REPORT NUMBER: CAL-08-20

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

FORD MOTOR COMPANY
2009 FORD ESCAPE
4-DOOR MPV

NHTSA NUMBER: M90204

CALSPAN TEST NUMBER: 8806-NCAP-20

CALSPAN CORPORATION
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July 31, 2008

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Crashworthiness Standards
Mail Code: NVS-111
1200 New Jersey Ave SE, Room W43-410
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TECHNICAL REPORT STANDARD TITLE PAGE

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9. Performing Organization Name and Address Calspan Corporation 4455 Genesee Street Buffalo, New York 14225		*10. Work Unit No.*
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15. Supplementary Notes

16. Abstract

A frontal load cell barrier test of a 2009 Ford Escape 4-Door MPV was performed at Calspan Corporation's crash test facility in Buffalo, New York, on July 31, 2008.

The impact velocity was 56.12 kph and the temperature at the barrier face was 22°C. The maximum post-test vehicle crush was 546 mm. The test vehicle was equipped with 3-point restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions.

With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements. The occupant injury criteria summary is as follows:

Measurement Description	**Units**	**Threshold**	**Driver (1047)**	**Passenger (1046)**
Head Injury Criteria (HIC - 36 ms)	-	1000	361.3	446.7
Maximum Thorax Acceleration (3 ms Clip)	g's	60 g's	42.9	42.2
Chest Displacement	mm	-76 mm	-35.9	-36.3
Left Femur Force	Newtons	-10000 N	-2971.7	-4054.5
Right Femur Force	Newtons	-10000 N	-4387.4	-3005.6

17. Key Words 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)	*18. Distribution Statement* Copies of this report are available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 1200 New Jersey Ave SE Washington, DC 20590

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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 56.12 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-06-D-00024. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.12 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 56.12 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) New Car Assessment Program (NCAP) Laboratory Indicant Test Procedure, dated December 1999. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion (Partial)"; and FMVSS 301 "Fuel System Integrity" performance. Procedures for receiving, inspection testing and reporting of test results are described in the test procedures and are not repeated in this report.

One real-time camera and 14 high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

Two Part 572E, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with head, chest and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 1047) and the right-front passenger (position 2) ATD (Serial No.1046) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. The 129 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Appendix C contains the dummy calibration data and Appendix D contains the transducer calibration dates.

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

A load cell barrier consisting of 36 load cells was impacted by a 2009 Ford Escape 4-Door MPV at a velocity of 56.12 kph. The test was performed at Calspan on July 31, 2008. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The occupant data is summarized below.

ATD	HIC	T_1	T_2	Clip (g)	T_1	T_2	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)
Driver	361.3	59.2	95.2	42.9	57.0	60.0	-35.9	-2971.7	-4387.4
Passenger	446.7	58.2	94.2	42.2	62.1	66.3	-36.3	-4054.5	-3005.6

The test data can be found on the NHTSA website at www.nhtsa.dot.gov

TEST NOTES	
Data Channel	Anomalies
V1P1 Head CG y Red	Questionable Data 57 - 59 msec
V1P1 Upper Neck Mx	Questionable Data - Did record properly
V1P1 Upper Neck My	Questionable Data - Data Noise
V1P2 Pelvic x	Questionable Data 43 - 120 msec
V1P2 Pelvic y	Questionable Data 66 - 120 msec
V1P2 Pelvic z	Questionable Data 43 - 116 msec
V1 Engine Top #3x	Data invalid after 48 msec
V1 Engine Bottom #4x	Cut wire after 31 msec
V1 Left Caliper #7x	Cut wire after 31 msec

SECTION 2
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
CRASH TEST SUMMARY

Vehicle NHTSA No.: M90204 Test Mode: 56.3 kph Frontal Barrier
Test Date: July 31, 2008 Time: 13:35 Temperature: 22 °C
Vehicle Make/Model/Body Style: 2009 Ford Escape 4-Door MPV
Vehicle Test Weight: 1904.0 kg Impact Velocity: 56.12 kph (55.5 – 57.1 kph)
Vehicle/Barrier Impact Angle: 0 ° Max Static Crush: 546 mm

ATD INFORMATION AND VISIBLE CONTACT POINTS

	DRIVER	PASSENGER
ATD Type:	Part 572E	Part 572E
Restraint System:	Seatbelt, Airbag, Knee Bolster	Seatbelt, Airbag, Knee Bolster
Head Contact:	Face with Left Frontal Airbag Back of head with left front head restraint	Face with Right Frontal Airbag Back of head with right front head restraint
Abdomen Contact:	No Contact	Right Frontal Airbag
Chest Contact:	Left Frontal Airbag	Right Frontal Airbag
Left Knee Contact:	Knee Bolster	Knee Bolster
Right Knee Contact:	Knee Bolster	Knee Bolster

DOOR OPENING, SEAT TRACK AND GLAZING INFORMATION

Description	Driver Side	Passenger Side
Door Lock Status	Unlocked	Unlocked
Front Door Opening	Closed/Operable without tools	Closed/Operable without tools
Rear Door Opening	Closed/Operable without tools	Closed/Operable without tools
Hatch/Other Door Opening	Closed/Operable without tools	
Front Seat Track Shift (mm)	0	0
Front Seat Back Failure	None	None
Glazing Damage	None	

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Left Side (mm)	Center (mm)	Right Side (mm)	Average (mm)
Value	563	675	708	649

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	790	790
Lap belt length as measured on ATD	mm	800	800
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems	mm	179	176

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2009 Ford Escape 4-Door MPV

NHTSA No. : M90204 ; VIN: 1FMCU93G89KA03191 ; Color: Black

Engine Data: 6 cylinders; - CID; 3.0 Liters; - cc

Placement: - Longitudinal or In-Line; X Transverse or Lateral

Transmission Data: 6 speeds; - Manual; X Automatic; X Overdrive

Final Drive: - Rear Wheel Drive; - Front Wheel Drive; X Four Wheel Drive

AUTOMATIC DOOR LOCKS:

Is test vehicle equipped with Automatic Door Locks (ADLs)? X Yes; - No; -

Does vehicle owner's manual describe how to deactivate ADLs? X Yes; - No; - N/A

DEALER AND DELIVERY INFORMATION:

Date Received: 7/18/08 ; Odometer Reading 77 km

Selling Dealer: West-Herr Ford, Inc.

Dealer Address: 5025 Camp Road, Hamburg, NY 14075

TEST VEHICLE OPTIONS:

X AC; X Power Steering; X Power Brakes; X Power Locks; X Power Seats

X ABS; X Tilt Wheel; X Stability Control - Traction Control X Anti-Theft

SAFETY BELT FEATURES:

Driver: X Pretensioner (Shoulder); X Load Limiter; X Adjustable Anchorage

Passenger: X Pretensioner (Shoulder); X Load Limiter; X Adjustable Anchorage

AIRBAG FEATURES:

Position	Frontal	Knee Bolster	Side Torso	Side Head/Torso Combination	Side Curtain
Driver:	X	-	X	-	X
Passenger:	X	-	X	-	X
Rear Passenger:	-	-	-	-	X

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Ford Motor Company

Date of Manufacture 6/08

GVWR: 2123 kg; GAWR: 1107 kg FRONT; 1061 kg REAR

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) = 457.0 kg

No. of Occupants x 68.04 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 116.8 kg

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

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

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	508.0	465.0	59.3	973.0
Rear =	331.0	336.0	40.7	667.0
			Total Delivered Weight (UDW) =	1640.0

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW)	=	1640.0	kg
Rated Cargo/Luggage Weight (RCLW)	=	116.8	kg
Weight of 2 p.572 Dummies @ 76 each	=	152	kg
TARGET TEST WEIGHT	=	1908.8	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 112.0 KG OF CARGO WEIGHT:

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	530.0	502.0	54.2	1032.0
Rear =	443.0	429.0	45.8	872.0
			Total Vehicle Test Weight (ATW) =	1904.0

Weight of Ballast Secured in Vehicle Trunk Area[1] = 60 kg

Vehicle Components Removed for Weight Reduction: None

VEHICLE ATTITUDE (all dimension in millimeters):

	Left Front	Right Front	Left Rear	Right Rear	CG[2]
AS DELIVERED:	817	829	869	869	1066.0
FULLY LOADED:	805	818	838	838	-
AS TESTED:	810	820	838	839	1200.4

Vehicle's Wheel Base: 2621 mm

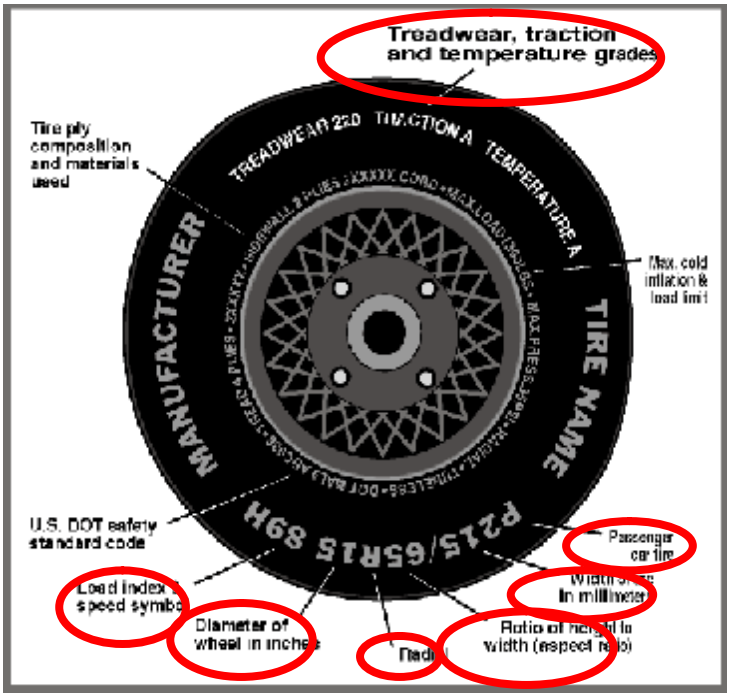
[1]Ballast weight does not include the weight of instrumentation, on-board cameras and data acquisition system

[2]Rearward of the front axle centerline.

DATA SHEET NO. 3
TEST VEHICLE TIRE INFORMATION

Vehicle Year/Make/Model/Body Style: 2009 Ford Escape 4-Door MPV

NHTSA Test No.: M90204 Test Date: July 31, 2008



Measured Parameter	Front	Rear
Maximum Tire Pressure (from sidewall - kPa)	300	300
Cold Pressure (from tire placard - kPa)*	220	220
Recommended Tire Size (from tire placard)	P235/70R16	P235/70R16
Tire size on Vehicle	P235/70R16 104T	P235/70R16 104T
Tire Manufacturer	Michelin	Michelin
Tire Name	Latitude	Latitude
Tire Type	Passenger	Passenger
Tire Width (mm)	235	235
Ratio of Height to Width (aspect ratio)	70	70
Radial	Yes	Yes
Wheel Diameter	16	16
Load Index & Speed Symbol	104T	104T
Treadwear	720	720
Traction Grade	A	A
Temperature Grade	B	B

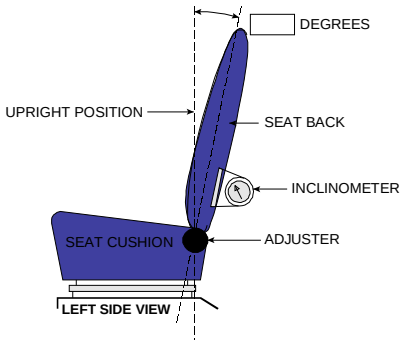
*Tire pressure used for test

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2009 Vehicle Model: Ford Escape Body Style : 4-Door MPV

1. 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.



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat: 17.5 degrees

Measurement instructions: Seat back was placed 9.4 degrees rearward of the forward-most locking position (Forward-most locking position = 8.1 deg)

Seat back angle for passenger's seat: 17.5 degrees

Measurement instructions: Seat back was placed 9.4 degrees rearward of the forward-most locking position (Forward-most locking position = 8.1 deg)

2. SEAT FORE AND AFT POSITIONING:

Positioning of the driver's seat: Seat was placed in the mid travel position (Total longitudinal travel = 288 mm; Seat placed 144 mm rearward of forward most longitudinal position of seat cushion)

Positioning of the passenger's seat: Seat placed in the mid-position (Total number of detents = 25; Seat placed in 13th detent)

3. FUEL TANK CAPACITY DATA:

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 62.46 liters

B. "Usable Capacity" of the optional equipment fuel tank is - liters

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 57.5 to 58.7 liters

3.2 Actual Amount of Stoddard solvent added to vehicle for test = 57.9 liters

3.3 One-Third of Useable Capacity = 20.8 liters

3.4 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.

The electric fuel pump operates for 2 seconds to pressurize the fuel system following actuation of the ignition. The fuel pump operates continuously while the engine is running. If the engine stalls the fuel pump is deactivated.

DATA SHEET NO. 4
TEST VEHICLE INFORMATION (cont.)

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: Steering column was placed in mid-position (24.7 degrees).

5. SEAT BELT UPPER ANCHORAGE:

Nominal design riding position: Adjustable seat belt anchorage was placed 80 millimeters from the uppermost position (4 total detents – placed in lowest adjustment position)

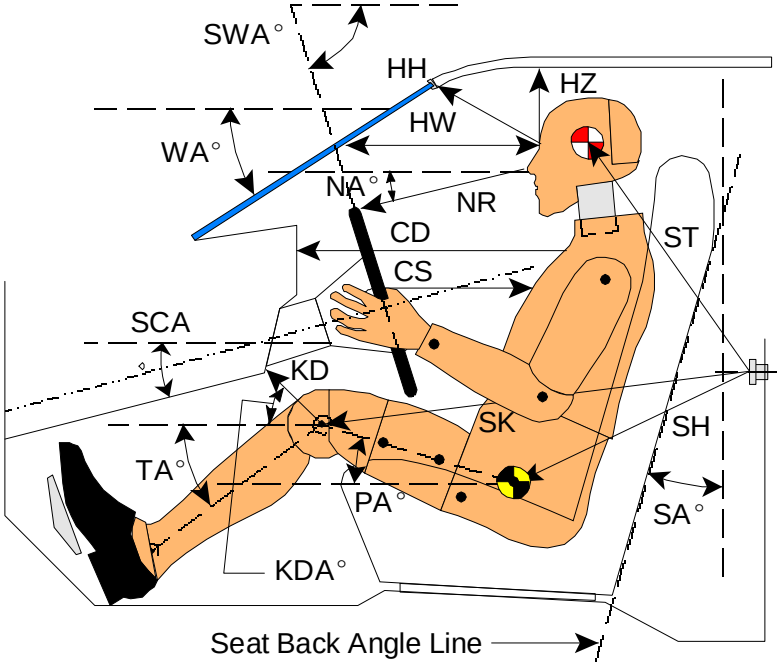
6. AUTOMATIC DOOR LOCKS: Is test vehicle equipped with ADLs? X Yes; - No; -

Does vehicle owner's manual describe how to deactivate ADLs? X Yes; - No; - N/A

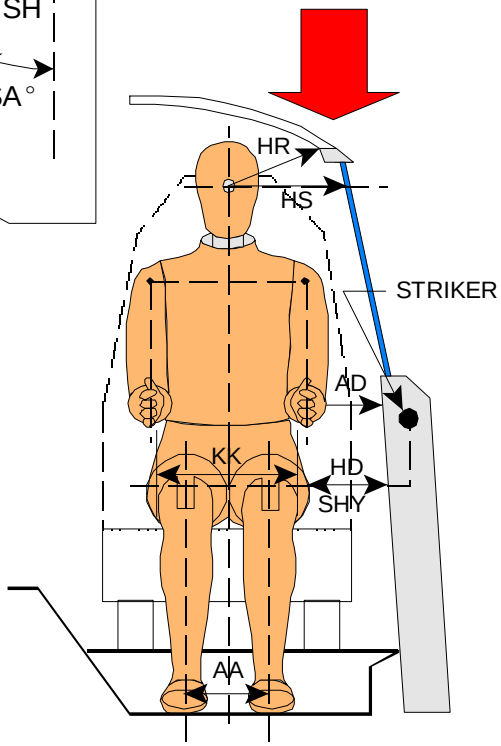
Comments: None

DATA SHEET NO. 5
FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

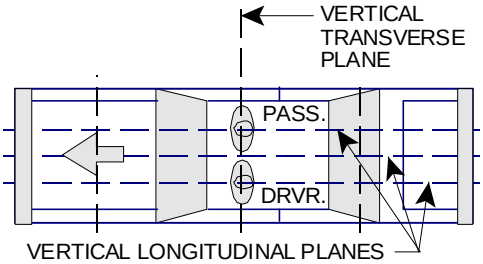
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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



CD - Chest to Dash
CS - Steering Wheel to Chest
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



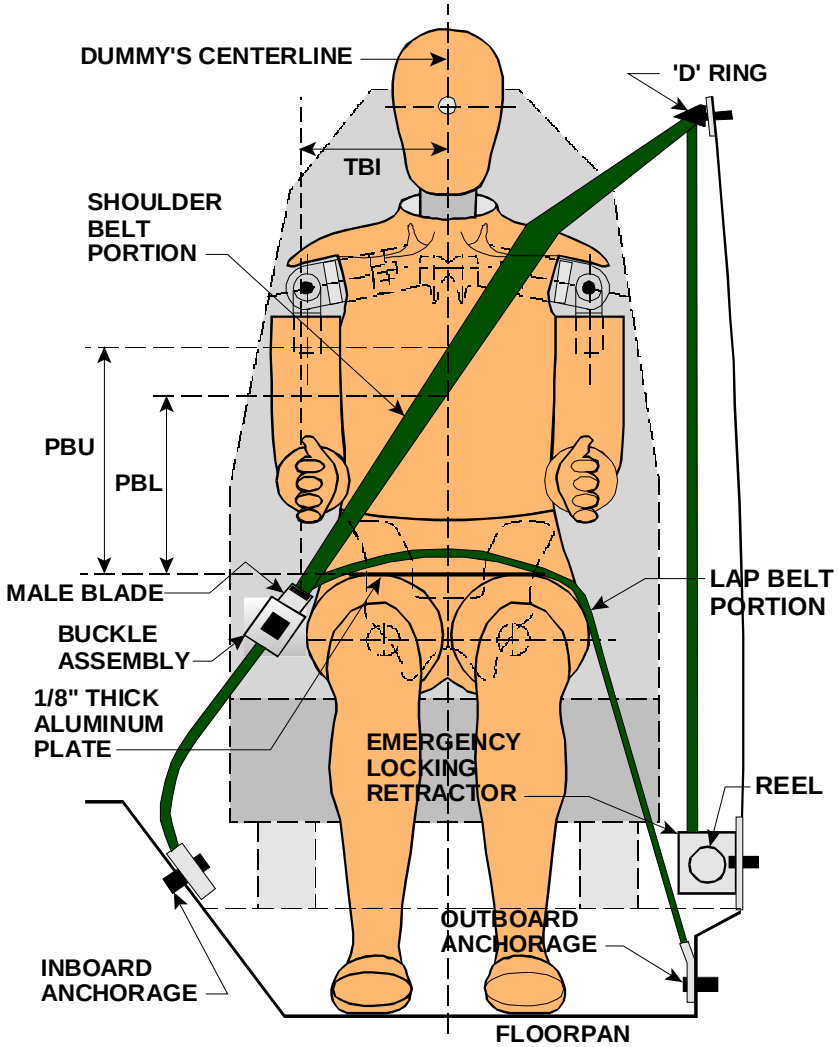
DATA SHEET NO. 5
FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #1047)			PASS. (Serial #1046)		
WA^O	35.7 deg.			N/A		
SWA^O	65.5 deg.			N/A		
SCA^O	24.5 deg.			N/A		
SA^O	17.5 deg.			17.5 deg.		
HZ	215			205		
HH	365			381		
HW	592			596		
HR	235			225		
NR	381	Angle	10.5 deg.	N/A		
CD	511			574		
CS	302			N/A		
RA	186			N/A		
KDL	125	Angle (KDA)	31 deg.	115		
KDR	115			115	Angle (KDA)	29 deg.
PA^O	21.9 deg.			23.7 deg.		
TA^O	45.4 deg.			45.1 deg.		
KK	350			270		
AA	365			210		
ST	510	Angle	15 deg.	516	Angle	15 deg.
SK	620	Angle	97 deg.	640	Angle	98 deg.
SH	252	Angle	127 deg.	261	Angle	125 deg.
SHY	226			234		
HS	331			337		
HD	122			139		
AD	104			109		

Dimensions in millimeters

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

SEAT BELT POSITIONING DATA

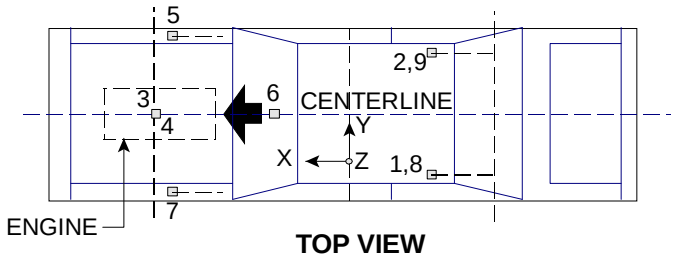


FRONT VIEW OF DUMMY

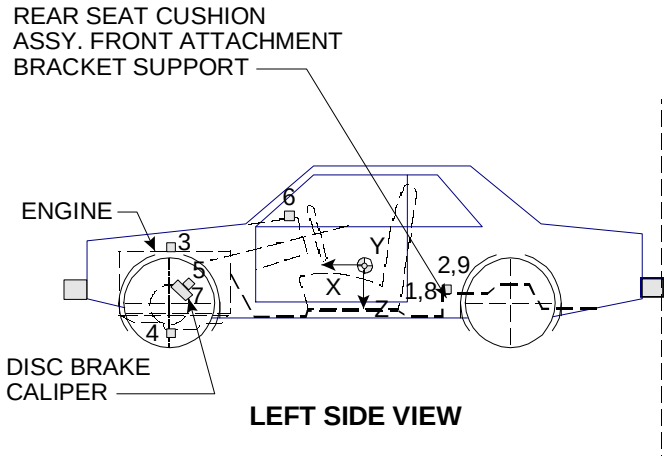
	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	317	320
PBL-- Top surface of alum. plate to belt lower edge	237	236
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATIONS

VEHICLE ACCELEROMETER LOCATIONS



TOP VIEW



LEFT SIDE VIEW

		PRE-TEST LENGTH (mm)		
No.	LOCATION	X	Y	Z
1	Left Rear Seat Cross Member X	1778	-605	443
2	Right Rear Seat Cross Member X	1766	598	443
3	Top of Engine Block	3795	385	761
4	Bottom of Engine	4216	210	239
5	Disc Brake Caliper @ Right Side	3549	639	519
6	Instrument Panel**	-	-	-
7	Disc Brake Caliper @Left Side	3549	-720	496
8	Left Rear Seat Cross Member Z	1778	-605	443
9	Right Rear Seat Cross Member Z	1766	598	443

X – From rear surface of vehicle (+ forward)
Y – From vehicle centerline (+ right)
Z – From ground plane (+ up)
** Accelerometer was not requested by the COTR

DATA SHEET NO.8
SUMMARY OF FMVSS 212 and FMVSS 219 (Partial) DATA

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

Windshield is bonded in place and covered with a 16 mm molding.

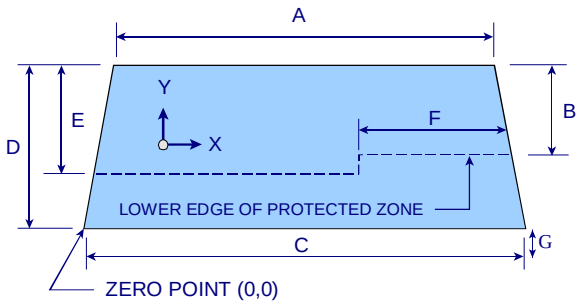
FMVSS 212 REQUIREMENTS:

The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of the windshield for vehicles equipped with automatic restraint systems for front occupants,

Temperature of windshield molding during test: 22ºC.

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST (mm)	
RIGHT SIDE	2062.5	2062.5	100.0%
LEFT SIDE	2062.5	2062.5	100.0%
TOTAL	4125	4125	100.0%



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1210
B	505
C	1495
D	710
E	510
F	690
G	16

FAILURE DETAILS: None

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

	COORDINATES	
	X	Y
1.	-	-
2.	-	-
3.	-	-
4.	-	-

DATA SHEET NO. 9
SUMMARY OF FMVSS NO. 301 DATA

NHTSA TEST No.: M90204 TEST DATE: July 31, 2008

VEHICLE MAKE/MODEL: 2009 Ford Escape 4-Door MPV

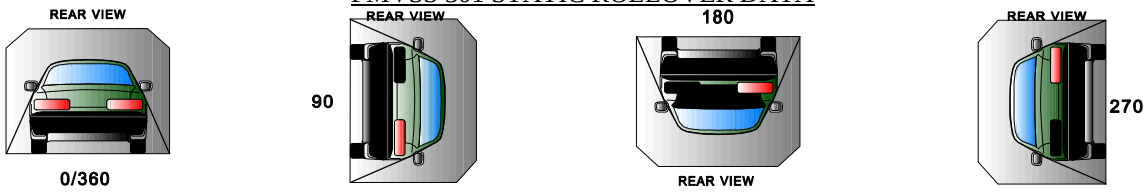
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

FUEL SPILLAGE MEASUREMENT:

Time Interval	Amount	Maximum Allowable Spillage
Impact Until Motion Ceases	0	**28 g**
First Five Minutes Following Impact	0	**142 g**
Next 25 Minutes	0	**28 g / 1 minute**

SOLVENT SPILLAGE DETAILS: None

FMVSS 301 STATIC ROLLOVER DATA



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	
0º - 90º	1	minutes	03	seconds	5	minutes	6	minutes	3	seconds	7	minutes
90º - 180º	1	minutes	08	seconds	5	minutes	6	minutes	8	seconds	7	minutes
180º-270º	1	minutes	00	seconds	5	minutes	6	minutes	0	seconds	7	minutes
270º-360º	1	minutes	12	seconds	5	minutes	6	minutes	12	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:

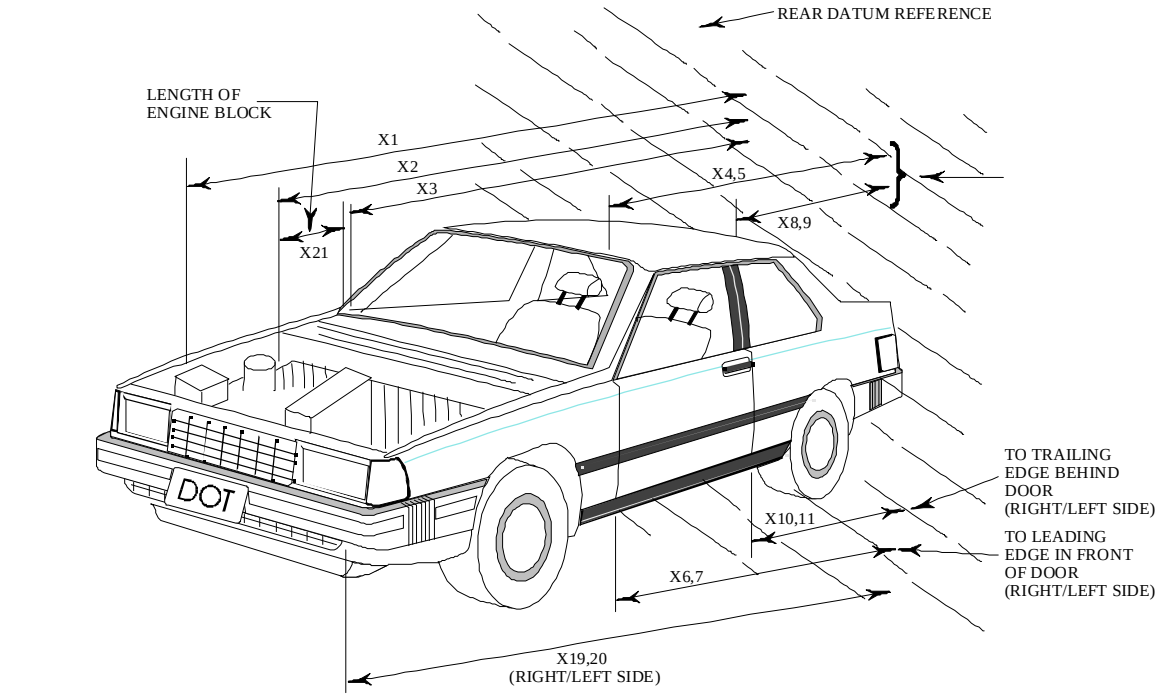
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0º - 90º	0	0	0	N/A
90º - 180º	0	0	0	N/A
180º-270º	0	0	0	N/A
270º-360º	0	0	0	N/A

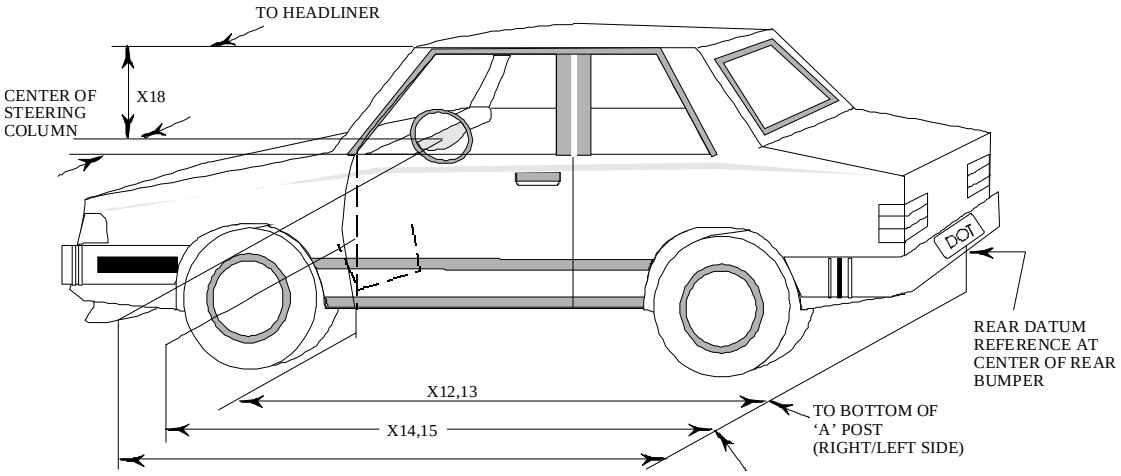
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

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

DATA SHEET NO. 10
TEST VEHICLE MEASUREMENTS





DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

NHTSA TEST No.: M90204 TEST DATE: July 31, 2008

VEHICLE MAKE/MODEL: 2009 Ford Escape 4-Door MPV

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4431	3885	546
X2	Rear Surface of Vehicle to Front of Engine	4068	3748	320
X3	Rear Surface of Vehicle to Firewall	3441	3385	56
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3064	3060	4
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3064	3060	4
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3022	3016	6
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3026	3023	3
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2010	2006	4
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2012	2009	3
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2025	2019	6
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2028	2025	3
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3051	3046	5
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3053	3049	4
X14	Rear Surface of Vehicle to Firewall, Right Side	3481	3365	116
X15	Rear Surface of Vehicle to Firewall, Left Side	3476	3391	85
X16	Rear Surface of Vehicle to Steering Column	2623	2651	-28
X17	Center of Steering Column to "A" Post	283	276	7
X18	Center of Steering Column to Headliner	472	489	-17
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4387	3849	538
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4386	3908	478
X21	Length of Engine Block	547	547	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2813	2823	-10
CD	Rear Surface of Vehicle to Center of Dash Panel	2854	2831	23
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2815	2812	3

All Dimensions in mm

DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

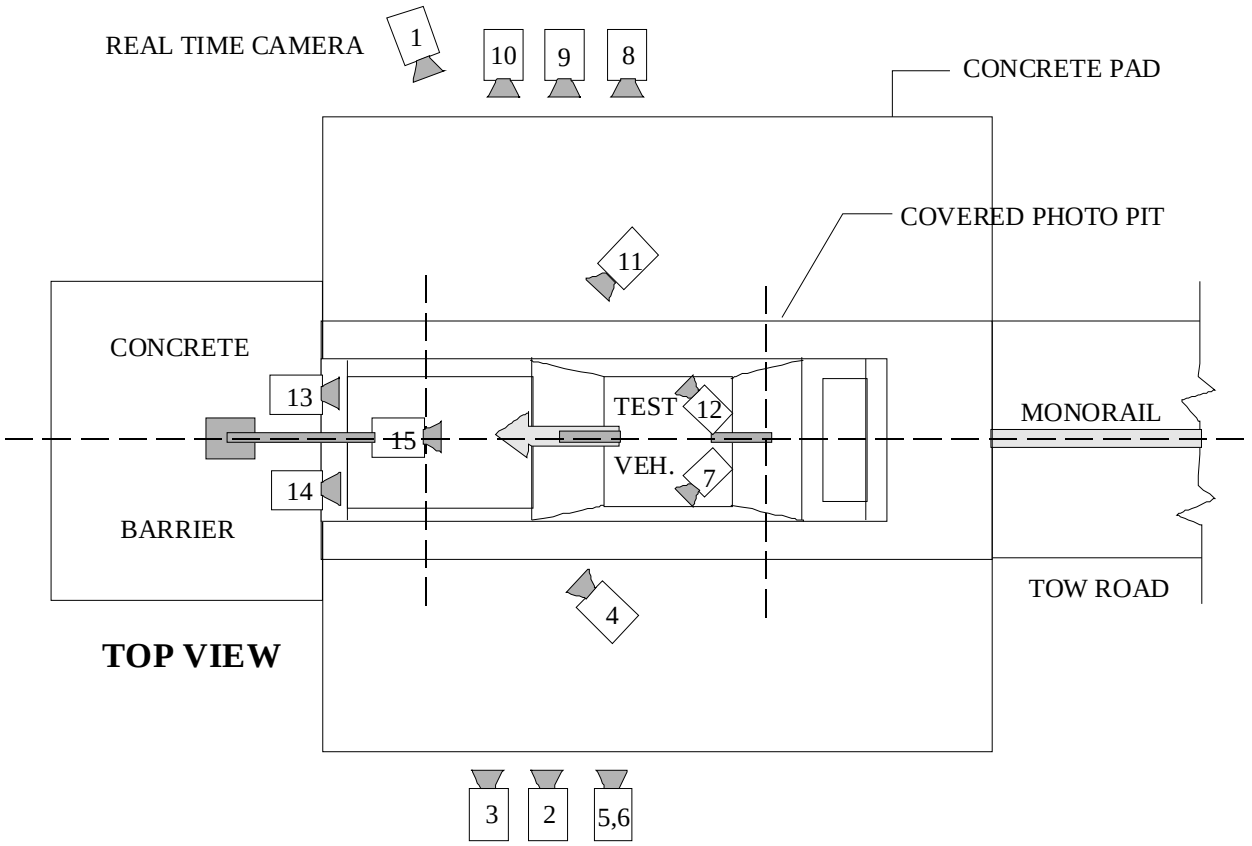
NHTSA TEST No.: M90204 TEST DATE: July 31, 2008

VEHICLE MAKE/MODEL: 2009 Ford Escape 4-Door MPV

TARGET VEHICLE STRUCTURAL MEASUREMENTS

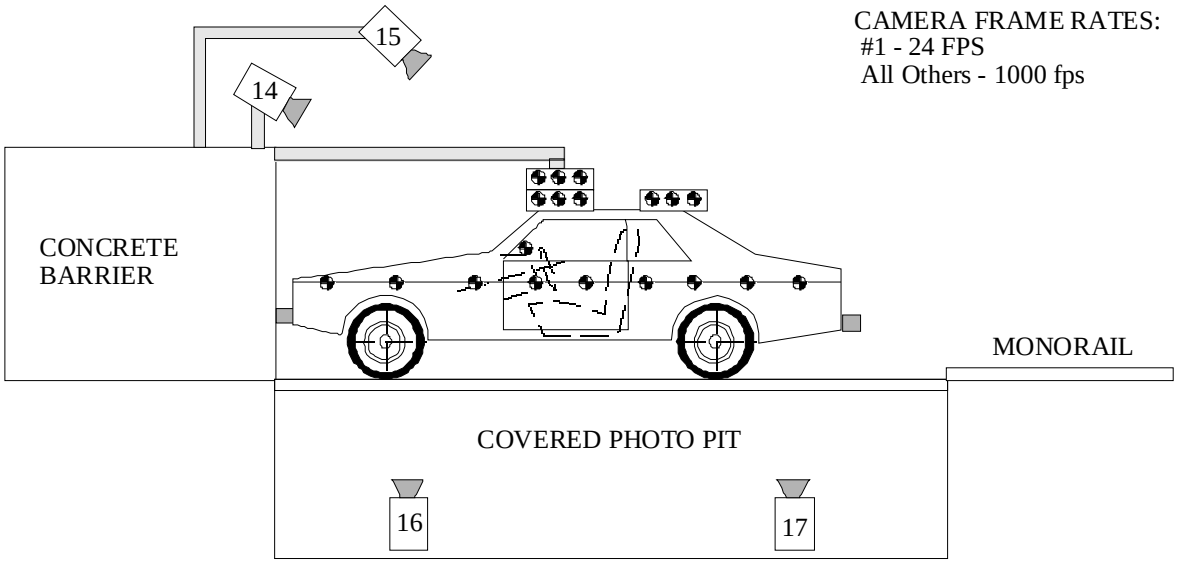
	Elements	Pre-Test (mm)
1	Total length	4431
2	Total Width	1754
3	Bumper Top Height	601
4	Bumper Bottom Height	519
5	Longitudinal Member Top Height	614
6	Distance Between Longitudinal Members	1110
7	Longitudinal Member Width	90
8	Engine top height	1028
9	Engine bottom height	239
10	Engine and gearbox width	421
11	Front bumper-engine distance	4431
12	Front shock absorber fixing height	1010
13	Bonnet leading edge height	931
14	Front shock absorber fixing width	1158
15	Front bumper – front axle distance	859
16	Front axle – A pillar distance	507
17	A-pillar – B pillar distance	1061
18	B-pillar – rear axle distance	1053
19	B-pillar – C Pillar distance	925
20	Roof sill bottom height	1540
21	Roof sill top height	1640
22	Floor sill bottom height	412
23	Floor sill top height	490

DATA SHEET NO.11
HIGH-SPEED CAMERA LOCATIONS



TOP VIEW

CAMERA FRAME RATES:
#1 - 24 FPS
All Others - 1000 fps



LEFT SIDE VIEW

DATA SHEET NO.11
HIGH-SPEED CAMERA LOCATIONS (cont.)

NHTSA Test No.: M90204 Vehicle: 2009 Ford Escape 4-Door MPV

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)* X	Y	Z	ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	30
2	Overall Left Side	6906	1625	920	-2	6548	24	1000
3	Left Side View	9040	955	940	-6	8682	50	1000
4	Driver and Interior View	4422	3035	2030	-20	-	25	500
5	Steering Column (Bottom)	7810	1955	1200	-6	7452	28-70	1000
6	Steering Column (Top)	7810	1955	1800	-10	7452	24-70	1000
7	Left CRS Lateral View	-	-	-	-	-	-	-
8	Overall Right Side	6826	1815	920	0	6468	24	500
9	Right Side View	9249	1175	910	0	8891	50	1000
10	Right Passenger View	8120	1635	1150	-2	7762	50	1000
11	Passenger and Interior View	7106	2675	2000	-10	-	50	500
12	Right CRS Lateral View	-	-	-	-	-	-	-
13	Passenger Front View	620	-92	1987	-39	-	24	500
14	Driver Front View	620	-92	1987	-39	-	24	500
15	Windshield View	0	-530	3374	-47	-	25	500
16	Pit View of Engine	0	615	-3048	90	-	12.5	500
17	Pit View of Fuel Tank	0	2346	-3048	90	-	12.5	500

*X = film plane to monorail centerline ** = referenced to horizontal plane

Y = film plane to impact location N.T. indicates No Timing

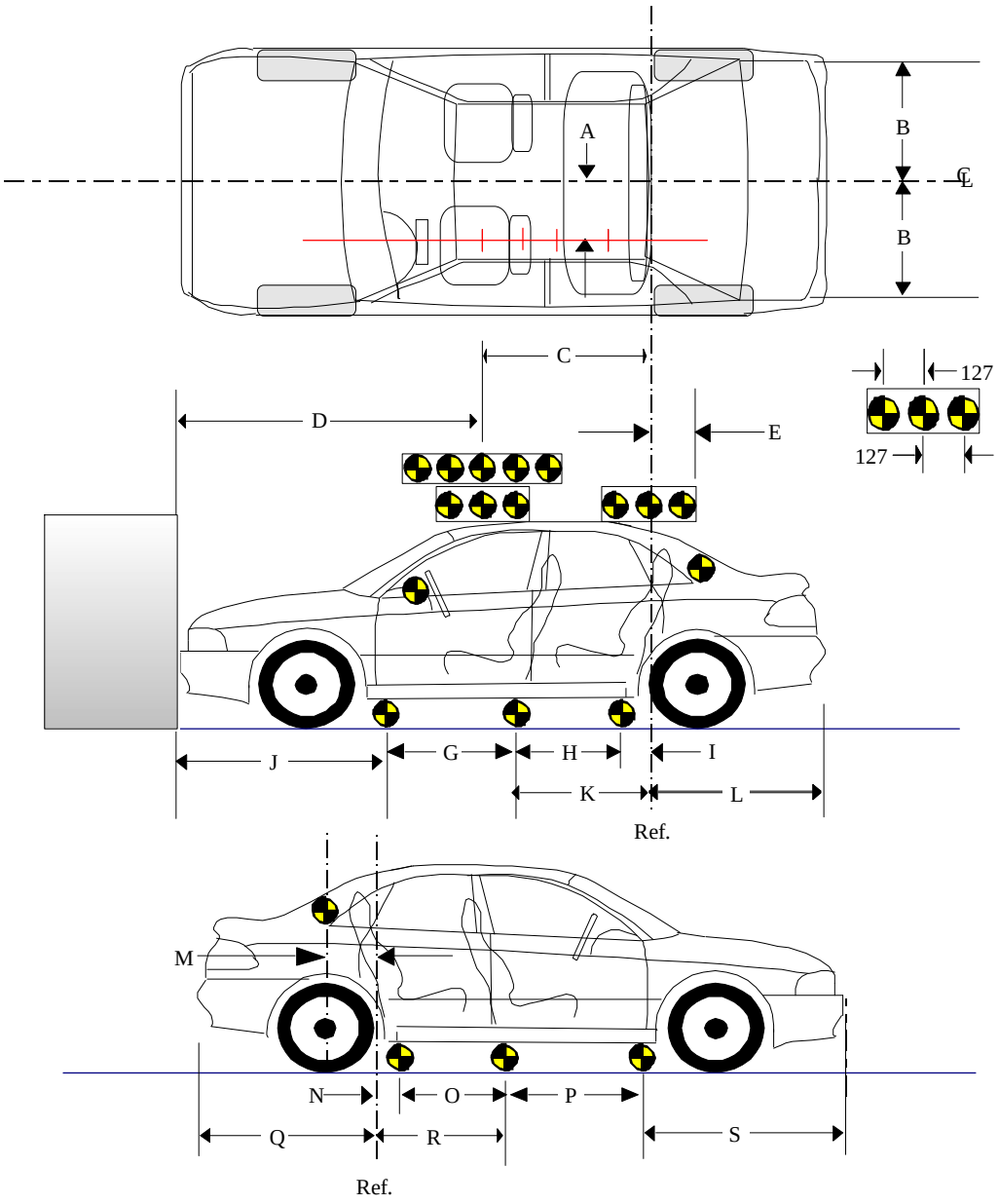
Z = film plane to ground

DATA SHEET NO. 12
VEHICLE REFERENCE PHOTO TARGET LOCATIONS

NHTSA Test No.: M90204 Vehicle: 2009 Ford Escape 4-Door MPV

(Dimensions in millimeters)

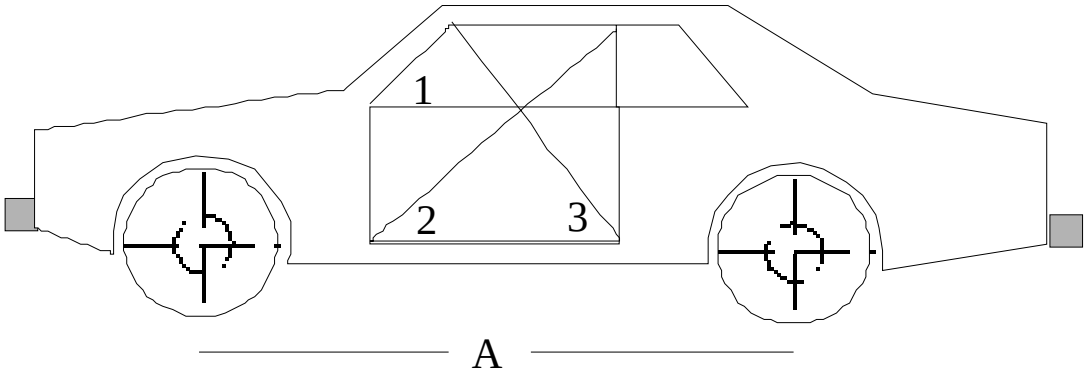
A	282
B	786
C	1221
D	2010
E	119
F	1576
G	823
H	826
I	116
J	1345
K	942
L	1320
M	118
N	113
O	828
P	821
Q	1322
R	941
S	1346



DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS

NHTSA Test No.: M90204 Vehicle: 2009 Ford Escape 4-Door MPV

DOOR OPENING WIDTH AND WHEELBASE MEASUREMENTS



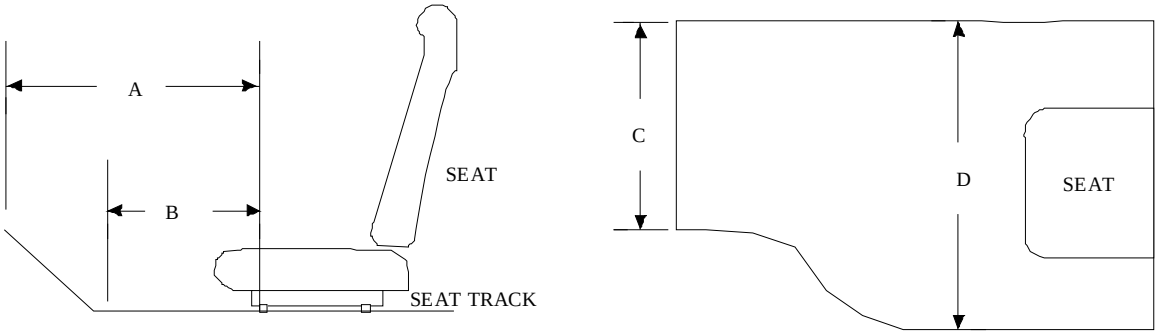
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	957	1436	1086	957	1436	1089
AFTER TEST	954	1437	1087	952	1436	1096
DIFFERENCE	3	-1	-1	5	0	-7

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2621	2620
AFTER TEST	2612	2576
DIFFERENCE	9	44

DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont)

NHTSA Test No.: M90204 Vehicle: 2009 Ford Escape 4-Door MPV

STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	685	639	46
B	493	488	5
C	483	489	-6
D	524	529	-5

PASSENGER

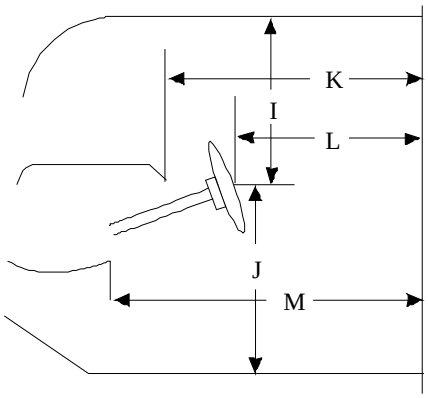
Measurement	Pre-Test	Post-Test	Difference
A	673	590	83
B	483	480	3
C	481	487	-6
D	541	536	5

Units = mm

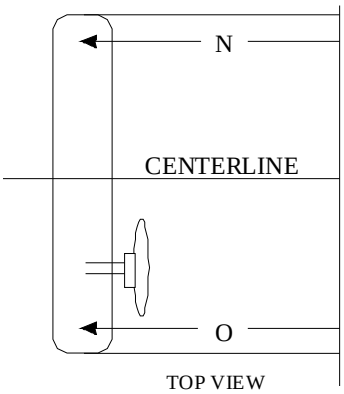
DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont.)

NHTSA Test No.: M90204 Vehicle: 2009 Ford Escape 4-Door MPV

STATIC PASSENGER COMPARTMENT INTRUSION

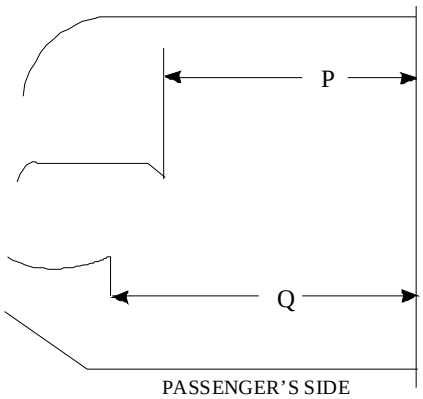


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



PASSENGER'S SIDE

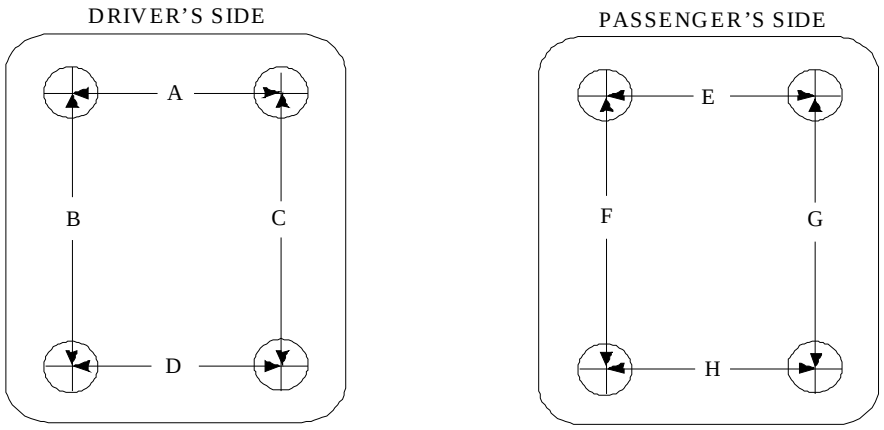
Measurement	Pre-Test	Post-Test	Difference
I	472	489	-17
J	665	666	-1
K	752	737	15
L	558	586	-28
M	802	813	-11
N	750	760	-10
O	750	747	3
P = K (PASS.)	784	758	26
Q = M (PASS.)	783	776	7

Units = mm

DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont.)

NHTSA Test No.: M90204 Vehicle: 2009 Ford Escape 4-Door MPV

FLOORBOARD DEFORMATION



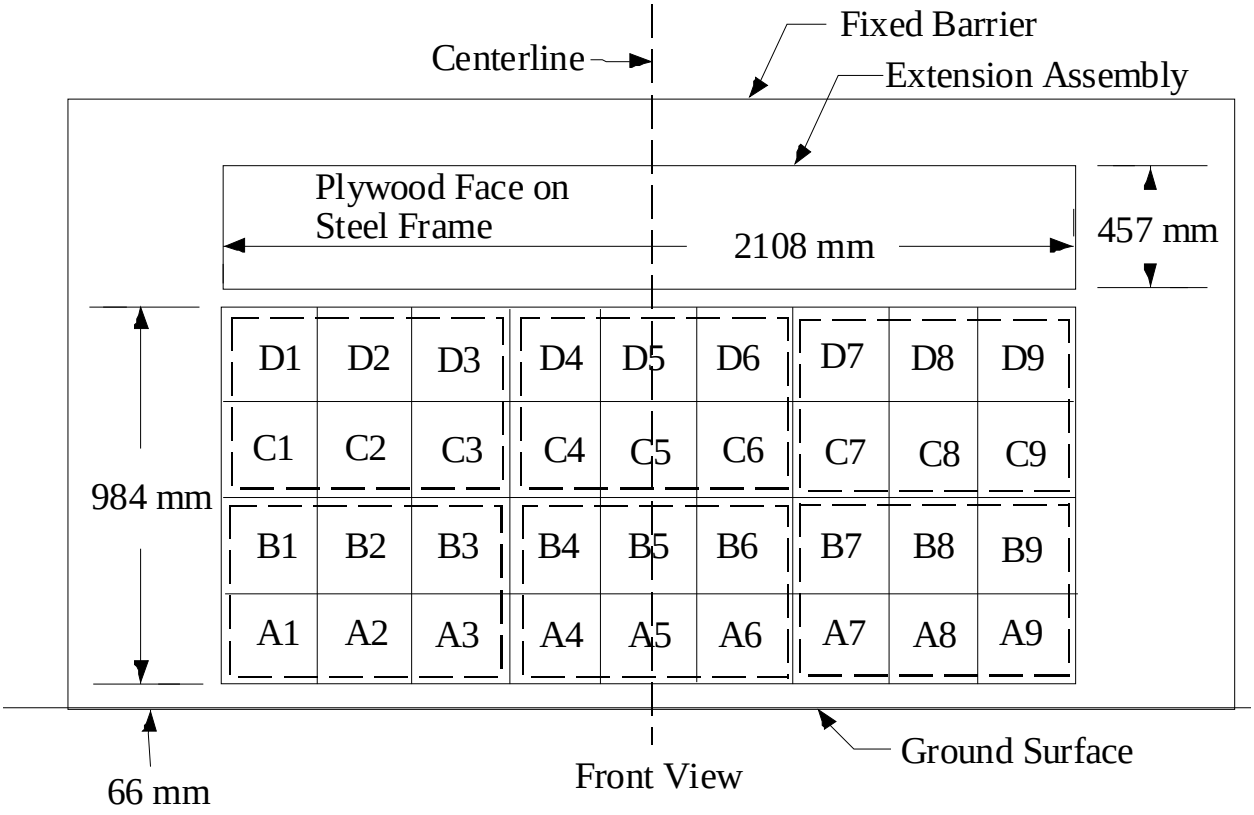
TOP VIEW THROUGH FLOOR PAN

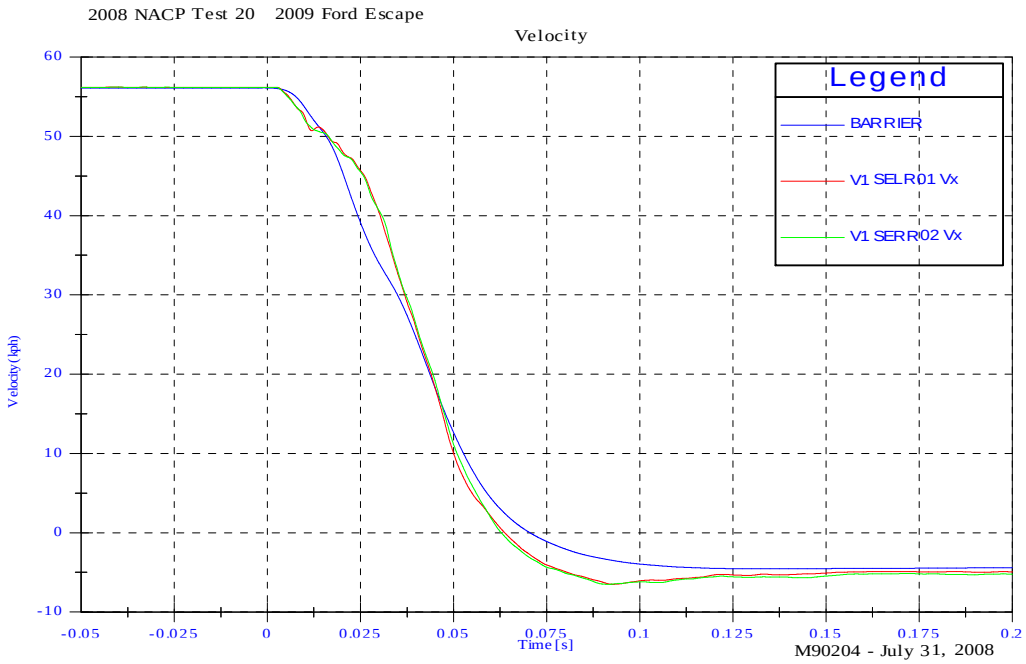
Measurement	Pre-Test	Post-Test	Difference
A	483	489	-6
B	283	284	-1
C	264	261	3
D	524	529	-5
E	481	487	-6
F	303	301	2
G	261	248	13
H	541	536	5

Units = mm

DATA SHEET NO.14
LOAD CELL LOCATIONS ON FIXED BARRIER

36 Load Cells
4 Rows
9 Columns





DATA SHEET NO. 15
ACCIDENT INVESTIGATION DIVISION DATA

FOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Ford Escape 4-Door MPV

NHTSA Test No.: M90204 VIN: 1FMCU93G89KA03191

Model Year: 2009 Build Date: 6/08 Test Date: July 31, 2008

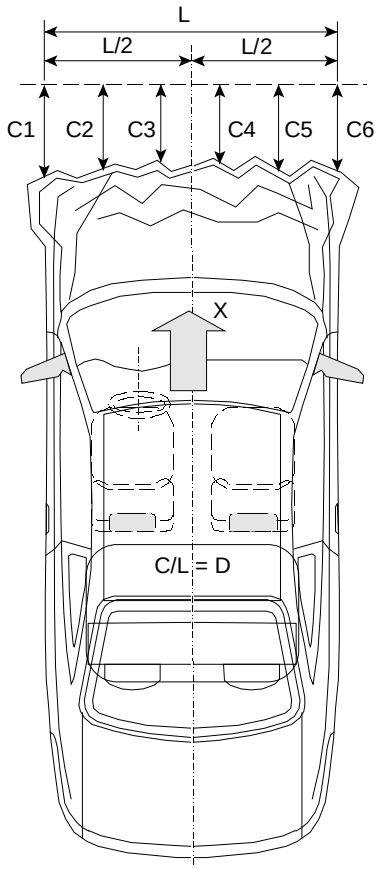
Vehicle Size Category: Sedan Test Weight: 1904.0 kg

Vehicle Wheelbase: 2621 mm; Front Overhang: 858 mm; Overall Width: 1754 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	4365	3928	437
C2 =	4410	3883	527
C3 =	4428	3888	540
C4 =	4428	3894	534
C5 =	4411	3881	530
C6 =	4367	3884	483



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

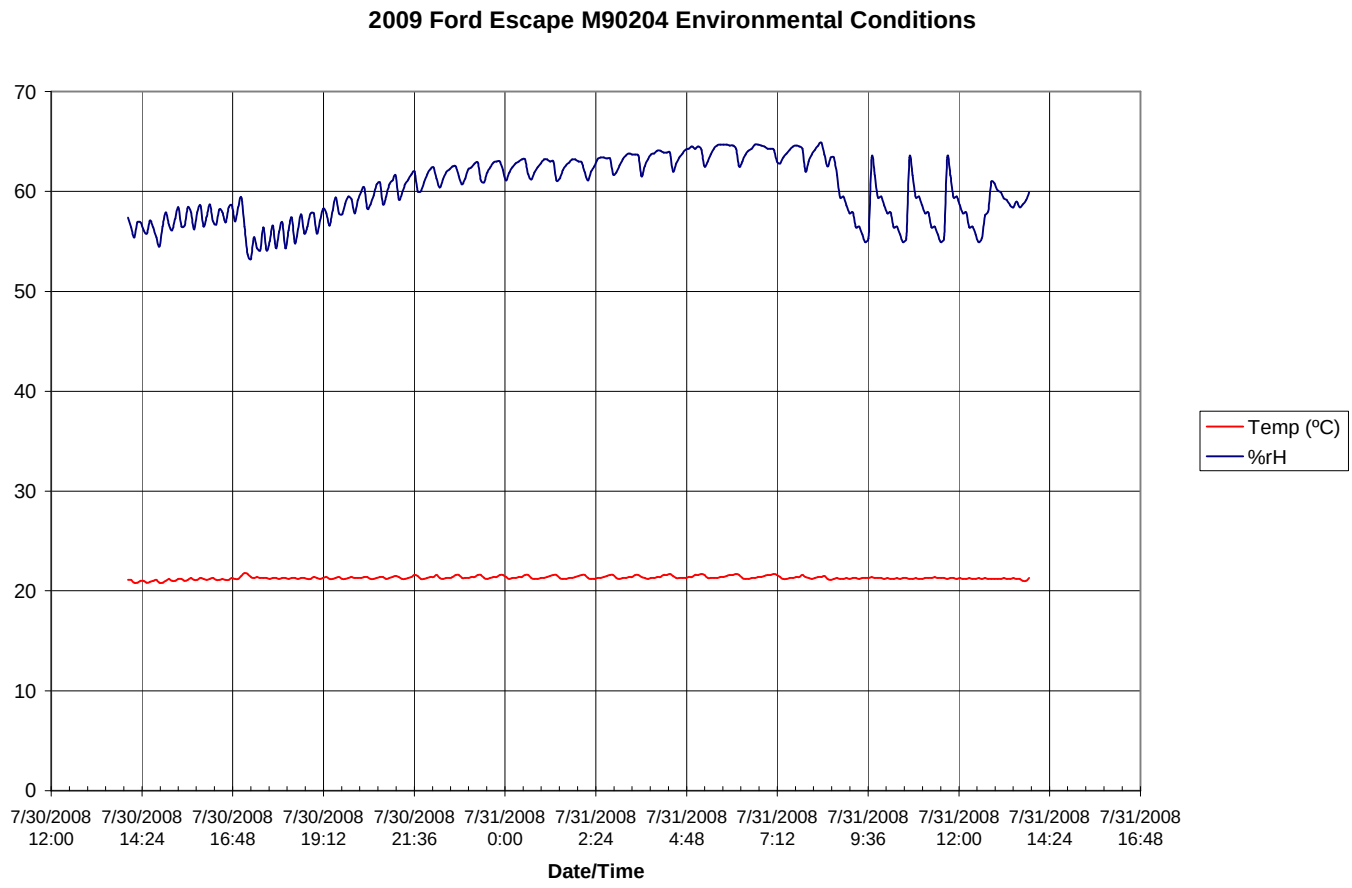
Length of Damaged Region: L1= 1160 mm

L2= 580.0 mm

L5= 232 mm

DATA SHEET NO.16
VEHICLE AND DUMMY TEMPERATURE STABILIZATION CHART

NHTSA Test No.: M90204 Vehicle: 2009 Ford Escape 4-Door MPV



APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS (CONTINUED)

Photo Not Available

Figure A-1: Load Cell Locations

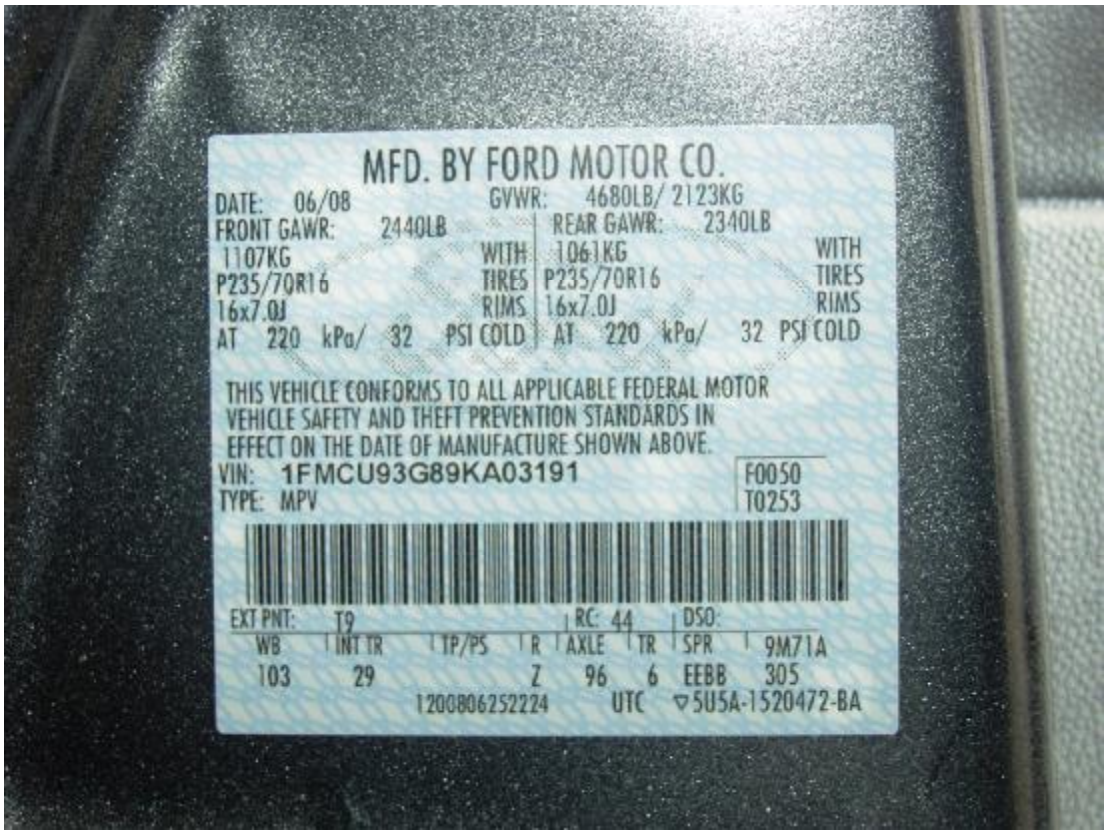


Figure A-2: Vehicle Certification Placard

Figure A-3: Vehicle Tire Placard

Figure A-4: Right Front, As Received

Figure A-5: Left Rear, As Received

Figure A-6: Pre-Test Front View

Figure A-7: Post-Test Front View

Figure A-8: Pre-Test Left Side View

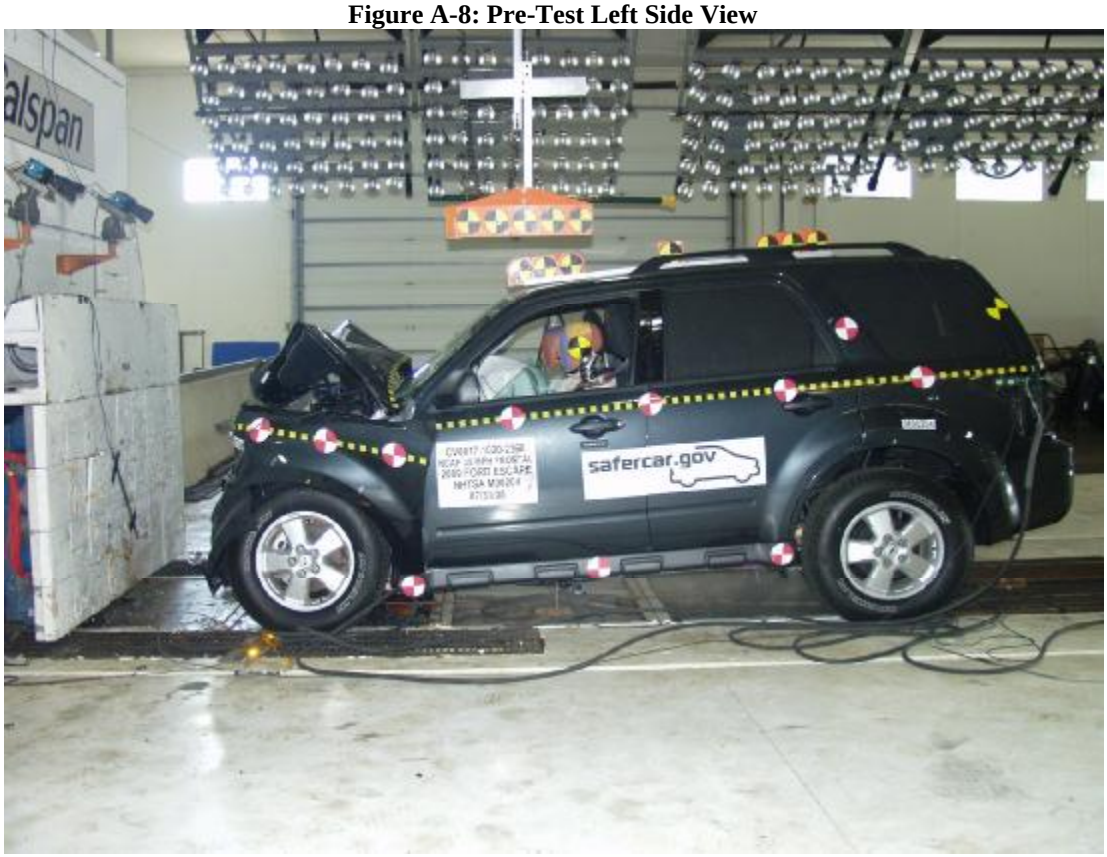


Figure A-9: Post-Test Left Side View

Figure A-10: Pre-Test Right Side View

Figure A-11: Post-Test Right Side View

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

Figure A-13: Post-Test Right Front Three-Quarter View

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

Figure A-15: Post-Test Left Rear Three-Quarter View

Figure A-16: Left Rear Three-Quarter View of Doors After Impact

Figure A-17: Right Rear Three-Quarter View of Doors After Impact

Figure A-18: Pre-Test Windshield View

Figure A-19: Post-Test Windshield View

Figure A-20: Pre-Test Engine Compartment View

Figure A-21: Post-Test Engine Compartment View

Figure A-22: Pre-Test Fuel Cap View

Figure A-23: Post-Test Fuel Cap View

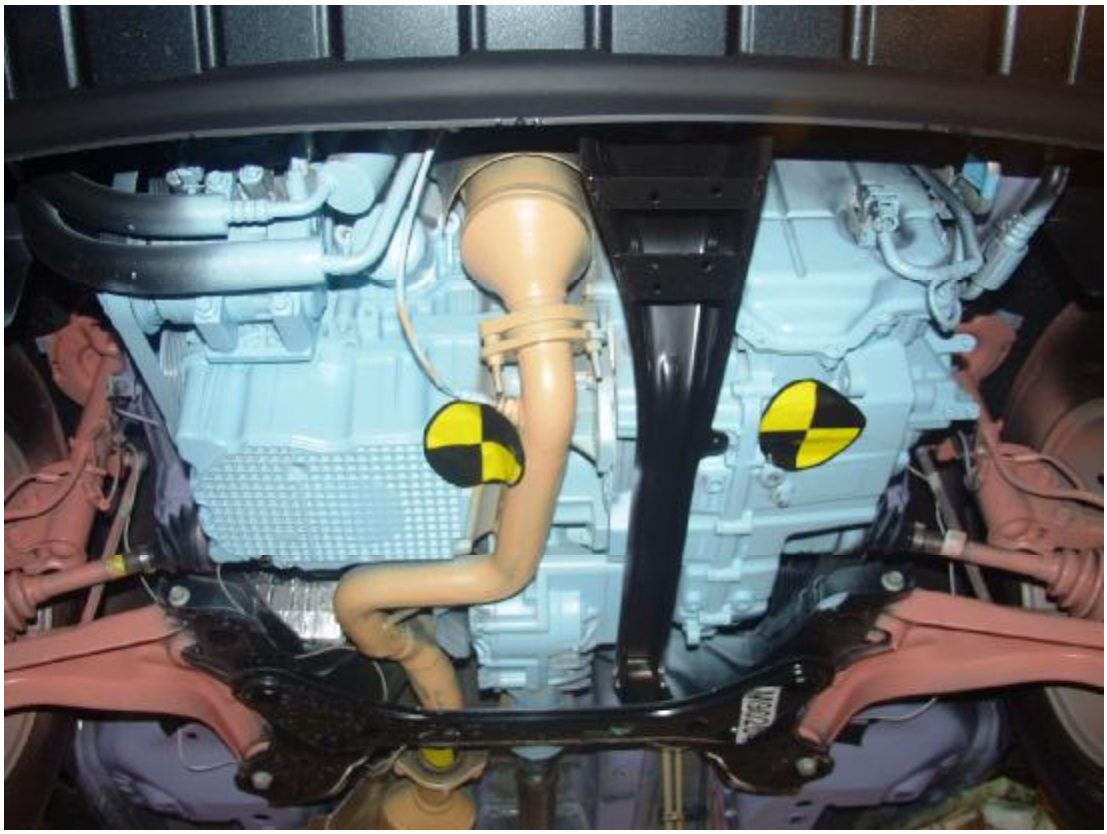


Figure A-24: Pre-Test Front Underbody View

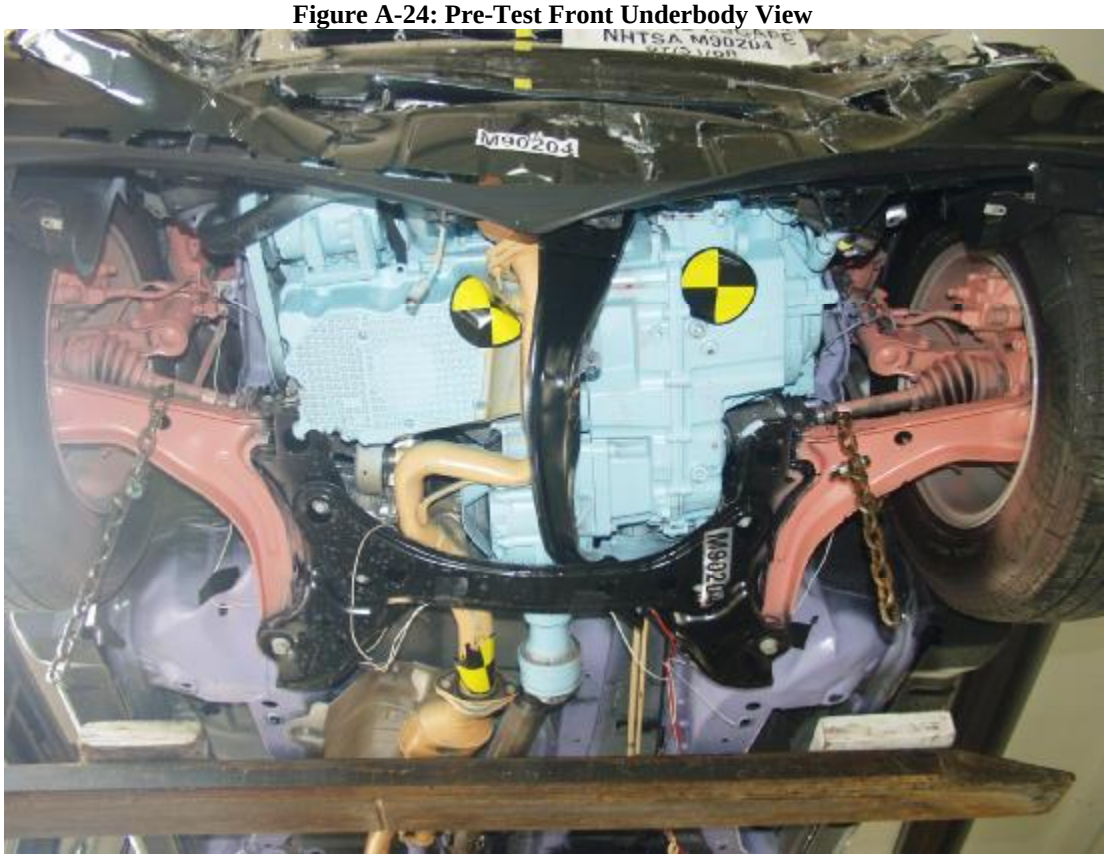


Figure A-25: Post-Test Front Underbody View

Figure A-26: Pre-Test Mid Underbody View

Figure A-27: Post-Test Mid Underbody View

Figure A-28: Pre-Test Rear Underbody View

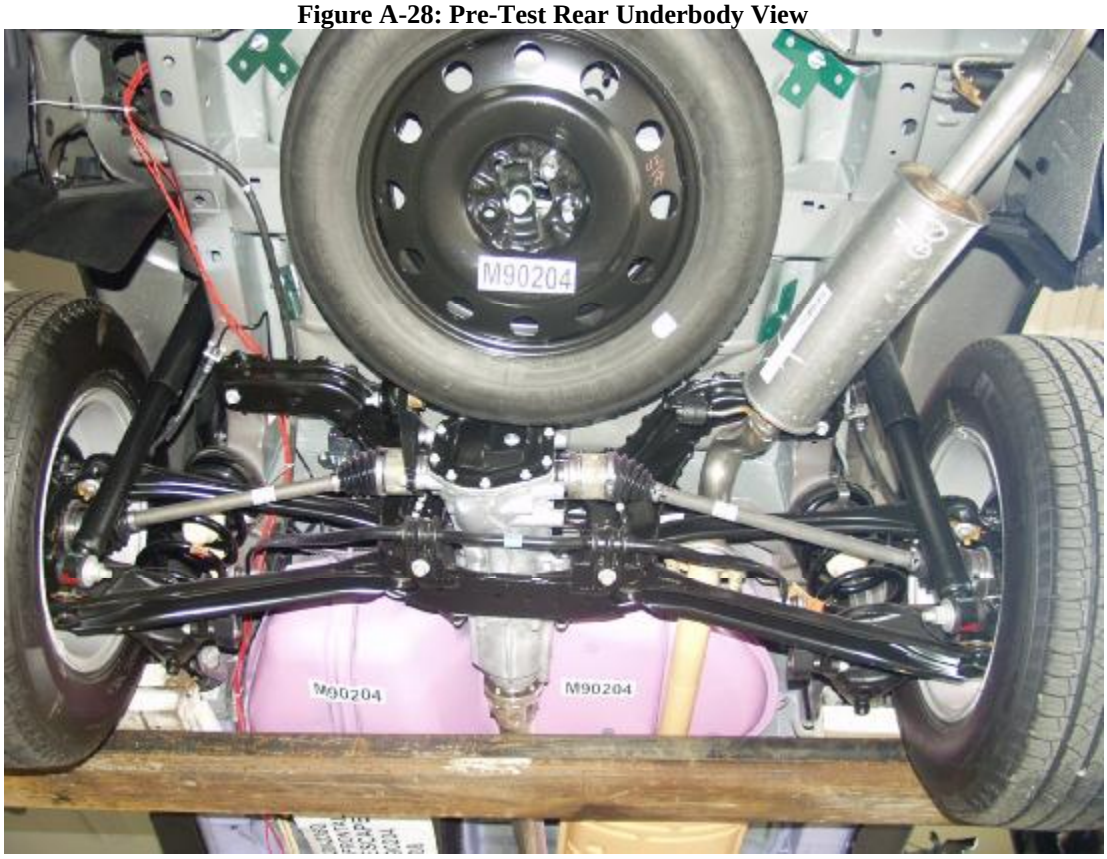


Figure A-29: Post-Test Rear Underbody View

Figure A-30: Pre-Test Driver Head Location

Figure A-31: Post-Test Driver Head Location

Figure A-32: Pre-Test Driver Position View

Figure A-33: Post-Test Driver Position View

Figure A-34: Pre-Test Driver and Interior View

Figure A-35: Post-Test Driver and Interior View

Figure A-36: Pre-Test Driver Feet View

Figure A-37: Post-Test Driver Feet View

Figure A-38: Pre-Test Driver Knee Bolster View

Figure A-39: Post-Test Driver Knee Bolster View

Figure A-40: Pre-Test Driver Floor Pan View

Figure A-41: Post-Test Driver Floor Pan View

Photo Not Available

Figure A-42: Post-Test Driver Head View

Figure A-43: Post-Test Driver Contact to Airbag

Figure A-44: Pre-Test Passenger Head Location

Figure A-45: Post-Test Passenger Head Location

Figure A-46: Pre-Test Passenger Position View

Figure A-47: Post-Test Passenger Position View

Figure A-48: Pre-Test Passenger and Interior View

Figure A-49: Post-Test Passenger and Interior View

Figure A-50: Pre-Test Passenger Feet View

Figure A-51: Post-Test Passenger Feet View

Figure A-52: Pre-Test Passenger Knee Bolster View

Figure A-53: Post-Test Passenger Knee Bolster View

Figure A-54: Pre-Test Passenger Floor Pan View

Figure A-55: Post-Test Passenger Floor Pan View

Photo Not Available

Figure A-56: Post-Test Passenger Head View

Figure A-57: Post-Test Passenger Contact to Airbag

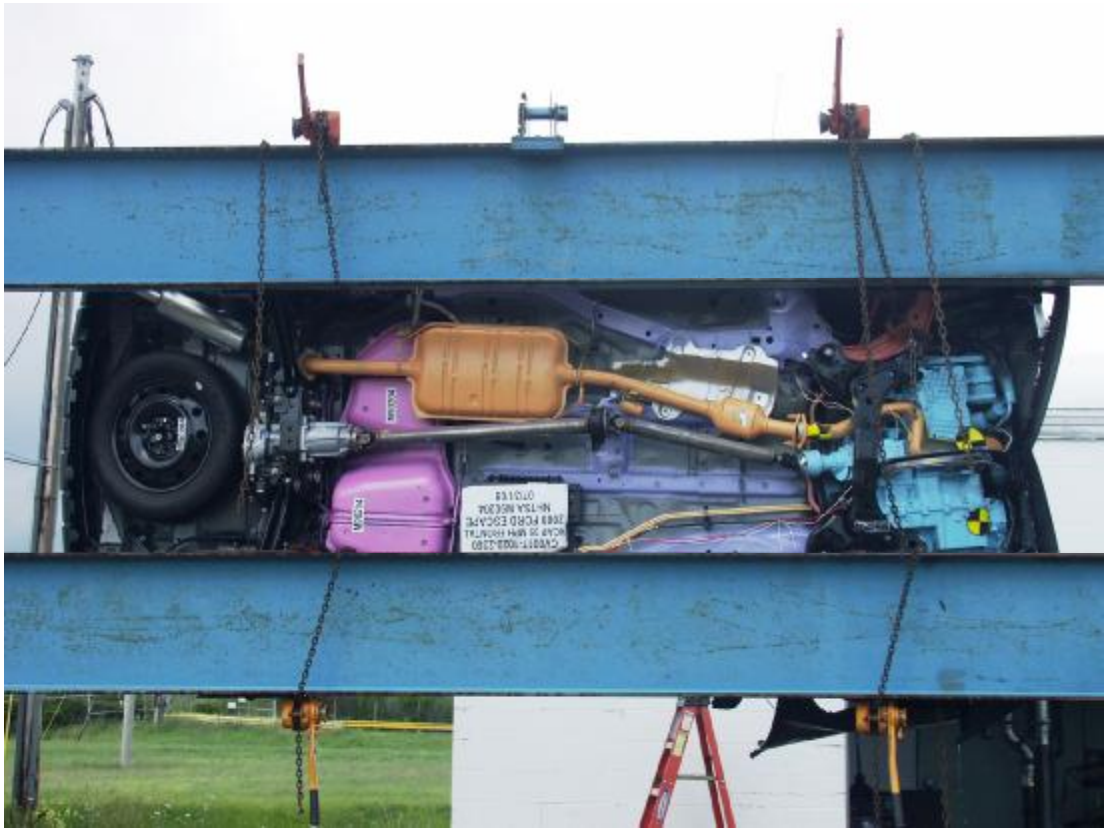


Figure A-58: Rollover View - 90°

Figure A-59: Rollover View - 180°

Figure A-60: Rollover View - 270°

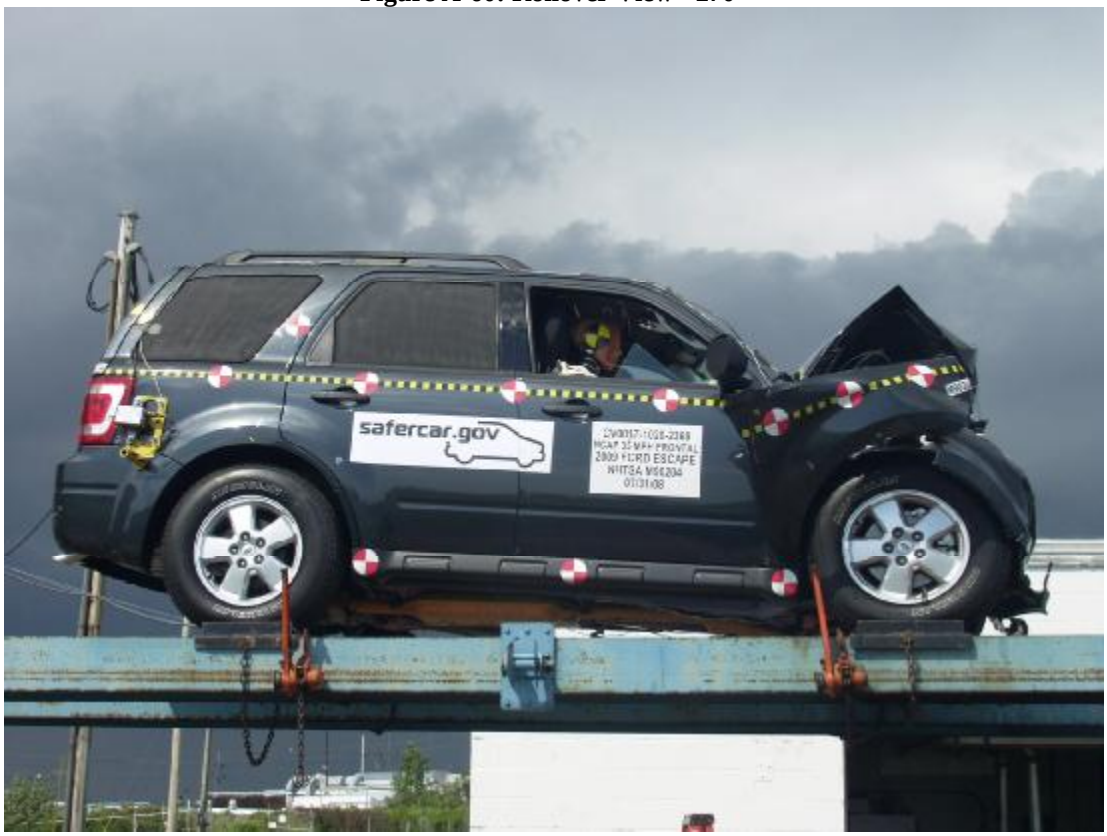


Figure A-61: Rollover View - 360°

Figure A-62: Impact View

APPENDIX B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers

Transducer	**SAE Sign Convention (positive unless noted)**
Upper Neck Load Cell	Fx Head rearward Fy Head left Fz Neck in tension Mx Left ear to left shoulder My Chin to chest (flexion) Mz Chin to left shoulder (look left)
Chest Displacement Potentiometer	Compression is negative
Pelvic Load Cell (Lower Lumbar)	Fx Chest rearward Fy Chest left Fz Spine in tension
Femur Load Cell	Compression is negative
Upper Tibia Load Cell (right and left leg)	Mx Support tibia at ends, load left side center My Support tibia at ends, load front (shin) center
Lower Tibia Load Cell (right and left leg)	Fz Tibia in tension Mx Support tibia at ends, load left side center My Support tibia at ends, load front (shin) center

DATA CHANNEL FILTER CLASS SUMMARY

NHTSA TEST NO.: M90204

DATA TYPE	**SAE FILTER CLASS (Hz)**
Dummy Head Accelerations	1000
Dummy Chest Accelerations	180
Dummy Chest Displacements	600
Dummy Femur Forces	600
Dummy Belt Loads	60
Dummy Belt Displacements	180
Dummy Neck Forces	1000
Dummy Neck Moments	600
Vehicle Accelerations	60
Vehicle Velocity Integrations	180
Vehicle Displacement Integrations	180
Load Cell Barrier Forces	60

Table of Data Plots

The following dummy, vehicle and load cell response data can be found in the research and development section of the NHTSA website at: www.nhtsa.dot.gov

V1P1 Head CG Ax	V1P1 Lap Belt Load
V1P1 Head CG Ay	V1P1 Shoulder Belt Load
V1P1 Head CG Az	V1P2 Lap Belt Load
V1P1 Head CG Red Ax	V1P2 Shoulder Belt Load
V1P1 Head CG Red Ay	V1 Left Rear #1x
V1P1 Head CG Red Az	V1 Right Rear #2x
V1P1 Upper Neck Fx	V1 Engine Top #3x
V1P1 Upper Neck Fy	V1 Engine Bottom #4x
V1P1 Upper Neck Fz	V1 Right Caliper #5x
V1P1 Upper Neck Mx	V1 Left Caliper #7x
V1P1 Upper Neck My	V1 Left Rear #8z
V1P1 Upper Neck Mz	V1 Right Rear #9z
V1P1 Chest Ax	
V1P1 Chest Ay	
V1P1 Chest Az	
V1P1 Chest Red Ax	
V1P1 Chest Red Ay	
V1P1 Chest Red Az	
V1P1 Chest Compression	
V1P1 Pelvic Ax	
V1P1 Pelvic Ay	
V1P1 Pelvic Az	
V1P1 Left Femur Fz	
V1P1 Right Femur Fz	
V1P1 Left Upper Tibia Mx	
V1P1 Left Upper Tibia My	
V1P1 Left Lower Tibia Fz	
V1P1 Left Lower Tibia Mx	
V1P1 Left Lower Tibia My	
V1P1 Right Upper Tibia Fz	
V1P1 Right Upper Tibia Mx	
V1P1 Right Upper Tibia My	
V1P1 Right Lower Tibia Mx	
V1P1 Right Lower Tibia My	
V1P1 Left Foot Aft Ax	
V1P1 Left Foot Aft Az	
V1P1 Left Foot Fore Az	
V1P1 Right Foot Aft Ax	
V1P1 Right Foot Aft Az	
V1P1 Right Foot Fore z	

V1P2 Head CG Ax	Barrier Load Cell A1 Fx
V1P2 Head CG Ay	Barrier Load Cell A2 Fx
V1P2 Head CG Az	Barrier Load Cell A3 Fx
V1P2 Head CG Red Ax	Barrier Load Cell A4 Fx
V1P2 Head CG Red Ay	
V1P2 Head CG Red Az	
V1P2 Upper Neck Fx	
V1P2 Upper Neck Fy	
V1P2 Upper Neck Fz	
V1P2 Upper Neck Mx	
V1P2 Upper Neck My	
V1P2 Upper Neck Mz	
V1P2 Chest Ax	
V1P2 Chest Ay	
V1P2 Chest Az	
V1P2 Chest Red Ax	
V1P2 Chest Red Ay	
V1P2 Chest Red Az	
V1P2 Chest Compression	
V1P2 Pelvic Ax	
V1P2 Pelvic Ay	
V1P2 Pelvic Az	
V1P2 Left Femur Fz	
V1P2 Right Femur Fz	
V1P2 Left Upper Tibia Fz	
V1P2 Left Upper Tibia Mx	
V1P2 Left Upper Tibia My	
V1P2 Left Lower Tibia Mx	
V1P2 Left Lower Tibia My	
V1P2 Right Upper Tibia Mx	
V1P2 Right Upper Tibia My	
V1P2 Right Lower Tibia Fz	
V1P2 Right Lower Tibia Mx	
V1P2 Right Lower Tibia My	
V1P2 Left Foot Aft Ax	
V1P2 Left Foot Aft Az	
V1P2 Left Foot Fore Az	
V1P2 Right Foot Aft Ax	
V1P2 Right Foot Aft Az	
V1P2 Right Foot Fore Az	

Barrier Load Cell A5 Fx	
Barrier Load Cell A6 Fx	
Barrier Load Cell A7 Fx	
Barrier Load Cell A8 Fx	
Barrier Load Cell A9 Fx	
Barrier Load Cell B1 Fx	
Barrier Load Cell B2 Fx	
Barrier Load Cell B3 Fx	
Barrier Load Cell B4 Fx	
Barrier Load Cell B5 Fx	
Barrier Load Cell B6 Fx	
Barrier Load Cell B7 Fx	
Barrier Load Cell B8 Fx	
Barrier Load Cell B9 Fx	
Barrier Load Cell C1 Fx	
Barrier Load Cell C2 Fx	
Barrier Load Cell C3 Fx	
Barrier Load Cell C4 Fx	
Barrier Load Cell C5 Fx	
Barrier Load Cell C6 Fx	
Barrier Load Cell C7 Fx	
Barrier Load Cell C8 Fx	
Barrier Load Cell C9 Fx	
Barrier Load Cell D1 Fx	
Barrier Load Cell D2 Fx	
Barrier Load Cell D3 Fx	
Barrier Load Cell D4 Fx	
Barrier Load Cell D5 Fx	
Barrier Load Cell D6 Fx	
Barrier Load Cell D7 Fx	
Barrier Load Cell D8 Fx	
Barrier Load Cell D9 Fx	

TEST NOTES	
Data Channel	Anomalies
V1P1 Head CG y Red	Questionable Data 57 - 59 msec
V1P1 Upper Neck Mx	Questionable Data - Did record properly
V1P1 Upper Neck My	Questionable Data - Data Noise
V1P2 Pelvic x	Questionable Data 43 - 120 msec
V1P2 Pelvic y	Questionable Data 66 - 120 msec
V1P2 Pelvic z	Questionable Data 43 - 116 msec
V1 Engine Top #3x	Data invalid after 48 msec
V1 Engine Bottom #4x	Cut wire after 31 msec
V1 Left Caliper #7x	Cut wire after 31 msec

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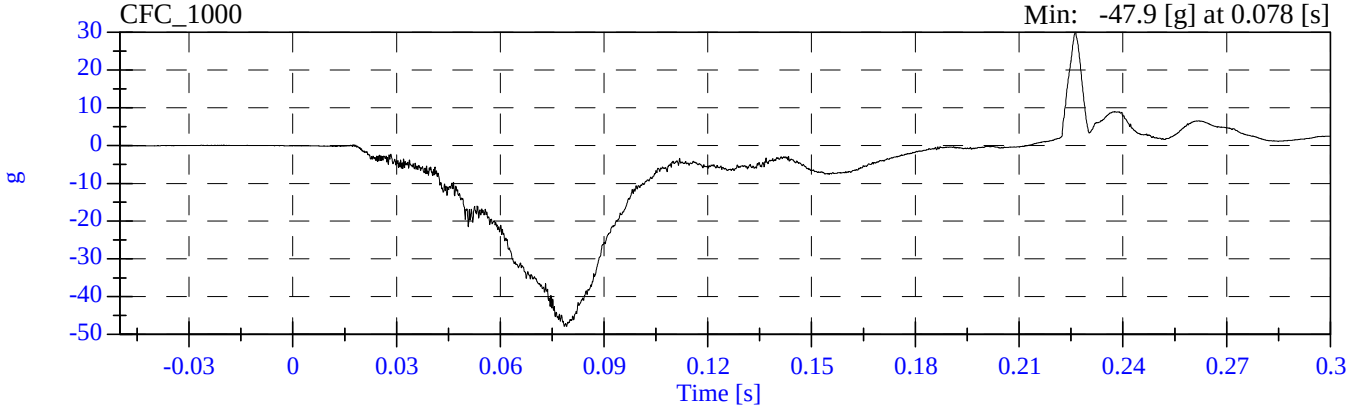
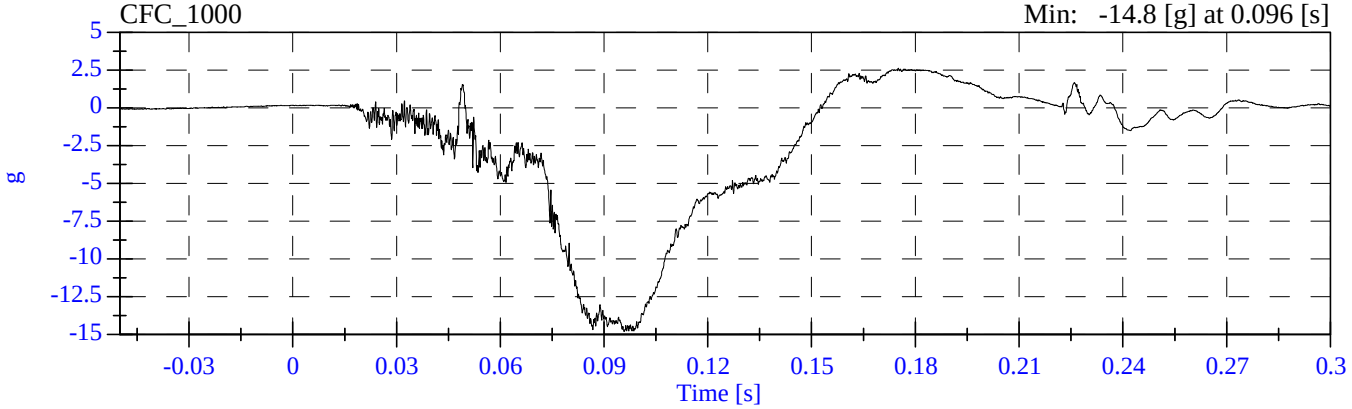
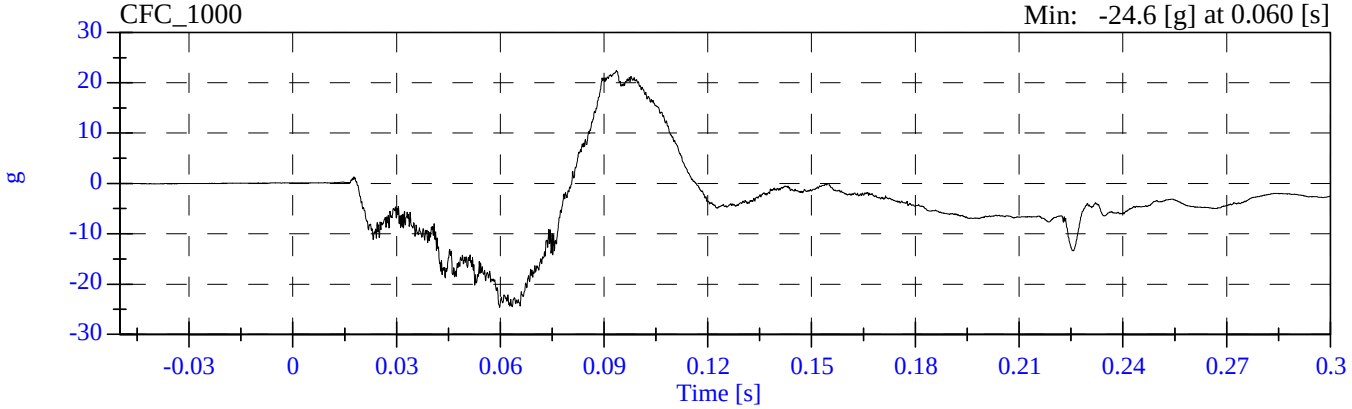
V1P1 Head x
CFC_1000
Max: 30.0 [g] at 0.226 [s]
Min: -47.9 [g] at 0.078 [s]



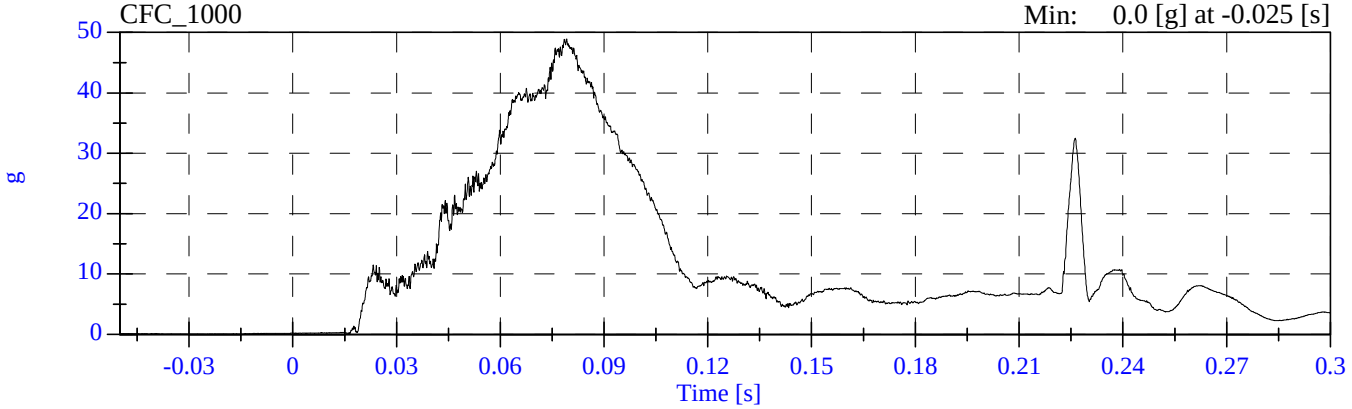
V1P1 Head y
CFC_1000
Max: 2.6 [g] at 0.175 [s]
Min: -14.8 [g] at 0.096 [s]



V1P1 Head z
CFC_1000
Max: 22.5 [g] at 0.094 [s]
Min: -24.6 [g] at 0.060 [s]



V1P1 Head Resultant
CFC_1000
Max: 48.9 [g] at 0.079 [s]
Min: 0.0 [g] at -0.025 [s]



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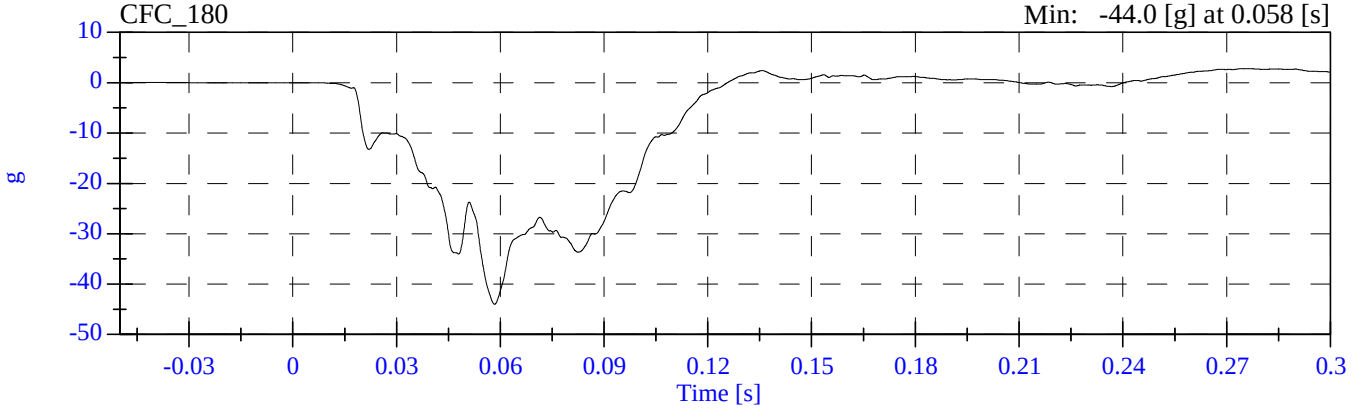
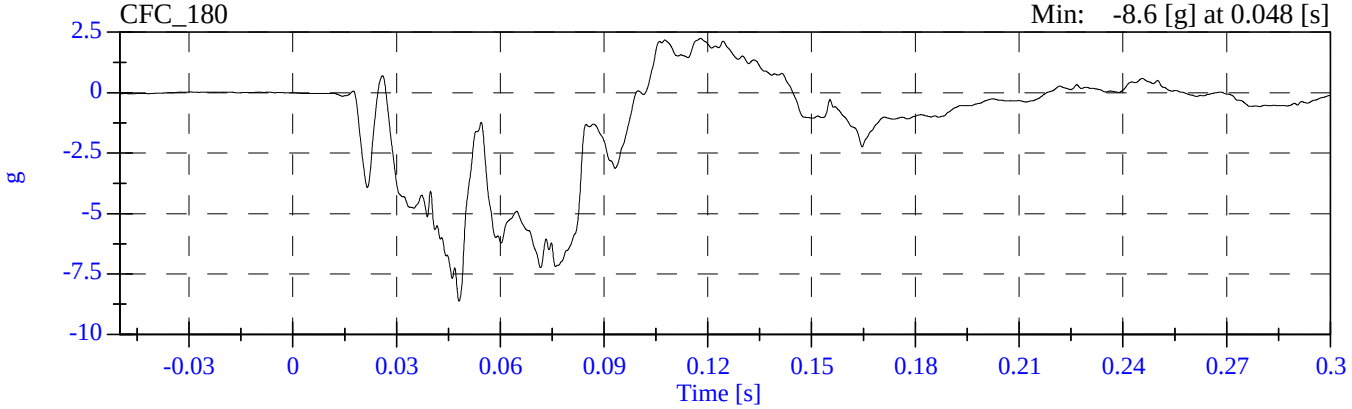
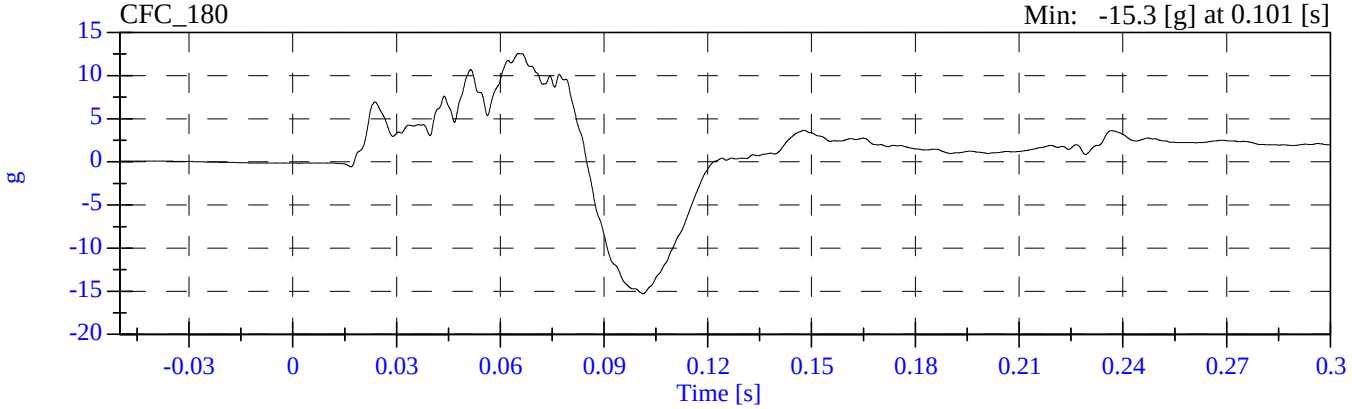
V1P1 Chest x
CFC_180
Max: 2.8 [g] at 0.274 [s]
Min: -44.0 [g] at 0.058 [s]



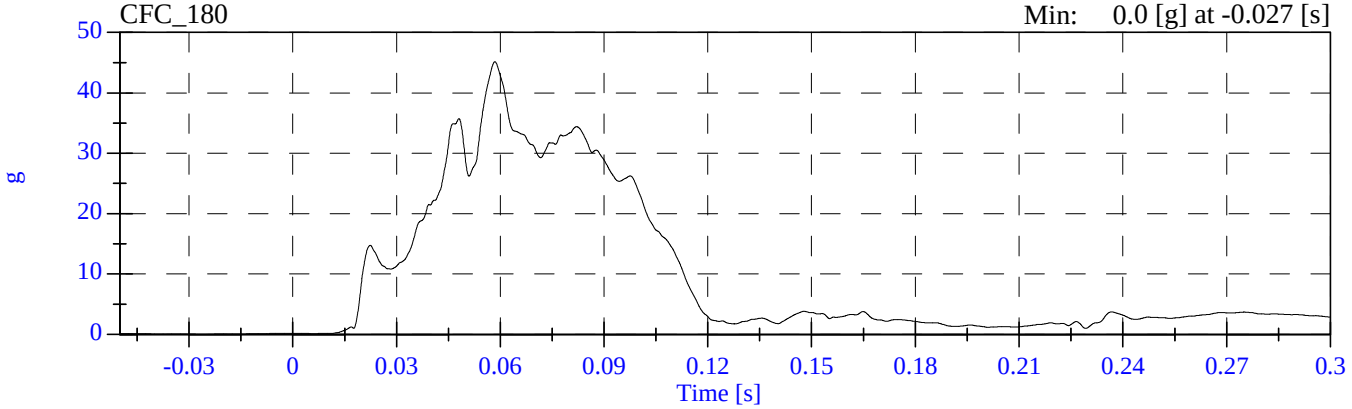
V1P1 Chest y
CFC_180
Max: 2.2 [g] at 0.118 [s]
Min: -8.6 [g] at 0.048 [s]



V1P1 Chest z
CFC_180
Max: 12.6 [g] at 0.065 [s]
Min: -15.3 [g] at 0.101 [s]



V1P1 Chest Resultant
CFC_180
Max: 45.2 [g] at 0.058 [s]
Min: 0.0 [g] at -0.027 [s]



2009 NCAP Test 2 2009 Ford Escape
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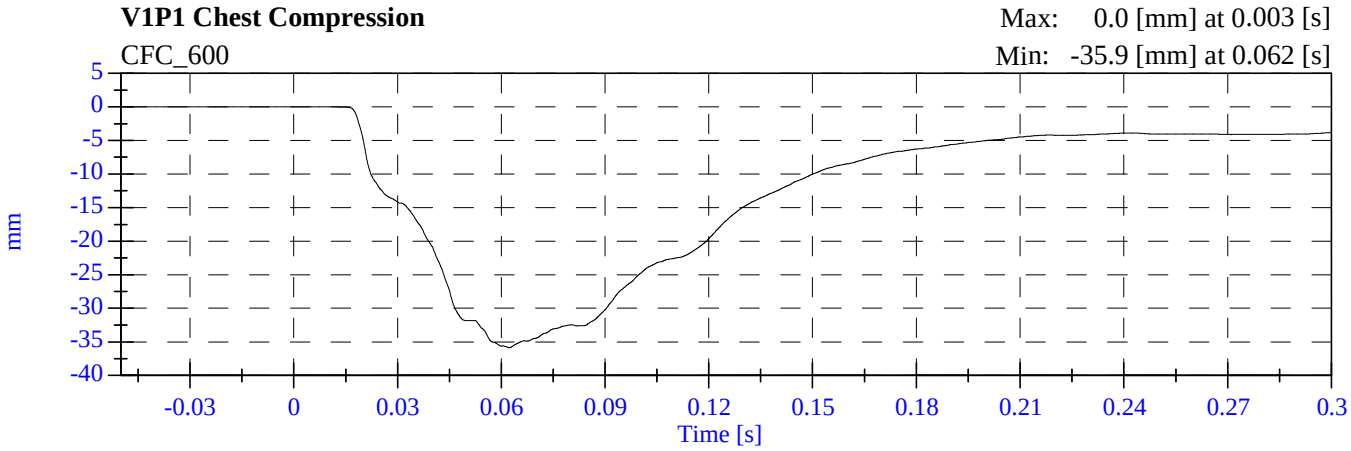
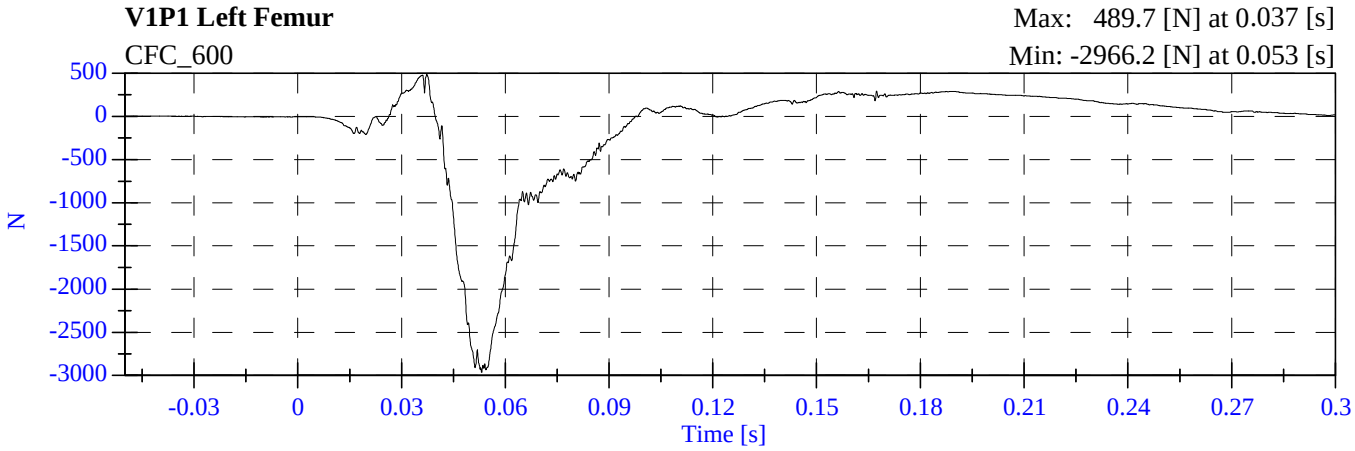
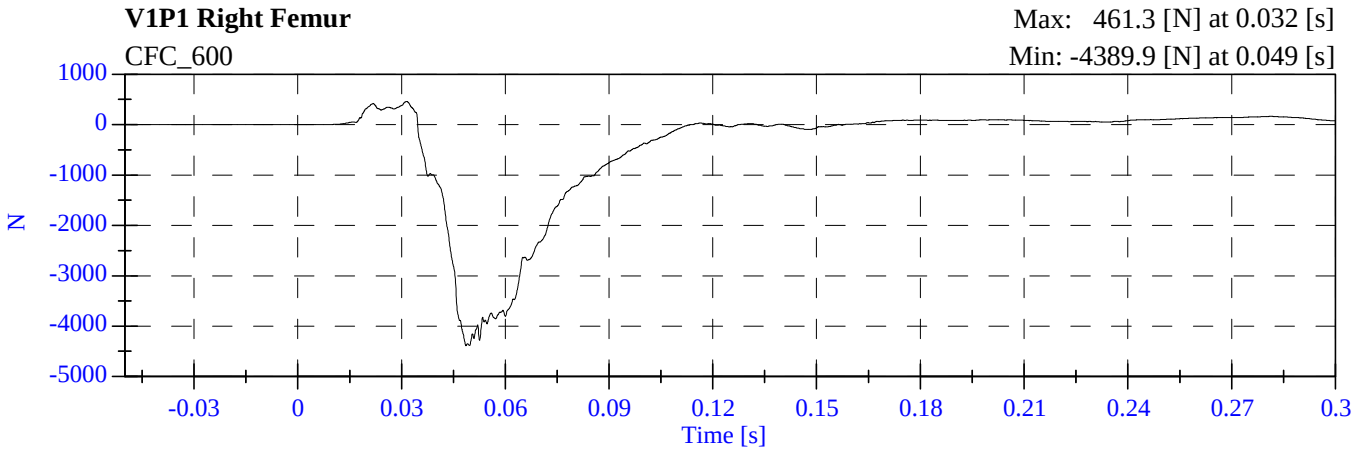


2009 NCAP Test 2 2009 Ford Escape
M90204 - July 31, 2008





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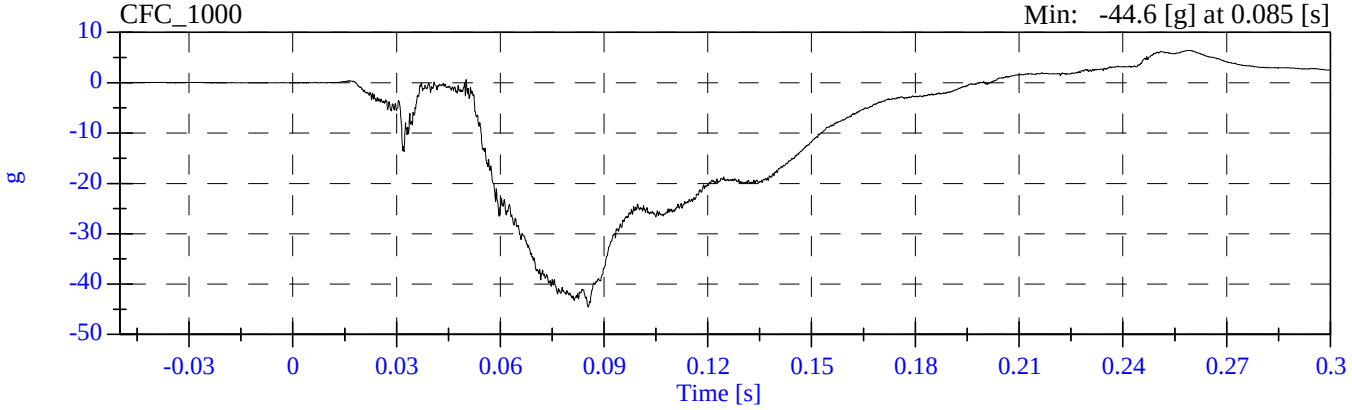
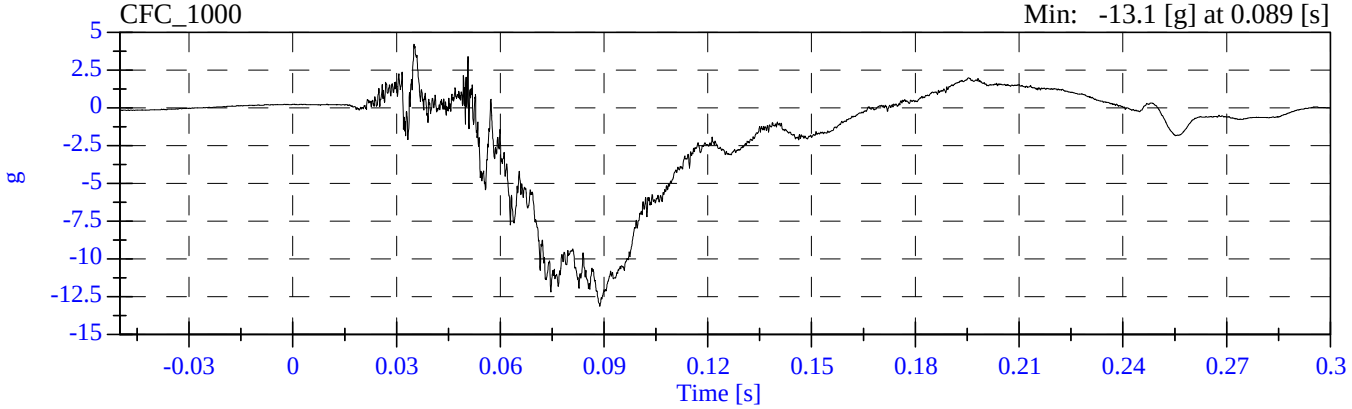
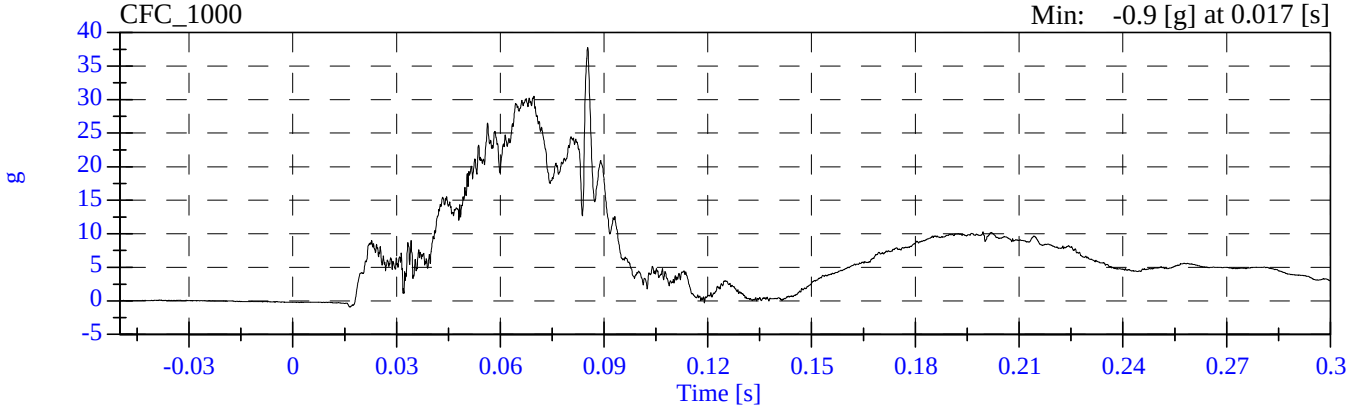
V1P2 Head x
CFC_1000
Max: 6.4 [g] at 0.259 [s]
Min: -44.6 [g] at 0.085 [s]



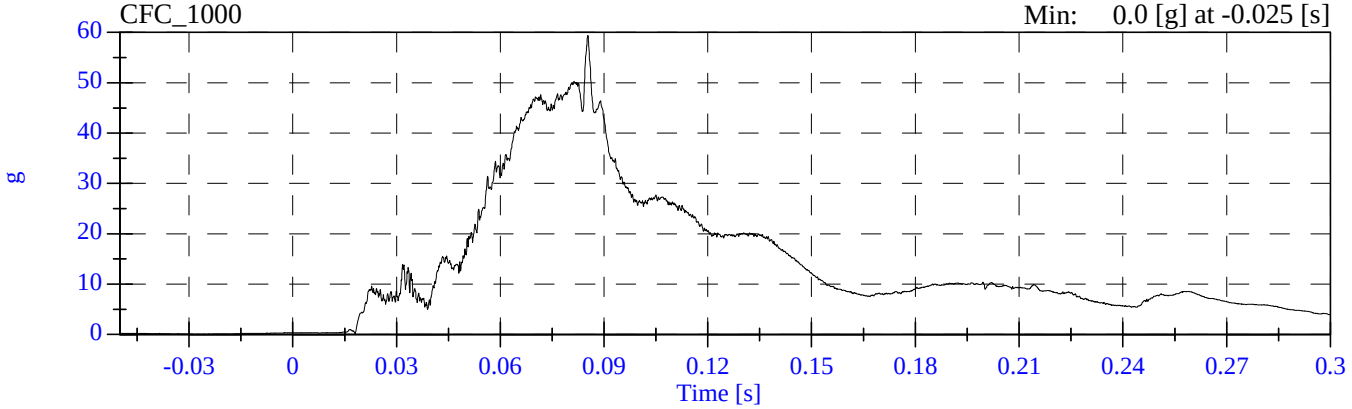
V1P2 Head y
CFC_1000
Max: 4.2 [g] at 0.035 [s]
Min: -13.1 [g] at 0.089 [s]



V1P2 Head z
CFC_1000
Max: 37.8 [g] at 0.085 [s]
Min: -0.9 [g] at 0.017 [s]



V1P2 Head Resultant
CFC_1000
Max: 59.4 [g] at 0.085 [s]
Min: 0.0 [g] at -0.025 [s]



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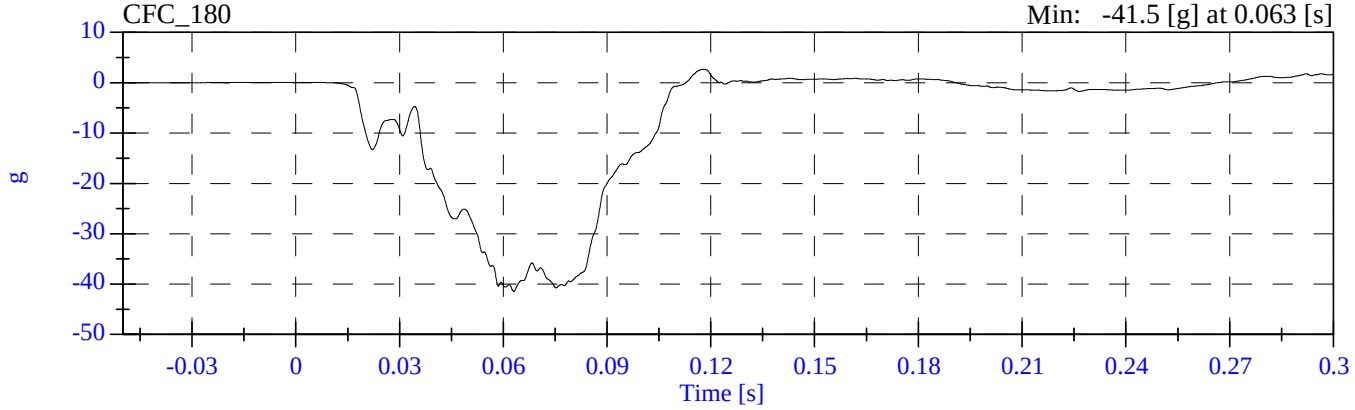
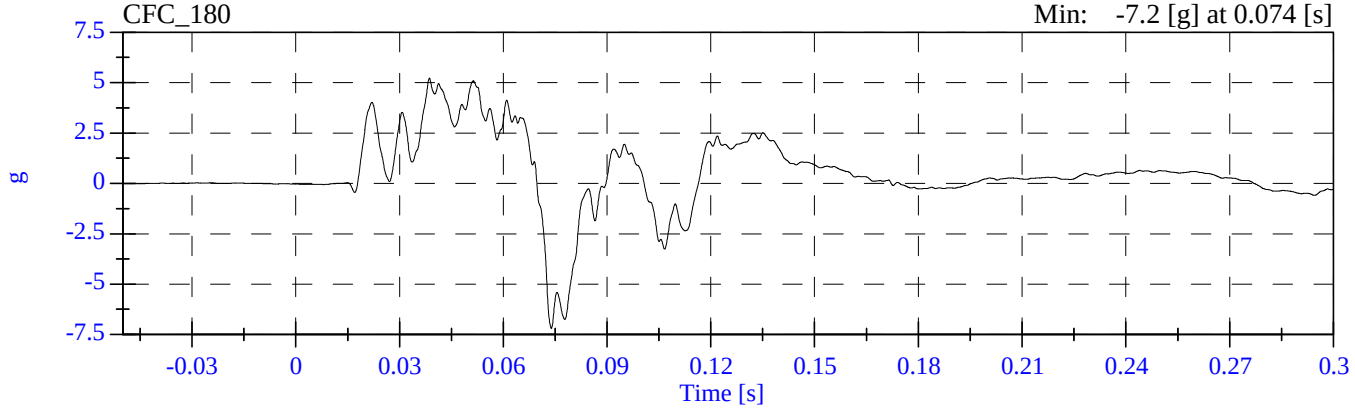
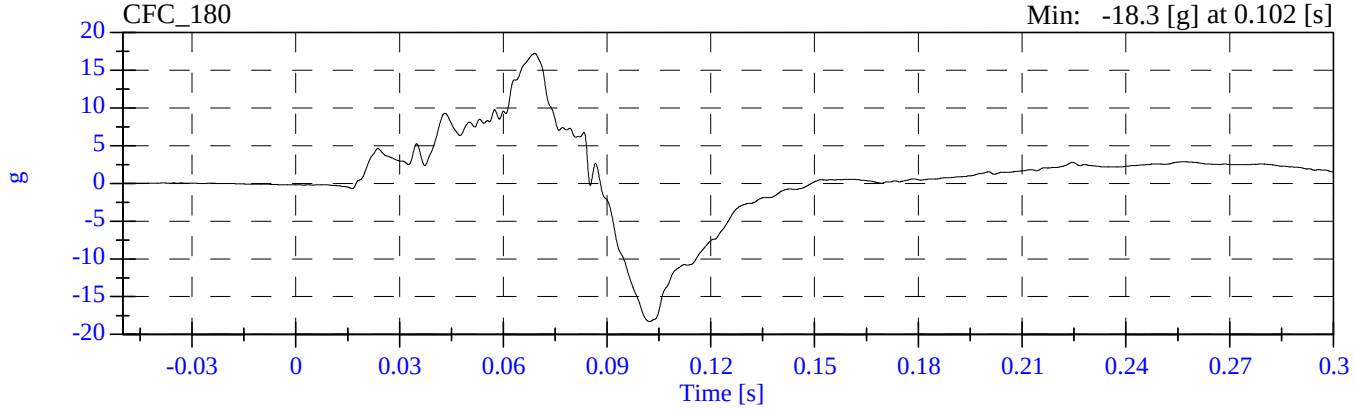
V1P2 Chest x
CFC_180
Max: 2.7 [g] at 0.118 [s]
Min: -41.5 [g] at 0.063 [s]



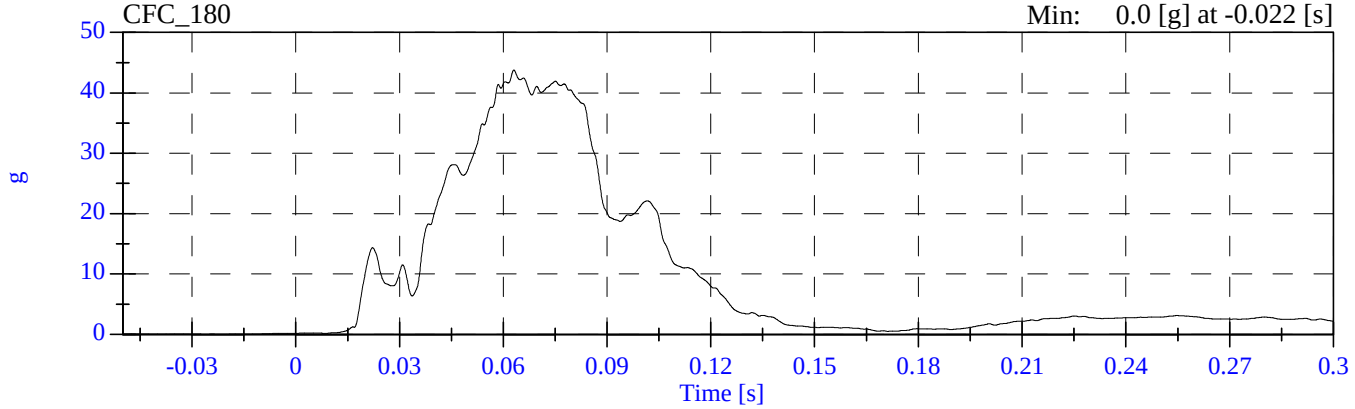
V1P2 Chest y
CFC_180
Max: 5.2 [g] at 0.039 [s]
Min: -7.2 [g] at 0.074 [s]



V1P2 Chest z
CFC_180
Max: 17.2 [g] at 0.069 [s]
Min: -18.3 [g] at 0.102 [s]



V1P2 Chest Resultant
CFC_180
Max: 43.8 [g] at 0.063 [s]
Min: 0.0 [g] at -0.022 [s]



2009 NCAP Test 2 2009 Ford Escape
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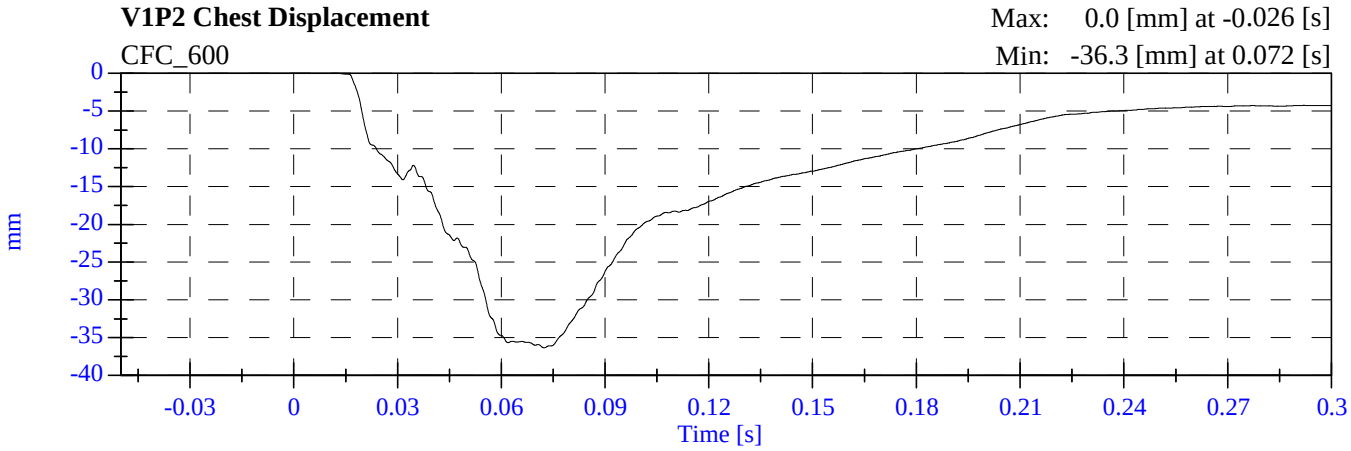
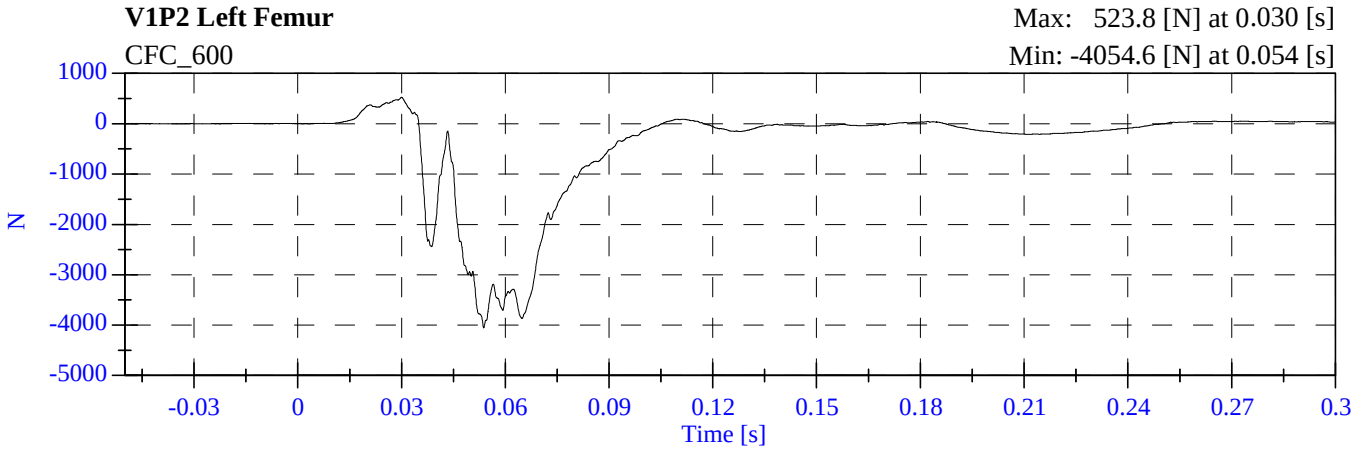
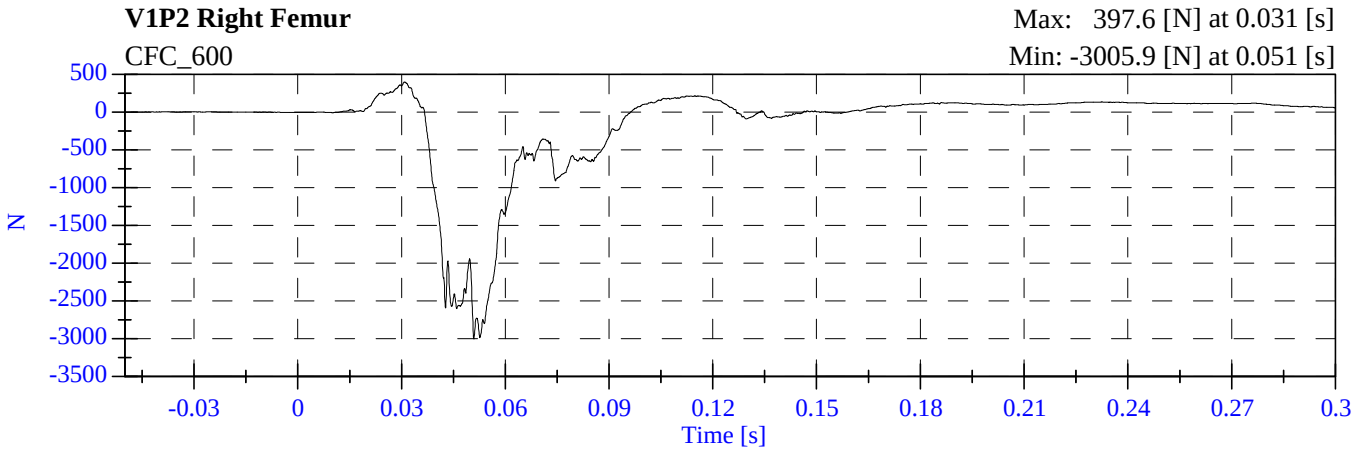


2009 NCAP Test 2 2009 Ford Escape
M90204 - July 31, 2008





APPENDIX C

PART 572B/E DUMMY CONFIGURATION
AND PERFORMANCE VERIFICATION DATA SHEETS

Appendix C contains the results from certification tests performed on the 50th percentile male anthropomorphic test devices utilized for this crash test. The results indicate that the dummies meet all of the performance requirements of the six standard tests as specified in 49 CFR Part 572, Federal Register, Volume 42, No. 25, dated February 7, 1977.

The tests were conducted at the Dummy Certification Test Facility of Calspan. A summary of the test results, and Part 572 specifications are included in this Appendix.

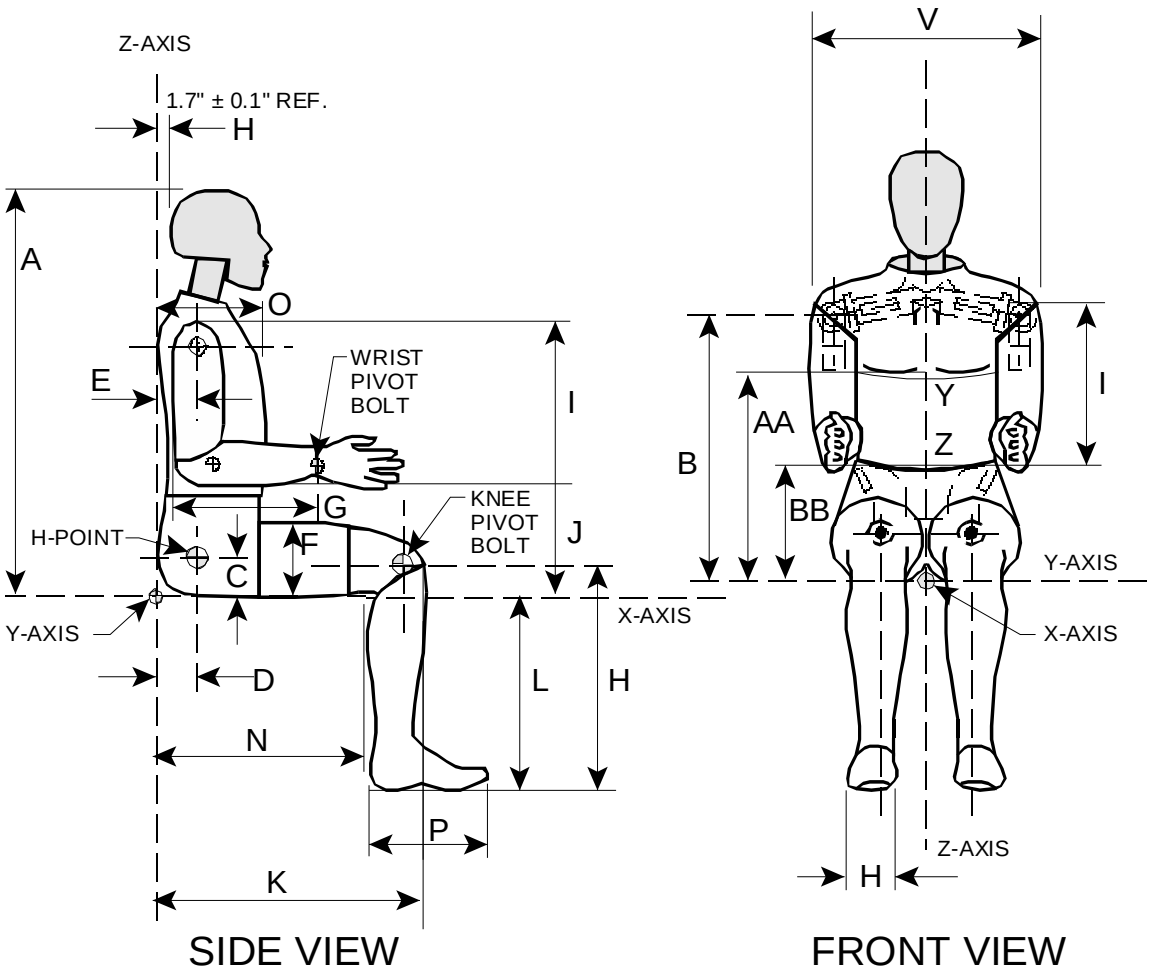
Dummy serial numbers and certification dates are:

Position No./Location	Serial No.	Completion Date
#1/Driver	1047	3/26/08
#2/Right Front Passenger	1046	3/26/08

Electronic Test Equipment

The complement of signal conditioning, recording and display equipment, in conjunction with dummy certification testing, can be found in New Car Assessment and Standards Indicant Testing Final Report No. 6525-V-1.

EXTERNAL DIMENSIONS SPECIFICATIONS



NOTE: Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude. (REF: S572.31(A)(6))

PART 572E
HEAD DROP TEST

Dummy Serial Number	1047
Sequential Test Number	1
Date	3/20/08
Workfile	1047H 3/20/08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Peak Resultant Acceleration	225-275 G's	261.65
Peak Lateral Acceleration	15 G's Max	7.47
Is Acceleration Curve Unimodal?	YES	YES

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	1047	
Sequential Test Number	1	
Date	3/24/08	6 Axis Neck Transducer
Workfile	1047NF 3/24/08	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	33.0
Impact Velocity		6.89 – 7.13 m/s	7.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.96
	20 ms	17.60 - 22.60 G's	20.79
	30 ms	12.50 - 18.50 G's	16.16
Max Pendulum G's Above 30 ms		29 G's Max	16.16
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	38.50
D Plane Rotation	Max	64 - 78 Deg	70.23
	Time	57 - 64 ms	59.80
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	91.95
	Time	47 - 58 ms	49.80
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.20
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	100.40

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	1047	
Sequential Test Number	1	
Date	3/24/08	6 Axis Neck Transducer
Workfile	1047NE 3/24/08	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	33.0
Impact Velocity		5.94 – 6.19 m/s	6.07
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.32
	20 ms	14.00 - 19.00 G's	16.79
	30 ms	11.00 - 16.00 G's	13.55
Max Pendulum G's Above 30 ms		22 G's Max	13.55
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	43.00
D Plane Rotation	Max	81 - 106 Deg	91.75
	Time	72 - 82 ms	75.40
Moment About Occipital	Max	-79.99 - -52.88 N-m	-68.96
Condyle	Time	65 - 79 ms	71.20
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	155.10
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	136.80

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	1047
Sequential Test Number	1
Date	3/25/08
Workfile	1047T 3/25/08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Pendulum Velocity	6.58 – 6.83 m/s	6.73
Maximum Deflection	63.50 – 72.64 mm	66.8
Maximum Resistive Force	5159.9 – 5893.9 N	5403.9
Internal Hysteresis	69 - 85 %	71.35

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	1047
Sequential Test Number	1
Date	3/26/08
Workfile	1047LF/RF 3/26/08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5307.84
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5225.34

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 1047
Sequential Test Number 1
Date 3/26/08

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			21.1
Relative Humidity			33.0
Location for Chest Circumference	AA	16.9 -17.1 in	16.9
Location for Waist Circumference	BB	8.9 - 9.1 in	8.9
Total Sitting Height	A	34.6 - 35.0 in	34.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.4
Thigh Clearance	F	5.5 - 6.1 in	5.7
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Elbow Rest Height	J	7.5 - 8.3 in	7.6
Buttock Knee Length	K	22.8 - 23.8 in	22.9
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Buttock Popliteal Length	N	17.8 - 18.8 in	17.9
Chest Depth	O	8.4 - 9.0 in	8.6
Foot Length	P	9.9 - 10.5 in	10.2
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Foot Breadth	W	3.6 - 4.2 in	3.8
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.6
Waist Circumference	Z	32.9 - 34.1 in	33.2

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number	1046
Sequential Test Number	1
Date	3/20/08
Workfile	1046H 3/20/08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Peak Resultant Acceleration	225-275 G's	247.79
Peak Lateral Acceleration	15 G's Max	4.65
Is Acceleration Curve Unimodal?	YES	YES

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	1046	
Sequential Test Number	1	
Date	3/24/08	6 Axis Neck Transducer
Workfile	1046NF 3/21/08	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	33.0
Impact Velocity		6.89 – 7.13 m/s	7.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.68
	20 ms	17.60 - 22.60 G's	21.02
	30 ms	12.50 - 18.50 G's	15.79
Max Pendulum G's Above 30 ms		29 G's Max	15.79
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.00
D Plane Rotation	Max	64 - 78 Deg	66.17
	Time	57 - 64 ms	59.50
Moment About Occipital	Max	88.13 – 108.47 N-m	96.68
Condyle	Time	47 - 58 ms	52.50
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	116.10
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.20

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	1046	
Sequential Test Number	1	
Date	3/24/08	6 Axis Neck Transducer
Workfile	1046NE 3/24/08	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	33.0
Impact Velocity		5.94 – 6.19 m/s	6.07
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.19
	20 ms	14.00 - 19.00 G's	17.66
	30 ms	11.00 - 16.00 G's	13.31
Max Pendulum G's Above 30 ms		22 G's Max	13.31
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	42.10
D Plane Rotation	Max	81 - 106 Deg	94.37
	Time	72 - 82 ms	75.30
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-71.76
	Time	65 - 79 ms	70.90
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	153.20
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	135.50

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	1046
Sequential Test Number	1
Date	3/25/08
Workfile	1046T 3/25/08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Pendulum Velocity	6.58 – 6.83 m/s	6.70
Maximum Deflection	63.50 – 72.64 mm	63.55
Maximum Resistive Force	5159.9 – 5893.9 N	5563.0
Internal Hysteresis	69 - 85 %	72.63

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	1046
Sequential Test Number	1
Date	3/26/08
Workfile	1046 LF/RF 3/26/08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5006.63
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5416.02

Remarks: None

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 1046
Sequential Test Number 1
Date 3/26/08

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			21.1
Relative Humidity			33.0
Location for Chest Circumference	AA	16.9 -17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Total Sitting Height	A	34.6 - 35.0 in	34.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.0
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.3
Thigh Clearance	F	5.5 - 6.1 in	5.6
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.9
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Elbow Rest Height	J	7.5 - 8.3 in	7.8
Buttock Knee Length	K	22.8 - 23.8 in	23.1
Popliteal Height	L	16.9 - 17.9 in	17.6
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.3
Chest Depth	O	8.4 - 9.0 in	8.7
Foot Length	P	9.9 - 10.5 in	9.9
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Foot Breadth	W	3.6 - 4.2 in	3.8
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.7
Waist Circumference	Z	32.9 - 34.1 in	33.5

Remarks: None

Laboratory Technician: B. Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 1047)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-P50073	11-Mar-08	10-Sep-08
	Y	ENDEVCO	AC-P50062	11-Mar-08	10-Sep-08
	Z	ENDEVCO	AC-P50097	11-Mar-08	10-Sep-08
Head	X (R)	ENDEVCO	AC-P58984	22-Feb-08	23-Aug-08
	Y (R)	ENDEVCO	AC-P58786	04-Mar-08	03-Sep-08
	Z (R)	ENDEVCO	AC-P58787	22-Feb-08	23-Aug-08
Neck Load Cell	X	DENTON	LC-441Fx	14-Mar-08	13-Sep-08
	Y	DENTON	LC-441Fy	14-Mar-08	13-Sep-08
	Z	DENTON	LC-441Fz	14-Mar-08	13-Sep-08
Neck Moment	X	DENTON	LC-441Mx	14-Mar-08	13-Sep-08
	Y	DENTON	LC-441My	14-Mar-08	13-Sep-08
	Z	DENTON	LC-441Mz	14-Mar-08	13-Sep-08
Chest	X	ENDEVCO	AC-P49459	11-Mar-08	10-Sep-08
	Y	ENDEVCO	AC-P52108	11-Mar-08	10-Sep-08
	Z	ENDEVCO	AC-P49213	11-Mar-08	10-Sep-08
Chest	X (R)	ENDEVCO	AC-P58892	22-Feb-08	23-Aug-08
	Y (R)	ENDEVCO	AC-P58885	22-Feb-08	23-Aug-08
	Z (R)	ENDEVCO	AC-P58899	22-Feb-08	23-Aug-08
Chest Deflection	X	SERVO	DS-1047	19-Mar-08	18-Sep-08
Pelvic	X	ENDEVCO	AC-P49186	11-Mar-08	10-Sep-08
	Y	ENDEVCO	AC-P49164	11-Mar-08	10-Sep-08
	Z	ENDEVCO	AC-P52126	11-Mar-08	10-Sep-08
Left Femur Load Cell	Fz	DENTON	LC-255	11-Mar-08	10-Sep-08
Right Femur Load Cell	Fz	DENTON	LC-257	11-Mar-08	10-Sep-08

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 1047)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Upper Tibia	Mx	DENTON	LC-368Mx	19-Mar-08	18-Sep-08
	My	DENTON	LC-368My	19-Mar-08	18-Sep-08
Left Lower Tibia	Fz	DENTON	LC-364Fz	18-Mar-08	17-Sep-08
	Mx	DENTON	LC-364Mx	18-Mar-08	17-Sep-08
	My	DENTON	LC-364My	18-Mar-08	17-Sep-08
Right Upper Tibia	Mx	DENTON	LC-370Mx	19-Mar-08	18-Sep-08
	My	DENTON	LC-370My	19-Mar-08	18-Sep-08
Right Lower Tibia	Fz	DENTON	LC-368LFz	18-Mar-08	17-Sep-08
	Mx	DENTON	LC-368LMx	18-Mar-08	17-Sep-08
	My	DENTON	LC-368LMy	18-Mar-08	17-Sep-08
Left Foot Rear	X	ENDEVCO	AC-P50065	18-Mar-08	17-Sep-08
	Z	ENDEVCO	AC-P52123	18-Mar-08	17-Sep-08
Left Foot Front	Z	ENDEVCO	AC-P52149	18-Mar-08	17-Sep-08
Right Foot Rear	X	ENDEVCO	AC-P50089	18-Mar-08	17-Sep-08
	Z	ENDEVCO	AC-P49463	18-Mar-08	17-Sep-08
Right Foot Front	Z	ENDEVCO	AC-P50092	18-Mar-08	17-Sep-08
Lap Belt Load Cell		First Technology	LC-156	07-Sep-07	07-Sep-08
Shoulder Belt Load Cell		First Technology	LC-159	07-Sep-07	07-Sep-08

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 1046)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-P50060	10-Mar-08	09-Sep-08
	Y	ENDEVCO	AC-P59009	04-Mar-08	03-Sep-08
	Z	ENDEVCO	AC-P49239	10-Mar-08	09-Sep-08
Head	X (R)	ENDEVCO	AC-P50098	10-Mar-08	09-Sep-08
	Y (R)	ENDEVCO	AC-P58975	04-Mar-08	03-Sep-08
	Z (R)	ENDEVCO	AC-P58894	22-Feb-08	23-Aug-08
Neck Load Cell	X	DENTON	LC-1911Fx	13-Mar-08	12-Sep-08
	Y	DENTON	LC-1911Fy	13-Mar-08	12-Sep-08
	Z	DENTON	LC-1911Fz	19-Mar-08	18-Sep-08
Neck Moment	X	DENTON	LC-1911Mx	19-Mar-08	18-Sep-08
	Y	DENTON	LC-1911My	19-Mar-08	18-Sep-08
	Z	DENTON	LC-1911Mz	19-Mar-08	18-Sep-08
Chest	X	ENDEVCO	AC-P49224	10-Mar-08	09-Sep-08
	Y	ENDEVCO	AC-P49200	10-Mar-08	09-Sep-08
	Z	ENDEVCO	AC-P49231	10-Mar-08	09-Sep-08
Chest	X (R)	ENDEVCO	AC-P58779	22-Feb-08	23-Aug-08
	Y (R)	ENDEVCO	AC-P58893	22-Feb-08	23-Aug-08
	Z (R)	ENDEVCO	AC-P59008	04-Mar-08	03-Sep-08
Chest Deflection	X	SERVO	DS-1046	19-Mar-08	18-Sep-08
Pelvic	X	ENDEVCO	AC-P49206	10-Mar-08	09-Sep-08
	Y	ENDEVCO	AC-P49195	10-Mar-08	09-Sep-08
	Z	ENDEVCO	AC-P49185	10-Mar-08	09-Sep-08
Left Femur Load Cell	Fz	DENTON	LC-256	11-Mar-08	10-Sep-08
Right Femur Load Cell	Fz	DENTON	LC-261	11-Mar-08	10-Sep-08

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

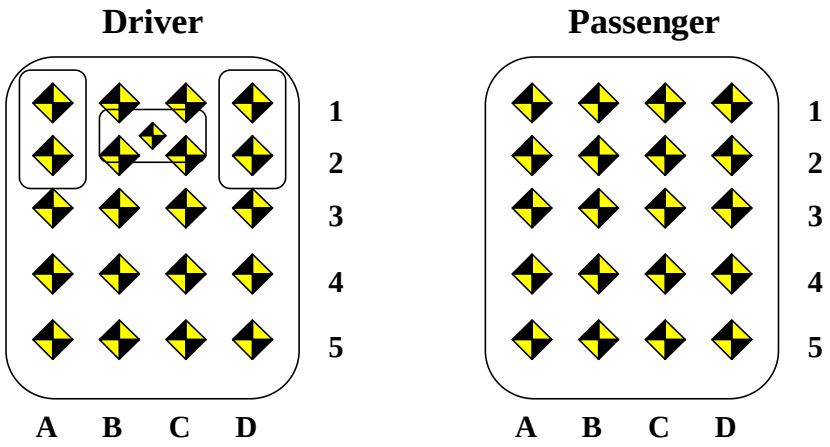
PASSENGER DUMMY (S/N 1046)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Upper Tibia	Mx	DENTON	LC-114Mx	19-Mar-08	18-Sep-08
	My	DENTON	LC-114My	19-Mar-08	18-Sep-08
Left Lower Tibia	Fz	DENTON	LC-115Fz	18-Mar-08	17-Sep-08
	Mx	DENTON	LC-115Mx	18-Mar-08	17-Sep-08
	My	DENTON	LC-115My	18-Mar-08	17-Sep-08
Right Upper Tibia	Mx	DENTON	LC-92UMx	18-Mar-08	17-Sep-08
	My	DENTON	LC-92UMy	18-Mar-08	17-Sep-08
Right Lower Tibia	Fz	DENTON	LC-92LFz	18-Mar-08	17-Sep-08
	Mx	DENTON	LC-92LMx	18-Mar-08	17-Sep-08
	My	DENTON	LC-92LMy	18-Mar-08	17-Sep-08
Left Foot Rear	X	ENDEVCO	AC-P49205	14-Mar-08	13-Sep-08
	Z	ENDEVCO	AC-P49211	14-Mar-08	13-Sep-08
Left Foot Front	Z	ENDEVCO	AC-P49235	14-Mar-08	13-Sep-08
Right Foot Rear	X	ENDEVCO	AC-P49222	14-Mar-08	13-Sep-08
	Z	ENDEVCO	AC-P49440	14-Mar-08	13-Sep-08
Right Foot Front	Z	ENDEVCO	AC-P52105	14-Mar-08	13-Sep-08
Lap Belt Load Cell		First Technology	LC-173	07-Sep-07	07-Sep-08
Shoulder Belt Load Cell		First Technology	LC-178	07-Sep-07	07-Sep-08

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ENDEVCO	AC-P35811	11-Jul-08	08-Mar-08
Right Rear Seat Crossmember X	ENDEVCO	AC-P16656	11-Jul-08	08-Mar-08
Top of Engine	ICS	AC-FA2483	04-Apr-08	10-Jan-09
Bottom of Engine	ICS	AC-FA2489	27-Mar-08	10-Jan-09
Right Disc Brake Caliper	ICS	AC-FA2494	27-Mar-08	04-Oct-08
Left Disc Brake Caliper	ICS	AC-FA2474	27-Mar-08	26-Sep-08
Left Seat Rear Crossmember Z	ENDEVCO	AC-P35789	11-Jul-08	26-Sep-08
Right Seat Rear Crossmember Z	ENDEVCO	AC-P39575	11-Jul-08	26-Sep-08

APPENDIX E

VEHICLE INTERIOR INTRUSION MEASUREMENTS

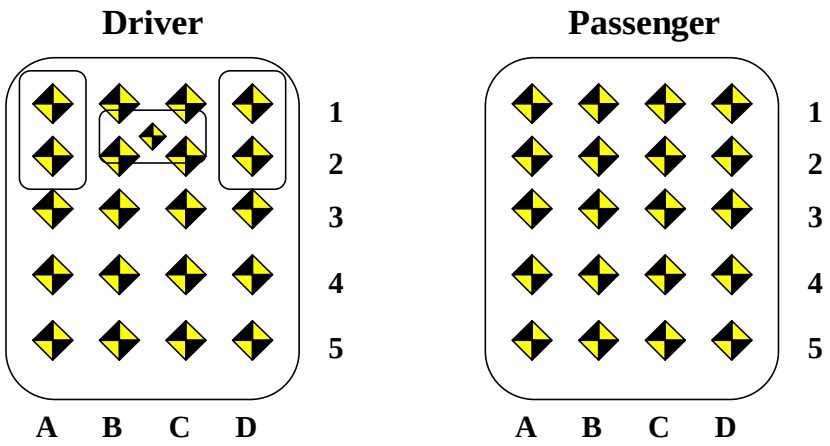


Driver Side Intrusion Measurements

Intrusion Location	PRE-TEST (mm)			POST-TEST (mm)			CHANGE (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3101	-601	489	3086	-608	500	15	7	-11
B1	3219	-465	491	3165	-467	541	54	2	-50
C1	3222	-330	490	3172	-334	524	50	4	-34
D1	3218	-198	489	3188	-207	504	30	9	-15
A2	3049	-601	449	3040	-611	458	9	10	-9
B2	3118	-469	444	3103	-479	450	15	10	-6
C2	3128	-331	447	3117	-341	442	11	10	5
D2	3122	-201	448	3119	-208	432	3	7	16
A3	3006	-599	418	2998	-609	424	8	10	-6
B3	3027	-466	415	3016	-475	420	11	9	-5
C3	3030	-333	419	3020	-343	422	10	10	-3
D3	3027	-199	420	3018	-209	424	9	10	-4
A4	2968	-599	407	2960	-610	406	8	11	1
B4	2978	-468	410	2970	-478	405	8	10	5
C4	2974	-333	414	2969	-343	406	5	10	8
D4	2984	-200	409	2979	-208	405	5	8	4
A5	2911	-601	405	2908	-611	394	3	10	11
B5	2920	-464	404	2915	-474	387	5	10	17
C5	2923	-332	406	2917	-341	387	6	9	19
D5	2873	-199	436	2871	-212	420	2	13	16
BP	3074	-345	576	2995	-388	599	79	43	-23
G	2815	-520	862	2818	-532	858	-3	12	4
H	2806	-218	861	2818	-243	856	-12	25	5
L	2623	-375	1080	2651	-401	1061	-28	26	19
AB	2534	-569	420	2529	-576	413	5	7	7

BP=Brake Pedal, G=Left side of bolster, H=Right side of bolster, L=Steering wheel center;
AB = Front outboard seat anchor bolt

PASSENGER SIDE INTRUSION MEASUREMENTS



Passenger Side Intrusion Measurements

Intrusion Location	PRE-TEST (mm)			POST-TEST (mm)			CHANGE (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3194	204	485	3114	186	471	80	18	14
B1	3200	338	486	3119	309	475	81	29	11
C1	3198	470	485	3115	441	492	83	29	-7
D1	3138	599	487	3119	580	475	19	19	12
A2	3105	205	436	3066	186	414	39	19	22
B2	3105	338	435	3082	322	408	23	16	27
C2	3099	471	432	3082	455	405	17	16	27
D2	3084	600	431	3072	585	410	12	15	21
A3	3012	205	413	2996	189	370	16	16	43
B3	3011	337	411	2999	322	368	12	15	43
C3	3009	476	411	2999	462	375	10	14	36
D3	3008	602	408	2998	587	382	10	15	26
A4	2960	205	409	2949	193	374	11	12	35
B4	2962	338	409	2950	320	366	12	18	43
C4	2963	477	409	2955	462	376	8	15	33
D4	2962	604	407	2952	587	380	10	17	27
A5	2855	204	434	2847	191	407	8	13	27
B5	2903	338	411	2893	322	374	10	16	37
C5	2908	480	412	2900	462	382	8	18	30
D5	2908	605	412	2899	588	384	9	17	28
R	2798	209	865	2795	199	866	3	10	-1
S	2808	511	868	2820	496	868	-12	15	0
AB	2526	567	423	2520	546	402	6	21	21

R=Left side of bolster, S=Right side of bolster, L=Steering wheel center;
AB = Front outboard seat anchor bolt