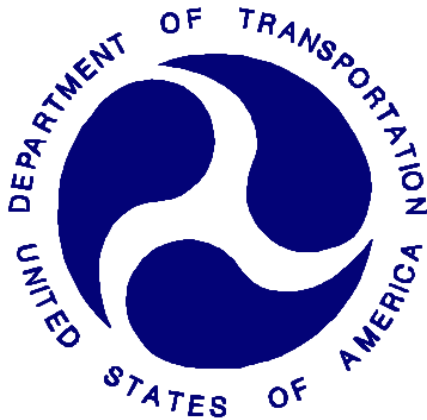


**NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST**

**HYUNDAI MOTOR COMPANY
2004 HYUNDAI ACCENT
2 DOOR COUPE**

NHTSA NUMBER: M40502

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



12/04/03

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**

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Prepared by: _____
Mr. James E. Gorth, Project Engineer
KARCO Engineering, LLC

Date: December 8, 2003

Reviewed by: _____
Mr. Jerry L. Kratzke, Director of Operations
KARCO Engineering, LLC

Date: December 8, 2003

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

Date: December 8, 2003

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

Technical Report Documentation Page

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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2004 Hyundai Accent 2 Door Coupe at Karco Engineering, LLC on 12/4/03. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity is 55.86 km/h. The ambient temperature at the barrier face at the time of impact is 16.7 degrees Celcius. The vehicle's maximum post test static crush is 409 mm to the right of the vehicle centerline. The test vehicle is 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)		N/A	1000	324.4	524.8
Max. Chest Accel. (3 msec Clip)		G's	60	41.3	46.2
Left Femur Force		Newtons	10008	-3027.4	-2284.3
Right Femur Force		Newtons	10008	-4192.1	-1002.8
17. Key Words 56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) 2004 Hyundai Accent 2 Door Coupe NHTSA No. M40502				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	
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SECTION 1

PURPOSE AND SUMMARY OF TEST M40502

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-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.

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

1.2 SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2004 Hyundai Accent 2 Door Coupe at a velocity of 55.86 km/h. The test was performed at Karco Engineering, LLC on December 4, 2003.

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

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

Both ATDs were fully instrumented with nine accelerometer array head, chest and pelvis 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. The driver (position 1) ATD (Serial No. 34) and the right-front passenger (position 2) ATD (Serial No. 35) were calibrated prior to this test.

One hundred and nine (109) 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). (NOT USED FOR THIS TEST). Appendix G contains the Nine Accelerometer Head Array Data.

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 409 mm and both the driver and the passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The driver ATD head and chest contacted the airbag. The abdomen had no contact. Both knees contacted the knee bolster and steering column.

The passenger's visible contact points were as follows: The passenger ATD head and chest contacted the airbag. The abdomen had no contact. Both knees contacted the glovebox.

Occupant injury data is contained in table below.

OCCUPANT DATA SUMMARY

ATD Position	HIC	Clip (g)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)	Belt Spool (mm)
Driver	324.4	41.3	-21.0	-3027.4	-4192.1	109.9
Passenger	524.8	46.2	-18.2	-2284.3	-1002.8	*

* Channel Failed at 49.6 msec.

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe

NHTSA No.: M40502

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/04/03

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: 2004 Hyundai Accent 2 Door Coupe
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
Test Date: 12/04/03

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	55.86
Test Weight	kg	1287
Impact Angle	degrees	0
Average Rebound	mm	1377
Maximum Static Crush	mm	409

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door opening	Remained closed, opened w/o tools	Remained closed, opened w/o tools
Rear Door Opening	N/A	N/A
Seat Track Shift (mm)	None	None
Seat Back Failure	None	None

TEST DUMMY INFORMATION

Description	Driver	Passenger
Dummy Type/ Serial No.	50% Male Hybrid III No. 34	50% Male Hybrid III No. 35
Head Contact	Airbag	Airbag
Chest Contact	Airbag	Airbag
Abdomen Contact	None	Airbag
Left Knee Contact	Steering Column/Bolster	Glovebox
Right Knee Contact	Steering Column/Bolster	Glovebox

16mm MOVIE COVERAGE

High Speed	14
Real Time	1
Total	15

DATA CHANNELS

Driver ATD Sensors	46
Passenger ATD Sensors	46
Belt Assessment Sensors	8
Vehicle Structure Accelerometers	9
Rigid Barrier Load Cells	36
Total	145

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M40502	Anti-Lock Brakes	No
Make	Hyundai	All Wheel Drive	No
Model	Accent	Power Steering	Yes
Body Style	2-Door	Driver Front Airbag	Yes
Vin No.	KMHCF35C64U287872	Driver Side Airbag	Yes
Color	White	Driver Head Airbag	No
Delivery Date	11/25/2003	Driver Curtain Airbag	No
Odometer	7	Pass. Airbag	Yes
Dealer	Romero Hyundai	Pass. Side Airbag	Yes
Transmission	5 Speed Manual	Pass. Head Airbag	No
Final Drive	Front	Pass. Curtain Airbag	No
Type/No. Cyl.	In-Line 4	Pre-Tensioners	Yes
Engine Disp. (L)	1.6	Load Limiters	Yes
Engine Placement	Transverse	Bucket Seats	Yes
Roof Rack	No	Air. Cond.	No
Sunroof/T-Top	No	AM/FM Cassette	Yes
Tinted Glass	No	Tilt Steering	No
Traction Control	No	Automatic Door Locks	No
Power Brakes	Yes	Power Windows	No
Front Disc	Yes	Power Seats	No
Rear Disc	No	Other	None

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

N/A

DATA FROM CERTIFICATION LABEL

Manufactured By	Hyundai Motor Company	GVWR (kg)	1555
Date of Manufacture	Aug-03	GAWR Front (kg)	820
		GAWR Rear (kg)	850

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

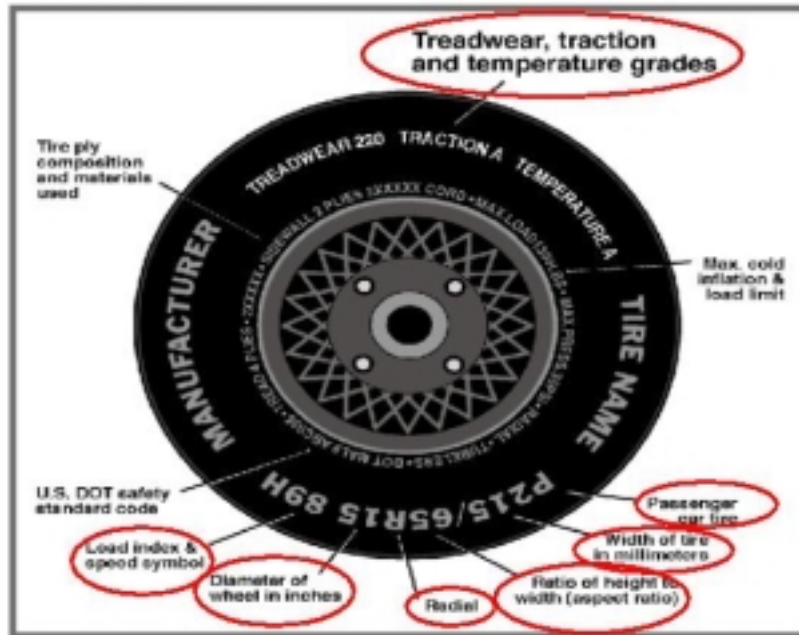
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bucket	None	
Number of Occupants	2	3		5
Capacity Weight (VCW) (kg)				386
Cargo Weight (RCLW) (kg)				45

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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

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)	308	308
Cold Pressure (kpa)	230	230
Recommended Tire Size	P175/70R13	P175/70R13
Tire Size on Vehicle	P175/70R13	P175/70R13
Tire Manufacturer	Kumho	Kumho
Treadwear	380	380
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2	2
Tire Plies Body	2	2
Load Index/Speed Symbol	82T	82T
Tire Material	Polyester/Steel	Polyester/Steel
DOT Safety Code Right	Y08JYP1A2603	Y08JYP1A2603
DOT Safety Code Left	Y08JYP1A2603	Y08JYP1A2603

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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	334	225		372	285	
Right	kg	322	216		360	270	
Ratio	%	59.8	40.2		56.9	43.1	
Totals	kg	656	441	1097	732	555	1287

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1097
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Wt. (RCLW)	kg	45
Calculated Vehicle Target Wt. (TVTW)	kg	1294

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	650	655	644	644	982
As Tested	mm	633	645	613	620	1054

Vehicle Wheel Base (mm) 2444

Weight of Ballast Secured in cargo area (kg) 0

Vehicle Components Removed Trunk lid, rear windows, spare tire, muffler, rear lights and rear bumper.

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

FUEL SYSTEM DATA

Fuel System Capacity From Owners Manual (L) 45.05

Usable Capacity Furnished by COTR (L) 45.05

Actual Test Volume with entire fuel System Filled (L) 41.87

1/3 of Usable Capacity (L) N/A

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: Key operated w/automatic shutoff.

DATA SHEET NO. 3
POST TEST IMPACT DATA

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
Test Date: 12/04/03

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No.1 Velocity (Primary)	km/h	55.51 to 57.12	55.86
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	55.88
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	4112	3748	-364
Center	mm	4209	3804	-405
Right Side	mm	4112	3703	-409

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1420
Center	mm	1345
Right Side	mm	1365
Average	mm	1377

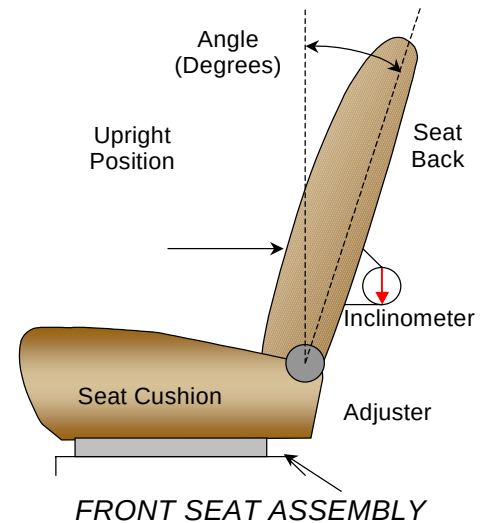
DATA SHEET NO. 4
TEST VEHICLE INFORMATION

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
Test Date: 12/04/03

NOMINAL DESIGN RIDING POSITION

The driver and passenger seat backs are positioned to the manufacturers designated angle. The procedure is as follows: A special application tool with pointed probes is inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly, approximately 13 inches above the pivot point of the seat back. An inclinometer is placed against the flat surface of the tool and the seat back angle is measured directly from the dial face.



SEAT BACK ANGLES

	Deg.
Driver w/seated dummy	25.5
Passenger w/seated Dummy	25.5

SEAT FORE/AFT POSITIONS

The first or forward most position is counted as number one (1). The fore/aft position is set aft of the middle position for both the driver and passenger.

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position #
Driver Seat	19	10
Passenger Seat	19	10

SEAT BELT UPPER ANCHORAGE

Position number one (1) is the uppermost position.

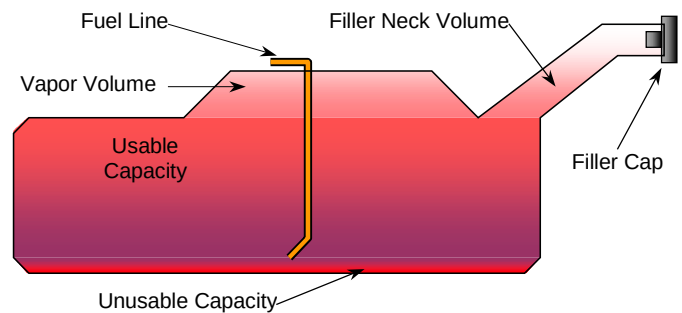
SEAT BELT UPPER ANCHORAGE

	Total # of Positions	Placed in Position #
Driver Seat	4	2
Passenger Seat	4	2

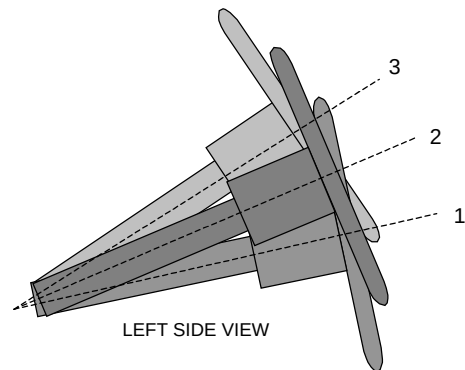
DATA SHEET NO. 4.....(CONTINUED)**TEST VEHICLE INFORMATION**Test Vehicle: 2004 Hyundai Accent 2 Door CoupeNHTSA No.: M40502Test Program: 2004 NHTSA 35mph NCAPTest Date: 12/04/03**FUEL TANK CAPACITY**

	Liters
Usable Capacity of "Standard Tank"	45.05
Usable Capacity of "Optional" Tank	N/A
Usable Capacity used for FMVSS 301	41.41 to 42.32
Actual Amount of Solvent used	41.87
1/3 of Usable Capacity	N/A

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**

	Degrees
Lowermost position No. 1	N/A
Geometric center position No. 2	64.0
Uppermost position No. 3	N/A

Note: Steering column is fixed on this vehicle

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
Test Date: 12/04/03

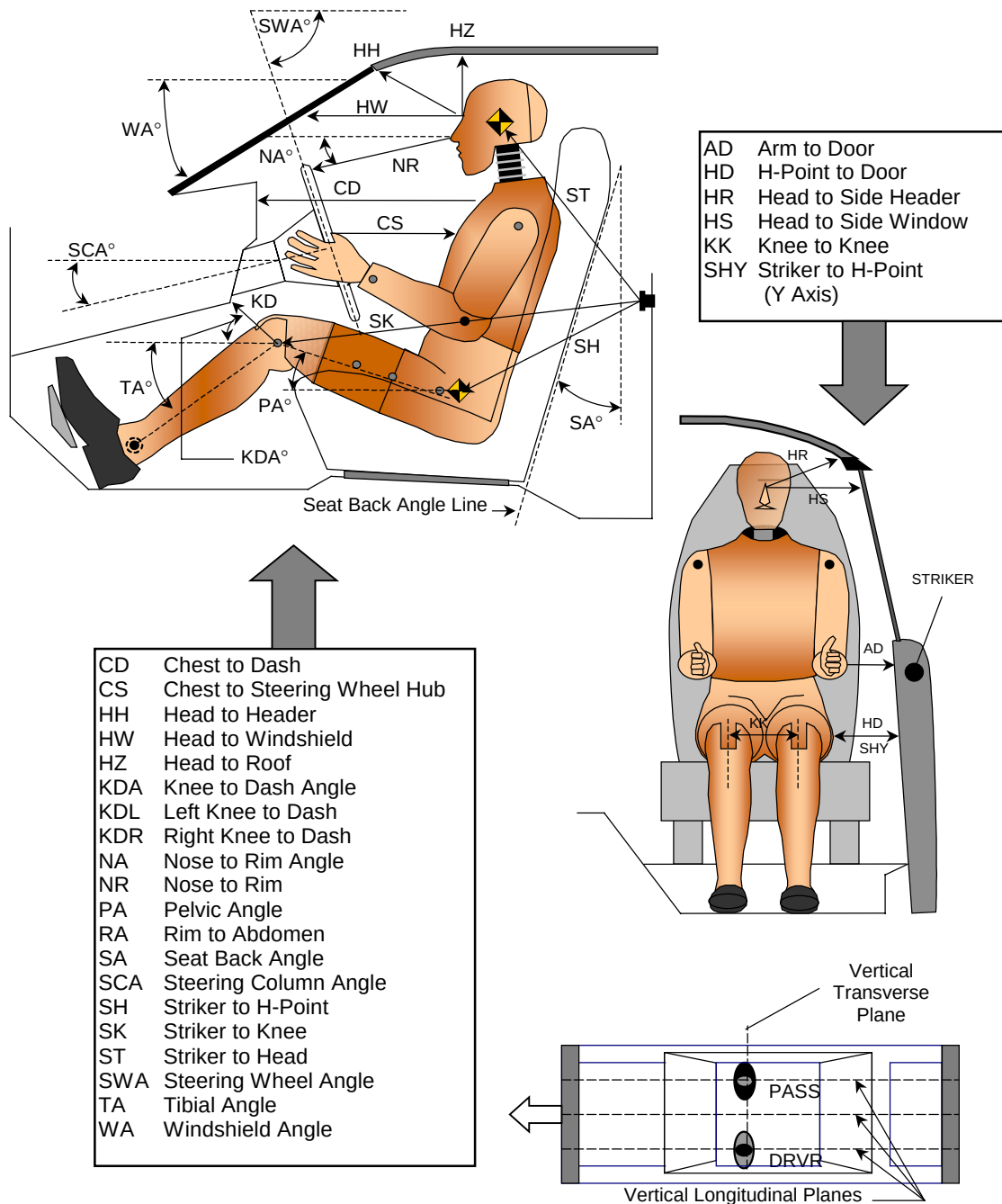
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (deg)	Length (mm)	Angle (deg)
WA	Windshield Angle		55		
SWA	Steering Wheel Angle		26.0		
SCA	Steering Column Angle		64.0		
SA	Seat Back Angle		25.5		25.5
HZ	Head to Roof (Z)	200	90	190	90
HH	Head to Header	370		360	
HW	Head to Windshield	600		605	
HR	Head to Side Header (Y)	275		290	
NR	Nose to Rim	420	15		
CD	Chest to Dash	520		265	
CS	Chest to Steering Hub	310			
RA	Rim to Abdomen	190			
KDL	Left Knee to Dash	160	3	130	
KDR	Right Knee to Dash	150		170	22
PA	Pelvic Angle		23		25
TA	Tibia Angle		45		37
KK	Knee to Knee (Y0	290		280	
SK	Striker to Knee	830	11	625	10
ST	Striker to Head	625	87	835	86
SH	Striker to H-Point	458		445	
SHY	Striker to H-Point (Y)	230		225	
HS	Head to Side Window	315		315	
HD	H-Point to Door (Y)	155		170	
AD	Arm to Door (Y)	75		25	

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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

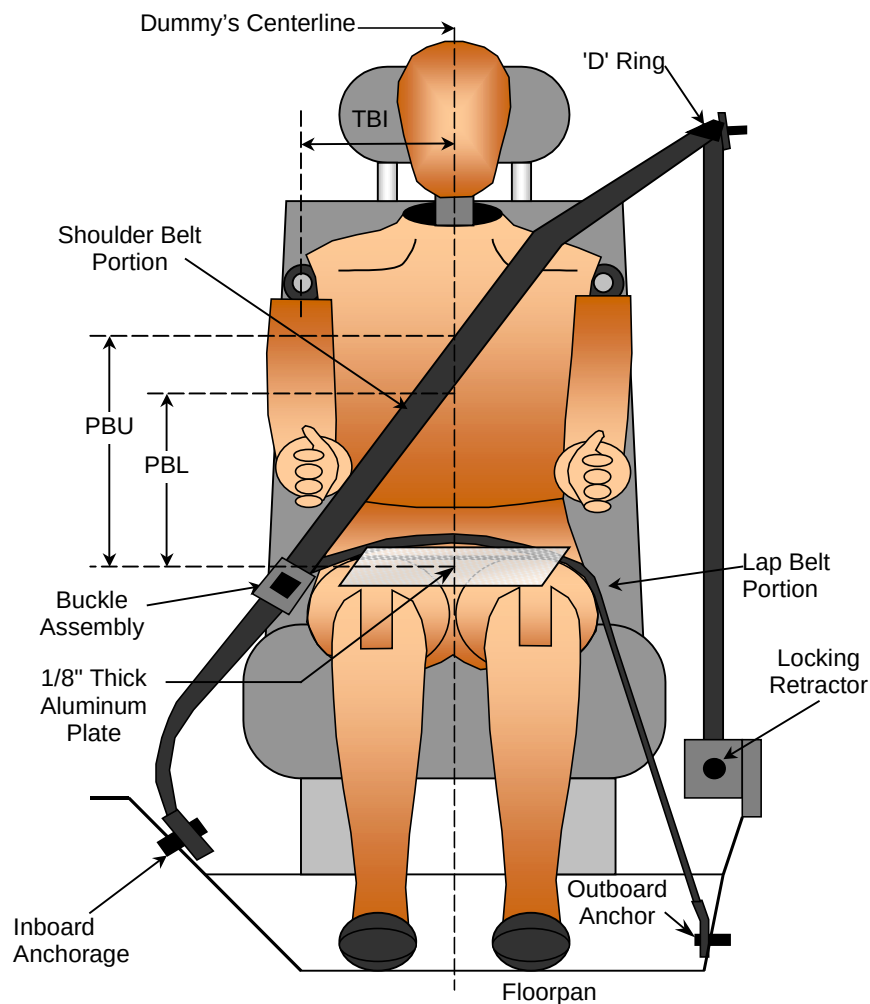


DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

DATA SHEET NO. 6 **SEAT BELT POSITIONING DATA**

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03



SEAT BELT POSITIONING MEASUREMENTS

Measured Parameter	Units	Driver	Passenger
TBI -Dummy C/L to Lap/Shoulder Belt Intersect	mm	255	250
PBU - Top Surface of reference to belt upper edge	mm	330	340
PBL - Top Surface of reference to belt lower edge	mm	260	260
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: 2004 Hyundai Accent 2 Door Coupe

NHTSA No.: M40502

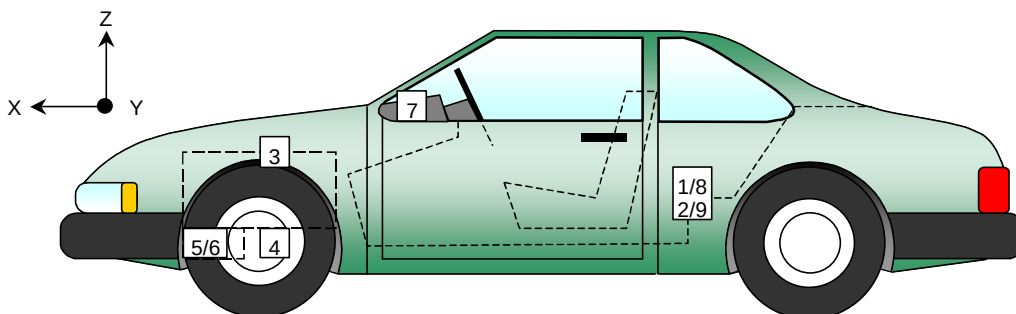
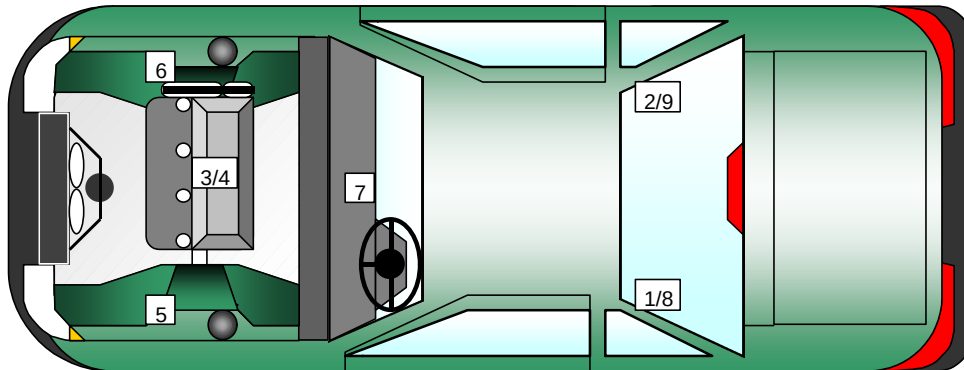
Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03

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	1830	-620	210	G's	2.3	115.4	-38.7	45.9
2	Right Rear X-Member	1830	650	210	G's	2.9	117.5	-41.2	46.7
3	Engine Top	3620	-60	750	G's	36.1	37.2	-215.2	30.1
4	Engine Bottom	3590	300	150	G's	44.5	40.7	-167.0	25.6
5	Left Brake Caliper	3500	-610	210	G's	16.8	61.0	-94.0	44.5
6	Right Brake Caliper	3500	610	210	G's	30.8	22.0	-78.2	41.4
7	Instrument Panel	2740	0	910	G's	21.3	31.7	-72.7	37.3
8	Left Rear X-Member (Z-Axis)	1830	-560	200	G's	14.5	30.8	-27.4	22.1
9	Right Rear X-Member (Z-Axis)	1830	570	200	G's	24.3	43.2	-34.4	48.8

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: 2004 Hyundai Accent 2 Door Coupe

NHTSA No.: M40502

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	5.7	197.2	-49.0	74.3	11.1	200.0	-59.9	70.6
Head CG	Y	G's	3.0	197.9	-3.6	64.5	2.6	33.0	-21.0	81.1
Head CG	Z	G's	18.6	75.2	-1.5	13.7	15.7	51.5	-4.2	94.9
Head CG Resultant	N/A	G's	52.1	74.3			62.4	70.6		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.3	193.3	-40.2	67.1	3.2	127.0	-50.2	73.6
Chest CG	Y	G's	6.4	62.1	-2.5	41.7	2.8	41.5	-6.7	75.1
Chest CG	Z	G's	5.9	20.6	-15.2	66.4	5.8	19.6	-8.6	74.0
Chest CG Resultant	N/A	G's	42.7	66.9			51.3	73.7		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	700.3	38.7	-3027.4	57.1	583.2	29.6	-2284.3	40.5
Right Femur	Z	Newtons	545.9	29.6	-4192.1	53.5	903.1	74.7	-1002.8	34.1

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Shoulder Belt Pullout	N/A	MM	109.9	87.7	-32.9	38.3	0.7	11.6	-48.6	32.1 ²
Shoulder Belt Stretch	N/A	MM/CM	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0 ¹
Lap Belt Force	N/A	Newtons	4339.1	51.2	-8.4	9.0	6922.4	70.8	-5.2	169.9
Shoulder Belt Force	N/A	Newtons	4421.3	71.7	-38.4	6.7	4701.2	74.6	-53.5	163.7

1.) Not used with pre-tensioners

2.) Pass. channel failed at 49.6 msec.

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Primary	324.4	56.2	92.2	38.2	524.8	57.6	89.1	48.8

PRIMARY CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	41.3	65.1	68.1	46.2	71.9	74.9

DATA SHEET NO. 8...(continued)Test Vehicle: 2004 Hyundai Accent 2 Door CoupeNHTSA No.: M40502Test Program: 2004 NHTSA 35mph NCAPTest Date: 12/4/03**PELVIC PEAK ACCELERATIONS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	3.0	193.8	-51.3	53.7	3.4	119.6	-38.2	63.8
Pelvis	Y	G's	7.4	58.2	-5.6	43.7	5.3	84.9	-5.7	48.4
Pelvis	Z	G's	2.8	187.8	-33.0	67.2	2.5	116.9	-32.4	71.3
Pelvis Resultant	N/A	G's	58.8	53.7			46.3	71.2		

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	310.5	60.2	-449.3	93.2	319.9	78.4	-367.8	42.3
Neck Force	Y	Newtons	116.7	86.9	-64.6	45.9	116.6	71.8	-150.7	112.8
Neck Force	Z	Newtons	833.7	52.2	-68.3	13.7	810.1	62.6	-166.3	94.7
Neck Force Resultant	N/A	Newtons	835.6	52.2			810.4	62.6		
Neck Moment	X	N•m	8.3	117.3	-12.4	79.1	23.2	84.3	-12.8	118.9
Neck Moment	Y	N•m	47.4	59.5	-14.7	42.1	16.9	59.2	-9.7	18.7
Neck Moment	Z	N•m	9.8	72.8	-4.3	117.5	22.2	87.8	-9.3	145.6
Neck Moment Resultant	N/A	N•m	48.0	59.4			31.8	84.8		

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	14.6	57.8	-49.0	24.2	8.5	63.7	-72.1	39.7
Left Foot Aft	Z	G's	2.4	62.9	-58.5	53.2	13.4	70.8	-71.4	41.2
Left Foot Fore	Z	G's	7.5	59.2	-57.3	33.3	24.7	37.0	-110.0	31.7
Right Foot Aft	X	G's	16.8	90.2	-76.5	42.4	7.7	74.9	-45.1	35.4
Right Foot Aft	Z	G's	18.4	73.8	-95.5	41.7	9.3	74.2	-48.7	33.0
Right Foot Fore	Z	G's	25.3	71.8	-136.3	40.9	13.4	71.3	-74.5	31.7

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	N•m	41.9	46.6	-31.0	70.2	46.5	68.5	-21.1	42.9
Left Upper Moment	Y	N•m	14.6	191.7	-83.2	51.0	61.8	68.5	-125.2	42.8
Right Upper Moment	X	N•m	21.6	164.4	-62.4	53.3	11.5	22.9	-16.0	60.6
Right Upper Moment	Y	N•m	82.7	63.9	-171.0	45.1	33.5	65.0	-77.7	36.5
Left Lower Moment	X	N•m	10.1	25.1	-55.2	61.1	31.2	69.8	-11.3	43.2
Left Lower Moment	Y	N•m	38.8	59.0	-18.6	50.7	53.6	64.0	-5.1	31.6
Left Lower Force	Z	Newtons	73.8	180.6	-2167.3	26.9	154.1	27.0	-6044.9	41.3
Right Lower Moment	X	N•m	45.5	42.8	-31.5	48.4	22.4	82.0	-13.1	62.7
Right Lower Moment	Y	N•m	75.9	55.9	-7.9	40.6	22.2	66.1	-17.0	52.4
Right Lower Force	Z	Newtons	101.3	121.1	-6676.0	45.0	86.2	137.5	-3530.3	34.6

DATA SHEET NO. 8...(continued)Test Vehicle: 2004 Hyundai Accent 2 Door CoupeNHTSA No.: M40502Test Program: 2004 NHTSA 35mph NCAPTest Date: 12/4/03**CHEST PEAK DISPLACEMENTS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.0	2.4	-21.0	75.9	0.0	4.9	-18.2	64.8

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	5.9	197.2	-49.4	73.1	11.2	200.0	-59.9	72.6
Head CG	Y	G's	2.9	197.5	-3.7	197.7	2.4	46.1	-21.1	80.0
Head CG	Z	G's	18.4	75.5	-1.4	13.7	15.5	51.5	-4.3	94.9
Head CG Resultant	N/A	G's	52.1	73.1			62.4	70.6		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.3	193.1	-40.4	67.2	3.2	127.0	-50.3	73.6
Chest CG	Y	G's	6.6	62.1	-2.4	41.8	3.2	41.4	-6.7	75.1
Chest CG	Z	G's	5.9	20.6	-15.4	66.4	5.8	19.5	-8.7	74.0
Chest CG Resultant	N/A	G's	43.0	66.8			51.4	73.7		

REDUNDANT HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Redundant	326.9	56.4	92.4	38.3	525.9	57.7	89.1	48.9

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	41.5	65.1	68.1	46.3	71.9	74.9

DATA SHEET NO. 9
SEATBELT ASSESSMENT TEST DATA

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI -Dummy C/L to Lap/Shoulder Belt Intersect	mm	255	250
PBU - Top Surface of reference to belt upper edge	mm	330	340
PBL - Top Surface of reference to belt lower edge	mm	260	260
Lap Belt Tension	Newtons	10	10
Shoulder Belt Tension	N/A	Retractor	Retractor

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
Retractor Reel to "D" ring	mm	660	660
Shoulder Belt length as measured on ATD	mm	1010	1010
Lap Belt length as measured on ATD	mm	1025	1010
Remainder of belt on reel	mm	560	575
Total belt length for continuous webbing systems	mm	3255	3255

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	N/A	N/A
As determined electronically	mm	131.2	207.6

BELT STRETCH DATA

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

* Not used with shoulder belt pre-tensioner systems

DATA SHEET NO. 10
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

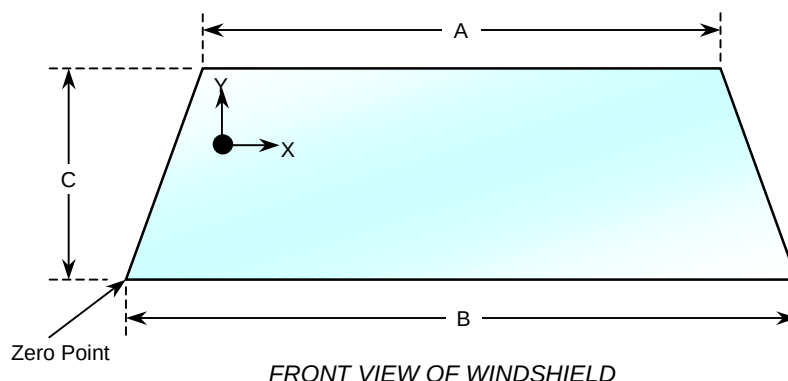
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive. No molding covers the windshield periphery at any point.

The standard requires that the posttest retention measurement be a minimum of 75 percent of the pretest 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: 21.1 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test(mm)	Post-Test(mm)	% of Retention
Left Side	1960.0	1960.0	100.0
Right Side	1960.0	1960.0	100.0
Total	3920.0	3920.0	100.0



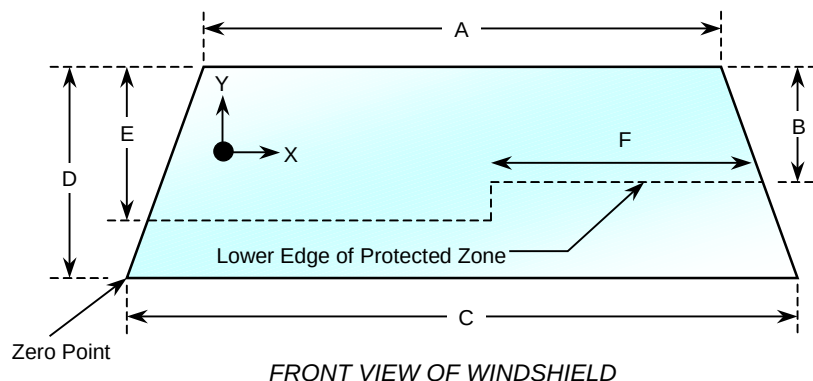
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1040.0	20.0
B	mm	1420.0	5.0
C-Left	mm	730.0	20.0
C-Right	mm	730.0	20.0

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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03



**WINDSHIELD AND
PROTECTED ZONE**

Item	Units	Value
A	mm	1040
B	mm	520
C	mm	1420
D	mm	730
E	mm	455
F	mm	560

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
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

- 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
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe

NHTSA No.: M40502

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/04/03

Test Time: 12:37 PM

Temperature: 16.7 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)

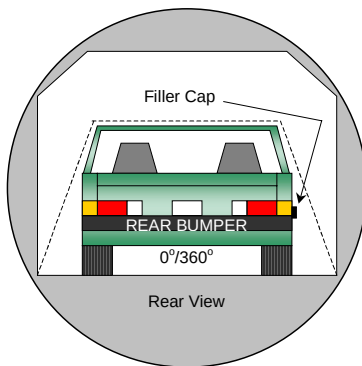
C. For the following 25 minutes: 0.0 oz.
(Maximum Allowable = 1 oz./minute)

D. Spillage Location Details: No leakage occurred

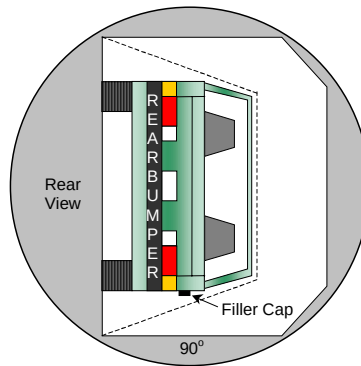
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
Test Program: 2004 NHTSA 35mph NCAP

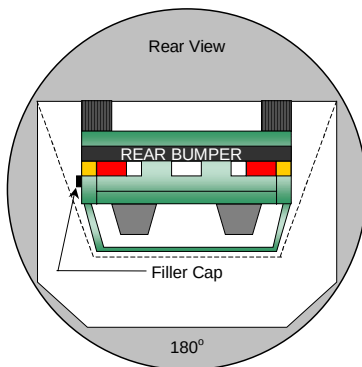
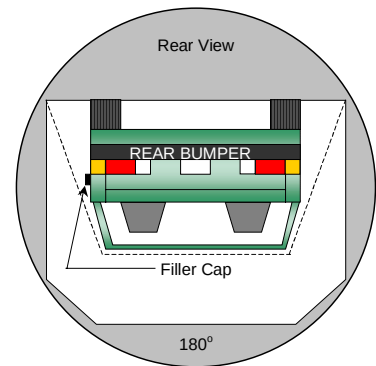
NHTSA No.: M40502
Test Date: 12/04/03



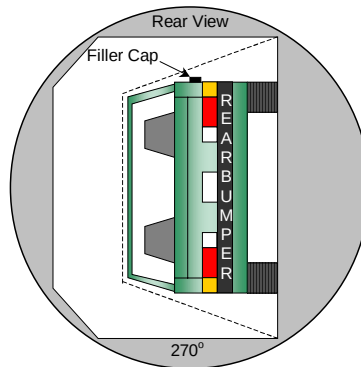
0° to 90°



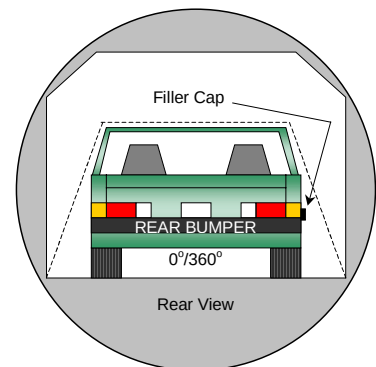
90° to 180°



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: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	84	300	384
90° to 180°	77	300	377
180° to 270°	77	300	377
270° to 360°	78	300	378

FMVSS 301 SPILLAGE TABLE REQUIREMENT (oz.)

First 5 Minutes	5.0
Sixth Minute	1.0
Seventh Minute	1.0
Eighth Minute	1.0

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: 2004 Hyundai Accent 2 Door Coupe
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
Test Date: 12/04/03

VEHICLE MEASUREMENT TABLE

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length of vehicle at centerline	mm	4209	3804	-405
2	RSOV to front of engine	mm	3649	3454	-195
3	RSOV to firewall centerline	mm	3171	3119	-52
4	RSOV to leading edge of right door	mm	2829	2817	-12
5	RSOV to leading edge of left door	mm	2827	2827	0
6	RSOV to lower leading edge of right door	mm	2858	2850	-8
7	RSOV to lower leading edge of left door	mm	2855	2854	-1
8	RSOV to upper trailing edge of right door	mm	1638	1622	-16
9	RSOV to upper trailing edge of left door	mm	1633	1626	-7
10	RSOV to lower trailing edge of right door	mm	1637	1629	-8
11	RSOV to lower trailing edge of left door	mm	1638	1641	3
12	RSOV to bottom of right 'A' pillar	mm	2835	2812	-23
13	RSOV to bottom of left 'A' pillar	mm	2832	2812	-20
14	RSOV to firewall on right side	mm	3179	3113	-66
15	RSOV to firewall on left side	mm	3172	3119	-53
16	RSOV to steering column	mm	2480	2534	54
17	Center of steering column to left 'A' pillar	mm	370	390	20
18	Center of steering column to headlining	mm	453	475	22
19	RSOV to right side of front bumper	mm	4112	3703	-409
20	RSOV to left side of front bumper	mm	4112	3748	-364
21	Length of engine block	mm	225	225	0
RD	RSOV to right side of dash panel	mm	2660	2643	-17
CD	RSOV to center of dash panel	mm	2624	2643	19
LD	RSOV to left side of dash panel	mm	2657	2652	-5

All measurements in millimeters

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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

VEHICLE STRUCTURAL MEASUREMENT TABLE

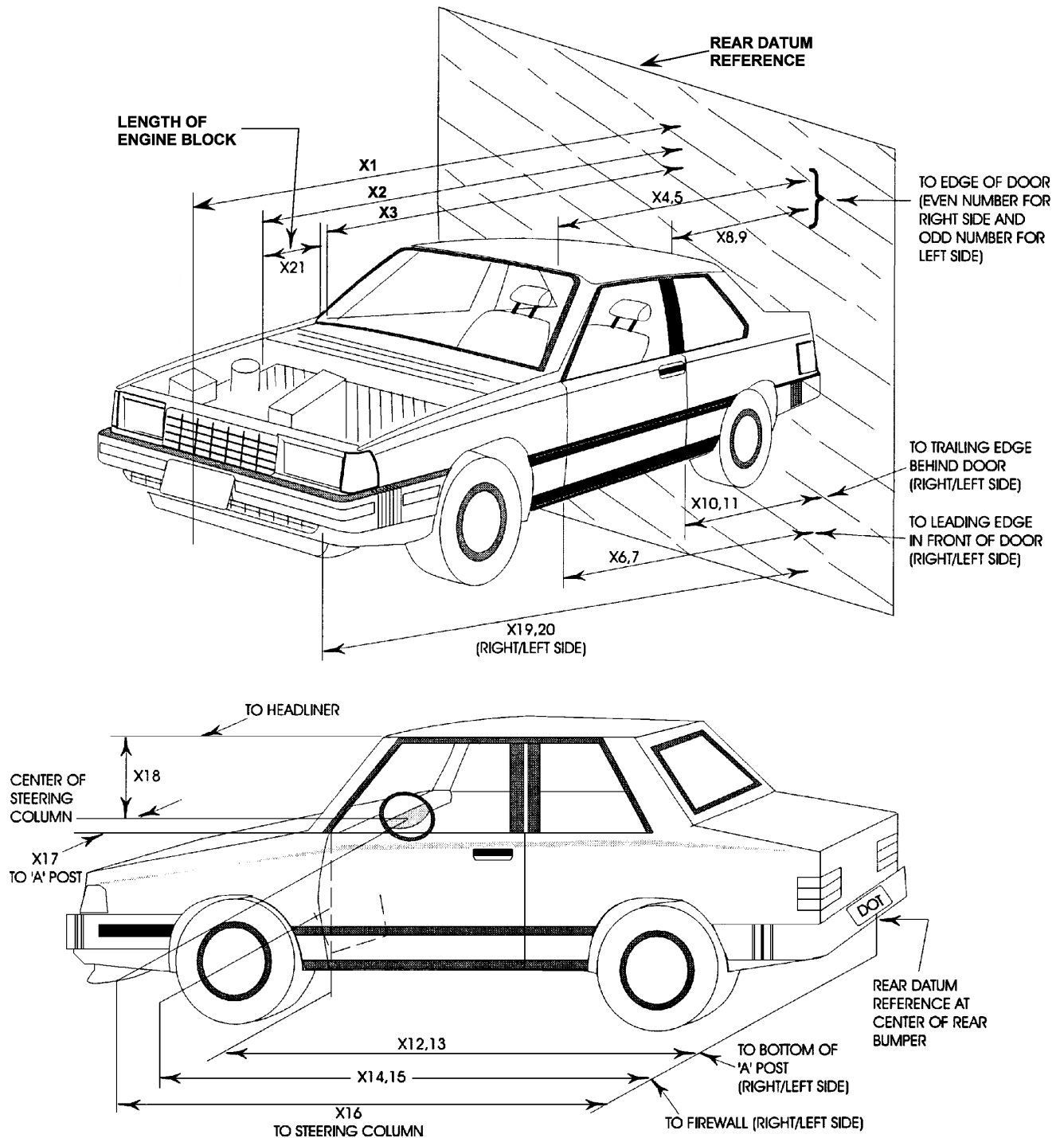
No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length	mm	4209	3804	-405
2	Total width	mm	1692	1678	-14
3	Bumper top height	mm	554	504	-50
4	Bumper bottom height	mm	219	198	-21
5	Longitudinal member top height	mm	541	589	48
6	Longitudinal member bottom height	mm	410	302	-108
7	Distance between longitudinal members	mm	885	806	-79
8	Longitudinal member width	mm	134	287	153
9	Engine top height	mm	769	777	8
10	Engine bottom height	mm	172	181	9
11	Engine and gear box width	mm	487	487	0
12	Front bumper to engine distance	mm	560	332	-228
13	Front shock absorber fixing width	mm	816	834	18
14	Bonnet leading edge height	mm	680	744	64
15	Front shock absorber fixing width	mm	1113	998	-115
16	Front bumper to front axle distance	mm	860	540	-320
17	Front axle to 'A' pillar distance	mm	468	397	-71
18	'A' pillar to 'B' pillar distance	mm	1304	1304	0
19	'B' pillar to rear axle distance	mm	673	673	0
20	'B' pillar to 'C' pillar distance	mm	750	750	0
21	Roof sill bottom height	mm	1284	1294	10
22	Roof sill top height	mm	1388	1397	9
23	Floor sill bottom height	mm	225	224	-1
24	Floor sill top height	mm	299	309	10

All measurements in millimeters

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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
Test Date: 12/04/03

VEHICLE CAMERA MEASUREMENT TABLE

No.	Camera View	Location (mm)			Angle (deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real Time	18288	-22860	2540	N/A	10	17-70	24
2	Driver Overall	1930	8357	1321	7855	4	13	1020
2B	Driver Overall	1626	8230	1092	7742	4	17	NTM
3	Driver Close-Up	1626	8230	1600	7757	4	35	1040
3B	Driver Close-Up	1930	8230	1600	7741	4	35	1000
4	3/4 Driver	6477	10185	4648	11159	13	105	1000
5	Steering Column	1524	8230	3404	8080	20	19	1000
6	Steering Column	1524	8230	2997	7974	16	19	DNR
7	No Child Dummies	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7B	No Child Dummies	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Passenger Overall	2286	-8230	1524	7733	6	13	1000
9	Passenger Close-Up	1219	-6096	1524	5685	4	35	1010
10	3/4 Passenger	8026	-8941	2997	10429	9	80	960
11	Passenger Door	1626	-8836	1702	8367	4	50	DNR
12	No Child Dummies	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12B	No Child Dummies	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Overhead	610	0	6172	N/A	90	13	1110
14	Driver Front	-610	406	2743	N/A	40	13	760
15	Passenger Front	-610	406	2743	N/A	40	13	1140
16	Pit Engine	762	0	-1499	N/A	90	9	780
17	Pit Fuel Tank	3658	0	-1499	N/A	90	6	1020

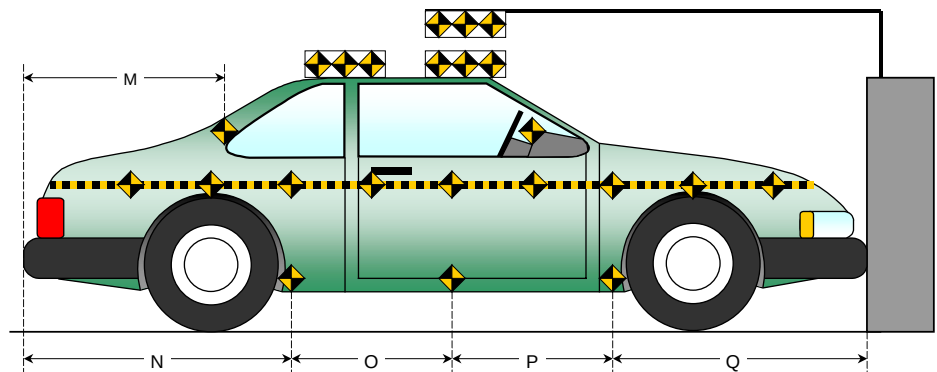
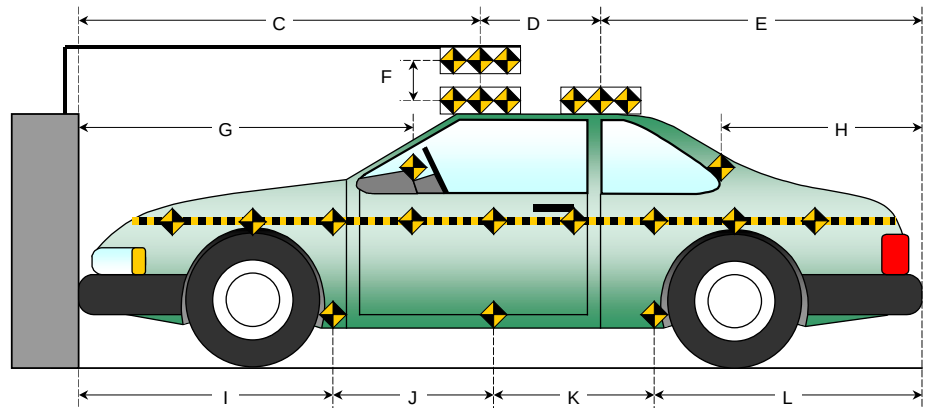
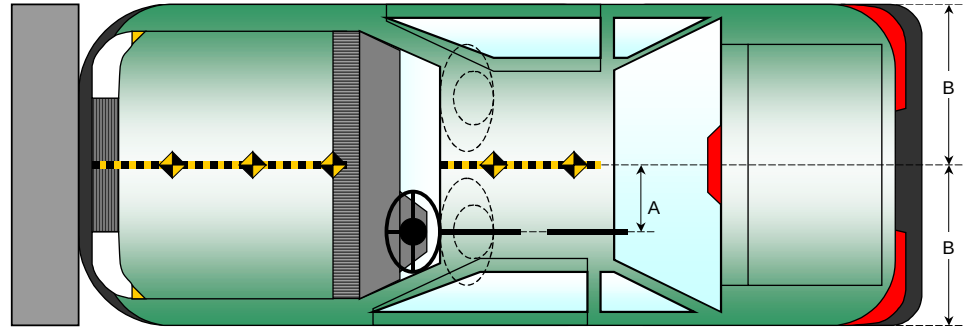
X = Barrier Face Y = Monorail Centerline Z = Ground DNR = Did Not Run NTM = No Time Marks

DATA SHEET NO. 16
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

All Dimensions in (mm)	
Item	Value
A	315
B	846
C	2020
D	612
E	1594
F	155
G	1600
H	853
I	1265
J	819
K	818
L	1311
M	879
N	1308
O	825
P	825
Q	1257



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

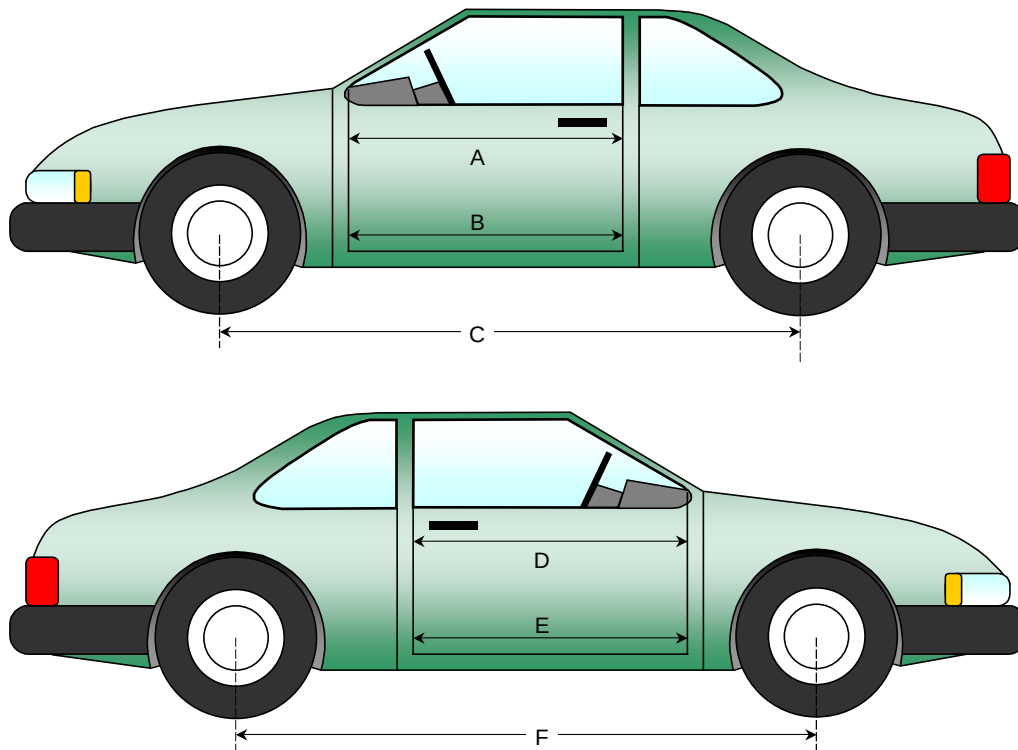
NHTSA No.: M40502
 Test Date: 12/04/03

DOOR OPENING WIDTH TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
A	Left Side Upper	mm	1171	1163	-8
B	Left Side Lower	mm	1119	1116	-3
D	Right Side Upper	mm	1171	1168	-3
E	Right Side Lower	mm	1116	1113	-3

WHEELBASE MEASUREMENT TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
C	Left Side Wheel Base	mm	2444	2350	-94
F	Right Side Wheel Base	mm	2444	2375	-69



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

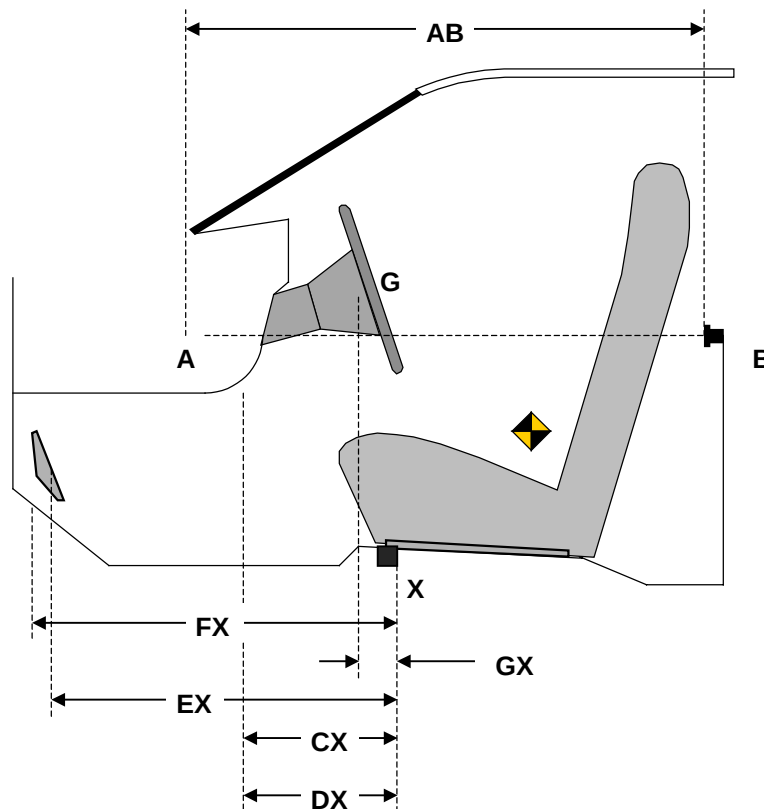
Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

DRIVER COMPARTMENT INTRUSION TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
AB	Door Opening (Inside window jam)	mm	1171	1163	-8
CX	Left Knee Bolster to X	mm	272	240	-32
DX	Right Knee Bolster to X	mm	271	239	-32
EX	Brake Pedal to X	mm	557	485	-72
FX	Foot Rest to X	mm	576	565	-11
GX	Center of Steering Wheel Hub to X	mm	48	97	49

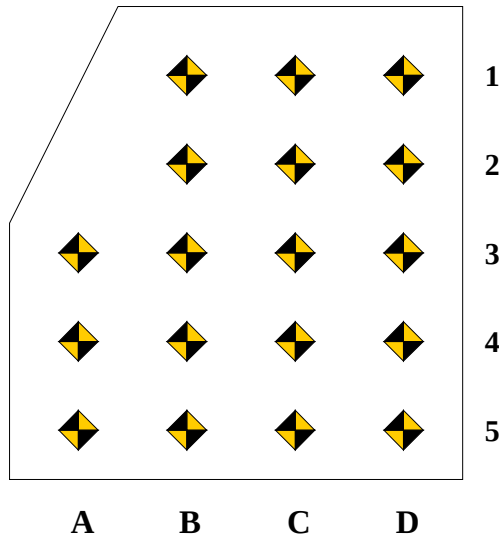
X = Left Front Seat Outboard Anchor Bolt Head



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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03



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

2 Columns A through D are evenly spaced.

3 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		746	749	736		676	662	666		-70	-87	-70
2		673	675	666		609	607	600		-64	-68	-66
3	580	586	585	576	527	532	520	514	-53	-54	-65	-62
4	496	486	485	476	462	446	432	436	-34	-40	-53	-40
5	395	393	384	378	376	354	355	340	-19	-39	-29	-38

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		11	6	2		69	59	52		58	53	50
2		-50	-52	-51		5	2	16		55	54	67
3	-55	-104	-111	-108	-21	-65	-69	-72	34	39	42	36
4	-111	-111	-105	-118	-105	-110	-109	-88	6	1	-4	30
5	-120	-100	-102	-119	-134	-126	-141	-126	-14	-26	-39	-7

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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

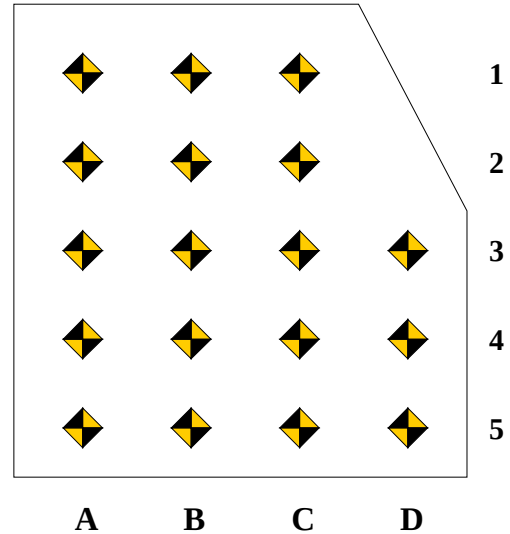
NHTSA No.: M40502
 Test Date: 12/04/03

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	728	725	730		666	660	673		-62	-65	-57	
2	654	658	660		604	602	615		-50	-56	-45	
3	552	552	558	560	514	516	525	535	-38	-36	-33	-25
4	455	452	460	465	419	416	425	435	-36	-36	-35	-30
5	362	355	365	365	317	320	328	335	-45	-35	-37	-30

PASSENGER FLOOR PAN Z-AXIS

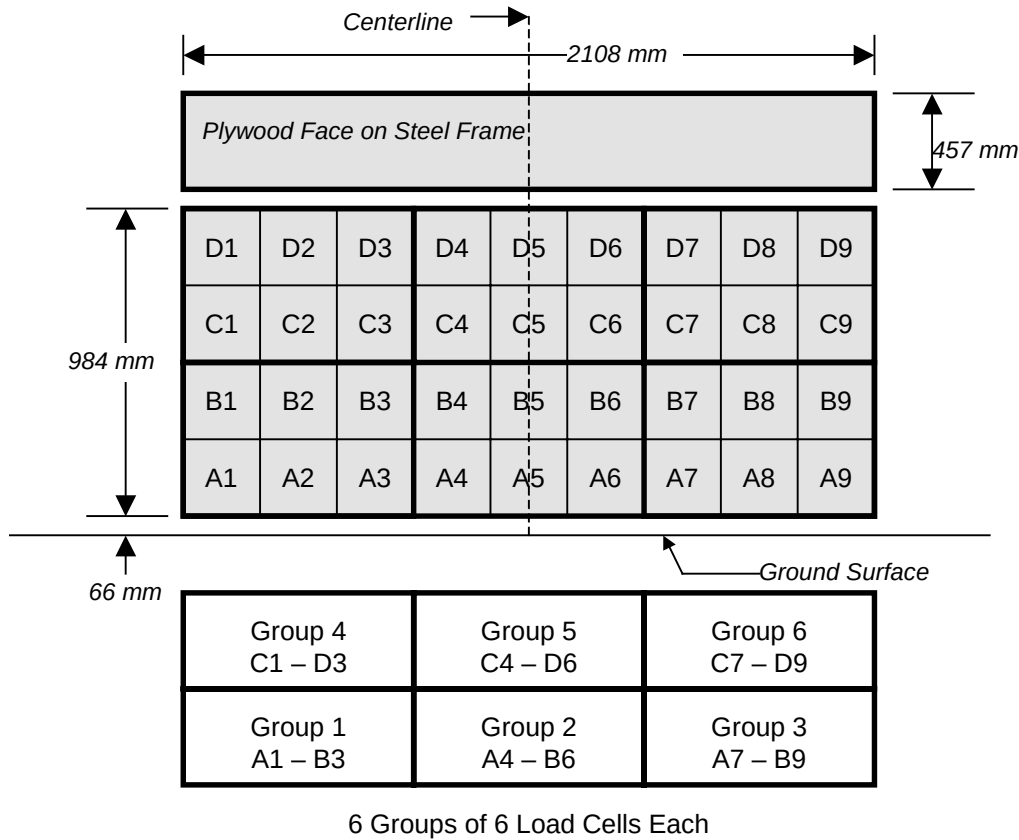
	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-18	15	15		44	40	45		62	25	30	
2	-78	-80	-75		-35	-29	-23		43	51	52	
3	-105	-113	-115	-118	-75	-74	-75	-69	30	39	40	49
4	-109	-120	-112	-118	-95	-97	-91	-91	14	23	21	27
5	-108	-115	-100	-123	-116	-119	-85	-110	-8	-4	15	13

DATA SHEET NO. 18
FIXED BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

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



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
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
 Test Date: 12/04/03

VEHICLE INFORMATION

VIN: KMHCF35C64U287872
 Vehicle Size Category: 2-Door

Wheel base (mm): 2444
 Test Weight (kg): 1287

ACCELEROMETER DATA

Accelerometer Location: Left rear floor pan
 Cal. Procedure/Interval: 6 months / drop test
 Integration Algorithm: NHTSA Standard
 Impact Velocity (km/h): 55.86
 Velocity Change (km/h): 63.04

Linearity: Good

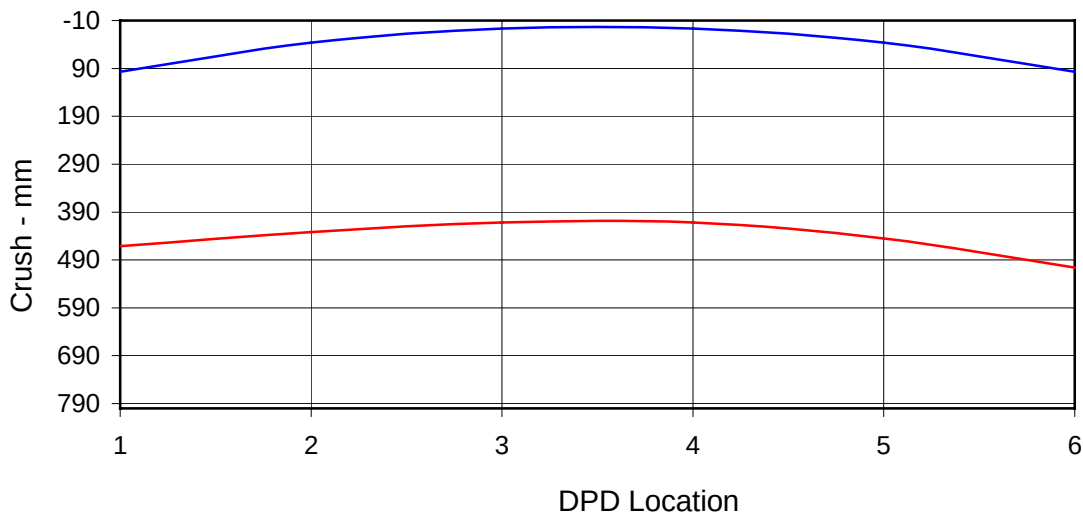
Time of Separation (msec): 67.5

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
 Damage Region Length (mm): 1228

Midpoint of Damage: Vehicle Centerline
 Impact Mode: Full Frontal

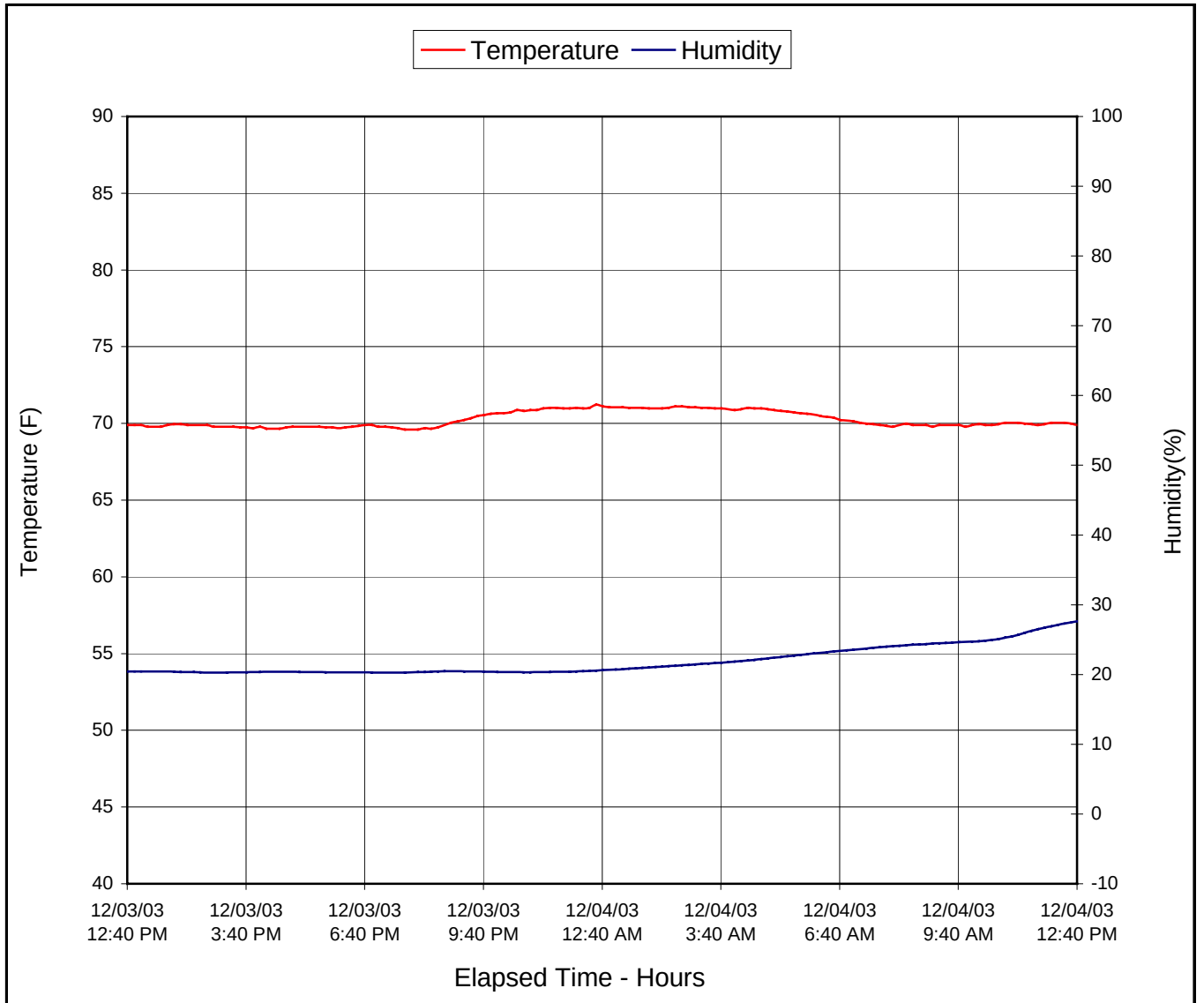
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	97	461	-364
C2	Crush zone 2 on left side	mm	36	432	-396
C3	Crush zone 3 on left side	mm	7	412	-405
C4	Crush zone 4 on right side	mm	7	412	-405
C5	Crush zone 5 on right side	mm	36	445	-409
C6	Crush zone 6 at right side	mm	97	506	-409



DATA SHEET NO. 20
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40502
Test Date: 12/04/03



APPENDIX A
PHOTOGRAPHS

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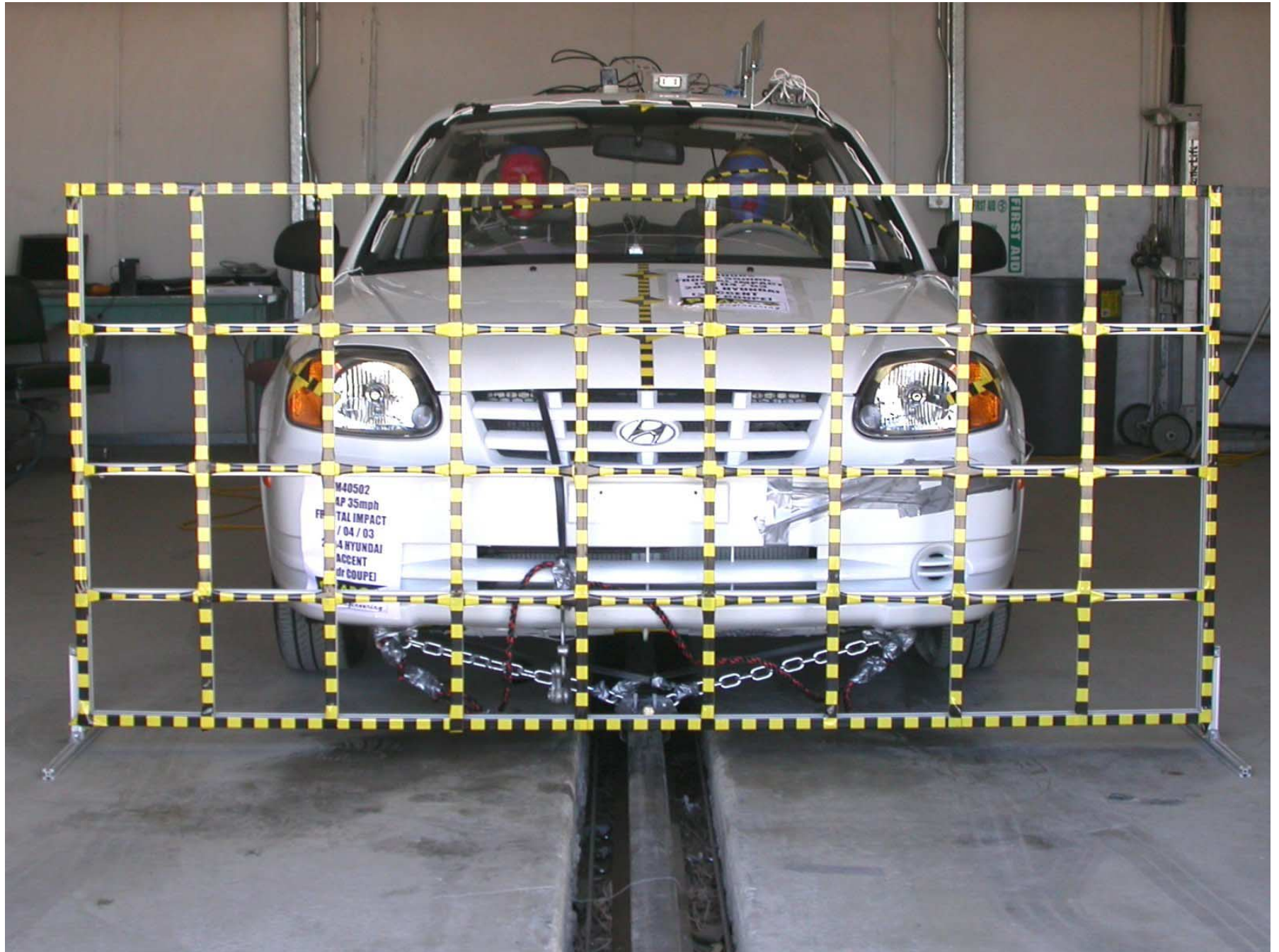


Figure A-1: Load Cell Location



MANUFACTURED IN KOREA BY
HYUNDAI MOTOR COMPANY

AUG/27/03 GVWR 3428 lbs PAINT NW

GAWR FRONT 1808 lbs GAWR REAR 1874 lbs TRIM ZE

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S.A. FEDERAL
MOTOR VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS
IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

V.I.N KMHCF35C64U287872

PASSENGER CAR

Figure A-2: Vehicle Certification Label

11

TIRE INFLATION PRESSURE **La Pression De Gonflage Des Pneus**

VEHICLE CAPACITY WEIGHT, LBS:850
Poids en lb de la capacite du vehicule, 850
SEATING CAPACITY:TOTAL 5 FRONT 2 REAR 3
Capacite de transport ;total 5;2 a l avant
3 a l arriere

TIRE PRESSURES-COLD, KPA(PSI) :
Pression de gonflage a froid kPa(lb/po2)

TIRE SIZE Dimension du pneu	UP TO 2 PERSONS Jusqu'a 2 Personnes		UP TO MAX. LOAD Pour charge maximum	
	FRONT Avant	REAR Arriere	FRONT Avant	REAR Arriere
P175/70 R13	207(30)	207(30)	230(33)	230(33)
P185/60 R14	207(30)	207(30)	230(33)	230(33)
T105/70 R14	414(60)	414(60)	414(60)	414(60)
T105/70 D14	414(60)	414(60)	414(60)	414(60)

Figure A-3: Vehicle Tire Label



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



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 $\frac{3}{4}$ View



Figure A-13: Post-Test Right Front $\frac{3}{4}$ View



Figure A-14: Pre-Test Left Rear $\frac{3}{4}$ View



Figure A-15: Post-Test Left Rear $\frac{3}{4}$ View



Figure A-16: Left Rear $\frac{3}{4}$ View of Doors After Impact



Figure A-17: Right Rear ¾ View of Doors After Impact

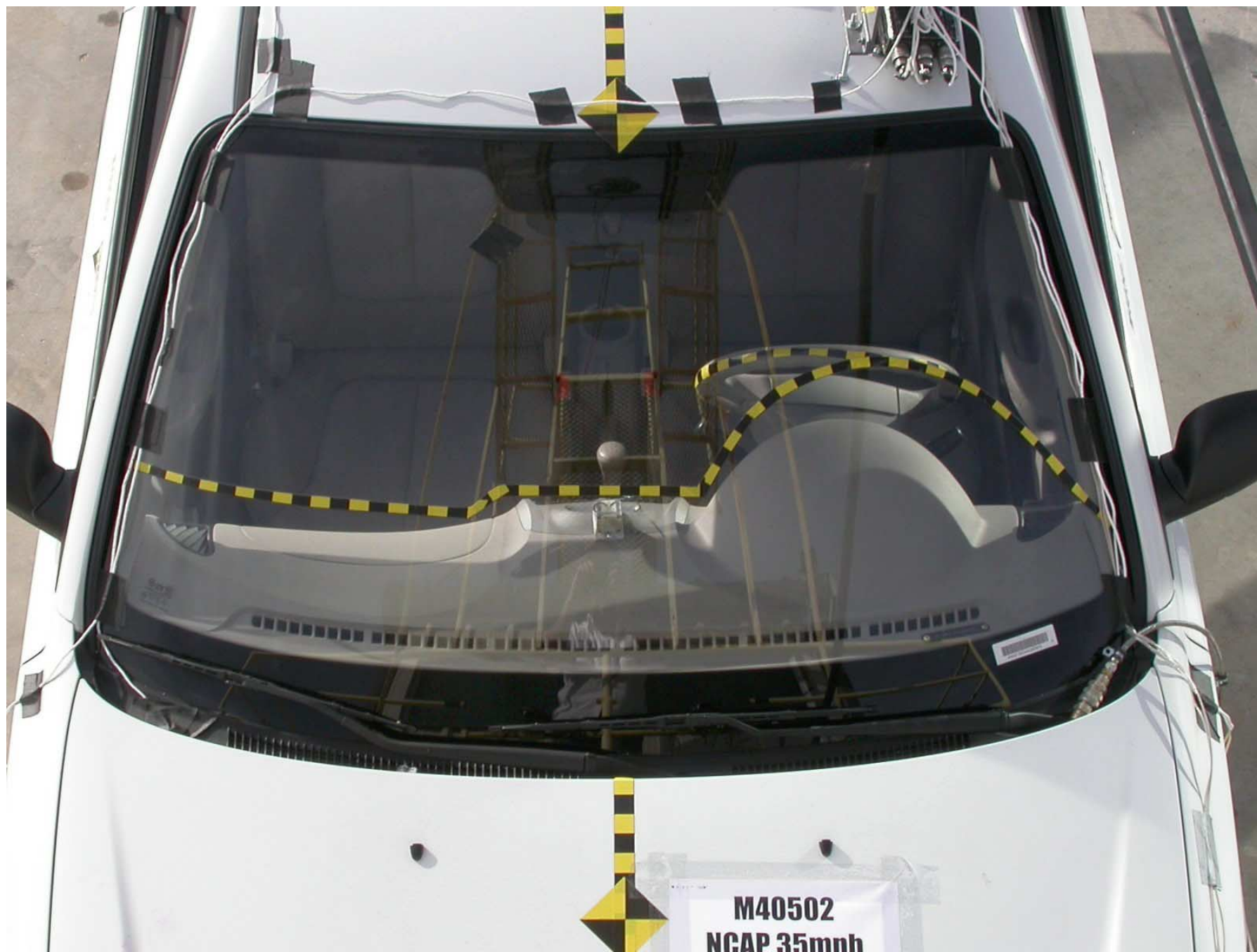


Figure A-18: Pre-Test Windshield View



Figure A-19: Post-Test Windshield View



Figure A-20: Pre-Test Engine Compartment

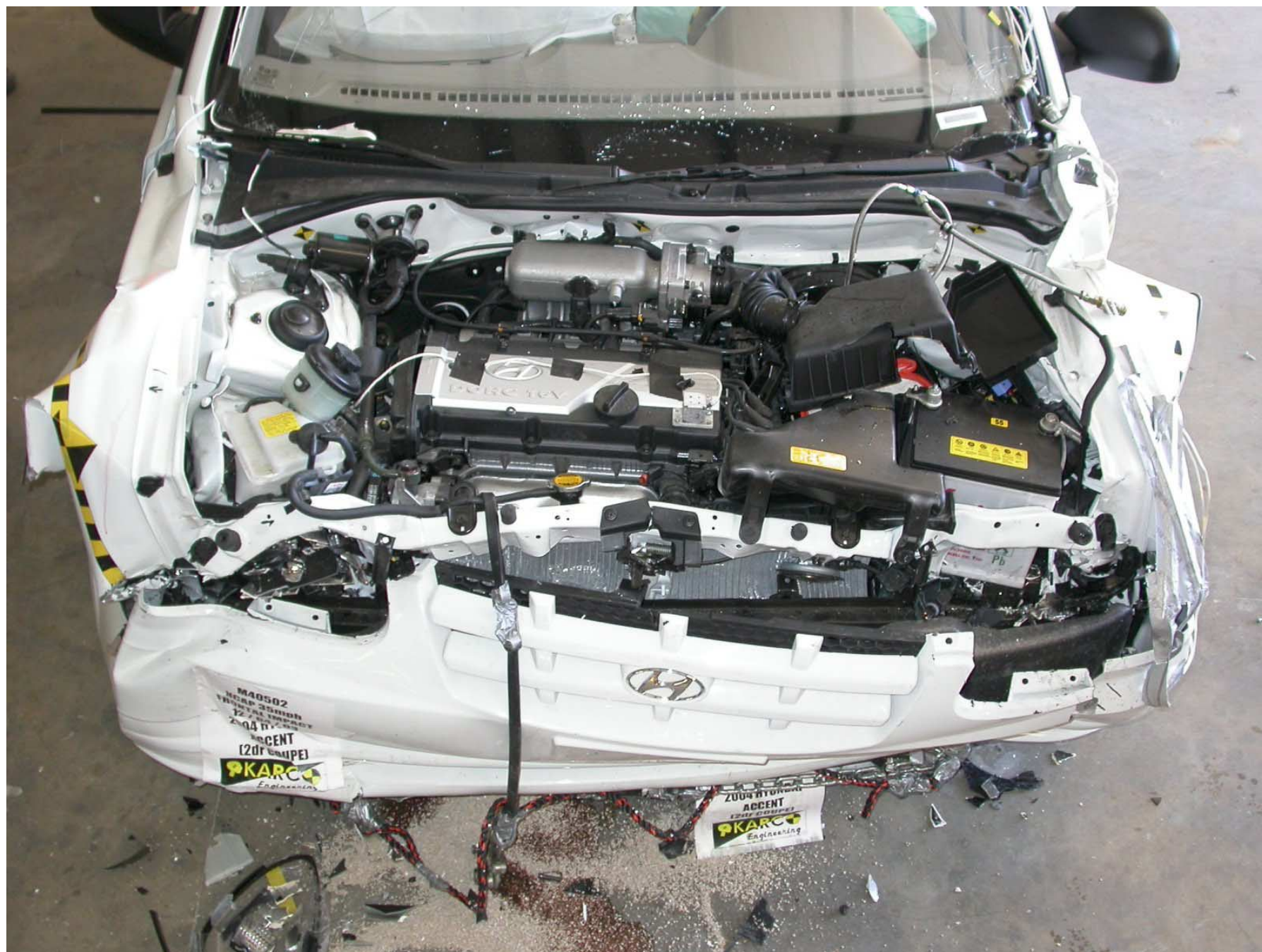


Figure A-21: Post-Test Engine Compartment (Vehicle Moved)



Figure A-22: Pre-Test Fuel Cap



Figure A-23: Post-Test Fuel Cap

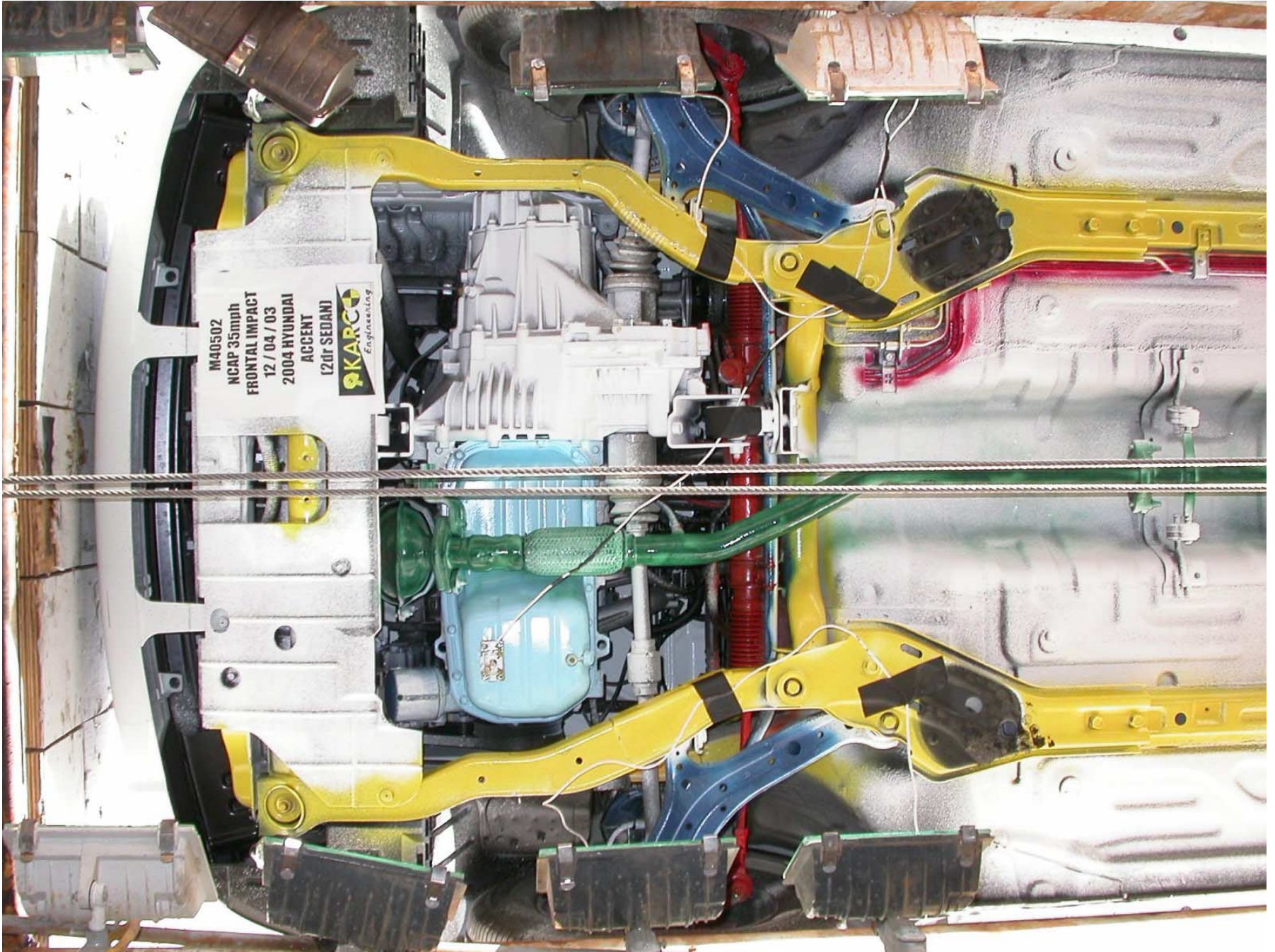


Figure A-24: Pre-Test Front Underbody View

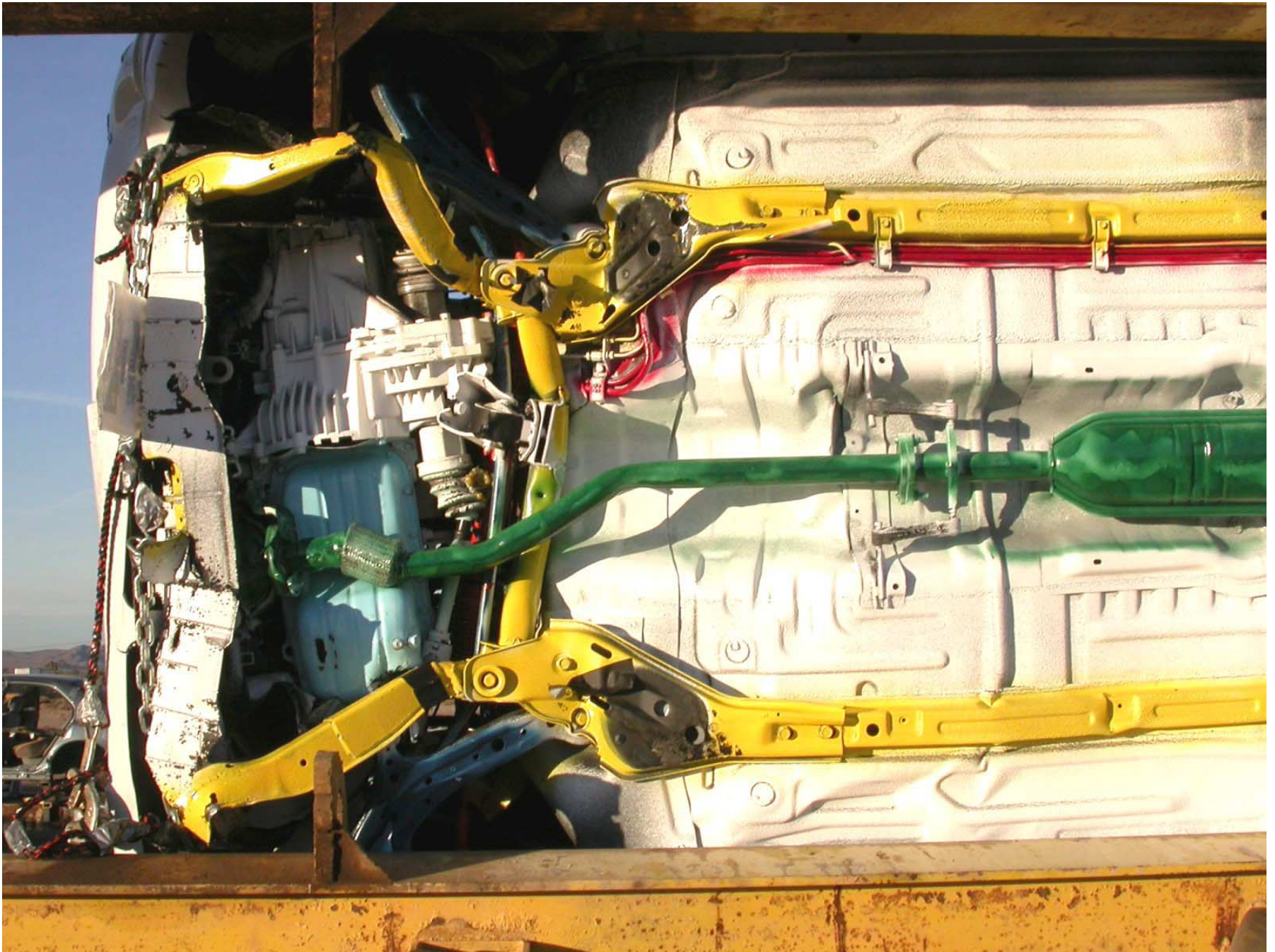


Figure A-25: Post-Test Front Underbody View

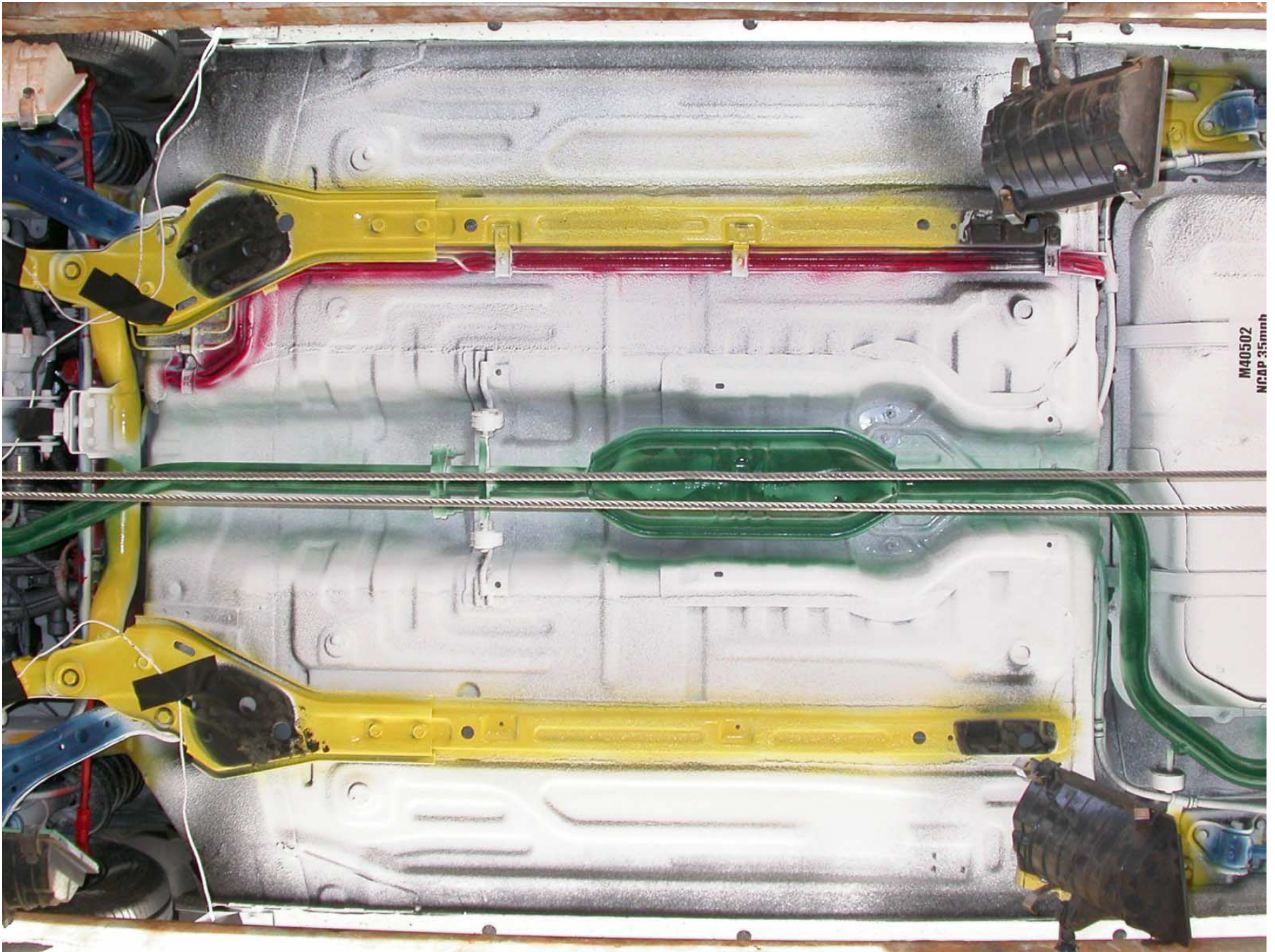


Figure A-26: Pre-Test Mid Underbody View

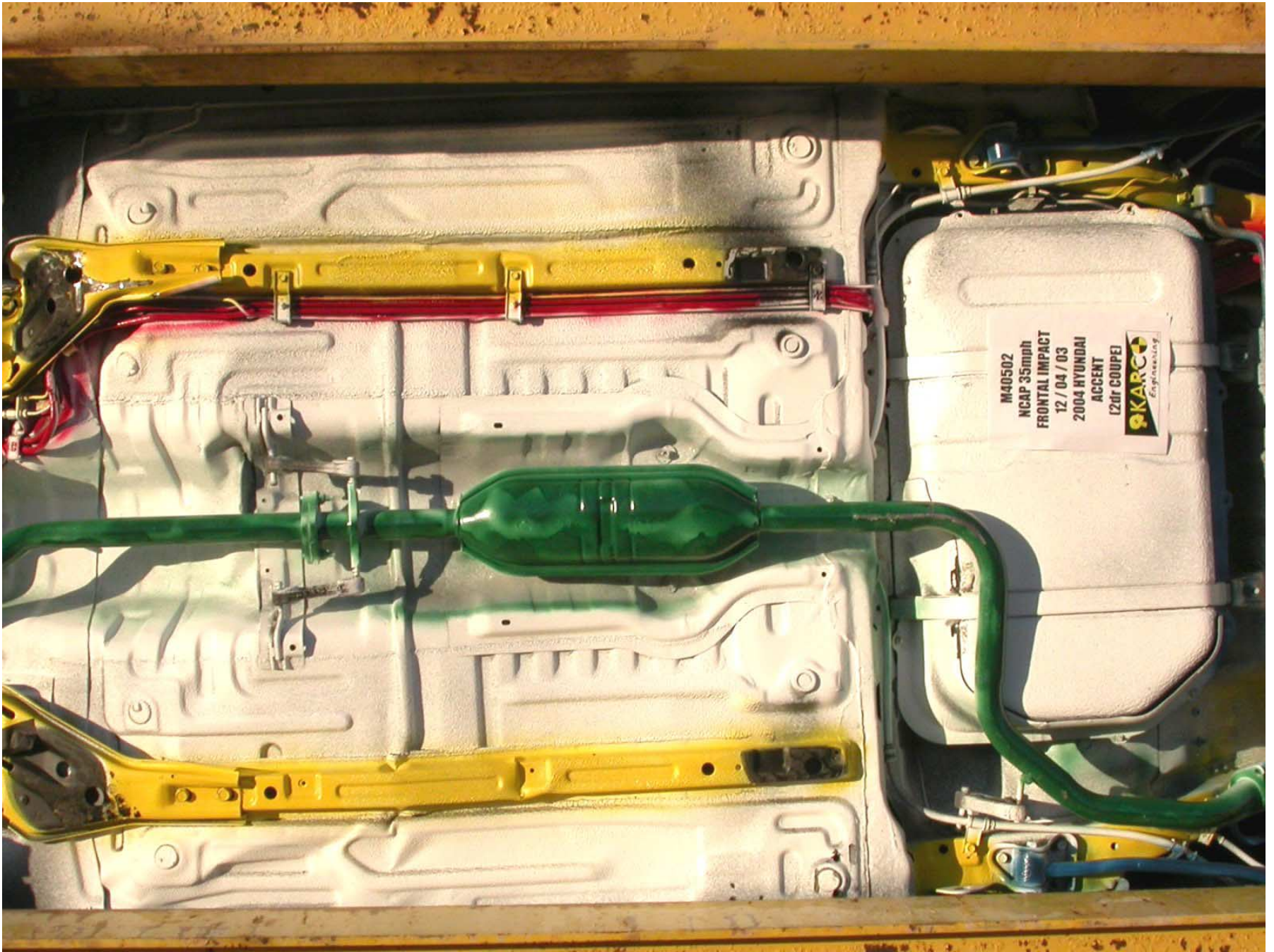


Figure A-27: Post-Test Mid Underbody View

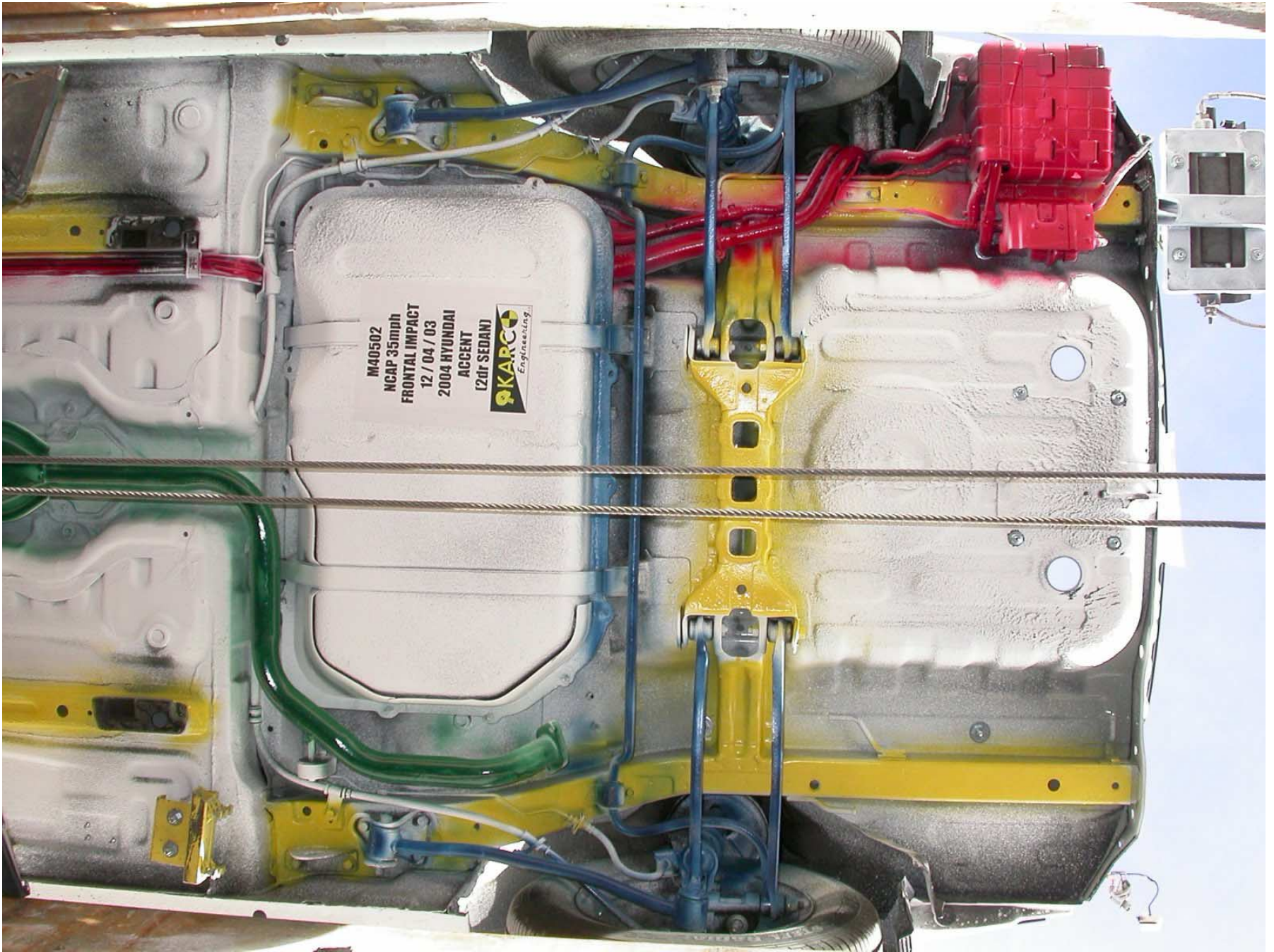


Figure A-28: Pre-Test Rear Underbody View

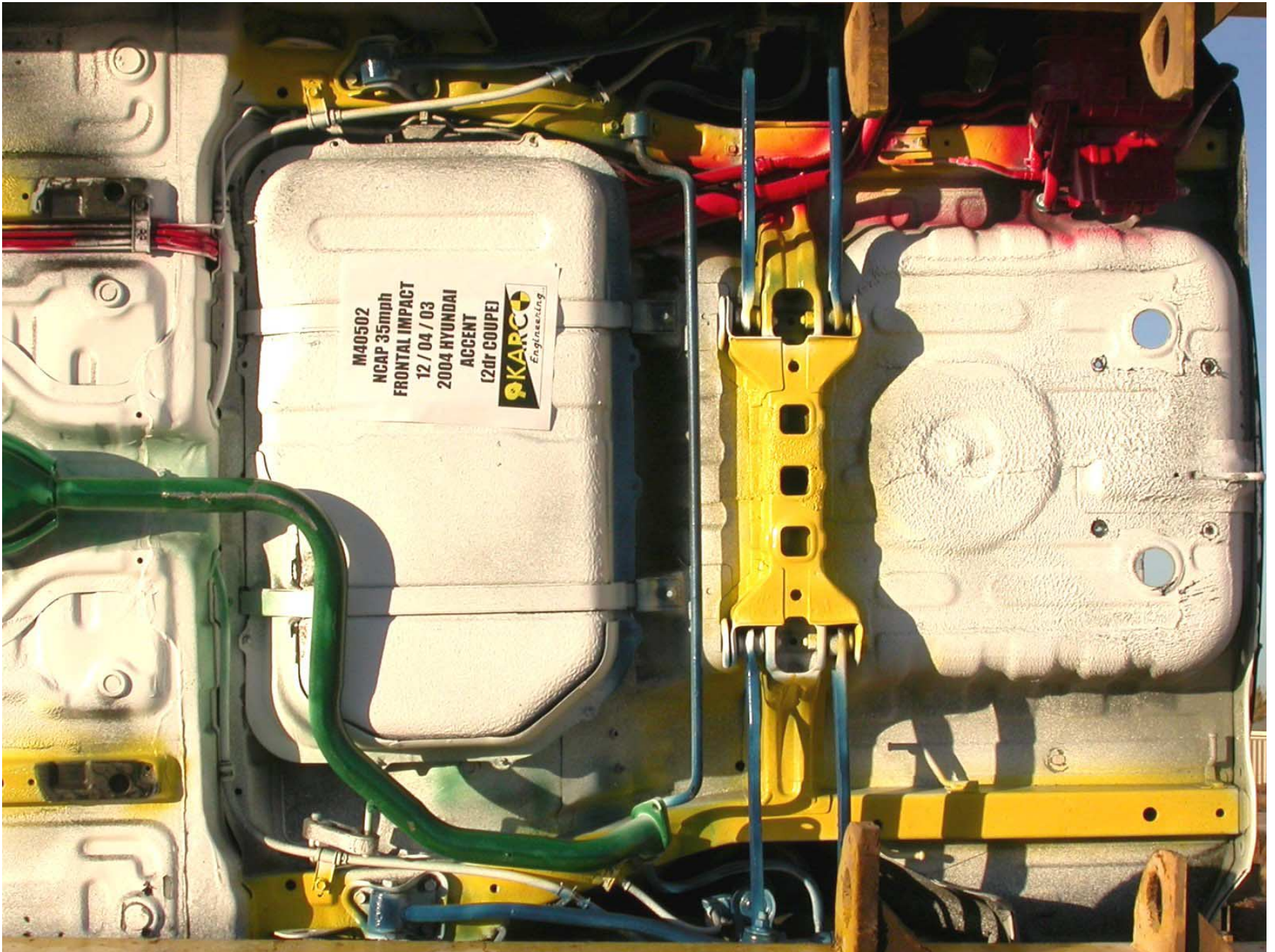


Figure A-29: Post-Test Rear Underbody View



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



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



Figure A-32: Pre-Test Driver Dummy Front Through Window



Figure A-33: Post-Test Driver Dummy Front 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

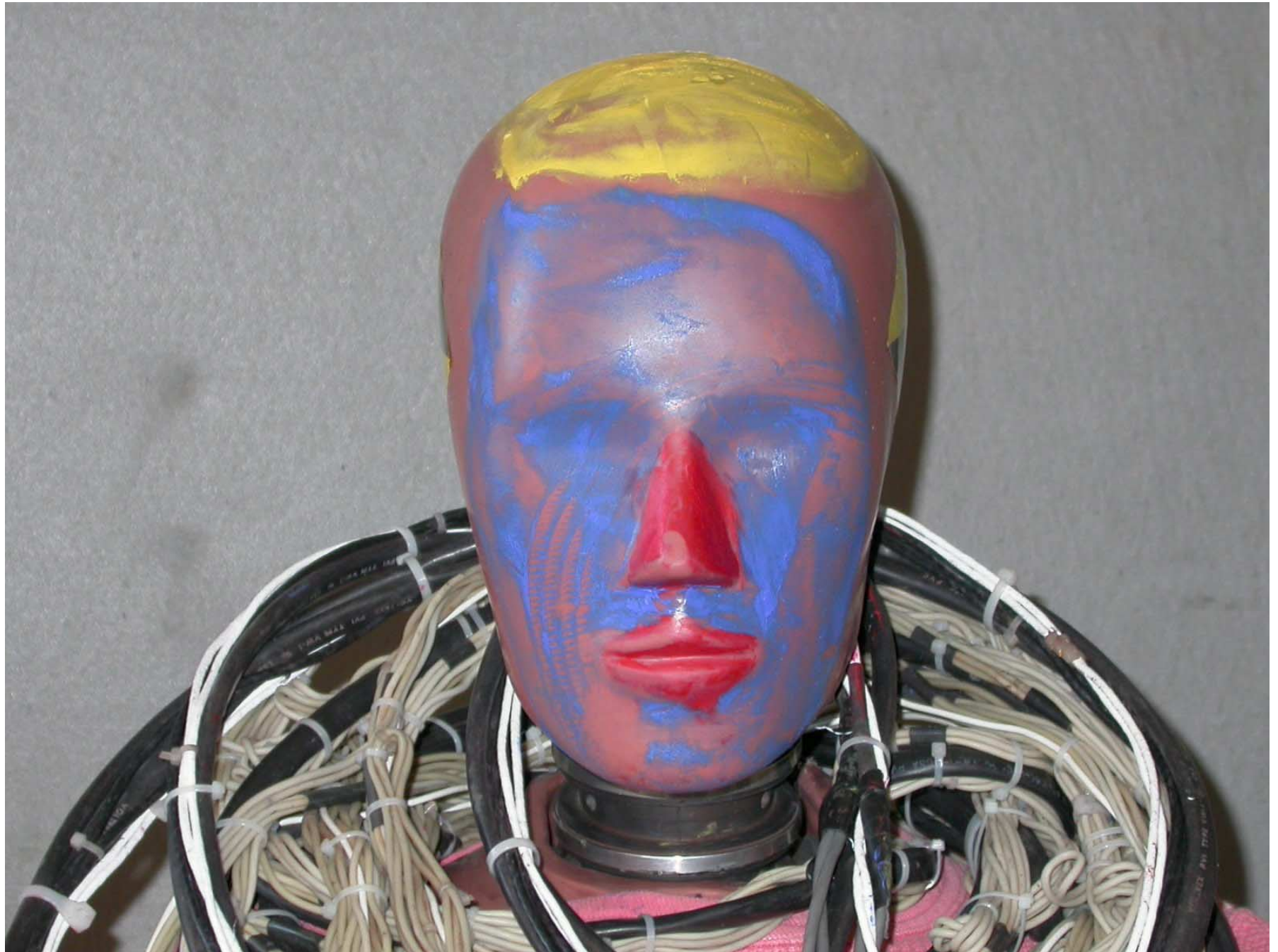


Figure A-42: Post-Test Driver Dummy Head



Figure A-43: Post-Test Driver Dummy Contact to Air Bag



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 Front Through Window



Figure A-47: Post-Test Passenger Dummy Front Through Window



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



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

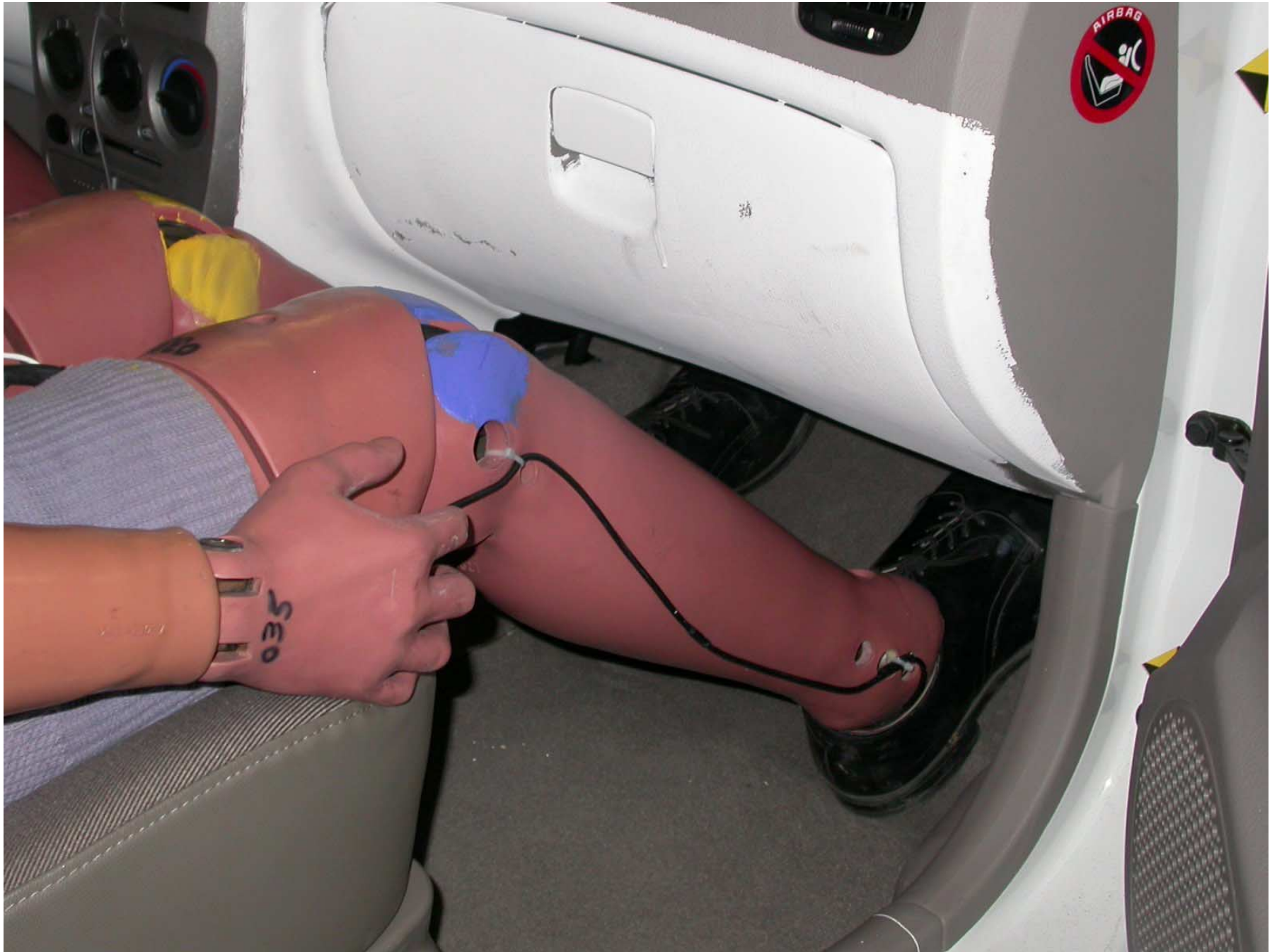


Figure A-50: Pre-Test Passenger Dummy Feet



Figure A-51: Post-Test Passenger Dummy Feet



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



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



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 Contact to Air Bag

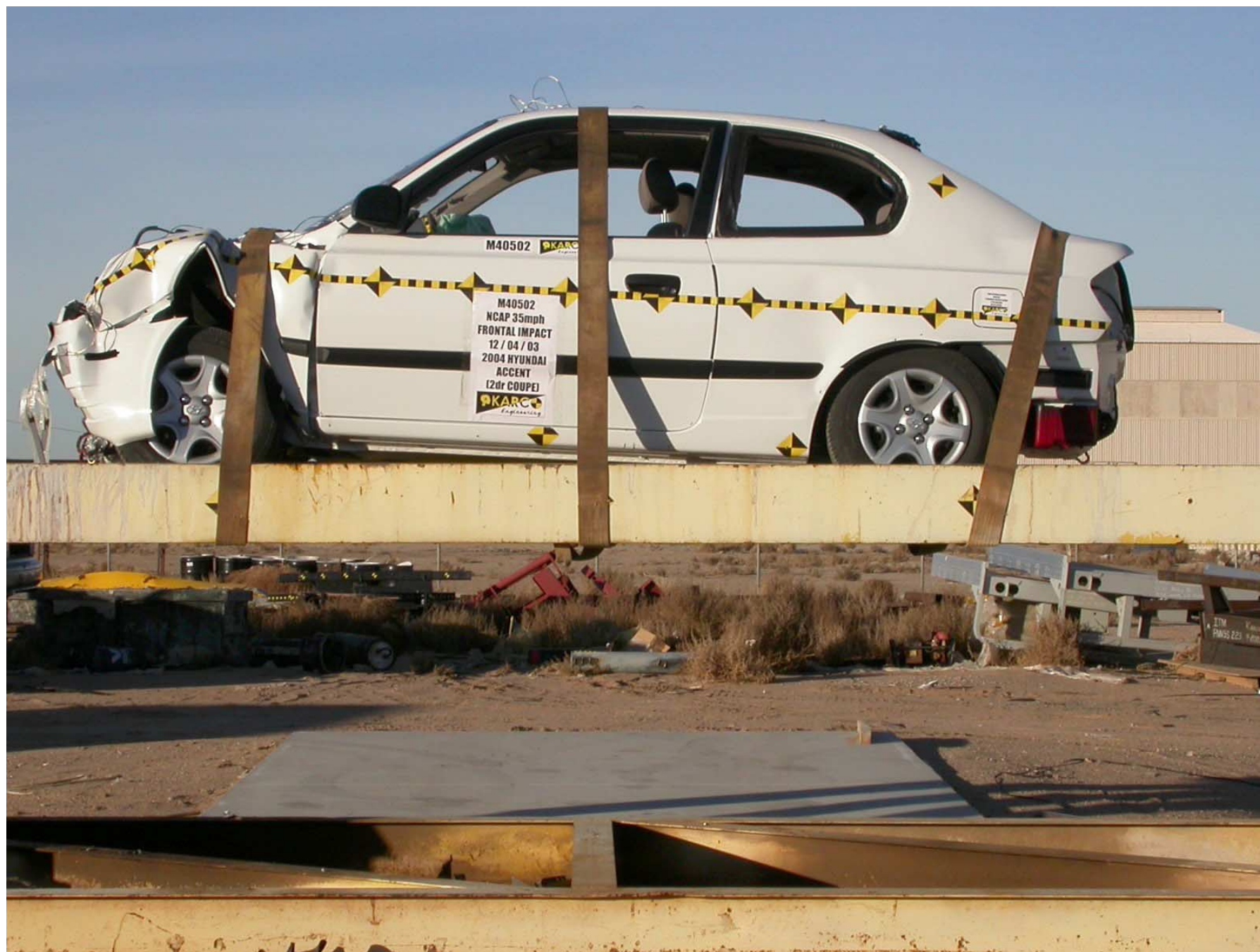


Figure A-58: Vehicle on Rollover Device



Figure A-59: Vehicle on Rollover Device



Figure A-60: Vehicle on Rollover Device

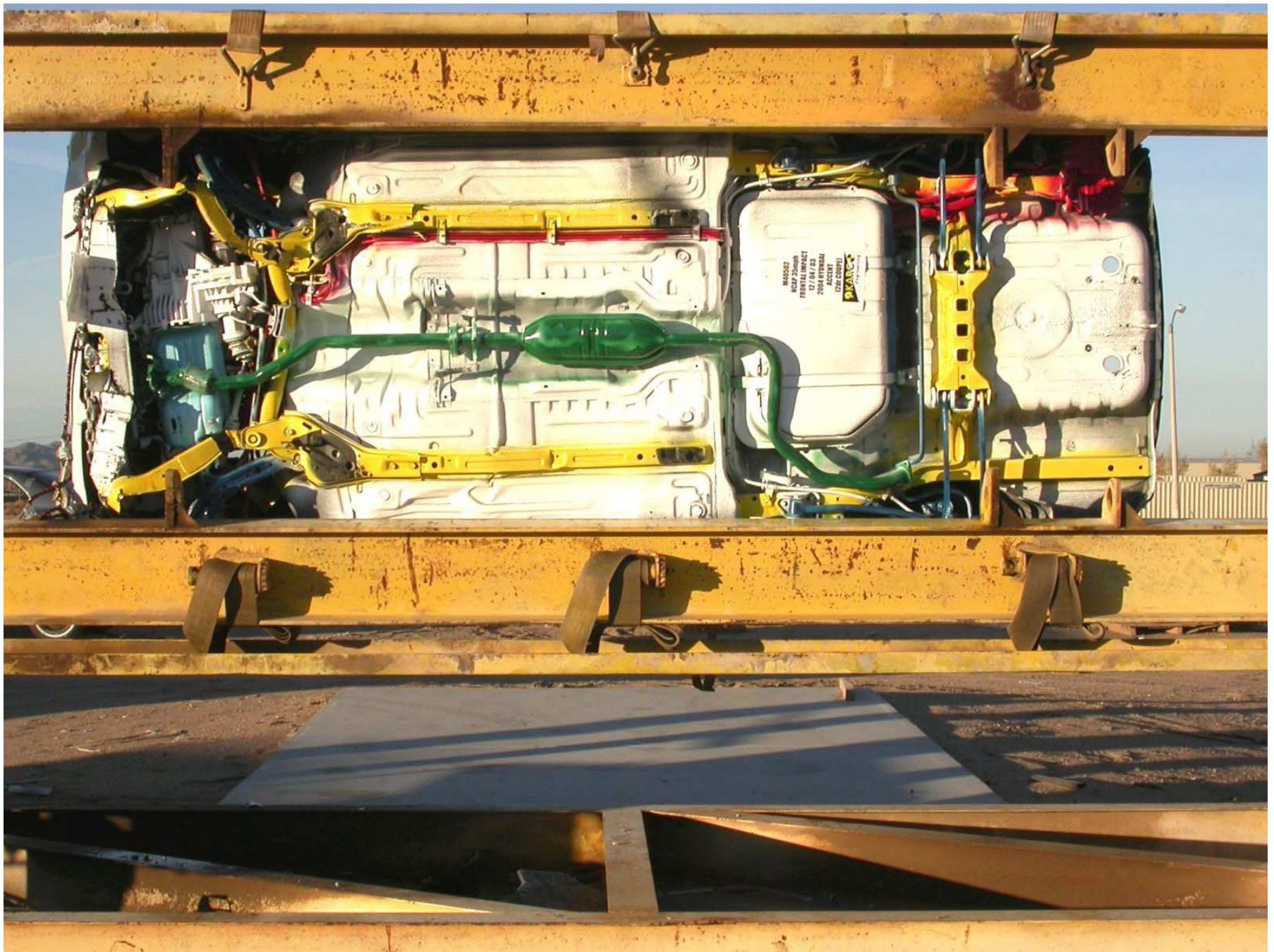


Figure A-61: Vehicle on Rollover Device



Figure A-62: Vehicle During Impact

APPENDIX B

DATA PLOTS

LIST OF DATA PLOTS

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B-15	Driver Left Upper Tibia Moment X
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	Driver Right Upper Tibia Moment Y
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	Driver Right Lower Tibia Moment Y
	Driver Right Lower Tibia Force Z
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	Driver Left Foot Aft Z
	Driver Left Foot Fore Z
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B-33	Passenger Pelvis X Velocity
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LIST OF DATA PLOTS...(Continued)

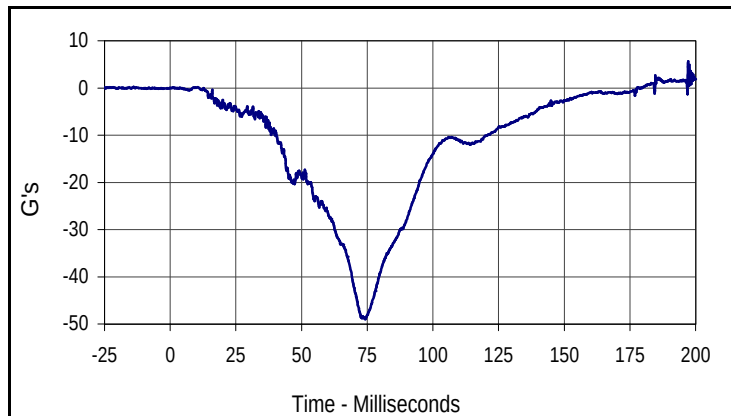
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	Vehicle Engine Top Displacement	B-43
B-44	Vehicle Engine Bottom	B-44
	Vehicle Engine Bottom Velocity	B-44
	Vehicle Engine Bottom Displacement	B-44

LIST OF DATA PLOTS...(Continued)

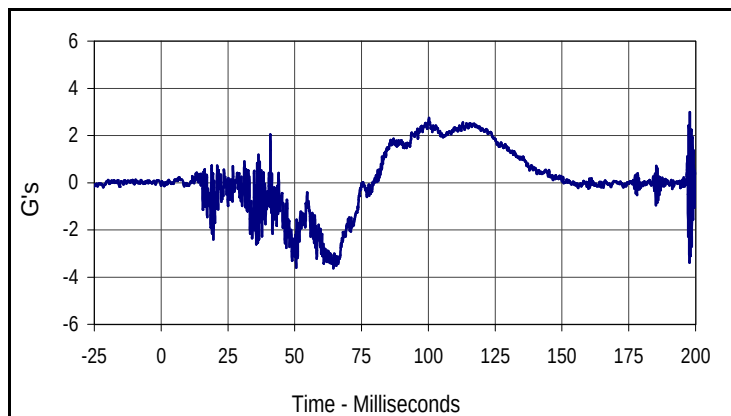
<u>Data Plot</u>	<u>Page</u>
B-45	Vehicle Left Brake Caliper
	Vehicle Left Brake Caliper Velocity
	Vehicle Left Brake Caliper Displacement
B-46	Vehicle Right Brake Caliper
	Vehicle Right Brake Caliper Velocity
	Vehicle Right Brake Caliper Displacement
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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

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

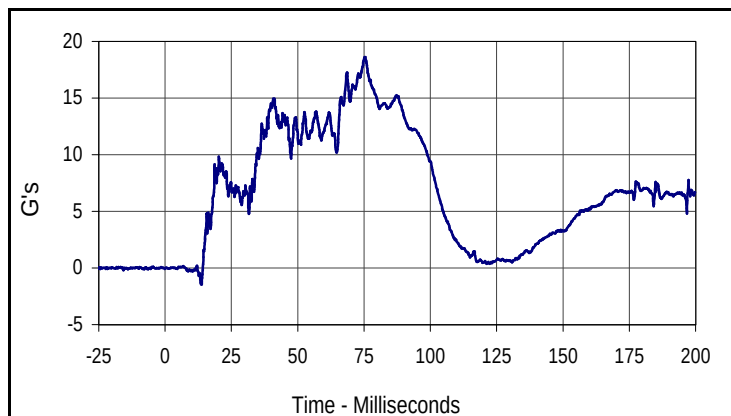
Test Date: 12/4/03
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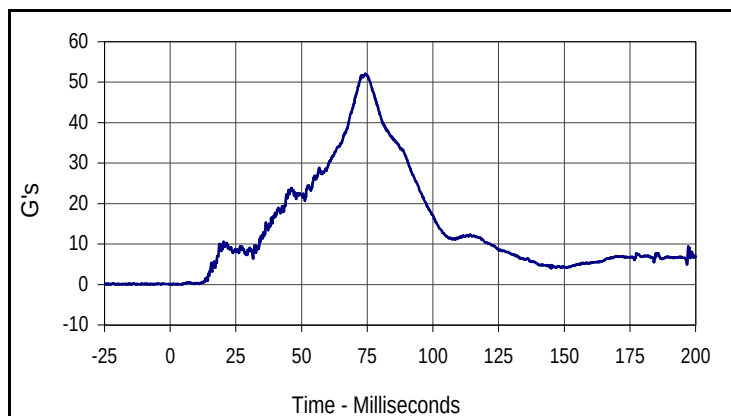
Curve Description			
Driver Head Primary X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
5.7	197.2	-49.0	74.3



Curve Description			
Driver Head Primary Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.0	197.9	-3.6	64.5



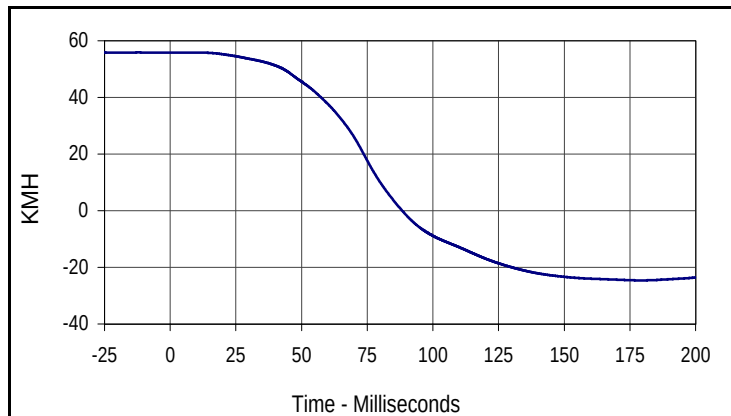
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CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
18.6	75.2	-1.5	13.7



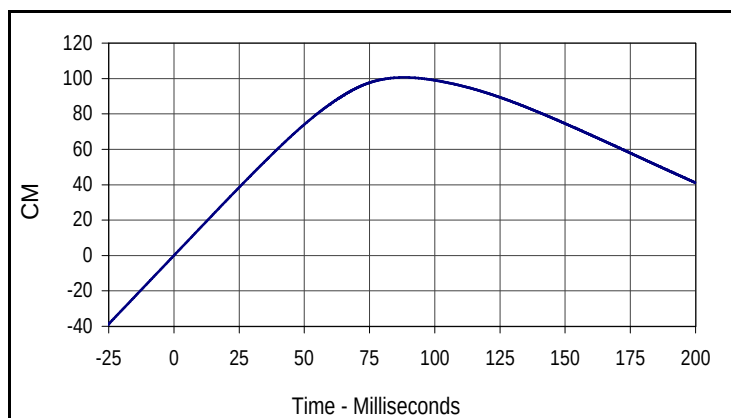
Curve Description			
Driver Head Resultant Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
52.1	74.3	0.0	0.6

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
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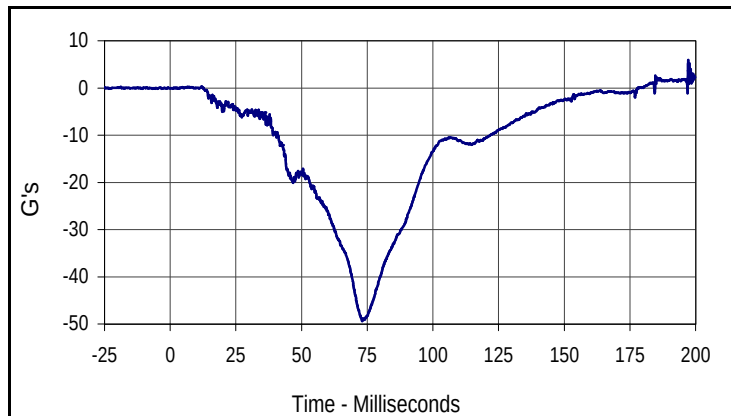
Curve Description			
Driver Head Primary X Velocity			
CURNO	Type	SAE Class	Units
001	IN1	180	KMH
Max	Time	Min	Time
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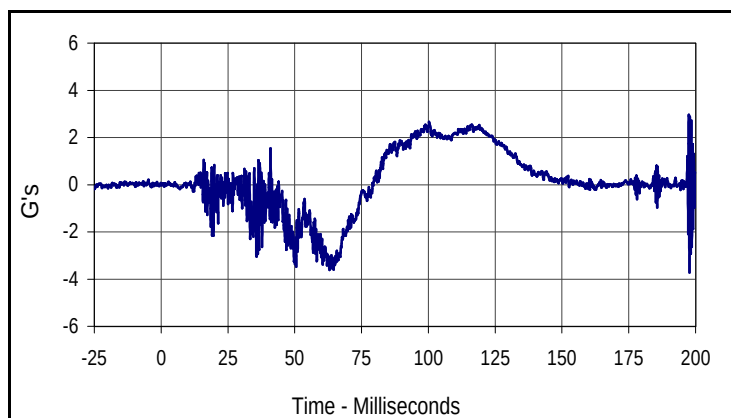
Curve Description			
Driver Head Primary X Displacement			
CURNO	Type	SAE Class	Units
001	IN2	180	CM
Max	Time	Min	Time
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Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

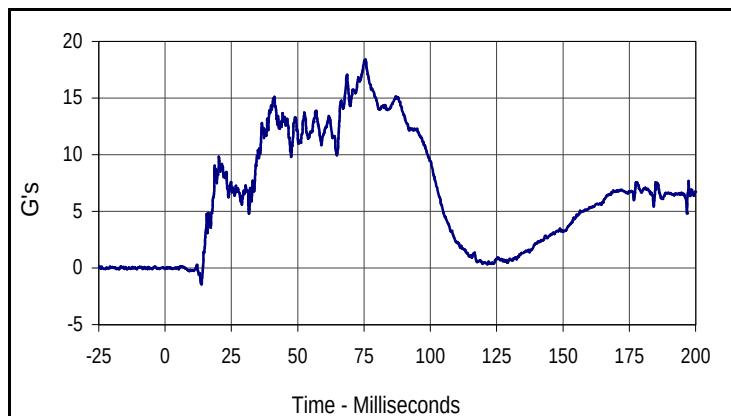
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 NHTSA No.: M40502



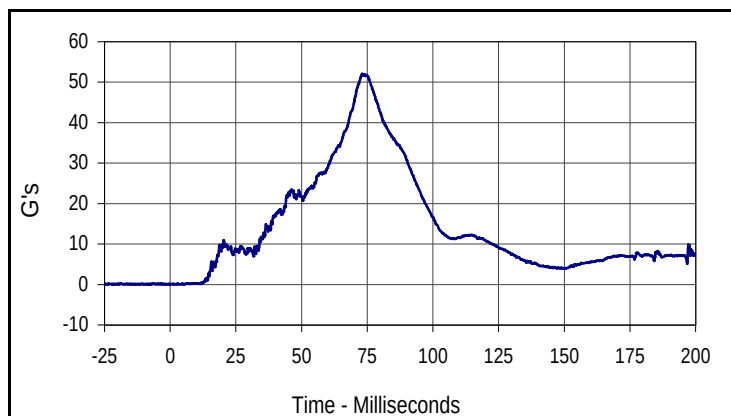
Curve Description			
Driver Head Redundant X			
CURNO	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
5.9	197.2	-49.4	73.1



Curve Description			
Driver Head Redundant Y			
CURNO	Type	SAE Class	Units
005	FIL	1000	G's
Max	Time	Min	Time
2.9	197.5	-3.7	197.7



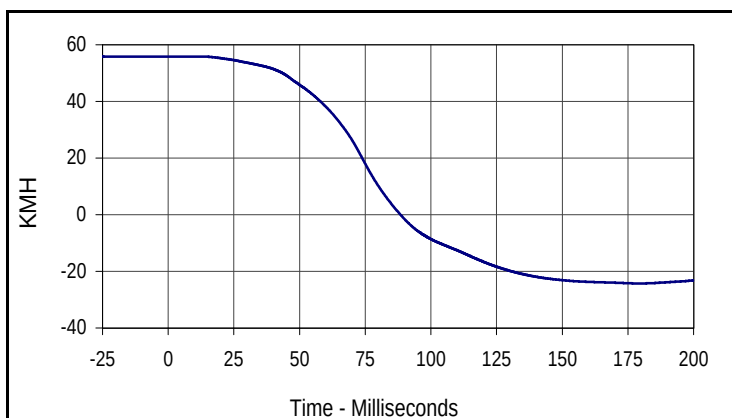
Curve Description			
Driver Head Redundant Z			
CURNO	Type	SAE Class	Units
006	FIL	1000	G's
Max	Time	Min	Time
18.4	75.5	-1.4	13.7



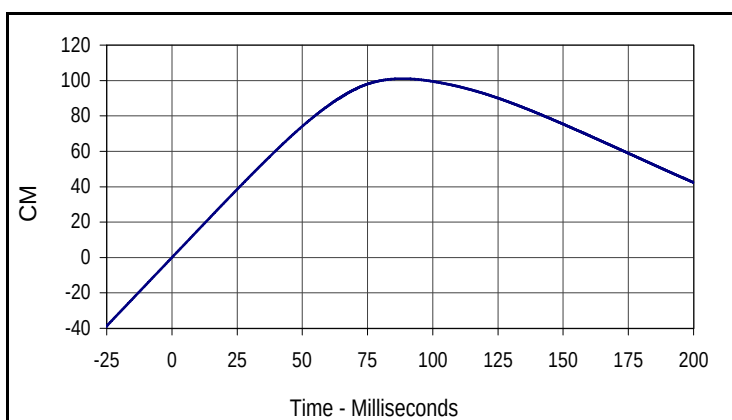
Curve Description			
Driver Head Resultant Redundant			
CURNO	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
52.1	73.1	0.0	3.5

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



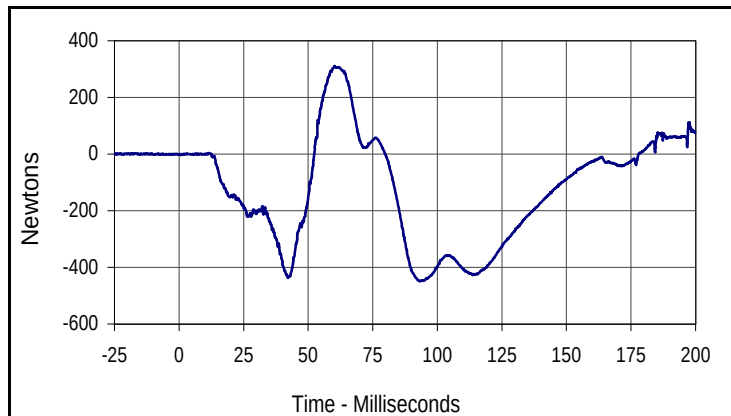
Curve Description			
Driver Head Redundant X Velocity			
CURNO	Type	SAE Class	Units
004	IN1	180	KMH
Max	Time	Min	Time
55.9	12.5	-24.3	178.5



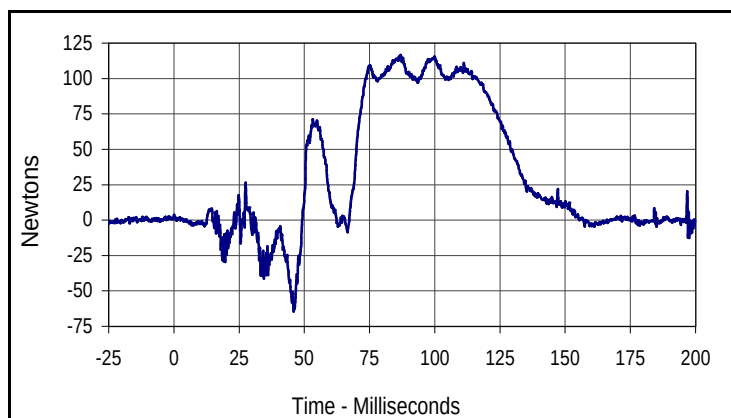
Curve Description			
Driver Head Redundant X Displacement			
CURNO	Type	SAE Class	Units
004	IN2	180	CM
Max	Time	Min	Time
101.1	88.4	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

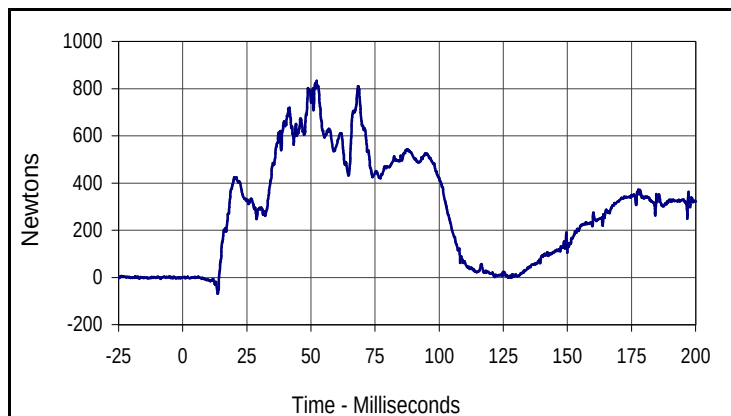
Test Date: 12/4/03
 NHTSA No.: M40502



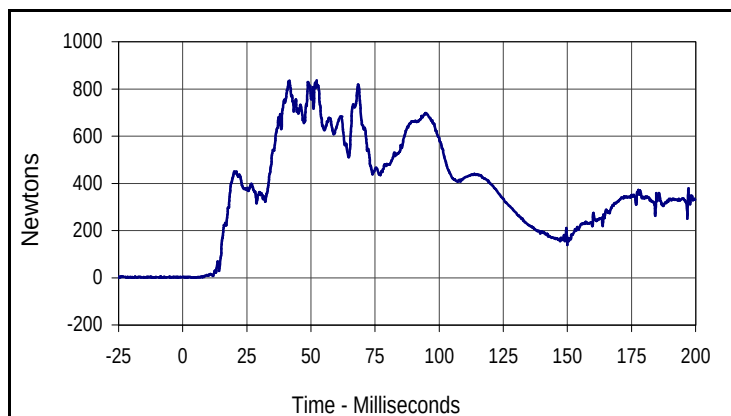
Curve Description			
Driver Upper Neck Force X			
CURNO	Type	SAE Class	Units
007	FIL	1000	Newtons
Max	Time	Min	Time
310.5	60.2	-449.3	93.2



Curve Description			
Driver Upper Neck Force Y			
CURNO	Type	SAE Class	Units
008	FIL	1000	Newtons
Max	Time	Min	Time
116.7	86.9	-64.6	45.9



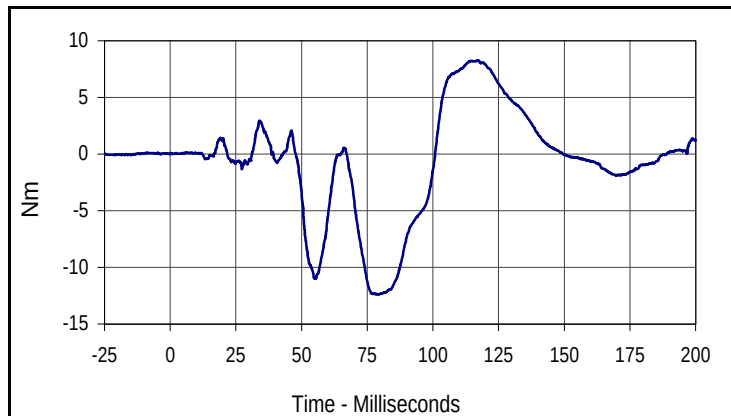
Curve Description			
Driver Upper Neck Force Z			
CURNO	Type	SAE Class	Units
009	FIL	1000	Newtons
Max	Time	Min	Time
833.7	52.2	-68.3	13.7



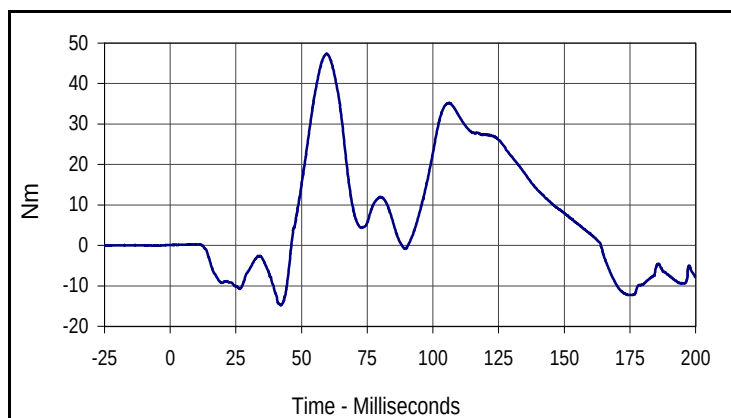
Curve Description			
Driver Upper Neck Force Res.			
CURNO	Type	SAE Class	Units
007	RES	1000	Newtons
Max	Time	Min	Time
835.6	52.2	0.6	3.5

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

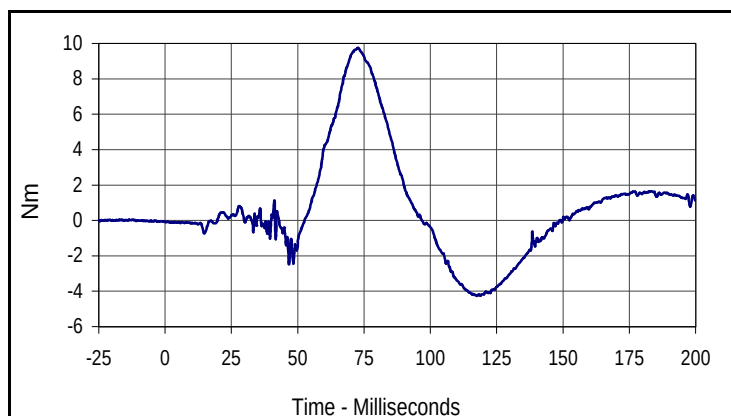
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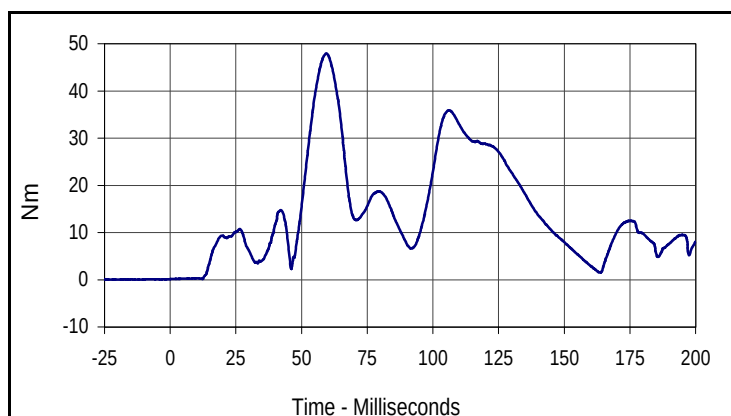
Curve Description			
Driver Upper Neck Moment X			
CURNO	Type	SAE Class	Units
010	FIL	600	Nm
Max	Time	Min	Time
8.3	117.3	-12.4	79.1



Curve Description			
Driver Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
011	FIL	600	Nm
Max	Time	Min	Time
47.4	59.5	-14.7	42.1



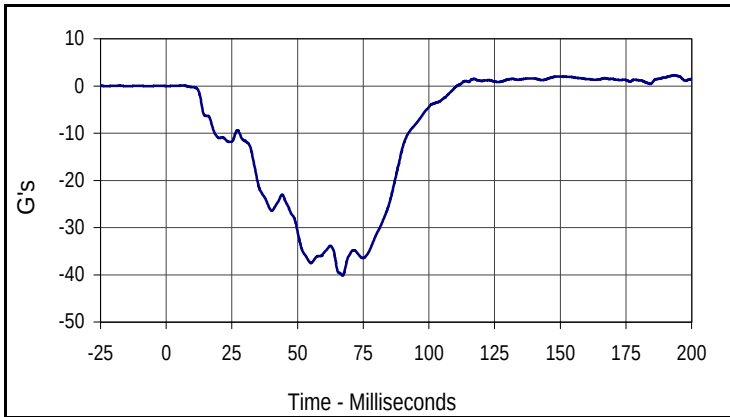
Curve Description			
Driver Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
012	FIL	600	Nm
Max	Time	Min	Time
9.8	72.8	-4.3	117.5



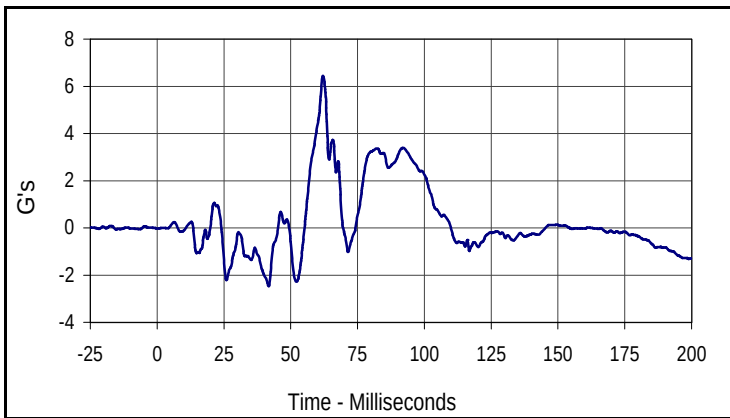
Curve Description			
Driver Upper Neck Moment Res.			
CURNO	Type	SAE Class	Units
010	RES	600	Nm
Max	Time	Min	Time
48.0	59.4	0.1	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

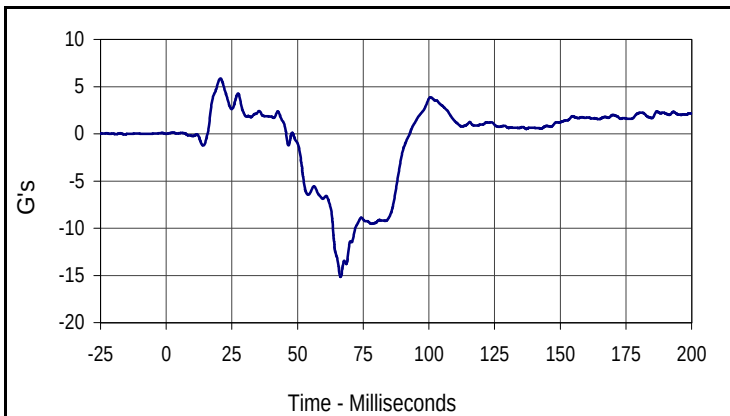
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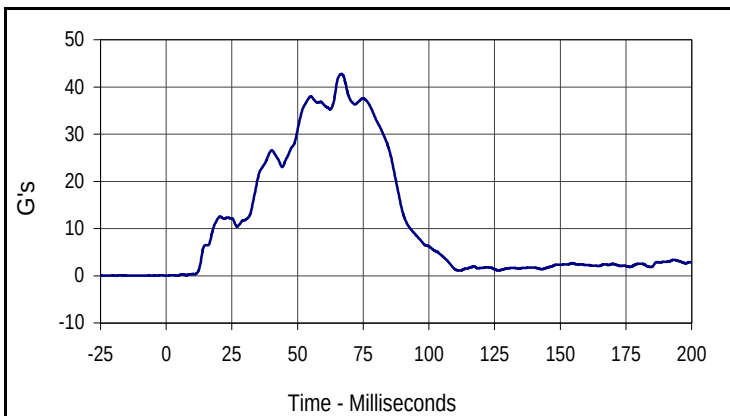
Curve Description			
Driver Chest Primary X			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
2.3	193.3	-40.2	67.1



Curve Description			
Driver Chest Primary Y			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
6.4	62.1	-2.5	41.7



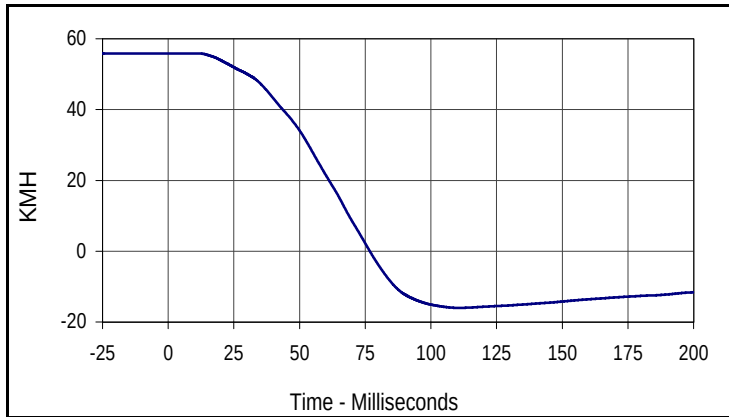
Curve Description			
Driver Chest Primary Z			
CURNO	Type	SAE Class	Units
015	FIL	180	G's
Max	Time	Min	Time
5.9	20.6	-15.2	66.4



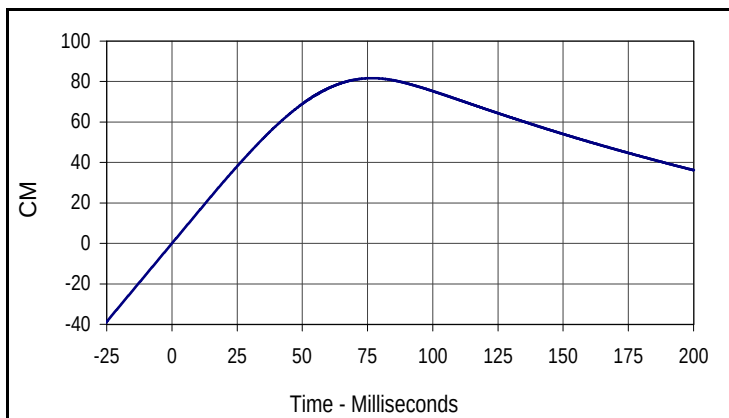
Curve Description			
Driver Chest Resultant Primary			
CURNO	Type	SAE Class	Units
013	RES	180	G's
Max	Time	Min	Time
42.7	66.9	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



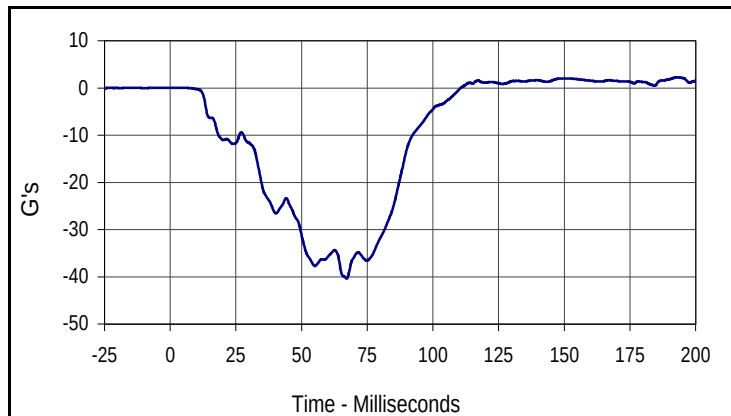
Curve Description			
Driver Chest Primary X Velocity			
CURNO	Type	SAE Class	Units
013	IN1	180	KMH
Max	Time	Min	Time
55.9	7.7	-16.0	110.7



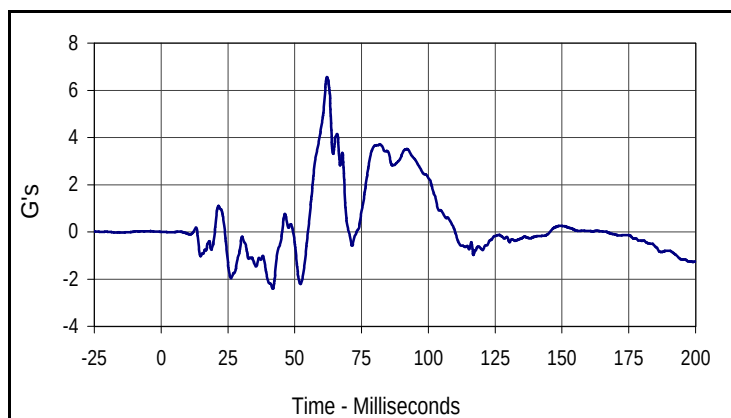
Curve Description			
Driver Chest Primary X Displacement			
CURNO	Type	SAE Class	Units
013	IN2	180	CM
Max	Time	Min	Time
81.7	76.7	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

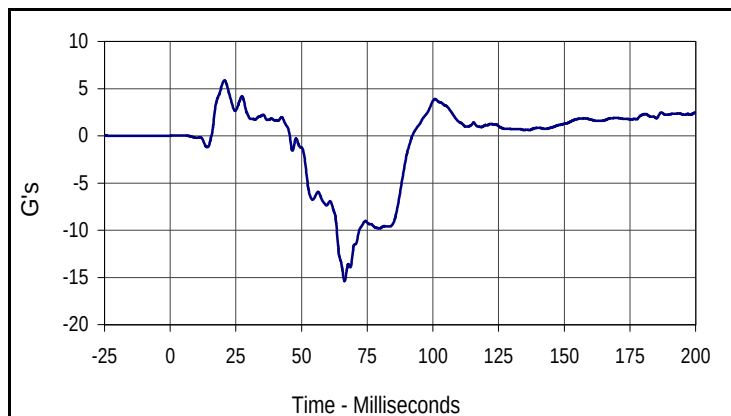
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 NHTSA No.: M40502



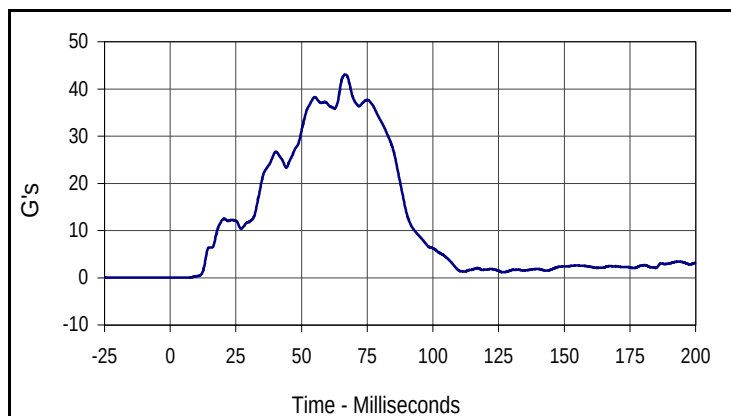
Curve Description			
Driver Chest Redundant X			
CURNO	Type	SAE Class	Units
016	FIL	180	G's
Max	Time	Min	Time
2.3	193.1	-40.4	67.2



Curve Description			
Driver Chest Redundant Y			
CURNO	Type	SAE Class	Units
017	FIL	180	G's
Max	Time	Min	Time
6.6	62.1	-2.4	41.8



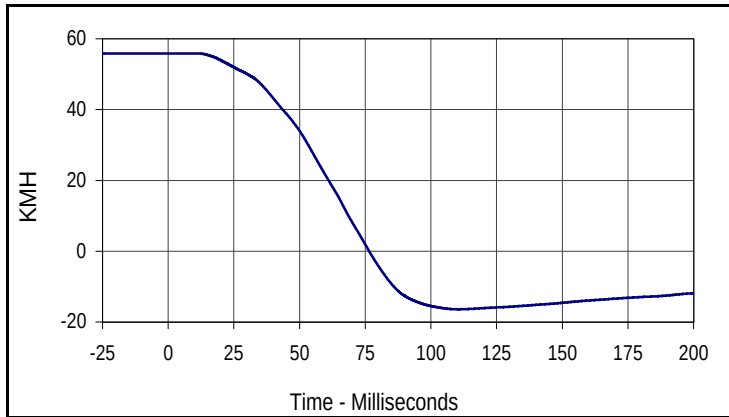
Curve Description			
Driver Chest Redundant Z			
CURNO	Type	SAE Class	Units
018	FIL	180	G's
Max	Time	Min	Time
5.9	20.6	-15.4	66.4



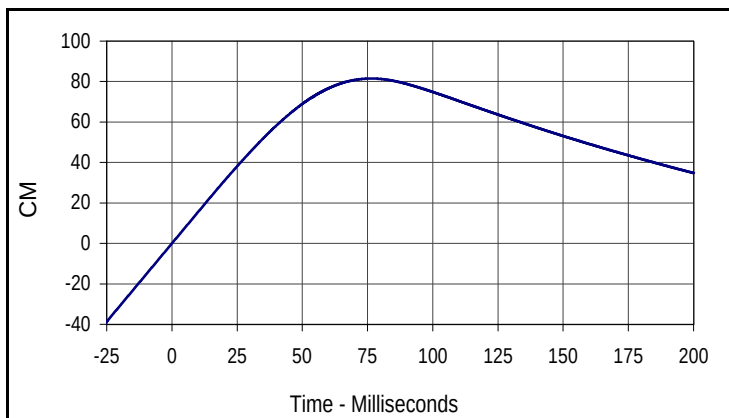
Curve Description			
Driver Chest Resultant Redundant			
CURNO	Type	SAE Class	Units
016	RES	180	G's
Max	Time	Min	Time
43.0	66.8	0.0	6.9

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



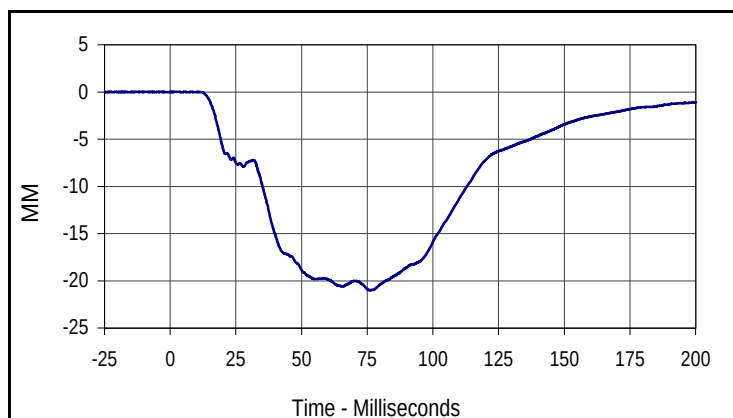
Curve Description			
Driver Chest Redundant X Velocity			
CURNO	Type	SAE Class	Units
016	IN1	180	KMH
Max	Time	Min	Time
55.9	6.8	-16.4	110.5



Curve Description			
Driver Chest Redundant X Displacement			
CURNO	Type	SAE Class	Units
016	IN2	180	CM
Max	Time	Min	Time
81.5	76.5	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

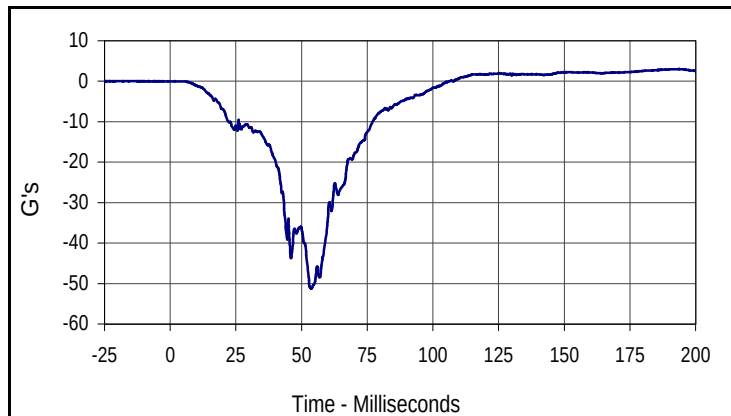
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 NHTSA No.: M40502



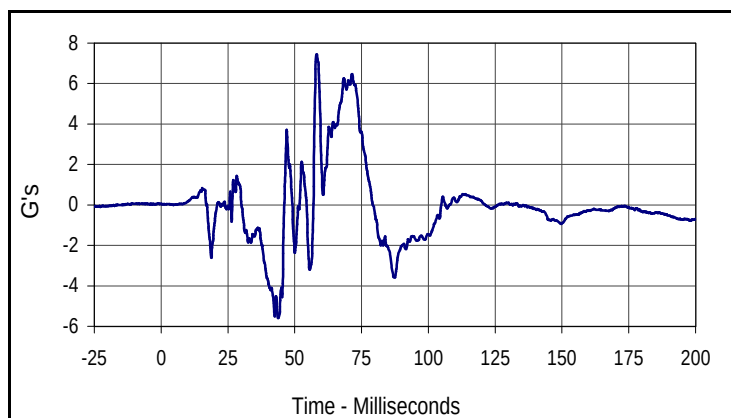
Curve Description			
Driver Chest Displacement			
CURNO	Type	SAE Class	Units
019	FIL	600	MM
Max	Time	Min	Time
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Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

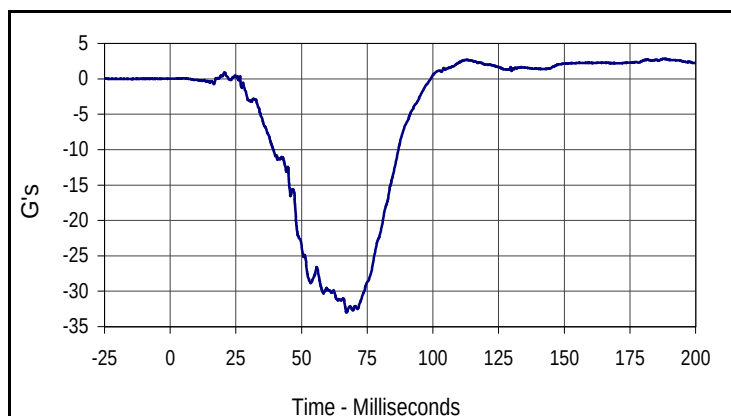
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 NHTSA No.: M40502



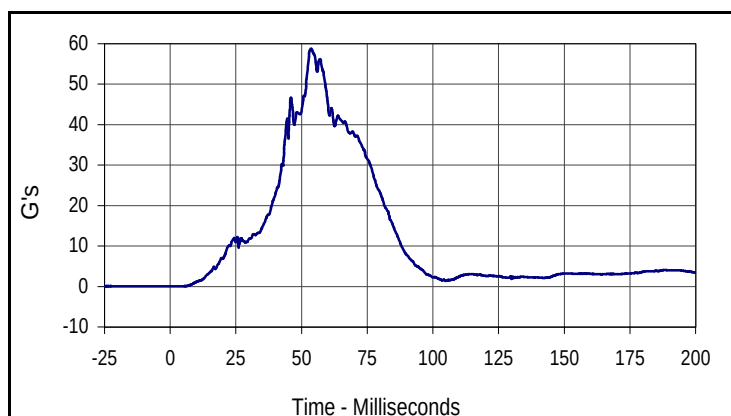
Curve Description			
Driver Pelvis X			
CURNO	Type	SAE Class	Units
020	FIL	1000	G's
Max	Time	Min	Time
3.0	193.8	-51.3	53.7



Curve Description			
Driver Pelvis Y			
CURNO	Type	SAE Class	Units
021	FIL	1000	G's
Max	Time	Min	Time
7.4	58.2	-5.6	43.7



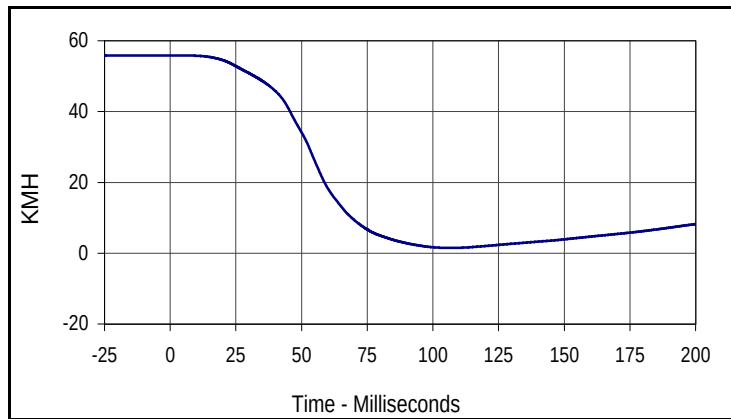
Curve Description			
Driver Pelvis Z			
CURNO	Type	SAE Class	Units
022	FIL	1000	G's
Max	Time	Min	Time
2.8	187.8	-33.0	67.2



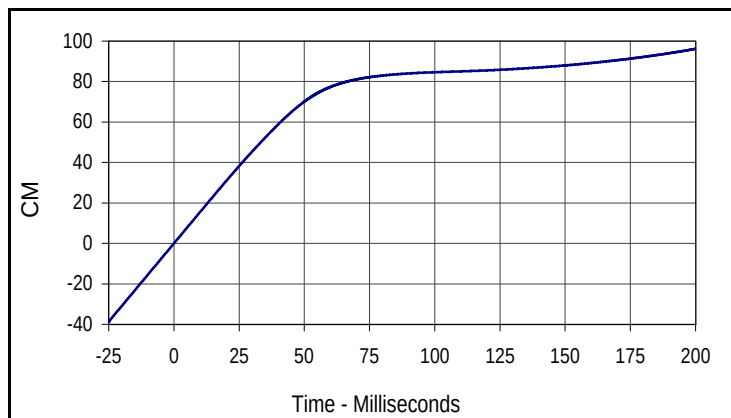
Curve Description			
Driver Pelvis Resultant			
CURNO	Type	SAE Class	Units
020	RES	1000	G's
Max	Time	Min	Time
58.8	53.7	0.0	0.5

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



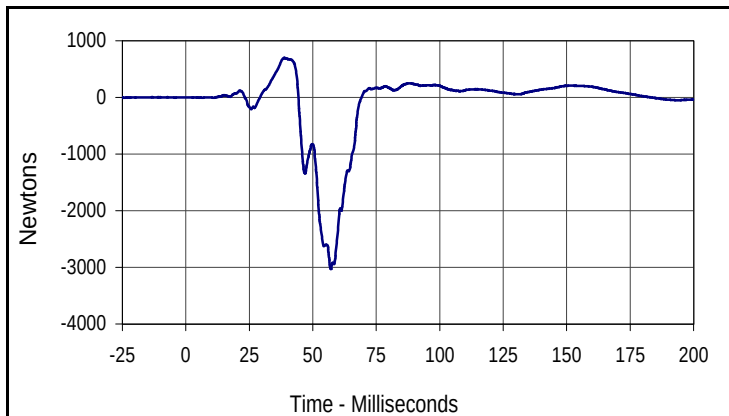
Curve Description			
Driver Pelvis X Velocity			
CURNO	Type	SAE Class	Units
020	IN1	180	KMH
Max	Time	Min	Time
55.9	0.0	1.5	106.3



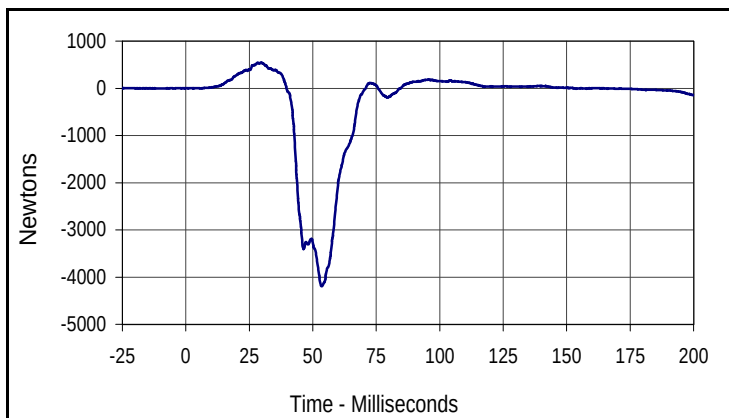
Curve Description			
Driver Pelvis X Displacement			
CURNO	Type	SAE Class	Units
020	IN2	180	CM
Max	Time	Min	Time
96.2	200.0	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



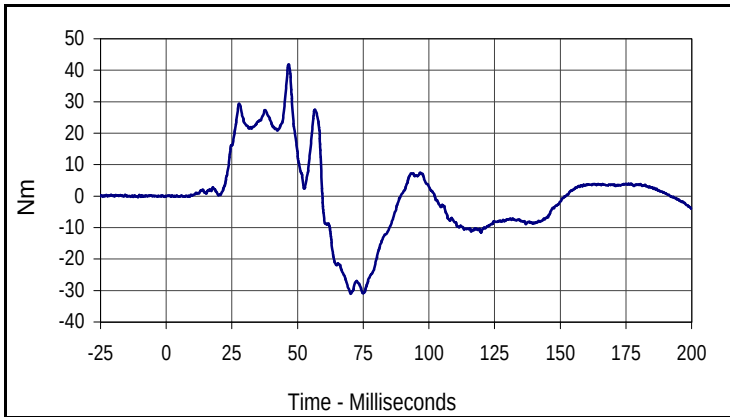
Curve Description			
Driver Left Femur Force			
CURNO	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
700.3	38.7	-3027.4	57.1



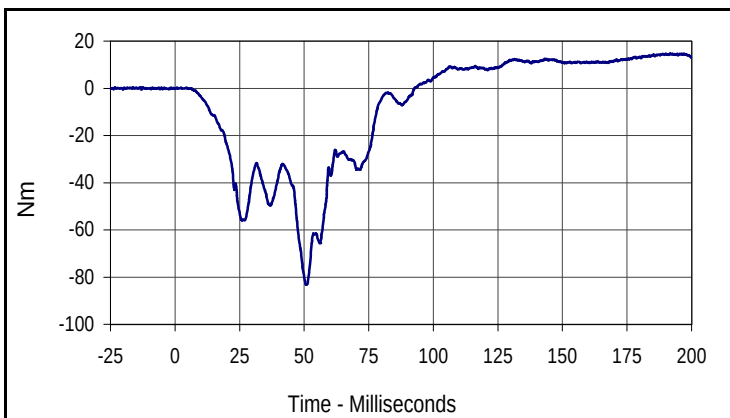
Curve Description			
Driver Right Femur Force			
CURNO	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
545.9	29.6	-4192.1	53.5

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

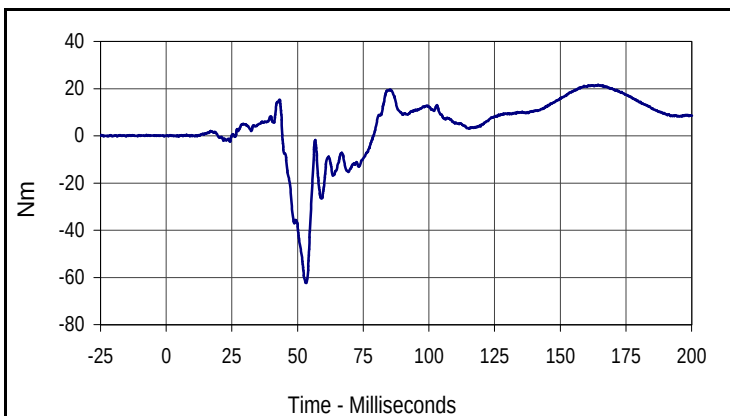
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 NHTSA No.: M40502



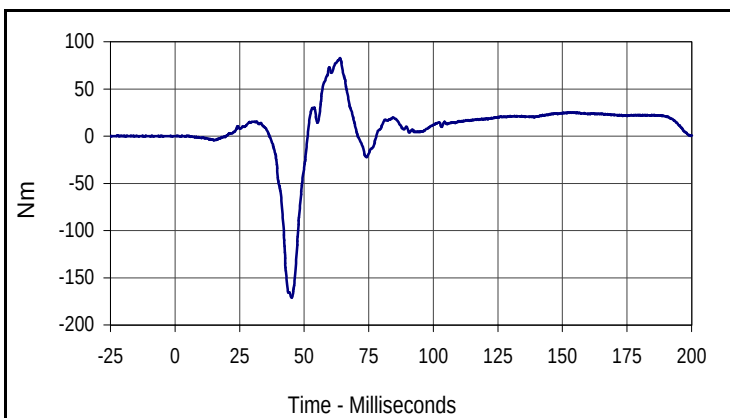
Curve Description			
Driver Left Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
025	FIL	600	Nm
Max	Time	Min	Time
41.9	46.6	-31.0	70.2



Curve Description			
Driver Left Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
026	FIL	600	Nm
Max	Time	Min	Time
14.6	191.7	-83.2	51.0



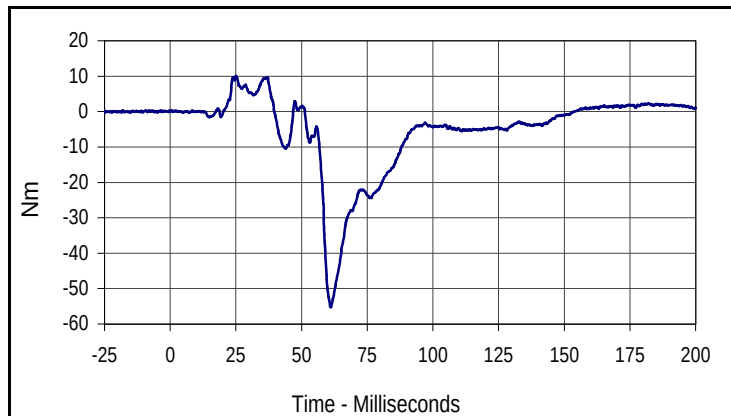
Curve Description			
Driver Right Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
027	FIL	600	Nm
Max	Time	Min	Time
21.6	164.4	-62.4	53.3



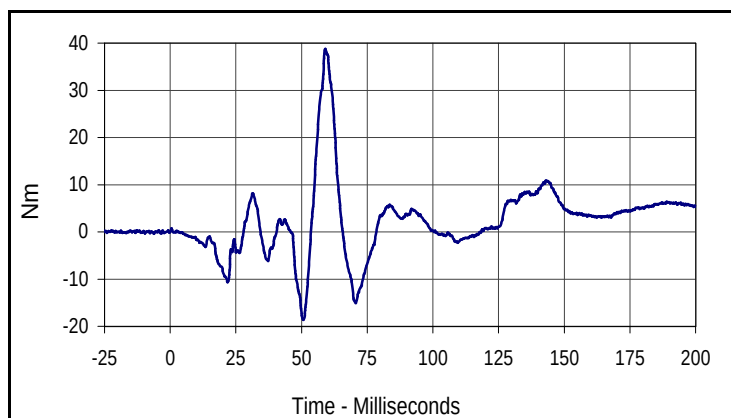
Curve Description			
Driver Right Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
028	FIL	600	Nm
Max	Time	Min	Time
82.7	63.9	-171.0	45.1

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

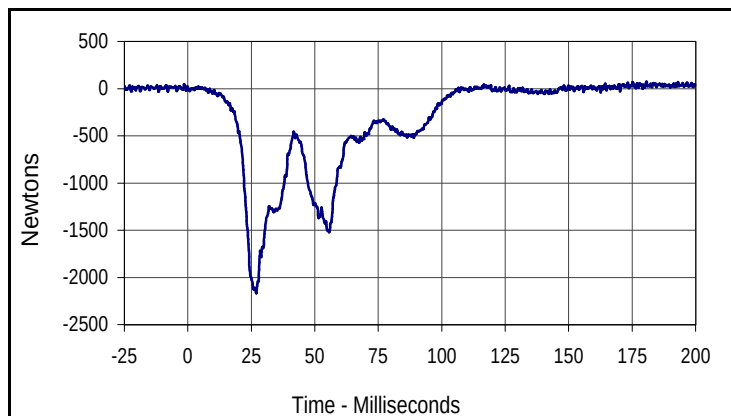
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Driver Left Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
029	FIL	600	Nm
Max	Time	Min	Time
10.1	25.1	-55.2	61.1



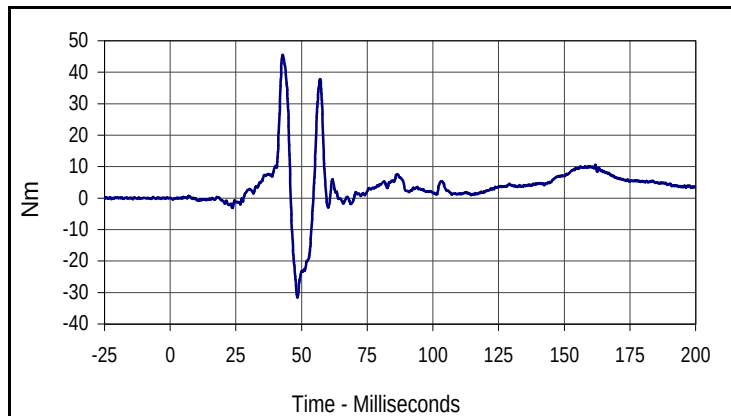
Curve Description			
Driver Left Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
030	FIL	600	Nm
Max	Time	Min	Time
38.8	59.0	-18.6	50.7



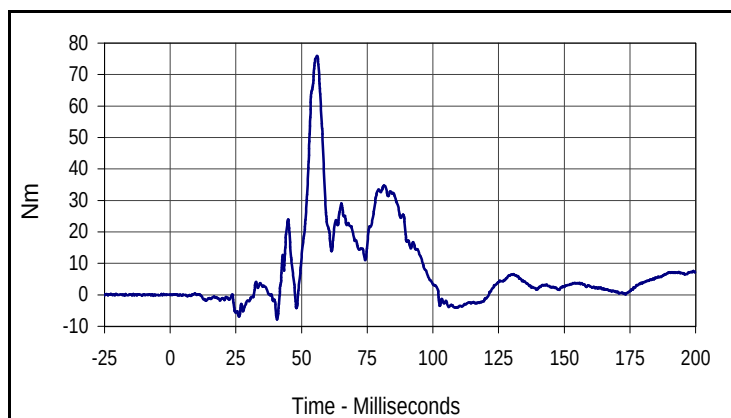
Curve Description			
Driver Left Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
031	FIL	600	Newtons
Max	Time	Min	Time
73.8	180.6	-2167.3	26.9

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

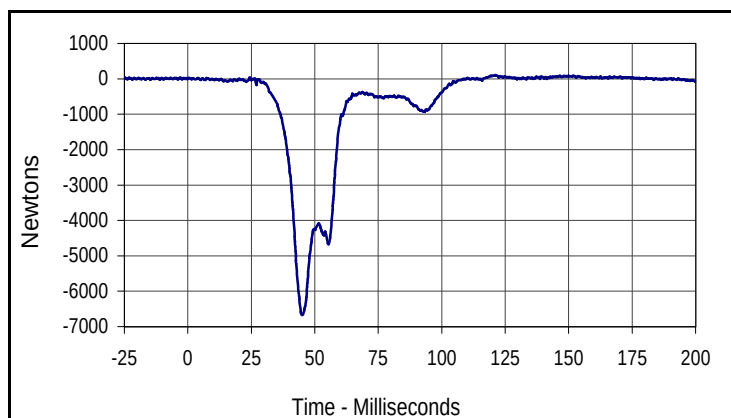
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Driver Right Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
032	FIL	600	Nm
Max	Time	Min	Time
45.5	42.8	-31.5	48.4



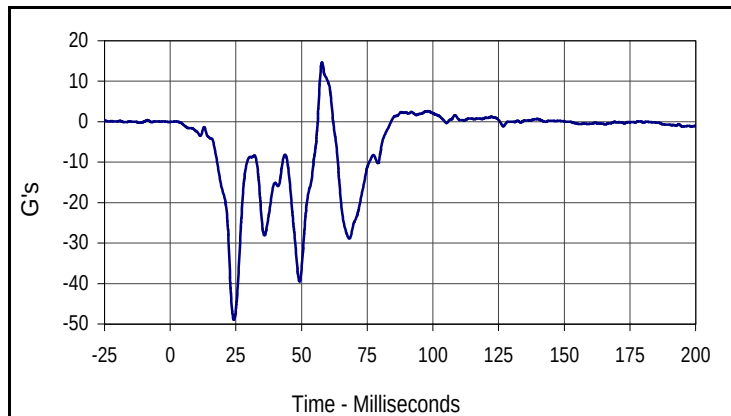
Curve Description			
Driver Right Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
033	FIL	600	Nm
Max	Time	Min	Time
75.9	55.9	-7.9	40.6



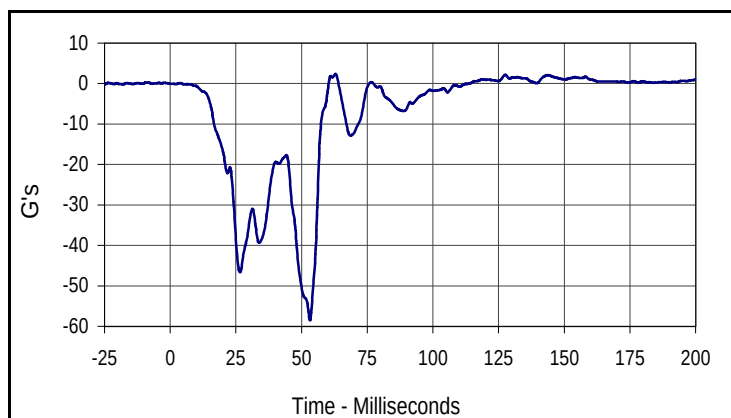
Curve Description			
Driver Right Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
034	FIL	600	Newtons
Max	Time	Min	Time
101.3	121.1	-6676.0	45.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

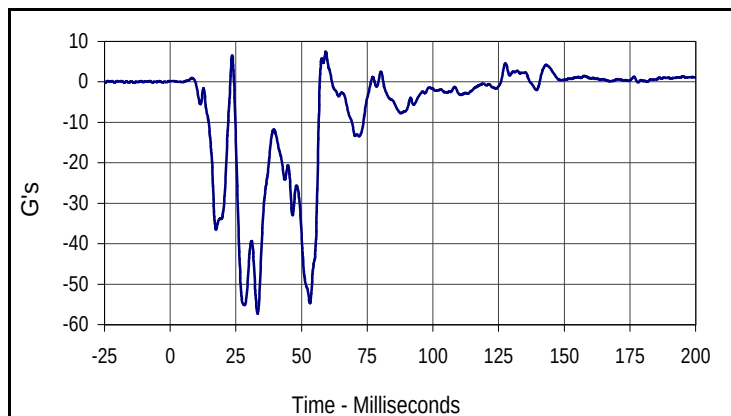
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Driver Left Foot Aft X			
CURNO	Type	SAE Class	Units
035	FIL	180	G's
Max	Time	Min	Time
14.6	57.8	-49.0	24.2



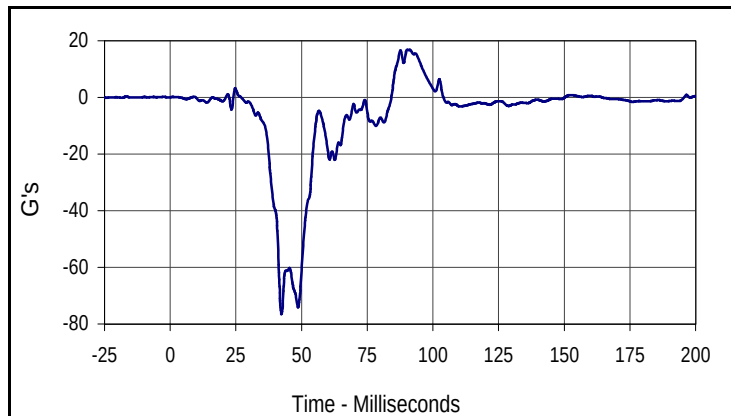
Curve Description			
Driver Left Foot Aft Z			
CURNO	Type	SAE Class	Units
036	FIL	180	G's
Max	Time	Min	Time
2.4	62.9	-58.5	53.2



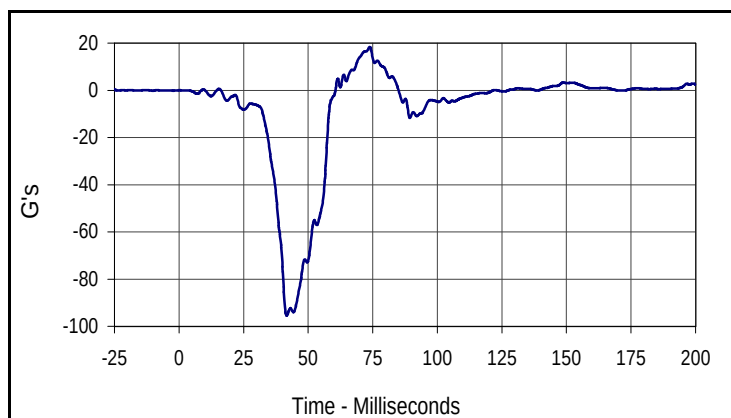
Curve Description			
Driver Left Foot Fore Z			
CURNO	Type	SAE Class	Units
037	FIL	180	G's
Max	Time	Min	Time
7.5	59.2	-57.3	33.3

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

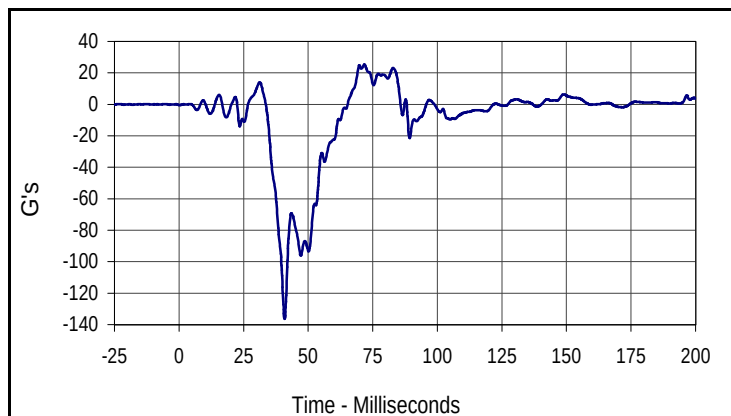
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Driver Right Foot Aft X			
CURNO	Type	SAE Class	Units
038	FIL	180	G's
Max	Time	Min	Time
16.8	90.2	-76.5	42.4



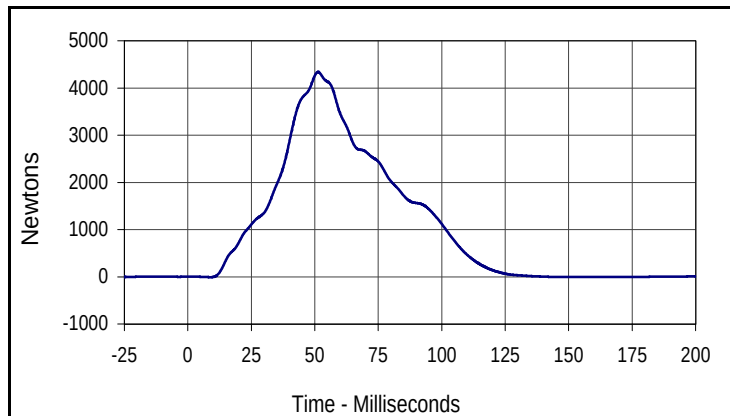
Curve Description			
Driver Right Foot Aft Z			
CURNO	Type	SAE Class	Units
039	FIL	180	G's
Max	Time	Min	Time
18.4	73.8	-95.5	41.7



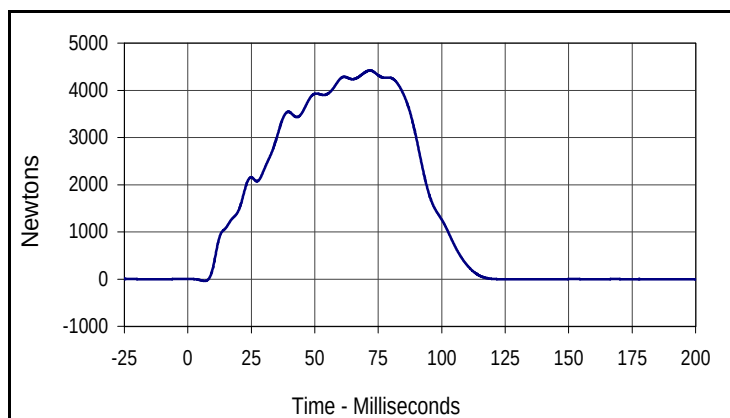
Curve Description			
Driver Right Foot Fore Z			
CURNO	Type	SAE Class	Units
040	FIL	180	G's
Max	Time	Min	Time
25.3	71.8	-136.3	40.9

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

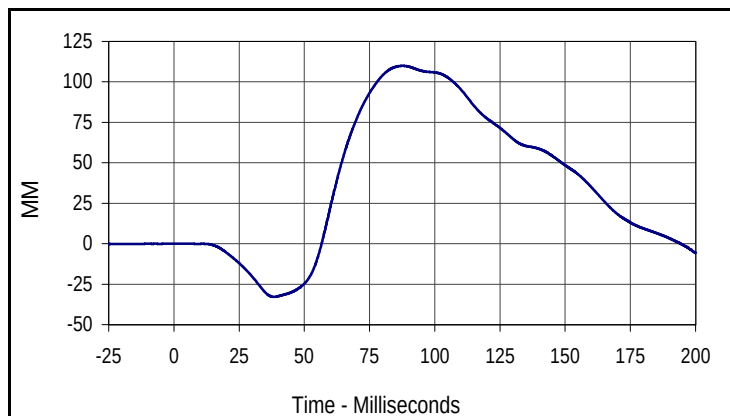
Test Date: 12/4/03
 NHTSA No.: M40502



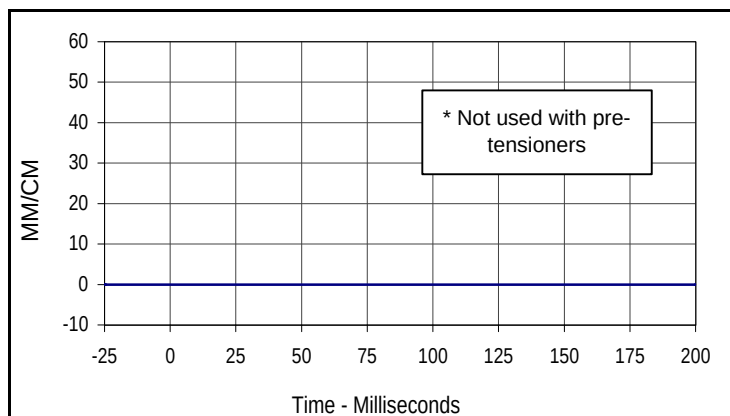
Curve Description			
Driver Lap Belt Force			
CURNO	Type	SAE Class	Units
041	FIL	60	Newtons
Max	Time	Min	Time
4339.1	51.2	-8.4	9.0



Curve Description			
Driver Shoulder Belt Force			
CURNO	Type	SAE Class	Units
042	FIL	60	Newtons
Max	Time	Min	Time
4421.3	71.7	-38.4	6.7



Curve Description			
Driver Shoulder Belt Pullout			
CURNO	Type	SAE Class	Units
043	FIL	60	MM
Max	Time	Min	Time
109.9	87.7	-32.9	38.3

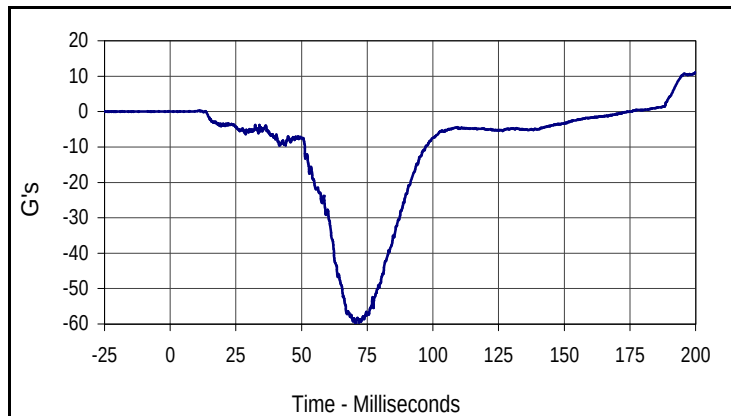


Curve Description			
Driver Shoulder Belt Elongation			
CURNO	Type	SAE Class	Units
044	FIL	60	MM/CM
Max	Time	Min	Time
0.0	0.0	0.0	0.0

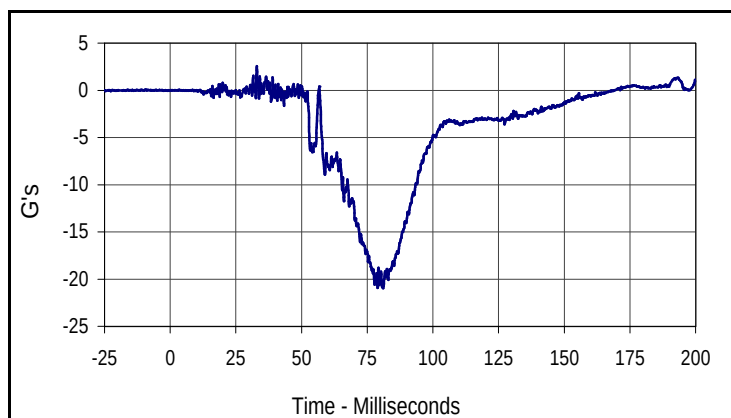
* Not used with pre-tensioners

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

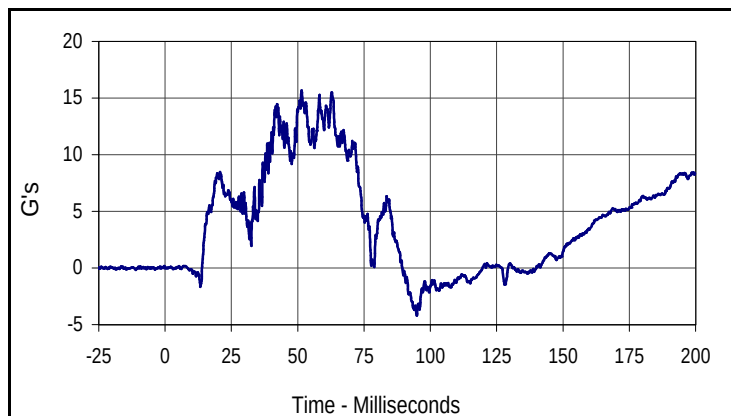
Test Date: 12/4/03
 NHTSA No.: M40502



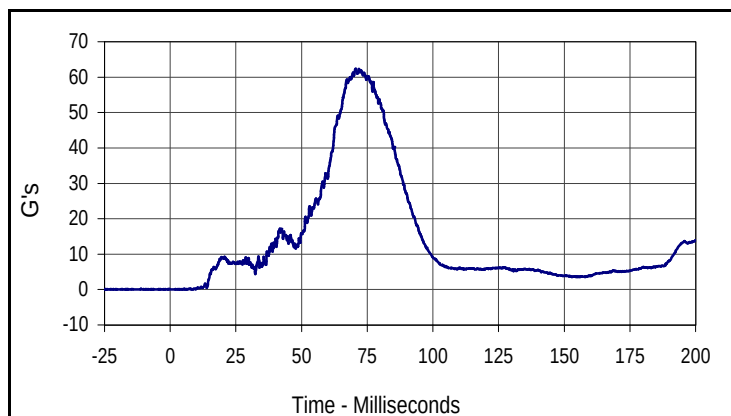
Curve Description			
Passenger Head Primary X			
CURNO	Type	SAE Class	Units
045	FIL	1000	G's
Max	Time	Min	Time
11.1	200.0	-59.9	70.6



Curve Description			
Passenger Head Primary Y			
CURNO	Type	SAE Class	Units
046	FIL	1000	G's
Max	Time	Min	Time
2.6	33.0	-21.0	81.1



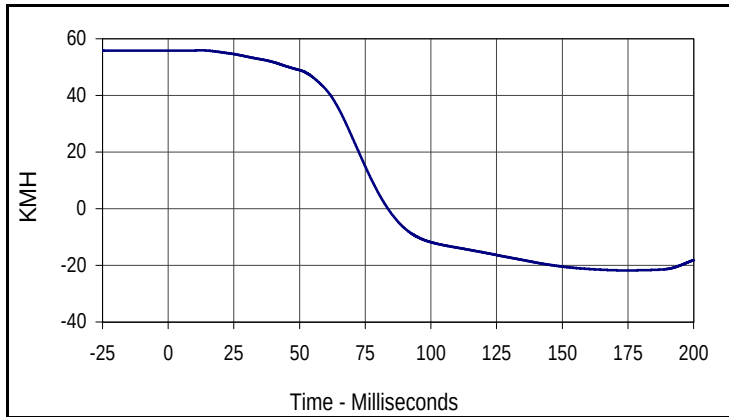
Curve Description			
Passenger Head Primary Z			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
15.7	51.5	-4.2	94.9



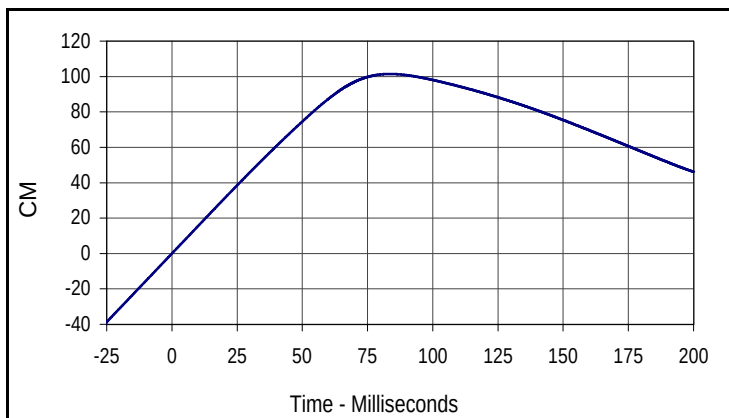
Curve Description			
Passenger Head Resultant Primary			
CURNO	Type	SAE Class	Units
045	RES	1000	G's
Max	Time	Min	Time
62.4	70.6	0.0	0.2

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



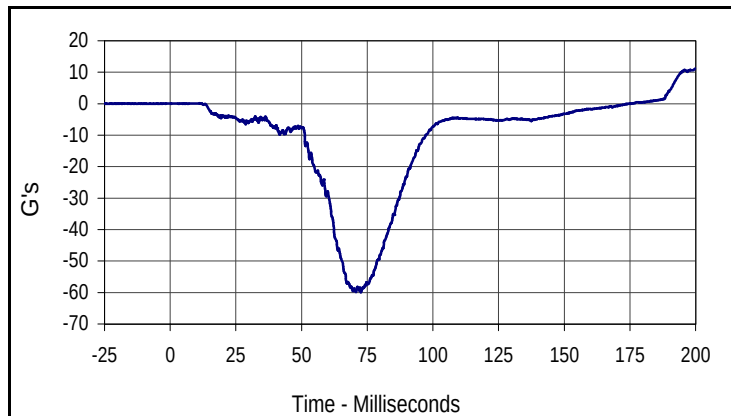
Curve Description			
Passenger Head Primary X Velocity			
CURNO	Type	SAE Class	Units
045	IN1	180	KMH
Max	Time	Min	Time
55.9	13.1	-21.8	175.1



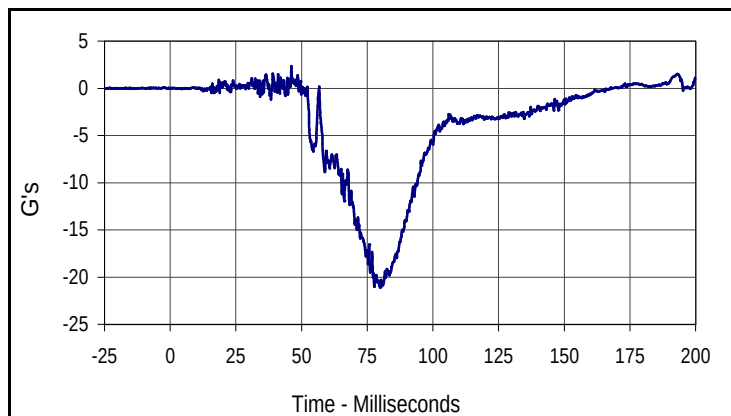
Curve Description			
Passenger Head Primary X Displacement			
CURNO	Type	SAE Class	Units
045	IN2	180	CM
Max	Time	Min	Time
101.4	83.7	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

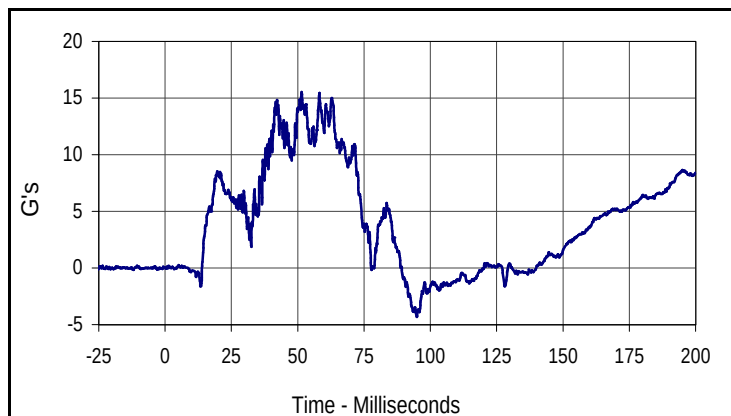
Test Date: 12/4/03
 NHTSA No.: M40502



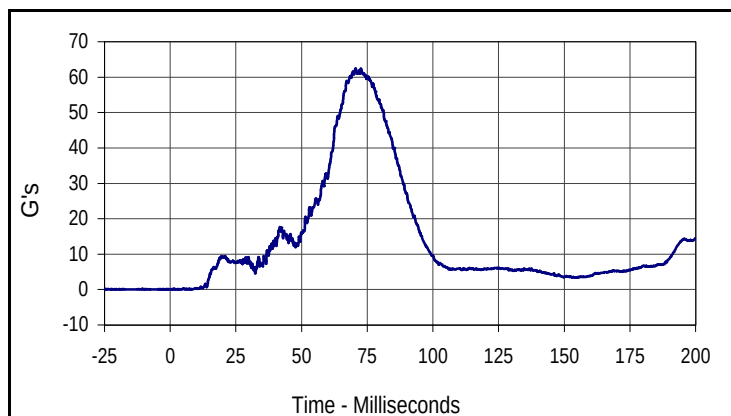
Curve Description			
Passenger Head Redundant X			
CURNO	Type	SAE Class	Units
048	FIL	1000	G's
Max	Time	Min	Time
11.2	200.0	-59.9	72.6



Curve Description			
Passenger Head Redundant Y			
CURNO	Type	SAE Class	Units
049	FIL	1000	G's
Max	Time	Min	Time
2.4	46.1	-21.1	80.0



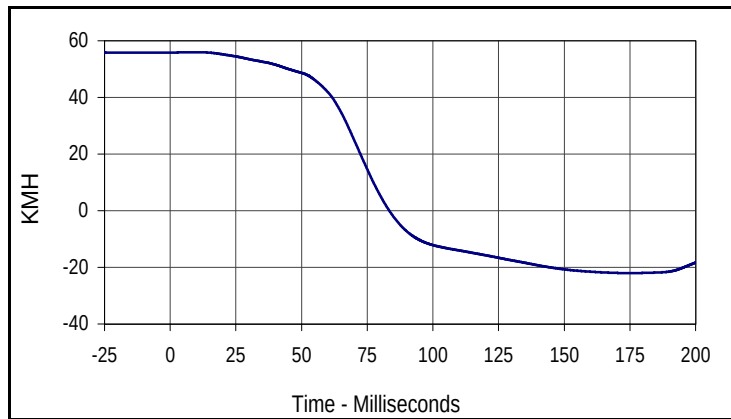
Curve Description			
Passenger Head Redundant Z			
CURNO	Type	SAE Class	Units
050	FIL	1000	G's
Max	Time	Min	Time
15.5	51.5	-4.3	94.9



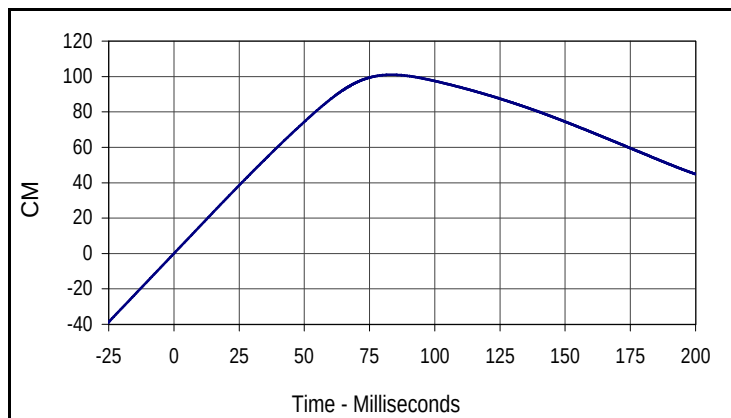
Curve Description			
Passenger Head Resultant Redundant			
CURNO	Type	SAE Class	Units
048	RES	1000	G's
Max	Time	Min	Time
62.4	70.6	0.0	0.9

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



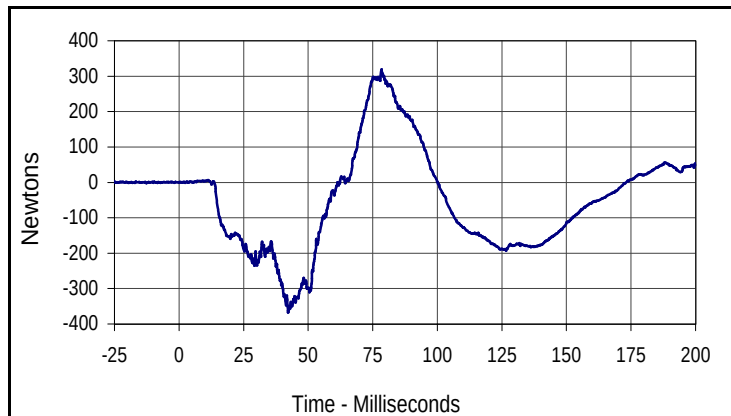
Curve Description			
Passenger Head Redundant X Velocity			
CURNO	Type	SAE Class	Units
048	IN1	180	KMH
Max	Time	Min	Time
55.9	11.8	-22.0	175.0



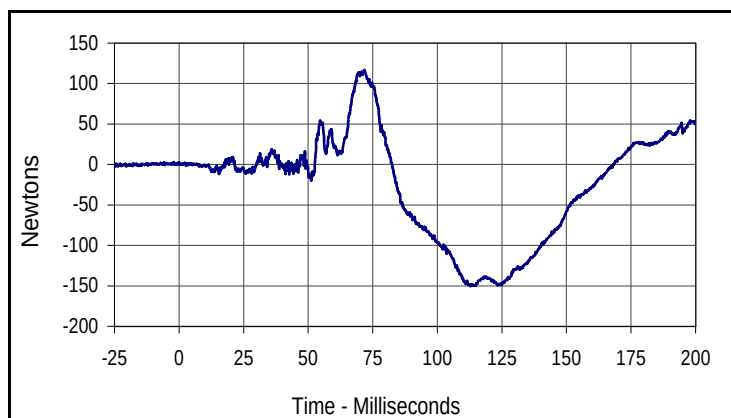
Curve Description			
Passenger Head Redundant X Displacement			
CURNO	Type	SAE Class	Units
048	IN2	180	CM
Max	Time	Min	Time
101.0	83.4	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

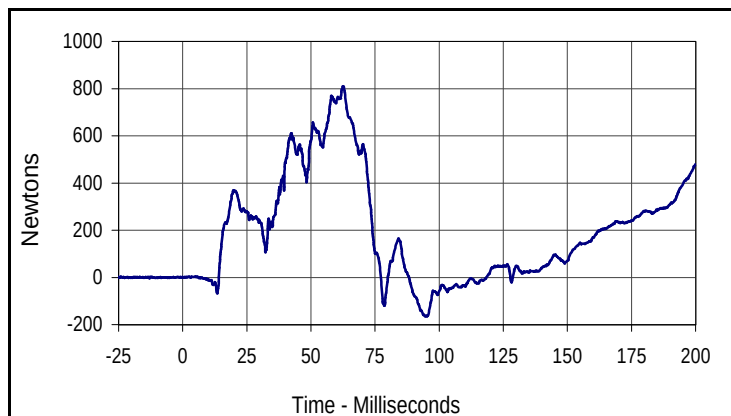
Test Date: 12/4/03
 NHTSA No.: M40502



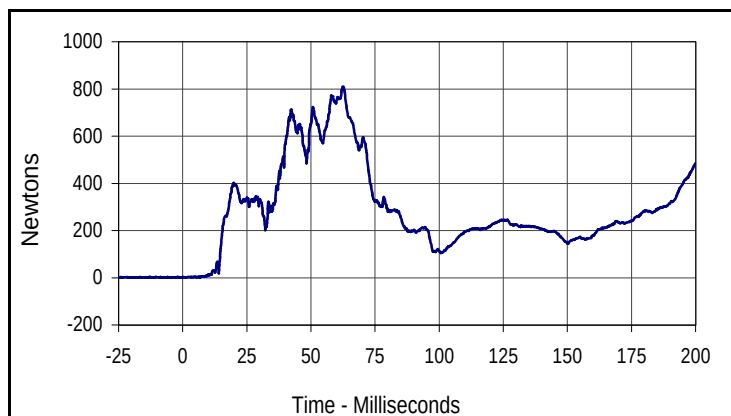
Curve Description			
Passenger Upper Neck Force X			
CURNO	Type	SAE Class	Units
051	FIL	1000	Newtons
Max	Time	Min	Time
319.9	78.4	-367.8	42.3



Curve Description			
Passenger Upper Neck Force Y			
CURNO	Type	SAE Class	Units
052	FIL	1000	Newtons
Max	Time	Min	Time
116.6	71.8	-150.7	112.8



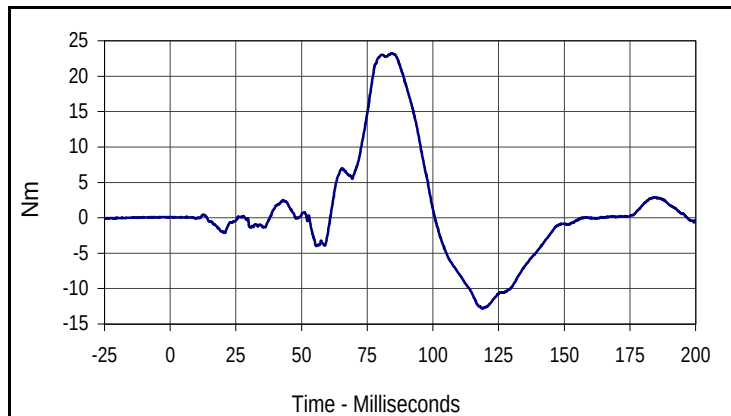
Curve Description			
Passenger Upper Neck Force Z			
CURNO	Type	SAE Class	Units
053	FIL	1000	Newtons
Max	Time	Min	Time
810.1	62.6	-166.3	94.7



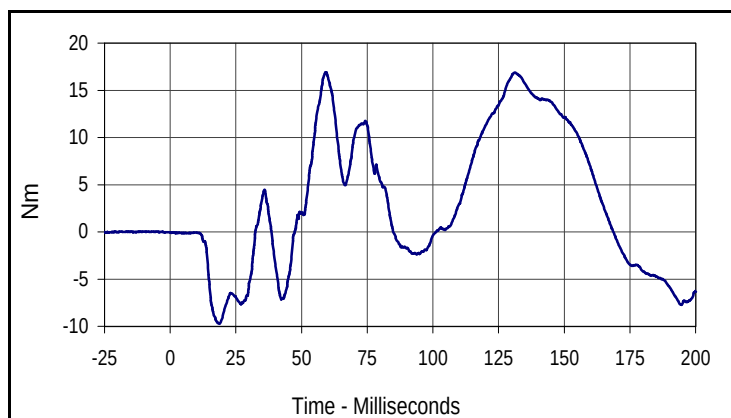
Curve Description			
Passenger Upper Neck Force Res.			
CURNO	Type	SAE Class	Units
051	RES	1000	Newtons
Max	Time	Min	Time
810.4	62.6	0.3	1.1

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

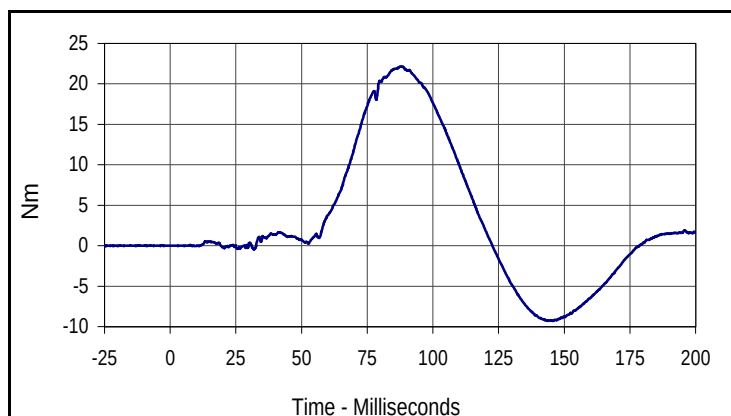
Test Date: 12/4/03
 NHTSA No.: M40502



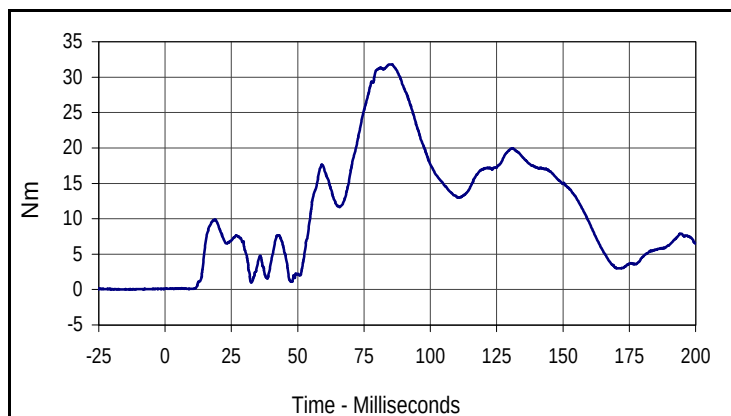
Curve Description			
Passenger Upper Neck Moment X			
CURNO	Type	SAE Class	Units
054	FIL	600	Nm
Max	Time	Min	Time
23.2	84.3	-12.8	118.9



Curve Description			
Passenger Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
055	FIL	600	Nm
Max	Time	Min	Time
16.9	59.2	-9.7	18.7



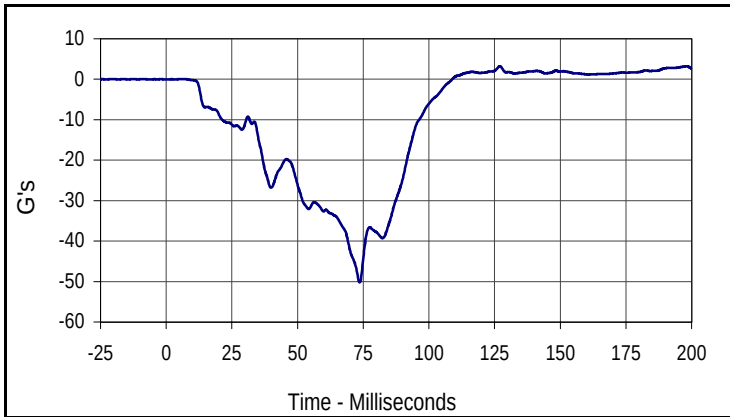
Curve Description			
Passenger Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
056	FIL	600	Nm
Max	Time	Min	Time
22.2	87.8	-9.3	145.6



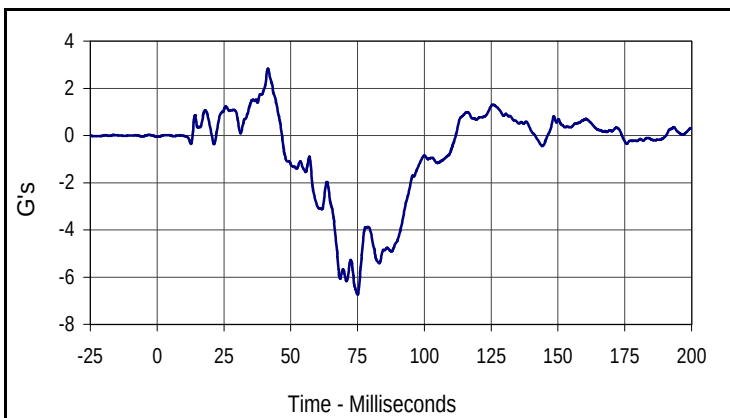
Curve Description			
Passenger Upper Neck Moment Res.			
CURNO	Type	SAE Class	Units
054	RES	600	Nm
Max	Time	Min	Time
31.8	84.8	0.1	3.3

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

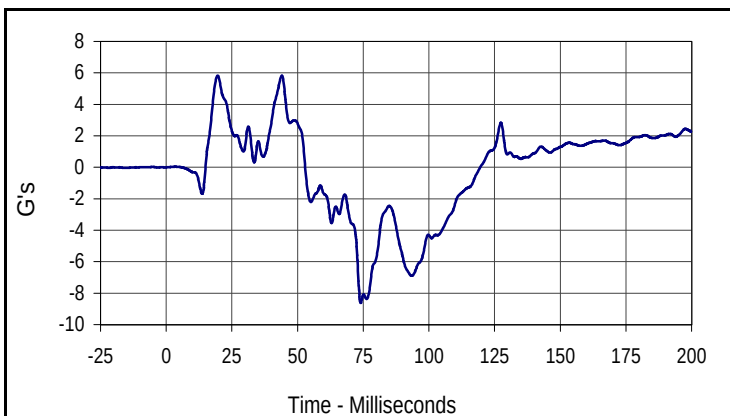
Test Date: 12/4/03
 NHTSA No.: M40502



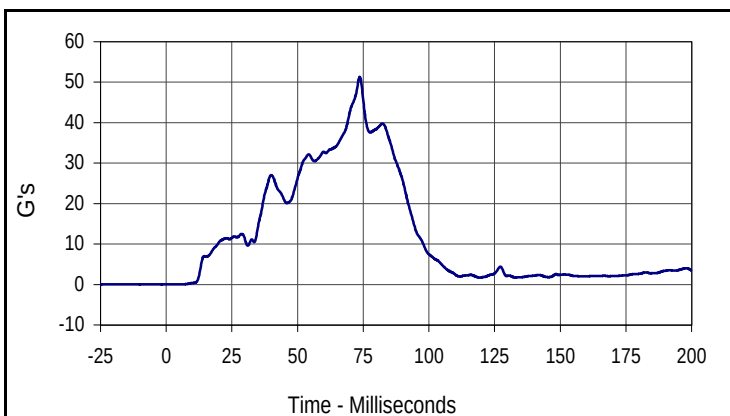
Curve Description			
Passenger Chest Primary X			
CURNO	Type	SAE Class	Units
057	FIL	180	G's
Max	Time	Min	Time
3.2	127.0	-50.2	73.6



Curve Description			
Passenger Chest Primary Y			
CURNO	Type	SAE Class	Units
058	FIL	180	G's
Max	Time	Min	Time
2.8	41.5	-6.7	75.1



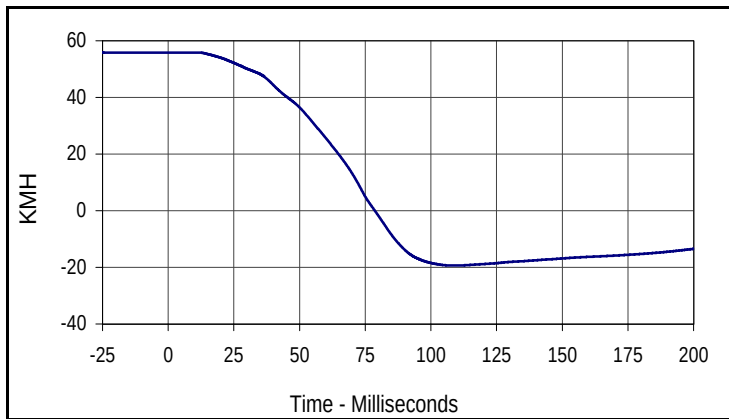
Curve Description			
Passenger Chest Primary Z			
CURNO	Type	SAE Class	Units
059	FIL	180	G's
Max	Time	Min	Time
5.8	19.6	-8.6	74.0



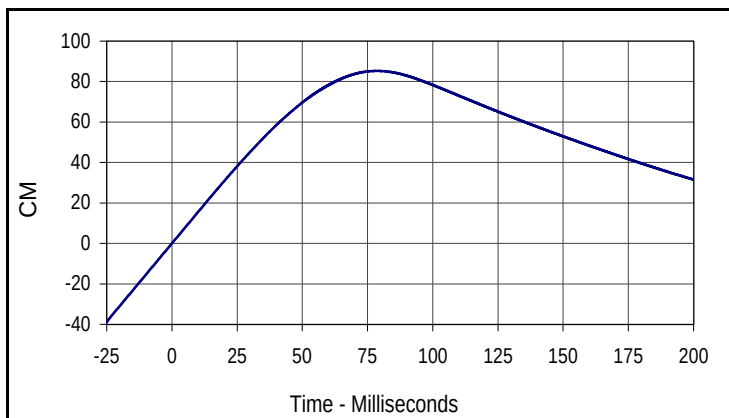
Curve Description			
Passenger Chest Resultant Primary			
CURNO	Type	SAE Class	Units
057	RES	180	G's
Max	Time	Min	Time
51.3	73.7	0.0	1.8

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



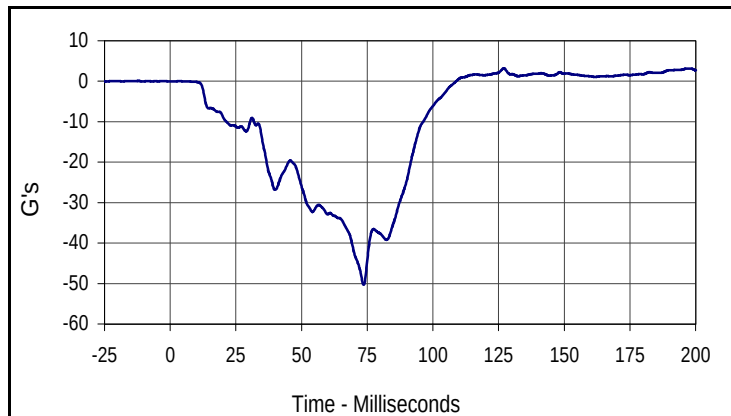
Curve Description			
Passenger Chest Primary X Velocity			
CURNO	Type	SAE Class	Units
057	IN1	180	KMH
Max	Time	Min	Time
55.9	7.8	-19.4	108.9



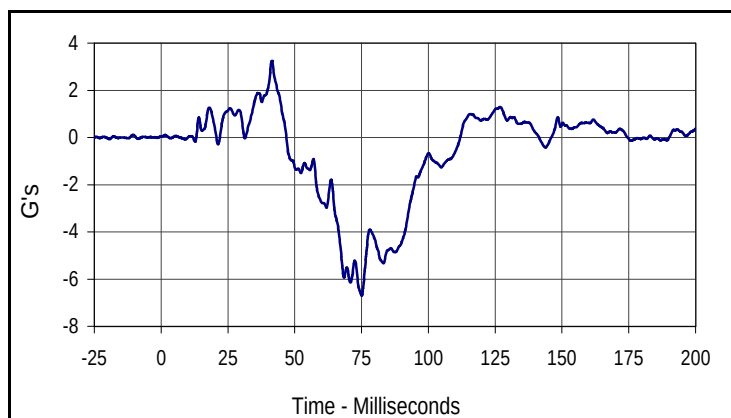
Curve Description			
Passenger Chest Primary X Displacement			
CURNO	Type	SAE Class	Units
057	IN2	180	CM
Max	Time	Min	Time
85.2	78.7	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

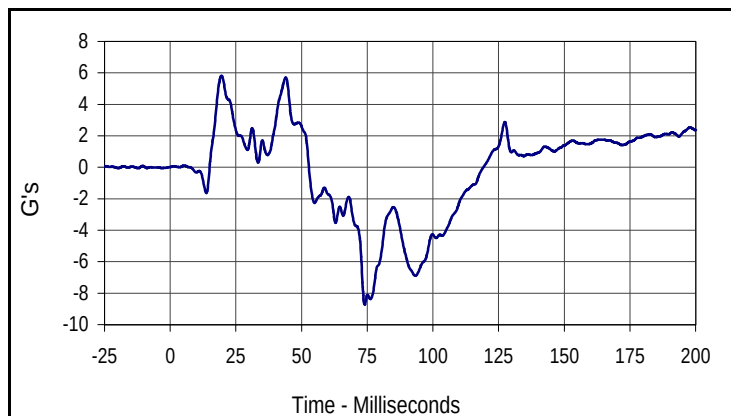
Test Date: 12/4/03
 NHTSA No.: M40502



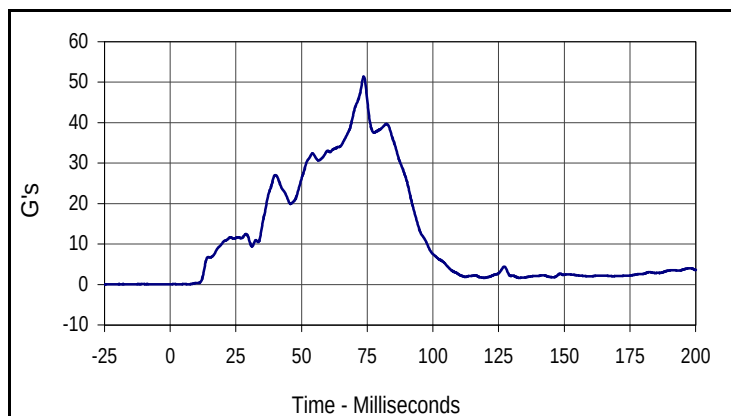
Curve Description			
Passenger Chest Redundant X			
CURNO	Type	SAE Class	Units
060	FIL	180	G's
Max	Time	Min	Time
3.2	127.0	-50.3	73.6



Curve Description			
Passenger Chest Redundant Y			
CURNO	Type	SAE Class	Units
061	FIL	180	G's
Max	Time	Min	Time
3.2	41.4	-6.7	75.1



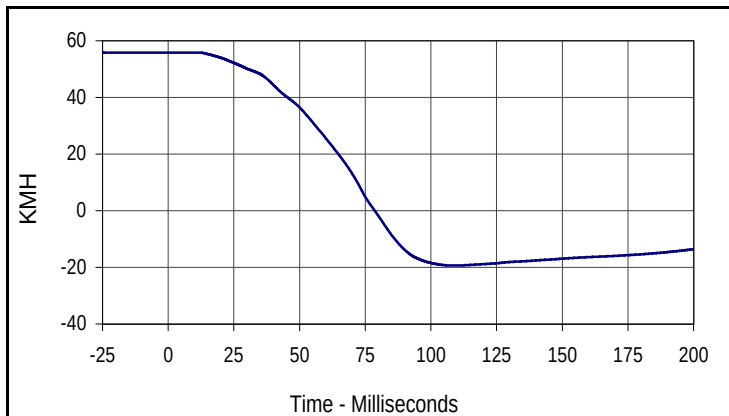
Curve Description			
Passenger Chest Redundant Z			
CURNO	Type	SAE Class	Units
062	FIL	180	G's
Max	Time	Min	Time
5.8	19.5	-8.7	74.0



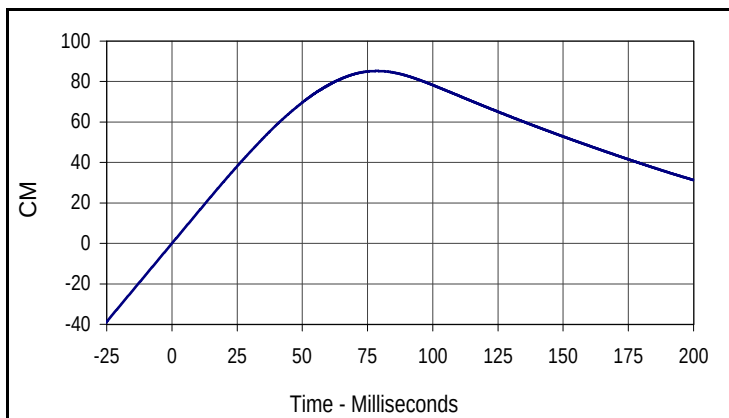
Curve Description			
Passenger Chest Resultant Redundant			
CURNO	Type	SAE Class	Units
060	RES	180	G's
Max	Time	Min	Time
51.4	73.7	0.0	2.8

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



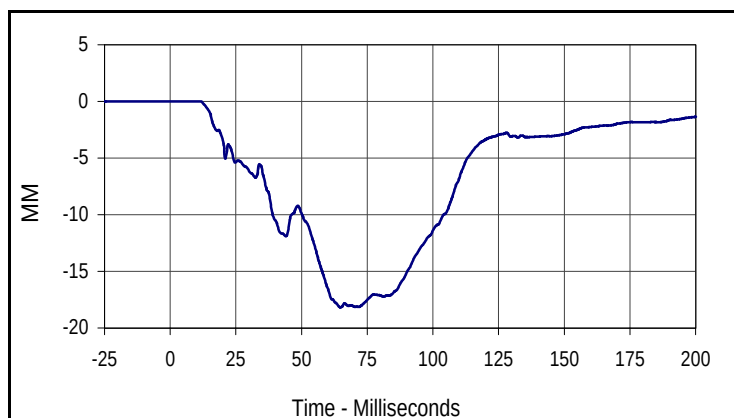
Curve Description			
Passenger Chest Redundant X Velocity			
CURNO	Type	SAE Class	Units
060	IN1	180	KMH
Max	Time	Min	Time
55.9	0.0	-19.4	108.9



Curve Description			
Passenger Chest Redundant X Displacement			
CURNO	Type	SAE Class	Units
060	IN2	180	CM
Max	Time	Min	Time
85.2	78.6	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

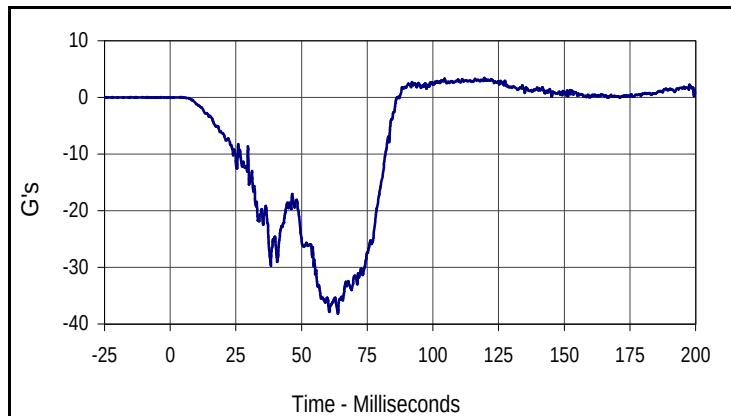
Test Date: 12/4/03
 NHTSA No.: M40502



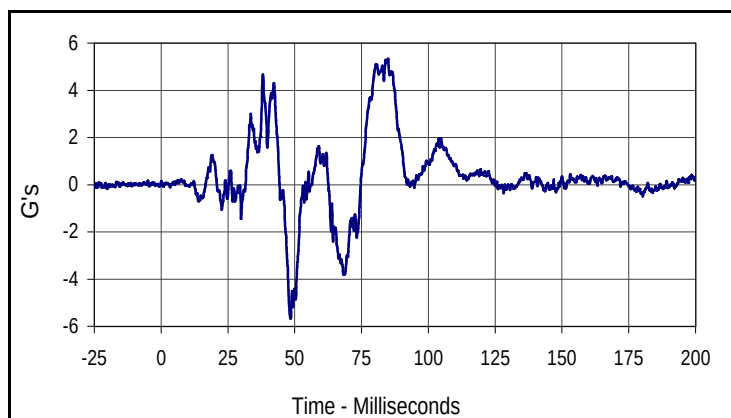
Curve Description			
Passenger Chest Displacement			
CURNO	Type	SAE Class	Units
063	FIL	600	MM
Max	Time	Min	Time
0.0	4.9	-18.2	64.8

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

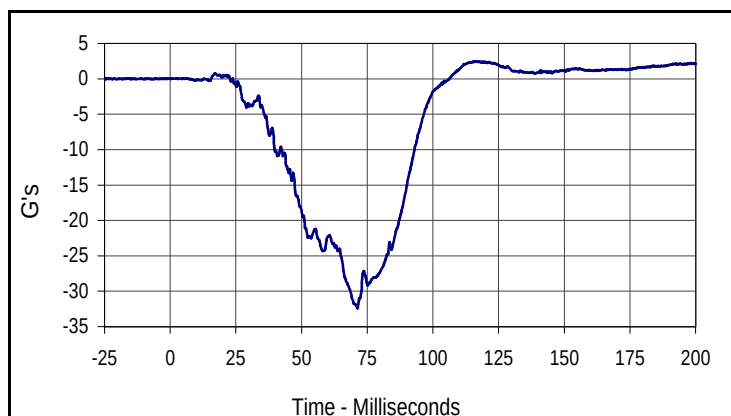
Test Date: 12/4/03
 NHTSA No.: M40502



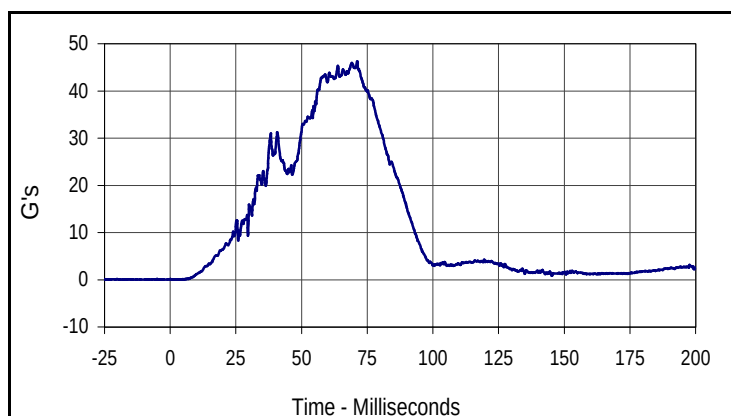
Curve Description			
Passenger Pelvis X			
CURNO	Type	SAE Class	Units
064	FIL	1000	G's
Max	Time	Min	Time
3.4	119.6	-38.2	63.8



Curve Description			
Passenger Pelvis Y			
CURNO	Type	SAE Class	Units
065	FIL	1000	G's
Max	Time	Min	Time
5.3	84.9	-5.7	48.4



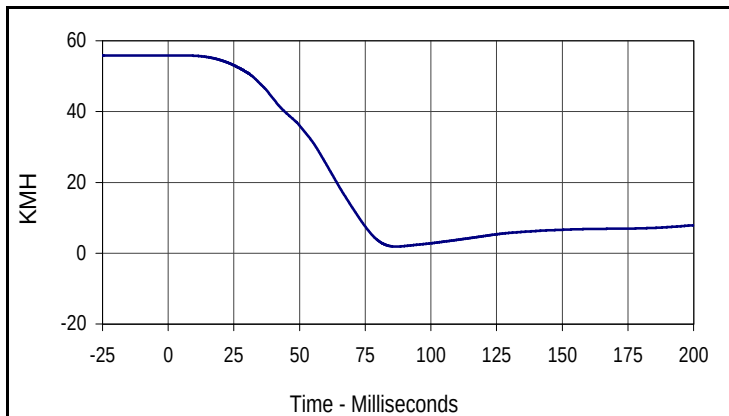
Curve Description			
Passenger Pelvis Z			
CURNO	Type	SAE Class	Units
066	FIL	1000	G's
Max	Time	Min	Time
2.5	116.9	-32.4	71.3



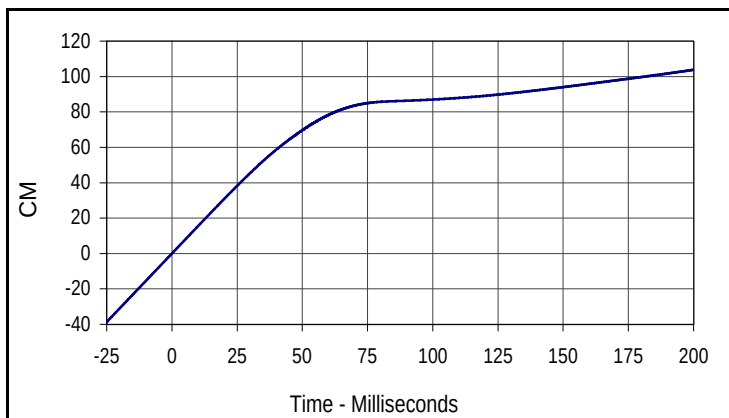
Curve Description			
Passenger Pelvis Resultant			
CURNO	Type	SAE Class	Units
064	RES	1000	G's
Max	Time	Min	Time
46.3	71.2	0.0	2.8

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



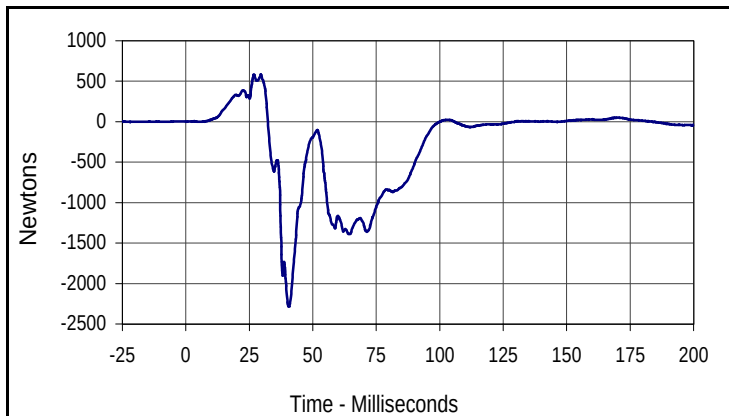
Curve Description			
Passenger Pelvis X Velocity			
CURNO	Type	SAE Class	Units
064	IN1	180	KMH
Max	Time	Min	Time
55.8	0.0	1.9	86.7



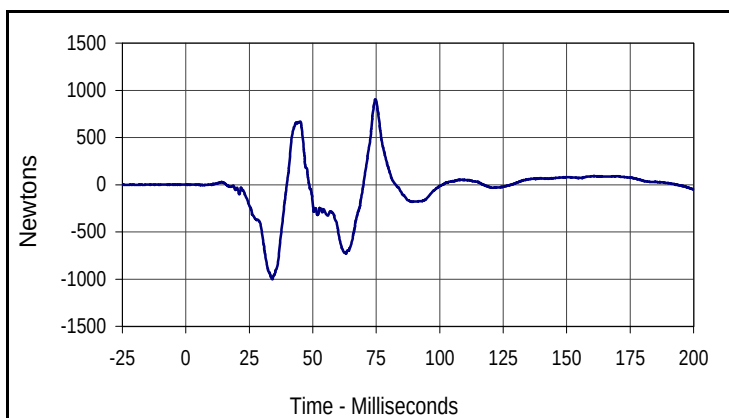
Curve Description			
Passenger Pelvis X Displacement			
CURNO	Type	SAE Class	Units
064	IN2	180	CM
Max	Time	Min	Time
103.8	200.0	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



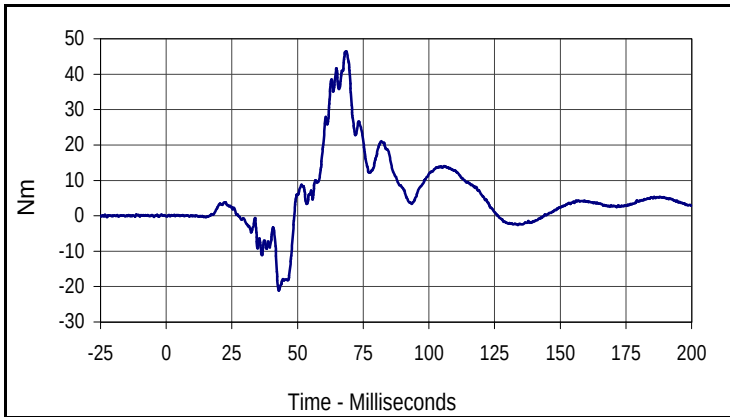
Curve Description			
Passenger Left Femur Force			
CURNO	Type	SAE Class	Units
067	FIL	600	Newtons
Max	Time	Min	Time
583.2	29.6	-2284.3	40.5



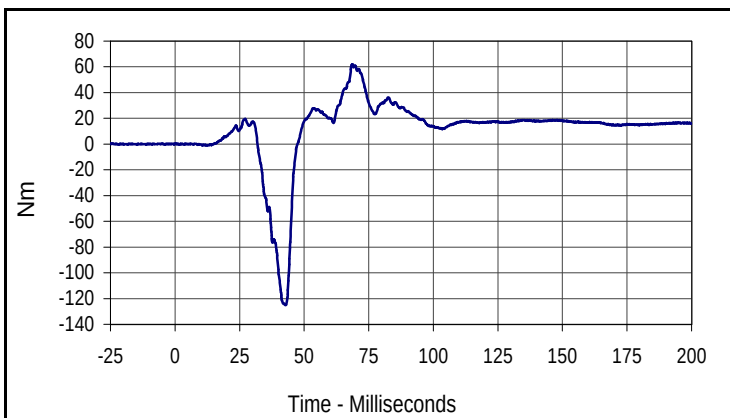
Curve Description			
Passenger Right Femur Force			
CURNO	Type	SAE Class	Units
068	FIL	600	Newtons
Max	Time	Min	Time
903.1	74.7	-1002.8	34.1

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

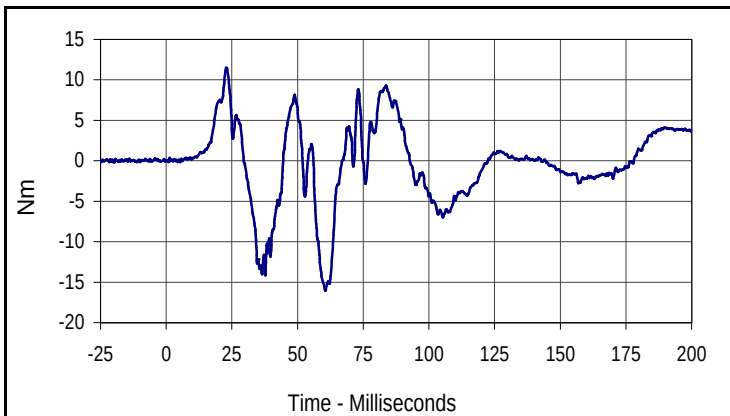
Test Date: 12/4/03
 NHTSA No.: M40502



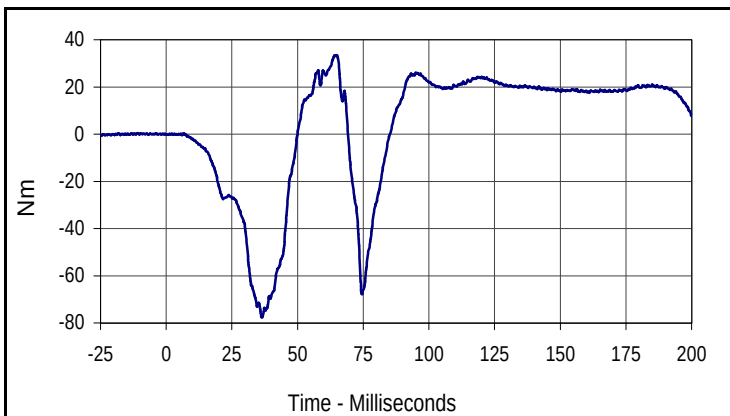
Curve Description			
Passenger Left Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
069	FIL	600	Nm
Max	Time	Min	Time
46.5	68.5	-21.1	42.9



Curve Description			
Passenger Left Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
070	FIL	600	Nm
Max	Time	Min	Time
61.8	68.5	-125.2	42.8



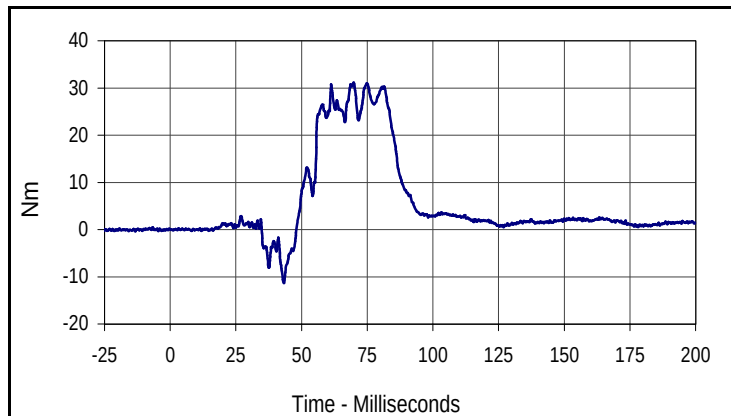
Curve Description			
Passenger Right Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
071	FIL	600	Nm
Max	Time	Min	Time
11.5	22.9	-16.0	60.6



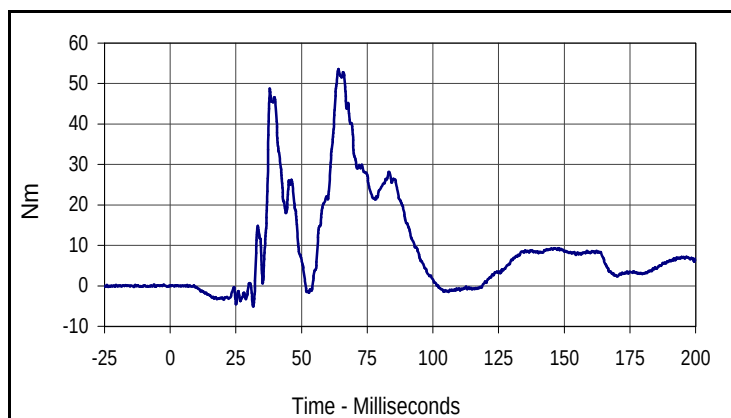
Curve Description			
Passenger Right Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
072	FIL	600	Nm
Max	Time	Min	Time
33.5	65.0	-77.7	36.5

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

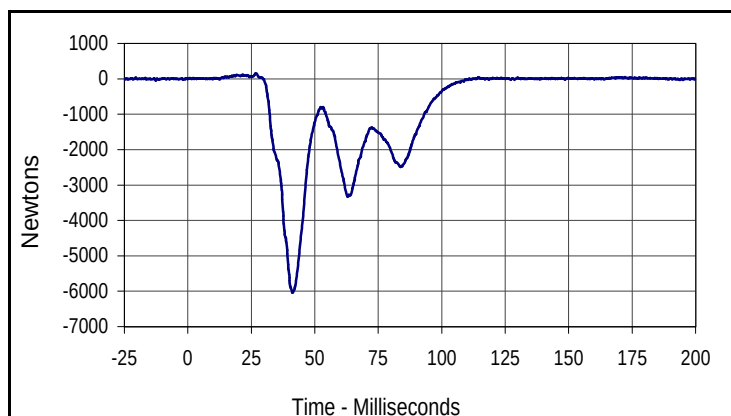
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Passenger Left Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
073	FIL	600	Nm
Max	Time	Min	Time
31.2	69.8	-11.3	43.2



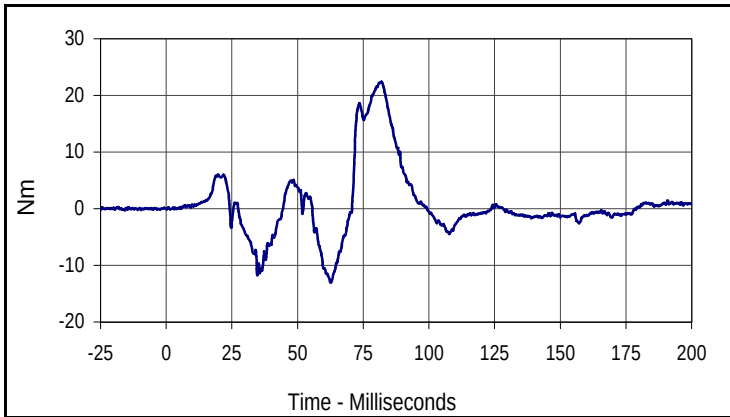
Curve Description			
Passenger Left Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
074	FIL	600	Nm
Max	Time	Min	Time
53.6	64.0	-5.1	31.6



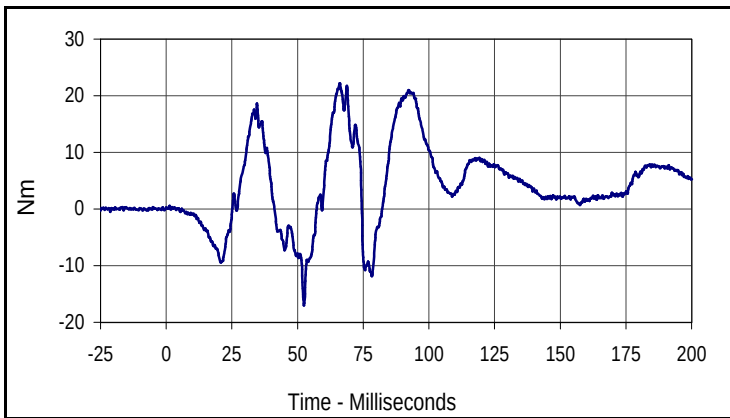
Curve Description			
Passenger Left Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
075	FIL	600	Newtons
Max	Time	Min	Time
154.1	27.0	-6044.9	41.3

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

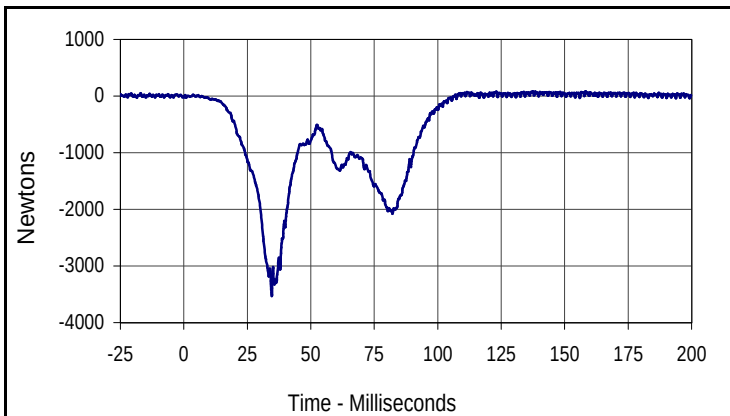
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Passenger Right Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
076	FIL	600	Nm
Max	Time	Min	Time
22.4	82.0	-13.1	62.7



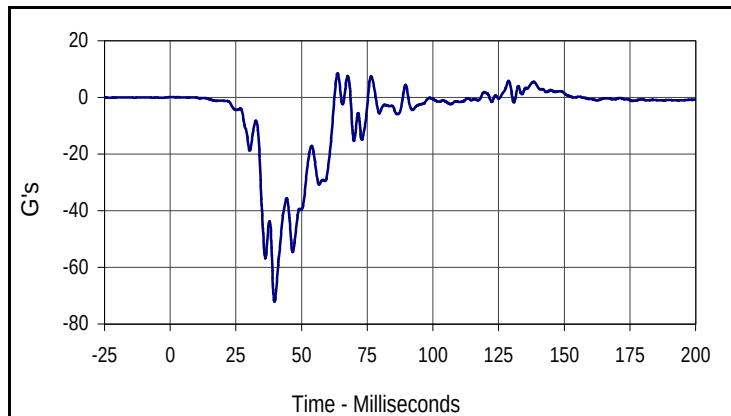
Curve Description			
Passenger Right Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
077	FIL	600	Nm
Max	Time	Min	Time
22.2	66.1	-17.0	52.4



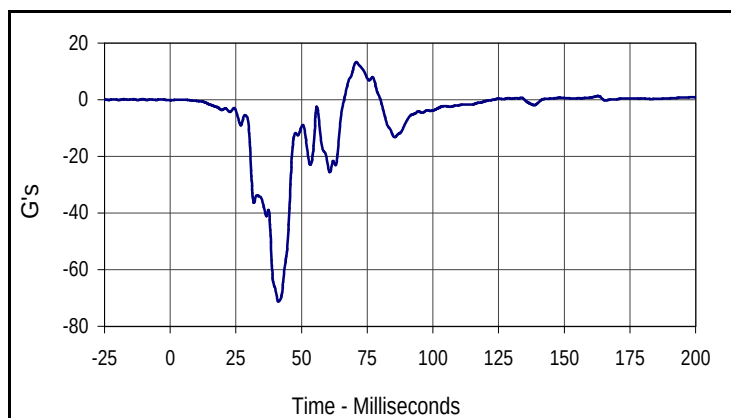
Curve Description			
Passenger Right lower Tibia Force Z			
CURNO	Type	SAE Class	Units
078	FIL	600	Newtons
Max	Time	Min	Time
86.2	137.5	-3530.3	34.6

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

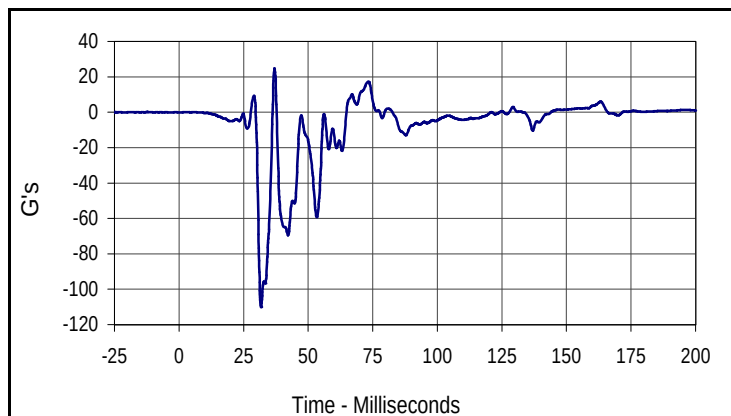
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Passenger Left Foot Aft X			
CURNO	Type	SAE Class	Units
079	FIL	180	G's
Max	Time	Min	Time
8.5	63.7	-72.1	39.7



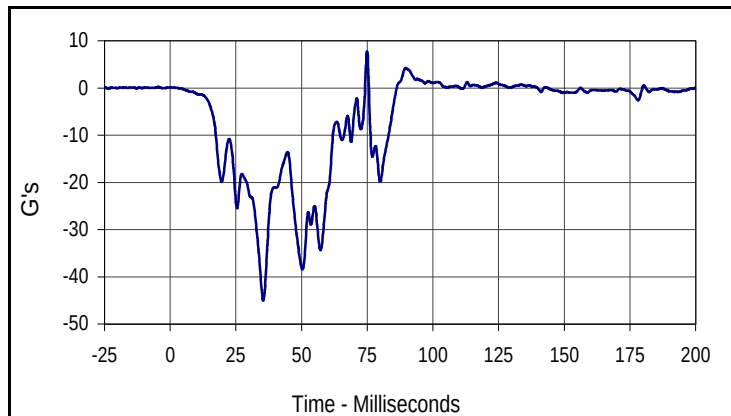
Curve Description			
Passenger Left Foot Aft Z			
CURNO	Type	SAE Class	Units
080	FIL	180	G's
Max	Time	Min	Time
13.4	70.8	-71.4	41.2



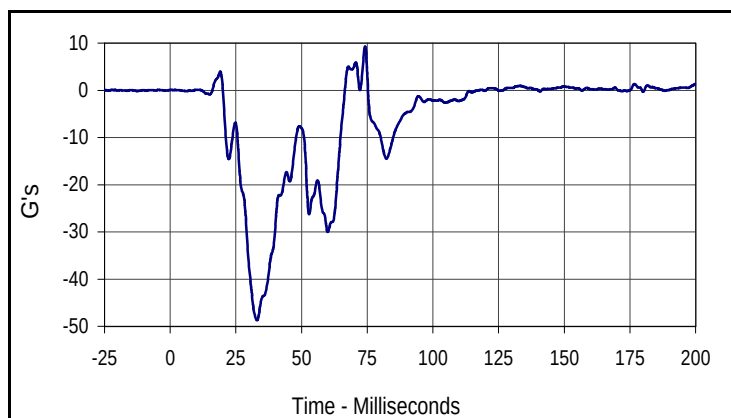
Curve Description			
Passenger Left Foot Fore Z			
CURNO	Type	SAE Class	Units
081	FIL	180	G's
Max	Time	Min	Time
24.7	37.0	-110.0	31.7

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

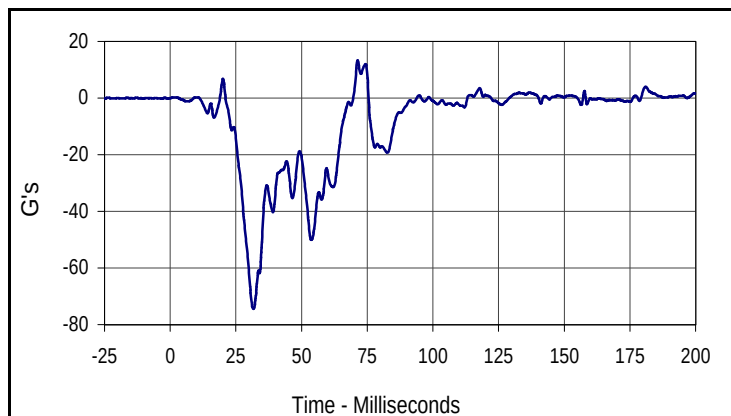
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Passenger Right Foot Aft X			
CURNO	Type	SAE Class	Units
082	FIL	180	G's
Max	Time	Min	Time
7.7	74.9	-45.1	35.4



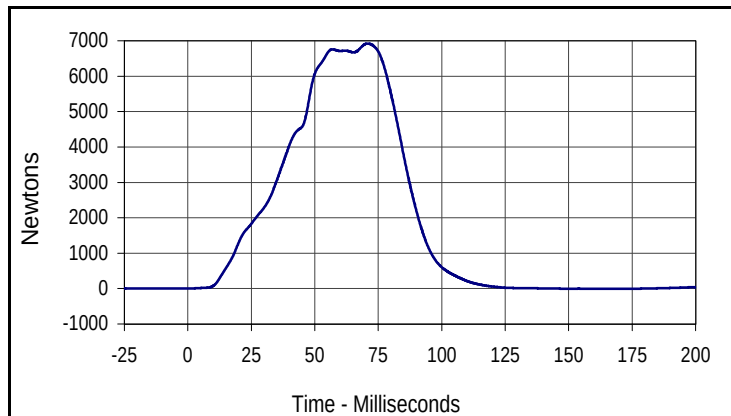
Curve Description			
Passenger Right Foot Aft Z			
CURNO	Type	SAE Class	Units
083	FIL	180	G's
Max	Time	Min	Time
9.3	74.2	-48.7	33.0



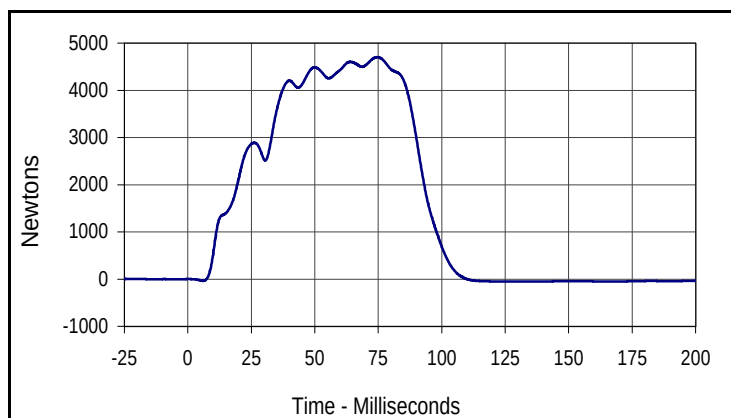
Curve Description			
Passenger Right Foot Fore Z			
CURNO	Type	SAE Class	Units
084	FIL	180	G's
Max	Time	Min	Time
13.4	71.3	-74.5	31.7

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

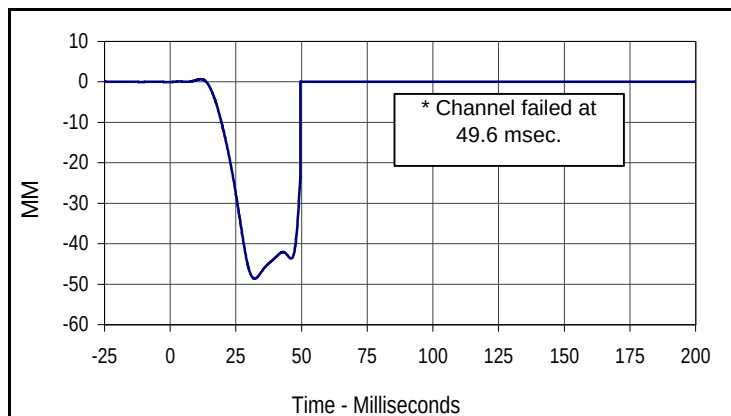
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Passenger Lap Belt Force			
CURNO	Type	SAE Class	Units
085	FIL	60	Newtons
Max	Time	Min	Time
6922.4	70.8	-5.2	169.9

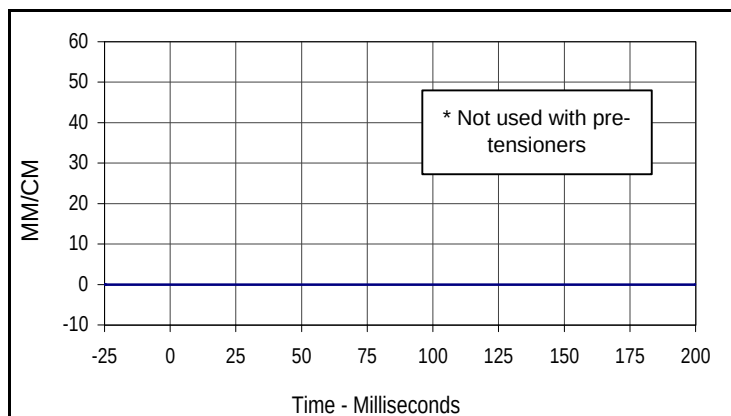


Curve Description			
Passenger Shoulder Belt Force			
CURNO	Type	SAE Class	Units
086	FIL	60	Newtons
Max	Time	Min	Time
4701.2	74.6	-53.5	163.7



Curve Description			
Passenger Shoulder Belt Pullout			
CURNO	Type	SAE Class	Units
087	FIL	60	MM
Max	Time	Min	Time
0.7	11.6	-48.6	32.1

* Channel failed at 49.6 msec.

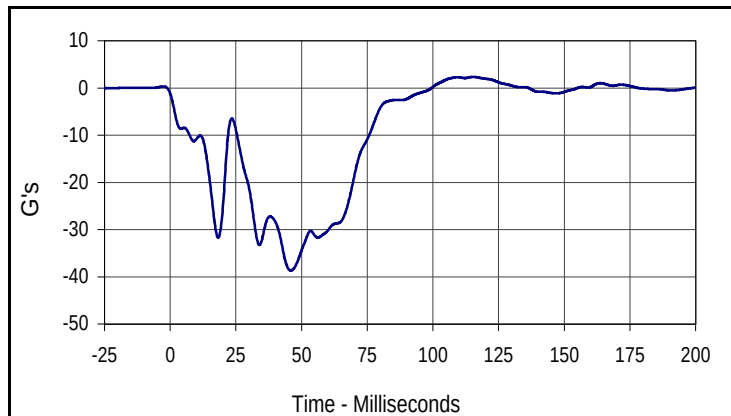


Curve Description			
Passenger Shoulder Belt Elongation			
CURNO	Type	SAE Class	Units
088	FIL	60	MM/CM
Max	Time	Min	Time
0.0	0.0	0.0	0.0

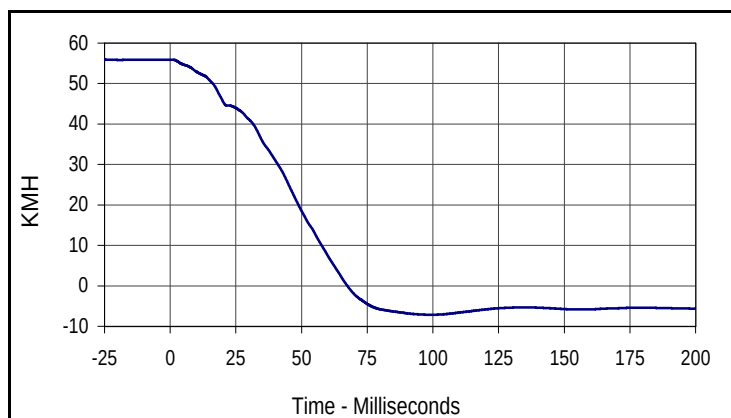
* Not used with pre-tensioners

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

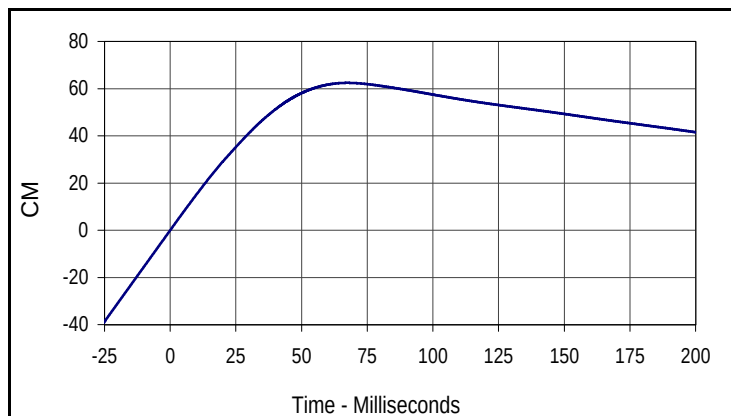
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Vehicle Left Rear X			
CURNO	Type	SAE Class	Units
089	FIL	60	G's
Max	Time	Min	Time
2.3	115.4	-38.7	45.9



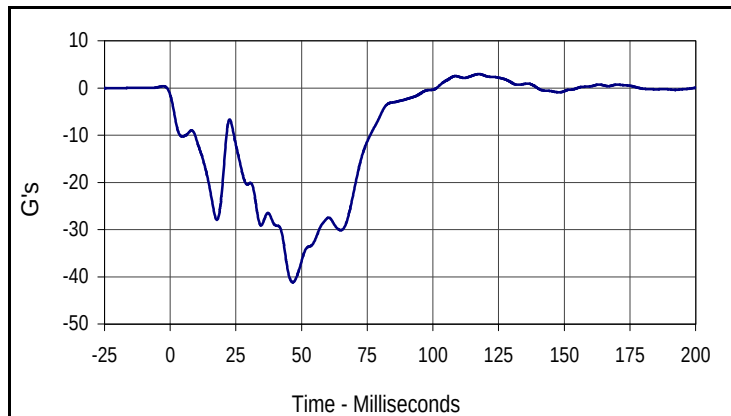
Curve Description			
Vehicle Left Rear X Velocity			
CURNO	Type	SAE Class	Units
089	IN1	180	KMH
Max	Time	Min	Time
55.9	0.9	-7.2	99.7



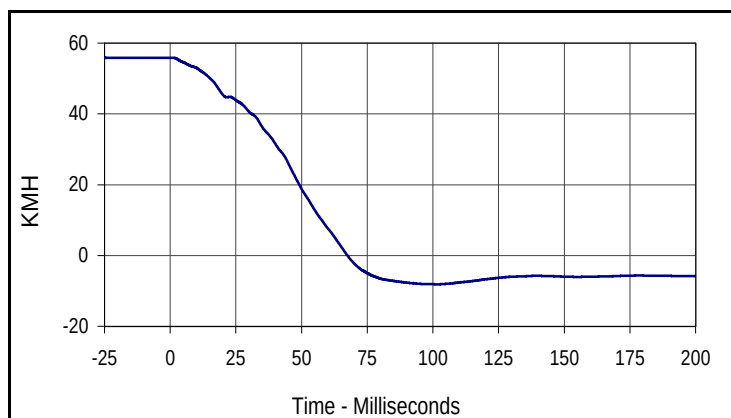
Curve Description			
Vehicle Left Rear X Displacement			
CURNO	Type	SAE Class	Units
089	IN2	180	CM
Max	Time	Min	Time
62.4	67.4	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

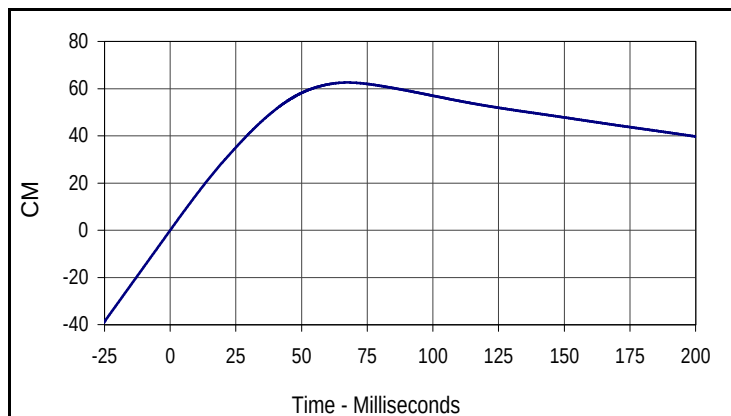
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Vehicle Right Rear X			
CURNO	Type	SAE Class	Units
090	FIL	60	G's
Max	Time	Min	Time
2.9	117.5	-41.2	46.7



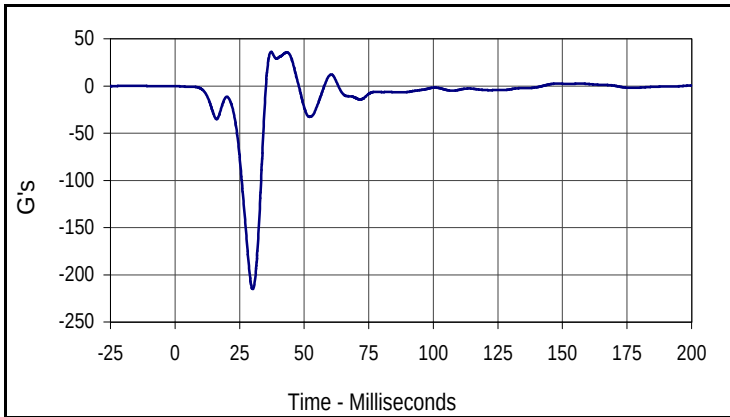
Curve Description			
Vehicle Right Rear X Velocity			
CURNO	Type	SAE Class	Units
090	IN1	180	KMH
Max	Time	Min	Time
55.9	0.7	-8.1	101.7



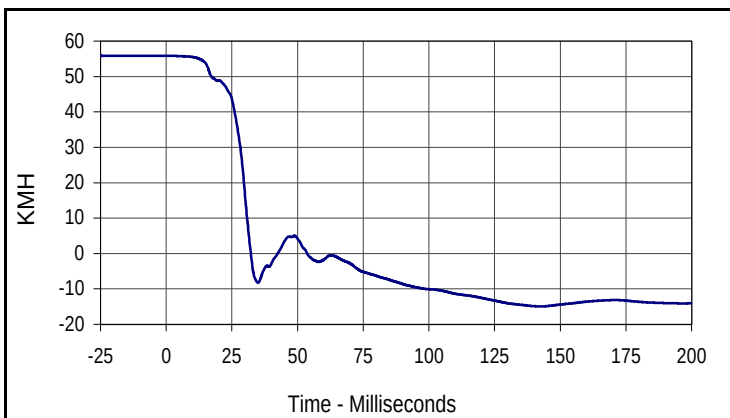
Curve Description			
Vehicle Right Rear X Displacement			
CURNO	Type	SAE Class	Units
090	IN2	180	CM
Max	Time	Min	Time
62.6	67.5	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

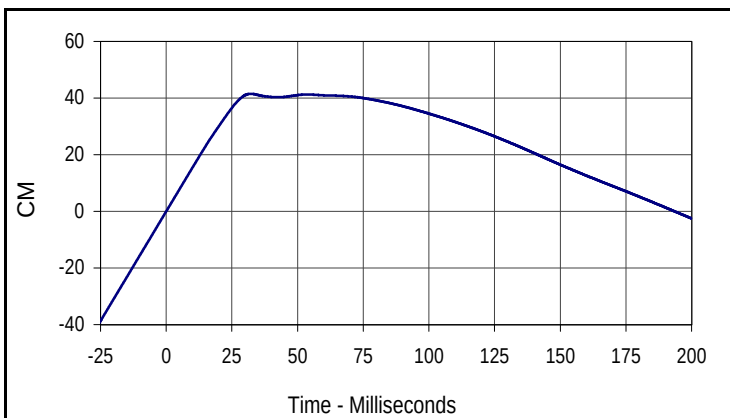
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Vehicle Engine Top			
CURNO	Type	SAE Class	Units
091	FIL	60	G's
Max	Time	Min	Time
36.1	37.2	-215.2	30.1



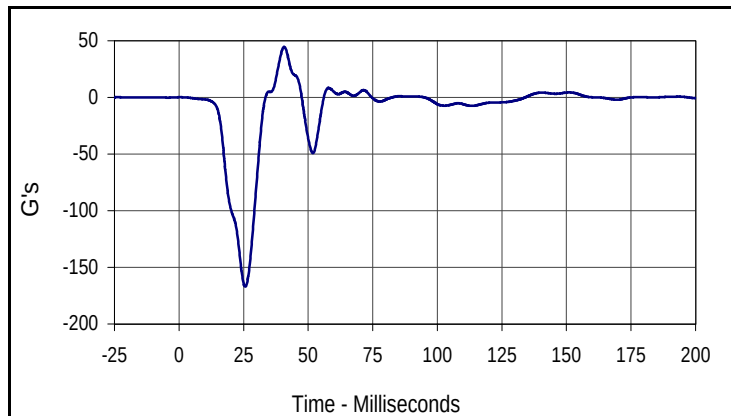
Curve Description			
Vehicle Engine Top Velocity			
CURNO	Type	SAE Class	Units
091	IN1	180	KMH
Max	Time	Min	Time
55.8	0.0	-14.9	142.1



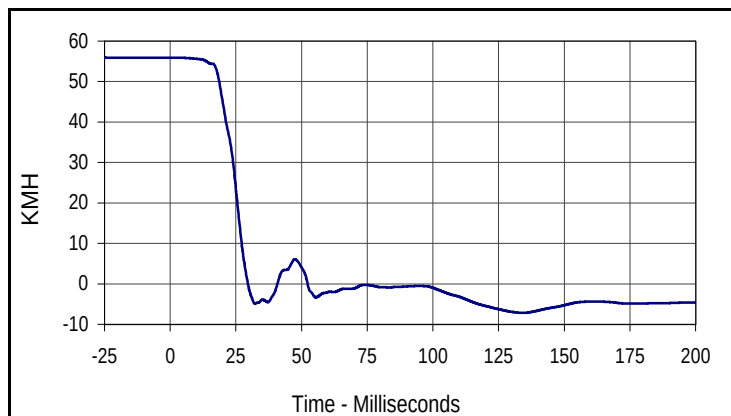
Curve Description			
Vehicle Engine Top Displacement			
CURNO	Type	SAE Class	Units
091	IN2	180	CM
Max	Time	Min	Time
41.5	32.2	-2.5	200.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

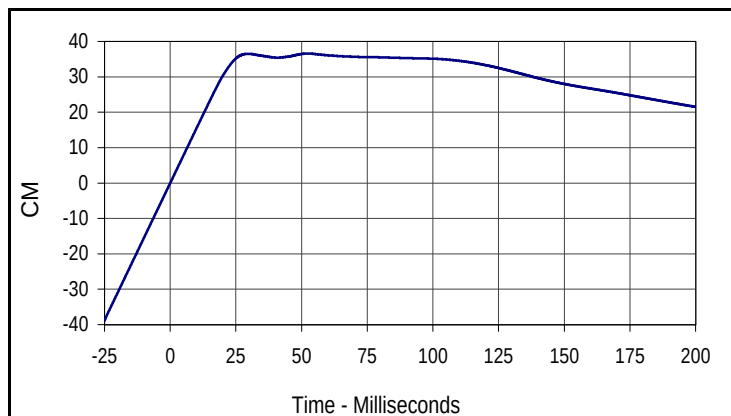
Test Date: 12/4/03
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Curve Description			
Vehicle Engine Bottom			
CURNO	Type	SAE Class	Units
092	FIL	60	G's
Max	Time	Min	Time
44.5	40.7	-167.0	25.6



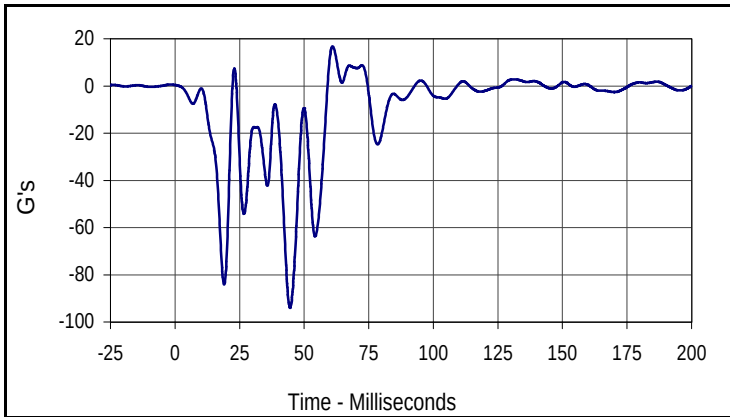
Curve Description			
Vehicle Engine Bottom Velocity			
CURNO	Type	SAE Class	Units
092	IN1	180	KMH
Max	Time	Min	Time
55.9	3.8	-7.2	133.9



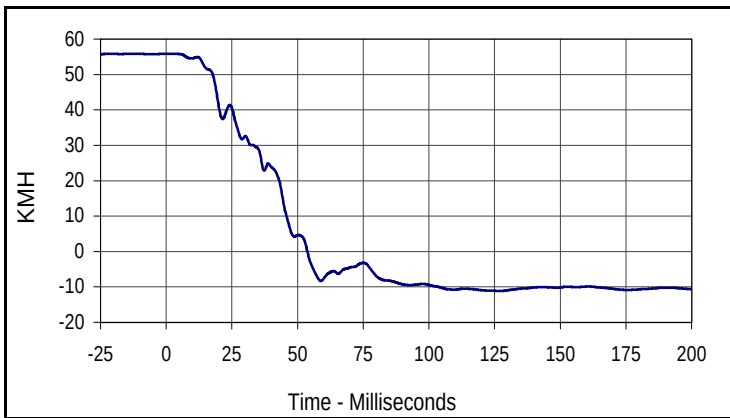
Curve Description			
Vehicle Engine Bottom Displacement			
CURNO	Type	SAE Class	Units
092	IN2	180	CM
Max	Time	Min	Time
36.6	52.3	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

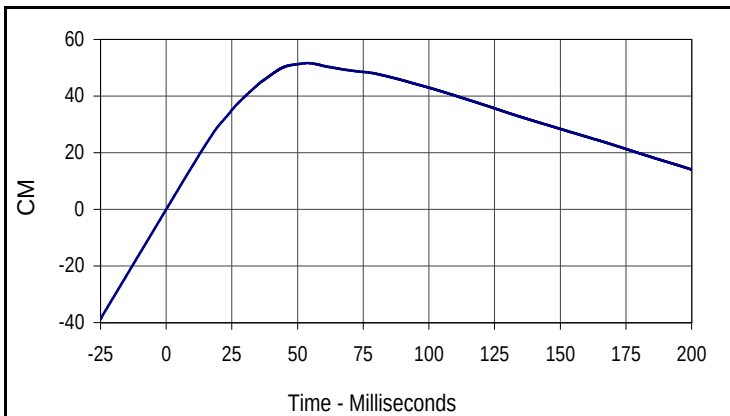
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Vehicle Left Brake Caliper			
CURNO	Type	SAE Class	Units
093	FIL	60	G's
Max	Time	Min	Time
16.8	61.0	-94.0	44.5



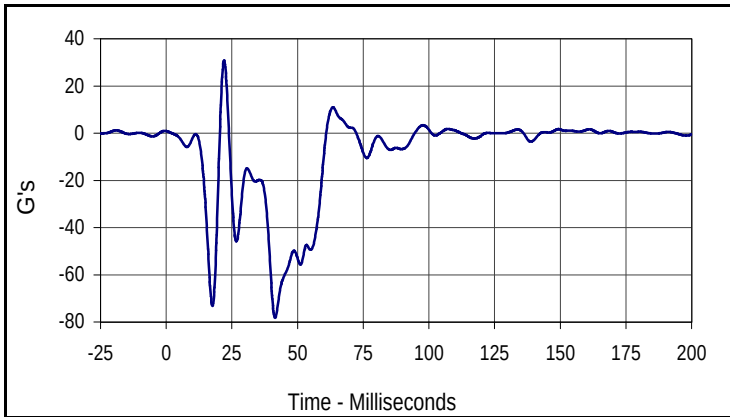
Curve Description			
Vehicle Left Brake Caliper Velocity			
CURNO	Type	SAE Class	Units
093	IN1	180	KMH
Max	Time	Min	Time
55.9	0.1	-11.2	127.2



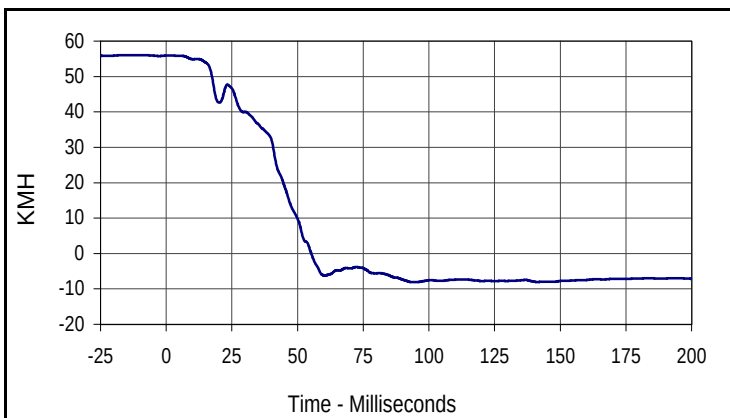
Curve Description			
Vehicle Left Brake Caliper Displacement			
CURNO	Type	SAE Class	Units
093	IN2	180	CM
Max	Time	Min	Time
51.6	53.7	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

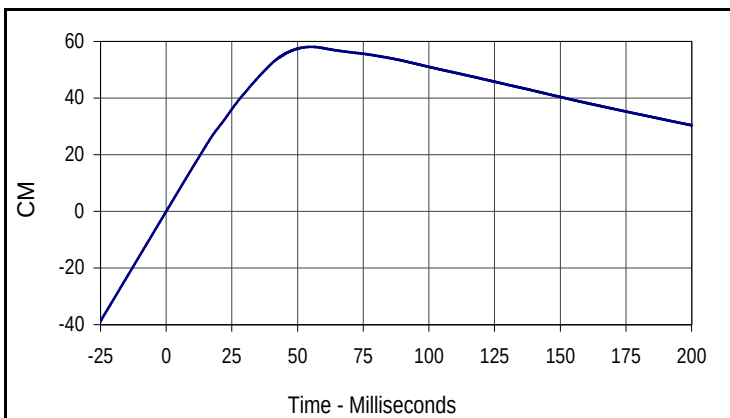
Test Date: 12/4/03
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Curve Description			
Vehicle Right Brake Caliper			
CURNO	Type	SAE Class	Units
094	FIL	60	G's
Max	Time	Min	Time
30.8	22.0	-78.2	41.4



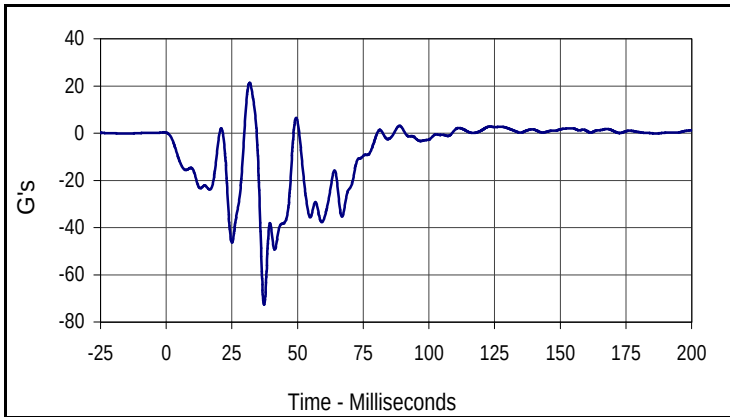
Curve Description			
Vehicle Right Brake Caliper Velocity			
CURNO	Type	SAE Class	Units
094	IN1	180	KMH
Max	Time	Min	Time
55.9	1.2	-8.1	93.5



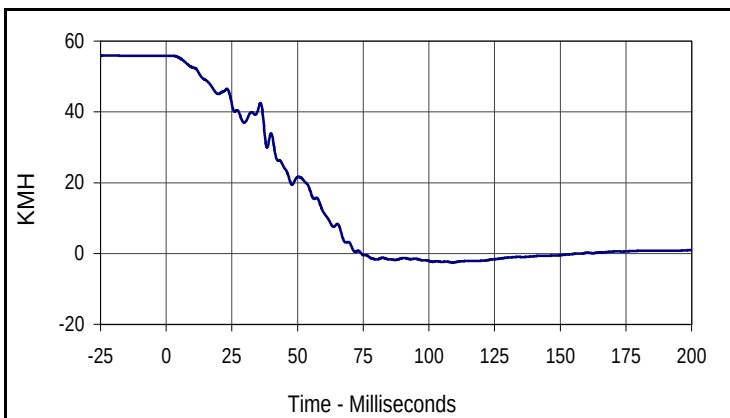
Curve Description			
Vehicle Right Brake Caliper Displacement			
CURNO	Type	SAE Class	Units
094	IN2	180	CM
Max	Time	Min	Time
58.1	55.2	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

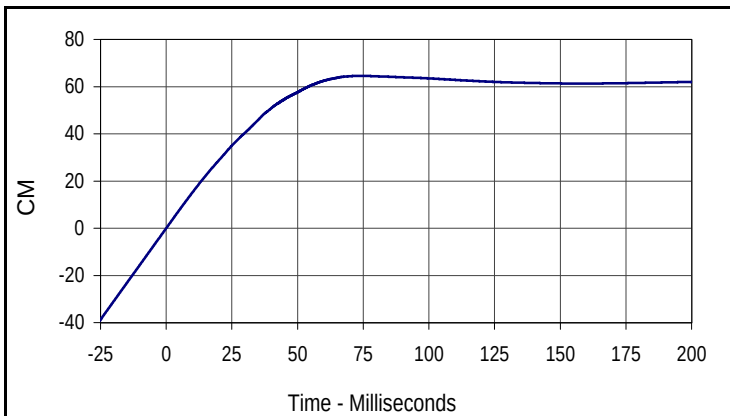
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Curve Description			
Vehicle Instrument Panel			
CURNO	Type	SAE Class	Units
095	FIL	60	G's
Max	Time	Min	Time
21.3	31.7	-72.7	37.3



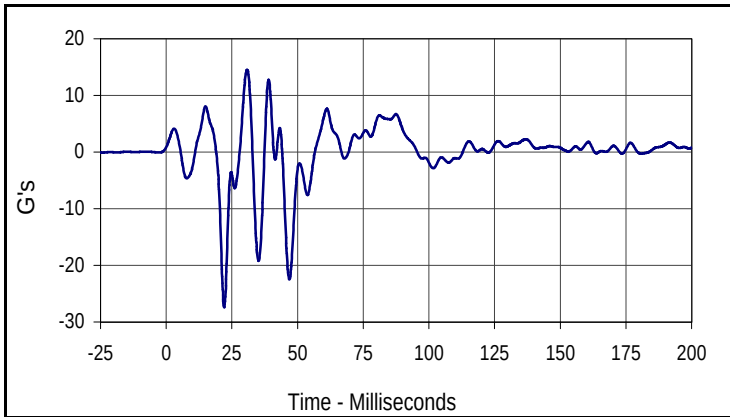
Curve Description			
Vehicle Instrument Panel Velocity			
CURNO	Type	SAE Class	Units
095	IN1	180	KMH
Max	Time	Min	Time
55.9	1.5	-2.5	109.0



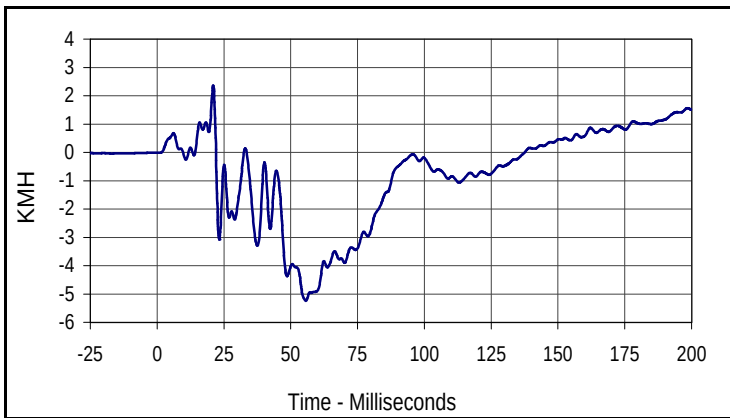
Curve Description			
Vehicle Instrument Panel Displacement			
CURNO	Type	SAE Class	Units
095	IN2	180	CM
Max	Time	Min	Time
64.5	74.2	0.0	0.0

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

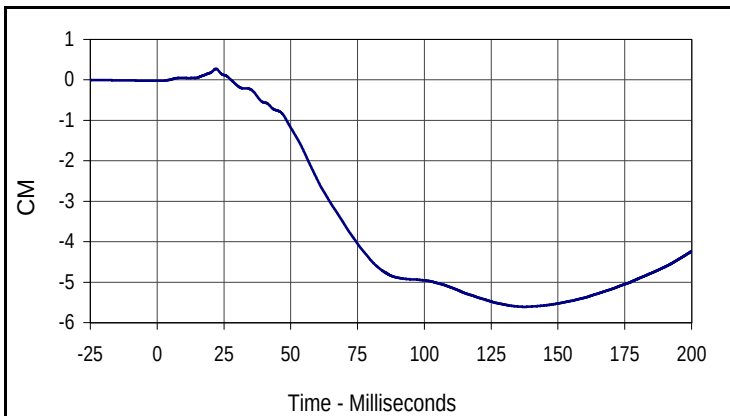
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Vehicle Left Rear Z			
CURNO	Type	SAE Class	Units
096	FIL	60	G's
Max	Time	Min	Time
14.5	30.8	-27.4	22.1



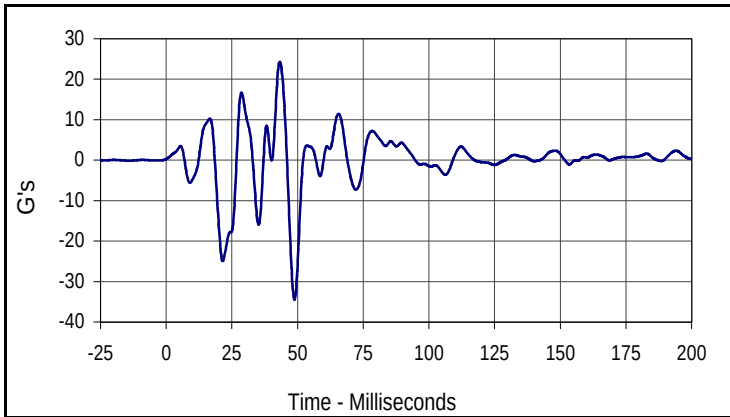
Curve Description			
Vehicle Left Rear Z Velocity			
CURNO	Type	SAE Class	Units
096	IN1	180	KMH
Max	Time	Min	Time
2.4	21.0	-5.2	55.7



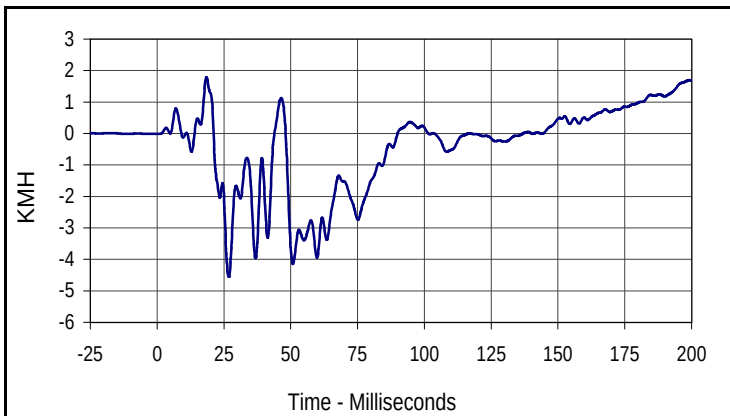
Curve Description			
Vehicle Left Rear Z Displacement			
CURNO	Type	SAE Class	Units
096	IN2	180	CM
Max	Time	Min	Time
0.3	22.0	-5.6	137.6

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

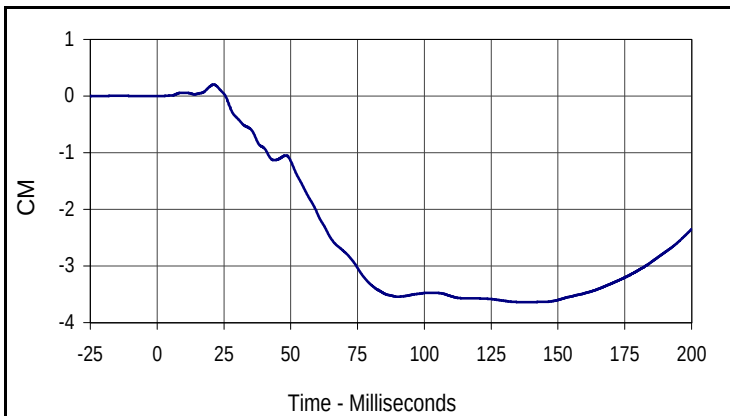
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Vehicle Right Rear Z			
CURNO	Type	SAE Class	Units
097	FIL	60	G's
Max	Time	Min	Time
24.3	43.2	-34.4	48.8



Curve Description			
Vehicle Right Rear Z Velocity			
CURNO	Type	SAE Class	Units
097	IN1	180	KMH
Max	Time	Min	Time
1.8	18.5	-4.5	26.8



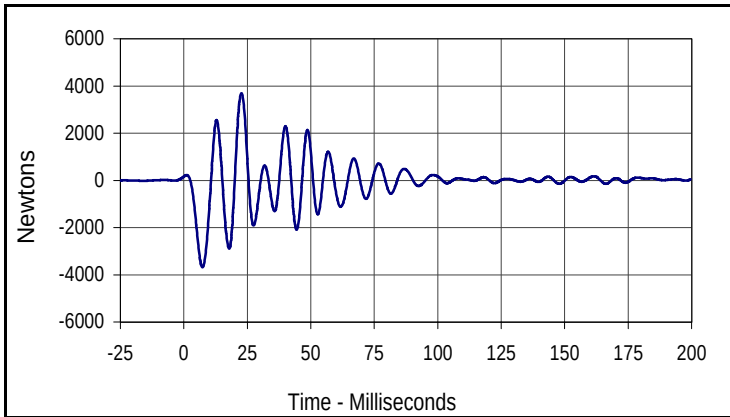
Curve Description			
Vehicle Right Rear Z Displacement			
CURNO	Type	SAE Class	Units
097	IN2	180	CM
Max	Time	Min	Time
0.2	21.2	-3.6	136.8

APPENDIX C

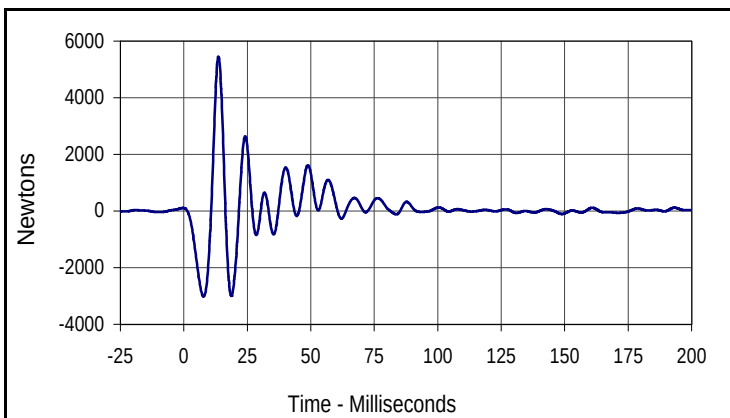
LOAD CELL BARRIER DATA PLOTS

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

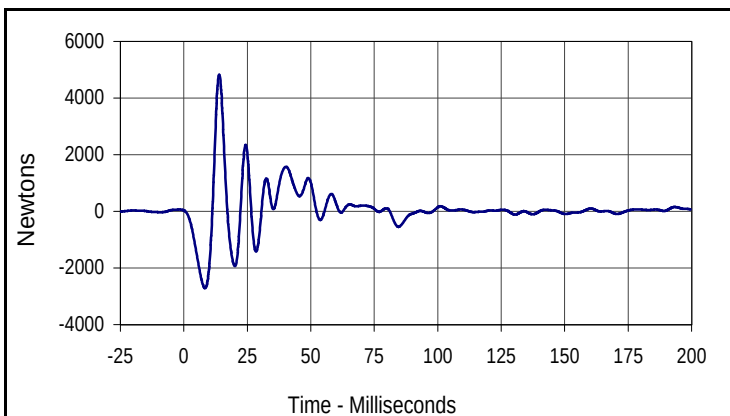
Test Date: 12/4/03
 NHTSA No.: M40502



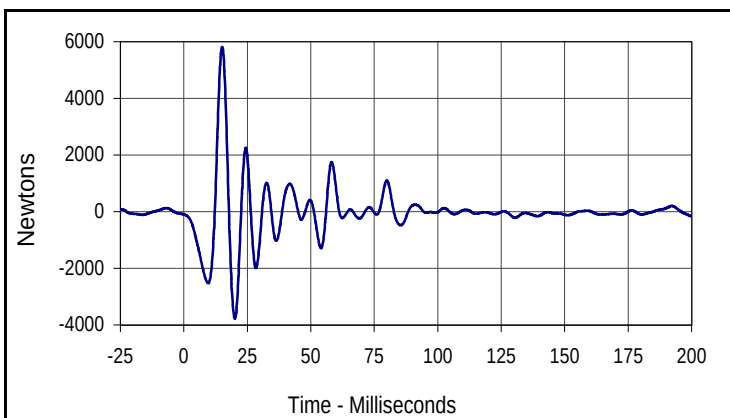
Curve Description			
Barrier Force A1			
CURNO	Type	SAE Class	Units
098	FIL	60	Newtons
Max	Time	Min	Time
3685.5	22.7	-3680.8	7.3



Curve Description			
Barrier Force B1			
CURNO	Type	SAE Class	Units
107	FIL	60	Newtons
Max	Time	Min	Time
5450.7	13.6	-3017.3	7.8



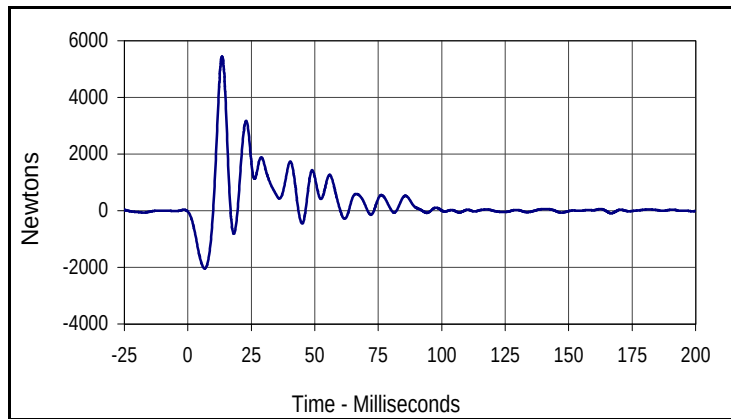
Curve Description			
Barrier Force C1			
CURNO	Type	SAE Class	Units
116	FIL	60	Newtons
Max	Time	Min	Time
4826.6	13.9	-2715.5	8.3



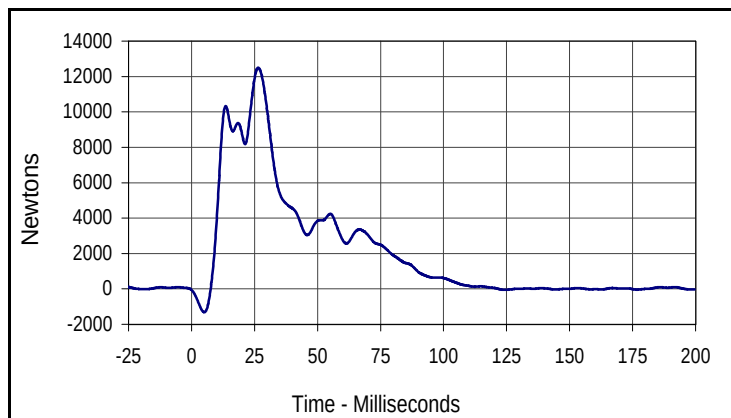
Curve Description			
Barrier Force D1			
CURNO	Type	SAE Class	Units
125	FIL	60	Newtons
Max	Time	Min	Time
5818.0	15.1	-3780.5	20.1

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

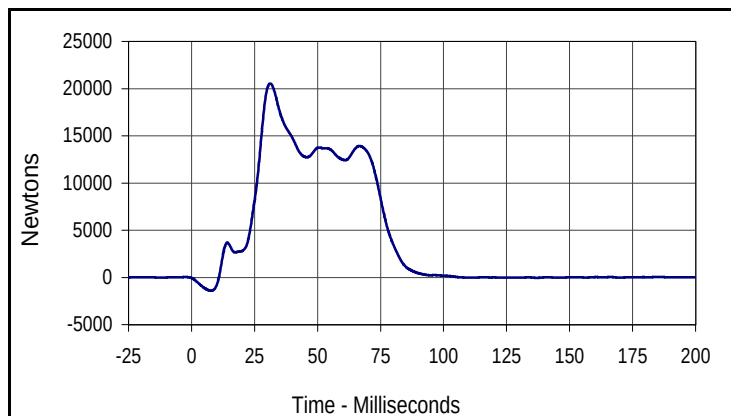
Test Date: 12/4/03
 NHTSA No.: M40502



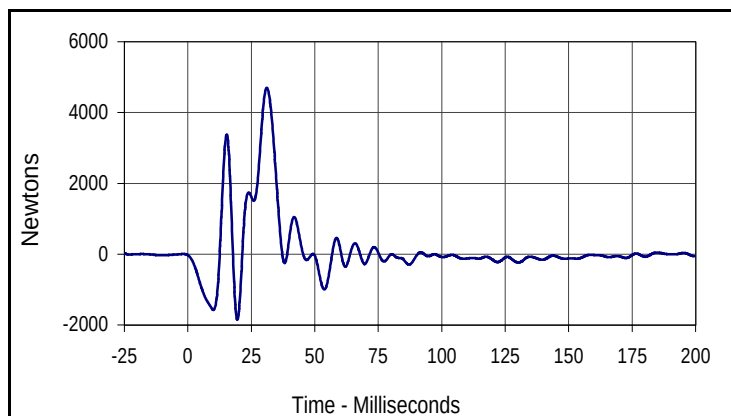
Curve Description			
Barrier Force A2			
CURNO	Type	SAE Class	Units
099	FIL	60	Newtons
Max	Time	Min	Time
5443.7	13.5	-2042.4	6.6



Curve Description			
Barrier Force B2			
CURNO	Type	SAE Class	Units
108	FIL	60	Newtons
Max	Time	Min	Time
12502.7	26.4	-1319.8	5.0



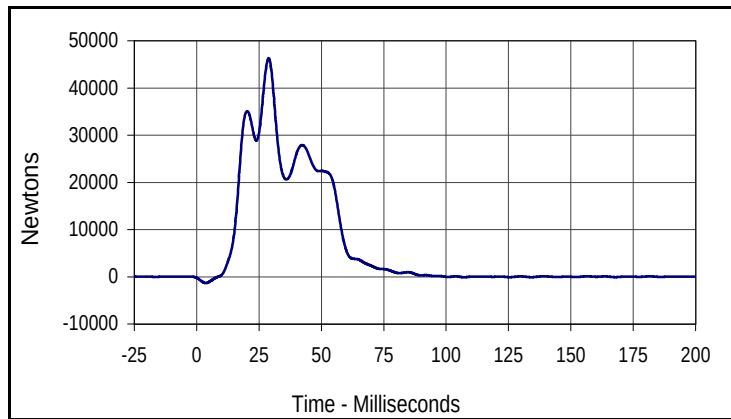
Curve Description			
Barrier Force C2			
CURNO	Type	SAE Class	Units
117	FIL	60	Newtons
Max	Time	Min	Time
20540.5	31.2	-1399.4	7.8



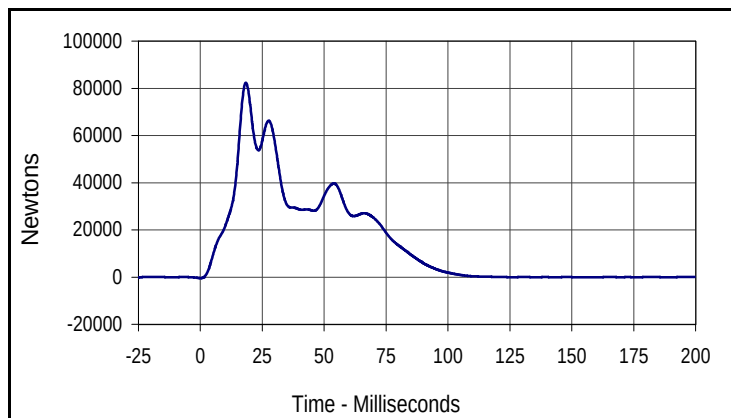
Curve Description			
Barrier Force D2			
CURNO	Type	SAE Class	Units
126	FIL	60	Newtons
Max	Time	Min	Time
4700.0	31.1	-1848.5	19.5

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

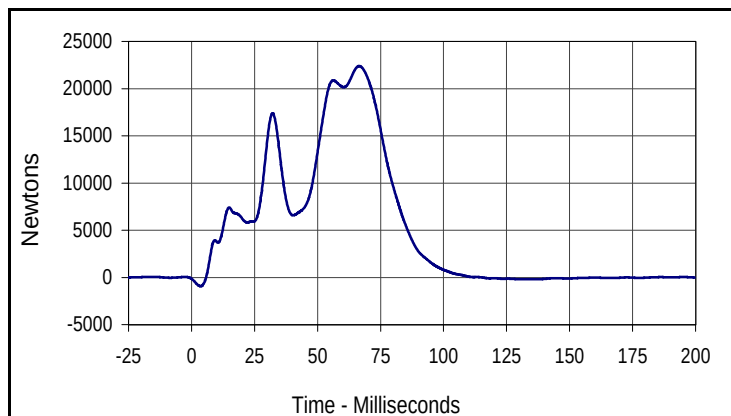
Test Date: 12/4/03
 NHTSA No.: M40502



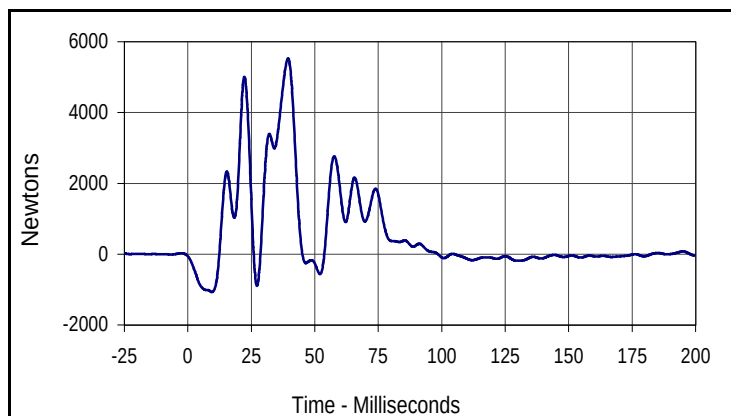
Curve Description			
Barrier Force A3			
CURNO	Type	SAE Class	Units
100	FIL	60	Newtons
Max	Time	Min	Time
46327.2	28.8	-1333.5	3.6



Curve Description			
Barrier Force B3			
CURNO	Type	SAE Class	Units
109	FIL	60	Newtons
Max	Time	Min	Time
82339.1	18.4	-442.7	0.1



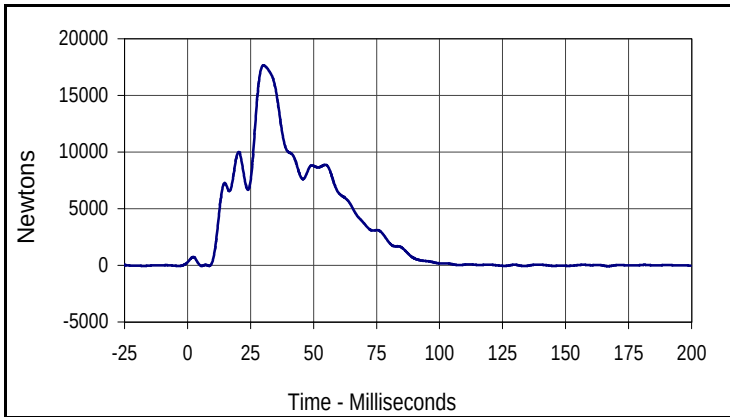
Curve Description			
Barrier Force C3			
CURNO	Type	SAE Class	Units
118	FIL	60	Newtons
Max	Time	Min	Time
22389.5	66.5	-928.6	3.5



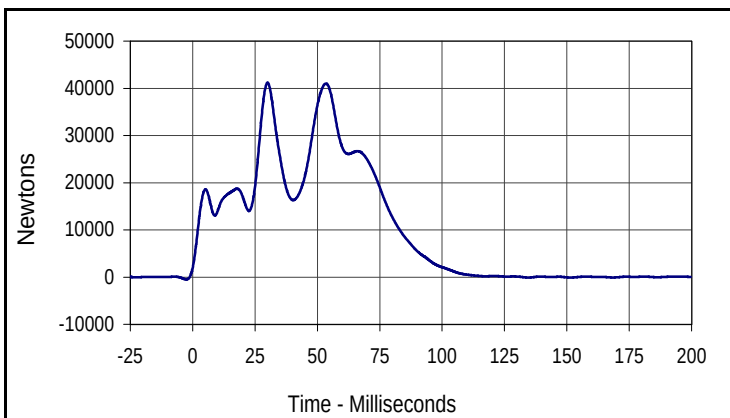
Curve Description			
Barrier Force D3			
CURNO	Type	SAE Class	Units
127	FIL	60	Newtons
Max	Time	Min	Time
5533.2	39.5	-1071.4	9.5

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

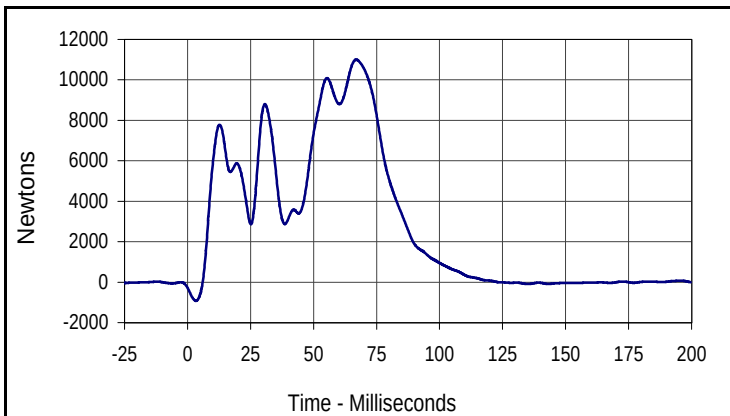
Test Date: 12/4/03
 NHTSA No.: M40502



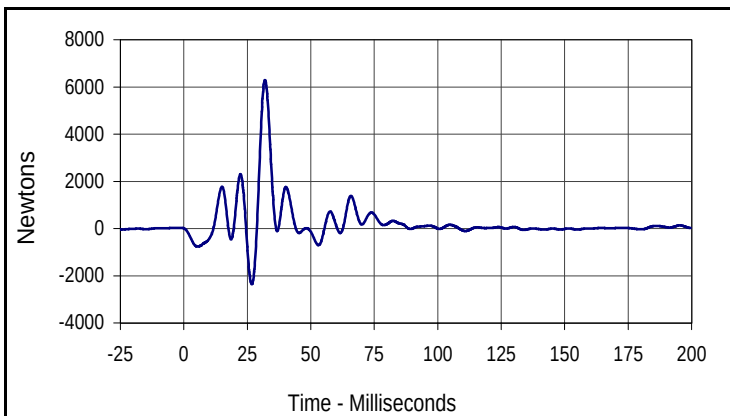
Curve Description			
Barrier Force A4			
CURNO	Type	SAE Class	Units
101	FIL	60	Newtons
Max	Time	Min	Time
17651.8	30.2	-76.7	166.9



Curve Description			
Barrier Force B4			
CURNO	Type	SAE Class	Units
110	FIL	60	Newtons
Max	Time	Min	Time
41154.7	30.0	-92.5	151.4



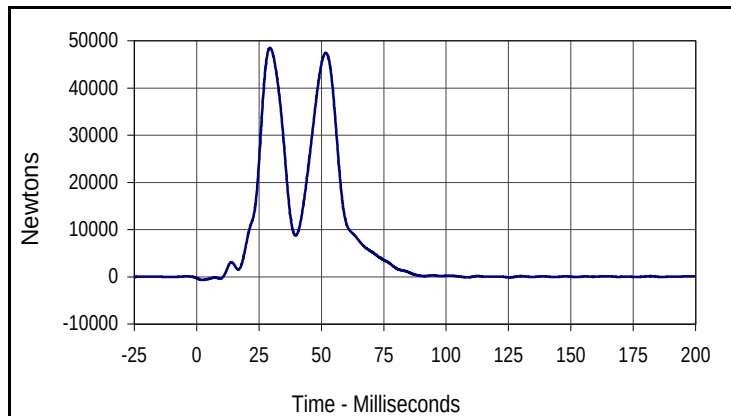
Curve Description			
Barrier Force C4			
CURNO	Type	SAE Class	Units
119	FIL	60	Newtons
Max	Time	Min	Time
11002.0	66.9	-921.1	3.3



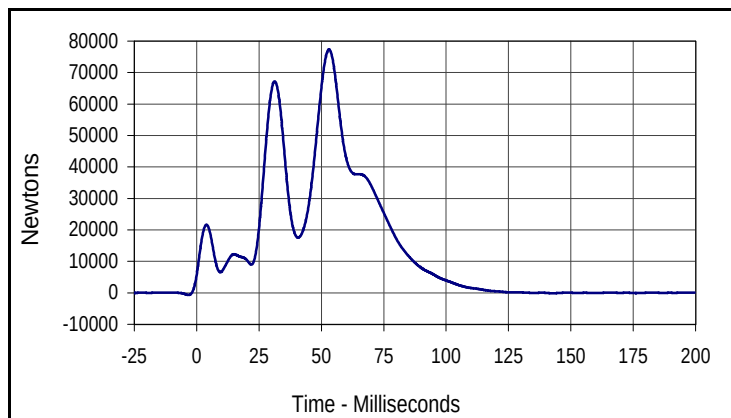
Curve Description			
Barrier Force D4			
CURNO	Type	SAE Class	Units
128	FIL	60	Newtons
Max	Time	Min	Time
6289.2	31.9	-2361.2	26.8

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

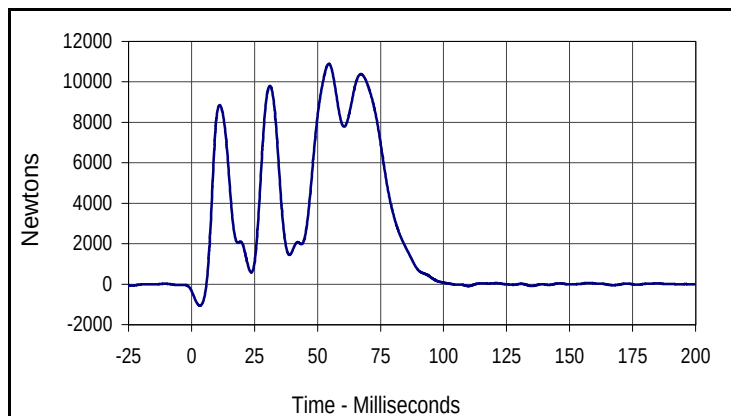
Test Date: 12/4/03
 NHTSA No.: M40502



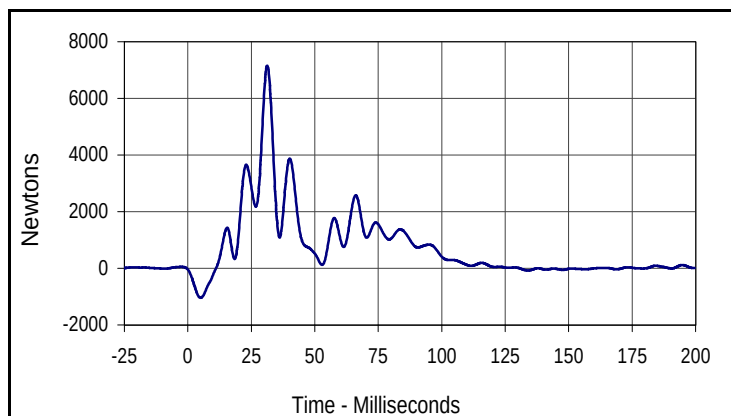
Curve Description			
Barrier Force A5			
CURNO	Type	SAE Class	Units
102	FIL	60	Newtons
Max	Time	Min	Time
48515.8	29.4	-674.3	2.2



Curve Description			
Barrier Force B5			
CURNO	Type	SAE Class	Units
111	FIL	60	Newtons
Max	Time	Min	Time
77308.8	53.0	-121.0	142.7



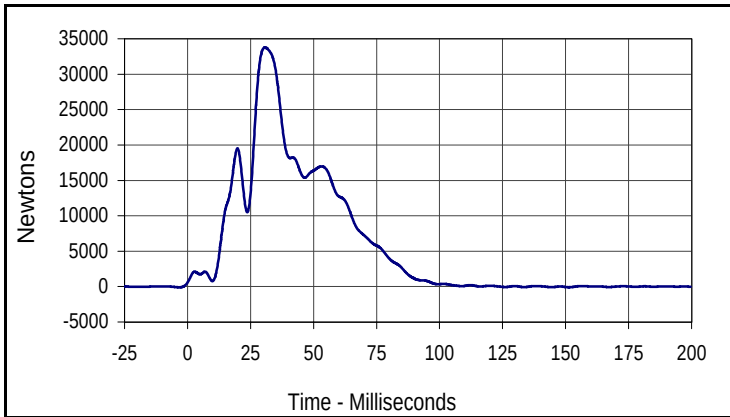
Curve Description			
Barrier Force C5			
CURNO	Type	SAE Class	Units
120	FIL	60	Newtons
Max	Time	Min	Time
10892.9	54.5	-1065.5	3.3



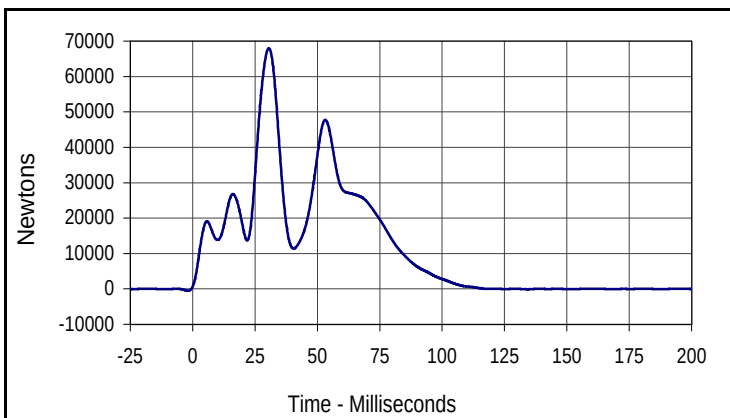
Curve Description			
Barrier Force D5			
CURNO	Type	SAE Class	Units
129	FIL	60	Newtons
Max	Time	Min	Time
7156.6	31.3	-1040.5	5.0

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

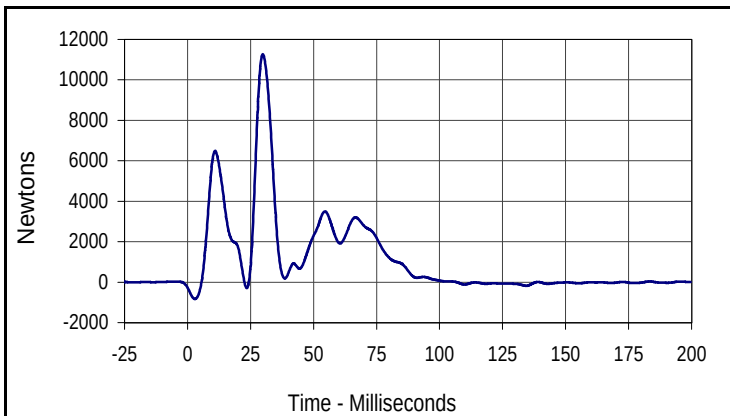
Test Date: 12/4/03
 NHTSA No.: M40502



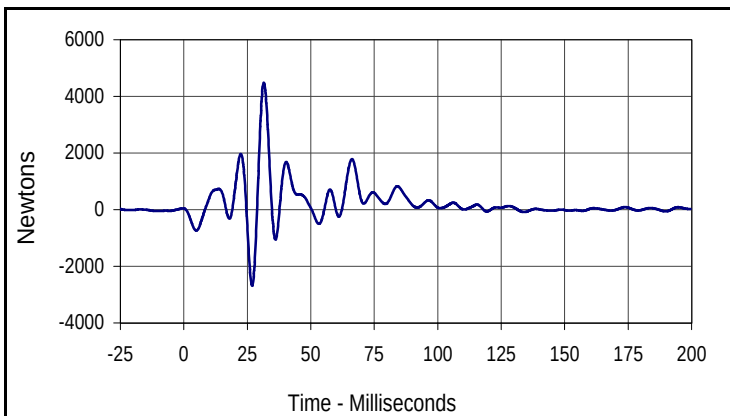
Curve Description			
Barrier Force A6			
CURNO	Type	SAE Class	Units
103	FIL	60	Newtons
Max	Time	Min	Time
33770.6	30.7	-97.1	151.3



Curve Description			
Barrier Force B6			
CURNO	Type	SAE Class	Units
112	FIL	60	Newtons
Max	Time	Min	Time
68004.5	30.5	-105.0	134.3



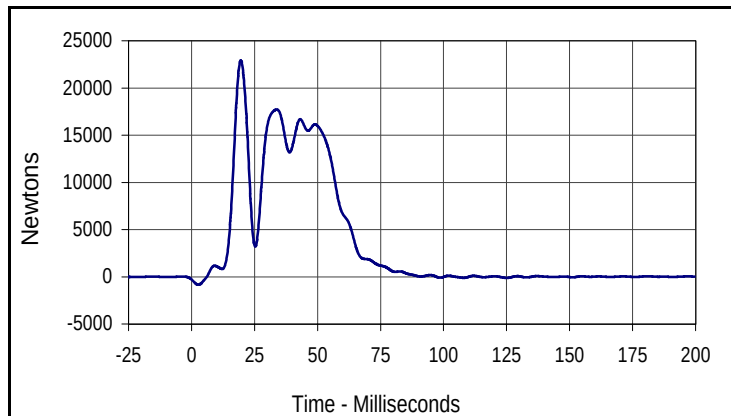
Curve Description			
Barrier Force C6			
CURNO	Type	SAE Class	Units
121	FIL	60	Newtons
Max	Time	Min	Time
11264.9	29.9	-832.2	3.0



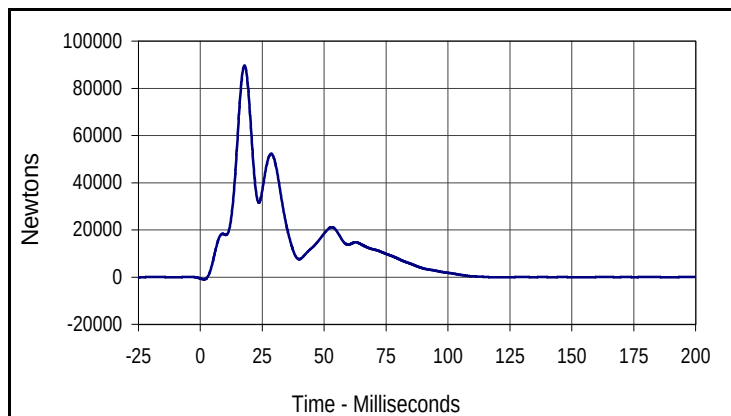
Curve Description			
Barrier Force D6			
CURNO	Type	SAE Class	Units
130	FIL	60	Newtons
Max	Time	Min	Time
4484.4	31.5	-2684.4	26.9

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

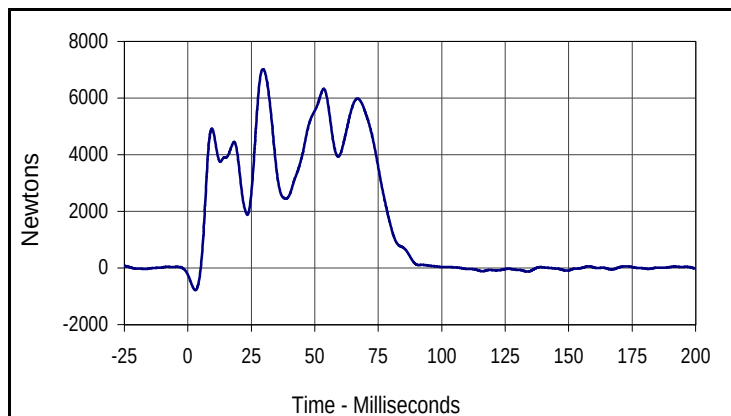
Test Date: 12/4/03
 NHTSA No.: M40502



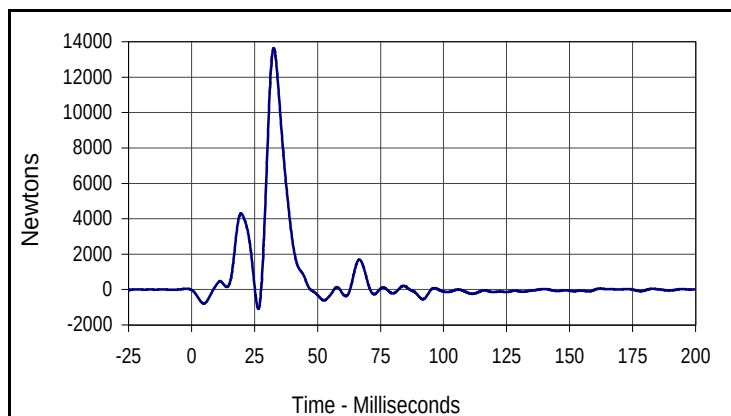
Curve Description			
Barrier Force A7			
CURNO	Type	SAE Class	Units
104	FIL	60	Newtons
Max	Time	Min	Time
22920.9	19.5	-840.8	2.6



Curve Description			
Barrier Force B7			
CURNO	Type	SAE Class	Units
113	FIL	60	Newtons
Max	Time	Min	Time
89672.3	17.8	-956.6	1.4



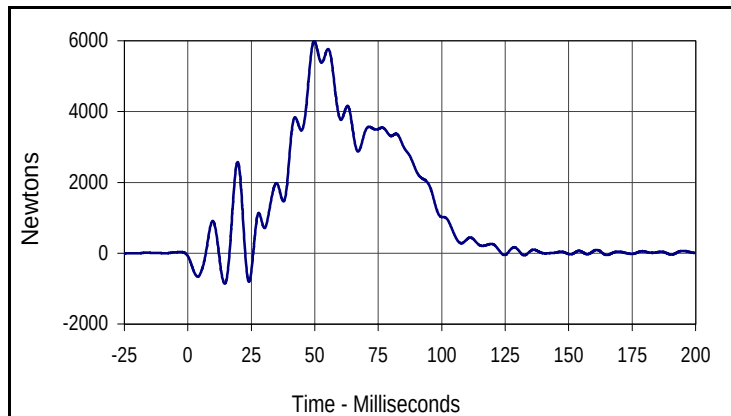
Curve Description			
Barrier Force C7			
CURNO	Type	SAE Class	Units
122	FIL	60	Newtons
Max	Time	Min	Time
7022.1	29.5	-784.6	3.0



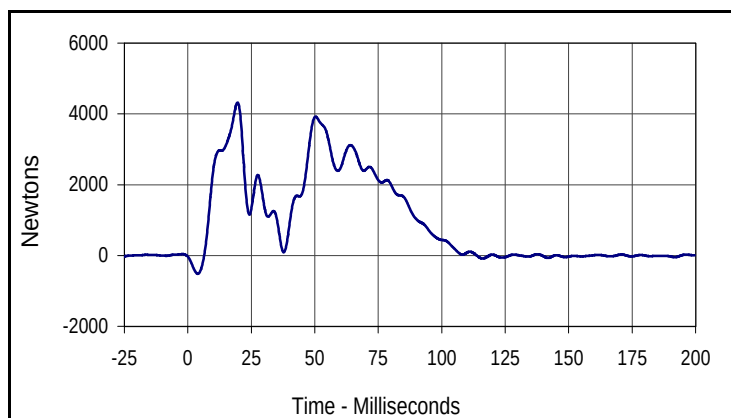
Curve Description			
Barrier Force D7			
CURNO	Type	SAE Class	Units
131	FIL	60	Newtons
Max	Time	Min	Time
13638.7	32.6	-1088.7	26.5

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

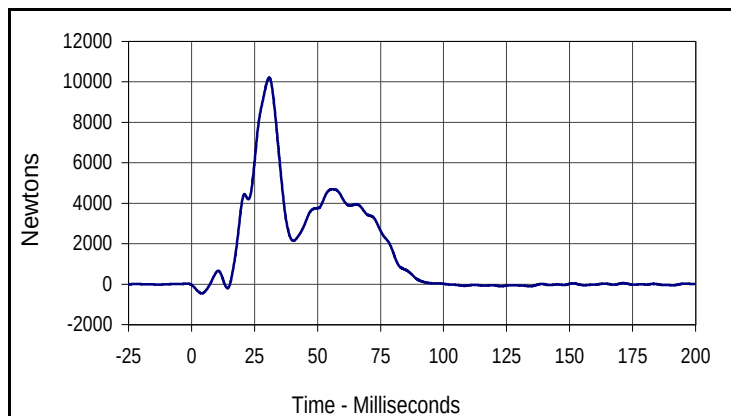
Test Date: 12/4/03
 NHTSA No.: M40502



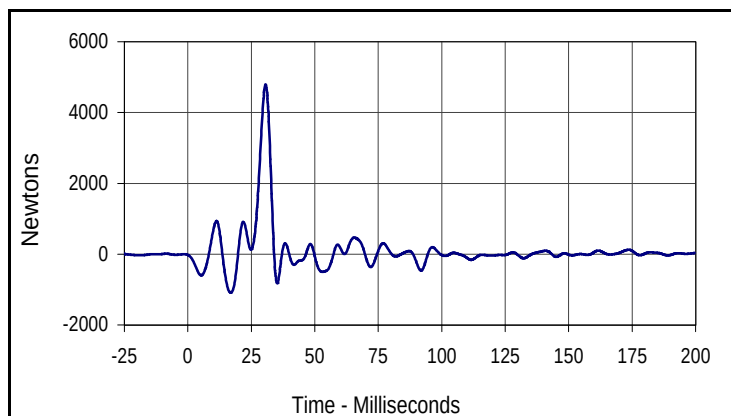
Curve Description			
Barrier Force A8			
CURNO	Type	SAE Class	Units
105	FIL	60	Newtons
Max	Time	Min	Time
5983.6	49.8	-860.1	14.5



Curve Description			
Barrier Force B8			
CURNO	Type	SAE Class	Units
114	FIL	60	Newtons
Max	Time	Min	Time
4317.5	19.6	-514.0	3.9



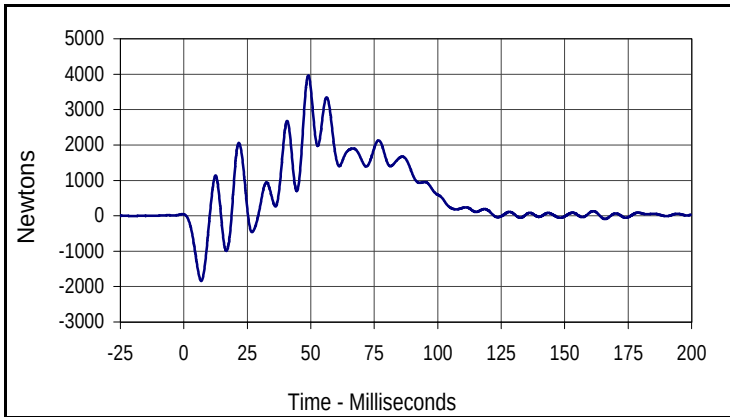
Curve Description			
Barrier Force C8			
CURNO	Type	SAE Class	Units
123	FIL	60	Newtons
Max	Time	Min	Time
10205.6	30.8	-456.3	4.0



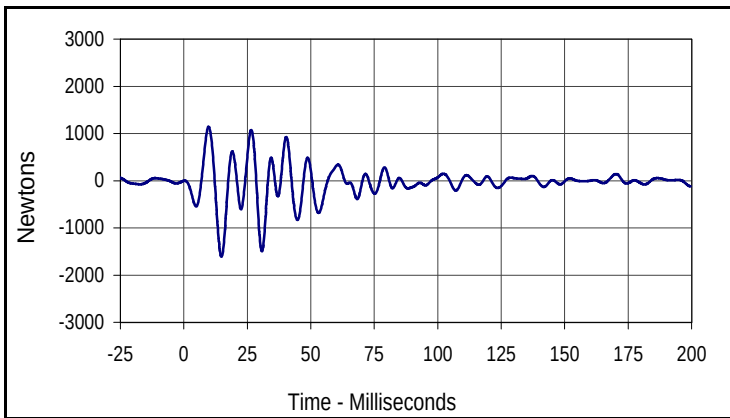
Curve Description			
Barrier Force D8			
CURNO	Type	SAE Class	Units
132	FIL	60	Newtons
Max	Time	Min	Time
4795.9	30.6	-1083.4	16.9

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

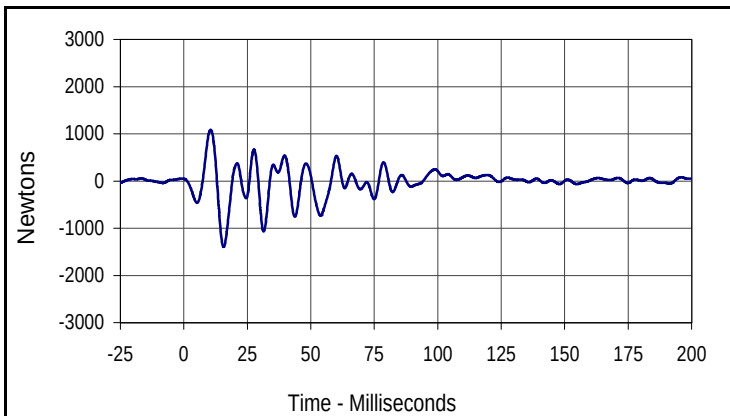
Test Date: 12/4/03
 NHTSA No.: M40502



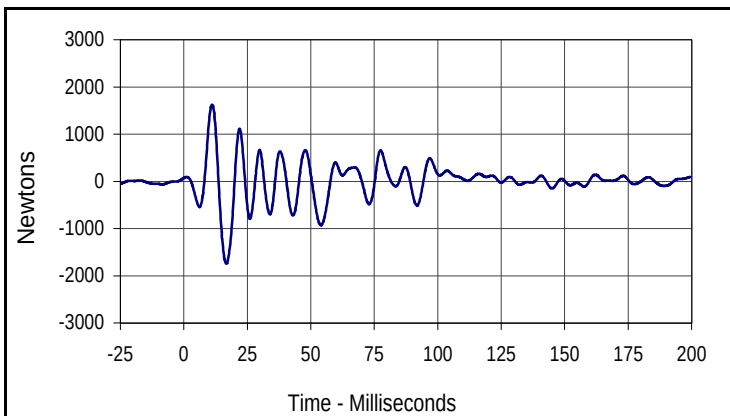
Curve Description			
Barrier Force A9			
CURNO	Type	SAE Class	Units
106	FIL	60	Newtons
Max	Time	Min	Time
3959.5	49.0	-1839.2	6.8



Curve Description			
Barrier Force B9			
CURNO	Type	SAE Class	Units
115	FIL	60	Newtons
Max	Time	Min	Time
1139.7	9.7	-1606.5	14.8



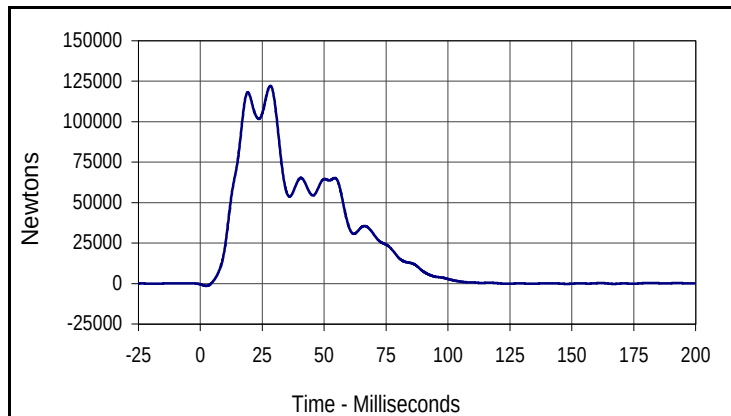
Curve Description			
Barrier Force C9			
CURNO	Type	SAE Class	Units
124	FIL	60	Newtons
Max	Time	Min	Time
1087.4	10.6	-1396.3	15.7



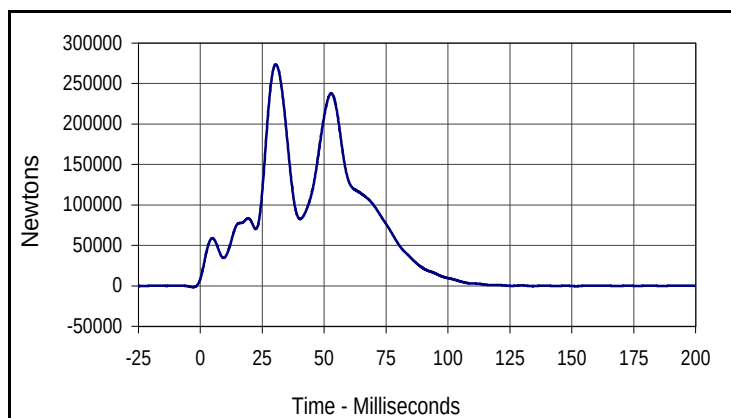
Curve Description			
Barrier Force D9			
CURNO	Type	SAE Class	Units
133	FIL	60	Newtons
Max	Time	Min	Time
1623.6	11.1	-1737.0	16.7

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

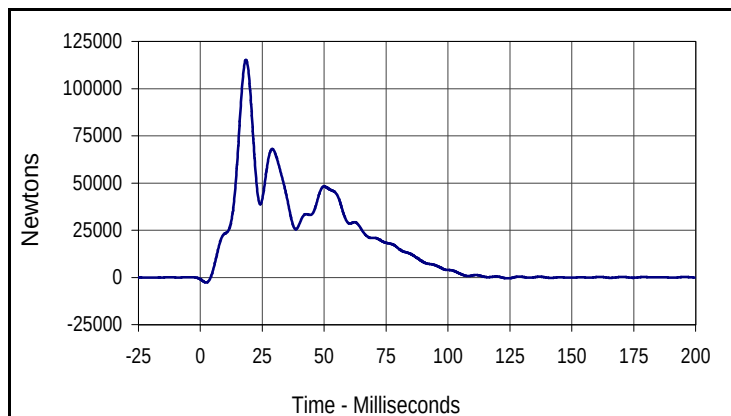
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Barrier Force Sum Group 1			
CURNO	Type	SAE Class	Units
001	SUM	60	Newtons
Max	Time	Min	Time
122187.2	28.3	-1422.4	2.3



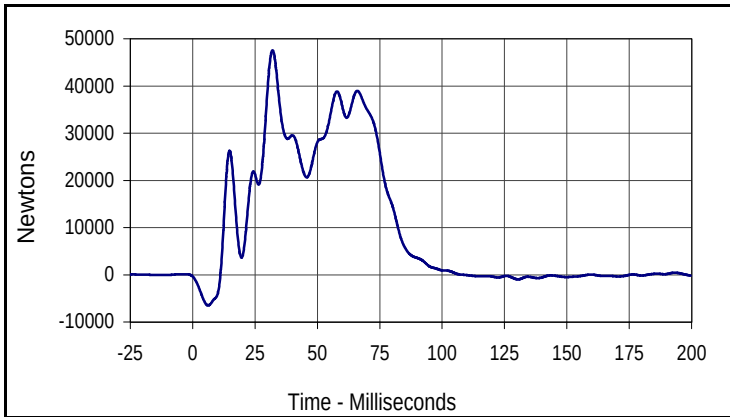
Curve Description			
Barrier Force Sum Group 2			
CURNO	Type	SAE Class	Units
002	SUM	60	Newtons
Max	Time	Min	Time
273682.6	30.5	-402.8	151.9



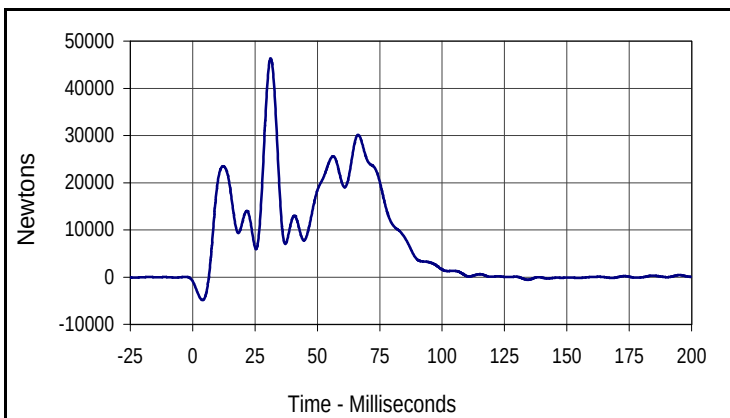
Curve Description			
Barrier Force Sum Group 3			
CURNO	Type	SAE Class	Units
003	SUM	60	Newtons
Max	Time	Min	Time
115219.5	18.4	-2697.7	2.3

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

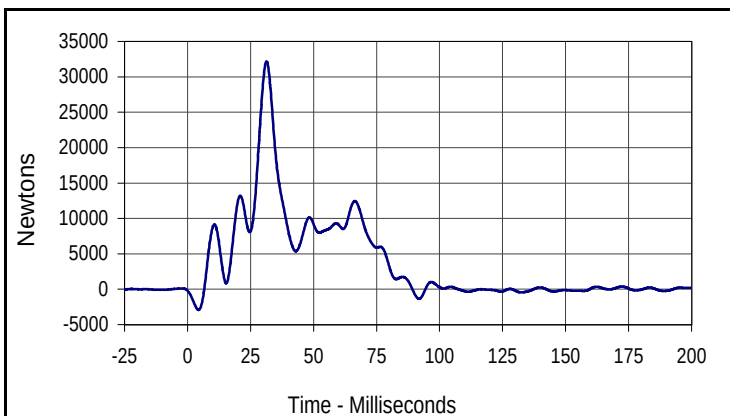
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Barrier Force Sum Group 4			
CURNO	Type	SAE Class	Units
004	SUM	60	Newtons
Max	Time	Min	Time
47572.3	32.0	-6491.7	6.2



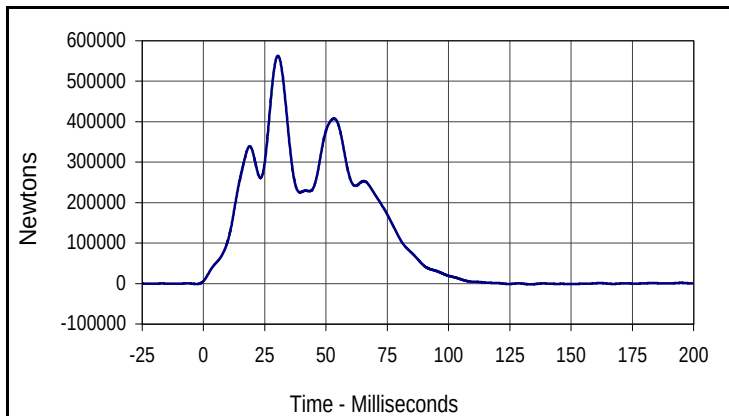
Curve Description			
Barrier Force Sum Group 5			
CURNO	Type	SAE Class	Units
005	SUM	60	Newtons
Max	Time	Min	Time
46327.3	31.3	-4868.6	3.9



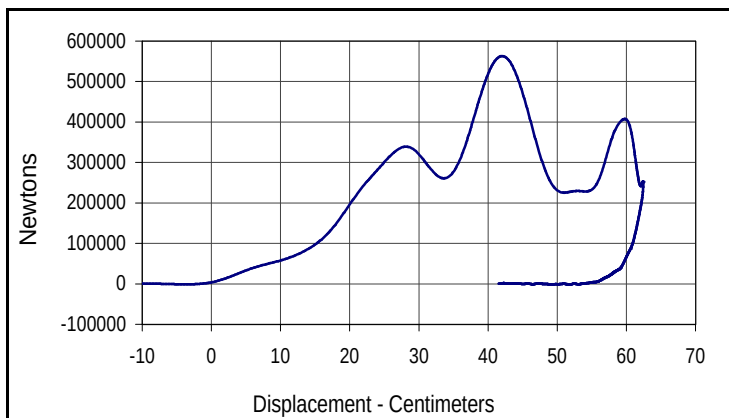
Curve Description			
Barrier Force Sum Group 6			
CURNO	Type	SAE Class	Units
006	SUM	60	Newtons
Max	Time	Min	Time
32160.6	31.3	-2915.4	4.3

Test Vehicle: 2004 Hyundai Accent
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Barrier Force Total Sum			
CURNO	Type	SAE Class	Units
007	SUM	60	Newtons
Max	Time	Min	Time
563022.0	30.4	-1977.2	133.5



Curve Description			
Barrier Force Total Sum vs. Displ.			
CURNO	Type	SAE Class	Units
001	XVY	60	Newtons
Max	CM	Min	CM
563022.0	42.1	-1977.2	51.7

BARRIER LOAD CELL SUMMARY DATA

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe

NHTSA No.: M40502

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 12/4/03

Location	Units	Max	Time	Min	Time
Barrier Force A1	Newtons	3685.5	22.7	-3680.8	7.3
Barrier Force A2	Newtons	5443.7	13.5	-2042.4	6.6
Barrier Force A3	Newtons	46327.2	28.8	-1333.5	3.6
Barrier Force A4	Newtons	17651.8	30.2	-76.7	166.9
Barrier Force A5	Newtons	48515.8	29.4	-674.3	2.2
Barrier Force A6	Newtons	33770.6	30.7	-97.1	151.3
Barrier Force A7	Newtons	22920.9	19.5	-840.8	2.6
Barrier Force A8	Newtons	5983.6	49.8	-860.1	14.5
Barrier Force A9	Newtons	3959.5	49.0	-1839.2	6.8
Barrier Force B1	Newtons	5450.7	13.6	-3017.3	7.8
Barrier Force B2	Newtons	12502.7	26.4	-1319.8	5.0
Barrier Force B3	Newtons	82339.1	18.4	-442.7	0.1
Barrier Force B4	Newtons	41154.7	30.0	-92.5	151.4
Barrier Force B5	Newtons	77308.8	53.0	-121.0	142.7
Barrier Force B6	Newtons	68004.5	30.5	-105.0	134.3
Barrier Force B7	Newtons	89672.3	17.8	-956.6	1.4
Barrier Force B8	Newtons	4317.5	19.6	-514.0	3.9
Barrier Force B9	Newtons	1139.7	9.7	-1606.5	14.8
Barrier Force C1	Newtons	4826.6	13.9	-2715.5	8.3
Barrier Force C2	Newtons	20540.5	31.2	-1399.4	7.8
Barrier Force C3	Newtons	22389.5	66.5	-928.6	3.5
Barrier Force C4	Newtons	11002.0	66.9	-921.1	3.3
Barrier Force C5	Newtons	10892.9	54.5	-1065.5	3.3
Barrier Force C6	Newtons	11264.9	29.9	-832.2	3.0
Barrier Force C7	Newtons	7022.1	29.5	-784.6	3.0
Barrier Force C8	Newtons	10205.6	30.8	-456.3	4.0
Barrier Force C9	Newtons	1087.4	10.6	-1396.3	15.7
Barrier Force D1	Newtons	5818.0	15.1	-3780.5	20.1
Barrier Force D2	Newtons	4700.0	31.1	-1848.5	19.5
Barrier Force D3	Newtons	5533.2	39.5	-1071.4	9.5
Barrier Force D4	Newtons	6289.2	31.9	-2361.2	26.8
Barrier Force D5	Newtons	7156.6	31.3	-1040.5	5.0
Barrier Force D6	Newtons	4484.4	31.5	-2684.4	26.9
Barrier Force D7	Newtons	13638.7	32.6	-1088.7	26.5
Barrier Force D8	Newtons	4795.9	30.6	-1083.4	16.9
Barrier Force D9	Newtons	1623.6	11.1	-1737.0	16.7
Barrier Force Sum Group 1	Newtons	122187.2	28.3	-1422.4	2.3
Barrier Force Sum Group 2	Newtons	273682.6	30.5	-402.8	151.9
Barrier Force Sum Group 3	Newtons	115219.5	18.4	-2697.7	2.3
Barrier Force Sum Group 4	Newtons	47572.3	32.0	-6491.7	6.2
Barrier Force Sum Group 5	Newtons	46327.3	31.3	-4868.6	3.9
Barrier Force Sum Group 6	Newtons	32160.6	31.3	-2915.4	4.3
Barrier Force Total Sum	Newtons	563022.0	30.4	-1977.2	133.5

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 34
12/4/03
2004 Hyundai Accent 2 Door Coupe

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	HEAD, PRIMARY	X	KEAC039	Accel.,1/2 bridge	Endevco	7264-2000	G
2	HEAD, PRIMARY	Y	KEAC038	Accel.,1/2 bridge	Endevco	7264-2000	G
3	HEAD, PRIMARY	Z	KEAC027	Accel.,1/2 bridge	Endevco	7264-2000	G
4	HEAD, REDUNDANT	X	KEAC031	Accel.,1/2 bridge	Endevco	7264-2000	G
5	HEAD, REDUNDANT	Y	KEAC032	Accel.,1/2 bridge	Endevco	7264-2000	G
6	HEAD, REDUNDANT	Z	KEAC026	Accel.,1/2 bridge	Endevco	7264-2000	G
7	NECK FORCE	X	GPUN02FX	Load cell, six axis neck	R. A. Denton	1716A	N
8	NECK FORCE	Y	GPUN02FY	Load cell, six axis neck	R. A. Denton	1716A	N
9	NECK FORCE	Z	GPUN02FZ	Load cell, six axis neck	R. A. Denton	1716A	N
10	NECK MOMENT	X	GPUN02MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
11	NECK MOMENT	Y	GPUN02MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
12	NECK MOMENT	Z	GPUN02MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
13	CHEST , PRIMARY	X	GPAC031	Accel., 1/2 bridge	Endevco	7264-2000	G
14	CHEST , PRIMARY	Y	GPAC024	Accel., 1/2 bridge	Endevco	7264-2000	G
15	CHEST , PRIMARY	Z	GPAC029	Accel., 1/2 bridge	Endevco	7264-2000	G
16	CHEST , REDUNDANT	X	KEAC023	Accel.,1/2 bridge	Endevco	7264-200	G
17	CHEST , REDUNDANT	Y	KEAC022	Accel.,1/2 bridge	Endevco	7264-200	G
18	CHEST , REDUNDANT	Z	KEAC024	Accel.,1/2 bridge	Endevco	7264-200	G
19	CHEST DISPLACEMENT	X	GPCP001	Rotary Pot Chest	Servo	14CBI	MM
20	PELVIS, PRIMARY	X	KEAC019	Accel.,1/2 bridge	Endevco	7264-200	G
21	PELVIS, PRIMARY	Y	KEAC020	Accel.,1/2 bridge	Endevco	7264-200	G
22	PELVIS, PRIMARY	Z	KEAC021	Accel.,1/2 bridge	Endevco	7264-200	G
23	LEFT FEMUR FORCE	Z	KEFF001	Load cell, Femur	R.A. Denton	2121	N
24	RIGHT FEMUR FORCE	Z	KEFF002	Load cell, Femur	R.A. Denton	2121	N

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 34
12/4/03
2004 Hyundai Accent 2 Door Coupe

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	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
36	FOOT LEFT, AFT	Z	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
37	FOOT LEFT, FORE	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
38	FOOT RIGHT, AFT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
39	FOOT RIGHT, AFT	Z	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
40	FOOT RIGHT, FORE	Z	KEIC004Z	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

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 35
12/4/03
2004 Hyundai Accent 2 Door Coupe

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
45	HEAD, PRIMARY	X	GPAC027	Accel., 1/2 bridge	Endevco	7264-2000	G
46	HEAD, PRIMARY	Y	GPAC002	Accel., 1/2 bridge	Endevco	7264-2000	G
47	HEAD, PRIMARY	Z	GPAC003	Accel., 1/2 bridge	Endevco	7264-2000	G
48	HEAD, REDUNDANT	X	GPAC032	Accel., 1/2 bridge	Endevco	7264-2000	G
49	HEAD, REDUNDANT	Y	GPAC021	Accel., 1/2 bridge	Endevco	7264-2000	G
50	HEAD, REDUNDANT	Z	GPAC026	Accel., 1/2 bridge	Endevco	7264-2000	G
51	NECK FORCE	X	GPUN01FX	Load cell, six axis neck	R. A. Denton	1716A	N
52	NECK FORCE	Y	GPUN01FY	Load cell, six axis neck	R. A. Denton	1716A	N
53	NECK FORCE	Z	GPUN01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
54	NECK MOMENT	X	GPUN01MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
55	NECK MOMENT	Y	GPUN01MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
56	NECK MOMENT	Z	GPUN01MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
57	CHEST , PRIMARY	X	GPAC005	Accel., 1/2 bridge	Endevco	7264-2000	G
58	CHEST , PRIMARY	Y	GPAC011	Accel., 1/2 bridge	Endevco	7264-2000	G
59	CHEST , PRIMARY	Z	GPAC010	Accel., 1/2 bridge	Endevco	7264-2000	G
60	CHEST , REDUNDANT	X	GPAC034	Accel., 1/2 bridge	Endevco	7264-2000	G
61	CHEST , REDUNDANT	Y	GPAC023	Accel., 1/2 bridge	Endevco	7264-2000	G
62	CHEST , REDUNDANT	Z	GPAC020	Accel., 1/2 bridge	Endevco	7264-2000	G
63	CHEST DISPLACEMENT	X	GPCP002	Rotary Pot Chest	Servo	14CBI	MM
64	PELVIS, PRIMARY	X	GPAC025	Accel., 1/2 bridge	Endevco	7264-2000	G
65	PELVIS, PRIMARY	Y	GPAC022	Accel., 1/2 bridge	Endevco	7264-2000	G
66	PELVIS, PRIMARY	Z	GPAC019	Accel., 1/2 bridge	Endevco	7264-2000	G
67	LEFT FEMUR FORCE	Z	KEFF003	Load cell, Femur	R.A. Denton	2121	N
68	RIGHT FEMUR FORCE	Z	KEFF004	Load cell, Femur	R.A. Denton	2121	N

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 35
12/4/03
2004 Hyundai Accent 2 Door Coupe

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPOT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
70	UP. TIBIA LEFT MOM.	Y	GPOT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
71	UP. TIBIA RIGHT MOM.	X	GPOT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
72	UP. TIBIA RIGHT MOM.	Y	GPOT09MY	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	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT, AFT	Z	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT, FORE	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT, AFT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT, AFT	Z	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT, FORE	Z	KEIC001Z	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

**2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers
12/4/03
2004 Hyundai Accent 2 Door Coupe**

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

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
12/4/03
2004 Hyundai Accent 2 Door Coupe

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

**2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
12/4/03
2004 Hyundai Accent 2 Door Coupe**

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

**2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
12/4/03
2004 Hyundai Accent 2 Door Coupe**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
134	DRIVER X-ARM	Y	GPAC016	Accel., 1/2 bridge	Endevco	7264-2000	G
135	DRIVER X-ARM	Z	GPAC015	Accel., 1/2 bridge	Endevco	7264-2000	G
136	DRIVER Y-ARM	X	GPAC004	Accel., 1/2 bridge	Endevco	7264-2000	G
137	DRIVER Y-ARM	Z	GPAC018	Accel., 1/2 bridge	Endevco	7264-2000	G
138	DRIVER Z-ARM	X	GPAC006	Accel., 1/2 bridge	Endevco	7264-2000	G
139	DRIVER Z-ARM	Y	GPAC007	Accel., 1/2 bridge	Endevco	7264-2000	G
140	PASS. X-ARM	Y	GPAC012	Accel., 1/2 bridge	Endevco	7264-2000	G
141	PASS. X-ARM	Z	GPAC001	Accel., 1/2 bridge	Endevco	7264-2000	G
142	PASS. Y-ARM	X	GPAC036	Accel., 1/2 bridge	Endevco	7264-2000	G
143	PASS. Y-ARM	Z	GPAC014	Accel., 1/2 bridge	Endevco	7264-2000	G
144	PASS. Z-ARM	X	GPAC030	Accel., 1/2 bridge	Endevco	7264-2000	G
145	PASS. Z-ARM	Y	GPAC037	Accel., 1/2 bridge	Endevco	7264-2000	G

APPENDIX E

DUMMY CALIBRATION DATA



Calibration Data Sheet

Hybrid III 50th Percentile Male

Knee Impact Test

ATD Serial No.: 034

Location: Left Knee

Test I.D.: LK11D

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	N	4715 to 5782	5418	Pass
Overall Test Results				Pass

ATD Serial No.: 034

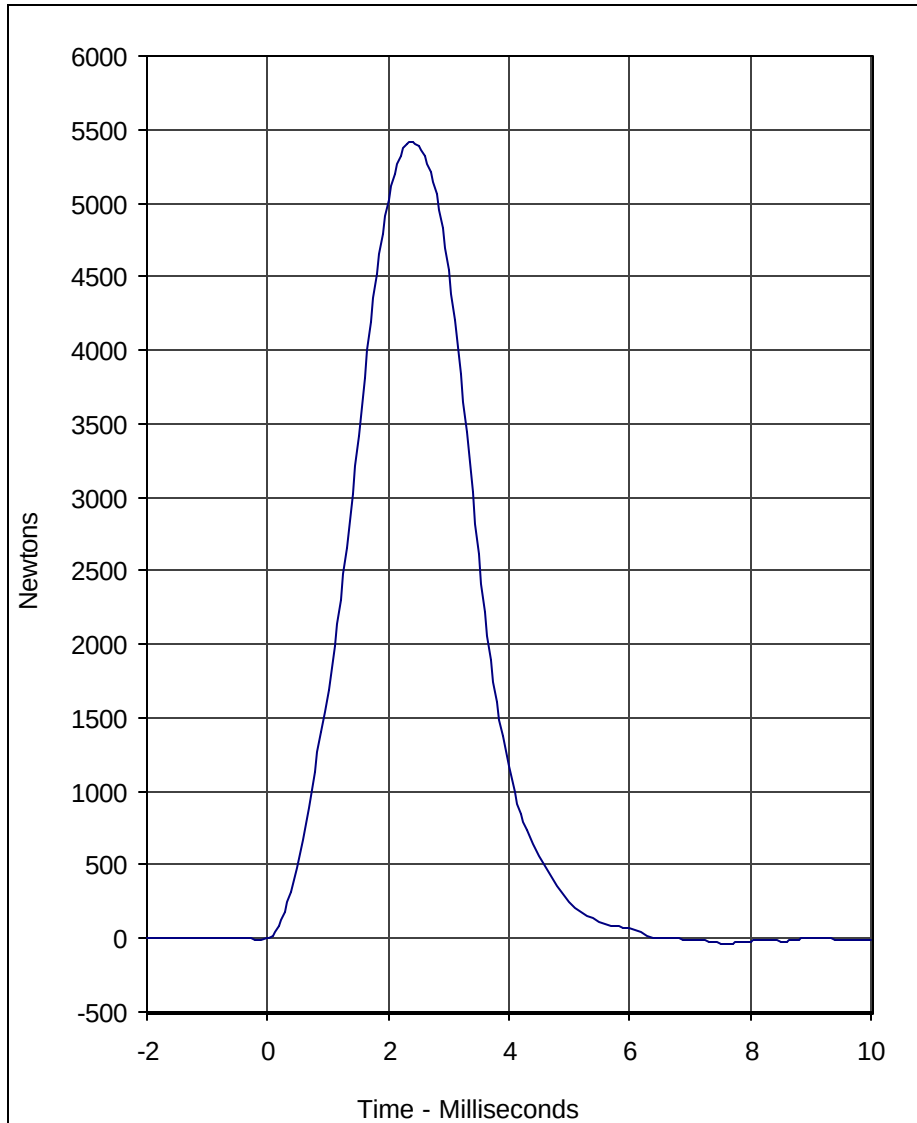
Location: Right Knee

Test I.D.: RK11E

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	2.09	Pass
Peak Probe Force	N	4715 to 5782	5455	Pass
Overall Test Results				Pass

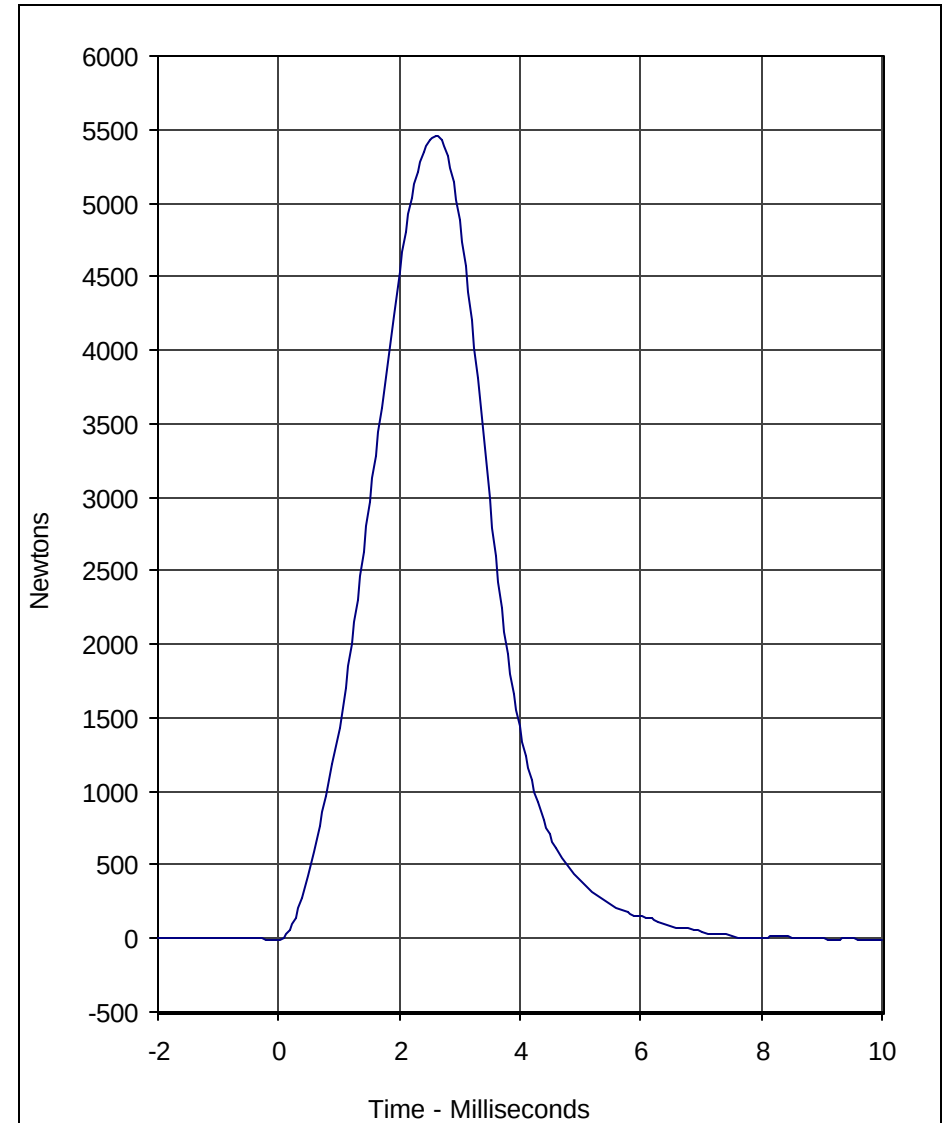
Laboratory Technician

December 1, 2003
Test Date



Curve Description		Location	Test I.D.	CURNO	Type
Probe Force		Left Knee	LK11D	001	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	5417.8	2.4	-36.7	7.5	600

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 Test Date: 12/1/03



Curve Description		Location	Test I.D.	CURNO	Type
Probe Force		Right Knee	RK11E	002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	5455.0	2.6	-14.7	0.0	600

A.T.D. Serial No.: 034





Calibration Data Sheet

Hybrid III 50th Percentile Male

Head Drop Test

ATD Serial No.: 034

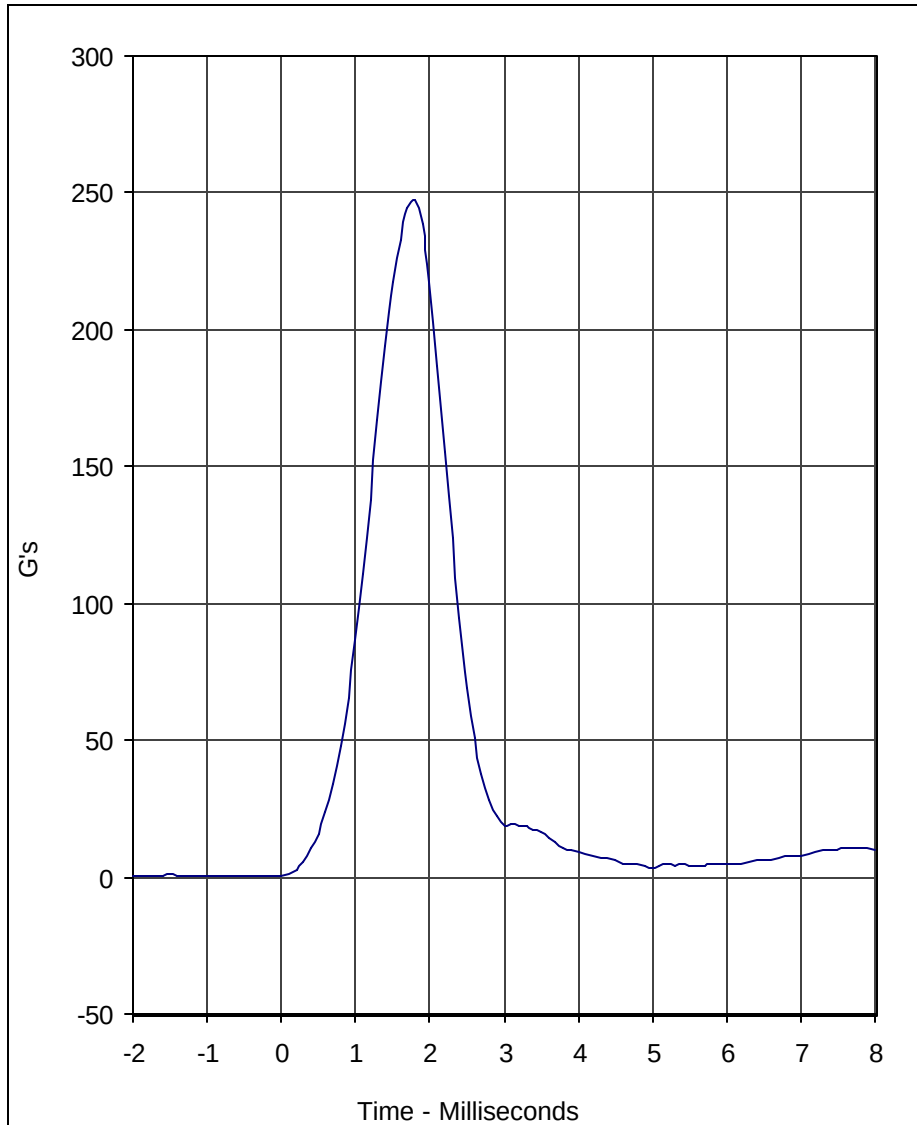
Test I.D.: HD08F

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	247.7	Pass
Peak Lateral Acceleration	G's	≤15.0	10.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

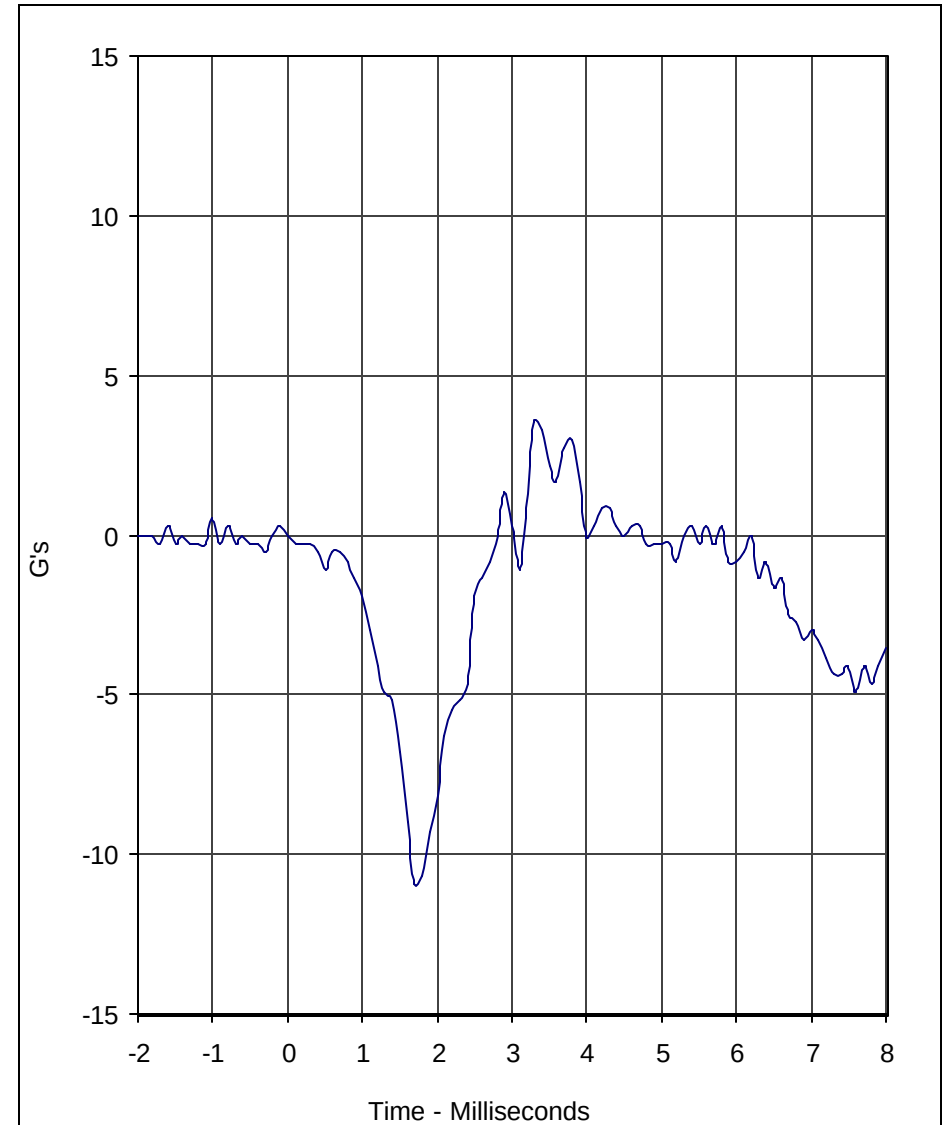
December 1, 2003

Test Date



Curve Description				CURNO	Type
Head Resultant				001	RES
Units	Max	Time	Min	Time	SAE Class
G's	247.7	1.8	0.3	-1.9	1000

Test Program: Hybrid III 50th Percentile Male Head Drop Test
 Test Date: 12/1/03



Curve Description				CURNO	Type
Head Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
G's	3.5	3.3	-10.9	1.7	1000

A.T.D. Serial No.: 034
 Test I.D.: HD08F





Calibration Data Sheet

Hybrid III 50th Percentile Male

Thorax Impact Test

ATD Serial No.: 034

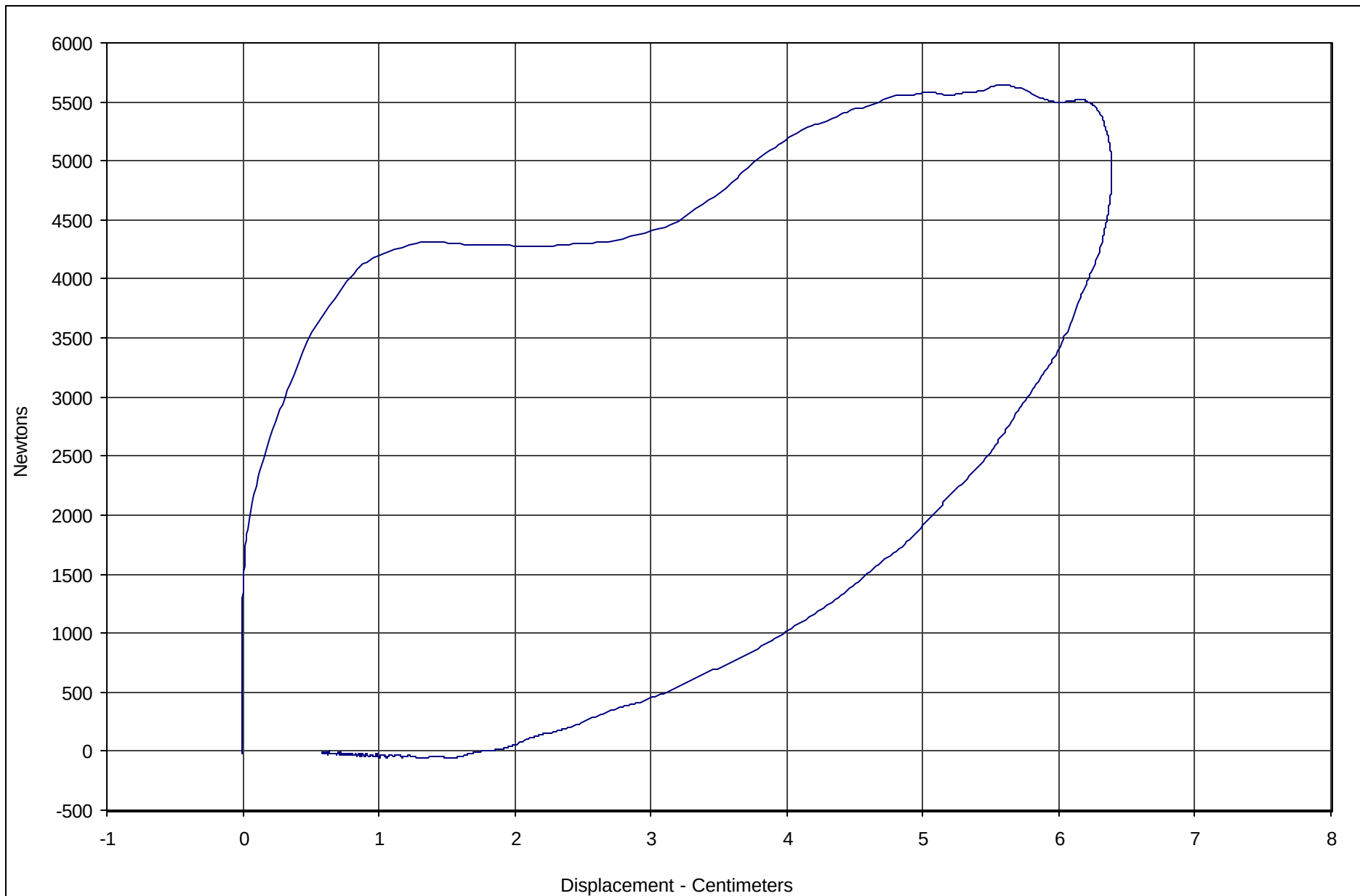
Test I.D.: ch12a

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	6.58 to 6.82	6.61	Pass
Peak Probe Force	Newtons	5159 to 5893	5647	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.39	Pass
Internal Hysteresis	%	69 to 85	78.1	Pass
Overall Test Results				Pass

Laboratory Technician

December 2, 2003

Test Date



Curve Description	CURNO	Type	Hysteresis	Peak Chest Displ.	Peak Probe Force	SAE Class
Probe Force vs. Chest Displacement	001	FIL	78.1	6.39	5646.5	180



Test Program: Hybrid III 50th Percentile Male Thorax Impact

A.T.D. Serial No.: 034

Test Date: 12/2/03

Test I.D.: ch12a



Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Flexion Test

ATD Serial No.: 034

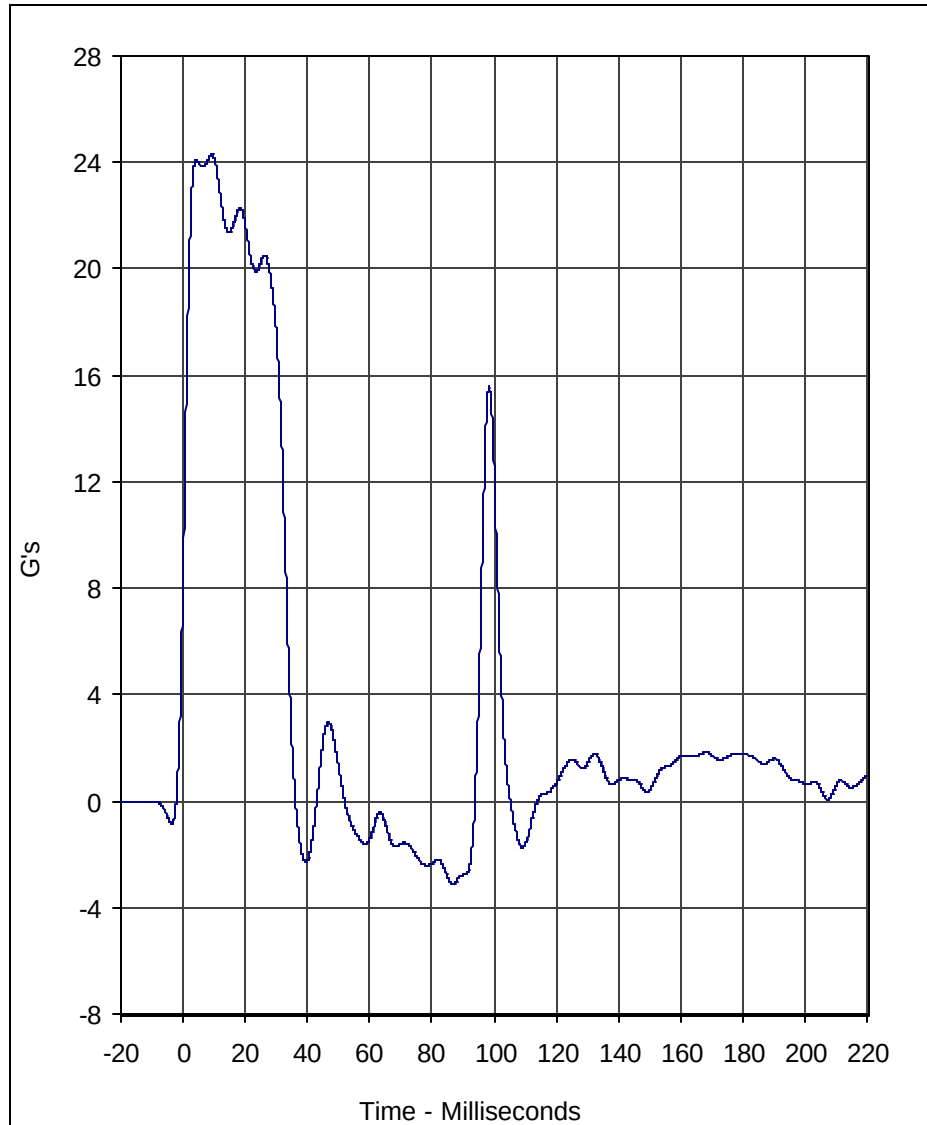
Test I.D.: NF12A

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	6.89 to 7.13	7.07	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	24.1	Pass
	20 Msec.	G's	17.6 to 22.6	21.7	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	Maximum	Degrees	64.0 to 78.0	74.1	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	122.9	Pass
Moment About Occipital Condyle	Maximum	Nm	84.1 to 108.5	84.6	Pass
	Time	Msec.	47.0 to 58.0	47.9	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	100.4	Pass
Overall Test Results					Pass

Laboratory Technician

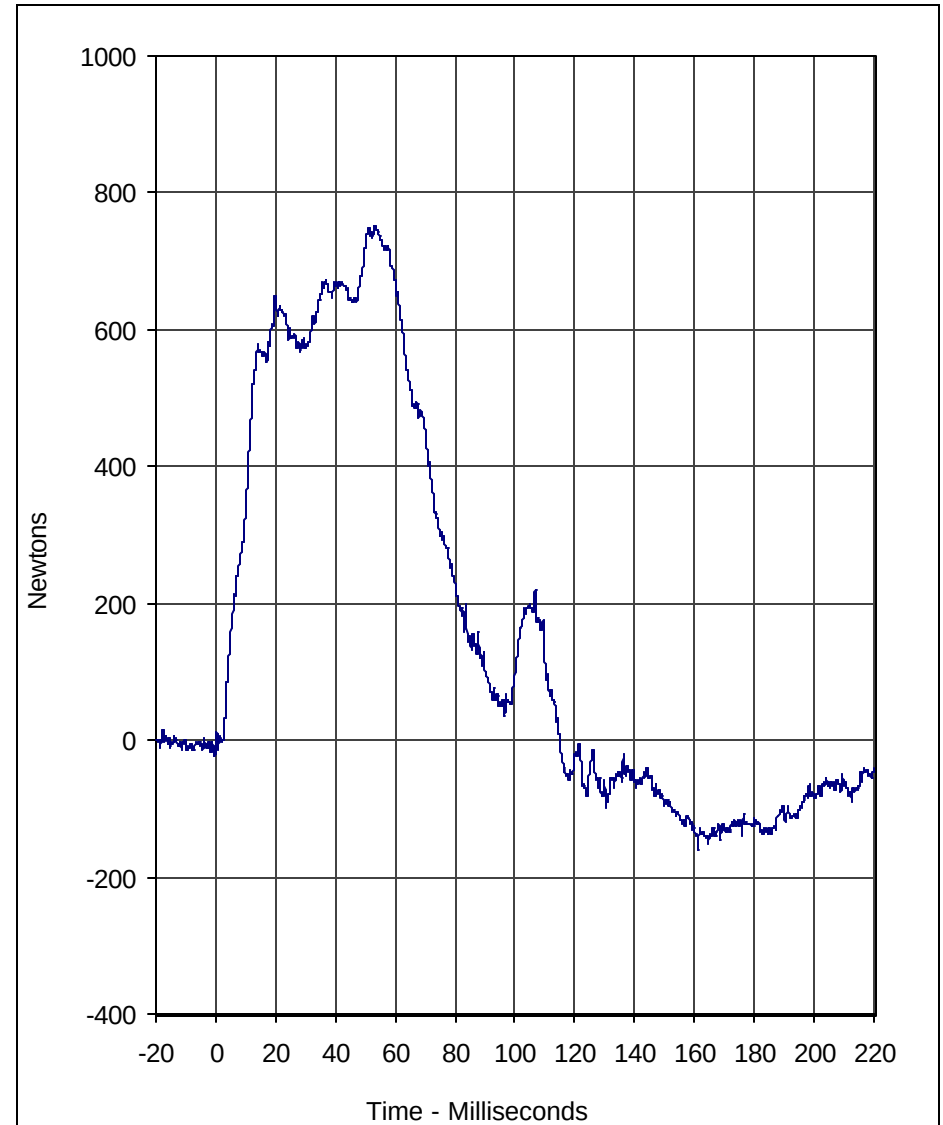
December 1, 2003

Test Date



Curve Description				CURNO	Type
Pendulum Deceleration				001	FIL
Units	Max	Time	Min	Time	SAE Class
G's	24.3	9.1	-3.1	86.8	60

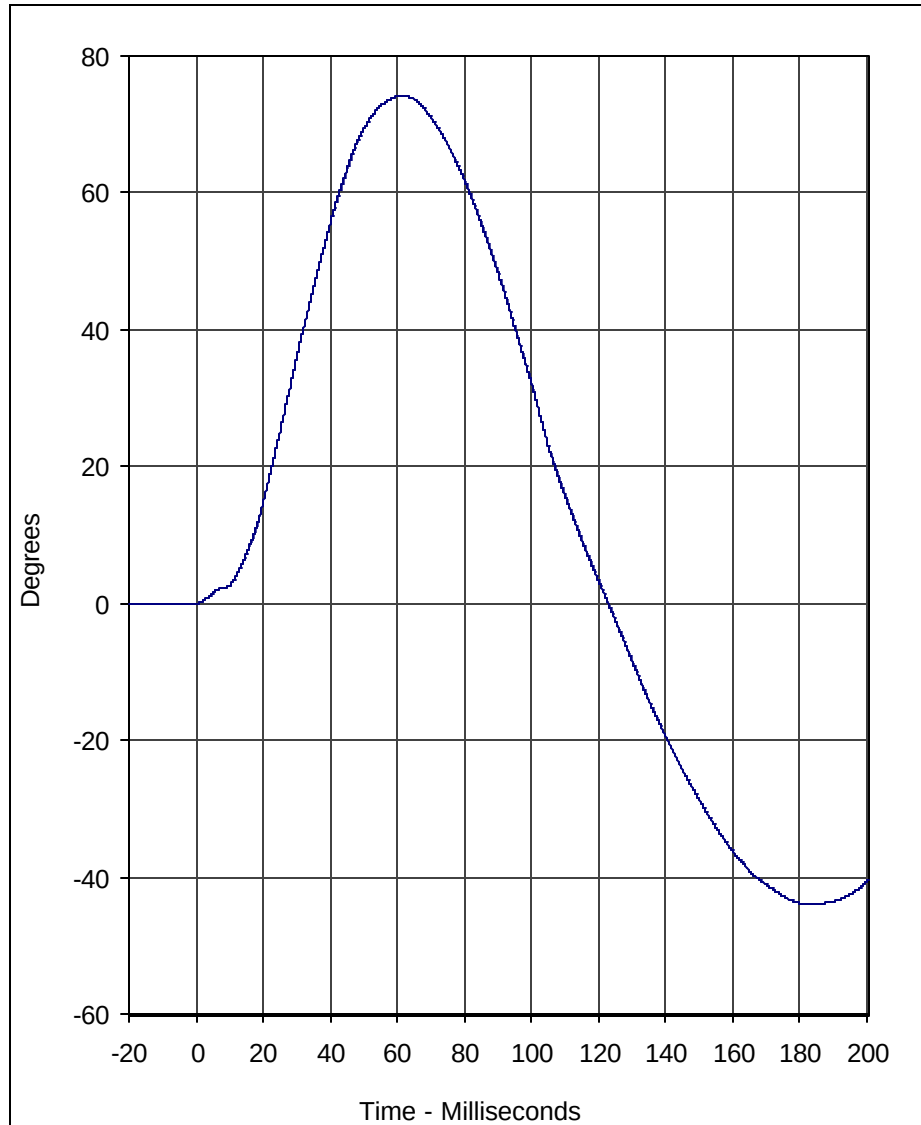
Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 12/1/03



Curve Description				CURNO	Type
Neck Force X				002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	751.6	53.4	-159.0	161.2	600

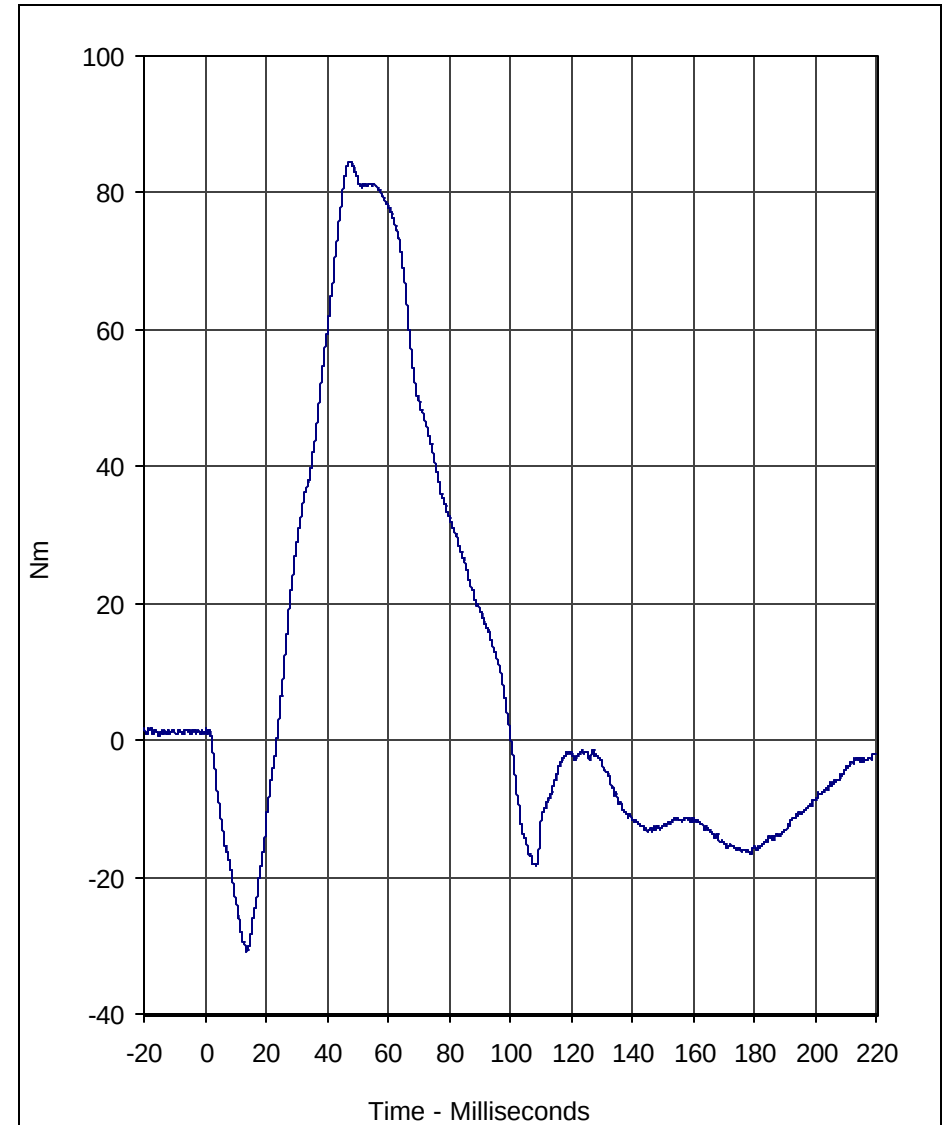
A.T.D. Serial No.: 034
 Test I.D.: NF12A





Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL
Units	Max	Time	Min	Time	SAE Class
Degrees	74.1	61.2	-43.9	182.9	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 12/1/03



Curve Description				CURNO	Type
Moment About Occipital Condyle				004	FIL
Units	Max	Time	Min	Time	SAE Class
Nm	84.6	47.9	-30.8	13.7	600

A.T.D. Serial No.: 034
 Test I.D.: NF12A





Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Extension Test

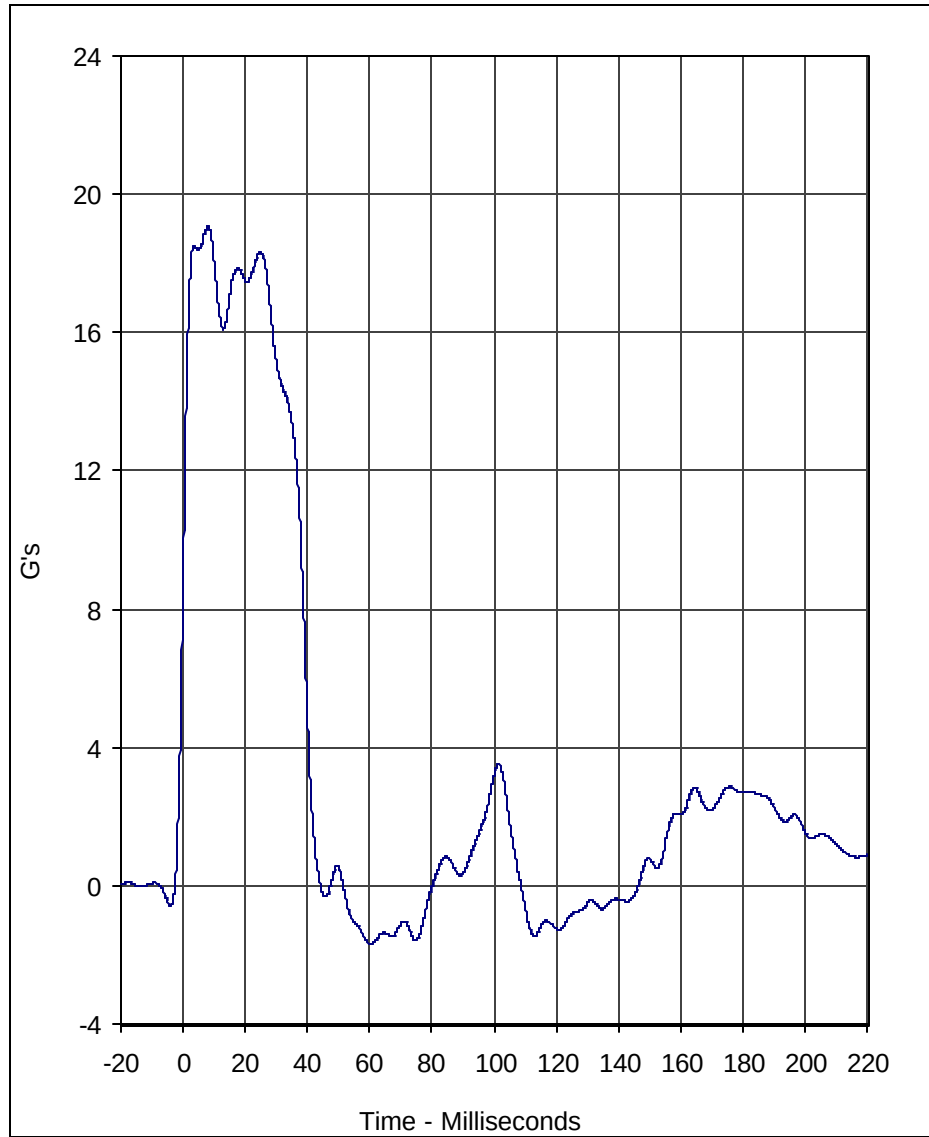
ATD Serial No.: 034

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	5.94 to 6.19	6.13	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.1	Pass
	20 Msec.	G's	14.0 to 19.0	17.5	Pass
	30 Msec.	G's	11.0 to 16.0	15.1	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.1	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	40.0	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	93.7	Pass
	Time	Msec.	72.0 to 82.0	75.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	155.0	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to- 79.9	-61.8	Pass
	Time	Msec.	65.0 to 79.0	66.2	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	137.4	Pass
Overall Test Results					Pass

Laboratory Technician

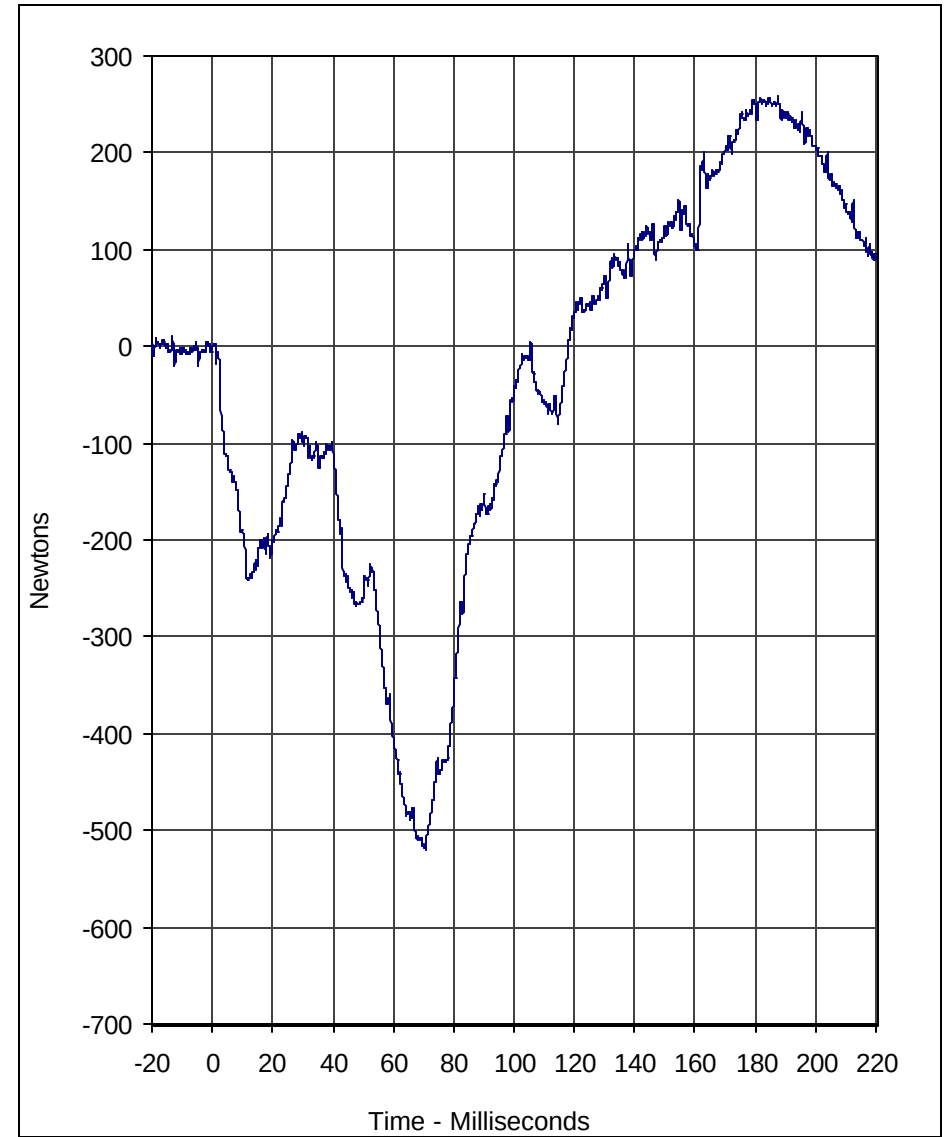
December 1, 2003
Test Date



Curve Description				CURNO	Type
Pendulum Deceleration				001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	19.1	8.0	-1.7	60.3	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 12/1/03

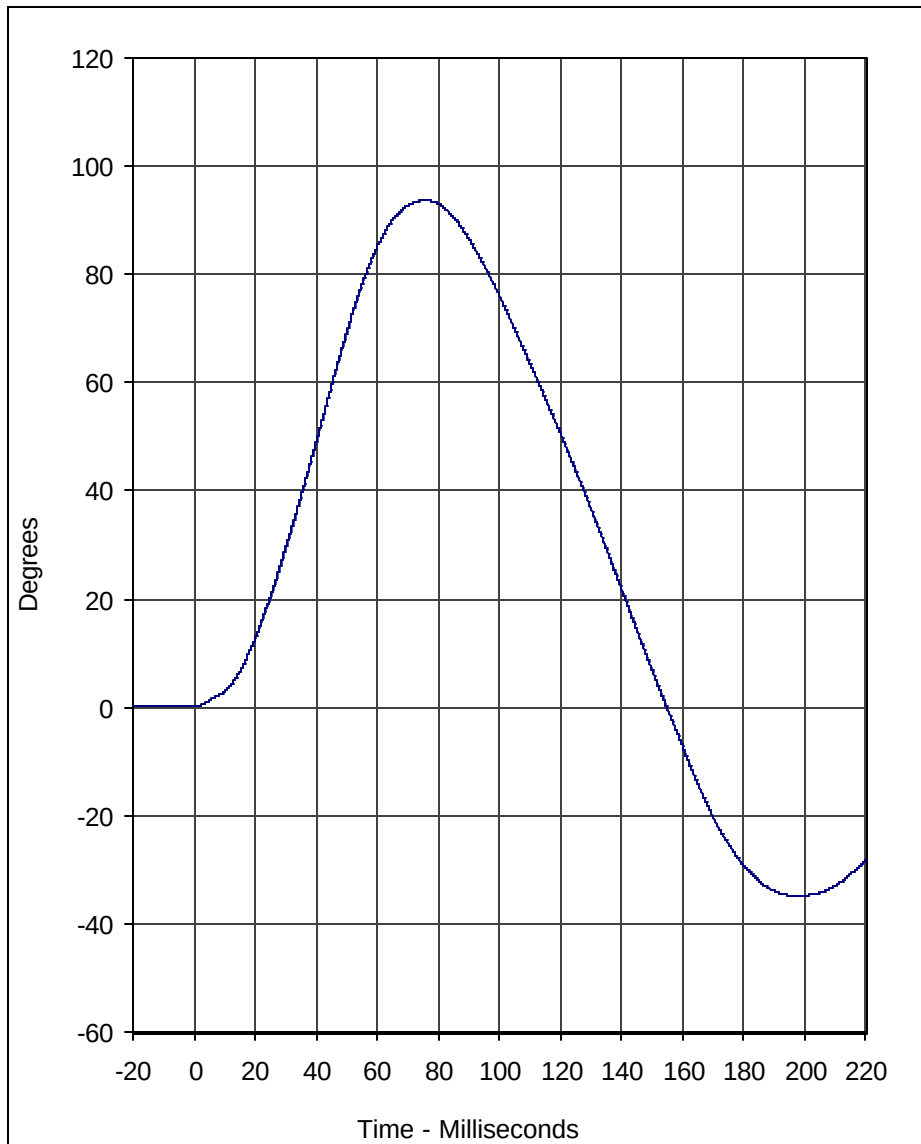


Curve Description				CURNO	Type
Neck Force X				002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	259.3	187.4	-520.3	70.6	600

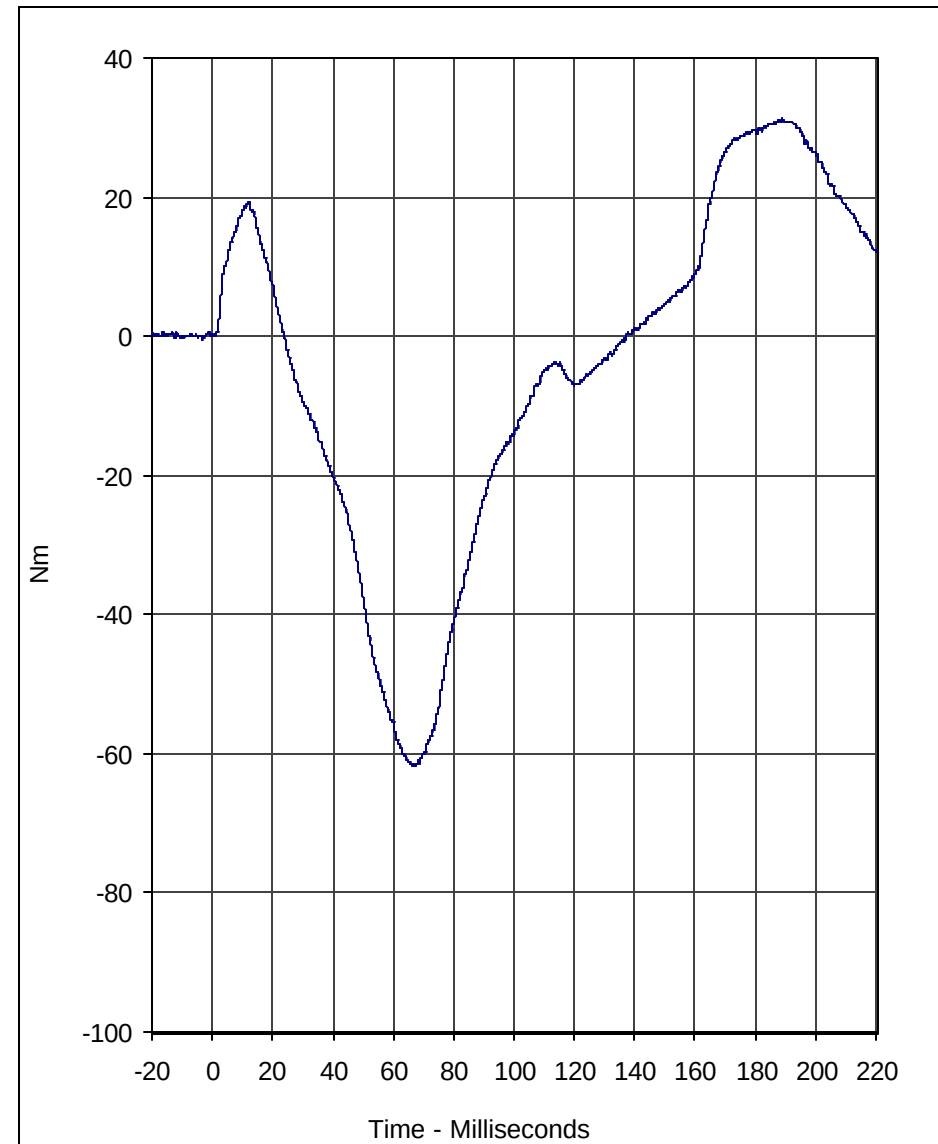
A.T.D. Serial No.: 034
 Test I.D.: NE12A





Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL
Units	Max	Time	Min	Time	SAE Class
Degrees	93.7	75.7	-34.8	198.1	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 12/1/03



Curve Description				CURNO	Type
Moment About Occipital Condyle				004	FIL
Units	Max	Time	Min	Time	SAE Class
Nm	31.3	189.0	-61.8	66.2	600

A.T.D. Serial No.: 034
 Test I.D.: NE12A





Calibration Data Sheet Hybrid III 50th Percentile Male External Measurements

ATD Serial No.: 034

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	880	Pass
B - Shoulder pivot height	mm	505 to 521	520	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	150	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	195	Pass
K - Buttock to knee length	mm	579 to 604	590	Pass
L - Popliteal length	mm	429 to 455	440	Pass
M - Knee pivot height	mm	485 to 500	490	Pass
N - Buttock popliteal length	mm	452 to 477	475	Pass
O - Chest depth	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	255	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	1000	Pass
Z - Waist circumference	mm	836 to 866	845	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	

Laboratory Technician

December 2, 2003

Test Date



Calibration Data Sheet

Hybrid III 50th Percentile Male

Knee Impact Test

ATD Serial No.: 035

Location: Left Knee

Test I.D.: LK11F

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	N	4715 to 5782	5434	Pass
Overall Test Results			Pass	

ATD Serial No.: 035

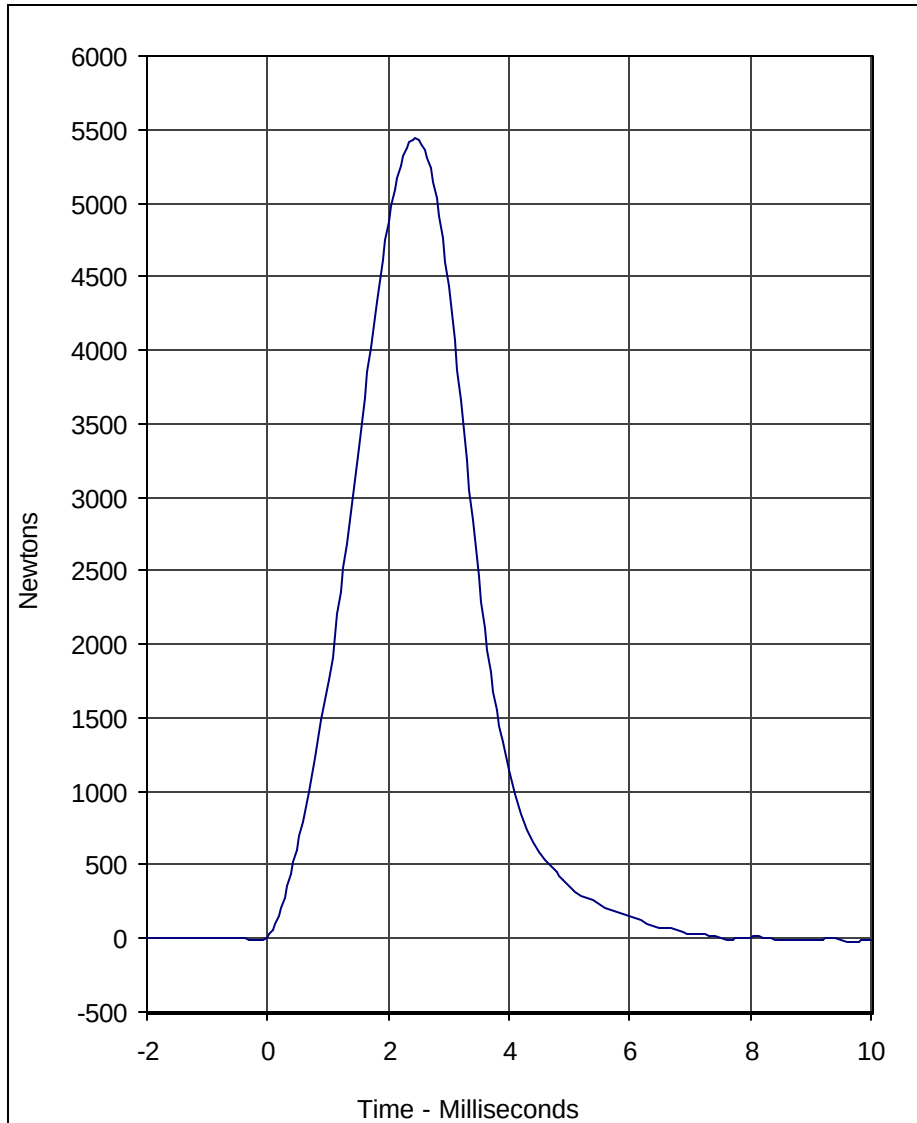
Location: Right Knee

Test I.D.: RK11F

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	N	4715 to 5782	5094	Pass
Overall Test Results			Pass	

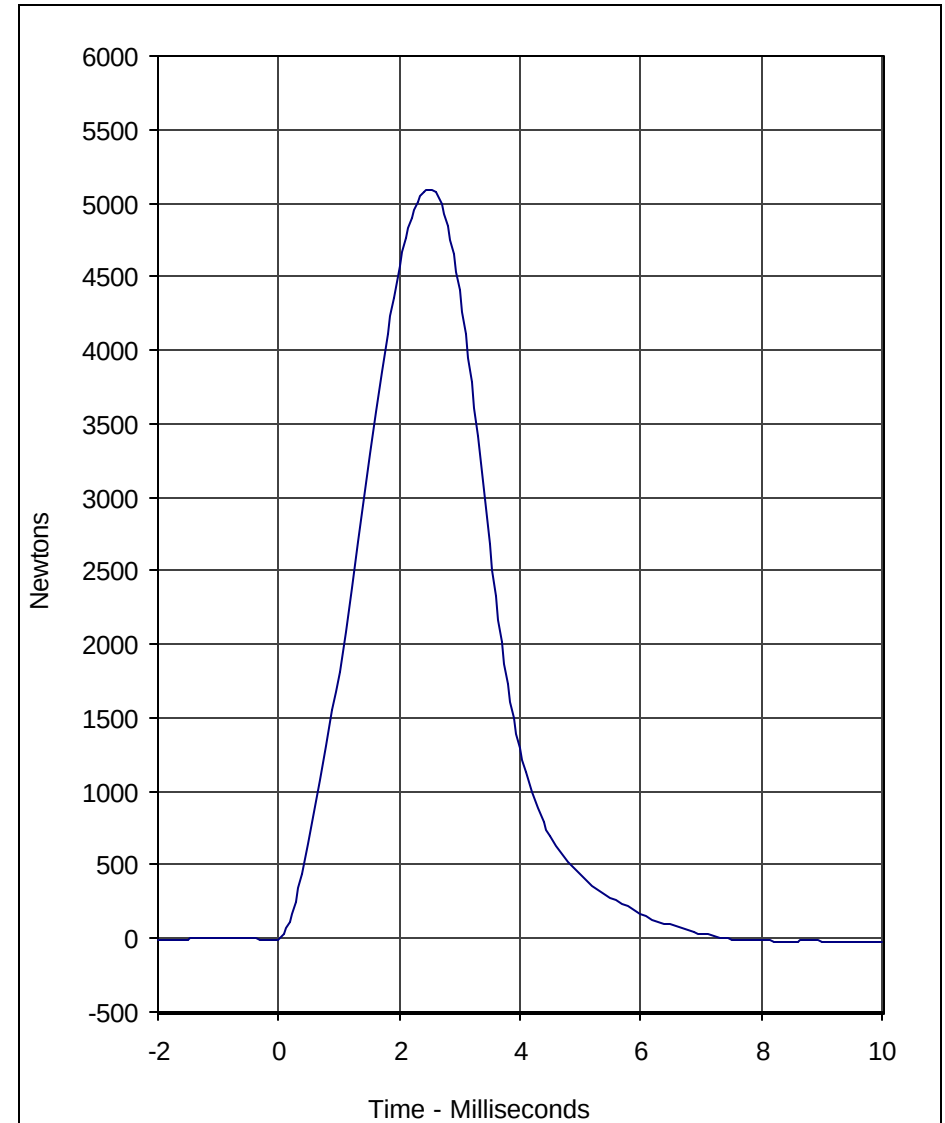
Laboratory Technician

December 1, 2003
Test Date



Curve Description		Location	Test I.D.	CURNO	Type
Probe Force		Left Knee	LK11F	001	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	5433.8	2.4	-20.4	9.7	600

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 Test Date: 12/1/03



Curve Description		Location	Test I.D.	CURNO	Type
Probe Force		Right Knee	RK11F	002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	5094.2	2.5	-29.6	8.4	600

A.T.D. Serial No.: 035





Calibration Data Sheet

Hybrid III 50th Percentile Male

Head Drop Test

ATD Serial No.: 035

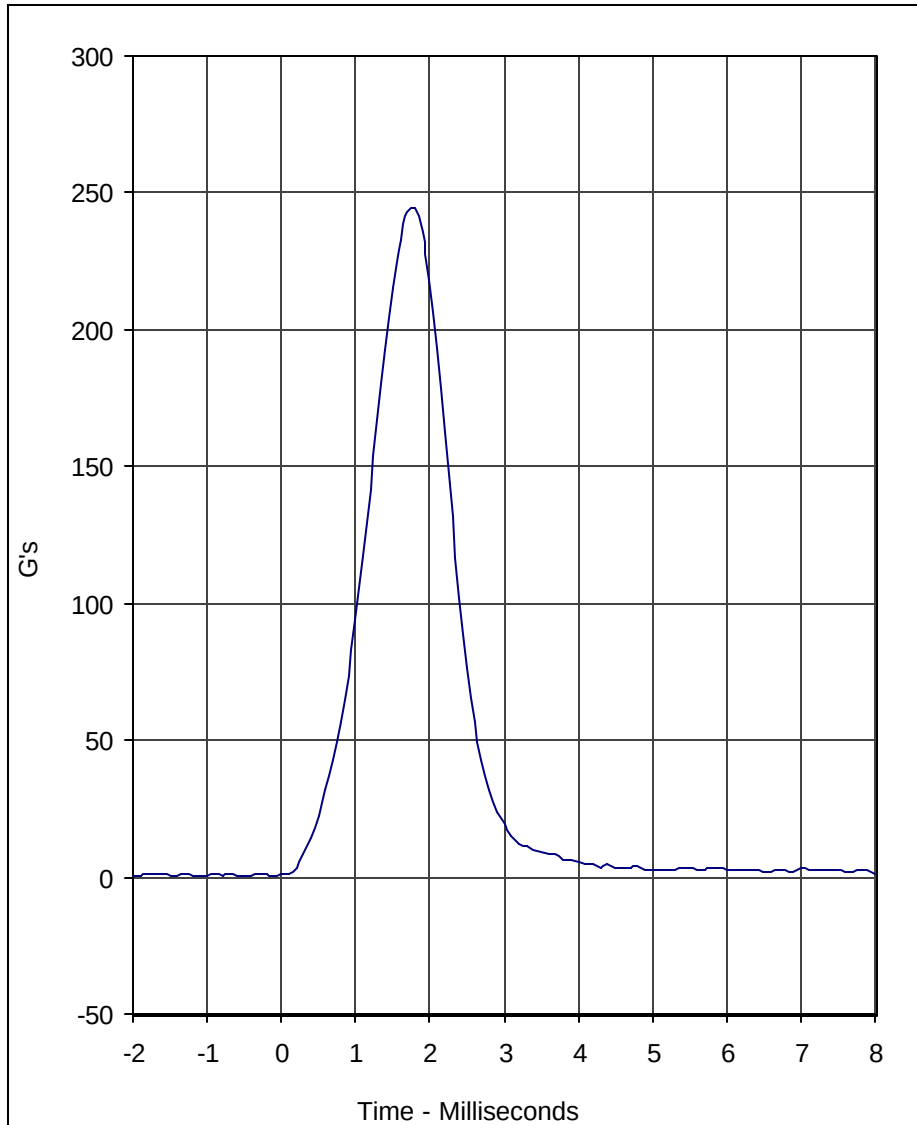
Test I.D.: HD11C

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	244.5	Pass
Peak Lateral Acceleration	G's	≤15.0	3.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

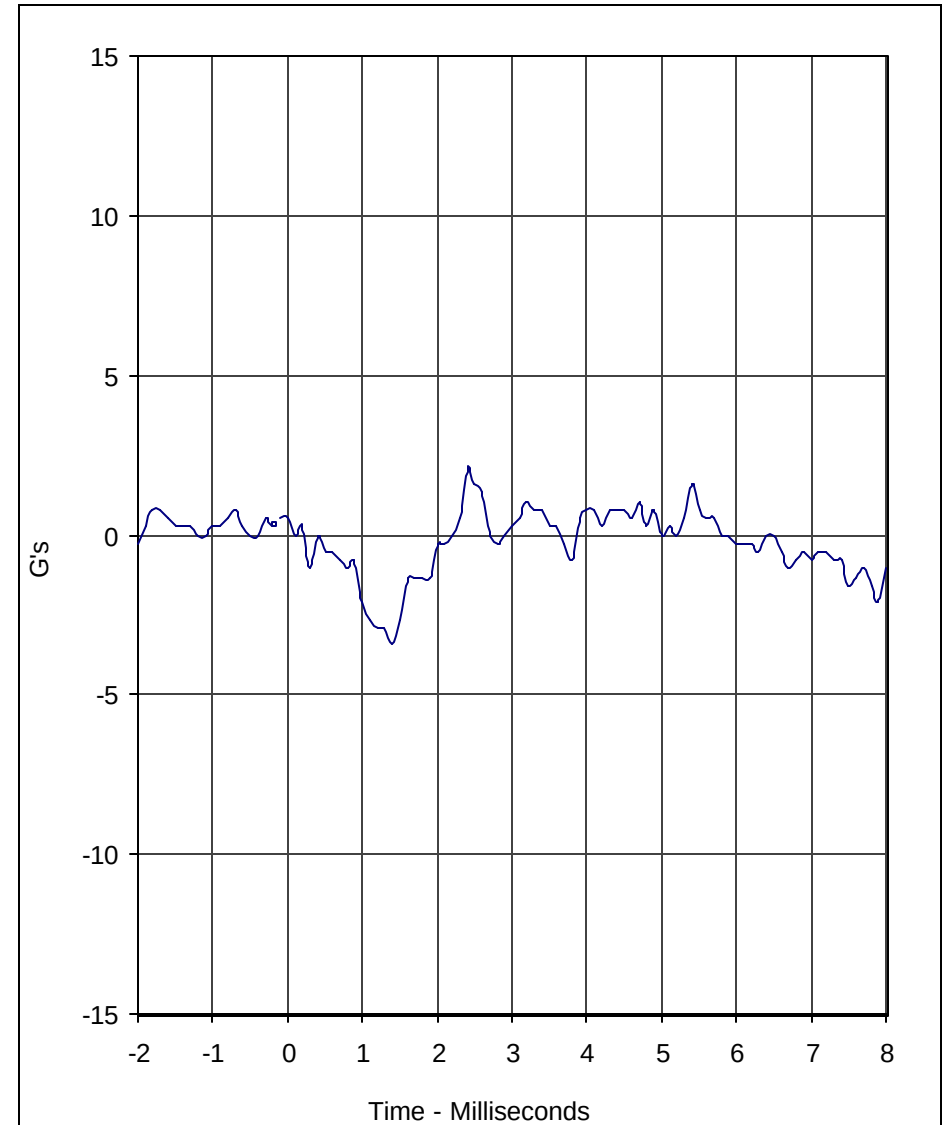
December 1, 2003

Test Date



Curve Description				CURNO	Type
Head Resultant				001	RES
Units	Max	Time	Min	Time	SAE Class
G's	244.5	1.8	0.3	-0.4	1000

Test Program: Hybrid III 50th Percentile Male Head Drop Test
 Test Date: 12/1/03



Curve Description				CURNO	Type
Head Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
G's	2.1	2.4	-3.4	1.4	1000

A.T.D. Serial No.: 035
 Test I.D.: HD11C





Calibration Data Sheet

Hybrid III 50th Percentile Male

Thorax Impact Test

ATD Serial No.: 035

Test I.D.: ch12b

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	5737	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.84	Pass
Internal Hysteresis	%	69 to 85	77.1	Pass
Overall Test Results				Pass

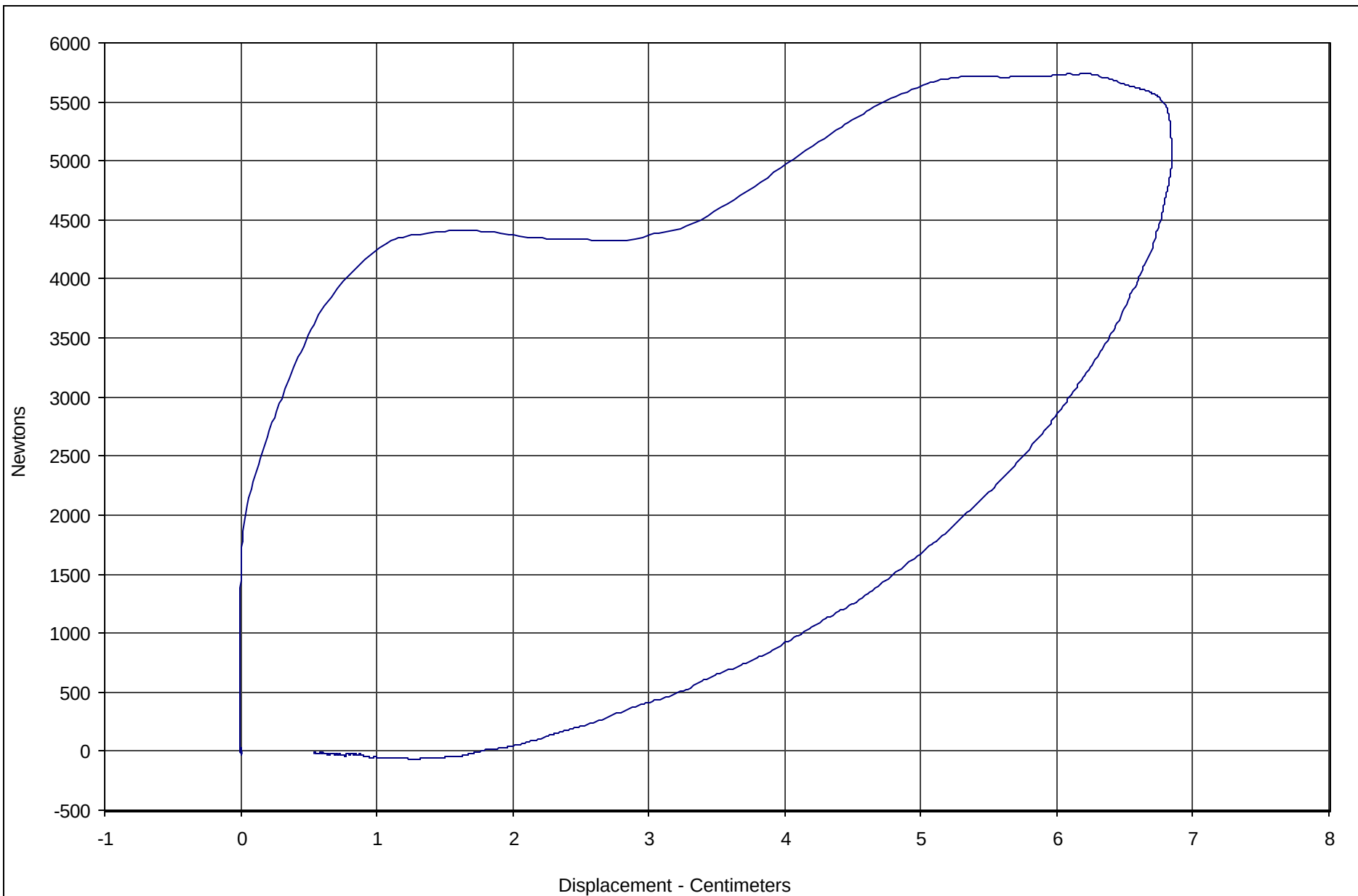
E-18

TR-P24001-01-NC

Laboratory Technician

December 2, 2003

Test Date



Curve Description	CURNO	Type	Hysteresis	Peak Chest Displ.	Peak Probe Force	SAE Class
Probe Force vs. Chest Displacement	001	FIL	77.1	6.84	5737.2	180



Test Program: Hybrid III 50th Percentile Male Thorax Impact

A.T.D. Serial No.: 035

Test Date: 12/2/03

Test I.D.: ch12b



Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Flexion Test

ATD Serial No.: 035

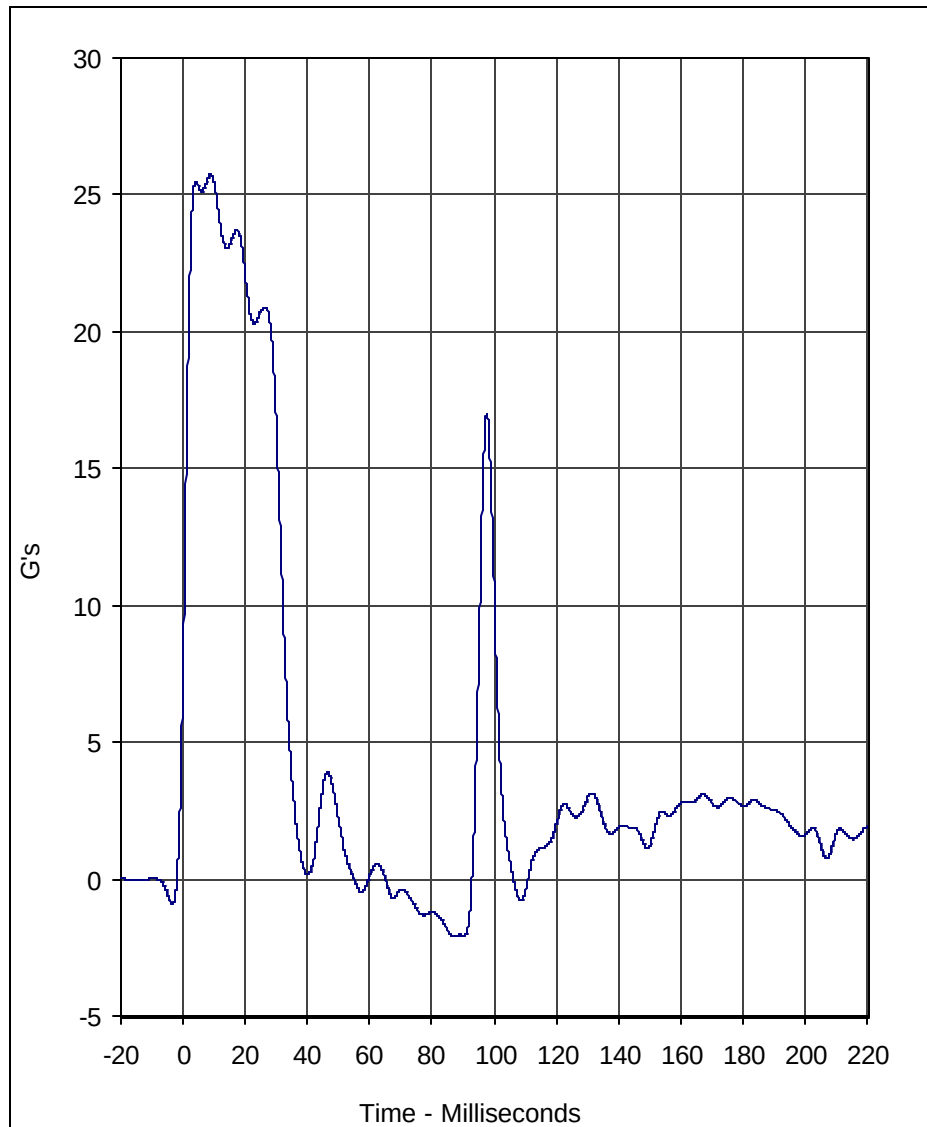
Test I.D.: NF12B

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	25.4	Pass
	20 Msec.	G's	17.6 to 22.6	22.1	Pass
	30 Msec.	G's	12.5 to 18.5	16.7	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.0	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	34.2	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	74.5	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	122.3	Pass
Moment About Occipital Condyle	Maximum	Nm	84.1 to 108.5	90.1	Pass
	Time	Msec.	47.0 to 58.0	51.0	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	104.7	Pass
Overall Test Results					Pass

Laboratory Technician

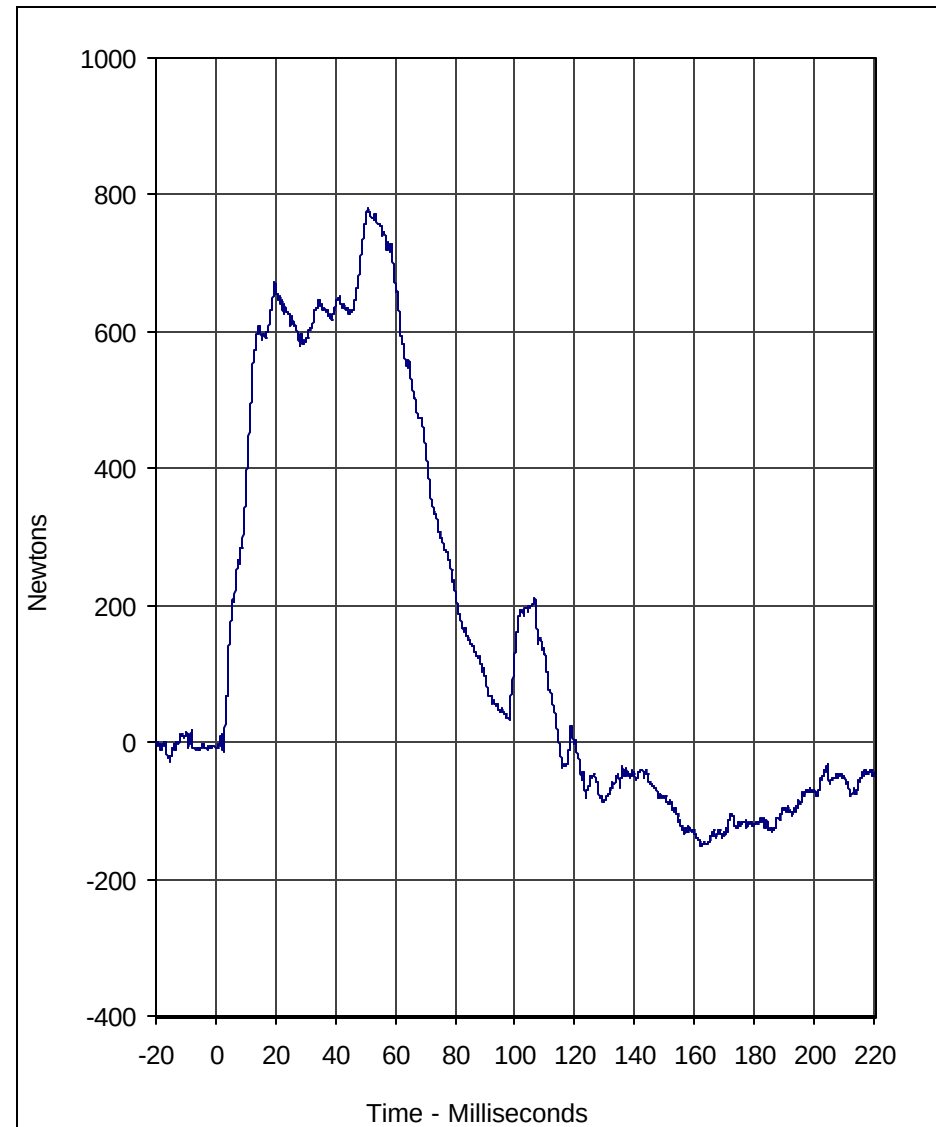
December 1, 2003

Test Date



Curve Description				CURNO	Type
Pendulum Deceleration				001	FIL
Units	Max	Time	Min	Time	SAE Class
G's	25.7	8.9	-2.1	87.2	60

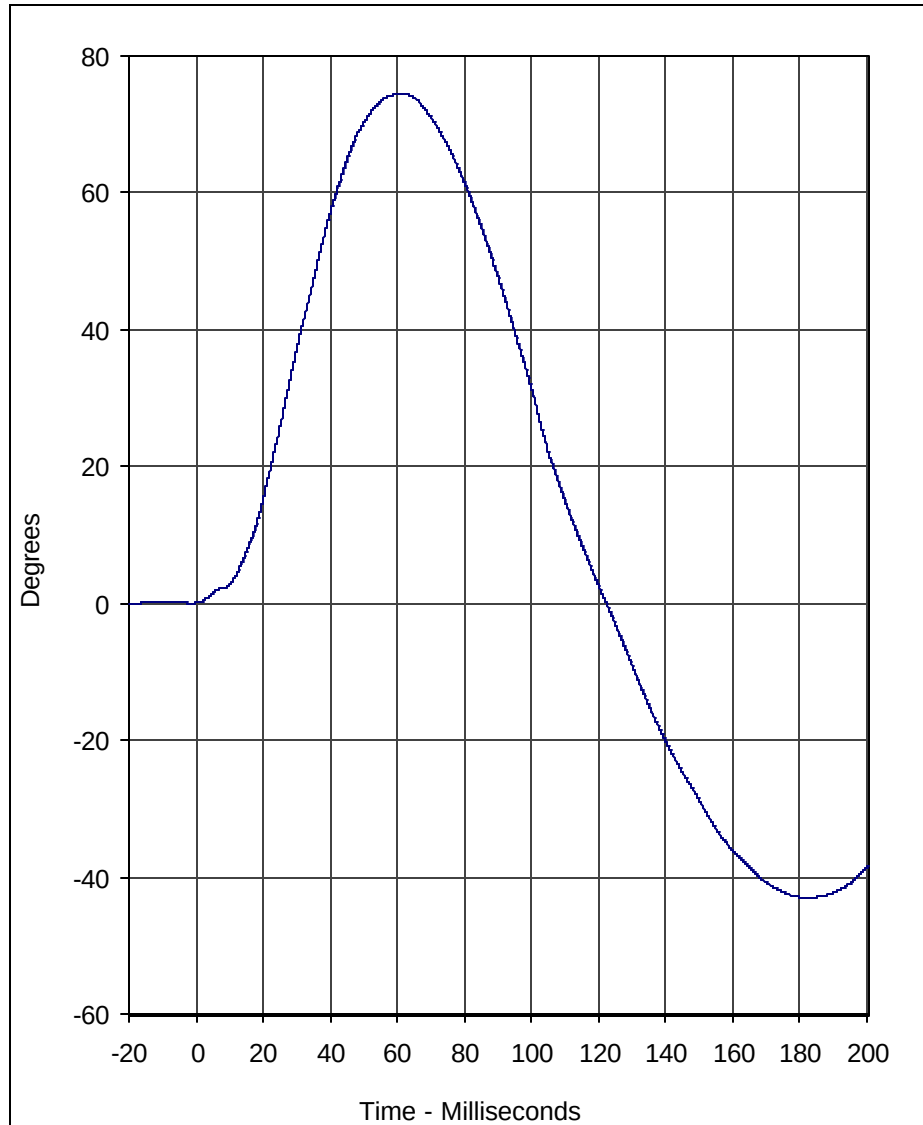
Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 12/1/03



Curve Description				CURNO	Type
Neck Force X				002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	779.7	50.7	-152.7	162.2	600

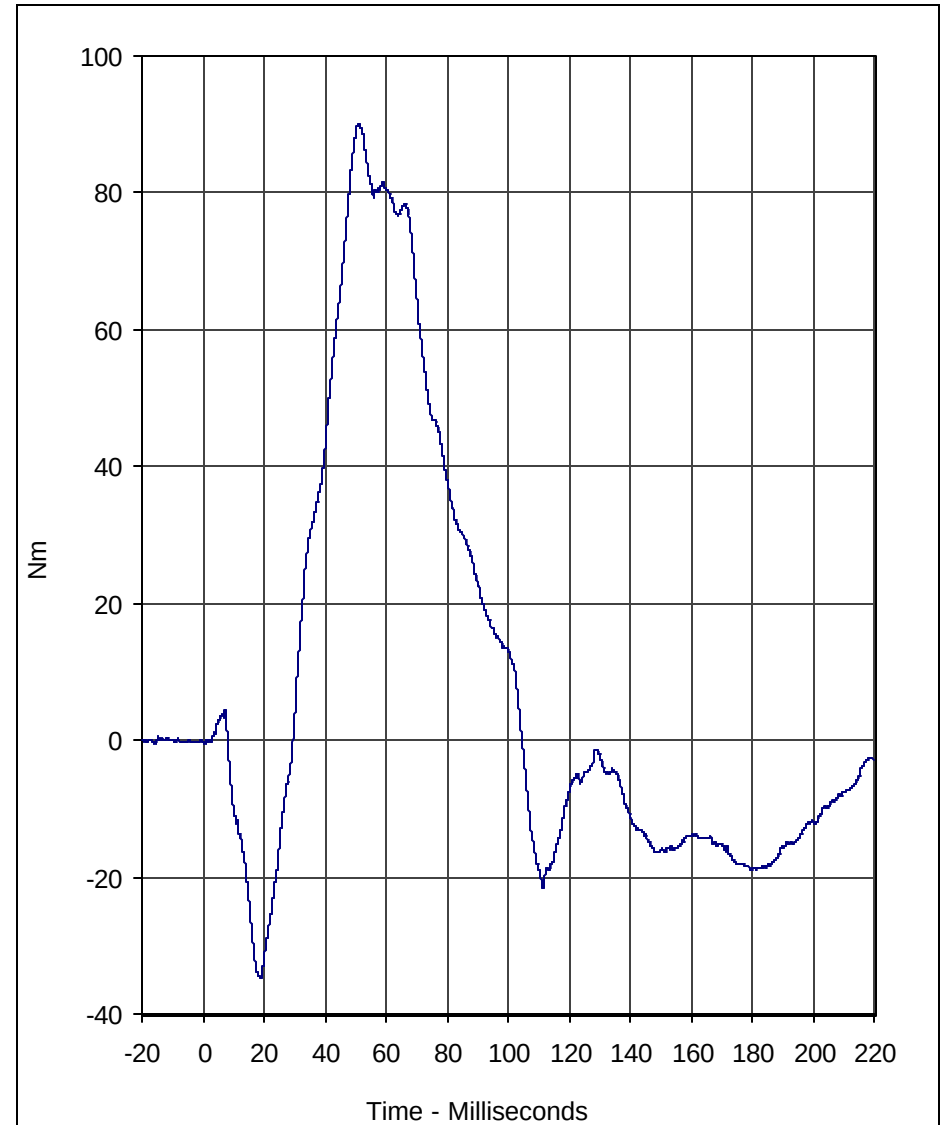
A.T.D. Serial No.: 035
 Test I.D.: NF12B





Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL
Units	Max	Time	Min	Time	SAE Class
Degrees	74.5	61.2	-43.0	182.7	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 12/1/03



Curve Description				CURNO	Type
Moment About Occipital Condyle				004	FIL
Units	Max	Time	Min	Time	SAE Class
Nm	90.1	51.0	-34.9	18.9	600

A.T.D. Serial No.: 035
 Test I.D.: NF12B





Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Extension Test

ATD Serial No.: 035

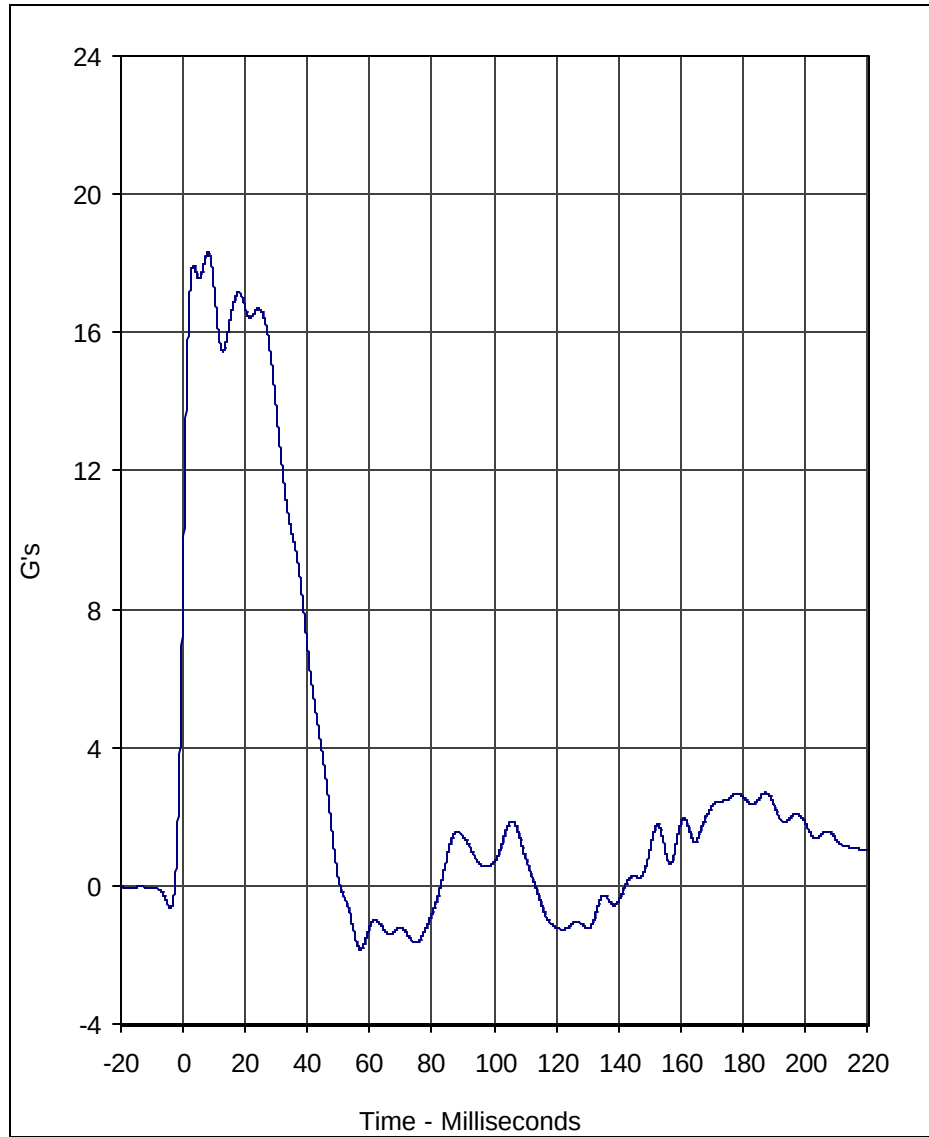
Test I.D.: NE12B

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	6.04	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.3	Pass
	20 Msec.	G's	14.0 to 19.0	16.7	Pass
	30 Msec.	G's	11.0 to 16.0	13.8	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	13.8	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	42.8	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	96.7	Pass
	Time	Msec.	72.0 to 82.0	78.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	158.4	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to- 79.9	-63.3	Pass
	Time	Msec.	65.0 to 79.0	68.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	141.9	Pass
Overall Test Results					Pass

Laboratory Technician

December 1, 2003

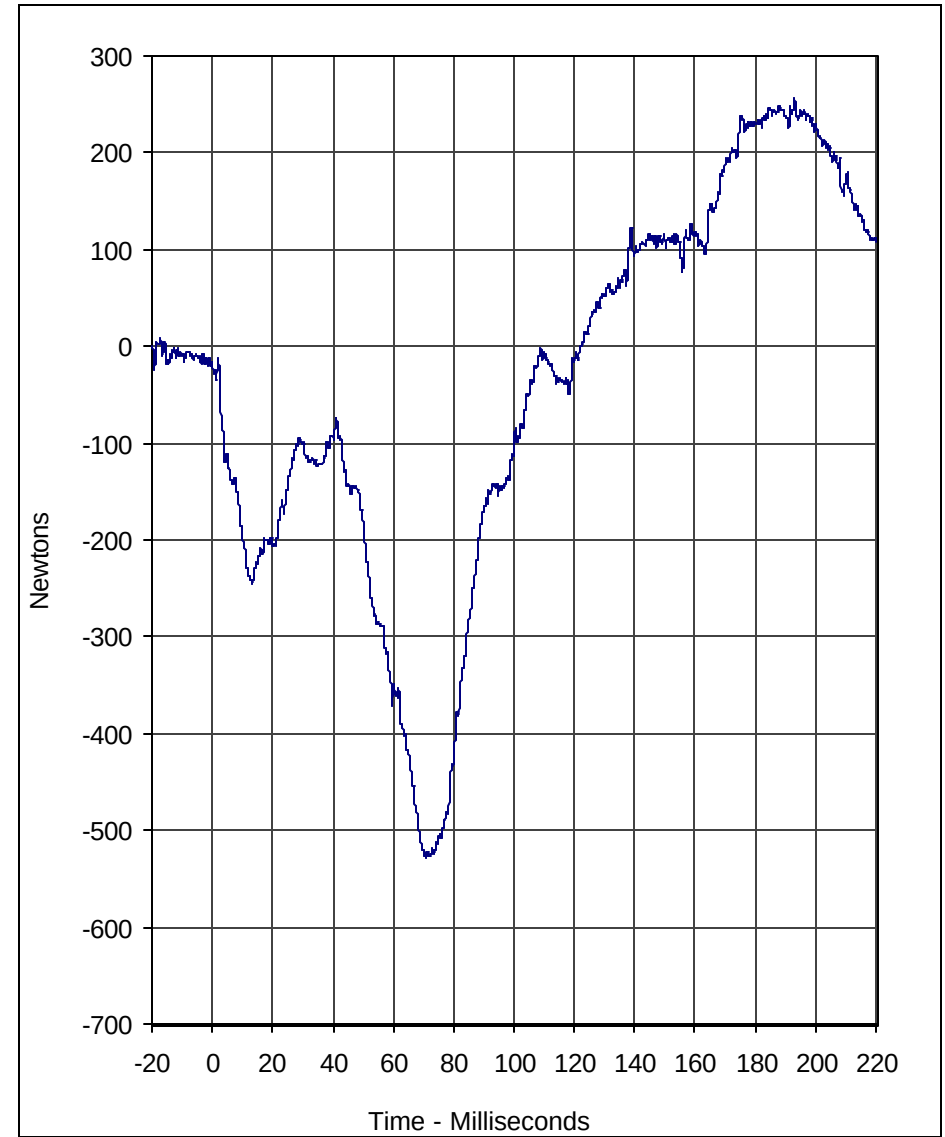
Test Date



Curve Description				CURNO	Type
Pendulum Deceleration				001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	18.3	8.1	-1.8	57.0	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 12/1/03

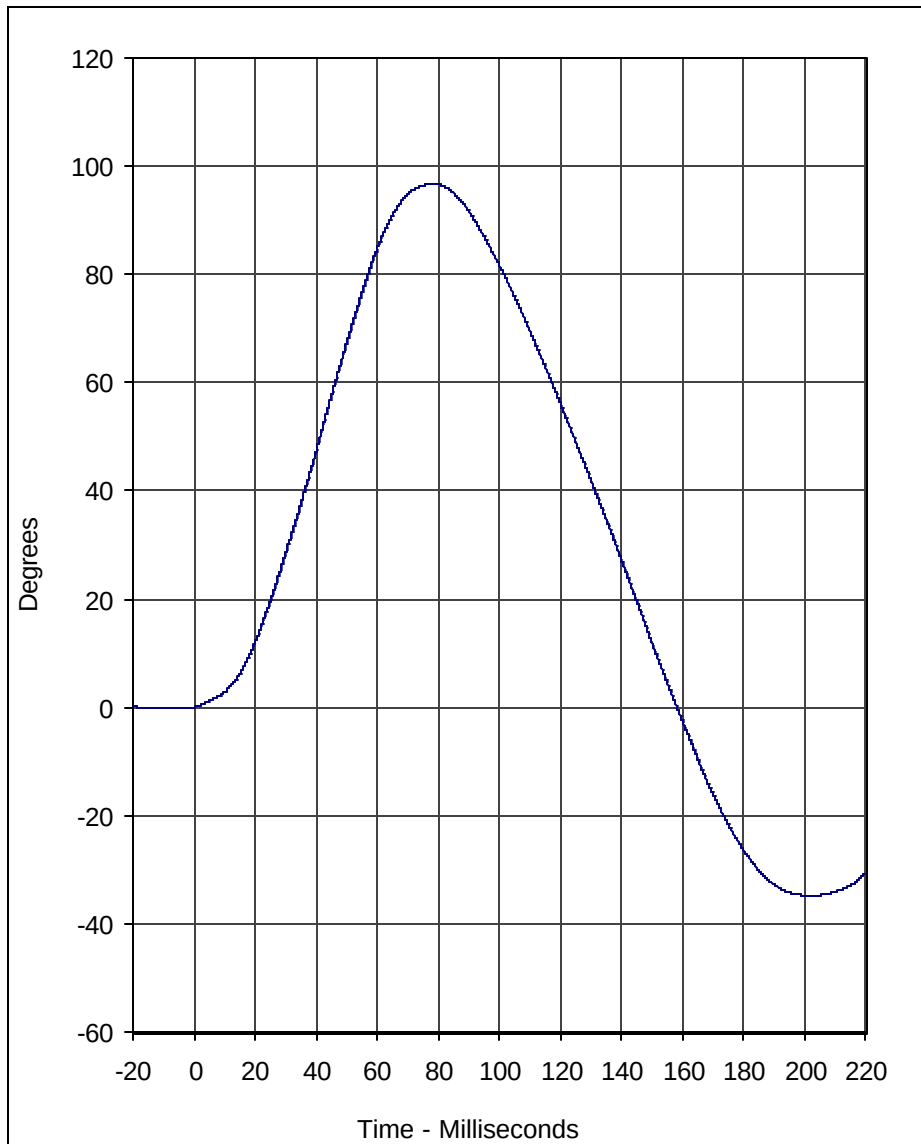


Curve Description				CURNO	Type
Neck Force X				002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	257.2	193.0	-528.7	70.7	600

A.T.D. Serial No.: 035
 Test I.D.: NE12B

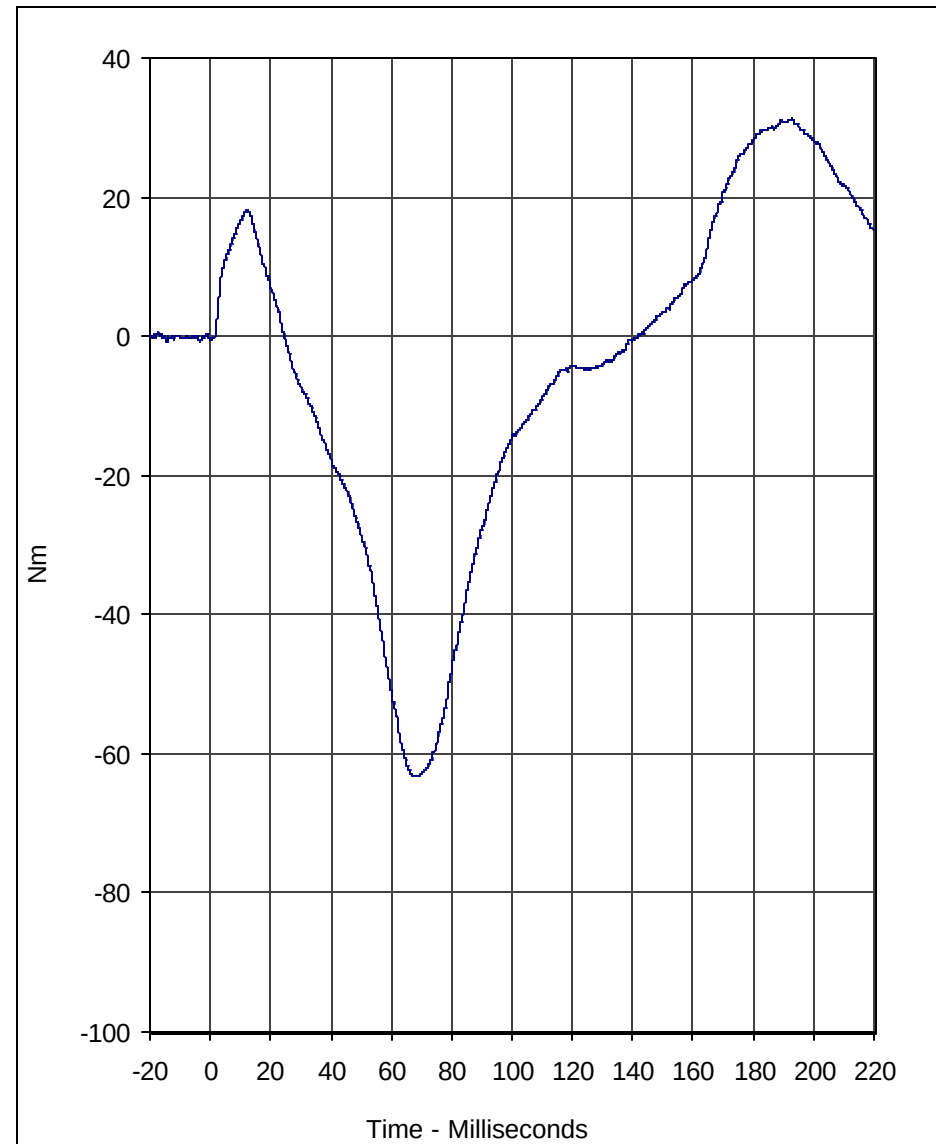




Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	96.7	78.4	-34.8	203.5	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 12/1/03



Curve Description				CURNO	Type
Moment About Occipital Condyle				004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	31.2	193.0	-63.3	68.1	600

A.T.D. Serial No.: 035
 Test I.D.: NE12B





Calibration Data Sheet

Hybrid III 50th Percentile Male

External Measurements

ATD Serial No.: 035

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	515	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	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	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	440	Pass
M - Knee pivot height	mm	485 to 500	495	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	255	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	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results			Pass	

Laboratory Technician

December 2, 2003

Test Date

APPENDIX F

CHILD RESTRAINT SYSTEM

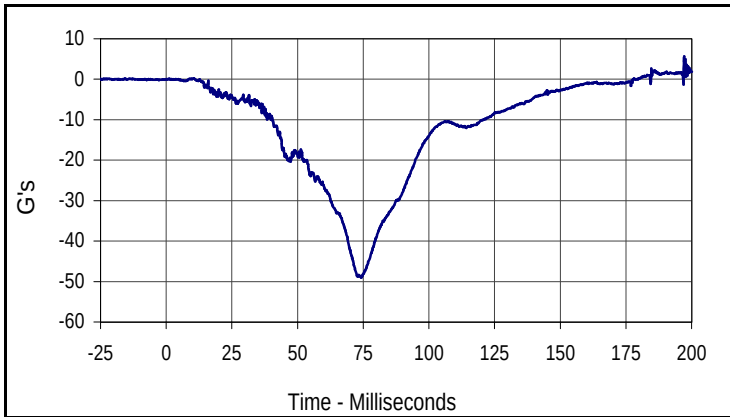
(NOT APPLICABLE FOR THIS TEST)

APPENDIX G

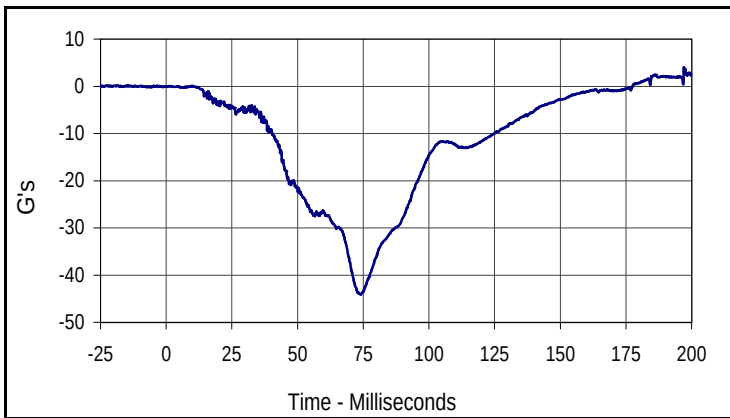
NINE ACCELEROMETER ARRAY HEAD

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

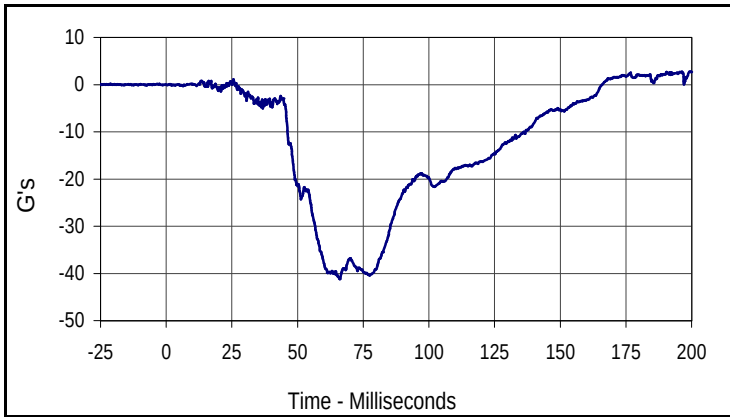
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Driver Head Primary X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
5.7	197.2	-49.0	74.3



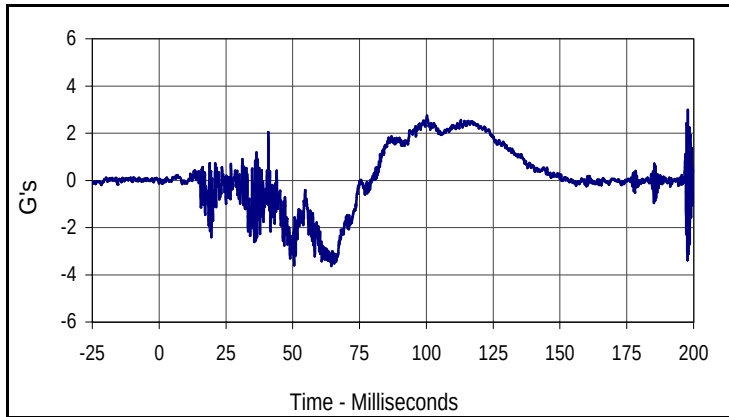
Curve Description			
Driver NAHA Yarm-X			
CURNO	Type	SAE Class	Units
136	FIL	1000	G's
Max	Time	Min	Time
4.0	197.1	-44.1	74.0



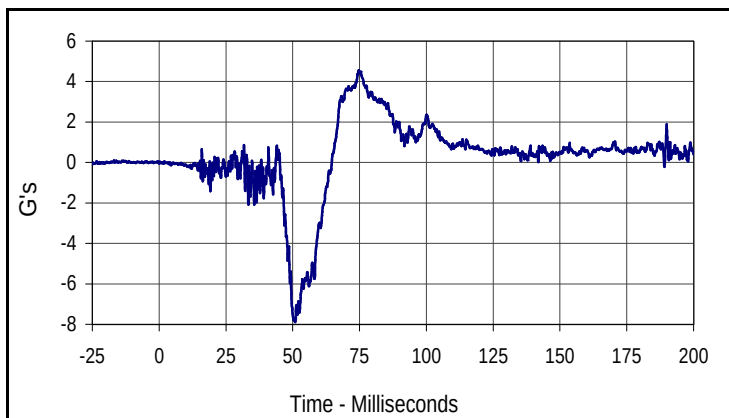
Curve Description			
Driver NAHA Zarm-X			
CURNO	Type	SAE Class	Units
138	FIL	1000	G's
Max	Time	Min	Time
2.8	196.2	-41.2	66.1

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

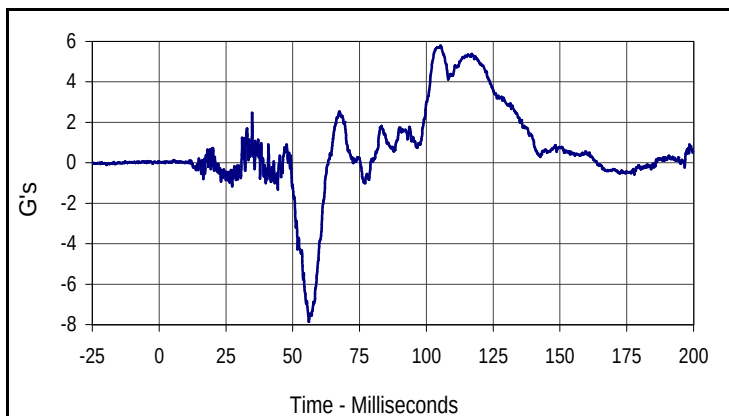
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Driver Head Primary Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.0	197.9	-3.6	64.5



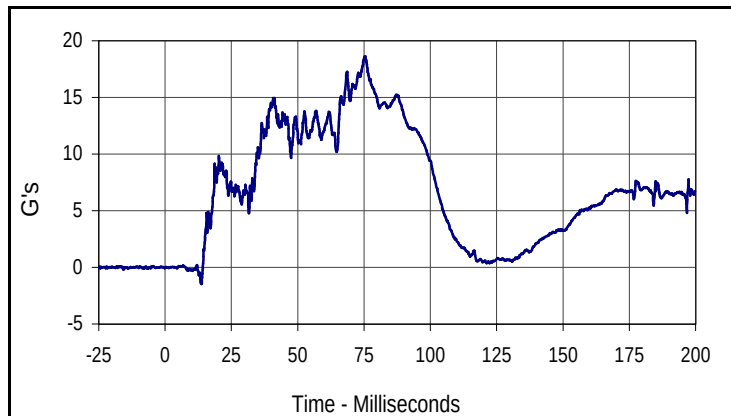
Curve Description			
Driver NAHA Xarm-Y			
CURNO	Type	SAE Class	Units
134	FIL	1000	G's
Max	Time	Min	Time
4.6	74.7	-7.9	50.9



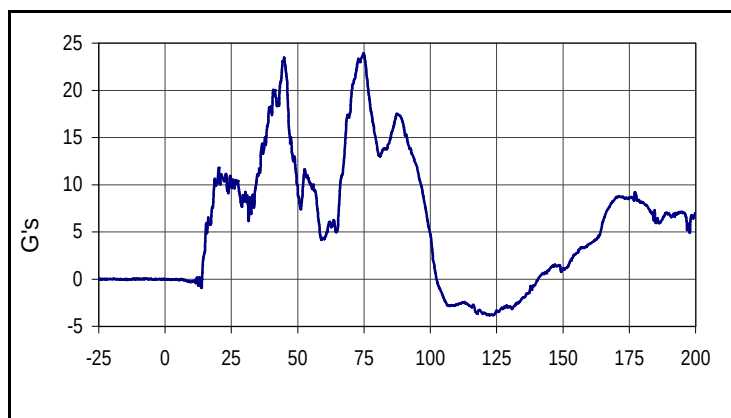
Curve Description			
Driver NAHA Zarm-Y			
CURNO	Type	SAE Class	Units
139	FIL	1000	G's
Max	Time	Min	Time
5.8	105.3	-7.9	56.1

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

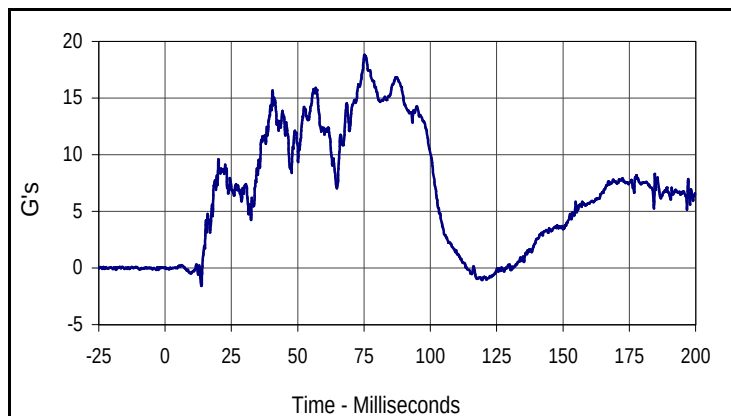
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Driver Head Primary Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
18.6	75.2	-1.5	13.7



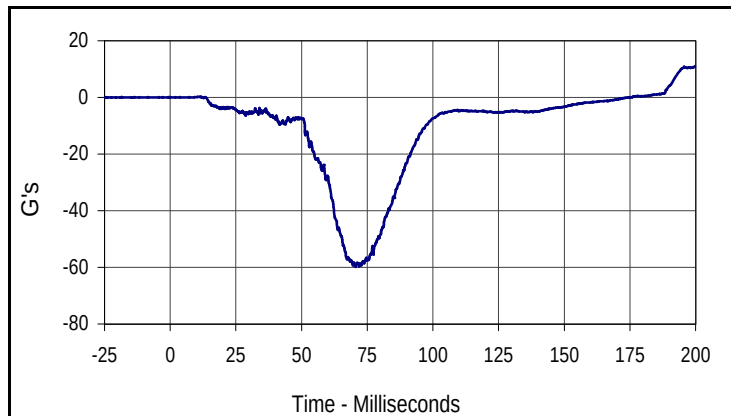
Curve Description			
Driver NAHA Xarm-Z			
CURNO	Type	SAE Class	Units
135	FIL	1000	G's
Max	Time	Min	Time
23.9	74.9	-3.9	123.7



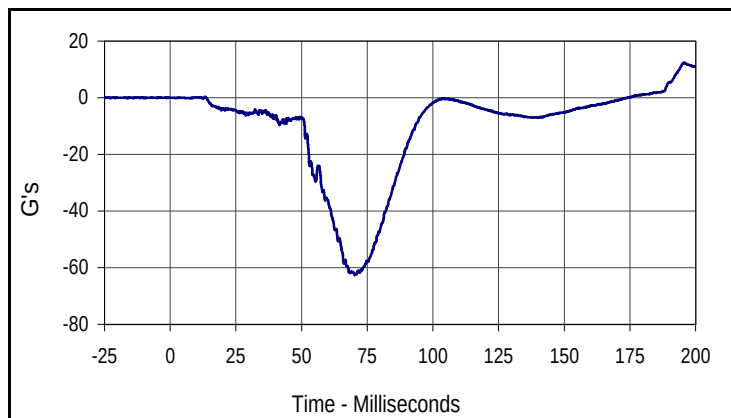
Curve Description			
Driver NAHA Yarm-Z			
CURNO	Type	SAE Class	Units
137	FIL	1000	G's
Max	Time	Min	Time
18.8	75.1	-1.6	13.7

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

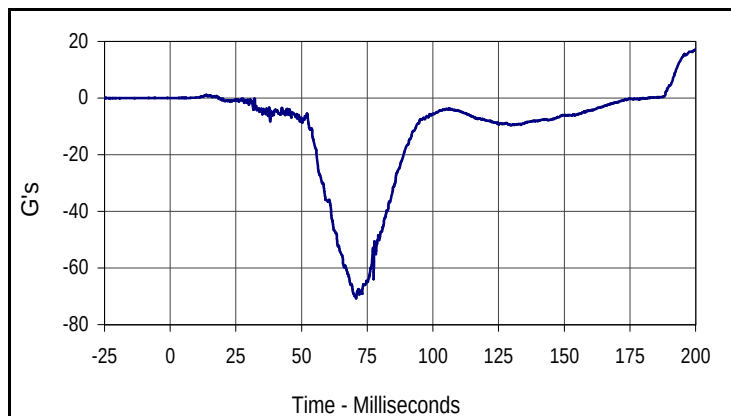
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Passenger Head Primary X			
CURNO	Type	SAE Class	Units
045	FIL	1000	G's
Max	Time	Min	Time
11.1	200.0	-59.9	70.6



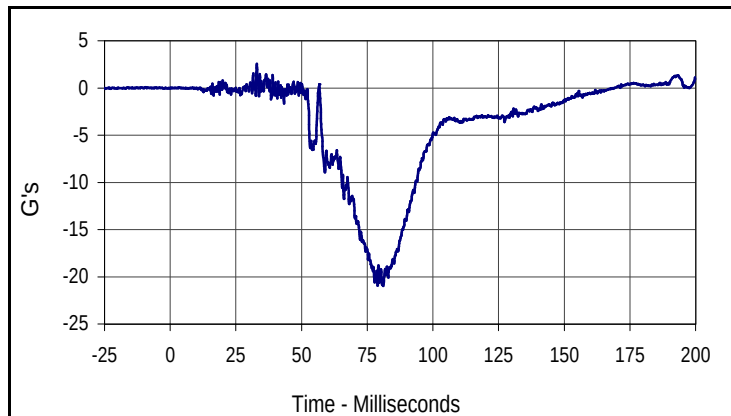
Curve Description			
Passenger NAHA Yarm-X			
CURNO	Type	SAE Class	Units
142	FIL	1000	G's
Max	Time	Min	Time
12.4	195.6	-62.6	70.4



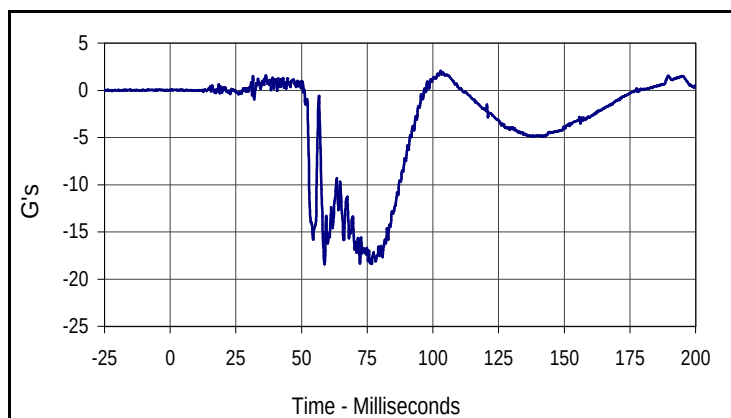
Curve Description			
Passenger NAHA Zarm-X			
CURNO	Type	SAE Class	Units
144	FIL	1000	G's
Max	Time	Min	Time
17.1	200.0	-70.7	70.8

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

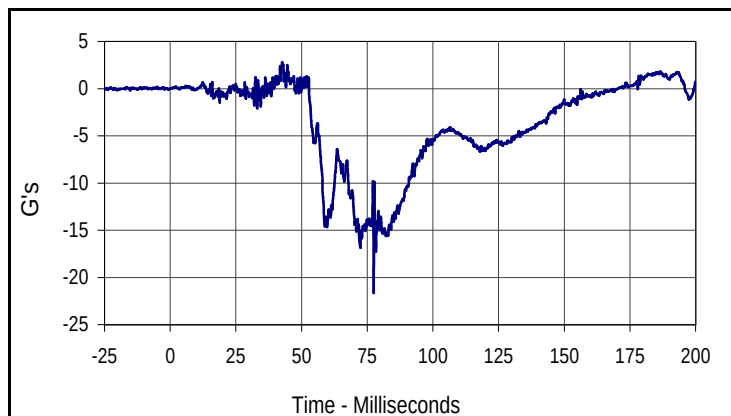
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Passenger Head Primary Y			
CURNO	Type	SAE Class	Units
046	FIL	1000	G's
Max	Time	Min	Time
2.6	33.0	-21.0	81.1



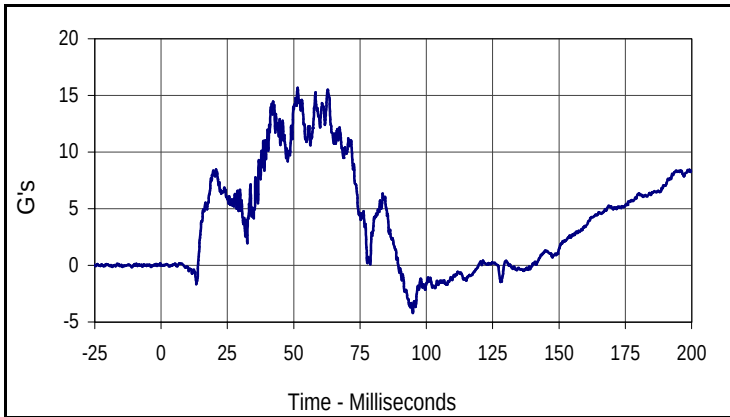
Curve Description			
Passenger NAHA Xarm-Y			
CURNO	Type	SAE Class	Units
140	FIL	1000	G's
Max	Time	Min	Time
2.1	102.9	-18.4	58.8



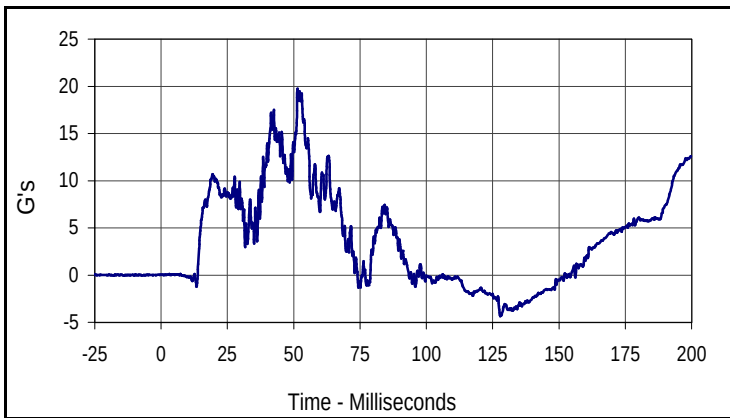
Curve Description			
Passenger NAHA Zarm-Y			
CURNO	Type	SAE Class	Units
145	FIL	1000	G's
Max	Time	Min	Time
2.8	42.6	-21.6	77.5

Test Vehicle: 2004 Hyundai Accent 2 Door Coupe
 Test Program: 2004 NHTSA 35mph NCAP

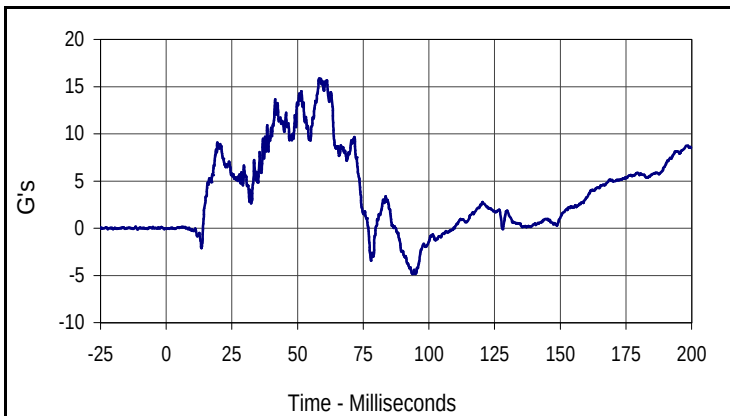
Test Date: 12/4/03
 NHTSA No.: M40502



Curve Description			
Passenger Head Primary Z			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
15.7	51.5	-4.2	94.9



Curve Description			
Passenger NAHA Xarm-Z			
CURNO	Type	SAE Class	Units
141	FIL	1000	G's
Max	Time	Min	Time
19.8	51.5	-4.4	127.8



Curve Description			
Passenger NAHA Yarm-Z			
CURNO	Type	SAE Class	Units
143	FIL	1000	G's
Max	Time	Min	Time
15.9	58.3	-4.9	93.8