

REPORT NUMBER TR-P23001-01-NC

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

**GENERAL MOTORS CORPORATION
2003 CHEVROLET CAVALIER
2 DOOR COUPE**

NHTSA NUMBER: M30106

**PREPARED BY:
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DECEMBER 10, 2002

FINAL REPORT

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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2003 Chevrolet Cavalier 2 Door Coupe at KARCO Engineering, LLC on 12/10/02. This test was conducted to obtain data indicant of FVMSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity was 55.94 km/h. The ambient temperature at the barrier face at the time of impact was 12.8 degrees Celsius. The maximum post-test static crush of the vehicle was 390 mm and to the left of the vehicle centerline. The test vehicle was equipped with a 3-point continuous belt system and second generation supplemental airbags in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary was as follows:					
Measurement Description		Units	Threshold	Driver ATD	Pass. ATD
Head Injury Criteria (HIC)		N/A	1000	497.1	642
Max. Thorax Accel. (3 msec clip)		G's	60	44.3	44.4
Left Femur Force		Newtons	10009	-4842.5	-4714.6
Right Femur Force		Newtons	10009	-3762.2	-3892.9
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SECTION 1

PURPOSE AND SUMMARY OF TEST M30106

1.1 PURPOSE

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

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

1.2 SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2003 Chevrolet Cavalier 2 Door Coupe at a velocity of 55.94 km/h. The test was performed at Karco Engineering, LLC on December 10, 2002. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

One real-time and 19 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 head (primary and redundant), chest (primary and redundant) and pelvis triaxial accelerometers, chest displacement potentiometers, six-axis upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also placed on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 34) and the right-front passenger (position 2) ATD (Serial No. 35) were calibrated prior to this test.

One hundred fifty nine (159) channels of data were recorded using an on-board data acquisition system. 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 information.

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

The driver's visible contact points were as follows: The driver ATD head and chest contacted the airbag, no contact occurred on the abdomen. Both the left and right knees contacted the steering column and dashboard.

The passenger's visible contact points were as follows: The passenger ATD head contacted the airbag and headrest. The chest and abdomen contacted the airbag. The left knee contacted the dashboard and glove box and the right knee 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	497.1	44.3	-29.0	-4842.5	-3762.2	206.0
Passenger	642.0	44.4	-30.0	-4714.6	-3892.9	239.5

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

NHTSA No.: M30106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 12/10/02

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	$=(t_f - 32)/1.8$
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: 2003 Chevrolet Cavalier 2 Door Coupe
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
Test Date: 12/10/02

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	55.94
Test Weight	kg	1382
Impact Angle	degrees	0
Average Rebound	mm	749
Maximum Static Crush	mm	390

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door Opening	Opened by hand without the aid of tools	Opened by hand without the aid of tools
Rear Door Opening	N/A	N/A
Seat Track Shift (mm)	0	0
Seat Back Failure	None	None

TEST DUMMY INFORMATION

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

16mm MOVIE COVERAGE

High Speed	19
Real Time	1
Total	20

DATA CHANNELS

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

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

NHTSA No.: M30106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 12/10/02

TEST VEHICLE INFORMATION

Make	Cavalier
Model	Coupe
Body Style	2 Door
NHTSA No.	M30106
VIN	1G1JC12F137159374
Color	White
Delivery Date	11/22/2002
Odometer Reading (mi.)	46
Dealer	Crest Chevrolet
Transmission	5-Speed Manual
Final Drive	Front
Type/No. Cylinders	4
Engine Displacement (L)	2.2
Engine Placement	Transverse
Front Seat Side Airbag	No

TEST VEHICLE OPTIONS

Driver Front Airbag	Yes
Pass. Front Airbag	Yes
Power Windows	No
Pre-Tensioners	No
Power Door Locks	No
Tilt Wheel	No
Air Conditioning	Yes
Power Brakes	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	No
Anti-lock Brakes	No
Head Airbags	None
Load Limiter	Yes
Cruise Control	No
Bucket Seats	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors Corporation	GVWR (kg)	1597
Date of Manufacture	October-02	GAWR Front (kg)	865
		GAWR Rear (kg)	732

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	None	
Number of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				400
Cargo Weight (RCLW) (kg)				60

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

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
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NHTSA No.: M30106
 Test Date: 12/10/02

TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	210	210
Cold Pressure (kPa)	210	210
Recommend Tire Size	P195/70R14	P195/70R14
Tire Size on Vehicle	P195/70R14	P195/70R14
Tire Manufacturer	Goodyear	Goodyear
Treadwear	300	300
Traction	A	A
Temperature Grades	B	B
Tire Plies	Sidewall 1 ply, body 2 steel cords	Sidewall 1 ply, body 2 steel cords
Load Index/Speed Symbol	90S	90S
Tire Material	Polyester/Steel	Polyester/Steel
DOT Safety Code Right	276358GLW79VC	276358GLW79VC
DOT Safety Code Left	276358GLW79VC	276358GLW79VC

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

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

NHTSA No.: M30106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 12/10/02

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	385	211		422	265	
Right	kg	372	209		423	272	
Ratio	%	64.3	35.7		61.1	38.9	
Totals	kg	757	420	1177	845	537	1382

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1177
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Weight (RCLW)	kg	60
Calculated Vehicle Target Weight (TVTW)	kg	1389

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	684	689	711	718	941
As Tested	mm	667	671	683	684	1026

Vehicle Wheel base (mm): 2637

Weight of Ballast secured in cargo area (kg): 0

Vehicle Components Removed: Trunk lid & Hinges, Rear bumper, Taillights, Speakers
Spare Tire and Jack

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

FUEL SYSTEM DATA

Fuel System Capacity From Owner's Manual (L): 53.4

Usable Capacity Figure Furnished by COTR (L): 53.4

Actual Test Volume with entire fuel System Filled (L): 49.6

Test Fluid Type: Stoddard Solvent ; Specific Gravity: 0.764

Kinematic Viscosity: as per ASTM Standard D484-71 ; Color: Red

Is Vehicle Fuel Pump Electric or Mechanical?: Electric

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

Fuel System Particulars: Driver side filler door, tank mounted at rear.

DATA SHEET NO. 3
POST IMPACT DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
Test Date: 12/10/02

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	55.51 to 57.12	55.94
Trap No. 1 Entry Distance	mm	< 1524	1524
Trap No. 1 Exit Distance	mm	< 1524	305
Trap No. 2 Velocity (Redundant)	km/h	55.51 to 57.12	55.95
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	4515	4125	-390
Center	mm	4635	4285	-350
Right Side	mm	4515	4270	-245

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	815
Center	mm	696
Right Side	mm	735
Average	mm	749

DATA SHEET NO. 4

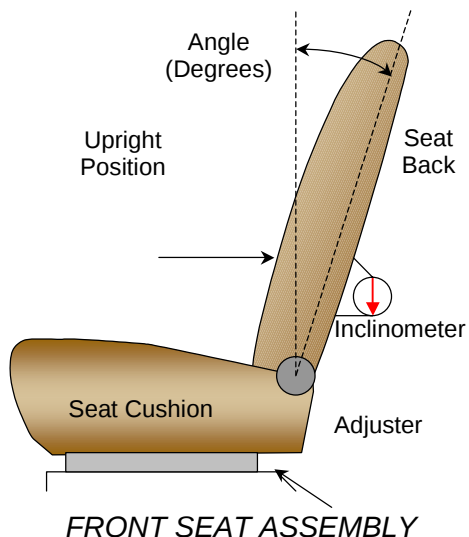
TEST VEHICLE INFORMATION

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

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	27.5
Passenger w/seated Dummy	27.5

SEAT FORE/AFT POSITIONS

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

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position #
Driver Seat	22	12
Passenger Seat	10	6

SEAT BELT UPPER ANCHORAGE

Position number one (1) is the uppermost position..

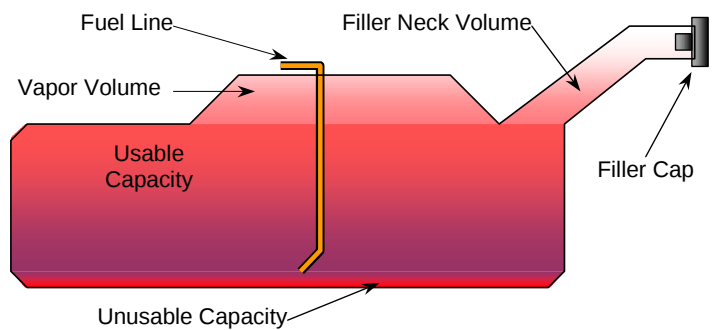
SEAT BELT UPPER ANCHORAGE

	Total # of Positions	Placed in Position #
Driver Seat	Fixed	Fixed
Passenger Seat	Fixed	Fixed

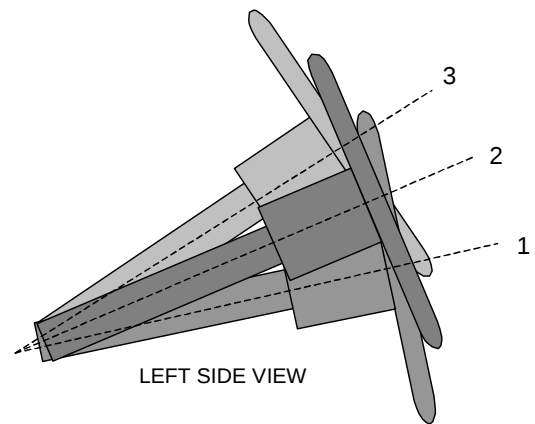
DATA SHEET NO. 4...(CONTINUED)**TEST VEHICLE INFORMATION**Test Vehicle: 2003 Chevrolet Cavalier 2 Door CoupeNHTSA No.: M30106Test Program: 2003 NHTSA 35mph NCAPTest Date: 12/10/02**FUEL TANK CAPACITY DATA**

	Liters
Usable Capacity of "Standard Tank"	53.5
Usable Capacity of "Optional Tank"	N/A
Usable Capacity used for FMVSS 301	49.10 to 50.10
Actual Amount of Solvent Used	49.6

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. Fuel lines run inside the right frame rail to the engine compartment.

**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. The steering column is fixed on this test vehicle.

**STEERING COLUMN ASSEMBLY****STEERING COLUMN POSITIONS**

	Degrees
Lowermost; position No. 1	N/A
Geometric center; position No. 2	21
Uppermost; position No. 3	N/A

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
Test Date: 12/10/02

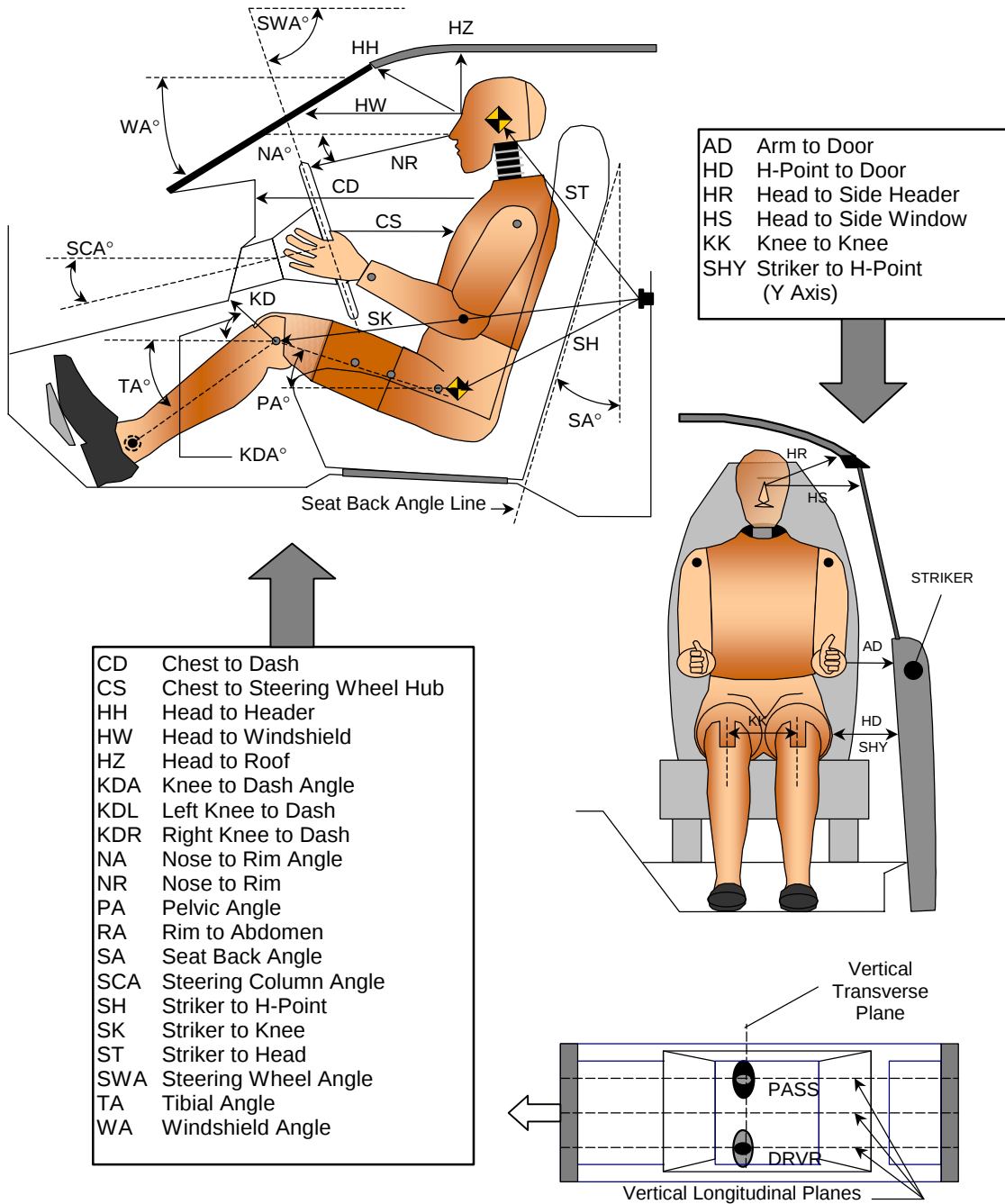
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		65		
SWA	Steering Wheel Angle		69		
SCA	Steering Column Angle		21		
SA	Seat Back Angle		28		28
HZ	Head to Roof (Z)	145	90	148	90
HH	Head to Header	311		307	
HW	Head to Windshield	528		515	
HR	Head to Side Header (Y)	188		193	
NR	Nose to Rim	397	11		
CD	Chest to Dash	515		493	
CS	Chest to Steering Hub	296			
RA	Rim to Abdomen	195			
KDL	Left Knee to Dash	155	32	142	
KDR	Right Knee to Dash	125		155	46
PA	Pelvic Angle		25		25
TA	Tibia Angle		31		36
KK	Knee to Knee (Y)	300		275	
ST	Striker to Head	905	3	890	3
SK	Striker to Knee	667	57	660	58
SH	Striker to H-Point	543		523	
SHY	Striker to H-Point (Y)	244		240	
HS	Head to Side Window	275		272	
HD	H-Point to Door (Y)	100		95	
AD	Arm to Door (Y)	85		38	

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

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

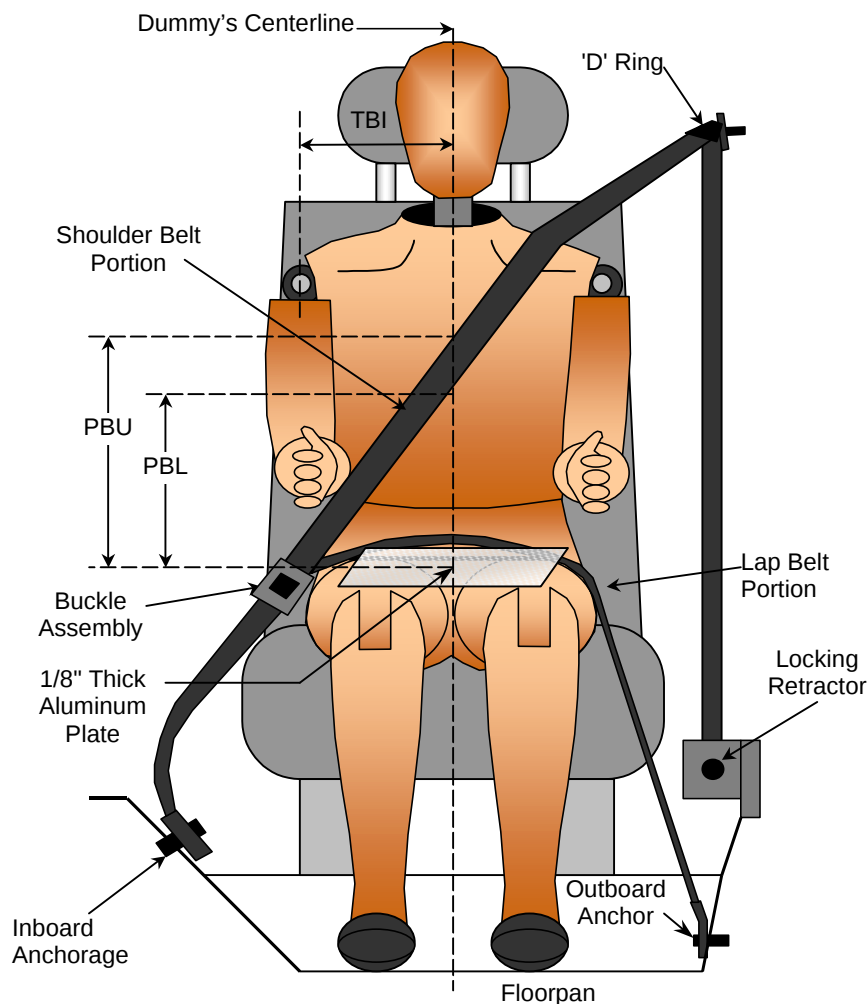


DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

DATA SHEET NO. 6 **SEATBELT POSITIONING DATA**

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy C/L to Lap/Shoulder Belt Intersect	mm	185	195
PBU - Top surface of reference to belt upper edge	mm	325	305
PBL - Top surface of reference to belt lower edge	mm	245	215
Lap Belt tension	Newton's	10	10
Shoulder Belt tension	N/A	Retractor	Retractor

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

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

NHTSA No.: M30106

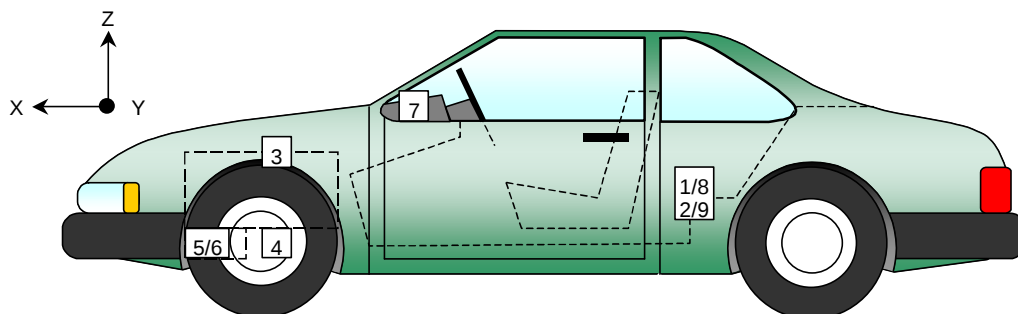
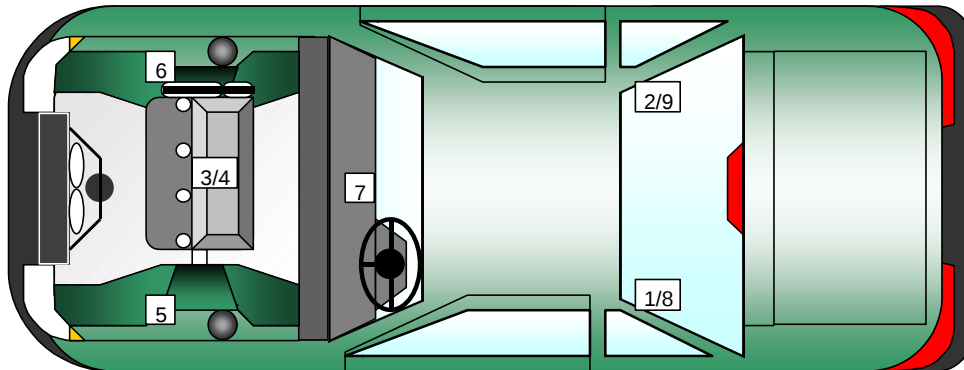
Test Program: 2003 NHTSA 35mph NCAP

Test Date: 12/10/02

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	1992	-625	320	G's	2.4	122.7	-43.5	43.4
2	Right Rear X-Member	1992	625	320	G's	1.7	123.1	-33.9	48.2
3	Engine Top	3866	40	805	G's	77.3	45.6	-99.6	37.0
4	Engine Bottom	3885	50	190	G's	29.0	47.7	-92.7	23.9
5	Left Brake Caliper	3540	-665	305	G's	9.5	68.3	-112.3	44.3
6	Right Brake Caliper	3542	665	305	G's	59.6	70.0	-99.8	46.0
7	Instrument Panel	2984	0	900	G's	76.5	23.2	-110.4	27.7
8	Left Rear X-Member (Z-Axis)	1910	-625	320	G's	11.4	14.9	-11.0	11.4
9	Right Rear X-Member (Z-Axis)	1938	625	320	G's	8.5	26.7	-10.2	12.2

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: 2003 Chevrolet Cavalier 2 Door Coupe

NHTSA No.: M30106

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Test Date: 12/10/02

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	11.3	234.5	-58.1	73.4	9.5	268.9	-59.3	76.2
Head CG	Y	G's	4.8	225.9	-15.9	87.7	3.2	44.8	-28.4	93.7
Head CG	Z	G's	23.5	55.0	-4.0	86.6	25.5	77.5	-3.8	113.6
Head CG Resultant	N/A	G's	60.8	73.4			64.7	77.5		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	3.4	273.3	-44.5	58.3	5.1	271.8	-45.0	70.2
Chest CG	Y	G's	3.7	102.9	-7.2	85.8	3.7	77.9	-9.1	89.4
Chest CG	Z	G's	7.8	53.6	-5.7	110.8	12.1	78.9	-5.1	113.6
Chest CG Resultant	N/A	G's	45.1	58.3			45.5	70.2		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	474.2	82.7	-4842.5	51.4	779.9	87.4	-4714.6	54.8
Right Femur	Z	Newtons	485.3	77.6	-3762.2	51.1	931.5	50.6	-3892.9	58.4

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Shoulder Belt Pullout	N/A	MM	206.0	80.0	0.0	0.0	239.5	82.3	0.1	7.8
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	6637.9	60.7	-4.3	0.0	7798.4	59.7	-8.0	299.9
Shoulder Belt Force	N/A	Newtons	5083.4	81.8	-39.0	209.6	5330.3	82.8	-15.9	140.7

1.) Not used with pre-tensioner

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	497.1	54.2	90.1	45.3	642.0	63.7	99.6	50.2

PRIMARY CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	44.3	56.0	59.0	44.4	69.4	72.4

DATA SHEET NO. 8...(continued)

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

NHTSA No.: M30106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 12/10/02

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	2.7	102.6	-64.6	50.9	4.3	125.6	-69.4	53.9
Pelvis	Y	G's	5.3	93.0	-10.6	56.4	10.9	46.3	-6.5	58.6
Pelvis	Z	G's	2.3	260.5	-22.2	78.9	3.2	221.9	-24.1	72.4
Pelvis Resultant	N/A	G's	64.9	50.9			70.8	53.9		

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	1132.4	66.7	-415.5	141.8	506.4	82.3	-372.0	58.4
Neck Force	Y	Newtons	128.0	194.6	-307.2	125.5	154.7	71.2	-374.3	104.3
Neck Force	Z	Newtons	1349.5	62.4	-207.4	87.2	1308.6	67.3	-140.2	134.1
Neck Force Resultant	N/A	Newtons	1616.6	64.3			1311.9	67.3		
Neck Moment	X	N•m	12.4	77.4	-23.1	121.9	28.5	91.6	-19.3	126.1
Neck Moment	Y	N•m	87.7	66.2	-23.1	260.0	30.5	81.4	-25.4	57.8
Neck Moment	Z	N•m	21.3	100.4	-14.5	153.5	33.7	100.7	-14.8	157.8
Neck Moment Resultant	N/A	N•m	88.2	66.2			43.8	93.5		

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	6.9	121.0	-69.8	49.8	22.4	53.8	-147.5	45.8
Left Foot Aft	Z	G's	4.9	78.7	-51.4	47.1	13.1	61.0	-83.4	44.7
Left Foot Fore	Z	G's	6.9	55.3	-83.5	47.5	14.0	60.6	-104.6	42.8
Right Foot Aft	X	G's	15.4	58.9	-132.0	50.1	13.9	75.0	-63.6	48.5
Right Foot Aft	Z	G's	14.0	73.5	-158.9	48.7	11.6	82.9	-56.0	41.4
Right Foot Fore	Z	G's	49.1	43.8	-271.0	48.5	13.2	38.1	-83.8	45.8

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Upper Moment	X	N•m	113.5	60.8	-24.2	128.0	37.3	53.9	-55.0	46.2
Left Upper Moment	Y	N•m	48.3	36.4	-56.8	60.1	12.7	204.1	-208.6	46.9
Right Upper Moment	X	N•m	241.4	51.5	-15.5	138.6	27.7	65.7	-45.3	37.9
Right Upper Moment	Y	N•m	60.6	46.0	-36.5	54.2	32.8	56.4	-100.2	66.3
Left Lower Moment	X	N•m	114.5	48.8	-28.4	35.4	95.4	50.1	-33.7	44.9
Left Lower Moment	Y	N•m	30.5	42.4	-9.9	21.6	15.9	75.1	-38.7	47.1
Left Lower Force	Z	Newtons	119.1	192.1	-2863.8	47.9	104.0	269.0	-6613.0	46.4
Right Lower Moment	X	N•m	98.9	52.1	-45.7	45.5	24.3	36.4	-86.2	42.1
Right Lower Moment	Y	N•m	11.8	56.6	-52.2	48.5	46.4	40.9	-34.1	52.3
Right Lower Force	Z	Newtons	173.4	259.5	-6609.2	50.5	99.6	255.7	-3583.0	41.1

DATA SHEET NO. 8...(continued)

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

NHTSA No.: M30106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 12/10/02

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.1	2.4	-29.0	63.8	0.2	1.1	-30.0	83.3

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	11.2	233.2	-57.2	73.8	9.4	270.0	-58.2	77.9
Head CG	Y	G's	3.2	213.0	-15.8	88.2	7.0	43.4	-28.9	92.0
Head CG	Z	G's	23.6	55.3	-3.7	86.6	25.0	67.8	-3.0	122.9
Head CG Resultant	N/A	G's	60.0	72.8			63.2	78.0		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.9	272.2	-45.3	58.1	4.5	271.5	-45.2	70.0
Chest CG	Y	G's	2.9	102.7	-6.8	81.2	3.1	77.8	-8.5	89.5
Chest CG	Z	G's	7.7	53.6	-5.7	105.1	11.1	51.1	-4.1	109.1
Chest CG Resultant	N/A	G's	45.8	58.1			45.7	70.0		

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	490.1	54.2	90.1	45.1	619.3	63.0	98.9	49.5

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	44.6	56.0	59.0	44.1	73.3	76.3

DATA SHEET NO. 9
SEATBELT ASSESSMENT TEST DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

SEAT BELT PLACEMENT MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy C/L to Lap/Shoulder Belt Intersect	mm	185	195
PBU - Top surface of reference to belt upper edge	mm	325	305
PBL - Top surface of reference to belt lower edge	mm	245	215
Lap Belt tension	Newton's	10	10
Shoulder Belt tension	N/A	Retractor	Retractor

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Retractor reel to 'D' ring	mm	615	615
Shoulder belt length as measured on ATD	mm	985	1000
Lap belt length as measured on ATD	mm	725	730
Remainder of belt on reel	mm	430	635
Total belt length for continuous webbing systems	mm	2755	2980

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	0.0	300.0
As determined electronically	mm	206.0	239.5
As determined by photography	mm	N/A	N/A

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
Electronically between shoulder belt load cell and "D" ring	mm/cm	*	*
Mechanically	mm/cm	0.00	0.00

*Not used with shoulder belt pre-tensioner systems.

DATA SHEET NO. 10
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

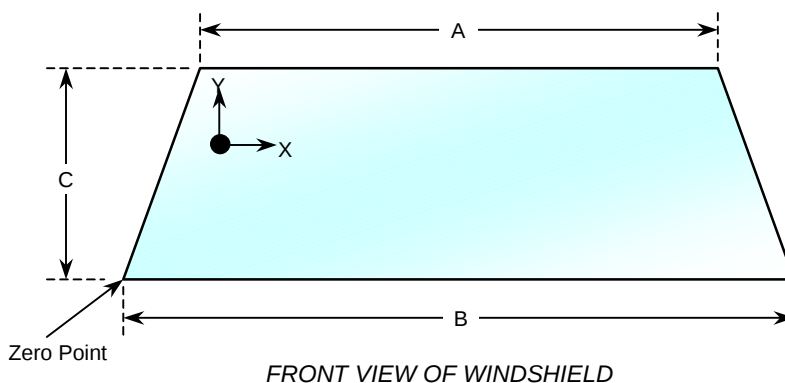
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive. No molding covers the windshield periphery at any point.

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

Temperature of windshield molding during test: 21.1 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test(mm)	Post-Test (mm)	% of Retention
Left Side	2045	2045	100
Right Side	2045	2045	100
Total	4089	4089	100



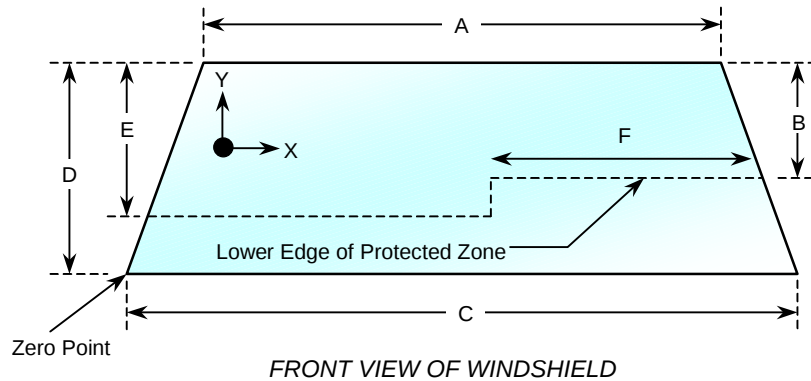
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1084	22
B	mm	1465	34
C	mm	770	22

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

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02



**WINDSHIELD AND
PROTECTED ZONE**

Item	Units	Value
A	mm	1084
B	mm	440
C	mm	1465
D	mm	770
E	mm	510
F	mm	576

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: 2003 Chevrolet Cavalier 2 Door Coupe
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
Test Date: 12/10/02

Test Time: 3:38P.M.

Temperature at Time of Impact 12.8Deg. C

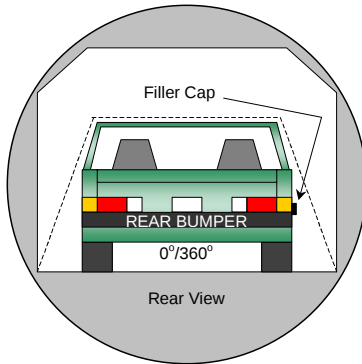
STODDARD SOLVENT SPILLAGE MEASUREMENTS

- 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

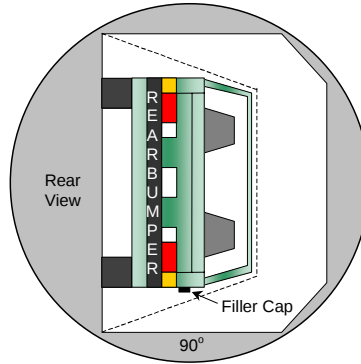
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
Test Program: 2003 NHTSA 35mph NCAP

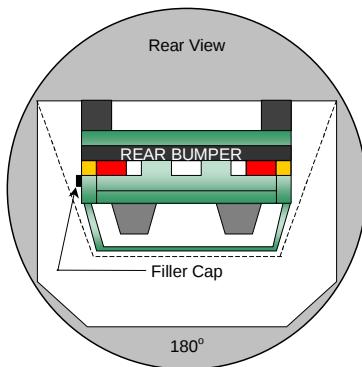
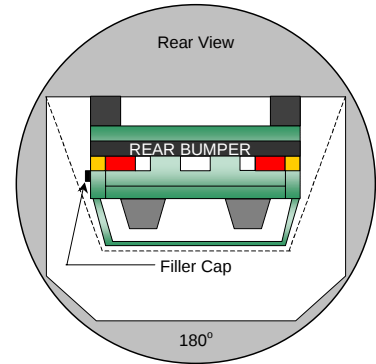
NHTSA No.: M30106
Test Date: 12/10/02



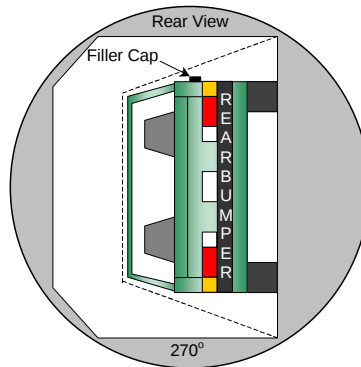
0° to 90°



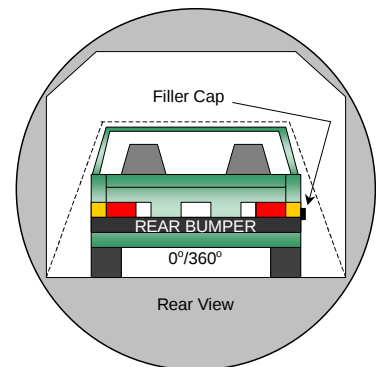
90° to 180°



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
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	85	300	385
90° to 180°	80	300	380
180° to 270°	77	300	377
270° to 360°	83	300	383

FMVSS 301 SPILLAGE REQUIREMENT TABLE (oz.)

First 5 minutes	5.0
Sixth Minute	1.0
Seventh minute	1.0
Eighth Minute	1.0

ACTUAL TEST VEHICLE SOLVENT SPILLAGE (oz.)

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0.0	0.0	0.0	0.0
90° to 180°	0.0	0.0	0.0	0.0
180° to 270°	0.0	0.0	0.0	0.0
270° to 360°	0.0	0.0	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: 2003 Chevrolet Cavalier 2 Door Coupe
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
Test Date: 12/10/02

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	4635	4285	-350
2	RSOV to front of engine	mm	3877	3765	-112
3	RSOV to firewall centerline	mm	3475	3400	-75
4	RSOV to leading edge of right door	mm	3098	3100	2
5	RSOV to leading edge of left door	mm	3090	3098	8
6	RSOV to lower leading edge of right door	mm	3099	3090	-9
7	RSOV to lower leading edge of left door	mm	3100	3092	-8
8	RSOV to upper trailing edge of right door	mm	1795	1793	-2
9	RSOV to upper trailing edge of left door	mm	1792	1800	8
10	RSOV to lower trailing edge of right door	mm	1772	1776	4
11	RSOV to lower trailing edge of left door	mm	1774	1764	-10
12	RSOV to bottom of right 'A' pillar	mm	3103	3085	-18
13	RSOV to bottom of left 'A' pillar	mm	3103	3090	-13
14	RSOV to firewall on right side	mm	3467	3360	-107
15	RSOV to firewall of left side	mm	3485	3435	-50
16	RSOV to steering column	mm	2637	2605	-32
17	Center of steering column to left 'A' pillar	mm	365	340	-25
18	Center of steering column to headlining	mm	423	290	-133
19	RSOV to right side of front bumper	mm	4515	4270	-245
20	RSOV to left side of front bumper	mm	4515	4125	-390
21	Length of engine block	mm	460	460	0
RD	RSOV to right side of dash panel	mm	2813	2785	-28
CD	RSOV to center of dash panel	mm	2780	2820	40
LD	RSOV to left side of dash panel	mm	2834	2800	-34

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

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

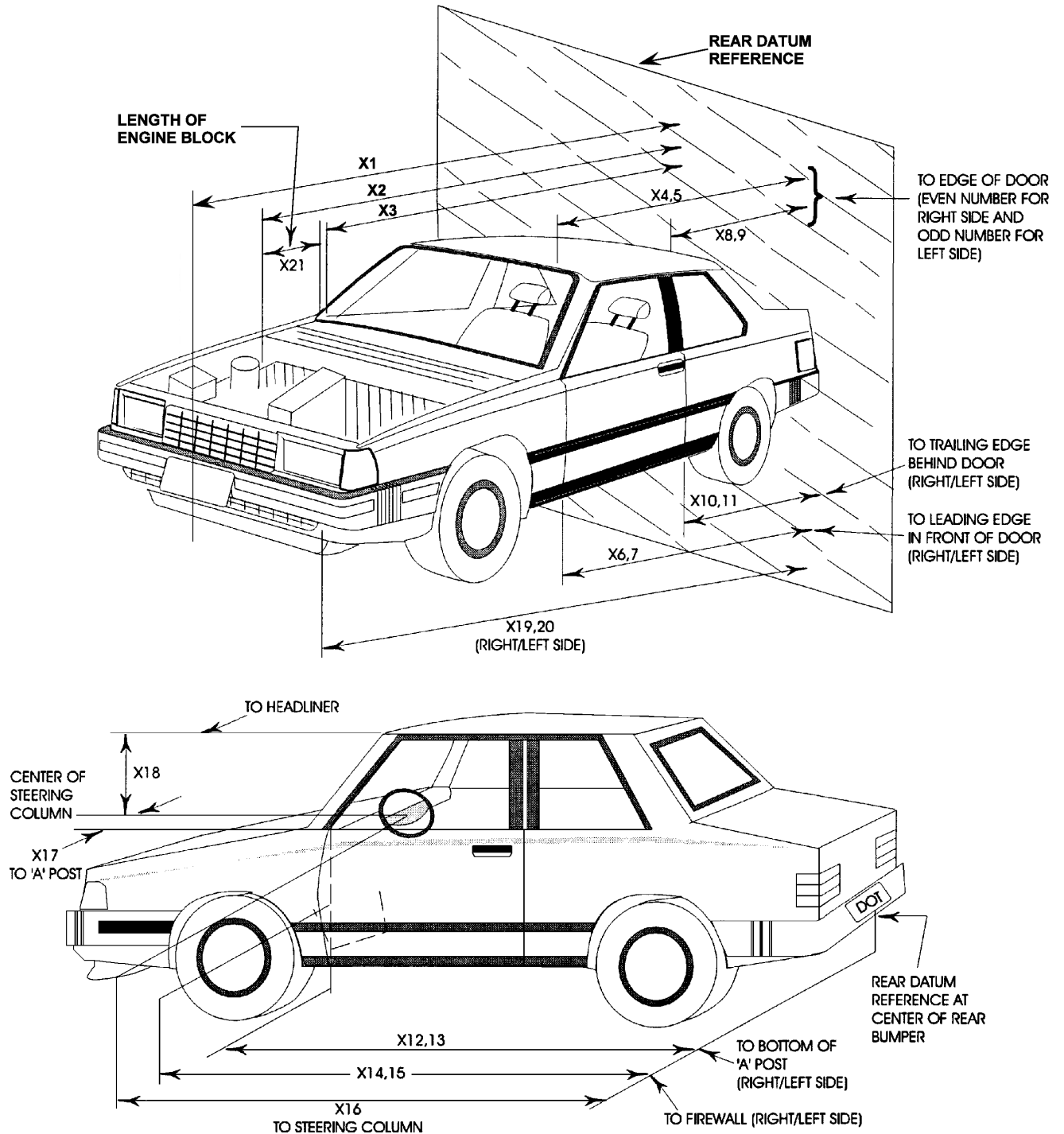
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total Length	mm	4635	4285	-350
2	Total Width	mm	1730	1748	18
3	Bumper Top Height	mm	570	496	-74
4	Bumper Bottom Height	mm	160	138	-22
5	Longitudinal Member Top Height	mm	245	577	332
6	Distance Between Longitudinal Members	mm	777	960	183
7	Longitudinal Member Width	mm	67	80	13
8	Engine Top Height	mm	783	800	17
9	Engine Bottom Height	mm	154	159	5
10	Engine and Gear Box Width	mm	736	235	-501
11	Front Bumper to Engine Distance	mm	595	658	63
12	Front Shock Absorber Fixing Height	mm	356	898	542
13	Bonnet Leading Edge Height	mm	644	415	-229
14	Front Schock Absorber Fixing Width	mm	1193	1220	27
15	Front Bumper to Front Axle Distance	mm	995	632	-363
16	Front Axle to A-Pillar Distance	mm	597	458	-139
17	A-Pillar to B-Pillar Distance	mm	1308	1285	-23
18	B-Pillar to Rear Axla Distance	mm	790	755	-35
19	B-Pillar to C-Pillar Distance	mm	N/A	N/A	N/A
20	Roof Sill Bottom Height	mm	1194	1268	74
21	Roof Sill Top Heigth	mm	1319	1366	47
22	Floor Sill Bottom Height	mm	284	185	-99
23	Floor Sill Top Height	mm	360	330	-30

All Measurements in millimeters

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

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
Test Date: 12/10/02

No.	Camera View	Location (mm)			Angle (Deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Right Side, Real Time	18288	-22860	2540	10	N/A	17-70	24
2	Driver Overall	1930	8357	1321	4	7925	13	1010
2B	Driver Overall	1626	8230	1092	4	7823	17	900
3	Driver Close-Up	1727	8230	1600	4	7823	35	1000
4	3/4 Driver Shoulder	6477	10185	4648	13	11049	35-80	1000
5	Driver Steering Column	1524	8230	3404	20	8128	19	1030
6	Driver Steering Column	1524	8230	2997	16	8026	19	1050
7	Passenger Overall	2057	-8306	1600	6	7874	19	1010
8	Passenger Close-Up	1676	-8052	1600	4	7645	35	1040
9	3/4 Passenger Shoulder	8026	-8941	2997	9	10262	80	950
10	Passenger Door	1676	-13106	1219	1	12675	50	980
11	Overhead Overall	610	0	6172	90	N/A	13	1090
12	Driver Front Windshield	-610	381	2743	41	N/A	13	850
13	Passenger Front Windshield	-610	-432	2743	44	N/A	12	1050
14	Pit Camera, Engine	610	0	-1499	90	N/A	19	1000
15	Pit Camera, Fuel Tank	3658	0	-1676	27	N/A	24	1000
16	Driver Side Child Dummy	3048	5842	1422	5	6198	35	990
16B	Driver Side Child Dummy	2540	8128	1930	6	8560	Zoom	520
17	Passenger Side Child Dummy	2997	-5258	2007	10	500	25	1020
17B	Passenger Side Child Dummy	2667	-5639	2007	10	5385	25	1010

X - Barrier Face Y - Monorail Centerline Z - Ground

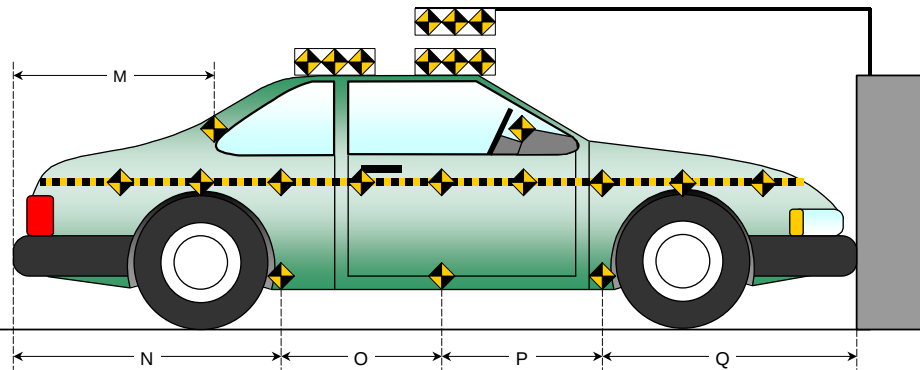
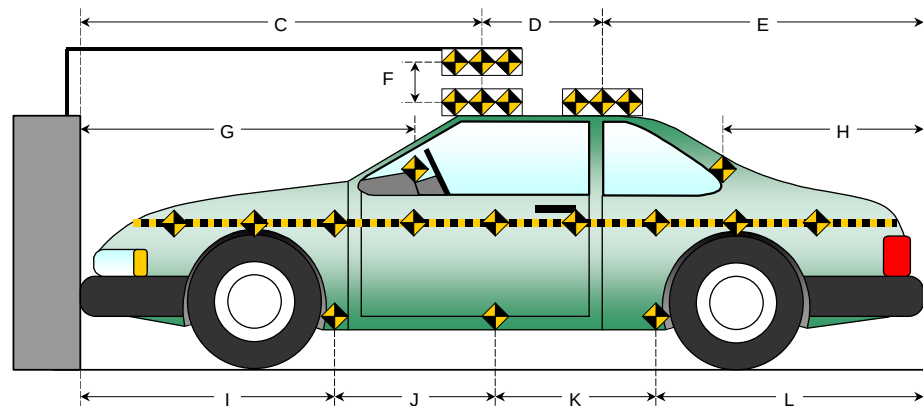
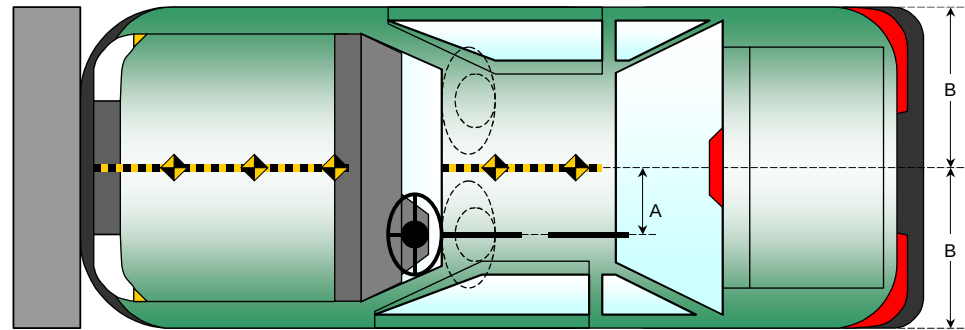
DATA SHEET NO. 16 **PHOTOGRAPHIC REFERENCE TARGET LOCATIONS**

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

All Dimensions
 in mm

Item	Value
A	335
B	854
C	2308
D	605
E	1736
F	155
G	1830
H	1107
I	1422
J	911
K	908
L	395
M	1108
N	394
O	908
P	908
Q	1427



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

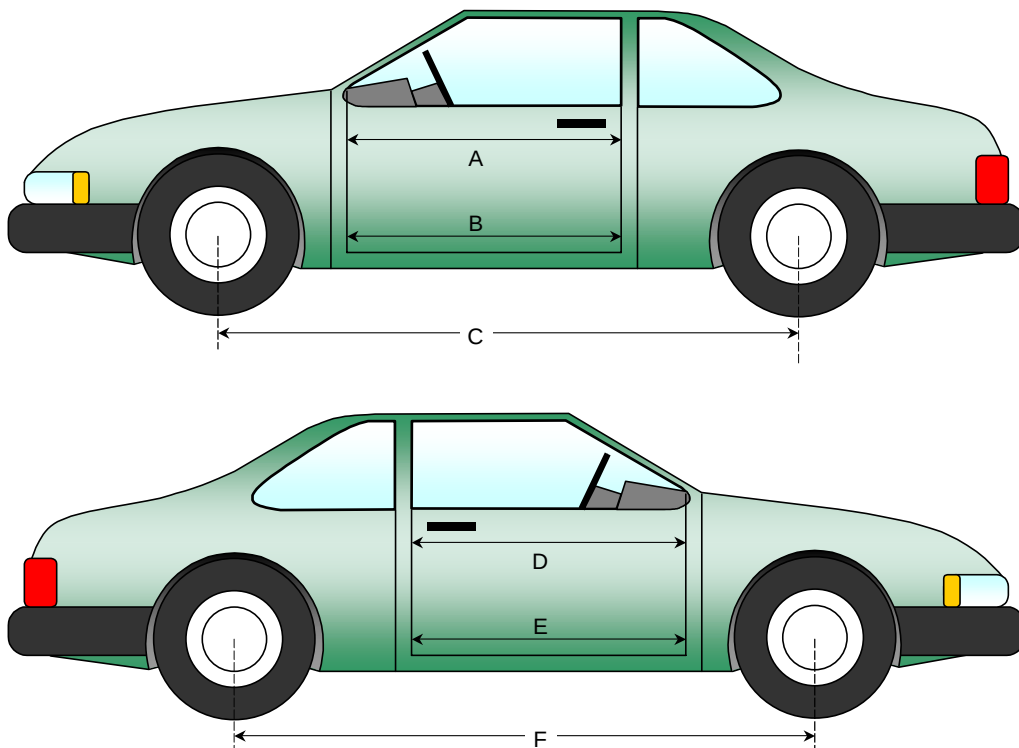
NHTSA No.: M30106
 Test Date: 12/10/02

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1291	1274	-17
B	Left Side Lower	mm	1265	1262	-3
D	Right Side Upper	mm	1290	1270	-20
E	Right Side Lower	mm	1264	1263	-1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheel base	mm	2637	2554	-83
F	Right Side Wheel base	mm	2637	2560	-77



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

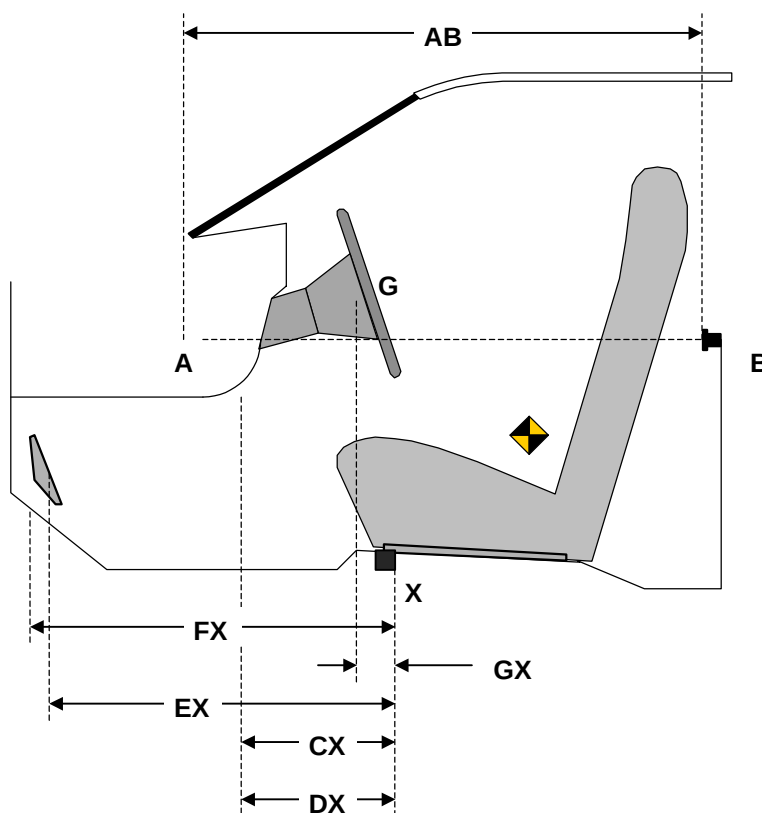
Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	1291	1274	-17
CX	Left Knee Bolster to X	mm	200	176	-24
DX	Right Knee Bolster to X	mm	198	146	-52
EX	Brake Pedal to X	mm	508	350	-158
FX	Foot Rest to X	mm	570	500	-70
GX	Center of Steering Wheel Hub to X	mm	15	-20	-35

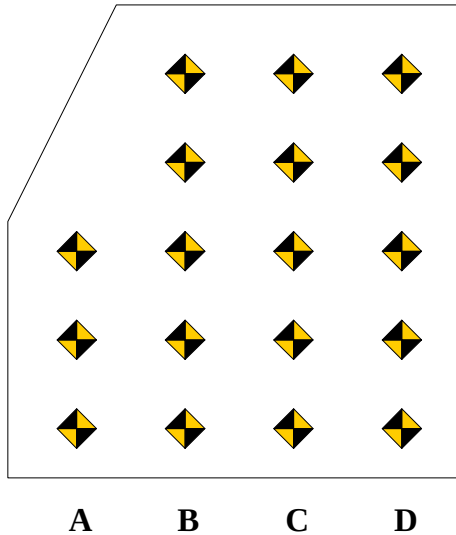
X = Left Front Seat Outboard Anchor Bolt Head



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

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02



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

2 Columns A through D are evenly spaced.

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

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

DRIVER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	0	655	664	653	0	552	555	540	0	-103	-109	-113
2	0	576	580	583	0	492	485	460	0	-84	-95	-123
3	491	491	488	488	435	422	405	381	-56	-69	-83	-107
4	391	391	390	388	355	332	320	315	-36	-59	-70	-73
5	290	290	287	286	290	292	290	295	0	2	3	9

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	0	42	20	30	0	33	38	-41	0	-9	18	-71
2	0	-21	-44	-35	0	-27	-37	-38	0	-6	7	-3
3	-68	-75	-80	-75	-80	-93	-60	-65	-12	-18	20	10
4	-75	-78	-82	-73	-70	-70	-41	-35	5	8	41	38
5	-87	-87	-84	-82	-105	-110	-109	-111	-18	-23	-25	-29

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

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

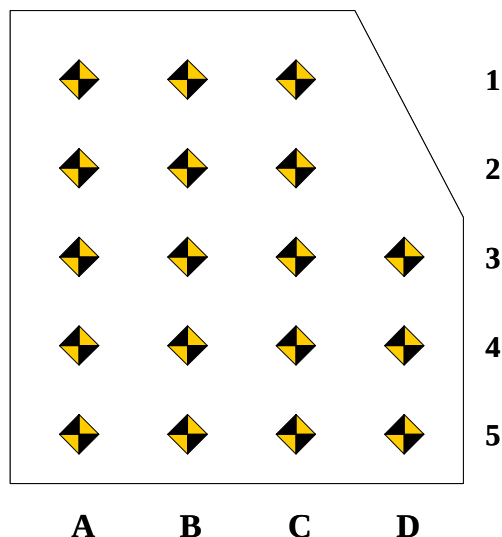
NHTSA No.: M30106
 Test Date: 12/10/02

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	647	651	642	0	540	558	550	0	-107	-93	-92	0
2	571	578	572	0	476	490	496	0	-95	-88	-76	0
3	479	481	485	488	400	410	429	450	-79	-71	-56	-38
4	381	383	387	389	296	315	340	370	-85	-68	-47	-19
5	278	279	283	287	270	280	300	300	-8	1	17	13

PASSENGER FLOOR PAN Z-AXIS

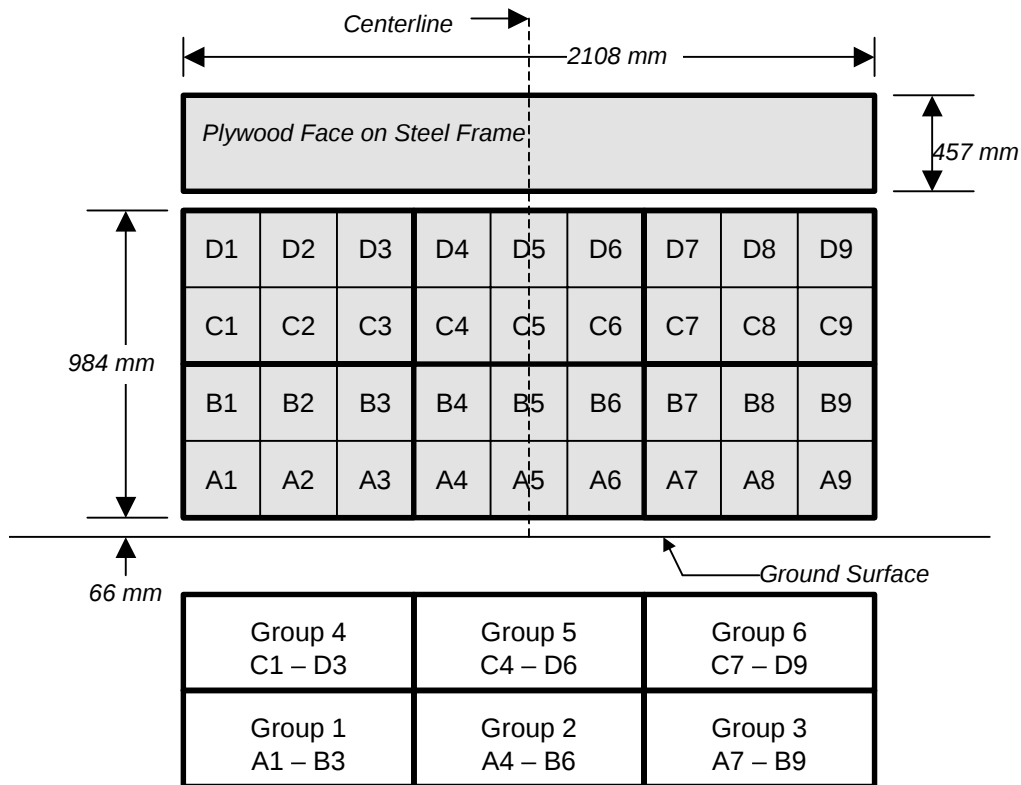
	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	30	26	42	0	65	48	45	0	35	22	3	0
2	-35	-35	-20	0	-30	-30	-27	0	5	5	-7	0
3	-77	-82	-78	-77	-64	-74	-100	-86	13	8	-22	-9
4	-73	-80	-80	-80	-33	-52	-100	-90	40	28	-20	-10
5	-82	-83	-87	-85	-100	-100	-116	-90	-18	-17	-29	-5

DATA SHEET NO. 18
FIXED BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

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



6 Groups of 6 Load Cells Each

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

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

DATA SHEET NO. 19
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

VEHICLE INFORMATION

VIN: 1G1JC12F137159374
 Vehicle Size Category: 2 Door

Wheel base (mm): 2637
 Test Weight (kg): 1382

ACCELEROMETER DATA

Accelerometer Location: Left rear floor pan
 Cal. Procedure/Interval: 6 months / drop test
 Integration Algorithm: NHTSA Standard
 Impact Velocity (km/h): 55.94
 Velocity Change (km/h): 66.58

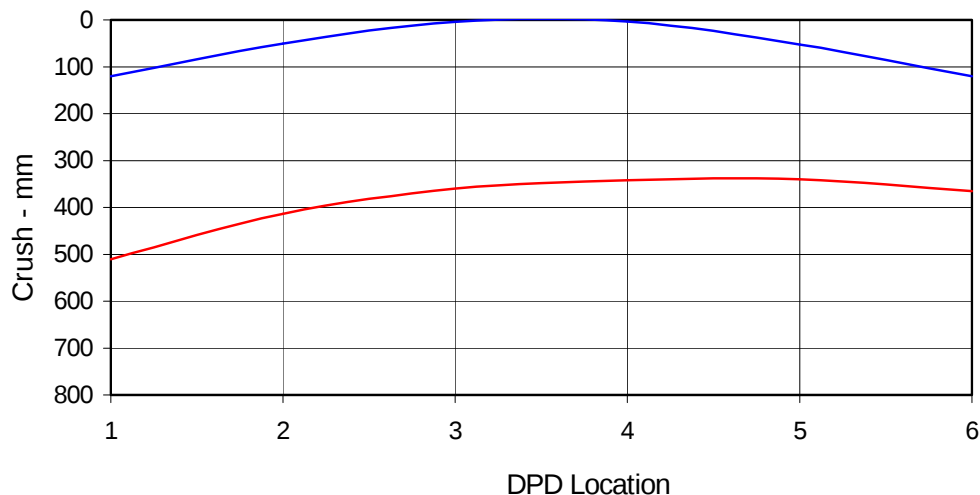
Linearity: Good

Time of Separation (msec): 76.1

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6 Midpoint of Damage: Vehicle Centerline
 Damage Region Length (mm): 1005 Impact Mode: Full Frontal

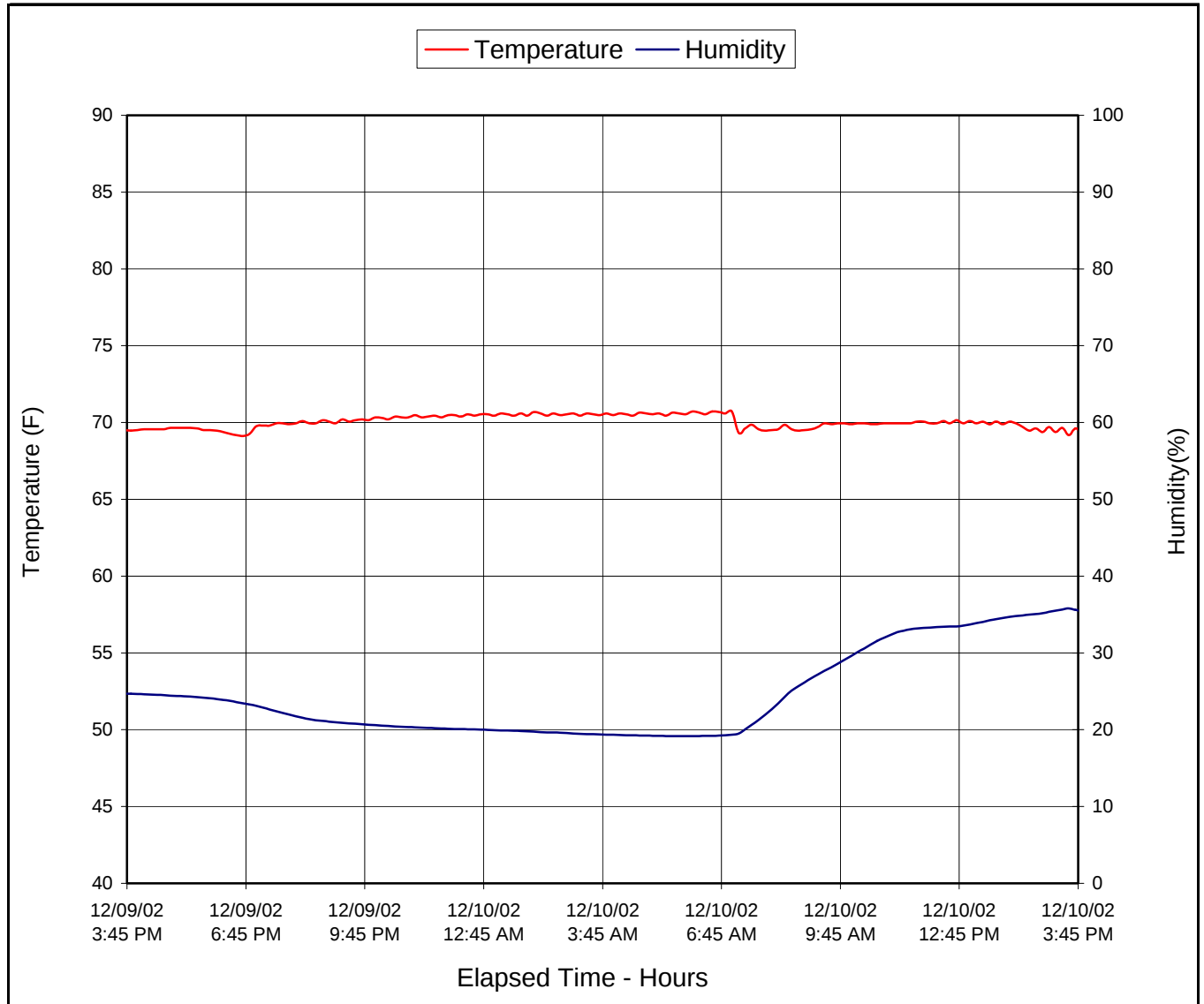
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	120	510	-390
C2	Crush zone 2 on left side	mm	50	413	-363
C3	Crush zone 3 on left side	mm	4	360	-356
C4	Crush zone 4 on right side	mm	3	342	-339
C5	Crush zone 5 on right side	mm	52	340	-288
C6	Crush zone 6 at right side	mm	120	365	-245



DATA SHEET NO. 20
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
Test Date: 12/10/02



APPENDIX A

PHOTOGRAPHS

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Figure A-1: Load Cell Location



MFD BY GENERAL MOTORS CORP

DATE
10/02

GVWR
1597 KG
3519 LB

GAWR FRT
865 KG
1906 LB

GAWR RR
732 KG
1613 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.

1G1JC12F137159374

TYPE: PASS CAR

Figure A-2: Vehicle Certification Label



TIRE – LOADING INFORMATION

OCCUPANTS				VEHICLE CAP. WT.	
FRT.	CTR.	RR.	TOTAL	KG	LBS
2	0	3	5	400	882

MAX. LOADING @ GVWR SAME AS VEHICLE CAPACITY WEIGHT.

1G1JC12F137159374

MODEL: JC37 JBA

	TIRE SIZE	SPEED RTG	COLD TIRE PRESSURE
FRT	P195/70R14	S	210KPA(30PSI)
RR	P195/70R14	S	210KPA(30PSI)
SPA	T115/70D14	M	420KPA(60PSI)

IF TIRES ARE HOT, ADD 28KPA(4PSI).

SEE OWNER'S MANUAL  FOR MORE INFORMATION.

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

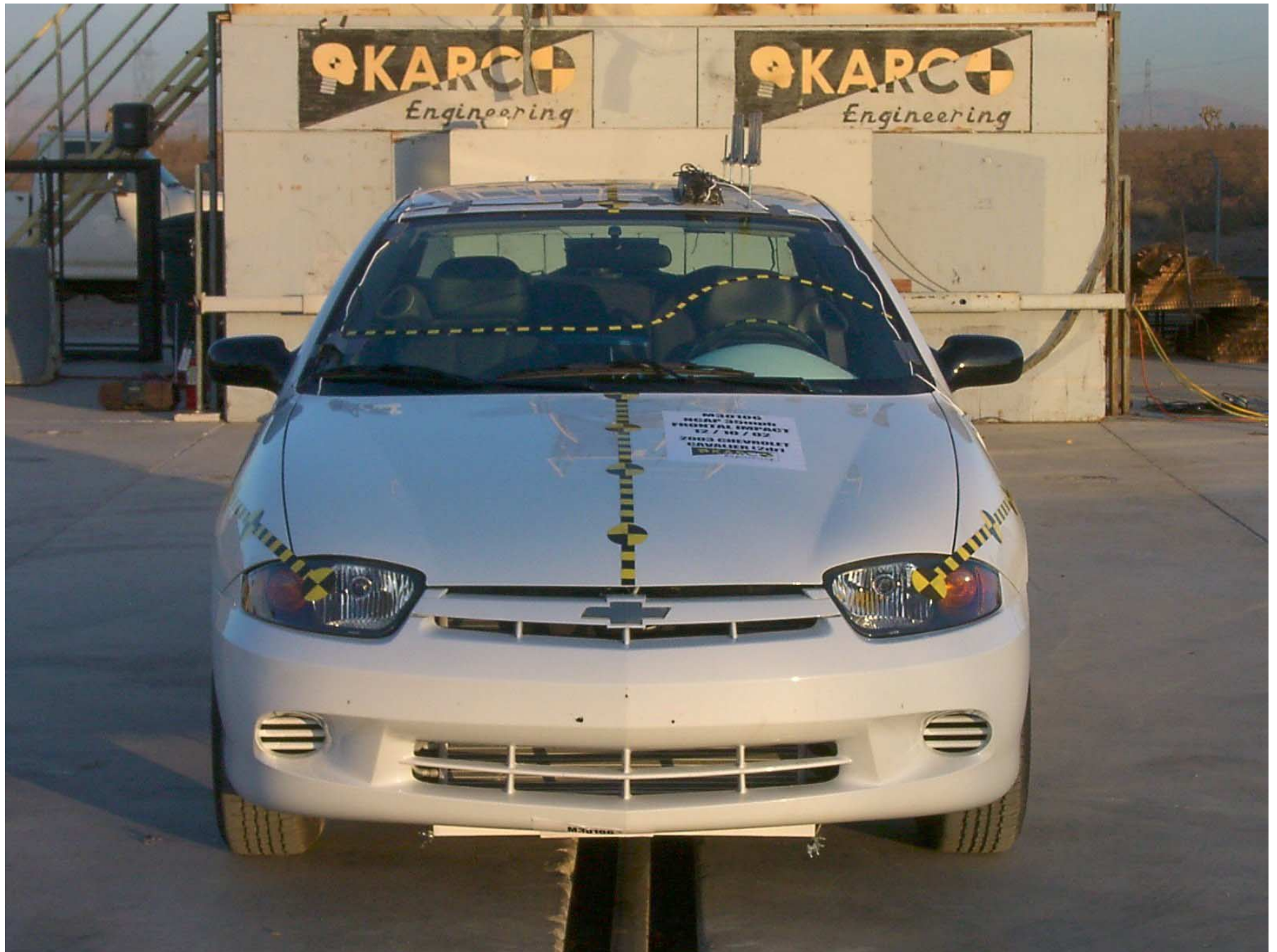


Figure A-6: Pre-Test Front View



Figure A-7: Post-Test Front View



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



Figure A-22: Pre-Test Fuel Cap



Figure A-23: Post-Test Fuel Cap

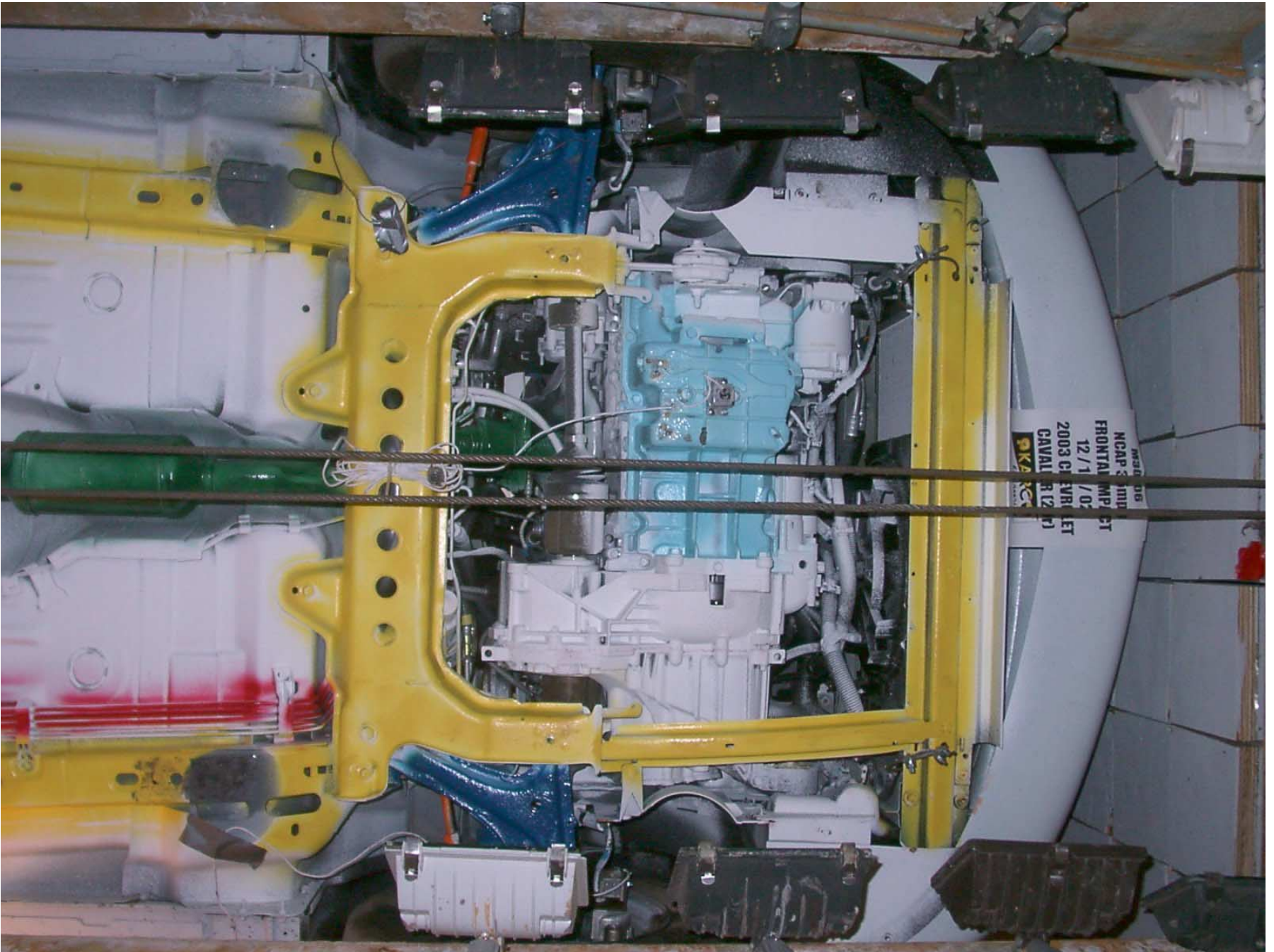


Figure A-24: Pre-Test Front Underbody View

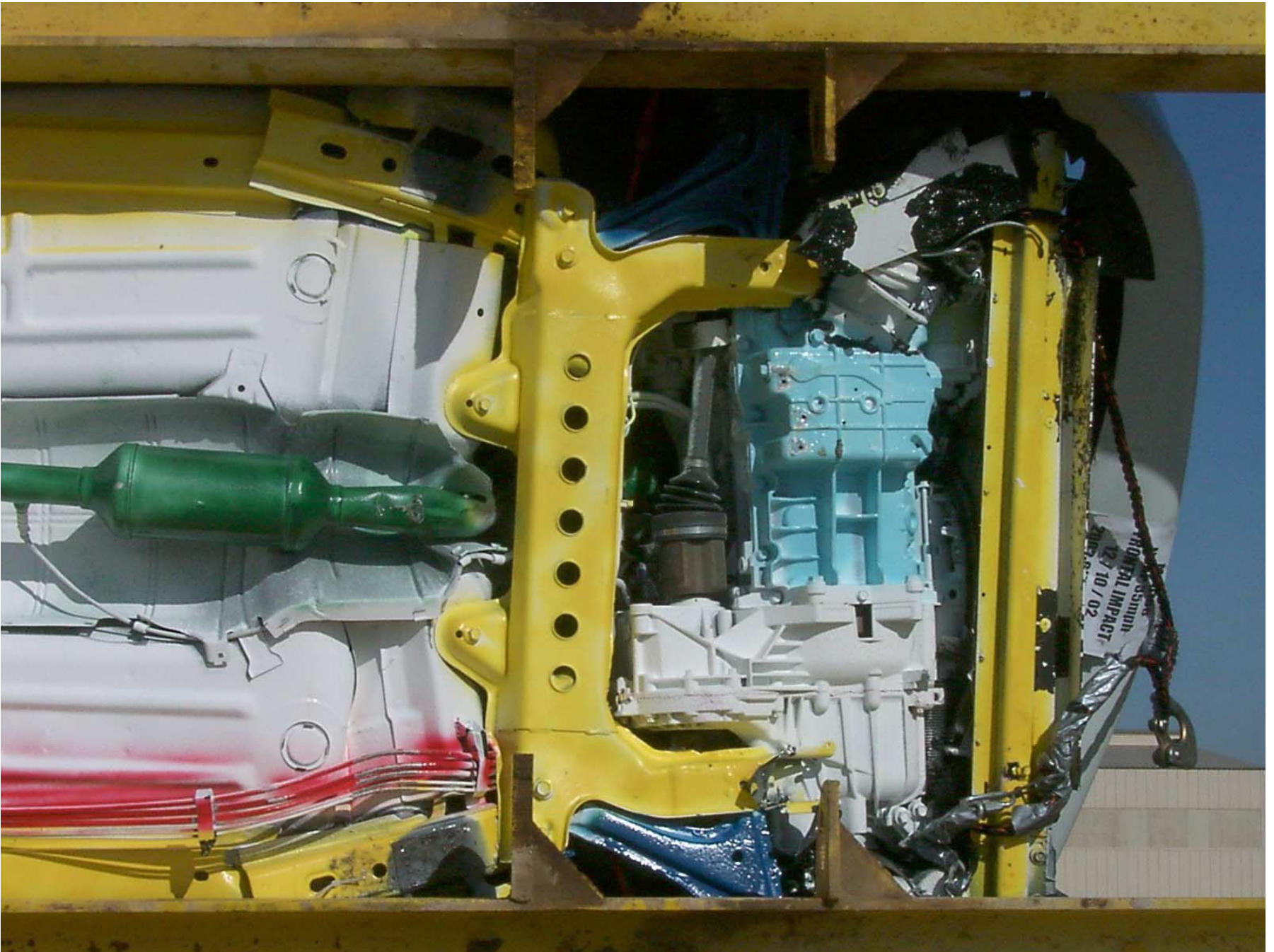


Figure A-25: Post-Test Front Underbody View

**Photograph Not
Available**

Figure A-26: Pre-Test Mid Underbody View

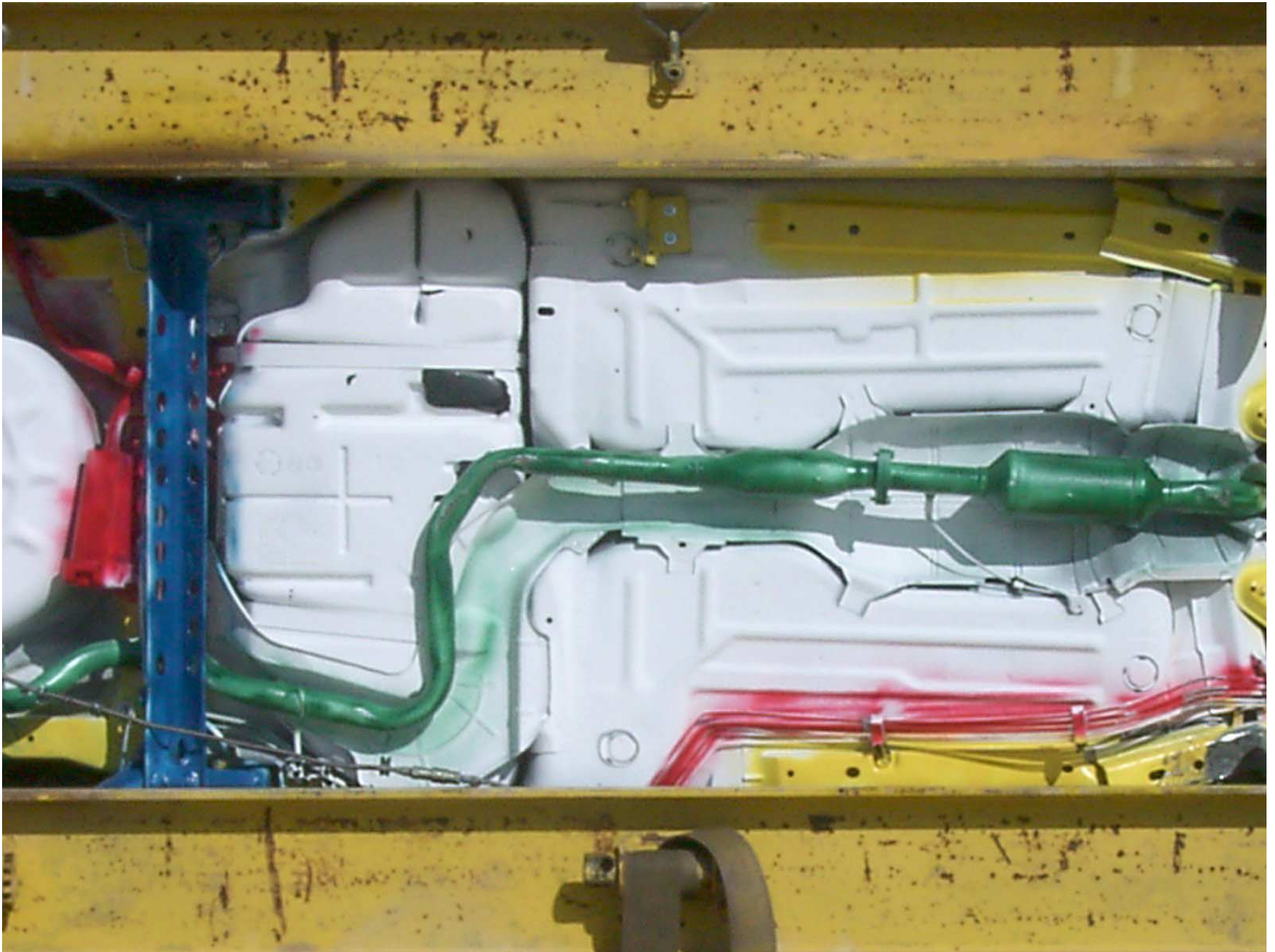


Figure A-27: Post-Test Mid Underbody View

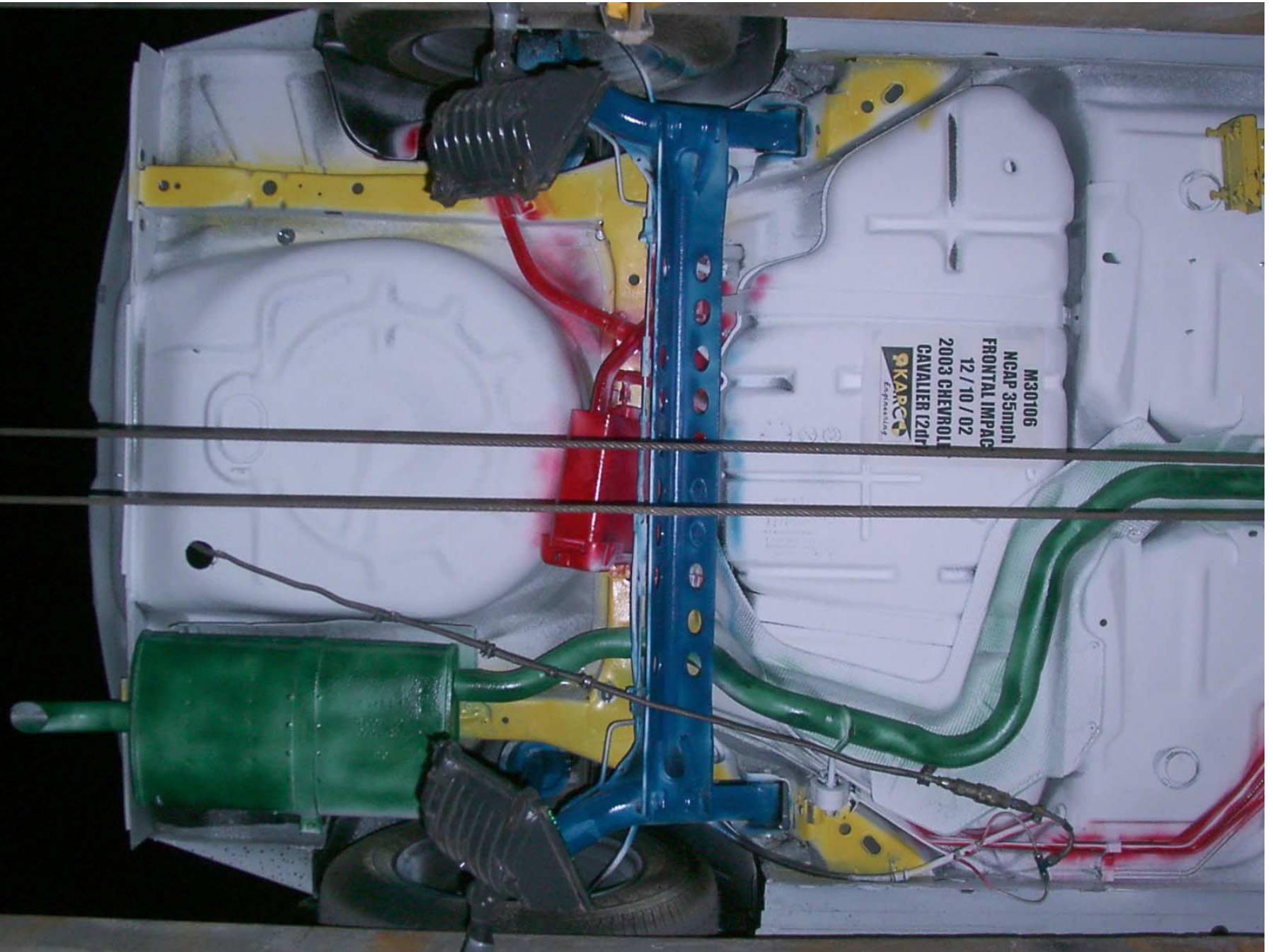


Figure A-28: Pre-Test Rear Underbody View



Figure A-29: Post-Test Rear Underbody View

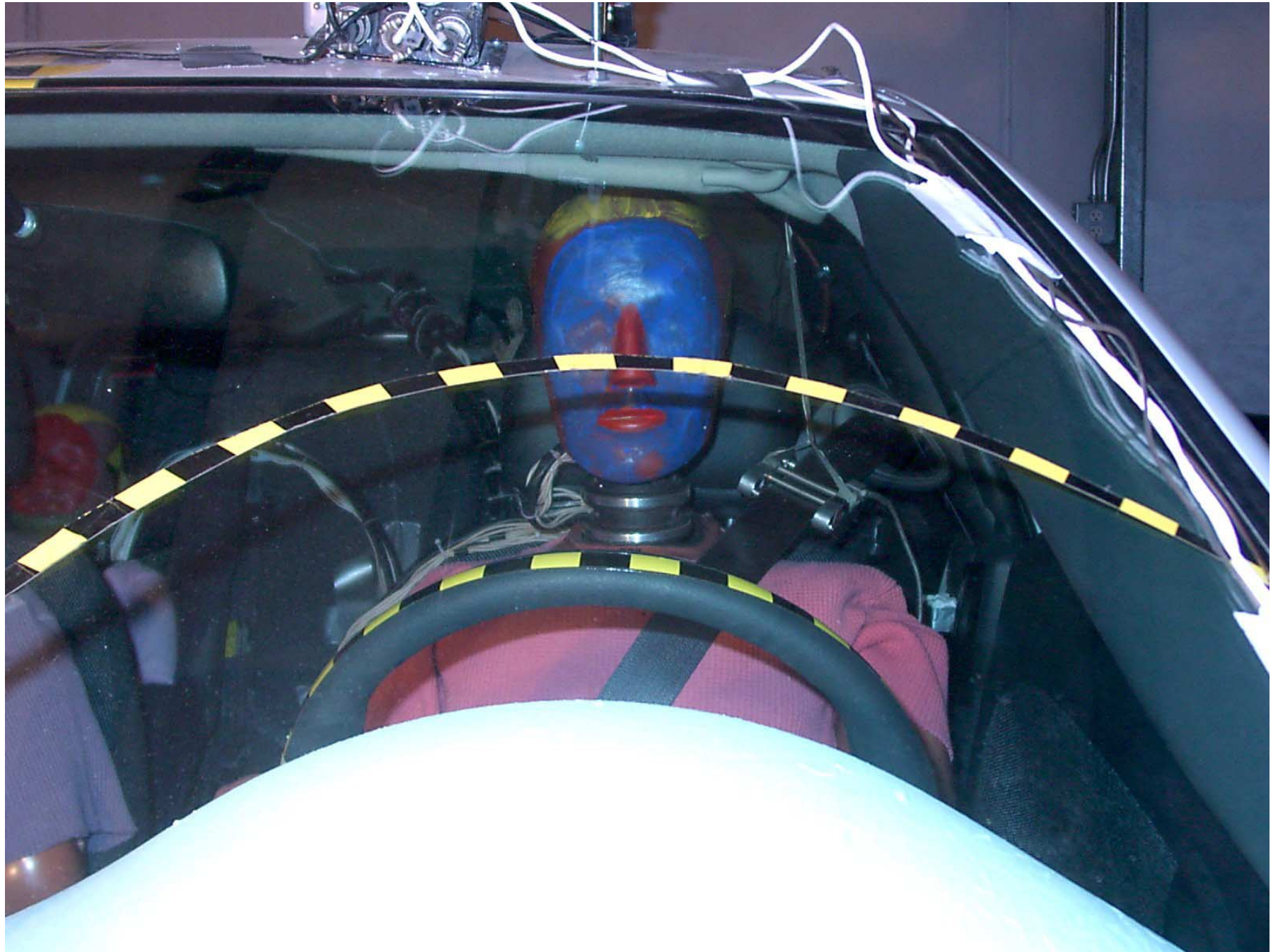


Figure A-30: Pre-Test Driver Dummy Front View (Head Position)



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

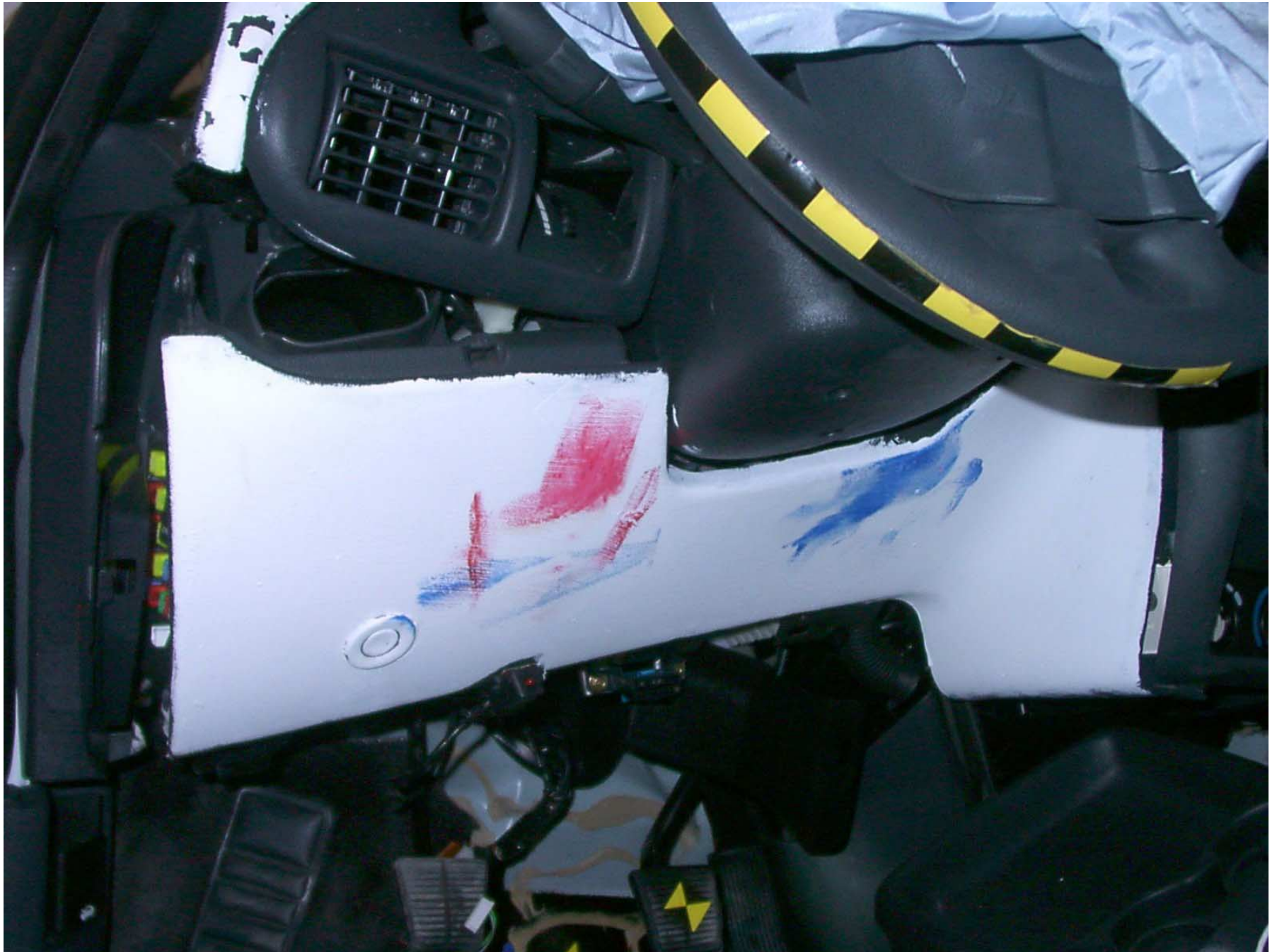


Figure A-39: Post-Test Driver Side Knee Bolster



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 Floor Pan



Figure A-53: Post-Test Passenger Side Floor Pan

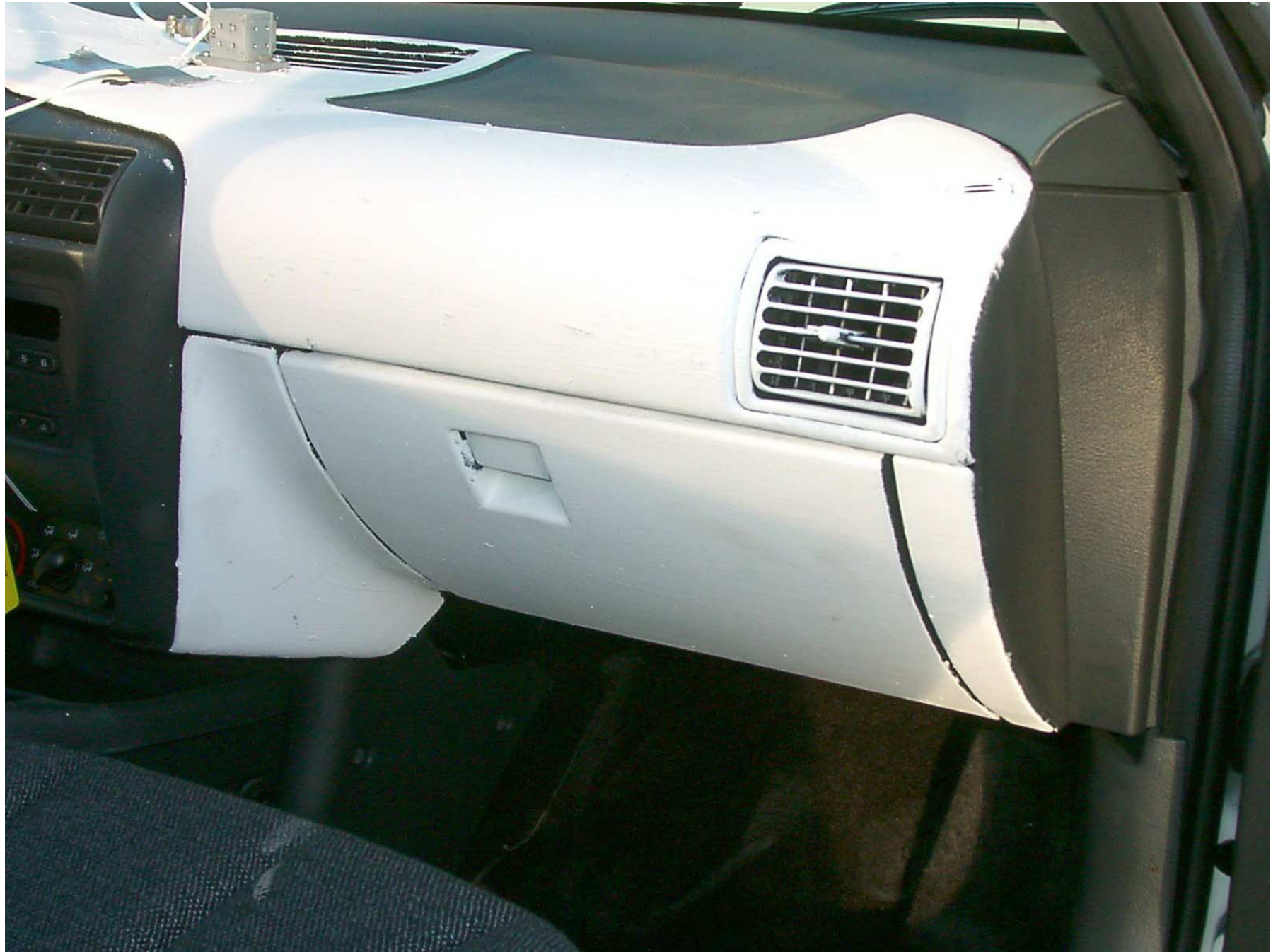


Figure A-54: Pre-Test Passenger Side Knee Bolster



Figure A-55: Post-Test Passenger Side Knee Bolster



Figure A-56: Post-Test Passenger Dummy Head



Figure A-57: Post-Test Passenger Dummy Contact to Air Bag

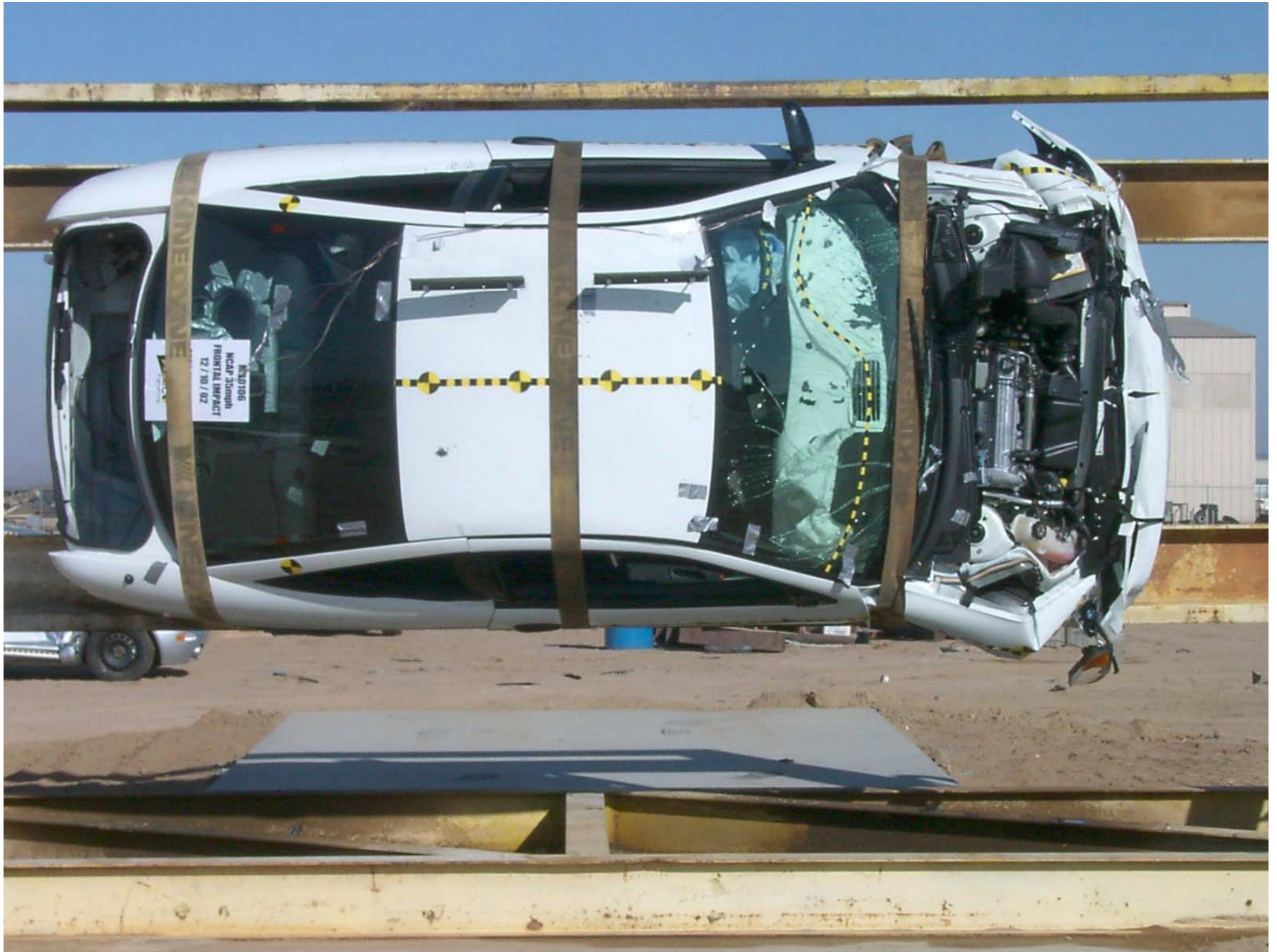


Figure A-58: Vehicle on Rollover Device



Figure A-59: Vehicle During Impact

APPENDIX B

DATA PLOTS

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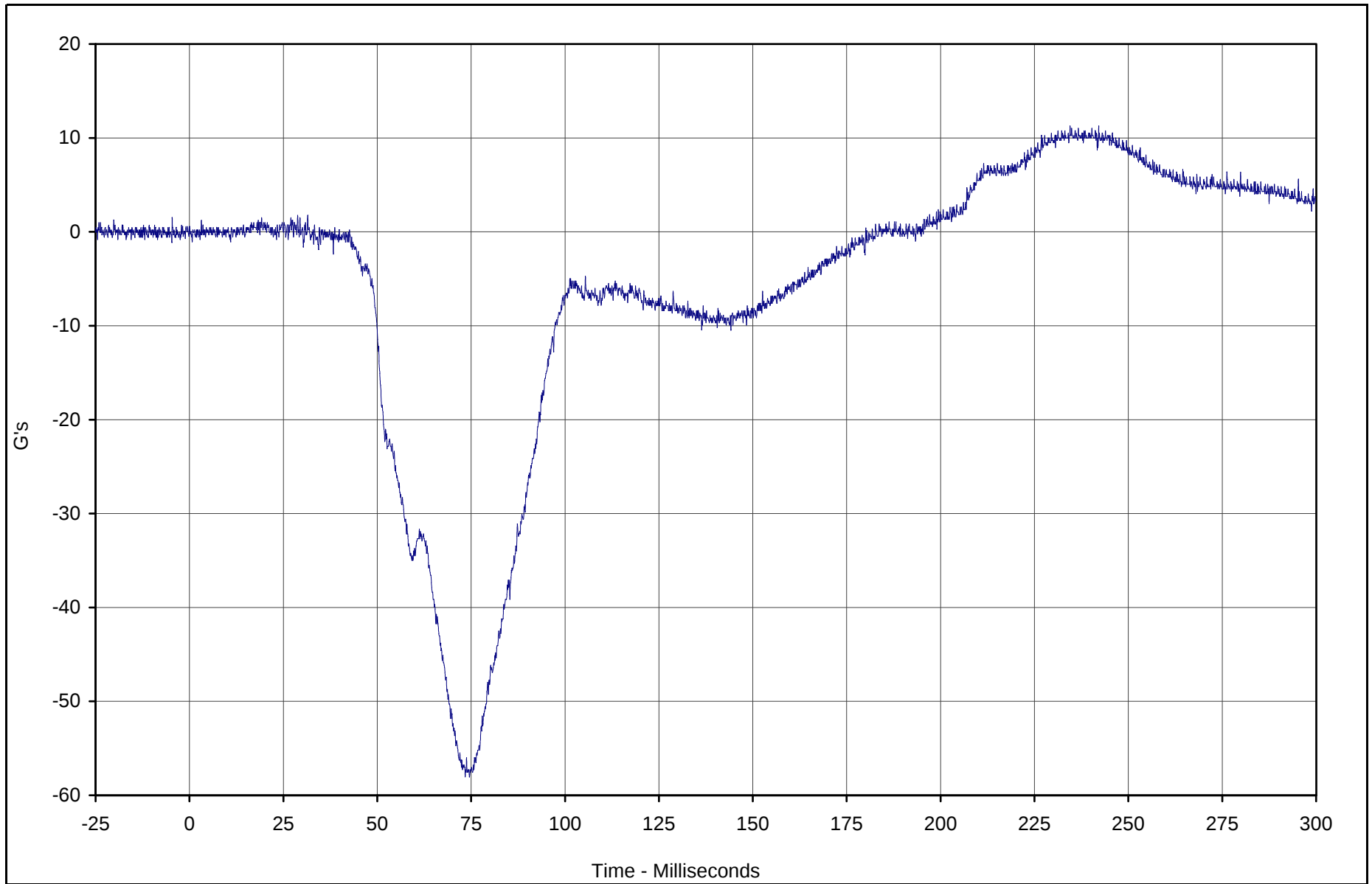
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B-147	Vehicle Right Rear Z	B-147
B-148	Vehicle Right Rear Z Velocity	B-148
B-149	Vehicle Right Rear Z Displacement	B-149



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X	001	FIL	G's	11.3	234.5	-58.1	73.4	1000

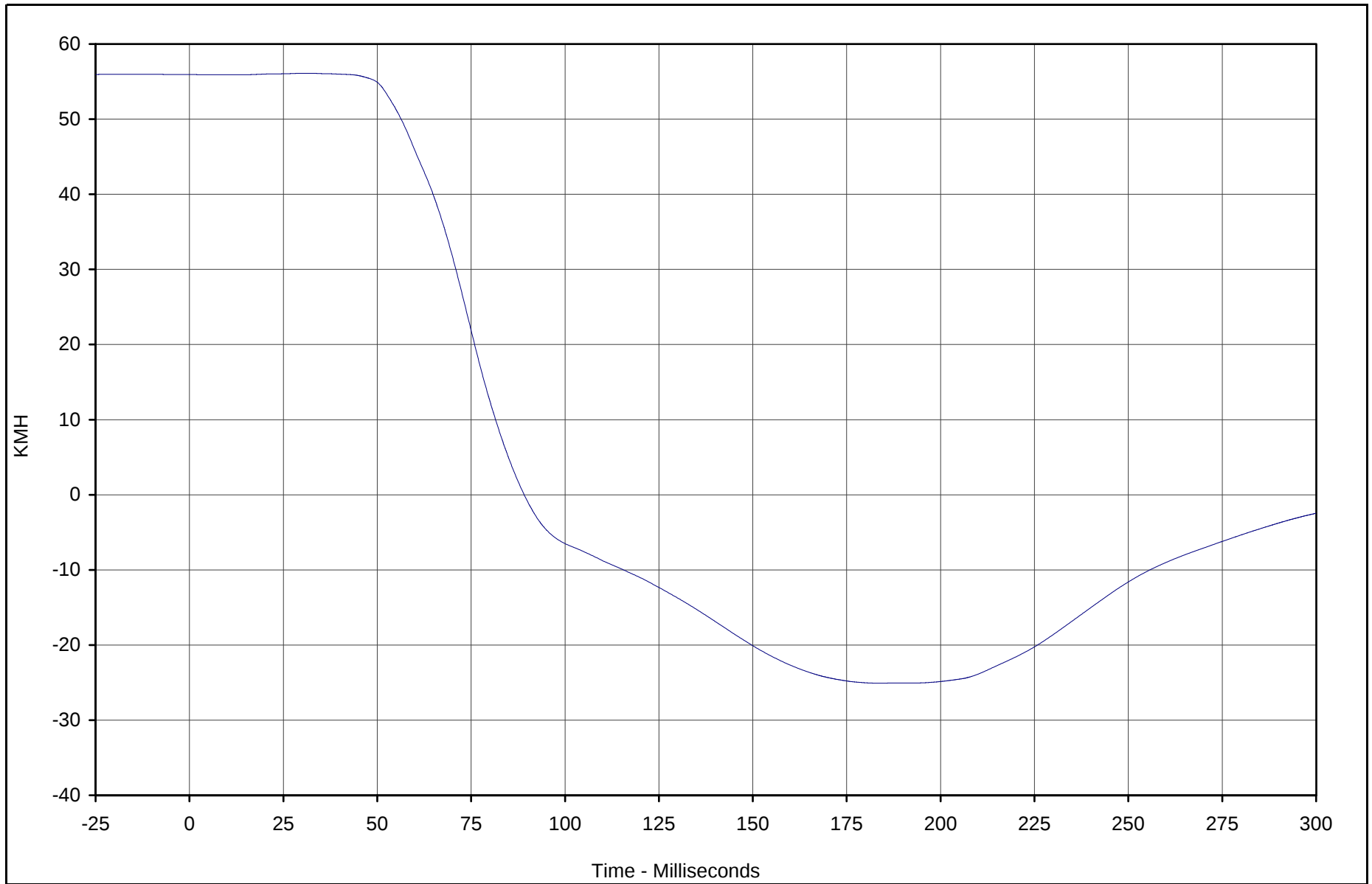


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X Velocity	001	IN1	KMH	56.1	32.1	-25.1	183.4	180

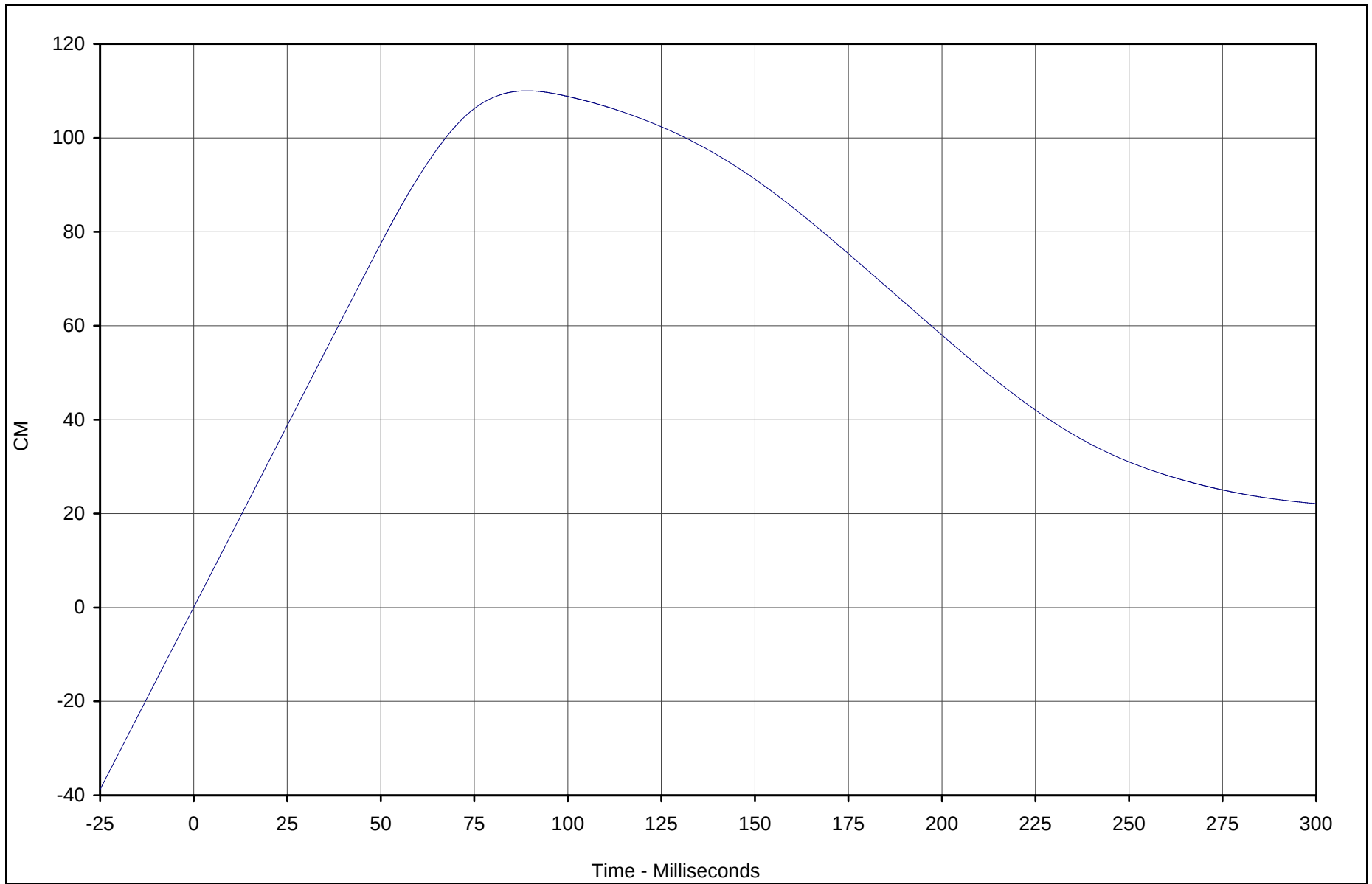


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X Displ.	001	IN2	CM	110.0	89.1	0.0	0.0	180

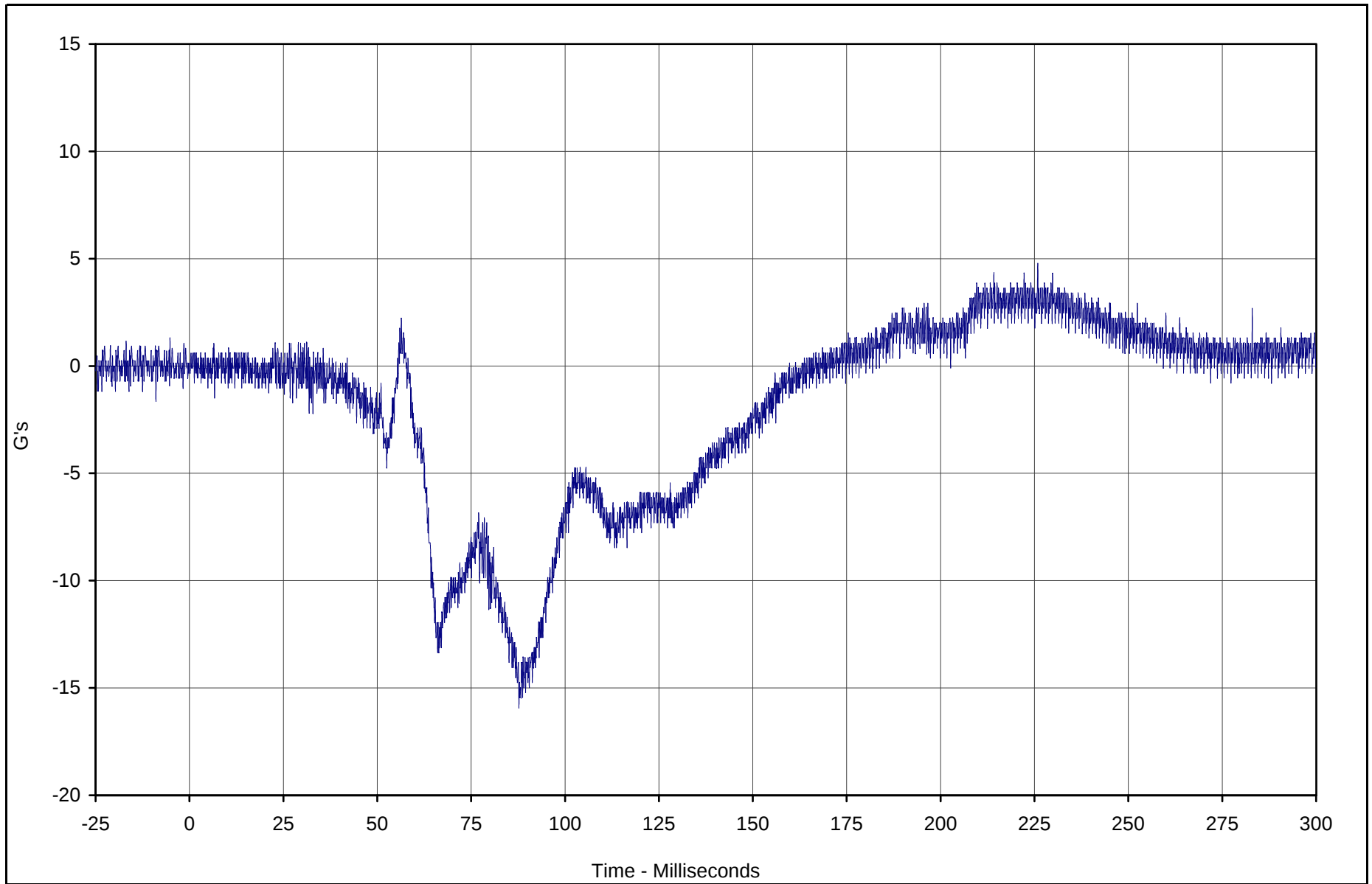


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Y	002	FIL	G's	4.8	225.9	-15.9	87.7	1000

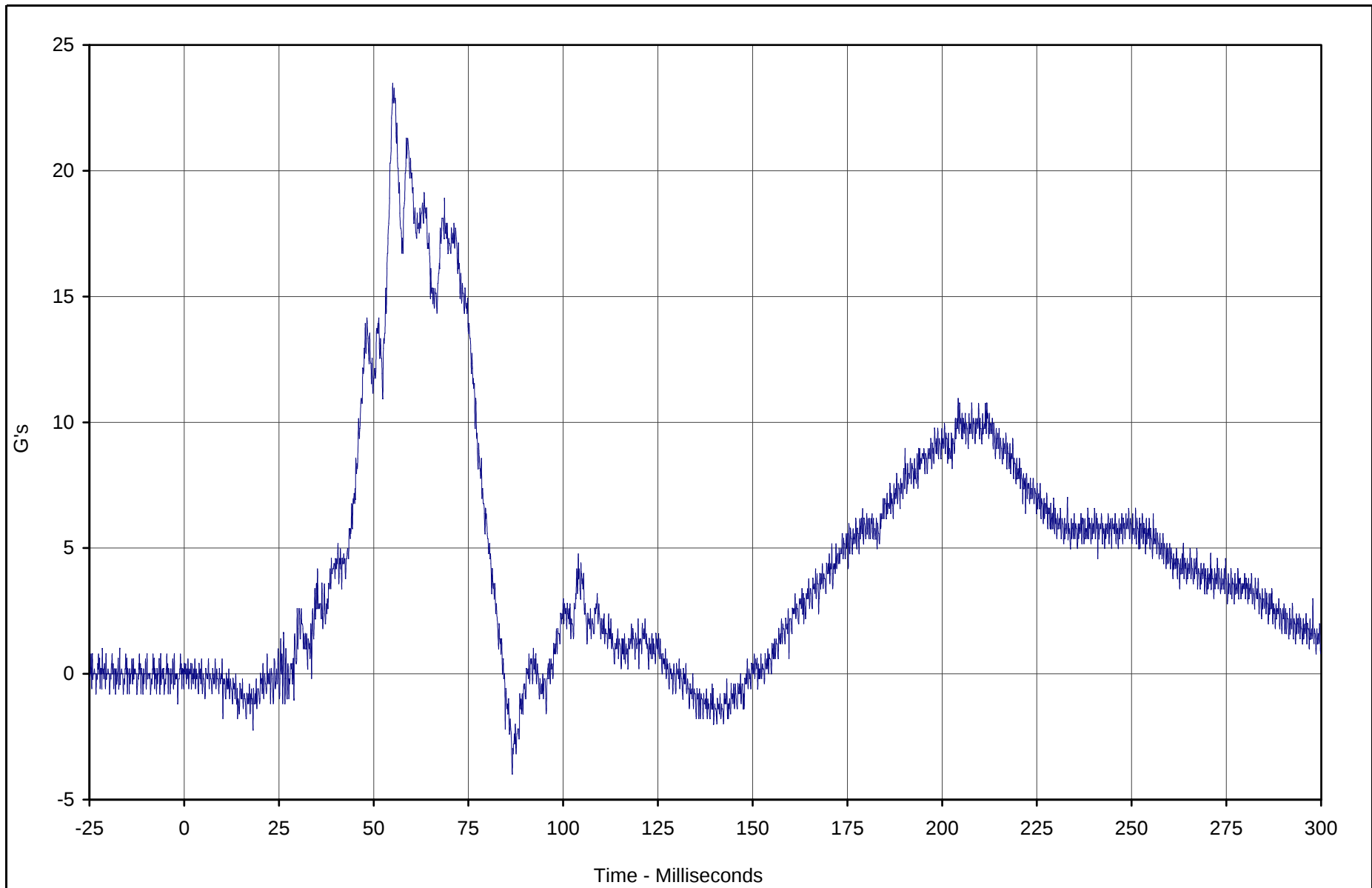


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Z	003	FIL	G's	23.5	55.0	-4.0	86.6	1000

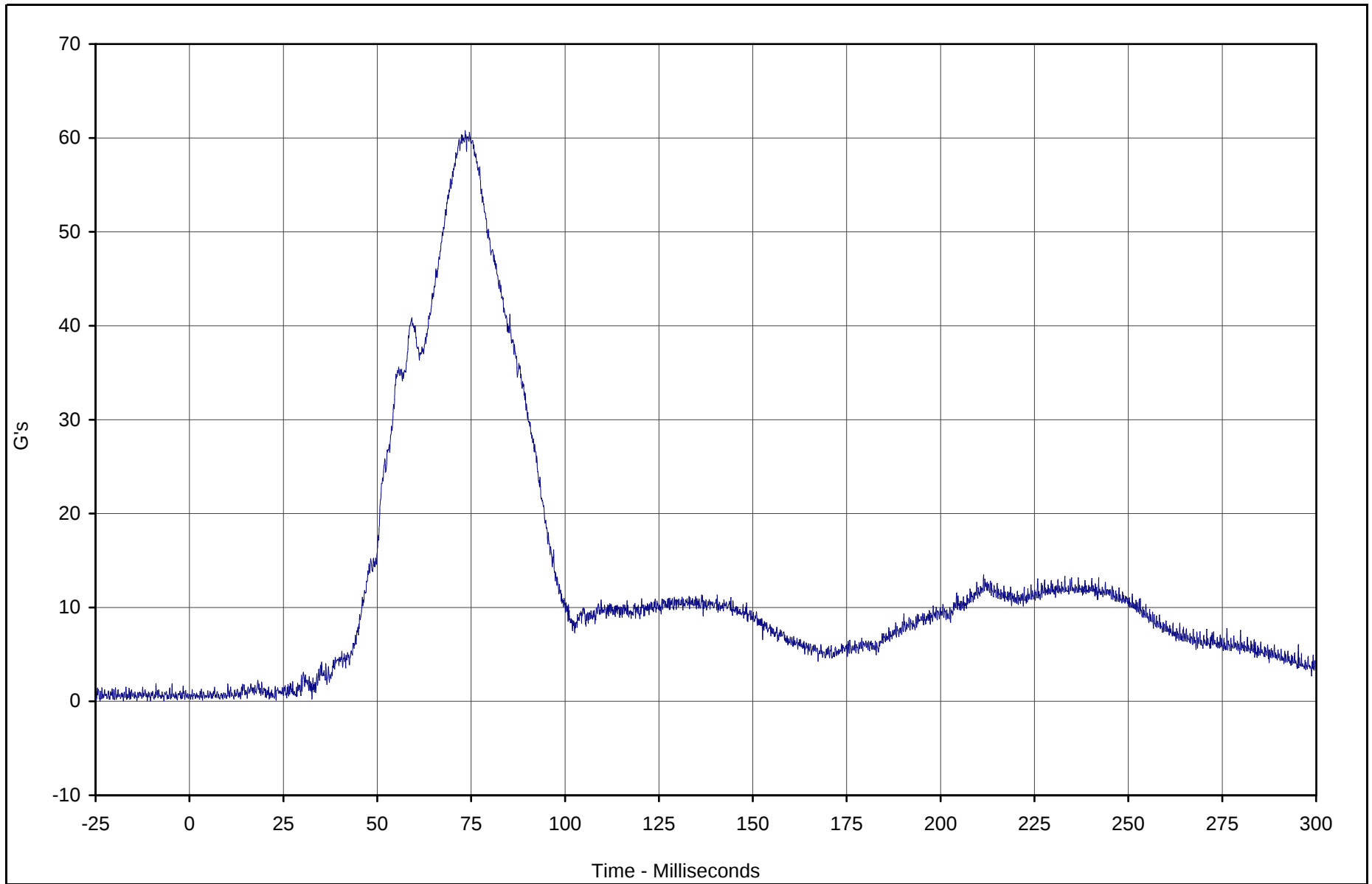


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Resultant Primary	001	RES	G's	60.8	73.4	0.1	3.5	1000

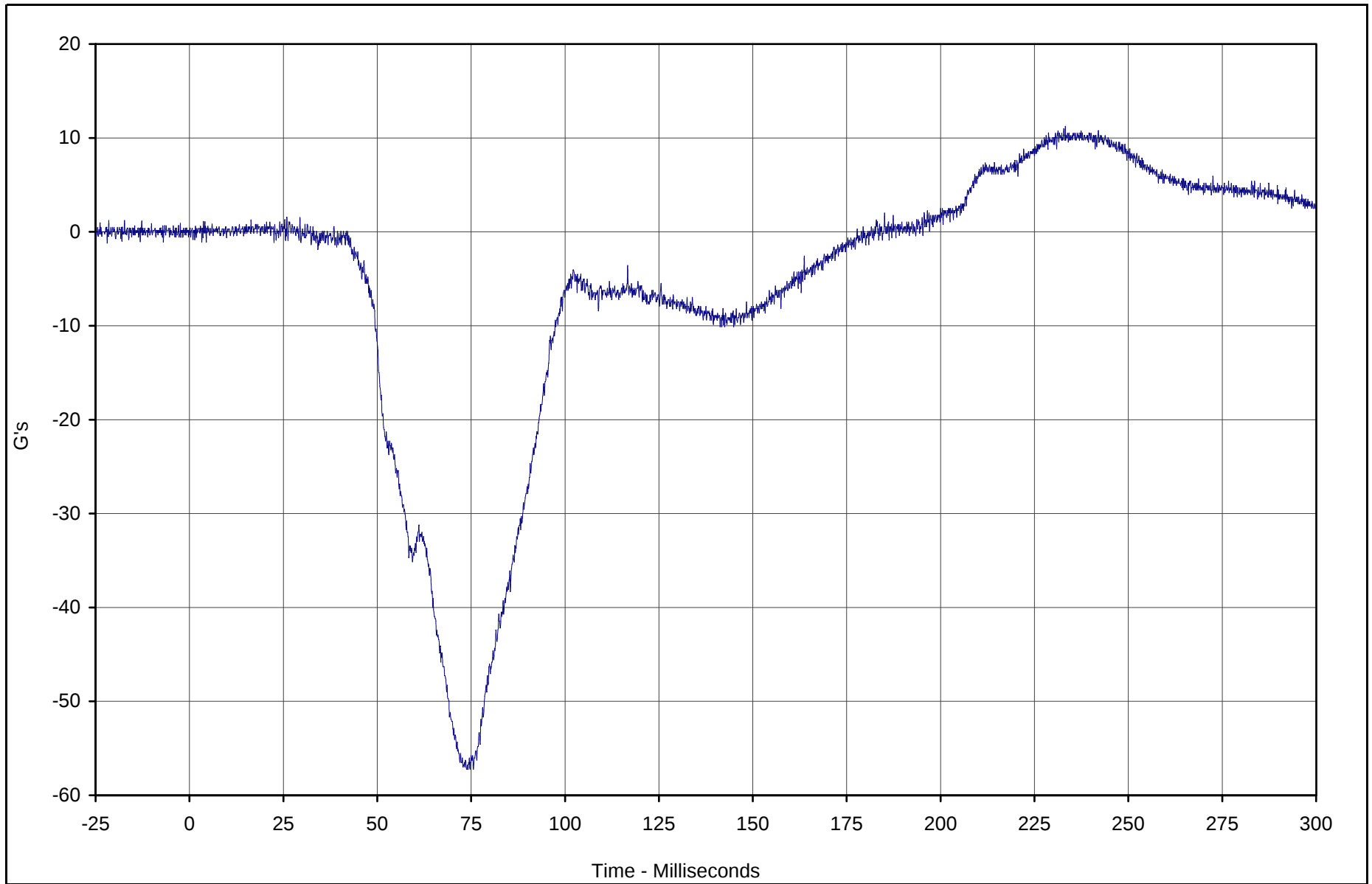


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X	004	FIL	G's	11.2	233.2	-57.2	73.8	1000

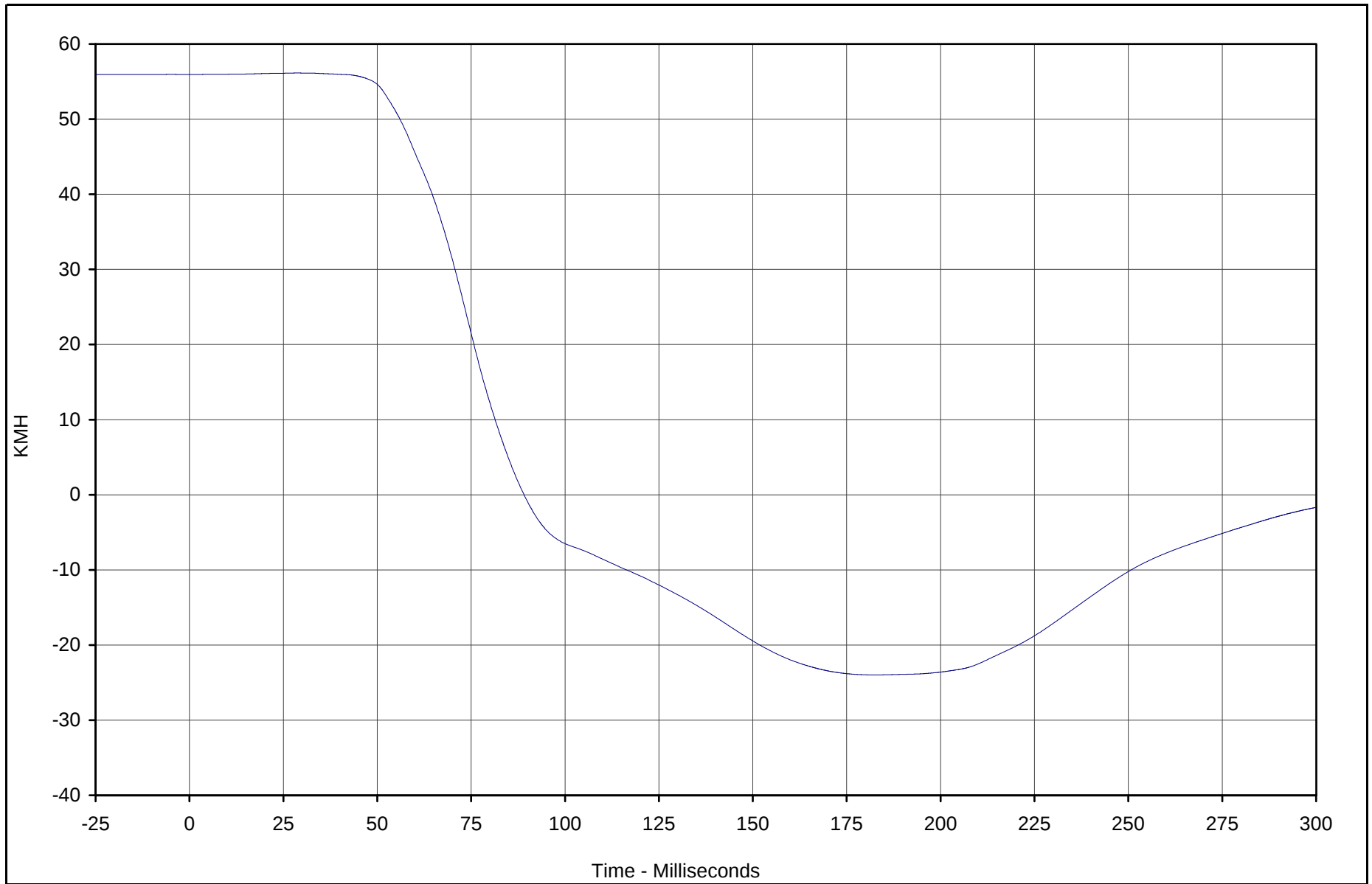


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X Velocity	004	IN1	KMH	56.1	28.7	-24.0	182.1	180

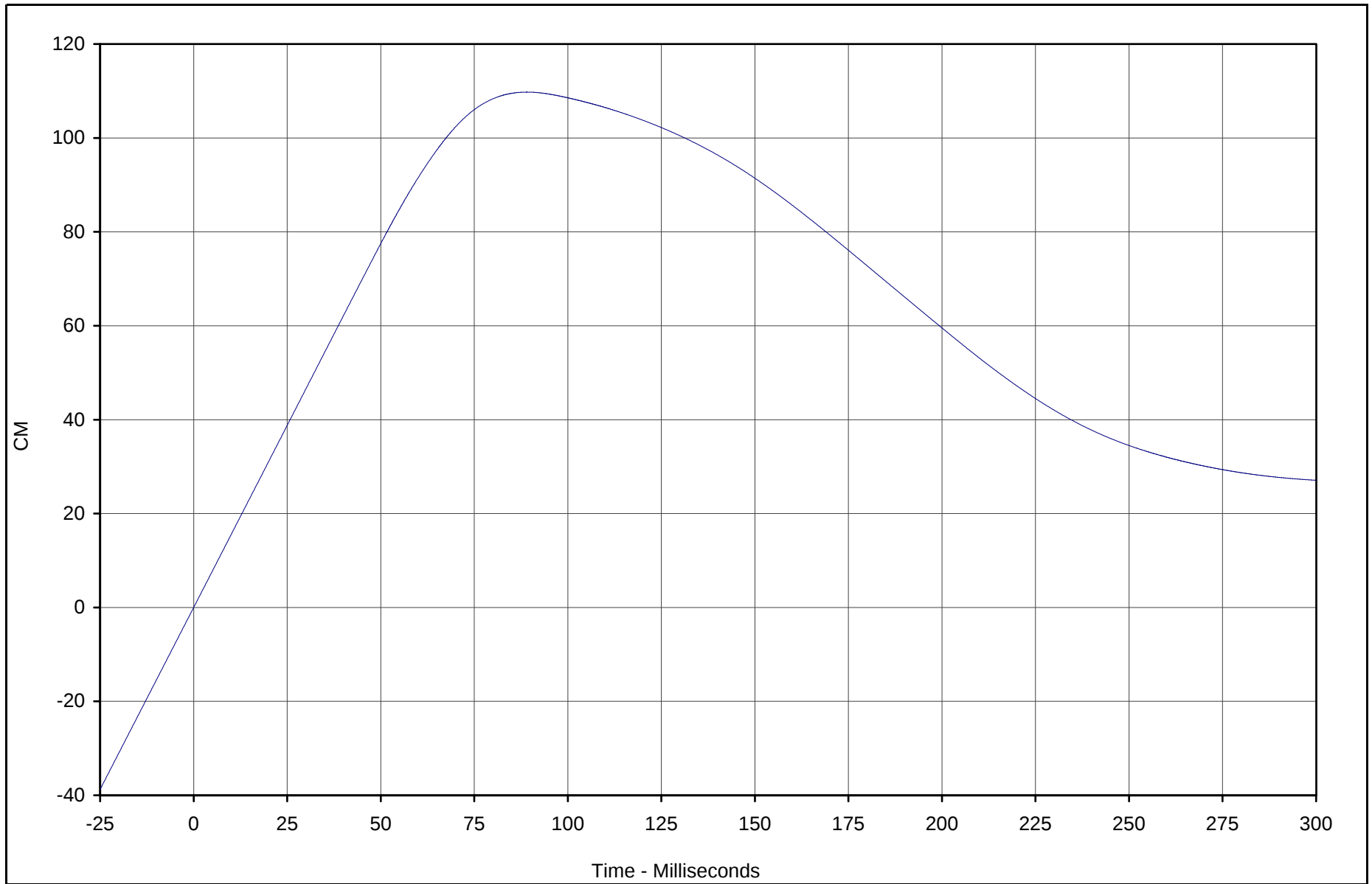


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X Displ.	004	IN2	CM	109.8	89.1	0.0	0.0	180

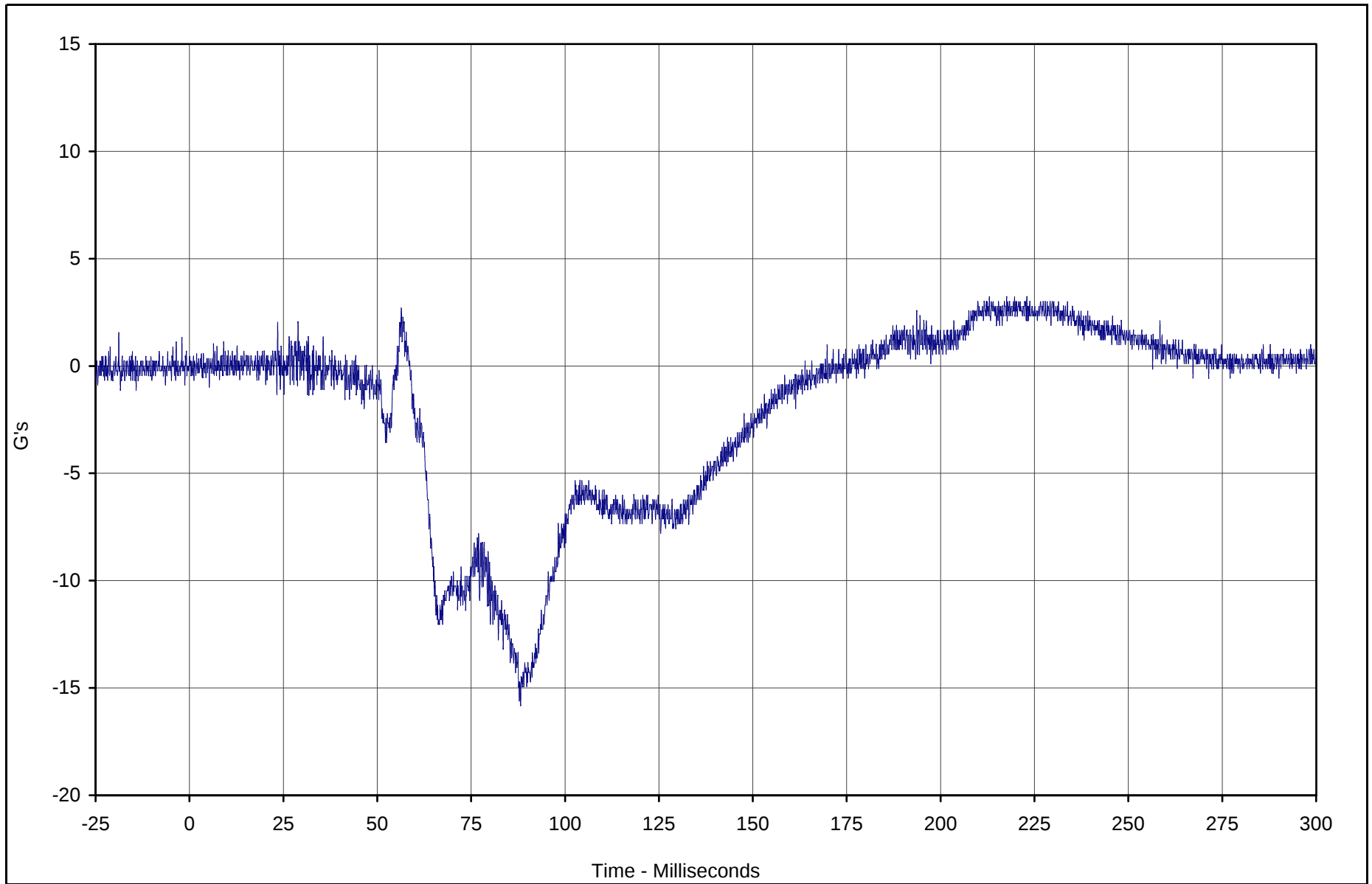


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Y	005	FIL	G's	3.2	213.0	-15.8	88.2	1000

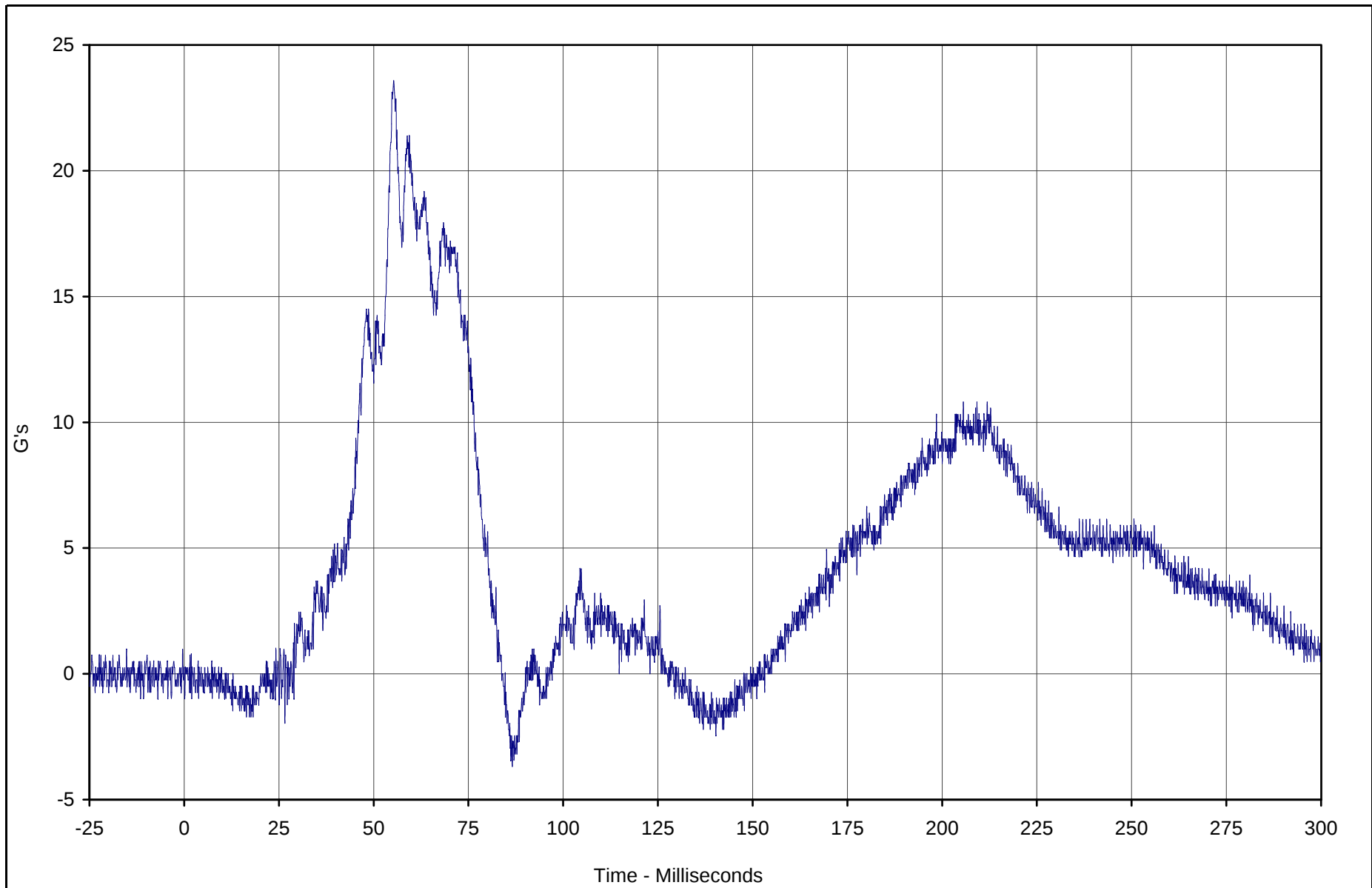


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Z	006	FIL	G's	23.6	55.3	-3.7	86.6	1000

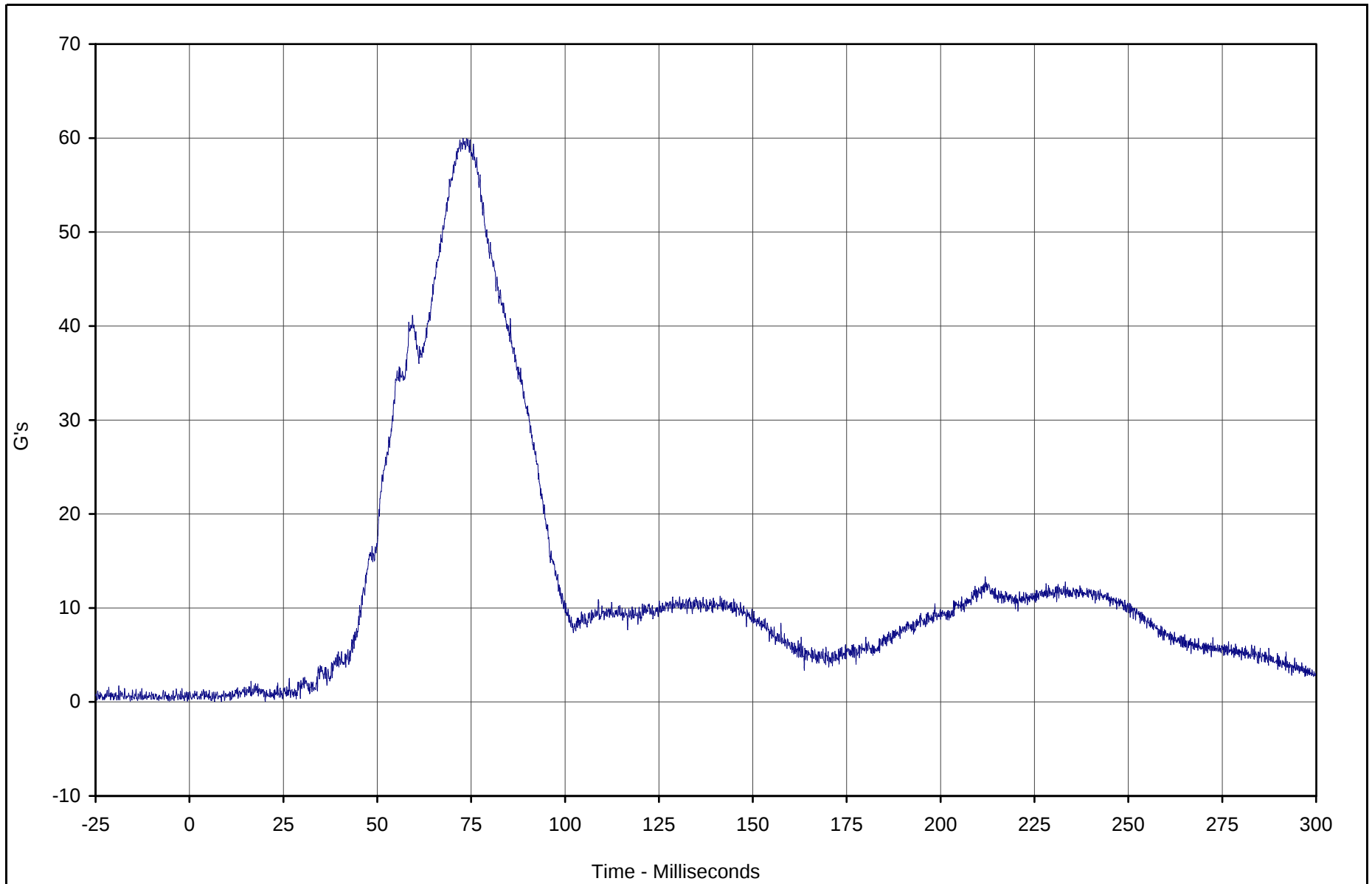


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Resultant Redundant	004	RES	G's	60.0	72.8	0.1	6.7	1000

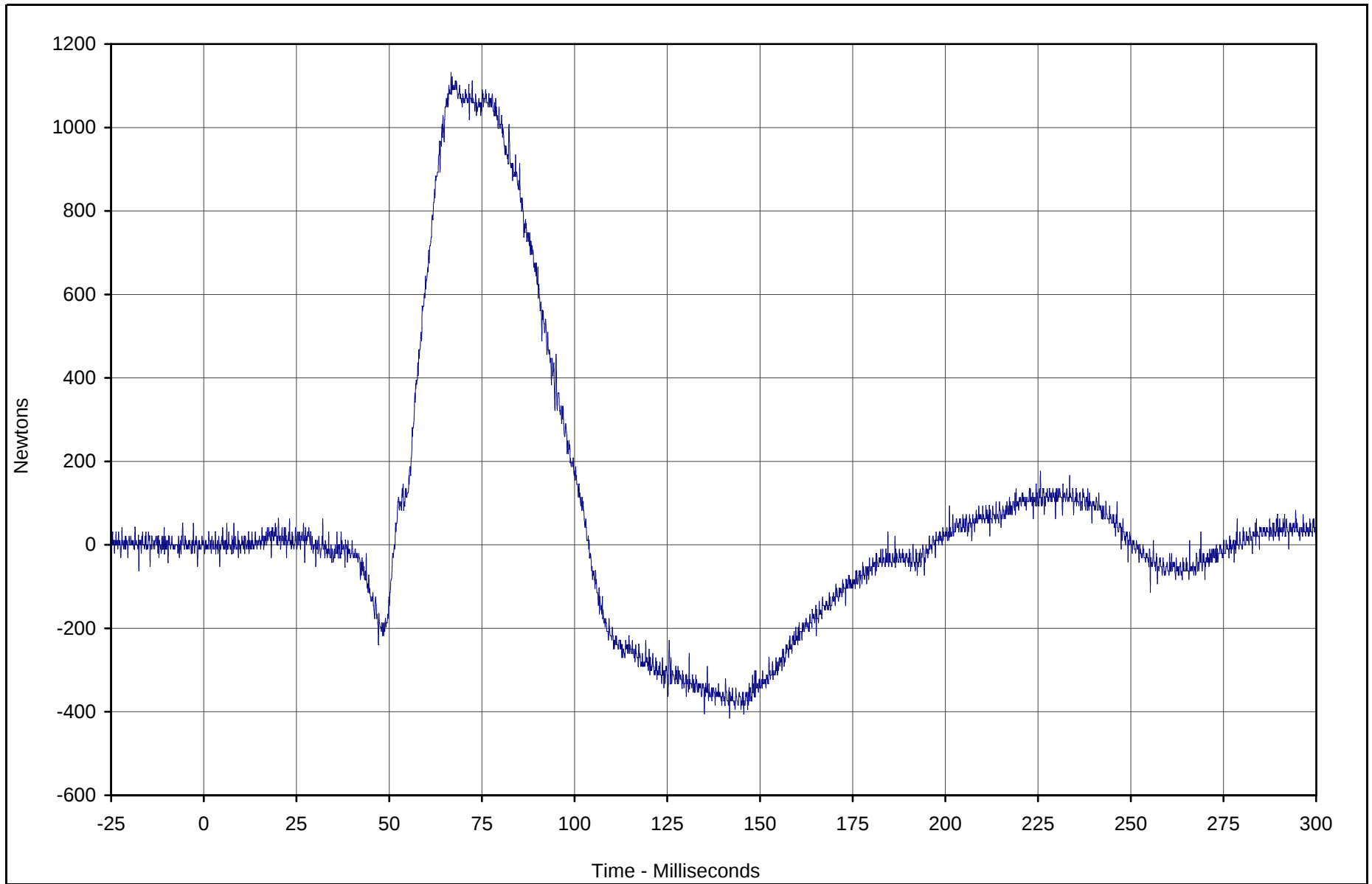


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force X	007	FIL	Newtons	1132.4	66.7	-415.5	141.8	1000

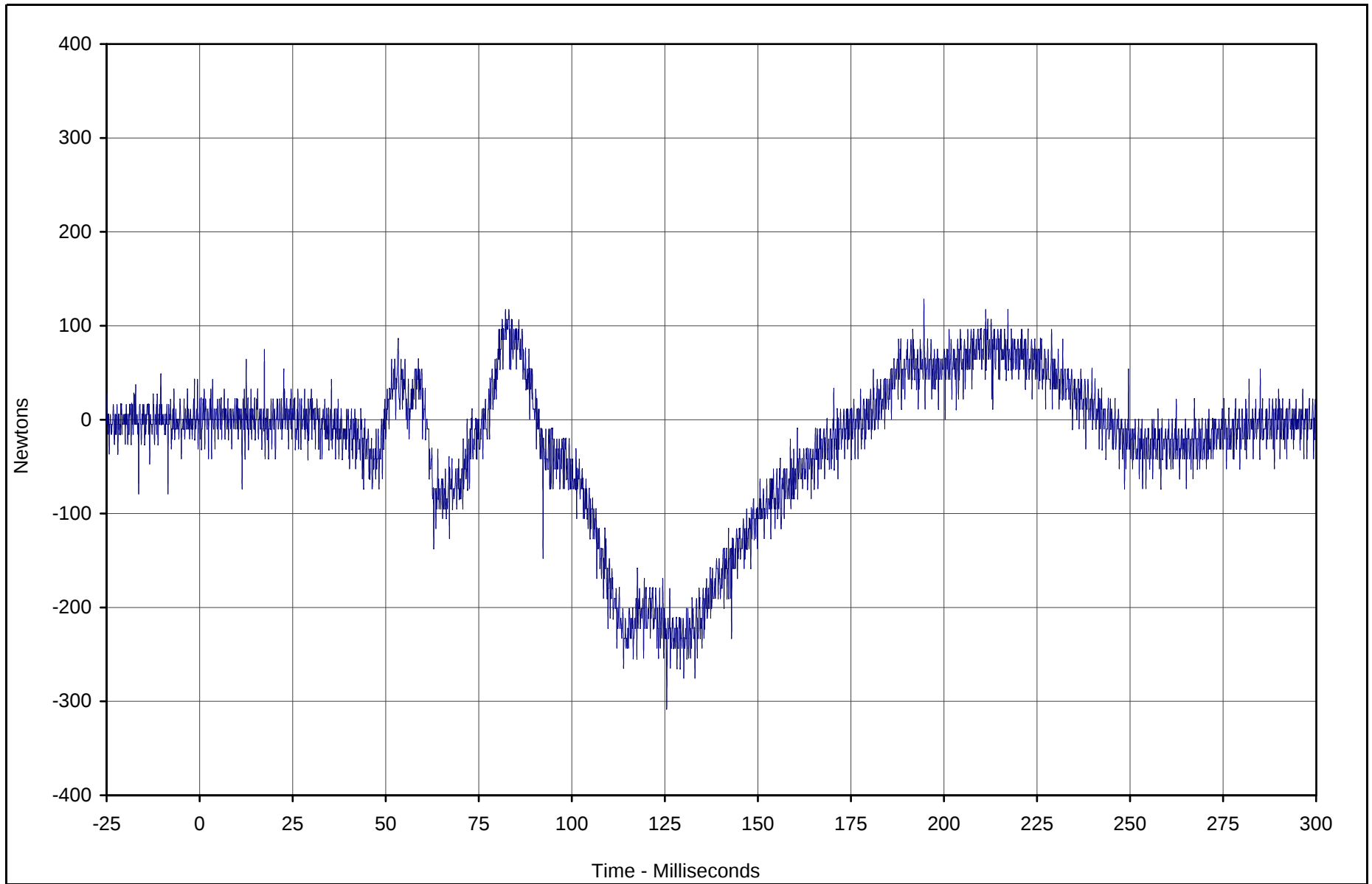


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Y	008	FIL	Newtons	128.0	194.6	-307.2	125.5	1000

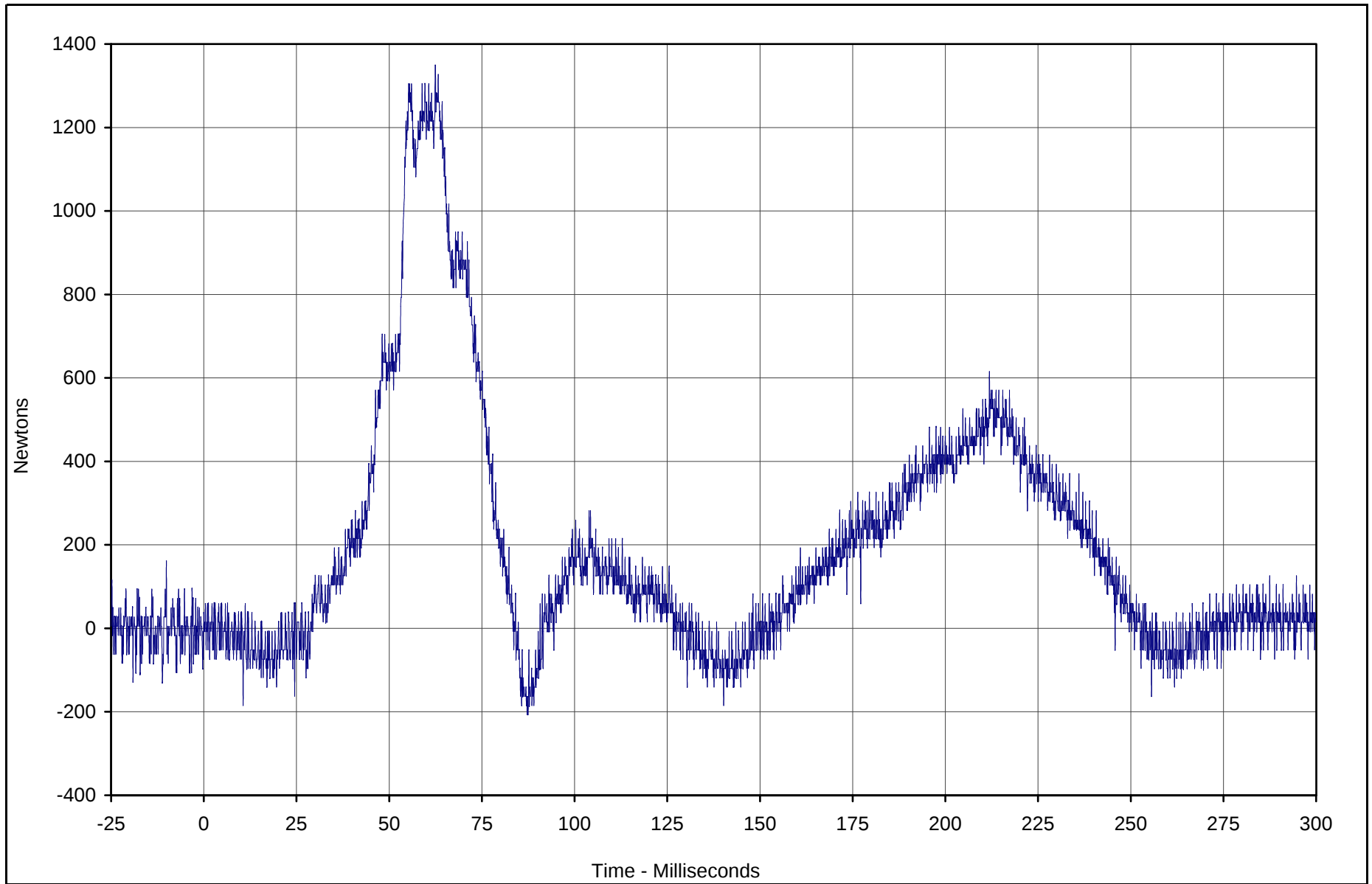


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Z	009	FIL	Newtons	1349.5	62.4	-207.4	87.2	1000

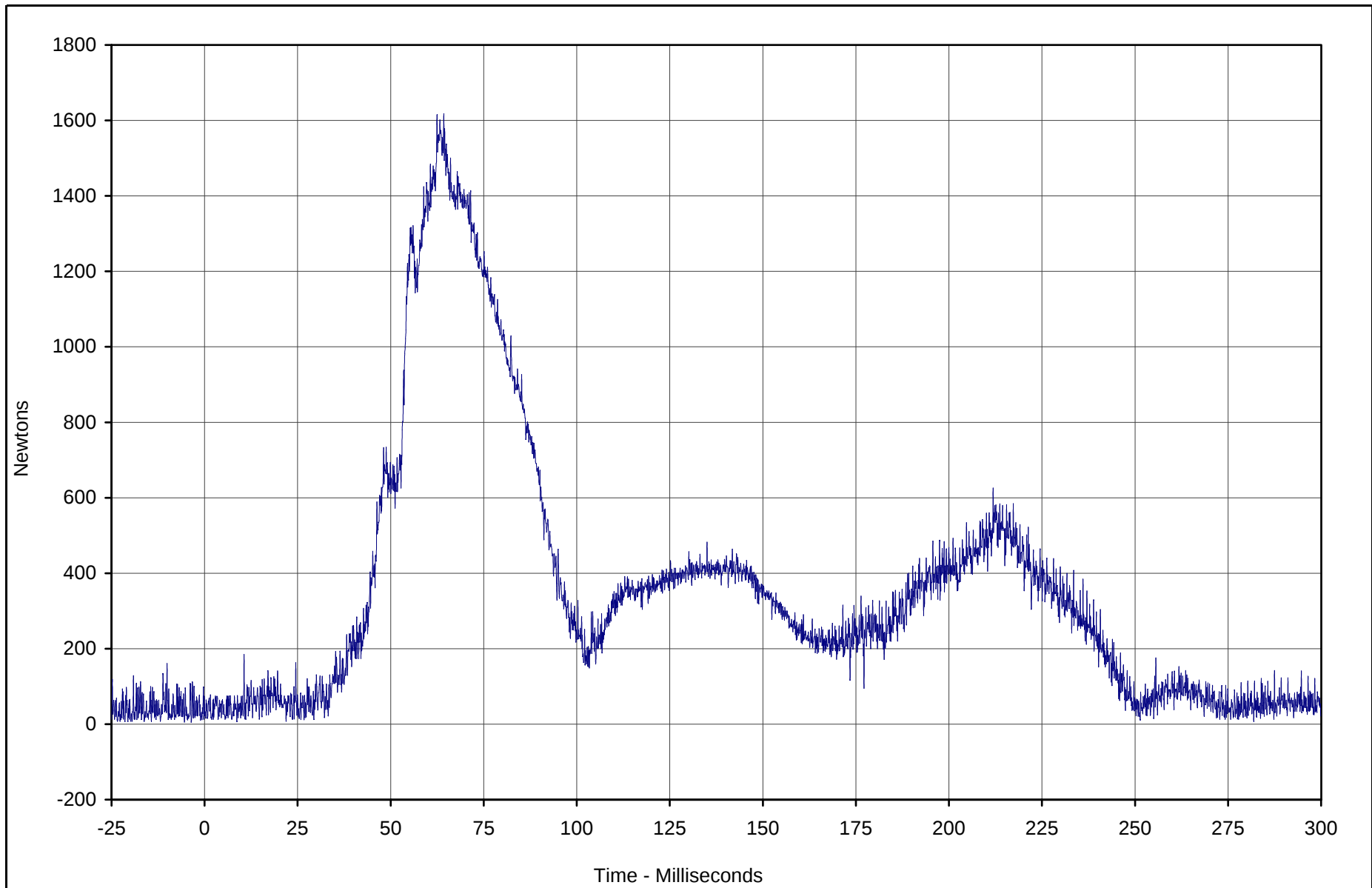


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Resultant	007	RES	Newtons	1616.6	64.3	7.3	8.7	1000

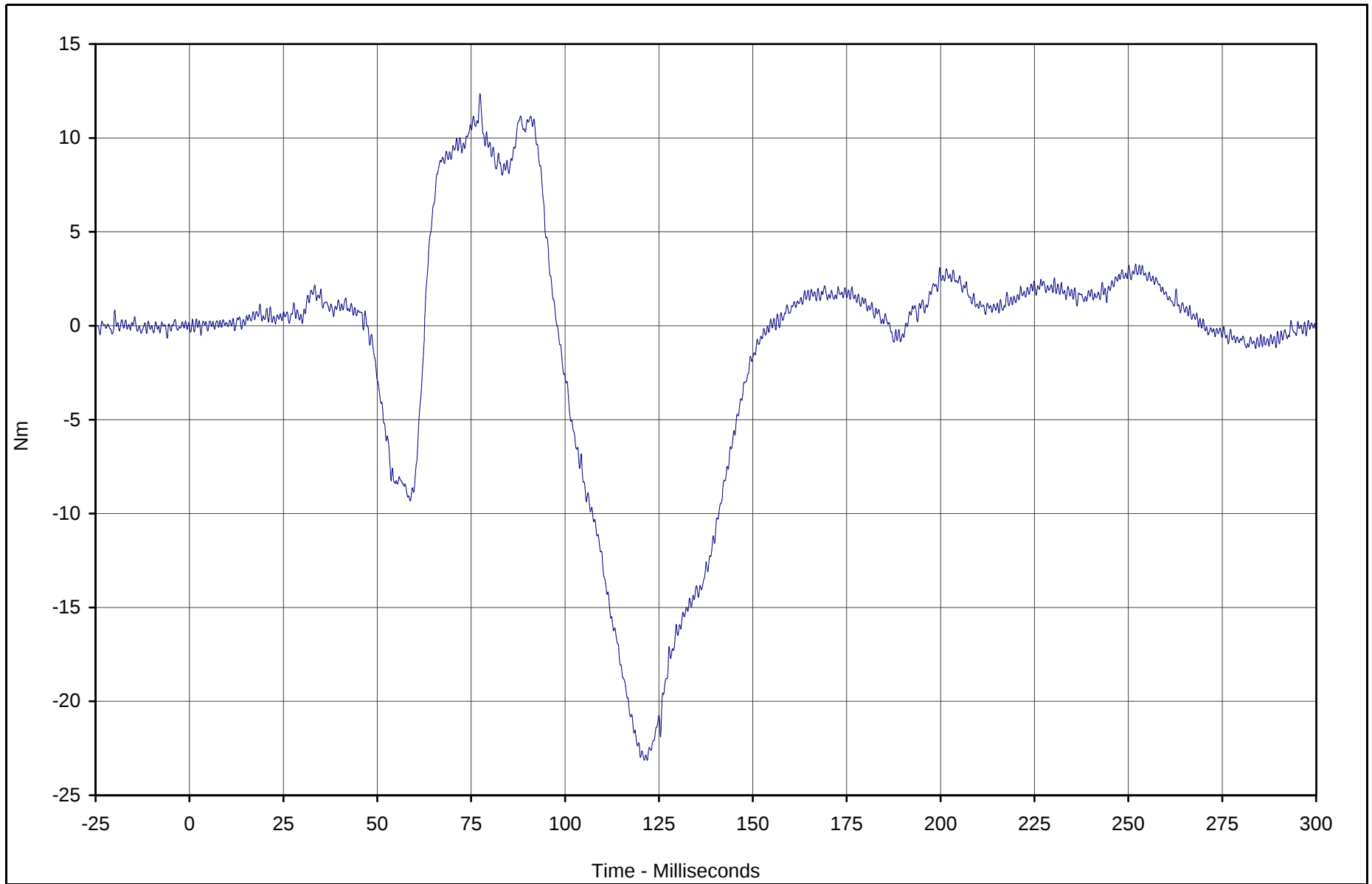


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment X	010	FIL	Nm	12.4	77.4	-23.1	121.9	600

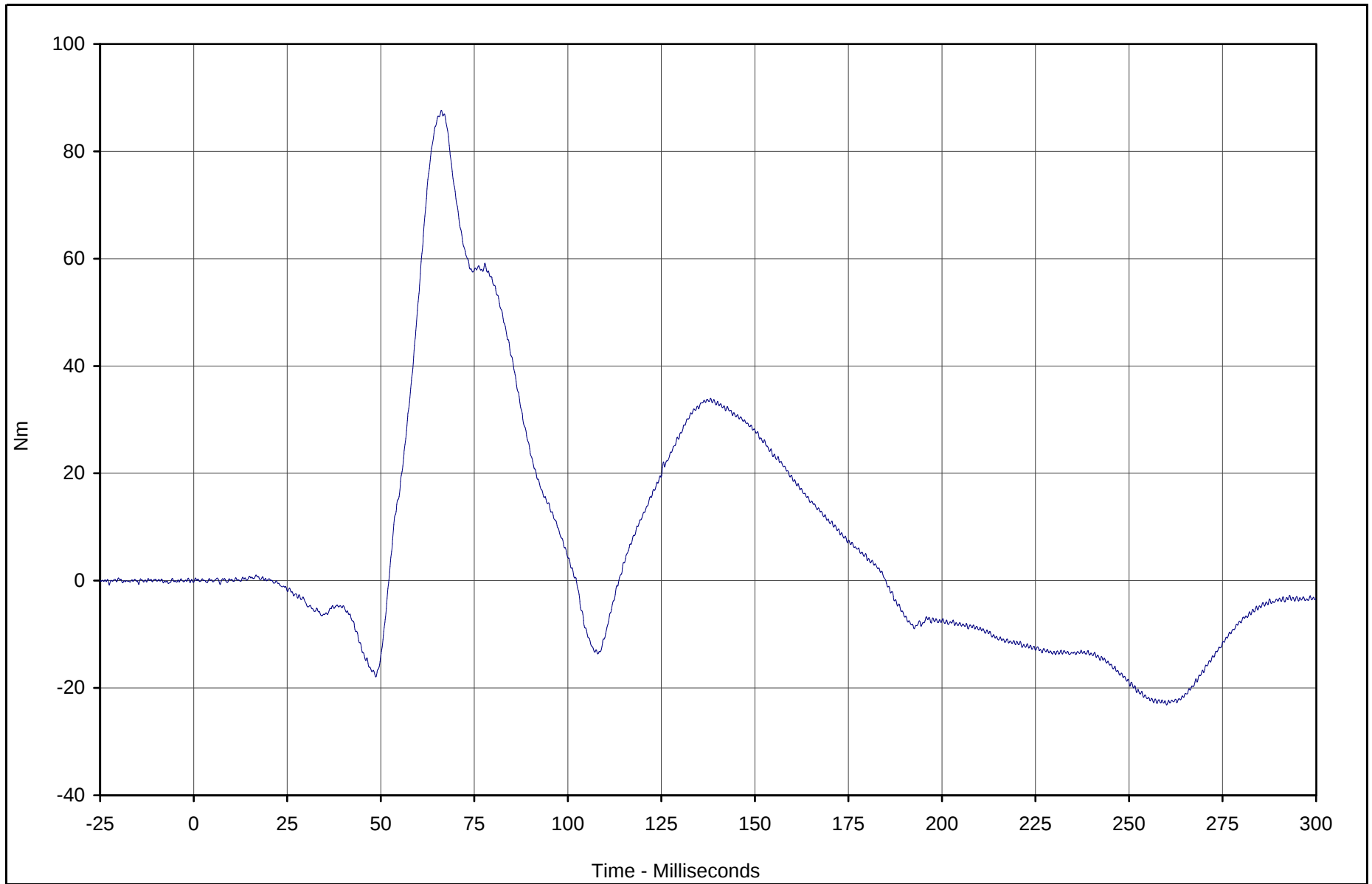


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Y	011	FIL	Nm	87.7	66.2	-23.1	260.0	600

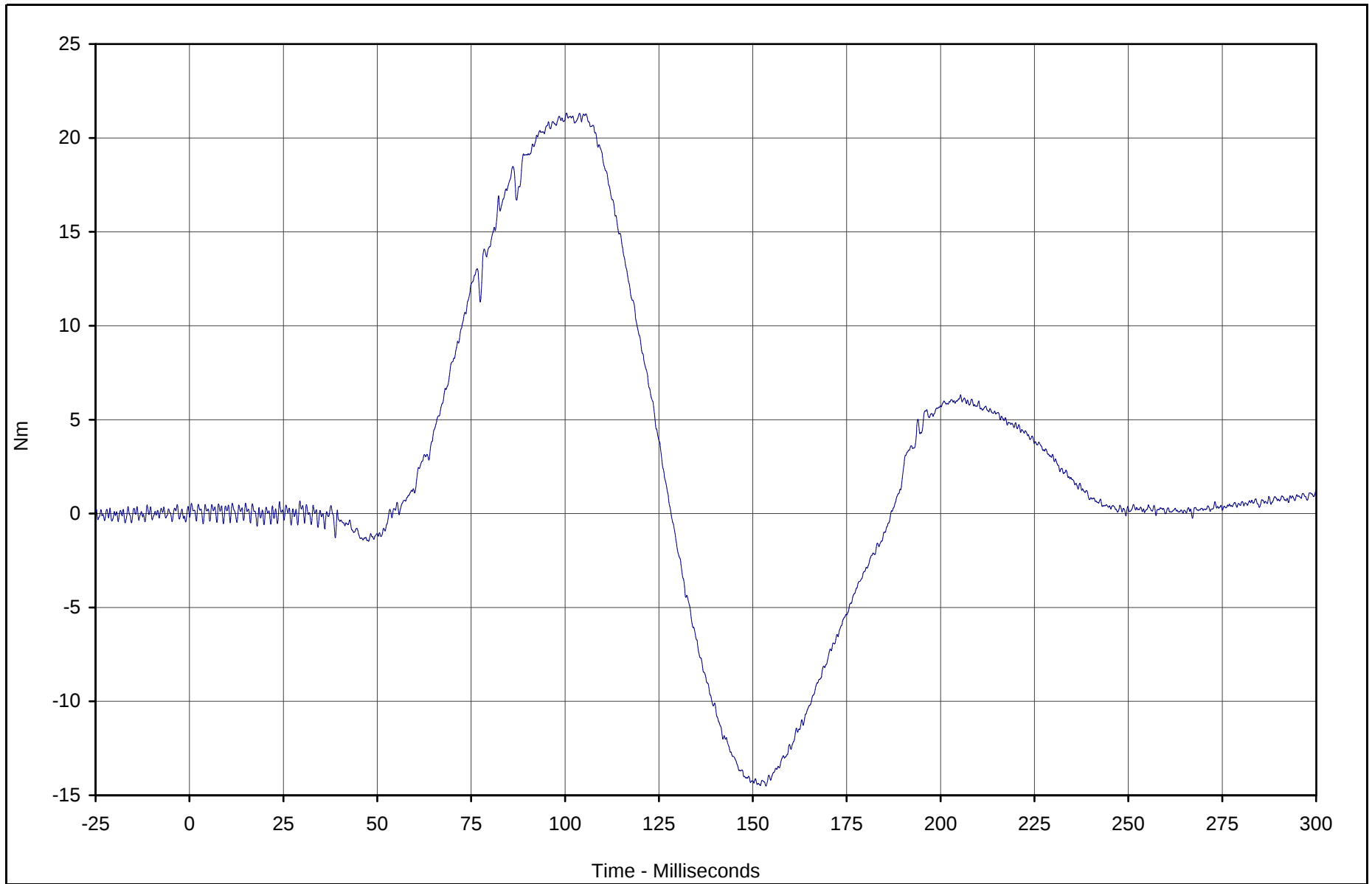


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Z	012	FIL	Nm	21.3	100.4	-14.5	153.5	600

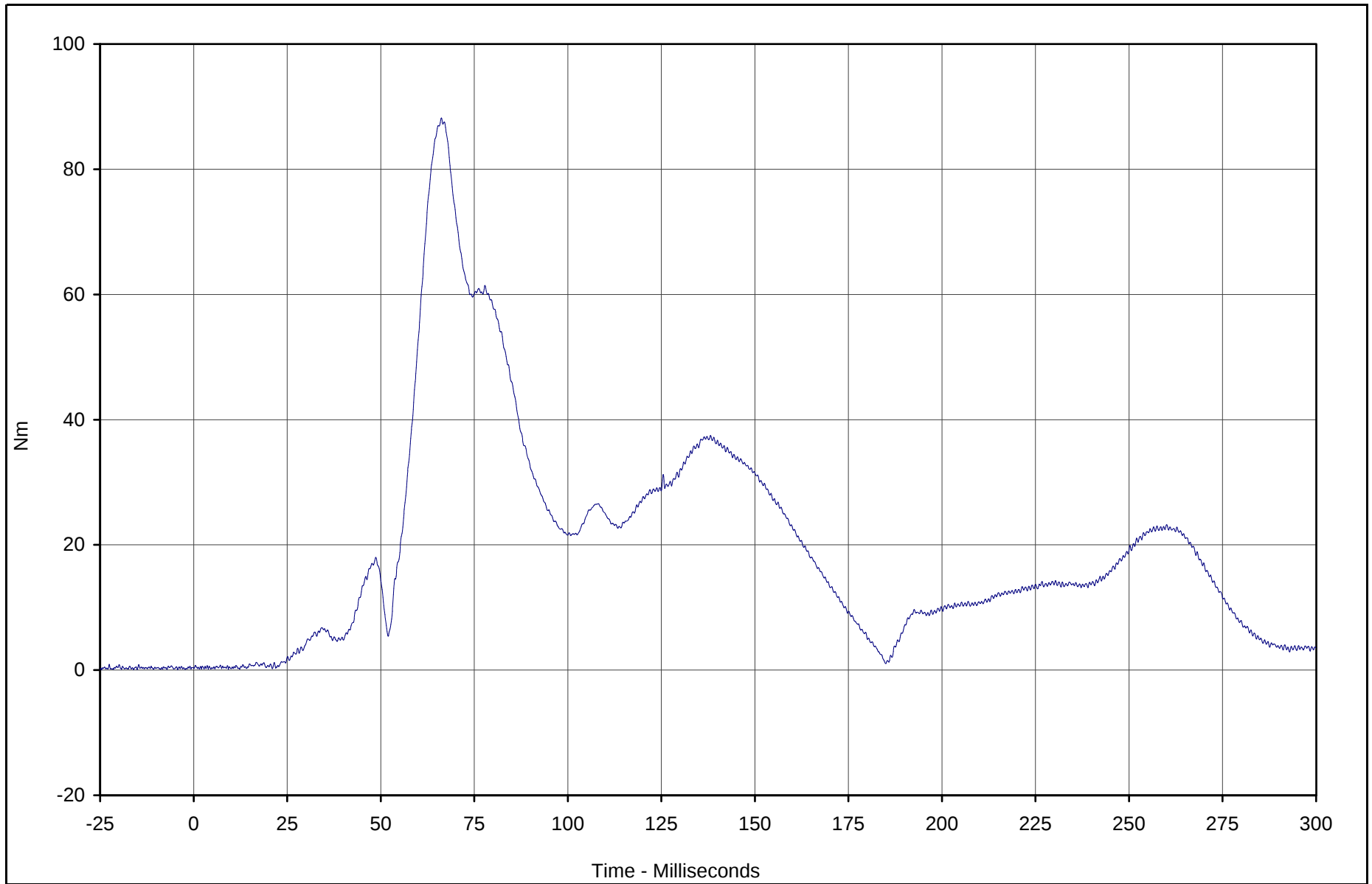


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Resultant	010	RES	Nm	88.2	66.2	0.1	9.3	600

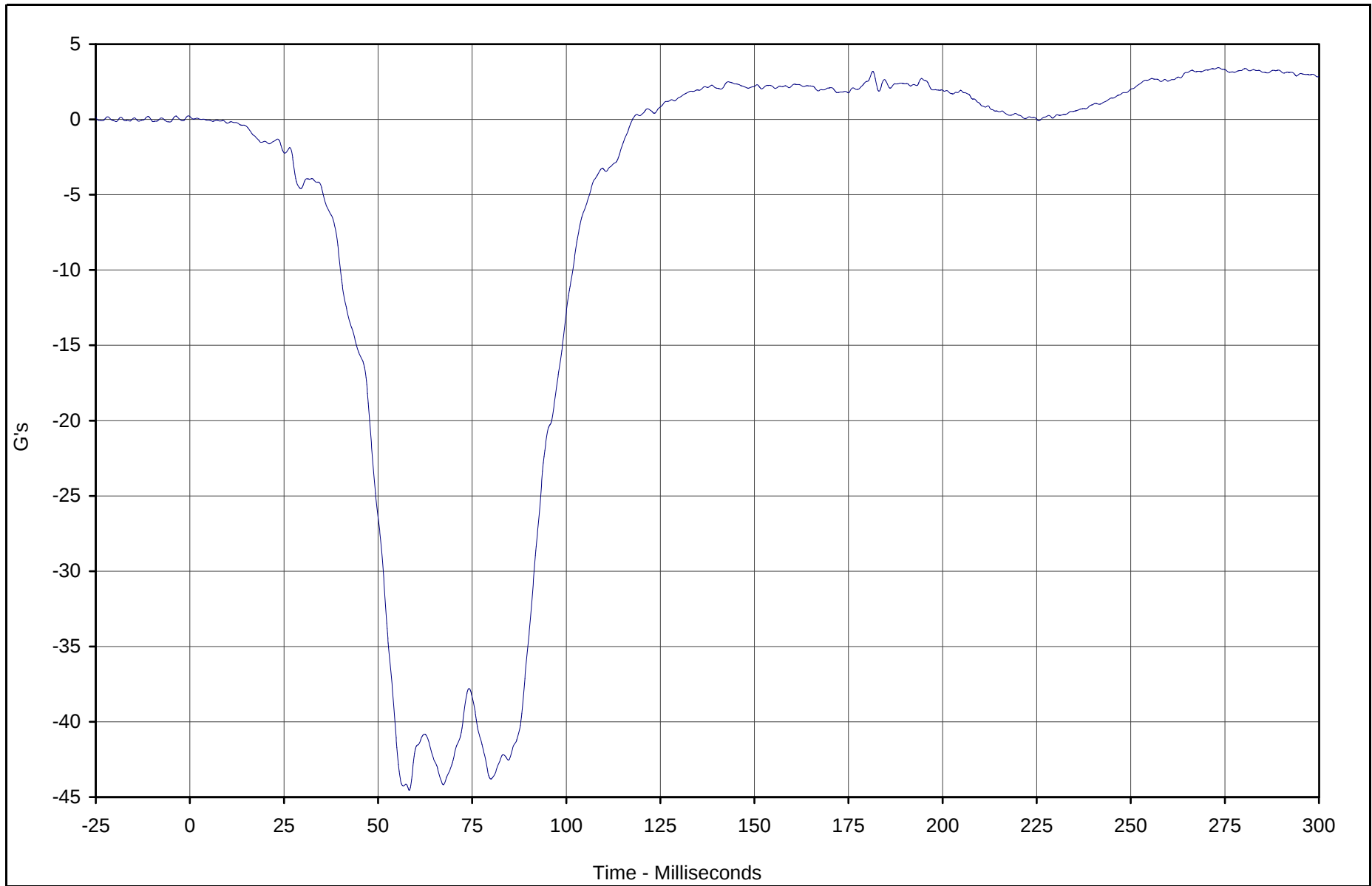


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary X	013	FIL	G's	3.4	273.3	-44.5	58.3	180

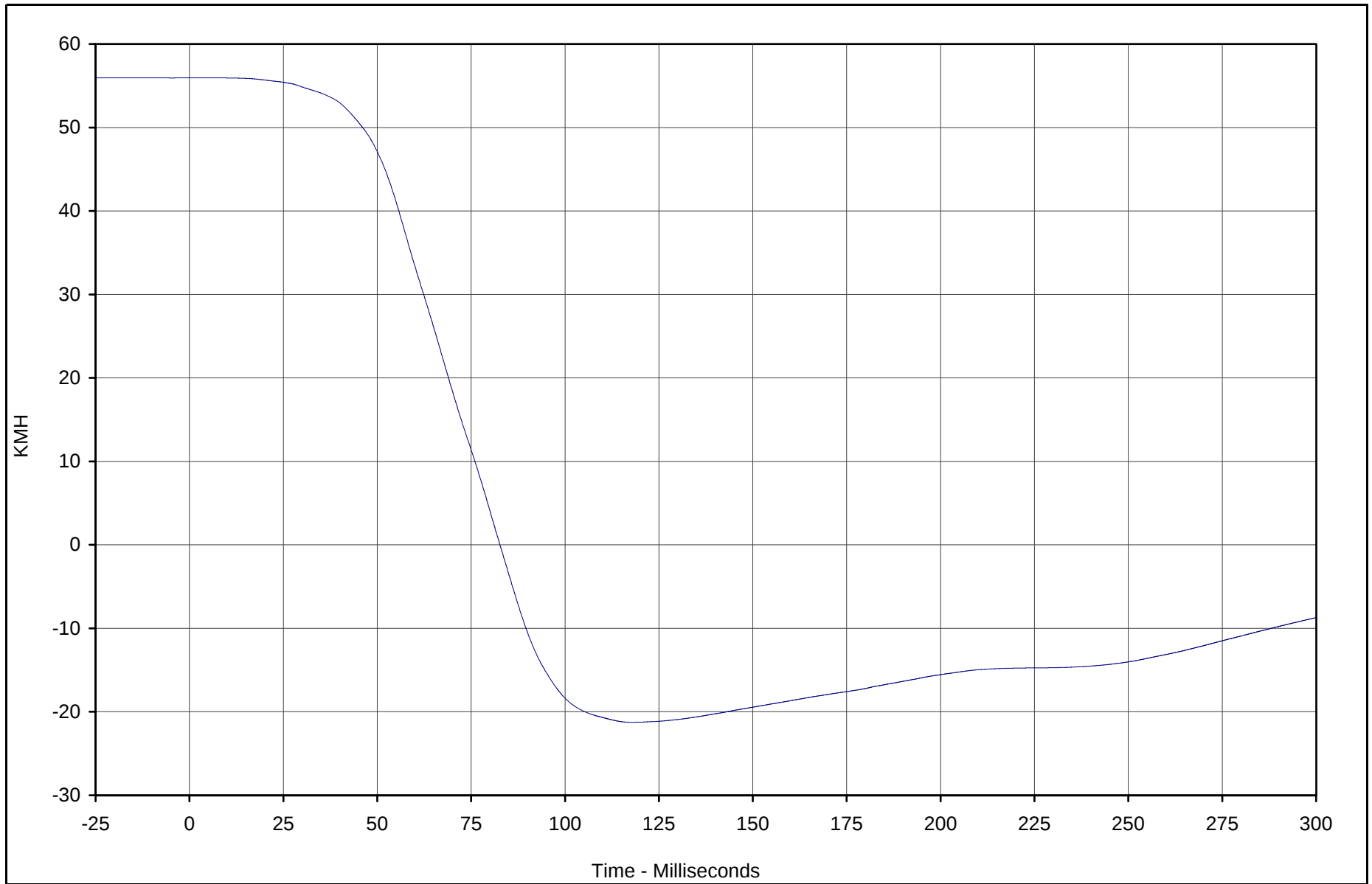


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary X Velocity	013	IN1	KMH	56.0	3.9	-21.3	117.6	180

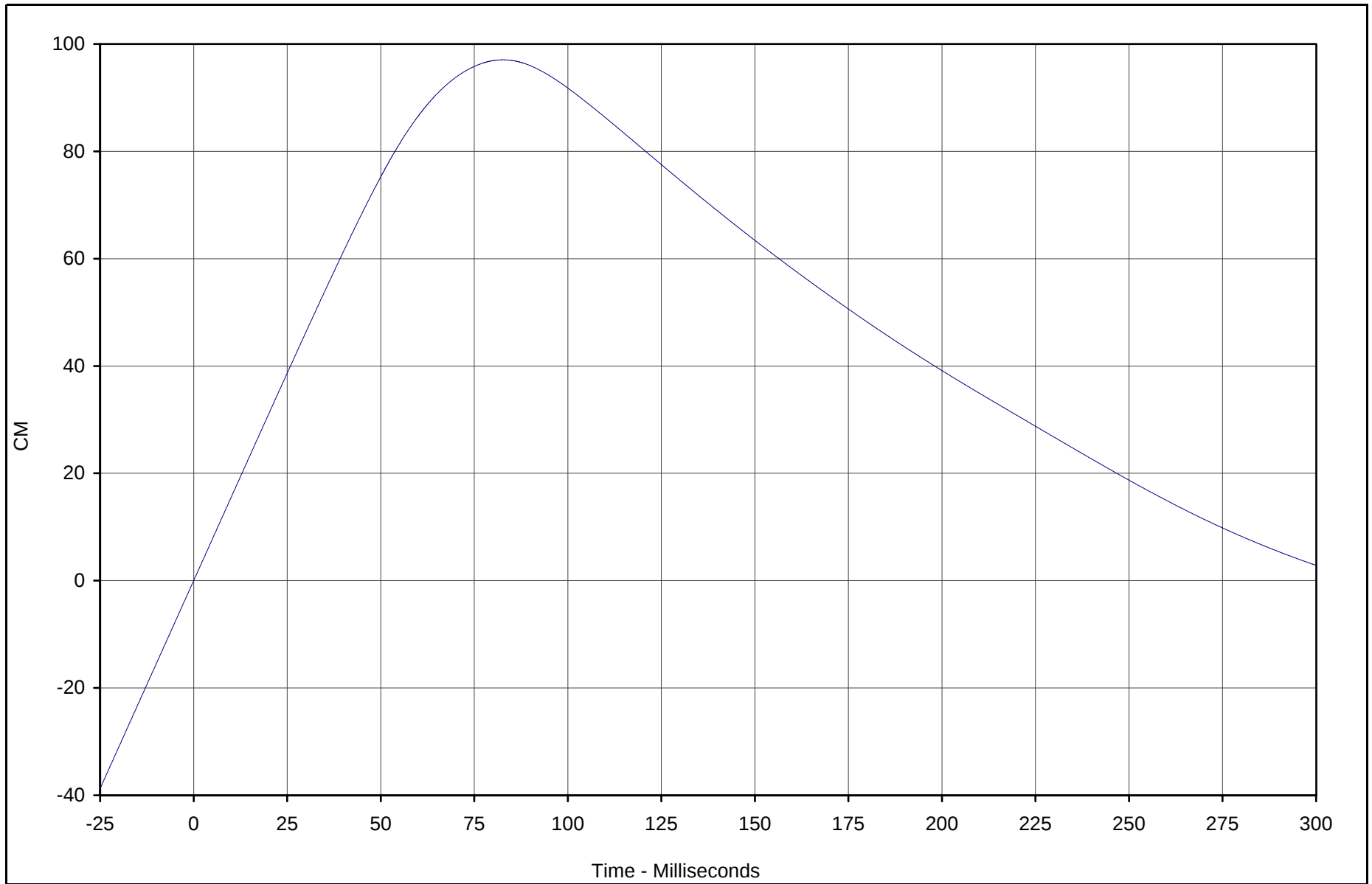


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary X Displ.	013	IN2	CM	97.1	82.7	0.0	0.0	180

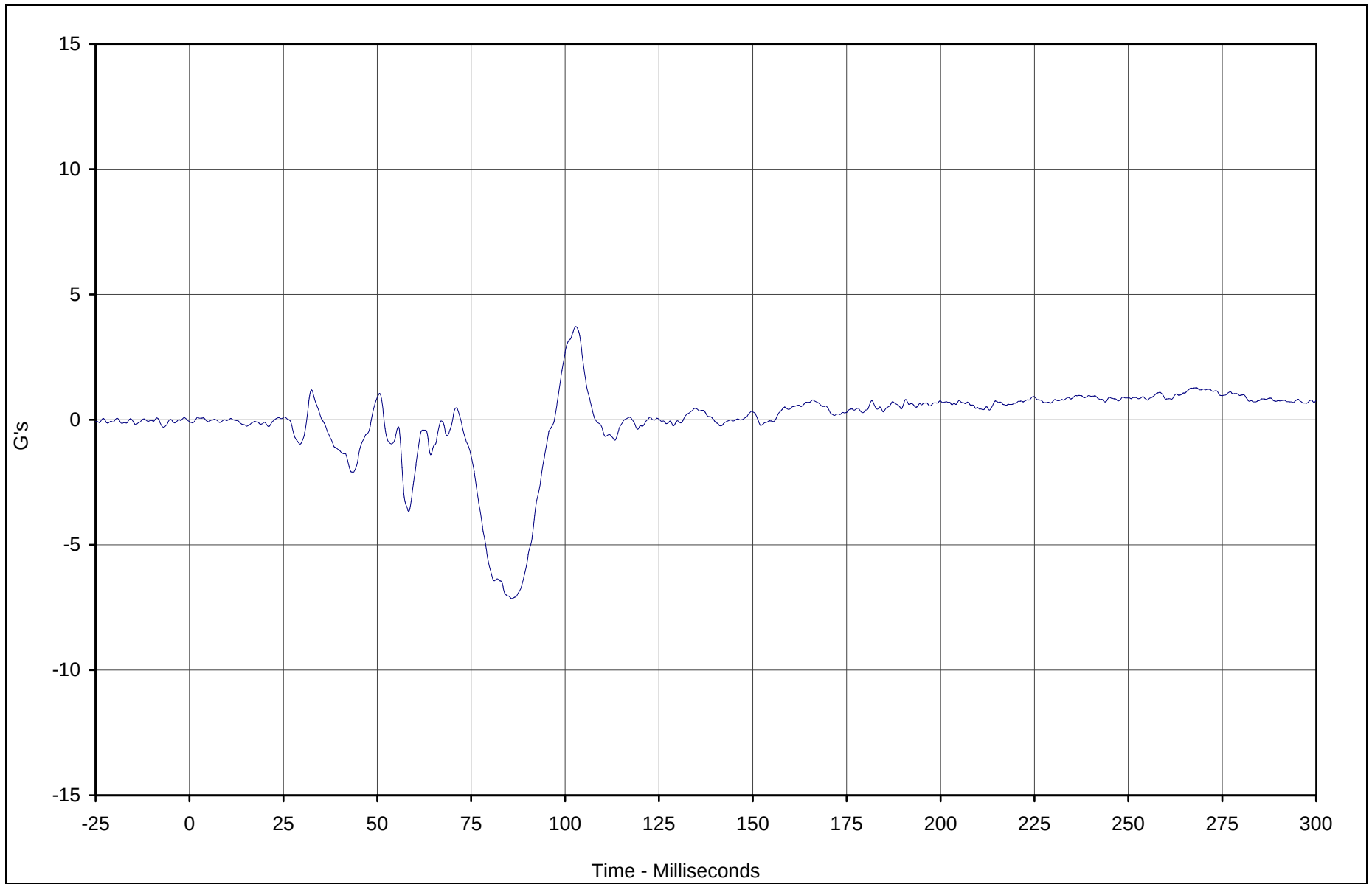


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary Y	014	FIL	G's	3.7	102.9	-7.2	85.8	180

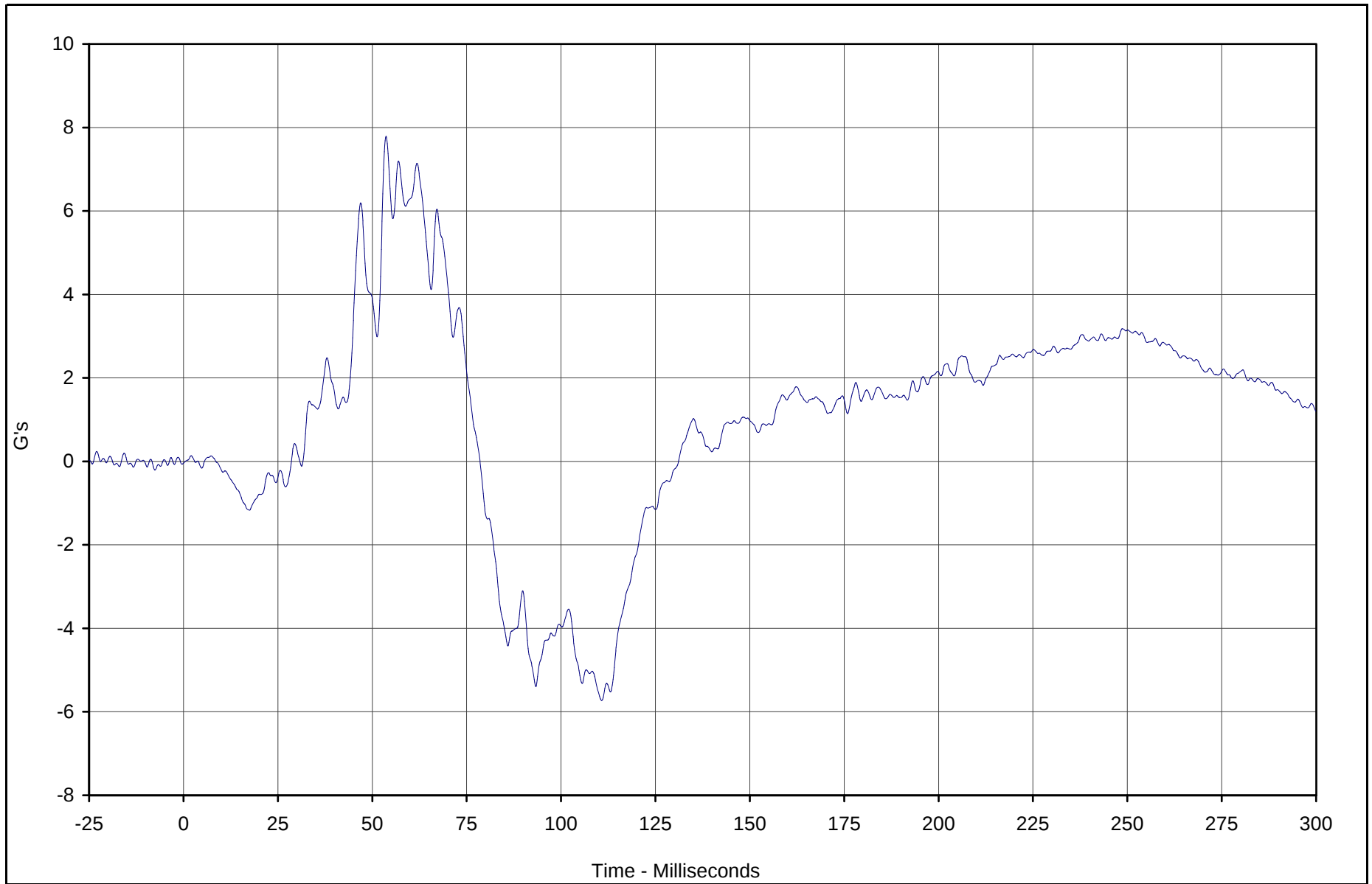


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary Z	015	FIL	G's	7.8	53.6	-5.7	110.8	180

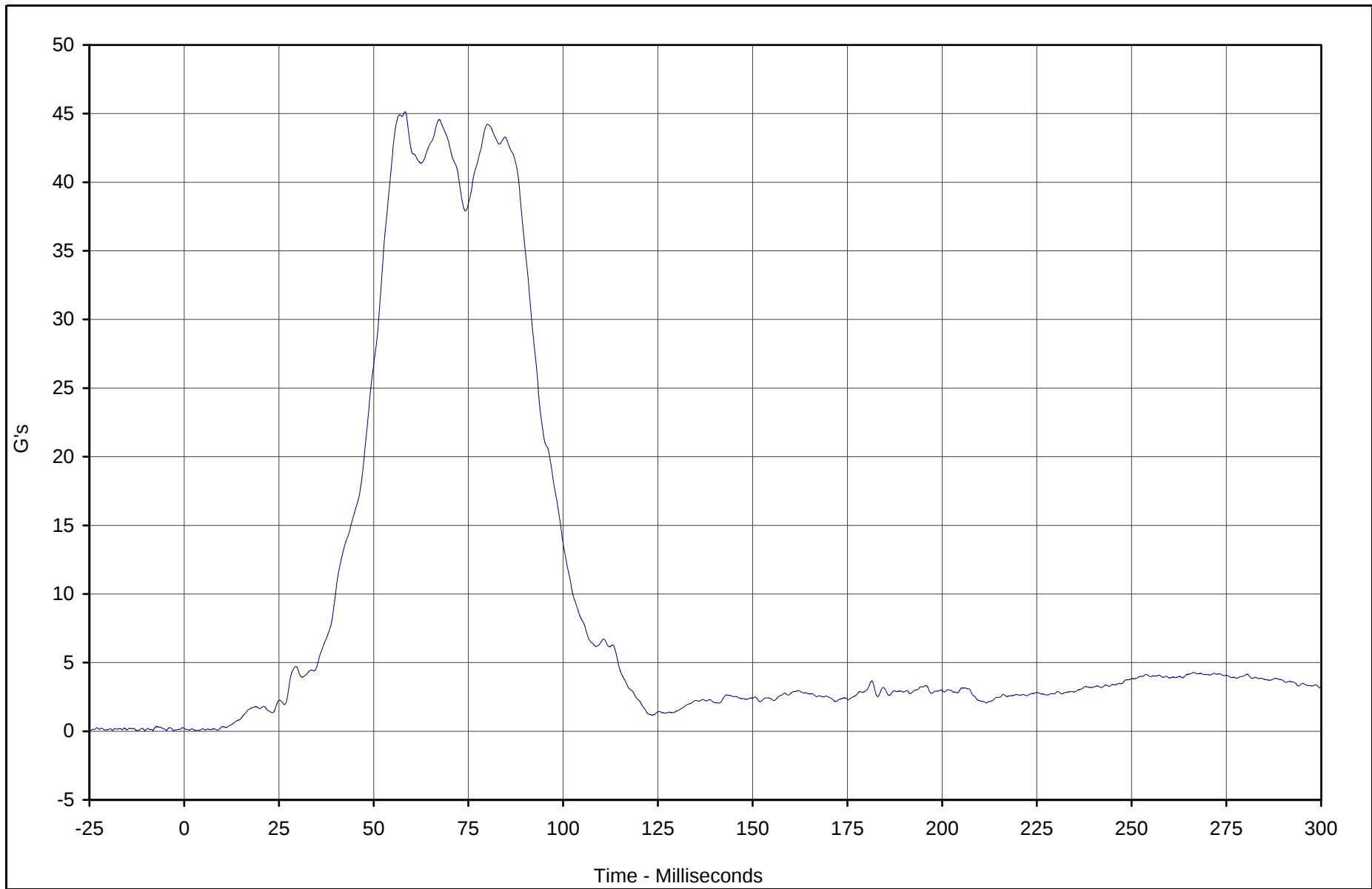


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Resultant Primary	013	RES	G's	45.1	58.3	0.0	4.0	180

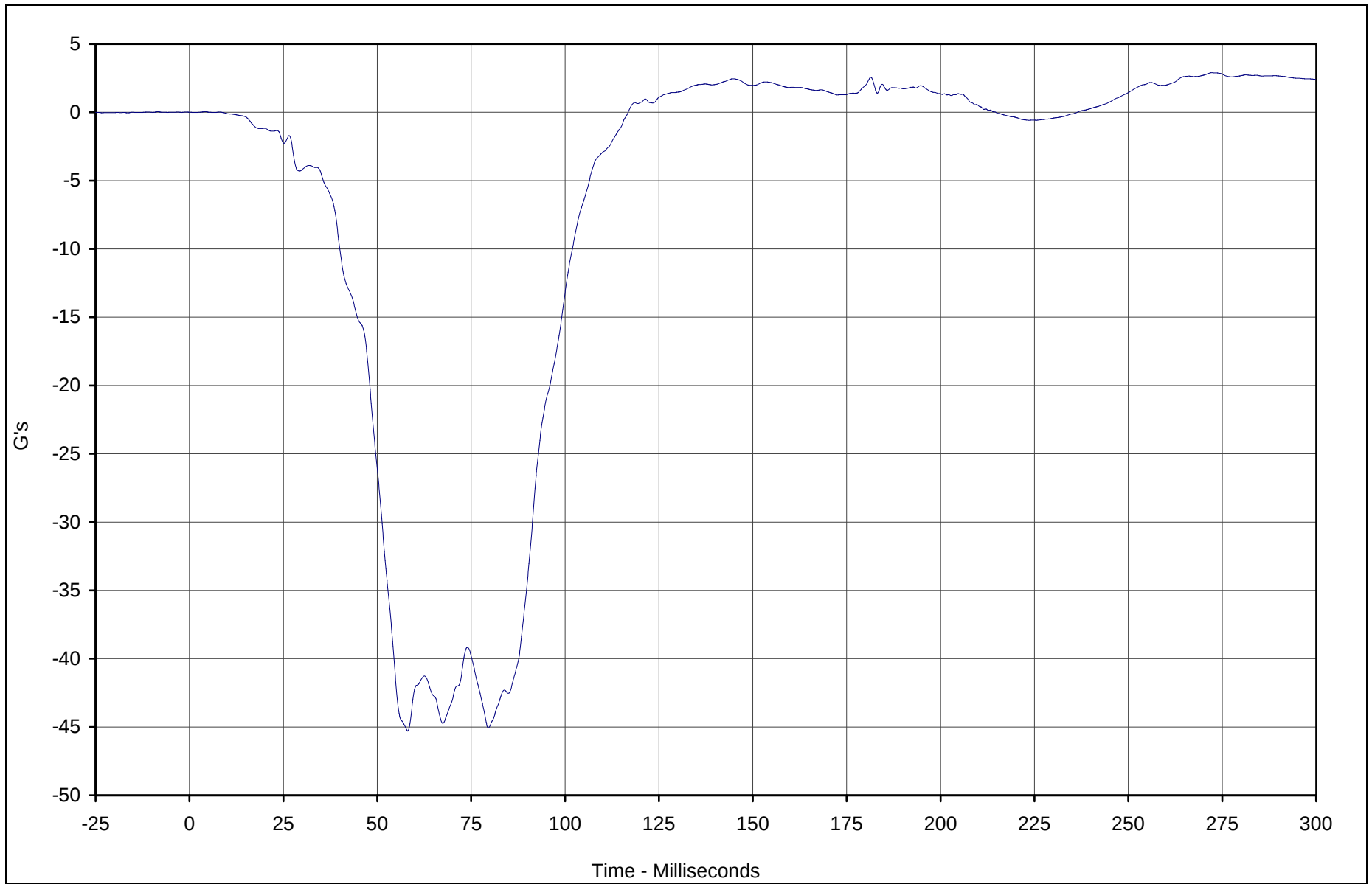


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant X	016	FIL	G's	2.9	272.2	-45.3	58.1	180

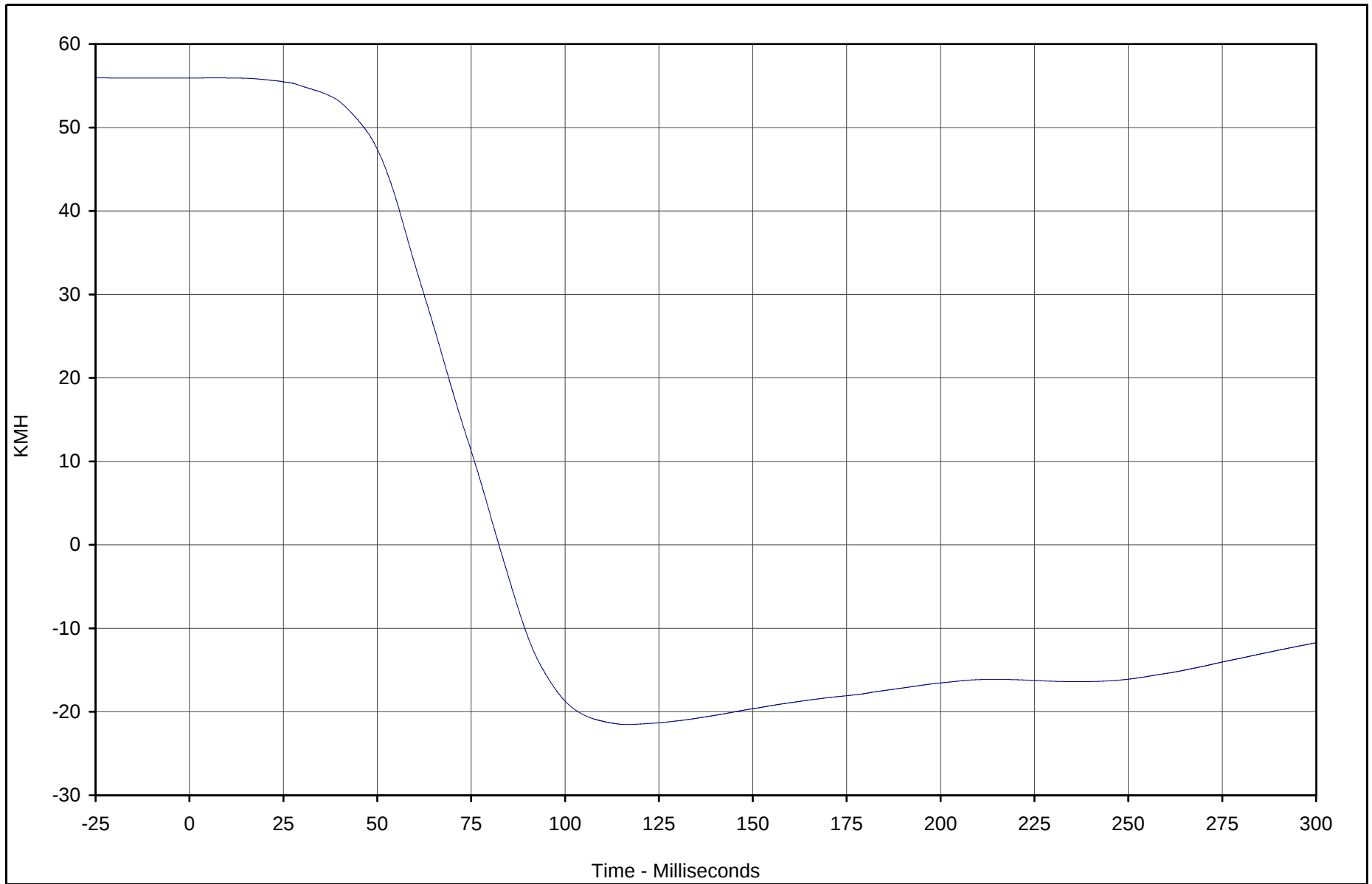


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant X Velocity	016	IN1	KMH	55.9	8.6	-21.5	116.8	180

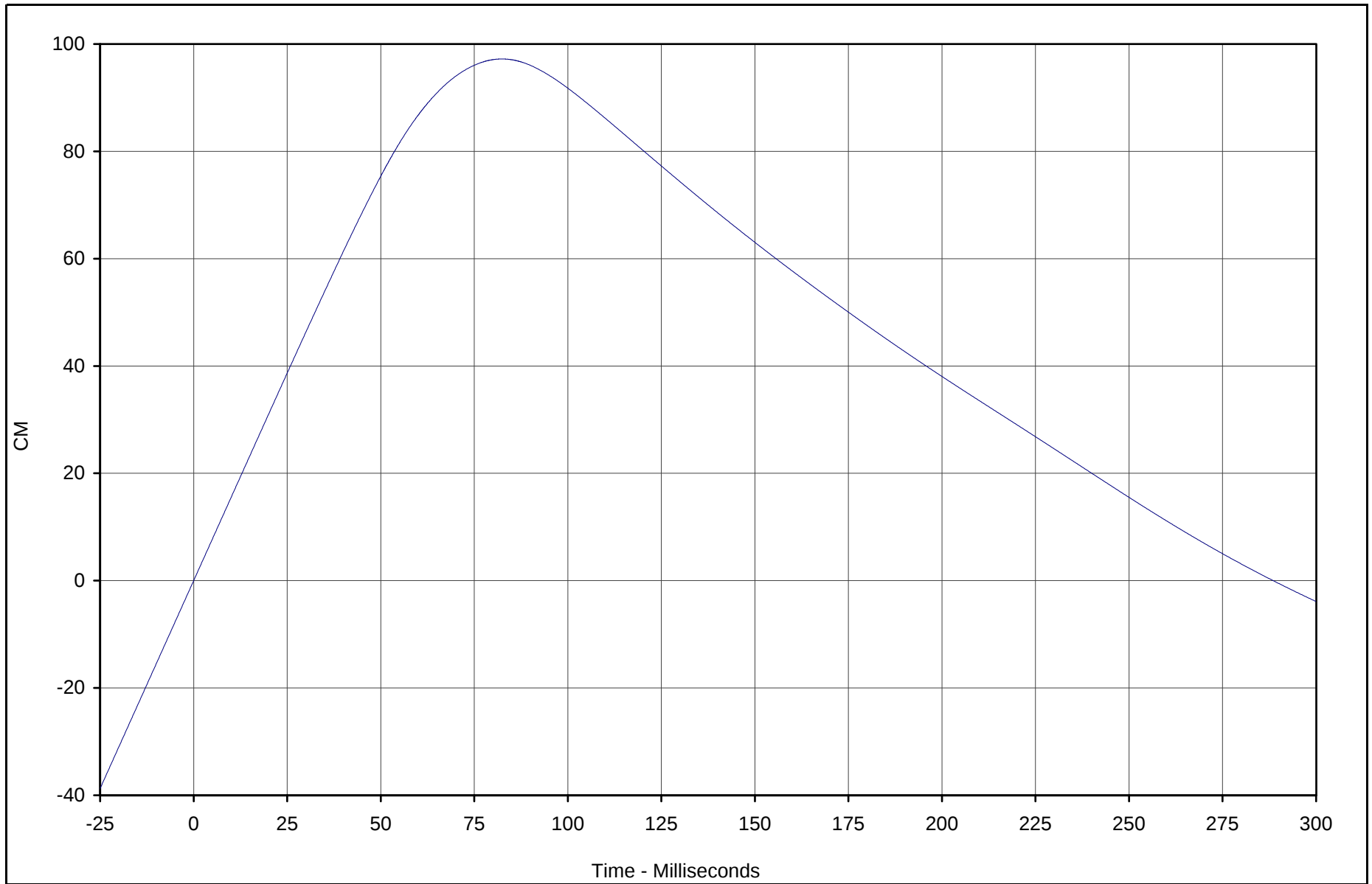


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant X Displ.	016	IN2	CM	97.2	82.4	-3.9	299.9	180

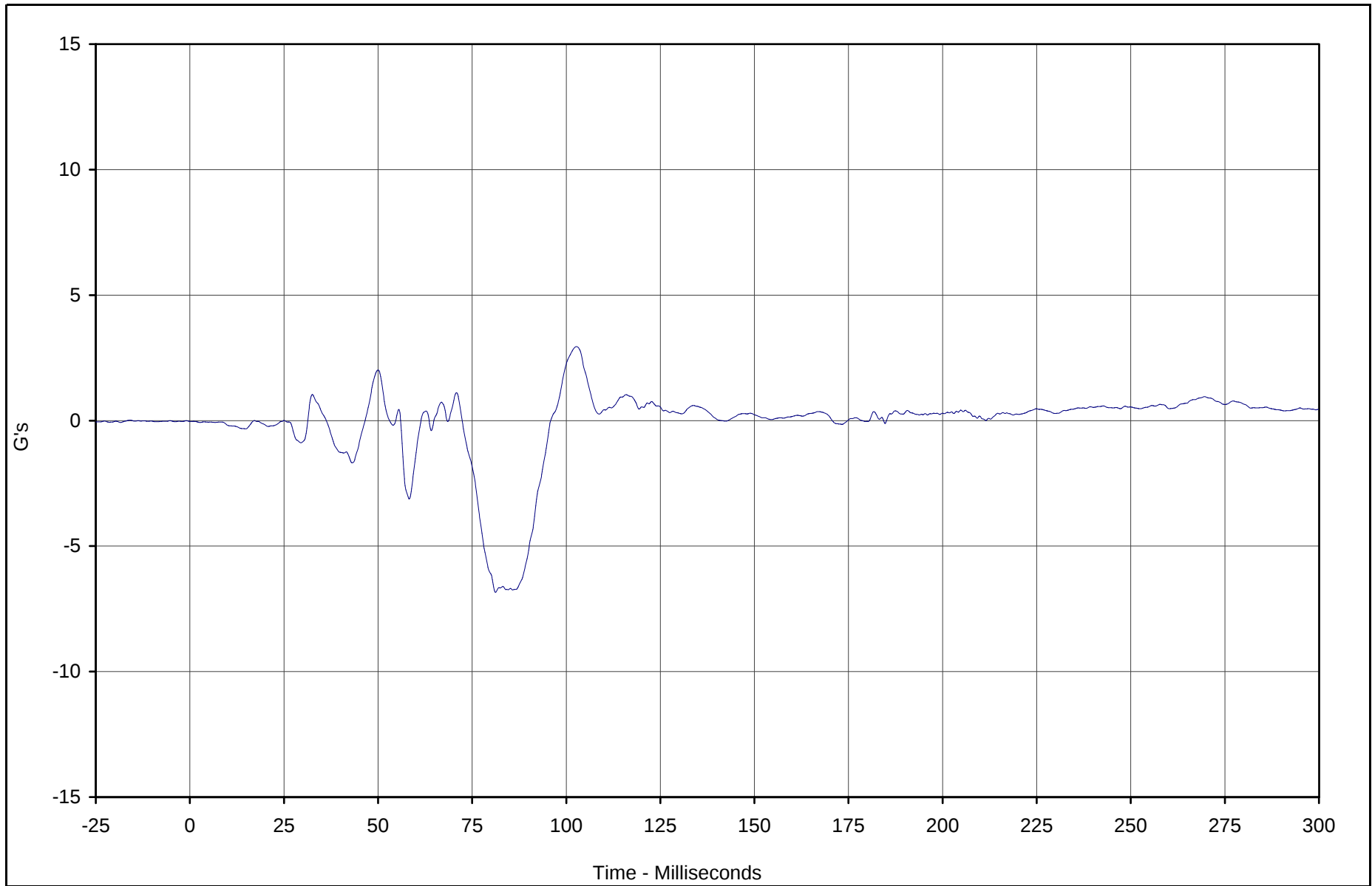


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant Y	017	FIL	G's	2.9	102.7	-6.8	81.2	180

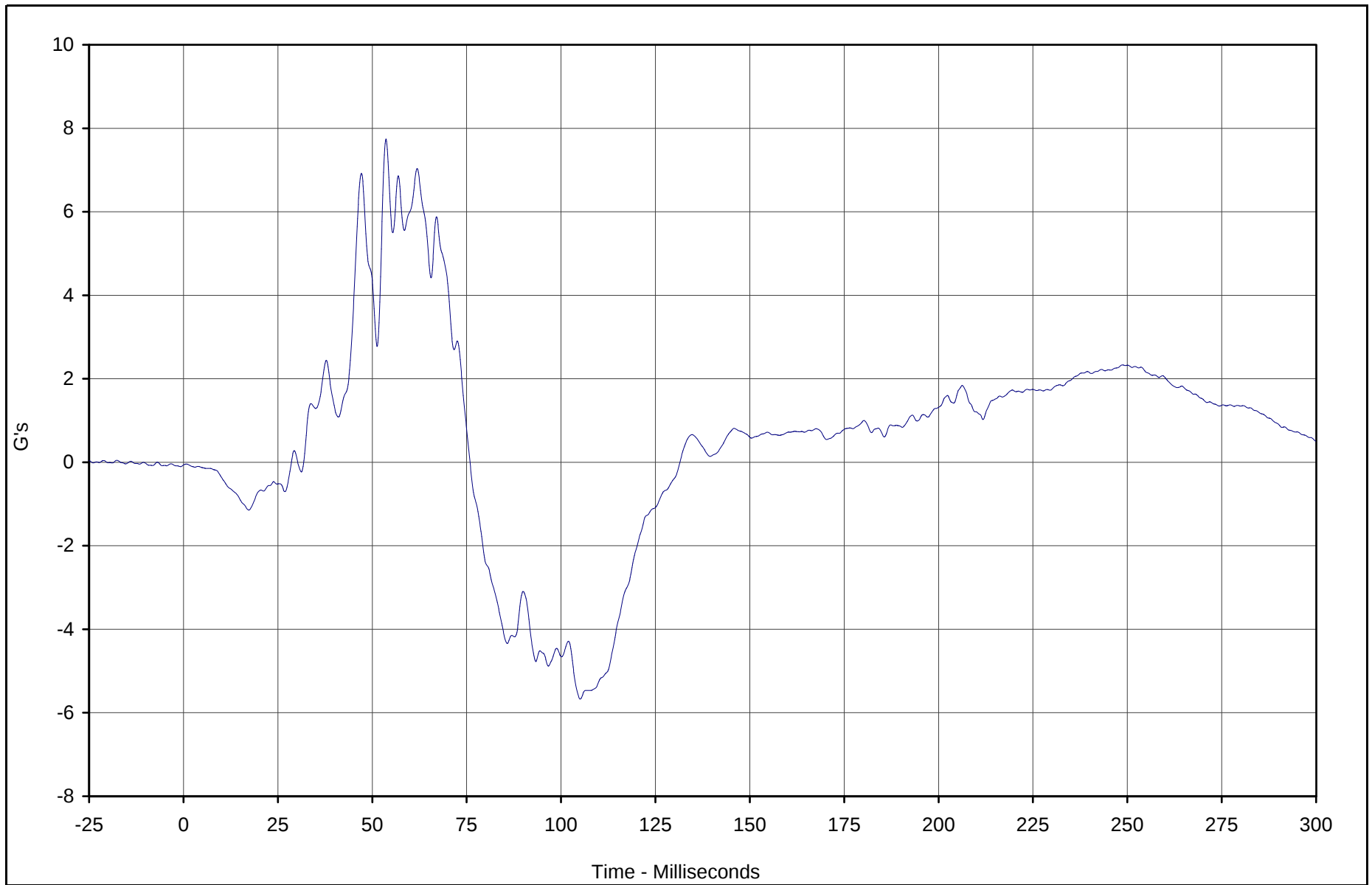


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant Z	018	FIL	G's	7.7	53.6	-5.7	105.1	180

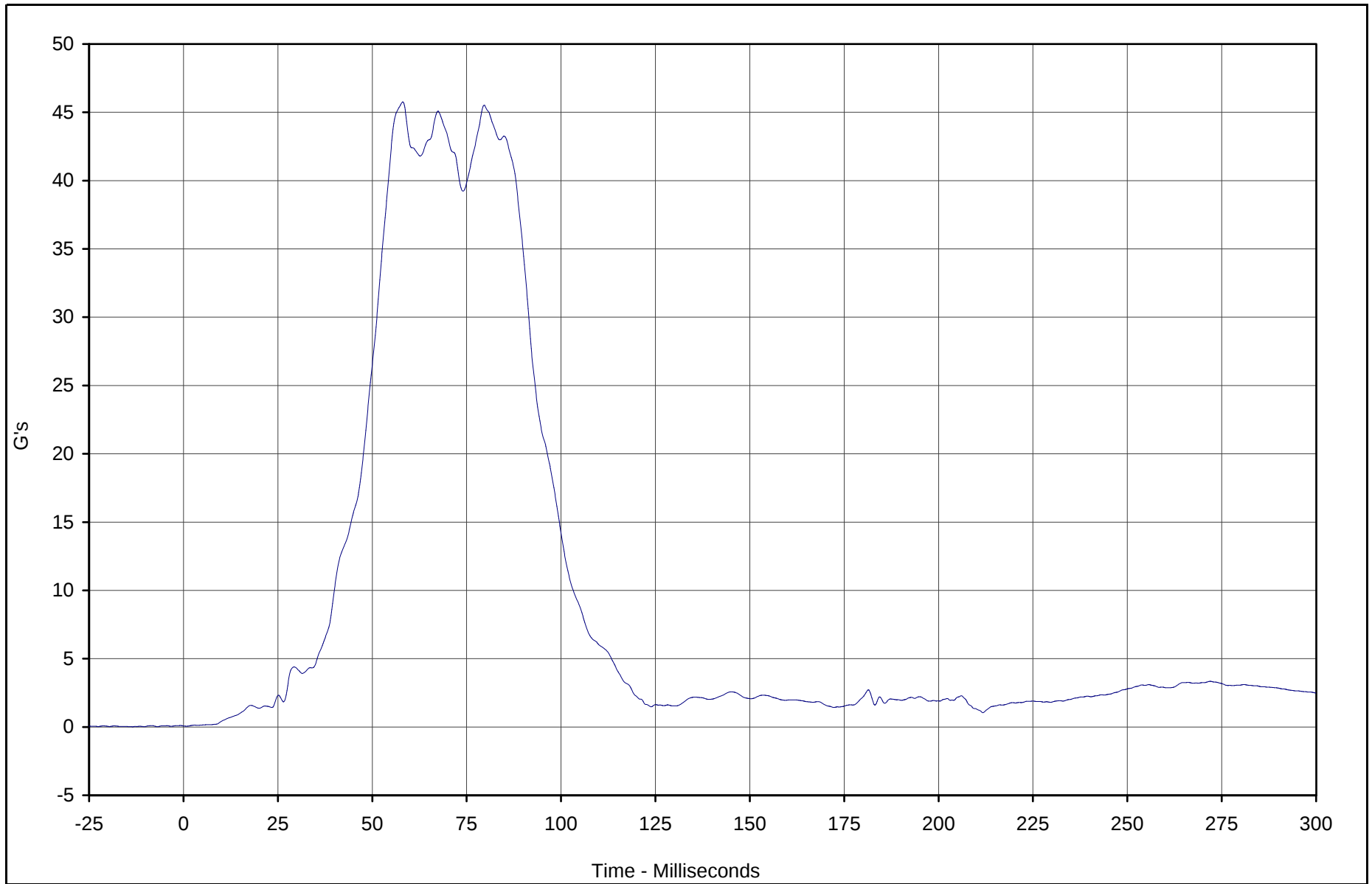


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Resultant Redundant	016	RES	G's	45.8	58.1	0.1	0.8	180

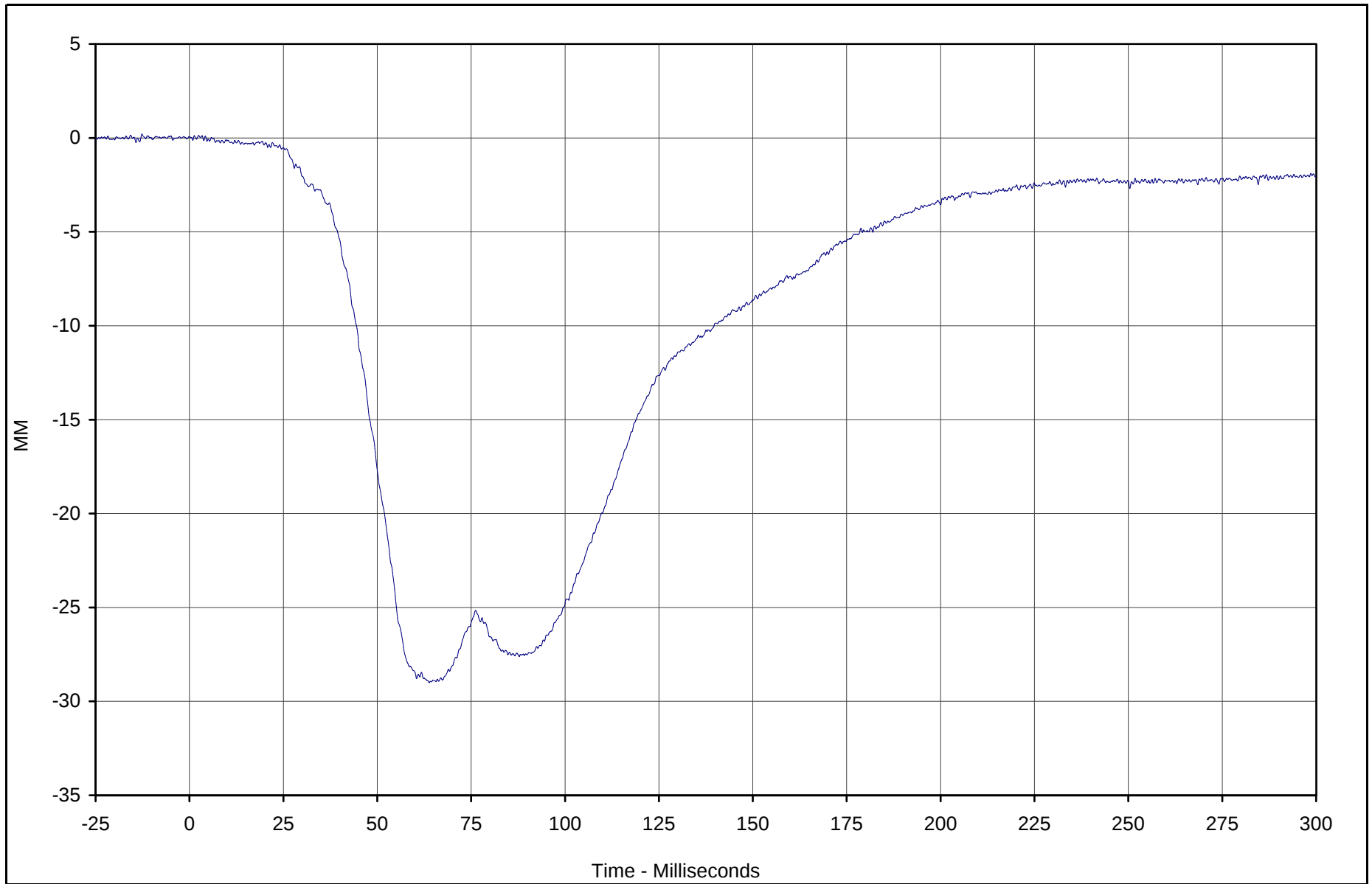


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Displacement X	019	FIL	MM	0.1	2.4	-29.0	63.8	600

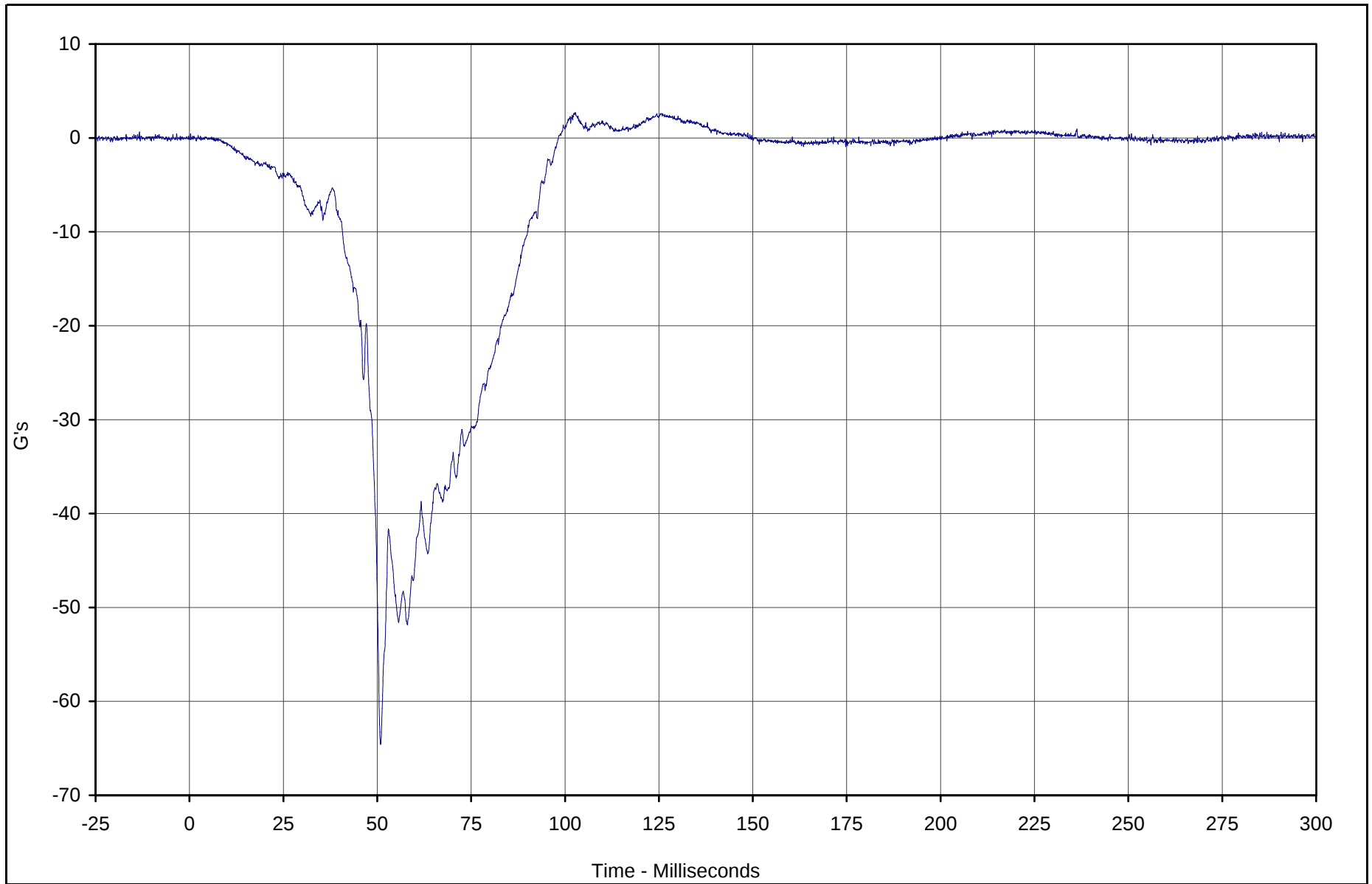


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis X	020	FIL	G's	2.7	102.6	-64.6	50.9	1000

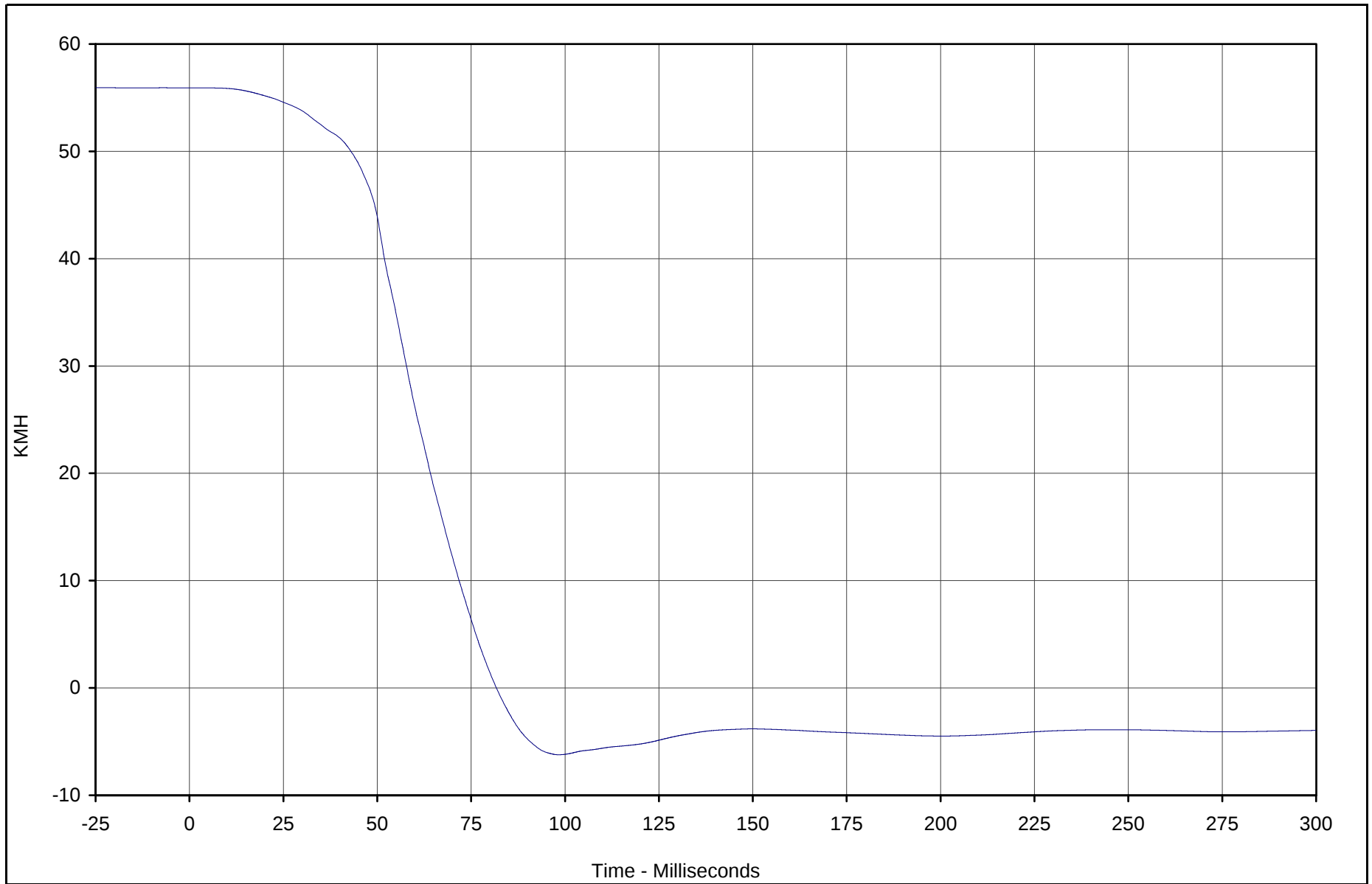


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis X Velocity	020	IN1	KMH	55.9	1.1	-6.2	98.3	180

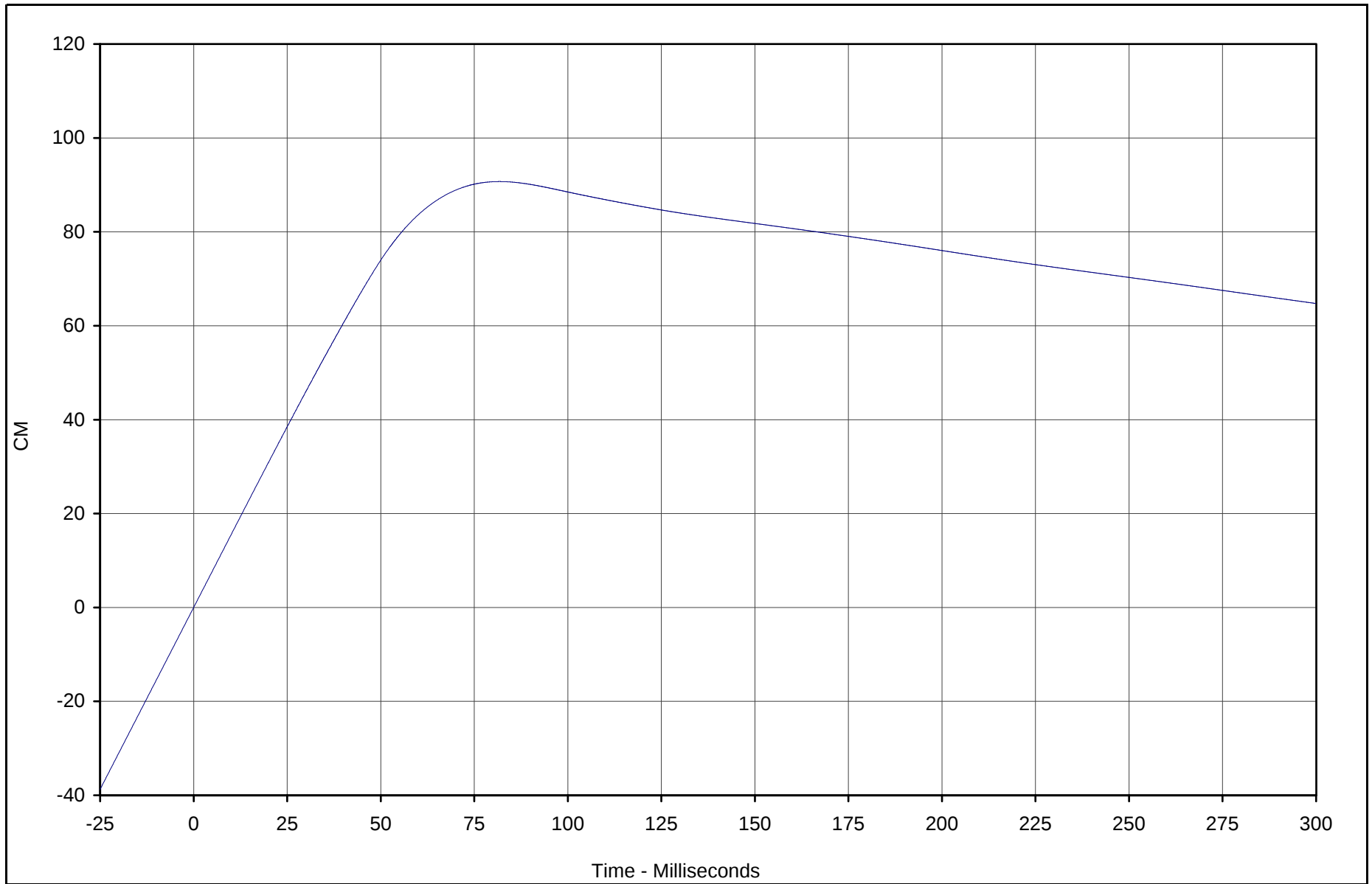


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis X Displ.	020	IN2	CM	90.7	81.7	0.0	0.0	180

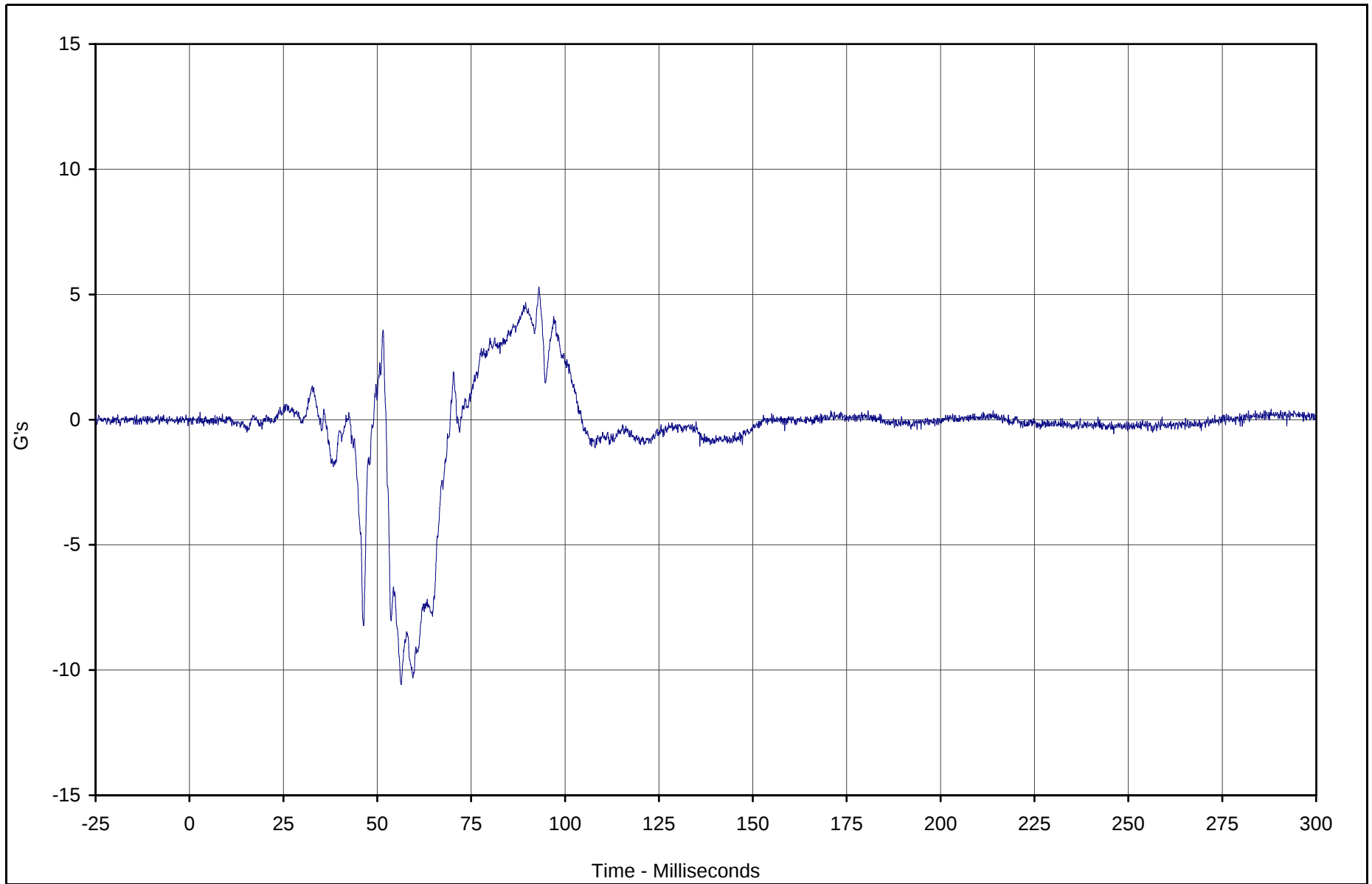


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Y	021	FIL	G's	5.3	93.0	-10.6	56.4	1000

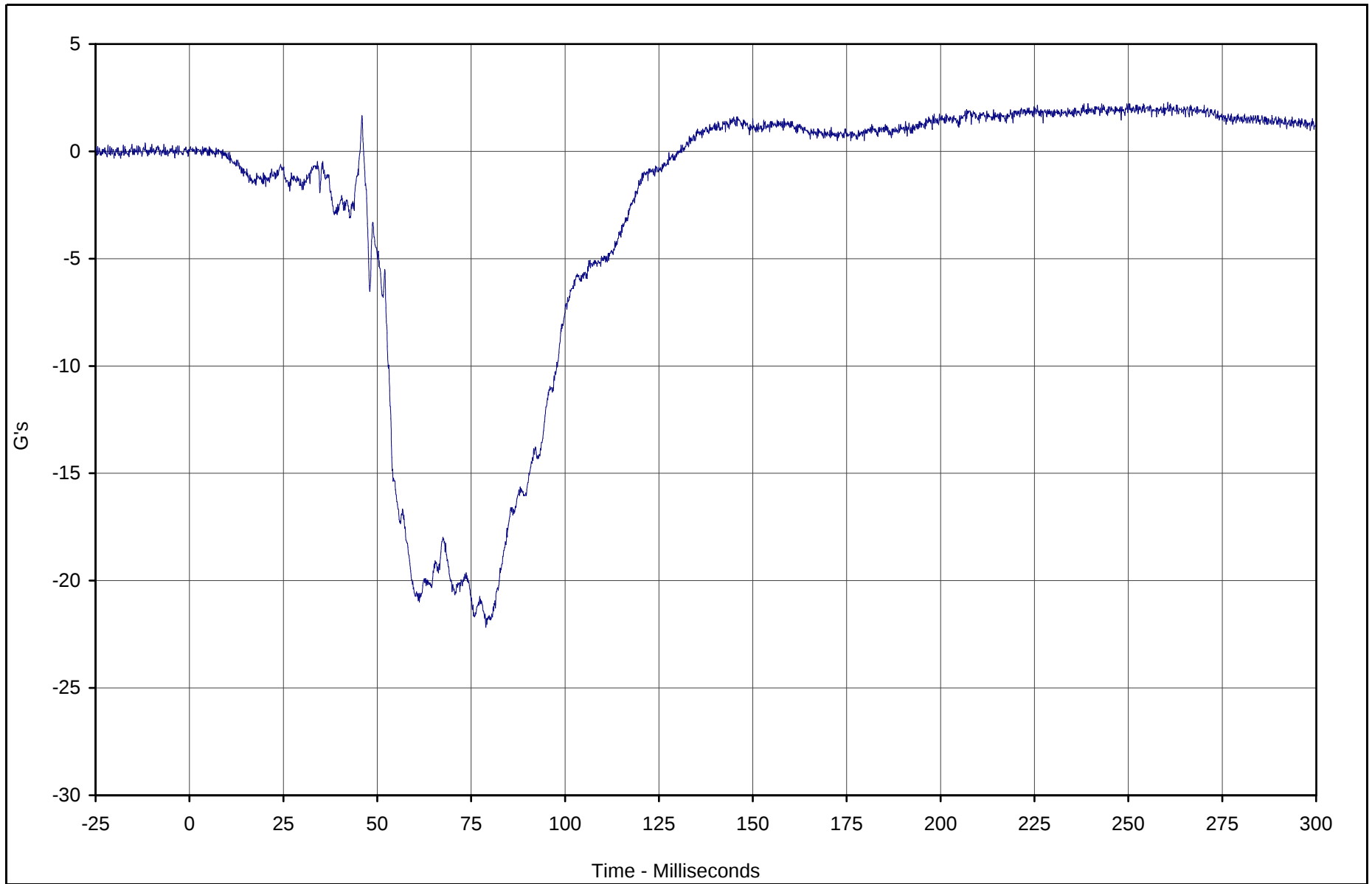


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Z	022	FIL	G's	2.3	260.5	-22.2	78.9	1000

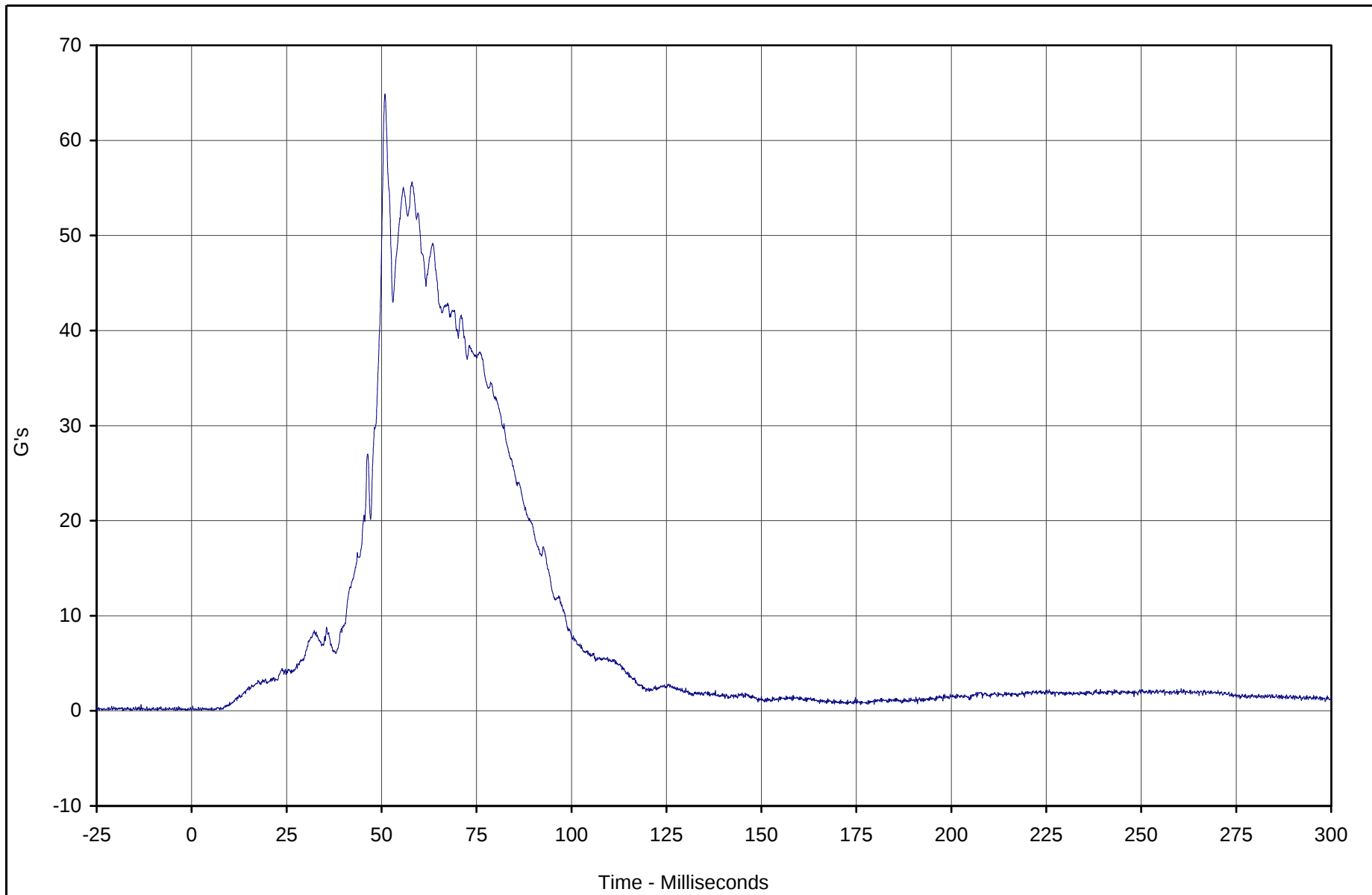


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Resultant	023	RES	G's	64.9	50.9	0.0	2.6	1000

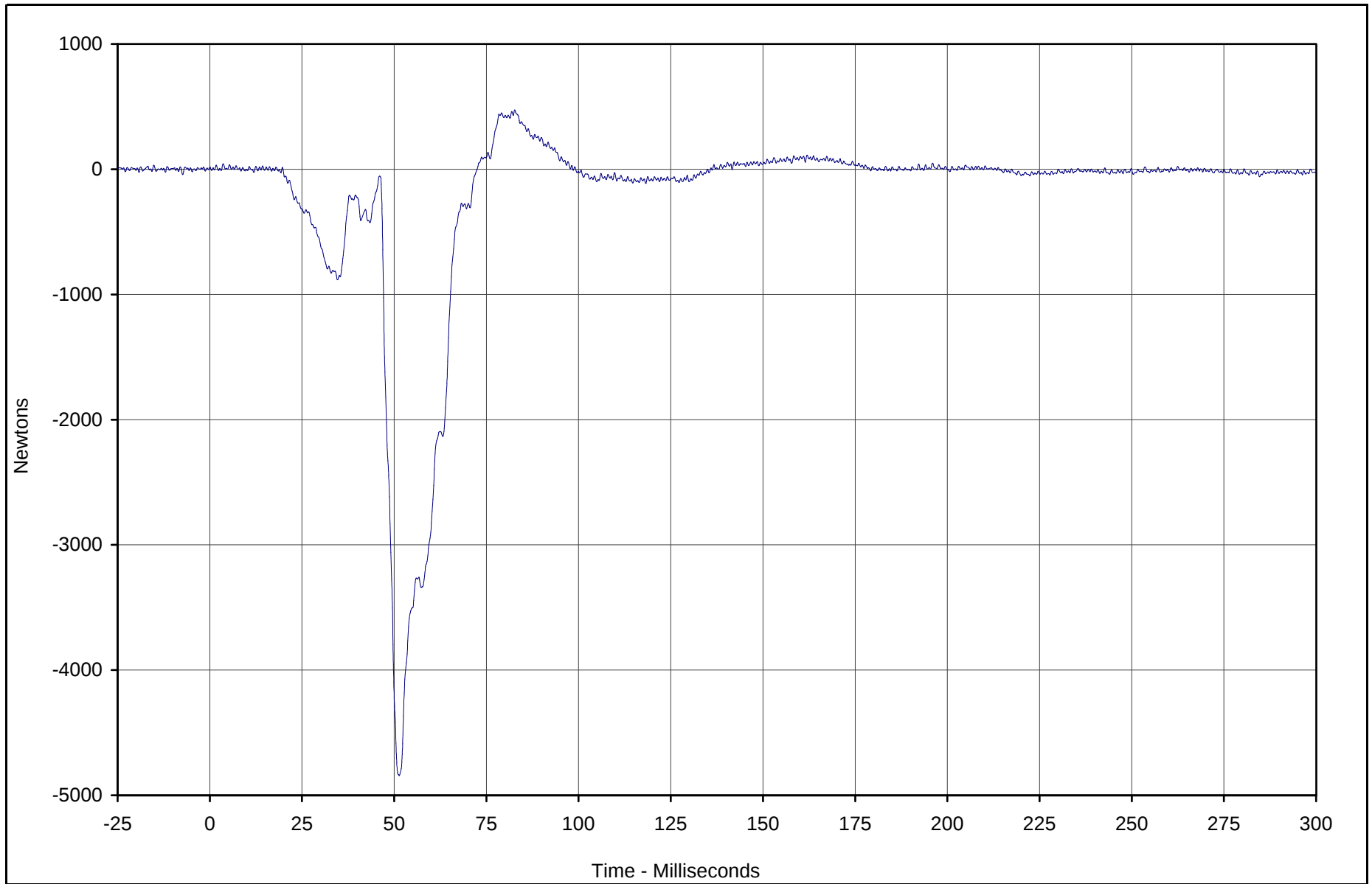


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Femur Force	023	FIL	Newtons	474.2	82.7	-4842.5	51.4	600

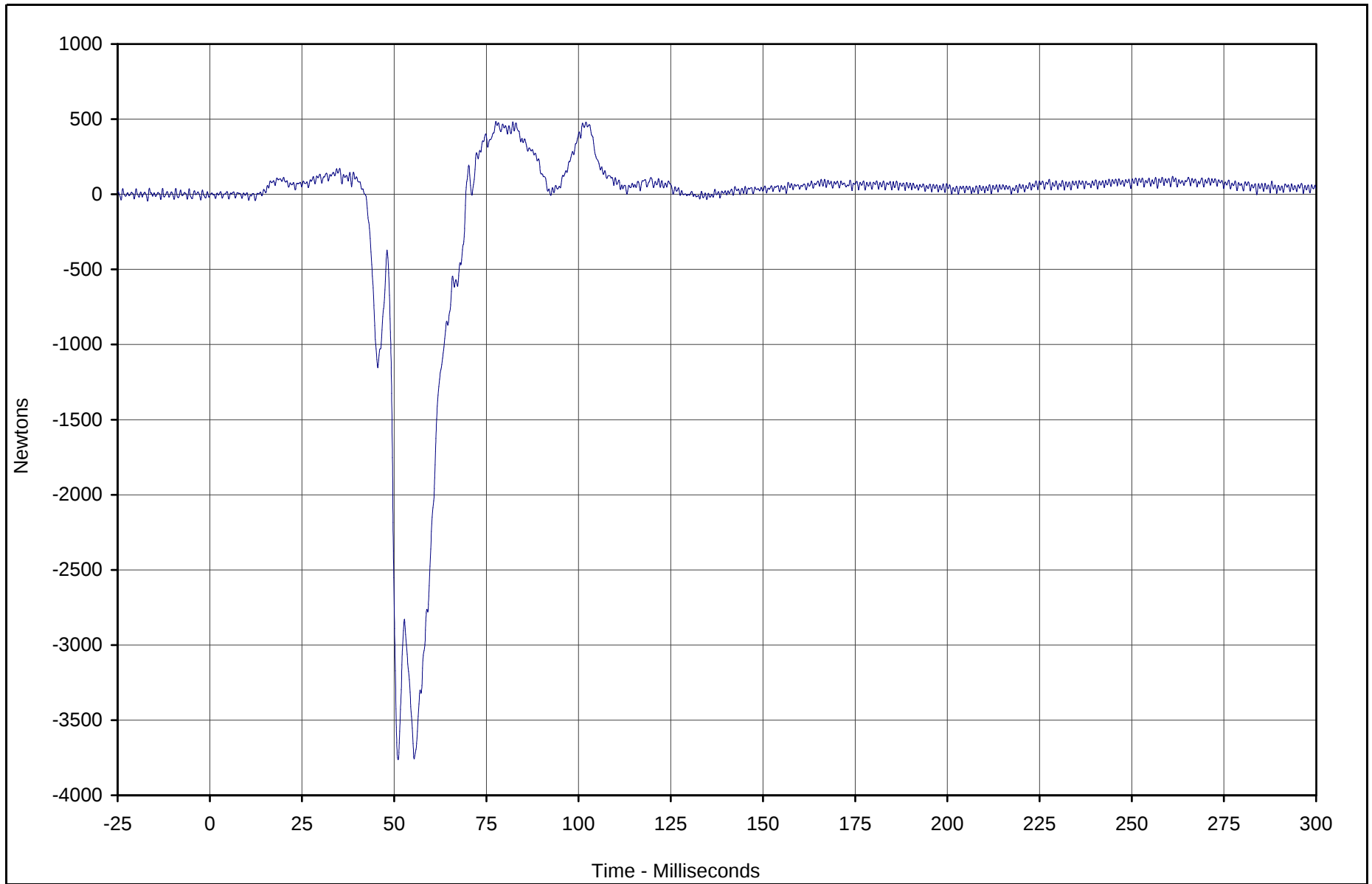


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Femur Force	024	FIL	Newtons	485.3	77.6	-3762.2	51.1	600

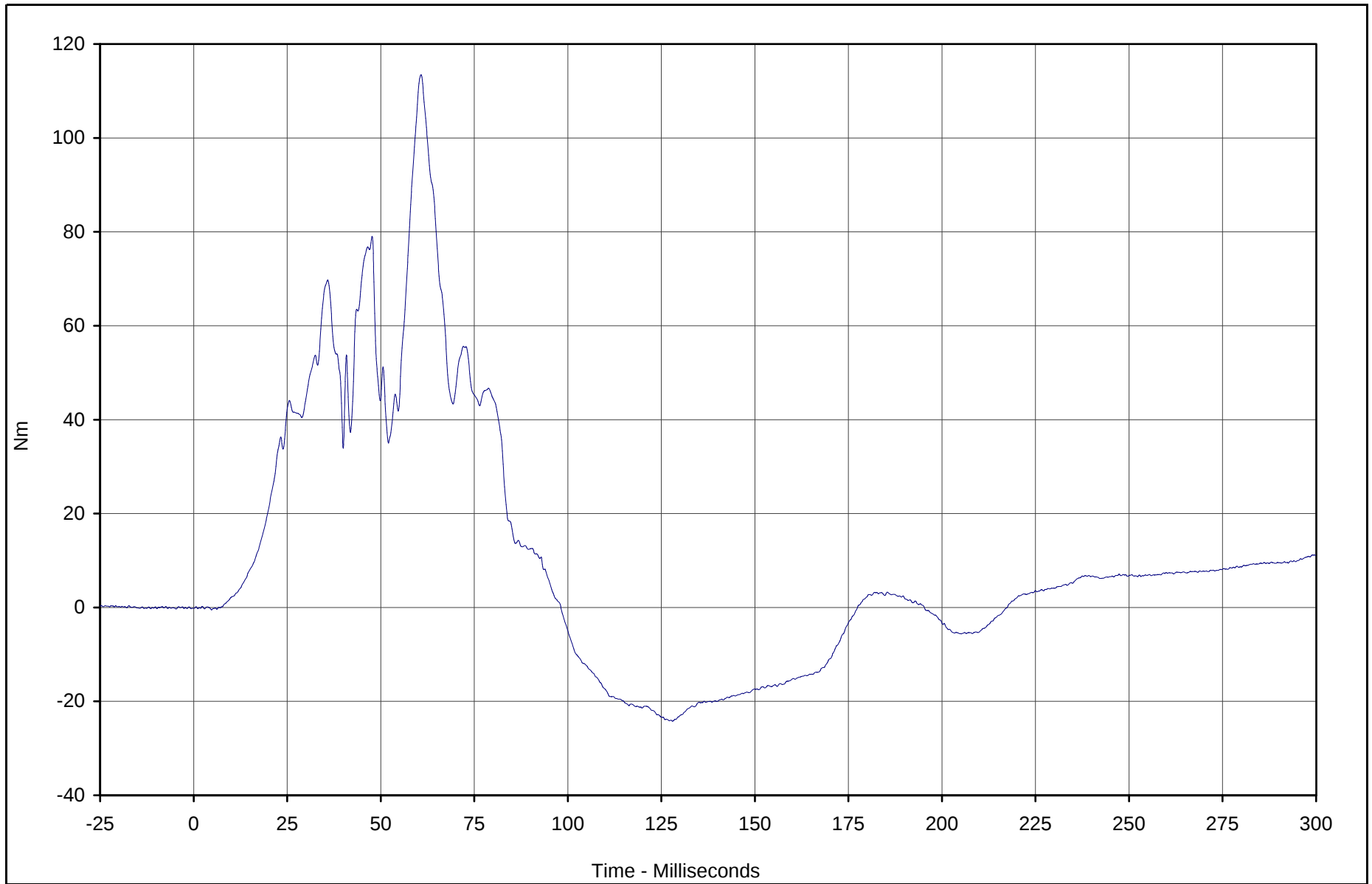


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Upper Tibia Moment X	025	FIL	Nm	113.5	60.8	-24.2	128.0	600

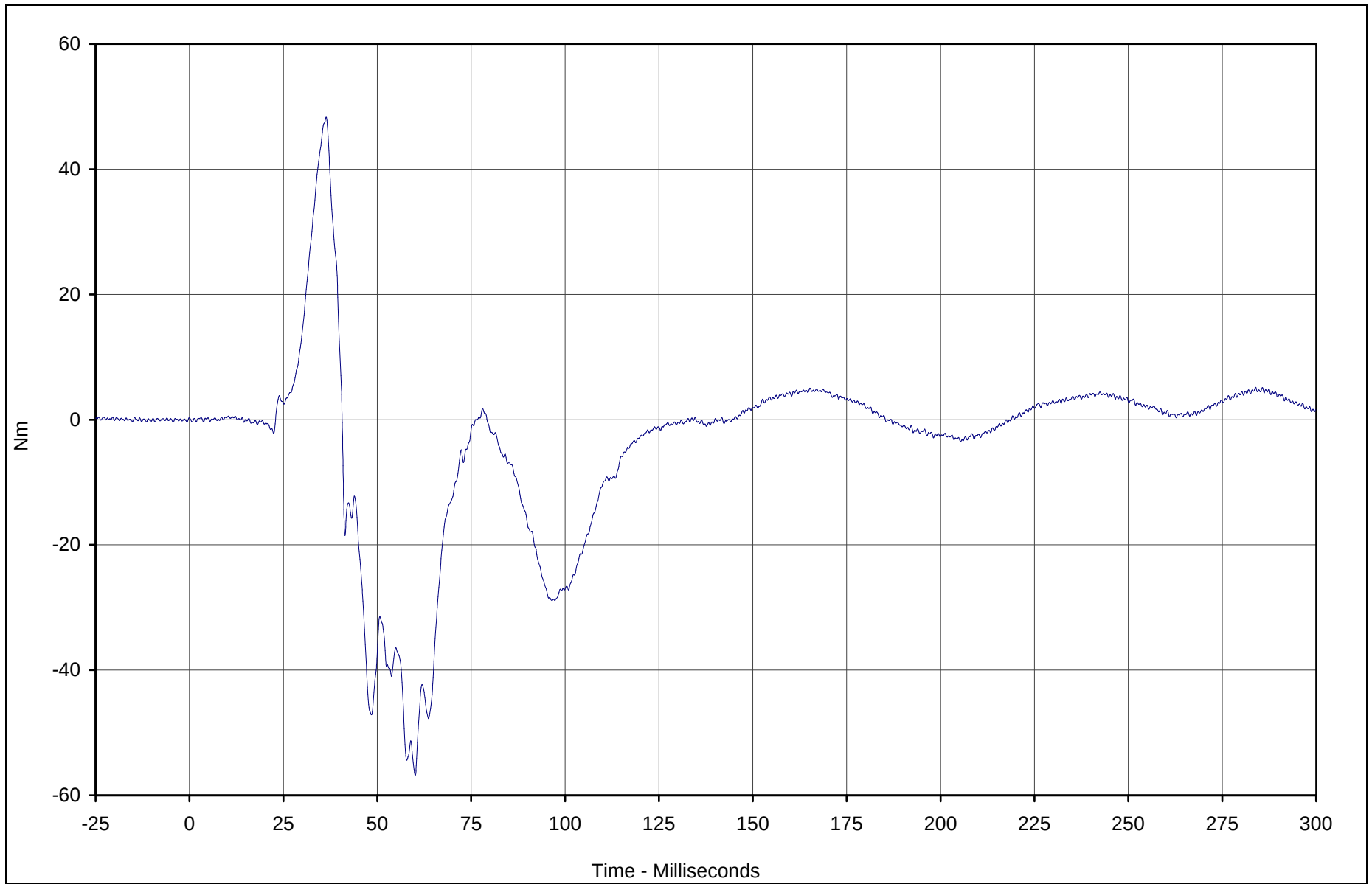


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Upper Tibia Moment Y	026	FIL	Nm	48.3	36.4	-56.8	60.1	600

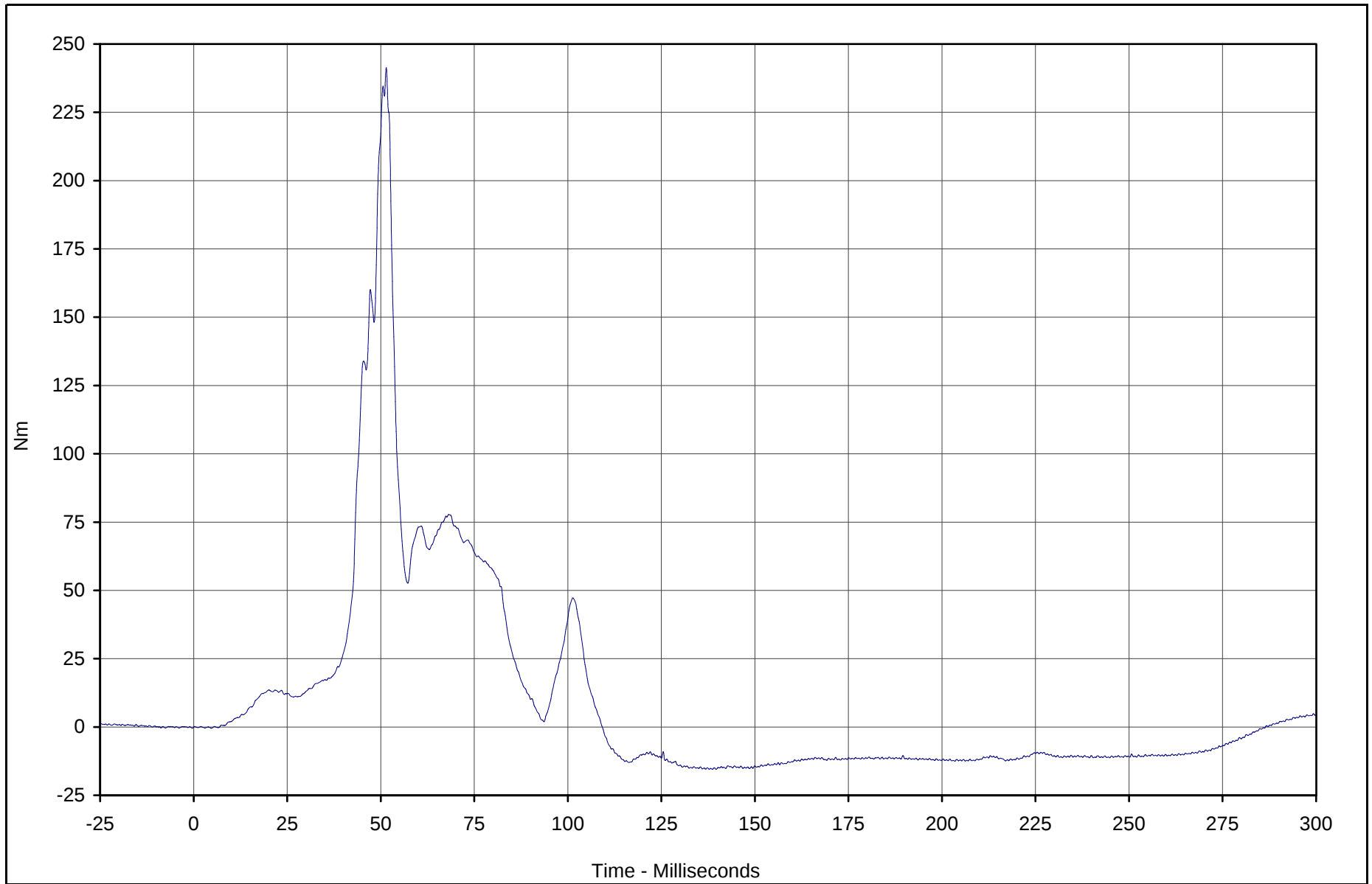


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Upper Tibia Moment X	027	FIL	Nm	241.4	51.5	-15.5	138.6	600

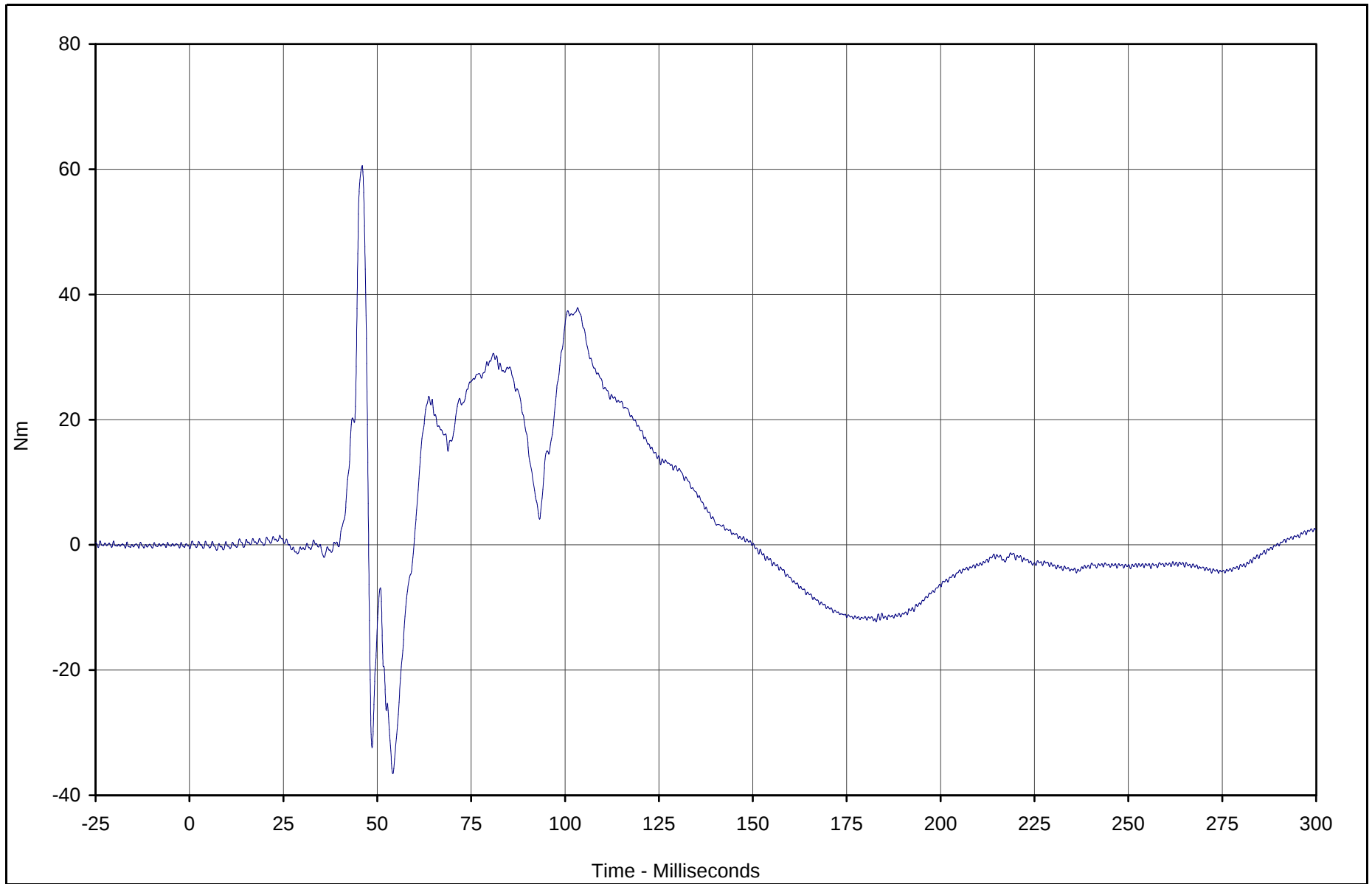


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Upper Tibia Moment Y	028	FIL	Nm	60.6	46.0	-36.5	54.2	600

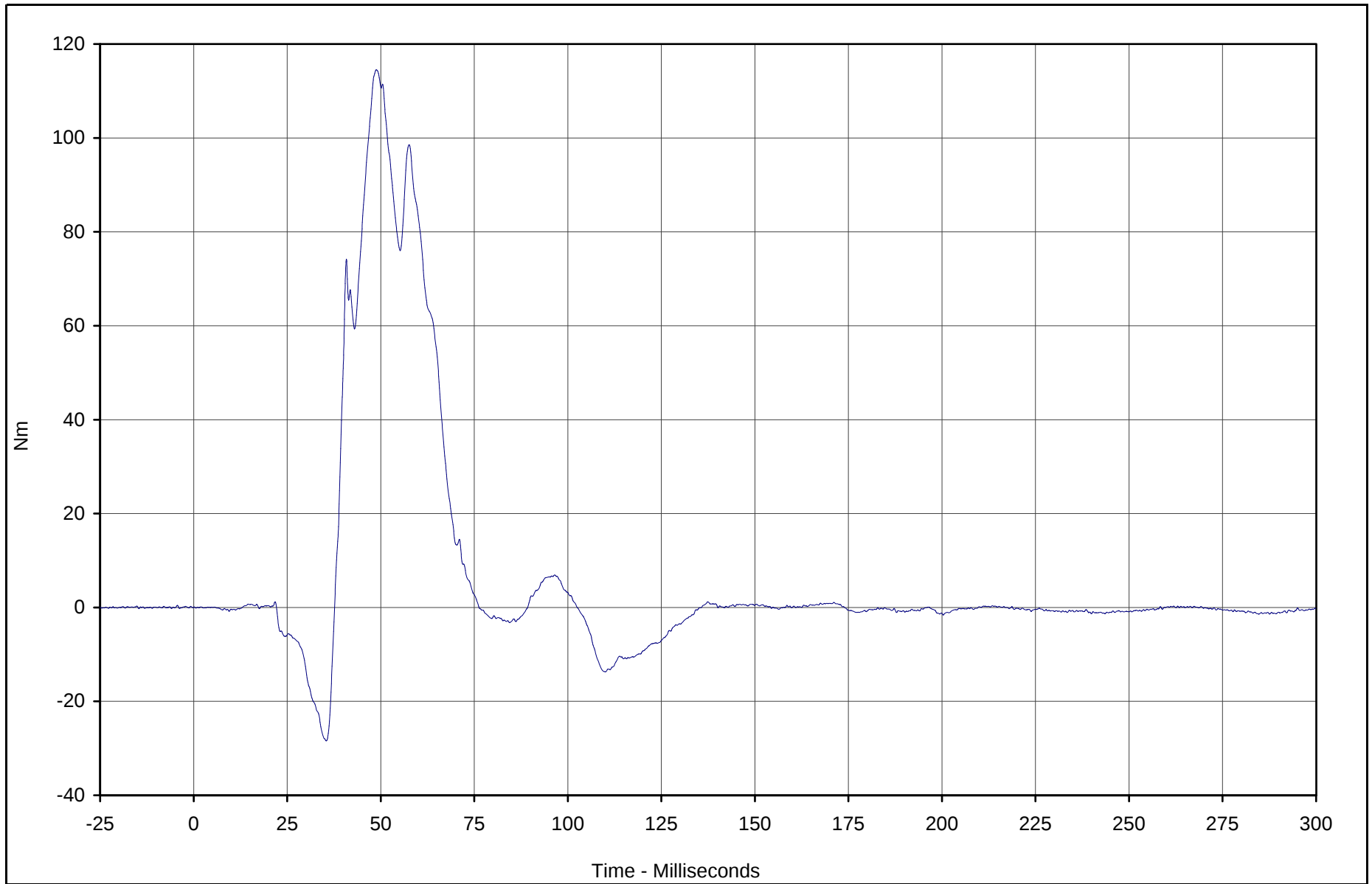


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Lower Tibia Moment X	029	FIL	Nm	114.5	48.8	-28.4	35.4	600

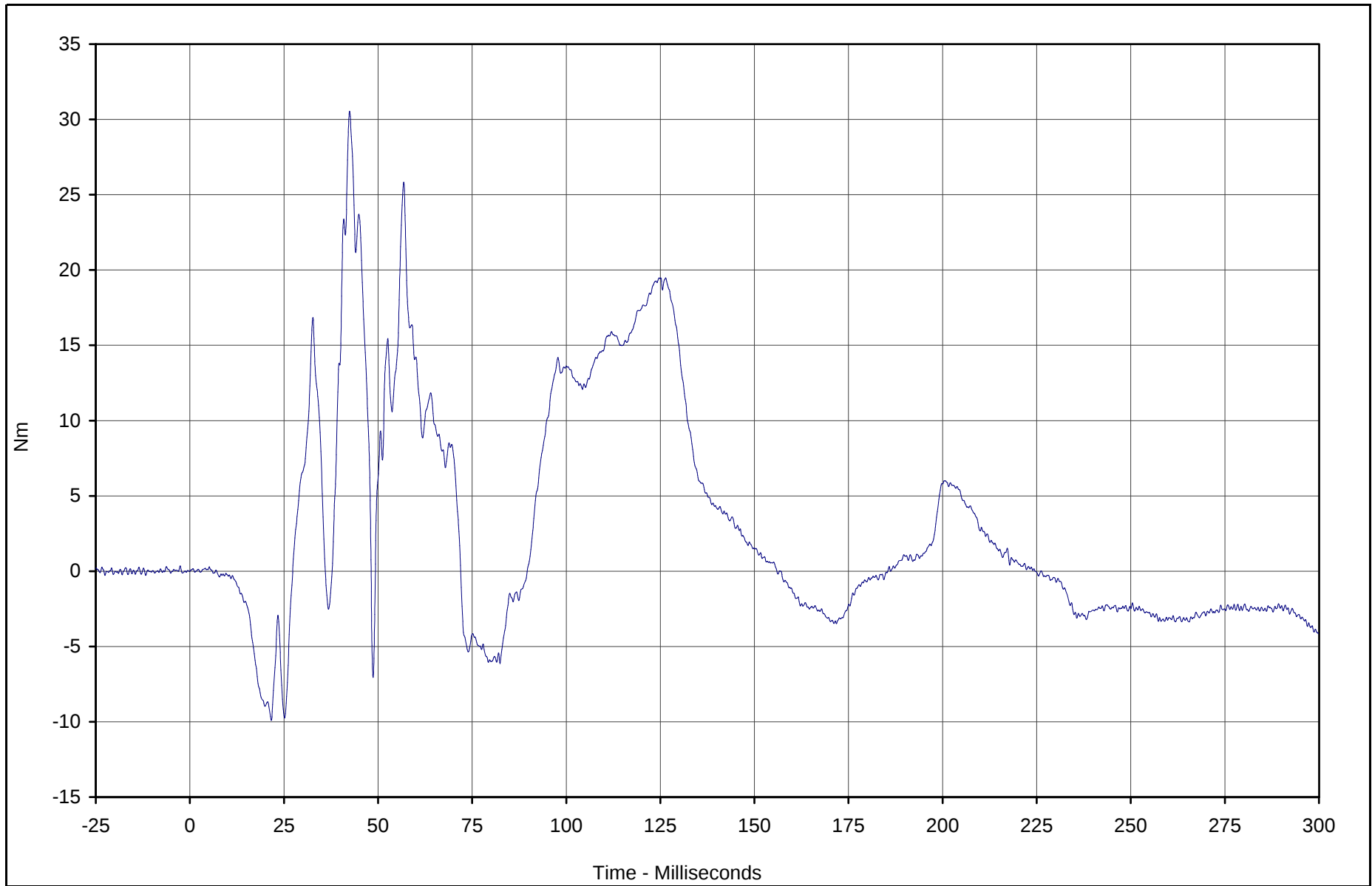


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Lower Tibia Moment Y	030	FIL	Nm	30.5	42.4	-9.9	21.6	600

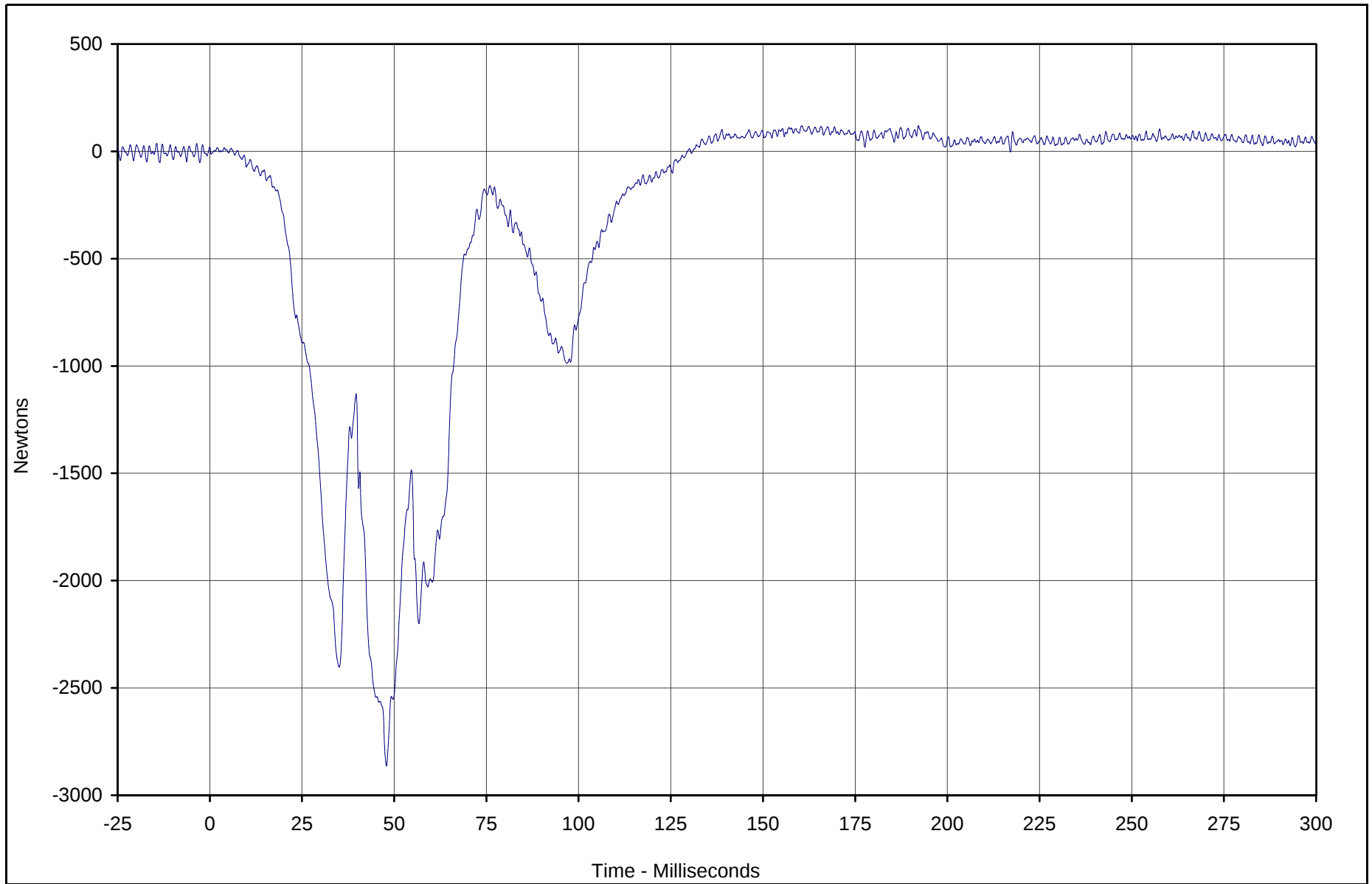


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Lower Tibia Force Z	031	FIL	Newtons	119.1	192.1	-2863.8	47.9	600

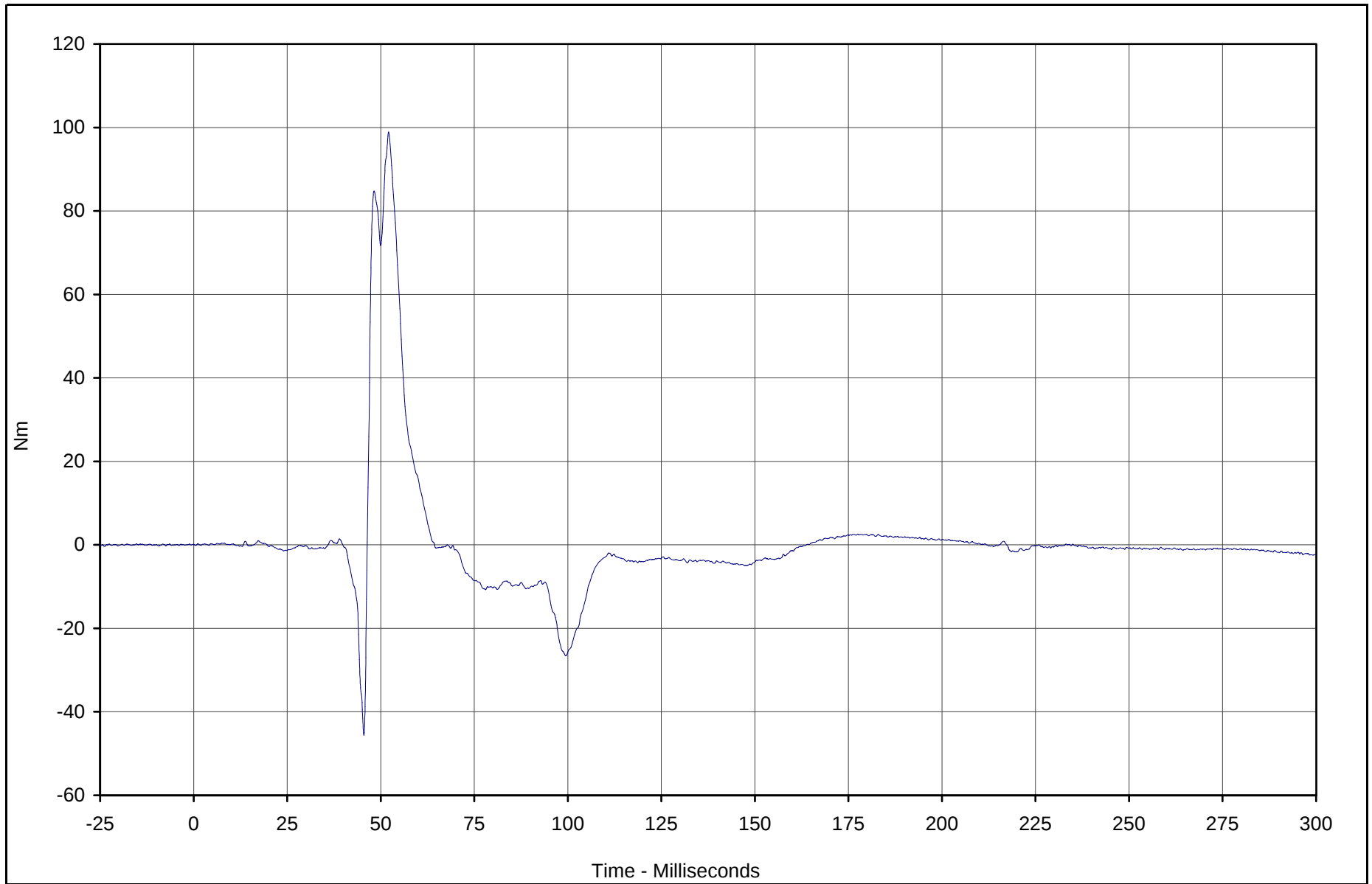


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Lower Tibia Moment X	032	FIL	Nm	98.9	52.1	-45.7	45.5	600

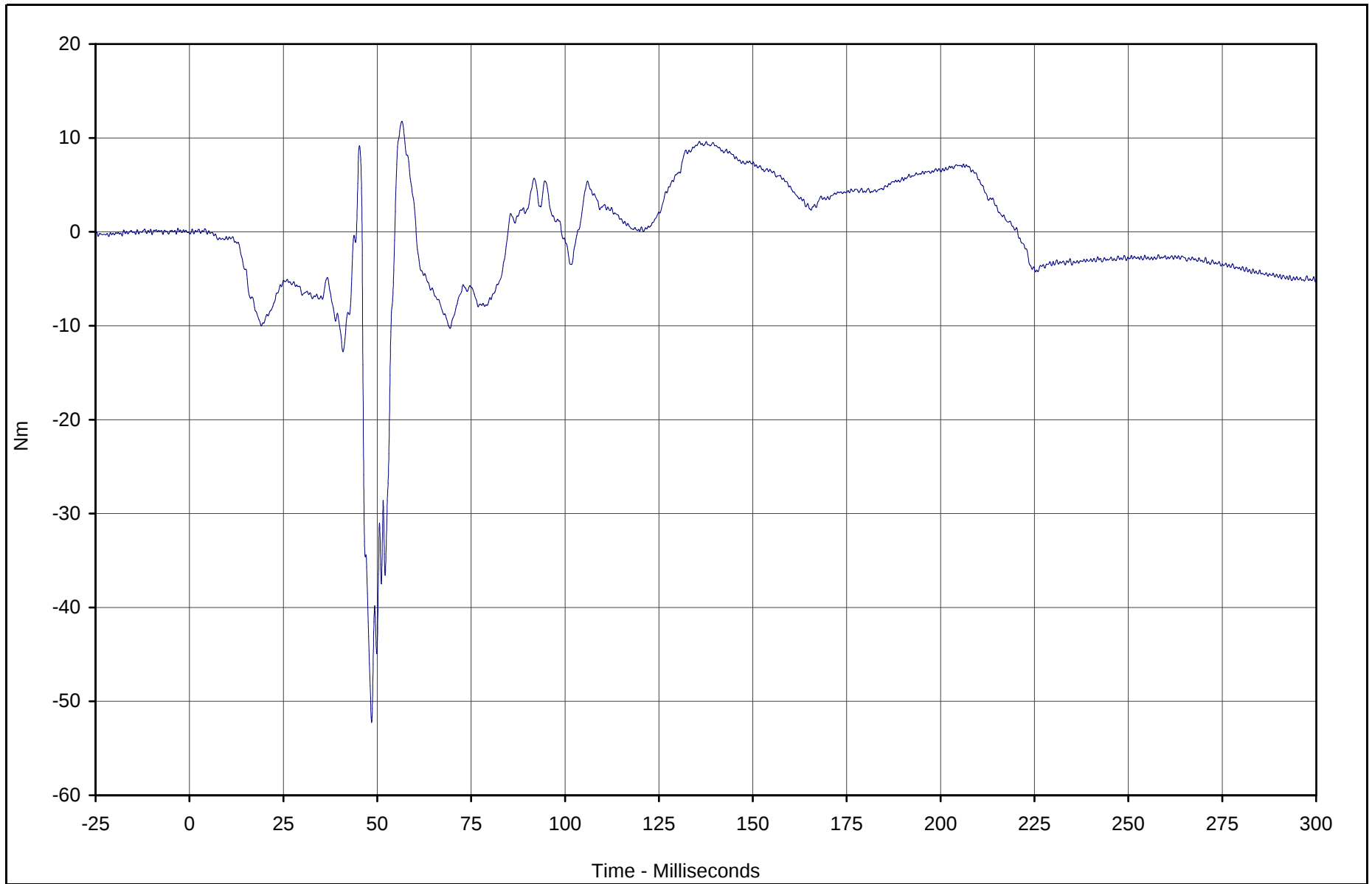


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Lower Tibia Moment Y	033	FIL	Nm	11.8	56.6	-52.2	48.5	600

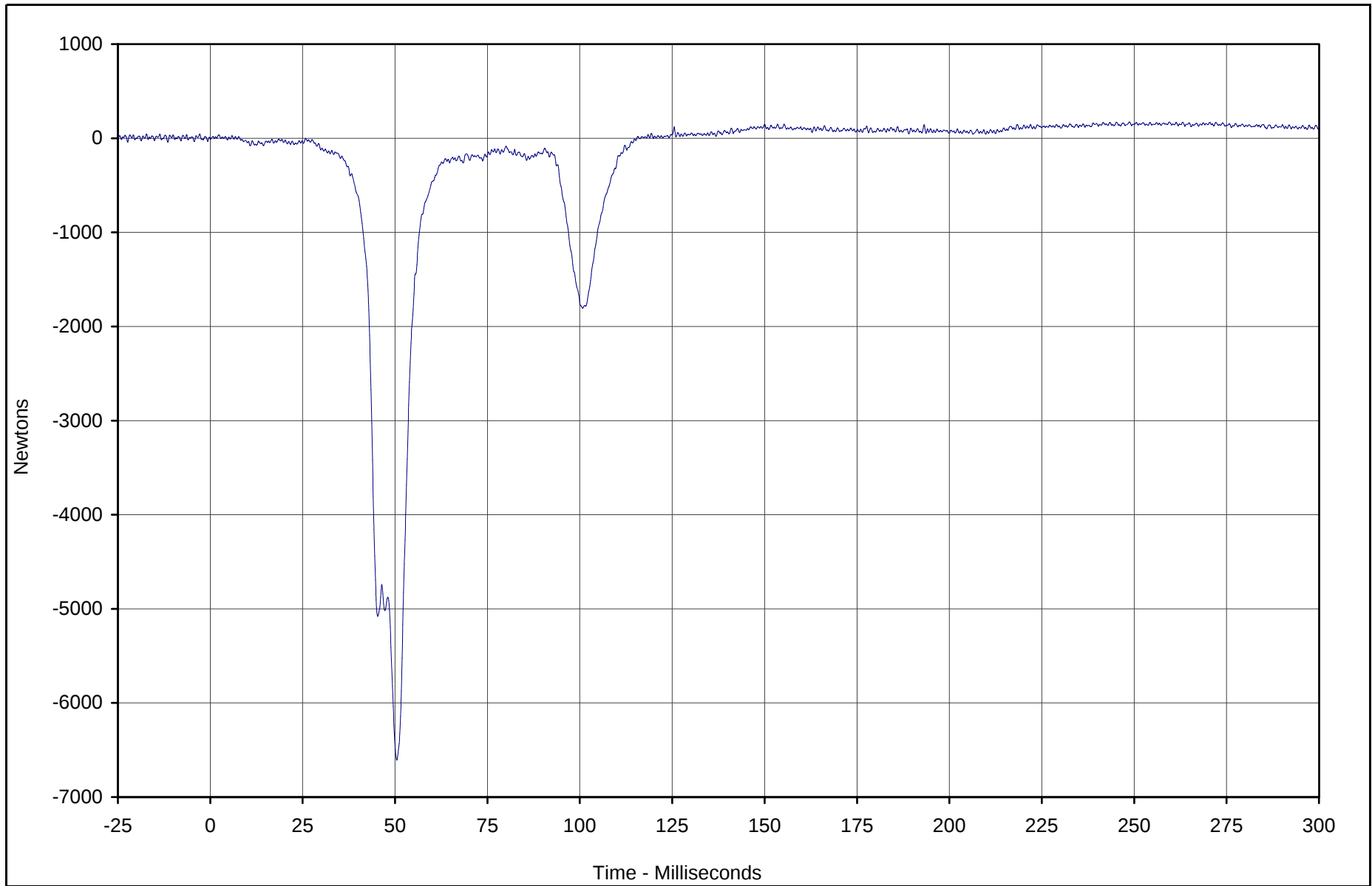


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Lower Tibia Force Z	034	FIL	Newtons	173.4	259.5	-6609.2	50.5	600

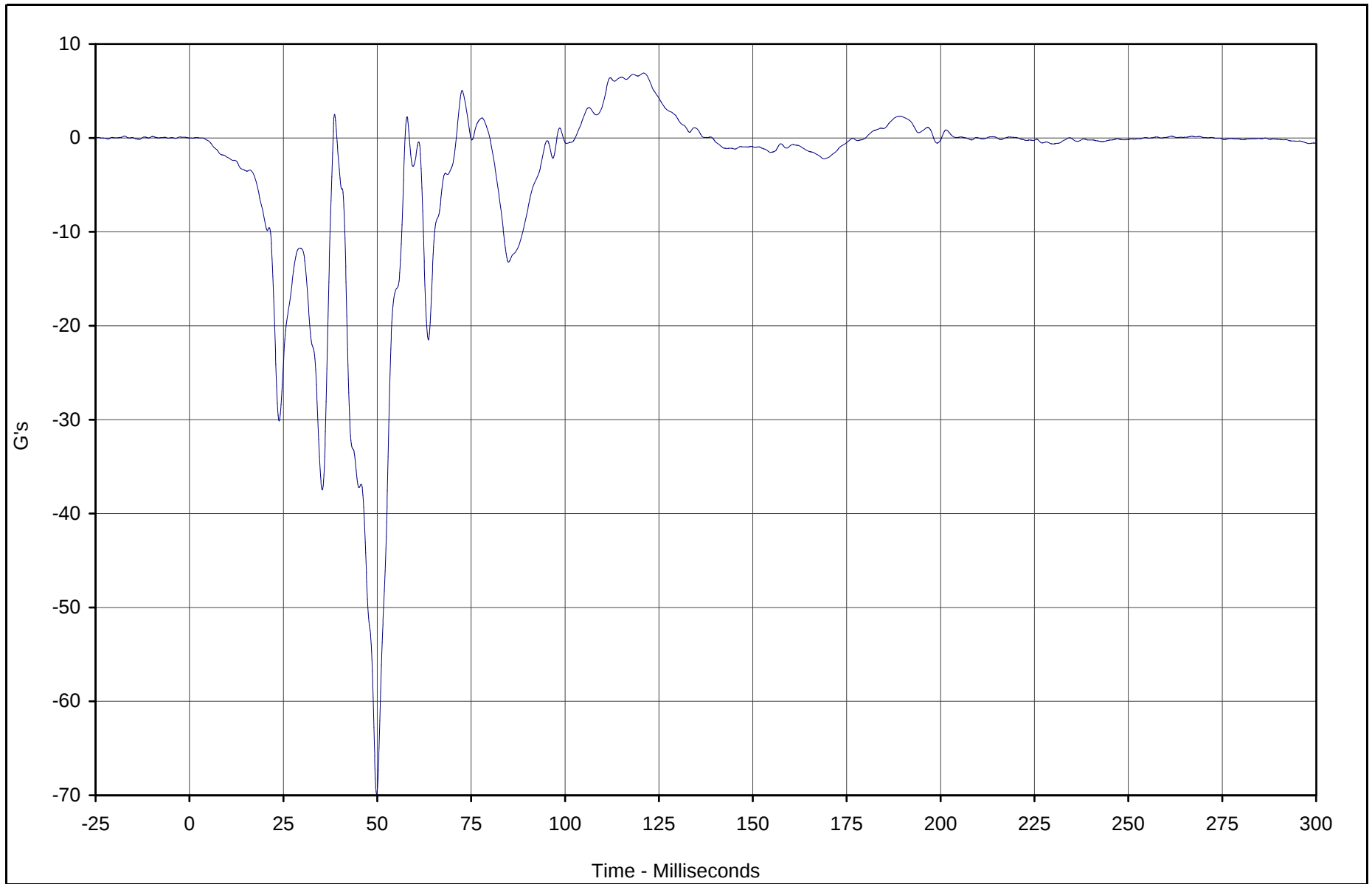


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Foot Aft X	035	FIL	G's	6.9	121.0	-69.8	49.8	180

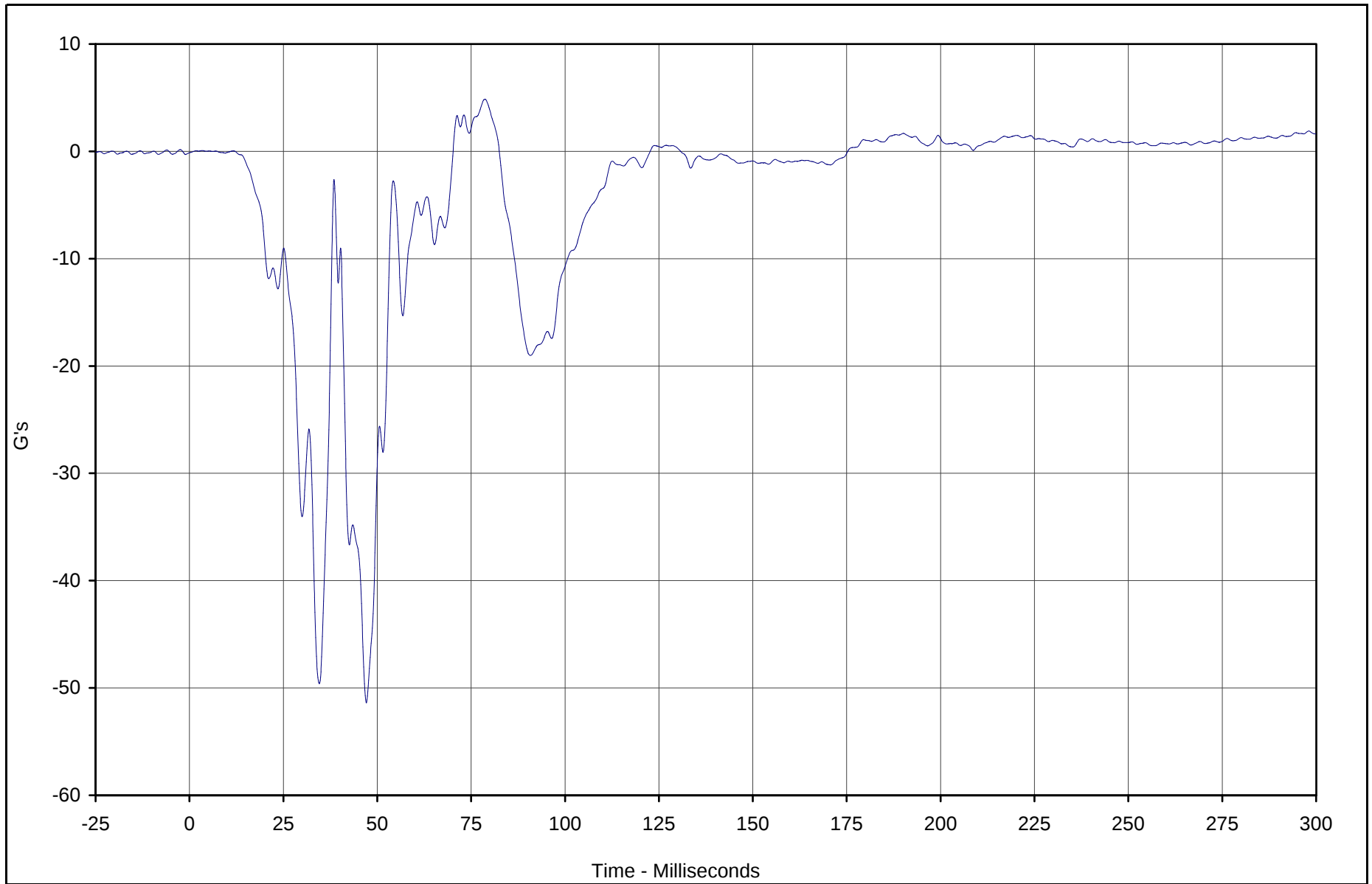


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Foot Aft Z	036	FIL	G's	4.9	78.7	-51.4	47.1	180

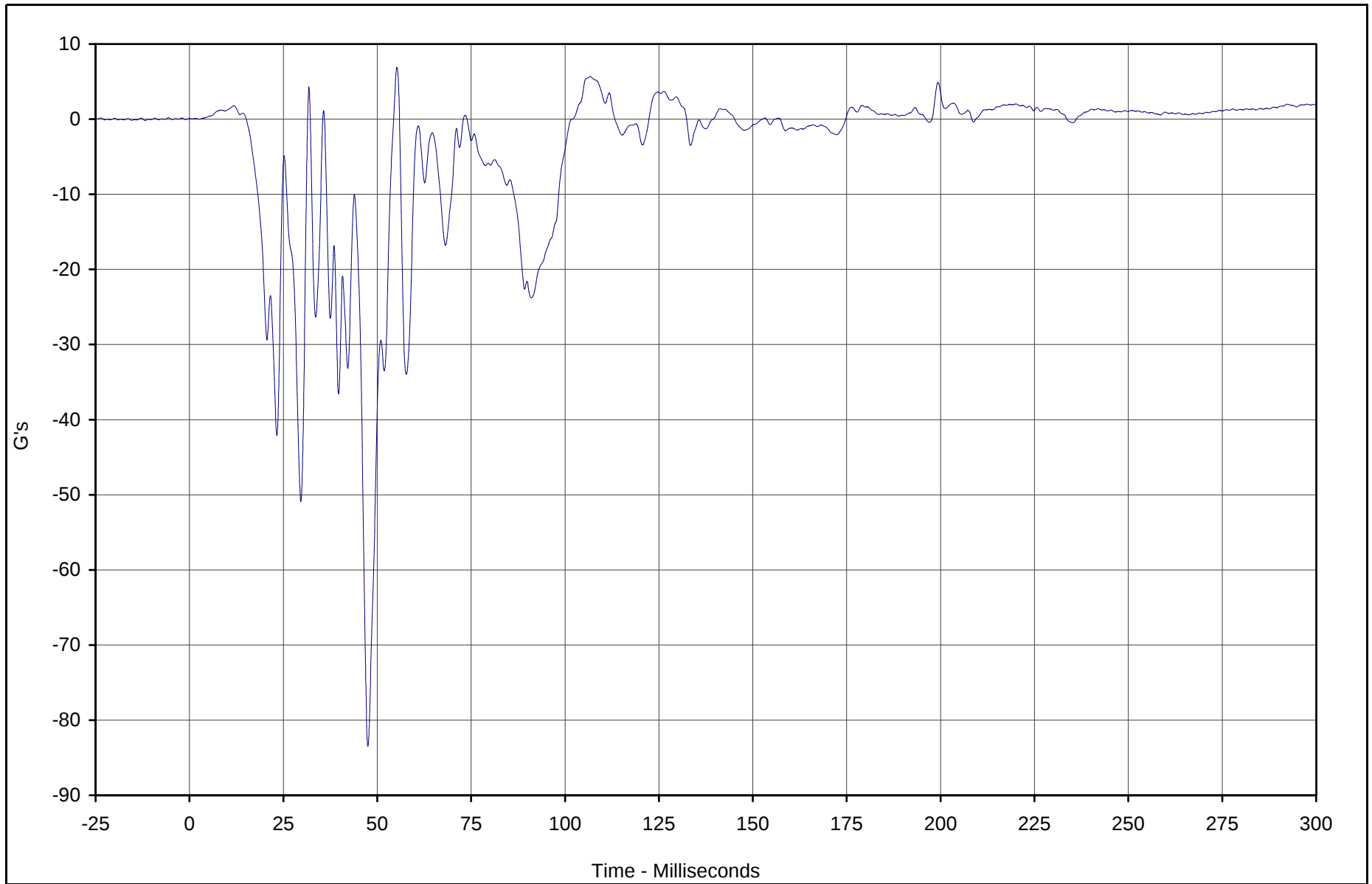


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Foot Fore Z	037	FIL	G's	6.9	55.3	-83.5	47.5	180

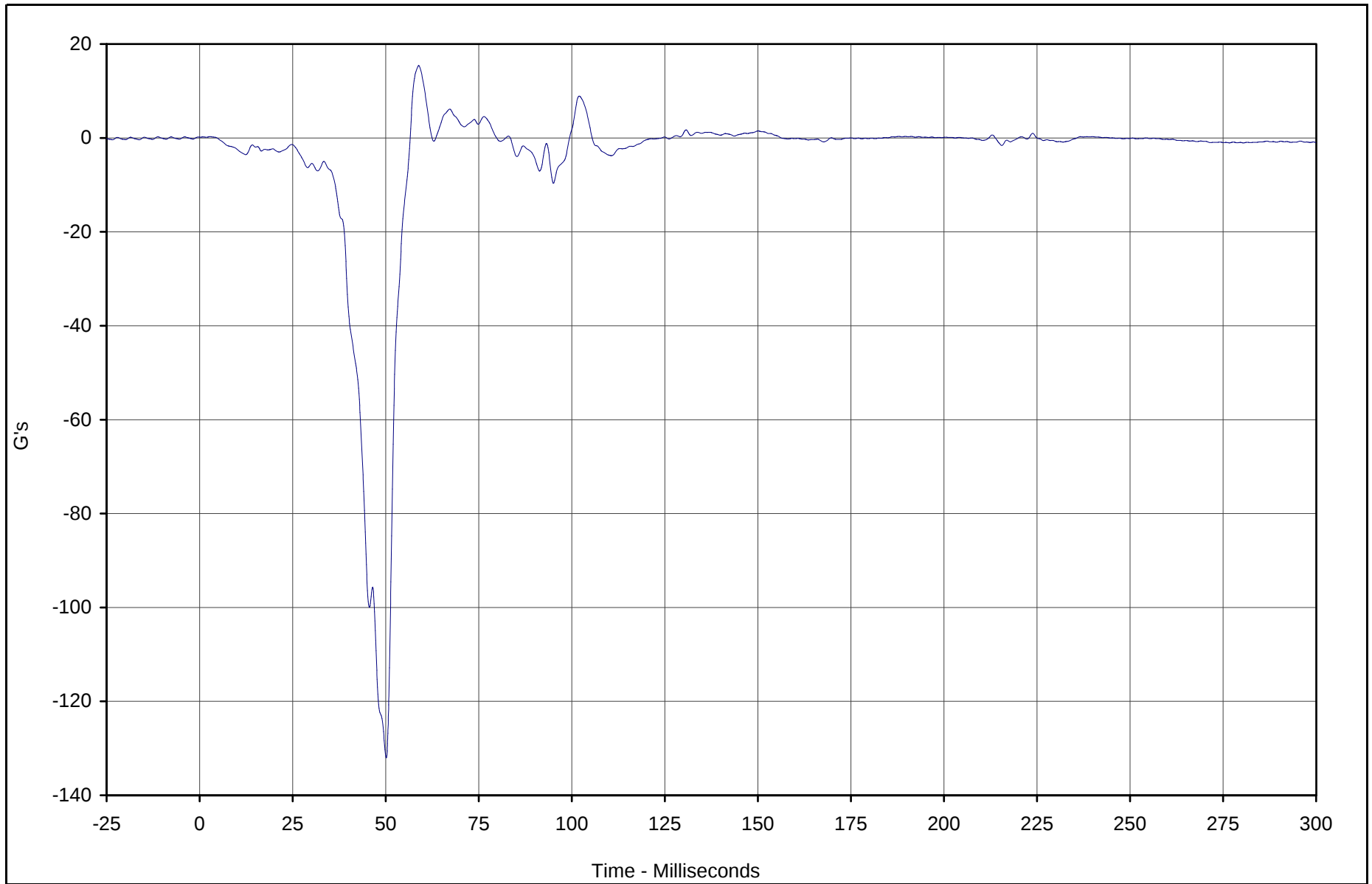


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Foot Aft X	038	FIL	G's	15.4	58.9	-132.0	50.1	180

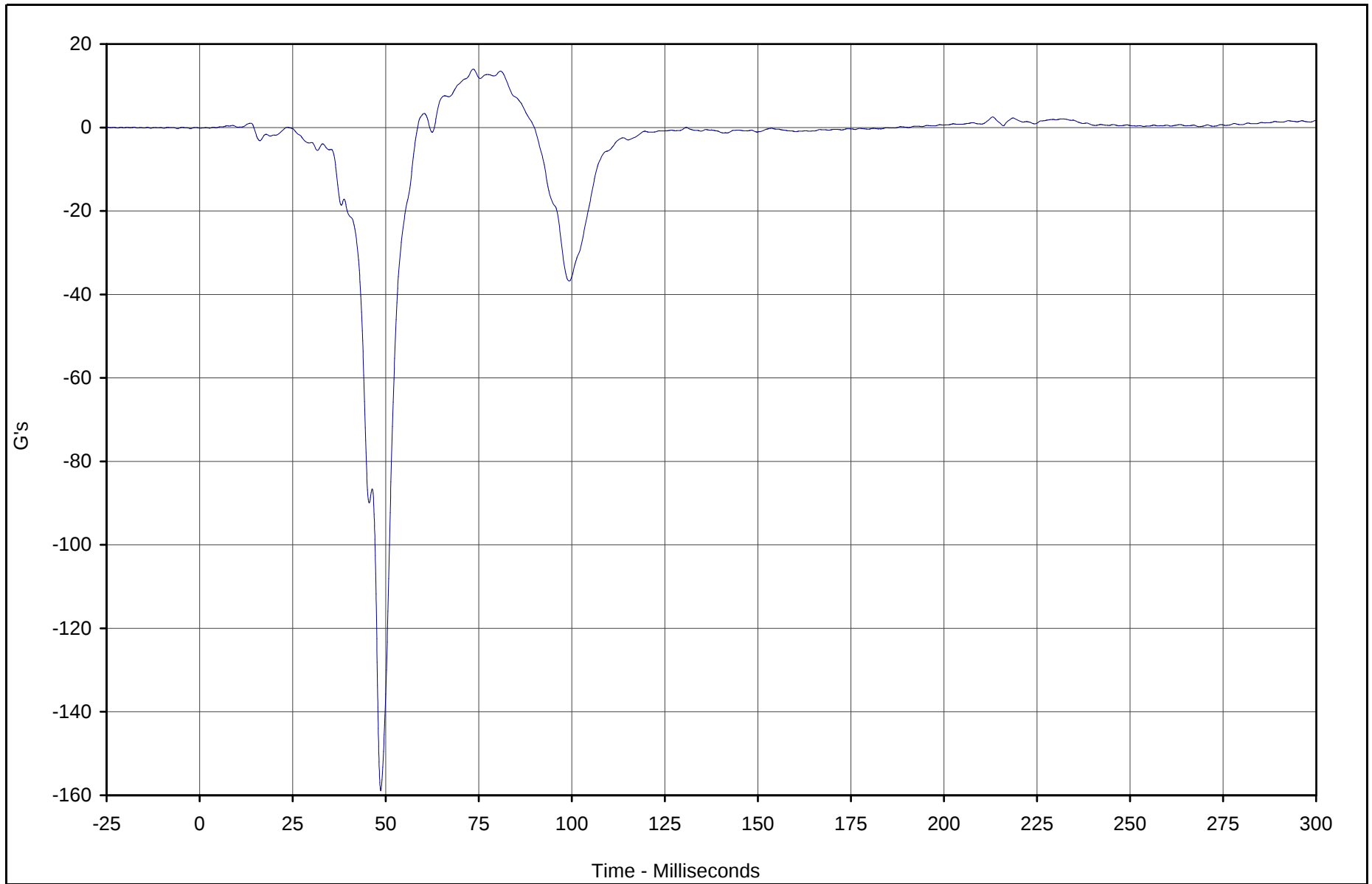


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Foot Aft Z	039	FIL	G's	14.0	73.5	-158.9	48.7	180

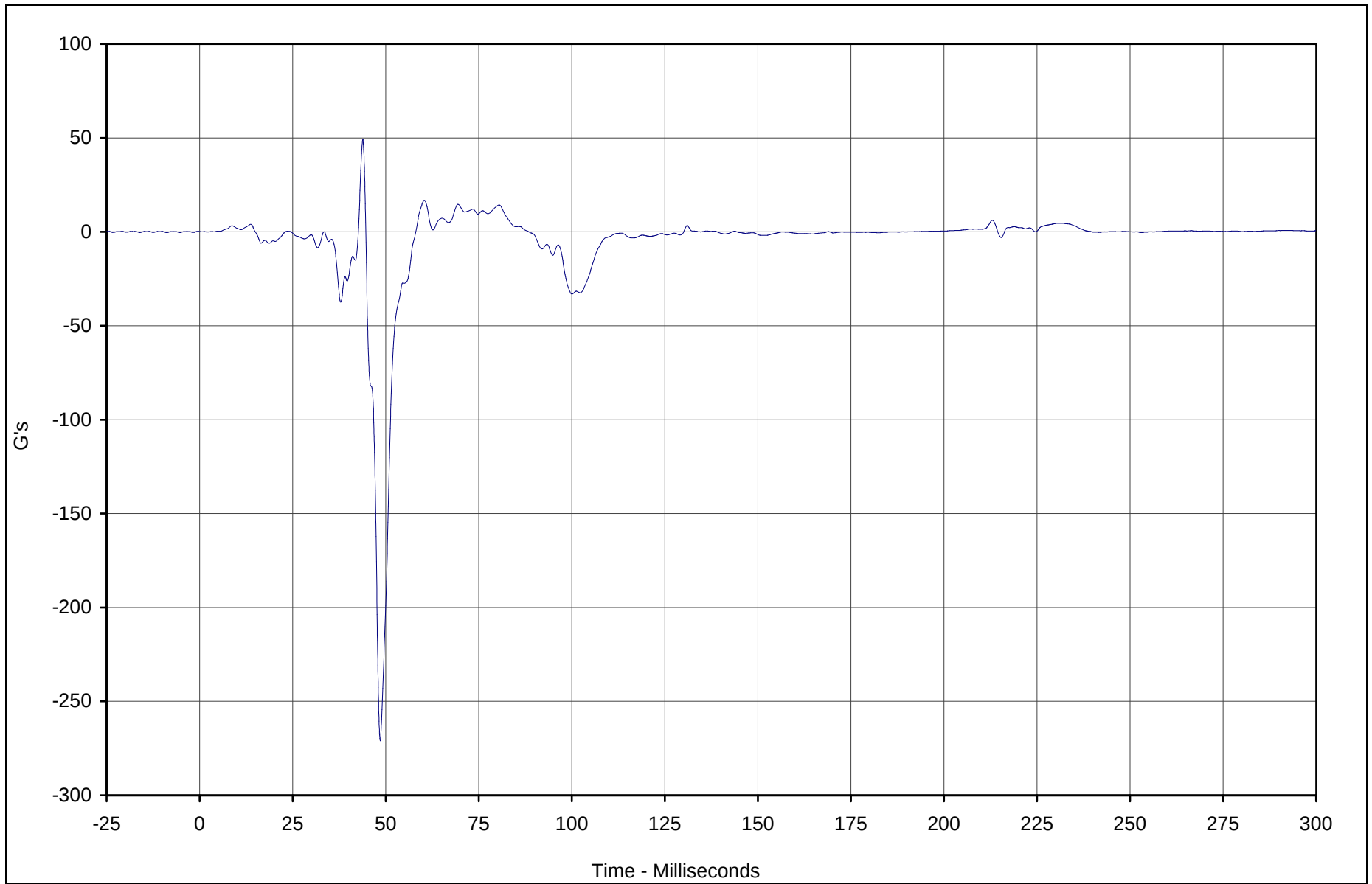


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Foot Fore Z	040	FIL	G's	49.1	43.8	-271.0	48.5	180

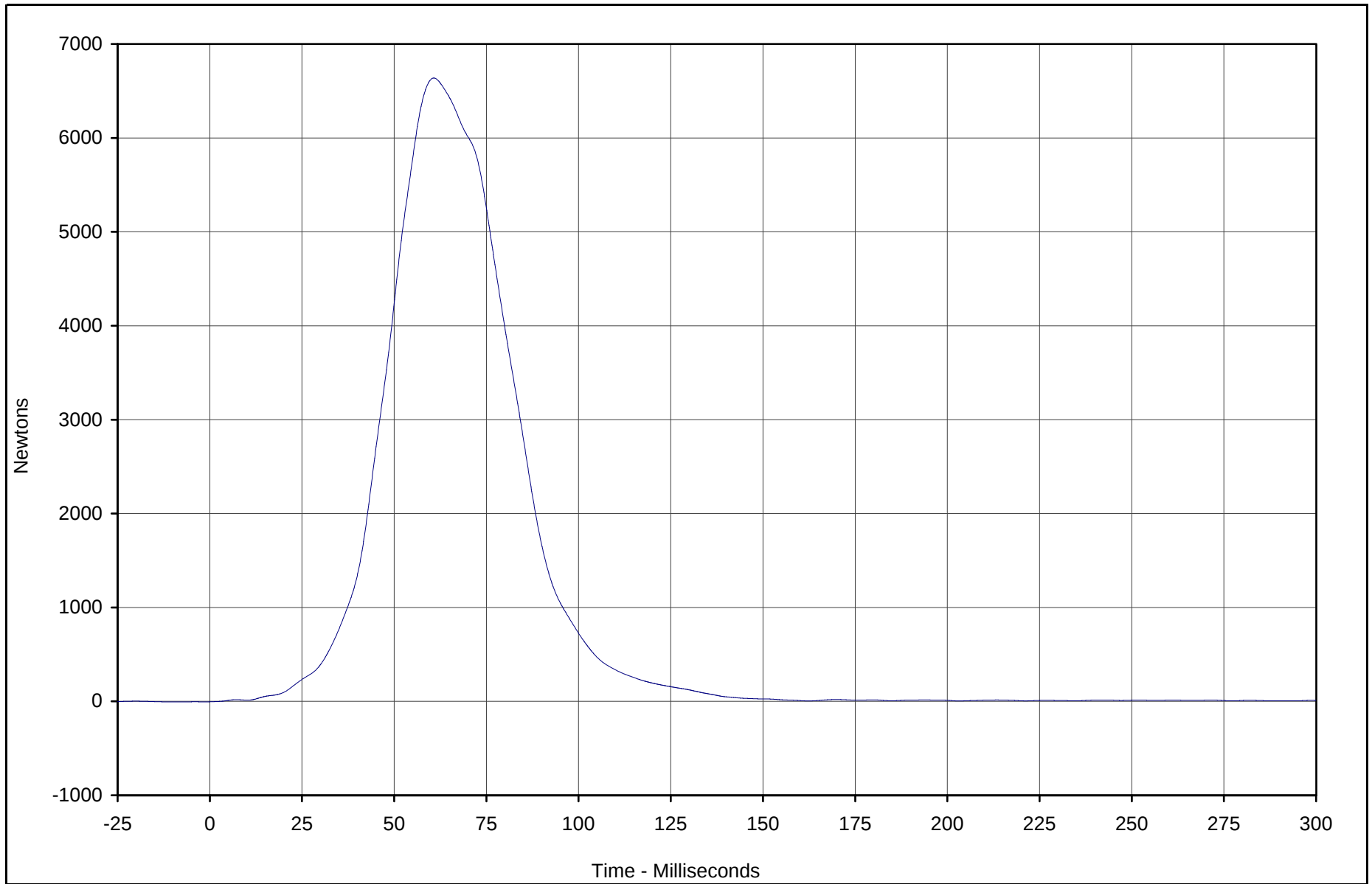


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lap Belt Force	041	FIL	Newtons	6637.9	60.7	-4.3	0.0	60

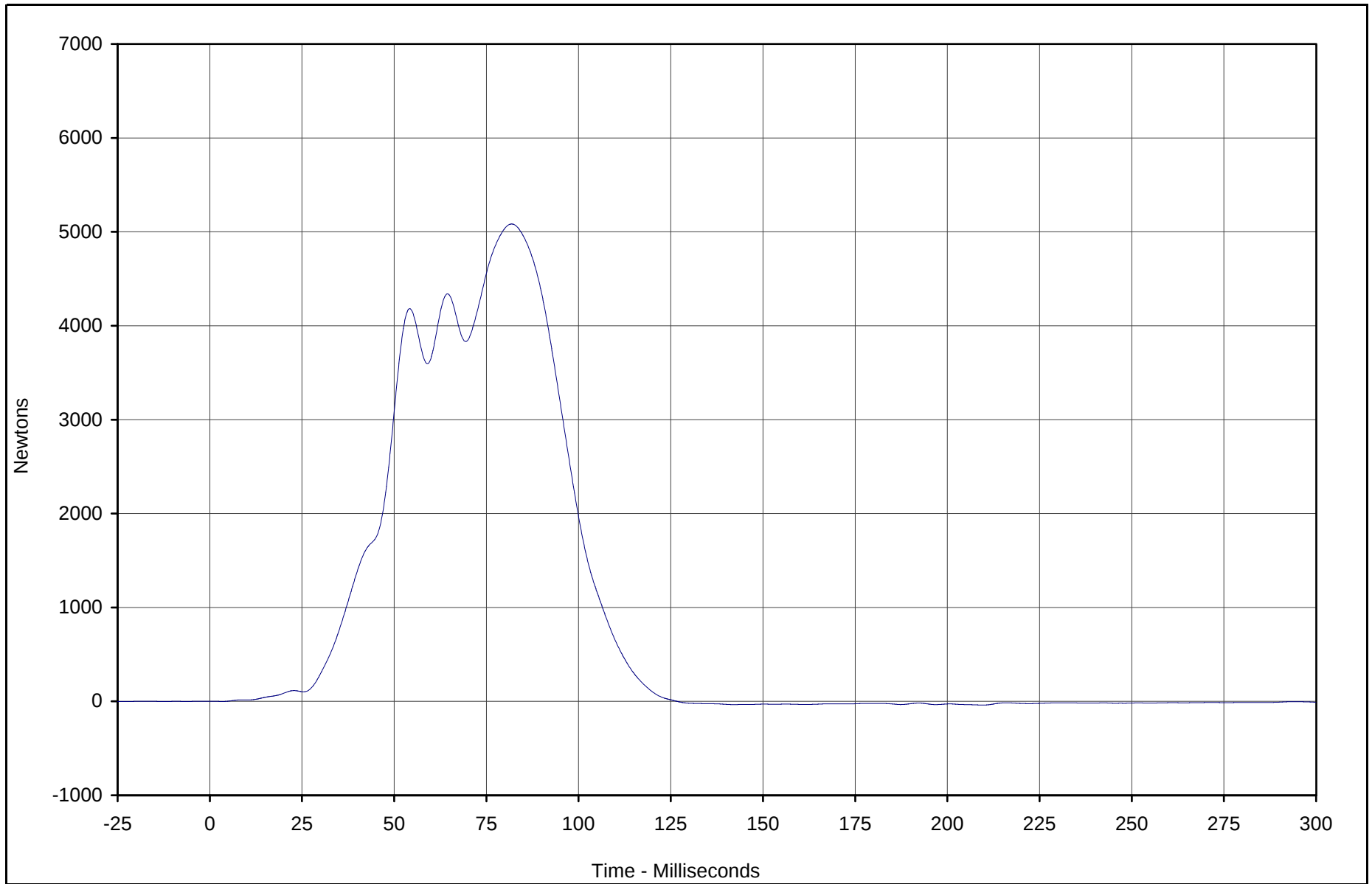


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Shoulder Belt Force	042	FIL	Newtons	5083.4	81.8	-39.0	209.6	60

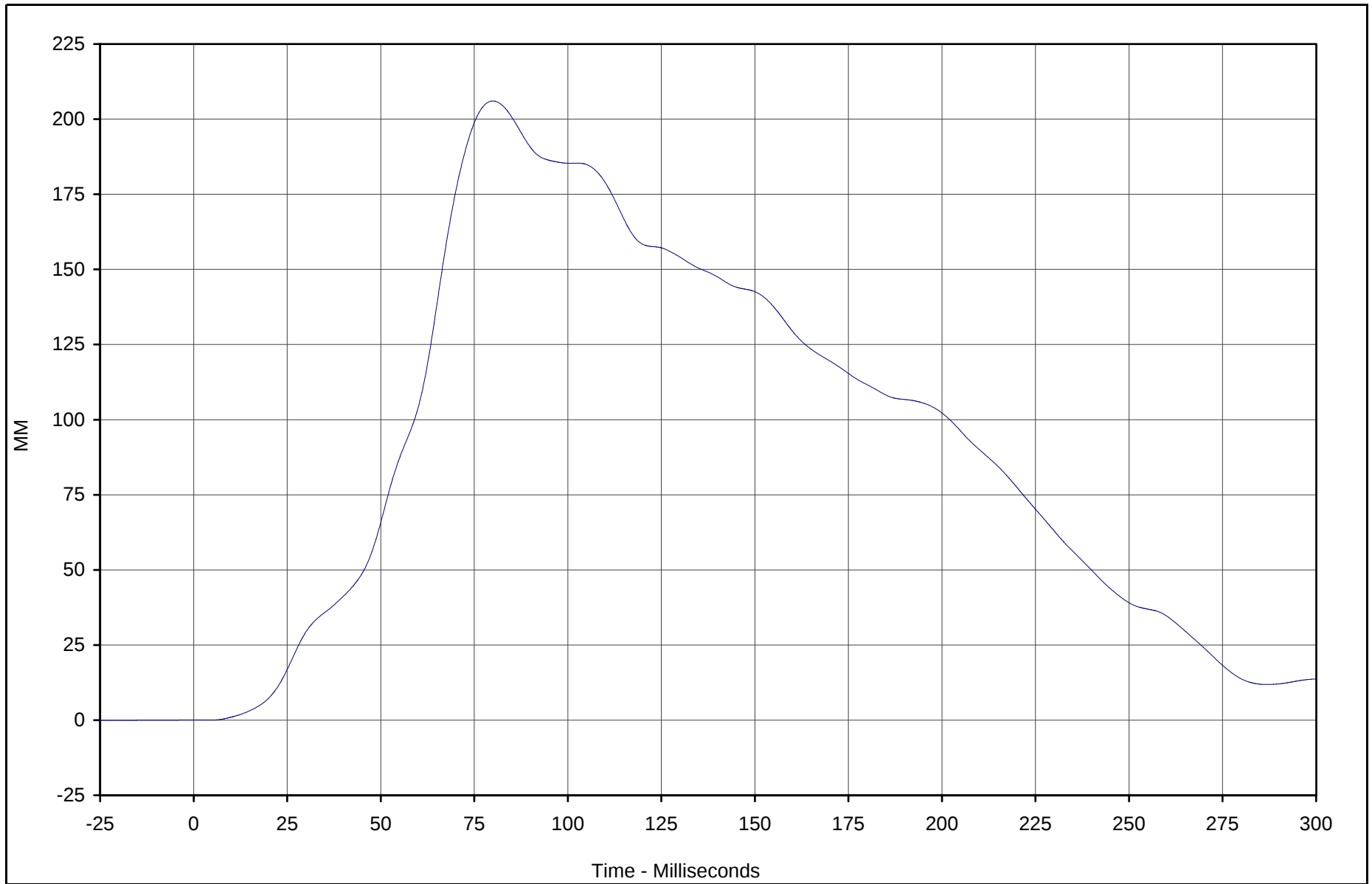


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Shoulder Belt Pullout	043	FIL	MM	206.0	80.0	0.0	0.0	60

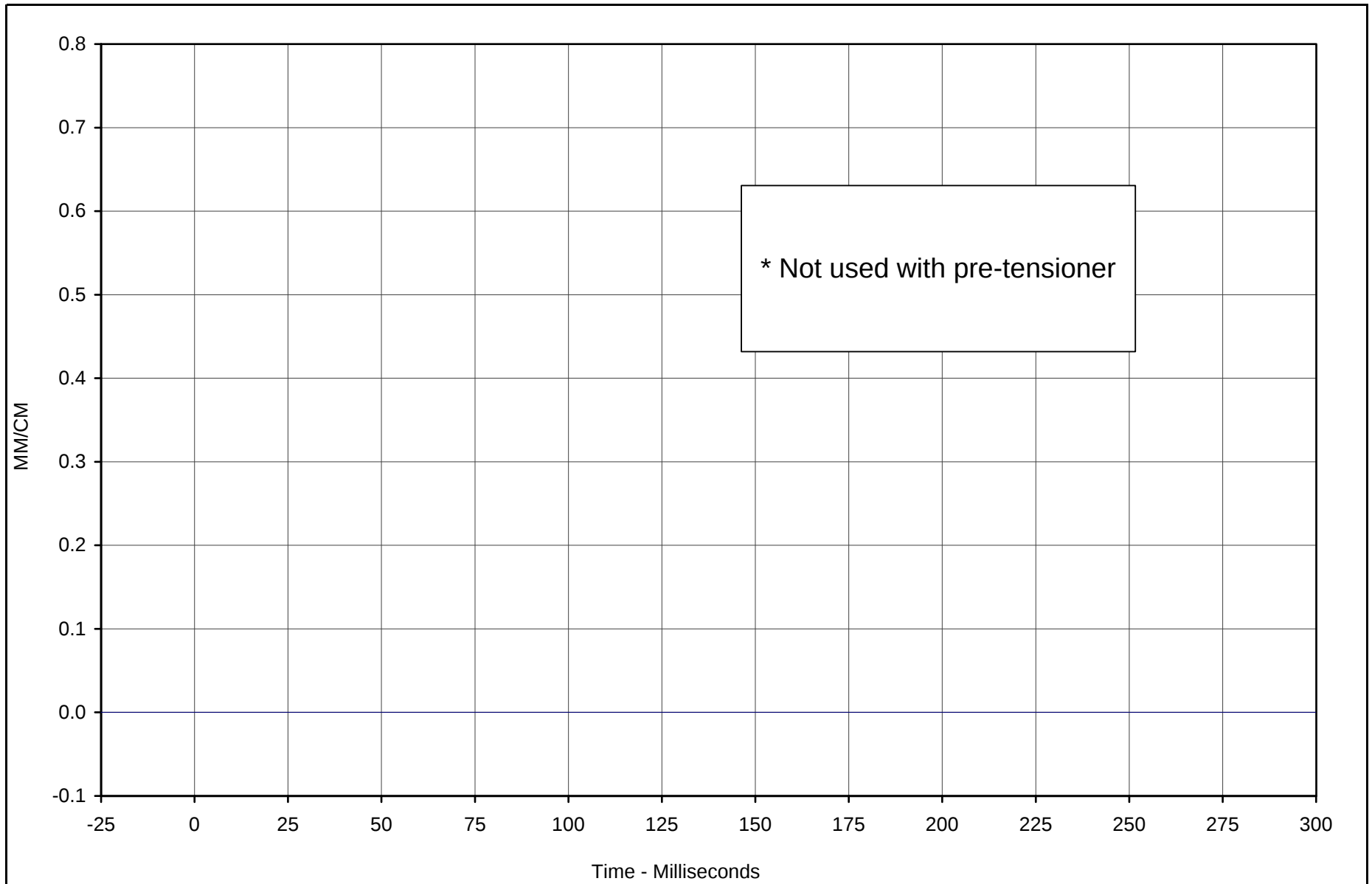


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



* Not used with pre-tensioner

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Shoulder Belt Elongation	044	FIL	MM/CM	0.00	0.0	0.00	0.0	60

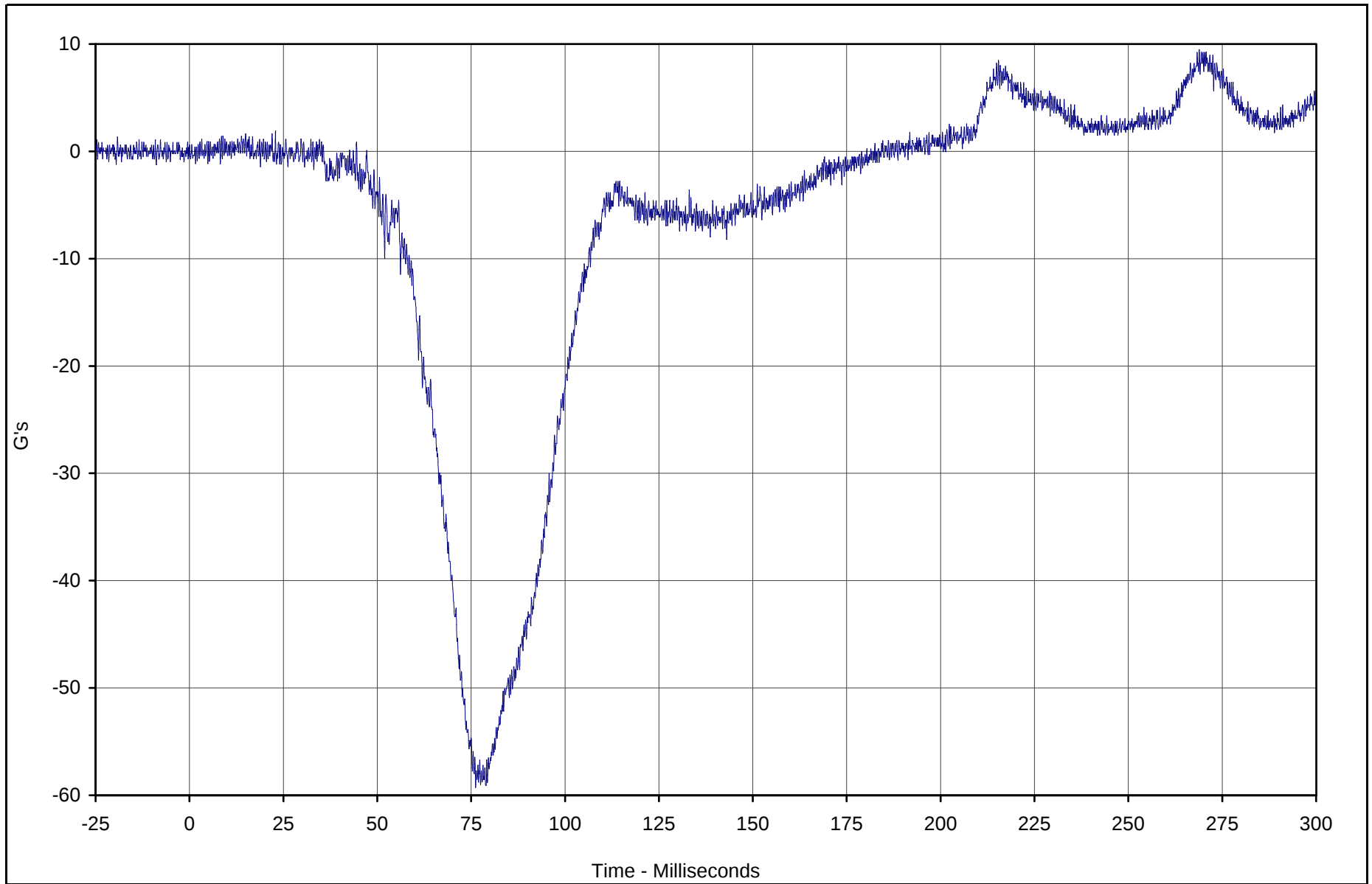


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X	045	FIL	G's	9.5	268.9	-59.3	76.2	1000

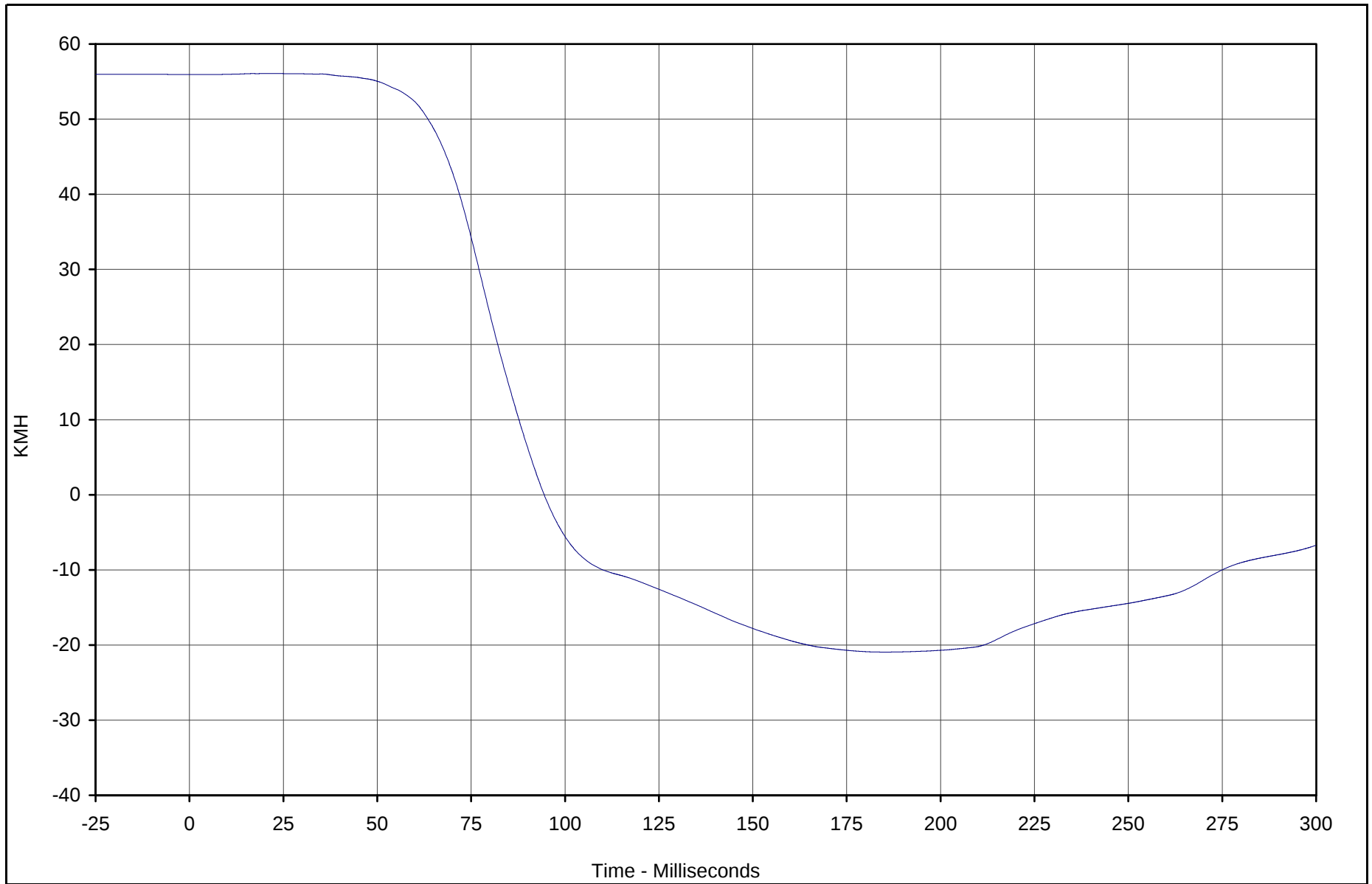


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X Velocity	045	IN1	KMH	56.1	22.5	-20.9	185.3	180

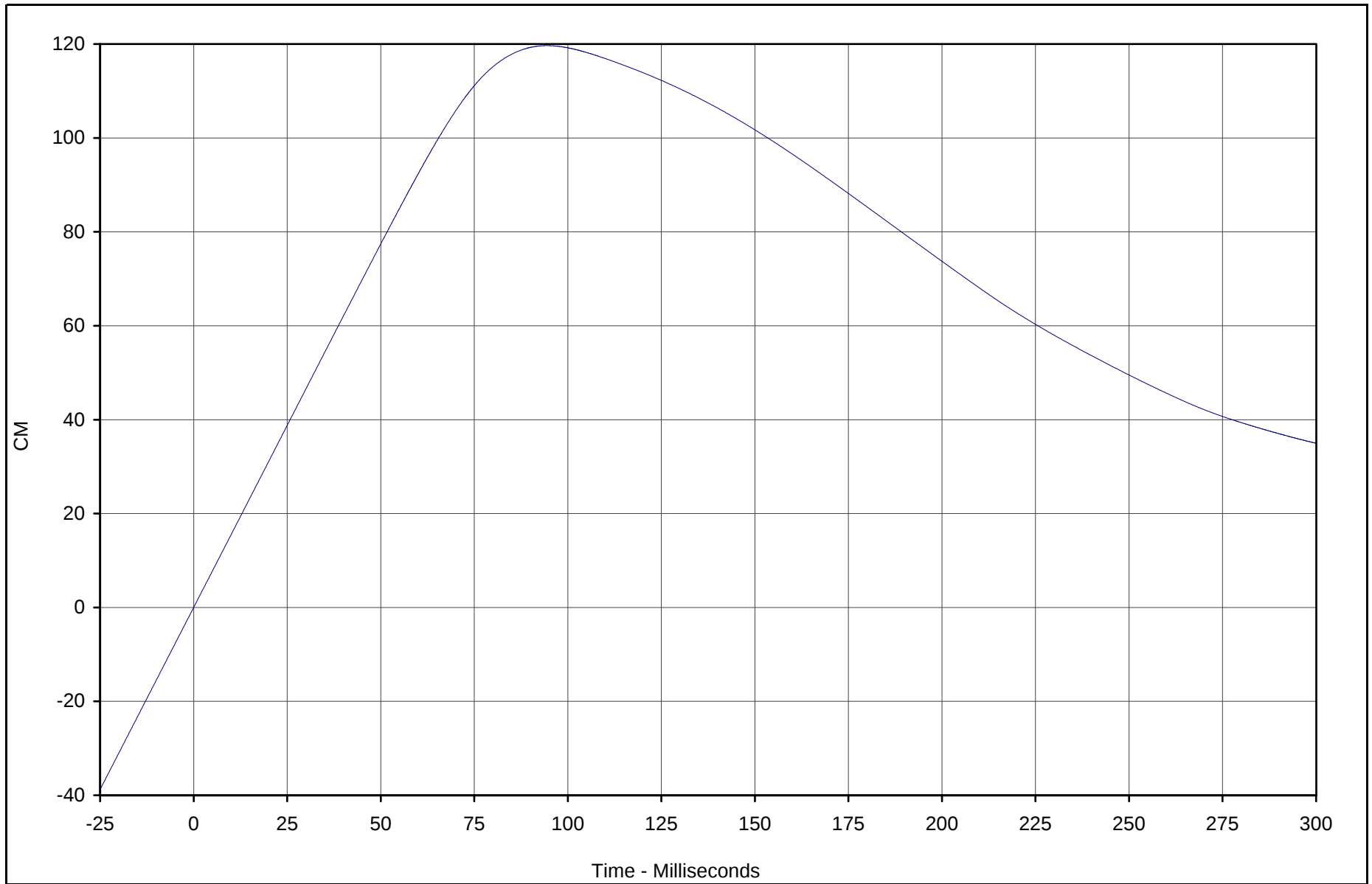


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X Displ.	045	IN2	CM	119.7	94.4	0.0	0.0	180

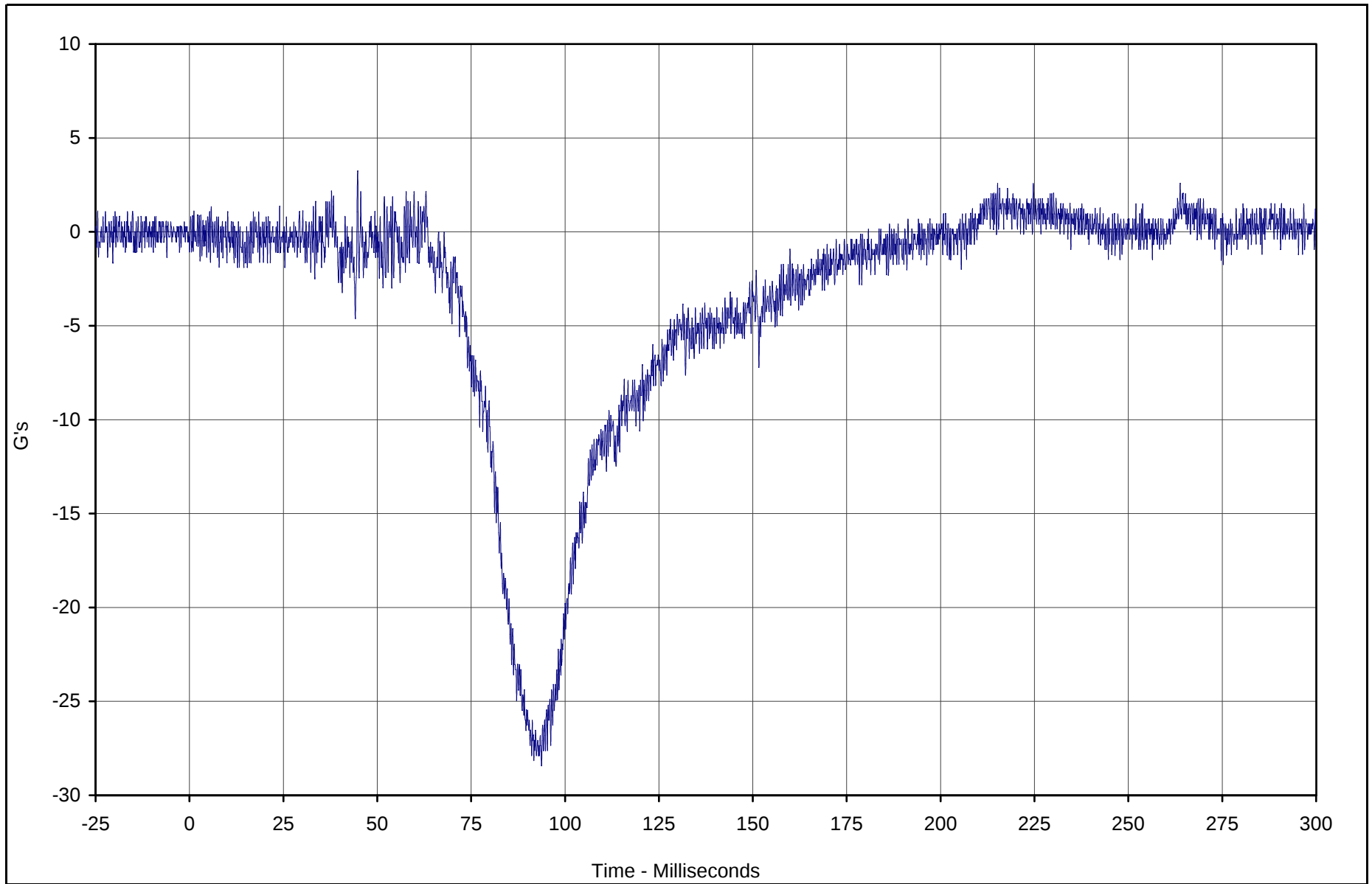


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary Y	046	FIL	G's	3.2	44.8	-28.4	93.7	1000

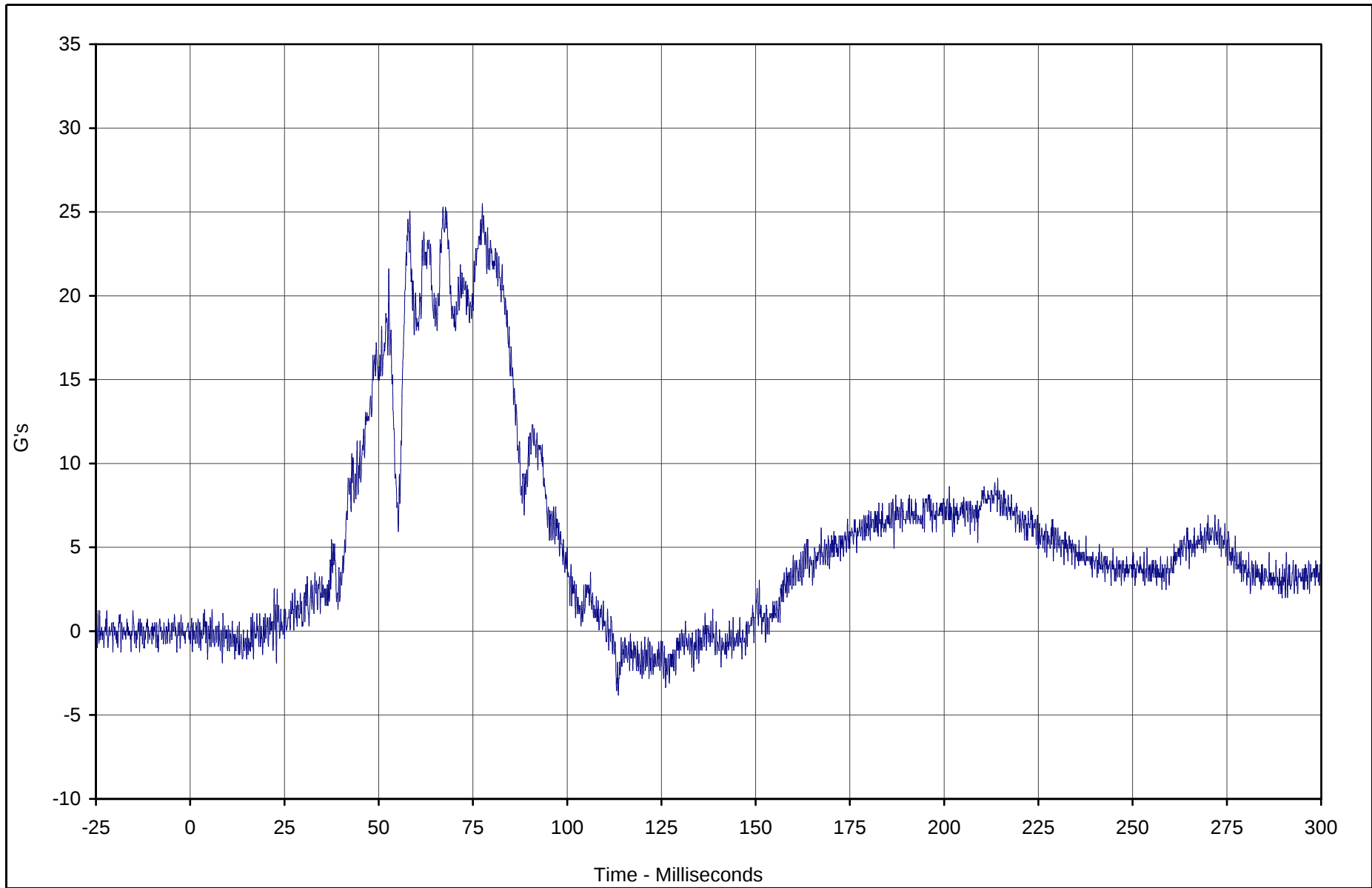


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary Z	047	FIL	G's	25.5	77.5	-3.8	113.6	1000

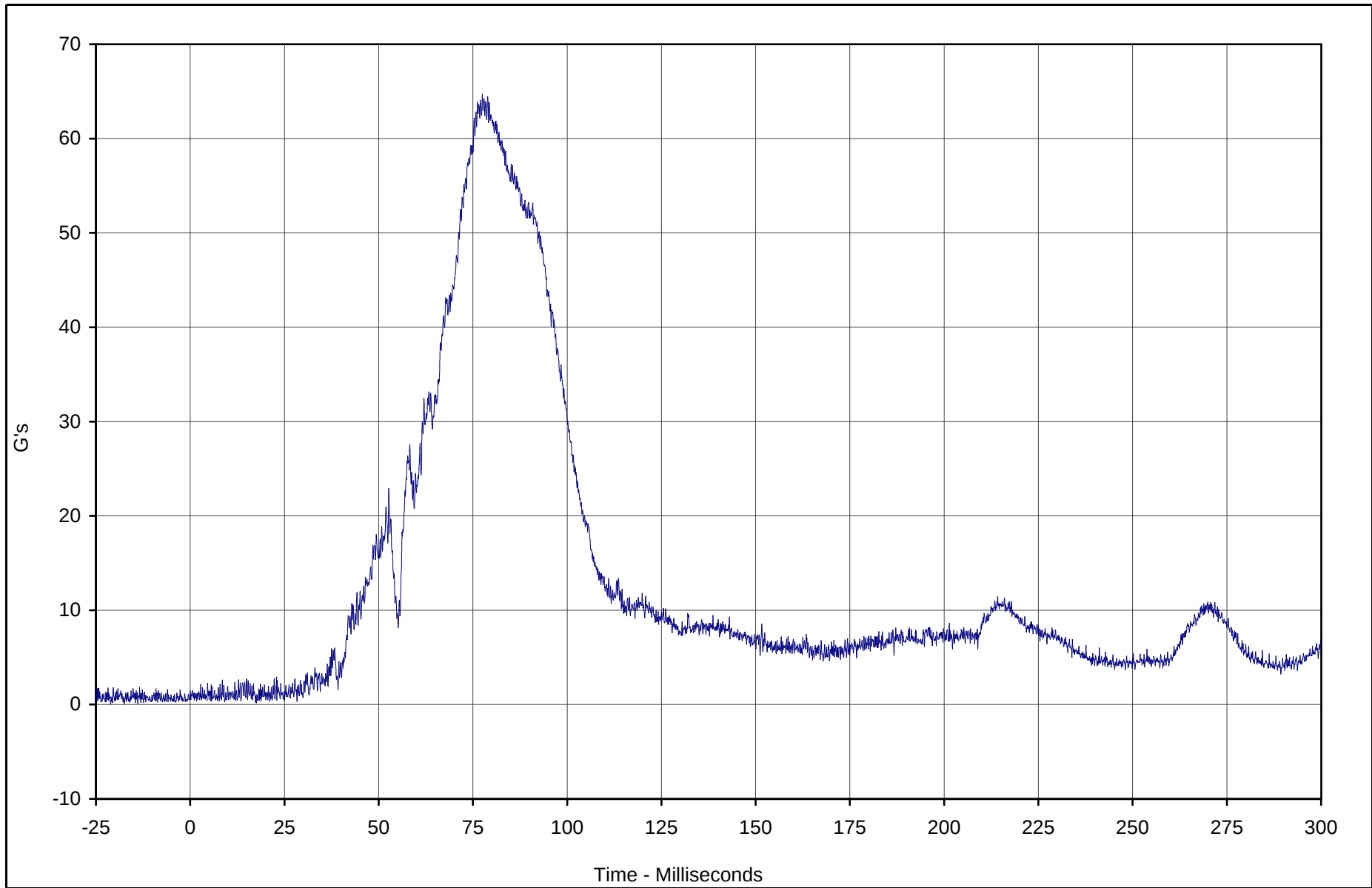


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Resultant Primary	045	RES	G's	64.7	77.5	0.2	17.6	1000

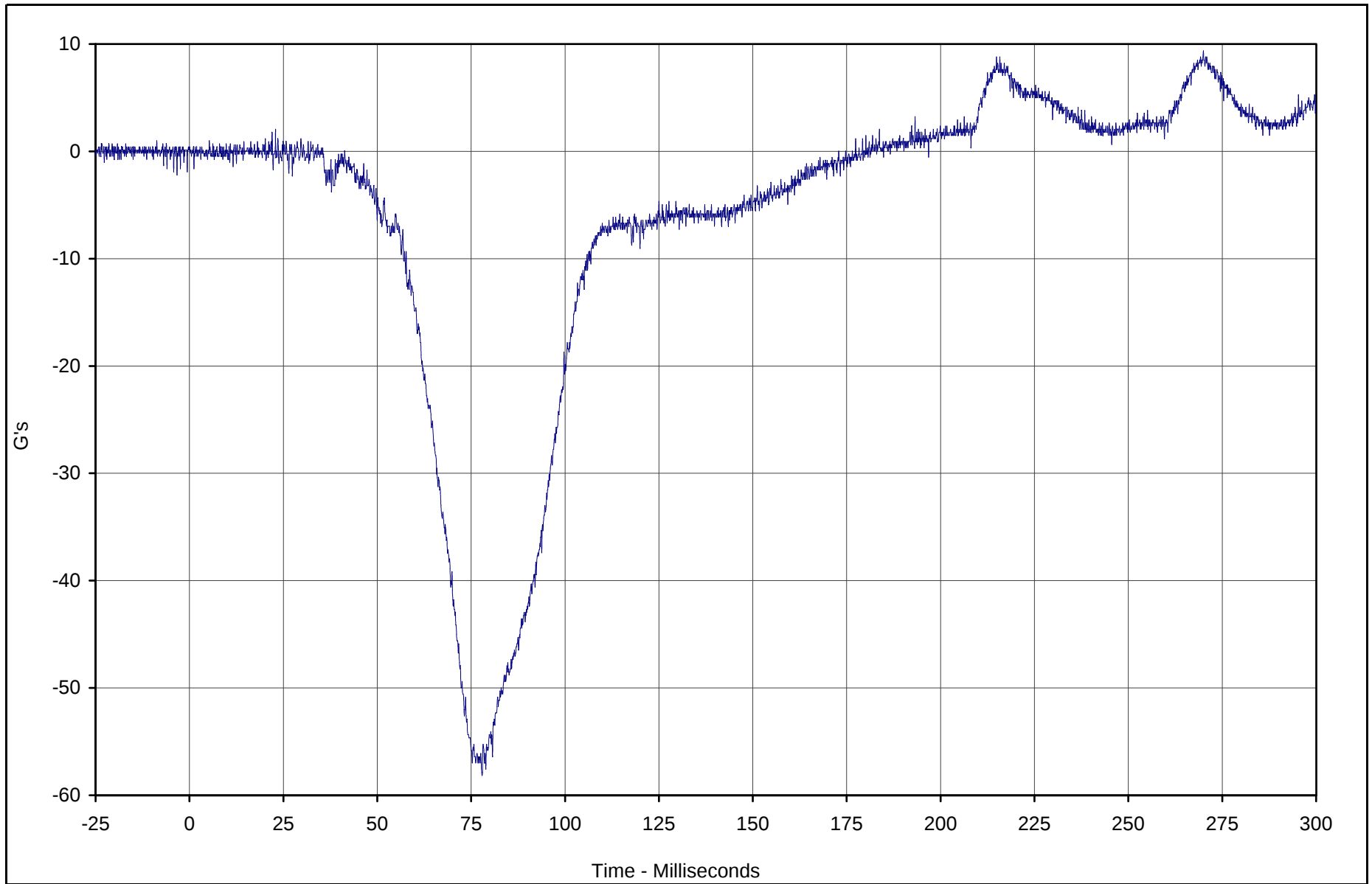


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant X	048	FIL	G's	9.4	270.0	-58.2	77.9	1000

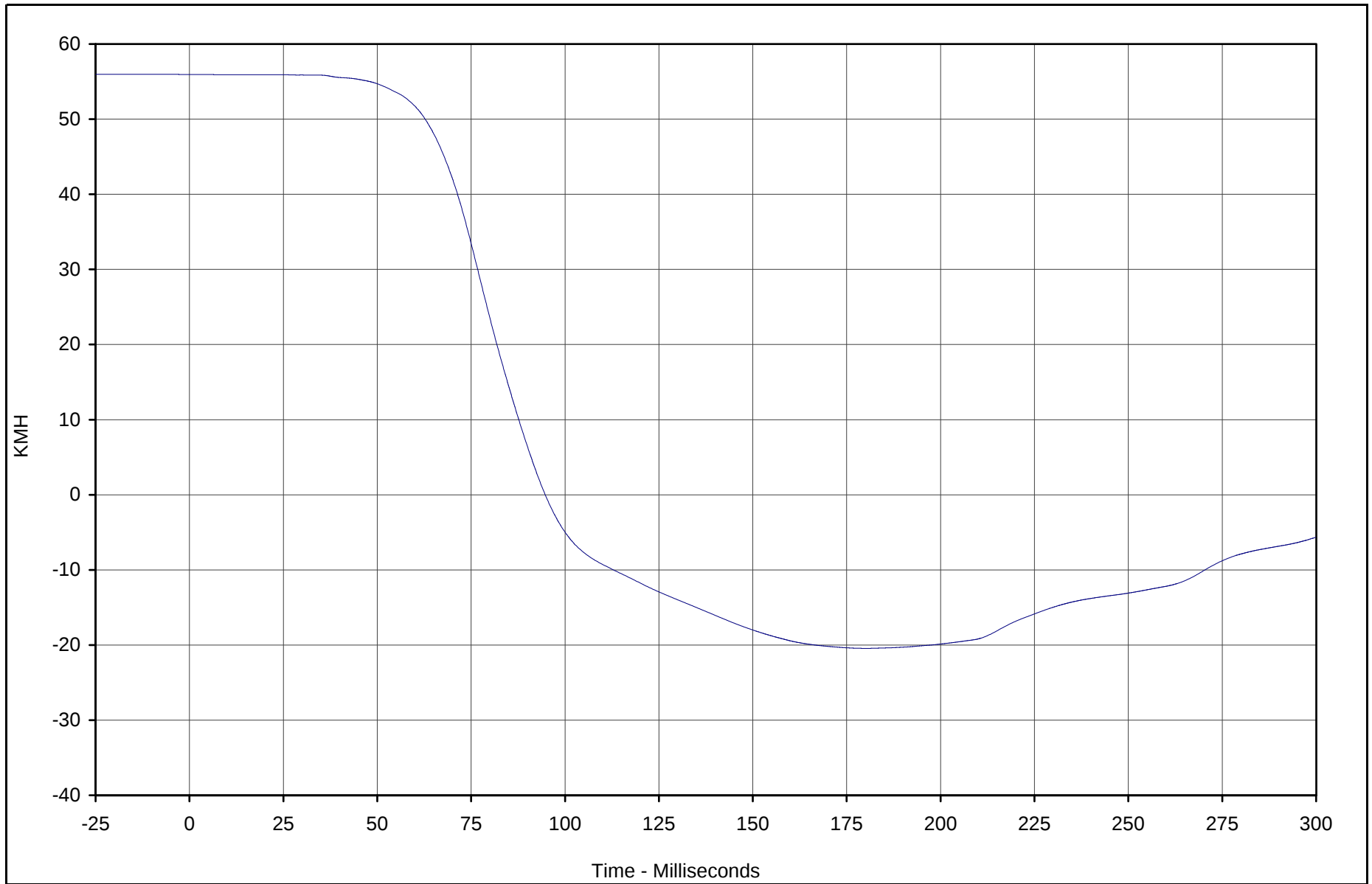


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant X Velocity	048	IN1	KMH	55.9	0.2	-20.4	180.0	180

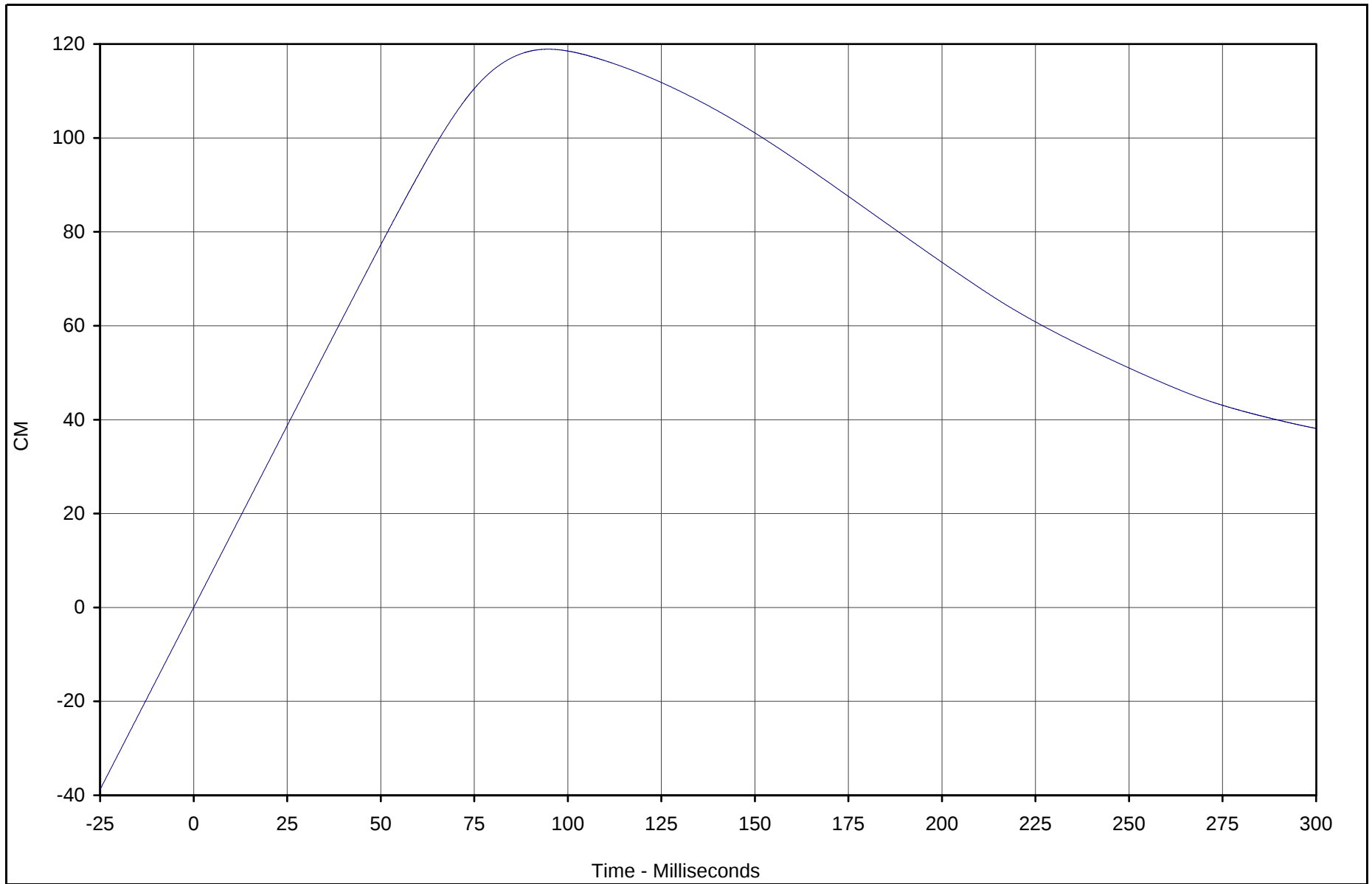


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant X Displ.	048	IN2	CM	118.9	94.7	0.0	0.0	180

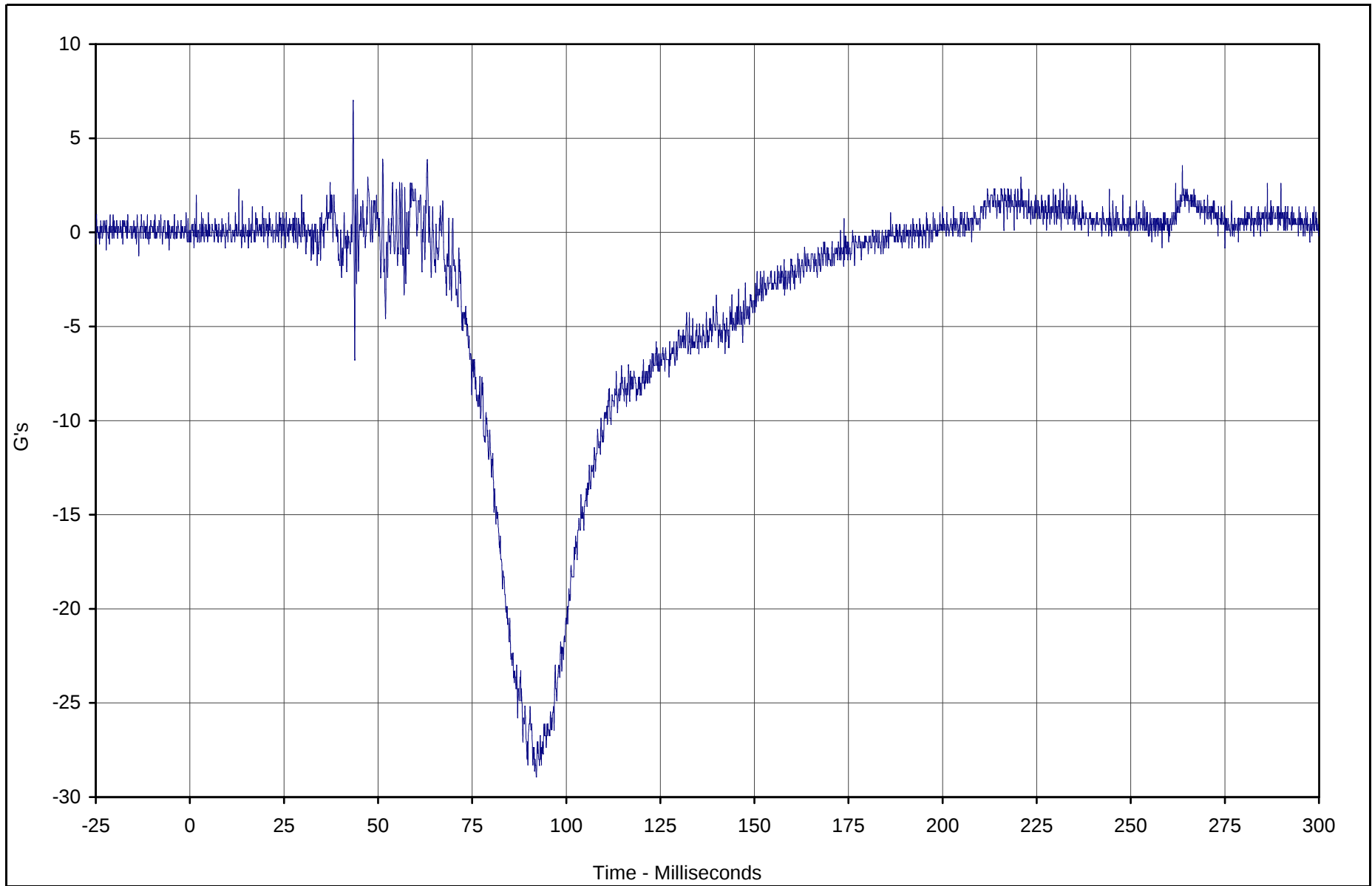


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant Y	049	FIL	G's	7.0	43.4	-28.9	92.0	1000

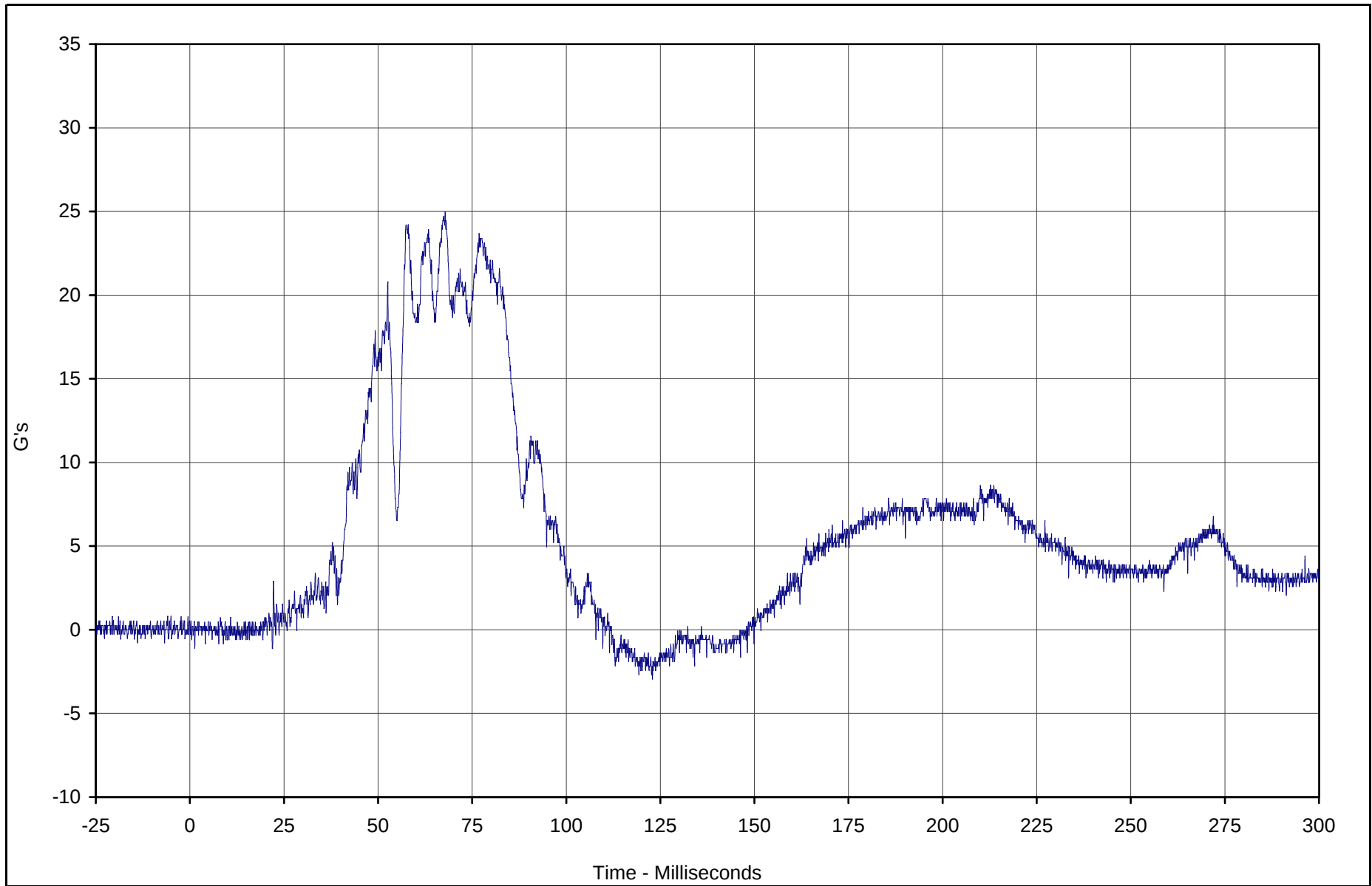


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant Z	050	FIL	G's	25.0	67.8	-3.0	122.9	1000

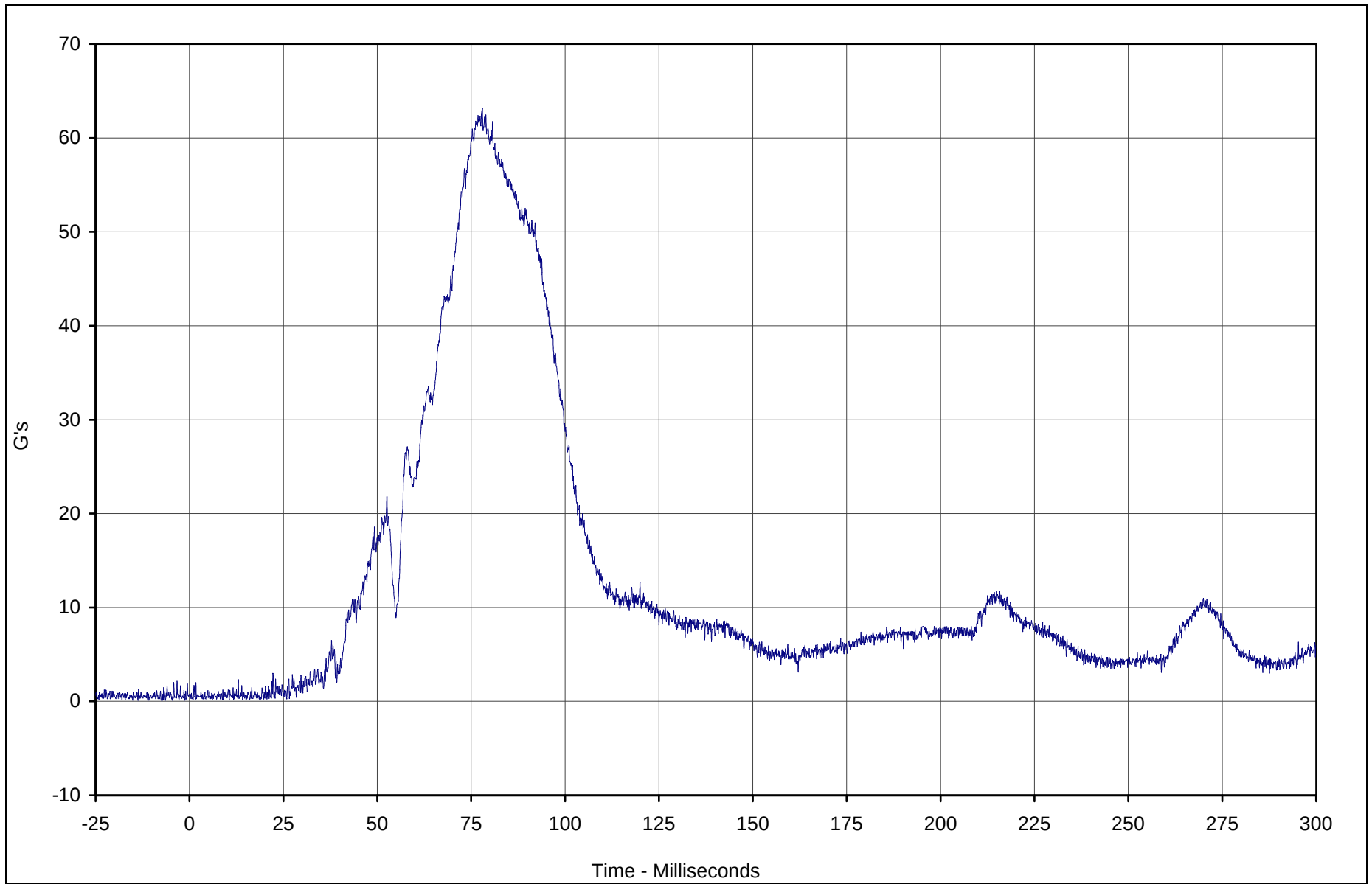


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Resultant Redundant	048	RES	G's	63.2	78.0	0.1	18.0	1000

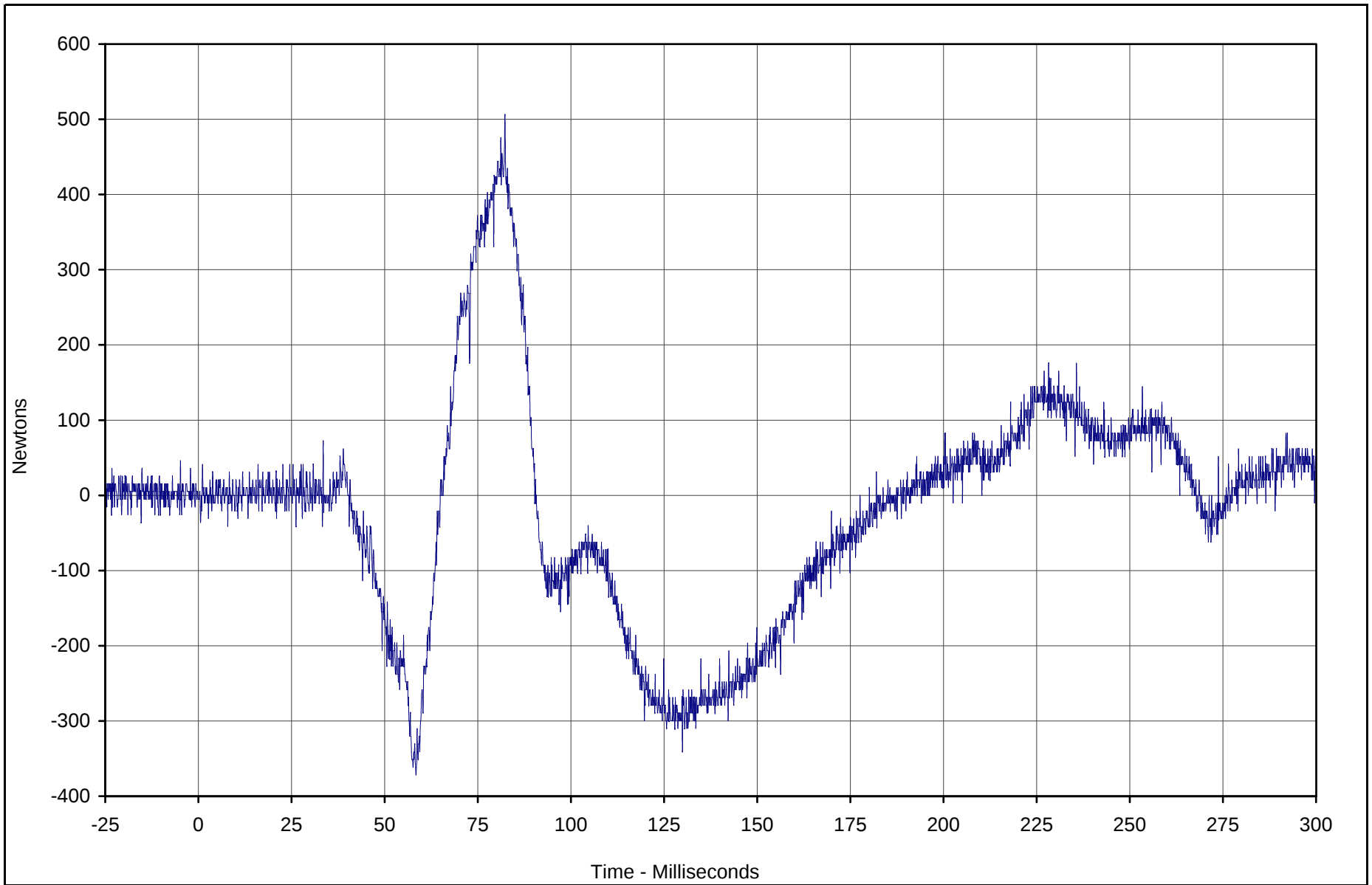


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force X	051	FIL	Newtons	506.4	82.3	-372.0	58.4	1000

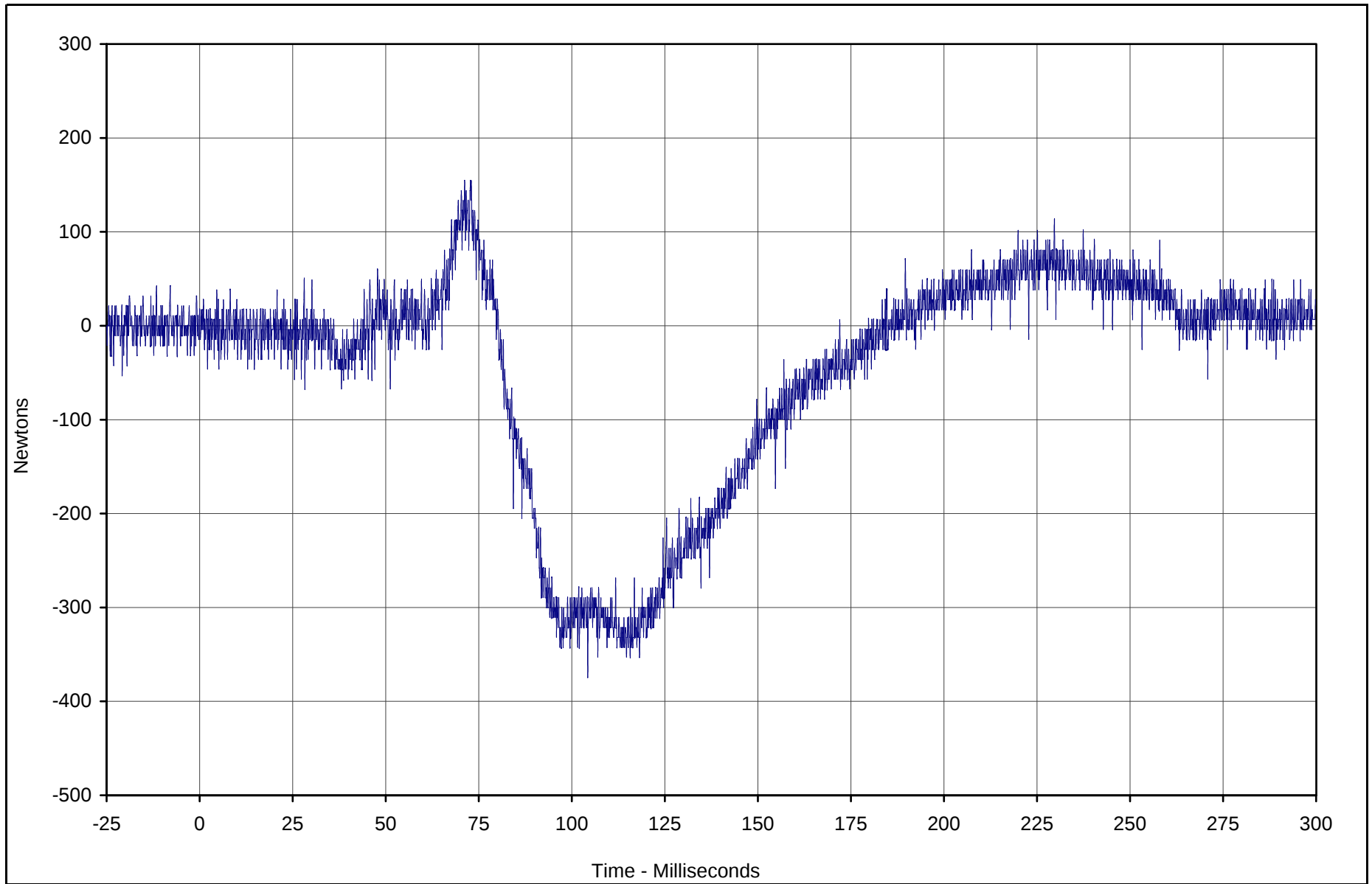


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force Y	052	FIL	Newtons	154.7	71.2	-374.3	104.3	1000

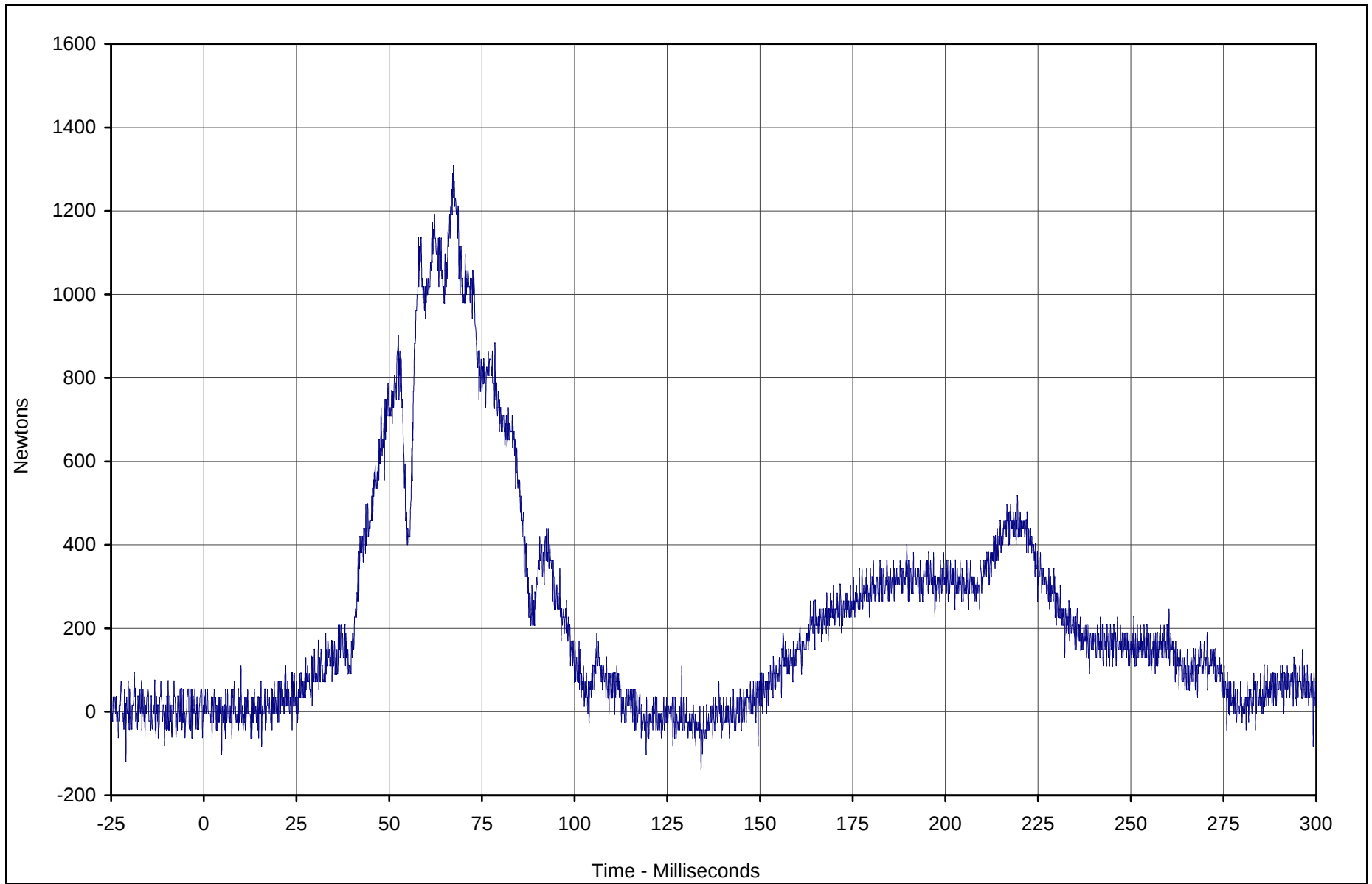


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force Z	053	FIL	Newtons	1308.6	67.3	-140.2	134.1	1000

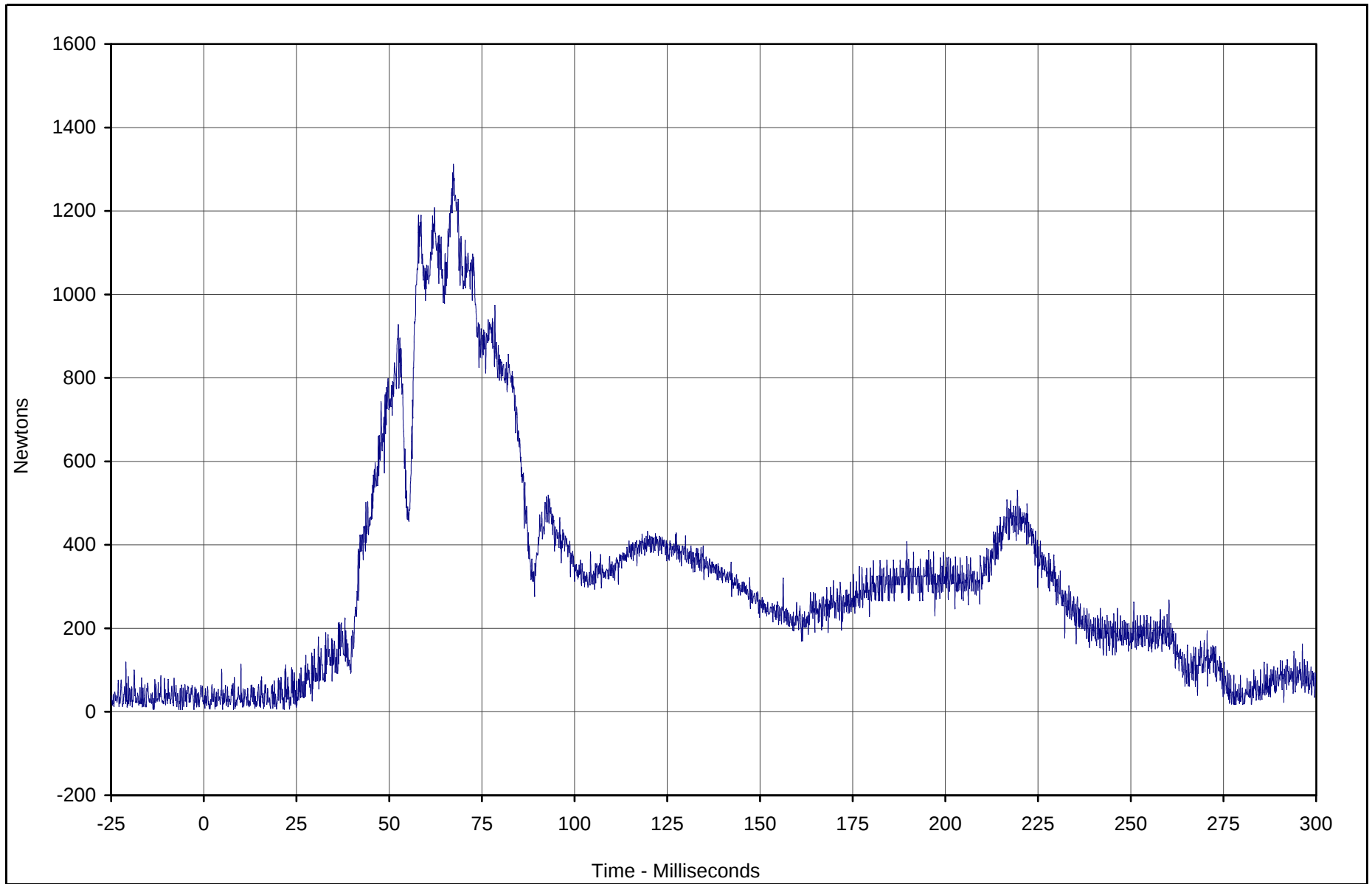


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force Resultant	051	RES	Newtons	1311.9	67.3	6.4	1.7	1000

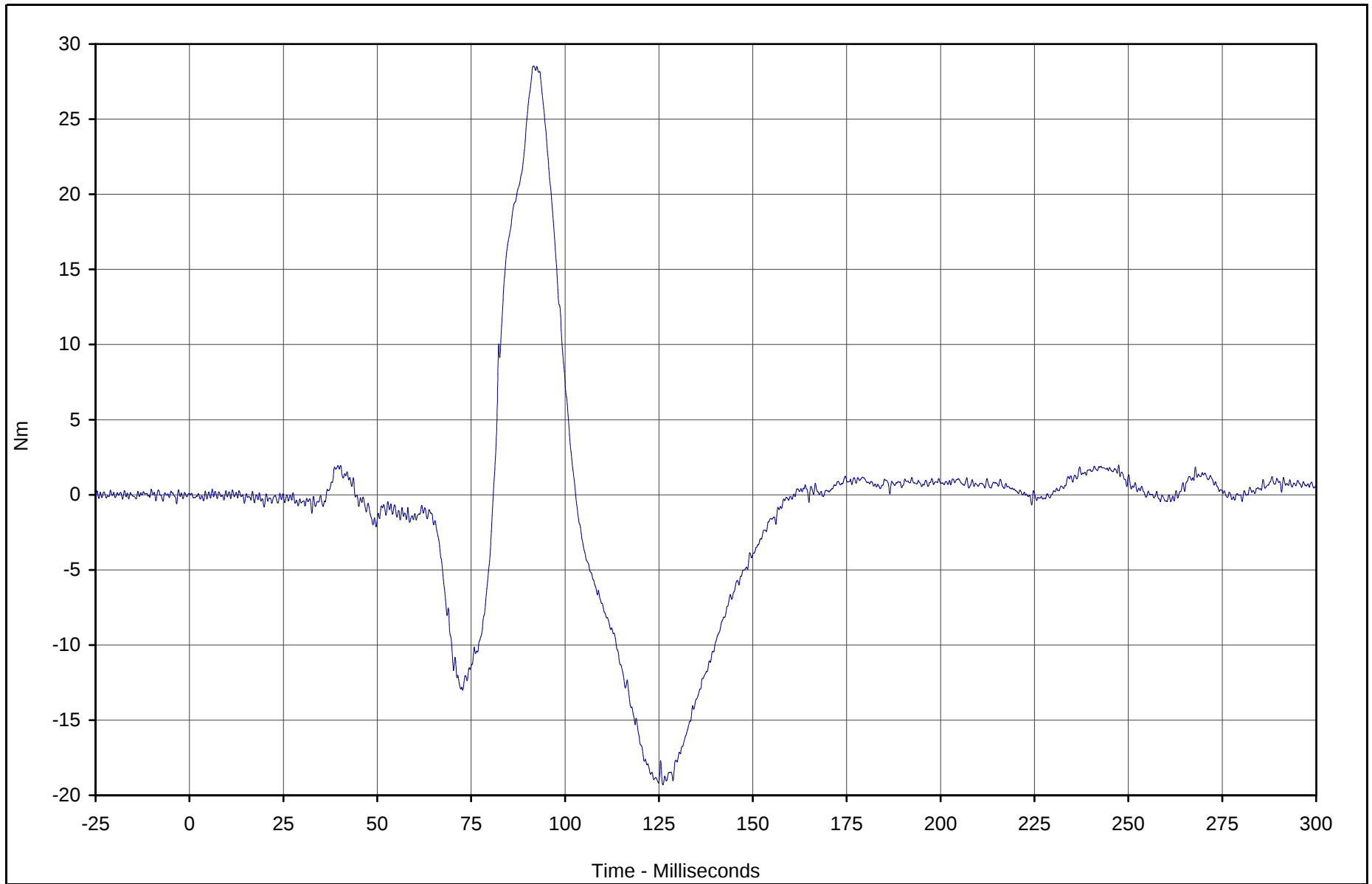


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment X	054	FIL	Nm	28.5	91.6	-19.3	126.1	600

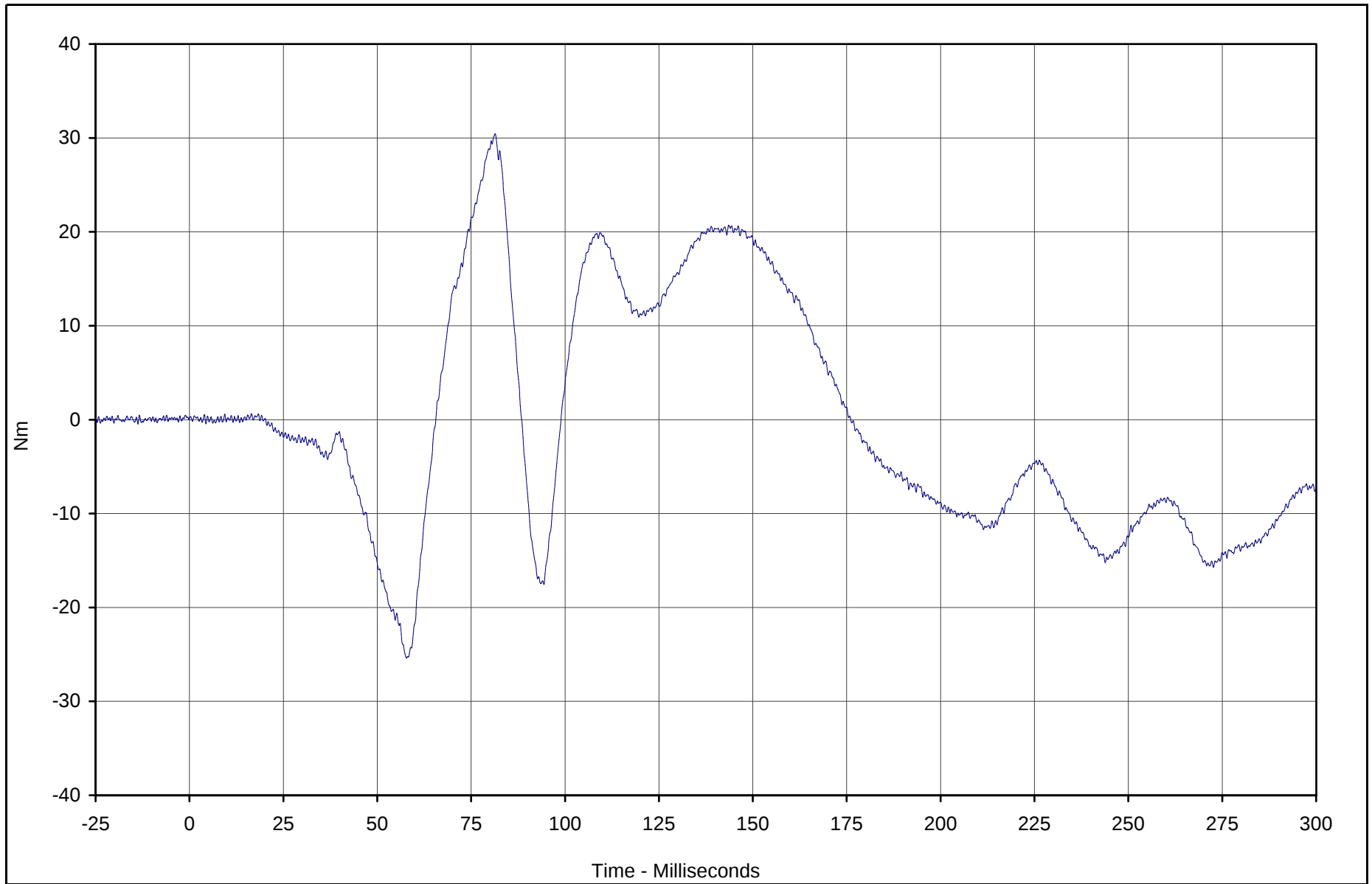


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment Y	055	FIL	Nm	30.5	81.4	-25.4	57.8	600

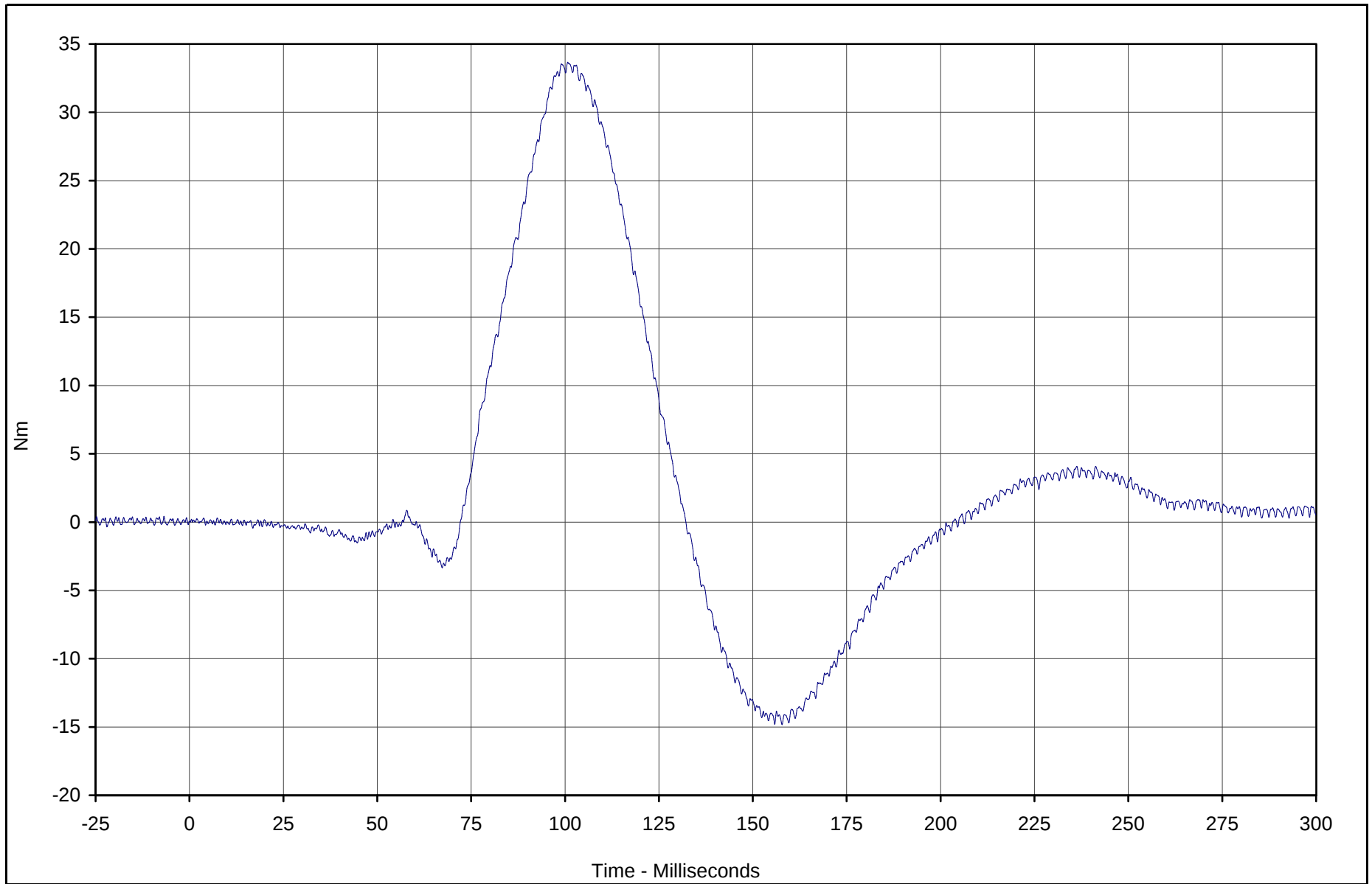


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment Z	056	FIL	Nm	33.7	100.7	-14.8	157.8	600

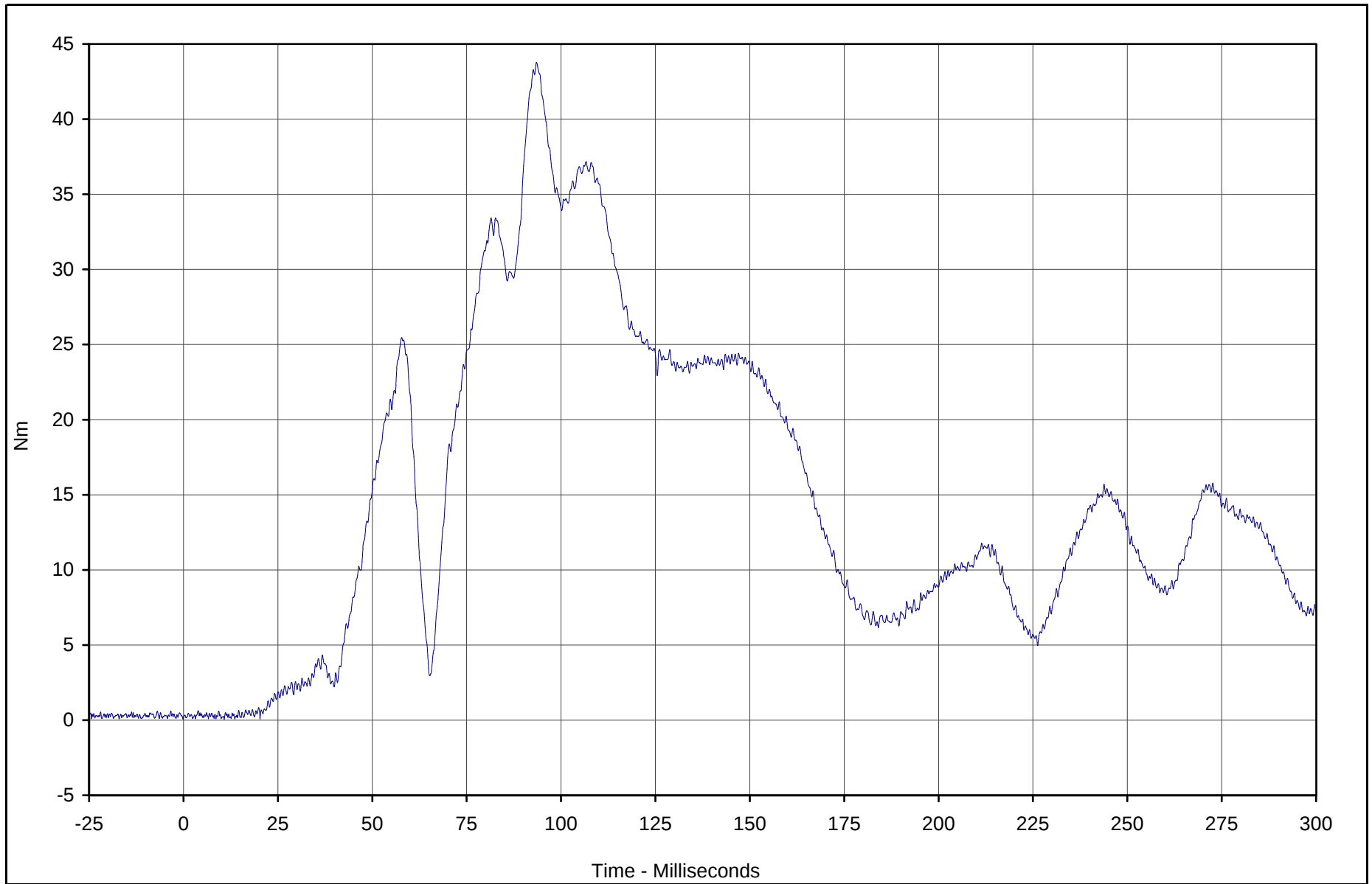


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment Resultant	054	RES	Nm	43.8	93.5	0.1	10.8	600

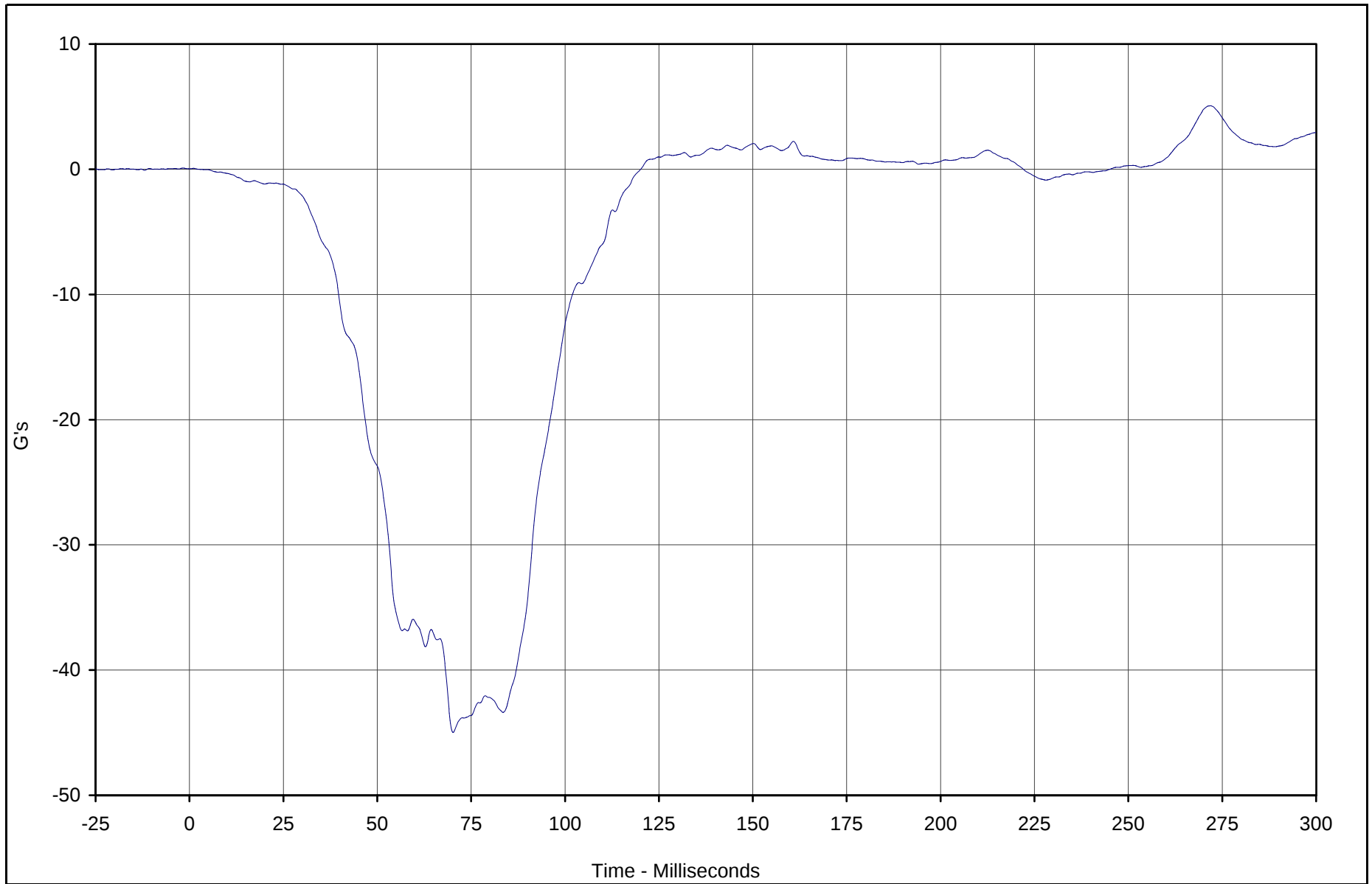


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary X	057	FIL	G's	5.1	271.8	-45.0	70.2	180

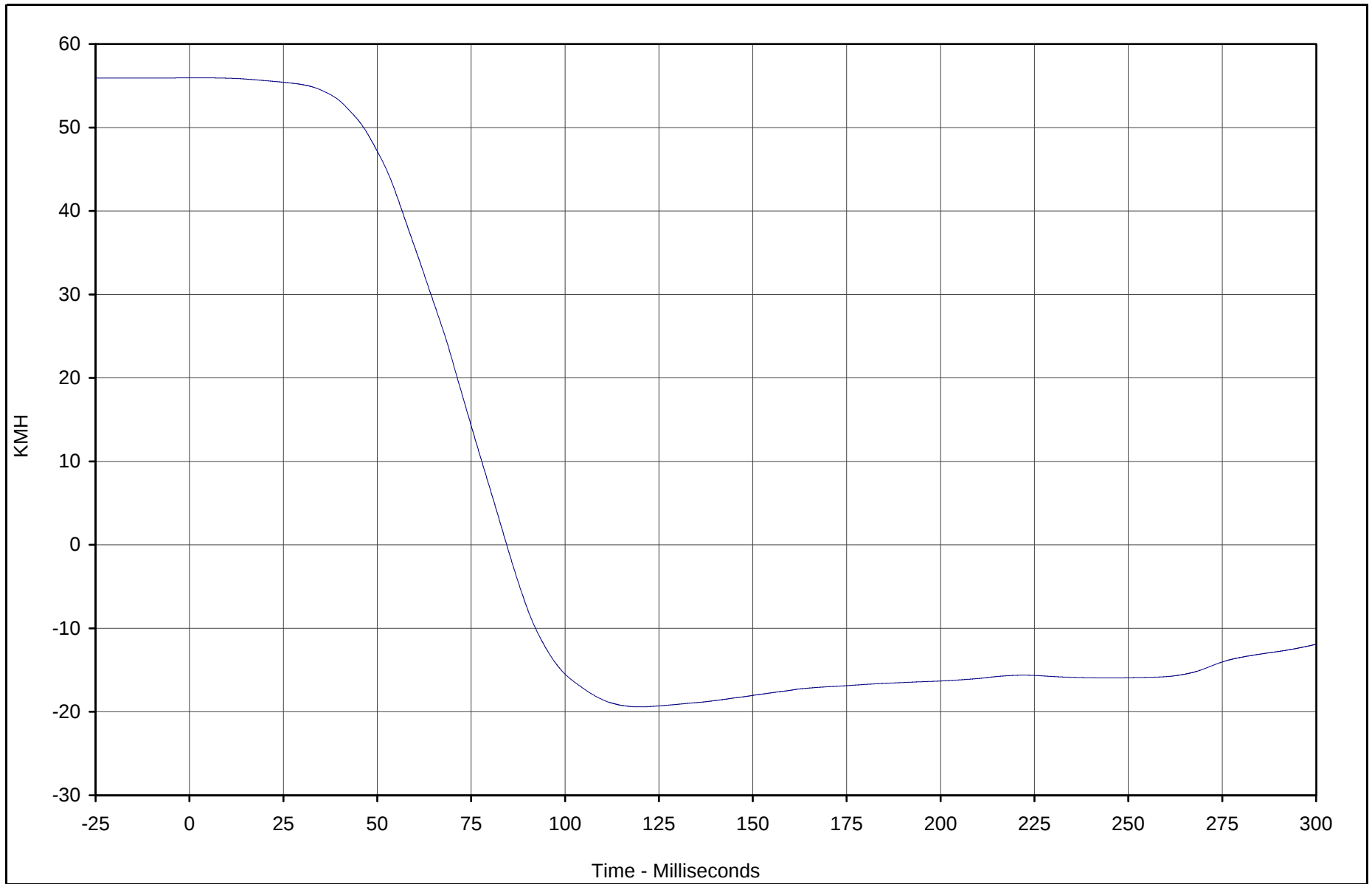


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary X Velocity	057	IN1	KMH	55.9	2.3	-19.4	120.2	180

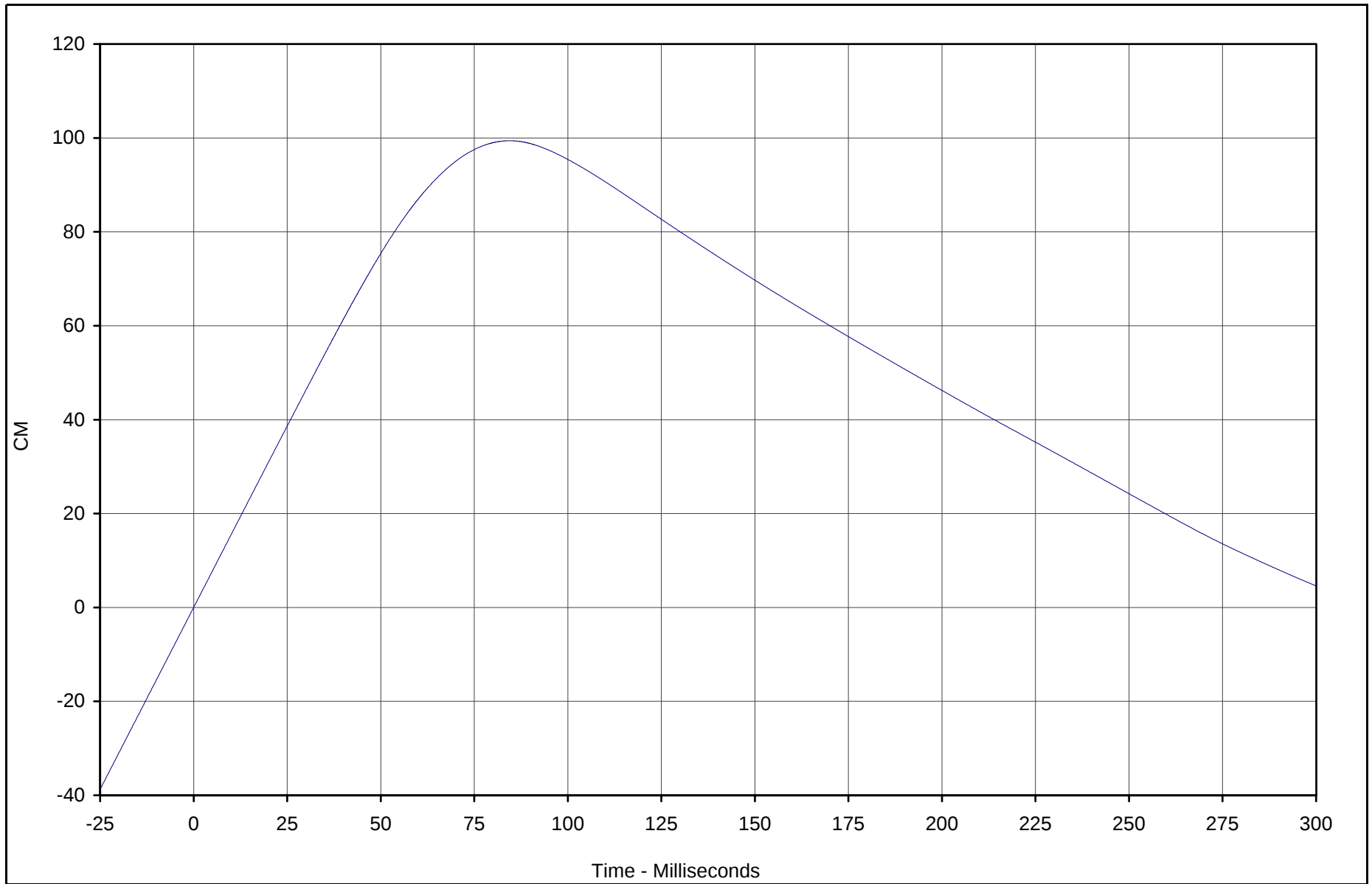


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary X Displ.	057	IN2	CM	99.4	84.5	0.0	0.0	180

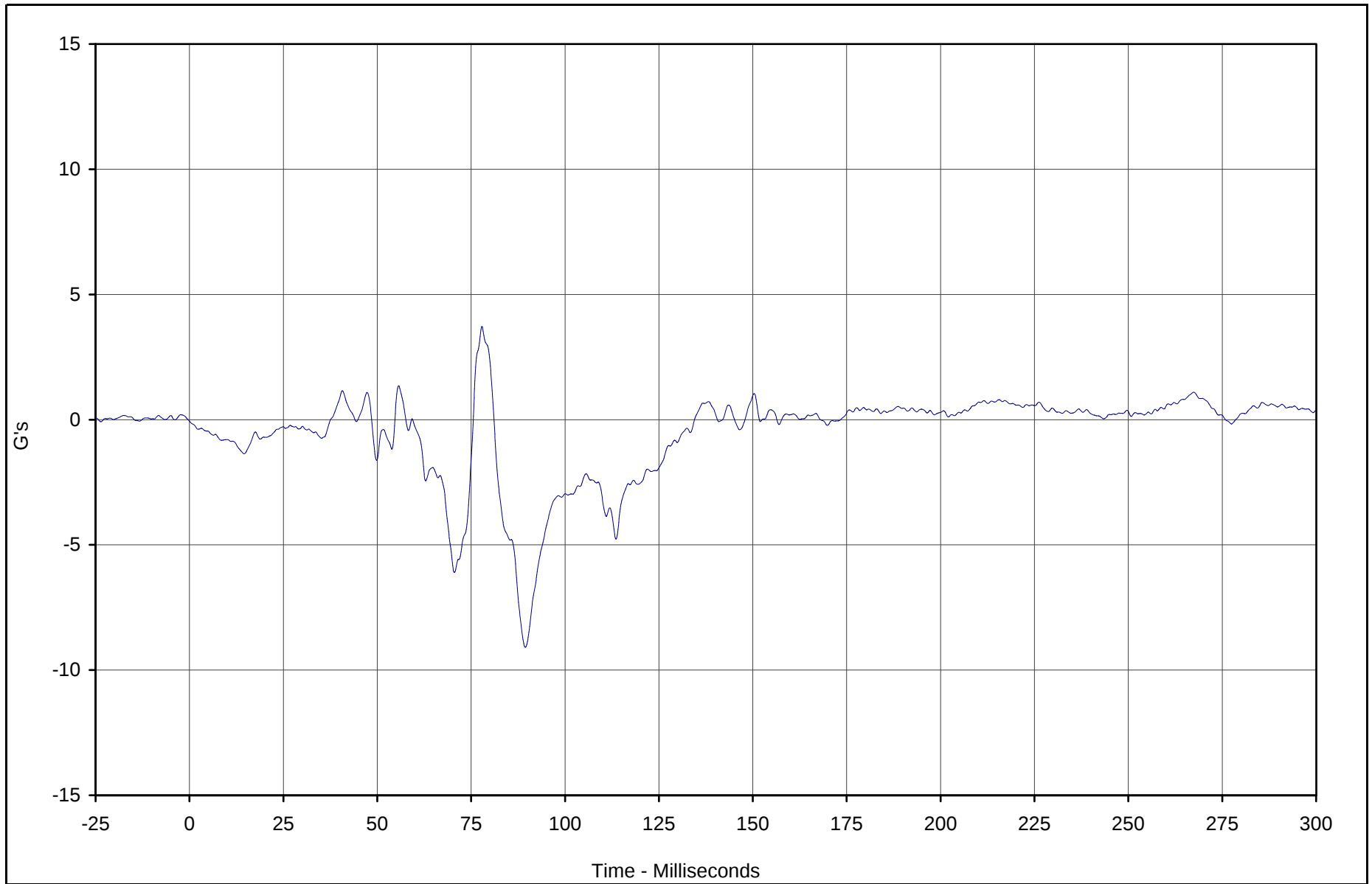


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary Y	058	FIL	G's	3.7	77.9	-9.1	89.4	180

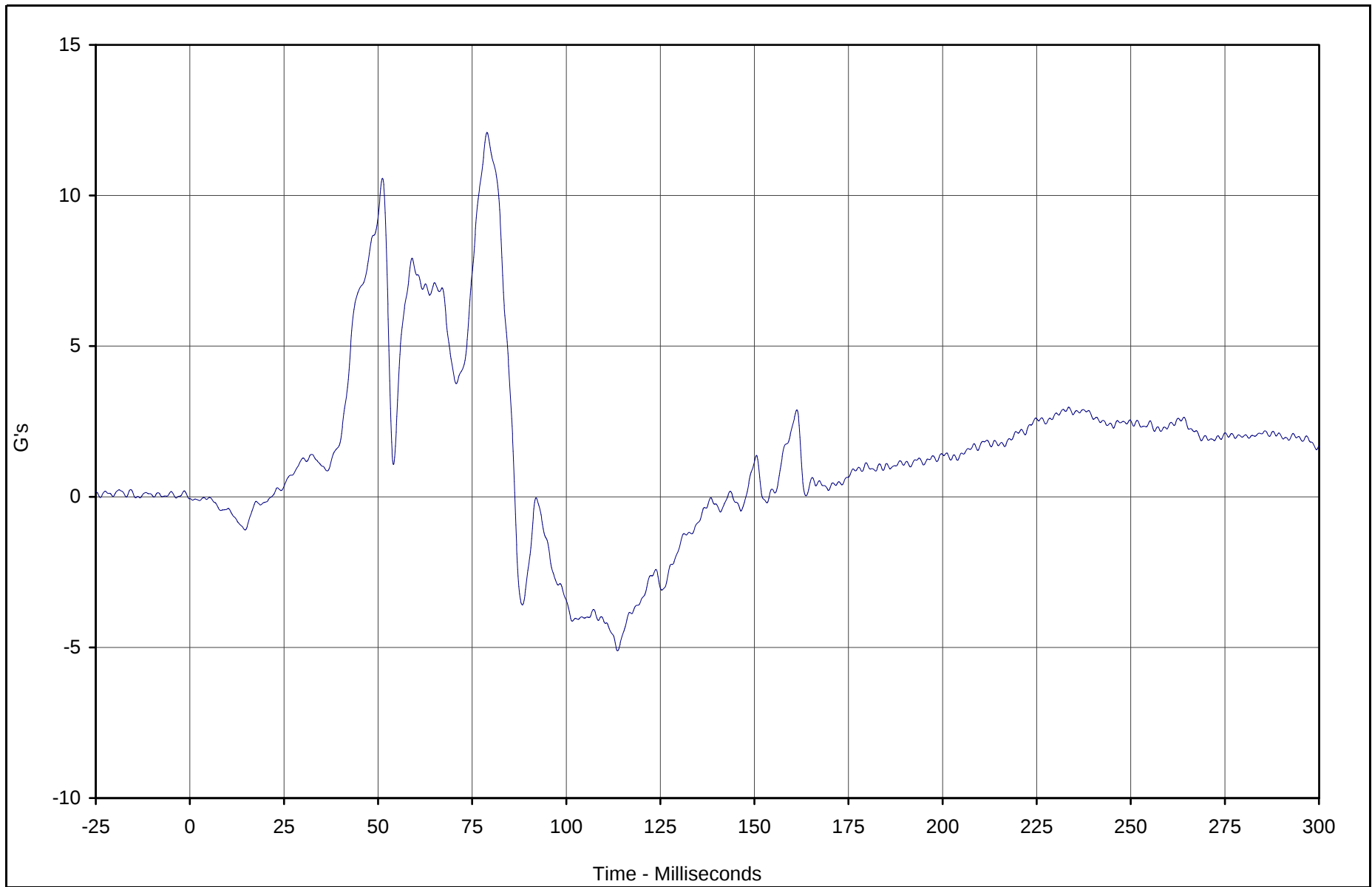


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary Z	059	FIL	G's	12.1	78.9	-5.1	113.6	180

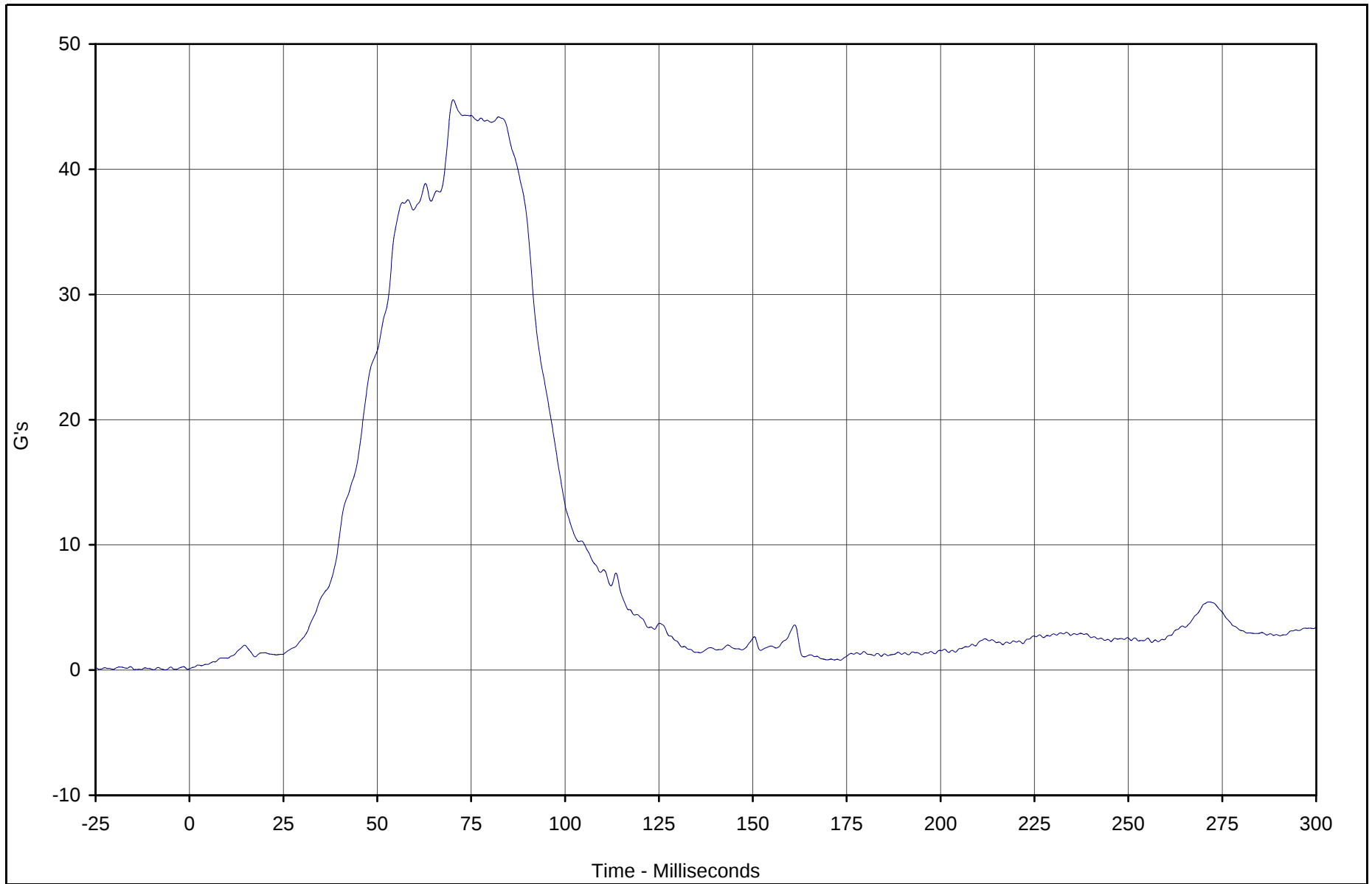


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Resultant Primary	057	RES	G's	45.5	70.2	0.1	0.0	180

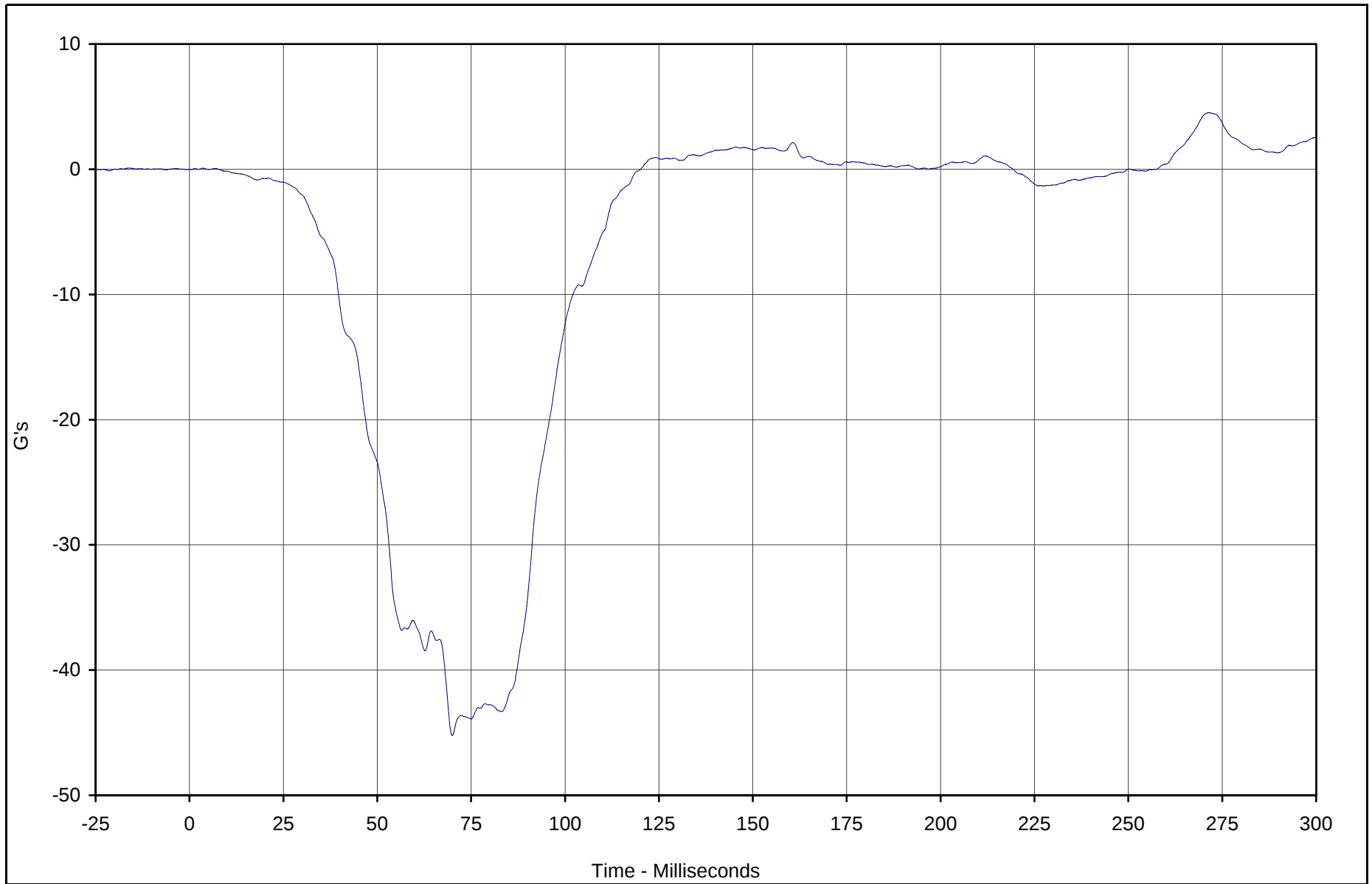


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant X	060	FIL	G's	4.5	271.5	-45.2	70.0	180

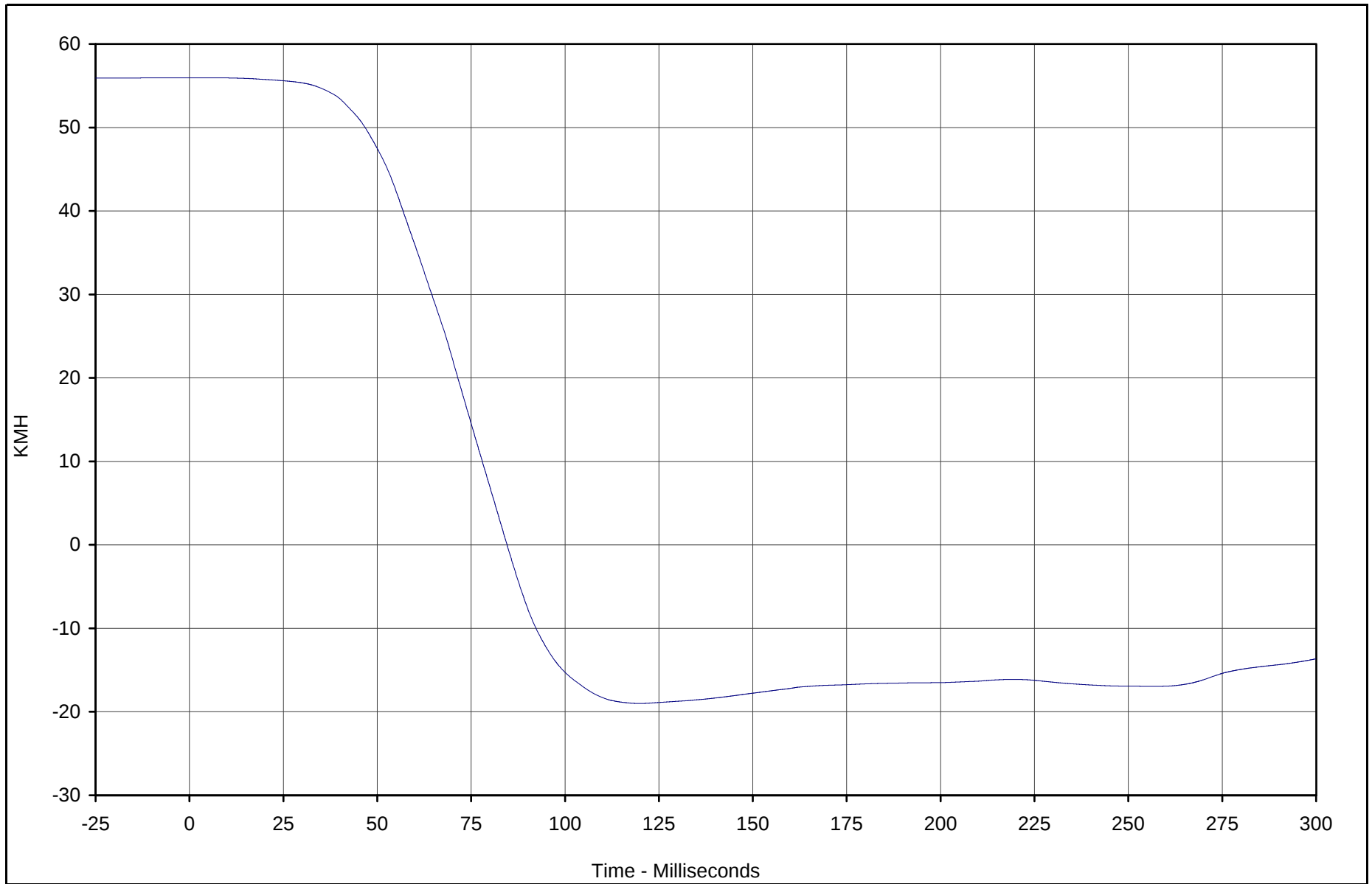


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant X Velocity	060	IN1	KMH	55.9	7.7	-19.0	120.1	180

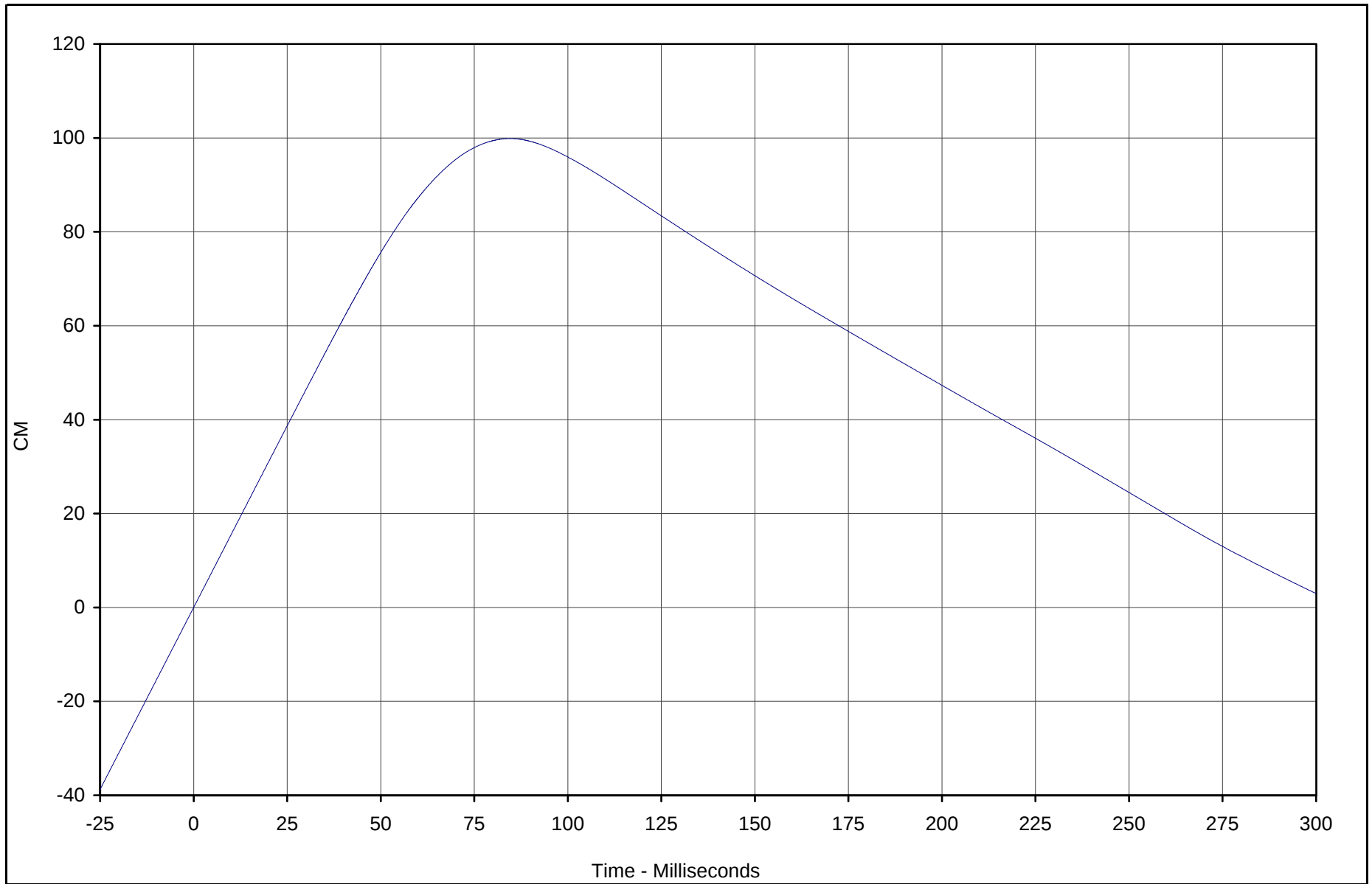


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant X Displ.	060	IN2	CM	99.9	84.6	0.0	0.0	180

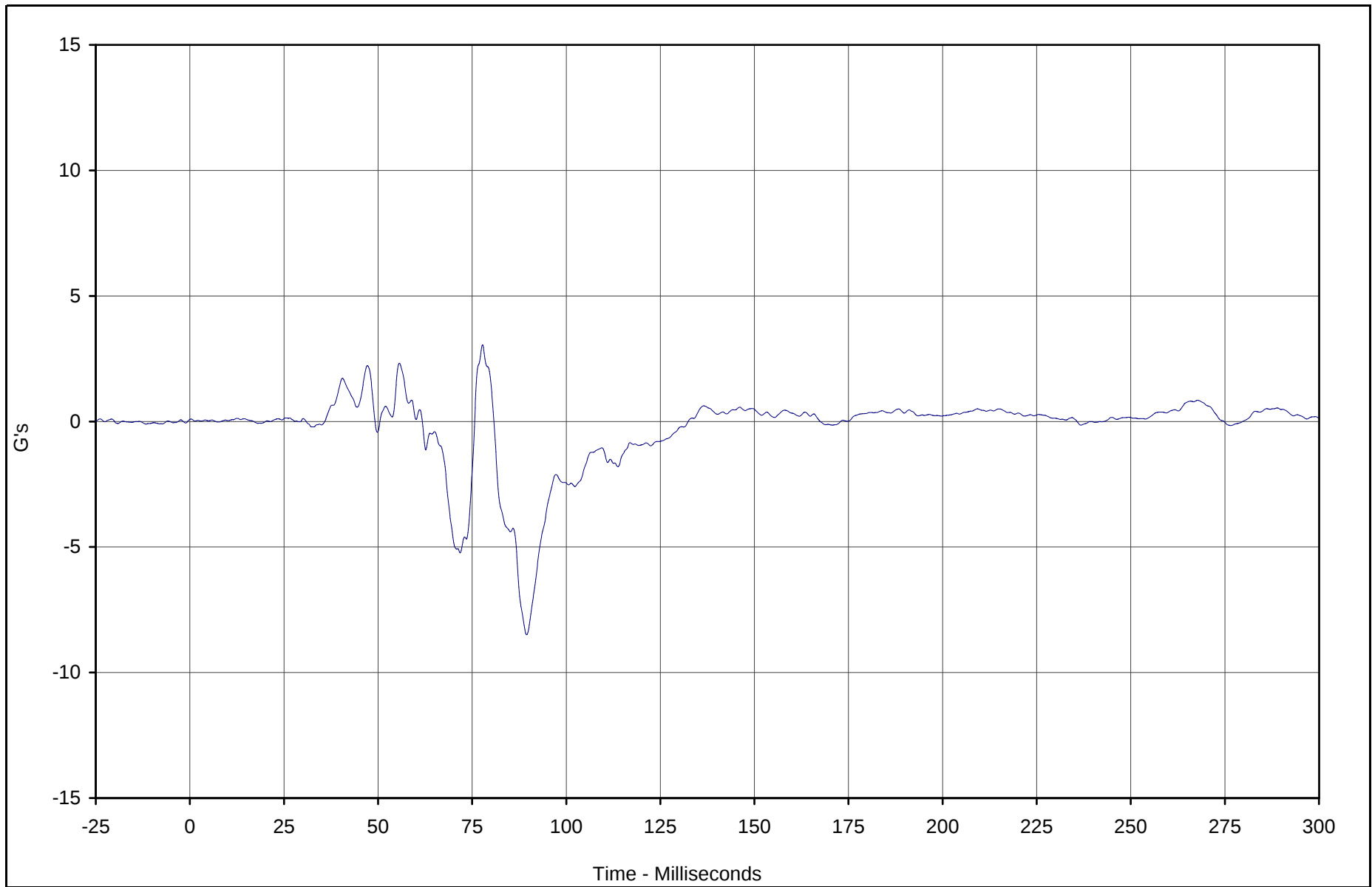


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant Y	061	FIL	G's	3.1	77.8	-8.5	89.5	180

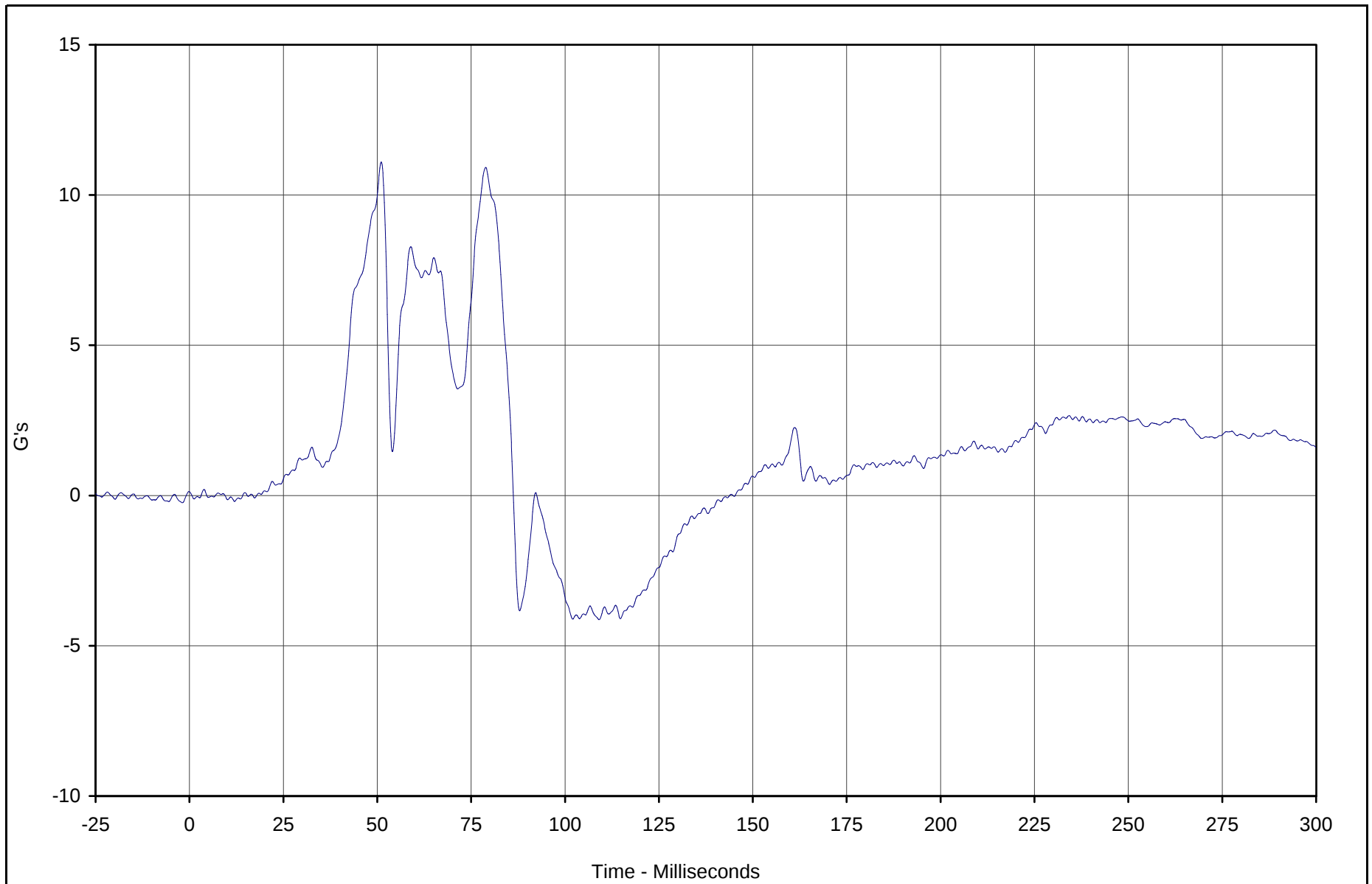


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant Z	062	FIL	G's	11.1	51.1	-4.1	109.1	180

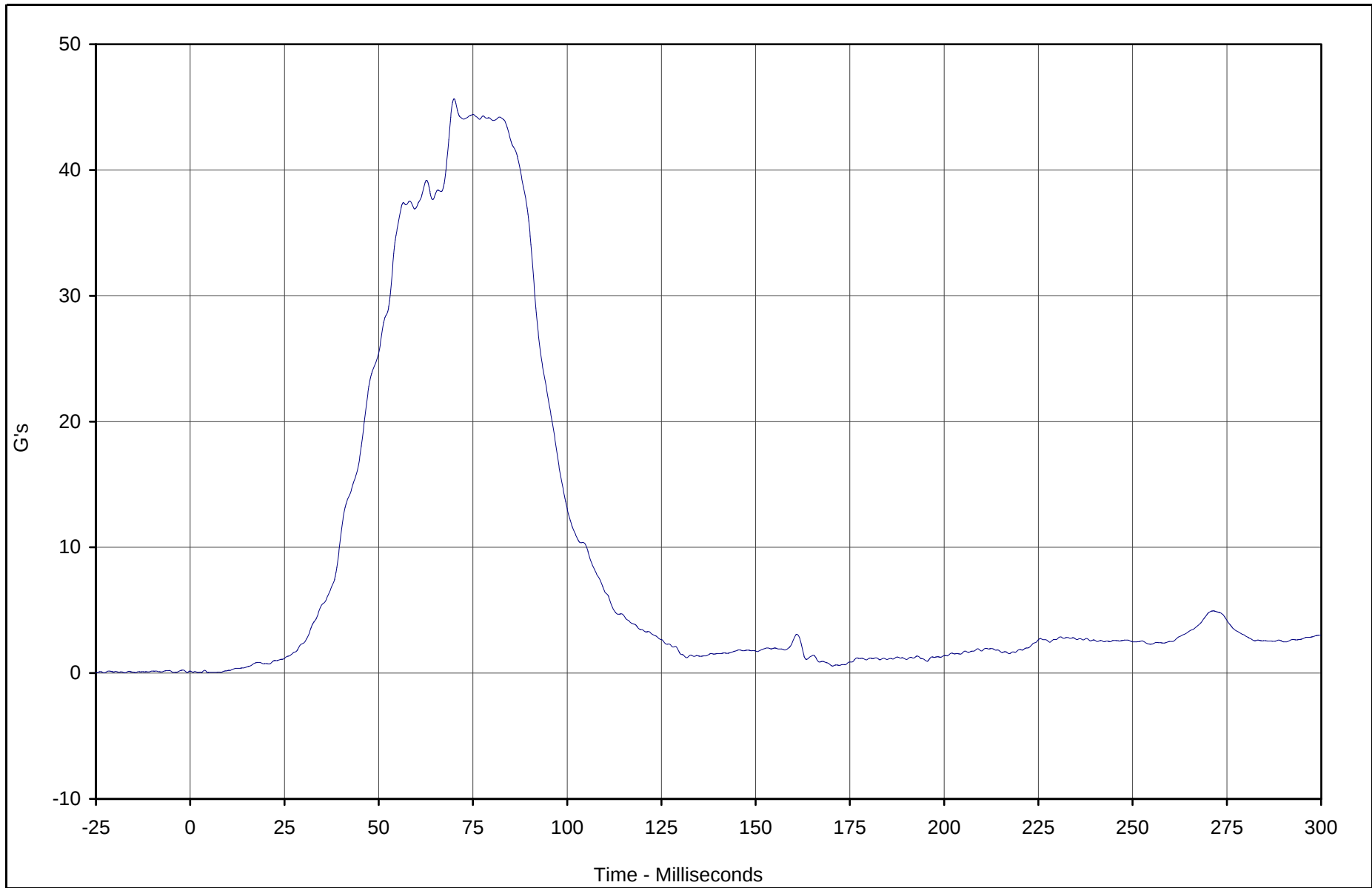


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Resultant Redundant	060	RES	G's	45.7	70.0	0.0	4.6	180

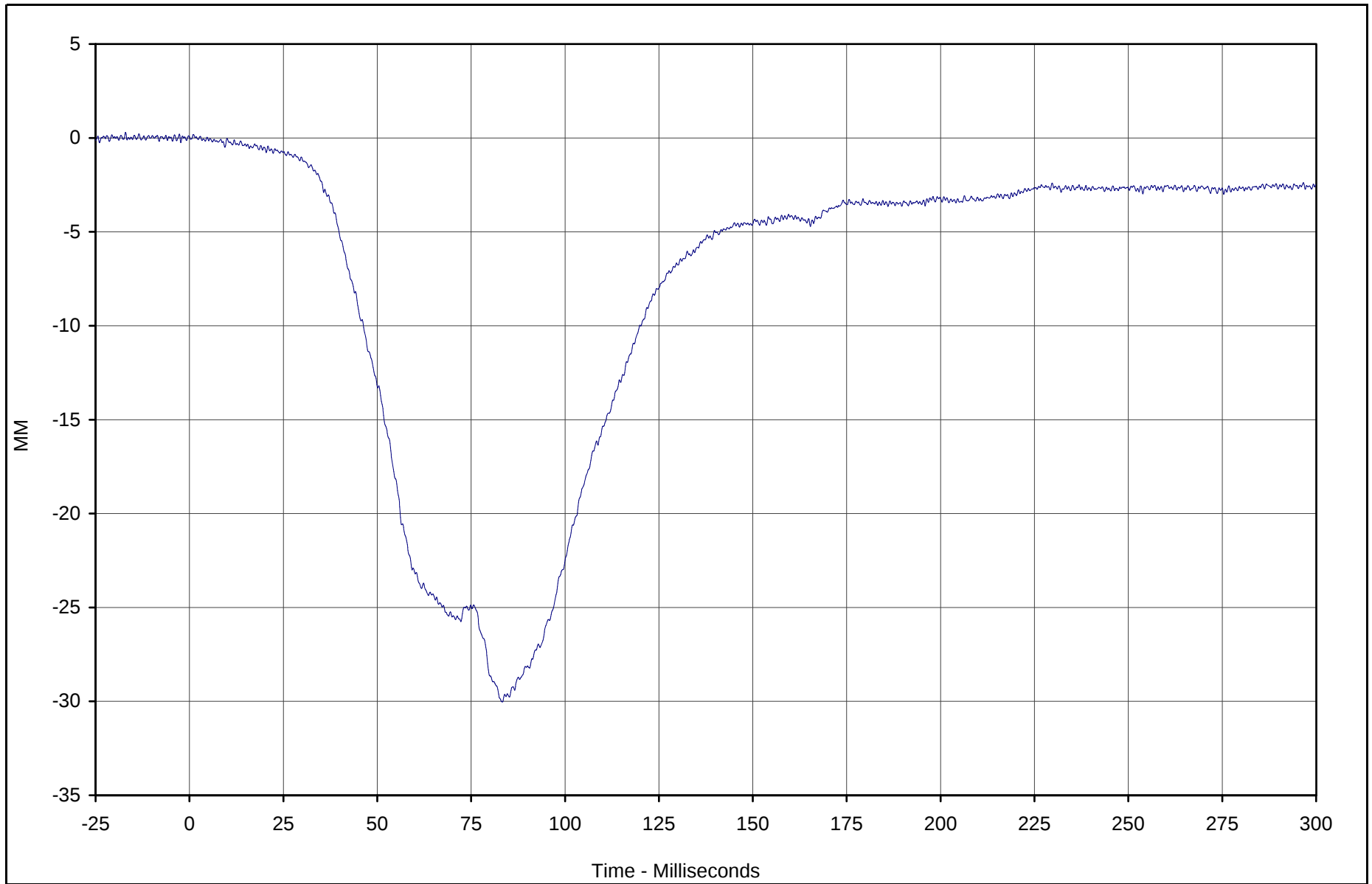


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Displacement X	063	FIL	MM	0.2	1.1	-30.0	83.3	600

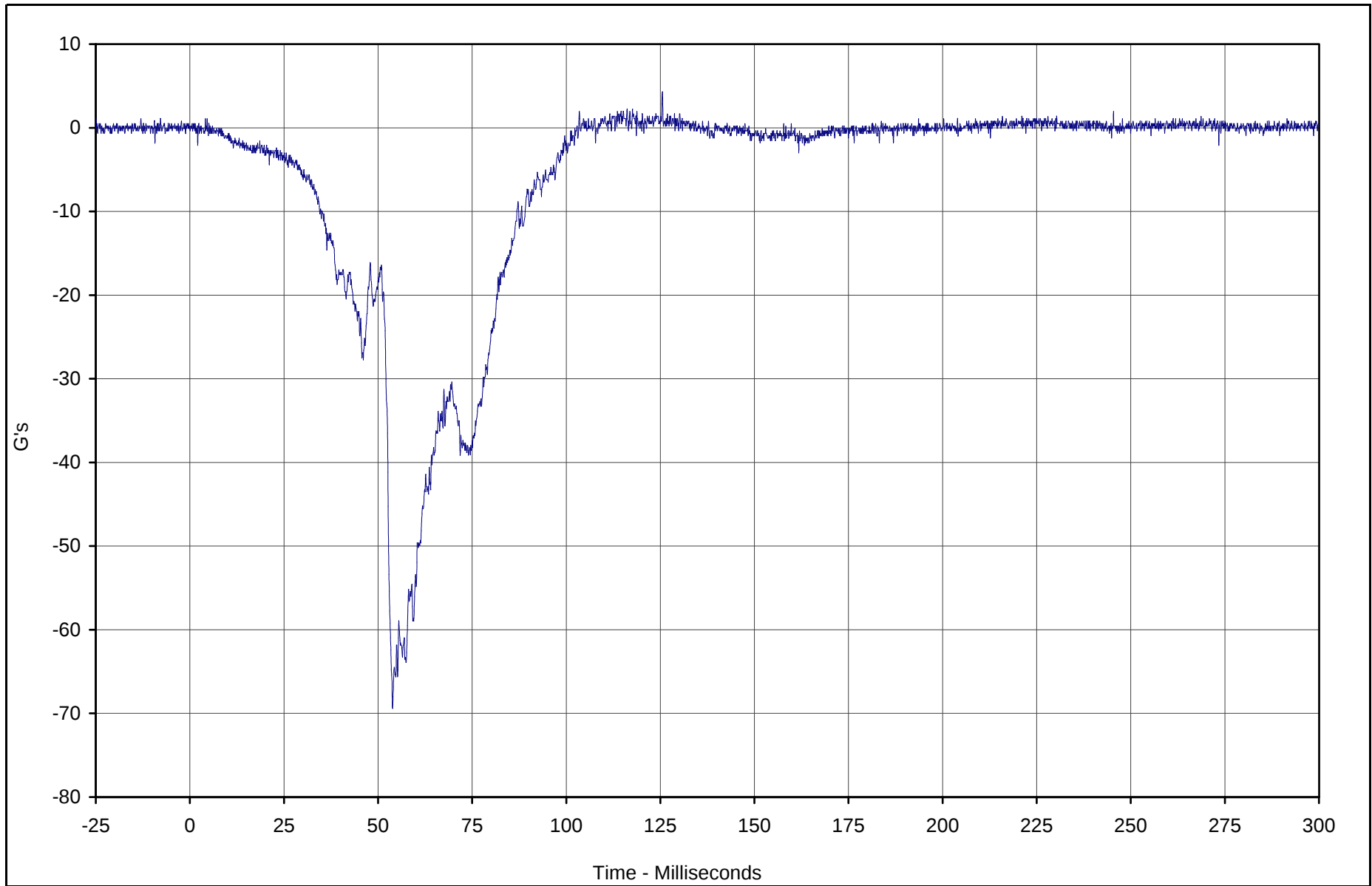


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis X	064	FIL	G's	4.3	125.6	-69.4	53.9	1000

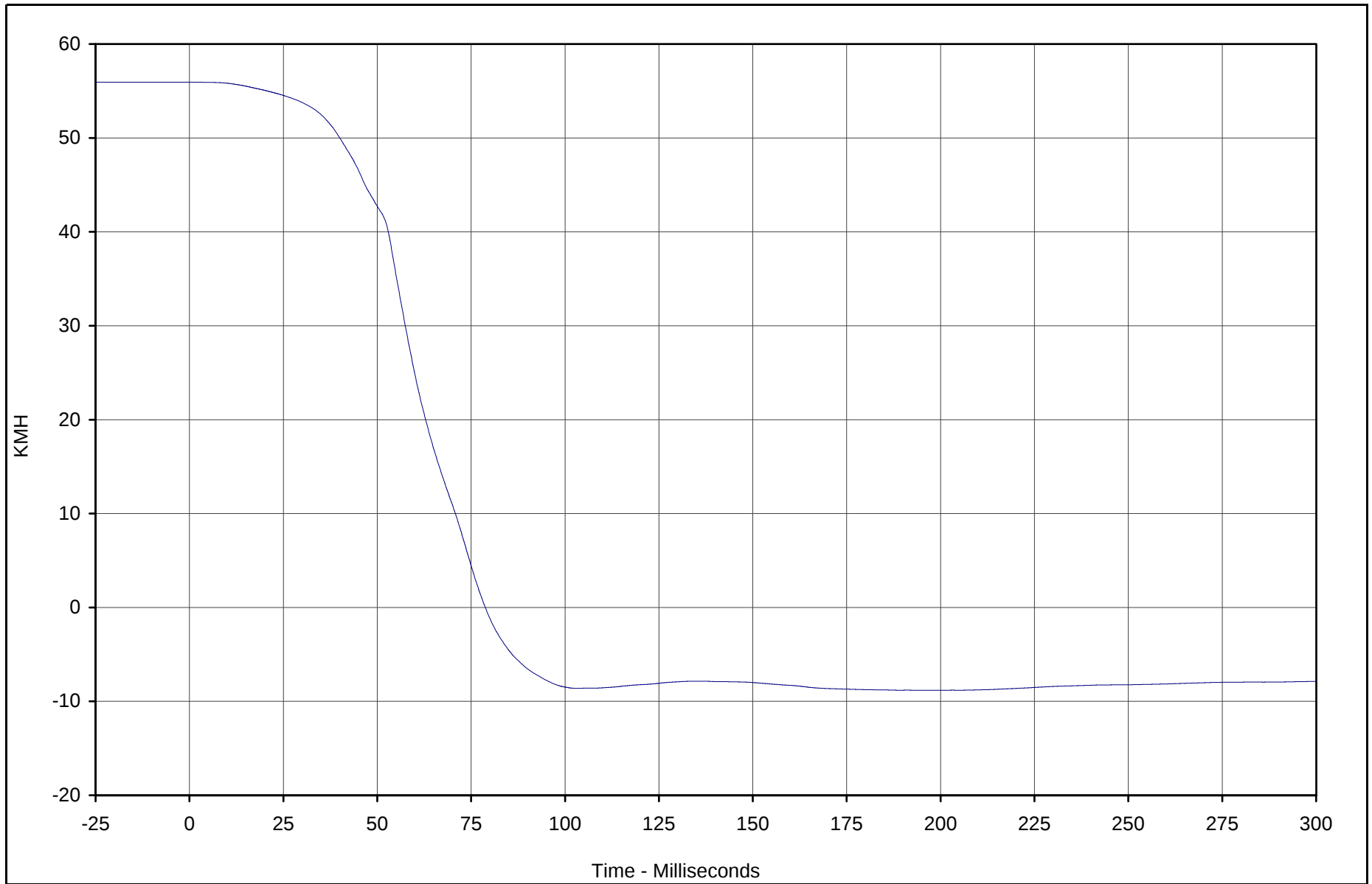


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis X Velocity	064	IN1	KMH	55.9	1.0	-8.8	198.3	180

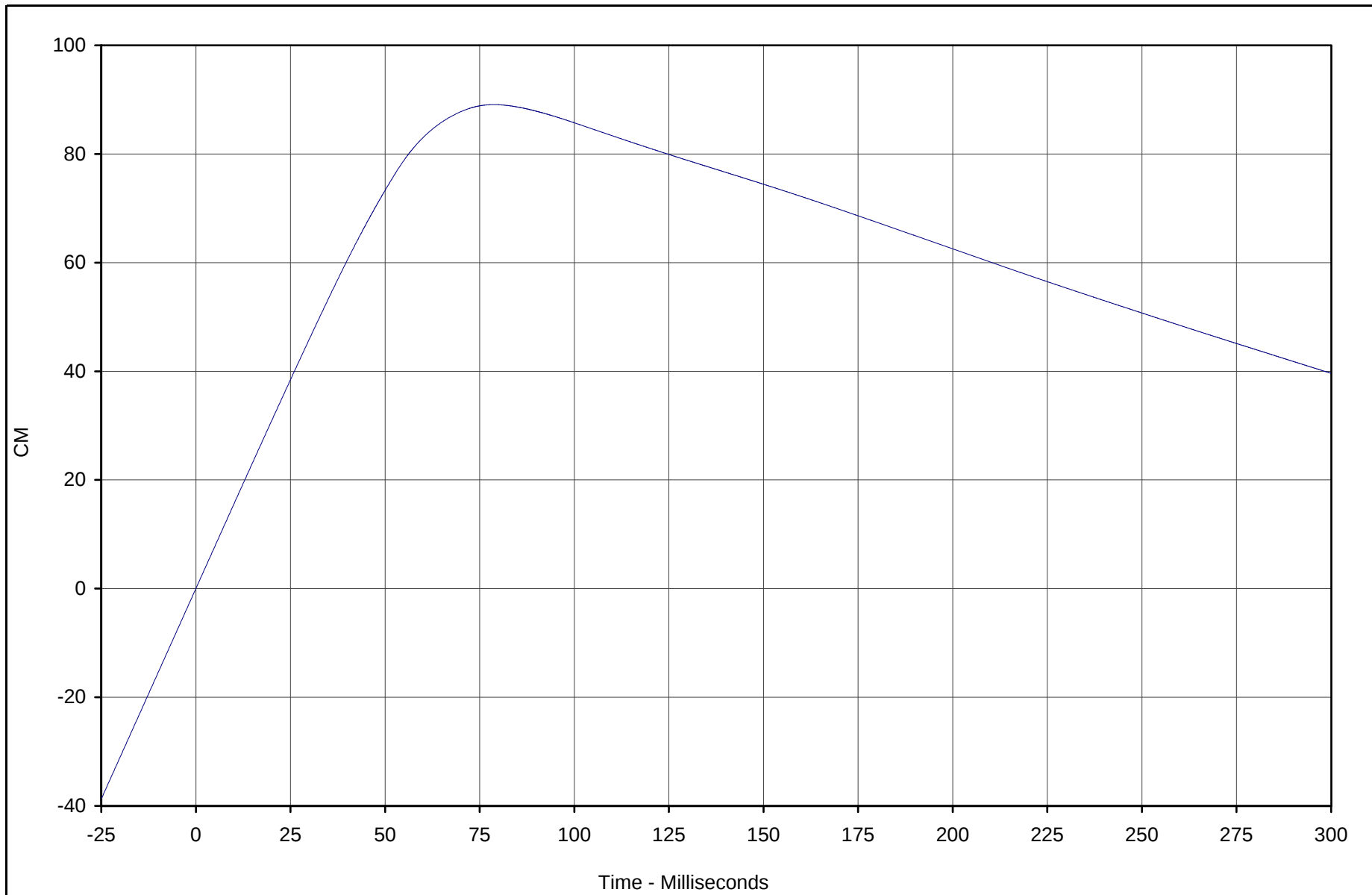


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis X Displ.	064	IN2	CM	89.1	78.8	0.0	0.0	180

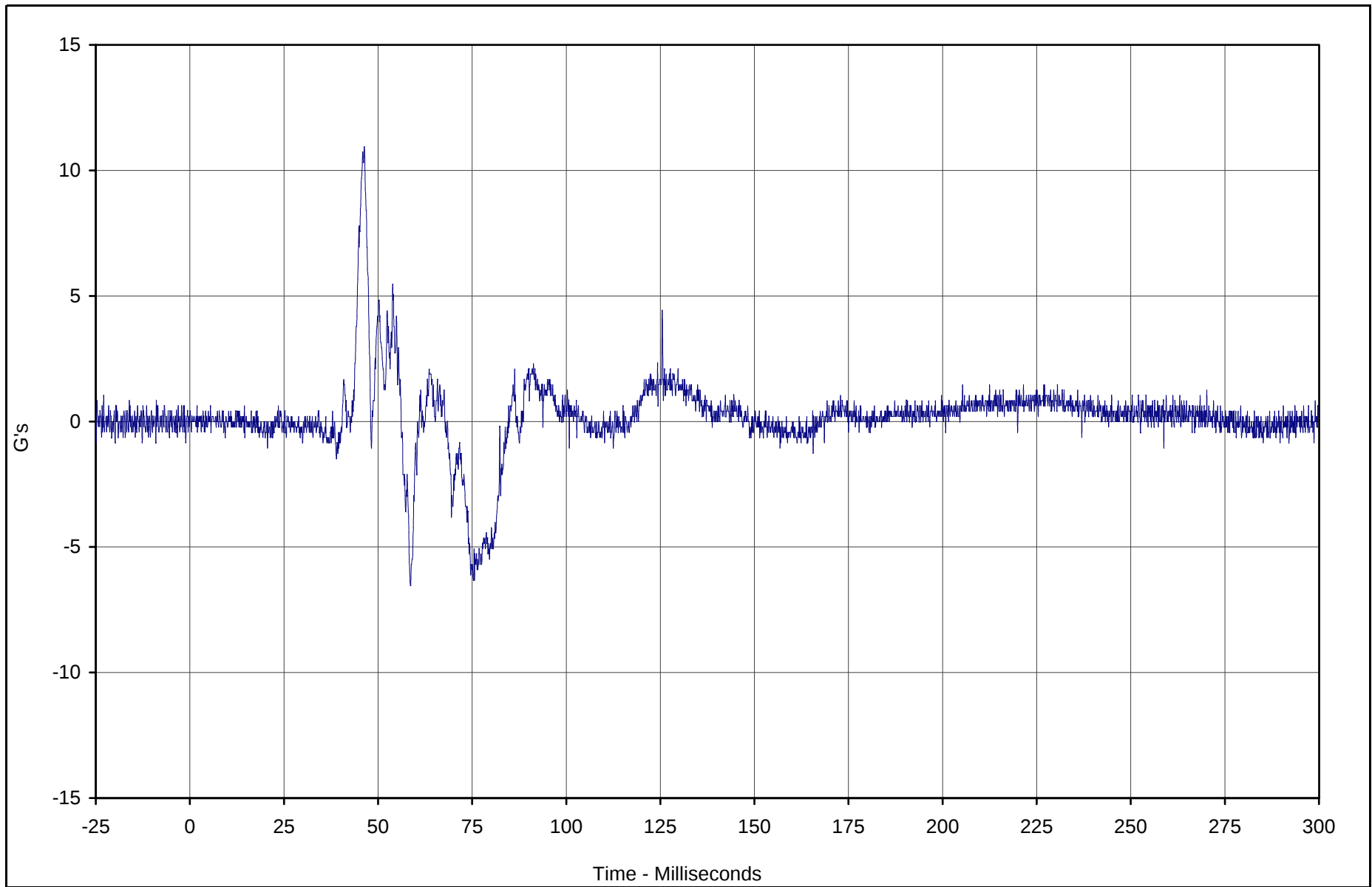


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis Y	065	FIL	G's	10.9	46.3	-6.5	58.6	1000

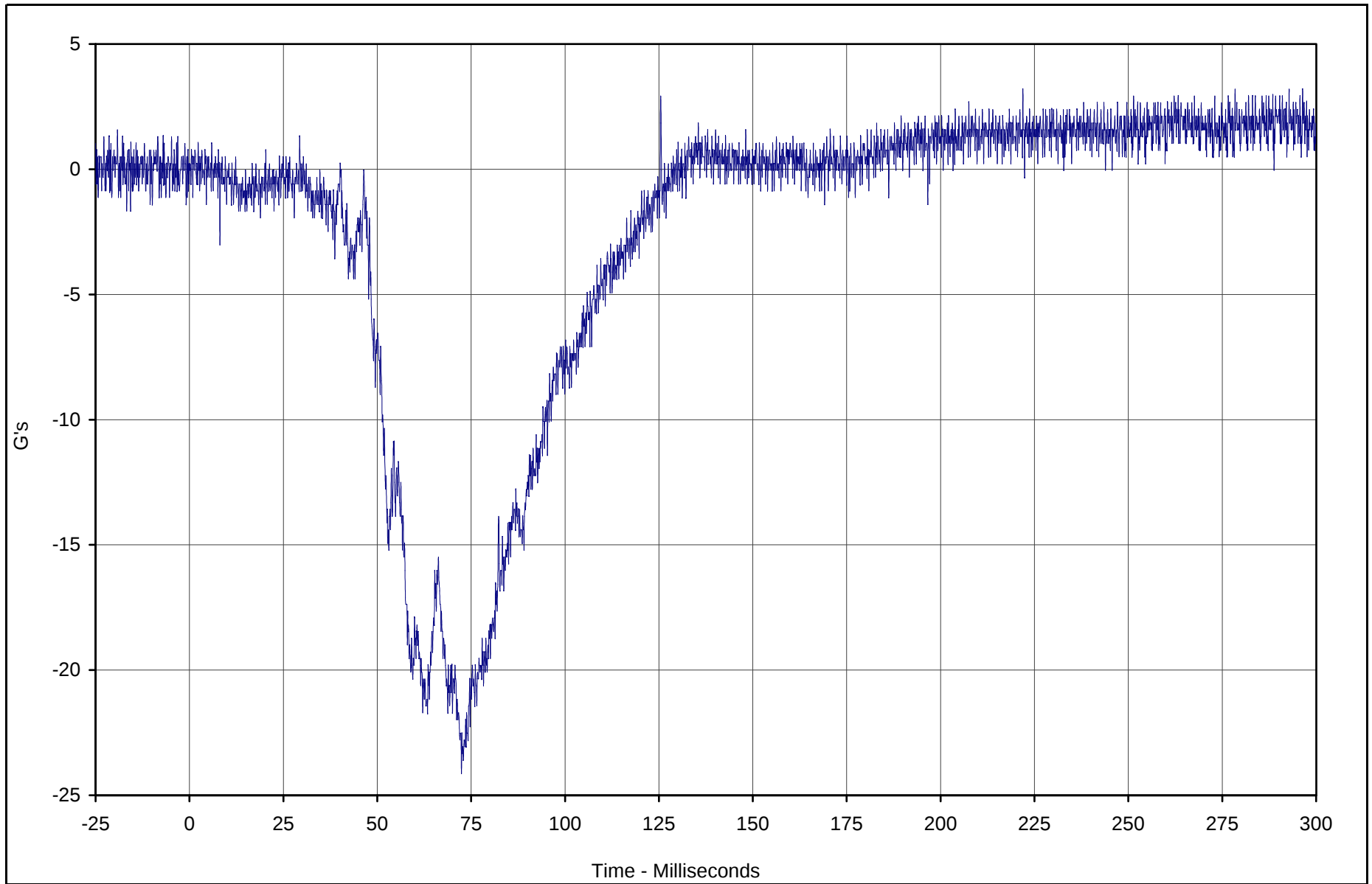


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis Z	066	FIL	G's	3.2	221.9	-24.1	72.4	1000

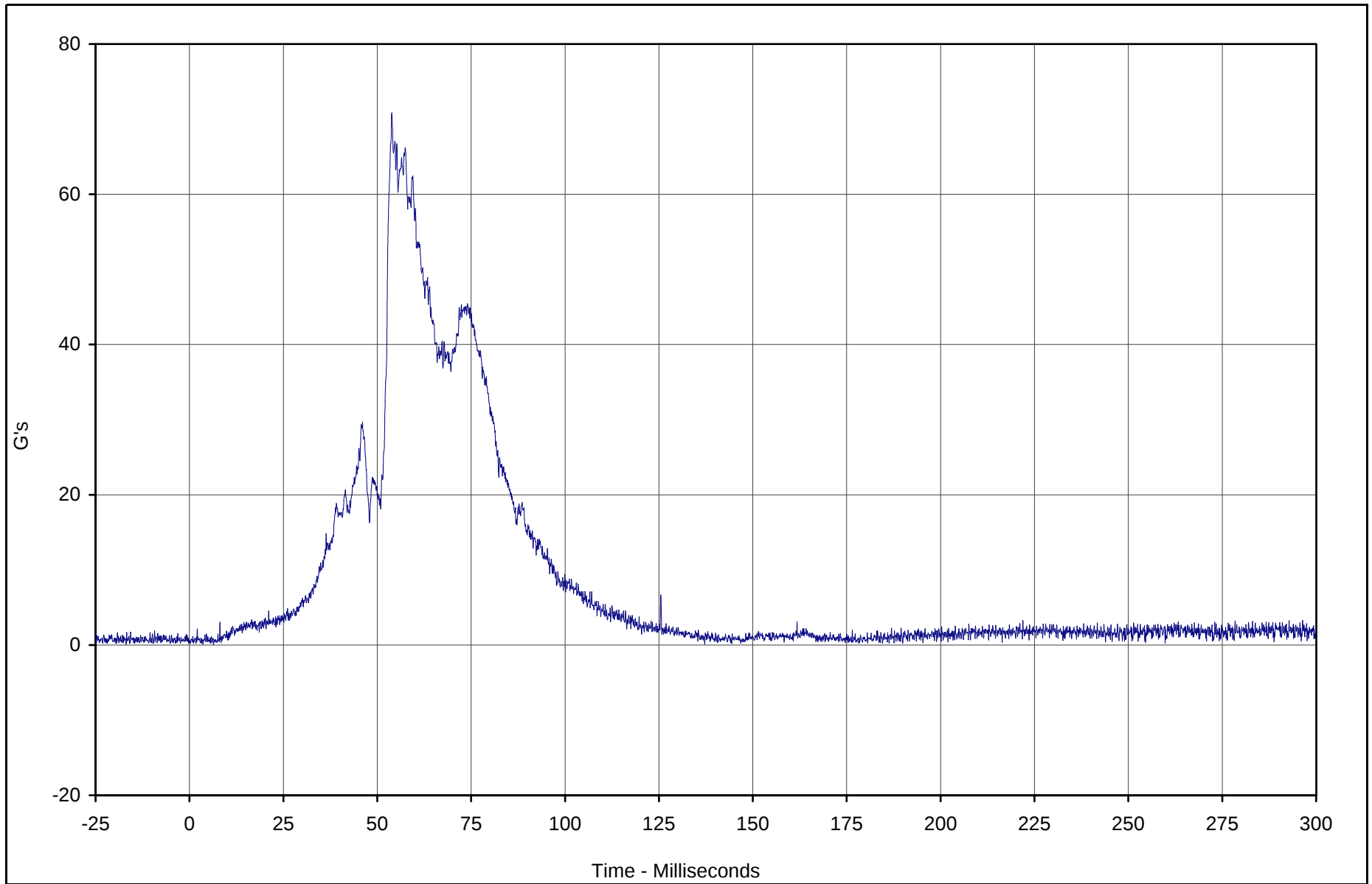


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis Resultant	066	RES	G's	70.8	53.9	0.1	3.6	1000

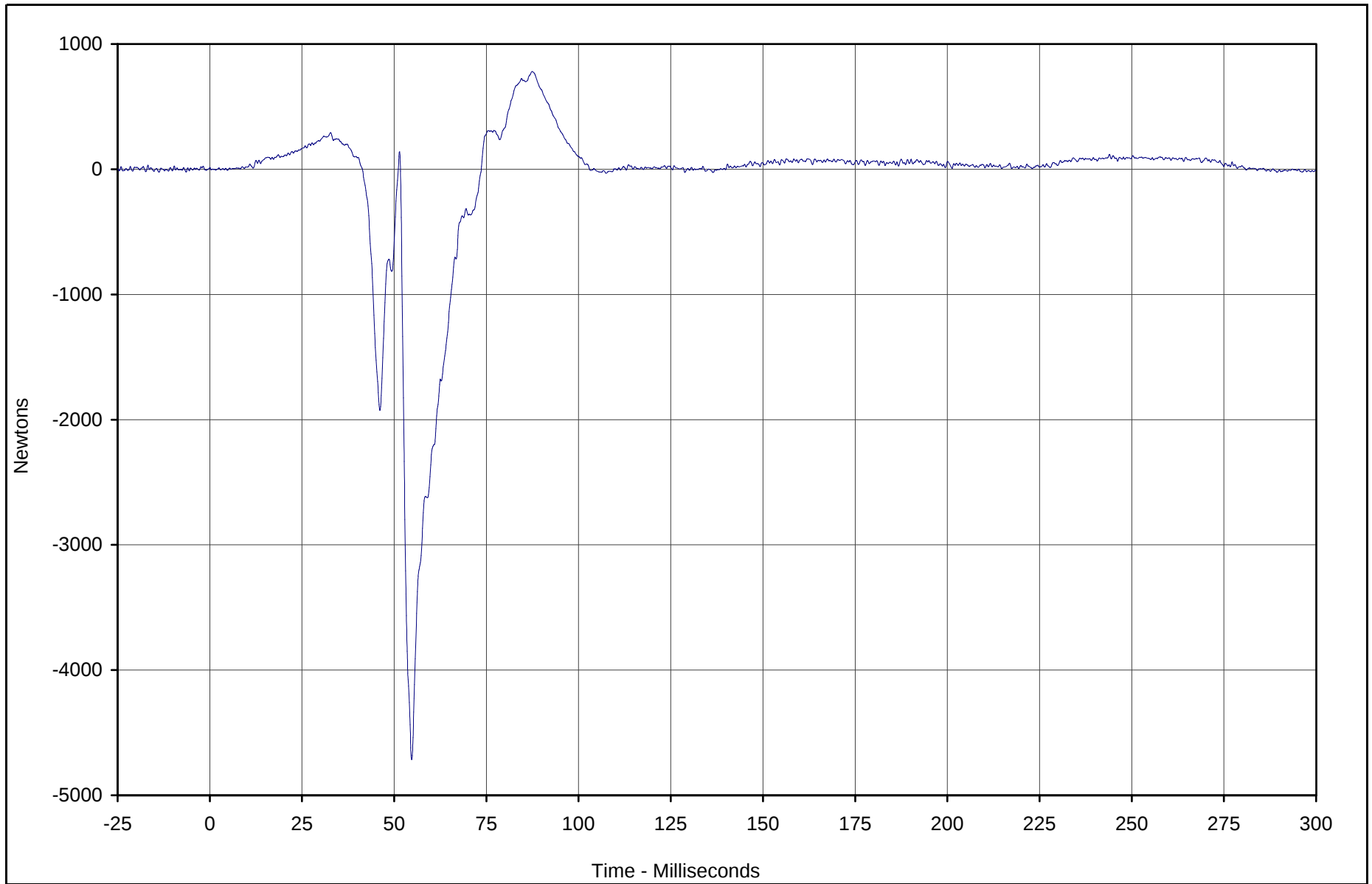


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Femur Force	067	FIL	Newtons	779.9	87.4	-4714.6	54.8	600

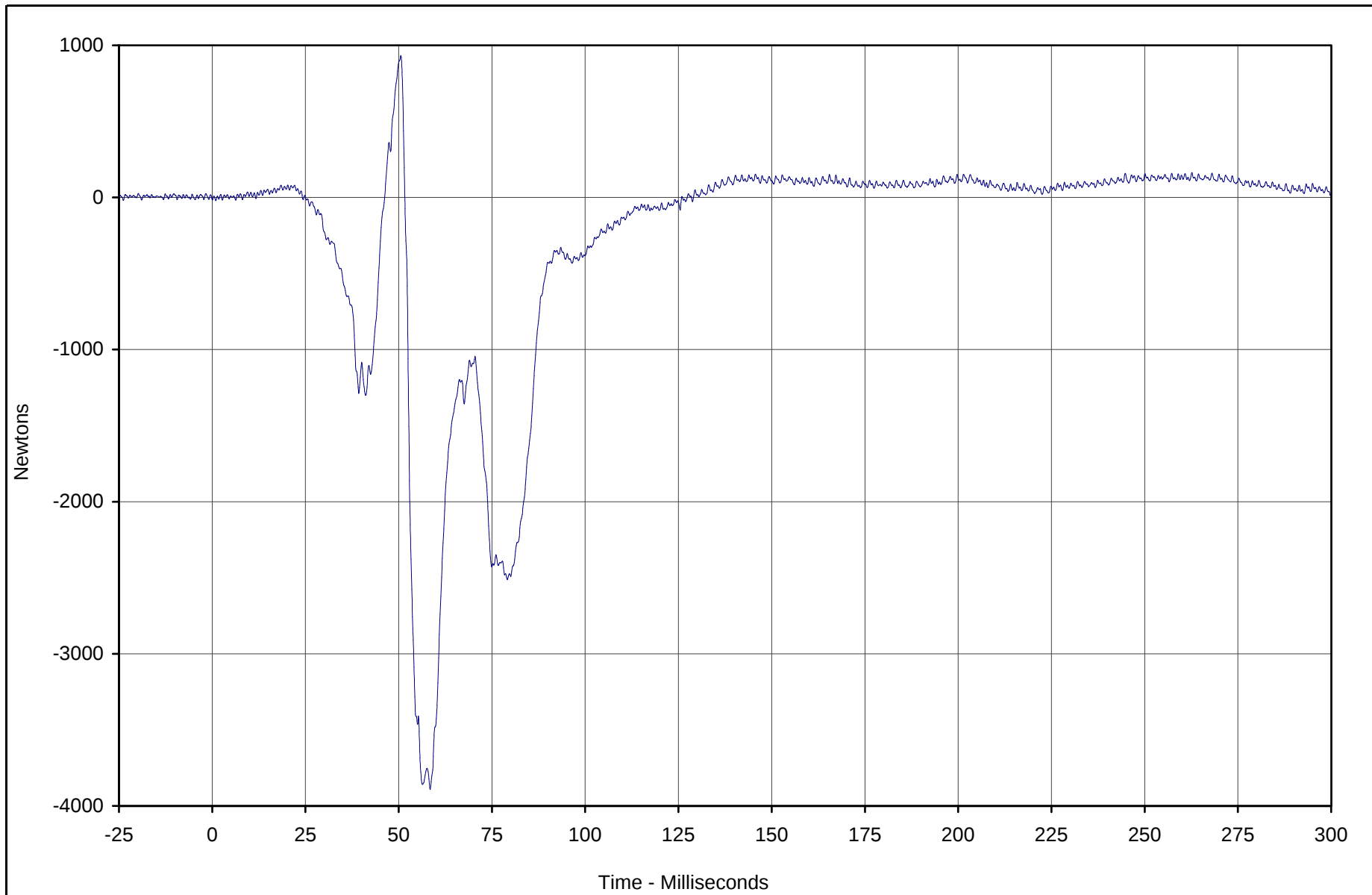


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Femur Force	068	FIL	Newtons	931.5	50.6	-3892.9	58.4	600

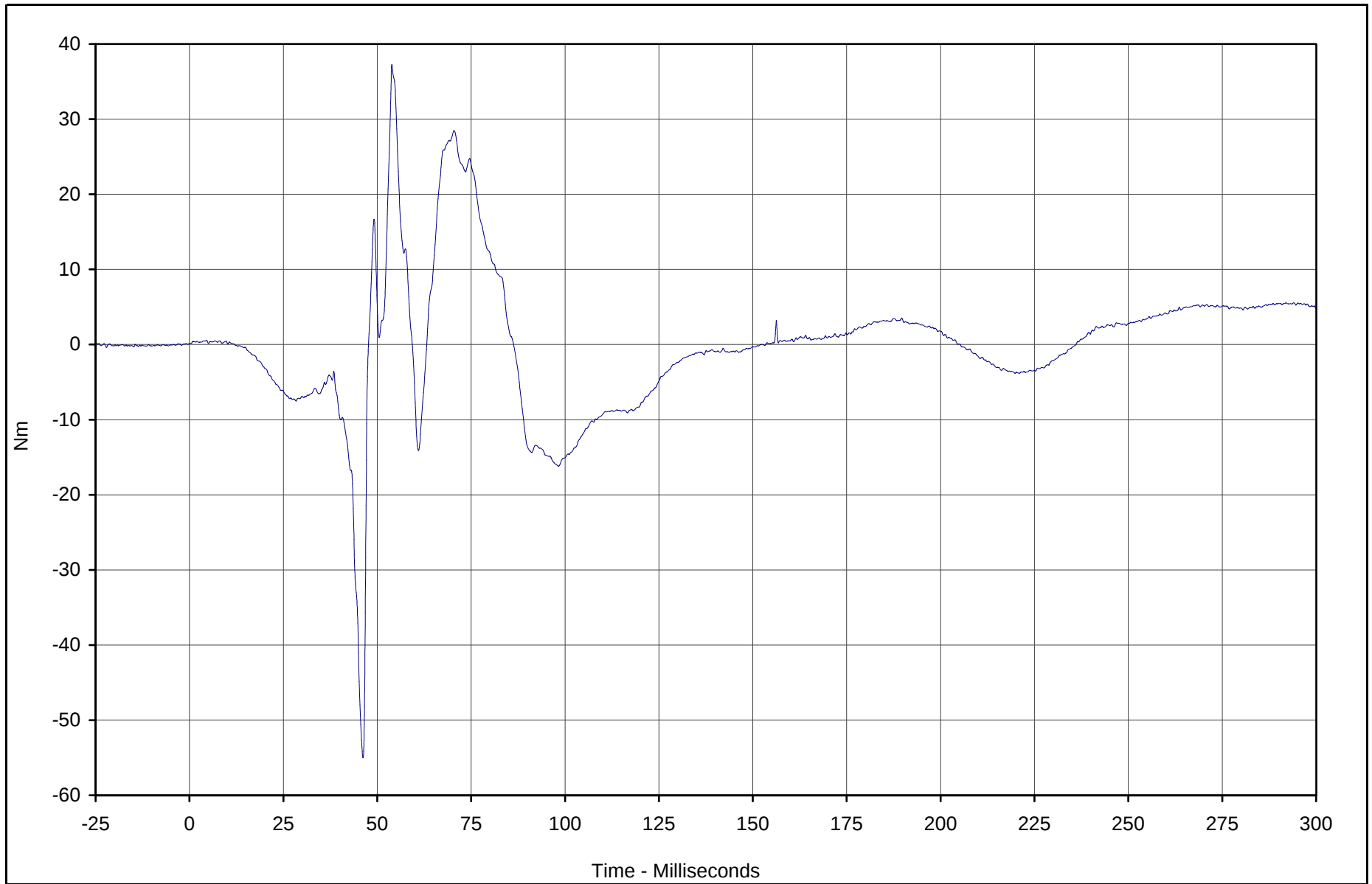


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Upper Tibia Moment X	069	FIL	Nm	37.3	53.9	-55.0	46.2	600

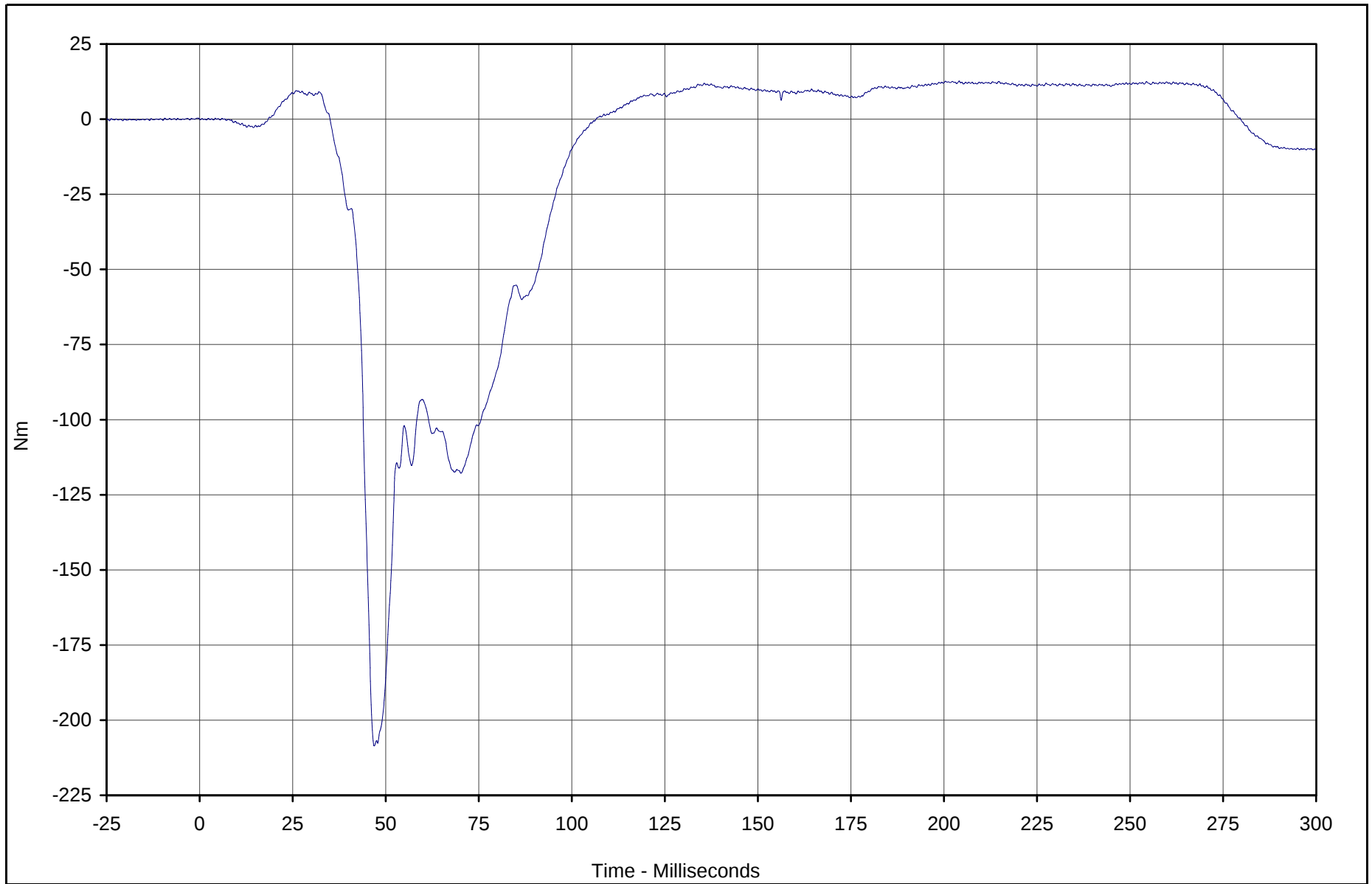


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Upper Tibia Moment Y	070	FIL	Nm	12.7	204.1	-208.6	46.9	600

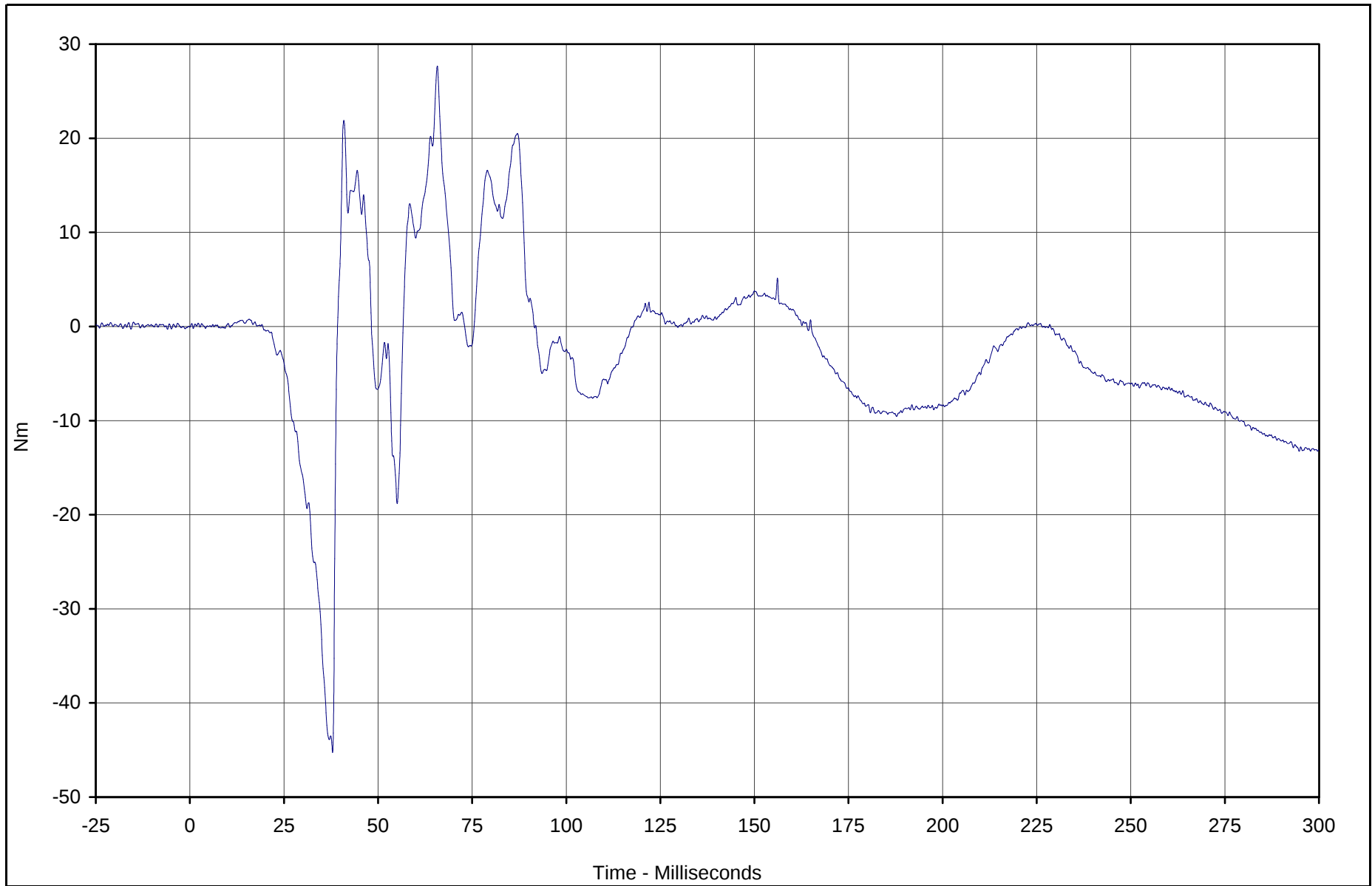


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Upper Tibia Moment X	071	FIL	Nm	27.7	65.7	-45.3	37.9	600

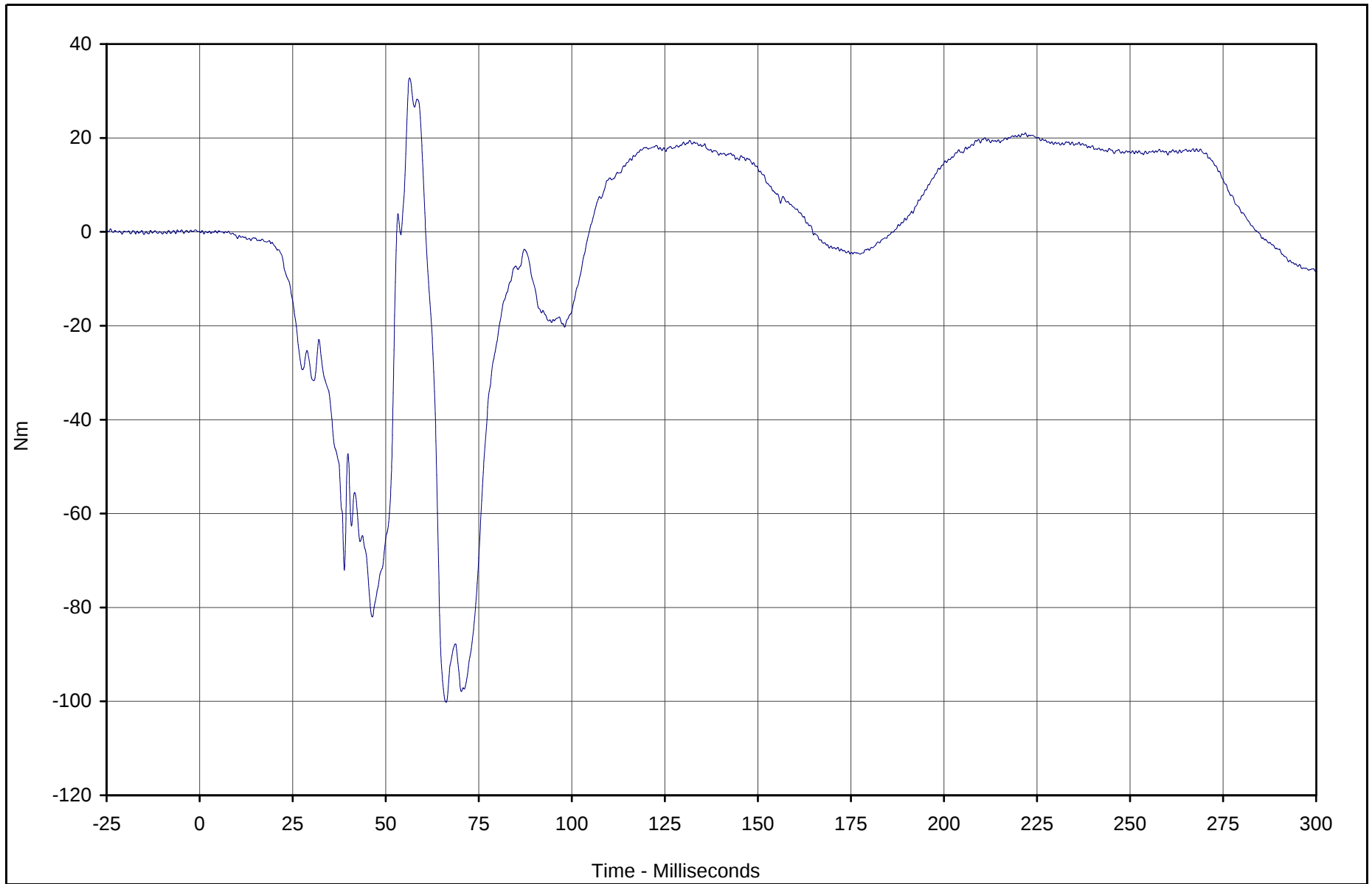


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Upper Tibia Moment Y	072	FIL	Nm	32.8	56.4	-100.2	66.3	600

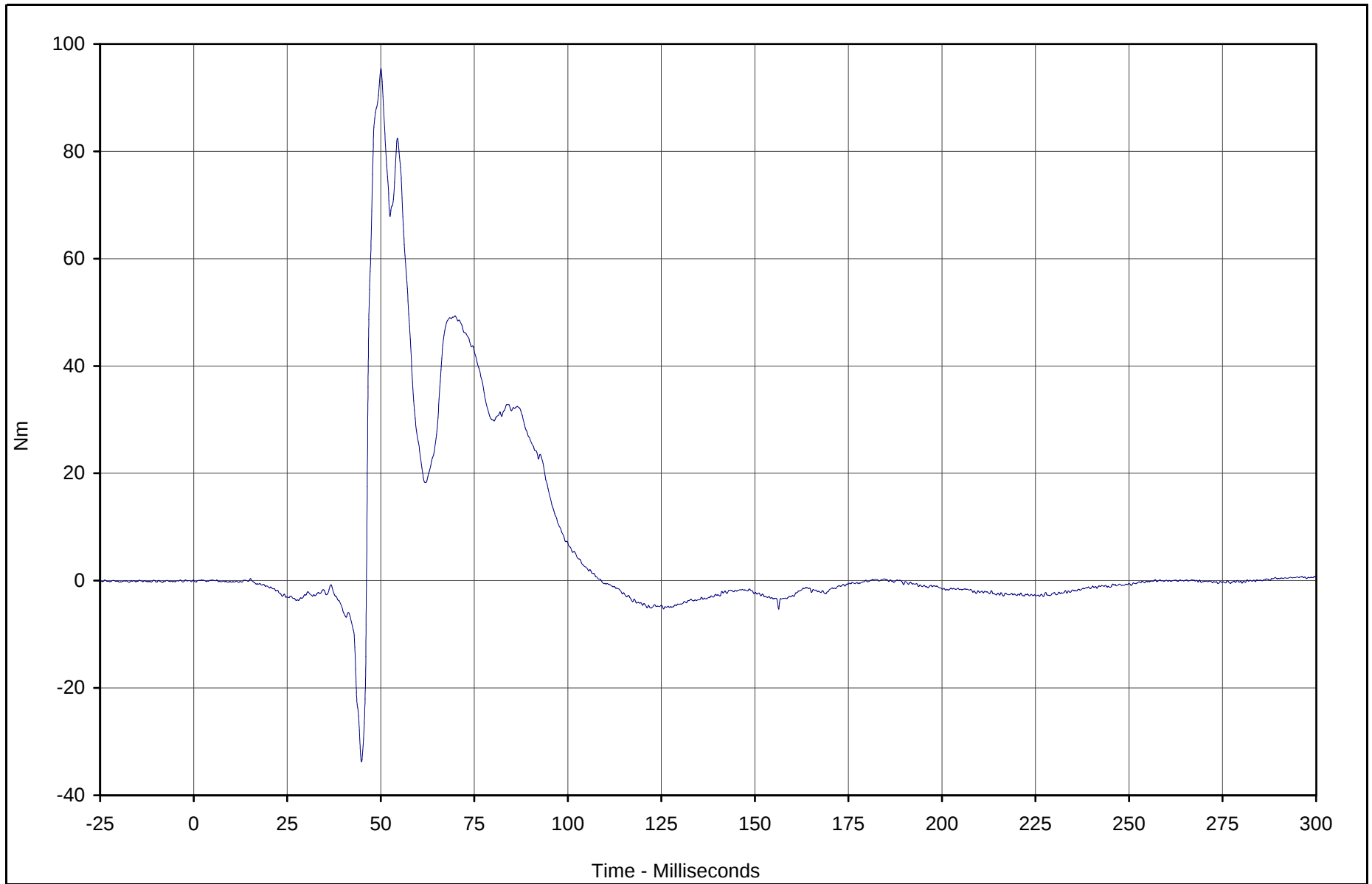


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Lower Tibia Moment X	073	FIL	Nm	95.4	50.1	-33.7	44.9	600

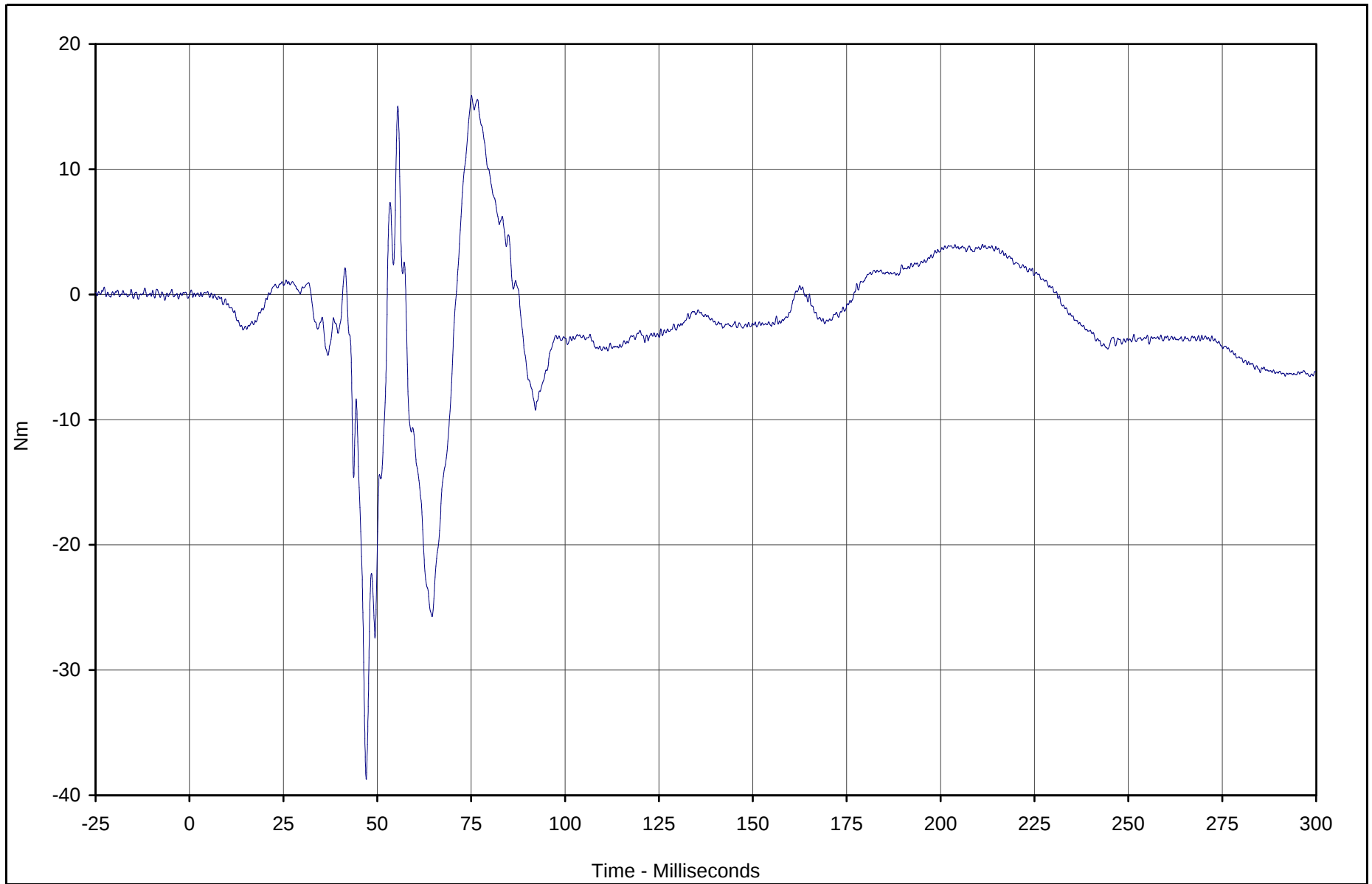


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Lower Tibia Moment Y	074	FIL	Nm	15.9	75.1	-38.7	47.1	600

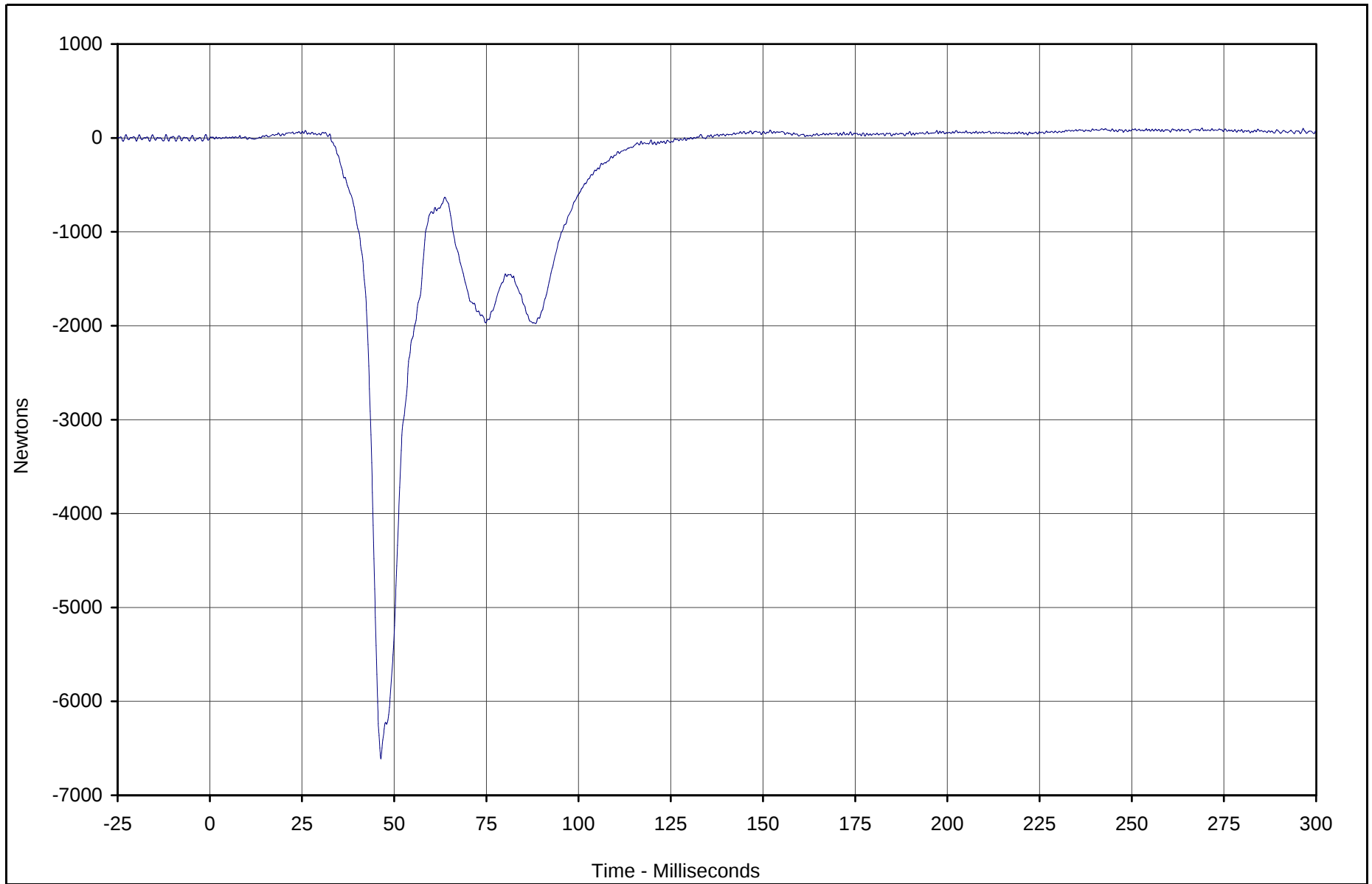


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Lower Tibia Force Z	075	FIL	Newtons	104.0	269.0	-6613.0	46.4	600

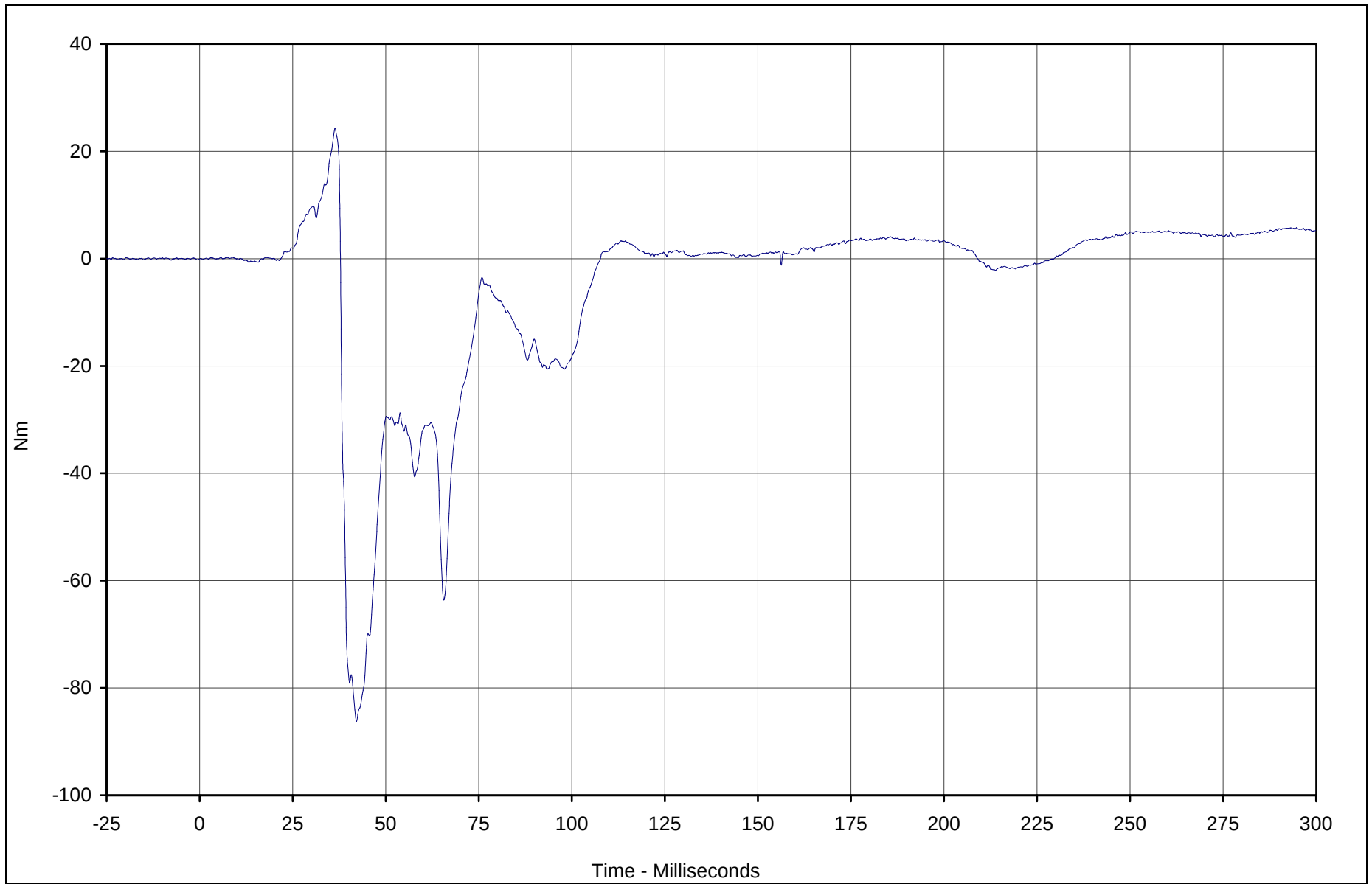


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Lower Tibia Moment X	076	FIL	Nm	24.3	36.4	-86.2	42.1	600

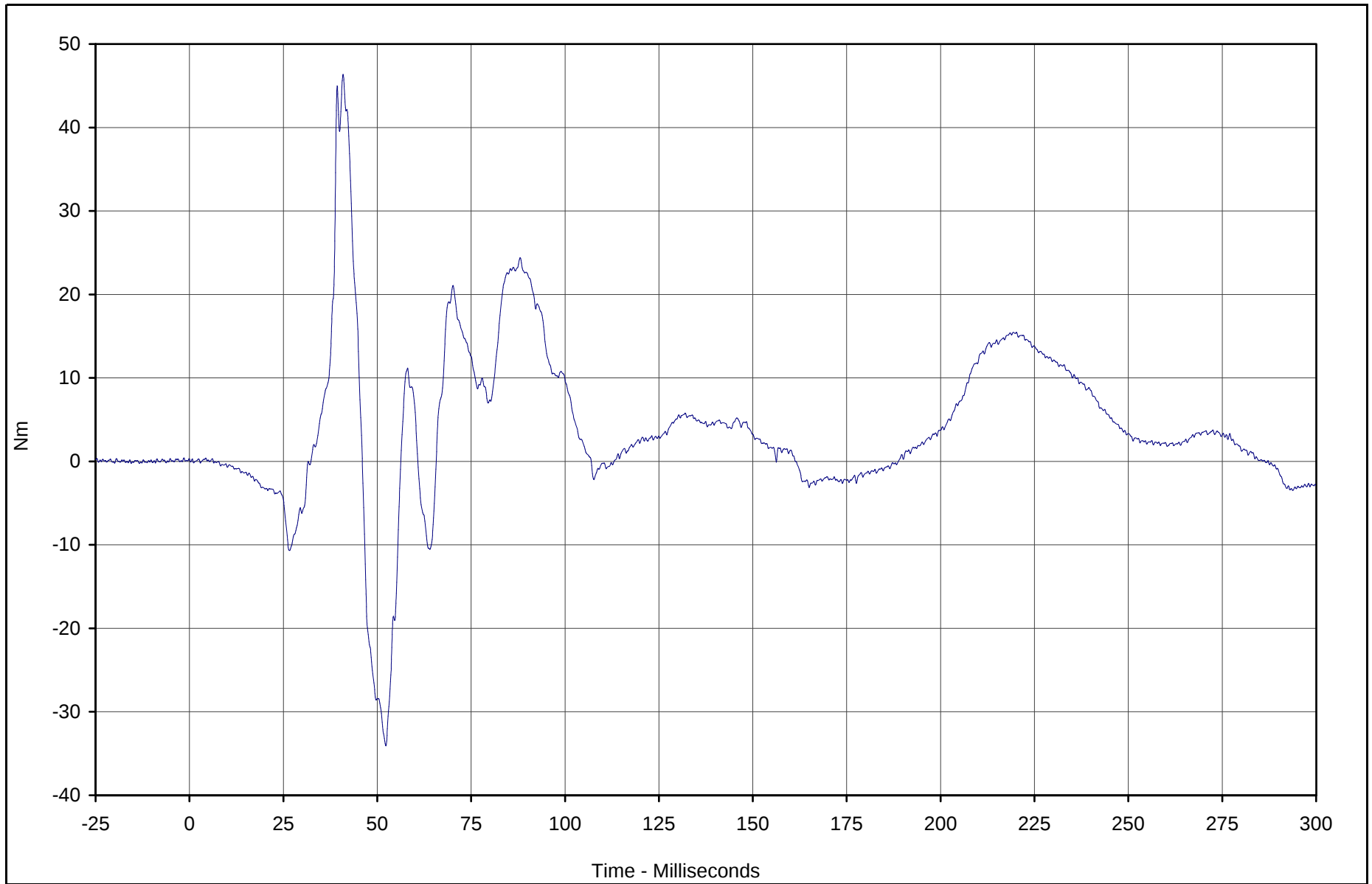


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Lower Tibia Moment Y	077	FIL	Nm	46.4	40.9	-34.1	52.3	600

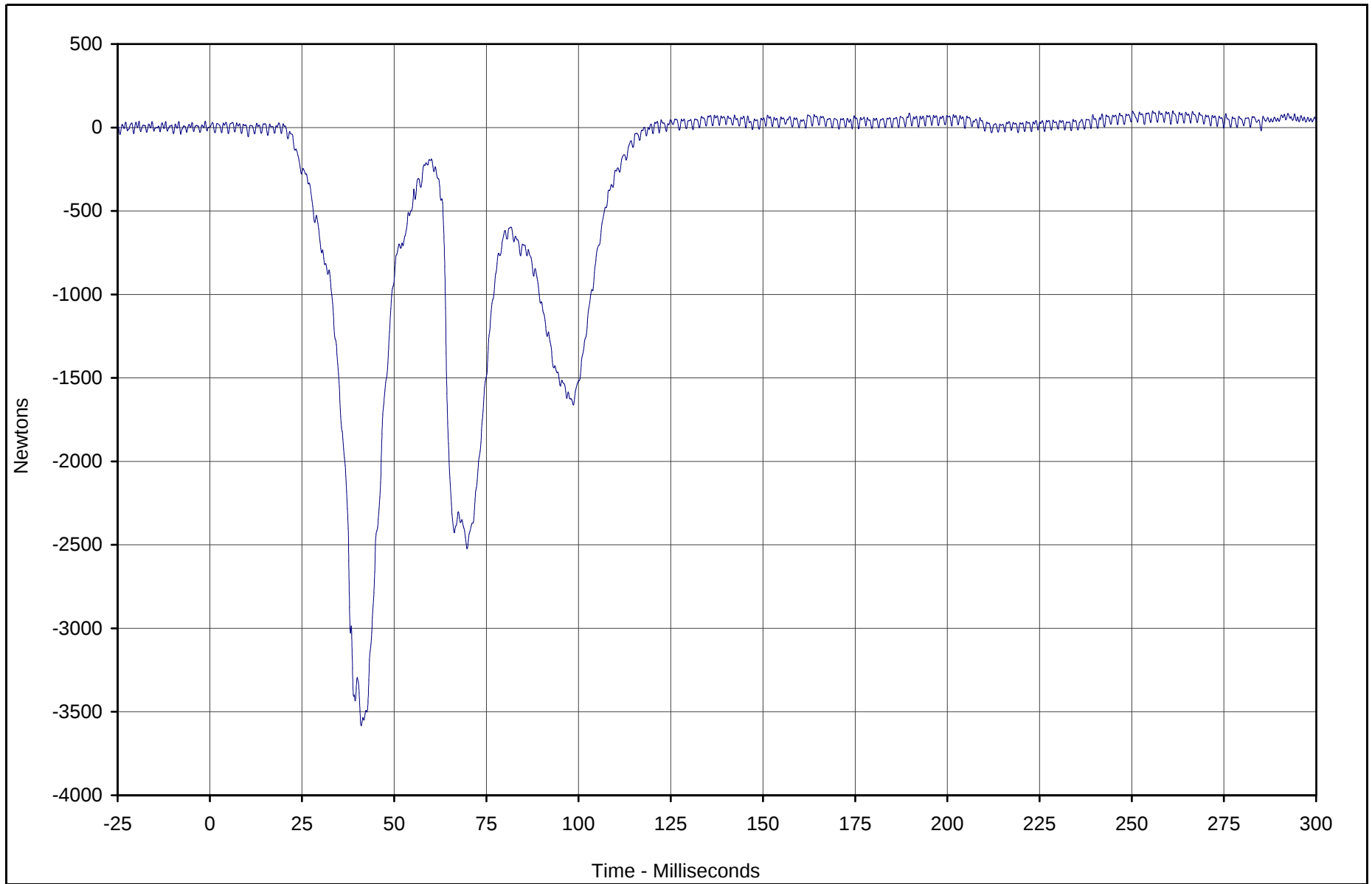


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right lower Tibia Force Z	078	FIL	Newtons	99.6	255.7	-3583.0	41.1	600

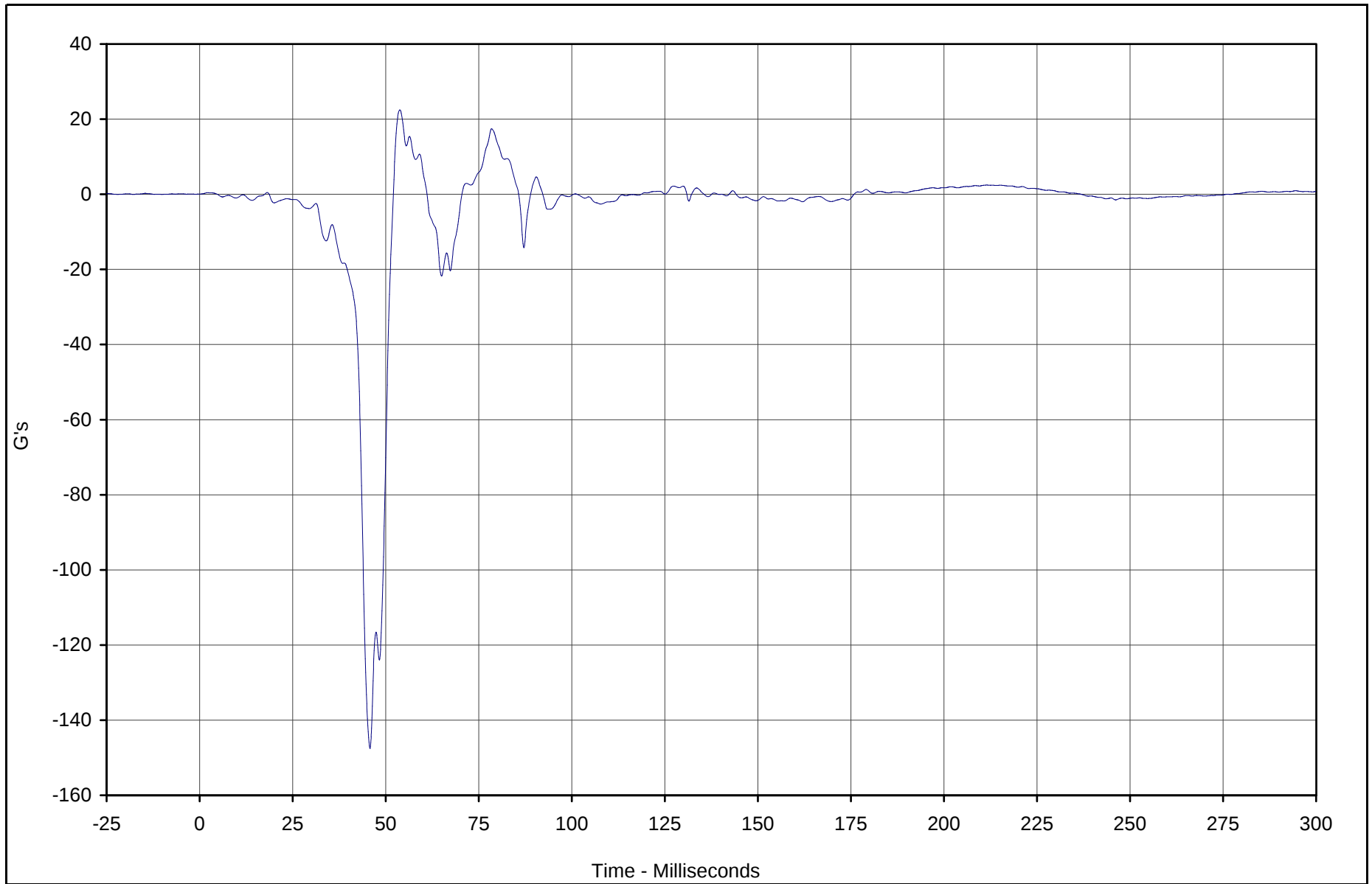


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Foot Aft X	079	FIL	G's	22.4	53.8	-147.5	45.8	180

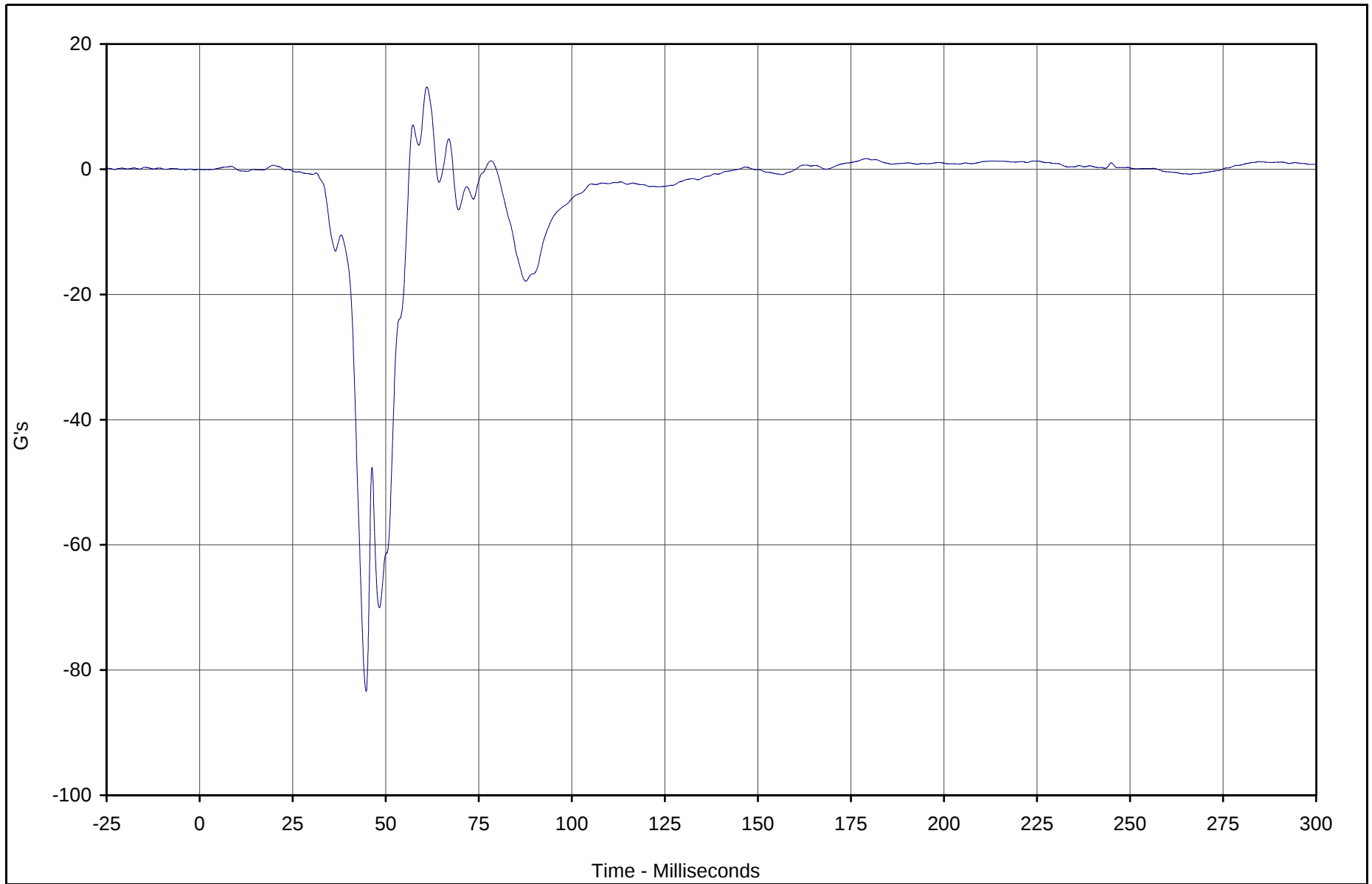


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Foot Aft Z	080	FIL	G's	13.1	61.0	-83.4	44.7	180

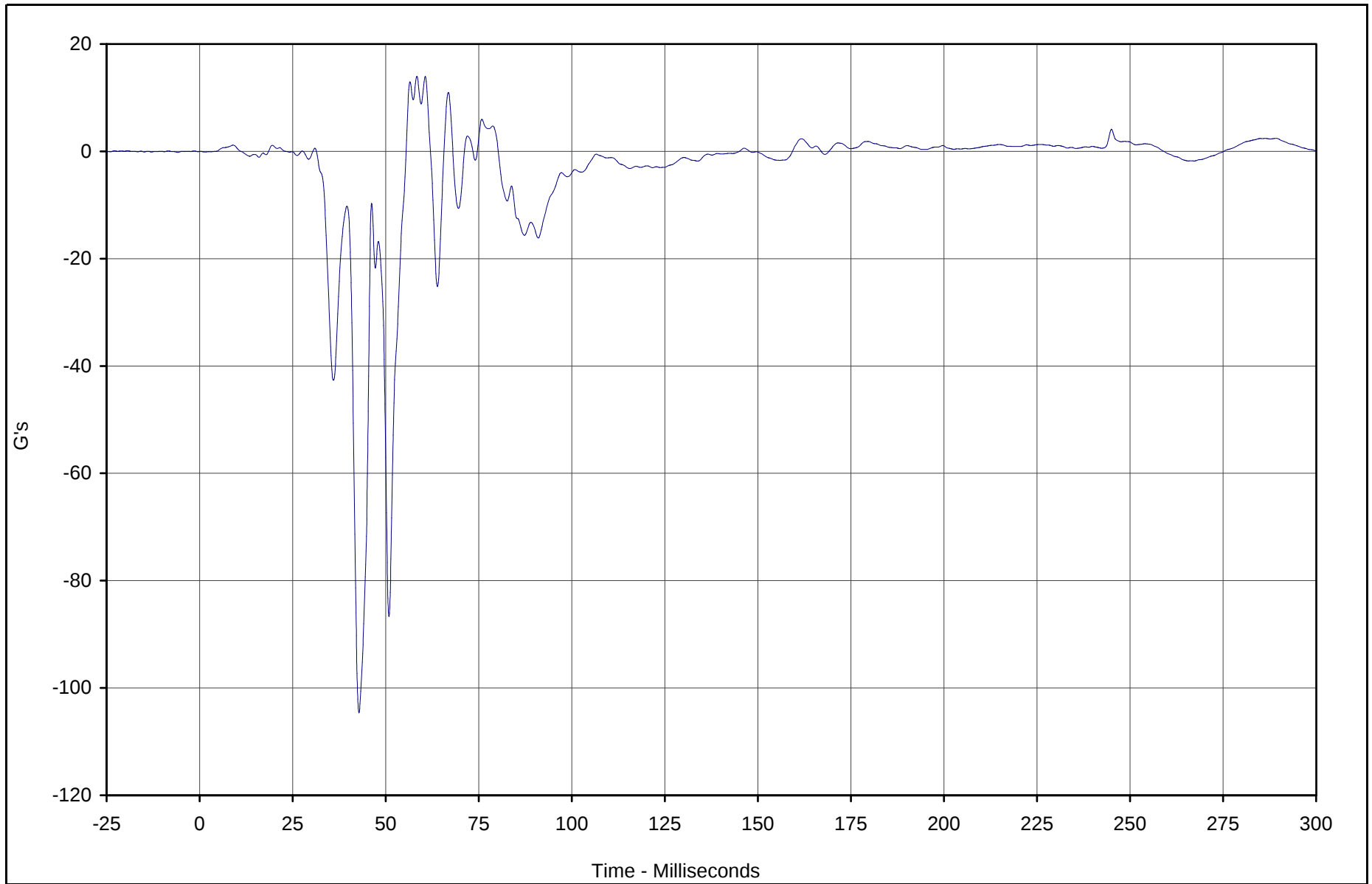


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Foot Fore Z	081	FIL	G's	14.0	60.6	-104.6	42.8	180

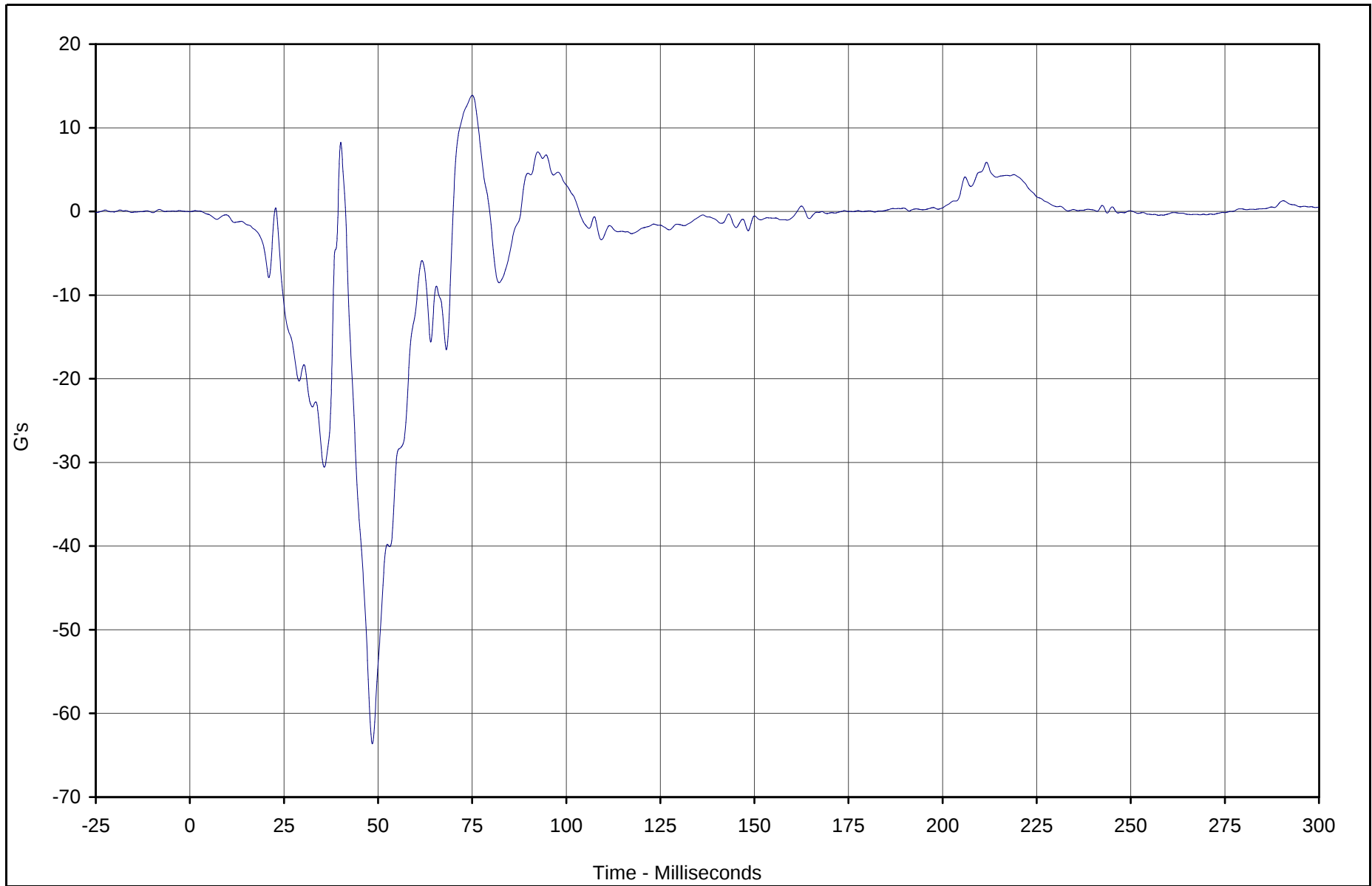


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Foot Aft X	082	FIL	G's	13.9	75.0	-63.6	48.5	180

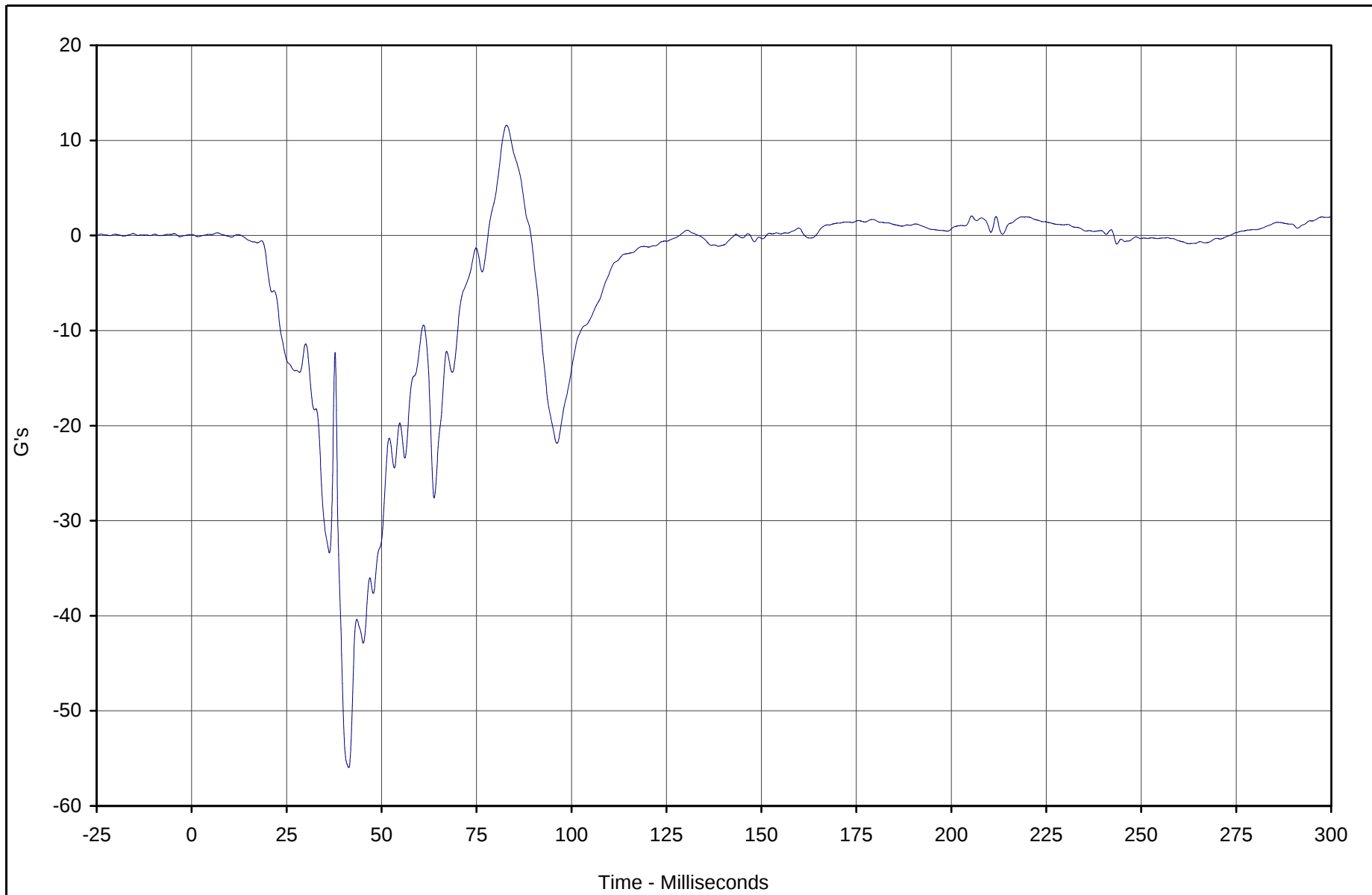


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Foot Aft Z	083	FIL	G's	11.6	82.9	-56.0	41.4	180

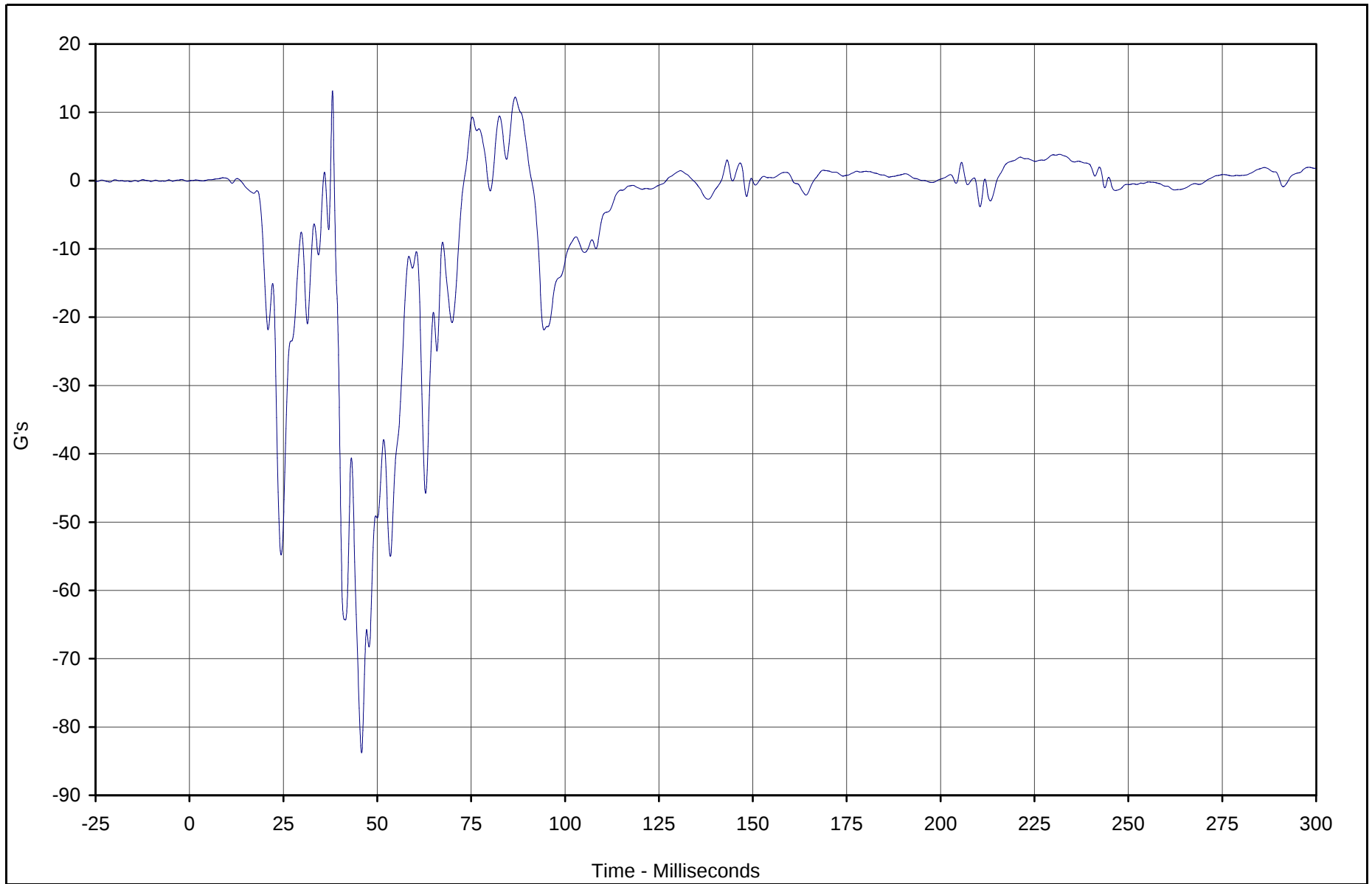


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Foot Fore Z	084	FIL	G's	13.2	38.1	-83.8	45.8	180

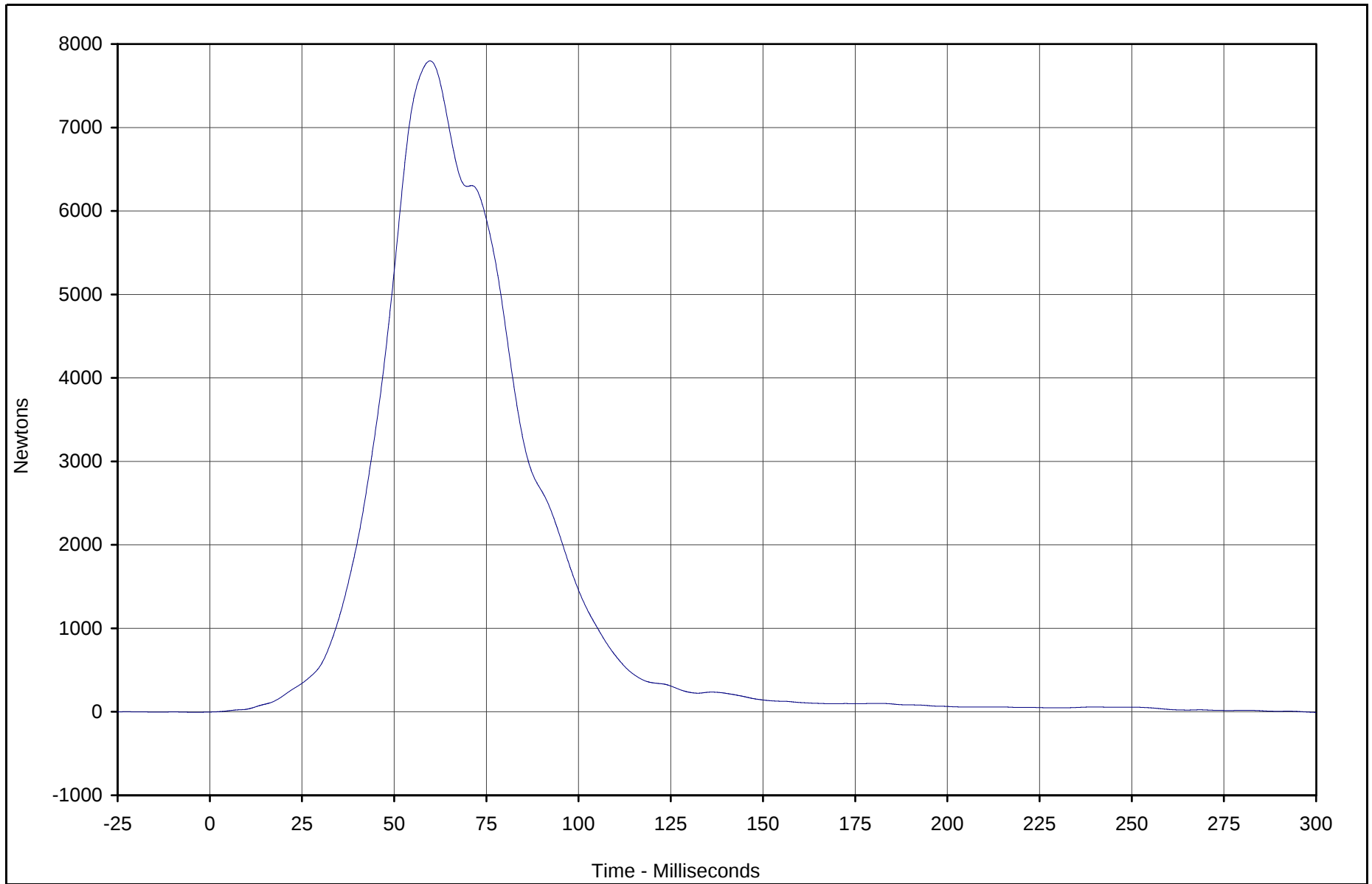


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Lap Belt Force	085	FIL	Newtons	7798.4	59.7	-8.0	299.9	60

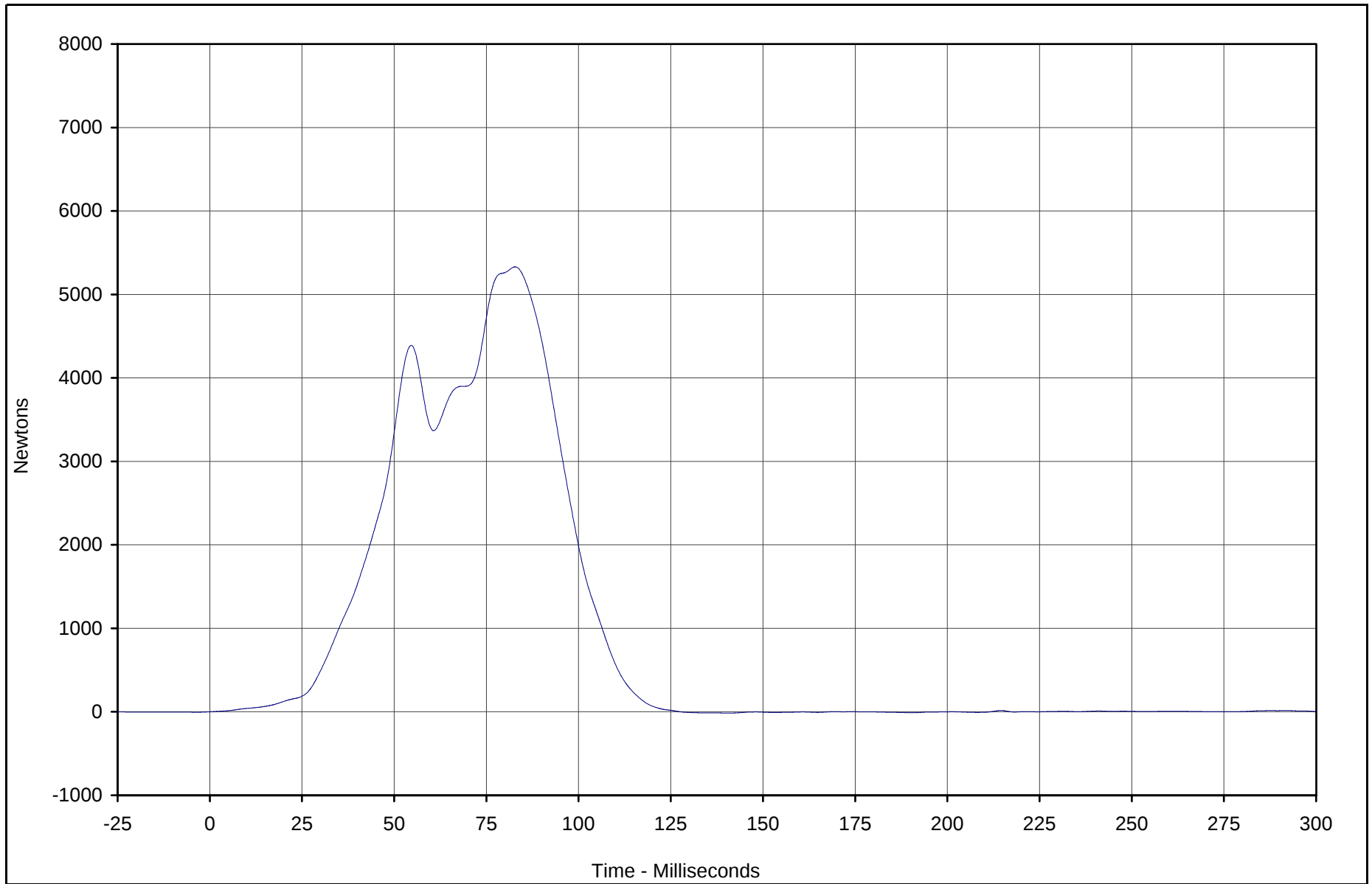


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Shoulder Belt Force	086	FIL	Newtons	5330.3	82.8	-15.9	140.7	60

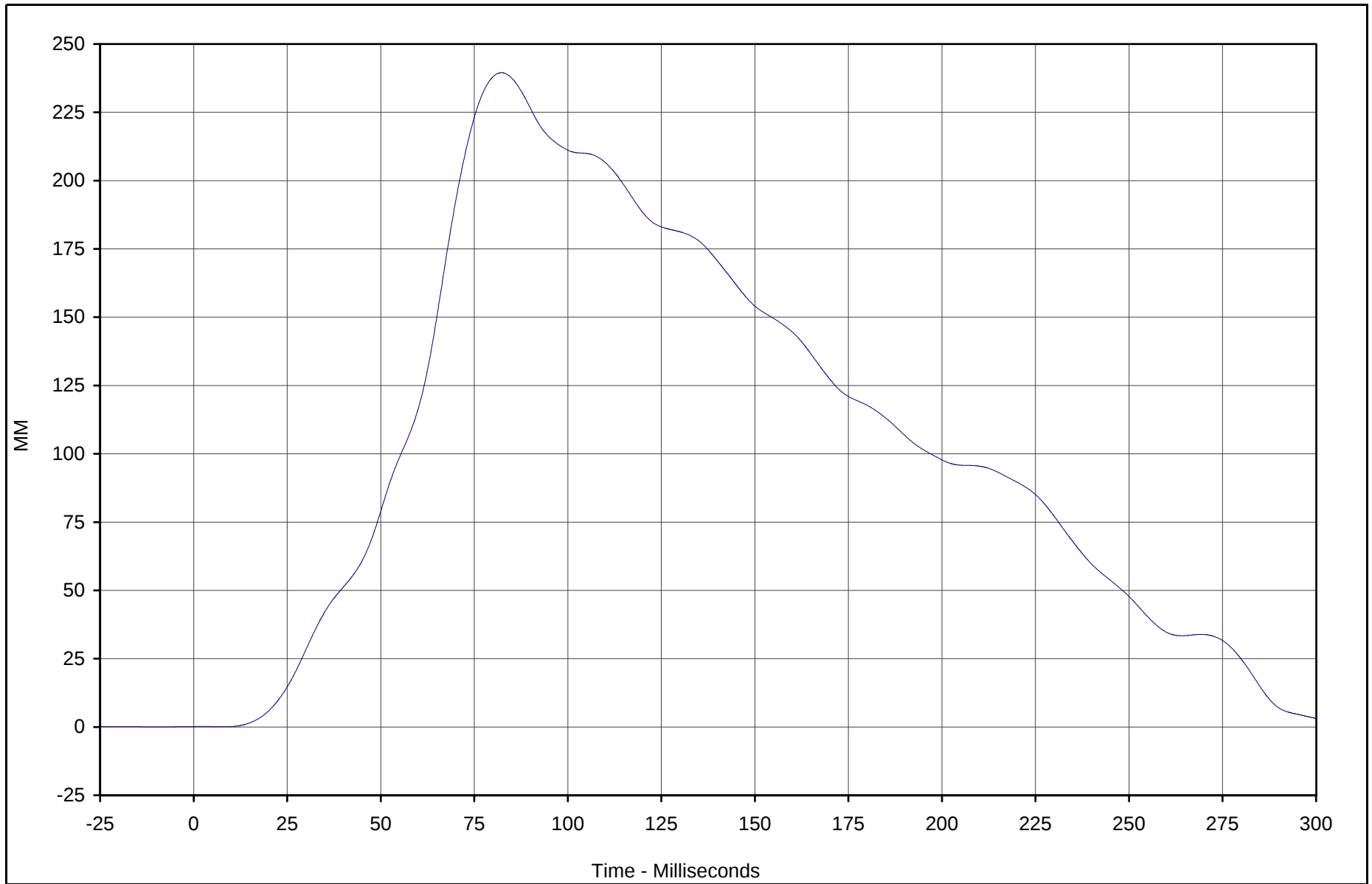


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Shoulder Belt Pullout	087	FIL	MM	239.5	82.3	0.1	7.8	60

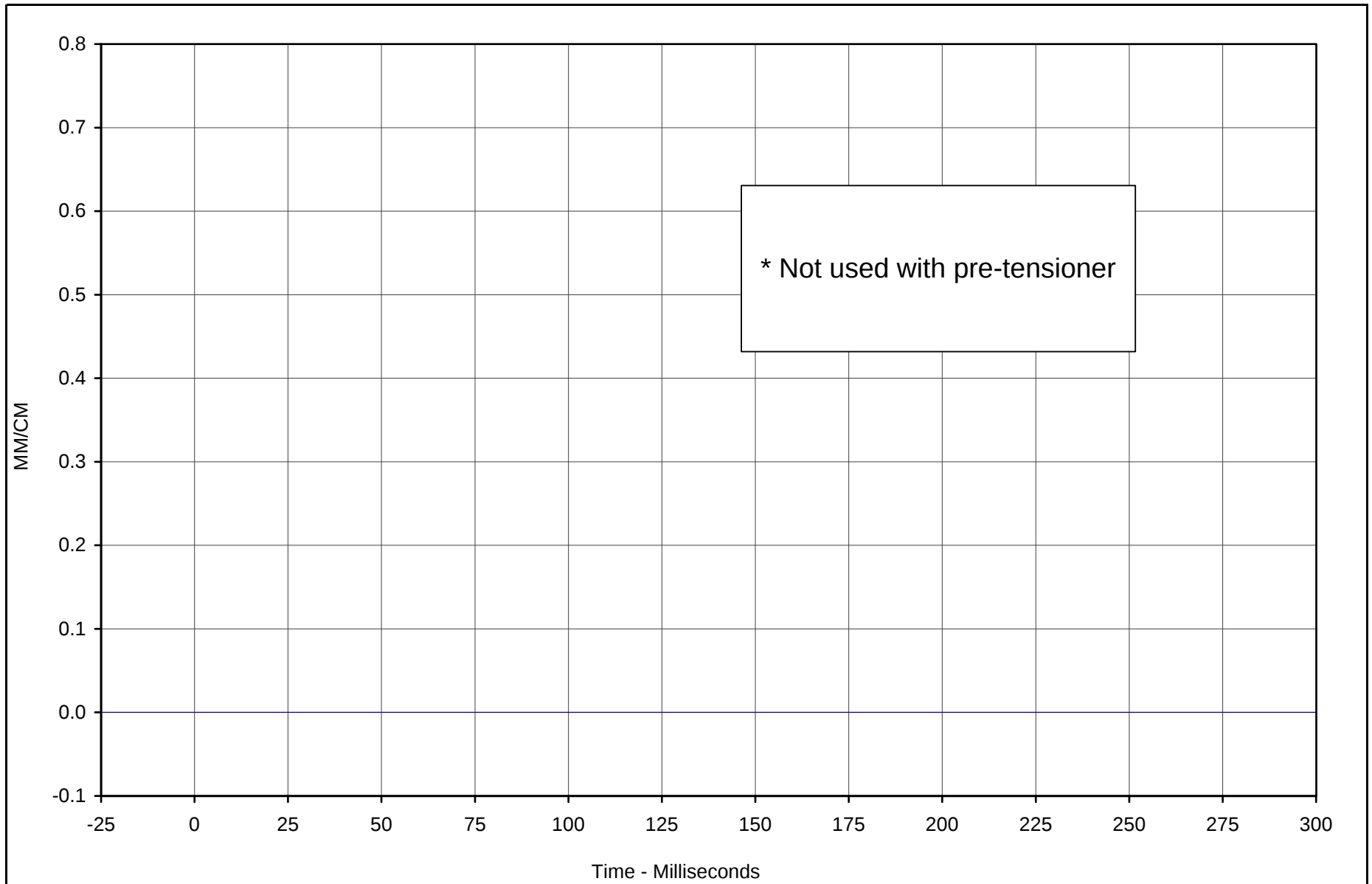


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



* Not used with pre-tensioner

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Shoulder Belt Elongation	088	FIL	MM/CM	0.00	0.0	0.00	0.0	60

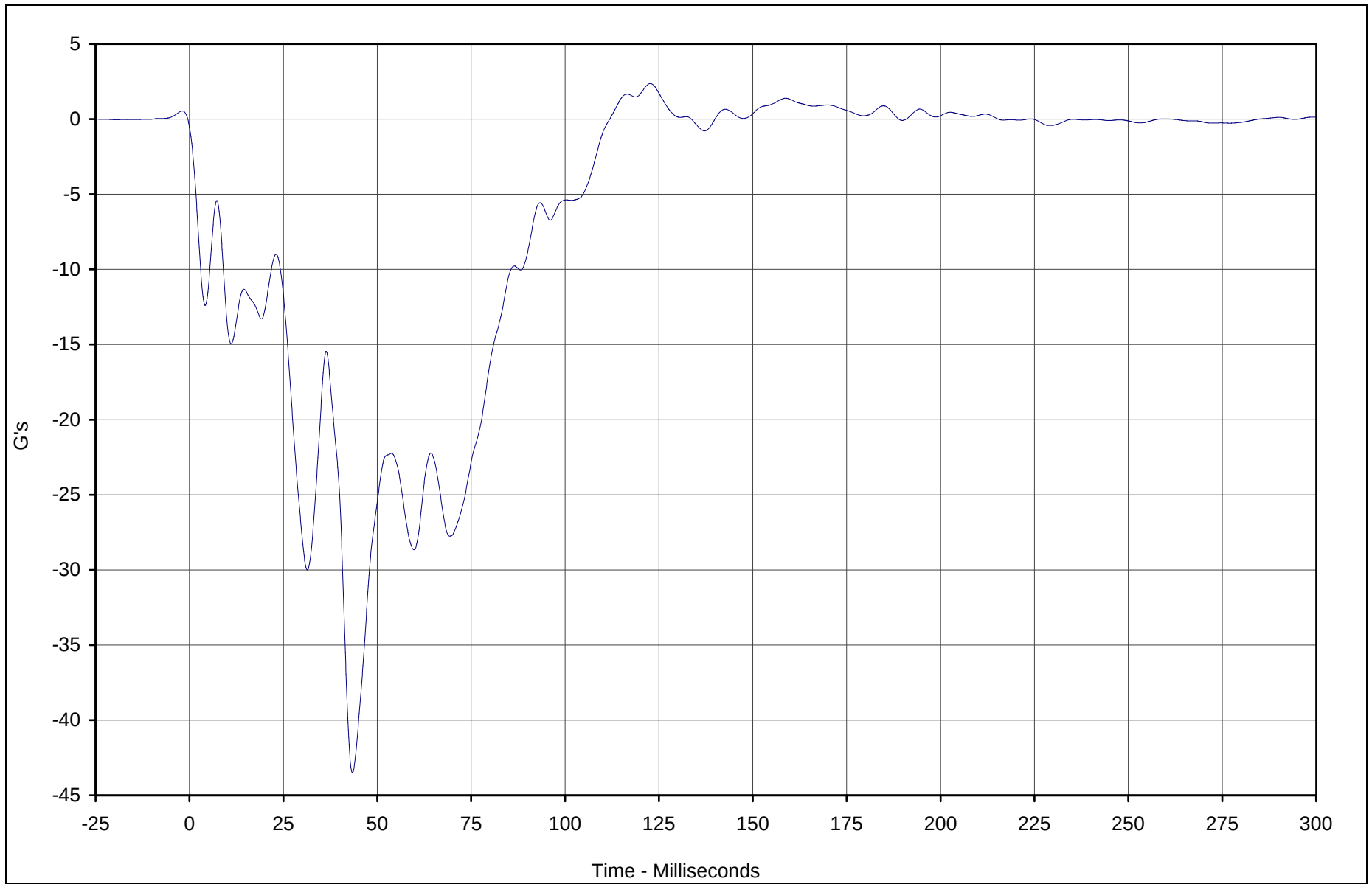


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear X	089	FIL	G's	2.4	122.7	-43.5	43.4	60

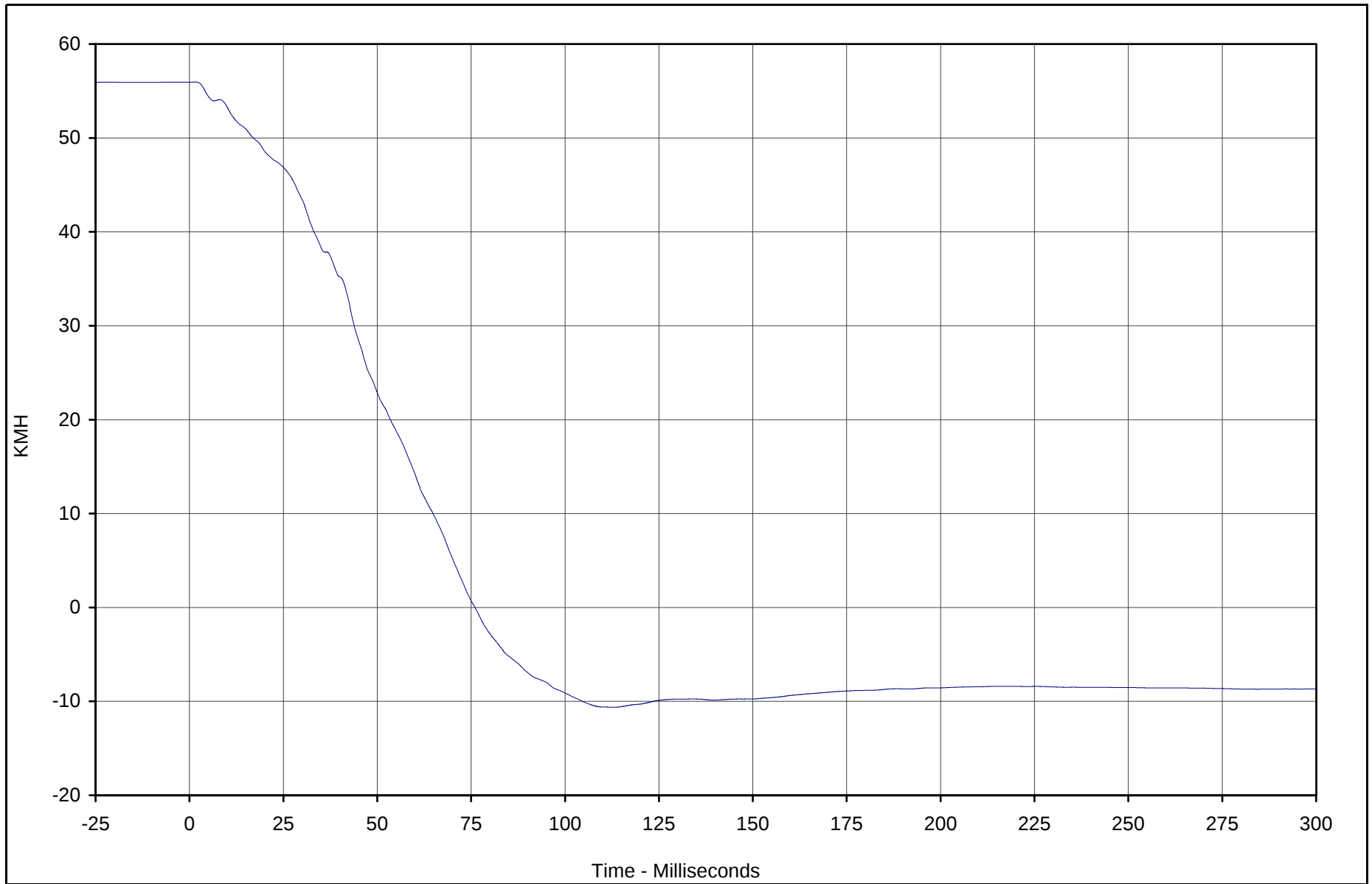


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear X Velocity	089	IN1	KMH	56.0	1.5	-10.6	112.4	180

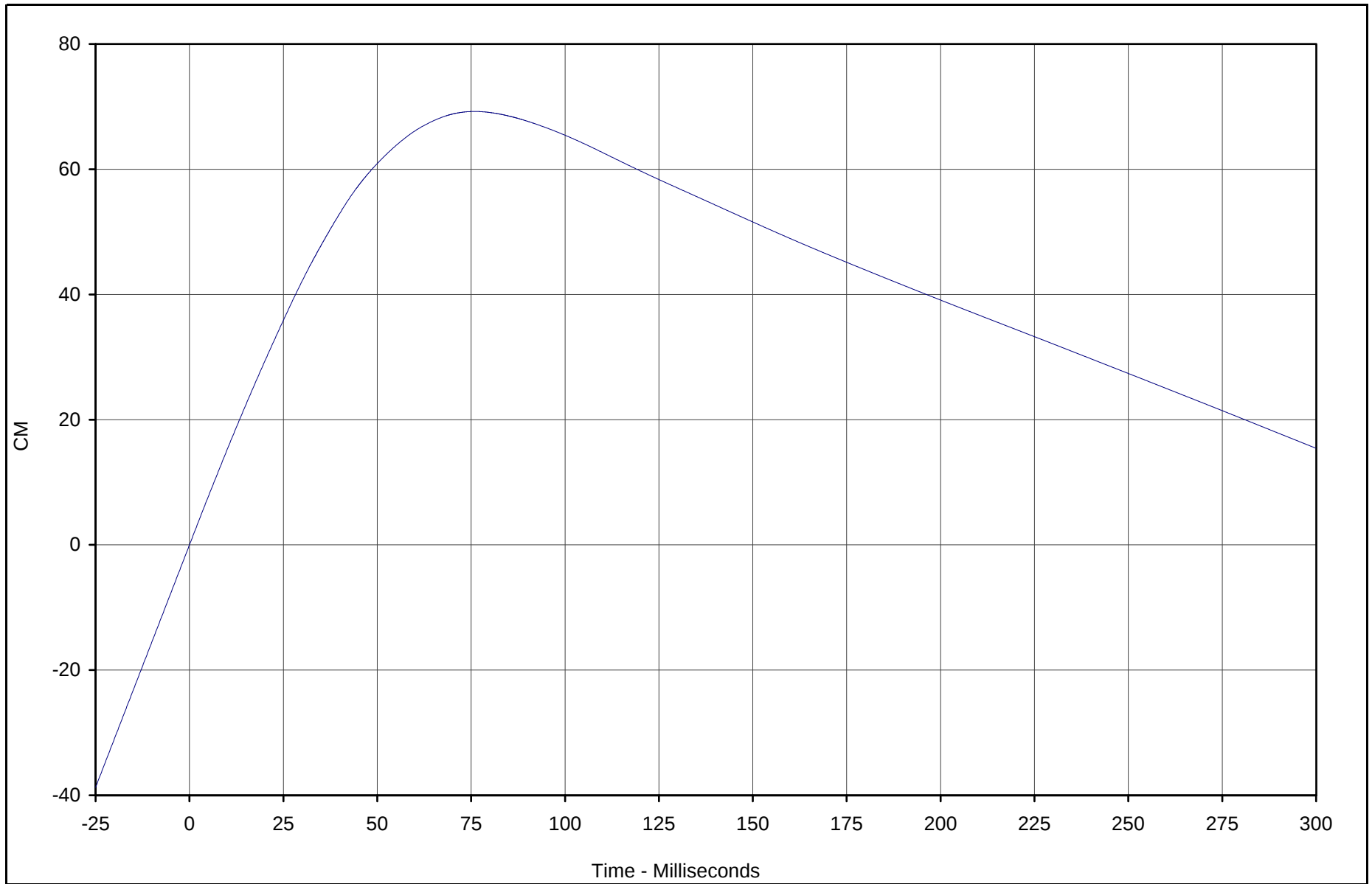


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear X Displ.	089	IN2	CM	69.2	76.0	0.0	0.0	180

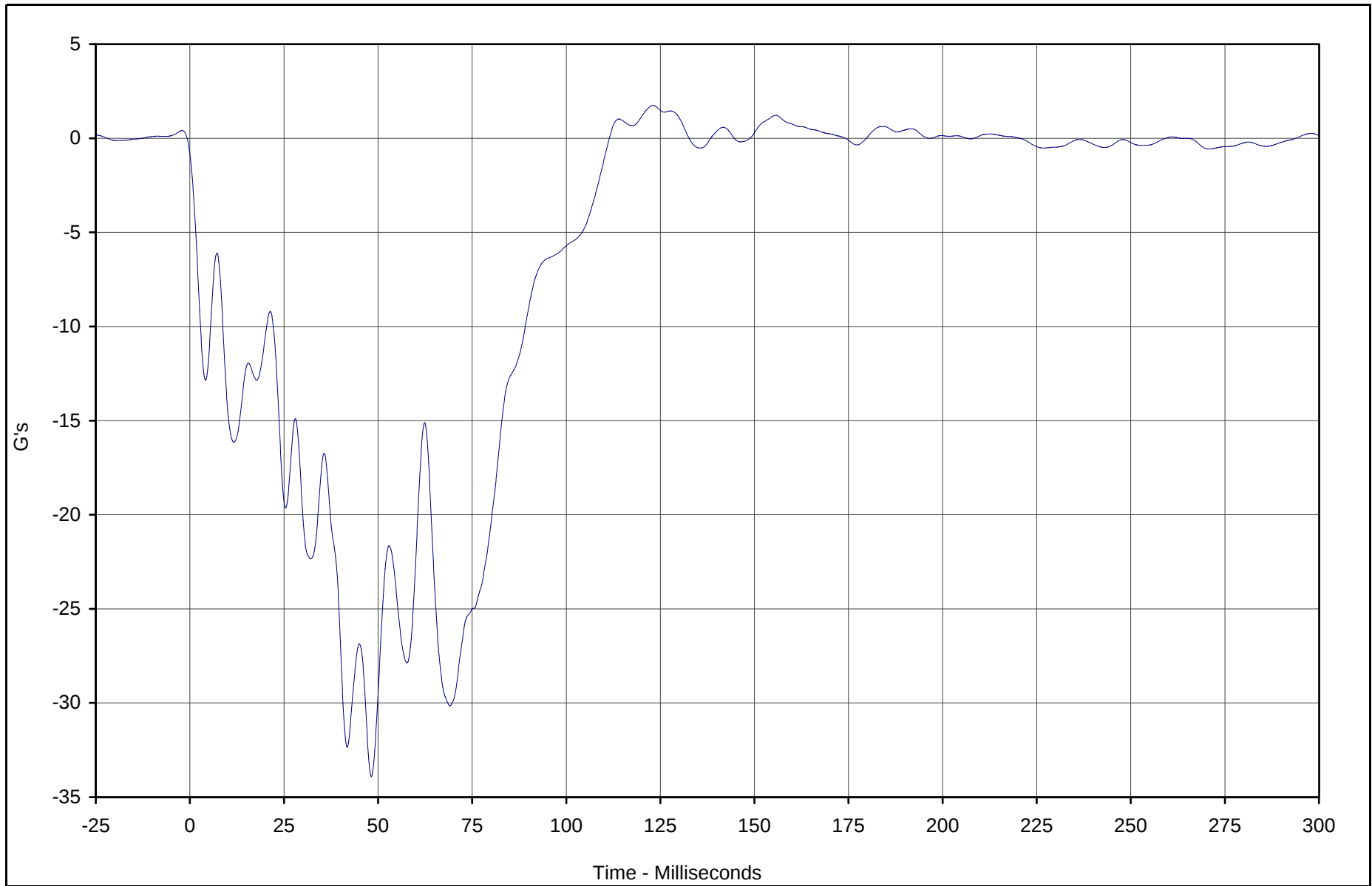


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear X	090	FIL	G's	1.7	123.1	-33.9	48.2	60

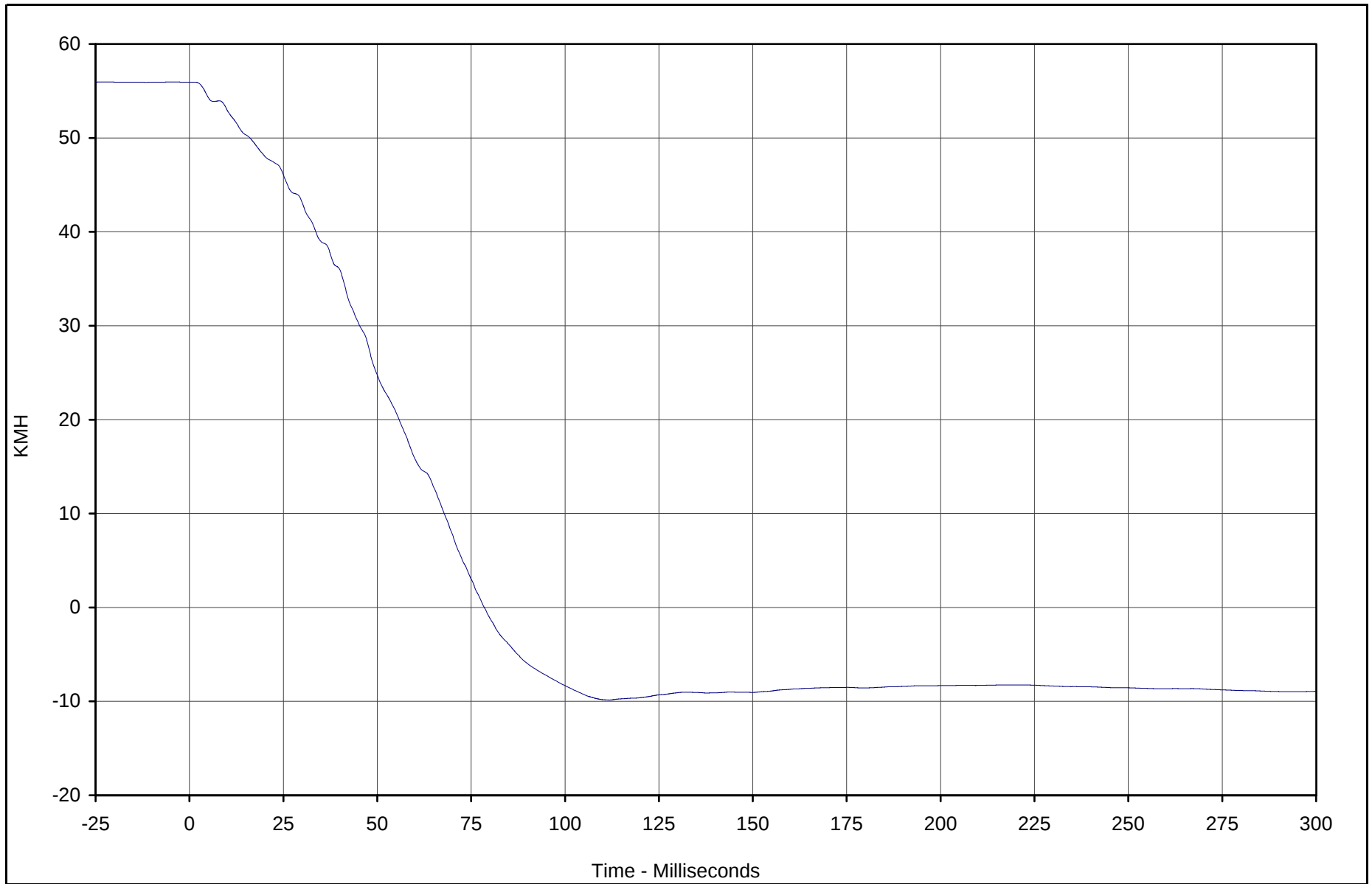


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear X Velocity	090	IN1	KMH	55.9	0.7	-9.9	111.7	180

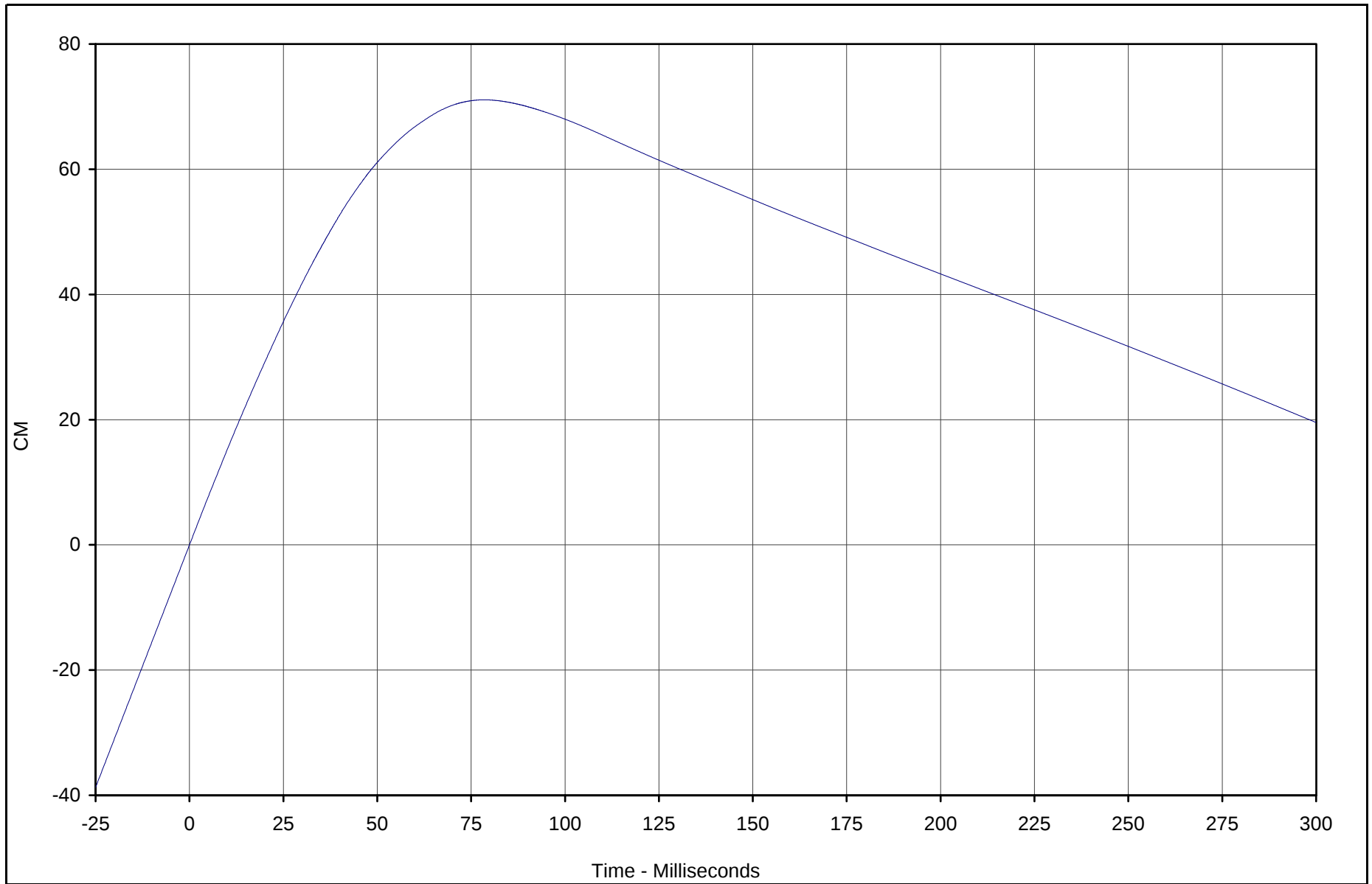


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear X Displ.	090	IN2	CM	71.1	78.5	0.0	0.0	180

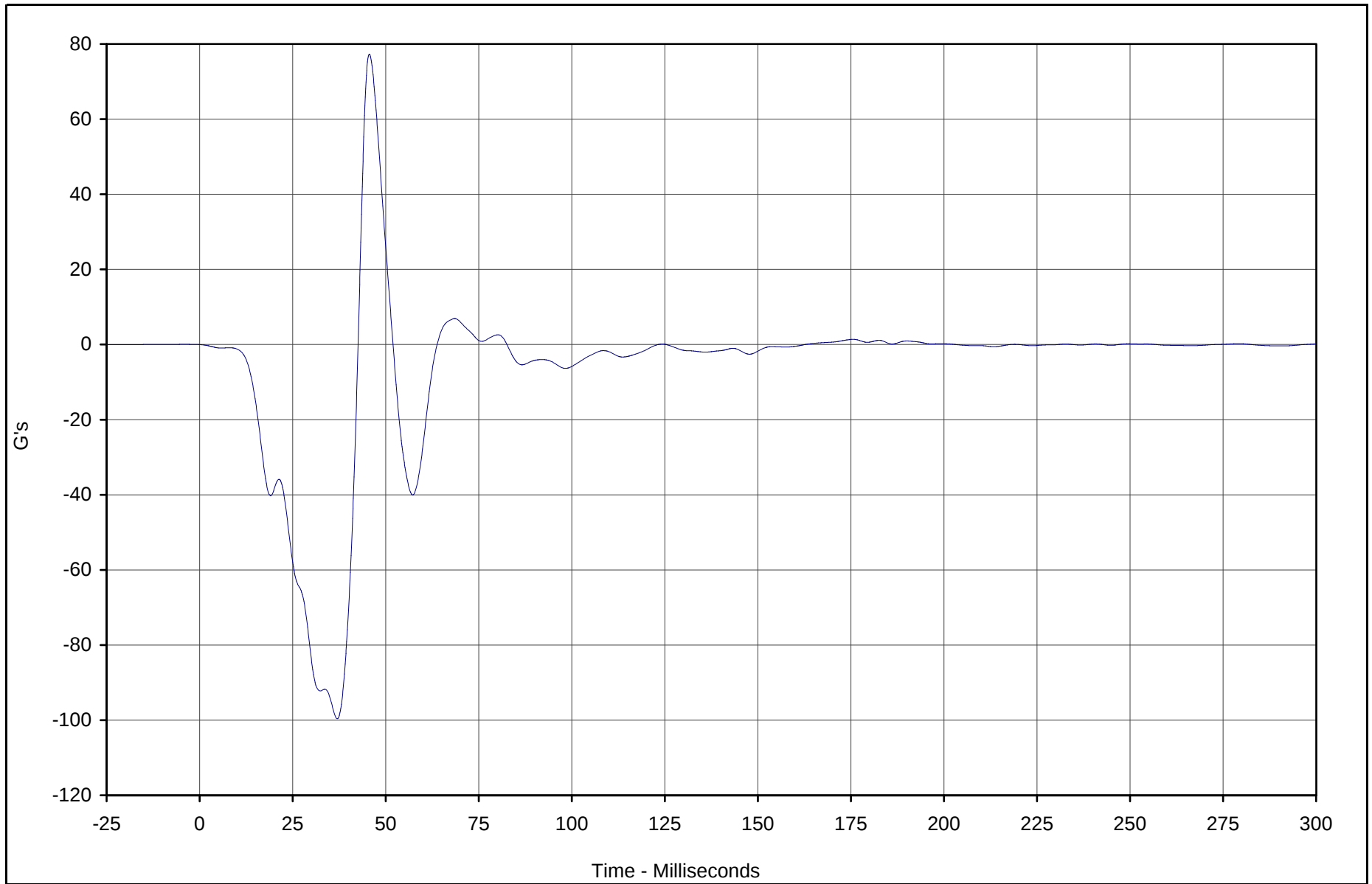


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Top	091	FIL	G's	77.3	45.6	-99.6	37.0	60

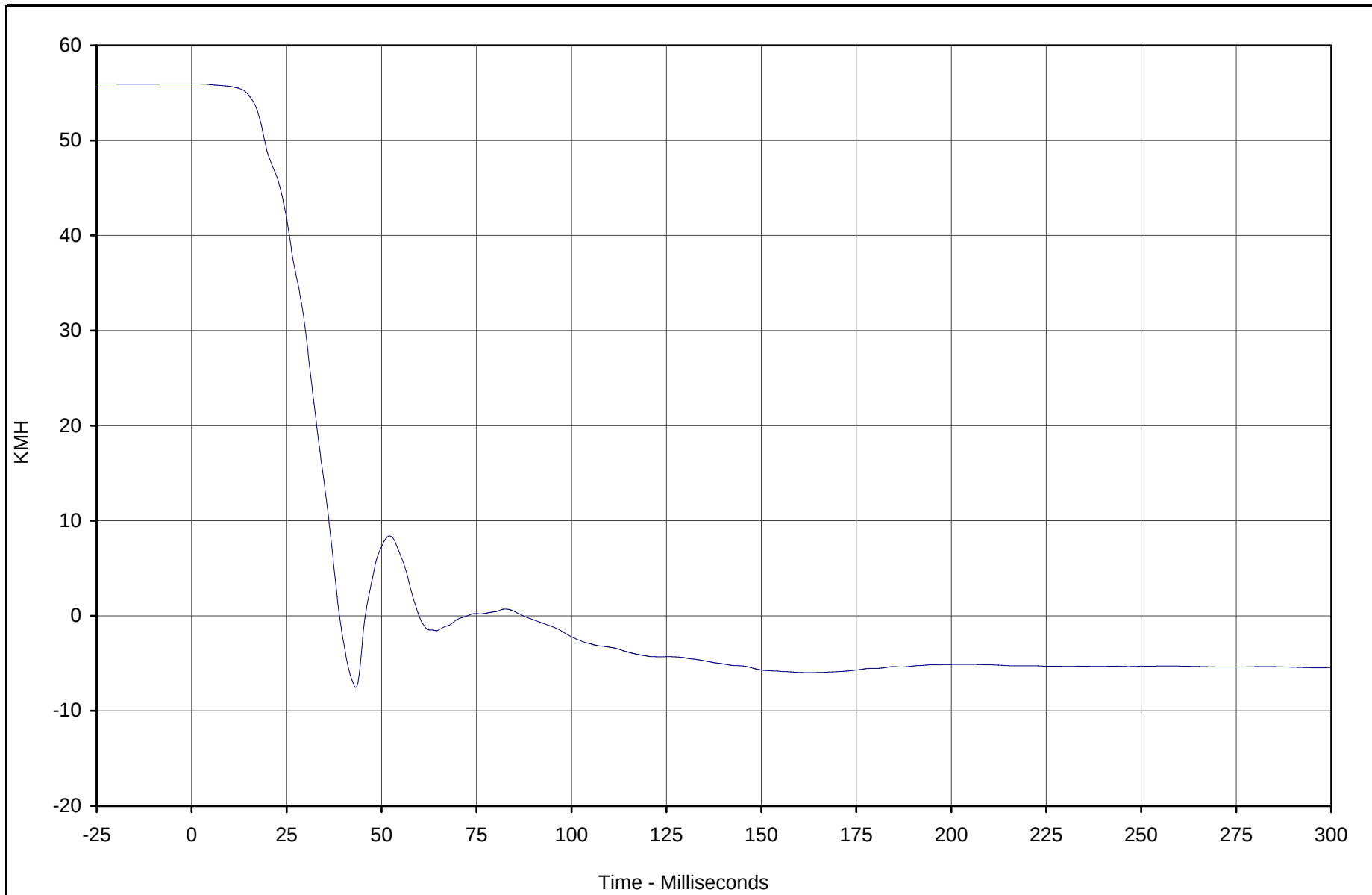


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Top Velocity	091	IN1	KMH	55.9	0.0	-7.5	43.2	180

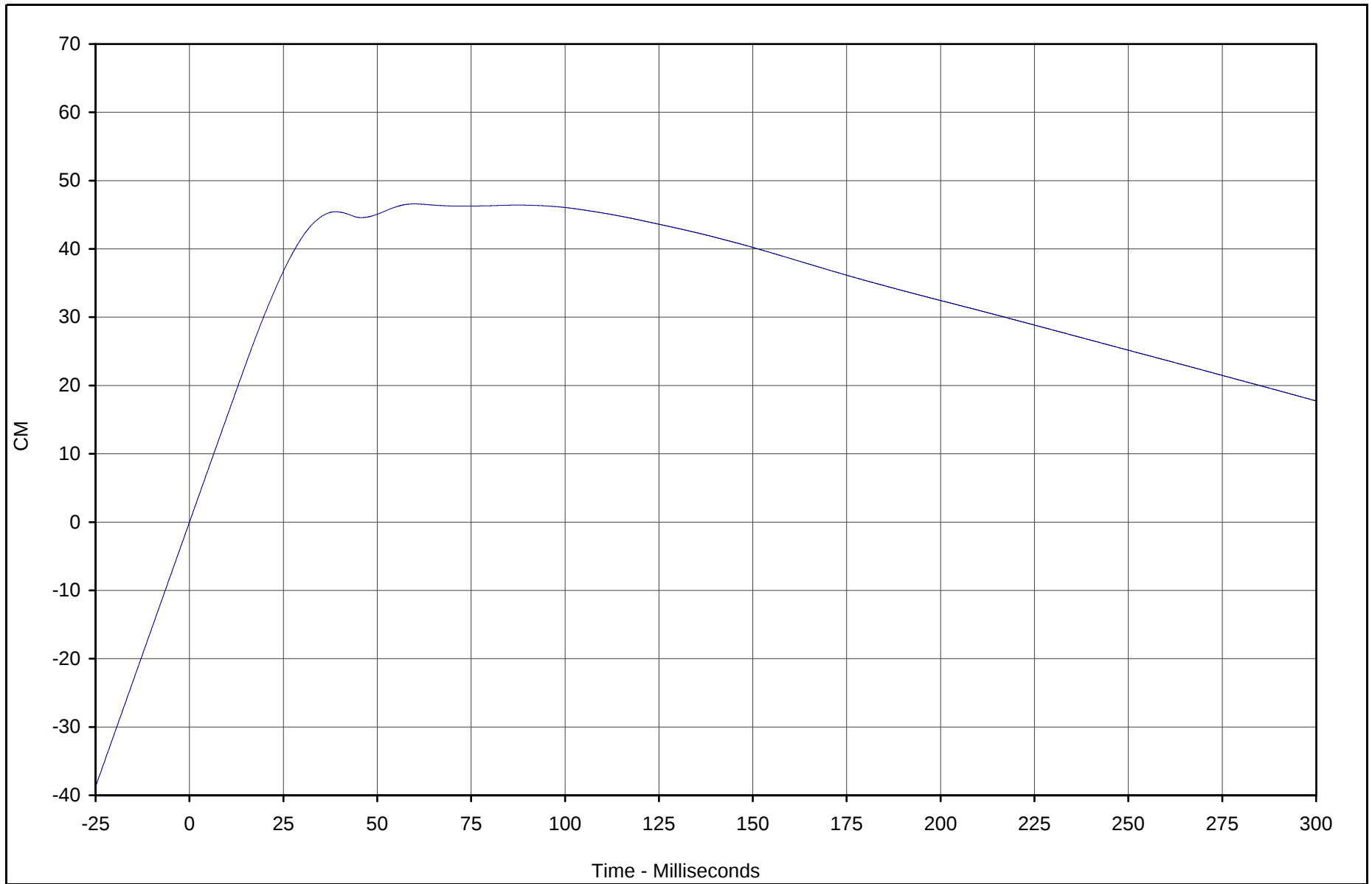


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Top Displacement	091	IN2	CM	46.6	59.9	0.0	0.0	180

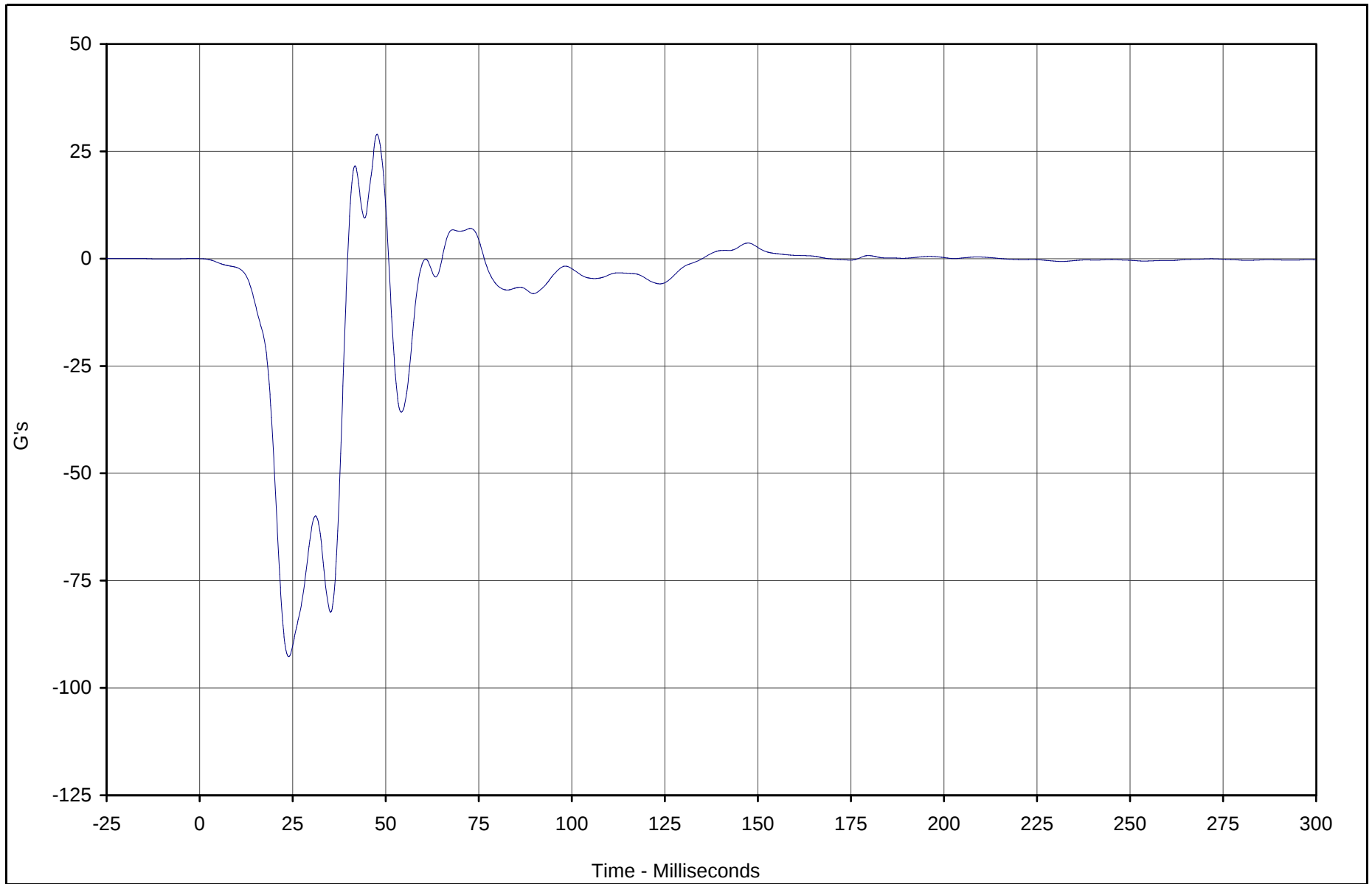


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Bottom	092	FIL	G's	29.0	47.7	-92.7	23.9	60

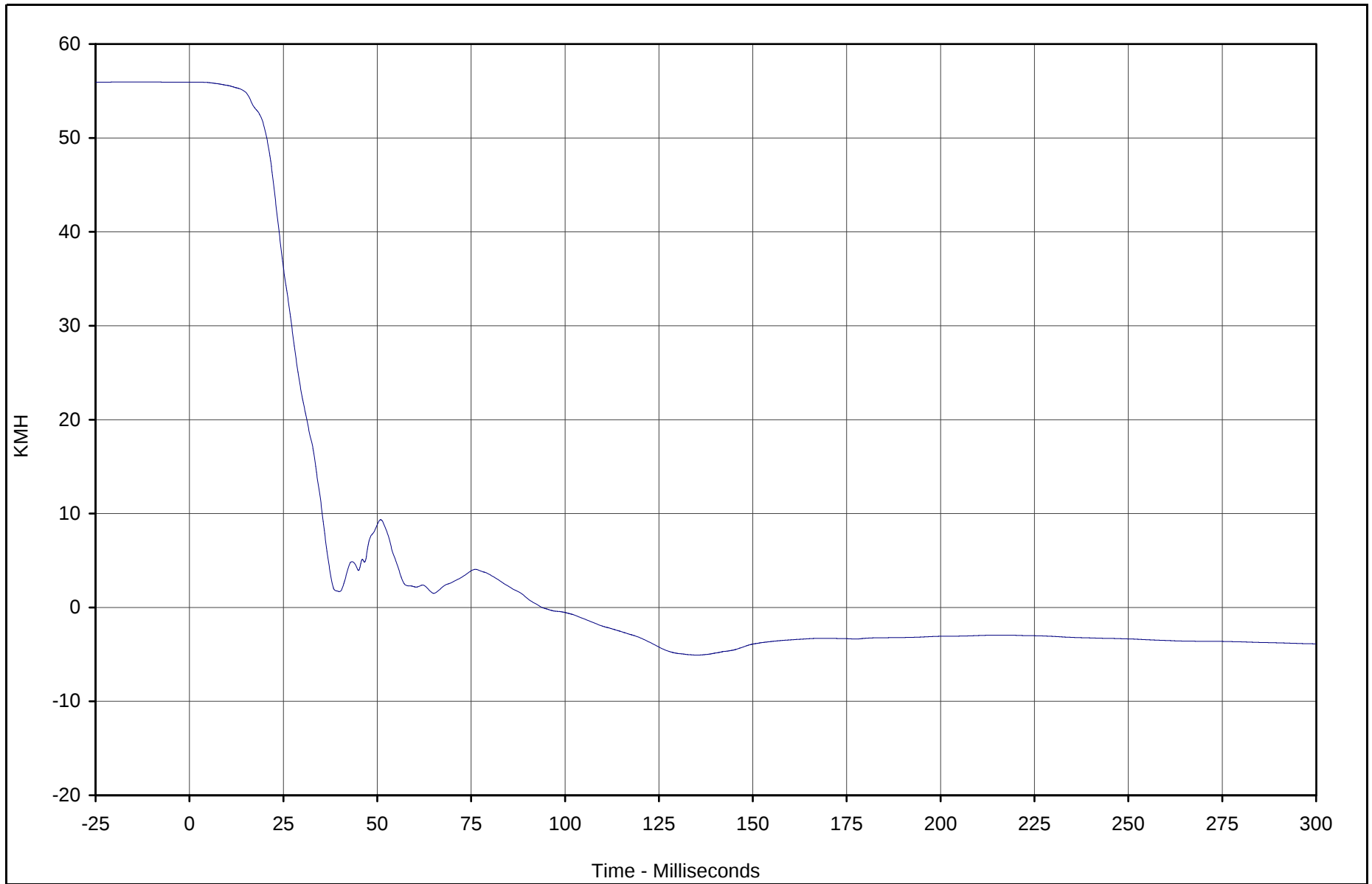


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Bottom Velocity	092	IN1	KMH	55.9	0.2	-5.1	135.0	180

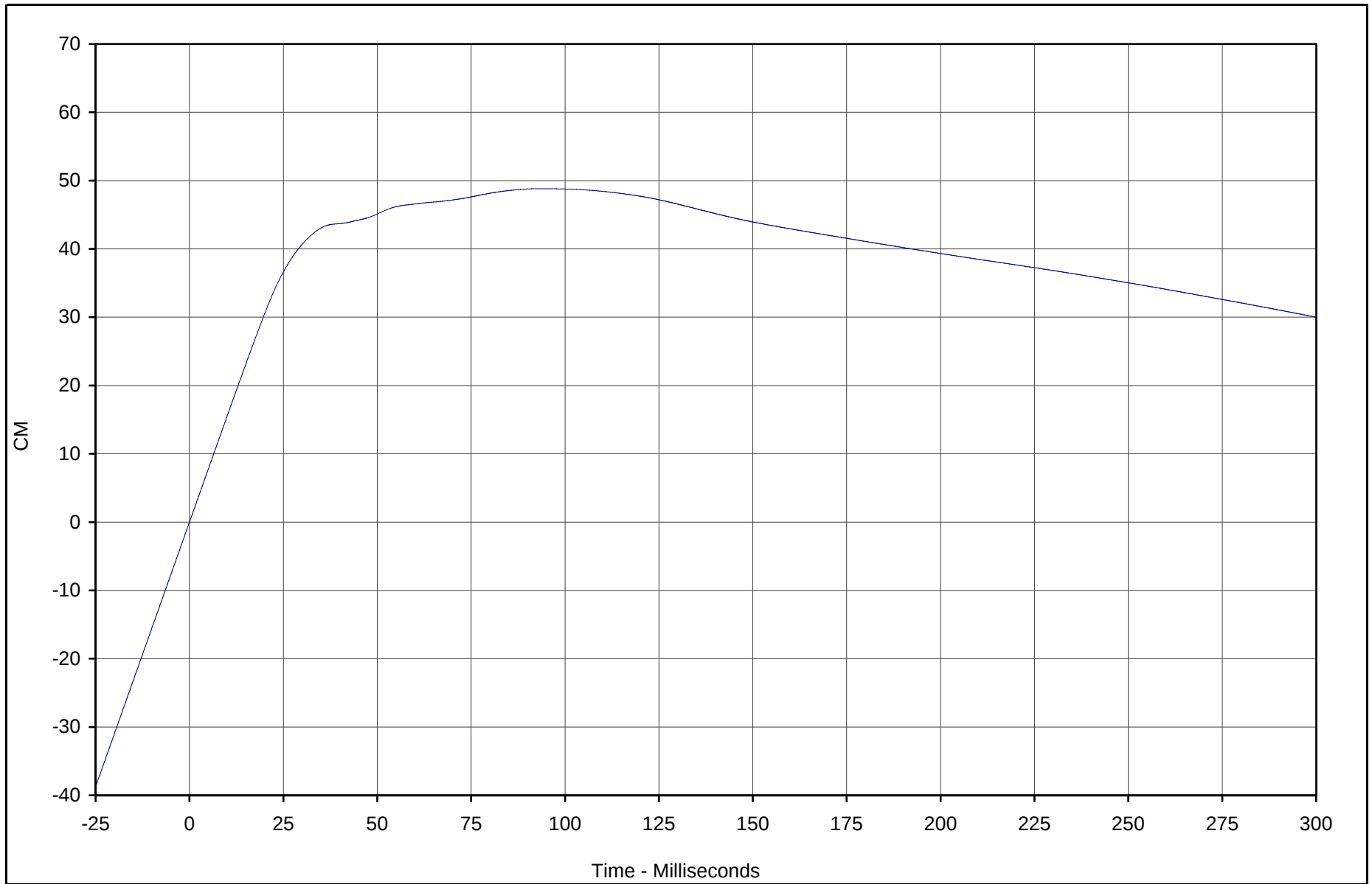


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Bottom Displacement	092	IN2	CM	48.8	93.9	0.0	0.0	180

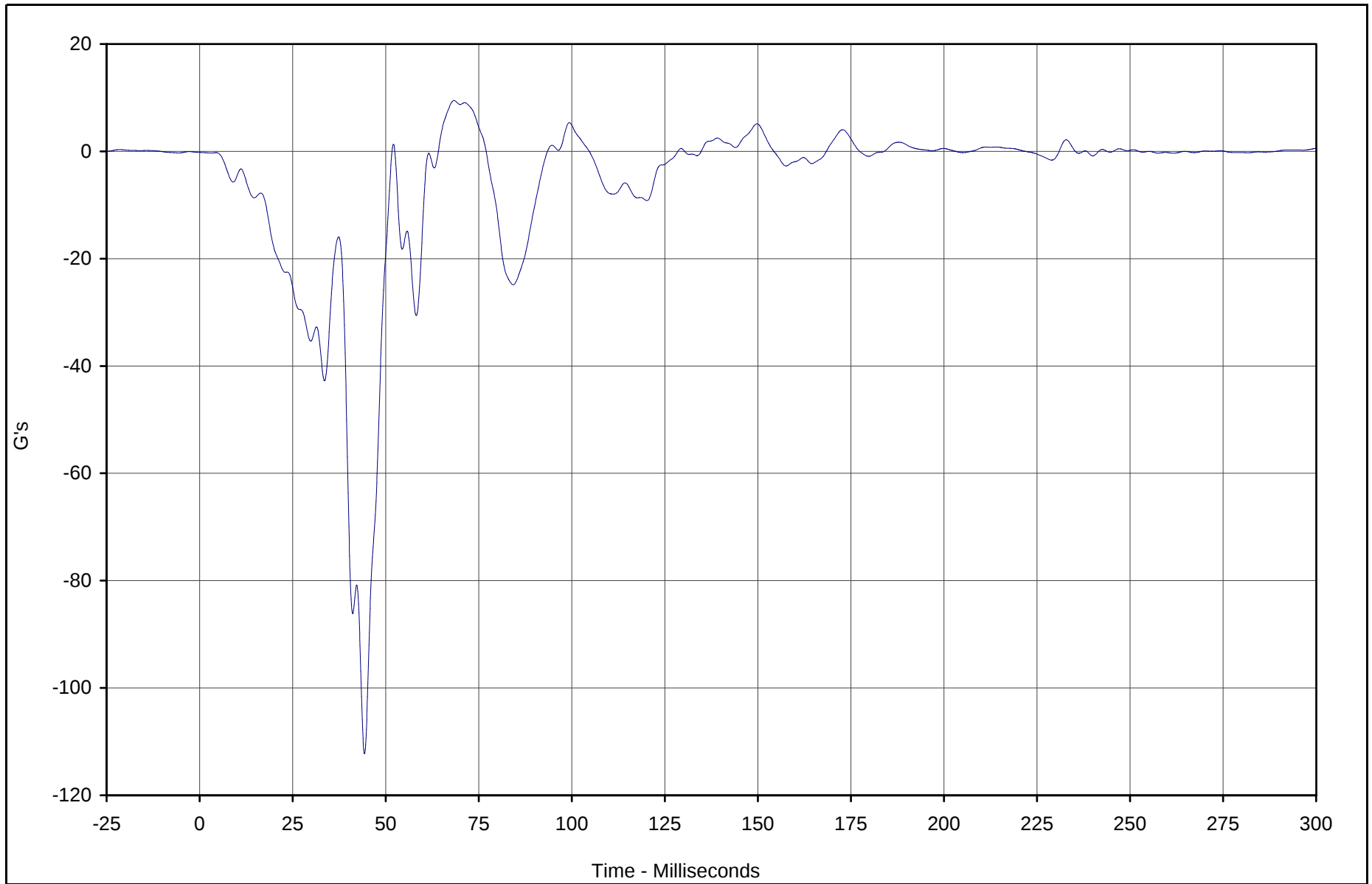


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Brake Caliper	093	FIL	G's	9.5	68.3	-112.3	44.3	60

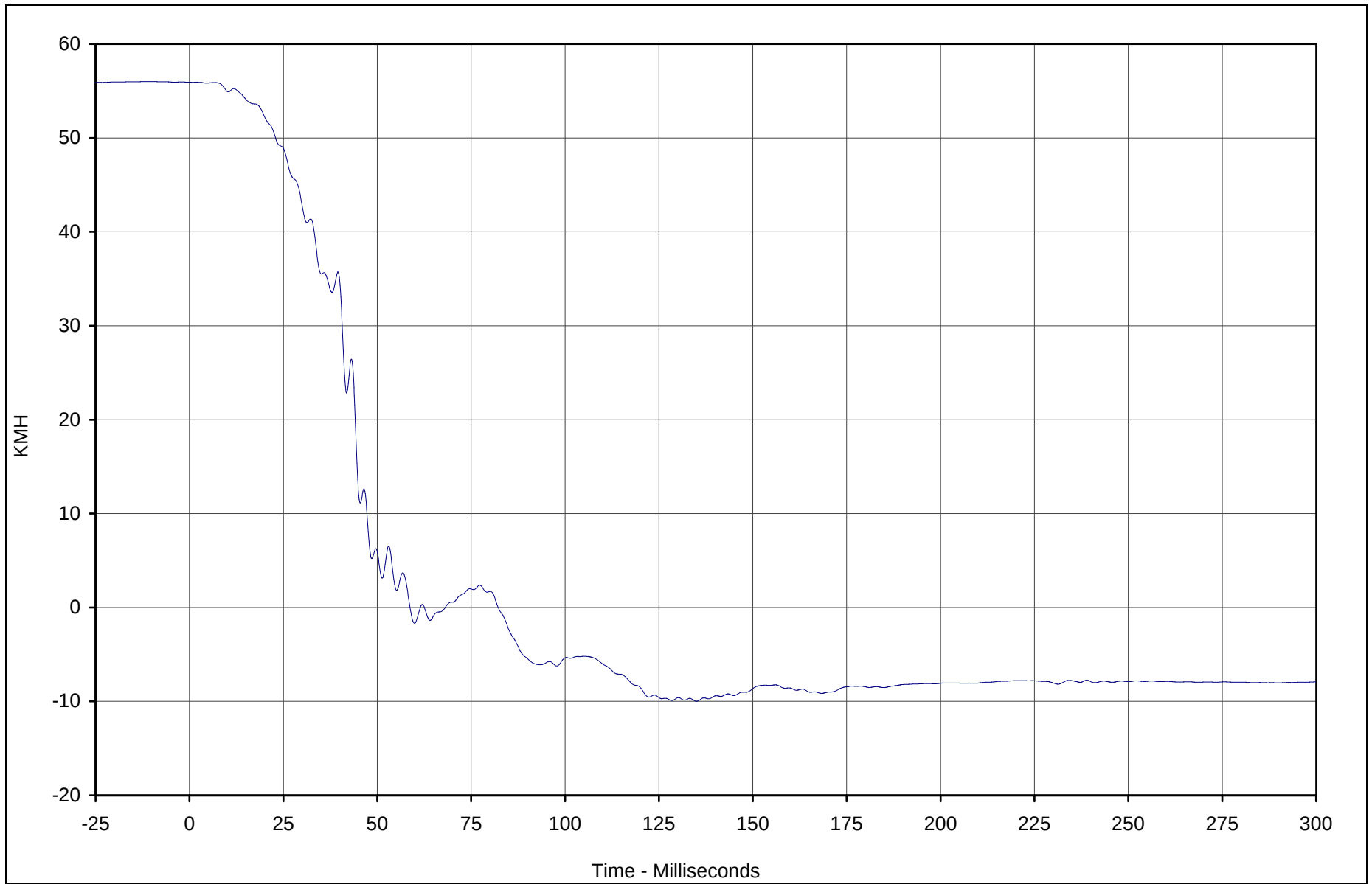


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Brake Caliper Velocity	093	IN1	KMH	55.9	0.0	-10.0	135.0	180

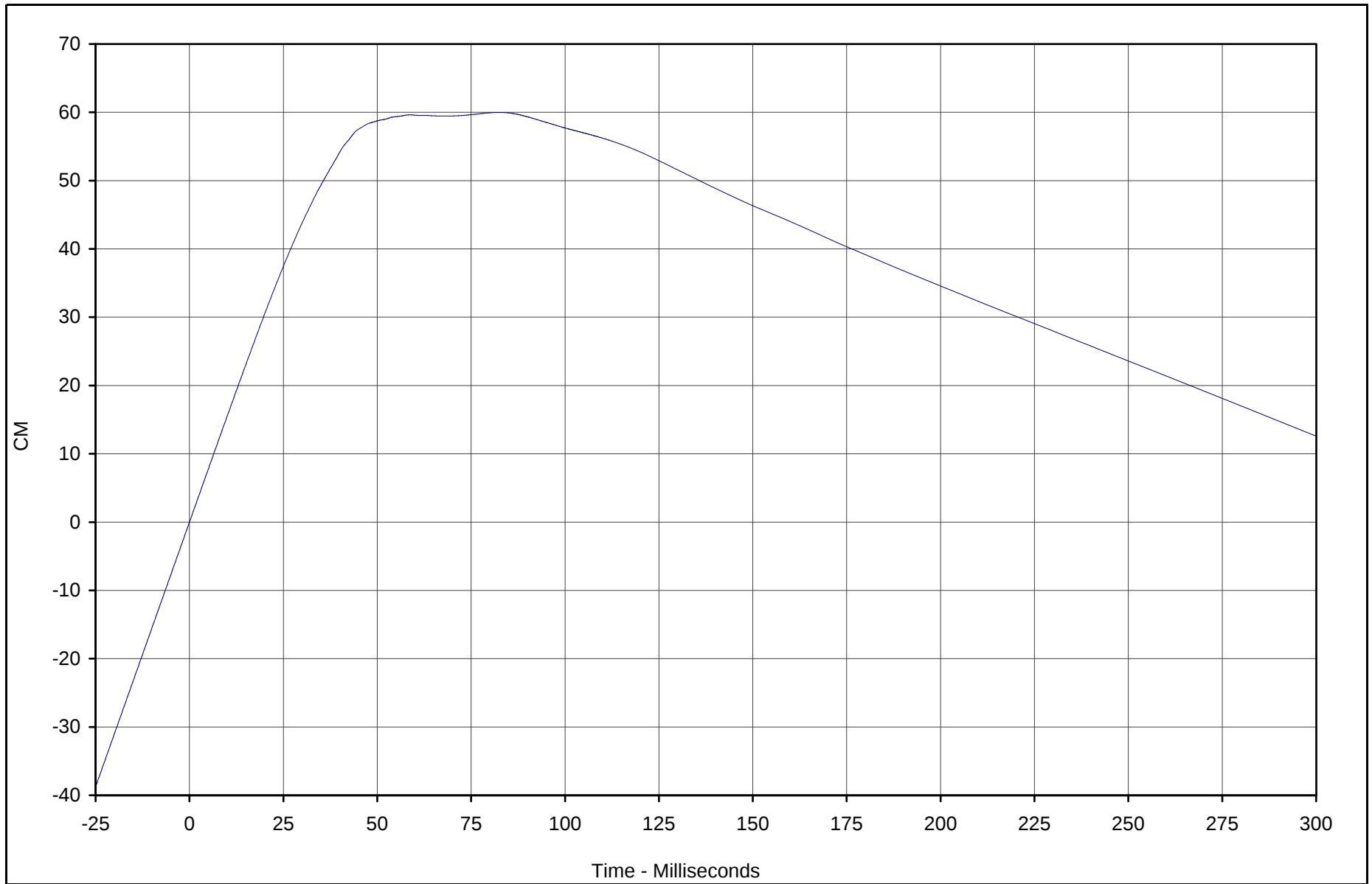


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Brake Caliper Displ.	093	IN2	CM	60.0	82.2	0.0	0.0	180

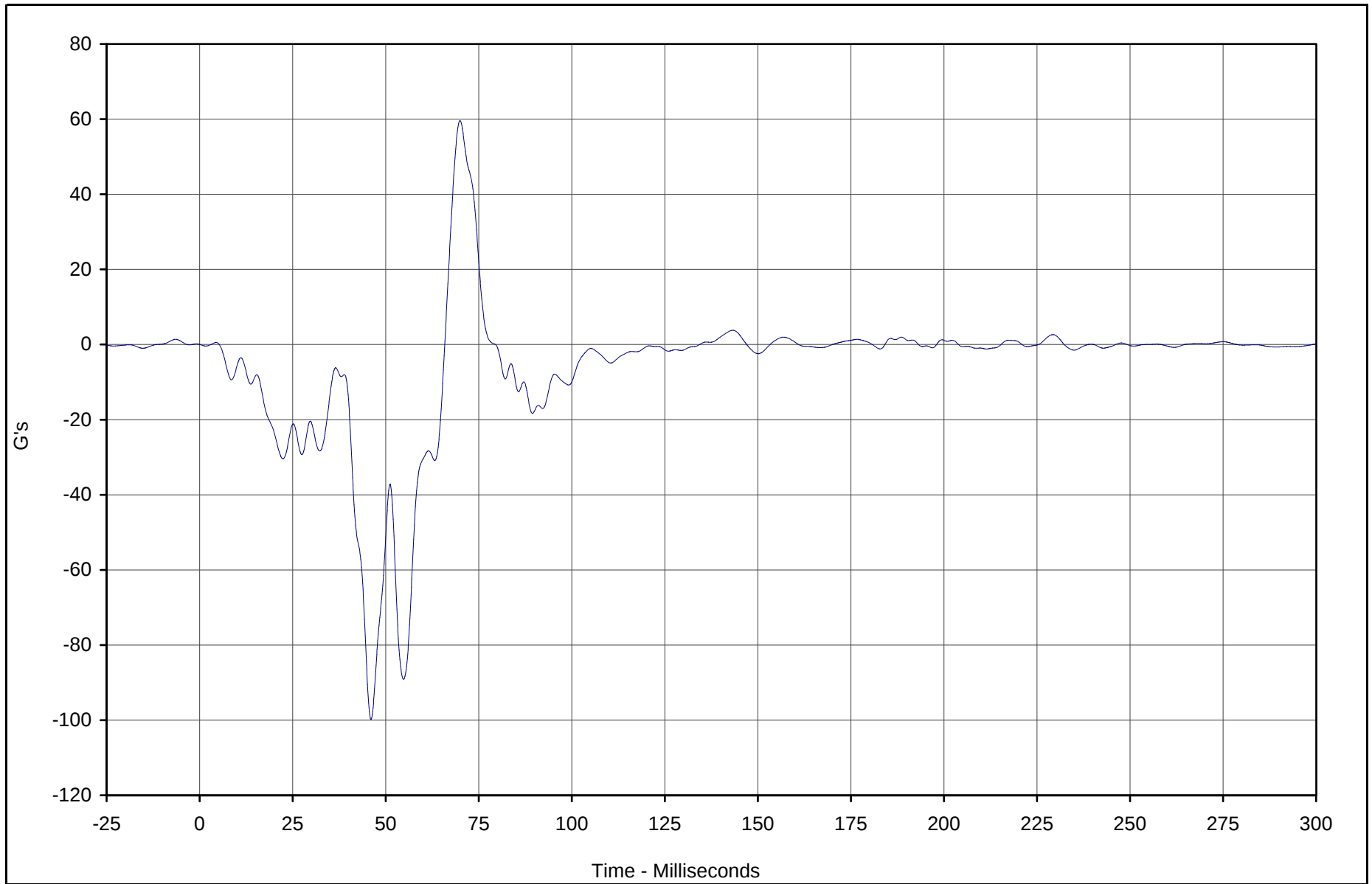


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Brake Caliper	094	FIL	G's	59.6	70.0	-99.8	46.0	60

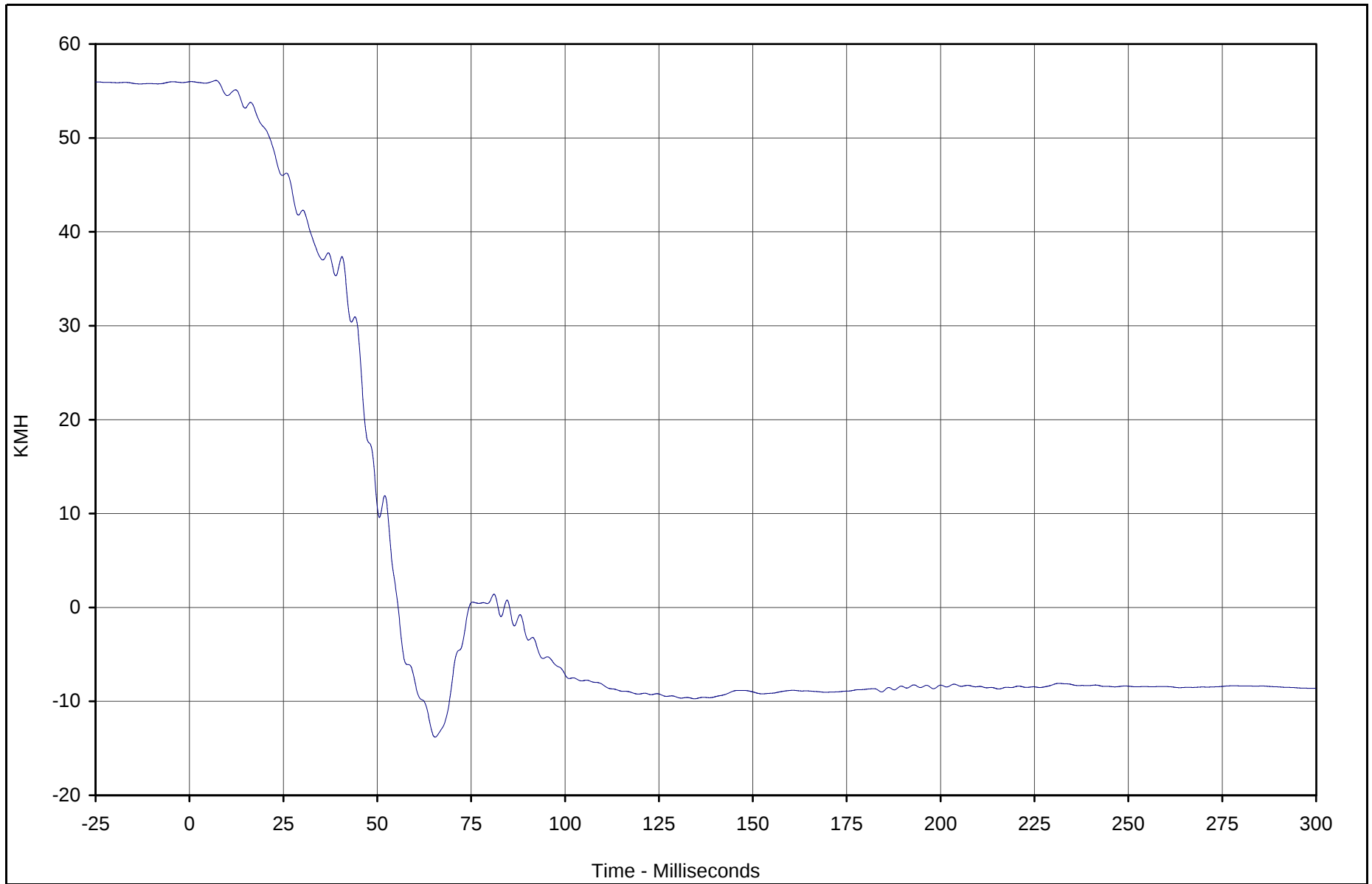


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Brake Caliper Velocity	094	IN1	KMH	56.1	7.0	-13.8	65.4	180

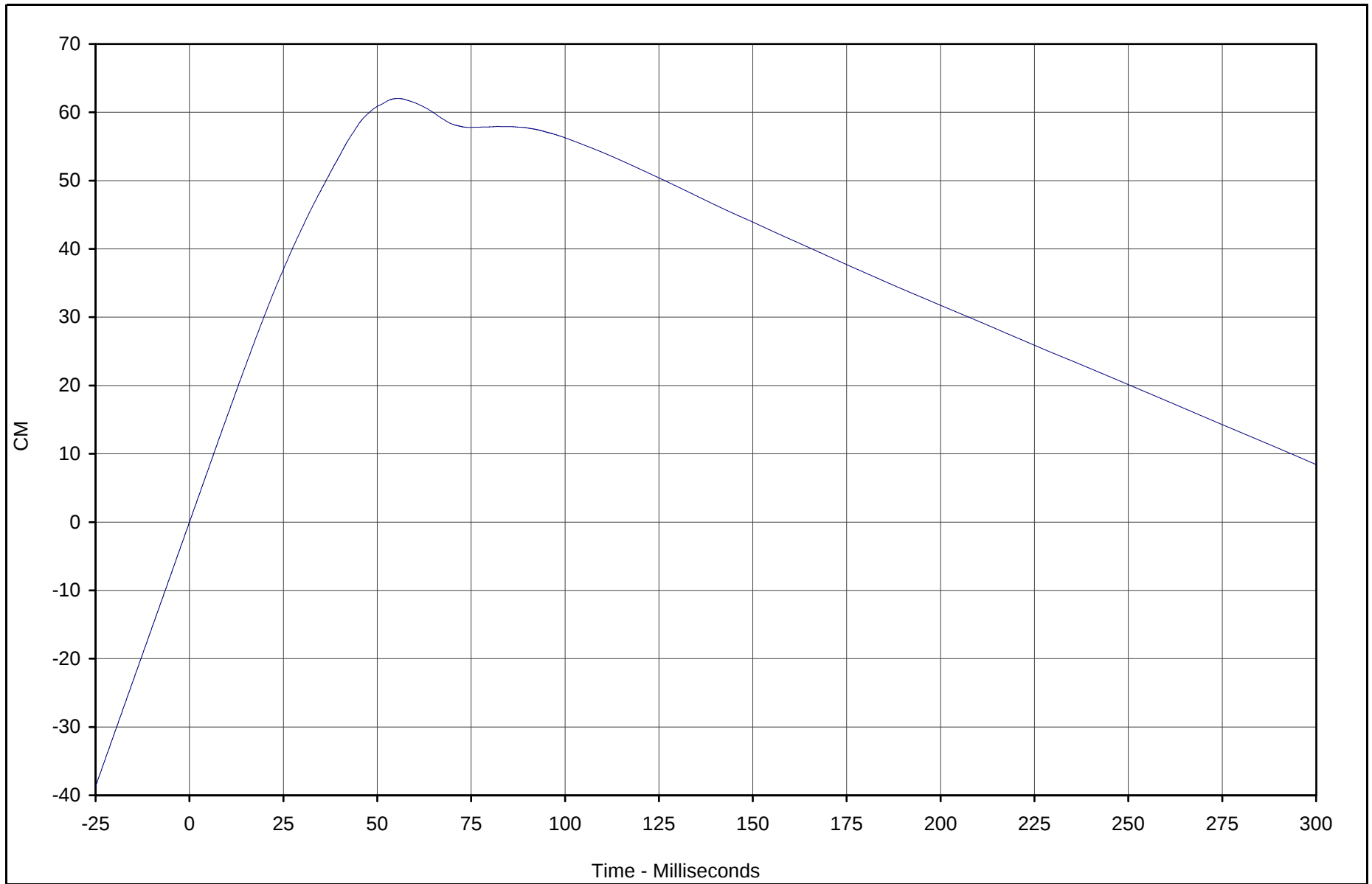


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Brake Caliper Displ.	094	IN2	CM	62.0	55.6	0.0	0.0	180

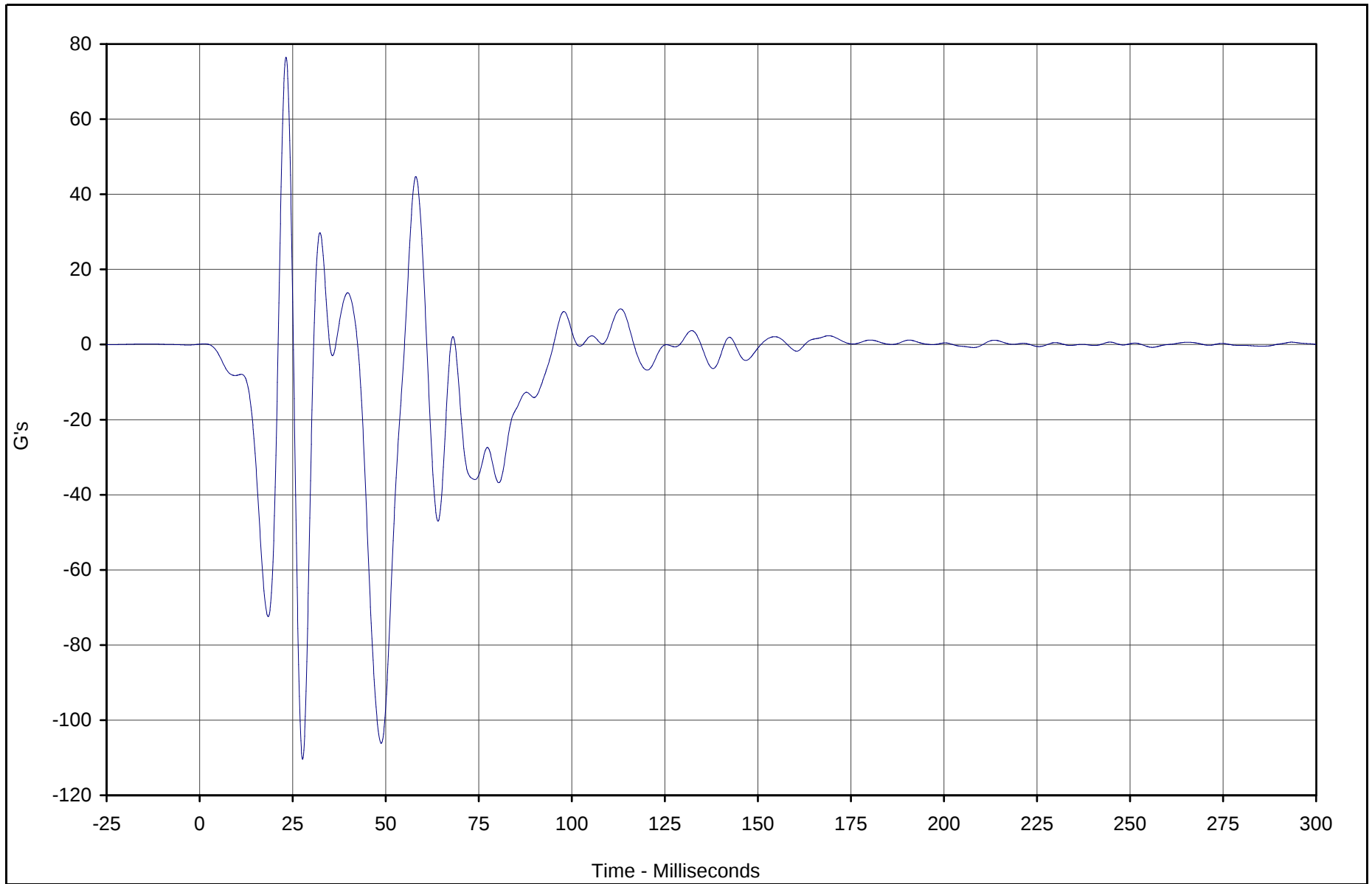


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Instrument Panel	095	FIL	G's	76.5	23.2	-110.4	27.7	60

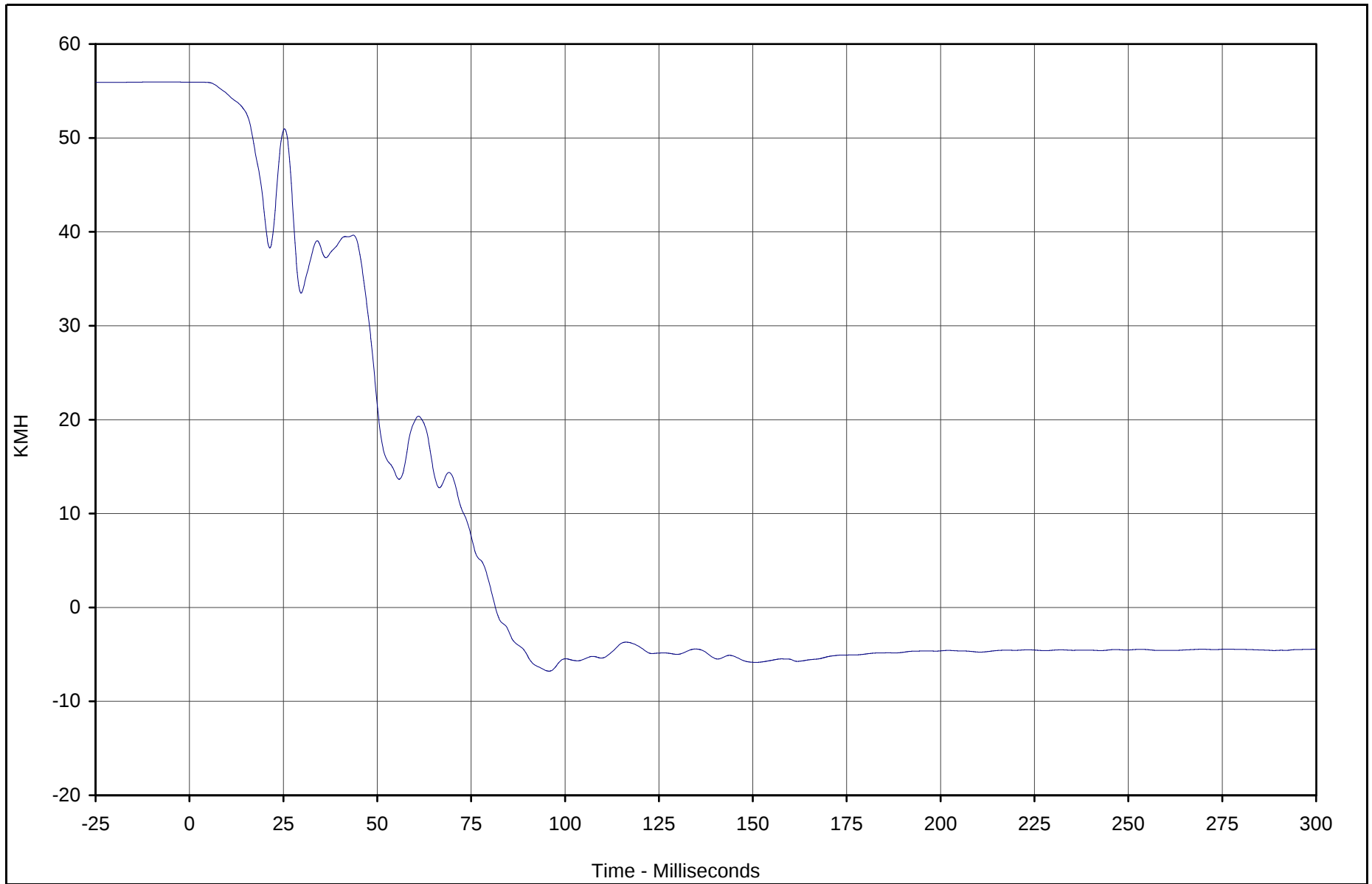


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Instrument Panel Velocity	095	IN1	KMH	55.9	1.1	-6.8	95.7	180

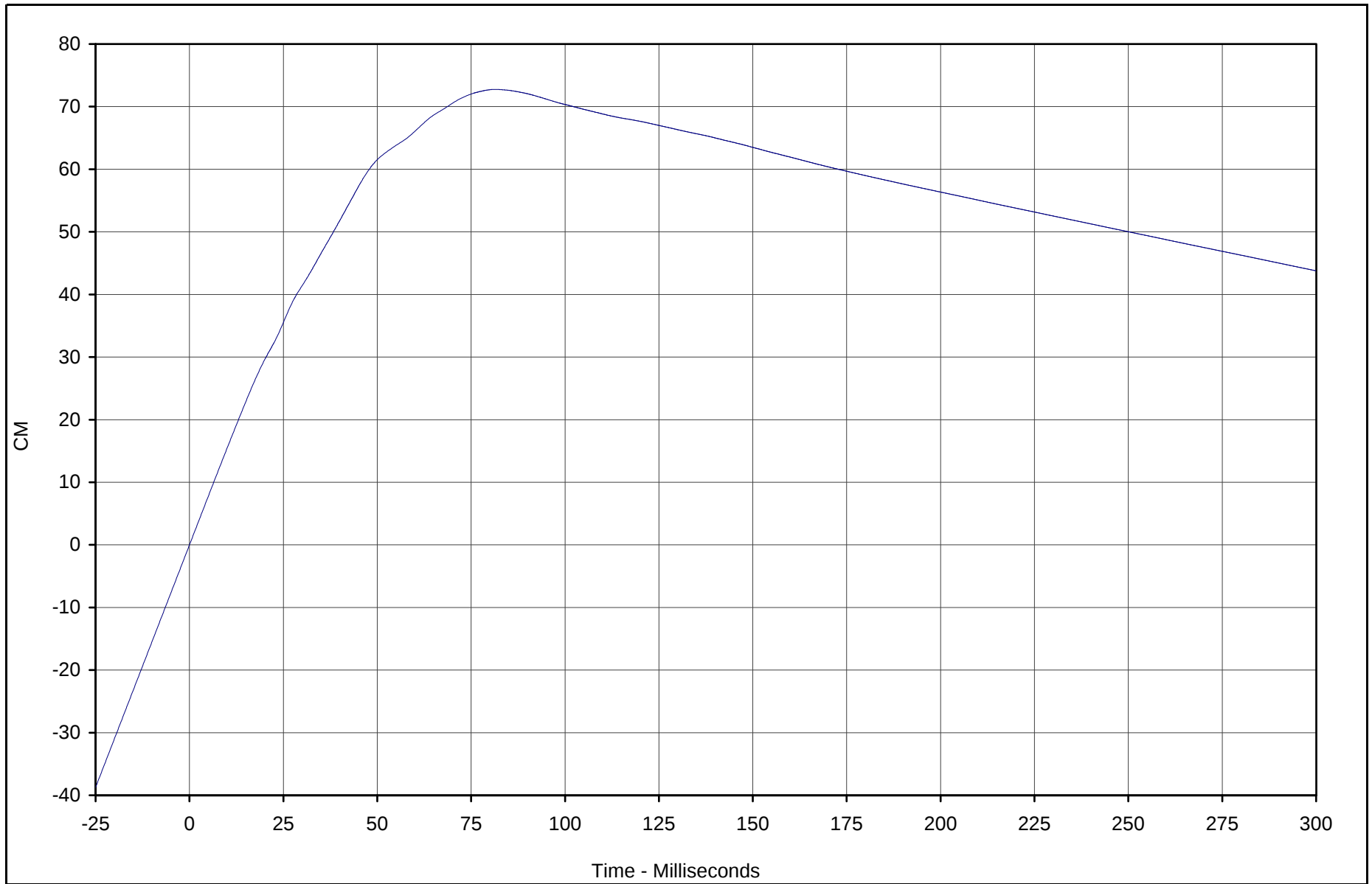


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Instrument Panel Displacement	095	IN2	CM	72.8	81.5	0.0	0.0	180

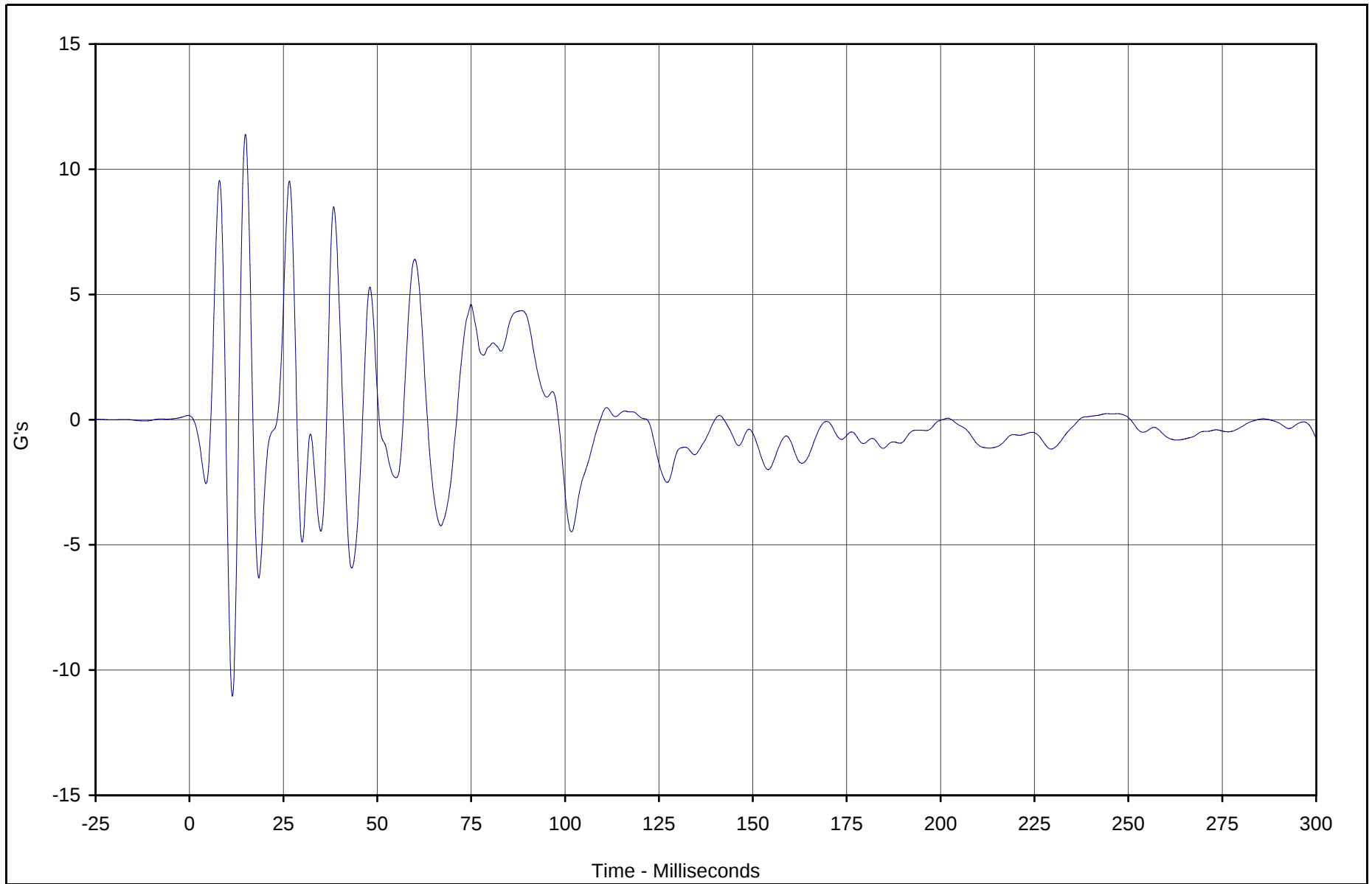


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear Z	096	FIL	G's	11.4	14.9	-11.0	11.4	60

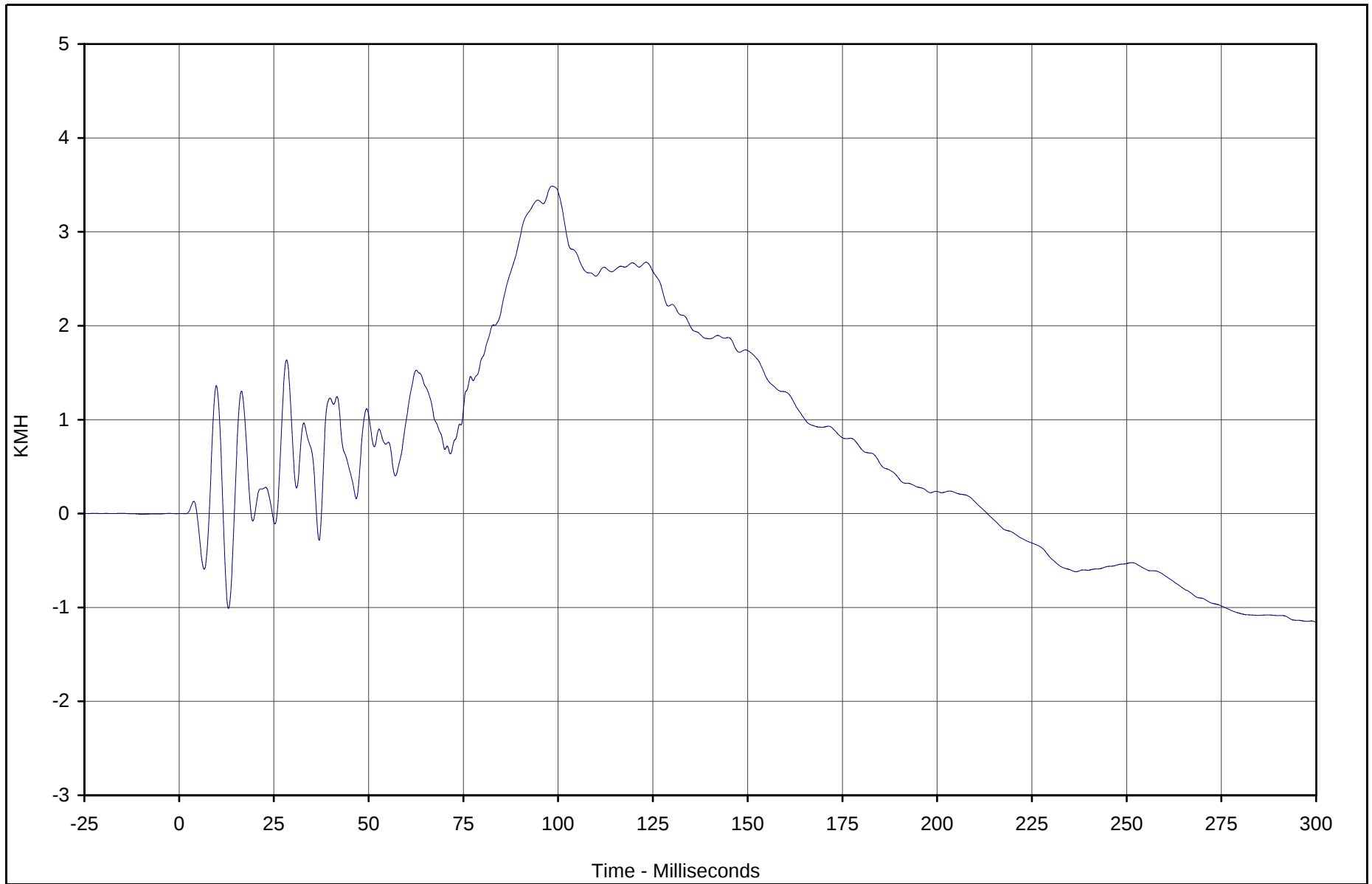


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear Z Velocity	096	IN1	KMH	3.5	98.4	-1.2	299.9	180

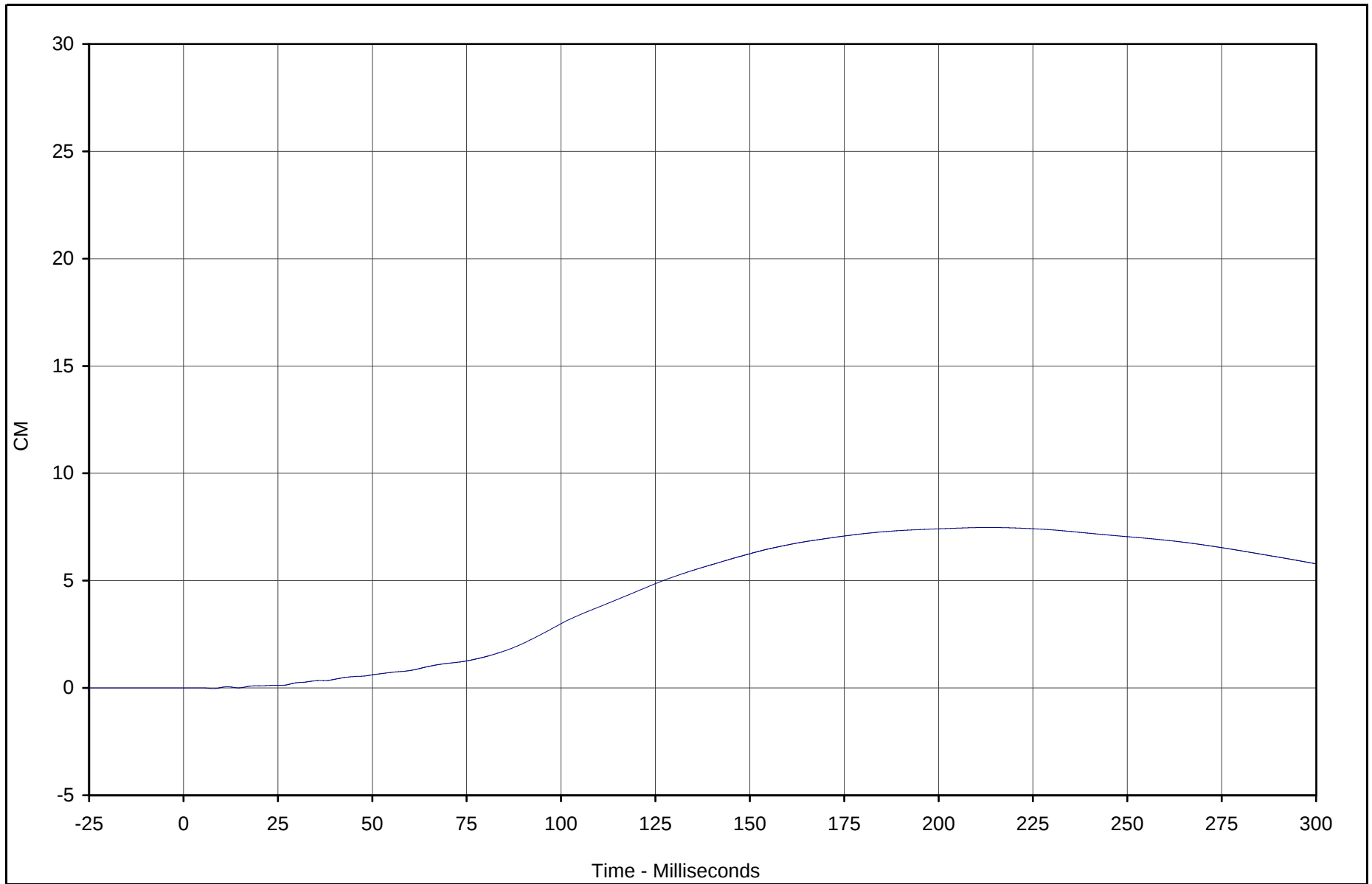


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear Z Displ.	096	IN2	CM	7.5	213.2	0.0	7.9	180

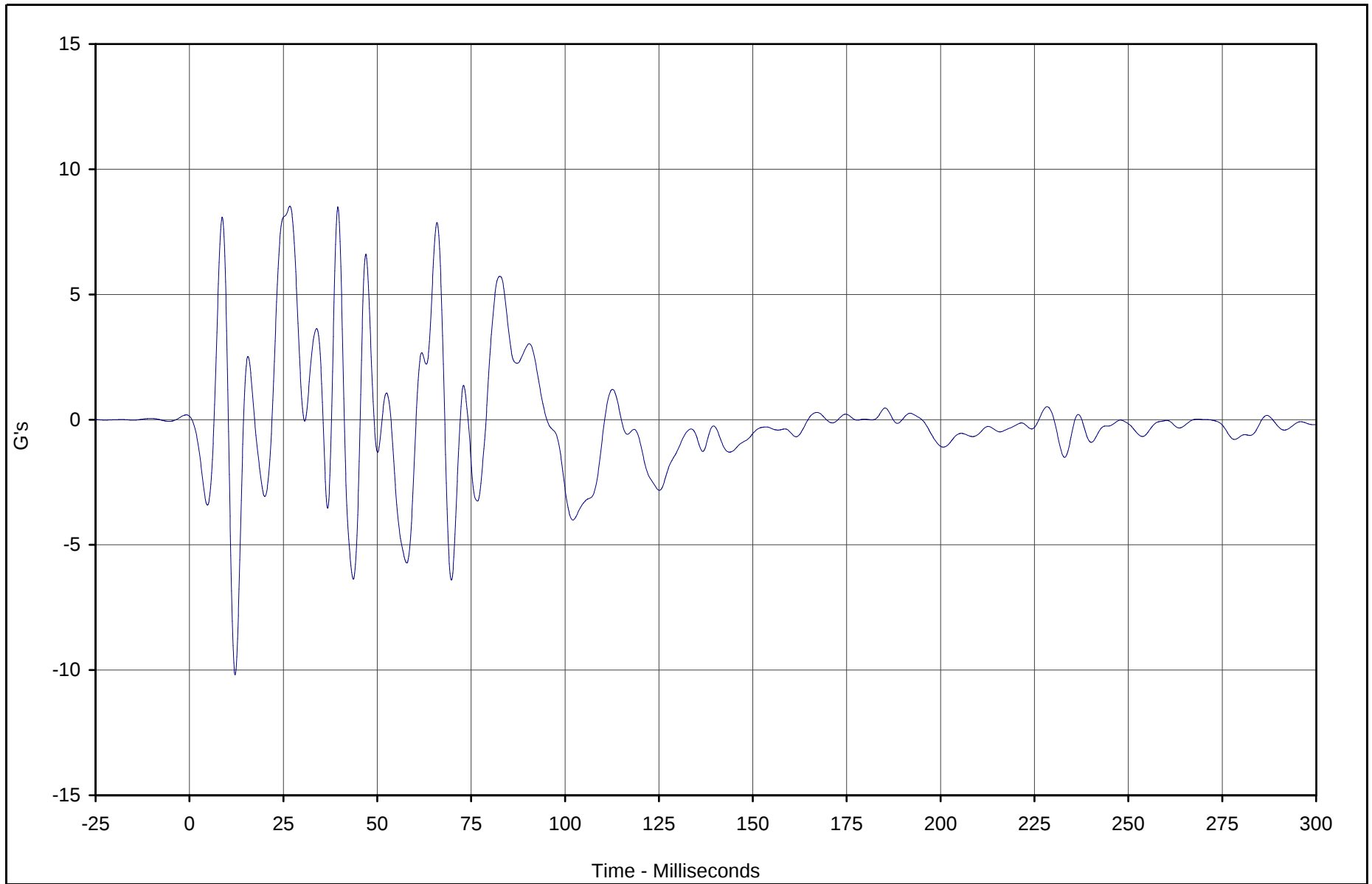


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear Z	097	FIL	G's	8.5	26.7	-10.2	12.2	60

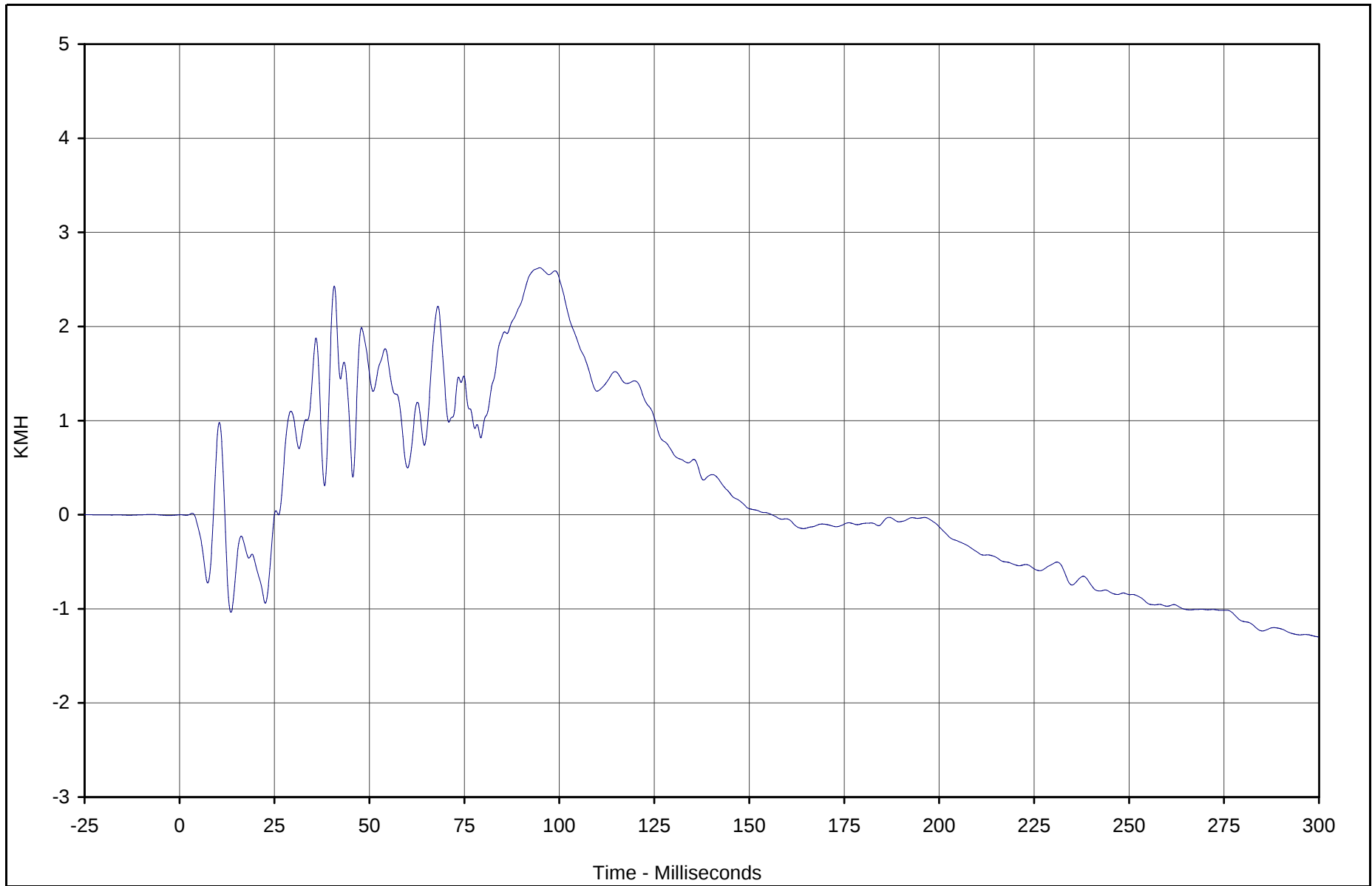


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear Z Velocity	097	IN1	KMH	2.6	94.8	-1.3	299.9	180

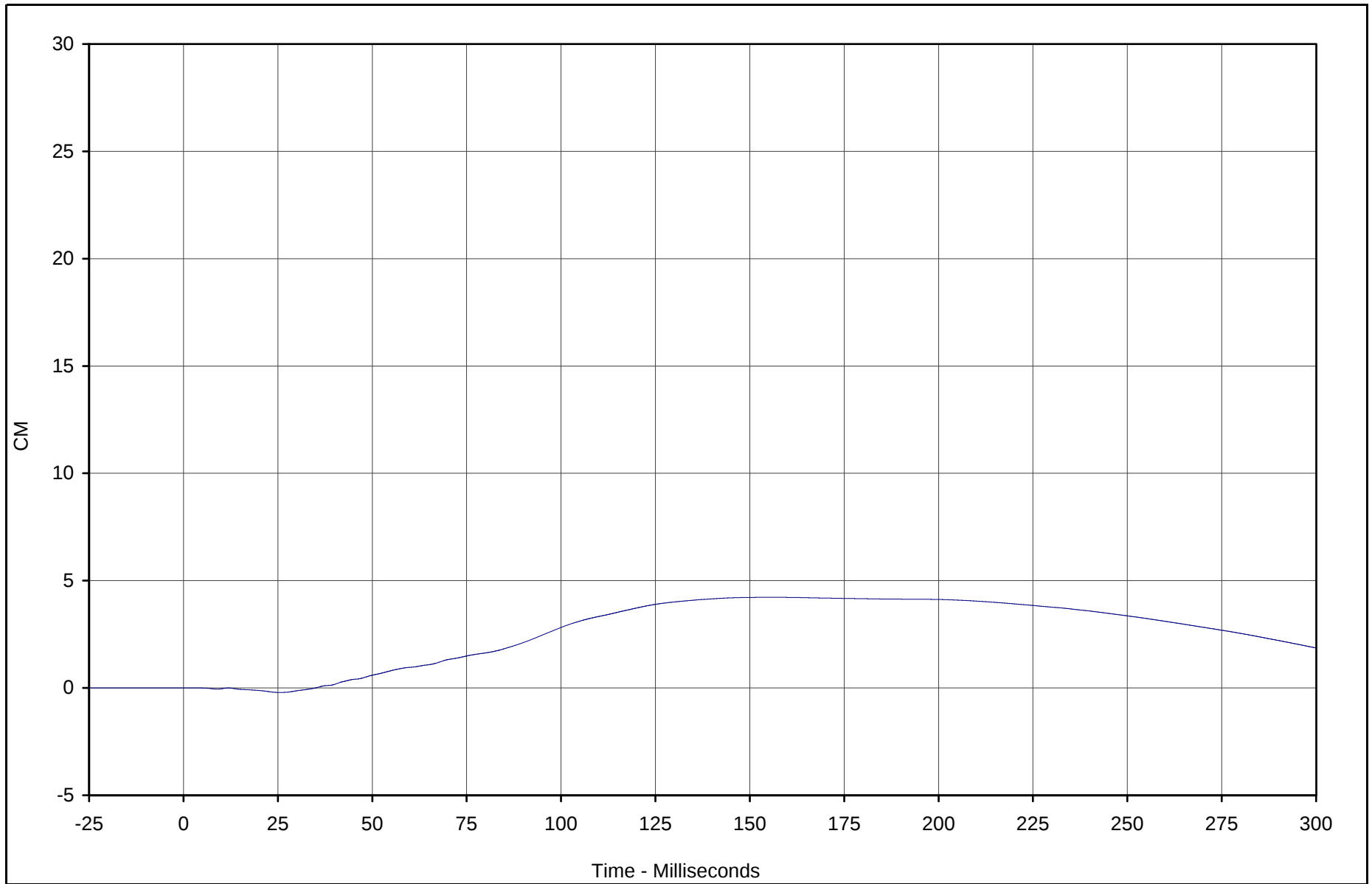


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear Z Displ.	097	IN2	CM	4.2	155.9	-0.2	25.0	180



Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

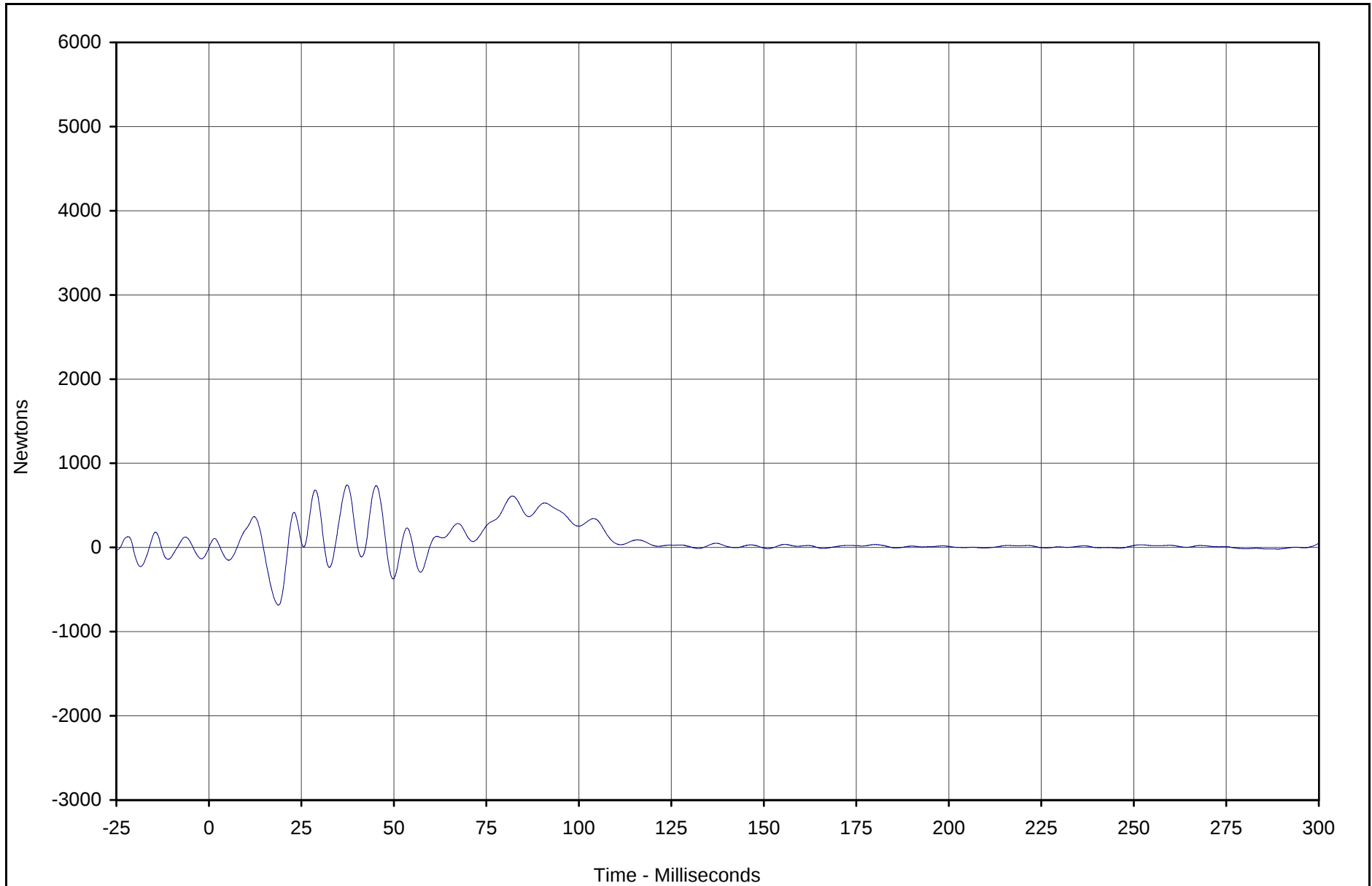
NHTSA No.: M30106

APPENDIX C

LOAD CELL BARRIER DATA PLOTS

C-1

TR-P23001-01-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A1	098	FIL	Newtons	742.5	37.4	-684.4	18.8	60



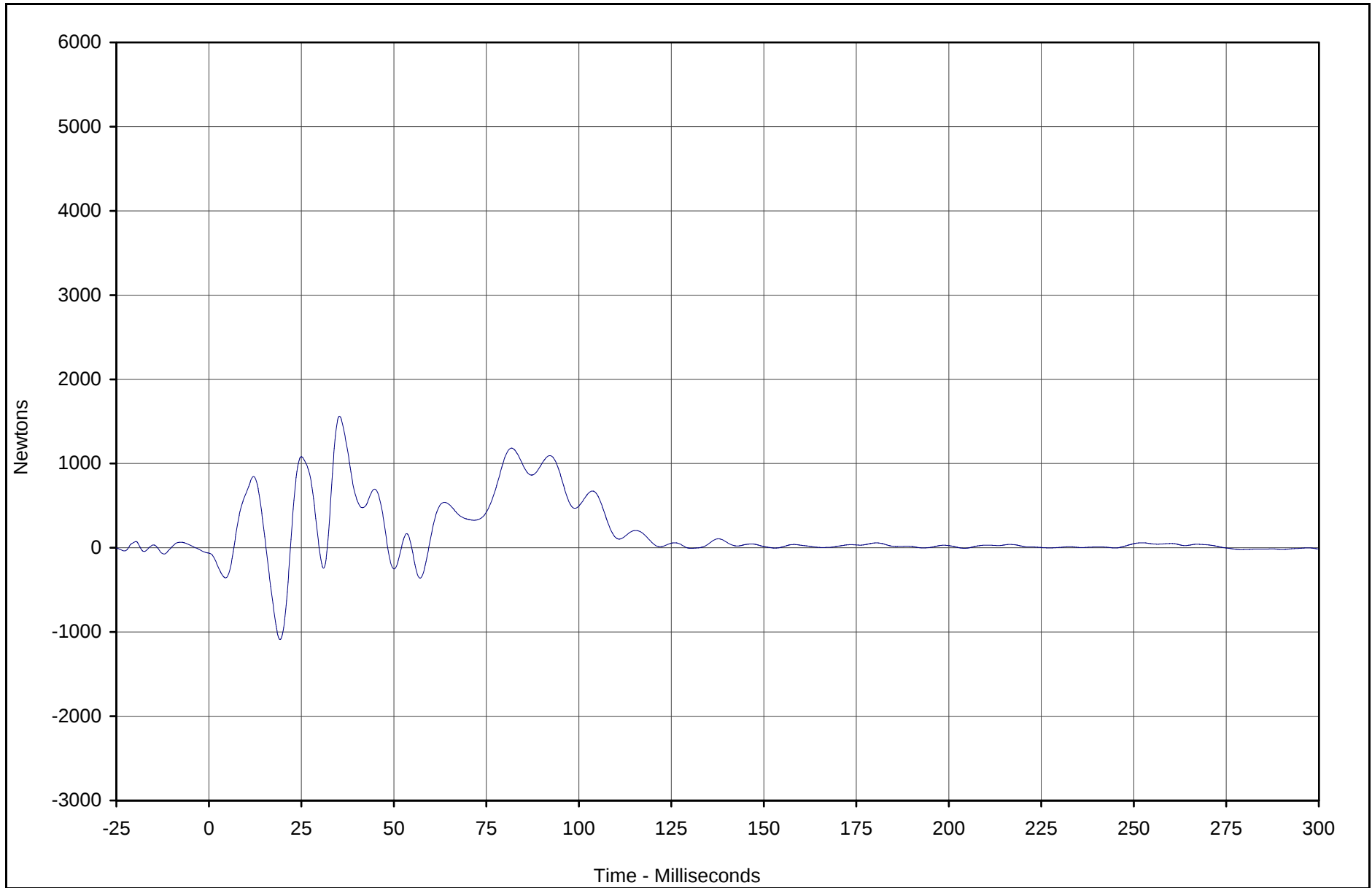
Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106

C-2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A2	099	FIL	Newtons	1562.0	35.3	-1089.3	19.2	60

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

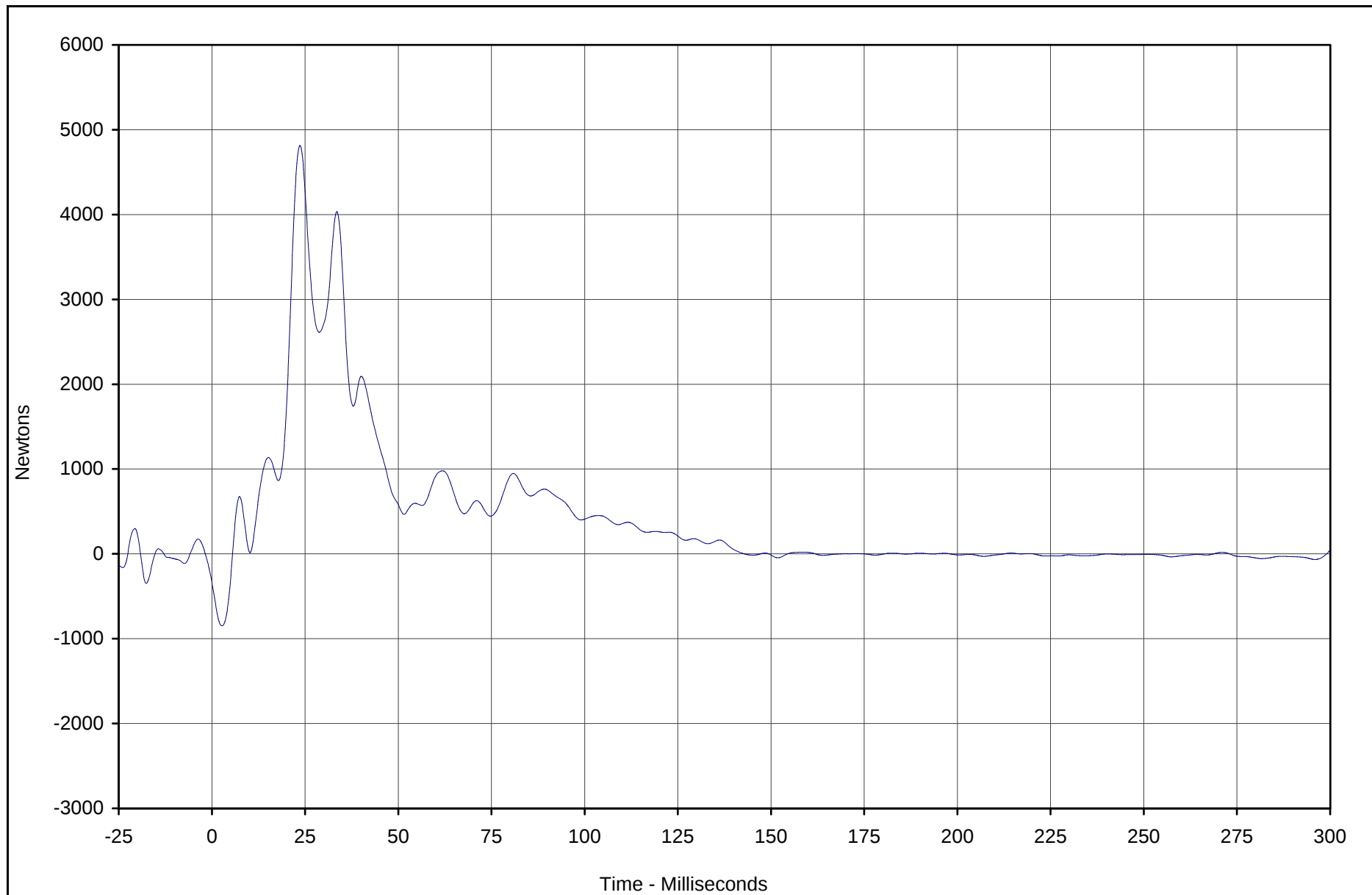
Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



TR-P23001-01-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A3	100	FIL	Newtons	4814.7	23.6	-848.0	2.7	60



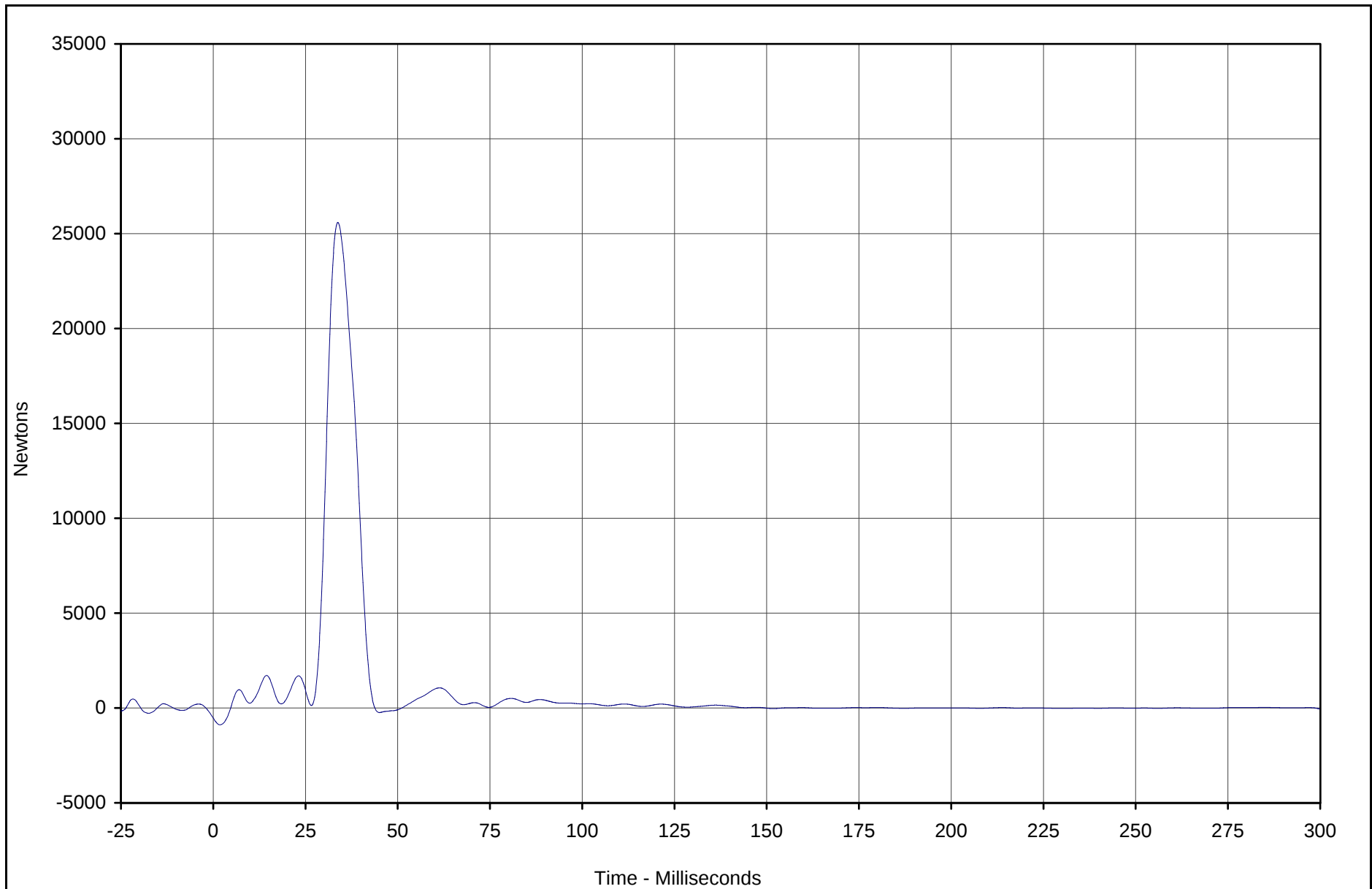
Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106

C-4



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A4	101	FIL	Newtons	25591.5	33.8	-885.2	1.8	60



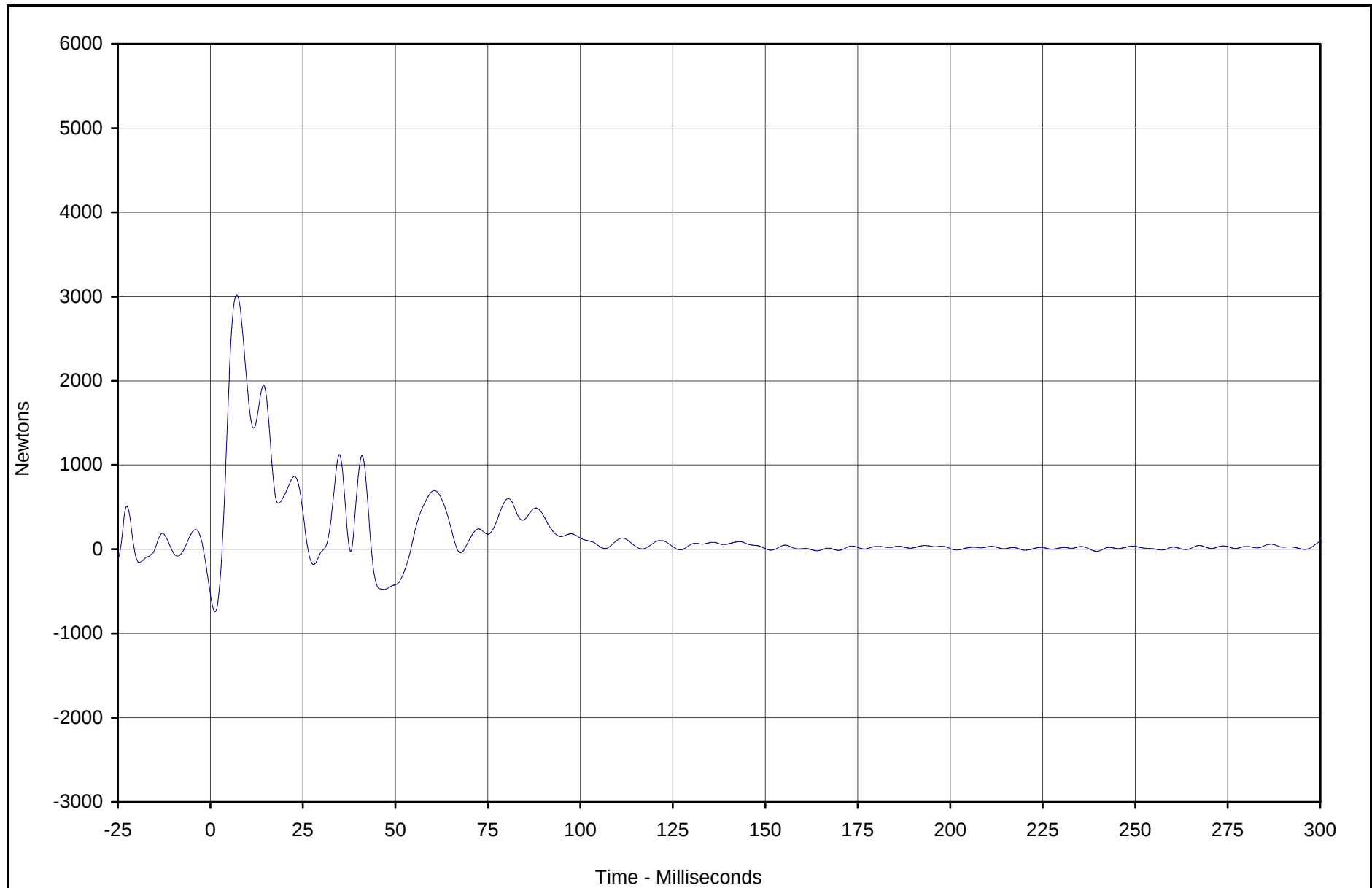
Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106

TR-P23001-01-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A5	102	FIL	Newtons	3022.0	7.1	-743.9	1.3	60

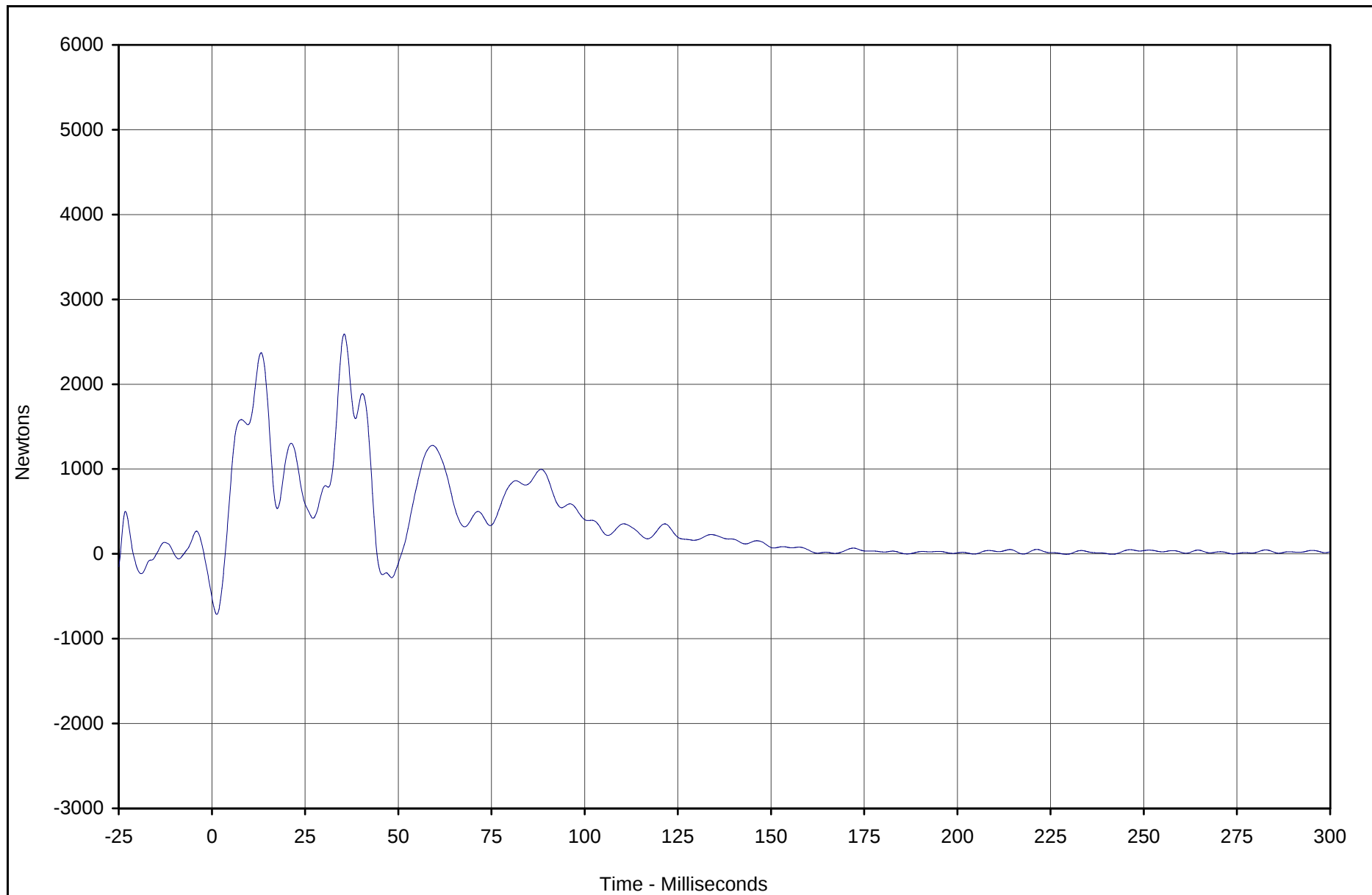


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A6	103	FIL	Newtons	2590.5	35.5	-713.8	1.3	60

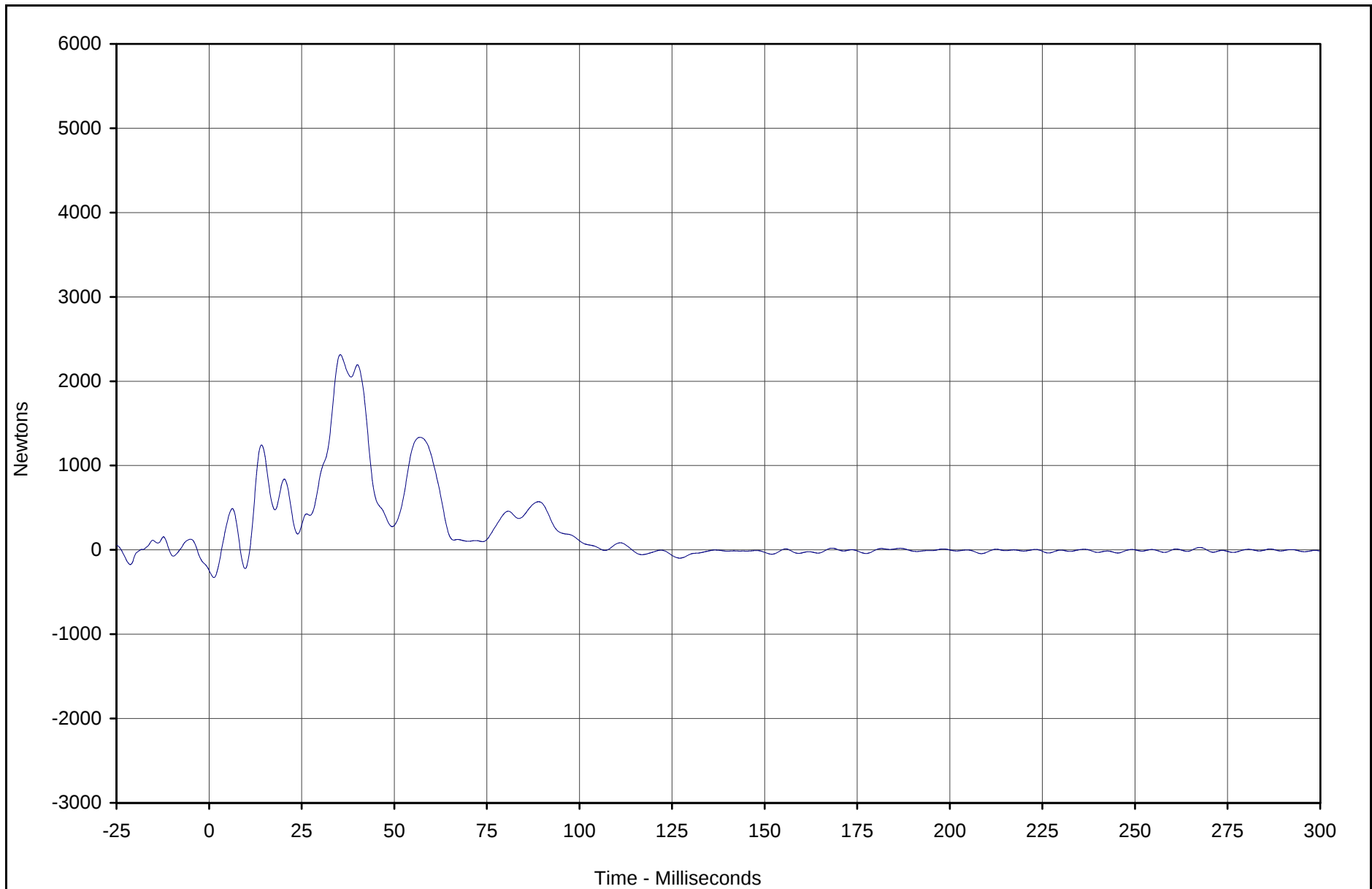


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A7	104	FIL	Newtons	2314.5	35.4	-328.0	1.3	60

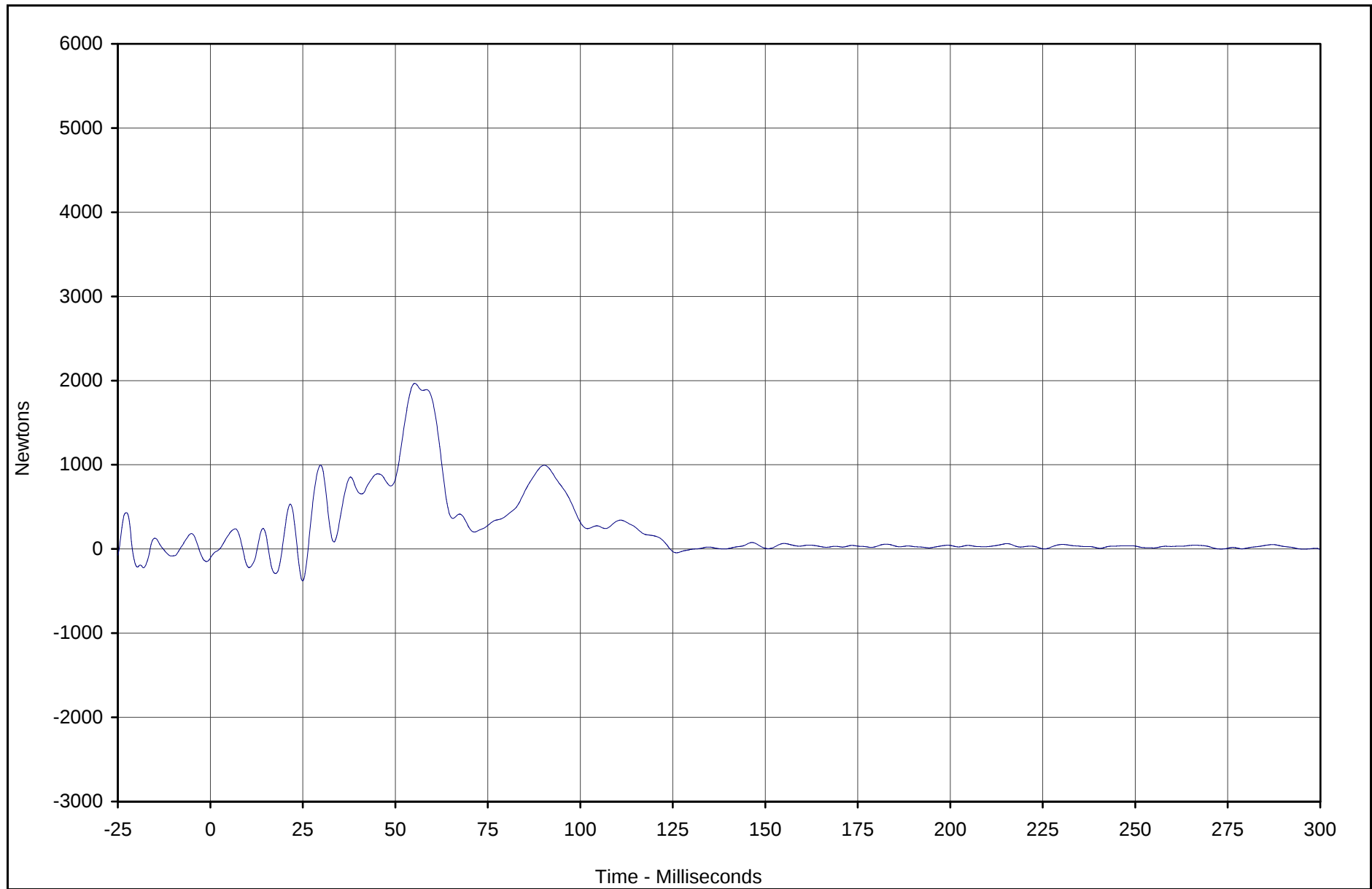


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A8	105	FIL	Newtons	1967.3	55.3	-378.6	25.0	60

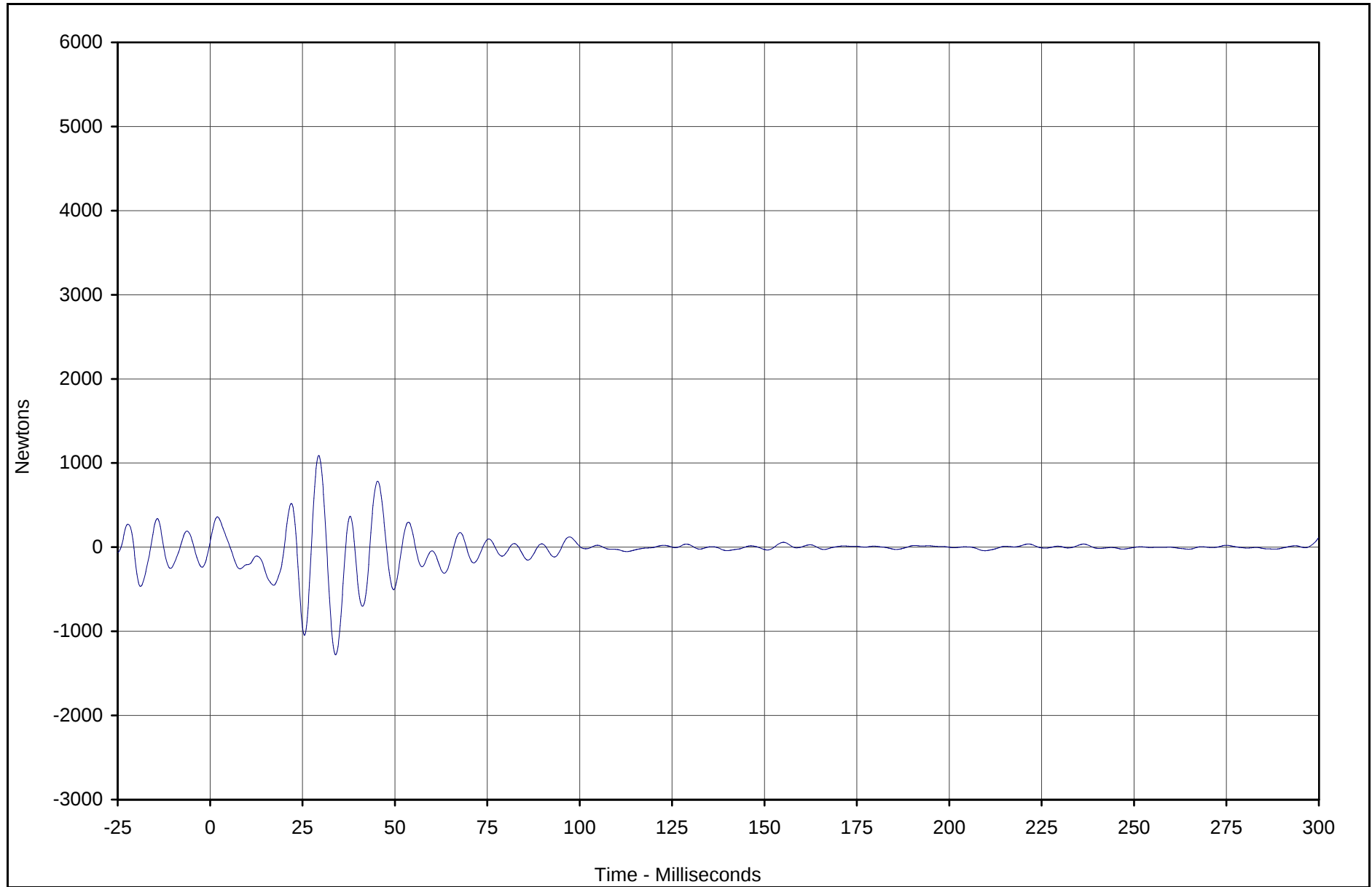


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A9	106	FIL	Newtons	1089.1	29.4	-1277.9	34.0	60



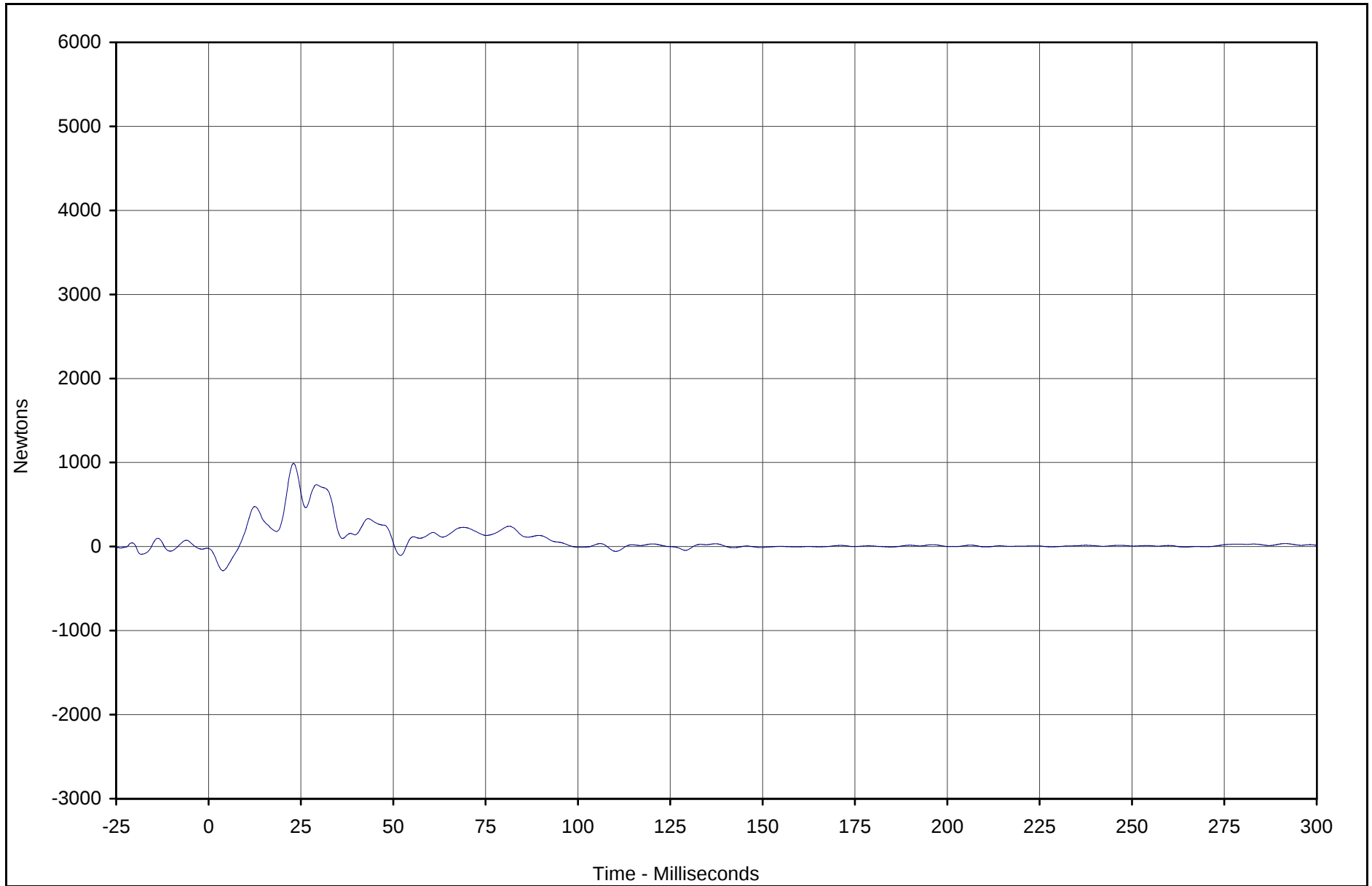
Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106

C-10



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B1	107	FIL	Newtons	989.0	23.0	-286.9	3.9	60



Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

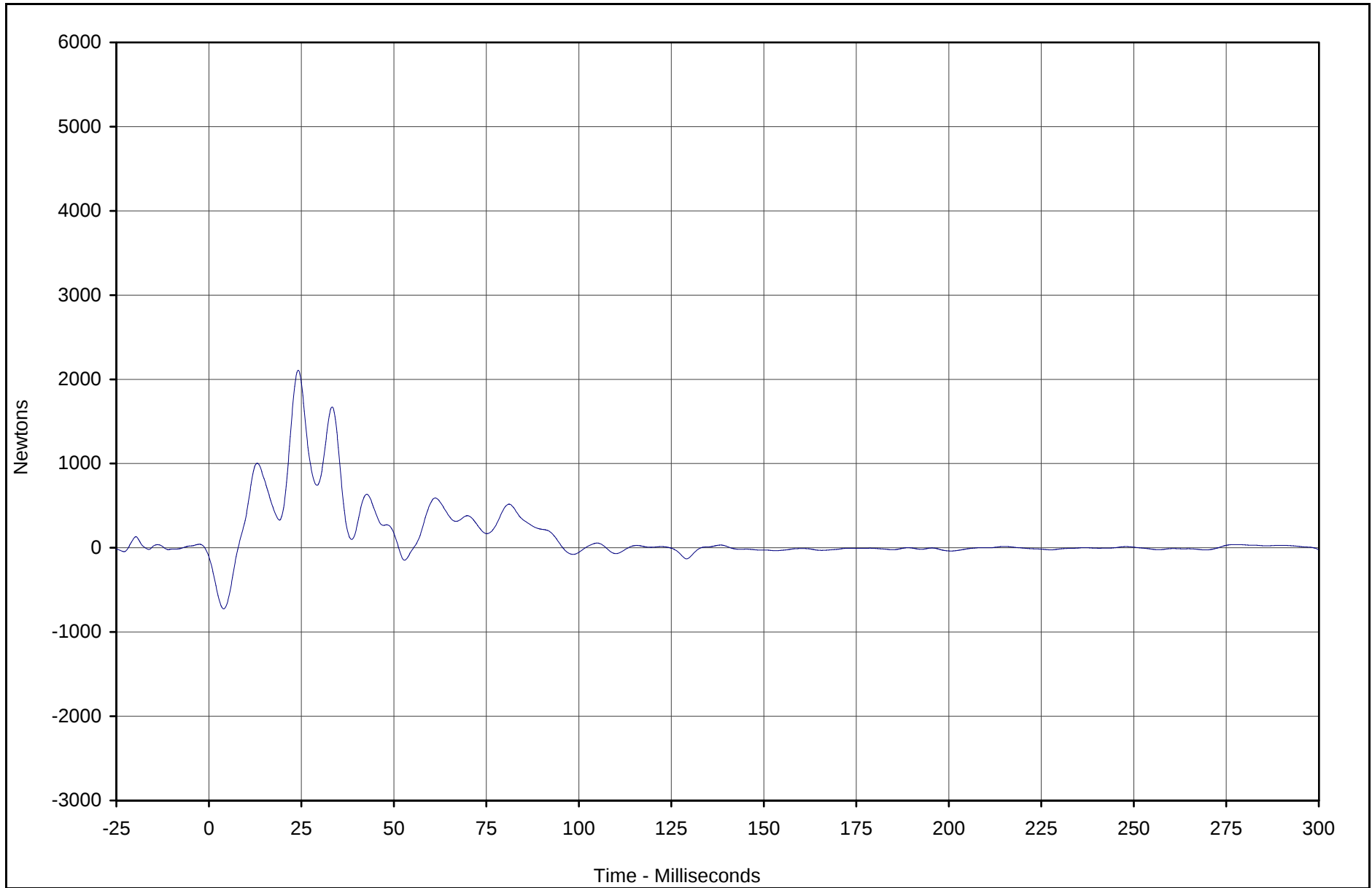
Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106

TR-P23001-01-NC

C-11



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B2	108	FIL	Newtons	2106.6	24.2	-725.2	4.0	60



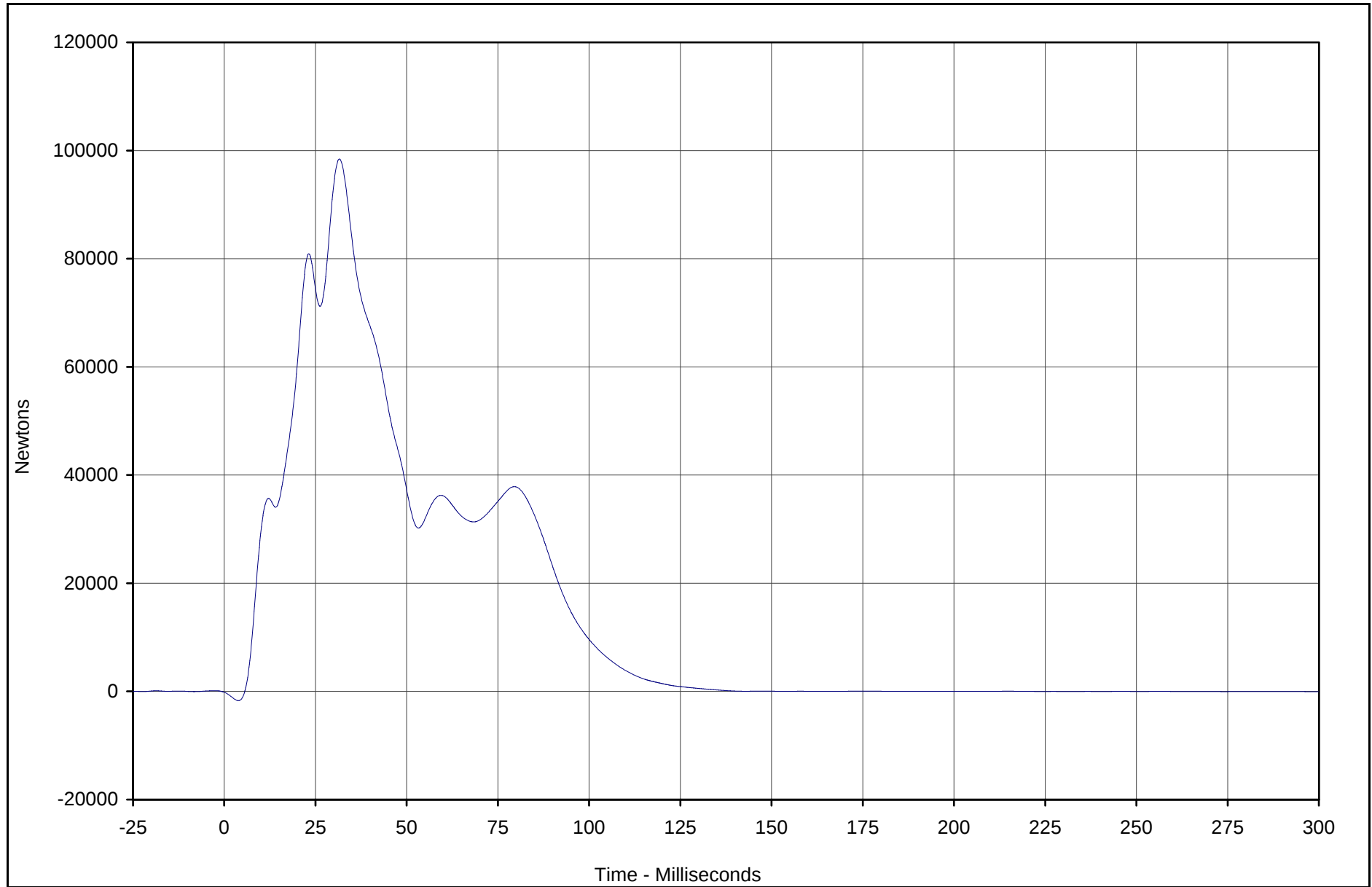
Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106

TR-P23001-01-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B3	109	FIL	Newtons	98440.8	31.6	-1701.0	3.9	60

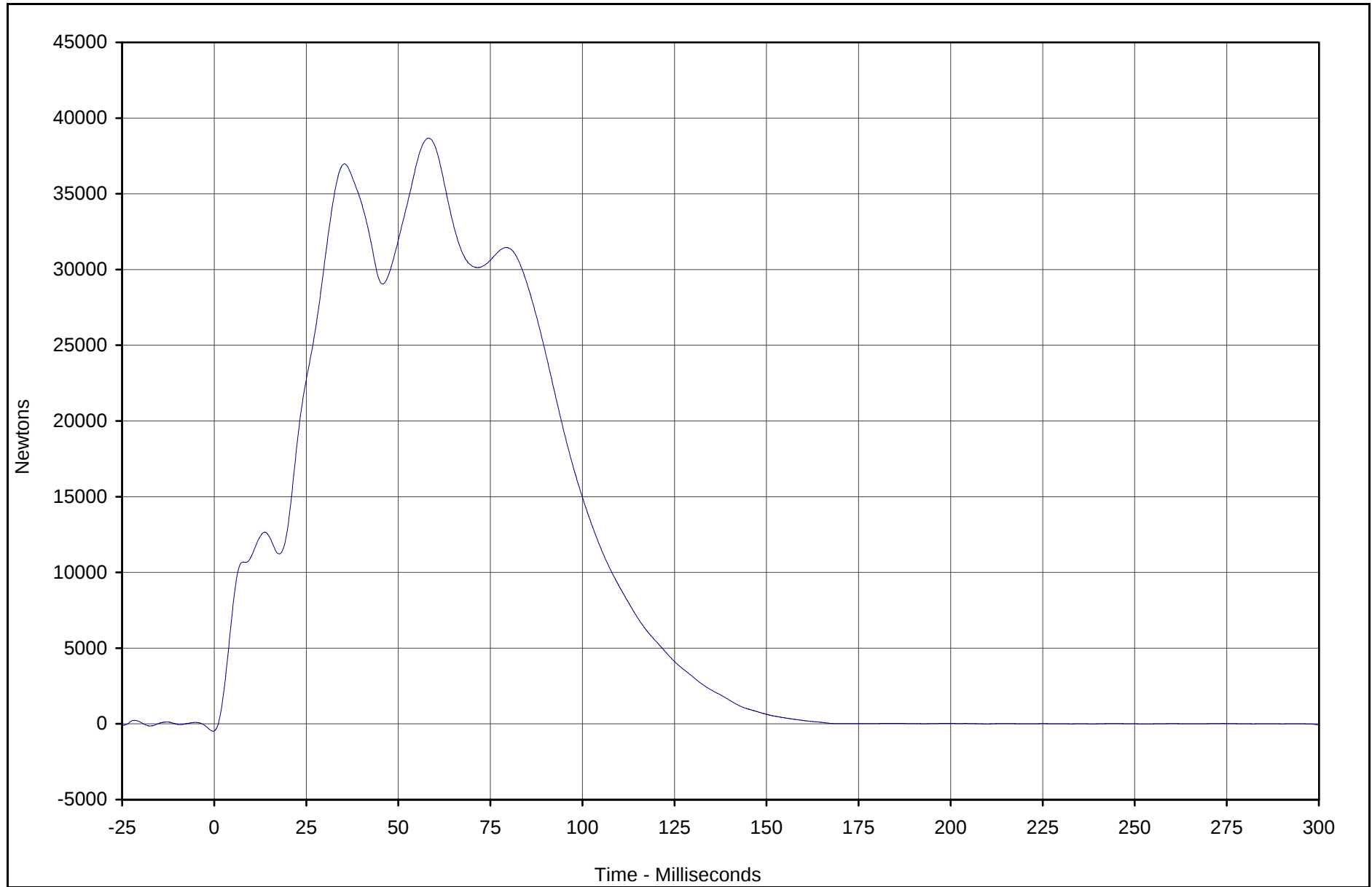


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B4	110	FIL	Newtons	38674.6	58.2	-468.3	0.0	60

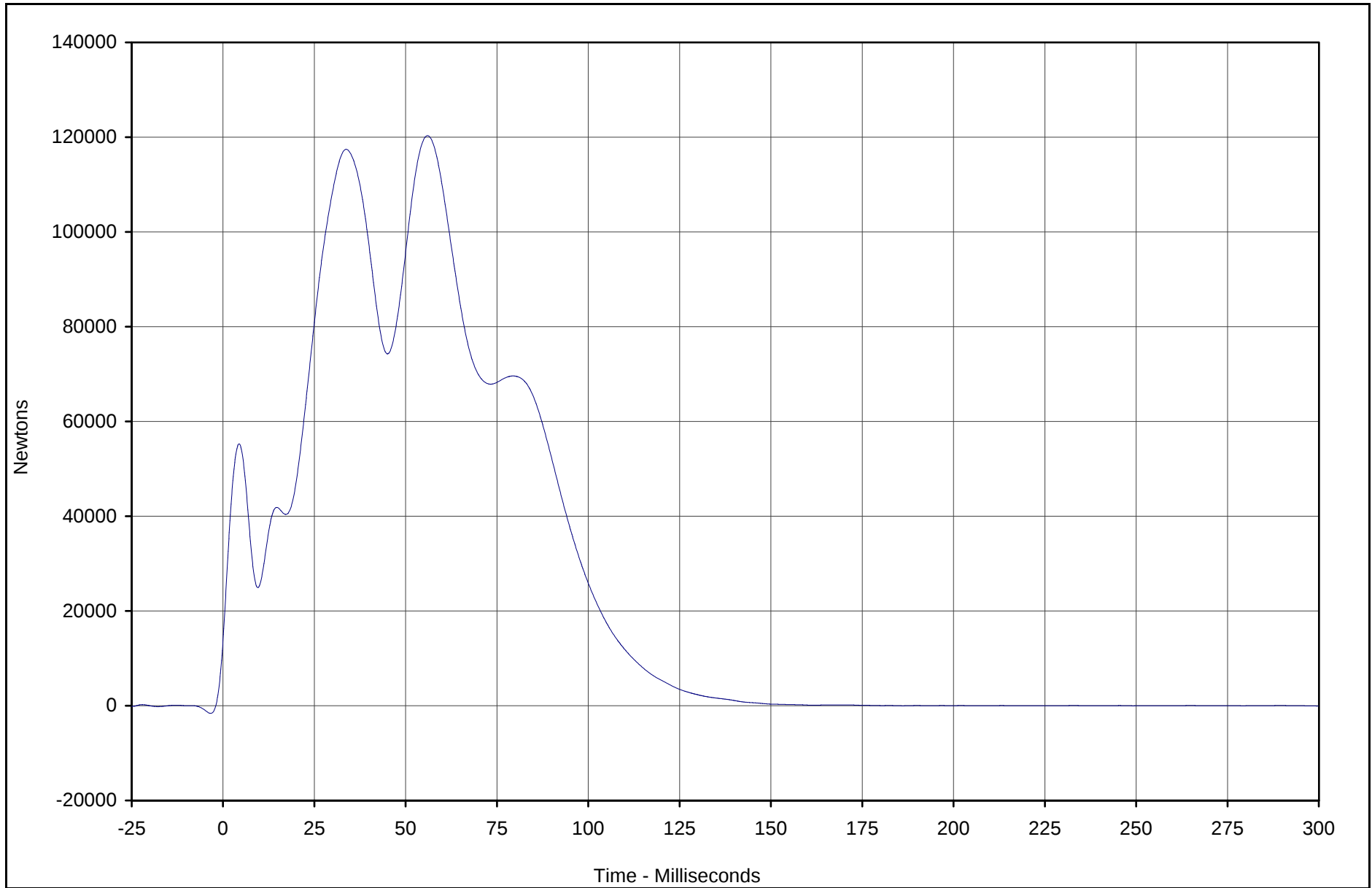


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B5	111	FIL	Newtons	120323.6	56.0	-76.7	299.9	60

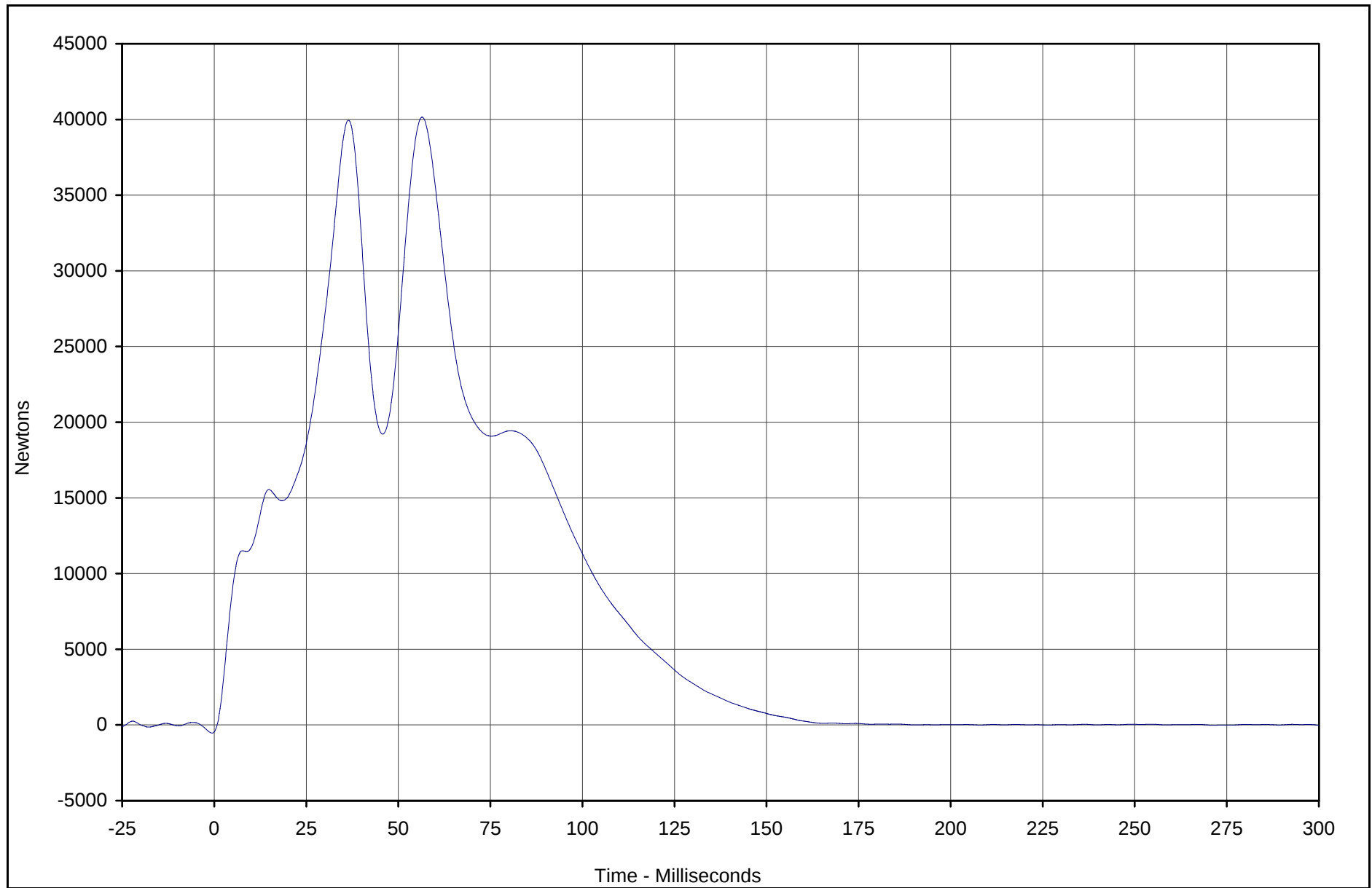


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B6	112	FIL	Newtons	40156.8	56.5	-456.7	0.0	60

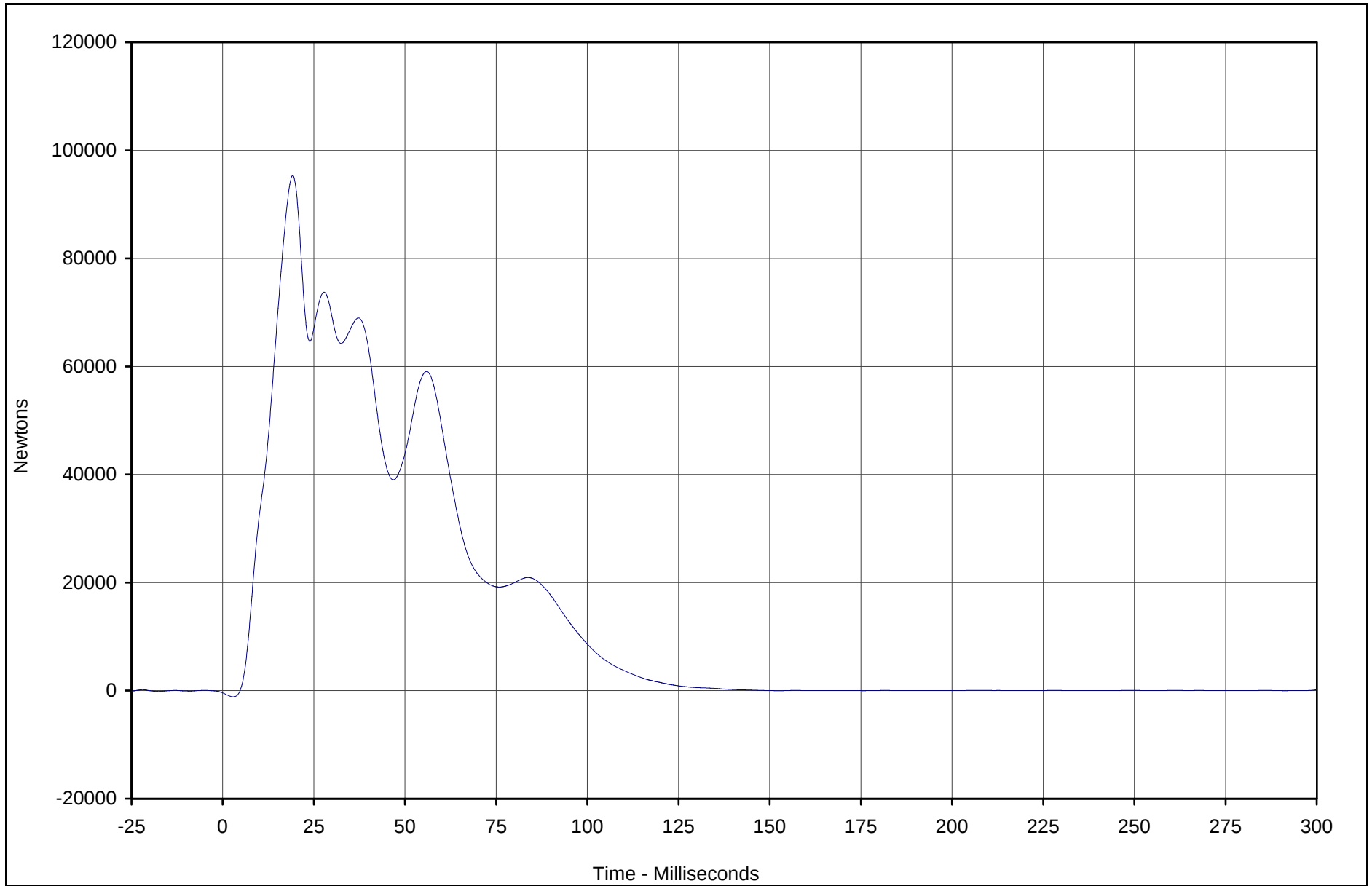


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B7	113	FIL	Newtons	95331.3	19.2	-1139.7	2.9	60

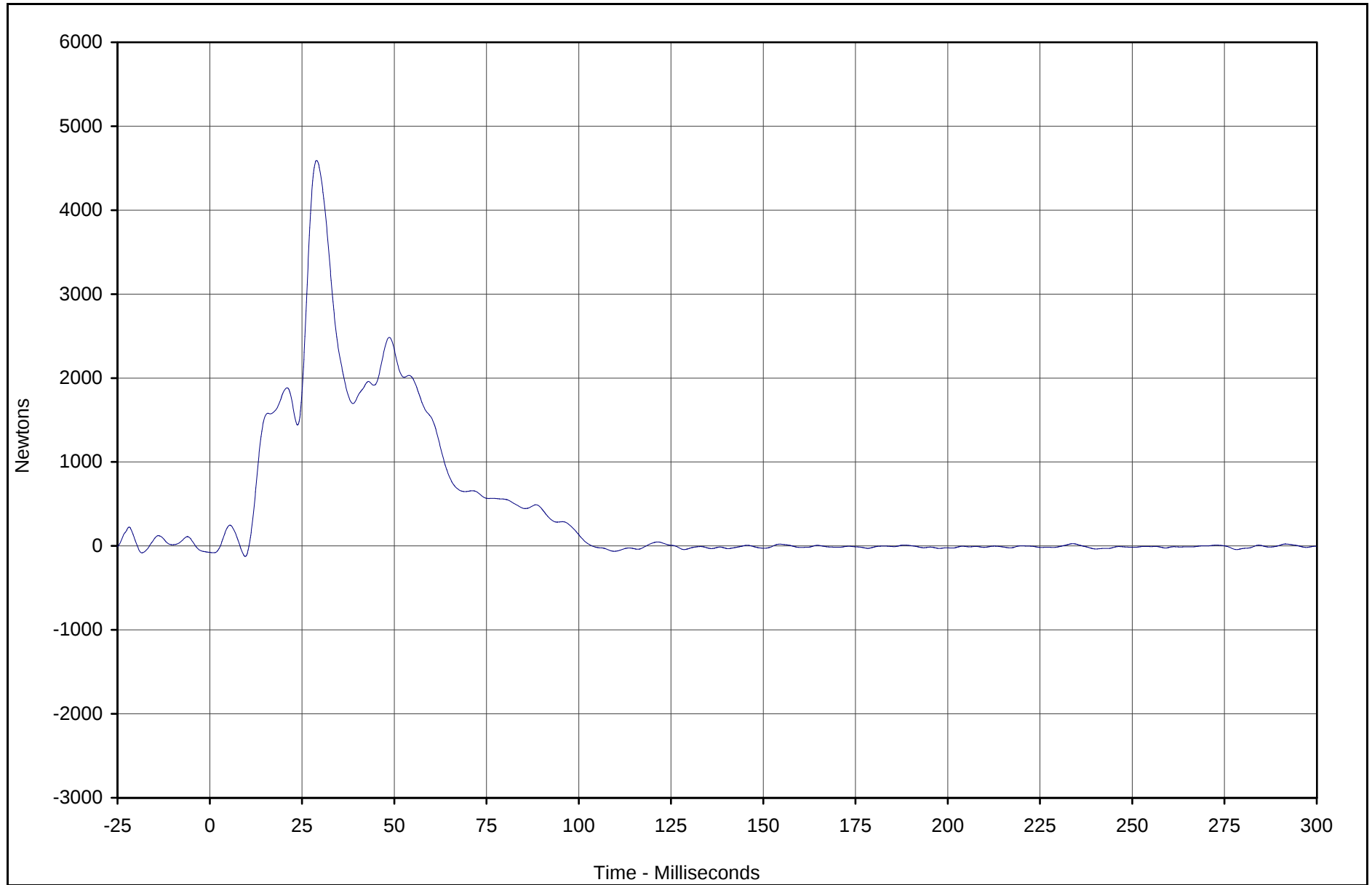


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B8	114	FIL	Newtons	4591.6	29.0	-124.9	9.6	60

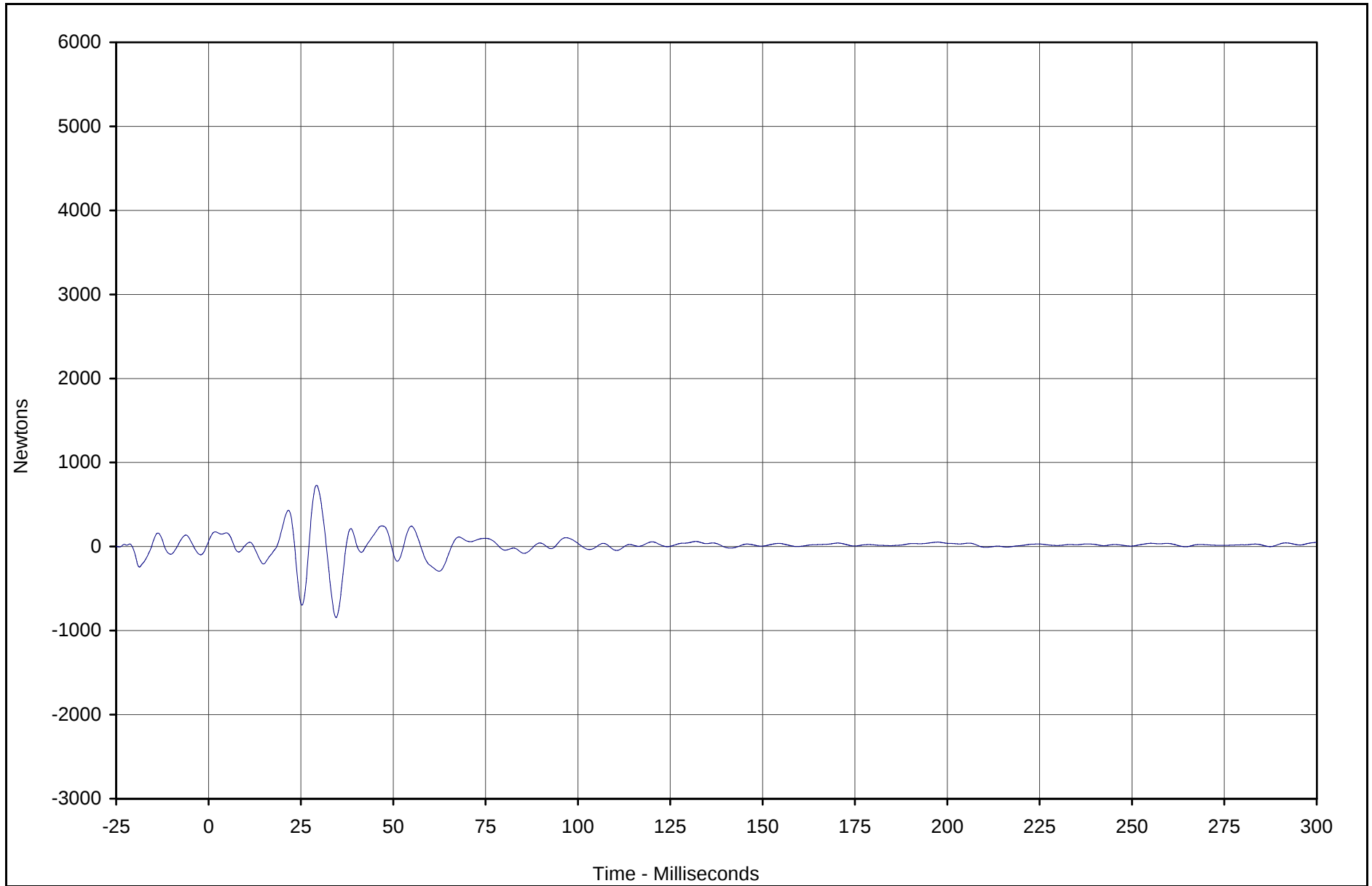


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B9	115	FIL	Newtons	729.6	29.2	-844.8	34.5	60

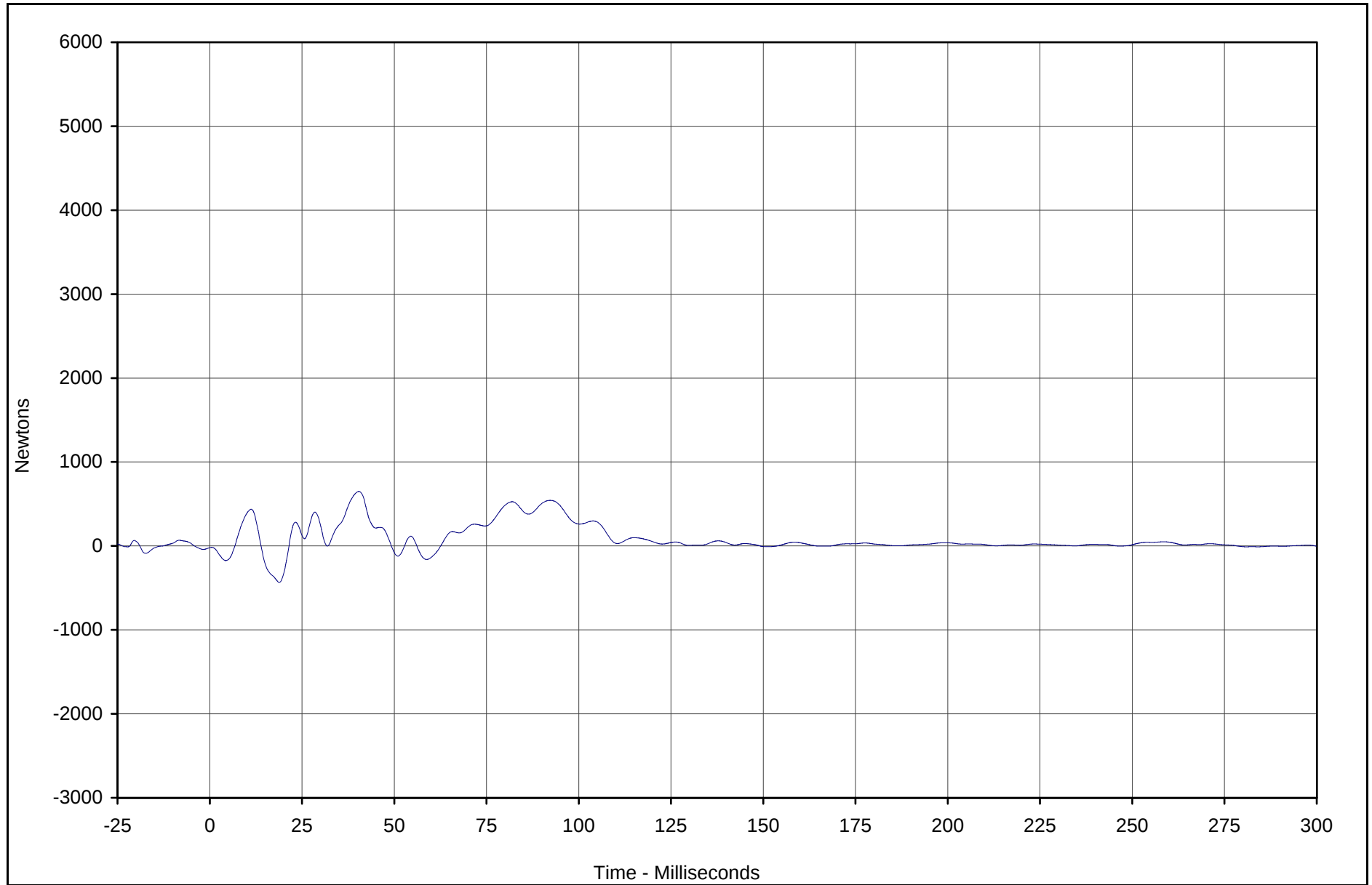


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C1	116	FIL	Newtons	648.9	40.4	-433.8	18.8	60

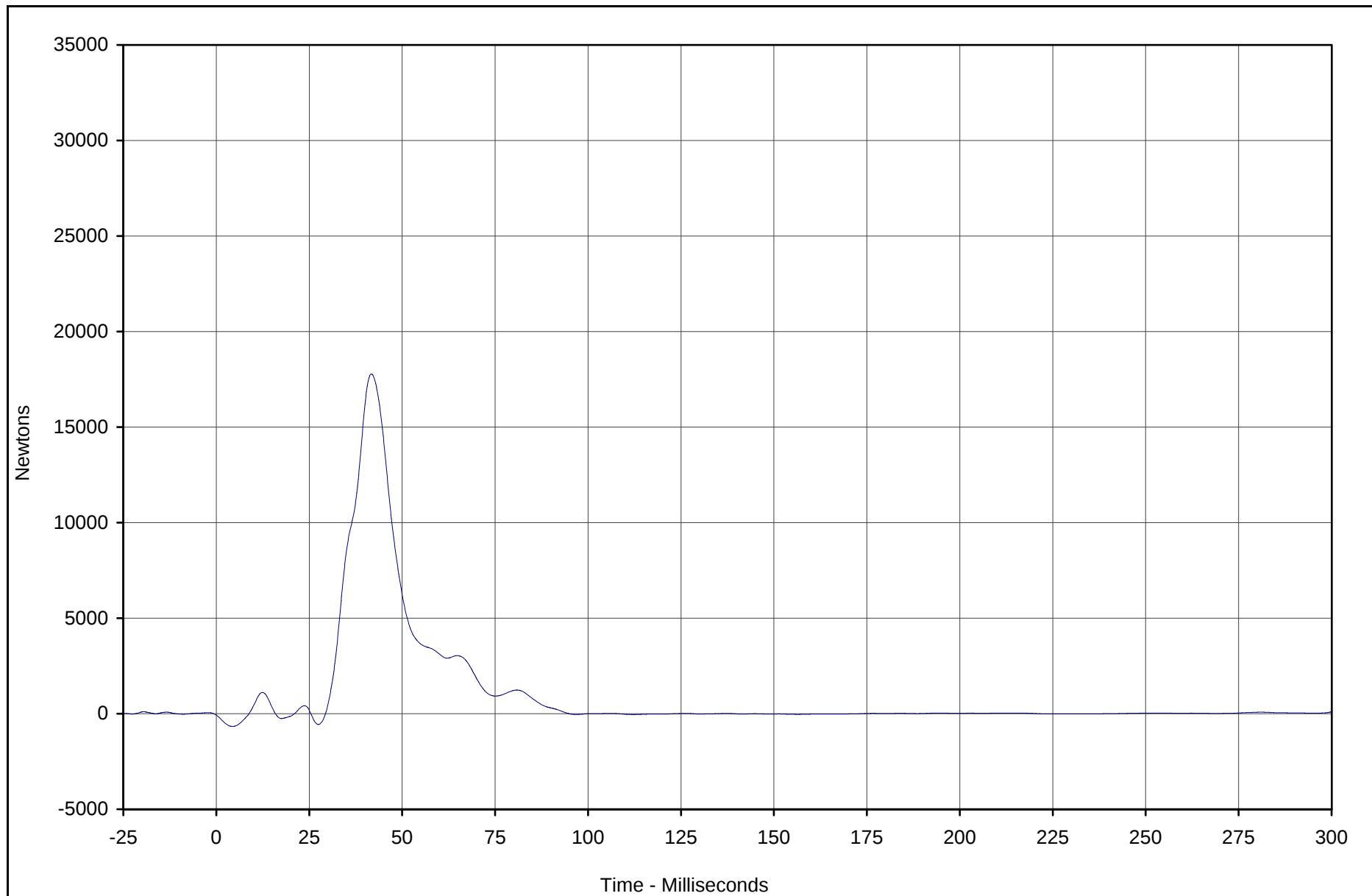


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Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C2	117	FIL	Newtons	17778.6	41.7	-666.0	4.4	60

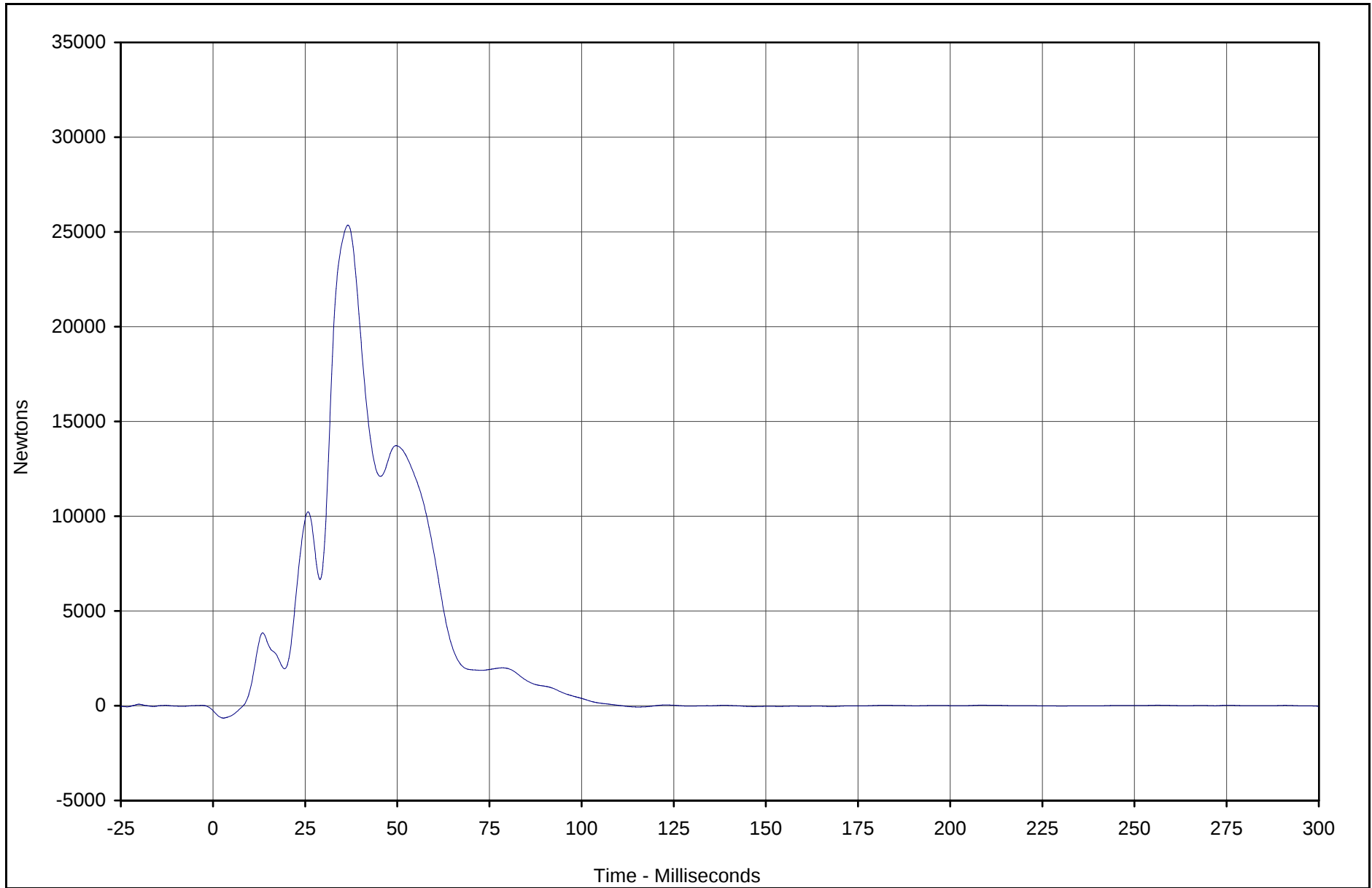


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C3	118	FIL	Newtons	25360.7	36.6	-652.4	2.8	60



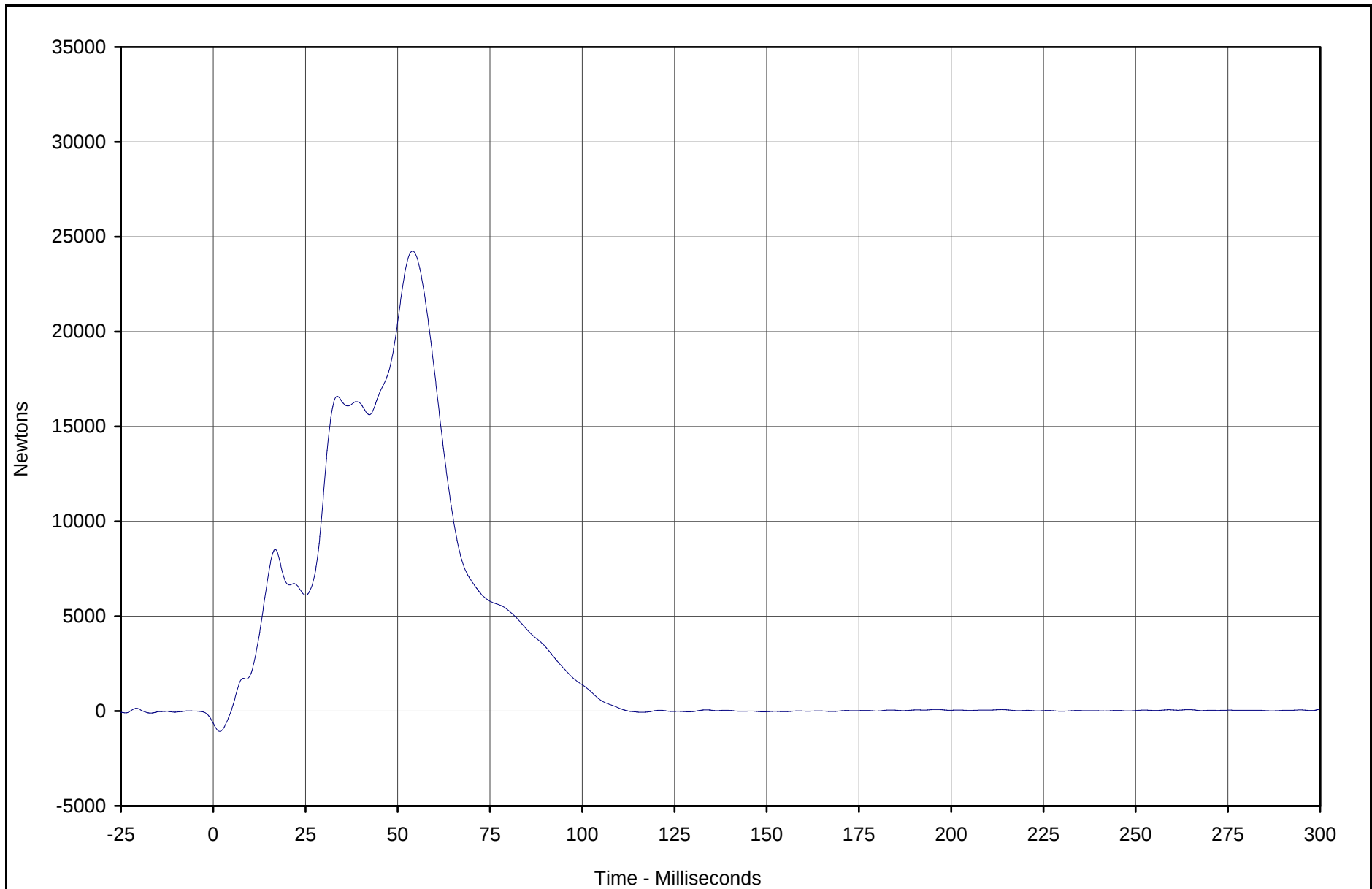
Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106

C-22



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C4	119	FIL	Newtons	24248.3	54.0	-1072.0	1.8	60

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

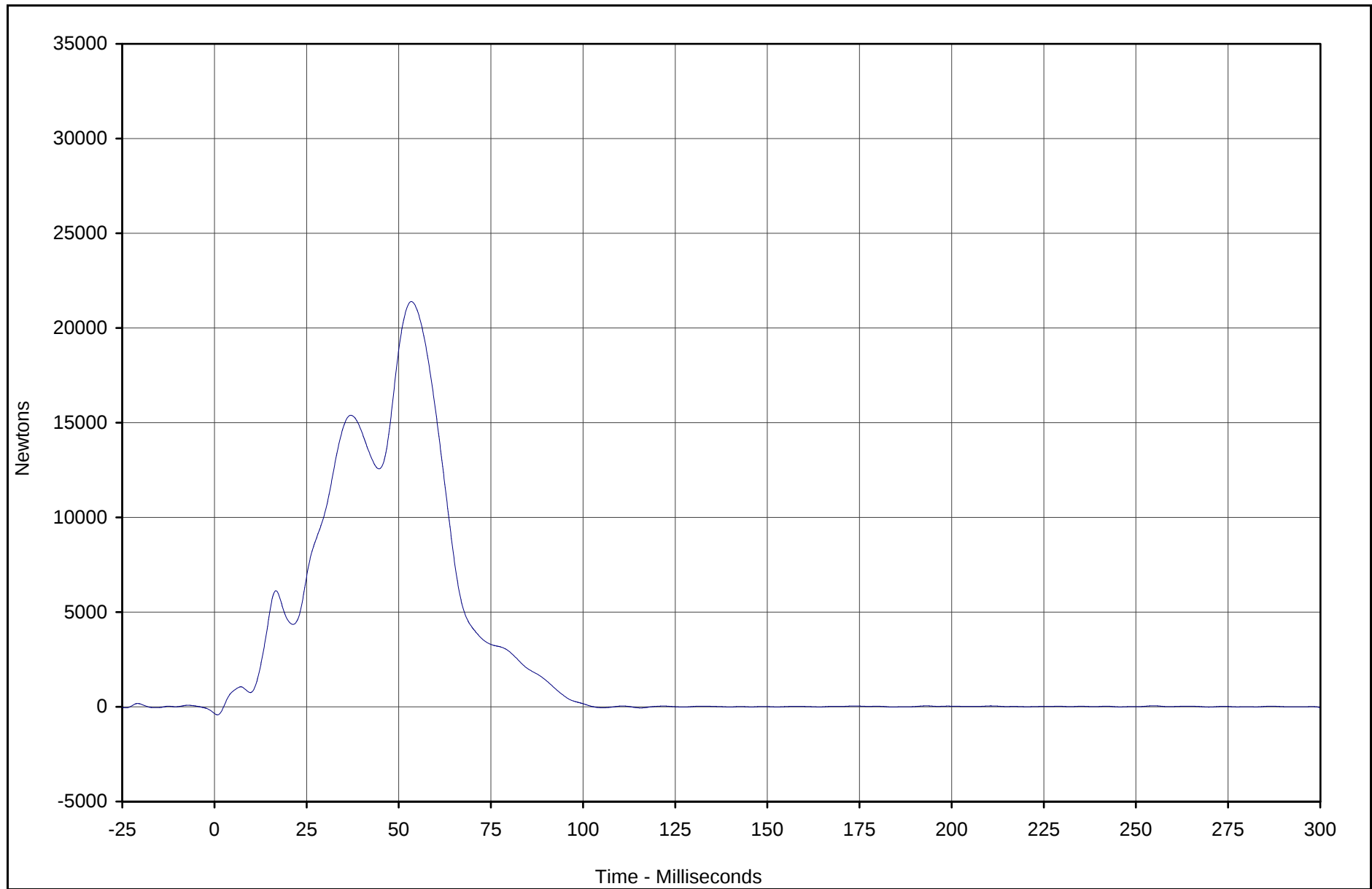
Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



TR-P23001-01-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C5	120	FIL	Newtons	21395.0	53.4	-420.8	0.8	60

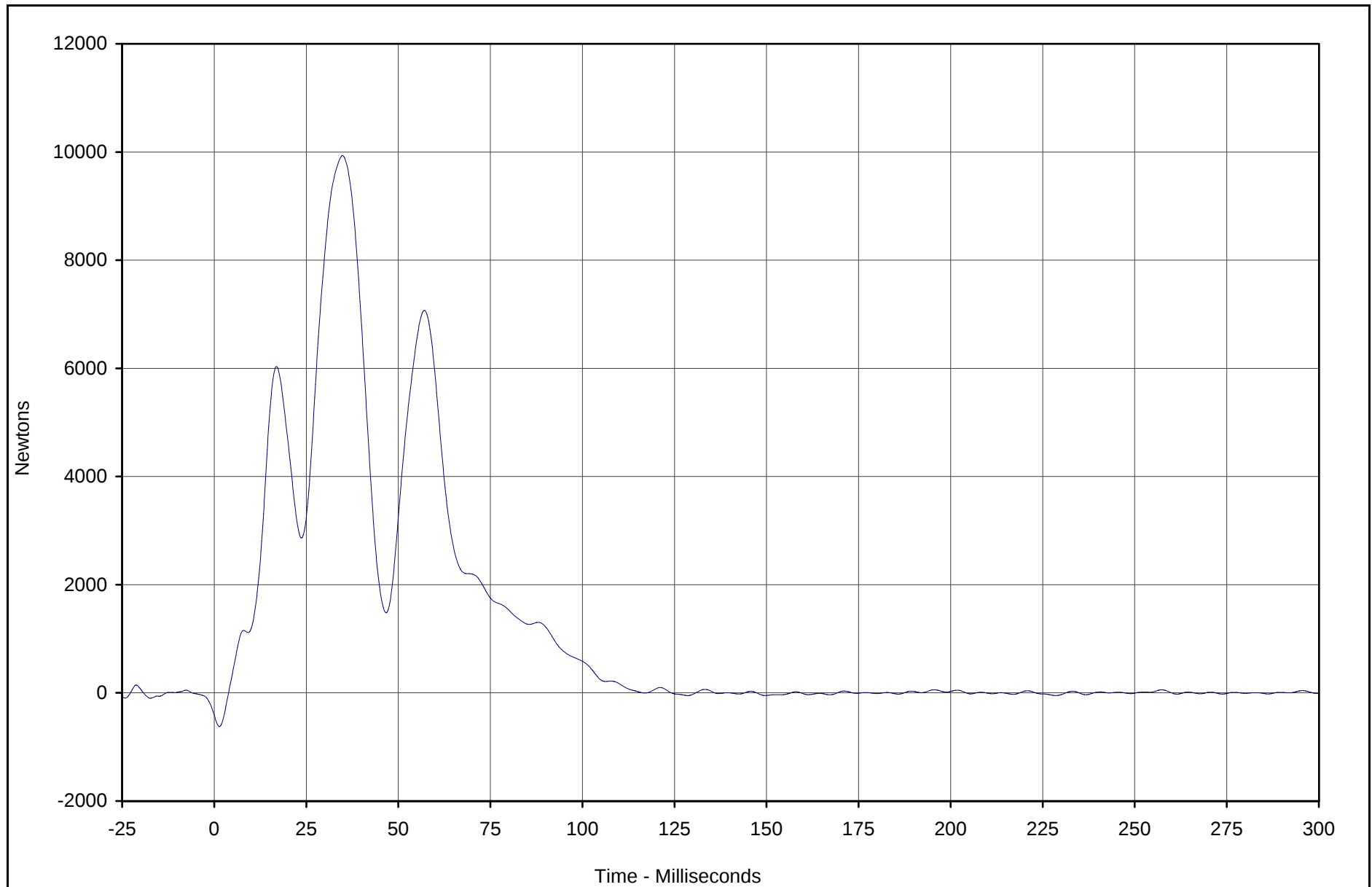


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C6	121	FIL	Newtons	9932.5	34.8	-623.0	1.4	60

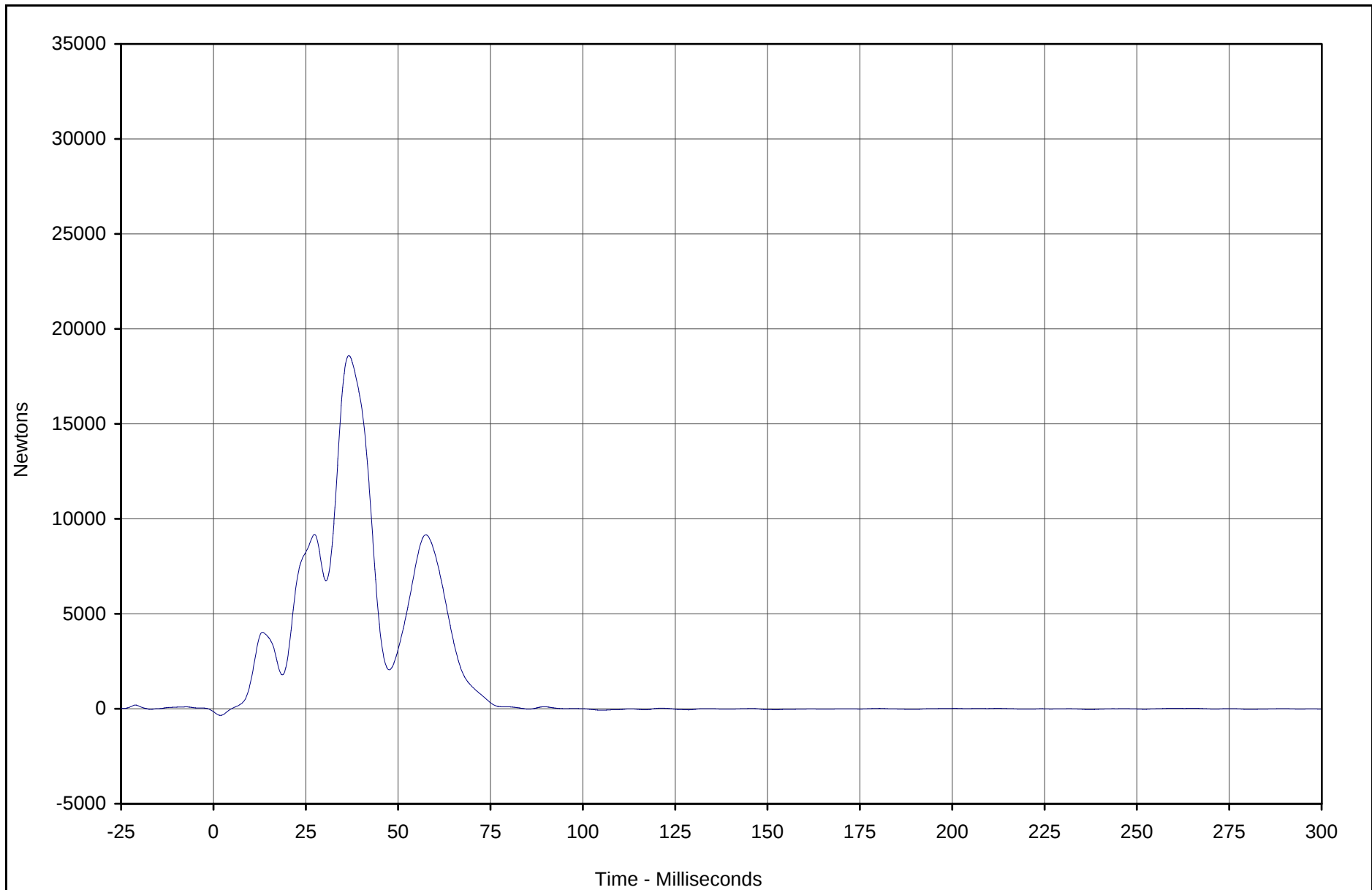


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C7	122	FIL	Newtons	18593.0	36.7	-349.5	1.9	60

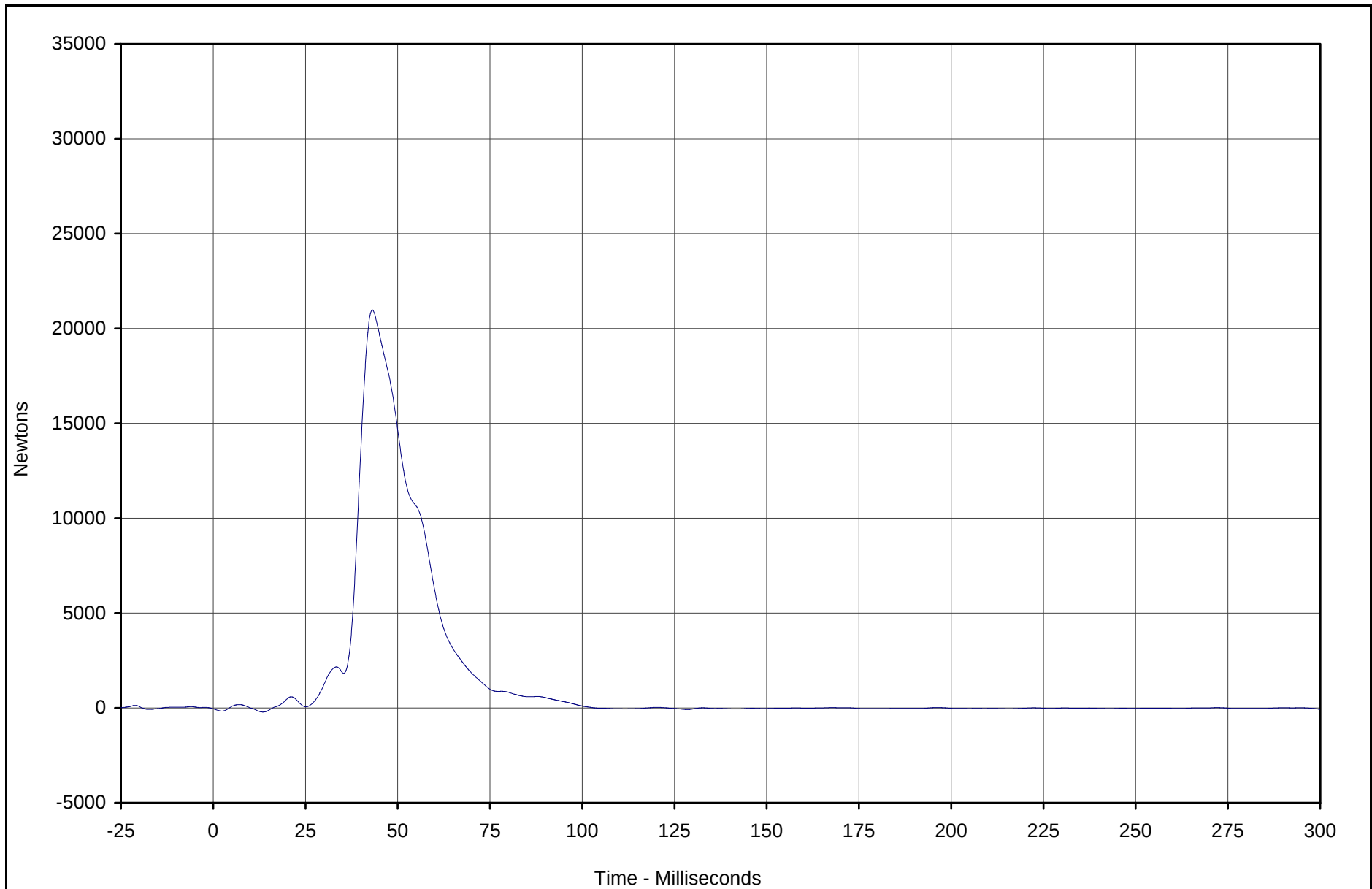


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C8	123	FIL	Newtons	20981.2	43.1	-212.4	13.5	60

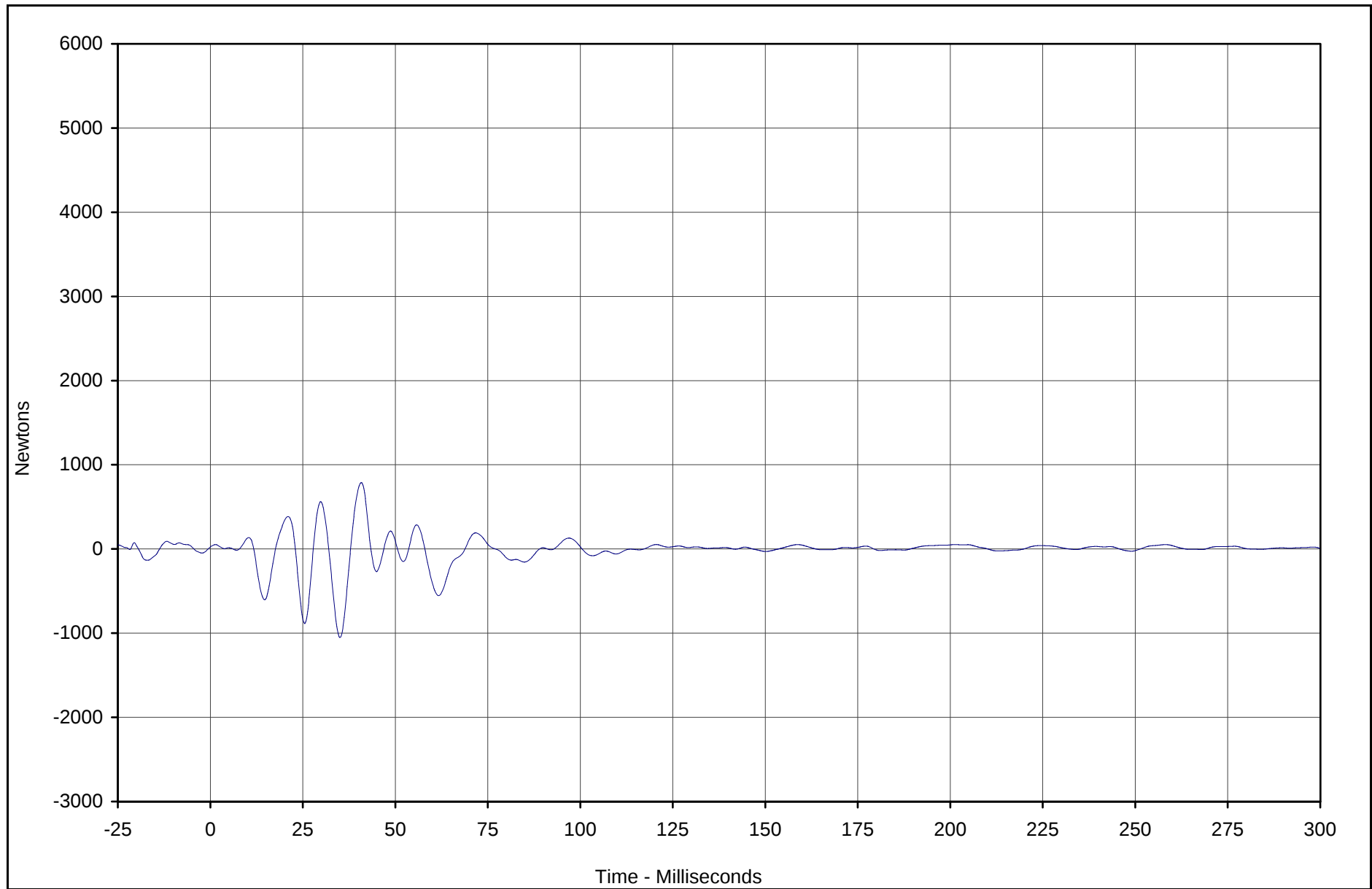


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C9	124	FIL	Newtons	788.7	40.8	-1051.3	35.1	60

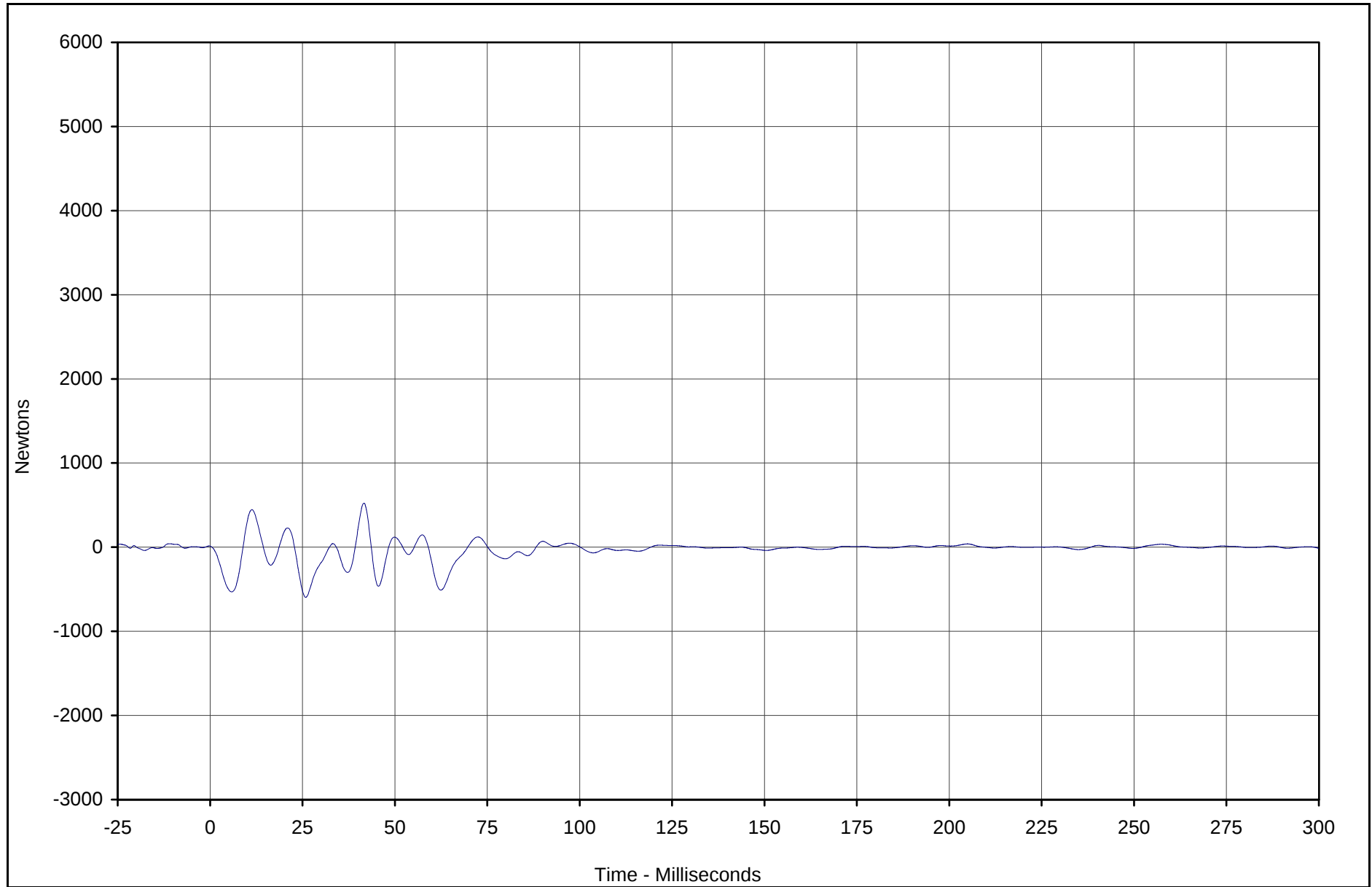


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D1	125	FIL	Newtons	523.8	41.6	-595.8	25.9	60

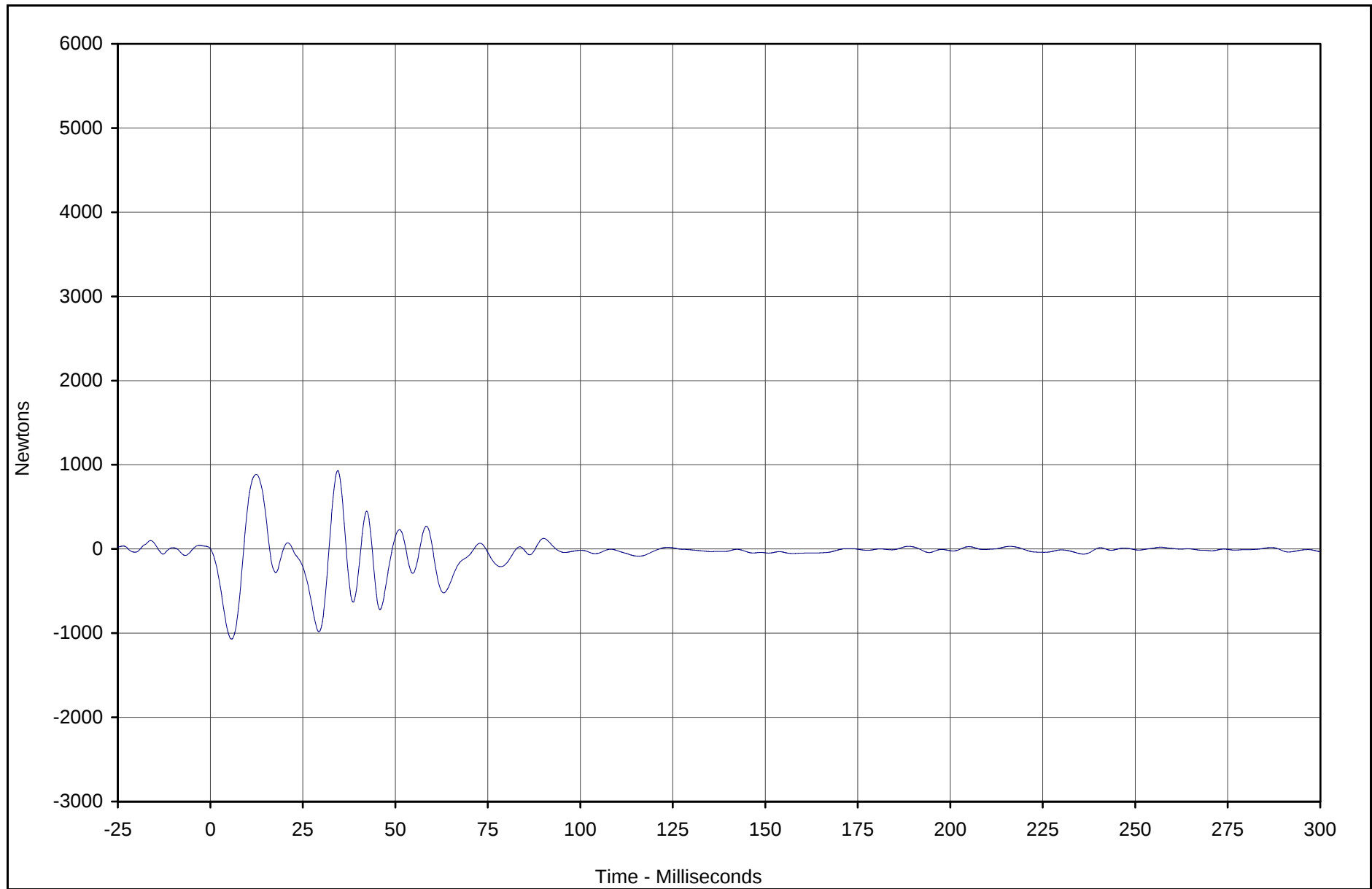


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D2	126	FIL	Newtons	930.8	34.5	-1069.8	5.7	60

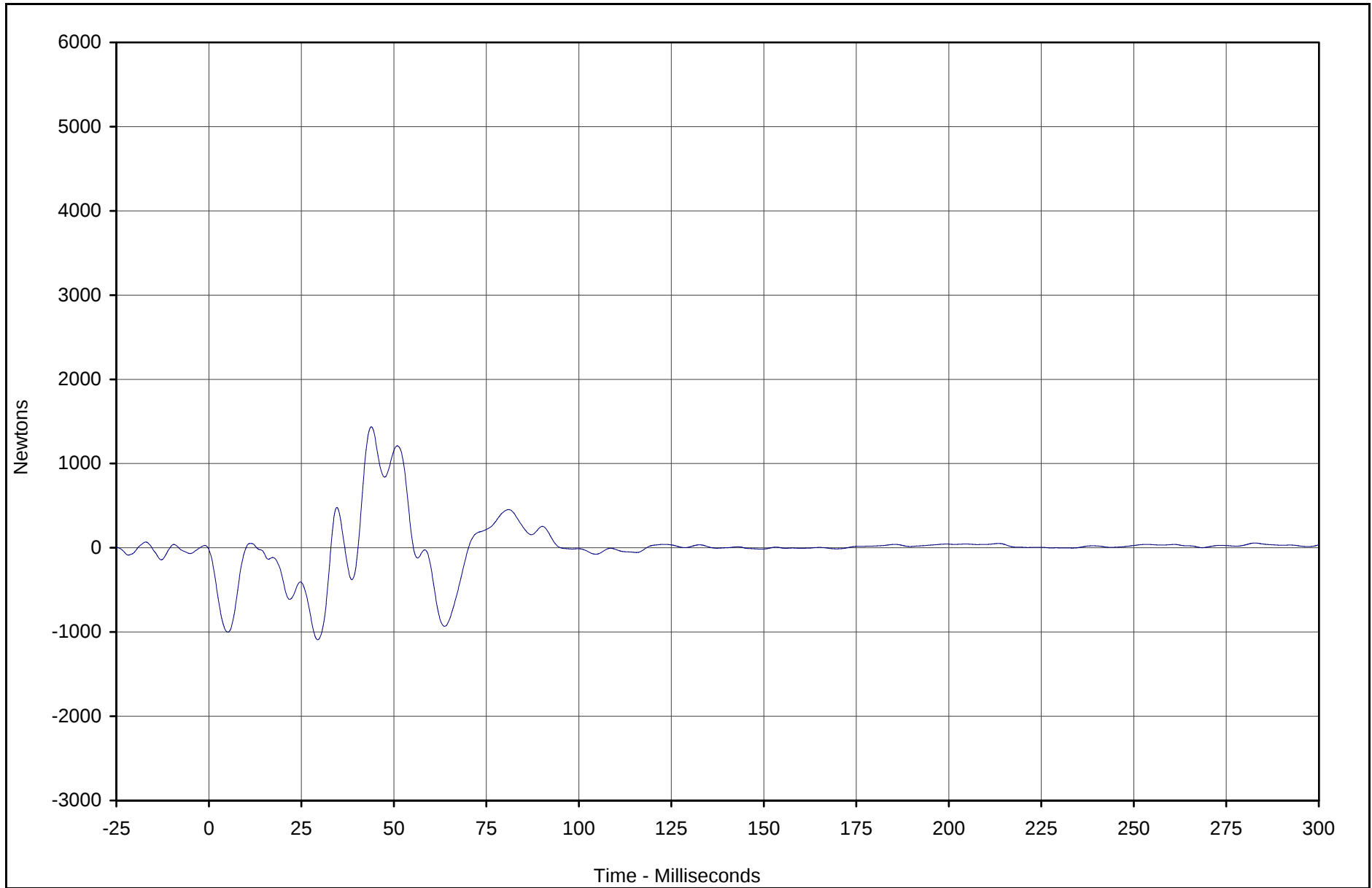


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D3	127	FIL	Newtons	1436.5	43.9	-1091.9	29.4	60

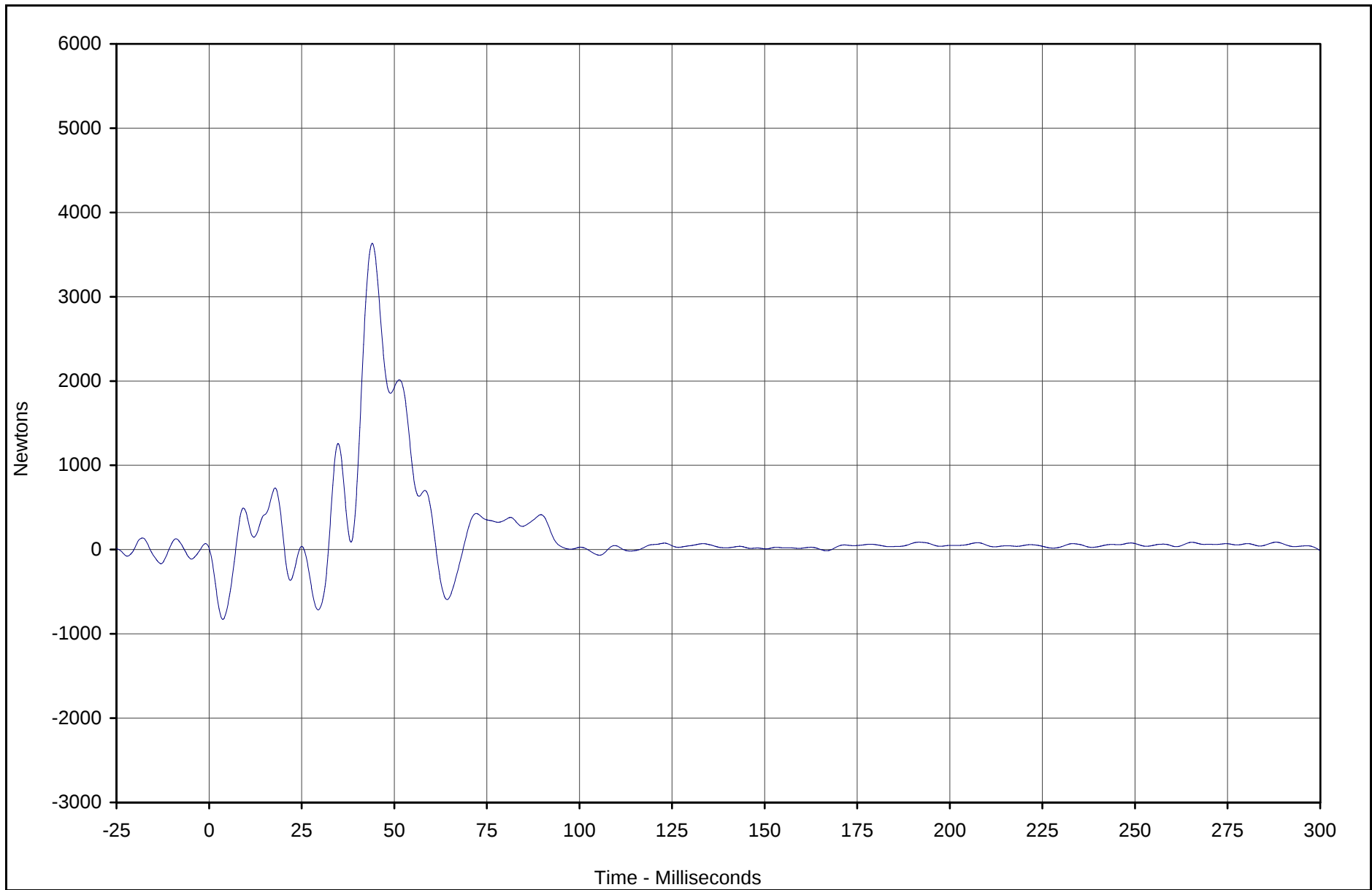


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D4	128	FIL	Newtons	3634.4	44.0	-827.9	3.7	60

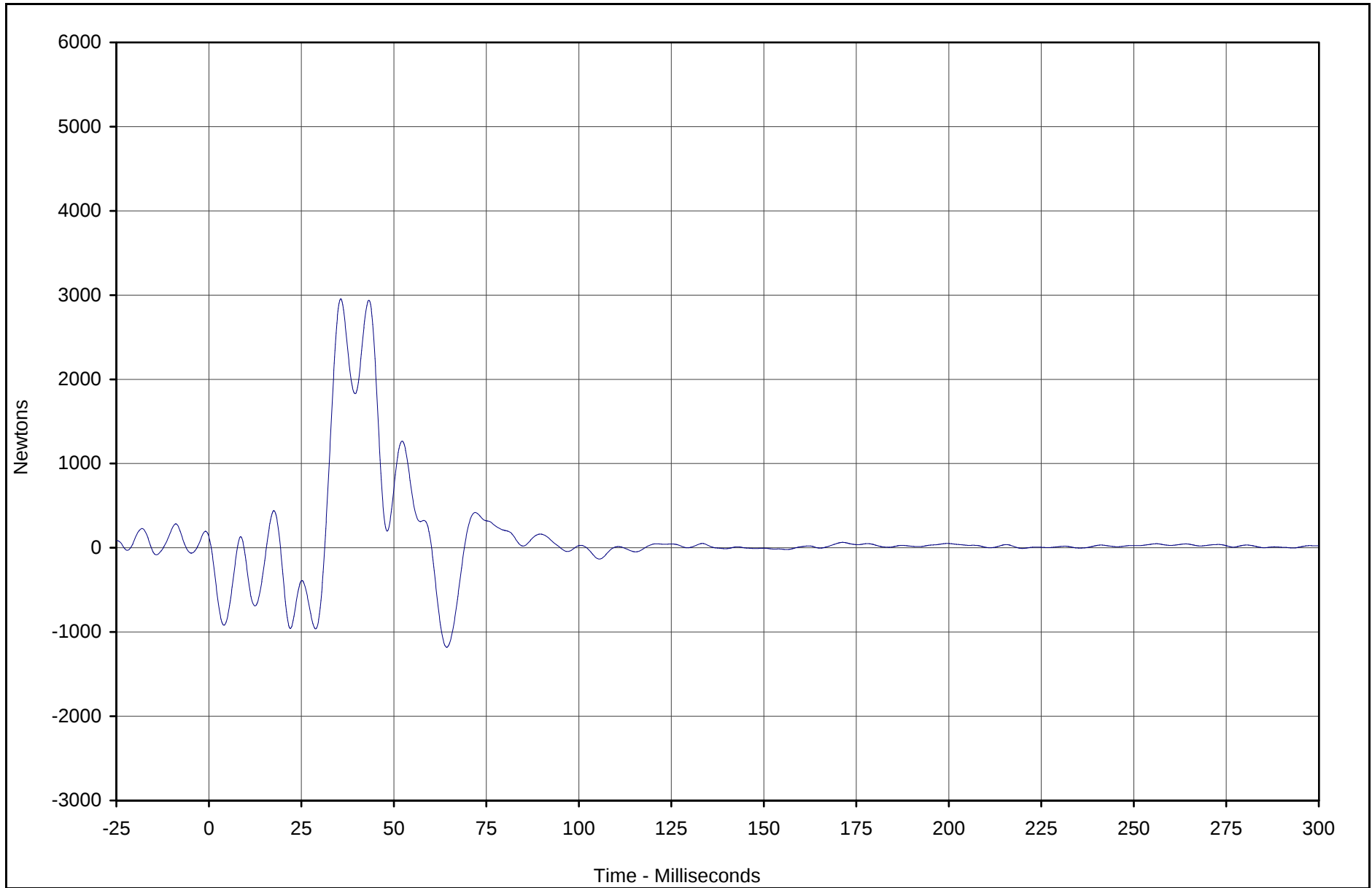


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D5	129	FIL	Newtons	2956.4	35.7	-1181.7	64.3	60

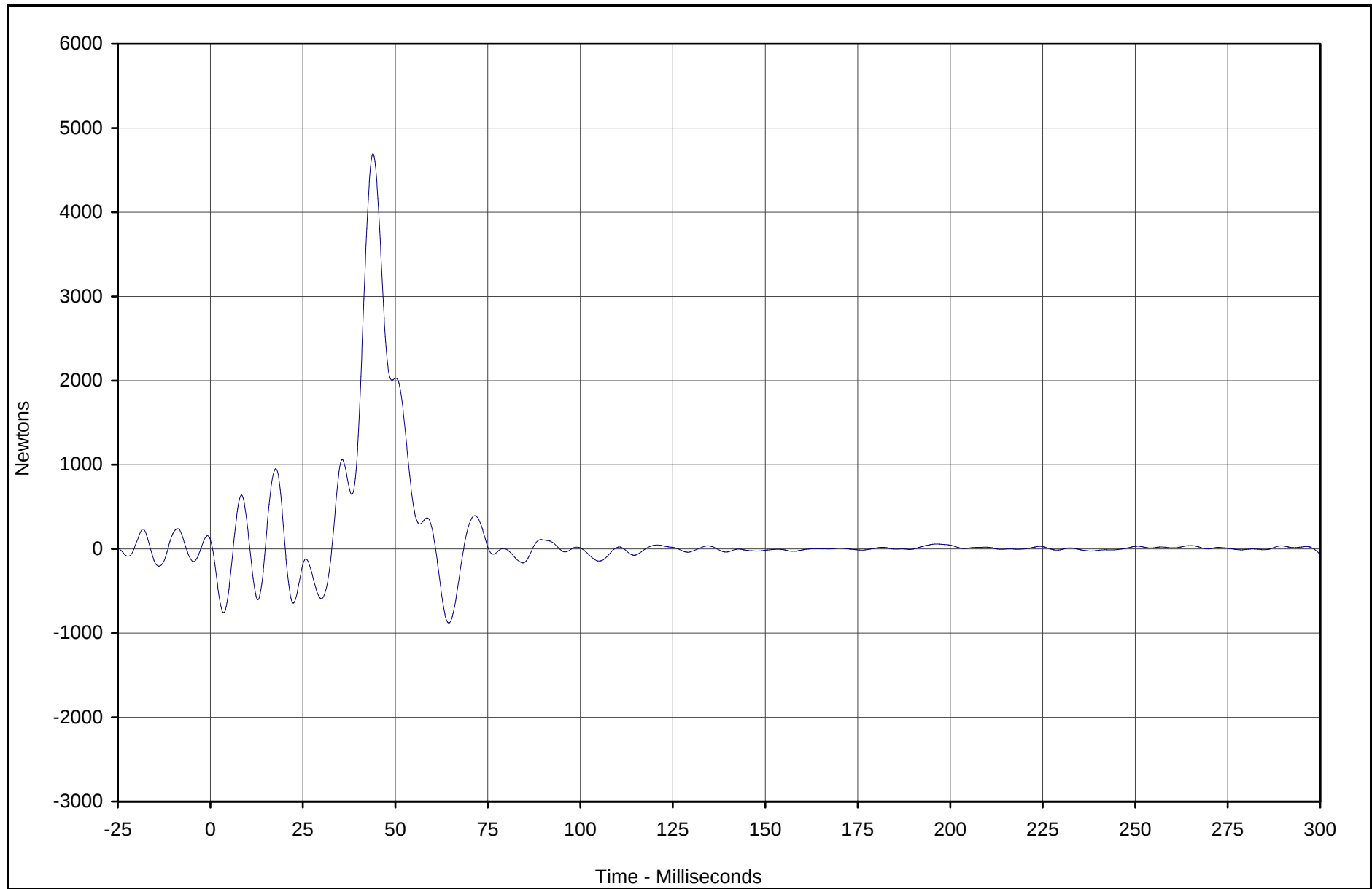


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D6	130	FIL	Newtons	4696.4	44.0	-880.4	64.5	60

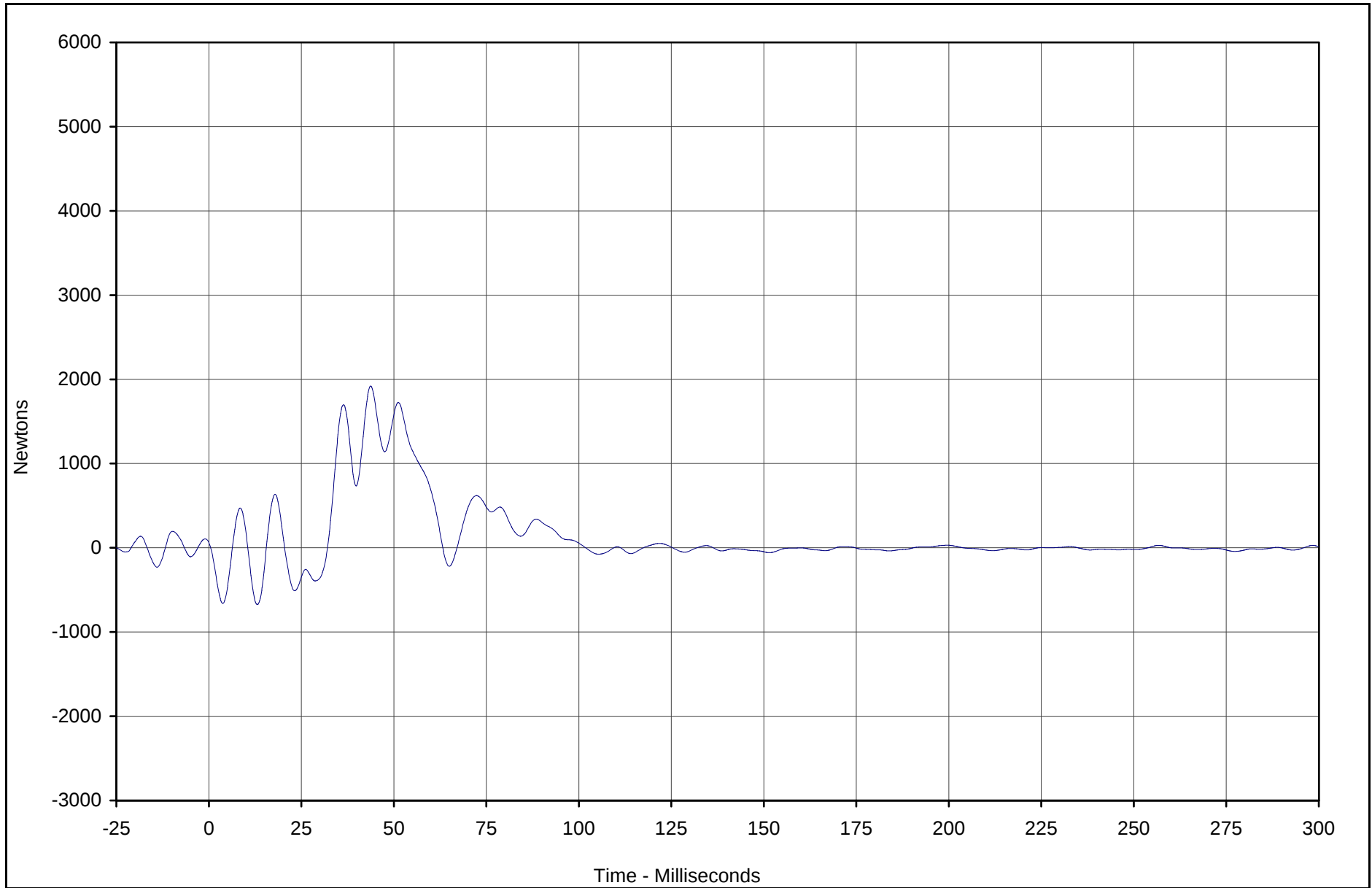


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D7	131	FIL	Newtons	1920.6	43.7	-672.7	13.1	60

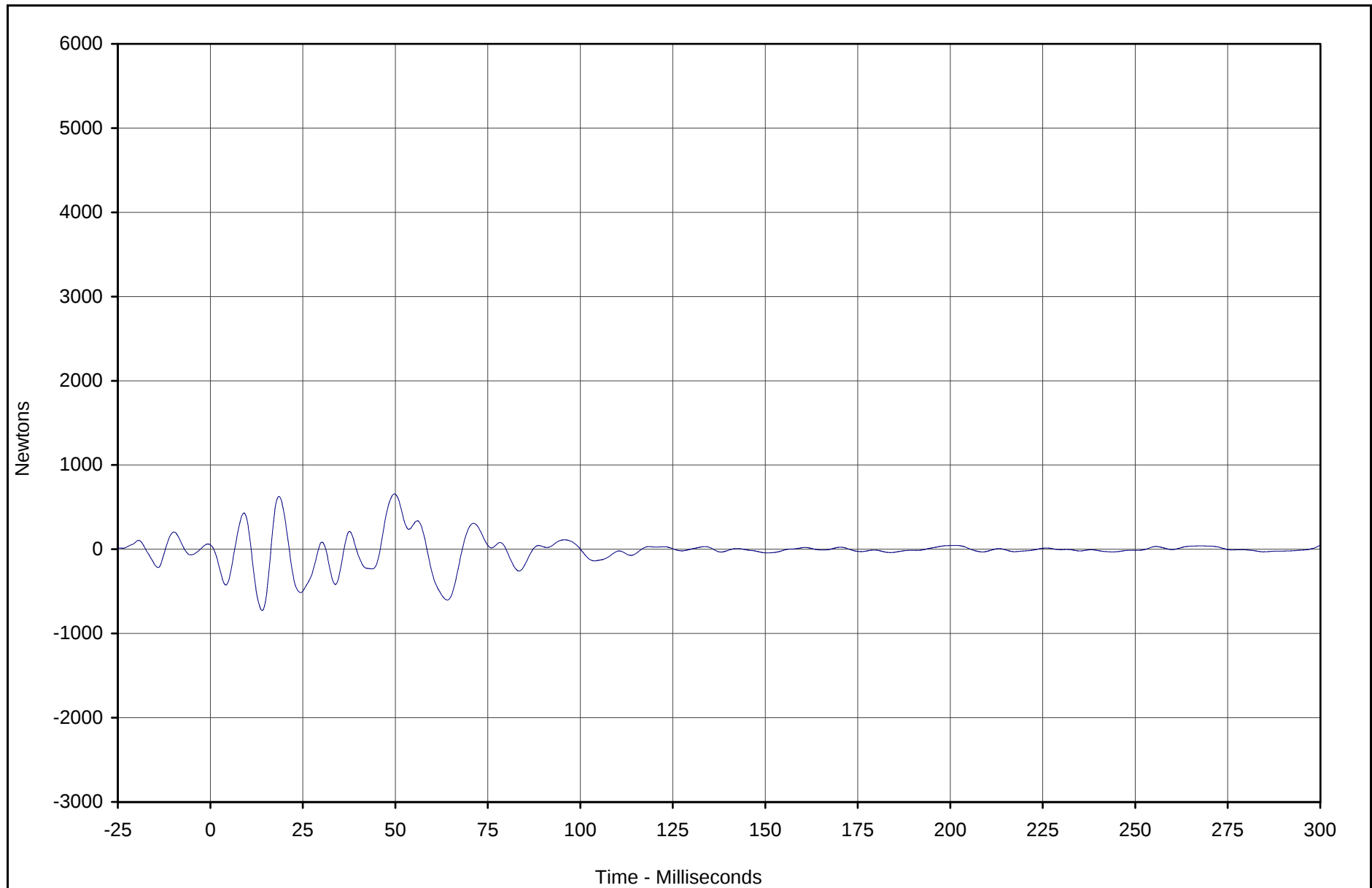


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D8	132	FIL	Newtons	656.5	49.8	-726.1	14.0	60

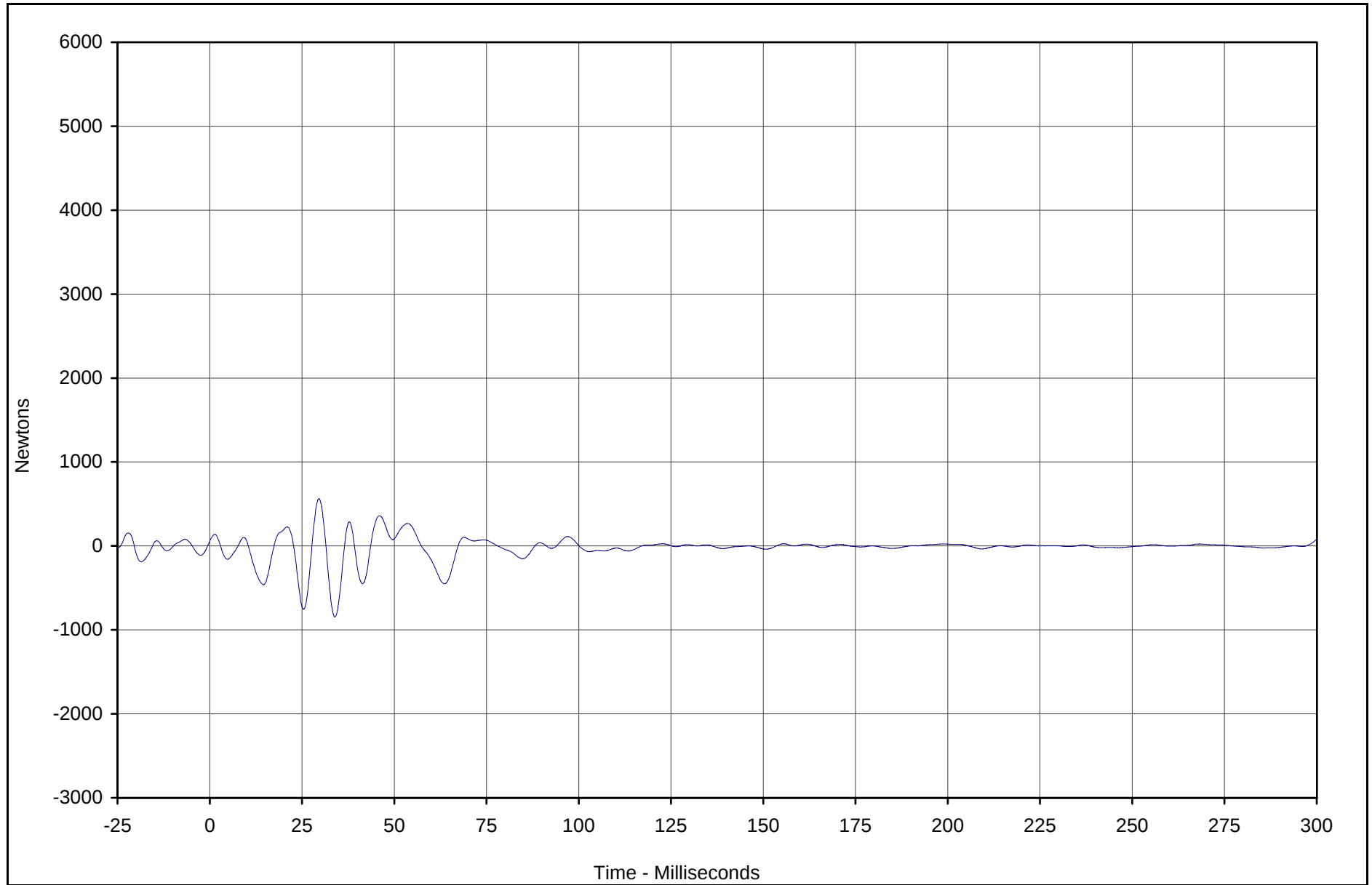


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D9	133	FIL	Newtons	564.6	29.6	-847.0	33.9	60

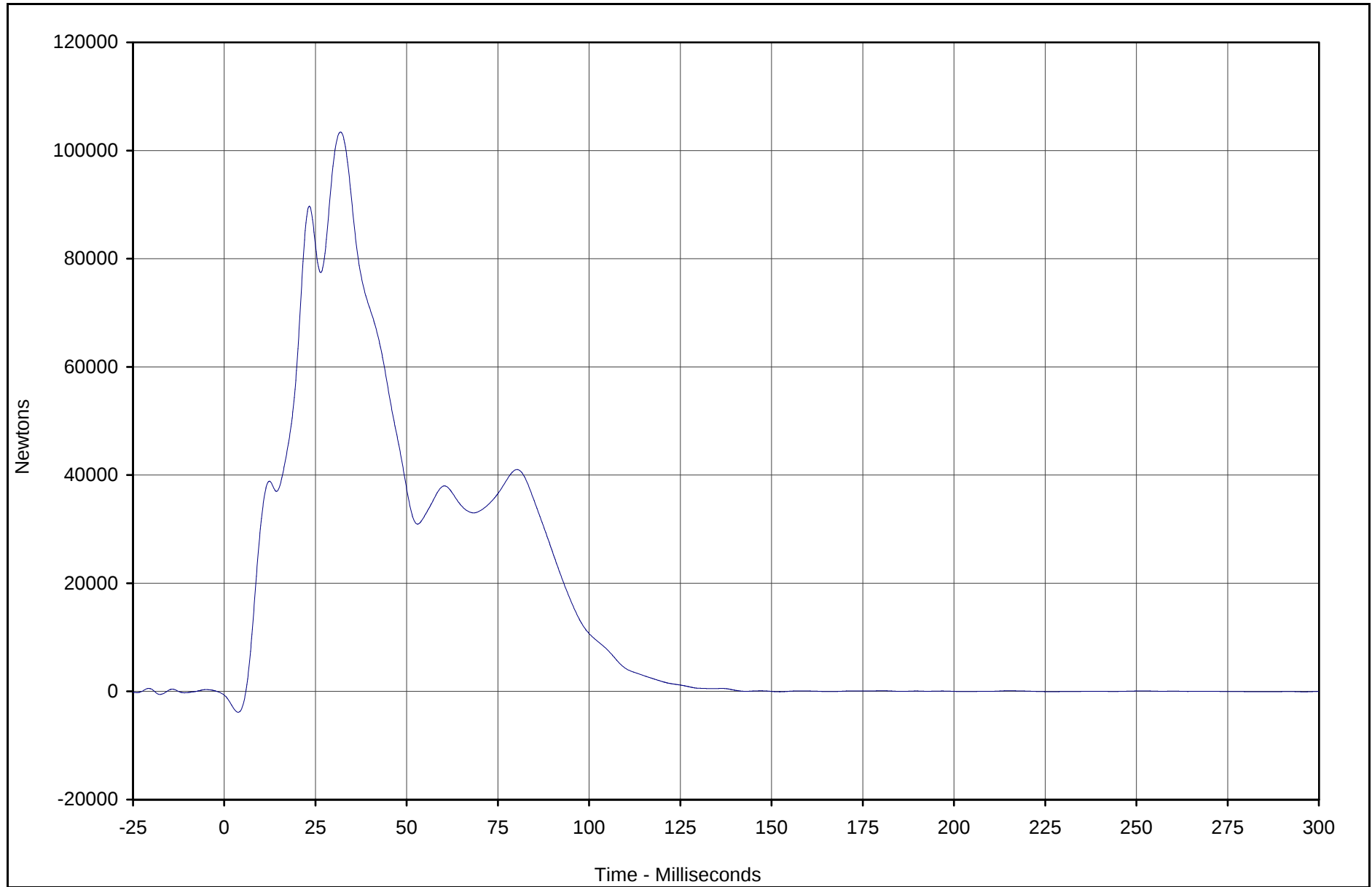


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 1	001	SUM	Newtons	103441.8	31.9	-3857.6	3.8	60

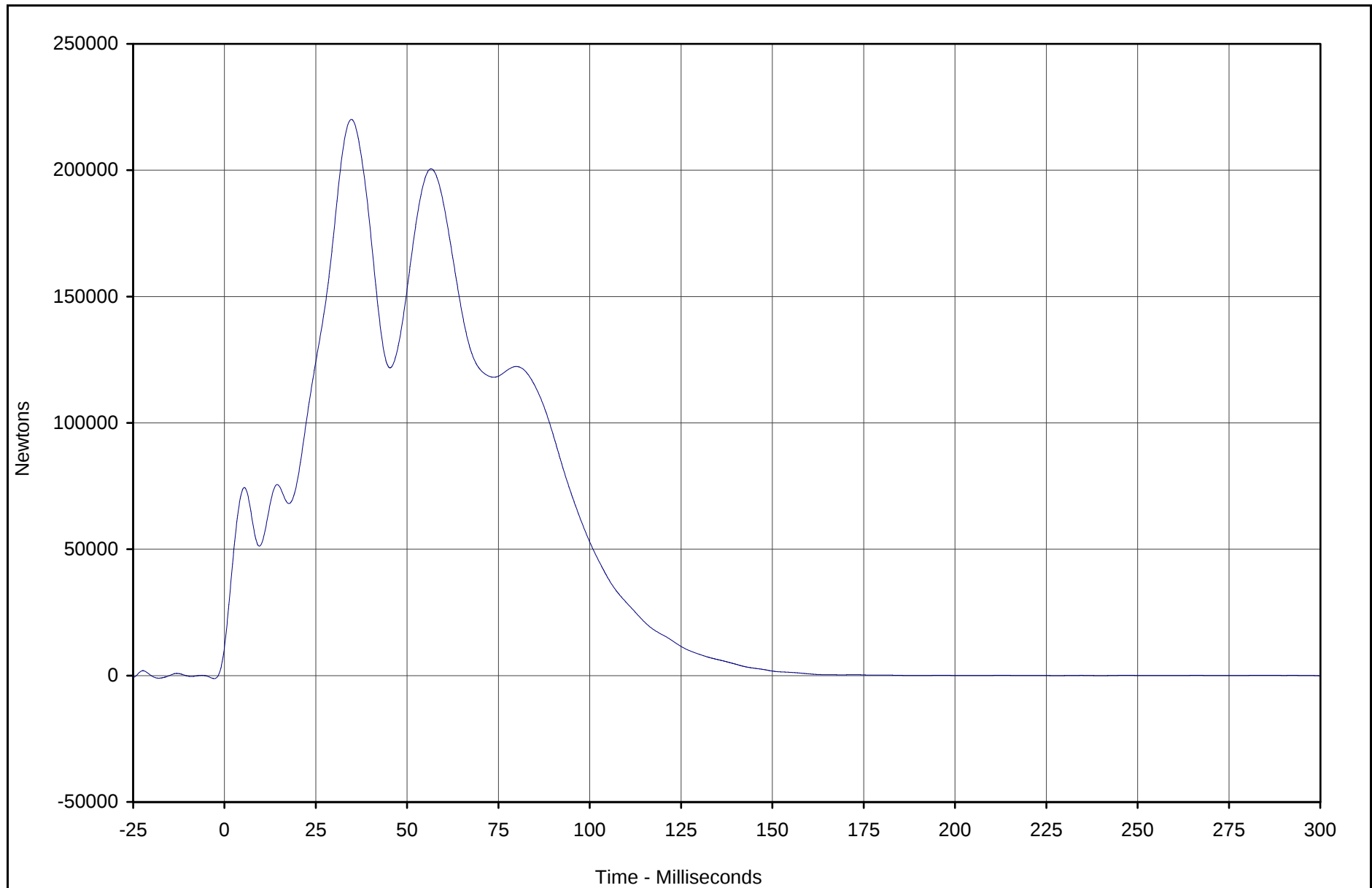


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 2	002	SUM	Newtons	220126.8	34.8	-114.6	299.9	60

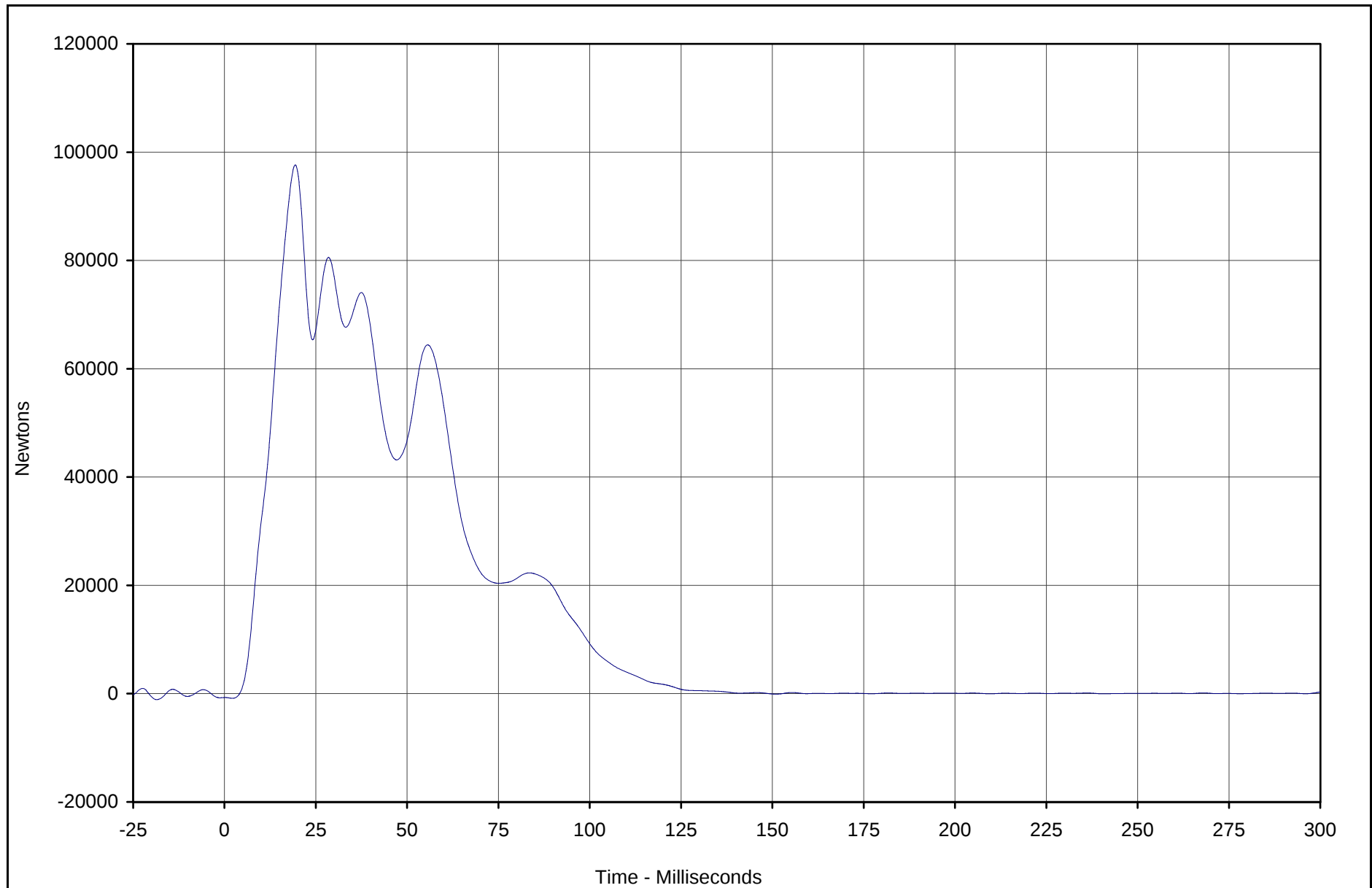


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 3	003	SUM	Newtons	97636.5	19.4	-855.2	2.2	60

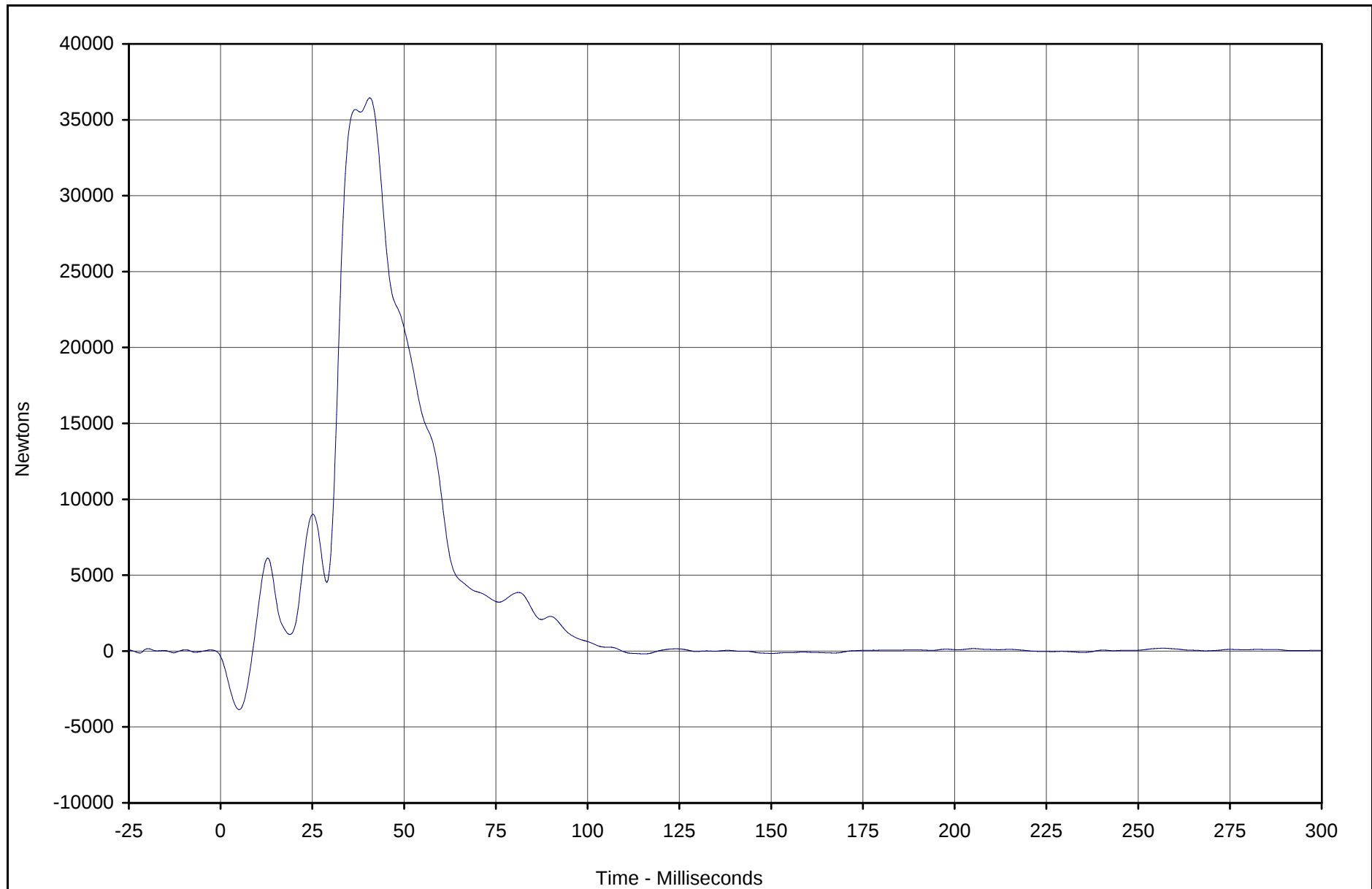


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURN0	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 4	004	SUM	Newtons	36448.1	40.6	-3860.9	5.1	60

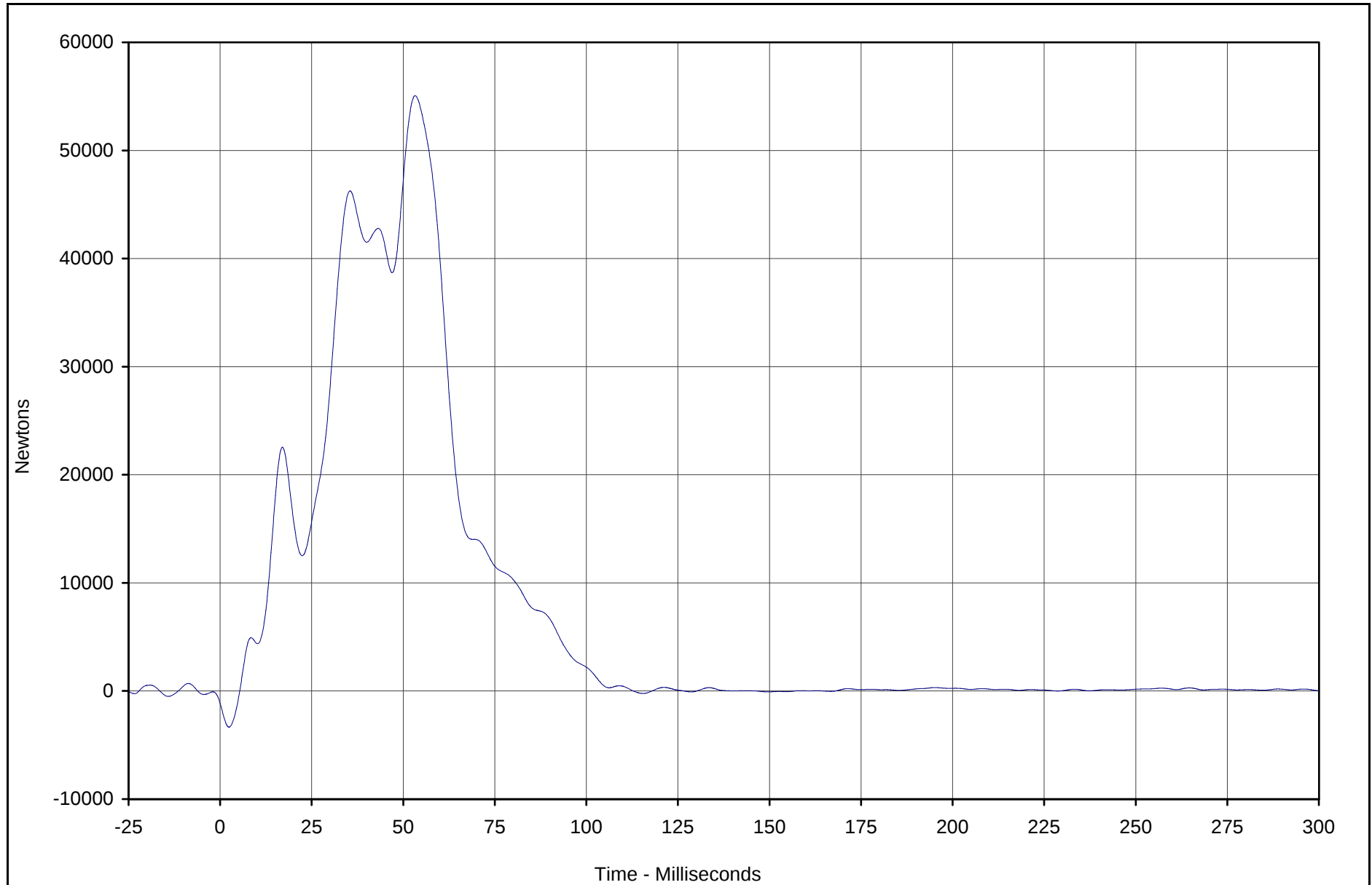


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 5	005	SUM	Newtons	55059.8	53.3	-3345.7	2.4	60

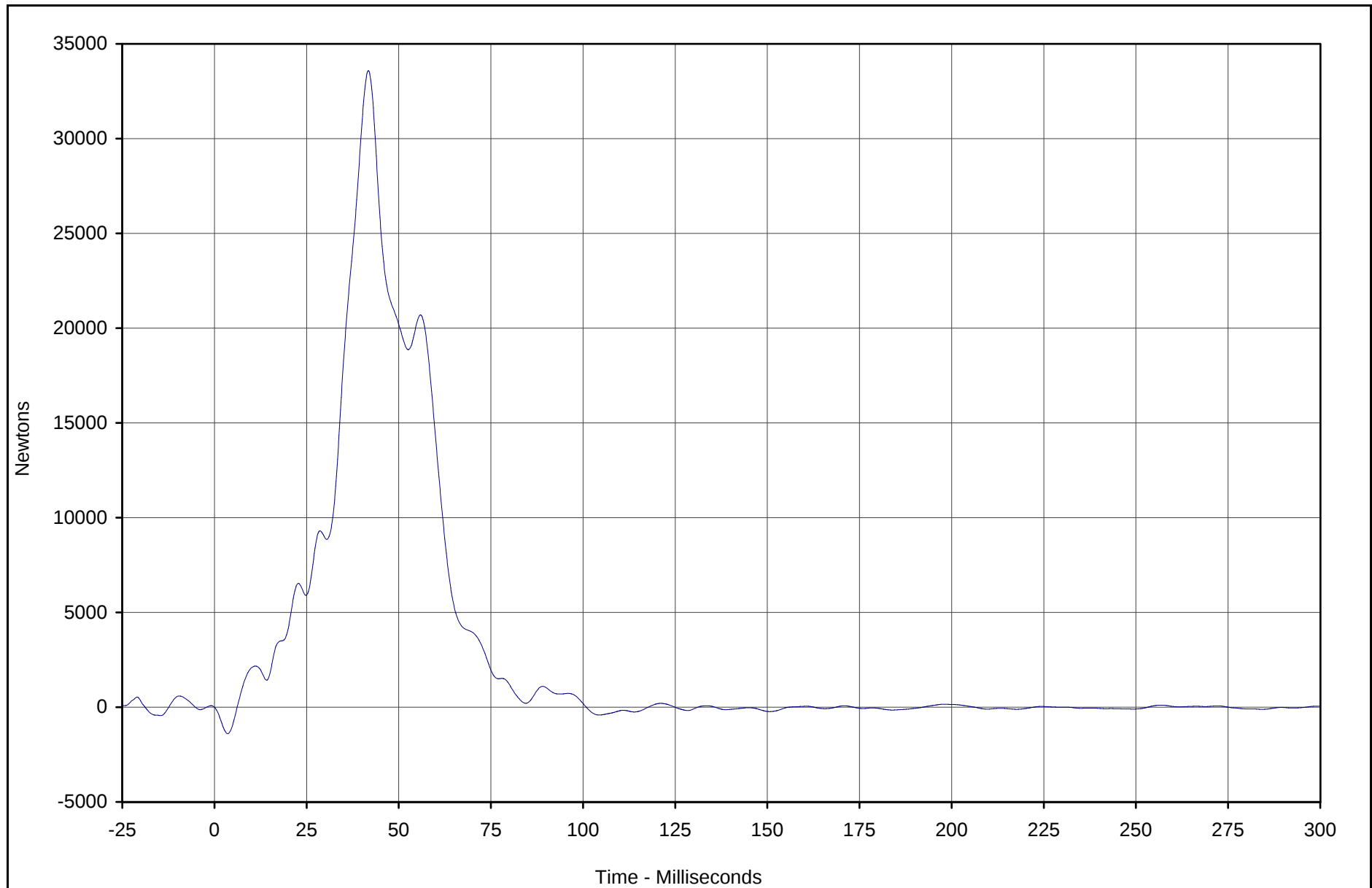


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 6	006	SUM	Newtons	33582.2	41.8	-1395.4	3.6	60

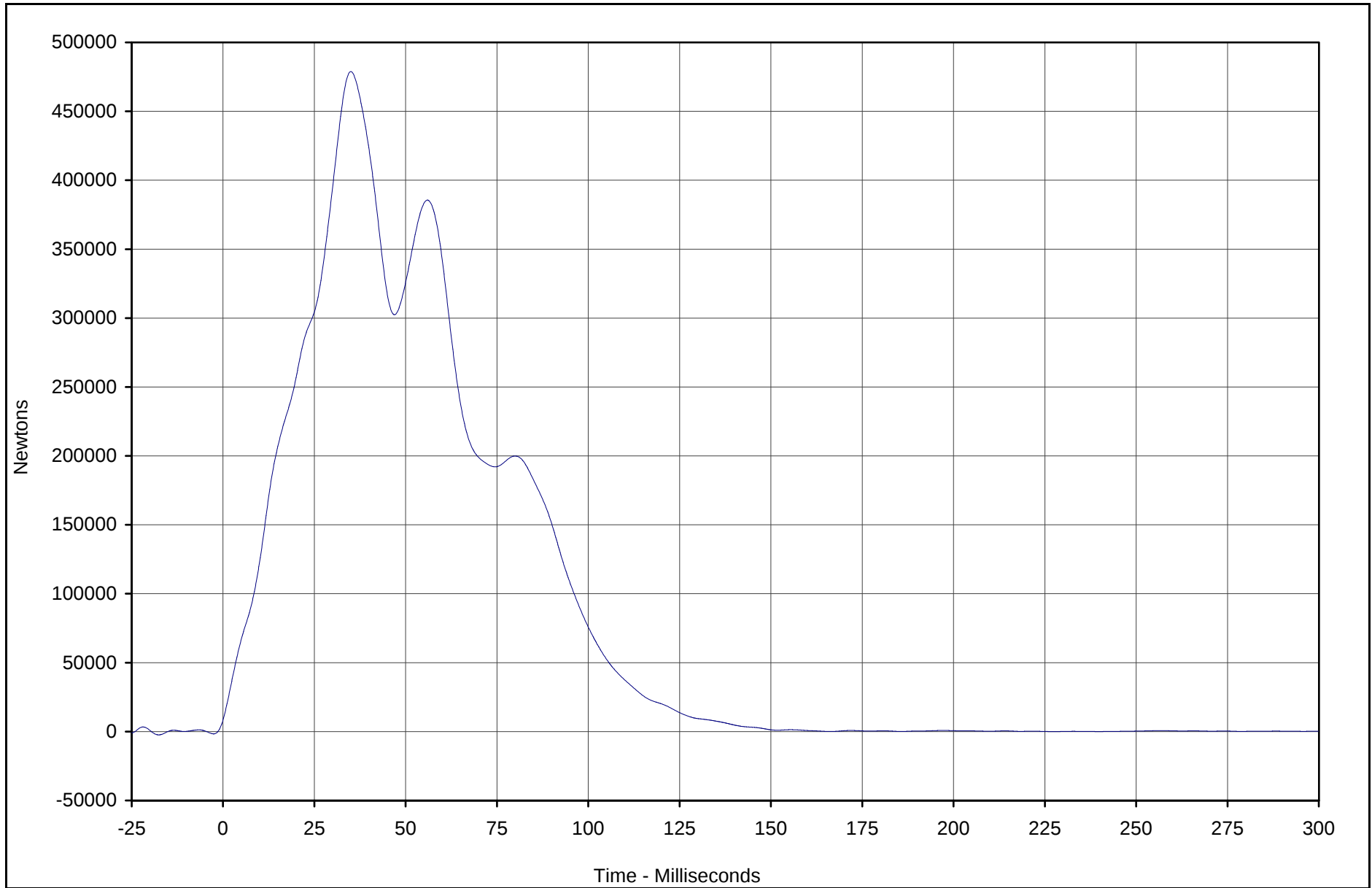


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Total Sum	007	SUM	Newtons	478878	35.0	-40.9	227.4	60

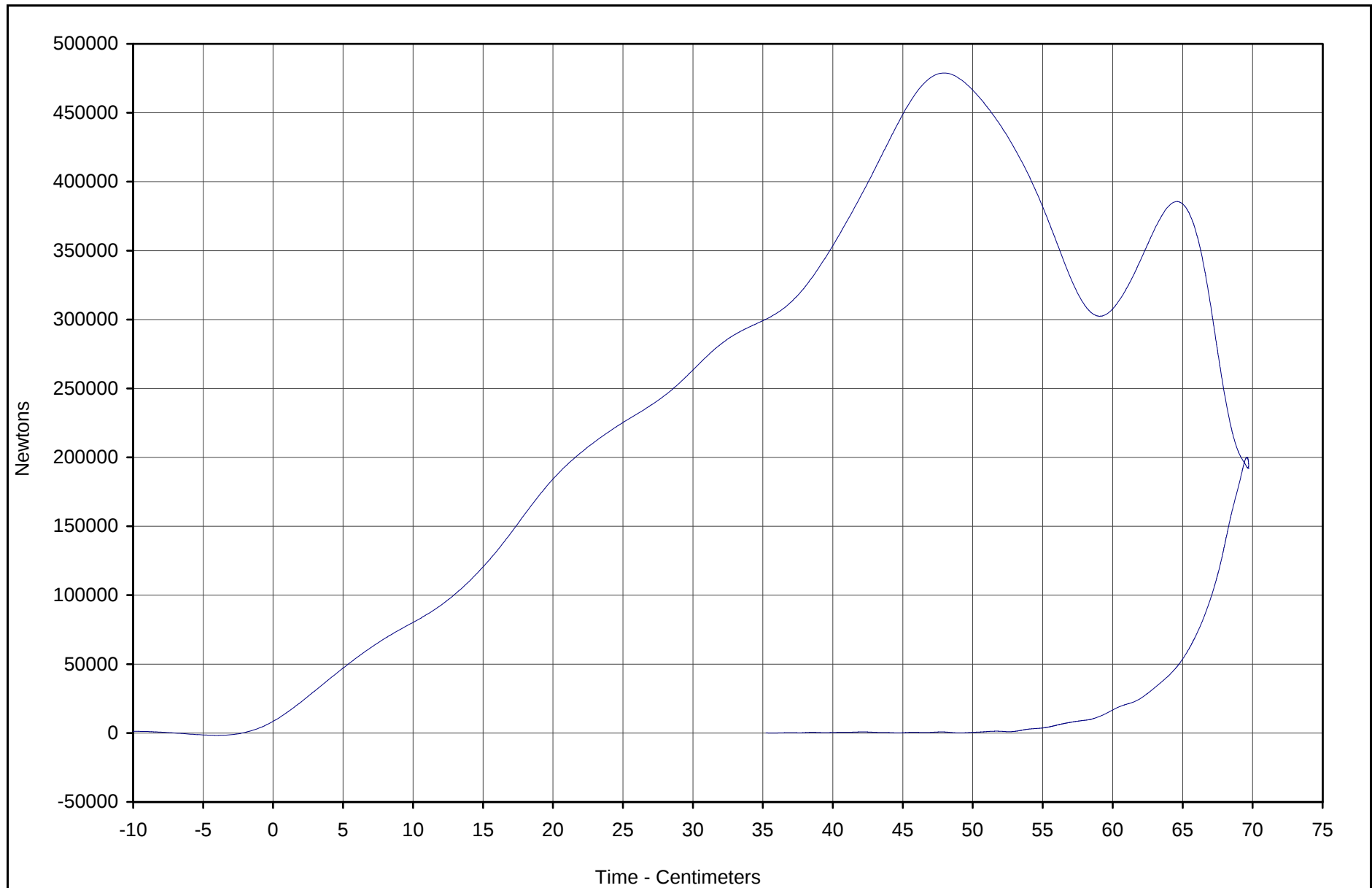


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	CM	Energy (Joules)	SAE Class
Barrier Force Total Sum vs. Displ.	001	XVY	Newtons	478878	48.0	174998	60



Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106

BARRIER LOAD CELL SUMMARY DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

NHTSA No.: M30106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 12/10/02

Location	Units	Max	Time	Min	Time
Barrier Force A1	Newtons	742.5	37.4	-684.4	18.8
Barrier Force A2	Newtons	1562.0	35.3	-1089.3	19.2
Barrier Force A3	Newtons	4814.7	23.6	-848.0	2.7
Barrier Force A4	Newtons	25591.5	33.8	-885.2	1.8
Barrier Force A5	Newtons	3022.0	7.1	-743.9	1.3
Barrier Force A6	Newtons	2590.5	35.5	-713.8	1.3
Barrier Force A7	Newtons	2314.5	35.4	-328.0	1.3
Barrier Force A8	Newtons	1967.3	55.3	-378.6	25.0
Barrier Force A9	Newtons	1089.1	29.4	-1277.9	34.0
Barrier Force B1	Newtons	989.0	23.0	-286.9	3.9
Barrier Force B2	Newtons	2106.6	24.2	-725.2	4.0
Barrier Force B3	Newtons	98440.8	31.6	-1701.0	3.9
Barrier Force B4	Newtons	38674.6	58.2	-468.3	0.0
Barrier Force B5	Newtons	120323.6	56.0	-76.7	299.9
Barrier Force B6	Newtons	40156.8	56.5	-456.7	0.0
Barrier Force B7	Newtons	95331.3	19.2	-1139.7	2.9
Barrier Force B8	Newtons	4591.6	29.0	-124.9	9.6
Barrier Force B9	Newtons	729.6	29.2	-844.8	34.5
Barrier Force C1	Newtons	648.9	40.4	-433.8	18.8
Barrier Force C2	Newtons	17778.6	41.7	-666.0	4.4
Barrier Force C3	Newtons	25360.7	36.6	-652.4	2.8
Barrier Force C4	Newtons	24248.3	54.0	-1072.0	1.8
Barrier Force C5	Newtons	21395.0	53.4	-420.8	0.8
Barrier Force C6	Newtons	9932.5	34.8	-623.0	1.4
Barrier Force C7	Newtons	18593.0	36.7	-349.5	1.9
Barrier Force C8	Newtons	20981.2	43.1	-212.4	13.5
Barrier Force C9	Newtons	788.7	40.8	-1051.3	35.1
Barrier Force D1	Newtons	523.8	41.6	-595.8	25.9
Barrier Force D2	Newtons	930.8	34.5	-1069.8	5.7
Barrier Force D3	Newtons	1436.5	43.9	-1091.9	29.4
Barrier Force D4	Newtons	3634.4	44.0	-827.9	3.7
Barrier Force D5	Newtons	2956.4	35.7	-1181.7	64.3
Barrier Force D6	Newtons	4696.4	44.0	-880.4	64.5
Barrier Force D7	Newtons	1920.6	43.7	-672.7	13.1
Barrier Force D8	Newtons	656.5	49.8	-726.1	14.0
Barrier Force D9	Newtons	564.6	29.6	-847.0	33.9
Barrier Force Sum Group 1	Newtons	103441.8	31.9	-3857.6	3.8
Barrier Force Sum Group 2	Newtons	220126.8	34.8	-114.6	299.9
Barrier Force Sum Group 3	Newtons	97636.5	19.4	-855.2	2.2
Barrier Force Sum Group 4	Newtons	36448.1	40.6	-3860.9	5.1
Barrier Force Sum Group 5	Newtons	55059.8	53.3	-3345.7	2.4
Barrier Force Sum Group 6	Newtons	33582.2	41.8	-1395.4	3.6
Barrier Force Total Sum	Newtons	478878.3	35.0	-40.9	227.4

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 34
12/10/02
2003 Chevrolet Cavalier 2 Door Coupe

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

2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 34
12/10/02
2003 Chevrolet Cavalier 2 Door Coupe

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
26	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
27	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
28	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
29	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
30	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
31	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
32	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
33	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
34	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
35	FOOT LEFT, AFT	X	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
36	FOOT LEFT, AFT	Z	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
37	FOOT LEFT, FORE	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
38	FOOT RIGHT, AFT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
39	FOOT RIGHT, AFT	Z	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
40	FOOT RIGHT, FORE	Z	KEIC004Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
41	LAP BELT FORCE	X	KELC003	Load cell, Seat belt	Lebow	3371	N
42	SHOULDER BELT FORCE	X	KELC004	Load cell, Seat belt	Lebow	3371	N
43	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	CM
44	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 35
12/10/02
2003 Chevrolet Cavalier 2 Door Coupe

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

2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 35
12/10/02
2003 Chevrolet Cavalier 2 Door Coupe

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPOT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
70	UP. TIBIA LEFT MOM.	Y	GPOT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
71	UP. TIBIA RIGHT MOM.	X	GPOT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
72	UP. TIBIA RIGHT MOM.	Y	GPOT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
73	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
74	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
75	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
76	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
77	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
78	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
79	FOOT LEFT, AFT	X	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT, AFT	Z	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT, FORE	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT, AFT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT, AFT	Z	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT, FORE	Z	KEIC001Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	X	KELC001	Load cell, Seat belt	Lebow	3371	N
86	SHOULDER BELT FORCE	X	KELC002	Load cell, Seat belt	Lebow	3371	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

**2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers
12/10/02
2003 Chevrolet Cavalier 2 Door Coupe**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	Left Rear	X	KEVA002	Accel., Pre-Amp	I.C.S/Karco	3031-500	G
90	Right Rear	X	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
91	Engine Top	X	KEVA009	Accel., Vehicle block	I.C. Sensor	3031-500	G
92	Engine Bottom	X	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-500	G
93	Left Brake Caliper	X	KEVA008	Accel., Vehicle block	I.C. Sensor	3031-500	G
94	Right Brake Caliper	X	KEVA012	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	Instrument Panel	X	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	G
96	Left Rear	Z	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G
97	Right Rear	Z	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-200	G

**2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
12/10/02
2003 Chevrolet Cavalier 2 Door Coupe**

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

**2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
12/10/02
2003 Chevrolet Cavalier 2 Door Coupe**

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

APPENDIX E

DUMMY CALIBRATION DATA



Calibration Data Sheet

Hybrid III 50th Percentile Male

Knee Impact Test

ATD Serial No.: 034

Location: Left Knee

Test I.D.: KK07A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.13	Pass
Peak Probe Force	N	4715 to 5782	5038	Pass
Overall Test Results				Pass

ATD Serial No.: 034

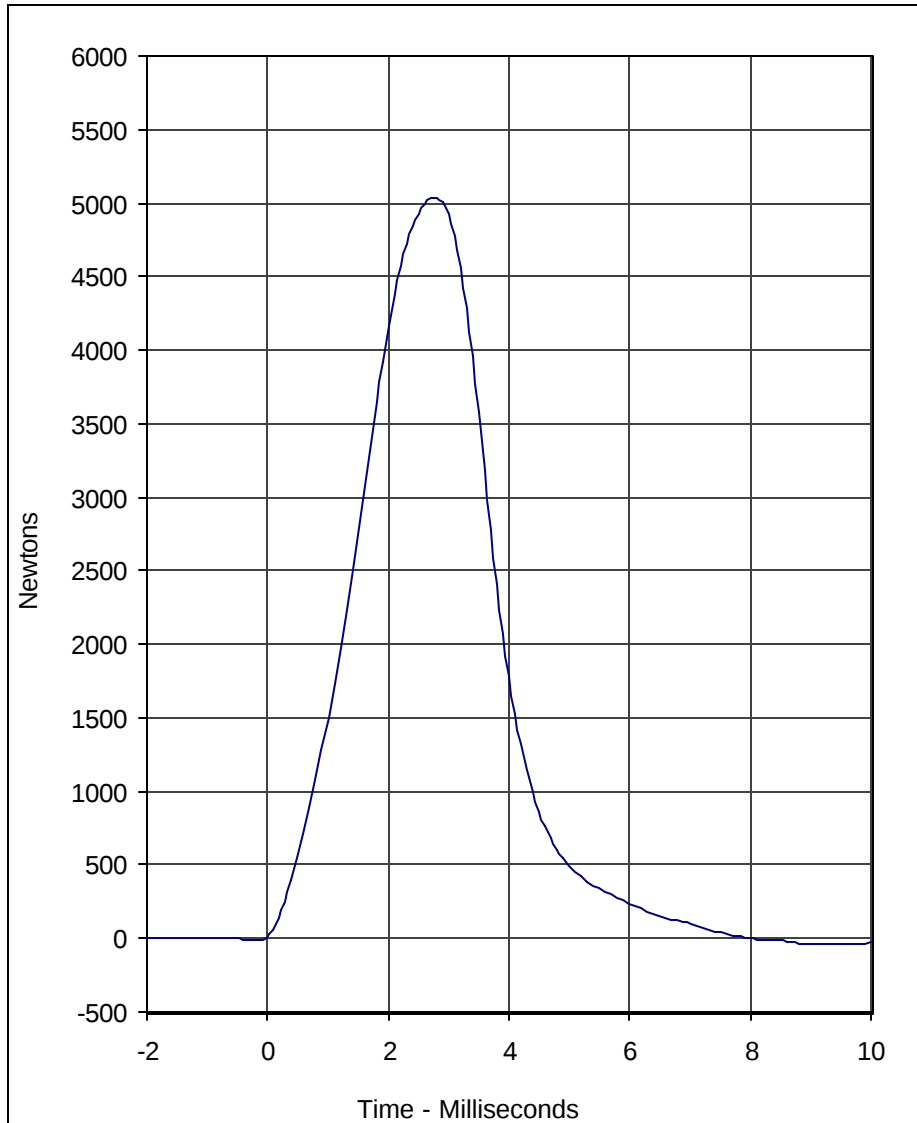
Location: Right Knee

Test I.D.: KK07B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.12	Pass
Peak Probe Force	N	4715 to 5782	5218	Pass
Overall Test Results				Pass

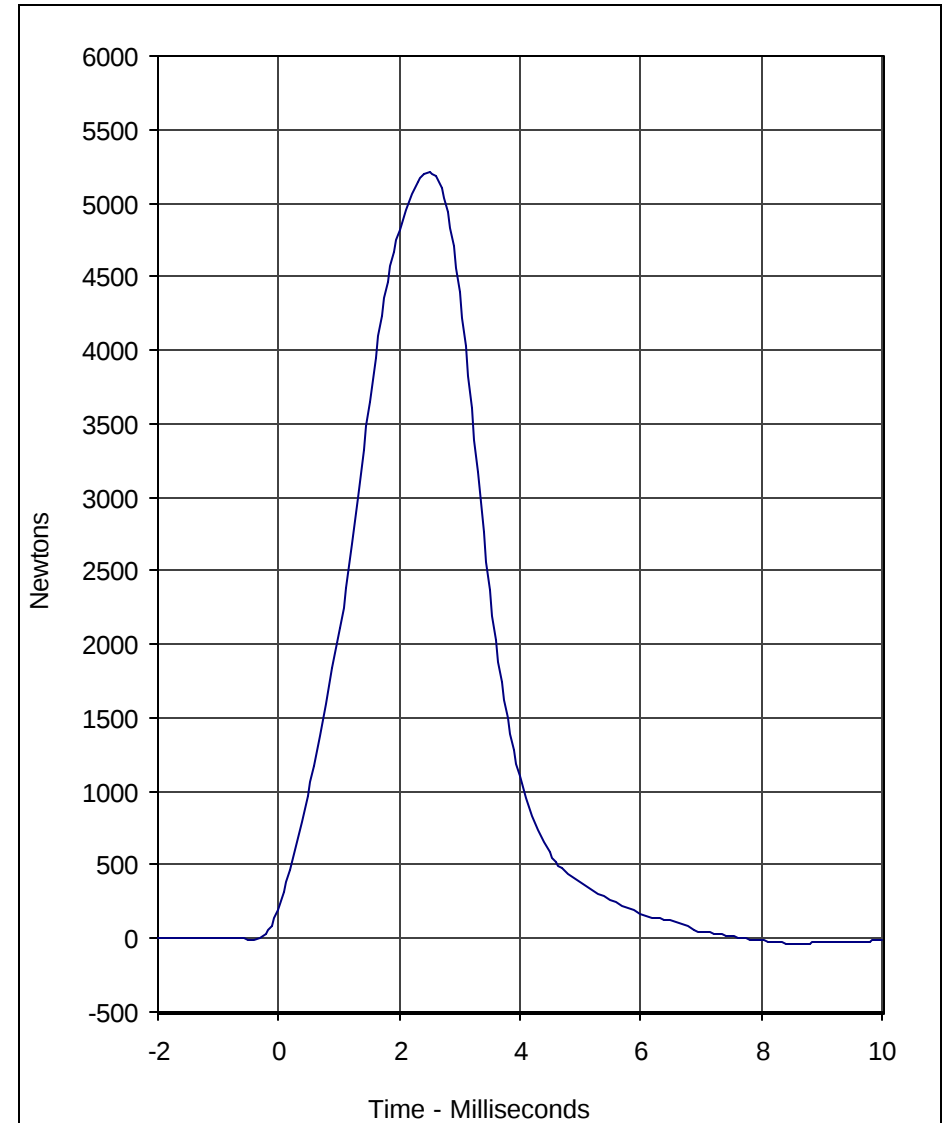
Laboratory Technician

December 2, 2002
Test Date



Curve Description		Location	Test I.D.	CURNO	Type
Probe Force		Left Knee	KK07A	001	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	5038.0	2.8	-37.9	9.1	600

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 Test Date: 12/2/02



Curve Description		Location	Test I.D.	CURNO	Type
Probe Force		Right Knee	KK07B	002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	5218.0	2.5	-37.7	8.6	600

A.T.D. Serial No.: 034





Calibration Data Sheet

Hybrid III 50th Percentile Male

Head Drop Test

ATD Serial No.: 034

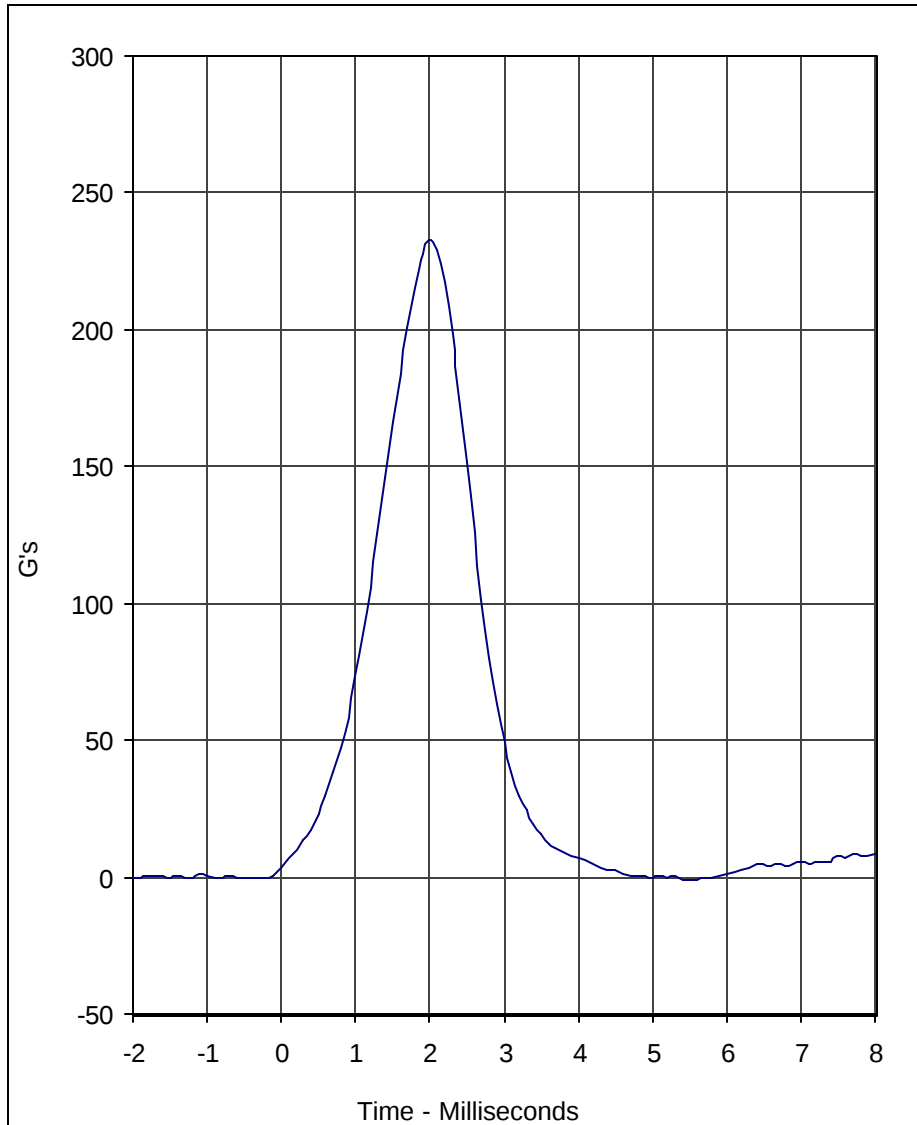
Test I.D.: HD10C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	232.6	Pass
Peak Lateral Acceleration	G's	≤15.0	9.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

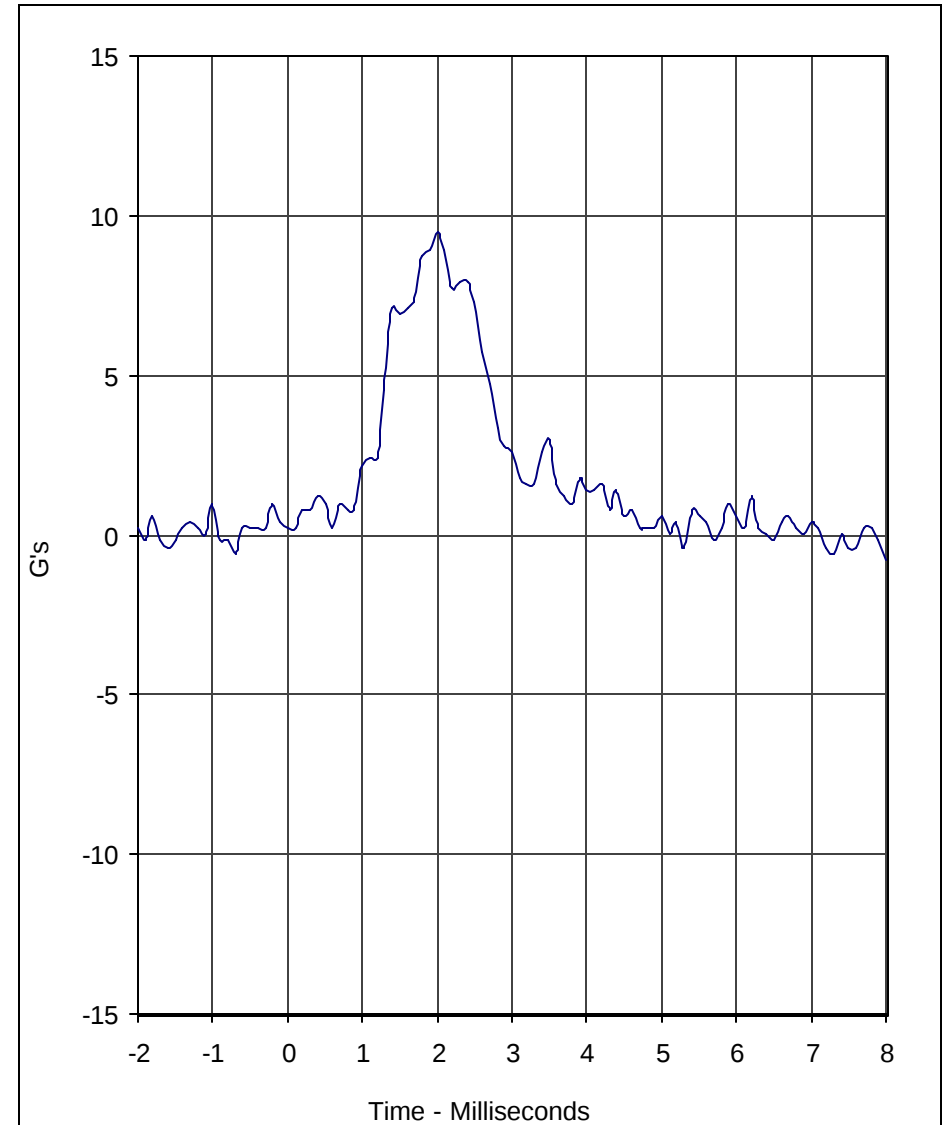
December 3, 2002

Test Date



Curve Description				CURNO	Type
Head Resultant				001	RES
Units	Max	Time	Min	Time	SAE Class
G's	232.6	2.0	-0.8	5.4	1000

Test Program: Hybrid III 50th Percentile Male Head Drop Test
 Test Date: 12/3/02



Curve Description				CURNO	Type
Head Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
G's	9.5	2.0	-0.6	-0.7	1000

A.T.D. Serial No.: 034
 Test I.D.: HD10C





Calibration Data Sheet

Hybrid III 50th Percentile Male

Thorax Impact Test

ATD Serial No.: 034

Test I.D.: CH06E

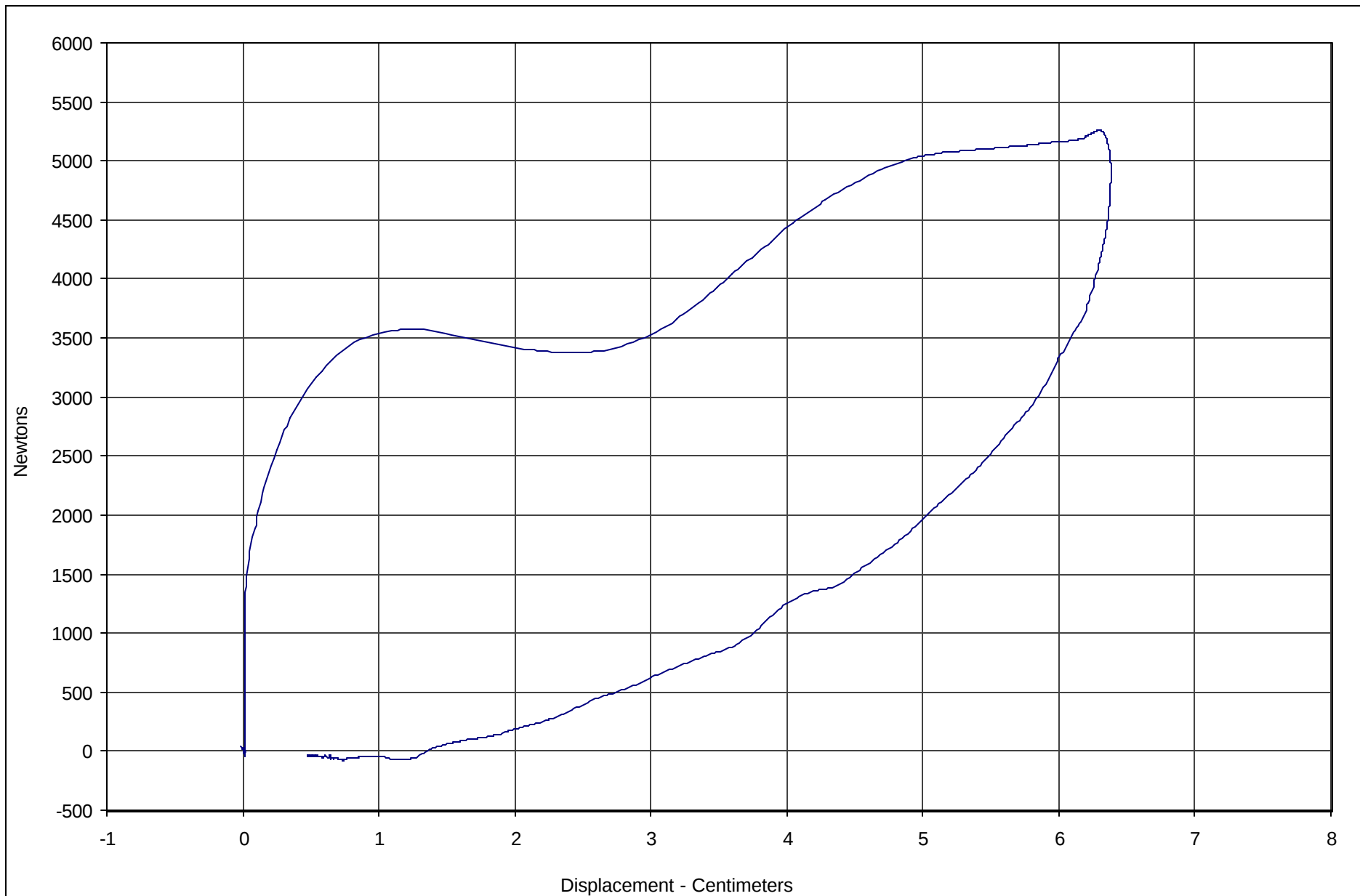
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.77	Pass
Peak Probe Force	Newtons	5159 to 5893	5262	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.38	Pass
Internal Hysteresis	%	69 to 85	73.2	Pass
Overall Test Results				Pass

E-5

TR-P23001-01-NC

Laboratory Technician

December 4, 2002
Test Date



Curve Description	CURNO	Type	Hysteresis	Peak Chest Displ.	Peak Probe Force	SAE Class
Probe Force vs. Chest Displacement	001	FIL	73.2	6.38	5262.5	180



Test Program: Hybrid III 50th Percentile Male Thorax Impact

A.T.D. Serial No.: 034

Test Date: 12/4/02

Test I.D.: CH06E



Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Flexion Test

ATD Serial No.: 034

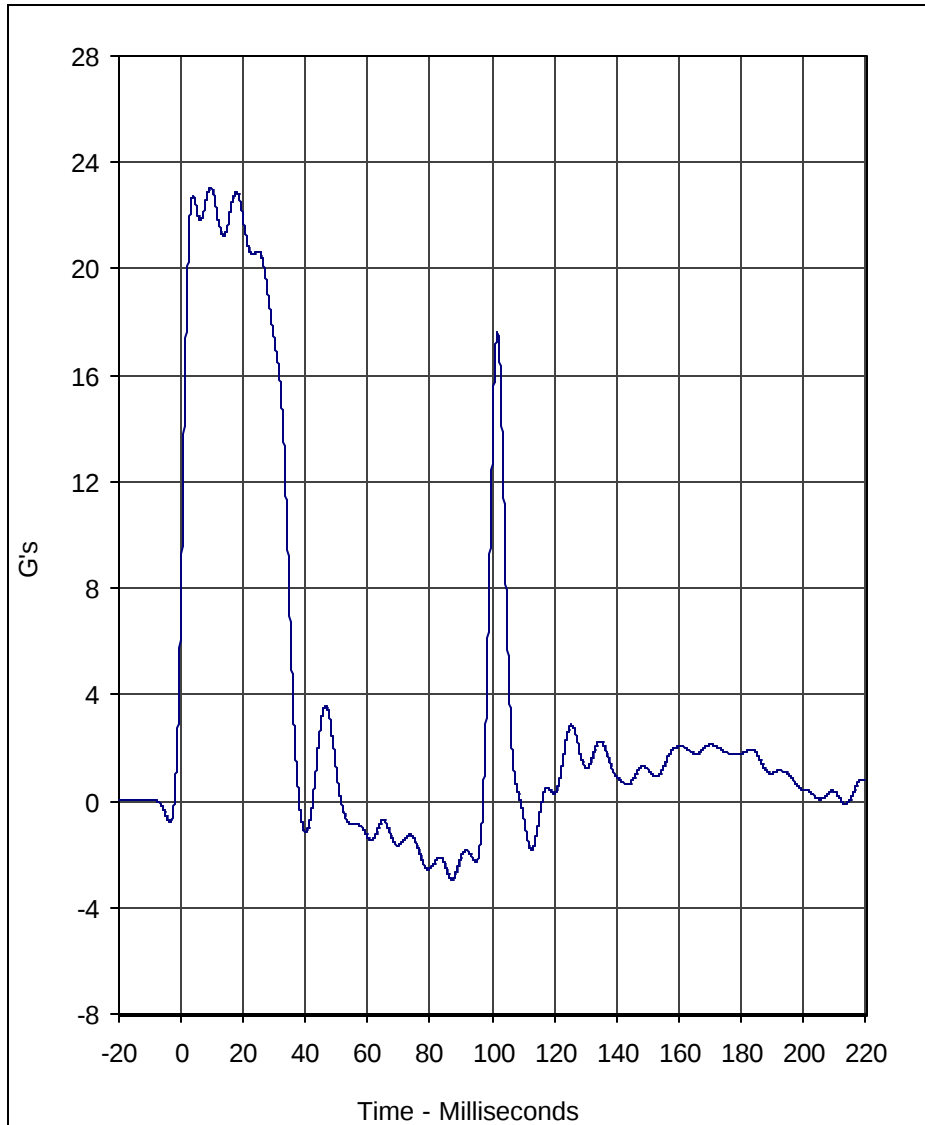
Test I.D.: NF07B

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.07	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.0	Pass
	20 Msec.	G's	17.6 to 22.6	21.8	Pass
	30 Msec.	G's	12.5 to 18.5	17.3	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.6	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	35.7	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	64.7	Pass
	Time	Msec.	57.0 to 64.0	60.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	117.5	Pass
Moment About Occipital Condyle	Maximum	Nm	84.1 to 108.5	84.9	Pass
	Time	Msec.	47.0 to 58.0	47.3	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	102.8	Pass
Overall Test Results					Pass

Laboratory Technician

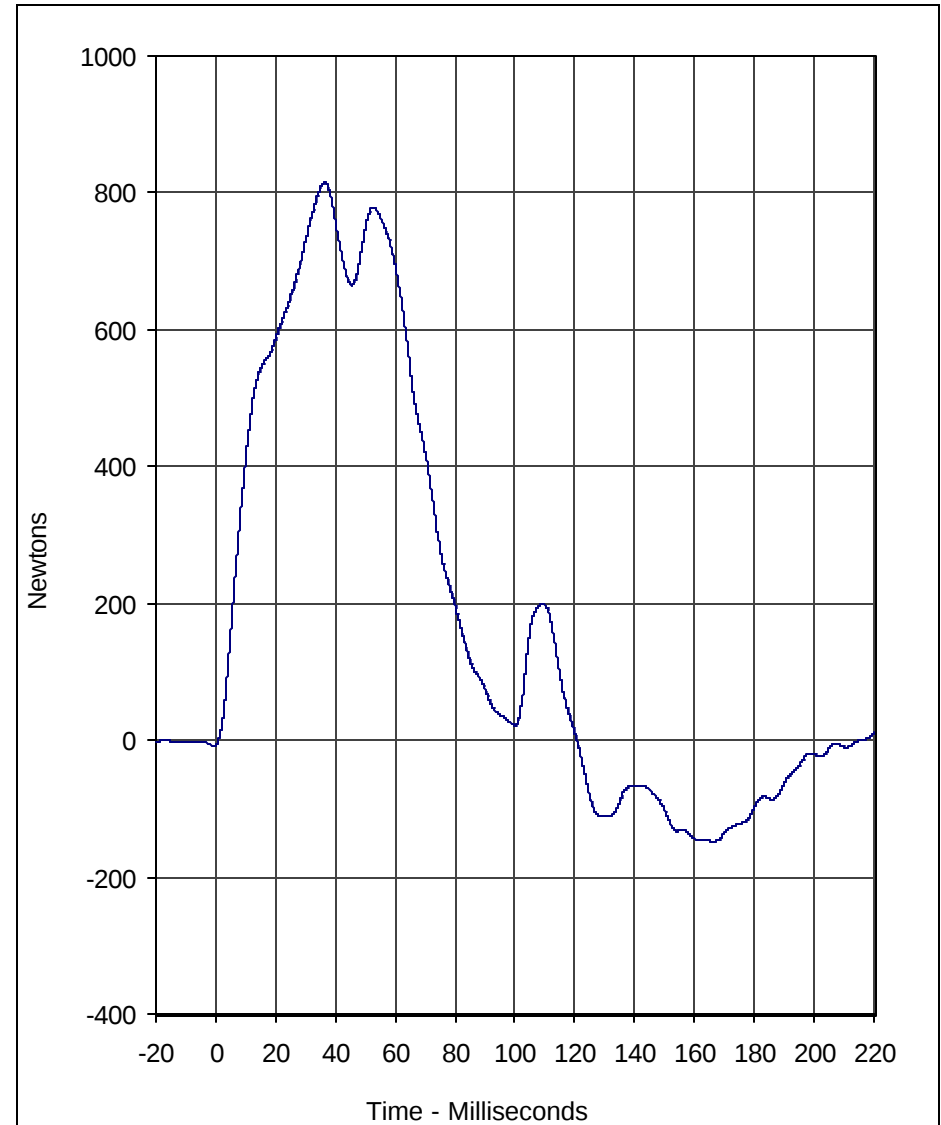
December 3, 2002

Test Date



Curve Description				CURNO	Type
Pendulum Deceleration				001	FIL
Units	Max	Time	Min	Time	SAE Class
G's	23.1	9.4	-2.9	87.1	60

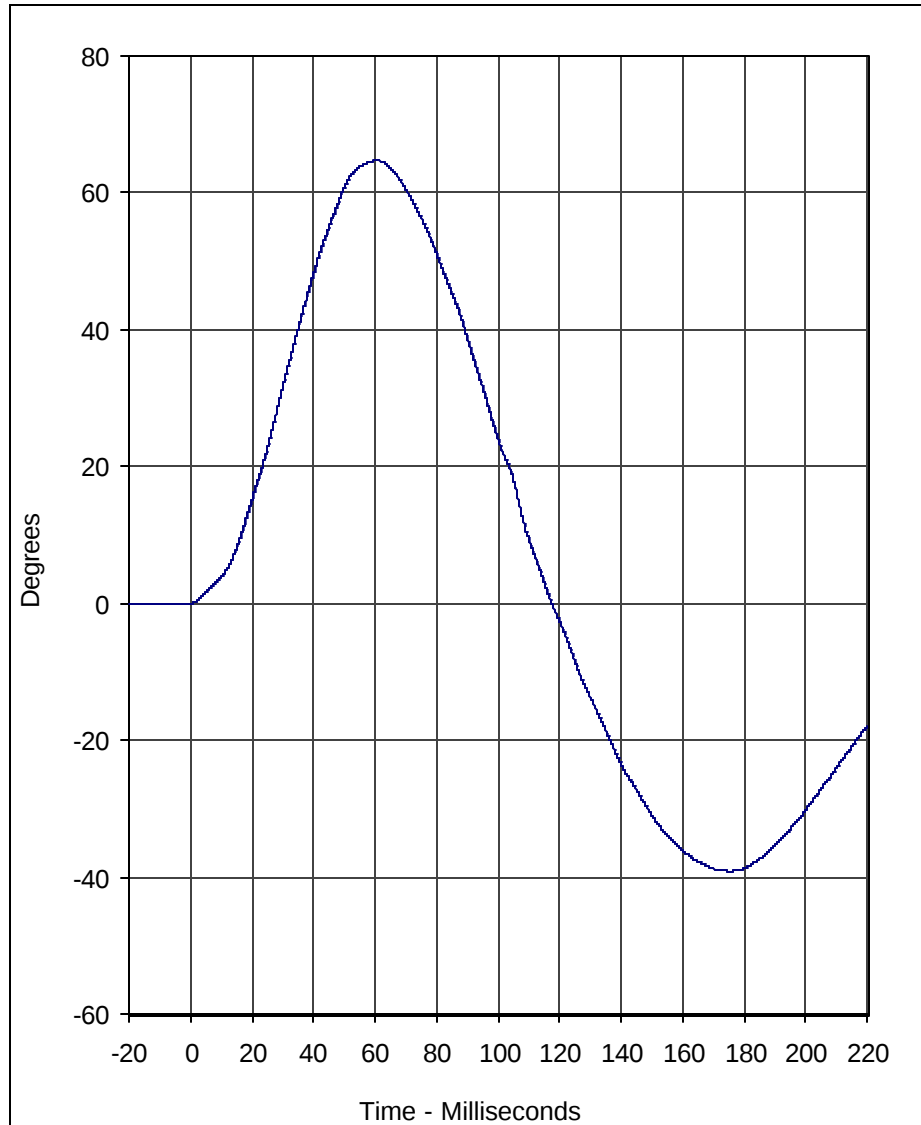
Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 12/3/02



Curve Description				CURNO	Type
Neck Force X				002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	815.1	36.4	-148.4	166.4	60

A.T.D. Serial No.: 034
 Test I.D.: NF07B

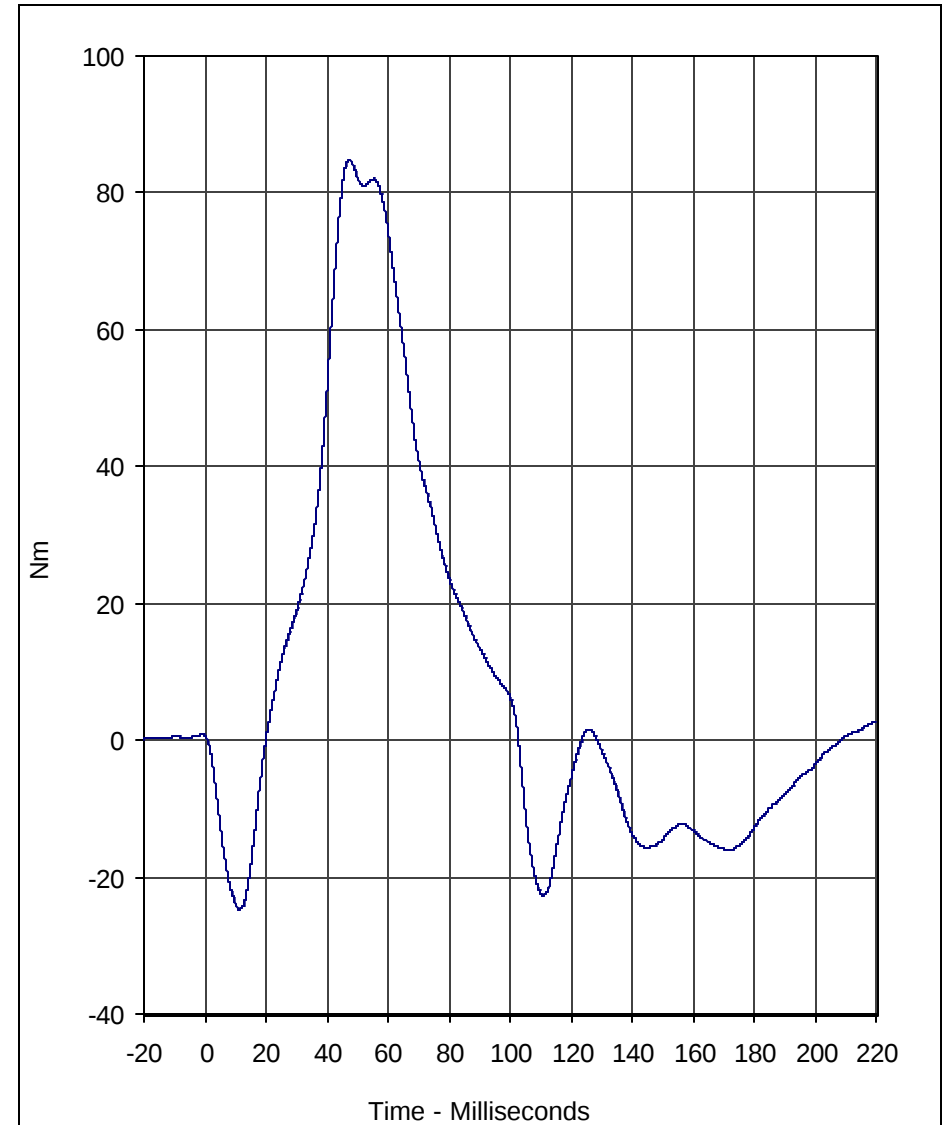




Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	64.7	60.7	-39.1	175.6	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 12/3/02



Curve Description				CURNO	Type
Moment About Occipital Condyle				004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	84.9	47.3	-24.8	11.4	60

A.T.D. Serial No.: 034
 Test I.D.: NF07B





Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Extension Test

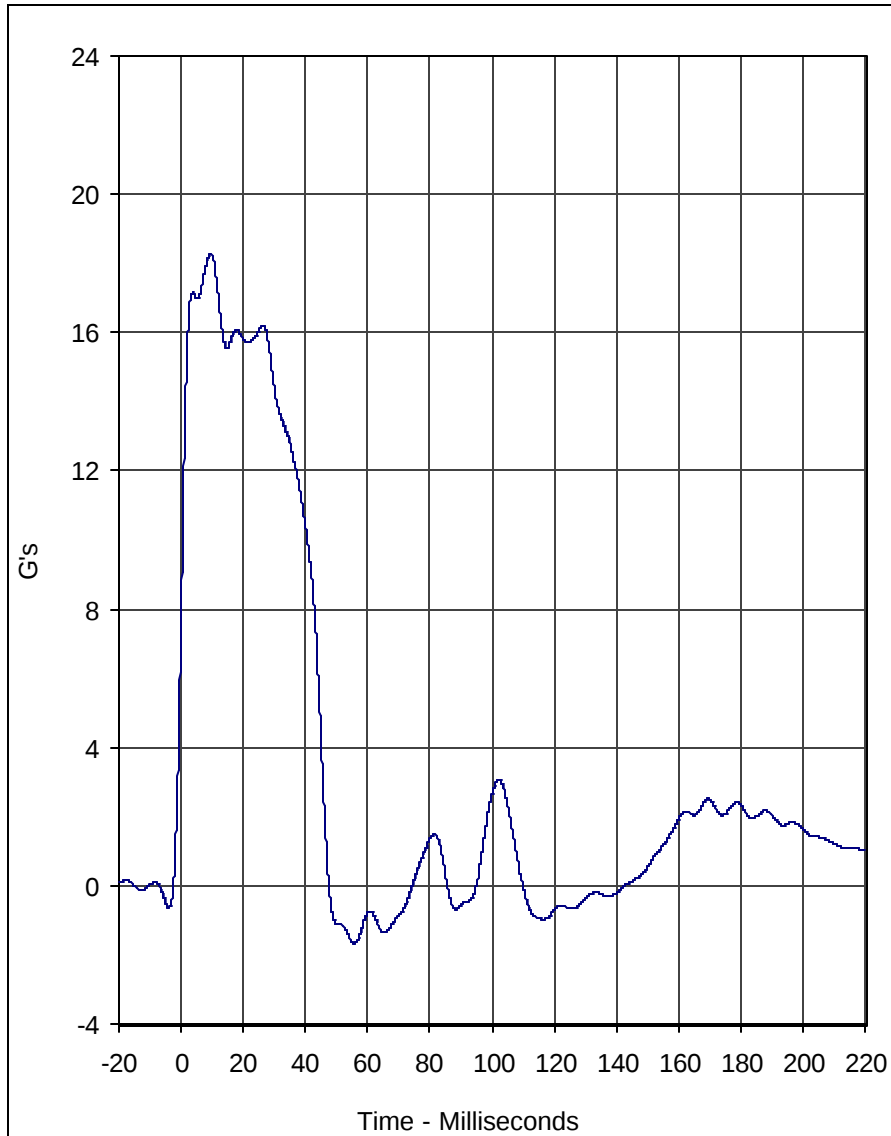
ATD Serial No.: 034

Test I.D.: NE07B

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	18.2	Pass
	20 Msec.	G's	14.0 to 19.0	15.8	Pass
	30 Msec.	G's	11.0 to 16.0	14.4	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	14.4	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	44.7	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	85.6	Pass
	Time	Msec.	72.0 to 82.0	80.6	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	156.5	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to- 79.9	-60.7	Pass
	Time	Msec.	65.0 to 79.0	65.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	135.9	Pass
Overall Test Results					Pass

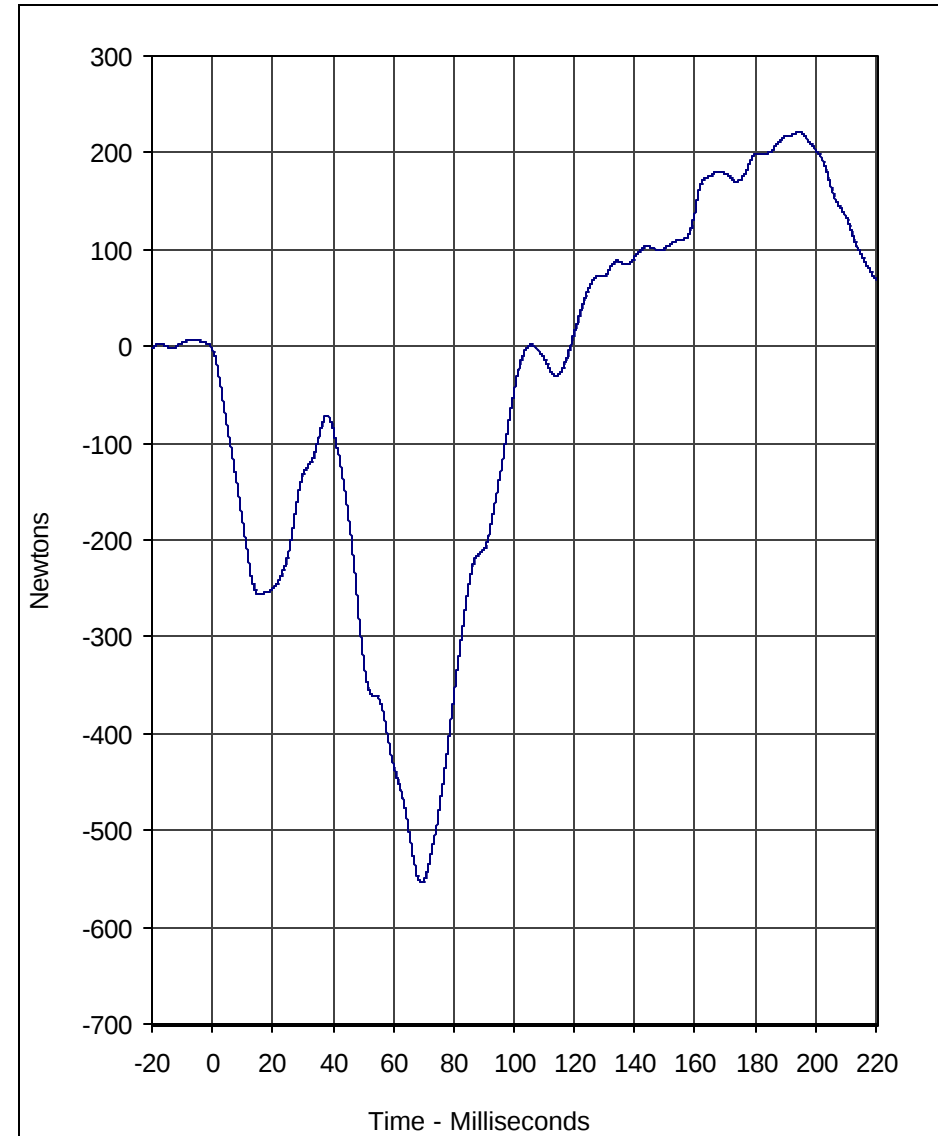
Laboratory Technician

December 3, 2002
Test Date



Curve Description				CURNO	Type
Pendulum Deceleration				001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	18.3	9.5	-1.7	55.7	60



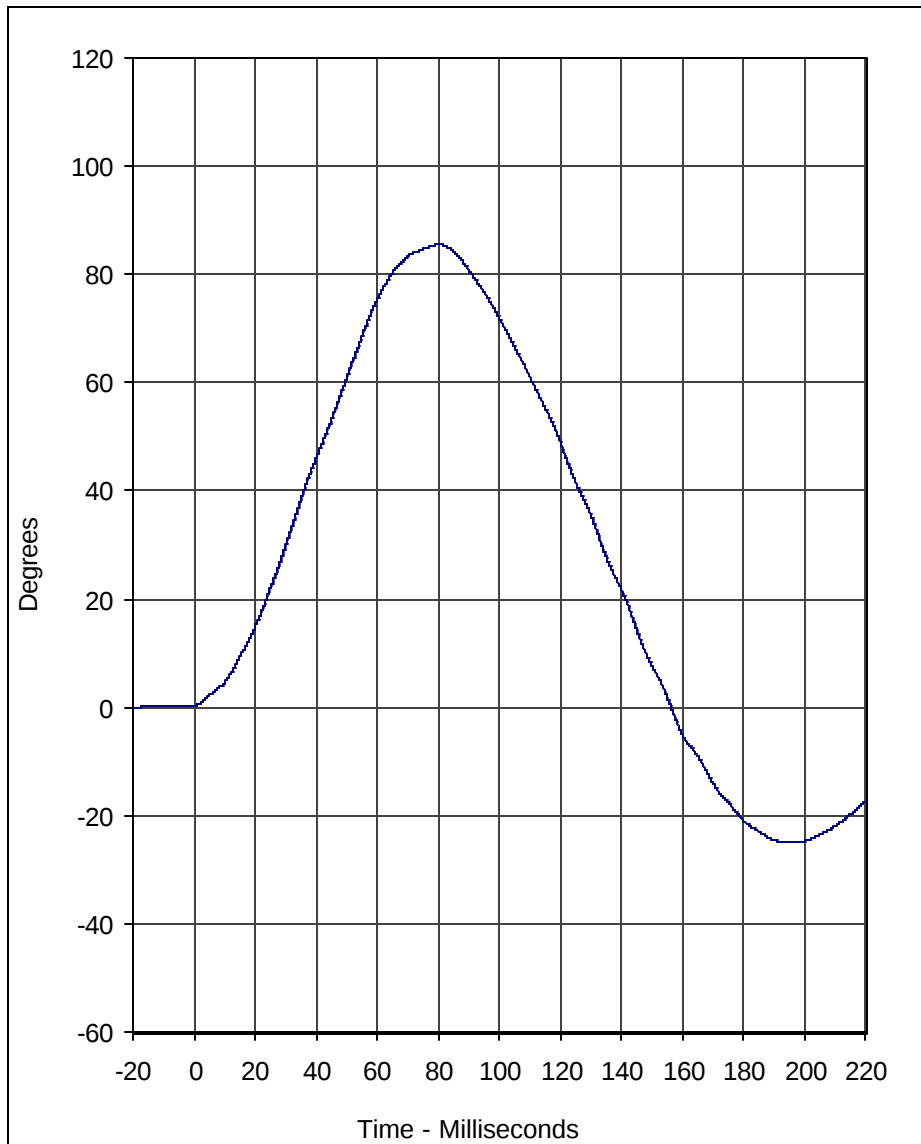
Curve Description				CURNO	Type
Neck Force X				002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	221.8	194.9	-554.2	69.4	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 12/3/02

A.T.D. Serial No.: 034
 Test I.D.: NE07B

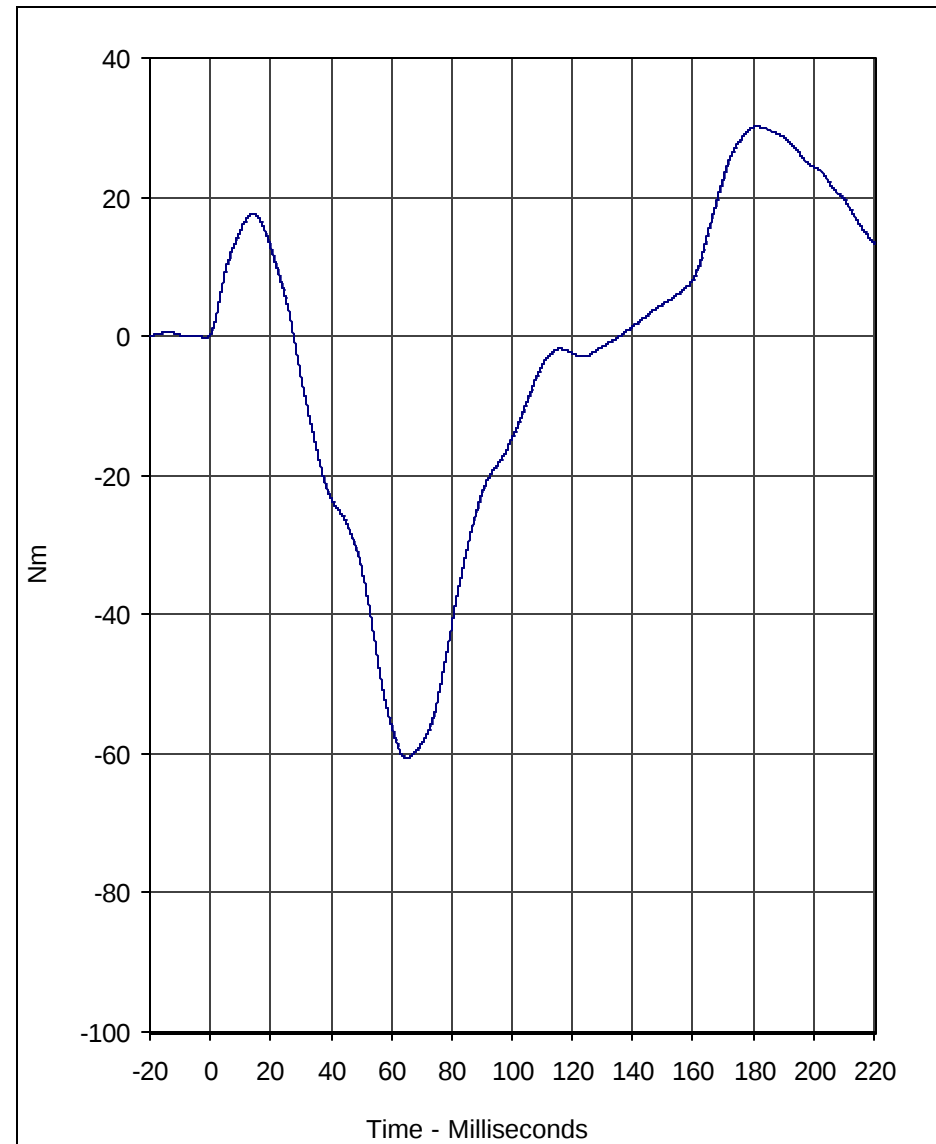




Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	85.6	80.6	-25.0	196.5	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 12/3/02



Curve Description				CURNO	Type
Moment About Occipital Condyle				004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	30.1	181.2	-60.7	65.1	60

A.T.D. Serial No.: 034
 Test I.D.: NE07B





Calibration Data Sheet Hybrid III 50th Percentile Male External Measurements

ATD Serial No.: 034

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	885	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	150	Pass
G - Elbow back to wrist pivot	mm	290 to 305	295	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	340	Pass
J - Elbow rest height	mm	190 to 211	195	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	495	Pass
N - Buttock popliteal length	mm	452 to 477	475	Pass
O - Chest depth	mm	213 to 229	220	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	430	Pass
W - Foot breadth	mm	91 to 107	100	Pass
Y - Chest circumference	mm	970 to 1001	990	Pass
Z - Waist circumference	mm	836 to 866	850	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

Laboratory Technician

December 5, 2002

Test Date



Calibration Data Sheet

Hybrid III 50th Percentile Male

Knee Impact Test

ATD Serial No.: 035

Location: Left Knee

Test I.D.: KK07C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	N	4715 to 5782	5220	Pass
Overall Test Results				Pass

ATD Serial No.: 035

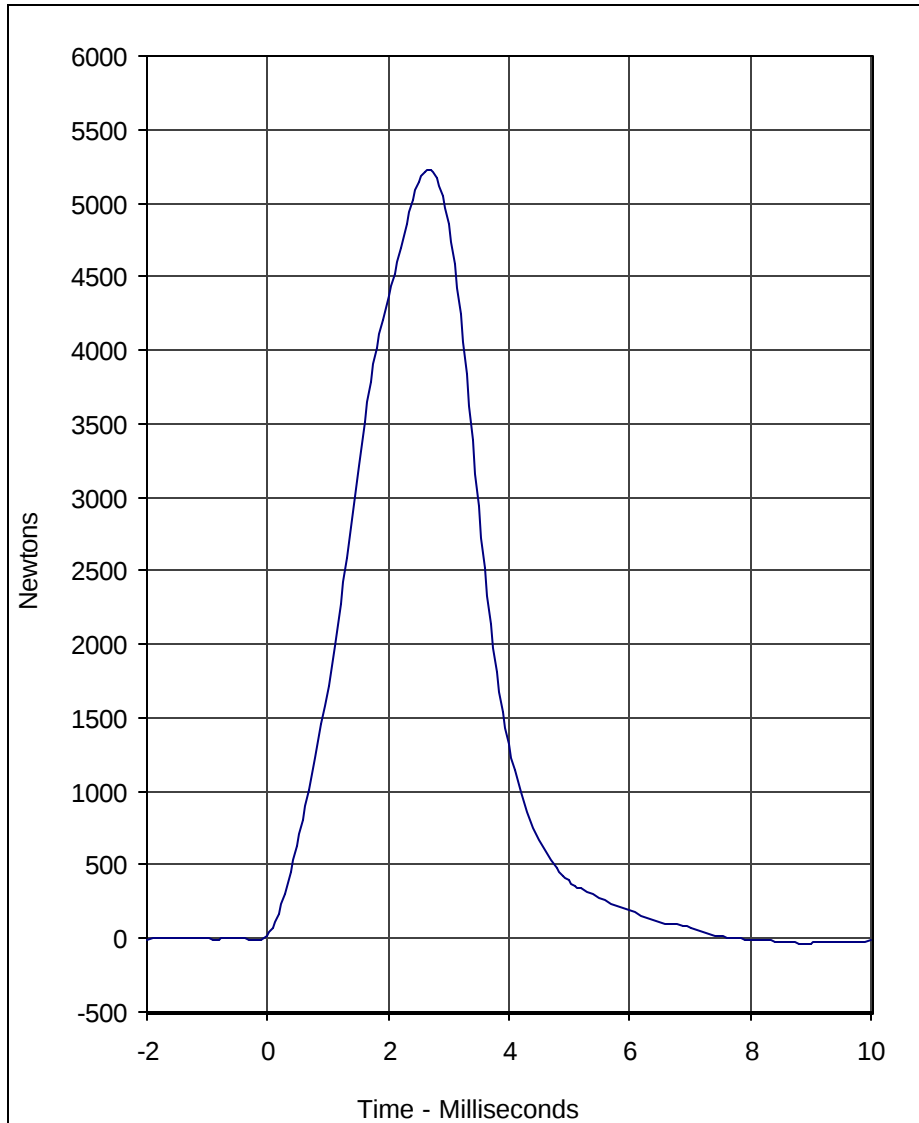
Location: Right Knee

Test I.D.: KK07D

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	2.11	Pass
Peak Probe Force	N	4715 to 5782	5343	Pass
Overall Test Results				Pass

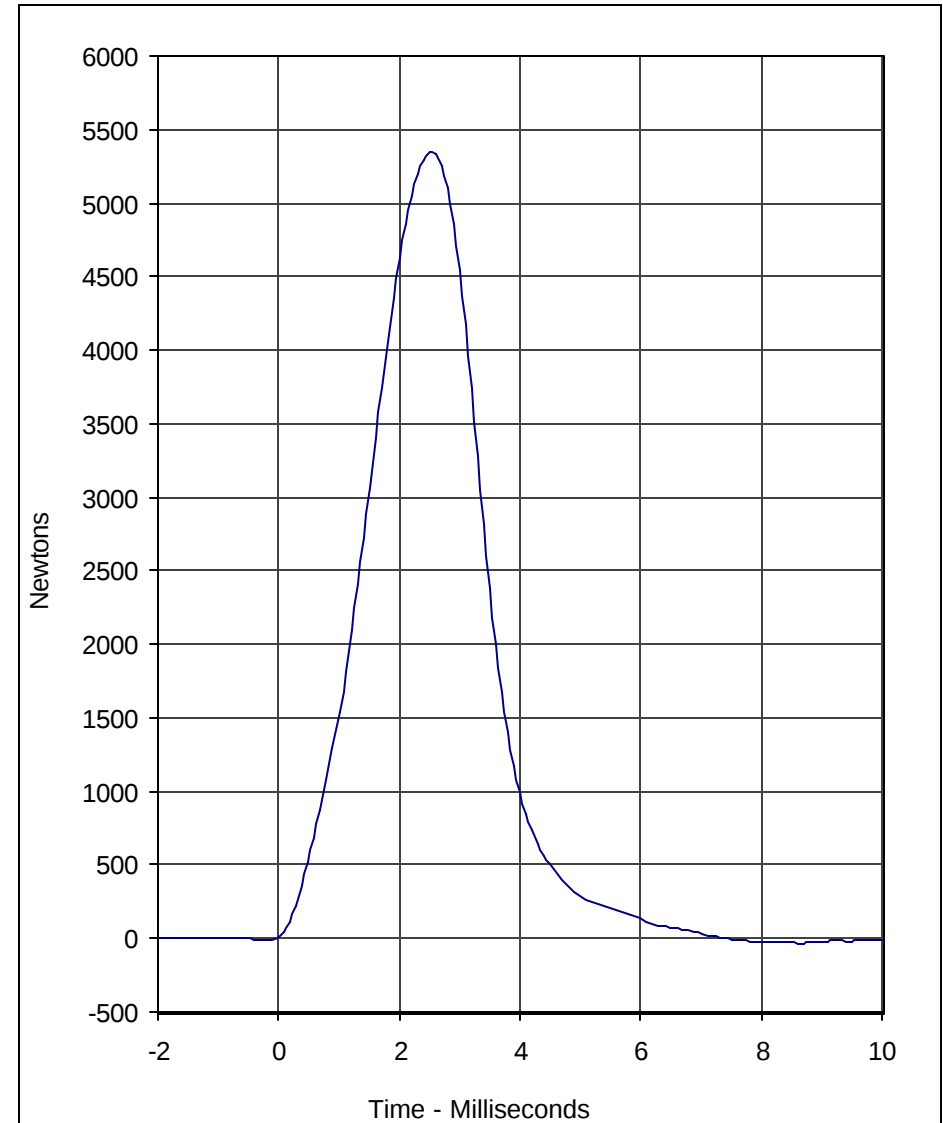
Laboratory Technician

December 2, 2002
Test Date



Curve Description		Location	Test I.D.	CURNO	Type
Probe Force		Left Knee	KK07C	001	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	5220.4	2.7	-32.8	8.9	600

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 Test Date: 12/2/02



Curve Description		Location	Test I.D.	CURNO	Type
Probe Force		Right Knee	KK07D	002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	5342.8	2.5	-32.6	8.7	600

A.T.D. Serial No.: 035





Calibration Data Sheet

Hybrid III 50th Percentile Male

Head Drop Test

ATD Serial No.: 035

Test I.D.: HD10D

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	237.8	Pass
Peak Lateral Acceleration	G's	≤15.0	2.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

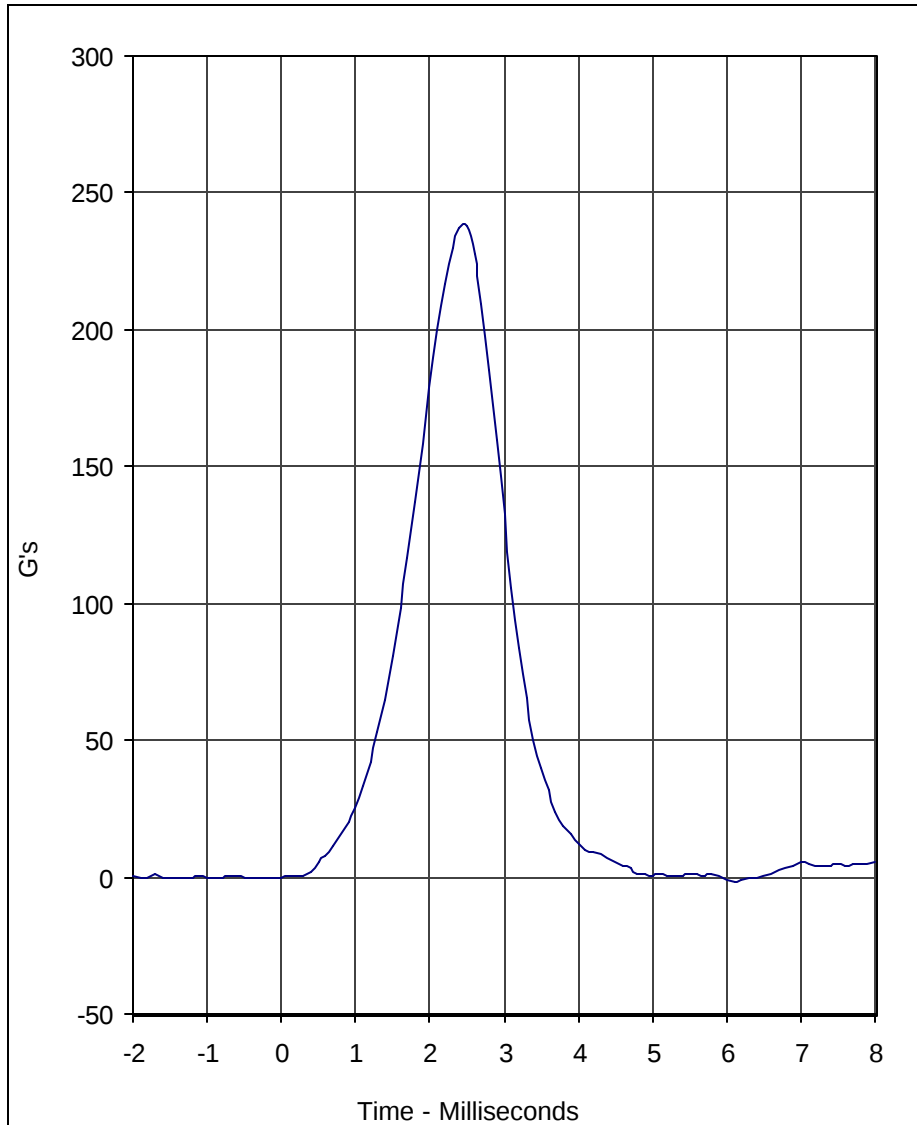
E-16

TR-P23001-01-NC

Laboratory Technician

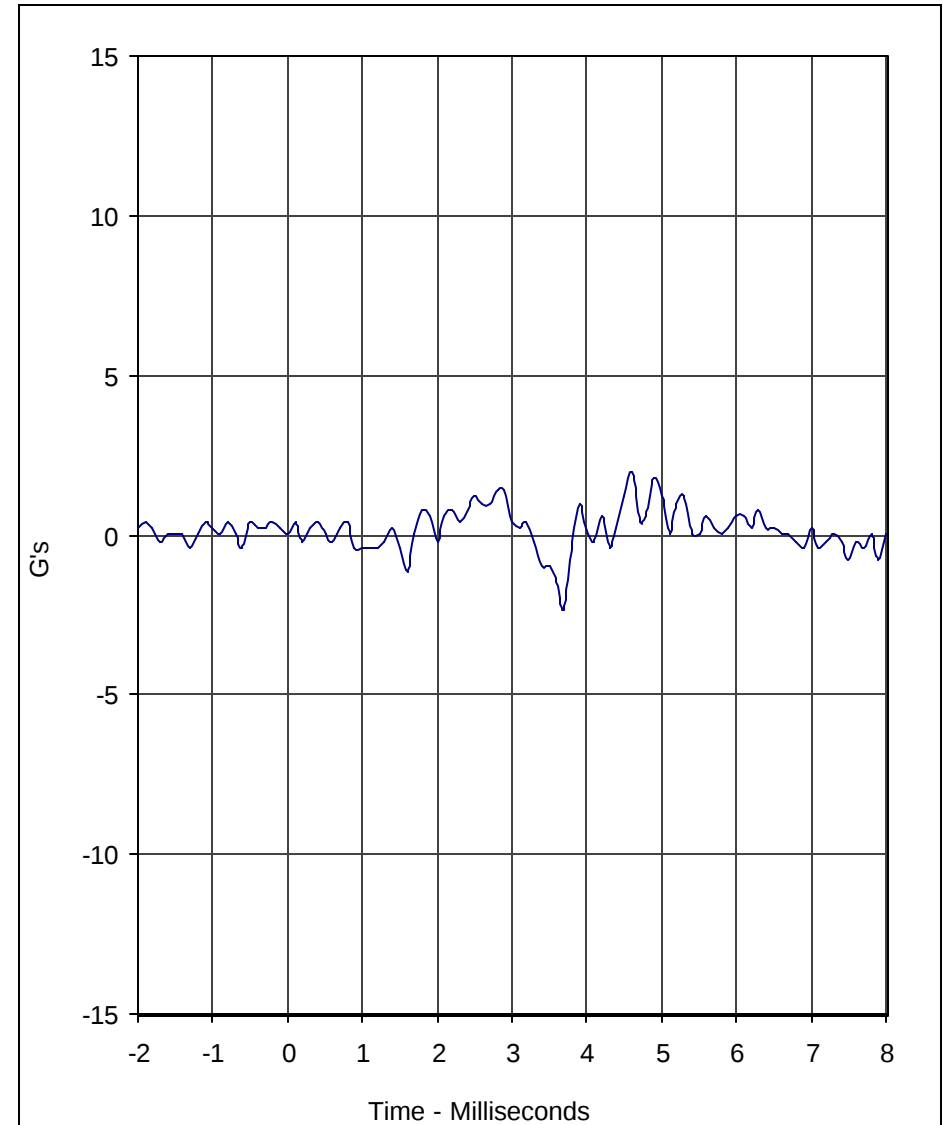
December 3, 2002

Test Date



Curve Description				CURNO	Type
Head Resultant				001	RES
Units	Max	Time	Min	Time	SAE Class
G's	237.8	2.5	-0.9	6.0	1000

Test Program: Hybrid III 50th Percentile Male Head Drop Test
 Test Date: 12/3/02



Curve Description				CURNO	Type
Head Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
G's	2.0	4.6	-2.4	3.7	1000

A.T.D. Serial No.: 035
 Test I.D.: HD10D





Calibration Data Sheet

Hybrid III 50th Percentile Male

Thorax Impact Test

ATD Serial No.: 035

Test I.D.: CH07B

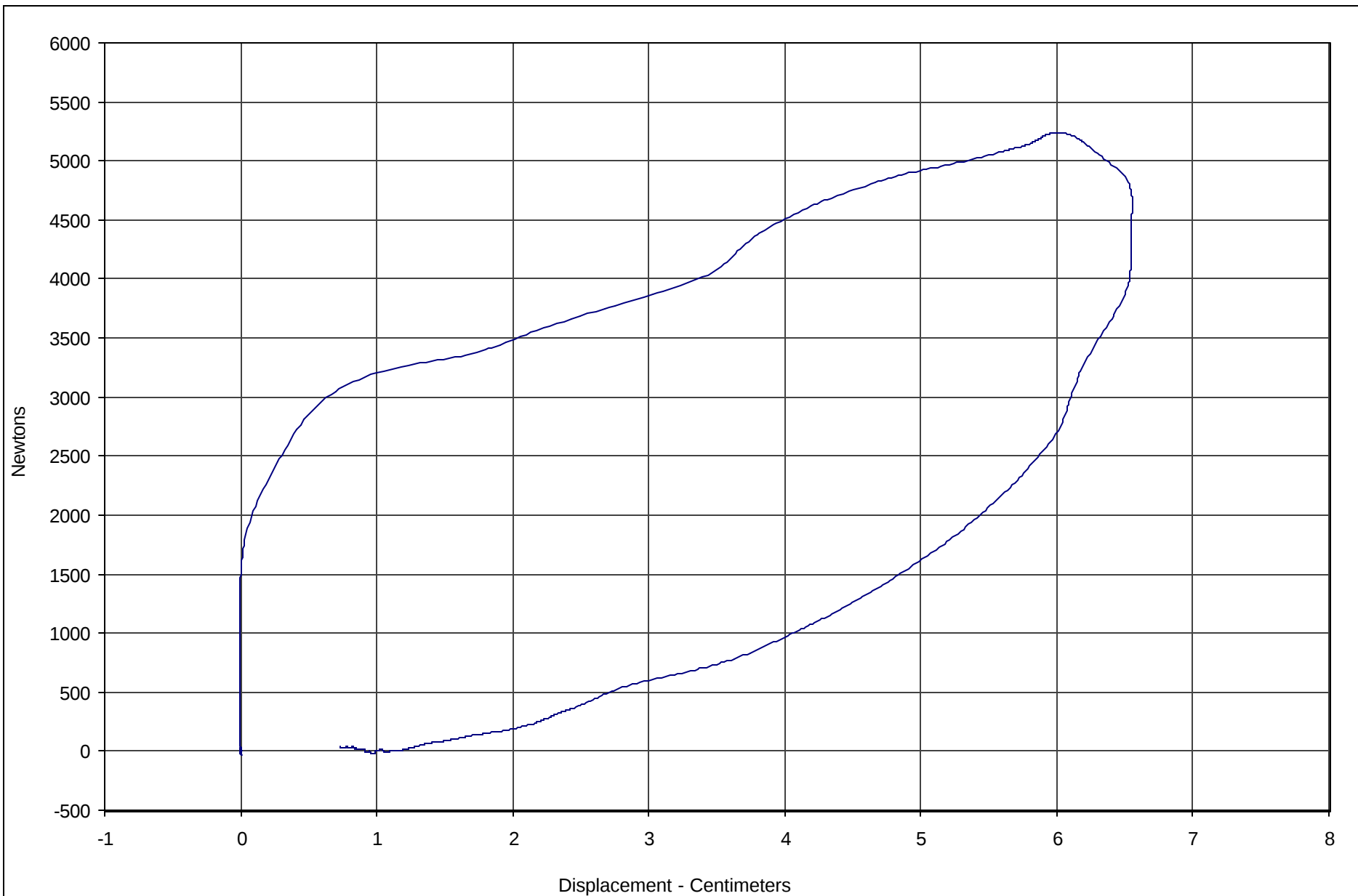
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.64	Pass
Peak Probe Force	Newtons	5159 to 5893	5243	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.55	Pass
Internal Hysteresis	%	69 to 85	75.4	Pass
Overall Test Results				Pass

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TR-P23001-01-NC

Laboratory Technician

December 4, 2002
Test Date



Curve Description	CURNO	Type	Hysteresis	Peak Chest Displ.	Peak Probe Force	SAE Class
Probe Force vs. Chest Displacement	001	FIL	75.4	6.55	5242.9	180



Test Program: Hybrid III 50th Percentile Male Thorax Impact

A.T.D. Serial No.: 035

Test Date: 12/4/02

Test I.D.: CH07B



Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Flexion Test

ATD Serial No.: 035

Test I.D.: NF10C

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	23.7	Pass
	20 Msec.	G's	17.6 to 22.6	18.9	Pass
	30 Msec.	G's	12.5 to 18.5	15.2	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	15.2	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	41.4	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	69.1	Pass
	Time	Msec.	57.0 to 64.0	62.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	119.1	Pass
Moment About Occipital Condyle	Maximum	Nm	84.1 to 108.5	86.0	Pass
	Time	Msec.	47.0 to 58.0	55.4	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	103.4	Pass
Overall Test Results					Pass

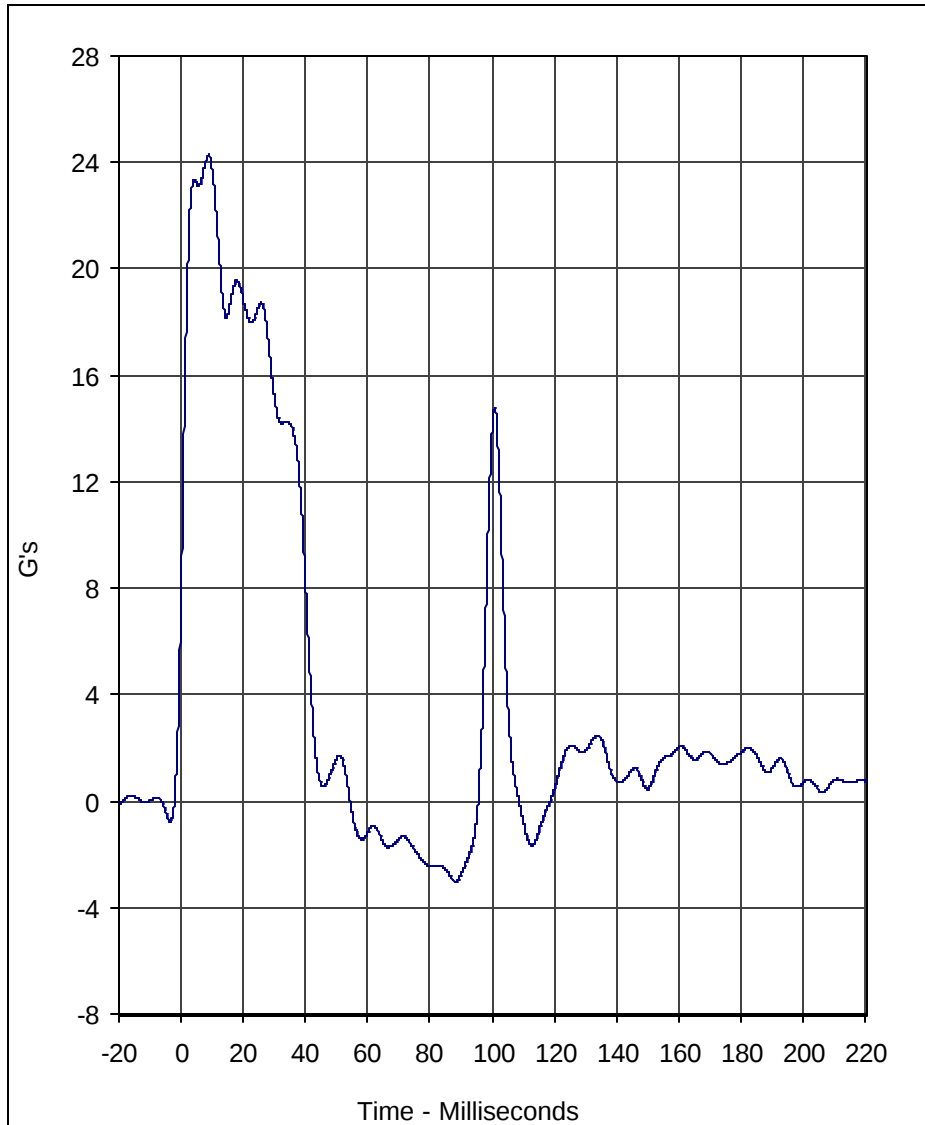
E-20

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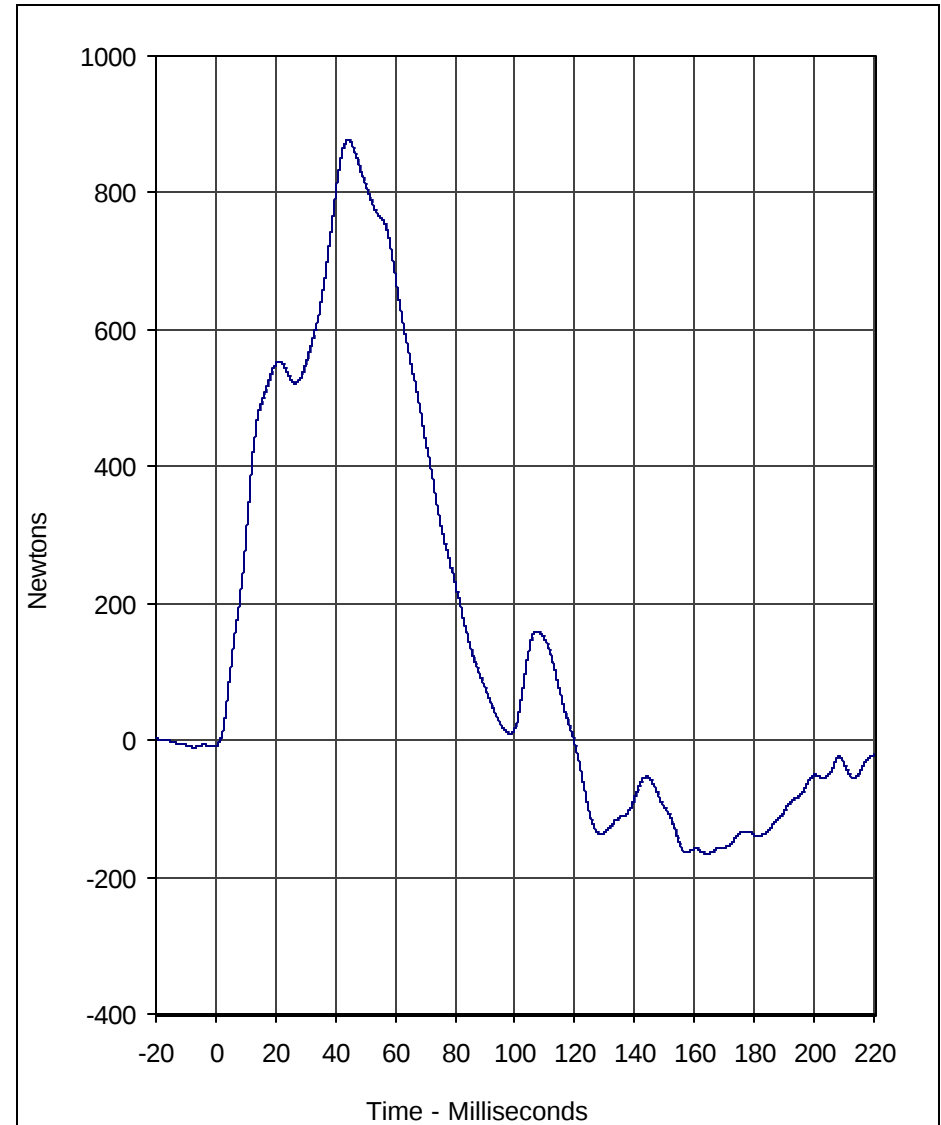
December 3, 2002

Test Date



Curve Description				CURNO	Type
Pendulum Deceleration				001	FIL
Units	Max	Time	Min	Time	SAE Class
G's	24.3	8.8	-3.0	88.2	60

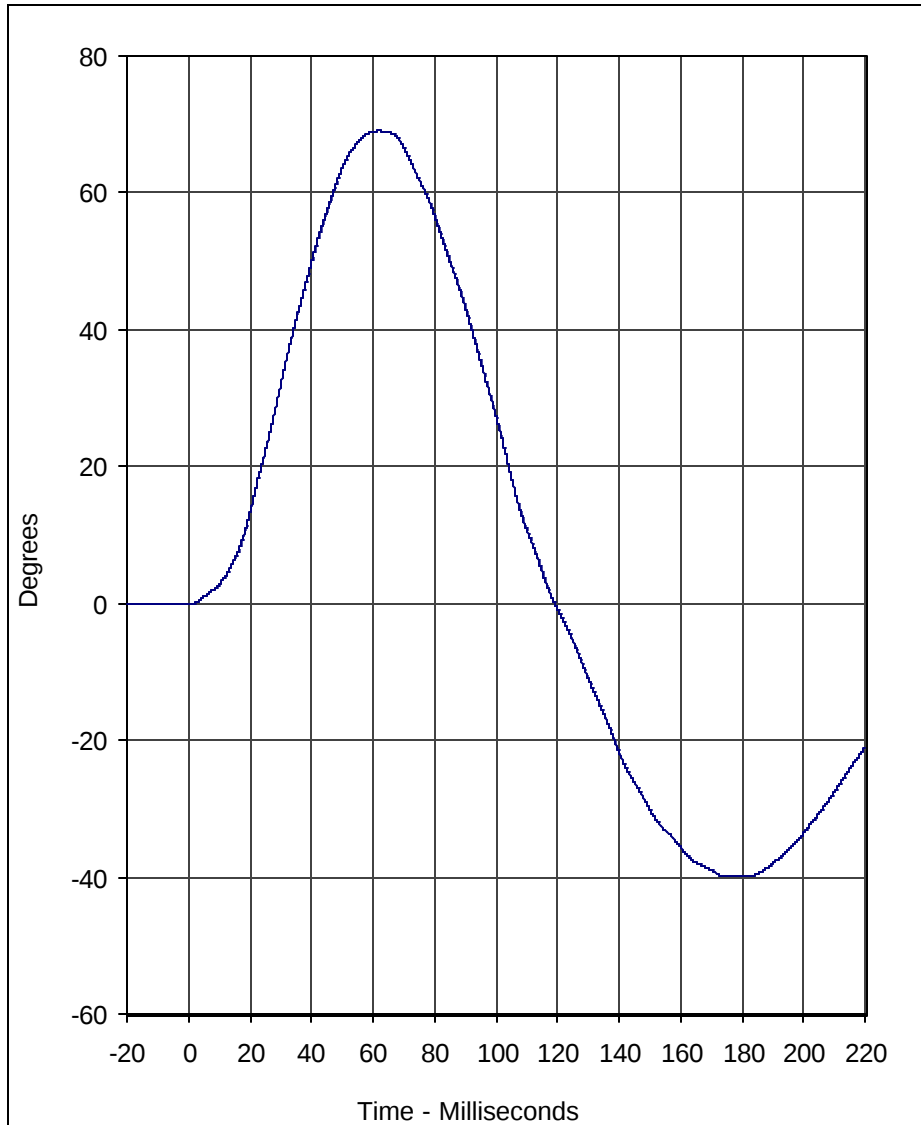
Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 12/3/02



Curve Description				CURNO	Type
Neck Force X				002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	877.0	44.2	-166.3	164.2	60

A.T.D. Serial No.: 035
 Test I.D.: NF10C

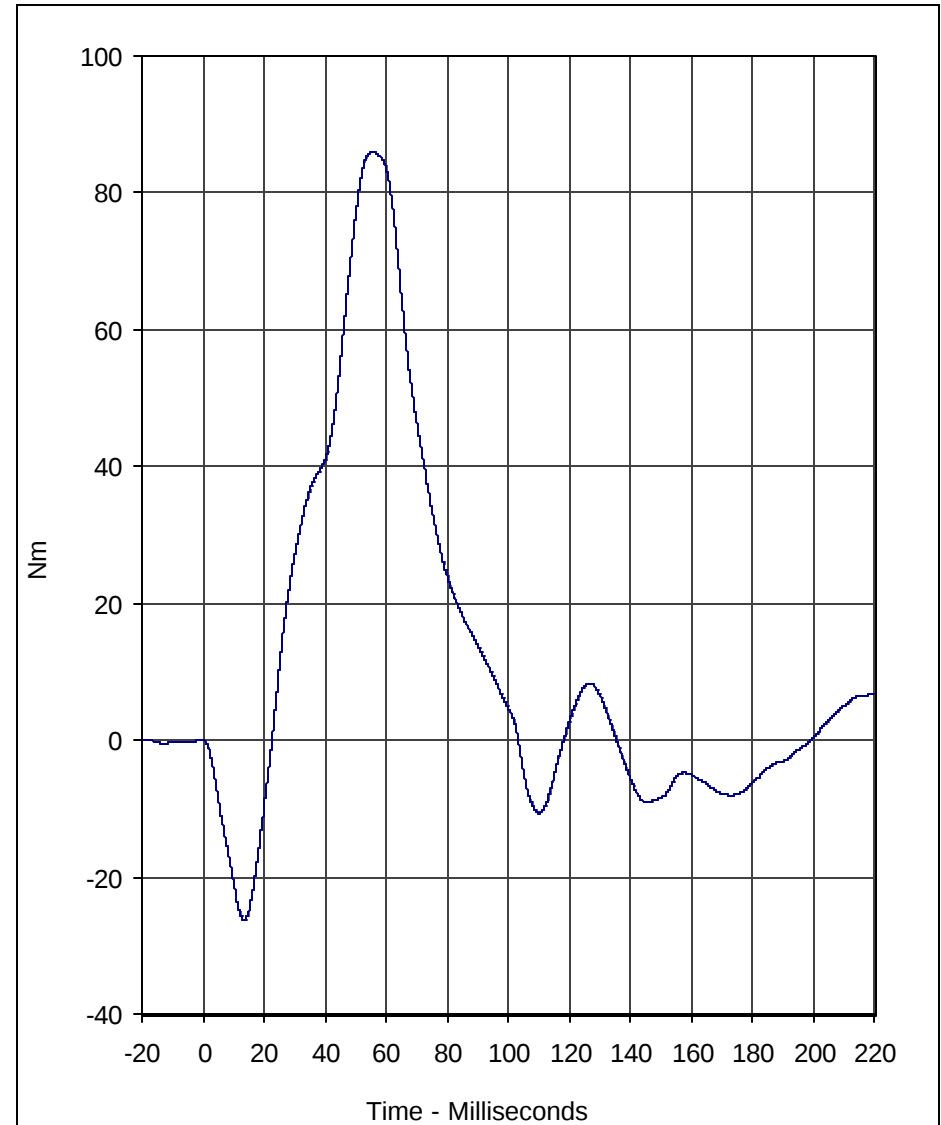




Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	69.1	62.0	-40.0	175.9	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 12/3/02



Curve Description				CURNO	Type
Moment About Occipital Condyle				004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	86.0	55.4	-26.2	13.5	60

A.T.D. Serial No.: 035
 Test I.D.: NF10C





Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Extension Test

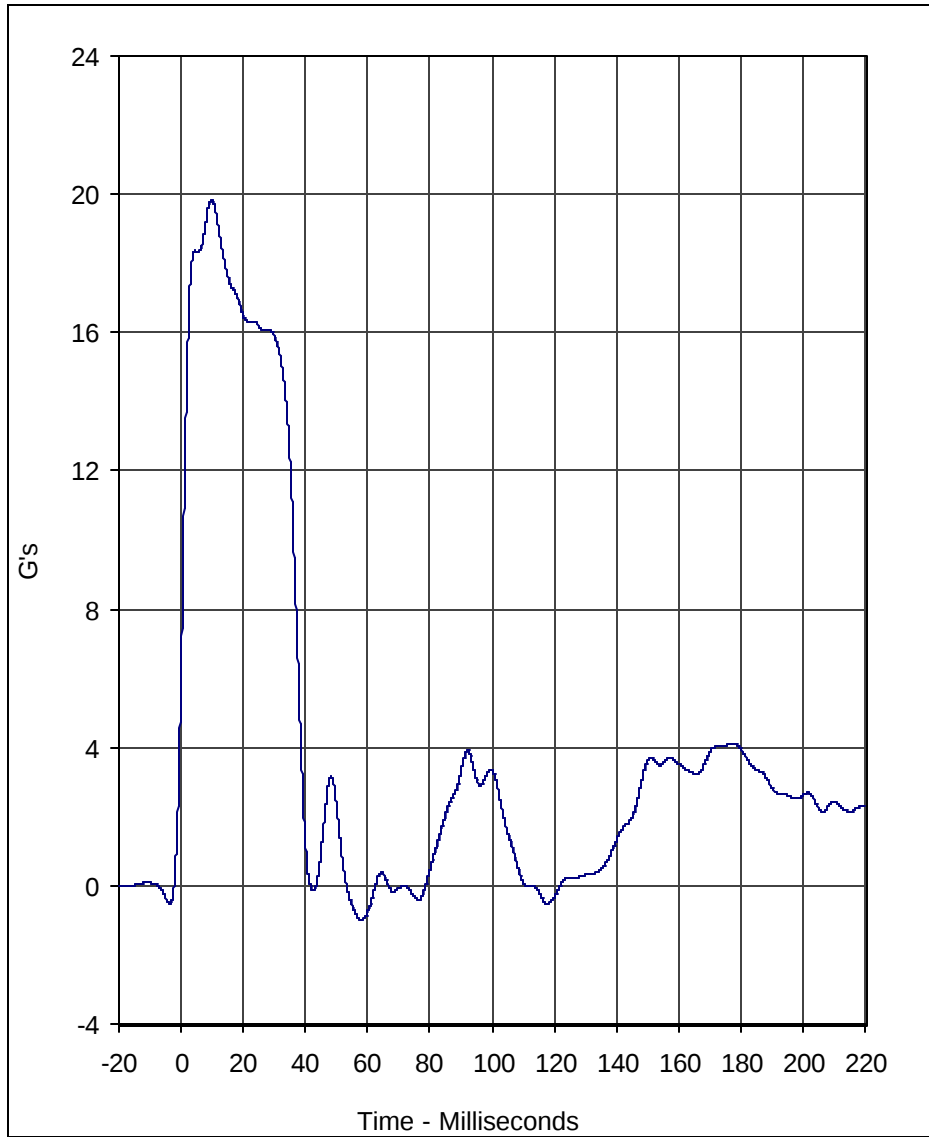
ATD Serial No.: 035

Test I.D.: NE10C

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	6.02	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.8	Pass
	20 Msec.	G's	14.0 to 19.0	16.5	Pass
	30 Msec.	G's	11.0 to 16.0	15.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	38.2	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	100.2	Pass
	Time	Msec.	72.0 to 82.0	77.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	149.8	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to- 79.9	-74.6	Pass
	Time	Msec.	65.0 to 79.0	67.4	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	139.0	Pass
Overall Test Results					Pass

Laboratory Technician

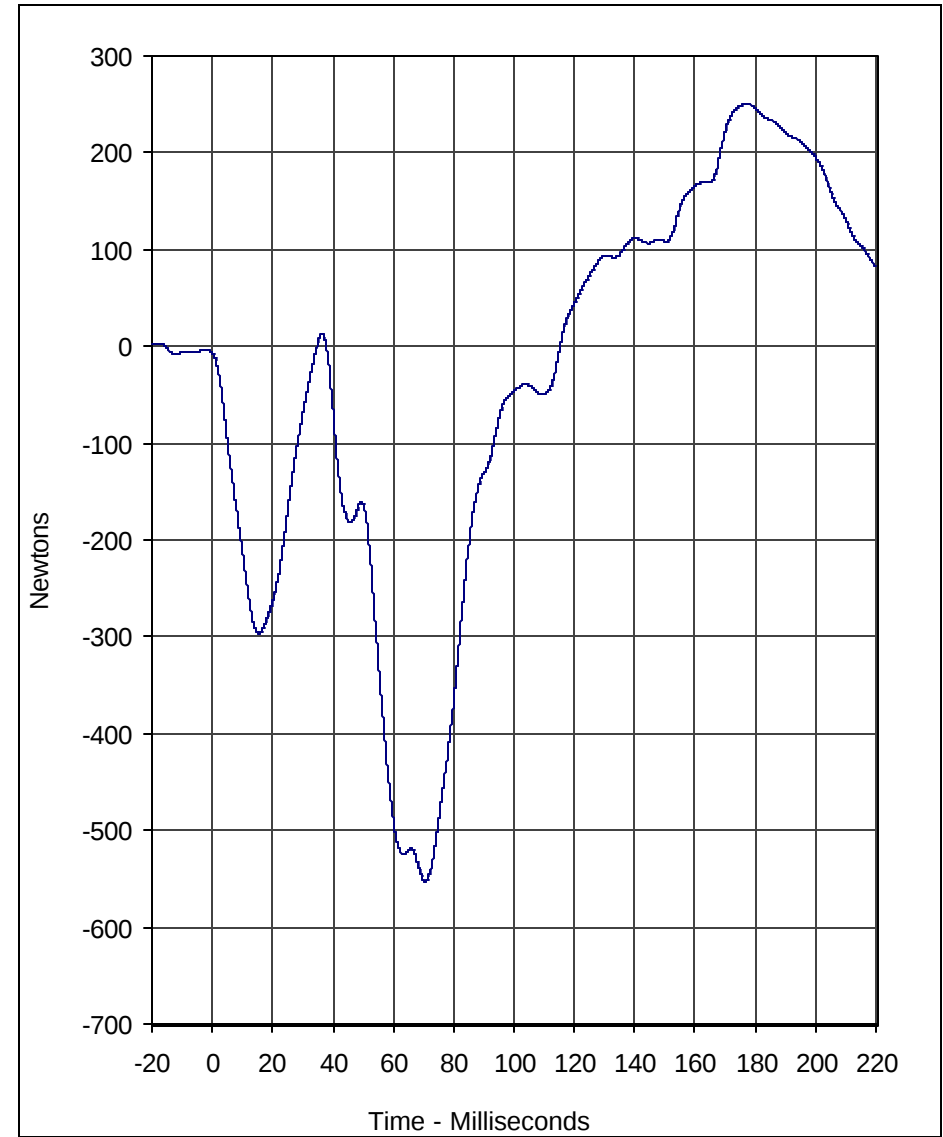
December 3, 2002
Test Date



Curve Description				CURNO	Type
Pendulum Deceleration				001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	19.8	9.8	-1.0	58.0	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 12/3/02

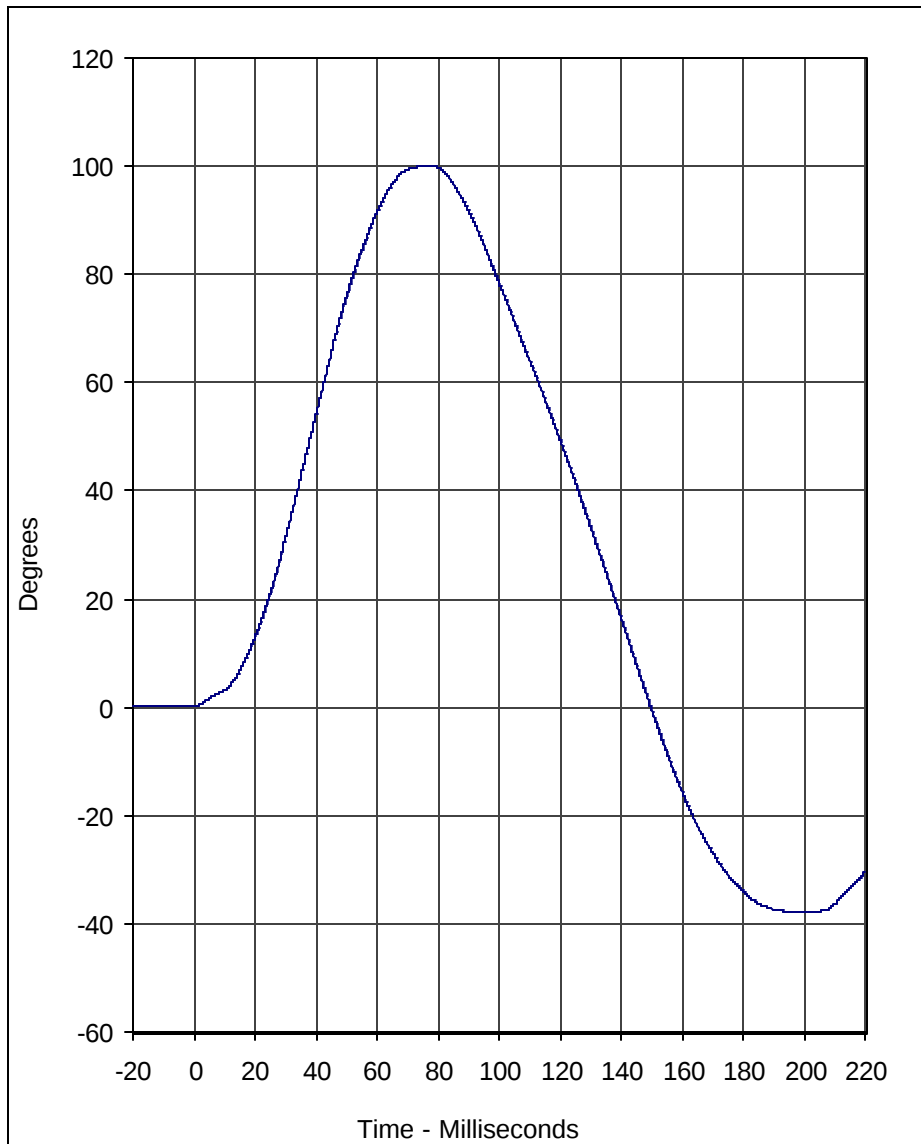


Curve Description				CURNO	Type
Neck Force X				002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	250.3	177.2	-552.5	70.6	60

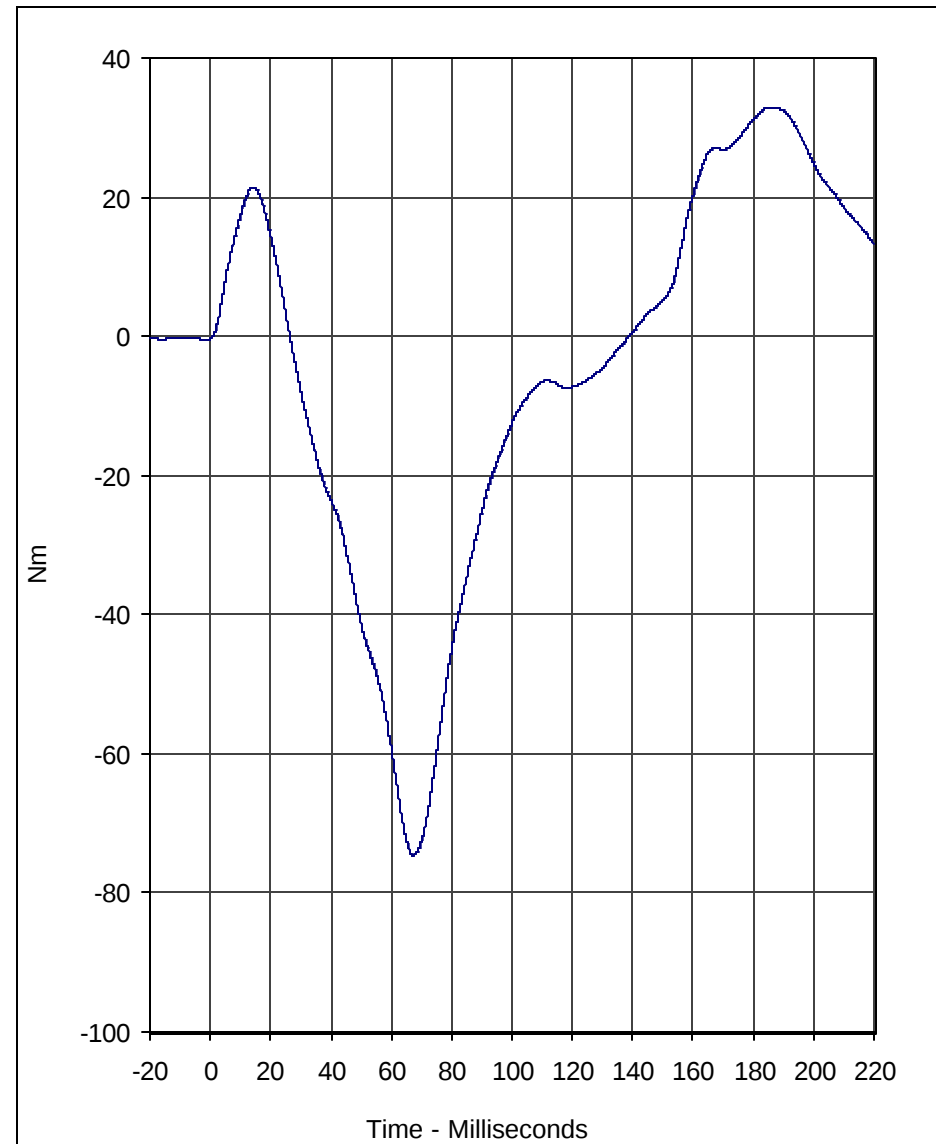
A.T.D. Serial No.: 035
 Test I.D.: NE10C





Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL
Units	Max	Time	Min	Time	SAE Class
Degrees	100.2	77.4	-37.9	199.6	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 12/3/02



Curve Description				CURNO	Type
Moment About Occipital Condyle				004	FIL
Units	Max	Time	Min	Time	SAE Class
Nm	32.9	186.1	-74.6	67.4	60

A.T.D. Serial No.: 035
 Test I.D.: NE10C





Calibration Data Sheet

Hybrid III 50th Percentile Male

External Measurements

ATD Serial No.: 035

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	880	Pass
B - Shoulder pivot height	mm	505 to 521	505	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	145	Pass
G - Elbow back to wrist pivot	mm	290 to 305	300	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	335	Pass
J - Elbow rest height	mm	190 to 211	200	Pass
K - Buttock to knee length	mm	579 to 604	585	Pass
L - Popliteal length	mm	429 to 455	440	Pass
M - Knee pivot height	mm	485 to 500	495	Pass
N - Buttock popliteal length	mm	452 to 477	460	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	435	Pass
W - Foot breadth	mm	91 to 107	100	Pass
Y - Chest circumference	mm	970 to 1001	990	Pass
Z - Waist circumference	mm	836 to 866	850	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

Laboratory Technician

December 5, 2002

Test Date

APPENDIX F

CHILD RESTRAINT SYSYTEM

REPORT NUMBER TR-P23001-01-NC

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

**GENERAL MOTORS CORPORATION
2003 CHEVROLET CAVALIER
2 DOOR COUPE**

NHTSA NUMBER: M30106

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



DECEMBER 10, 2002

FINAL REPORT

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

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

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KARCO Engineering, LLC

Date: December 30, 2002

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

Date: December 30, 2002

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. TR-P23001-01-NC		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of CENTURY 1500 STE LATCH NHTSA No.: M30106				5. Report Date DECEMBER 30, 2002	
				6. Performing Organization Code KARCO	
7. Author(s) Mr. James E. Gorth, Project Engineer, Karco Mr. Frank Richardson, Program Manager, Karco				8. Performing Organization Report No.	
9. Performing Organization Name and Address Karco Engineering, LLC 9270 Holly Rd. Adelanto, Ca. 92301				10. Work Unit No.	
				11. Contract or Grant No. DTNH22-01-D-02005	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Rulemaking Office of Crashworthiness Standards Mail Code: NVS-111 400 Seventh SW, Room 5311 Washington, D.C. 20590				13. Type of Report and Period Covered Final Test Report Option Year 2	
				14. Sponsoring Agency Code NVS-111	
15. Supplementary Notes					
16. Abstract A frontal load cell barrier test was conducted on the subject CRS CENTURY 1500 STE LATCH 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 DECEMBER 10, 2002					
17. Key Words New Car Assessment Program (NCAP)				18. Distribution Statement <u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Reference Division Room 5108 (NAD-52) 400 Seventh St., S.W. Washington, D.C. 20590	
19. Security Classification of Report UNCLASSIFIED		20. Security Classification of Page UNCLASSIFIED		21. No. of Pages 82	
22. Price					

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F-5	Child Dummy Calibration Information	

SECTION F-1
PURPOSE AND SUMMARY OF TEST M30106

1.1 PURPOSE

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

The 56.32 km/h NCAP frontal impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) NCAP Laboratory Test Procedure.

1.2 SUMMARY

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

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.

The right rear child dummy's HIC was 508.0, maximum chest deceleration over 3 ms was 54.6 g's.

**SECTION F-1
DATA SHEET NO.1
CRASH TEST SUMMARY**

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
Test Date: 12/10/02

TEST DUMMY INFORMATION

Description	Position # 3 CRS	Position # 4 CRS
ATD Type/Serial No.	Hybrid III - Three Year Old Serial # 082	
Restraint System	Century 1500 STE	

VISIBLE DUMMY CONTACT POINTS

Description	Position # 3 CRS	Position # 4 CRS
Head Contact	Upper Tether, Top of CRS	
Upper Torso Contact	None	
Lower Torso Contact	None	
Left Foot Contact	Front Seat Back	
Right Foot Contact	Front Seat Back	
Chin	Retaining Clip	

POST TEST DOOR OPENING

Description	Front	Rear
Left Side Doors	Closed, latched and operable w/o tools	
Right Side Doors	Closed, latched and operable w/o tools	
Hatch/Other Door	Not Applicable	

POST TEST SEAT DATA

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

CAMERA COVERAGE

High Speed	1
Real Time	3
Total	4

DATA CHANNELS

Child Sensors	22
---------------	----

SECTION F-1
DATA SHEET NO. 2
CRS PARAMETER DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

TEST VEHICLE WEIGHTS

	Units	As Delivered			As Tested		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	385	211		422	265	
Right	kg	372	209		423	272	
Ratio	%	64.3	35.7		61.1	38.9	
Totals	kg	757	420	1177	845	537	1382

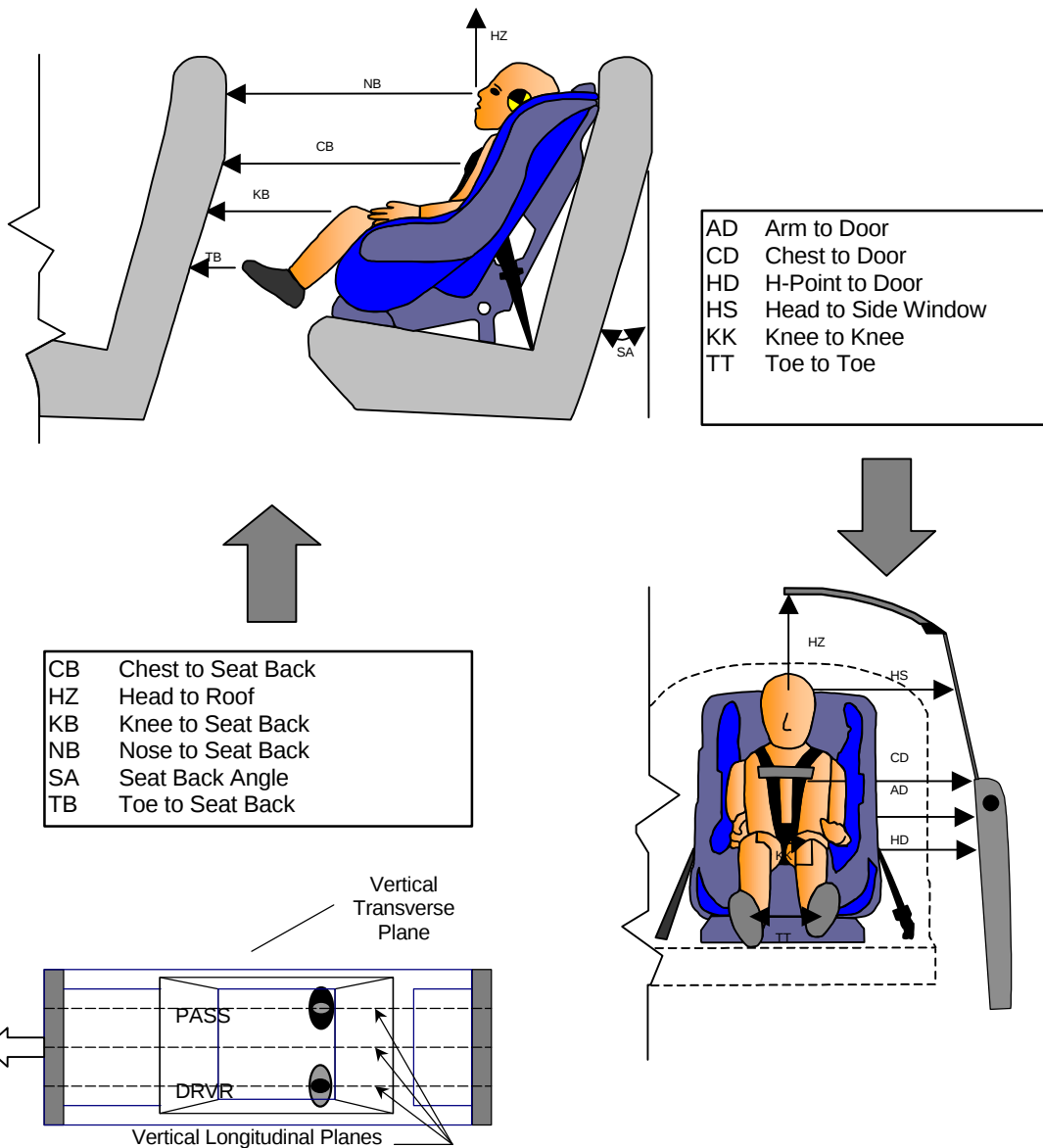
TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (<i>UVW</i>)	kg	1177
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Weight (<i>RCLW</i>)	kg	60
Calculated Vehicle Target Weight (<i>TVTW</i>)	kg	1389

SECTION F-1 **DATA SHEET NO. 3** **CHILD DUMMY POSITIONING IN VEHICLE**

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02



DUMMY MEASUREMENTS FOR REAR SEAT OCCUPANTS

SECTION F-1
DATA SHEET NO. 3
CHILD DUMMY POSITIONING IN VEHICLE...(continued)

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

CHILD DUMMY POSITION MEASUREMENTS

Code	Measurement	P3 CRS (082)		P4 CRS (000)	
		Pre-Test	Post-test	Pre-Test	Post-test
SA	Seat Back Angle	28 Deg.	28 Deg.		
HZ	Head to Roof (Z)	345	316		
CD	Chest to Dash	335	325		
KK	Knee to Knee (Y)	155	150		
HS	Head to Side Window	360	350		
HD	H-Point to Door (Y)	268	220		
AD	Arm to Door (Y)	210	180		
NB	Nose to Seat Back	470	505		
CB	Chest to Seat Back	465	478		
FF	Foot to Foot	140	200		
KB-LEFT	Knee to Seat Back	245	314		
KB-RIGHT	Knee to Seat Back	255	292		
TB-LEFT	Toe to Seat Back	25	10		
TB-RIGHT	Toe to Seat Back	12	13		

DATA SHEET NO. 8 - 3 YEAR OLD HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

NHTSA No.: M30106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 12/10/02

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Right Rear Child				Left Rear Child			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	21.6	203.8	-35.0	79.5	No Data Collected			
Head CG	Y	G's	3.0	69.8	-4.2	102.8				
Head CG	Z	G's	51.7	83.0	-5.1	52.8				
Head CG Resultant	N/A	G's	61.0	79.5						

PRIMARY HEAD INJURY CRITERAS (HIC)

Location	Right Rear Child				Left Rear Child			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Primary (HIC36)	508.0	63.7	99.7	45.6	No Data Collected			
Head CG Primary (HIC15)	343.6	73.5	88.5					

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Right Rear Child				Left Rear Child			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	5.7	237.4	-32.5	80.2	No Data Collected			
Chest CG	Y	G's	6.0	57.4	-4.0	80.1				
Chest CG	Z	G's	16.0	86.8	-49.4	60.8				
Chest CG Resultant	N/A	G's	56.0	60.4						

PRIMARY CHEST CLIP (3MSEC)

Location	Right Rear Child			Left Rear Child		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	54.6	58.8	61.8	No Data Collected		

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Right Rear Child				Left Rear Child			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.0	9.5	-21.1	88.9	No Data Collected			

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Right Rear Child				Left Rear Child			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	10.2	105.3	-39.3	63.7	No Data Collected			
Pelvis	Y	G's	5.6	63.7	-9.9	71.9				
Pelvis	Z	G's	8.0	208.3	-45.3	58.6				
Pelvis Resultant	N/A	G's	58.0	58.6						

DATA SHEET NO. 8...(continued)Test Vehicle: 2003 Chevrolet Cavalier 2 Door CoupeNHTSA No.: M30106Test Program: 2003 NHTSA 35mph NCAPTest Date: 12/10/02**UPPER NECK PEAK FORCES AND MOMENTS**

Location	Axis	Units	Right Rear Child				Left Rear Child			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	64.3	251.2	-807.1	77.7	No Data Collected			
Neck Force	Y	Newtons	55.5	69.2	-59.8	98.7				
Neck Force	Z	Newtons	2101.4	79.3	-249.2	226.7				
Neck Force Resultant	N/A	Newtons	2244.4	79.3						
Neck Moment	X	N•m	5.4	77.1	-3.2	97.4	No Data Collected			
Neck Moment	Y	N•m	5.8	144.5	-15.1	223.2				
Neck Moment	Z	N•m	2.6	101.4	-0.8	299.9				
Neck Moment Resultant	N/A	N•m	15.1	223.5						

LOWER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Right Rear Child				Left Rear Child			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	142.8	248.4	-1084.9	81.3	No Data Collected			
Neck Force	Y	Newtons	51.1	61.3	-104.4	92.5				
Neck Force	Z	Newtons	981.6	86.4	-456.5	59.0				
Neck Force Resultant	N/A	Newtons	1432.6	81.8						
Neck Moment	X	N•m	9.9	70.0	-9.6	100.3	No Data Collected			
Neck Moment	Y	N•m	130.1	78.2	-12.4	202.6				
Neck Moment	Z	N•m	2.4	153.3	-7.4	96.9				
Neck Moment Resultant	N/A	N•m	130.3	78.2						

CHILD SEAT TETHER BELT SENSOR PEAK VALUES

Location	Axis	Units	Right Rear Child				Left Rear Child			
			Max	Time	Min	Time	Max	Time	Min	Time
Tether Belt Force	N/A	Newtons	1195.7	67.8	-35.6	213.4	No Data Collected			

CHILD SEAT ACCELEROMETER PEAK VALUES

Location	Axis	Units	Right Rear Child				Left Rear Child			
			Max	Time	Min	Time	Max	Time	Min	Time
Child Seat	X	G's	9.6	202.3	-45.2	52.7	No Data Collected			
Child Seat	Y	G's	11.5	53.3	-9.3	57.8				
Child Seat	Z	G's	14.2	226.9	-24.8	52.1				
Child Seat Resultant	N/A	G's	52.3	52.6						

SECTION F-1
DATA SHEET NO. 5
CRS PERFORMANCE DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

CRS PERFORMANCE DATA

Location	Serial # Position # 3		Serial # Position # 4	
	Damage	Remarks	Damage	Remarks
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	No	None		
Vehicle Seat Fabric Tears	No	None		
Child Dummy	No	None		

SECTION F-1
DATA SHEET NO. 6
CRS CAMERA DATA

Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106
 Test Date: 12/10/02

No.	Camera View	Location (mm)			Angle (Deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Driver Side Child Dummy	3048	5842	1422	5	6198	35	990
2	Driver Side Child Dummy	2540	8128	1930	6	8560	Zoom	520
3	Passenger Side Child Dummy	2997	-5258	2007	10	500	25	1020
4	Passenge Side Child Dummy	2667	-5639	2007	10	538	25	1010

X - Barrier Face Y - Monorail Centerline Z - Ground

SECTION F-2

PHOTOGRAPHS

LIST OF PHOTOGRAPHS

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F2-3	Post-Test Frontal View of Position 3 CRS	F2-3
F2-4	Pre-Test Rear View of Position 3 CRS	F2-4
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F2-6	Pre-Test Left Side View of Position 3 CRS	F2-6
F2-7	Post-Test Left Side View of Position 3 CRS	F2-7
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F2-10	Pre-Test position 3 Front View	F2-10
F2-11	Post-Test Position 3 Front View	F2-11
F2-12	Pre-Test Position 3 Left Side View	F2-12
F2-13	Post-Test Position 3 Left Side View	F2-13
F2-14	Pre-Test Position 3 Right Side View	F2-14
F2-15	Post-Test Position 3 Right Side View	F2-15

Using a seat belt designed to restrain both the car seat
and your child or by using LATCH. Many seat belts are
NOT safe to use with this car seat, even though they
can easily be threaded through or around the car seat!

6. Properly securing your child in the car seat.

Manufactured by: Graco Children's Products, Inc.
Macedonia, Ohio USA 44056

Model number

Manufactured in:

44164ELM
1500 STE MG

2002 08 22 M
YEAR - MONTH - DAY
ANNEE - MOIS - JOUR

PM282300

PB-28230-A

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



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



Figure F2-5: Post-Test Rear View of Position 3 CRS



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



Figure F2-7: Post-Test Left Side View of Position 3 CRS



Figure F2-8: Pre-Test Right Side View of Position 3 CRS



Figure F2-9: Post-Test Right Side View of Position 3 CRS



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 F2-14: Pre-Test Position 3 Right Side View



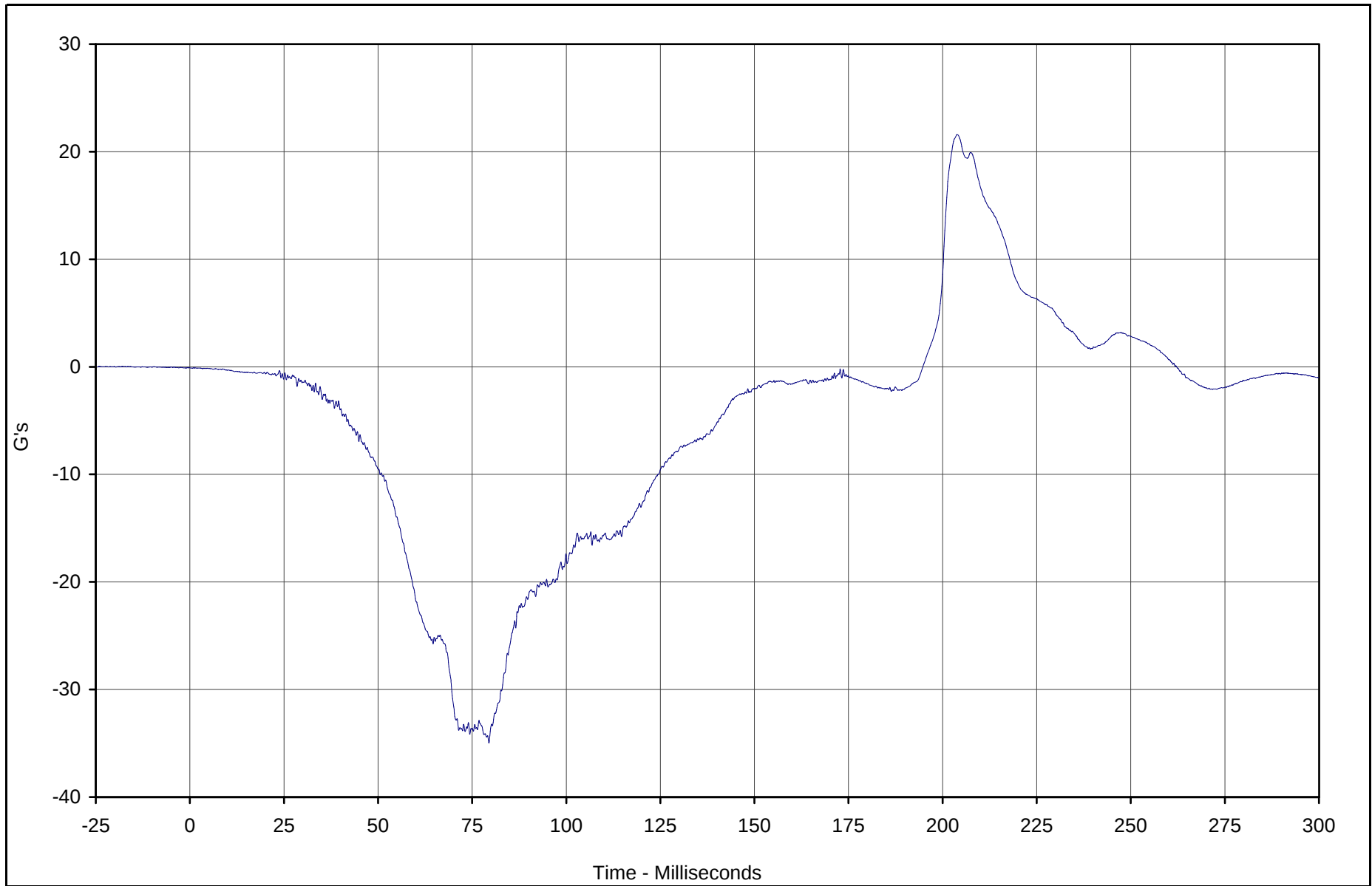
Figure F2-15: Post-Test Position 3 Right Side View

SECTION F-3

CHILD DUMMY RESPONSE AND CRS DATA TRACES

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F3-3	Right Rear Child Head Z	F3-3
F3-4	Right Rear Child Head Resultant	F3-4
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F3-8	Right Rear Child Upper Neck Force Resultant	F3-8
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F3-31	Right Rear Child Car Seat X	F3-31
F3-32	Right Rear Child Car Seat Y	F3-32
F3-33	Right Rear Child Car Seat Z	F3-33
F3-34	Right Rear Child Car Seat Resultant	F3-34



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Head X	134	FIL	G's	21.6	203.8	-35.0	79.5	1000

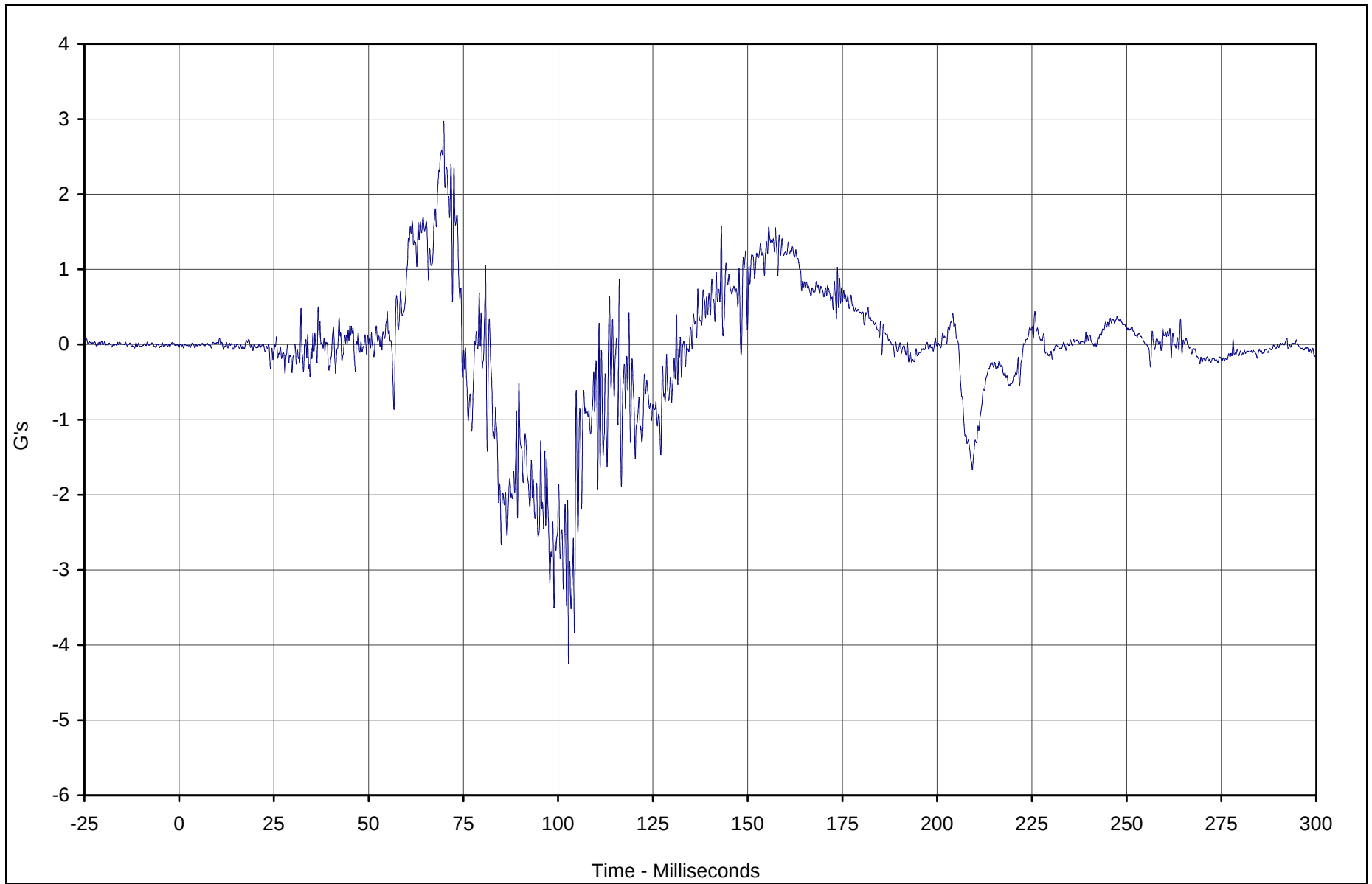


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Head Y	135	FIL	G's	3.0	69.8	-4.2	102.8	1000

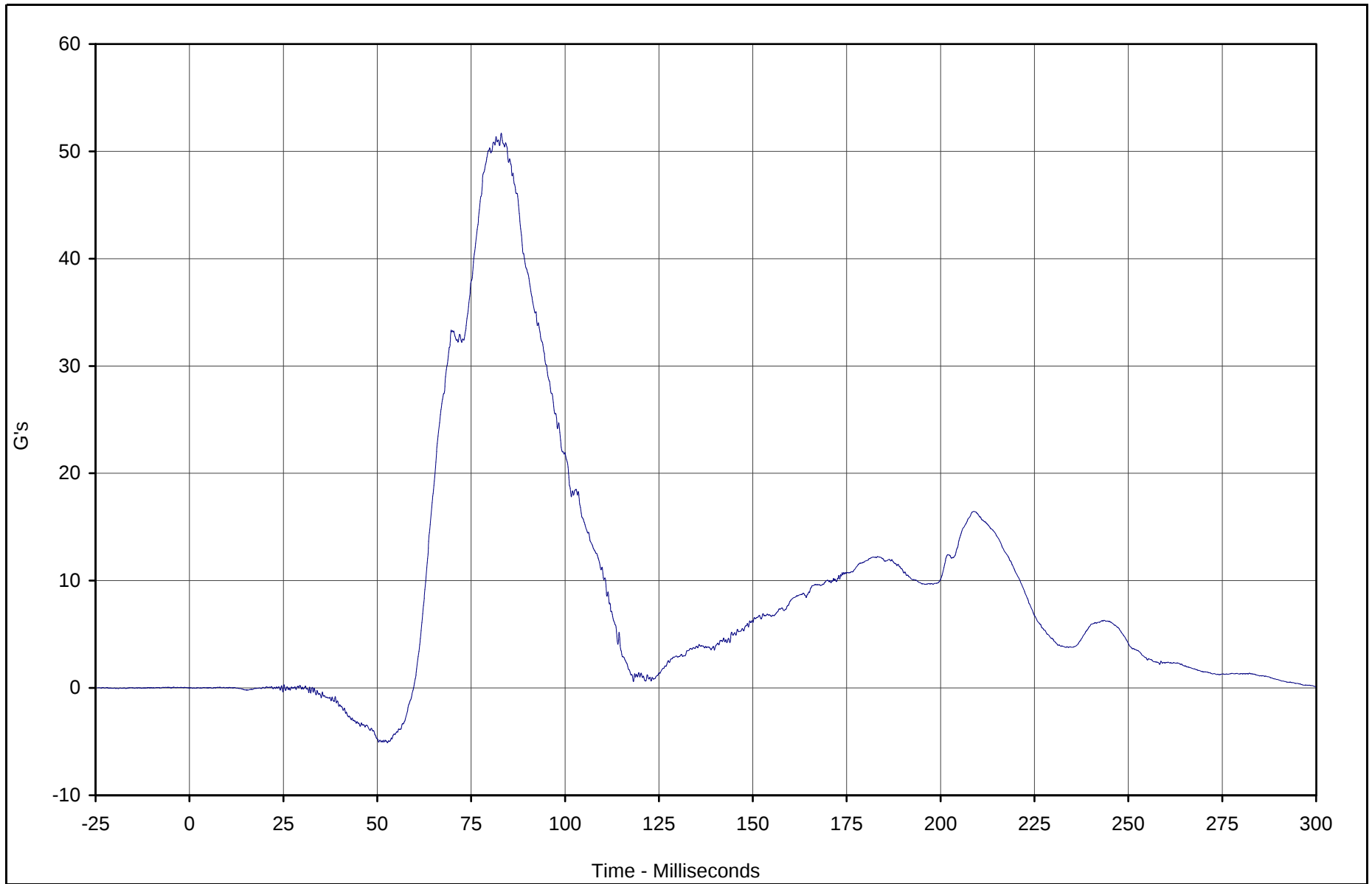


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Head Z	136	FIL	G's	51.7	83.0	-5.1	52.8	1000

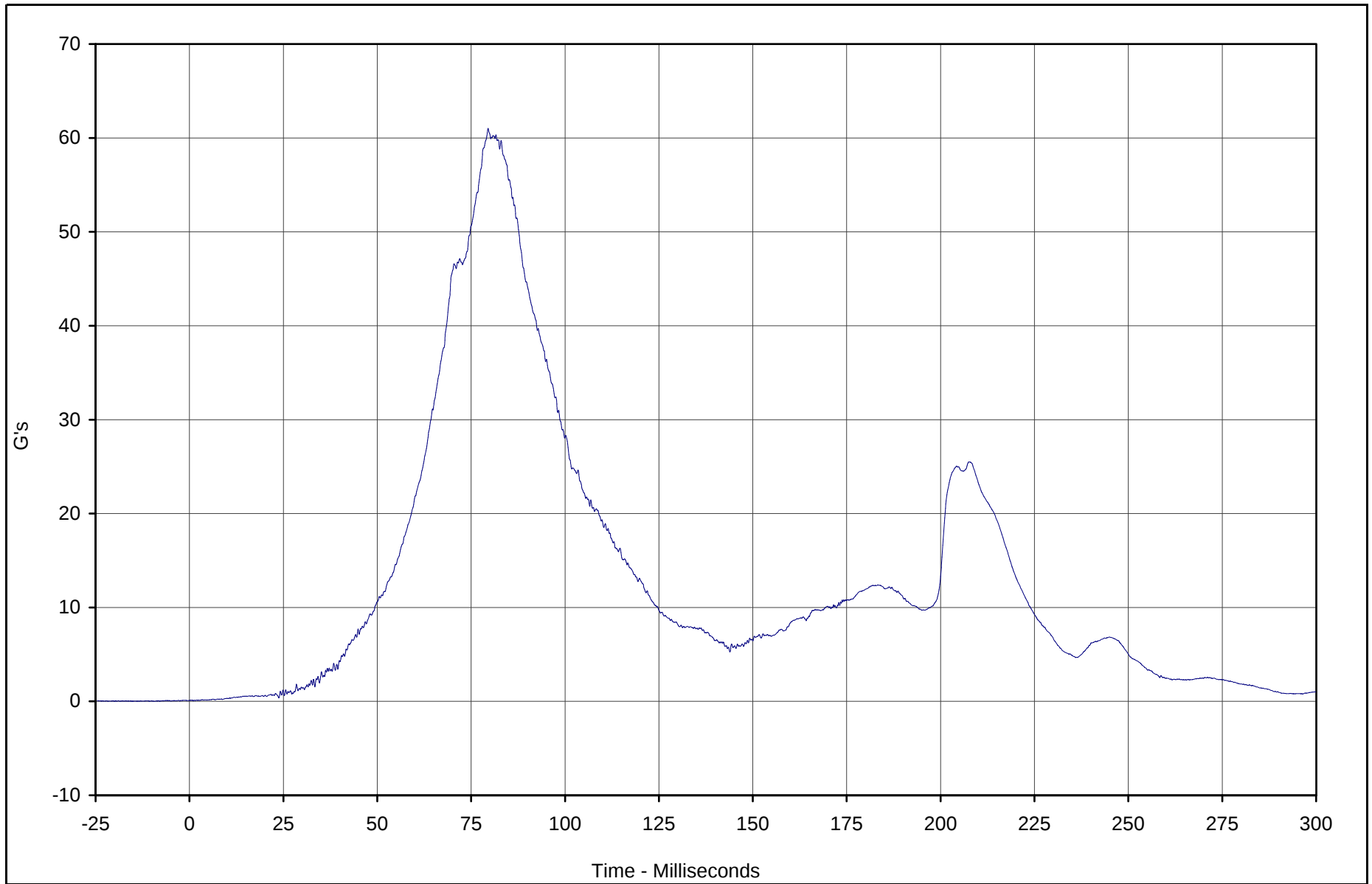


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Head Resultant	134	RES	G's	61.0	79.5	0.1	1.0	1000

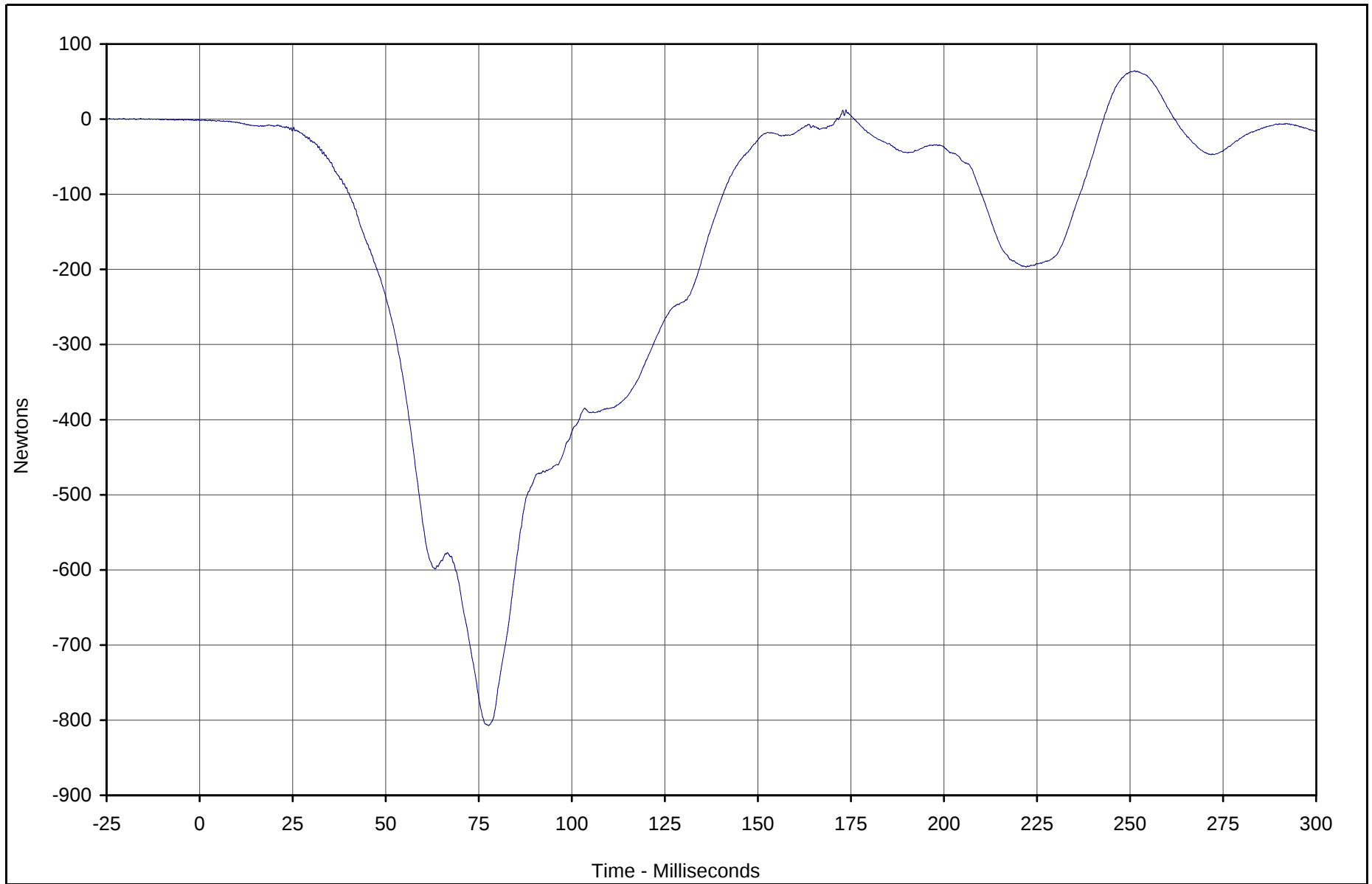


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Upper Neck Force X	137	FIL	Newtons	64.3	251.2	-807.1	77.7	1000

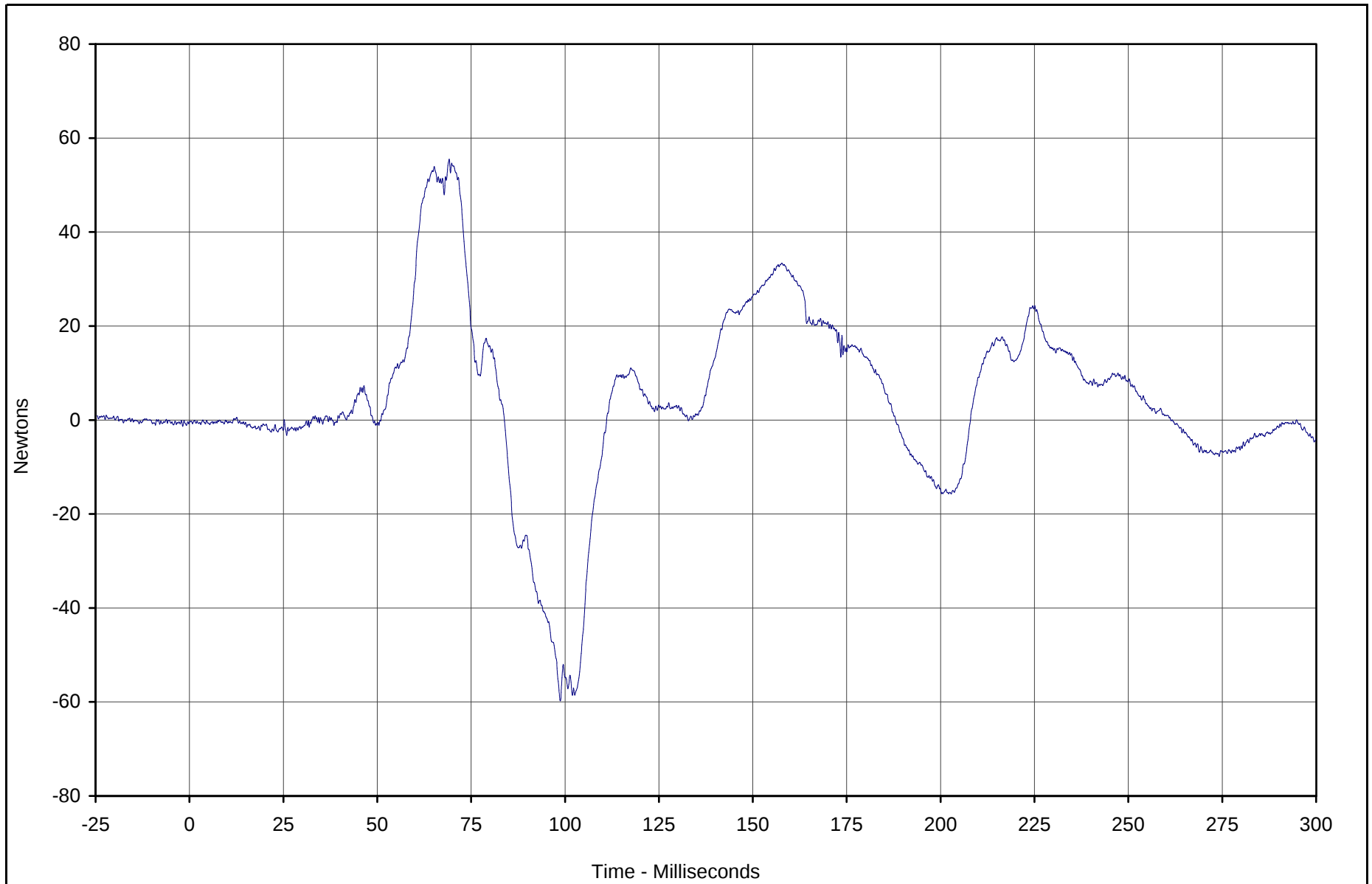


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Upper Neck Force Y	138	FIL	Newtons	55.5	69.2	-59.8	98.7	1000

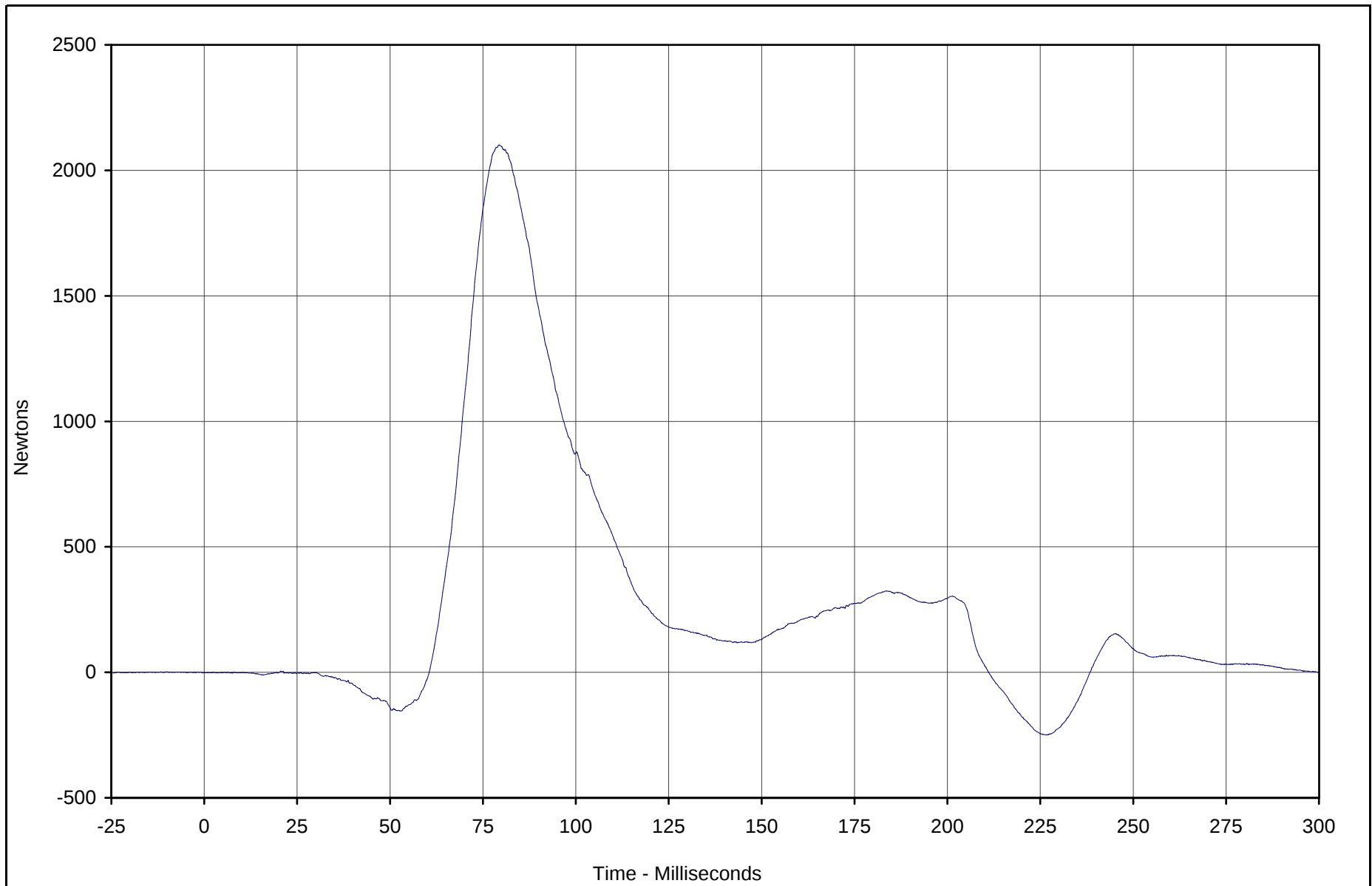


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Upper Neck Force Z	139	FIL	Newtons	2101.4	79.3	-249.2	226.7	1000

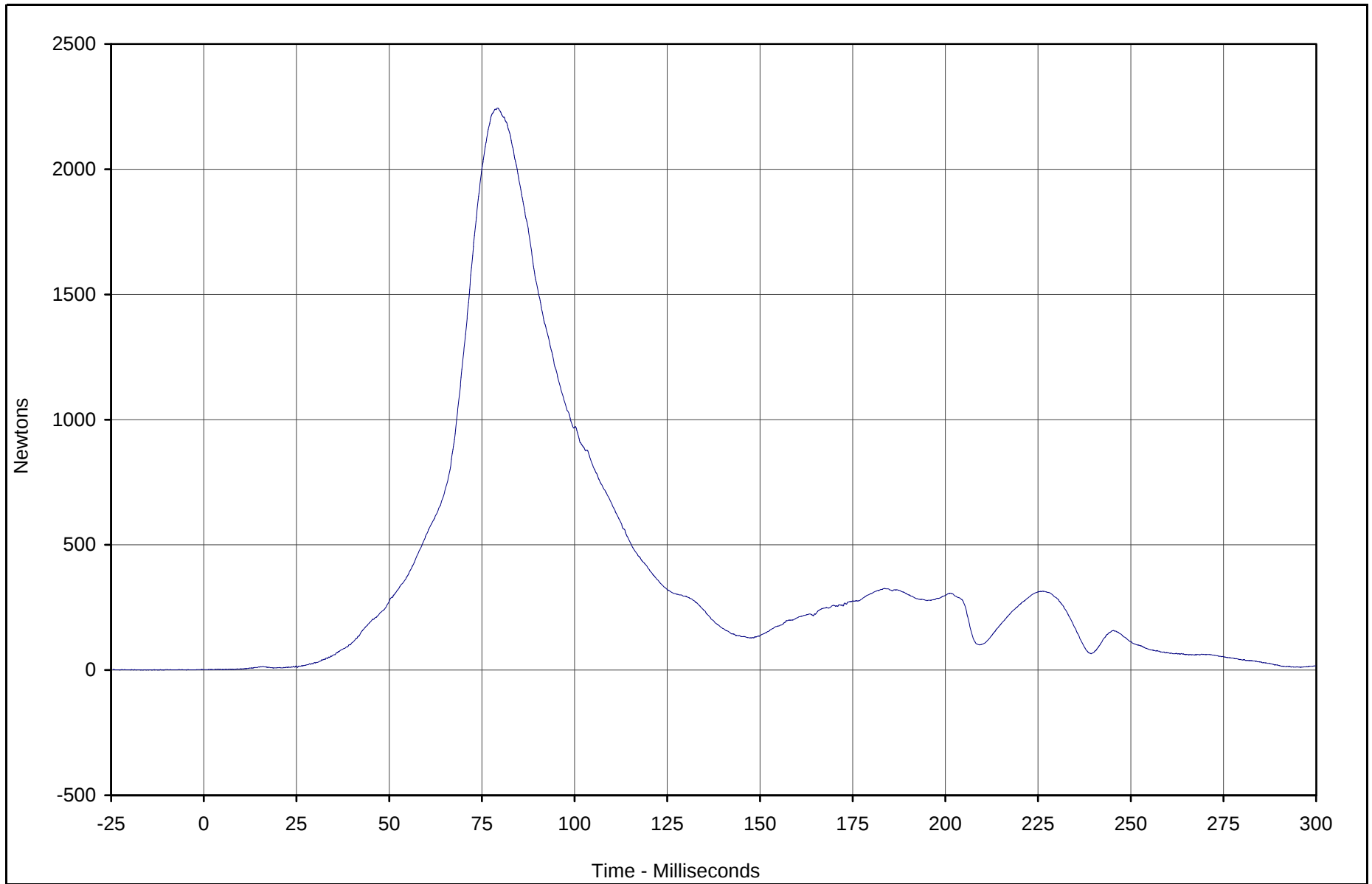


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Upper Neck Force Results	137	RES	Newtons	2244.4	79.3	1.4	1.1	1000

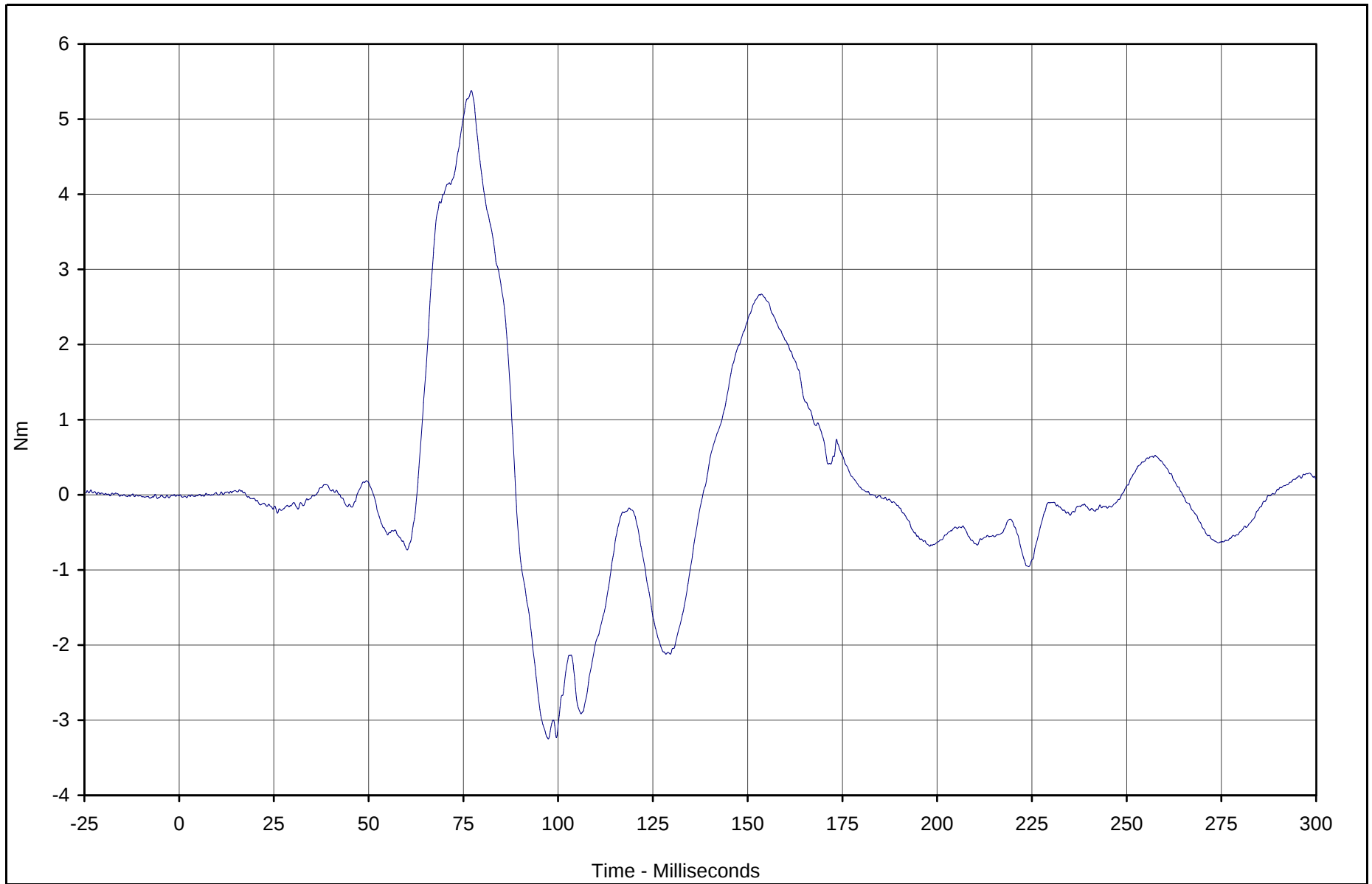


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Upper Neck Moment X	140	FIL	Nm	5.4	77.1	-3.2	97.4	600

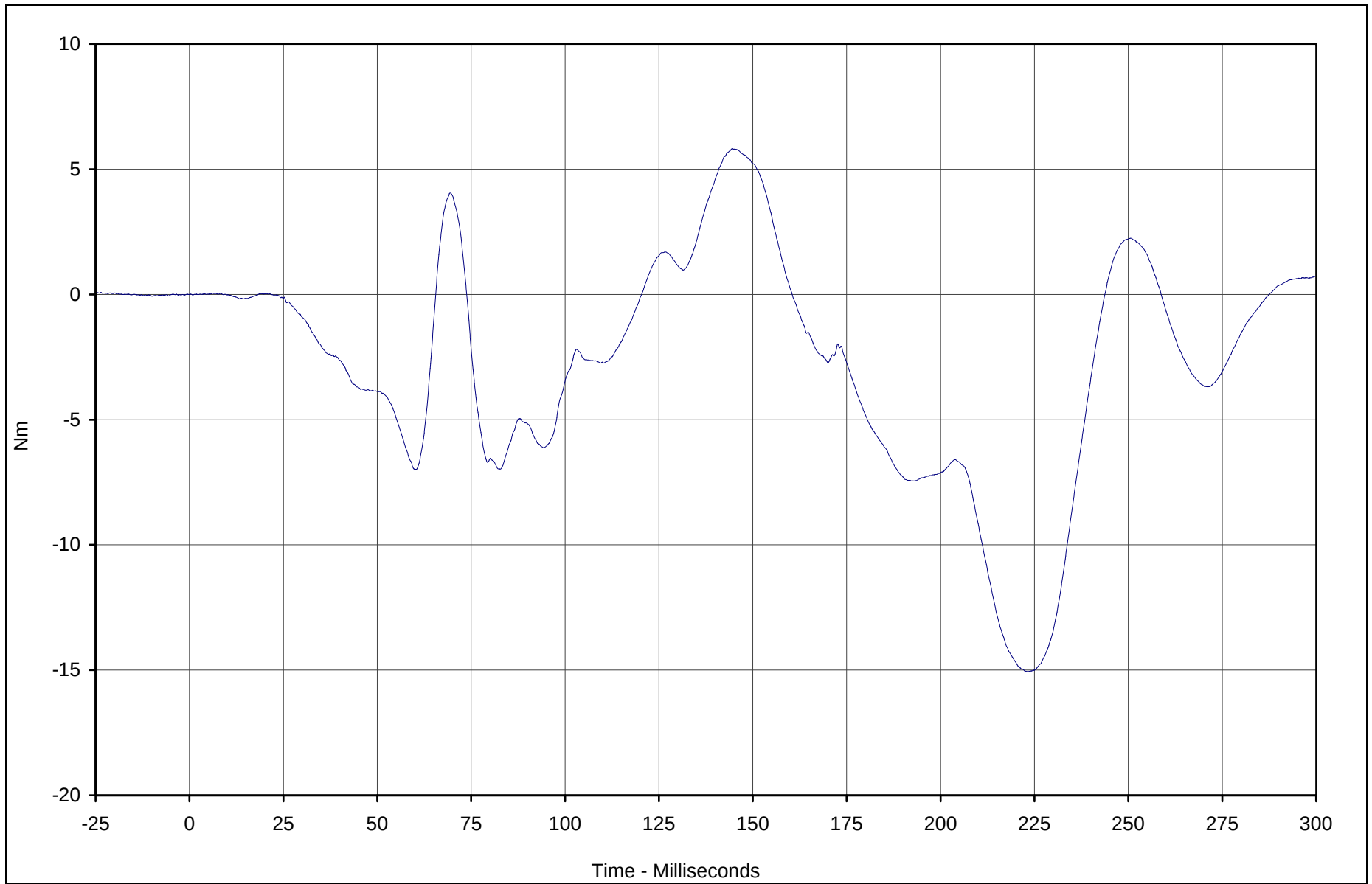


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Upper Neck Moment Y	141	FIL	Nm	5.8	144.5	-15.1	223.2	600

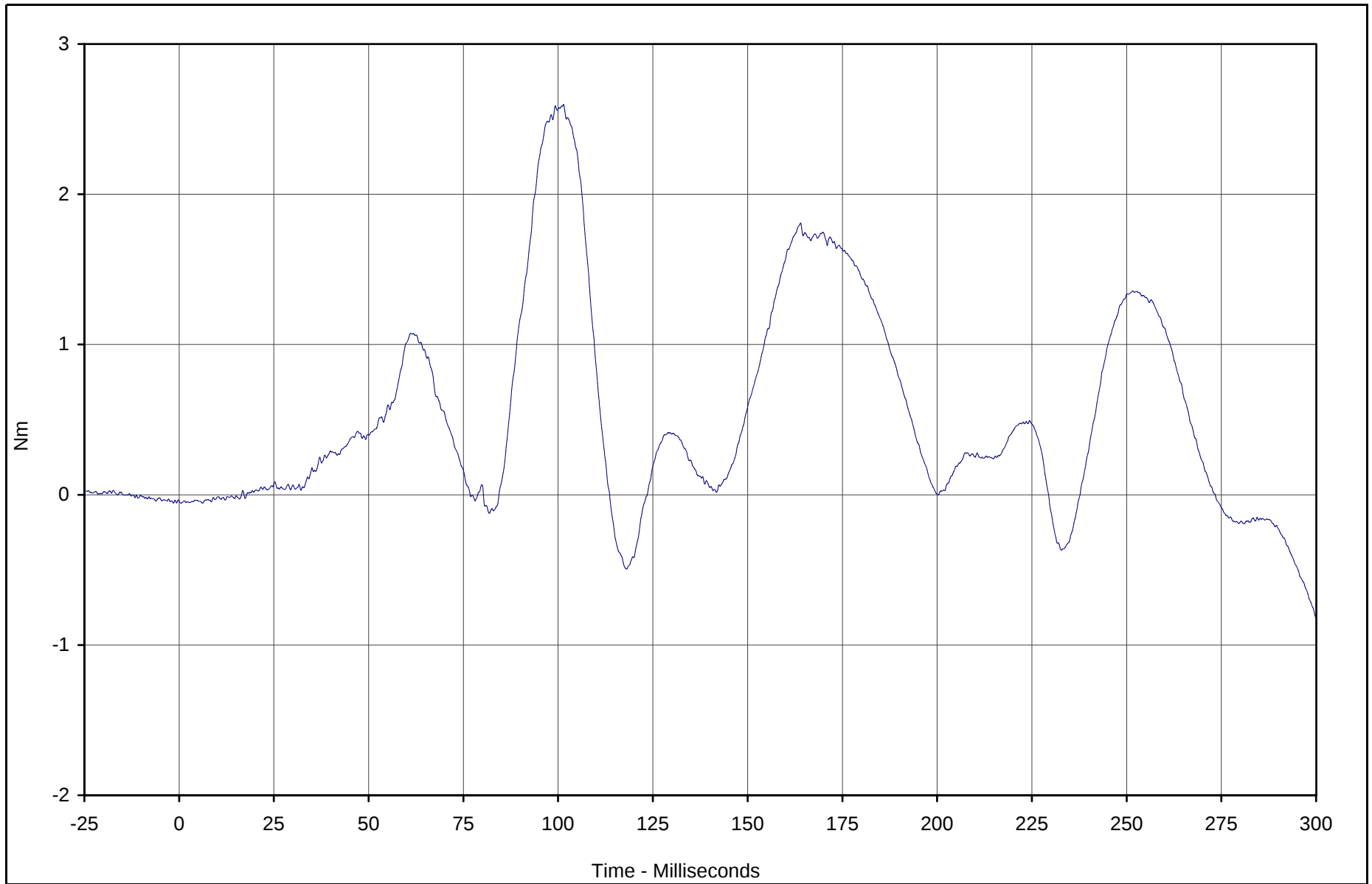


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Upper Neck Moment Z	142	FIL	Nm	2.6	101.4	-0.8	299.9	600

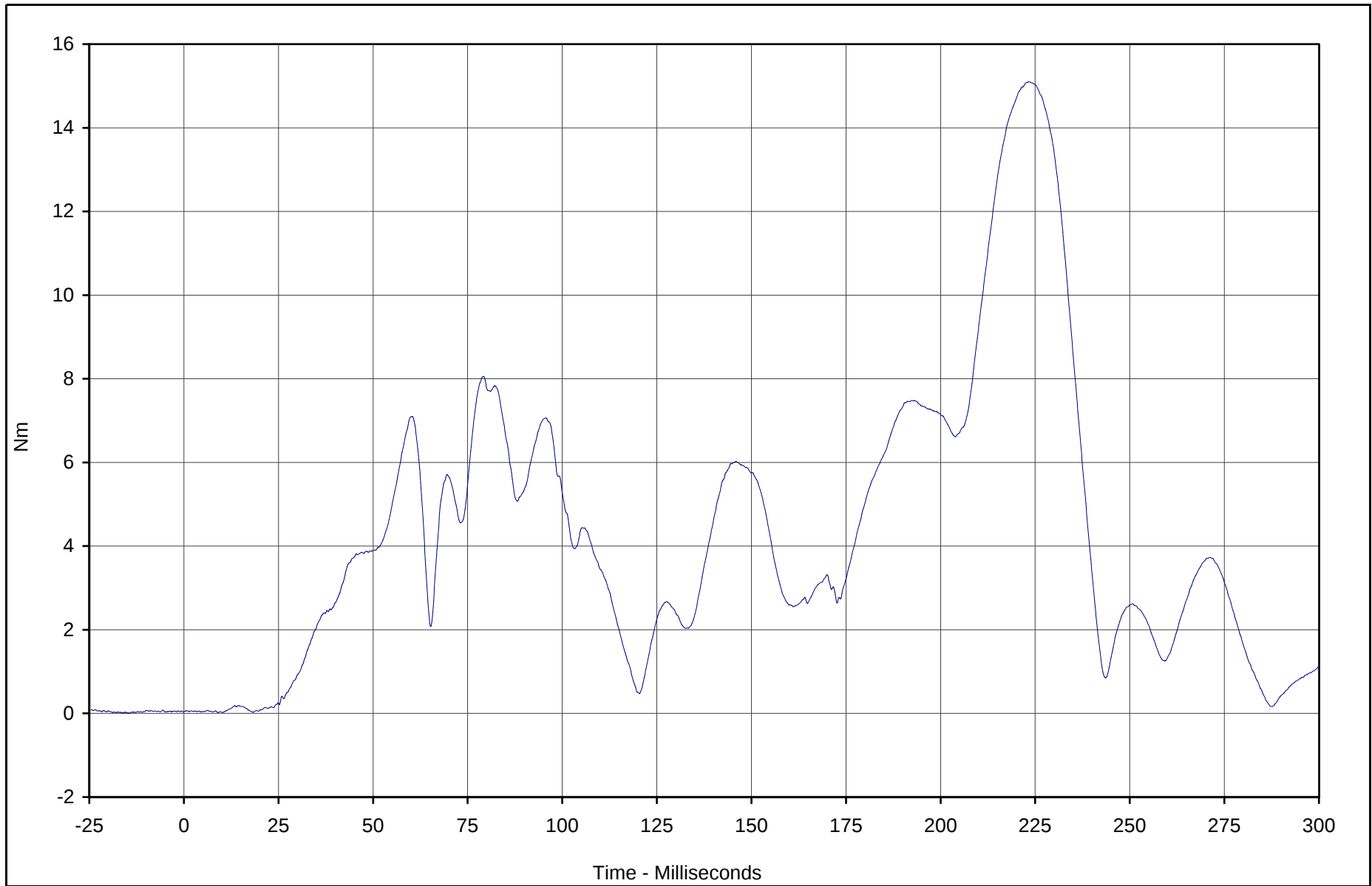


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Upper Neck Moment Result	140	RES	Nm	15.1	223.5	0.0	10.3	600

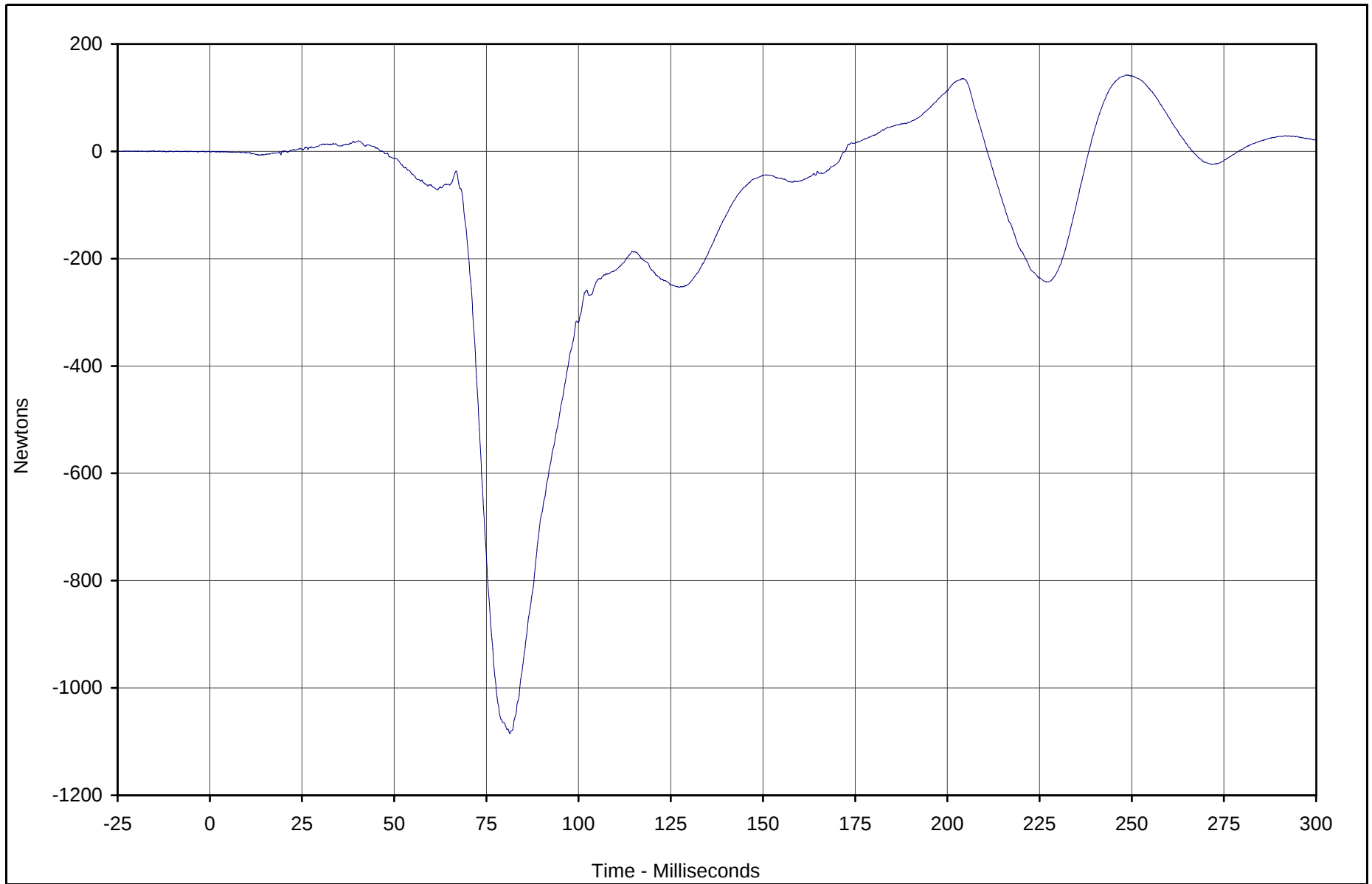


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Lower Neck Force X	143	FIL	Newtons	142.8	248.4	-1084.9	81.3	1000

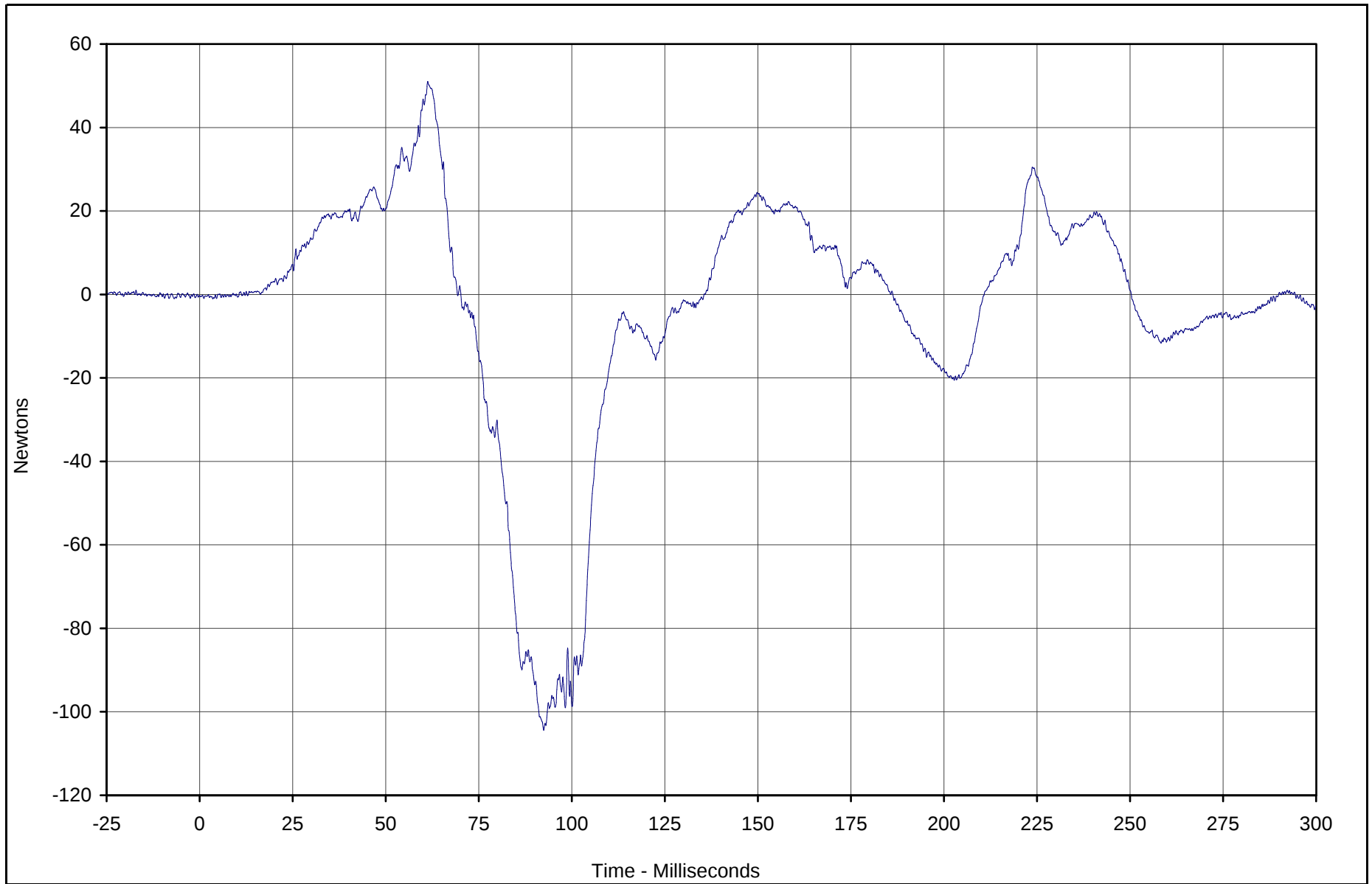


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Lower Neck Force Y	144	FIL	Newtons	51.1	61.3	-104.4	92.5	1000

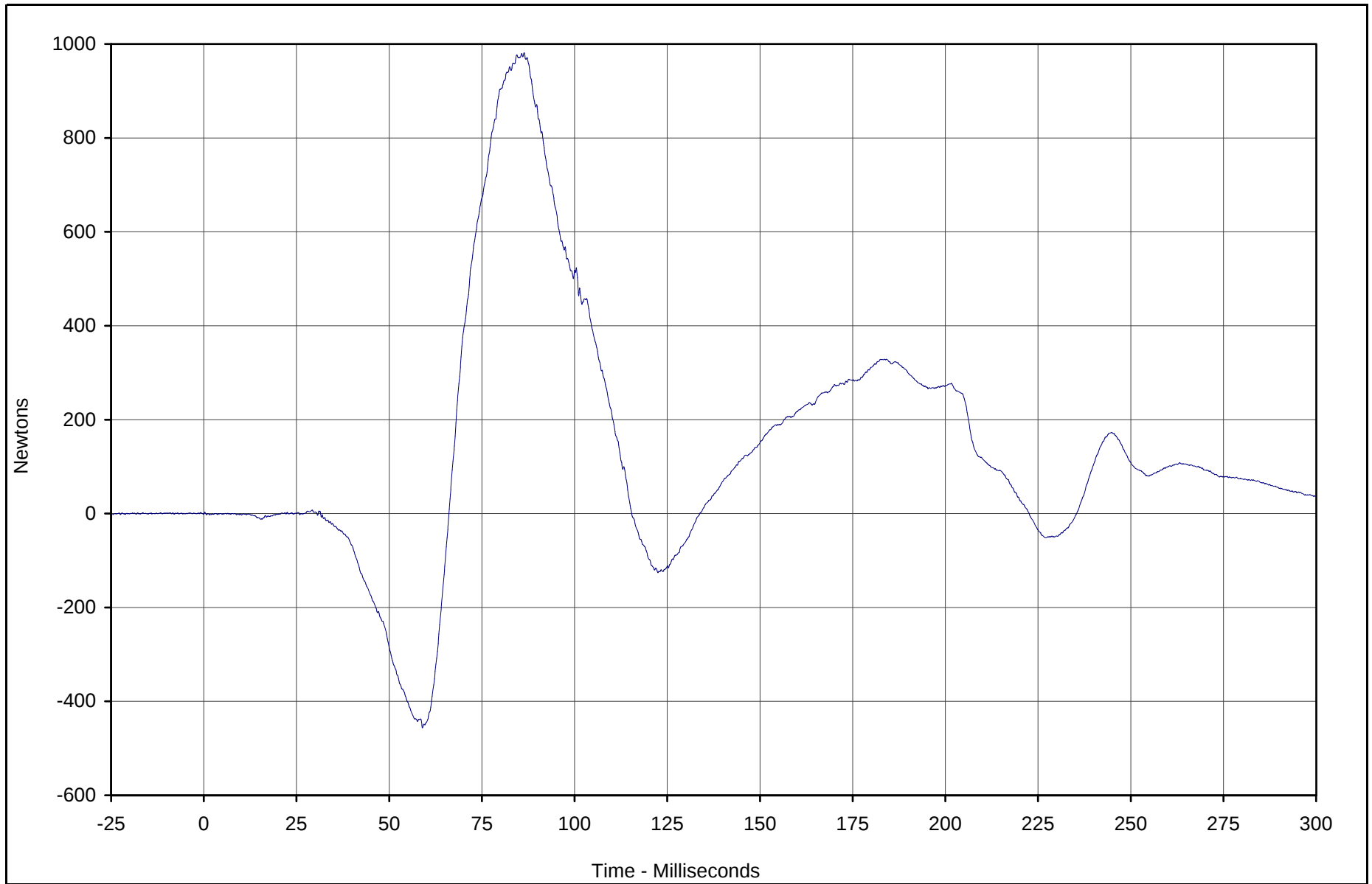


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Lower Neck Force Z	145	FIL	Newtons	981.6	86.4	-456.5	59.0	1000

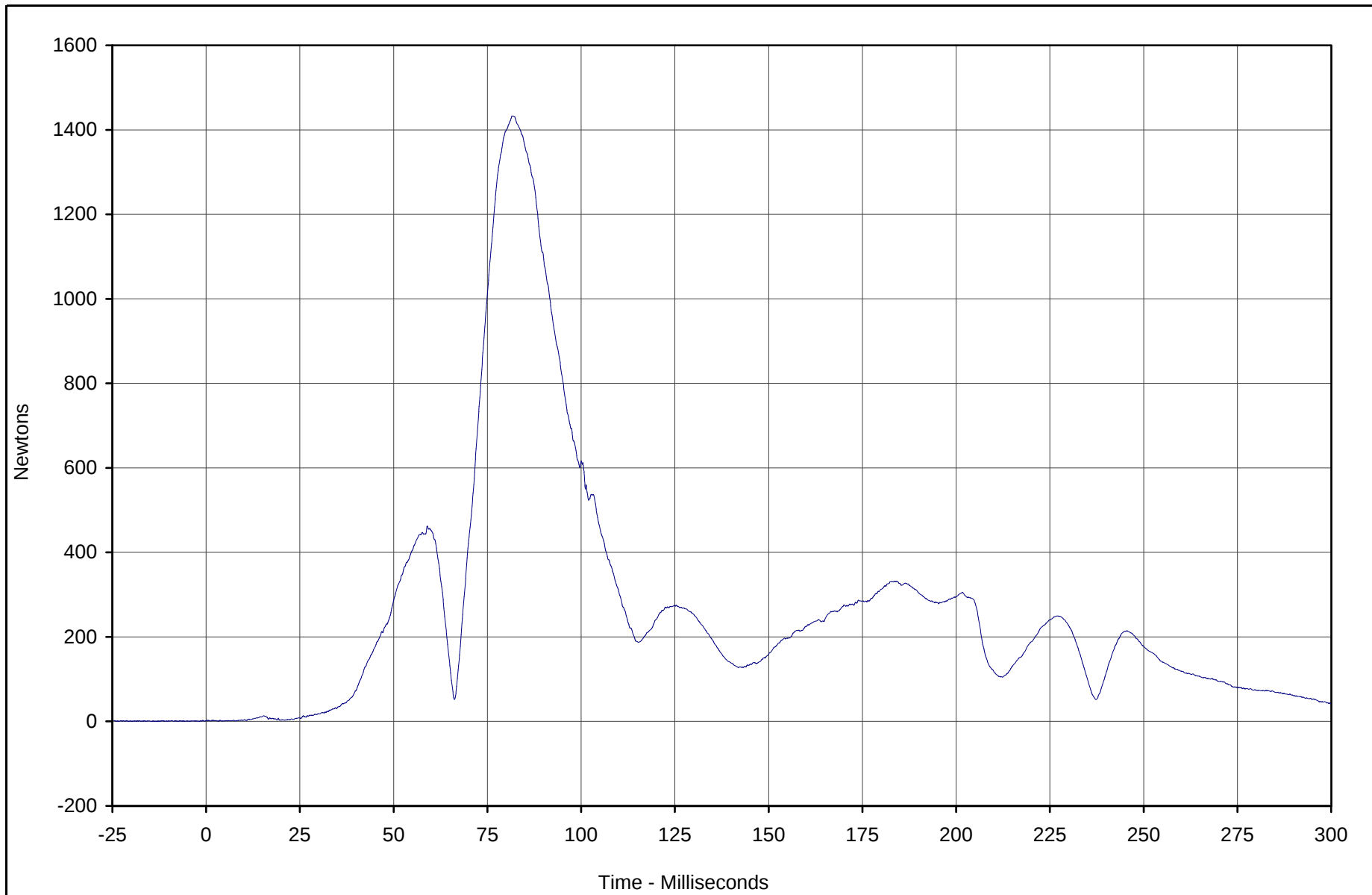


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Lower Neck Force Results	143	RES	Newtons	1432.6	81.8	0.7	3.3	1000

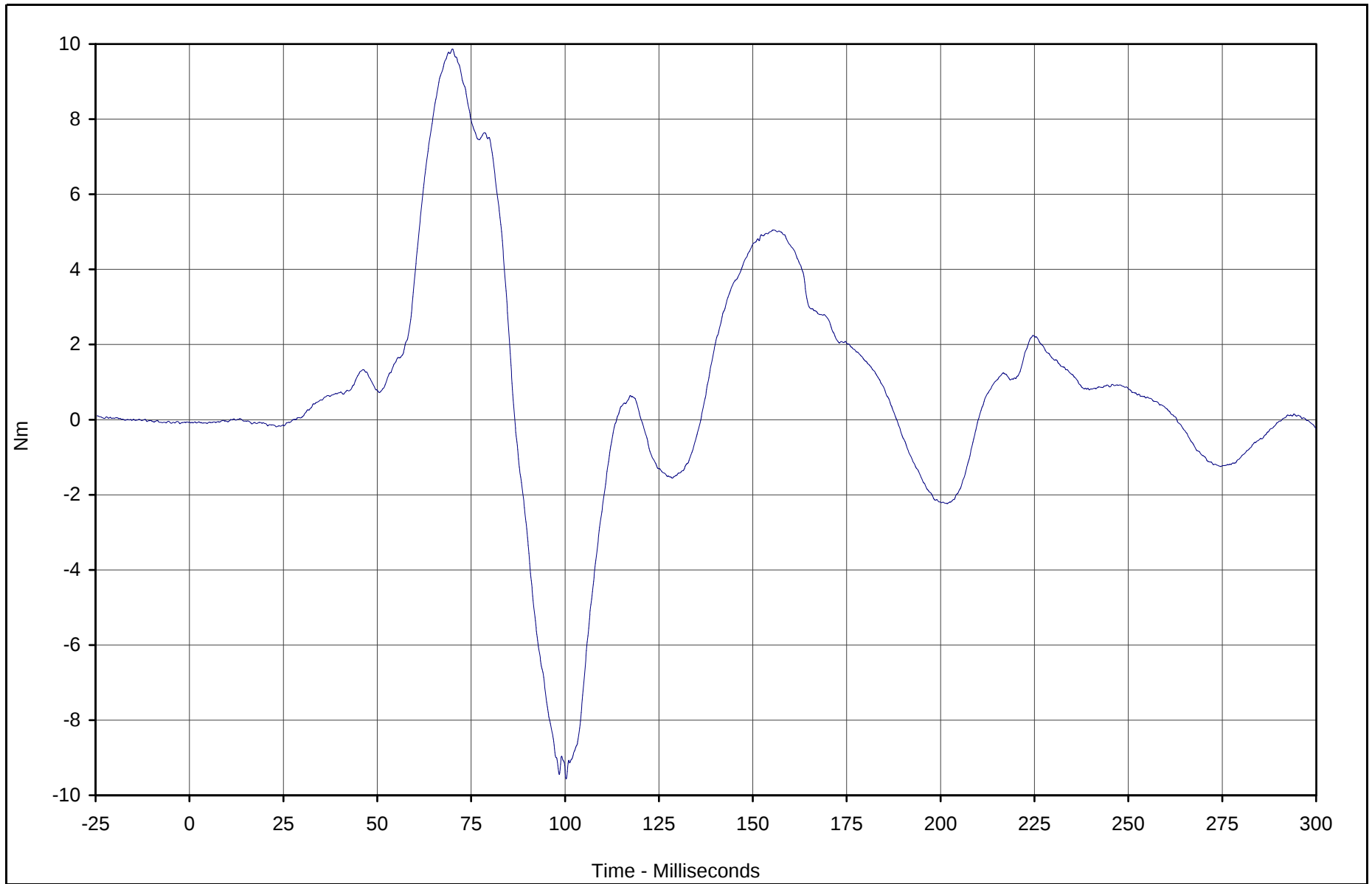


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Lower Neck Moment X	146	FIL	Nm	9.9	70.0	-9.6	100.3	600

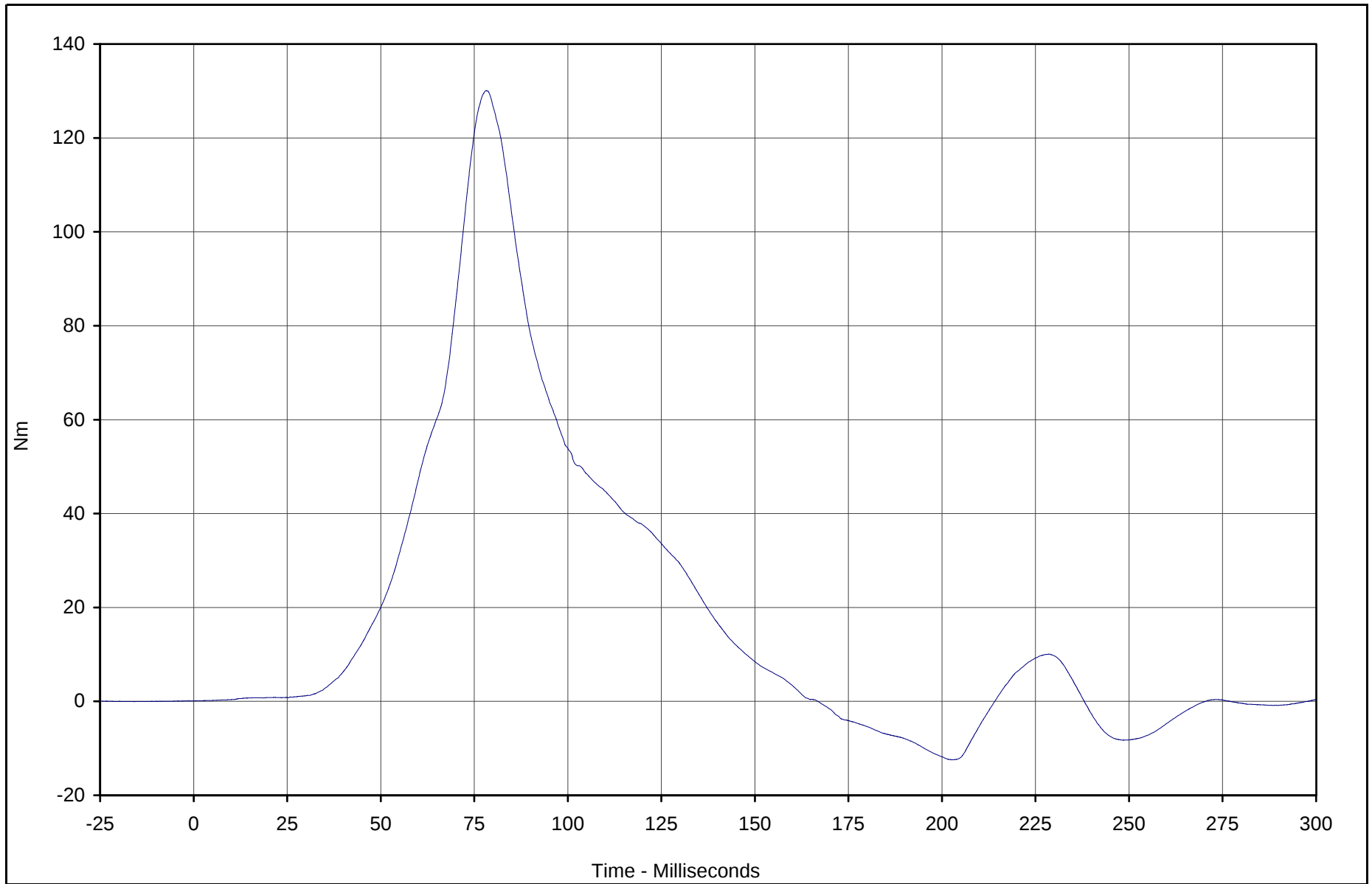


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Lower Neck Moment Y	147	FIL	Nm	130.1	78.2	-12.4	202.6	600

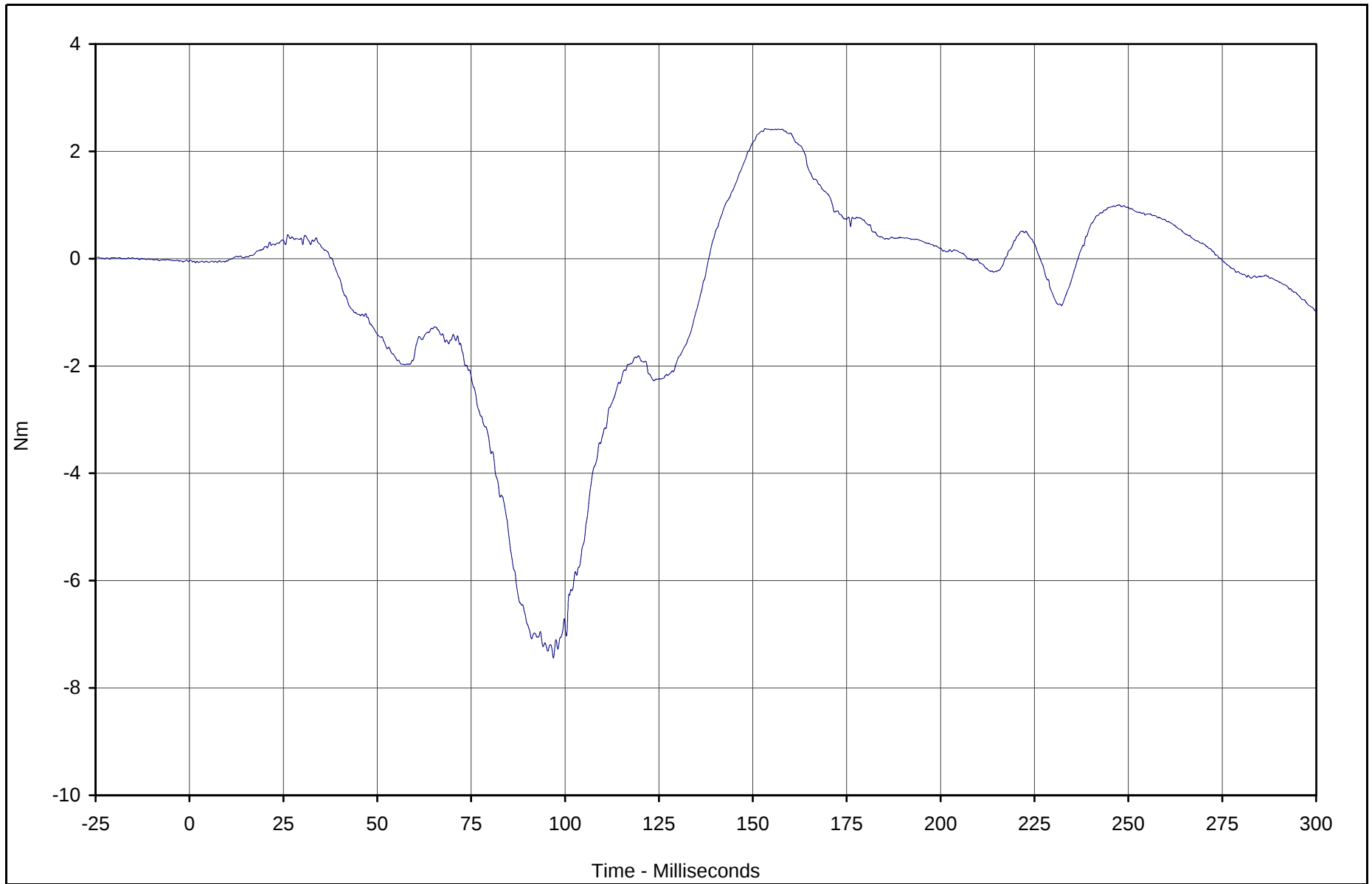


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Lower Neck Moment Z	148	FIL	Nm	2.4	153.3	-7.4	96.9	600

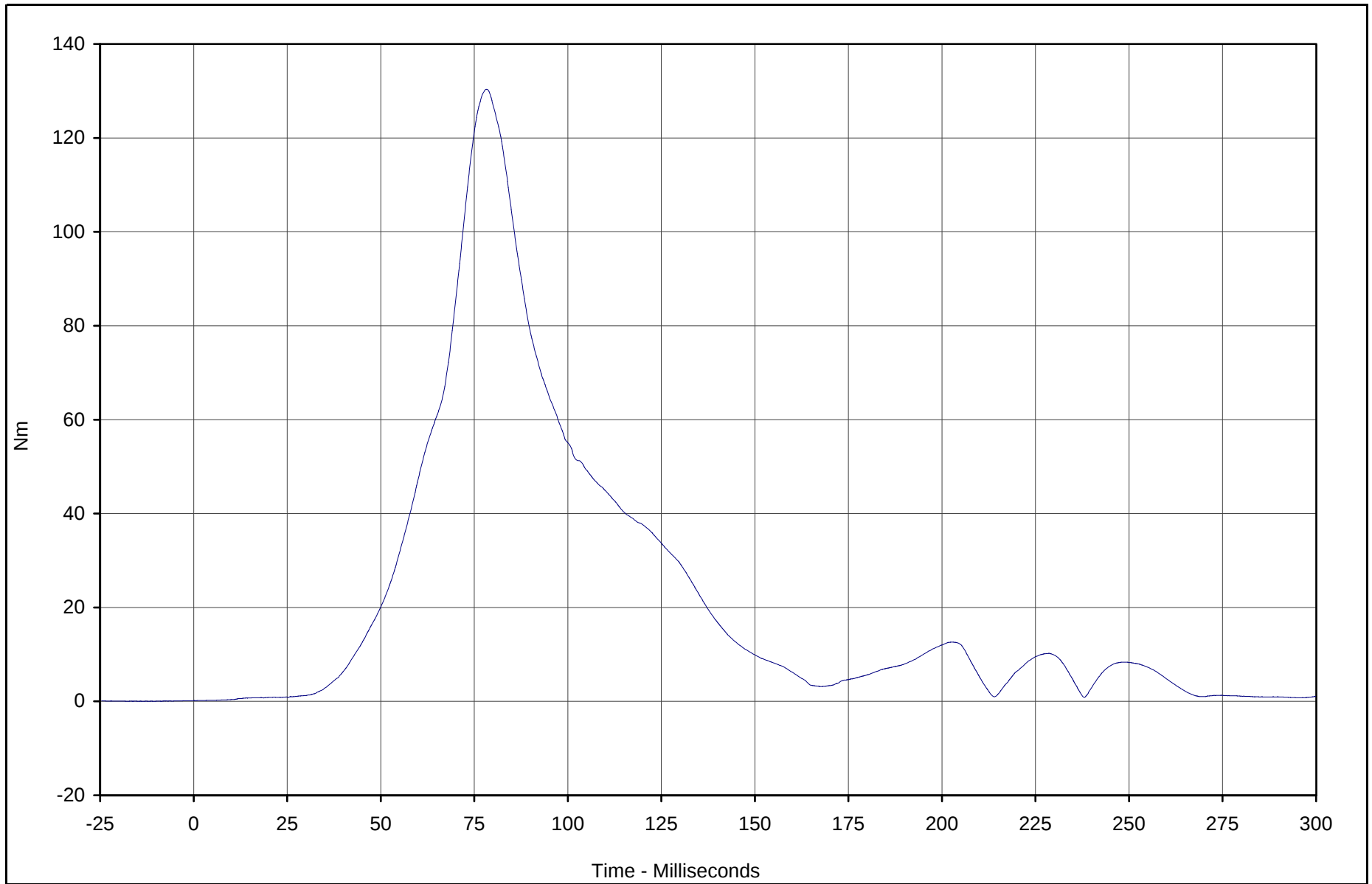


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Lower Neck Moment Result	146	RES	Nm	130.3	78.2	0.1	0.0	600

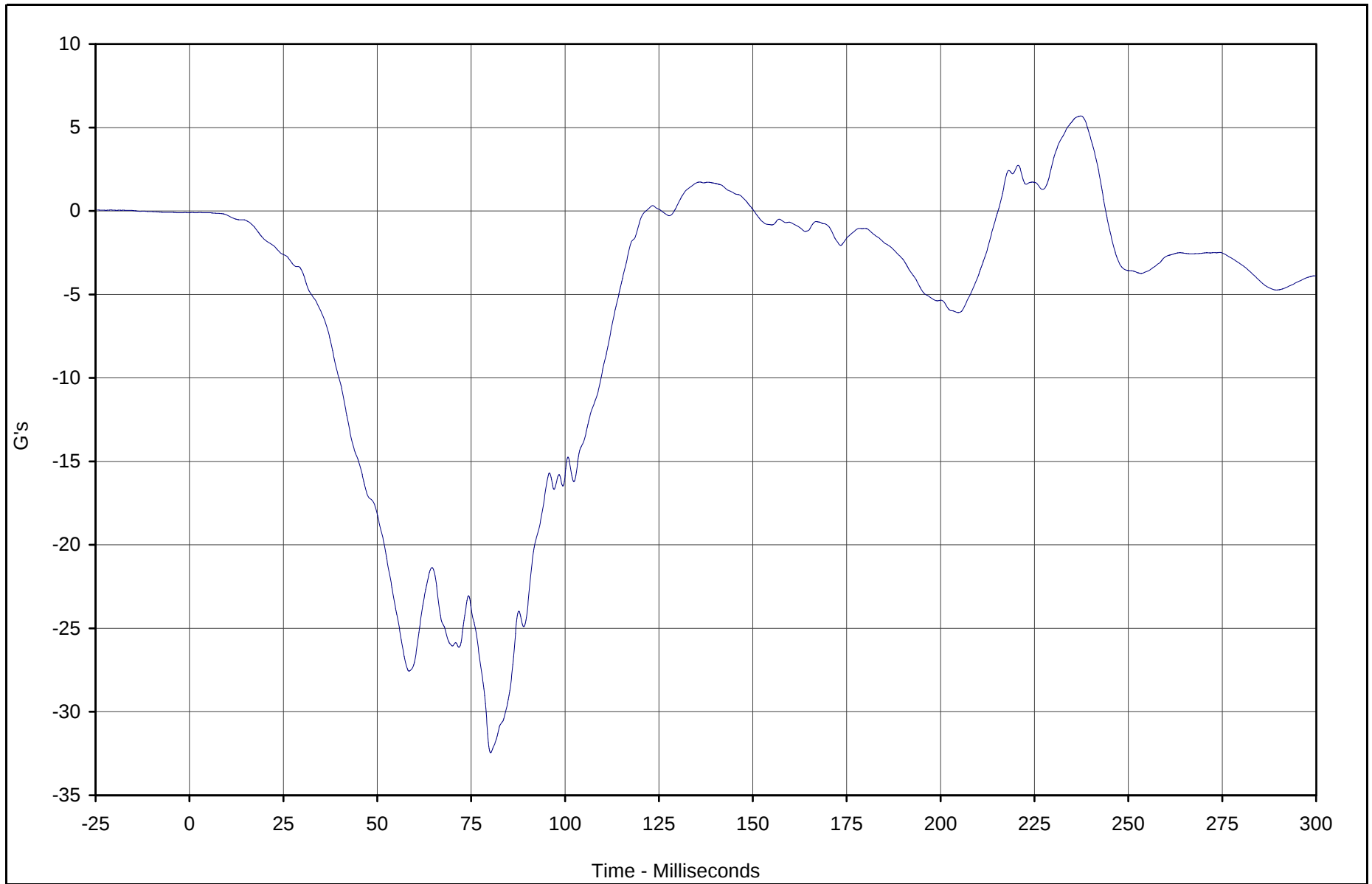


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Chest X	149	FIL	G's	5.7	237.4	-32.5	80.2	180

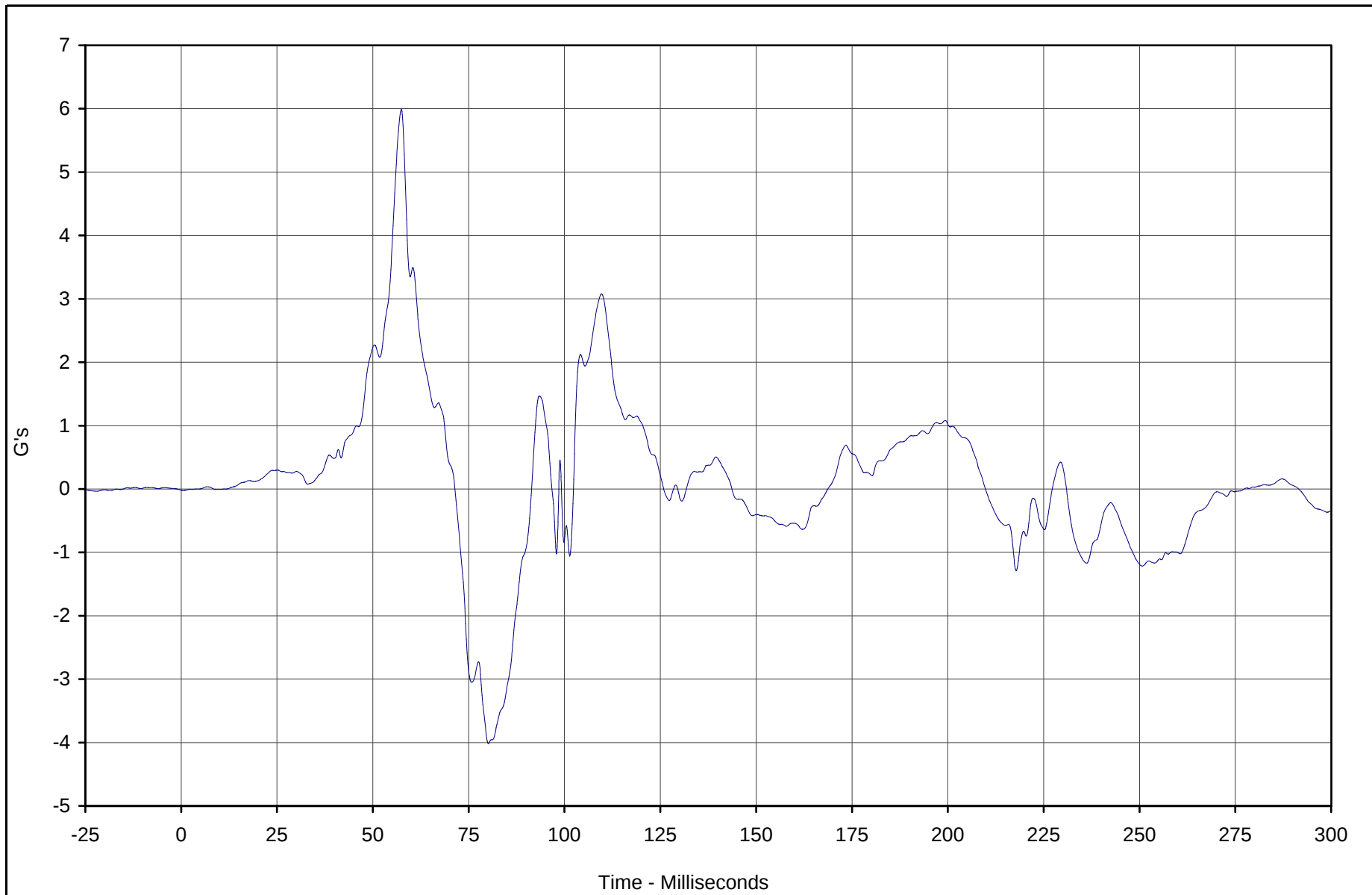


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Chest Y	150	FIL	G's	6.0	57.4	-4.0	80.1	180

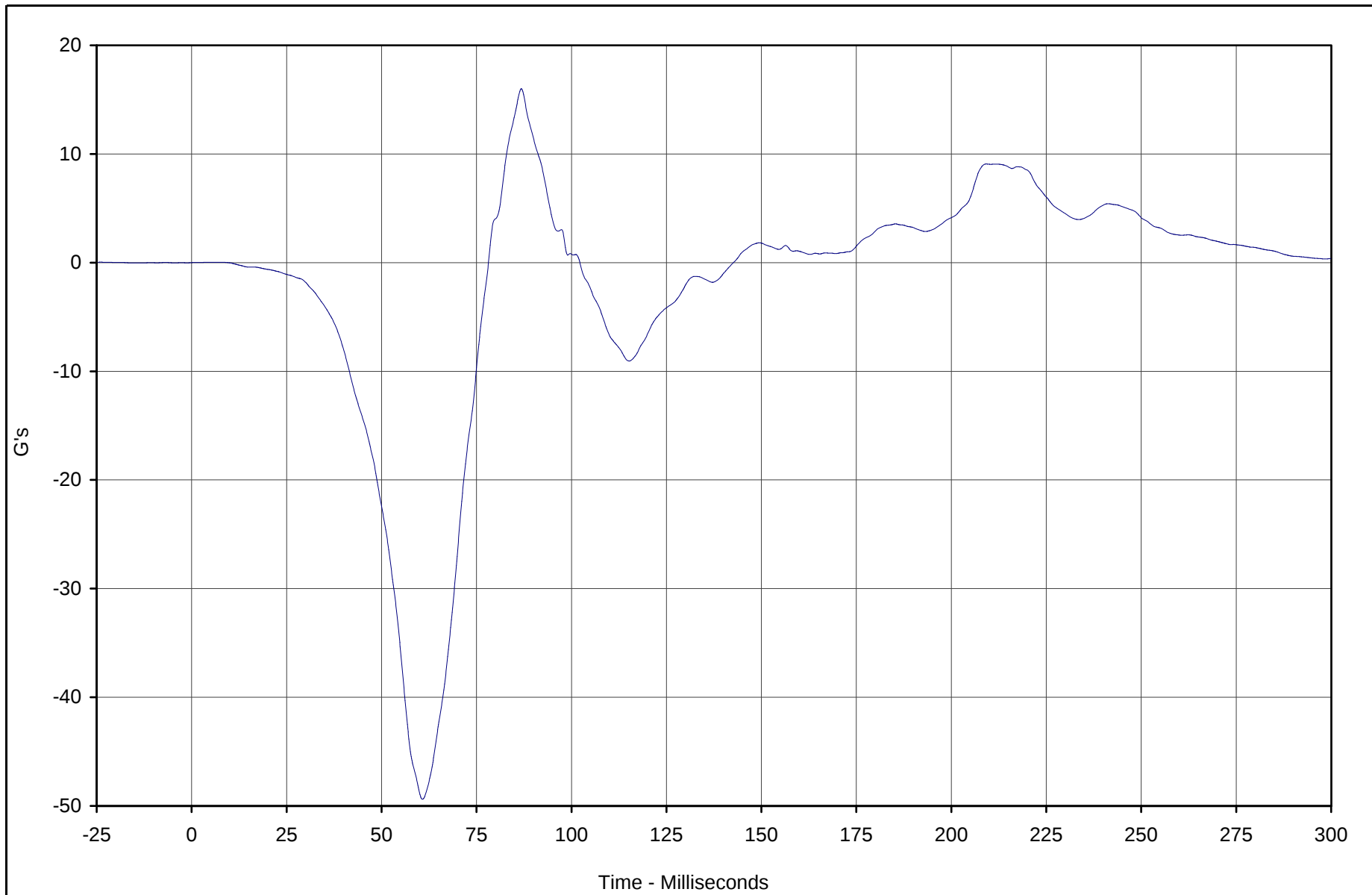


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Chest Z	151	FIL	G's	16.0	86.8	-49.4	60.8	180

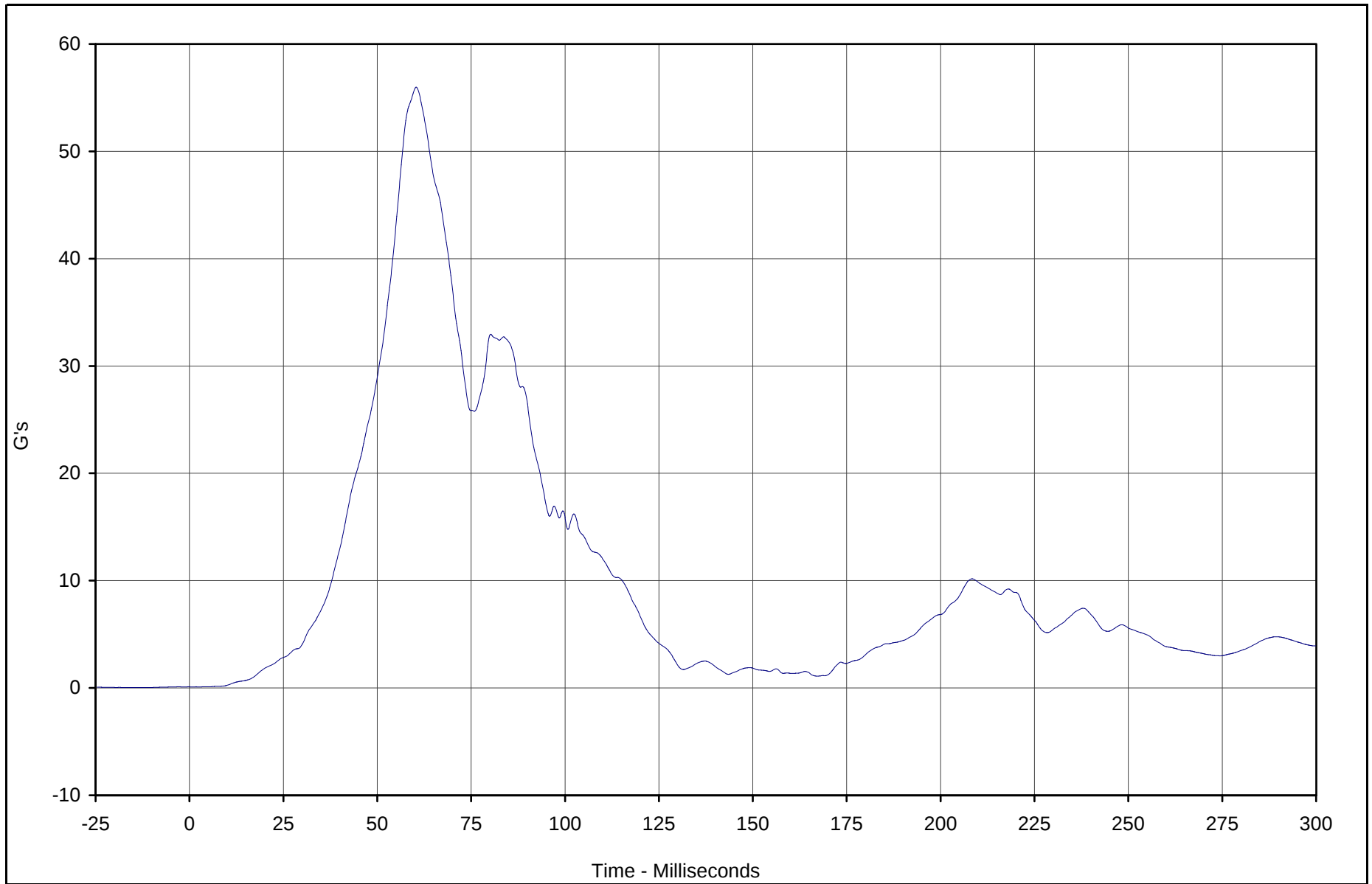


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Chest Resultant	149	RES	G's	56.0	60.4	0.1	2.7	180

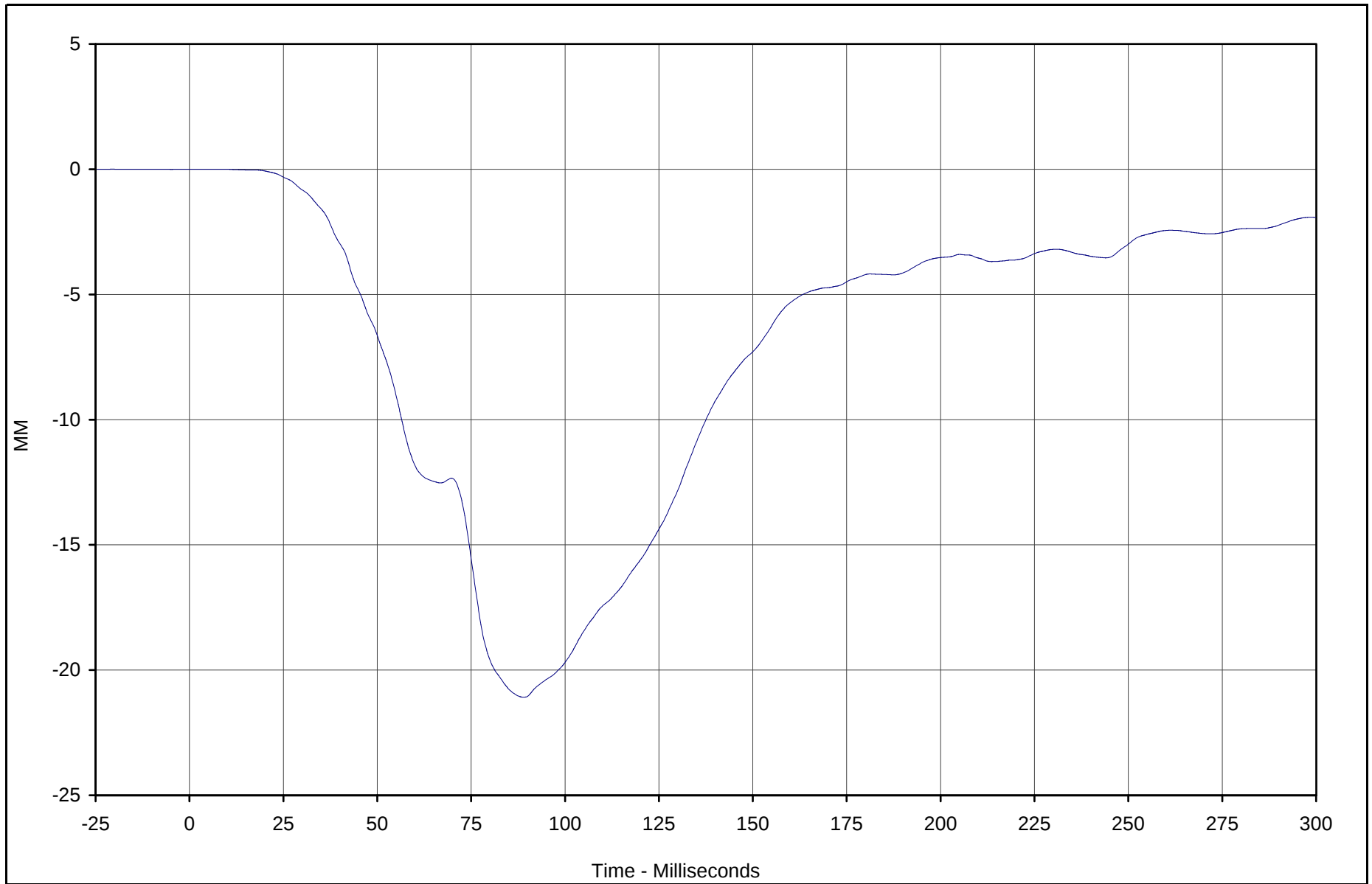


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Chest Deflection	152	FIL	MM	0.0	9.5	-21.1	88.9	180

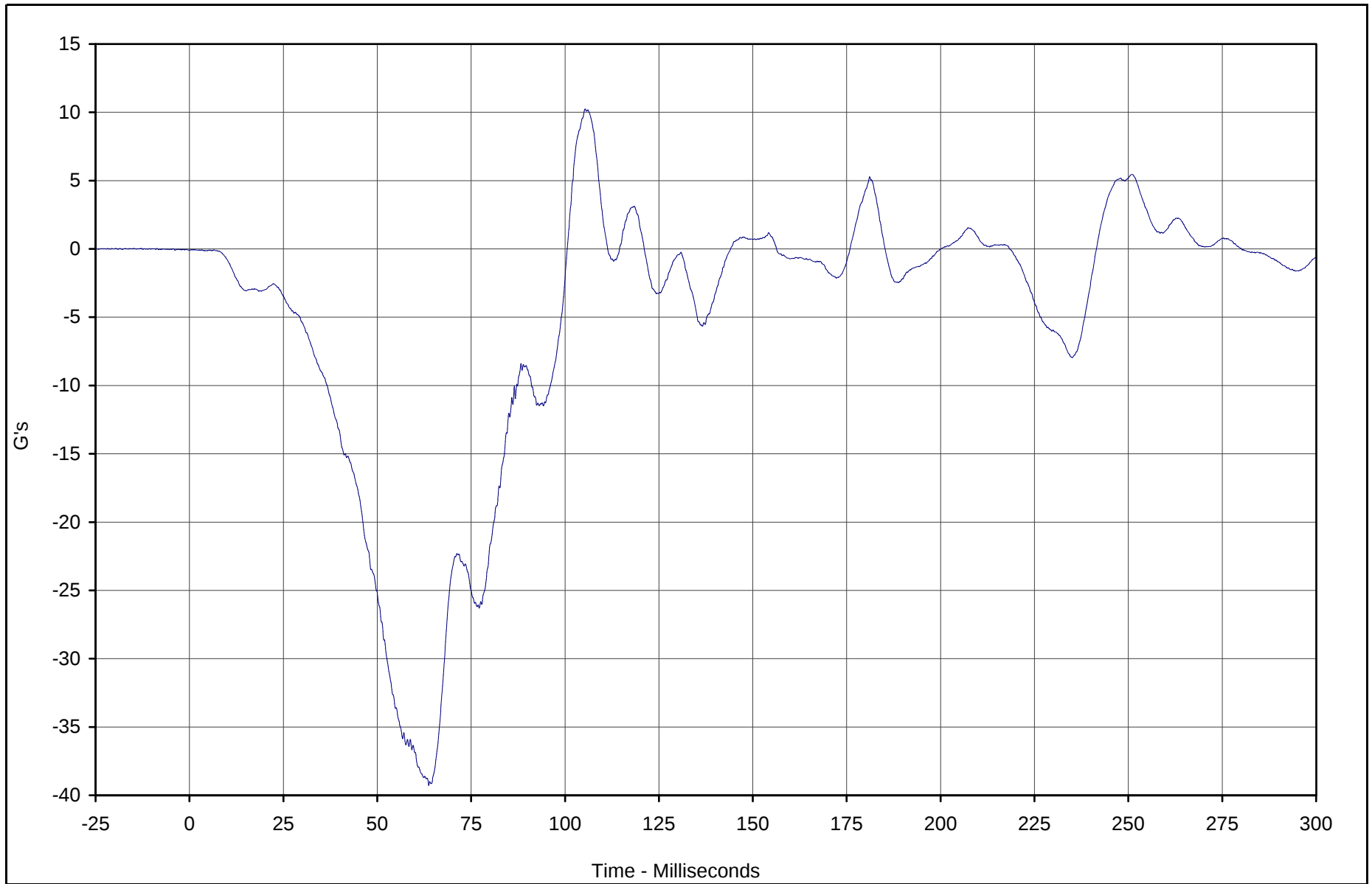


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Pelvis X	153	FIL	G's	10.2	105.3	-39.3	63.7	1000

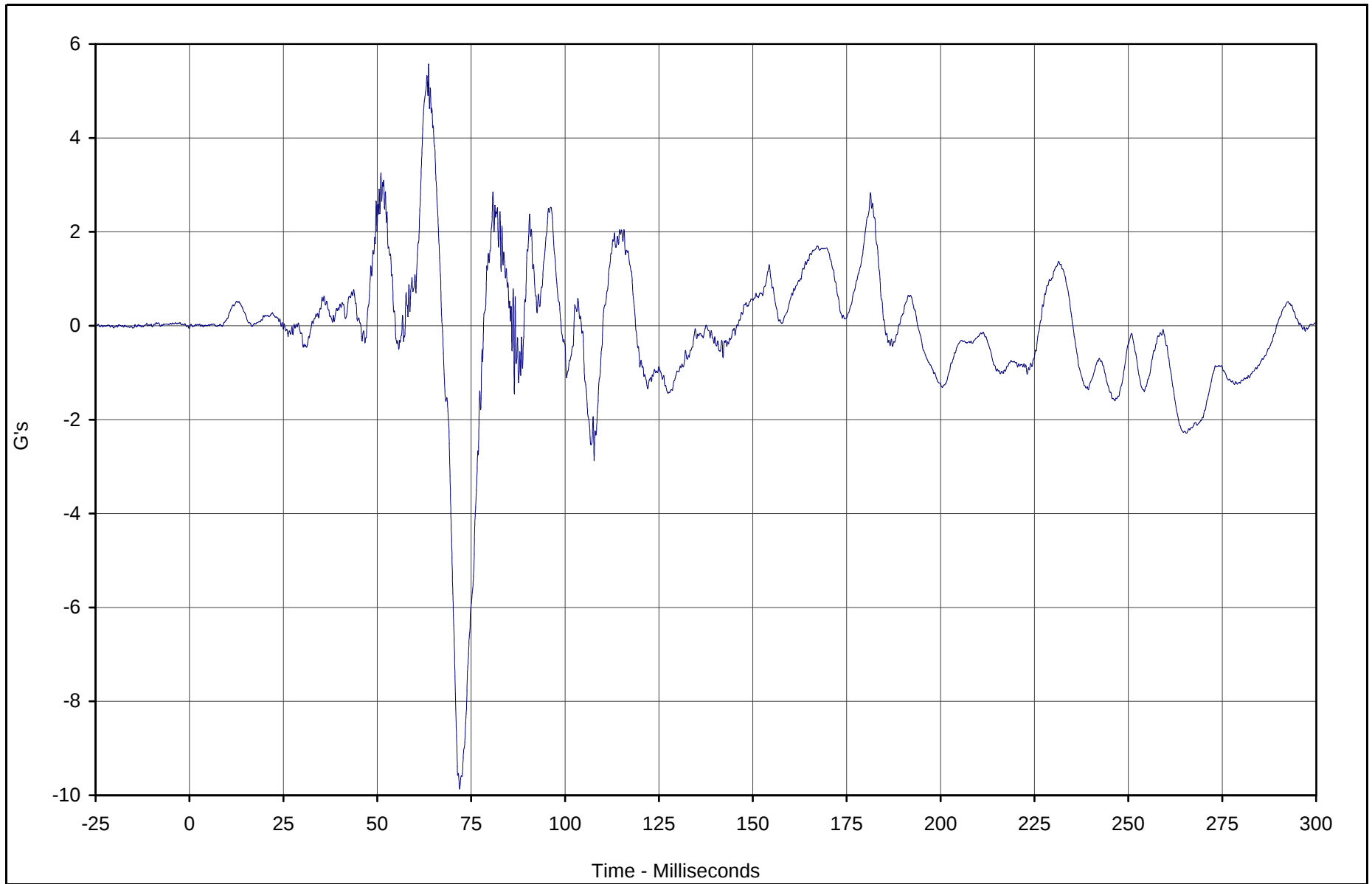


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Pelvis Y	154	FIL	G's	5.6	63.7	-9.9	71.9	1000

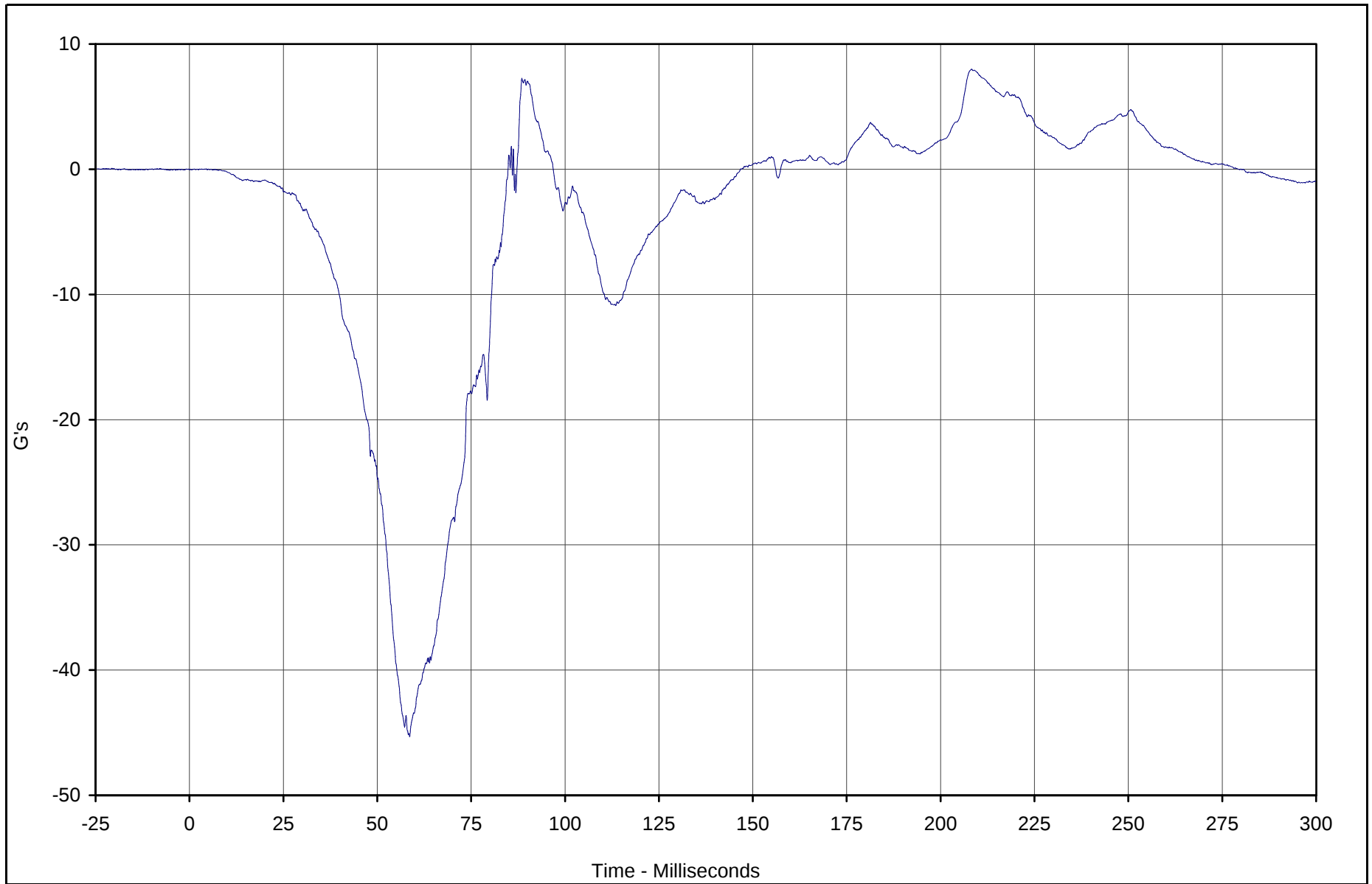


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Pelvis Z	155	FIL	G's	8.0	208.3	-45.3	58.6	1000

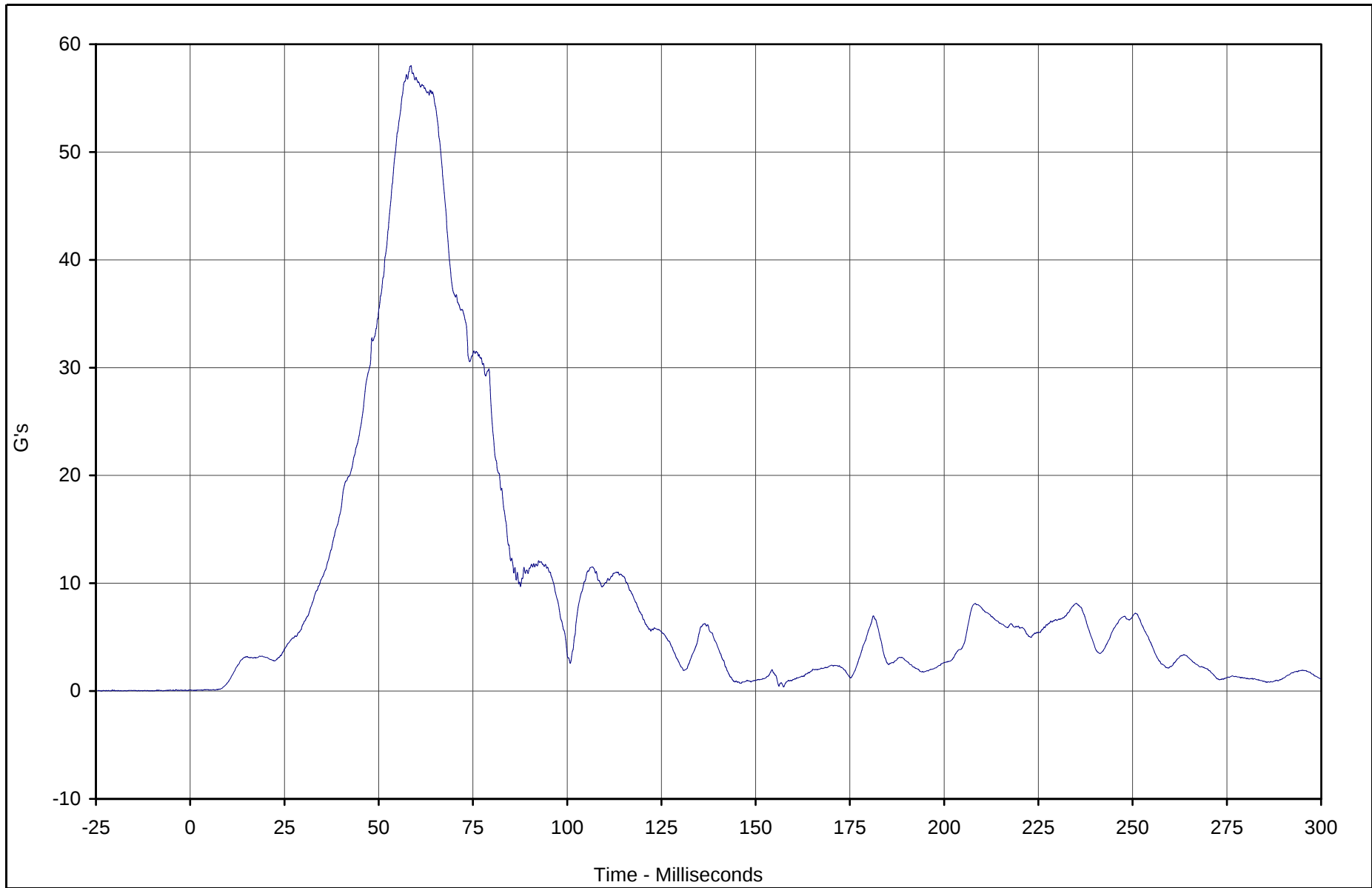


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Pelvis Resultant	153	RES	G's	58.0	58.6	0.1	1.0	1000

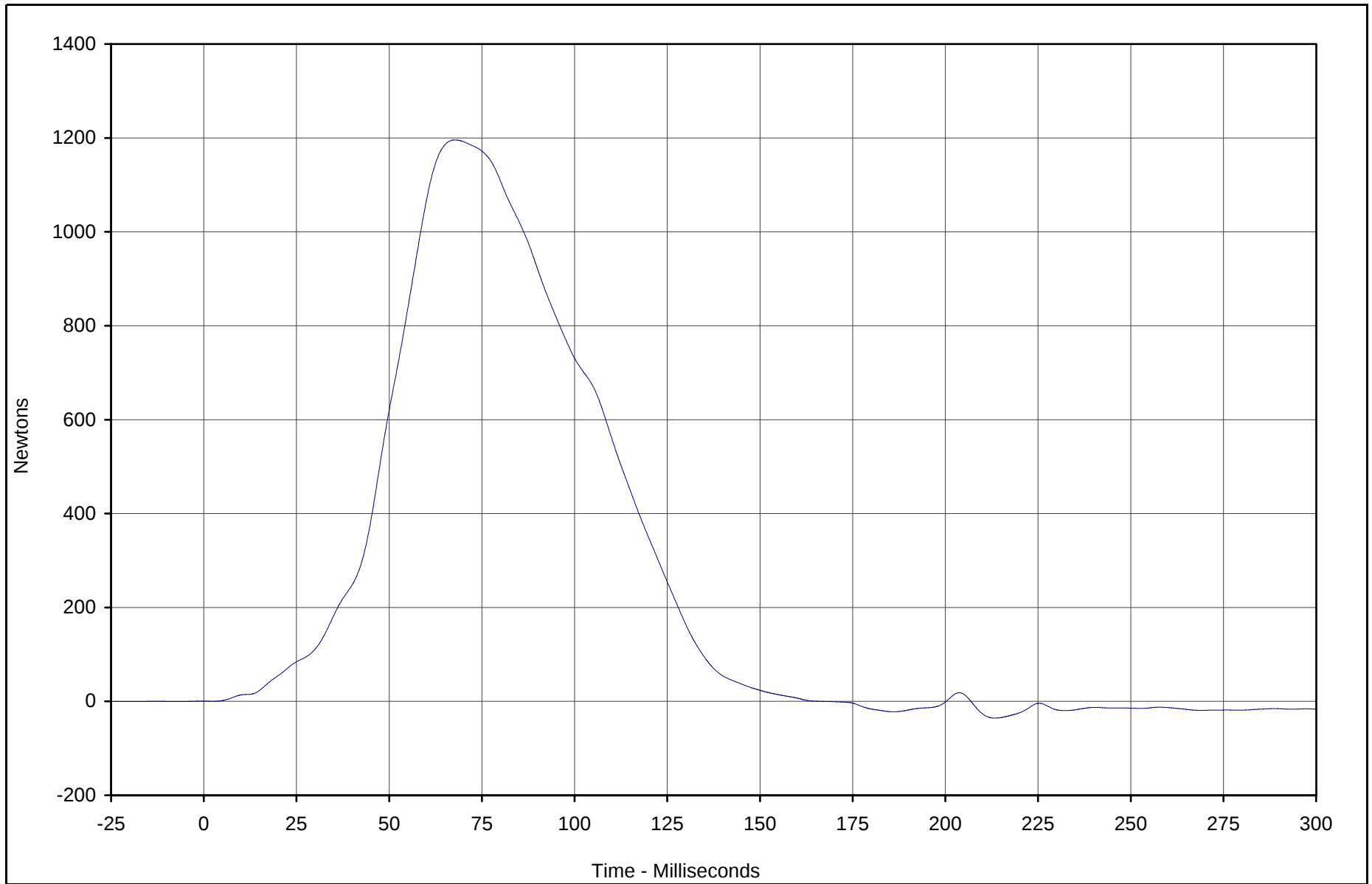


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Child Seat Tether Load	156	FIL	Newtons	1195.7	67.8	-35.6	213.4	60

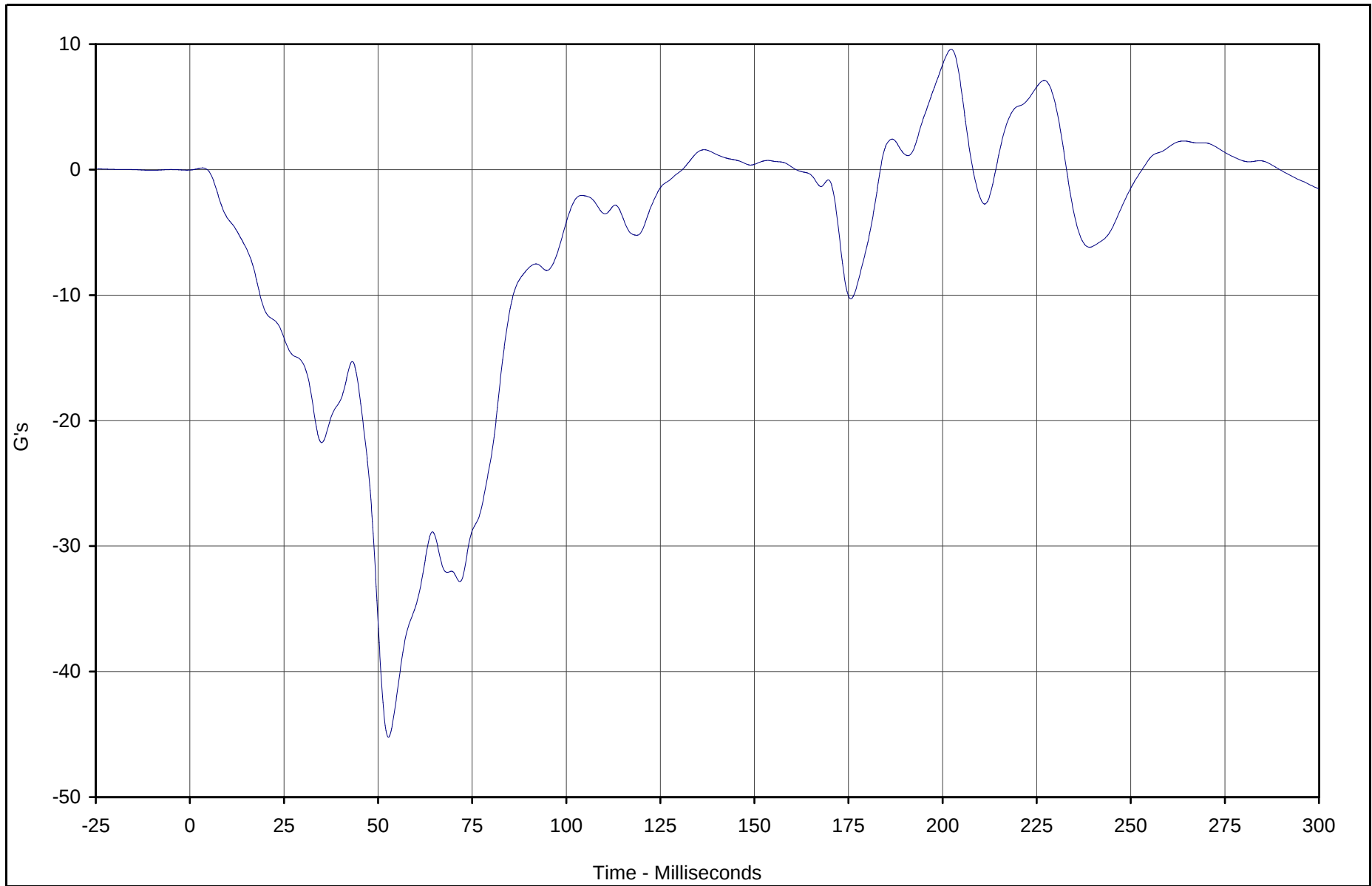


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Car Seat X	157	FIL	G's	9.6	202.3	-45.2	52.7	60

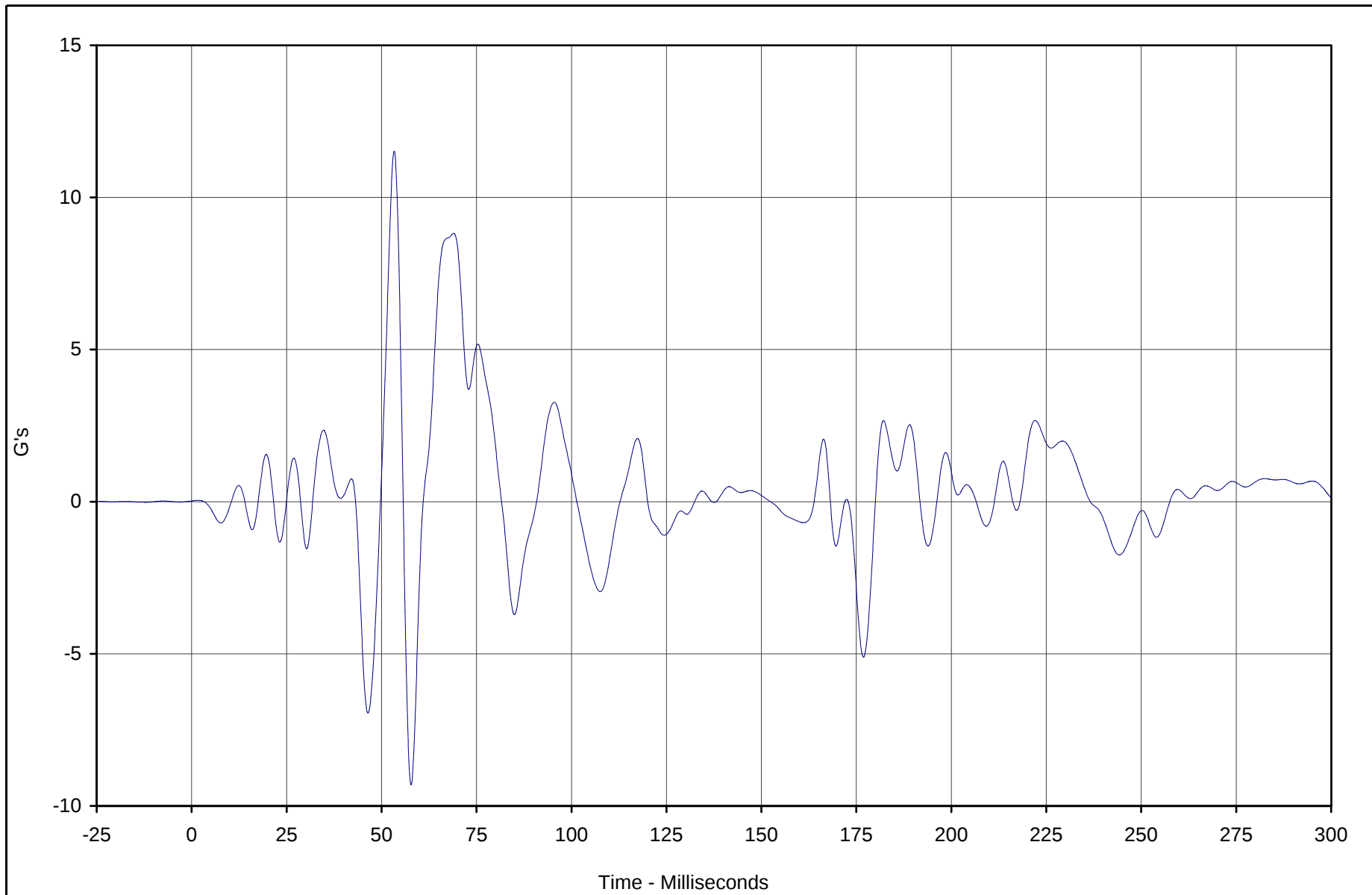


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Car Seat Y	158	FIL	G's	11.5	53.3	-9.3	57.8	60

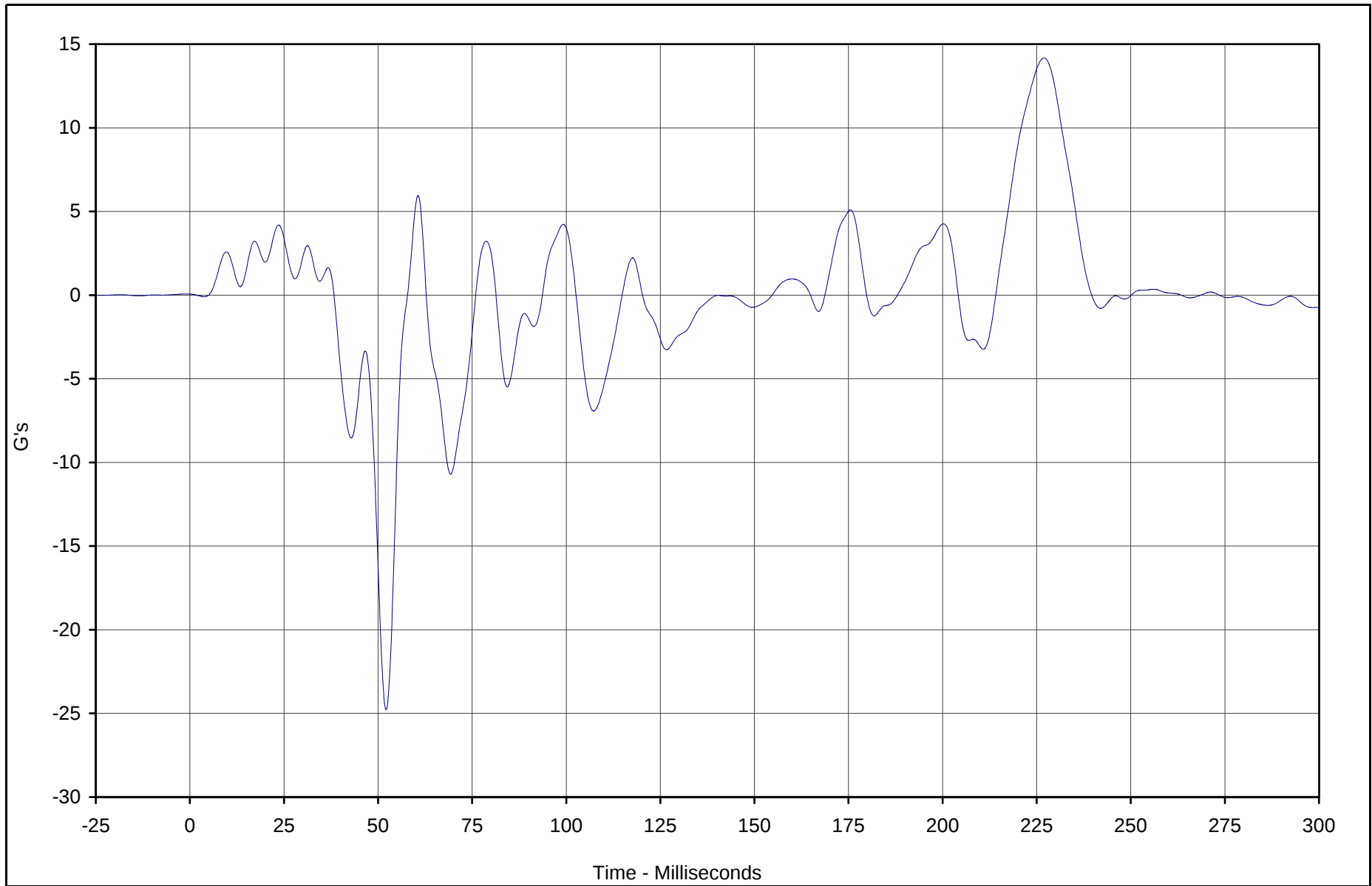


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Car Seat Z	159	FIL	G's	14.2	226.9	-24.8	52.1	60

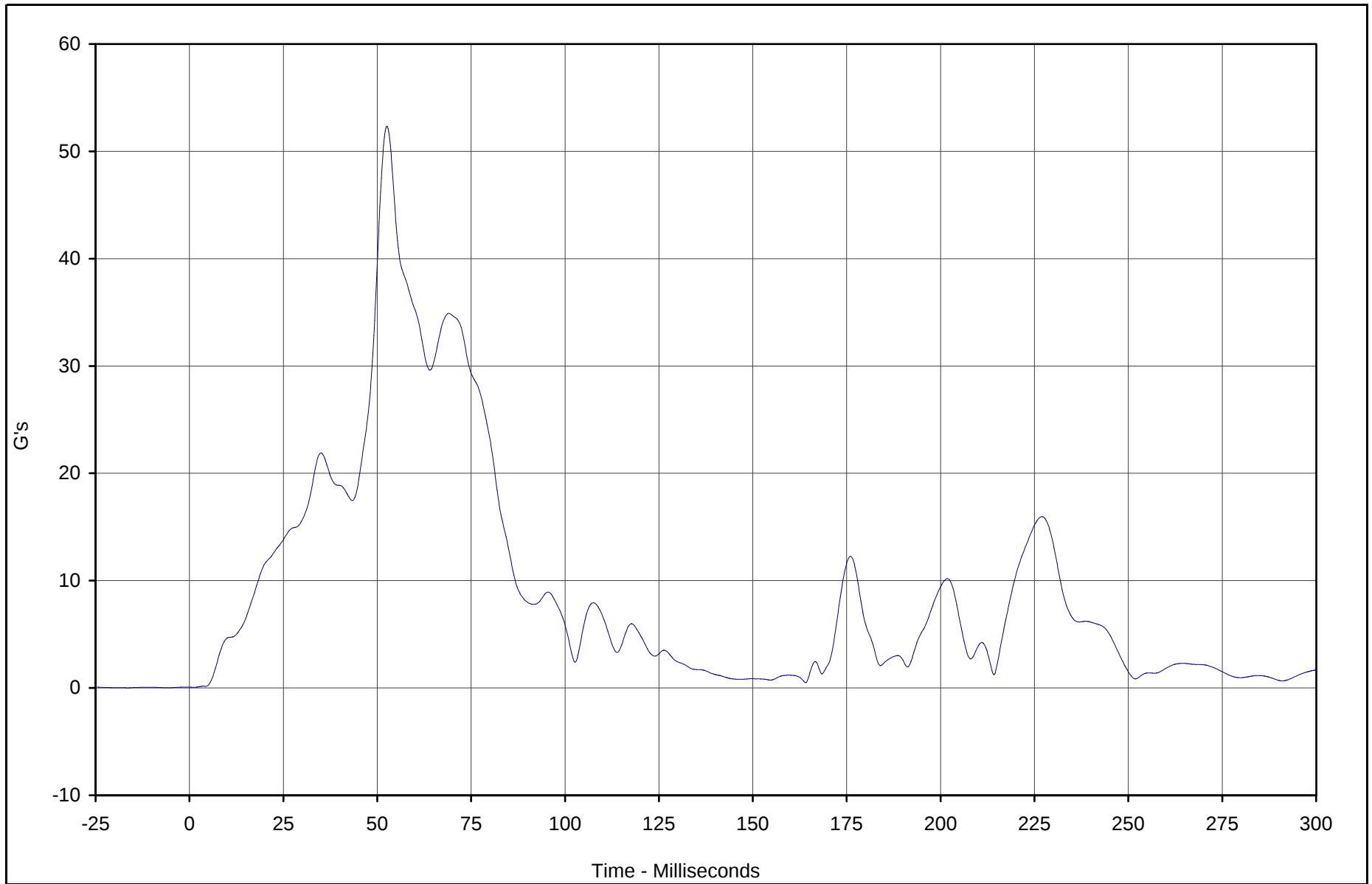


Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Child Car Seat Resultant	157	RES	G's	52.3	52.6	0.1	1.3	60



Test Vehicle: 2003 Chevrolet Cavalier 2 Door Coupe

Test Date: 12/10/02

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M30106

SECTION F-4

CHILD DUMMY INSTRUMENTATION INFORMATION

2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Right Rear Child A.T.D. Serial Number 082
12/10/02
2003 Chevrolet Cavalier 2 Door Coupe

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
134	HEAD, PRIMARY	X	GPAC050	Accel.,1/2 bridge	Endevco	7264-2000	G
135	HEAD, PRIMARY	Y	GPAC051	Accel.,1/2 bridge	Endevco	7264-2000	G
136	HEAD, PRIMARY	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 , PRIMARY	X	2116-A11	Accel., Full Bridge	Entran	2000JF	G
150	CHEST , PRIMARY	Y	2116-A14	Accel., Full Bridge	Entran	2000JF	G
151	CHEST , PRIMARY	Z	2116-A23	Accel., Full Bridge	Entran	2000JF	G
152	CHEST DISPLACEMENT	X	082CP	Rotary Pot Chest	Servo	14CBI	MM
153	PELVIS, PRIMARY	X	2116-A12	Accel., Full Bridge	Entran	2000JF	G
154	PELVIS, PRIMARY	Y	2116-A19	Accel., Full Bridge	Entran	2000JF	G
155	PELVIS, PRIMARY	Z	2116-A17	Accel., Full Bridge	Entran	2000JF	G
156	CAR SEAT TETHER	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.: 3H01A

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	7.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<10	3.7	Pass
Overall Test Results				Pass

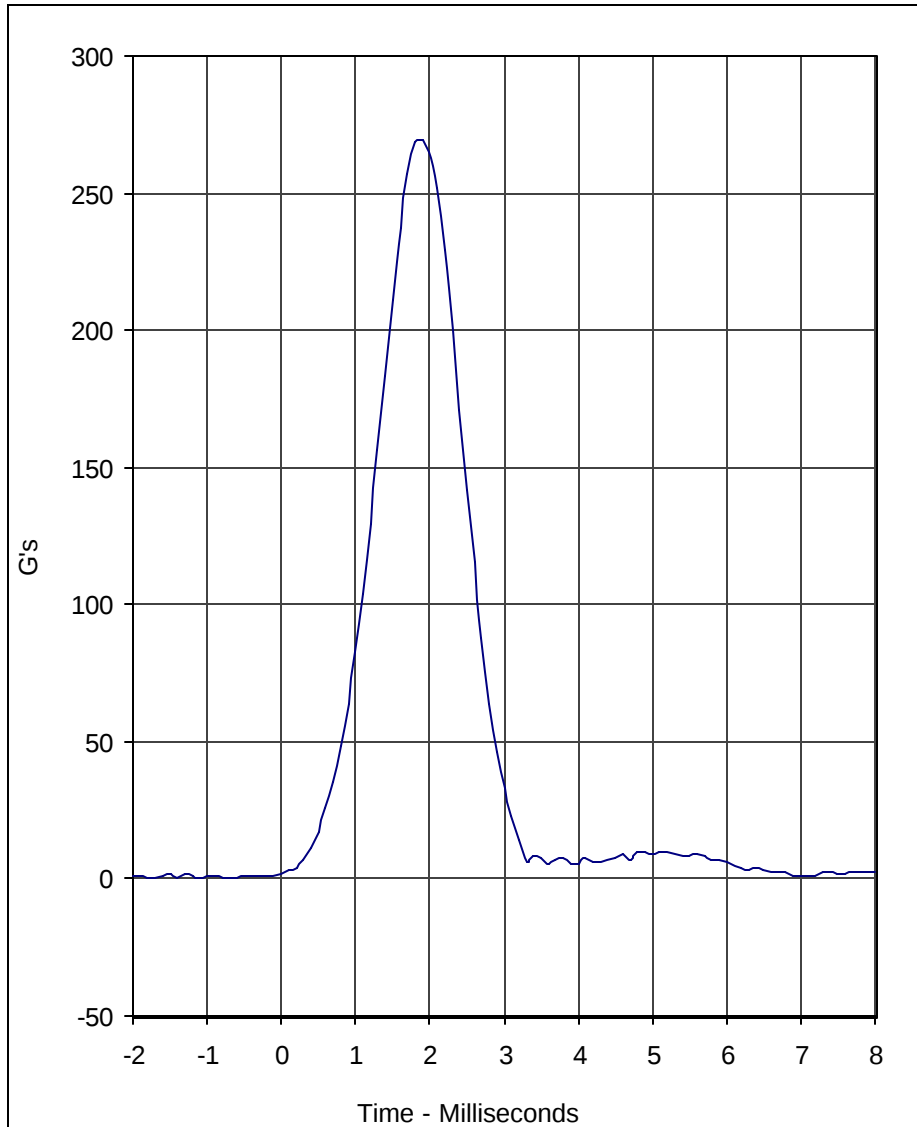
F5-1

TR-P23001-01-NC

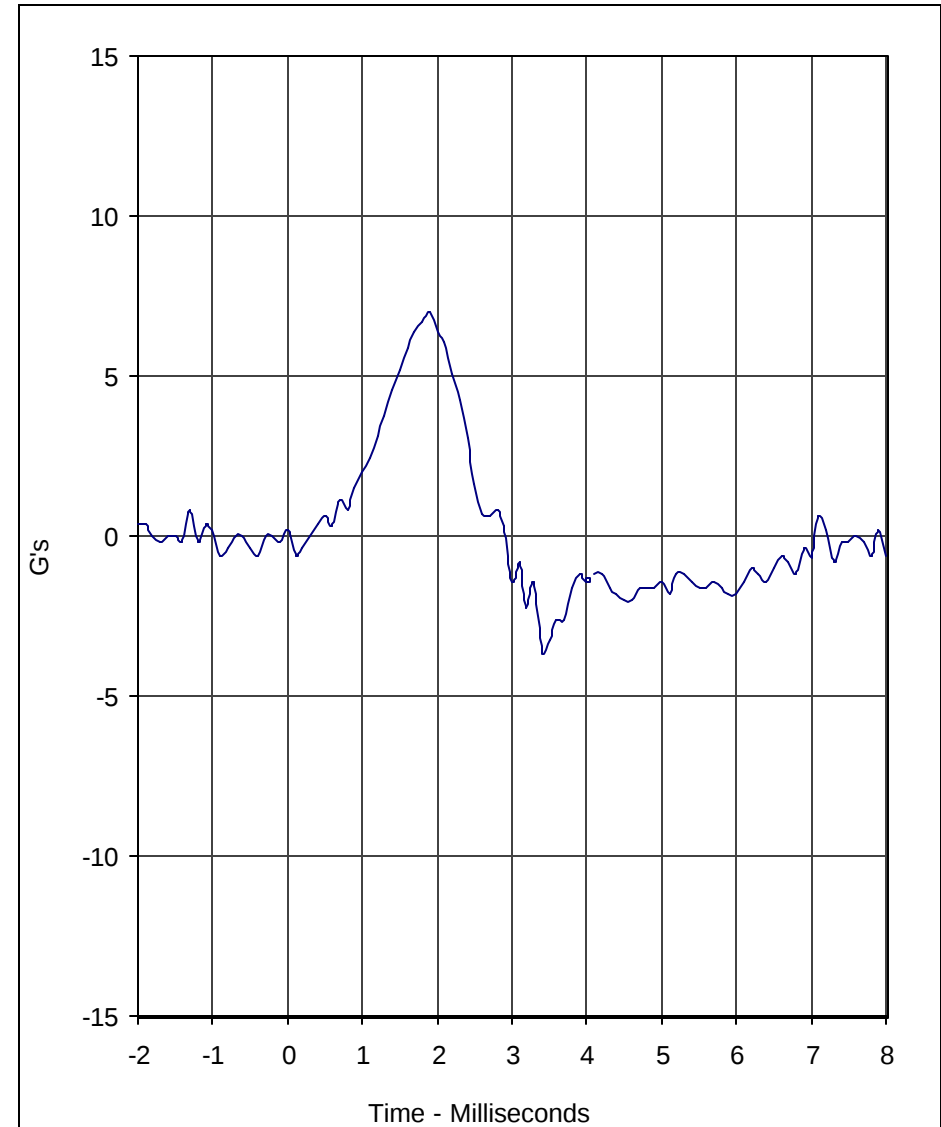
Laboratory Technician

December 4, 2002

Test Date



Curve Description				CURNO	Type
Head Resultant				001	RES
Units	Max	Time	Min	Time	SAE Class
G's	269.6	1.9	0.4	-0.7	1000



Curve Description				CURNO	Type
Head Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
G's	7.0	1.9	-3.6	3.4	1000

Test Program: Hybrid III 3 Year Old Head Drop Test
 Test Date: 12/4/02

A.T.D. Serial No.: 082
 Test I.D.: 3H01A





Calibration Data Sheet

Hybrid III 3 Year Old

Thorax Impact Test

ATD Serial No.: 082

Test I.D.: CH12A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	5.9 to 6.1	5.96	Pass
Peak Chest Compression	MM	32 to 38	34.9	Pass
Peak Probe Force Between 32 and 38 MM	Newtons	680 to 810	775.2	Pass
Peak Probe Force Between 12.5 and 32 MM	Newtons	≤860	770.6	Pass
Internal Hysteresis	%	65 to 85	69.3	Pass
Overall Test Results				Pass

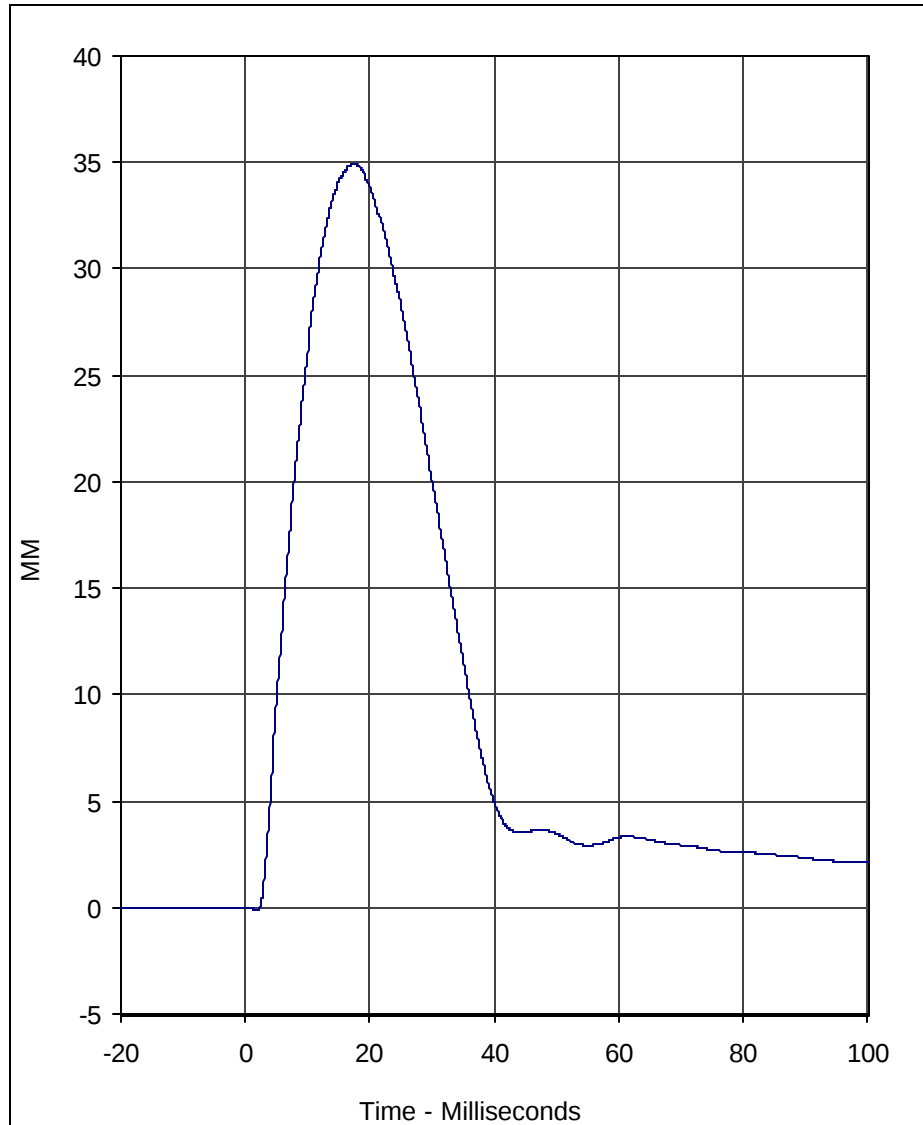
F5-3

TR-P23001-01-NC

Laboratory Technician

December 6, 2002

Test Date

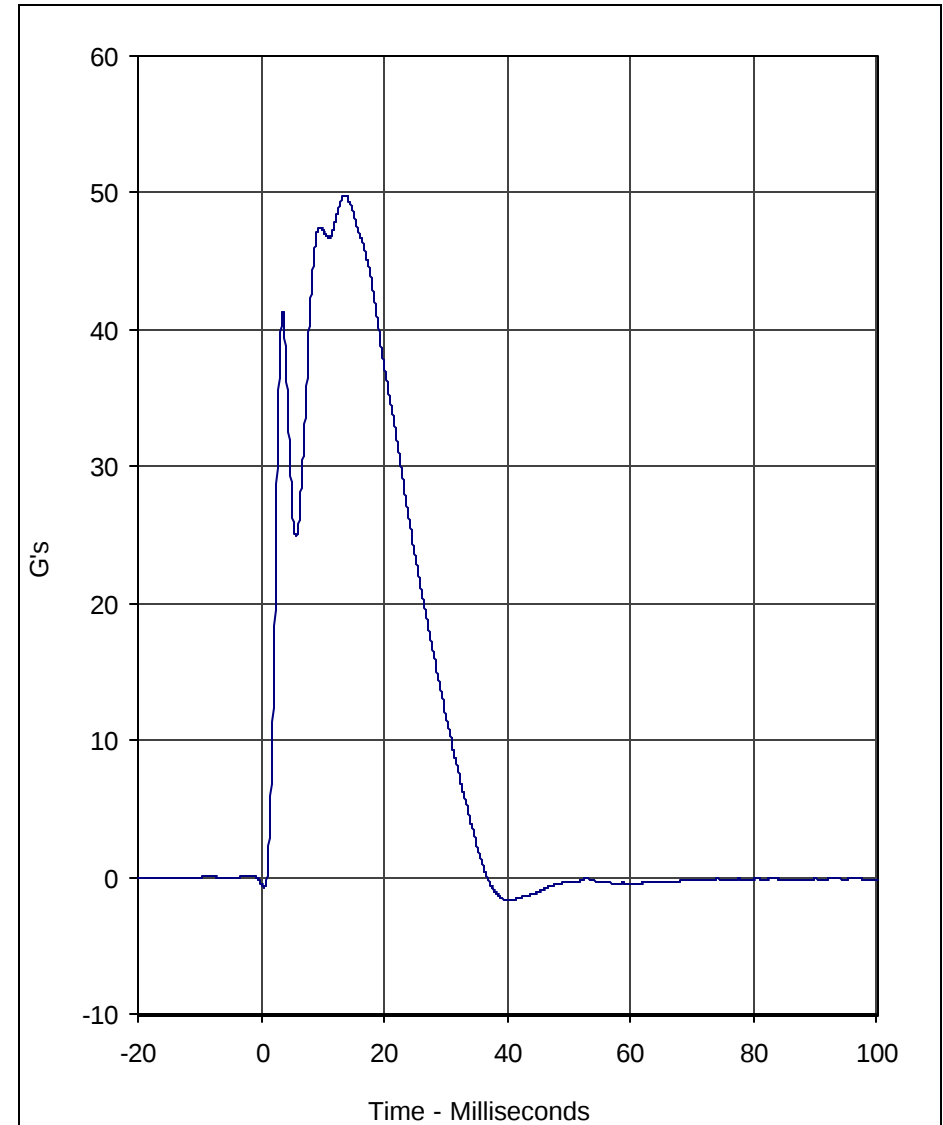


Curve Description				CURNO	Type
Chest Compression				001	FIL

Units	Max	Time	Min	Time	SAE Class
MM	34.9	17.5	-0.1	1.8	180

Test Program: Hybrid III 3 Year Old Thorax Impact

Test Date: 12/6/02



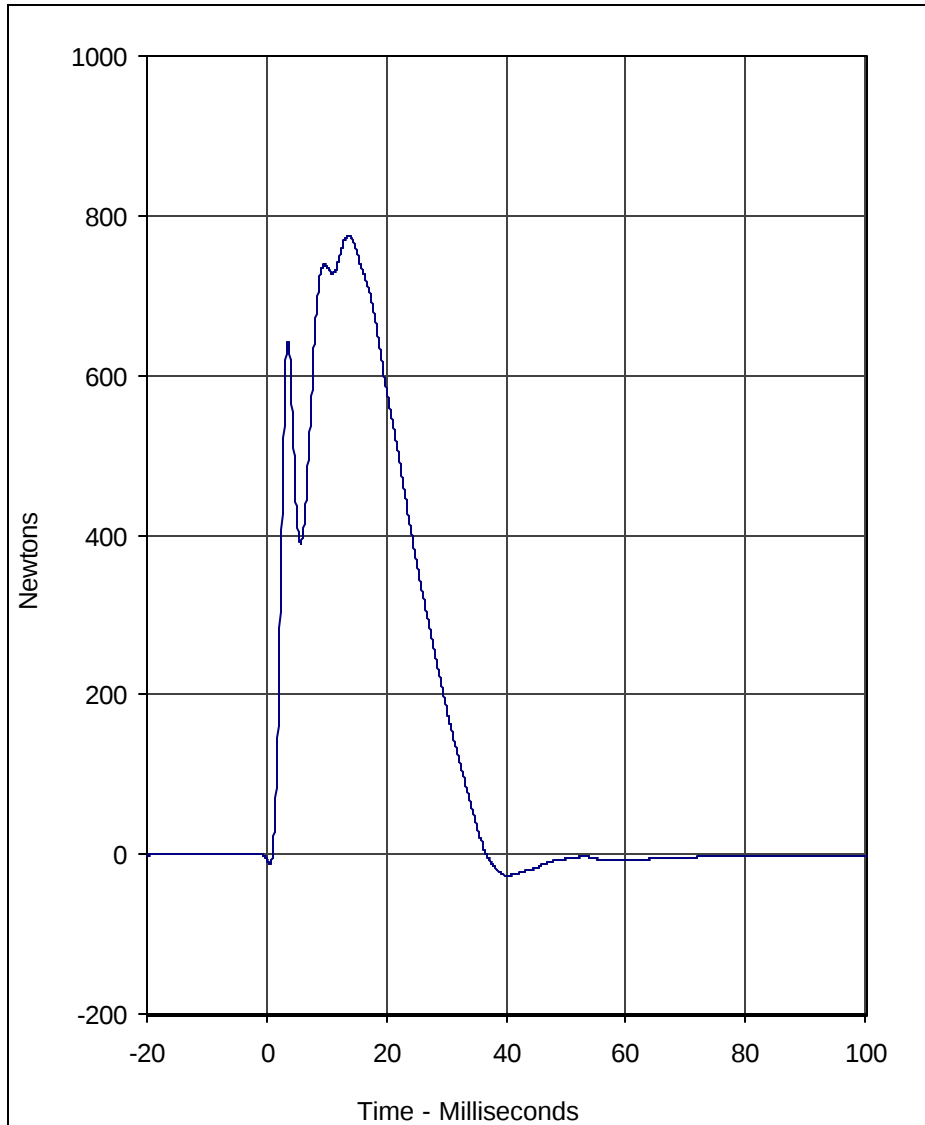
Curve Description				CURNO	Type
Probe Acceleration				002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	49.8	13.7	-1.7	40.2	180

A.T.D. Serial No.: 082

Test I.D.: CH12A

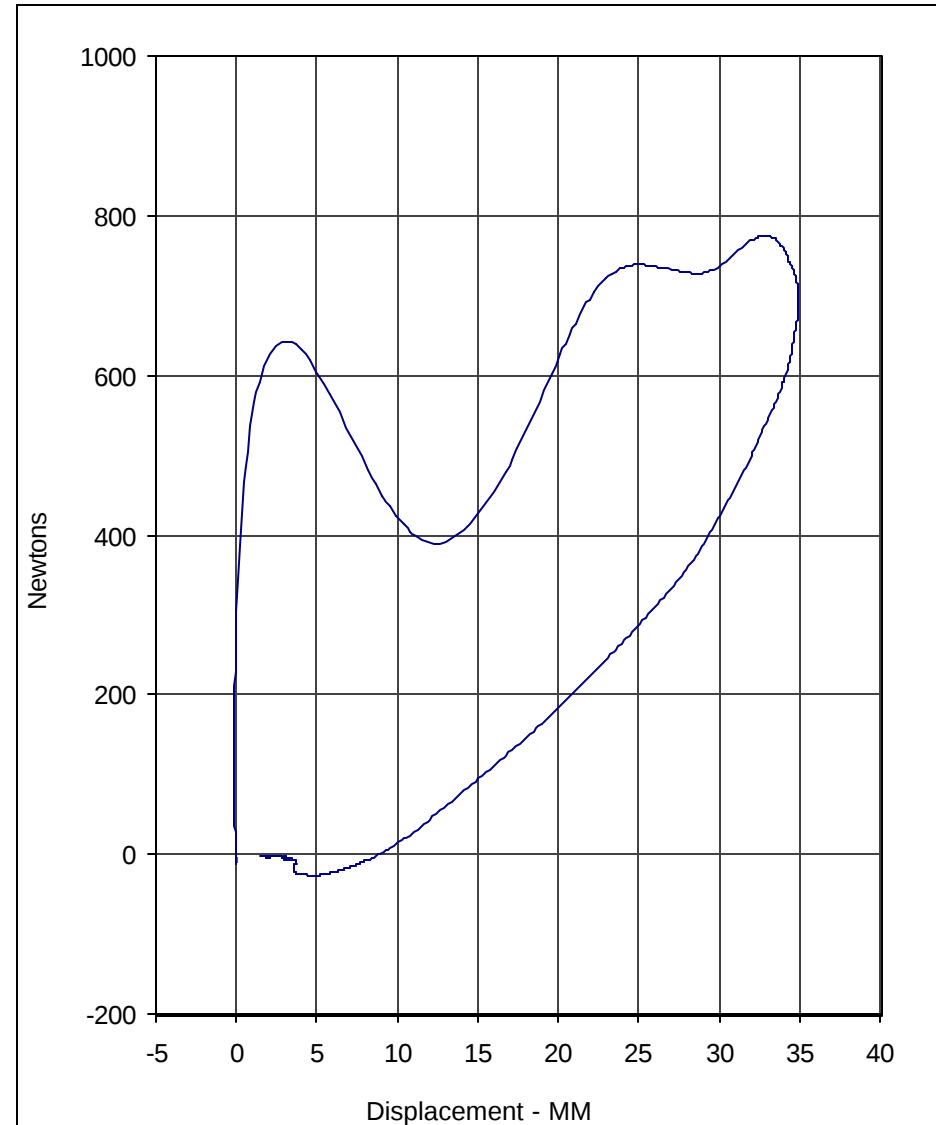




Curve Description				CURNO	Type
Probe Force				003	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	775.2	13.7	-26.7	40.2	180

Test Program: Hybrid III 3 Year Old Thorax Impact

Test Date: 12/6/02



Curve Description			CURNO	Type
Probe Force vs. Chest Displacement			004	FIL
Units	Hysteresis	SAE Class		
%	69.3	180		

A.T.D. Serial No.: 082

Test I.D.: CH12A





Calibration Data Sheet

Hybrid III 3 Year Old

Neck Flexion Test

ATD Serial No.: 082

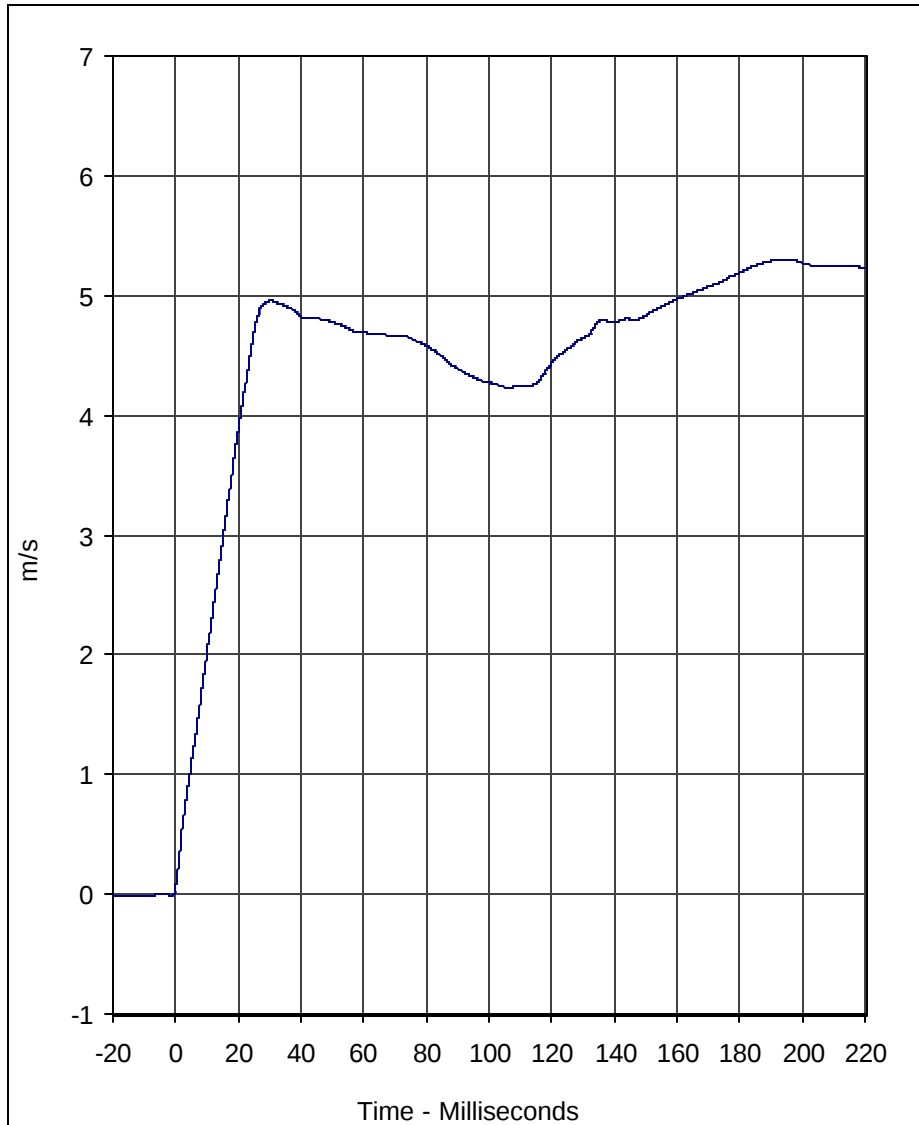
Test I.D.: 3F01A

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	5.43	Pass
Pendulum Deceleration	10 Msec.	m/s	2.0 to 2.7	2.01	Pass
	20 Msec.	m/s	3.0 to 4.0	3.9	Pass
	30 Msec.	m/s	4.0 to 5.1	5.0	Pass
"D" Plane Rotation	Maximum	Degrees	70.0 to 82.0	75.9	Pass
Peak Moment in Rotation	Maximum	Nm	42.0 to 53.0	44.4	Pass
Positive Moment Decay, Time to 10Nm		Msec.	60.0 to 80.0	75.6	Pass
Overall Test Results					Pass

Laboratory Technician

December 5, 2002

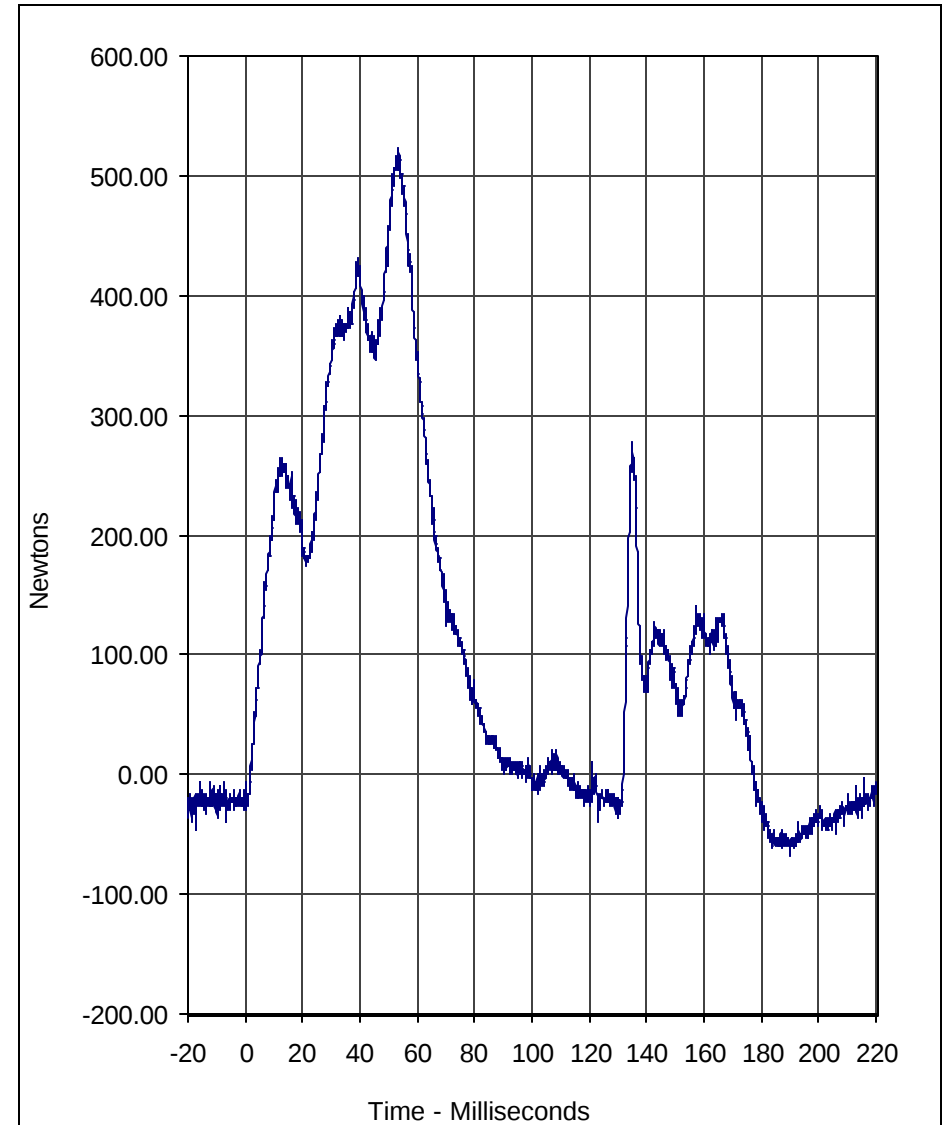
Test Date



Curve Description				CURNO	Type
Pendulum Velocity				001	FIL
Units	Max	Time	Min	Time	SAE Class
m/s	5.3	196.0	0.0	-1.2	180

Test Program: 3 Year Old Hybrid III Neck Flexion Test

Test Date: 12/5/02

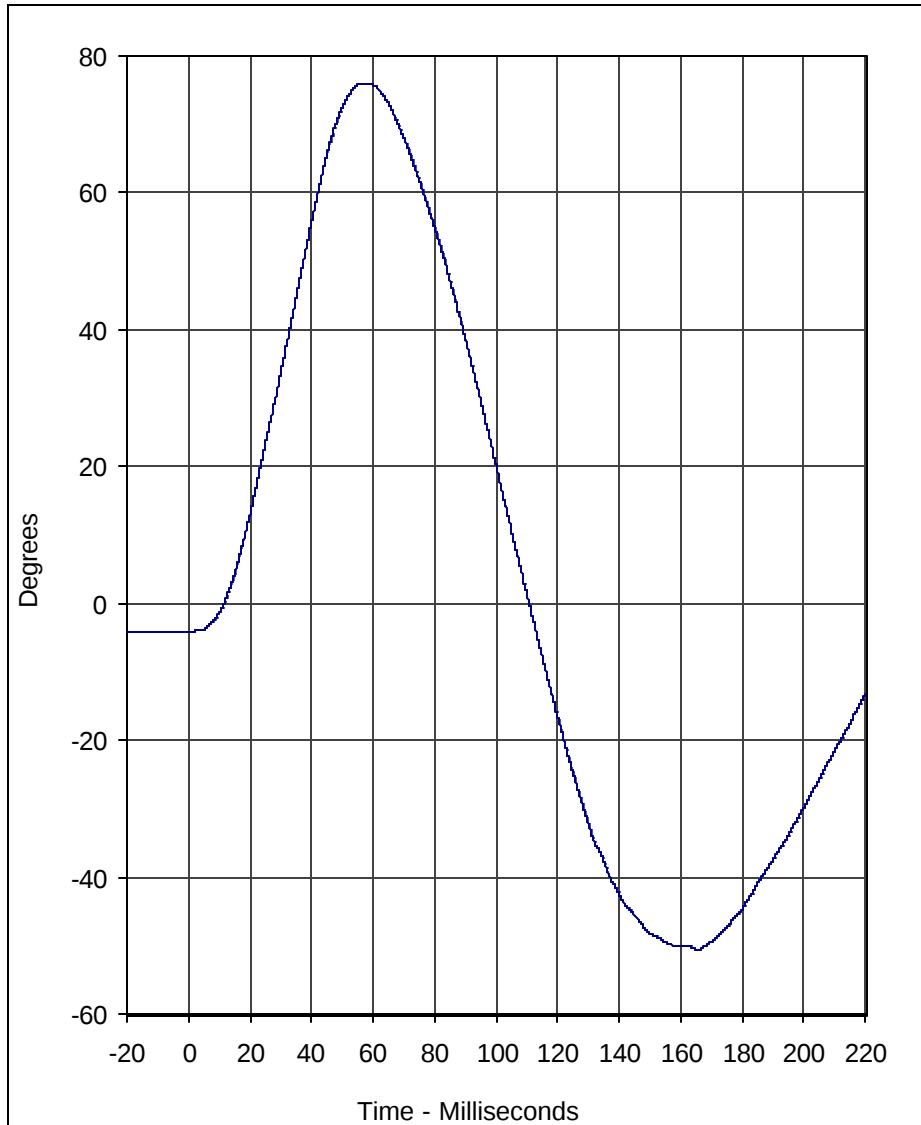


Curve Description				CURNO	Type
Neck Force X				002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	523.6	53.1	-68.7	190.0	1000

A.T.D. Serial No.: 082

Test I.D.: 3F01A

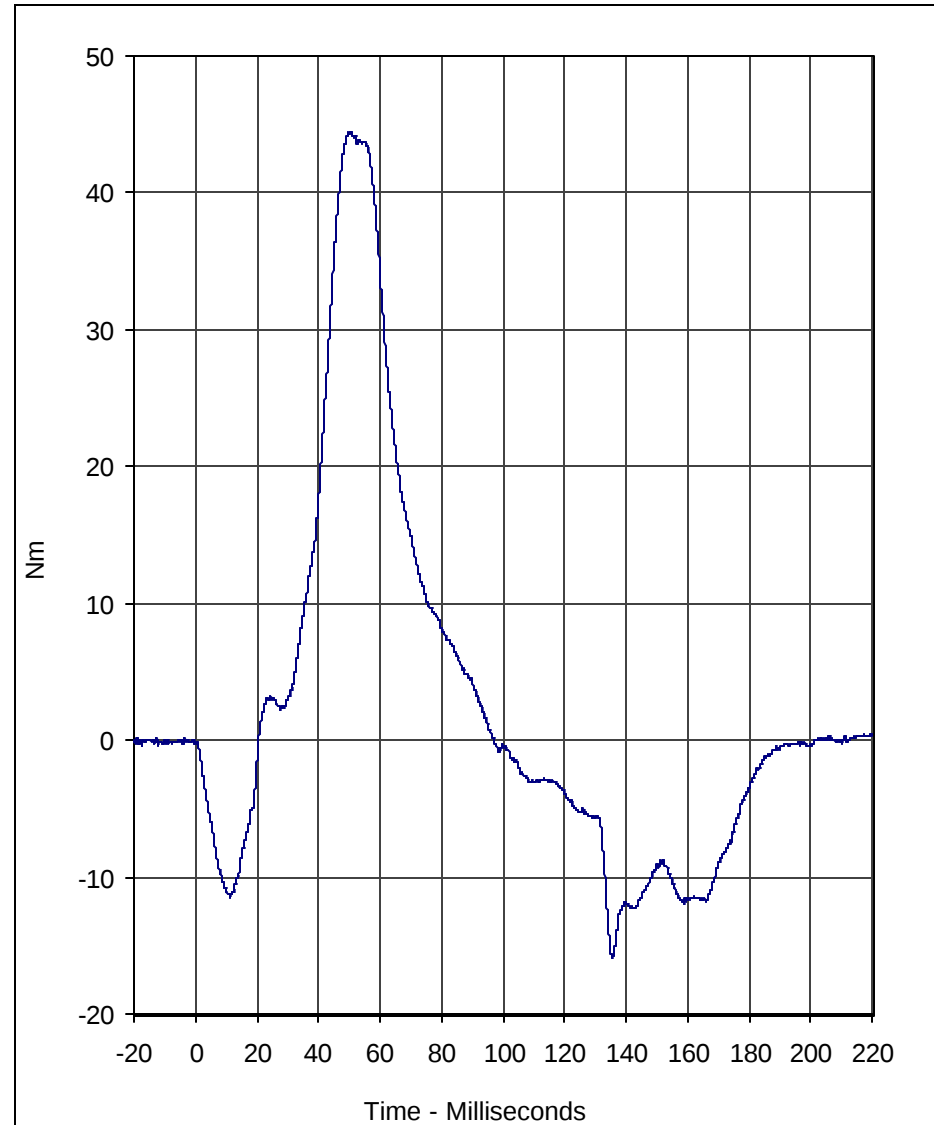




Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL
Units	Max	Time	Min	Time	SAE Class
Degrees	75.9	56.5	-50.6	165.7	180

Test Program: 3 Year Old Hybrid III Neck Flexion Test

Test Date: 12/5/02



Curve Description				CURNO	Type
Neck Moment Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
Nm	44.4	49.7	-15.8	135.7	600

A.T.D. Serial No.: 082

Test I.D.: 3F01A





Calibration Data Sheet Hybrid III 3 Year Old Neck Extension Test

ATD Serial No.: 082

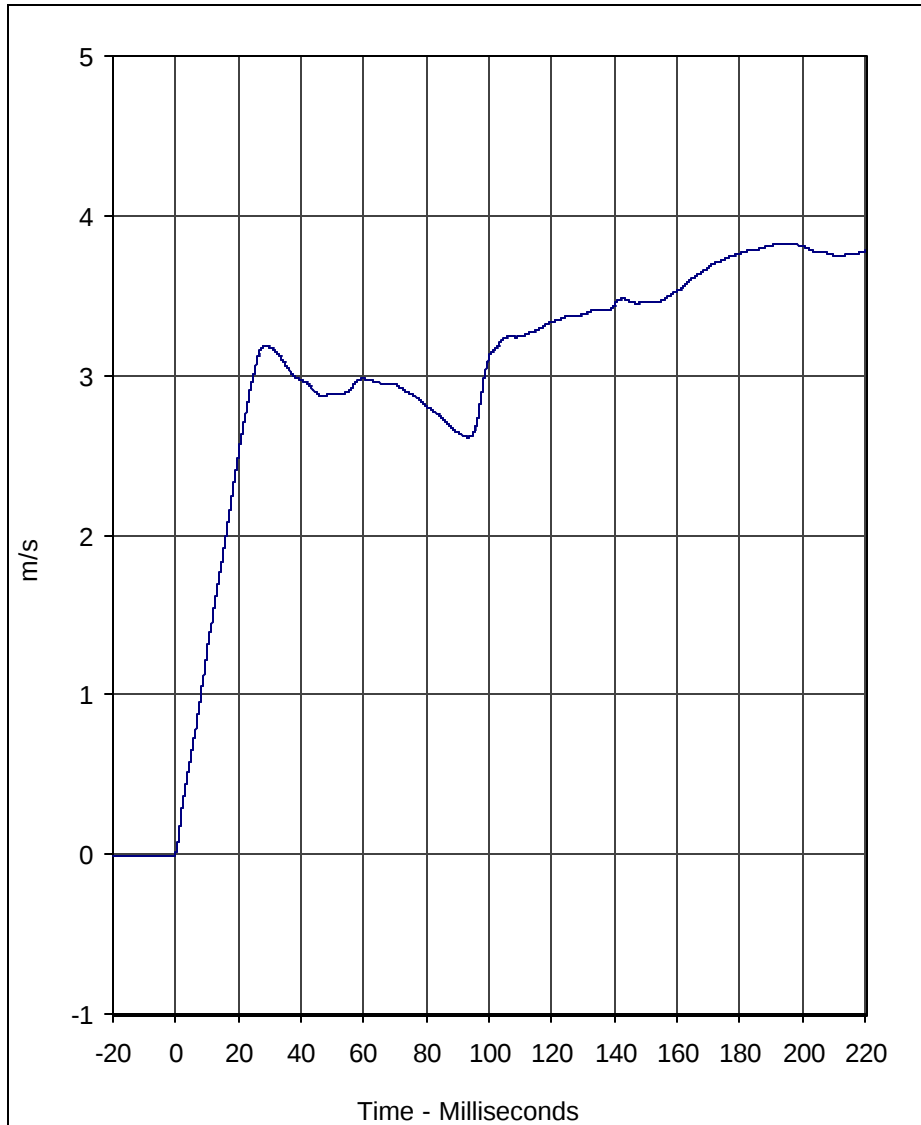
Test I.D.: 3E01B

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	1.3	Pass
	20 Msec.	m/s	1.9 to 2.5	2.5	Pass
	30 Msec.	m/s	2.8 to 3.5	3.2	Pass
"D" Plane Rotation	Maximum	Degrees	83.0 to 93.0	84.2	Pass
Peak Moment in Rotation	Maximum	Nm	-43.7 to -53.3	-47.0	Pass
Positive Moment Decay, Time to 10Nm		Msec.	60.0 to 80.0	77.8	Pass
Overall Test Results					Pass

Laboratory Technician

December 5, 2002

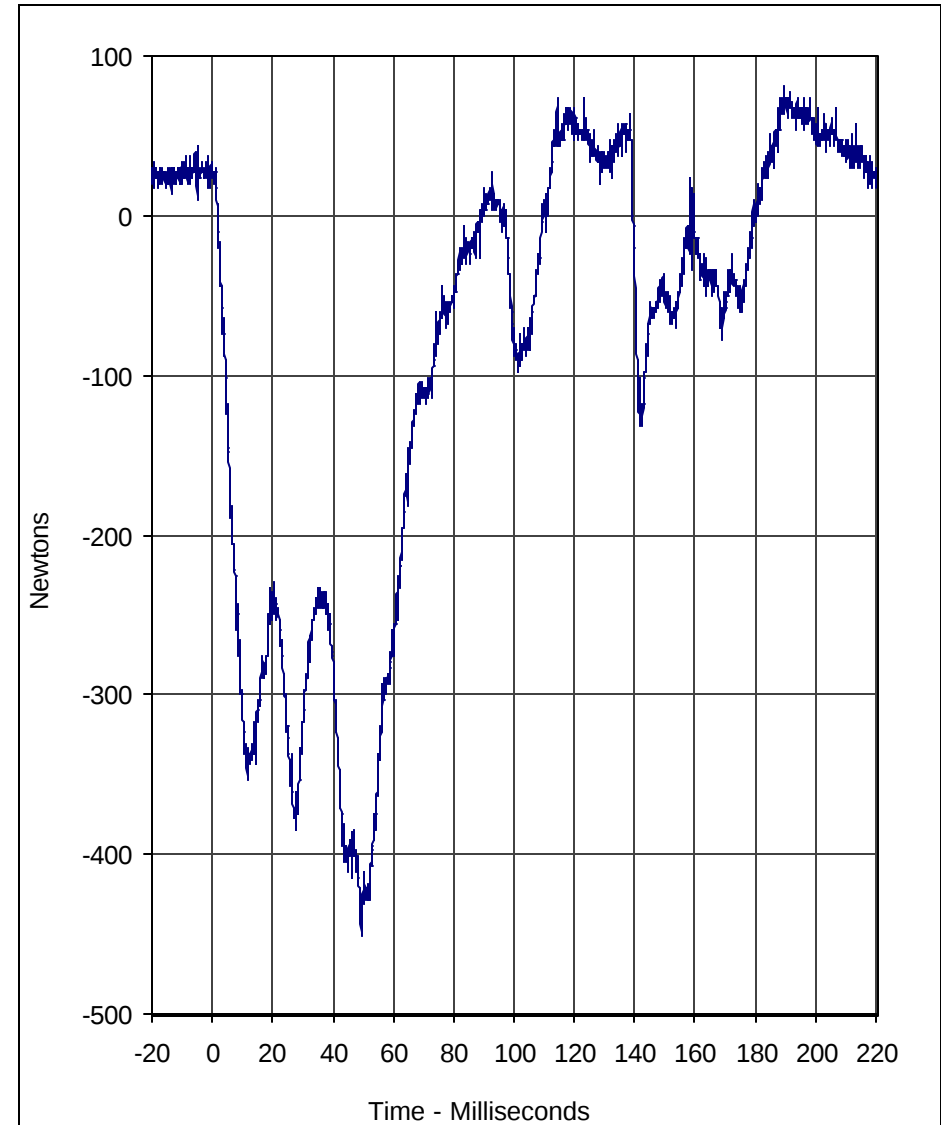
Test Date



Curve Description				CURNO	Type
Pendulum Velocity				001	FIL
Units	Max	Time	Min	Time	SAE Class
m/s	3.8	194.0	0.0	-0.6	180

Test Program: 3 Year Old Hybrid III Neck Extension Test

Test Date: 12/5/02

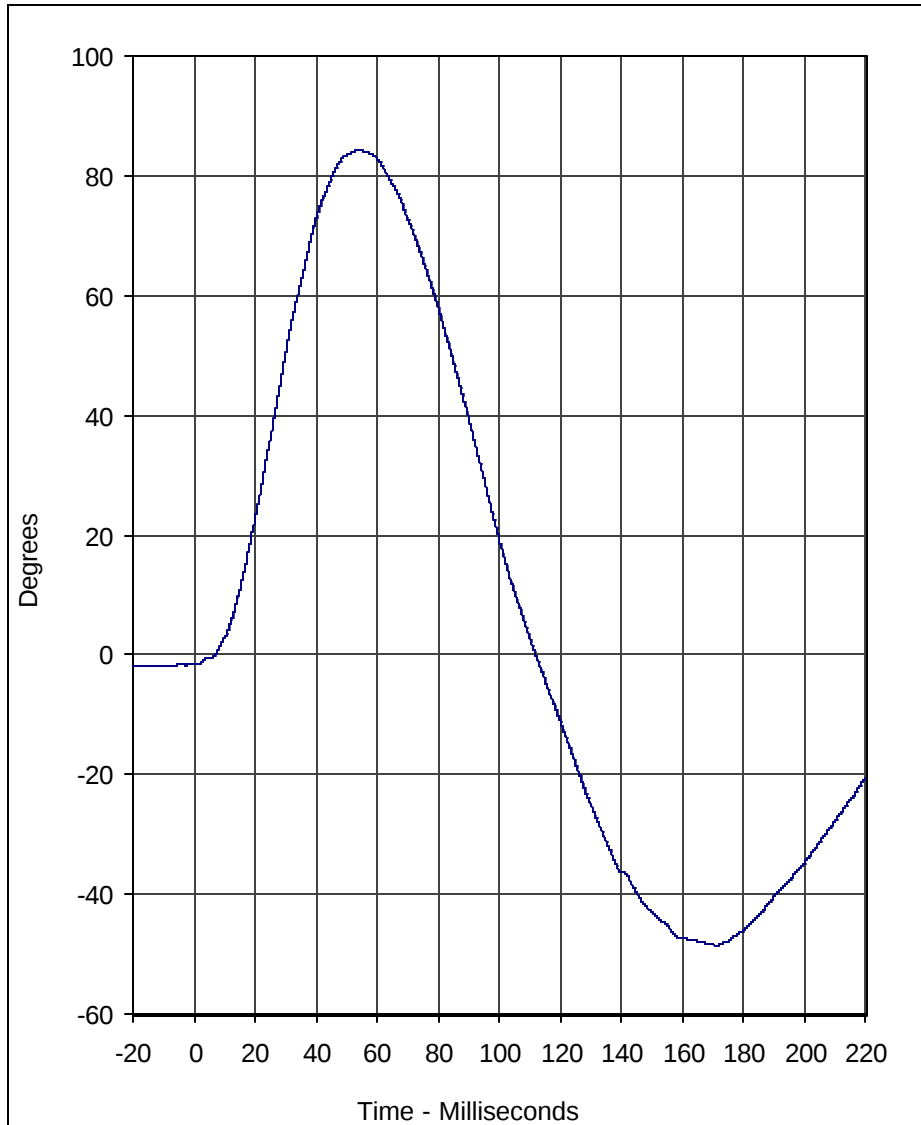


Curve Description				CURNO	Type
Neck Force X				002	FIL
Units	Max	Time	Min	Time	SAE Class
Newtons	80.9	189.4	-451.7	49.3	1000

A.T.D. Serial No.: 082

Test I.D.: 3E01B

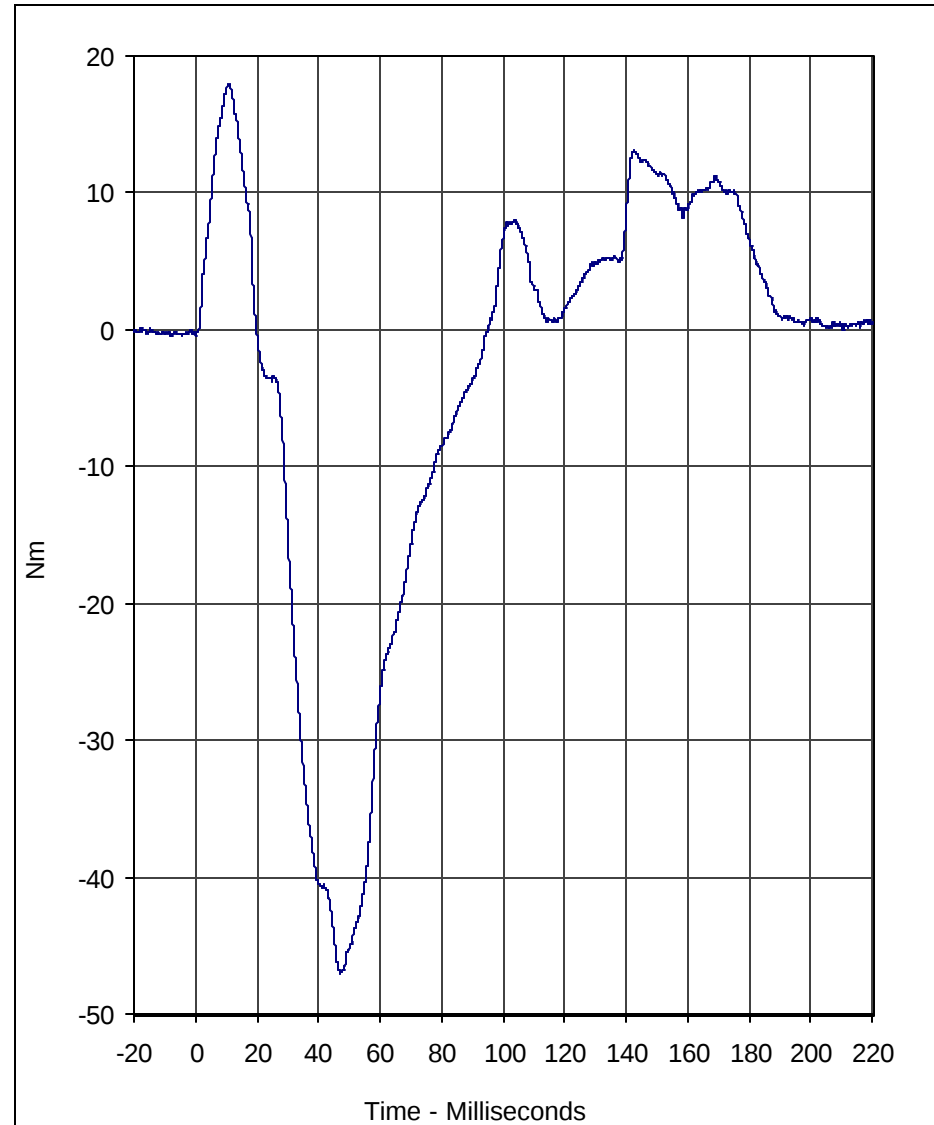




Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL
Units	Max	Time	Min	Time	SAE Class
Degrees	84.2	53.7	-48.6	171.3	180

Test Program: 3 Year Old Hybrid III Neck Extension Test

Test Date: 12/5/02



Curve Description				CURNO	Type
Neck Moment Y				002	FIL
Units	Max	Time	Min	Time	SAE Class
Nm	18.0	10.6	-47.0	47.1	600

A.T.D. Serial No.: 082

Test I.D.: 3E01B





Calibration Data Sheet

Hybrid III 3 Year Old

Torso Flexion Test

ATD Serial No.: 082

Test I.D.: TF001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Initial reference plane angle	Degrees	≤15.0	3.7	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	130.0 to 180.0	151.7	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	1.0	Pass
Final reference plane angle	Degrees	+/-10	3.1	Pass
Overall Test Results				Pass

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Laboratory Technician

December 6, 2002

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	545	Pass
B - Shoulder pivot height	mm	307 to 323	320	Pass
C - "H" point height	mm	34 to 45	40	Pass
D - "H" point from backline	mm	57 to 67	60	Pass
E - Shoulder pivot from back	mm	61 to 71	65	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	190	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	250	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	140	Pass
T - Head Depth	mm	167 to 183	175	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	545	Pass
Z - Waist circumference	mm	527 to 553	535	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

December 6, 2002
Test Date