REPORT NUMBER: CAL-07-13

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

FORD MOTOR COMPANY
2008 FORD ESCAPE
MPV

NHTSA NUMBER: F80201

CALSPAN TEST NUMBER: 8834-NCAP-1

CALSPAN CORPORATION
TRANSPORTATION SCIENCES CENTER
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June 28, 2007

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Crashworthiness Standards
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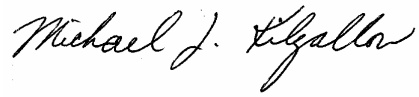
Approved by: 

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15. Supplementary Notes

16. Abstract

A frontal load cell barrier test of a 2008 Ford Escape MPV was performed at Calspan Corporation's crash test facility in Buffalo, New York, on June 28, 2007.

The impact velocity was 55.68 kph and the temperature at the barrier face was 21°C. The maximum post-test vehicle crush was 420 mm. The test vehicle was equipped with 3-point restraint systems with torso belt pretensioners and force limiters, knee bolsters, airbags and adjustable head restraints 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 (061)**	**Passenger (064)**
Head Injury Criteria (HIC - 36 ms)	-	1000	518.2	478.5
Maximum Thorax Acceleration (3 ms Clip)	g's	60 g's	50.0	38.8
Chest Displacement	mm	-76 mm	-32.0	-26.8
Left Femur Force	Newtons	-10000 N	-4857.8	-4690.8
Right Femur Force	Newtons	-10000 N	-5915.6	-2128.8

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 Avenue, SE Washington, D.C. 20590

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TABLE OF CONTENTS

SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 55.68 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 55.68 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 55.68 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 16 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 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. 061) and the right-front passenger (position 2) ATD (Serial No.064) 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 161 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 2008 Ford Escape MPV at a velocity of 55.68 kph. The test was performed at Calspan on June 28, 2007. 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	518.2	60.2	96.2	50.0	78.6	81.6	-32.0	-4857.8	-5915.6
Passenger	478.5	68.3	104.3	38.8	83.9	86.9	-26.8	-4690.8	-2128.8

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

TEST NOTES	
Data Channel	Anomalies
Pos 1 Head CG Y (Redundant)	Questionable data after 86 msec.
Pos 1 Right Foot Aft X	Questionable data from 35 to 49 msec.
Pos 2 Upper Neck Force X	Channel did not record properly
Engine Top Accelerometer X	Wire cut at approximately 33.7 msec
Right Caliper Accelerometer X	Channel opened at approximately 67 msec
Left Rear Accelerometer Z	Data not accurate after 50 msec

SECTION 2
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
CRASH TEST SUMMARY

Vehicle NHTSA No.: F80201 Test Mode: 56.3 kph Frontal Barrier
Test Date: June 28, 2007 Time: Temperature: 21 °C
Vehicle Make/Model/Body Style: 2008 Ford Escape MPV
Vehicle Test Weight: 1895.0 kg Impact Velocity: 55.68 kph (55.5 – 57.1 kph)
Vehicle/Barrier Impact Angle: 0 ° Max Static Crush: 420 mm

ATD INFORMATION AND VISIBLE CONTACT POINTS

	DRIVER	PASSENGER
ATD Type:	Part 572E	Part 572E
Restraint System:	Seatbelt with torso belt force limiters and pre-tensioners, airbag, and knee bolster	Seatbelt with torso belt force limiters and pre-tensioners, airbag, and knee bolster
Head Contact:	Airbag, Back of head with headrest, top of head with side head riser	Airbag, Back of head with headrest, top of head with side head riser
Abdomen Contact:	None	Airbag
Chest Contact:	Airbag	Airbag
Left Knee Contact:	Knee Bolster	Glovebox
Right Knee Contact:	Knee Bolster	Glovebox

DOOR OPENING, SEAT TRACK AND GLAZING INFORMATION

Description	Driver Side	Passenger Side
Door Lock Status	Locked	Locked
Front Door Opening	Closed, Latched, and operable without tools	Closed, Latched, and operable without tools
Rear Door Opening	Closed, Latched, and operable without tools	Closed, Latched, and operable without tools
Hatch/Other Door Opening	Closed, Latched, and operable without tools	Closed, Latched, and operable without tools
Front Seat Track Shift (mm)	4 mm rearward	0
Front Seat Back Failure	None	None
Glazing Damage	The windshield is cracked from bottom to top to the left of center	

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Left Side (mm)	Center (mm)	Right Side (mm)	Average (mm)
Value	484	408	478	457

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	780	790
Lap belt length as measured on ATD	mm	810	800
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems	mm	200	190

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2008 Ford Escape MPV

NHTSA No. : F80201 ; VIN: 1FMCU93148KA86015 ; Color: Blue

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

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

Transmission Data: 4 speeds; - Manual; X Automatic; - 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: 6/21/07 ; Odometer Reading 142 km

Selling Dealer: West-Herr Ford

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 X 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 6/07

GVWR: 2105 kg; GAWR: 1107 kg FRONT; 1057 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) = 461.0 kg

No. of Occupants x 68.04 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 120.8 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 =	501.0	464.0	59.3	965.0
Rear =	334.0	328.0	40.7	662.0
			Total Delivered Weight (UDW) =	1627.0

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW)	=	1627.0	kg
Rated Cargo/Luggage Weight (RCLW)	=	120.8	kg
Weight of 2 p.572 Dummies @ 76 each	=	152	kg
TARGET TEST WEIGHT	=	1899.8	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 116.0 KG OF CARGO WEIGHT:

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	541.0	505.5	55.2	1046.5
Rear =	433.0	415.5	44.8	848.5
			Total Vehicle Test Weight (ATW) =	1895.0

Weight of Ballast Secured in Vehicle Trunk Area[1] = 0 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:	826	838	881	883	1066.8
FULLY LOADED:	814	827	846	848	-
AS TESTED:	816	831	851	848	1174.0

Vehicle's Wheel Base: 2622 mm

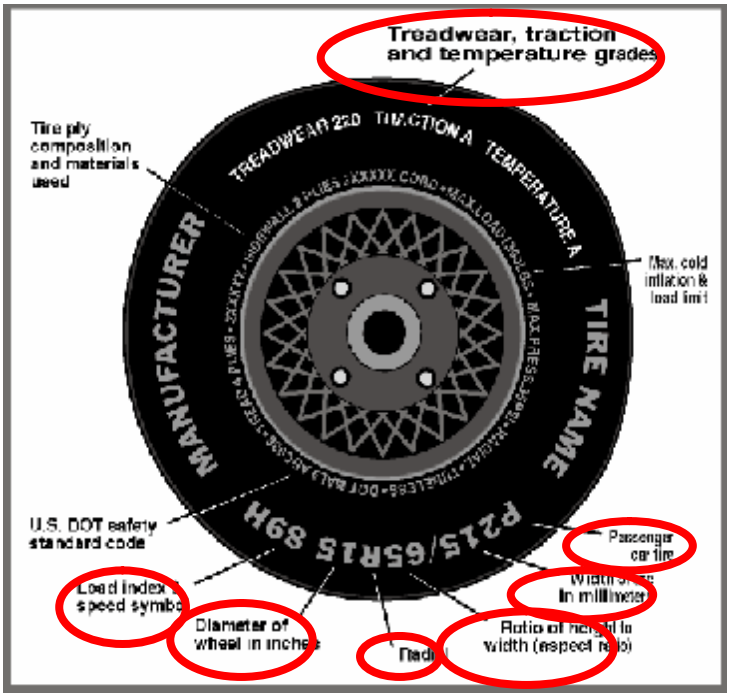
[1]Ballast weight does not include the weight of instrumentation, on-board cameras and data acquisition system

[2]Rearward of the front axle centerline.

DATA SHEET NO. 3
TEST VEHICLE TIRE INFORMATION

Vehicle Year/Make/Model/Body Style: 2008 Ford Escape MPV

NHTSA Test No.: F80201 Test Date: June 28, 2007



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	P235/70R16
Tire Manufacturer	Continental	Continental
Tire Name	Contitrac	Contitrac
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	520	520
Traction Grade	A	A
Temperature Grade	B	B

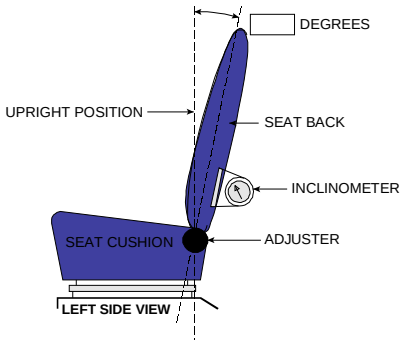
*Tire pressure used for test

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2008 Vehicle Model: Ford Escape Body Style : 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 deg

Measurement instructions: Seat back was reclined to 9.4 degrees from full upright position (Full upright Position = 8.1 deg). Angle was measured 13" above back pivot point on outboard side of seat.

Seat back angle for passenger's seat: 17.5 deg

Measurement instructions: Seat back was reclined to 9.4 degrees from full upright position (Full upright Position = 8.1 deg). Angle was measured 13" above back pivot point on outboard side of seat.

2. **SEAT FORE AND AFT POSITIONING:**

Positioning of the driver's seat: Seat was placed at center position of full range of travel. Full range of Travel is equal to 292 mm. Seat was placed at 146 mm rearward of most forward position.

Positioning of the passenger's seat: There are 25 total detents numbered from 0 to 24. The seat was placed in detent 12 from full forward (full forward = 0)

3. **FUEL TANK CAPACITY DATA:**

3.1	A. "Usable Capacity" of the standard equipment fuel tank is	62.4			62.4
	B. "Usable Capacity" of the optional equipment fuel tank is	--			--
	C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 =	57.4	57.4	57.4	liters
3.2	Actual Amount of Stoddard solvent added to vehicle for test =	57.4			57.4
3.3	One-Third of Useable Capacity =	20.8			20.8

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 electronic fuel pump operates for 2 seconds to pressurize the fuel system following the actuation of ignition. The fuel pump operates continuously while the engine is running. A fuel pump shut-off switch is provided which is designed to stop fuel flow to engine if the vehicle sustains an impact above a certain magnitude.

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: The steering column tilts from 22.7 degrees to 27.5 degrees. The column was placed at 25.1 degree; The geometric center of the locus of points.

5. **SEAT BELT UPPER ANCHORAGE:**

Nominal design riding position: There are total of four detents numbered 0 (uppermost) to 3. The test detent was at 3.

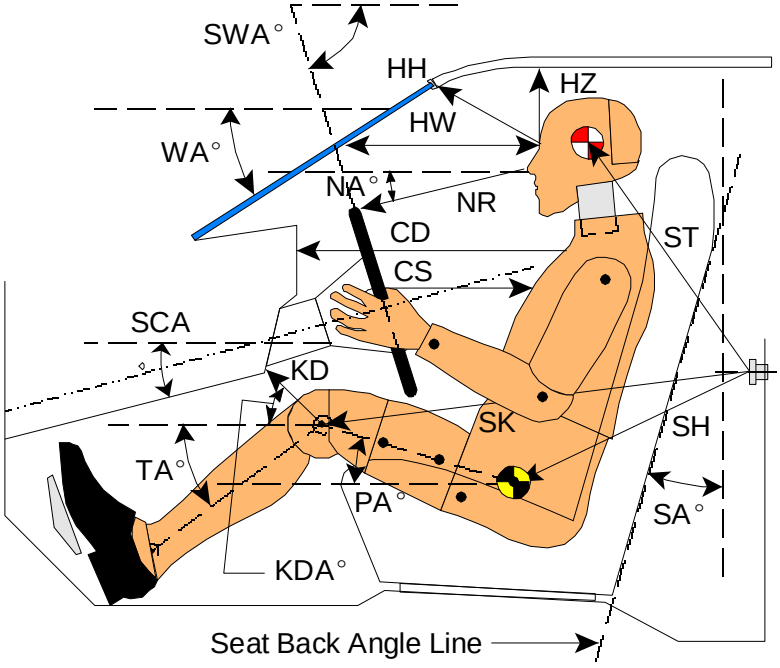
6. **AUTOMATIC DOOR LOCKS:** Is test vehicle equipped with ADLs? X Yes; ____ No;

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

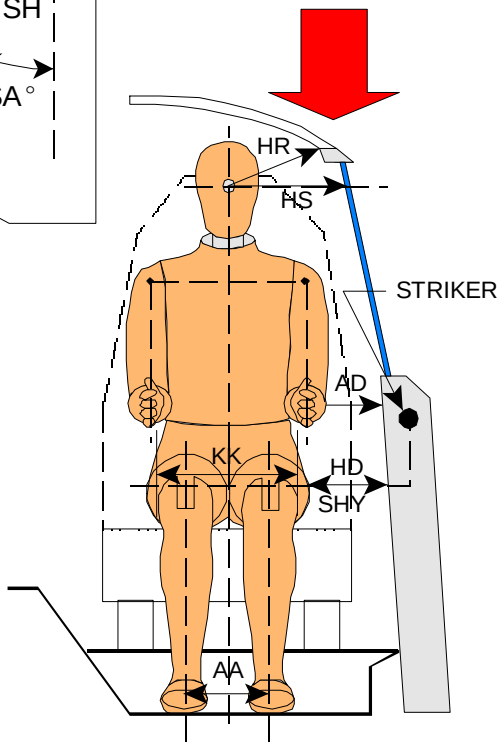
Comments: The ADL's were deactivated for this test

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

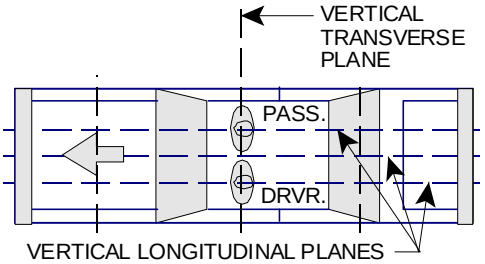
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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



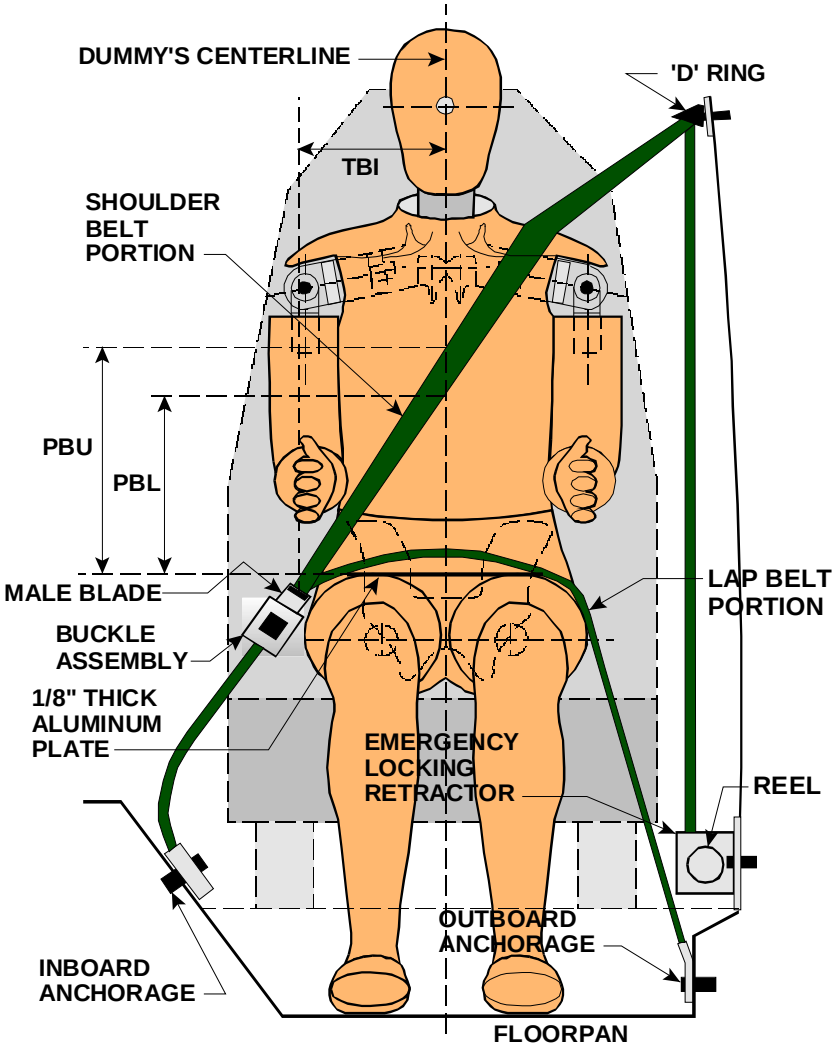
DATA SHEET NO. 5
FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #061)			PASS. (Serial #064)		
WA^O	36 deg.			N/A		
SWA^O	66 deg.			N/A		
SCA^O	24 deg.			N/A		
SA^O	17.5 deg.			17.5 deg.		
HZ	210			244		
HH	383			369		
HW	611			588		
HR	228			230		
NR	398	Angle	9 deg.	N/A		
CD	539			575		
CS	321			N/A		
RA	203			N/A		
KDL	120	Angle (KDA)	20 deg.	105		
KDR	118			123	Angle (KDA)	32 deg.
PA^O	23.7 deg.			23.2 deg.		
TA^O	46.7 deg.			42.1 deg.		
KK	330			270		
AA	345			250		
ST	498	Angle	10 deg.	524	Angle	12 deg.
SK	611	Angle	95 deg.	635	Angle	97 deg.
SH	236	Angle	136 deg.	250	Angle	127 deg.
SHY	240			225		
HS	320			315		
HD	133			125		
AD	100			100		

Dimensions in millimeters

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

SEAT BELT POSITIONING DATA

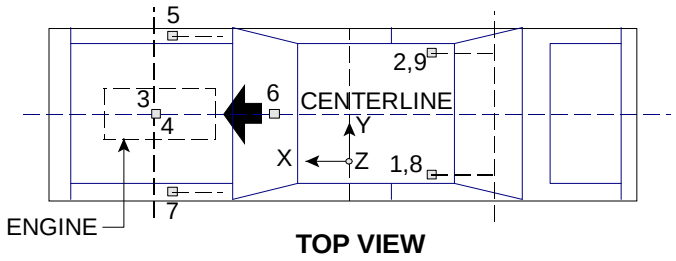


FRONT VIEW OF DUMMY

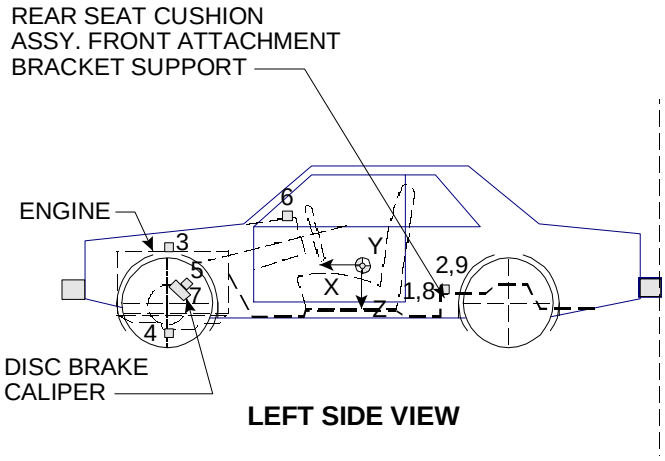
	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	300	300
PBL-- Top surface of alum. plate to belt lower edge	225	225
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

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	1770	-566	395
2	Right Rear Seat Cross Member X	1826	574	413
3	Top of Engine Block	3762	352	757
4	Bottom of Engine	3212	0	226
5	Disc Brake Caliper @ Right Side	3428	601	371
6	Instrument Panel**	-	-	-
7	Disc Brake Caliper @Left Side	3425	-583	361
8	Left Rear Seat Cross Member Z	1770	-566	395
9	Right Rear Seat Cross Member Z	1826	574	413

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 30 mm molding.

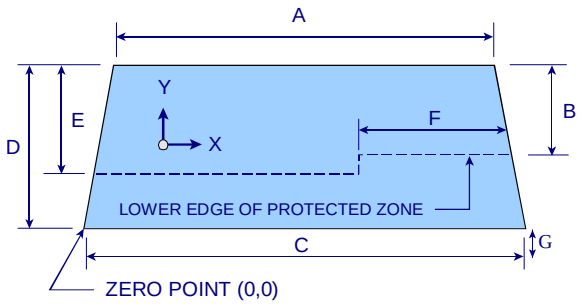
FMVSS 212 REQUIREMENTS:

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: 21ºC.

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST (mm)	
RIGHT SIDE	2015	2015	100.0%
LEFT SIDE	2015	2015	100.0%
TOTAL	4030	4030	100.0%



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1150
B	615
C	1460
D	710
E	500
F	505
G	30

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.: F80201 TEST DATE: June 28, 2007

VEHICLE MAKE/MODEL: 2008 Ford Escape MPV

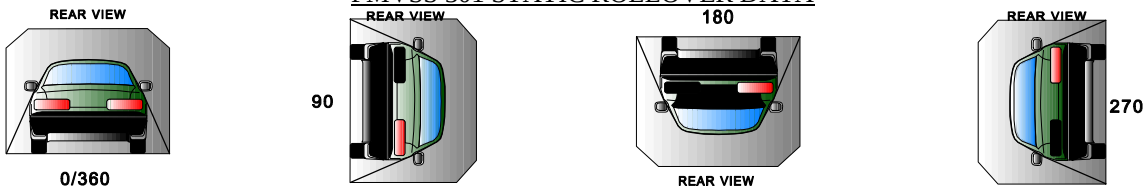
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

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	08	seconds	5	minutes	6	minutes	8	seconds	7	minutes
90º - 180º	1	minutes	15	seconds	5	minutes	6	minutes	15	seconds	7	minutes
180º-270º	1	minutes	01	seconds	5	minutes	6	minutes	1	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:

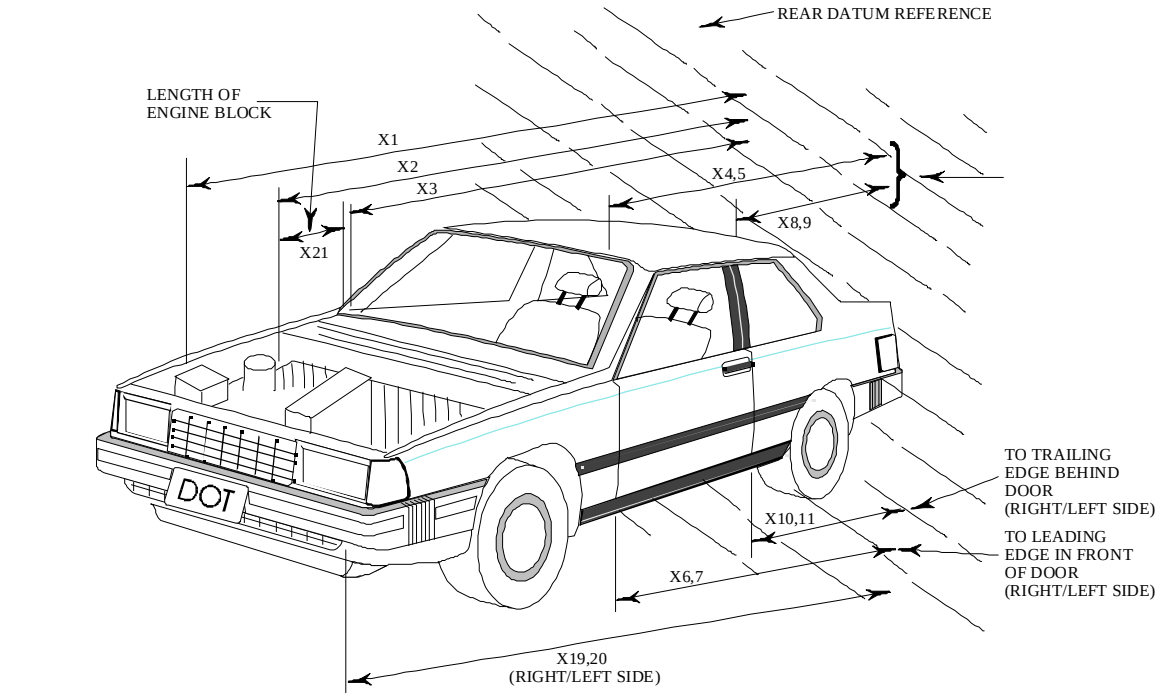
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0º - 90º	0	0	0	N/A
90º - 180º	0	0	0	N/A
180º-270º	0	0	0	N/A
270º-360º	0	0	0	N/A

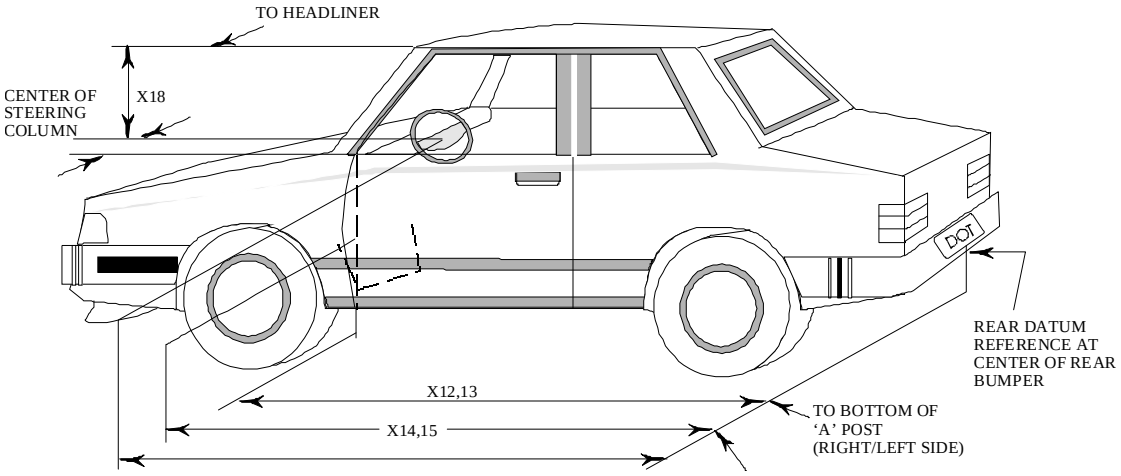
Note: Record spillage for whole minute intervals only as determined above.

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.: F80201 TEST DATE: June 28, 2007

VEHICLE MAKE/MODEL: 2008 Ford Escape MPV

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4436	4048	388
X2	Rear Surface of Vehicle to Front of Engine	4068	3715	353
X3	Rear Surface of Vehicle to Firewall	3440	3300	140
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3051	3046	5
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3055	3045	10
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3024	3021	3
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3028	3019	9
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2007	2001	6
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2009	1997	12
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2029	2025	4
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2031	2022	9
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3046	3042	4
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3049	3041	8
X14	Rear Surface of Vehicle to Firewall, Right Side	3478	3312	166
X15	Rear Surface of Vehicle to Firewall, Left Side	3479	3327	152
X16	Rear Surface of Vehicle to Steering Column	2622	2622	0
X17	Center of Steering Column to "A" Post	282	258	24
X18	Center of Steering Column to Headliner	463	466	-3
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4390	3970	420
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4392	4057	335
X21	Length of Engine Block	561	561	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2814	2824	-10
CD	Rear Surface of Vehicle to Center of Dash Panel	2832	2778	54
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2807	2801	6

All Dimensions in mm

DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

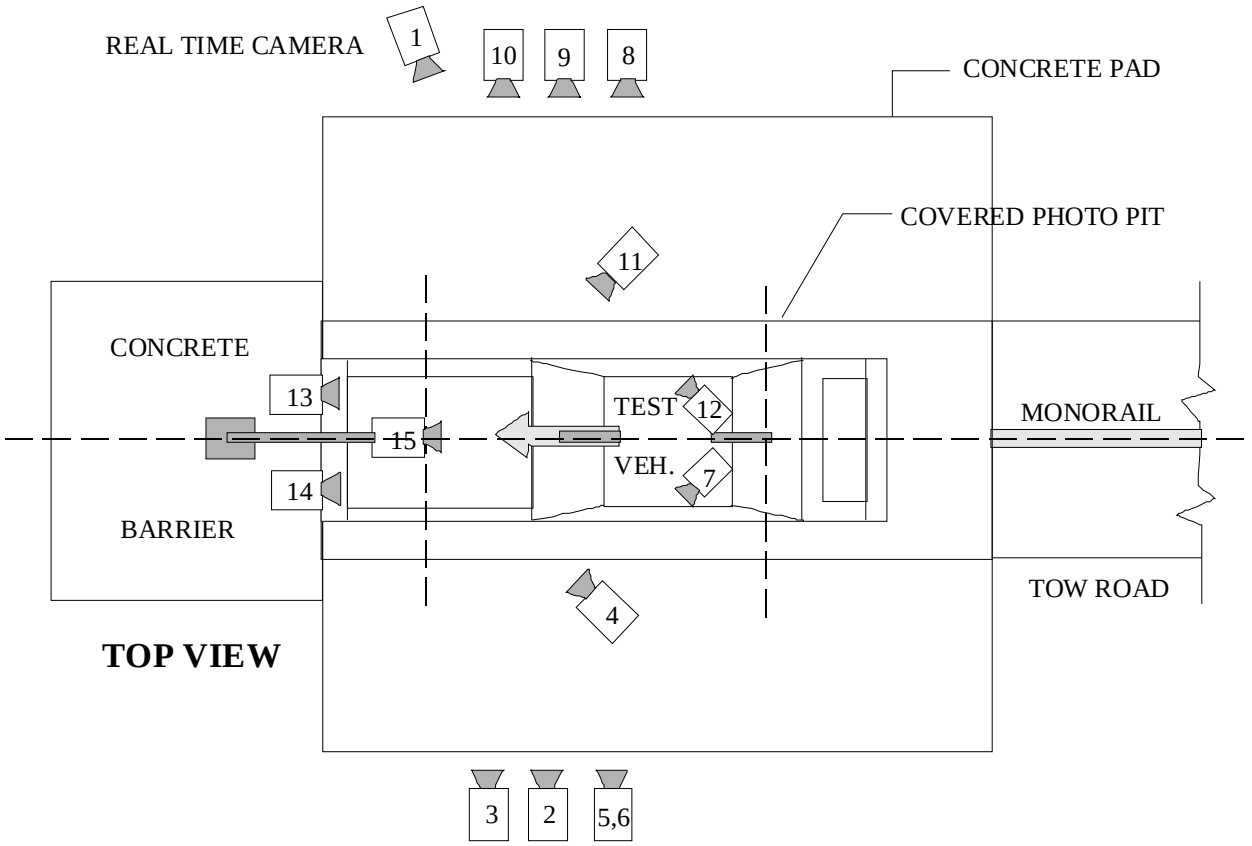
NHTSA TEST No.: F80201 TEST DATE: June 28, 2007

VEHICLE MAKE/MODEL: 2008 Ford Escape MPV

TARGET VEHICLE STRUCTURAL MEASUREMENTS

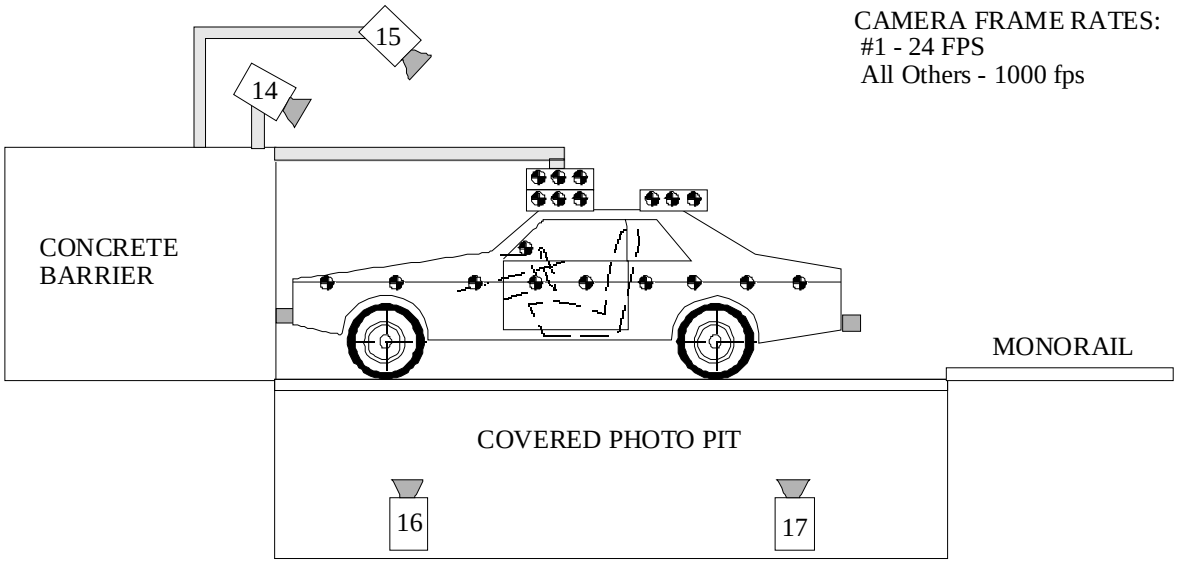
	Elements	Pre-Test (mm)
1	Total length	4436
2	Total Width	1754
3	Bumper Top Height	668
4	Bumper Bottom Height	526
5	Longitudinal Member Top Height	628
6	Distance Between Longitudinal Members	1010
7	Longitudinal Member Width	48
8	Engine top height	926
9	Engine bottom height	309
10	Engine and gearbox width	514
11	Front bumper-engine distance	369
12	Front shock absorber fixing height	1006
13	Bonnet leading edge height	936
14	Front shock absorber fixing width	1156
15	Front bumper – front axle distance	859
16	Front axle – A pillar distance	1037
17	A-pillar – B pillar distance	501
18	B-pillar – rear axle distance	1083
19	B-pillar – C Pillar distance	969
20	Roof sill bottom height	1551
21	Roof sill top height	1630
22	Floor sill bottom height	317
23	Floor sill top height	473

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.: F80201 Vehicle: 2008 Ford Escape 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	7705	1763	1127	-4	7248	28	1000
3	Left Side View	8363	1171	1099	-3	7906	50	1000
4	Driver and Interior View	7620	2865	2059	-9	-	50	500
5	Steering Column (Bottom)	8046	1907	1208	-2	7589	24	1000
6	Steering Column (Top)	8046	1907	1804	-7	7589	28	1000
7	Left CRS Lateral View	-	-	-	-	-	-	-
8	Overall Right Side	7209	1768	1029	-1	6752	24	500
9	Right Side View	9257	1286	1021	-2	8800	50	1000
10	Right Passenger View	7825	1754	1291	-2	7368	50	1000
11	Passenger and Interior View	7769	2563	1999	-7	-	50	500
12	Right CRS Lateral View	-	-	-	-	-	-	-
13	Passenger Front View	620	-92	1987	-37	-	12.5	500
14	Driver Front View	620	-92	1987	-39	-	20	500
15	Windshield View	0	-530	3374	-58	-	25	500
16	Pit View of Engine	0	615	-3048	90	-	12.5	500
17	Pit View of Fuel Tank	0	4180	-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

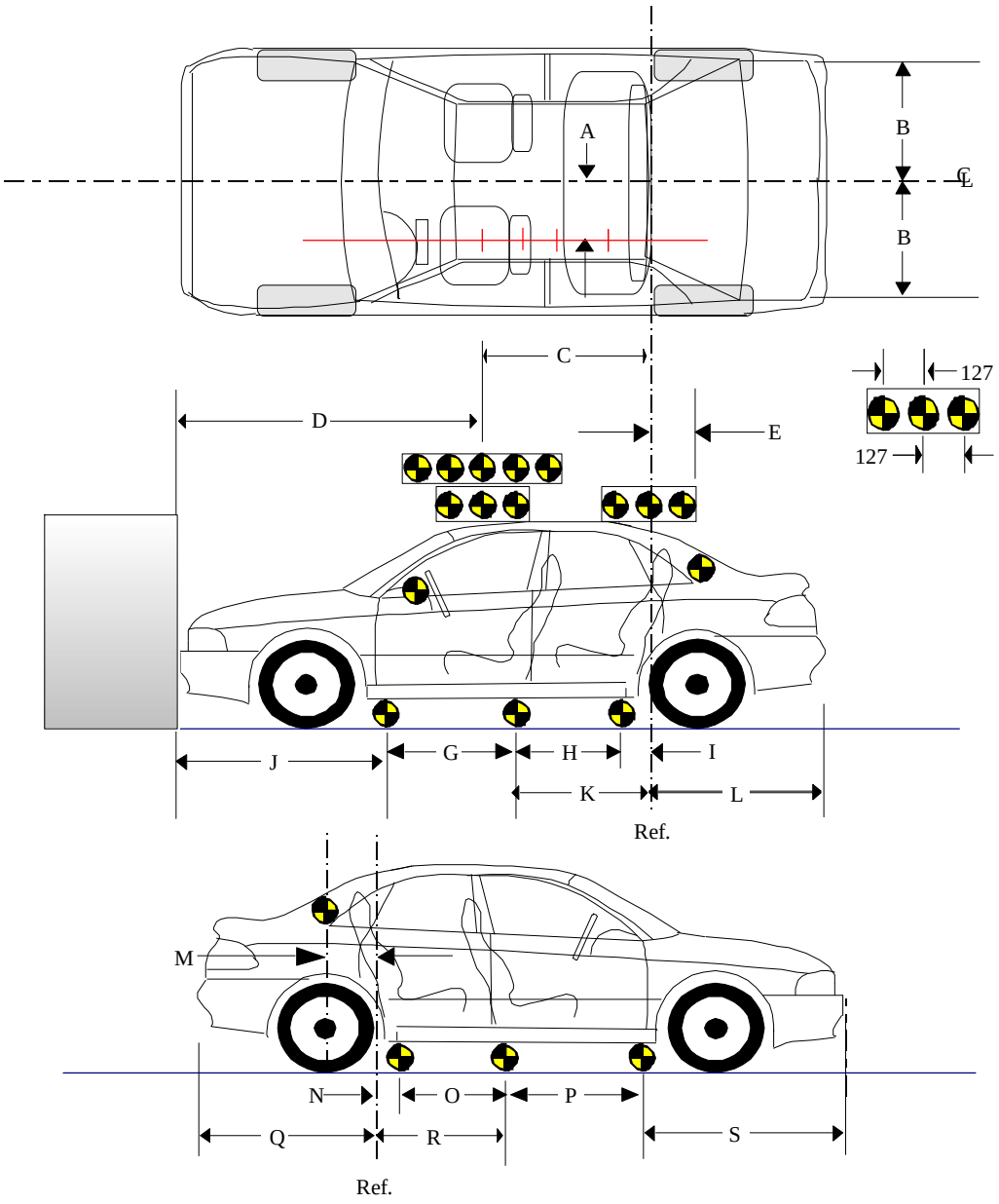
Z = film plane to ground

DATA SHEET NO. 12
VEHICLE REFERENCE PHOTO TARGET LOCATIONS

NHTSA Test No.: F80201 Vehicle: 2008 Ford Escape MPV

(Dimensions in millimeters)

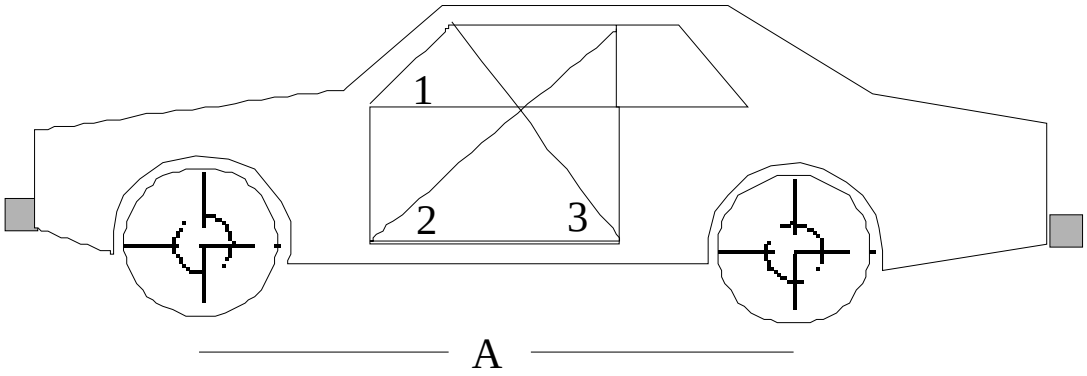
A	381
B	773
C	1219
D	1873
E	274
F	1481
G	827
H	833
I	112
J	1339
K	945
L	1325
M	282
N	113
O	831
P	832
Q	1325
R	944
S	1335



DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS

NHTSA Test No.: F80201 Vehicle: 2008 Ford Escape MPV

DOOR OPENING WIDTH AND WHEELBASE MEASUREMENTS



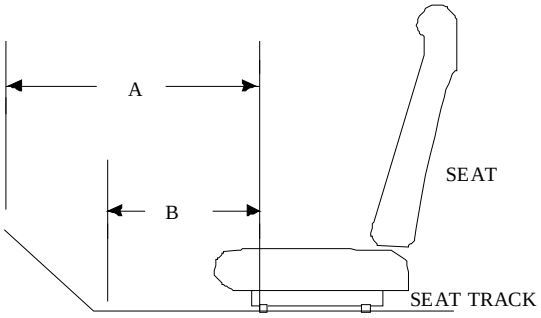
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	958	1433	1044	957	1432	1049
AFTER TEST	950	1432	1052	953	1432	1053
DIFFERENCE	8	1	-8	4	0	-4

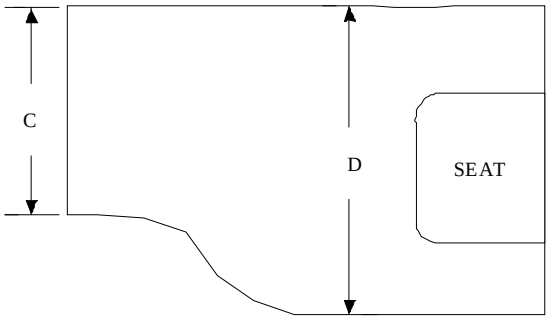
UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2622	2622
AFTER TEST	2610	2577
DIFFERENCE	12	45

DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont)

NHTSA Test No.: F80201 Vehicle: 2008 Ford Escape MPV

STATIC FOOTWELL DEFORMATION





DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	679	549	130
B	557	537	20
C	507	493	14
D	523	536	-13

PASSENGER

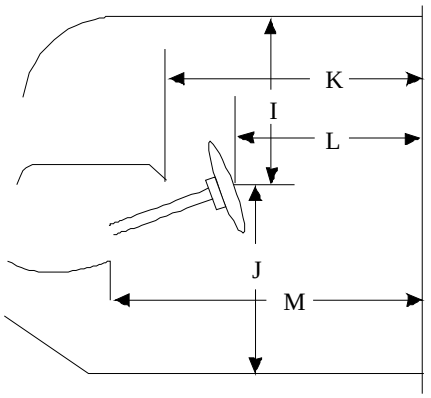
Measurement	Pre-Test	Post-Test	Difference
A	675	548	127
B	560	544	16
C	474	472	2
D	536	529	7

Units = mm

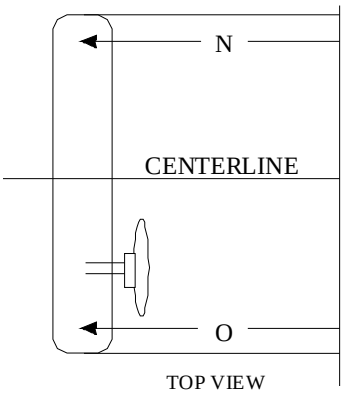
DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont.)

NHTSA Test No.: F80201 Vehicle: 2008 Ford Escape MPV

STATIC PASSENGER COMPARTMENT INTRUSION

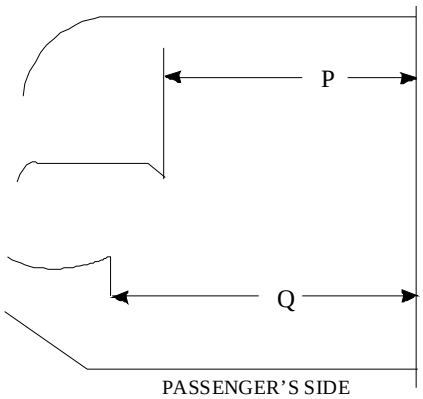


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



PASSENGER'S SIDE

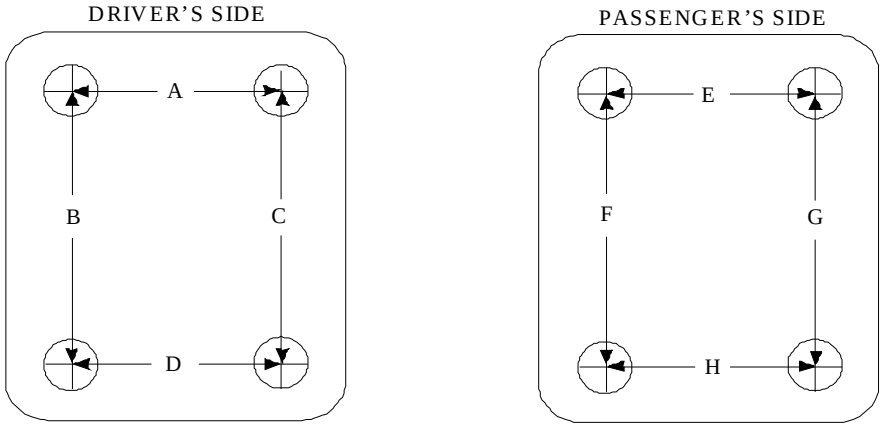
Measurement	Pre-Test	Post-Test	Difference
I	463	466	-3
J	666	650	16
K	753	697	56
L	561	563	-2
M	800	795	5
N	753	764	-11
O	746	741	5
P = K (PASS.)	786	752	34
Q = M (PASS.)	840	803	37

Units = mm

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

NHTSA Test No.: F80201 Vehicle: 2008 Ford Escape MPV

FLOORBOARD DEFORMATION



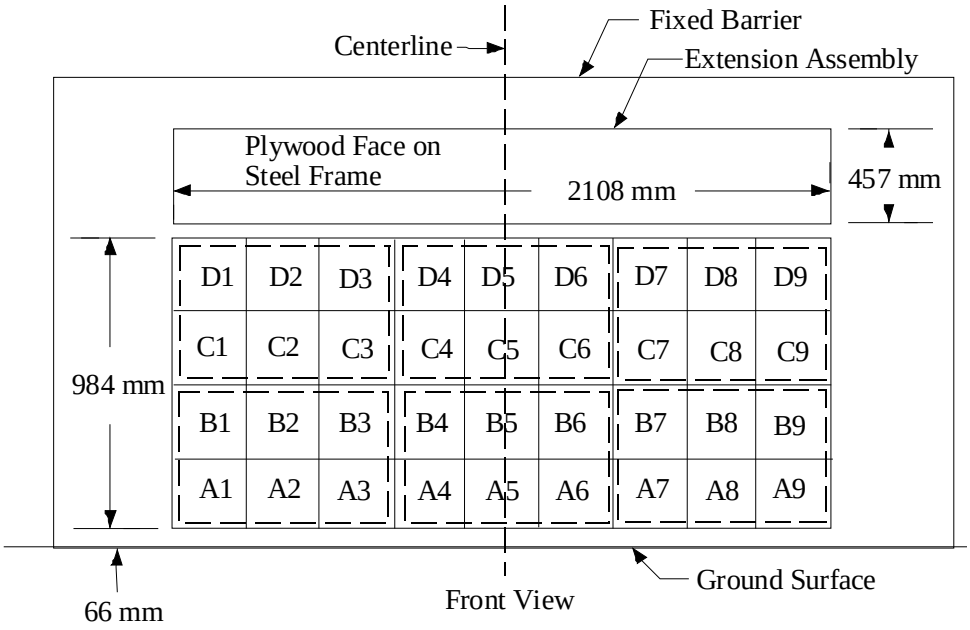
TOP VIEW THROUGH FLOOR PAN

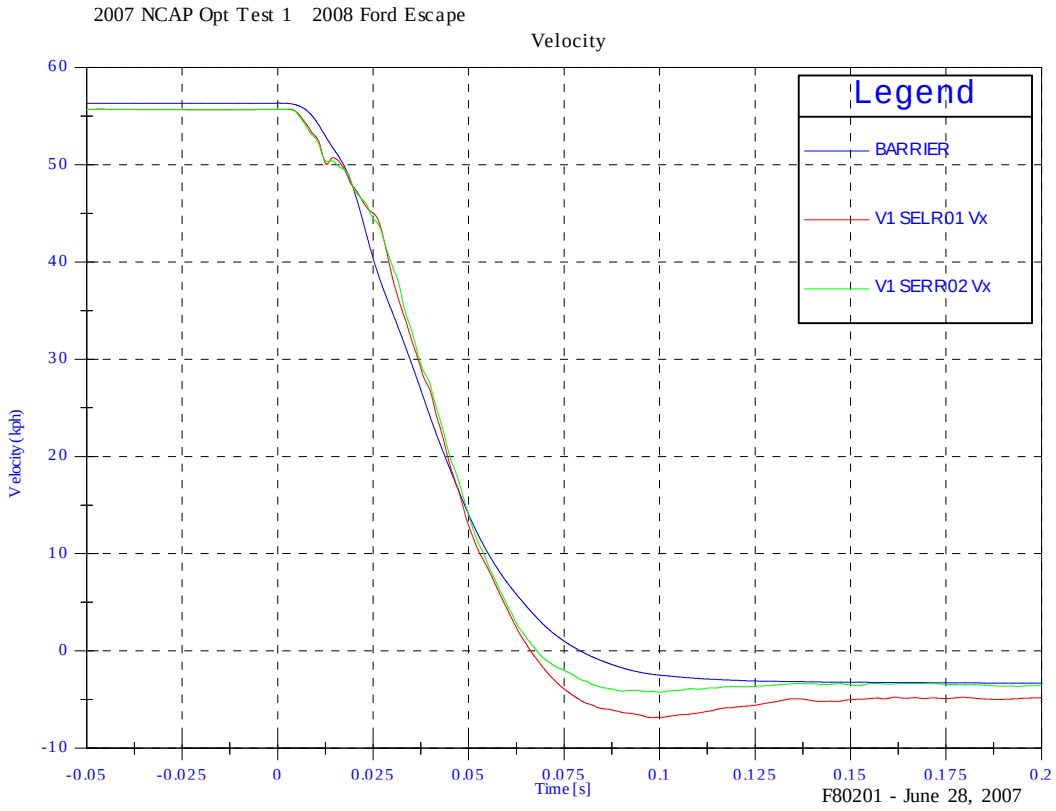
Measurement	Pre-Test	Post-Test	Difference
A	507	493	14
B	278	265	12
C	248	238	10
D	523	536	-12
E	474	472	2
F	323	328	-4
G	348	323	25
H	536	529	7

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 MPV

NHTSA Test No.: F80201 VIN: 1FMCU93148KA86015

Model Year: 2008 Build Date: 6/07 Test Date: June 28, 2007

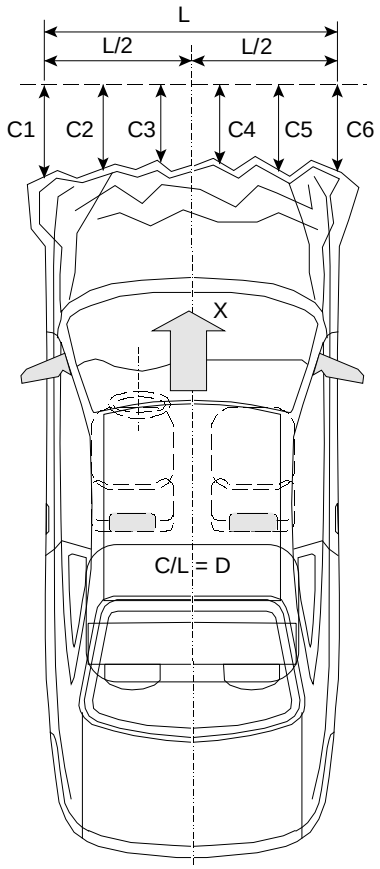
Vehicle Size Category: MPV Test Weight: 1895.0 kg

Vehicle Wheelbase: 2622 mm; Front Overhang: 859 mm; Overall Width: 1754 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	4232	3940	292
C2 =	4392	4011	381
C3 =	4429	4020	409
C4 =	4428	4001	427
C5 =	4389	3948	441
C6 =	4232	3887	345



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

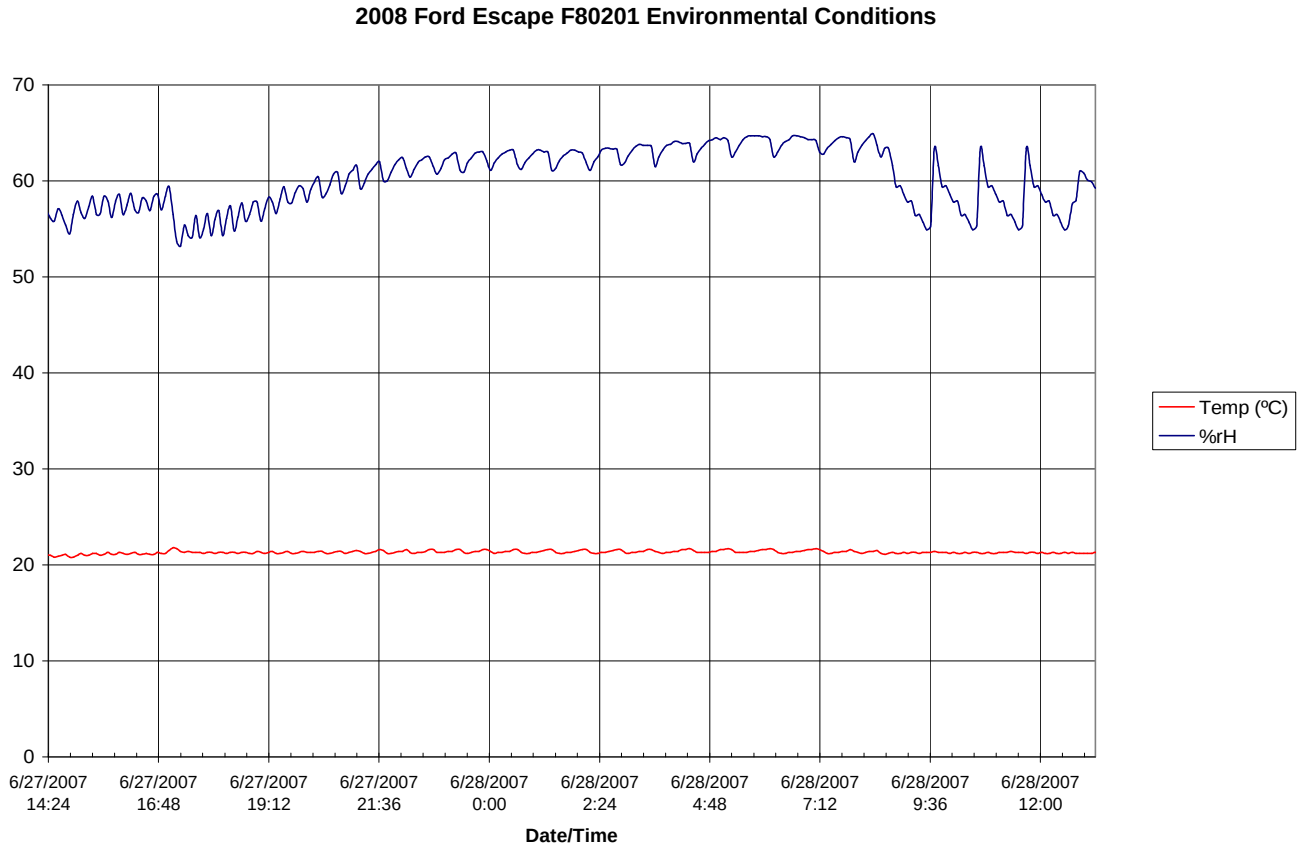
Length of Damaged Region: L1= 1498.0 mm

L2= 749.0 mm

L5= 299.6 mm

DATA SHEET NO.16
VEHICLE AND DUMMY TEMPERATURE STABILIZATION CHART

NHTSA Test No.: F80201 Vehicle: 2008 Ford Escape MPV



APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS (CONTINUED)

Figure A-1: Load Cell Locations

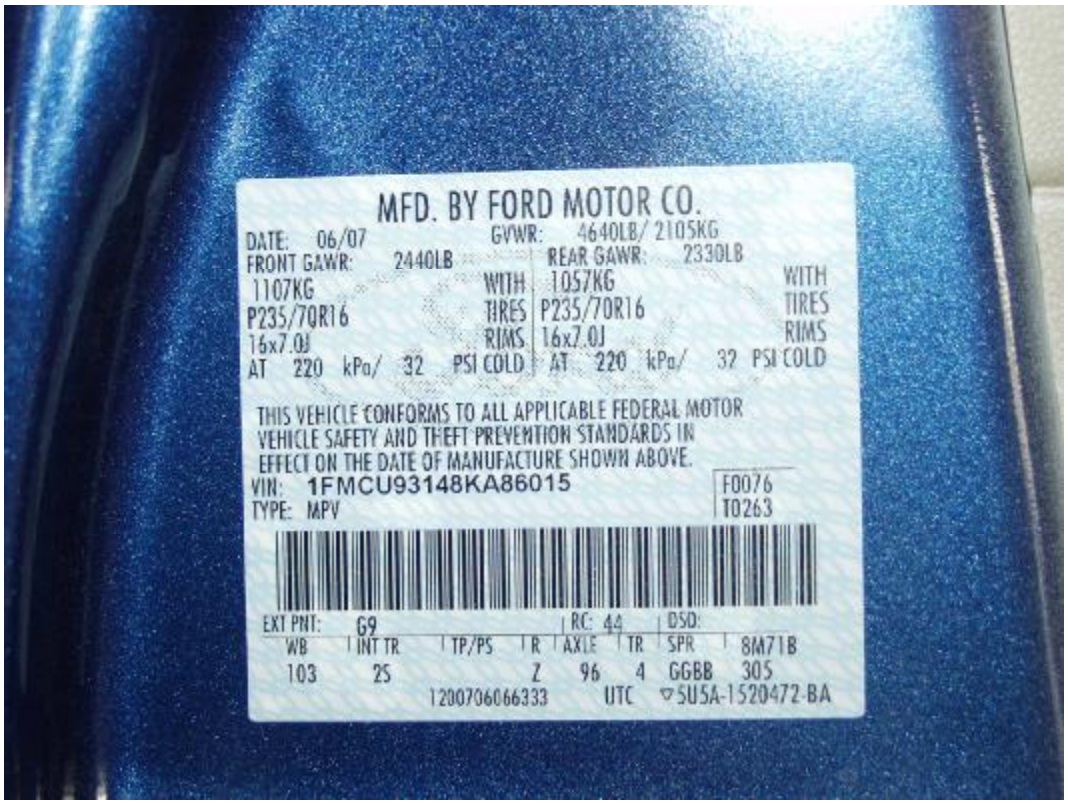


Figure A-2: Vehicle Certification Placard

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

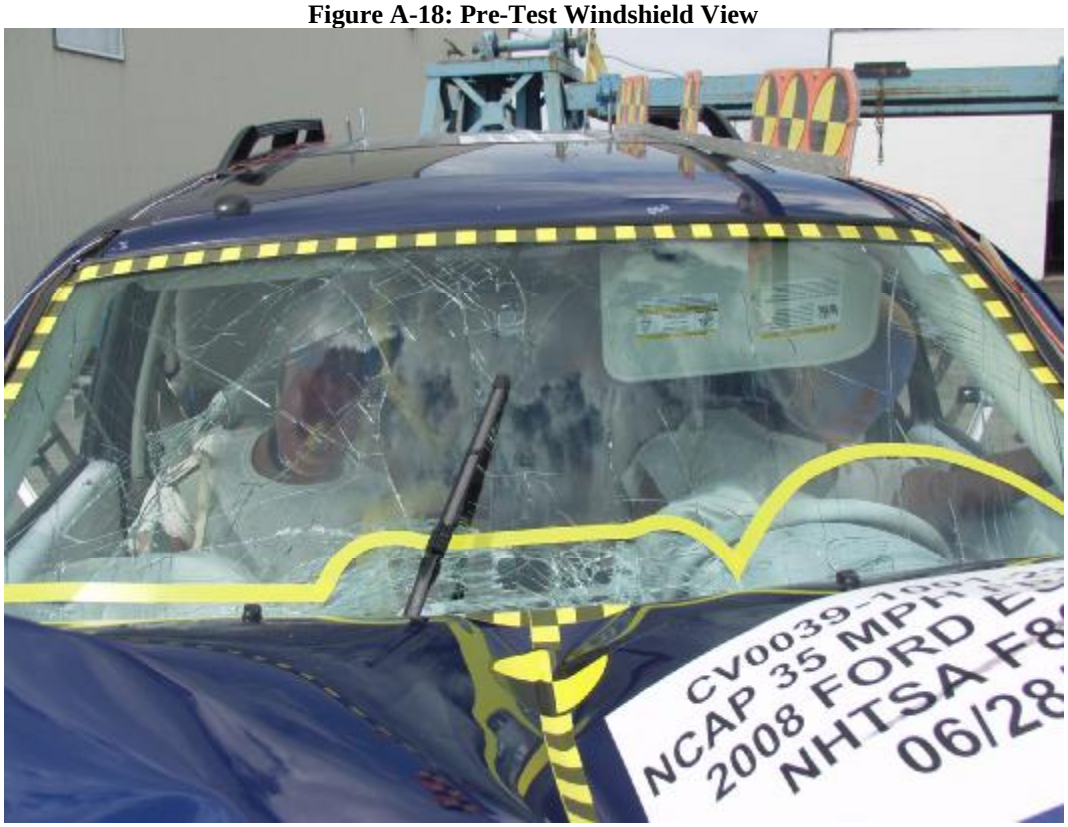


Figure A-19: Post-Test Windshield View

Figure A-20: Pre-Test Engine Compartment View

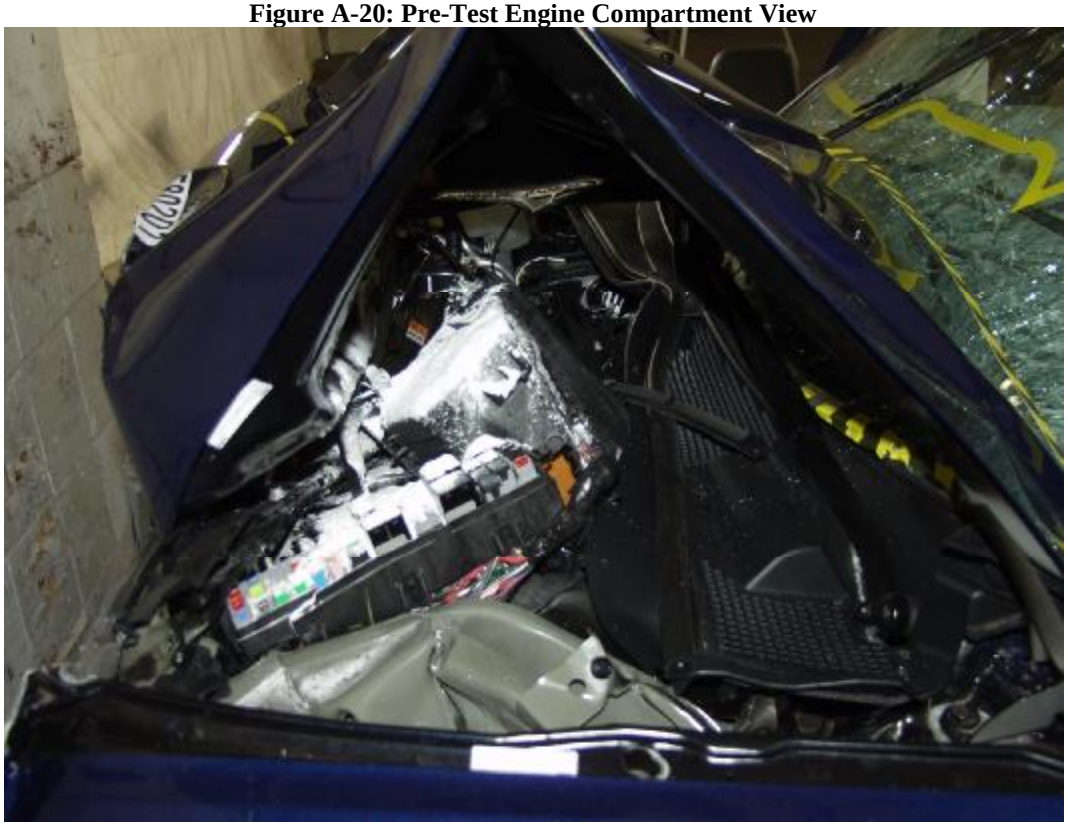


Figure A-21: Post-Test Engine Compartment View

Figure A-22: Pre-Test Fuel Cap View

Figure A-23: Post-Test Fuel Cap View

Figure A-24: Pre-Test Front Underbody View

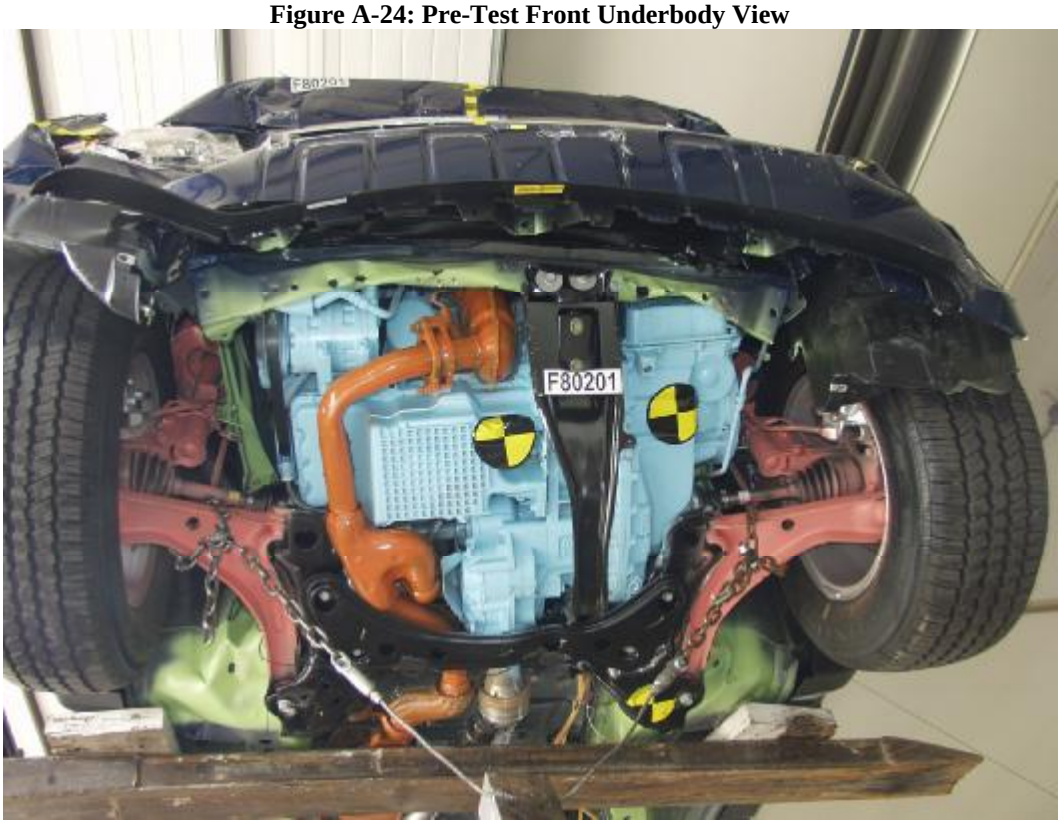


Figure A-25: Post-Test Front Underbody View

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

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

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.: F80201

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

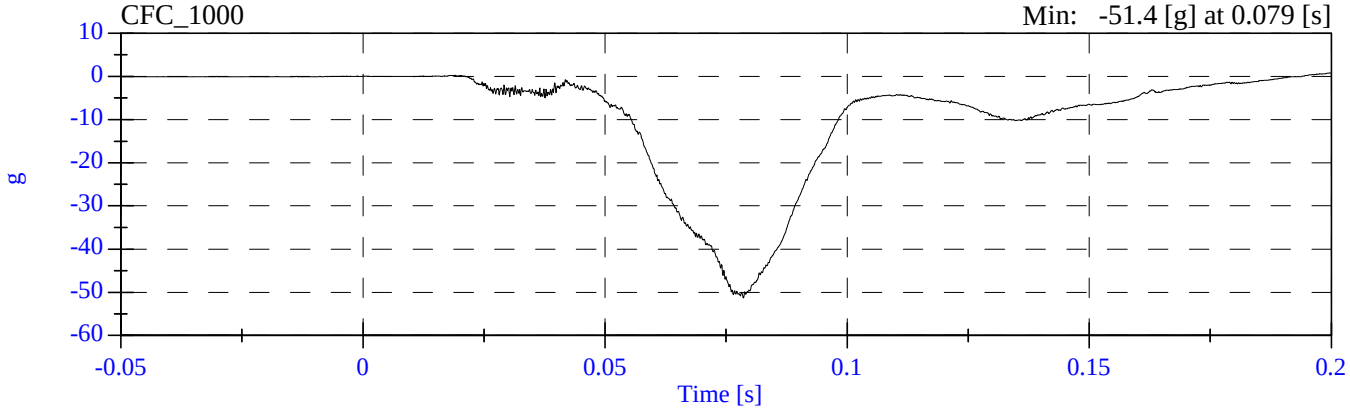
V1P1 Head CG Ax	V1P2 Head CG Ax
V1P1 Head CG Ay	V1P2 Head CG Ay
V1P1 Head CG Az	V1P2 Head CG Az
V1P1 Head CG Red Ax	V1P2 Head CG Red Ax
V1P1 Head CG Red Ay	V1P2 Head CG Red Ay
V1P1 Head CG Red Az	V1P2 Head CG Red Az
V1P1 Upper Neck Fx	V1P2 Upper Neck Fx
V1P1 Upper Neck Fy	V1P2 Upper Neck Fy
V1P1 Upper Neck Fz	V1P2 Upper Neck Fz
V1P1 Upper Neck Mx	V1P2 Upper Neck Mx
V1P1 Upper Neck My	V1P2 Upper Neck My
V1P1 Upper Neck Mz	V1P2 Upper Neck Mz
V1P1 Chest Ax	V1P2 Chest Ax
V1P1 Chest Ay	V1P2 Chest Ay
V1P1 Chest Az	V1P2 Chest Az
V1P1 Chest Red Ax	V1P2 Chest Red Ax
V1P1 Chest Red Ay	V1P2 Chest Red Ay
V1P1 Chest Red Az	V1P2 Chest Red Az
V1P1 Chest Compression	V1P2 Chest Compression
V1P1 Pelvic Ax	V1P2 Pelvic Ax
V1P1 Pelvic Ay	V1P2 Pelvic Ay
V1P1 Pelvic Az	V1P2 Pelvic Az
V1P1 Left Femur Fz	V1P2 Left Femur Fz
V1P1 Right Femur Fz	V1P2 Right Femur Fz
V1P1 Left Upper Tibia Mx	V1P2 Left Upper Tibia Fz
V1P1 Left Upper Tibia My	V1P2 Left Upper Tibia Mx
V1P1 Left Lower Tibia Fz	V1P2 Left Upper Tibia My
V1P1 Left Lower Tibia Mx	V1P2 Left Lower Tibia Mx
V1P1 Left Lower Tibia My	V1P2 Left Lower Tibia My
V1P1 Right Upper Tibia Fz	V1P2 Right Upper Tibia Mx
V1P1 Right Upper Tibia Mx	V1P2 Right Upper Tibia My
V1P1 Right Upper Tibia My	V1P2 Right Lower Tibia Fz
V1P1 Right Lower Tibia Mx	V1P2 Right Lower Tibia Mx
V1P1 Right Lower Tibia My	V1P2 Right Lower Tibia My
V1P1 Left Foot Aft Ax	V1P2 Left Foot Aft Ax
V1P1 Left Foot Aft Az	V1P2 Left Foot Aft Az
V1P1 Left Foot Fore Az	V1P2 Left Foot Fore Az
V1P1 Right Foot Aft Ax	V1P2 Right Foot Aft Ax
V1P1 Right Foot Aft Az	V1P2 Right Foot Aft Az
V1P1 Right Foot Fore z	V1P2 Right Foot Fore Az
V1P1 Lap Belt Load	V1P2 Lap Belt Load
V1P1 Shoulder Belt Load	V1P2 Shoulder Belt Load

Barrier Load Cell A1 Fx	V1 Left Rear #1x
Barrier Load Cell A2 Fx	V1 Right Rear #2x
Barrier Load Cell A3 Fx	V1 Engine Top #3x
Barrier Load Cell A4 Fx	V1 Engine Bottom #4x
Barrier Load Cell A5 Fx	V1 Right Caliper #5x
Barrier Load Cell A6 Fx	V1 Left Caliper #7x
Barrier Load Cell A7 Fx	V1 Left Rear #8z
Barrier Load Cell A8 Fx	V1 Right Rear #9z
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	

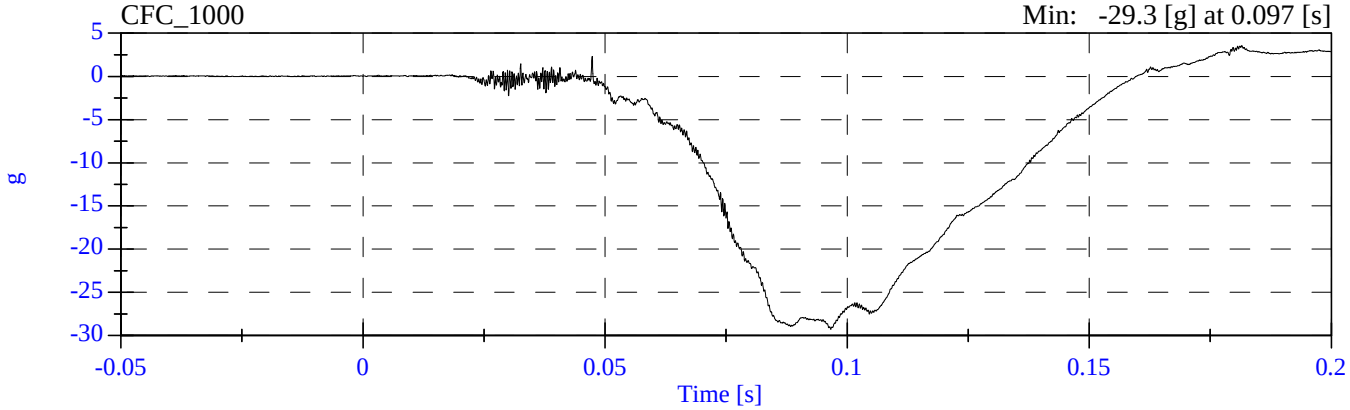
TEST NOTES	
Data Channel	Anomalies
Pos 1 Head CG Y (Redundant)	Questionable data after 86 msec.
Pos 1 Right Foot Aft X	Questionable data from 35 to 49 msec.
Pos 2 Upper Neck Force X	Channel did not record properly
Engine Top Accelerometer X	Wire cut at approximately 33.7 msec
Right Caliper Accelerometer X	Channel opened at approximately 67 msec
Left Rear Accelerometer Z	Data not accurate after 50 msec
Pos 1 Head CG Y (Redundant)	Questionable data after 86 msec.
Pos 1 Right Foot Aft X	Questionable data from 35 to 49 msec.

2007 NCAP Opt Test 1 2008 Ford Escape
F80201 - June 28, 2007

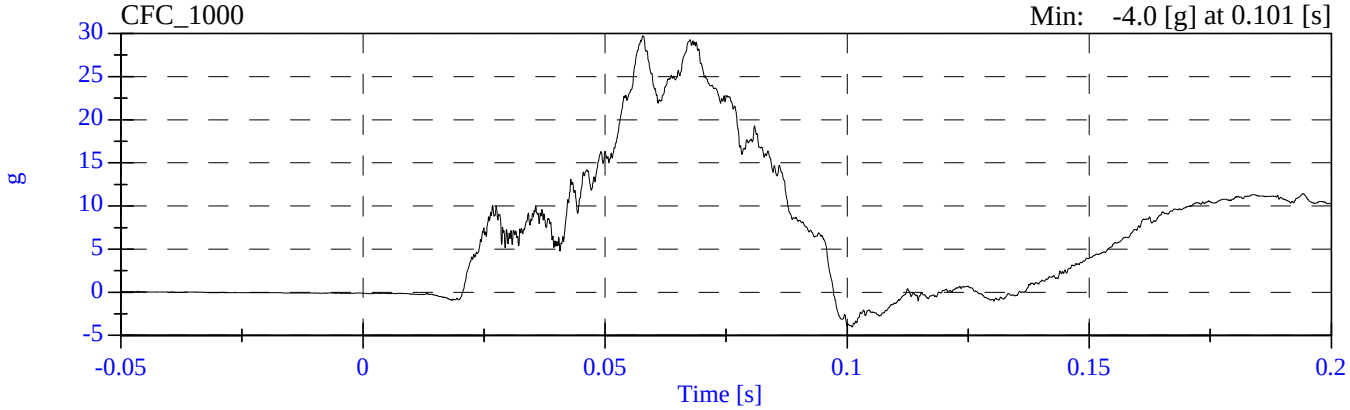
V1P1 Head CG x
CFC_1000
Max: 0.8 [g] at 0.200 [s]
Min: -51.4 [g] at 0.079 [s]



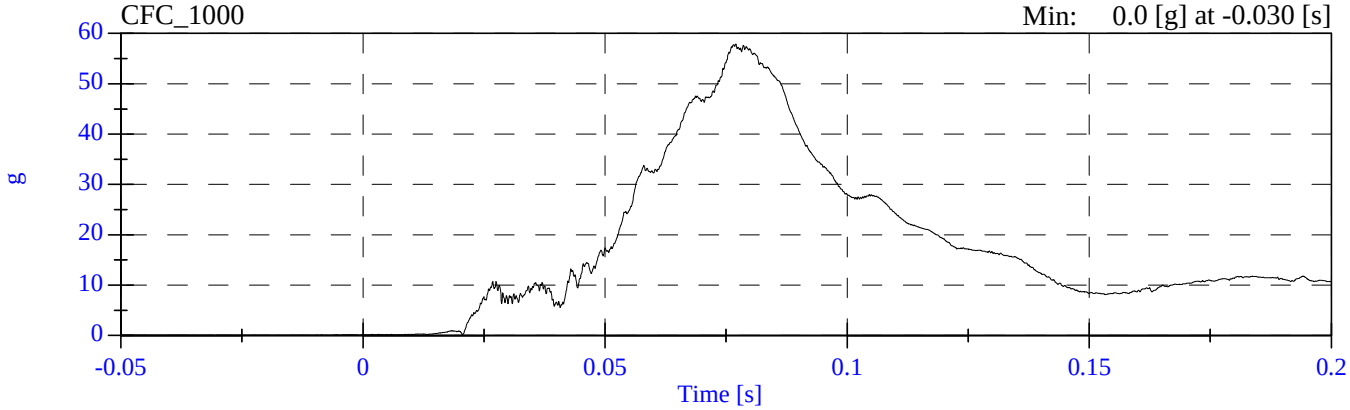
V1P1 Head CG y
CFC_1000
Max: 3.6 [g] at 0.181 [s]
Min: -29.3 [g] at 0.097 [s]



V1P1 Head CG z
CFC_1000
Max: 29.7 [g] at 0.058 [s]
Min: -4.0 [g] at 0.101 [s]

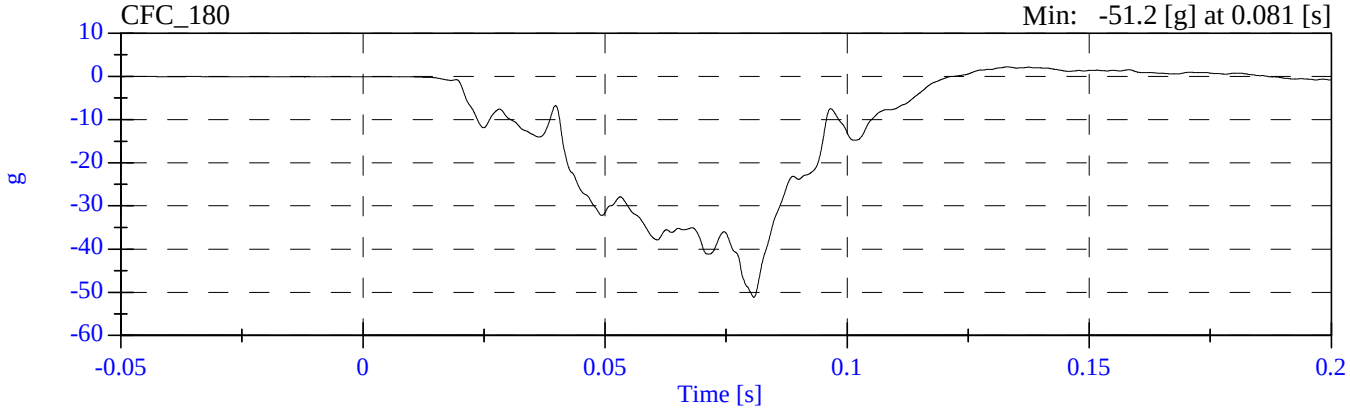


V1P1 Head CG Resultant
CFC_1000
Max: 57.9 [g] at 0.077 [s]
Min: 0.0 [g] at -0.030 [s]

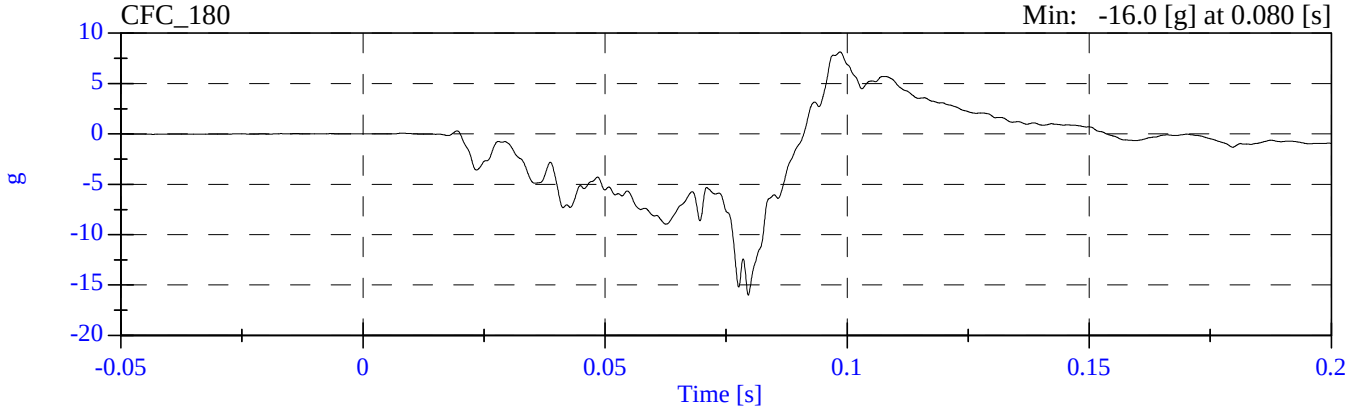


2007 NCAP Opt Test 1 2008 Ford Escape
F80201 - June 28, 2007

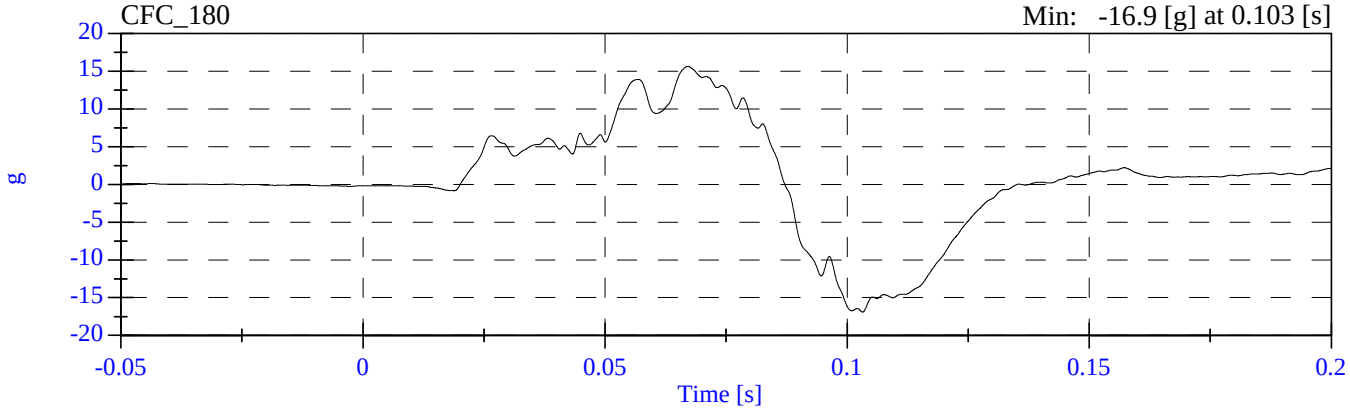
V1P1 Chest x
CFC_180
Max: 2.2 [g] at 0.133 [s]
Min: -51.2 [g] at 0.081 [s]



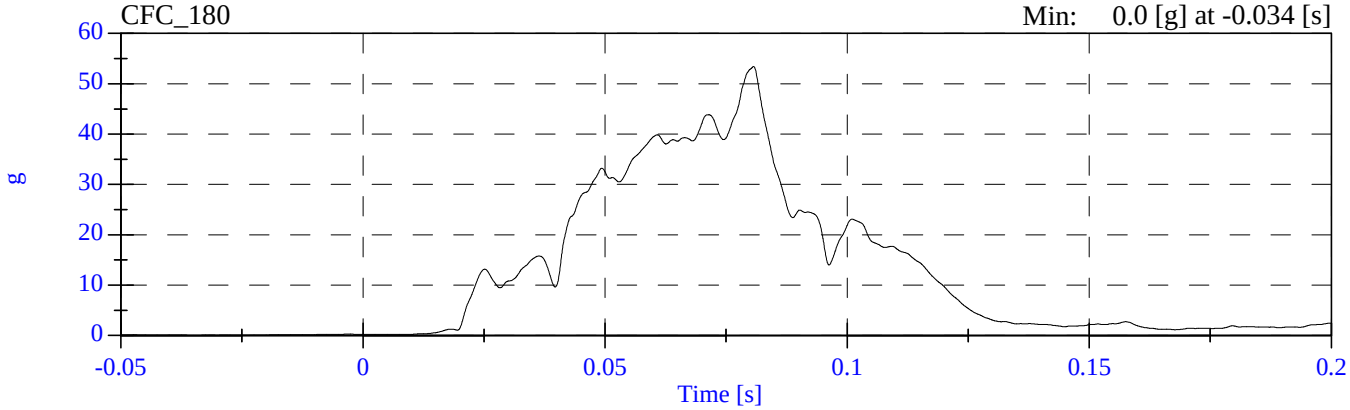
V1P1 Chest y
CFC_180
Max: 8.2 [g] at 0.099 [s]
Min: -16.0 [g] at 0.080 [s]



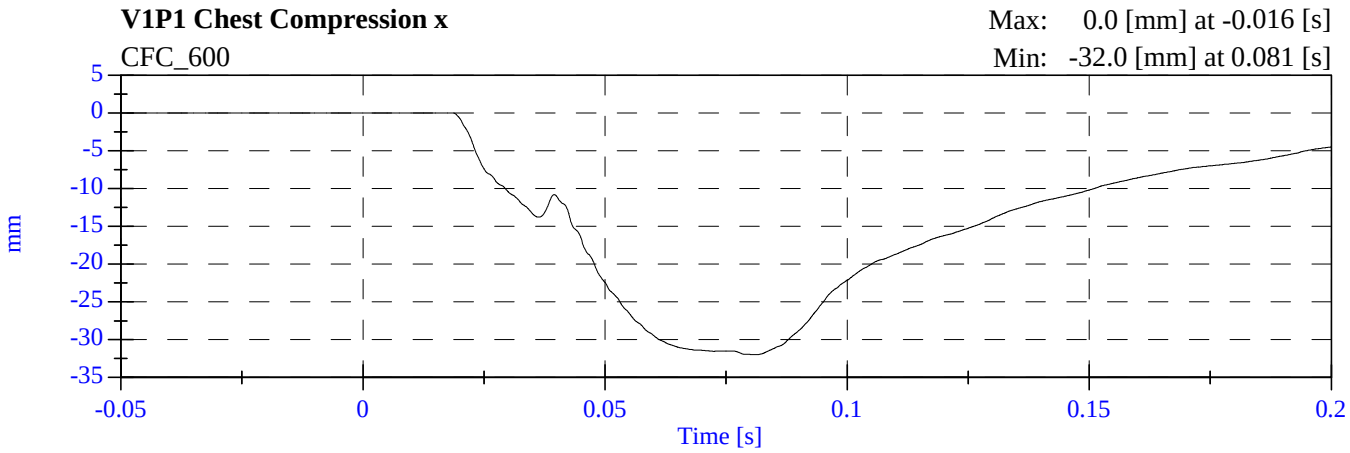
V1P1 Chest z
CFC_180
Max: 15.7 [g] at 0.067 [s]
Min: -16.9 [g] at 0.103 [s]



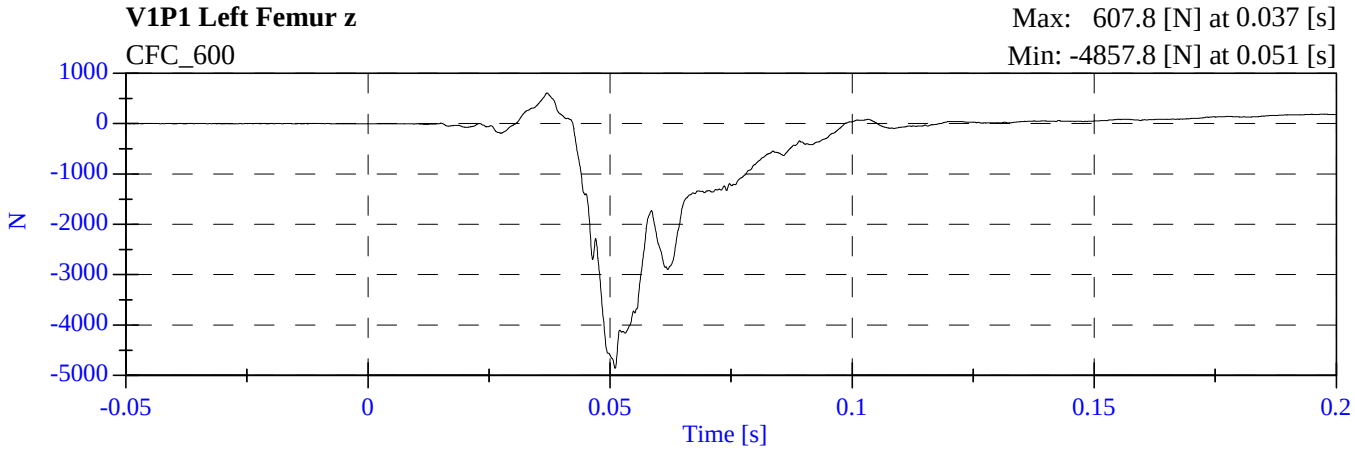
V1P1 Chest Resultant
CFC_180
Max: 53.5 [g] at 0.081 [s]
Min: 0.0 [g] at -0.034 [s]

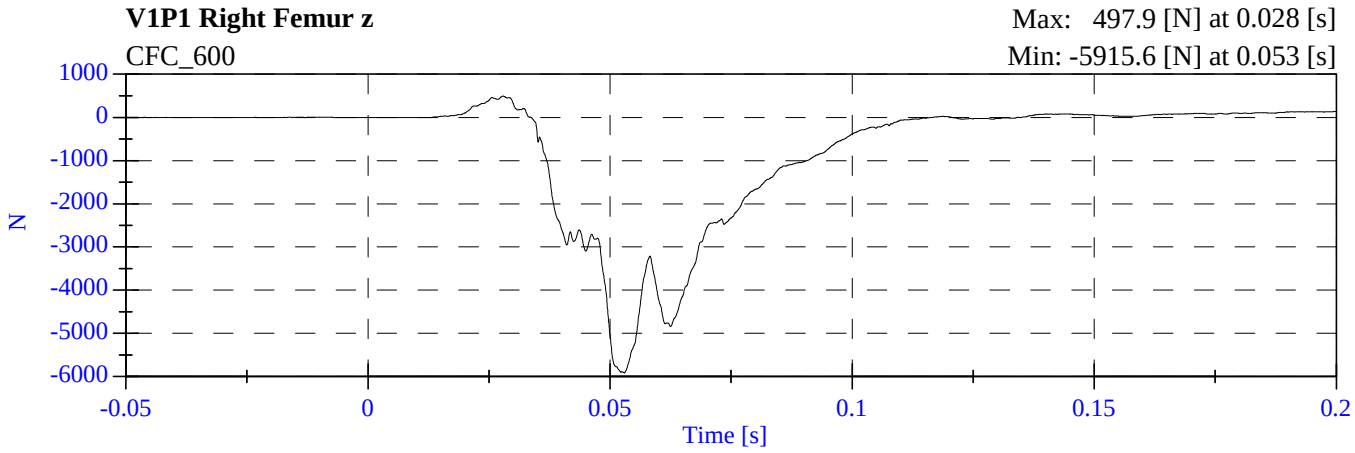


2007 NCAP Opt Test 1 2008 Ford Escape
F80201 - June 28, 2007



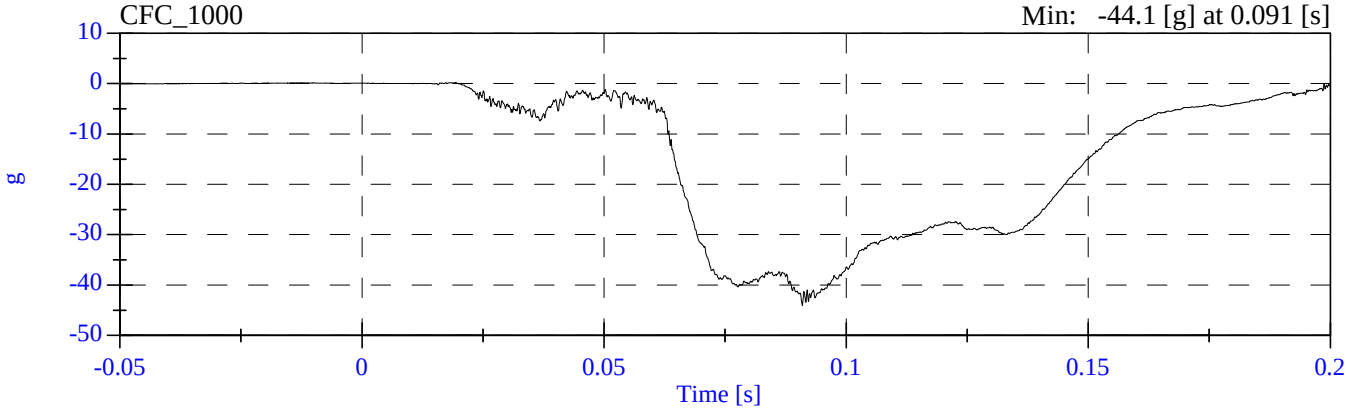
2007 NCAP Opt Test 1 2008 Ford Escape
F80201 - June 28, 2007



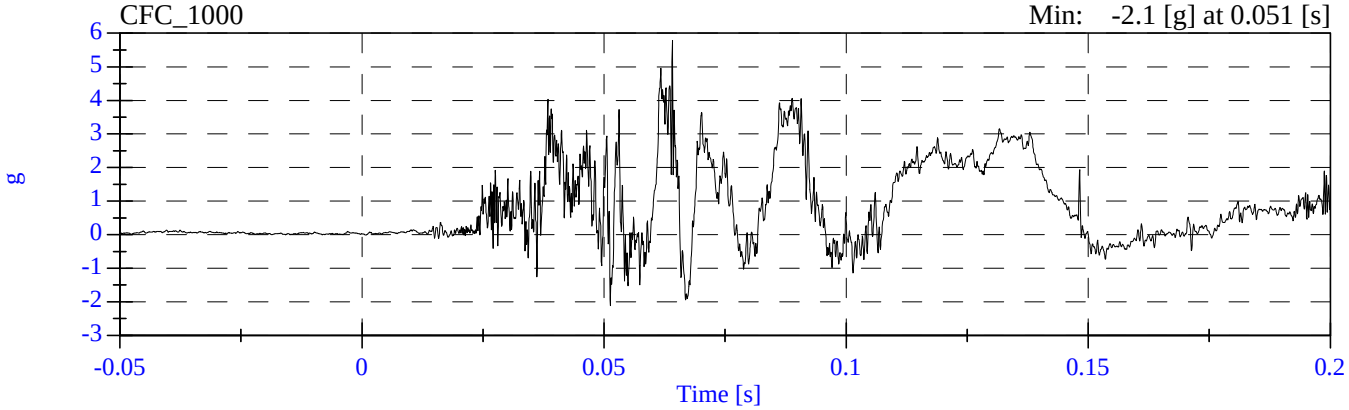


2007 NCAP Opt Test 1 2008 Ford Escape
F80201 - June 28, 2007

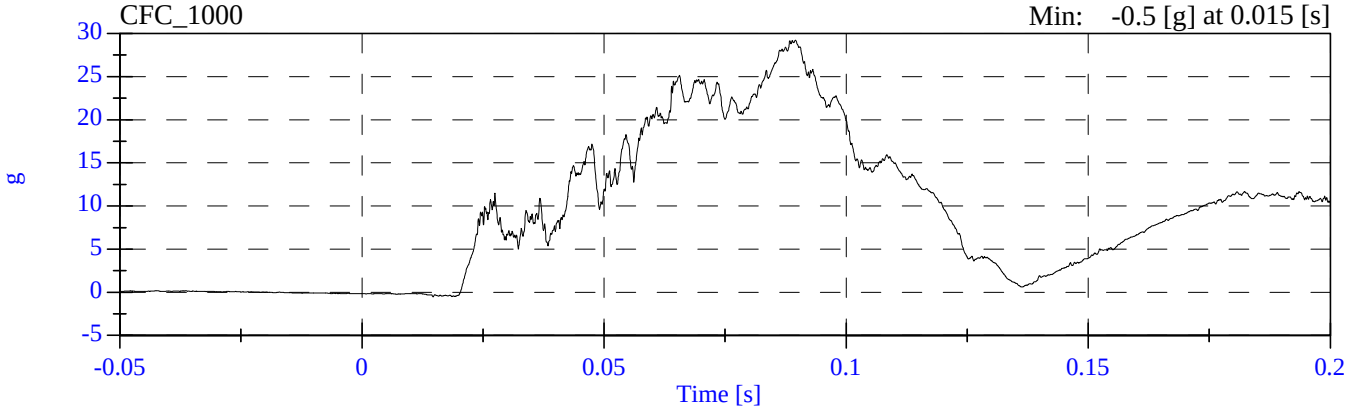
V1P2 Head CG x
CFC_1000
Max: 0.2 [g] at 0.019 [s]
Min: -44.1 [g] at 0.091 [s]



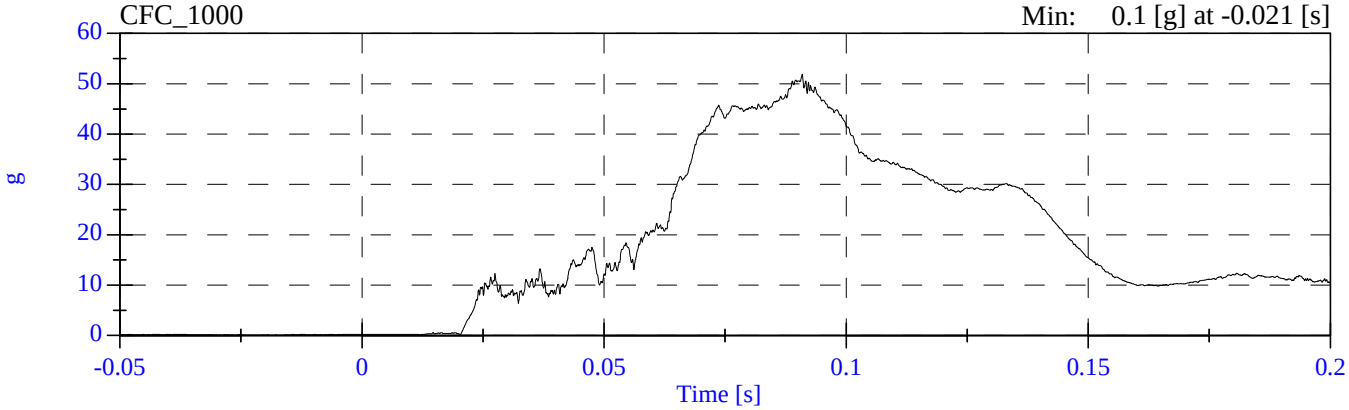
V1P2 Head CG y
CFC_1000
Max: 5.8 [g] at 0.064 [s]
Min: -2.1 [g] at 0.051 [s]



V1P2 Head CG z
CFC_1000
Max: 29.2 [g] at 0.090 [s]
Min: -0.5 [g] at 0.015 [s]

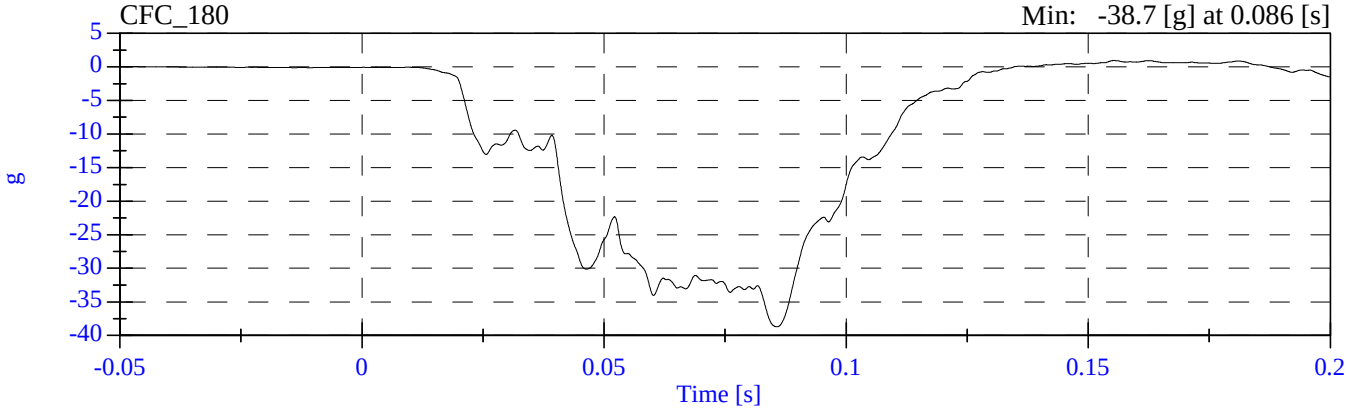


V1P2 Head CG Resultant
CFC_1000
Max: 51.9 [g] at 0.091 [s]
Min: 0.1 [g] at -0.021 [s]

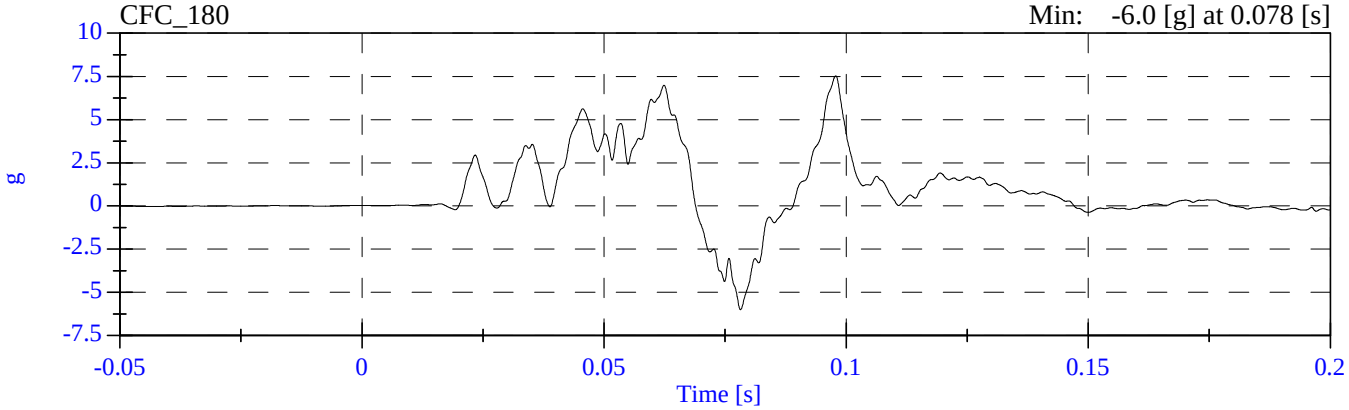


2007 NCAP Opt Test 1 2008 Ford Escape
F80201 - June 28, 2007

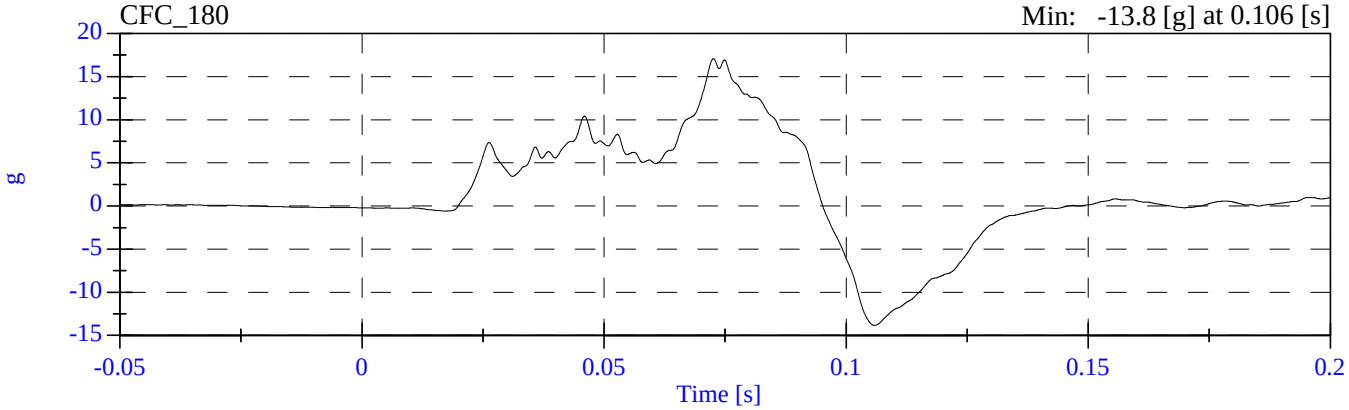
V1P2 Chest x
CFC_180
Max: 0.9 [g] at 0.155 [s]
Min: -38.7 [g] at 0.086 [s]



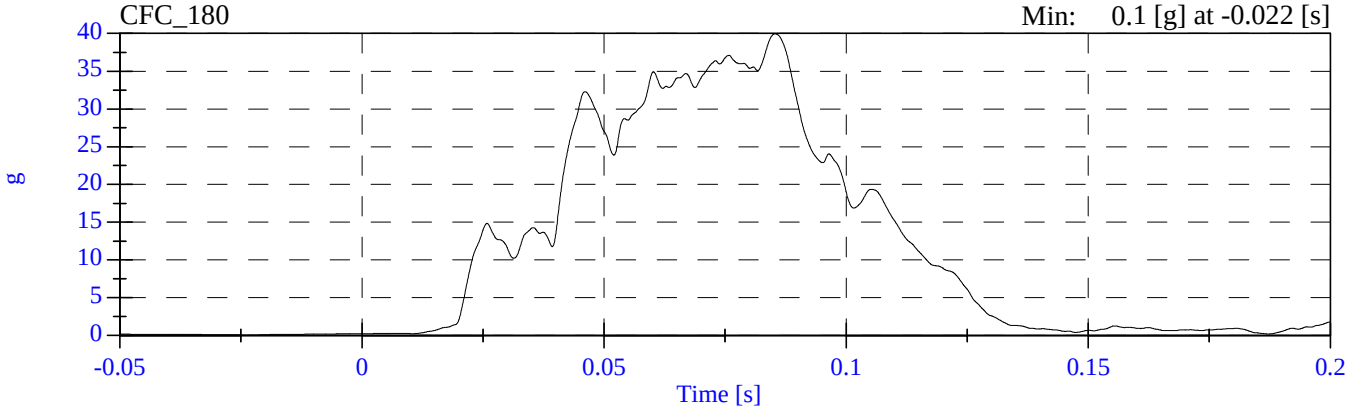
V1P2 Chest y
CFC_180
Max: 7.5 [g] at 0.098 [s]
Min: -6.0 [g] at 0.078 [s]



V1P2 Chest z
CFC_180
Max: 17.1 [g] at 0.073 [s]
Min: -13.8 [g] at 0.106 [s]



V1P2 Chest Resultant
CFC_180
Max: 40.0 [g] at 0.085 [s]
Min: 0.1 [g] at -0.022 [s]



2007 NCAP Opt Test 1 2008 Ford Escape
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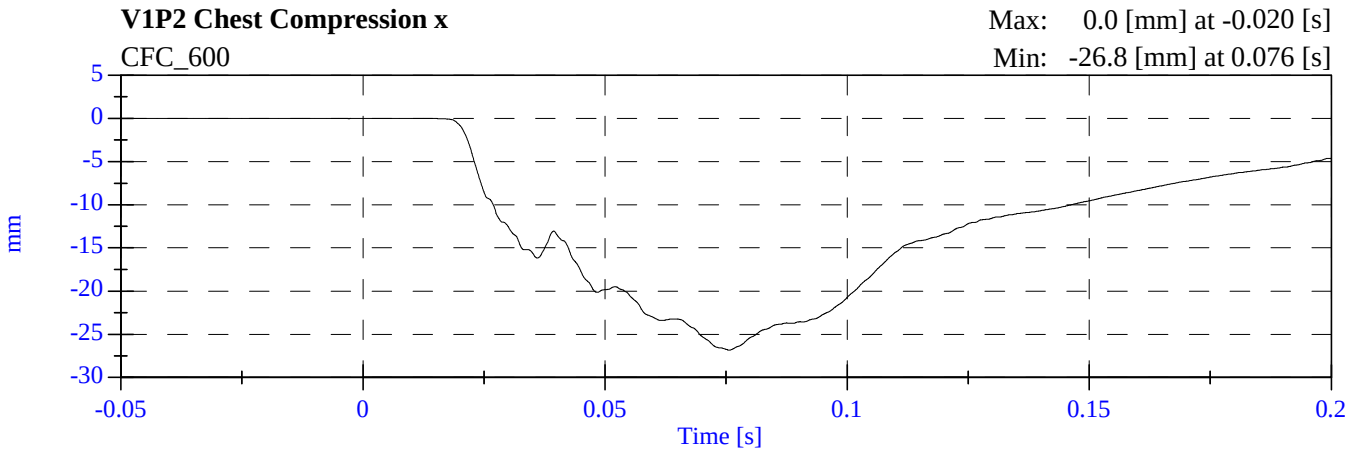
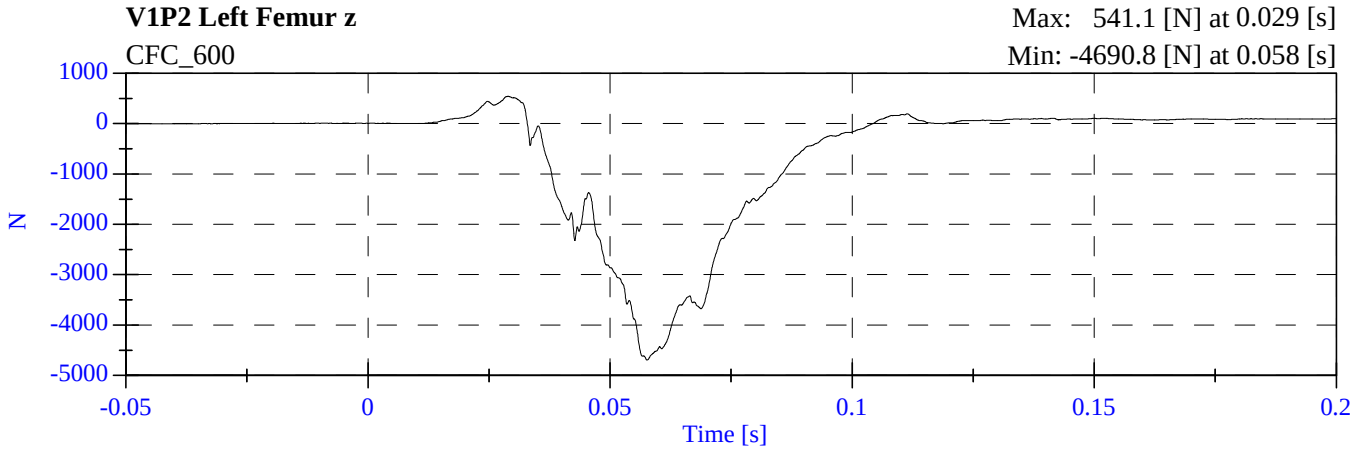
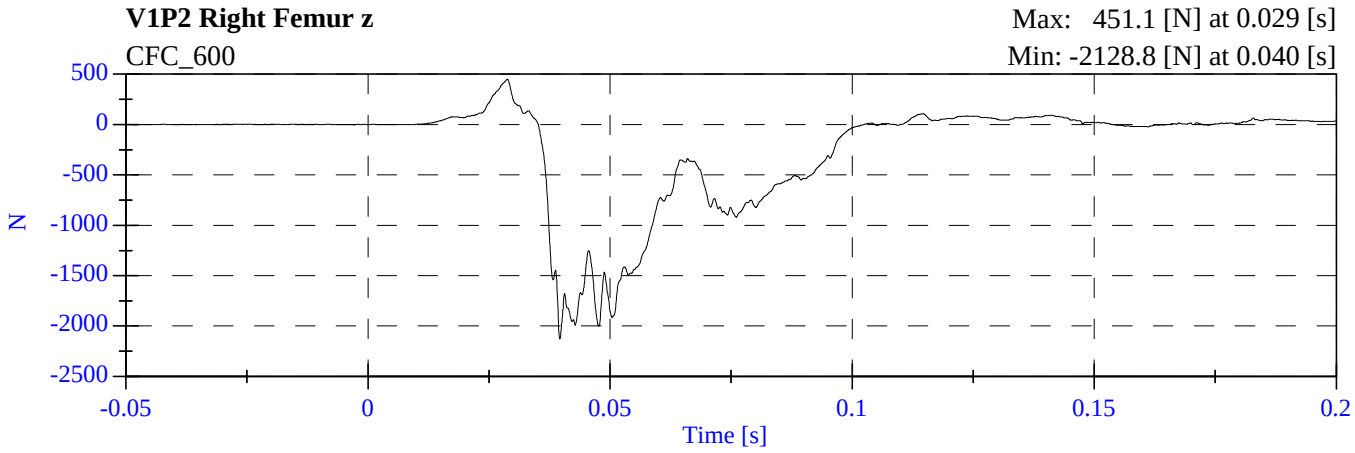


2007 NCAP Opt Test 1 2008 Ford Escape
F80201 - June 28, 2007





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.

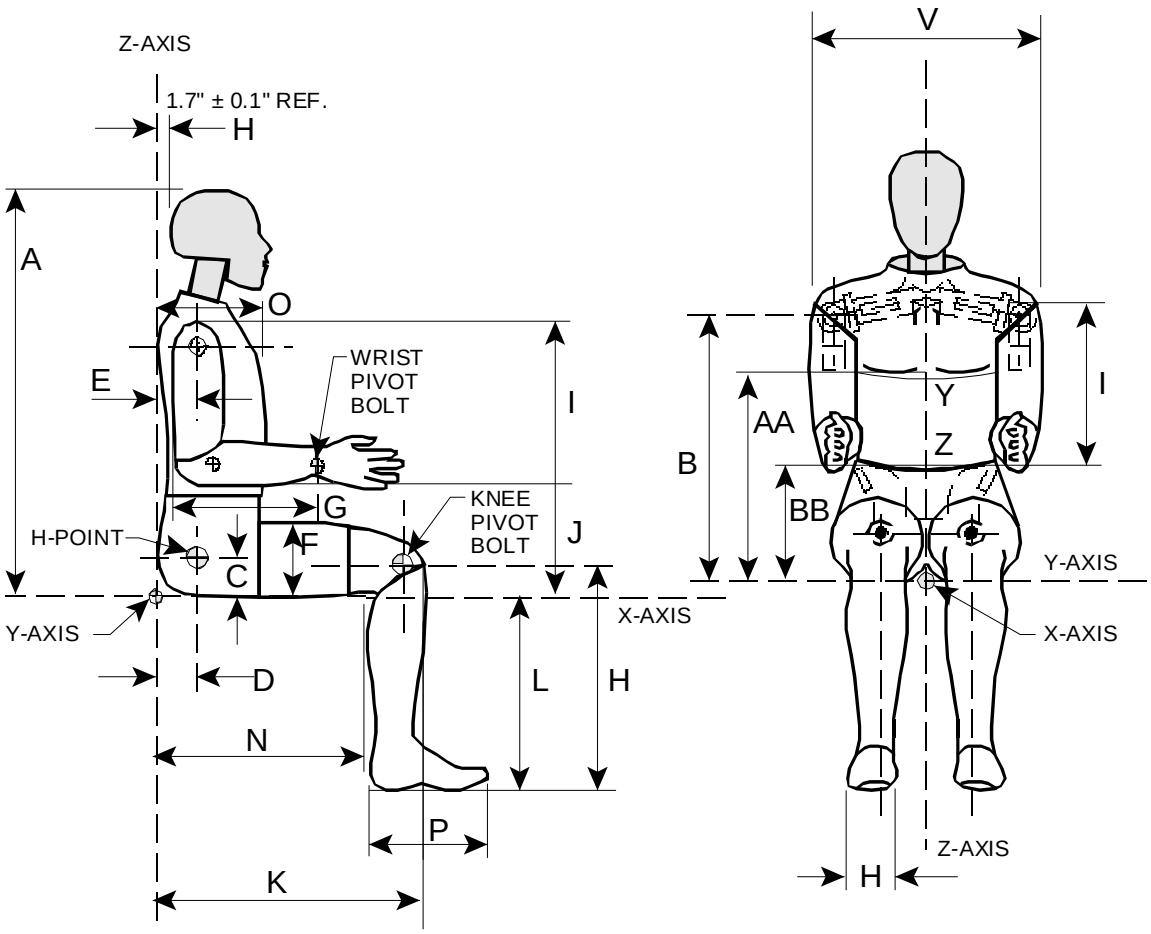
Dummy serial numbers and certification dates are:

Position No./Location	Serial No.	Completion Date
#1/Driver	061	1/10/07
#2/Right Front Passenger	064	3/7/07

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	061
Sequential Test Number	1
Date	1/3/07
Workfile	061HD

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	249.32
Peak Lateral Acceleration	15 G's Max	12.51
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	1/4/07	6 Axis Neck Transducer
Workfile	061NF	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	36.0
Impact Velocity		6.89 – 7.13 m/s	7.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.82
	20 ms	17.60 - 22.60 G's	21.90
	30 ms	12.50 - 18.50 G's	18.37
Max Pendulum G's Above 30 ms		29 G's Max	18.37
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	37.10
D Plane Rotation	Max	64 - 78 Deg	64.10
	Time	57 - 64 ms	57.50
Moment About Occipital	Max	88.13 – 108.47 N-m	97.03
Condyle	Time	47 - 58 ms	49.50
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	113.30
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	1/4/07	6 Axis Neck Transducer
Workfile	061NE	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	36.0
Impact Velocity		5.94 – 6.19 m/s	6.08
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	20.01
	20 ms	14.00 - 19.00 G's	18.35
	30 ms	11.00 - 16.00 G's	14.03
Max Pendulum G's Above 30 ms		22 G's Max	14.03
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	40.00
D Plane Rotation	Max	81 - 106 Deg	89.85
	Time	72 - 82 ms	73.20
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-72.89
	Time	65 - 79 ms	68.90
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	147.60
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	130.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	061
Sequential Test Number	1
Date	1/8/07
Workfile	061T

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	32.0
Pendulum Velocity	6.58 – 6.83 m/s	6.61
Maximum Deflection	63.50 – 72.64 mm	65.05
Maximum Resistive Force	5159.9 – 5893.9 N	5758.53
Internal Hysteresis	69 - 85 %	75.71

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	061
Sequential Test Number	1
Date	1/10/07
Workfile	061LF / 061RF

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	5380.18
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	5478.03

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Sequential Test Number 1
Date 1/10/07

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	34.70
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
H-Point Height	C	3.3 - 3.5 in	3.5
H-Point from Backline	D	5.3 - 5.5 in	5.3
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Thigh Clearance	F	5.5 - 6.1 in	6.1
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.2
Buttock Popliteal Length	N	17.8 - 18.8 in	18.7
Chest Depth	O	8.4 - 9.0 in	8.4
Foot Length	P	9.9 - 10.5 in	10.1
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Foot Breadth	W	3.6 - 4.2 in	3.9
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.5
Waist Circumference	Z	32.9 - 34.1 in	33.4

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	1/10/07
Workfile	064HD

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	257.40
Peak Lateral Acceleration	15 G's Max	14.87
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	064	
Sequential Test Number	1	
Date	064NF	6 Axis Neck Transducer
Workfile	1/04/07	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	36.0
Impact Velocity		6.89 – 7.13 m/s	7.01
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.59
	20 ms	17.60 - 22.60 G's	21.32
	30 ms	12.50 - 18.50 G's	18.15
Max Pendulum G's Above 30 ms		29 G's Max	18.15
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	36.70
D Plane Rotation	Max	64 - 78 Deg	71.02
	Time	57 - 64 ms	58.20
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	97.09
	Time	47 - 58 ms	49.50
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.70
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.30

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	064	
Sequential Test Number	1	
Date	1/4/07	6 Axis Neck Transducer
Workfile	064NE	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	36.0
Impact Velocity		5.94 – 6.19 m/s	6.08
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.31
	20 ms	14.00 - 19.00 G's	17.30
	30 ms	11.00 - 16.00 G's	14.12
Max Pendulum G's Above 30 ms		22 G's Max	14.12
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	43.70
D Plane Rotation	Max	81 - 106 Deg	96.60
	Time	72 - 82 ms	76.90
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-67.53
	Time	65 - 79 ms	72.40
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	155.20
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	138.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	3/7/07
Workfile	064T

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	6.61
Maximum Deflection	63.50 – 72.64 mm	70.10
Maximum Resistive Force	5159.9 – 5893.9 N	5308.53
Internal Hysteresis	69 - 85 %	70.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	1/10/07
Workfile	064LF / 064RF

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	5704.72
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	5368.24

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Sequential Test Number 1
Date 1/10/07

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			21.1
Relative Humidity			36.0
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	34.6
Shoulder Pivot Height	B	19.9 - 20.5 in	20.5
H-Point Height	C	3.3 - 3.5 in	3.5
H-Point from Backline	D	5.3 - 5.5 in	5.5
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Thigh Clearance	F	5.5 - 6.1 in	6.0
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Elbow Rest Height	J	7.5 - 8.3 in	7.8
Buttock Knee Length	K	22.8 - 23.8 in	23.5
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.1
Buttock Popliteal Length	N	17.8 - 18.8 in	18.7
Chest Depth	O	8.4 - 9.0 in	8.5
Foot Length	P	9.9 - 10.5 in	10.2
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Foot Breadth	W	3.6 - 4.2 in	3.8
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.5
Waist Circumference	Z	32.9 - 34.1 in	33.4

Remarks:

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 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-J20018	22-Jun-07	21-Dec-07
	Y	ENDEVCO	AC-P16755	22-Jun-07	21-Dec-07
	Z	ENDEVCO	AC-J14667	22-Jun-07	21-Dec-07
Head	X (R)	ENDEVCO	AC-J38127	22-Jun-07	21-Dec-07
	Y (R)	ENDEVCO	AC-J20569	22-Jun-07	21-Dec-07
	Z (R)	ENDEVCO	AC-J21963	22-Jun-07	21-Dec-07
Neck Load Cell	X	DENTON	LC-1916Fx	22-Jun-07	21-Dec-07
	Y	DENTON	LC-1916Fy	22-Jun-07	21-Dec-07
	Z	DENTON	LC-1916Fz	22-Jun-07	21-Dec-07
Neck Moment	X	DENTON	LC-1916Mx	22-Jun-07	21-Dec-07
	Y	DENTON	LC-1916My	22-Jun-07	21-Dec-07
	Z	DENTON	LC-1916Mz	22-Jun-07	21-Dec-07
Chest	X	ENDEVCO	AC-AAKC6	22-Jun-07	21-Dec-07
	Y	ENDEVCO	AC-AAKD0	22-Jun-07	21-Dec-07
	Z	ENDEVCO	AC-J27470	22-Jun-07	21-Dec-07
Chest	X (R)	ENDEVCO	AC-J21988	22-Jun-07	21-Dec-07
	Y (R)	ENDEVCO	AC-J20027	22-Jun-07	21-Dec-07
	Z (R)	ENDEVCO	AC-J36741	22-Jun-07	21-Dec-07
Chest Deflection	X	SERVO	DS-061	25-Jun-07	24-Dec-07
Pelvic	X	ENTRAN	AC-99H30-Z13	21-Jun-07	20-Dec-07
	Y	ENTRAN	AC-01G18-F14	21-Jun-07	20-Dec-07
	Z	ENTRAN	AC-02I02I05-F06	21-Jun-07	20-Dec-07

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	LC-1532	25-Jun-07	24-Dec-07
Right Femur Load Cell	Fz	DENTON	LC-1533	25-Jun-07	24-Dec-07
Left Upper Tibia	Mx	DENTON	LC-93Mx	26-Jun-07	25-Dec-07
	My	DENTON	LC-93My	26-Jun-07	25-Dec-07
Left Lower Tibia	Fz	DENTON	LC-093Fz	25-Jun-07	24-Dec-07
	Mx	DENTON	LC-093Mx	25-Jun-07	24-Dec-07
	My	DENTON	LC-093My	25-Jun-07	24-Dec-07
Right Upper Tibia	Mx	DENTON	LC-115Mx	25-Jun-07	24-Dec-07
	My	DENTON	LC-115My	25-Jun-07	24-Dec-07
Right Lower Tibia	Fz	DENTON	LC-116Fz	25-Jun-07	24-Dec-07
	Mx	DENTON	LC-116Mx	25-Jun-07	24-Dec-07
	My	DENTON	LC-116My	25-Jun-07	24-Dec-07
Left Foot Rear	X	ENDEVCO	AC-J18662	25-Jun-07	24-Dec-07
	Z	ENDEVCO	AC-J19927	25-Jun-07	24-Dec-07
Left Foot Front	Z	ENDEVCO	AC-J20030	25-Jun-07	24-Dec-07
Right Foot Rear	X	ENDEVCO	AC-DE54J	25-Jun-07	24-Dec-07
	Z	ENDEVCO	AC-J19440	25-Jun-07	24-Dec-07
Right Foot Front	Z	ENDEVCO	AC-J20382	25-Jun-07	24-Dec-07
Lap Belt Load Cell		First Technology	LC-159	11-Jul-06	11-Jul-07
Shoulder Belt Load Cell		First Technology	LC-156	11-Jul-06	11-Jul-07

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	20-Jun-07	AC-J27517	19-Dec-07
	Y	ENDEVCO	20-Jun-07	AC-AAKB1	19-Dec-07
	Z	ENDEVCO	20-Jun-07	AC-AAK48	19-Dec-07
Head	X (R)	ENDEVCO	20-Jun-07	AC-P16194	19-Dec-07
	Y (R)	ENDEVCO	20-Jun-07	AC-J14688	19-Dec-07
	Z (R)	ENDEVCO	20-Jun-07	AC-P21399	19-Dec-07
Neck Load Cell	X	DENTON	22-Jun-07	LC-1912Fx	21-Dec-07
	Y	DENTON	22-Jun-07	LC-1912Fy	21-Dec-07
	Z	DENTON	22-Jun-07	LC-1912Fz	21-Dec-07
Neck Moment	X	DENTON	22-Jun-07	LC-1912Mx	21-Dec-07
	Y	DENTON	22-Jun-07	LC-1912My	21-Dec-07
	Z	DENTON	22-Jun-07	LC-1912Mz	21-Dec-07
Chest	X	ENDEVCO	21-Jun-07	AC-J23946	20-Dec-07
	Y	ENDEVCO	21-Jun-07	AC-AGAC4	20-Dec-07
	Z	ENDEVCO	21-Jun-07	AC-P16225	20-Dec-07
Chest	X (R)	ENTRAN	21-Jun-07	AC-03E03E21-M20	20-Dec-07
	Y (R)	ENDEVCO	21-Jun-07	AC-P15638	20-Dec-07
	Z (R)	ENDEVCO	21-Jun-07	AC-P16517	20-Dec-07
Chest Deflection	X	SERVO	25-Jun-07	DS-064	24-Dec-07
Pelvic	X	ENDEVCO	21-Jun-07	AC-AJ5R0	20-Dec-07
	Y	ENDEVCO	21-Jun-07	AC-J22036	20-Dec-07
	Z	ENDEVCO	20-Jun-07	AC-P32204	19-Dec-07

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	LC-1525	25-Jun-07	24-Dec-07
Right Femur Load Cell	Fz	DENTON	LC-1526	25-Jun-07	24-Dec-07
Left Upper Tibia	Mx	DENTON	LC-404Mx	25-Jun-07	24-Dec-07
	My	DENTON	LC-404My	25-Jun-07	24-Dec-07
Left Lower Tibia	Fz	DENTON	LC-396Fz	25-Jun-07	24-Dec-07
	Mx	DENTON	LC-396Mx	25-Jun-07	24-Dec-07
	My	DENTON	LC-396My	25-Jun-07	24-Dec-07
Right Upper Tibia	Mx	DENTON	LC-374Mx	02-Dec-06	02-Jun-07
	My	DENTON	LC-374My	02-Dec-06	02-Jun-07
Right Lower Tibia	Fz	DENTON	LC-372Fz	14-Nov-06	15-May-07
	Mx	DENTON	LC-372Mx	14-Nov-06	15-May-07
	My	DENTON	LC-372My	14-Nov-06	15-May-07
Left Foot Rear	X	ENDEVCO	AC-J33376	25-Jun-07	24-Dec-07
	Z	ENDEVCO	AC-P16899	25-Jun-07	24-Dec-07
Left Foot Front	Z	ENDEVCO	AC-P17912	25-Jun-07	24-Dec-07
Right Foot Rear	X	ENDEVCO	AC-J20209	25-Jun-07	24-Dec-07
	Z	ENDEVCO	AC-J14234	25-Jun-07	24-Dec-07
Right Foot Front	Z	ENDEVCO	AC-J14669	25-Jun-07	24-Dec-07
Lap Belt Load Cell		First Technology	LC-178	11-Jul-06	11-Jul-07
Shoulder Belt Load Cell		First Technology	LC-173	11-Jul-06	11-Jul-07

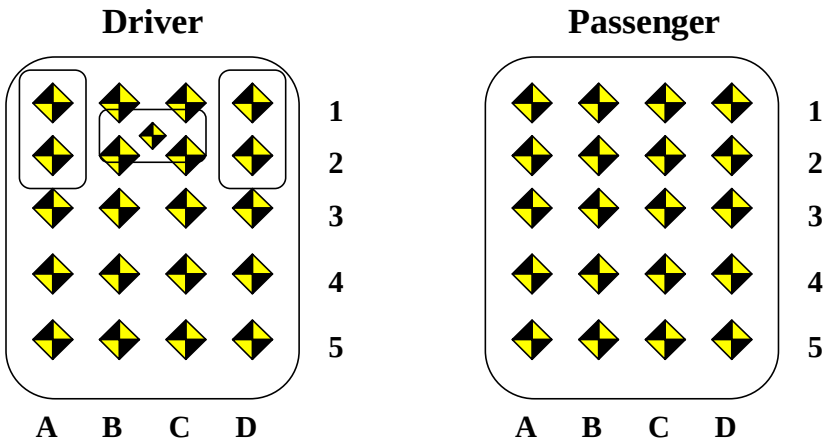
INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ICS	AC-FA2490	21-Feb-07	22-Aug-07
Right Rear Seat Crossmember X	ICS	AC-FA2471	21-Feb-07	22-Aug-07
Top of Engine	ICS	AC-FA2495	21-Feb-07	22-Aug-07
Bottom of Engine	GS SENSORS	AC-9440-045	25-Apr-07	24-Oct-07
Right Disc Brake Caliper	GS SENSORS	AC-9440-039	25-Apr-07	24-Oct-07
Left Disc Brake Caliper	GS SENSORS	AC-9440-006	25-Apr-07	24-Oct-07
Left Seat Rear Crossmember Z	ICS	AC-FA2491	21-Feb-07	22-Aug-07
Right Seat Rear Crossmember Z	ICS	AC-FA2493	25-Apr-07	24-Oct-07

APPENDIX E

VEHICLE INTERIOR INTRUSION MEASUREMENTS

DRIVER SIDE INTRUSION MEASUREMENTS

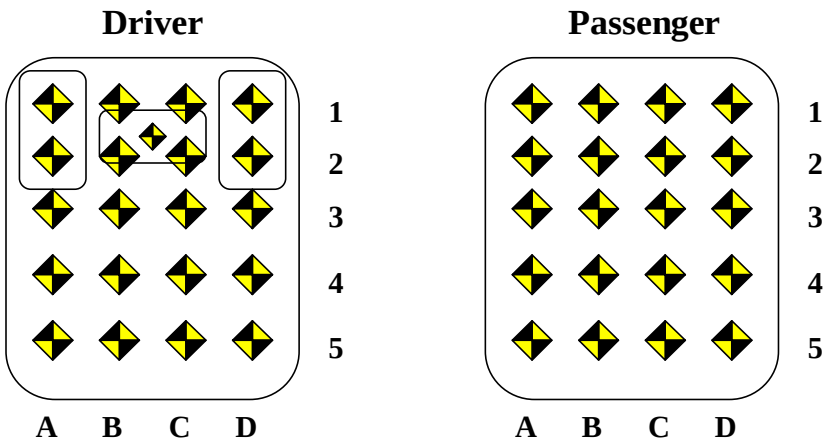


Driver Side Intrusion Measurements

Intrusion Location	PRE-TEST (mm)			POST-TEST (mm)			CHANGE (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3101	-592	490	3076	-581	503	25	-11	-13
B1	3212	-458	497	3072	-442	556	140	-16	-59
C1	3212	-327	494	3095	-312	545	117	-15	-51
D1	3208	-191	492	3137	-214	526	71	23	-34
A2	3067	-594	461	3046	-583	472	21	-11	-11
B2	3170	-457	459	3068	-441	495	102	-16	-36
C2	3169	-325	462	3084	-314	495	85	-11	-33
D2	3132	-198	470	3089	-188	472	43	-10	-2
A3	3037	-595	438	3017	-584	441	20	-11	-3
B3	3094	-461	429	3072	-450	436	22	-11	-7
C3	3088	-318	431	3059	-311	438	29	-7	-7
D3	3090	-190	432	3048	-183	440	42	-7	-8
A4	2956	-596	404	2955	-582	390	1	-14	14
B4	2979	-463	405	2967	-453	394	12	-10	11
C4	2984	-326	412	2968	-313	400	16	-13	12
D4	2984	-192	418	2969	-182	411	15	-10	7
A5	2880	-599	408	2878	-590	395	2	-9	13
B5	2880	-460	410	2877	-453	393	3	-7	17
C5	2882	-322	414	2874	-314	405	8	-8	9
D5	2886	-186	435	2878	-185	445	8	-1	-10
BP	3067	-341	578	2961	-368	614	106	27	-36
G	2810	-516	865	2803	-518	860	7	2	5
H	2801	-226	868	2790	-237	875	11	11	-7
L	2622	-373	1085	2622	-405	1080	0	32	5
AB	2536	-568	416	2530	-556	404	6	-12	12

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	3211	193	504	3129	205	530	82	-12	-26
B1	3209	328	512	3098	325	536	111	3	-24
C1	3208	459	523	3090	451	558	118	8	-35
D1	3153	596	533	3127	596	530	26	0	3
A2	3167	192	471	3095	198	483	72	-6	-12
B2	3168	328	469	3079	323	478	89	5	-9
C2	3165	465	468	3094	455	487	71	10	-19
D2	3122	596	472	3107	593	472	15	3	0
A3	3096	189	429	3068	189	407	28	0	22
B3	3097	330	429	3070	327	402	27	3	27
C3	3093	465	428	3077	457	414	16	8	14
D3	3070	596	431	3063	598	424	7	-2	7
A4	2984	197	423	2962	202	399	22	-5	24
B4	2987	333	425	2971	335	403	16	-2	22
C4	2988	460	426	2981	461	418	7	-1	8
D4	2993	601	420	2988	597	418	5	4	2
A5	2880	194	435	2878	207	444	2	-13	-9
B5	2880	337	424	2867	340	417	13	-3	7
C5	2886	462	423	2879	465	434	7	-3	-11
D5	2892	601	418	2889	602	417	3	-1	1
R	2800	210	874	2781	213	890	19	-3	-16
S	2809	515	876	2810	518	883	-1	-3	-7
AB	2535	569	423	2532	573	423	3	-4	0

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