

REPORT NUMBER TR-P24001-12-NC

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

**DAEWOO MOTOR & TECHNOLOGY COMPANY
2004 CHEVROLET AVEO
4 DOOR SEDAN**

NHTSA NUMBER: M40105

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



2/05/04

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
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OFFICE OF CRASHWORTHINESS STANDARDS
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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2004 Chevrolet Aveo 4 Door Sedan at Karco Engineering, LLC on 2/05/04. 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 10.6 degrees Celcius. The vehicle's maximum post test static crush is 531mm to the right of 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	371.9	448.5
Max. Chest Accel. (3 msec Clip)		G's	60	44.1	39.2
Left Femur Force		Newtons	10008	-2682.3	-5106.4
Right Femur Force		Newtons	10008	-7124.6	-1719.2
17. Key Words 56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) 2004 Chevrolet Aveo 4 Door Sedan NHTSA No. M40105				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 M40105

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the New Car Assessment Program (NCAP) sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-02005. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph (48.3 km/h) requirements.

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 Chevrolet Aveo 4 Door Sedan at a velocity of 55.86 km/h. The test was performed at Karco Engineering, LLC on February 5, 2004.

One real-time and sixteen (16) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

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

Both ATDs were fully instrumented with nine accelerometer array heads, chest and pelvis triaxial accelerometers, chest displacement potentiometers, 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. 35) and the right-front passenger (position 2) ATD (Serial No. 34) were calibrated two tests 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). Appendix G contains the Nine Accelerometer Array Head 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 531 mm to the right of the centerline 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 dash.

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 glove box.

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	371.9	44.1	-23.0	-2682.3	-7124.6	193.6
Passenger	448.5	39.2	-24.3	-5106.4	-1719.2	0*

* Channel Failed

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

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 Chevrolet Aveo 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
Test Date: 2/05/04

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	55.86
Test Weight	kg	1334
Impact Angle	degrees	0
Average Rebound	mm	656
Maximum Static Crush	mm	531

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	Remained closed, opened w/o tools	Remained closed, opened w/o tools
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. 35	50% Male Hybrid III No. 34
Head Contact	Airbag	Airbag
Chest Contact	Airbag	Airbag
Abdomen Contact	None	None
Left Knee Contact	Dash	Glovebox
Right Knee Contact	Dash	Glovebox

16mm MOVIE COVERAGE

High Speed	16
Real Time	1
Total	17

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 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M40105	Anti-Lock Brakes	No
Make	Chevrolet	All Wheel Drive	No
Model	Aveo	Power Steering	Yes
Body Style	4-Door	Driver Front Airbag	Yes
Vin No.	KL1TD52614B130483	Driver Side Airbag	No
Color	White	Driver Head Airbag	No
Delivery Date	1/26/2004	Driver Curtain Airbag	No
Odometer	85.0 mi.	Pass. Airbag	Yes
Dealer	Crest Chevrolet	Pass. Side Airbag	No
Transmission	5 Speed Manual	Pass. Head Airbag	No
Final Drive	Front	Pass. Curtain Airbag	No
Type/No. Cyl.	4 Cylinder	Pre-Tensioners	Yes
Engine Disp. (L)	1.6	Load Limiters	Yes
Engine Placement	Transverse	Bucket Seats	Yes
Roof Rack	No	Air. Cond.	Yes
Sunroof/T-Top	No	AM/FM Cassette	Yes
Tinted Glass	No	Tilt Steering	Yes
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.

No

DATA FROM CERTIFICATION LABEL

Manufactured By	Daewoo Auto & Technology Company	GVWR (kg)	1519
Date of Manufacture	Oct-04	GAWR Front (kg)	830
		GAWR Rear (kg)	801

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

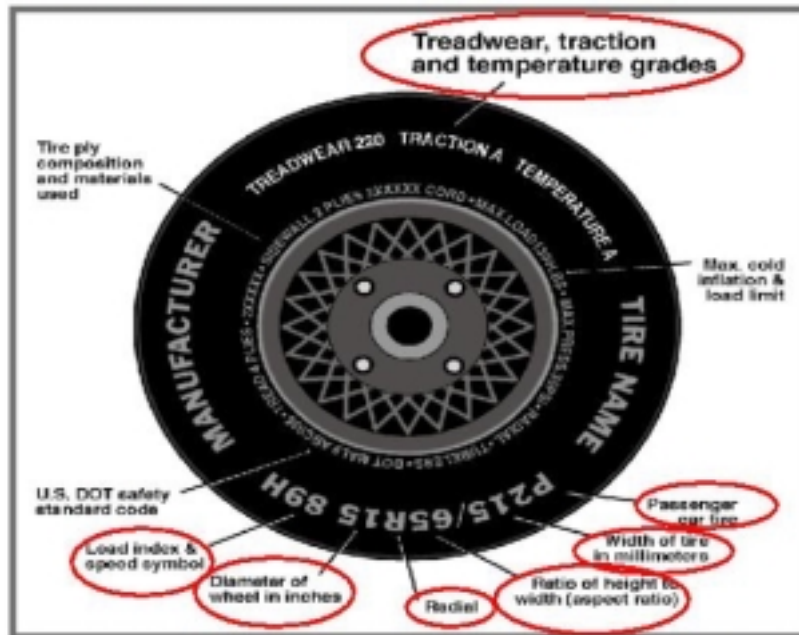
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bucket	None	
Number of Occupants	2	3	0	5
Capacity Weight (VCW) (kg)				390
Cargo Weight (RCLW) (kg)				49

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

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

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)	210	210
Recommended Tire Size	P185/60R14	P185/60R14
Tire Size on Vehicle	P185/60R14	P185/60R14
Tire Manufacturer	Kumho	Kumho
Treadwear	380	380
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1	1
Tire Plies Body	2	2
Load Index/Speed Symbol	82H	82H
Tire Material	Polyester/Steel	Polyester/Steel
DOT Safety Code Right	Y0R8YP1A4103	Y0R8YP1A4103
DOT Safety Code Left	Y0R8YP1A4103	Y0R8YP1A4103

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

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	354	222		380	279	
Right	kg	348	216		395	280	
Ratio	%	61.6	38.4		58.1	41.9	
Totals	kg	702	438	1140	775	559	1334

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1140
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Wt. (RCLW)	kg	49
Calculated Vehicle Target Wt. (TVTW)	kg	1341

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	657	662	650	647	954
As Tested	mm	640	640	605	610	1041

Vehicle Wheel Base (mm) 2484

Weight of Ballast Secured in cargo area (kg) 0

Vehicle Components Removed Rear windows, bumper, tail lights, and rear door panels, muffler, hub caps and spare tire.

* 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) 44.67

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

1/3 of Usable Capacity (L) 14.89

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 Chevrolet Aveo 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
Test Date: 2/05/04

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	4105	3630	-475
Center	mm	4230	3705	-525
Right Side	mm	4105	3630	-475

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	695
Center	mm	628
Right Side	mm	646
Average	mm	656

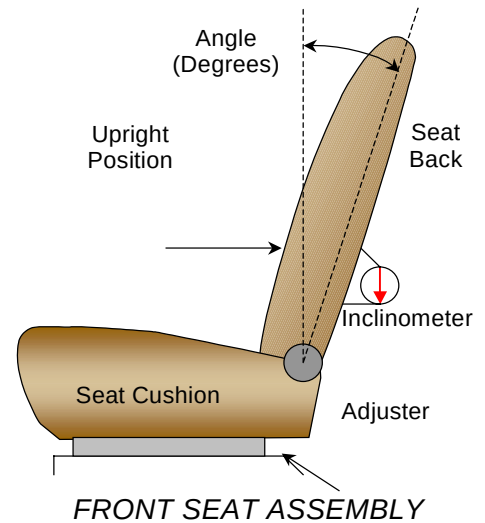
DATA SHEET NO. 4
TEST VEHICLE INFORMATION

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
Test Date: 2/05/04

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	25.0
Passenger w/seated Dummy	25.0

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	20	11
Passenger Seat	20	11

SEAT BELT UPPER ANCHORAGE

Position number one (1) is the uppermost position.

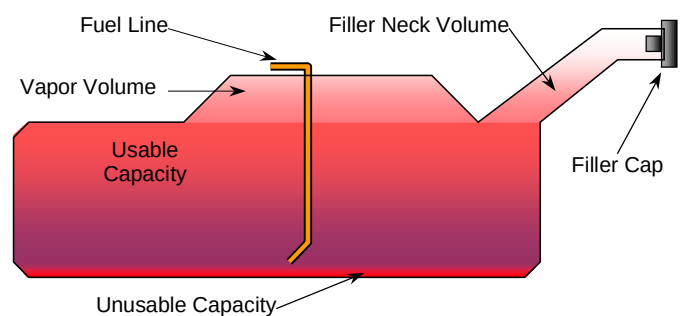
SEAT BELT UPPER ANCHORAGE

	Total # of Positions	Placed in Position #
Driver Seat	5	2
Passenger Seat	5	2

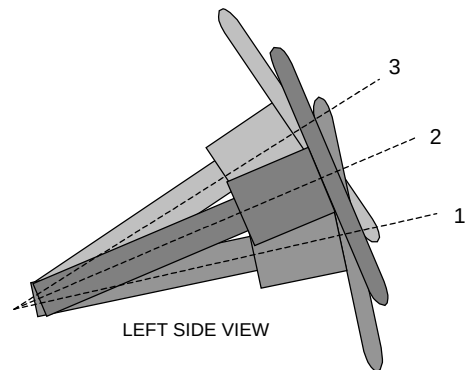
DATA SHEET NO. 4.....(CONTINUED)**TEST VEHICLE INFORMATION**Test Vehicle: 2004 Chevrolet Aveo 4 Door SedanNHTSA No.: M40105Test Program: 2004 NHTSA 35mph NCAPTest Date: 2/05/04**FUEL TANK CAPACITY**

	Liters
Usable Capacity of "Standard Tank"	45.05
Usable Capacity of "Optional" Tank	N/A
Usable Capacity used for FMVSS 301	41.43 to 42.33
Actual Amount of Solvent used	41.87
1/3 of Usable Capacity	14.89

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 right 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	21.2
Geometric center position No. 2	23.5
Uppermost position No. 3	26.2

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
Test Date: 2/05/04

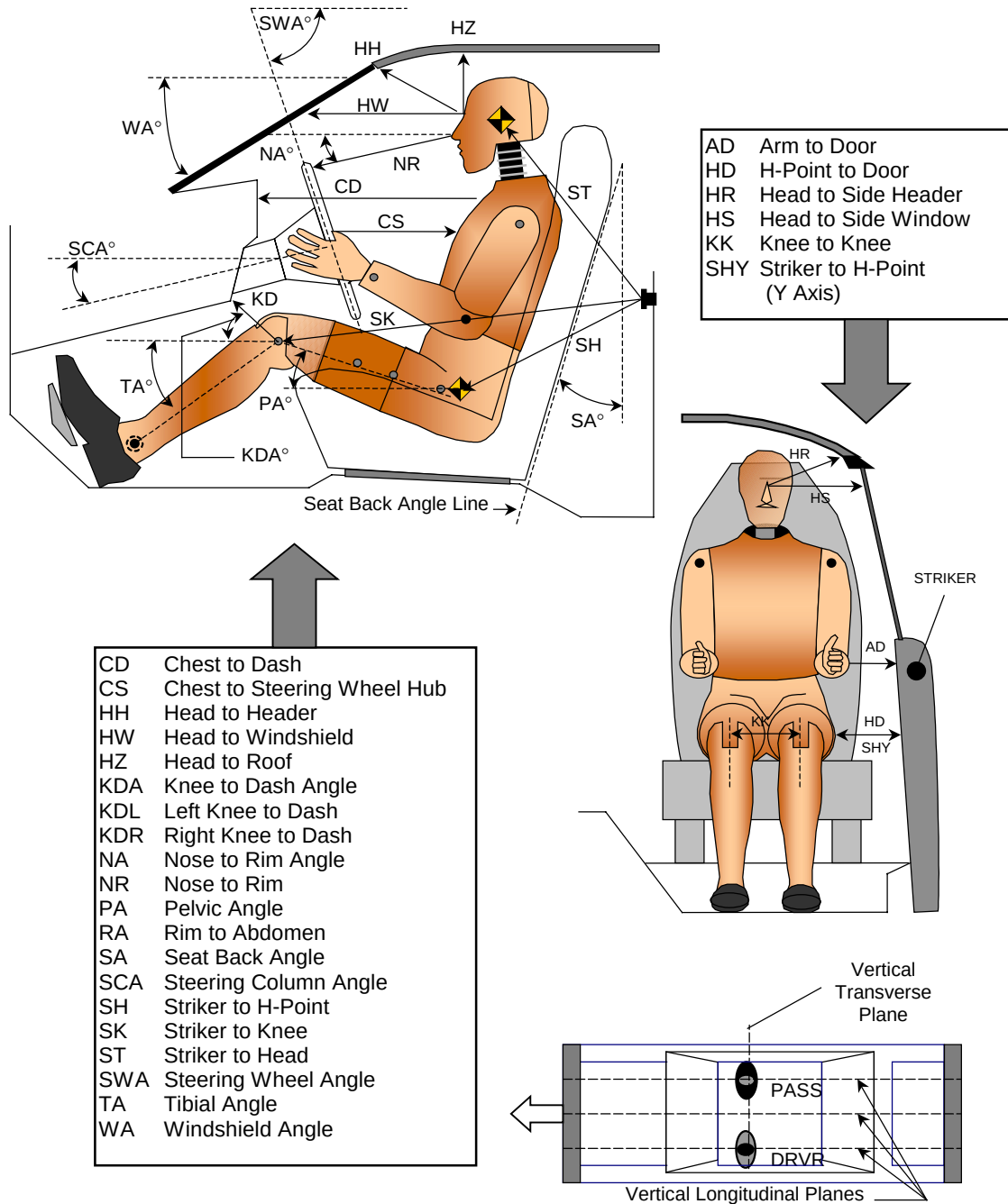
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (deg)	Length (mm)	Angle (deg)
WA	Windshield Angle		62		
SWA	Steering Wheel Angle		66.5		
SCA	Steering Column Angle		23.5		
SA	Seat Back Angle		25.0		25.0
HZ	Head to Roof (Z)	230	90	200	90
HH	Head to Header	400		400	
HW	Head to Windshield	675		660	
HR	Head to Side Header (Y)	260		245	
NR	Nose to Rim	415	10		
CD	Chest to Dash	575		575	
CS	Chest to Steering Hub	335			
RA	Rim to Abdomen	220			
KDL	Left Knee to Dash	155	13	148	
KDR	Right Knee to Dash	165		155	21
PA	Pelvic Angle		22.5		21
TA	Tibia Angle		55		44
KK	Knee to Knee (Y)	300		270	
SK	Striker to Knee	595	3	552	7
ST	Striker to Head	530	78	618	82
SH	Striker to H-Point	248	36	235	26
SHY	Striker to H-Point (Y)	212		204	
HS	Head to Side Window	310		315	
HD	H-Point to Door (Y)	150		125	
AD	Arm to Door (Y)	90		50	

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

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

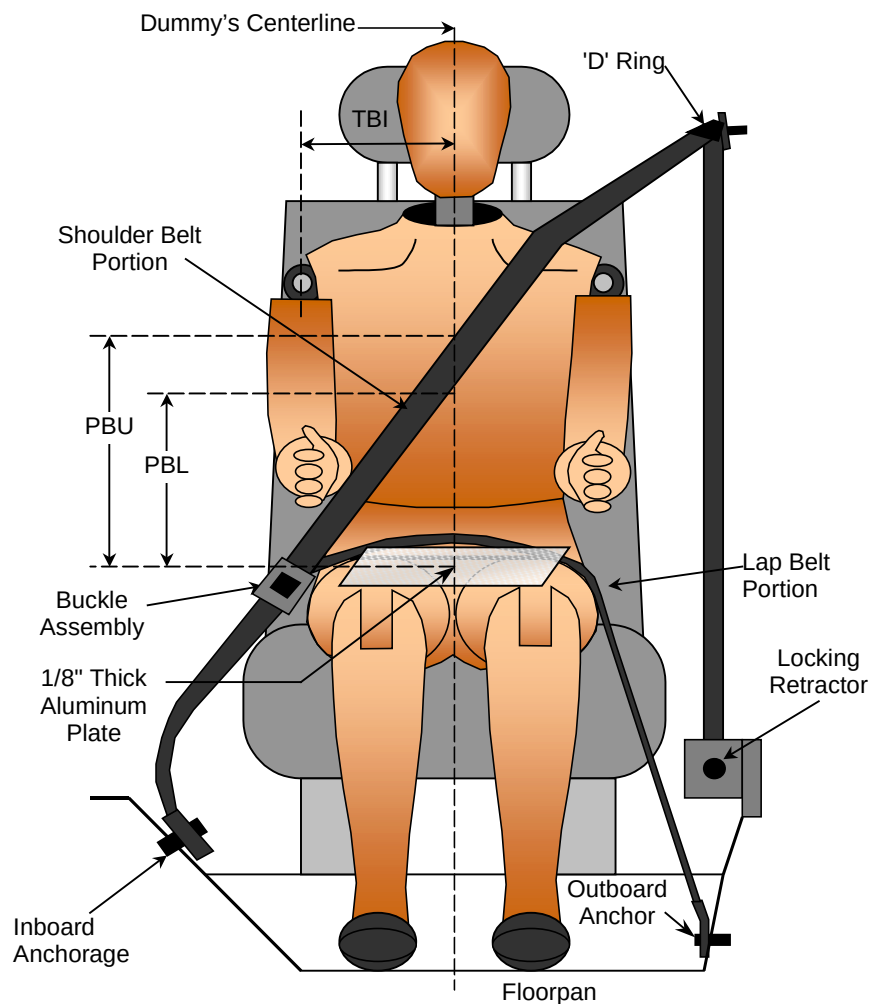


DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

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

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04



SEAT BELT POSITIONING MEASUREMENTS

Measured Parameter	Units	Driver	Passenger
TBI -Dummy C/L to Lap/Shoulder Belt Intersect	mm	210	200
PBU - Top Surface of reference to belt upper edge	mm	340	315
PBL - Top Surface of reference to belt lower edge	mm	265	230
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 Chevrolet Aveo 4 Door Sedan

NHTSA No.: M40105

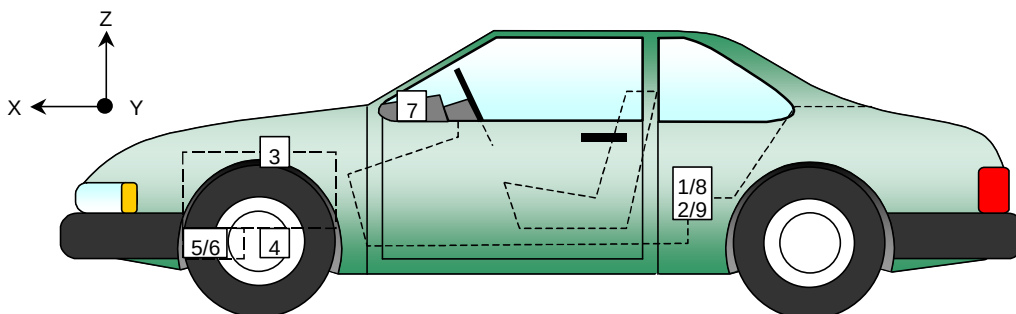
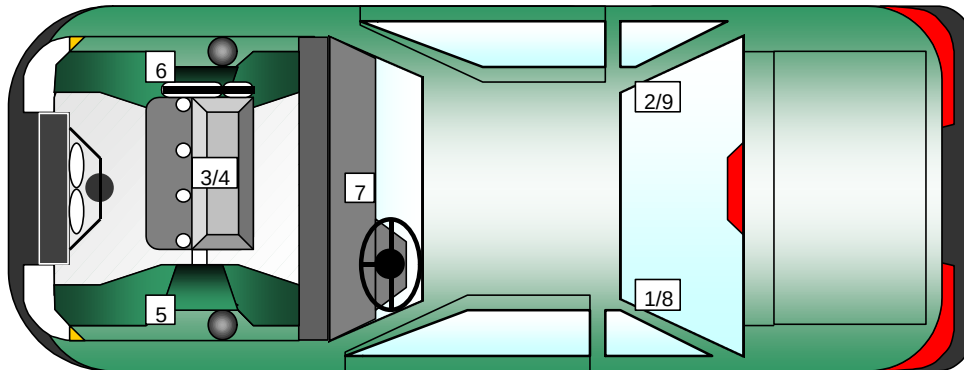
Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04

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	1640	-600	410	G's	2.8	116.4	-35.5	29.4
2	Right Rear X-Member	1640	600	410	G's	2.9	113.7	-32.2	31.1
3	Engine Top	3740	30	810	G's	60.5	38.6	-124.0	23.9
4	Engine Bottom	3600	0	220	G's	27.6	31.3	-184.6	23.3
5	Left Brake Caliper	3500	-700	260	G's	42.5	59.3	-101.4	37.7
6	Right Brake Caliper	3500	700	260	G's	53.7	59.8	-91.0	38.3
7	Instrument Panel	2880	0	940	G's	48.8	61.9	-112.1	66.1
8	Left Rear X-Member (Z-Axis)	1640	-650	410	G's	5.3	21.1	-7.5	44.9
9	Right Rear X-Member (Z-Axis)	1640	650	410	G's	4.6	20.4	-5.3	55.1

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 Chevrolet Aveo 4 Door Sedan

NHTSA No.: M40105

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	1.4	191.6	-50.7	68.0	2.1	35.6	-46.2	78.1
Head CG	Y	G's	7.1	70.1	-5.3	39.8	6.3	35.5	-6.6	91.3
Head CG	Z	G's	18.2	45.3	-14.1	81.3	29.8	77.6	-2.9	35.5
Head CG Resultant	N/A	G's	51.4	68.0			54.6	77.3		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.9	127.6	-46.9	73.1	1.1	138.7	-41.2	69.6
Chest CG	Y	G's	8.5	90.8	-3.1	49.8	3.3	52.9	-7.3	89.9
Chest CG	Z	G's	14.2	42.9	-6.5	86.0	9.3	79.0	-2.8	86.5
Chest CG Resultant	N/A	G's	47.3	73.1			41.5	69.6		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	766.3	38.9	-2682.3	49.3	385.6	29.1	-5106.4	52.6
Right Femur	Z	Newtons	650.6	38.5	-7124.6	48.7	896.5	41.1	-1719.2	47.3

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Shoulder Belt Pullout	N/A	MM	193.6	84.7	-25.5	37.8	0.0	0.0	0.0	0.0 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	6043.2	49.0	-31.4	155.2	6943.7	54.0	-6.6	200.4
Shoulder Belt Force	N/A	Newtons	4899.4	79.5	-34.1	12.7	4884.3	87.2	-29.1	136.0

1.) Not used with pre-tensioners

2.) Passenger channel failed

PRIMARY HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Primary	371.9	48.9	84.9	40.3	448.5	66.1	102.1	43.4

PRIMARY CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	44.1	71.6	74.6	39.2	67.7	70.7

DATA SHEET NO. 8...(continued)

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan

NHTSA No.: M40105

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	3.2	200.0	-75.6	49.0	1.6	119.1	-60.2	52.1
Pelvis	Y	G's	18.1	79.5	-14.4	41.0	5.1	39.1	-10.5	77.9
Pelvis	Z	G's	3.1	199.4	-25.7	54.0	2.8	34.2	-20.3	72.3
Pelvis Resultant	N/A	G's	78.8	49.0			62.0	52.1		

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	595.8	58.1	-365.9	125.7	274.3	63.4	-366.8	126.4
Neck Force	Y	Newtons	151.1	150.9	-201.0	81.3	53.6	63.2	-132.3	124.0
Neck Force	Z	Newtons	1304.5	62.0	-126.6	87.6	1371.3	67.4	-35.7	127.3
Neck Force Resultant	N/A	Newtons	1419.8	62.0			1385.5	67.4		
Neck Moment	X	N•m	13.9	56.4	-12.5	91.3	11.4	87.6	-8.6	130.9
Neck Moment	Y	N•m	48.6	55.8	-22.6	90.9	30.4	129.7	-15.0	98.2
Neck Moment	Z	N•m	6.8	132.5	-12.9	87.2	6.2	101.3	-4.2	146.3
Neck Moment Resultant	N/A	N•m	50.7	55.8			31.6	129.7		

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	15.3	81.7	-46.9	34.2	30.8	65.5	-162.3	37.8
Left Foot Aft	Z	G's	1.6	120.0	-34.9	33.5	25.4	57.5	-82.4	36.3
Left Foot Fore	Z	G's	2.3	59.8	-66.3	33.6	77.1	57.8	-200.2	36.0
Right Foot Aft	X	G's	68.5	64.7	-132.8	42.5	9.4	70.0	-97.1	28.8
Right Foot Aft	Z	G's	38.0	64.2	-169.5	43.1	3.7	23.4	-53.2	37.6
Right Foot Fore	Z	G's	94.5	54.3	-208.8	43.8	16.7	32.2	-86.8	28.5

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	22.0	85.6	-22.7	63.8	38.7	82.0	-30.7	42.2
Left Upper Moment	Y	N•m	13.2	199.3	-56.8	34.2	124.2	51.9	-161.3	38.7
Right Upper Moment	X	N•m	62.8	46.2	-38.7	55.3	30.0	47.6	-11.5	65.9
Right Upper Moment	Y	N•m	19.7	84.6	-196.6	41.1	10.8	122.4	-107.0	42.8
Left Lower Moment	X	N•m	10.3	28.4	-21.7	74.8	12.5	47.4	-16.2	36.7
Left Lower Moment	Y	N•m	14.2	74.2	-36.5	34.9	98.1	70.2	-52.8	37.5
Left Lower Force	Z	Newtons	194.5	44.7	-1518.1	28.7	129.2	50.7	-5158.5	39.5
Right Lower Moment	X	N•m	30.6	43.8	-94.5	67.2	11.2	36.9	-26.6	72.8
Right Lower Moment	Y	N•m	268.1	67.2	-88.9	44.2	58.2	69.0	-40.4	43.2
Right Lower Force	Z	Newtons	113.0	134.9	-6205.2	40.8	57.0	129.4	-2579.8	71.5

DATA SHEET NO. 8...(continued)Test Vehicle: 2004 Chevrolet Aveo 4 Door SedanNHTSA No.: M40105Test Program: 2004 NHTSA 35mph NCAPTest Date: 2/5/04**CHEST PEAK DISPLACEMENTS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest	X	MM	0.0	1.4	-23.0	79.2	0.0	5.4	-24.3	77.9

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	1.6	191.6	-51.0	68.6	2.6	35.6	-46.0	78.6
Head CG	Y	G's	7.5	67.8	-4.0	42.8	6.1	35.5	-6.7	36.2
Head CG	Z	G's	18.3	45.3	-14.5	81.3	29.7	77.4	-2.9	35.5
Head CG Resultant	N/A	G's	51.6	67.9			54.6	77.5		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.9	127.6	-47.1	73.1	1.0	140.2	-41.3	69.6
Chest CG	Y	G's	8.5	90.8	-3.2	49.7	3.5	53.0	-7.5	89.9
Chest CG	Z	G's	13.9	42.9	-6.4	90.8	9.5	79.0	-3.1	53.0
Chest CG Resultant	N/A	G's	47.6	73.1			41.5	69.6		

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	371.5	48.9	84.9	40.3	443.1	66.2	102.2	43.2

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	44.3	71.6	74.6	39.5	67.7	70.7

DATA SHEET NO. 9
SEATBELT ASSESSMENT TEST DATA

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
Test Date: 2/05/04

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI -Dummy C/L to Lap/Shoulder Belt Intersect	mm	210	200
PBU - Top Surface of reference to belt upper edge	mm	340	315
PBL - Top Surface of reference to belt lower edge	mm	265	230
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	700	700
Shoulder Belt length as measured on ATD	mm	880	890
Lap Belt length as measured on ATD	mm	830	890
Remainder of belt on reel	mm	760	660
Total belt length for continuous webbing systems	mm	3170	3140

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	None	None
As determined electronically	mm	193.6	0*

* Channel Failed

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 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

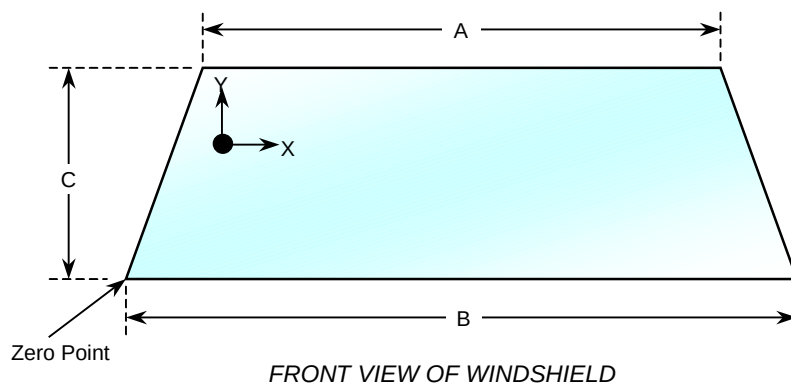
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive. No molding covers the windshield periphery at any point.

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: 10.6 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test(mm)	Post-Test(mm)	% of Retention
Left Side	2084.5	2084.5	100.0
Right Side	2084.5	2084.5	100.0
Total	4169.0	4169.0	100.0



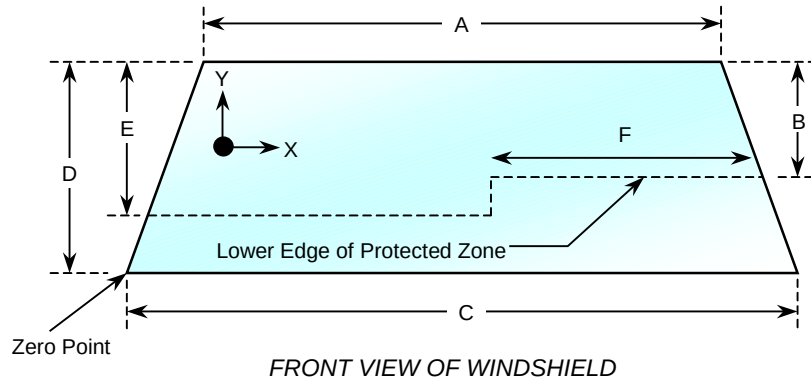
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1135.0	8.0
B	mm	1380.0	8.0
C-Left	mm	827.0	8.0
C-Right	mm	827.0	8.0

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

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04



**WINDSHIELD AND
PROTECTED ZONE**

Item	Units	Value
A	mm	1135
B	mm	590
C	mm	1380
D	mm	827
E	mm	605
F	mm	497

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 Chevrolet Aveo 4 Door Sedan

NHTSA No.: M40105

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/05/04

Test Time: 12:17 PM

Temperature: 10.6 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

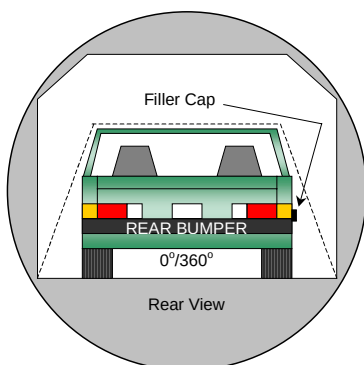
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan

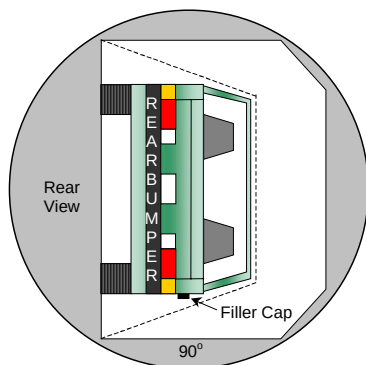
NHTSA No.: M40105

Test Program: 2004 NHTSA 35mph NCAP

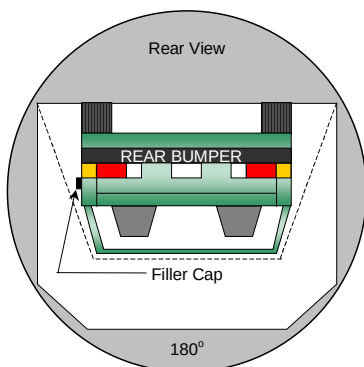
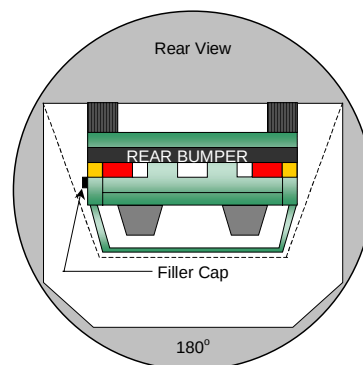
Test Date: 2/05/04



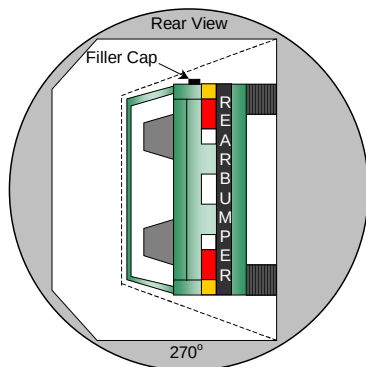
0° to 90°



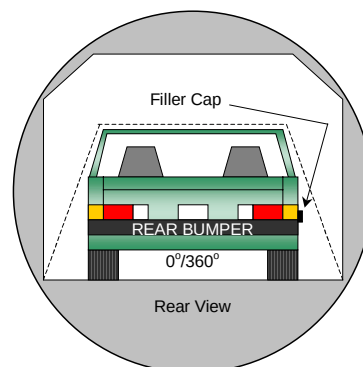
90° to 180°



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 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	85	300	385
90° to 180°	78	300	378
180° to 270°	78	300	378
270° to 360°	80	300	380

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 Chevrolet Aveo 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
Test Date: 2/05/04

VEHICLE MEASUREMENT TABLE

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length of vehicle at centerline	mm	4230	3705	-525
2	RSOV to front of engine	mm	3780	3130	-650
3	RSOV to firewall centerline	mm	3425	3275	-150
4	RSOV to leading edge of right door	mm	3016	3034	18
5	RSOV to leading edge of left door	mm	3021	3025	4
6	RSOV to lower leading edge of right door	mm	2968	2962	-6
7	RSOV to lower leading edge of left door	mm	2998	2987	-11
8	RSOV to upper trailing edge of right door	mm	1910	1924	14
9	RSOV to upper trailing edge of left door	mm	1916	1920	4
10	RSOV to lower trailing edge of right door	mm	1924	1922	-2
11	RSOV to lower trailing edge of left door	mm	1928	1921	-7
12	RSOV to bottom of right 'A' pillar	mm	2940	2933	-7
13	RSOV to bottom of left 'A' pillar	mm	2958	2935	-23
14	RSOV to firewall on right side	mm	3335	3284	-51
15	RSOV to firewall on left side	mm	3335	3340	5
16	RSOV to steering column	mm	2557	2496	-61
17	Center of steering column to left 'A' pillar	mm	393	354	-39
18	Center of steering column to headlining	mm	455	470	15
19	RSOV to right side of front bumper	mm	4105	3630	-475
20	RSOV to left side of front bumper	mm	4105	3630	-475
21	Length of engine block	mm	258	258	0
RD	RSOV to right side of dash panel	mm	2771	2794	23
CD	RSOV to center of dash panel	mm	2740	2794	54
LD	RSOV to left side of dash panel	mm	2786	2789	3

All measurements in millimeters

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

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

VEHICLE STRUCTURAL MEASUREMENT TABLE

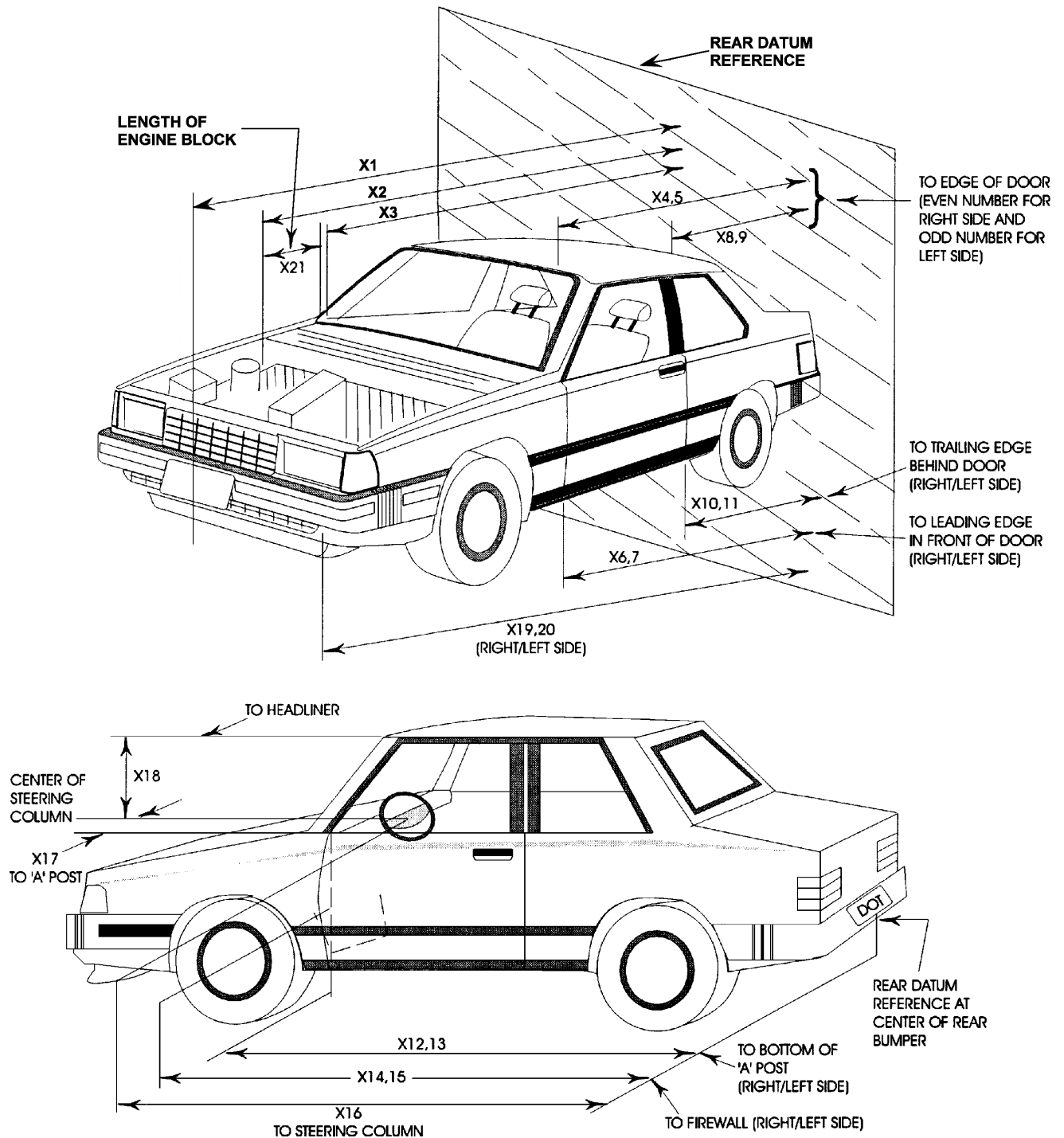
No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length	mm	4230	3705	-525
2	Total width	mm	1670	1659	-11
3	Bumper top height	mm	564	545	-19
4	Bumper bottom height	mm	210	190	-20
5	Longitudinal member top height	mm	605	605	0
6	Longitudinal member bottom height	mm	420	449	29
7	Distance between longitudinal members	mm	920	940	20
8	Longitudinal member width	mm	45	95	50
9	Engine top height	mm	790	780	-10
10	Engine bottom height	mm	199	191	-8
11	Engine and gear box width	mm	238	238	0
12	Front bumper to engine distance	mm	450	175	-275
13	Front shock absorber fixing width	mm	835	795	-40
14	Bonnet leading edge height	mm	698	775	77
15	Front shock absorber fixing width	mm	1100	1040	-60
16	Front bumper to front axle distance	mm	814	365	-449
17	Front axle to 'A' pillar distance	mm	400	380	-20
18	'A' pillar to 'B' pillar distance	mm	1095	1096	1
19	'B' pillar to rear axle distance	mm	985	985	0
20	'B' pillar to 'C' pillar distance	mm	950	940	-10
21	Roof sill bottom height	mm	1298	1350	52
22	Roof sill top height	mm	1448	1500	52
23	Floor sill bottom height	mm	208	215	7
24	Floor sill top height	mm	340	345	5

All measurements in millimeters

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

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
Test Date: 2/05/04

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	10	N/A	17-70	24
2	Driver Overall	1930	8357	1321	4	7876	13	1030
2B	Driver Overall	1626	8230	1092	4	7766	17	NTM
3	Driver Close-Up	1930	8230	1600	4	7755	35	1020
4	3/4 Driver	6477	10185	4648	13	11146	105	1000
5	Steering Column	1524	8230	2997	16	7955	19	920
6	Steering Column	1524	8230	3404	20	8052	19	1000
7	Driver Side Child	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Passenger Overall	2286	-8230	1524	6	7751	13	1000
9	Passenger Close-Up	1219	-6096	1524	4	5691	35	1000
10	3/4 Passenger	8026	-8941	2997	9	10447	80	920
11	Passenger Door	1626	-8836	1702	4	8378	50	1000
12	Passenger Side Child	2870	-1930	2286	25	1847	6	1010
13	Overhead	610	0	6172	90	N/A	13	1010
14	Driver Front	-610	406	2743	40	N/A	13	730
15	Passenger Front	-610	406	2743	40	N/A	13	1140
16	Pit Engine	762	0	-1499	90	N/A	9	1150
17	Pit Fuel Tank	3658	0	-1499	90	N/A	6	900

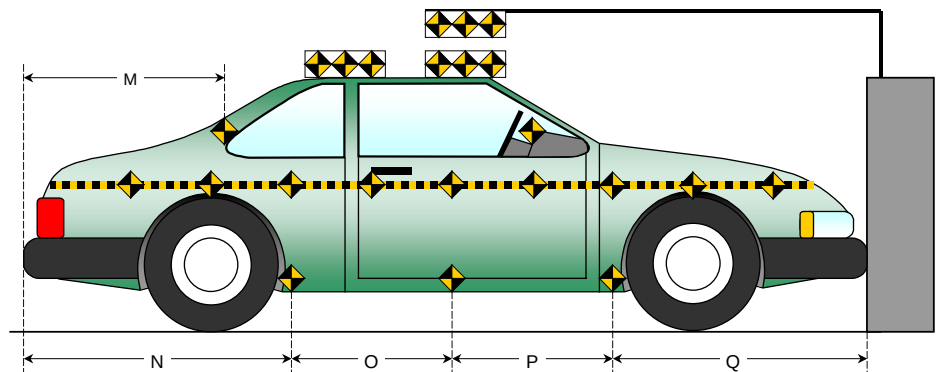
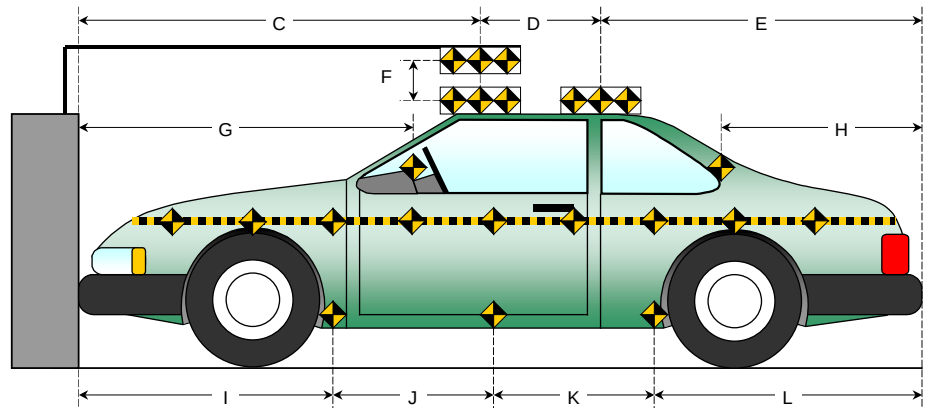
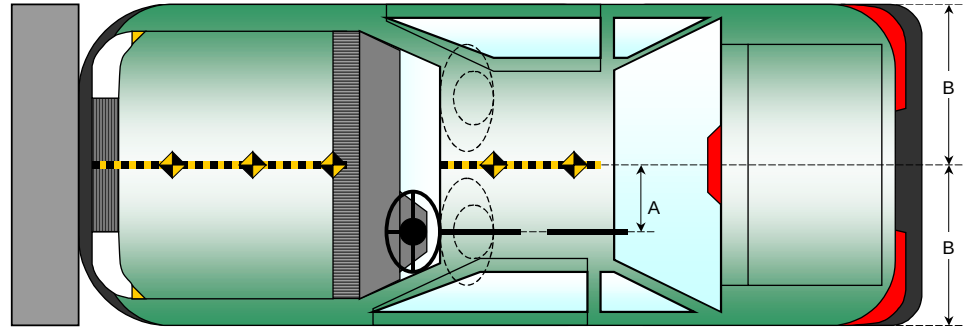
X = Barrier Face Y = Monorail Centerline Z = Ground DNR = Did Not Run NTM = No Timing Marks

DATA SHEET NO. 16
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

All Dimensions in (mm)	
Item	Value
A	345
B	835
C	2020
D	606
E	1600
F	155
G	1175
H	885
I	1228
J	830
K	830
L	1352
M	867
N	1354
O	828
P	828
Q	1230



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

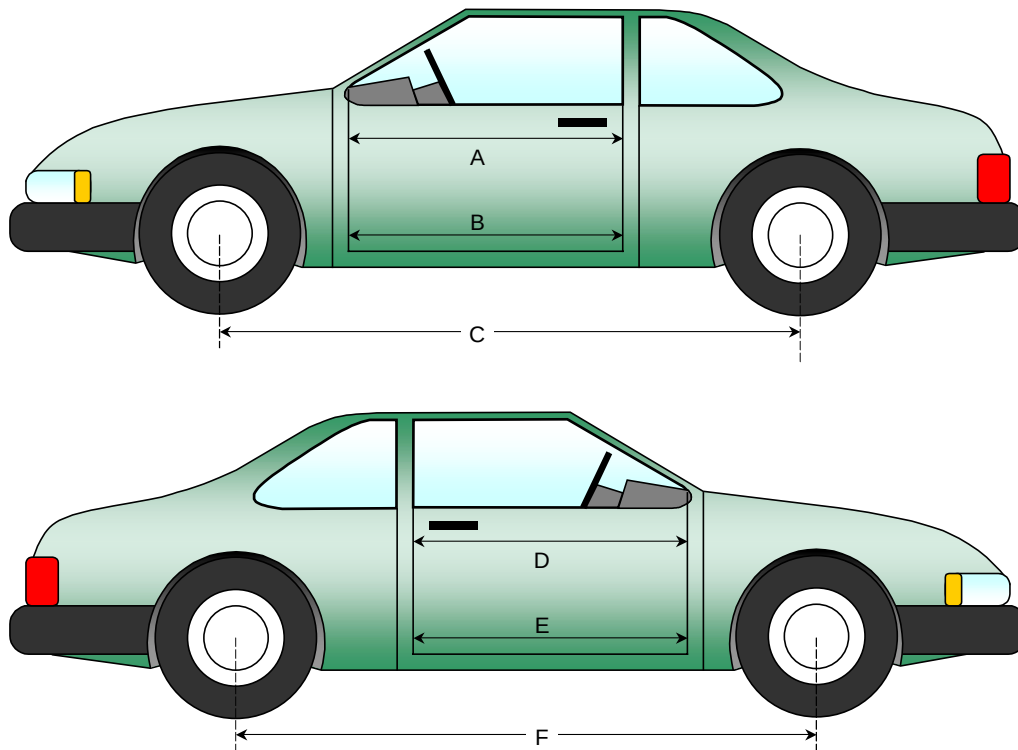
NHTSA No.: M40105
 Test Date: 2/05/04

DOOR OPENING WIDTH TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
A	Left Side Upper	mm	980	969	-11
B	Left Side Lower	mm	911	904	-7
D	Right Side Upper	mm	978	969	-9
E	Right Side Lower	mm	902	889	-13

WHEELBASE MEASUREMENT TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
C	Left Side Wheel Base	mm	2484	2415	-69
F	Right Side Wheel Base	mm	2484	2395	-89



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

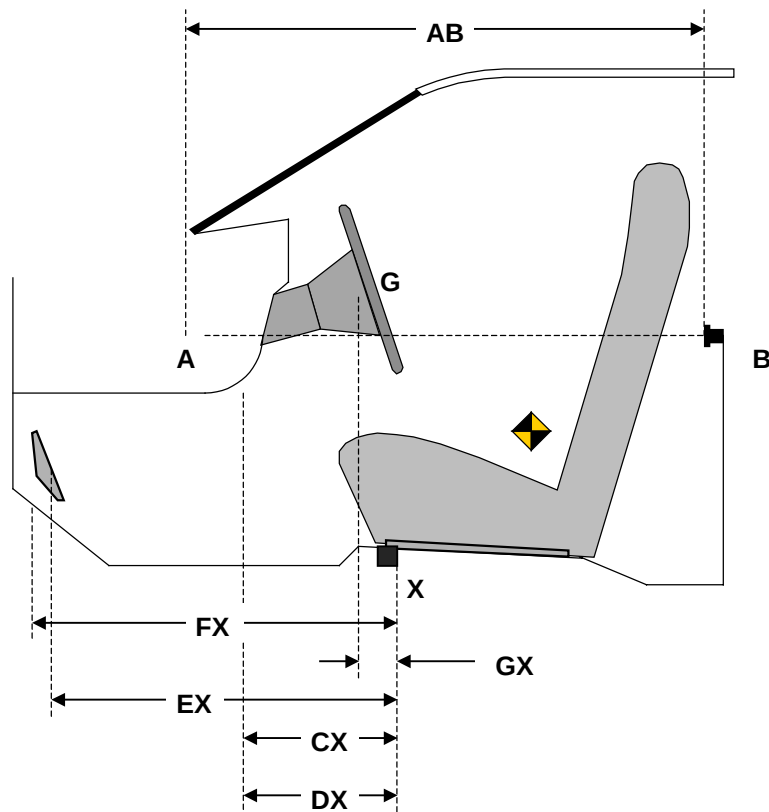
Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

DRIVER COMPARTMENT INTRUSION TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
AB	Door Opening (Inside window jam)	mm	980	969	-11
CX	Left Knee Bolster to X	mm	270	265	-5
DX	Right Knee Bolster to X	mm	270	240	-30
EX	Brake Pedal to X	mm	548	431	-117
FX	Foot Rest to X	mm	530	489	-41
GX	Center of Steering Wheel Hub to X	mm	65	40	-25

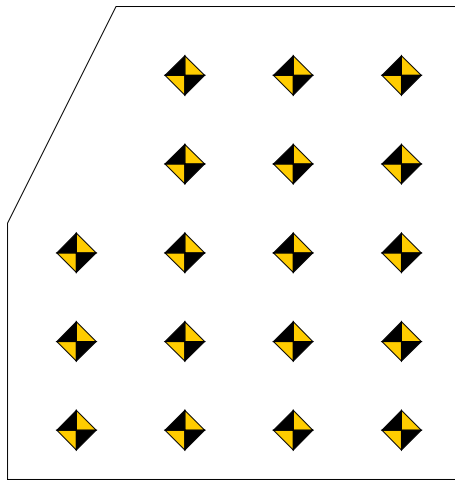
X = Left Front Seat Outboard Anchor Bolt Head



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

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04



A B C D

- 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.
- 4**
- 5**

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		571	571	569		556	544	534		-15	-27	-35
2		482	477	476		469	461	451		-13	-16	-25
3	377	378	377	378	371	367	361	358	-6	-11	-16	-20
4	280	283	282	283	273	271	266	261	-7	-12	-16	-22
5	177	179	179	180	172	170	164	162	-5	-9	-15	-18

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		72	76	81		108	117	122		36	41	41
2		102	105	105		136	146	147		34	41	42
3	91	102	106	104	114	134	140	139	23	32	34	35
4	92	108	106	102	110	133	135	130	18	25	29	28
5	92	105	107	87	105	123	130	110	13	18	23	23

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

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

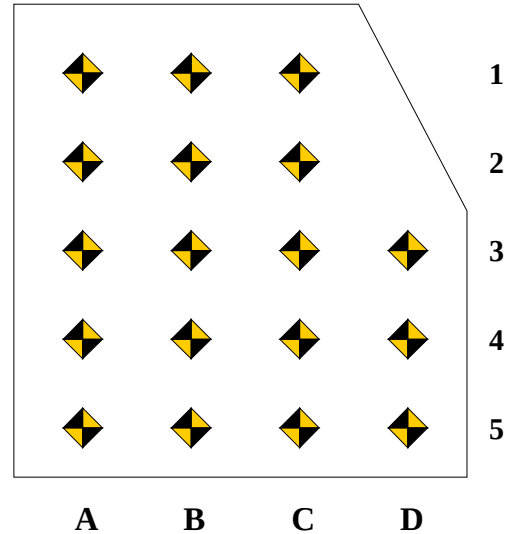
NHTSA No.: M40105
 Test Date: 2/05/04

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	696	700	702		616	598	603		-80	-102	-99	
2	619	622	624		573	569	576		-46	-53	-48	
3	532	536	537	544	510	519	522	533	-22	-17	-15	-11
4	431	435	439	442	413	419	431	439	-18	-16	-8	-3
5	332	335	337	343	313	321	328	337	-19	-14	-9	-6

PASSENGER FLOOR PAN Z-AXIS

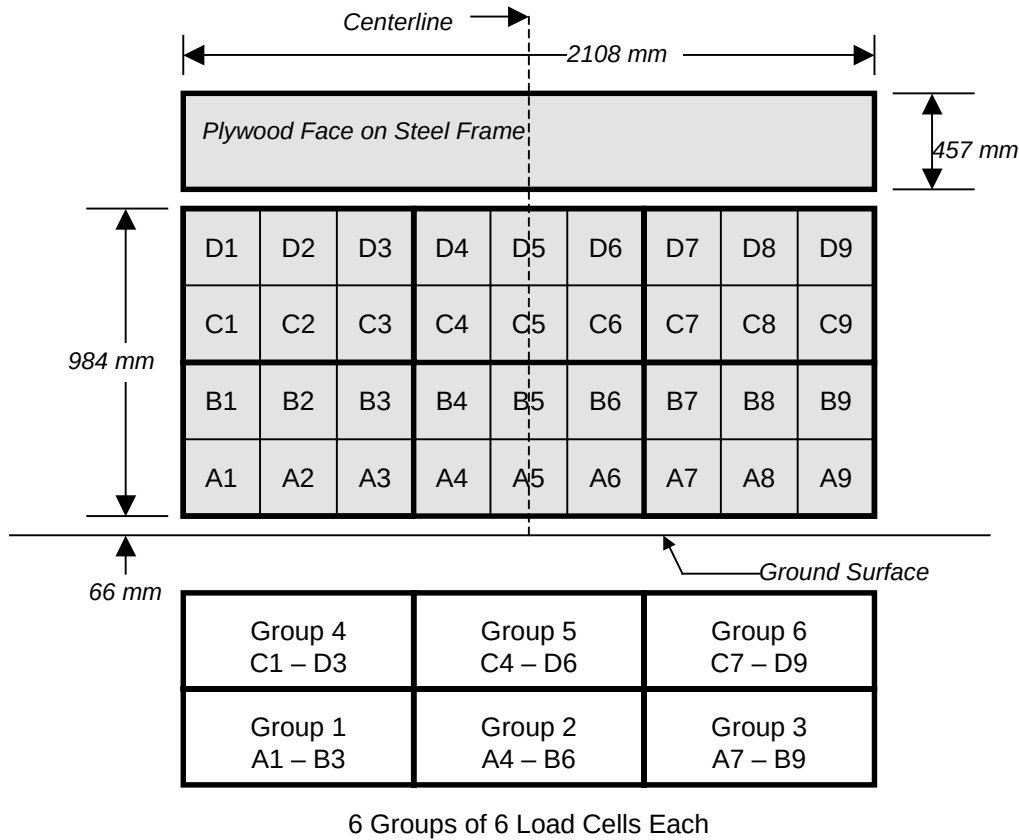
	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-11	-13	-18		-27	-36	-44		-16	-23	-26	
2	47	46	43		65	59	51		18	13	8	
3	103	101	104	104	136	138	133	123	33	37	29	19
4	98	101	106	104	122	126	131	122	24	25	25	18
5	106	101	109	105	121	127	132	123	15	26	23	18

DATA SHEET NO. 18
FIXED BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

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 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/05/04

VEHICLE INFORMATION

VIN: KL1TD52614B130483
 Vehicle Size Category: 4-Door

Wheel base (mm): 2484
 Test Weight (kg): 1334

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): 64.96

Linearity: Good

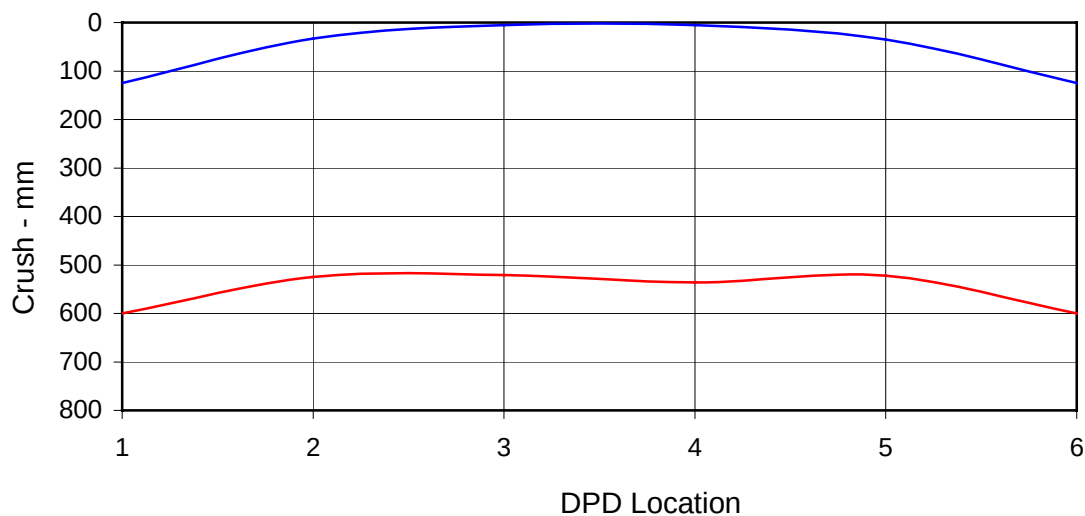
Time of Separation (msec): 69.2

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
 Damage Region Length (mm): 1043

Midpoint of Damage: Vehicle Centerline
 Impact Mode: Full Frontal

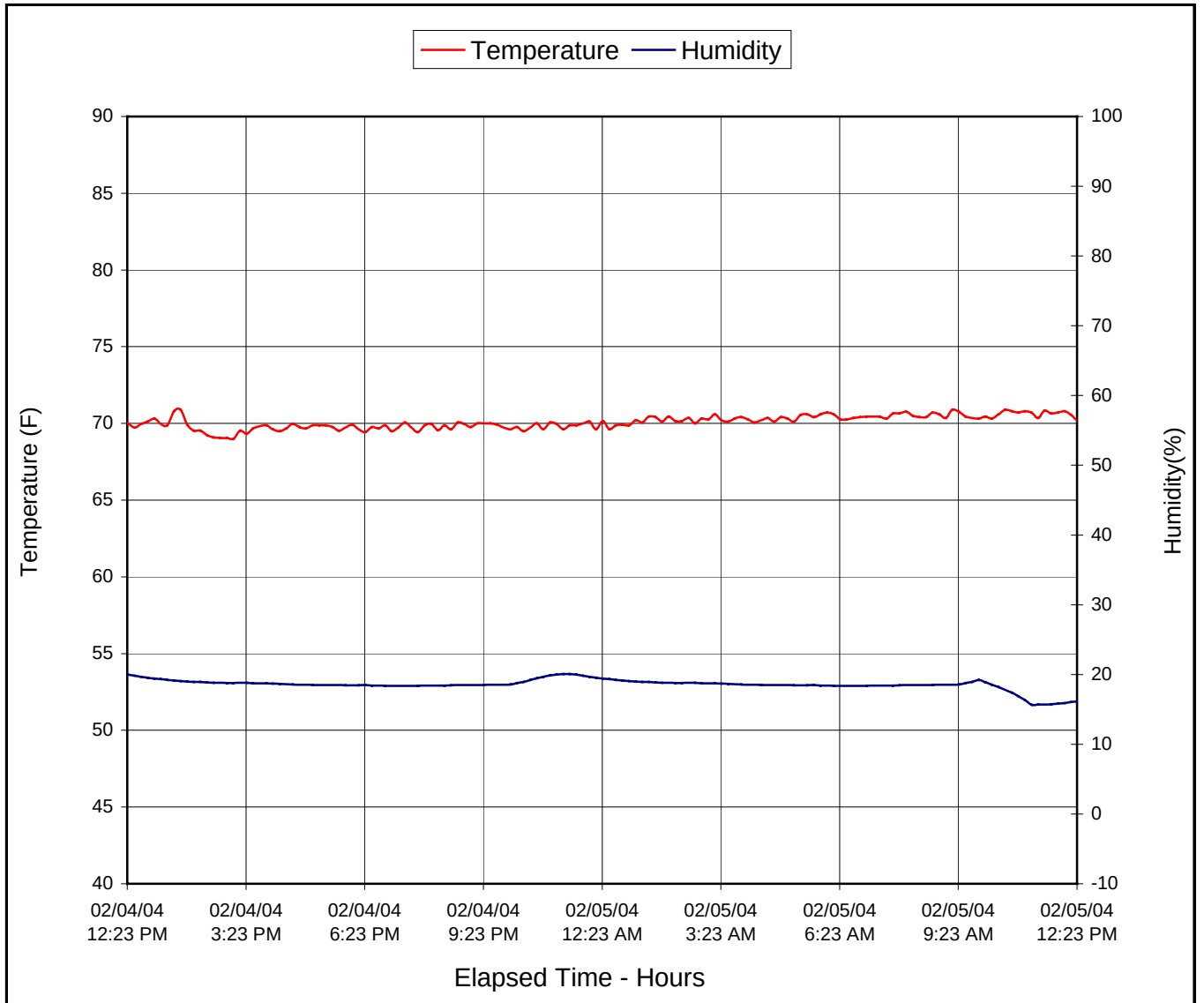
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	125	600	-475
C2	Crush zone 2 on left side	mm	33	525	-492
C3	Crush zone 3 on left side	mm	5	521	-516
C4	Crush zone 4 on right side	mm	5	536	-531
C5	Crush zone 5 on right side	mm	35	522	-487
C6	Crush zone 6 at right side	mm	125	600	-475



DATA SHEET NO. 20
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
Test Date: 2/05/04



APPENDIX A
PHOTOGRAPHS

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A-9	Post-Test Left Side View	A-9
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A-11	Post-Test Right Side View	A-11
A-12	Pre-Test Right Front $\frac{3}{4}$ View	A-12
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A-32	Pre-Test Driver Dummy Front Through Window	A-32
A-33	Post-Test Driver Dummy Front Through Window	A-33
A-34	Pre-Test Driver Dummy Door Open	A-34
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A-40	Pre-Test Driver Side Floor Pan	A-40
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A-62	Vehicle During Impact	A-62
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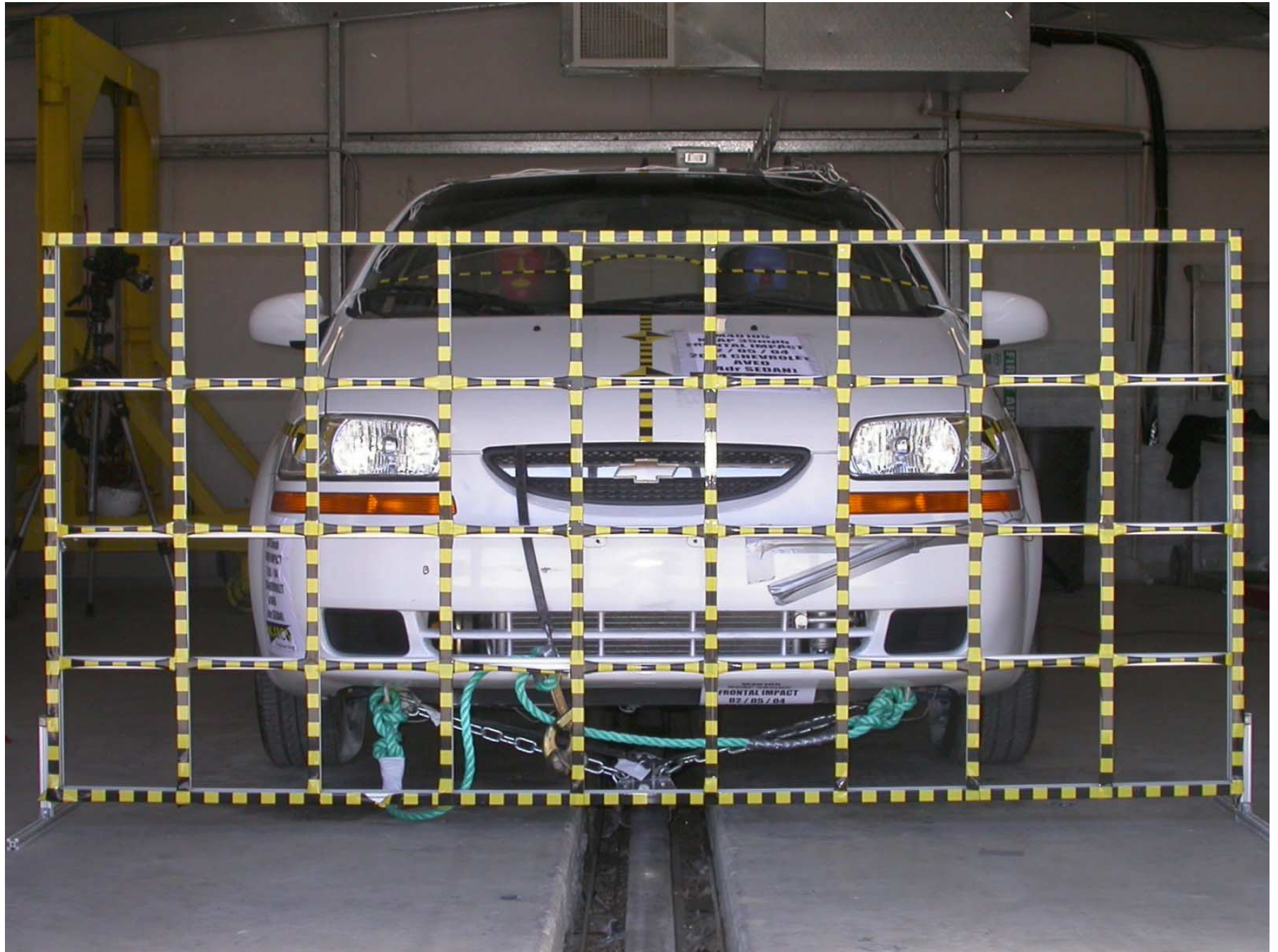


Figure A-1: Load Cell Location

MFD. BY GM DAEWOO AUTO & TECHNOLOGY COMPANY
REPUBLIC OF KOREA

DATE	GVWR	GAWR FRT	GAWR RR
10/03	3348 LB	1830 LB	1767 LB

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

KL1TD52614B130483

PASS. CAR
P.N.96 404 578

Figure A-2: Vehicle Certification Label



TIRE AND LOADING INFORMATION S7

SEATING CAPACITY | TOTAL 5 | FRONT 2 | REAR 3

The combined weight of occupants and cargo should never exceed 390kg or 858lbs.

ORIGINAL TIRE SIZE	COLD TIRE INFLATION PRESSURE	
P185/60 R14 82H	FRONT	210KPA, 30PSI
	REAR	210KPA, 30PSI
COMPACT SPARE TIRE	COLD TIRE INFLATION PRESSURE	
T105/70D14	420KPA, 60PSI	

SEE OWNER'S
MANUAL FOR
ADDITIONAL
INFORMATION

96413057

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

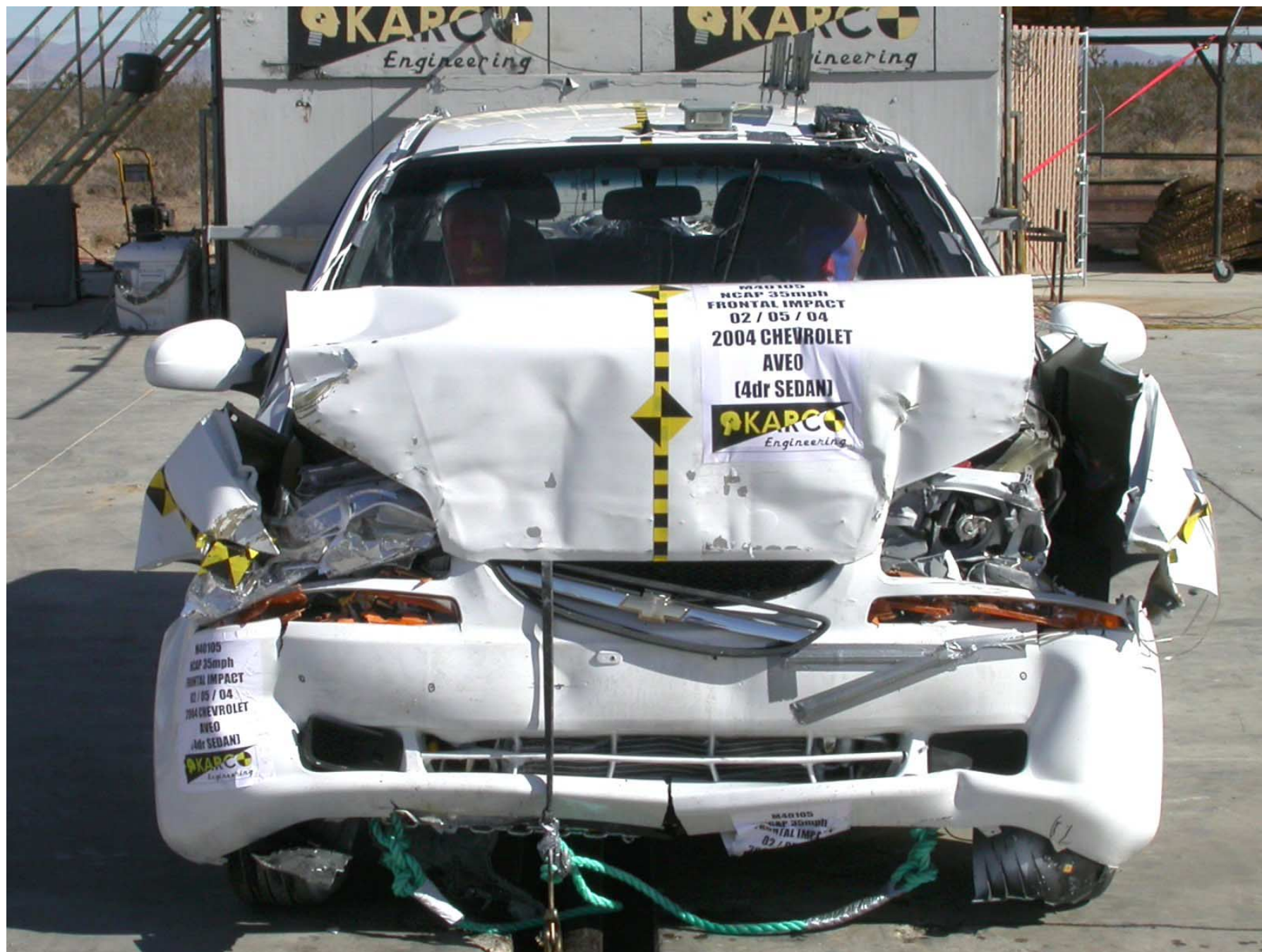


Figure A-7: Post-Test Front View (Vehicle Moved)



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

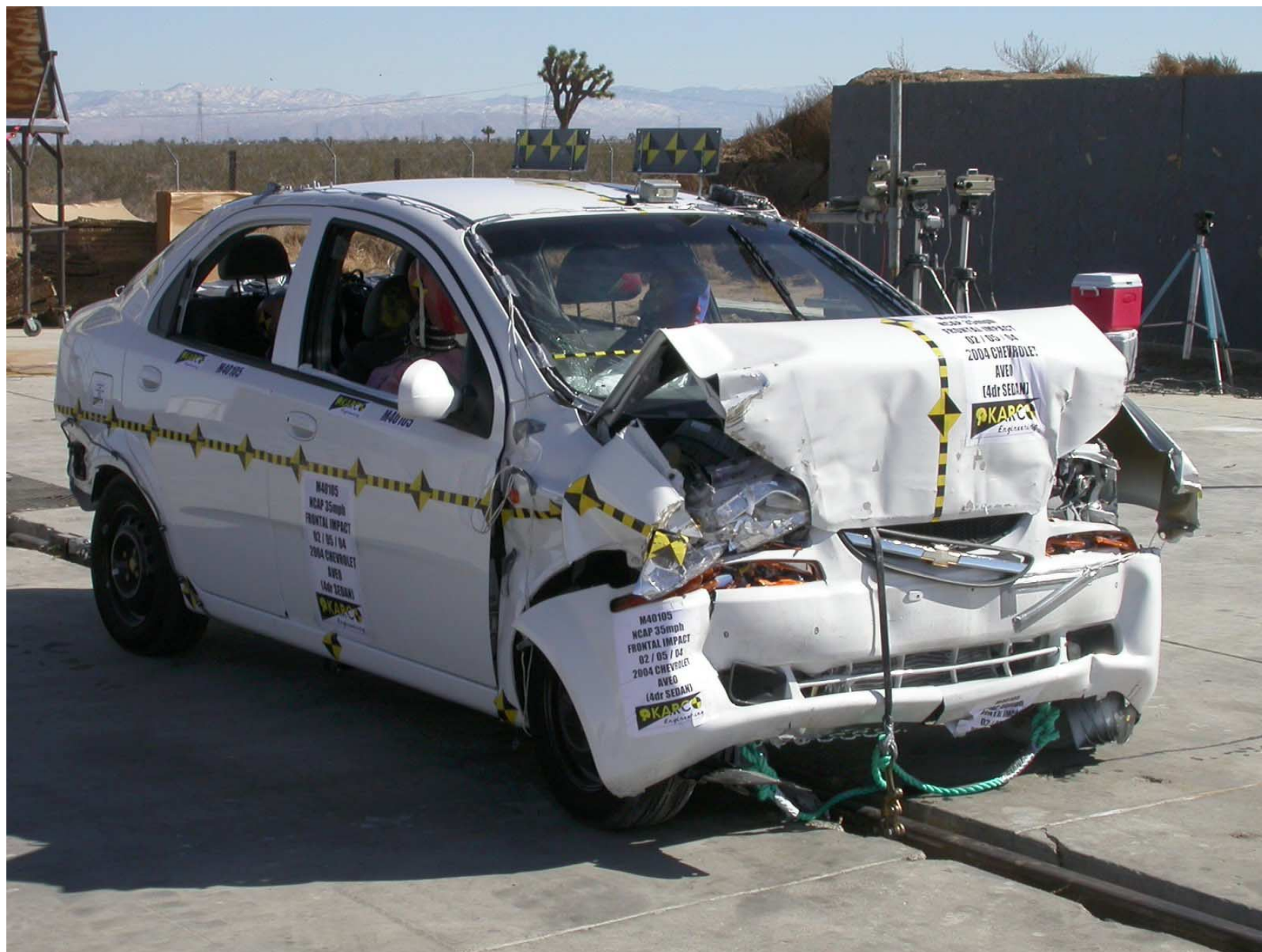


Figure A-13: Post-Test Right Front $\frac{3}{4}$ View



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 3/4 View of Doors After Impact

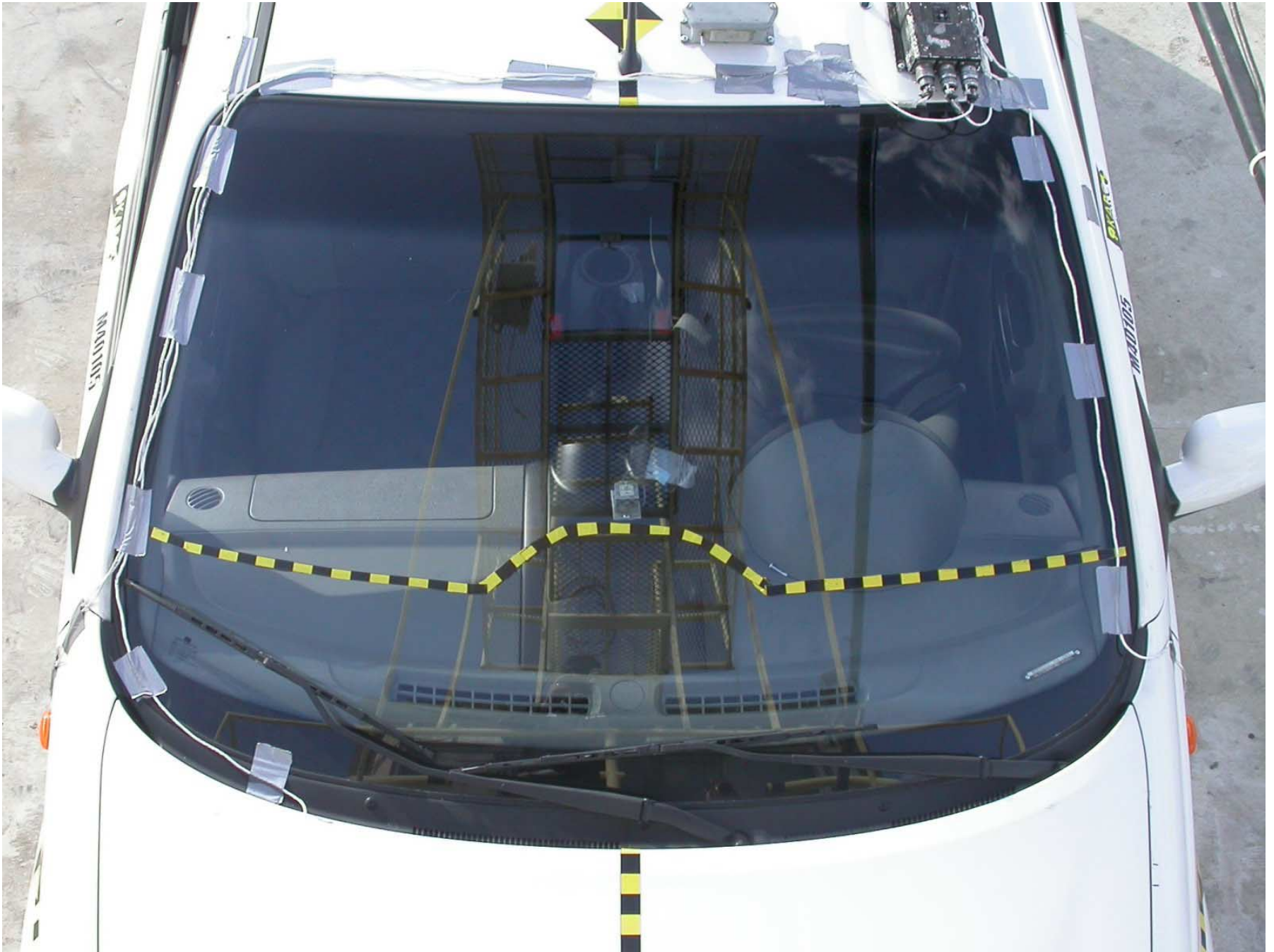


Figure A-18: Pre-Test Windshield View



Figure A-19: Post-Test Windshield View

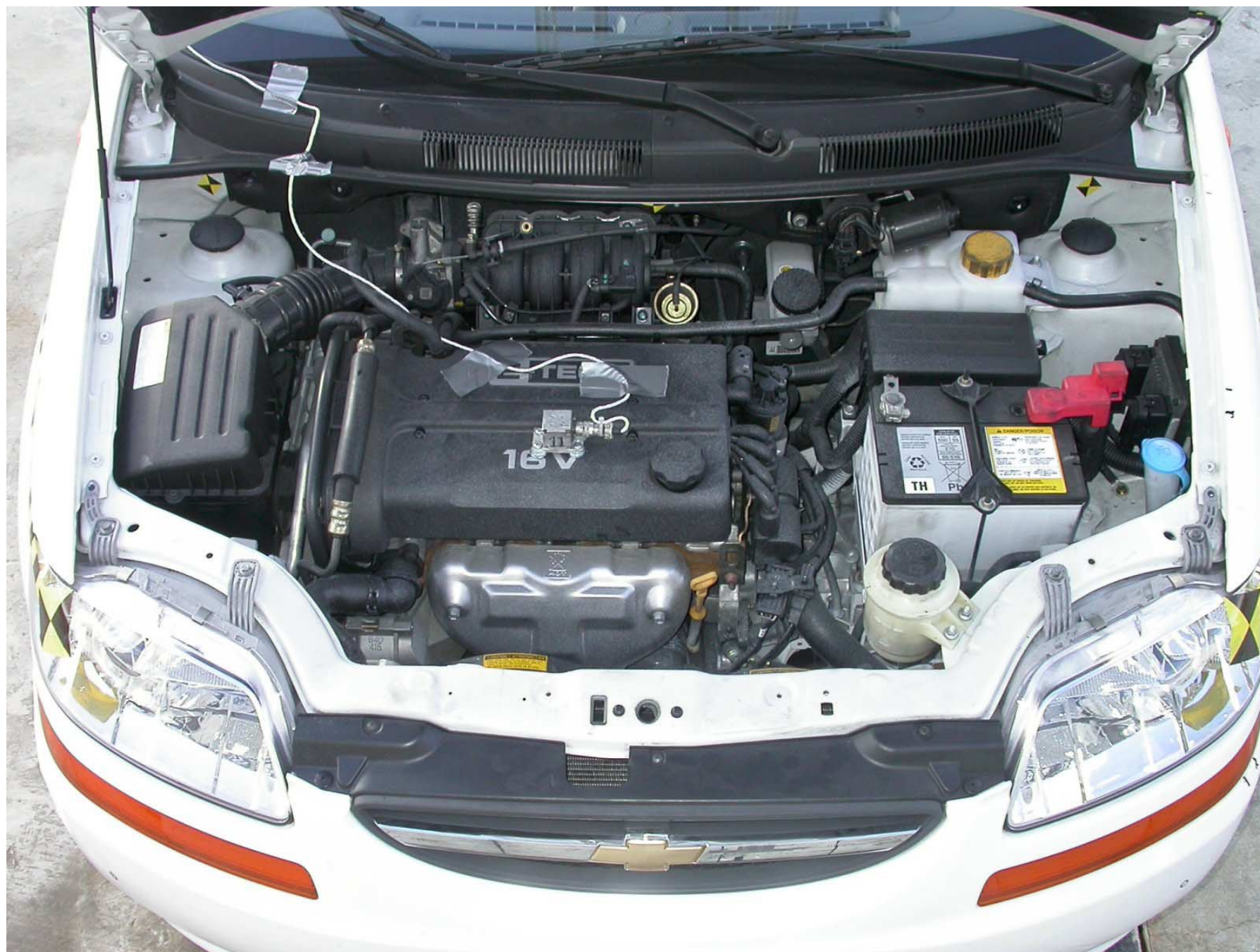


Figure A-20: Pre-Test Engine Compartment

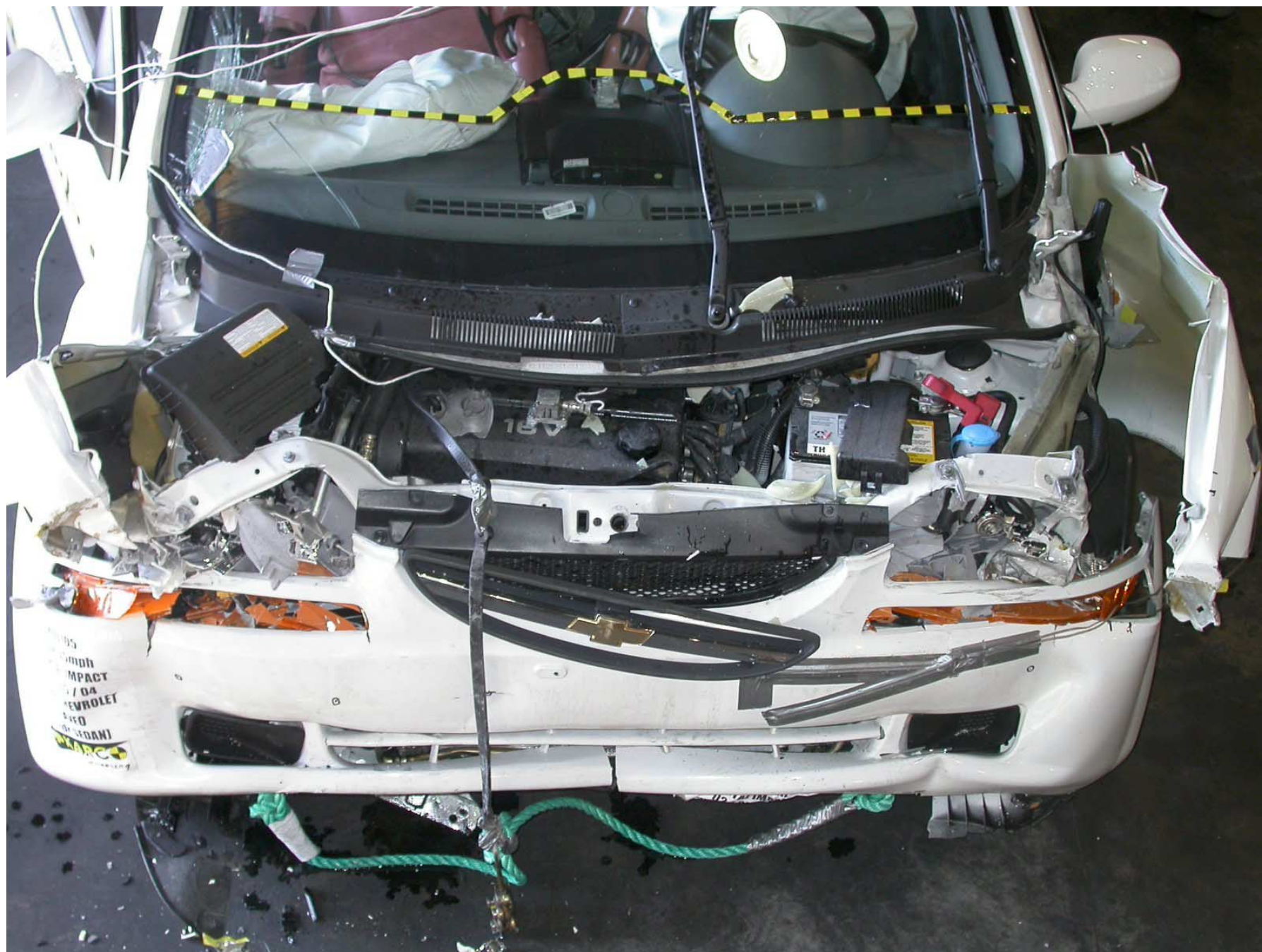


Figure A-21: Post-Test Engine Compartment (Vehicle Moved)



Figure A-22: Pre-Test Fuel Cap



Figure A-23: Post-Test Fuel Cap



Figure A-24: Pre-Test Front Underbody View

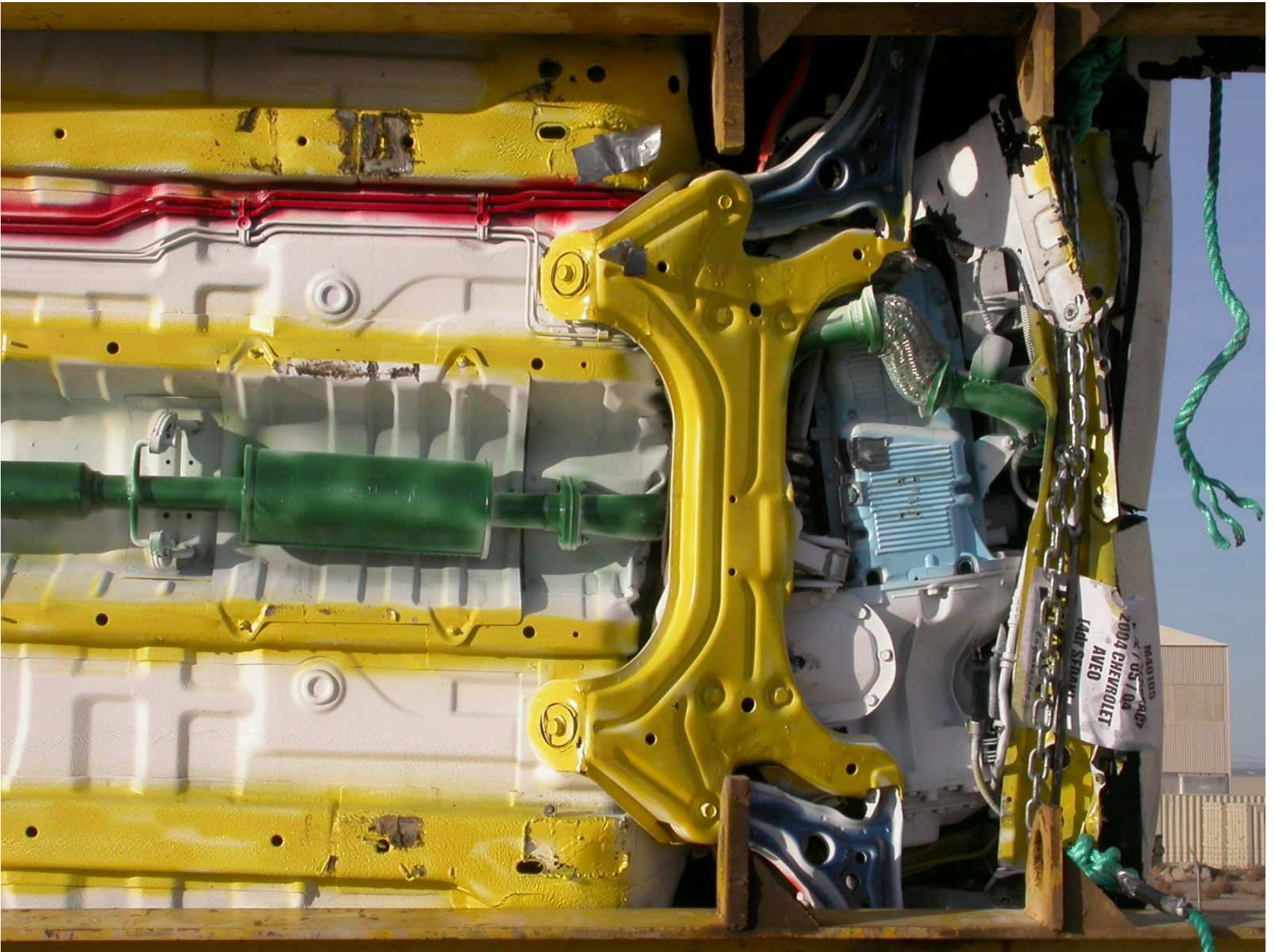


Figure A-25: Post-Test Front Underbody View



Figure A-26: Pre-Test Mid Underbody View

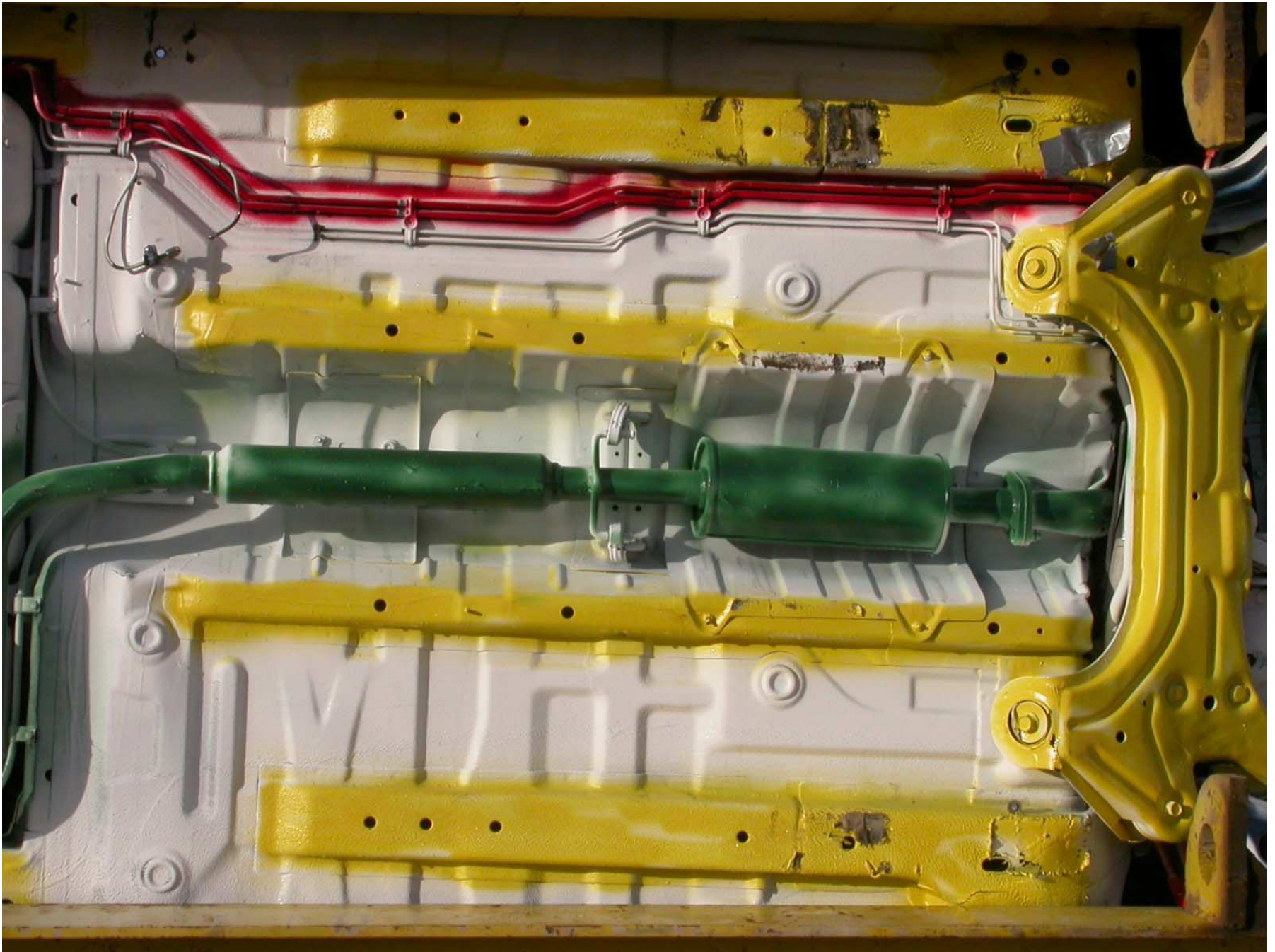


Figure A-27: Post-Test Mid Underbody View



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

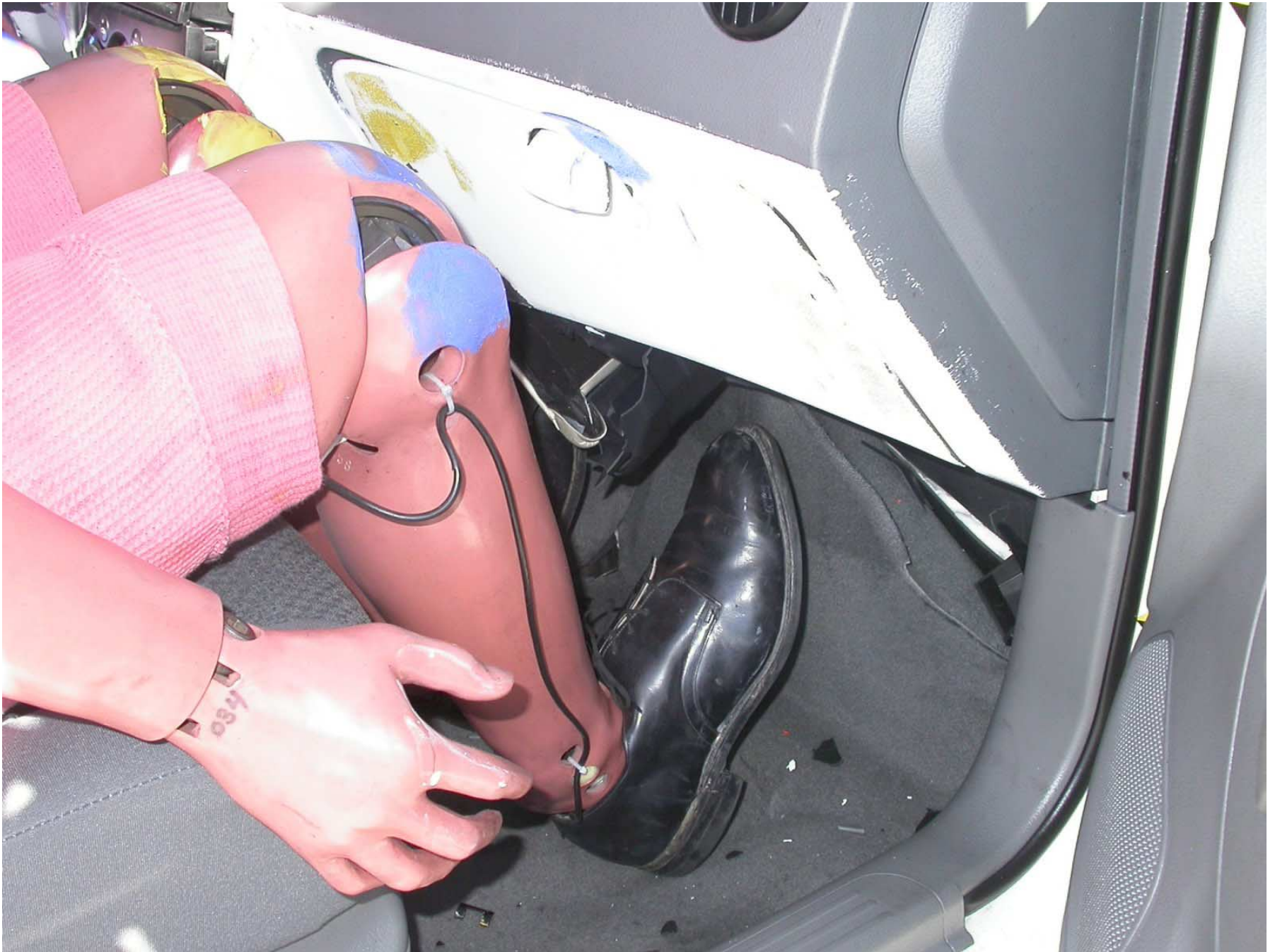


Figure A-51: Post-Test Passenger Dummy Feet



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



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

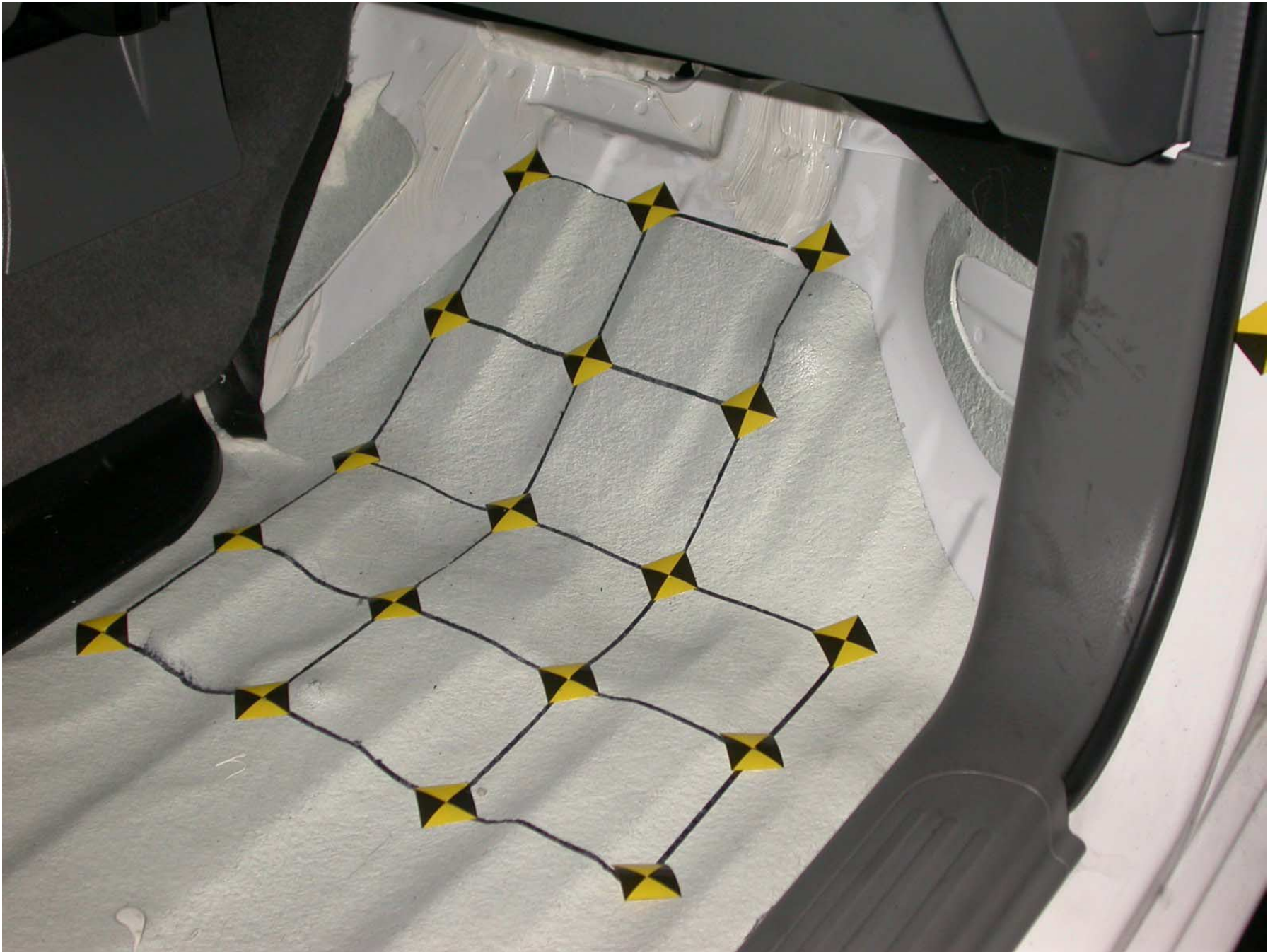


Figure A-54: Pre-Test Passenger Side Floor Pan

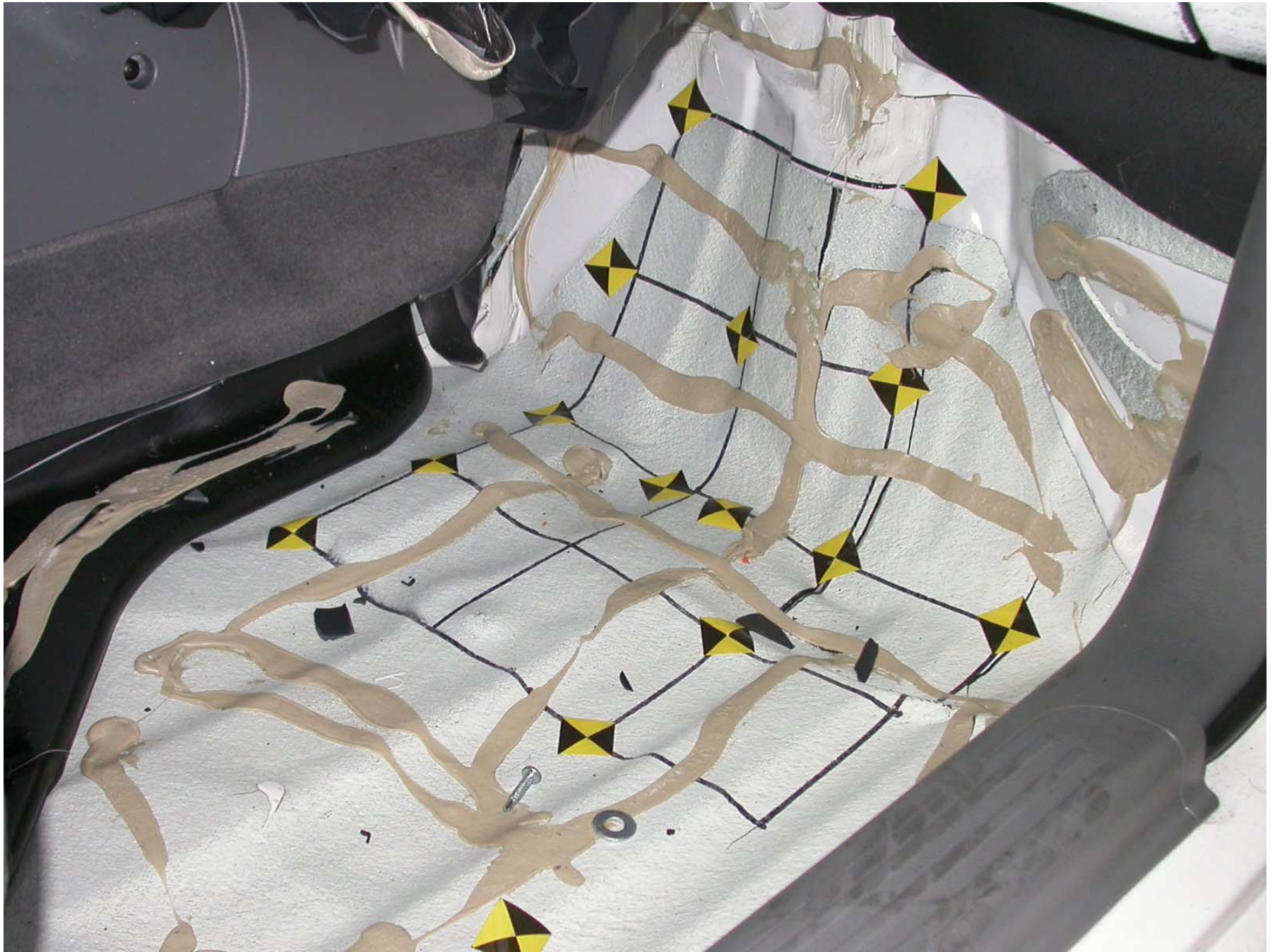


Figure A-55: Post-Test Passenger Side Floor Pan



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

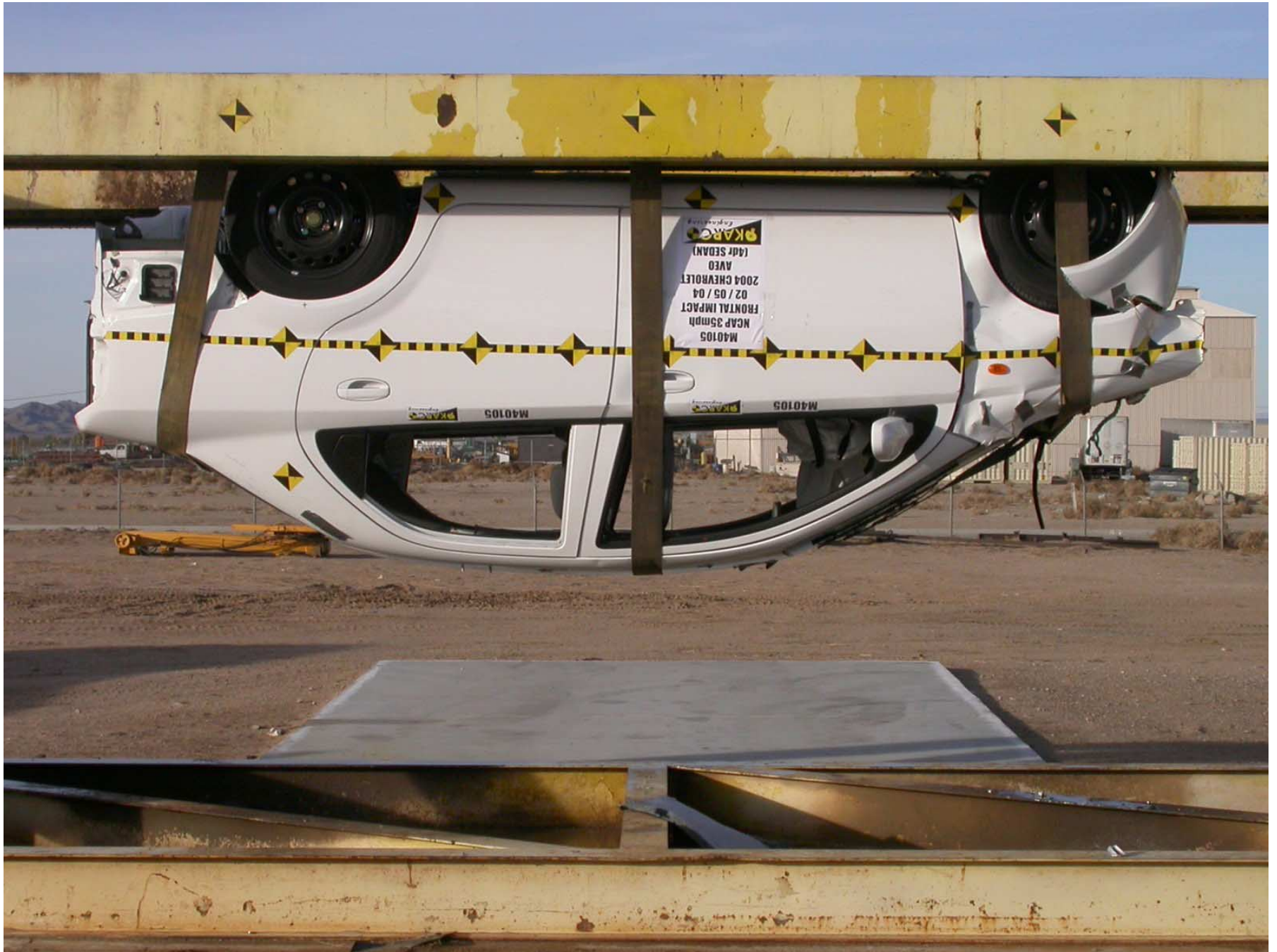


Figure A-60: Vehicle on Rollover Device

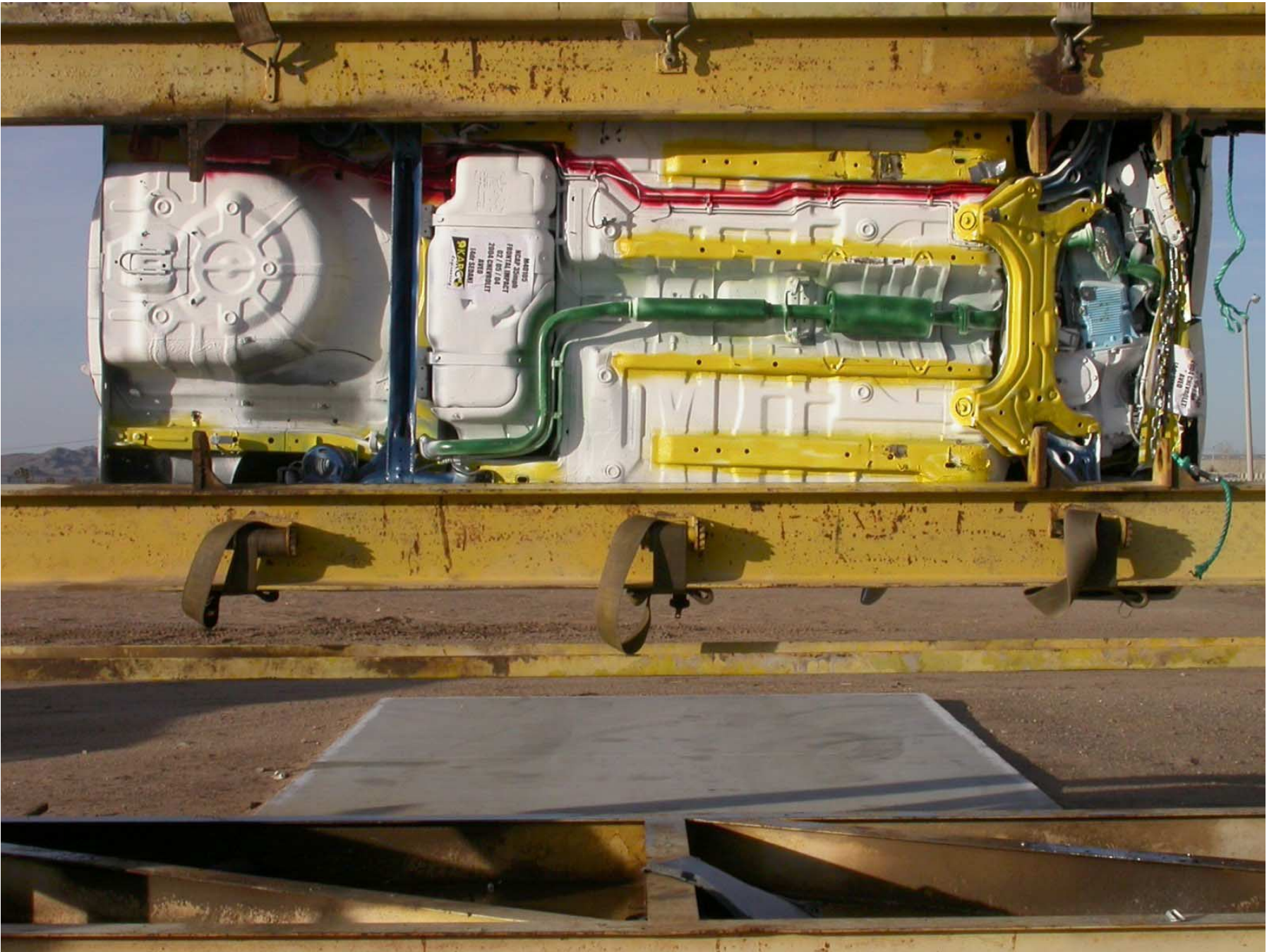


Figure A-61: Vehicle on Rollover Device



Figure A-62: Vehicle During Impact

APPENDIX B

DATA PLOTS

LIST OF DATA PLOTS

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

LIST OF DATA PLOTS...(Continued)

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

LIST OF DATA PLOTS...(Continued)

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

LIST OF DATA PLOTS...(Continued)

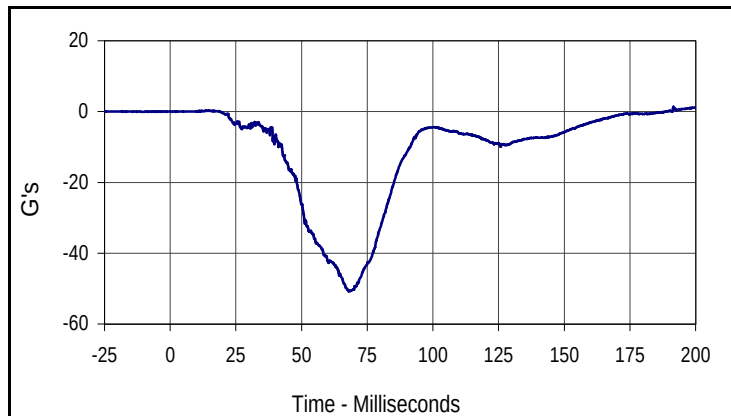
Data Plot	Page
B-34	Passenger Left Femur Force
	Passenger Right Femur Force
B-35	Passenger Left Upper Tibia Moment X
	Passenger Left Upper Tibia Moment Y
	Passenger Right Upper Tibia Moment X
	Passenger Right Upper Tibia Moment Y
B-36	Passenger Left Lower Tibia Moment X
	Passenger Left Lower Tibia Moment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

LIST OF DATA PLOTS...(Continued)

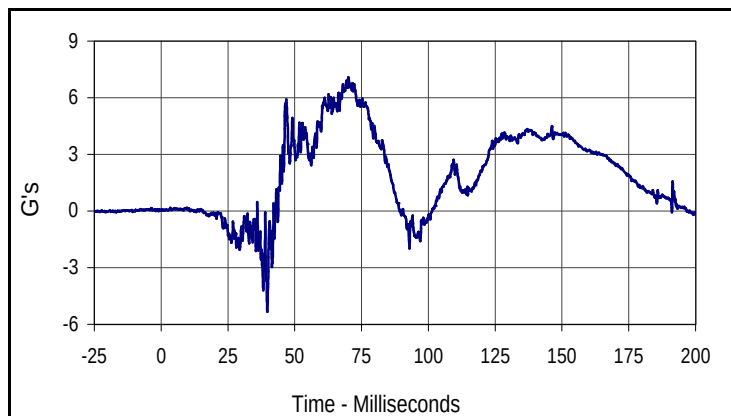
<u>Data Plot</u>	<u>Page</u>
B-45	Vehicle Left Brake Caliper
	Vehicle Left Brake Caliper Velocity
	Vehicle Left Brake Caliper Displacement
B-46	Vehicle Right Brake Caliper
	Vehicle Right Brake Caliper Velocity
	Vehicle Right Brake Caliper Displacement
B-47	Vehicle Instrument Panel
	Vehicle Instrument 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 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

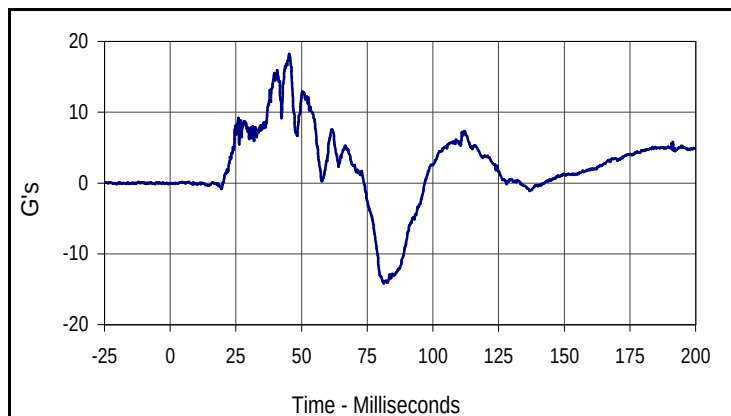
Test Date: 2/5/04
 NHTSA No.: M40105



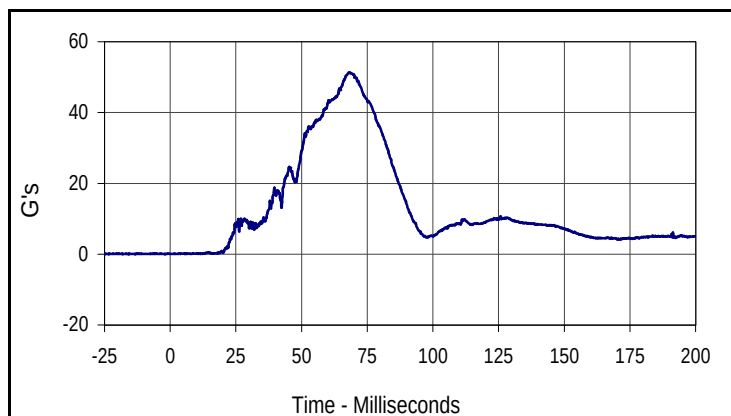
Curve Description			
Driver Head Primary X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
1.4	191.6	-50.7	68.0



Curve Description			
Driver Head Primary Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
7.1	70.1	-5.3	39.8



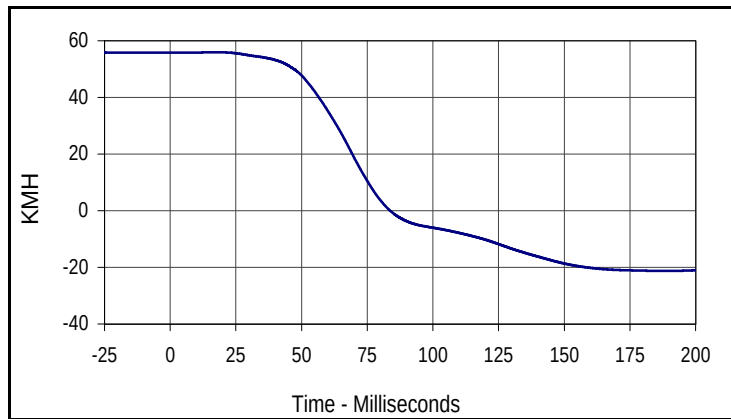
Curve Description			
Driver Head Primary Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
18.2	45.3	-14.1	81.3



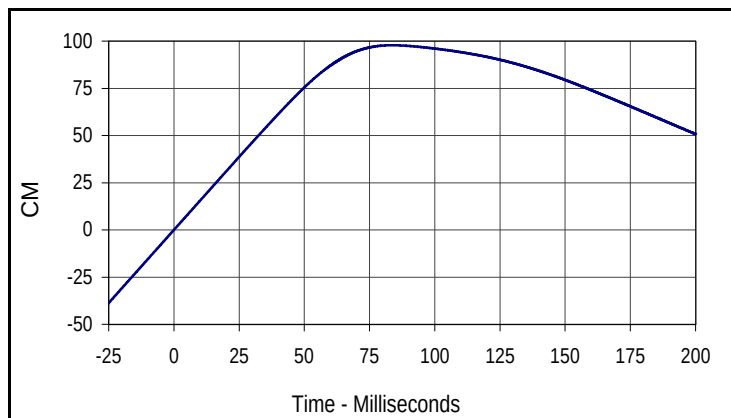
Curve Description			
Driver Head Resultant Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
51.4	68.0	0.0	2.5

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
 NHTSA No.: M40105



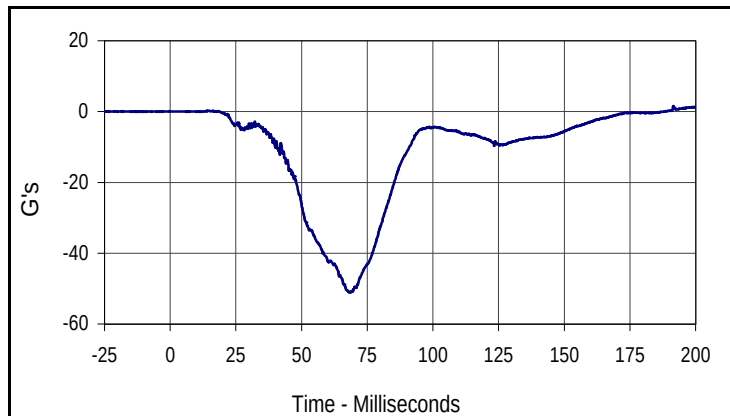
Curve Description			
Driver Head Primary X Velocity			
CURNO	Type	SAE Class	Units
001	IN1	180	KMH
Max	Time	Min	Time
55.9	19.0	-21.3	189.1



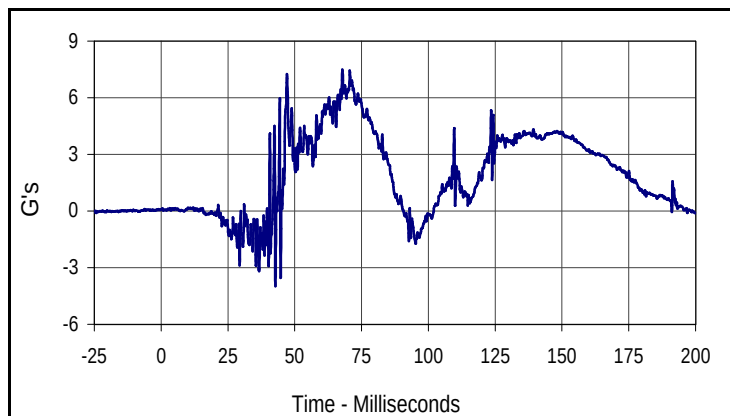
Curve Description			
Driver Head Primary X Displacement			
CURNO	Type	SAE Class	Units
001	IN2	180	CM
Max	Time	Min	Time
97.8	83.7	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

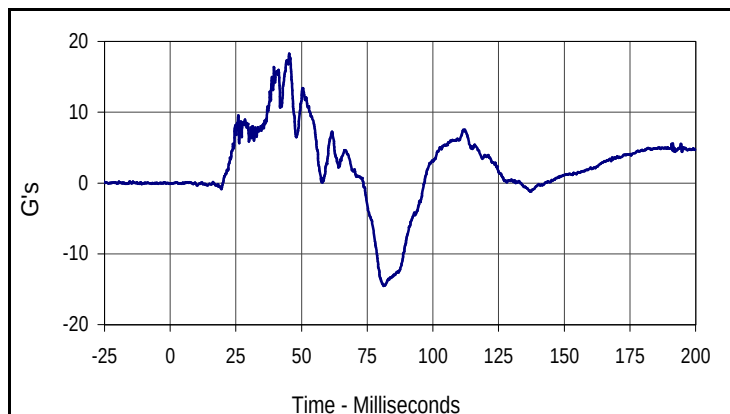
Test Date: 2/5/04
 NHTSA No.: M40105



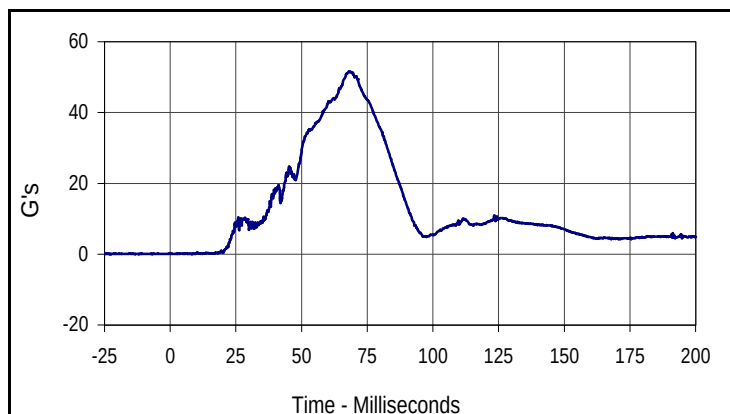
Curve Description			
Driver Head Redundant X			
CURNO	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
1.6	191.6	-51.0	68.6



Curve Description			
Driver Head Redundant Y			
CURNO	Type	SAE Class	Units
005	FIL	1000	G's
Max	Time	Min	Time
7.5	67.8	-4.0	42.8



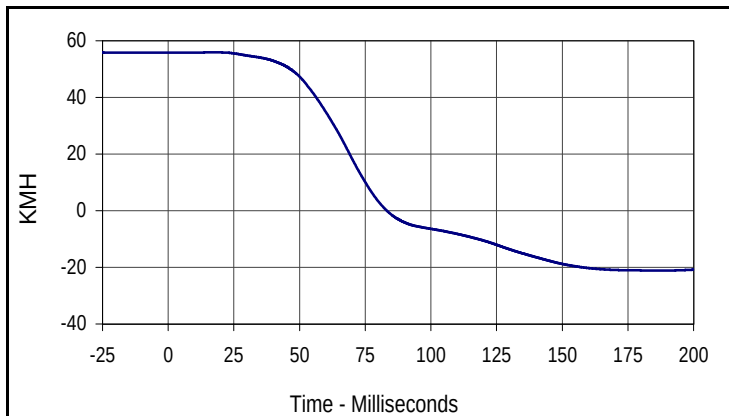
Curve Description			
Driver Head Redundant Z			
CURNO	Type	SAE Class	Units
006	FIL	1000	G's
Max	Time	Min	Time
18.3	45.3	-14.5	81.3



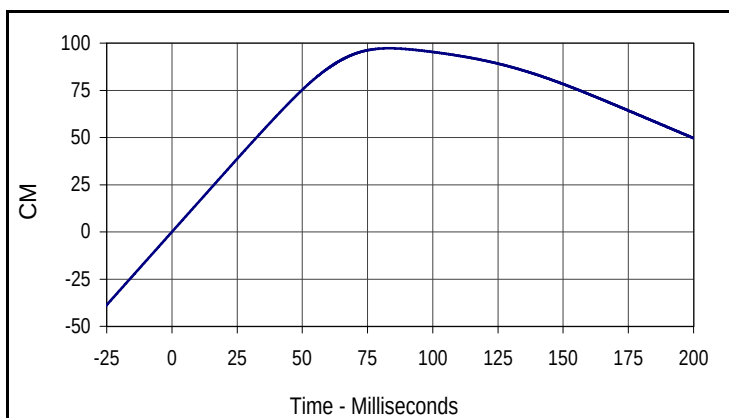
Curve Description			
Driver Head Resultant Redundant			
CURNO	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
51.6	67.9	0.0	8.2

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
 NHTSA No.: M40105



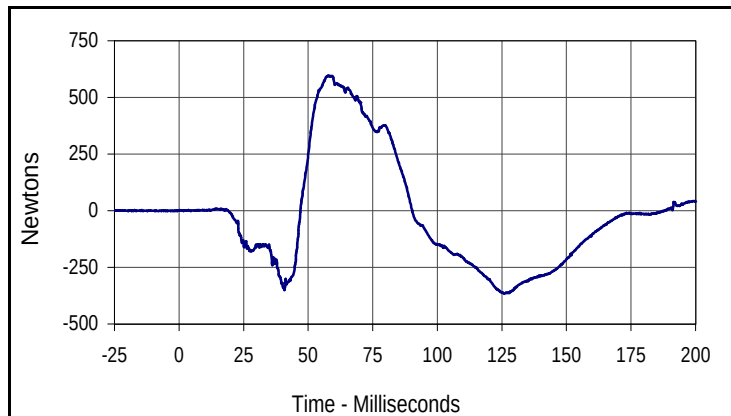
Curve Description			
Driver Head Redundant X Velocity			
CURNO	Type	SAE Class	Units
004	IN1	180	KMH
Max	Time	Min	Time
55.9	18.9	-21.2	188.0



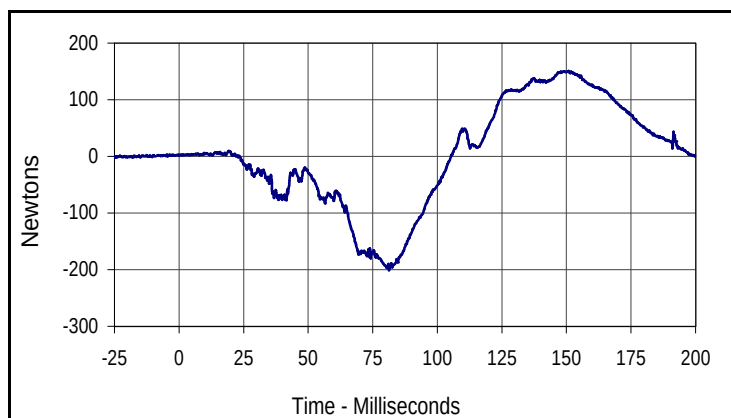
Curve Description			
Driver Head Redundant X Displacement			
CURNO	Type	SAE Class	Units
004	IN2	180	CM
Max	Time	Min	Time
97.3	83.2	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

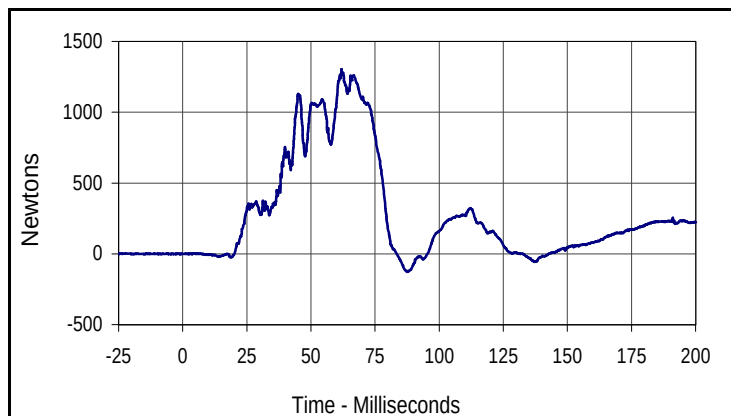
Test Date: 2/5/04
 NHTSA No.: M40105



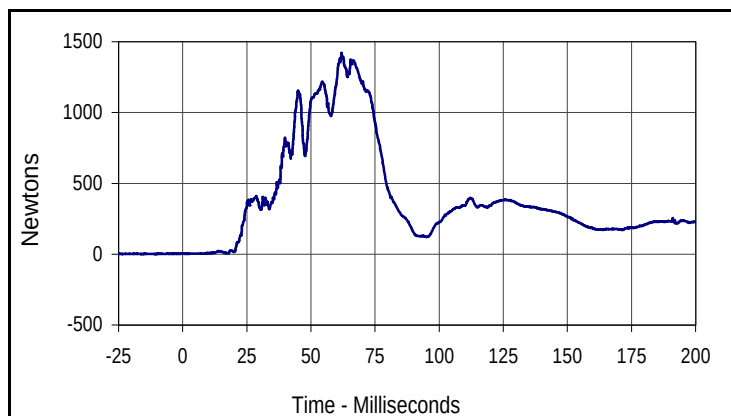
Curve Description			
Driver Upper Neck Force X			
CURNO	Type	SAE Class	Units
007	FIL	1000	Newtons
Max	Time	Min	Time
595.8	58.1	-365.9	125.7



Curve Description			
Driver Upper Neck Force Y			
CURNO	Type	SAE Class	Units
008	FIL	1000	Newtons
Max	Time	Min	Time
151.1	150.9	-201.0	81.3



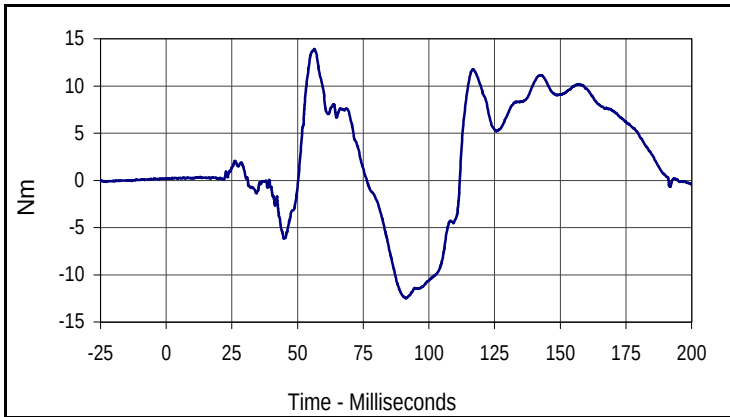
Curve Description			
Driver Upper Neck Force Z			
CURNO	Type	SAE Class	Units
009	FIL	1000	Newtons
Max	Time	Min	Time
1304.5	62.0	-126.6	87.6



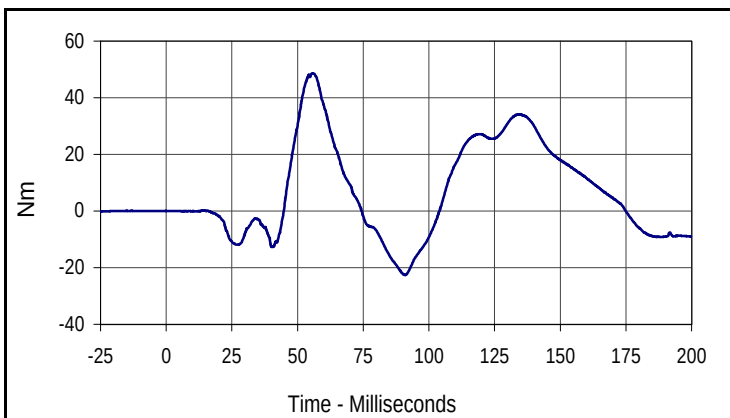
Curve Description			
Driver Upper Neck Force Res.			
CURNO	Type	SAE Class	Units
007	RES	1000	Newtons
Max	Time	Min	Time
1419.8	62.0	1.6	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

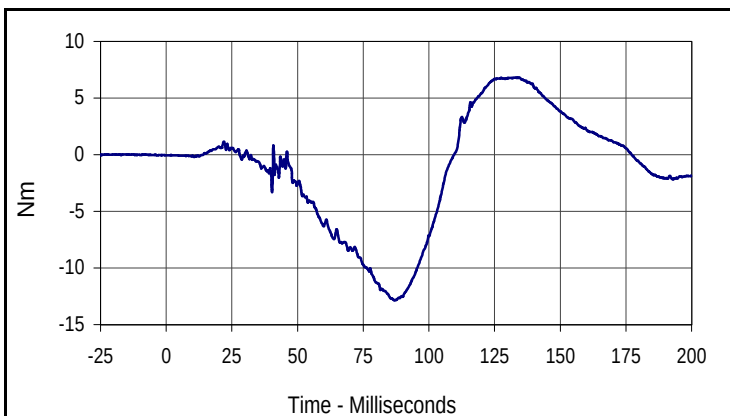
Test Date: 2/5/04
 NHTSA No.: M40105



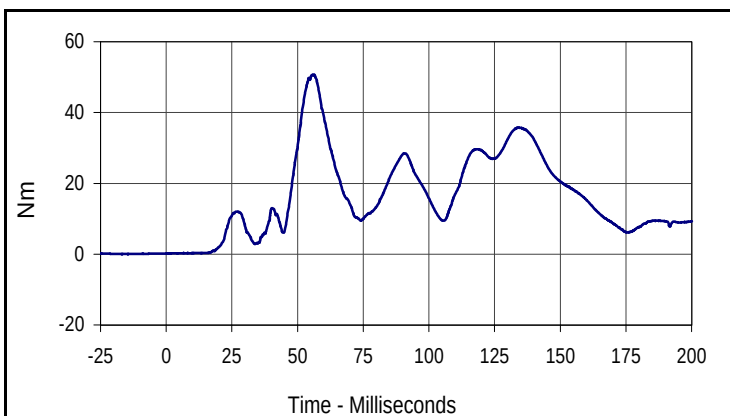
Curve Description			
Driver Upper Neck Moment X			
CURNO	Type	SAE Class	Units
010	FIL	600	Nm
Max	Time	Min	Time
13.9	56.4	-12.5	91.3



Curve Description			
Driver Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
011	FIL	600	Nm
Max	Time	Min	Time
48.6	55.8	-22.6	90.9



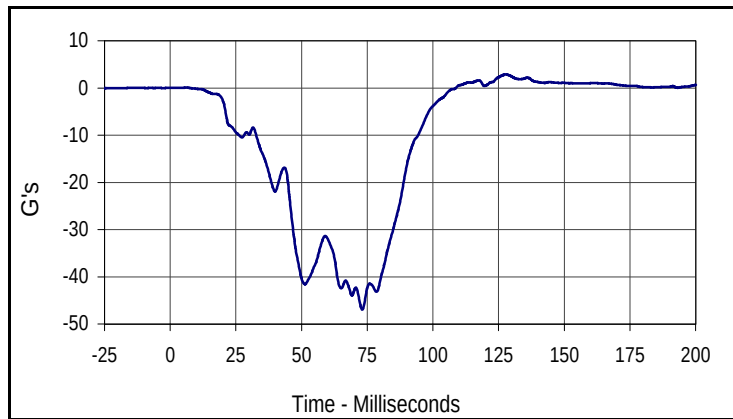
Curve Description			
Driver Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
012	FIL	600	Nm
Max	Time	Min	Time
6.8	132.5	-12.9	87.2



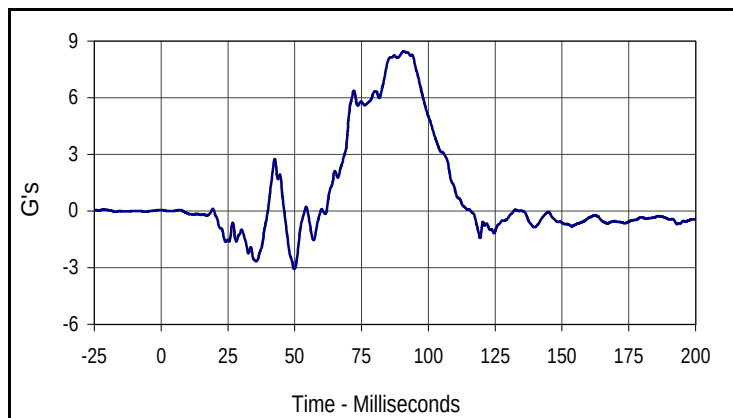
Curve Description			
Driver Upper Neck Moment Res.			
CURNO	Type	SAE Class	Units
010	RES	600	Nm
Max	Time	Min	Time
50.7	55.8	0.2	1.8

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

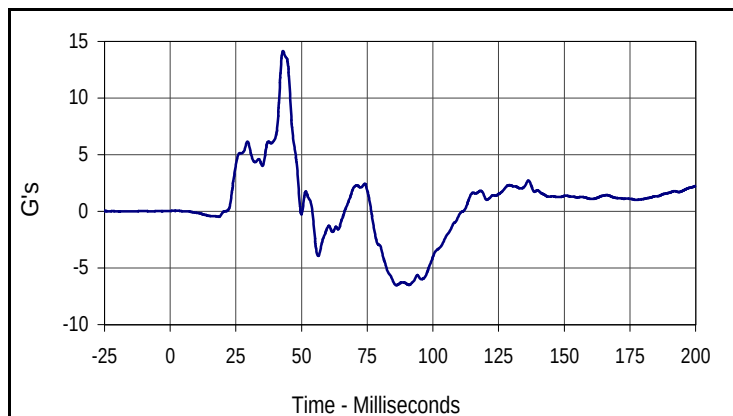
Test Date: 2/5/04
 NHTSA No.: M40105



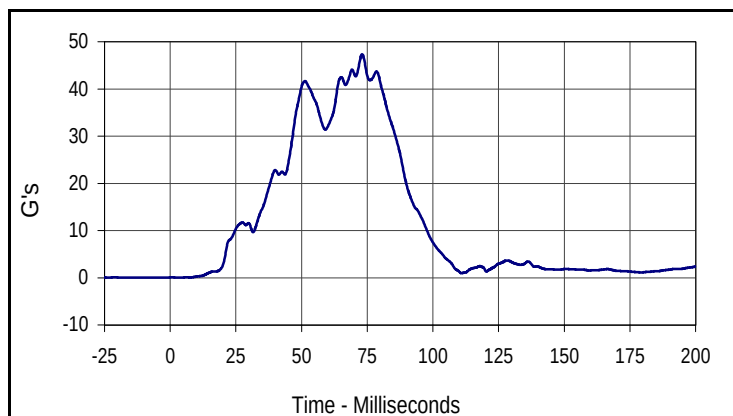
Curve Description			
Driver Chest Primary X			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
2.9	127.6	-46.9	73.1



Curve Description			
Driver Chest Primary Y			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
8.5	90.8	-3.1	49.8



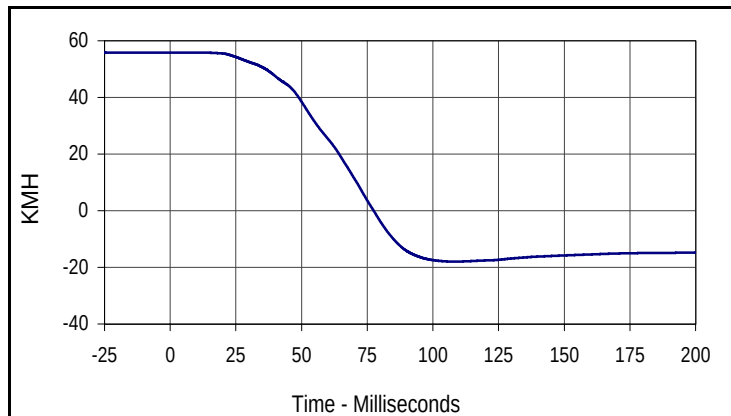
Curve Description			
Driver Chest Primary Z			
CURNO	Type	SAE Class	Units
015	FIL	180	G's
Max	Time	Min	Time
14.2	42.9	-6.5	86.0



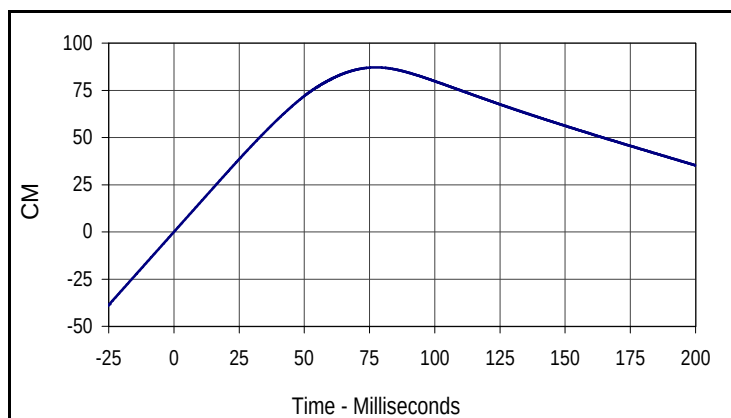
Curve Description			
Driver Chest Resultant Primary			
CURNO	Type	SAE Class	Units
013	RES	180	G's
Max	Time	Min	Time
47.3	73.1	0.0	7.5

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
 NHTSA No.: M40105



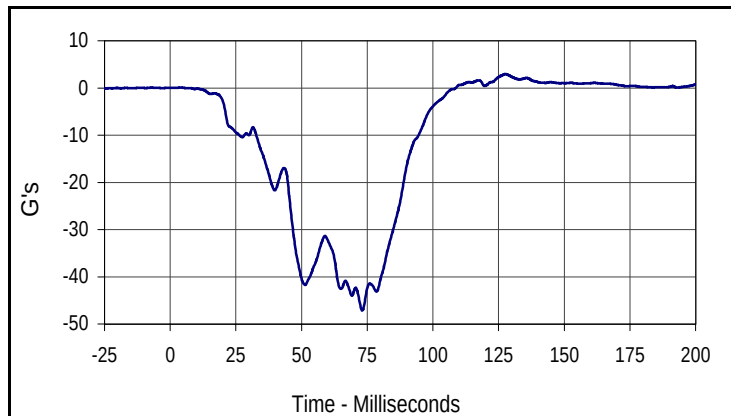
Curve Description			
Driver Chest Primary X Velocity			
CURNO	Type	SAE Class	Units
013	IN1	180	KMH
Max	Time	Min	Time
55.9	7.4	-18.0	108.8



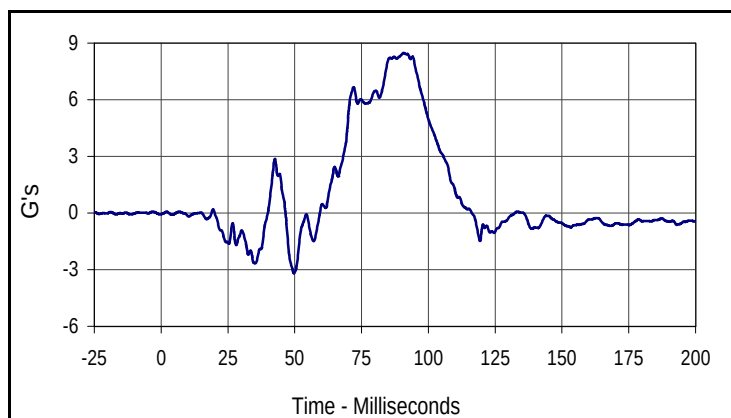
Curve Description			
Driver Chest Primary X Displacement			
CURNO	Type	SAE Class	Units
013	IN2	180	CM
Max	Time	Min	Time
87.1	77.5	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

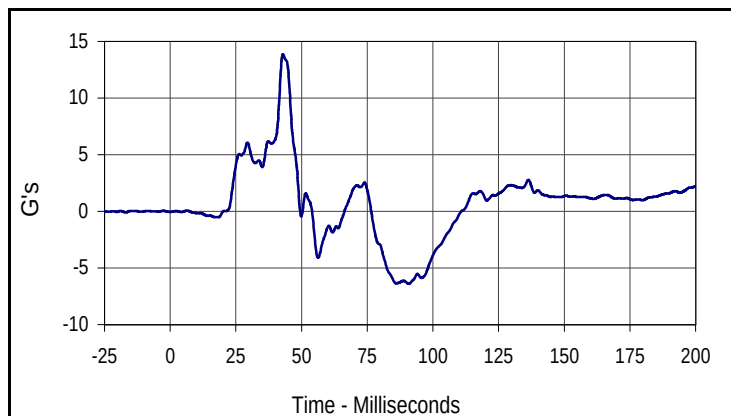
Test Date: 2/5/04
 NHTSA No.: M40105



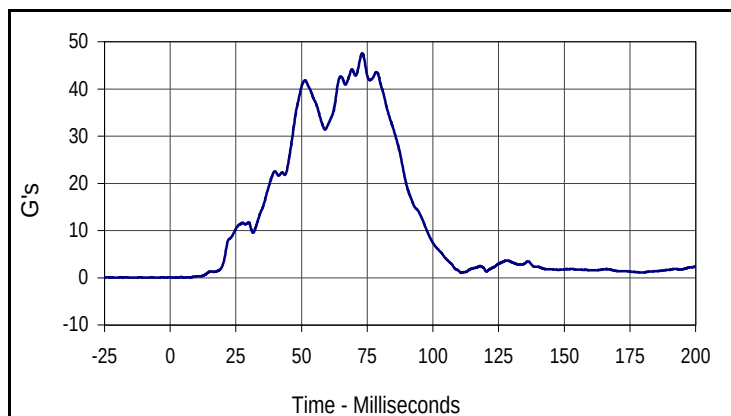
Curve Description			
Driver Chest Redundant X			
CURNO	Type	SAE Class	Units
016	FIL	180	G's
Max	Time	Min	Time
2.9	127.6	-47.1	73.1



Curve Description			
Driver Chest Redundant Y			
CURNO	Type	SAE Class	Units
017	FIL	180	G's
Max	Time	Min	Time
8.5	90.8	-3.2	49.7



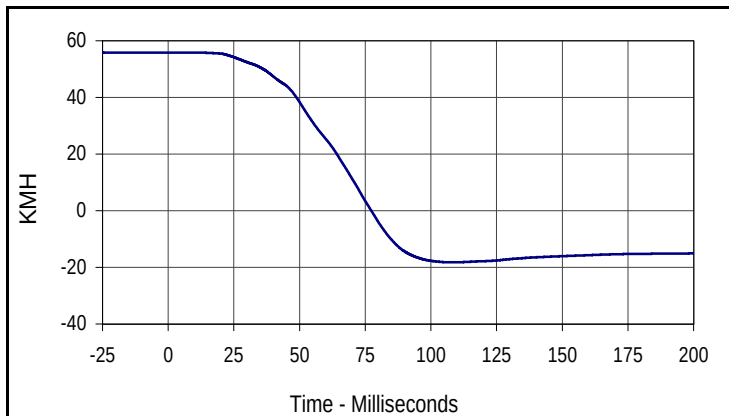
Curve Description			
Driver Chest Redundant Z			
CURNO	Type	SAE Class	Units
018	FIL	180	G's
Max	Time	Min	Time
13.9	42.9	-6.4	90.8



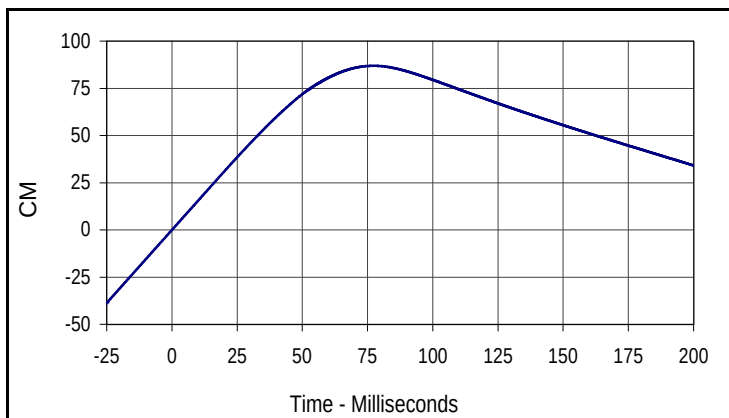
Curve Description			
Driver Chest Resultant Redundant			
CURNO	Type	SAE Class	Units
016	RES	180	G's
Max	Time	Min	Time
47.6	73.1	0.0	5.5

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
 NHTSA No.: M40105



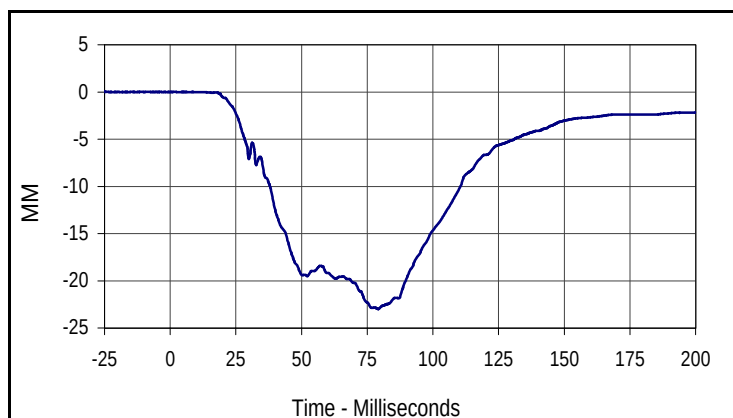
Curve Description			
Driver Chest Redundant X Velocity			
CURNO	Type	SAE Class	Units
016	IN1	180	KMH
Max	Time	Min	Time
55.8	5.6	-18.2	108.7



Curve Description			
Driver Chest Redundant X Displacement			
CURNO	Type	SAE Class	Units
016	IN2	180	CM
Max	Time	Min	Time
86.9	77.3	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

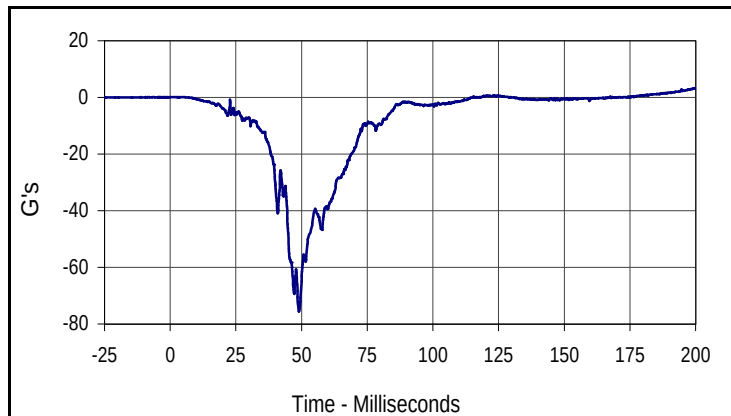
Test Date: 2/5/04
 NHTSA No.: M40105



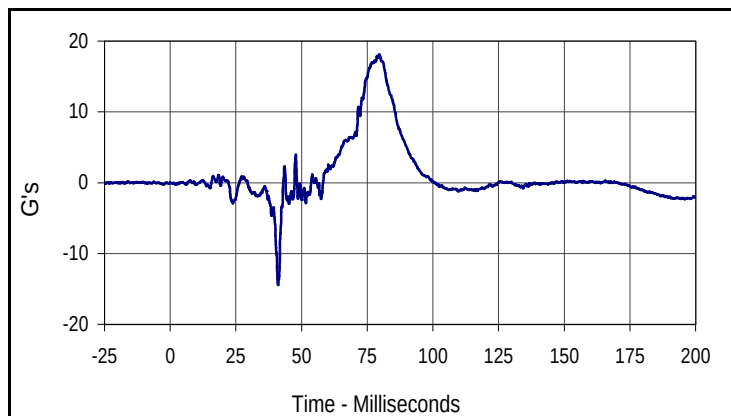
Curve Description			
Driver Chest Displacement			
CURNO	Type	SAE Class	Units
019	FIL	600	MM
Max	Time	Min	Time
0.0	1.4	-23.0	79.2

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

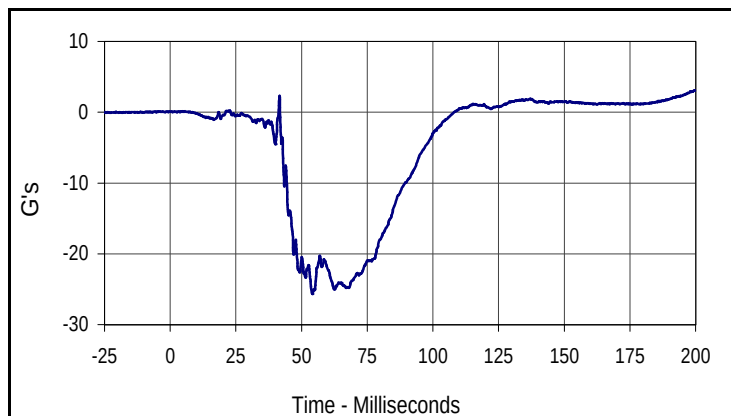
Test Date: 2/5/04
 NHTSA No.: M40105



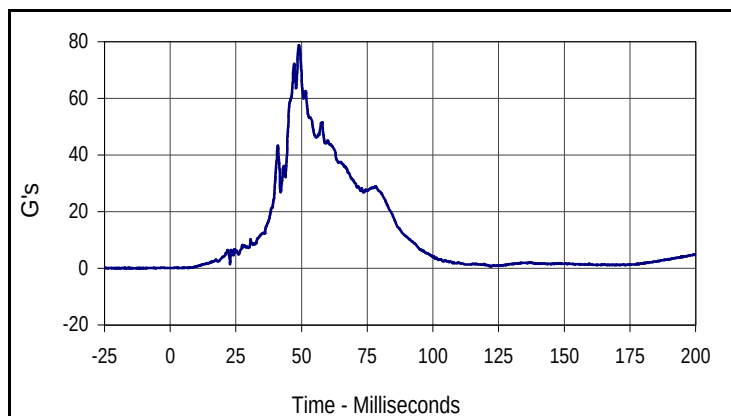
Curve Description			
Driver Pelvis X			
CURNO	Type	SAE Class	Units
020	FIL	1000	G's
Max	Time	Min	Time
3.2	200.0	-75.6	49.0



Curve Description			
Driver Pelvis Y			
CURNO	Type	SAE Class	Units
021	FIL	1000	G's
Max	Time	Min	Time
18.1	79.5	-14.4	41.0



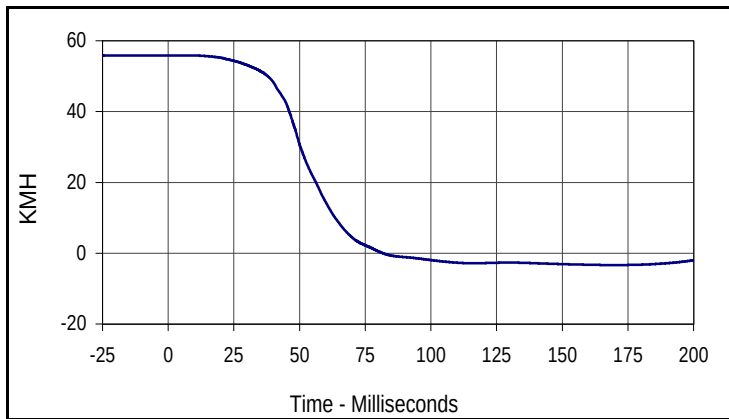
Curve Description			
Driver Pelvis Z			
CURNO	Type	SAE Class	Units
022	FIL	1000	G's
Max	Time	Min	Time
3.1	199.4	-25.7	54.0



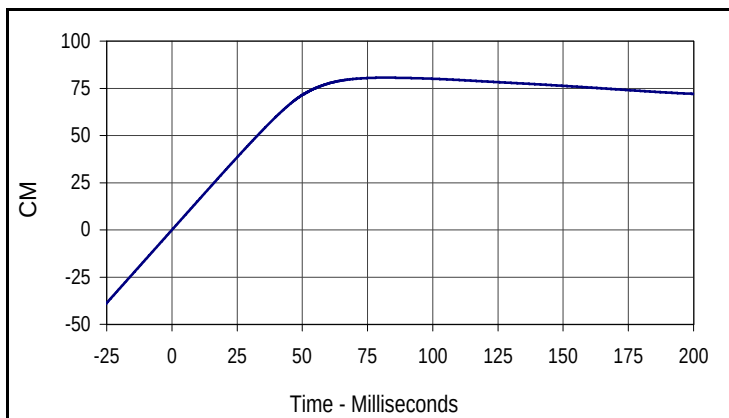
Curve Description			
Driver Pelvis Resultant			
CURNO	Type	SAE Class	Units
020	RES	1000	G's
Max	Time	Min	Time
78.8	49.0	0.1	3.6

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
 NHTSA No.: M40105



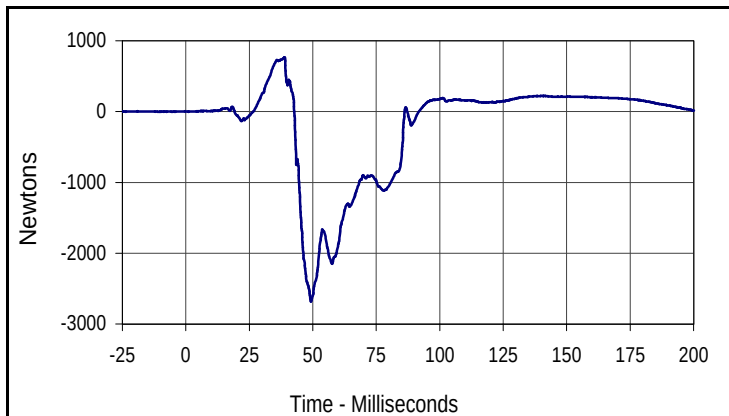
Curve Description			
Driver Pelvis X Velocity			
CURNO	Type	SAE Class	Units
020	IN1	180	KMH
Max	Time	Min	Time
55.9	6.2	-3.3	166.9



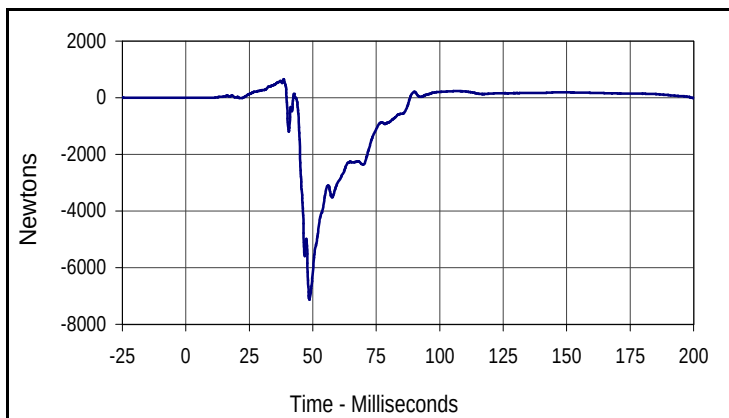
Curve Description			
Driver Pelvis X Displacement			
CURNO	Type	SAE Class	Units
020	IN2	180	CM
Max	Time	Min	Time
80.6	81.7	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
 NHTSA No.: M40105



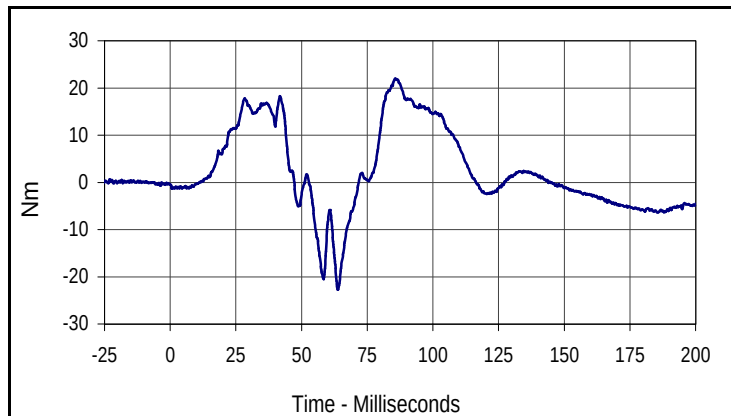
Curve Description			
Driver Left Femur Force			
CURNO	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
766.3	38.9	-2682.3	49.3



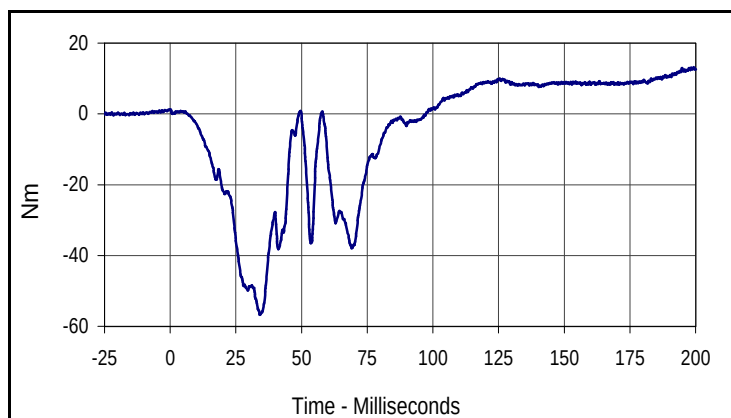
Curve Description			
Driver Right Femur Force			
CURNO	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
650.6	38.5	-7124.6	48.7

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

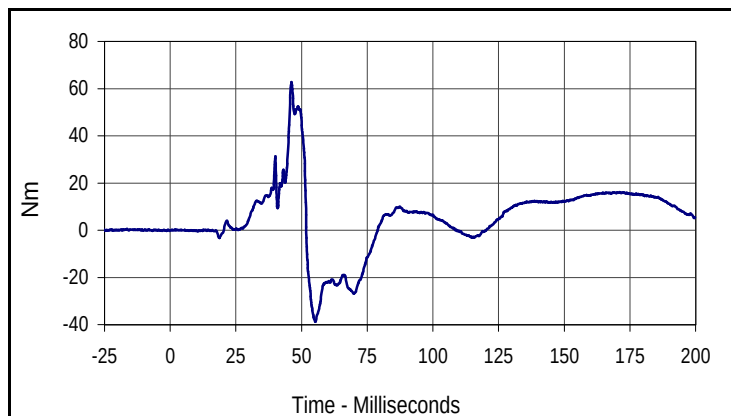
Test Date: 2/5/04
 NHTSA No.: M40105



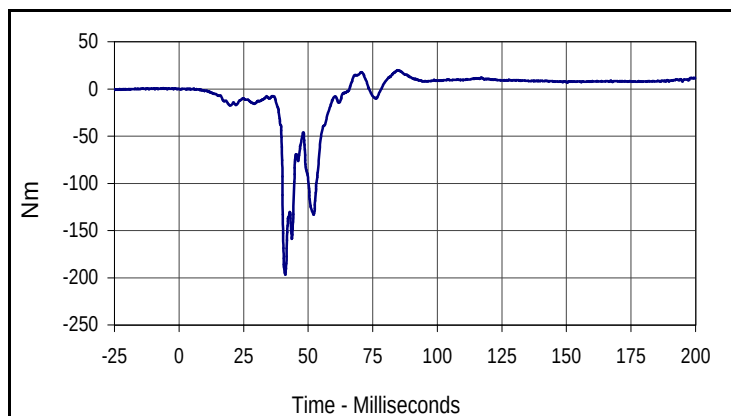
Curve Description			
Driver Left Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
025	FIL	600	Nm
Max	Time	Min	Time
22.0	85.6	-22.7	63.8



Curve Description			
Driver Left Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
026	FIL	600	Nm
Max	Time	Min	Time
13.2	199.3	-56.8	34.2



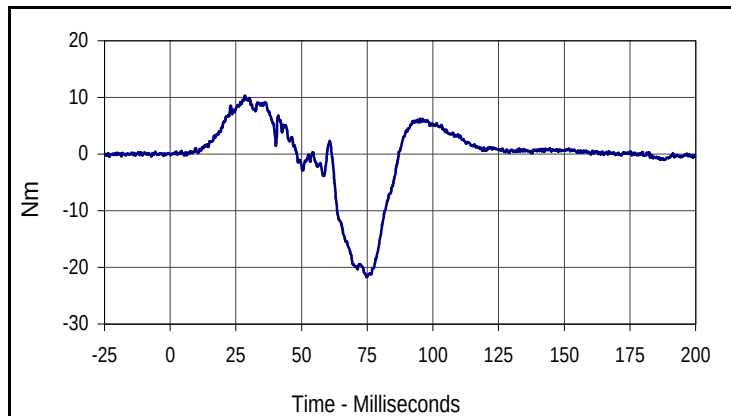
Curve Description			
Driver Right Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
027	FIL	600	Nm
Max	Time	Min	Time
62.8	46.2	-38.7	55.3



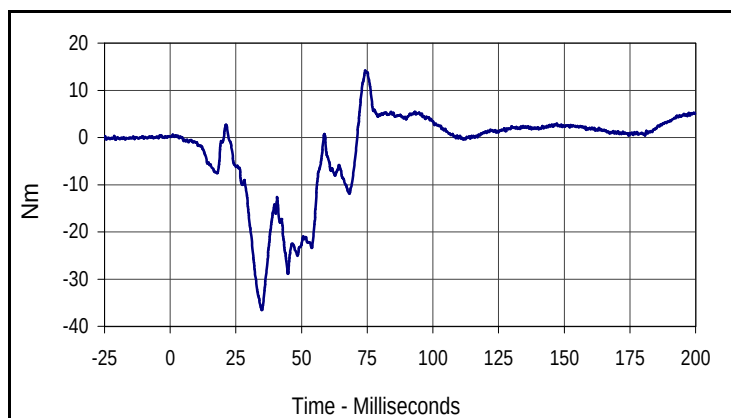
Curve Description			
Driver Right Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
028	FIL	600	Nm
Max	Time	Min	Time
19.7	84.6	-196.6	41.1

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

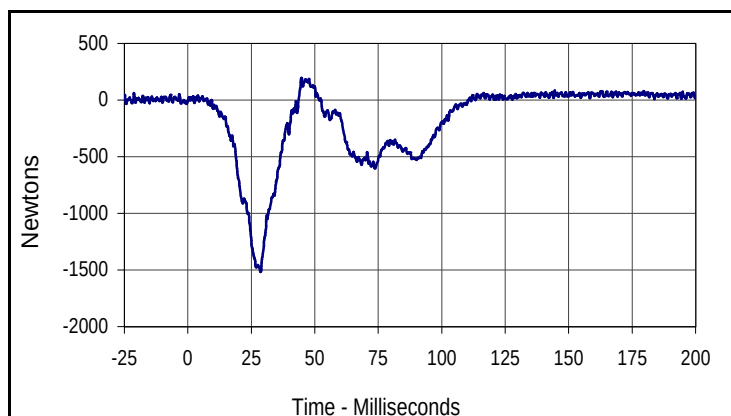
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Driver Left Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
029	FIL	600	Nm
Max	Time	Min	Time
10.3	28.4	-21.7	74.8



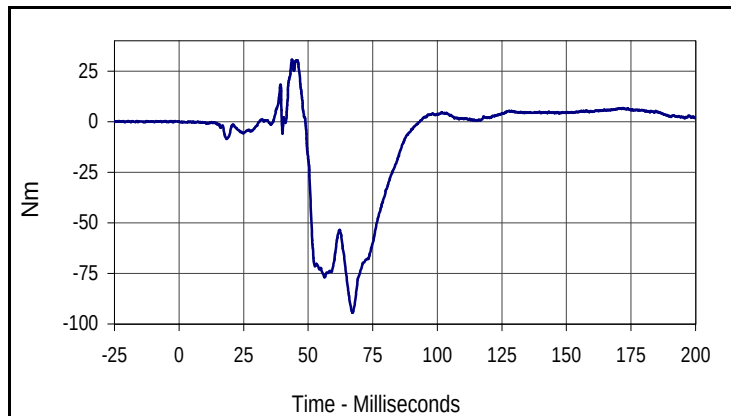
Curve Description			
Driver Left Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
030	FIL	600	Nm
Max	Time	Min	Time
14.2	74.2	-36.5	34.9



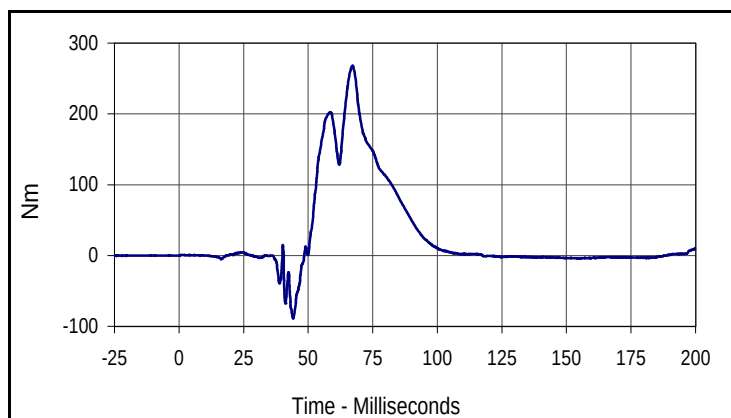
Curve Description			
Driver Left Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
031	FIL	600	Newtons
Max	Time	Min	Time
194.5	44.7	-1518.1	28.7

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

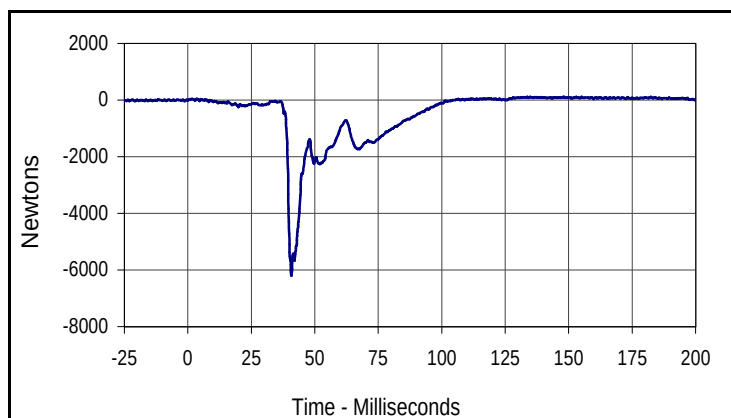
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Driver Right Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
032	FIL	600	Nm
Max	Time	Min	Time
30.6	43.8	-94.5	67.2



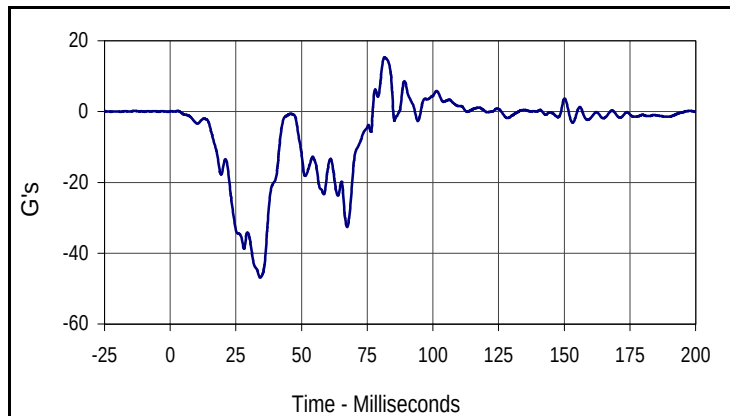
Curve Description			
Driver Right Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
033	FIL	600	Nm
Max	Time	Min	Time
268.1	67.2	-88.9	44.2



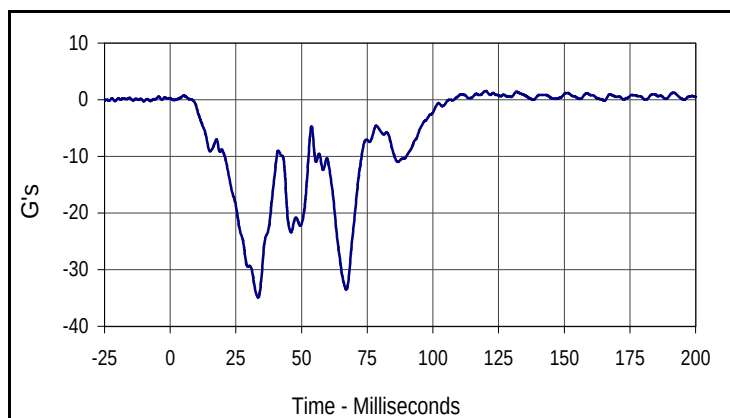
Curve Description			
Driver Right lower Tibia Force Z			
CURNO	Type	SAE Class	Units
034	FIL	600	Newtons
Max	Time	Min	Time
113.0	134.9	-6205.2	40.8

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

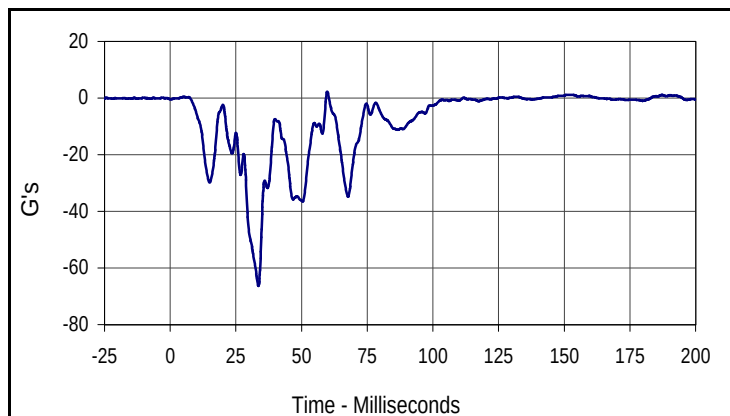
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Driver Left Foot Aft X			
CURNO	Type	SAE Class	Units
035	FIL	180	G's
Max	Time	Min	Time
15.3	81.7	-46.9	34.2



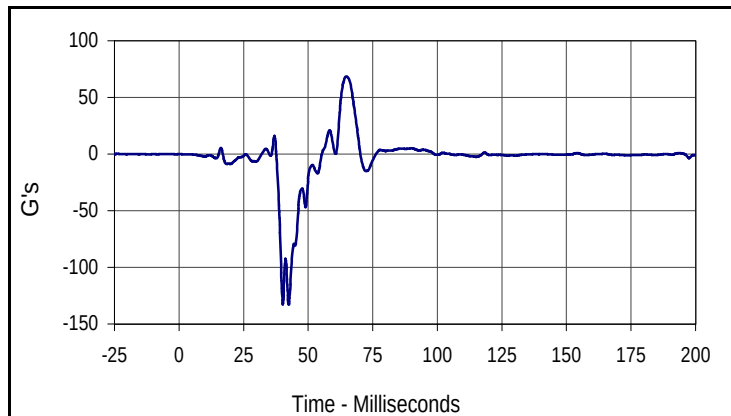
Curve Description			
Driver Left Foot Aft Z			
CURNO	Type	SAE Class	Units
036	FIL	180	G's
Max	Time	Min	Time
1.6	120.0	-34.9	33.5



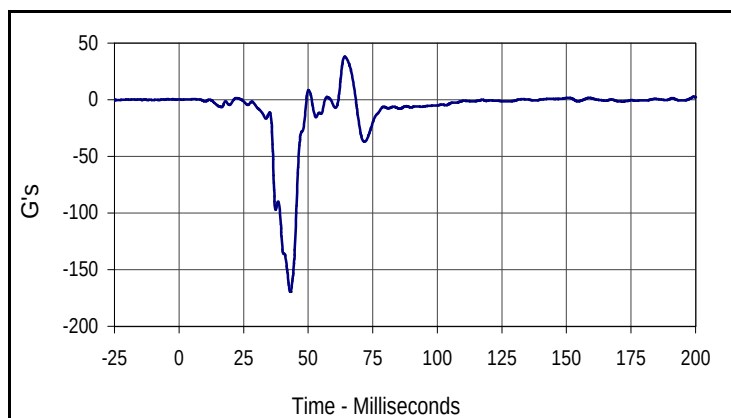
Curve Description			
Driver Left Foot Fore Z			
CURNO	Type	SAE Class	Units
037	FIL	180	G's
Max	Time	Min	Time
2.3	59.8	-66.3	33.6

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

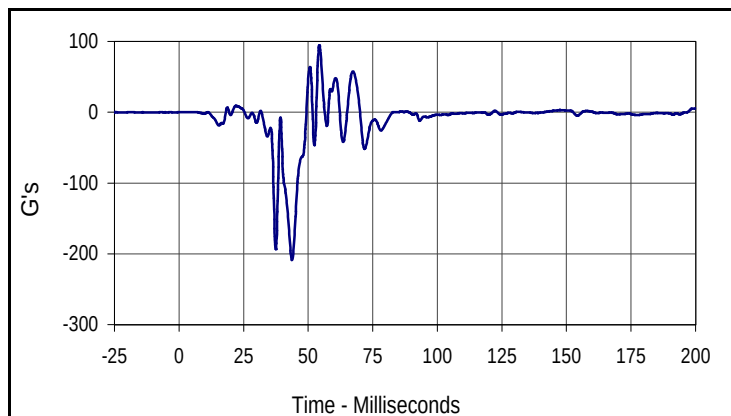
Test Date: 2/5/04
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Curve Description			
Driver Right Foot Aft X			
CURNO	Type	SAE Class	Units
038	FIL	180	G's
Max	Time	Min	Time
68.5	64.7	-132.8	42.5



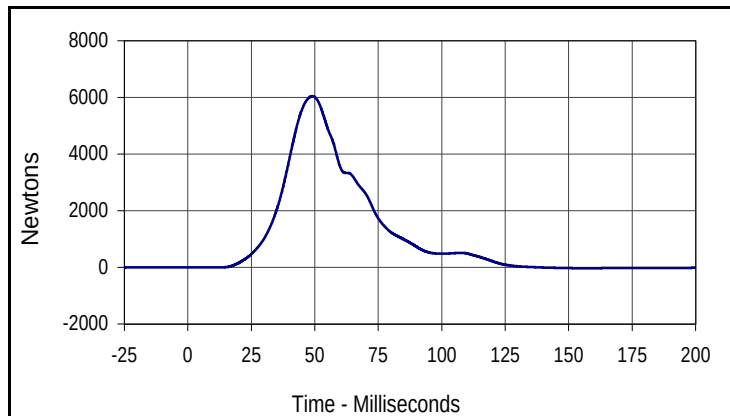
Curve Description			
Driver Right Foot Aft Z			
CURNO	Type	SAE Class	Units
039	FIL	180	G's
Max	Time	Min	Time
38.0	64.2	-169.5	43.1



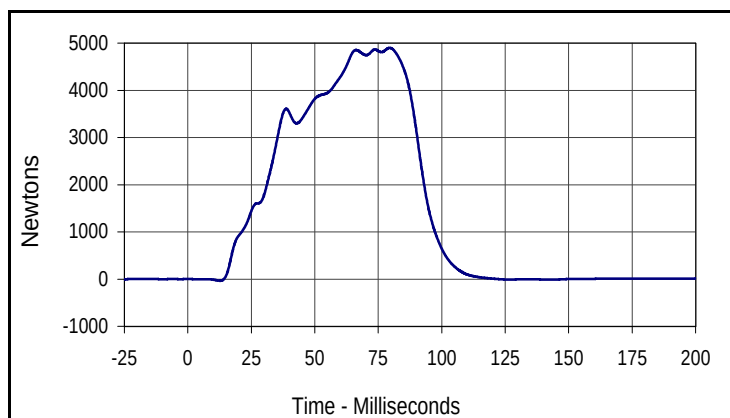
Curve Description			
Driver Right Foot Fore Z			
CURNO	Type	SAE Class	Units
040	FIL	180	G's
Max	Time	Min	Time
94.5	54.3	-208.8	43.8

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

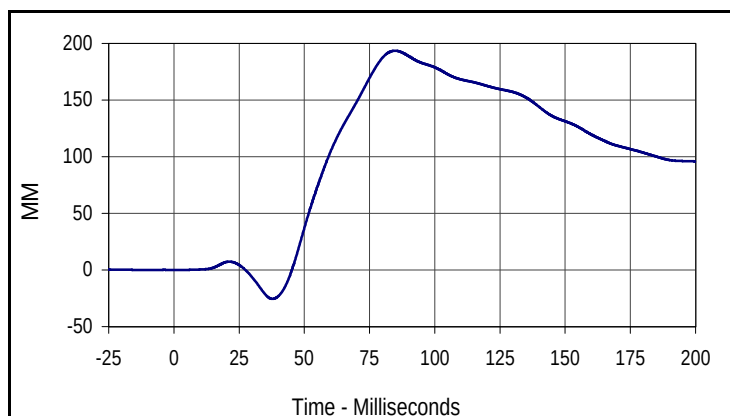
Test Date: 2/5/04
 NHTSA No.: M40105



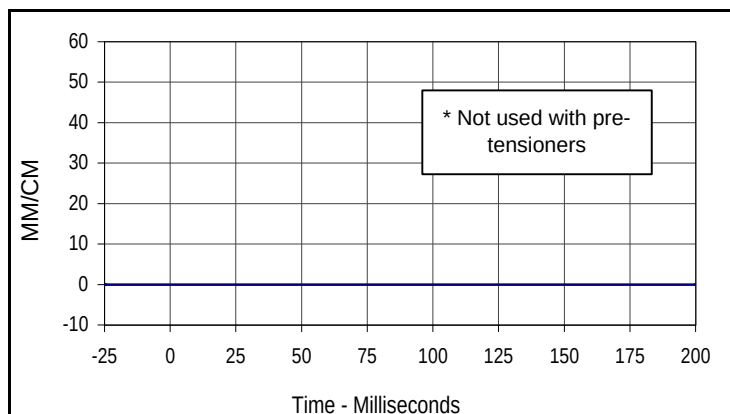
Curve Description			
Driver Lap Belt Force			
CURNO	Type	SAE Class	Units
041	FIL	60	Newtons
Max	Time	Min	Time
6043.2	49.0	-31.4	155.2



Curve Description			
Driver Shoulder Belt Force			
CURNO	Type	SAE Class	Units
042	FIL	60	Newtons
Max	Time	Min	Time
4899.4	79.5	-34.1	12.7



Curve Description			
Driver Shoulder Belt Pullout			
CURNO	Type	SAE Class	Units
043	FIL	60	MM
Max	Time	Min	Time
193.6	84.7	-25.5	37.8

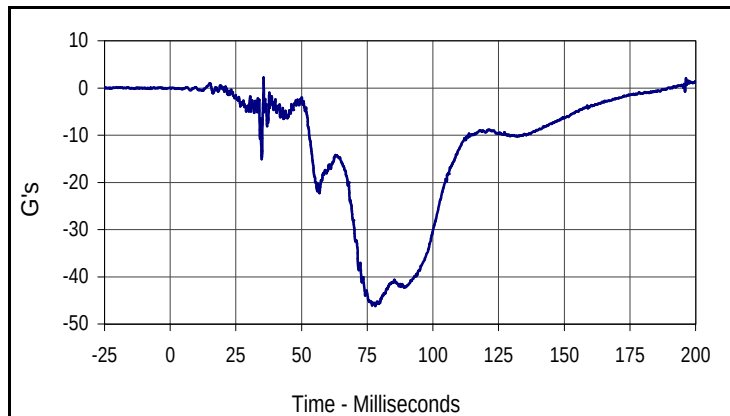


Curve Description			
Driver Shoulder Belt Elongation			
CURNO	Type	SAE Class	Units
044	FIL	60	MM/CM
Max	Time	Min	Time
0.0	0.0	0.0	0.0

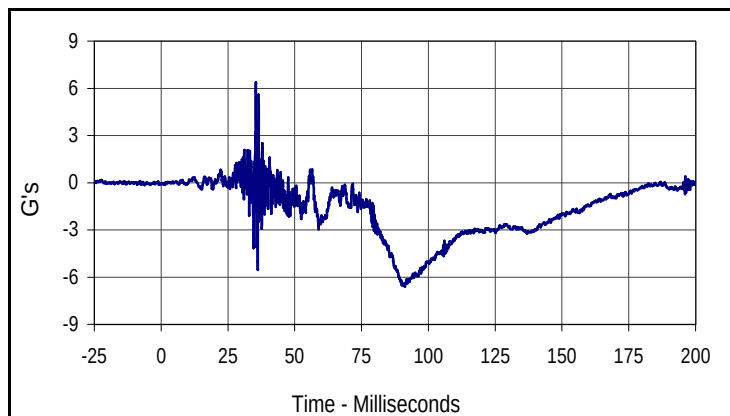
* Not used with pre-tensioners

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

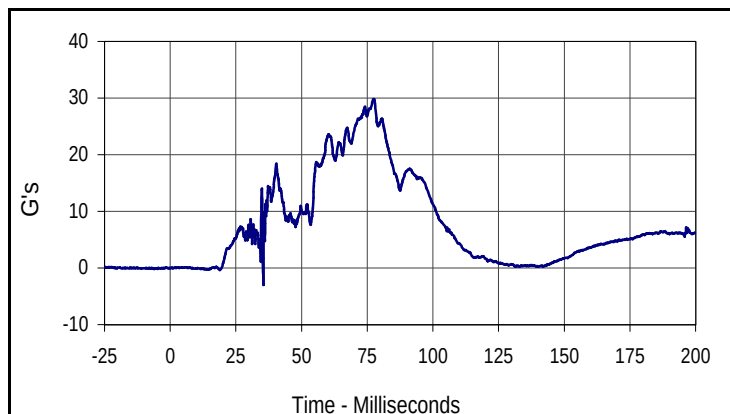
Test Date: 2/5/04
 NHTSA No.: M40105



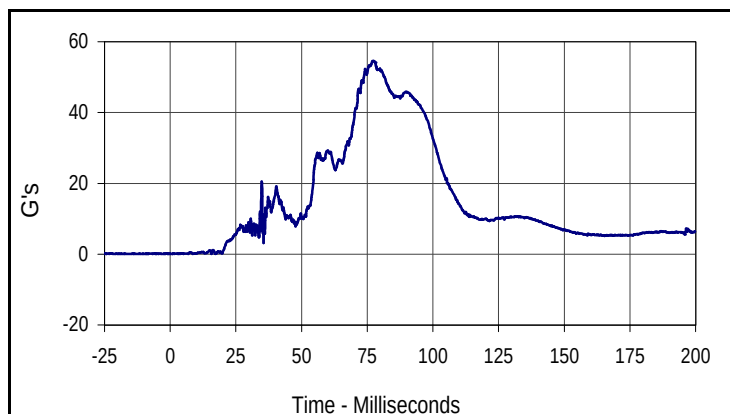
Curve Description			
Passenger Head Primary X			
CURNO	Type	SAE Class	Units
045	FIL	1000	G's
Max	Time	Min	Time
2.1	35.6	-46.2	78.1



Curve Description			
Passenger Head Primary Y			
CURNO	Type	SAE Class	Units
046	FIL	1000	G's
Max	Time	Min	Time
6.3	35.5	-6.6	91.3



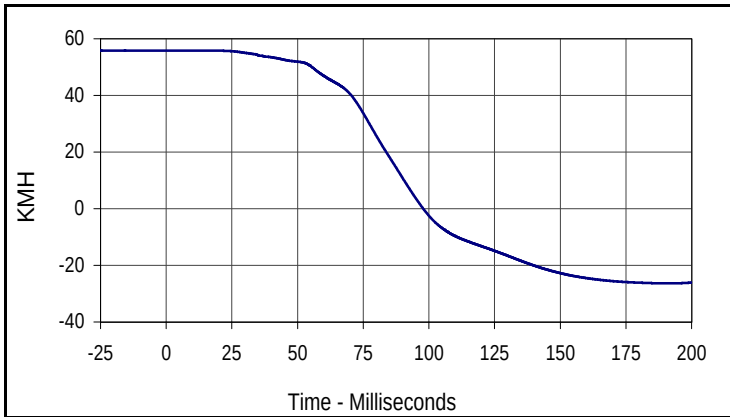
Curve Description			
Passenger Head Primary Z			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
29.8	77.6	-2.9	35.5



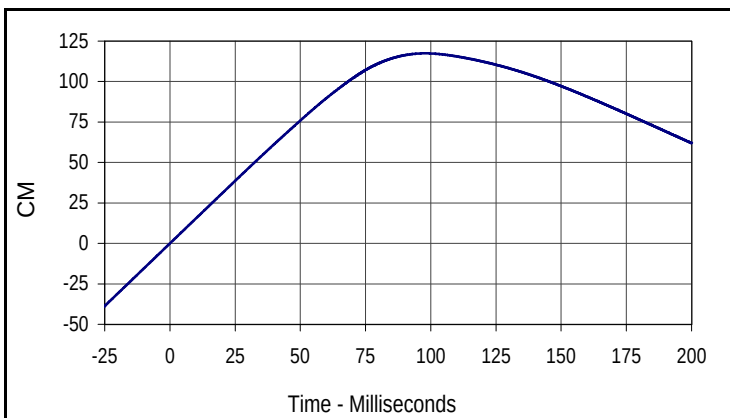
Curve Description			
Passenger Head Resultant Primary			
CURNO	Type	SAE Class	Units
045	RES	1000	G's
Max	Time	Min	Time
54.6	77.3	0.1	0.6

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
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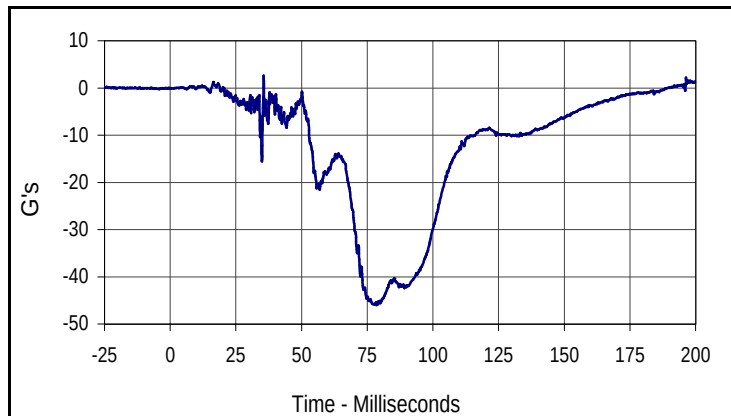
Curve Description			
Passenger Head Primary X Velocity			
CURNO	Type	SAE Class	Units
045	IN1	180	KMH
Max	Time	Min	Time
55.9	0.1	-26.3	189.4



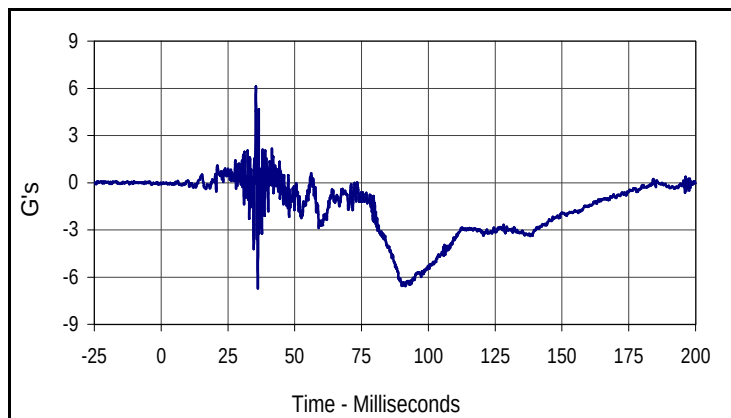
Curve Description			
Passenger Head Primary X Displacement			
CURNO	Type	SAE Class	Units
045	IN2	180	CM
Max	Time	Min	Time
117.4	97.8	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

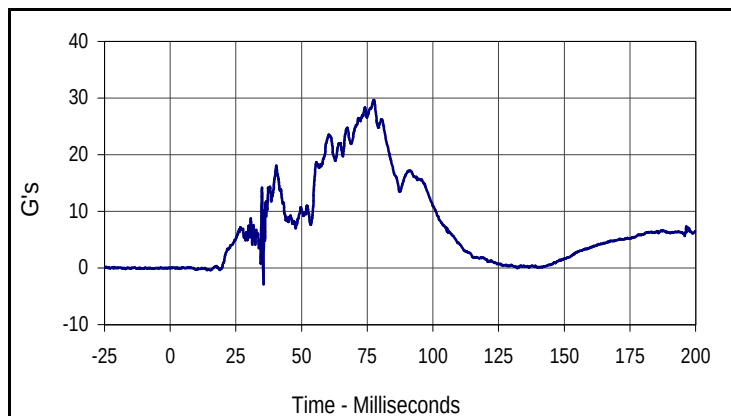
Test Date: 2/5/04
 NHTSA No.: M40105



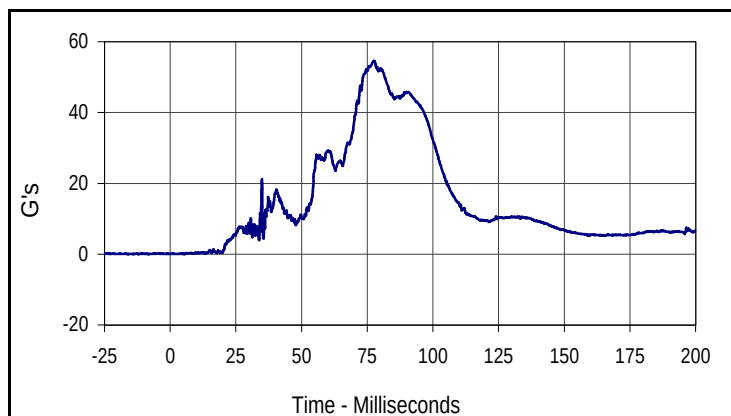
Curve Description			
Passenger Head Redundant X			
CURNO	Type	SAE Class	Units
048	FIL	1000	G's
Max	Time	Min	Time
2.6	35.6	-46.0	78.6



Curve Description			
Passenger Head Redundant Y			
CURNO	Type	SAE Class	Units
049	FIL	1000	G's
Max	Time	Min	Time
6.1	35.5	-6.7	36.2



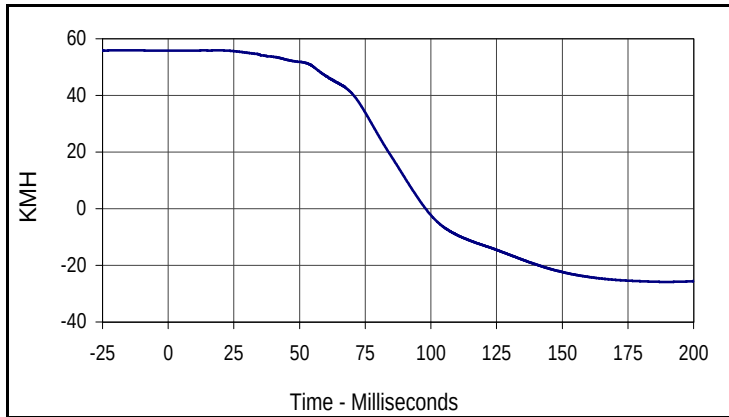
Curve Description			
Passenger Head Redundant Z			
CURNO	Type	SAE Class	Units
050	FIL	1000	G's
Max	Time	Min	Time
29.7	77.4	-2.9	35.5



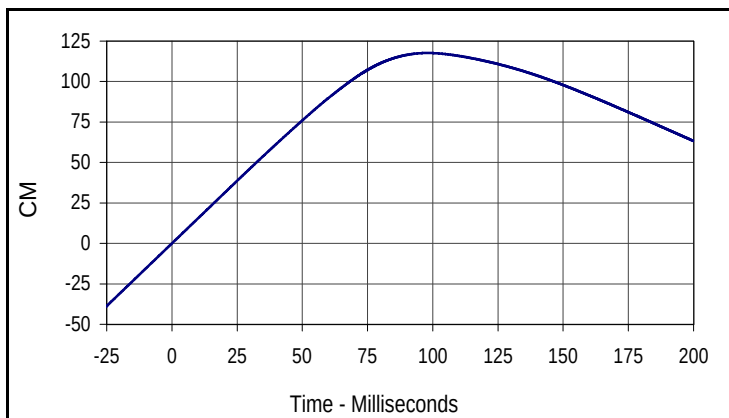
Curve Description			
Passenger Head Resultant Redundant			
CURNO	Type	SAE Class	Units
048	RES	1000	G's
Max	Time	Min	Time
54.6	77.5	0.0	5.3

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
 NHTSA No.: M40105



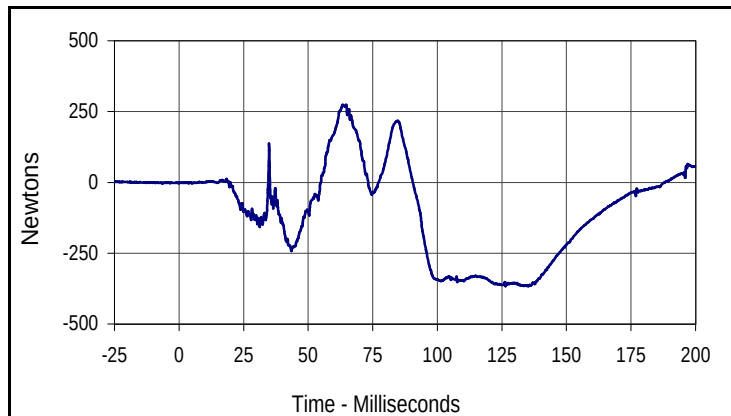
Curve Description			
Passenger Head Redundant X Velocity			
CURNO	Type	SAE Class	Units
048	IN1	180	KMH
Max	Time	Min	Time
55.9	18.9	-25.8	189.4



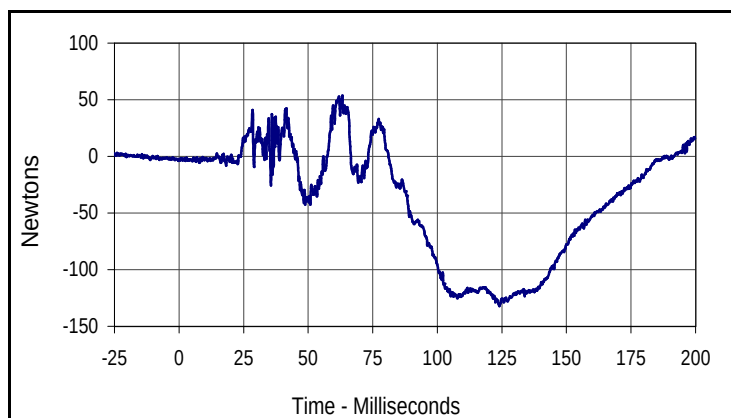
Curve Description			
Passenger Head Redundant X Displacement			
CURNO	Type	SAE Class	Units
048	IN2	180	CM
Max	Time	Min	Time
117.7	98.0	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

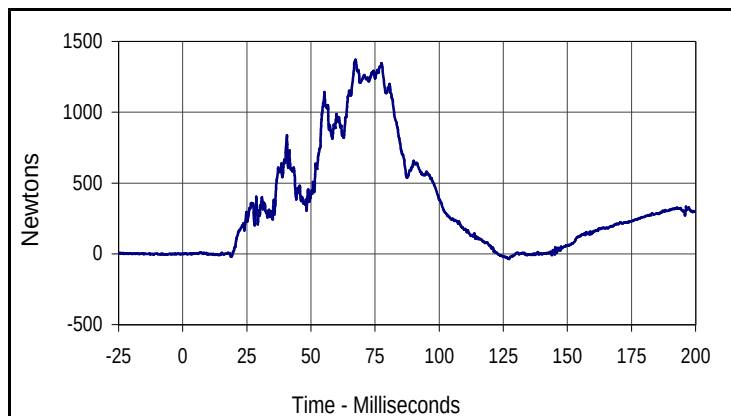
Test Date: 2/5/04
 NHTSA No.: M40105



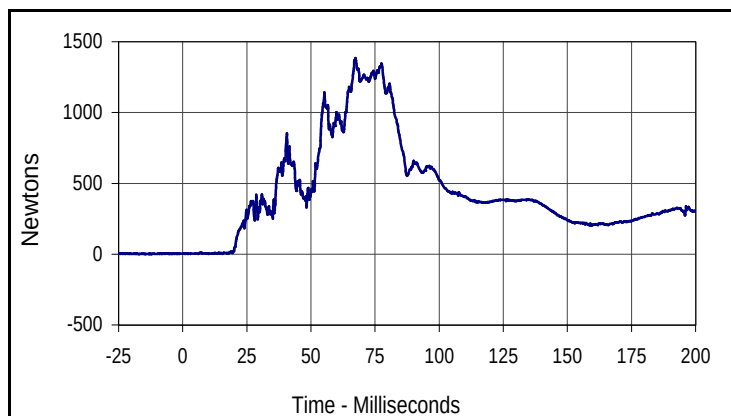
Curve Description			
Passenger Upper Neck Force X			
CURNO	Type	SAE Class	Units
051	FIL	1000	Newtons
Max	Time	Min	Time
274.3	63.4	-366.8	126.4



Curve Description			
Passenger Upper Neck Force Y			
CURNO	Type	SAE Class	Units
052	FIL	1000	Newtons
Max	Time	Min	Time
53.6	63.2	-132.3	124.0



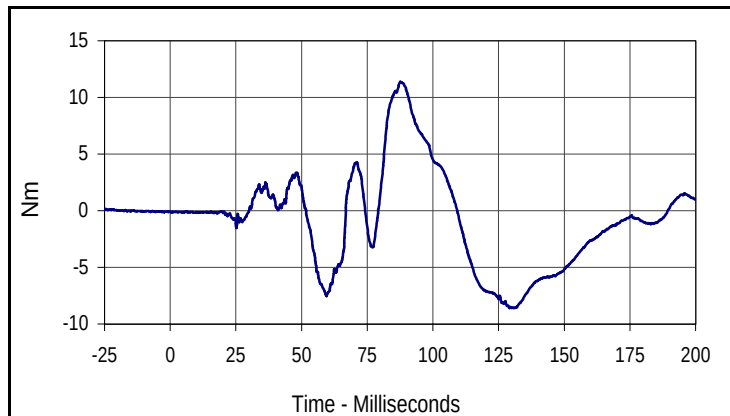
Curve Description			
Passenger Upper Neck Force Z			
CURNO	Type	SAE Class	Units
053	FIL	1000	Newtons
Max	Time	Min	Time
1371.3	67.4	-35.7	127.3



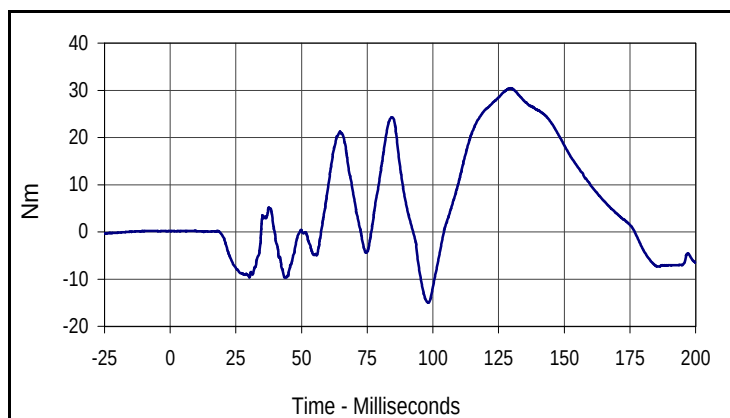
Curve Description			
Passenger Upper Neck Force Res.			
CURNO	Type	SAE Class	Units
051	RES	1000	Newtons
Max	Time	Min	Time
1385.5	67.4	2.0	9.5

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

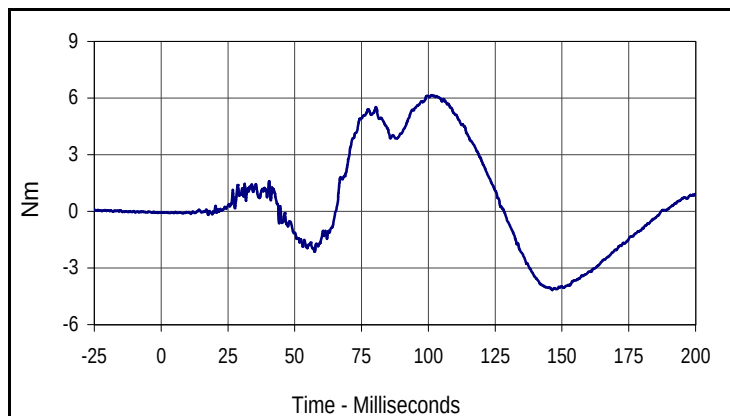
Test Date: 2/5/04
 NHTSA No.: M40105



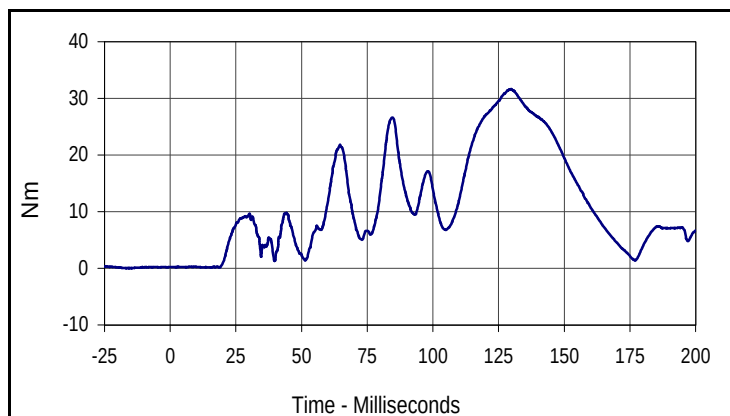
Curve Description			
Passenger Upper Neck Moment X			
CURNO	Type	SAE Class	Units
054	FIL	600	Nm
Max	Time	Min	Time
11.4	87.6	-8.6	130.9



Curve Description			
Passenger Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
055	FIL	600	Nm
Max	Time	Min	Time
30.4	129.7	-15.0	98.2



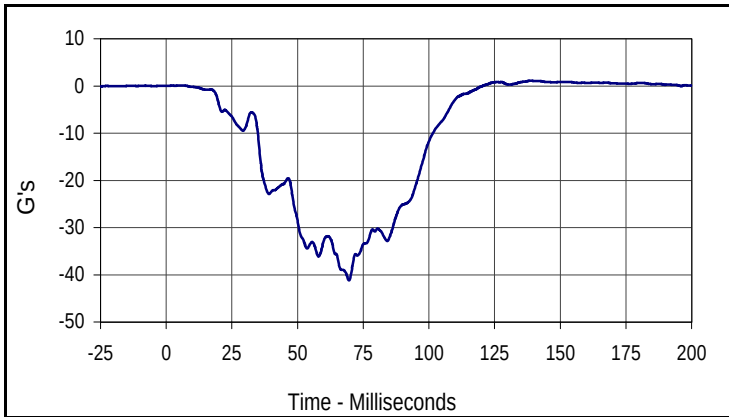
Curve Description			
Passenger Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
056	FIL	600	Nm
Max	Time	Min	Time
6.2	101.3	-4.2	146.3



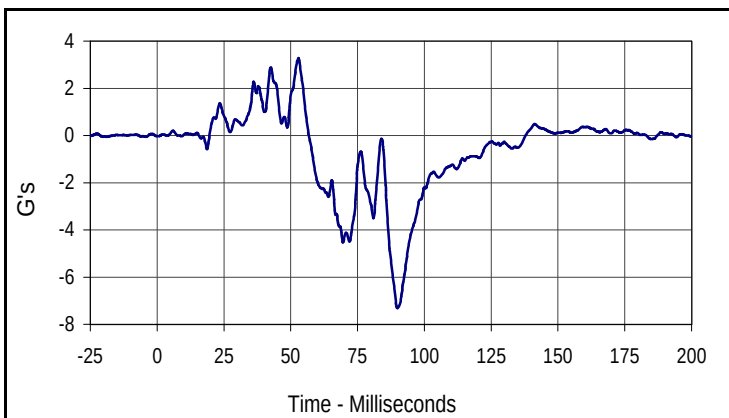
Curve Description			
Passenger Upper Neck Moment Res.			
CURNO	Type	SAE Class	Units
054	RES	600	Nm
Max	Time	Min	Time
31.6	129.7	0.1	15.5

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

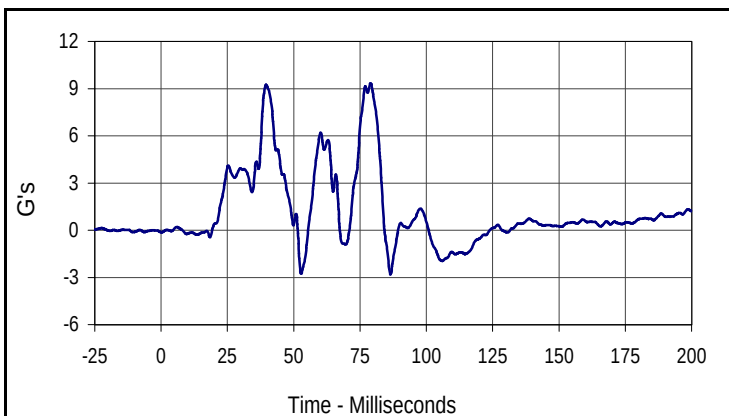
Test Date: 2/5/04
 NHTSA No.: M40105



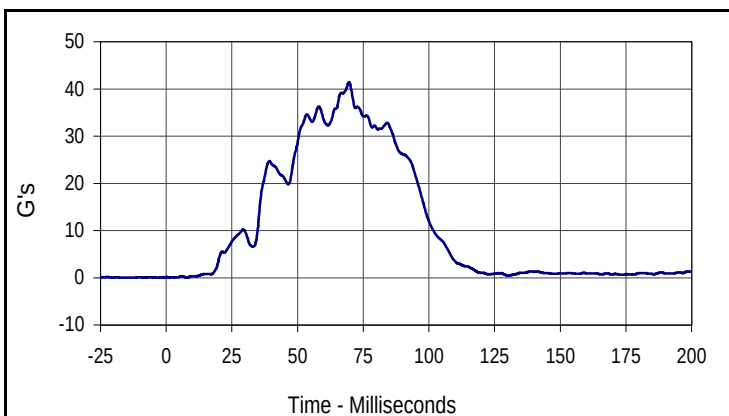
Curve Description			
Passenger Chest Primary X			
CURNO	Type	SAE Class	Units
057	FIL	180	G's
Max	Time	Min	Time
1.1	138.7	-41.2	69.6



Curve Description			
Passenger Chest Primary Y			
CURNO	Type	SAE Class	Units
058	FIL	180	G's
Max	Time	Min	Time
3.3	52.9	-7.3	89.9



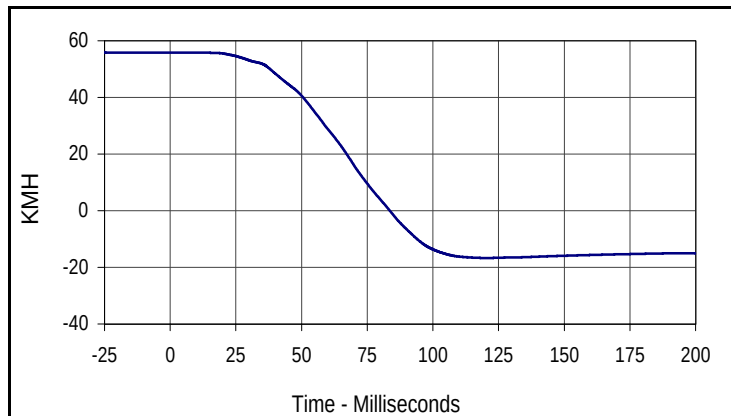
Curve Description			
Passenger Chest Primary Z			
CURNO	Type	SAE Class	Units
059	FIL	180	G's
Max	Time	Min	Time
9.3	79.0	-2.8	86.5



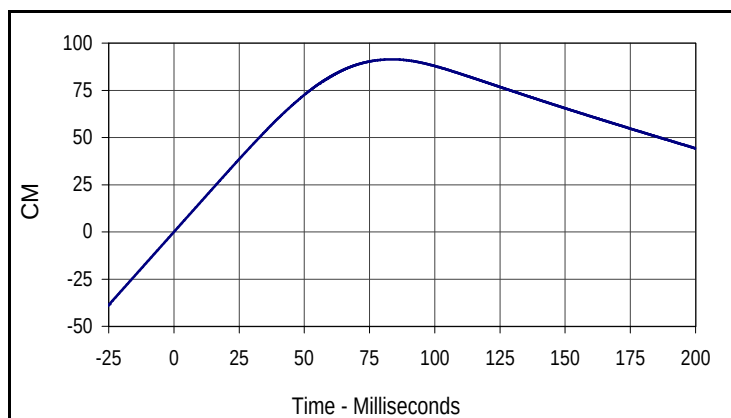
Curve Description			
Passenger Chest Resultant Primary			
CURNO	Type	SAE Class	Units
057	RES	180	G's
Max	Time	Min	Time
41.5	69.6	0.0	8.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
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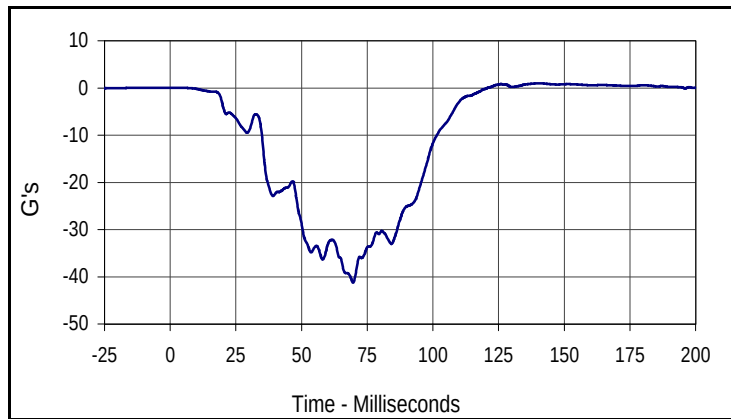
Curve Description			
Passenger Chest Primary X Velocity			
CURNO	Type	SAE Class	Units
057	IN1	180	KMH
Max	Time	Min	Time
55.9	8.0	-16.7	120.4



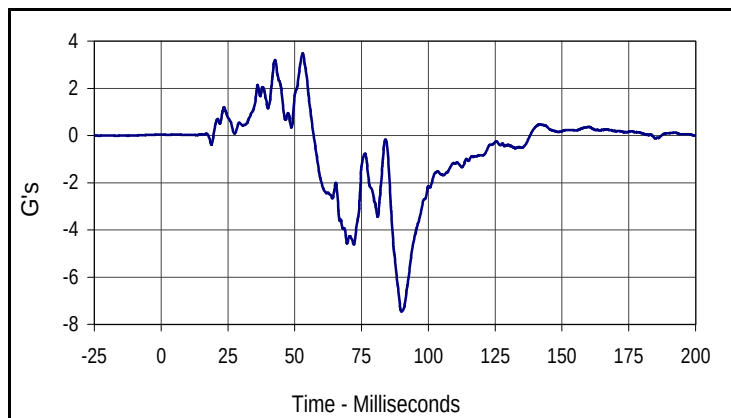
Curve Description			
Passenger Chest Primary X Displacement			
CURNO	Type	SAE Class	Units
057	IN2	180	CM
Max	Time	Min	Time
91.4	83.6	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

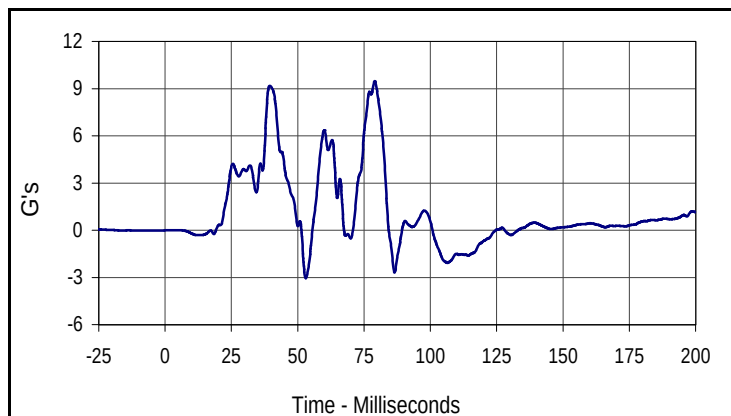
Test Date: 2/5/04
 NHTSA No.: M40105



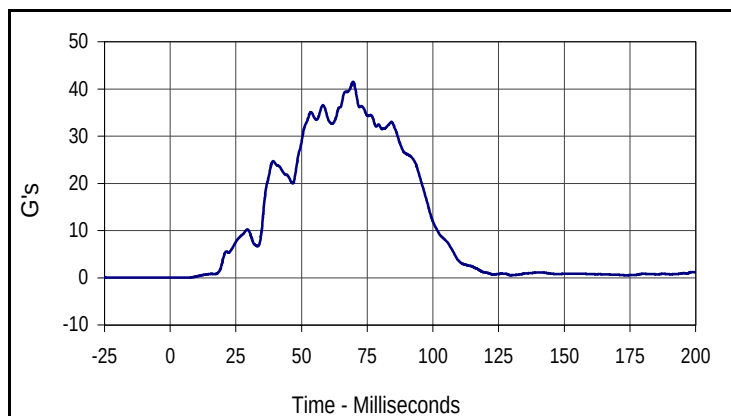
Curve Description			
Passenger Chest Redundant X			
CURNO	Type	SAE Class	Units
060	FIL	180	G's
Max	Time	Min	Time
1.0	140.2	-41.3	69.6



Curve Description			
Passenger Chest Redundant Y			
CURNO	Type	SAE Class	Units
061	FIL	180	G's
Max	Time	Min	Time
3.5	53.0	-7.5	89.9



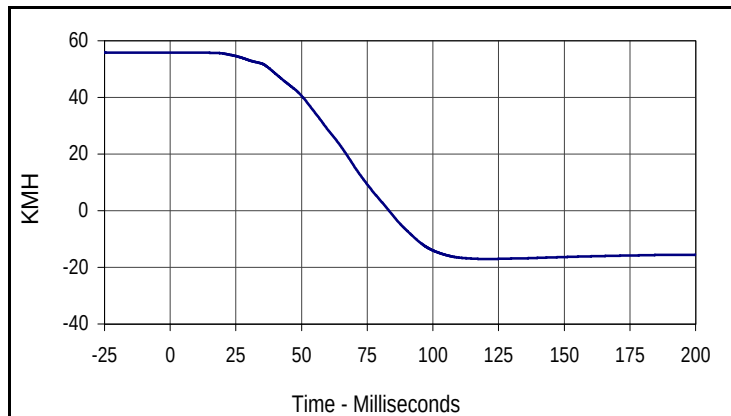
Curve Description			
Passenger Chest Redundant Z			
CURNO	Type	SAE Class	Units
062	FIL	180	G's
Max	Time	Min	Time
9.5	79.0	-3.1	53.0



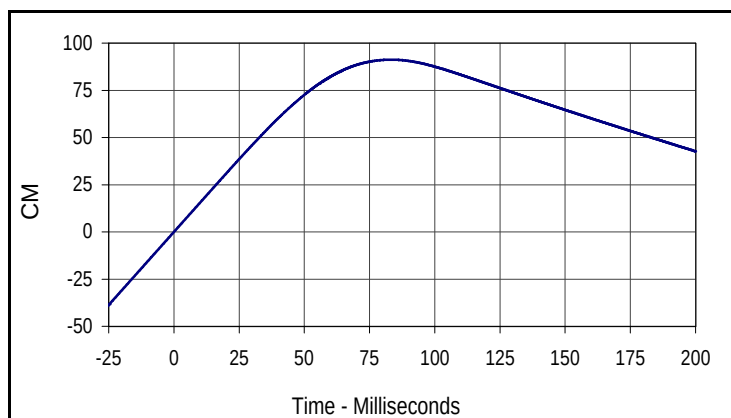
Curve Description			
Passenger Chest Resultant Redundant			
CURNO	Type	SAE Class	Units
060	RES	180	G's
Max	Time	Min	Time
41.5	69.6	0.0	6.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
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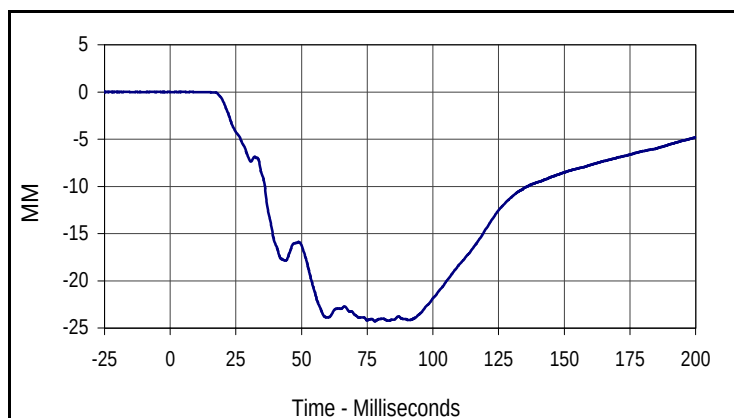
Curve Description			
Passenger Chest Redundant X Velocity			
CURNO	Type	SAE Class	Units
060	IN1	180	KMH
Max	Time	Min	Time
55.9	6.6	-17.1	120.7



Curve Description			
Passenger Chest Redundant X Displacement			
CURNO	Type	SAE Class	Units
060	IN2	180	CM
Max	Time	Min	Time
91.2	83.3	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

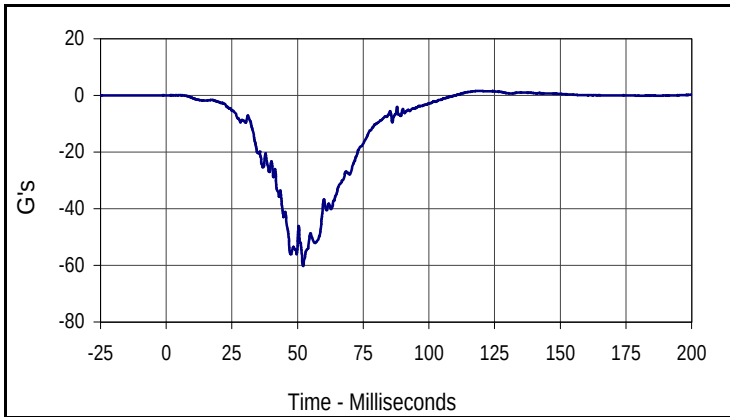
Test Date: 2/5/04
NHTSA No.: M40105



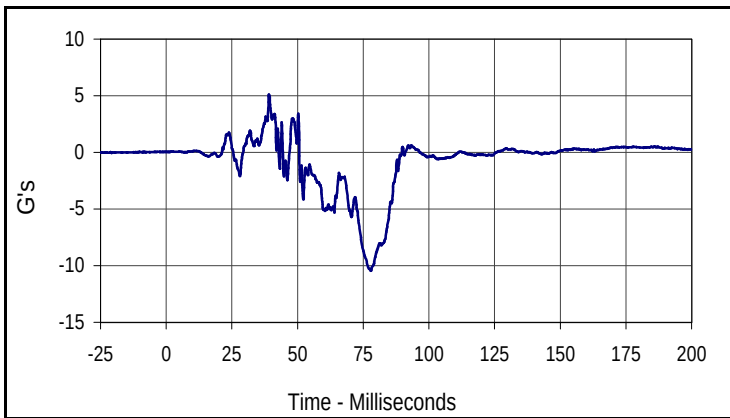
Curve Description			
Passenger Chest Displacement			
CURNO	Type	SAE Class	Units
063	FIL	600	MM
Max	Time	Min	Time
0.0	5.4	-24.3	77.9

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

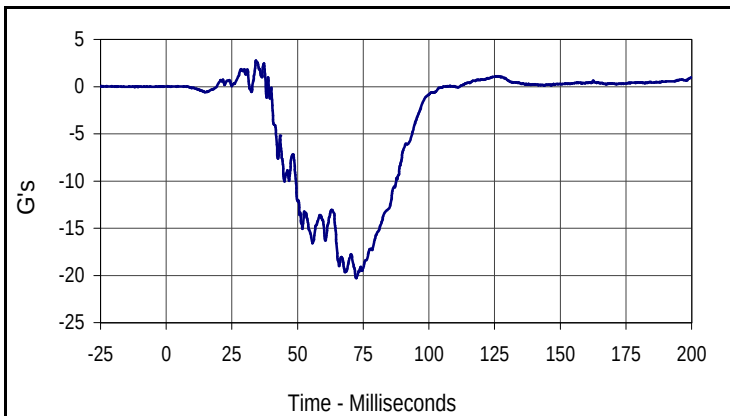
Test Date: 2/5/04
 NHTSA No.: M40105



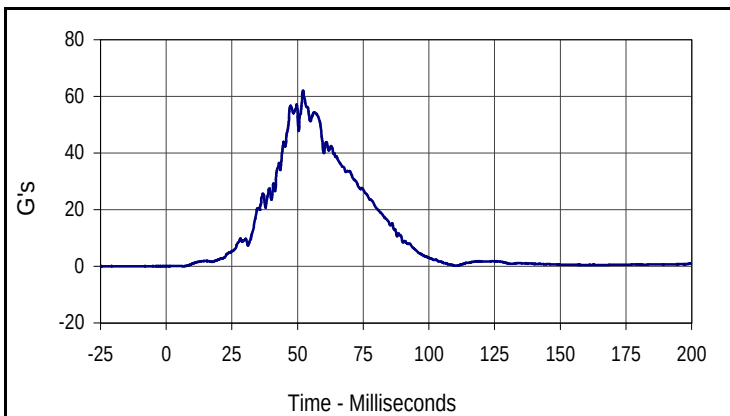
Curve Description			
Passenger Pelvis X			
CURNO	Type	SAE Class	Units
064	FIL	1000	G's
Max	Time	Min	Time
1.6	119.1	-60.2	52.1



Curve Description			
Passenger Pelvis Y			
CURNO	Type	SAE Class	Units
065	FIL	1000	G's
Max	Time	Min	Time
5.1	39.1	-10.5	77.9



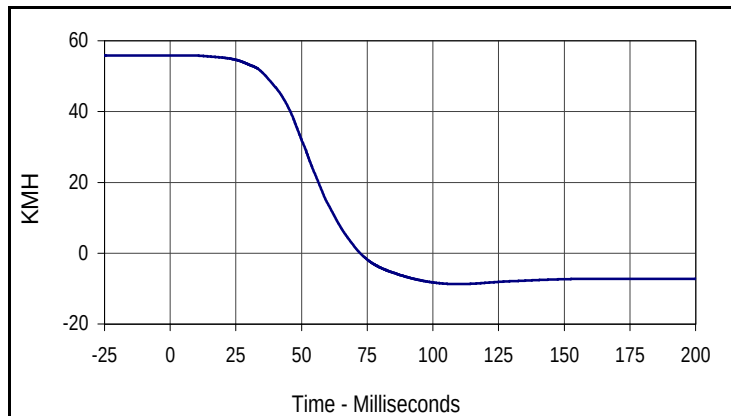
Curve Description			
Passenger Pelvis Z			
CURNO	Type	SAE Class	Units
066	FIL	1000	G's
Max	Time	Min	Time
2.8	34.2	-20.3	72.3



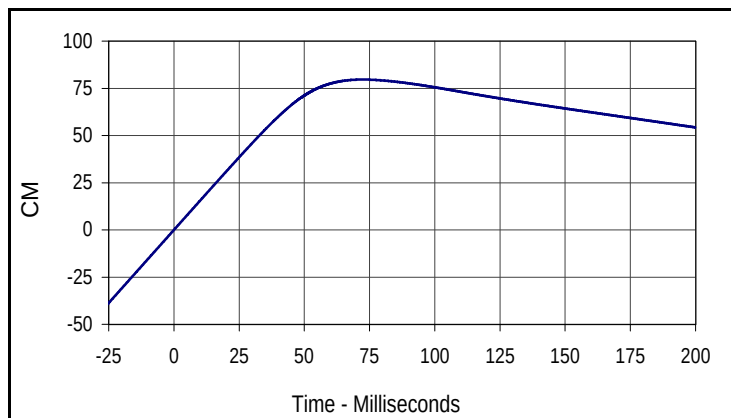
Curve Description			
Passenger Pelvis Resultant			
CURNO	Type	SAE Class	Units
064	RES	1000	G's
Max	Time	Min	Time
62.0	52.1	0.0	6.6

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
 NHTSA No.: M40105



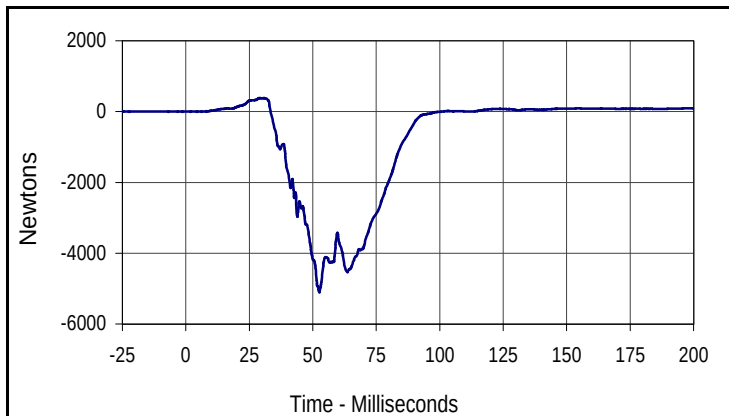
Curve Description			
Passenger Pelvis X Velocity			
CURNO	Type	SAE Class	Units
064	IN1	180	KMH
Max	Time	Min	Time
55.9	6.5	-8.7	110.0



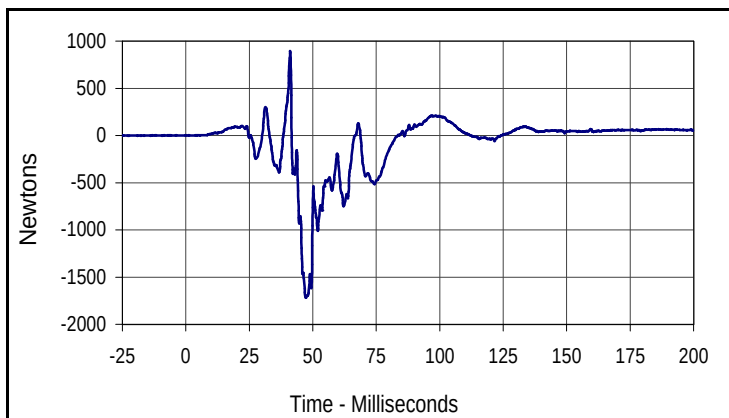
Curve Description			
Passenger Pelvis X Displacement			
CURNO	Type	SAE Class	Units
064	IN2	180	CM
Max	Time	Min	Time
79.6	72.3	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
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 NHTSA No.: M40105



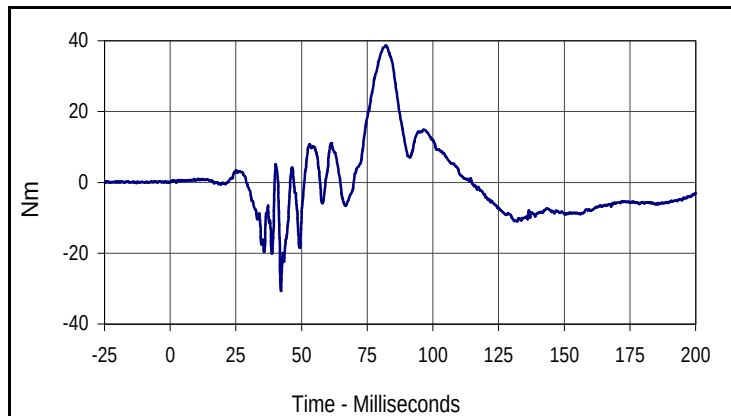
Curve Description			
Passenger Left Femur Force			
CURNO	Type	SAE Class	Units
067	FIL	600	Newtons
Max	Time	Min	Time
385.6	29.1	-5106.4	52.6



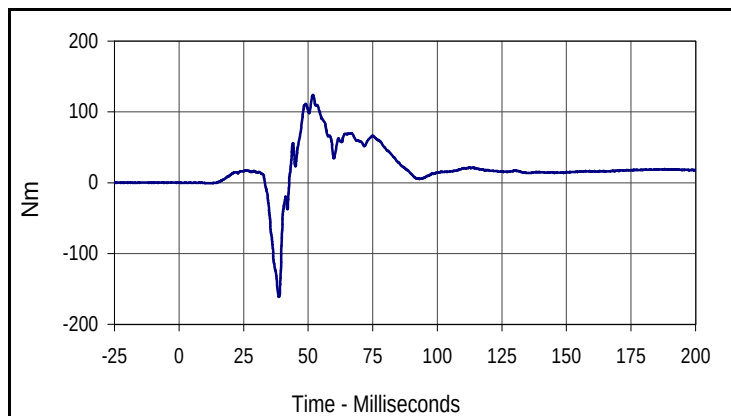
Curve Description			
Passenger Right Femur Force			
CURNO	Type	SAE Class	Units
068	FIL	600	Newtons
Max	Time	Min	Time
896.5	41.1	-1719.2	47.3

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

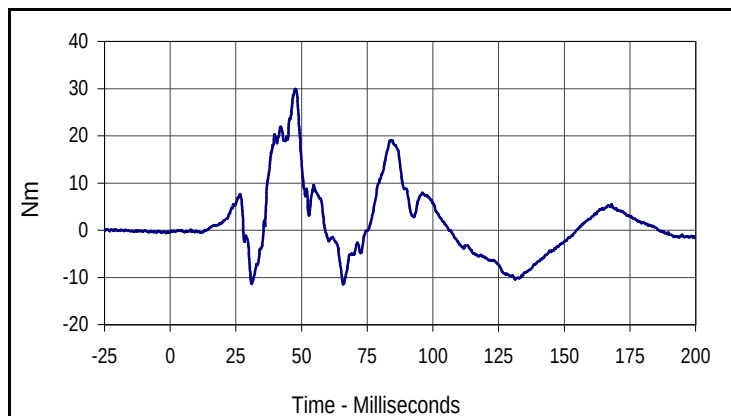
Test Date: 2/5/04
 NHTSA No.: M40105



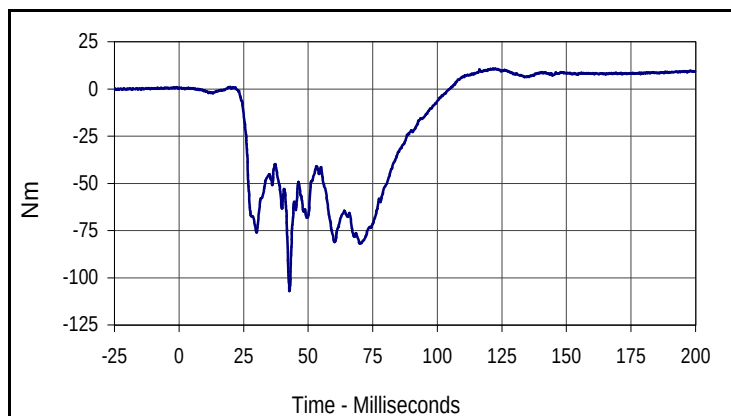
Curve Description			
Passenger Left Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
069	FIL	600	Nm
Max	Time	Min	Time
38.7	82.0	-30.7	42.2



Curve Description			
Passenger Left Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
070	FIL	600	Nm
Max	Time	Min	Time
124.2	51.9	-161.3	38.7



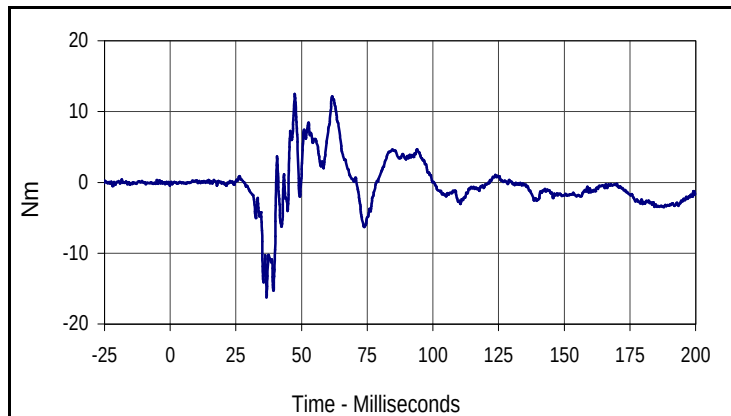
Curve Description			
Passenger Right Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
071	FIL	600	Nm
Max	Time	Min	Time
30.0	47.6	-11.5	65.9



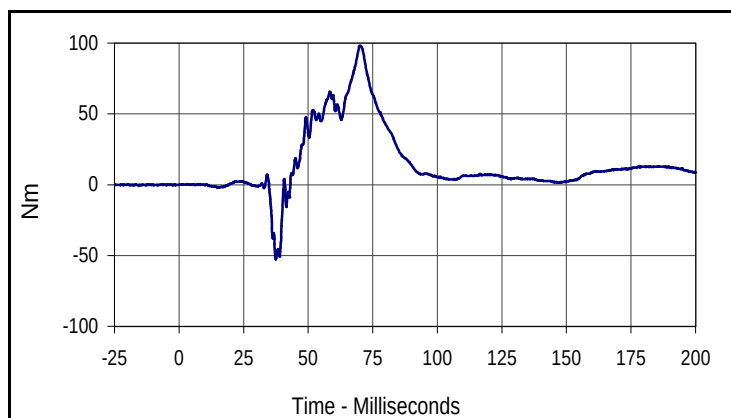
Curve Description			
Passenger Right Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
072	FIL	600	Nm
Max	Time	Min	Time
10.8	122.4	-107.0	42.8

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

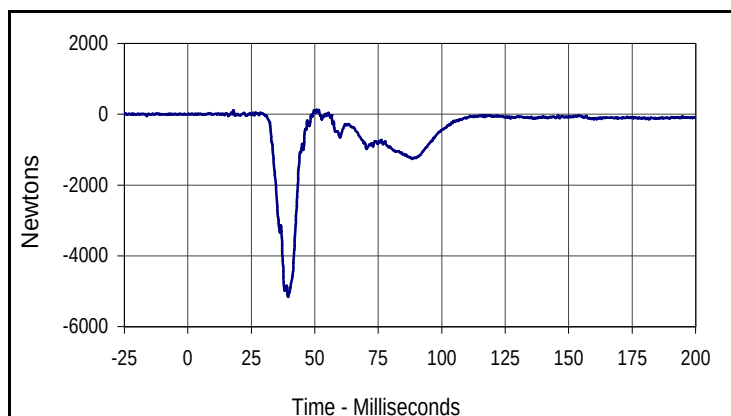
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Passenger Left Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
073	FIL	600	Nm
Max	Time	Min	Time
12.5	47.4	-16.2	36.7



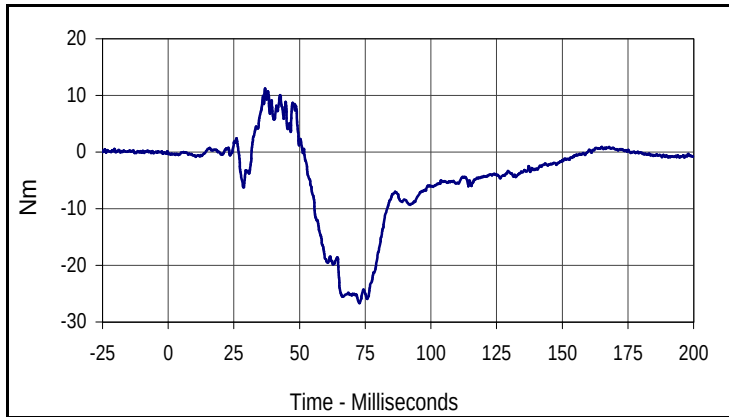
Curve Description			
Passenger Left Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
074	FIL	600	Nm
Max	Time	Min	Time
98.1	70.2	-52.8	37.5



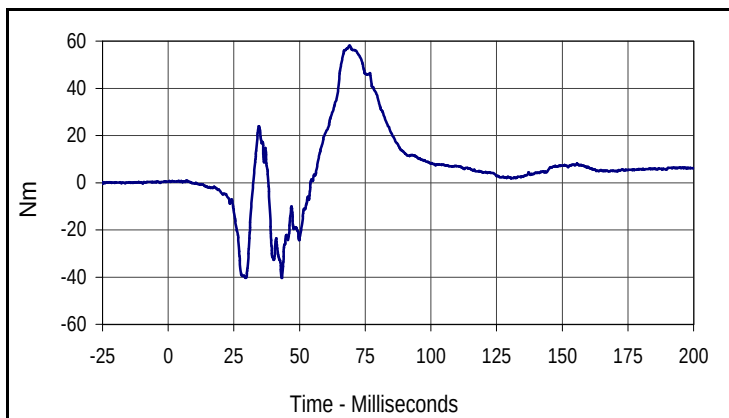
Curve Description			
Passenger Left Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
075	FIL	600	Newtons
Max	Time	Min	Time
129.2	50.7	-5158.5	39.5

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

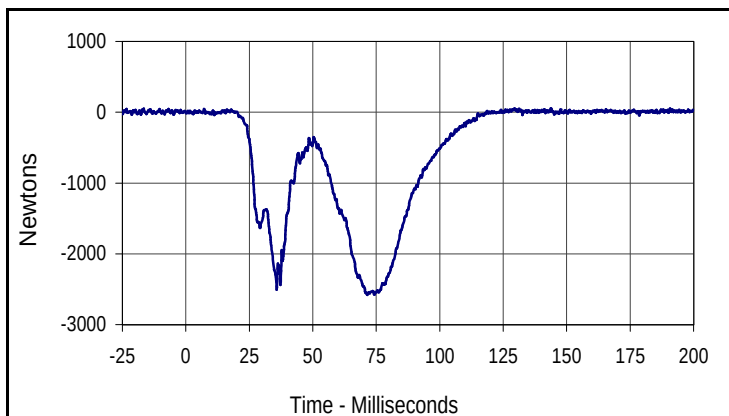
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Passenger Right Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
076	FIL	600	Nm
Max	Time	Min	Time
11.2	36.9	-26.6	72.8



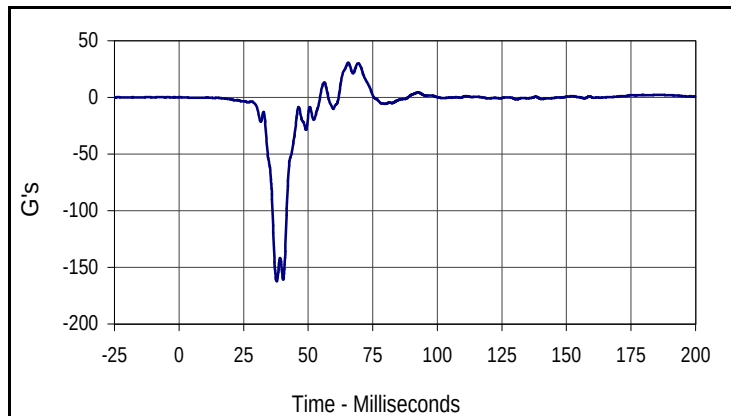
Curve Description			
Passenger Right Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
077	FIL	600	Nm
Max	Time	Min	Time
58.2	69.0	-40.4	43.2



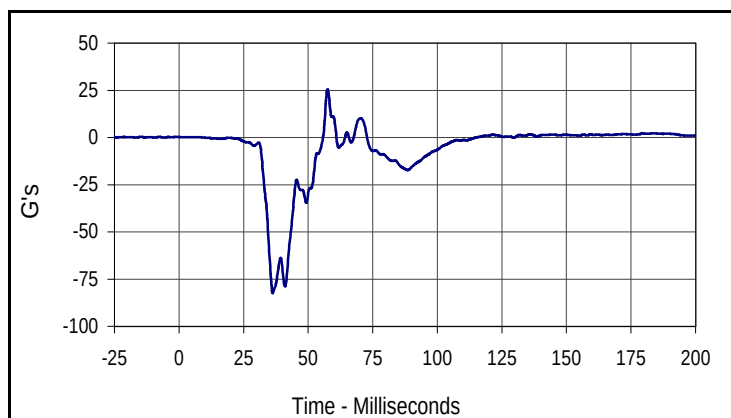
Curve Description			
Passenger Right Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
078	FIL	600	Newtons
Max	Time	Min	Time
57.0	129.4	-2579.8	71.5

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

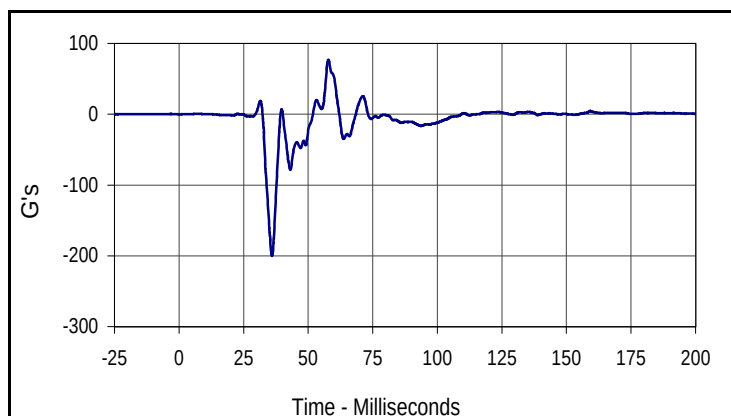
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Passenger Left Foot Aft X			
CURNO	Type	SAE Class	Units
079	FIL	180	G's
Max	Time	Min	Time
30.8	65.5	-162.3	37.8



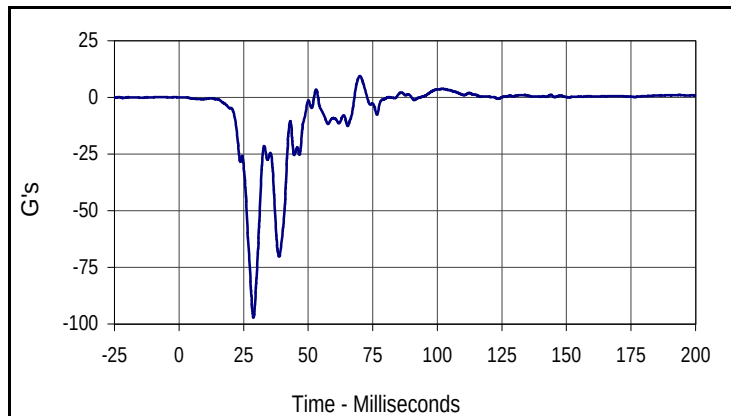
Curve Description			
Passenger Left Foot Aft Z			
CURNO	Type	SAE Class	Units
080	FIL	180	G's
Max	Time	Min	Time
25.4	57.5	-82.4	36.3



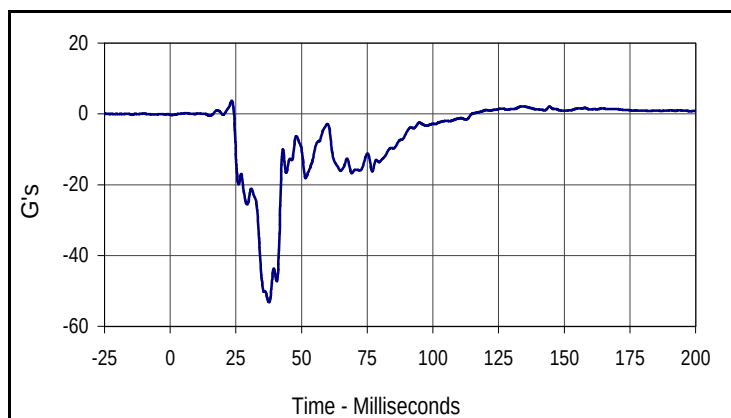
Curve Description			
Passenger Left Foot Fore Z			
CURNO	Type	SAE Class	Units
081	FIL	180	G's
Max	Time	Min	Time
77.1	57.8	-200.2	36.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

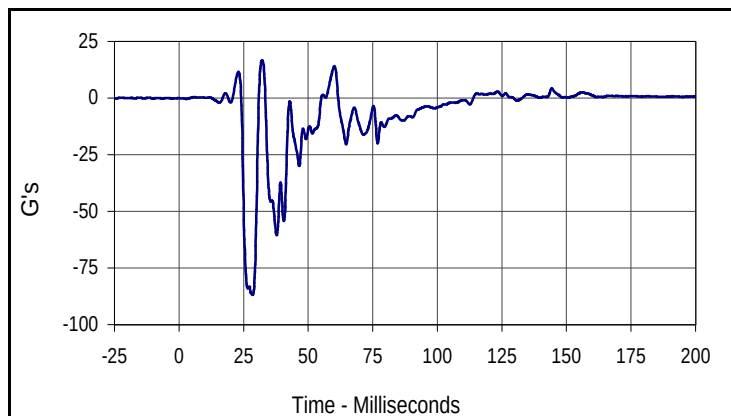
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Passenger Right Foot Aft X			
CURNO	Type	SAE Class	Units
082	FIL	180	G's
Max	Time	Min	Time
9.4	70.0	-97.1	28.8



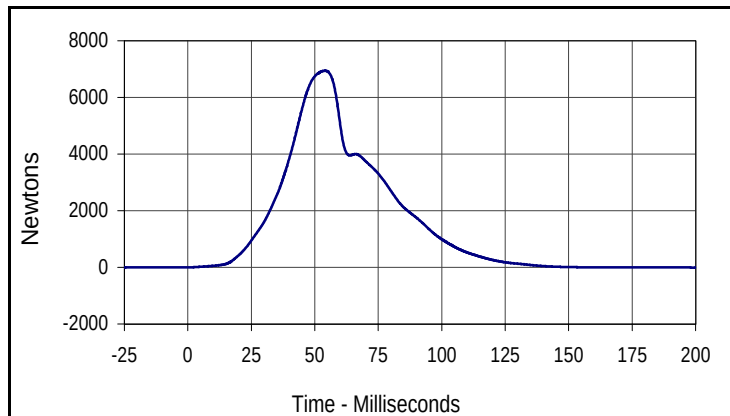
Curve Description			
Passenger Right Foot Aft Z			
CURNO	Type	SAE Class	Units
083	FIL	180	G's
Max	Time	Min	Time
3.7	23.4	-53.2	37.6



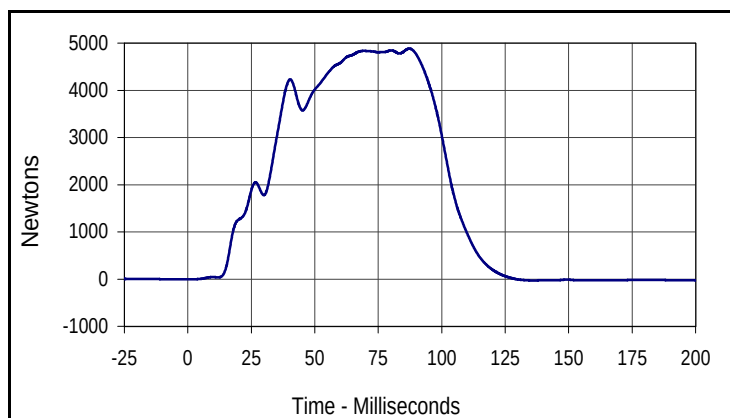
Curve Description			
Passenger Right Foot Fore Z			
CURNO	Type	SAE Class	Units
084	FIL	180	G's
Max	Time	Min	Time
16.7	32.2	-86.8	28.5

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

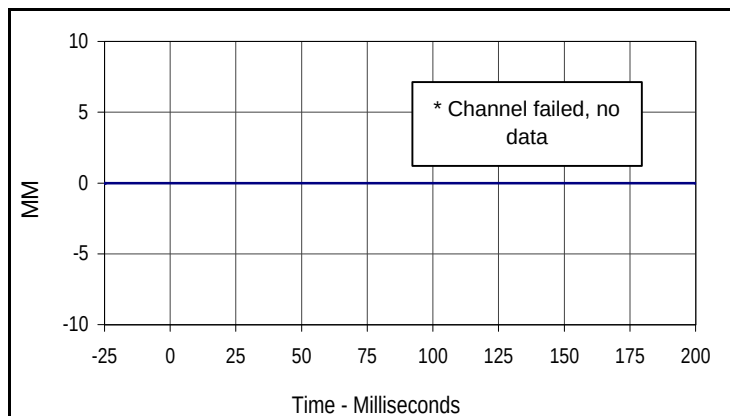
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Passenger Lap Belt Force			
CURNO	Type	SAE Class	Units
085	FIL	60	Newtons
Max	Time	Min	Time
6943.7	54.0	-6.6	200.4

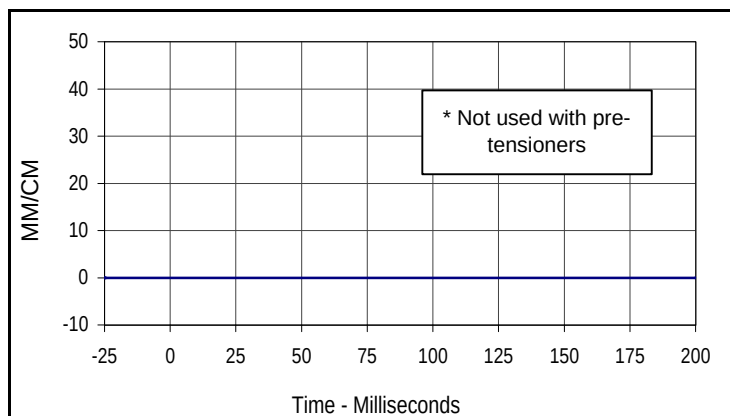


Curve Description			
Passenger Shoulder Belt Force			
CURNO	Type	SAE Class	Units
086	FIL	60	Newtons
Max	Time	Min	Time
4884.3	87.2	-29.1	136.0



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

* Channel failed, no data

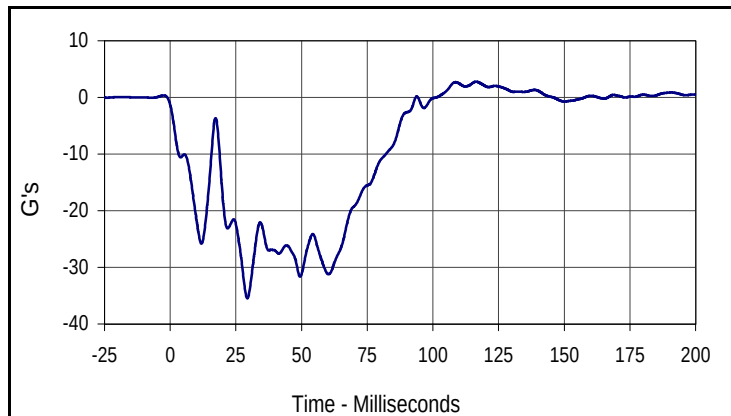


Curve Description			
Passenger Shoulder Belt Elongation			
CURNO	Type	SAE Class	Units
088	FIL	60	MM/CM
Max	Time	Min	Time
0.0	0.0	0.0	0.0

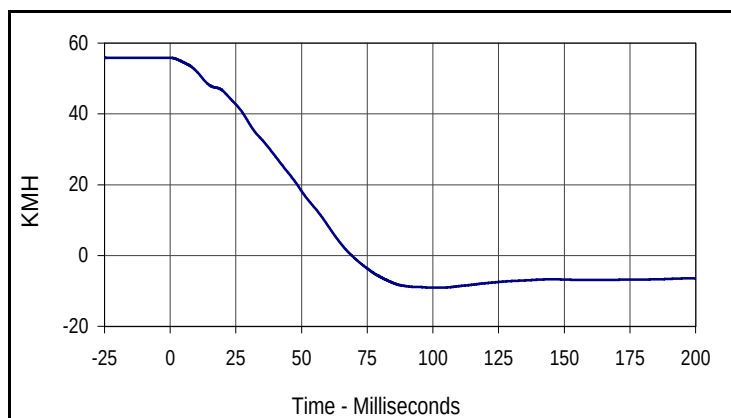
* Not used with pre-tensioners

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

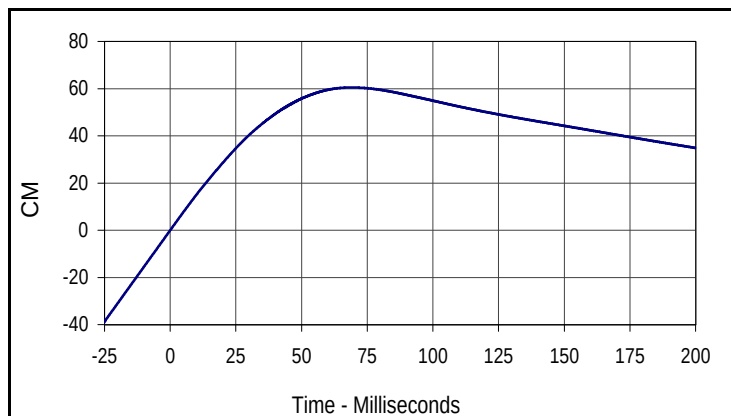
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Vehicle Left Rear X			
CURNO	Type	SAE Class	Units
089	FIL	60	G's
Max	Time	Min	Time
2.8	116.4	-35.5	29.4



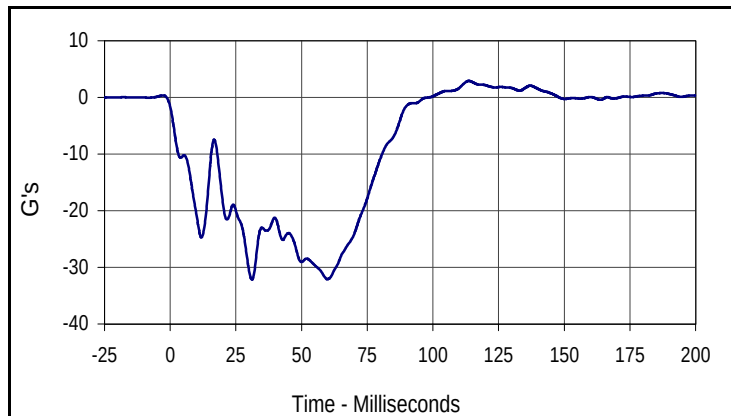
Curve Description			
Vehicle Left Rear X Velocity			
CURNO	Type	SAE Class	Units
089	IN1	180	KMH
Max	Time	Min	Time
55.9	0.0	-9.1	101.3



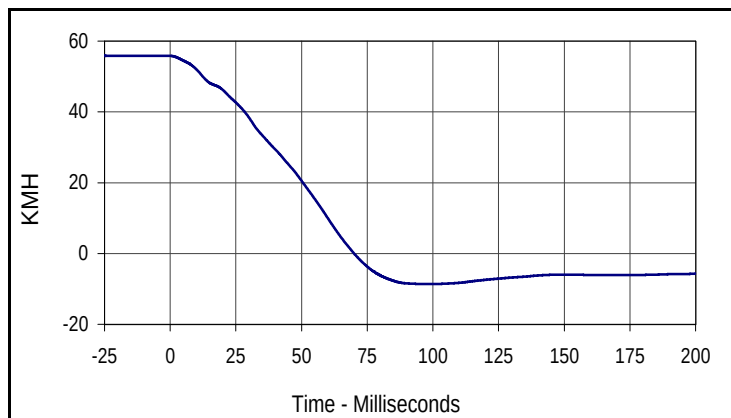
Curve Description			
Vehicle Left Rear X Displacement			
CURNO	Type	SAE Class	Units
089	IN2	180	CM
Max	Time	Min	Time
60.5	69.1	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

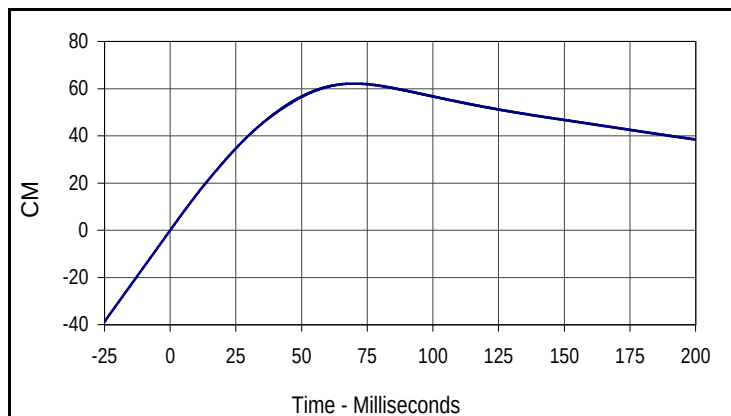
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Vehicle Right Rear X			
CURNO	Type	SAE Class	Units
090	FIL	60	G's
Max	Time	Min	Time
2.9	113.7	-32.2	31.1



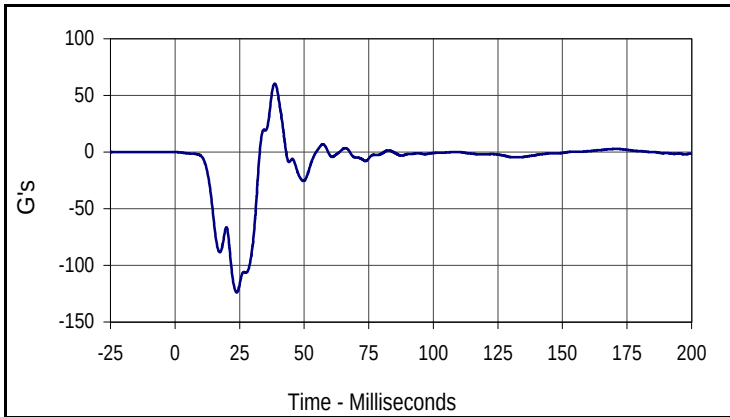
Curve Description			
Vehicle Right Rear X Velocity			
CURNO	Type	SAE Class	Units
090	IN1	180	KMH
Max	Time	Min	Time
55.9	0.0	-8.6	98.4



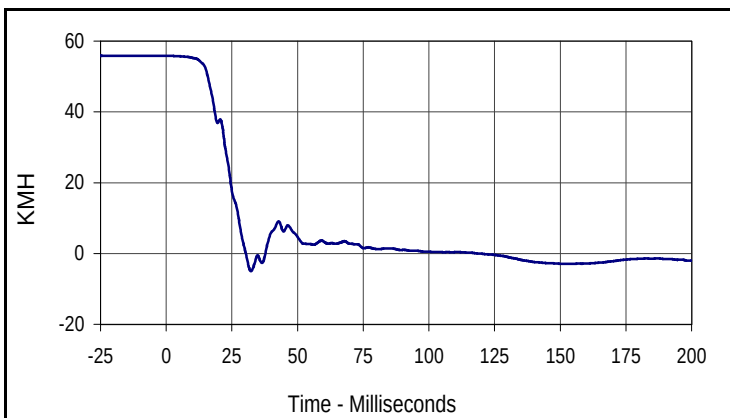
Curve Description			
Vehicle Right Rear X Displacement			
CURNO	Type	SAE Class	Units
090	IN2	180	CM
Max	Time	Min	Time
62.1	70.0	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

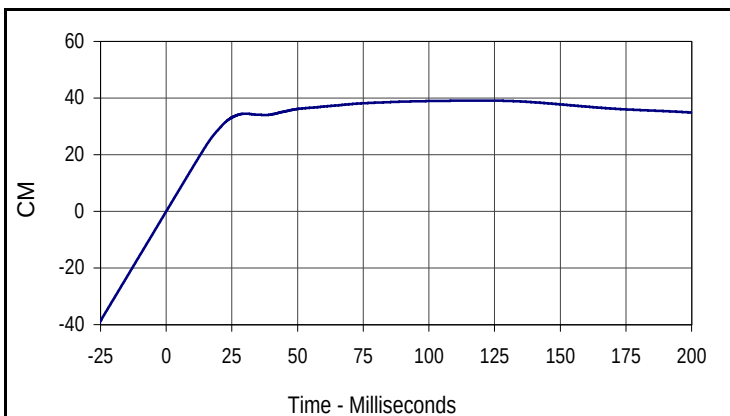
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Vehicle Engine Top			
CURNO	Type	SAE Class	Units
091	FIL	60	G's
Max	Time	Min	Time
60.5	38.6	-124.0	23.9



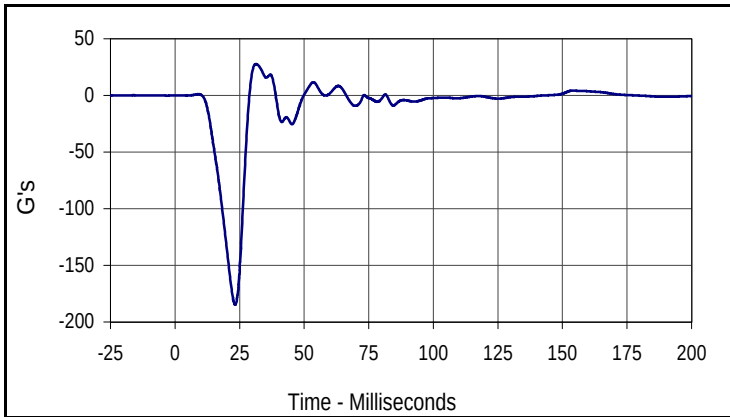
Curve Description			
Vehicle Engine Top Velocity			
CURNO	Type	SAE Class	Units
091	IN1	180	KMH
Max	Time	Min	Time
55.8	0.9	-5.0	32.2



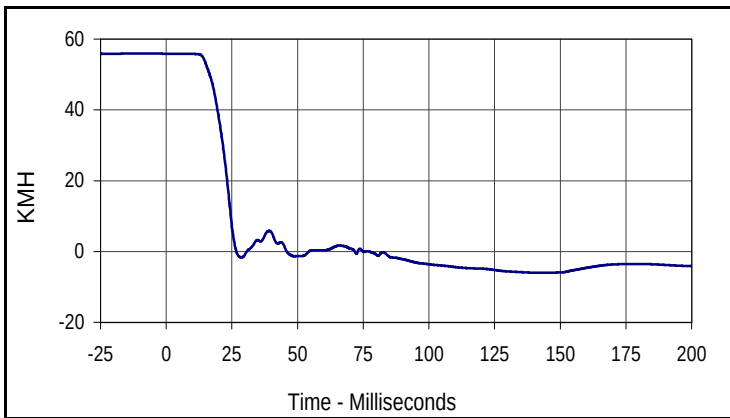
Curve Description			
Vehicle Engine Top Displacement			
CURNO	Type	SAE Class	Units
091	IN2	180	CM
Max	Time	Min	Time
39.1	118.7	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

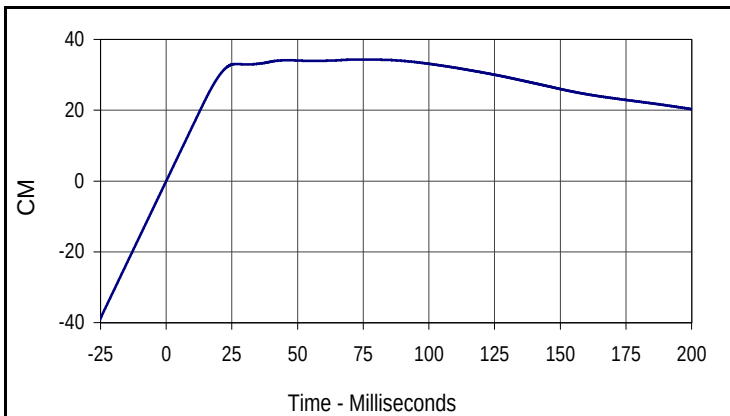
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Vehicle Engine Bottom			
CURNO	Type	SAE Class	Units
092	FIL	60	G's
Max	Time	Min	Time
27.6	31.3	-184.6	23.3



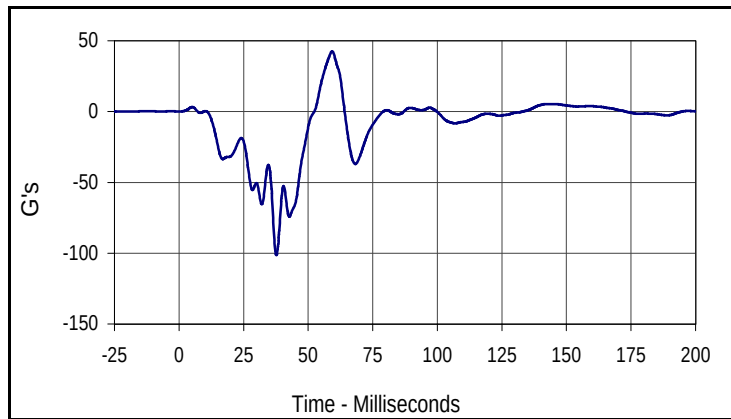
Curve Description			
Vehicle Engine Bottom Velocity			
CURNO	Type	SAE Class	Units
092	IN1	180	KMH
Max	Time	Min	Time
55.9	3.7	-6.0	144.2



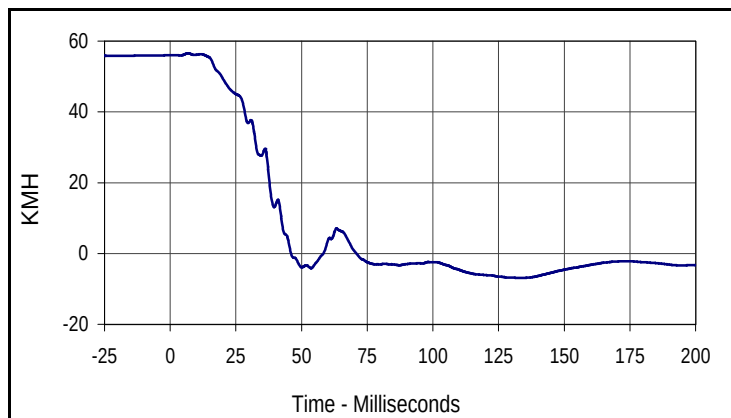
Curve Description			
Vehicle Engine Bottom Displacement			
CURNO	Type	SAE Class	Units
092	IN2	180	CM
Max	Time	Min	Time
34.3	77.2	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

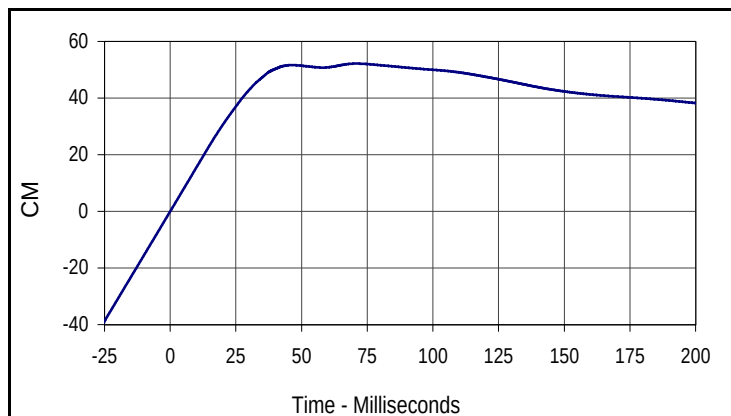
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Vehicle Left Brake Caliper			
CURNO	Type	SAE Class	Units
093	FIL	60	G's
Max	Time	Min	Time
42.5	59.3	-101.4	37.7



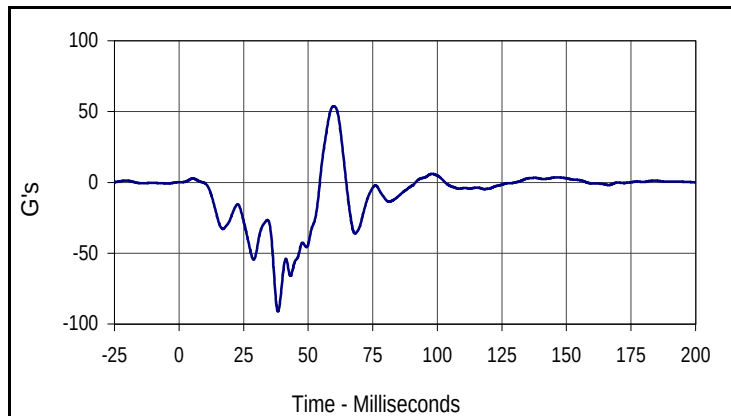
Curve Description			
Vehicle Left Brake Caliper Velocity			
CURNO	Type	SAE Class	Units
093	IN1	180	KMH
Max	Time	Min	Time
56.6	6.8	-6.9	132.4



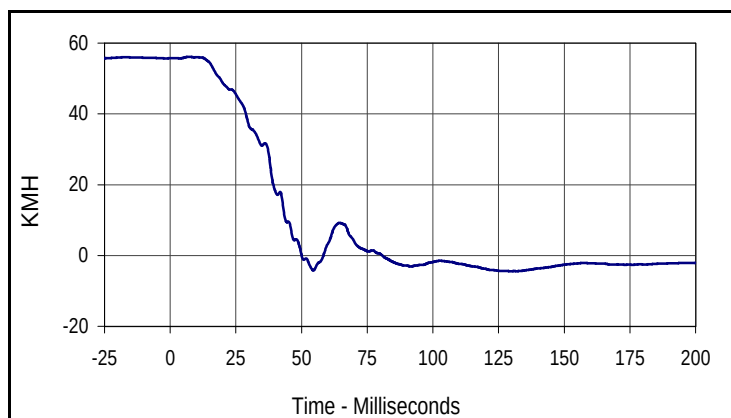
Curve Description			
Vehicle Left Brake Caliper Displacement			
CURNO	Type	SAE Class	Units
093	IN2	180	CM
Max	Time	Min	Time
52.2	70.9	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

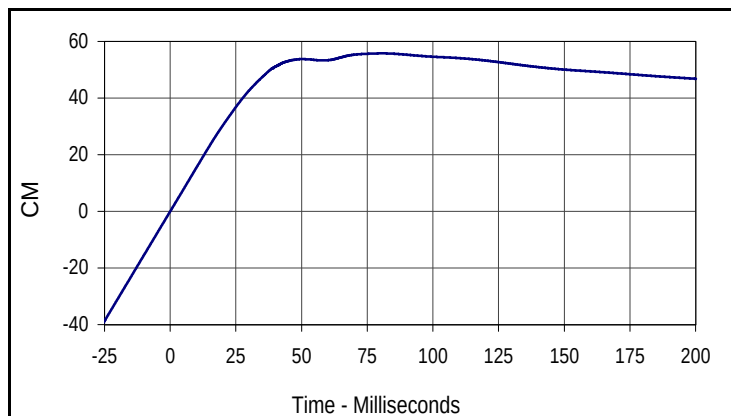
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Vehicle Right Brake Caliper			
CURNO	Type	SAE Class	Units
094	FIL	60	G's
Max	Time	Min	Time
53.7	59.8	-91.0	38.3



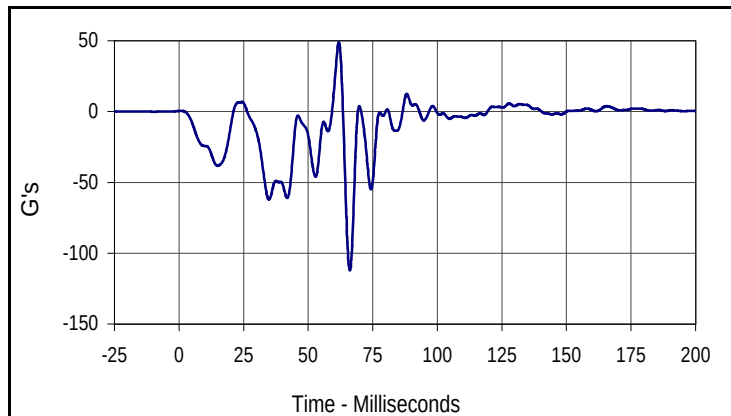
Curve Description			
Vehicle Right Brake Caliper Velocity			
CURNO	Type	SAE Class	Units
094	IN1	180	KMH
Max	Time	Min	Time
56.1	7.3	-4.5	129.5



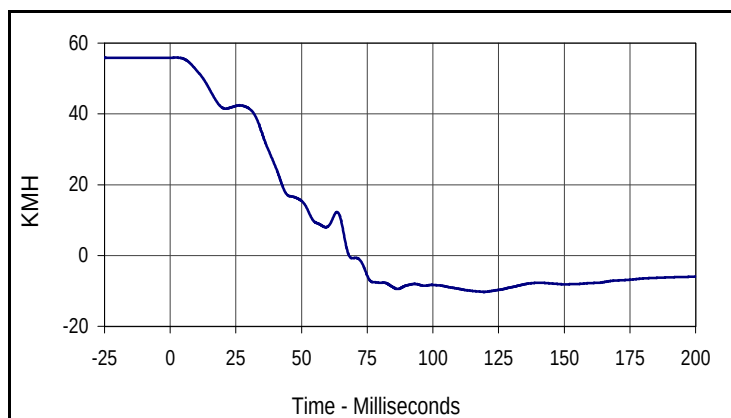
Curve Description			
Vehicle Right Brake Caliper Displacement			
CURNO	Type	SAE Class	Units
094	IN2	180	CM
Max	Time	Min	Time
55.8	80.7	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

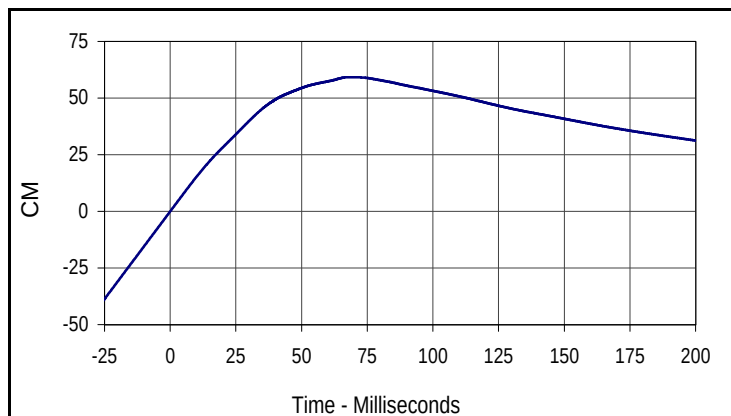
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Vehicle Instrument Panel			
CURNO	Type	SAE Class	Units
095	FIL	60	G's
Max	Time	Min	Time
48.8	61.9	-112.1	66.1



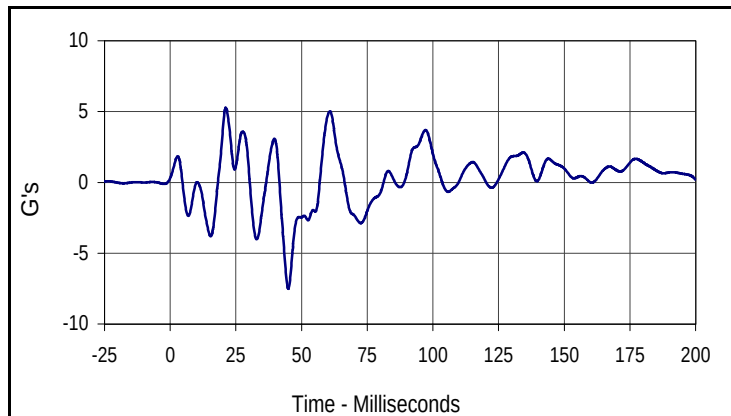
Curve Description			
Vehicle Instrument Panel Velocity			
CURNO	Type	SAE Class	Units
095	IN1	180	KMH
Max	Time	Min	Time
55.9	2.2	-10.3	119.4



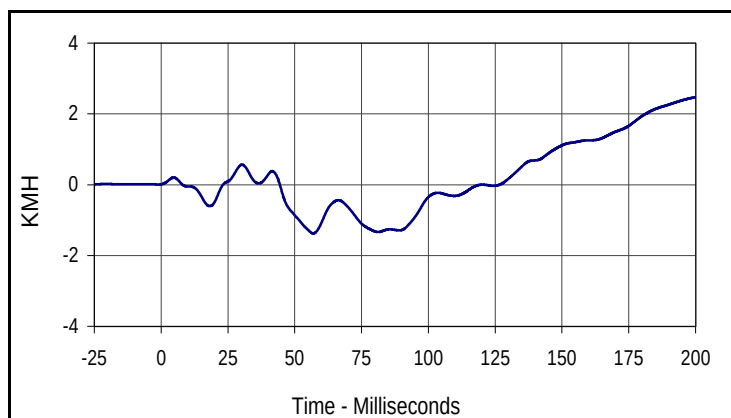
Curve Description			
Vehicle Instrument Panel Displacement			
CURNO	Type	SAE Class	Units
095	IN2	180	CM
Max	Time	Min	Time
59.2	68.1	0.0	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

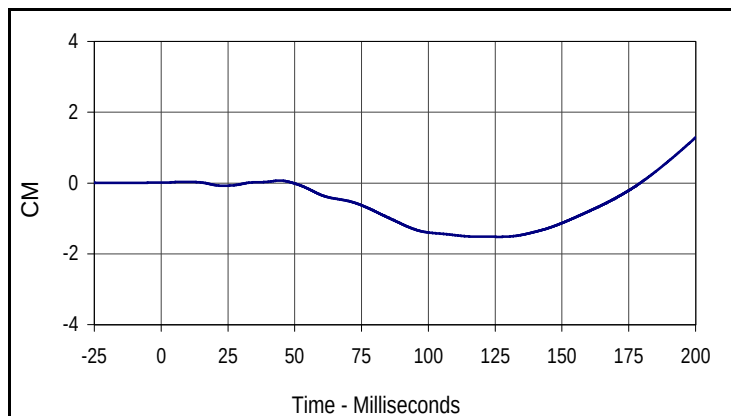
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Vehicle Left Rear Z			
CURNO	Type	SAE Class	Units
096	FIL	60	G's
Max	Time	Min	Time
5.3	21.1	-7.5	44.9



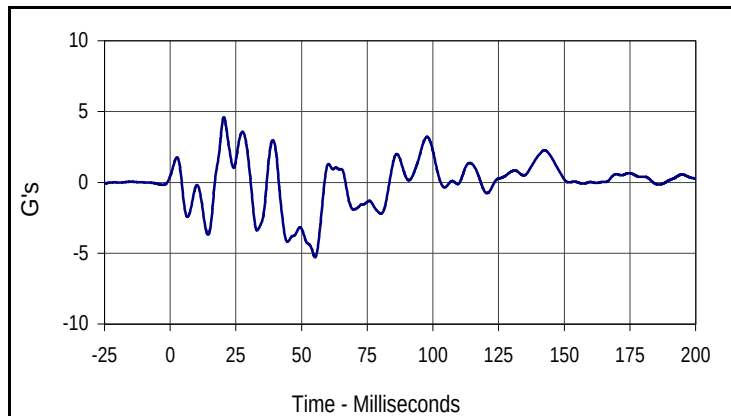
Curve Description			
Vehicle Left Rear Z Velocity			
CURNO	Type	SAE Class	Units
096	IN1	180	KMH
Max	Time	Min	Time
2.5	200.0	-1.4	56.9



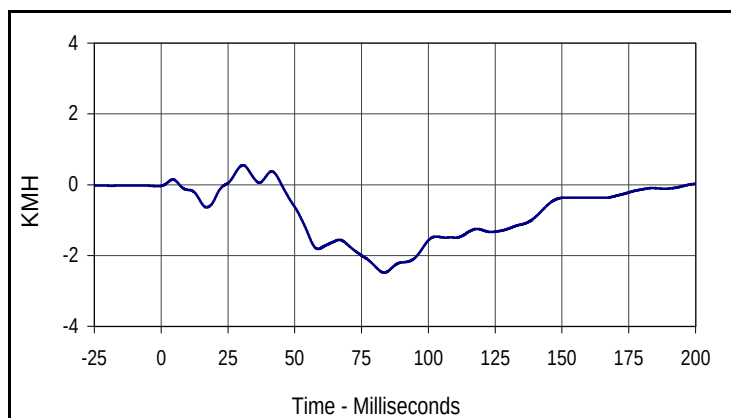
Curve Description			
Vehicle Left Rear Z Displacement			
CURNO	Type	SAE Class	Units
096	IN2	180	CM
Max	Time	Min	Time
1.3	200.0	-1.5	126.6

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

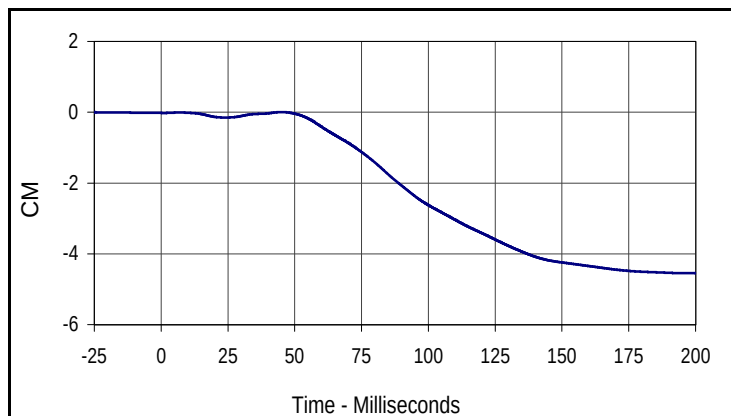
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Vehicle Right Rear Z			
CURNO	Type	SAE Class	Units
097	FIL	60	G's
Max	Time	Min	Time
4.6	20.4	-5.3	55.1



Curve Description			
Vehicle Right Rear Z Velocity			
CURNO	Type	SAE Class	Units
097	IN1	180	KMH
Max	Time	Min	Time
0.6	30.6	-2.5	83.4



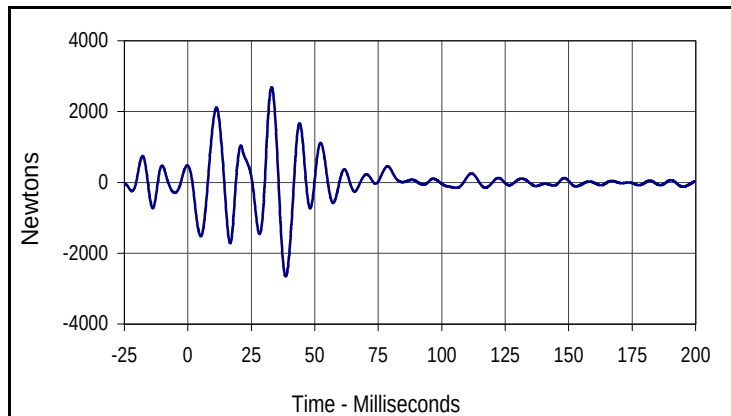
Curve Description			
Vehicle Right Rear Z Displacement			
CURNO	Type	SAE Class	Units
097	IN2	180	CM
Max	Time	Min	Time
0.0	45.1	-4.5	197.5

APPENDIX C

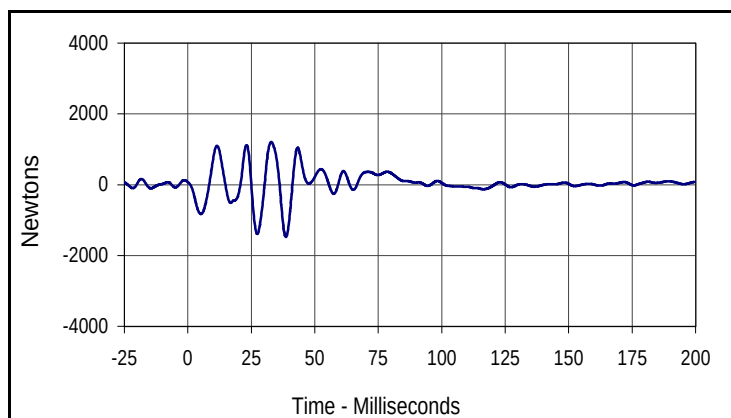
LOAD CELL BARRIER DATA PLOTS

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

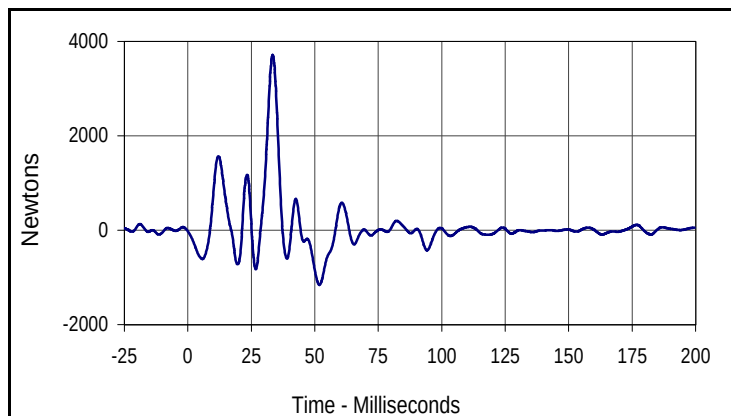
Test Date: 2/5/04
 NHTSA No.: M40105



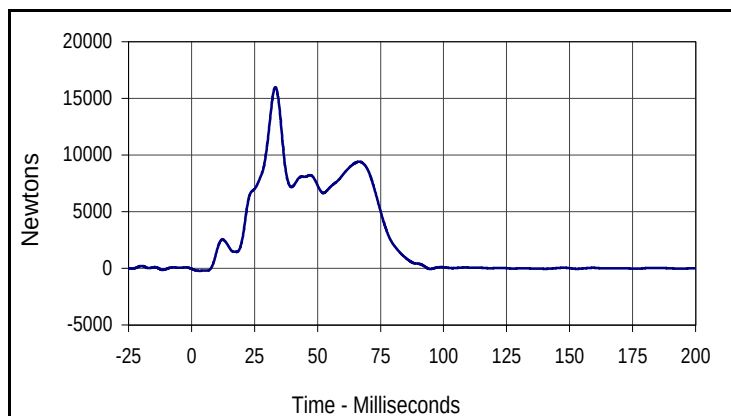
Curve Description			
Barrier Force A1			
CURNO	Type	SAE Class	Units
098	FIL	60	Newtons
Max	Time	Min	Time
2682.0	33.0	-2655.0	38.5



Curve Description			
Barrier Force B1			
CURNO	Type	SAE Class	Units
107	FIL	60	Newtons
Max	Time	Min	Time
1208.8	32.9	-1477.4	38.6



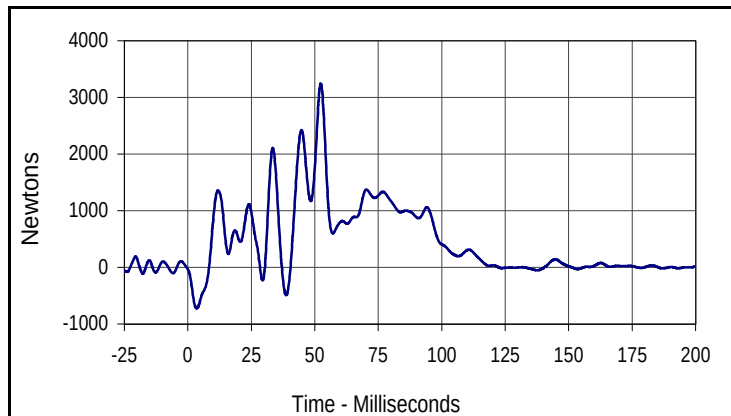
Curve Description			
Barrier Force C1			
CURNO	Type	SAE Class	Units
116	FIL	60	Newtons
Max	Time	Min	Time
3713.2	33.4	-1156.7	51.8



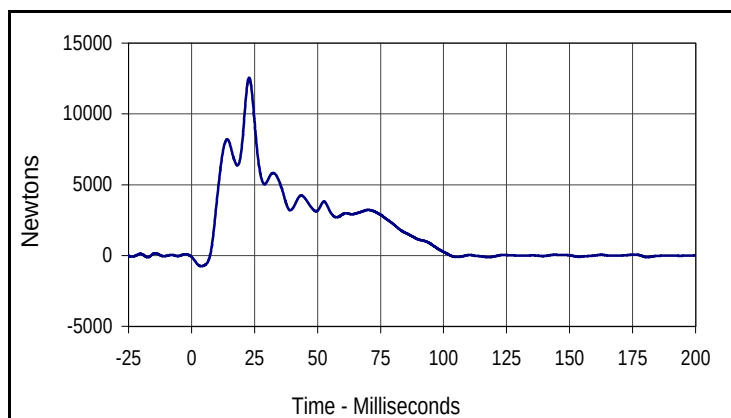
Curve Description			
Barrier Force D1			
CURNO	Type	SAE Class	Units
125	FIL	60	Newtons
Max	Time	Min	Time
16000.7	33.3	-216.4	3.3

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

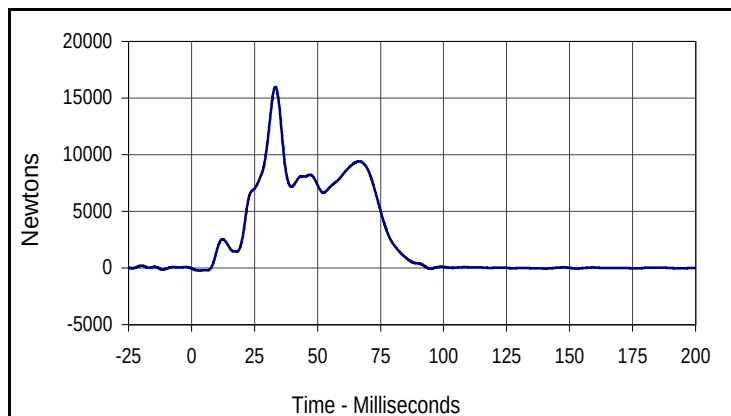
Test Date: 2/5/04
 NHTSA No.: M40105



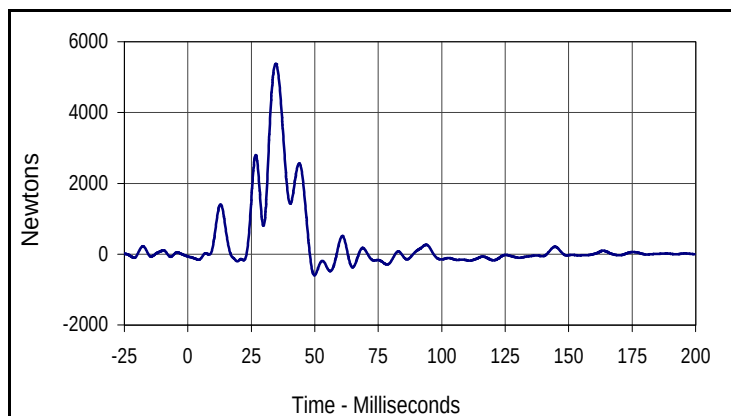
Curve Description			
Barrier Force A2			
CURNO	Type	SAE Class	Units
099	FIL	60	Newtons
Max	Time	Min	Time
3245.4	52.4	-722.5	3.5



Curve Description			
Barrier Force B2			
CURNO	Type	SAE Class	Units
108	FIL	60	Newtons
Max	Time	Min	Time
12559.9	22.8	-755.1	3.8



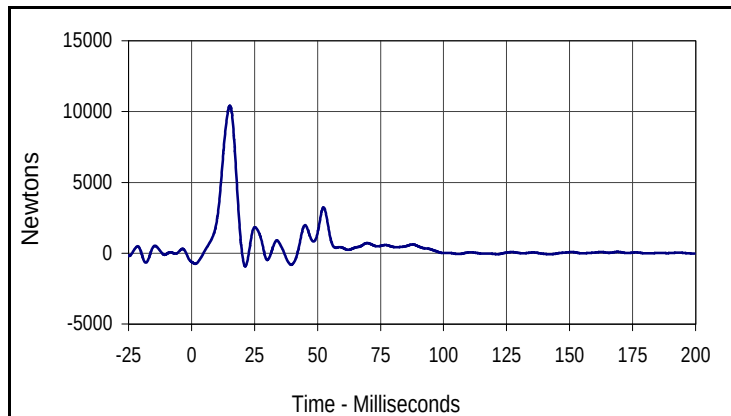
Curve Description			
Barrier Force C2			
CURNO	Type	SAE Class	Units
117	FIL	60	Newtons
Max	Time	Min	Time
16000.7	33.3	-216.4	3.3



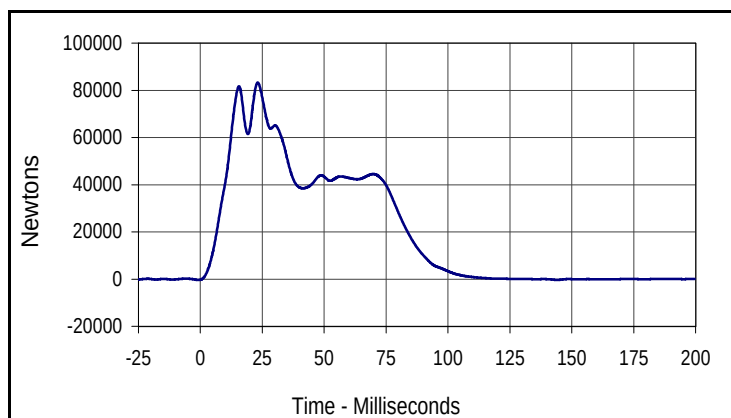
Curve Description			
Barrier Force D2			
CURNO	Type	SAE Class	Units
126	FIL	60	Newtons
Max	Time	Min	Time
5373.2	34.6	-596.4	49.9

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

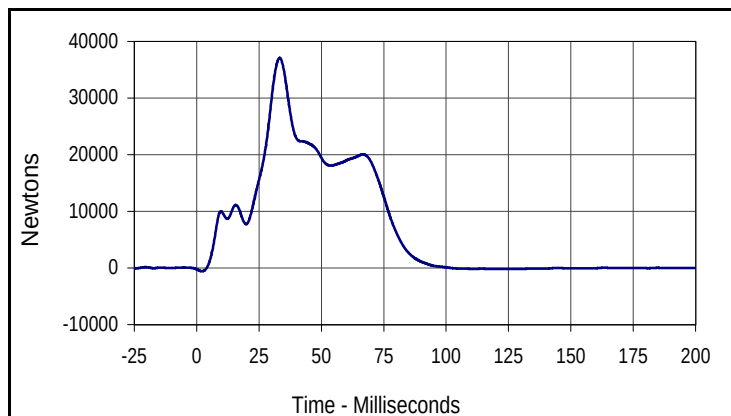
Test Date: 2/5/04
 NHTSA No.: M40105



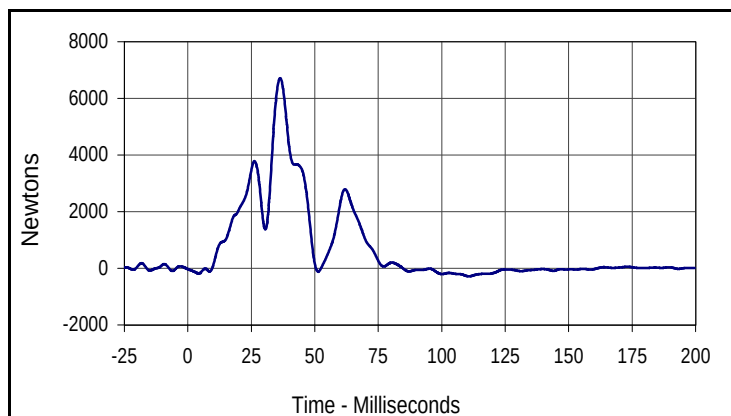
Curve Description			
Barrier Force A3			
CURNO	Type	SAE Class	Units
100	FIL	60	Newtons
Max	Time	Min	Time
10412.3	15.2	-924.9	21.3



Curve Description			
Barrier Force B3			
CURNO	Type	SAE Class	Units
109	FIL	60	Newtons
Max	Time	Min	Time
83261.8	23.1	-326.6	144.2



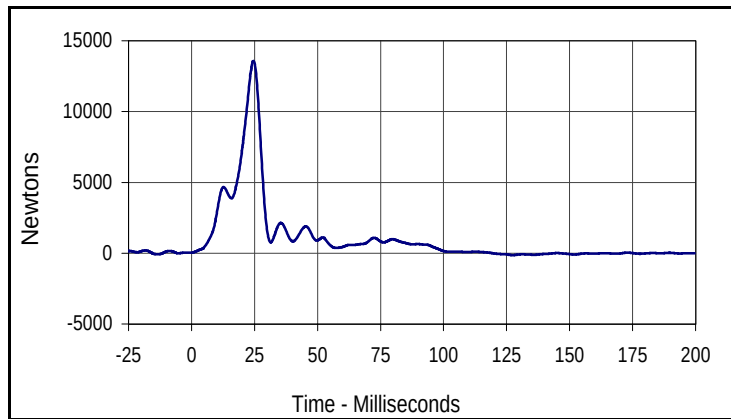
Curve Description			
Barrier Force C3			
CURNO	Type	SAE Class	Units
118	FIL	60	Newtons
Max	Time	Min	Time
37090.9	33.3	-569.6	2.1



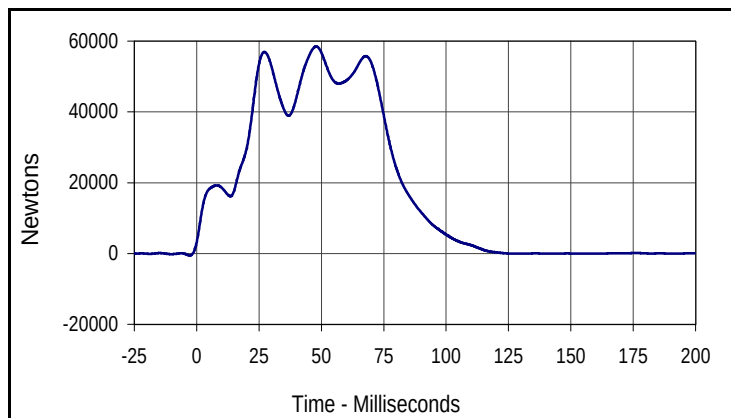
Curve Description			
Barrier Force D3			
CURNO	Type	SAE Class	Units
127	FIL	60	Newtons
Max	Time	Min	Time
6713.6	36.4	-283.5	110.8

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

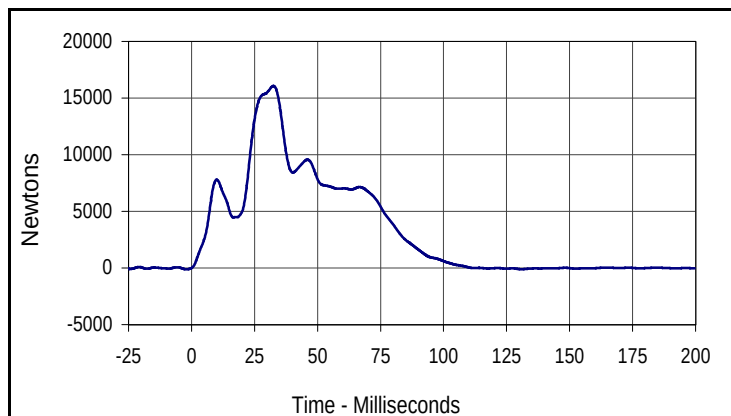
Test Date: 2/5/04
 NHTSA No.: M40105



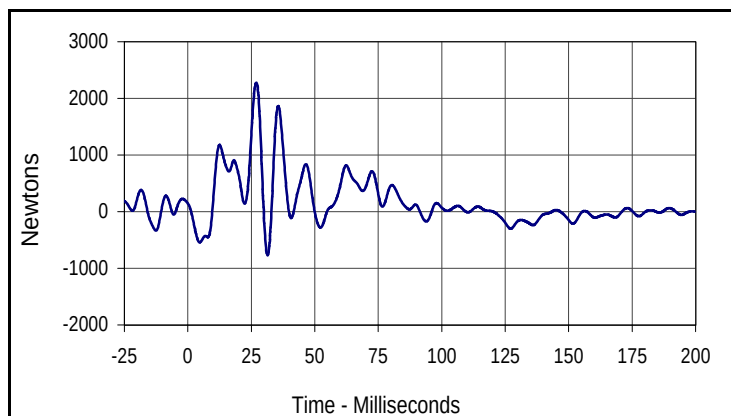
Curve Description			
Barrier Force A4			
CURNO	Type	SAE Class	Units
101	FIL	60	Newtons
Max	Time	Min	Time
13571.2	24.6	-137.8	127.4



Curve Description			
Barrier Force B4			
CURNO	Type	SAE Class	Units
110	FIL	60	Newtons
Max	Time	Min	Time
58495.1	47.9	-62.2	144.3



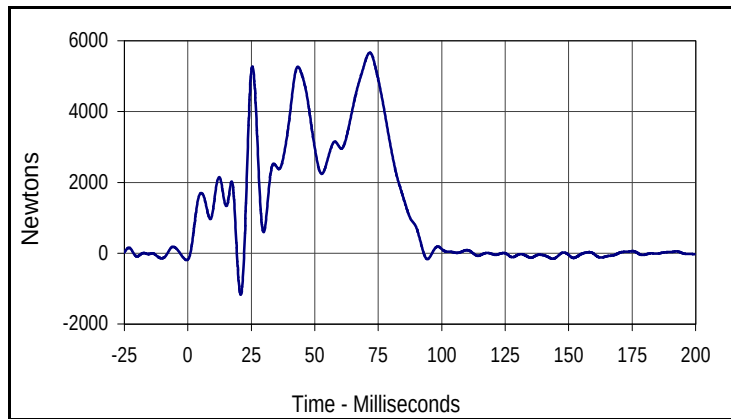
Curve Description			
Barrier Force C4			
CURNO	Type	SAE Class	Units
119	FIL	60	Newtons
Max	Time	Min	Time
16060.5	32.5	-108.7	130.9



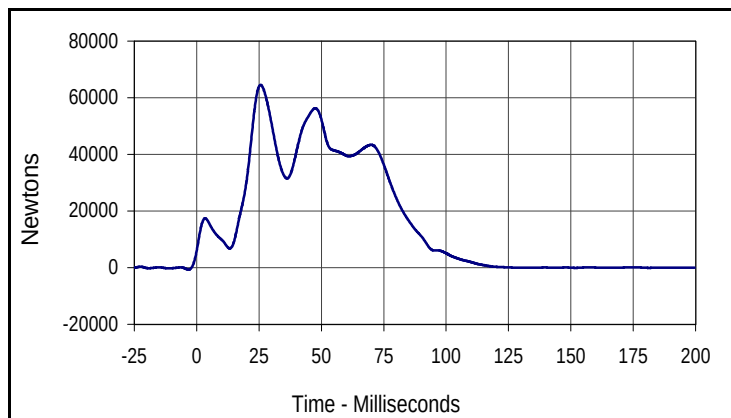
Curve Description			
Barrier Force D4			
CURNO	Type	SAE Class	Units
128	FIL	60	Newtons
Max	Time	Min	Time
2277.0	26.9	-767.9	31.4

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

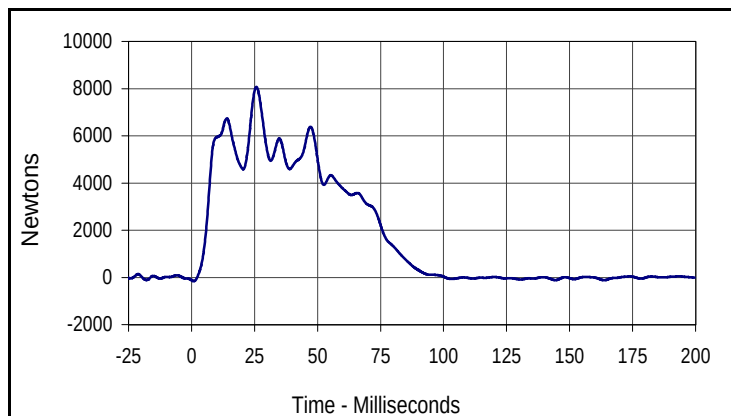
Test Date: 2/5/04
 NHTSA No.: M40105



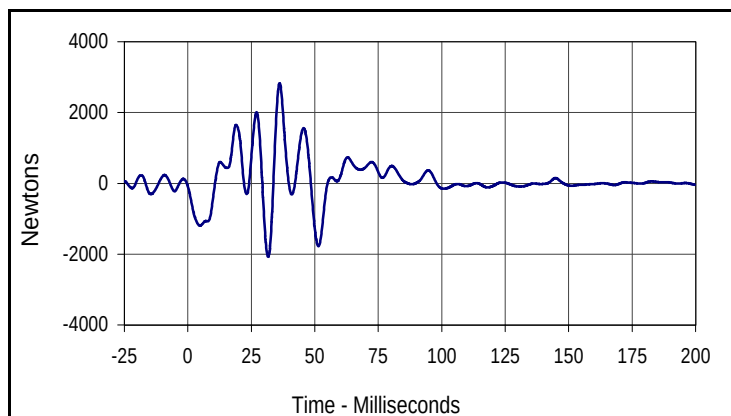
Curve Description			
Barrier Force A5			
CURNO	Type	SAE Class	Units
102	FIL	60	Newtons
Max	Time	Min	Time
5665.5	71.7	-1165.4	20.8



Curve Description			
Barrier Force B5			
CURNO	Type	SAE Class	Units
111	FIL	60	Newtons
Max	Time	Min	Time
64541.3	25.6	-72.2	151.8



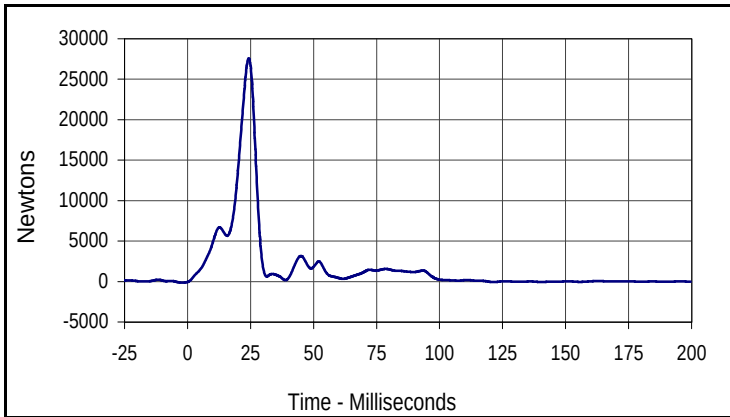
Curve Description			
Barrier Force C5			
CURNO	Type	SAE Class	Units
120	FIL	60	Newtons
Max	Time	Min	Time
8072.0	25.7	-161.3	0.9



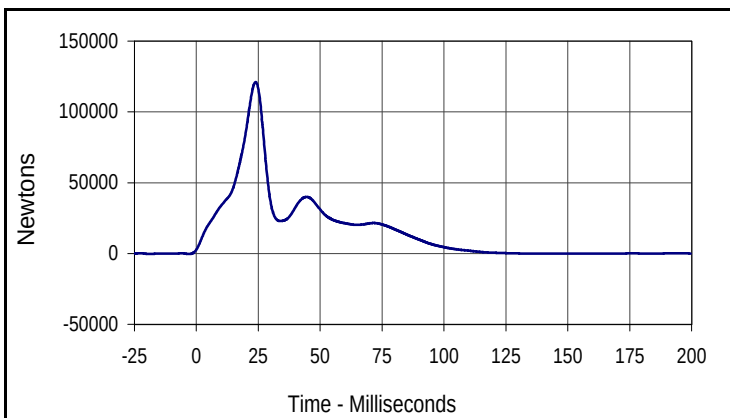
Curve Description			
Barrier Force D5			
CURNO	Type	SAE Class	Units
129	FIL	60	Newtons
Max	Time	Min	Time
2822.8	36.1	-2075.3	31.6

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

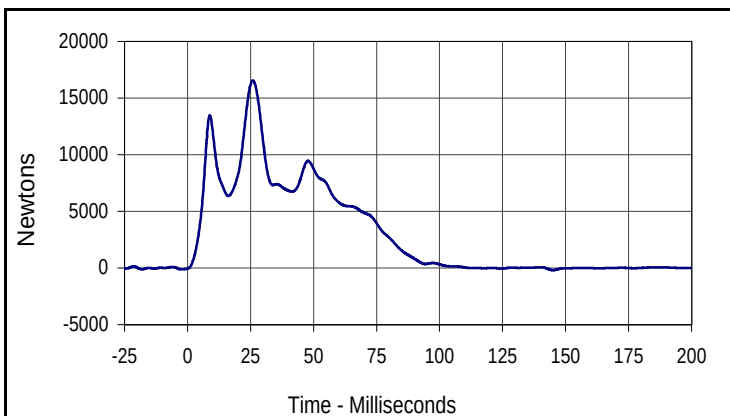
Test Date: 2/5/04
 NHTSA No.: M40105



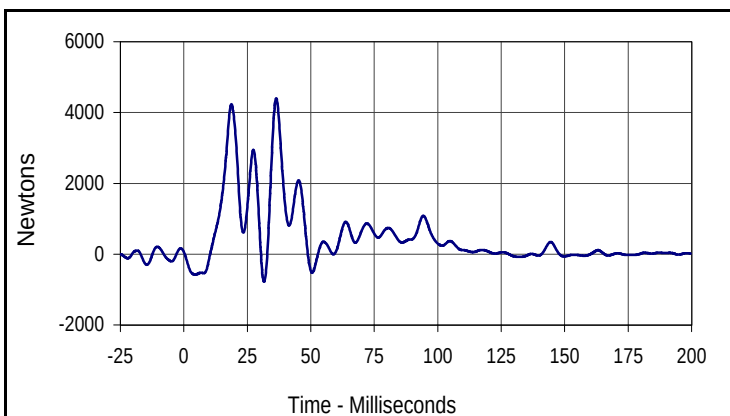
Curve Description			
Barrier Force A6			
CURNO	Type	SAE Class	Units
103	FIL	60	Newtons
Max	Time	Min	Time
27587.4	24.3	-69.0	121.4



Curve Description			
Barrier Force B6			
CURNO	Type	SAE Class	Units
112	FIL	60	Newtons
Max	Time	Min	Time
121092.0	23.9	-84.5	181.3



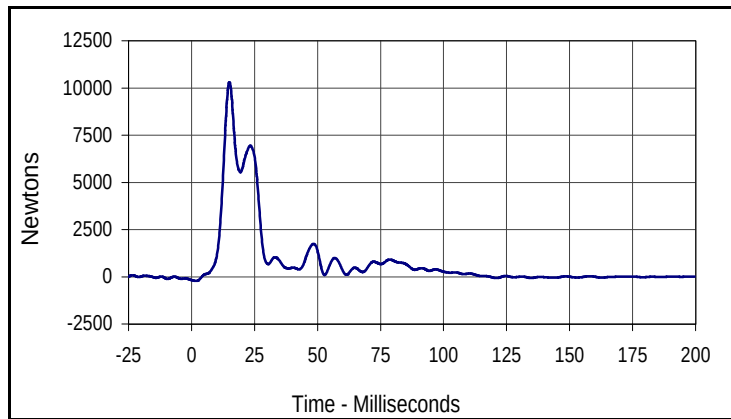
Curve Description			
Barrier Force C6			
CURNO	Type	SAE Class	Units
121	FIL	60	Newtons
Max	Time	Min	Time
16561.6	25.9	-192.0	145.0



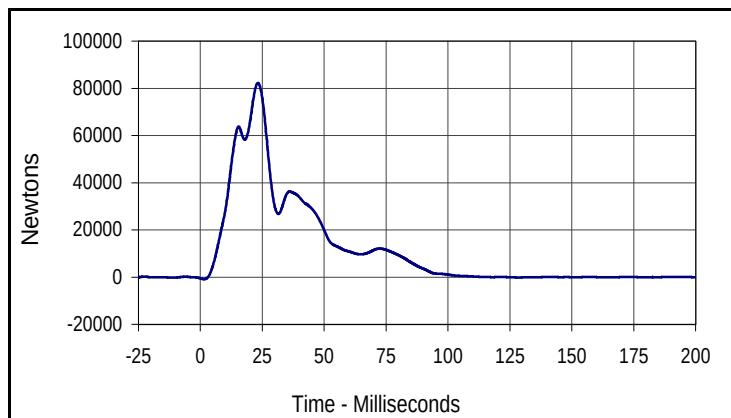
Curve Description			
Barrier Force D6			
CURNO	Type	SAE Class	Units
130	FIL	60	Newtons
Max	Time	Min	Time
4395.0	36.4	-774.3	31.6

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

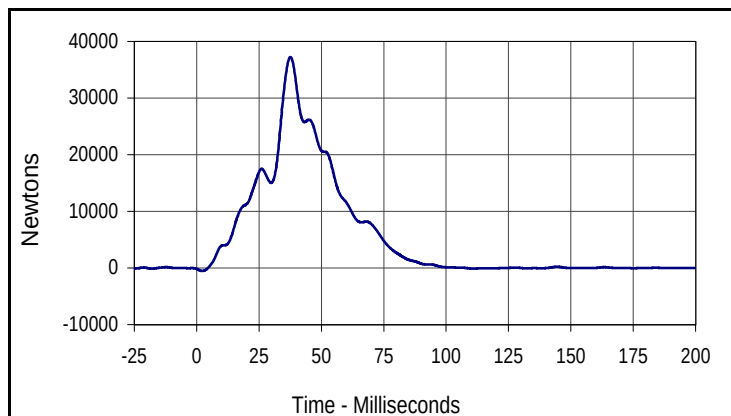
Test Date: 2/5/04
 NHTSA No.: M40105



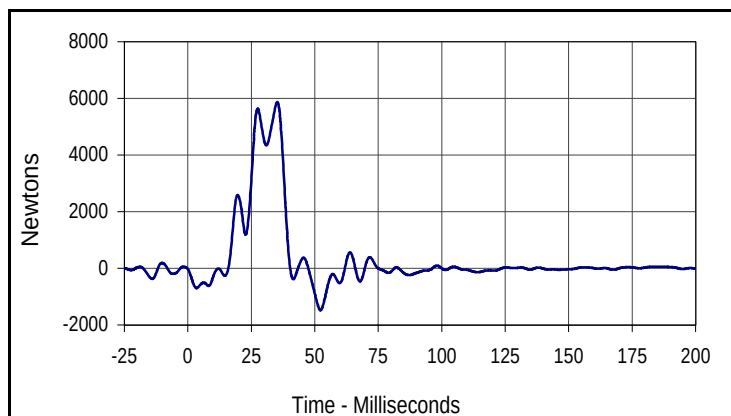
Curve Description			
Barrier Force A7			
CURNO	Type	SAE Class	Units
104	FIL	60	Newtons
Max	Time	Min	Time
10304.3	15.0	-219.0	1.8



Curve Description			
Barrier Force B7			
CURNO	Type	SAE Class	Units
113	FIL	60	Newtons
Max	Time	Min	Time
82217.5	23.2	-858.1	1.5



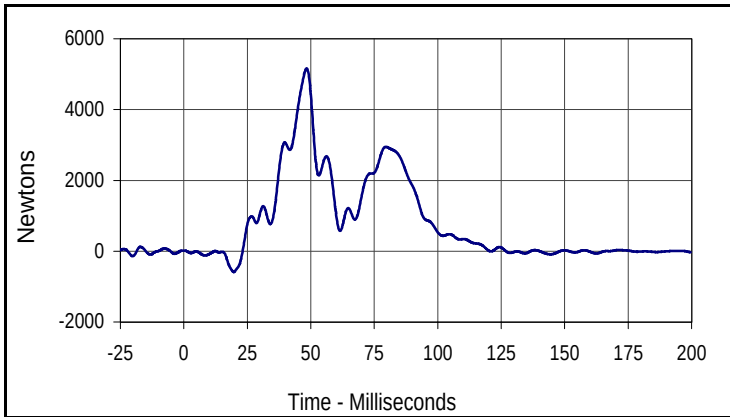
Curve Description			
Barrier Force C7			
CURNO	Type	SAE Class	Units
122	FIL	60	Newtons
Max	Time	Min	Time
37237.4	37.6	-535.6	2.3



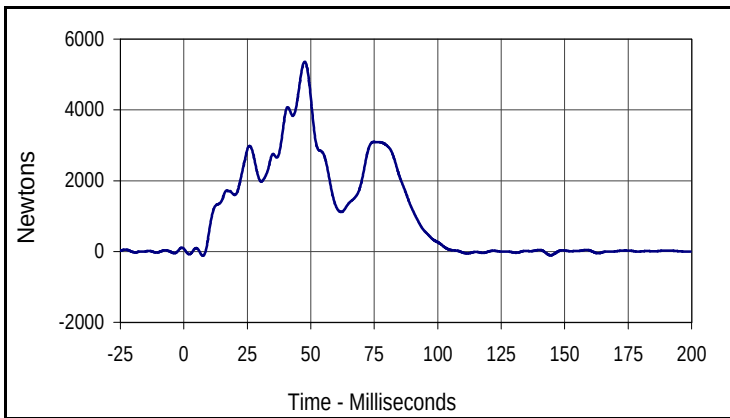
Curve Description			
Barrier Force D7			
CURNO	Type	SAE Class	Units
131	FIL	60	Newtons
Max	Time	Min	Time
5874.0	35.2	-1477.0	52.2

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

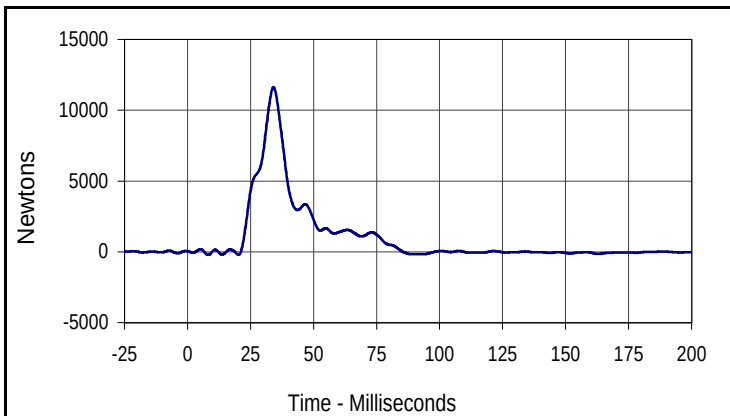
Test Date: 2/5/04
 NHTSA No.: M40105



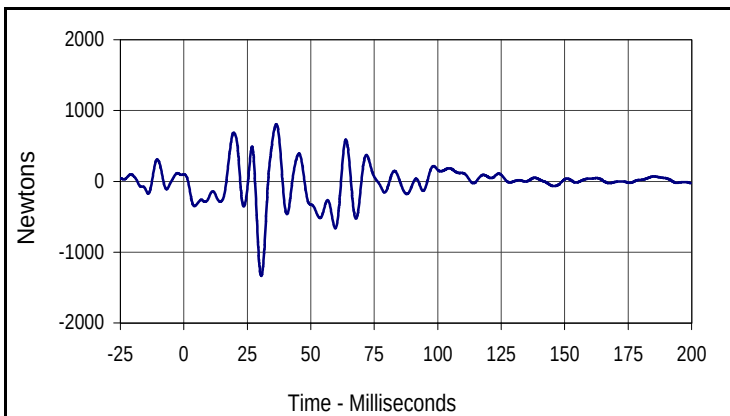
Curve Description			
Barrier Force A8			
CURNO	Type	SAE Class	Units
105	FIL	60	Newtons
Max	Time	Min	Time
5165.0	48.3	-587.1	19.7



Curve Description			
Barrier Force B8			
CURNO	Type	SAE Class	Units
114	FIL	60	Newtons
Max	Time	Min	Time
5361.0	47.6	-117.5	7.5



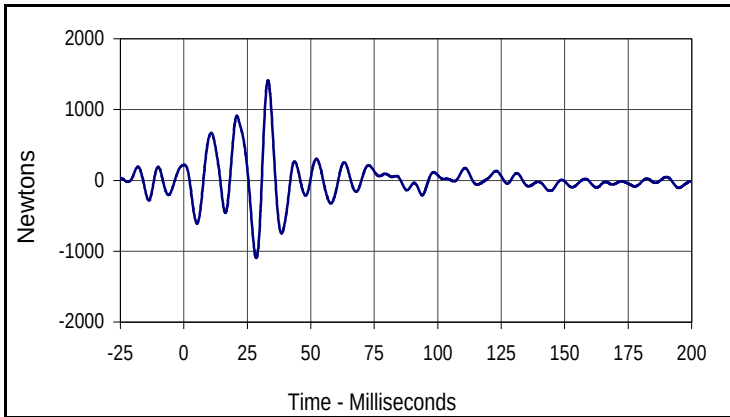
Curve Description			
Barrier Force C8			
CURNO	Type	SAE Class	Units
123	FIL	60	Newtons
Max	Time	Min	Time
11640.6	34.1	-217.7	20.2



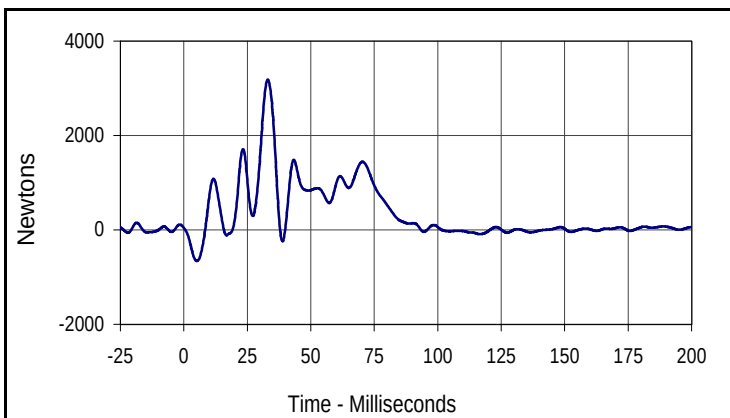
Curve Description			
Barrier Force D8			
CURNO	Type	SAE Class	Units
132	FIL	60	Newtons
Max	Time	Min	Time
807.0	36.4	-1335.1	30.5

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

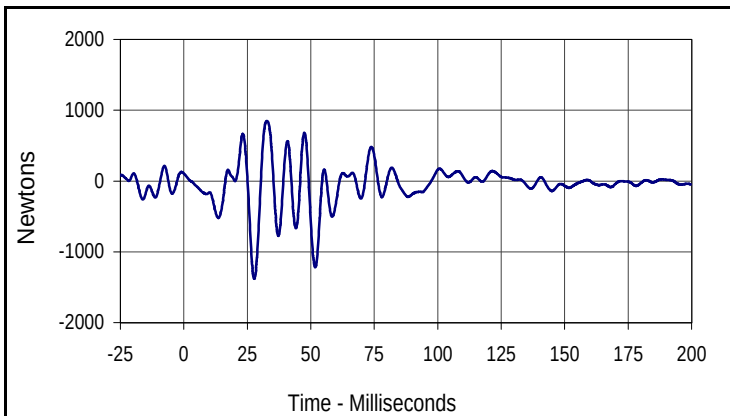
Test Date: 2/5/04
 NHTSA No.: M40105



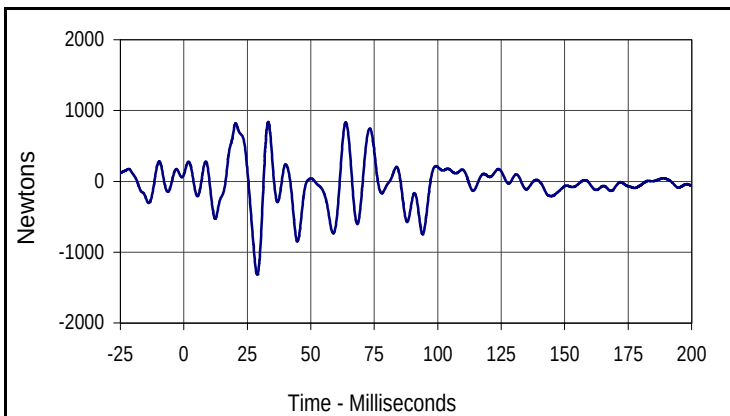
Curve Description			
Barrier Force A9			
CURNO	Type	SAE Class	Units
106	FIL	60	Newtons
Max	Time	Min	Time
1411.5	33.1	-1096.2	28.5



Curve Description			
Barrier Force B9			
CURNO	Type	SAE Class	Units
115	FIL	60	Newtons
Max	Time	Min	Time
3186.1	33.0	-655.8	5.1



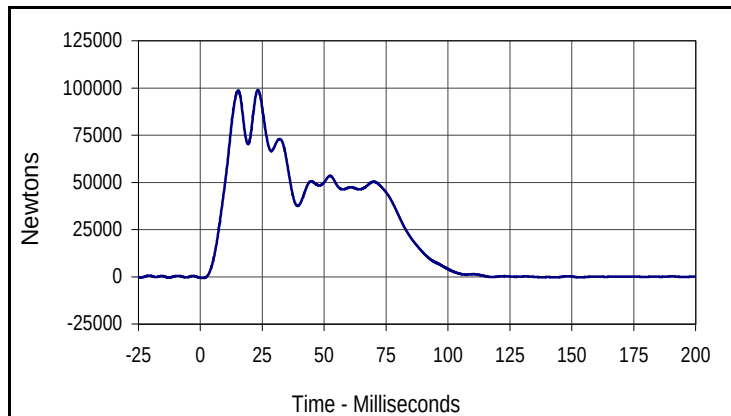
Curve Description			
Barrier Force C9			
CURNO	Type	SAE Class	Units
124	FIL	60	Newtons
Max	Time	Min	Time
849.1	32.7	-1378.9	27.7



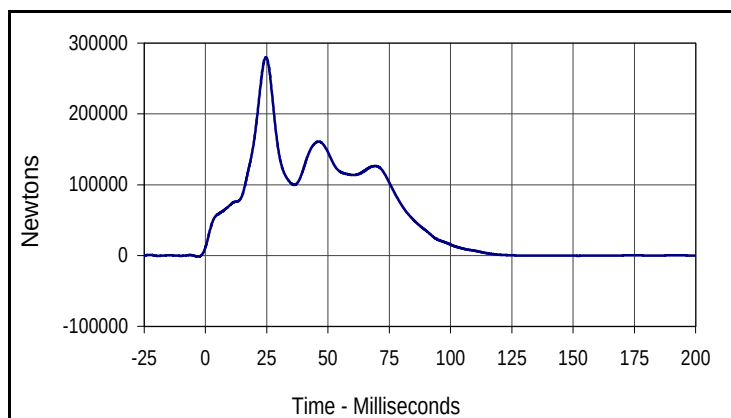
Curve Description			
Barrier Force D9			
CURNO	Type	SAE Class	Units
133	FIL	60	Newtons
Max	Time	Min	Time
836.9	33.2	-1315.2	28.9

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

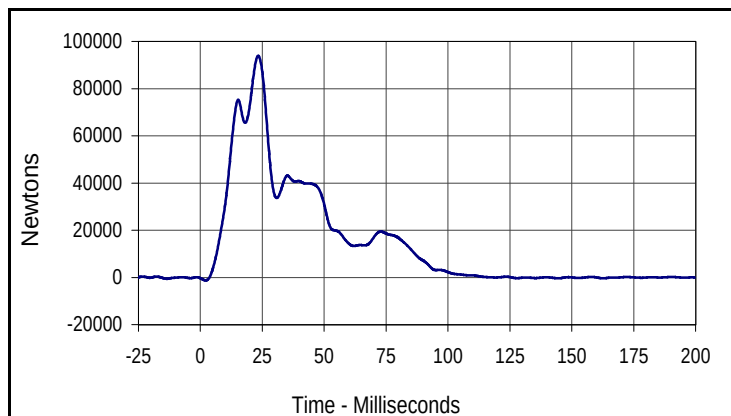
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Barrier Force Sum Group 1			
CURNO	Type	SAE Class	Units
001	SUM	60	Newtons
Max	Time	Min	Time
98966.8	23.2	-636.4	1.2



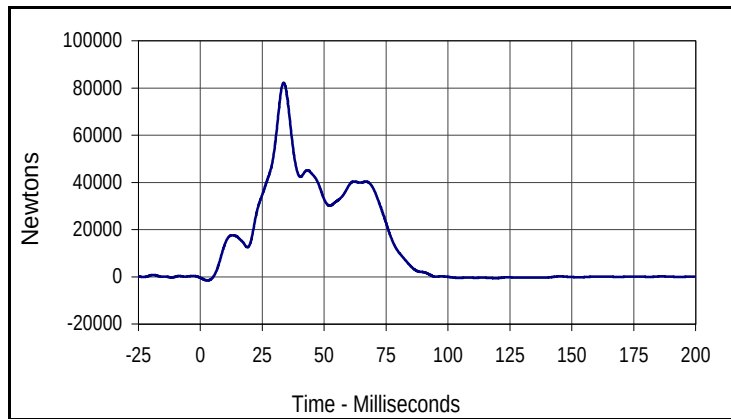
Curve Description			
Barrier Force Sum Group 2			
CURNO	Type	SAE Class	Units
002	SUM	60	Newtons
Max	Time	Min	Time
280243.1	24.7	-356.9	152.1



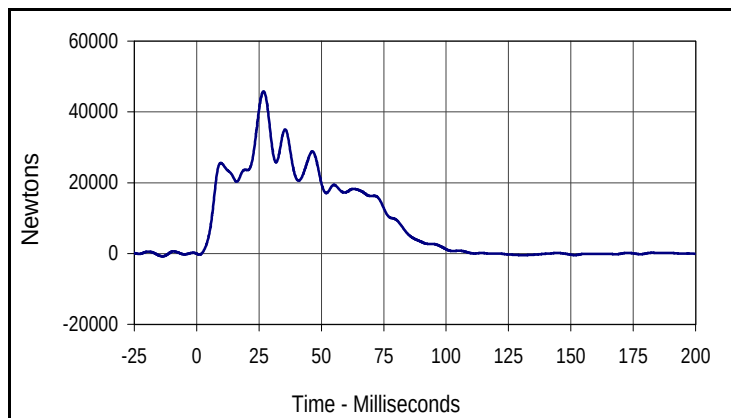
Curve Description			
Barrier Force Sum Group 3			
CURNO	Type	SAE Class	Units
003	SUM	60	Newtons
Max	Time	Min	Time
93886.8	23.3	-1252.4	2.2

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

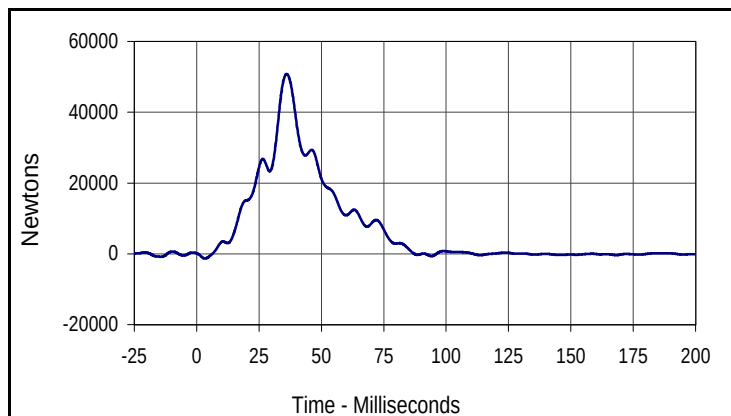
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Barrier Force Sum Group 4			
CURNO	Type	SAE Class	Units
004	SUM	60	Newtons
Max	Time	Min	Time
82243.4	33.6	-1530.1	2.9



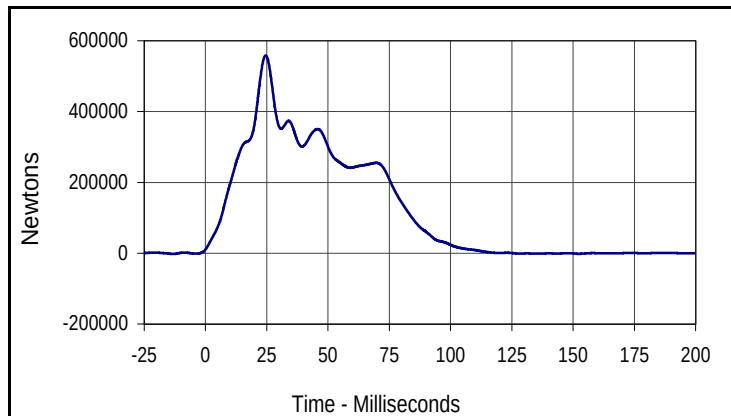
Curve Description			
Barrier Force Sum Group 5			
CURNO	Type	SAE Class	Units
005	SUM	60	Newtons
Max	Time	Min	Time
45818.9	26.8	-490.6	130.8



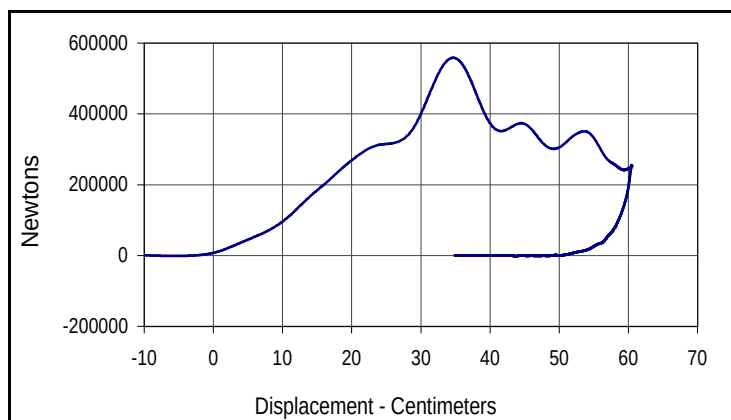
Curve Description			
Barrier Force Sum Group 6			
CURNO	Type	SAE Class	Units
006	SUM	60	Newtons
Max	Time	Min	Time
50793.8	36.0	-1310.4	3.4

Test Vehicle: 2004 Chevrolet Aveo
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Barrier Force Total Sum			
CURNO	Type	SAE Class	Units
007	SUM	60	Newtons
Max	Time	Min	Time
558311.4	24.6	-1757.0	152.4



Curve Description			
Barrier Force Total Sum vs. Displ.			
CURNO	Type	SAE Class	Units
001	XVY	60	Newtons
Max	CM	Min	CM
558311.4	34.7	-1757.0	43.7

BARRIER LOAD CELL SUMMARY DATA

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan

NHTSA No.: M40105

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04

Location	Units	Max	Time	Min	Time
Barrier Force A1	Newtons	2682.0	33.0	-2655.0	38.5
Barrier Force A2	Newtons	3245.4	52.4	-722.5	3.5
Barrier Force A3	Newtons	10412.3	15.2	-924.9	21.3
Barrier Force A4	Newtons	13571.2	24.6	-137.8	127.4
Barrier Force A5	Newtons	5665.5	71.7	-1165.4	20.8
Barrier Force A6	Newtons	27587.4	24.3	-69.0	121.4
Barrier Force A7	Newtons	10304.3	15.0	-219.0	1.8
Barrier Force A8	Newtons	5165.0	48.3	-587.1	19.7
Barrier Force A9	Newtons	1411.5	33.1	-1096.2	28.5
Barrier Force B1	Newtons	1208.8	32.9	-1477.4	38.6
Barrier Force B2	Newtons	12559.9	22.8	-755.1	3.8
Barrier Force B3	Newtons	83261.8	23.1	-326.6	144.2
Barrier Force B4	Newtons	58495.1	47.9	-62.2	144.3
Barrier Force B5	Newtons	64541.3	25.6	-72.2	151.8
Barrier Force B6	Newtons	121092.0	23.9	-84.5	181.3
Barrier Force B7	Newtons	82217.5	23.2	-858.1	1.5
Barrier Force B8	Newtons	5361.0	47.6	-117.5	7.5
Barrier Force B9	Newtons	3186.1	33.0	-655.8	5.1
Barrier Force C1	Newtons	3713.2	33.4	-1156.7	51.8
Barrier Force C2	Newtons	16000.7	33.3	-216.4	3.3
Barrier Force C3	Newtons	37090.9	33.3	-569.6	2.1
Barrier Force C4	Newtons	16060.5	32.5	-108.7	130.9
Barrier Force C5	Newtons	8072.0	25.7	-161.3	0.9
Barrier Force C6	Newtons	16561.6	25.9	-192.0	145.0
Barrier Force C7	Newtons	37237.4	37.6	-535.6	2.3
Barrier Force C8	Newtons	11640.6	34.1	-217.7	20.2
Barrier Force C9	Newtons	849.1	32.7	-1378.9	27.7
Barrier Force D1	Newtons	16000.7	33.3	-216.4	3.3
Barrier Force D2	Newtons	5373.2	34.6	-596.4	49.9
Barrier Force D3	Newtons	6713.6	36.4	-283.5	110.8
Barrier Force D4	Newtons	2277.0	26.9	-767.9	31.4
Barrier Force D5	Newtons	2822.8	36.1	-2075.3	31.6
Barrier Force D6	Newtons	4395.0	36.4	-774.3	31.6
Barrier Force D7	Newtons	5874.0	35.2	-1477.0	52.2
Barrier Force D8	Newtons	807.0	36.4	-1335.1	30.5
Barrier Force D9	Newtons	836.9	33.2	-1315.2	28.9
Barrier Force Sum Group 1	Newtons	98966.8	23.2	-636.4	1.2
Barrier Force Sum Group 2	Newtons	280243.1	24.7	-356.9	152.1
Barrier Force Sum Group 3	Newtons	93886.8	23.3	-1252.4	2.2
Barrier Force Sum Group 4	Newtons	82243.4	33.6	-1530.1	2.9
Barrier Force Sum Group 5	Newtons	45818.9	26.8	-490.6	130.8
Barrier Force Sum Group 6	Newtons	50793.8	36.0	-1310.4	3.4
Barrier Force Total Sum	Newtons	558311.4	24.6	-1757.0	152.4

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 35
2/5/04
2004 Chevrolet Aveo 4 Door Sedan

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

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 35
2/5/04
2004 Chevrolet Aveo 4 Door Sedan

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

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 34
2/5/04
2004 Chevrolet Aveo 4 Door Sedan

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

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 34
2/5/04
2004 Chevrolet Aveo 4 Door Sedan

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	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT, AFT	Z	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT, FORE	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT, AFT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT, AFT	Z	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT, FORE	Z	KEIC004Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	X	BL168	Load cell, Seat belt	First Tech	IF-964	N
86	SHOULDER BELT FORCE	X	BL169	Load cell, Seat belt	First Tech	IF-964	N
87	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

**2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers
2/5/04
2004 Chevrolet Aveo 4 Door Sedan**

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
2/5/04
2004 Chevrolet Aveo 4 Door Sedan**

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
2/5/04
2004 Chevrolet Aveo 4 Door Sedan

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
Nine Accelerometer Array Head
2/5/04
2004 Chevrolet Aveo 4 Door Sedan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
160	DRIVER X-ARM	Y	GPAC012	Accel., 1/2 bridge	Endevco	7264-2000	G
161	DRIVER X-ARM	Z	GPAC001	Accel., 1/2 bridge	Endevco	7264-2000	G
162	DRIVER Y-ARM	X	GPAC036	Accel., 1/2 bridge	Endevco	7264-2000	G
163	DRIVER Y-ARM	Z	GPAC014	Accel., 1/2 bridge	Endevco	7264-2000	G
164	DRIVER Z-ARM	X	GPAC030	Accel., 1/2 bridge	Endevco	7264-2000	G
165	DRIVER Z-ARM	Y	GPAC037	Accel., 1/2 bridge	Endevco	7264-2000	G
166	PASS. X-ARM	Y	GPAC016	Accel., 1/2 bridge	Endevco	7264-2000	G
167	PASS. X-ARM	Z	GPAC015	Accel., 1/2 bridge	Endevco	7264-2000	G
168	PASS. Y-ARM	X	GPAC004	Accel., 1/2 bridge	Endevco	7264-2000	G
169	PASS. Y-ARM	Z	GPAC018	Accel., 1/2 bridge	Endevco	7264-2000	G
170	PASS. Z-ARM	X	GPAC006	Accel., 1/2 bridge	Endevco	7264-2000	G
171	PASS. Z-ARM	Y	GPAC007	Accel., 1/2 bridge	Endevco	7264-2000	G

APPENDIX E

DUMMY CALIBRATION DATA

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

Test Date: 1/9/04

ATD Serial No.: 034

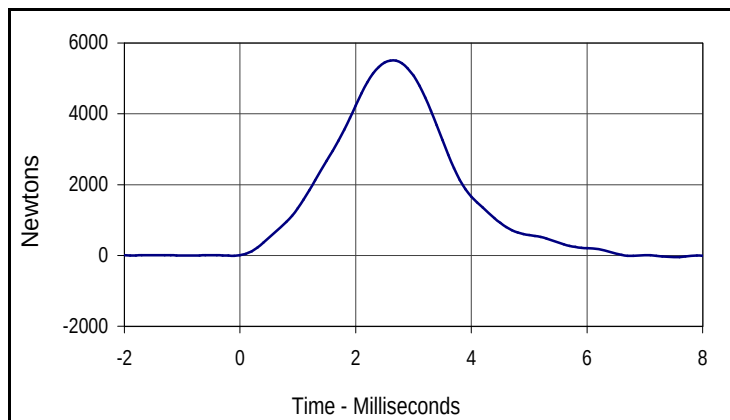
Test I.D.: LK03A , RK03A

**Left Knee**

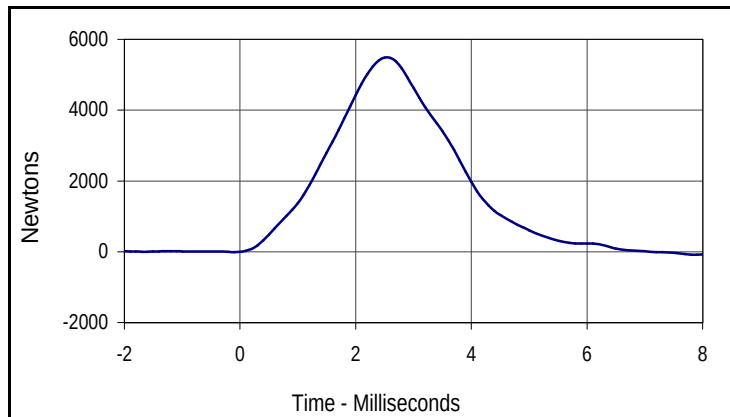
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5503	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5486	Pass
Overall Test Results				Pass

**Curve Description****Left Knee Probe Force**

CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5503.4	2.6	-50.0	7.5

**Curve Description****Right Knee Probe Force**

CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5486.4	2.5	-102.9	9.4

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

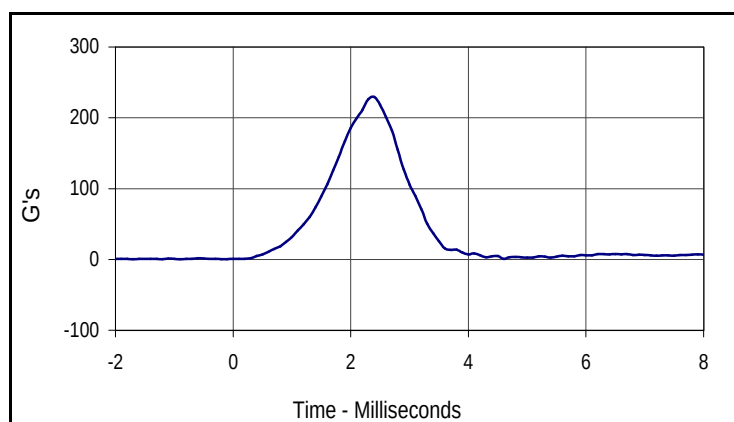
Test Date: 1/9/04

ATD Serial No.: 034

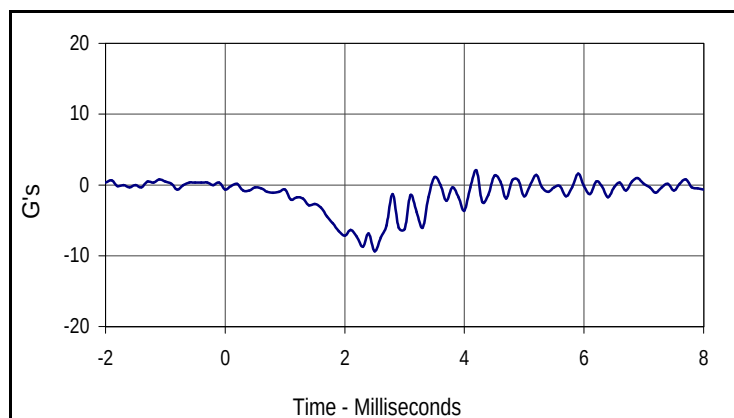
Test I.D.: HD03A



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	229.7	Pass
Peak Lateral Acceleration	G's	≤15.0	9.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
229.7	2.4	0.2	-0.2



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.1	4.2	-9.4	2.5

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

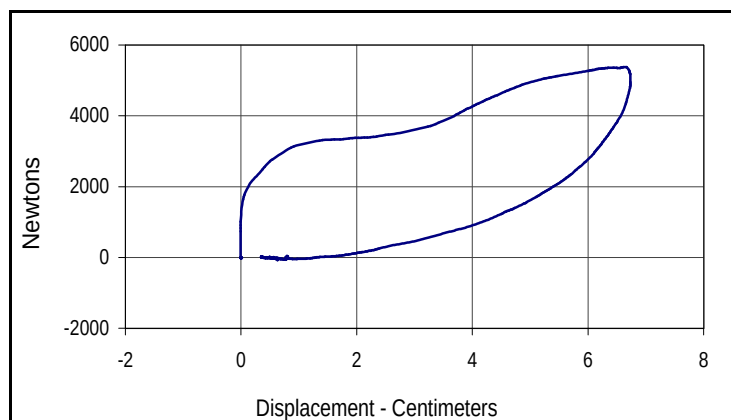
Test Date: 1/10/04

ATD Serial No.: 034

Test I.D.: CH03A



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	6.60	Pass
Peak Probe Force	Newtons	5159 to 5893	5378	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.74	Pass
Internal Hysteresis	%	69 to 85	74.0	Pass
Overall Test Results			Pass	



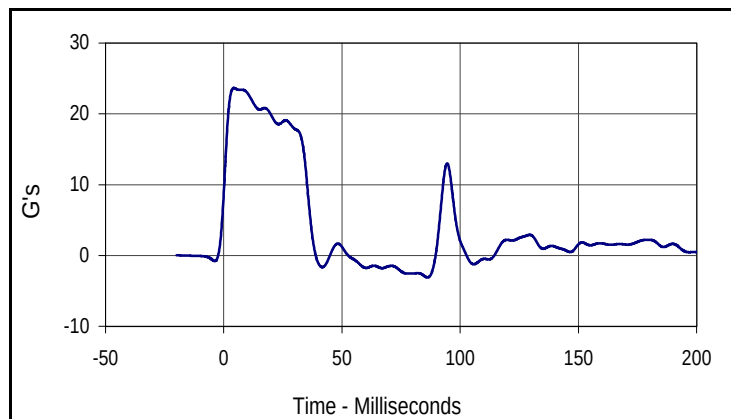
Curve Description			
Probe Force vs. Chest Displacement			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	74.0
Peak Probe Force		Peak Chest Displ.	
5378.1		6.74	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 034

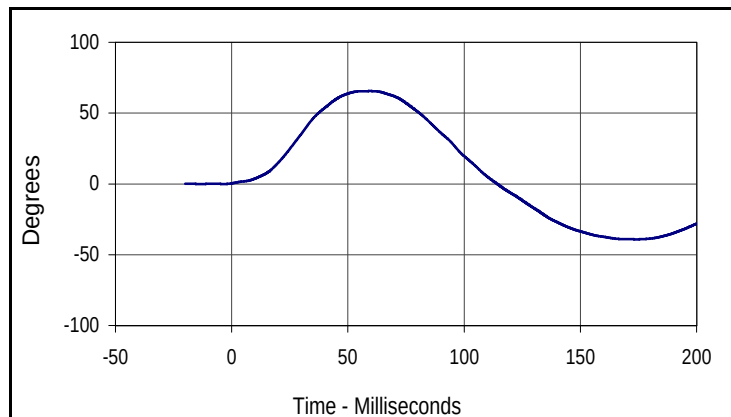
Test Date: 1/9/04
 Test I.D.: NF03A



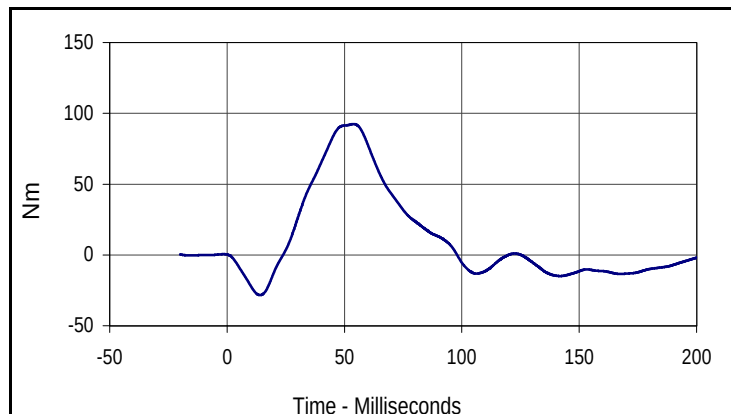
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.11	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.0	Pass
	20 Msec.	G's	17.6 to 22.6	19.9	Pass
	30 Msec.	G's	12.5 to 18.5	17.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	36.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	65.5	Pass
	Time	Msec.	57.0 to 64.0	59.8	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	114.2	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	92.4	Pass
	Time	Msec.	47.0 to 58.0	53.9	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	98.0	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.7	4.2	-3.1	86.2



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
65.5	59.8	-39.1	174.3



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	60	Nm
Max	Time	Min	Time
92.4	53.9	-28.4	14.0

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

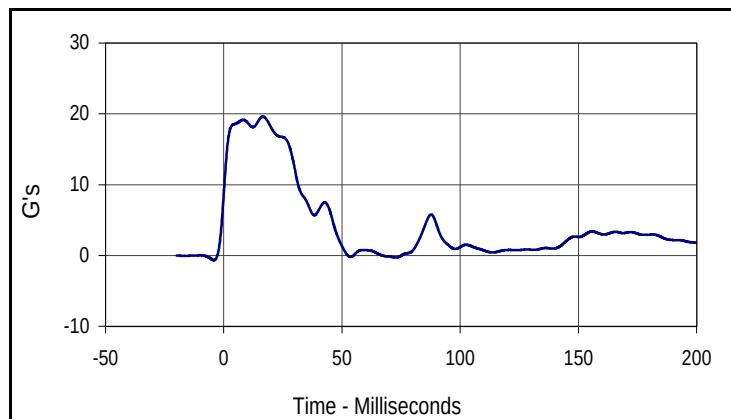
Test Date: 1/10/04

ATD Serial No.: 034

Test I.D.: NE03A



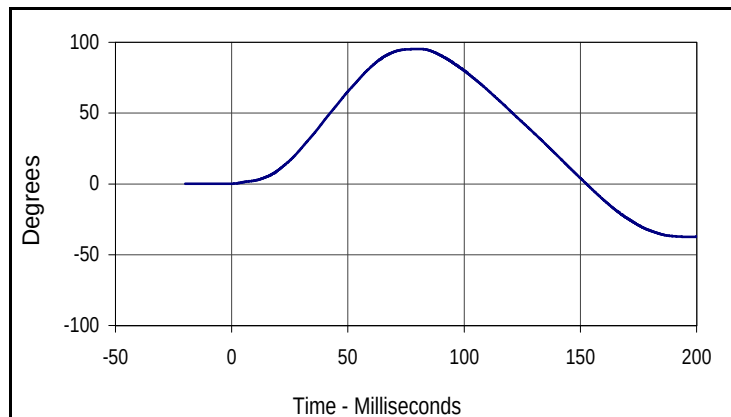
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	5.97	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.8	Pass
	20 Msec.	G's	14.0 to 19.0	18.1	Pass
	30 Msec.	G's	11.0 to 16.0	12.3	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	12.3	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	46.0	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	95.3	Pass
	Time	Msec.	72.0 to 82.0	81.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	152.7	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-70.1	Pass
	Time	Msec.	65.0 to 79.0	69.2	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	140.2	Pass
Overall Test Results				Pass	



Curve Description

Pendulum Deceleration

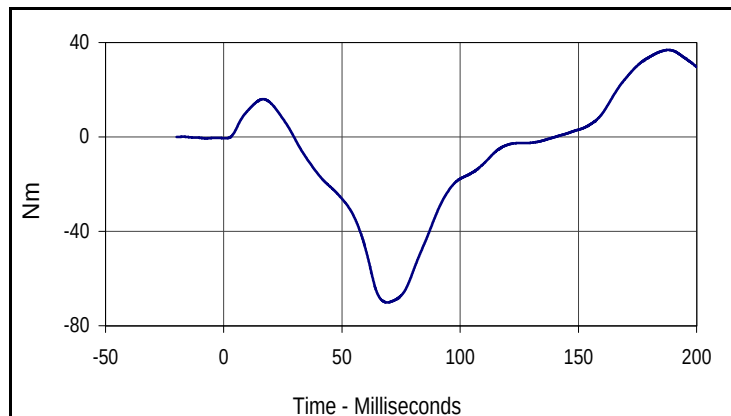
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.6	16.6	-0.7	-4.2



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
95.3	81.0	-37.3	196.0



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
004	FIL	60	Nm
Max	Time	Min	Time
36.9	188.0	-70.1	69.2

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 1/10/04

ATD Serial No.: 034

Test I.D.: N/A



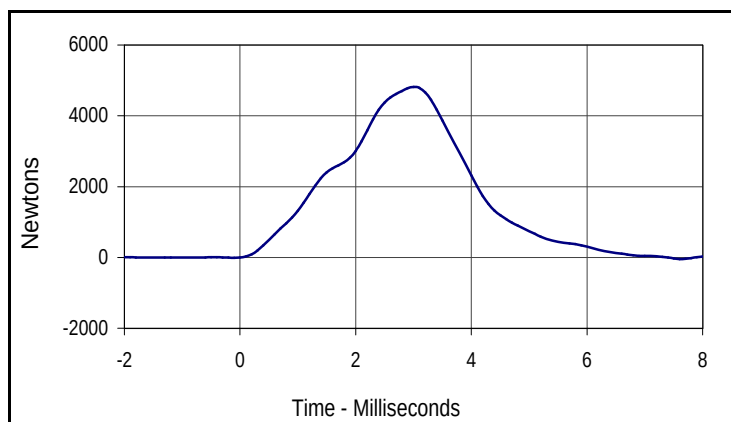
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	880	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point 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	153	Pass
G - Elbow back to wrist pivot	mm	290 to 305	298	Pass
H - Skull cap to back line	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	335	Pass
J - Elbow rest height	mm	190 to 211	210	Pass
K - Buttock to knee length	mm	579 to 604	580	Pass
L - Popliteal length	mm	429 to 455	445	Pass
M - Knee pivot height	mm	485 to 500	495	Pass
N - Buttock popliteal length	mm	452 to 477	455	Pass
O - Chest depth	mm	213 to 229	220	Pass
P - Foot length	mm	251 to 267	265	Pass
V - Shoulder breadth	mm	422 to 437	425	Pass
W - Foot breadth	mm	91 to 107	100	Pass
Y - Chest circumference	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	840	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

Test Program: Hybrid III 50th Percentile Male Knee Impact TestTest Date: 1/9/04ATD Serial No.: 035Test I.D.: LK03B , RK03B**Left Knee**

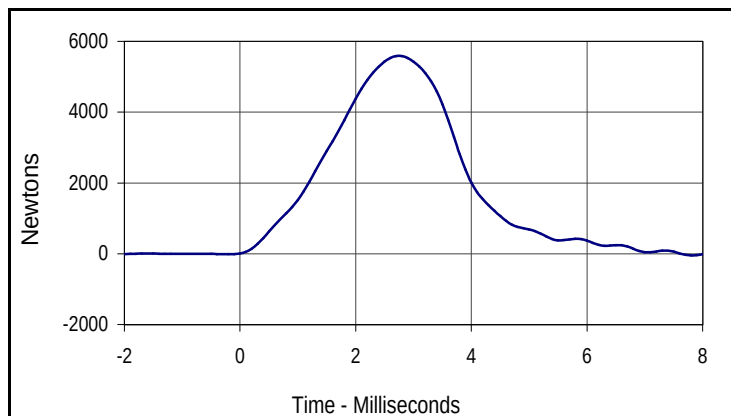
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	4815	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5584	Pass
Overall Test Results				Pass

**Curve Description****Left Knee Probe Force**

CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4815.5	3.0	-47.4	8.4

**Curve Description****Right Knee Probe Force**

CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5584.4	2.7	-112.6	9.3

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

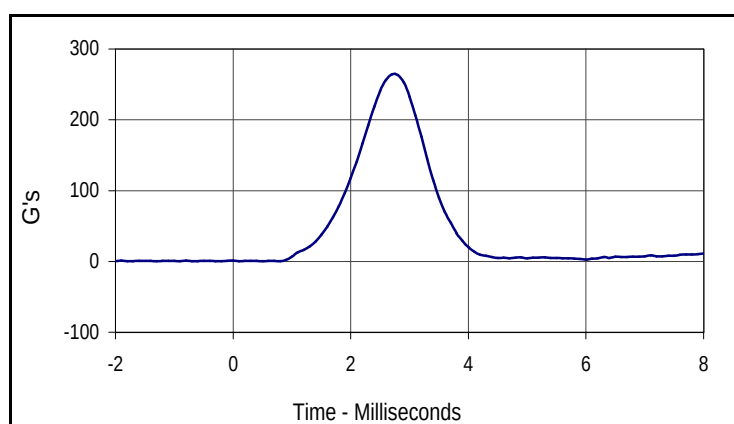
Test Date: 1/9/04

ATD Serial No.: 035

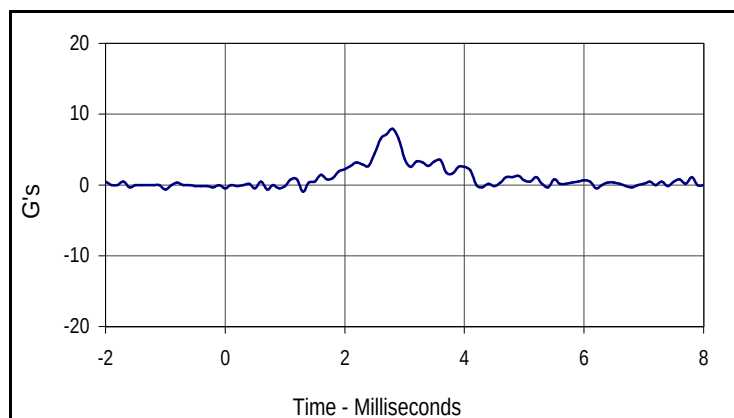
Test I.D.: HD03B



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	264.4	Pass
Peak Lateral Acceleration	G's	≤15.0	8.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
264.4	2.7	0.2	-0.9



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
8.0	2.8	-1.0	1.3

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

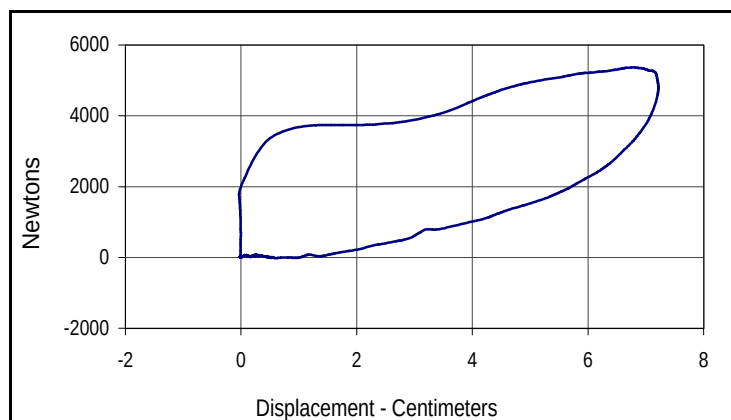
Test Date: 1/10/04

ATD Serial No.: 035

Test I.D.: CH03B



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	5367	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	7.22	Pass
Internal Hysteresis	%	69 to 85	73.3	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Displacement			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	73.3
Peak Probe Force		Peak Chest Displ.	
5366.8		7.22	

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

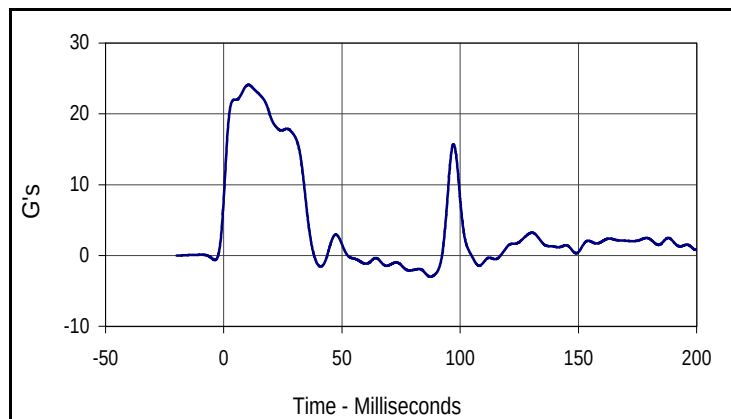
Test Date: 1/9/04

ATD Serial No.: 035

Test I.D.: NF03B



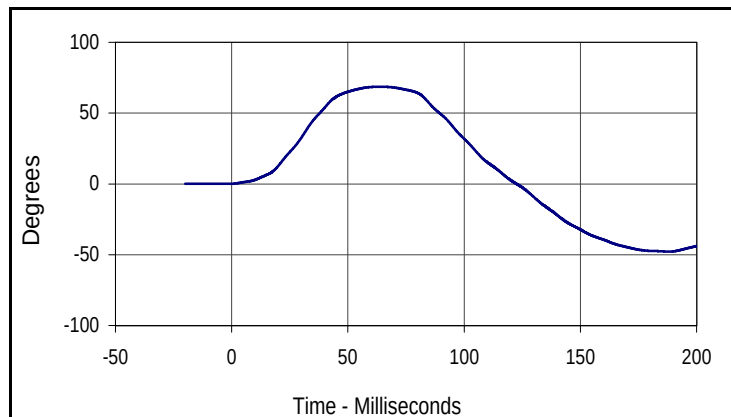
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.12	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	24.1	Pass
	20 Msec.	G's	17.6 to 22.6	19.4	Pass
	30 Msec.	G's	12.5 to 18.5	16.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	16.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	35.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	68.6	Pass
	Time	Msec.	57.0 to 64.0	63.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	122.5	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	98.5	Pass
	Time	Msec.	47.0 to 58.0	55.9	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	98.5	Pass
			Overall Test Results		Pass



Curve Description

Pendulum Deceleration

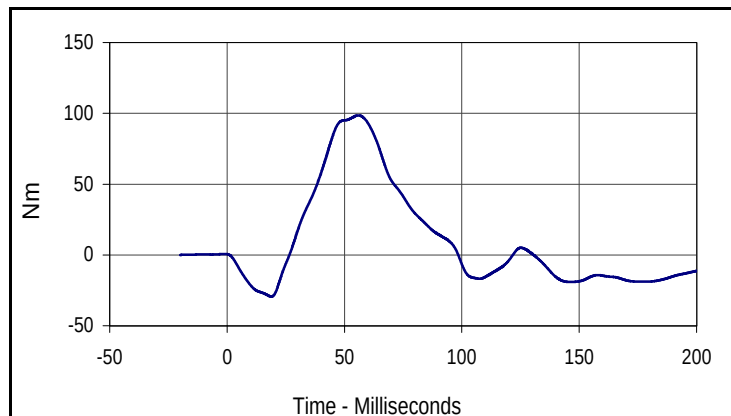
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
24.1	10.4	-3.0	87.4



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
68.6	63.4	-47.8	188.1



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
004	FIL	60	Nm
Max	Time	Min	Time
98.5	55.9	-29.4	18.8

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

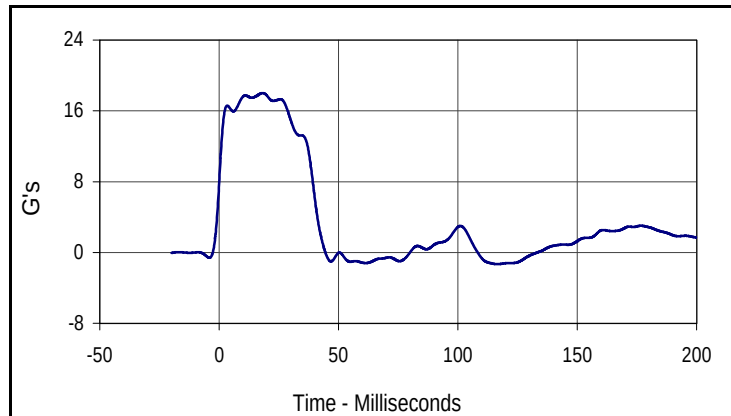
Test Date: 1/10/04

ATD Serial No.: 035

Test I.D.: NE03B



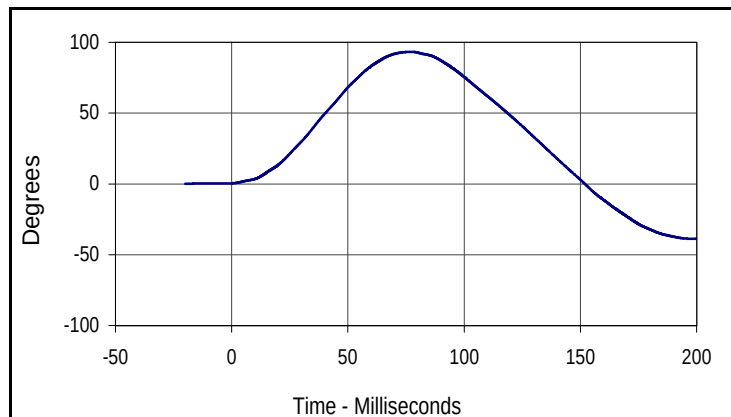
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.16	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.6	Pass
	20 Msec.	G's	14.0 to 19.0	17.7	Pass
	30 Msec.	G's	11.0 to 16.0	14.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	14.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	40.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	93.3	Pass
	Time	Msec.	72.0 to 82.0	76.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	152	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-74.7	Pass
	Time	Msec.	65.0 to 79.0	70.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	142.3	Pass
Overall Test Results				Pass	



Curve Description

Pendulum Deceleration

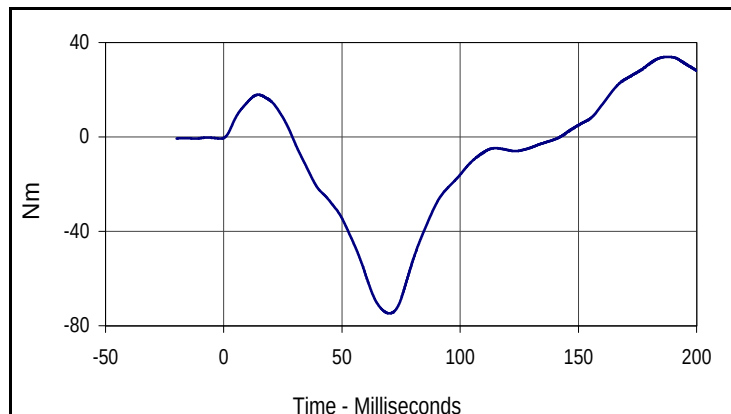
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
18.0	18.2	-1.3	116.5



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
93.3	76.9	-38.8	200.0



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
004	FIL	60	Nm
Max	Time	Min	Time
33.9	187.7	-74.7	70.1

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 1/10/04

ATD Serial No.: 035

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	880	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	155	Pass
G - Elbow back to wrist pivot	mm	290 to 305	295	Pass
H - Skull cap to back line	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	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	445	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	425	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	860	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	228	Pass
Overall Test Results				Pass

APPENDIX F

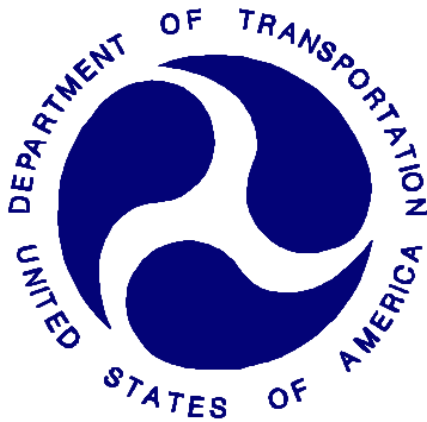
CHILD RESTRAINT SYSTEM

NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST

DAEWOO AUTO & TECHNOLOGY COMPANY
2004 CHEVROLET AVEO
4 DOOR SEDAN

NHTSA NUMBER: M40105

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



FEBRUARY 5, 2004

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-121
400 SEVENTH STREET, SW, ROOM 5311
WASHINGTON, D.C. 20590

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Date: February 10, 2004

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

Date: February 10, 2004

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

Technical Report Documentation Page

1. Report No. TR-P24001-12-NC		2. Government Accession No.		3. Recipients Catalog No.	
4. Title and Subtitle Final Report of a Evenflo Vangaurd 5 Convertible NHTSA No. M40105				5. Report Date February 10, 2004	
				6. Performing Organization Code KAR	
7. Authors Mr. James E. Gorth, Project Engineer, Karco Mr. Frank Richardson, Project Manager, Karco				8. Performing Organization Report No. TR-P24001-12-NC	
9. Performing Organization Name and Address Karco Engineering, LLC 9270 Holly Rd. Adelanto, CA, 92301				10. Work Unit No.	
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				14. Sponsoring Agency Code DOT/NHTSA/NRM/OCS	
15. Supplementary Notes					
16. Abstract A frontal test was conducted on the subject Evenflo Vanguard 5 Convertible CRS in conjunction with frontal NCAP testing on a 2004 Chevrolet Aveo 4 Door Sedan and in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the determination of CRS crashworthiness. This test was conducted at KARCO Engineering, LLC on February 5, 2004.					
Measurement Description		Units		Left Rear	Right Rear
Head Injury Criteria (HIC) 36		N/A			603
Head Injury Criteria (HIC) 15		N/A			328.8
3 msec. Chest Clip		G's			44.6
Peak Chest Displacement		mm			-15.7
17. Key Words 56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) 2004 Chevrolet Aveo 4 Door Sedan NHTSA No. M40105				18. Distribution of Statement Copies of this report available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, D.C. 20590	
19. Security Classification (this report) Unclassified		20. Security Classification (this page) Unclassified		21. No. of Pages	22. Price

Form DOT F1700.7 (8-72)

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SECTION F-1

PURPOSE AND SUMMARY OF TEST M40105

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

The 55.86 km/h NCAP frontal impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) NCAP Laboratory Test Procedure.

SUMMARY

One three-year-old child dummy was instrumented with head, chest, and pelvic triaxial accelerometers. In addition chest displacement and upper and lower six axial neck force and moment load cell sensors were utilized. Triaxial accelerometers were installed on the CRS.

The right rear (Position 3) child dummy (Serial No. 082) was calibrated prior to this test. Child dummy certification information is found in Section F-5.

CHILD DUMMY VALUES

Location	HIC 36 Values	HIC 15 Values	3 Msec. Chest Clip	Peak Chest Disp.
Right Rear Child	603.0	328.8	44.6	-15.7
Left Rear Child				

SECTION F-1

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

Test Vehicle: 2004 Chevy Aveo 4 Door Sedan

NHTSA No.: M40105

Test Program 2004 NHTSA 35mph NCAP

Test Date: 2/5/04

TEST DUMMY INFORMATION

Description	Position # 3 CRS	Position #4 CRS
Manufacturer	Evenflo	
Model Name	Vanguard 5	
Serial No.	369121 P1	
Type	Convertible	
Forward/Rearward	Forward	

VISIBLE DUMMY CONTACT POINTS

Description	Position #3 CRS	Position #4 CRS
Head Contact	Chin to Retaining Clip	
Chest Contact	None	
Abdomen Contact	None	
Left Knee Contact	None	
Right Knee Contact	None	
Left Toe Contact	Seatback	
Right Toe Contact	Seatback	

POST TEST DOOR OPENINGS

Description	Position #3 CRS	Position #4 CRS
Left Side Doors	Remained closed/latched, opened w/o aid of tools	
Right Side Doors	Remained closed/latched, opened w/o aid of tools	
Hatch/Other Door	None	

POST TEST SEAT DATA

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

CAMERA COVERAGE

High Speed	1
Real Time	1
Total	2

SECTION F-1**DATA SHEET NO.2.....CRS PARAMETER DATA**Test Vehicle: 2004 Chevy Aveo 4 Door SedanNHTSA No.: M40105Test Program 2004 NHTSA 35mph NCAPTest Date: 2/5/04**TEST VEHICLE WEIGHTS**

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	354	222		380	279	
Right	kg	348	216		395	280	
Ratio	%	61.6	38.4		58.1	41.9	
Totals	kg	702	438	1140	775	559	1334

TARGET TEST WEIGHT CALCULATION

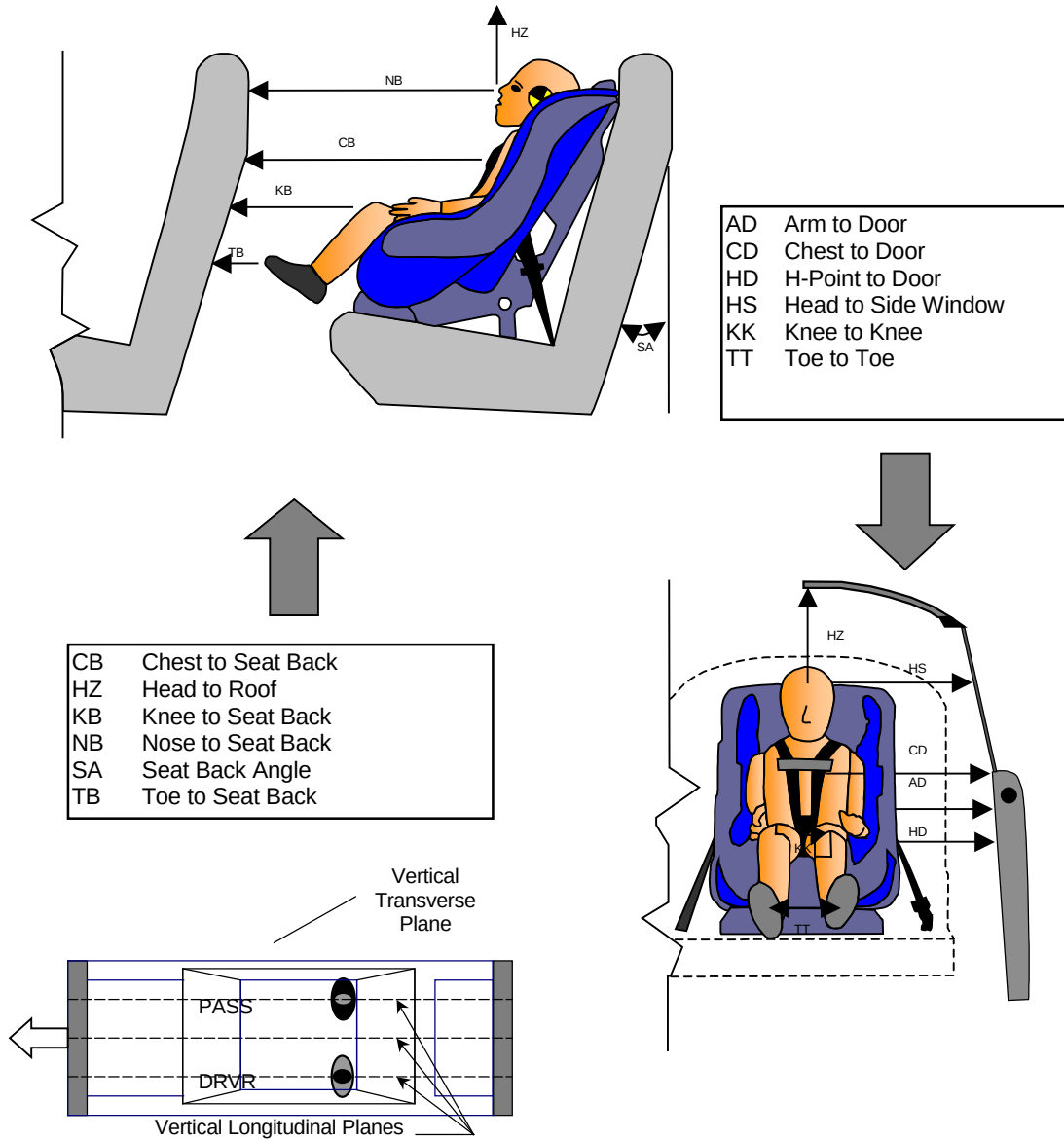
Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1140
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Wt. (RCLW)	kg	49
Calculated Vehicle Target Wt. (TVTW)	kg	1341

SECTION F-1

DATA SHEET NO.3.....CHILD DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2004 Chevy Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/5/04



DUMMY MEASUREMENTS FOR REAR SEAT OCCUPANTS

SECTION F-1

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

Test Vehicle: 2004 Chevy Aveo 4 Door Sedan
 Test Program 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/5/04

CHILD DUMMY POSITION MEASUREMENTS

Code	Measurement	Units	P3 CRS Serial No. 082		
			Pre-Test	Post-Test	Diff.
SA	Seat Back Angle	deg.	28	28	0
HZ	Head to Roof (Z)	mm	355	355	0
CD	Chest to Door	mm	375	350	-25
KK	Knee to Knee (Y)	mm	195	230	35
HS	Head to Side Window	mm	365	342	-23
HD	H-Point to Door (Y)	mm	275	260	-15
AD	Arm to Door	mm	225	218	-7
NB	Nose to Seat Back	mm	550	565	15
CB	Chest to Seat Back	mm	525	545	20
FF	Foot to Foot	mm	225	330	105
KB-Left	Knee to Seat Back	mm	275	315	40
KB-Right	Knee to Seat Back	mm	290	320	30
TB-Left	Toe to Seat Back	mm	15	10	-5
TB-Right	Toe to Seat Back	mm	15	6	-9
CCA	Car Cushion Angle	deg.	74		0
BA	Back Angle	deg.	61		0
SCA	Seat Cushion Angle	deg.	60		0

DATA SHEET NO. 4 - 3 YEAR OLD HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan

NHTSA No.: M40105

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/5/04

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Right Rear (3 Yr.)			
			Max	Time	Min	Time
Head CG	X	G's	40.1	190.0	-31.3	81.6
Head CG	Y	G's	1.8	102.5	-5.3	112.0
Head CG	Z	G's	48.7	78.3	-9.0	37.8
Head CG Resultant	N/A	G's	57.4	78.3		

PRIMARY HEAD INJURY CRITERAS (HIC)

Location	Right Rear (3 Yr.)			
	HIC	T ¹	T ²	Avg G
Head CG Primary (HIC36)	603.0	61.3	97.3	48.9
Head CG Primary (HIC15)	328.8	68.5	83.5	54.5

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Right Rear (3 Yr.)			
			Max	Time	Min	Time
Chest CG	X	G's	26.0	197.1	-45.0	72.0
Chest CG	Y	G's	3.5	166.6	-1.8	196.6
Chest CG	Z	G's	16.4	190.0	-30.7	55.8
Chest CG Resultant	N/A	G's	49.3	71.9		

PRIMARY CHEST CLIP (3MSEC)

Location	Right Rear (3 Yr.)		
	CLIP	T ¹	T ²
Chest CG Primary	44.6	69.8	72.8

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Right Rear (3 Yr.)			
			Max	Time	Min	Time
Chest	X	MM	0.0	24.0	-15.7	88.9

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Right Rear (3 Yr.)			
			Max	Time	Min	Time
Pelvis	X	G's	5.0	139.0	-47.5	61.8
Pelvis	Y	G's	6.6	74.6	-2.5	199.0
Pelvis	Z	G's	19.3	189.8	-26.6	45.6
Pelvis Resultant	N/A	G's	52.0	51.8		

DATA SHEET NO. 4...(continued)Test Vehicle: 2004 Chevrolet Aveo 4 Door SedanNHTSA No.: M40105Test Program: 2004 NHTSA 35mph NCAPTest Date: 2/5/04**UPPER NECK PEAK FORCES AND MOMENTS**

Location	Axis	Units	Right Rear (3 Yr.)			
			Max	Time	Min	Time
Neck Force	X	Newtons	6.1	165.0	-773.6	81.7
Neck Force	Y	Newtons	39.8	113.0	-46.4	50.1
Neck Force	Z	Newtons	1806.5	79.6	-327.1	197.8
Neck Force Resultant	N/A	Newtons	1961.2	80.2		
Neck Moment	X	Nm	2.6	104.9	-3.9	55.4
Neck Moment	Y	Nm	1.2	132.5	-15.3	200.0
Neck Moment	Z	Nm	1.4	124.5	-2.9	197.0
Neck Moment Resultant	N/A	Nm	15.5	200.0		

LOWER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Right Rear (3 Yr.)			
			Max	Time	Min	Time
Neck Force	X	Newtons	102.3	186.8	-760.9	80.8
Neck Force	Y	Newtons	31.7	198.6	-179.4	75.9
Neck Force	Z	Newtons	804.9	78.4	-267.9	38.3
Neck Force Resultant	N/A	Newtons	1099.8	79.8		
Neck Moment	X	Nm	4.7	103.5	-8.6	55.4
Neck Moment	Y	Nm	110.2	80.6	-9.5	183.1
Neck Moment	Z	Nm	1.9	128.8	-12.4	65.2
Neck Moment Resultant	N/A	Nm	110.7	80.6		

CHILD SEAT TETHER BELT SENSOR PEAK VALUES

Location	Axis	Units	Right Rear (3 Yr.)			
			Max	Time	Min	Time
Car Seat Upper Tether Force	N/A	Newtons	2503.9	72.9	-63.8	128.6

CHILD SEAT ACCELEROMETER PEAK VALUES

Location	Axis	Units	Right Rear (3 Yr.)			
			Max	Time	Min	Time
Child Seat	X	G's	12.2	200.0	-49.3	63.8
Child Seat	Y	G's	4.3	78.5	-2.8	194.6
Child Seat	Z	G's	8.0	200.0	-11.8	71.5
Child Seat Resultant	N/A	G's	49.5	63.8		

SECTION F-1

DATA SHEET NO.5CRS PERFORMANCE DATA

Test Vehicle: 2004 Chevy Aveo 4 Door Sedan
 Test Program 2004 NHTSA 35mph NCAP

NHTSA No.: M40105
 Test Date: 2/5/04

CRS PERFORMANCE DATA

Location	P3 CRS Serial No. 082	
	Damage	Post-Test
Upper Tether Strap	No	None
Upper Tether Buckle	No	None
Upper Tether Hook	No	None
Veh. Upper Tether Anchor	No	None
Lower Anchor Strap	No	None
Lower Anchor Buckle	No	None
Lower Anchor Hooks	No	None
Veh. Lower CRS Anchors	No	None
5 Point Harness Connections	No	None
Cracks on CRS	No	None
Fabric Tears on CRS	No	None
Vehicle Seat Structure	Yes	Seat Back/ Seat Cushion Separation
Vehicle Seat Fabric Tears	No	None

SECTION F-1

DATA SHEET NO.6CRS CAMERA DATA

Test Vehicle: 2004 Chevy Aveo 4 Door Sedan

NHTSA No.: M40105

Test Program 2004 NHTSA 35mph NCAP

Test Date: 2/5/04

CAMERA LOCATIONS

No.	Camera View	Location(mm)			Angle (Deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Driver Side Child Dummy	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Passenger Side Child Dummy	2870	-1930	2286	25	1847	6	1010
3								
4								
5								
6								

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

SECTION F-2
PHOTOGRAPHS

LIST OF PHOTOGRAPHS CRS #3

Figure		Page
1	Close-up View Position 3 CRS Label	F2-1
2	Pre-Test Frontal View of Position 3 CRS	F2-2
3	Post-Test Frontal View of Position 3 CRS	F2-3
4	Pre-Test Rear View of Position 3 CRS	F2-4
5	Post-Test Rear View of Position 3 CRS	F2-5
6	Pre-Test Left Side View of Position 3 CRS	F2-6
7	Post-Test Left Side View of Position 3 CRS	F2-7
8	Pre-Test Right Side View of Position 3 CRS	F2-8
9	Post-Test Right Side View of Position 3 CRS	F2-9
10	Pre-Test Position 3 Front View	F2-10
11	Post-Test Position 3 Front View	F2-12
12	Pre-Test Position 3 Left Side View	F2-12
13	Post-Test Position 3 Left Side View	F2-13
14	Pre-Test Position 3 Right Side View	F2-14
15	Post-Test Position 3 Right Side View	F2-15
16	Post-Test Position 3 Contact Point (Back of Right Front Seat)	F2-16



Figure F2-1: Close-up View Position 3 CRS Label



Figure F2-2: Pre-Test Frontal View of Position 3 CRS



Figure F2-3: Post-Test Frontal View of Position 3 CRS (With Smoke Damage)



Figure F2-4: Pre-Test Rear View of Position 3 CRS



TR-P24001-11-NC



Figure F2-6: Pre-Test Left Side View of Position 3 CRS



Figure F2-7: Post-Test Left Side View of Position 3 CRS (With Smoke Damage)





Figure F2-9: Post-Test Right Side View of Position 3 CRS (With Smoke Damage)



Figure F2-10: Pre-Test Position 3 Front View



Figure F2-11: Post-Test Position 3 Front View



Figure F2-12: Pre-Test Position 3 Left Side View



Figure F2-13: Post-Test Position 3 Left Side View





Figure F2-15: Post-Test Position 3 Right Side View



Figure F2-16: Post-Test Position 3 Contact Point (Back of Right Front Seat)



Figure F2-17: Post-Test Rear Seat Cushion Movement (Right Side View)



Figure F2-18: Post-Test Rear Seat Cushion Movement (Left Side View)

SECTION F-3

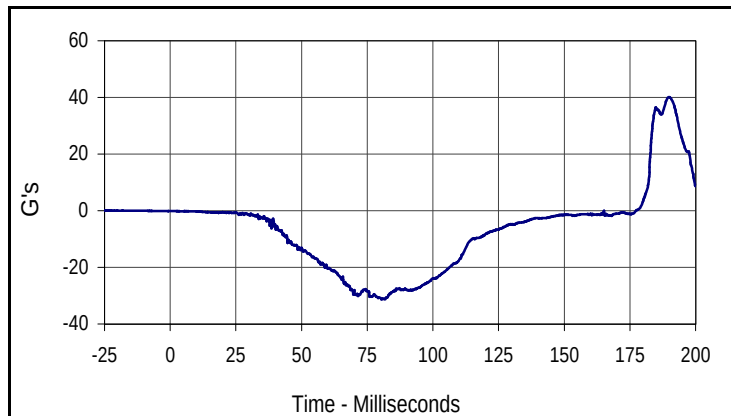
CHILD DUMMY RESPONSE AND CRS DATA TRACES

LIST OF DATA PLOTS #4

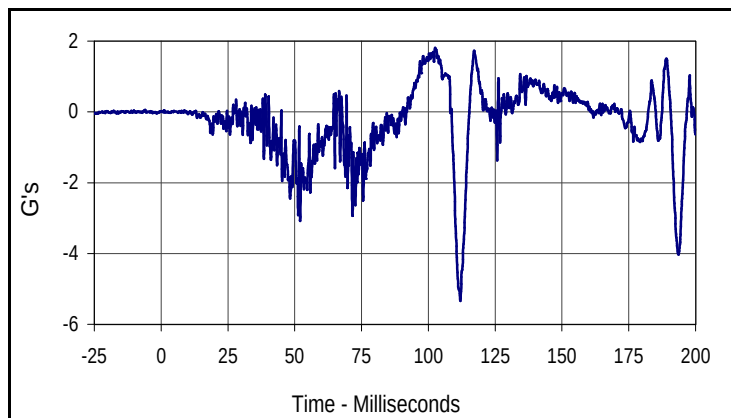
Data Plot	Page
F3-1	Left Rear (3yr. old) Head X F3-1
	Left Rear (3yr. old) Head Y F3-1
	Left Rear (3yr. old) Head Z F3-1
	Left Rear (3yr. old) Head Resultant F3-1
F3-2	Left Rear (3yr. old) Upper Neck Force X F3-2
	Left Rear (3yr. old) Upper Neck Force Y F3-2
	Left Rear (3yr. old) Upper Neck Force Z F3-2
	Left Rear (3yr. old) Upper Neck Force Resultant F3-2
F3-3	Left Rear (3yr. old) Upper Neck Moment X F3-3
	Left Rear (3yr. old) Upper Neck Moment Y F3-3
	Left Rear (3yr. old) Upper Neck Moment Z F3-3
	Left Rear (3yr. old) Upper Neck Moment Resultant F3-3
F3-4	Left Rear (3yr. old) Lower Neck Force X F3-4
	Left Rear (3yr. old) Lower Neck Force Y F3-4
	Left Rear (3yr. old) Lower Neck Force Z F3-4
	Left Rear (3yr. old) Lower Neck Force Resultant F3-4
F3-5	Left Rear (3yr. old) Lower Neck Moment X F3-5
	Left Rear (3yr. old) Lower Neck Moment Y F3-5
	Left Rear (3yr. old) Lower Neck Moment Z F3-5
	Left Rear (3yr. old) Lower Neck Moment Resultant F3-5
F3-6	Left Rear (3yr. old) Chest X F3-6
	Left Rear (3yr. old) Chest Y F3-6
	Left Rear (3yr. old) Chest Z F3-6
	Left Rear (3yr. old) Chest Resultant F3-6
F3-7	Left Rear (3yr. old) Chest Displacement F3-7
F3-8	Left Rear (3yr. old) Pelvis X F3-8
	Left Rear (3yr. old) Pelvis Y F3-8
	Left Rear (3yr. old) Pelvis Z F3-8
	Left Rear (3yr. old) Pelvis Resultant F3-8
F3-9	Left Rear (3yr. old) Car Seat Upper Tether Force F3-9
F3-10	Left Rear (3yr. old) Car Seat X F3-10
	Left Rear Car Seat Y F3-10
	Left Rear Car Seat Z F3-10
	Left Rear Car Seat Resultant F3-10

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

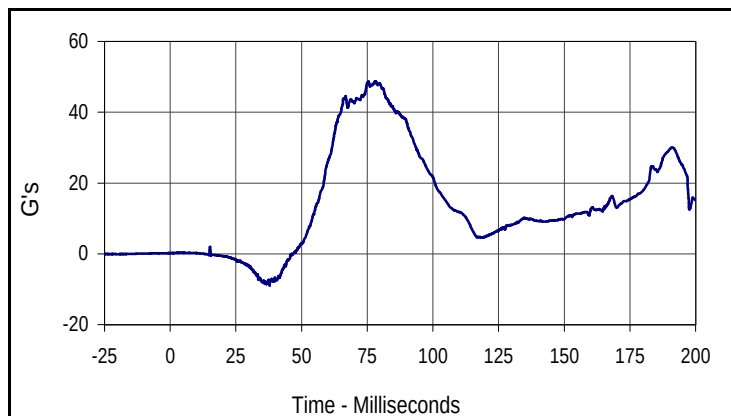
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 NHTSA No.: M40105



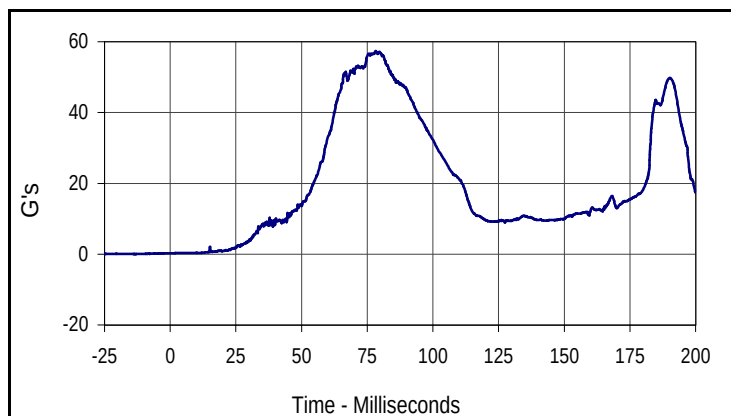
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Max	Time	Min	Time
40.1	190.0	-31.3	81.6



Curve Description			
Right Rear (3 Yr.) Head Y			
CURNO	Type	SAE Class	Units
135	FIL	1000	G's
Max	Time	Min	Time
1.8	102.5	-5.3	112.0



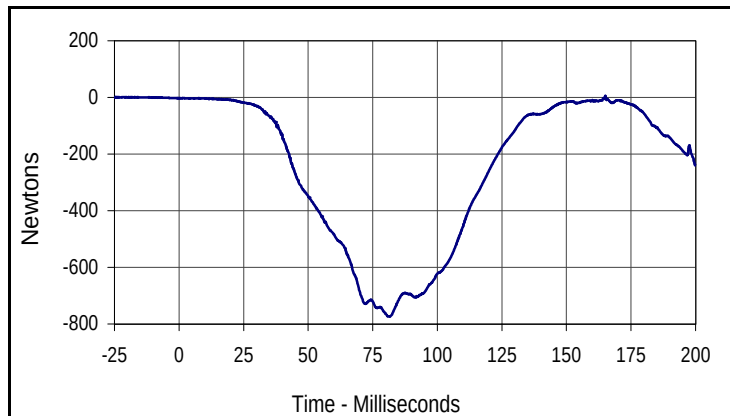
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Max	Time	Min	Time
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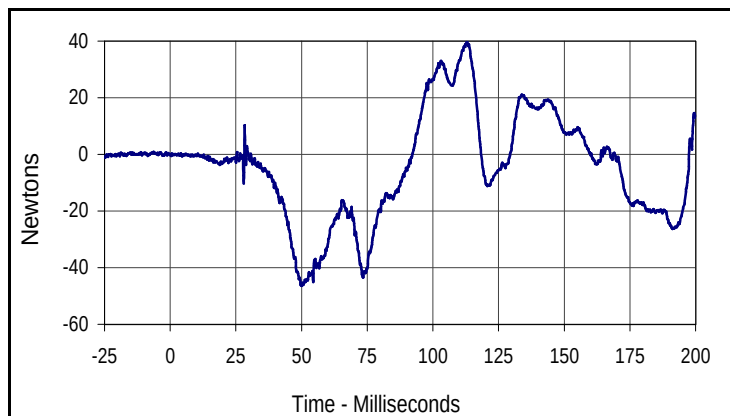
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Right Rear (3 Yr.) Head Resultant			
CURNO	Type	SAE Class	Units
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Max	Time	Min	Time
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Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

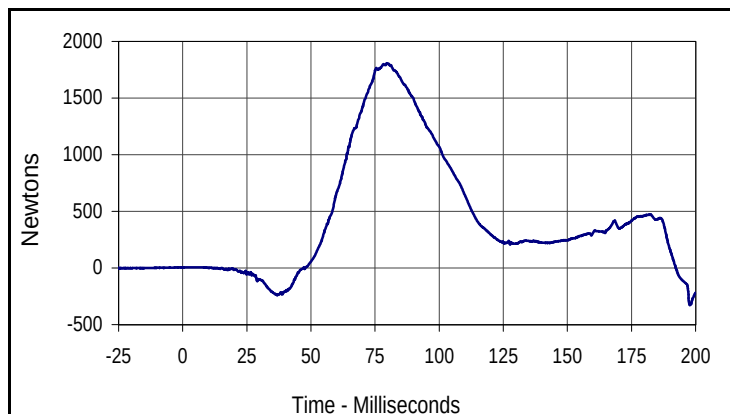
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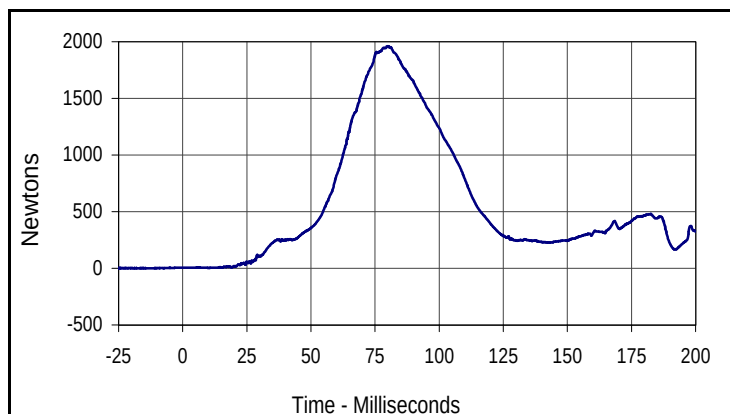
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CURNO	Type	SAE Class	Units
137	FIL	1000	Newtons
Max	Time	Min	Time
6.1	165.0	-773.6	81.7



Curve Description			
Right Rear (3 Yr.) Upper Neck Force Y			
CURNO	Type	SAE Class	Units
138	FIL	1000	Newtons
Max	Time	Min	Time
39.8	113.0	-46.4	50.1



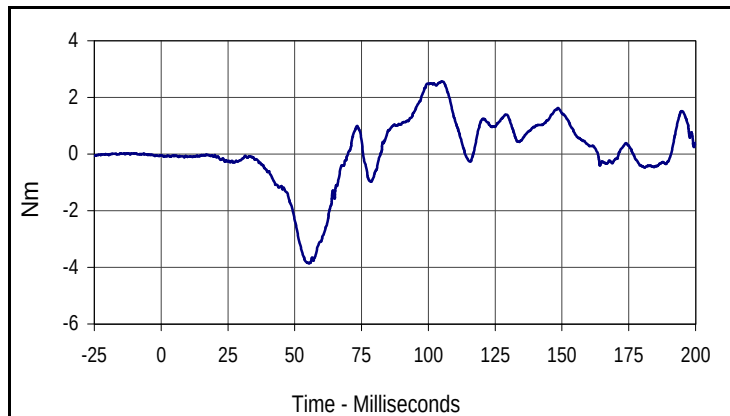
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Max	Time	Min	Time
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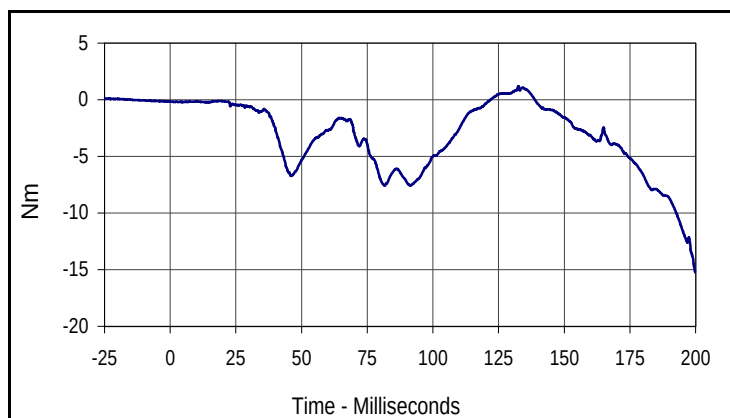
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Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

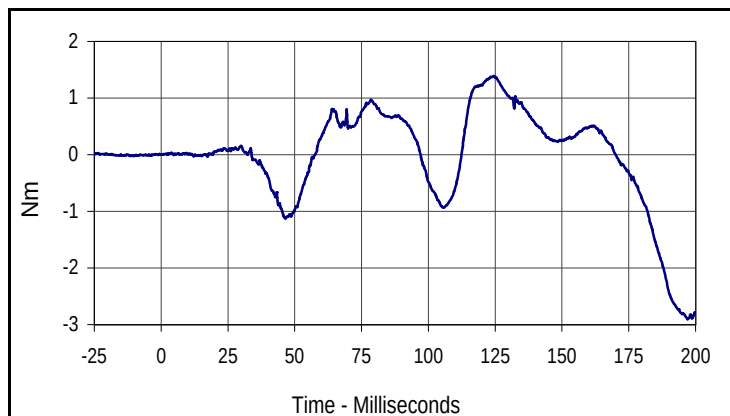
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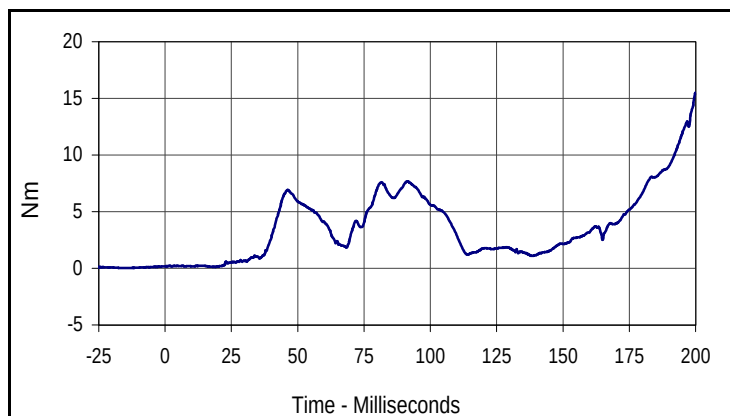
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CURNO	Type	SAE Class	Units
140	FIL	600	Nm
Max	Time	Min	Time
2.6	104.9	-3.9	55.4



Curve Description			
Right Rear (3 Yr.) Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
141	FIL	600	Nm
Max	Time	Min	Time
1.2	132.5	-15.3	200.0



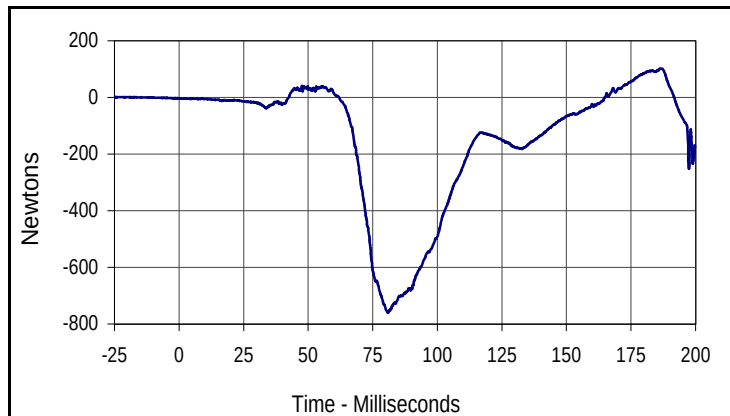
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CURNO	Type	SAE Class	Units
142	FIL	600	Nm
Max	Time	Min	Time
1.4	124.5	-2.9	197.0



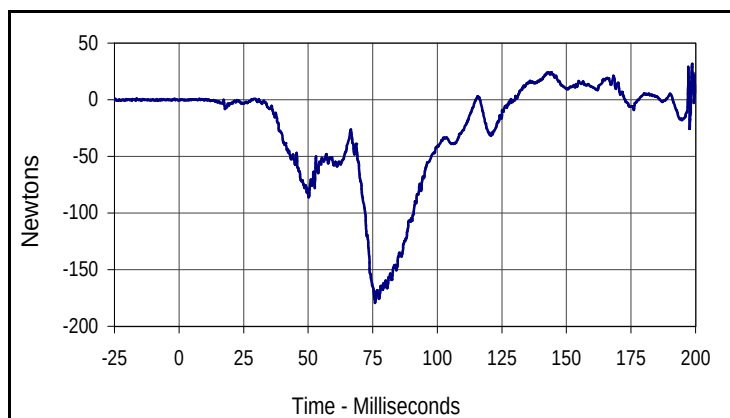
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Right Rear (3 Yr.) Upper Neck Moment Res.			
CURNO	Type	SAE Class	Units
140	RES	600	Nm
Max	Time	Min	Time
15.5	200.0	0.1	19.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

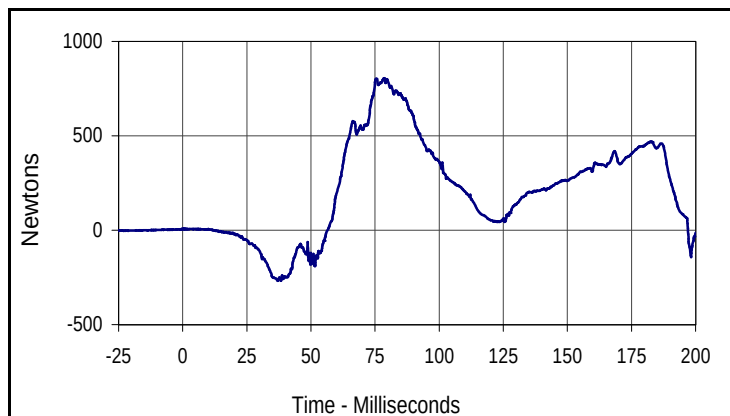
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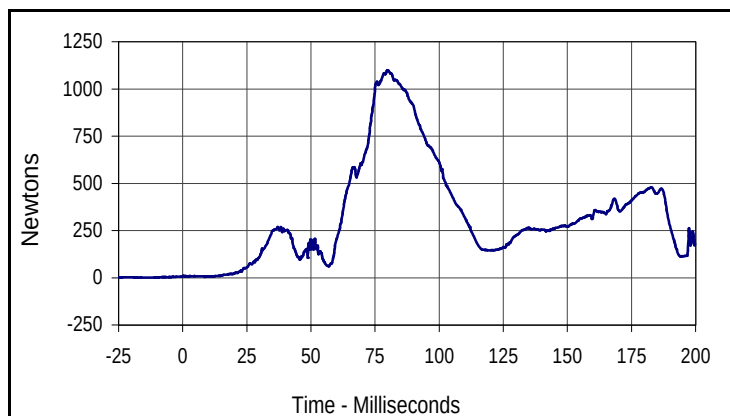
Curve Description			
Right Rear (3 Yr.) Lower Neck Force X			
CURNO	Type	SAE Class	Units
143	FIL	1000	Newtons
Max	Time	Min	Time
102.3	186.8	-760.9	80.8



Curve Description			
Right Rear (3 Yr.) Lower Neck Force Y			
CURNO	Type	SAE Class	Units
144	FIL	1000	Newtons
Max	Time	Min	Time
31.7	198.6	-179.4	75.9



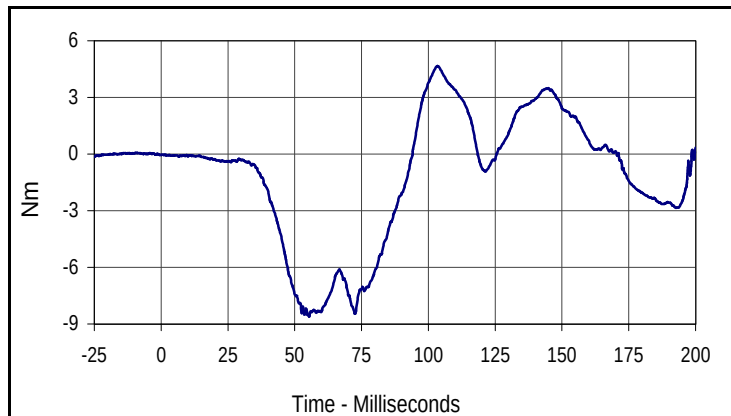
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CURNO	Type	SAE Class	Units
145	FIL	1000	Newtons
Max	Time	Min	Time
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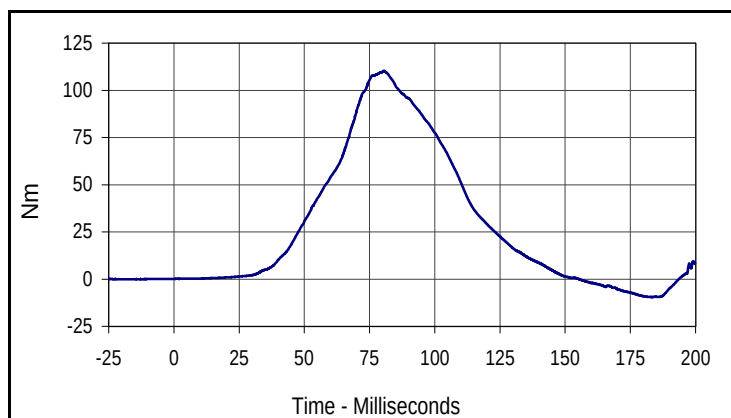
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Right Rear (3 Yr.) Lower Neck Force Res.			
CURNO	Type	SAE Class	Units
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Max	Time	Min	Time
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Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

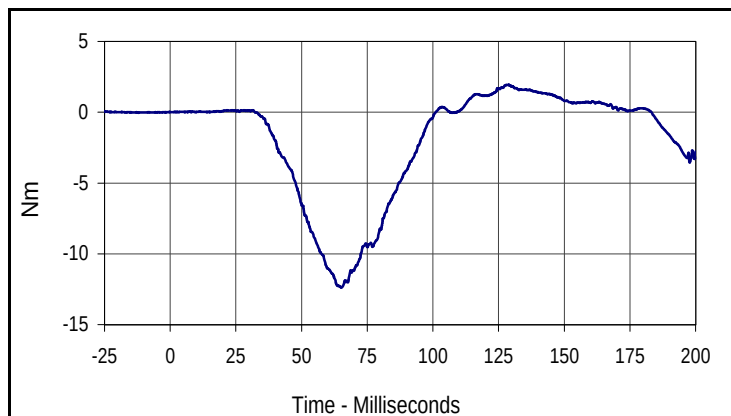
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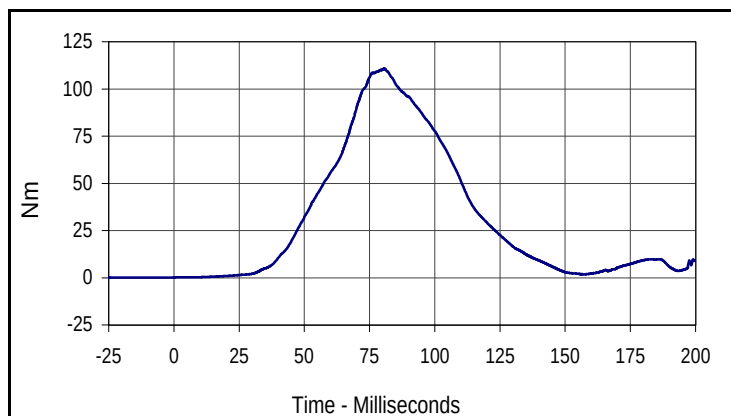
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Right Rear (3 Yr.) Lower Neck Moment X			
CURNO	Type	SAE Class	Units
146	FIL	600	Nm
Max	Time	Min	Time
4.7	103.5	-8.6	55.4



Curve Description			
Right Rear (3 Yr.) Lower Neck Moment Y			
CURNO	Type	SAE Class	Units
147	FIL	600	Nm
Max	Time	Min	Time
110.2	80.6	-9.5	183.1



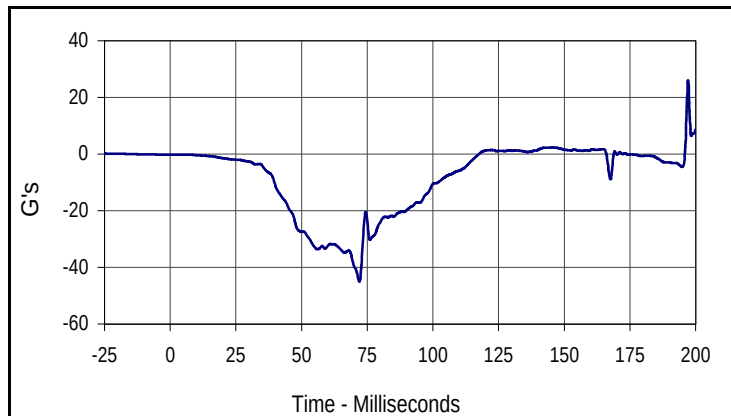
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CURNO	Type	SAE Class	Units
148	FIL	600	Nm
Max	Time	Min	Time
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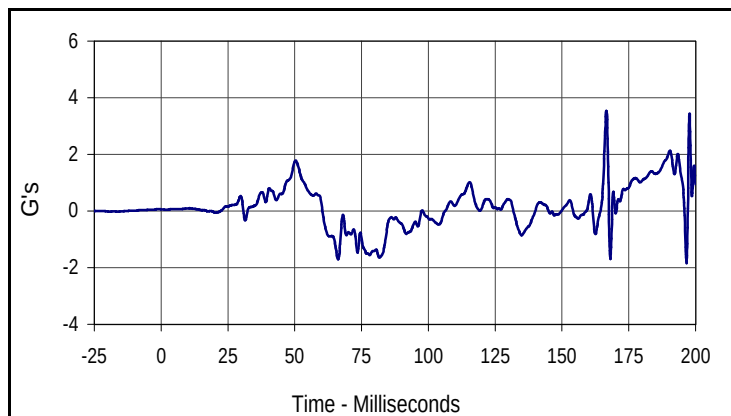
Curve Description			
Right Rear (3 Yr.) Lower Neck Moment Res.			
CURNO	Type	SAE Class	Units
146	RES	600	Nm
Max	Time	Min	Time
110.7	80.6	0.2	0.3

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

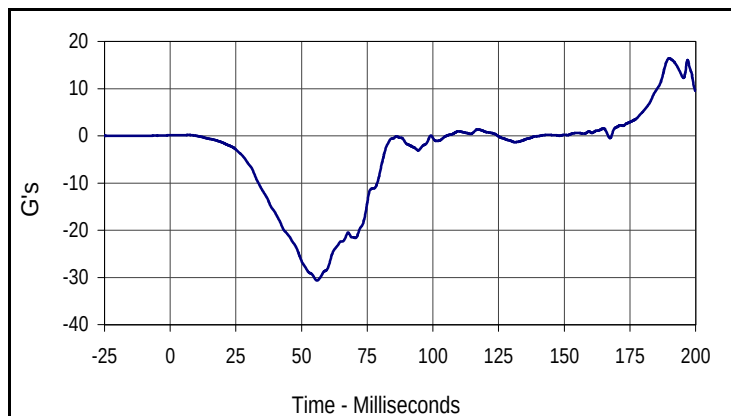
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 NHTSA No.: M40105



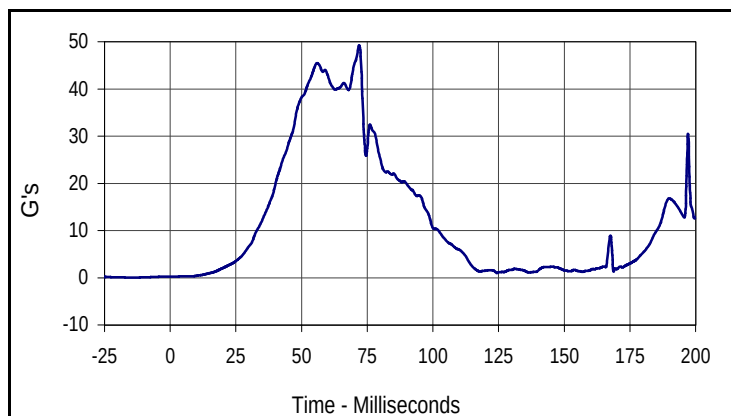
Curve Description			
Right Rear (3 Yr.) Chest X			
CURNO	Type	SAE Class	Units
149	FIL	180	G's
Max	Time	Min	Time
26.0	197.1	-45.0	72.0



Curve Description			
Right Rear (3 Yr.) Chest Y			
CURNO	Type	SAE Class	Units
150	FIL	180	G's
Max	Time	Min	Time
3.5	166.6	-1.8	196.6



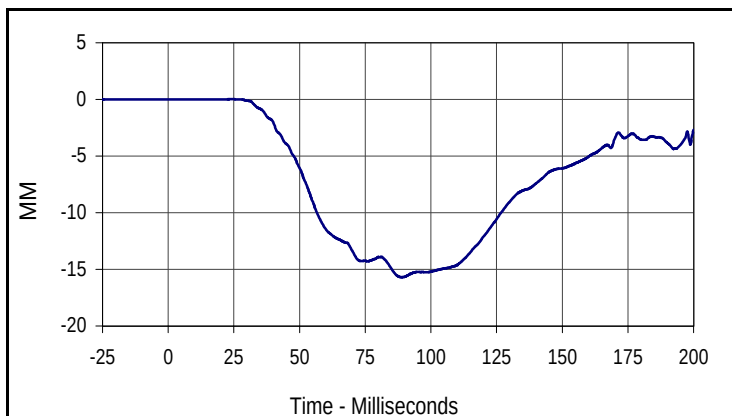
Curve Description			
Right Rear (3 Yr.) Chest Z			
CURNO	Type	SAE Class	Units
151	FIL	180	G's
Max	Time	Min	Time
16.4	190.0	-30.7	55.8



Curve Description			
Right Rear (3 Yr.) Chest Resultant			
CURNO	Type	SAE Class	Units
149	RES	180	G's
Max	Time	Min	Time
49.3	71.9	0.2	0.3

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

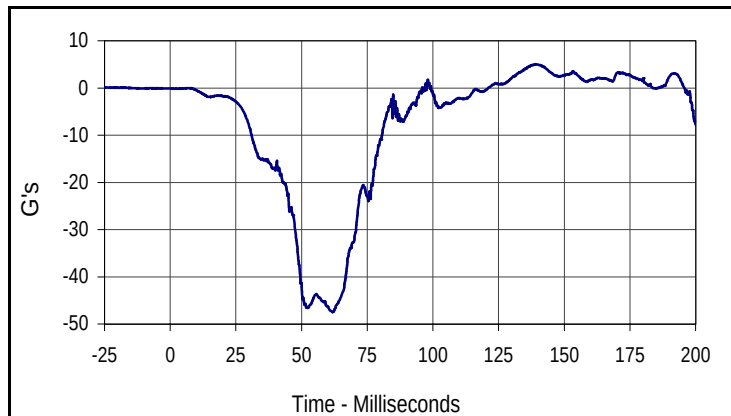
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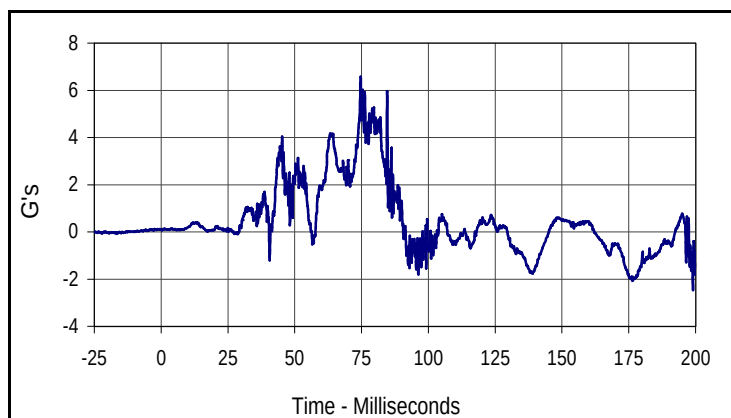
Curve Description			
Right Rear (3 Yr.) Chest Displacement			
CURNO	Type	SAE Class	Units
152	FIL	600	MM
Max	Time	Min	Time
0.0	24.0	-15.7	88.9

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

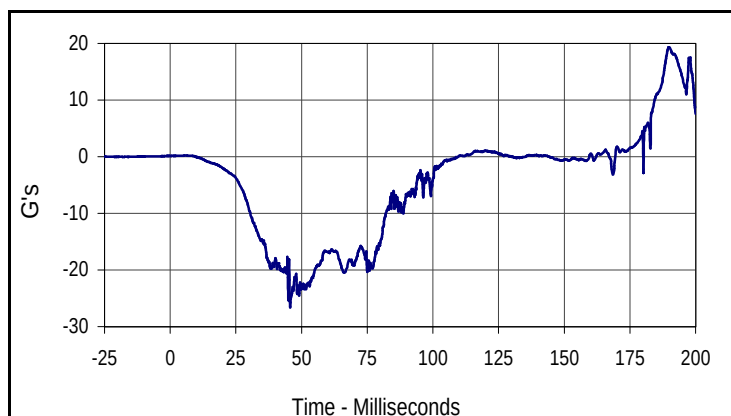
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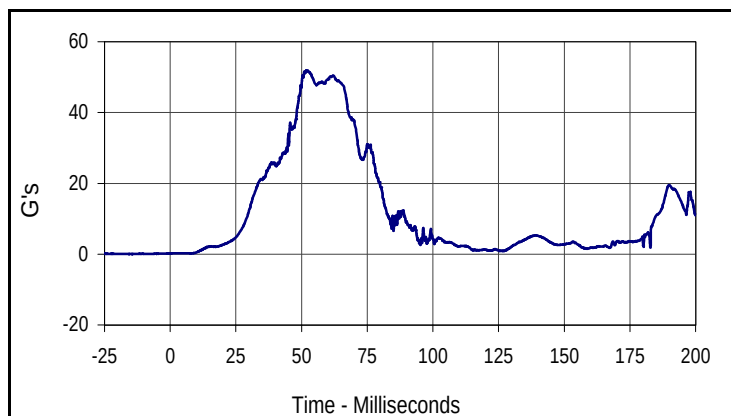
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Right Rear (3 Yr.) Pelvis X			
CURNO	Type	SAE Class	Units
153	FIL	1000	G's
Max	Time	Min	Time
5.0	139.0	-47.5	61.8



Curve Description			
Right Rear (3 Yr.) Pelvis Y			
CURNO	Type	SAE Class	Units
154	FIL	1000	G's
Max	Time	Min	Time
6.6	74.6	-2.5	199.0



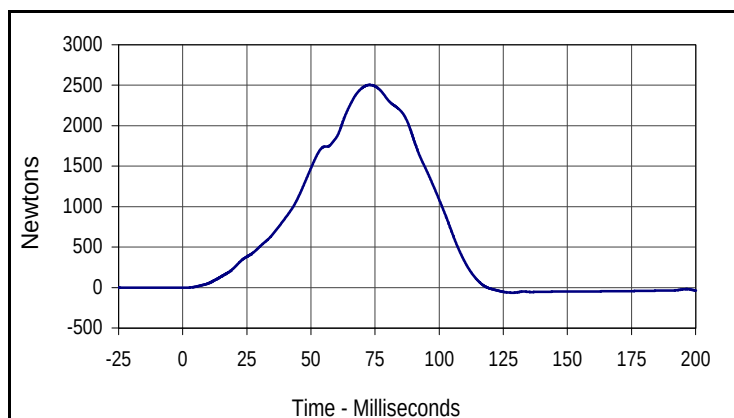
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Right Rear (3 Yr.) Pelvis Z			
CURNO	Type	SAE Class	Units
155	FIL	1000	G's
Max	Time	Min	Time
19.3	189.8	-26.6	45.6



Curve Description			
Right Rear (3 Yr.) Pelvis Resultant			
CURNO	Type	SAE Class	Units
153	RES	1000	G's
Max	Time	Min	Time
52.0	51.8	0.2	0.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

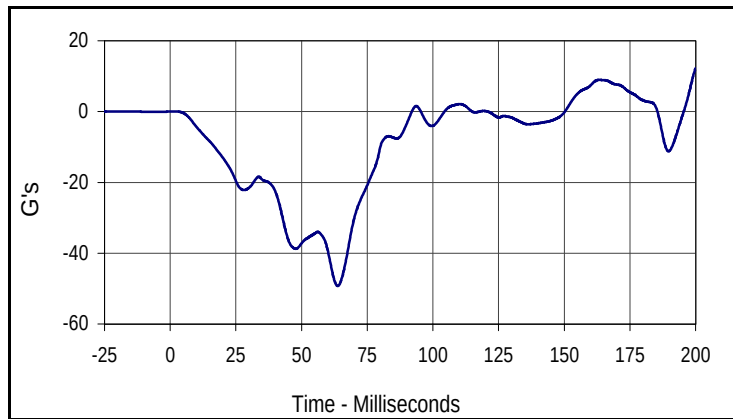
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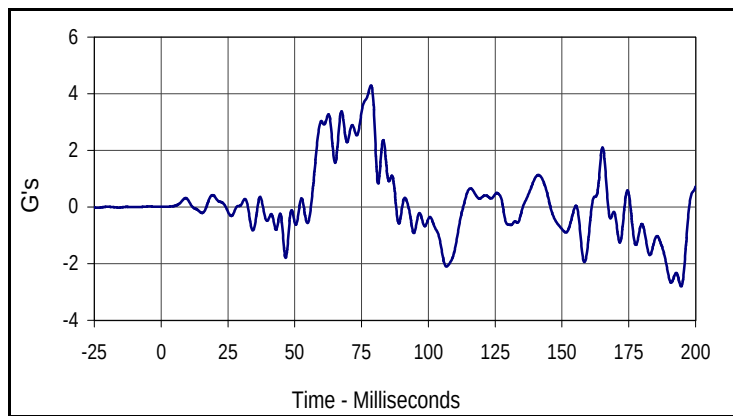
Curve Description			
Right Rear (3 Yr.) Child Seat Tether Load			
CURNO	Type	SAE Class	Units
156	FIL	60	Newtons
Max	Time	Min	Time
2503.9	72.9	-63.8	128.6

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

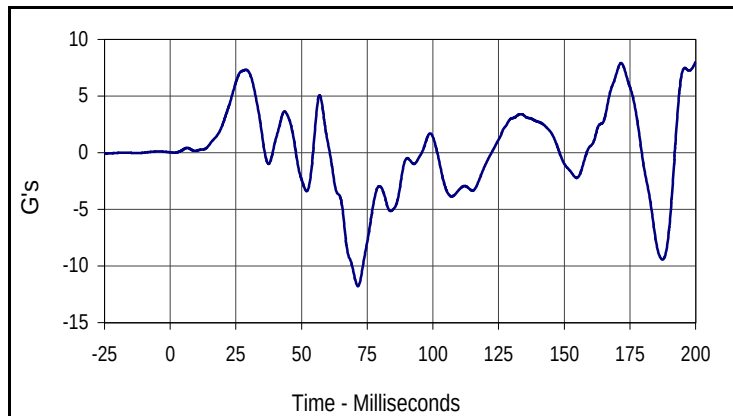
Test Date: 2/5/04
 NHTSA No.: M40105



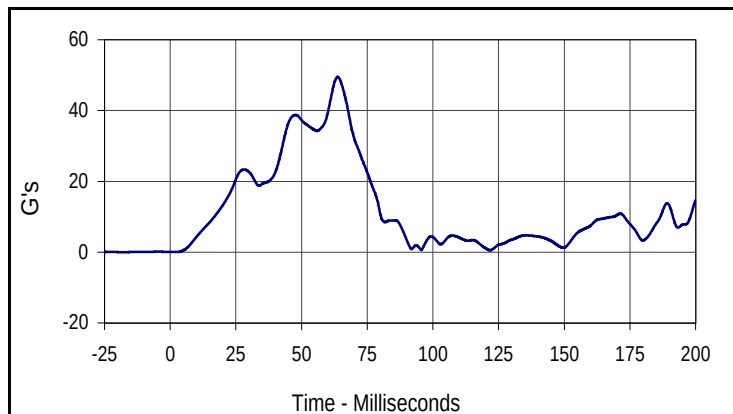
Curve Description			
Right Rear (3 Yr.) Car Seat X			
CURNO	Type	SAE Class	Units
157	FIL	60	G's
Max	Time	Min	Time
12.2	200.0	-49.3	63.8



Curve Description			
Right Rear (3 Yr.) Car Seat Y			
CURNO	Type	SAE Class	Units
158	FIL	60	G's
Max	Time	Min	Time
4.3	78.5	-2.8	194.6



Curve Description			
Right Rear (3 Yr.) Car Seat Z			
CURNO	Type	SAE Class	Units
159	FIL	60	G's
Max	Time	Min	Time
8.0	200.0	-11.8	71.5



Curve Description			
Right Rear (3 Yr.) Car Seat Resultant			
CURNO	Type	SAE Class	Units
157	RES	60	G's
Max	Time	Min	Time
49.5	63.8	0.0	0.5

SECTION F-4

CHILD DUMMY INSTRUMENTATION INFORMATION

**2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Right Rear Child A.T.D. Serial Number 082
2/5/04
2004 Chevrolet Aveo 4 Door Sedan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
134	HEAD CG	X	GPAC050	Accel.,1/2 bridge	Endevco	7264-2000	G
135	HEAD CG	Y	GPAC051	Accel.,1/2 bridge	Endevco	7264-2000	G
136	HEAD CG	Z	GPAC052	Accel.,1/2 bridge	Endevco	7264-2000	G
137	UPPER NECK FORCE	X	082UNFX	Load cell, six axis neck	R. A. Denton	IF-234	N
138	UPPER NECK FORCE	Y	082UNFY	Load cell, six axis neck	R. A. Denton	IF-234	N
139	UPPER NECK FORCE	Z	082UNFZ	Load cell, six axis neck	R. A. Denton	IF-234	N
140	UPPER NECK MOMENT	X	082UNMX	Load cell, six axis neck	R. A. Denton	IF-234	Nm
141	UPPER NECK MOMENT	Y	082UNMY	Load cell, six axis neck	R. A. Denton	IF-234	Nm
142	UPPER NECK MOMENT	Z	082UNMZ	Load cell, six axis neck	R. A. Denton	IF-234	Nm
143	LOWER NECK FORCE	X	082LNFX	Load cell, six axis neck	R. A. Denton	3303	N
144	LOWER NECK FORCE	Y	082LNFY	Load cell, six axis neck	R. A. Denton	3303	N
145	LOWER NECK FORCE	Z	082LNFZ	Load cell, six axis neck	R. A. Denton	3303	N
146	LOWER NECK MOMENT	X	082LNMX	Load cell, six axis neck	R. A. Denton	3303	Nm
147	LOWER NECK MOMENT	Y	082LNMY	Load cell, six axis neck	R. A. Denton	3303	Nm
148	LOWER NECK MOMENT	Z	082LNMZ	Load cell, six axis neck	R. A. Denton	3303	Nm
149	CHEST CG	X	2116-A11	Accel., Full Bridge	Entran	2000JF	G
150	CHEST CG	Y	2116-A14	Accel., Full Bridge	Entran	2000JF	G
151	CHEST CG	Z	2116-A23	Accel., Full Bridge	Entran	2000JF	G
152	CHEST DISPLACEMENT	X	082CP	Rotary Pot Chest	Servo	14CBI	MM
153	PELVIS	X	2116-A12	Accel., Full Bridge	Entran	2000JF	G
154	PELVIS	Y	2116-A19	Accel., Full Bridge	Entran	2000JF	G
155	PELVIS	Z	2116-A17	Accel., Full Bridge	Entran	2000JF	G
156	CAR SEAT UPPER TETHER FORCE	X	BL112	Load cell, Seat belt	FGP	FN4060	N
157	CAR SEAT	X	KETX1A	Accel.,1/2 bridge	Endevco	7264-200	G
158	CAR SEAT	Y	KETX1B	Accel.,1/2 bridge	Endevco	7264-200	G
159	CAR SEAT	Z	KETX1C	Accel.,1/2 bridge	Endevco	7264-200	G

SECTION F-5

CHILD DUMMY CALIBRATION INFORMATION



Calibration Data Sheet

Hybrid III 3 Year Old

Head Drop Test

ATD Serial No.: 082

Test I.D.: HD02A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 280.0	269.6	Pass
Peak Lateral Acceleration	G's	≤15.0	6.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<10	3.7	Pass
Overall Test Results				Pass

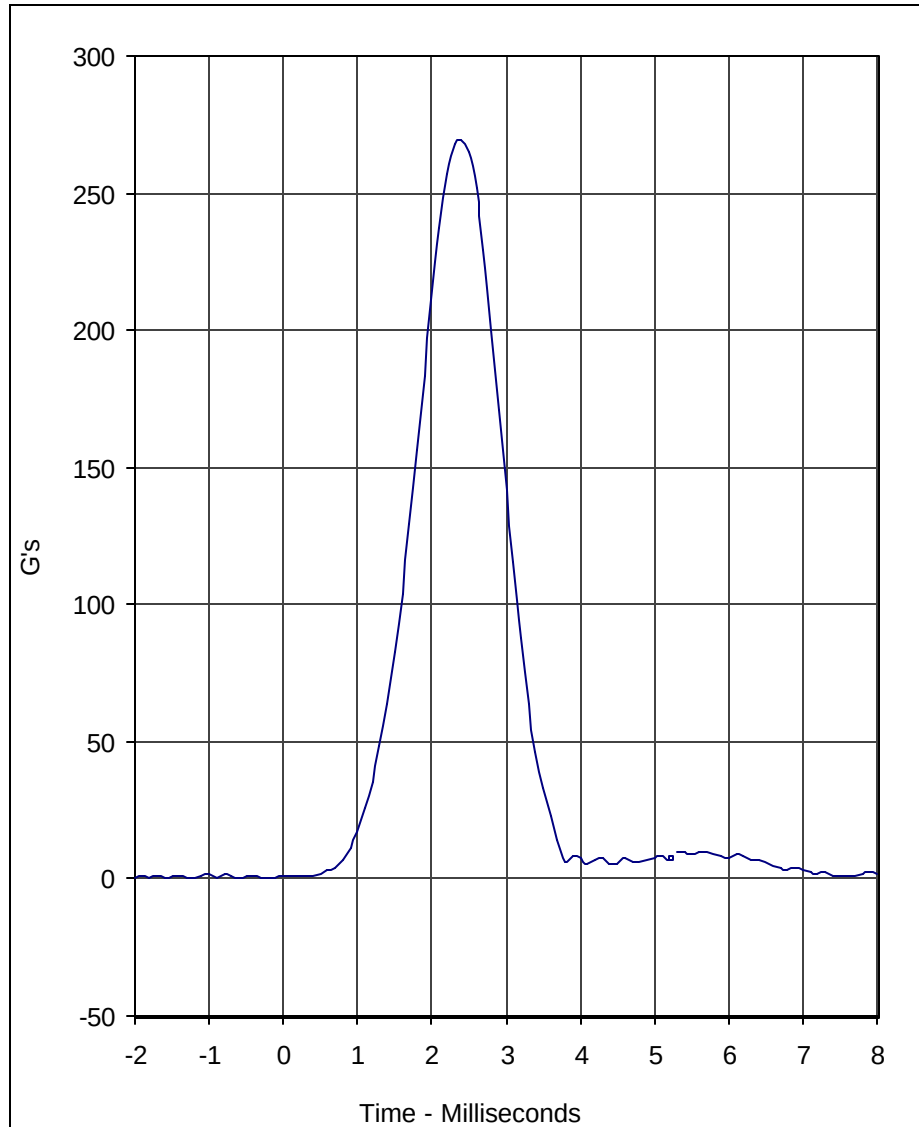
F5-1

TR-P24001-12-NC

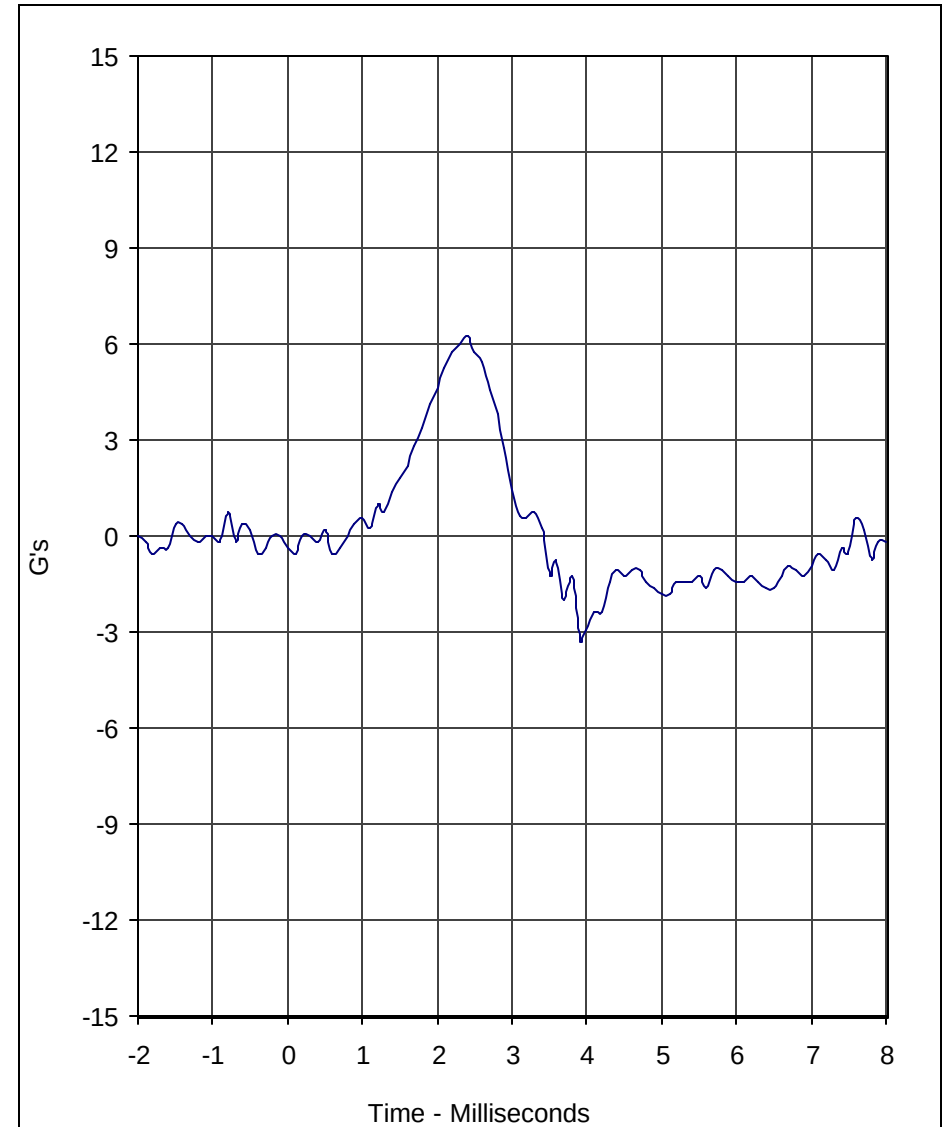
Laboratory Technician

January 7, 2004

Test Date



Curve Description				CURNO	Type
Head Resultant				001	RES
Units	Max	Time	Min	Time	SAE Class
G's	269.6	2.4	0.4	-0.9	1000



Curve Description				CURNO	Type
Head Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
G's	6.3	2.4	-3.3	3.9	1000

Test Program: Hybrid III 3 Year Old Head Drop Test
 Test Date: 1/7/04

A.T.D. Serial No.: 082
 Test I.D.: HD02A





Calibration Data Sheet

Hybrid III 3 Year Old

Thorax Impact Test

ATD Serial No.: 082

Test I.D.: CH02A

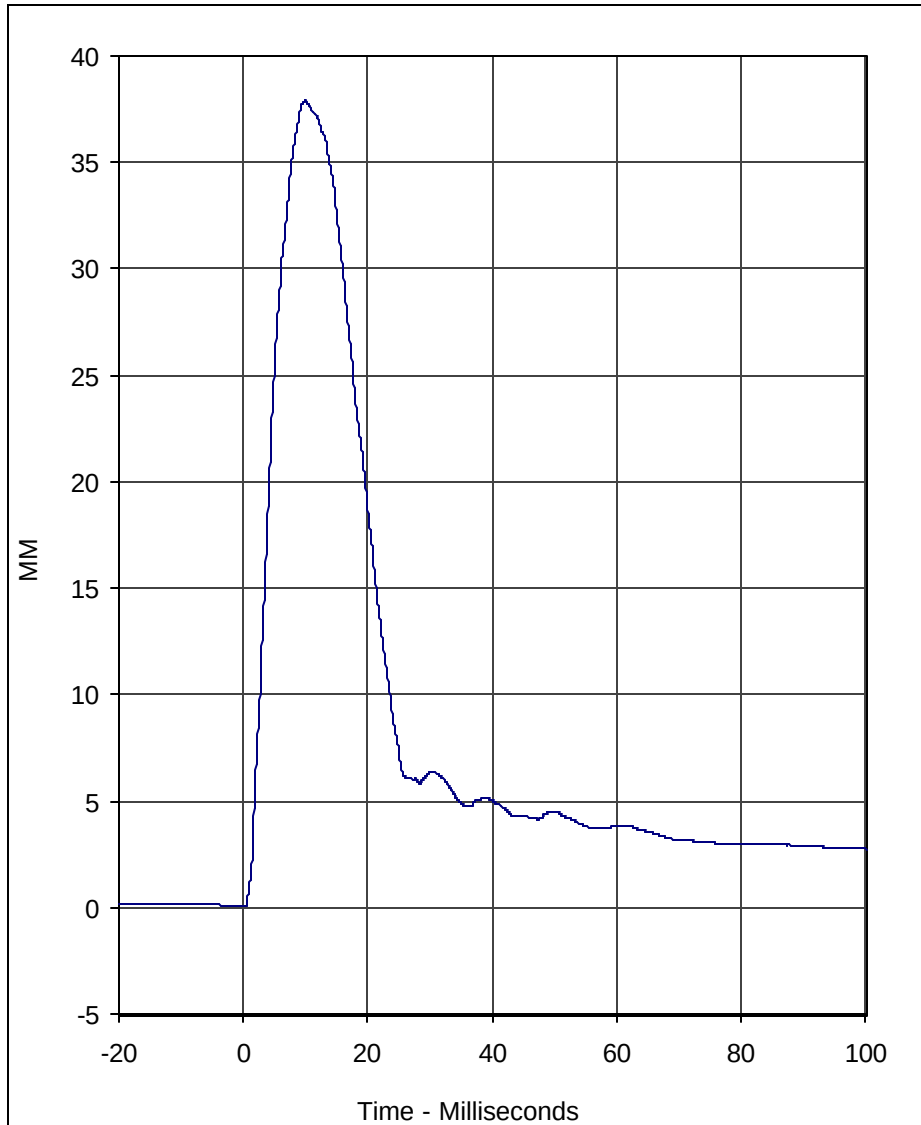
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	5.9 to 6.1	5.91	Pass
Peak Chest Compression	MM	32 to 38	37.9	Pass
Peak Probe Force Between 32 and 38 MM	Newtons	680 to 810	775.3	Pass
Peak Probe Force Between 12.5 and 32 MM	Newtons	≤860	806.4	Pass
Internal Hysteresis	%	65 to 85	78.2	Pass
Overall Test Results				Pass

F5-3

TR-P24001-12-NC

Laboratory Technician

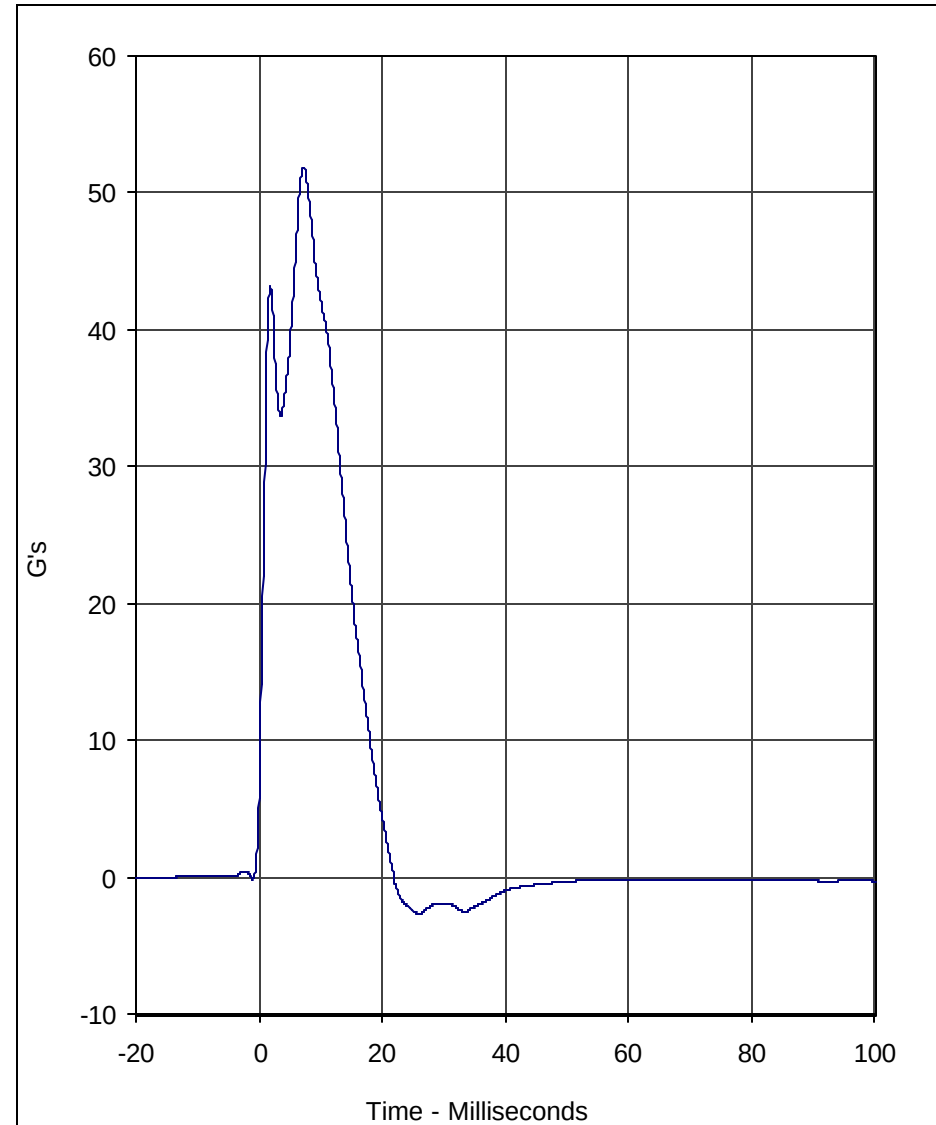
January 7, 2004
Test Date



Curve Description				CURNO	Type
Chest Compression				001	FIL
Units	Max	Time	Min	Time	SAE Class
MM	37.9	10.5	0.1	0.8	600

Test Program: Hybrid III 3 Year Old Thorax Impact

Test Date: 1/7/04

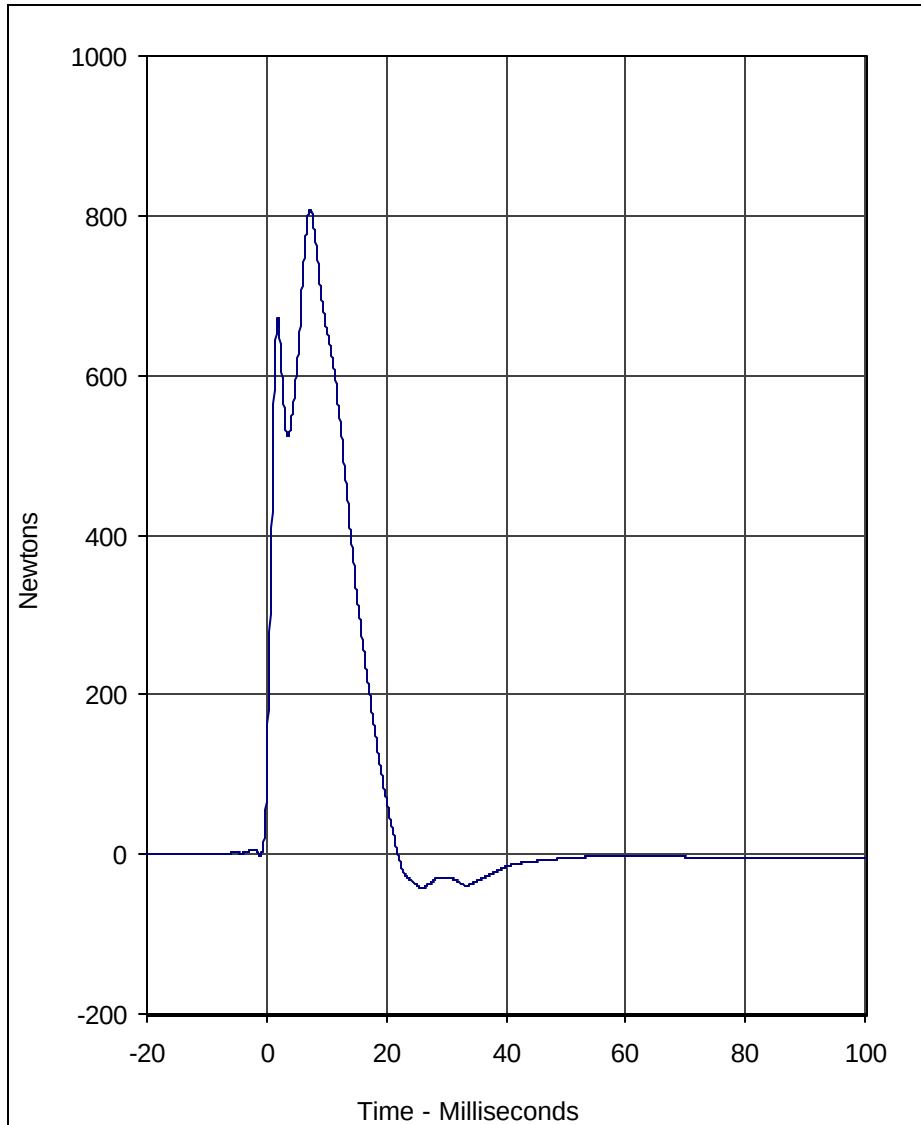


Curve Description				CURNO	Type
Probe Acceleration				002	FIL
Units	Max	Time	Min	Time	SAE Class
G's	51.8	7.8	-2.7	26.5	600

A.T.D. Serial No.: 082

Test I.D.: CH02A

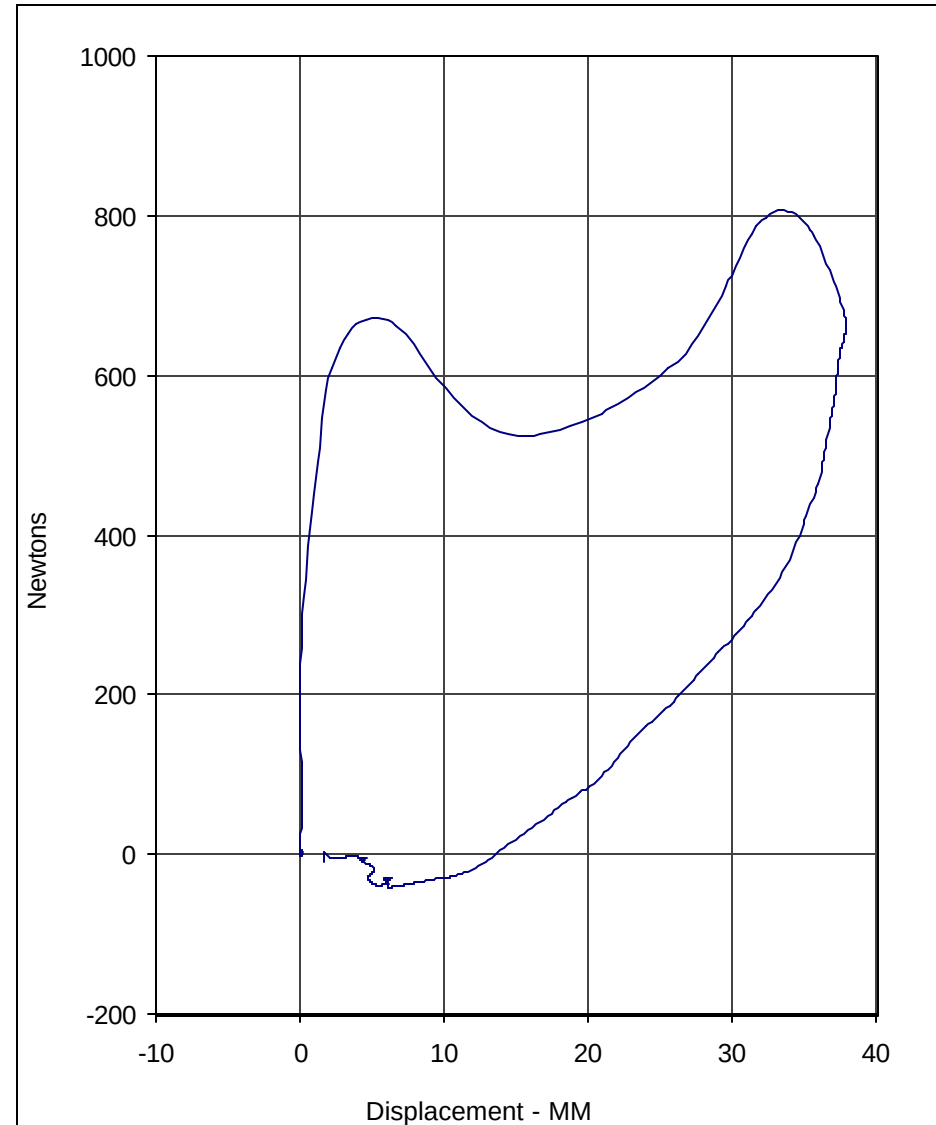




Curve Description				CURNO	Type
Probe Force				003	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	806.4	7.3	-41.6	26.0	180

Test Program: Hybrid III 3 Year Old Thorax Impact

Test Date: 1/7/04



Curve Description			CURNO	Type
Probe Force vs. Chest Compression			004	FIL
Units	Hysteresis	SAE Class		
%	78.2	180/600		

A.T.D. Serial No.: 082

Test I.D.: CH02A





Calibration Data Sheet

Hybrid III 3 Year Old

Neck Flexion Test

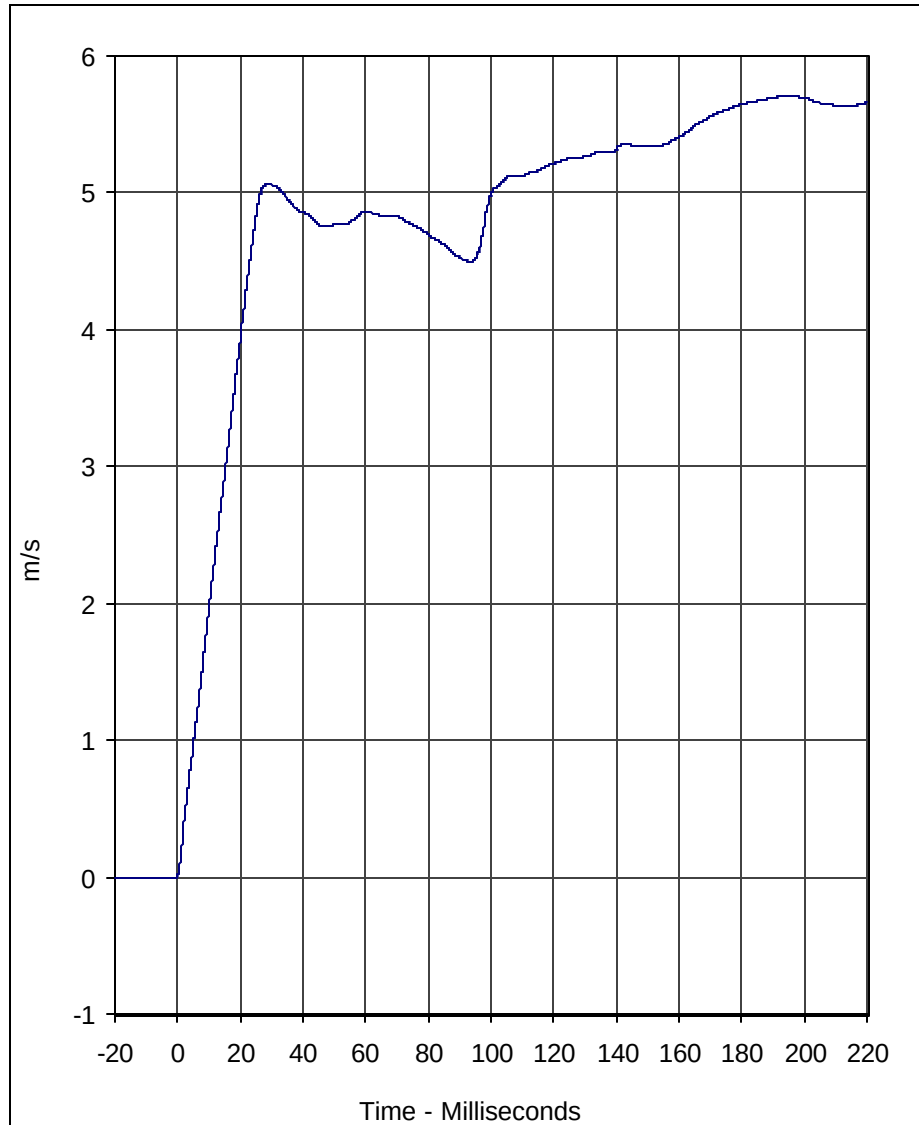
ATD Serial No.: 082

Test I.D.: NF02A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.40 to 5.60	5.58	Pass
Pendulum Deceleration	10 Msec.	m/s	2.0 to 2.7	2.0	Pass
	20 Msec.	m/s	3.0 to 4.0	3.9	Pass
	30 Msec.	m/s	4.0 to 5.1	5.1	Pass
"D" Plane Rotation	Maximum	Degrees	70.0 to 82.0	78.0	Pass
Peak Moment in Rotation	Maximum	Nm	42.0 to 53.0	50.2	Pass
Positive Moment Decay, Time to 10Nm		Msec.	60.0 to 80.0	78.3	Pass
Overall Test Results					Pass

Laboratory Technician

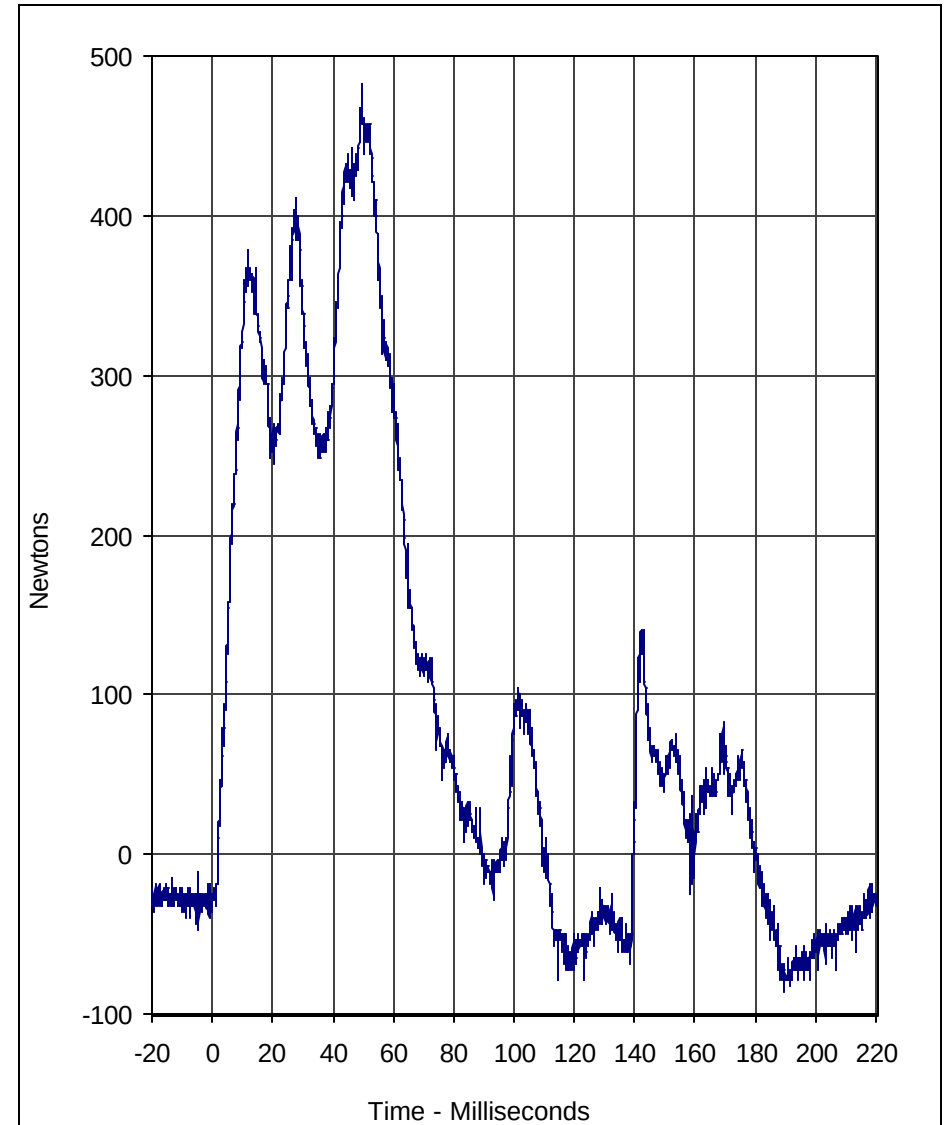
January 7, 2004
Test Date



Curve Description				CURNO	Type
Pendulum Velocity				001	FIL
Units	Max	Time	Min	Time	SAE Class
m/s	5.7	194.1	0.0	-0.6	180

Test Program: 3 Year Old Hybrid III Neck Flexion Test

Test Date: 1/7/04

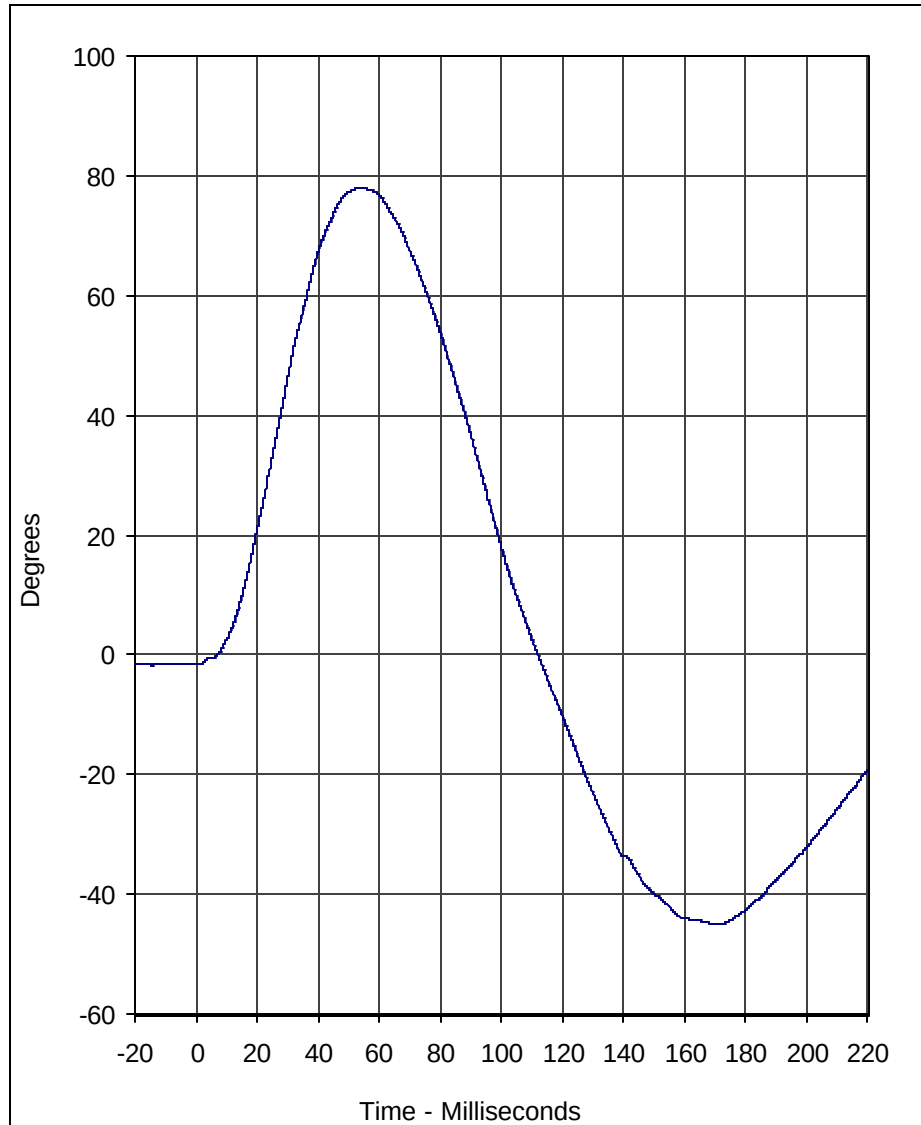


Curve Description				CURNO	Type
Neck Force X				002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	482.4	49.4	-86.4	189.5	1000

A.T.D. Serial No.: 082

Test I.D.: NF02A

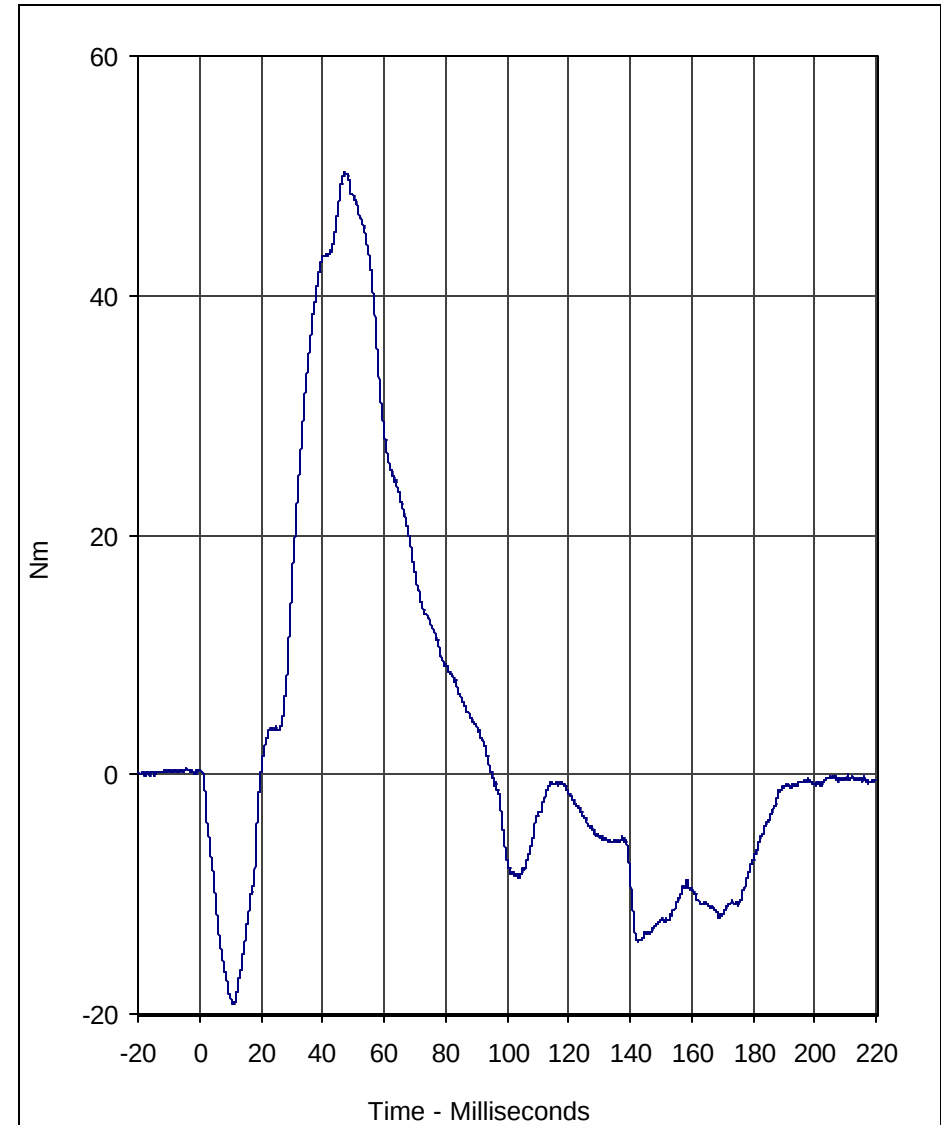




Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL
Units	Max	Time	Min	Time	SAE Class
Degrees	78.0	53.8	-45.1	171.4	180

Test Program: 3 Year Old Hybrid III Neck Flexion Test

Test Date: 1/7/04



Curve Description				CURNO	Type
Neck Moment Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
Nm	50.2	47.2	-19.2	10.7	600

A.T.D. Serial No.: 082

Test I.D.: NF02A





Calibration Data Sheet

Hybrid III 3 Year Old

Neck Extension Test

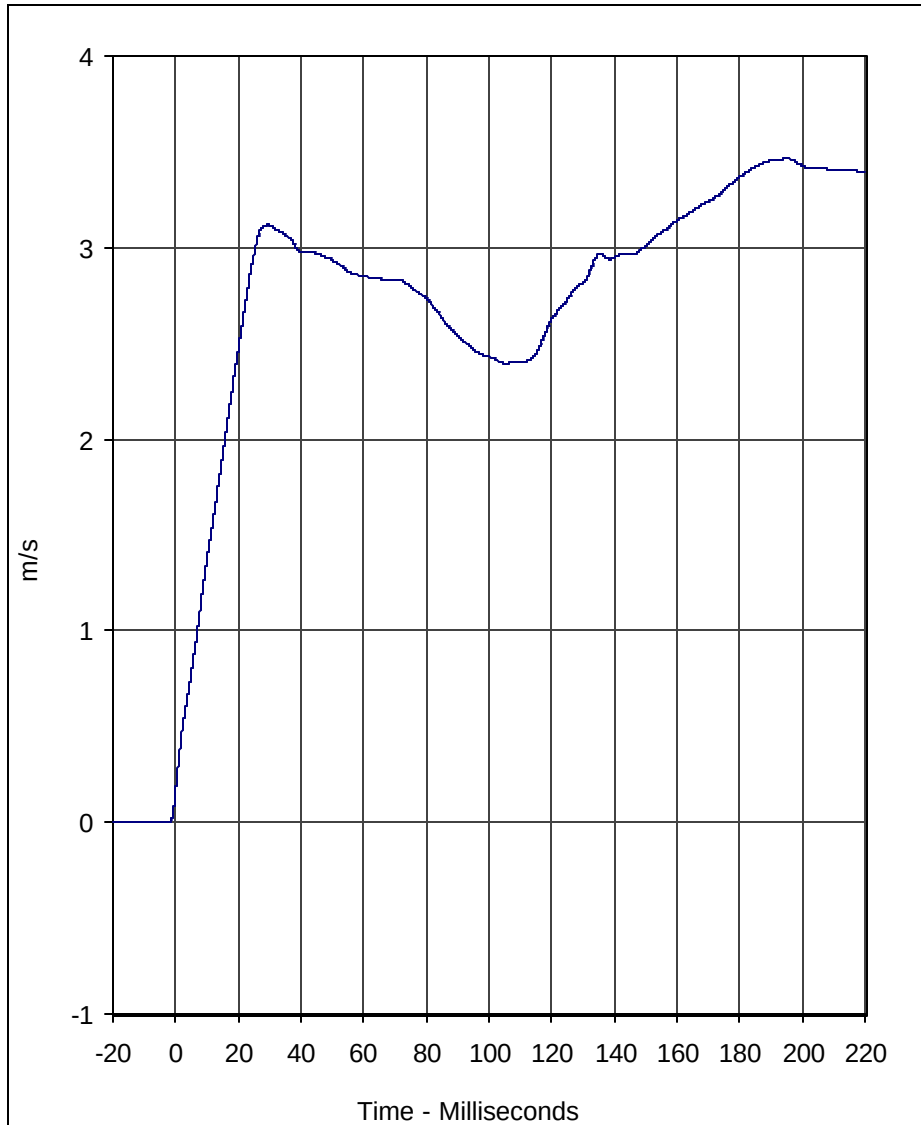
ATD Serial No.: 082

Test I.D.: NE02A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	3.55 to 3.75	3.60	Pass
Pendulum Deceleration	10 Msec.	m/s	1.0 to 1.4	1.4	Pass
	20 Msec.	m/s	1.9 to 2.5	2.5	Pass
	30 Msec.	m/s	2.8 to 3.5	3.1	Pass
"D" Plane Rotation	Maximum	Degrees	83.0 to 93.0	85.8	Pass
Peak Moment in Rotation	Maximum	Nm	-43.7 to -53.3	-51.7	Pass
Positive Moment Decay, Time to 10Nm		Msec.	60.0 to 80.0	78.5	Pass
Overall Test Results					Pass

Laboratory Technician

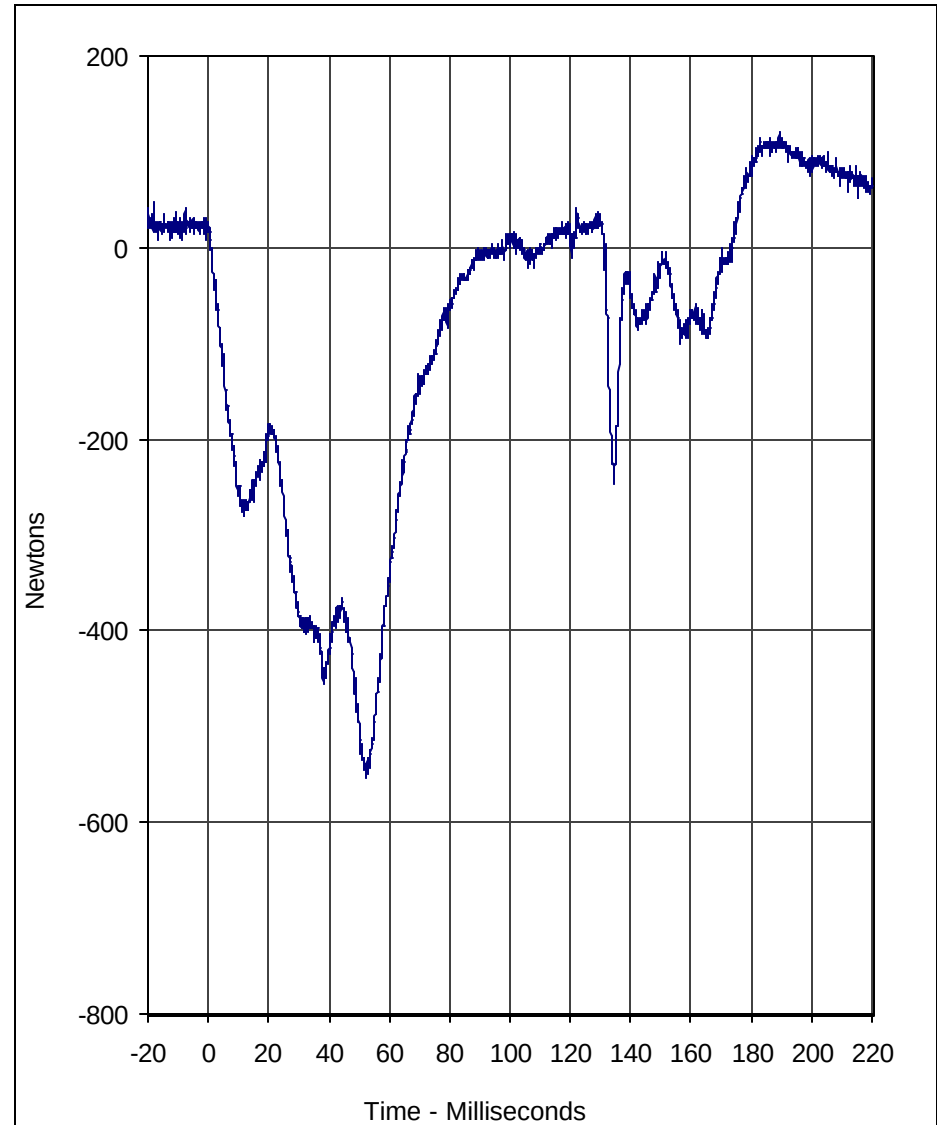
January 7, 2004
Test Date



Curve Description				CURNO	Type
Pendulum Velocity				001	FIL
Units	Max	Time	Min	Time	SAE Class
m/s	3.5	195.2	0.0	-18.7	180

Test Program: 3 Year Old Hybrid III Neck Extension Test

Test Date: 1/7/04

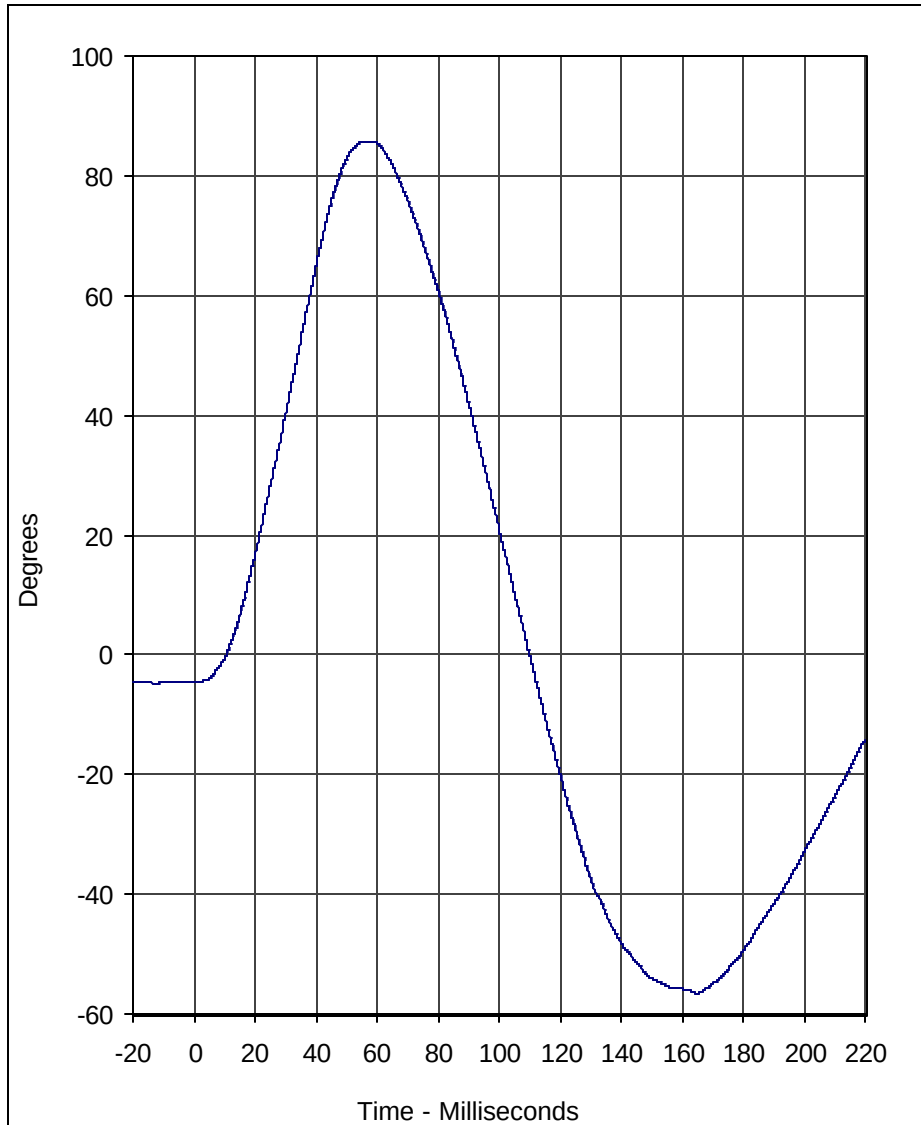


Curve Description				CURNO	Type
Neck Force X				002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	120.6	189.2	-552.9	52.3	1000

A.T.D. Serial No.: 082

Test I.D.: NE02A

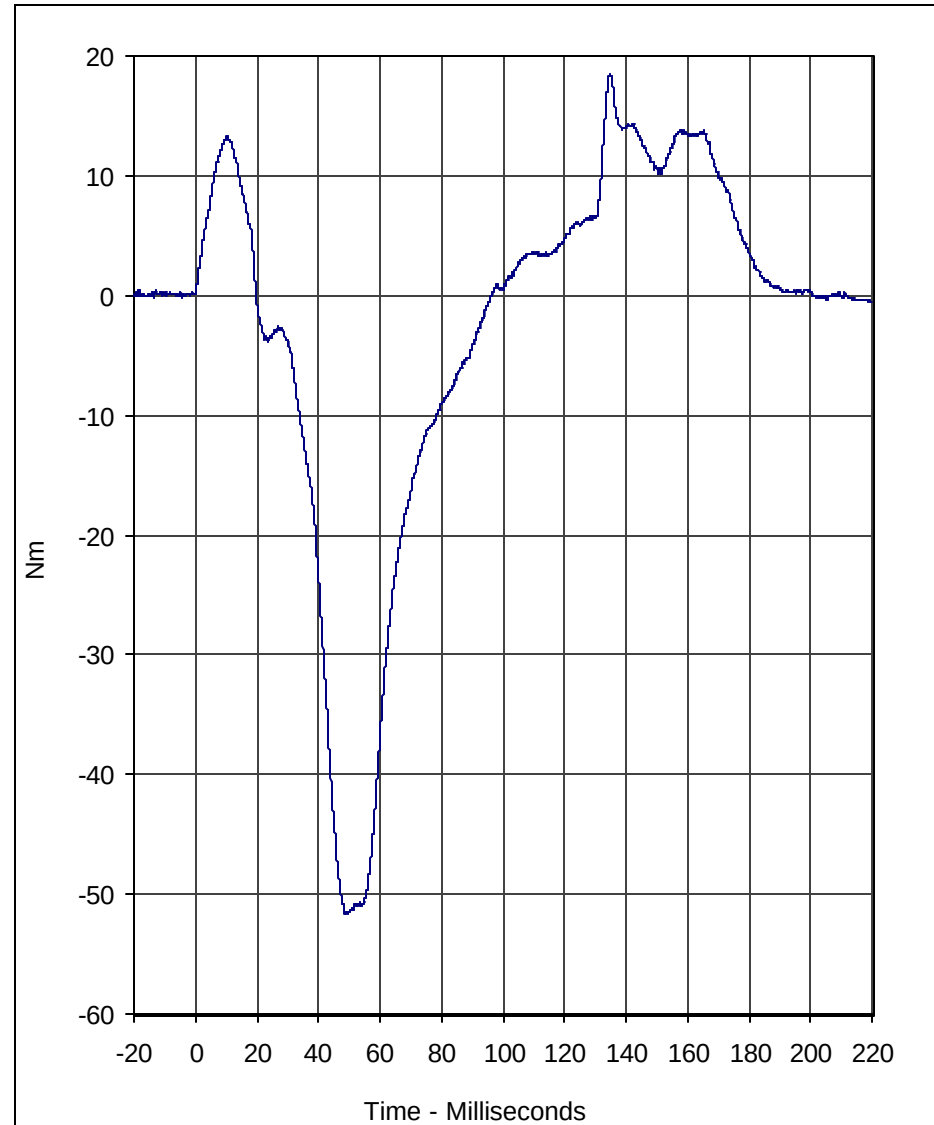




Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL
Units	Max	Time	Min	Time	SAE Class
Degrees	85.8	55.7	-56.5	164.9	180

Test Program: 3 Year Old Hybrid III Neck Extension Test

Test Date: 1/7/04



Curve Description				CURNO	Type
Neck Moment Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
Nm	18.4	134.9	-51.7	48.9	600

A.T.D. Serial No.: 082

Test I.D.: NE02A





Calibration Data Sheet

Hybrid III 3 Year Old

Torso Flexion Test

ATD Serial No.: 082

Test I.D.: TF02A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Initial reference plane angle	Degrees	≤15.0	2.7	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	130.0 to 180.0	167.0	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	1.2	Pass
Final reference plane angle	Degrees	+/-10	6.2	Pass
Overall Test Results				Pass

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TR-P24001-12-NC

Laboratory Technician

January 7, 2004

Test Date



Calibration Data Sheet Hybrid III 3 Year Old External Measurements

ATD Serial No.: 082

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	539 to 554	550	Pass
B - Shoulder pivot height	mm	307 to 323	310	Pass
C - "H" point height	mm	34 to 45	40	Pass
D - "H" point from backline	mm	57 to 67	65	Pass
E - Shoulder pivot from back	mm	61 to 71	70	Pass
F - Thigh clearance	mm	81 to 91	85	Pass
G - Elbow back to wrist pivot	mm	247 to 263	255	Pass
H - Skull cap to back line	mm	48 to 58	50	Pass
I - Shoulder to elbow length	mm	185 to 201	200	Pass
J - Elbow rest height	mm	134 to 149	135	Pass
K - Buttock to knee length	mm	285 to 300	295	Pass
L - Popliteal length	mm	219 to 234	225	Pass
M - Knee pivot height	mm	242 to 257	245	Pass
N - Buttock popliteal length	mm	218 to 233	230	Pass
O - Chest depth with jacket	mm	139 to 154	145	Pass
P - Foot length	mm	138 to 148	140	Pass
R - Buttock to knee pivot length	mm	251 to 262	255	Pass
S - Head Breadth	mm	128 to 144	135	Pass
T - Head Depth	mm	167 to 183	180	Pass
U - Hip breadth	mm	201 to 216	210	Pass
V - Shoulder breadth	mm	237 to 252	250	Pass
W - Foot breadth	mm	54 to 64	60	Pass
X - Head circumference	mm	500 to 516	515	Pass
Y - Chest circumference with jacket	mm	527 to 553	535	Pass
Z - Waist circumference	mm	527 to 553	530	Pass
AA - Location for chest circumference	mm	249 to 259	255	Pass
BB - Location for waist circumference	mm	160 to 170	165	Pass
Overall Test Results				Pass

Laboratory Technician

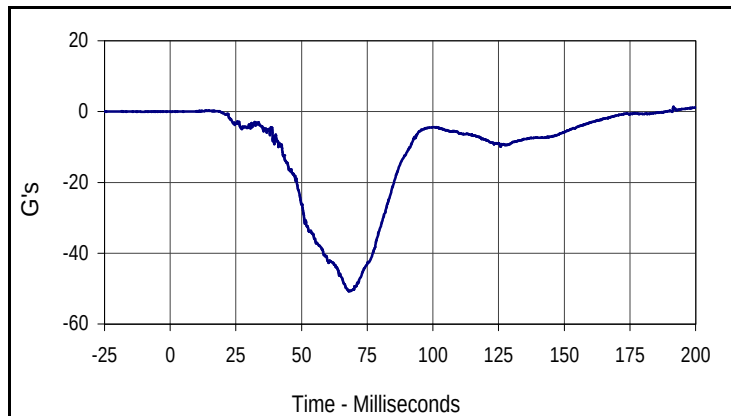
January 7, 2004
Test Date

APPENDIX G

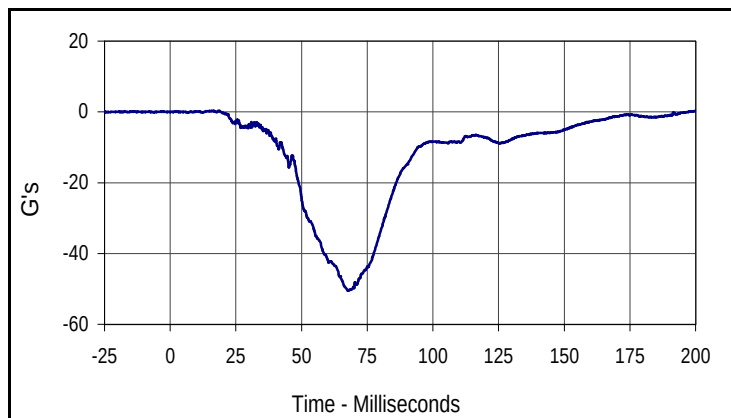
NINE ACCELEROMETER ARRAY HEAD

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

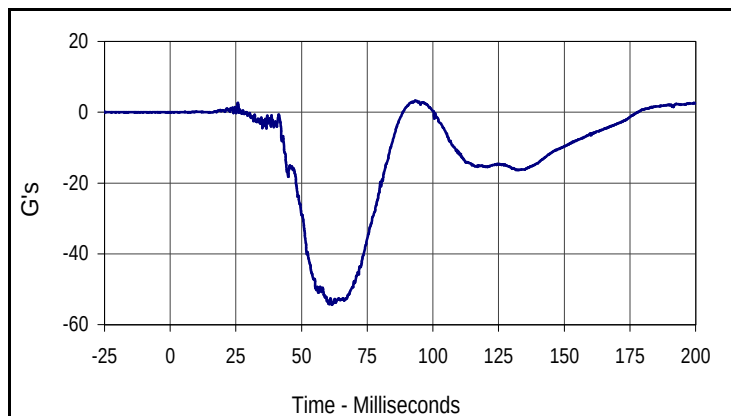
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Driver Head Primary X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
1.4	191.6	-50.7	68.0



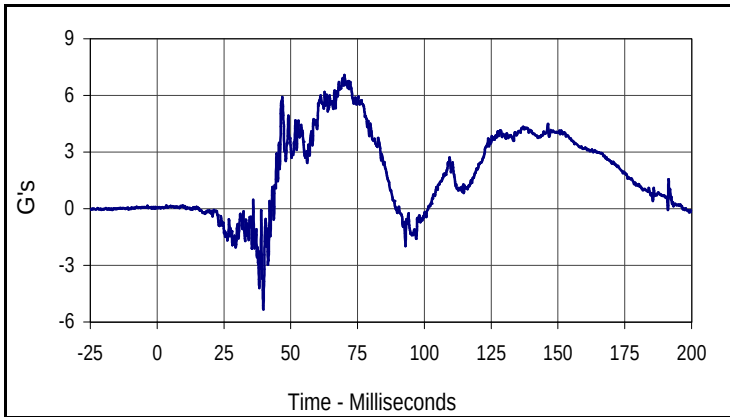
Curve Description			
Driver NAAH Yarm-X			
CURNO	Type	SAE Class	Units
162	FIL	1000	G's
Max	Time	Min	Time
0.3	15.9	-50.5	67.6



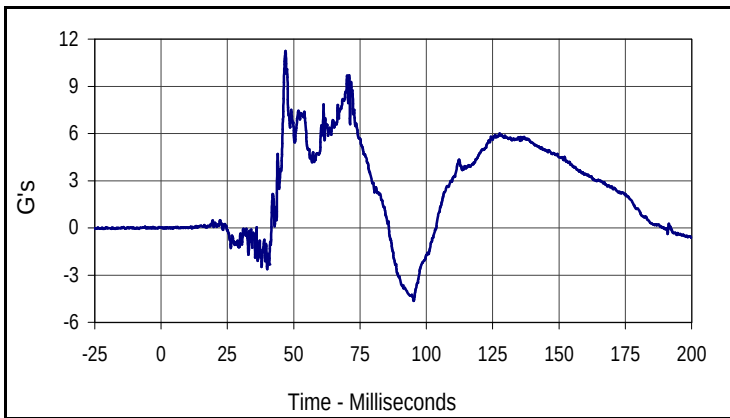
Curve Description			
Driver NAAH Zarm-X			
CURNO	Type	SAE Class	Units
164	FIL	1000	G's
Max	Time	Min	Time
3.2	93.3	-54.4	61.6

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

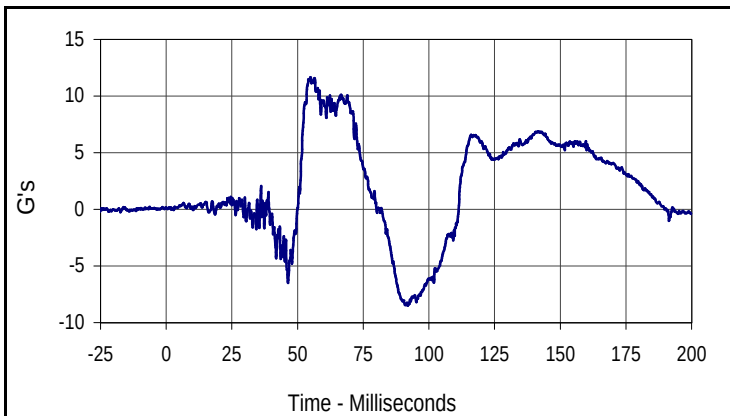
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Driver Head Primary Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
7.1	70.1	-5.3	39.8



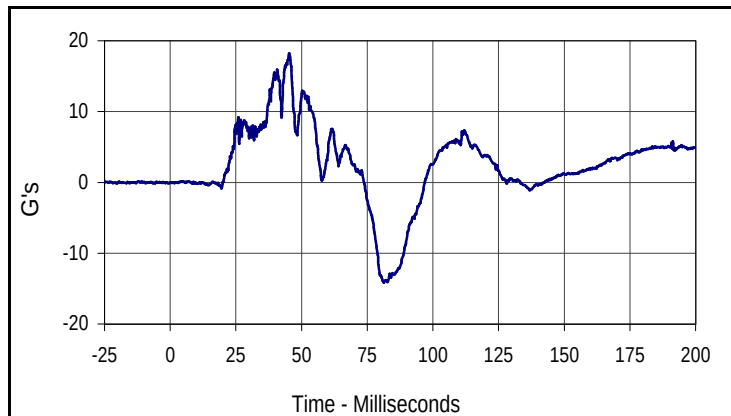
Curve Description			
Driver NAAH Xarm-Y			
CURNO	Type	SAE Class	Units
160	FIL	1000	G's
Max	Time	Min	Time
11.2	46.9	-4.6	95.3



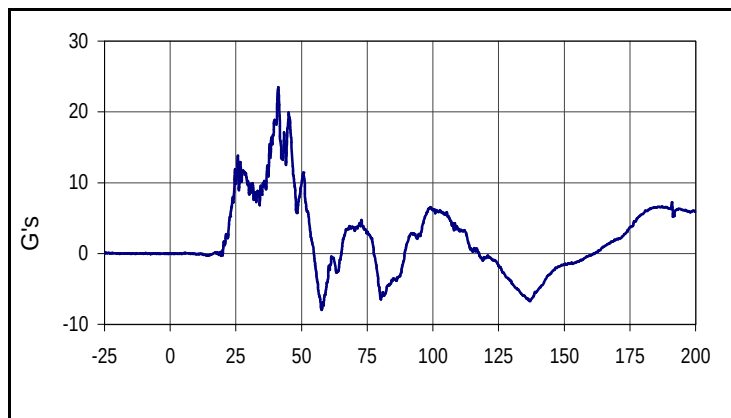
Curve Description			
Driver NAAH Zarm-Y			
CURNO	Type	SAE Class	Units
165	FIL	1000	G's
Max	Time	Min	Time
11.7	54.9	-8.5	92.0

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

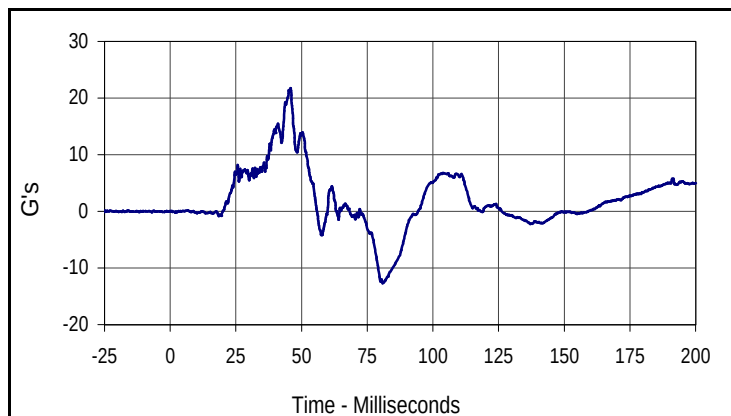
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Driver Head Primary Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
18.2	45.3	-14.1	81.3



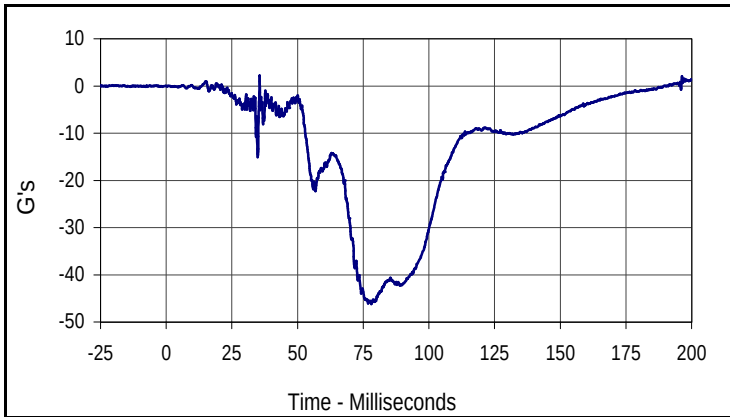
Curve Description			
Driver NAAH Xarm-Z			
CURNO	Type	SAE Class	Units
161	FIL	1000	G's
Max	Time	Min	Time
23.5	41.1	-8.0	57.7



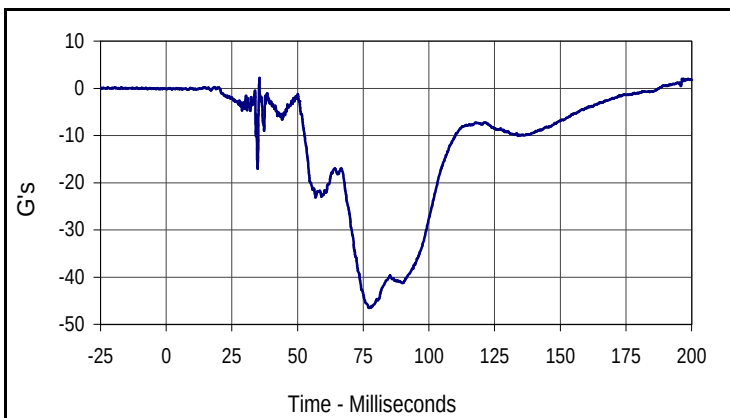
Curve Description			
Driver NAAH Yarm-Z			
CURNO	Type	SAE Class	Units
163	FIL	1000	G's
Max	Time	Min	Time
21.7	45.9	-12.7	80.9

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

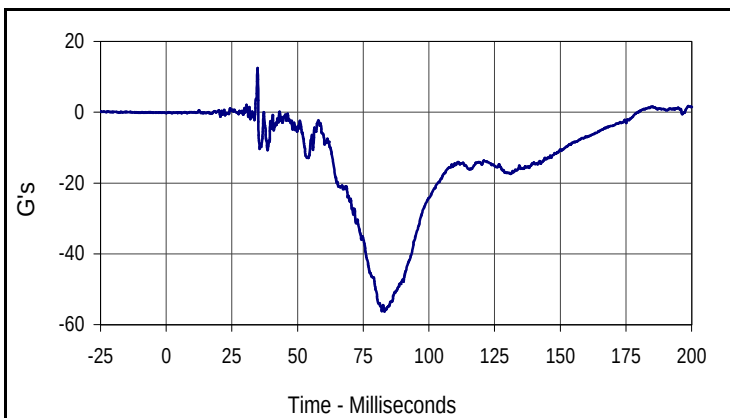
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Passenger Head Primary X			
CURNO	Type	SAE Class	Units
045	FIL	1000	G's
Max	Time	Min	Time
2.1	35.6	-46.2	78.1



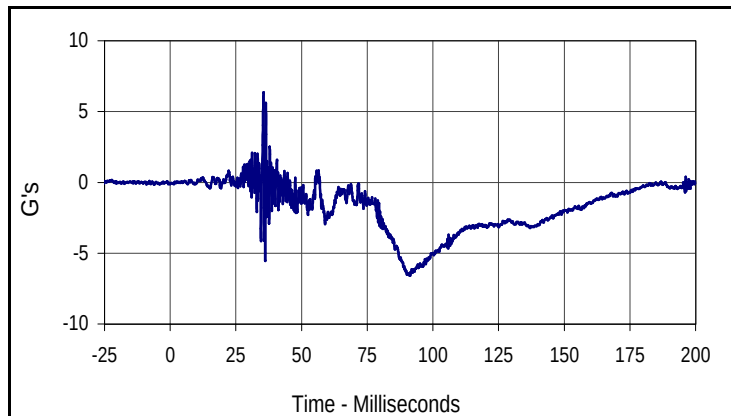
Curve Description			
Passenger NAAH Yarm-X			
CURNO	Type	SAE Class	Units
168	FIL	1000	G's
Max	Time	Min	Time
2.2	35.5	-46.5	77.2



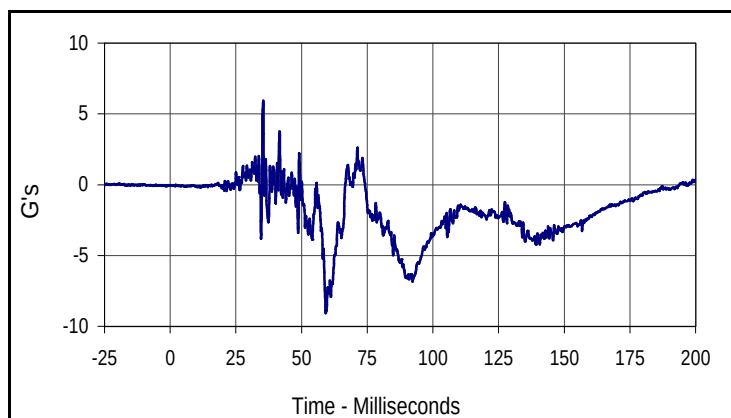
Curve Description			
Passenger NAAH Zarm-X			
CURNO	Type	SAE Class	Units
170	FIL	1000	G's
Max	Time	Min	Time
12.5	34.8	-56.3	83.1

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

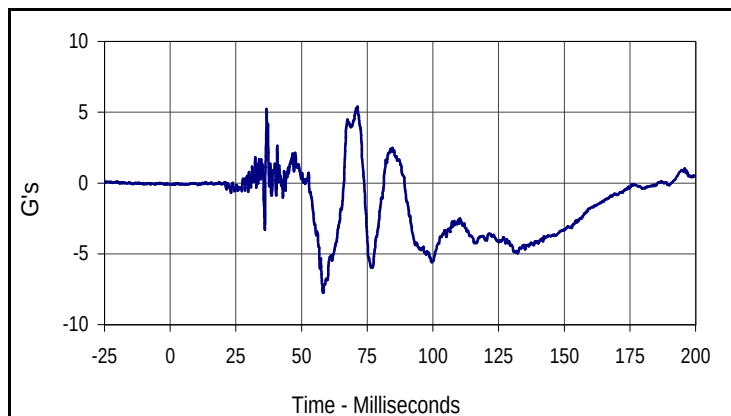
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Passenger Head Primary Y			
CURNO	Type	SAE Class	Units
046	FIL	1000	G's
Max	Time	Min	Time
6.3	35.5	-6.6	91.3



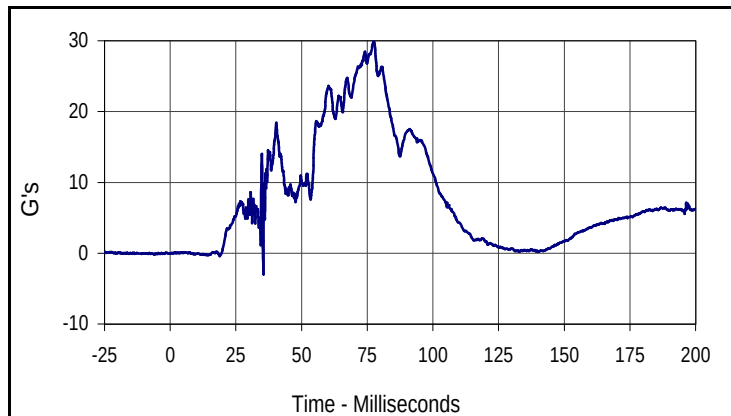
Curve Description			
Passenger NAAH Xarm-Y			
CURNO	Type	SAE Class	Units
166	FIL	1000	G's
Max	Time	Min	Time
5.9	35.4	-9.1	59.2



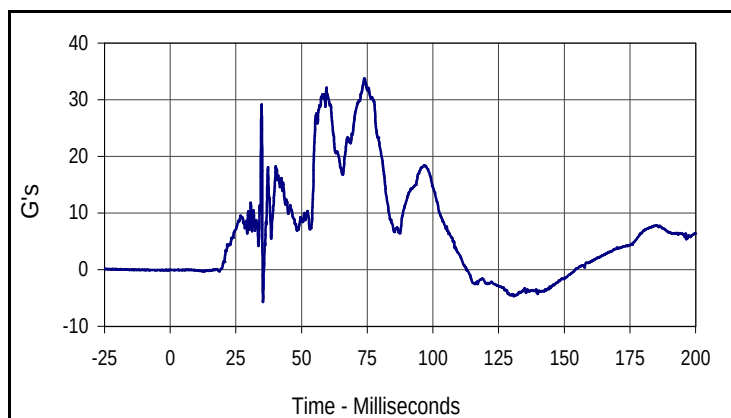
Curve Description			
Passenger NAAH Zarm-Y			
CURNO	Type	SAE Class	Units
171	FIL	1000	G's
Max	Time	Min	Time
5.4	71.2	-7.7	58.2

Test Vehicle: 2004 Chevrolet Aveo 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

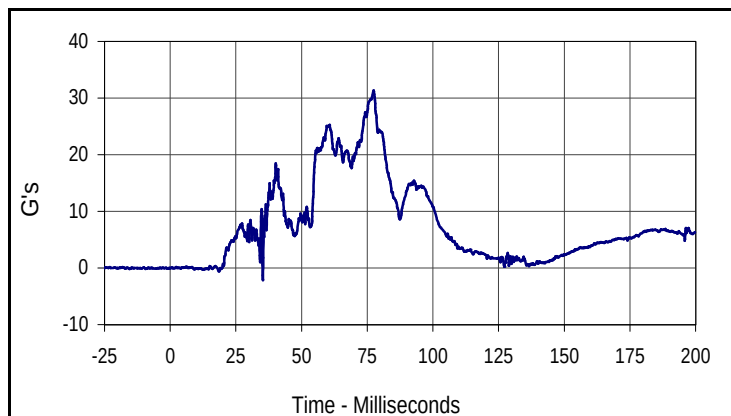
Test Date: 2/5/04
 NHTSA No.: M40105



Curve Description			
Passenger Head Primary Z			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
29.8	77.6	-2.9	35.5



Curve Description			
Passenger NAAH Xarm-Z			
CURNO	Type	SAE Class	Units
167	FIL	1000	G's
Max	Time	Min	Time
33.8	73.9	-5.6	35.3



Curve Description			
Passenger NAAH Yarm-Z			
CURNO	Type	SAE Class	Units
169	FIL	1000	G's
Max	Time	Min	Time
31.4	77.5	-2.1	35.3