

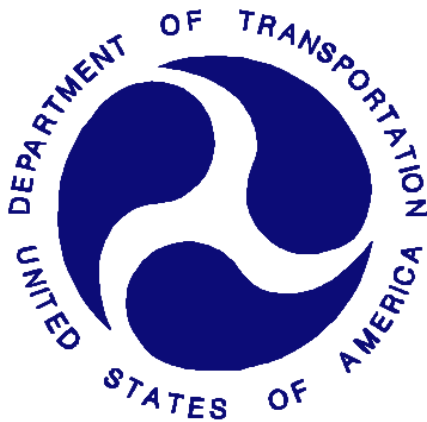
REPORT NUMBER TR-P25001-11-NC

**NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST**

**FORD MOTOR COMPANY
2005 FORD E-150 XL WAGON 4-DOOR MPV**

NHTSA NUMBER: M50207

**PREPARED BY:
KARCO ENGINEERING, LLC
9270 HOLLY ROAD
ADELANTO, CALIFORNIA 92301**



JANUARY 18, 2005

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-111
400 SEVENTH STREET, SW, ROOM 5311
WASHINGTON, D.C. 20590**

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-01-D-02005.

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

Prepared by: _____
Mr. Yednesh Parnaik, Project Engineer
KARCO Engineering, LLC

Date: January 31, 2005

Reviewed by: _____
Mr. Michael L. Dunlap, Quality Assurance Manager
KARCO Engineering, LLC

Date: January 31, 2005

Approved by: _____
Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC

Date: January 31, 2005

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

Technical Report Documentation Page

1. Report No. TR-P25001-11-NC	2. Government Accession No.	3. Recipients Catalog No.			
4. Title and Subtitle Final Report of New Car Assessment Program 2005 Ford E-150 XL Wagon 4-Door MPV NHTSA No. M50207		5. Report Date January 18, 2005			
		6. Performing Organization Code KAR			
7. Authors Mr. Yednesh Parnaik, Project Engineer, Karco Mr. Frank Richardson, Program Manager, Karco		8. Performing Organization Report No. TR-P25001-11-NC			
9. Performing Organization Name and Address Karco Engineering, LLC 9270 Holly Rd. Adelanto, CA, 92301		10. Work Unit No.			
		11. Contract or Grant No. DTNH22-01-D-02005			
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Rulemaking Office of Crashworthiness Standards Mail Code NPS-111 400 Seventh Street, SW, Room 5311 Washington, D.C 20590		13. Type of Report and Period Covered Final Test Report Option Year 4			
		14. Sponsoring Agency Code DOT/NHTSA/NRM/OCS			
15. Supplementary Notes					
16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2005 Ford E-150 XL Wagon 4-Door MPV at Karco Engineering, LLC on January 18, 2004. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity was 56.32 km/h. The ambient temperature at the barrier face at the time of impact was 19.4 degrees Celcius. The vehicle's maximum post-test static crush was 540 mm near the center of the vehicle. The test vehicle was equipped with a 3-point continuous belt system and second generation supplemental airbags in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary is as follows:					
Measurement Description		Units	Threshold	Driver ATD	Passenger ATD
Head Injury Criteria (HIC ₃₆)		N/A	1000	518.8	533.5
Max. Chest Accel. (3 msec Clip)		G's	60	48.4	47.2
Left Femur Force		Newtons	10008	-5574.0	-3955.8
Right Femur Force		Newtons	10008	-4093.8	-4877.7
17. Key Words 56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) 2005 Ford E-150 XL Wagon 4-Door MPV NHTSA No. M50207			18. Distribution of Statement Copies of this report available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, D.C. 20590		
19. Security Classification (this report) Unclassified	20. Security Classification (this page) Unclassified	21. No. of Pages 174	22. Price		

TABLE OF CONTENTS

Section	Description	Page
1	Purpose and Summary of Test M50207	1
2	Occupant and Vehicle Information/Data Sheets	3

Data Sheet	Description	Page
1	Crash Test Summary	4
2	General Test and Vehicle Parameter Data	5
3	Post-Test Impact Data	8
4	Test Vehicle Information	9
5	Dummy Positioning in Vehicle	11
6	Seat Belt Positioning Data	13
7	Vehicle Accelerometer Location and Data Summary	14
8	Hybrid III ATD Injury Criteria and Sensor Data	15
9	Seat Belt Assessment Test Data	18
10	Summary of FMVSS 212 Data	19
11	Windshield Zone Intrusion FMVSS 219 Data (Partial)	20
12	FMVSS 301 Fuel System Integrity Post Impact Data	21
13	FMVSS 301 Static Rollover Data	22
14	Vehicle Measurements	24
15	Camera Locations	27
16	Photographic Reference Target Locations	28
17	Vehicle Intrusion Measurements	29
18	Fixed Barrier Load Cell Locations	33
19	Post-Test Air Bag Data	34
20	Accident Investigation Division Data	35
21	Dummy/Vehicle Temperature Stabilization	36

Appendix	Description	Appendix
A	Photographs	A
B	Data Plots	B
C	Load Cell Barrier Data Plots	C
D	Instrumentation Data Channel Assignments	D
E	Dummy Calibration Data	E
F	Child Restrain Systems (CRS) Report	F

SECTION 1

PURPOSE AND SUMMARY OF TEST M50207

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the New Car Assessment Program (NCAP) sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-02005. 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 30 mph (48.3 km/h) requirements.

This 56.3 km/h 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.

1.2 SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2005 Ford E-150 XL Wagon 4-Door MPV at a velocity of 56.32 km/h. The test was performed at Karco Engineering, LLC on January 18, 2005.

Three (3) real-time and fourteen (14) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in Data Sheet Number 15 (page number: 27) of this report.

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

Both ATDs were fully instrumented with head (primary and redundant), chest (primary and redundant) and pelvic triaxial accelerometers, chest displacement potentiometers, six-axis upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also placed on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. Also, shoulder belt spool-off was measured for the driver and passenger dummy. The driver (position 1) ATD (Serial No. 35) and the right-front passenger (position 2) ATD (Serial No. 34) were calibrated prior to this test.

Ninety seven (97) channels of data were recorded using an on-board data acquisition system. Appendix A contains Pre and Post-Test Photographs, Appendix B contains the vehicle and dummy response data traces. Appendix C contains Load Cell Barrier information. Appendix D contains the Instrumentation Data Channel assignments, Appendix E contains the Dummy Calibration data, and Appendix F contains the Child Restraint System (CRS) report.

There was 100 percent windshield retention and no intrusion into the protected zone of the windshield during the impact event. There was no Stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 540 mm. The driver and passenger side doors remained closed during the impact event and were opened with the aid of tools after the impact.

The driver's visible contact points were as follows: The driver ATD head, chest and abdomen contacted the airbag, and both knees contacted the knee bolster.

The passenger's visible contact points were as follows: The passenger ATD head, chest and abdomen contacted the airbag, and both knees contacted the glove box.

Occupant injury data is contained in table below.

OCCUPANT DATA SUMMARY

ATD Position	HIC ₃₆	Clip (g)	Chest Defl. (mm)	Left Femur (N)	Right Femur (N)	Belt Spool (mm)
Driver	518.8	48.4	-30.6	-5574.0	-4093.8	465.8
Passenger	533.5	47.2	-27.7	-3955.8	-4877.7	314.1

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(tf - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

* Based on the Recommended Practice in SAE J916, May 85

**DATA SHEET NO. 1
CRASH TEST SUMMARY**

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	56.32
Test Weight	kg	2675
Impact Angle	degrees	0
Average Rebound	mm	422
Maximum Static Crush	mm	540

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door Opening	Remained closed, opened with tools	Remained closed, opened with tools
Rear Door Opening	Remained closed, opened w/o tools	Remained closed, opened w/o tools
Seat Track Shift (mm)	0	0
Seat Back Failure	No	No

TEST DUMMY INFORMATION

Description	Driver	Passenger
Dummy Type/ Serial No.	50% Male Hybrid III No. 35	50% Male Hybrid III No. 34
Head Contact	Airbag	Airbag
Chest Contact	Airbag	Airbag
Abdomen Contact	Airbag	Airbag
Left Knee Contact	Knee Bolster	Glove Box
Right Knee Contact	Knee Bolster	Glove Box

MOVIE COVERAGE

Cameras	Standard	Additional
High Speed	14	0
Real Time	1	2
Total	15	2

DATA CHANNELS

Driver ATD Sensors	40
Passenger ATD Sensors	40
Belt Assessment Sensors	8
Vehicle Structure Accelerometers	9
Rigid Barrier Load Cells	36
Total	133

**DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M50207	Anti-Lock Brakes	Yes
Make	Ford	All Wheel Drive	No
Model	E-150 XL Wagon	Power Steering	Yes
Body Style	4-Door MPV	Driver Front Airbag	Yes
Vin No.	1FMRE11W15HA15810	Driver Side Airbag	No
Color	Silver	Driver Head Airbag	No
Delivery Date	12/8/2004	Driver Curtain Airbag	No
Odometer	110	Pass. Airbag	Yes
Dealer	Ricart Ford Inc.	Pass. Side Airbag	No
Transmission	4-Speed Automatic	Pass. Head Airbag	No
Final Drive	Rear	Pass. Curtain Airbag	No
Type/No. Cyl.	V8	Pre-Tensioners	Yes
Engine Disp. (L)	4.6	Load Limiters	Yes
Engine Placement	Longitudinal	Bucket Seats	Yes
Roof Rack	No	Air Cond.	Yes
Sunroof/T-Top	No	AM/FM Cassette	Yes
Tinted Glass	Yes	Tilt Steering	Yes
Traction Control	No	Power Door Locks	No
Power Brakes	Yes	Power Windows	No
Front Disc	Yes	Power Seats	No
Rear Disc	Yes	Other	

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	3175
Date of Manufacture	Sep-04	GAWR Front (kg)	1632
		GAWR Rear (kg)	1723

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	Bench	
Number of Occupants	2	3	3	8
Capacity Weight (VCW) (kg)				758
Cargo Weight (RCLW) (kg)				136

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

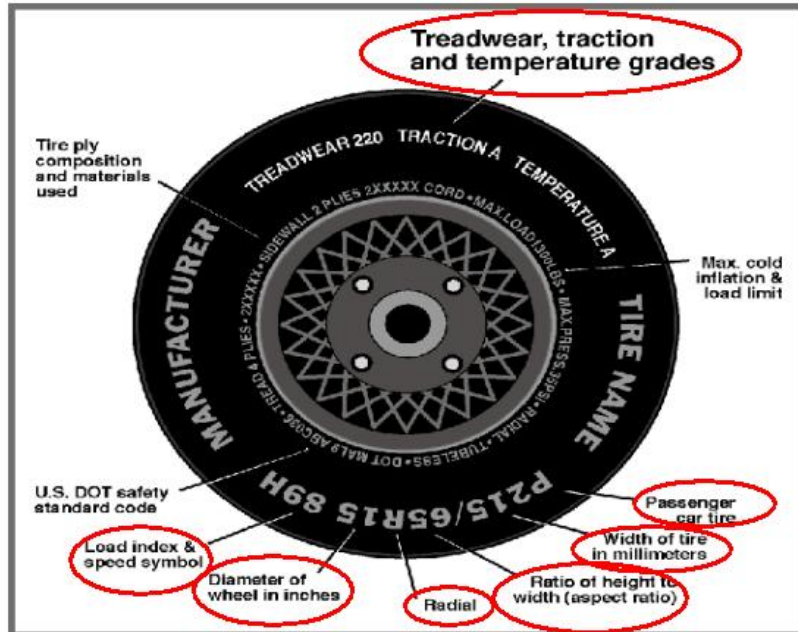
Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

Collect year, make, model, VIN, items circled in red, and tire manufacturer and tire name.



TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	280	280
Cold Pressure (kpa)	280	280
Recommended Tire Size	P235/70R16	P235/70R16
Tire Size on Vehicle	P235/70R16	P235/70R16
Tire Manufacturer	Michelin	Michelin
Treadwear	500	500
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester + 2 Steel	2 Polyester + 2 Steel
Load Index/Speed Symbol	107S	107S
Tire Material	Polyester + Steel	Polyester + Steel
DOT Safety Code Right	B37P NAJX 3304	B37P NAJX 3304
DOT Safety Code Left	B37P NAJX 3304	B37P NAJX 3304

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

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	660	551		718	628	
Right	kg	642	542		708	621	
Ratio	%	54.4	45.6		53.3	46.7	
Totals	kg	1302	1093	2395	1426	1249	2675

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	2395
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Wt. (RCLW)	kg	136
Calculated Vehicle Target Wt. (TVTW)	kg	2683

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	840	843	855	865	1602
As Tested	mm	827	832	835	838	1639

Vehicle Wheel Base (mm) 3510

Weight of Ballast Secured in cargo area (kg) 0

Weight of Items Removed (kg) 64

Vehicle Components Removed Rear trim panels, carpet, spare tire and tools

* Ballast weight does not include cameras, instrumentation and brake abort system.

FUEL SYSTEM DATA

Fuel System Capacity From Owners Manual (L) 132.5

Test Volume Range - 92 to 94% of Usable Capacity (L) 121.9 to 124.5

Actual Test Volume of Stoddard Solvent Filled (L) 123.2

Test Fluid Type: Stoddard Solvent

Kinematic Viscosity: as per ASTM Standard D484-71 Purple

Is Vehicle Fuel Pump Electric or Mechanical? Electric

If electric, does pump operate with ignition switch "On" & engine "OFF" Yes

Fuel System Particulars: None

**DATA SHEET NO. 3
POST-TEST IMPACT DATA**

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No.1 Velocity (Primary)	km/h	55.51 to 57.12	56.32
Trap No. 1 Entry Distance	mm	<1524	1524
Trap No.1 Exit Distance	mm	<1524	305
Trap No.2 Velocity (Redun.)	km/h	55.51 to 57.12	56.07
Trap No.2 Entry Distance	mm	<1524	1524
Trap No.2 Exit Distance	mm	<1524	305

VEHICLE STATIC CRUSH

Measured Parameter	Units	Pre-Test	Post-Test	Difference
Left Side	mm	5273	4818	-455
Center	mm	5383	4843	-540
Right Side	mm	5273	4860	-413

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	440
Center	mm	415
Right Side	mm	410
Average	mm	422

**DATA SHEET NO. 4
TEST VEHICLE INFORMATION**

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

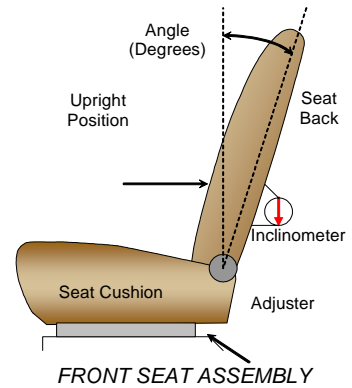
NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

NOMINAL DESIGN RIDING POSITION

The driver and passenger seat backs are positioned to the manufacturers designated angle. The procedure is as follows:
Seat back angle was measured at the headrest of the seat back using a digital inclinometer.



SEAT BACK ANGLES

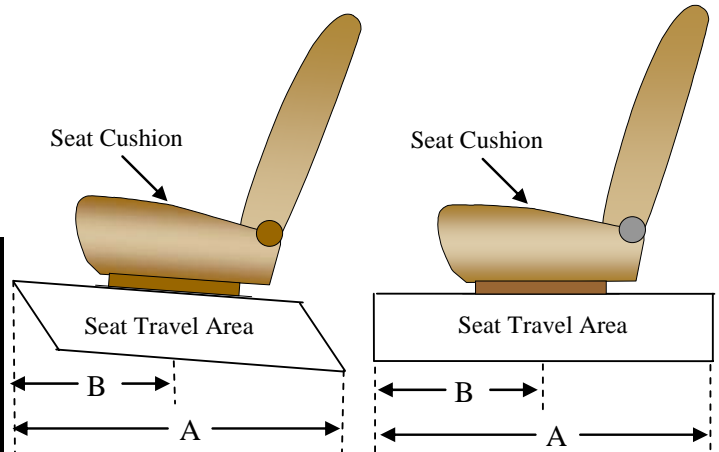
	Deg.
Driver w/seated Dummy	17.0
Passenger w/seated Dummy	20.0

SEAT FORE/AFT POSITIONS

The total seat travel was measured from forward most position to rearmost position, irrespective of vertical seat height in those positions. The seat was set at the longitudinal mid position with vertical adjustment at the lowest position obtainable for both the driver and passenger.

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel (Detent)	Placed in Position (Detent)
Driver Seat	19	10
Passenger Seat	19	10



SEAT BELT UPPER ANCHORAGE

Position number one (1) is the uppermost position.

SEAT BELT UPPER ANCHORAGE

	Total # of Positions	Placed in Position #
Driver Seat	5	3
Passenger Seat	5	3

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

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

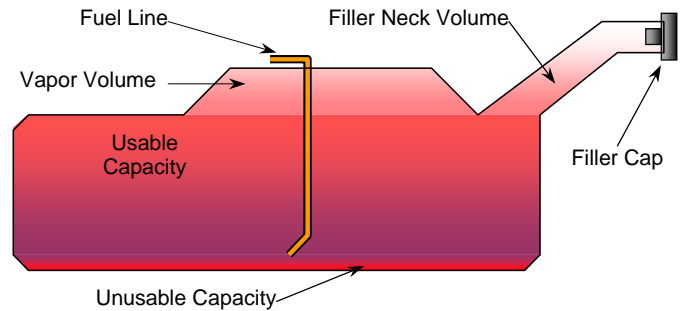
Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	132.5
Usable Capacity of "Optional" Tank	
Usable Capacity used for FMVSS 301	121.9 to 124.5
Actual Amount of Solvent used	123.2
1/3 of Usable Capacity	

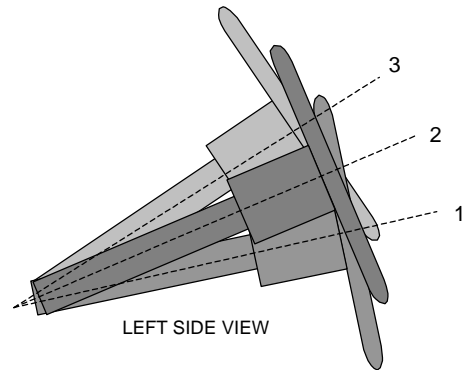
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONS

	Fore/Aft Positon (mm)	Degrees
Lowermost positon No. 1		13.7
Geometric center position No. 2		22.0
Uppermost position No. 3		29.5

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (deg)	Length (mm)	Angle (deg)
WA	Windshield Angle		44.1		
SWA	Steering Wheel Angle		68.0		
SCA	Steering Column Angle		22.0		
SA	Seat Back Angle		17.0		20.0
HZ	Head to Roof (Z)	265	90.0	300	90.0
HH	Head to Header	430		545	
HW	Head to Windshield	630		790	
HR	Head to Side Header (Y)	315		330	
NR	Nose to Rim	320	14.5		
CD	Chest to Dash	545		600	
CS	Chest to Steering Hub	260			
RA	Rim to Abdomen	155			
KDL	Left Knee to Dash	155	14.0	130	
KDR	Right Knee to Dash	150		150	1.6
PA	Pelvic Angle		21.7		21.9
TA	Tibia Angle		59.6		57.5
KK	Knee to Knee (Y)	310		310	
SK	Striker to Knee	590	9.0	570	12.0
ST	Striker to Head	535	74.5	510	88.0
SH	Striker to H-Point	230	41.0	200	47.2
SHY	Striker to H-Point (Y)	220		220	
HS	Head to Side Window	370		350	
HD	H-Point to Door (Y)	155		115	
AD	Arm to Door (Y)	90		45	

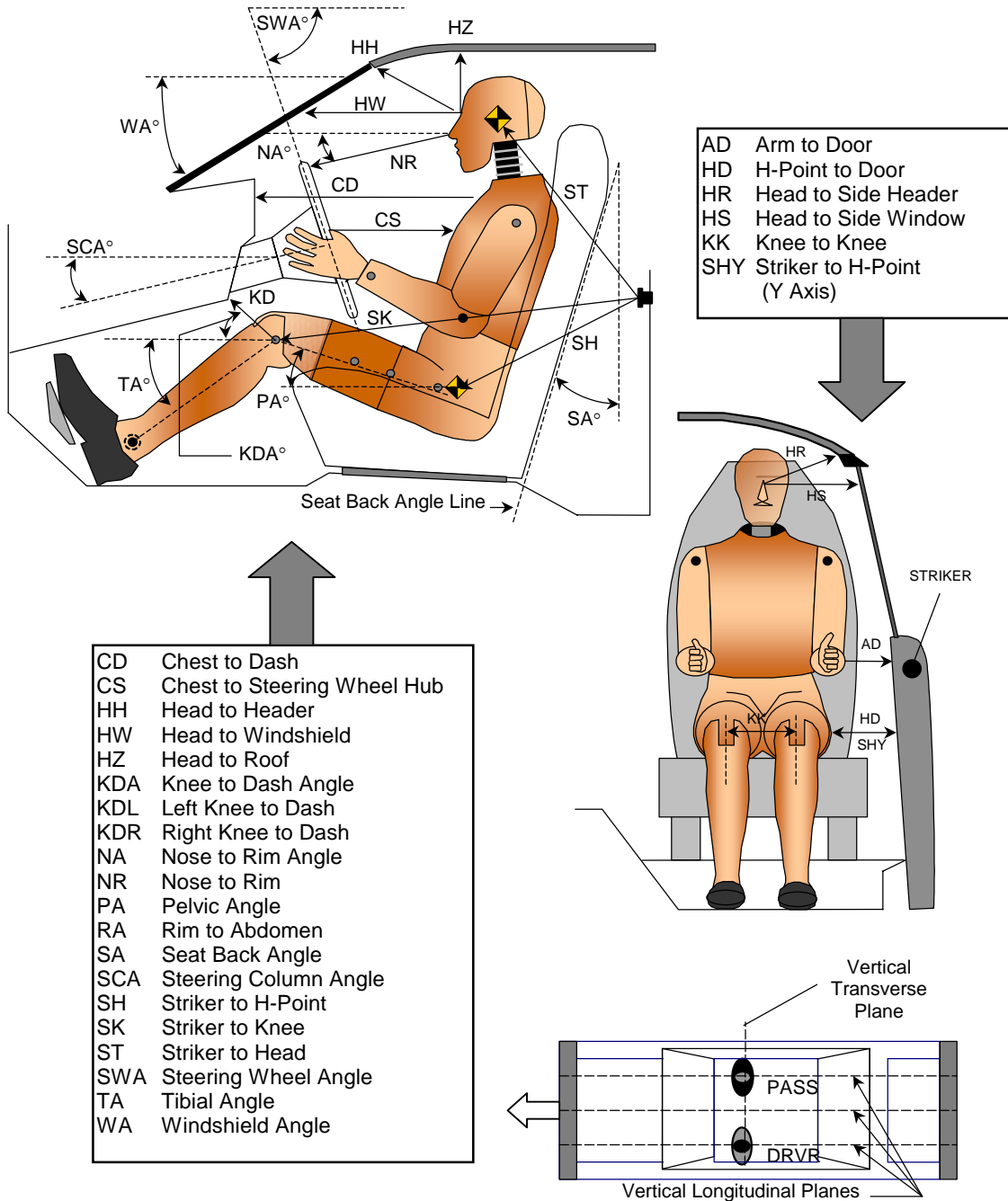
DATA SHEET NO. 5...(CONTINUED)
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05



DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

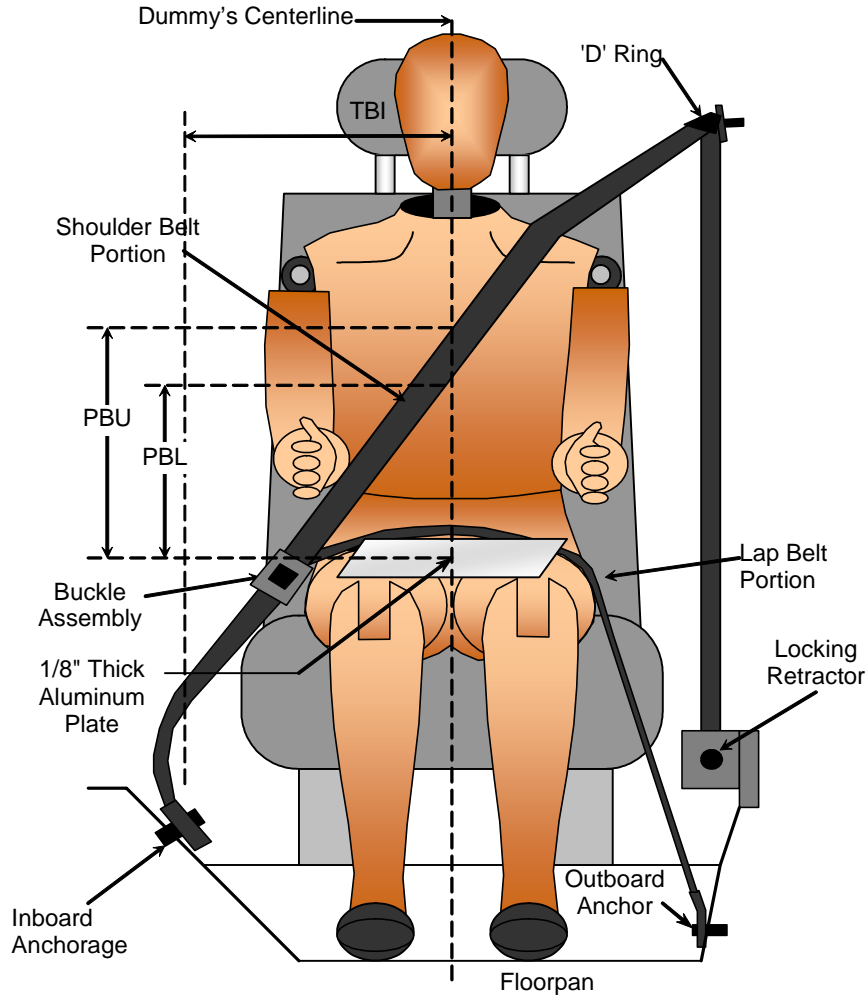
DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05



SEAT BELT POSITIONING MEASUREMENTS

Measured Parameter	Units	Driver	Passenger
TBI -Dummy C/L to Lap/Shoulder Belt Intersect	mm	180	200
PBU - Top Surface of reference to belt upper edge	mm	350	305
PBL - Top Surface of reference to belt lower edge	mm	280	225
Lap Belt Tension	Newtons	10	10
Shoulder Belt Tension	N/A	Retractor	Retractor

DATA SHEET NO. 7 - VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV

NHTSA No.: M50207

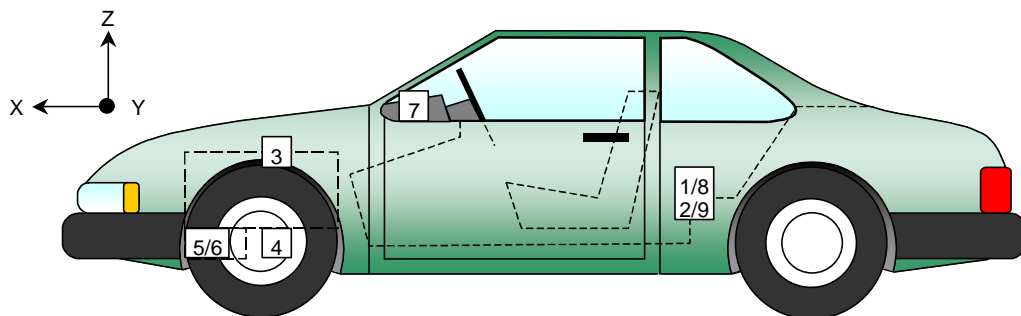
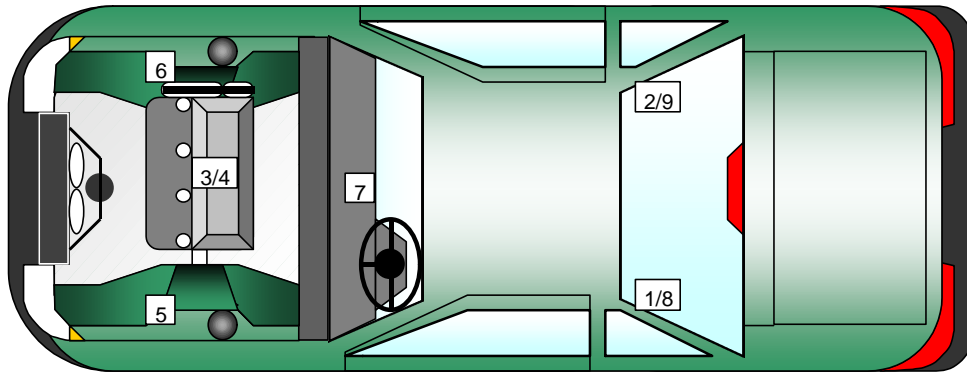
Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member	3025	-580	600	G's	2.9	82.4	-41.6	61.5
2	Right Rear X-Member	3025	580	600	G's	2.5	123.8	-36.4	60.9
3	Engine Top	4100	310	710	G's	17.7	52.9	-73.8	35.0
4	Engine Bottom	3940	150	270	G's	22.0	63.6	-61.3	36.1
5	Left Brake Caliper	4490	-780	350	G's	27.7	58.6	-73.0	14.6
6	Right Brake Caliper	4490	780	350	G's	18.5	53.3	-68.2	14.7
7	Instrument Panel	4020	0	1360	G's	12.0	92.0	-43.7	73.8
8	Left Rear X-Member (Z-Axis)	3095	-580	600	G's	47.0	62.1	-33.0	58.3
9	Right Rear X-Member (Z-Axis)	3095	580	600	G's	10.5	32.8	-15.4	39.4

Reference Planes: X=From Rear Surface of Vehicle, Y=Vehicle Centerline, Z=Ground Plane



DATA SHEET NO. 8 - HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	10.2	200.0	-48.7	64.7	2.1	20.5	-52.9	79.6
Head CG	Y	G's	5.8	169.6	-28.2	76.9	13.6	91.4	-2.0	66.5
Head CG	Z	G's	17.4	48.4	-19.7	84.8	33.0	69.4	-1.9	138.5
Head CG Resultant	N/A	G's	54.4	69.4			54.7	79.2		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	10.6	162.9	-49.5	73.5	2.5	146.5	-46.0	72.6
Chest CG	Y	G's	6.5	86.0	-5.3	45.5	7.6	43.2	-5.9	71.3
Chest CG	Z	G's	13.9	50.8	-9.0	90.7	15.4	68.2	-4.2	103.6
Chest CG Resultant	N/A	G's	49.6	73.6			48.2	72.4		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	360.1	39.1	-5574.0	60.6	276.5	34.0	-3955.8	41.6
Right Femur	Z	Newtons	143.0	22.9	-4093.8	59.5	545.8	40.4	-4877.7	44.5

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Shoulder Belt Pullout	N/A	MM	465.8	101.3	-0.3	12.4	314.1	94.4	0.0	8.3
Shoulder Belt Stretch	N/A	MM/CM	0.0	0.0	0.0	0.0	0.00	0.0	0.00	0.0
Lap Belt Force	N/A	Newtons	5097.1	56.6	-10.1	135.1	5788.3	49.6	-26.2	160.5
Shoulder Belt Force	N/A	Newtons	5138.5	72.4	-27.6	165.6	4617.7	67.8	-14.8	182.4

1.) Not used with pre-tensioners

PRIMARY HEAD INJURY CRITERIA (HIC36)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Primary	518.8	45.8	81.8	46.0	533.5	62.4	98.4	46.5

PRIMARY CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	48.4	72.2	75.2	47.2	70.3	73.3

DATA SHEET NO. 8...(CONTINUED)

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	5.4	121.6	-62.0	59.9	3.3	127.2	-62.9	43.8
Pelvis	Y	G's	8.5	69.3	-5.5	36.2	8.6	40.4	-10.5	83.3
Pelvis	Z	G's	2.8	168.9	-25.3	72.7	3.1	26.8	-19.4	63.7
Pelvis Resultant	N/A	G's	63.6	59.9			63.3	43.8		

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	259.7	92.9	-454.0	74.0	578.6	72.8	-477.4	131.0
Neck Force	Y	Newtons	245.0	57.1	-80.6	118.2	333.0	96.9	-57.9	47.0
Neck Force	Z	Newtons	2433.2	63.0	-378.8	93.8	1596.0	68.9	-146.4	138.5
Neck Force Resultant	N/A	Newtons	2451.0	63.0			1690.5	68.9		
Neck Moment	X	Nm	15.0	161.9	-27.0	50.4	15.0	121.2	-26.2	87.5
Neck Moment	Y	Nm	0.4	35.4	-11.0	34.6	35.1	140.1	-16.5	89.4
Neck Moment	Z	Nm	28.7	62.7	-5.3	155.5	6.9	148.0	-13.0	100.8
Neck Moment Resultant	N/A	Nm	30.9	52.9			35.8	140.0		

1.) Driver channel failed at 35.1 msec.

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	11.2	35.3	-43.6	23.3	5.5	111.0	-117.9	42.4
Left Foot Aft	Z	G's	3.0	71.2	-56.3	39.7	11.9	61.7	-70.0	43.0
Left Foot Fore	Z	G's	50.5	42.3	-120.4	20.1	16.1	60.4	-95.6	43.0
Right Foot Aft	X	G's	10.0	75.2	-149.3	45.2	17.6	89.6	-84.6	26.2
Right Foot Aft	Z	G's	22.1	71.1	-75.1	42.2	5.3	69.2	-58.6	26.8
Right Foot Fore	Z	G's	32.8	29.9	-148.1	41.3	13.2	60.8	-59.1	29.8

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Upper Moment	X	Nm	20.0	46.9	-67.4	53.7	7.9	151.4	-42.6	42.5
Left Upper Moment	Y	Nm	62.3	60.1	-4.1	44.0	20.3	197.9	-207.0	45.2
Right Upper Moment	X	Nm	62.1	56.7	-23.5	45.4	56.8	54.7	-10.2	31.9
Right Upper Moment	Y	Nm	93.9	45.1	-28.3	34.0	15.1	132.6	-126.1	54.9
Left Lower Moment	X	Nm	20.9	61.5	-33.4	43.4	49.4	48.9	-25.5	41.8
Left Lower Moment	Y	Nm	27.4	87.2	-21.1	22.5	28.9	93.6	-71.2	44.5
Left Lower Force	Z	Newtons	62.3	46.8	-1292.0	26.6	58.2	144.9	-3693.9	42.6
Right Lower Moment	X	Nm	36.2	55.8	-23.7	44.9	7.9	27.5	-89.7	54.1
Right Lower Moment	Y	Nm	49.0	53.4	-18.0	37.3	64.5	90.3	-48.7	50.9
Right Lower Force	Z	Newtons	85.9	150.3	-3966.4	46.9	58.2	169.7	-2827.3	26.9

1.) Driver channel failed at 50.9 msec.

DATA SHEET NO. 8...(CONTINUED)

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

CHEST PEAK DEFLECTIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest	X	MM	0.0	2.9	-30.6	58.0	0.0	6.3	-27.7	85.5

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	10.4	200.0	-48.4	63.4	2.1	20.6	-54.4	81.1
Head CG	Y	G's	6.0	164.3	-29.7	75.9	14.2	97.7	-2.7	47.5
Head CG	Z	G's	17.5	48.4	-20.1	84.6	32.8	69.5	-1.9	138.1
Head CG Resultant	N/A	G's	54.4	69.4			55.4	81.1		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	10.4	163.0	-49.3	73.6	2.5	137.3	-46.2	72.7
Chest CG	Y	G's	6.4	85.3	-5.3	45.6	7.9	43.2	-5.8	71.3
Chest CG	Z	G's	13.6	53.5	-8.7	91.5	15.6	70.1	-4.3	105.1
Chest CG Resultant	N/A	G's	49.4	73.6			48.5	72.4		

REDUNDANT HEAD INJURY CRITERIA (HIC36)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Redundant	515.3	45.8	81.8	45.9	534.7	62.4	98.4	46.6

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	48.2	72.2	75.2	47.6	70.3	73.3

DATA SHEET NO. 9
SEAT BELT ASSESSMENT TEST DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
Retractor Reel to "D" ring	mm	850	850
Shoulder Belt length as measured on ATD	mm	830	790
Lap Belt length as measured on ATD	mm	710	760
Remainder of belt on reel	mm	680	890
Total belt length for continuous webbing systems	mm	3070	3290

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	185	275
As determined electronically	mm	466	314

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
Electronically between belt load cell and "D" ring	mm/cm	*	*
Mechanically	mm/cm		

* Not used with shoulder belt pre-tensioner systems

DATA SHEET NO. 10
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

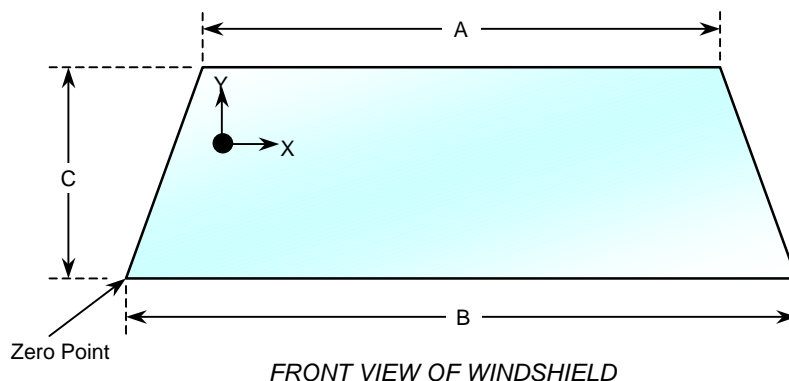
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive. No molding covers the windshield periphery at any point.

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

Temperature of windshield molding during test: 22.0 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test(mm)	Post-Test(mm)	% of Retention
Left Side	2478	2478	100
Right Side	2478	2478	100
Total	4955	4955	100



WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1540	20
B	mm	1845	
C-Left	mm	785	20
C-Right	mm	785	20

DATA SHEET NO. 11
WINDSHIELD ZONE INTRUSION FMVSS 219 DATA (PARTIAL)

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

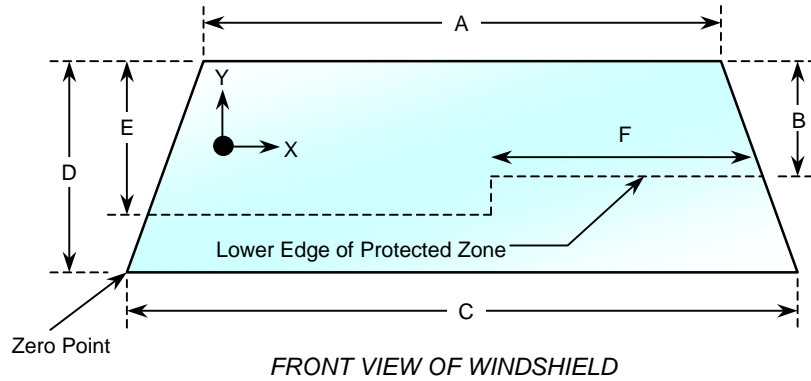
NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

**WINDSHIELD AND
PROTECTED ZONE**

Item	Units	Value
A	mm	1540
B	mm	410
C	mm	1845
D	mm	785
E	mm	527
F	mm	605



AREA OF PROTECTED ZONE FAILURES

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

X	Y

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

X	Y

DATA SHEET NO. 12
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV NHTSA No.: M50207
Test Program: 2005 NHTSA 35mph NCAP Test Date: 01/18/05
Test Time: 2:25 PM Temperature: 19.4 Deg. C.

STODDARD SOLVENT SPILLAGE MEASUREMENTS

- A. From impact until vehicle motion ceases: 0.0 oz.
(Maximum Allowable = 1 ounce)
- B. For the 5-minute period after motion ceases: 0.0 oz.
(Maximum Allowable = 5 ounces)
- C. For the following 25 minutes: 0.0 oz.
(Maximum Allowable = 1 oz./minute)
- D. Spillage Location Details: No leakage occurred

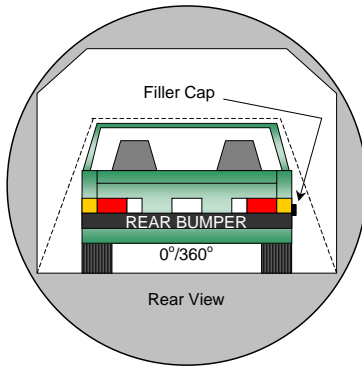
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

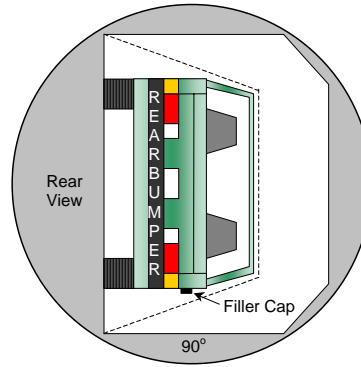
NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

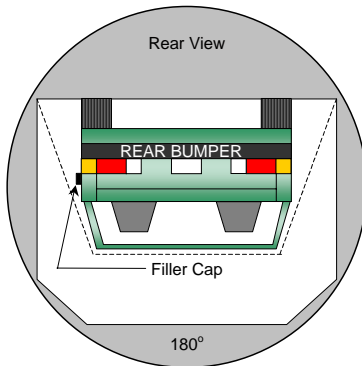
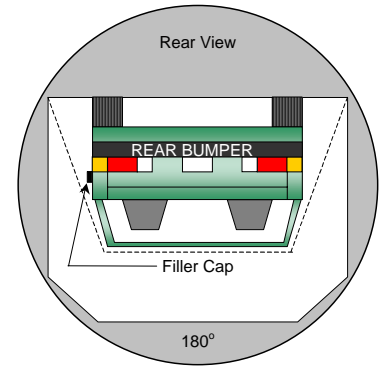
Test Date: 01/18/05



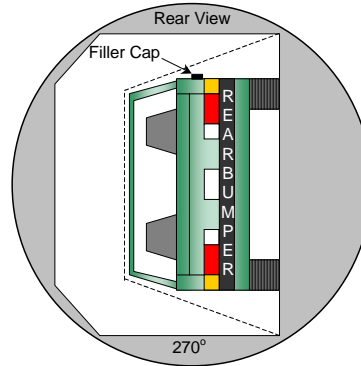
0° to 90°



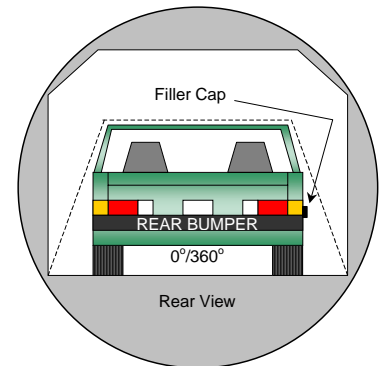
90° to 180°



180° to 270°



270° to 360°



1. The specified fixture rollover rate for each 90° of rotation is 60 to 120 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. No solvent leakage occurred during rollover.

DATA SHEET NO. 13...(CONTINUED)
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	81	300	381
90° to 180°	80	300	380
180° to 270°	80	300	380
270° to 360°	77	300	377

FMVSS 301 SPILLAGE TABLE REQUIREMENT (oz.)

First 5 Minutes	5
Sixth Minute	1
Seventh Minute	1
Eighth Minute	1

ACTUAL TEST VEHICLE SOLVENT SPILLAGE TABLE (oz.)

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

SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 14
VEHICLE MEASUREMENTS

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

VEHICLE MEASUREMENT TABLE

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length of vehicle at centerline	mm	5383	4843	-540
2	RSOV to front of engine	mm	4717	4618	-99
3	RSOV to firewall centerline	mm	4718	4658	-60
4	RSOV to leading edge of right door	mm	4248	4280	32
5	RSOV to leading edge of left door	mm	4250	4260	10
6	RSOV to lower leading edge of right door	mm	4060	4100	40
7	RSOV to lower leading edge of left door	mm	4061	4075	14
8	RSOV to upper trailing edge of right door	mm	3217	3250	33
9	RSOV to upper trailing edge of left door	mm	3223	3230	7
10	RSOV to lower trailing edge of right door	mm	3205	3240	35
11	RSOV to lower trailing edge of left door	mm	3210	3225	15
12	RSOV to bottom of right 'A' pillar	mm	4188	4188	0
13	RSOV to bottom of left 'A' pillar	mm	4191	4188	-3
14	RSOV to firewall on right side	mm	4710	4698	-12
15	RSOV to firewall on left side	mm	4700	4648	-52
16	RSOV to steering column	mm	3763	3845	82
17	Center of steering column to left 'A' pillar	mm	360	368	8
18	Center of steering column to headlining	mm	520	510	-10
19	RSOV to right side of front bumper	mm	5273	4860	-413
20	RSOV to left side of front bumper	mm	5273	4818	-455
21	Length of engine block	mm	820	820	0
RD	RSOV to right side of dash panel	mm	4045	4053	8
CD	RSOV to center of dash panel	mm	4025	4000	-25
LD	RSOV to left side of dash panel	mm	4069	4053	-16

All measurements are in millimeters

DATA SHEET NO. 14...(CONTINUED)
VEHICLE STRUCTURAL MEASUREMENTS

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

VEHICLE STRUCTURAL MEASUREMENT TABLE

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length	mm	5383	4843	-540
2	Total width	mm	2018	2040	22
3	Bumper top height	mm	626	548	-78
4	Bumper bottom height	mm	400	355	-45
5	Longitudinal member top height	mm	571	545	-26
6	Longitudinal member bottom height	mm	424	365	-59
7	Distance between longitudinal members	mm	1050	1037	-13
8	Longitudinal member width	mm	92	89	-3
9	Engine top height	mm	825	801	-24
10	Engine bottom height	mm	276	229	-47
11	Engine and gear box width	mm	1380	1380	0
12	Front bumper to engine distance	mm	666	400	-266
13	Front shock absorber fixing width	mm	705	650	-55
14	Bonnet leading edge height	mm	975	1060	85
15	Front shock absorber fixing width	mm	1200	1190	-10
16	Front bumper to front axle distance	mm	762	420	-342
17	Front axle to 'A' pillar distance	mm	370	360	-10
18	'A' pillar to 'B' pillar distance	mm	1035	1030	-5
19	'B' pillar to rear axle distance	mm	2105	2100	-5
20	'B' pillar to 'C' pillar distance	mm	1310	1310	0
21	Roof sill bottom height	mm	1846	1730	-116
22	Roof sill top height	mm	1928	1855	-73
23	Floor sill bottom height	mm	350	245	-105
24	Floor sill top height	mm	468	350	-118

All measurements are in millimeters

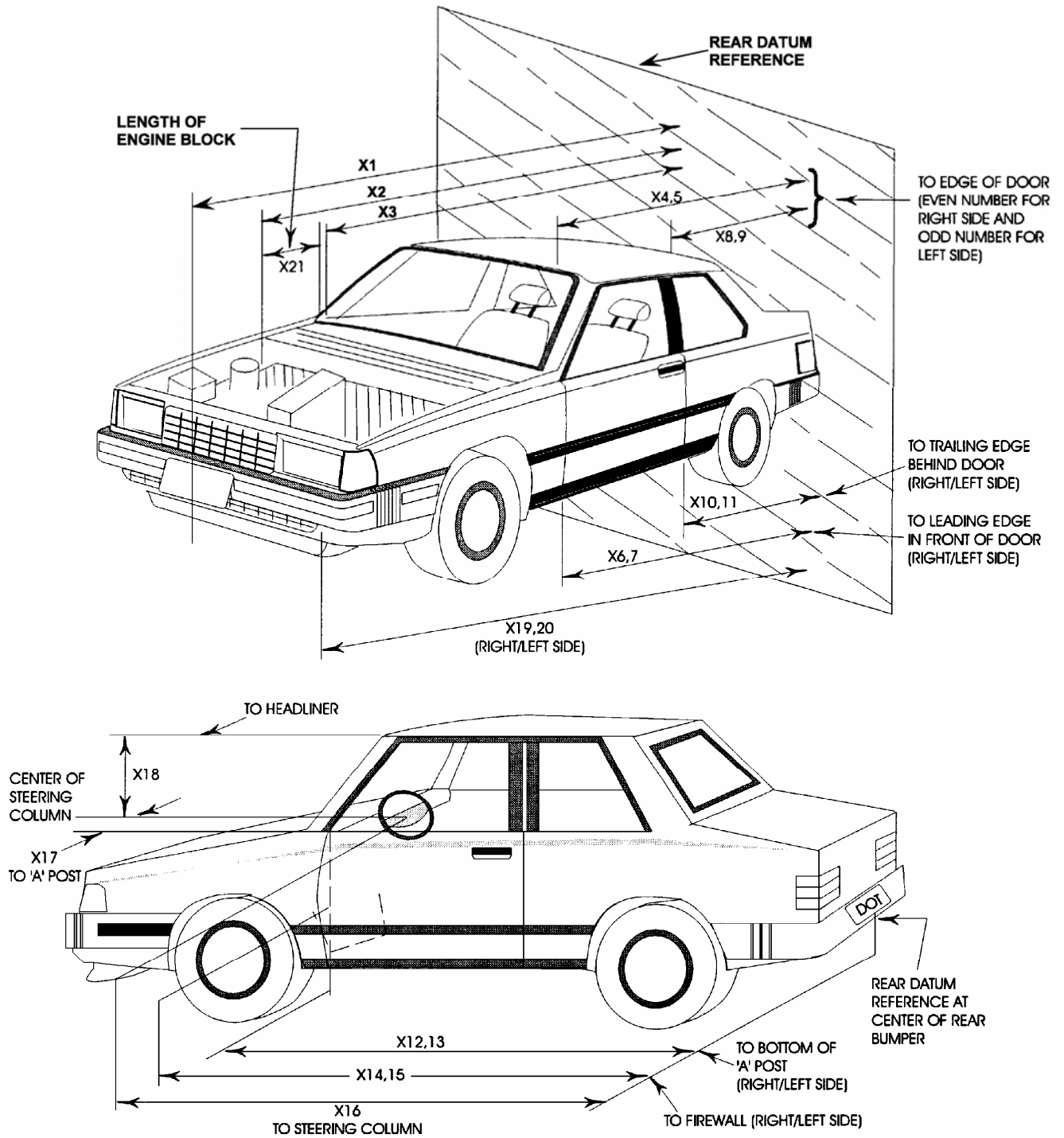
DATA SHEET NO. 14...(CONTINUED)
VEHICLE MEASUREMENTS

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05



**DATA SHEET NO. 15
CAMERA LOCATIONS**

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

VEHICLE CAMERA MEASUREMENT TABLE

No.	Camera View	Location (mm)			Film Plane to Head	Angle (Deg.)	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real-Time Camera (Panning)	-12192	-6096	-1651		-10	Zoom	30
2	Overall Left Side	-2489	-8280	-1143	7659	-4	24	1000
3	Left Side View	-1677	-7620	-1329	7646	-4	50	1000
4	Driver and Interior View	-6477	-10185	-4748	11010	-13	80	
5	Steering Column (Bottom)	-2134	-8230	-2997	7692	-16	19	
6	Steering Column (Top)	-2134	-8230	-3404	7773	-20	19	
7	Overall Right Side	-2083	8230	-1270	7581	-6	13	
8	Right Side View	-1677	7316	-1422	6663	-4	50	1000
9	Passenger and Interior View	-6781	9144	-2997	9877	-9	65	
10	Right Side View	-1829	7316	-1422	6660	-4	28	1000
11	Windshield	-610	0	-5944		-90	13	
12	Driver Front View	610	-432	-2667		-40	13	
13	Passenger Front View	610	432	-2667		-40	13	
14	Pit View of Engine	-914	0	1499		90	6	
15	Pit View of Fuel Tank	-2438	0	1499		90	6	

ADDITIONAL CAMERAS

1	Real-Time Camera (Still)	-1219	-8585	-1372	7959	0	Zoom	30
2	Real-Time Camera (Still)	-1067	7976	-991	7393	0	Zoom	30

X = Barrier Face Y = Monorail Centerline Z = Ground DNR = Did Not Run NTM = No Timing Marks

DATA SHEET NO. 16
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

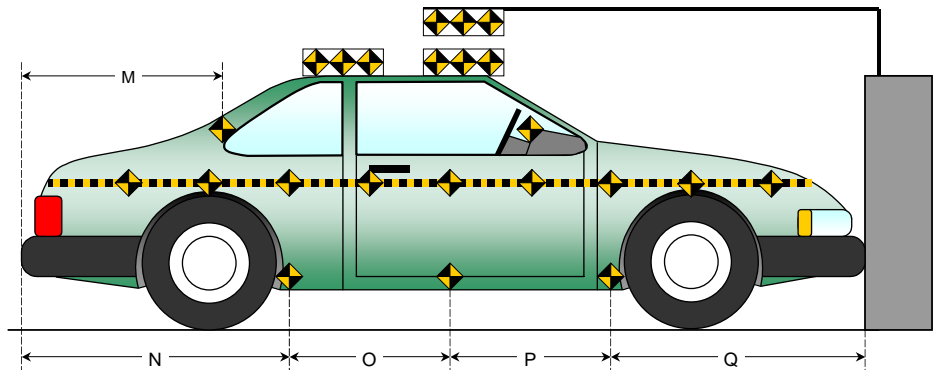
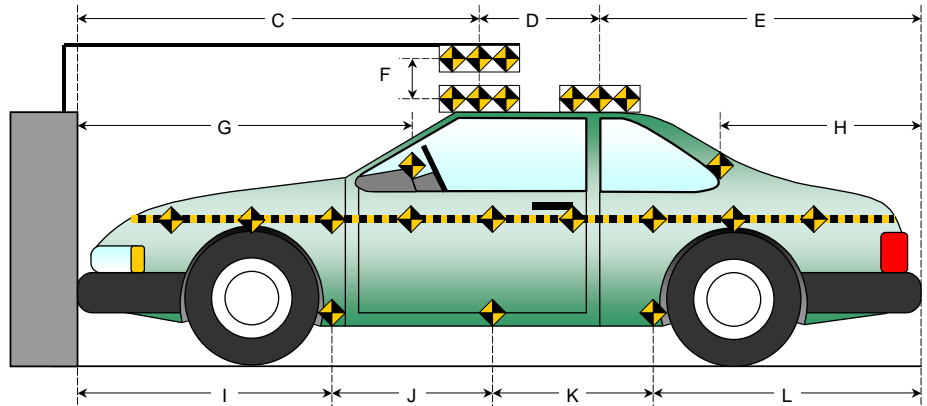
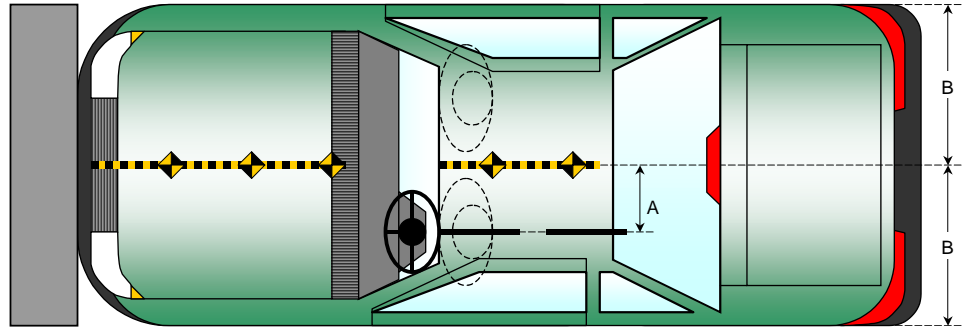
Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

All Dimensions in (mm)	
Item	Value
A	530
B	1009
C	1735
D	610
E	3075
F	155
G	1410
H	1915
I	1275
J	1252
K	1252
L	1613
M	1916
N	1618
O	1252
P	1252
Q	1265



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

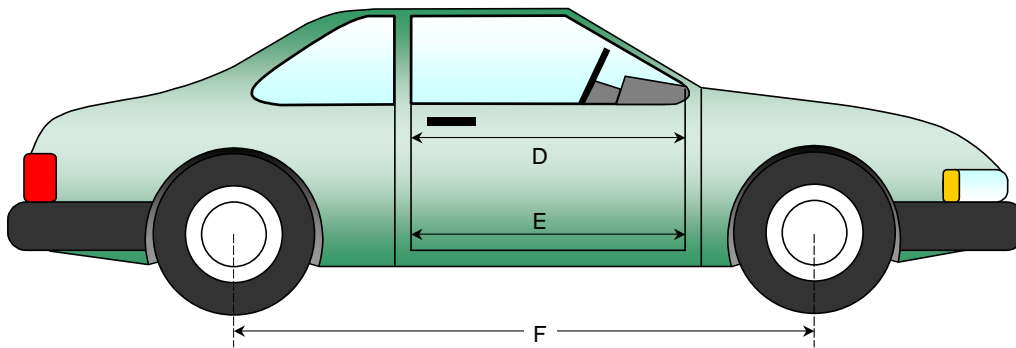
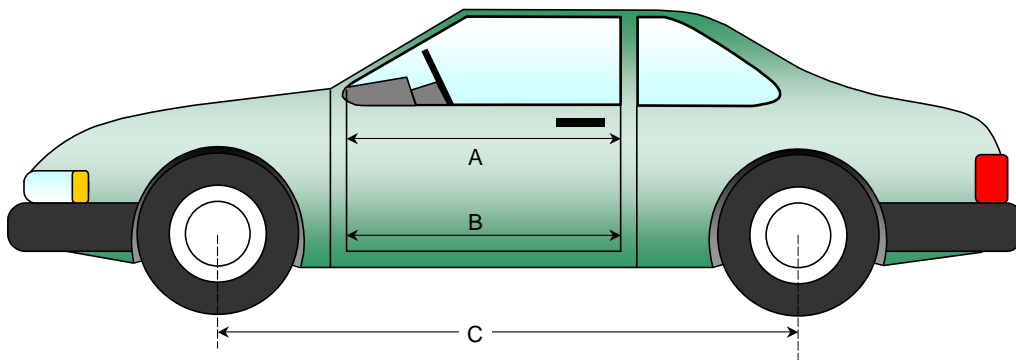
Test Date: 01/18/05

DOOR OPENING WIDTH TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
A	Left Side Upper	mm	903	869	-34
B	Left Side Lower	mm	860	839	-21
D	Right Side Upper	mm	899	869	-30
E	Right Side Lower	mm	860	844	-16

WHEELBASE MEASUREMENT TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
C	Left Side Wheel Base	mm	3510	3350	-160
F	Right Side Wheel Base	mm	3510	3440	-70



DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

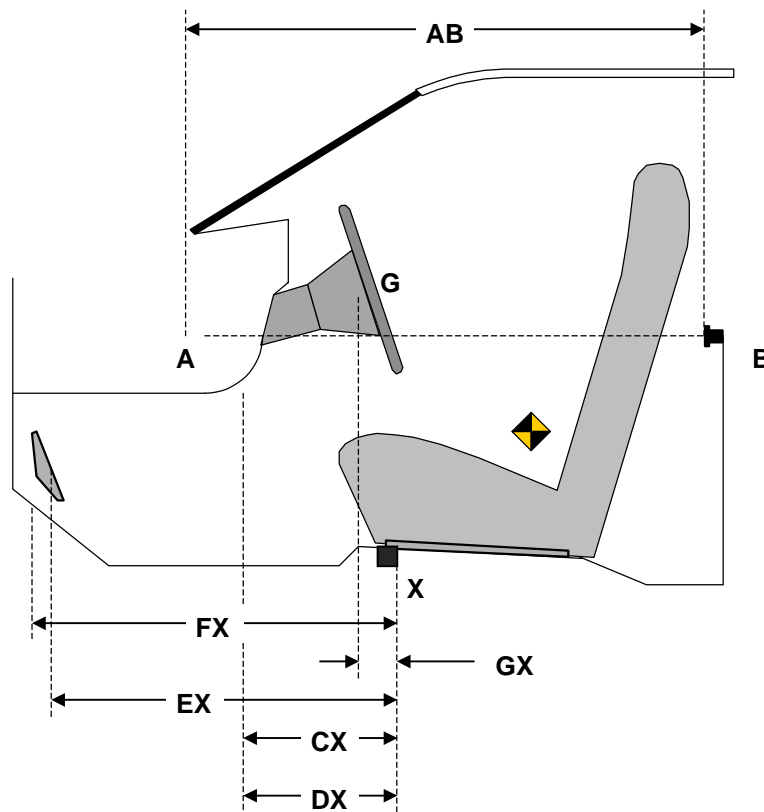
Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

DRIVER COMPARTMENT INTRUSION TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
AB	Door Opening (Inside window jam)	mm	903	869	-34
CX	Left Knee Bolster to X	mm	430	340	-90
DX	Right Knee Bolster to X	mm	413	330	-83
EX	Brake Pedal to X	mm	550	370	-180
FX	Foot Rest to X	mm	600	470	-130
GX	Center of Steering Wheel Hub to X	mm	144	100	-44

X = Left Front Seat Outboard Anchor Bolt Head



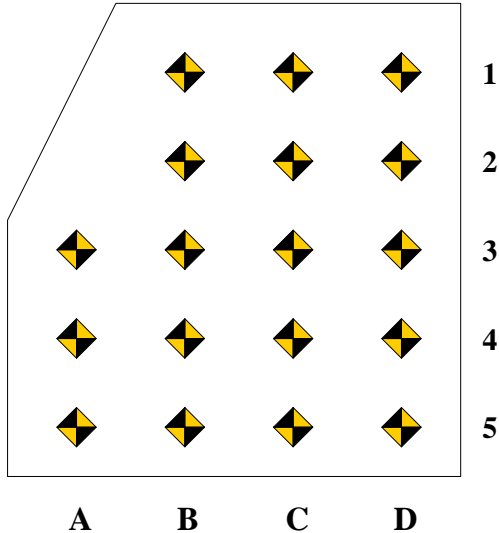
**DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05



Measurement reference point for X and Z-axis is the forward outboard seat mounting bolt.

Columns A through D are evenly spaced.

Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3, 4 and 5 are located on the most level portion of the floor pan.

Row 3 will be at the intersection of the toe kick and the level sections of the floor pan.

DRIVER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		726	727	725		724	746	750		-2	20	24
2		643	643	633		631	654	663		-12	12	30
3	522	554	550	545	543	558	566	572	21	4	16	27
4	461	455	449	445	497	497	493	478	36	42	44	32
5	357	352	349	345	428	402	391	376	71	50	42	31

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		-76	-73	-78		-137	-105	-102		-62	-32	-24
2		-40	-38	-38		-123	-79	-57		-83	-41	-19
3	-57	-4	-1	-2	-99	-62	-34	-17	-41	-58	-33	-15
4	27	28	27	14	-5	16	25	-4	-32	-12	-2	-17
5	21	30	26	10	13	41	39	-17	-8	12	13	-27

DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

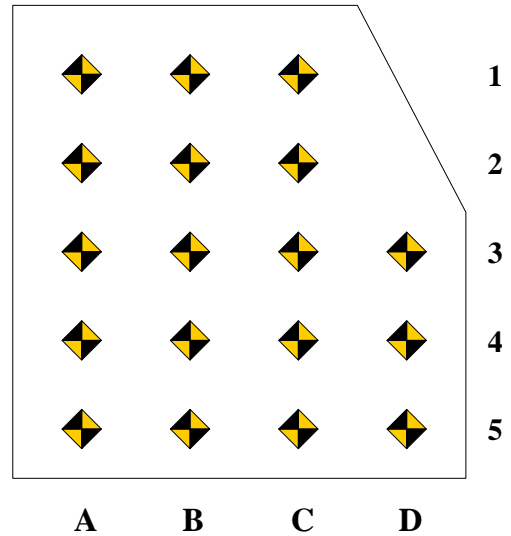
Test Date: 01/18/05

Measurement reference point for X and Z axis is the forward outboard seat mounting bolt.

Columns A through D are evenly spaced.

Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3, 4 and 5 are located on the most level portion of the floor pan.

Row 3 will be at the intersection of the toe kick and the level sections of the floor pan.



PASSENGER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	783	779	751		740	743	725		-44	-36	-26	
2	697	692	661		660	657	635		-38	-35	-26	
3	616	612	586	583	584	587	574	577	-32	-25	-12	-5
4	540	531	525	526	543	532	528	530	2	1	3	3
5	438	432	427	0	444	435	429	0	5	3	1	*

PASSENGER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-134	-135	-183		-188	-196	-243		-55	-61	-60	
2	-82	-85	-132		-138	-155	-183		-55	-70	-51	
3	-19	-23	-56	-63	-66	-78	-107	-110	-47	-55	-51	-47
4	31	31	29	25	13	4	-12	-20	-19	-27	-41	-45
5	34	35	32	0	21	16	-2	0	-13	-19	-34	*

* Space not available to place a marker (Figure A-54, Appendix A)

DATA SHEET NO. 18
FIXED BARRIER LOAD CELL LOCATIONS

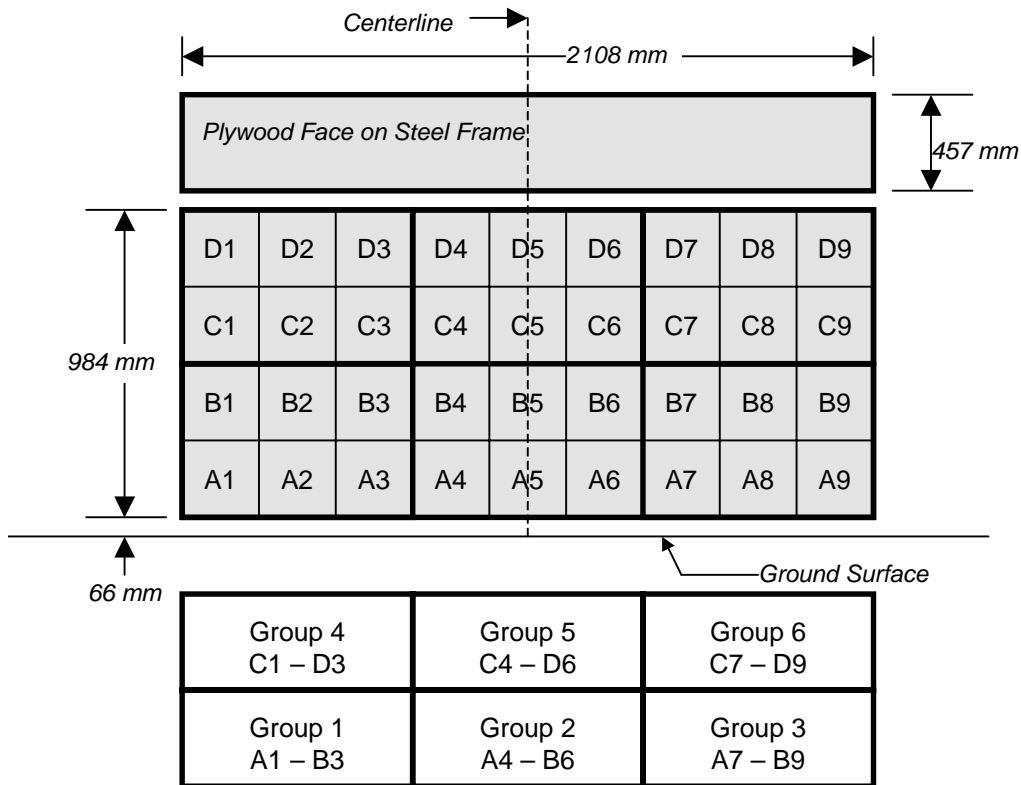
Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

36 Load Cell Rigid Barrier (NHTSA Standard)
Load Cell Locations on Fixed Barrier



6 Groups of 6 Load Cells Each

The Data is presented in Appendix C with the following requirements:

- 1.) Data from 36 individual load cells
- 2.) Sum data from 6 groupings shown above (6 cells/group)
- 3.) Total or sum of all 36 individual load cells
- 4.) Sum of all 36 individual load cells vs. vehicle dynamic crush

**DATA SHEET NO. 19
POST-TEST AIRBAG DATA**

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05

POST-TEST AIRBAG DATA

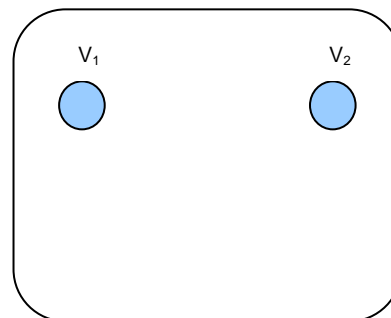
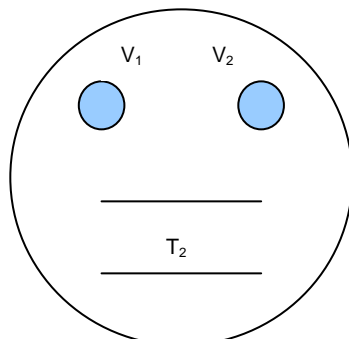
	DRIVER	PASSENGER
No. of vent holes	2	2
Size of vent holes (mm ²)	961	5024
Total vent area (mm ²)	1922	10048

Deflated Airbag Length and Width Dimensions or, If Round, Diameter (mm)		
Length	500	800
Width	450	700
Depth or Diameter	200	400

Tethering Information		
Is the airbag tethered?	No	No
Record length of tether (mm)		

Airbag Manufacturing Information		
Manufacturer	Airbag label was melted after impact. Could not obtain information	Ford Motor Company
Part No.	V127DMR91AKV	FGVR8ESCCSN
Gas Generator	FCWR8C3TDDG	FJA042450393

Sketch the airbag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel:



DATA SHEET NO. 20
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV NHTSA No.: M50207
 Test Program: 2005 NHTSA 35mph NCAP Test Date: 01/18/05

VEHICLE INFORMATION

VIN: 1FMRE11W15HA15810 Wheel base (mm): 3510
 Vehicle Size Category: 4-Door Wagon Test Weight (kg): 2675

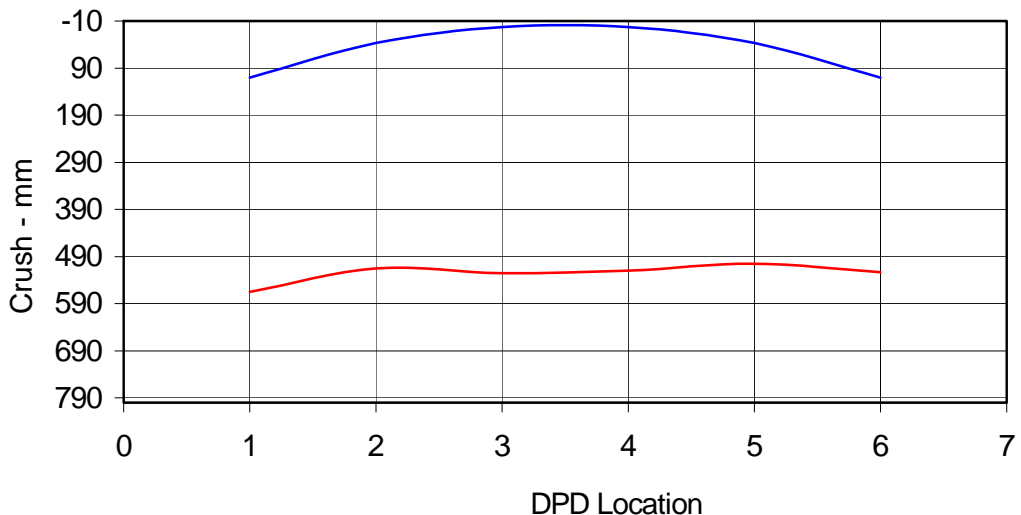
ACCELEROMETER DATA

Accelerometer Location: Left rear sill
 Cal. Procedure/Interval: 6 months / drop test
 Integration Algorithm: NHTSA Standard Linearity: Good
 Impact Velocity (km/h): 56.32
 Velocity Change (km/h): 67.6 Time of Separation (msec): 63.5

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6 Midpoint of Damage: Vehicle Centerline
 Damage Region Length (mm): 1702 Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	110	565	-455
C2	Crush zone 2 on left side	mm	37	515	-478
C3	Crush zone 3 on left side	mm	3	525	-522
C4	Crush zone 4 on right side	mm	3	520	-517
C5	Crush zone 5 on right side	mm	37	505	-468
C6	Crush zone 6 at right side	mm	110	523	-413



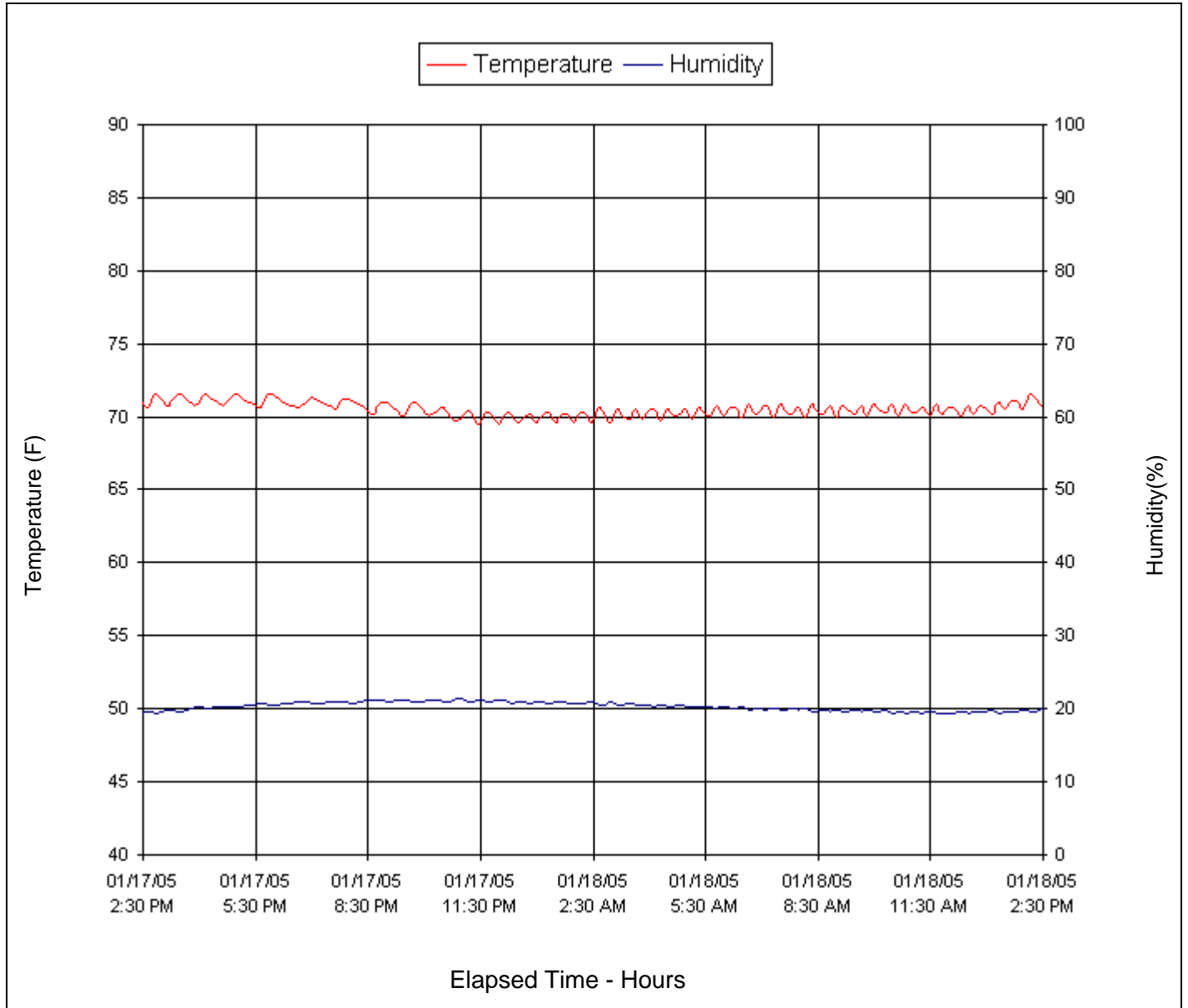
DATA SHEET NO. 21
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 01/18/05



APPENDIX A
PHOTOGRAPHS

LIST OF PHOTOGRAPHS

<u>Figure</u>		<u>Page</u>
1	Load Cell Location	A-1
2	Manufacturer's Label	A-2
3	Tire Placard	A-3
4	Right Front $\frac{3}{4}$ View, As Received	A-4
5	Left Rear $\frac{3}{4}$ View, As Received	A-5
6	Pre-Test Front View	A-6
7	Post-Test Front View (Vehicle Moved)	A-7
8	Pre-Test Left Side View	A-8
9	Post-Test Left Side View	A-9
10	Pre-Test Right Side View	A-10
11	Post-Test Right Side View	A-11
12	Pre-Test Right Front $\frac{3}{4}$ View	A-12
13	Post-Test Right Front $\frac{3}{4}$ View (Vehicle Moved)	A-13
14	Pre-Test Left Rear $\frac{3}{4}$ View	A-14
15	Post-Test Left Rear $\frac{3}{4}$ View	A-15
16	Post-Test Left Side $\frac{3}{4}$ View of Doors After Impact	A-16
17	Post-Test Right Side $\frac{3}{4}$ View of Doors After Impact	A-17
18	Pre-Test Windshield	A-18
19	Post-Test Windshield	A-19
20	Pre-Test Engine Compartment	A-20
21	Post-Test Engine Compartment (Vehicle Moved)	A-21
22	Pre-Test Fuel Cap	A-22
23	Post-Test Fuel Cap	A-23
24	Pre-Test Front Underbody	A-24
25	Post-Test Front Underbody	A-25
26	Pre-Test Mid Underbody	A-26
27	Post-Test Mid Underbody	A-27
28	Pre-Test Rear Underbody	A-28
29	Post-Test Rear Underbody	A-29
30	Pre-Test Driver Dummy Front View (Head Position)	A-30
31	Post-Test Driver Dummy Front View (Head Position)	A-31
32	Pre-Test Driver Dummy (Through Window)	A-32

LIST OF PHOTOGRAPHS...(CONTINUED)

Figure		Page
33	Post-Test Driver Dummy (Through Window)	A-33
34	Pre-Test Driver Dummy (Door Open)	A-34
35	Post-Test Driver Dummy (Door Open)	A-35
36	Pre-Test Driver Dummy Feet	A-36
37	Post-Test Driver Dummy Feet	A-37
38	Pre-Test Driver Side Knee Bolster	A-38
39	Post-Test Driver Side Knee Bolster	A-39
40	Pre-Test Driver Side Floor Pan	A-40
41	Post-Test Driver Side Floor Pan	A-41
42	Post-Test Driver Dummy Head	A-42
43	Post-Test Driver Dummy Airbag Contact	A-43
44	Pre-Test Passenger Dummy Front View (Head Position)	A-44
45	Post-Test Passenger Dummy Front View (Head Position)	A-45
46	Pre-Test Passenger Dummy (Through Window)	A-46
47	Post-Test Passenger Dummy (Through Window)	A-47
48	Pre-Test Passenger Dummy (Door Open)	A-48
49	Post-Test Passenger Dummy (Door Open)	A-49
50	Pre-Test Passenger Dummy Feet	A-50
51	Post-Test Passenger Dummy Feet	A-51
52	Pre-Test Passenger Side Glove Box	A-52
53	Post-Test Passenger Side Glove Box	A-53
54	Pre-Test Passenger Side Floor Pan	A-54
55	Post-Test Passenger Side Floor Pan	A-55
56	Post-Test Passenger Dummy Head	A-56
57	Post-Test Passenger Dummy Contact Airbag Contact	A-57
58	Vehicle on Rollover Device (0°)	A-58
59	Vehicle on Rollover Device (90°)	A-59
60	Vehicle on Rollover Device (180°)	A-60
61	Vehicle on Rollover Device (270°)	A-61
62	Vehicle Impact	A-62



Figure A-1: Load Cell Location

This Space Intentionally Left Blank

MFD. BY FORD MOTOR CO.
FRONT GAWR: 3600LB 1632KG
WITH P235/70R16
16X7.0J

DATE: 09/04

GVWR: 7000LB / 3175KG

REAR GAWR: 3800LB 1723KG

TIRES
RIMS

WITH P235/70R16
16X7.0J

TIRES
RIMS

AT 280 kPa/41 PSI COLD

AT 280 kPa/41 PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE
SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN: 1FMRE11W15HA15810

TYPE: MPV



EXT. PNT: YN

RC: 47 DSO:

WB	INT TR	TP/PS	R	AXLE	TR	SPR	5E416	F0216
138	CE		7	19	A	ZZCC	D05	T0456
MADE IN U.S.A.							ULC	▽ 2U5A-3520472-AA

Figure A-2: Manufacturer's Label



TIRE AND LOAD INFORMATION

SEE OWNERS MANUAL FOR ADDITIONAL INFORMATION

The combined weight of occupants and cargo should never exceed 0758 kg or 1673 lbs.

SEATING CAPACITY | TOTAL : 08 | FRONT: 2 | REAR: 06

4U5A-1532-AA (TU)

ORIGINAL TIRE SIZE		COLD TIRE INFLATION PRESSURE	
FRONT	P235/70R16	FRONT	280 KPA, 41 PSI
REAR	P235/70R16	REAR	280 KPA, 41 PSI
SPARE TIRE SIZE		COLD TIRE INFLATION PRESSURE	
P235/70R16		280 KPA, 41 PSI	



1FMRE11W15HA15810

Figure A-3: Tire Placard



Figure A-4: Right Front $\frac{3}{4}$ View, As Received



A-5

TR-P25001-1-1-NC

Figure A-5: Left Rear $\frac{3}{4}$ View, as Received



Figure A-6: Pre-Test Front View



Figure A-7: Post-Test Front View (Vehicle Moved)



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 ¾ View



Figure A-13: Post-Test Right Front 3/4 View (Vehicle Moved)



Figure A-14: Pre-Test Left Rear 3/4 View



Figure A-15: Post-Test Left Rear ¾ View



Figure A-16: Post-Test Left Side ¾ View of Doors After Impact



Figure A-17: Post-Test Right Side $\frac{3}{4}$ View of Doors After Impact

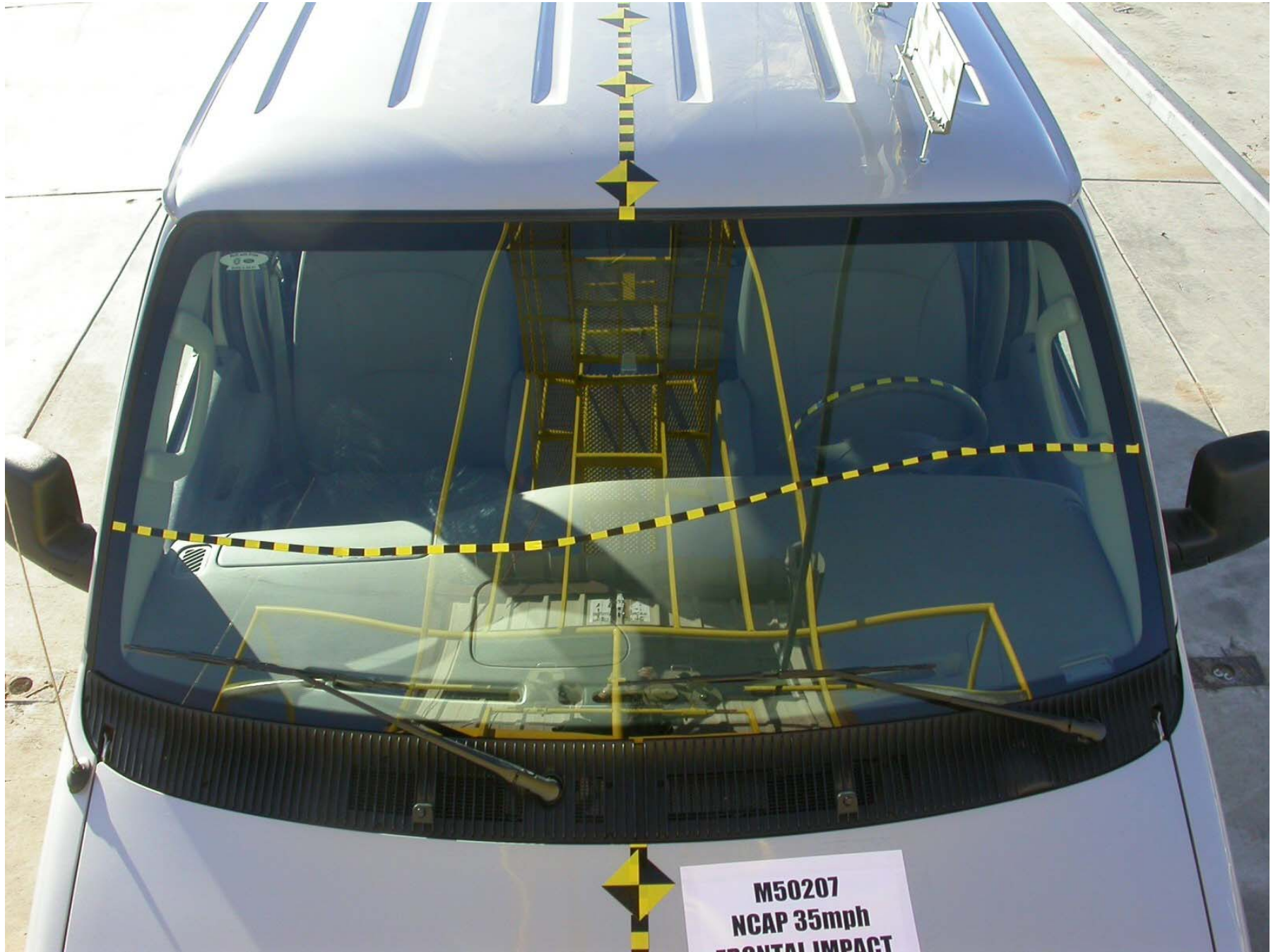


Figure A-18: Pre-Test Windshield



Figure A-19: Post-Test Windshield



Figure A-20: Pre-Test Engine Compartment

A-20

TR-P25001-11-NC



Figure A-21: Post-Test Engine Compartment (Vehicle Moved)



Figure A-22: Pre-Test Fuel Cap



Figure A-23: Post-Test Fuel Cap

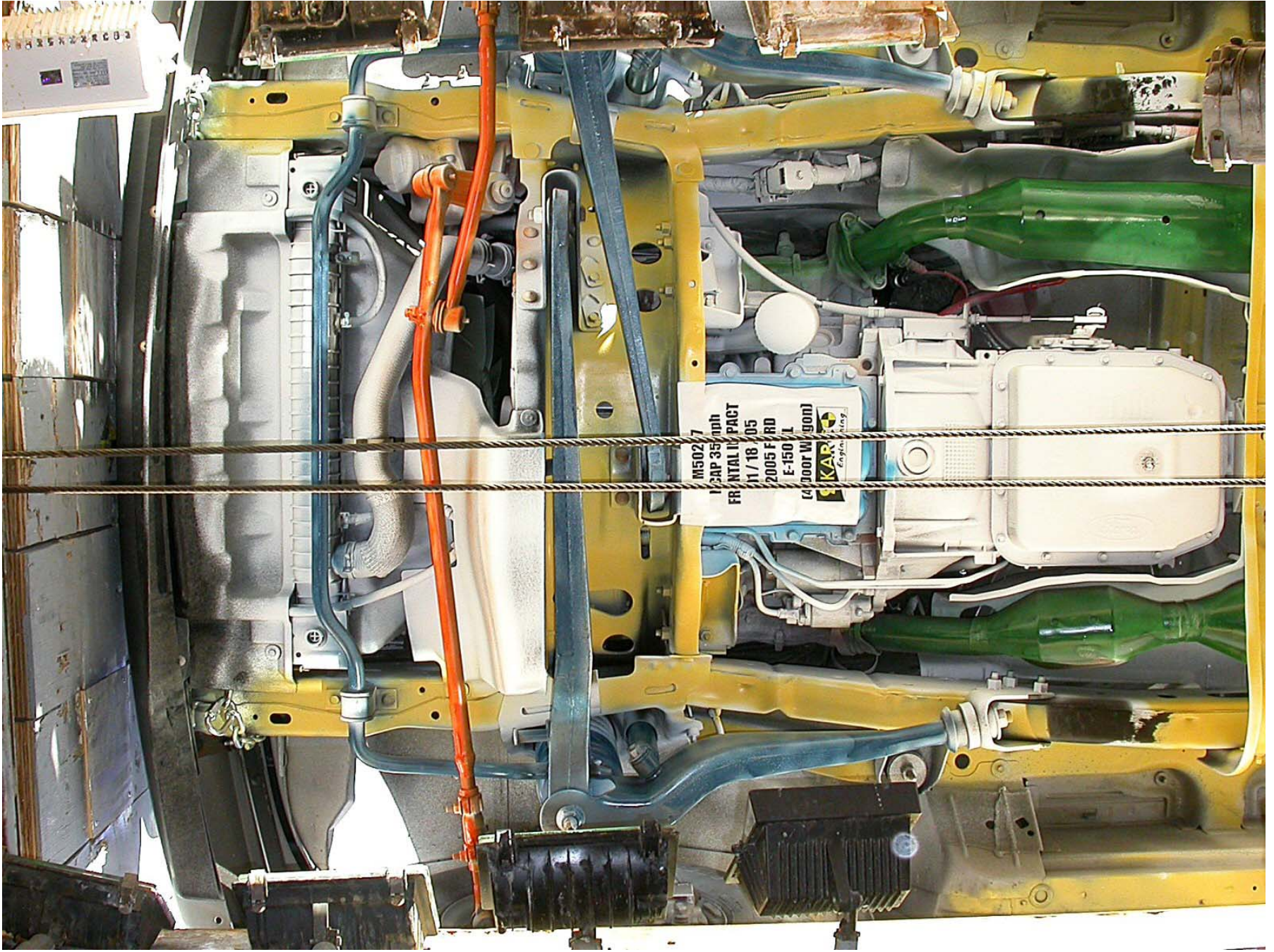


Figure A-24: Pre-Test Front Underbody

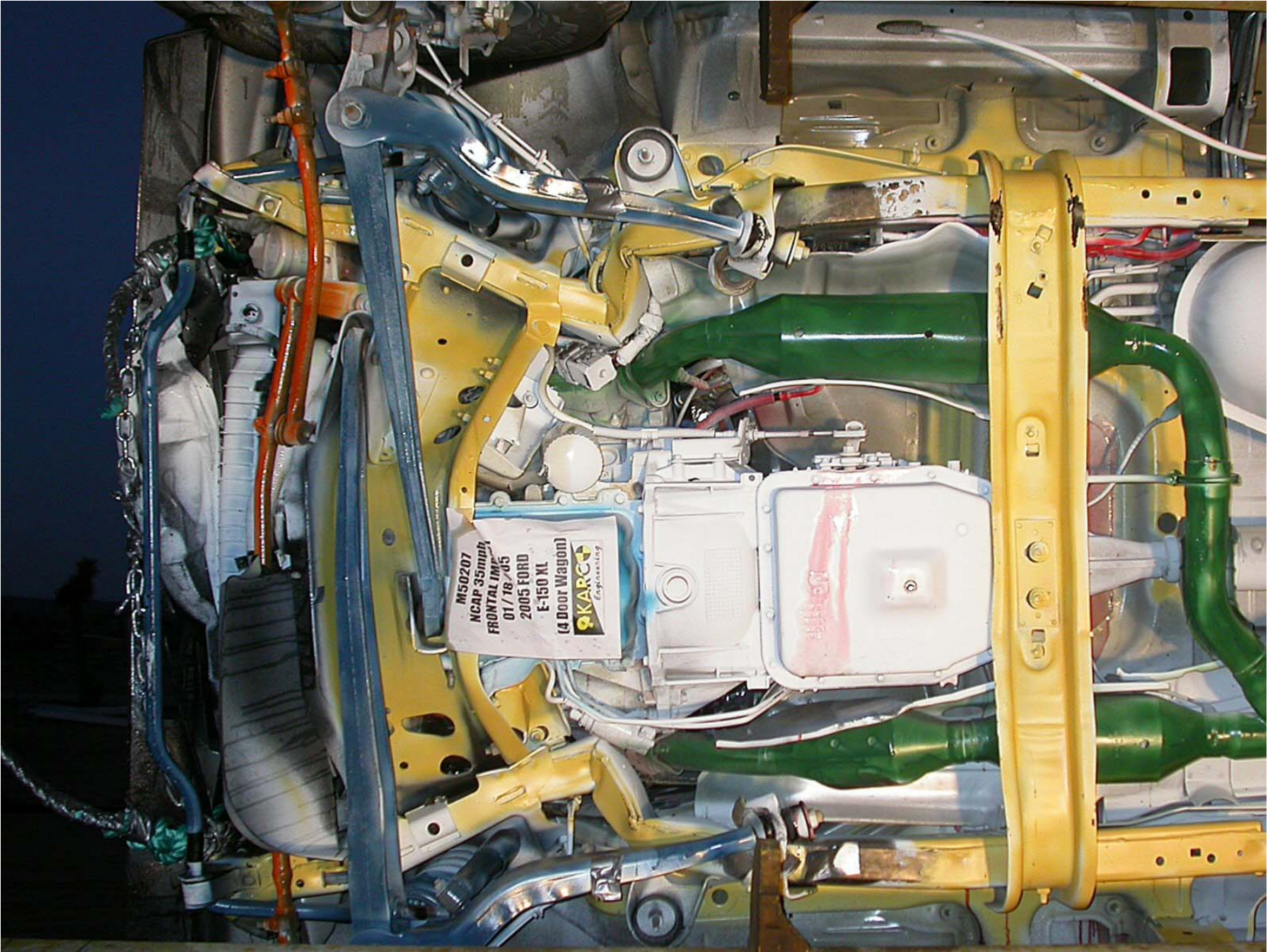


Figure A-25: Post-Test Front Underbody

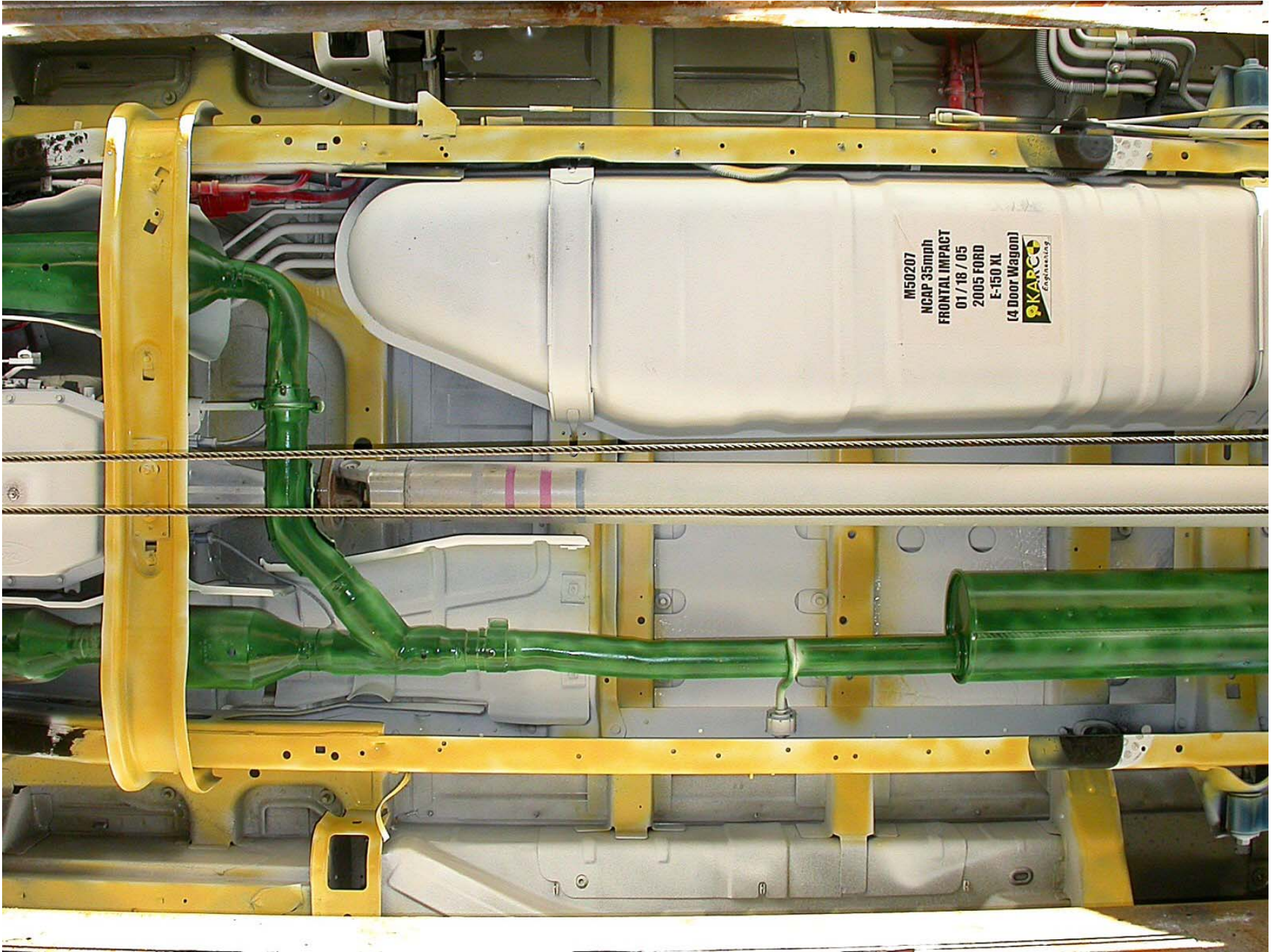


Figure A-26: Pre-Test Mid Underbody

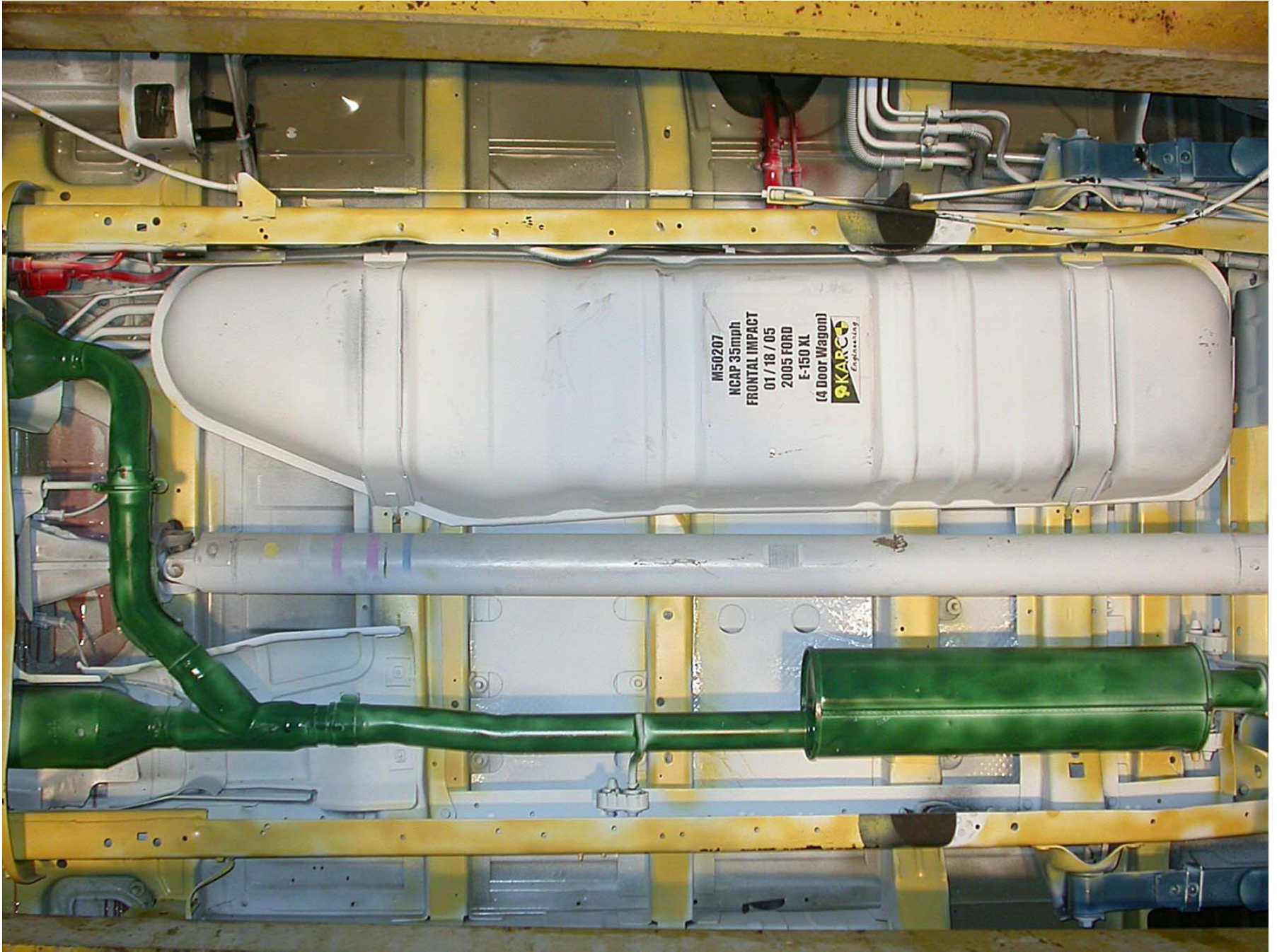


Figure A-27: Post-Test Mid Underbody

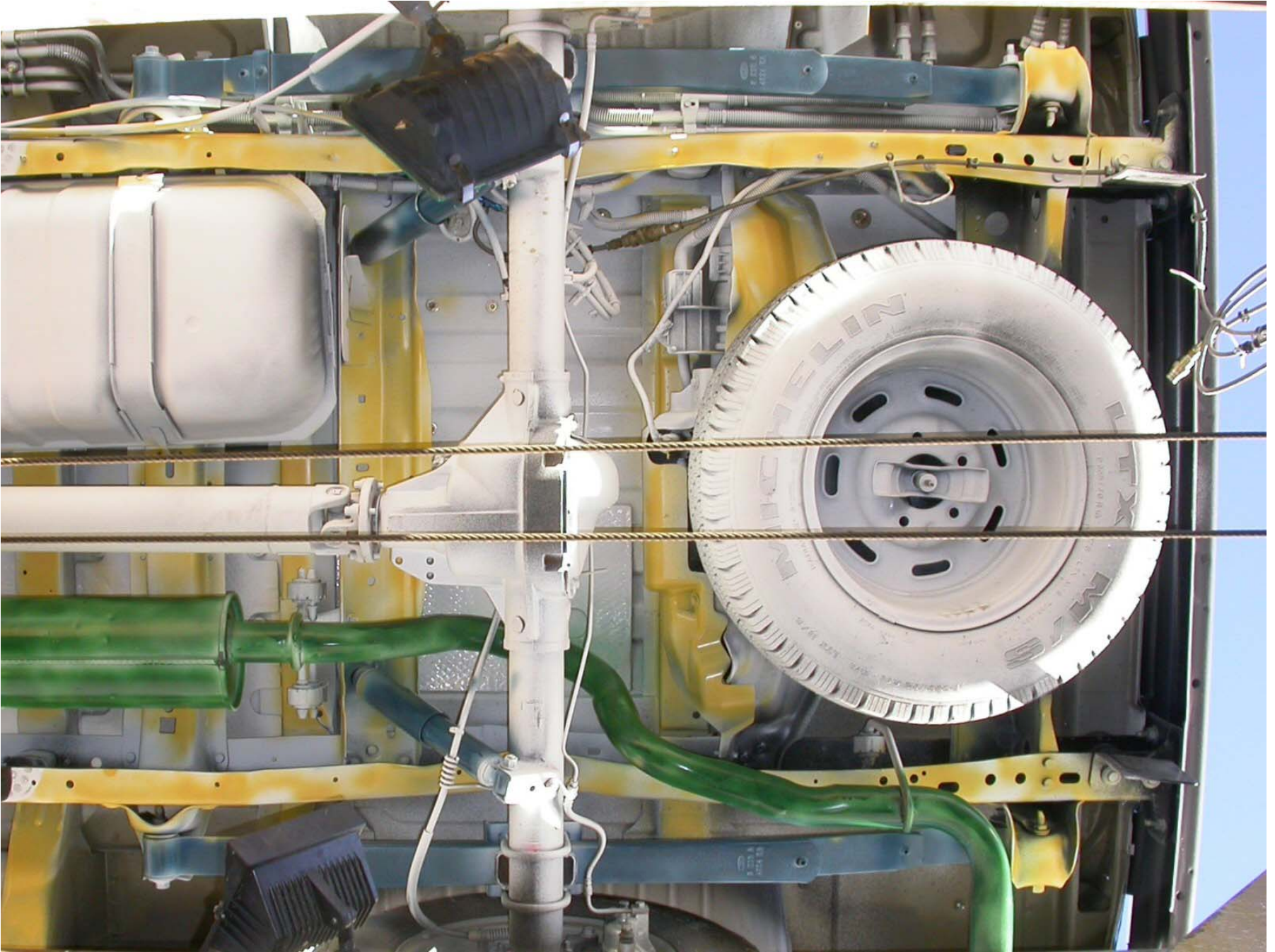


Figure A-28: Pre-Test Rear Underbody

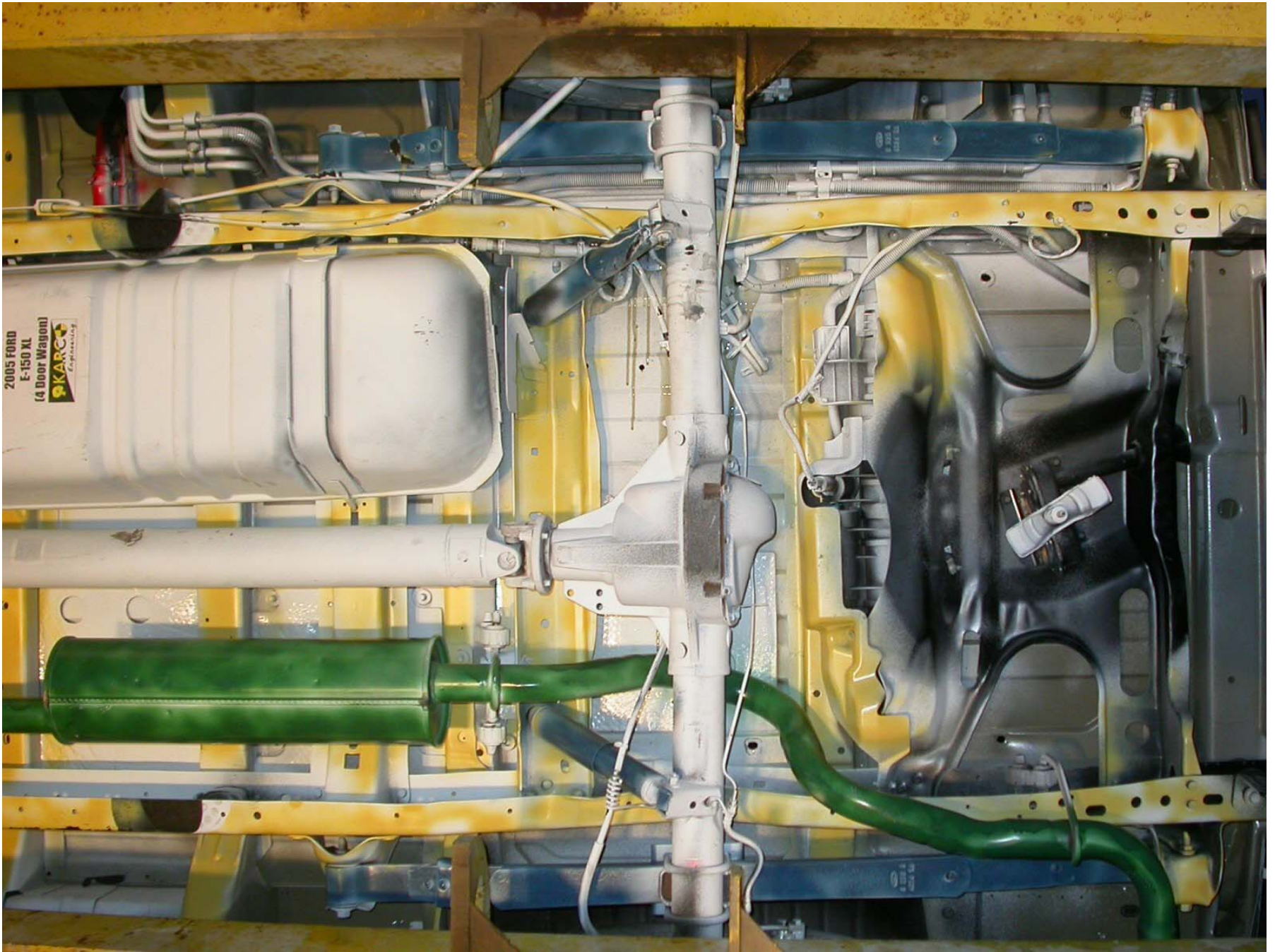


Figure A-29: Post-Test Rear Underbody



Figure A-30: Pre-Test Driver Dummy Front View (Head Position)

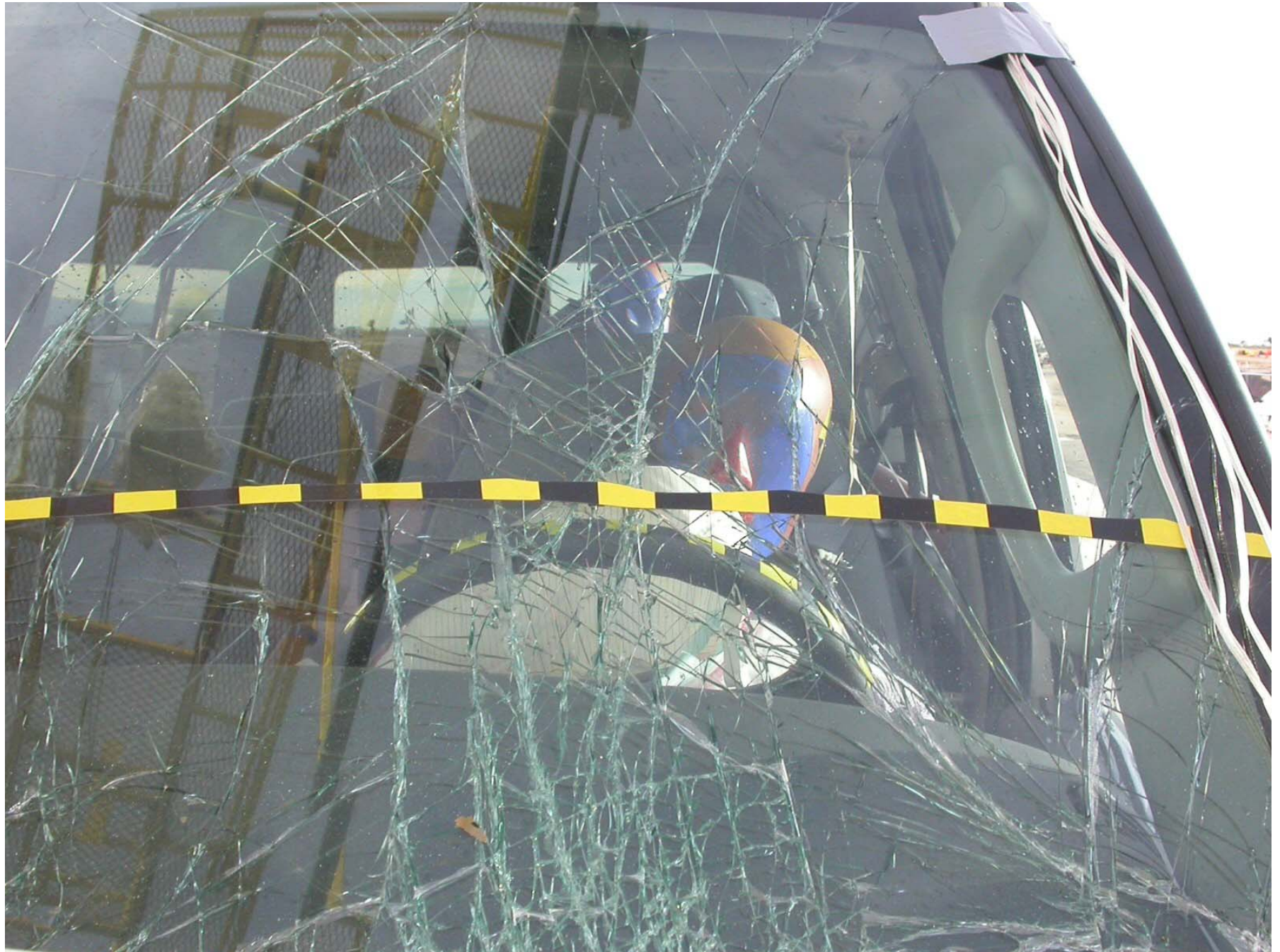


Figure A-31: Post-Test Driver Dummy Front View (Head Position)



Figure A-32: Pre-Test Driver Dummy (Through Window)



Figure A-33: Post-Test Driver Dummy (Through Window)



Figure A-34: Pre-Test Driver Dummy (Door Open)



Figure A-35: Post-Test Driver Dummy (Door Open)



Figure A-36: Pre-Test Driver Dummy Feet



Figure A-37: Post-Test Driver Dummy Feet



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



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



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



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



Figure A-42: Post-Test Driver Dummy Head



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



Figure A-44: Pre-Test Passenger Dummy Front View (Head Position)



Figure A-45: Post-Test Passenger Dummy Front View (Head Position)



Figure A-46: Pre-Test Passenger Dummy (Through Window)



Figure A-47: Post-Test Passenger Dummy (Through Window)



Figure A-48: Pre-Test Passenger Dummy (Door Open)



Figure A-49: Post-Test Passenger Dummy (Door Open)



Figure A-50: Pre-Test Passenger Dummy Feet



Figure A-51: Post-Test Passenger Dummy Feet



Figure A-52: Pre-Test Passenger Side Glove Box



Figure A-53: Post-Test Passenger Side Glove Box



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



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



Figure A-56: Post-Test Passenger Dummy Head



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



A-58

TR-P25001-1-1-NC

Figure A-58: Vehicle on Rollover Device (0°)



Figure A-59: Vehicle on Rollover Device (90°)



Figure A-60: Vehicle on Rollover Device (180°)

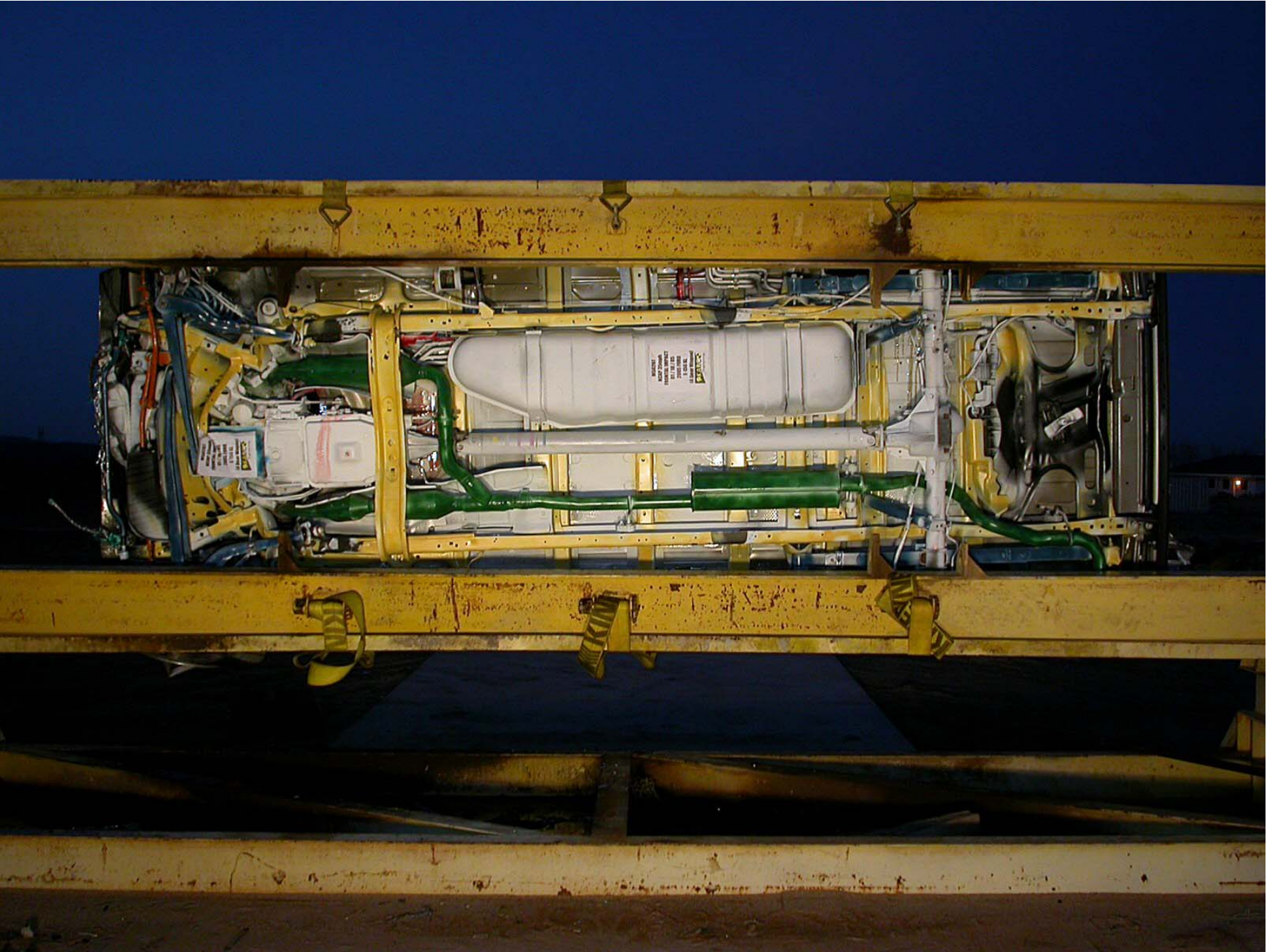


Figure A-61: Vehicle on Rollover Device (270°)



Figure A-62: Vehicle Impact

APPENDIX B

DATA PLOTS

LIST OF DATA PLOTS

Data Plot		Page
1	Driver Head Primary X	B-1
	Driver Head Primary Y	B-1
	Driver Head Primary Z	B-1
	Driver Head Resultant Primary	B-1
2	Driver Head Primary X Velocity	B-2
	Driver Head Primary X Displacement	B-2
3	Driver Head Redundant X	B-3
	Driver Head Redundant Y	B-3
	Driver Head Redundant Z	B-3
	Driver Head Resultant Redundant	B-3
4	Driver Head Redundant X Velocity	B-4
	Driver Head Redundant X Displacement	B-4
5	Driver Upper Neck Force X	B-5
	Driver Upper Neck Force Y	B-5
	Driver Upper Neck Force Z	B-5
	Driver Upper Neck Force Resultant	B-5
6	Driver Upper Neck Moment X	B-6
	Driver Upper Neck Moment Y	B-6
	Driver Upper Neck Moment Z	B-6
	Driver Upper Neck Moment Resultant	B-6
7	Driver Chest Primary X	B-7
	Driver Chest Primary Y	B-7
	Driver Chest Primary Z	B-7
	Driver Chest Resultant Primary	B-7
8	Driver Chest Primary X Velocity	B-8
	Driver Chest Primary X Displacement	B-8
9	Driver Chest Redundant X	B-9
	Driver Chest Redundant Y	B-9
	Driver Chest Redundant Z	B-9
	Driver Chest Resultant Redundant	B-9
10	Driver Chest Redundant X Velocity	B-10
	Driver Chest Redundant X Displacement	B-10
11	Driver Chest Deflection	B-11

LIST OF DATA PLOTS...(CONTINUED)

Data Plot	Page	
12	Driver Pelvis X	B-12
	Driver Pelvis Y	B-12
	Driver Pelvis Z	B-12
	Driver Pelvis Resultant	B-12
13	Driver Pelvis X Velocity	B-13
	Driver Pelvis X Displacement	B-13
14	Driver Left Femur Force	B-14
	Driver Right Femur Force	B-14
15	Driver Left Upper Tibia Moment X	B-15
	Driver Left Upper Tibia Moment Y	B-15
	Driver Right Upper Tibia Moment X	B-15
	Driver Right Upper Tibia Moment Y	B-15
16	Driver Left Lower Tibia Moment X	B-16
	Driver Left Lower Tibia Moment Y	B-16
	Driver Left Lower Tibia Force Z	B-16
17	Driver Right Lower Tibia Moment X	B-17
	Driver Right Lower Tibia Moment Y	B-17
	Driver Right Lower Tibia Force Z	B-17
18	Driver Left Foot Aft X	B-18
	Driver Left Foot Aft Z	B-18
	Driver Left Foot Fore Z	B-18
19	Driver Right Foot Aft X	B-19
	Driver Right Foot Aft Z	B-19
	Driver Right Foot Fore Z	B-19
20	Driver Lap Belt Force	B-20
	Driver Shoulder Belt Force	B-20
	Driver Shoulder Belt Pullout	B-20
	Driver Shoulder Belt Elongation	B-20
21	Passenger Head Primary X	B-21
	Passenger Head Primary Y	B-21
	Passenger Head Primary Z	B-21
	Passenger Head Resultant Primary	B-21
22	Passenger Head Primary X Velocity	B-22
	Passenger Head Primary X Displacement	B-22

LIST OF DATA PLOTS...(CONTINUED)

<u>Data Plot</u>	<u>Page</u>	
23	Passenger Head Redundant X	B-23
	Passenger Head Redundant Y	B-23
	Passenger Head Redundant Z	B-23
	Passenger Head Resultant Redundant	B-23
24	Passenger Head Redundant X Velocity	B-24
	Passenger Head Redundant X Displacement	B-24
25	Passenger Upper Neck Force X	B-25
	Passenger Upper Neck Force Y	B-25
	Passenger Upper Neck Force Z	B-25
	Passenger Upper Neck Force Resultant	B-25
26	Passenger Upper Neck Moment X	B-26
	Passenger Upper Neck Moment Y	B-26
	Passenger Upper Neck Moment Z	B-26
	Passenger Upper Neck Moment Resultant	B-26
27	Passenger Chest Primary X	B-27
	Passenger Chest Primary Y	B-27
	Passenger Chest Primary Z	B-27
	Passenger Chest Resultant Primary	B-27
28	Passenger Chest Primary X Velocity	B-28
	Passenger Chest Primary X Displacement	B-28
29	Passenger Chest Redundant X	B-29
	Passenger Chest Redundant Y	B-29
	Passenger Chest Redundant Z	B-29
	Passenger Chest Resultant Redundant	B-29
30	Passenger Chest Redundant X Velocity	B-30
	Passenger Chest Redundant X Displacement	B-30
31	Passenger Chest Deflection	B-31
32	Passenger Pelvis X	B-32
	Passenger Pelvis Y	B-32
	Passenger Pelvis Z	B-32
	Passenger Pelvis Resultant	B-32
33	Passenger Pelvis X Velocity	B-33
	Passenger Pelvis X Displacement	B-33

LIST OF DATA PLOTS...(CONTINUED)

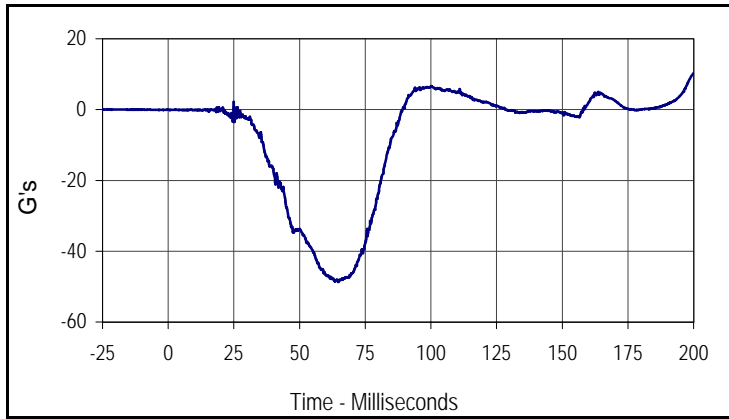
Data Plot	Page	
34	Passenger Left Femur Force	B-34
	Passenger Right Femur Force	B-34
35	Passenger Left Upper Tibia Moment X	B-35
	Passenger Left Upper Tibia Moment Y	B-35
	Passenger Right Upper Tibia Moment X	B-35
	Passenger Right Upper Tibia Moment Y	B-35
36	Passenger Left Lower Tibia Moment X	B-36
	Passenger Left Lower Tibia Moment Y	B-36
	Passenger Left Lower Tibia Force Z	B-36
37	Passenger Right Lower Tibia Moment X	B-37
	Passenger Right Lower Tibia Moment Y	B-37
	Passenger Right Lower Tibia Force Z	B-37
38	Passenger Left Foot Aft X	B-38
	Passenger Left Foot Aft Z	B-38
	Passenger Left Foot Fore Z	B-38
39	Passenger Right Foot Aft X	B-39
	Passenger Right Foot Aft Z	B-39
	Passenger Right Foot Fore Z	B-39
40	Passenger Lap Belt Force	B-40
	Passenger Shoulder Belt Force	B-40
	Passenger Shoulder Belt Pullout	B-40
	Passenger Shoulder Belt Elongation	B-40
41	Vehicle Left Rear X	B-41
	Vehicle Left Rear X Velocity	B-41
	Vehicle Left Rear X Displacement	B-41
42	Vehicle Right Rear X	B-42
	Vehicle Right Rear X Velocity	B-42
	Vehicle Right Rear X Displacement	B-42
43	Vehicle Engine Top X	B-43
	Vehicle Engine Top X Velocity	B-43
	Vehicle Engine Top X Displacement	B-43
44	Vehicle Engine Bottom X	B-44
	Vehicle Engine Bottom X Velocity	B-44
	Vehicle Engine Bottom X Displacement	B-44

LIST OF DATA PLOTS...(CONTINUED)

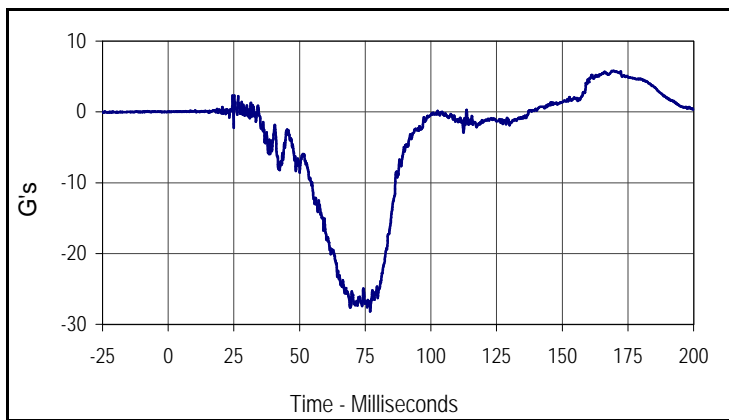
<u>Data Plot</u>	<u>Page</u>	
45	Vehicle Left Brake Caliper X	B-45
	Vehicle Left Brake Caliper X Velocity	B-45
	Vehicle Left Brake Caliper X Displacement	B-45
46	Vehicle Right Brake X Caliper	B-46
	Vehicle Right Brake Caliper X Velocity	B-46
	Vehicle Right Brake Caliper X Displacement	B-46
47	Vehicle Instrument Panel X	B-47
	Vehicle Instrument Panel Velocity X	B-47
	Vehicle Instrument Panel Displacement X	B-47
48	Vehicle Left Rear Z	B-48
	Vehicle Left Rear Z Velocity	B-48
	Vehicle Left Rear Z Displacement	B-48
49	Vehicle Right Rear Z	B-49
	Vehicle Right Rear Z Velocity	B-49
	Vehicle Right Rear Z Displacement	B-49

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

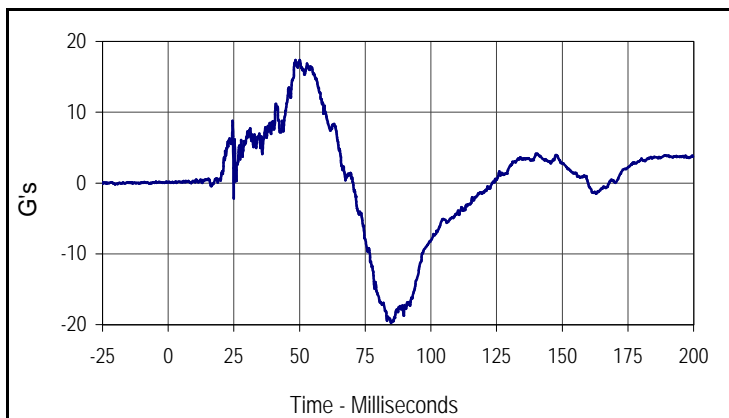
Test Date: 1/18/05
 NHTSA No.: M50207



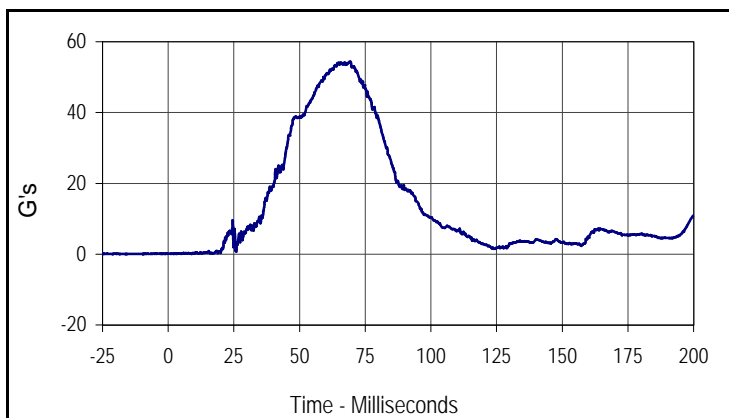
Curve Description			
Driver Head Primary X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
10.2	200.0	-48.7	64.7



Curve Description			
Driver Head Primary Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
5.8	169.6	-28.2	76.9



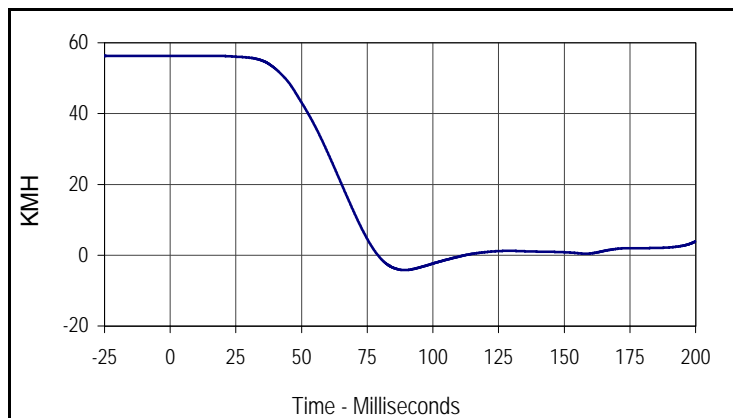
Curve Description			
Driver Head Primary Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
17.4	48.4	-19.7	84.8



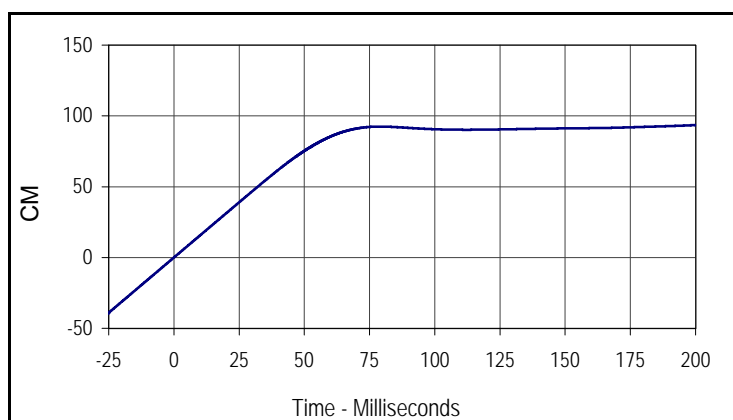
Curve Description			
Driver Head Resultant Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
54.4	69.4	0.0	1.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



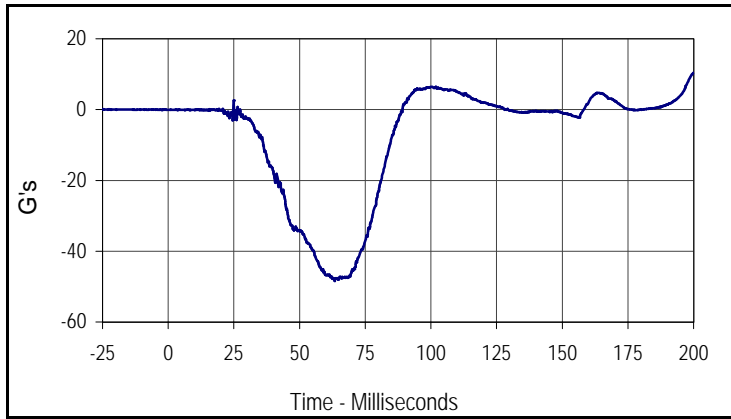
Curve Description			
Driver Head Primary X Velocity			
CURNO	Type	SAE Class	Units
001	IN1	180	KMH
Max	Time	Min	Time
56.3	0.0	-4.2	89.2



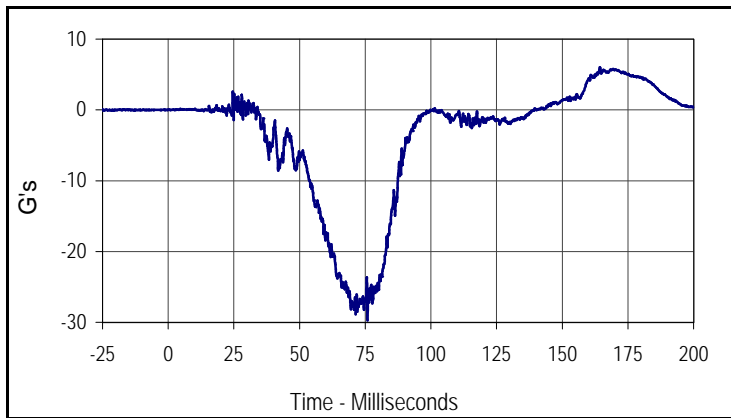
Curve Description			
Driver Head Primary X Displacement			
CURNO	Type	SAE Class	Units
001	IN2	180	CM
Max	Time	Min	Time
93.6	200.0	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

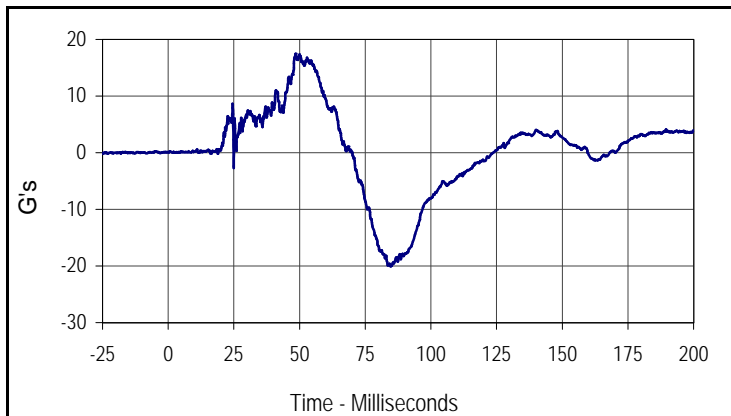
Test Date: 1/18/05
 NHTSA No.: M50207



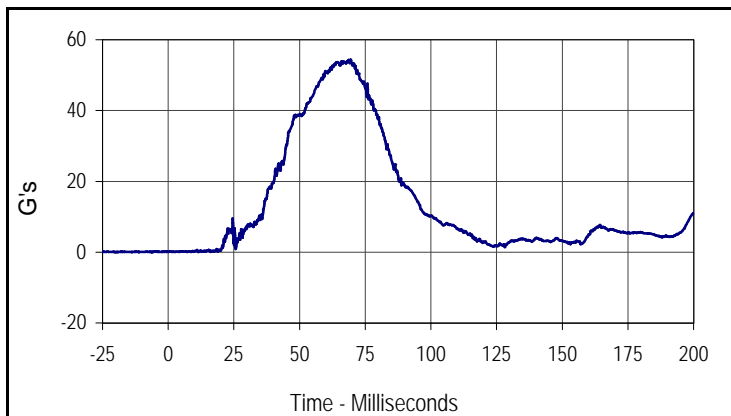
Curve Description			
Driver Head Redundant X			
CURNO	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
10.4	200.0	-48.4	63.4



Curve Description			
Driver Head Redundant Y			
CURNO	Type	SAE Class	Units
005	FIL	1000	G's
Max	Time	Min	Time
6.0	164.3	-29.7	75.9



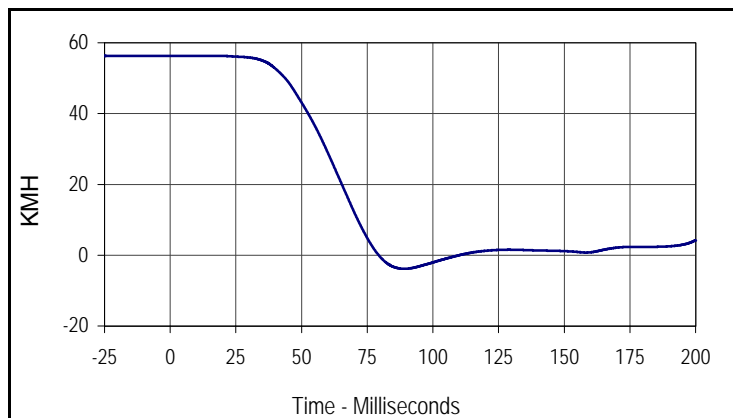
Curve Description			
Driver Head Redundant Z			
CURNO	Type	SAE Class	Units
006	FIL	1000	G's
Max	Time	Min	Time
17.5	48.4	-20.1	84.6



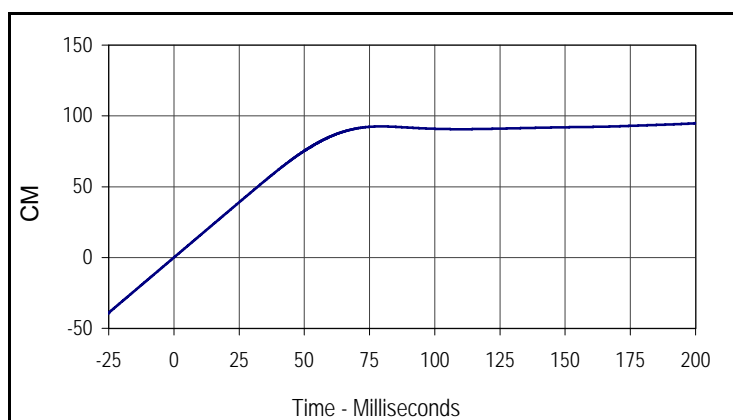
Curve Description			
Driver Head Resultant Redundant			
CURNO	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
54.4	69.4	0.0	11.5

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



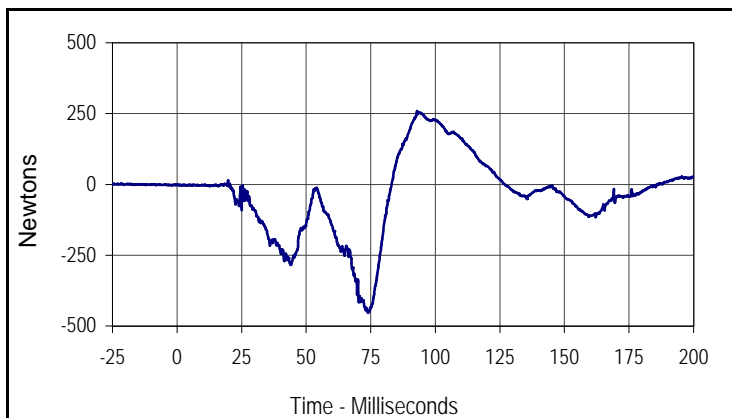
Curve Description			
Driver Head Redundant X Velocity			
CURNO	Type	SAE Class	Units
004	IN1	180	KMH
Max	Time	Min	Time
56.3	0.0	-3.9	89.1



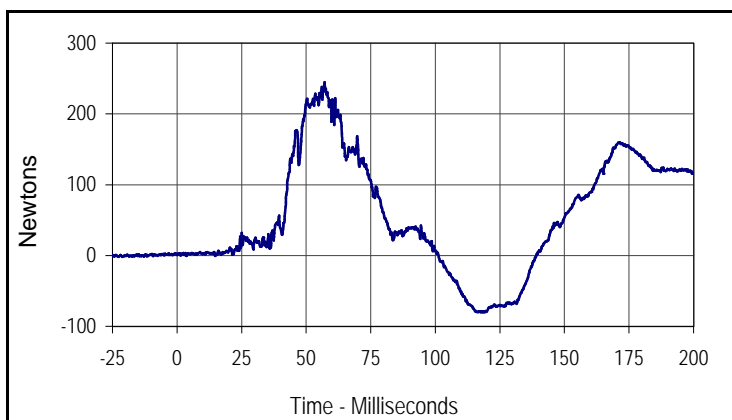
Curve Description			
Driver Head Redundant X Displacement			
CURNO	Type	SAE Class	Units
004	IN2	180	CM
Max	Time	Min	Time
94.8	200.0	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

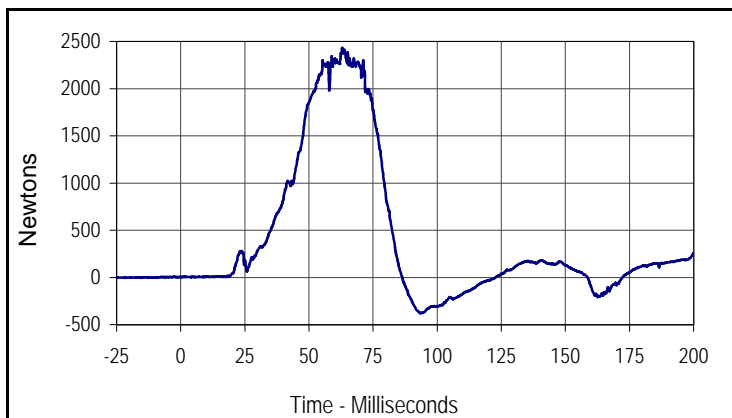
Test Date: 1/18/05
 NHTSA No.: M50207



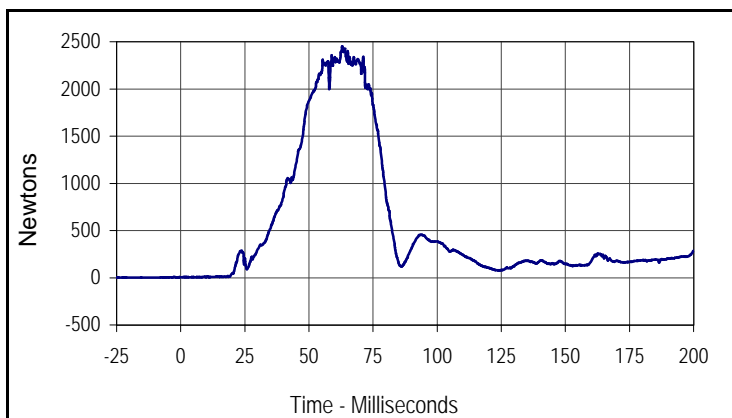
Curve Description			
Driver Upper Neck Force X			
CURNO	Type	SAE Class	Units
007	FIL	1000	Newtons
Max	Time	Min	Time
259.7	92.9	-454.0	74.0



Curve Description			
Driver Upper Neck Force Y			
CURNO	Type	SAE Class	Units
008	FIL	1000	Newtons
Max	Time	Min	Time
245.0	57.1	-80.6	118.2



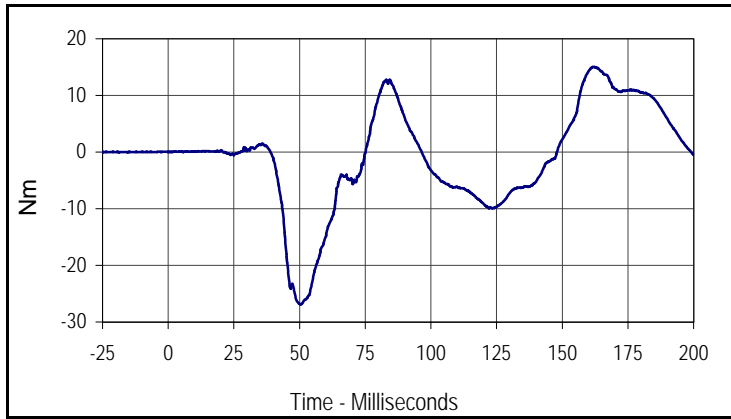
Curve Description			
Driver Upper Neck Force Z			
CURNO	Type	SAE Class	Units
009	FIL	1000	Newtons
Max	Time	Min	Time
2433.2	63.0	-378.8	93.8



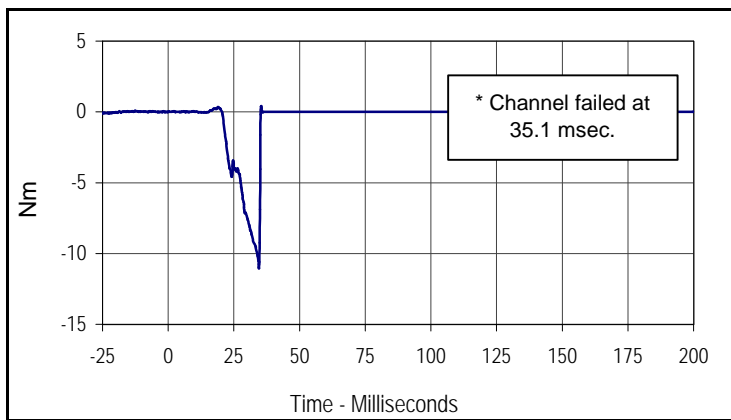
Curve Description			
Driver Upper Neck Force Res.			
CURNO	Type	SAE Class	Units
007	RES	1000	Newtons
Max	Time	Min	Time
2451.0	63.0	3.7	0.1

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207

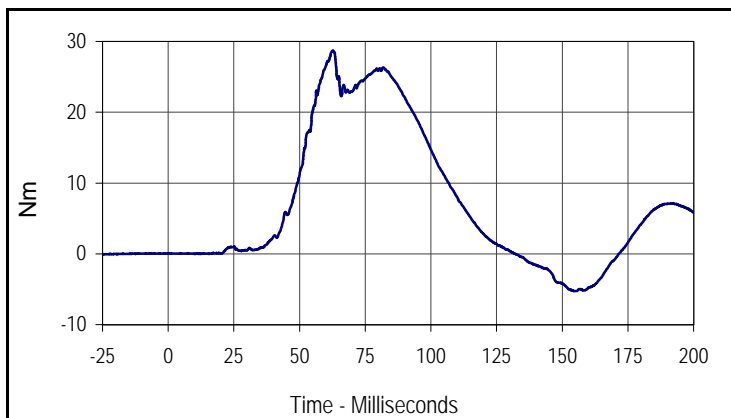


Curve Description			
Driver Upper Neck Moment X			
CURNO	Type	SAE Class	Units
010	FIL	600	Nm
Max	Time	Min	Time
15.0	161.9	-27.0	50.4

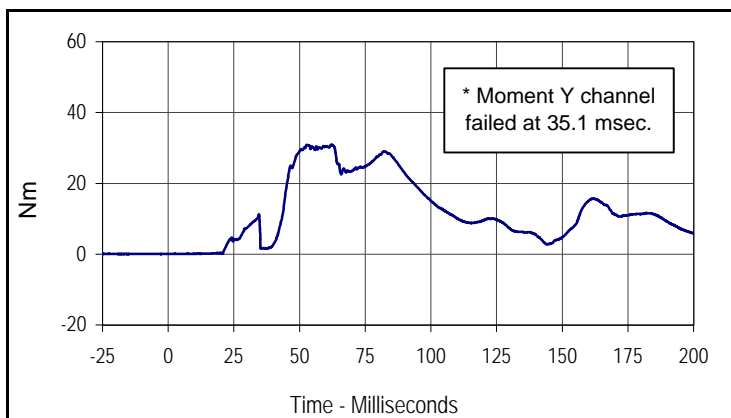


Curve Description			
Driver Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
011	FIL	600	Nm
Max	Time	Min	Time
0.4	35.4	-11.0	34.6

* Channel failed at 35.1 msec.



Curve Description			
Driver Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
012	FIL	600	Nm
Max	Time	Min	Time
28.7	62.7	-5.3	155.5

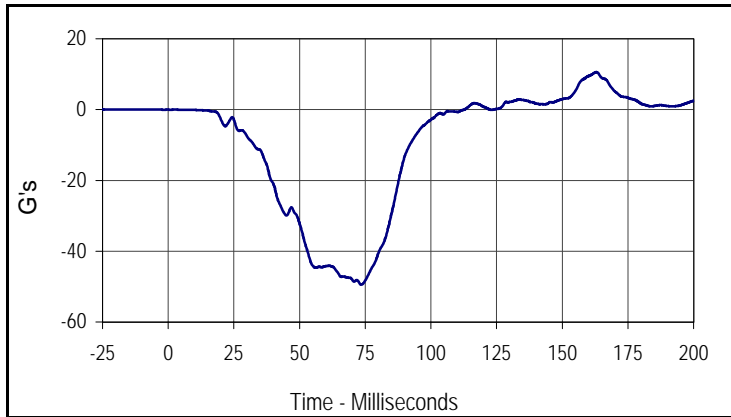


Curve Description			
Driver Upper Neck Moment Res.			
CURNO	Type	SAE Class	Units
010	RES	600	Nm
Max	Time	Min	Time
30.9	52.9	0.0	5.6

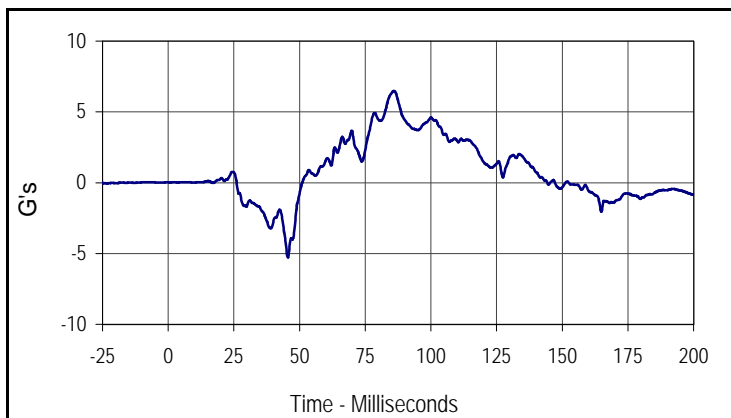
* Moment Y channel failed at 35.1 msec.

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

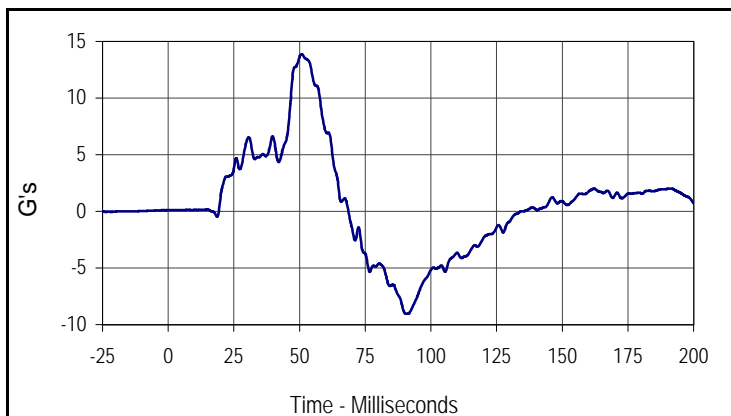
Test Date: 1/18/05
 NHTSA No.: M50207



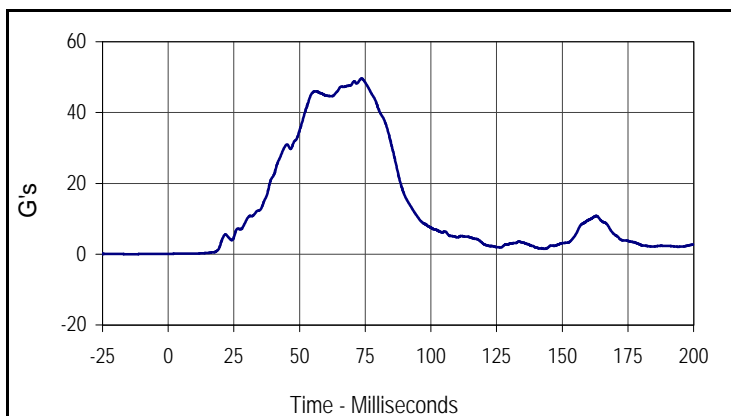
Curve Description			
Driver Chest Primary X			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
10.6	162.9	-49.5	73.5



Curve Description			
Driver Chest Primary Y			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
6.5	86.0	-5.3	45.5



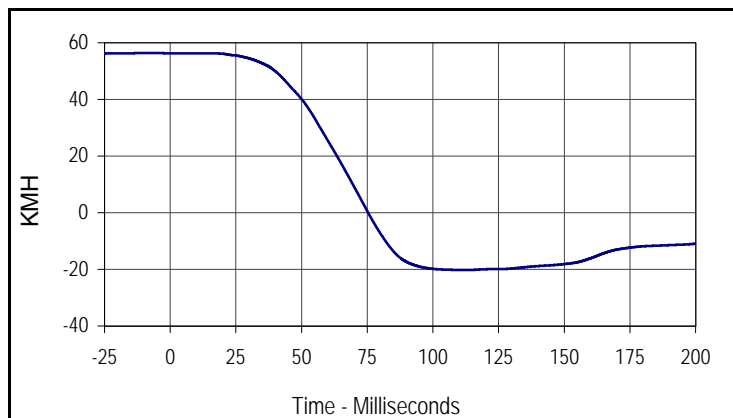
Curve Description			
Driver Chest Primary Z			
CURNO	Type	SAE Class	Units
015	FIL	180	G's
Max	Time	Min	Time
13.9	50.8	-9.0	90.7



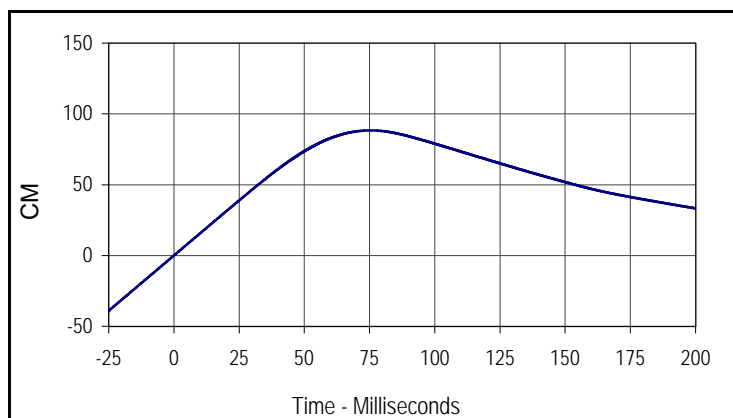
Curve Description			
Driver Chest Resultant Primary			
CURNO	Type	SAE Class	Units
013	RES	180	G's
Max	Time	Min	Time
49.6	73.6	0.1	1.5

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



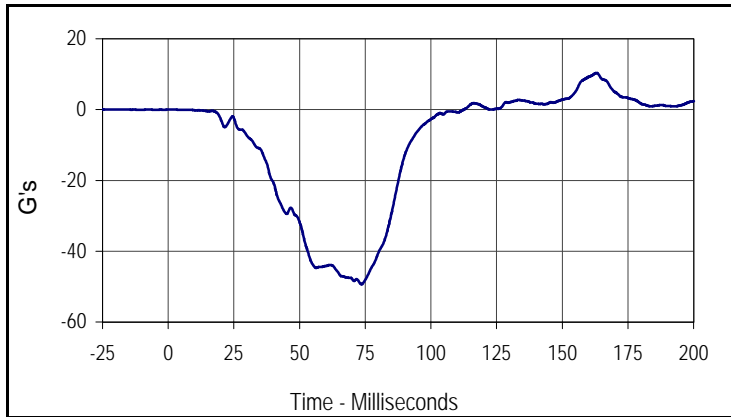
Curve Description			
Driver Chest Primary X Velocity			
CURNO	Type	SAE Class	Units
013	IN1	180	KMH
Max	Time	Min	Time
56.3	0.0	-20.3	112.8



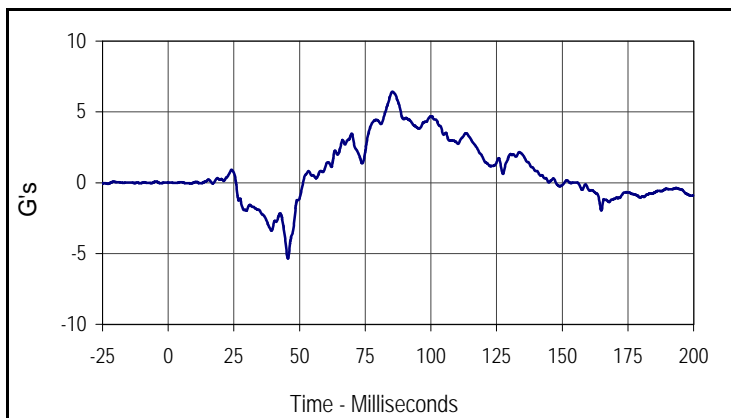
Curve Description			
Driver Chest Primary X Displacement			
CURNO	Type	SAE Class	Units
013	IN2	180	CM
Max	Time	Min	Time
88.4	75.3	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

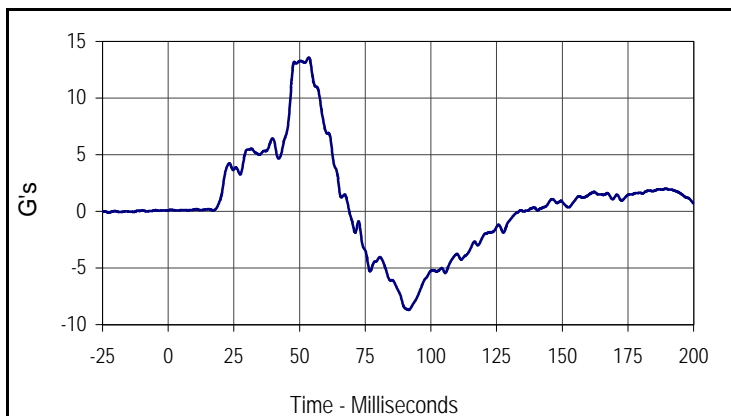
Test Date: 1/18/05
 NHTSA No.: M50207



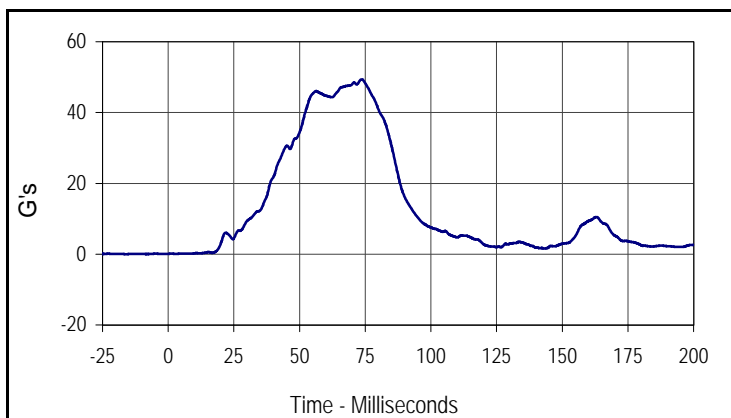
Curve Description			
Driver Chest Redundant X			
CURNO	Type	SAE Class	Units
016	FIL	180	G's
Max	Time	Min	Time
10.4	163.0	-49.3	73.6



Curve Description			
Driver Chest Redundant Y			
CURNO	Type	SAE Class	Units
017	FIL	180	G's
Max	Time	Min	Time
6.4	85.3	-5.3	45.6



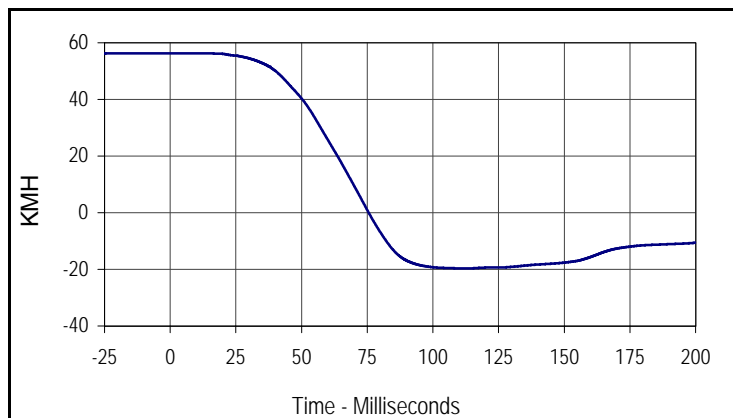
Curve Description			
Driver Chest Redundant Z			
CURNO	Type	SAE Class	Units
018	FIL	180	G's
Max	Time	Min	Time
13.6	53.5	-8.7	91.5



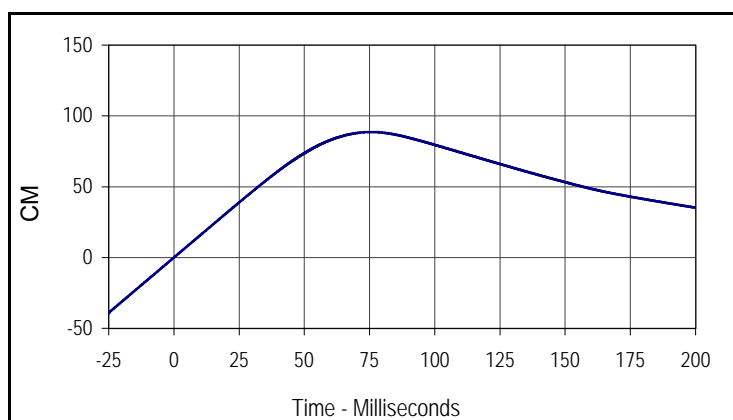
Curve Description			
Driver Chest Resultant Redundant			
CURNO	Type	SAE Class	Units
016	RES	180	G's
Max	Time	Min	Time
49.4	73.6	0.1	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



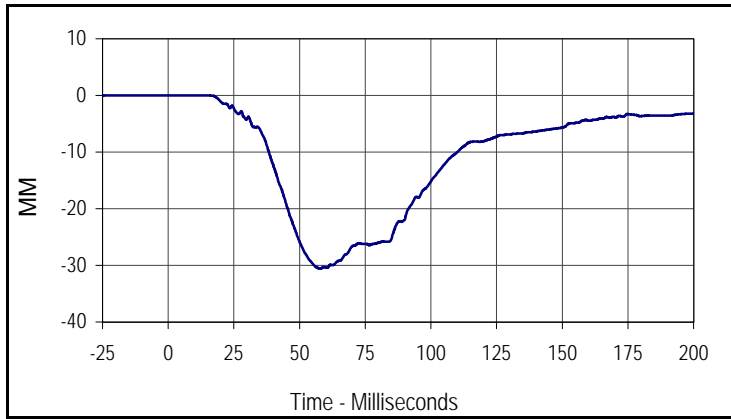
Curve Description			
Driver Chest Redundant X Velocity			
CURNO	Type	SAE Class	Units
016	IN1	180	KMH
Max	Time	Min	Time
56.3	0.0	-19.7	112.5



Curve Description			
Driver Chest Redundant X Displacement			
CURNO	Type	SAE Class	Units
016	IN2	180	CM
Max	Time	Min	Time
88.6	75.6	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

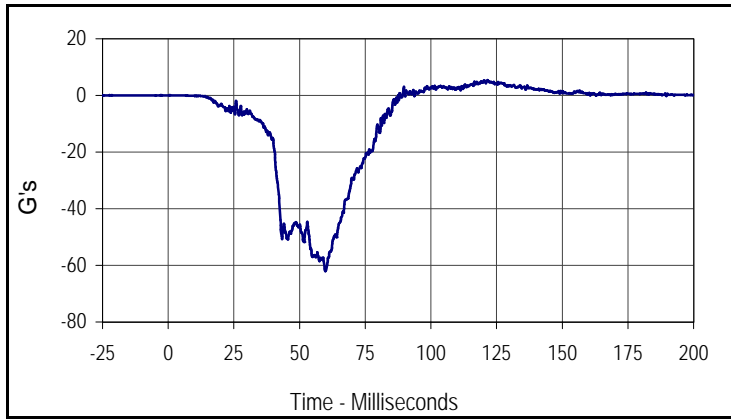
Test Date: 1/18/05
 NHTSA No.: M50207



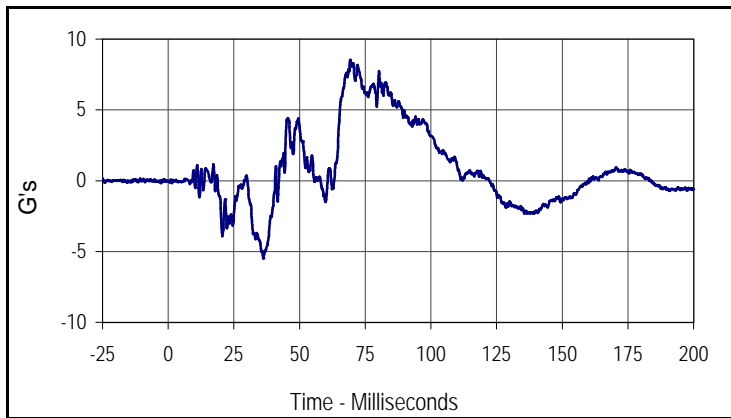
Curve Description			
Driver Chest Deflection			
CURNO	Type	SAE Class	Units
019	FIL	600	MM
Max	Time	Min	Time
0.0	2.9	-30.6	58.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

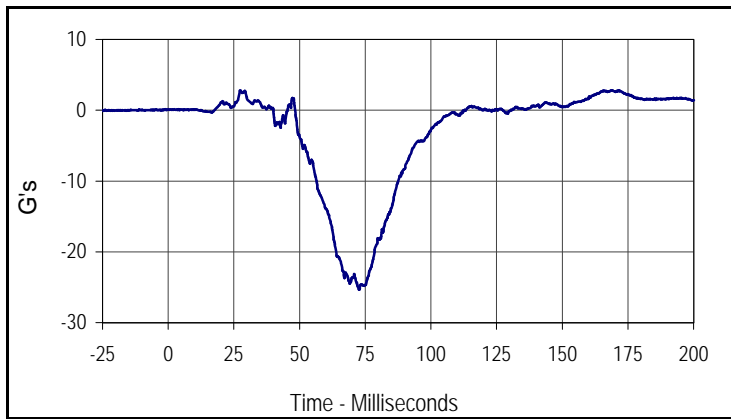
Test Date: 1/18/05
 NHTSA No.: M50207



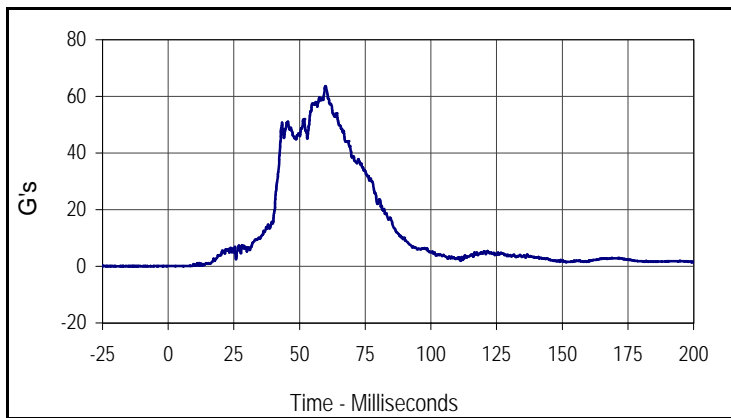
Curve Description			
Driver Pelvis X			
CURNO	Type	SAE Class	Units
020	FIL	1000	G's
Max	Time	Min	Time
5.4	121.6	-62.0	59.9



Curve Description			
Driver Pelvis Y			
CURNO	Type	SAE Class	Units
021	FIL	1000	G's
Max	Time	Min	Time
8.5	69.3	-5.5	36.2



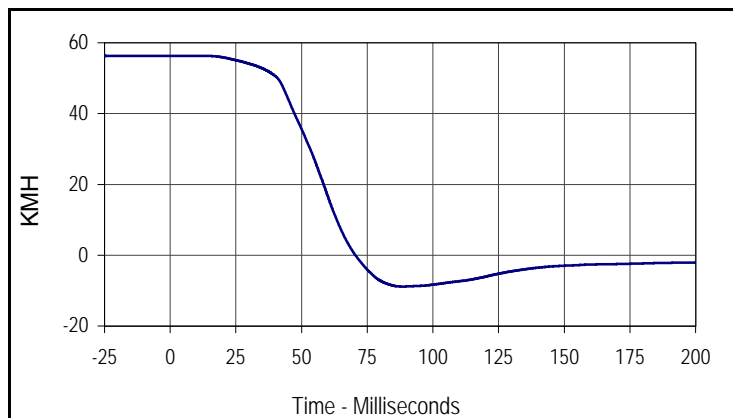
Curve Description			
Driver Pelvis Z			
CURNO	Type	SAE Class	Units
022	FIL	1000	G's
Max	Time	Min	Time
2.8	168.9	-25.3	72.7



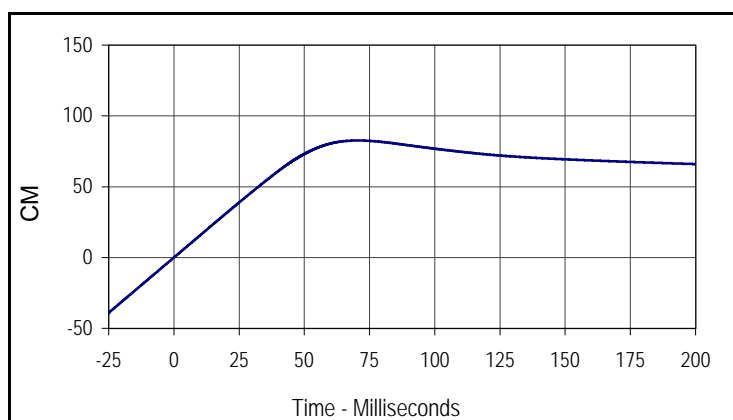
Curve Description			
Driver Pelvis Resultant			
CURNO	Type	SAE Class	Units
020	RES	1000	G's
Max	Time	Min	Time
63.6	59.9	0.0	5.7

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



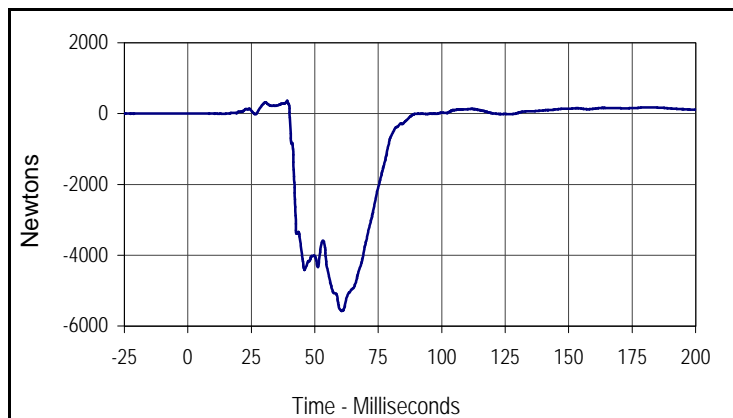
Curve Description			
Driver Pelvis X Velocity			
CURNO	Type	SAE Class	Units
020	IN1	180	KMH
Max	Time	Min	Time
56.3	4.9	-8.9	88.7



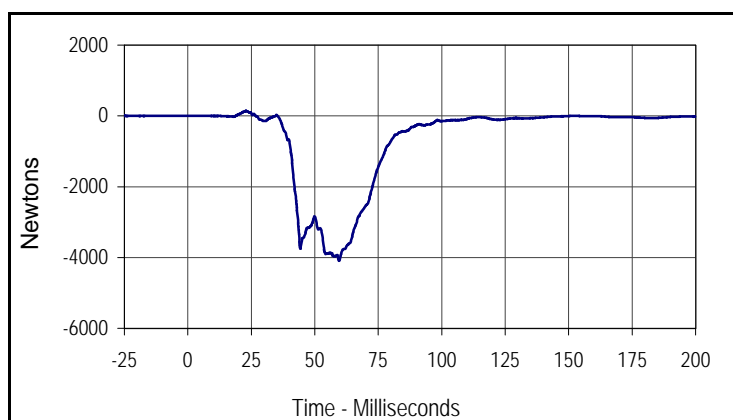
Curve Description			
Driver Pelvis X Displacement			
CURNO	Type	SAE Class	Units
020	IN2	180	CM
Max	Time	Min	Time
82.6	70.5	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



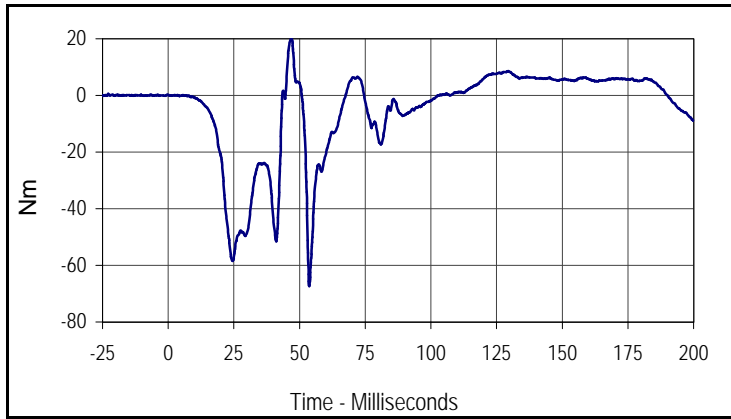
Curve Description			
Driver Left Femur Force			
CURNO	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
360.1	39.1	-5574.0	60.6



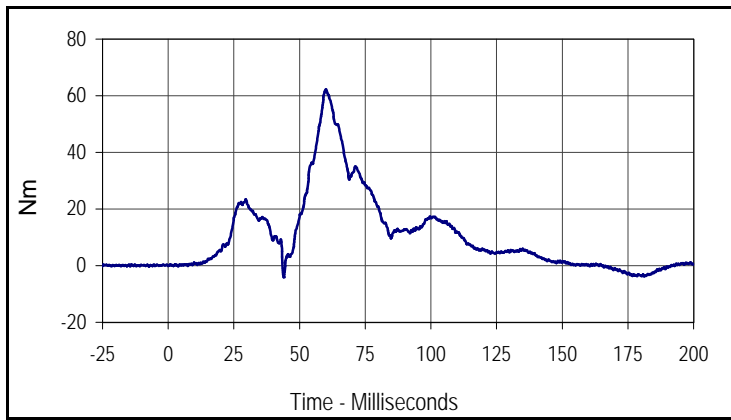
Curve Description			
Driver Right Femur Force			
CURNO	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
143.0	22.9	-4093.8	59.5

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

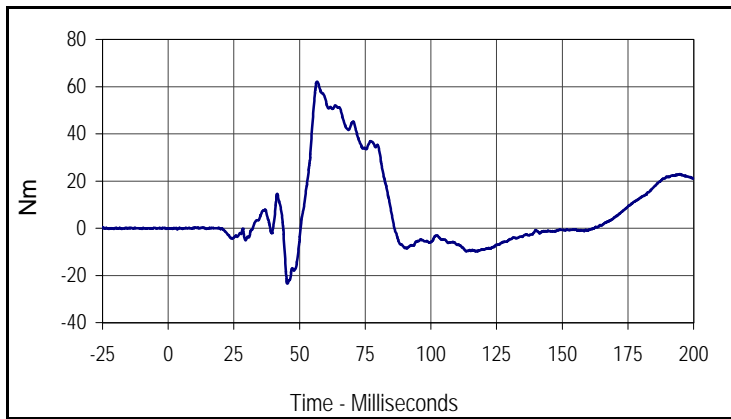
Test Date: 1/18/05
 NHTSA No.: M50207



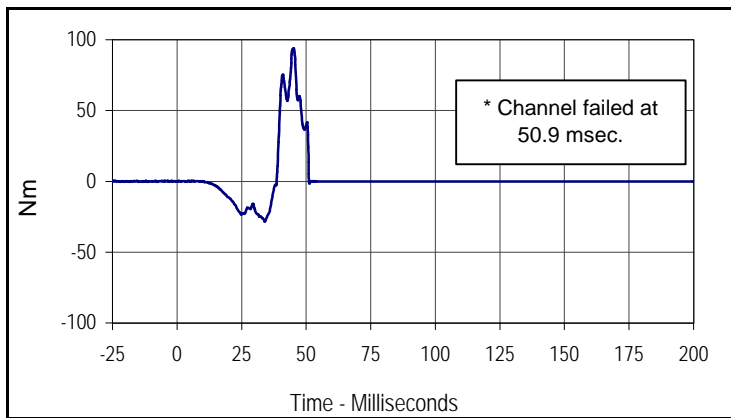
Curve Description			
Driver Left Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
025	FIL	600	Nm
Max	Time	Min	Time
20.0	46.9	-67.4	53.7



Curve Description			
Driver Left Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
026	FIL	600	Nm
Max	Time	Min	Time
62.3	60.1	-4.1	44.0



Curve Description			
Driver Right Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
027	FIL	600	Nm
Max	Time	Min	Time
62.1	56.7	-23.5	45.4

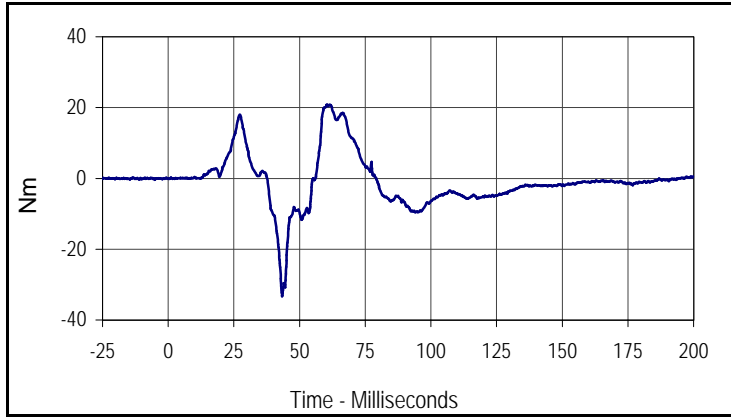


Curve Description			
Driver Right Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
028	FIL	600	Nm
Max	Time	Min	Time
93.9	45.1	-28.3	34.0

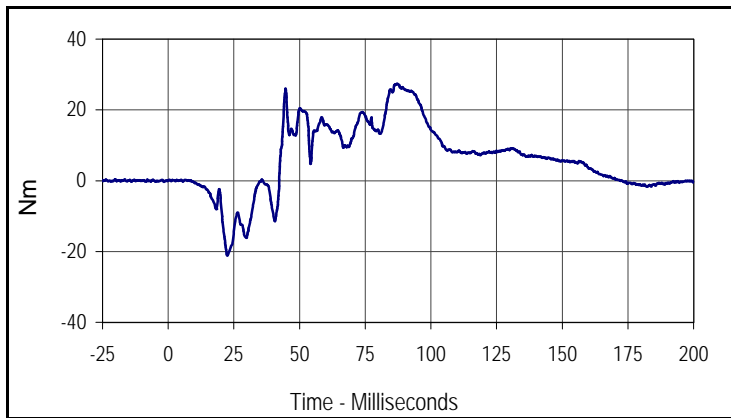
* Channel failed at 50.9 msec.

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

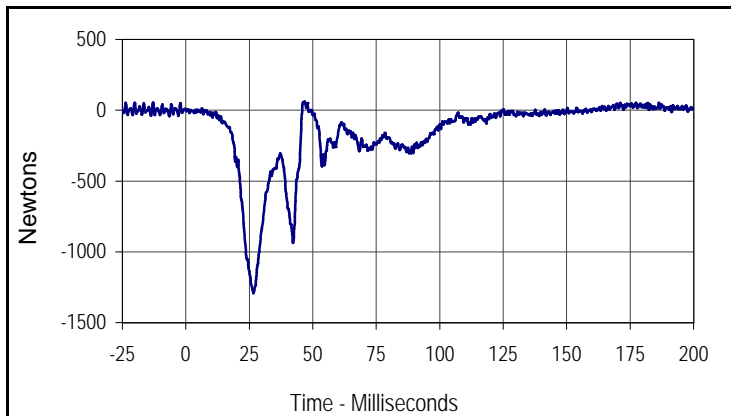
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Driver Left Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
029	FIL	600	Nm
Max	Time	Min	Time
20.9	61.5	-33.4	43.4



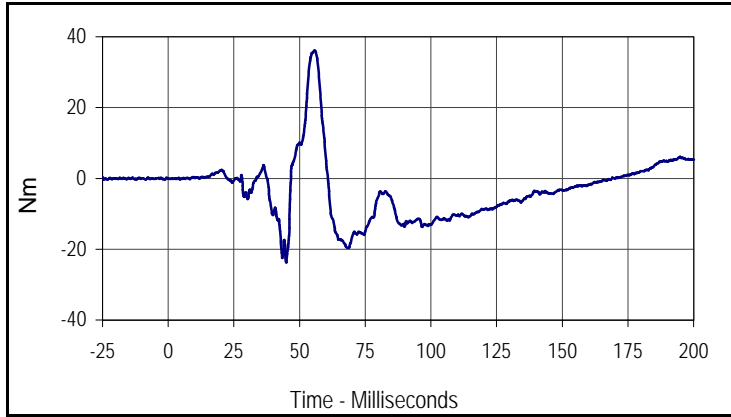
Curve Description			
Driver Left Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
030	FIL	600	Nm
Max	Time	Min	Time
27.4	87.2	-21.1	22.5



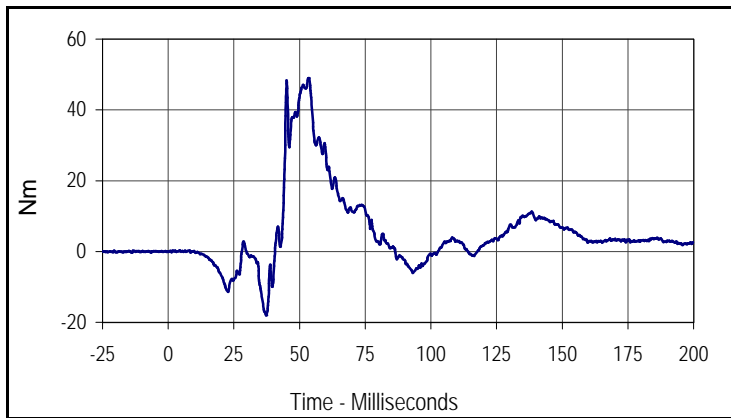
Curve Description			
Driver Left Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
031	FIL	600	Newtons
Max	Time	Min	Time
62.3	46.8	-1292.0	26.6

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

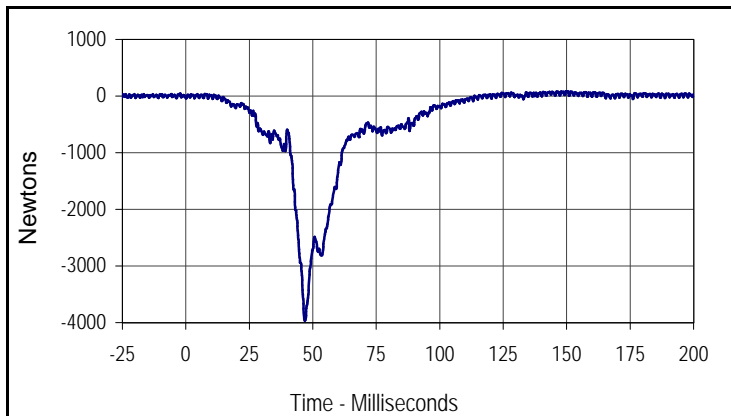
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Driver Right Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
032	FIL	600	Nm
Max	Time	Min	Time
36.2	55.8	-23.7	44.9



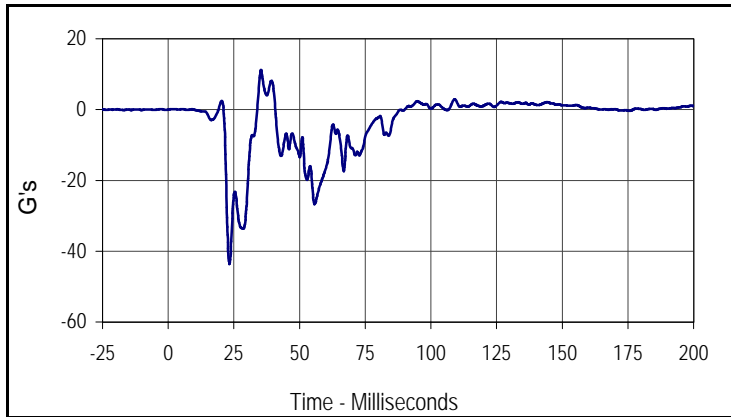
Curve Description			
Driver Right Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
033	FIL	600	Nm
Max	Time	Min	Time
49.0	53.4	-18.0	37.3



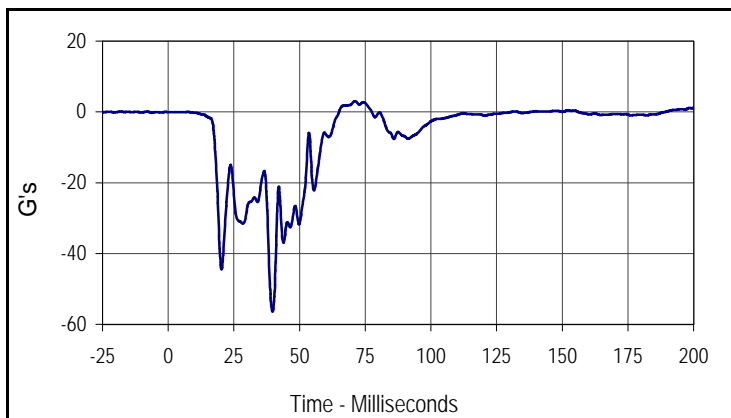
Curve Description			
Driver Right Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
034	FIL	600	Newtons
Max	Time	Min	Time
85.9	150.3	-3966.4	46.9

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

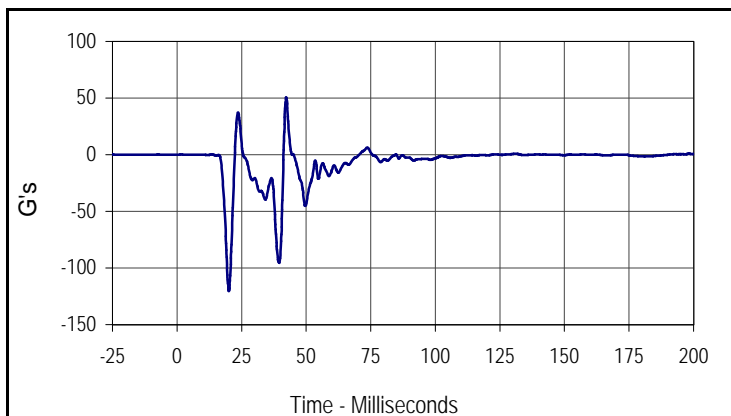
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Driver Left Foot Aft X			
CURNO	Type	SAE Class	Units
035	FIL	180	G's
Max	Time	Min	Time
11.2	35.3	-43.6	23.3



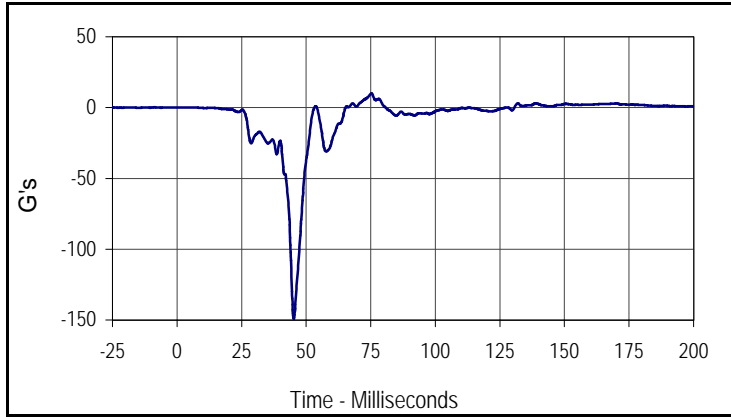
Curve Description			
Driver Left Foot Aft Z			
CURNO	Type	SAE Class	Units
036	FIL	180	G's
Max	Time	Min	Time
3.0	71.2	-56.3	39.7



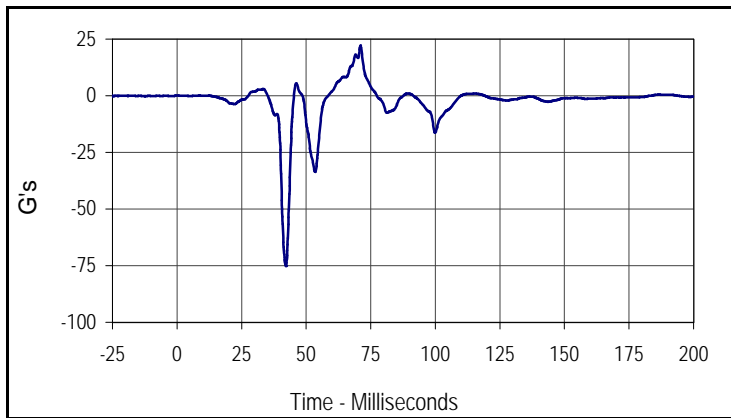
Curve Description			
Driver Left Foot Fore Z			
CURNO	Type	SAE Class	Units
037	FIL	180	G's
Max	Time	Min	Time
50.5	42.3	-120.4	20.1

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

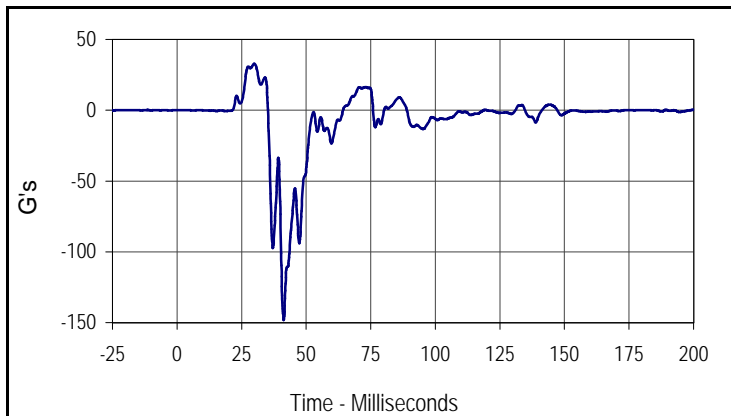
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Driver Right Foot Aft X			
CURNO	Type	SAE Class	Units
038	FIL	180	G's
Max	Time	Min	Time
10.0	75.2	-149.3	45.2



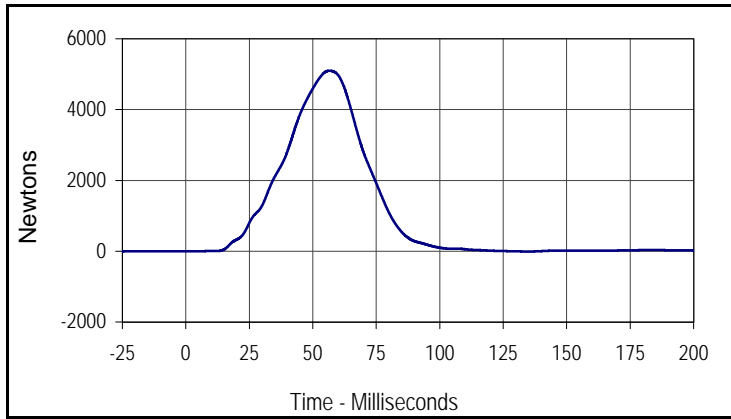
Curve Description			
Driver Right Foot Aft Z			
CURNO	Type	SAE Class	Units
039	FIL	180	G's
Max	Time	Min	Time
22.1	71.1	-75.1	42.2



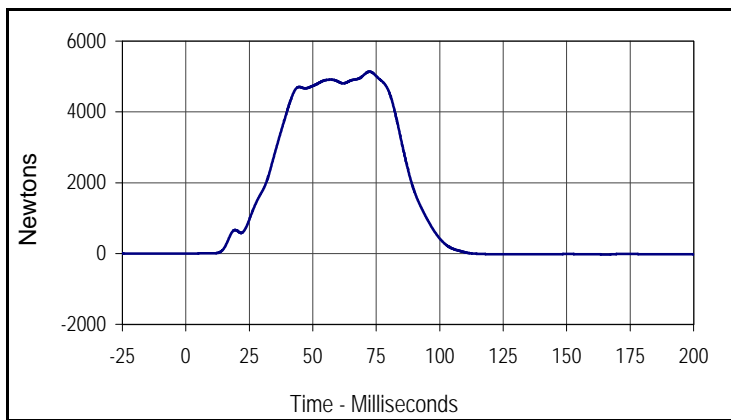
Curve Description			
Driver Right Foot Fore Z			
CURNO	Type	SAE Class	Units
040	FIL	180	G's
Max	Time	Min	Time
32.8	29.9	-148.1	41.3

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

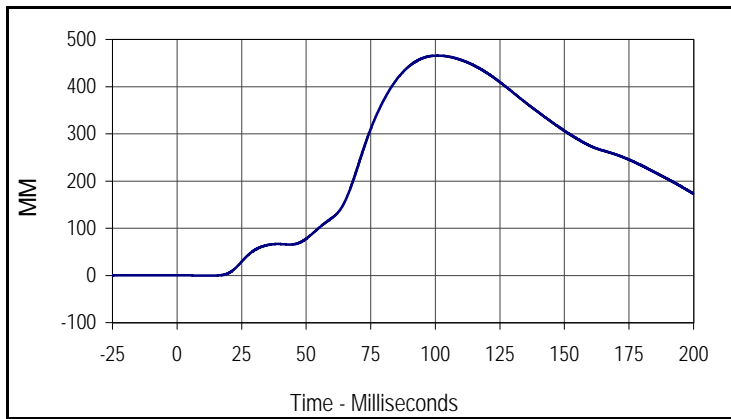
Test Date: 1/18/05
 NHTSA No.: M50207



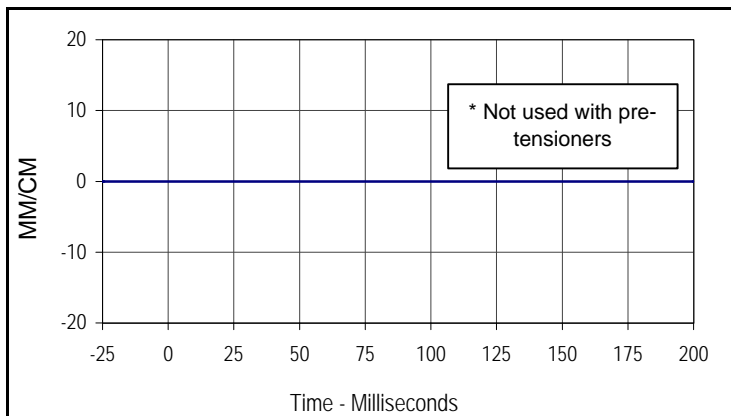
Curve Description			
Driver Lap Belt Force			
CURNO	Type	SAE Class	Units
041	FIL	60	Newtons
Max	Time	Min	Time
5097.1	56.6	-10.1	135.1



Curve Description			
Driver Shoulder Belt Force			
CURNO	Type	SAE Class	Units
042	FIL	60	Newtons
Max	Time	Min	Time
5138.5	72.4	-27.6	165.6



Curve Description			
Driver Shoulder Belt Pullout			
CURNO	Type	SAE Class	Units
043	FIL	60	MM
Max	Time	Min	Time
465.8	101.3	-0.3	12.4

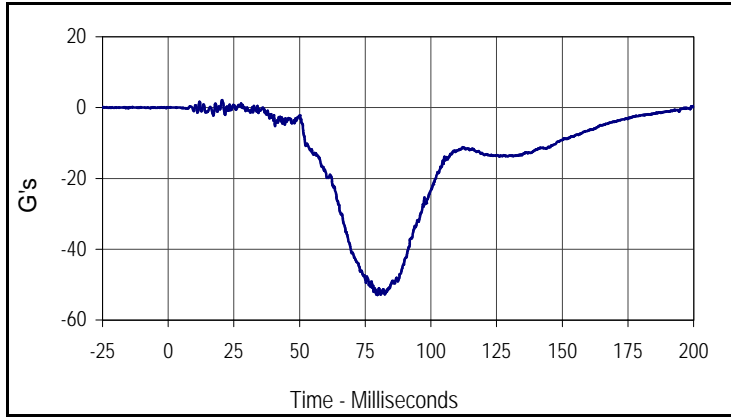


Curve Description			
Driver Shoulder Belt Elongation			
CURNO	Type	SAE Class	Units
044	FIL	60	MM/CM
Max	Time	Min	Time
0.0	0.0	0.0	0.0

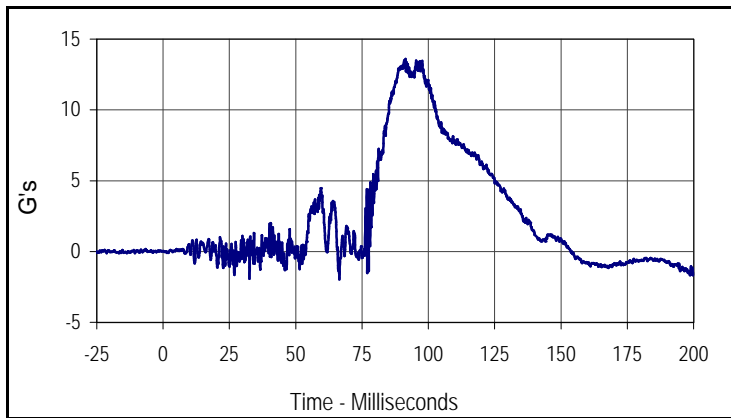
* Not used with pre-tensioners

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

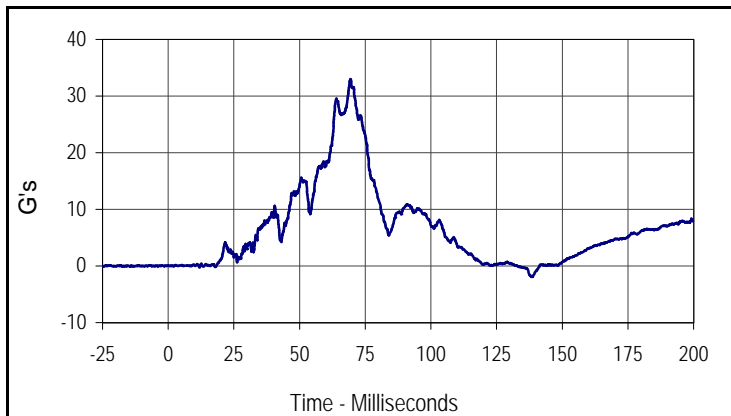
Test Date: 1/18/05
 NHTSA No.: M50207



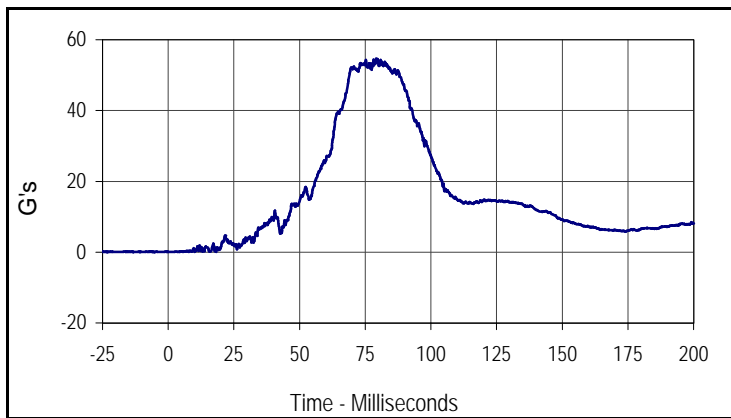
Curve Description			
Passenger Head Primary X			
CURNO	Type	SAE Class	Units
045	FIL	1000	G's
Max	Time	Min	Time
2.1	20.5	-52.9	79.6



Curve Description			
Passenger Head Primary Y			
CURNO	Type	SAE Class	Units
046	FIL	1000	G's
Max	Time	Min	Time
13.6	91.4	-2.0	66.5



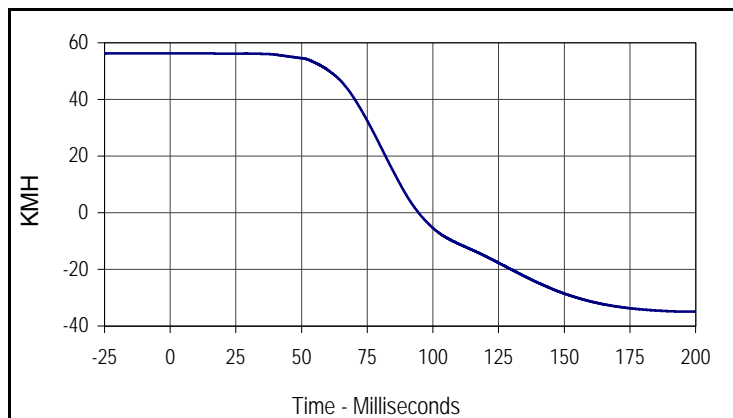
Curve Description			
Passenger Head Primary Z			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
33.0	69.4	-1.9	138.5



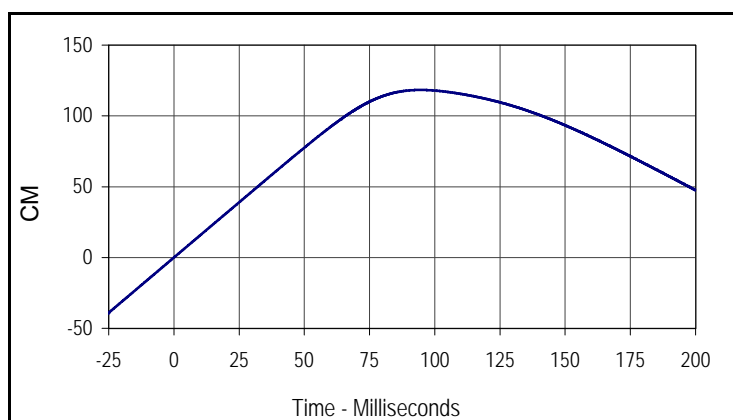
Curve Description			
Passenger Head Resultant Primary			
CURNO	Type	SAE Class	Units
045	RES	1000	G's
Max	Time	Min	Time
54.7	79.2	0.0	3.8

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



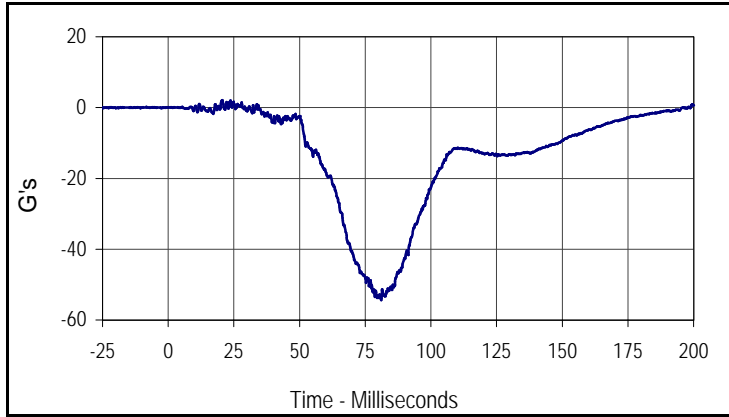
Curve Description			
Passenger Head Primary X Velocity			
CURNO	Type	SAE Class	Units
045	IN1	180	KMH
Max	Time	Min	Time
56.3	4.7	-35.0	198.9



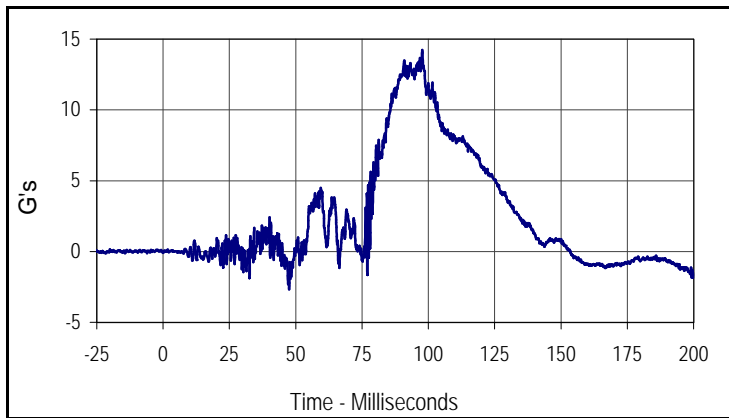
Curve Description			
Passenger Head Primary X Displacement			
CURNO	Type	SAE Class	Units
045	IN2	180	CM
Max	Time	Min	Time
118.3	94.5	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

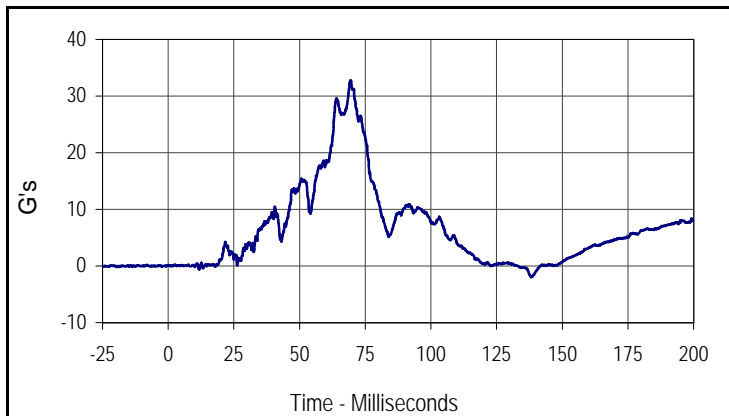
Test Date: 1/18/05
 NHTSA No.: M50207



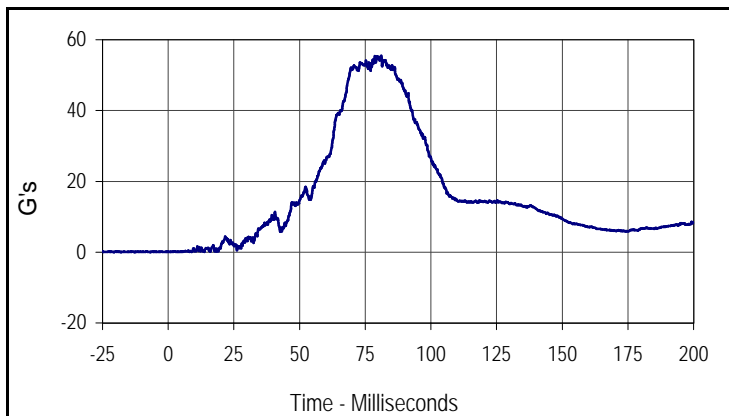
Curve Description			
Passenger Head Redundant X			
CURNO	Type	SAE Class	Units
048	FIL	1000	G's
Max	Time	Min	Time
2.1	20.6	-54.4	81.1



Curve Description			
Passenger Head Redundant Y			
CURNO	Type	SAE Class	Units
049	FIL	1000	G's
Max	Time	Min	Time
14.2	97.7	-2.7	47.5



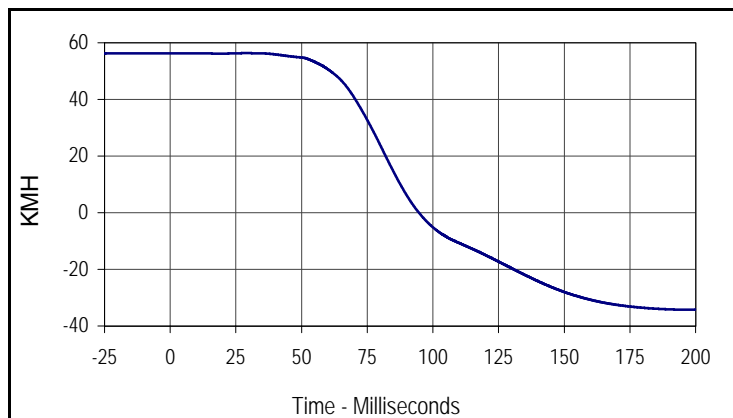
Curve Description			
Passenger Head Redundant Z			
CURNO	Type	SAE Class	Units
050	FIL	1000	G's
Max	Time	Min	Time
32.8	69.5	-1.9	138.1



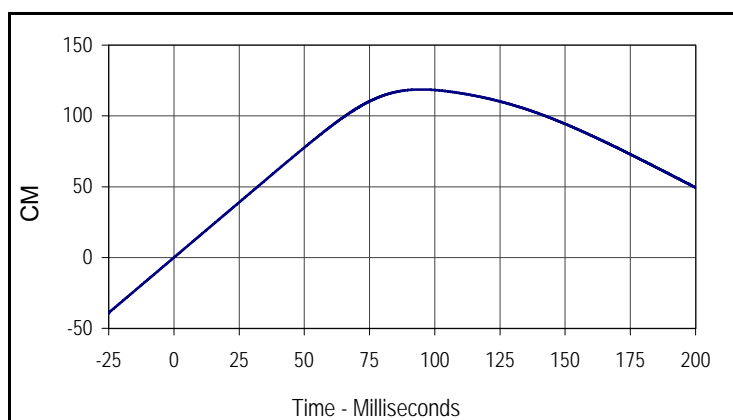
Curve Description			
Passenger Head Resultant Redundant			
CURNO	Type	SAE Class	Units
048	RES	1000	G's
Max	Time	Min	Time
55.4	81.1	0.0	1.5

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



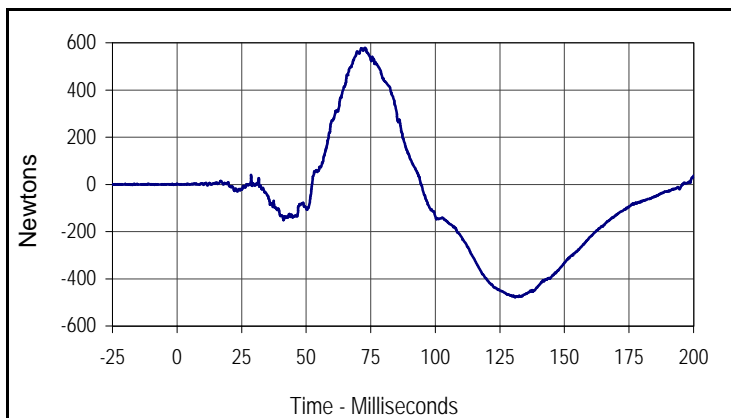
Curve Description			
Passenger Head Redundant X Velocity			
CURNO	Type	SAE Class	Units
048	IN1	180	KMH
Max	Time	Min	Time
56.4	28.8	-34.3	198.1



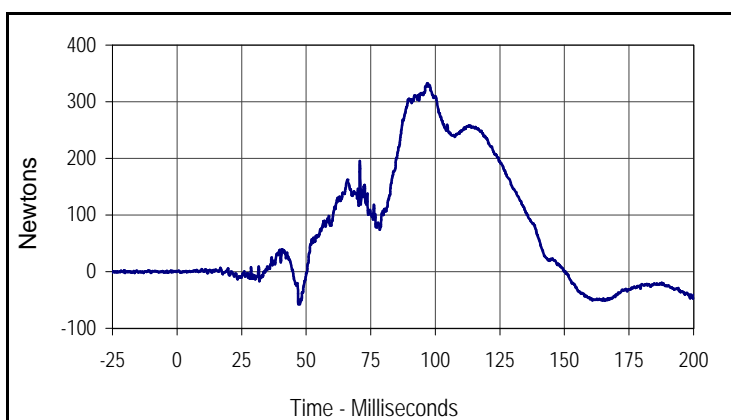
Curve Description			
Passenger Head Redundant X Displacement			
CURNO	Type	SAE Class	Units
048	IN2	180	CM
Max	Time	Min	Time
118.7	94.7	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

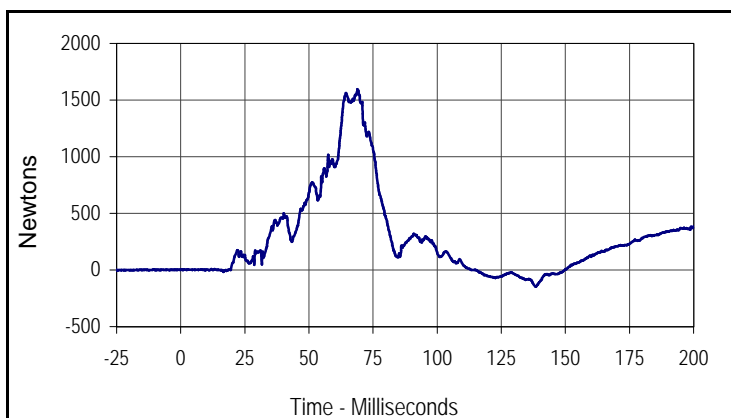
Test Date: 1/18/05
 NHTSA No.: M50207



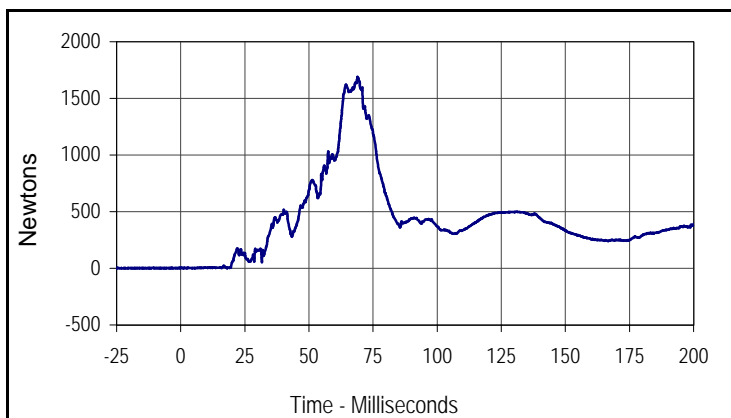
Curve Description			
Passenger Upper Neck Force X			
CURNO	Type	SAE Class	Units
051	FIL	1000	Newtons
Max	Time	Min	Time
578.6	72.8	-477.4	131.0



Curve Description			
Passenger Upper Neck Force Y			
CURNO	Type	SAE Class	Units
052	FIL	1000	Newtons
Max	Time	Min	Time
333.0	96.9	-57.9	47.0



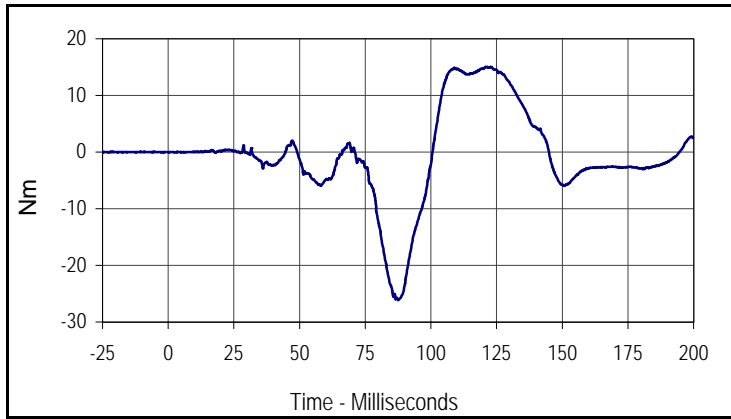
Curve Description			
Passenger Upper Neck Force Z			
CURNO	Type	SAE Class	Units
053	FIL	1000	Newtons
Max	Time	Min	Time
1596.0	68.9	-146.4	138.5



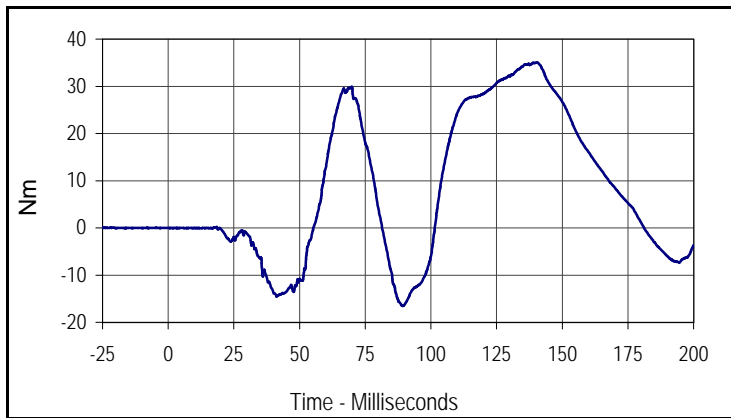
Curve Description			
Passenger Upper Neck Force Res.			
CURNO	Type	SAE Class	Units
051	RES	1000	Newtons
Max	Time	Min	Time
1690.5	68.9	0.3	5.5

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

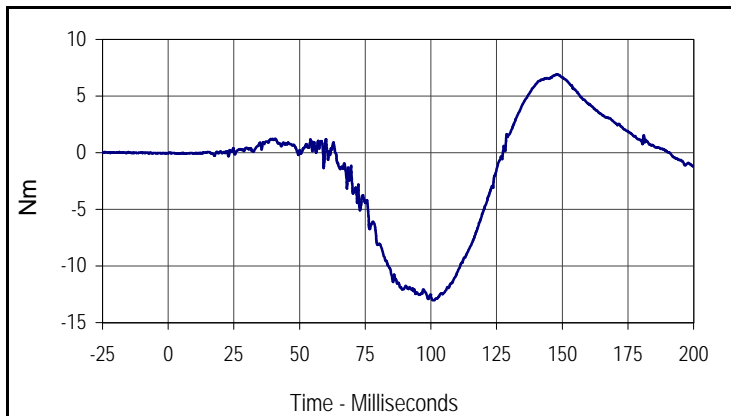
Test Date: 1/18/05
 NHTSA No.: M50207



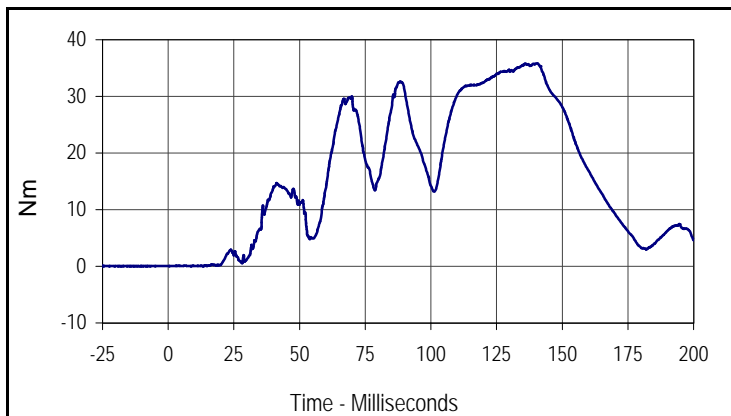
Curve Description			
Passenger Upper Neck Moment X			
CURNO	Type	SAE Class	Units
054	FIL	600	Nm
Max	Time	Min	Time
15.0	121.2	-26.2	87.5



Curve Description			
Passenger Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
055	FIL	600	Nm
Max	Time	Min	Time
35.1	140.1	-16.5	89.4



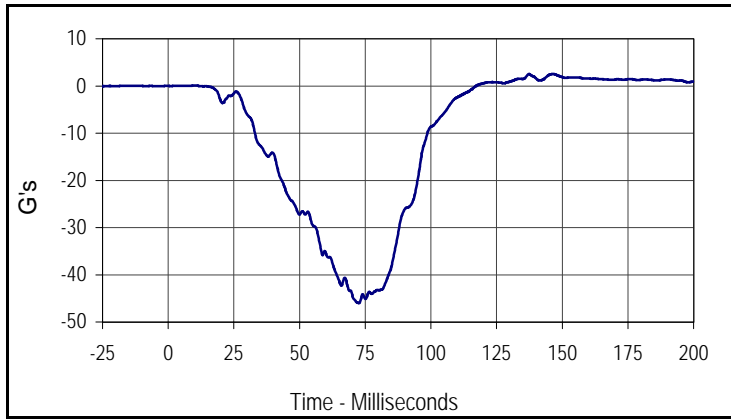
Curve Description			
Passenger Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
056	FIL	600	Nm
Max	Time	Min	Time
6.9	148.0	-13.0	100.8



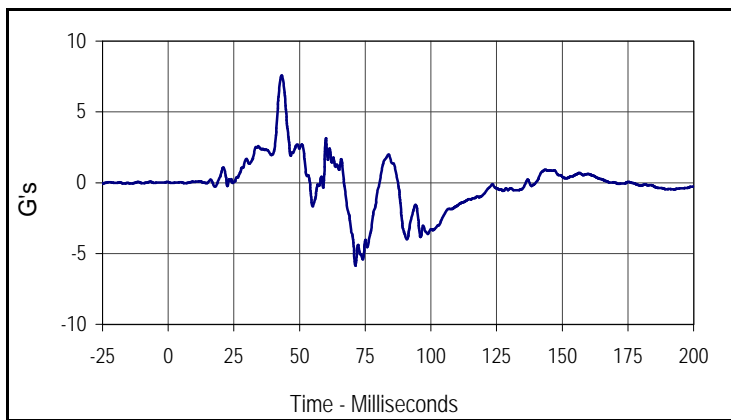
Curve Description			
Passenger Upper Neck Moment Res.			
CURNO	Type	SAE Class	Units
054	RES	600	Nm
Max	Time	Min	Time
35.8	140.0	0.0	13.3

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

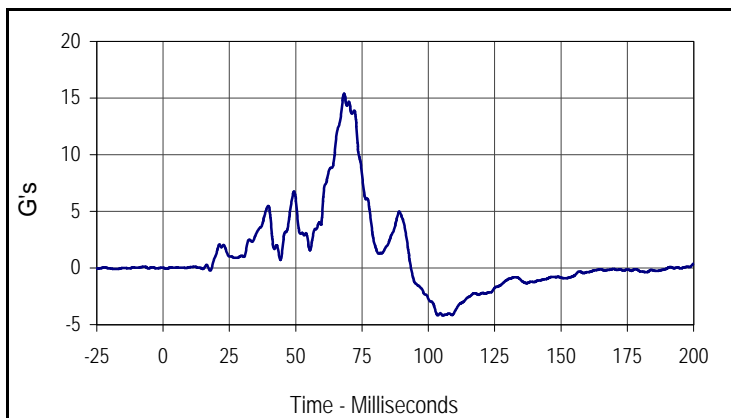
Test Date: 1/18/05
 NHTSA No.: M50207



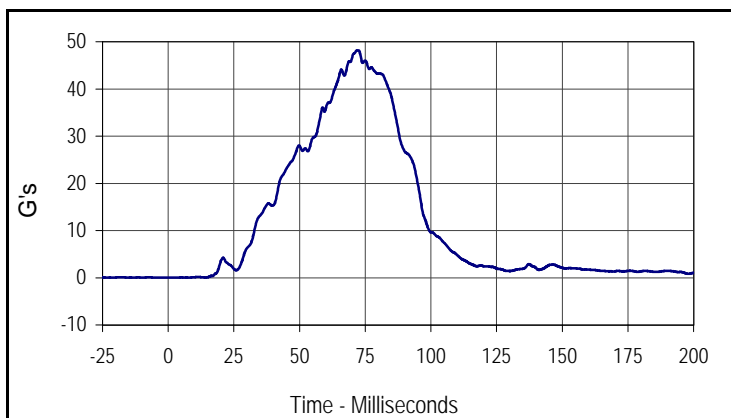
Curve Description			
Passenger Chest Primary X			
CURNO	Type	SAE Class	Units
057	FIL	180	G's
Max	Time	Min	Time
2.5	146.5	-46.0	72.6



Curve Description			
Passenger Chest Primary Y			
CURNO	Type	SAE Class	Units
058	FIL	180	G's
Max	Time	Min	Time
7.6	43.2	-5.9	71.3



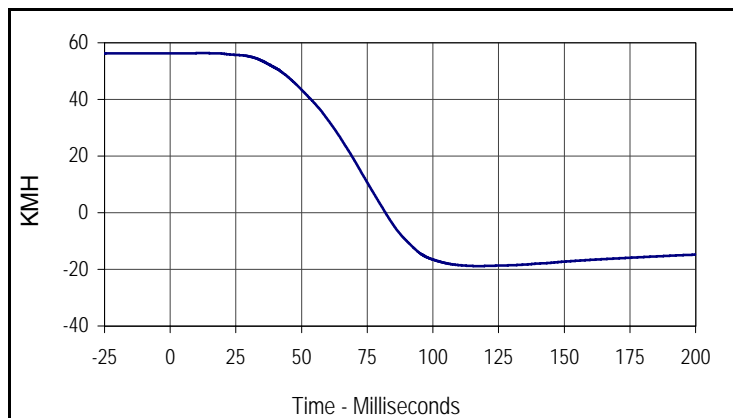
Curve Description			
Passenger Chest Primary Z			
CURNO	Type	SAE Class	Units
059	FIL	180	G's
Max	Time	Min	Time
15.4	68.2	-4.2	103.6



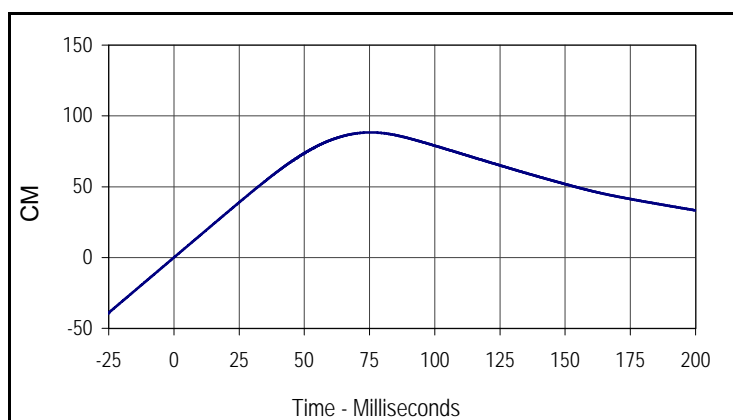
Curve Description			
Passenger Chest Resultant Primary			
CURNO	Type	SAE Class	Units
057	RES	180	G's
Max	Time	Min	Time
48.2	72.4	0.0	2.1

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



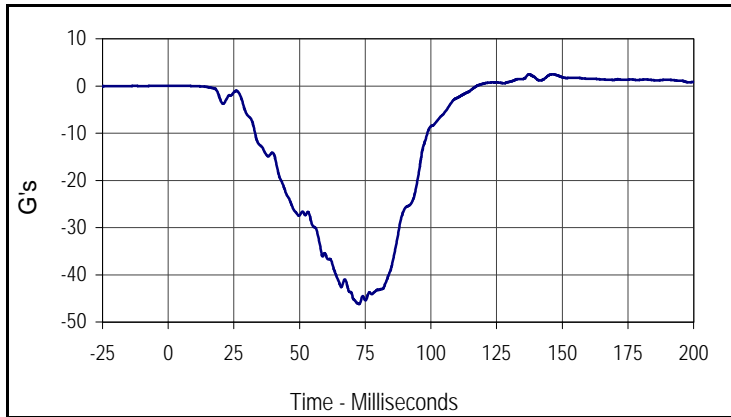
Curve Description			
Passenger Chest Primary X Velocity			
CURNO	Type	SAE Class	Units
057	IN1	180	KMH
Max	Time	Min	Time
56.3	11.7	-18.8	117.1



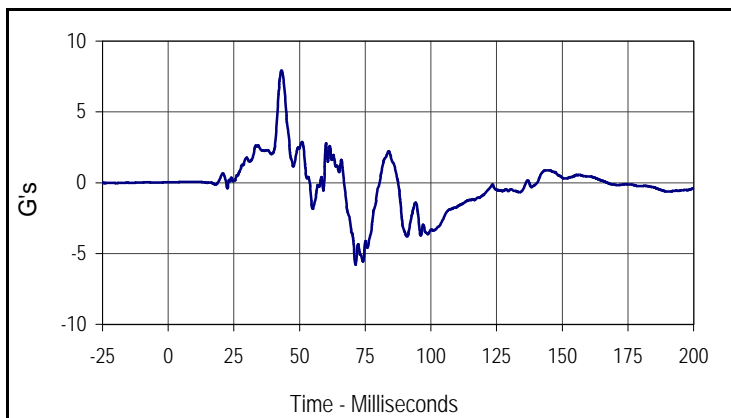
Curve Description			
Passenger Chest Primary X Displacement			
CURNO	Type	SAE Class	Units
057	IN2	180	CM
Max	Time	Min	Time
88.4	75.3	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

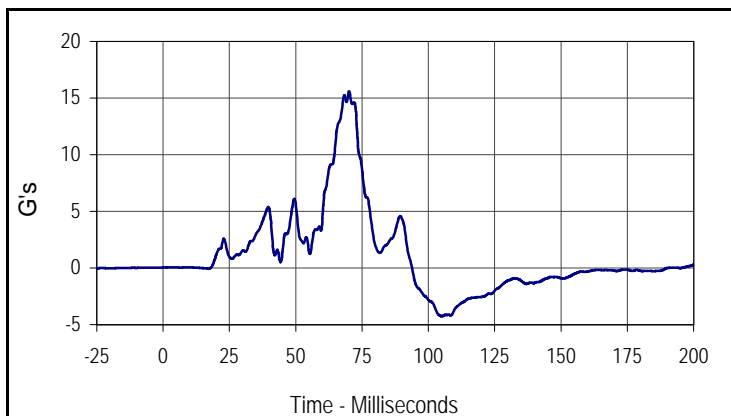
Test Date: 1/18/05
 NHTSA No.: M50207



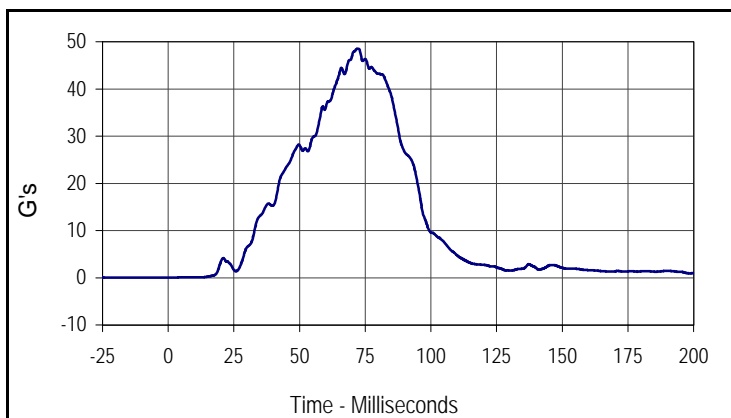
Curve Description			
Passenger Chest Redundant X			
CURNO	Type	SAE Class	Units
060	FIL	180	G's
Max	Time	Min	Time
2.5	137.3	-46.2	72.7



Curve Description			
Passenger Chest Redundant Y			
CURNO	Type	SAE Class	Units
061	FIL	180	G's
Max	Time	Min	Time
7.9	43.2	-5.8	71.3



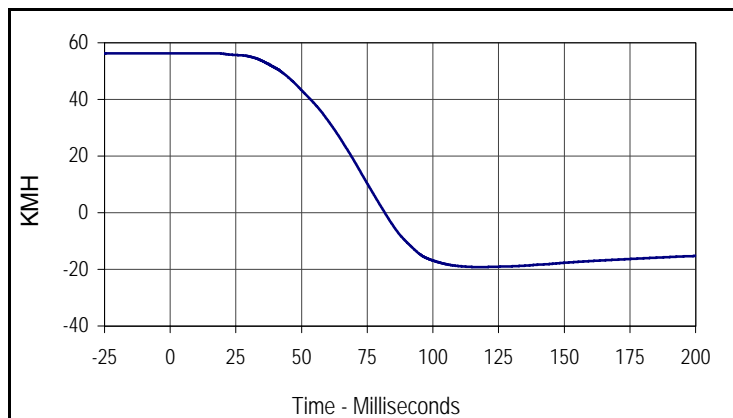
Curve Description			
Passenger Chest Redundant Z			
CURNO	Type	SAE Class	Units
062	FIL	180	G's
Max	Time	Min	Time
15.6	70.1	-4.3	105.1



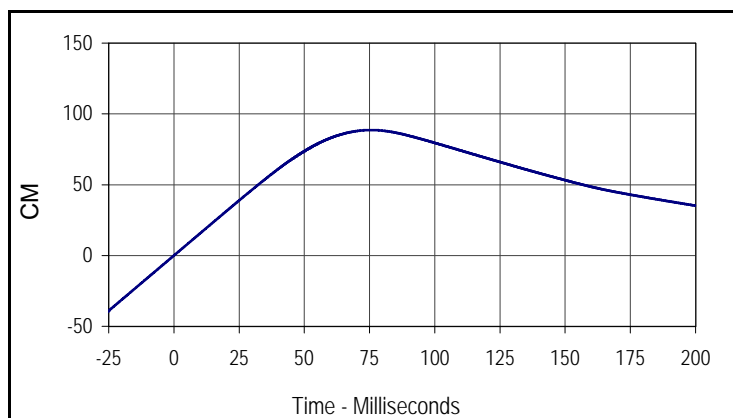
Curve Description			
Passenger Chest Resultant Redundant			
CURNO	Type	SAE Class	Units
060	RES	180	G's
Max	Time	Min	Time
48.5	72.4	0.1	1.2

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



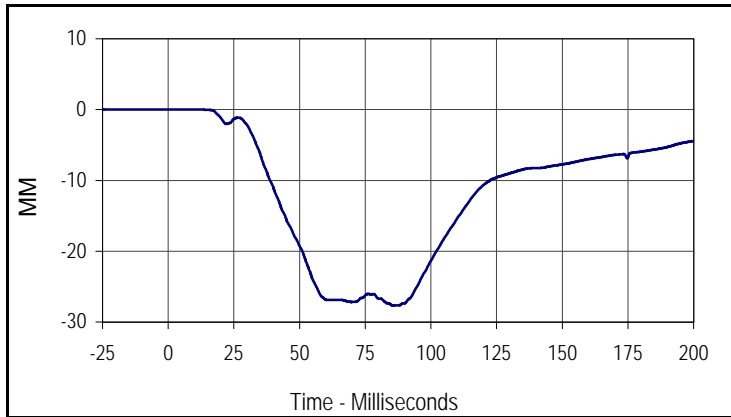
Curve Description			
Passenger Chest Redundant X Velocity			
CURNO	Type	SAE Class	Units
060	IN1	180	KMH
Max	Time	Min	Time
56.3	8.5	-19.2	117.4



Curve Description			
Passenger Chest Redundant X Displacement			
CURNO	Type	SAE Class	Units
060	IN2	180	CM
Max	Time	Min	Time
88.6	75.6	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

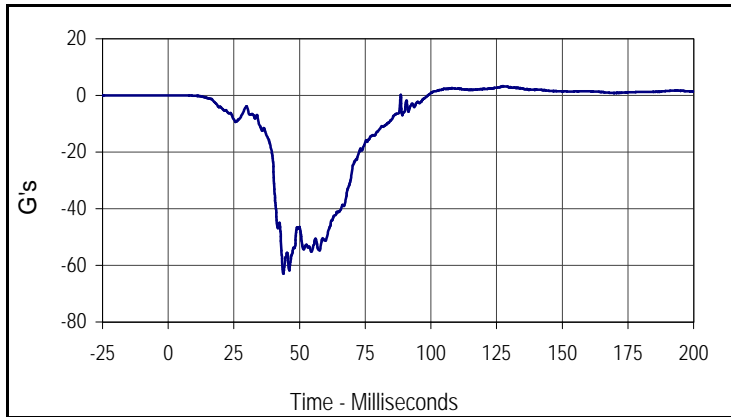
Test Date: 1/18/05
 NHTSA No.: M50207



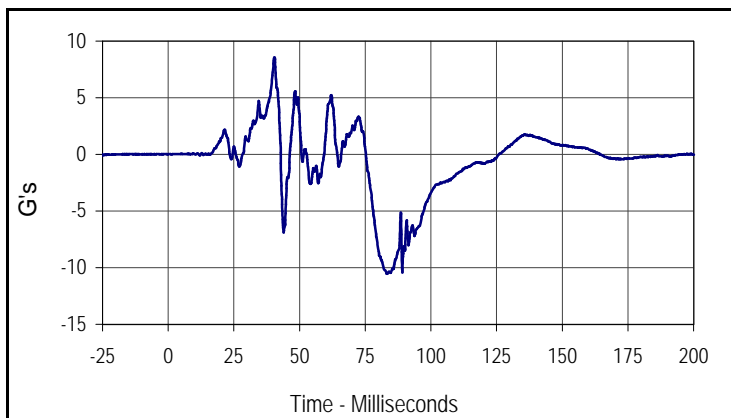
Curve Description			
Passenger Chest Deflection			
CURNO	Type	SAE Class	Units
063	FIL	600	MM
Max	Time	Min	Time
0.0	6.3	-27.7	85.5

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

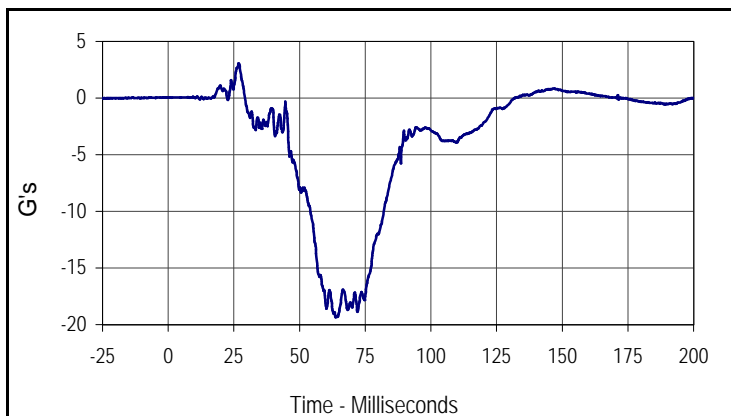
Test Date: 1/18/05
 NHTSA No.: M50207



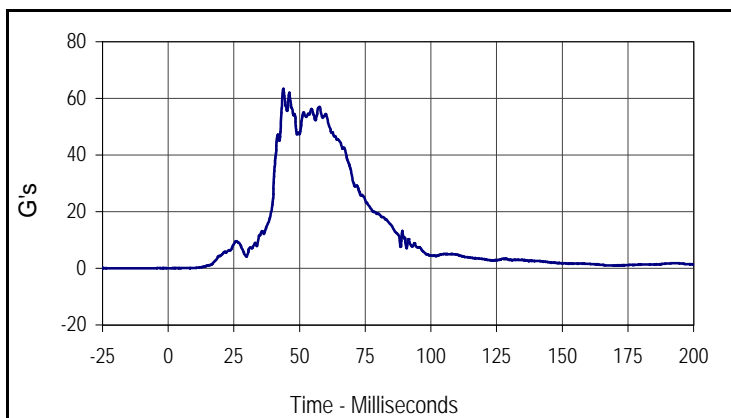
Curve Description			
Passenger Pelvis X			
CURNO	Type	SAE Class	Units
064	FIL	1000	G's
Max	Time	Min	Time
3.3	127.2	-62.9	43.8



Curve Description			
Passenger Pelvis Y			
CURNO	Type	SAE Class	Units
065	FIL	1000	G's
Max	Time	Min	Time
8.6	40.4	-10.5	83.3



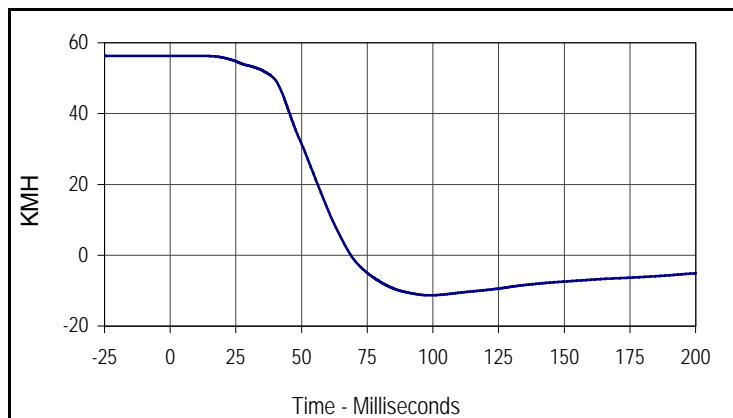
Curve Description			
Passenger Pelvis Z			
CURNO	Type	SAE Class	Units
066	FIL	1000	G's
Max	Time	Min	Time
3.1	26.8	-19.4	63.7



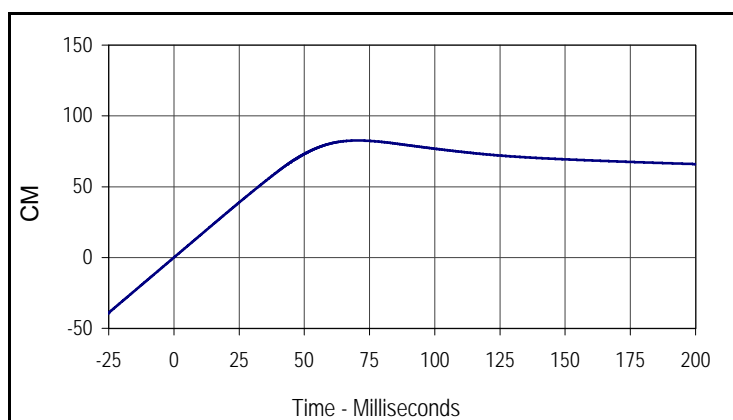
Curve Description			
Passenger Pelvis Resultant			
CURNO	Type	SAE Class	Units
064	RES	1000	G's
Max	Time	Min	Time
63.3	43.8	0.0	1.3

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



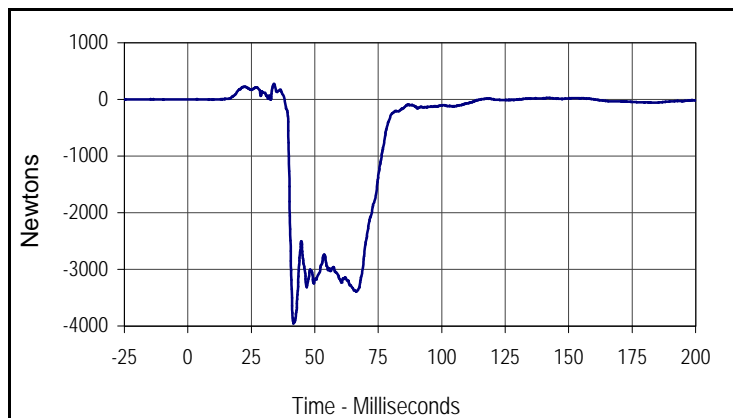
Curve Description			
Passenger Pelvis X Velocity			
CURNO	Type	SAE Class	Units
064	IN1	180	KMH
Max	Time	Min	Time
56.3	4.6	-11.3	98.9



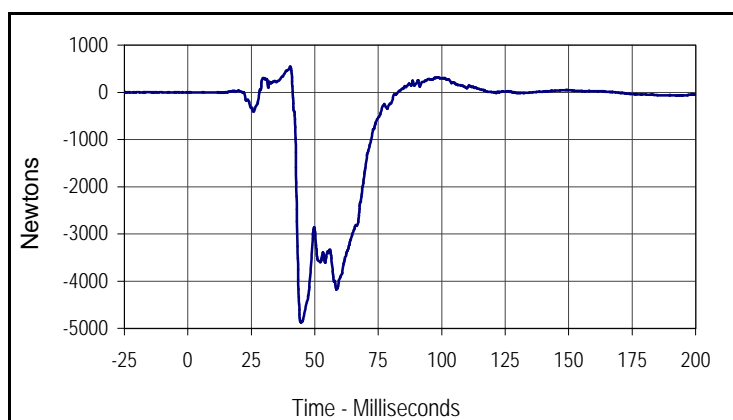
Curve Description			
Passenger Pelvis X Displacement			
CURNO	Type	SAE Class	Units
064	IN2	180	CM
Max	Time	Min	Time
82.6	70.5	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



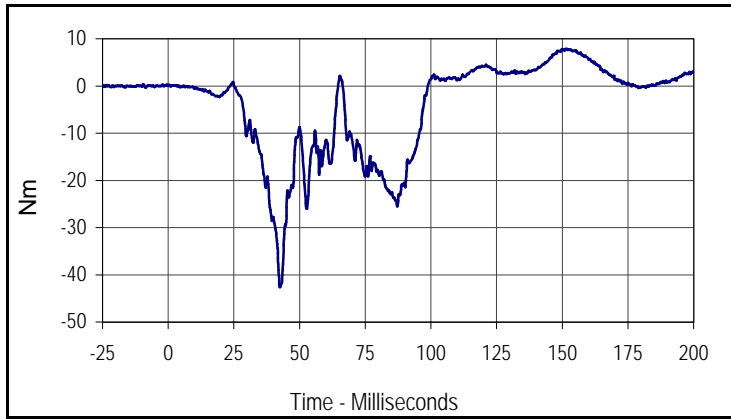
Curve Description			
Passenger Left Femur Force			
CURNO	Type	SAE Class	Units
067	FIL	600	Newtons
Max	Time	Min	Time
276.5	34.0	-3955.8	41.6



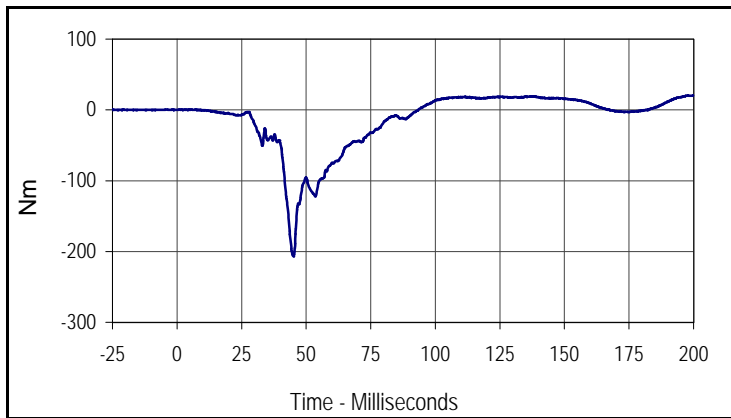
Curve Description			
Passenger Right Femur Force			
CURNO	Type	SAE Class	Units
068	FIL	600	Newtons
Max	Time	Min	Time
545.8	40.4	-4877.7	44.5

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

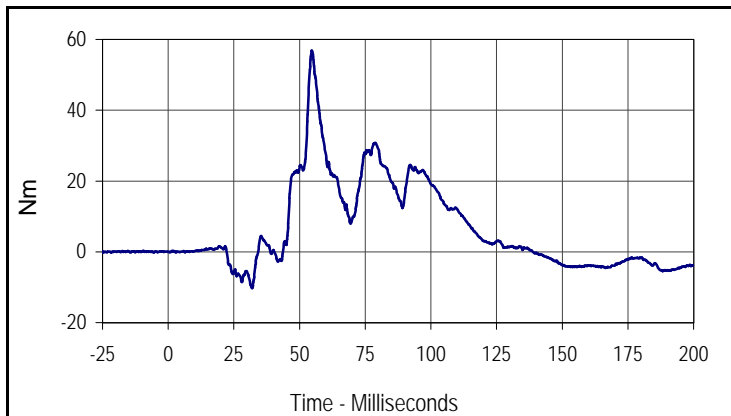
Test Date: 1/18/05
 NHTSA No.: M50207



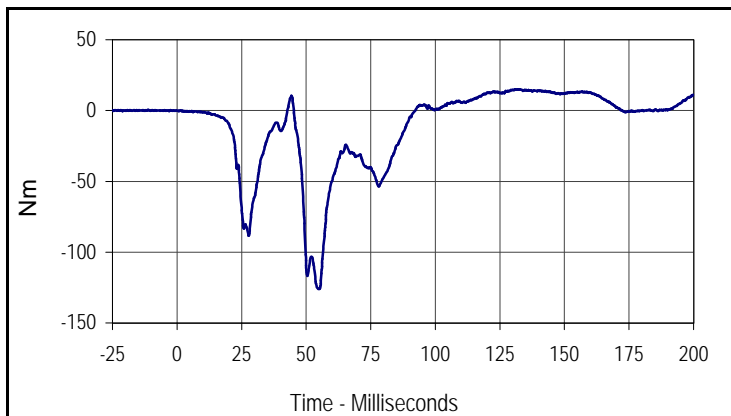
Curve Description			
Passenger Left Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
069	FIL	600	Nm
Max	Time	Min	Time
7.9	151.4	-42.6	42.5



Curve Description			
Passenger Left Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
070	FIL	600	Nm
Max	Time	Min	Time
20.3	197.9	-207.0	45.2



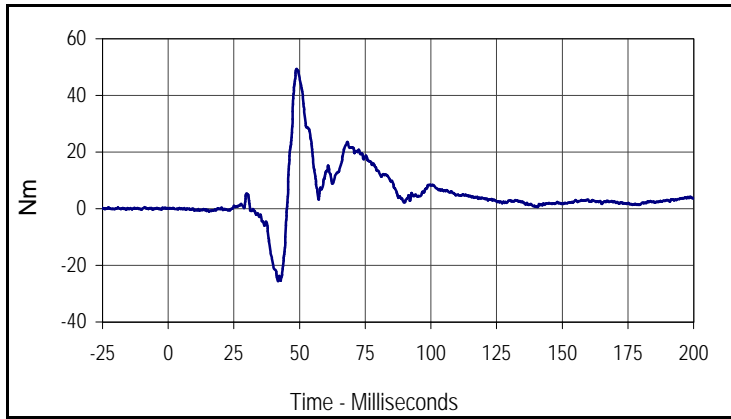
Curve Description			
Passenger Right Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
071	FIL	600	Nm
Max	Time	Min	Time
56.8	54.7	-10.2	31.9



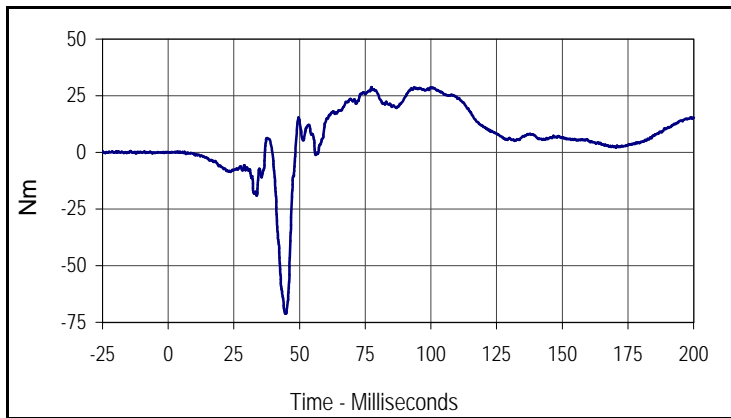
Curve Description			
Passenger Right Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
072	FIL	600	Nm
Max	Time	Min	Time
15.1	132.6	-126.1	54.9

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

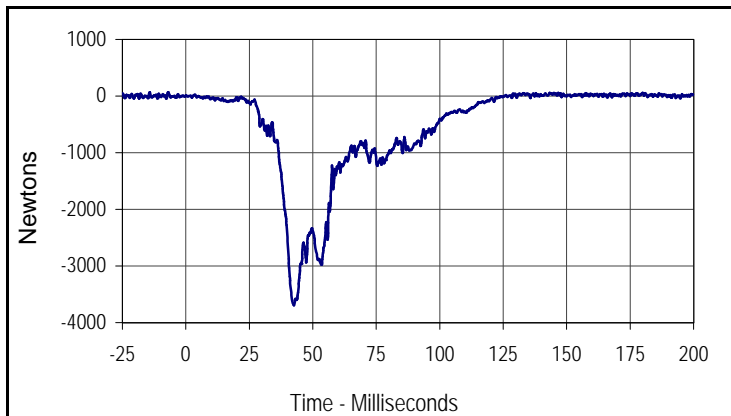
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Passenger Left Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
073	FIL	600	Nm
Max	Time	Min	Time
49.4	48.9	-25.5	41.8



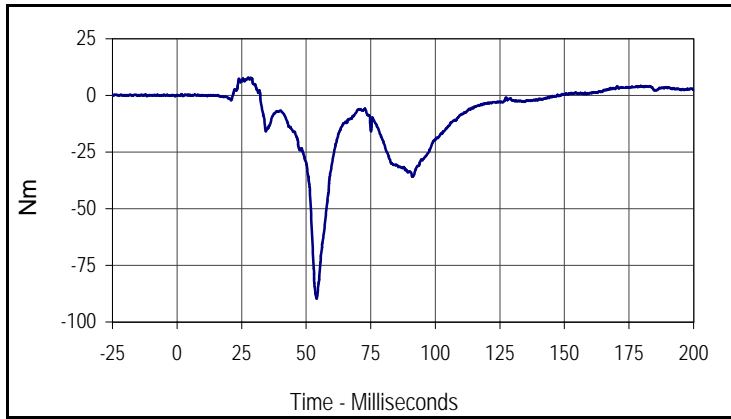
Curve Description			
Passenger Left Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
074	FIL	600	Nm
Max	Time	Min	Time
28.9	93.6	-71.2	44.5



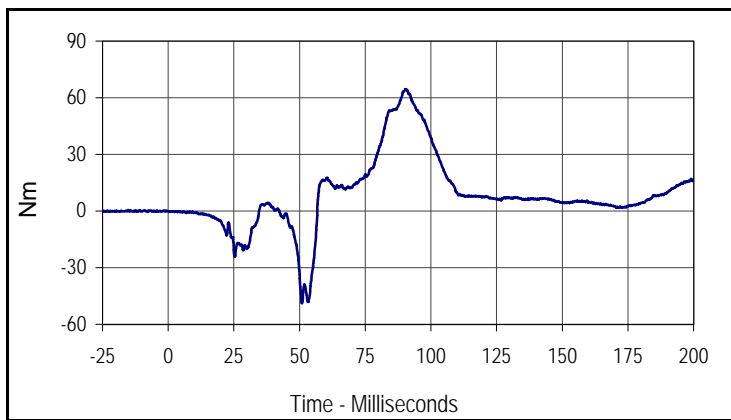
Curve Description			
Passenger Left Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
075	FIL	600	Newtons
Max	Time	Min	Time
58.2	144.9	-3693.9	42.6

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

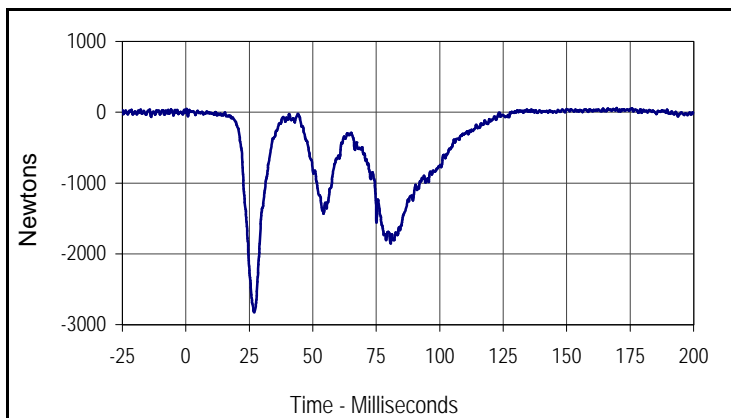
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Passenger Right Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
076	FIL	600	Nm
Max	Time	Min	Time
7.9	27.5	-89.7	54.1



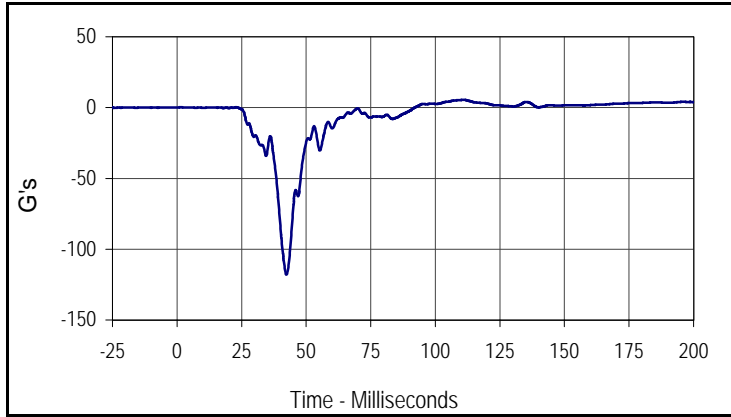
Curve Description			
Passenger Right Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
077	FIL	600	Nm
Max	Time	Min	Time
64.5	90.3	-48.7	50.9



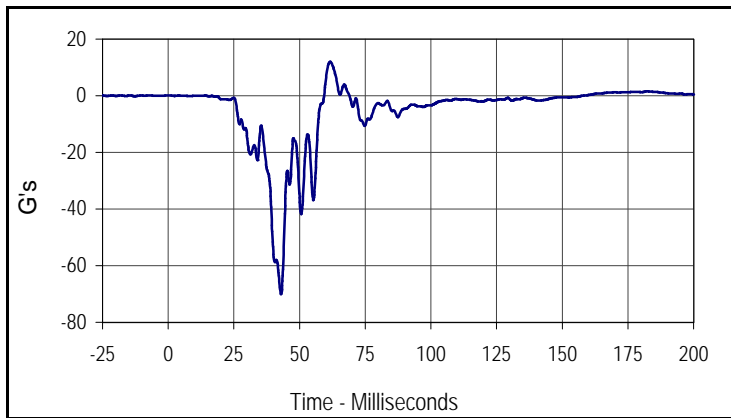
Curve Description			
Passenger Right lower Tibia Force Z			
CURNO	Type	SAE Class	Units
078	FIL	600	Newtons
Max	Time	Min	Time
58.2	169.7	-2827.3	26.9

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

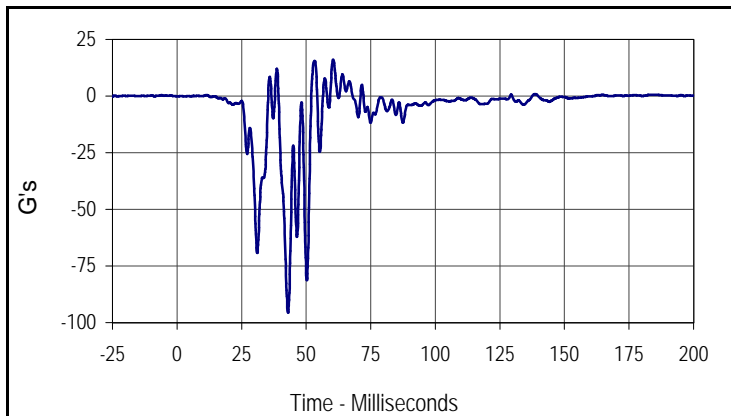
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Passenger Left Foot Aft X			
CURNO	Type	SAE Class	Units
079	FIL	180	G's
Max	Time	Min	Time
5.5	111.0	-117.9	42.4



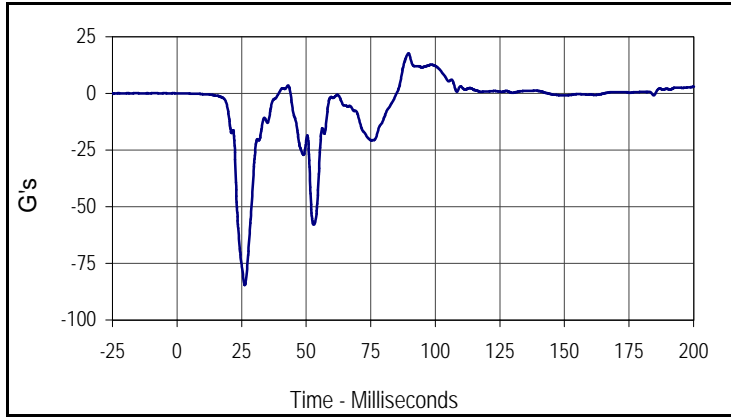
Curve Description			
Passenger Left Foot Aft Z			
CURNO	Type	SAE Class	Units
080	FIL	180	G's
Max	Time	Min	Time
11.9	61.7	-70.0	43.0



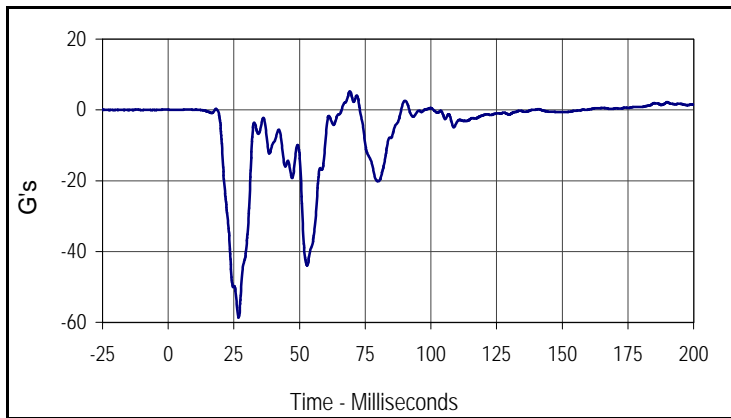
Curve Description			
Passenger Left Foot Fore Z			
CURNO	Type	SAE Class	Units
081	FIL	180	G's
Max	Time	Min	Time
16.1	60.4	-95.6	43.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

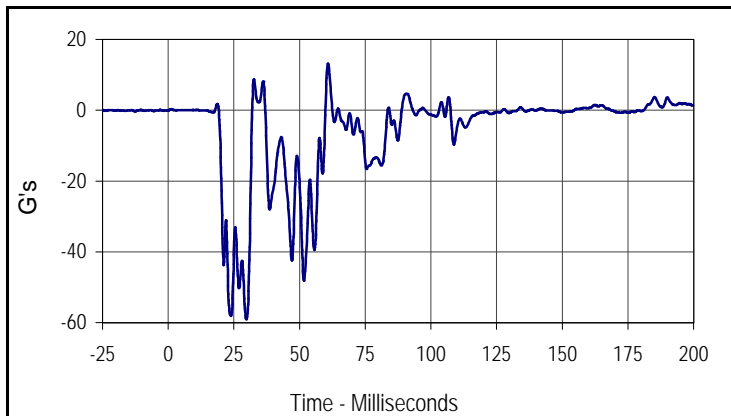
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Passenger Right Foot Aft X			
CURNO	Type	SAE Class	Units
082	FIL	180	G's
Max	Time	Min	Time
17.6	89.6	-84.6	26.2



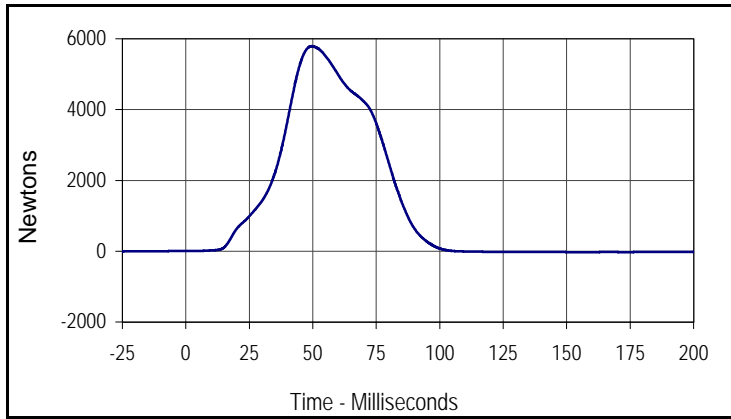
Curve Description			
Passenger Right Foot Aft Z			
CURNO	Type	SAE Class	Units
083	FIL	180	G's
Max	Time	Min	Time
5.3	69.2	-58.6	26.8



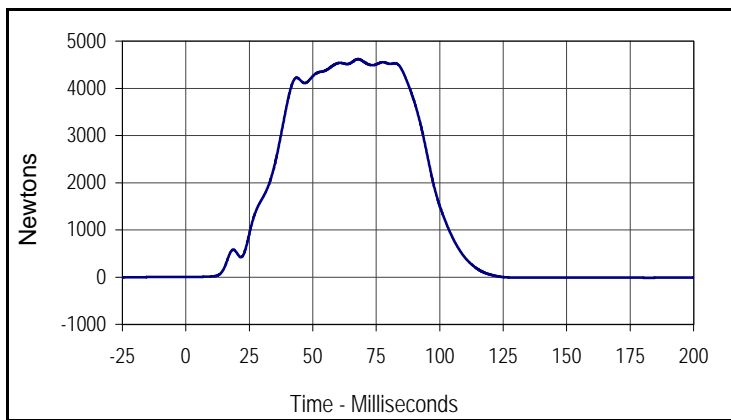
Curve Description			
Passenger Right Foot Fore Z			
CURNO	Type	SAE Class	Units
084	FIL	180	G's
Max	Time	Min	Time
13.2	60.8	-59.1	29.8

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

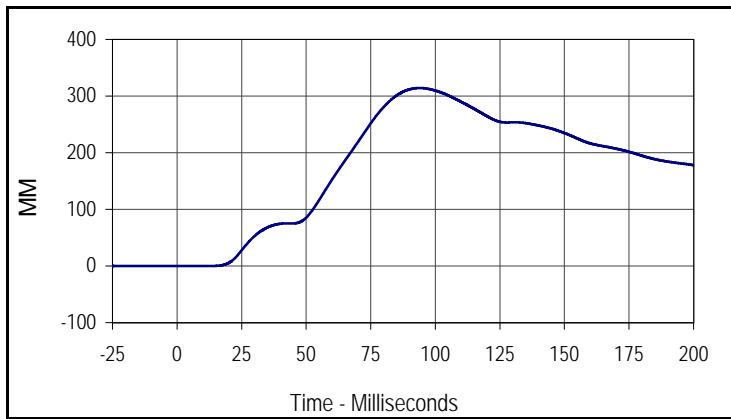
Test Date: 1/18/05
 NHTSA No.: M50207



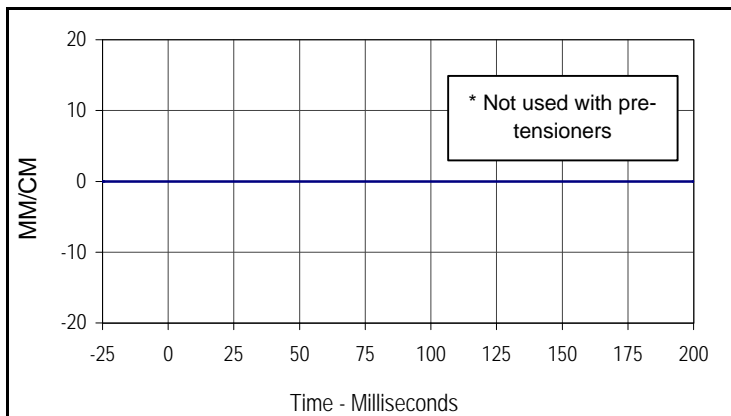
Curve Description			
Passenger Lap Belt Force			
CURNO	Type	SAE Class	Units
085	FIL	60	Newtons
Max	Time	Min	Time
5788.3	49.6	-26.2	160.5



Curve Description			
Passenger Shoulder Belt Force			
CURNO	Type	SAE Class	Units
086	FIL	60	Newtons
Max	Time	Min	Time
4617.7	67.8	-14.8	182.4



Curve Description			
Passenger Shoulder Belt Pullout			
CURNO	Type	SAE Class	Units
087	FIL	60	MM
Max	Time	Min	Time
314.1	94.4	0.0	8.3

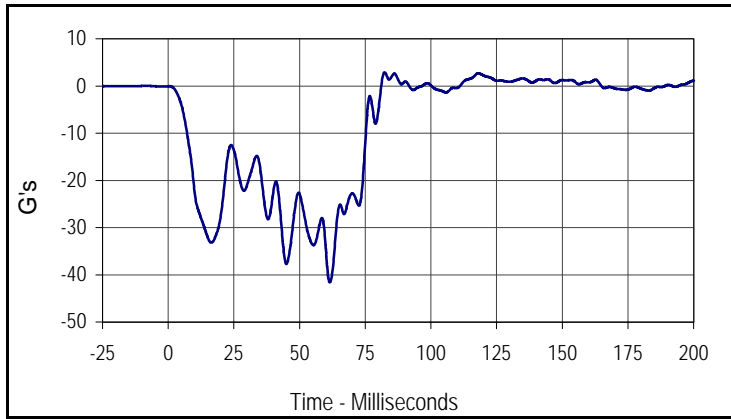


Curve Description			
Passenger Shoulder Belt Elongation			
CURNO	Type	SAE Class	Units
088	FIL	60	MM/CM
Max	Time	Min	Time
0.0	0.0	0.0	0.0

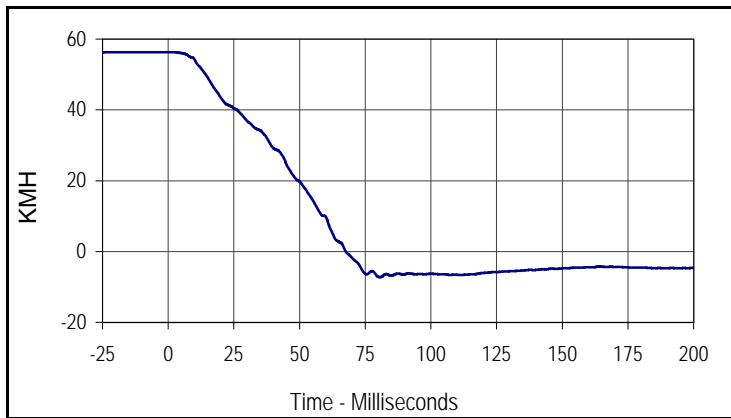
* Not used with pre-tensioners

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

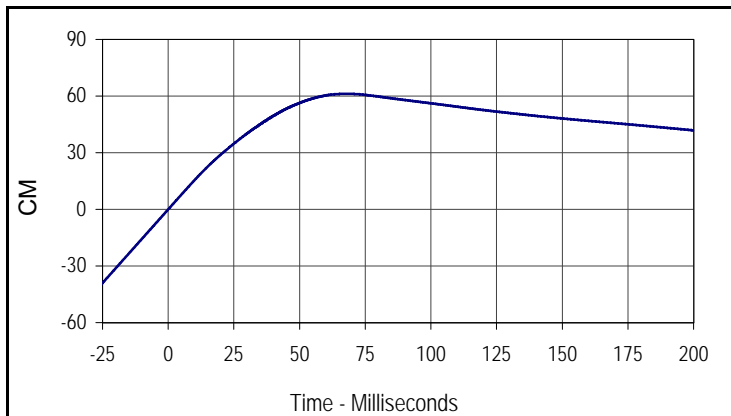
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Vehicle Left Rear X			
CURNO	Type	SAE Class	Units
089	FIL	60	G's
Max	Time	Min	Time
2.9	82.4	-41.6	61.5



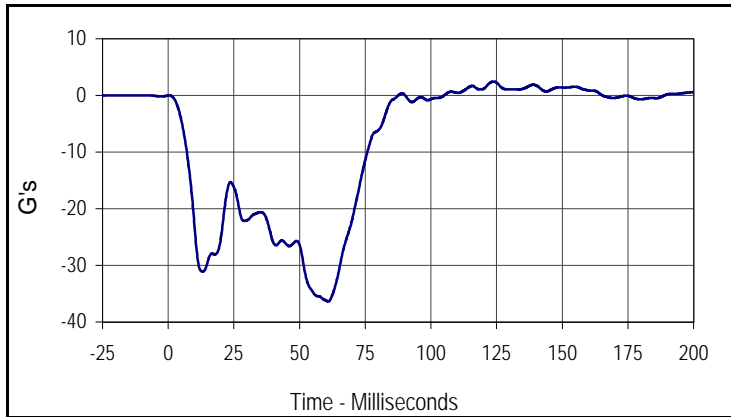
Curve Description			
Vehicle Left Rear X Velocity			
CURNO	Type	SAE Class	Units
089	IN1	180	KMH
Max	Time	Min	Time
56.3	0.0	-7.2	80.7



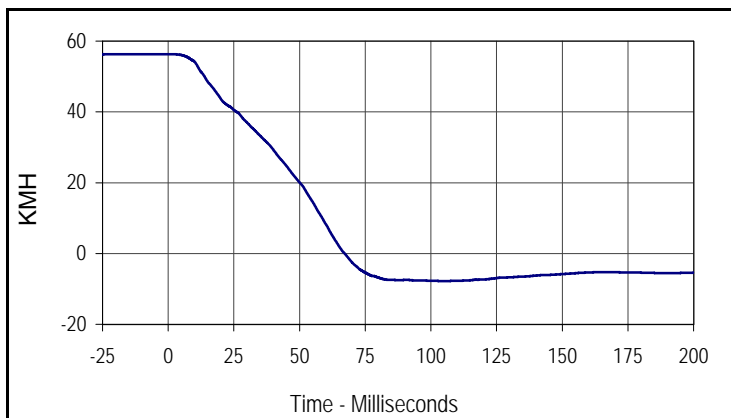
Curve Description			
Vehicle Left Rear X Displacement			
CURNO	Type	SAE Class	Units
089	IN2	180	CM
Max	Time	Min	Time
61.2	67.6	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

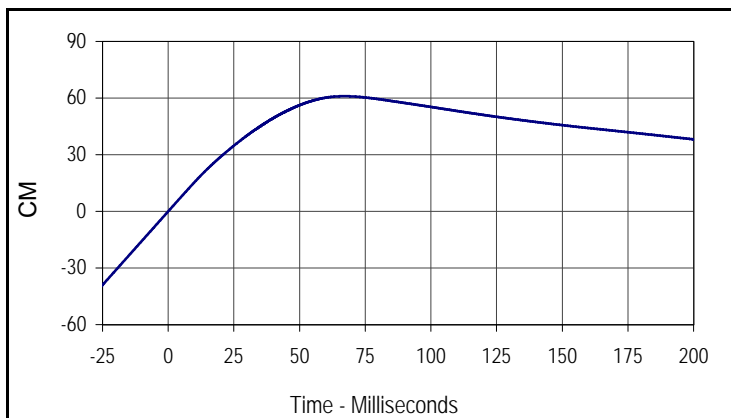
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Vehicle Right Rear X			
CURNO	Type	SAE Class	Units
090	FIL	60	G's
Max	Time	Min	Time
2.5	123.8	-36.4	60.9



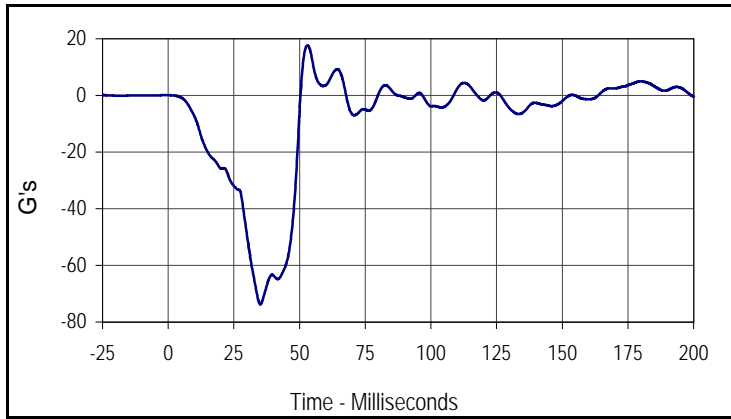
Curve Description			
Vehicle Right Rear X Velocity			
CURNO	Type	SAE Class	Units
090	IN1	180	KMH
Max	Time	Min	Time
56.3	1.5	-7.8	105.7



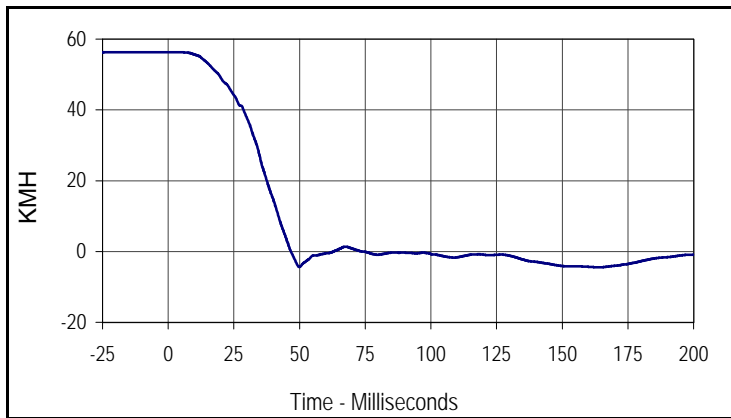
Curve Description			
Vehicle Right Rear X Displacement			
CURNO	Type	SAE Class	Units
090	IN2	180	CM
Max	Time	Min	Time
61.0	67.1	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

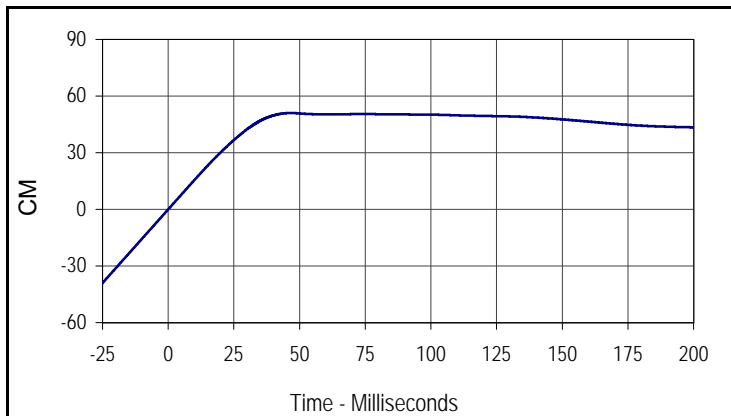
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Vehicle Engine Top X			
CURNO	Type	SAE Class	Units
091	FIL	60	G's
Max	Time	Min	Time
17.7	52.9	-73.8	35.0



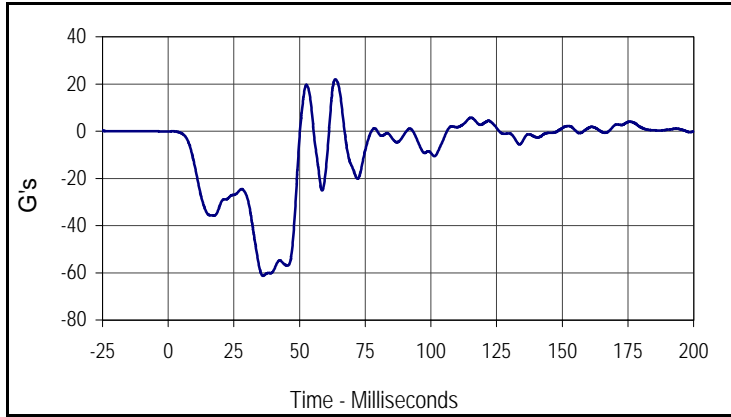
Curve Description			
Vehicle Engine Top X Velocity			
CURNO	Type	SAE Class	Units
091	IN1	180	KMH
Max	Time	Min	Time
56.3	2.3	-4.5	164.1



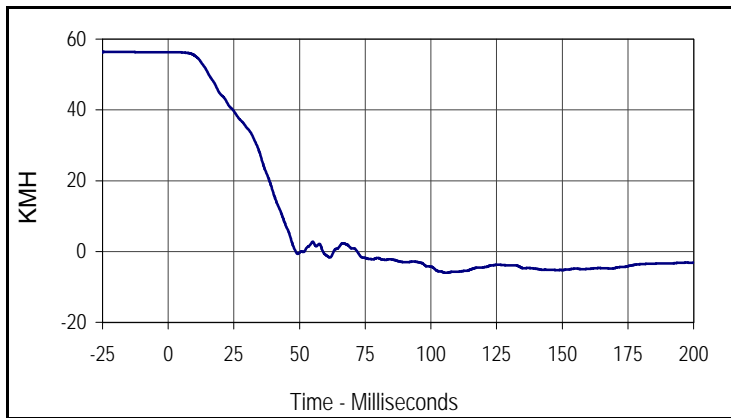
Curve Description			
Vehicle Engine Top X Displacement			
CURNO	Type	SAE Class	Units
091	IN2	180	CM
Max	Time	Min	Time
51.0	46.7	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

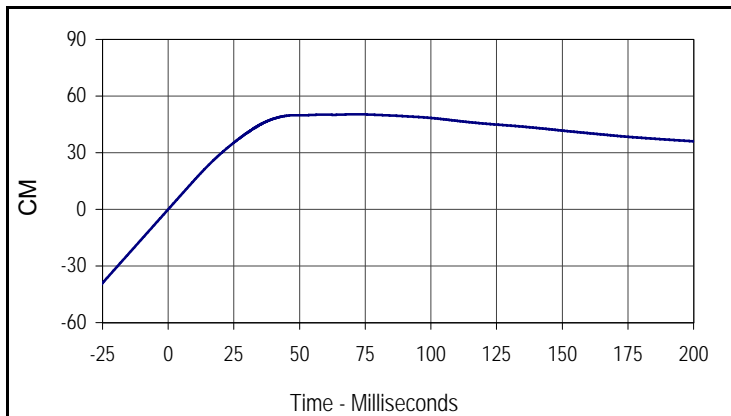
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Vehicle Engine Bottom X			
CURNO	Type	SAE Class	Units
092	FIL	60	G's
Max	Time	Min	Time
22.0	63.6	-61.3	36.1



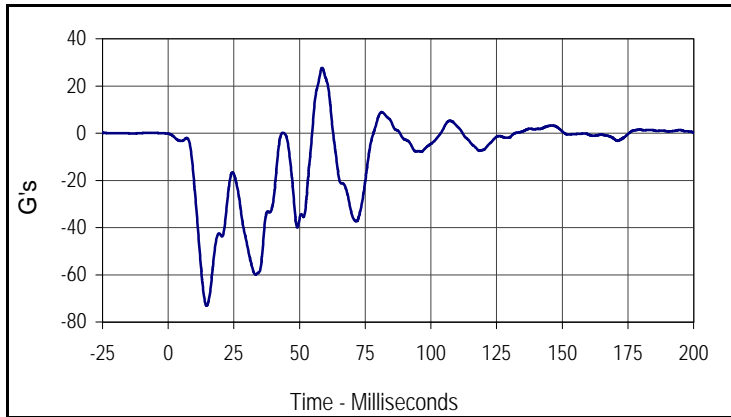
Curve Description			
Vehicle Engine Bottom X Velocity			
CURNO	Type	SAE Class	Units
092	IN1	180	KMH
Max	Time	Min	Time
56.3	0.0	-6.0	105.8



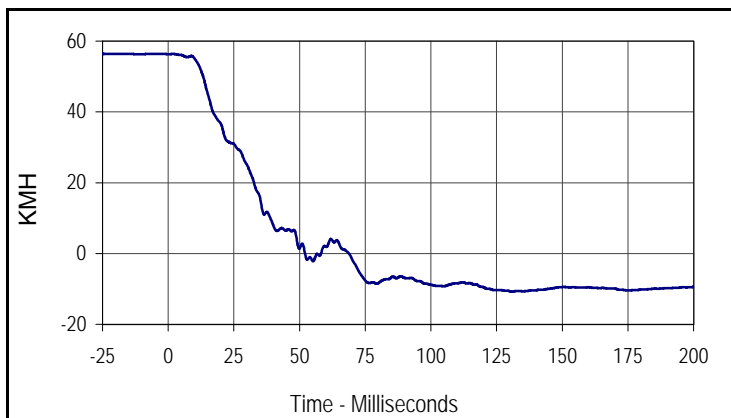
Curve Description			
Vehicle Engine Bottom X Displacement			
CURNO	Type	SAE Class	Units
092	IN2	180	CM
Max	Time	Min	Time
50.4	71.9	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

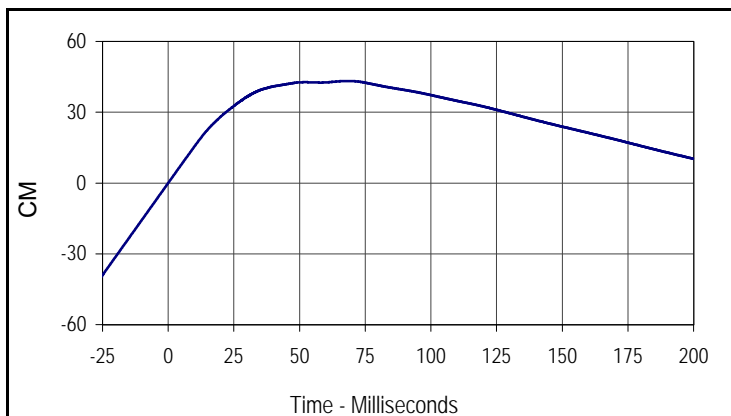
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Vehicle Left Brake Caliper X			
CURNO	Type	SAE Class	Units
093	FIL	60	G's
Max	Time	Min	Time
27.7	58.6	-73.0	14.6



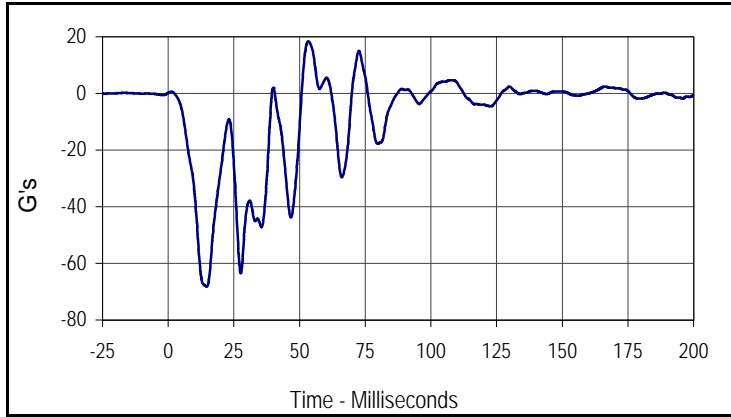
Curve Description			
Vehicle Left Brake Caliper X Velocity			
CURNO	Type	SAE Class	Units
093	IN1	180	KMH
Max	Time	Min	Time
56.3	2.0	-10.8	130.9



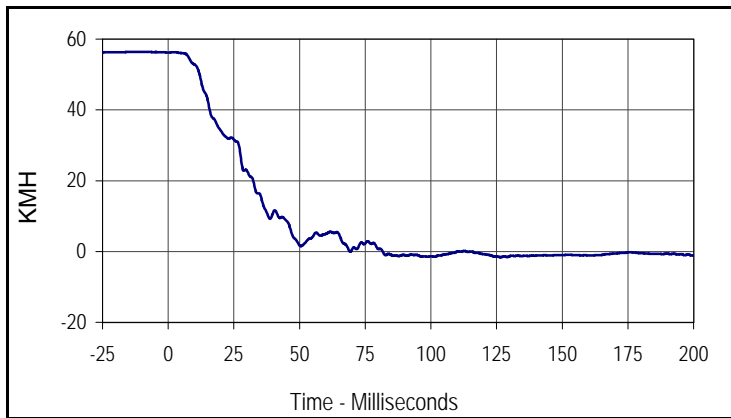
Curve Description			
Vehicle Left Brake Caliper X Displacement			
CURNO	Type	SAE Class	Units
093	IN2	180	CM
Max	Time	Min	Time
43.2	68.8	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

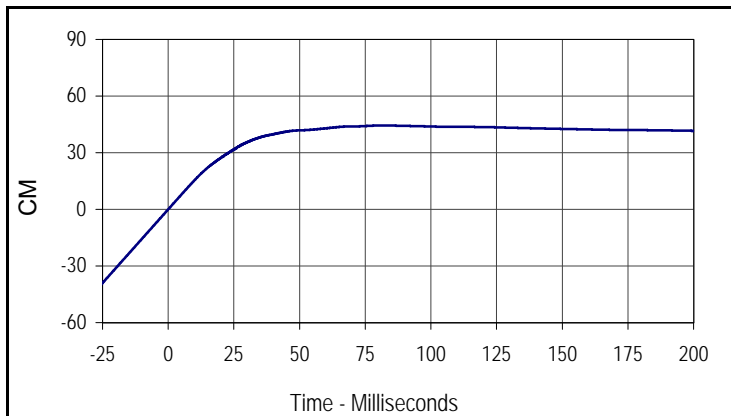
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Vehicle Right Brake Caliper X			
CURNO	Type	SAE Class	Units
094	FIL	60	G's
Max	Time	Min	Time
18.5	53.3	-68.2	14.7



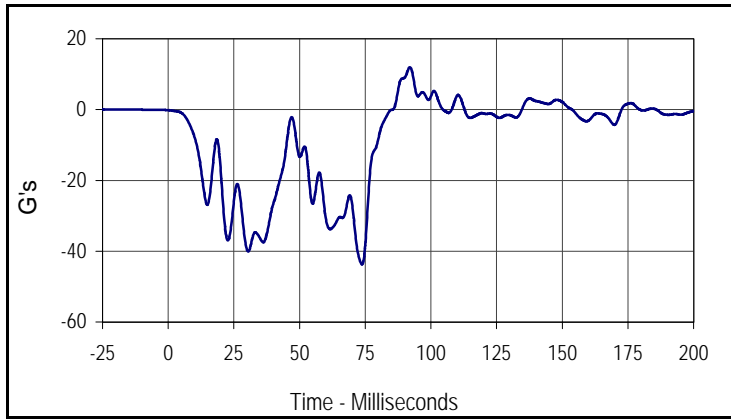
Curve Description			
Vehicle Right Brake Caliper X Velocity			
CURNO	Type	SAE Class	Units
094	IN1	180	KMH
Max	Time	Min	Time
56.3	2.3	-1.6	126.5



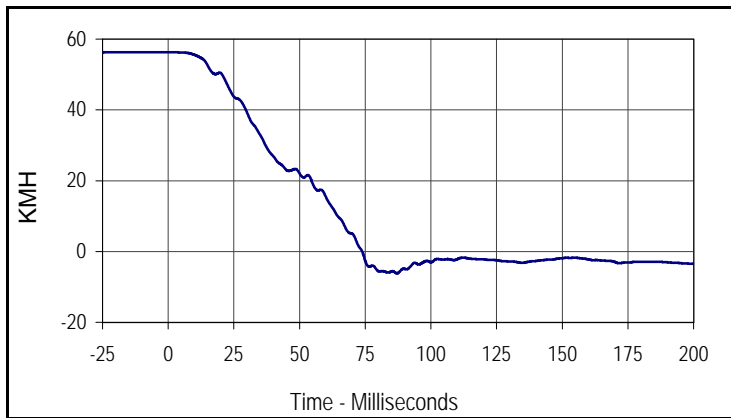
Curve Description			
Vehicle Right Brake Caliper X Displacement			
CURNO	Type	SAE Class	Units
094	IN2	180	CM
Max	Time	Min	Time
44.4	81.6	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

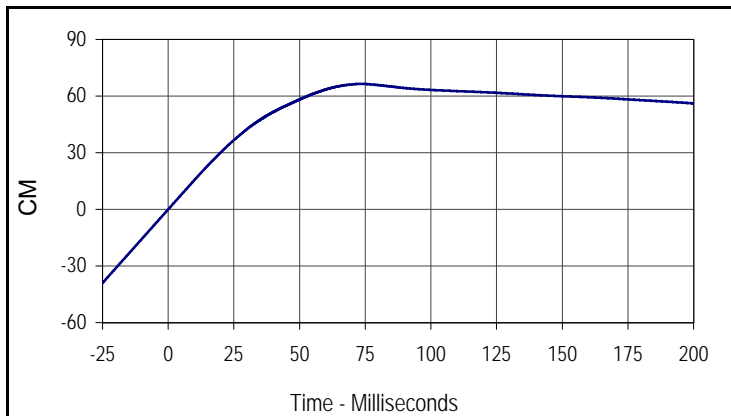
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Vehicle Instrument Panel X			
CURNO	Type	SAE Class	Units
095	FIL	60	G's
Max	Time	Min	Time
12.0	92.0	-43.7	73.8



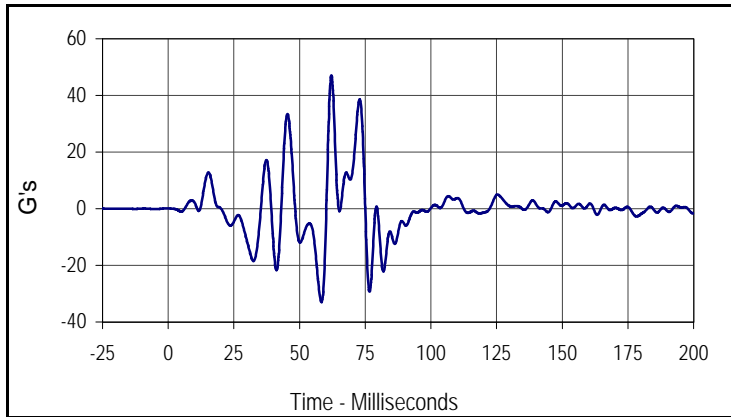
Curve Description			
Vehicle Instrument Panel X Velocity			
CURNO	Type	SAE Class	Units
095	IN1	180	KMH
Max	Time	Min	Time
56.3	0.0	-6.2	87.1



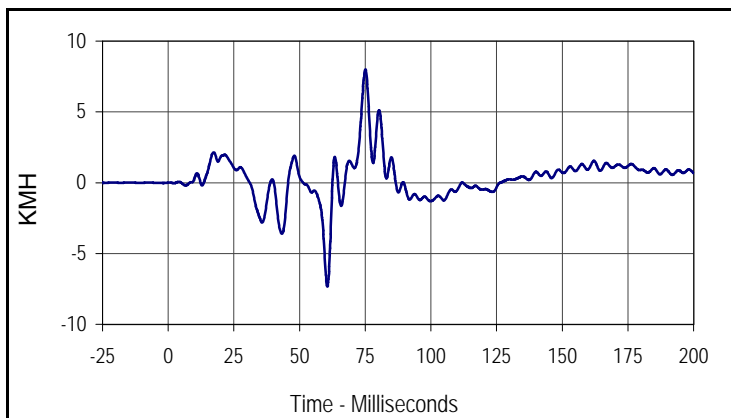
Curve Description			
Vehicle Instrument Panel X Displacement			
CURNO	Type	SAE Class	Units
095	IN2	180	CM
Max	Time	Min	Time
66.4	73.8	0.0	0.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

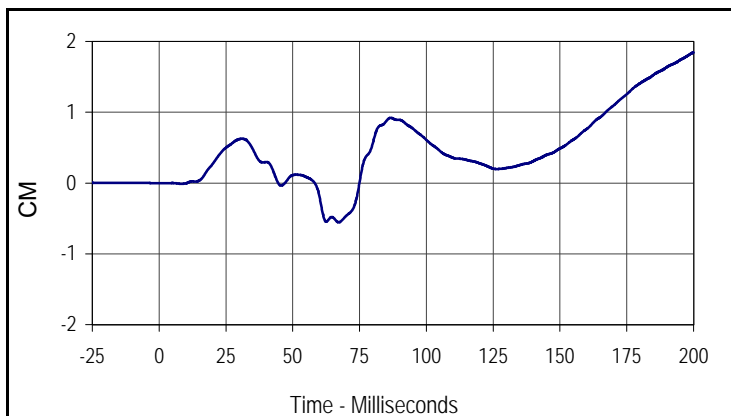
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Vehicle Left Rear Z			
CURNO	Type	SAE Class	Units
096	FIL	60	G's
Max	Time	Min	Time
47.0	62.1	-33.0	58.3



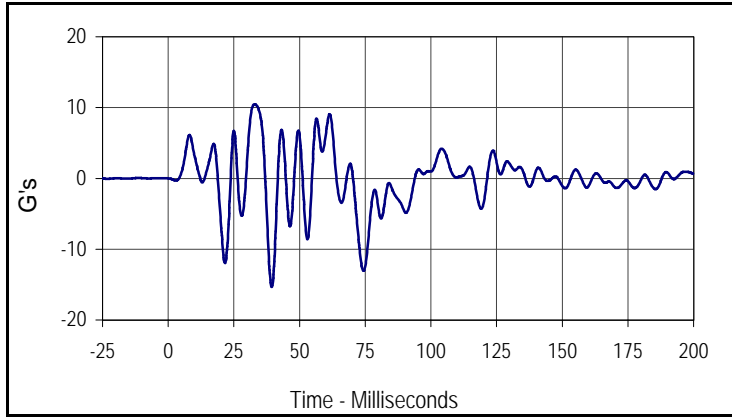
Curve Description			
Vehicle Left Rear Z Velocity			
CURNO	Type	SAE Class	Units
096	IN1	180	KMH
Max	Time	Min	Time
8.0	75.1	-7.3	60.6



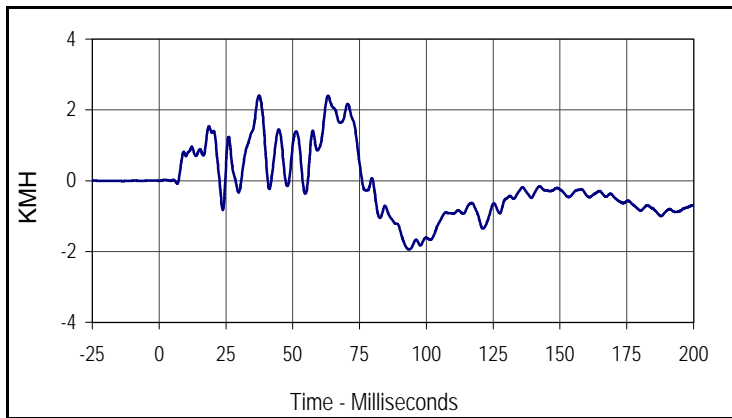
Curve Description			
Vehicle Left Rear Z Displacement			
CURNO	Type	SAE Class	Units
096	IN2	180	CM
Max	Time	Min	Time
1.8	200.0	-0.6	67.2

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

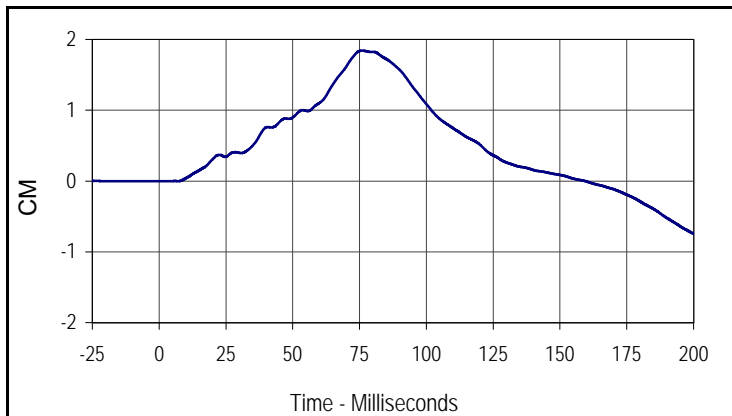
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Vehicle Right Rear Z			
CURNO	Type	SAE Class	Units
097	FIL	60	G's
Max	Time	Min	Time
10.5	32.8	-15.4	39.4



Curve Description			
Vehicle Right Rear Z Velocity			
CURNO	Type	SAE Class	Units
097	IN1	180	KMH
Max	Time	Min	Time
2.4	63.2	-1.9	93.6



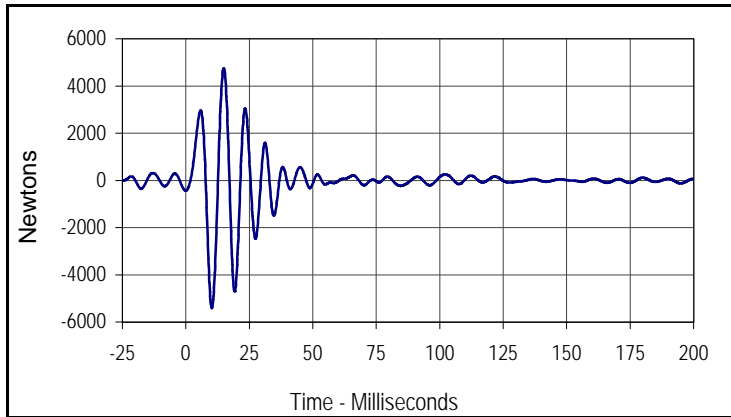
Curve Description			
Vehicle Right Rear Z Displacement			
CURNO	Type	SAE Class	Units
097	IN2	180	CM
Max	Time	Min	Time
1.8	75.9	-0.7	200.0

APPENDIX C

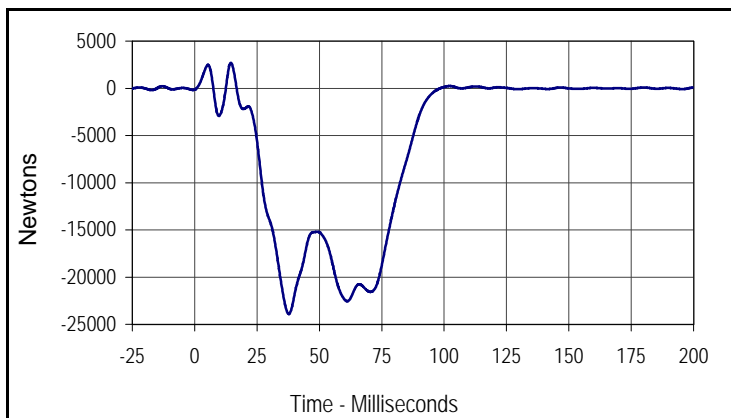
LOAD CELL BARRIER DATA PLOTS

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

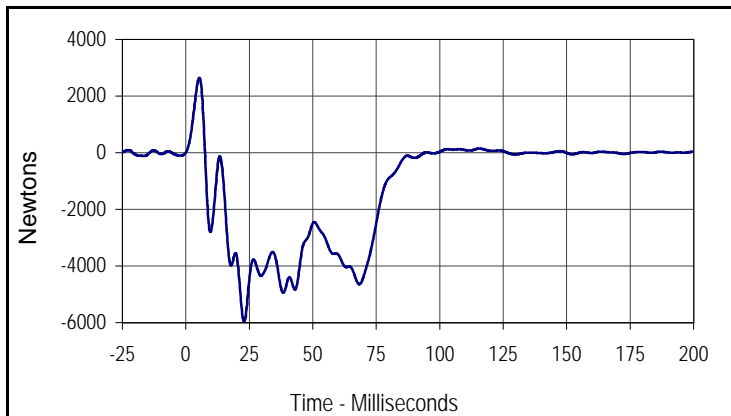
Test Date: 1/18/05
 NHTSA No.: M50207



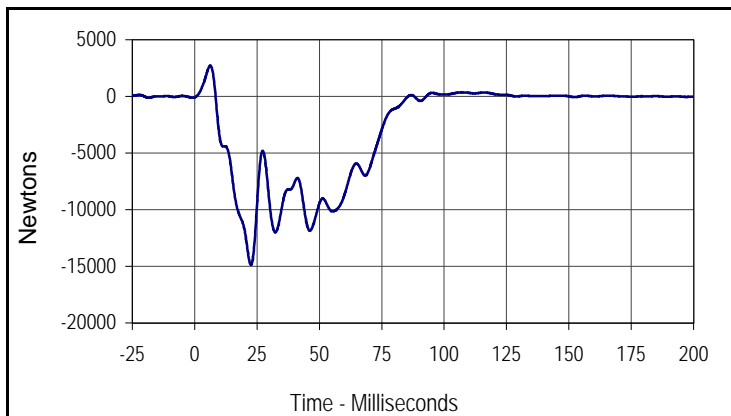
Curve Description			
Barrier Force A1			
CURNO	Type	SAE Class	Units
098	FIL	60	Newtons
Max	Time	Min	Time
4758.0	14.9	-5417.1	10.3



Curve Description			
Barrier Force B1			
CURNO	Type	SAE Class	Units
107	FIL	60	Newtons
Max	Time	Min	Time
2695.6	14.5	-23905.0	37.7



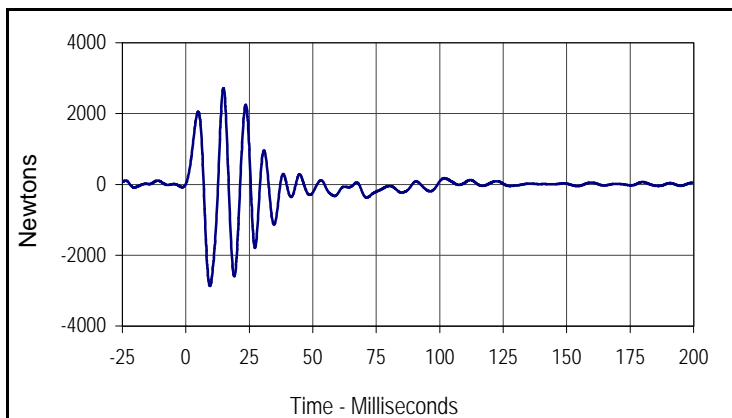
Curve Description			
Barrier Force C1			
CURNO	Type	SAE Class	Units
116	FIL	60	Newtons
Max	Time	Min	Time
2646.1	5.3	-5968.7	22.9



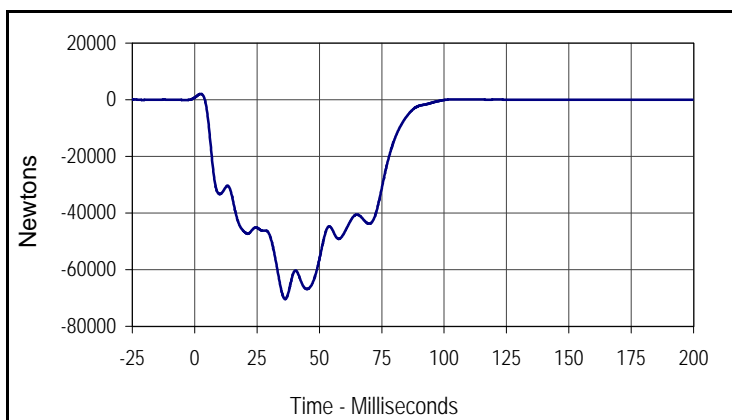
Curve Description			
Barrier Force D1			
CURNO	Type	SAE Class	Units
125	FIL	60	Newtons
Max	Time	Min	Time
2706.3	6.3	-14871.1	22.6

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

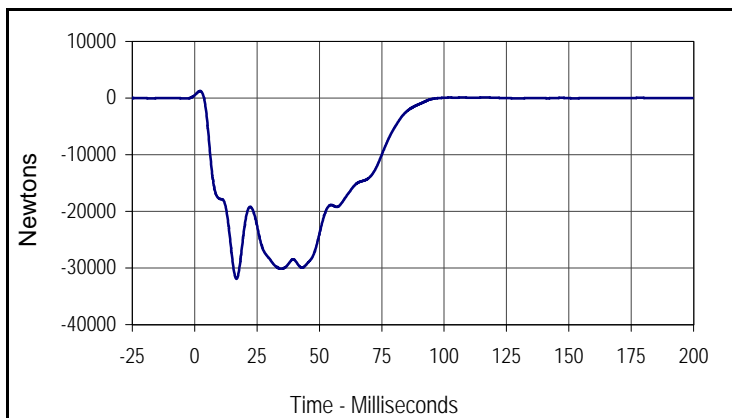
Test Date: 1/18/05
 NHTSA No.: M50207



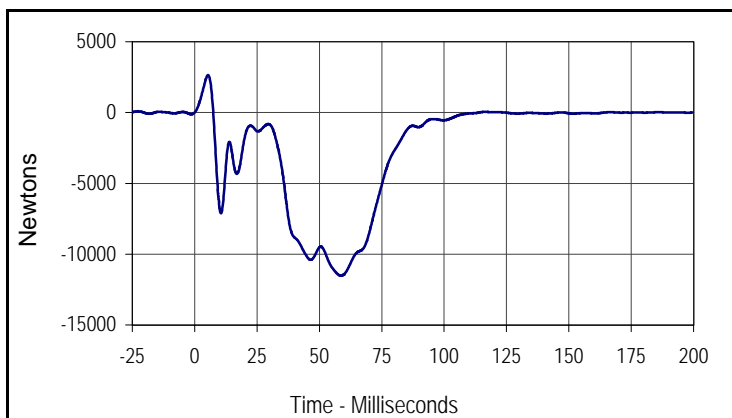
Curve Description			
Barrier Force A2			
CURNO	Type	SAE Class	Units
099	FIL	60	Newtons
Max	Time	Min	Time
2720.0	14.8	-2866.0	9.5



Curve Description			
Barrier Force B2			
CURNO	Type	SAE Class	Units
108	FIL	60	Newtons
Max	Time	Min	Time
2087.3	2.5	-70397.2	36.3



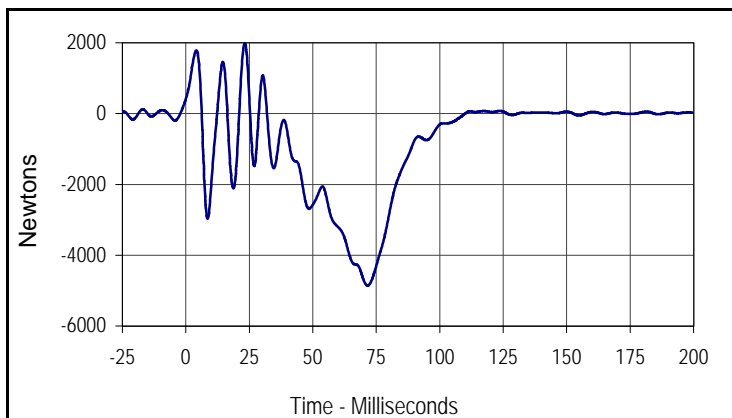
Curve Description			
Barrier Force C2			
CURNO	Type	SAE Class	Units
117	FIL	60	Newtons
Max	Time	Min	Time
1232.7	2.2	-31909.4	16.7



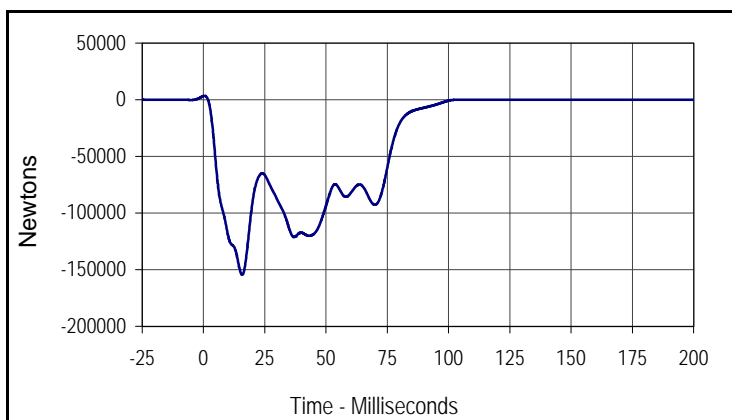
Curve Description			
Barrier Force D2			
CURNO	Type	SAE Class	Units
126	FIL	60	Newtons
Max	Time	Min	Time
2640.3	5.4	-11519.7	58.7

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

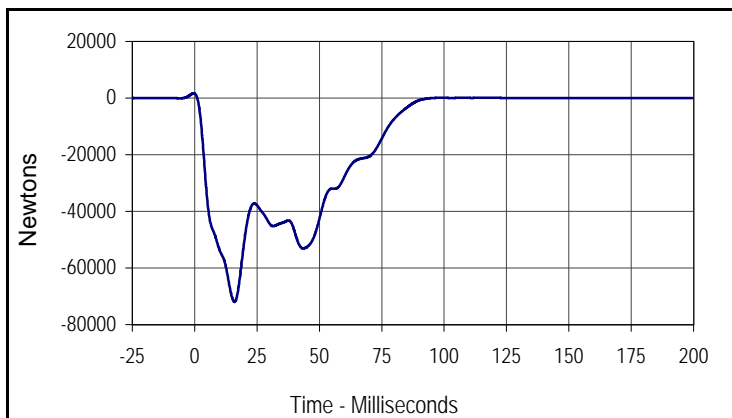
Test Date: 1/18/05
 NHTSA No.: M50207



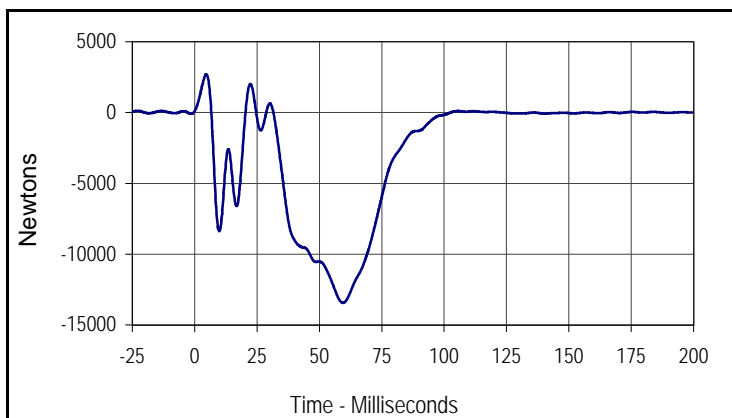
Curve Description			
Barrier Force A3			
CURNO	Type	SAE Class	Units
100	FIL	60	Newtons
Max	Time	Min	Time
1987.2	23.2	-4858.0	71.6



Curve Description			
Barrier Force B3			
CURNO	Type	SAE Class	Units
109	FIL	60	Newtons
Max	Time	Min	Time
3462.6	0.4	-154625.4	15.8



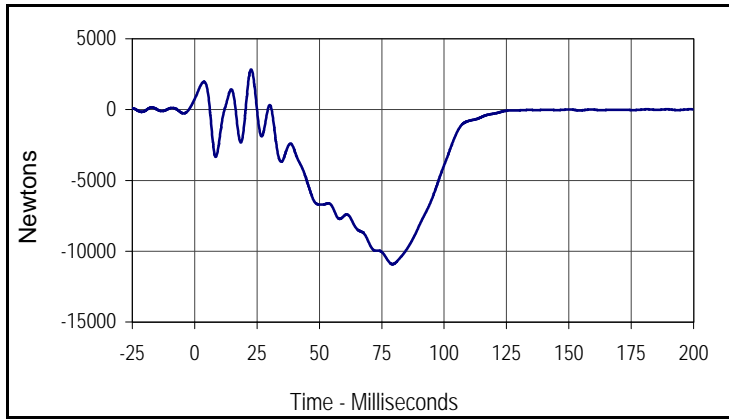
Curve Description			
Barrier Force C3			
CURNO	Type	SAE Class	Units
118	FIL	60	Newtons
Max	Time	Min	Time
1624.4	0.0	-71940.7	15.9



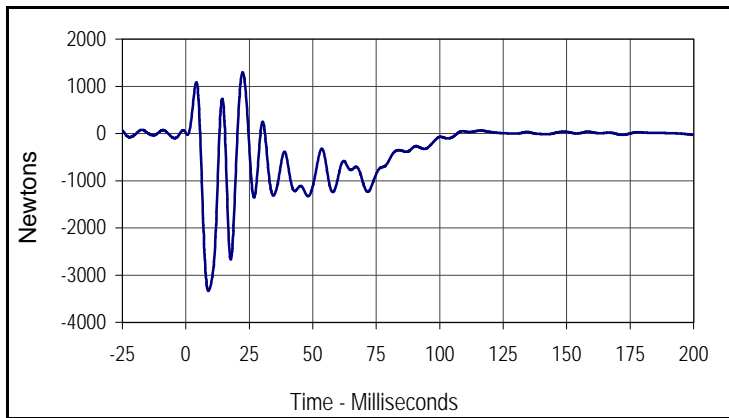
Curve Description			
Barrier Force D3			
CURNO	Type	SAE Class	Units
127	FIL	60	Newtons
Max	Time	Min	Time
2705.9	4.6	-13438.3	59.5

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

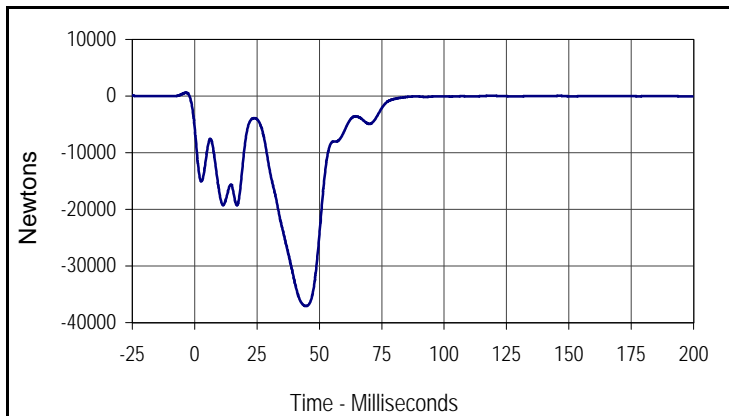
Test Date: 1/18/05
 NHTSA No.: M50207



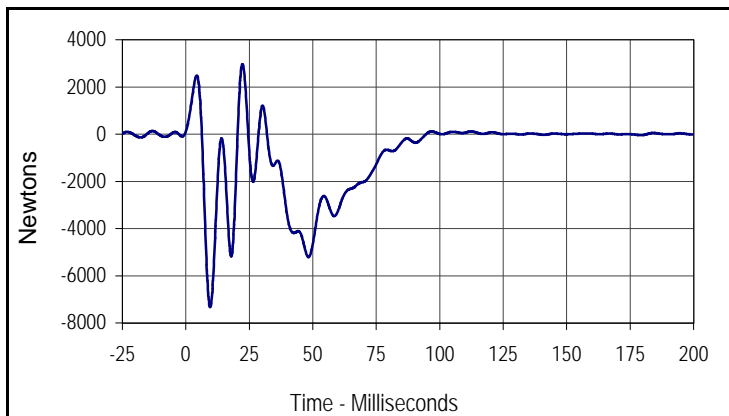
Curve Description			
Barrier Force A4			
CURNO	Type	SAE Class	Units
101	FIL	60	Newtons
Max	Time	Min	Time
2835.7	22.6	-10922.7	79.3



Curve Description			
Barrier Force B4			
CURNO	Type	SAE Class	Units
110	FIL	60	Newtons
Max	Time	Min	Time
1292.5	22.4	-3334.9	8.9



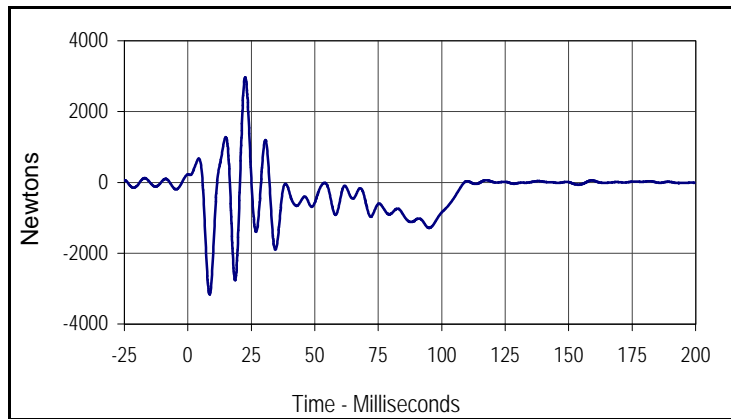
Curve Description			
Barrier Force C4			
CURNO	Type	SAE Class	Units
119	FIL	60	Newtons
Max	Time	Min	Time
39.6	118.6	-37070.2	44.6



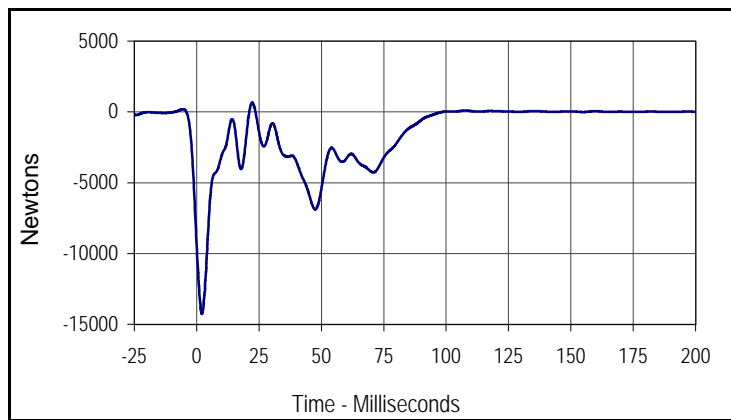
Curve Description			
Barrier Force D4			
CURNO	Type	SAE Class	Units
128	FIL	60	Newtons
Max	Time	Min	Time
2960.0	22.3	-7339.6	9.6

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

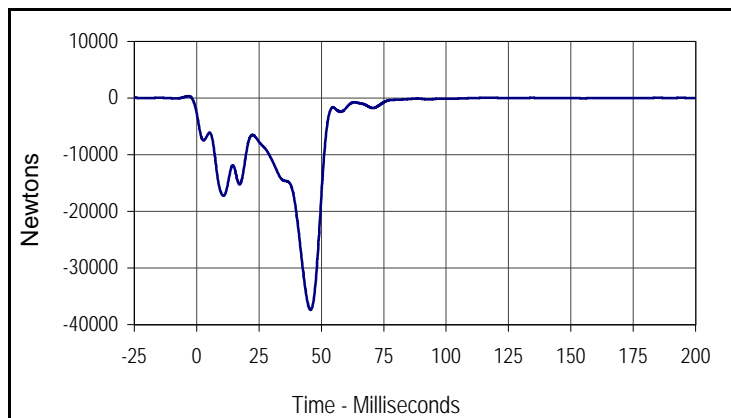
Test Date: 1/18/05
 NHTSA No.: M50207



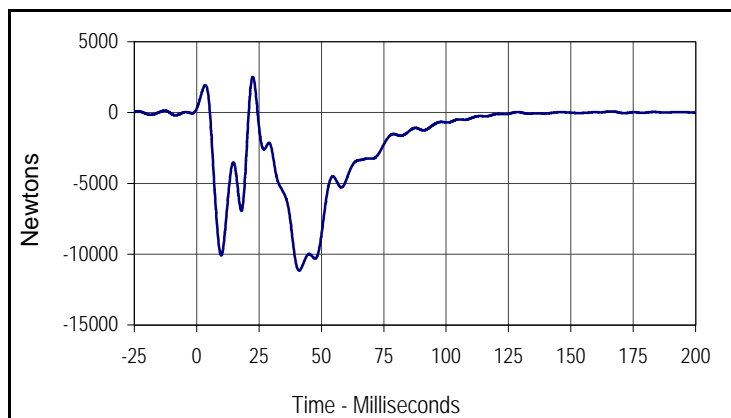
Curve Description			
Barrier Force A5			
CURNO	Type	SAE Class	Units
102	FIL	60	Newtons
Max	Time	Min	Time
2966.1	22.6	-3166.3	8.6



Curve Description			
Barrier Force B5			
CURNO	Type	SAE Class	Units
111	FIL	60	Newtons
Max	Time	Min	Time
650.2	22.3	-14271.3	2.1



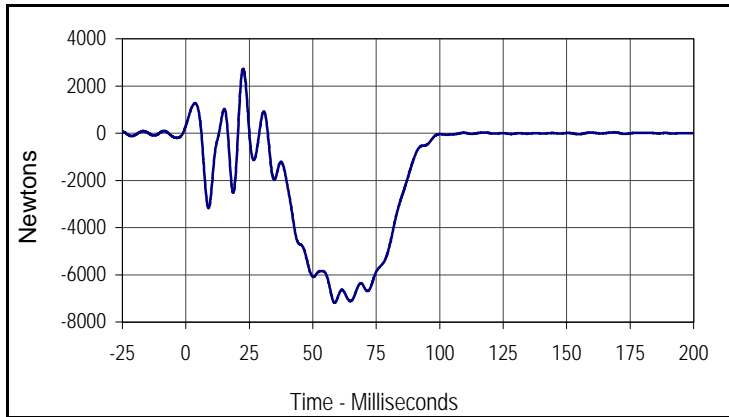
Curve Description			
Barrier Force C5			
CURNO	Type	SAE Class	Units
120	FIL	60	Newtons
Max	Time	Min	Time
54.9	117.4	-37404.2	45.7



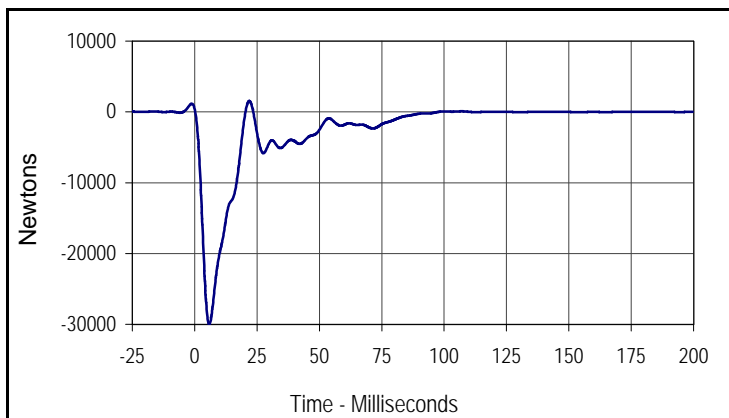
Curve Description			
Barrier Force D5			
CURNO	Type	SAE Class	Units
129	FIL	60	Newtons
Max	Time	Min	Time
2524.0	22.5	-11157.1	41.1

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

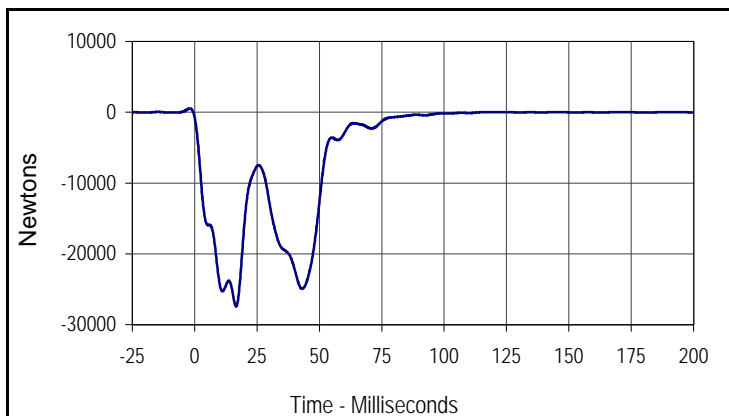
Test Date: 1/18/05
 NHTSA No.: M50207



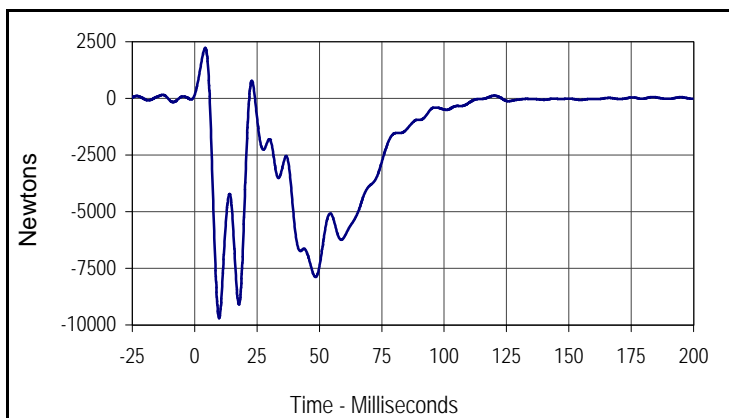
Curve Description			
Barrier Force A6			
CURNO	Type	SAE Class	Units
103	FIL	60	Newtons
Max	Time	Min	Time
2730.3	22.6	-7187.2	58.6



Curve Description			
Barrier Force B6			
CURNO	Type	SAE Class	Units
112	FIL	60	Newtons
Max	Time	Min	Time
1547.2	21.9	-29994.3	5.8



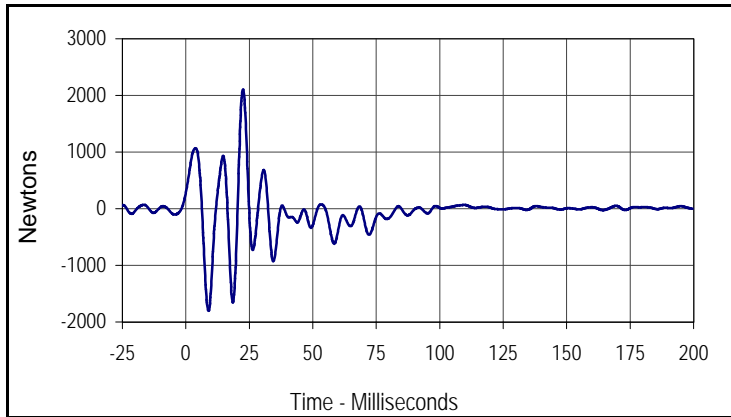
Curve Description			
Barrier Force C6			
CURNO	Type	SAE Class	Units
121	FIL	60	Newtons
Max	Time	Min	Time
27.2	172.9	-27401.7	16.6



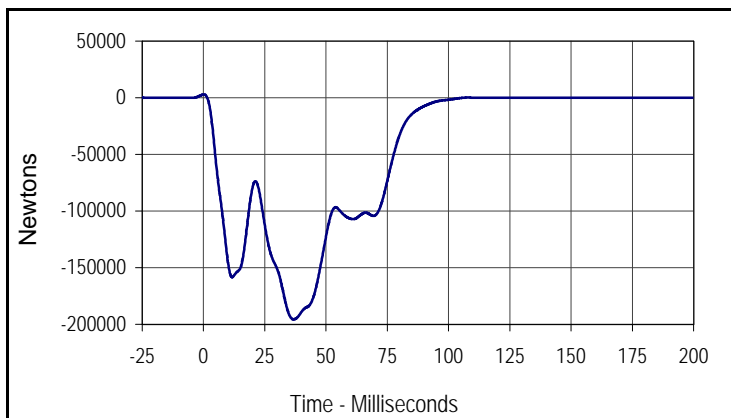
Curve Description			
Barrier Force D6			
CURNO	Type	SAE Class	Units
130	FIL	60	Newtons
Max	Time	Min	Time
2227.7	4.2	-9698.7	9.8

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

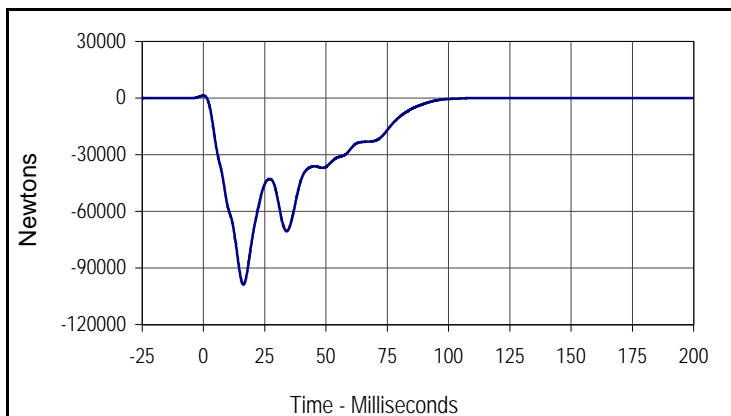
Test Date: 1/18/05
 NHTSA No.: M50207



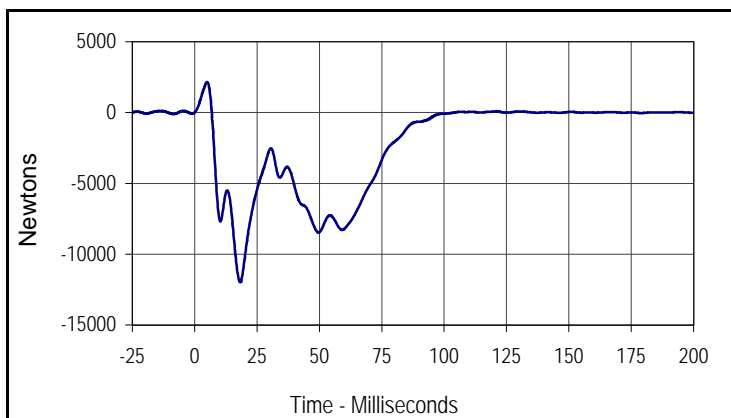
Curve Description			
Barrier Force A7			
CURNO	Type	SAE Class	Units
104	FIL	60	Newtons
Max	Time	Min	Time
2103.9	22.5	-1804.5	8.9



Curve Description			
Barrier Force B7			
CURNO	Type	SAE Class	Units
113	FIL	60	Newtons
Max	Time	Min	Time
2903.7	0.1	-195623.3	36.8



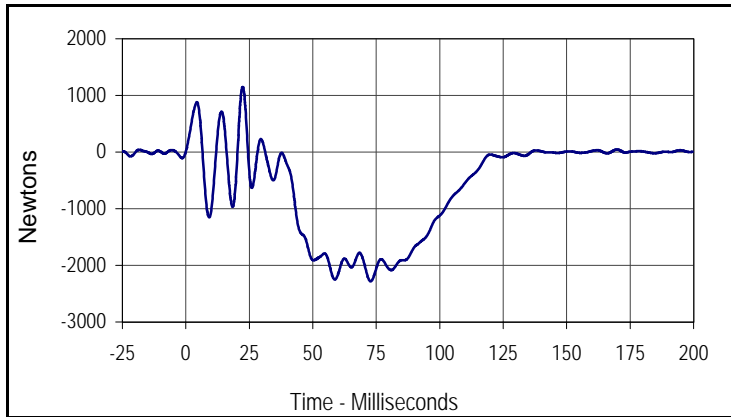
Curve Description			
Barrier Force C7			
CURNO	Type	SAE Class	Units
122	FIL	60	Newtons
Max	Time	Min	Time
1290.4	0.0	-98791.9	16.3



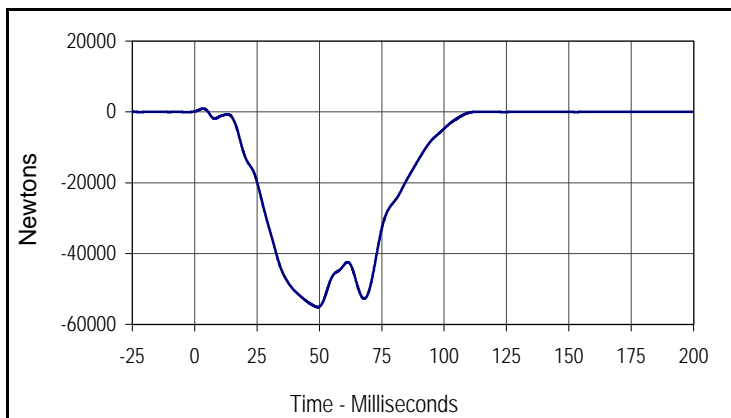
Curve Description			
Barrier Force D7			
CURNO	Type	SAE Class	Units
131	FIL	60	Newtons
Max	Time	Min	Time
2156.3	5.0	-11960.7	18.2

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

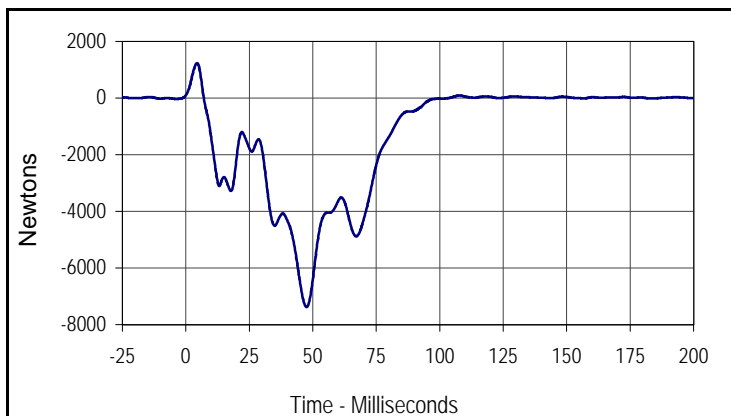
Test Date: 1/18/05
 NHTSA No.: M50207



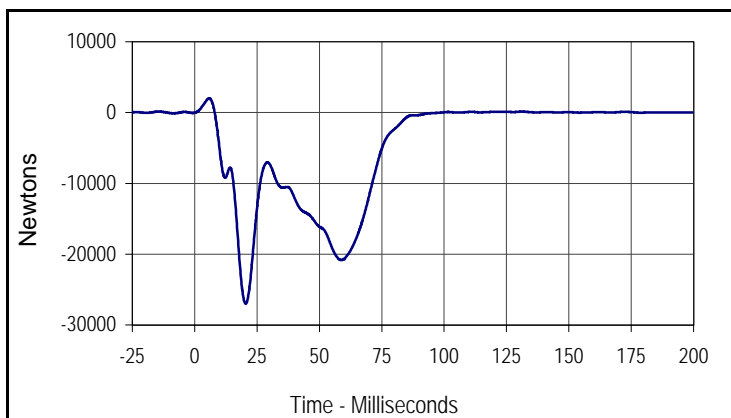
Curve Description			
Barrier Force A8			
CURNO	Type	SAE Class	Units
105	FIL	60	Newtons
Max	Time	Min	Time
1149.1	22.4	-2283.0	72.8



Curve Description			
Barrier Force B8			
CURNO	Type	SAE Class	Units
114	FIL	60	Newtons
Max	Time	Min	Time
920.0	3.4	-55171.1	49.3



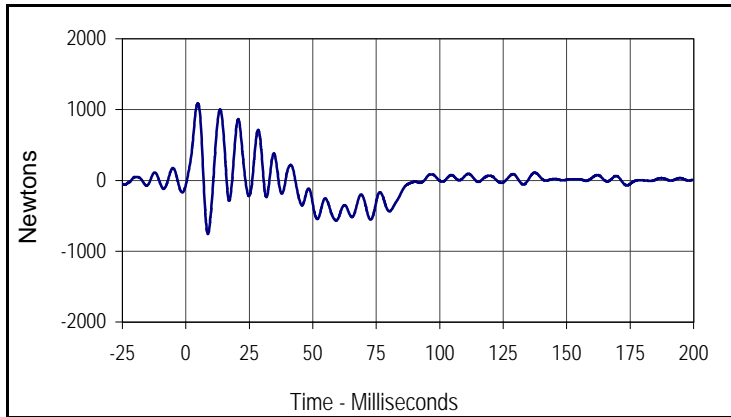
Curve Description			
Barrier Force C8			
CURNO	Type	SAE Class	Units
123	FIL	60	Newtons
Max	Time	Min	Time
1235.4	4.4	-7379.6	47.5



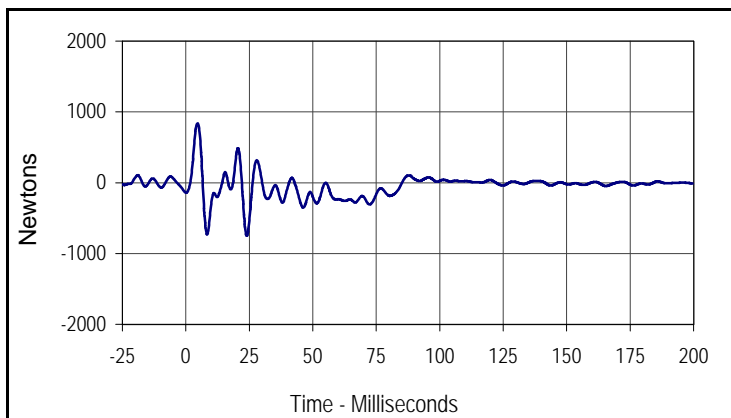
Curve Description			
Barrier Force D8			
CURNO	Type	SAE Class	Units
132	FIL	60	Newtons
Max	Time	Min	Time
1990.1	5.7	-27000.1	20.4

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

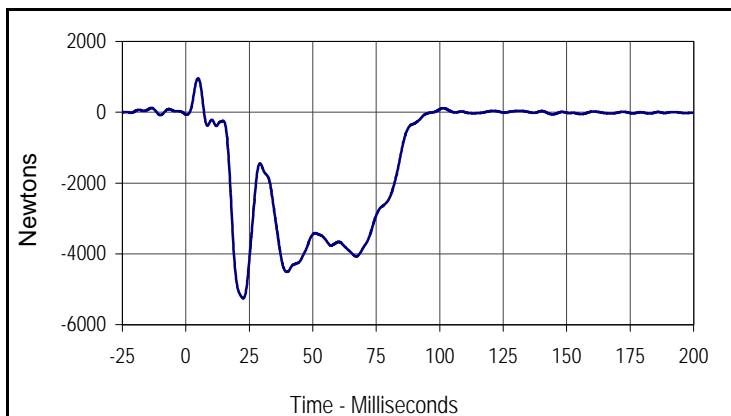
Test Date: 1/18/05
 NHTSA No.: M50207



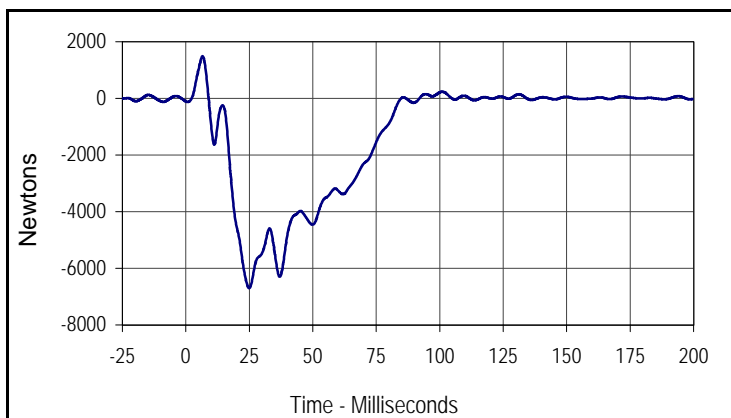
Curve Description			
Barrier Force A9			
CURNO	Type	SAE Class	Units
106	FIL	60	Newtons
Max	Time	Min	Time
1088.2	4.7	-756.8	8.7



Curve Description			
Barrier Force B9			
CURNO	Type	SAE Class	Units
115	FIL	60	Newtons
Max	Time	Min	Time
837.4	4.6	-747.0	24.0



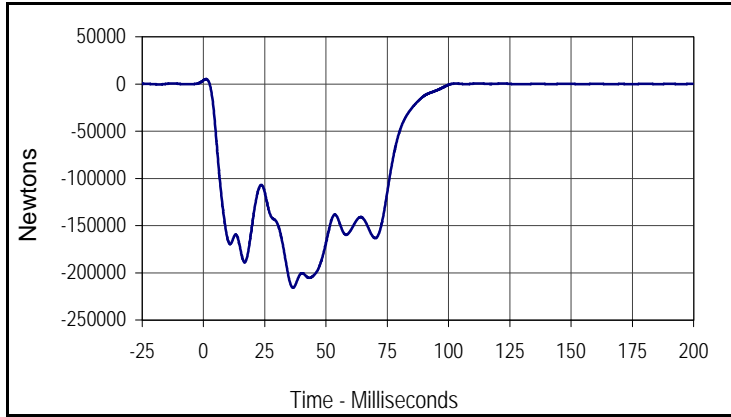
Curve Description			
Barrier Force C9			
CURNO	Type	SAE Class	Units
124	FIL	60	Newtons
Max	Time	Min	Time
958.4	4.8	-5254.6	22.6



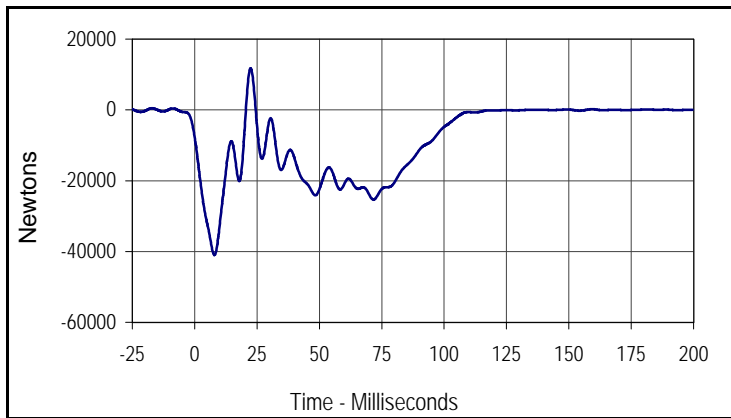
Curve Description			
Barrier Force D9			
CURNO	Type	SAE Class	Units
133	FIL	60	Newtons
Max	Time	Min	Time
1487.9	6.6	-6704.2	25.0

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

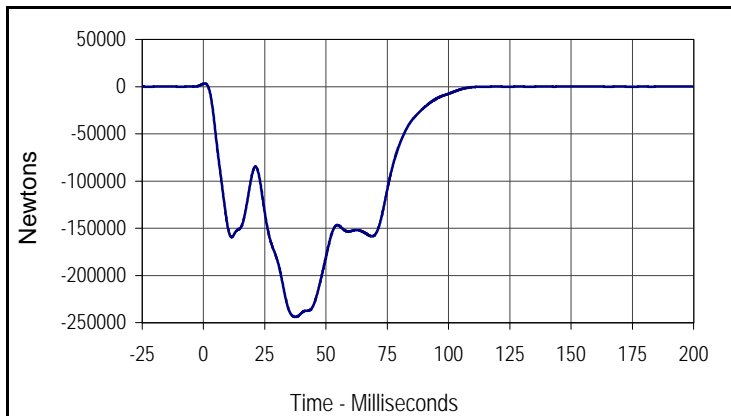
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Barrier Force Sum Group 1			
CURNO	Type	SAE Class	Units
001	SUM	60	Newtons
Max	Time	Min	Time
5102.2	1.1	-215874.7	36.5



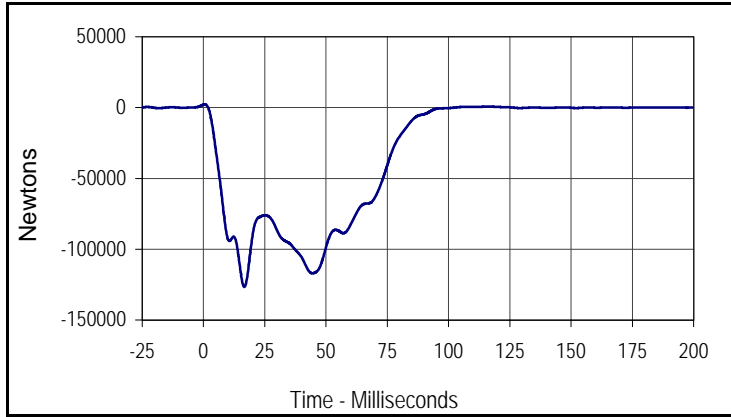
Curve Description			
Barrier Force Sum Group 2			
CURNO	Type	SAE Class	Units
002	SUM	60	Newtons
Max	Time	Min	Time
11751.2	22.4	-40972.5	7.9



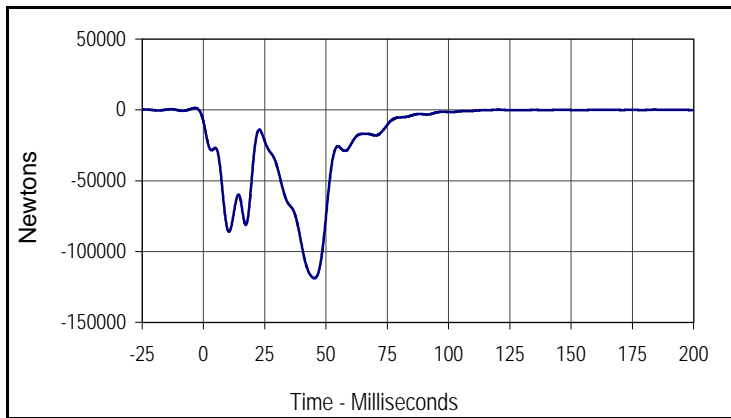
Curve Description			
Barrier Force Sum Group 3			
CURNO	Type	SAE Class	Units
003	SUM	60	Newtons
Max	Time	Min	Time
3351.9	0.5	-243911.9	37.5

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

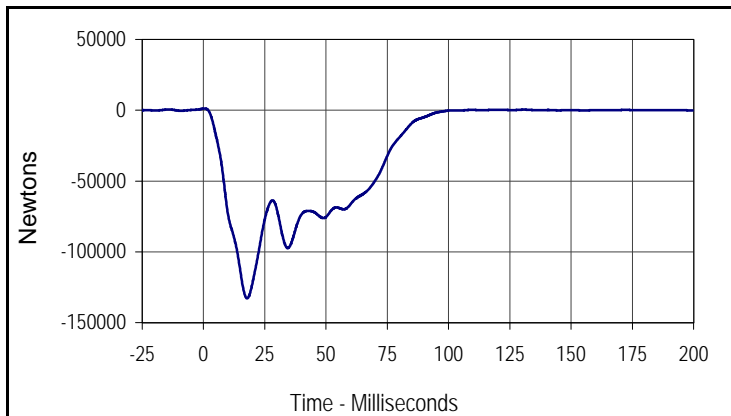
Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Barrier Force Sum Group 4			
CURNO	Type	SAE Class	Units
004	SUM	60	Newtons
Max	Time	Min	Time
2317.1	0.5	-126634.0	16.7



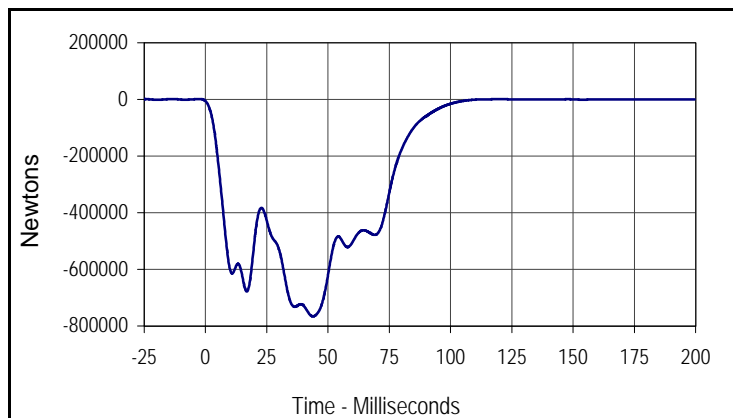
Curve Description			
Barrier Force Sum Group 5			
CURNO	Type	SAE Class	Units
005	SUM	60	Newtons
Max	Time	Min	Time
176.2	184.1	-118868.6	45.2



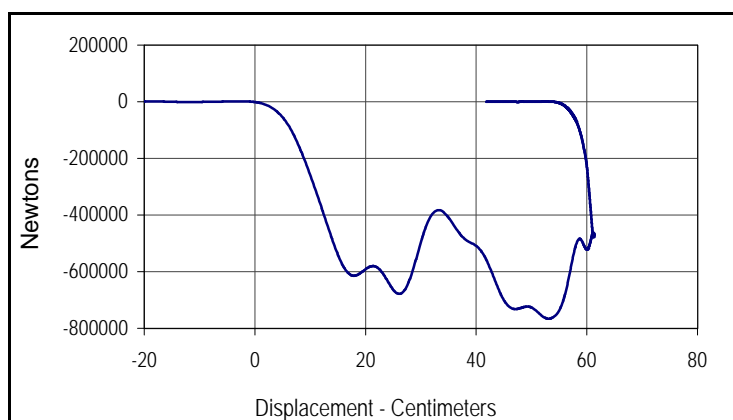
Curve Description			
Barrier Force Sum Group 6			
CURNO	Type	SAE Class	Units
006	SUM	60	Newtons
Max	Time	Min	Time
1244.4	0.4	-132881.8	17.8

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV
 Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05
 NHTSA No.: M50207



Curve Description			
Barrier Force Total Sum			
CURNO	Type	SAE Class	Units
007	SUM	60	Newtons
Max	Time	Min	Time
1229.7	120.2	-766043.2	43.9



Curve Description			
Barrier Force Total Sum vs. Displ.			
CURNO	Type	SAE Class	Units
001	XVY	60	Newtons
Max	CM	Min	CM
1229.7	52.6	-766043.2	52.5

BARRIER LOAD CELL SUMMARY DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

Location	Units	Max	Time	Min	Time
Barrier Force A1	Newtons	4758.0	14.9	-5417.1	10.3
Barrier Force A2	Newtons	2720.0	14.8	-2866.0	9.5
Barrier Force A3	Newtons	1987.2	23.2	-4858.0	71.6
Barrier Force A4	Newtons	2835.7	22.6	-10922.7	79.3
Barrier Force A5	Newtons	2966.1	22.6	-3166.3	8.6
Barrier Force A6	Newtons	2730.3	22.6	-7187.2	58.6
Barrier Force A7	Newtons	2103.9	22.5	-1804.5	8.9
Barrier Force A8	Newtons	1149.1	22.4	-2283.0	72.8
Barrier Force A9	Newtons	1088.2	4.7	-756.8	8.7
Barrier Force B1	Newtons	2695.6	14.5	-23905.0	37.7
Barrier Force B2	Newtons	2087.3	2.5	-70397.2	36.3
Barrier Force B3	Newtons	3462.6	0.4	-154625.4	15.8
Barrier Force B4	Newtons	1292.5	22.4	-3334.9	8.9
Barrier Force B5	Newtons	650.2	22.3	-14271.3	2.1
Barrier Force B6	Newtons	1547.2	21.9	-29994.3	5.8
Barrier Force B7	Newtons	2903.7	0.1	-195623.3	36.8
Barrier Force B8	Newtons	920.0	3.4	-55171.1	49.3
Barrier Force B9	Newtons	837.4	4.6	-747.0	24.0
Barrier Force C1	Newtons	2646.1	5.3	-5968.7	22.9
Barrier Force C2	Newtons	1232.7	2.2	-31909.4	16.7
Barrier Force C3	Newtons	1624.4	0.0	-71940.7	15.9
Barrier Force C4	Newtons	39.6	118.6	-37070.2	44.6
Barrier Force C5	Newtons	54.9	117.4	-37404.2	45.7
Barrier Force C6	Newtons	27.2	172.9	-27401.7	16.6
Barrier Force C7	Newtons	1290.4	0.0	-98791.9	16.3
Barrier Force C8	Newtons	1235.4	4.4	-7379.6	47.5
Barrier Force C9	Newtons	958.4	4.8	-5254.6	22.6
Barrier Force D1	Newtons	2706.3	6.3	-14871.1	22.6
Barrier Force D2	Newtons	2640.3	5.4	-11519.7	58.7
Barrier Force D3	Newtons	2705.9	4.6	-13438.3	59.5
Barrier Force D4	Newtons	2960.0	22.3	-7339.6	9.6
Barrier Force D5	Newtons	2524.0	22.5	-11157.1	41.1
Barrier Force D6	Newtons	2227.7	4.2	-9698.7	9.8
Barrier Force D7	Newtons	2156.3	5.0	-11960.7	18.2
Barrier Force D8	Newtons	1990.1	5.7	-27000.1	20.4
Barrier Force D9	Newtons	1487.9	6.6	-6704.2	25.0
Barrier Force Sum Group 1	Newtons	5102.2	1.1	-215874.7	36.5
Barrier Force Sum Group 2	Newtons	11751.2	22.4	-40972.5	7.9
Barrier Force Sum Group 3	Newtons	3351.9	0.5	-243911.9	37.5
Barrier Force Sum Group 4	Newtons	2317.1	0.5	-126634.0	16.7
Barrier Force Sum Group 5	Newtons	176.2	184.1	-118868.6	45.2
Barrier Force Sum Group 6	Newtons	1244.4	0.4	-132881.8	17.8
Barrier Force Total Sum	Newtons	1229.7	120.2	-766043.2	43.9

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 35
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	HEAD, PRIMARY	X	GPAC027	Accel., 1/2 bridge	Endevco	7264-2000	G
2	HEAD, PRIMARY	Y	GPAC002	Accel., 1/2 bridge	Endevco	7264-2000	G
3	HEAD, PRIMARY	Z	GPAC003	Accel., 1/2 bridge	Endevco	7264-2000	G
4	HEAD, REDUNDANT	X	GPAC032	Accel., 1/2 bridge	Endevco	7264-2000	G
5	HEAD, REDUNDANT	Y	GPAC021	Accel., 1/2 bridge	Endevco	7264-2000	G
6	HEAD, REDUNDANT	Z	GPAC026	Accel., 1/2 bridge	Endevco	7264-2000	G
7	NECK FORCE	X	GPUN01FX	Load cell, six axis neck	R. A. Denton	1716A	N
8	NECK FORCE	Y	GPUN01FY	Load cell, six axis neck	R. A. Denton	1716A	N
9	NECK FORCE	Z	GPUN01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
10	NECK MOMENT	X	GPUN01MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
11	NECK MOMENT	Y	GPUN01MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
12	NECK MOMENT	Z	GPUN01MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
13	CHEST, PRIMARY	X	GPAC005	Accel., 1/2 bridge	Endevco	7264-2000	G
14	CHEST, PRIMARY	Y	GPAC011	Accel., 1/2 bridge	Endevco	7264-2000	G
15	CHEST, PRIMARY	Z	GPAC010	Accel., 1/2 bridge	Endevco	7264-2000	G
16	CHEST, REDUNDANT	X	GPAC034	Accel., 1/2 bridge	Endevco	7264-2000	G
17	CHEST, REDUNDANT	Y	GPAC023	Accel., 1/2 bridge	Endevco	7264-2000	G
18	CHEST, REDUNDANT	Z	GPAC020	Accel., 1/2 bridge	Endevco	7264-2000	G
19	CHEST DEFLECTION	X	GPCP002	Rotary Pot Chest	Servo	14CBI	MM
20	PELVIS, PRIMARY	X	GPAC025	Accel., 1/2 bridge	Endevco	7264-2000	G
21	PELVIS, PRIMARY	Y	GPAC022	Accel., 1/2 bridge	Endevco	7264-2000	G
22	PELVIS, PRIMARY	Z	GPAC019	Accel., 1/2 bridge	Endevco	7264-2000	G
23	LEFT FEMUR FORCE	Z	KEFF003	Load cell, Femur	R.A. Denton	2121	N
24	RIGHT FEMUR FORCE	Z	KEFF004	Load cell, Femur	R.A. Denton	2121	N

D-1

TR-P25001-11-NC

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 35
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
26	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
27	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
28	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
29	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
30	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
31	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
32	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
33	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
34	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
35	FOOT LEFT, AFT	X	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
36	FOOT LEFT, AFT	Z	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
37	FOOT LEFT, FORE	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
38	FOOT RIGHT, AFT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
39	FOOT RIGHT, AFT	Z	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
40	FOOT RIGHT, FORE	Z	KEIC001Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
41	LAP BELT FORCE	X	BL134	Load cell, Seat belt	FGP	FN4060	N
42	SHOULDER BELT FORCE	X	BL135	Load cell, Seat belt	FGP	FN4060	N
43	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
44	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

D-2

TR-P25001-11-NC

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 34
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
45	HEAD, PRIMARY	X	KEAC039	Accel.,1/2 bridge	Endevco	7264-2000	G
46	HEAD, PRIMARY	Y	KEAC038	Accel.,1/2 bridge	Endevco	7264-2000	G
47	HEAD, PRIMARY	Z	KEAC027	Accel.,1/2 bridge	Endevco	7264-2000	G
48	HEAD, REDUNDANT	X	KEAC031	Accel.,1/2 bridge	Endevco	7264-2000	G
49	HEAD, REDUNDANT	Y	KEAC032	Accel.,1/2 bridge	Endevco	7264-2000	G
50	HEAD, REDUNDANT	Z	KEAC026	Accel.,1/2 bridge	Endevco	7264-2000	G
51	NECK FORCE	X	GPUN02FX	Load cell, six axis neck	R. A. Denton	1716A	N
52	NECK FORCE	Y	GPUN02FY	Load cell, six axis neck	R. A. Denton	1716A	N
53	NECK FORCE	Z	GPUN02FZ	Load cell, six axis neck	R. A. Denton	1716A	N
54	NECK MOMENT	X	GPUN02MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
55	NECK MOMENT	Y	GPUN02MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
56	NECK MOMENT	Z	GPUN02MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
57	CHEST, PRIMARY	X	GPAC031	Accel., 1/2 bridge	Endevco	7264-2000	G
58	CHEST, PRIMARY	Y	GPAC024	Accel., 1/2 bridge	Endevco	7264-2000	G
59	CHEST, PRIMARY	Z	GPAC029	Accel., 1/2 bridge	Endevco	7264-2000	G
60	CHEST, REDUNDANT	X	KEAC023	Accel.,1/2 bridge	Endevco	7264-200	G
61	CHEST, REDUNDANT	Y	KEAC022	Accel.,1/2 bridge	Endevco	7264-200	G
62	CHEST, REDUNDANT	Z	KEAC024	Accel.,1/2 bridge	Endevco	7264-200	G
63	CHEST DEFLECTION	X	GPCP001	Rotary Pot Chest	Servo	14CBI	MM
64	PELVIS, PRIMARY	X	KEAC019	Accel.,1/2 bridge	Endevco	7264-200	G
65	PELVIS, PRIMARY	Y	KEAC020	Accel.,1/2 bridge	Endevco	7264-200	G
66	PELVIS, PRIMARY	Z	KEAC021	Accel.,1/2 bridge	Endevco	7264-200	G
67	LEFT FEMUR FORCE	Z	KEFF001	Load cell, Femur	R.A. Denton	2121	N
68	RIGHT FEMUR FORCE	Z	KEFF002	Load cell, Femur	R.A. Denton	2121	N

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 34
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
70	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
71	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
72	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
73	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
74	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
75	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
76	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
77	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
78	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
79	FOOT LEFT, AFT	X	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT, AFT	Z	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT, FORE	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT, AFT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT, AFT	Z	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT, FORE	Z	KEIC004Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	X	BL168	Load cell, Seat belt	First Tech	IF-964	N
86	SHOULDER BELT FORCE	X	BL169	Load cell, Seat belt	First Tech	IF-964	N
87	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	LEFT REAR	X	KEVA002	Accel., Pre-Amp	I.C.S/Karco	3031-500	G
90	RIGHT REAR	X	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
91	ENGINE TOP	X	KEVA009	Accel., Vehicle block	I.C. Sensor	3031-500	G
92	ENGINE BOTTOM	X	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-500	G
93	LEFT BRAKE CALIPER	X	KEVA008	Accel., Vehicle block	I.C. Sensor	3031-500	G
94	RIGHT BRAKE CALIPER	X	KEVA012	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	INSTRUMENT PANEL	X	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	G
96	LEFT REAR	Z	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G
97	RIGHT REAR	Z	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-200	G

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
98	BARRIER FORCE A1	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
99	BARRIER FORCE A2	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
100	BARRIER FORCE A3	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
101	BARRIER FORCE A4	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
102	BARRIER FORCE A5	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
103	BARRIER FORCE A6	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
104	BARRIER FORCE A7	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
105	BARRIER FORCE A8	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
106	BARRIER FORCE A9	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
107	BARRIER FORCE B1	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
108	BARRIER FORCE B2	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
109	BARRIER FORCE B3	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
110	BARRIER FORCE B4	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
111	BARRIER FORCE B5	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
112	BARRIER FORCE B6	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
113	BARRIER FORCE B7	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
114	BARRIER FORCE B8	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
115	BARRIER FORCE B9	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
116	BARRIER FORCE C1	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
117	BARRIER FORCE C2	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
118	BARRIER FORCE C3	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
119	BARRIER FORCE C4	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
120	BARRIER FORCE C5	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
121	BARRIER FORCE C6	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
122	BARRIER FORCE C7	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
123	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
124	BARRIER FORCE C9	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
125	BARRIER FORCE D1	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
126	BARRIER FORCE D2	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
127	BARRIER FORCE D3	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
128	BARRIER FORCE D4	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
129	BARRIER FORCE D5	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
130	BARRIER FORCE D6	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
131	BARRIER FORCE D7	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
132	BARRIER FORCE D8	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
133	BARRIER FORCE D9	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N

APPENDIX E
DUMMY CALIBRATION DATA

Test Program: Hybrid III 50th Percentile Male Head Drop Test

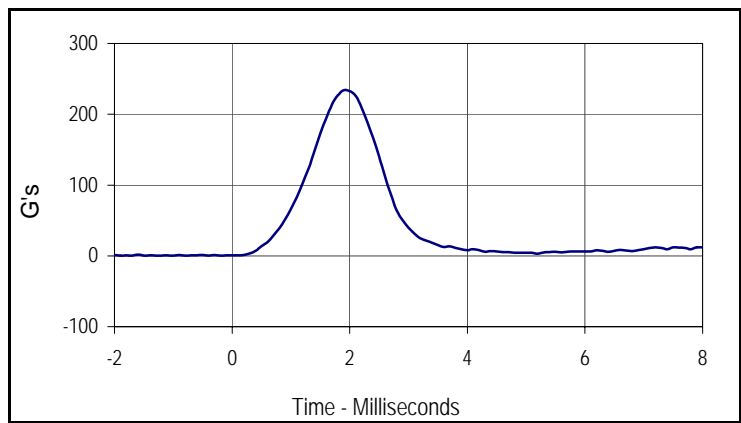
Test Date: 12/10/04

ATD Serial No.: 034

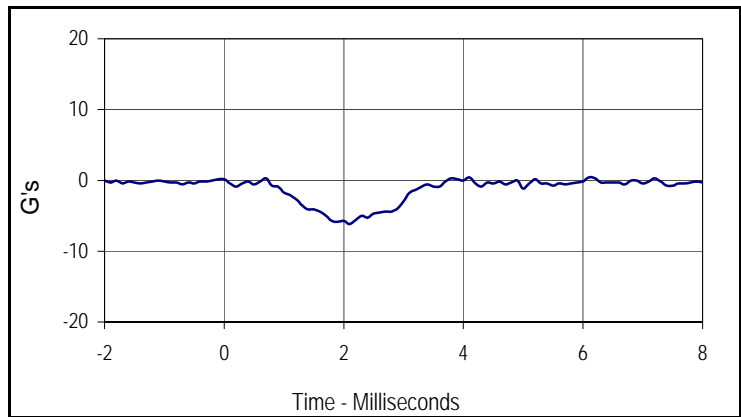
Test I.D.: HD12G



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	234.0	Pass
Peak Lateral Acceleration	G's	≤15.0	6.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
234.0	1.9	0.3	-1.9



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.4	4.1	-6.2	2.1

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

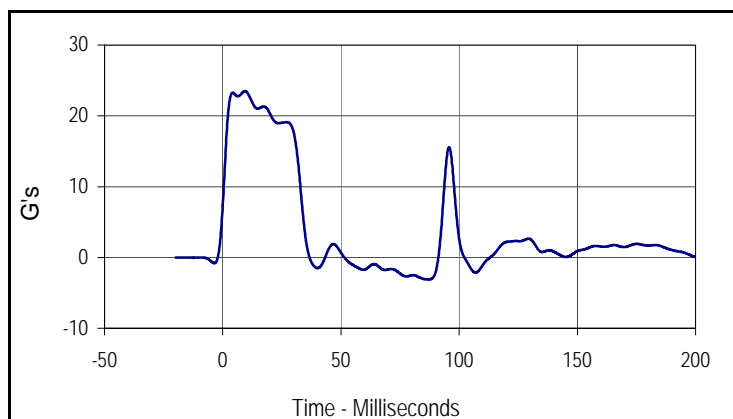
Test Date: 12/10/04

ATD Serial No.: 034

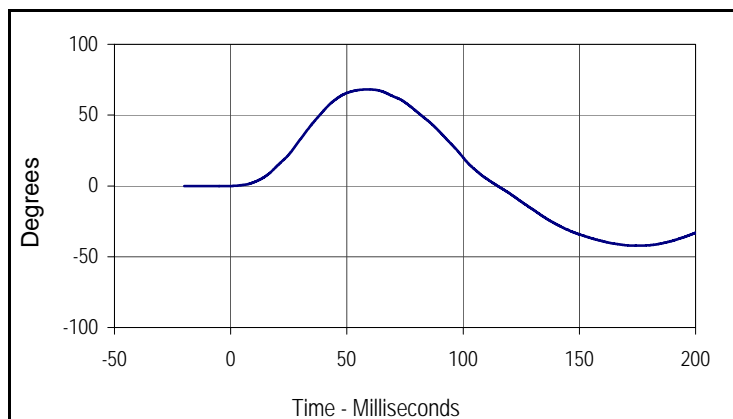
Test I.D.: NF12J



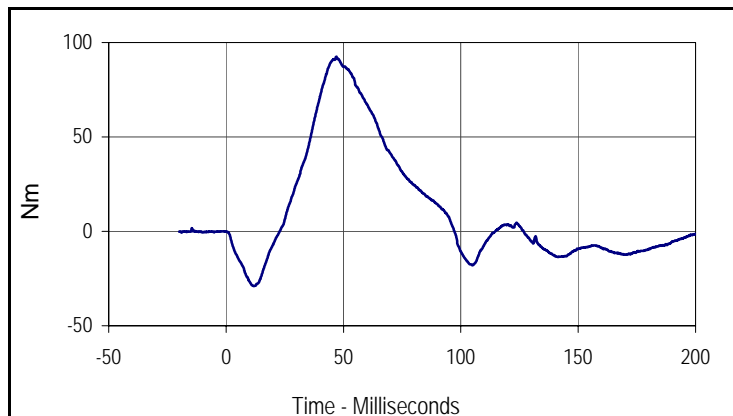
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	6.98	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.4	Pass
	20 Msec.	G's	17.6 to 22.6	20.3	Pass
	30 Msec.	G's	12.5 to 18.5	17.6	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	17.6	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	34.3	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	68.1	Pass
	Time	Msec.	57.0 to 64.0	59.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	114.8	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	92.5	Pass
	Time	Msec.	47.0 to 58.0	47.0	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	97.3	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.5	9.4	-3.1	87.0



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
68.1	59.0	-42.2	173.9



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
92.5	47.0	-29.1	11.8

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

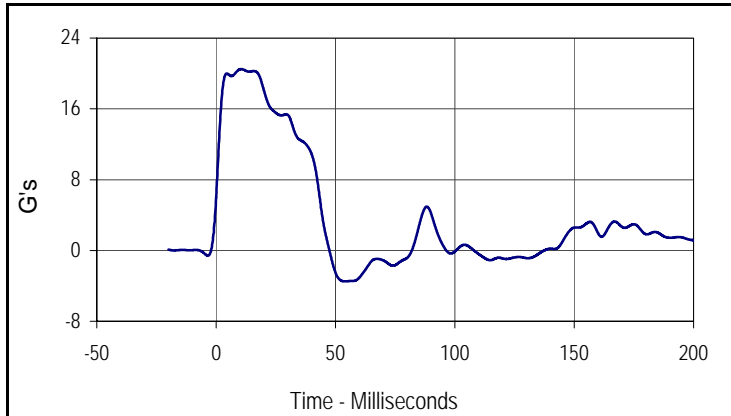
Test Date: 12/10/04

ATD Serial No.: 034

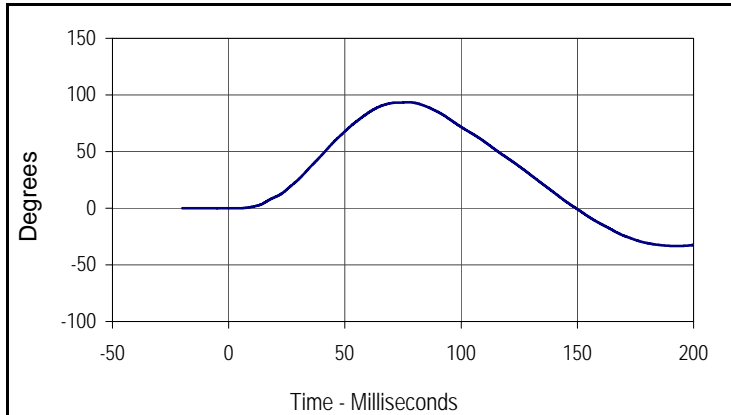
Test I.D.: NE12L



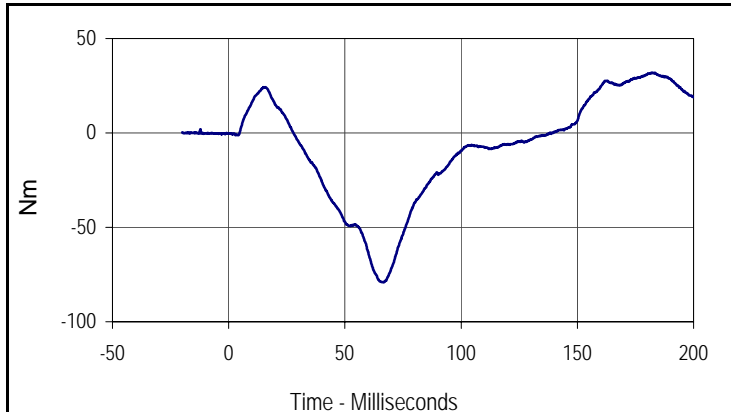
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.09	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	20.5	Pass
	20 Msec.	G's	14.0 to 19.0	18.1	Pass
	30 Msec.	G's	11.0 to 16.0	15.3	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	15.3	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	43.9	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	93.5	Pass
	Time	Msec.	72.0 to 82.0	77.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	149.4	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-79.1	Pass
	Time	Msec.	65.0 to 79.0	66.8	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	139.2	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
20.5	10.6	-3.5	53.9



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
93.5	77.7	-33.3	193.1



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
31.9	181.8	-79.1	66.8

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

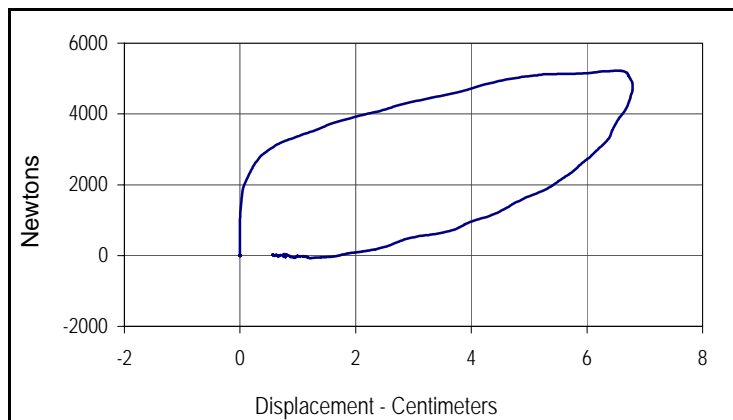
Test Date: 12/13/05

ATD Serial No.: 034

Test I.D.: CH12J



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.61	Pass
Peak Probe Force	Newtons	5159 to 5893	5225	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.79	Pass
Internal Hysteresis	%	69 to 85	75.7	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	600	75.7
Peak Probe Force		Peak Chest Deflection	
5225		6.79	

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 12/13/04

ATD Serial No.: 034

Test I.D.: LK12Y , RK10T



Left Knee

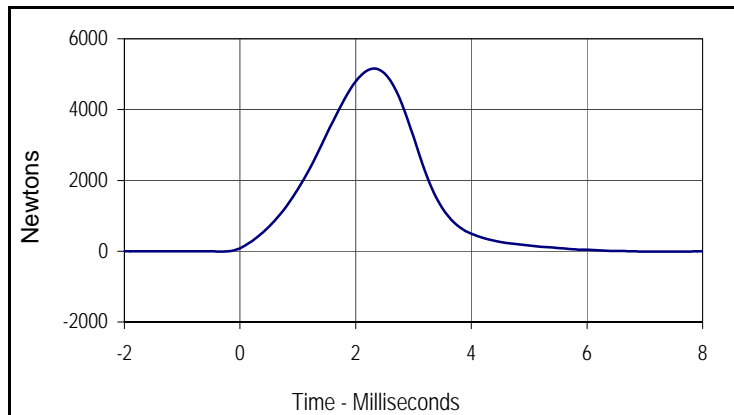
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5493	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.12	Pass
Peak Probe Force	Newtons	4715 to 5782	5160	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5492.5	2.3	-18.2	9.6



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5160.3	2.3	-12.0	-0.3

Test Program: Hybrid III 50th Percentile Male External Measurements Test Date: 12/15/04
 ATD Serial No.: 034 Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	885	Pass
B - Shoulder pivot height	mm	505 to 521	510	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	137	Pass
E - Shoulder pivot from back	mm	84 to 94	91	Pass
F - Thigh clearance	mm	140 to 155	145	Pass
G - Elbow back to wrist pivot	mm	290 to 305	295	Pass
H - Skull cap to back line	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	335	Pass
J - Elbow rest height	mm	190 to 211	205	Pass
K - Buttock to knee length	mm	579 to 604	580	Pass
L - Popliteal length	mm	429 to 455	450	Pass
M - Knee pivot height	mm	485 to 500	490	Pass
N - Buttock popliteal length	mm	452 to 477	470	Pass
O - Chest depth	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	425	Pass
W - Foot breadth	mm	91 to 107	100	Pass
Y - Chest circumference	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	850	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

Test Program: Hybrid III 50th Percentile Male Head Drop Test

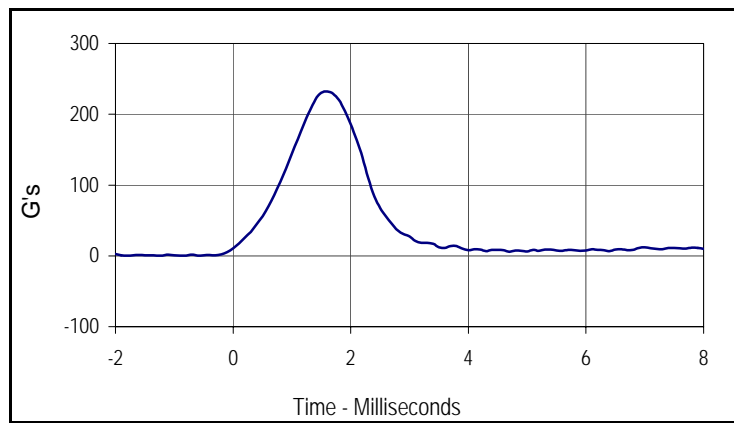
Test Date: 12/10/04

ATD Serial No.: 035

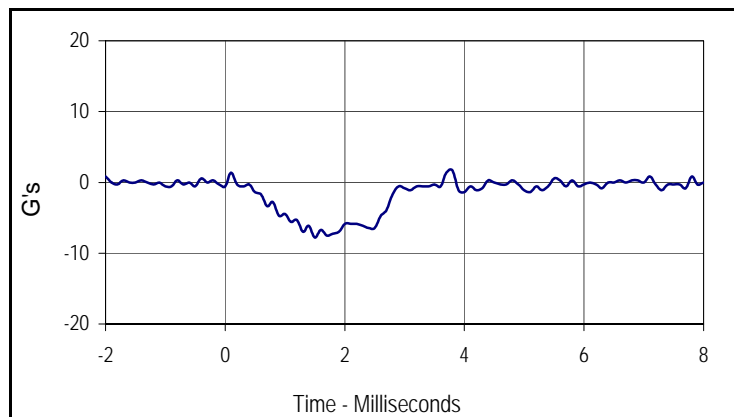
Test I.D.: HD12H



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	232.4	Pass
Peak Lateral Acceleration	G's	≤15.0	7.8	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
232.4	1.6	0.5	-1.3



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
1.7	3.8	-7.8	1.5

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

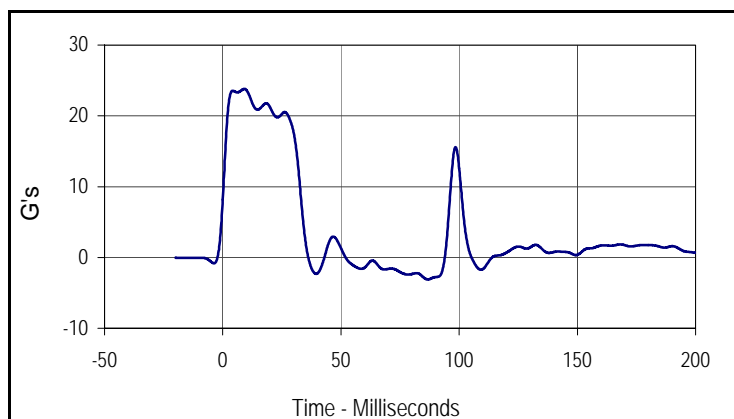
Test Date: 12/10/04

ATD Serial No.: 035

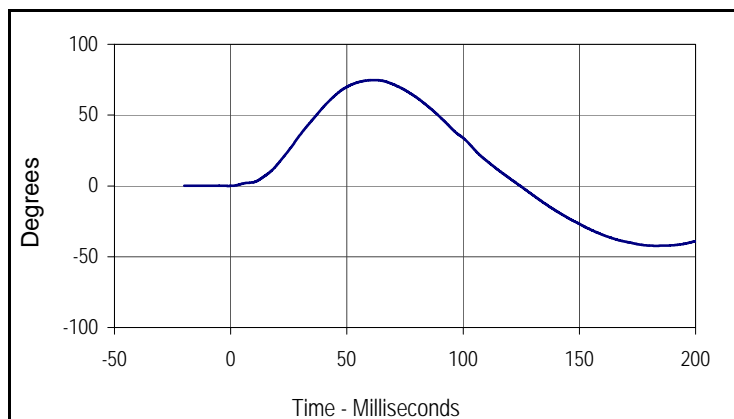
Test I.D.: NF12K



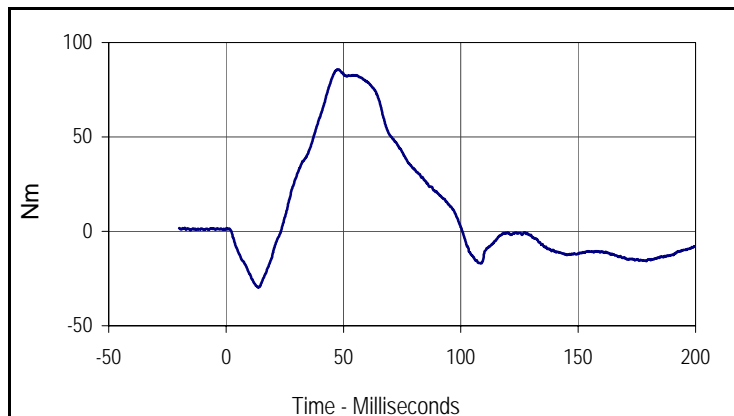
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.11	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.6	Pass
	20 Msec.	G's	17.6 to 22.6	21.2	Pass
	30 Msec.	G's	12.5 to 18.5	17.6	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	17.6	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	34.1	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	74.8	Pass
	Time	Msec.	57.0 to 64.0	61.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	124.6	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	85.8	Pass
	Time	Msec.	47.0 to 58.0	47.9	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	100.7	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.8	9.1	-3.1	86.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
74.8	61.2	-42.3	182.9



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
85.8	47.9	-29.8	13.7

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

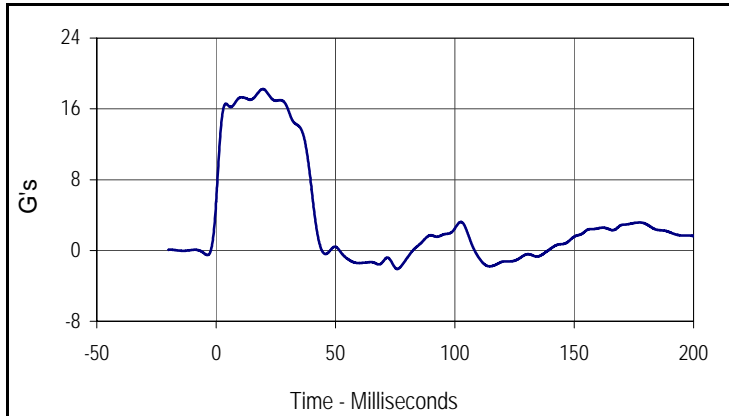
Test Date: 12/10/04

ATD Serial No.: 035

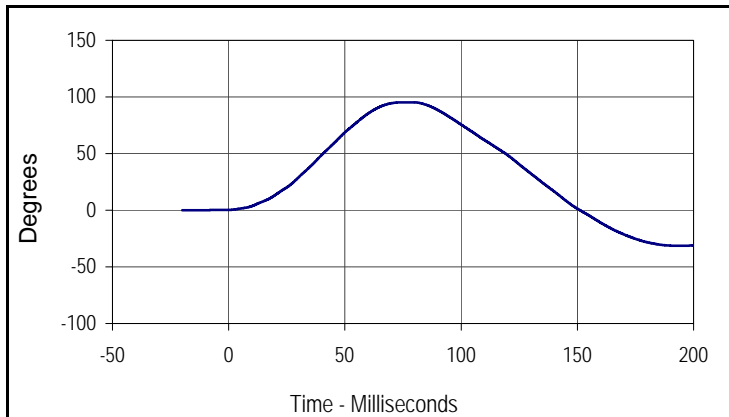
Test I.D.: NE12K



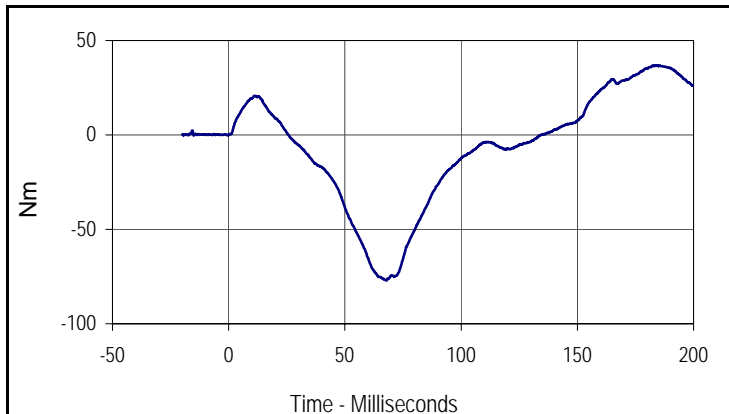
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.00	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.3	Pass
	20 Msec.	G's	14.0 to 19.0	18.2	Pass
	30 Msec.	G's	11.0 to 16.0	16.0	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	16.0	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	40.8	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	95.3	Pass
	Time	Msec.	72.0 to 82.0	79.3	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	151.2	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-77.1	Pass
	Time	Msec.	65.0 to 79.0	67.9	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	134.6	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
18.2	19.6	-2.1	75.9



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
95.3	79.3	-31.4	194.2



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
37.0	183.9	-77.1	67.9

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

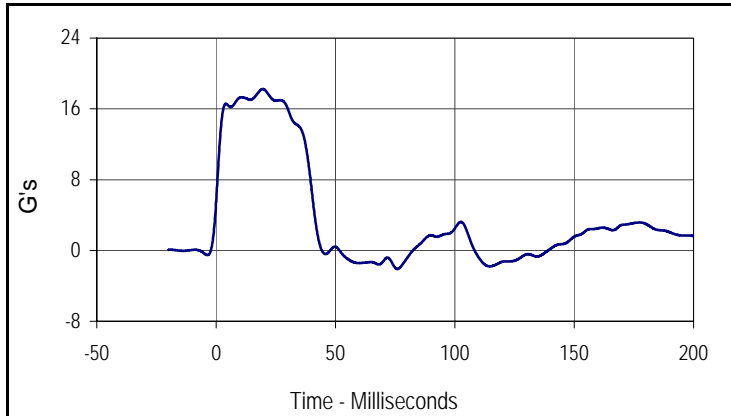
Test Date: 12/10/04

ATD Serial No.: 035

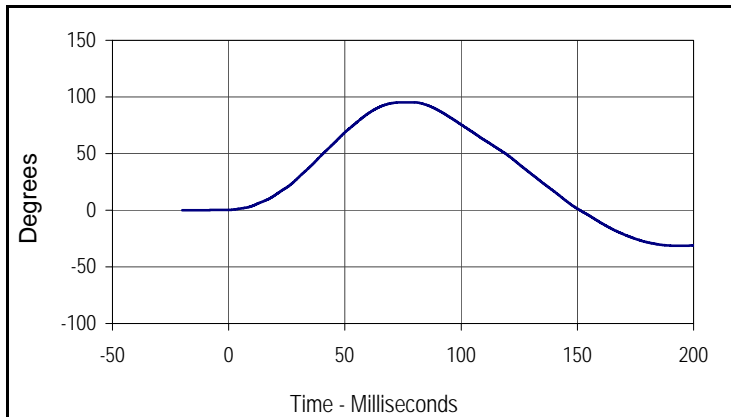
Test I.D.: NE12K



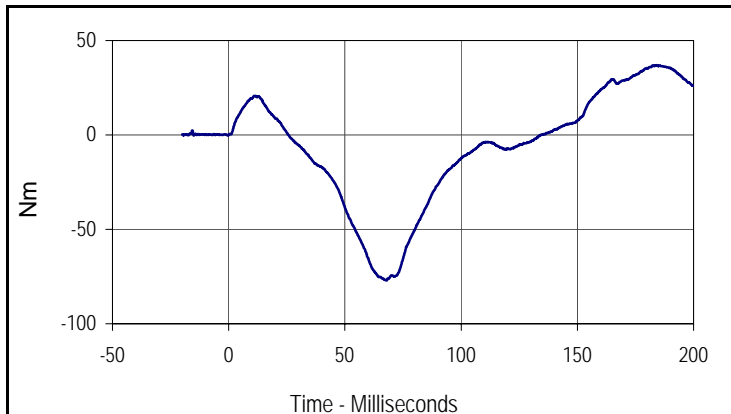
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.00	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.3	Pass
	20 Msec.	G's	14.0 to 19.0	18.2	Pass
	30 Msec.	G's	11.0 to 16.0	16.0	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	16.0	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	40.8	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	95.3	Pass
	Time	Msec.	72.0 to 82.0	79.3	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	151.2	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-77.1	Pass
	Time	Msec.	65.0 to 79.0	67.9	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	134.6	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
18.2	19.6	-2.1	75.9



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
95.3	79.3	-31.4	194.2



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
37.0	183.9	-77.1	67.9

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

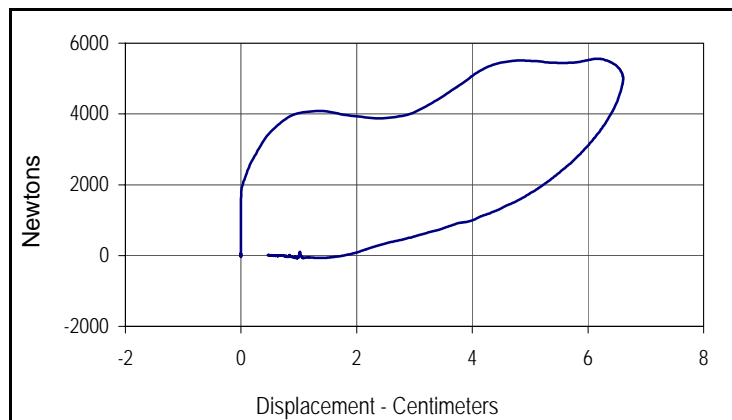
Test Date: 12/13/05

ATD Serial No.: 035

Test I.D.: CH12K



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.74	Pass
Peak Probe Force	Newtons	5159 to 5893	5555	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.61	Pass
Internal Hysteresis	%	69 to 85	76.1	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	76.1
Peak Probe Force		Peak Chest Deflection	
5555		6.61	

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 12/13/04

ATD Serial No.: 035

Test I.D.: LK12Z , RK10U



Left Knee

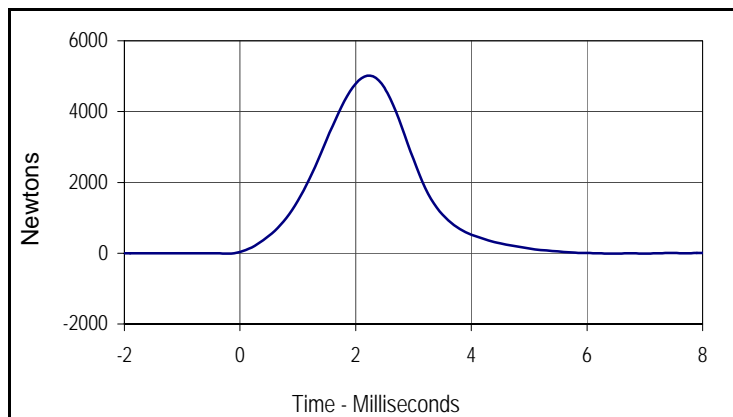
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.13	Pass
Peak Probe Force	Newtons	4715 to 5782	5503	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5014	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5502.8	2.5	-11.8	9.8



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5014.2	2.2	-10.5	6.4

Test Program: Hybrid III 50th Percentile Male External Measurements Test Date: 12/15/04
 ATD Serial No.: 035 Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	884	Pass
B - Shoulder pivot height	mm	505 to 521	520	Pass
C - "H" point height	mm	84 to 89	86	Pass
D - "H" point from seat back	mm	135 to 140	138	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	142	Pass
G - Elbow back to wrist pivot	mm	290 to 305	300	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	340	Pass
J - Elbow rest height	mm	190 to 211	210	Pass
K - Buttock to knee length	mm	579 to 604	600	Pass
L - Popliteal length	mm	429 to 455	450	Pass
M - Knee pivot height	mm	485 to 500	495	Pass
N - Buttock popliteal length	mm	452 to 477	465	Pass
O - Chest depth	mm	213 to 229	215	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	430	Pass
W - Foot breadth	mm	91 to 107	105	Pass
Y - Chest circumference	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	860	Pass
AA - Location for chest circumference	mm	429 to 434	431	Pass
BB - Location for waist circumference	mm	226 to 231	228	Pass
Overall Test Results				Pass

APPENDIX F
CHILD RESTRAINT SYSTEMS

REPORT NUMBER TR-P25001-11-NC

**NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST**

**FORD MOTOR COMPANY
2005 Ford E-150 XL Wagon 4-Door MPV**

NHTSA NUMBER: M50207

**PREPARED BY:
KARCO ENGINEERING, LLC
9270 HOLLY ROAD
ADELANTO, CALIFORNIA 92301**



JANUARY 18, 2005

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-111
400 SEVENTH STREET, SW, ROOM 5311
WASHINGTON, D.C. 20590**

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-01-D-02005.

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

Prepared by: _____
Mr. Yednesh Parnaik, Project Engineer
KARCO Engineering, LLC

Date: January 31, 2005

Reviewed by: _____
Mr. Michael L. Dunlap, Quality Assurance Manager
KARCO Engineering, LLC

Date: January 31, 2005

Approved by: _____
Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC

Date: January 31, 2005

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

Technical Report Documentation Page

1. Report No. TR-P25001-11-NC		2. Government Accession No.		3. Recipients Catalog No.	
4. Title and Subtitle Final Report of a Graco Hi-Back Turbo Booster and Evenflo Titan 5 Convertible CRS NHTSA NO. M50207			5. Report Date January 18, 2005		
			6. Performing Organization Code KAR		
7. Authors Mr. Yednesh Parnaik, Project Engineer, Karco Mr. Frank Richardson, Program Manager, Karco			8. Performing Organization Report No. TR-P25001-11-NC		
9. Performing Organization Name and Address Karco Engineering, LLC 9270 Holly Rd. Adelanto, CA, 92301			10. Work Unit No.		
			11. Contract or Grant No. DTNH22-01-D-02005		
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Rulemaking Office of Crashworthiness Standards Mail Code NPS-111 400 Seventh Street, SW, Room 5311 Washington, D.C 20590			13. Type of Report and Period Covered Final Test Report Option Year 3		
			14. Sponsoring Agency Code DOT/NHTSA/NRM/OCS		
15. Supplementary Notes					
16. Abstract A frontal barrier impact test was conducted on the subject Graco Hi-Back Turbo Booster CRS (Position 4) and Evenflo Titan 5 Convertible CRS (Position 6) in conjunction with frontal NCAP testing on a 2005 Ford E-150 XL Wagon 4-Door MPV and in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the determination of CRS crashworthiness. This test was conducted at Karco Engineering, LLC on January 18, 2005					
Measurement Description		Units	Left Rear (10-Yr)	Center Rear (3-Yr)	
Head Injury Criteria (HIC) 36		N/A	1042.1	731.0	
Head Injury Criteria (HIC) 15		N/A	486.3	445.1	
3 msec. Chest Clip		G's	46.1	40.2	
Peak Chest Deflection		mm	-24.4	-20.1	
17. Key Words 56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) Final Report of a Graco Hi-Back Turbo Booster CRS (P4) and Evenflo Titan 5 convertible CRS (P6) NHTSA NO. M50207			18. Distribution of Statement Copies of this report available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, D.C. 20590		
19. Security Classification (this report) Unclassified		20. Security Classification (this page) Unclassified		21. No. of Pages 72	22. Price

Form DOT F1700.7 (8-72)

TR-P25001-11-NC

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
F-1	Purpose and Summary of Test M50207	F1-1 to F1-11
F-2	Photographs	F2-1 to F2-36
F-3	Child Dummy Response and CRS Data Traces	F3-1 to F3-24
F-4	Child Dummy Instrumentation Information	F4-1 to F4-3
F-5	Child Dummy Calibration Information	F5-1 to F5-13

<u>Data Sheet</u>	<u>Description</u>	<u>Page</u>
1	Crash Test Summary	F1-2
2	CRS Parameter Data	F1-3
3	Child Dummy Positioning in Vehicle	F1-4
4	Child Hybrid III ATD Injury Criteria and Sensor Data	F1-6
5	CRS Performance Data	F1-10
6	CRS Camera Data	F1-11

SECTION F-1

PURPOSE AND SUMMARY OF TEST M50207

The purpose of this test is to obtain CRS performance data during an NCAP (35mph) frontal impact test.

The 35 mph (56.3 km/h) NCAP frontal impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) NCAP Laboratory Test Procedure.

SUMMARY

One (1) three year old child Hybrid III dummy was instrumented with head, chest, and pelvic tri-axial accelerometers, a chest displacement potentiometer and six-axis upper and lower neck cells. In addition a tri-axial accelerometer was installed on the CRS and a seat belt load cell was placed on the upper tether.

One (1) ten year old child Hybrid III dummy was instrumented with head, chest, and pelvic tri-axial accelerometers, a chest displacement potentiometer, six-axis upper neck, lumbar, clavicle, ASIS and femur load cells. In addition a tri-axial accelerometer was installed on the CRS and the CRS seat back. Seat belt load cells were placed on the shoulder and lap belts to measure belt loads.

The 10-year old (Serial No. 011) was calibrated prior to this test and 3-year old child dummy (Serial No. 082) was calibrated one test prior this test. Child dummy certification information is found in Section F-5.

CHILD DUMMY VALUES

Location	HIC 36 Values	HIC 15 Values	3 Msec. Chest Clip (g)	Peak Chest Defl. (mm)
10-year Child (P4)	1042.1	486.3	46.1	-24.4
3-year Child (P6)	731.0	445.1	40.2	-20.1

DATA SHEET NO.1 CRASH TEST SUMMARY

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

CHILD RESTRAINT SYSTEM INFORMATION

Description	Position #4 CRS	Position #6 CRS
Manufacturer	Graco	Evenflo
Model Name	Turbo Booster	Titan 5
Serial No.	JJ1006042008679	3671310P1
Type	Hi-Back Booster	Convertible
Forward/Rearward	Forward	Forward

VISIBLE DUMMY CONTACT POINTS

Description	Position #4 CRS	Position #6 CRS
Head Contact	Chin to Chest, Hand to Head	Chin to Retainer Clip
Chest Contact	N/C	N/C
Abdomen Contact	N/C	N/C
Left Knee Contact	N/C	N/C
Right Knee Contact	N/C	N/C
Left Toe Contact	Left Front Seat Back	N/C
Right Toe Contact	Left Front Seat Back	N/C

POST-TEST DOOR OPENINGS

Description	Position #4 CRS	Position #6 CRS
Front Door	Remained closed/latched, opened with tools	Remained closed/latched, opened with tools
Rear Door	Remained closed/latched, opened w/o tools	Remained closed/latched, opened w/o tools
Hatch/Other Door	Remained closed/latched, opened w/o tools	

POST-TEST SEAT DATA

Location	Seat Movement (mm)	Seat Back Failure
Left Front	None	None
Right Front	None	None
Left Rear	None	None
Right Rear	None	None

MOVIE COVERAGE

Cameras	Standard	Additional
High Speed	2	2
Real Time	0	0
Total	2	2

DATA CHANNELS

Child Sensors	54
---------------	----

DATA SHEET NO.2 CRS PARAMETER DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

RETAINING CLIP INFORMATION

Description	Position #4 CRS	Position #6 CRS
Ret. Clip Movement		85 mm

CHILD HARNESS STRETCH

Description	Position #4 CRS	Position #6 CRS
Harness Stretch		0 mm

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	660	551		718	628	
Right	kg	642	542		708	621	
Ratio	%	54.4	45.6		53.3	46.7	
Totals	kg	1302	1093	2395	1426	1249	2675

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	2395
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Wt. (RCLW)	kg	136
Calculated Vehicle Target Wt. (TVTW)	kg	2683

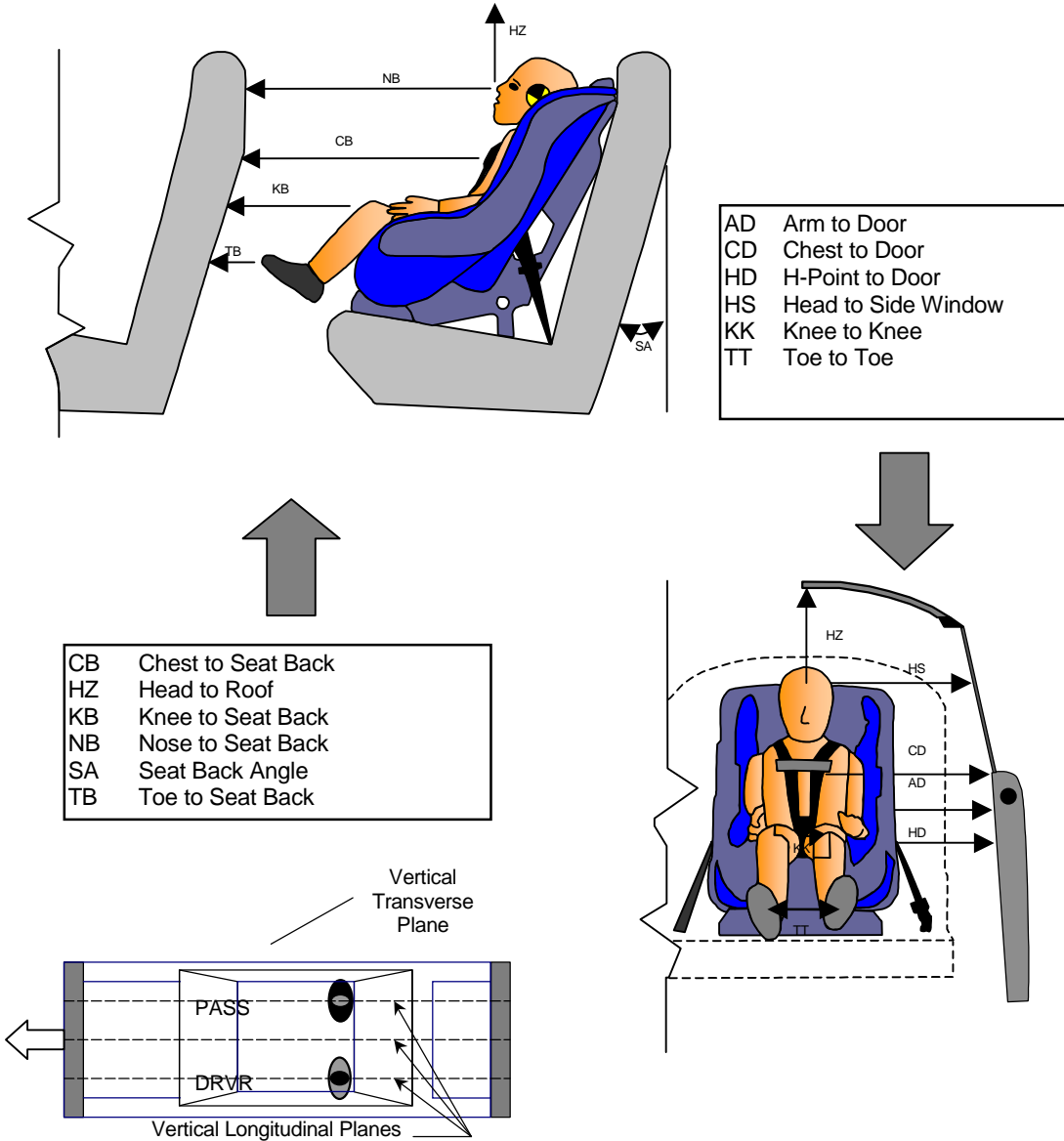
DATA SHEET NO.3 CHILD DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program 2005 NHTSA 35mph NCAP

Test Date: 1/18/05



DUMMY MEASUREMENTS FOR REAR SEAT OCCUPANTS

DATA SHEET NO.3 CHILD DUMMY POSITIONING IN VEHICLE...(CONTINUED)

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

CHILD DUMMY POSITION MEASUREMENTS

Code	Measurement	Units	P4 CRS Serial No. 011			P6 CRS Serial No. 082		
			Pre-Test	Post-Test	Diff.	Pre-Test	Post-Test	Diff.
SA	Seat Back Angle	deg.	15.3	19.6	4.3	15.3	19.6	4.3
HZ	Head to Roof (Z)	mm	250	265	15	390	390	0
CD	Chest to Dash	mm	400	415	15	860	830	-30
KK	Knee to Knee (Y)	mm	220	180	-40	160	175	15
HS	Head to Side Window	mm	370	420	50	850	805	-45
HD	H-Point to Door (Y)	mm	255	255	0	730	700	-30
AD	Arm to Door	mm	200	165	-35	690	650	-40
NB	Nose to Seat Back	mm	620	670	50	625	690	65
CB	Chest to Seat Back	mm	580	610	30	640	660	20
FF	Foot to Foot	mm	120	80	-40	115	170	55
KB-Left	Knee to Seat Back	mm	275	330	55	340	440	100
KB-Right	Knee to Seat Back	mm	280	335	55	350	430	80
TB-Left	Toe to Seat Back	mm	190	170	-20	40	90	50
TB-Right	Toe to Seat Back	mm	170	175	5	45	40	-5

DATA SHEET NO. 4 - CHILD HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	31.8	187.3	-68.2	102.7	36.8	191.3	-32.2	103.2
Head CG	Y	G's	6.5	100.1	-13.0	69.9	8.9	118.0	-8.5	101.8
Head CG	Z	G's	65.0	84.6	-2.7	46.9	61.7	86.6	-3.3	46.5
Head CG Resultant	N/A	G's	73.5	84.6			63.9	83.4		

PRIMARY HEAD INJURY CRITERIA (HIC)

Location	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG (HIC36)	1042.1	73.3	109.3	60.9	731.0	70.0	106.0	52.8
Head CG (HIC15)	486.3	92.3	107.3	63.7	445.1	76.9	91.9	61.5

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	3.3	144.9	-48.6	62.1	5.4	166.5	-35.3	85.3
Chest CG	Y	G's	6.1	98.0	-14.4	81.2	4.9	102.8	-2.3	167.4
Chest CG	Z	G's	3.8	198.7	-19.8	90.6	22.0	88.1	-32.2	68.4
Chest CG Resultant	N/A	G's	49.7	62.2			40.6	87.8		

PRIMARY CHEST CLIP (3MSEC)

Location	LR 2nd Row (10 Yr.)			CR 2nd Row (3 Yr.)		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG	46.1	60.9	63.9	40.2	85.4	88.4

CHEST PEAK DEFLECTIONS

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest	X	MM	9.9	32.9	-24.4	77.3	0.0	21.3	-20.1	117.4

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	11.1	103.1	-54.6	66.8	8.0	148.8	-48.7	69.2
Pelvis	Y	G's	14.3	84.6	-7.3	144.3	15.1	185.1	-13.2	66.2
Pelvis	Z	G's	6.2	143.6	-32.4	75.5	15.2	198.2	-41.7	67.2
Pelvis Resultant	N/A	G's	59.5	73.3			63.5	68.2		

DATA SHEET NO. 4...(CONTINUED)

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	29.8	199.4	-1787.3	103.7	51.1	182.5	-710.2	113.3
Neck Force	Y	Newtons	246.5	99.9	-110.1	47.4	78.7	105.1	-72.8	68.3
Neck Force	Z	Newtons	3326.6	101.7	-53.2	19.1	2104.8	85.9	-151.2	47.4
Neck Force Resultant	N/A	Newtons	3748.8	101.7			2159.3	85.9		
Neck Moment	X	Nm	22.5	111.9	-9.9	99.7	3.8	111.0	-3.8	102.7
Neck Moment	Y	Nm	7.3	124.9	-38.2	104.4	2.5	77.8	-11.9	56.9
Neck Moment	Z	Nm	0.8	196.6	-7.1	94.5	1.9	154.6	-4.6	109.5
Neck Moment Resultant	N/A	Nm	39.5	104.9			12.0	56.9		

LOWER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons					164.7	192.8	-989.4	86.9
Neck Force	Y	Newtons					145.4	75.7	-89.7	192.4
Neck Force	Z	Newtons					1593.8	85.9	-242.7	47.1
Neck Force Resultant	N/A	Newtons					1864.4	85.9		
Neck Moment	X	Nm					7.3	109.0	-9.6	98.2
Neck Moment	Y	Nm					99.1	84.1	-11.6	192.6
Neck Moment	Z	Nm					2.8	146.9	-6.7	72.1
Neck Moment Resultant	N/A	Nm					99.2	84.1		

FEMUR PEAK FORCES AND MOMENTS

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur Force	Z	Newtons	1057.6	64.9	-84.3	199.1				
Right Femur Force	Z	Newtons	1269.7	62.7	-26.3	149.1				

DATA SHEET NO. 4...(CONTINUED)

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

LUMBAR PEAK FORCES AND MOMENTS

Location	Axis	Units	LR 2nd Row (10 Yr.)			
			Max	Time	Min	Time
Lumbar Force	X	Newtons	3309.5	102.1	-379.7	55.3
Lumbar Force	Y	Newtons	0.7	136.9	-637.2	46.9
Lumbar Force	Z	Newtons	801.4	56.5	-828.0	71.2
Lumbar Force Resultant	N/A	Newtons	3372.1	102.1		
Lumbar Moment	X	Nm	-0.3	2.1	-122.4	79.8
Lumbar Moment	Y	Nm	29.4	135.7	-153.3	99.6
Lumbar Moment	Z	Nm	23.9	62.6	-11.8	194.7
Lumbar Moment Res.	N/A	Nm	166.1	100.6		

CLAVICLE PEAK FORCES

Location	Axis	Units	LR 2nd Row (10 Yr.)			
			Max	Time	Min	Time
Left Clavicle Force	X	Newtons	1818.0	85.0	-28.5	187.6
Left Clavicle Force	Z	Newtons	561.5	101.2	-51.5	50.2
Right Clavicle Force	X	Newtons	1327.4	98.2	-136.2	60.4
Right Clavicle Force	Z	Newtons	91.3	82.3	-277.3	96.0

UPPER AND LOWER ASIS PEAK FORCES

Location	Axis	Units	LR 2nd Row (10 Yr.)			
			Max	Time	Min	Time
Left Upper ASIS Force	X	Newtons	175.4	66.3	-27.6	146.0
Left Lower ASIS Force	Z	Newtons	376.5	63.3	-8.0	16.5
Right Upper ASIS Force	X	Newtons	451.8	65.9	-156.6	99.3
Right Lower ASIS Force	Z	Newtons	504.2	63.6	-3.4	16.4

DATA SHEET NO. 4...(CONTINUED)

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Dr MPV

NHTSA No.: M50207

Test Program: 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

CRS ACCELEROMETER PEAK VALUES

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
CRS	X	G's	16.0	112.2	-53.2	58.0	8.8	151.0	-53.6	54.4
CRS	Y	G's	25.2	65.3	-20.9	60.3	10.2	65.1	-5.0	54.7
CRS	Z	G's	20.9	83.0	-9.0	65.3	17.3	54.8	-20.4	25.0
CRS Resultant	N/A	G's	53.9	72.3			56.4	54.5		
CRS Seat Back	X	G's	48.9	149.2	-53.3	82.1				
CRS Seat Back	Y	G's	21.3	39.9	-44.0	84.7				
CRS Seat Back	Z	G's	54.2	187.6	-23.3	193.2				
CRS Seat Back Resultant	N/A	G's	62.4	82.4						

CHILD SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt Force	N/A	Newtons	4244.3	66.8	-9.9	12.3				
Shoulder Belt Force	N/A	Newtons	7516.2	79.6	-142.6	191.4				
Shoulder Belt Pullout	N/A	MM	149.7	93.6	0.0	8.5				
Shoulder Belt Elongation	N/A	MM/CM	0.0	0.0	0.0	0.0				

1.) Not installed

CRS TETHER BELT SENSOR PEAK VALUES

Location	Axis	Units	LR 2nd Row (10 Yr.)				CR 2nd Row (3 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
CRS Upper Tether Force	N/A	Newtons					513.9	98.0	-107.6	30.5

DATA SHEET NO.5 CRS PERFORMANCE DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

CRS PERFORMANCE DATA

Location	P4 CRS		P6 CRS	
	Damage	Post-Test	Damage	Post-Test
Upper Tether Strap	No	None	No	None
Upper Tether Buckle	No	None	No	None
Upper Tether Hook	No	None	No	None
Veh. Upper Tether Anchor	No	None	No	None
Lower Anchor Strap	No	None	No	None
Lower Anchor Buckle	No	None	No	None
Lower Anchor Hooks	No	None	No	None
Veh. Lower CRS Anchors	No	None	No	None
5-Point Harness Connections	No	None	No	None
Cracks on CRS	No	None	No	None
Fabric Tears on CRS	No	None	No	None
Vehicle Seat Structure	No	None	No	None
Vehicle Seat Fabric Tears	No	None	No	None

DATA SHEET NO.6 CRS CAMERA DATA

Test Vehicle: 2005 Ford E-150 XL Wagon 4-Door MPV

NHTSA No.: M50207

Test Program 2005 NHTSA 35mph NCAP

Test Date: 1/18/05

CAMERA LOCATIONS

No.	Camera View	Location(mm)			Film Plane to Head	Angle (Deg.)	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Center Rear Dummy Onboard	-2210	965	-1800	1562	-10	13	1000
2	Left Rear Dummy Onboard	-2210	-965	1800	1050	-10	13	1000

ADDITIONAL CAMERAS

1	Rear Dummies Onboard	-1676	-25	-1240		0	8.5	1000
2	Rear Dummies Onboard	-2743	965	-1800		-10	8.5	1000

X = Barrier Face Y = Monorail Centerline Z = Ground DNR = Did Not Run NTM = No Time Marks

SECTION F-2
PHOTOGRAPHS

LIST OF CRS PHOTOGRAPHS

Figure		Page
1	Close-up, Position 6 CRS Label	F2-1
2	Pre-Test Frontal View of Position 6 CRS	F2-2
3	Post-Test Frontal View of Position 6 CRS	F2-3
4	Pre-Test Rear View of Position 6 CRS	F2-4
5	Post-Test Rear View of Position 6 CRS	F2-5
6	Pre-Test Left Side View of Position 6 CRS	F2-6
7	Post-Test Left Side View of Position 6 CRS	F2-7
8	Pre-Test Right Side View of Position 6 CRS	F2-8
9	Post-Test Right Side View of Position 6 CRS	F2-9
10	Pre-Test Position 6 Front View (Head Position)	F2-10
11	Post-Test Position 6 Front View (Head Position)	F2-11
12	Pre-Test Position 6 Front View (Seat Belt Position)	F2-12
13	Post-Test Position 6 Front View (Seat Belt Position)	F2-13
14	Pre-Test Position 6 Right Side View (Through Window)	F2-14
15	Post-Test Position 6 Right Side View (Through Window)	F2-15
16	Pre-Test Position 6 Right Side View	F2-16
17	Post-Test Position 6 Right Side View	F2-17
18	Post-Test Position 6 Dummy Legs	F2-18
19	Close-up, Position 4 CRS Label	F2-19
20	Pre-Test Frontal View of Position 4 CRS	F2-20
21	Post-Test Frontal View of Position 4 CRS	F2-21
22	Pre-Test Rear View of Position 4 CRS	F2-22
23	Post-Test Rear View of Position 4 CRS	F2-23
24	Pre-Test Left Side View of Position 4 CRS	F2-24
25	Post-Test Left Side View of Position 4 CRS	F2-25
26	Pre-Test Right Side View of Position 4 CRS	F2-26
27	Post-Test Right Side View of Position 4 CRS	F2-27
28	Pre-Test Position 4 Front View (Head Position)	F2-28
29	Post-Test Position 4 Front View (Head Position)	F2-29
30	Pre-Test Position 4 Front View (Seat Belt Position)	F2-30
31	Post-Test Position 4 Front View (Seat Belt Position)	F2-31
32	Pre-Test Position 4 Left Side View (Through Window)	F2-32
33	Post-Test Position 4 Left Side View (Through Window)	F2-33
34	Pre-Test Position 4 Right Side View	F2-34
35	Post-Test Position 4 Right Side View	F2-35
36	Post-Test Position 4 Dummy Legs	F2-36

SECTION F-3

CHILD DUMMY RESPONSE AND CRS DATA TRACES

LIST OF DATA PLOTS

Data Plot	Page	
F3-1	Left Rear 2nd Row (10 Yr.) Head X	F3-1
	Left Rear 2nd Row (10 Yr.) Head Y	F3-1
	Left Rear 2nd Row (10 Yr.) Head Z	F3-1
	Left Rear 2nd Row (10 Yr.) Head Resultant	F3-1
F3-2	Left Rear 2nd Row (10 Yr.) Upper Neck Force X	F3-2
	Left Rear 2nd Row (10 Yr.) Upper Neck Force Y	F3-2
	Left Rear 2nd Row (10 Yr.) Upper Neck Force Z	F3-2
	Left Rear 2nd Row (10 Yr.) Upper Neck Force Resultant	F3-2
F3-3	Left Rear 2nd Row (10 Yr.) Upper Neck Moment X	F3-3
	Left Rear 2nd Row (10 Yr.) Upper Neck Moment Y	F3-3
	Left Rear 2nd Row (10 Yr.) Upper Neck Moment Z	F3-3
	Left Rear 2nd Row (10 Yr.) Upper Neck Moment Resultant	F3-3
F3-4	Left Rear 2nd Row (10 Yr.) Chest X	F3-4
	Left Rear 2nd Row (10 Yr.) Chest Y	F3-4
	Left Rear 2nd Row (10 Yr.) Chest Z	F3-4
	Left Rear 2nd Row (10 Yr.) Chest Resultant	F3-4
F3-5	Left Rear 2nd Row (10 Yr.) Chest Deflection	F3-5
F3-6	Left Rear 2nd Row (10 Yr.) Pelvis X	F3-6
	Left Rear 2nd Row (10 Yr.) Pelvis Y	F3-6
	Left Rear 2nd Row (10 Yr.) Pelvis Z	F3-6
	Left Rear 2nd Row (10 Yr.) Pelvis Resultant	F3-6
F3-7	Left Rear 2nd Row (10 Yr.) Left Femur Force	F3-7
	Left Rear 2nd Row (10 Yr.) Right Femur Force	F3-7
F3-8	Left Rear 2nd Row (10 Yr.) Lumbar Force X	F3-8
	Left Rear 2nd Row (10 Yr.) Lumbar Force Y	F3-8
	Left Rear 2nd Row (10 Yr.) Lumbar Force Z	F3-8
	Left Rear 2nd Row (10 Yr.) Lumbar Force Resultant	F3-8
F3-9	Left Rear 2nd Row (10 Yr.) Lumbar Moment X	F3-9
	Left Rear 2nd Row (10 Yr.) Lumbar Moment Y	F3-9
	Left Rear 2nd Row (10 Yr.) Lumbar Moment Z	F3-9
	Left Rear 2nd Row (10 Yr.) Lumbar Moment Resultant	F3-9
F3-10	Left Rear 2nd Row (10 Yr.) Left Clavicle Force X	F3-10
	Left Rear 2nd Row (10 Yr.) Left Clavicle Force Z	F3-10
	Left Rear 2nd Row (10 Yr.) Right Clavicle Force X	F3-10
	Left Rear 2nd Row (10 Yr.) Right Clavicle Force Z	F3-10

LIST OF DATA PLOTS... (CONTINUED)

Data Plot	Page	
F3-11	Left Rear 2nd Row (10 Yr.) Left Upper ASIS Force	F3-11
	Left Rear 2nd Row (10 Yr.) Left Lower ASIS Force	F3-11
	Left Rear 2nd Row (10 Yr.) Right Upper ASIS Force	F3-11
	Left Rear 2nd Row (10 Yr.) Right Lower ASIS Force	F3-11
F3-12	Left Rear 2nd Row (10 Yr.) Lap Belt Force	F3-12
	Left Rear 2nd Row (10 Yr.) Shoulder Belt Force	F3-12
	Left Rear 2nd Row (10 Yr.) Shoulder Belt Pullout	F3-12
	Left Rear 2nd Row (10 Yr.) Shoulder Belt Elongation	F3-12
F3-13	Left Rear 2nd Row (10 Yr.) CRS X	F3-13
	Left Rear 2nd Row (10 Yr.) CRS Y	F3-13
	Left Rear 2nd Row (10 Yr.) CRS Z	F3-13
	Left Rear 2nd Row (10 Yr.) CRS Resultant	F3-13
F3-14	Left Rear 2nd Row (10 Yr.) CRS Seat Back X	F3-14
	Left Rear 2nd Row (10 Yr.) CRS Seat Back Y	F3-14
	Left Rear 2nd Row (10 Yr.) CRS Seat Back Z	F3-14
	Left Rear 2nd Row (10 Yr.) CRS Seat Back Resultant	F3-14
F3-15	Center Rear 2nd Row (3 Yr.) Head X	F3-15
	Center Rear 2nd Row (3 Yr.) Head Y	F3-15
	Center Rear 2nd Row (3 Yr.) Head Z	F3-15
	Center Rear 2nd Row (3 Yr.) Head Resultant	F3-15
F3-16	Center Rear 2nd Row (3 Yr.) Upper Neck Force X	F3-16
	Center Rear 2nd Row (3 Yr.) Upper Neck Force Y	F3-16
	Center Rear 2nd Row (3 Yr.) Upper Neck Force Z	F3-16
	Center Rear 2nd Row (3 Yr.) Upper Neck Force Resultant	F3-16
F3-17	Center Rear 2nd Row (3 Yr.) Upper Neck Moment X	F3-17
	Center Rear 2nd Row (3 Yr.) Upper Neck Moment Y	F3-17
	Center Rear 2nd Row (3 Yr.) Upper Neck Moment Z	F3-17
	Center Rear 2nd Row (3 Yr.) Upper Neck Moment Resultant	F3-17
F3-18	Center Rear 2nd Row (3 Yr.) Lower Neck Force X	F3-18
	Center Rear 2nd Row (3 Yr.) Lower Neck Force Y	F3-18
	Center Rear 2nd Row (3 Yr.) Lower Neck Force Z	F3-18
	Center Rear 2nd Row (3 Yr.) Lower Neck Force Resultant	F3-18

LIST OF DATA PLOTS... (CONTINUED)

<u>Data Plot</u>		<u>Page</u>
F3-19	Center Rear 2nd Row (3 Yr.) Lower Neck Moment X	F3-19
	Center Rear 2nd Row (3 Yr.) Lower Neck Moment Y	F3-19
	Center Rear 2nd Row (3 Yr.) Lower Neck Moment Z	F3-19
	Center Rear 2nd Row (3 Yr.) Lower Neck Moment Resultant	F3-19
F3-20	Center Rear 2nd Row (3 Yr.) Chest X	F3-20
	Center Rear 2nd Row (3 Yr.) Chest Y	F3-20
	Center Rear 2nd Row (3 Yr.) Chest Z	F3-20
	Center Rear 2nd Row (3 Yr.) Chest Resultant	F3-20
F3-21	Center Rear 2nd Row (3 Yr.) Chest Deflection	F3-21
F3-22	Center Rear 2nd Row (3 Yr.) Pelvis X	F3-22
	Center Rear 2nd Row (3 Yr.) Pelvis Y	F3-22
	Center Rear 2nd Row (3 Yr.) Pelvis Z	F3-22
	Center Rear 2nd Row (3 Yr.) Pelvis Resultant	F3-22
F3-23	Center Rear 2nd Row (3 Yr.) CRS Upper Tether Force	F3-23
F3-24	Center Rear 2nd Row (3 Yr.) CRS X	F3-24
	Center Rear 2nd Row (3 Yr.) CRS Y	F3-24
	Center Rear 2nd Row (3 Yr.) CRS Z	F3-24
	Center Rear 2nd Row (3 Yr.) CRS Resultant	F3-24

SECTION F-4

CHILD DUMMY INSTRUMENTATION INFORMATION

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Left Rear Child A.T.D. Serial Number 011 (10 Yr.)
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
134	HEAD CG	X	GPAC047	Accel.,1/2 bridge	Endevco	7264-2000	G
135	HEAD CG	Y	GPAC048	Accel.,1/2 bridge	Endevco	7264-2000	G
136	HEAD CG	Z	GPAC049	Accel.,1/2 bridge	Endevco	7264-2000	G
137	UPPER NECK FORCE	X	10UNFX	Load cell, six axis neck	R. A. Denton	IF-234	N
138	UPPER NECK FORCE	Y	10UNFY	Load cell, six axis neck	R. A. Denton	IF-234	N
139	UPPER NECK FORCE	Z	10UNFZ	Load cell, six axis neck	R. A. Denton	IF-234	N
140	UPPER NECK MOMENT	X	10UNMX	Load cell, six axis neck	R. A. Denton	IF-234	Nm
141	UPPER NECK MOMENT	Y	10UNMY	Load cell, six axis neck	R. A. Denton	IF-234	Nm
142	UPPER NECK MOMENT	Z	10UNMZ	Load cell, six axis neck	R. A. Denton	IF-234	Nm
143	CHEST CG	X	2116-A01	Accel., Full Bridge	Entran	2000JF	G
144	CHEST CG	Y	2116-A06	Accel., Full Bridge	Entran	2000JF	G
145	CHEST CG	Z	2116-A07	Accel., Full Bridge	Entran	2000JF	G
146	CHEST DEFLECTION	X	10CP	Rotary Pot Chest	Servo	14CBI	MM
147	PELVIS	X	2116-N07	Accel., Full Bridge	Entran	2000JF	G
148	PELVIS	Y	2116-A03	Accel., Full Bridge	Entran	2000JF	G
149	PELVIS	Z	2116-A17	Accel., Full Bridge	Entran	2000JF	G
150	LEFT FEMUR FORCE	Z	KEFF001	Load cell, Femur	R.A. Denton	2090	N
151	RIGHT FEMUR FORCE	Z	KEFF002	Load cell, Femur	R.A. Denton	2090	N
152	LUMBAR FORCE	X	LUMFX	Load cell, Lumbar	R.A. Denton	2431	N
153	LUMBAR FORCE	Y	LUMFY	Load cell, Lumbar	R.A. Denton	2431	N
154	LUMBAR FORCE	Z	LUMFZ	Load cell, Lumbar	R.A. Denton	2431	N
155	LUMBAR MOMENT	X	LUMMX	Load cell, Lumbar	R.A. Denton	2431	Nm
156	LUMBAR MOMENT	Y	LUMMY	Load cell, Lumbar	R.A. Denton	2431	Nm
157	LUMBAR MOMENT	Z	LUMMZ	Load cell, Lumbar	R.A. Denton	2431	Nm

E4-1

TR-P25001-11-NC

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Left Rear Child A.T.D. Serial Number 011 (10 Yr.)
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
158	LEFT CLAVICLE FORCE	X	CLFX	Load cell, Clavicle	R.A. Denton	5400J	N
159	LEFT CLAVICLE FORCE	Z	CLFY	Load cell, Clavicle	R.A. Denton	5400J	N
160	RIGHT CLAVICLE FORCE	X	CLRFX	Load cell, Clavicle	R.A. Denton	5410J	N
161	RIGHT CLAVICLE FORCE	Z	CLRFZ	Load cell, Clavicle	R.A. Denton	5410J	N
162	LEFT ASIS UPPER	X	10LUASIS	Load cell, ASIS	R.A. Denton	3475	N
163	LEFT ASIS LOWER	X	10LLASIS	Load cell, ASIS	R.A. Denton	3475	N
164	RIGHT ASIS UPPER	X	10RUASIS	Load cell, ASIS	R.A. Denton	3476	N
165	RIGHT ASIS LOWER	X	10RLASIS	Load cell, ASIS	R.A. Denton	3476	N
166	LAP BELT FORCE	X	BL168	Load cell, Seat belt	First Tech	IF-964	N
167	SHOULDER BELT FORCE	X	BL169	Load cell, Seat belt	First Tech	IF-964	N
168	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
169	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM
170	CRS	X	KETX5A	Accel.,1/2 bridge	Endevco	7264-200	G
171	CRS	Y	KETX5B	Accel.,1/2 bridge	Endevco	7264-200	G
172	CRS	Z	KETX5C	Accel.,1/2 bridge	Endevco	7264-200	G
173	CRS SEAT BACK	X	KETX1A	Accel.,1/2 bridge	Endevco	7264-200	G
174	CRS SEAT BACK	Y	KETX1B	Accel.,1/2 bridge	Endevco	7264-200	G
175	CRS SEAT BACK	Z	KETX1C	Accel.,1/2 bridge	Endevco	7264-200	G

**2005 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Center Rear Child A.T.D. Serial Number 082 (3 Yr.)
1/18/05
2005 Ford E-150 XL Wagon 4-Dr MPV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
176	HEAD CG	X	GPAC050	Accel.,1/2 bridge	Endevco	7264-2000	G
177	HEAD CG	Y	GPAC051	Accel.,1/2 bridge	Endevco	7264-2000	G
178	HEAD CG	Z	GPAC052	Accel.,1/2 bridge	Endevco	7264-2000	G
179	UPPER NECK FORCE	X	082UNFX	Load cell, six axis neck	R. A. Denton	IF-234	N
180	UPPER NECK FORCE	Y	082UNFY	Load cell, six axis neck	R. A. Denton	IF-234	N
181	UPPER NECK FORCE	Z	082UNFZ	Load cell, six axis neck	R. A. Denton	IF-234	N
182	UPPER NECK MOMENT	X	082UNMX	Load cell, six axis neck	R. A. Denton	IF-234	Nm
183	UPPER NECK MOMENT	Y	082UNMY	Load cell, six axis neck	R. A. Denton	IF-234	Nm
184	UPPER NECK MOMENT	Z	082UNMZ	Load cell, six axis neck	R. A. Denton	IF-234	Nm
185	LOWER NECK FORCE	X	082LNFX	Load cell, six axis neck	R. A. Denton	3303	N
186	LOWER NECK FORCE	Y	082LNFY	Load cell, six axis neck	R. A. Denton	3303	N
187	LOWER NECK FORCE	Z	082LNFZ	Load cell, six axis neck	R. A. Denton	3303	N
188	LOWER NECK MOMENT	X	082LNMX	Load cell, six axis neck	R. A. Denton	3303	Nm
189	LOWER NECK MOMENT	X	082LNMY	Load cell, six axis neck	R. A. Denton	3303	Nm
190	LOWER NECK MOMENT	Z	082LNMZ	Load cell, six axis neck	R. A. Denton	3303	Nm
191	CHEST CG	X	2116-A11	Accel., Full Bridge	Entran	2000JF	G
192	CHEST CG	Y	2116-A14	Accel., Full Bridge	Entran	2000JF	G
193	CHEST CG	Z	2116-A23	Accel., Full Bridge	Entran	2000JF	G
194	CHEST DEFLECTION	X	082CP	Rotary Pot Chest	Servo	14CBI	MM
195	PELVIS	X	2116-A12	Accel., Full Bridge	Entran	2000JF	G
196	PELVIS	Y	2116-A19	Accel., Full Bridge	Entran	2000JF	G
197	PELVIS	Z	2116-A17	Accel., Full Bridge	Entran	2000JF	G
198	CRS UPPER TETHER FORCE	X	BL112	Load cell, Seat belt	FGP	FN4060	N
199	CRS	X	KETX4A	Accel.,1/2 bridge	Endevco	7264-200	G
200	CRS	Y	KETX4B	Accel.,1/2 bridge	Endevco	7264-201	G
201	CRS	Z	KETX4C	Accel.,1/2 bridge	Endevco	7264-202	G

E4-3

TR-P25001-11-NC

SECTION F-5

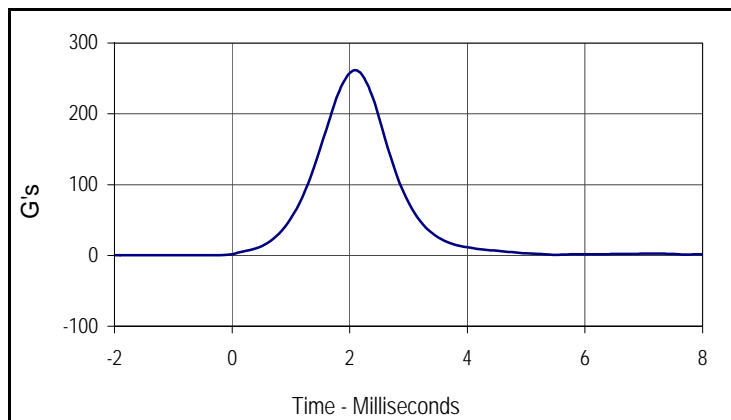
CHILD DUMMY CALIBRATION INFORMATION

Test Program: Hybrid III 10 Yr Old Head Drop Test
 ATD Serial No.: 011

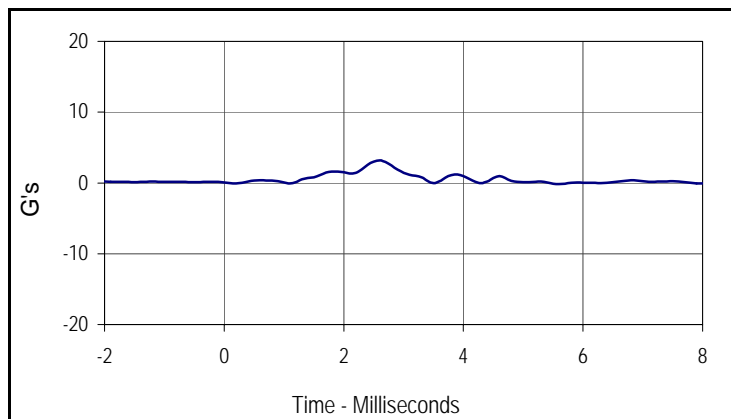
Test Date: 12/6/04
 Test I.D.: HD12A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	261.6	Pass
Peak Lateral Acceleration	G's	≤15.0	3.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<10	1.2	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
261.6	2.1	0.1	-1.5



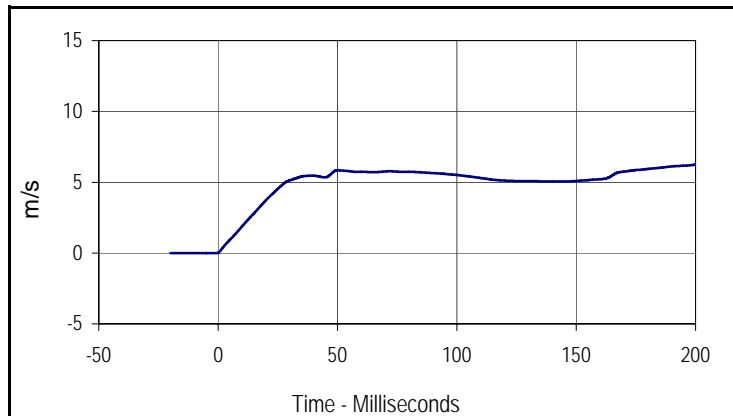
Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.2	2.6	-0.2	5.6

Test Program: Hybrid III 10 Yr Old Neck Flexion Test
 ATD Serial No.: 011

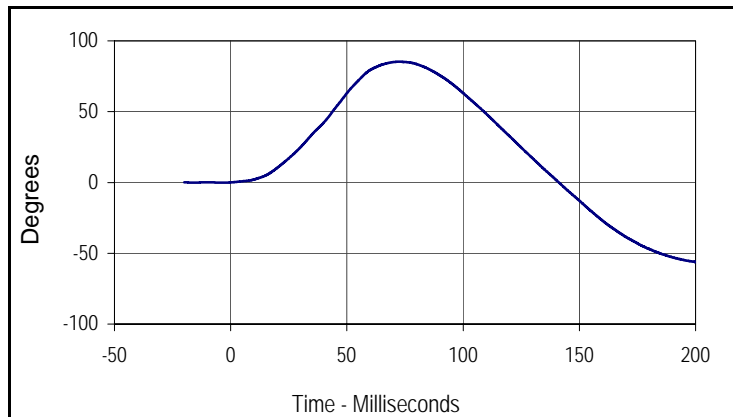
Test Date: 12/6/04
 Test I.D.: NF12A



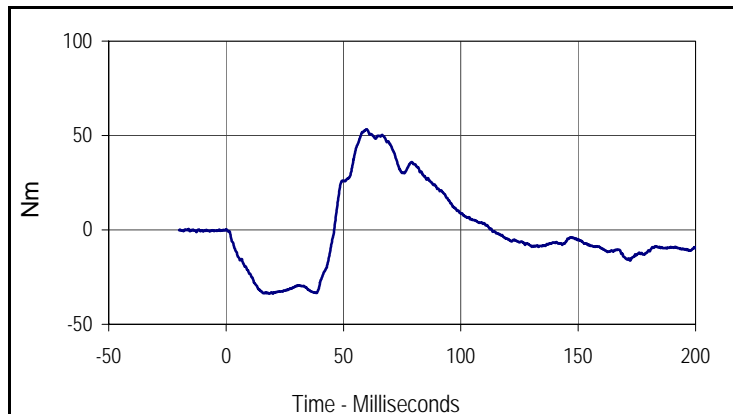
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.98 to 6.22	6.13	Pass	
Pendulum Deceleration	10 Msec.	m/s	1.64 to 2.04	1.88	Pass
	20 Msec.	m/s	3.04 to 4.04	3.72	Pass
	30 Msec.	m/s	4.45 to 5.65	5.14	Pass
"D" Plane Rotation	Max	Degrees	74.0 to 88.0	85.2	Pass
Peak Moment in Rotation	Max	Nm	50.0 to 62.0	53.3	Pass
Positive Moment Decay, Time To 10 Nm	Msec.		85.0 to 105.0	99.2	Pass
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.2	200.0	0.0	-0.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
85.2	72.3	-56.1	200.0



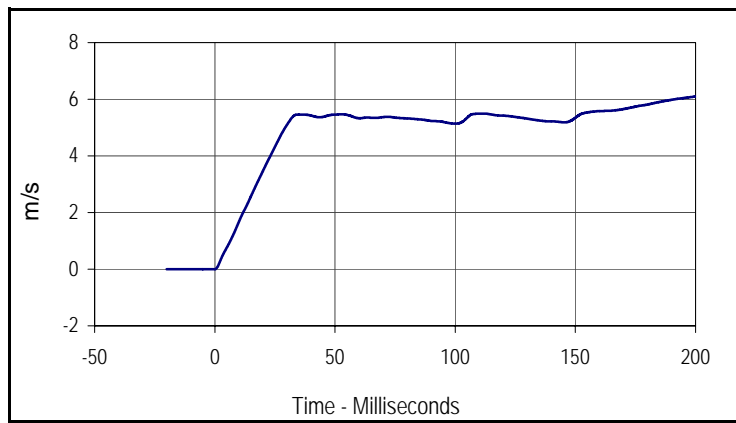
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
53.3	59.9	-33.7	18.1

Test Program: Hybrid III 10 Yr Old Neck Extension Test
 ATD Serial No.: 011

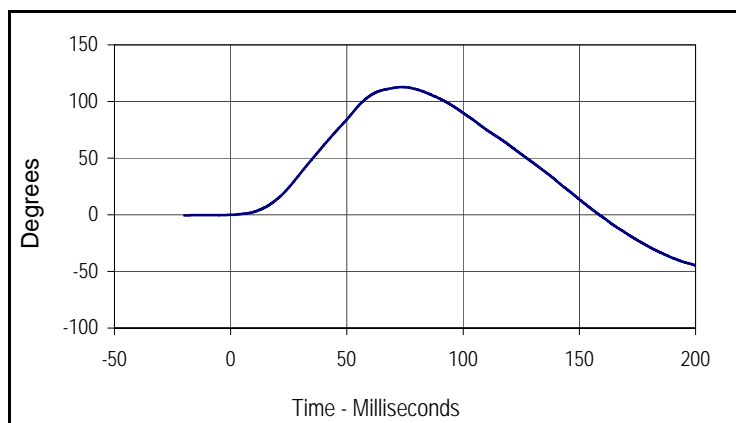
Test Date: 12/6/04
 Test I.D.: NE12A



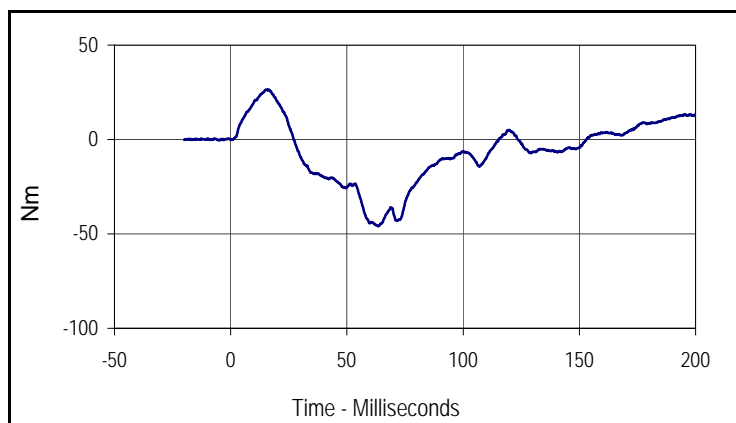
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	4.91 to 5.15	5.04	Pass	
Pendulum Deceleration	10 Msec.	m/s	1.59 to 1.89	1.67	Pass
	20 Msec.	m/s	2.88 to 3.68	3.47	Pass
	30 Msec.	m/s	4.20 to 5.20	5.10	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	112.7	Pass
Peak Moment in Rotation	Max	Nm	-35.0 to -47.0	-45.9	Pass
Positive Moment Decay, Time To 10 Nm	Msec.	100.0 to 120.0	109.9	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.1	200.0	0.0	-0.3



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
112.7	73.7	-44.8	200.0



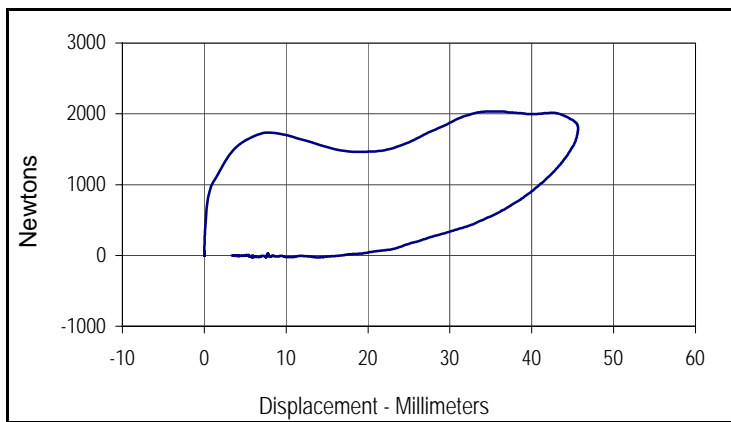
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
26.4	15.6	-45.9	63.6

Test Program: Hybrid III 10 Yr Old Thorax Impact Test
 ATD Serial No.: 011

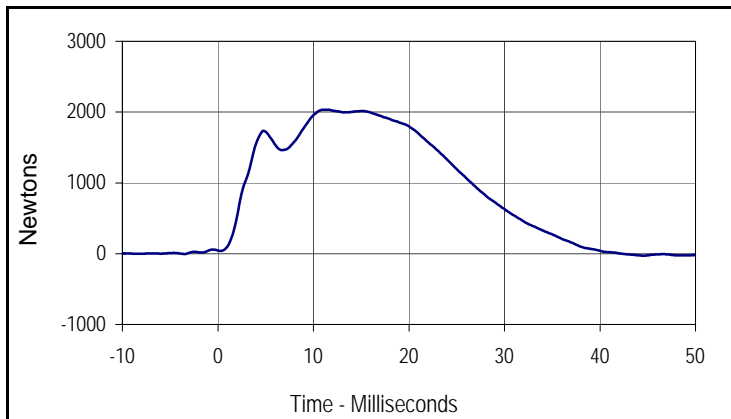
Test Date: 12/7/04
 Test I.D.: CH12A



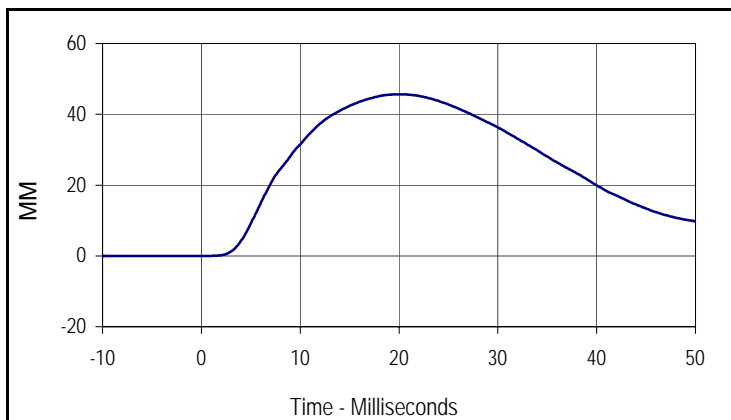
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	5.88 to 6.12	5.94	Pass
Peak Chest Deflection	MM	40.5 to 48.5	45.7	Pass
Peak Force Between 40.5 and 48.5 MM	Newtons	1830 to 2330	2035	Pass
Peak Force Between 20 and 40.5 MM	Newtons	≤2330	2014	Pass
Internal Hysteresis	%	69 to 85	81.4	Pass
Overall Test Results			Pass	Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
003	FIL	180	81.4
Peak Probe Force		Peak Chest Displ.	
2034.6		45.7	



Curve Description			
Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
2034.6	11.5	-32.8	86.9



Curve Description			
Chest Deflection			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
45.7	20.0	0.0	-8.9

Test Program: Hybrid III 10 Yr Old Knee Impact Test
 ATD Serial No.: 011

Test Date: 12/7/04
 Test I.D.: LK12A , RK12A

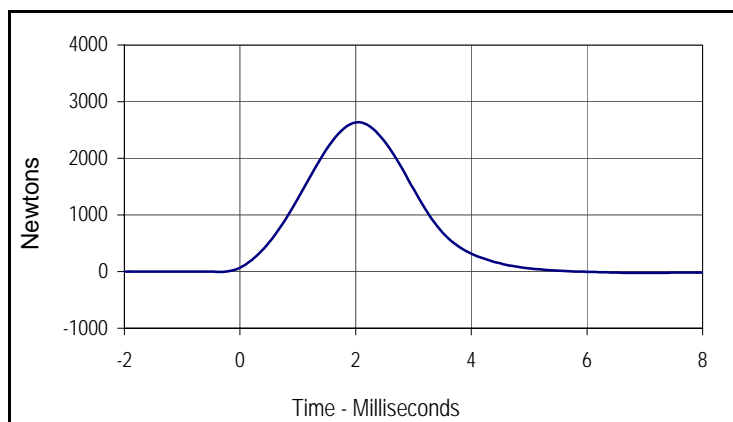


Left Knee

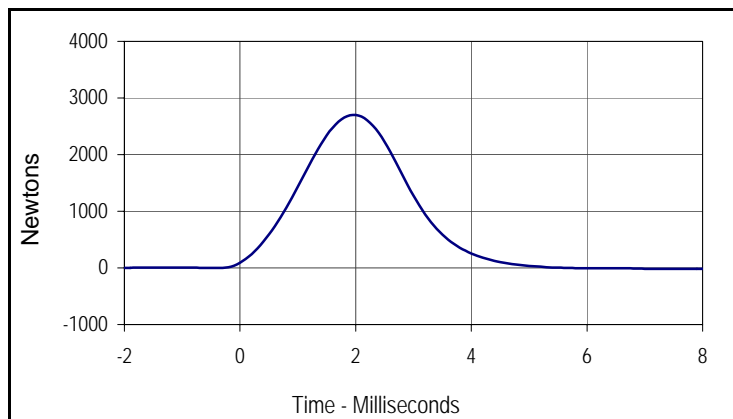
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.12	Pass
Peak Probe Force	Newtons	2560 to 3140	2633	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	2560 to 3140	2701	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
2632.9	2.0	-23.4	6.9



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
2700.5	2.0	-24.0	8.6

Test Program: Hybrid III 10 Yr Old External Measurements

Test Date: 12/8/04

ATD Serial No.: 011

Test I.D.: N/A



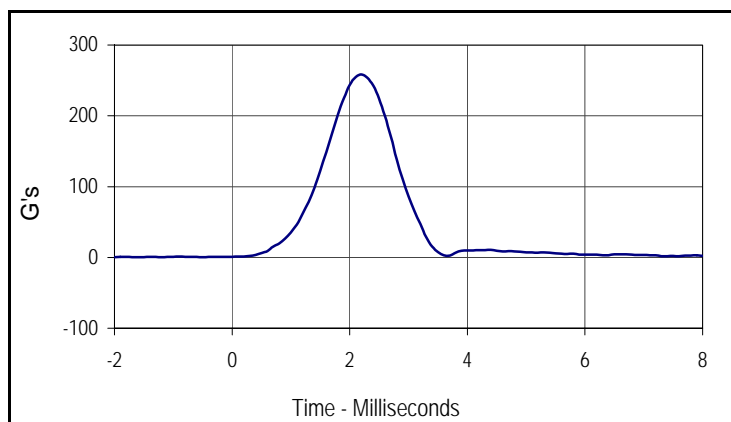
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	710 to 737	720	Pass
B - Shoulder pivot height	mm	385 to 405	400	Pass
C - "H" point height	mm	78 to 88	80	Pass
D - "H" point from backline	mm	133 to 143	140	Pass
E - Shoulder pivot from back	mm	80 to 90	85	Pass
F - Thigh clearance	mm	105 to 121	111	Pass
G - Elbow back to wrist pivot	mm	227 to 243	229	Pass
H - Skull cap to back line	mm	46 to 51	50	Pass
I - Shoulder to elbow length	mm	269 to 285	275	Pass
J - Elbow rest height	mm	137 to 158	145	Pass
K - Buttock to knee length	mm	464 to 484	472	Pass
L - Popliteal length	mm	321 to 342	325	Pass
M - Knee pivot height	mm	370 to 389	380	Pass
N - Buttock popliteal length	mm	367 to 387	375	Pass
O - Chest depth without jacket	mm	158 to 173	170	Pass
P - Foot length	mm	188 to 203	200	Pass
R - Buttock to knee pivot length	mm	414 to 434	425	Pass
S - Head breadth	mm	137 to 147	140	Pass
T - Head depth	mm	178 to 188	180	Pass
U - Hip breadth	mm	257 to 272	270	Pass
V - Shoulder breadth	mm	307 to 323	310	Pass
W - Foot breadth	mm	69 to 84	80	Pass
X - Head circumference	mm	528 to 549	535	Pass
Y - Chest circumference with jacket	mm	691 to 716	715	Pass
Z - Waist circumference	mm	696 to 721	700	Pass
AA - Location for chest circumference	mm	338 to 348	340	Pass
Overall Test Results				Pass

Test Program: Hybrid III 3 Yr Old Head Drop Test
 ATD Serial No.: 082

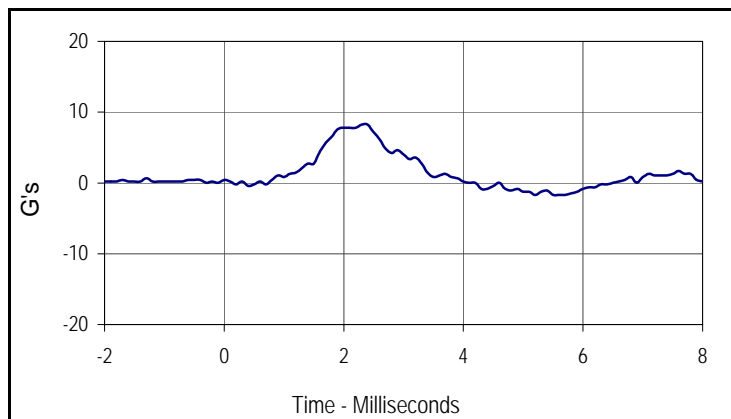
Test Date: 12/3/04
 Test I.D.: HD12G



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 280.0	258.2	Pass
Peak Lateral Acceleration	G's	≤15.0	8.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<10	4.2	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
258.2	2.2	0.4	-1.6



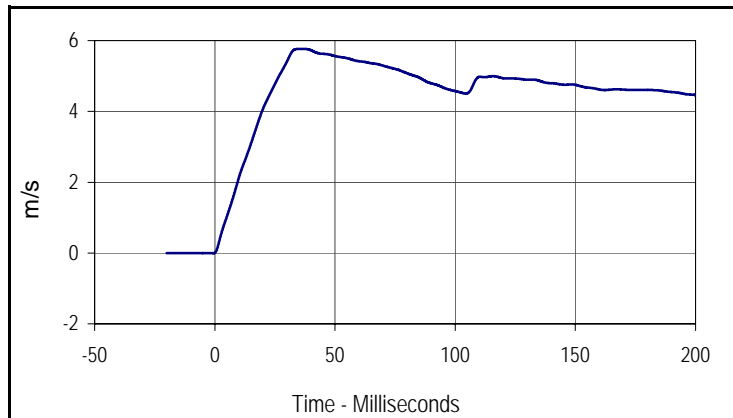
Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
8.2	2.3	-1.7	5.2

Test Program: Hybrid III 3 Yr Old Neck Flexion Test
 ATD Serial No.: 082

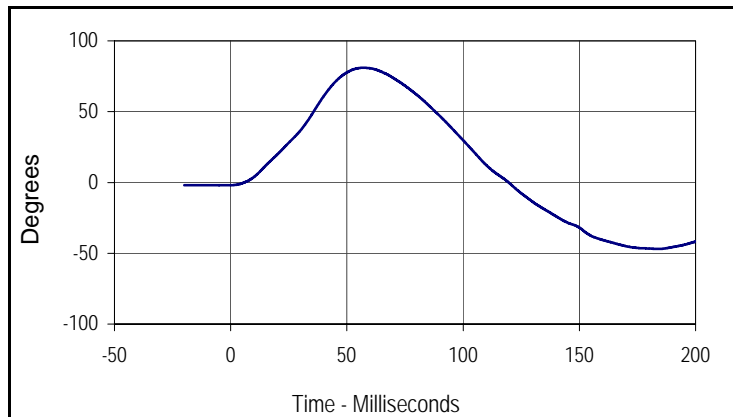
Test Date: 12/3/04
 Test I.D.: NF08A



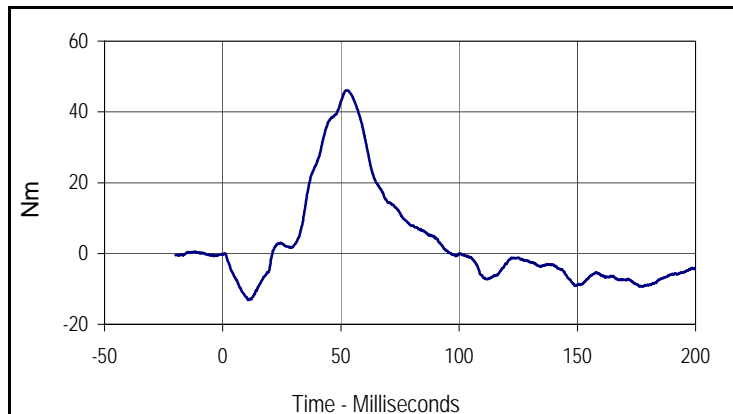
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.40 to 5.60	5.55	Pass	
Pendulum Deceleration	10 Msec.	m/s	2.0 to 2.7	2.1	Pass
	15 Msec.	m/s	3.0 to 4.0	3.1	Pass
	20 Msec.	m/s	4.0 to 5.1	4.1	Pass
"D" Plane Rotation	Max	Degrees	70.0 to 82.0	81.0	Pass
Peak Moment in Rotation	Max	Nm	42.0 to 53.0	46.1	Pass
Positive Moment Decay, Time To 10 Nm	Msec.		60.0 to 80.0	76.2	Pass
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
5.8	37.3	0.0	-0.5



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
81.0	57.0	-46.9	183.9



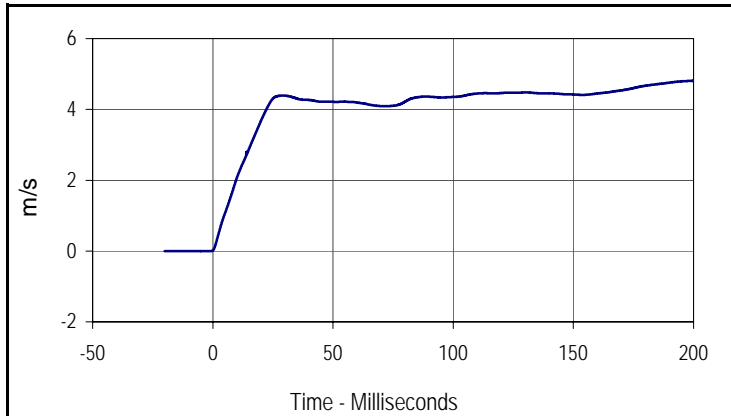
Curve Description			
Neck Moment Y			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
46.1	52.7	-13.1	10.8

Test Program: Hybrid III 3 Yr Old Neck Extension Test
 ATD Serial No.: 082

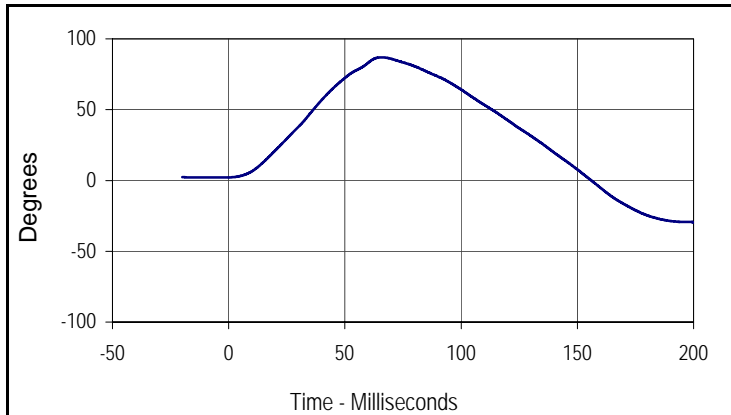
Test Date: 12/3/04
 Test I.D.: NE12H



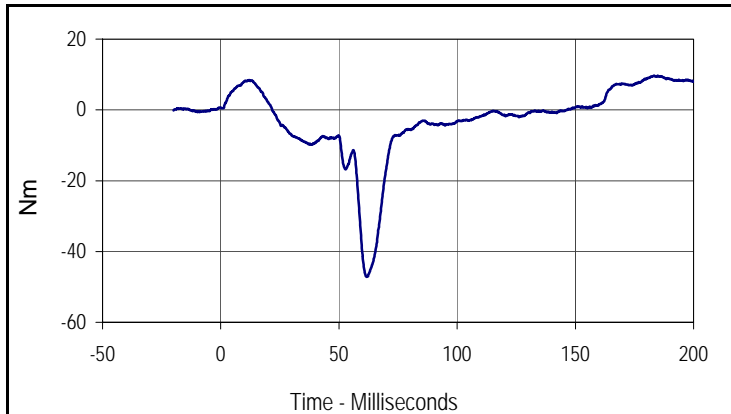
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	3.55 to 3.75	3.72	Pass	
Pendulum Deceleration	6 Msec.	m/s	1.0 to 1.4	1.2	Pass
	10 Msec.	m/s	1.9 to 2.5	2.1	Pass
	14 Msec.	m/s	2.8 to 3.5	2.8	Pass
"D" Plane Rotation	Max	Degrees	83.0 to 93.0	87.0	Pass
Peak Moment in Rotation	Max	Nm	-43.7 to -53.3	-47.1	Pass
Positive Moment Decay, Time To -10 Nm	Msec.		60.0 to 80.0	71.7	Pass
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
4.8	200.0	0.0	-0.9



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
87.0	65.7	-29.4	200.0



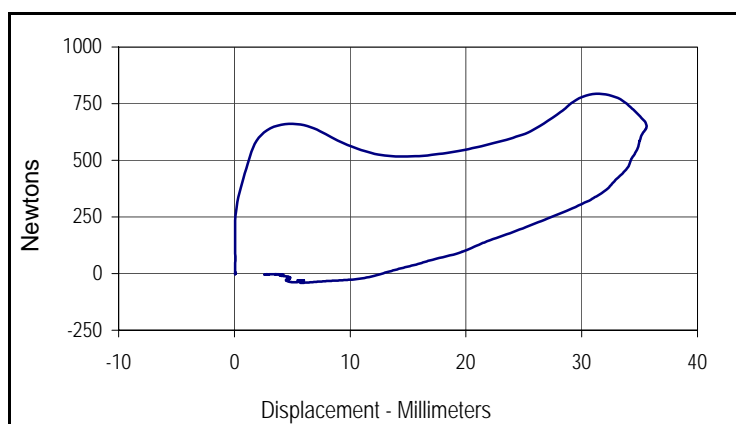
Curve Description			
Neck Moment Y			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
9.7	183.3	-47.1	61.7

Test Program: Hybrid III 3 Yr Old Thorax Impact Test
 ATD Serial No.: 082

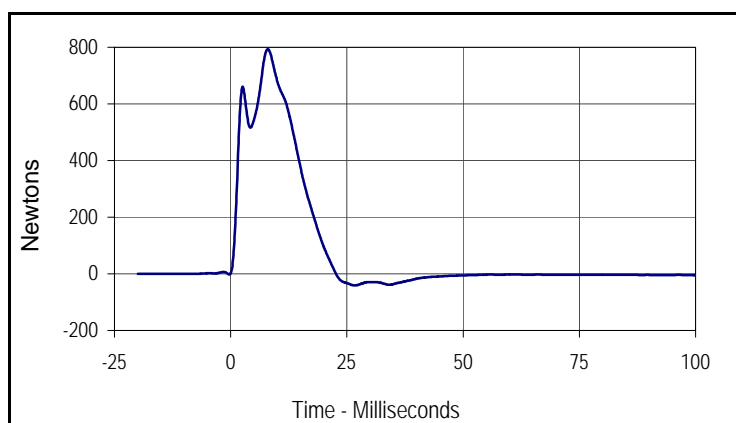
Test Date: 12/8/04
 Test I.D.: CH12G



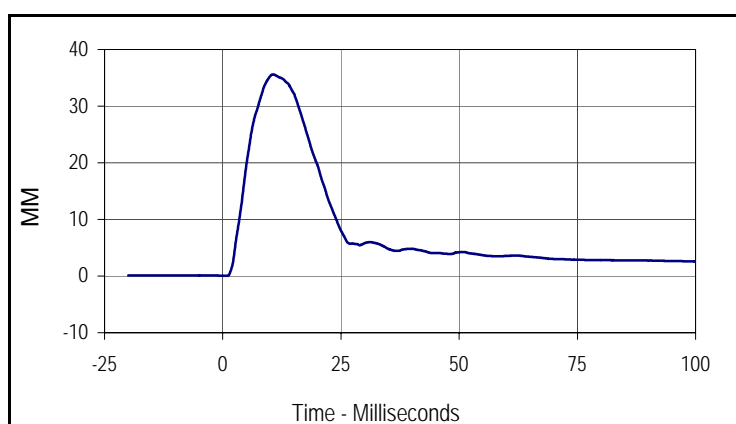
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	5.9 to 6.1	5.93	Pass
Peak Chest Deflection	MM	32 to 38	35.6	Pass
Peak Force Between 32 and 38 MM	Newtons	680 to 810	791.0	Pass
Peak Force Between 12.5 and 32 MM	Newtons	≤910	793.6	Pass
Internal Hysteresis	%	65 to 85	78.2	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
004	FIL	180/600	78.2
Peak Probe Force		Peak Chest Displ.	
793.6		35.6	



Curve Description			
Probe Force			
CURNO	Type	SAE Class	Units
003	FIL	180	Newtons
Max	Time	Min	Time
793.6	8.0	-41.0	26.7



Curve Description			
Chest Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.6	10.7	0.1	1.0

Test Program: Hybrid III 3 Yr Old Torso Flexion Test

Test Date: 12/8/04

ATD Serial No.: 082

Test I.D.: TF12H



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Initial reference plane angle	Degrees	≤15.0	3.5	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	130.0 to 180.0	153.5	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	0.9	Pass
Final reference plane angle	Degrees	+/-10	3.5	Pass
Overall Test Results				Pass

Test Program: Hybrid III 3 Yr Old External Measurements

Test Date: 12/8/04

ATD Serial No.: 082

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	539 to 554	550	Pass
B - Shoulder pivot height	mm	307 to 323	315	Pass
C - "H" point height	mm	34 to 45	36	Pass
D - "H" point from backline	mm	57 to 67	65	Pass
E - Shoulder pivot from back	mm	61 to 71	62	Pass
F - Thigh clearance	mm	81 to 91	87	Pass
G - Elbow back to wrist pivot	mm	247 to 263	260	Pass
H - Skull cap to back line	mm	48 to 58	49	Pass
I - Shoulder to elbow length	mm	185 to 201	190	Pass
J - Elbow rest height	mm	134 to 149	148	Pass
K - Buttock to knee length	mm	285 to 300	299	Pass
L - Popliteal length	mm	219 to 234	225	Pass
M - Knee pivot height	mm	242 to 257	256	Pass
N - Buttock popliteal length	mm	218 to 233	225	Pass
O - Chest depth with jacket	mm	139 to 154	148	Pass
P - Foot length	mm	138 to 148	139	Pass
R - Buttock to knee pivot length	mm	251 to 262	255	Pass
S - Head Breadth	mm	128 to 144	140	Pass
T - Head Depth	mm	167 to 183	169	Pass
U - Hip breadth	mm	201 to 216	208	Pass
V - Shoulder breadth	mm	237 to 252	250	Pass
W - Foot breadth	mm	54 to 64	55	Pass
X - Head circumference	mm	500 to 516	510	Pass
Y - Chest circumference with jacket	mm	527 to 553	532	Pass
Z - Waist circumference	mm	527 to 553	550	Pass
AA - Location for chest circumference	mm	249 to 259	255	Pass
BB - Location for waist circumference	mm	160 to 170	165	Pass
Overall Test Results				Pass