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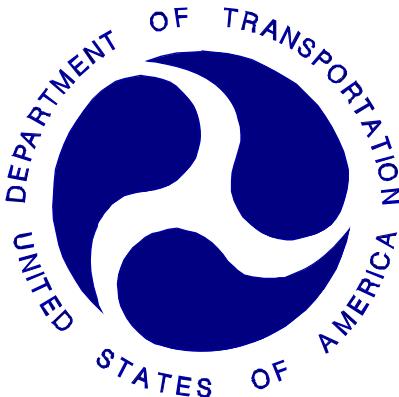
**SAFETY COMPLIANCE TESTING FOR FMVSS 301
FUEL SYSTEM INTEGRITY – REAR IMPACT**

Honda of America

2010 Honda Crosstour
Crossover

NHTSA NUMBER: CA5303

CALSPAN
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June 8, 2010

FINAL REPORT

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance (NVS-224)
1200 New Jersey Avenue, SE
Washington, DC 20590

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-06-C-00031. This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufactures' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

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16. Abstract Compliance tests were conducted on the subject 2010 Honda Crosstour Crossover in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-301R-02 for the determination of FMVSS 301 compliance. Test failures identified were as follows: The test vehicle appeared to comply with all requirements of FMVSS 301R-02 "Fuel System Integrity – Rear Impact."			
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SECTION 1

PURPOSE AND TEST PROCEDURE

This rear impact test is part of the FMVSS 301 Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-06-C-00031. The purpose of this test was to determine if the subject vehicle, a 2010 Honda Crosstour Crossover, meets the performance requirements of FMVSS No. 301R-02 "Fuel System Integrity – Rear Impact." The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-301R-02, dated January 17, 2007).

SECTION 2

COMPLIANCE TEST RESULTS SUMMARY

A 1932 kg 2010 Honda Crosstour Crossover was impacted from the rear by a 1357 kg moving barrier at a velocity of 79.0 kph (49.1 mph). The test was performed by Calspan Corporation on June 8, 2010.

The test vehicle was equipped with a 70.0 liter fuel tank which was filled to 92 percent capacity with stoddard fluid prior to impact. Additional ballast (36.5 kg) was secured in the vehicle cargo area. Two ballast Part 572E 50th percentile male Anthropomorphic Test Device (ATD) were placed in the front occupant seating positions.

The crash event was recorded by three high-speed cameras and one real-time camera. High-speed camera locations and other pertinent camera information are found on page 3-6 of this report. Pre- and post-test photographs of the vehicle can be found in Appendix A.

There was no fuel system fluid spillage following the impact or during any portion of the static rollover test. The average vehicle longitudinal crush was 351 millimeters. The vehicle appeared to comply with all the requirements of FMVSS No. 301 "Fuel System Integrity."

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

TEST VEHICLE SPECIFICATIONS

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2010 Honda Crosstour Crossover
 Vehicle Body Color: Polished Metal NHTSA Number: CA5303
 Engine Data: 6 Cylinders; CID; 3.5 Liters; cc
 Transmission: 5 Speed; Manual; x Automatic; Overdrive
 Final Drive: Rear Wheel Drive; x Front Wheel Drive; Four Wheel Drive

MAJOR TEST VEHICLE OPTIONS:

x AC; x Pwr Steering; X Power Brakes; x Power Locks; x Power Seats
x ABS; x Tilt Wheel; x Stab Control x Traction Control x Anti-Theft

DEALER AND DELIVERY INFORMATION:

Date Received: February 23, 2010 ; Odometer Reading 306 km
 Selling Dealer: West Herr Honda
 Dealer Address: 6120 South Transit Rd.; Pendelton, NY 14094

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufacturer: Honda of America Mfg.
 Vehicle Build Date: 11/09
 VIN:: 5J6TF1H3XAL001277
 GVWR: 2240 kg; GAWR: 1190 kg FRONT; 1080 kg REAR

DATA FROM VEHICLE'S TIRE LABEL AND SIDEWALL:

Location of Tire Placard: Driver sill
 Type of Spare Tire: T155/90D16 110M

	<u>Front</u>	<u>Rear</u>
Maximum Tire Pressure (sidewall - kPa)	300	300
Cold Pressure (tire placard - kPa) – test pressure	220	220
Recommended Tire Size (tire placard)	225/65R17	225/65R17
Vehicle Tire Size with load index & speed symbol	225/65R17 102T	225/65R17 102T
Tire Manufacturer	Bridgestone	Bridgestone
Tire Name	Dueller H/T	Dueller H/T
Treadwear, Traction, Temperature	360, B, B	360, B, B

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench; x Bucket; Split Bench
 Number of Occupants: 2 Front; 3 Rear; 5 Total
 Vehicle Capacity Weight (VCW) = 385 kg
 No. of Occupants x 68.04 kg = 340.2 kg
 Rated Cargo/Luggage Weight (RCLW) = 44.8 kg

DATA SHEET 2

PRE-TEST DATA

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with maximum fluids)= UDW:

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	525.5	505.0	59.2	1030.5
Rear =	356.0	353.0	40.8	709.0
Total Delivered Weight (UDW) =				1739.5

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW) =	1739.5	kg
Rated Cargo/Luggage Weight (RCLW) =	44.8	kg
Weight of 2 p.572E Dummies @ 78 each =	156	kg
TARGET TEST WEIGHT =	1940.3	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 36.5 KG OF CARGO WEIGHT:

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	572.5	552.5	58.2	1125.0
Rear =	405.5	401.5	41.8	807.0
Total Vehicle Test Weight (ATW) =				1932.0

Weight of Ballast Secured in Vehicle¹ = 36.5 kg Ballast Type Shot bag

Method of securing Ballast: Taped to rear seat floor pan in front of seat

Components Removed for Weight Reduction: None

VEHICLE ATTITUDE (all dimension in millimeters):

	Left Front	Right Front	Left Rear	Right Rear	CG ²
AS DELIVERED:	782	793	788	794	
AS TESTED:	773	781	772	775	

Vehicle's Wheel Base: 2794 mm

¹Ballast weight does not include the weight of instrumentation, on-board cameras and data acquisition system

²Rearward of the front axle centerline.

VEHICLE PRE-TEST WIDTH AND IMPACT OFFSET MEASUREMENT:

Vehicle Width at Widest Point: 1908 mm

Location: Front wheel well.

Centerline offset for impact line: 381.6 mm

Filler neck side (left/right) left

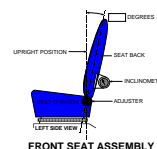
DATA SHEET 2 (continued)

PRE-TEST DATA

Vehicle: 2010 Honda Crosstour Crossover

NHTSA No. CA5303

Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



Seat back angle for driver's seat: See below

Measurement instructions: Seat back reclined 20° from full upright position. Measured on headrest post.

Seat back angle for passenger's seat: See below

Measurement instructions: Seat back reclined 20° from full upright position. Measured on headrest post.

2. SEAT FORE AND AFT POSITIONING:

Positioning of the driver's seat: Full fore/aft travel range measured at 280 mm. Seat positioned at 140 mm. In full down position.

Positioning of the passenger's seat: Full fore/aft travel range measured at 238 mm. Seat positioned at 119 mm.

3. FUEL TANK CAPACITY DATA:

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 70.0 liters

B. "Usable Capacity" of the optional equipment fuel tank is n/a liters

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 64.4 to 65.8 liters

3.2 Actual Amount of Stoddard solvent added to vehicle for test = 65.1 liters

Stoddard Fluid: specific gravity: 0.764 ; kinematic viscosity: 0.96 centistokes; color: Purple

3.3 Is vehicle equipped with electric fuel pump? Yes- x ; No-

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

Fuel pump operates with ignition in on position and vehicle engine running .

4. STEERING COLUMN ADJUSTMENTS:

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions: Telescoping column set at midrange of travel. Wheel tilt set at midposition or 22.35° when measured on face of wheel.

5. SEAT BELT UPPER ANCHORAGE:

Nominal design riding position:

Anchorage set at furthest up position.

6. COMMENTS:

DATA SHEET 3

MOVING DEFORMABLE BARRIER (MDB) DATA

Vehicle: 2010 Honda Crosstour Crossover

NHTSA No. CA5303

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore A1209040

MDB DETAILS:

Overall Width of Framework Carriage	=	<u>1250</u>	millimeters
Overall Length of MDB (incl. honeycomb impact face)	=	<u>4120</u>	millimeters
Wheelbase of Framework Carriage	=	<u>2591</u>	millimeters
Tread of Framework Carriage (Front & Rear)	=	<u>1875</u>	millimeters
C.G. Location Rearward of Front Axle	=	<u>1136</u>	millimeters

MDB WEIGHT:

Left Front	=	<u>358.0</u>	kg	Left Rear	=	<u>322.0</u>	kg
Right Front	=	<u>404.0</u>	kg	Right Rear	=	<u>273.0</u>	kg
TOTAL FRONT =		<u>762.0</u>	kg	TOTAL REAR =		<u>595.0</u>	kg
TOTAL MDB WEIGHT =		<u>1357.0</u>	kg				

Tires (Mfr, line, size): Dunlop Radial Rover AT P205/75-R15

TIRE PRESSURE:

Left Front	=	<u>207</u>	kPa	Left Rear	=	<u>207</u>	kPa
Right Front	=	<u>207</u>	kPa	Right Rear	=	<u>207</u>	kPa

Brake Abort System? (Yes/No) Yes

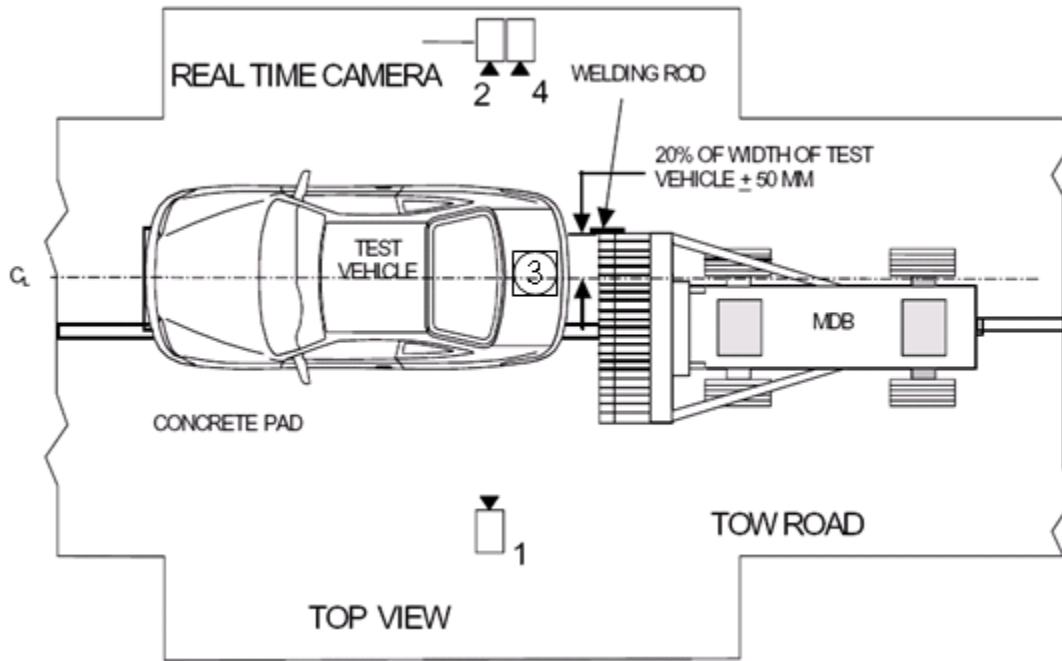
Date of Last Calibration: 5/15/2010

DATA SHEET 4

HIGH SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 2010 Honda Crosstour Crossover

NHTSA No. CA5303



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Left Side View	8150	1980	970	-0.5	24	1000
2	Real-Time Camera	-	-	-	-	-	30
3	Overhead View	0	775	4900	-90	20	1000
4	Right Side View	8820	1800	1015	-1.5	24	1000

* Reference (from point of impact); all measurements accurate to within ± 6 mm.

X = (Impact Point) + Forward

Y = (Impact Point) + To Right

Z = (Ground Level) + Down

DATA SHEET 5
POST-TEST DATA

Vehicle: 2010 Honda Crosstour Crossover

NHTSA No. CA5303

REQUIRED IMPACT VELOCITY RANGE:: 78.5 to 80.1 km/h

ACTUAL IMPACT VELOCITY WITHIN 1.5 M OF IMPACT PLANE:

Trap No. 1 = 79.0 km/h Trap No. 2 = 79.2 km/h

Average Impact Speed = 79.1 km/h

WELDING ROD IMPACT POINT:

2 Vertical distance from target center (+ is above) Tolerance: ±40 mm

-15 Horizontal distance from target center (+ is right) Tolerance: ±50 mm

STODDARD SOLVENT SPILLAGE MEASUREMENT:

A. Front impact until vehicle motion ceases -

Actual = 0 g Maximum Allowable = 28 g

B. For 5 minute period after vehicle motion ceases -

Actual = 0 g Maximum Allowable = 28 g

C. For next 25 minutes -

Actual = 0 g/minute Maximum Allowable = 28 g/minute

D. Provide Spillage Details:

None

DATA SHEET 5

POST-TEST DATA (Continued)

Vehicle: 2010 Honda Crosstour Crossover

NHTSA No. CA5303

POST TEST SEAT DATA

LOCATION	SEAT MOVEMENT (mm)	SEAT BACK FAILURE
P1 (Left Front)	Approximately 10 mm rearward, maybe seat tilt	Slightly reclined
P2 (Right Front)	None	Slightly reclined

POST TEST ATD CONTACT DATA

LOCATION	Position 1 (Driver)	Position 2 (Passenger)
Head	Headrest	Headrest
Chest	n/a	n/a
Abdomen	n/a	n/a
Left Knee	n/a	n/a
Right Knee	n/a	n/a

VEHICLE DIMENSIONS:

Vehicle length:

	Left Side	Centerline	Right Side
Pre-Test	4822	4984	4825
Post-Test	4444	4556	4579
Crush	378	428	246

Vehicle Wheel Base:

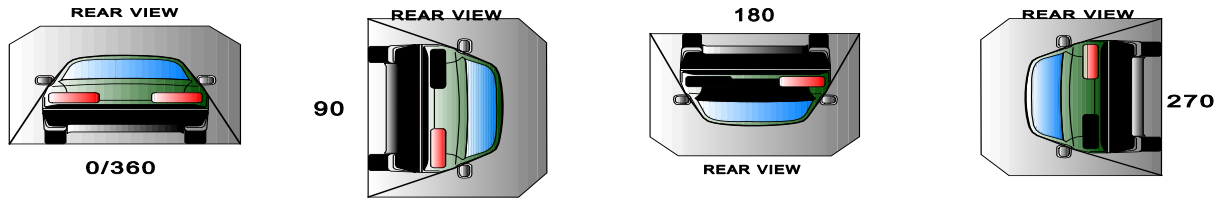
	Left Side	Right Side
Pre-Test	2794	2791
Post-Test	2740	2785
Crush	54	6

DATA SHEET 6

FMVSS 301 ROLLOVER DATA

Vehicle: 2010 Honda Crosstour Crossover

NHTSA No.: CA5303



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
	1	minutes	06	seconds	5	minutes	6	minutes	6	seconds	7	minutes
0° - 90°	1	minutes	08	seconds	5	minutes	6	minutes	8	seconds	7	minutes
90° - 180°	1	minutes	02	seconds	5	minutes	6	minutes	2	seconds	7	minutes
180°-270°	1	minutes	10	seconds	5	minutes	6	minutes	10	seconds	7	minutes

II. FMVSS 301 REQUIREMENTS: (Maximum allowable solvent spillage):

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
142 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	n/a	N/A
90° - 180°	0	0	n/a	N/A
180°-270°	0	0	n/a	N/A
270°-360°	0	0	n/a	N/A

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

Rollover Stage	Spillage Location
0° - 90°	None
90° - 180°	None
180°-270°	None
270°-360°	None

APPENDIX A

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Figure A-1: Vehicle Certification Placard



Figure A-2: Vehicle Tire Placard



Figure A-3: Pre-Test Front View



Figure A-4: Post-Test Front View



Figure A-7: Pre-Test Right Side View



Figure A-8: Post-Test Right Side View



Figure A-9: Pre-Test Left Front Three-Quarter View



Figure A-10: Post-Test Left Front Three-Quarter View



Figure A-11: Pre-Test Right Front Three-Quarter View



Figure A-12: Post-Test Right Front Three-Quarter View



Figure A-13: Pre-Test Left Rear Three-Quarter View



Figure A-14: Post-Test Left Rear Three-Quarter View



Figure A-15: Pre-Test Right Rear Three-Quarter View

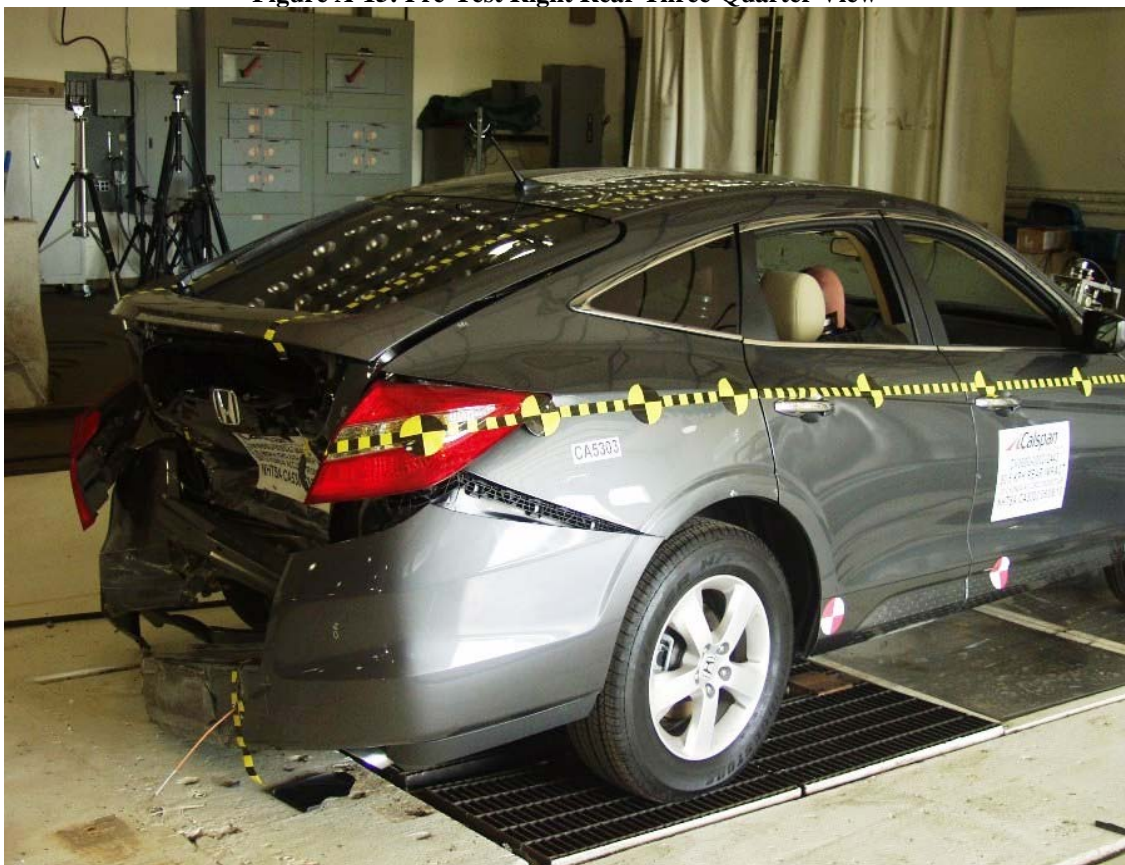


Figure A-16: Post-Test Right Rear Three-Quarter View



Figure A-17: Pre-Test Rear View



Figure A-18: Post-Test Rear View



Figure A-19: Pre-Test MDB Front View



Figure A-20: Post-Test MDB Front View



Figure A-21: Pre-Test MDB Left Side View



Figure A-22: Post-Test MDB Left Side View



Figure A-23: Pre-Test MDB Right Side View



Figure A-24: Post-Test MDB Right Side View



Figure A-25: Pre-Test MDB Top View



Figure A-26: Post-Test MDB Top View



Figure A-27: Pre-Test Overhead Vehicle and MDB View



Figure A-28: Post-Test Impact Target View



Figure A-29: Pre-Test Front Underbody View



Figure A-30: Post-Test Front Underbody View

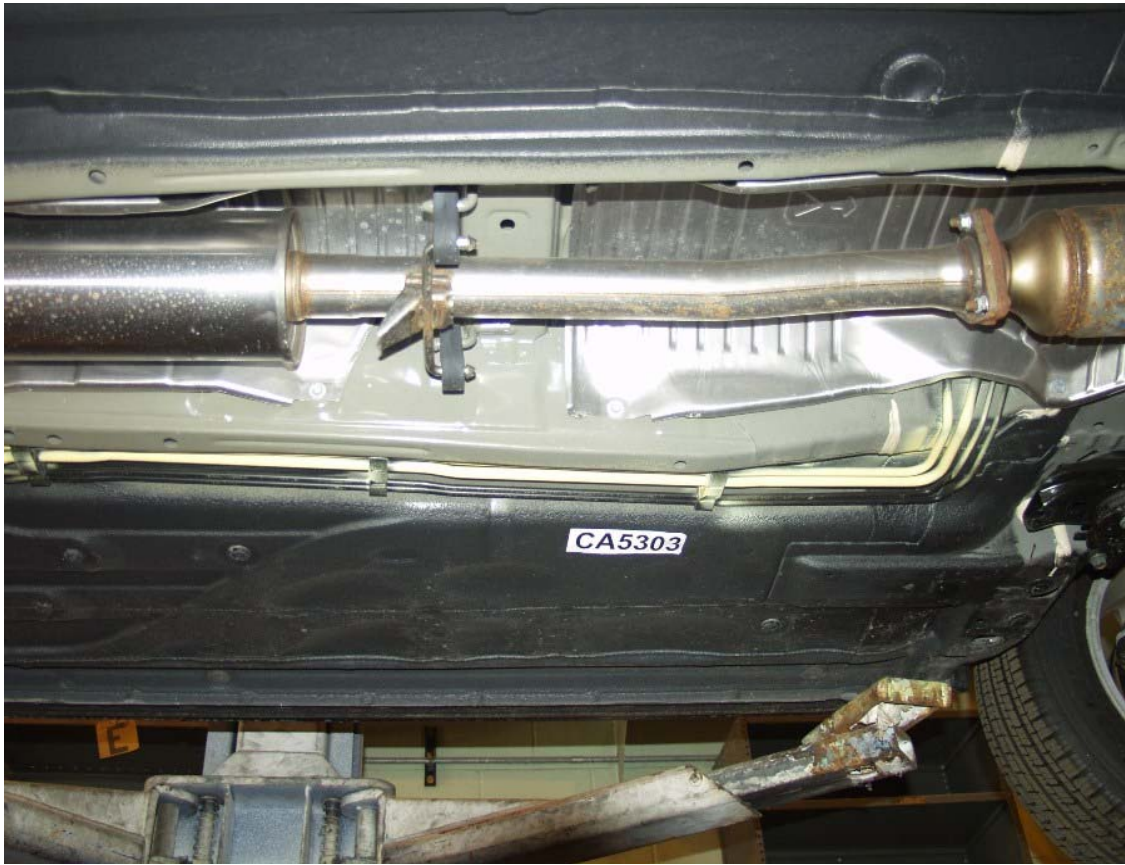


Figure A-31: Pre-Test Mid Underbody View



Figure A-32: Post-Test Mid Underbody View



Figure A-33: Pre-Test Rear Underbody View



Figure A-34: Post-Test Rear Underbody View



Figure A-35: Pre-Test Fuel Filler Cap View



Figure A-36: Post-Test Fuel Filler Cap View



Figure A-37: Impact View



Figure A-38: Rollover 90° View



Figure A-39: Rollover 180° View



Figure A-40: Rollover 270° View



Figure A-41: Rollover 360° View