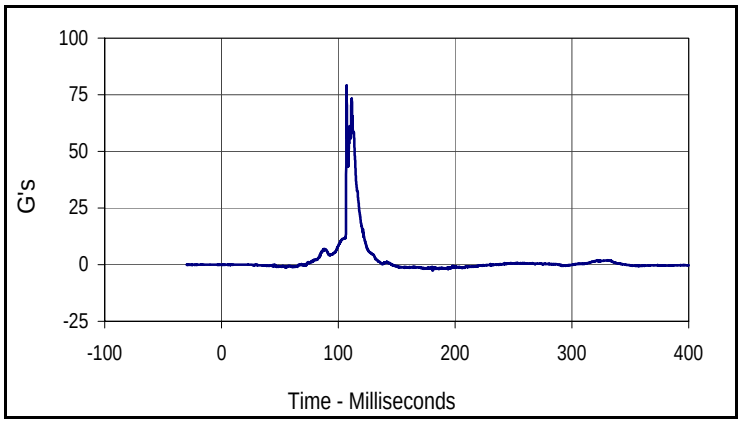


Curve Description			
Driver Shoulder Belt Force			
CURNO	Type	SAE Class	Units
121	FIL	60	Newtons
Max	Time	Min	Time
3573.8	69.9	-35.4	193.4

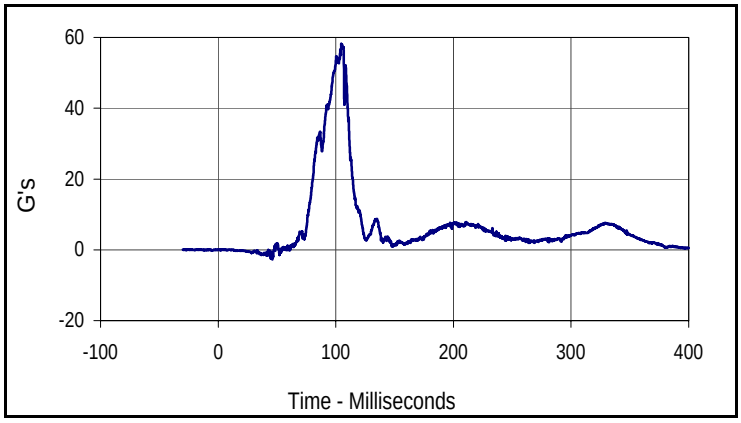
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



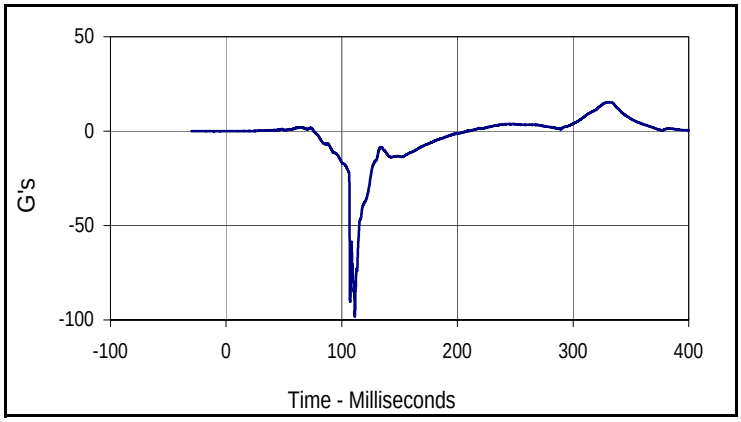
Curve Description			
LR Passenger Head CG X			
CURNO	Type	SAE Class	Units
122	FIL	1000	G's
Max	Time	Min	Time
12.7	325.9	-76.3	111.4



Curve Description			
LR Passenger Head CG Y			
CURNO	Type	SAE Class	Units
123	FIL	1000	G's
Max	Time	Min	Time
79.1	107.1	-2.8	180.7

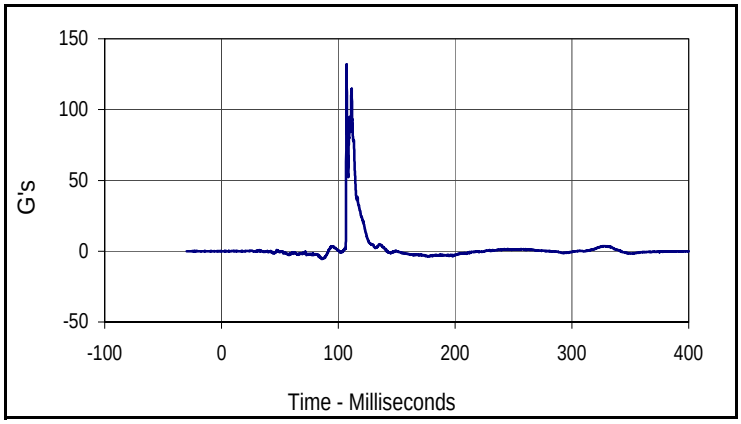


Curve Description			
LR Passenger Head CG Z			
CURNO	Type	SAE Class	Units
124	FIL	1000	G's
Max	Time	Min	Time
58.2	104.7	-2.7	46.0

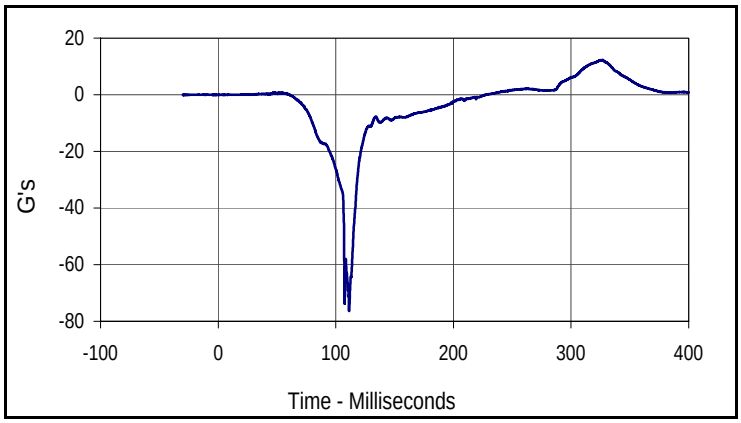


Curve Description			
LR Passenger Top Head Array X			
CURNO	Type	SAE Class	Units
125	FIL	1000	G's
Max	Time	Min	Time
15.4	331.4	-98.4	111.2

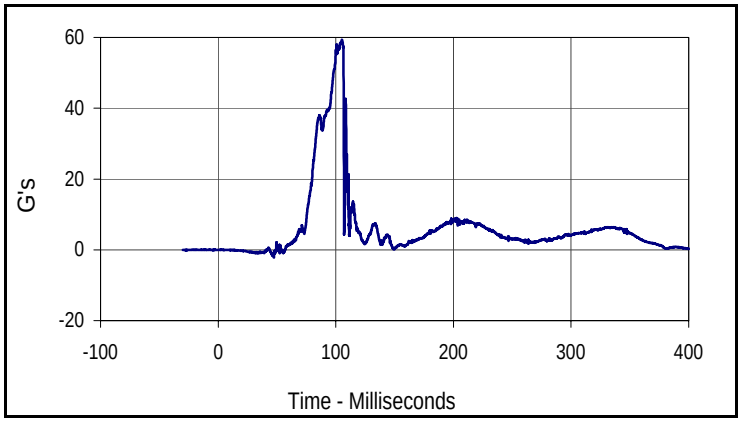
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



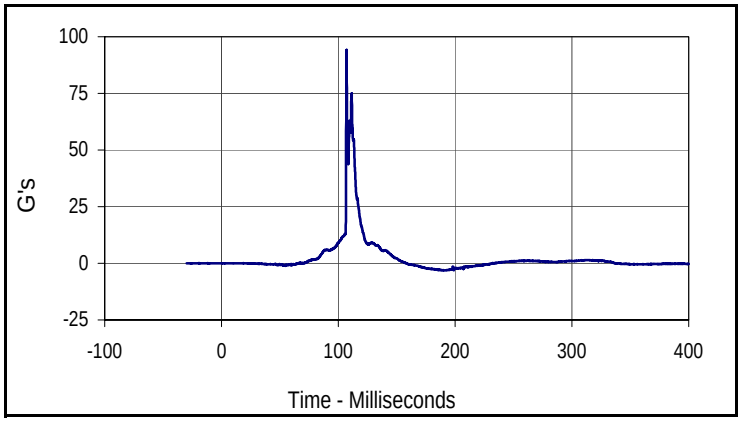
Curve Description			
LR Passenger Top Head Array Y			
CURNO	Type	SAE Class	Units
126	FIL	1000	G's
Max	Time	Min	Time
131.8	107.1	-5.6	85.6



Curve Description			
LR Passenger Left Side Head Array X			
CURNO	Type	SAE Class	Units
127	FIL	1000	G's
Max	Time	Min	Time
12.3	326.8	-76.3	111.3

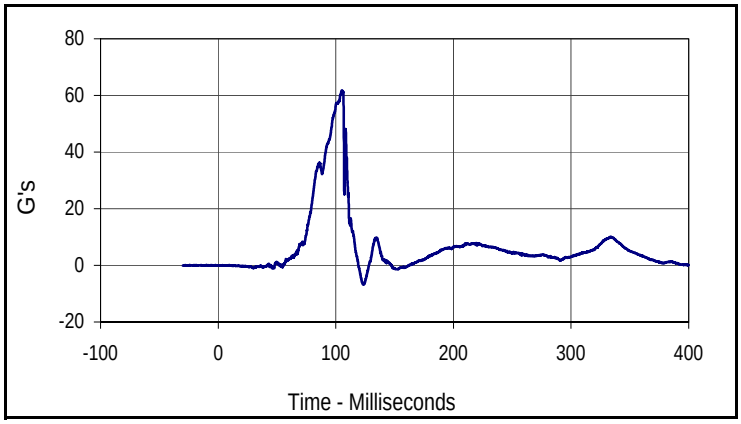


Curve Description			
LR Passenger Left Side Head Array Z			
CURNO	Type	SAE Class	Units
128	FIL	1000	G's
Max	Time	Min	Time
59.3	105.2	-2.2	47.4

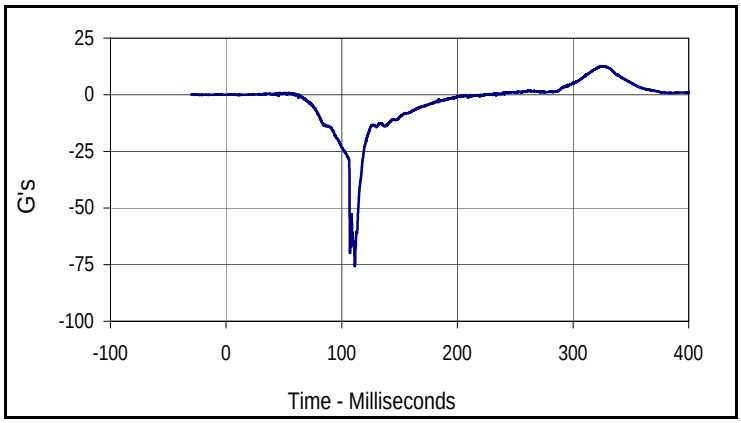


Curve Description			
LR Passenger Front Head Array Y			
CURNO	Type	SAE Class	Units
129	FIL	1000	G's
Max	Time	Min	Time
94.3	107.1	-3.1	190.3

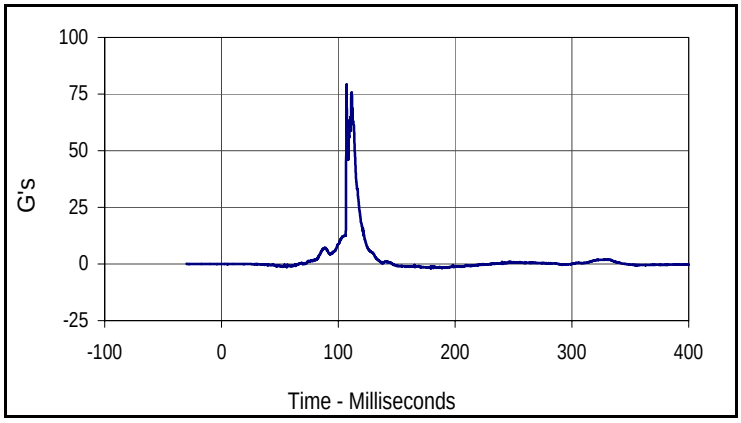
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



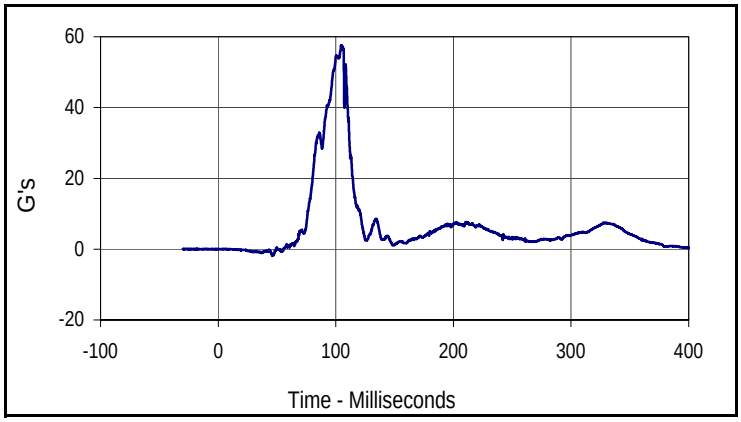
Curve Description			
LR Passenger Front Head Array Z			
CURNO	Type	SAE Class	Units
130	FIL	1000	G's
Max	Time	Min	Time
61.8	105.3	-6.7	123.2



Curve Description			
LR Passenger Head CG X Redundant			
CURNO	Type	SAE Class	Units
131	FIL	1000	G's
Max	Time	Min	Time
12.6	325.0	-75.7	111.3

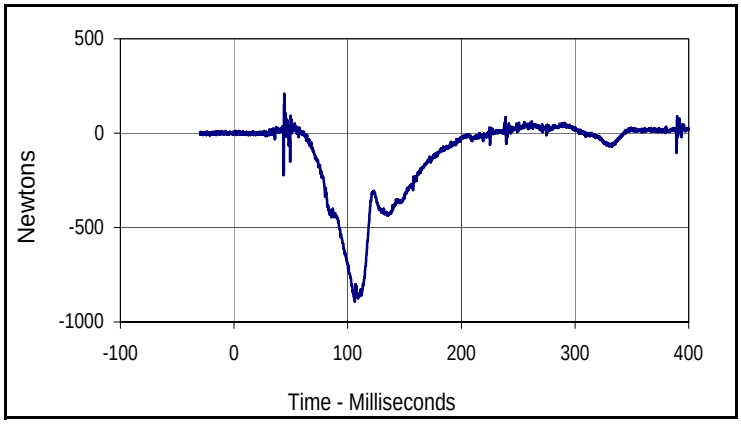


Curve Description			
LR Passenger Head CG Y Redundant			
CURNO	Type	SAE Class	Units
132	FIL	1000	G's
Max	Time	Min	Time
79.2	107.1	-2.0	179.2

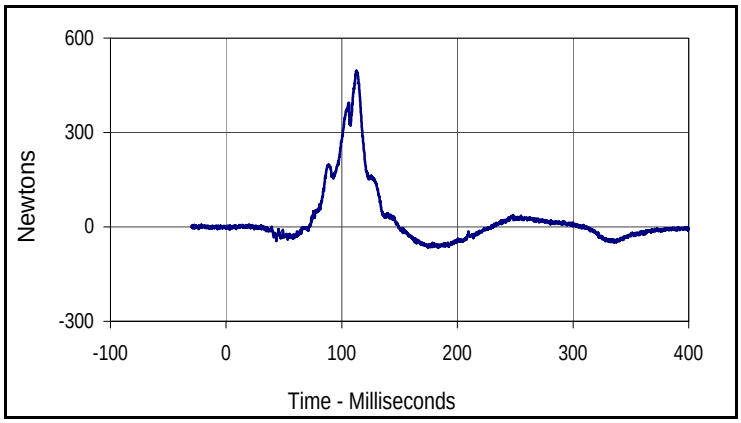


Curve Description			
LR Passenger Head CG Z Redundant			
CURNO	Type	SAE Class	Units
133	FIL	1000	G's
Max	Time	Min	Time
57.6	104.6	-1.9	45.9

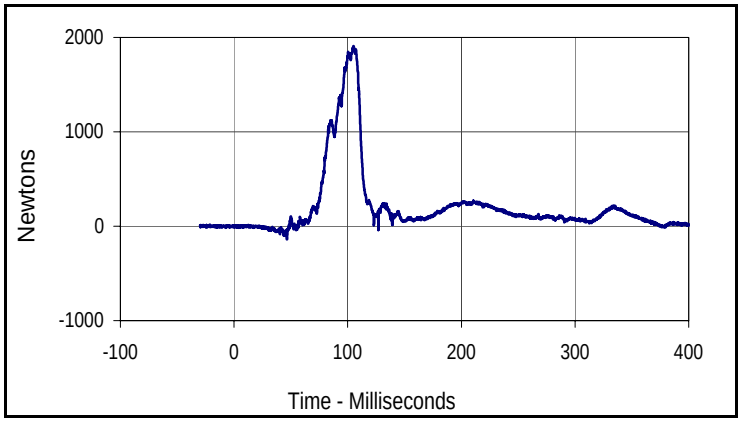
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



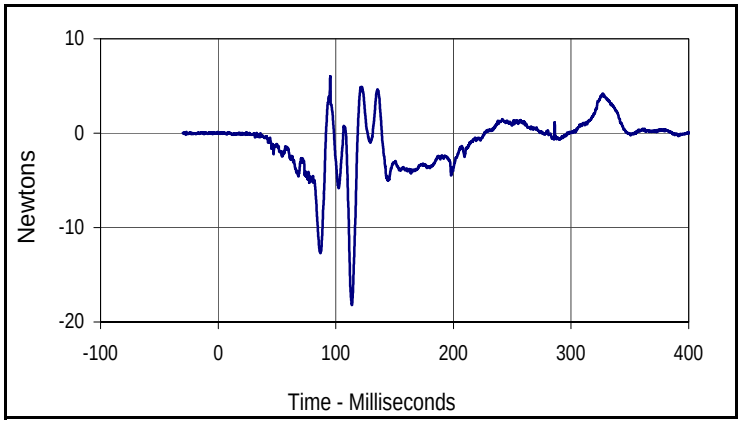
Curve Description			
LR Passenger Upper Neck Force X			
CURNO	Type	SAE Class	Units
134	FIL	1000	Newtons
Max	Time	Min	Time
208.7	44.2	-893.1	106.2



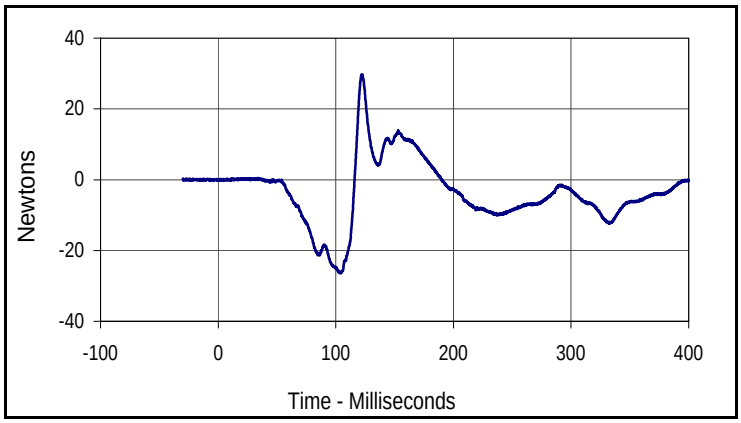
Curve Description			
LR Passenger Upper Neck Force Y			
CURNO	Type	SAE Class	Units
135	FIL	1000	Newtons
Max	Time	Min	Time
496.2	112.5	-65.9	183.3



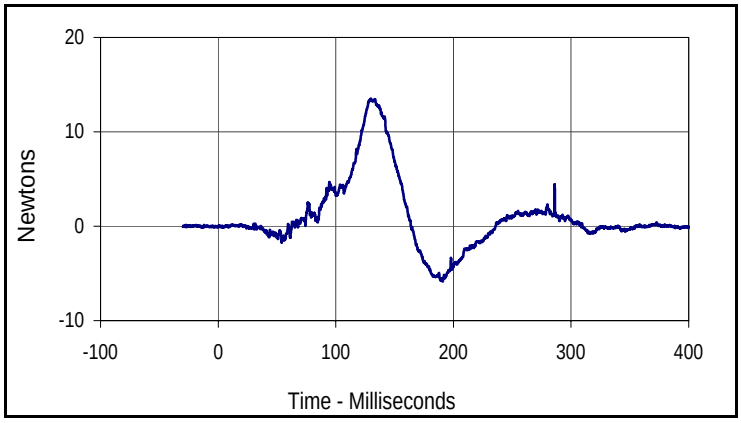
Curve Description			
LR Passenger Upper Neck Force Z			
CURNO	Type	SAE Class	Units
136	FIL	1000	Newtons
Max	Time	Min	Time
1908.9	105.1	-137.9	46.5



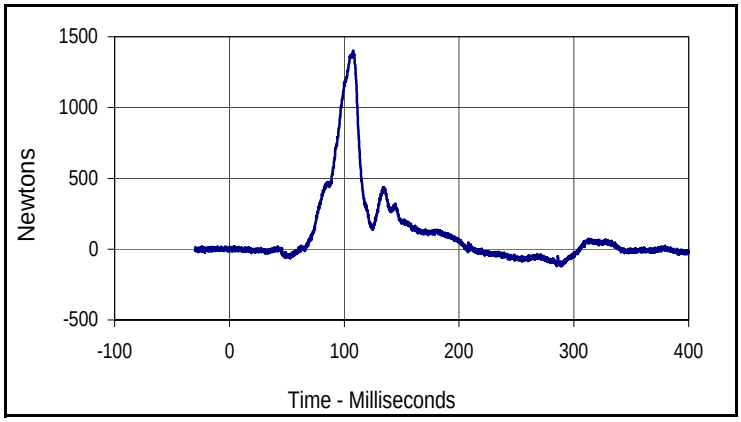
Curve Description			
LR Passenger Upper Neck Moment X			
CURNO	Type	SAE Class	Units
137	FIL	600	Newtons
Max	Time	Min	Time
6.0	95.2	-18.2	113.7



Curve Description			
LR Passenger Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
138	FIL	600	Newtons
Max	Time	Min	Time
29.7	122.6	-26.4	103.9

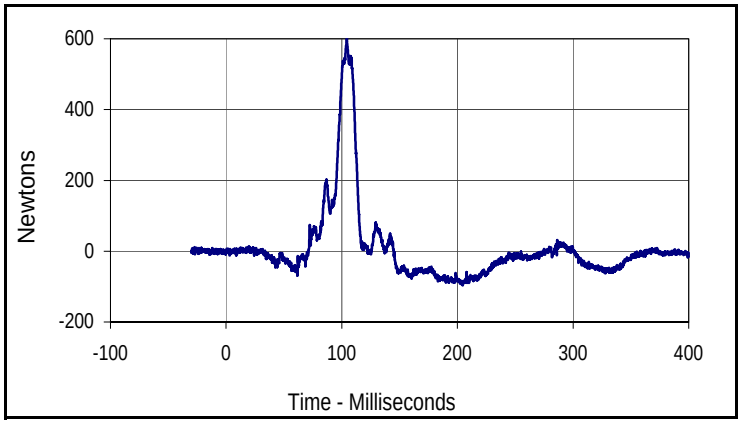


Curve Description			
LR Passenger Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
139	FIL	600	Newtons
Max	Time	Min	Time
13.5	129.4	-5.9	190.9

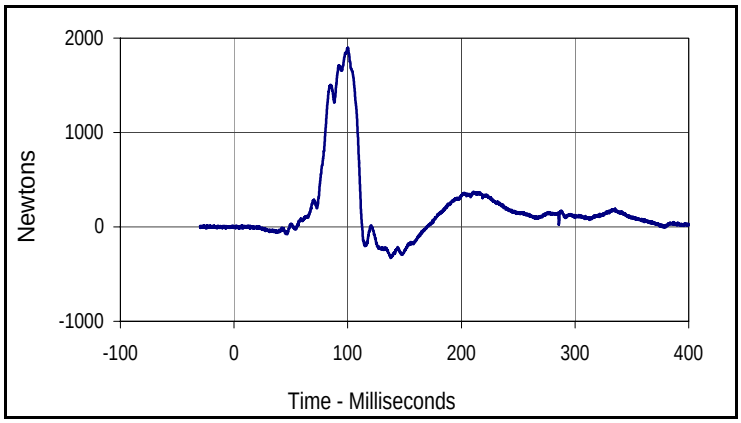


Curve Description			
LR Passenger Lower Neck Force X			
CURNO	Type	SAE Class	Units
140	FIL	1000	Newtons
Max	Time	Min	Time
1402.2	107.6	-122.7	289.0

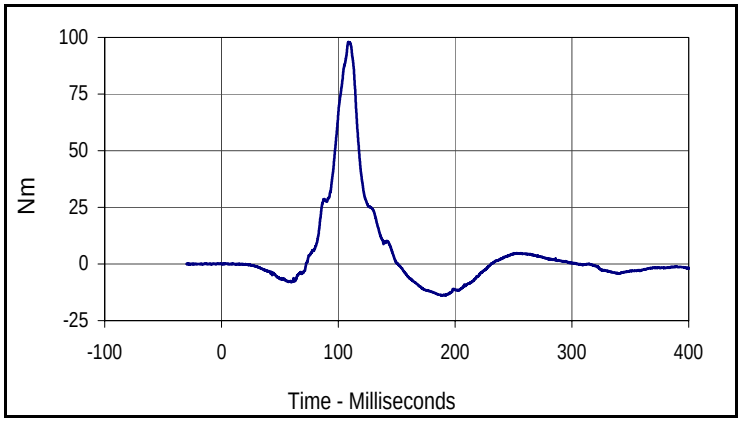
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



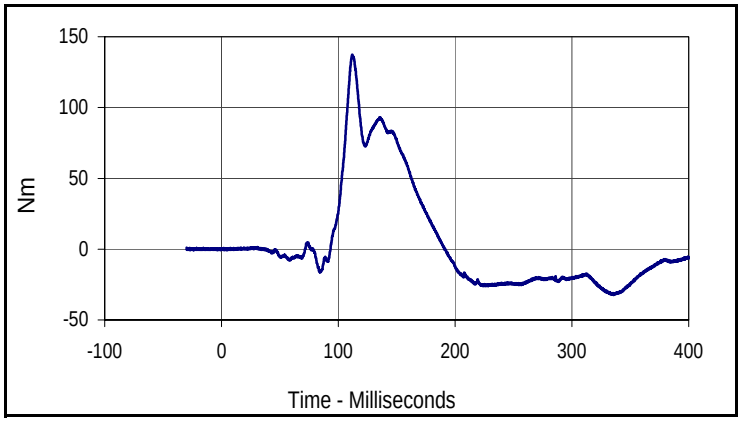
Curve Description			
LR Passenger Lower Neck Force Y			
CURNO	Type	SAE Class	Units
141	FIL	1000	Newtons
Max	Time	Min	Time
599.8	104.4	-95.8	204.5



Curve Description			
LR Passenger Lower Neck Force Z			
CURNO	Type	SAE Class	Units
142	FIL	1000	Newtons
Max	Time	Min	Time
1896.6	100.3	-327.4	137.8

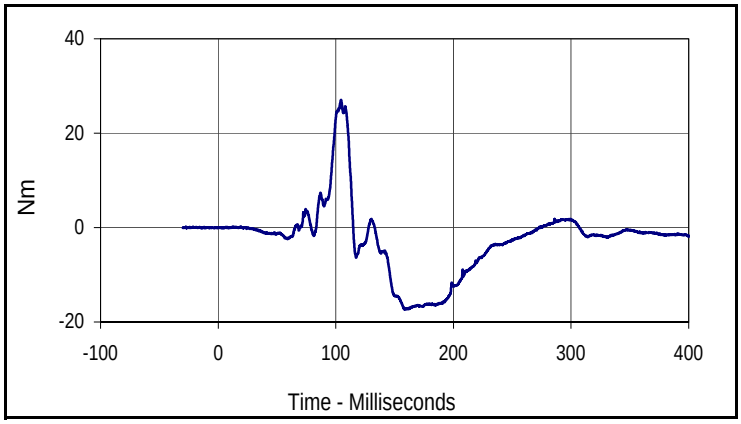


Curve Description			
LR Passenger Lower Neck Moment X			
CURNO	Type	SAE Class	Units
143	FIL	600	Nm
Max	Time	Min	Time
98.0	108.7	-14.0	191.7

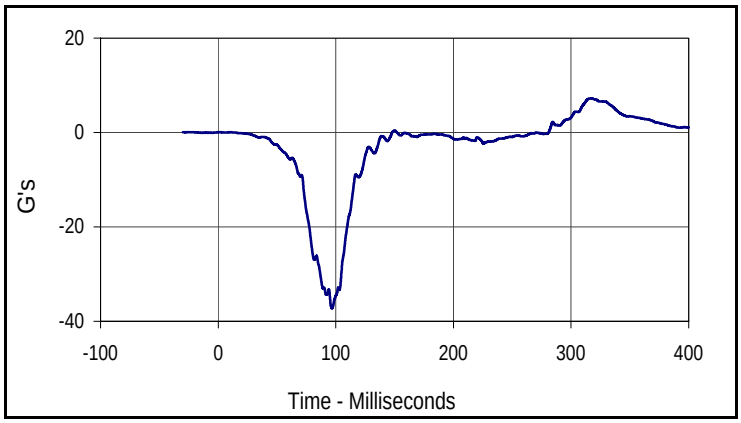


Curve Description			
LR Passenger Lower Neck Moment Y			
CURNO	Type	SAE Class	Units
144	FIL	600	Nm
Max	Time	Min	Time
137.3	112.0	-32.4	335.8

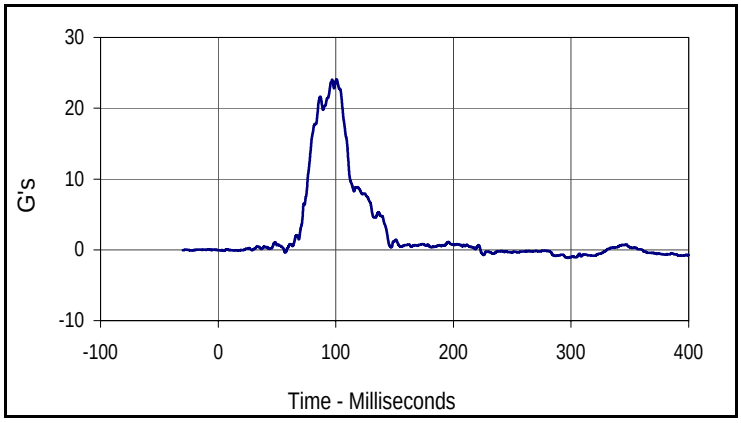
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



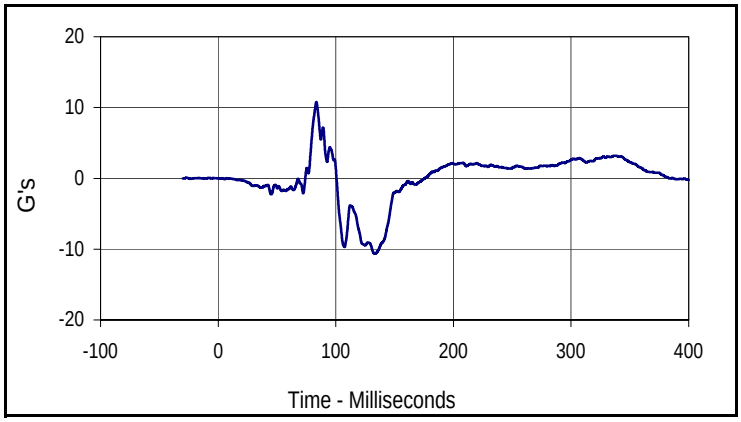
Curve Description			
LR Passenger Lower Neck Moment Z			
CURNO	Type	SAE Class	Units
145	FIL	600	Nm
Max	Time	Min	Time
27.0	104.4	-17.3	158.9



Curve Description			
LR Passenger Chest X Primary			
CURNO	Type	SAE Class	Units
146	FIL	180	G's
Max	Time	Min	Time
7.2	317.7	-37.3	96.6

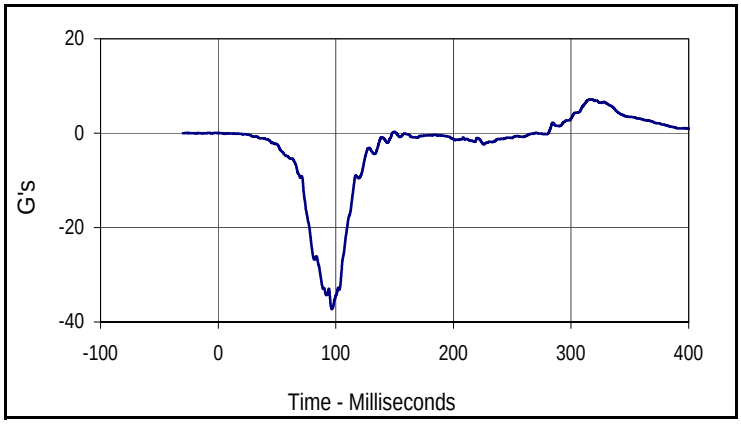


Curve Description			
LR Passenger Chest Y Primary			
CURNO	Type	SAE Class	Units
147	FIL	180	G's
Max	Time	Min	Time
24.1	100.7	-1.1	297.4

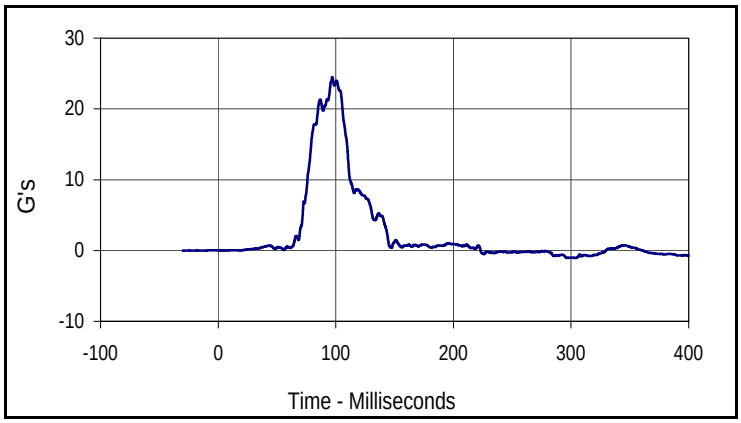


Curve Description			
LR Passenger Chest Z Primary			
CURNO	Type	SAE Class	Units
148	FIL	180	G's
Max	Time	Min	Time
10.8	83.5	-10.7	133.0

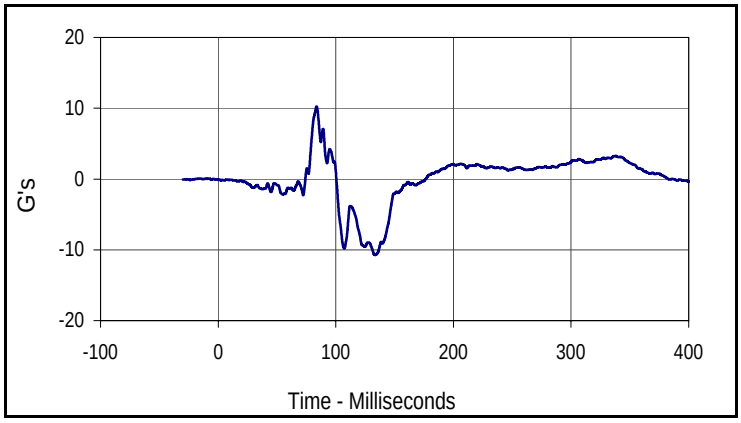
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



Curve Description			
LR Passenger Chest X Redundant			
CURNO	Type	SAE Class	Units
149	FIL	180	G's
Max	Time	Min	Time
7.2	317.5	-37.3	96.7

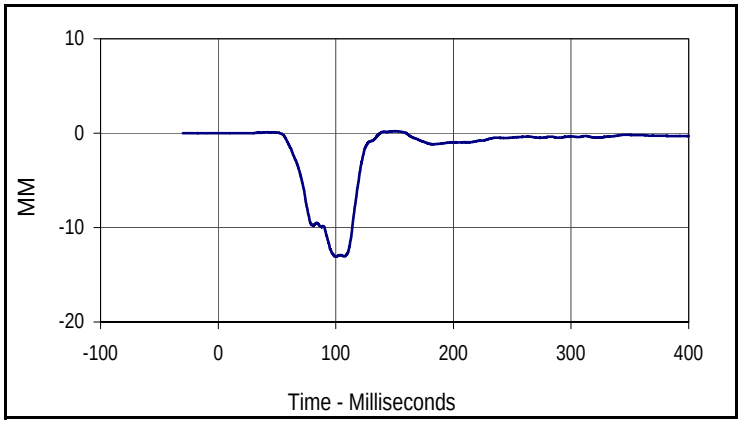


Curve Description			
LR Passenger Chest Y Redundant			
CURNO	Type	SAE Class	Units
150	FIL	180	G's
Max	Time	Min	Time
24.5	97.0	-1.1	297.0

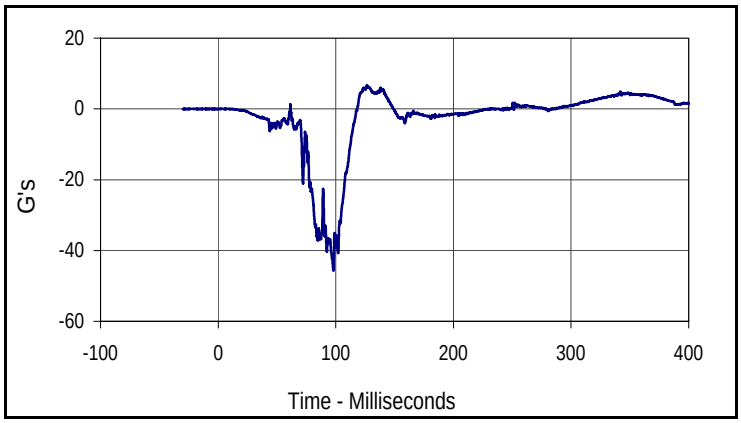


Curve Description			
LR Passenger Chest Z Redundant			
CURNO	Type	SAE Class	Units
151	FIL	180	G's
Max	Time	Min	Time
10.3	83.7	-10.7	133.4

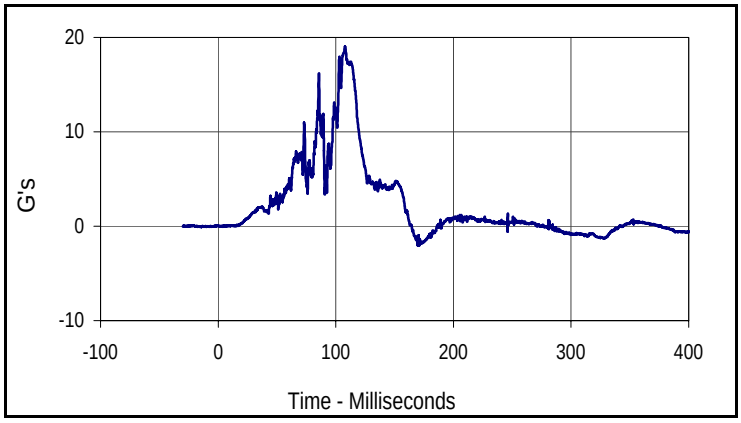
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



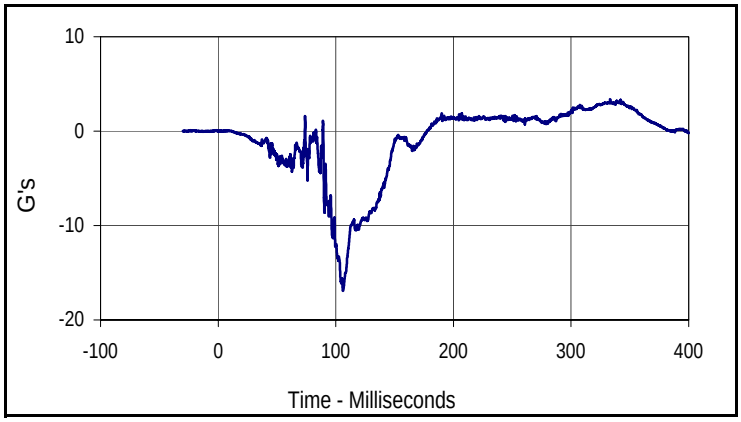
Curve Description			
LR Passenger Chest Deflection			
CURNO	Type	SAE Class	Units
152	FIL	600	MM
Max	Time	Min	Time
0.2	150.5	-13.1	100.5



Curve Description			
LR Passenger Pelvis X Primary			
CURNO	Type	SAE Class	Units
153	FIL	1000	G's
Max	Time	Min	Time
6.8	126.4	-45.7	98.0

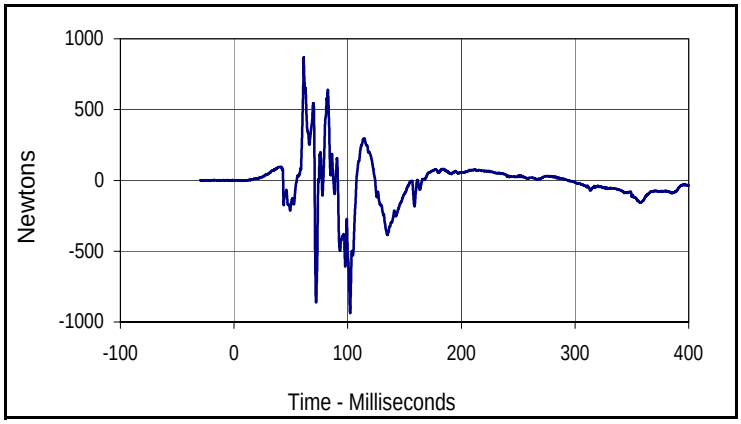


Curve Description			
LR Passenger Pelvis Y Primary			
CURNO	Type	SAE Class	Units
154	FIL	1000	G's
Max	Time	Min	Time
19.1	107.8	-2.1	170.0

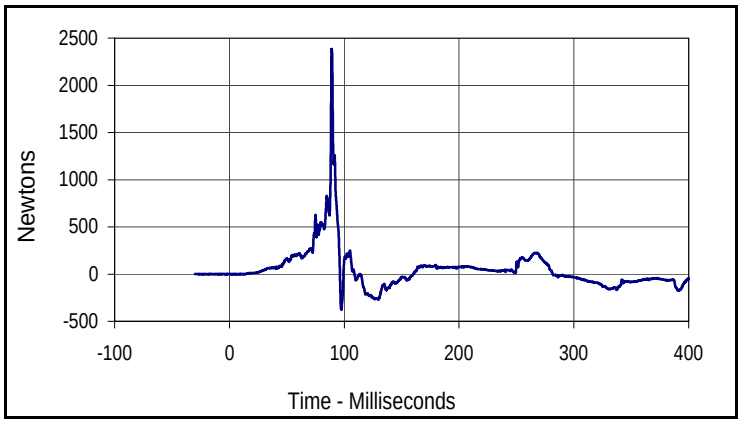


Curve Description			
LR Passenger Pelvis Z Primary			
CURNO	Type	SAE Class	Units
155	FIL	1000	G's
Max	Time	Min	Time
3.4	333.2	-16.9	106.1

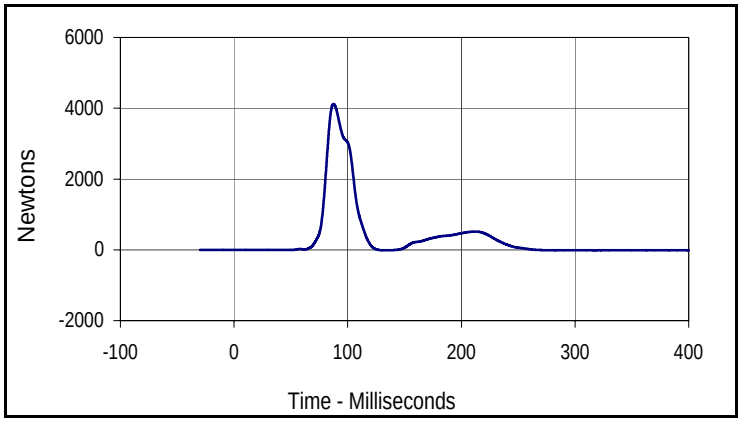
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



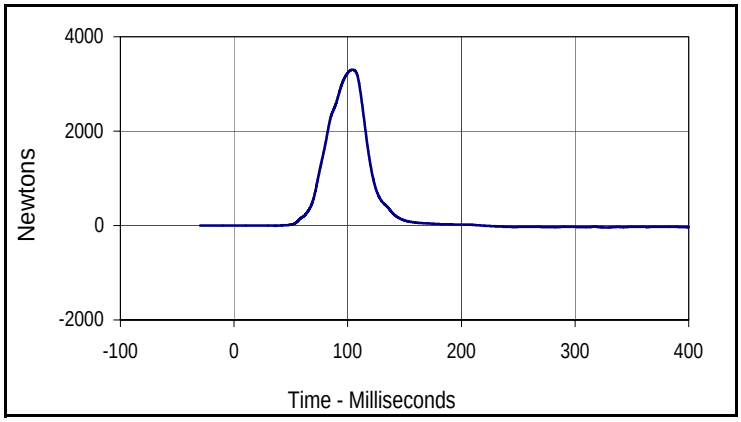
Curve Description			
LR Passenger Left Femur Force Z			
CURNO	Type	SAE Class	Units
156	FIL	600	Newtons
Max	Time	Min	Time
868.6	61.3	-936.3	102.1



Curve Description			
LR Passenger Right Femur Force Z			
CURNO	Type	SAE Class	Units
157	FIL	600	Newtons
Max	Time	Min	Time
2384.8	89.1	-378.0	97.4

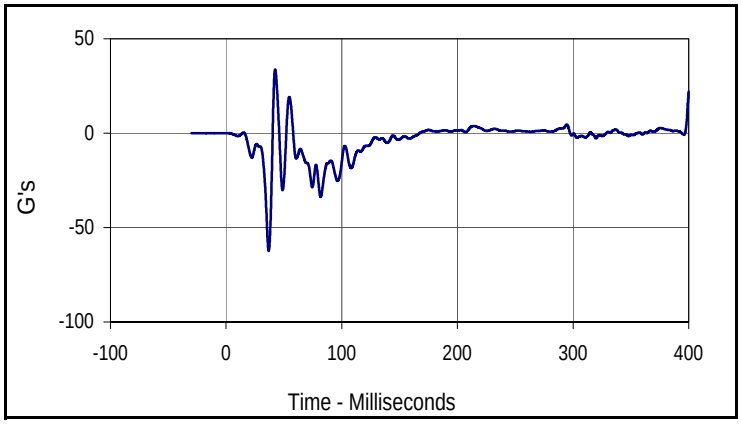


Curve Description			
LR Passenger Lap Belt Force			
CURNO	Type	SAE Class	Units
158	FIL	60	Newtons
Max	Time	Min	Time
4118.4	87.5	-17.4	317.4

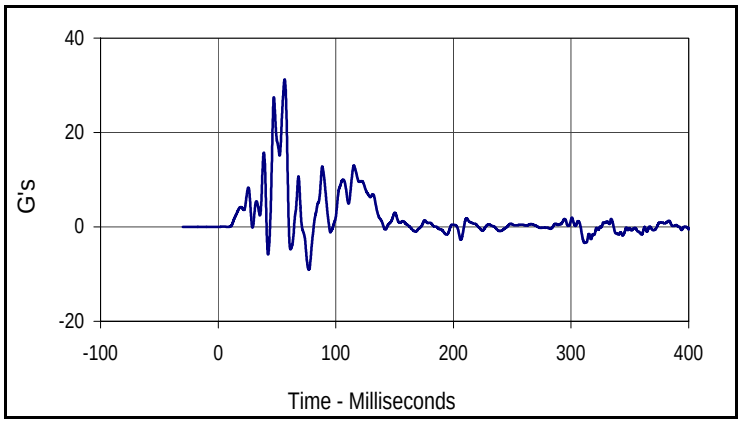


Curve Description			
LR Passenger Shoulder Belt Force			
CURNO	Type	SAE Class	Units
159	FIL	60	Newtons
Max	Time	Min	Time
3300.7	104.3	-44.1	328.0

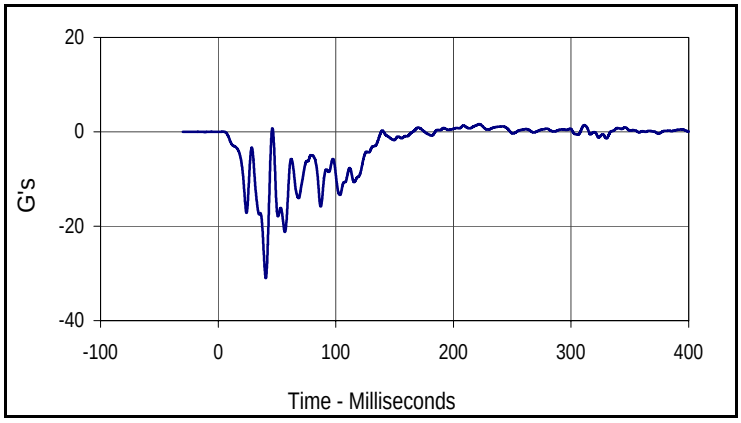
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



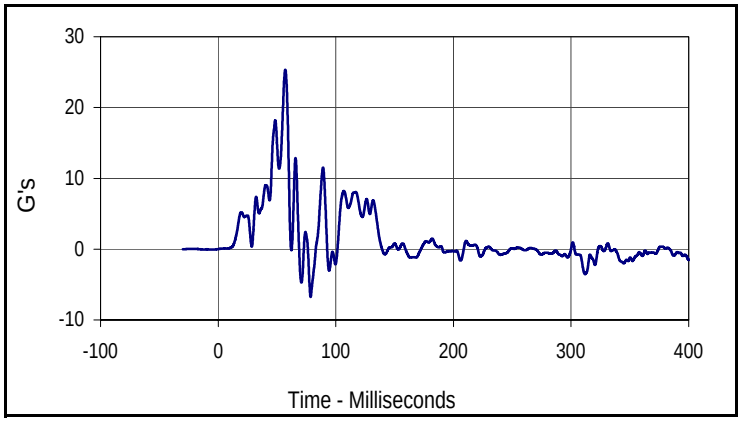
Curve Description			
Vehicle Left Rear Sill X			
CURNO	Type	SAE Class	Units
160	FIL	60	G's
Max	Time	Min	Time
33.8	42.4	-62.4	36.8



Curve Description			
Vehicle Left Rear Sill Y			
CURNO	Type	SAE Class	Units
161	FIL	60	G's
Max	Time	Min	Time
31.3	56.6	-9.1	77.1

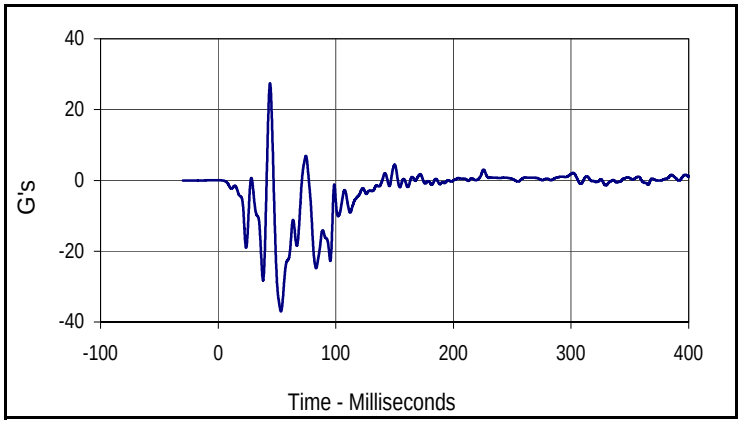


Curve Description			
Vehicle Right Rear Sill X			
CURNO	Type	SAE Class	Units
162	FIL	60	G's
Max	Time	Min	Time
1.7	221.9	-31.0	40.5

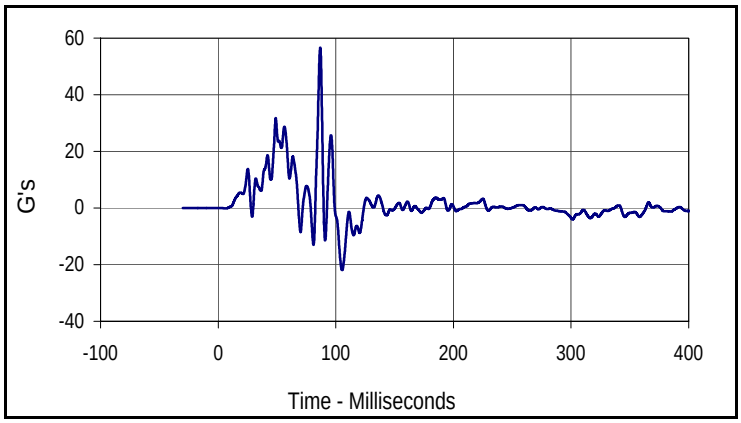


Curve Description			
Vehicle Right Rear Sill Y			
CURNO	Type	SAE Class	Units
163	FIL	60	G's
Max	Time	Min	Time
25.3	57.1	-6.7	78.6

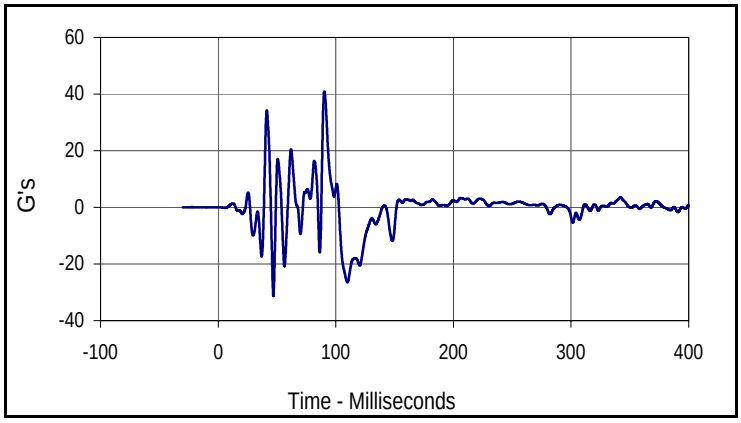
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



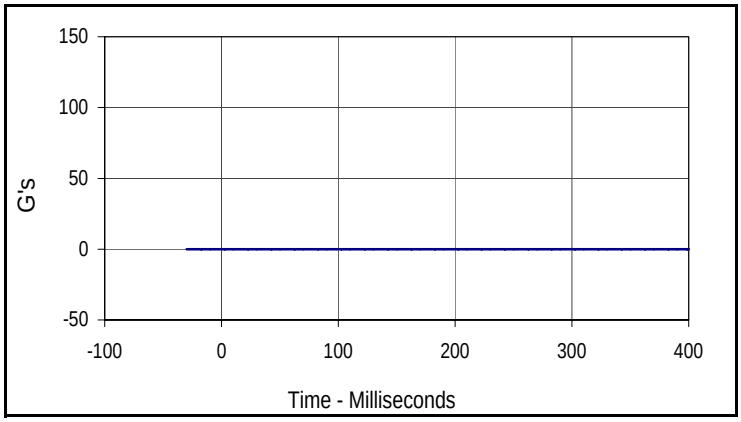
Curve Description			
Vehicle CG X			
CURNO	Type	SAE Class	Units
164	FIL	60	G's
Max	Time	Min	Time
27.4	44.1	-37.0	53.4



Curve Description			
Vehicle CG Y			
CURNO	Type	SAE Class	Units
165	FIL	60	G's
Max	Time	Min	Time
56.6	86.8	-21.9	105.4



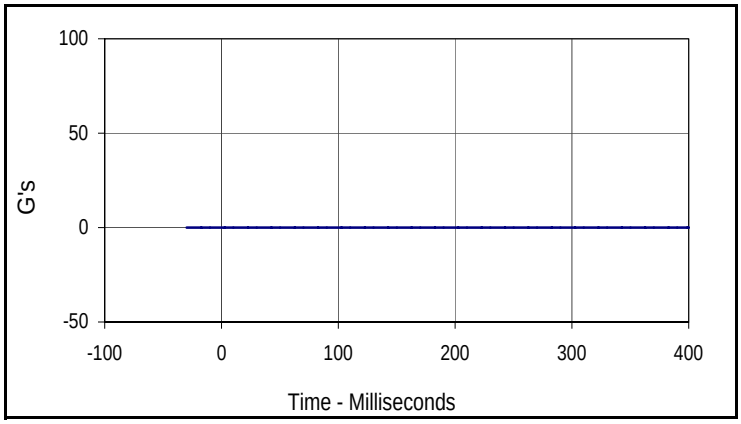
Curve Description			
Vehicle CG Z			
CURNO	Type	SAE Class	Units
166	FIL	60	G's
Max	Time	Min	Time
40.9	90.3	-31.3	46.9



Curve Description			
Vehicle Engine Top X			
CURNO	Type	SAE Class	Units
167	FIL	60	G's
Max	Time	Min	Time
0.0	0.0	0.0	0.0

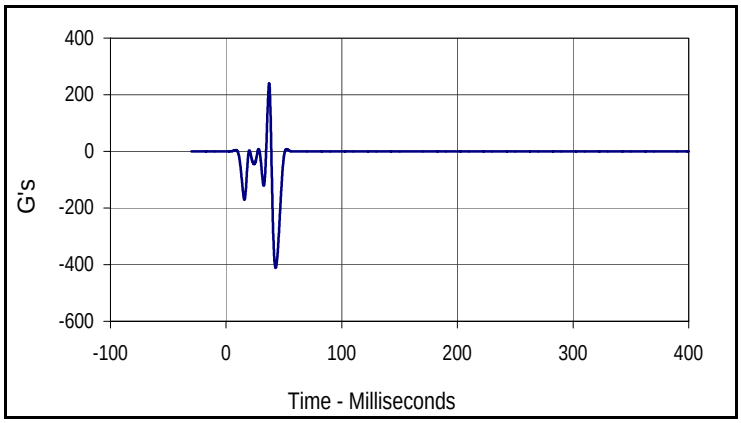
* Channel failed, no data

Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



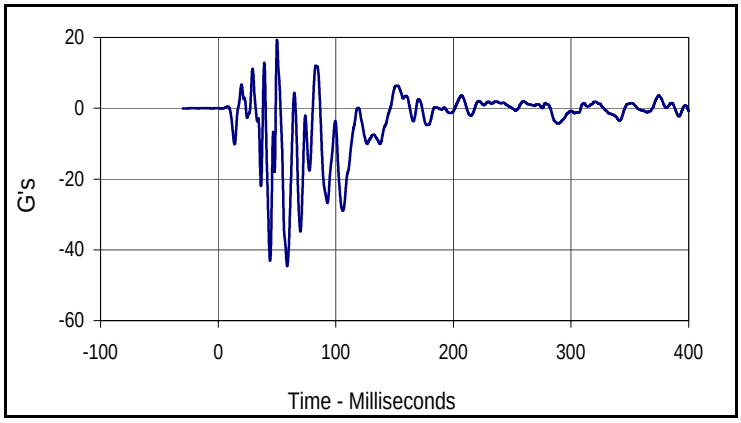
Curve Description			
Vehicle Engine Bottom X			
CURNO	Type	SAE Class	Units
168	FIL	60	G's
Max	Time	Min	Time
0.0	0.0	0.0	0.0

* Channel failed, no data

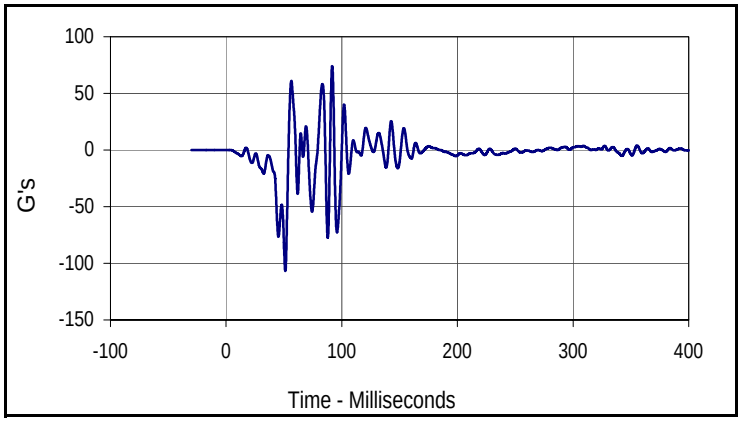


Curve Description			
Vehicle Left Brake Caliper X			
CURNO	Type	SAE Class	Units
169	FIL	60	G's
Max	Time	Min	Time
240.8	37.2	-411.3	42.8

* Channel failed at 48.8 msec.

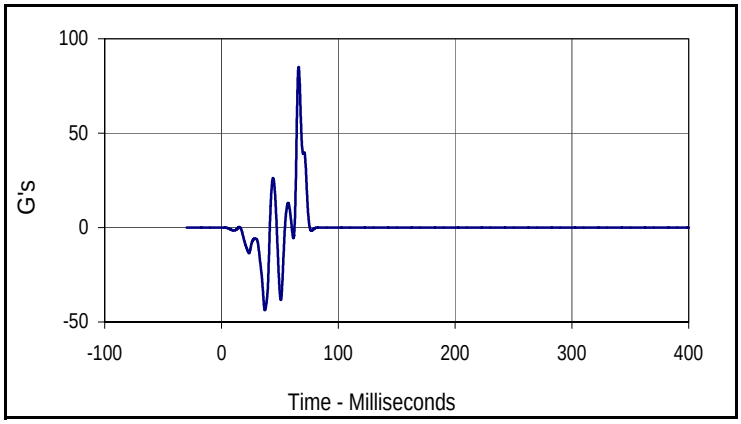


Curve Description			
Vehicle Right Brake Caliper X			
CURNO	Type	SAE Class	Units
170	FIL	60	G's
Max	Time	Min	Time
19.3	50.0	-44.6	58.7



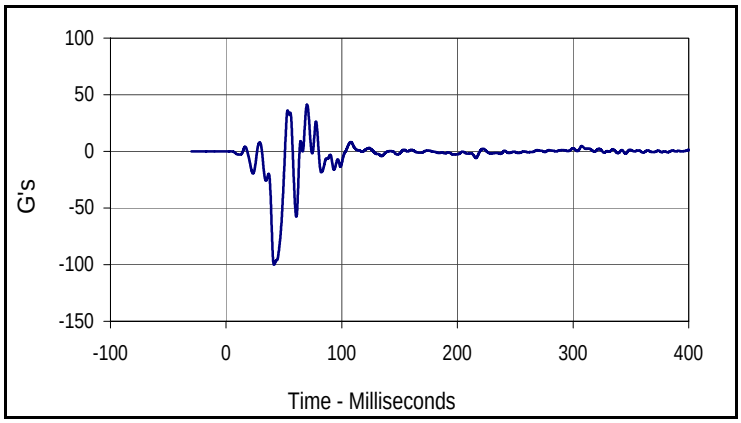
Curve Description			
Vehicle Instrument Panel X			
CURNO	Type	SAE Class	Units
171	FIL	60	G's
Max	Time	Min	Time
74.1	91.7	-106.7	51.2

Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09

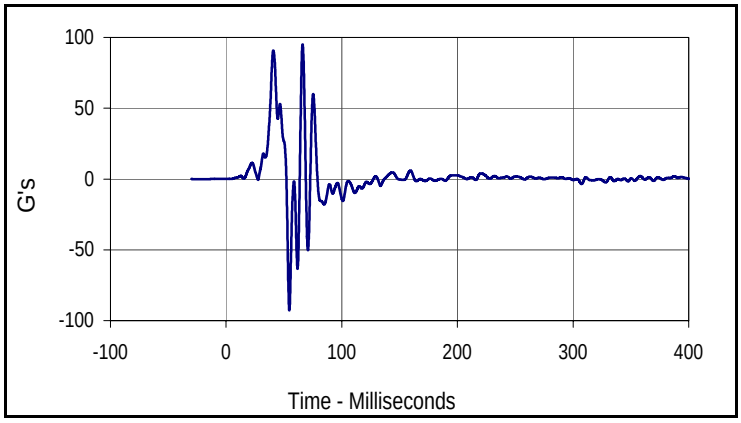


Curve Description			
Vehicle Left Driver Mid Seat Track X			
CURNO	Type	SAE Class	Units
172	FIL	60	G's
Max	Time	Min	Time
85.1	66.0	-43.8	37.2

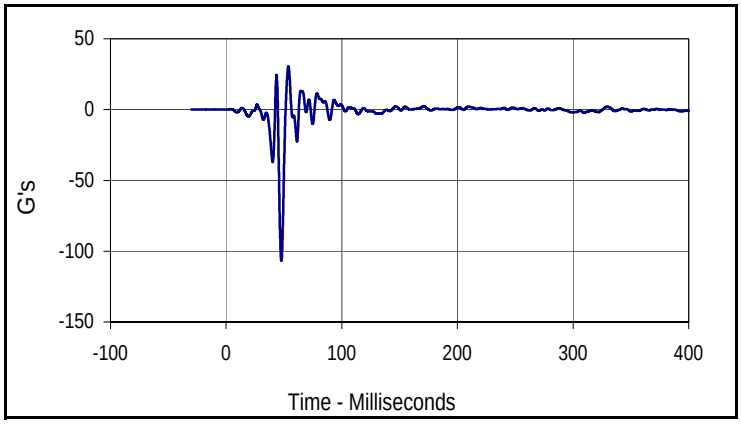
* Channel failed at 72.4 msec.



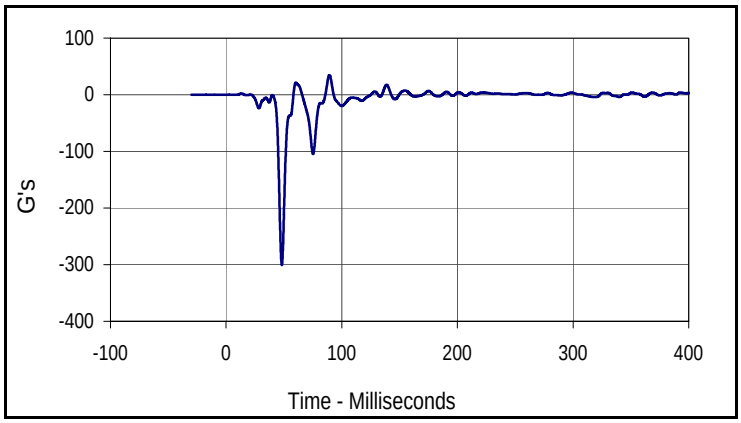
Curve Description			
Vehicle Accelerator Pedal X			
CURNO	Type	SAE Class	Units
173	FIL	60	G's
Max	Time	Min	Time
41.1	70.0	-100.0	41.4



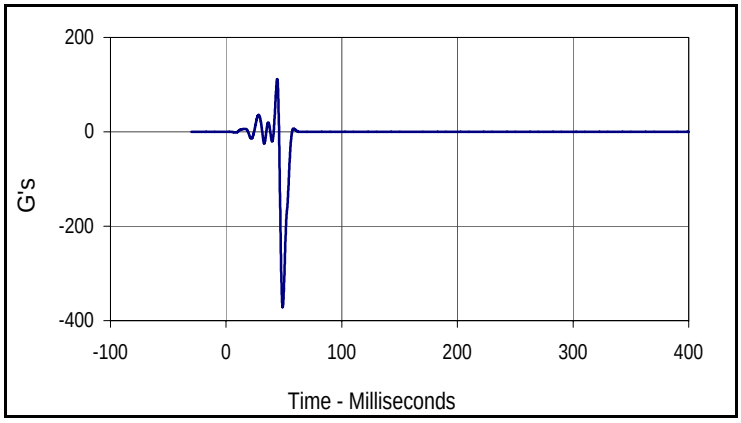
Curve Description			
Vehicle Accelerator Pedal Y			
CURNO	Type	SAE Class	Units
174	FIL	60	G's
Max	Time	Min	Time
95.1	66.2	-92.9	54.7



Curve Description			
Vehicle Accelerator Pedal Z			
CURNO	Type	SAE Class	Units
175	FIL	60	G's
Max	Time	Min	Time
30.6	53.9	-106.9	47.8

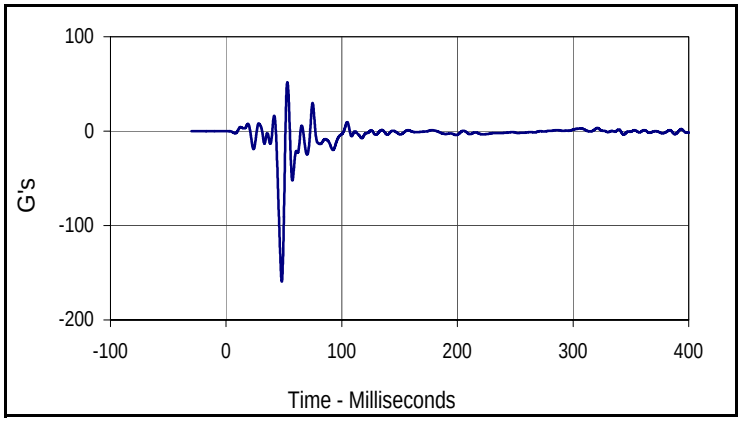


Curve Description			
Vehicle Brake Pedal X			
CURNO	Type	SAE Class	Units
176	FIL	60	G's
Max	Time	Min	Time
34.7	89.4	-300.3	48.2



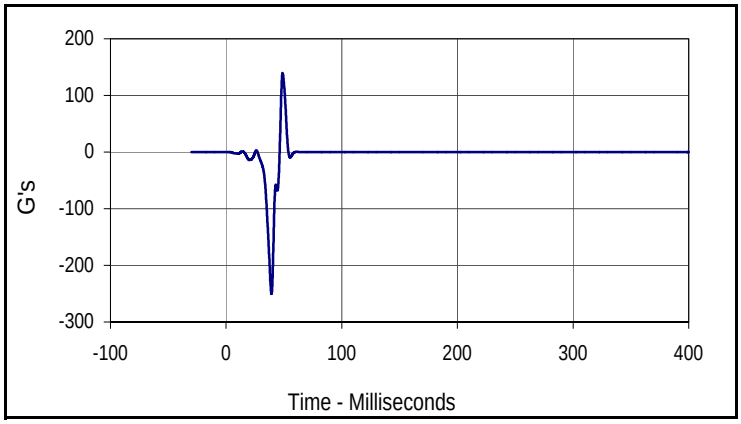
Curve Description			
Vehicle Brake Pedal Y			
CURNO	Type	SAE Class	Units
177	FIL	60	G's
Max	Time	Min	Time
111.7	44.2	-371.6	48.9

* Channel failed at 54.9 msec.



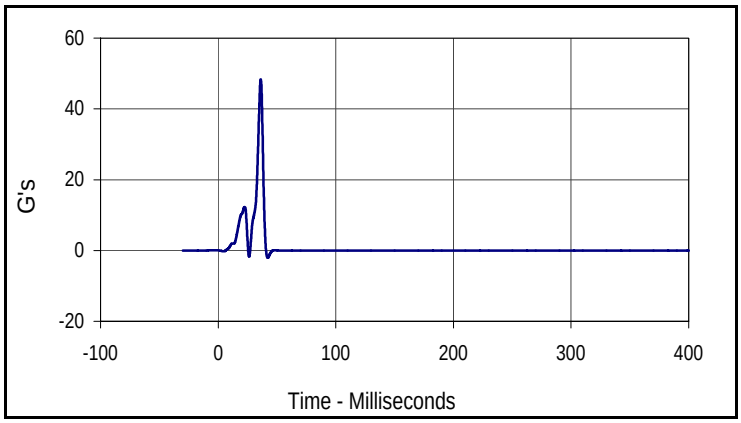
Curve Description			
Vehicle Brake Pedal Z			
CURNO	Type	SAE Class	Units
178	FIL	60	G's
Max	Time	Min	Time
51.4	53.0	-159.3	48.2

Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



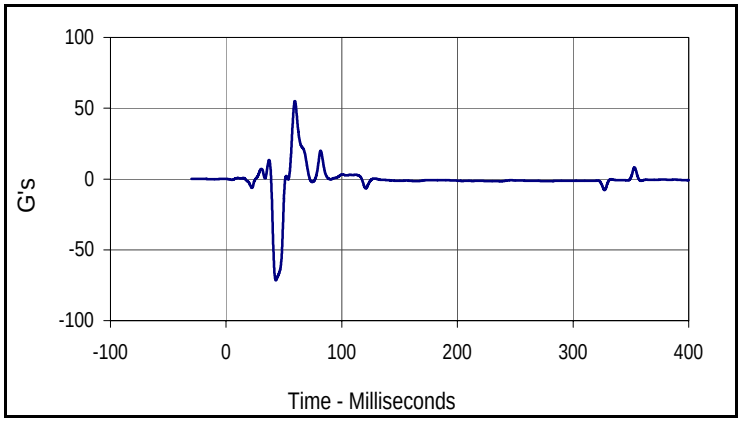
Curve Description			
Vehicle Foot Rest X			
CURNO	Type	SAE Class	Units
179	FIL	60	G's
Max	Time	Min	Time
139.3	48.9	-250.1	39.2

* Channel failed at 54.9 msec.

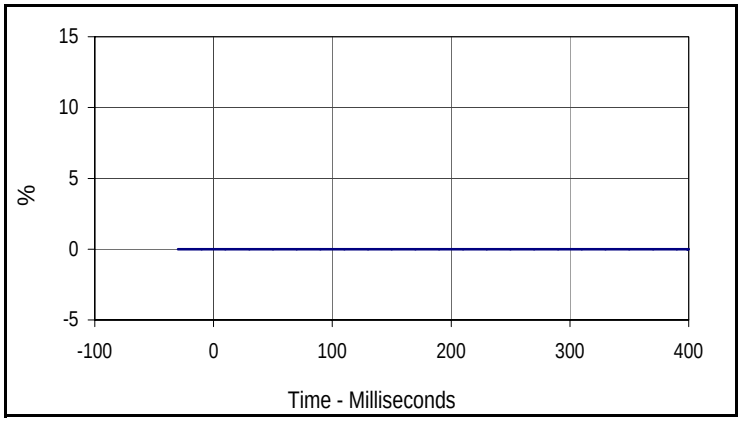


Curve Description			
Vehicle Foot Rest Y			
CURNO	Type	SAE Class	Units
180	FIL	60	G's
Max	Time	Min	Time
48.4	36.2	-2.1	42.1

* Channel failed at 37.4 msec.

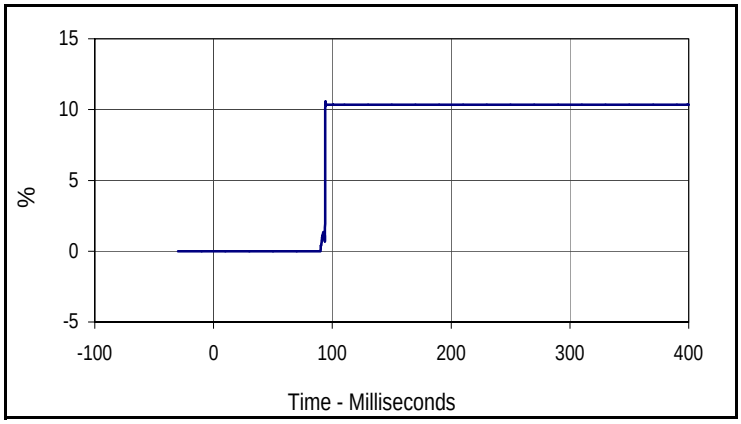


Curve Description			
Vehicle Foot Rest Z			
CURNO	Type	SAE Class	Units
181	FIL	60	G's
Max	Time	Min	Time
55.0	59.5	-71.5	43.0

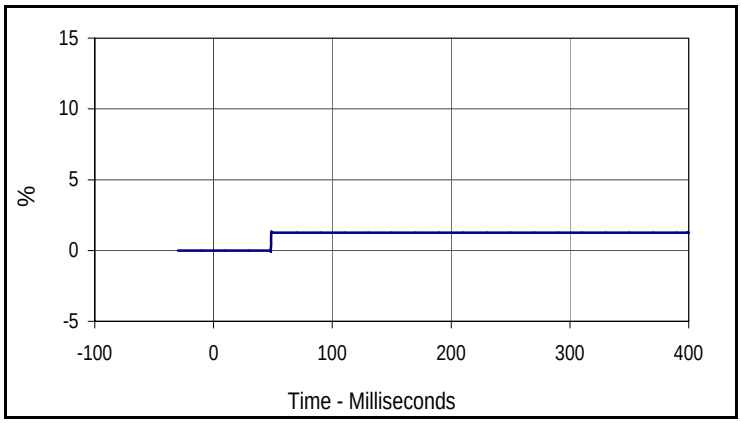


Curve Description			
Driver Foot Rest Contact			
CURNO	Type	SAE Class	Units
182	FIL	1000	%
Max	Time	Min	Time
0.0	0.0	0.0	0.0

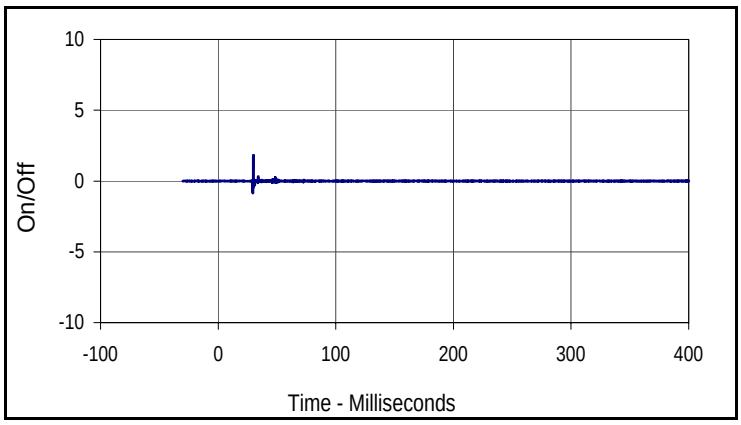
* Channel failed, no data



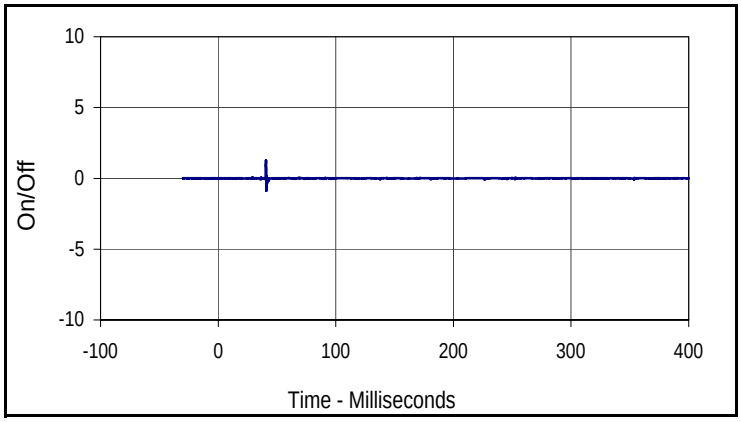
Curve Description			
Driver Accelerator Pedal Contact			
CURNO	Type	SAE Class	Units
183	FIL	1000	%
Max	Time	Min	Time
10.6	94.3	0.0	89.9



Curve Description			
Driver Knee Contact			
CURNO	Type	SAE Class	Units
184	FIL	1000	%
Max	Time	Min	Time
1.3	48.7	-0.1	48.2

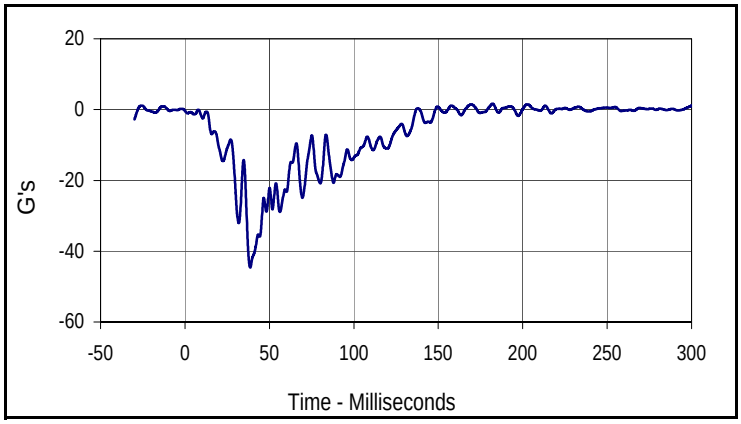


Curve Description			
Driver Airbag Squib Stage 1			
CURNO	Type	SAE Class	Units
185	FIL	1000	On/Off
Max	Time	Min	Time
1.8	29.9	-0.8	29.6

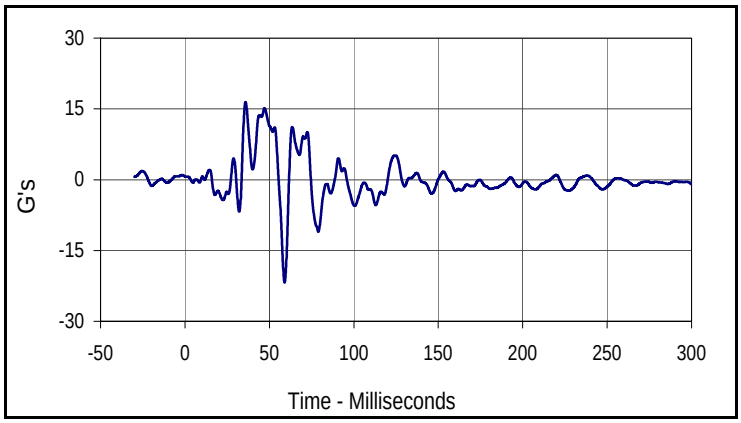


Curve Description			
Driver Airbag Squib Stage 2			
CURNO	Type	SAE Class	Units
186	FIL	1000	On/Off
Max	Time	Min	Time
1.3	40.7	-0.9	41.0

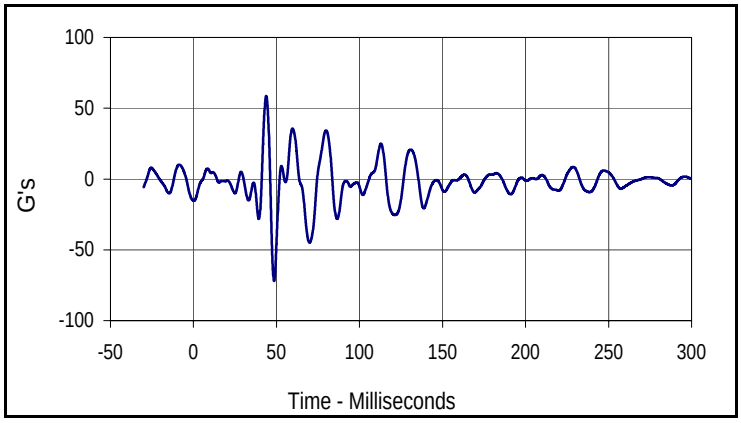
Test Vehicle:	2007 Ford 500 4-Door Sedan	Test Date:	12/23/09
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Project No.:	R70209



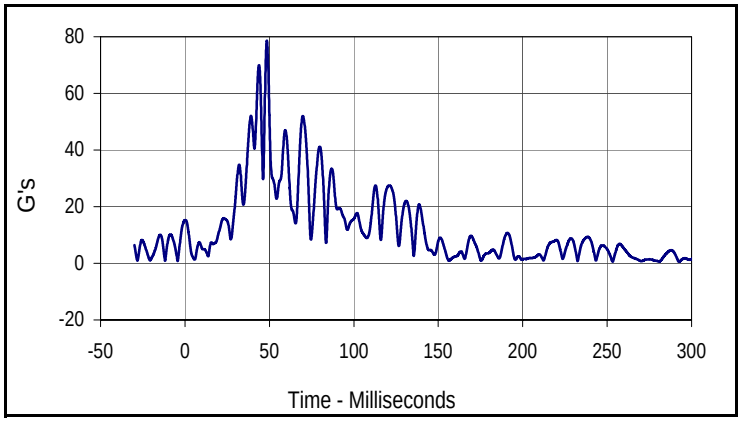
Curve Description			
MDB CG X			
CURNO	Type	SAE Class	Units
187	FIL	60	G's
Max	Time	Min	Time
1.7	182.2	-44.6	38.7



Curve Description			
MDB CG Y			
CURNO	Type	SAE Class	Units
188	FIL	60	G's
Max	Time	Min	Time
16.5	35.9	-21.8	59.0

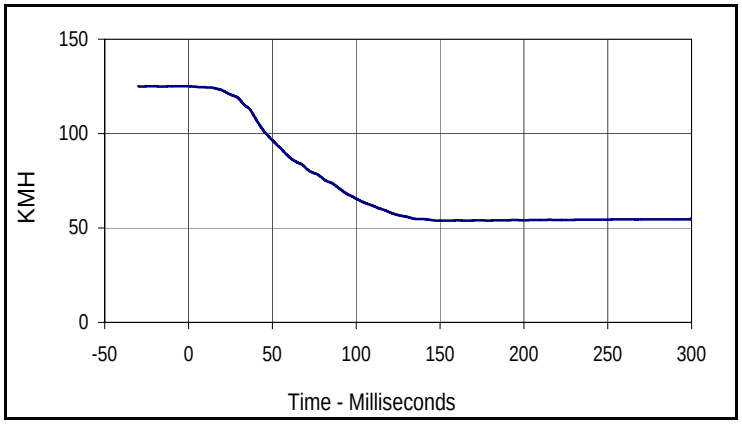


Curve Description			
MDB CG Z			
CURNO	Type	SAE Class	Units
189	FIL	60	G's
Max	Time	Min	Time
58.6	43.8	-71.9	48.5

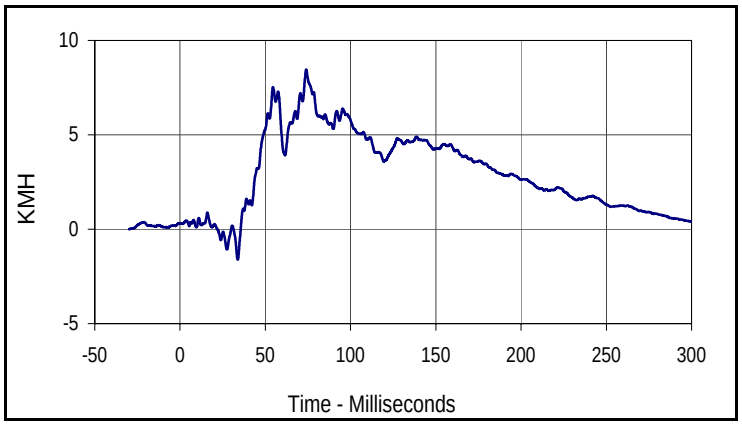


Curve Description			
MDB CG Resultant			
CURNO	Type	SAE Class	Units
187	RES	60	G's
Max	Time	Min	Time
78.6	48.5	0.7	-4.3

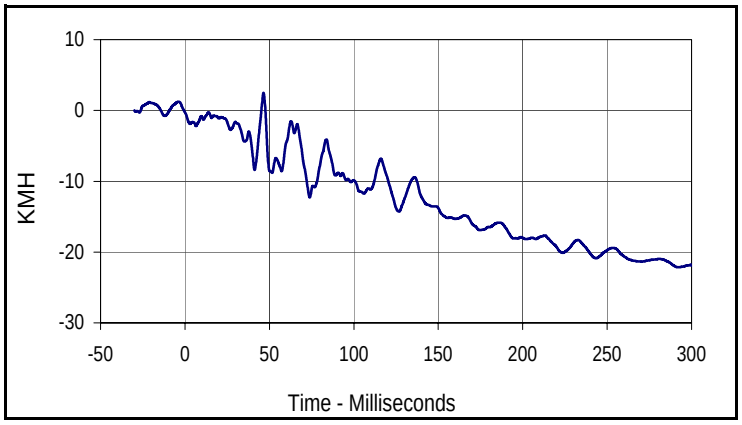
Test Vehicle:	2007 Ford 500 4-Door Sedan	Test Date:	12/23/09
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Project No.:	R70209



Curve Description			
MDB CG X Velocity			
CURNO	Type	SAE Class	Units
187	IN1	180	KMH
Max	Time	Min	Time
125.1	-10.2	53.9	165.8

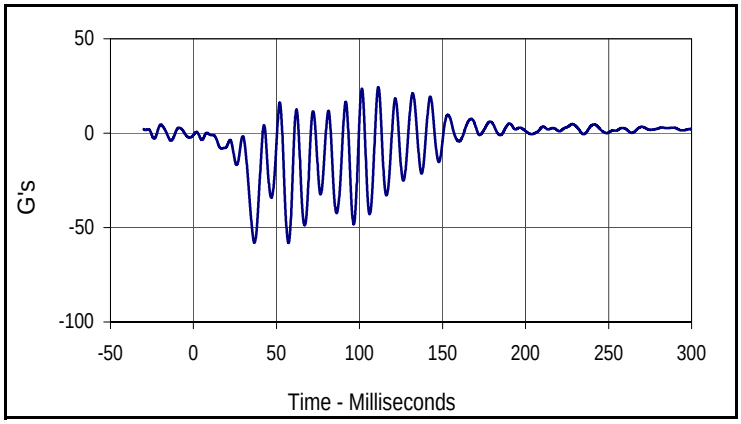


Curve Description			
MDB CG Y Velocity			
CURNO	Type	SAE Class	Units
188	IN1	180	KMH
Max	Time	Min	Time
8.5	74.0	-1.6	33.9

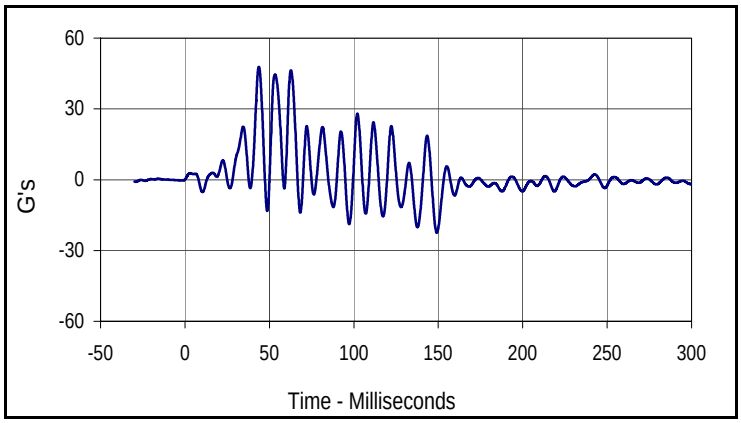


Curve Description			
MDB CG Z Velocity			
CURNO	Type	SAE Class	Units
189	IN1	180	KMH
Max	Time	Min	Time
2.5	46.5	-20.1	223.7

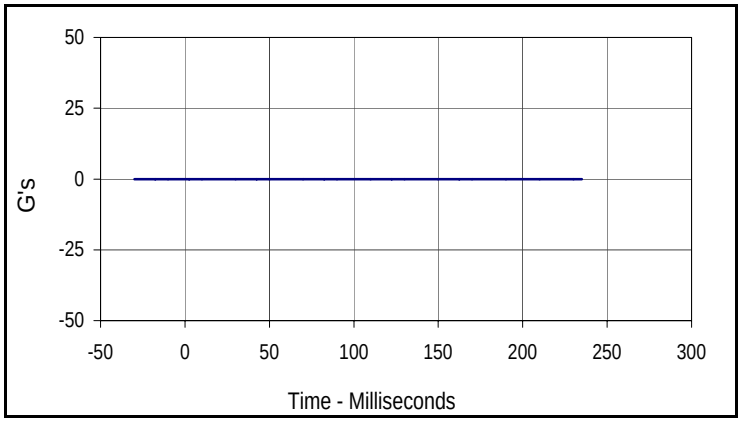
Test Vehicle:	2007 Ford 500 4-Door Sedan	Test Date:	12/23/09
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Project No.:	R70209



Curve Description			
MDB Rear X			
CURNO	Type	SAE Class	Units
190	FIL	60	G's
Max	Time	Min	Time
24.4	111.3	-58.1	57.2

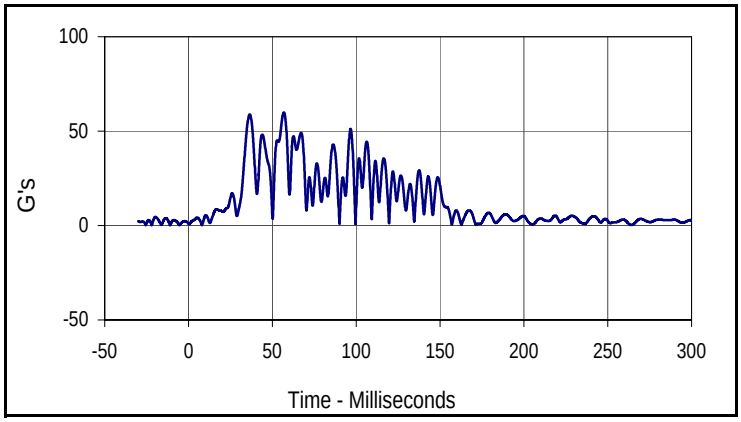


Curve Description			
MDB Rear Y			
CURNO	Type	SAE Class	Units
191	FIL	60	G's
Max	Time	Min	Time
47.8	43.8	-22.5	149.1



Curve Description			
MDB Rear Z			
CURNO	Type	SAE Class	Units
192	FIL	60	G's
Max	Time	Min	Time
0.0	-15.0	0.0	-15.0

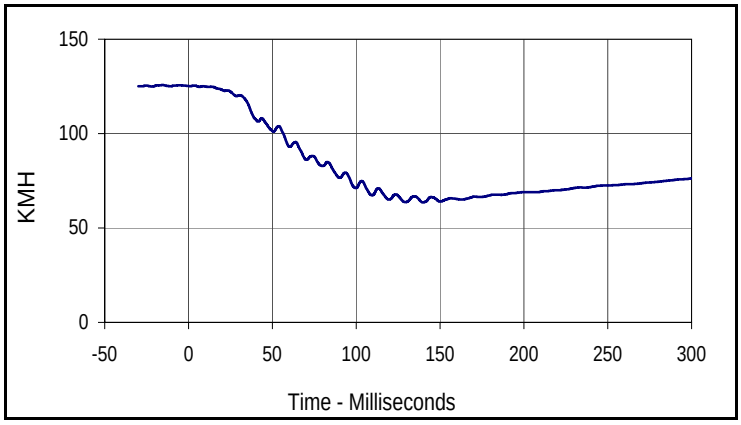
* Channel failed, no data



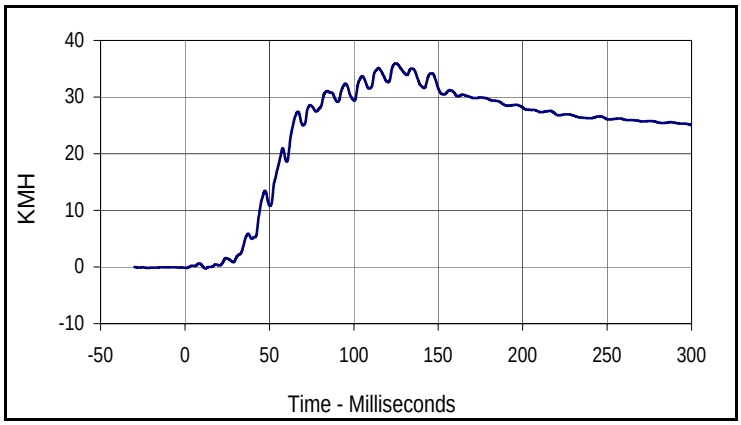
Curve Description			
MDB Rear Resultant			
CURNO	Type	SAE Class	Units
190	RES	60	G's
Max	Time	Min	Time
59.9	56.9	0.1	-11.0

* X-Y Resultant only

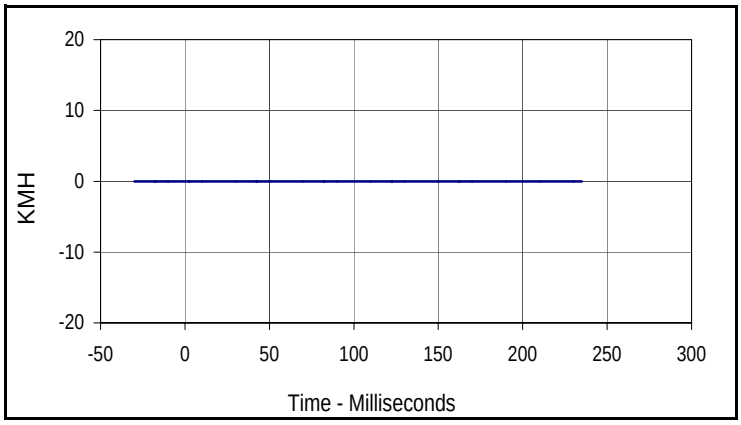
Test Vehicle:	2007 Ford 500 4-Door Sedan	Test Date:	12/23/09
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Project No.:	R70209



Curve Description			
MDB Rear X Velocity			
CURNO	Type	SAE Class	Units
190	IN1	180	KMH
Max	Time	Min	Time
125.7	-15.0	63.6	139.8



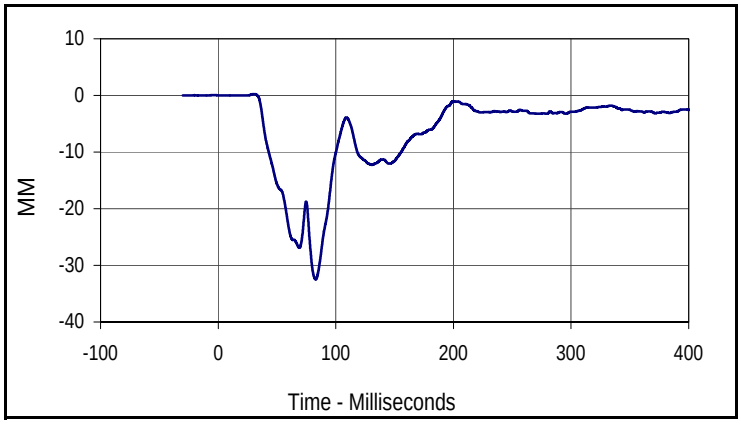
Curve Description			
MDB Rear Y Velocity			
CURNO	Type	SAE Class	Units
191	IN1	180	KMH
Max	Time	Min	Time
35.9	124.8	-0.3	12.2



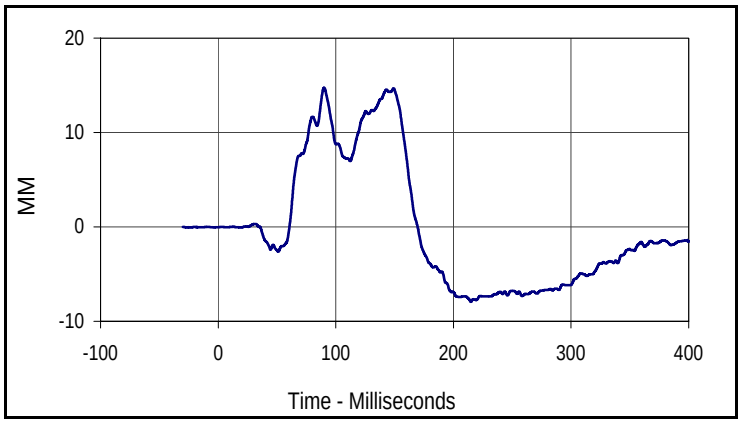
Curve Description			
MDB Rear Z Velocity			
CURNO	Type	SAE Class	Units
192	IN1	180	KMH
Max	Time	Min	Time
0.0	-15.0	0.0	-15.0

* Channel failed, no data

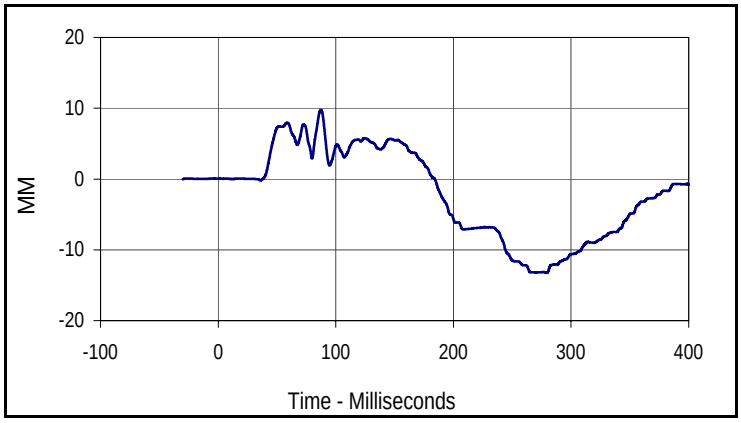
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



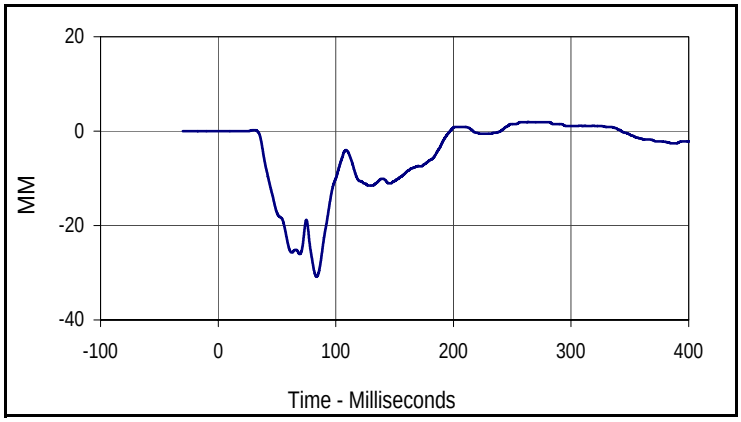
Curve Description			
Driver THOR CRUX Upper Right X			
CURNO	Type	SAE Class	Units
193	CALC	N/A	MM
Max	Time	Min	Time
0.2	29.4	-32.5	82.8



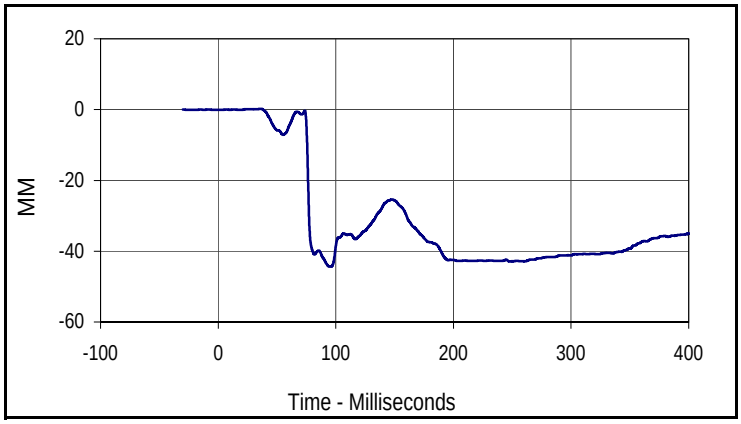
Curve Description			
Driver THOR CRUX Upper Right Y			
CURNO	Type	SAE Class	Units
194	CALC	N/A	MM
Max	Time	Min	Time
14.7	90.0	-7.9	214.9



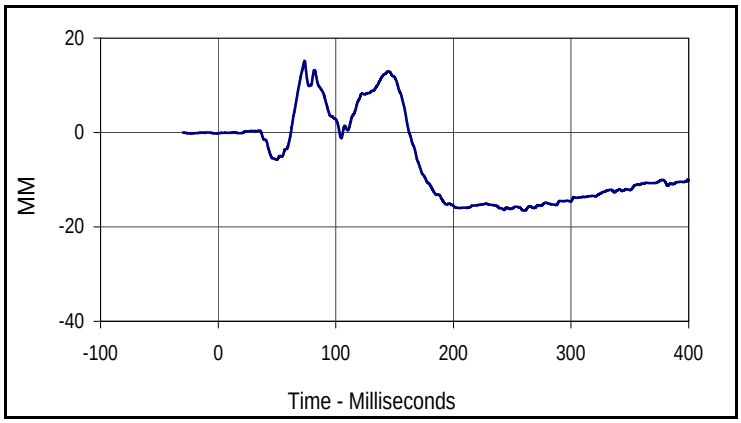
Curve Description			
Driver THOR CRUX Upper Right Z			
CURNO	Type	SAE Class	Units
195	CALC	N/A	MM
Max	Time	Min	Time
9.7	87.3	-13.3	279.0



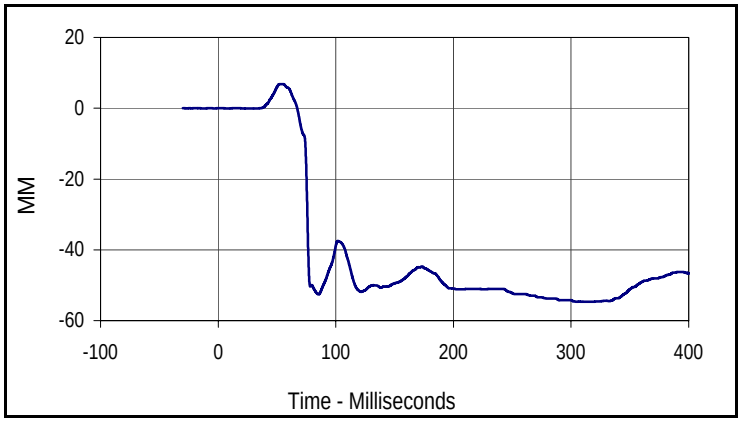
Curve Description			
Driver THOR CRUX Upper Right D			
CURNO	Type	SAE Class	Units
196	CALC	N/A	MM
Max	Time	Min	Time
1.9	263.4	-30.9	83.6



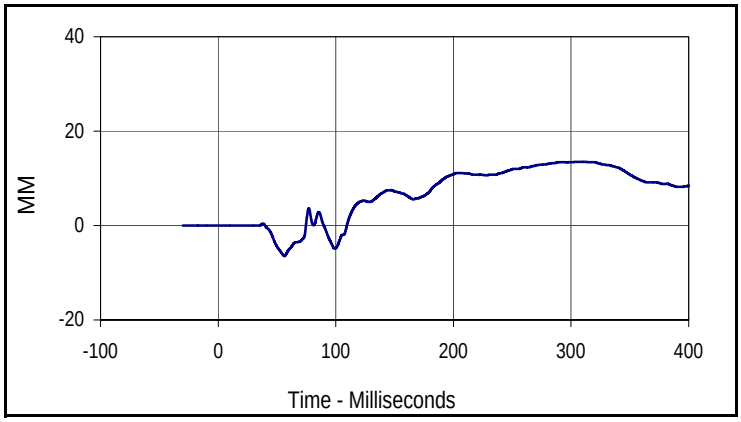
Curve Description			
Driver THOR CRUX Lower Right X			
CURNO	Type	SAE Class	Units
197	CALC	N/A	MM
Max	Time	Min	Time
0.2	36.2	-44.4	95.6



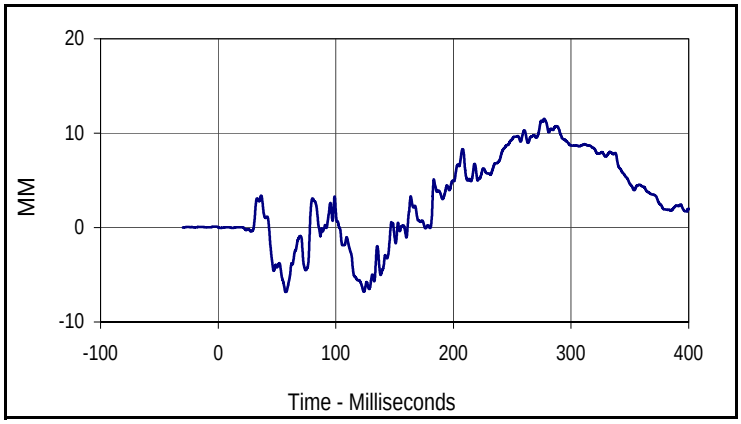
Curve Description			
Driver THOR CRUX Lower Right Y			
CURNO	Type	SAE Class	Units
198	CALC	N/A	MM
Max	Time	Min	Time
15.2	73.5	-16.5	259.7



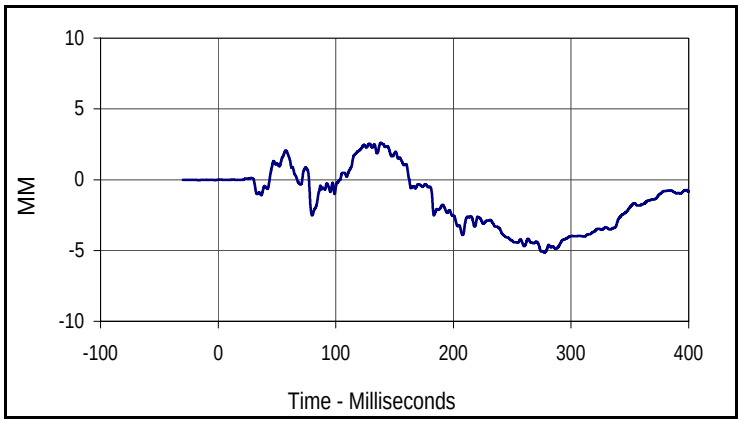
Curve Description			
Driver THOR CRUX Lower Right Z			
CURNO	Type	SAE Class	Units
199	CALC	N/A	MM
Max	Time	Min	Time
6.8	52.3	-54.7	309.6



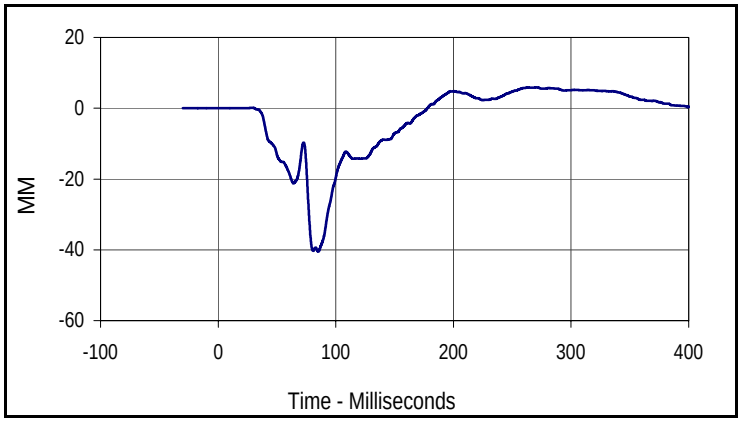
Curve Description			
Driver THOR CRUX Lower Right D			
CURNO	Type	SAE Class	Units
200	CALC	N/A	MM
Max	Time	Min	Time
13.5	304.0	-6.5	56.3



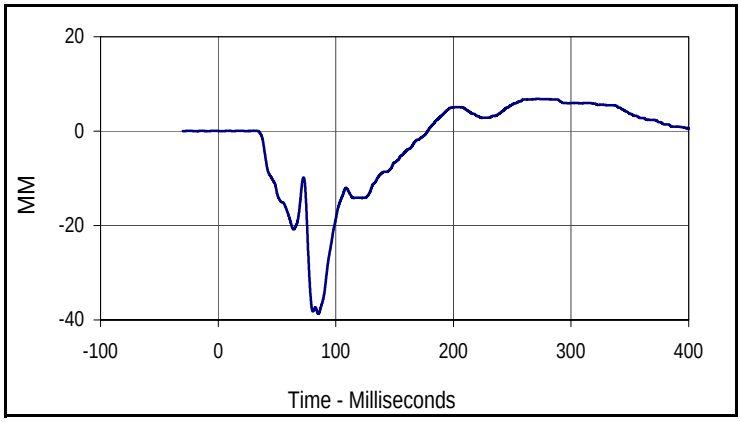
Curve Description			
Driver THOR CRUX Upper Left X			
CURNO	Type	SAE Class	Units
201	CALC	N/A	MM
Max	Time	Min	Time
11.5	277.2	-6.8	57.4



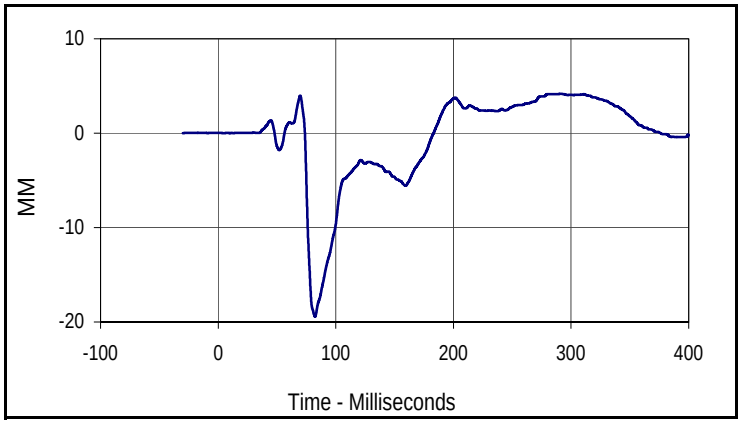
Curve Description			
Driver THOR CRUX Upper Left Y			
CURNO	Type	SAE Class	Units
202	CALC	N/A	MM
Max	Time	Min	Time
2.6	138.2	-5.2	277.2



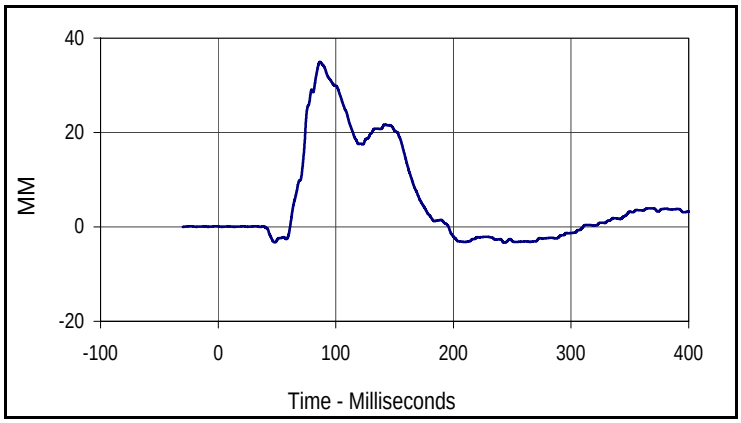
Curve Description			
Driver THOR CRUX Upper Left Z			
CURNO	Type	SAE Class	Units
203	CALC	N/A	MM
Max	Time	Min	Time
5.9	270.1	-40.5	84.9



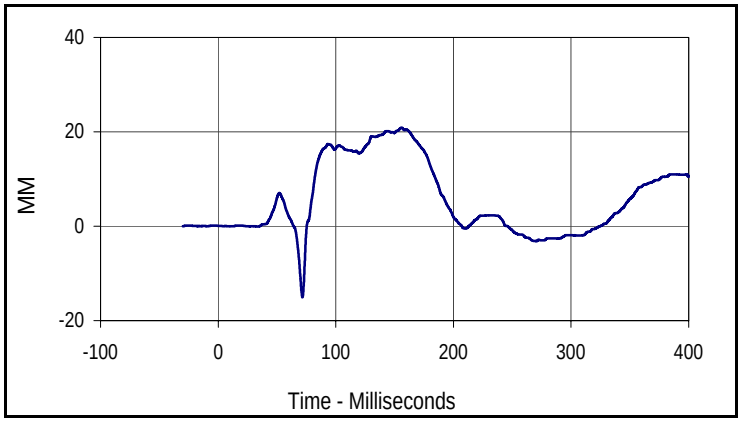
Curve Description			
Driver THOR CRUX Upper Left D			
CURNO	Type	SAE Class	Units
204	CALC	N/A	MM
Max	Time	Min	Time
6.8	271.1	-38.7	85.1



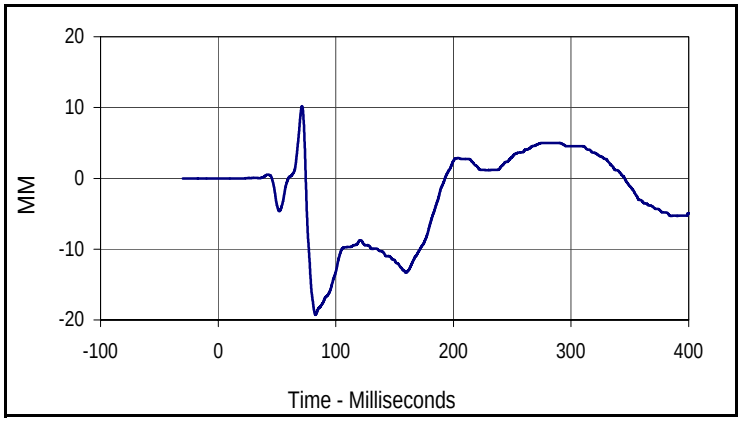
Curve Description			
Driver THOR CRUX Lower Left X			
CURNO	Type	SAE Class	Units
205	CALC	N/A	MM
Max	Time	Min	Time
4.2	290.7	-19.4	82.3



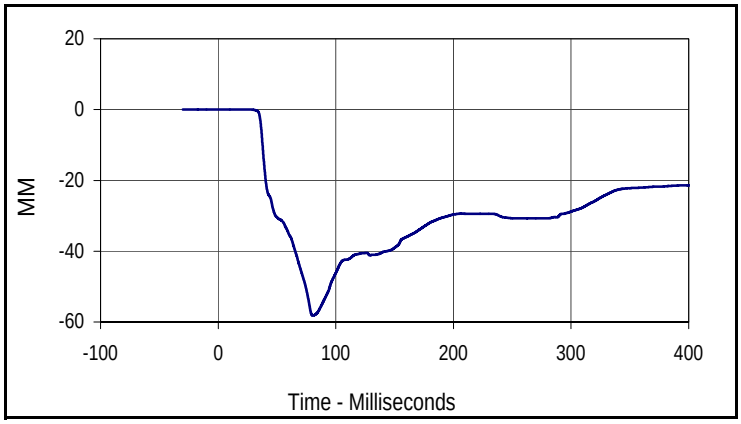
Curve Description			
Driver THOR CRUX Lower Left Y			
CURNO	Type	SAE Class	Units
206	CALC	N/A	MM
Max	Time	Min	Time
35.0	86.5	-3.3	243.1



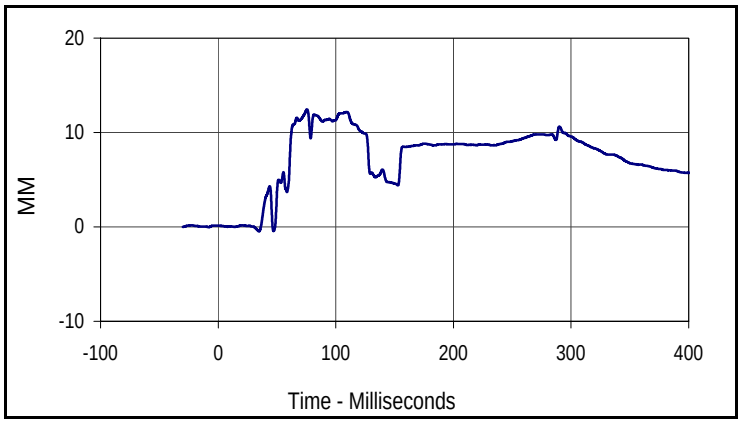
Curve Description			
Driver THOR CRUX Lower Left Z			
CURNO	Type	SAE Class	Units
207	CALC	N/A	MM
Max	Time	Min	Time
20.9	155.8	-15.0	71.6



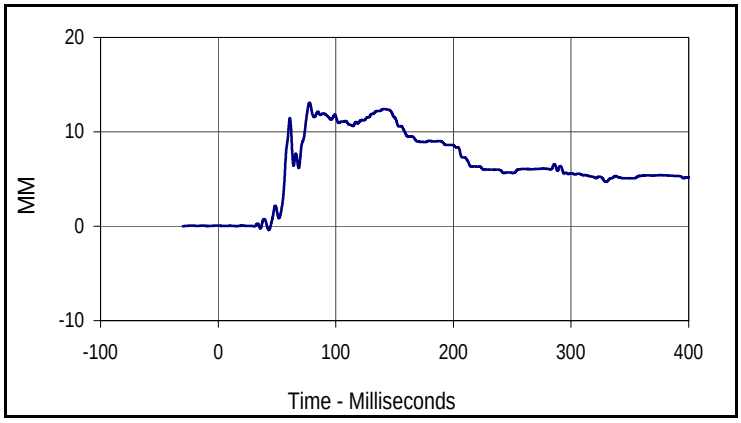
Curve Description			
Driver THOR CRUX Lower Left D			
CURNO	Type	SAE Class	Units
208	CALC	N/A	MM
Max	Time	Min	Time
10.2	71.3	-19.3	82.7



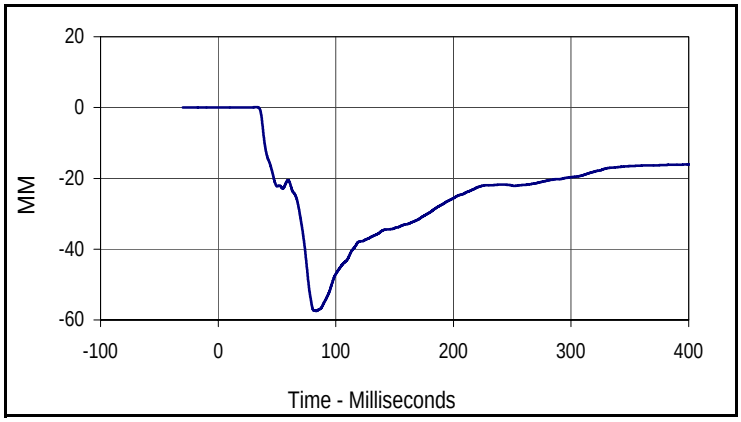
Curve Description			
Driver Right Lower Abdomen X			
CURNO	Type	SAE Class	Units
209	CALC	N/A	MM
Max	Time	Min	Time
0.1	0.0	-58.2	80.5



Curve Description			
Driver Right Lower Abdomen Y			
CURNO	Type	SAE Class	Units
210	CALC	N/A	MM
Max	Time	Min	Time
12.5	75.4	-0.5	34.6

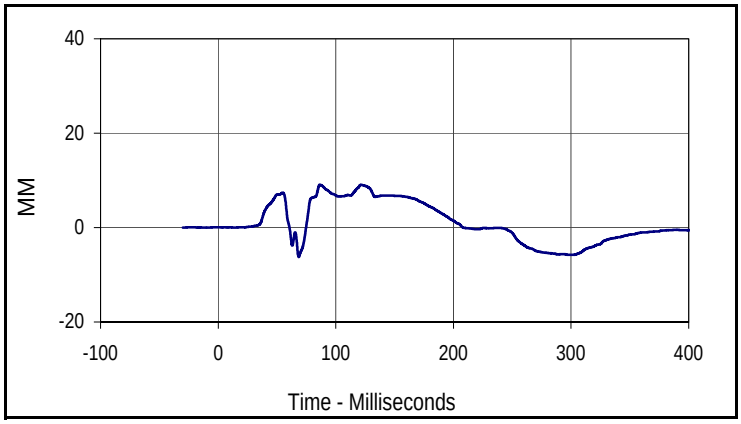


Curve Description			
Driver Right Lower Abdomen Z			
CURNO	Type	SAE Class	Units
211	CALC	N/A	MM
Max	Time	Min	Time
13.1	77.6	-0.4	43.1

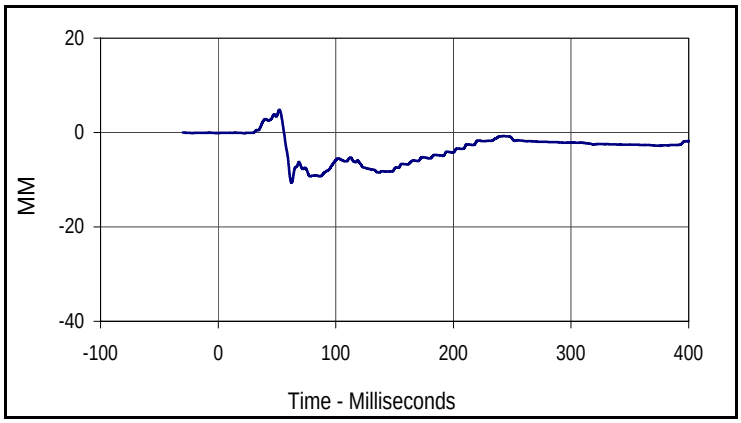


Curve Description			
Driver Left Lower Abdomen X			
CURNO	Type	SAE Class	Units
212	CALC	N/A	MM
Max	Time	Min	Time
0.1	31.7	-57.5	83.3

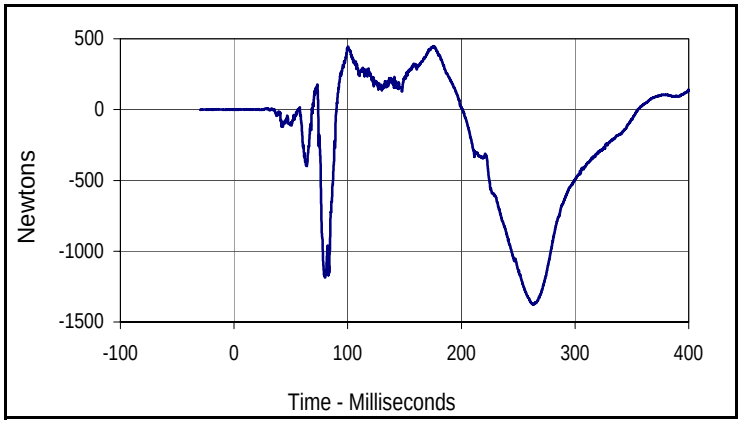
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



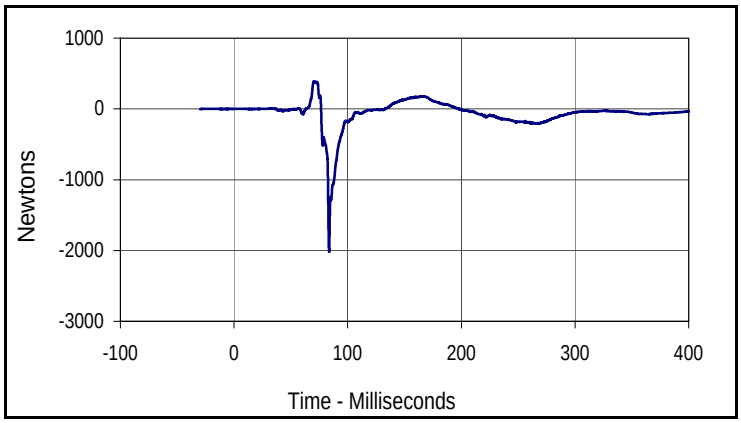
Curve Description			
Driver Left Lower Abdomen Y			
CURNO	Type	SAE Class	Units
213	CALC	N/A	MM
Max	Time	Min	Time
9.1	86.5	-6.2	68.4



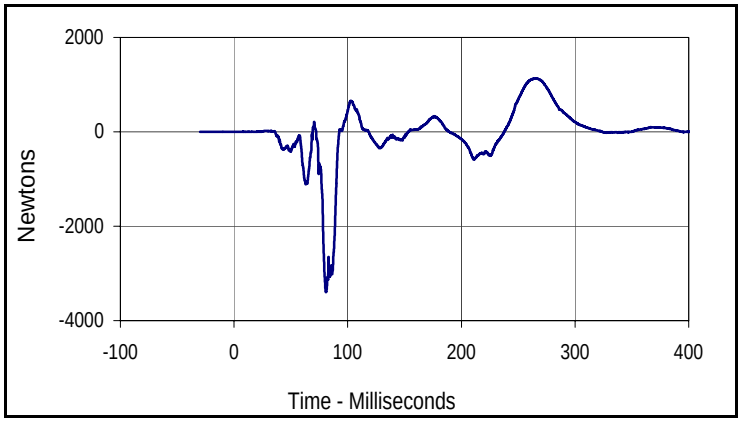
Curve Description			
Driver Left Lower Abdomen Z			
CURNO	Type	SAE Class	Units
214	CALC	N/A	MM
Max	Time	Min	Time
4.8	52.0	-10.7	62.3



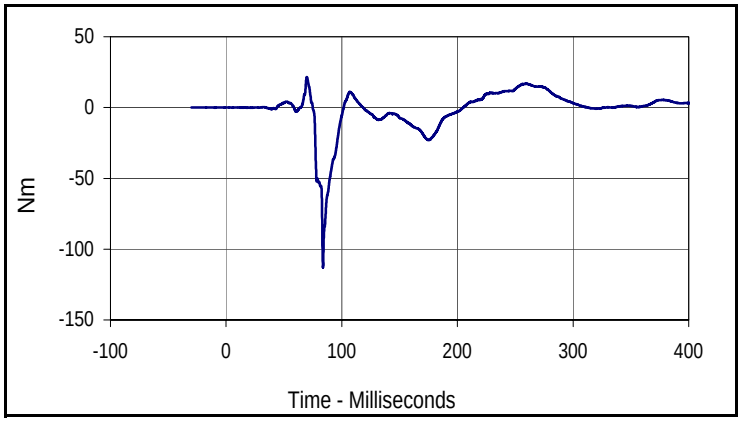
Curve Description			
Driver Upper Neck Force X			
CURNO	Type	SAE Class	Units
215	CALC	N/A	Newtons
Max	Time	Min	Time
448.2	175.1	-1377.4	263.4



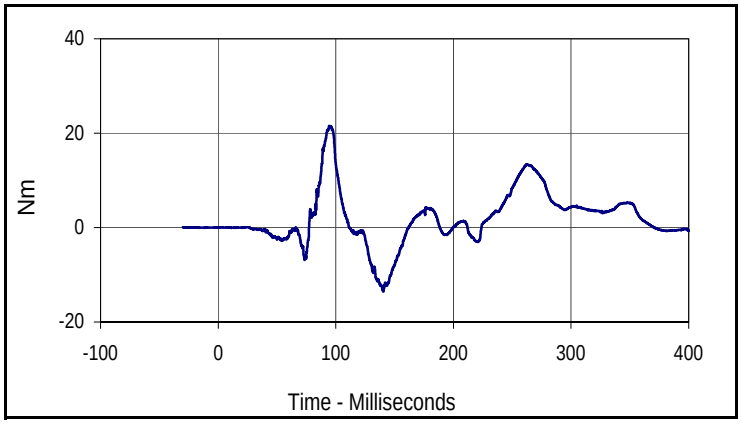
Curve Description			
Driver Upper Neck Force Y			
CURNO	Type	SAE Class	Units
216	CALC	N/A	Newtons
Max	Time	Min	Time
391.7	70.4	-2019.3	83.7



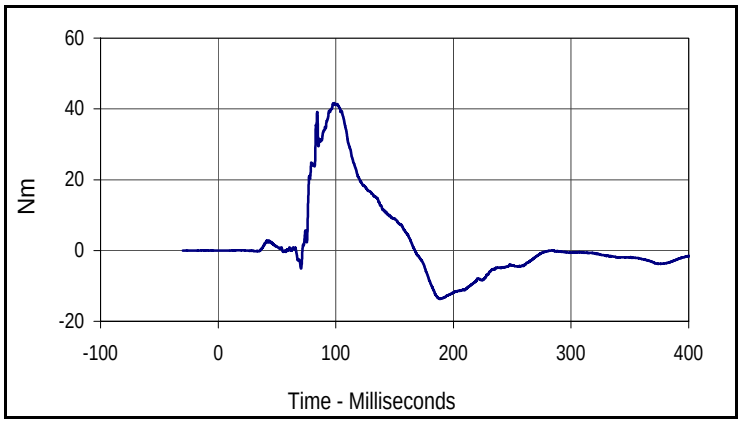
Curve Description			
Driver Upper Neck Force Z			
CURNO	Type	SAE Class	Units
217	CALC	N/A	Newtons
Max	Time	Min	Time
1133.7	265.0	-3394.5	80.9



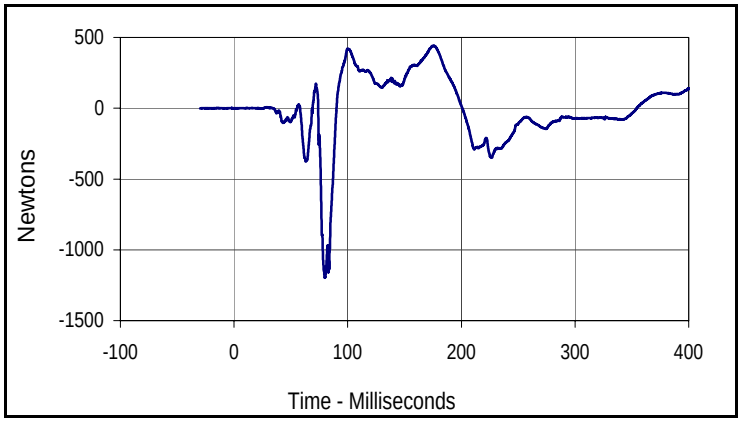
Curve Description			
Driver Upper Neck Moment X			
CURNO	Type	SAE Class	Units
218	CALC	N/A	Nm
Max	Time	Min	Time
21.6	69.8	-112.9	83.8



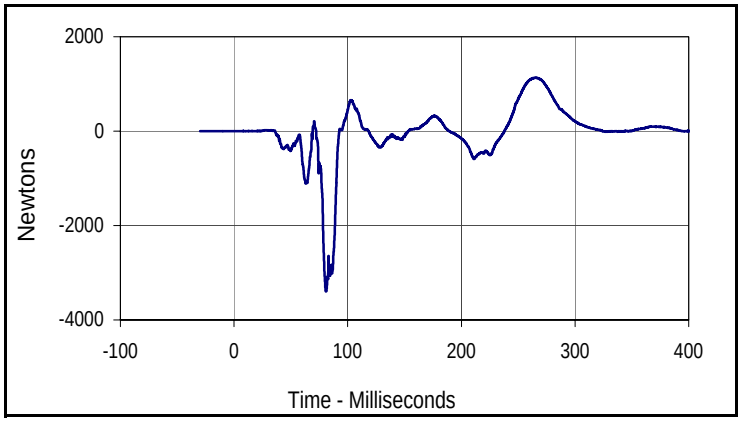
Curve Description			
Driver Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
219	CALC	N/A	Nm
Max	Time	Min	Time
21.5	94.3	-13.6	140.3



Curve Description			
Driver Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
220	CALC	N/A	Nm
Max	Time	Min	Time
41.6	98.7	-13.7	188.1

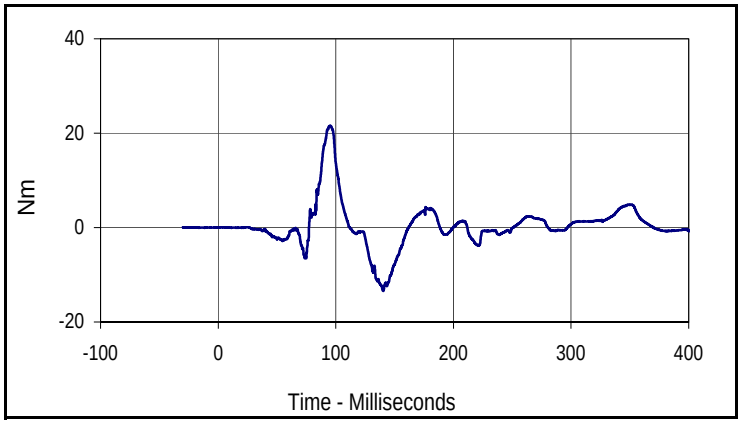


Curve Description			
Driver OC Force X			
CURNO	Type	SAE Class	Units
221	CALC	N/A	Newtons
Max	Time	Min	Time
441.7	174.8	-1197.5	79.9

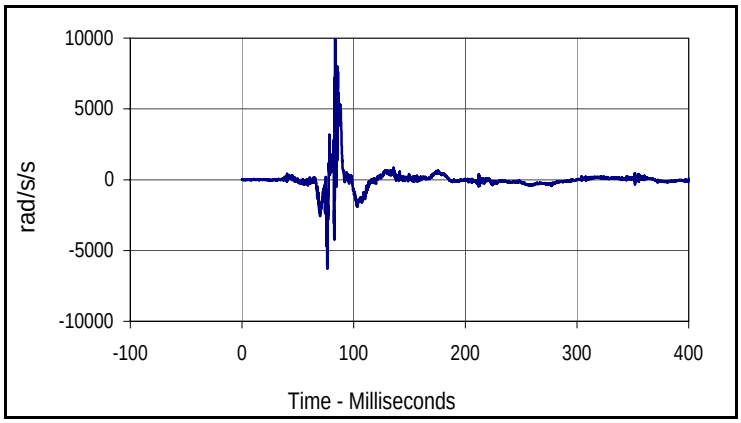


Curve Description			
Driver OC Force Z			
CURNO	Type	SAE Class	Units
222	CALC	N/A	Newtons
Max	Time	Min	Time
1133.7	265.0	-3394.4	80.9

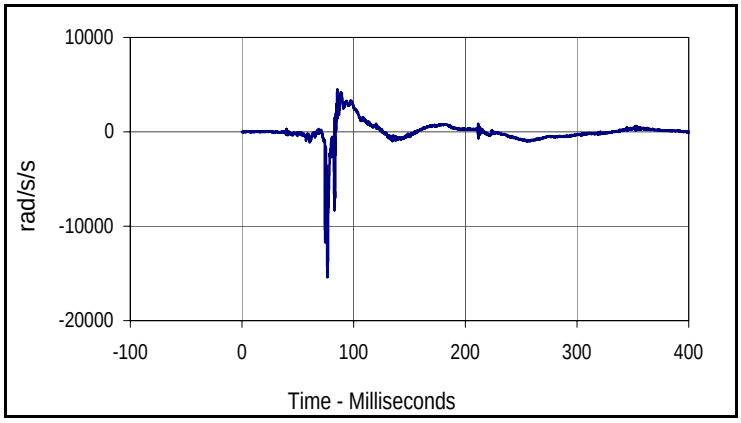
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



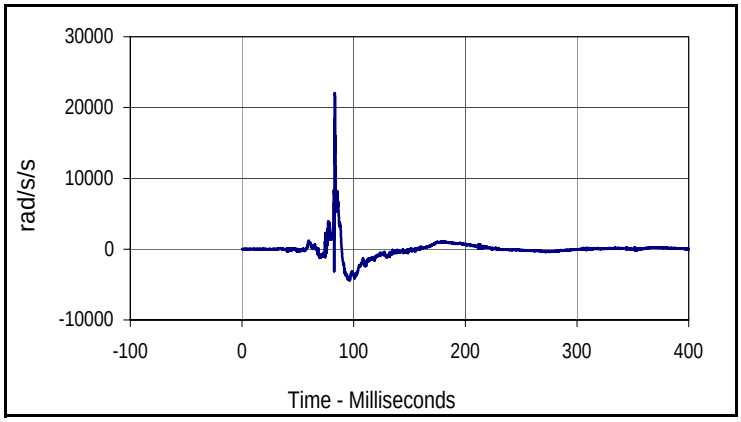
Curve Description			
Driver OC Moment Y			
CURNO	Type	SAE Class	Units
223	CALC	N/A	Nm
Max	Time	Min	Time
21.6	95.0	-13.5	140.2



Curve Description			
Driver Head Angular Acceleration X			
CURNO	Type	SAE Class	Units
224	CALC	N/A	rad/s/s
Max	Time	Min	Time
9846.7	83.3	-6267.4	76.4

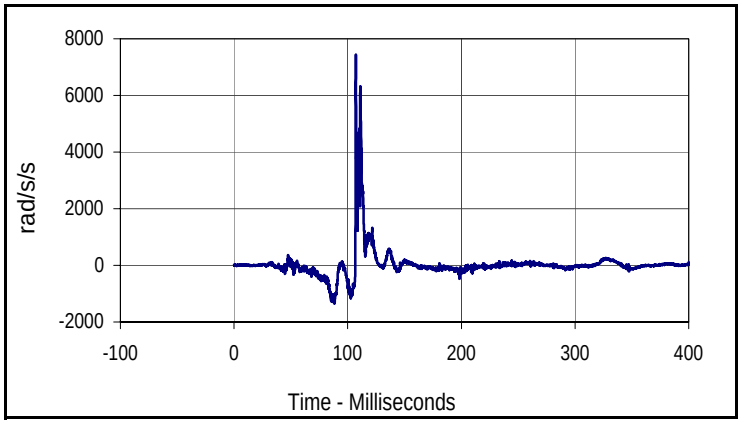


Curve Description			
Driver Head Angular Acceleration Y			
CURNO	Type	SAE Class	Units
225	CALC	N/A	rad/s/s
Max	Time	Min	Time
4490.5	85.3	-15370.0	76.4

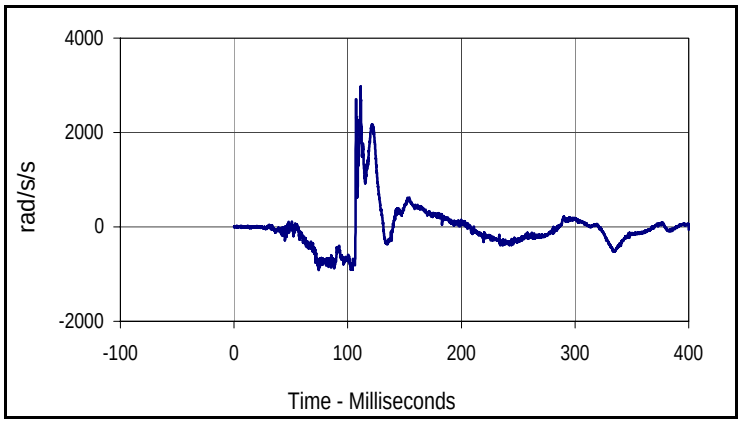


Curve Description			
Driver Head Angular Acceleration Z			
CURNO	Type	SAE Class	Units
226	CALC	N/A	rad/s/s
Max	Time	Min	Time
22005.0	83.2	-4386.2	96.1

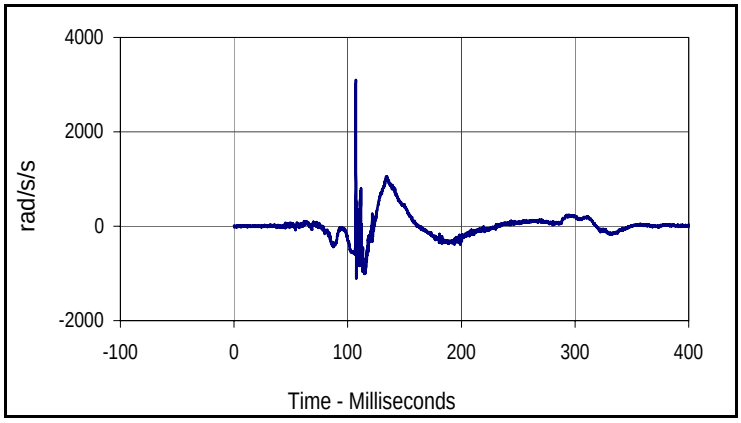
Test Vehicle:	2007 Ford 500 4-Door Sedan	NHTSA No.:	R70209
Test Program:	80 mph, 15°, 10% Offset MDB to Vehicle	Test Date:	12/23/09



Curve Description			
LR Passenger Head Angular Acceleration X			
CURNO	Type	SAE Class	Units
227	CALC	N/A	rad/s/s
Max	Time	Min	Time
7428.7	107.2	-1342.5	88.3



Curve Description			
LR Passenger Head Angular Acceleration Y			
CURNO	Type	SAE Class	Units
228	CALC	N/A	rad/s/s
Max	Time	Min	Time
2973.7	111.3	-918.5	74.5

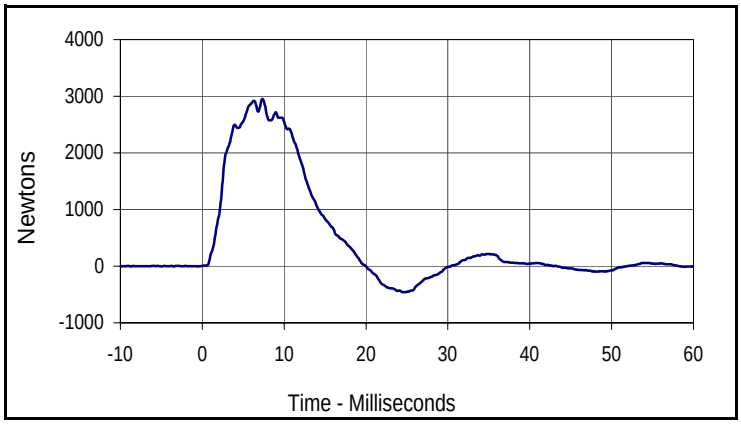


Curve Description			
LR Passenger Head Angular Acceleration Z			
CURNO	Type	SAE Class	Units
229	CALC	N/A	rad/s/s
Max	Time	Min	Time
3096.3	107.1	-1092.9	107.6

APPENDIX C
DUMMY CERTIFICATION DATA

Test Program:	Thor-LX Dynamic Heel of Foot Impact Test	Test Date:	11/5/09
Serial No.:	G109	Test I.D.:	Heel01

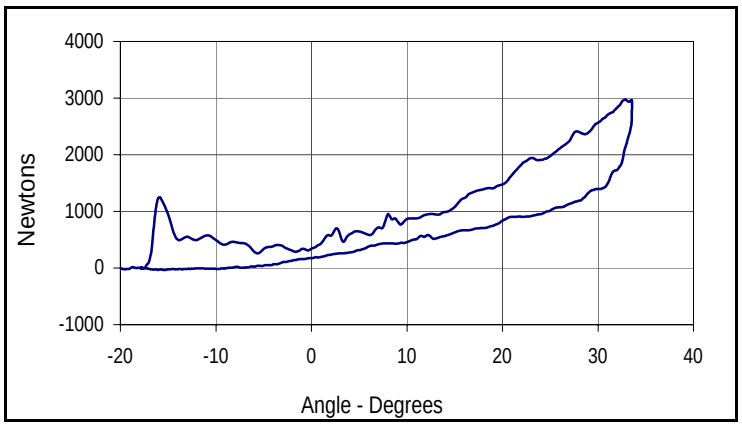
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	^{o}C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	3.90 to 4.10	4.05	Pass
Peak Lower Tibia Compressive Force	Newtons	2738 to 3346	2948	Pass
		Overall Test Results		Pass



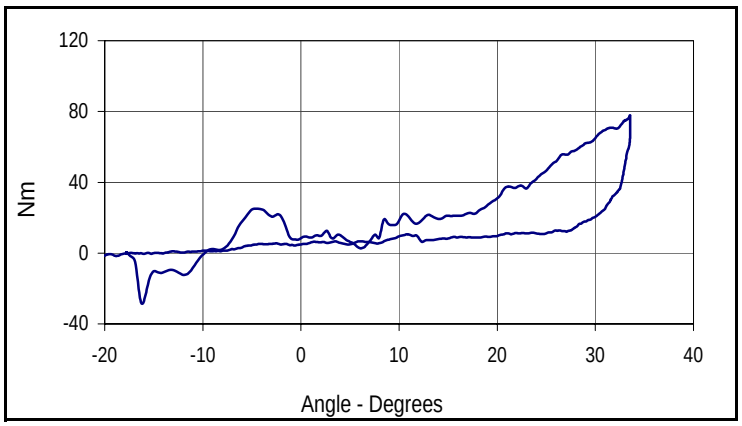
Curve Description			
Peak Lower Tibia Compressive Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
2948.3	7.4	-459.8	24.5

Test Program:	Thor-LX Dynamic Ball of Foot Impact Test	Test Date:	11/5/09
Serial No.:	G109	Test I.D.:	Ball001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.90 to 5.10	4.95	Pass
Peak Lower Tibia Compressive Force	Newtons	2956 to 3613	2976	Pass
Peak Ankle Y Axis Rotation	Deg	32.7 to 39.9	33.6	Pass
Peak Ankle Resistive Moment	Nm	77.1 to 94.2	77.9	Pass
		Overall Test Results		Pass



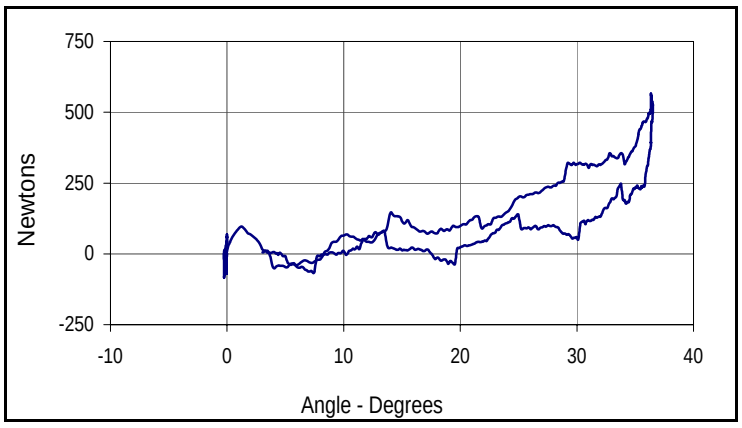
Curve Description			
Peak Lower Tibia Compressive Force vs. Angle			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Angle	Min	Angle
2975.6	32.9	-34.0	-25.4



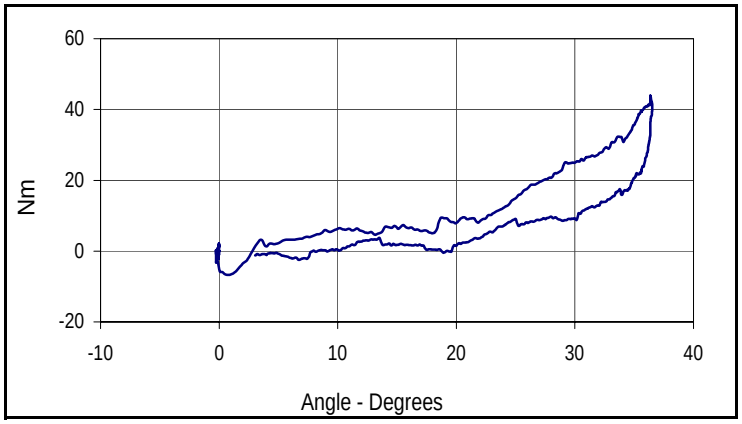
Curve Description			
Peak Ankle Resistive Moment vs. Angle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Angle	Min	Angle
77.9	33.5	-28.4	-16.2

Test Program:	Thor-LX Dynamic Inversion Impact Test	Test Date:	11/5/09
Serial No.:	G109	Test I.D.:	INV001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	^{o}C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	1.90 to 2.10	1.98	Pass
Peak Lower Tibia Compressive Force	Newtons	552 to 675	566	Pass
Peak Ankle X Axis Rotation	Deg	30.3 to 37.0	36.5	Pass
Peak Ankle Resistive Moment	Nm	36.3 to 44.4	43.9	Pass
		Overall Test Results		Pass



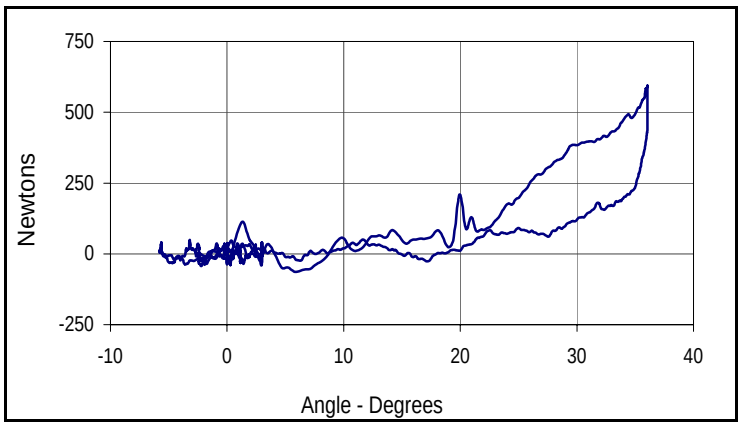
Curve Description			
Peak Lower Tibia Compressive Force vs. Angle			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Angle	Min	Angle
565.6	36.4	-83.6	-0.3



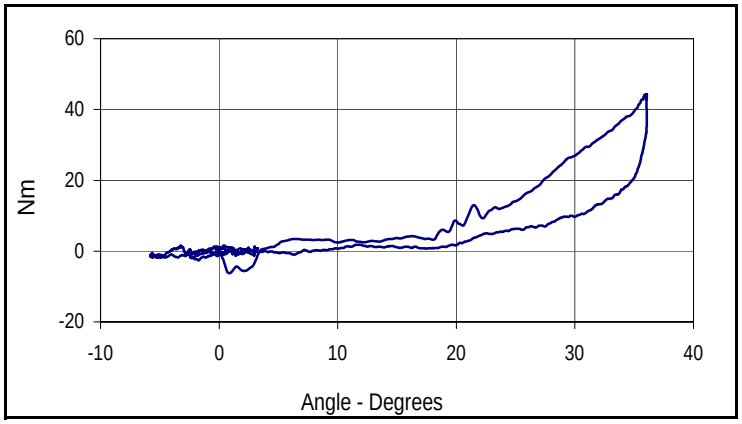
Curve Description			
Peak Ankle Resistive Moment vs. Angle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Angle	Min	Angle
43.9	36.4	-6.7	0.8

Test Program:	Thor-LX Dynamic Eversion Impact Test	Test Date:	10/16/09
Serial No.:	G109	Test I.D.:	BLF1A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	^{o}C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	1.90 to 2.10	1.98	Pass
Peak Lower Tibia Compressive Force	Newtons	552 to 675	594	Pass
Peak Ankle X Axis Rotation	Deg	30.3 to 37.0	36.1	Pass
Peak Ankle Resistive Moment	Nm	36.3 to 44.4	44.3	Pass
		Overall Test Results		Pass



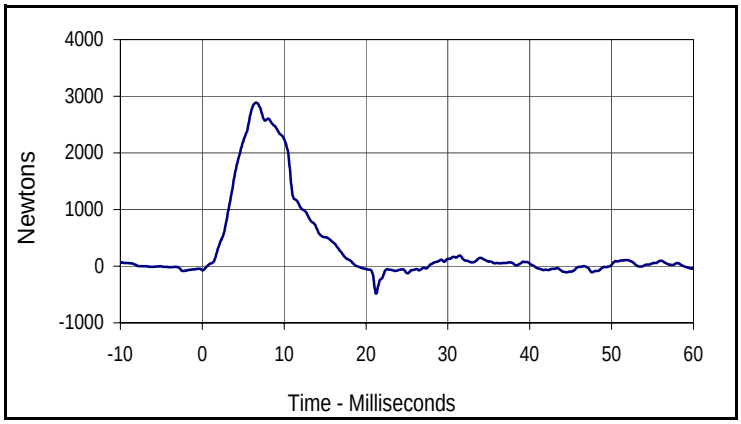
Curve Description			
Peak Lower Tibia Compressive Force vs. Angle			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Angle	Min	Angle
594.0	36.1	-64.1	5.9



Curve Description			
Peak Ankle Resistive Moment vs. Angle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Angle	Min	Angle
44.3	36.0	-6.3	0.8

Test Program:	Thor-LX Dynamic Heel of Foot Impact Test	Test Date:	11/5/09
Serial No.:	0039	Test I.D.:	Heel02

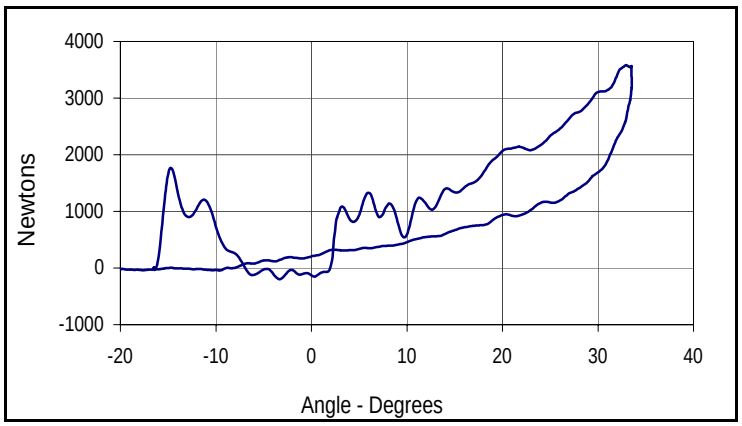
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	^{o}C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	3.90 to 4.10	4.05	Pass
Peak Lower Tibia Compressive Force	Newtons	2738 to 3346	2888	Pass
		Overall Test Results		Pass



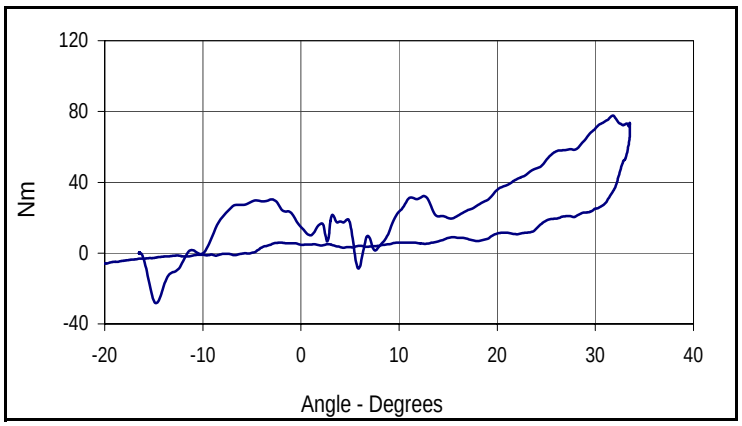
Curve Description			
Peak Lower Tibia Compressive Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
2888.1	6.6	-481.9	21.2

Test Program:	Thor-LX Dynamic Ball of Foot Impact Test	Test Date:	11/5/09
Serial No.:	0039	Test I.D.:	Ball002

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.90 to 5.10	5.04	Pass
Peak Lower Tibia Compressive Force	Newtons	2956 to 3613	3583	Pass
Peak Ankle Y Axis Rotation	Deg	32.7 to 39.9	33.5	Pass
Peak Ankle Resistive Moment	Nm	77.1 to 94.2	77.7	Pass
		Overall Test Results		Pass



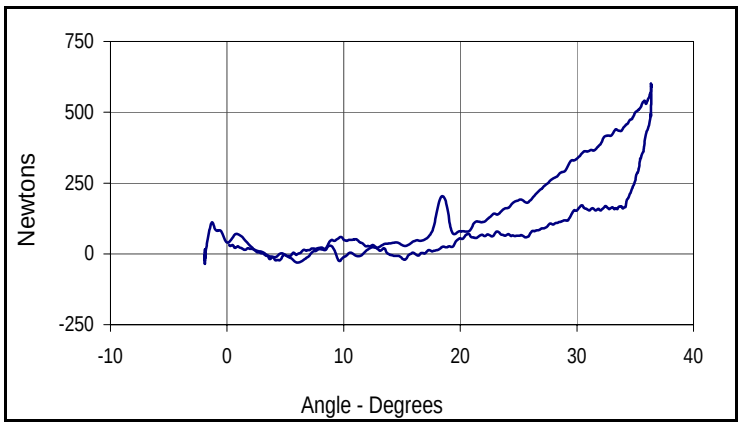
Curve Description			
Peak Lower Tibia Compressive Force vs. Angle			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Angle	Min	Angle
3583.3	32.9	-195.1	-3.3



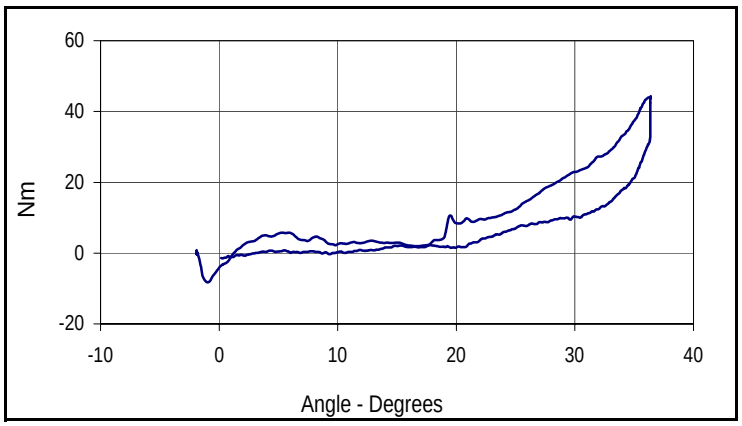
Curve Description			
Peak Ankle Resistive Moment vs. Angle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Angle	Min	Angle
77.7	31.8	-28.2	-14.8

Test Program:	Thor-LX Dynamic Inversion Impact Test	Test Date:	11/5/09
Serial No.:	0039	Test I.D.:	INV001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	1.90 to 2.10	1.94	Pass
Peak Lower Tibia Compressive Force	Newtons	552 to 675	601	Pass
Peak Ankle X Axis Rotation	Deg	30.3 to 37.0	36.4	Pass
Peak Ankle Resistive Moment	Nm	36.3 to 44.4	44.2	Pass
		Overall Test Results		Pass



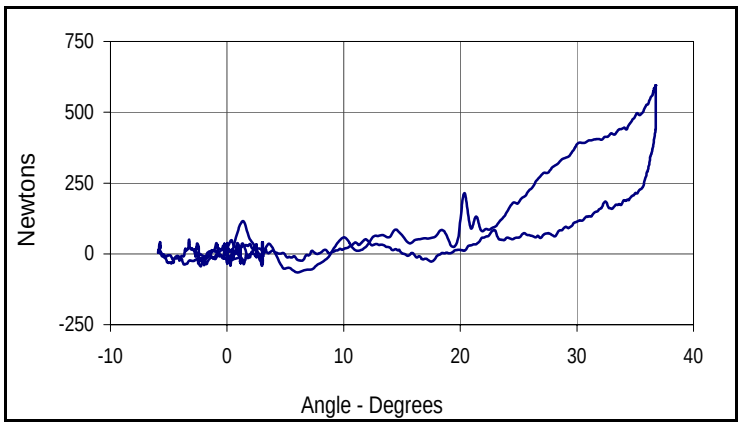
Curve Description			
Peak Lower Tibia Compressive Force vs. Angle			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Angle	Min	Angle
600.7	36.4	-35.3	-1.9



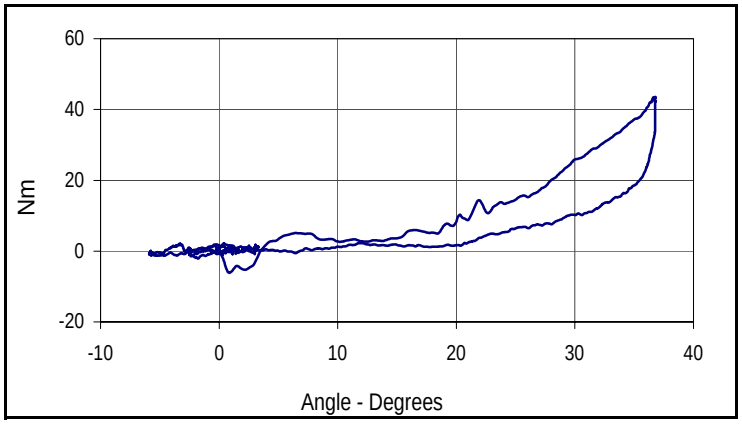
Curve Description			
Peak Ankle Resistive Moment vs. Angle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Angle	Min	Angle
44.2	36.4	-8.3	-0.9

Test Program:	Thor-LX Dynamic Eversion Impact Test	Test Date:	10/16/09
Serial No.:	0039	Test I.D.:	EV002

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	^{o}C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	1.90 to 2.10	1.98	Pass
Peak Lower Tibia Compressive Force	Newtons	552 to 675	596	Pass
Peak Ankle X Axis Rotation	Deg	30.3 to 37.0	36.8	Pass
Peak Ankle Resistive Moment	Nm	36.3 to 44.4	43.5	Pass
		Overall Test Results		Pass



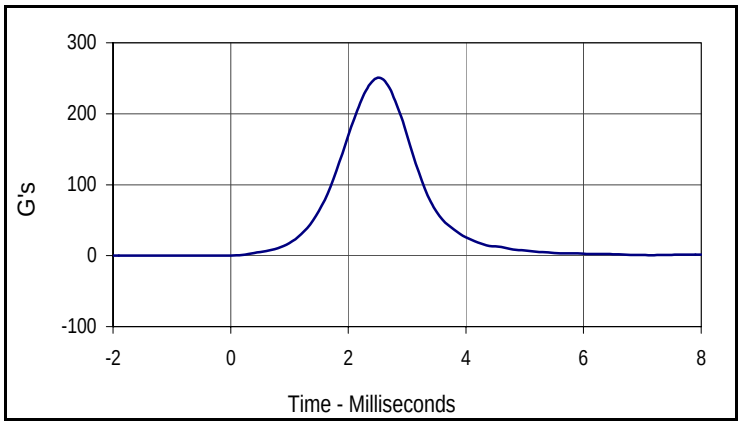
Curve Description			
Peak Lower Tibia Compressive Force vs. Angle			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Angle	Min	Angle
595.6	36.8	-65.5	6.1



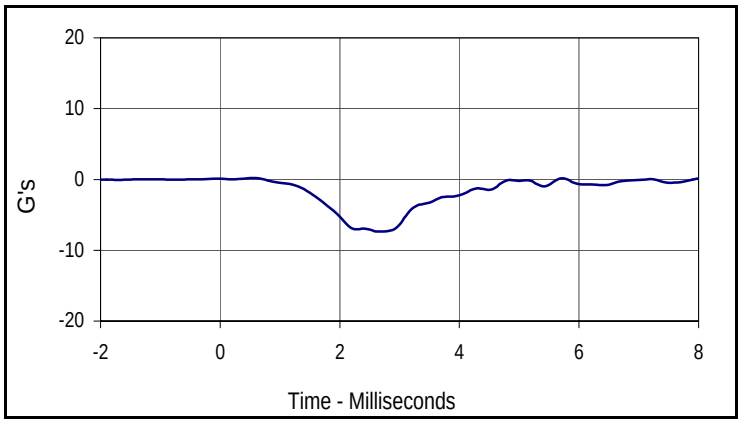
Curve Description			
Peak Ankle Resistive Moment vs. Angle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Angle	Min	Angle
43.5	36.8	-6.1	0.9

Test Program:	Hybrid III 5th Percentile Female Head Drop Test	Test Date:	11/10/09
ATD Serial No.:	630	Test I.D.:	HD001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	250.9	Pass
Peak Lateral Acceleration	G's	≤15.0	7.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
		Overall Test Results		Pass



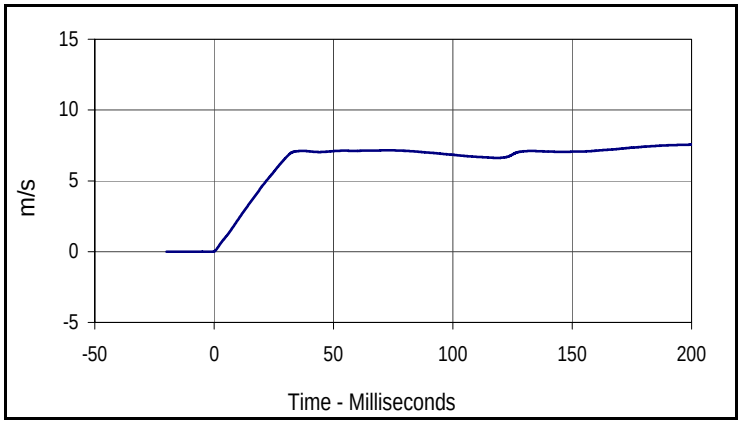
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
250.9	2.5	0.0	-2.0



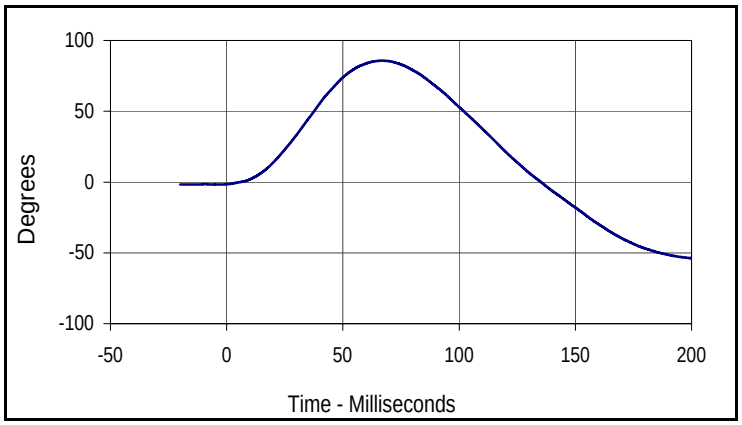
Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.2	0.5	-7.4	2.7

Test Program:	Hybrid III 5th Percentile Female Neck Flexion Test	Test Date:	11/10/09
ATD Serial No.:	630	Test I.D.:	NF12B

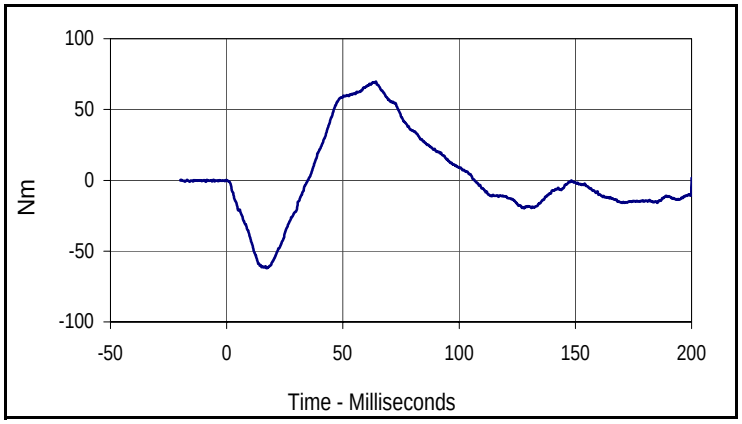
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.3	Pass
	20 Msec.	m/s	4.0 to 5.0	4.6	Pass
	30 Msec.	m/s	5.8 to 7.0	6.6	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	85.7	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	69.8	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	99.8	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
7.6	200.0	0.0	-0.7



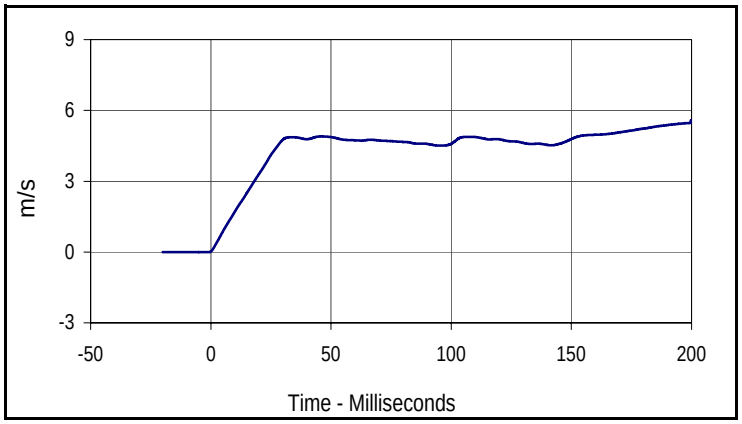
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
85.7	66.9	-53.7	200.0



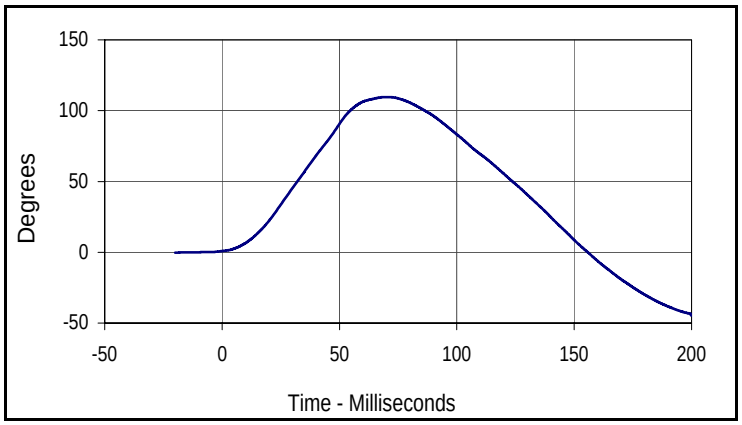
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
69.8	64.2	-62.1	17.2

Test Program:	Hybrid III 5th Percentile Female Neck Extension Test	Test Date:	11/10/09
ATD Serial No.:	630	Test I.D.:	NE12C

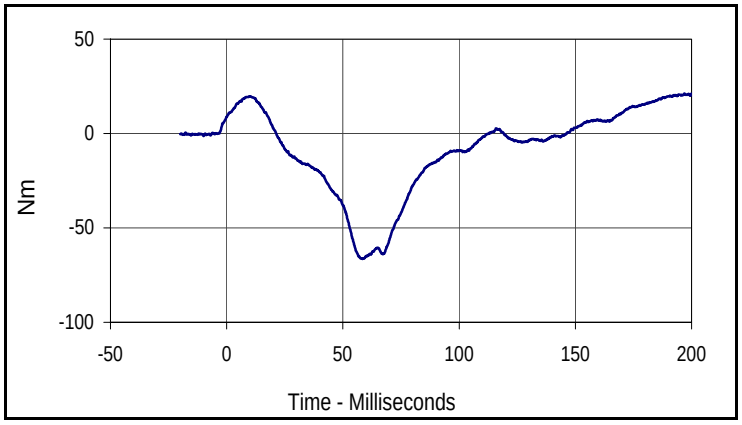
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.19	5.98	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.7	Pass
	20 Msec.	m/s	3.1 to 3.9	3.3	Pass
	30 Msec.	m/s	4.6 to 5.6	4.8	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	109.6	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	64.9	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	95.6	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
5.6	200.0	0.0	-0.9



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
109.6	69.9	-44.5	200.0



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
21.1	197.0	-64.9	58.4

Test Program:	Hybrid III 5th Percentile Female Knee Impact Test	Test Date:	11/11/09
ATD Serial No.:	630	Test I.D.:	LK12A , RK12A

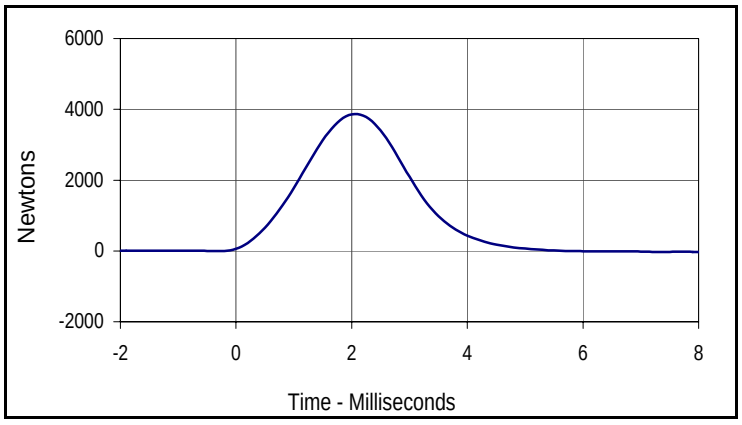
Left Knee

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	3450 to 4060	3765	Pass
		Overall Test Results		Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	3450 to 4060	3862	Pass
		Overall Test Results		Pass

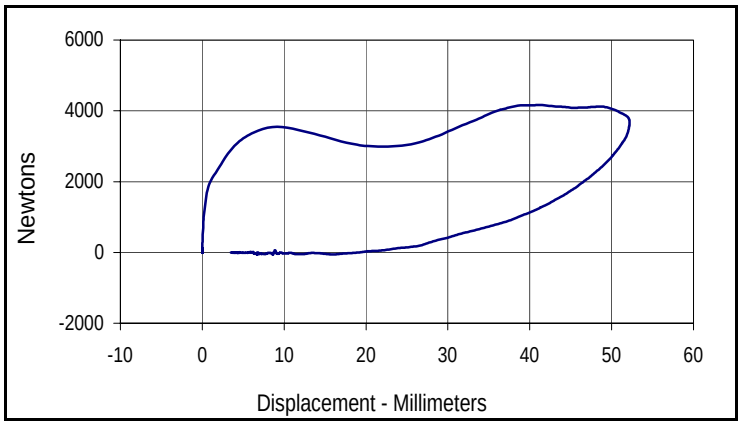
Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3765.4	2.1	-33.4	7.0



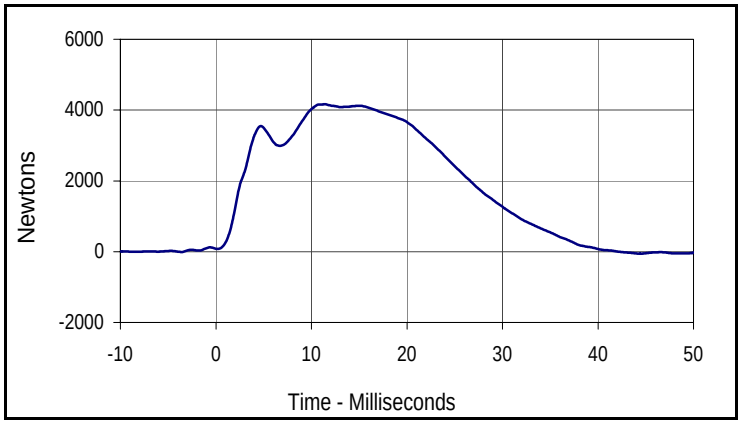
Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
3862.2	2.1	-34.3	8.7

Test Program:	Hybrid III 5th Percentile Female Thorax Impact Test	Test Date:	11/12/09
ATD Serial No.:	630	Test I.D.:	CH001

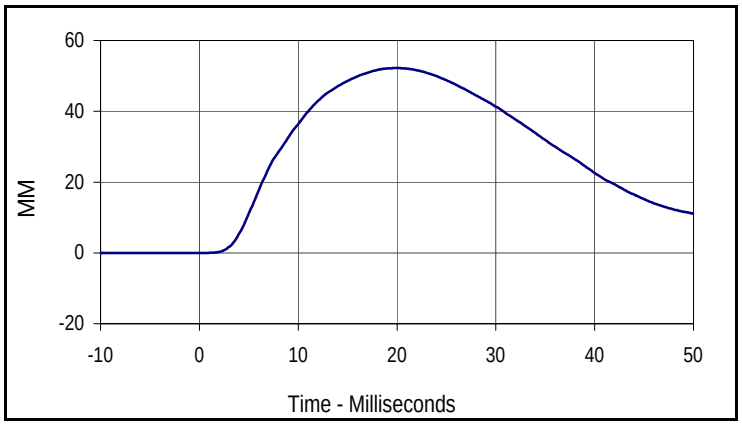
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.59 to 6.83	6.63	Pass
Peak Chest Deflection	MM	50.0 to 58.0	52.2	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	4162	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	4058	Pass
Internal Hysterysis	%	69 to 85	81.4	Pass
		Overall Test Results		Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysterysis
003	FIL	180	81.4
Peak Probe Force		Peak Chest Displ.	
4161.9		52.2	



Curve Description			
Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4161.9	11.4	-67.1	86.8



Curve Description			
Chest Deflection			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
52.2	19.9	0.0	-9.0

Test Program:	Hybrid III 5th Percentile Female Torso Flexion Test	Test Date:	11/11/09
ATD Serial No.:	630	Test I.D.:	TF001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	^{o}C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Initial reference plane angle	Degrees	$\leq$20.0	5.2	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	320.0 to 390.0	365.2	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	1.2	Pass
Final reference plane angle	Degrees	+/-8	3.5	Pass
		Overall Test Results		Pass

Test Program:	Hybrid III 5th Percentile Female External Measurements	Test Date:	11/12/09
ATD Serial No.:	630	Test I.D.:	N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	774.7 to 800.1	779	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	445	Pass
C - "H" point height (Reference)	mm	81.3 to 86.3	84	Pass
D - "H" point from seat back (Ref.)	mm	144.8 to 149.8	145	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	81	Pass
F - Thigh clearance	mm	119.4 to 134.6	131	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	255	Pass
H - Head to back line	mm	40.7 to 45.7	44	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	290	Pass
J - Elbow rest heignt	mm	182.8 to 203.2	200	Pass
K - Buttock to knee length	mm	520.7 to 546.1	544	Pass
L - Poplipteal height	mm	355.6 to 376.0	365	Pass
M - Knee pivot height	mm	393.7 to 419.1	415	Pass
N - Buttock poplipteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	185	Pass
P - Foot length	mm	218.5 to 233.7	230	Pass
R - Buttock to knee pivot length	mm	457.2 to 482.6	475	Pass
S - Head breadth	mm	137.1 to 147.3	145	Pass
T - Head depth	mm	177.8 to 188.0	180	Pass
U - Hip breadth	mm	299.7 to 314.9	312	Pass
V - Shoulder breadth	mm	350.5 to 365.7	365	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	540	Pass
Y - Chest circumference with jacket	mm	850.8 to 881.3	880	Pass
Z - Waist circumference	mm	759.5 to 789.9	775	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	305	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	165	Pass
		Overall Test Results		Pass

APPENDIX D
SUPPLEMENTARY INFORMATION

DRIVER ATD INITIAL ANGLES OF POTENTIOMETERS

THOR S/N: 0006										Sensitivity (JARI)	Sensitivity (GESAC)	Setup Angle (GESAC) for *.set file
Sensor		Mfg	S/N	Capacity	Unit-1	Unit-2	Range	Direction	CFC	V/Unit-1	V/Unit-1	Degrees
NKCRP		Contolec	pd210-4B	318	deg	mV	1000	Rear +	180	0.031551	0.031551	
CX-1ULB		Contolec	CRUX-0040	318	deg	mV	2000	Rear +	180	0.031103	0.031103	151.6418
CX-2ULM		Contolec	CRUX-0041	318	deg	mV	2000	Rear +	180	0.031087	0.031087	256.3945
CX-3ULE		Contolec	CRUX-0042	318	deg	mV	2000	Rear +	180	0.0309	0.0309	74.82515
CX-1URB		Contolec	CRUX-0001	318	deg	mV	2000	Rear +	180	0.031531	0.031531	169.3518
CX-2URM		Contolec	CRUX-0307	318	deg	mV	2000	Rear +	180	0.031107	0.031107	72.01164
CX-3URE		Contolec	CRUX-0003	318	deg	mV	2000	Rear +	180	0.03199	0.03199	244.6895
CX-1LLB		Contolec	CRUX-0023	318	deg	mV	2000	Rear +	180	0.030492	0.030492	170.6074
CX-2LLM		Contolec	CRUX-0357	318	deg	mV	2000	Rear +	180	0.030519	0.030519	76.07653
CX-3LLE		Contolec	CRUX-0317	318	deg	mV	2000	Rear +	180	0.031613	0.031613	204.8654
CX-1LRB		Contolec	CRUX-0043	318	deg	mV	2000	Rear +	180	0.031539	0.031539	160.5694
CX-2LRM		Contolec	CRUX-0706	318	deg	mV	2000	Rear +	180	0.031197	0.031197	230.9136
CS-3LRE		Contolec	CRUX-0074	318	deg	mV	2000	Rear +	180	0.031896	0.031896	172.6564
DP1-L	LString	Space-Age	256	101.6	mm	mV	10000	Rear +	180	0.094593	0.094593	185.03
DP2-L	LZ-Pot	Contolec	0107	318	deg	mV	1000	Rear +	180	0.0299	0.0299	163.95
DP3-L	LY-Pot	Duncan	0410	360	deg	mV	1000	Rear +	180	0.031701	0.031701	154.24
DP1-R	RString	Space-Age	014486	101.6	mm	mV	10000	Rear +	180	0.096073	0.096073	188.02
DP2-R	RZ-Pot	Contolec	0104	318	deg	mV	1000	Rear +	180	0.028875	0.028875	153.13
DP3-R	RY-Pot	Duncan	0361	360	deg	mV	1000	Rear +	180	0.031631	0.031631	160.77

DRIVER ATD TILT SENSOR MEASUREMENTS

Channel	THOR NT	Tilt Sensor	
		X	Y
0	Head	4.0	7.4
1	Neck	-4.9	-13.0
2	Thoracic Spine	-39.0	43.7
3	Lumbar Spine	-13.4	40.8
4	Pelvis	193.4	6.2
	Neck Pitch Setting	Neutral	
	Spine Pitch Setting	Slouch	