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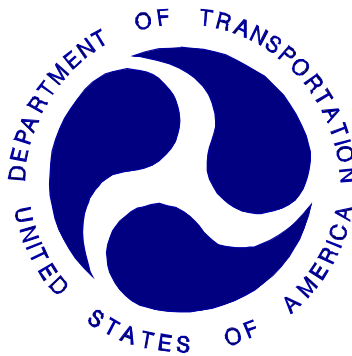
**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

GENERAL MOTORS CORPORATION
2006 HUMMER H3
MPV

NHTSA NUMBER: M60114

CALSPAN TEST NUMBER: 8642-NCAP-64

CALSPAN CORPORATION
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December 8, 2005

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Crashworthiness Standards
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16. Abstract A frontal load cell barrier test of a 2006 Hummer H3 MPV was performed at Calspan Corporation's crash test facility in Buffalo, New York, on December 8, 2005. The impact velocity was 56.3 kph and the temperature at the barrier face was 20 °C. The maximum post-test vehicle crush was 509 mm. The test vehicle was equipped with 3-point restraint systems with shoulder belt pretensioners and force limiters, 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 (142)	Passenger (150)
Head Injury Criteria (HIC - 36 ms)		-	1000	507.9	578.9
Maximum Thorax Acceleration (3 ms Clip)		g's	60 g's	39.3	41.3
Chest Displacement		mm	-76 mm	-39.9	-23.4
Left Femur Force		Newtons	-10000 N	-2347.0	-4046.9
Right Femur Force		Newtons	-10000 N	-2914.4	-3682.9
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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 56.3 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. DTNH22-01-D-32005. 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 56.3 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 56.3 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 nine accelerometer array heads, 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. 142) and the right-front passenger (position 2) ATD (Serial No.150) 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 141 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 2006 Hummer H3 MPV at a velocity of 56.3 kph. The test was performed at Calspan on December 8, 2005. 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	507.9	55.8	91.7	39.3	54.1	57.1	-39.9	-2347.0	-2914.4
Passenger	578.9	61.8	97.8	41.3	61.7	64.7	-23.4	-4046.9	-3682.9

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

TEST NOTES	
Data Channel	Anomalies
V1 Engine Bottom #4x	Data Clipped
Barrier Load Cell B3 Fx	Data Clipped
Barrier Load Cell B4 Fx	Data Clipped
Barrier Load Cell B6 Fx	Data Clipped
Barrier Load Cell D7 Fx	Questionable Data

SECTION 2
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
CRASH TEST SUMMARY

Vehicle NHTSA No.: M60114 Test Mode: 56.3 kph Frontal Barrier
 Test Date: December 8, 2005 Time: 13:25 Temperature: 20 °C
 Vehicle Make/Model/Body Style: 2006 Hummer H3 MPV
 Vehicle Test Weight: 2404.0 kg Impact Velocity: 56.3 kph (55.5 – 57.1 kph)
 Vehicle/Barrier Impact Angle: 0 ° Max Static Crush: 509 mm

ATD INFORMATION AND VISIBLE CONTACT POINTS

	DRIVER	PASSENGER
ATD Type:	Part 572E	Part 572E
Restraint System:	Seatbelt with torso belt pretensioner and force limiter, Airbag, Knee Bolster	Seatbelt with torso belt pretensioner and force limiter, Airbag, Knee Bolster
Head Contact:	The face to the center of the airbag; the back of the head to the left of center of the head restraint	The face to the center of the airbag; the top of the head to the side header grab handle
Abdomen Contact:	None	None
Chest Contact:	Airbag	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	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	-
Front Seat Track Shift (mm)	0	0
Front Seat Back Failure	None	None
Glazing Damage	Windshield cracked along bottom	

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Left Side (mm)	Center (mm)	Right Side (mm)	Average (mm)
Value	596	595	592	594

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	990	990
Lap belt length as measured on ATD	mm	880	880
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems	mm	1870	1870

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2006 Hummer H3 MPV

NHTSA No. : M60114 ; VIN: 5GTDN136068122739 ; Color: Black

Engine Data: 5 cylinders; - CID; 3.5 Liters; - cc

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

Transmission Data: 5 speeds; X Manual; - 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? - Yes; X No; - N/A

DEALER AND DELIVERY INFORMATION:

Date Received: 11/29/2005 ; Odometer Reading 410 km

Selling Dealer: Burdick Hummer

Dealer Address: 5885 East Circle Drive Suite 340 Cicero, NY 13039

TEST VEHICLE OPTIONS:

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

X ABS; X Tilt Wheel; - 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:	Yes	No	No	No	No
Passenger:	Yes	No	No	No	No
Rear Passenger:	No	No	No	No	No

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: General Motors Corporation

Date of Manufacture 07/05

GVWR: 2654 kg; GAWR: 1384 kg FRONT; 1452 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) = 519.0 kg

No. of Occupants x 68.04 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 178.8 kg (136.1 kg maximum)

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 =	549.5	528.5	50.7	1078.0
Rear =	532.5	514.0	49.3	1046.5
Total Delivered Weight (UDW) =				2124.5

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW)	=	2124.5	kg	(maximum allowed)
Rated Cargo/Luggage Weight (RCLW)	=	136.1	kg	
Weight of 2 p.572 Dummies @ 76 each	=	152	kg	
TARGET TEST WEIGHT	=	2412.6	kg	

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 127.5 KG OF CARGO WEIGHT:

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	593.0	570.5	48.4	1163.5
Rear =	632.0	608.5	51.6	1240.5
Total Vehicle Test Weight (ATW) =				2404.0

Weight of Ballast Secured in Vehicle Trunk Area¹ = 57.0 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:	930	935	1011	1016	1398.9
FULLY LOADED:	922	930	980	986	-
AS TESTED:	928	932	982	990	1465.5

Vehicle's Wheel Base: 2840 mm

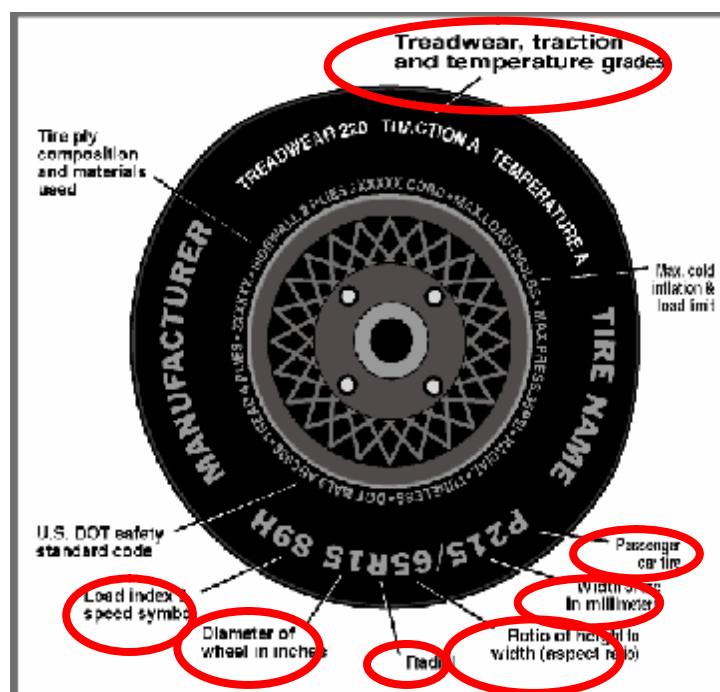
¹Ballast weight does not include the weight of instrumentation, on-board cameras and data acquisition system

²Rearward of the front axle centerline.

DATA SHEET NO. 3
TEST VEHICLE TIRE INFORMATION

Vehicle Year/Make/Model/Body Style: 2006 Hummer H3 MPV

NHTSA Test No.: M60114 Test Date: December 8, 2005



Measured Parameter	Front	Rear
Maximum Tire Pressure (from sidewall - kPa)	300	300
Cold Pressure (from tire placard - kPa)*	210	210
Recommended Tire Size (from tire placard)	P265/75R16	P265/75R16
Tire size on Vehicle	P265/75R16	P265/75R16
Tire Manufacturer	Goodyear	Goodyear
Tire Name	Wrangler RT/S	Wrangler RT/S
Tire Type	P	P
Tire Width (mm)	265	265
Ratio of Height to Width (aspect ratio)	75	75
Radial	Yes	Yes
Wheel Diameter	16	16
Load Index & Speed Symbol	114S	114S
Treadwear	340	340
Traction Grade	A	A
Temperature Grade	B	B

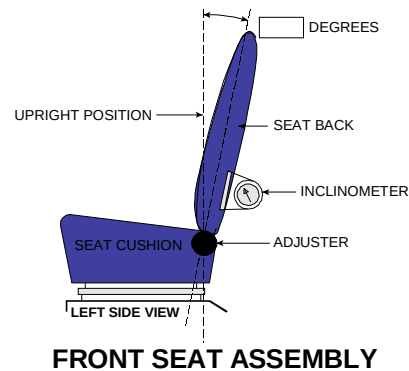
*Tire pressure used for test

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2006 Vehicle Model: Hummer H3 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.



Seat back angle for driver's seat: 23°

Measurement instructions: Recline seat 6 detents from forward most position or 12° rearward.

Seat back angle for passenger's seat: 23°

Measurement instructions: Recline seat 6 detents from forward most position or 12° rearward.

2. SEAT FORE AND AFT POSITIONING:

Positioning of the driver's seat: There are 25 detents numbered 0 – 24; the test position is detent 12.

There are 240 mm of seat track travel – test position is 120 mm.

Positioning of the passenger's seat: There are 25 detents numbered 0 – 24; the test position is detent 12.

There are 240 mm of seat track travel – test position is 120 mm.

3. FUEL TANK CAPACITY DATA:

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 86.7 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 = 79.8 to 81.5 liters

3.2 Actual Amount of Stoddard solvent added to vehicle for test = 81.5 liters

3.3 One-Third of Useable Capacity = 28.9 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.

For a few seconds to prime the system when the ignition is turned to the 'ON' position and while the engine is running.

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: There are four detents numbered 0 to 3, with 0 being full up; The test position is detent 2 or 19.7°.

5. SEAT BELT UPPER ANCHORAGE:

Nominal design riding position: There are five detents numbered 0 to 4. Test position is detent 2 with 0 being the uppermost position.

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

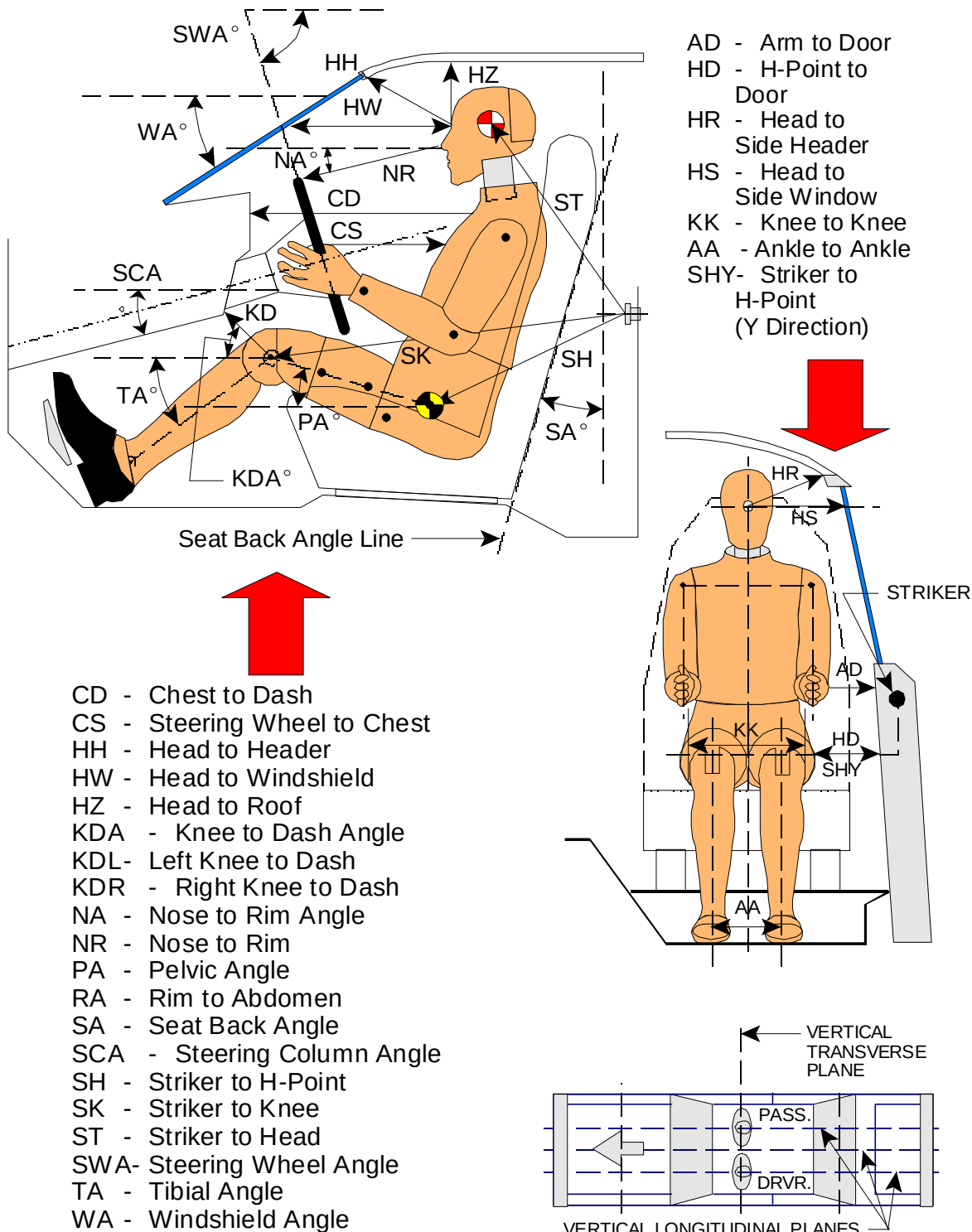
Does vehicle owner's manual describe how to deactivate ADLs? - Yes; X No; - N/A

Comments: The doors automatically lock at speeds higher than 24 km/h and will unlock when the key is removed from the ignition after the vehicle is stopped. This feature cannot be disabled.

DATA SHEET NO. 5

FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



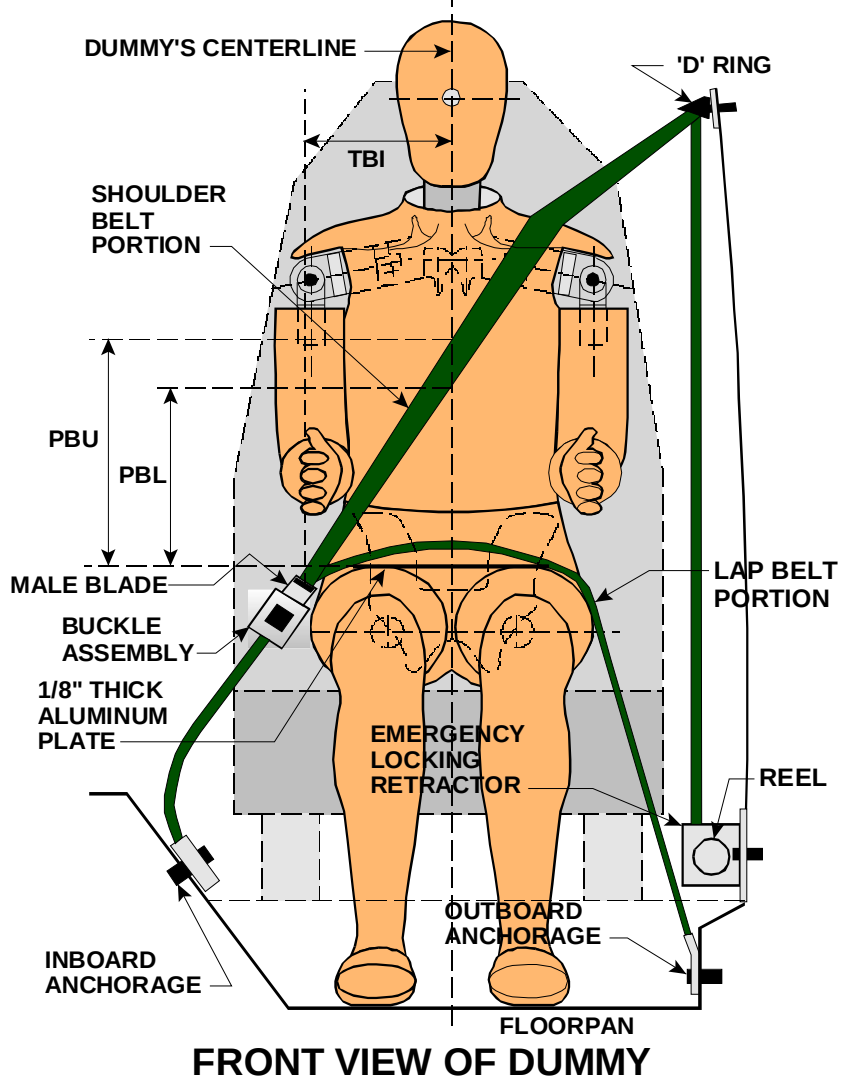
DATA SHEET NO. 5
FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #142)			PASS. (Serial #150)		
WA ^o	29.7 deg.			N/A		
SWA ^o	70 deg.			N/A		
SCA ^o	20.0 deg.			N/A		
SA ^o	23.0 deg.			23.0 deg.		
HZ	245			242		
HH	700			692		
HW	796			788		
HR	259			230 (grab handle)		
NR	423	Angle	-16 deg.	N/A		
CD	585			530		
CS	322			N/A		
RA	208			N/A		
KDL	159	Angle (KDA)	28 deg.	153		
KDR	156			158	Angle (KDA)	23 deg.
PA ^o	23.5 deg.			24.3 deg.		
TA ^o	39.4 deg.			43.5 deg.		
KK	273			269		
AA	250			225		
ST	556	Angle	6 deg.	550	Angle	8 deg.
SK	596	Angle	90 deg.	590	Angle	90 deg.
SH	240	Angle	115 deg.	225	Angle	118 deg.
SHY	240			228		
HS	376			373		
HD	140			141		
AD	101			67		

Dimensions in millimeters

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

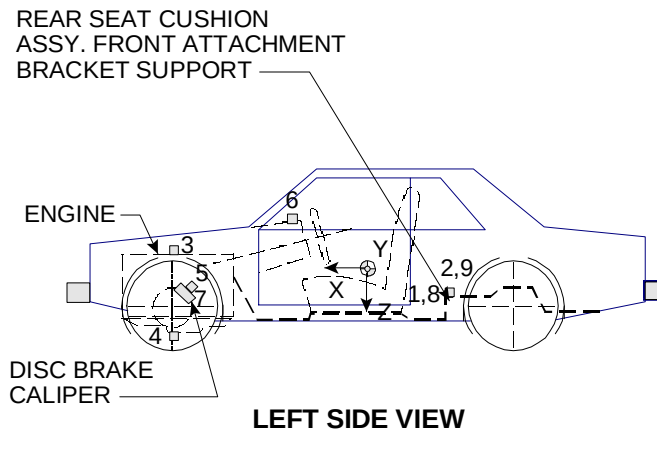
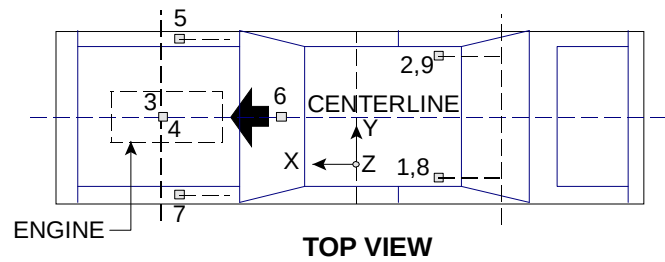
SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	330	340
PBL-- Top surface of alum. plate to belt lower edge	250	255
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATIONS

VEHICLE ACCELEROMETER LOCATIONS



No.	LOCATION	PRE-TEST LENGTH (mm)		
		X	Y	Z
1	Left Rear Seat Cross Member X	1901	-600	598
2	Right Rear Seat Cross Member X	1927	612	599
3	Top of Engine Block	4014	-89	1010
4	Bottom of Engine	3592	-1	349
5	Disc Brake Caliper @ Right Side	3850	660	225
6	Instrument Panel**	-	-	-
7	Disc Brake Caliper @Left Side	3842	-652	228
8	Left Rear Seat Cross Member Z	1901	-600	598
9	Right Rear Seat Cross Member Z	1927	612	599

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 6 mm molding.

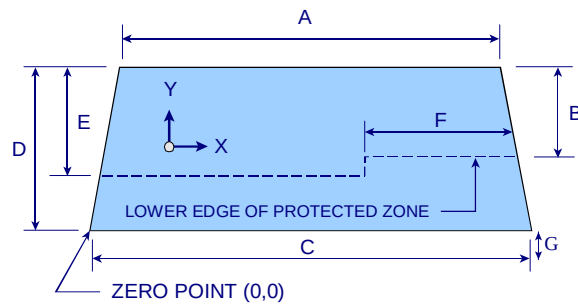
FMVSS 212 REQUIREMENTS:

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: 20°C.

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST (mm)	
RIGHT SIDE	1825.0	1825.0	100.0%
LEFT SIDE	1825.0	1825.0	100.0%
TOTAL	3650	3650	100.0%



DIMENSIONS (mm)	
A	1250
B	300
C	1400
D	500
E	290
F	650
G	6

FRONT VIEW OF WINDSHIELD

FAILURE DETAILS: None

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

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

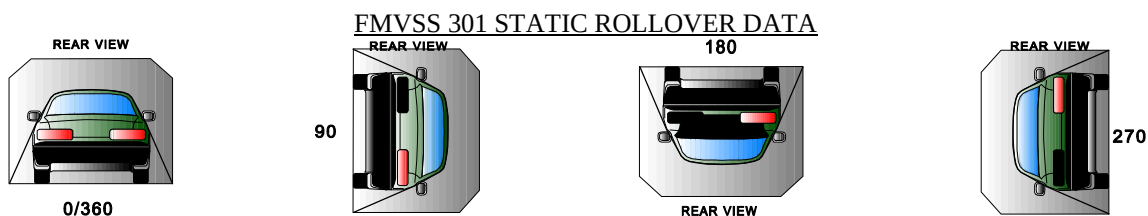
DATA SHEET NO. 9
SUMMARY OF FMVSS NO. 301 DATA

NHTSA TEST No.: _____ M60114 _____ TEST DATE: _____ December 8, 2005
VEHICLE MAKE/MODEL: _____ 2006 Hummer H3 MPV _____
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

FUEL SPILLAGE MEASUREMENT:

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

SOLVENT SPILLAGE DETAILS: None



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	
0° - 90°	1	minutes	15	seconds	5	minutes	6	minutes	15	seconds	7	minutes
90° - 180°	1	minutes	06	seconds	5	minutes	6	minutes	6	seconds	7	minutes
180°-270°	1	minutes	09	seconds	5	minutes	6	minutes	9	seconds	7	minutes
270°-360°	1	minutes	10	seconds	5	minutes	6	minutes	10	seconds	7	minutes

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

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

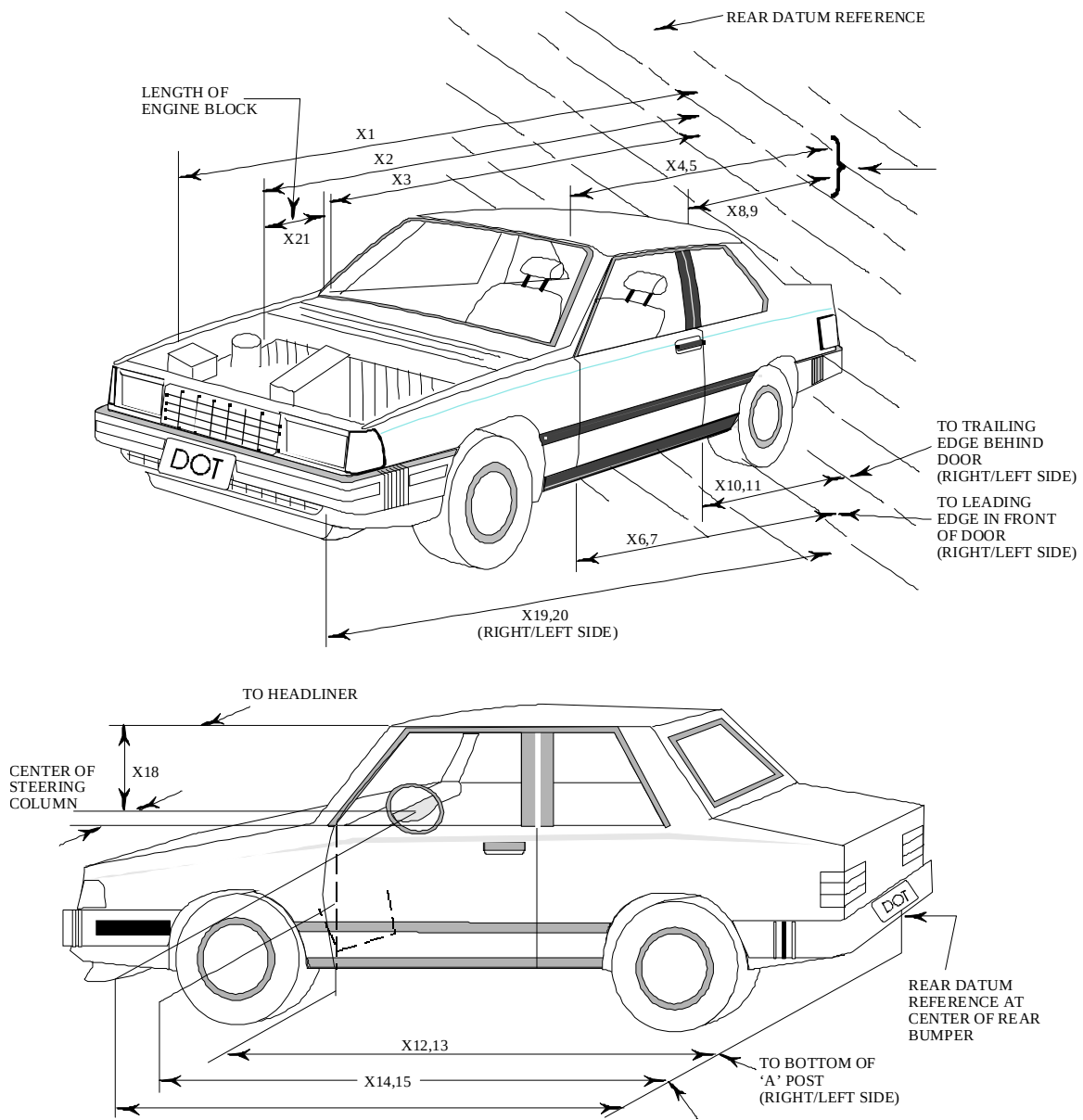
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

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

IV. SOLVENT SPILLAGE LOCATION(S):

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

DATA SHEET NO. 10
TEST VEHICLE MEASUREMENTS



DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

NHTSA TEST No.: M60114 TEST DATE: December 8, 2005
VEHICLE MAKE/MODEL: 2006 Hummer H3 MPV

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4691	4299	392
X2	Rear Surface of Vehicle to Front of Engine	4208	3888	320
X3	Rear Surface of Vehicle to Firewall	3562	3492	70
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3324	3336	-12
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3319	3307	12
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3290	3314	-24
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3282	3285	-3
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2232	2243	-11
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2228	2216	12
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2215	2240	-25
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2210	2213	-3
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3322	3333	-11
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3327	3313	14
X14	Rear Surface of Vehicle to Firewall, Right Side	3544	3527	17
X15	Rear Surface of Vehicle to Firewall, Left Side	3541	3500	41
X16	Rear Surface of Vehicle to Steering Column	2843	2840	3
X17	Center of Steering Column to "A" Post	292	275	17
X18	Center of Steering Column to Headliner	508	502	6
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4727	4218	509
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4724	4262	462
X21	Length of Engine Block	590	590	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3035	3041	-6
CD	Rear Surface of Vehicle to Center of Dash Panel	3027	2991	36
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3037	3014	23

All Dimensions in mm

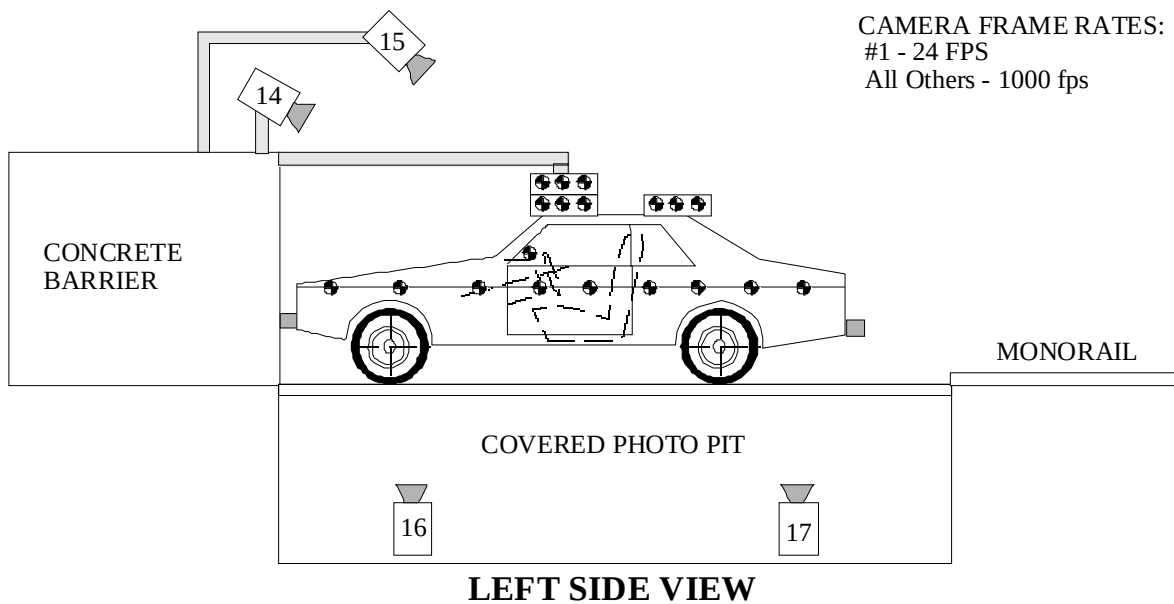
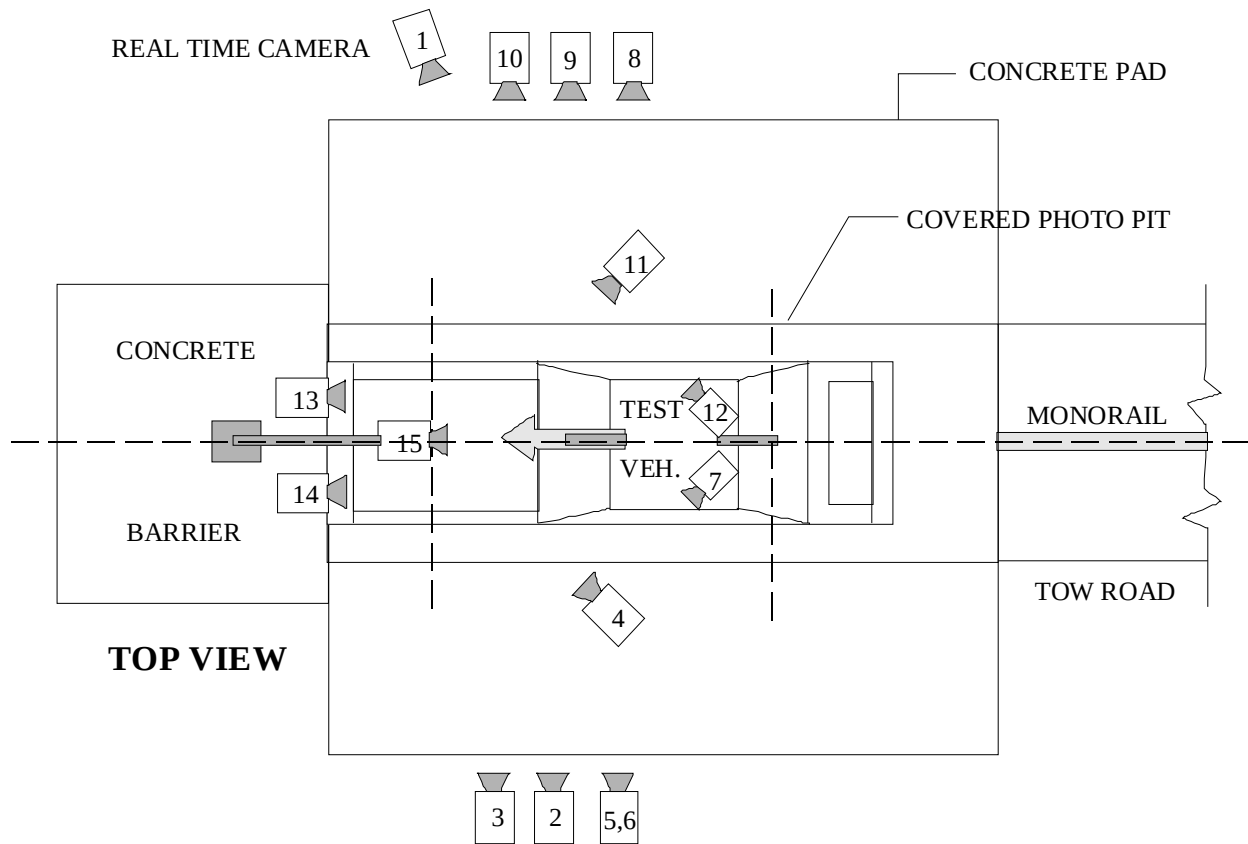
DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

NHTSA TEST No.: M60114 TEST DATE: December 8, 2005
VEHICLE MAKE/MODEL: 2006 Hummer H3 MPV

TARGET VEHICLE STRUCTURAL MEASUREMENTS

	Elements	Pre-Test (mm)
1	Total length	4616
2	Total Width	1919
3	Bumper Top Height	605
4	Bumper Bottom Height	428
5	Longitudinal Member Top Height	578
6	Distance Between Longitudinal Members	667
7	Longitudinal Member Width	70
8	Engine top height	1095
9	Engine bottom height	495
10	Engine and gearbox width	620
11	Front bumper-engine distance	500
12	Front shock absorber fixing height	716
13	Bonnet leading edge height	1102
14	Front shock absorber fixing width	854
15	Front bumper – front axle distance	835
16	Front axle – a pillar distance	591
17	A-pillar – B pillar distance	1000
18	B-pillar – rear axle distance	1140
19	B-pillar – C Pillar distance	930
20	Roof sill bottom height	1678
21	Roof sill top height	1754
22	Floor sill bottom height	473
23	Floor sill top height	571

DATA SHEET NO.11
HIGH-SPEED CAMERA LOCATIONS



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

NHTSA Test No.: M60114 Vehicle: 2006 Hummer H3 MPV

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	30
2	Overall Left Side	7760	1870	1082	-3	7358	28	1000
3	Left Side View	9088	1200	1078	-2	8686	50	1000
4	Driver and Interior View	7760	2787	2044	-10	-	28-70	500
5	Steering Column (Bottom)	7450	2117	1170	-2	7048	25	1000
6	Steering Column (Top)	7450	2117	1770	-5	7048	25	1000
7	Left CRS Lateral View	-	-	-	-	-	-	-
8	Overall Right Side	7620	1675	1080	-2	7900	28	500
9	Right Side View	8180	1675	1365	-2	8460	50	1000
10	Right Passenger View	9399	947	1033	0	9679	35	1000
11	Passenger and Interior View	7870	2780	2020	-8	-	35	500
12	Right CRS Lateral View	-	-	-	-	-	-	-
13	Passenger Front View	620	-92	1987	-30	-	13	500
14	Driver Front View	620	-92	1987	-30	-	13	500
15	Windshield View	0	-530	3374	-43	-		500
16	Pit View of Engine	0	615	-3048	90	-	13	500
17	Pit View of Fuel Tank	0	2330	-3048	90	-	13	500

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

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

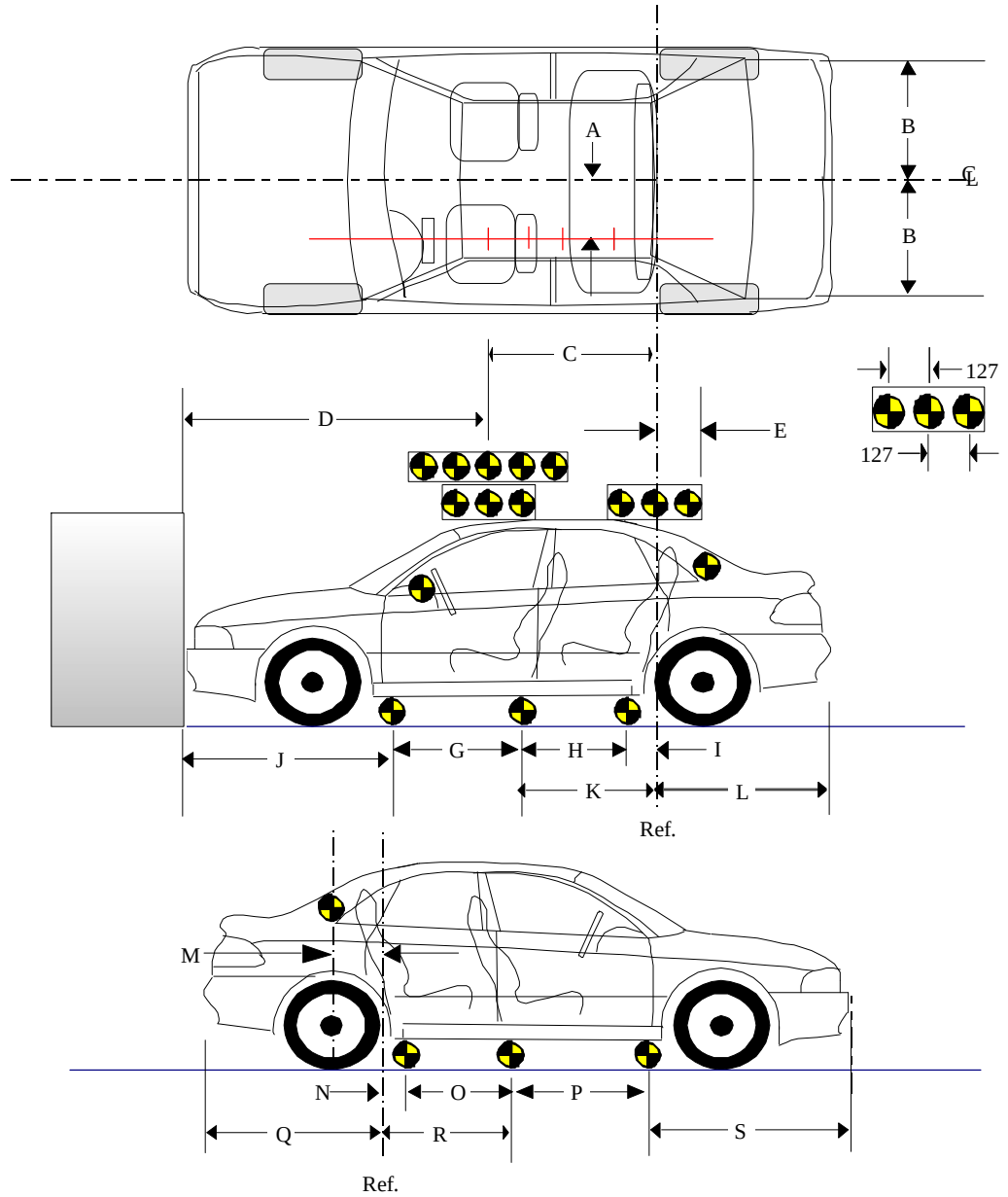
Z = film plane to ground

DATA SHEET NO. 12
VEHICLE REFERENCE PHOTO TARGET LOCATIONS

NHTSA Test No.: M60114 Vehicle: 2006 Hummer H3 MPV

(Dimensions in millimeters)

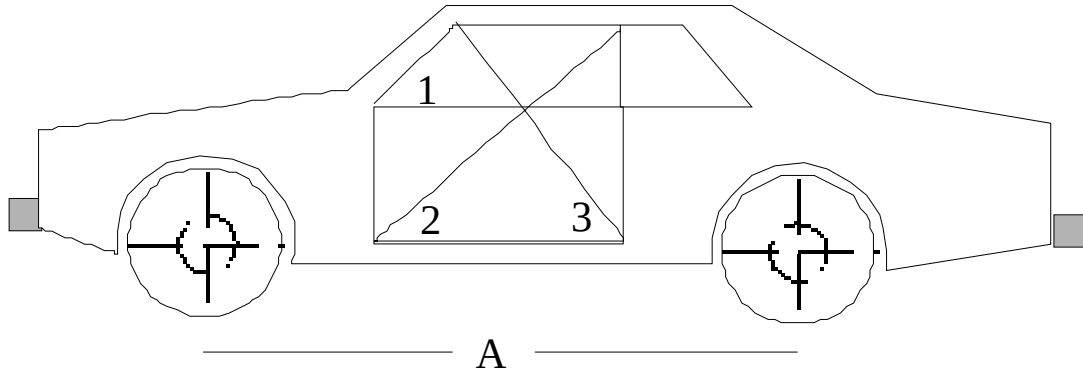
A	356
B	682
C	1221
D	1980
E	894
F	1506
G	879
H	880
I	148
J	1306
K	1028
L	1478
M	887
N	150
O	881
P	874
Q	1478
R	1031
S	1307



DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS

NHTSA Test No.: M60114 Vehicle: 2006 Hummer H3 MPV

DOOR OPENING WIDTH AND WHEELBASE MEASUREMENTS



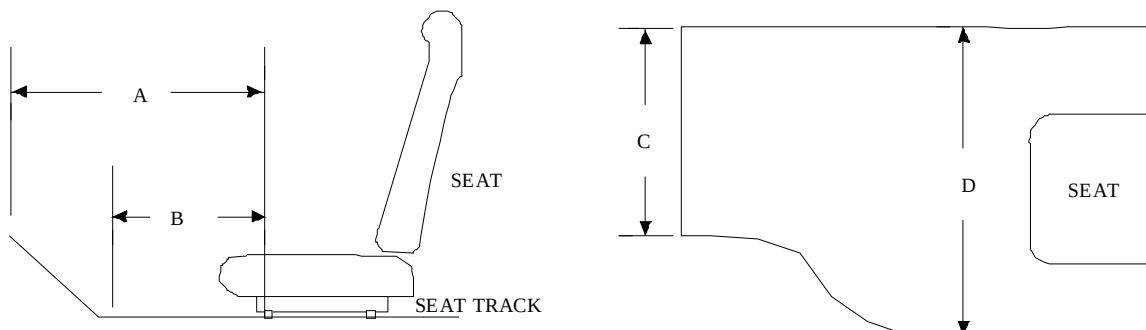
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1015	1390	1185	1014	1395	1186
AFTER TEST	1002	1374	1213	1001	1378	1211
DIFFERENCE	13	16	-28	13	17	-25

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2841	2839
AFTER TEST	2802	2800
DIFFERENCE	39	39

DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont)

NHTSA Test No.: M60114 Vehicle: 2006 Hummer H3 MPV

STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	706	687	19
B	599	602	-3
C	398	401	-3
D	421	385	36

PASSENGER

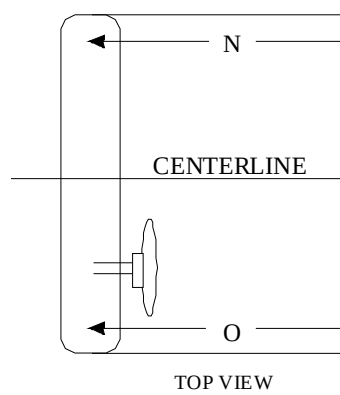
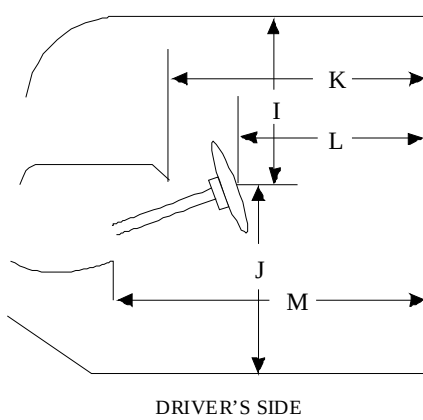
Measurement	Pre-Test	Post-Test	Difference
A	706	683	23
B	597	599	-2
C	369	372	-3
D	403	396	7

Units = mm

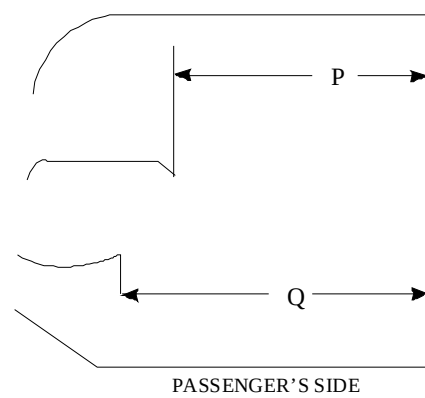
DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont.)

NHTSA Test No.: M60114 Vehicle: 2006 Hummer H3 MPV

STATIC PASSENGER COMPARTMENT INTRUSION



MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



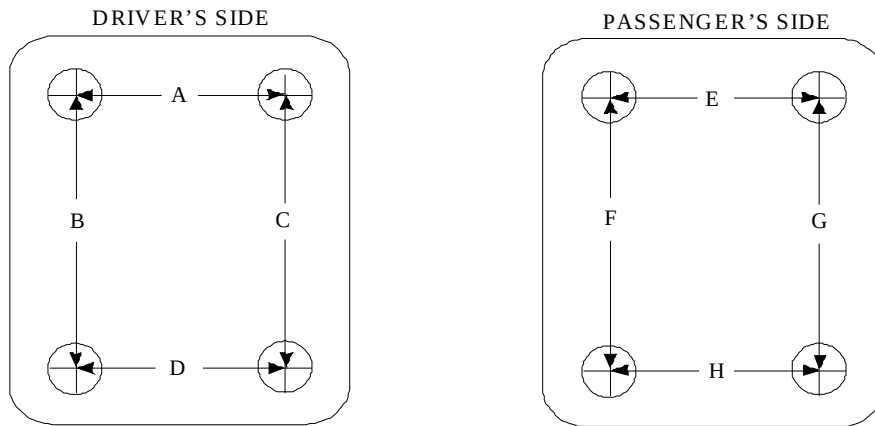
Measurement	Pre-Test	Post-Test	Difference
I	508	502	6
J	603	632	-29
K	1635	1607	28
L	1394	1392	2
M	1611	1604	7
N	1581	1567	14
O	1588	1566	22
P = K (PASS.)	1586	1546	40
Q = M (PASS.)	1591	1559	32

Units = mm

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

NHTSA Test No.: M60114 Vehicle: 2006 Hummer H3 MPV

FLOORBOARD DEFORMATION



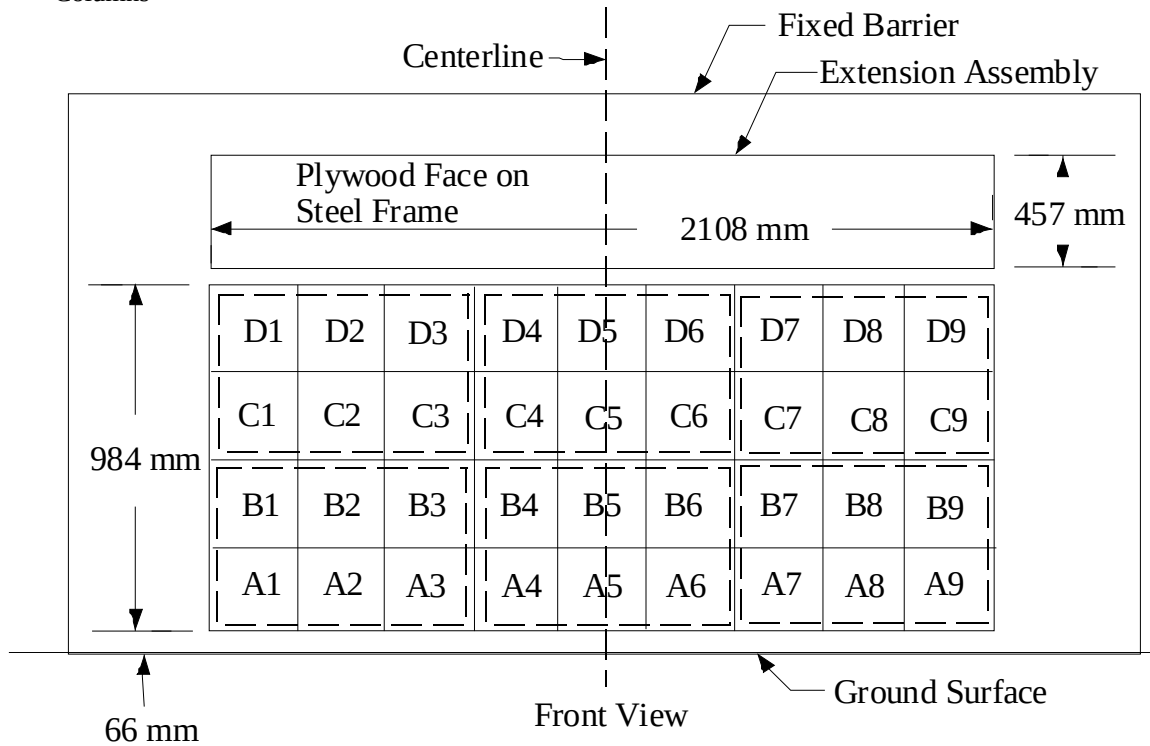
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	398	401	-3
B	316	316	0
C	318	320	-2
D	421	415	6
E	369	372	-3
F	339	339	1
G	357	354	2
H	403	396	7

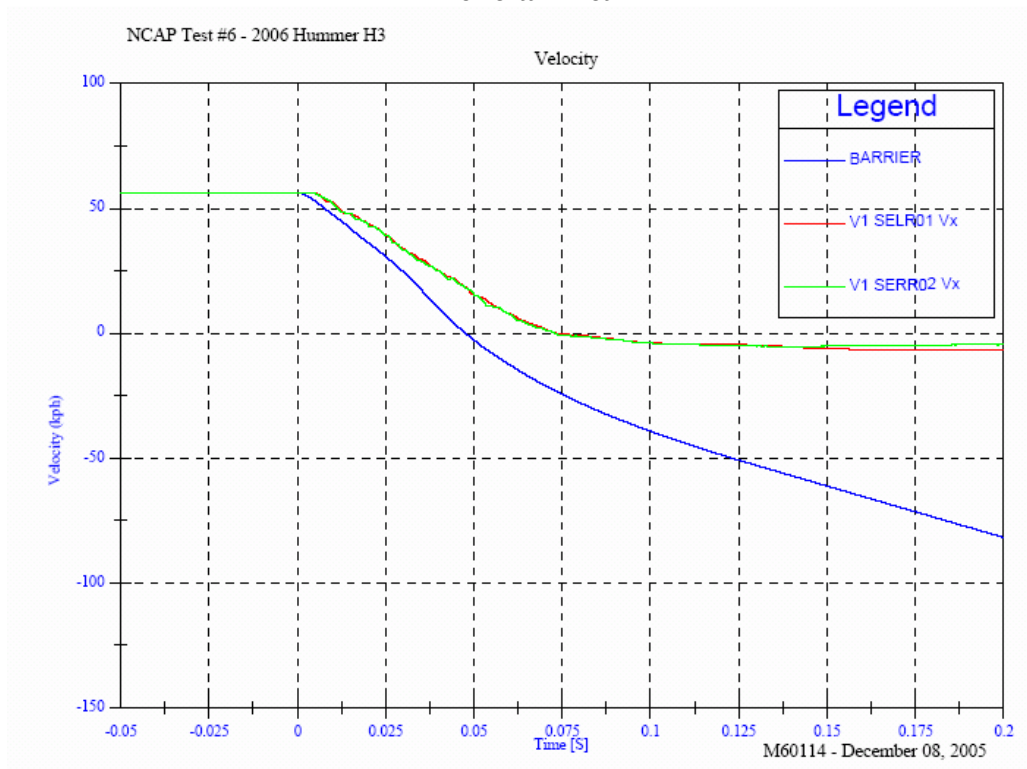
Units = mm

DATA SHEET NO.14
LOAD CELL LOCATIONS ON FIXED BARRIER

36 Load Cells
4 Rows
9 Columns



Momentum Plot



ACCIDENT INVESTIGATION DIVISION DATAFOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Hummer H3 MPV

NHTSA Test No.: M60114 VIN: 5GTDN136068122739

Model Year: 2006 Build Date: 07/05 Test Date: December 8, 2005

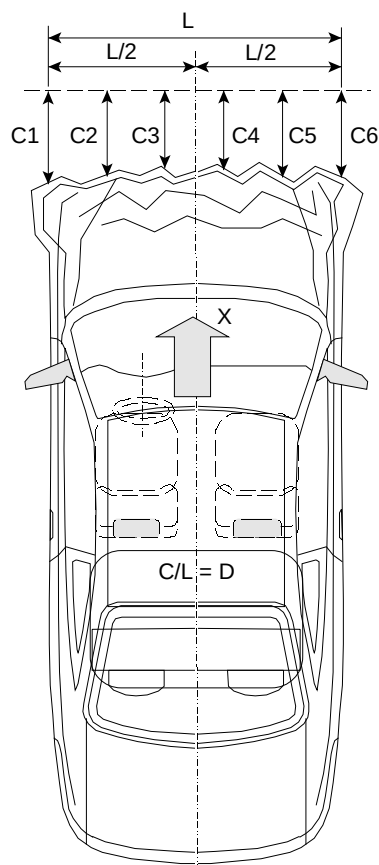
Vehicle Size Category: Special Purpose Test Weight: 2404.0 kg

Vehicle Wheelbase: 2840 mm; Front Overhang: 777 mm; Overall Width: 1919 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	4563	4274	289
C2 =	4653	4310	343
C3 =	4686	4304	382
C4 =	4688	4300	388
C5 =	4659	4286	373
C6 =	4571	4250	321



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

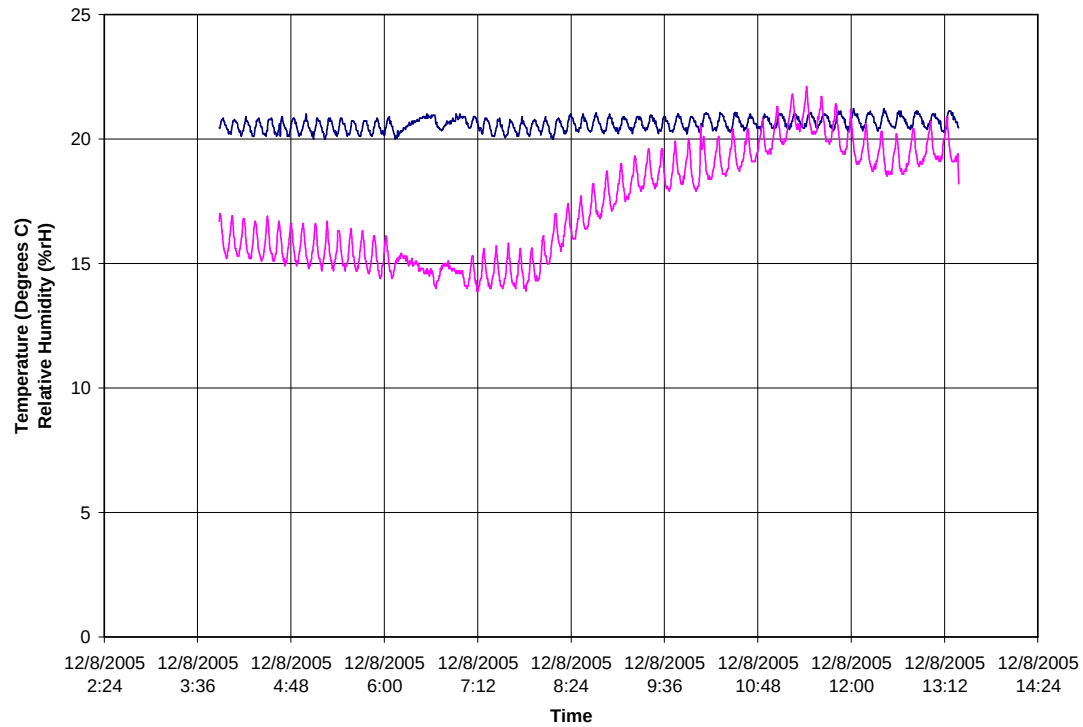
Length of Damaged Region:

L1=	<u>1430</u>	mm
L2=	<u>715.0</u>	mm
L5=	<u>286</u>	mm

DATA SHEET NO.16
VEHICLE AND DUMMY TEMPERATURE STABILIZATION CHART

NHTSA Test No.: M60114 Vehicle: 2006 Hummer H3 MPV

Temperature Trace for M60114



APPENDIX A
PHOTOGRAPHS

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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

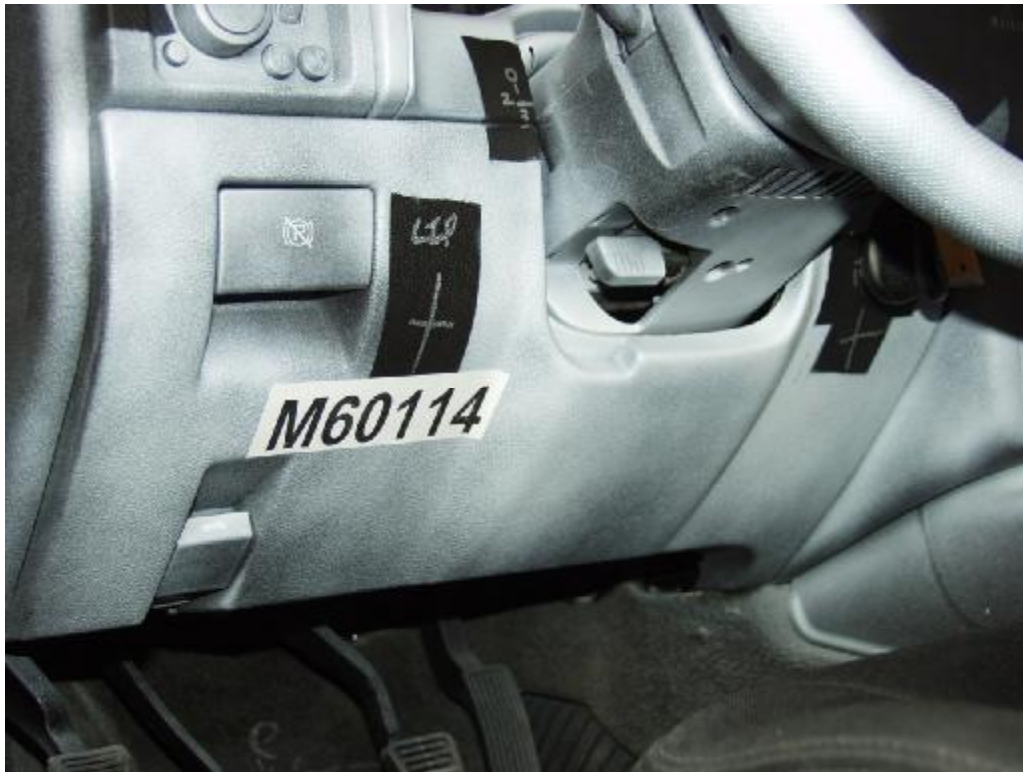


Figure A-38: Pre-Test Driver Knee Bolster View



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

PHOTOGRAPH IS NOT AVAILABLE

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.

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

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
1	V1P1 Head CG x [g, CFC_1000]	B-8
2	V1P1 Head CG y [g, CFC_1000]	B-8
3	V1P1 Head CG z [g, CFC_1000]	B-8
4	V1P1 Head CG Resultant [g, CFC_1000]	B-8
5	V1P1 Chest x [g, CFC_180]	B-9
6	V1P1 Chest y [g, CFC_180]	B-9
7	V1P1 Chest z [g, CFC_180]	B-9
8	V1P1 Chest Resultant [g, CFC_180]	B-9
9	V1P1 Chest Compression x [mm, CFC_600]	B-10
10	V1P1 Left Femur z [N, CFC_600]	B-11
11	V1P1 Right Femur z [N, CFC_600]	B-11
12	V1P2 Head CG x [g, CFC_1000]	B-11
13	V1P2 Head CG y [g, CFC_1000]	B-11
14	V1P2 Head CG z [g, CFC_1000]	B-11
15	V1P2 Head CG Resultant [g, CFC_1000]	B-11
16	V1P2 Chest x [g, CFC_180]	B-12
17	V1P2 Chest y [g, CFC_180]	B-12
18	V1P2 Chest z [g, CFC_180]	B-12
19	V1P2 Chest Resultant [g, CFC_180]	B-12
20	V1P2 Chest Compression x [mm, CFC_600]	B-13
21	V1P2 Left Femur z [N, CFC_600]	B-14
22	V1P2 Right Femur z [N, CFC_600]	B-14

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

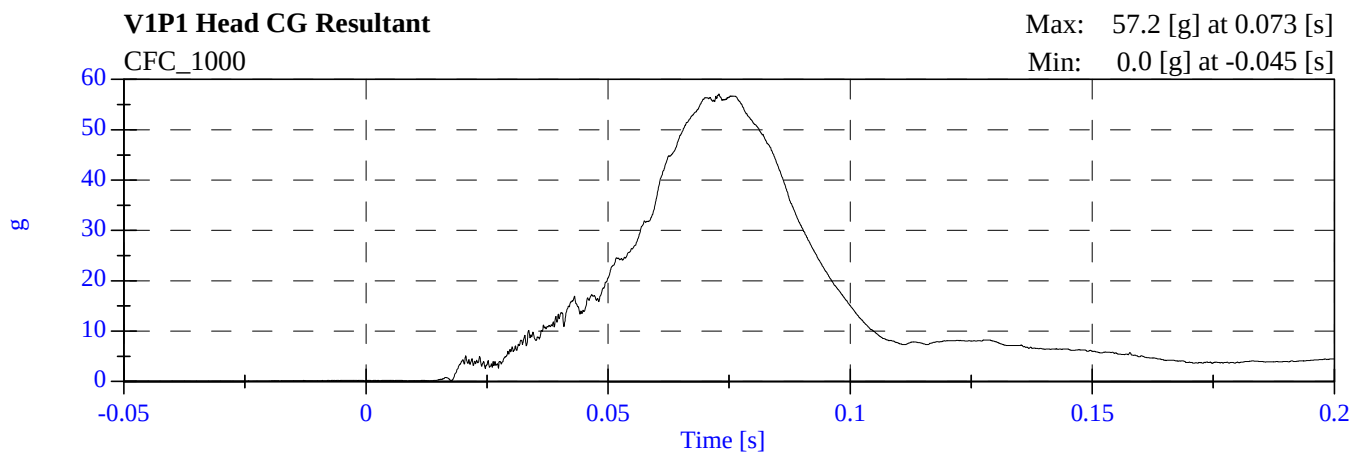
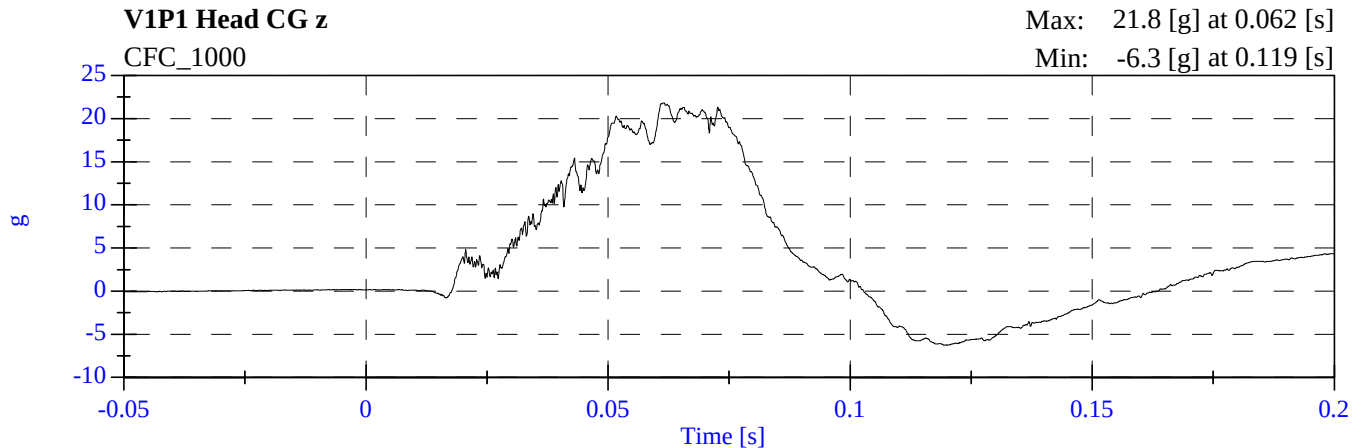
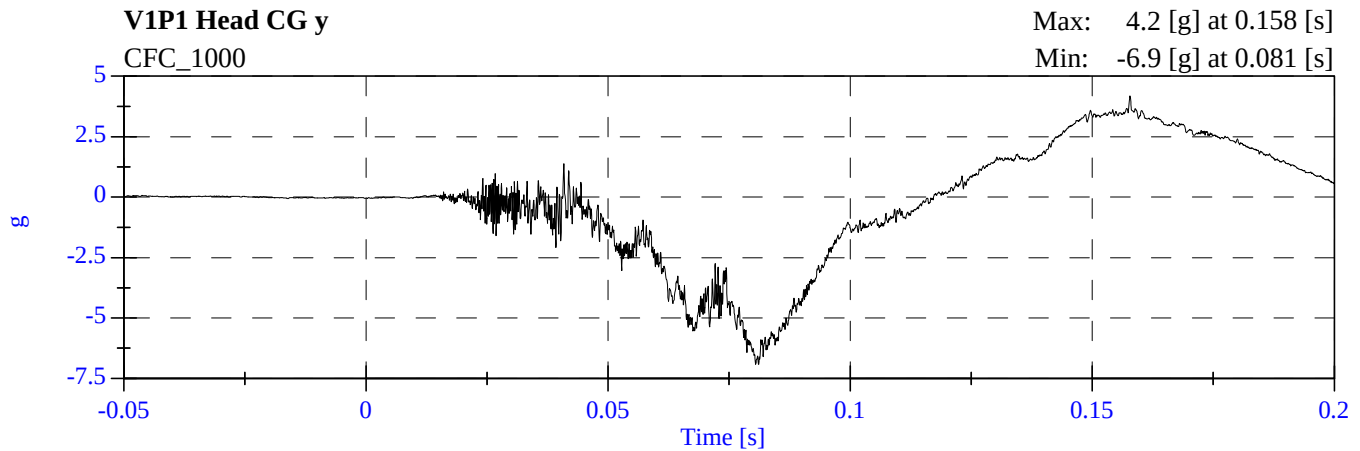
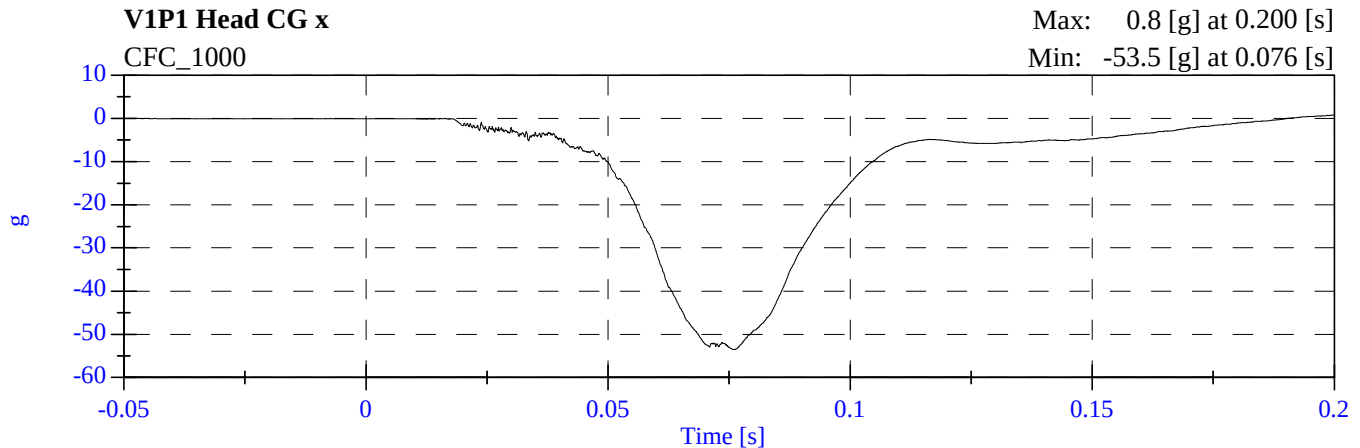
V1P1 Head 9 Array X Arm Ay	
V1P1 Head 9 Array X Arm Az	
V1P1 Head 9 Array Y Arm Ax	
V1P1 Head 9 Array Y Arm Az	
V1P1 Head 9 Array Z Arm Ax	
V1P1 Head 9 Array Z Arm Ay	
V1P1 Head CG Ax	
V1P1 Head CG Ay	
V1P1 Head CG Az	
V1P1 Head CG Red Ax	
V1P1 Head CG Red Ay	
V1P1 Head CG Red Az	
V1P1 Upper Neck Fx	
V1P1 Upper Neck Fy	
V1P1 Upper Neck Fz	
V1P1 Upper Neck Mx	
V1P1 Upper Neck My	
V1P1 Upper Neck Mz	
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 9 Array X Arm Ay	

V1P2 Head 9 Array X Arm Az	
V1P2 Head 9 Array Y Arm Ax	
V1P2 Head 9 Array Y Arm Az	
V1P2 Head 9 Array Z Arm Ax	
V1P2 Head 9 Array Z Arm Ay	
V1P2 Head CG Ax	
V1P2 Head CG Ay	
V1P2 Head CG Az	
V1P2 Head CG Red Ax	
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 A1 Fx	
Barrier Load Cell A2 Fx	
Barrier Load Cell A3 Fx	
Barrier Load Cell A4 Fx	

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	

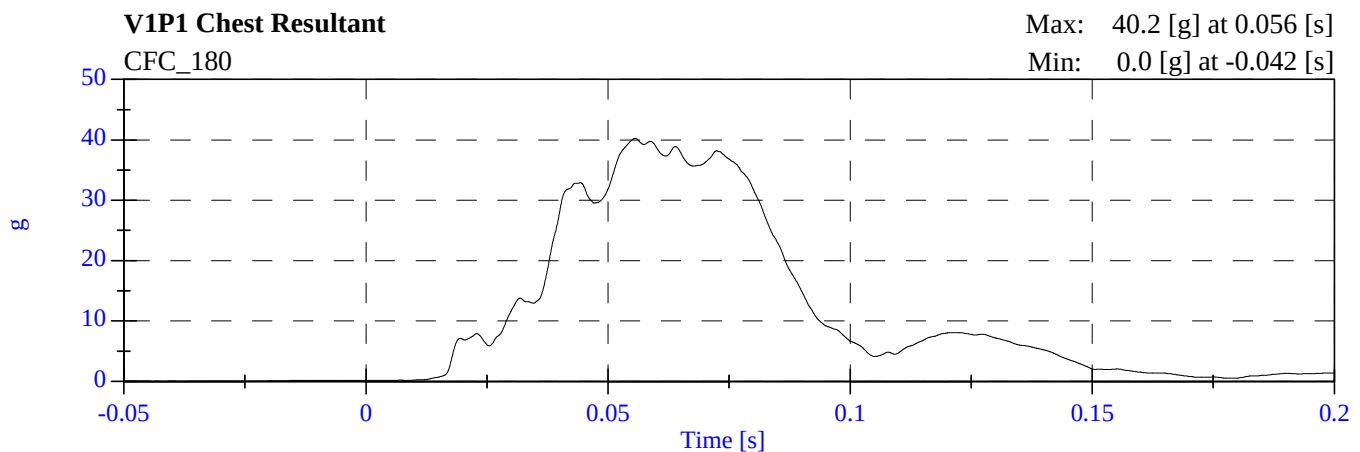
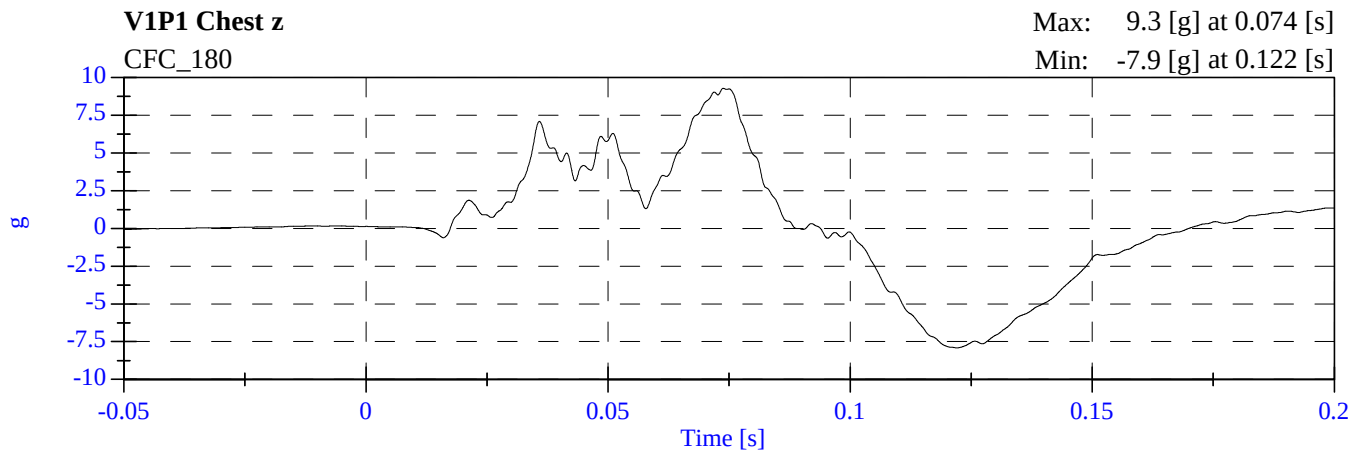
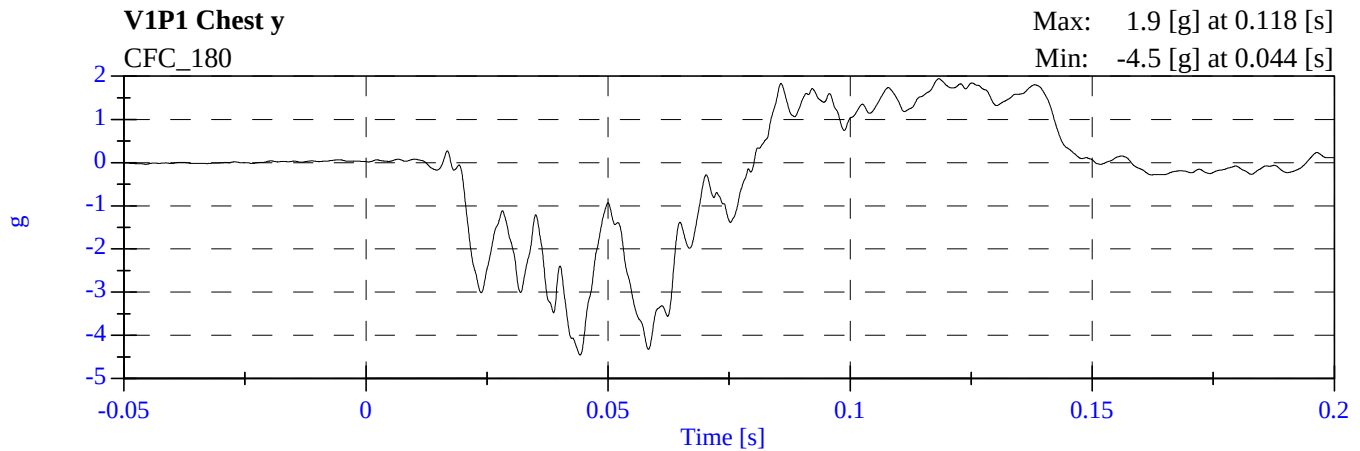
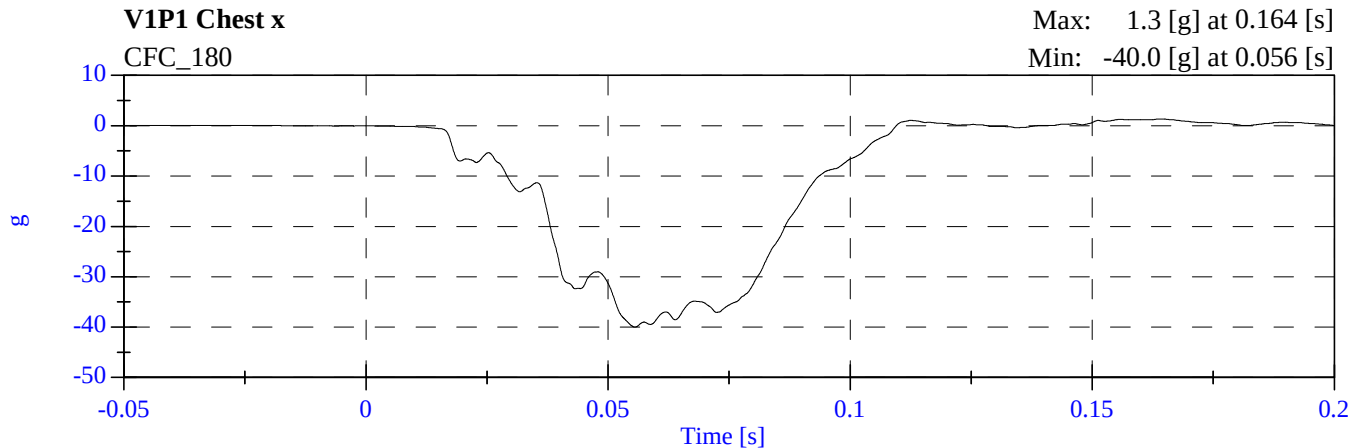
NCAP Test #6 - 2006 Hummer H3

M60114 - December 08, 2005

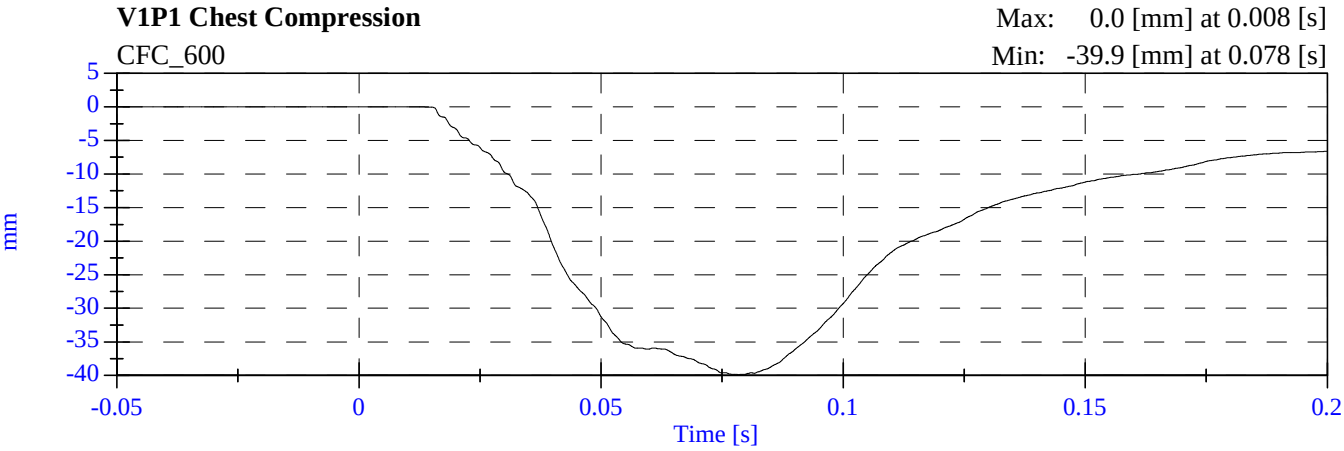


NCAP Test #6 - 2006 Hummer H3

M60114 - December 08, 2005

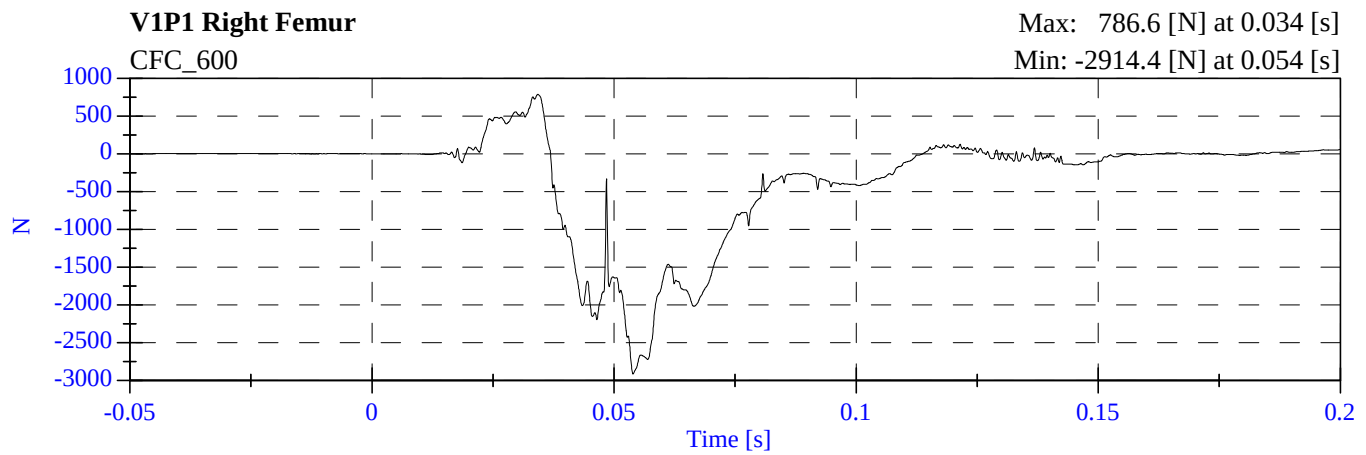
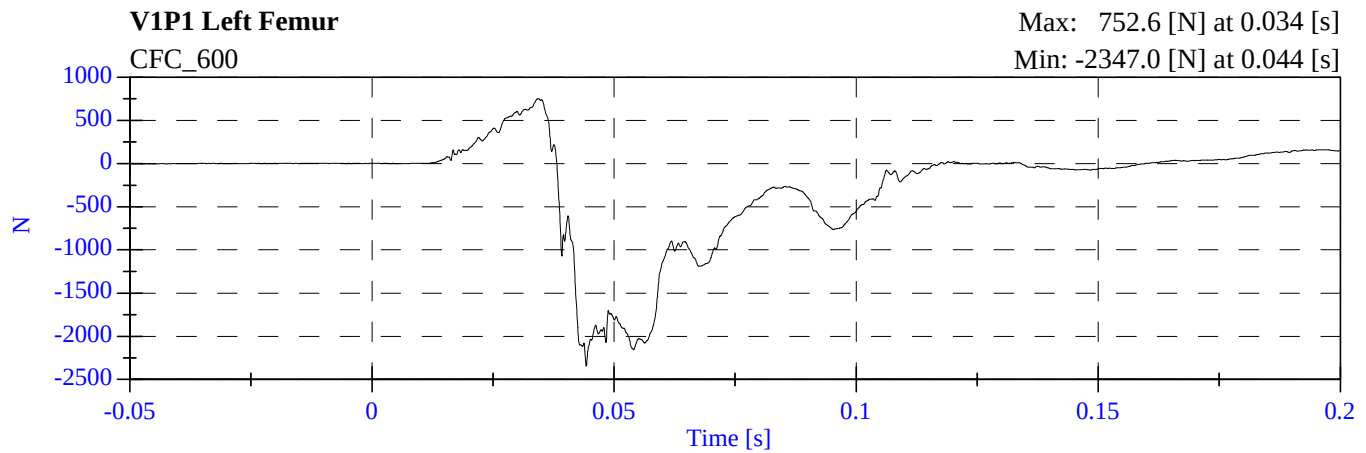


NCAP Test #6 - 2006 Hummer H3
M60114 - December 08, 2005



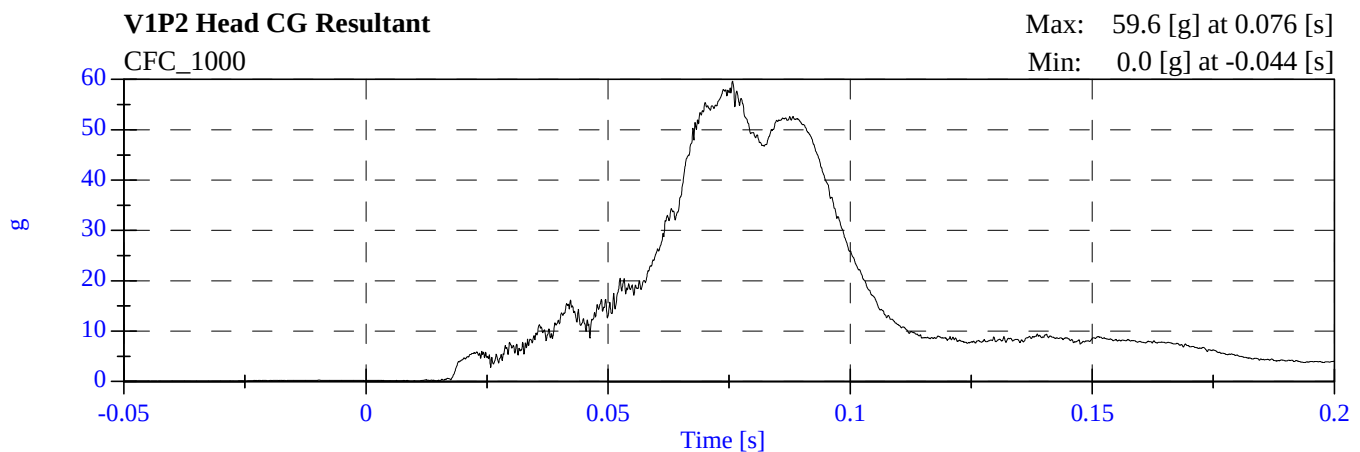
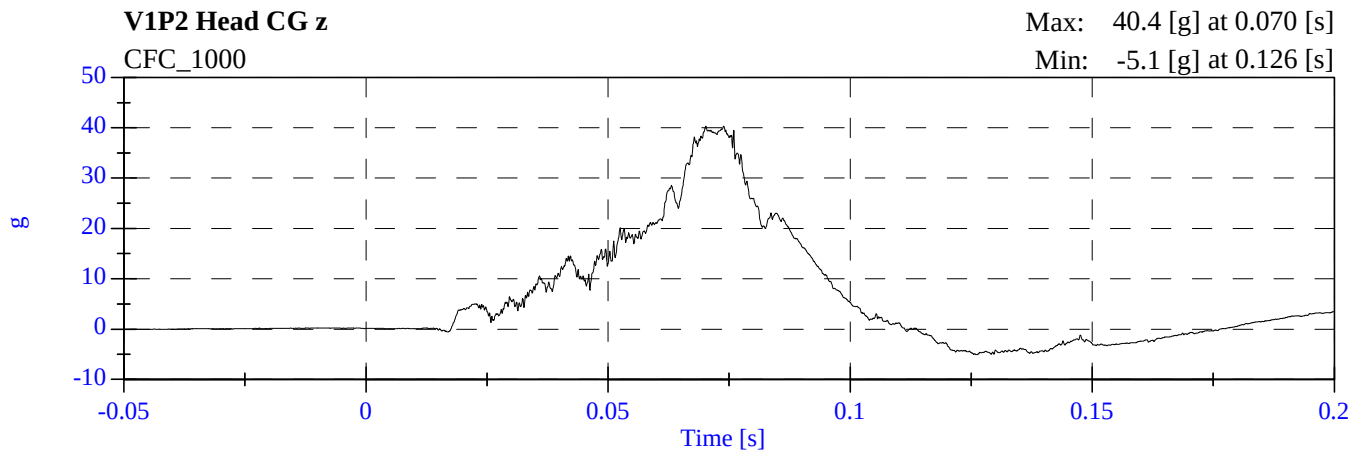
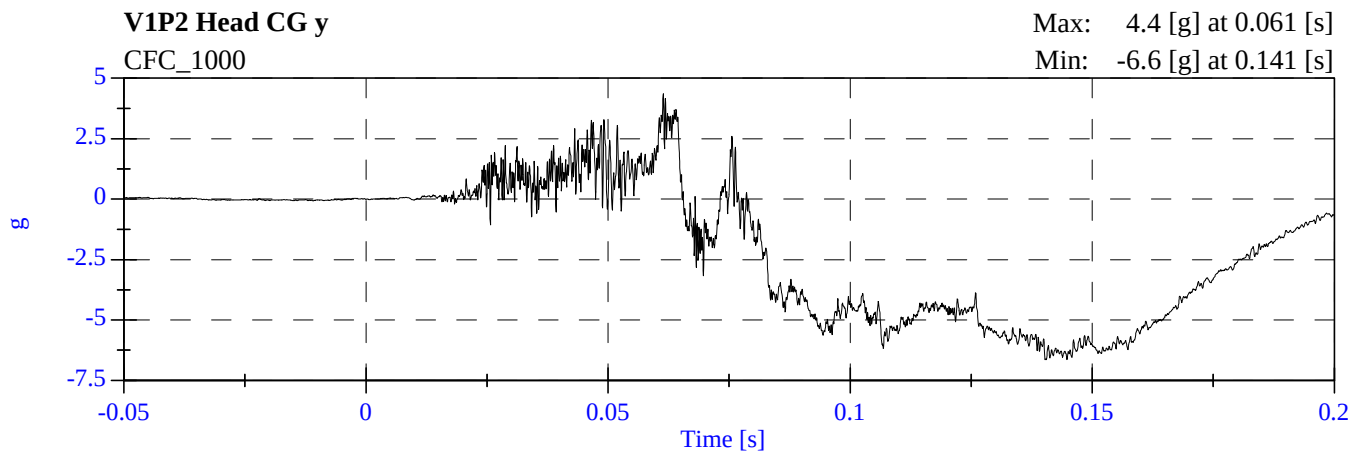
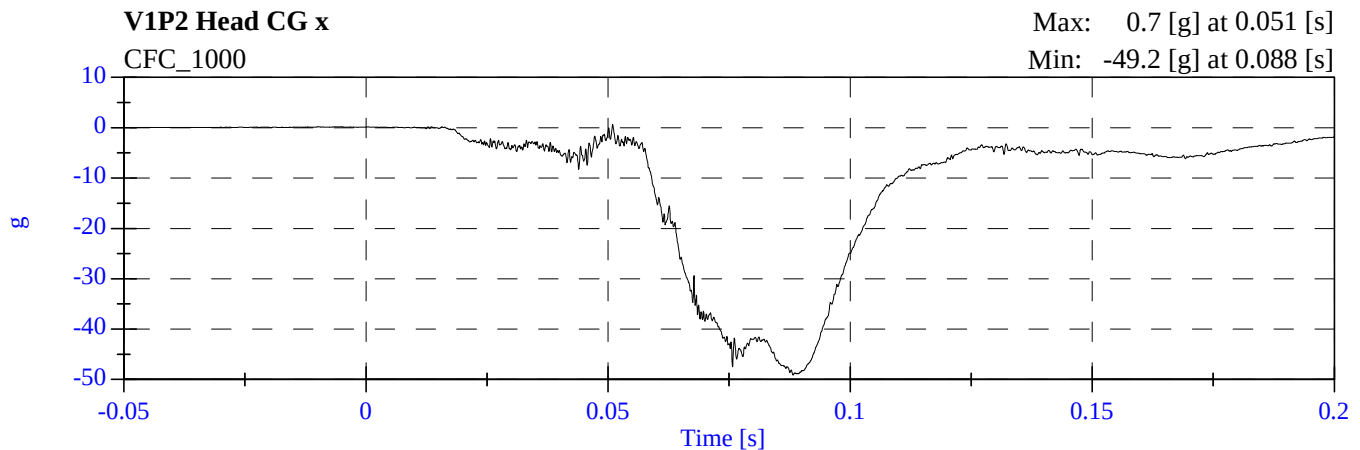
NCAP Test #6 - 2006 Hummer H3

M60114 - December 08, 2005



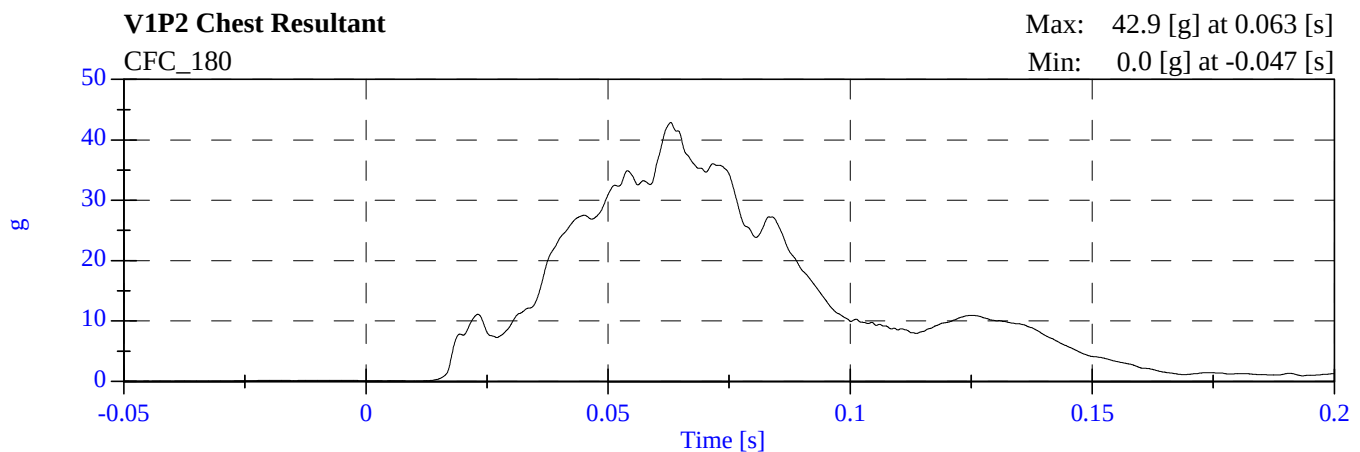
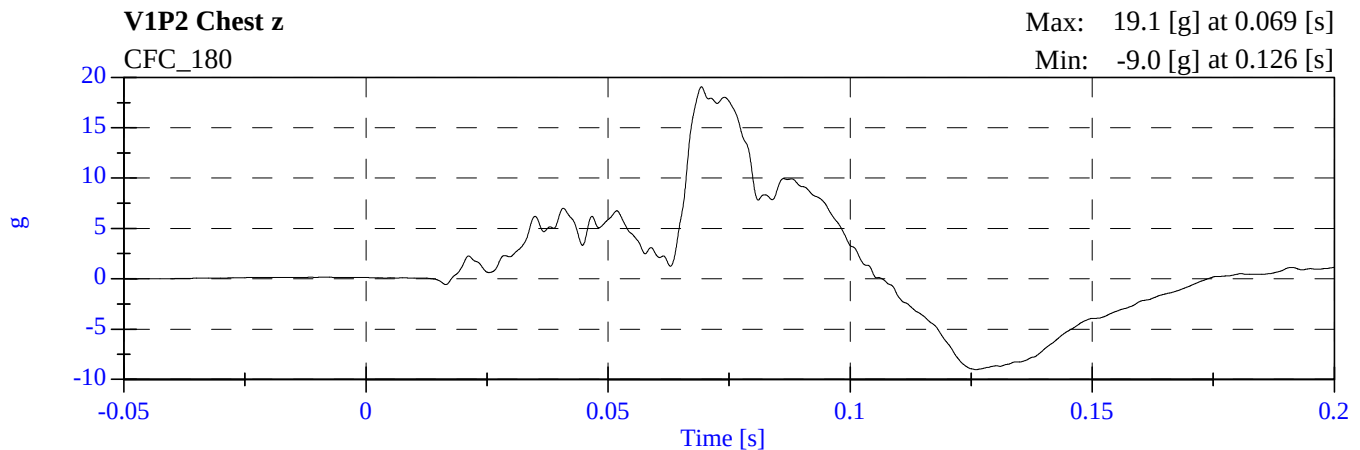
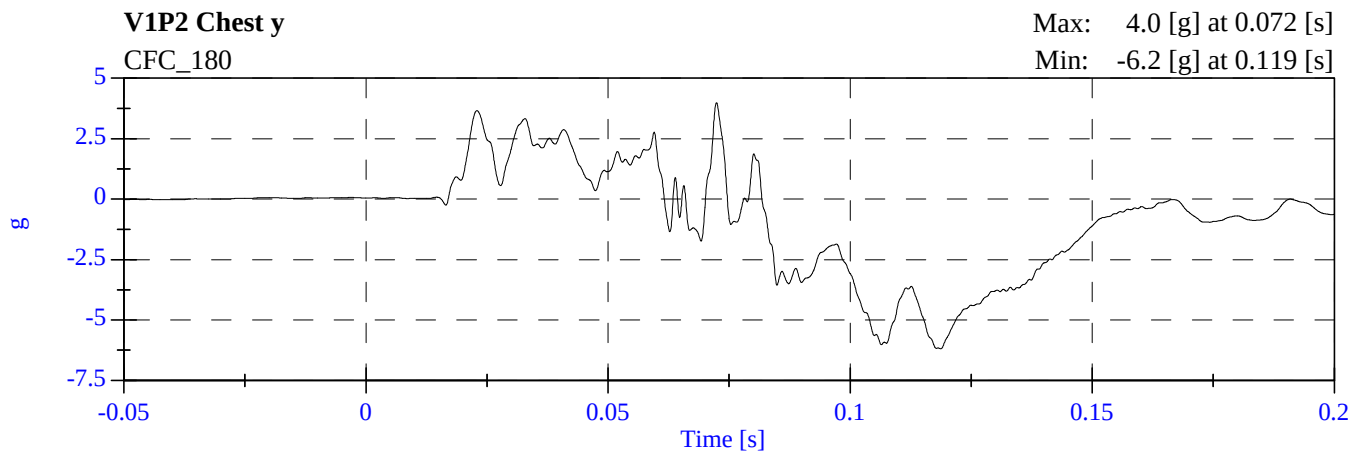
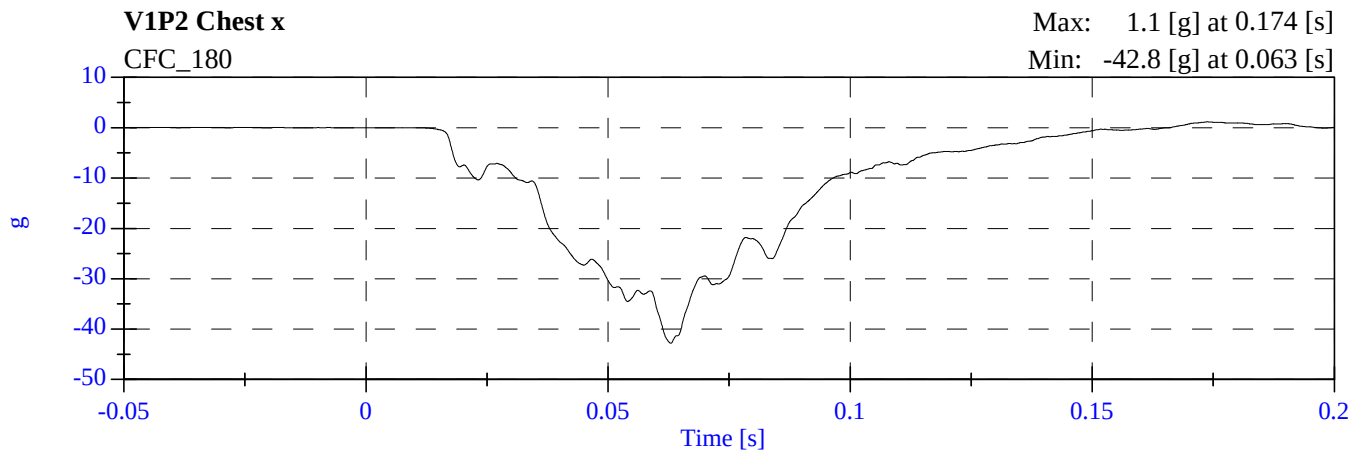
NCAP Test #6 - 2006 Hummer H3

M60114 - December 08, 2005

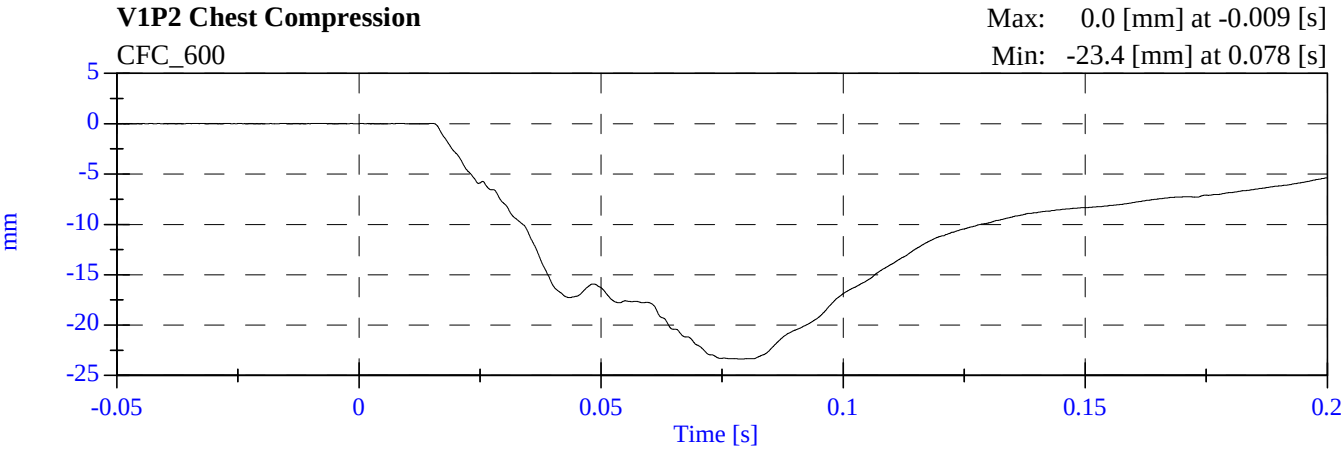


NCAP Test #6 - 2006 Hummer H3

M60114 - December 08, 2005

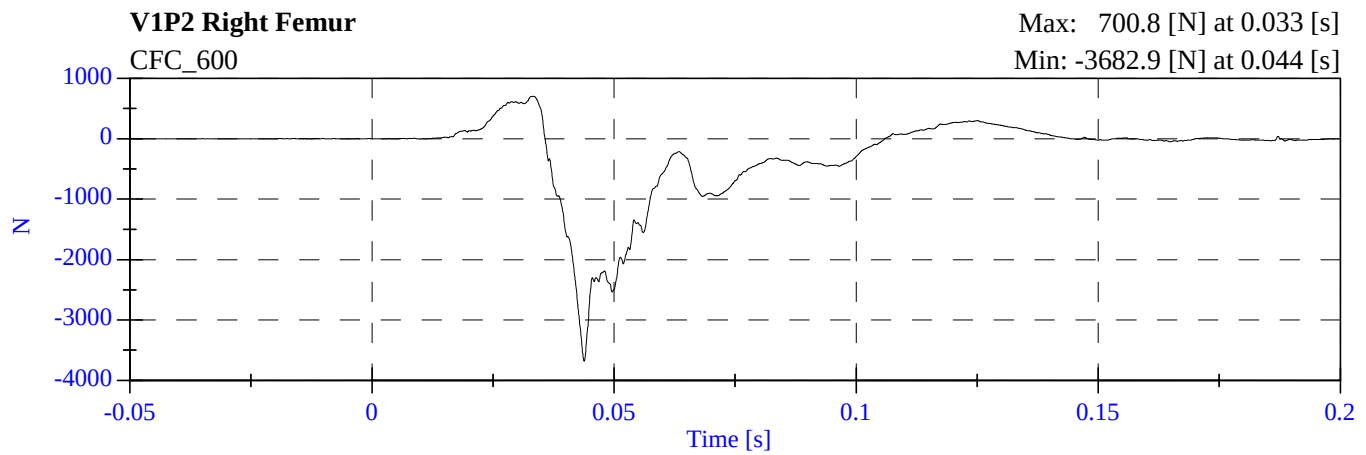
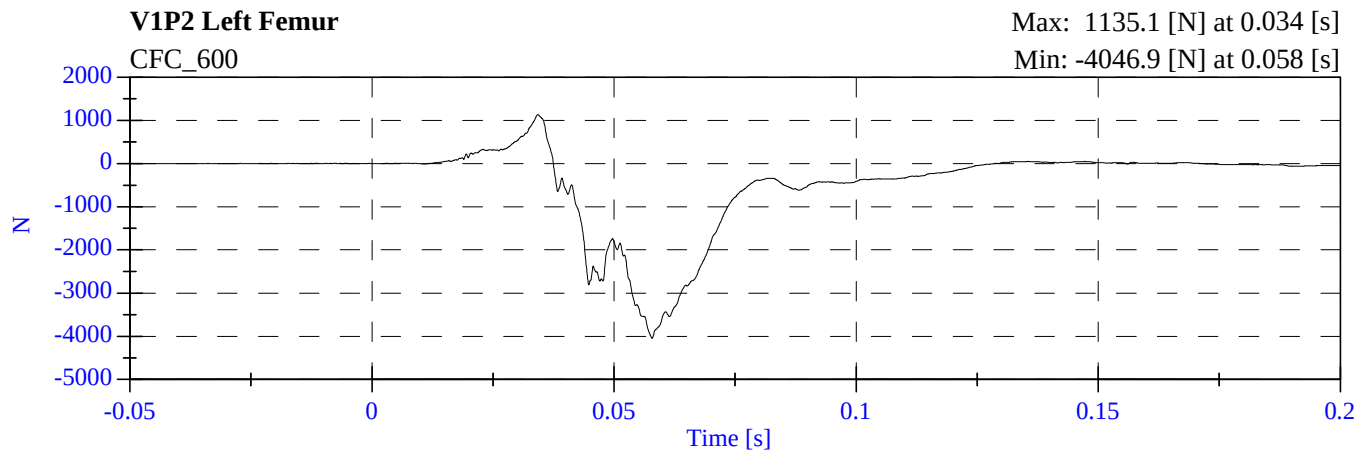


NCAP Test #6 - 2006 Hummer H3
M60114 - December 08, 2005



NCAP Test #6 - 2006 Hummer H3

M60114 - December 08, 2005



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.

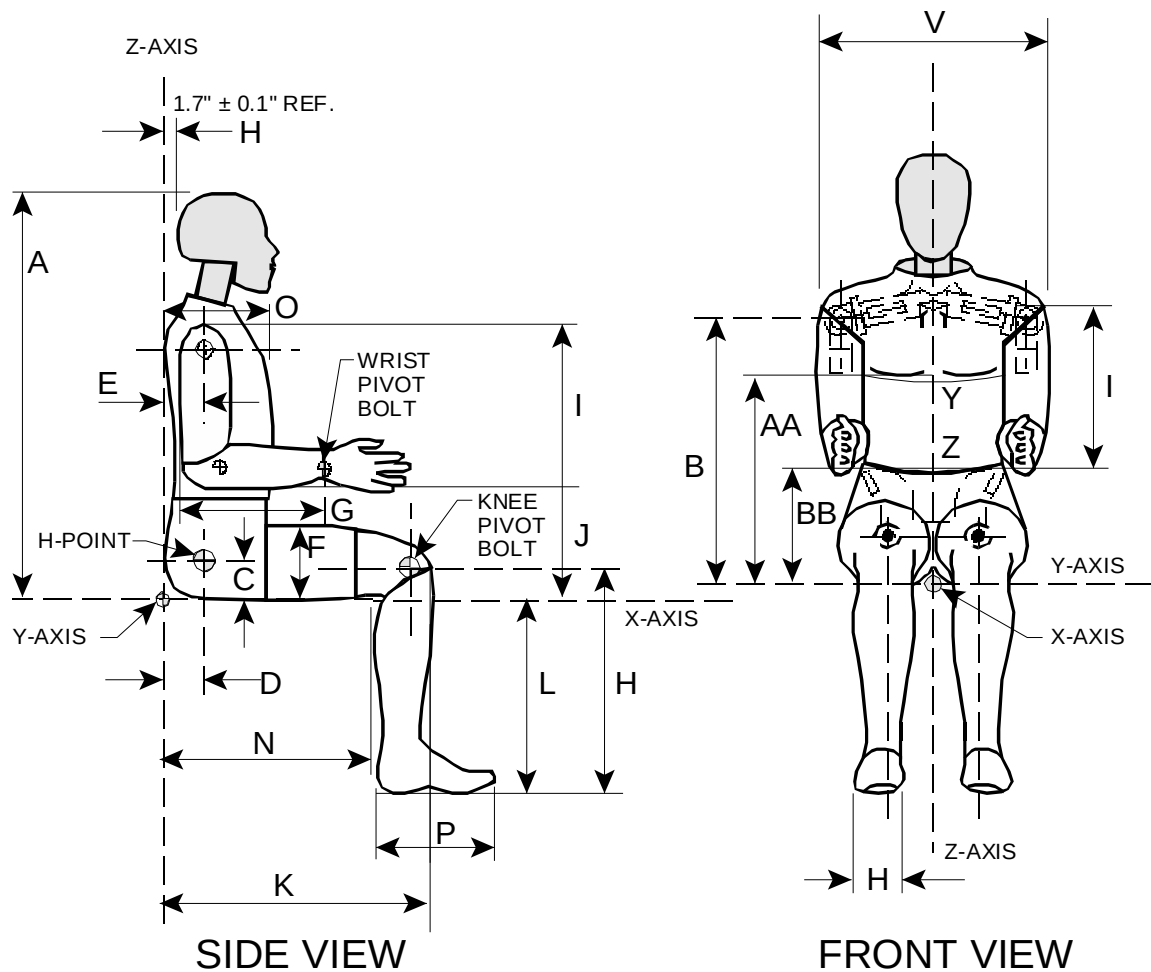
Dummy serial numbers and certification dates are:

<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	142	September 13, 2005
#2/Right Front Passenger	150	September 13, 2005

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 Inducant 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 142
Sequential Test Number 1
Date September 7, 2005
Workfile 142H1 09-07-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	36.0
Peak Resultant Acceleration	225-275 G's	251.38
Peak Lateral Acceleration	15 G's Max	1.32
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	142	
Sequential Test Number	1	
Date	September 8, 2005	6 Axis Neck Transducer
Workfile	142NF2 09-08-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	36.00
Impact Velocity		6.89 – 7.13 m/s	7.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.36
	20 ms	17.60 - 22.60 G's	22.39
	30 ms	12.50 - 18.50 G's	17.15
Max Pendulum G's Above 30 ms		29 G's Max	17.15
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	37.70
D Plane Rotation	Max	64 - 78 Deg	64.06
	Time	57 - 64 ms	58.60
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	103.45
	Time	47 - 58 ms	49.00
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.00
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	98.20

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	142	
Sequential Test Number	1	
Date	September 8, 2005	6 Axis Neck Transducer
Workfile	142NE 09-08-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	36.00
Impact Velocity		5.94 – 6.19 m/s	6.08
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.95
	20 ms	14.00 - 19.00 G's	18.76
	30 ms	11.00 - 16.00 G's	15.66
Max Pendulum G's Above 30 ms		22 G's Max	15.66
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	39.60
D Plane Rotation	Max	81 - 106 Deg	85.84
	Time	72 - 82 ms	72.20
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-76.65
	Time	65 - 79 ms	67.90
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	149.20
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	132.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 142
Sequential Test Number 1
Date September 12, 2005
Workfile 142T 09-12-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	38.0
Pendulum Velocity	6.58 – 6.83 m/s	6.74
Maximum Deflection	64.52 – 72.64 mm	71.49
Maximum Resistive Force	5159.9 – 5893.9 N	5237.17
Internal Hysteresis	69 - 85 %	74.17

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 142
Sequential Test Number 1
Date 1
Workfile 142LF 09-13-05/142RF 09-13-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	31.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5303.21
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	31.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5120.07

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 142
Sequential Test Number 1
Date September 13, 2005

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			38
Location for Chest Circumference	AA	16.9 - 17.1 in	17.1
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Total Sitting Height	A	34.6 - 35.0 in	35.0
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	6.0
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	13.5
Elbow Rest Height	J	7.5 - 8.3 in	8.2
Buttock Knee Length	K	22.8 - 23.8 in	23.5
Popliteal Height	L	16.9 - 17.9 in	17.7
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	9.0
Foot Length	P	9.9 - 10.5 in	10.3
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Foot Breadth	W	3.6 - 4.2 in	4.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.8
Waist Circumference	Z	32.9 - 34.1 in	33.0

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 150
Sequential Test Number 1
Date September 8, 2005
Workfile 150H 09-08-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	36.0
Peak Resultant Acceleration	225-275 G's	268.20
Peak Lateral Acceleration	15 G's Max	9.46
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150	
Sequential Test Number	1	
Date	September 9, 2005	6 Axis Neck Transducer
Workfile	150NF 09-09-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	29.0
Impact Velocity		6.89 – 7.13 m/s	7.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.64
	20 ms	17.60 - 22.60 G's	21.92
	30 ms	12.50 - 18.50 G's	17.29
Max Pendulum G's Above 30 ms		29 G's Max	17.29
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	37.00
D Plane Rotation	Max	64 - 78 Deg	65.43
	Time	57 - 64 ms	59.00
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	97.34
	Time	47 - 58 ms	48.90
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	114.70
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	98.30

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150	
Sequential Test Number	1	
Date	September 9, 2005	6 Axis Neck Transducer
Workfile	150NE1 09-09-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	29.00
Impact Velocity		5.94 – 6.19 m/s	6.02
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.30
	20 ms	14.00 - 19.00 G's	18.76
	30 ms	11.00 - 16.00 G's	15.31
Max Pendulum G's Above 30 ms		22 G's Max	15.31
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	38.00
D Plane Rotation	Max	81 - 106 Deg	88.29
	Time	72 - 82 ms	73.00
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-74.17
	Time	65 - 79 ms	68.40
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	152.50
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	133.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 150
Sequential Test Number 1
Date September 13, 2005
Workfile 150T 09-13-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	39.0
Pendulum Velocity	6.58 – 6.83 m/s	6.72
Maximum Deflection	64.52 – 72.64 mm	65.87
Maximum Resistive Force	5159.9 – 5893.9 N	5389.91
Internal Hysteresis	69 - 85 %	74.67

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 150
Sequential Test Number 1
Date September 13, 2005
Workfile 150LF 09-13-05/150RF 09-13-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	31.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5284.94
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	31.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5237.16

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Sequential Test Number 1
Date September 13, 2005

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			38
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	20.1
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.5
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
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	8.2
Buttock Knee Length	K	22.8 - 23.8 in	23.5
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.5
Buttock Popliteal Length	N	17.8 - 18.8 in	18.5
Chest Depth	O	8.4 - 9.0 in	9.0
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	4.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.1
Waist Circumference	Z	32.9 - 34.1 in	34.0

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 142)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array	X Arm Y	ENDEVCO	AC-J35933	14-Jul-05	12-Jan-06
	X Arm Z	ENDEVCO	AC-J36038	13-Jul-05	11-Jan-06
	Y Arm X	ENDEVCO	AC-J36605	14-Jul-05	12-Jan-06
	Y Arm Z	ENDEVCO	AC-J21907	13-Jul-05	11-Jan-06
	Z Arm X	ENDEVCO	AC-J19843	13-Jul-05	11-Jan-06
	Z Arm Y	ENDEVCO	AC-AJ507	13-Jul-05	11-Jan-06
Head	X	ENDEVCO	AC-J14189	13-Jul-05	11-Jan-06
	Y	ENDEVCO	AC-J20125	13-Jul-05	11-Jan-06
	Z	ENDEVCO	AC-J36744	14-Jul-05	12-Jan-06
Head	X (R)	ENDEVCO	AC-J21989	14-Jul-05	12-Jan-06
	Y (R)	ENDEVCO	AC-J35921	13-Jul-05	11-Jan-06
	Z (R)	ENDEVCO	AC-ACCY2	13-Jul-05	11-Jan-06
Neck Load Cell	X	DENTON	LC-297Fx	13-Jul-05	11-Jan-06
	Y	DENTON	LC-297Fy	13-Jul-05	11-Jan-06
	Z	DENTON	LC-297Fz	13-Jul-05	11-Jan-06
Neck Moment	X	DENTON	LC-297Mx	13-Jul-05	11-Jan-06
	Y	DENTON	LC-297My	13-Jul-05	11-Jan-06
	Z	DENTON	LC-297Mz	13-Jul-05	11-Jan-06
Chest	X	ENDEVCO	AC-AC9F9	13-Jul-05	11-Jan-06
	Y	ENDEVCO	AC-P16194	14-Jul-05	12-Jan-06
	Z	ENDEVCO	AC-J14688	13-Jul-05	11-Jan-06
Chest	X (R)	ENDEVCO	AC-AAK48	13-Jul-05	11-Jan-06
	Y (R)	ENDEVCO	AC-AAKB1	14-Jul-05	12-Jan-06
	Z (R)	ENDEVCO	AC-J27517	14-Jul-05	12-Jan-06
Chest Deflection	X	SERVO	DS-142	28-Jun-05	27-Dec-05
Pelvic	X	ENDEVCO	AC-AJ5R0	18-Jul-05	16-Jan-06
	Y	ENDEVCO	AC-J22036	14-Jul-05	12-Jan-06
	Z	ENDEVCO	AC-J17649	13-Jul-05	11-Jan-06

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 142)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	LC-729	20-Dec-04	20-Jun-05
Right Femur Load Cell	Fz	GSE	LC-631	16-Dec-04	16-Jun-05
Left Upper Tibia	Mx	DENTON	LC-266Mx	24-Jun-05	23-Dec-05
	My	DENTON	LC-266My	24-Jun-05	23-Dec-05
Left Lower Tibia	Fz	DENTON	LC-179Fz	22-Jun-05	21-Dec-05
	Mx	DENTON	LC-179Mx	22-Jun-05	21-Dec-05
	My	DENTON	LC-179My	22-Jun-05	21-Dec-05
Right Upper Tibia	Mx	DENTON	LC-265Mx	28-Jun-05	27-Dec-05
	My	DENTON	LC-265My	28-Jun-05	27-Dec-05
Right Lower Tibia	Fz	DENTON	LC-178Fz	28-Jun-05	27-Dec-05
	Mx	DENTON	LC-178Mx	28-Jun-05	27-Dec-05
	My	DENTON	LC-178My	28-Jun-05	27-Dec-05
Left Foot Rear	X	ENTRAN	AC-02I02I05-F06	15-Jul-05	13-Jan-06
	Z	ENTRAN	AC-01G18-F14	15-Jul-05	13-Jan-06
Left Foot Front	Z	ENTRAN	AC-99H30-Z13	18-Jul-05	16-Jan-06
Right Foot Rear	X	ENTRAN	AC-02I20I16-A13	15-Jul-05	13-Jan-06
	Z	ENTRAN	AC-03D03D16-F01	15-Jul-05	13-Jan-06
Right Foot Front	Z	ENTRAN	AC-00L20-A15	24-Aug-05	22-Feb-06
Lap Belt Load Cell		First Technology	LC-173	01-Oct-05	1-Apr-06
Shoulder Belt Load Cell		First Technology	LC-178	01-Oct-05	1-Apr-06

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array	X Arm Y	ENDEVCO	AC-J27470	13-Jul-05	11-Jan-06
	X Arm Z	ENDEVCO	AC-J36741	13-Jul-05	11-Jan-06
	Y Arm X	ENDEVCO	AC-J20027	14-Jul-05	12-Jan-06
	Y Arm Z	ENDEVCO	AC-J21988	15-Jul-05	13-Jan-06
	Z Arm X	ENDEVCO	AC-AAKC6	13-Jul-05	11-Jan-06
	Z Arm Y	ENDEVCO	AC-AAKD0	13-Jul-05	11-Jan-06
Head	X	ENDEVCO	AC-J20061	13-Jul-05	11-Jan-06
	Y	ENDEVCO	AC-AJ4F8	13-Jul-05	11-Jan-06
	Z	ENDEVCO	AC-AHRW5	14-Jul-05	12-Jan-06
Head	X (R)	ENDEVCO	AC-AJ7Y4	13-Jul-05	11-Jan-06
	Y (R)	ENDEVCO	AC-AJ454	13-Jul-05	11-Jan-06
	Z (R)	ENDEVCO	AC-J19563	13-Jul-05	11-Jan-06
Neck Load Cell	X	DENTON	LC-157Fx	14-Jul-05	12-Jan-06
	Y	DENTON	LC-157Fy	14-Jul-05	12-Jan-06
	Z	DENTON	LC-157Fz	14-Jul-05	12-Jan-06
Neck Moment	X	DENTON	LC-157Mx	14-Jul-05	12-Jan-06
	Y	DENTON	LC-157My	14-Jul-05	12-Jan-06
	Z	DENTON	LC-157Mz	14-Jul-05	12-Jan-06
Chest	X	ENDEVCO	AC-J20580	14-Jul-05	12-Jan-06
	Y	ENDEVCO	AC-J20018	13-Jul-05	11-Jan-06
	Z	ENDEVCO	AC-J20569	14-Jul-05	12-Jan-06
Chest	X (R)	ENDEVCO	AC-J21963	14-Jul-05	12-Jan-06
	Y (R)	ENDEVCO	AC-P16755	14-Jul-05	12-Jan-06
	Z (R)	ENDEVCO	AC-J14667	14-Jul-05	12-Jan-06
Chest Deflection	X	SERVO	DS-150	23-Jun-05	22-Dec-05
Pelvic	X	ENDEVCO	AC-J34378	13-Jul-05	11-Jan-06
	Y	ENDEVCO	AC-J23757	14-Jul-05	12-Jan-06
	Z	ENDEVCO	AC-J27513	14-Jul-05	12-Jan-06

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	LC-261	02-Jul-05	31-Dec-05
Right Femur Load Cell	Fz	DENTON	LC-264	02-Jul-05	31-Dec-05
Left Upper Tibia	Mx	DENTON	LC-263Mx	29-Jun-05	28-Dec-05
	My	DENTON	LC-263My	29-Jun-05	28-Dec-05
Left Lower Tibia	Fz	DENTON	LC-174Fz	28-Jun-05	27-Dec-05
	Mx	DENTON	LC-174Mx	28-Jun-05	27-Dec-05
	My	DENTON	LC-174My	28-Jun-05	27-Dec-05
Right Upper Tibia	Mx	DENTON	LC-268Mx	27-Jun-05	26-Dec-05
	My	DENTON	LC-268My	27-Jun-05	26-Dec-05
Right Lower Tibia	Fz	DENTON	LC-196Fz	27-Jun-05	26-Dec-05
	Mx	DENTON	LC-196Mx	27-Jun-05	26-Dec-05
	My	DENTON	LC-196My	27-Jun-05	26-Dec-05
Left Foot Rear	X	ENDEVCO	AC-J19223	14-Jul-05	12-Jan-06
	Z	ENDEVCO	AC-J20083	14-Jul-05	12-Jan-06
Left Foot Front	Z	ENTRAN	AC-04J04J07-M02	14-Jul-05	12-Jan-06
Right Foot Rear	X	ENDEVCO	AC-J27496	13-Jul-05	11-Jan-06
	Z	ENDEVCO	AC-J35747	13-Jul-05	11-Jan-06
Right Foot Front	Z	ENDEVCO	AC-J36723	13-Jul-05	11-Jan-06
Lap Belt Load Cell		First Technology	LC-159	01-Oct-05	1-Apr-06
Shoulder Belt Load Cell		First Technology	LC-175	01-Oct-05	1-Apr-06

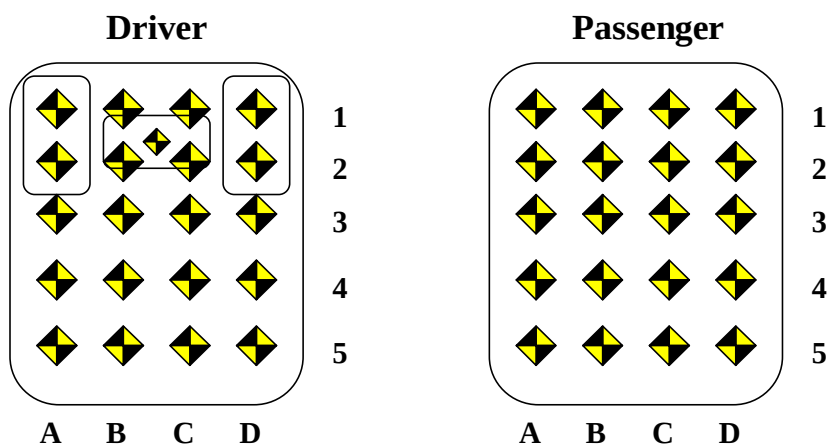
INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	GS SENSORS	AC-9440-046	17-Oct-05	17-Apr-06
Right Rear Seat Crossmember X	ICS	AC-FGP19	17-Oct-05	17-Apr-06
Top of Engine	ICS	AC-FGP24	12-Oct-05	12-Apr-06
Bottom of Engine	GS SENSORS	AC-9440-006	12-Oct-05	12-Apr-06
Right Disc Brake Caliper	ICS	AC-8084-014	12-Oct-05	12-Apr-06
Left Disc Brake Caliper	ICS	AC-8083-037	12-Oct-05	12-Apr-06
Left Seat Rear Crossmember Z	GS SENSORS	AC-9440-023	17-Oct-05	17-Apr-06
Right Seat Rear Crossmember Z	ICS	AC-FGP29	17-Oct-05	17-Apr-06

APPENDIX E

VEHICLE INTERIOR INTRUSION MEASUREMENTS

DRIVER SIDE INTRUSION MEASUREMENTS

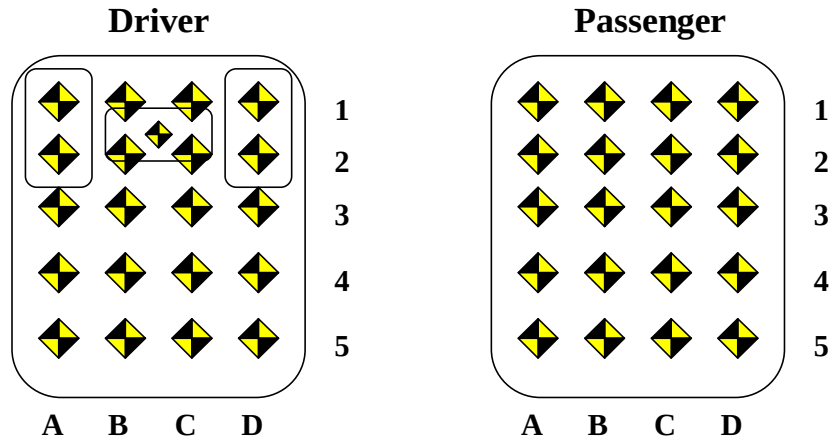


Driver Side Intrusion Measurements

Intrusion Location	PRE-TEST (mm)			POST-TEST (mm)			CHANGE (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	2265	-758	-948	2266	-757	-949	-1	-1	1
B1	3453	-499	-668	3437	-493	-719	16	-7	51
C1	3488	-369	-672	3466	-367	-733	22	-2	61
D1	3469	-250	-673	3440	-248	-739	29	-2	65
A2	3380	-618	-674	3364	-608	-703	16	-11	29
B2	3434	-500	-602	3428	-488	-649	6	-12	47
C2	3444	-368	-605	3436	-359	-661	9	-9	56
D2	3422	-260	-607	3415	-254	-666	8	-6	59
A3	3344	-614	-550	3348	-603	-579	-4	-11	29
B3	3385	-497	-549	3385	-485	-589	1	-12	40
C3	3381	-364	-551	3381	-356	-599	0	-8	48
D3	3378	-258	-557	3373	-247	-606	5	-11	49
A4	3236	-619	-555	3238	-609	-580	-2	-10	24
B4	3253	-497	-555	3253	-487	-581	0	-10	26
C4	3248	-368	-553	3247	-359	-592	1	-9	39
D4	3248	-253	-558	3246	-250	-591	2	-3	33
A5	3129	-621	-560	3132	-611	-582	-3	-9	22
B5	3131	-495	-560	3132	-487	-584	-2	-8	25
C5	3129	-368	-561	3128	-361	-587	2	-6	26
D5	3123	-248	-564	3126	-238	-587	-3	-10	23
BP	3300	-352	-708	3248	-357	-741	53	5	33
G	3047	-521	-991	3042	-520	-1011	5	-1	20
H	3058	-218	-973	3031	-220	-972	27	2	-1
L	2843	-370	-1177	2840	-392	-1216	3	22	39
AB	2782	-530	-619	2779	-527	-621	2	-3	3

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	3480	269	-689	3475	270	-729	4	0	40
B1	3491	369	-691	3485	355	-725	6	14	34
C1	3493	454	-694	3487	464	-735	6	-10	42
D1	3417	571	-695	3423	558	-726	-7	13	31
A2	3436	269	-618	3442	264	-658	-6	4	39
B2	3447	368	-611	3459	360	-655	-11	8	44
C2	3452	460	-622	3462	448	-658	-10	12	35
D2	3391	576	-630	3403	563	-657	-11	13	26
A3	3368	272	-555	3385	266	-589	-17	7	33
B3	3380	372	-554	3396	364	-585	-16	8	32
C3	3383	471	-554	3403	465	-586	-19	6	32
D3	3374	577	-567	3393	568	-595	-19	9	28
A4	3245	272	-559	3260	267	-572	-15	5	13
B4	3266	371	-558	3280	364	-579	-14	7	21
C4	3254	486	-560	3273	481	-581	-19	5	20
D4	3253	577	-565	3277	573	-588	-24	5	23
A5	3126	278	-566	3138	277	-575	-12	1	9
B5	3125	376	-566	3141	376	-583	-16	0	17
C5	3125	504	-569	3149	497	-585	-24	7	17
D5	3130	582	-572	3152	581	-589	-23	1	17
R	3072	246	-953	3050	261	-981	22	-15	27
S	3066	508	-963	3061	523	-995	6	-15	32
AB	2787	526	-622	2803	535	-618	-17	-9	-5

R=Left side of bolster, S=Right side of bolster, L=Steering wheel center;

AB = Front outboard seat anchor bolt