

REPORT NUMBER TR-23001-12-NC

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

**TOYOTA MOTOR CORPORATION
2003 TOYOTA 4 RUNNER SR5
4 WD SUV**

NHTSA NUMBER: M35106

**PREPARED BY:
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FEBRUARY 26, 2003

FINAL REPORT

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<p>A 35mph (56.3 km/h) frontal barrier impact was conducted on a 2003 Toyota 4 Runner SR5 4WD SUV at KARCO Engineering, LLC on 2/26/03. This test was conducted to obtain data indicant of FVMSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity is 56.18 km/h. The ambient temperature at the barrier face at the time of impact is 11.1 degrees Celcius. The test vehicle sustained post-impact maximum static crush of 465 mm at the vehicle centerline. The test vehicle is equipped with a 3-point continuous belt system and second generation supplemental airbags in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary is as follows:</p>					
Measurement Description		Units	Threshold	Driver ATD	Pass. ATD
Head Injury Criteria (HIC)		N/A	1000	595.7	444.9
Max. Thorax Accel. (3 msec clip)		G's	60	46.5	45.3
Left Femur Force		Newtons	10000	-1437.0	-1910.8
Right Femur Force		Newtons	10000	-543.8	-1529.1
17. Key Words			18. Distribution Statement		
56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) 2003 Toyota 4 Runner SR5 4WD SUV NHTSA No. M35106			Copies of this report available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, D.C. 20590		
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SECTION 1

PURPOSE AND SUMMARY OF TEST M35106

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 Toyota 4 Runner SR5 4WD SUV at a velocity of 56.18 km/h. The test was performed at Karco Engineering, LLC on February 26, 2003.

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. Load cells were also placed on the driver's and passenger's lap belts to measure pelvic section loading. The driver (position 1) ATD (Serial No. 35) and the right-front passenger (position 2) ATD (Serial No. 34) were calibrated two tests prior this test.

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

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 465 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 and its abdomen had no contact. Both knees contacted the steering column/knee bolster.

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

Occupant injury data is contained in table below.

OCCUPANT DATA SUMMARY

ATD Position	HIC	Clip (g)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)	Belt Spool (mm)
Driver	595.7	46.5	-29.9	-1437.0	-543.8	182.0
Passenger	444.9	45.3	-26.1	-1910.8	-1529.1	150.9

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

CONVERSION FACTORS USED IN THIS REPORT*

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

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

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	56.18
Test Weight	kg	2140
Impact Angle	degrees	0
Average Rebound	mm	1252
Maximum Static Crush	mm	465

DOOR OPENING AND SEAT TRACK INFORMATION

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

TEST DUMMY INFORMATION

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

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 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

TEST VEHICLE INFORMATION

Make	Toyota
Model	4 Runner
Body Style	4 Door
NHTSA No.	M35106
VIN	JTEBU14R038001193
Color	Titanium
Delivery Date	2/14/2003
Odometer Reading (mi.)	166
Dealer	Soutars Toyota
Transmission	4 Speed Automatic
Final Drive	Rear
Type/Nb. Cylinders	V-6
Engine Displacement (L)	4.0
Engine Placement	Longitudinal
Roof Rack	Nb
Sunroof/T-Top	Nb
Tinted Glass	Yes
Traction Control	Yes
Power Brakes	Yes
Front Disc	Yes
Rear Disc	Yes

TEST VEHICLE OPTIONS

Anti-Lock Brakes (ABS)	Yes
All Wheel Drive	Yes
Power Steering	Yes
Driver Airbag	Yes
Driver Side Bag	Nb
Driver Head Bag	Nb
Pass. Airbag	Yes
Pass. Side Bag	Nb
Pass. Head Bag	Nb
Pre-tensioners	Yes
Load Limiters	Yes
Bucket Seats	Yes
Center Console	Yes
Air Cond.	Yes
AM/Fm Cassette	Yes
Tilt Steering	Yes
Power Door Locks	Yes
Power Windows	Yes
Power Seats	Nb
Other	

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation	GWR (kg)	2440
Date of Manufacture	November-02	GAWR Front (kg)	1185
		GAWR Rear (kg)	1330

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)				438
Cargo Weight (RCLW) (kg)				91

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
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NHTSA No.: M35106
 Test Date: 2/26/03

TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	245	245
Cold Pressure (kPa)	220	220
Recommend Tire Size	P265/70R16	P265/70R16
Tire Size on Vehicle	P265/70R16	P265/70R16
Tire Manufacturer	Michelin	Michelin
Treadwear	420	420
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2	2
Tire Plies Body	2	2
Load Index/Speed Symbol	111 S	111 S
Tire Material	Steel/Polyester	Steel/Polyester
DOT Safety Code Right	OCJC-HNXX-3702	OCJC-HNXX-3802
DOT Safety Code Left	OCJC-HNXX-3702	OCJC-HNXX-3802

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
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TEST VEHICLE WEIGHTS

	Units	As Delivered (<i>UVW</i>)			As Tested (<i>ATW</i>)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	549	442		574	522	
Right	kg	483	428		525	519	
Ratio	%	54.3	45.7		51.4	48.6	
Totals	kg	1032	870	1902	1099	1041	2140

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (<i>UVW</i>)	kg	1902
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Weight (<i>RCLW</i>)	kg	91
Calculated Vehicle Target Weight (<i>TVTW</i>)	kg	2145

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	857	862	920	926	1277
As Tested	mm	893	850	883	894	1358

Vehicle Wheel base (mm): 2795
 Weight of Ballast secured in cargo area (kg): 82
 Vehicle Components Removed: Spare tire, rear door panels, rear door windows and rear bumper
 * Ballast weight does not include cameras, instrumentation, and brake abort system.

FUEL SYSTEM DATA

Fuel System Capacity From Owner's Manual (L): 72.3
 Usable Capacity Figure Furnished by COTR (L): 72.3
 Actual Test Volume with entire fuel System Filled (L): 23.8*
 Test Fluid Type: Stoddard Solvent ; Specific Gravity: 0.764
 Kinematic Viscosity: as per ASTM Standard D484-71 ; Color: Purple
 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.
 * Note: Solvent level decreased to make target test weight.

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	55.51 to 57.12	56.18
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	56.20
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	4616	4417	-199
Center	mm	4796	4331	-465
Right Side	mm	4616	4387	-229

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	2200
Center	mm	2220
Right Side	mm	2190
Average	mm	2203

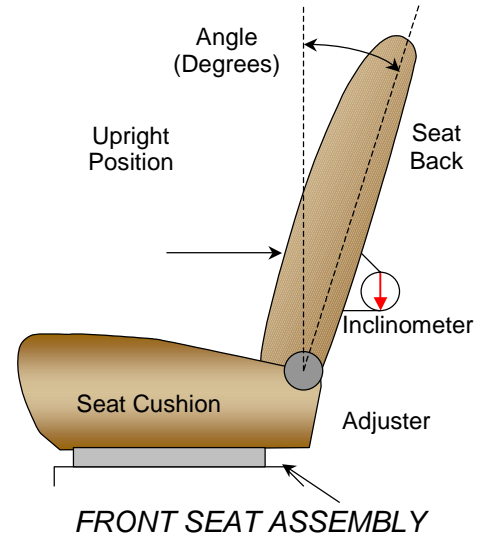
**DATA SHEET NO. 4
TEST VEHICLE INFORMATION**

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
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NHTSA No.: M35106
 Test Date: 2/26/03

NOMINAL DESIGN RIDING POSITION

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



SEAT BACK ANGLES

	Deg.
Driver w/seated Dummy	7.3
Passenger w/seated Dummy	10

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	17	9
Passenger Seat	17	9

SEAT BELT UPPER ANCHORAGE

Position number one (1) is the uppermost position.

SEAT BELT UPPER ANCHORAGE

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

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

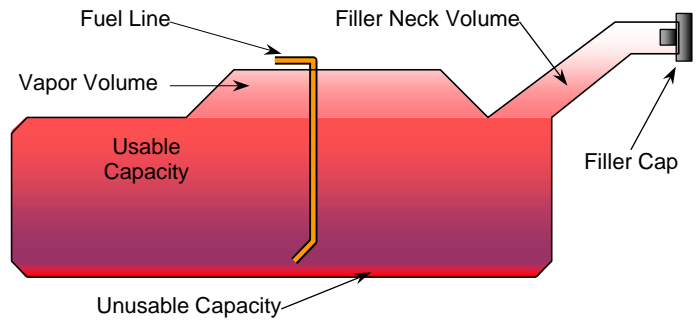
NHTSA No.: M35106
 Test Date: 2/26/03

FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard Tank"	72.3
Usable Capacity of "Optional Tank"	N/A
Usable Capacity used for FMVSS 301	66.51 to 67.95
Actual Amount of Solvent Used	23.8*

* Note Solvent level decreased to make target test weight.

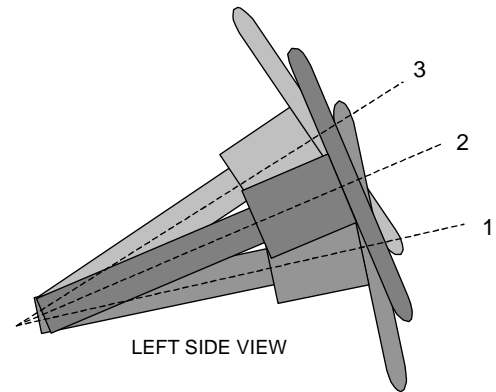
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies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



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

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



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONS

	Degrees
Lowermost; position No. 1	23
Geometric center; position No. 2	31
Uppermost; position No. 3	38

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
Test Date: 2/26/03

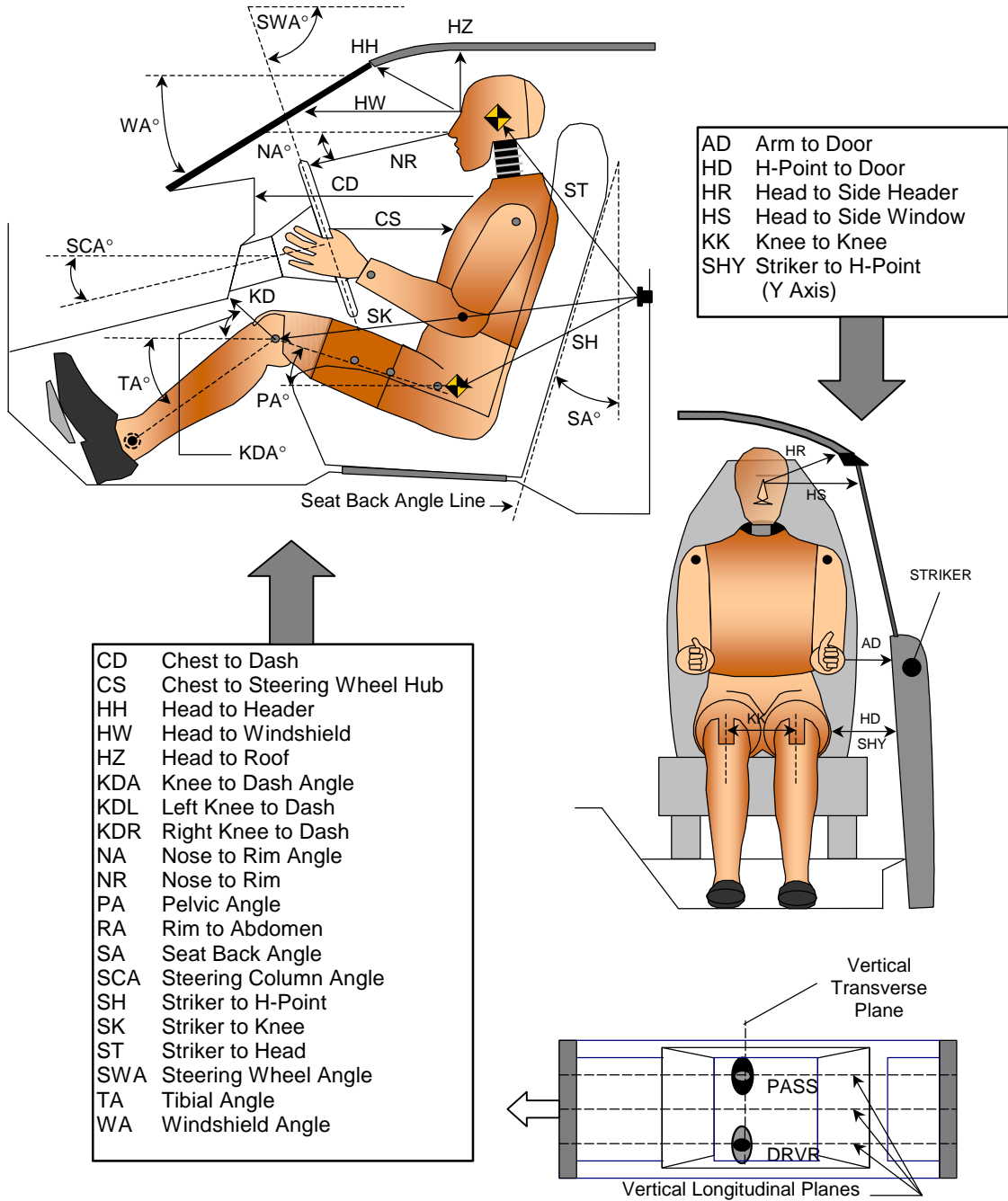
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		54		
SWA	Steering Wheel Angle		59.0		
SCA	Steering Column Angle		31.0		
SA	Seat Back Angle		7.3		10.0
HZ	Head to Roof (Z)	205	90	195	90
HH	Head to Header	390		390	
HW	Head to Windshield	580		580	
HR	Head to Side Header (Y)	300		295	
NR	Nose to Rim	385	12		
CD	Chest to Dash	545		525	
CS	Chest to Steering Hub	285			
RA	Rim to Abdomen	180			
KDL	Left Knee to Dash	185	20	125	
KDR	Right Knee to Dash	200		135	25
PA	Pelvic Angle		23		25
TA	Tibia Angle		37		40
KK	Knee to Knee (Y)	305		270	
ST	Striker to Head	640	13	670	8
SK	Striker to Knee	462	72	485	70
SH	Striker to H-Point	250		245	
SHY	Striker to H-Point (Y)	215		235	
HS	Head to Side Window	340		330	
HD	H-Point to Door (Y)	206		186	
AD	Arm to Door (Y)	105		32	

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
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NHTSA No.: M35106
 Test Date: 2/26/03

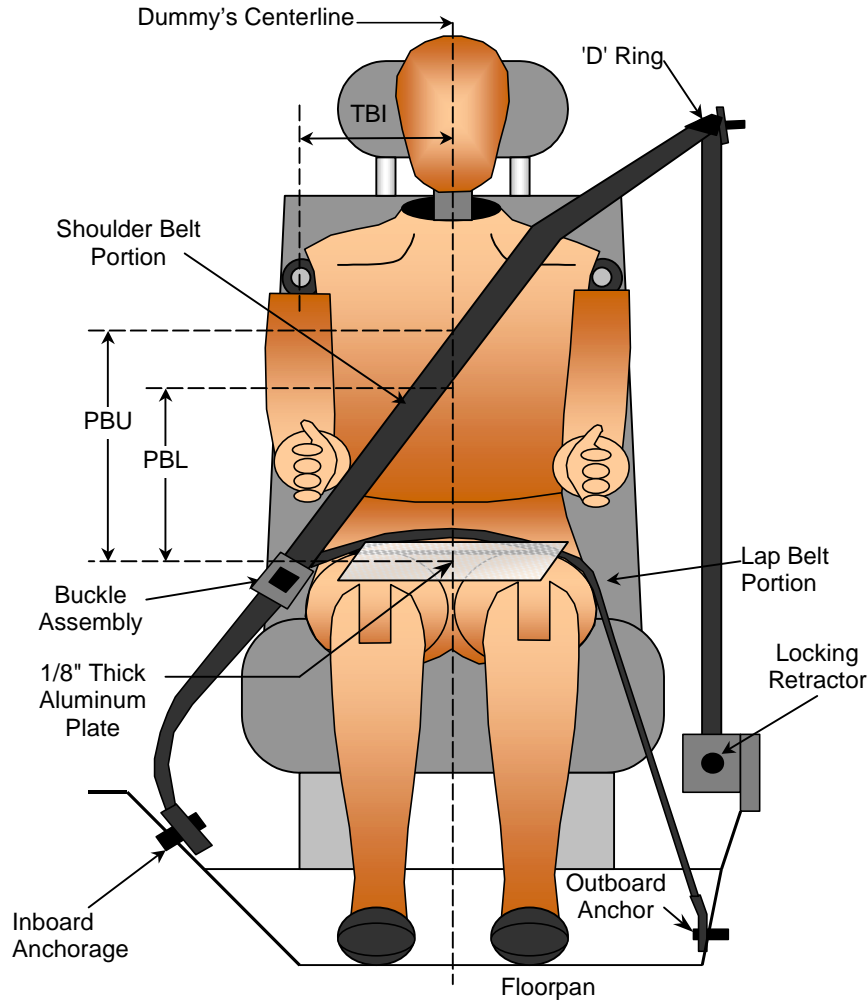


DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

DATA SHEET NO. 6
SEATBELT POSITIONING DATA

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy C/L to Lap/Shoulder Belt Intersect	mm	235	235
PBU - Top surface of reference to belt upper edge	mm	310	300
PBL - Top surface of reference to belt lower edge	mm	235	210
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 Toyota 4 Runner SR5 4WD SUV

NHTSA No.: M35106

Test Program: 2003 NHTSA 35mph NCAP

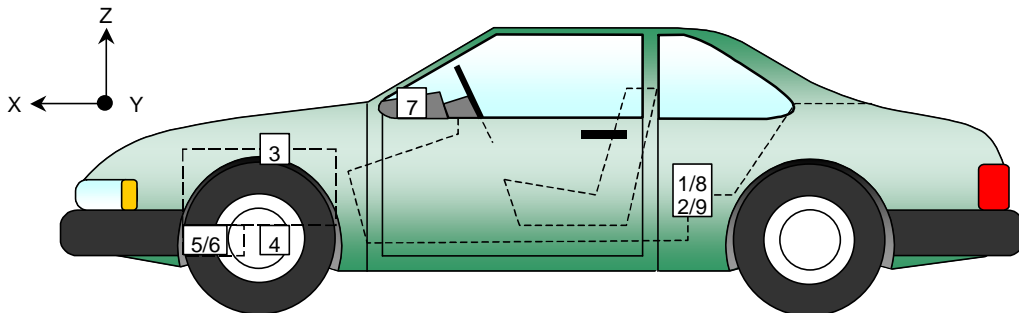
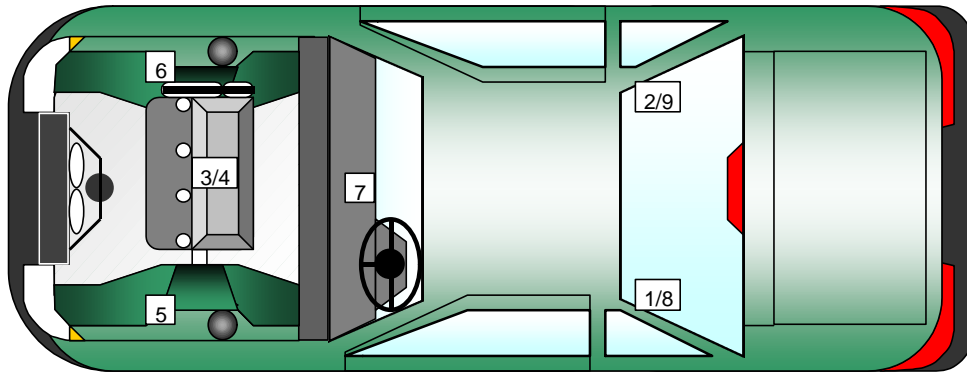
Test Date: 2/26/03

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member	1990	-610	580	G's	2.5	140.2	-49.2	58.9
2	Right Rear X-Member	1990	610	580	G's	2.5	122.6	-53.6	58.0
3	Engine Top	3830	275	960	G's	11.0	98.9	-58.6	50.1
4	Engine Bottom	3750	150	295	G's	4.1	126.8	-59.3	50.0
5	Left Brake Caliper	3765	-770	300	G's	16.0	69.8	-92.5	41.2
6	Right Brake Caliper	3765	770	300	G's	9.7	106.6	-83.8	48.3
7	Instrument Panel	3100	0	1260	G's	0.0	0.0	0.0	0.0
8	Left Rear X-Member (Z-Axis)	1990	-660	580	G's	11.0	65.7	-4.9	56.9
9	Right Rear X-Member (Z-Axis)	1990	660	580	G's	16.0	70.1	-11.6	44.8

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

1.) Not installed



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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

NHTSA No.: M35106

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Test Date: 2/26/03

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	22.3	215.6	-70.5	75.8	28.9	249.2	-58.9	75.8
Head CG	Y	G's	7.7	85.0	-8.0	222.7	13.1	62.9	-12.1	90.1
Head CG	Z	G's	19.8	52.7	-3.6	24.0	27.4	72.1	-2.3	127.4
Head CG Resultant	N/A	G's	71.7	75.8			62.4	75.8		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	4.1	201.4	-49.1	70.5	2.4	263.8	-45.2	70.7
Chest CG	Y	G's	8.4	88.5	-2.8	36.9	3.5	27.4	-10.4	82.4
Chest CG	Z	G's	9.1	47.8	-3.7	113.7	16.4	86.3	-3.9	127.0
Chest CG Resultant	N/A	G's	49.3	70.5			46.2	70.8		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	884.9	49.0	-1437.0	62.8	359.7	30.0	-1910.8	50.8
Right Femur	Z	Newtons	1356.9	55.8	-543.8	95.6	531.1	33.2	-1529.1	53.7

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Shoulder Belt Pullout	N/A	MM	182.0	90.2	-71.3	47.1	150.9	87.5	-66.0	44.1
Shoulder Belt Stretch	N/A	MM/CM	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Lap Belt Force	N/A	Newtons	10608.1	62.2	-2.5	0.0	7961.6	62.7	-13.6	128.8
Shoulder Belt Force	N/A	Newtons	6130.8	51.3	-28.0	240.4	5682.1	54.0	-14.4	299.9

1.) Not used with pre-tensioner

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Primary	595.7	65.4	94.1	53.2	444.9	61.4	93.9	45.1

PRIMARY CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	46.5	69.1	72.1	45.3	69.7	72.7

DATA SHEET NO. 8...(continued)

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

NHTSA No.: M35106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 2/26/03

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	8.1	95.4	-62.4	62.3	4.9	102.3	-57.7	54.4
Pelvis	Y	G's	7.6	81.9	-4.2	27.4	3.9	57.3	-8.0	66.7
Pelvis	Z	G's	4.1	194.5	-40.0	65.4	2.4	250.6	-32.8	60.5
Pelvis Resultant	N/A	G's	71.9	63.8			65.7	62.6		

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	583.5	69.0	-411.7	50.5	539.1	81.4	-382.5	141.1
Neck Force	Y	Newtons	145.4	98.7	-124.7	218.5	162.1	240.2	-411.9	85.5
Neck Force	Z	Newtons	1494.5	74.5	-310.5	245.4	1121.3	69.1	-728.1	251.7
Neck Force Resultant	N/A	Newtons	1583.0	74.5			1146.8	69.3		
Neck Moment	X	N•m	13.7	91.1	-4.5	52.1	27.2	83.5	-8.7	256.4
Neck Moment	Y	N•m	43.2	67.4	-18.2	248.9	27.8	135.8	-24.4	262.1
Neck Moment	Z	N•m	4.8	163.6	-11.2	110.1	16.6	106.7	-9.5	160.1
Neck Moment Resultant	N/A	N•m	43.4	67.4			36.5	85.1		

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	9.8	100.8	-64.3	67.3	15.6	70.9	-68.0	57.3
Left Foot Aft	Z	G's	3.5	211.6	-42.5	68.8	3.0	50.3	-23.0	64.5
Left Foot Fore	Z	G's	9.6	17.8	-62.1	71.7	2.6	59.5	-89.1	35.5
Right Foot Aft	X	G's	11.9	89.1	-72.1	43.9	11.2	75.4	-60.2	40.5
Right Foot Aft	Z	G's	13.6	71.5	-67.1	55.0	10.3	61.1	-30.4	76.6
Right Foot Fore	Z	G's	28.5	27.7	-169.2	35.7	17.8	59.4	-45.4	43.2

1.) Passenger channel failed at 59.6 msec.

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Upper Moment	X	N•m	41.0	69.6	-8.0	215.4	58.7	31.8	-89.5	49.8
Left Upper Moment	Y	N•m	30.4	62.5	-64.9	42.0	40.6	64.4	-8.9	272.7
Right Upper Moment	X	N•m	15.5	59.6	-21.9	84.4	11.5	295.8	-33.3	49.4
Right Upper Moment	Y	N•m	17.0	105.4	-85.4	56.3	56.2	82.5	-44.7	69.3
Left Lower Moment	X	N•m	18.9	68.9	-30.8	42.4	3.5	272.8	-11.4	112.2
Left Lower Moment	Y	N•m	24.0	96.6	-10.2	41.5	26.0	83.3	-34.5	32.3
Left Lower Force	Z	Newtons	199.9	160.8	-2049.9	35.9	117.0	161.4	-2641.6	65.1
Right Lower Moment	X	N•m	19.4	70.3	-19.8	59.1	16.8	89.0	-17.1	76.1
Right Lower Moment	Y	N•m	17.3	81.4	-31.4	52.2	39.5	76.4	-35.0	32.4
Right Lower Force	Z	Newtons	222.9	120.6	-2344.7	58.7	151.0	135.8	-1714.5	44.8

DATA SHEET NO. 8...(continued)

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

NHTSA No.: M35106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 2/26/03

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.2	19.5	-29.9	72.8	0.2	0.0	-26.1	80.2

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	22.6	214.6	-70.5	75.8	28.6	249.1	-58.8	75.7
Head CG	Y	G's	7.8	85.1	-8.1	208.4	12.7	61.7	-12.4	90.1
Head CG	Z	G's	19.8	48.3	-3.2	109.0	27.0	71.7	-2.5	134.0
Head CG Resultant	N/A	G's	71.6	75.8			62.2	75.7		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	4.1	199.6	-49.4	70.4	2.3	263.7	-45.2	70.7
Chest CG	Y	G's	8.6	88.4	-2.9	36.9	3.6	27.4	-9.9	82.4
Chest CG	Z	G's	9.0	47.8	-3.8	113.6	16.6	86.3	-3.8	127.0
Chest CG Resultant	N/A	G's	49.5	70.4			46.2	70.8		

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	592.6	65.9	93.6	53.9	443.4	61.3	94.2	44.8

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	46.5	69.0	72.0	45.1	69.6	72.6

DATA SHEET NO. 9
SEATBELT ASSESSMENT TEST DATA

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
Test Date: 2/26/03

SEAT BELT PLACEMENT MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy C/L to Lap/Shoulder Belt Intersect	mm	235	235
PBU -Top surface of reference to belt upper edge	mm	310	300
PBL - Top surface of reference to belt lower edge	mm	235	210
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	775	775
Shoulder belt length as measured on ATD	mm	895	940
Lap belt length as measured on ATD	mm	790	815
Remainder of belt on reel	mm	915	830
Total belt length for continuous webbing systems	mm	3375	3360

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	10.0	15.0
As determined electronically	mm	182.0	150.9

BELT STRETCH DATA

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

*Not used with shoulder belt pre-tensioner systems.

DATA SHEET NO. 10
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

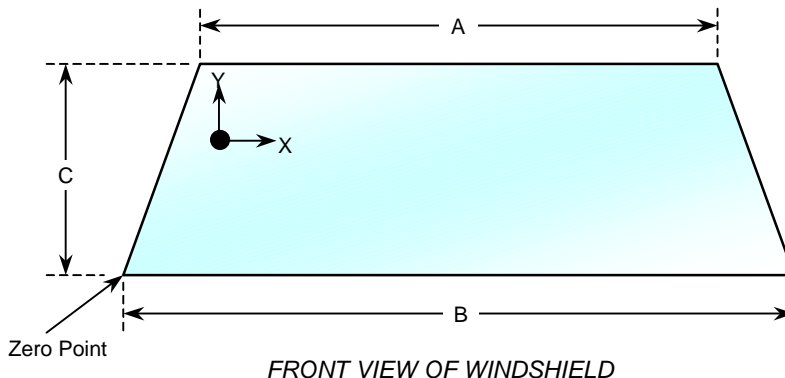
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive. No molding covers the windshield periphery at any point.

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

Temperature of windshield molding during test: 21.1 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test(mm)	Post-Test (mm)	% of Retention
Left Side	2050.0	2050.0	100
Right Side	2050.0	2050.0	100
Total	4100.0	4100.0	100



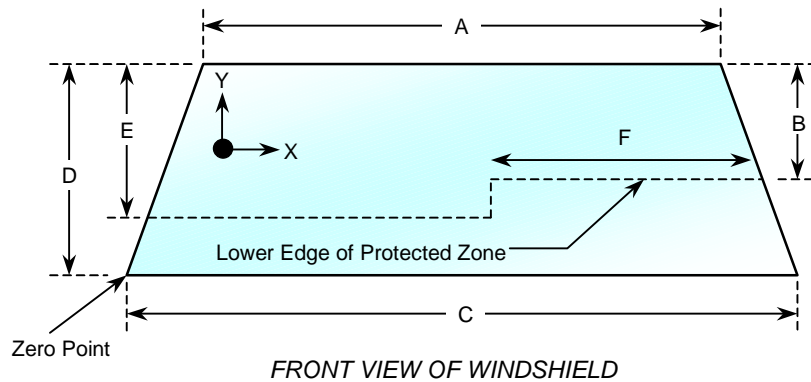
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1220	15
B	mm	1480	10
C	mm	700	20
C	mm	700	20

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03



**WINDSHIELD AND
 PROTECTED ZONE**

Item	Units	Value
A	mm	1220
B	mm	335
C	mm	1480
D	mm	700
E	mm	282
F	mm	560

AREA OF PROTECTED ZONE FAILURES

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

X	Y
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

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

X	Y
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
Test Date: 2/26/03

Test Time: 3:22 PM

Temperature at Test Time: 11.1 Deg. C

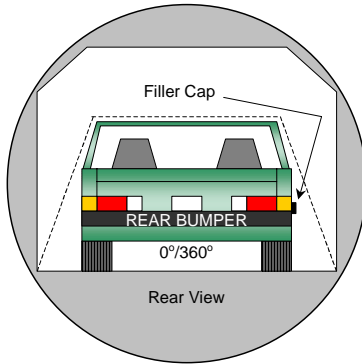
STODDARD SOLVENT SPILLAGE MEASUREMENTS

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

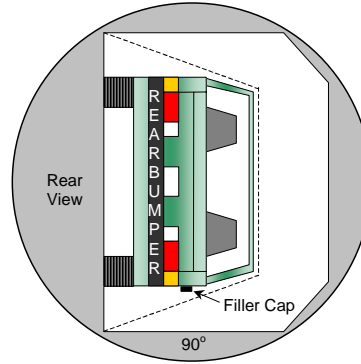
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

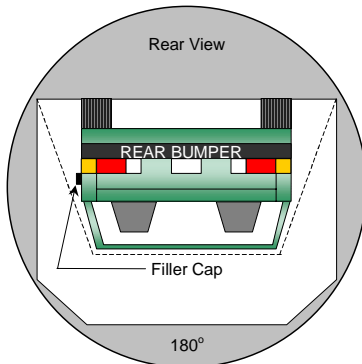
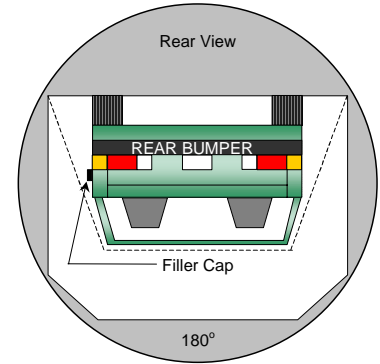
NHTSA No.: M35106
 Test Date: 2/26/03



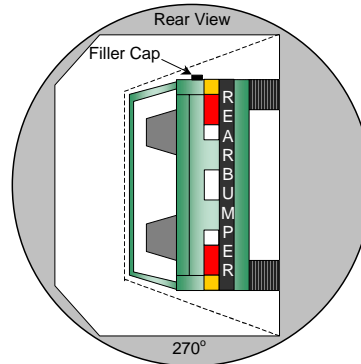
0° to 90°



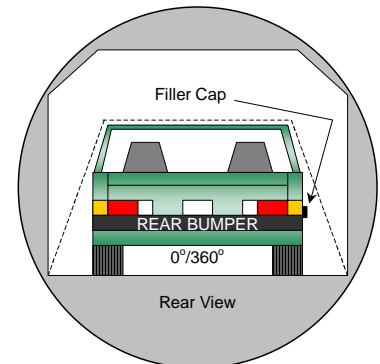
90° to 180°



180° to 270°



270° to 360°



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

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

SOLVENT COLLECTION TIME TABLE IN SECONDS

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

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
90° to 180°	0	0	0	0
180° to 270°	0	0	0	0
270° to 360°	0	0	0	0

SOLVENT SPILLAGE LOCATION TABLE

Test Phase	SPILLAGE LOCATION
0° to 90°	None
90° to 180°	None
180° to 270°	None
270° to 360°	None

DATA SHEET NO. 14
VEHICLE MEASUREMENTS

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
Test Date: 2/26/03

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	4796	4331	-465
2	RSOV to front of engine	mm	4185	4231	46
3	RSOV to firewall centerline	mm	3556	3581	25
4	RSOV to leading edge of right door	mm	3295	3373	78
5	RSOV to leading edge of left door	mm	3287	3376	89
6	RSOV to lower leading edge of right door	mm	3244	3295	51
7	RSOV to lower leading edge of left door	mm	3227	3292	65
8	RSOV to upper trailing edge of right door	mm	2225	2303	78
9	RSOV to upper trailing edge of left door	mm	2219	2307	88
10	RSOV to lower trailing edge of right door	mm	2192	2236	44
11	RSOV to lower trailing edge of left door	mm	2178	2244	66
12	RSOV to bottom of right 'A' pillar	mm	3285	3364	79
13	RSOV to bottom of left 'A' pillar	mm	3279	3366	87
14	RSOV to firewall on right side	mm	3575	3645	70
15	RSOV to firewall of left side	mm	3576	3642	66
16	RSOV to steering column	mm	2860	2976	116
17	Center of steering column to left 'A' pillar	mm	405	405	0
18	Center of steering column to headlining	mm	410	420	10
19	RSOV to right side of front bumper	mm	4616	4387	-229
20	RSOV to left side of front bumper	mm	4616	4417	-199
21	Length of engine block	mm	500	500	0
RD	RSOV to right side of dash panel	mm	3125	3126	1
CD	RSOV to center of dash panel	mm	2966	3076	110
LD	RSOV to left side of dash panel	mm	3113	3200	87

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

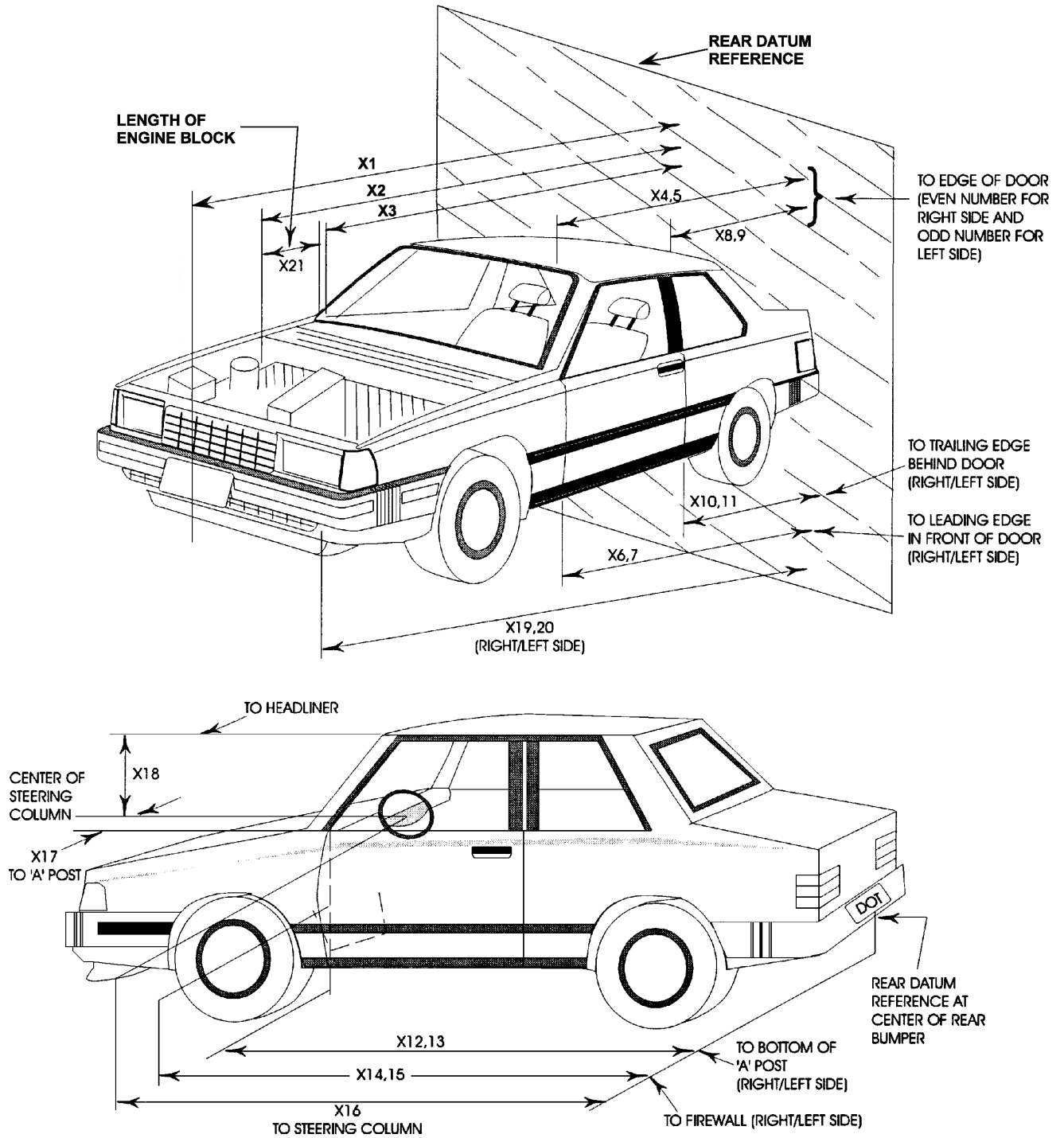
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total Length	mm	4796	4331	-465
2	Total Width	mm	1841	1830	-11
3	Bumper Top Height	mm	804	788	-16
4	Bumper Bottom Height	mm	410	477	67
5	Longitudinal Member Top Height	mm	545	564	19
6	Longitudinal Member Bottom Height	mm	430	437	7
7	Distance Between Longitudinal Members	mm	730	835	105
8	Longitudinal Member Width	mm	115	127	12
9	Engine Top Height	mm	1100	1115	15
10	Engine Bottom Height	mm	271	223	-48
11	Engine and Gear Box Width	mm	600	600	0
12	Front Bumper to Engine Distance	mm	611	270	-341
13	Front Shock Absorber Fixing Width	mm	297	291	-6
14	Bonnet Leading Edge Height	mm	1022	787	-235
15	Front Schock Absorber Fixing Width	mm	1160	1075	-85
16	Front Bumper to Front Axle Distance	mm	932	637	-295
17	Front Axle to A-Pillar Distance	mm	601	510	-91
18	A-Pillar to B-Pillar Distance	mm	1096	1084	-12
19	B-Pillar to Rear Axla Distance	mm	1105	1155	50
20	B-Pillar to C-Pillar Distance	mm	977	975	-2
21	Roof Sill Bottom Height	mm	1565	1527	-38
22	Roof Sill Top Heigth	mm	1680	1626	-54
23	Floor Sill Bottom Height	mm	410	350	-60
24	Floor Sill Top Height	mm	550	496	-54

All Measurements in millimeters

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
Test Date: 2/26/03

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	7784	13	DNR
2B	Driver Overall	1626	8230	1092	4	7683	17	No Time
3	Driver Close-up	1727	8230	1600	4	7674	35	980
4	3/4 Driver	6477	10185	4648	13	10965	35-85	1000
5	Steering Column	1524	8230	3404	20	7960	19	1020
6	Steering Column	1524	8230	2997	16	7864	19	DNR
7	Passenger Overall	2057	-8306	1219	6	7728	14	1000
8	Passenger Close-up	1676	-8052	1219	4	7498	35	1030
9	3/4 Passenger	8026	-8941	2997	9	10244	80	DNR
10	Passenger Door	2438	-13106	1524	4	12524	50	No Time
11	Overhead	610	0	6172	90	N/A	13	DNR
12	Driver Front	-610	406	2743	40	N/A	12	1040
13	Passenger Front	-610	406	2743	40	N/A	13	DNR
14	Pit Engine	762	0	-1499	90	N/A	10	850
15	Pit Gas Tank	3658	0	-1499	90	N/A	6	940
16	Driver Side Child	2743	-584	1194	10	1184	6	No Time
16B	Driver Side Child	2642	8230	2286	1	7867	25	1000
17	Passenger Side Child	2743	584	1194	10	1184	6	No Time
17B	Passenger Side Child	2743	-8331	1524	1	7898	25	DNR

X - Barrier Face Y - Monorail Centerline Z - Ground DNR = Did Not Run

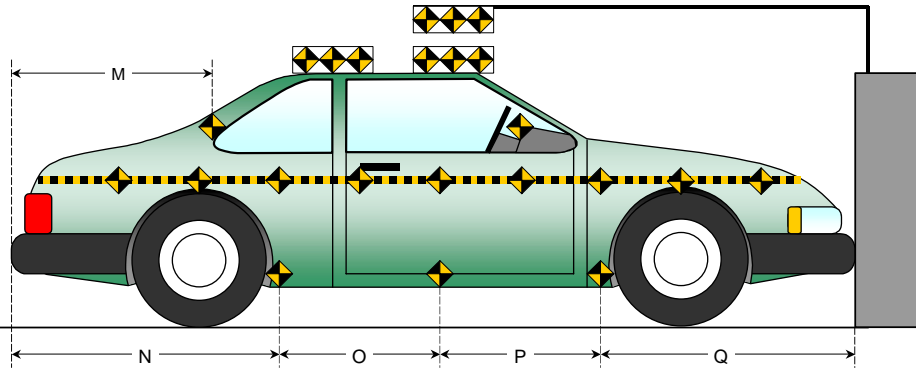
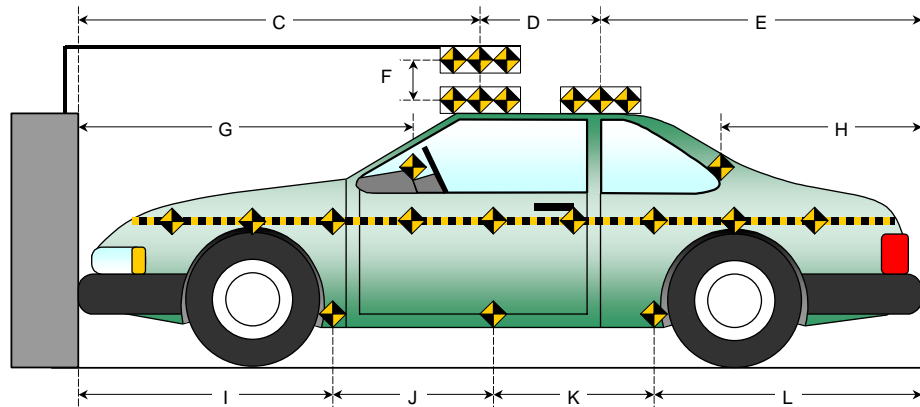
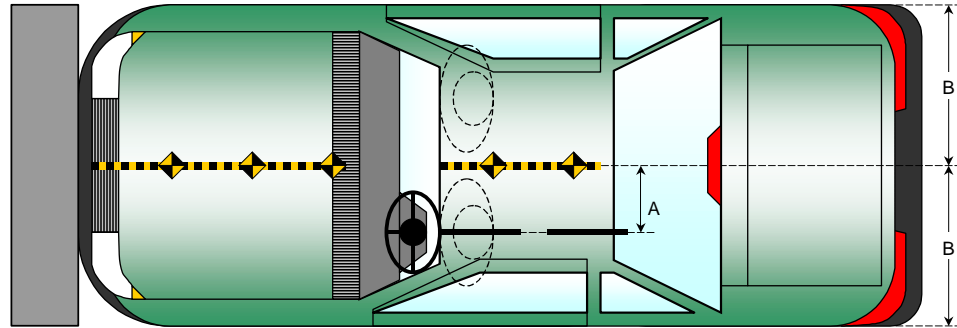
DATA SHEET NO. 16
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

All Dimensions
 in mm

Item	Value
A	415
B	943
C	2297
D	610
E	1899
F	155
G	1760
H	1222
I	1463
J	867
K	867
L	1618
M	1222
N	1618
O	867
P	867
Q	1463



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

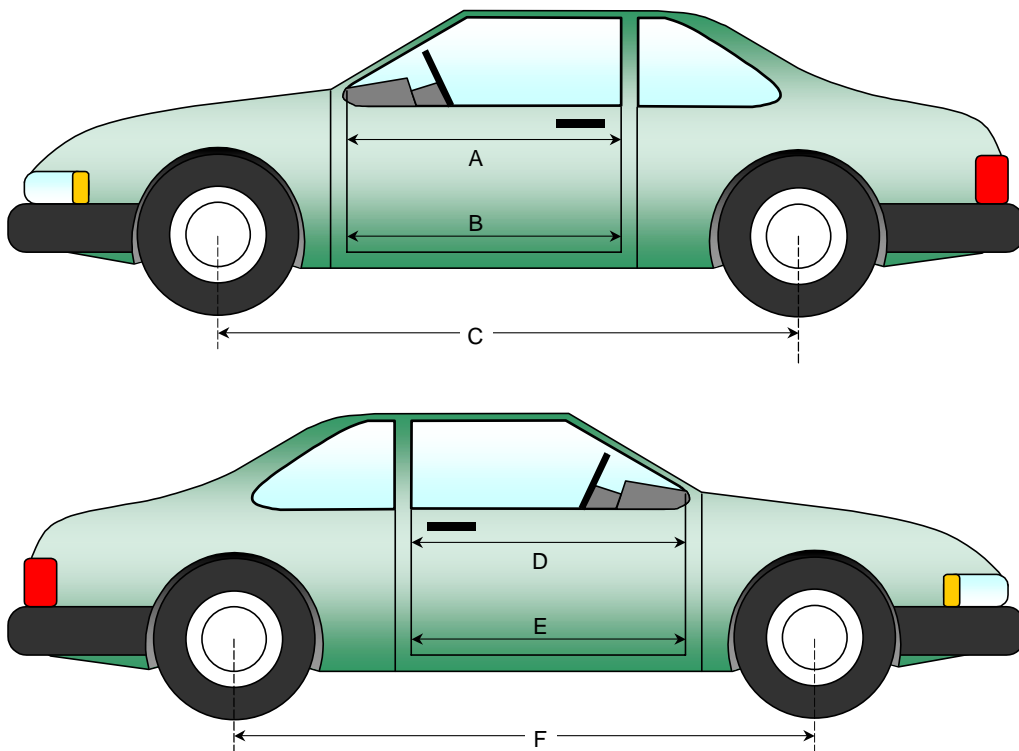
NHTSA No.: M35106
 Test Date: 2/26/03

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1005	1007	2
B	Left Side Lower	mm	909	914	5
D	Right Side Upper	mm	1005	1006	1
E	Right Side Lower	mm	910	911	1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheel base	mm	2795	2781	-14
F	Right Side Wheel base	mm	2795	2782	-13



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

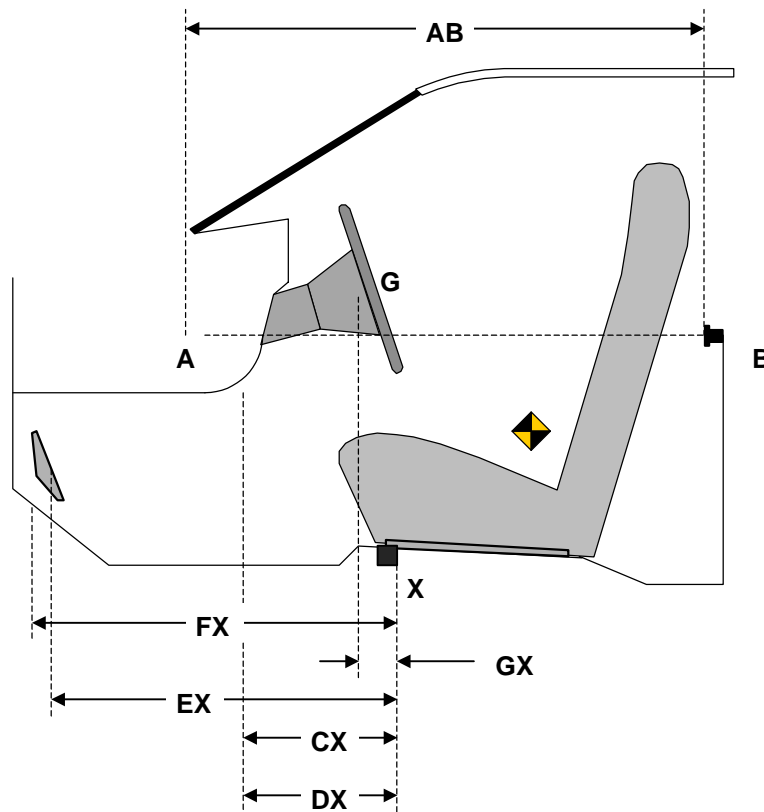
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	1005	1007	2
CX	Left Knee Bolster to X	mm	285	315	30
DX	Right Knee Bolster to X	mm	280	318	38
EX	Brake Pedal to X	mm	562	596	34
FX	Foot Rest to X	mm	586	576	-10
GX	Center of Steering Wheel Hub to X	mm	60	85	25

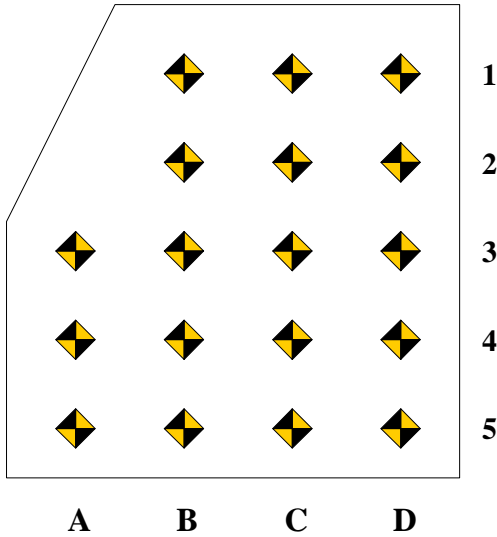
X = Left Front Seat Outboard Anchor Bolt Head



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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03



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

Columns A through D are evenly spaced.

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

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

DRIVER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		659	661	643		645	632	610		-14	-29	-33
2		554	556	545		541	532	519		-13	-24	-26
3	462	451	455	445	443	441	435	426	-19	-10	-20	-19
4	366	358	356	346	346	341	336	328	-20	-17	-20	-18
5	256	253	252	246	240	238	234	228	-16	-15	-18	-18

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		-13	-9	10		-13	-15	4		0	-6	-6
2		-33	-28	-29		-44	-36	-38		-11	-8	-9
3	-61	-63	-62	-65	-62	-64	-67	-68	-1	-1	-5	-3
4	-67	-75	-65	-64	-61	-70	-65	-70	6	5	0	-6
5	-65	-65	-65	-65	-60	-61	-66	-67	5	4	-1	-2

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

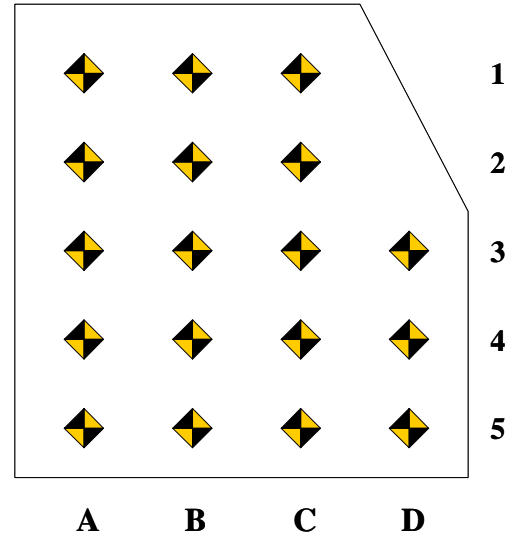
NHTSA No.: M35106
 Test Date: 2/26/03

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

Columns A through D are evenly spaced.

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

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



PASSENGER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	648	642	649		603	631	641		-45	-11	-8	
2	552	545	550		517	534	543		-35	-11	-7	
3	452	442	449	459	419	433	443	449	-33	-9	-6	-10
4	348	342	348	358	315	332	342	348	-33	-10	-6	-10
5	248	242	248	258	228	232	242	248	-20	-10	-6	-10

PASSENGER FLOOR PAN Z-AXIS

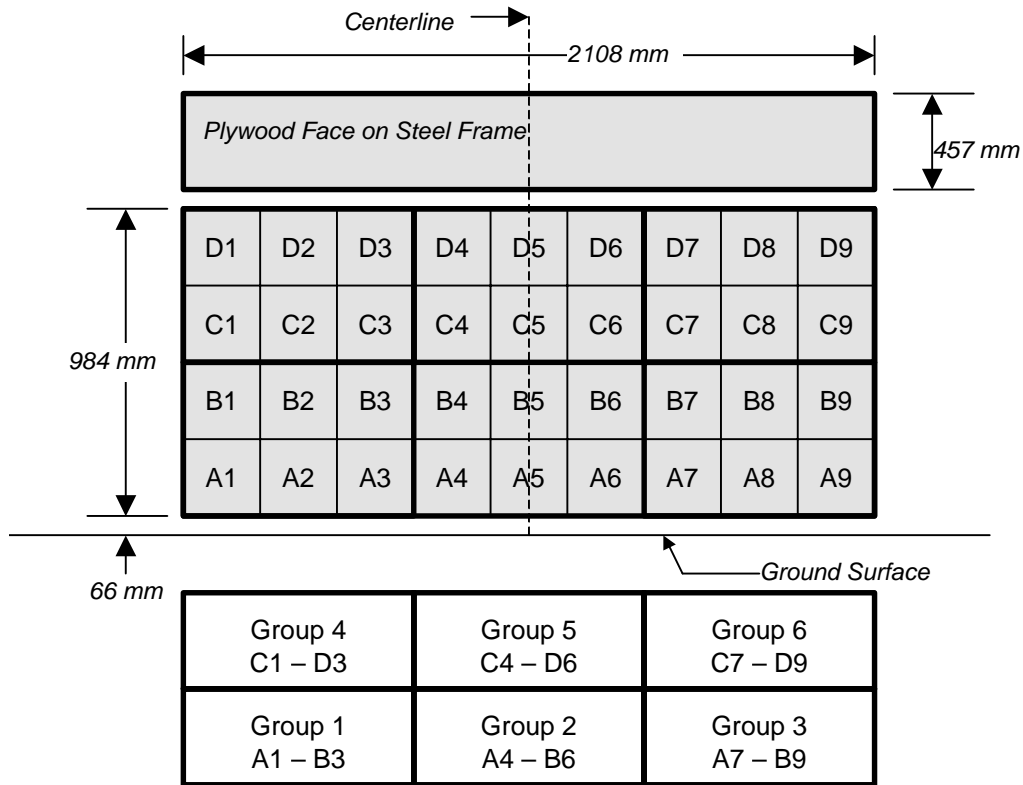
	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-5	-9	-7		-13	-27	-16		-8	-18	-9	
2	-35	-34	-31		-58	-55	-46		-23	-21	-15	
3	-68	-66	-66	-63	-90	-83	-75	-72	-22	-17	-9	-9
4	-70	-70	-75	-62	-82	-82	-67	-67	-12	-12	8	-5
5	-70	-67	-65	-67	-68	-71	-65	-65	2	-4	0	2

DATA SHEET NO. 18
FIXED BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

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 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

VEHICLE INFORMATION

VIN: JTEBU14R038001193
 Vehicle Size Category: 4 Door

Wheel base (mm): 2795
 Test Weight (kg): 2140

ACCELEROMETER DATA

Accelerometer Location: Left rear floor pan
 Cal. Procedure/Interval: 6 months / drop test
 Integration Algorithm: NHTSA Standard
 Impact Velocity (km/h): 56.18
 Velocity Change (km/h): 71.9

Linearity: Good

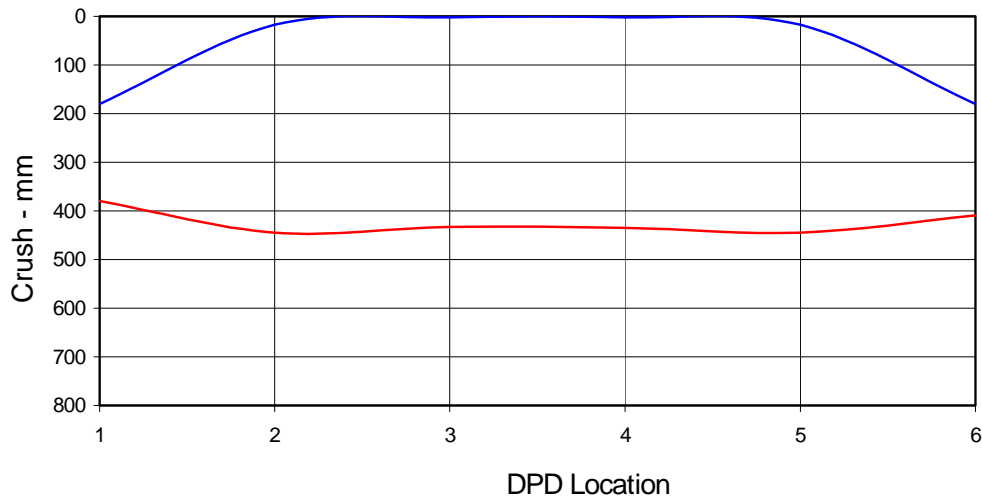
Time of Separation (msec): 61.9

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
 Damage Region Length (mm): 1544

Midpoint of Damage: Vehicle Centerline
 Impact Mode: Full Frontal

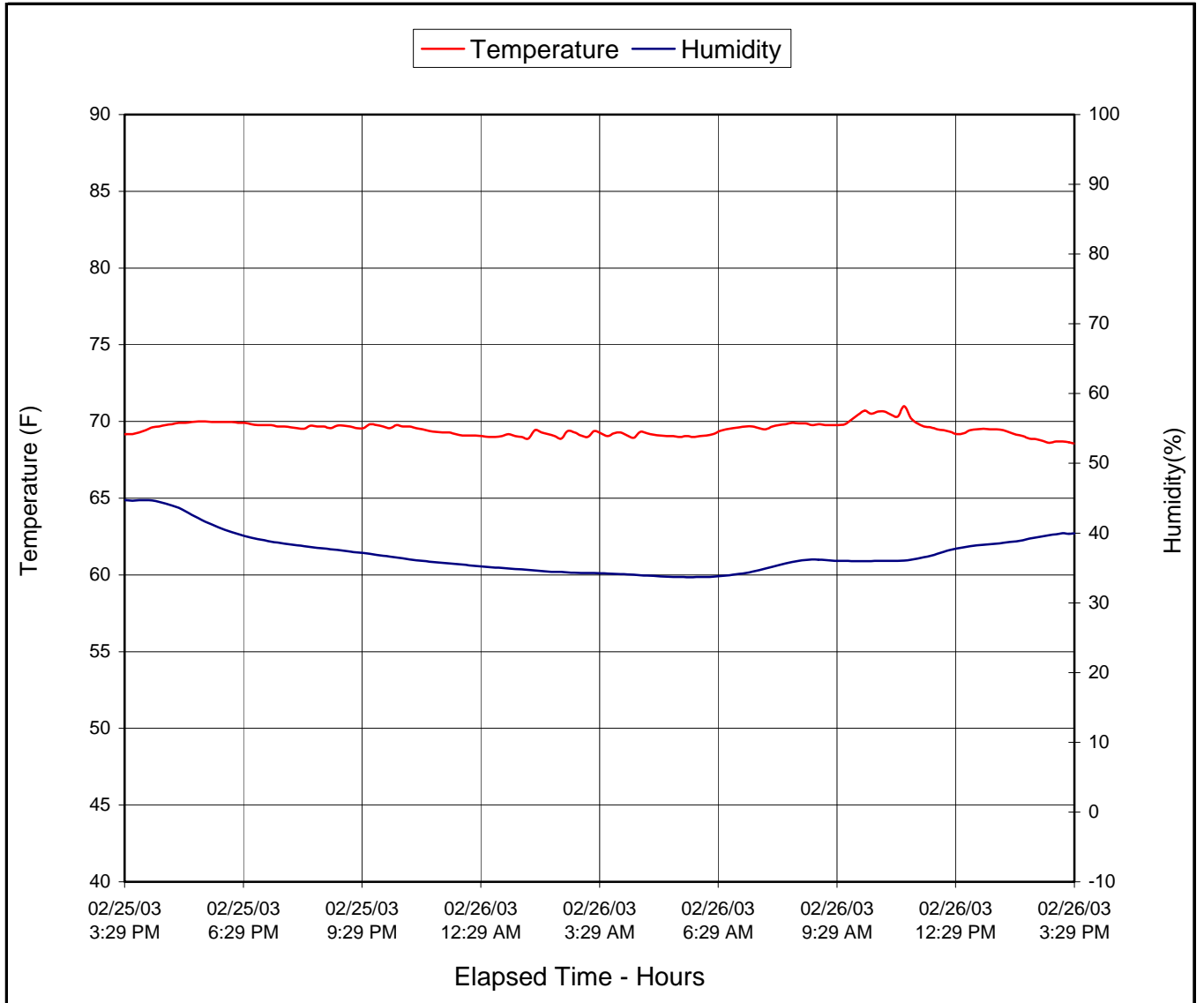
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	180	379	-199
C2	Crush zone 2 on left side	mm	17	445	-428
C3	Crush zone 3 on left side	mm	2	433	-431
C4	Crush zone 4 on right side	mm	2	435	-433
C5	Crush zone 5 on right side	mm	17	445	-428
C6	Crush zone 6 at right side	mm	180	409	-229



DATA SHEET NO. 20
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
Test Date: 2/26/03



APPENDIX A

PHOTOGRAPHS

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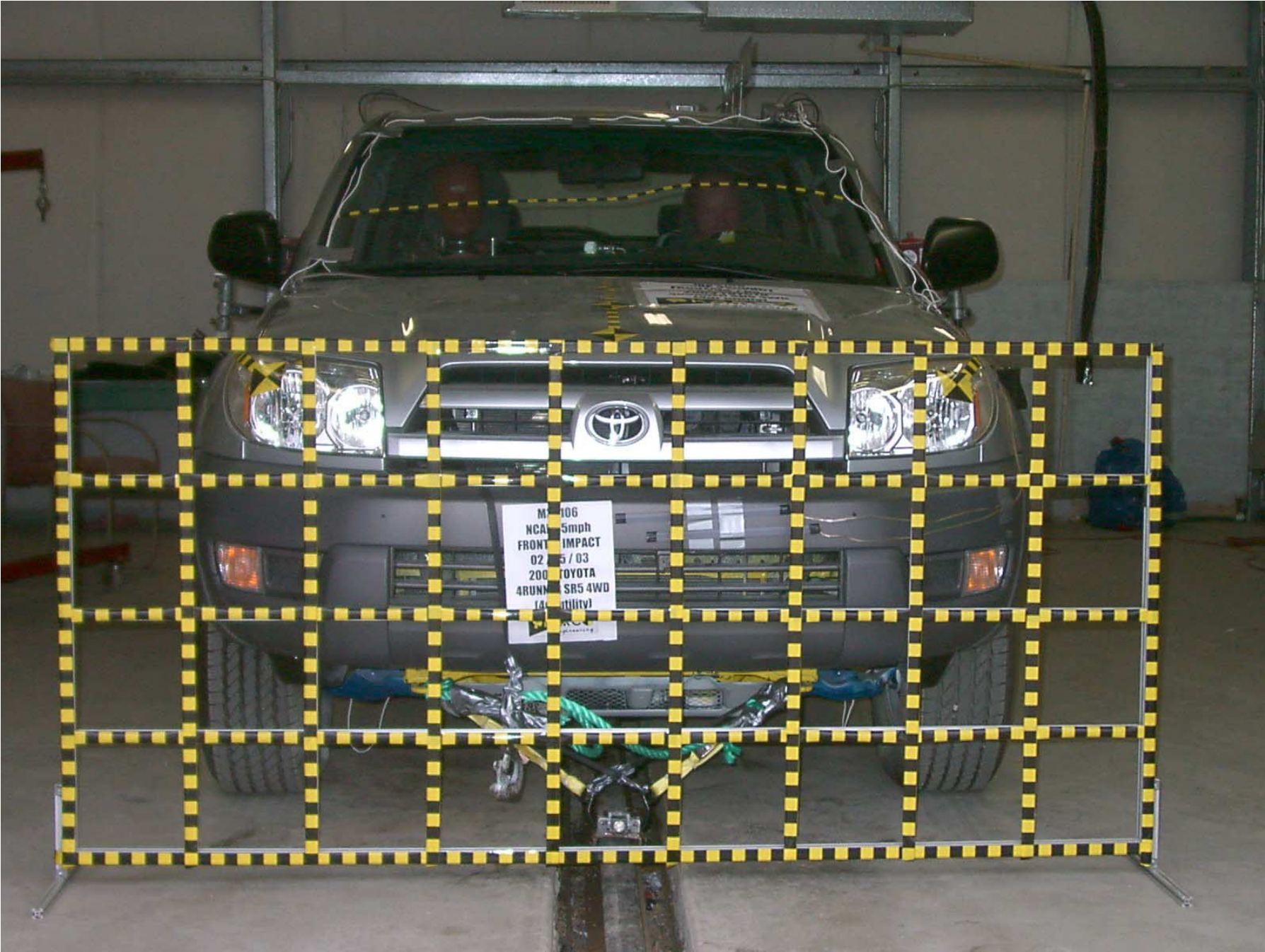


Figure A-1: Load Cell Location

MFD. BY: TOYOTA MOTOR CORPORATION

DATE 11/02

GVWR: 2440KG (5380LB)

GAWR: FRT. 1185KG (2610LB) WITH P265/70R16 TIRES.

16X7J RIMS. AT 220KPA (32PSI) COLD.

RR. 1330KG (2935LB) WITH P265/70R16 TIRES.

16X7J RIMS. AT 220KPA (32PSI) COLD.

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

JTEBU14R038001193 MPV

GRN215L-GKPGKA

C/TR 1D4/FA12

A/TM A02A/

A340F

MADE IN JAPAN

NO. 556



Figure A-2: Vehicle Certification Label

RECOMMENDED COLD TIRE INFLATION PRESSURE (kPa) PRESSION DE PNEUS (psi)		
TIRE SIZE DIMENSIONS	FRONT AV	REAR AR
P265/65R17 110S	220 (32)	220 (32)
P265/70R16 111S	220 (32)	220 (32)
See Owner's Manual for additional information. Voir le Manuel du Propriétaire pour de plus amples informations.		
35600		PP

Figure A-3: Vehicle Tire Label



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



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



Figure A-6: Pre-Test Front View



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



Figure A-8: Pre-Test Left Side View



Figure A-9: Post-Test Left Side View



Figure A-10: Pre-Test Right Side View



Figure A-11: Post-Test Right Side View



Figure A-12: Pre-Test Right Front ¾ View



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



Figure A-14: Pre-Test Left Rear ¾ View



Figure A-15: Post-Test Left Rear 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

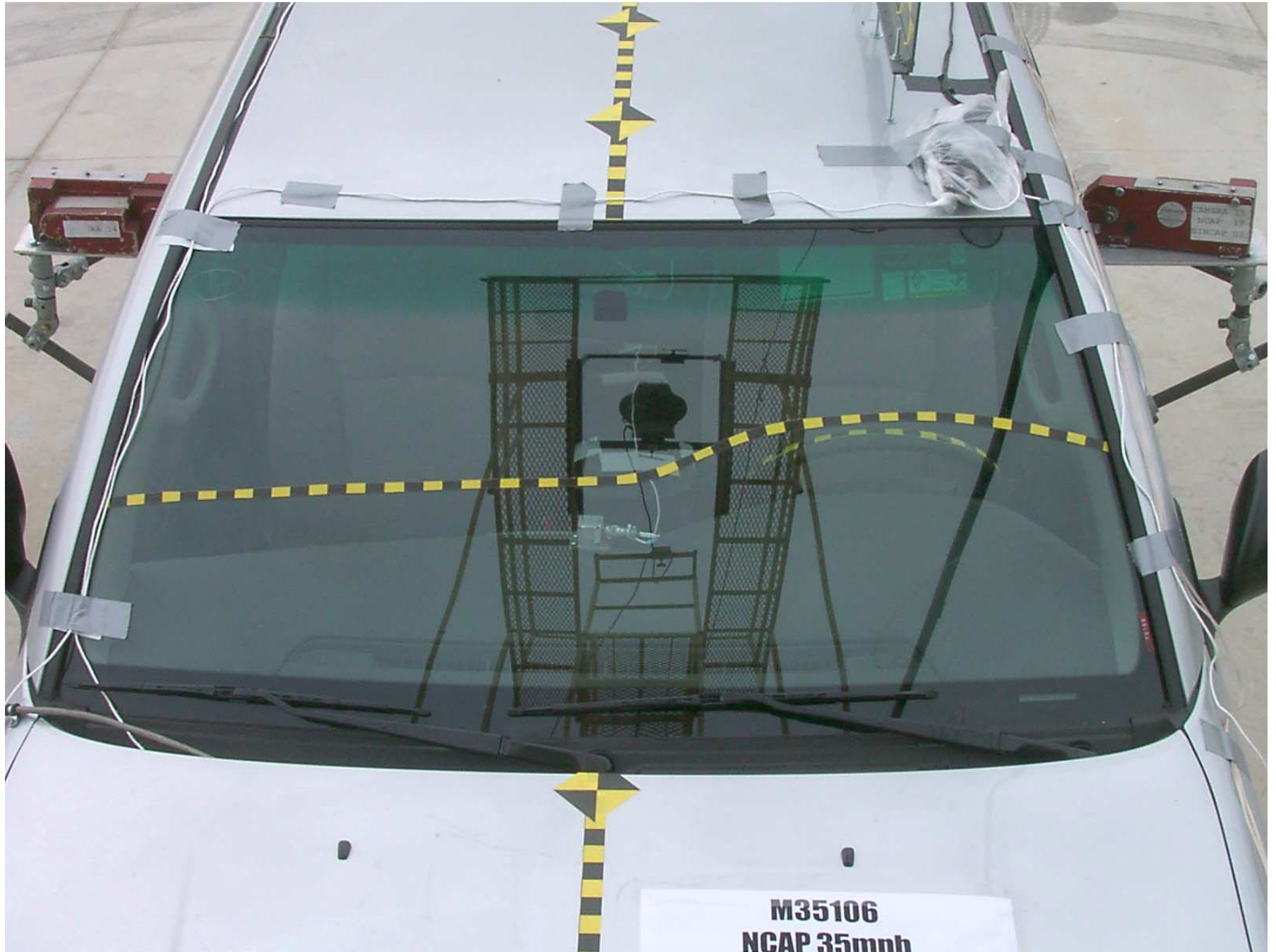


Figure A-18: Pre-Test Windshield View



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

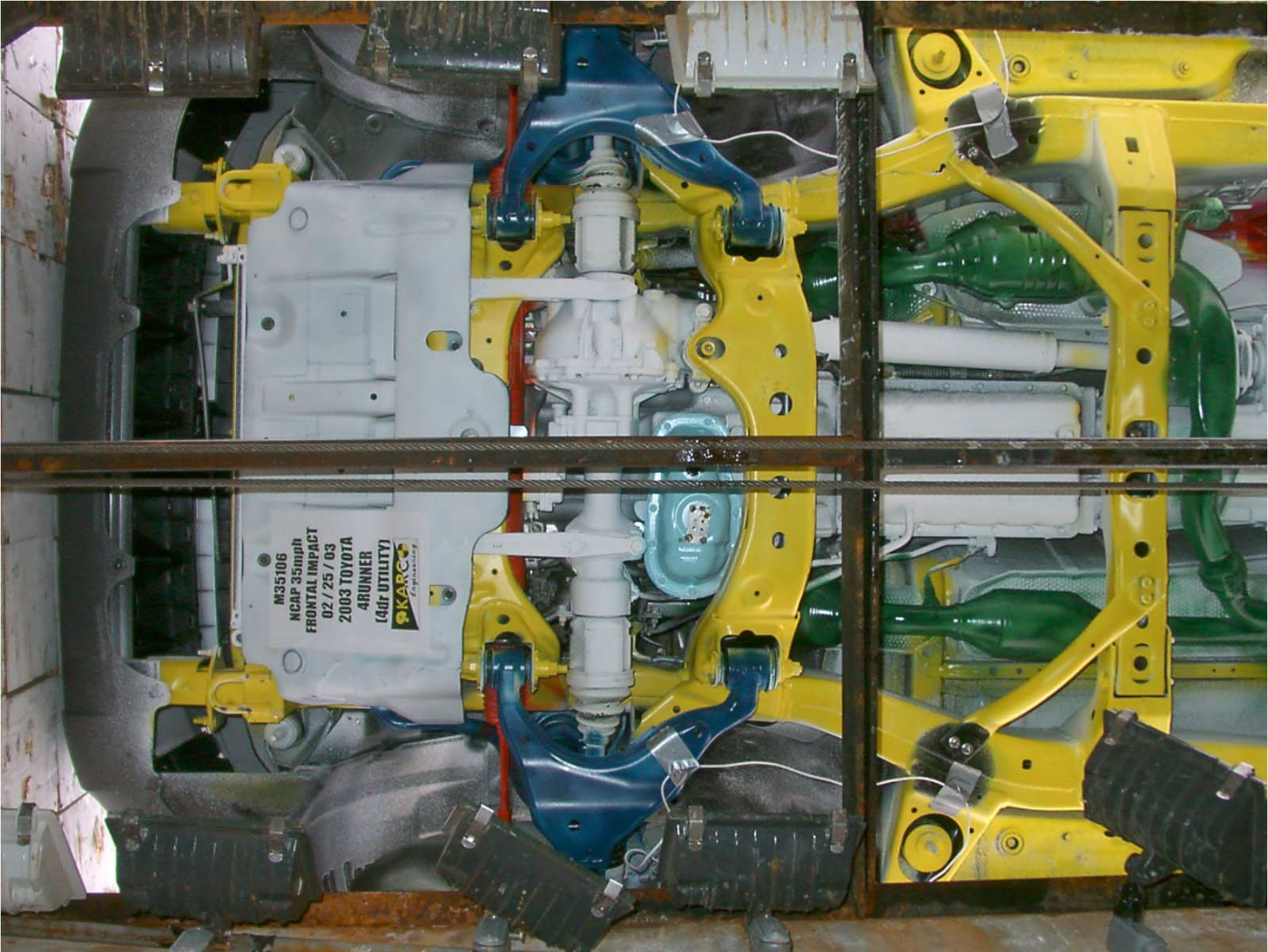


Figure A-24: Pre-Test Front Underbody View

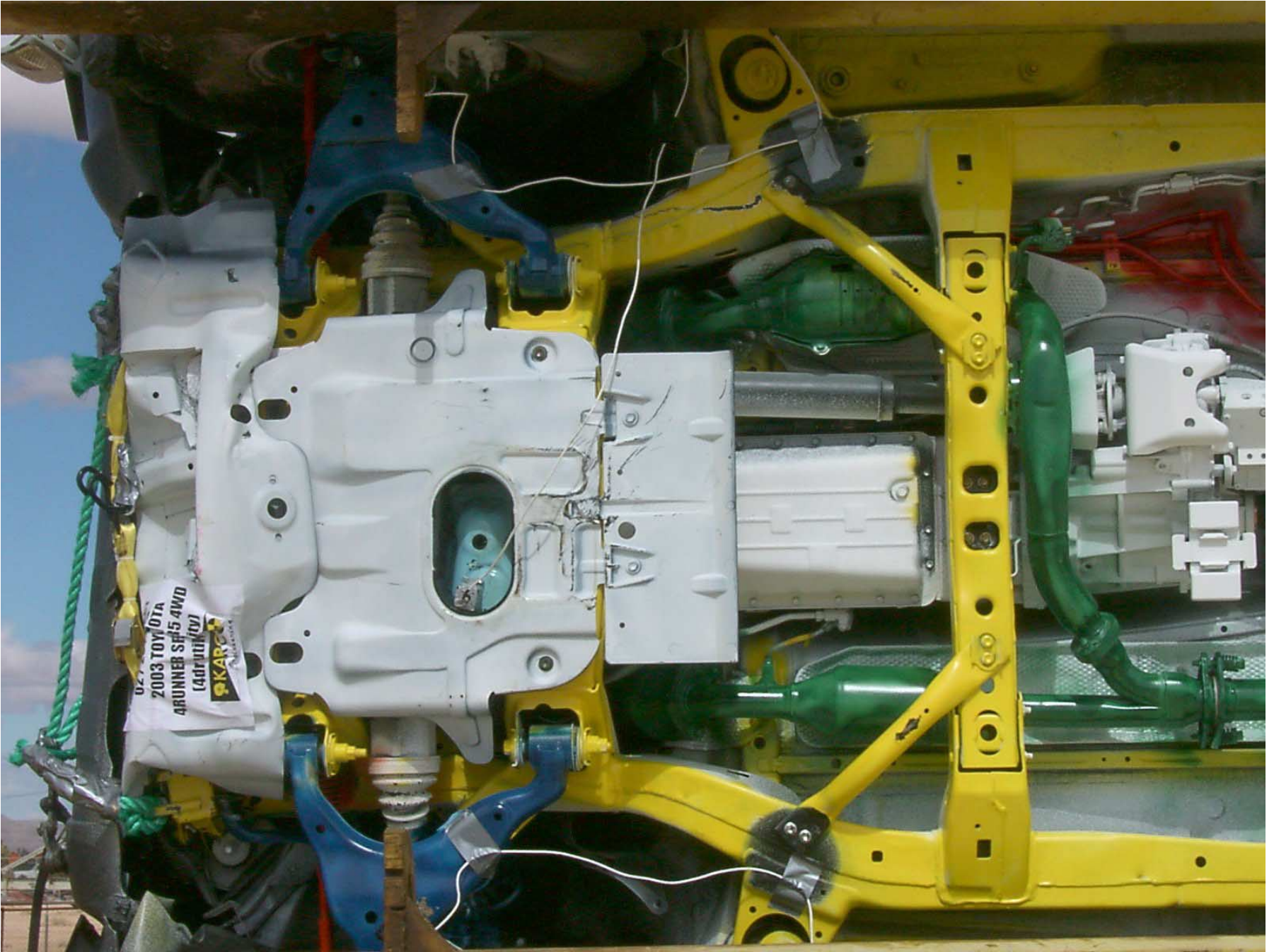


Figure A-25: Post-Test Front Underbody View



Figure A-26: Pre-Test Mid Underbody View

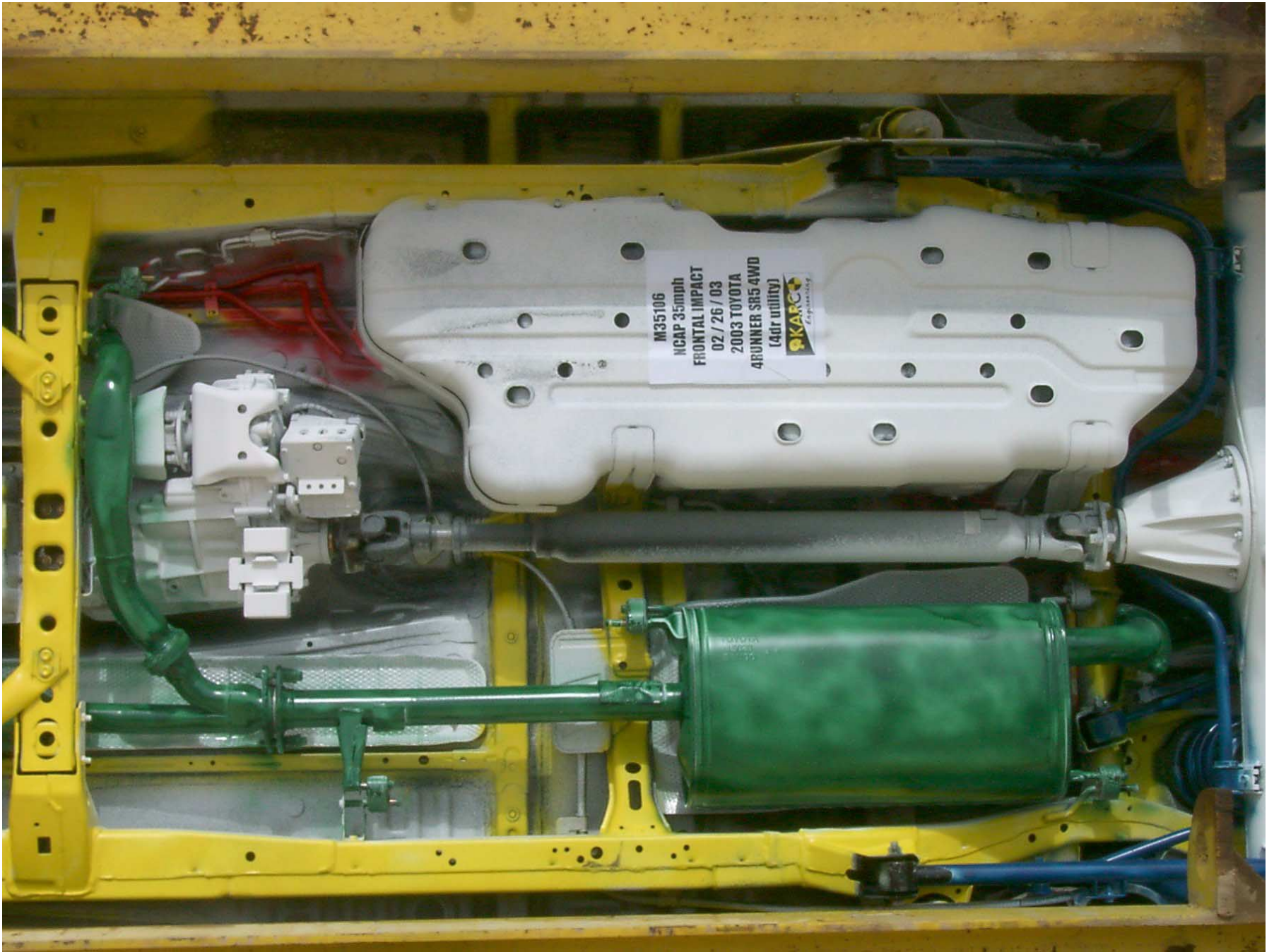


Figure A-27: Post-Test Mid Underbody View

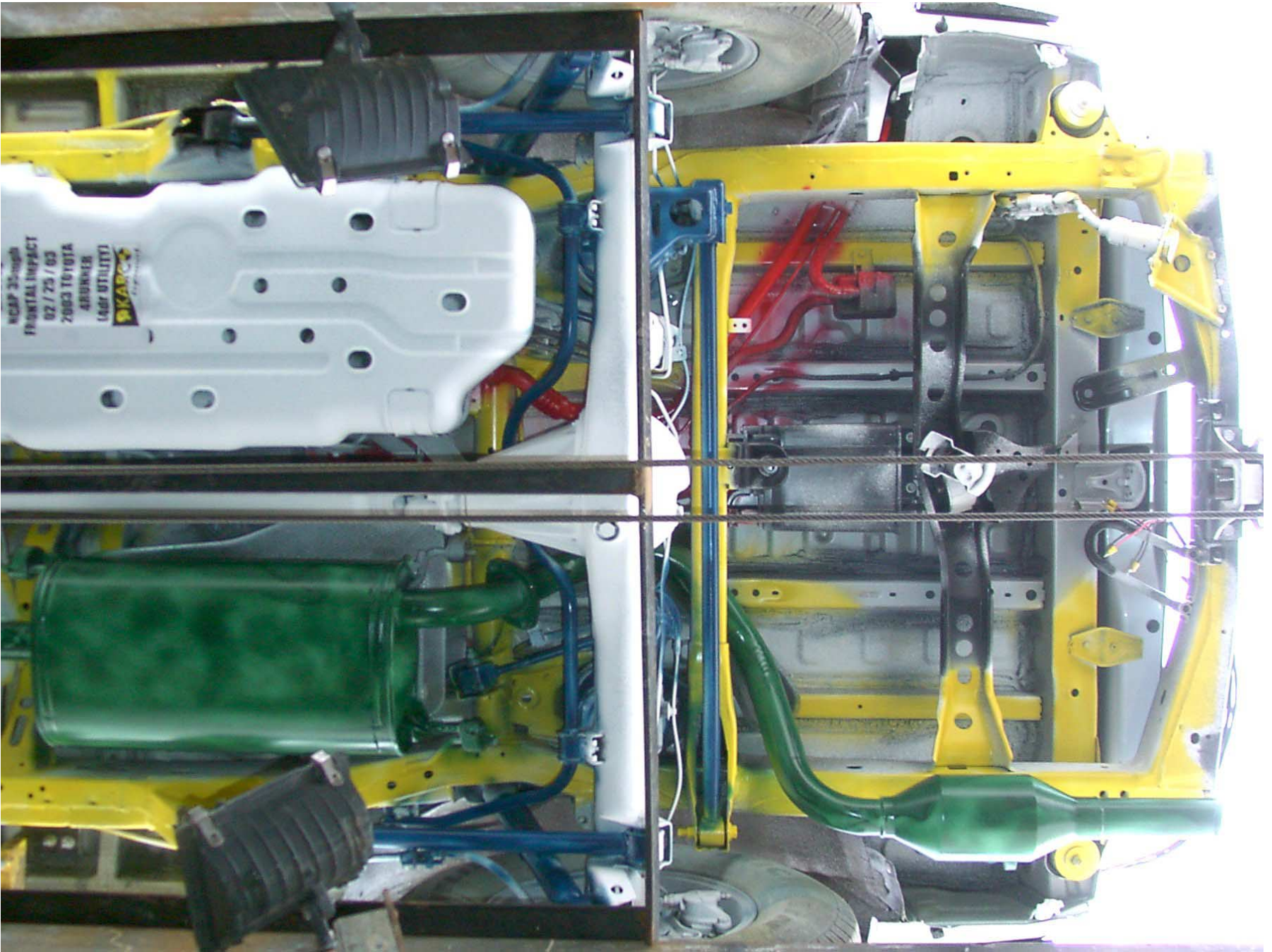


Figure A-28: Pre-Test Rear Underbody View

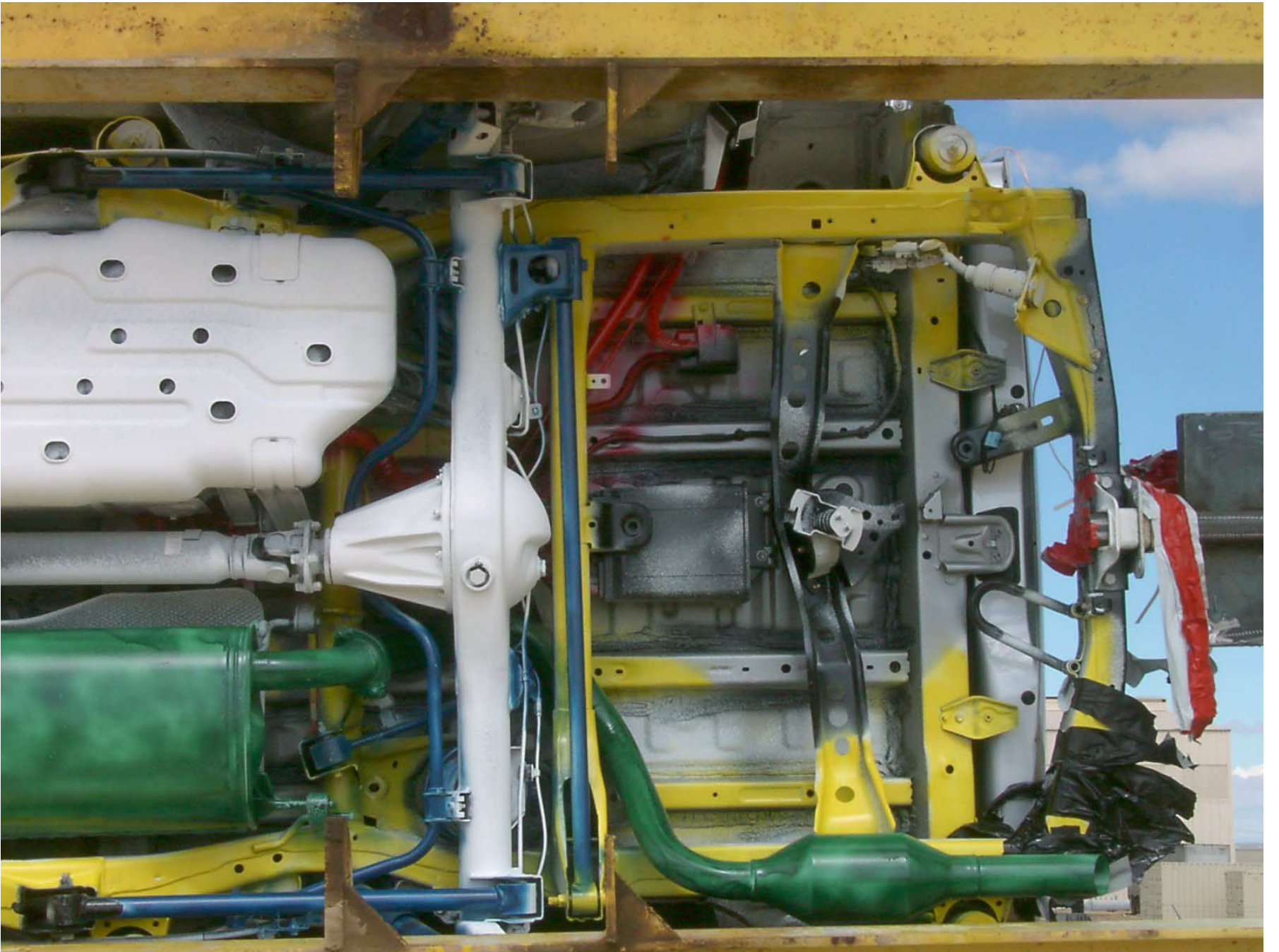


Figure A-29: Post-Test Rear Underbody View

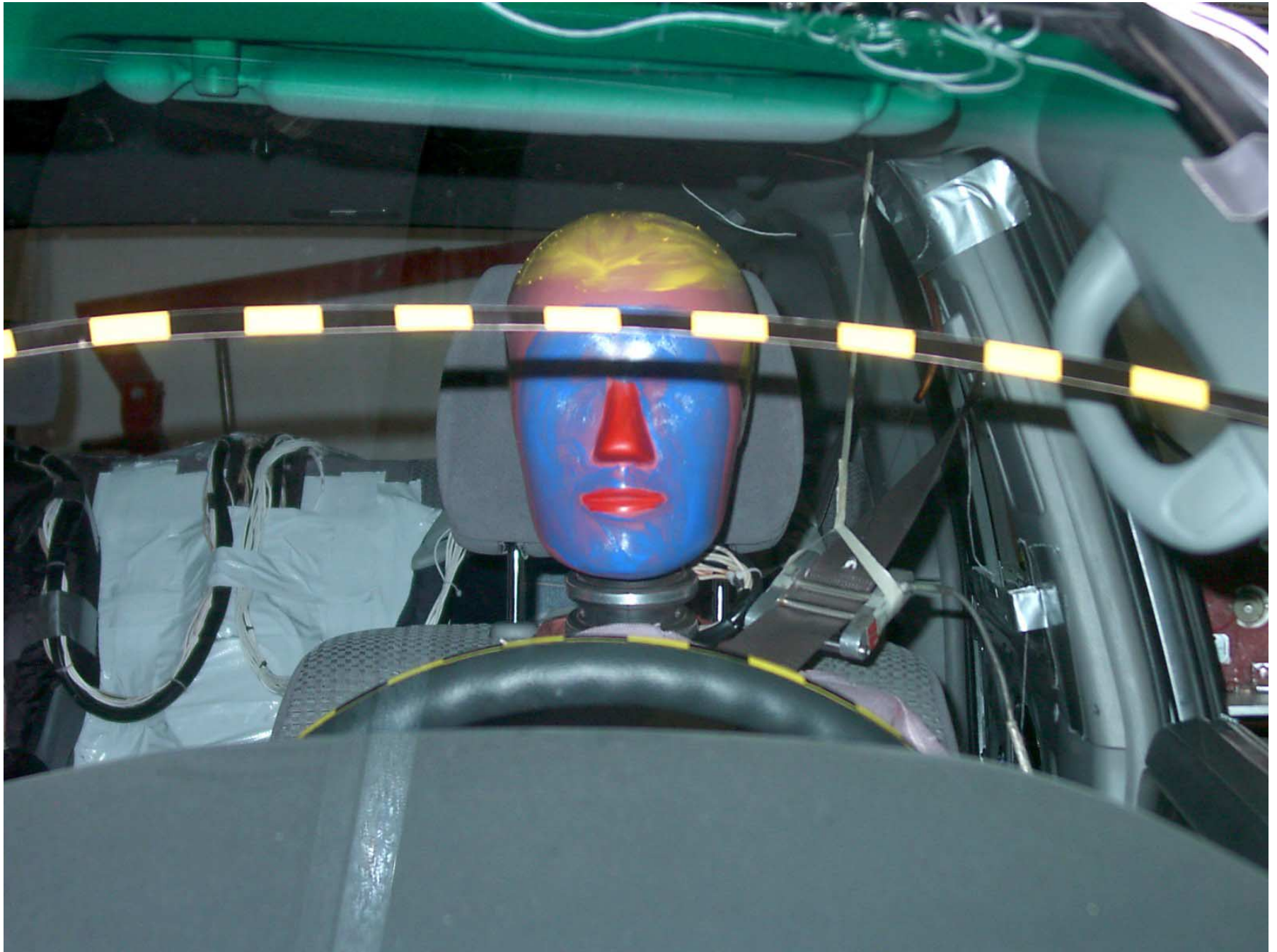


Figure A-30: Pre-Test Driver Dummy Front View (Head Position)



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



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

**Photograph Not
Available**

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

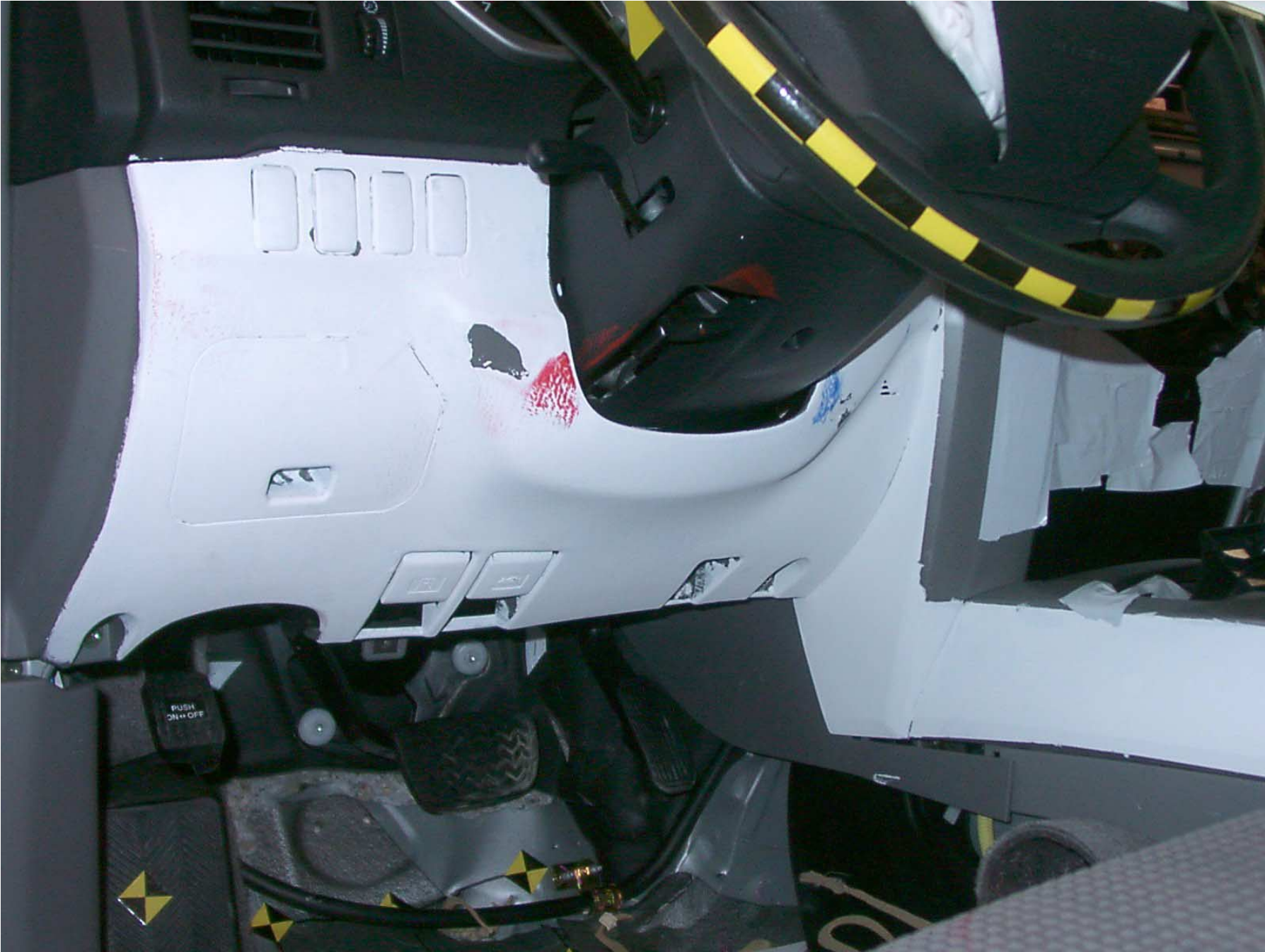


Figure A-39: Post-Test Driver Side Knee Bolster



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

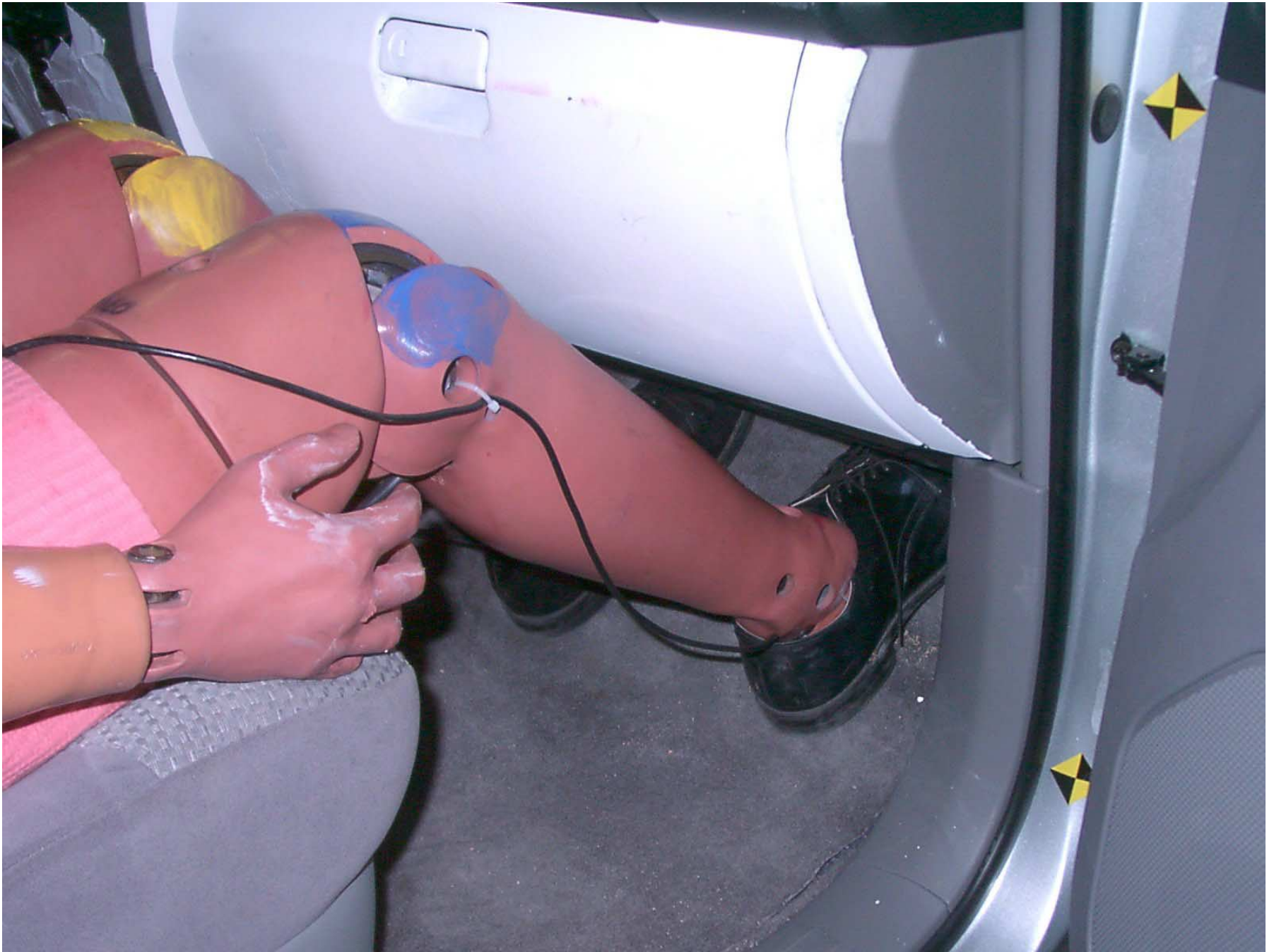


Figure A-50: Pre-Test Passenger Dummy Feet



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



A-59

TR-P23001-12-NC

Figure A-59: Vehicle During Impact

APPENDIX B

DATA PLOTS

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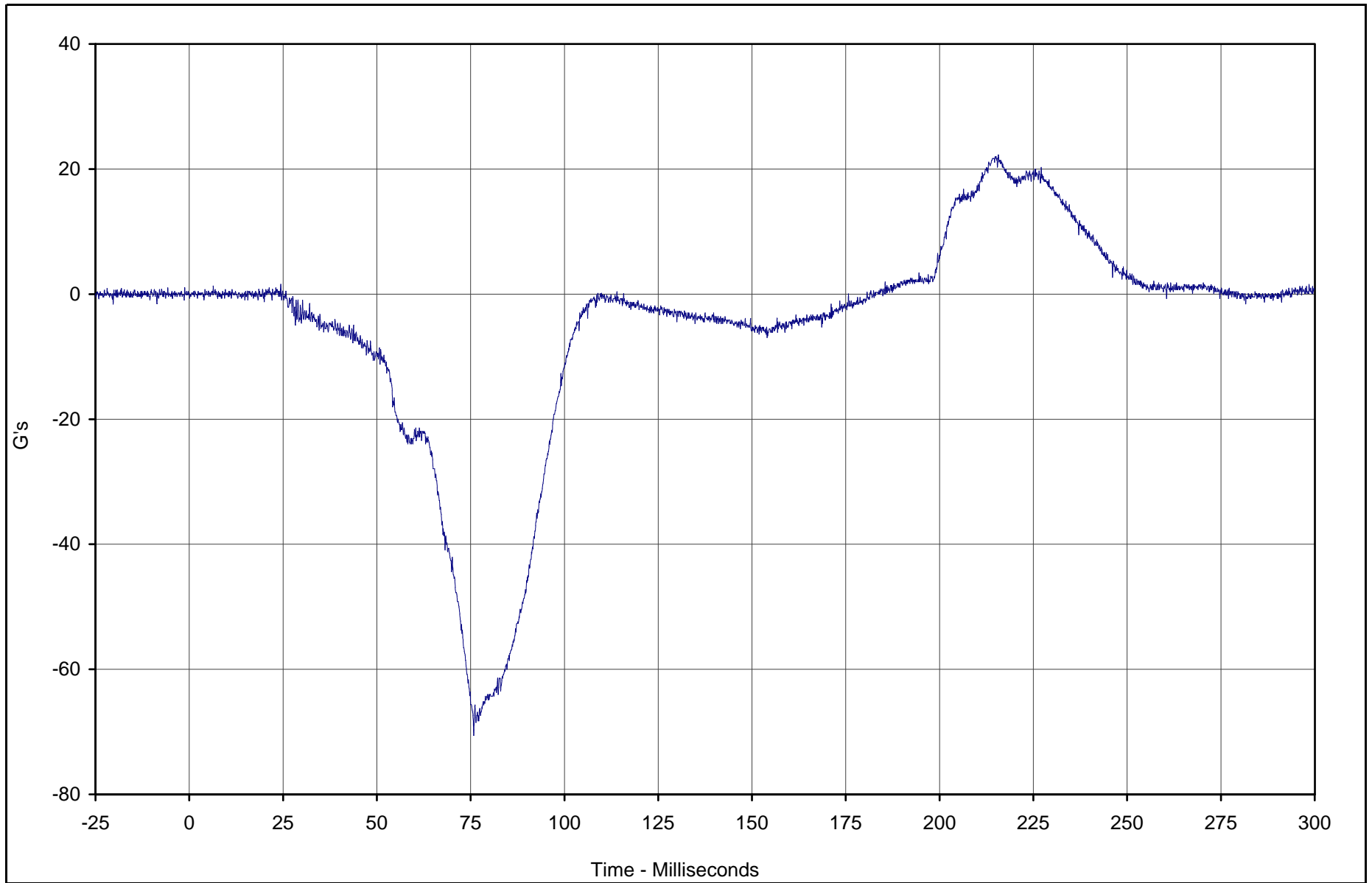
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B-137	Vehicle Left Brake Caliper Displacement	B-137
B-138	Vehicle Right Brake Caliper	B-138
B-139	Vehicle Right Brake Caliper Velocity	B-139
B-140	Vehicle Right Brake Caliper Displacement	B-140
B-141	Vehicle Instrument Panel	B-141
B-142	Vehicle Instrument Panel Velocity	B-142
B-143	Vehicle Instrument Panel Displacement	B-143
B-144	Vehicle Left Rear Z	B-144
B-145	Vehicle Left Rear Z Velocity	B-145
B-146	Vehicle Left Rear Z Displacement	B-146
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

B-1



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X	001	FIL	G's	22.3	215.6	-70.5	75.8	1000



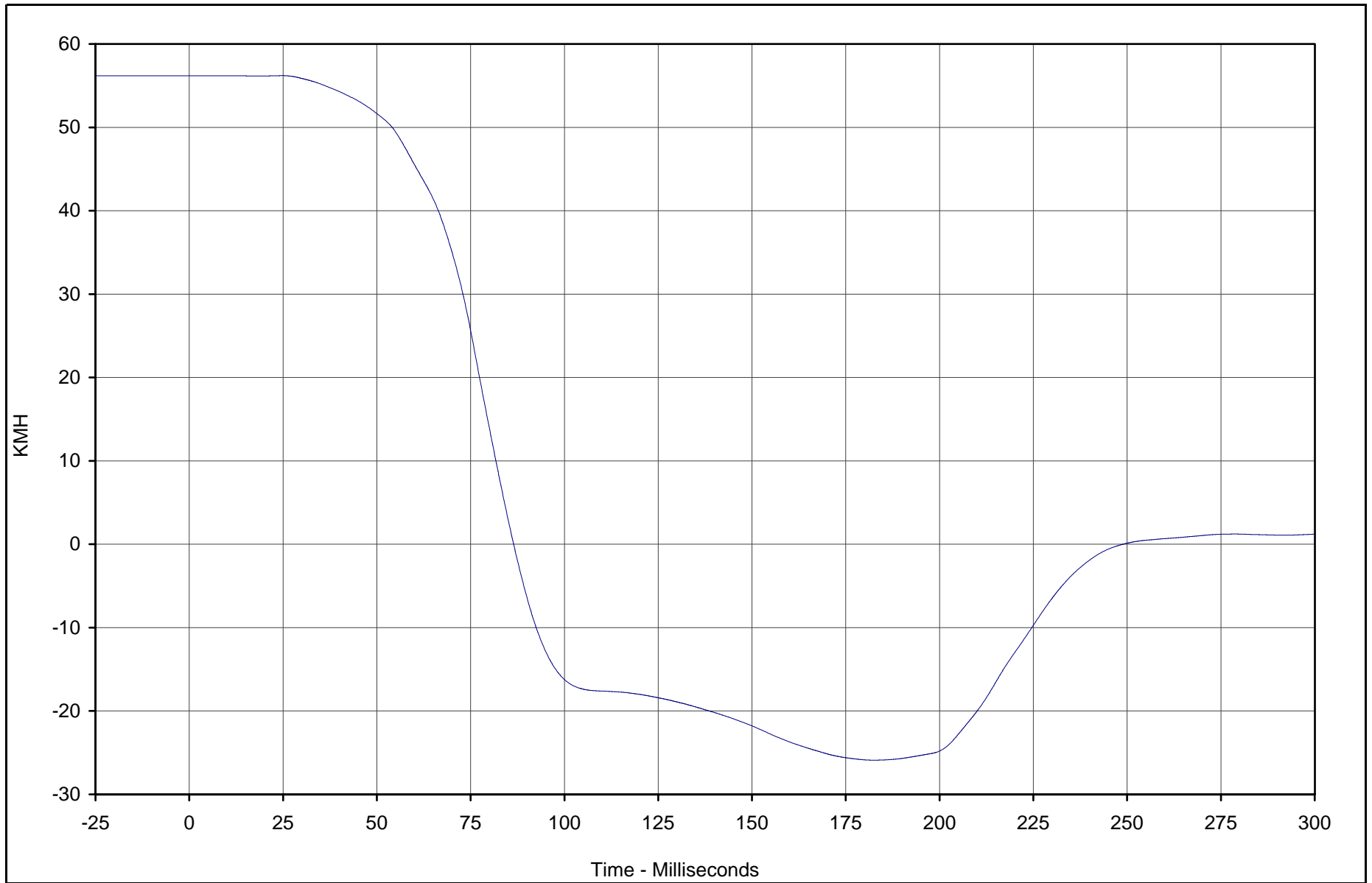
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X Velocity	001	IN1	KMH	56.2	24.8	-25.9	182.6	180

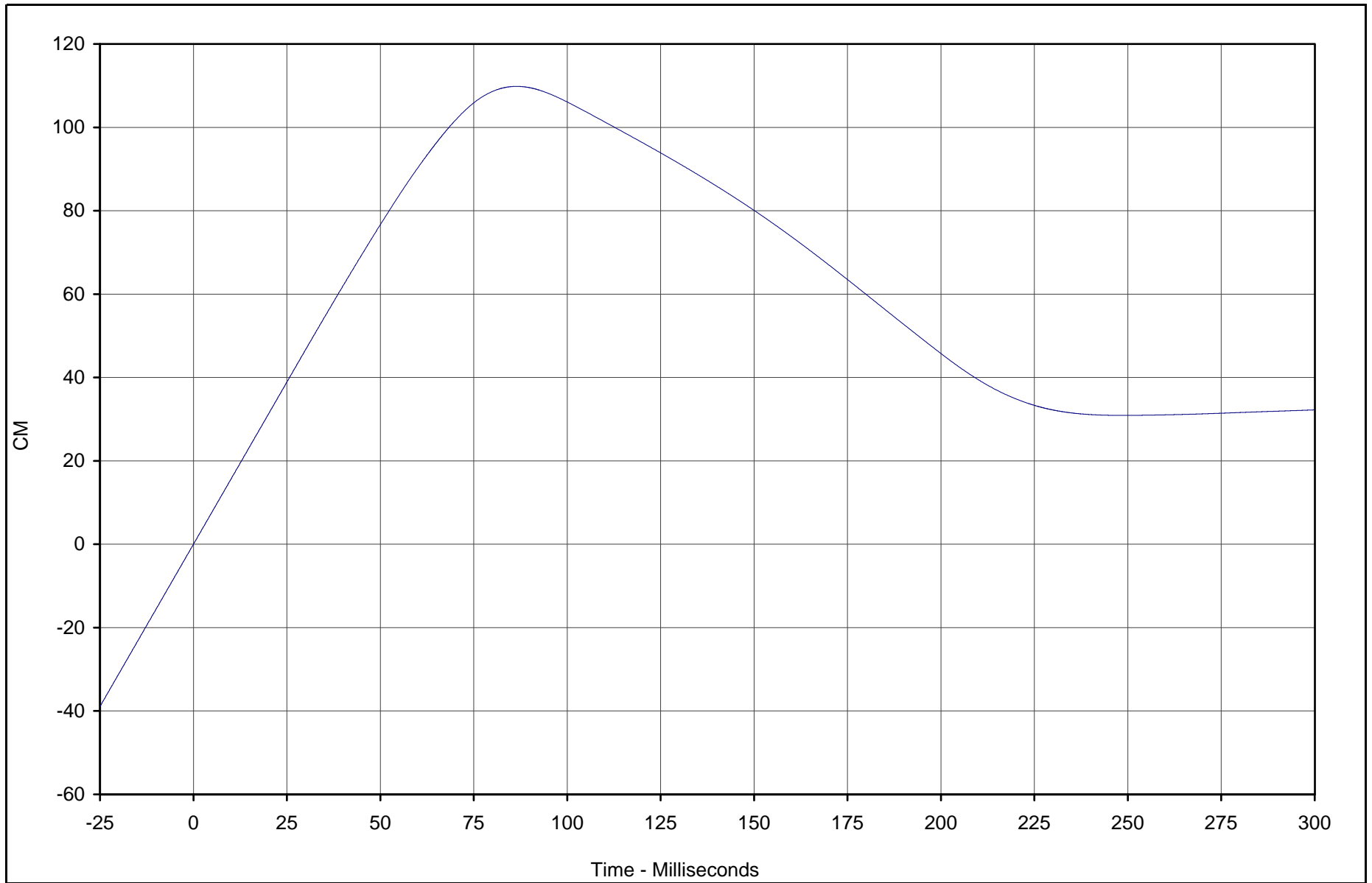


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X Displ.	001	IN2	CM	109.8	86.5	0.0	0.0	180

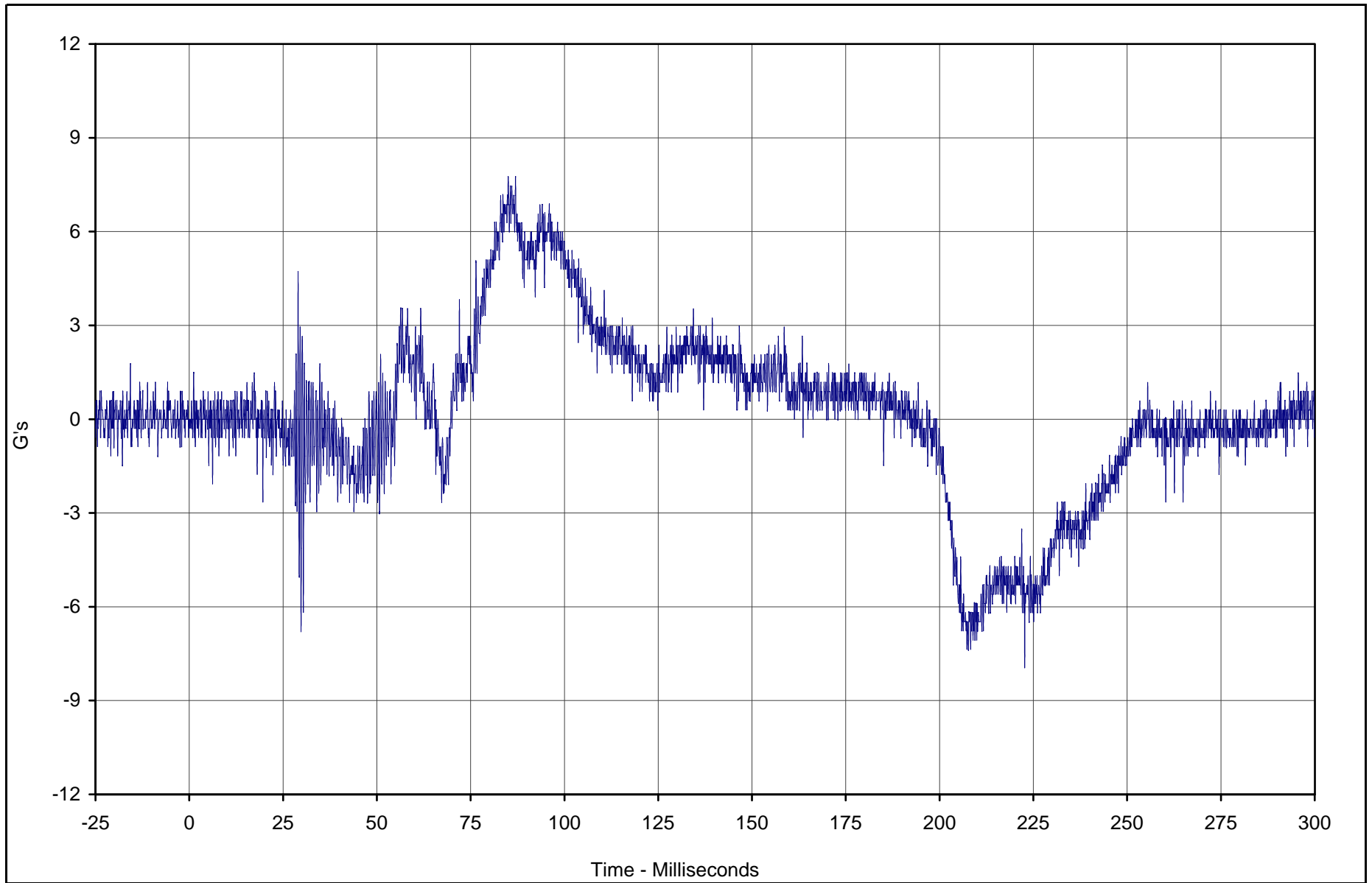


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Y	002	FIL	G's	7.7	85.0	-8.0	222.7	1000

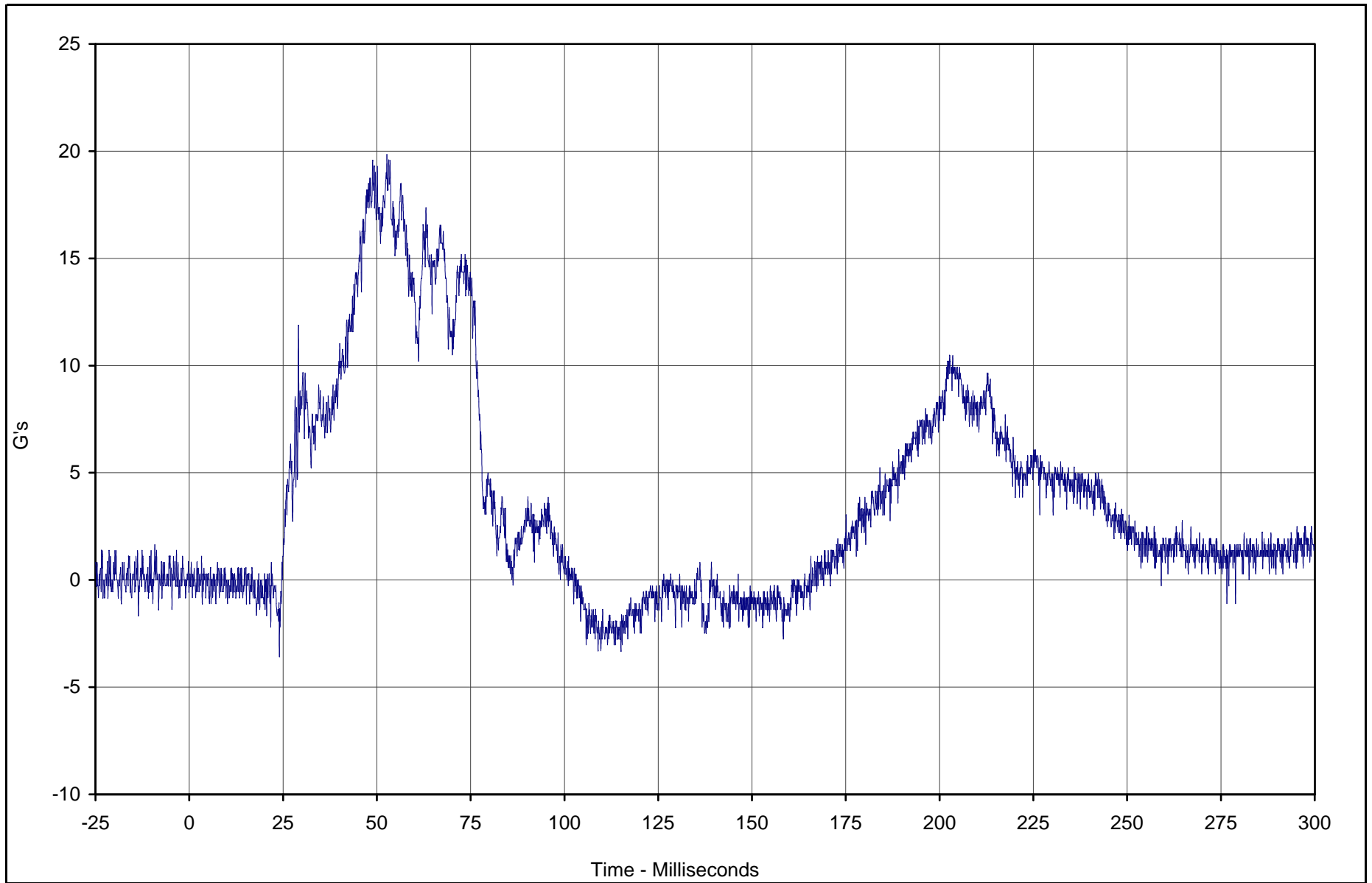


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Z	003	FIL	G's	19.8	52.7	-3.6	24.0	1000

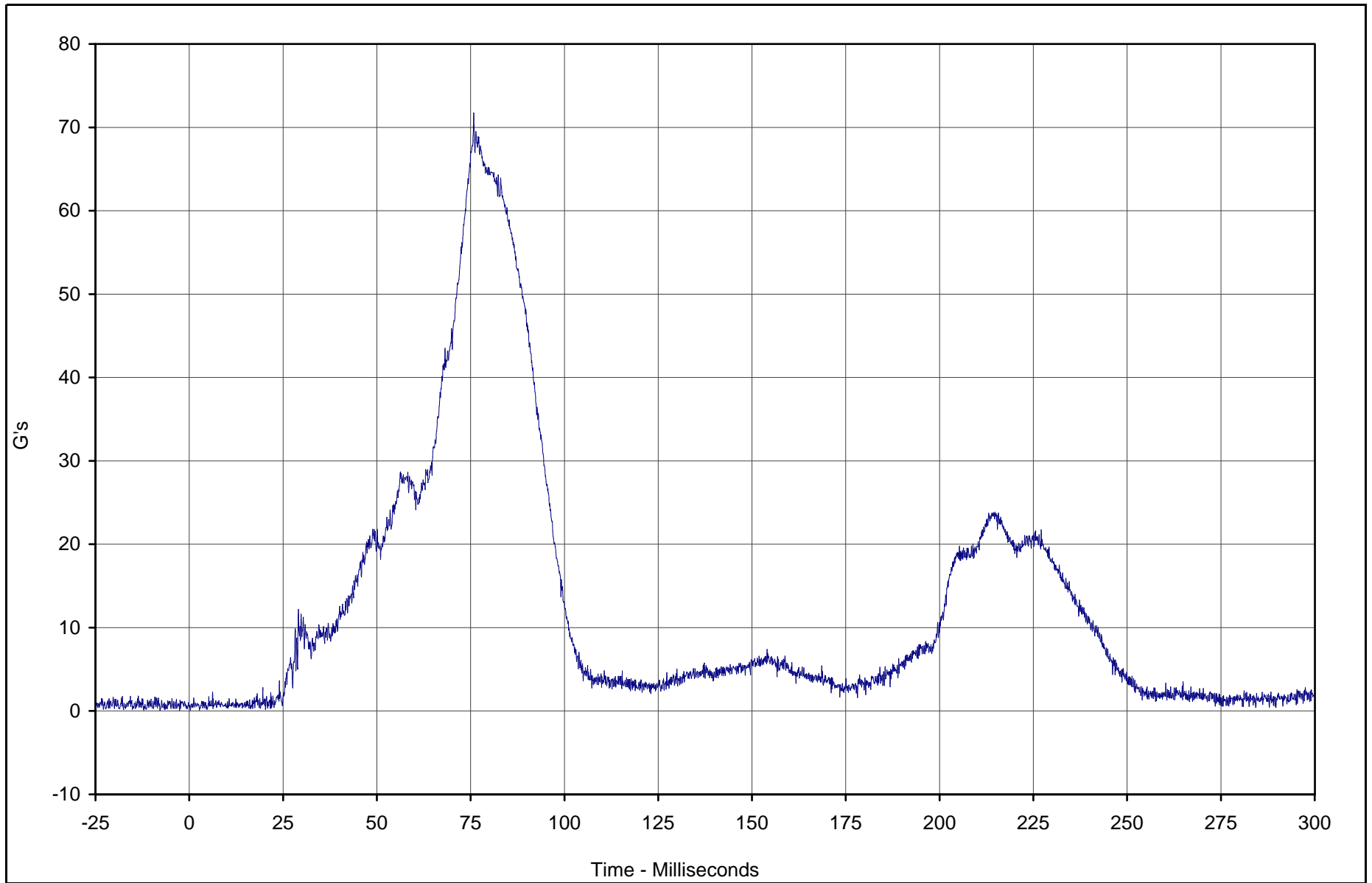


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Resultant Primary	001	RES	G's	71.7	75.8	0.1	0.3	1000

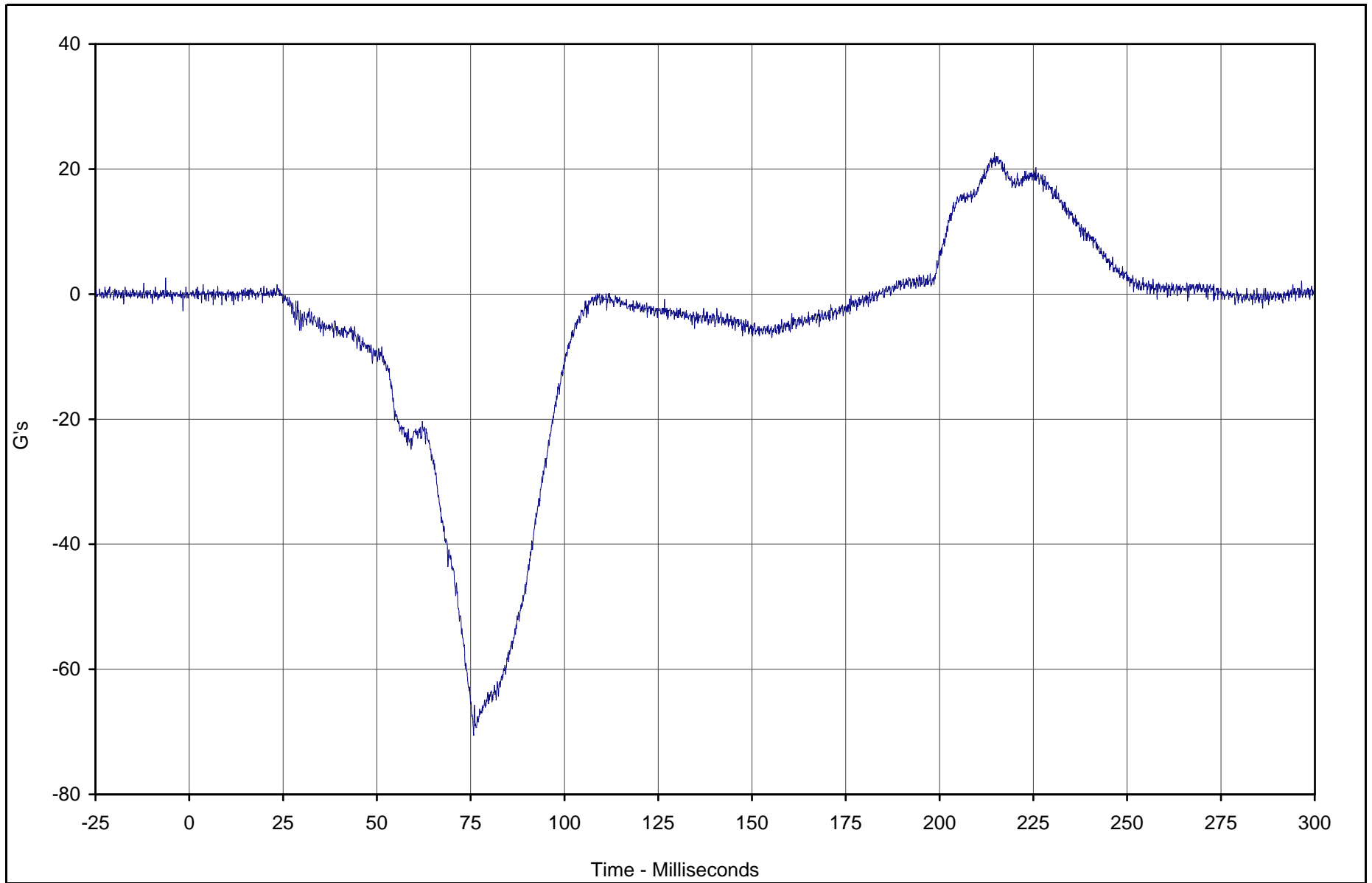


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X	004	FIL	G's	22.6	214.6	-70.5	75.8	1000

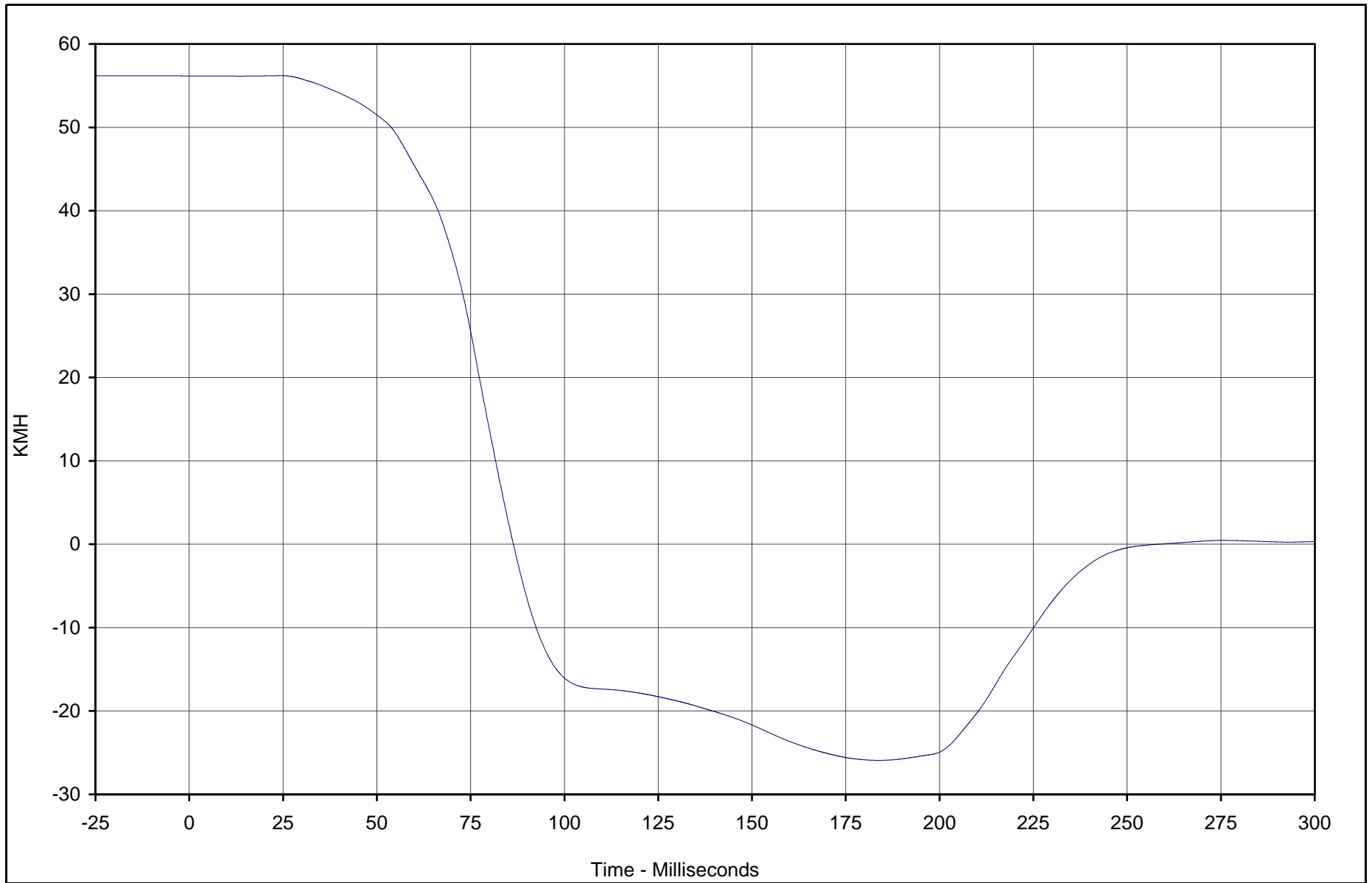


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X Velocity	004	IN1	KMH	56.2	24.4	-25.9	183.7	180

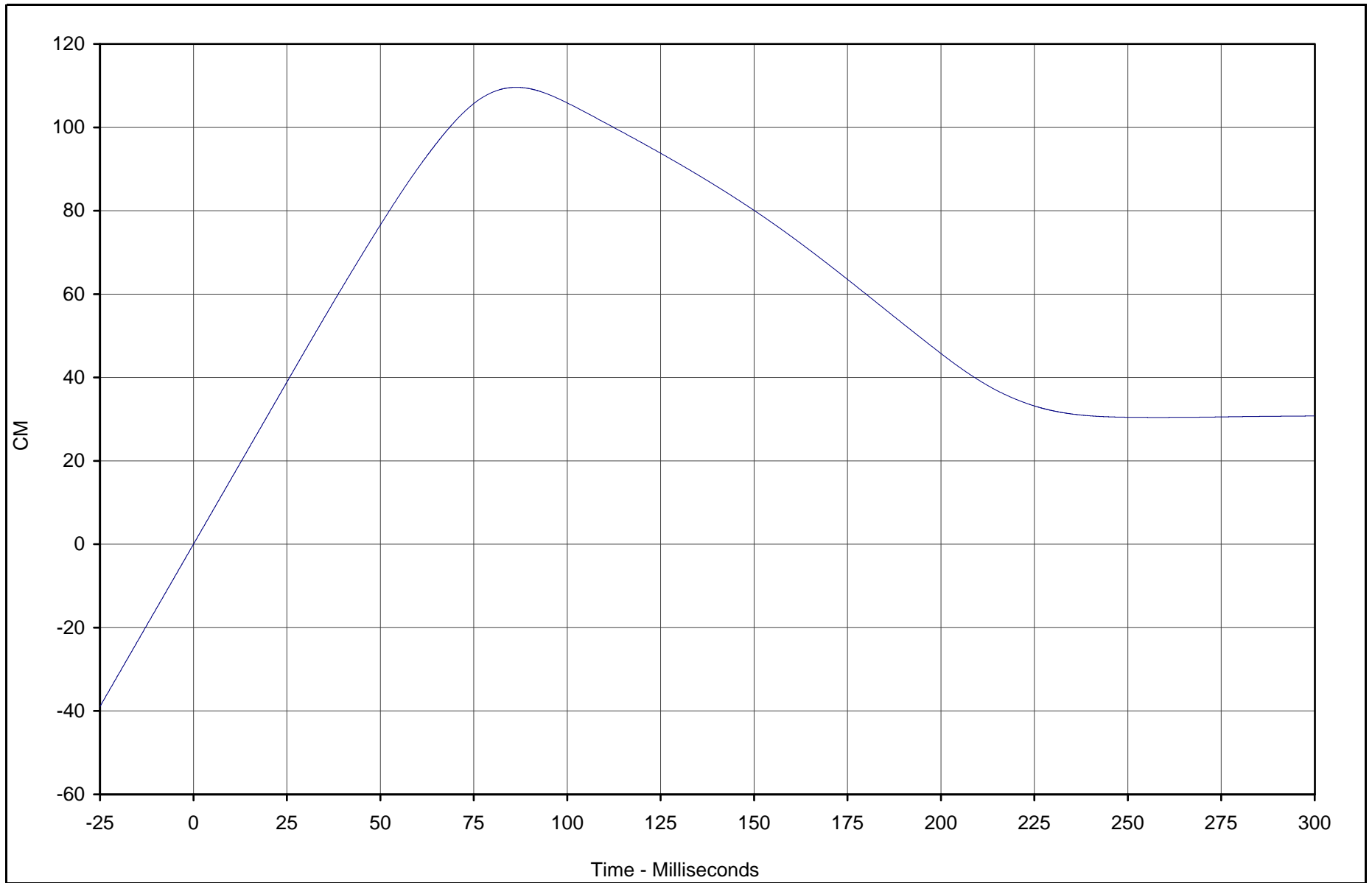


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X Displ.	004	IN2	CM	109.6	86.4	0.0	0.0	180

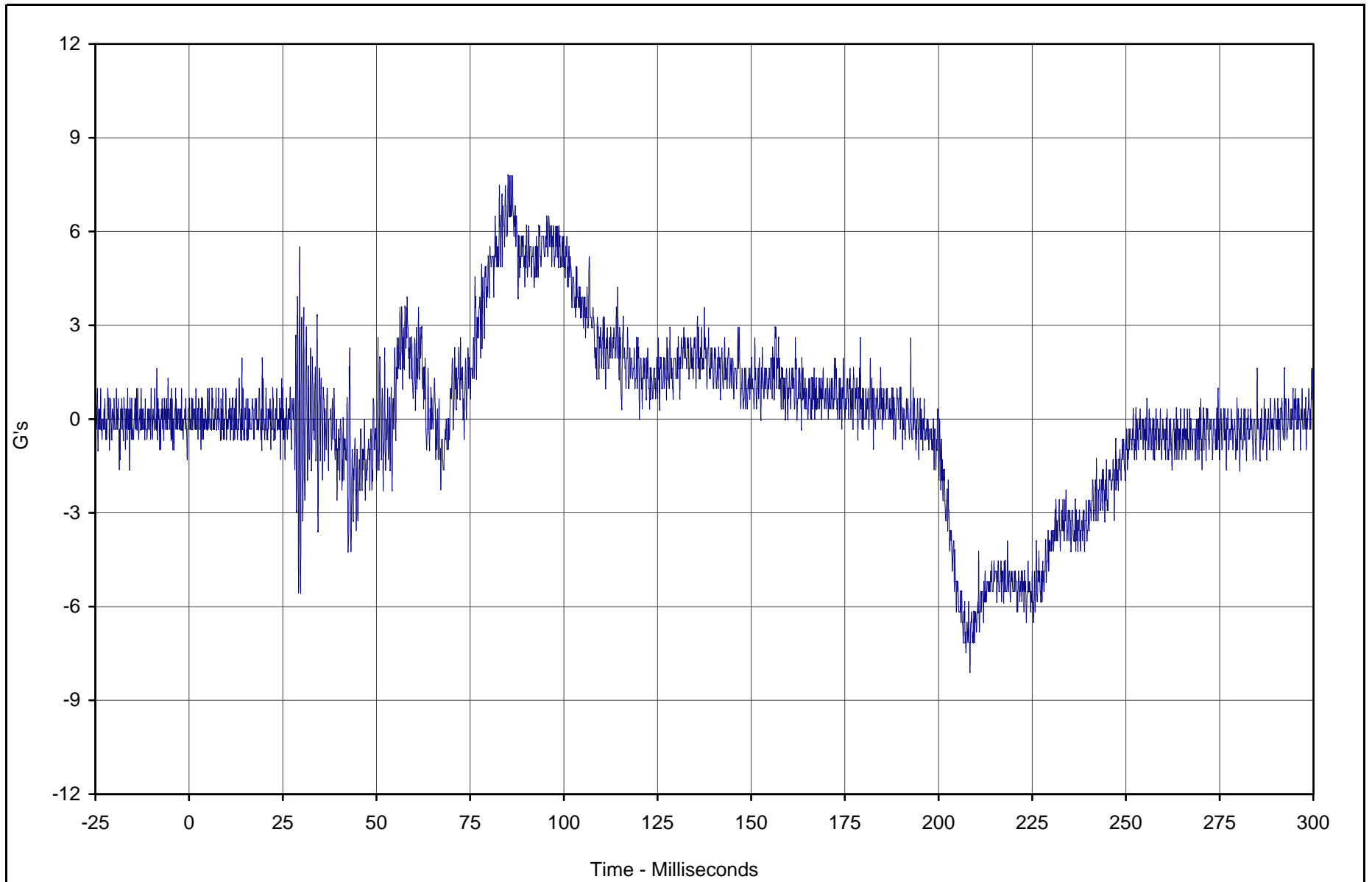


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Y	005	FIL	G's	7.8	85.1	-8.1	208.4	1000

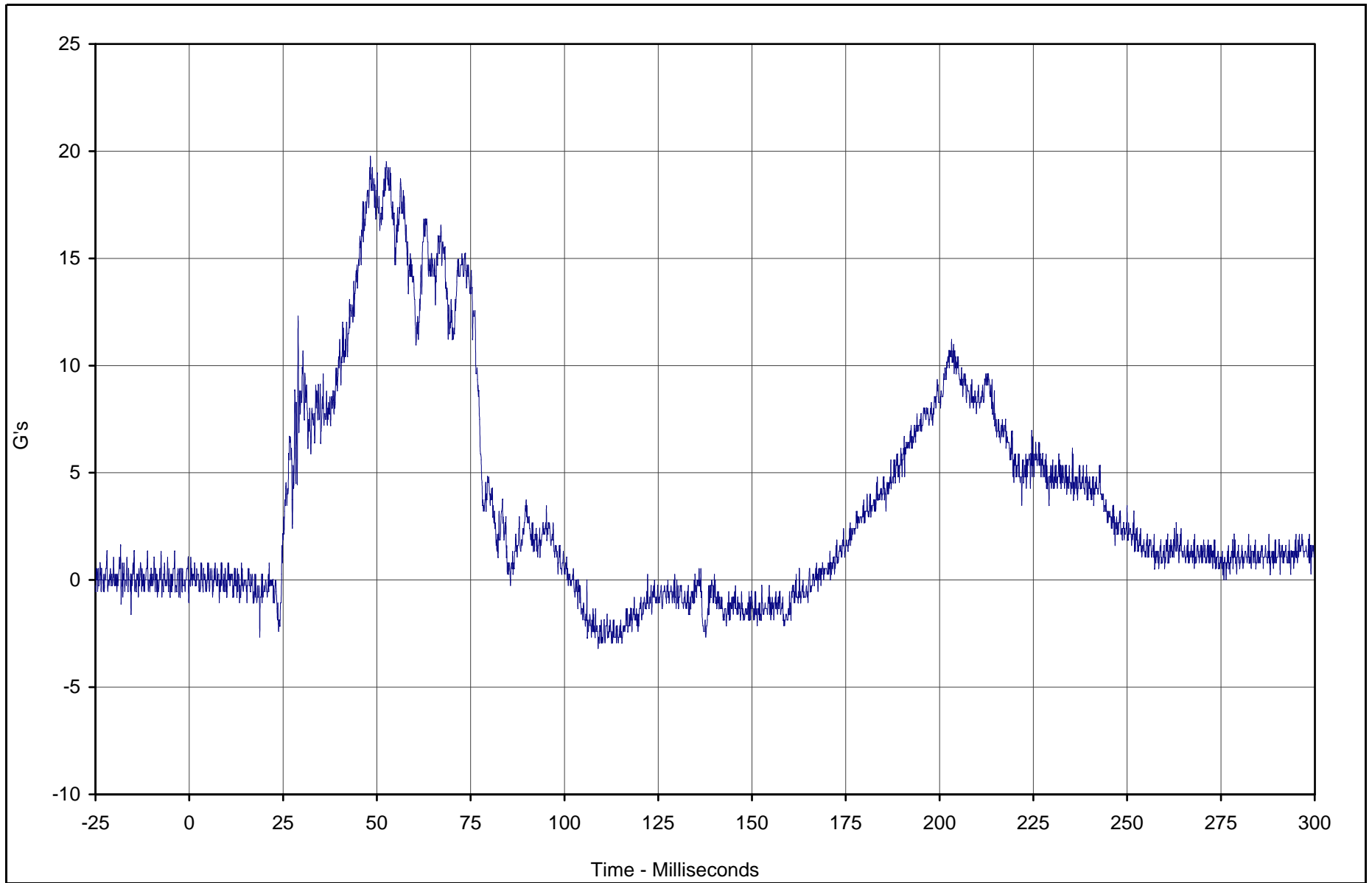


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Z	006	FIL	G's	19.8	48.3	-3.2	109.0	1000

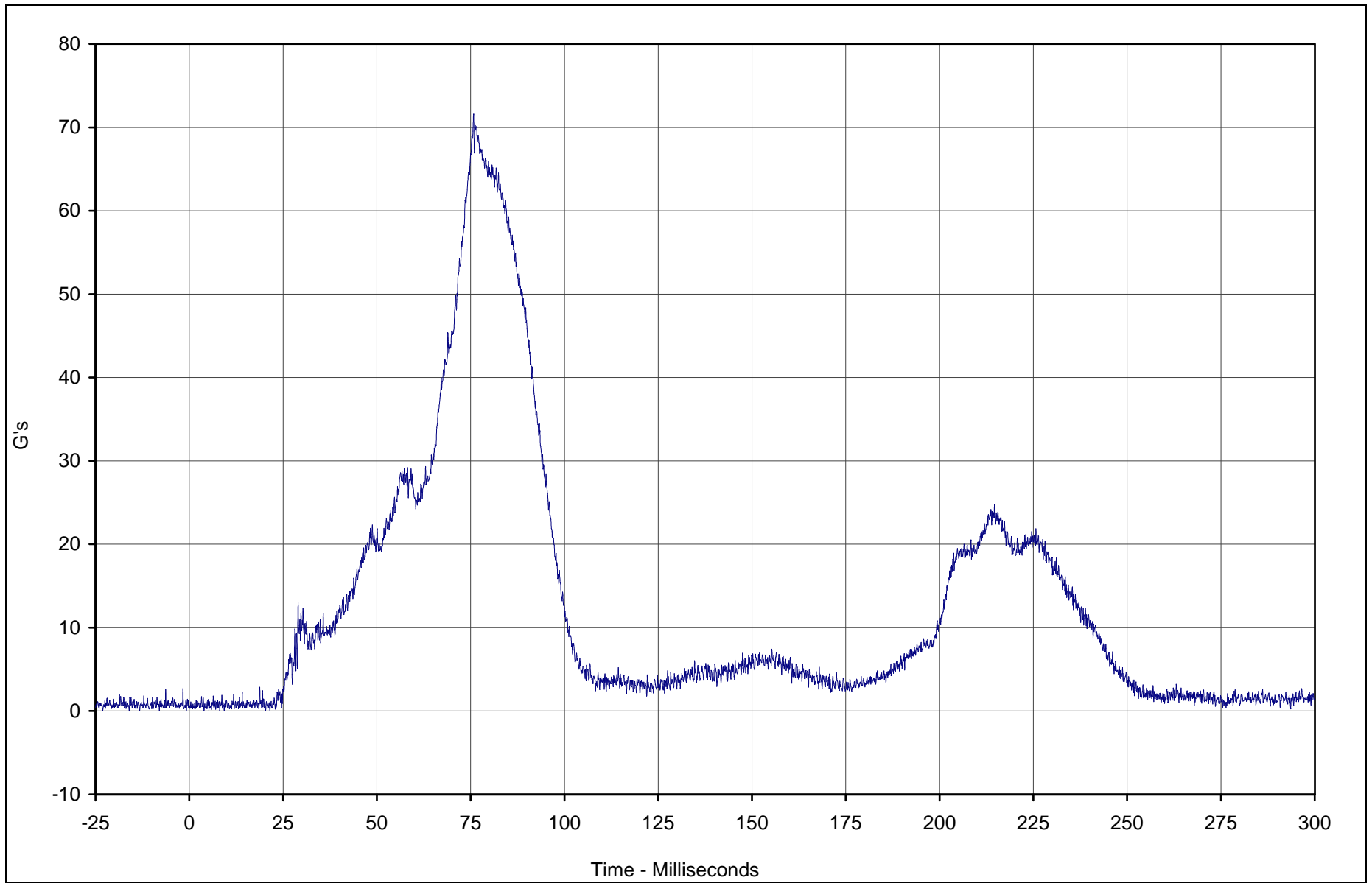


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Resultant Redundant	004	RES	G's	71.6	75.8	0.1	3.9	1000

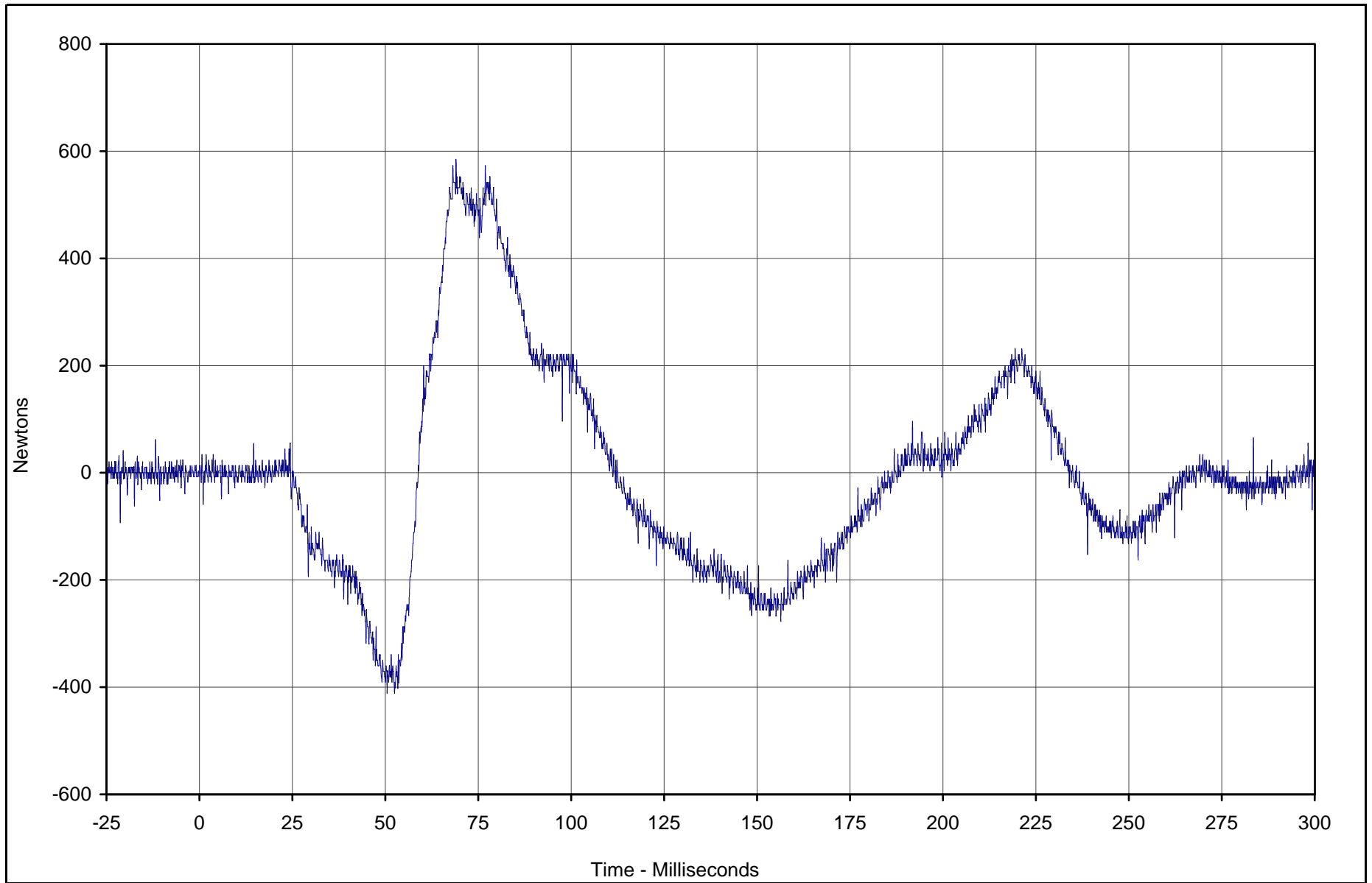


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force X	007	FIL	Newtons	583.5	69.0	-411.7	50.5	1000

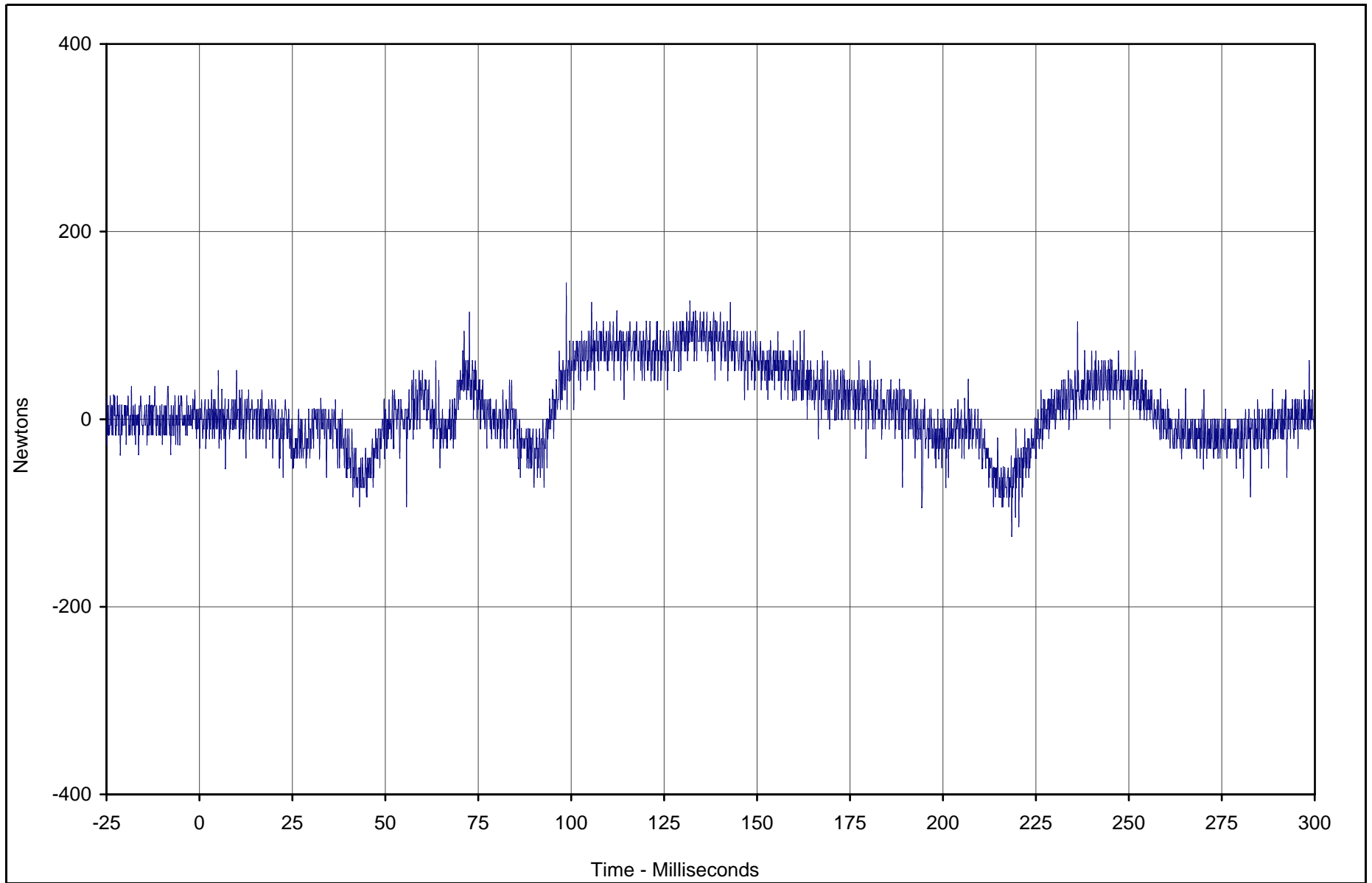


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Y	008	FIL	Newtons	145.4	98.7	-124.7	218.5	1000

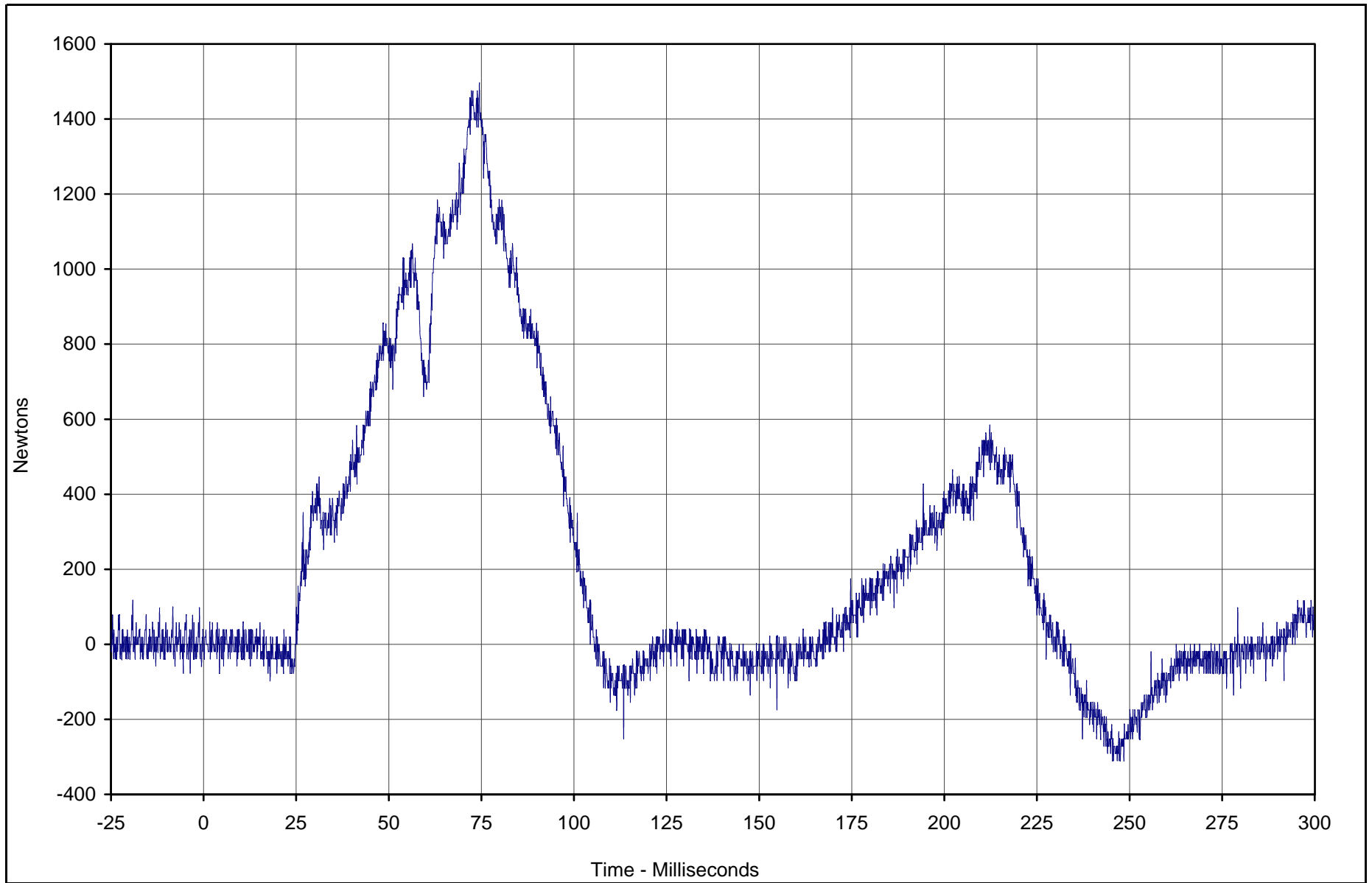


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Z	009	FIL	Newtons	1494.5	74.5	-310.5	245.4	1000

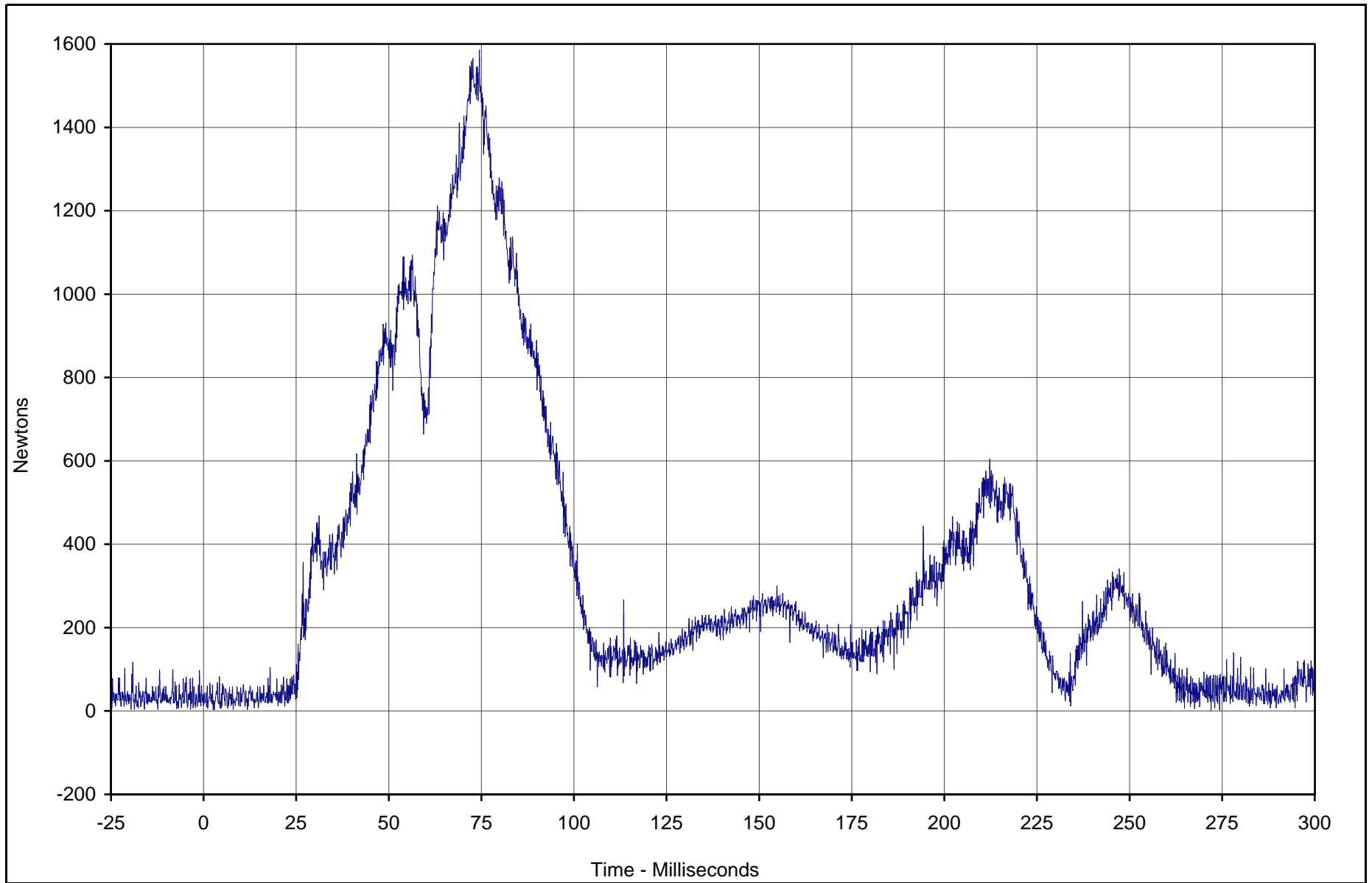


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Resultant	007	RES	Newtons	1583.0	74.5	3.0	2.6	1000

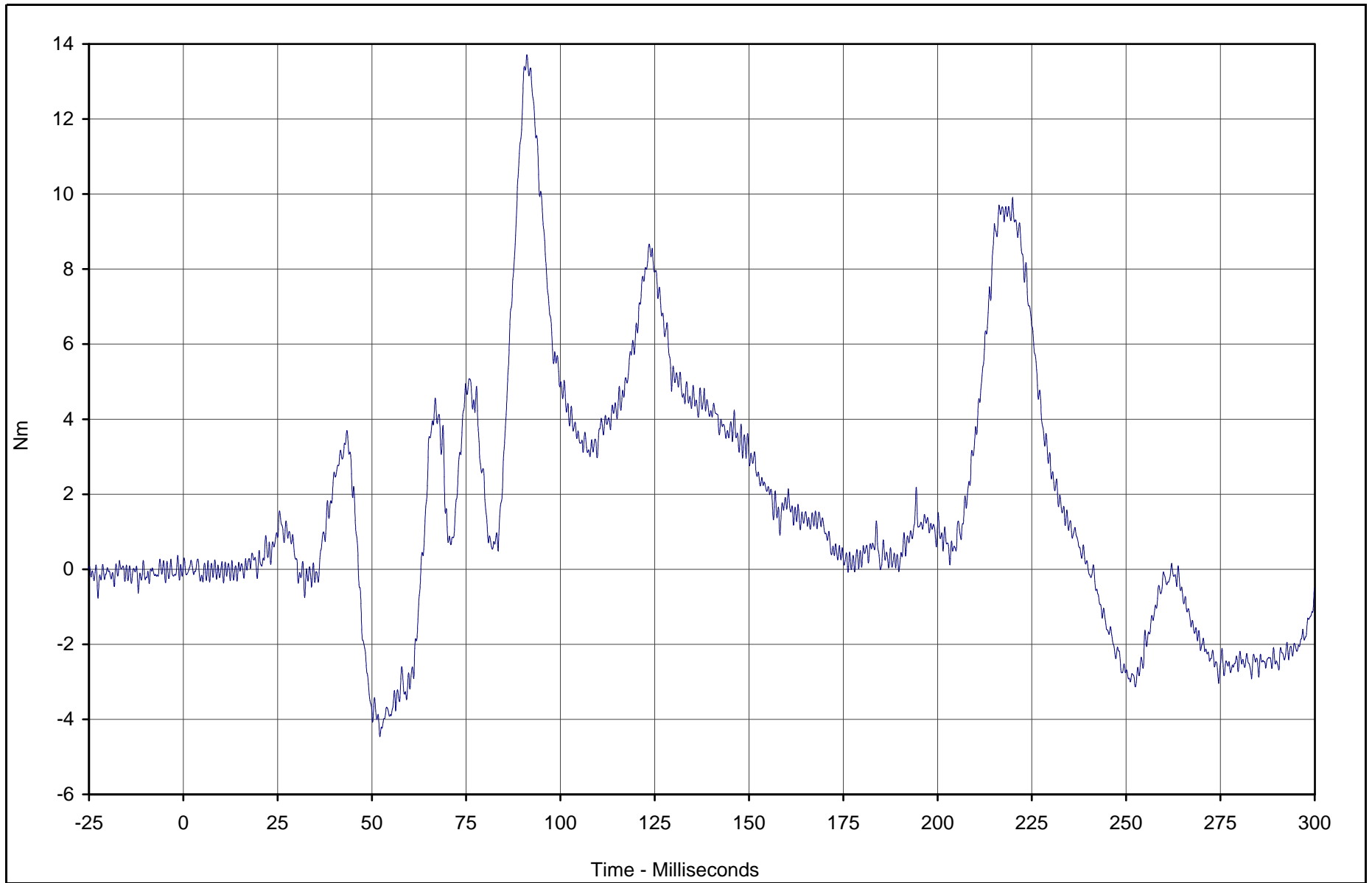


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment X	010	FIL	Nm	13.7	91.1	-4.5	52.1	600

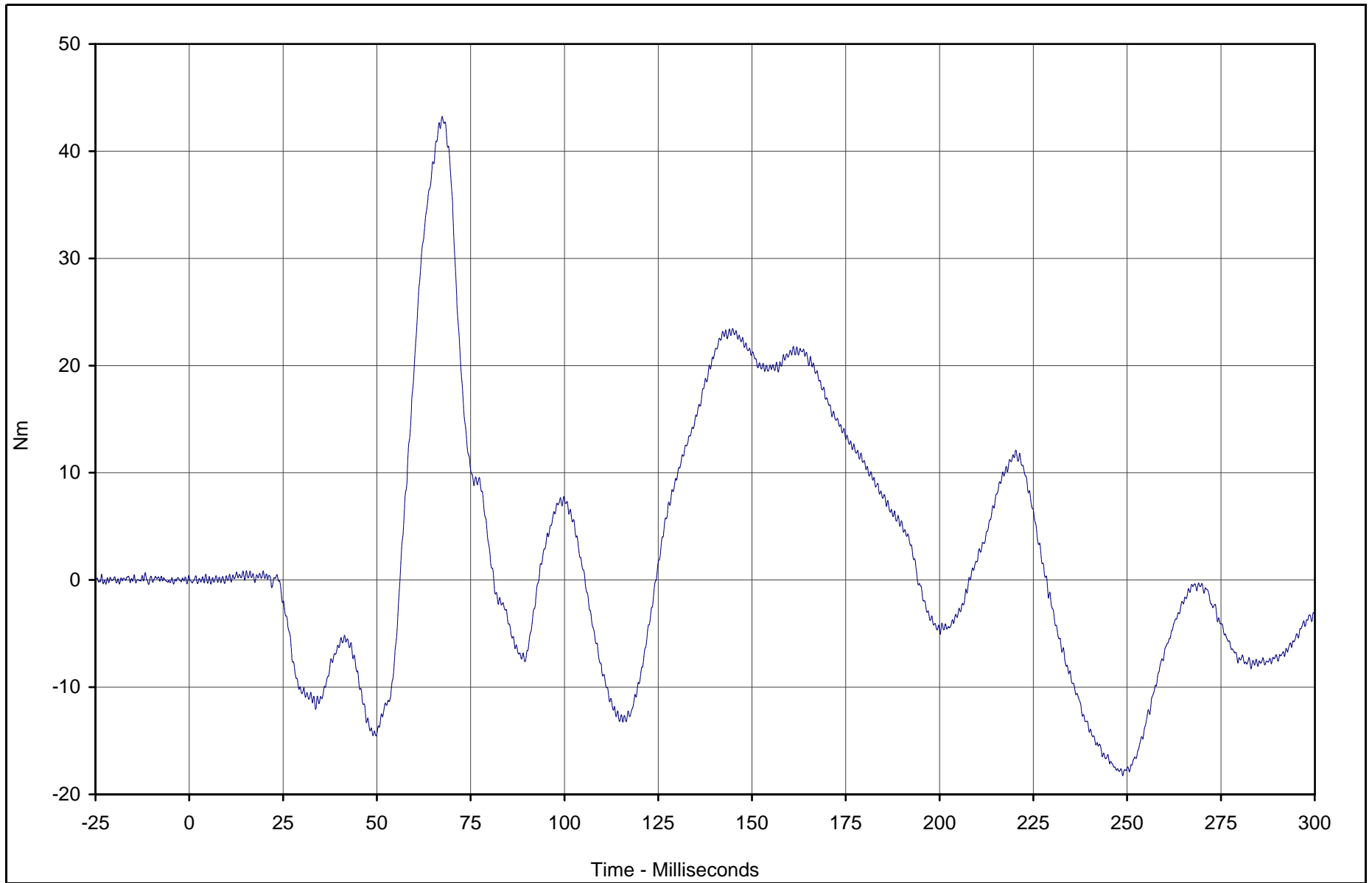


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Y	011	FIL	Nm	43.2	67.4	-18.2	248.9	600

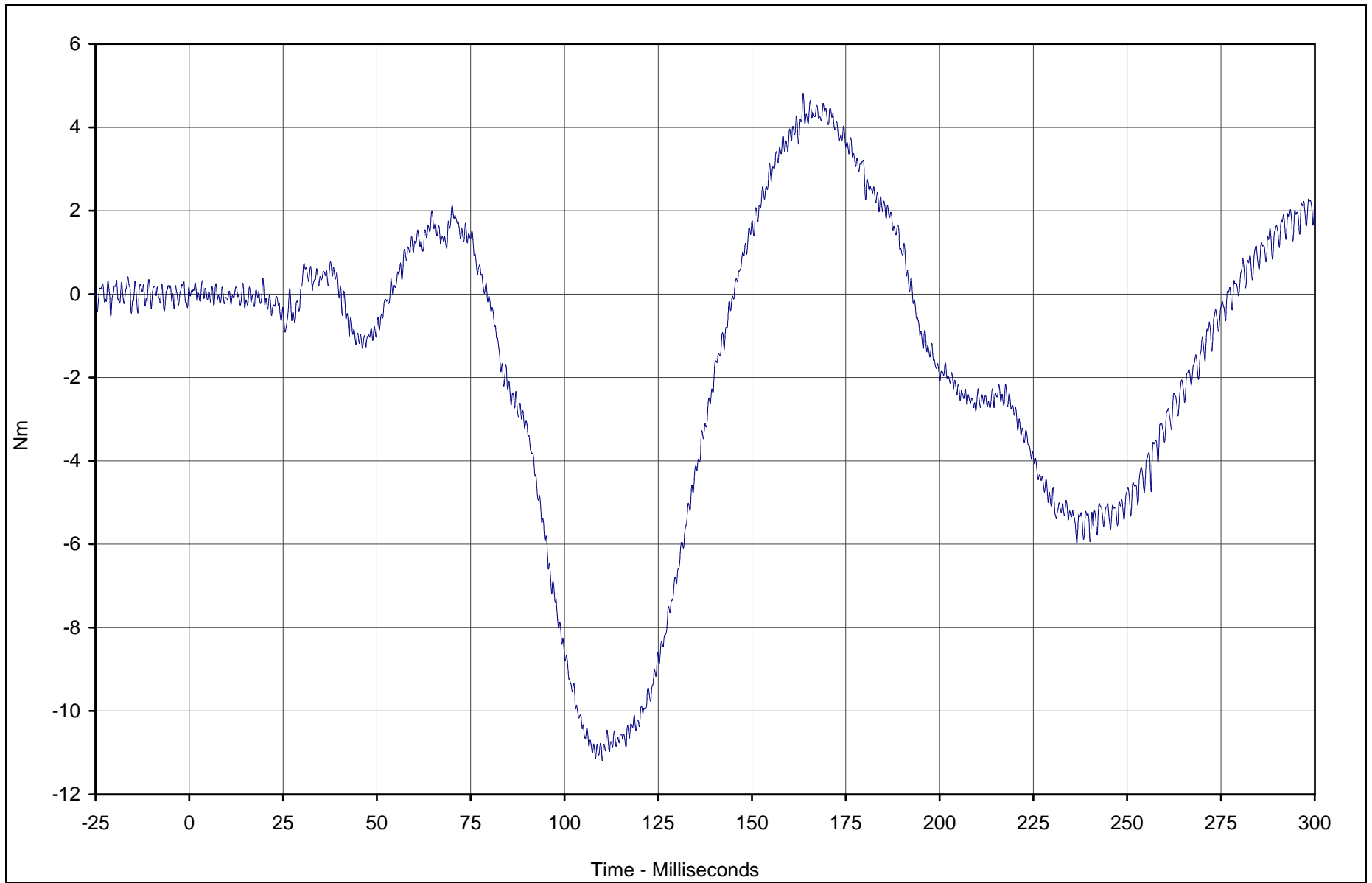


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Z	012	FIL	Nm	4.8	163.6	-11.2	110.1	600

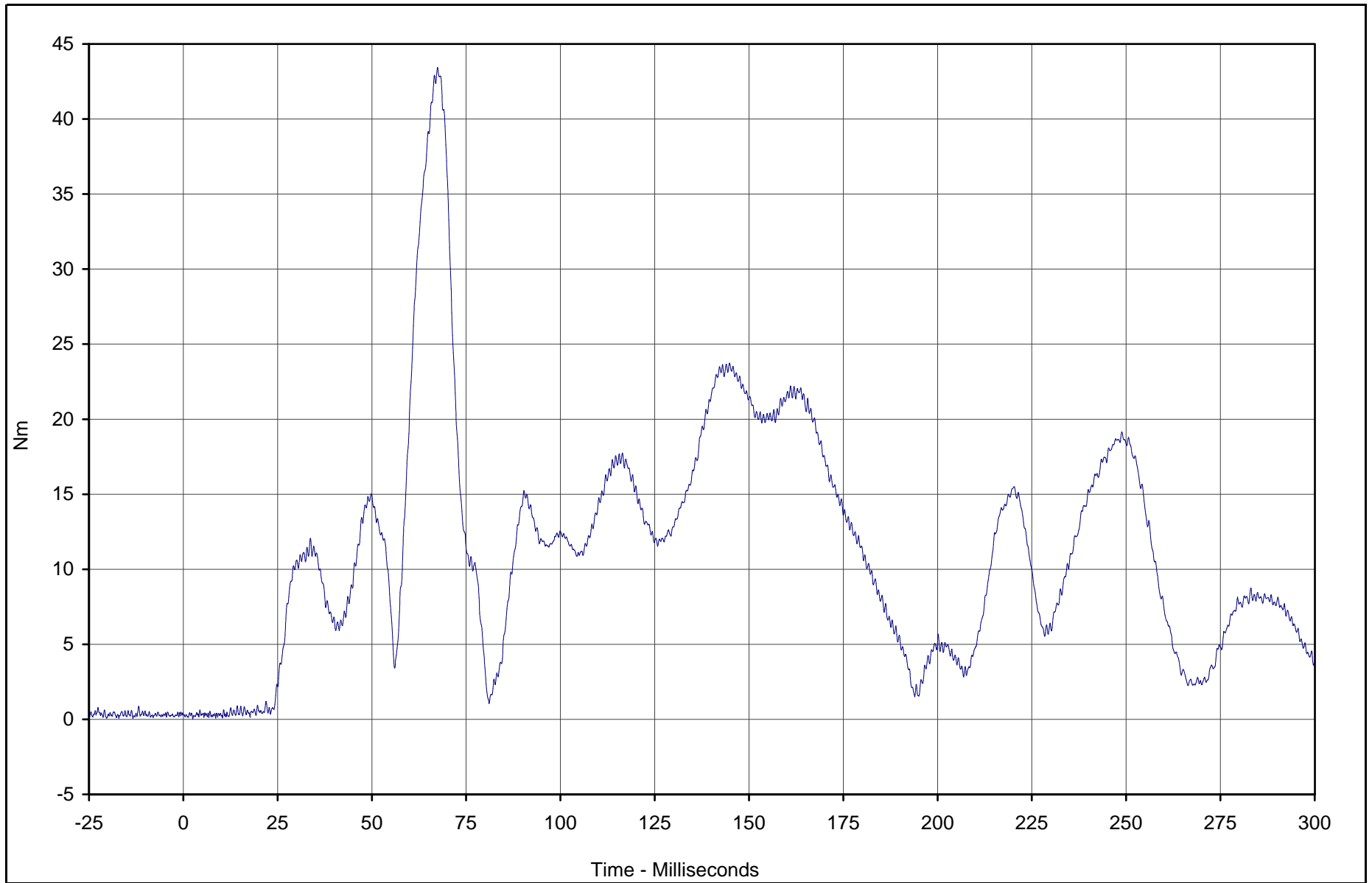


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Resultant	010	RES	Nm	43.4	67.4	0.0	2.5	600

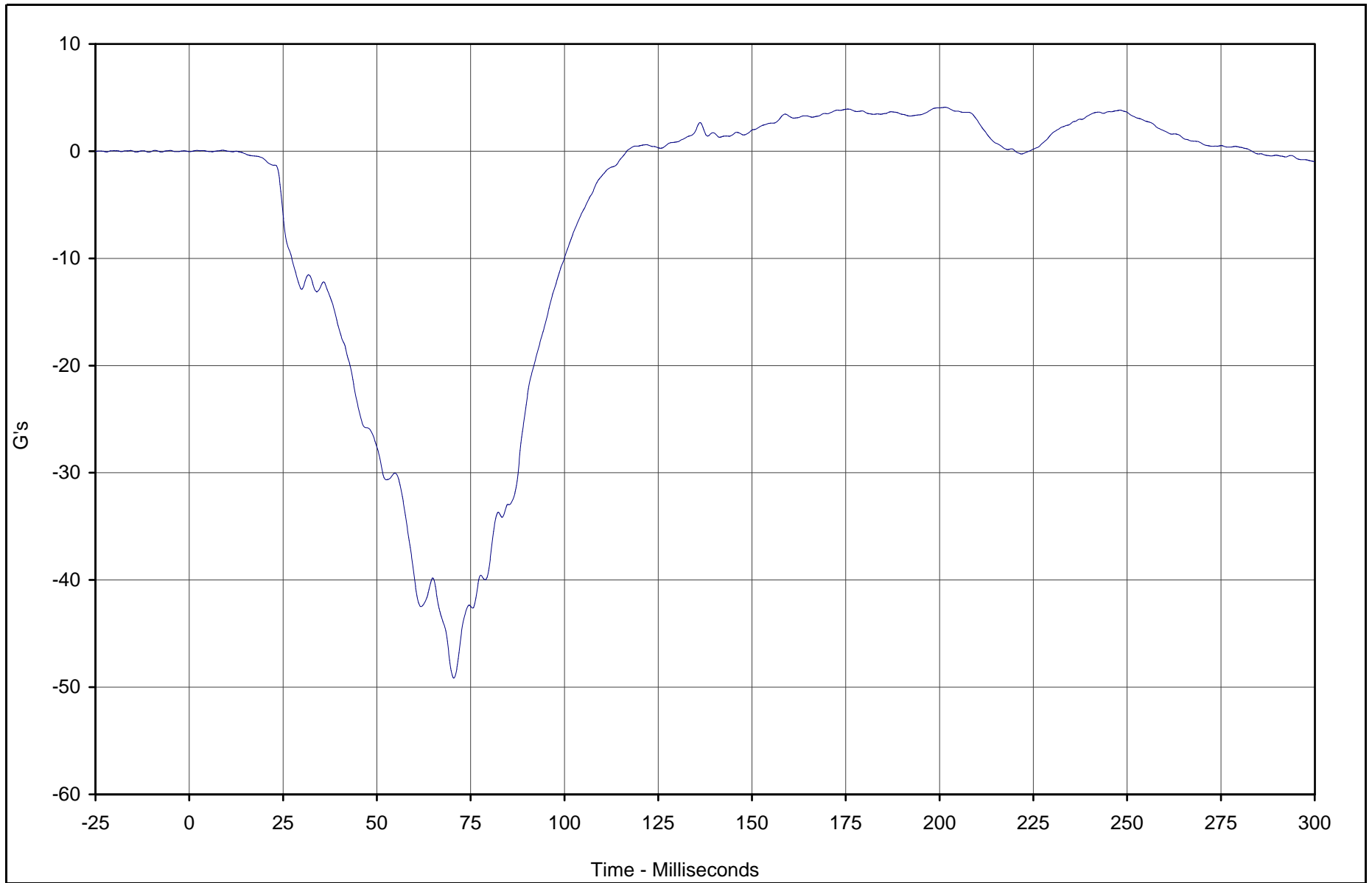


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary X	013	FIL	G's	4.1	201.4	-49.1	70.5	180



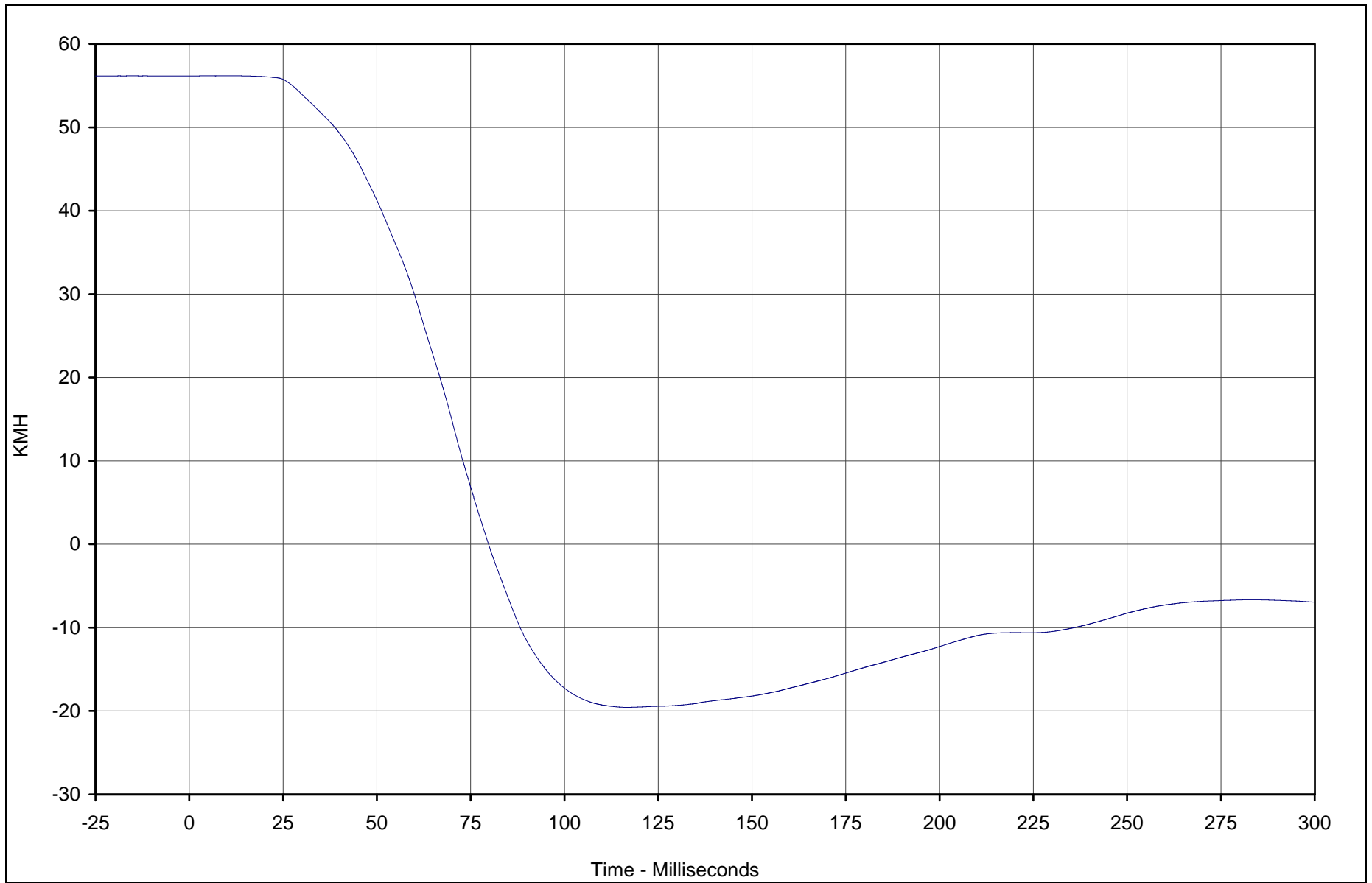
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary X Velocity	013	IN1	KMH	56.2	10.1	-19.6	116.6	180



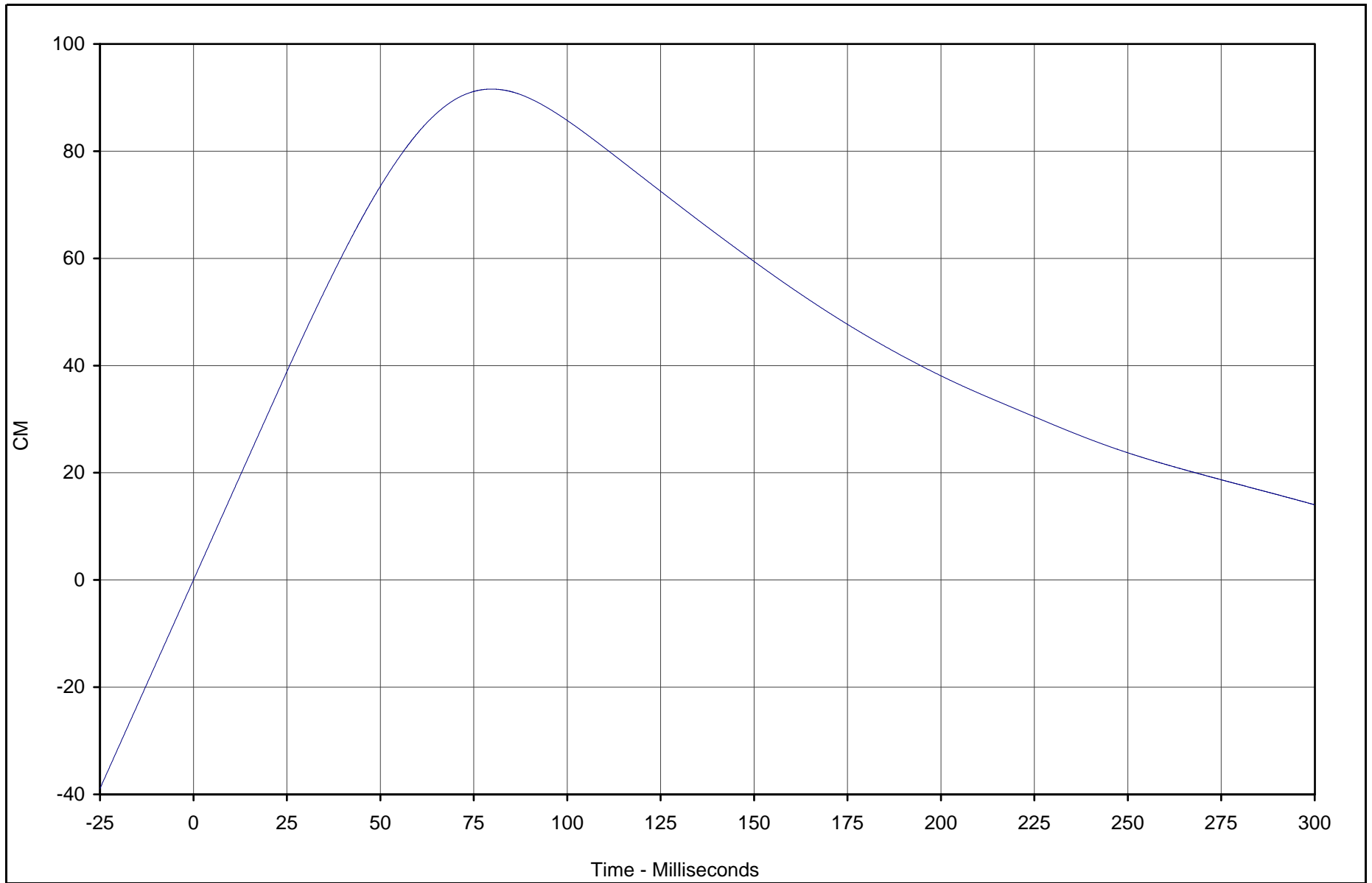
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary X Displ.	013	IN2	CM	91.6	79.8	0.0	0.0	180

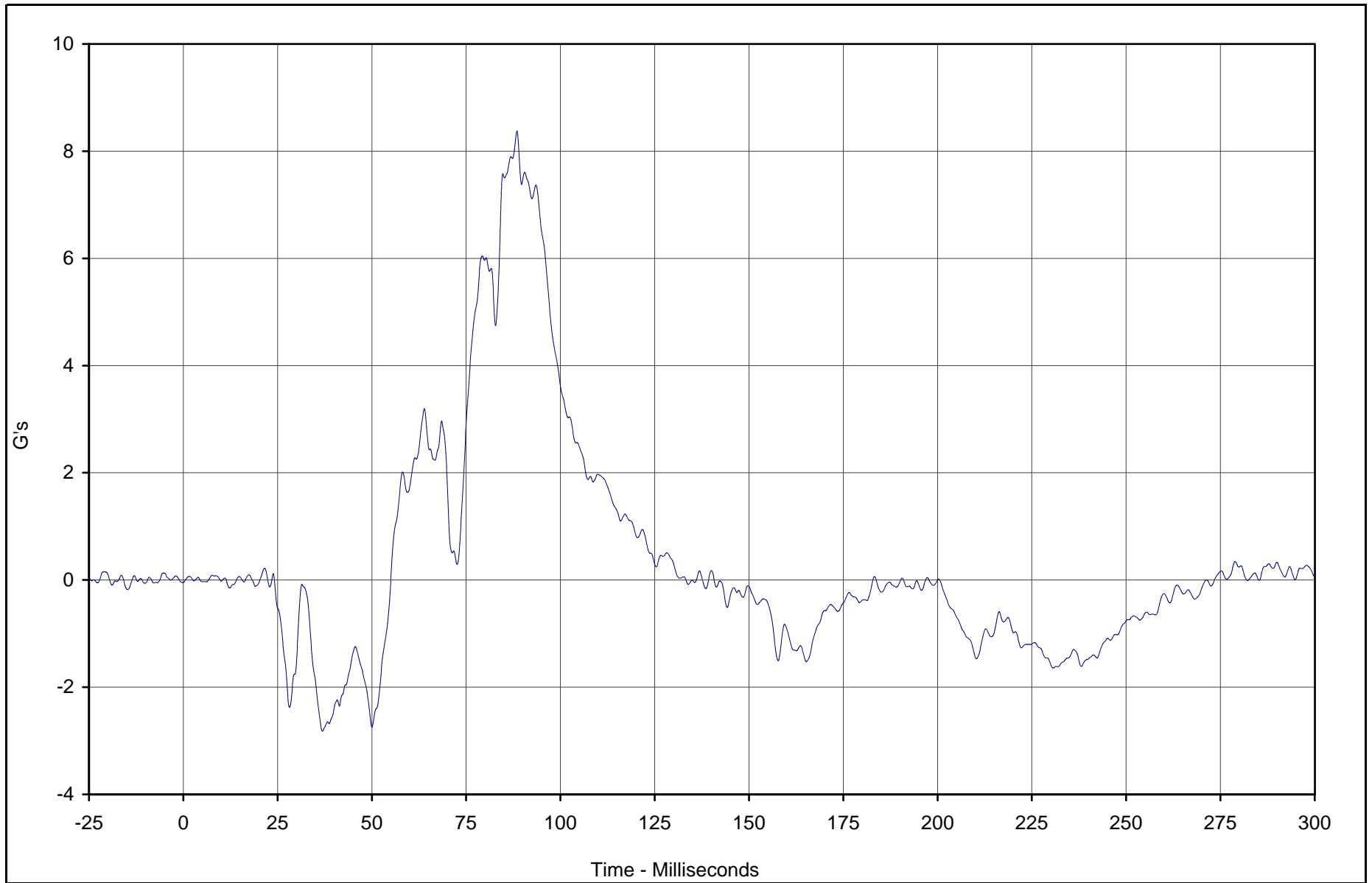


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary Y	014	FIL	G's	8.4	88.5	-2.8	36.9	180

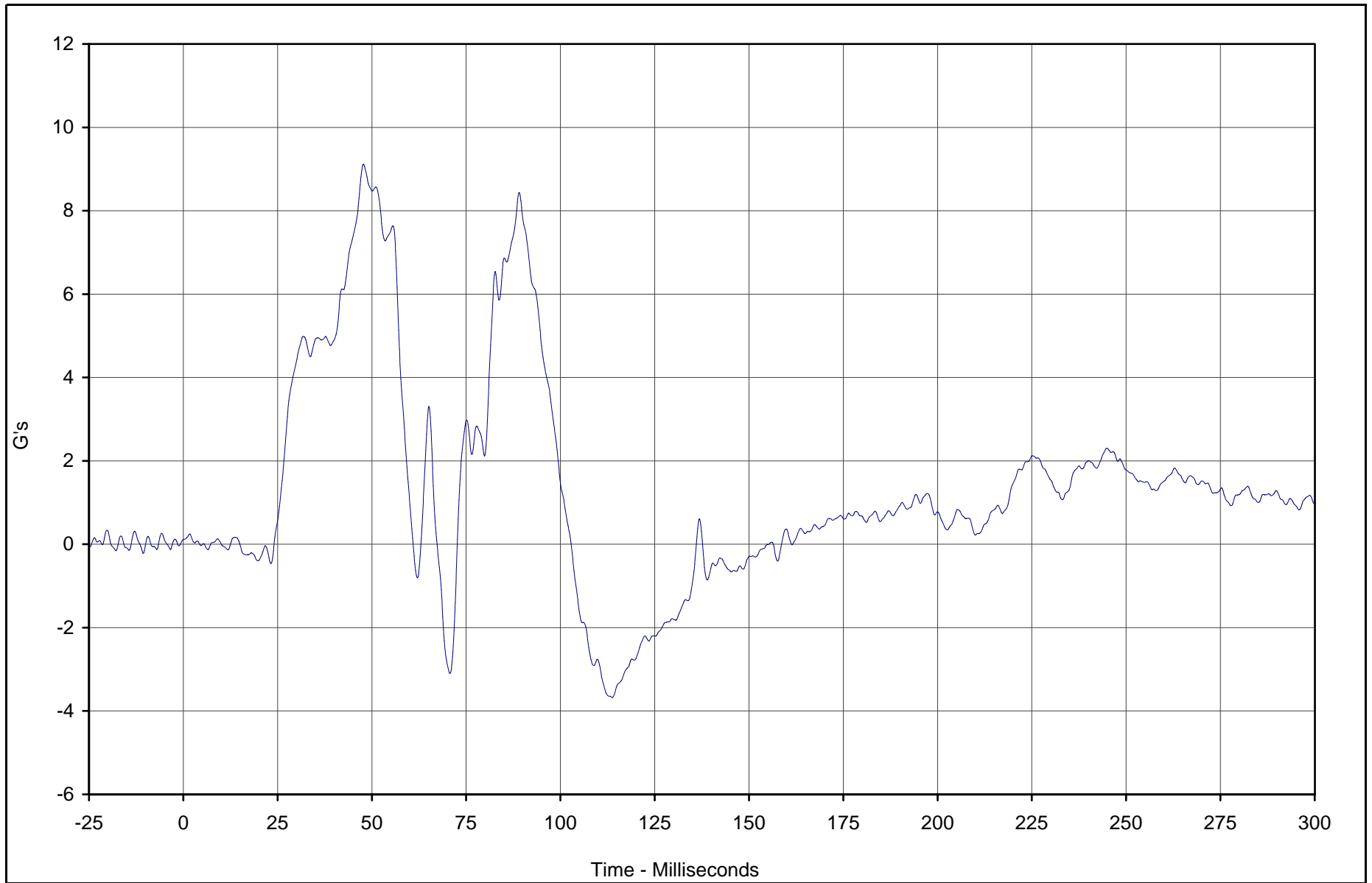


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary Z	015	FIL	G's	9.1	47.8	-3.7	113.7	180

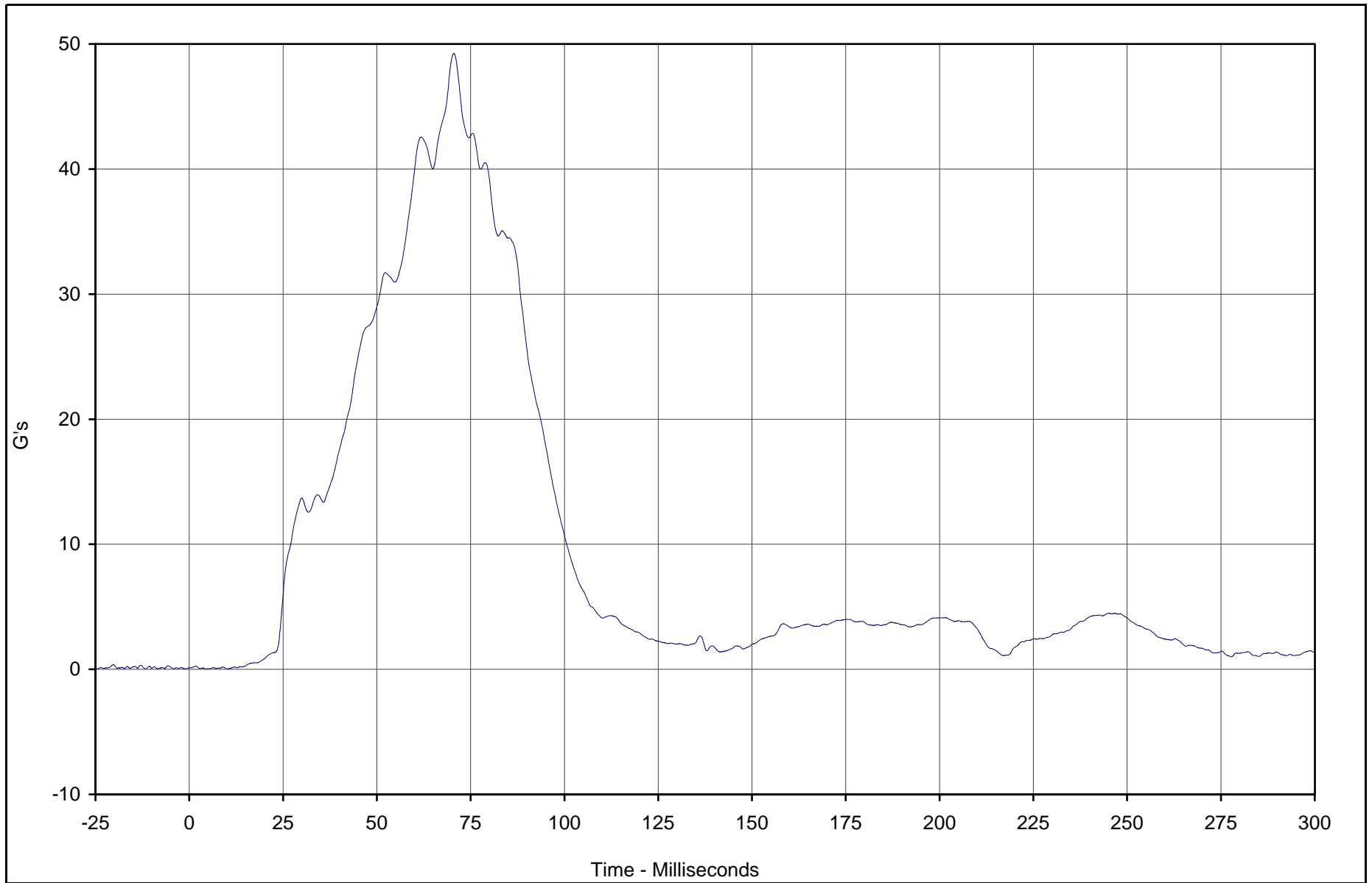


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Resultant Primary	013	RES	G's	49.3	70.5	0.0	4.4	180

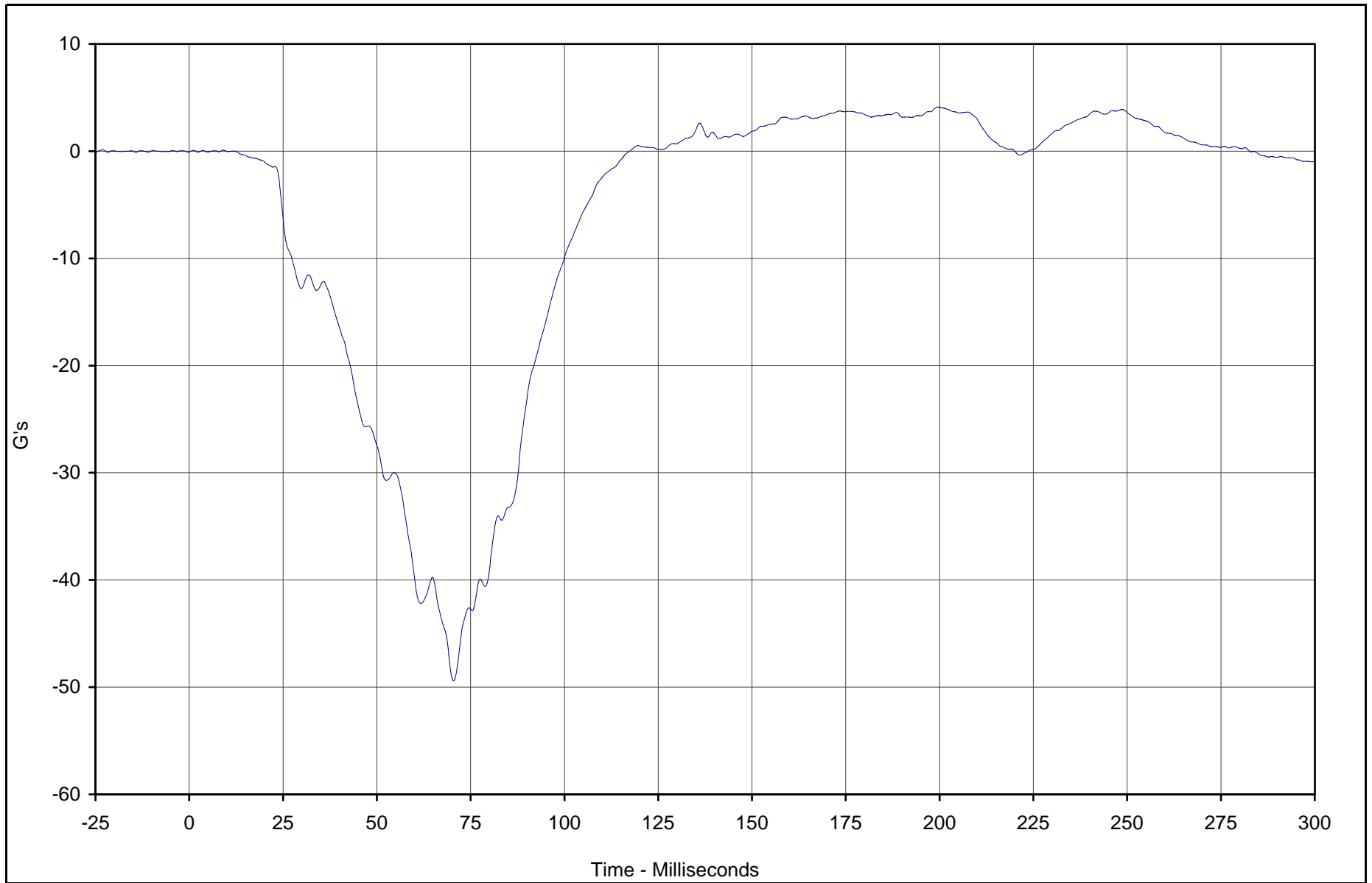


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant X	016	FIL	G's	4.1	199.6	-49.4	70.4	180

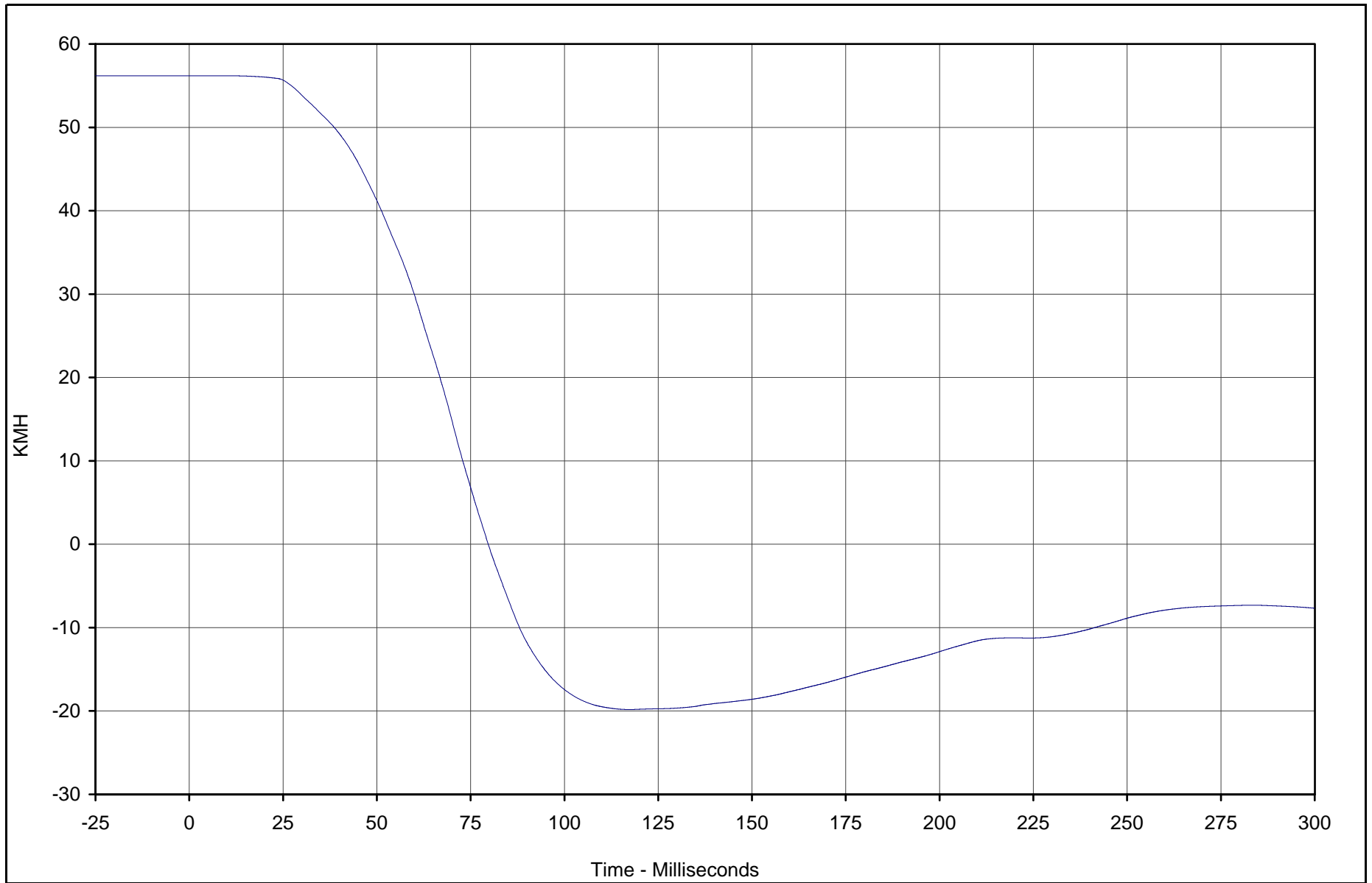


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant X Velocity	016	IN1	KMH	56.2	1.8	-19.8	117.4	180

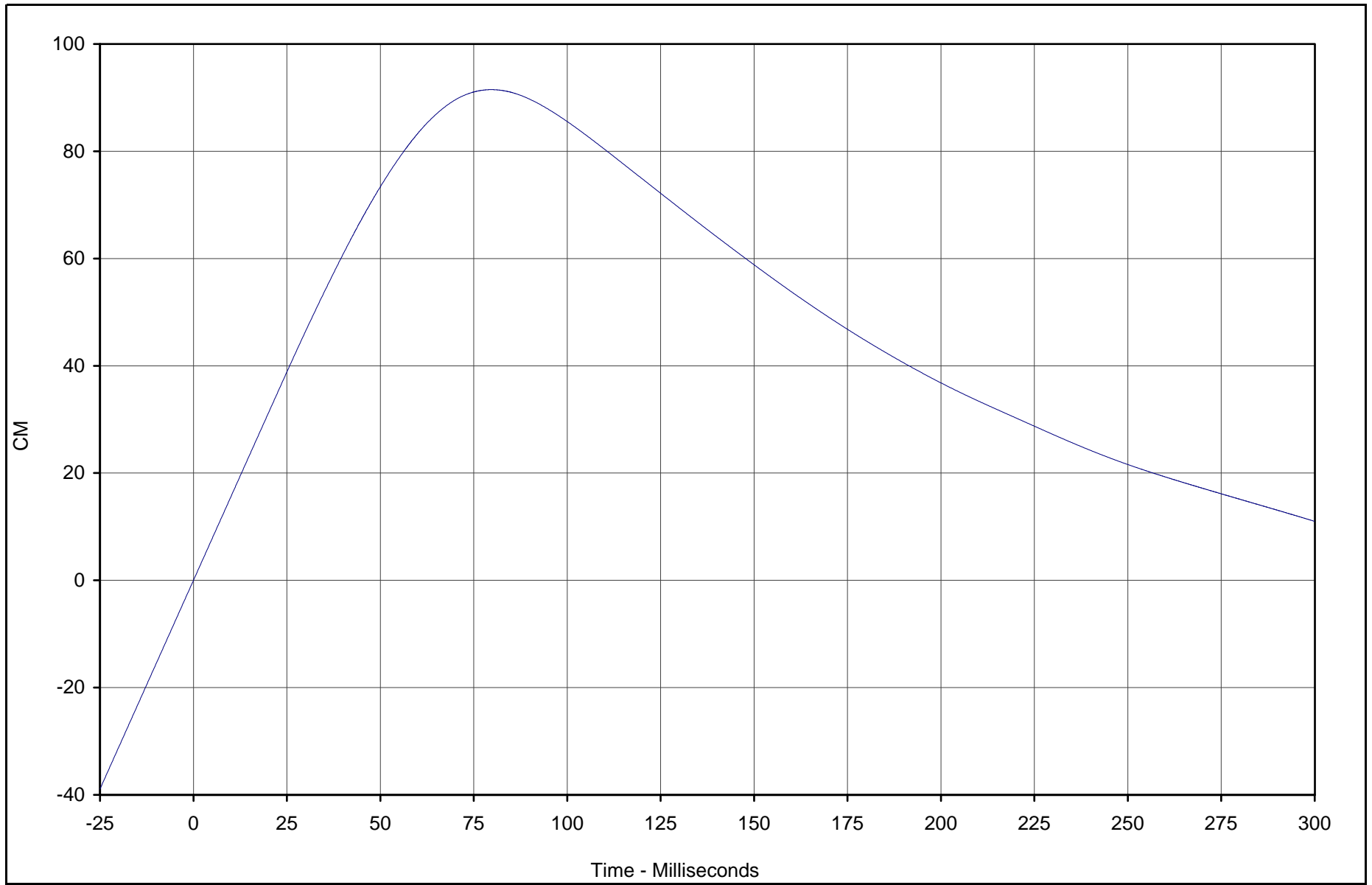


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant X Displ.	016	IN2	CM	91.5	79.7	0.0	0.0	180

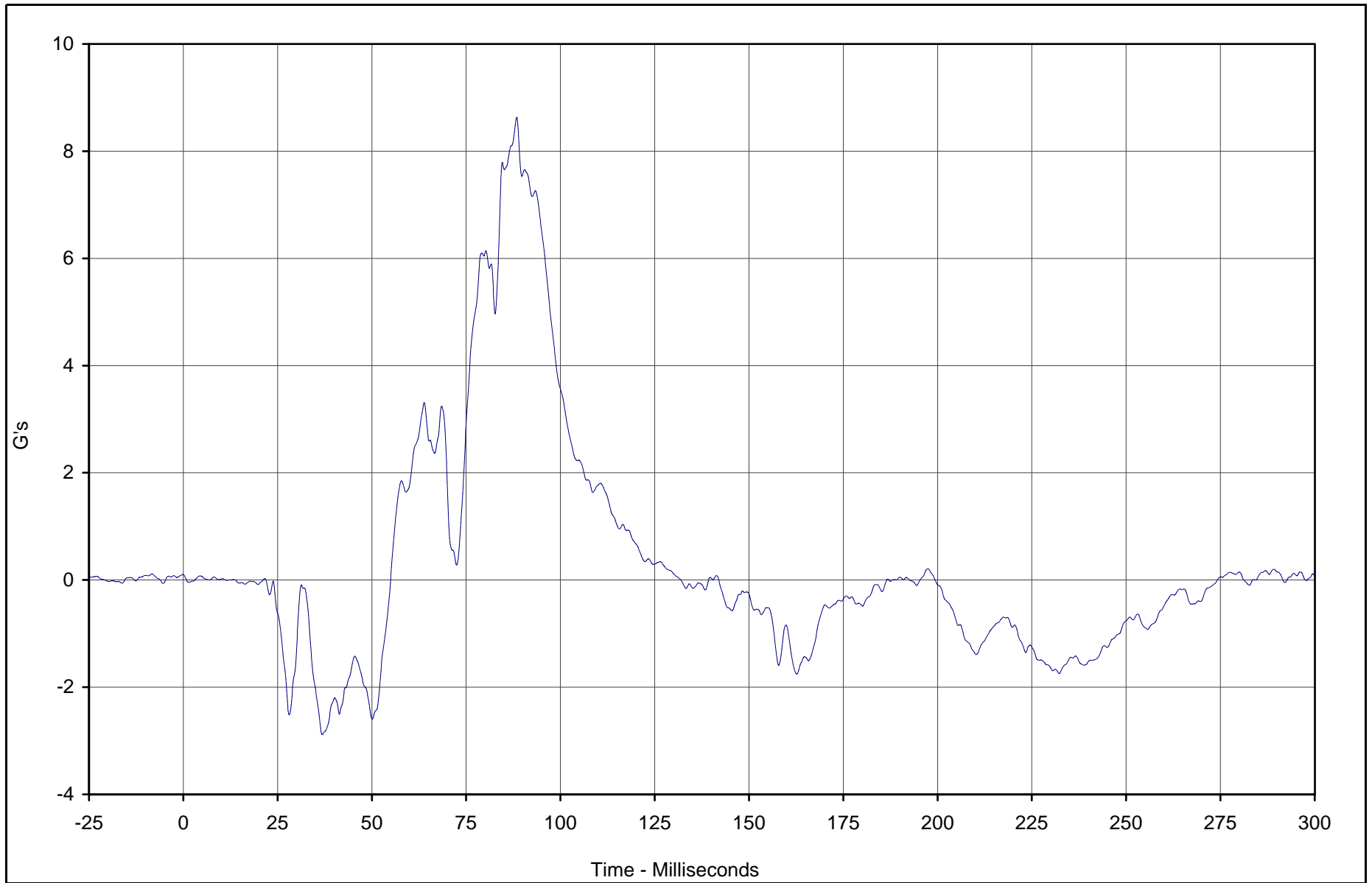


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant Y	017	FIL	G's	8.6	88.4	-2.9	36.9	180

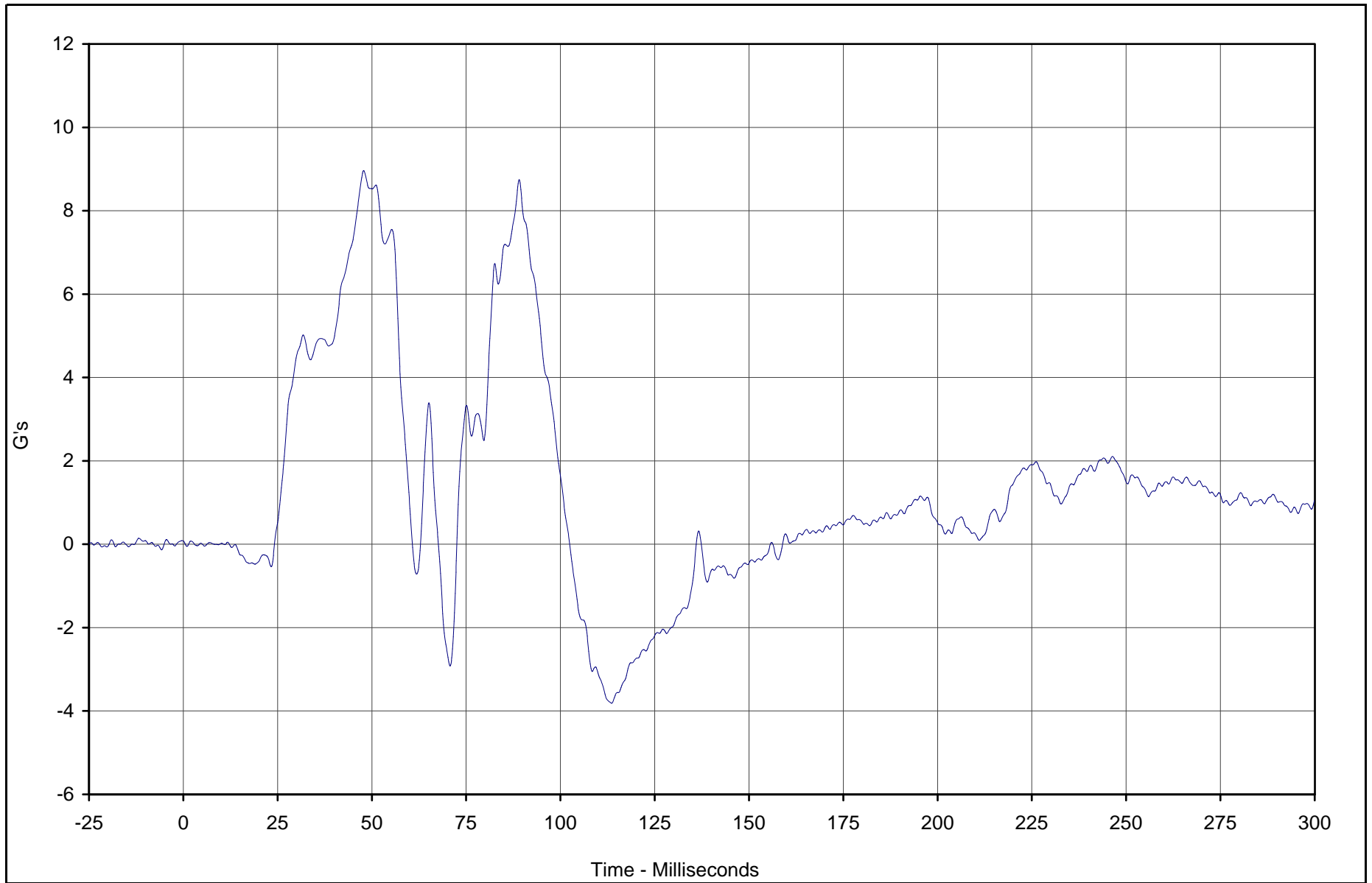


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant Z	018	FIL	G's	9.0	47.8	-3.8	113.6	180

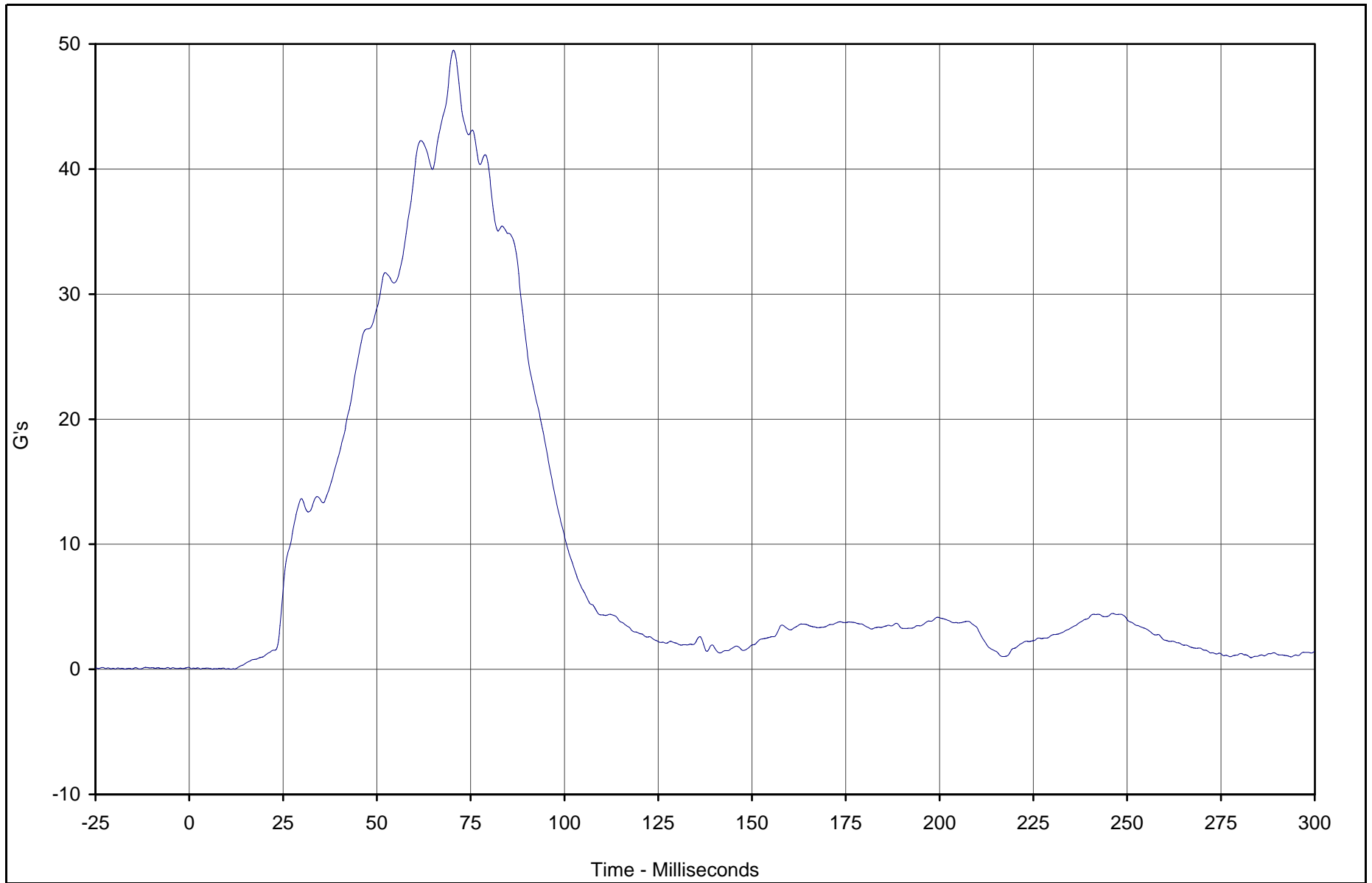


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Resultant Redundant	016	RES	G's	49.5	70.4	0.0	3.0	180

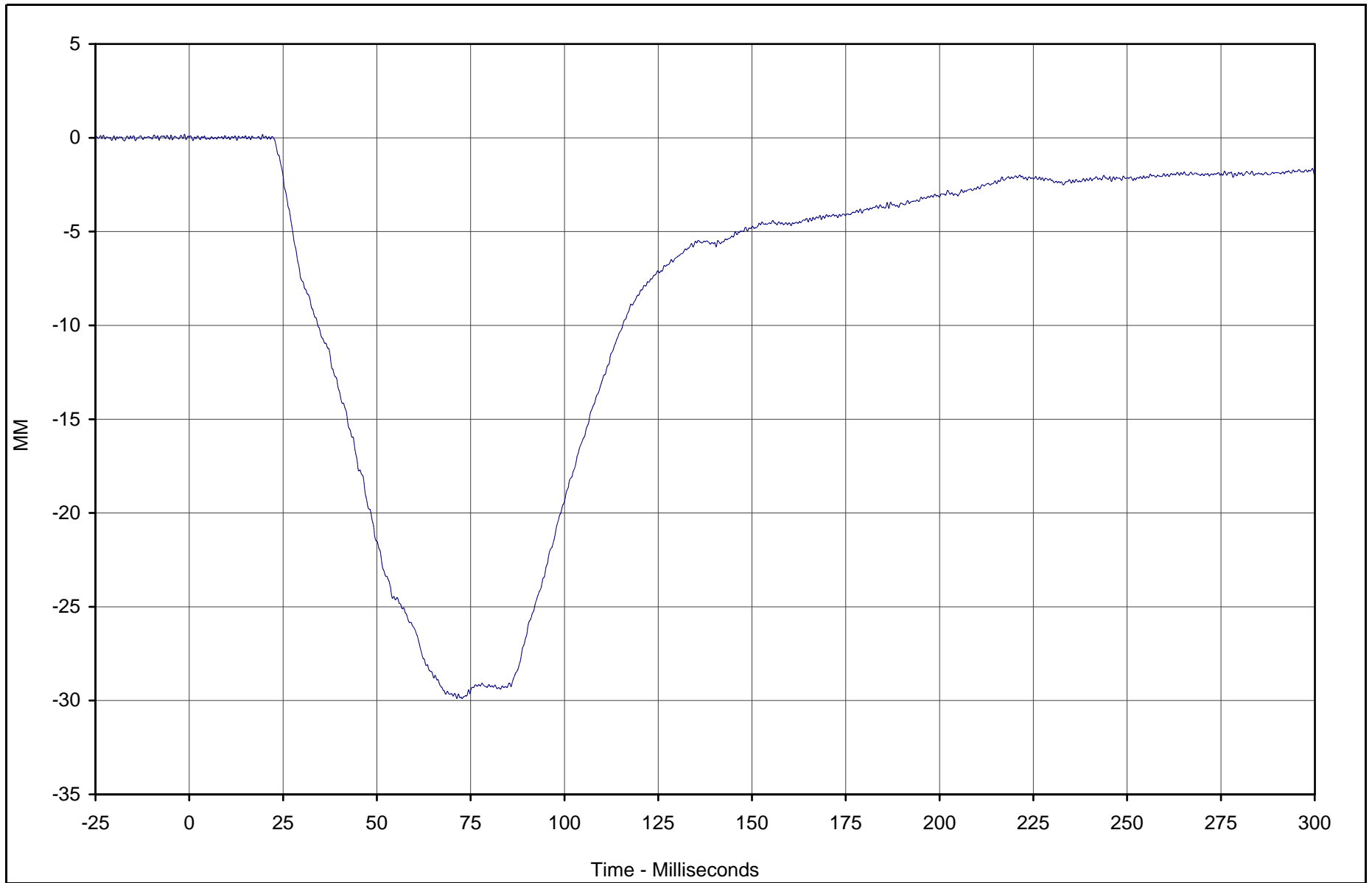


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Displacement X	019	FIL	MM	0.2	19.5	-29.9	72.8	600

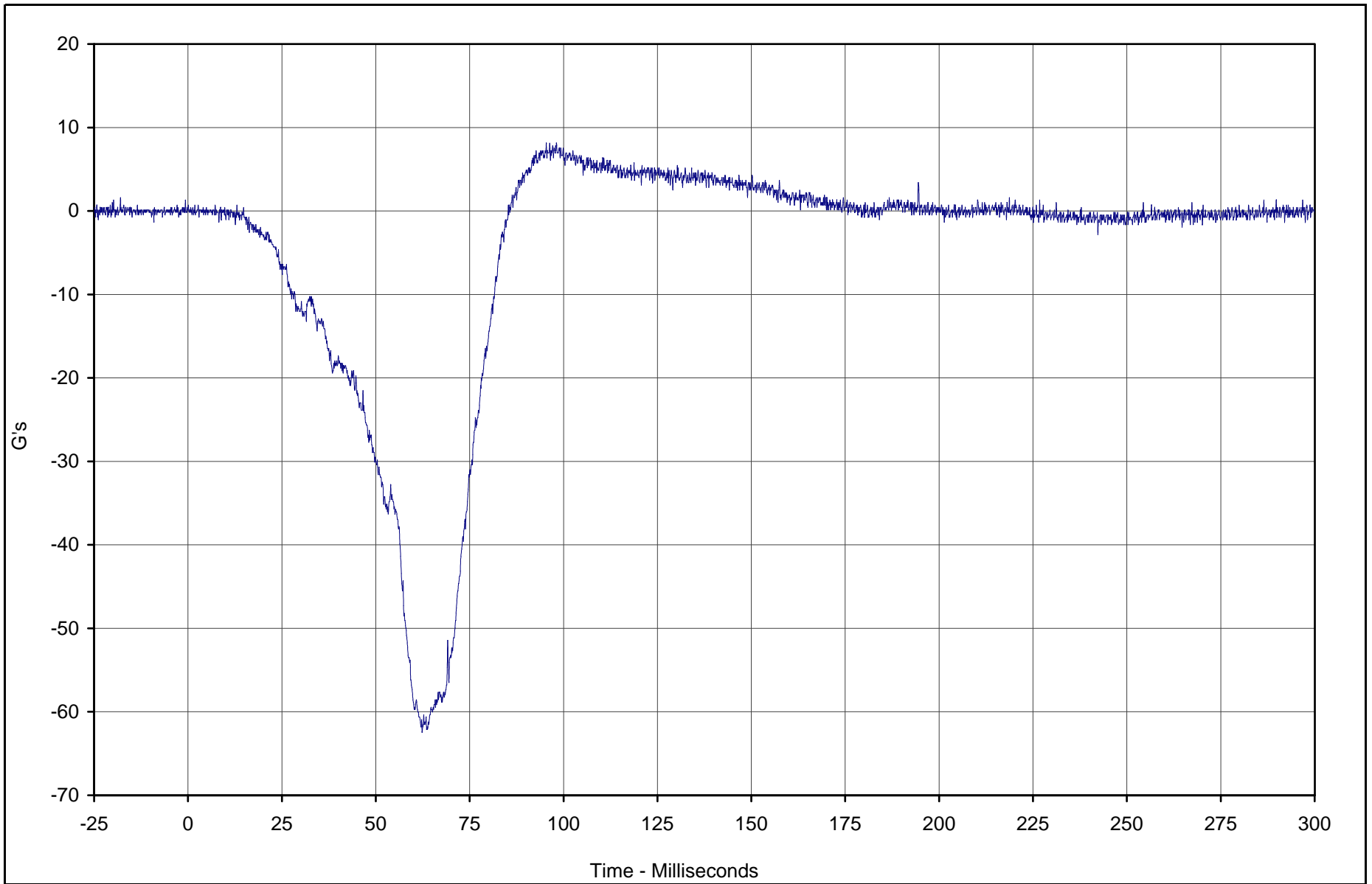


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis X	020	FIL	G's	8.1	95.4	-62.4	62.3	1000

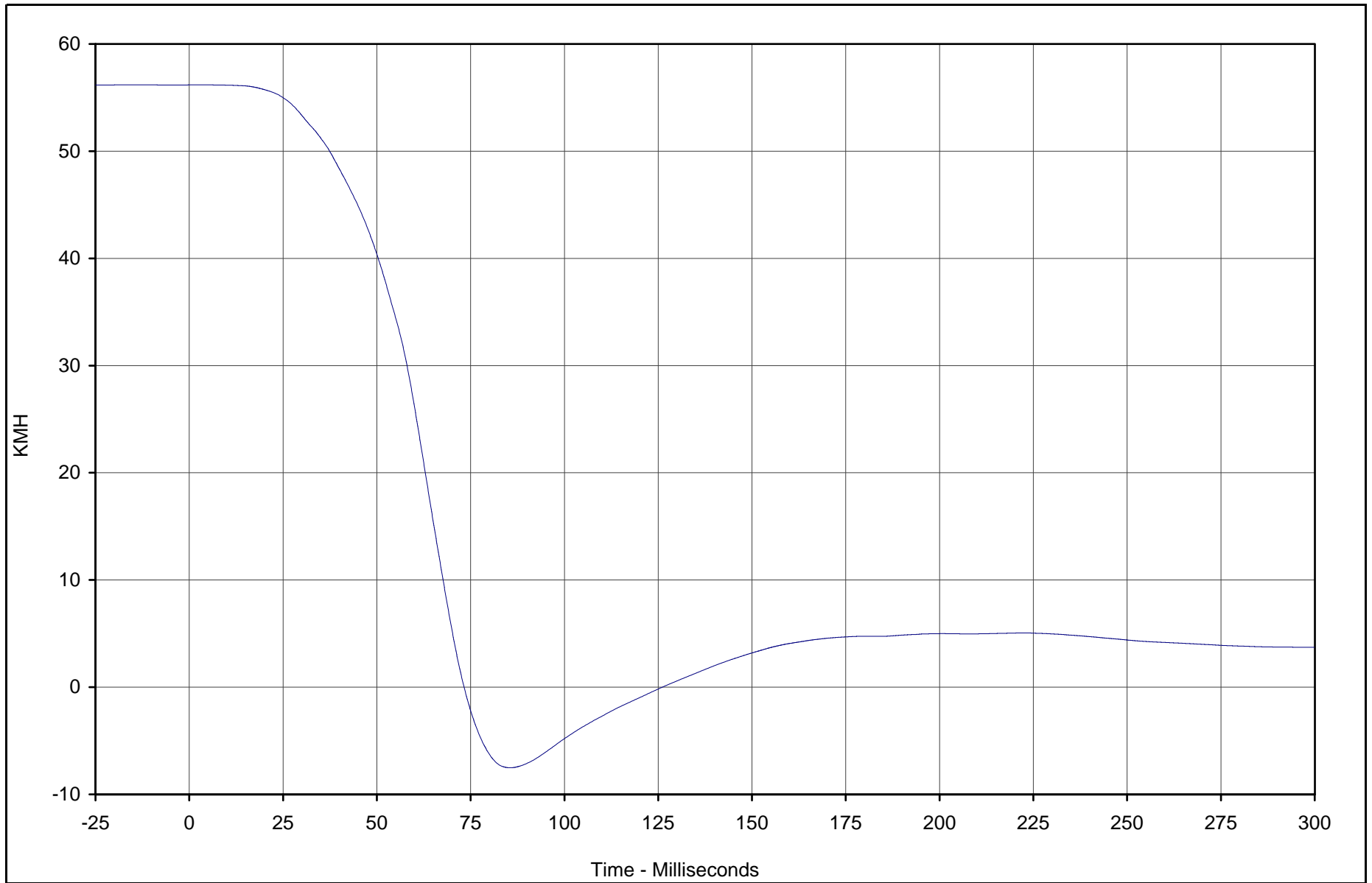


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis X Velocity	020	IN1	KMH	56.2	1.0	-7.5	85.5	180

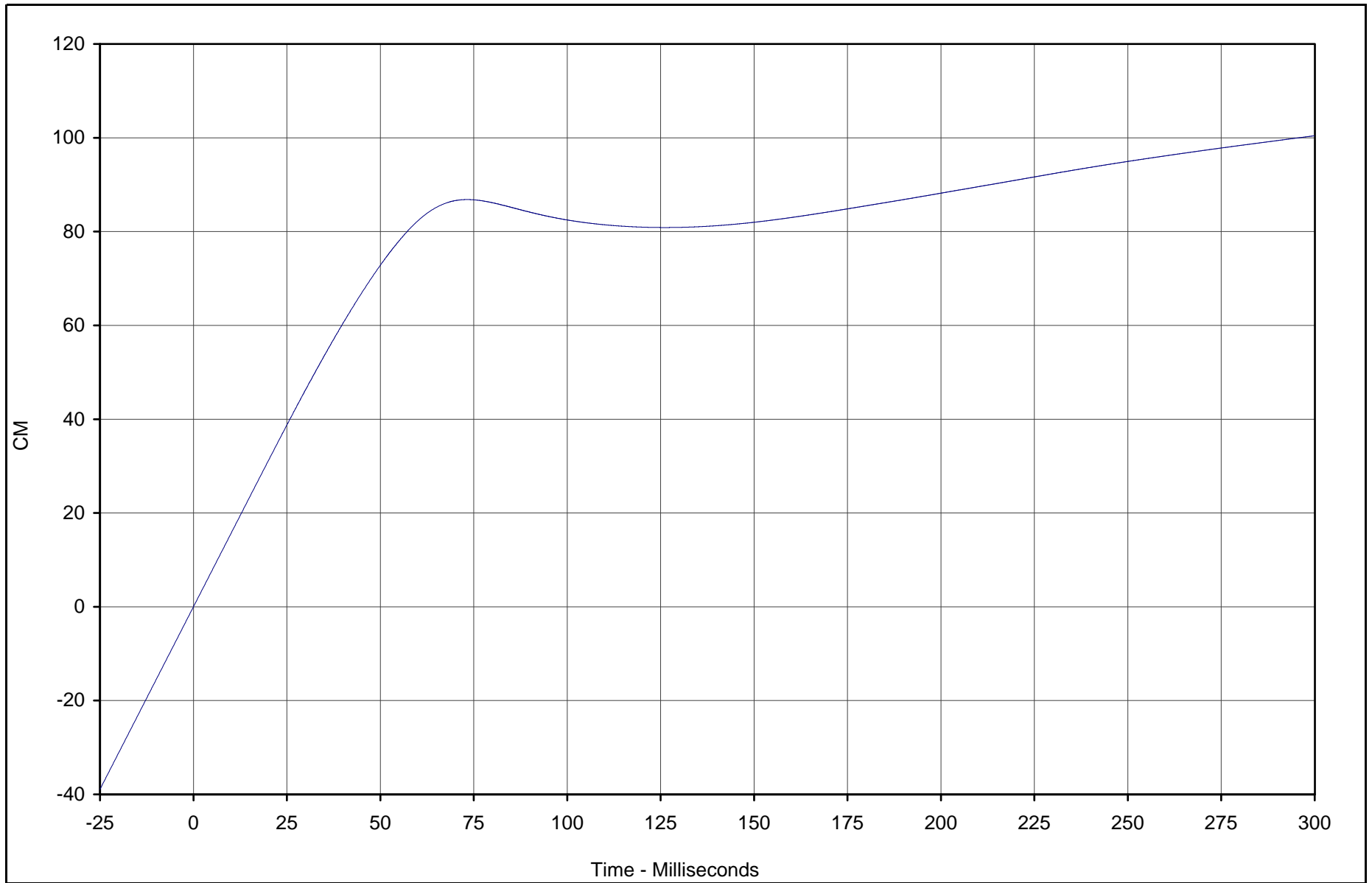


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis X Displ.	020	IN2	CM	100.4	299.9	0.0	0.0	180

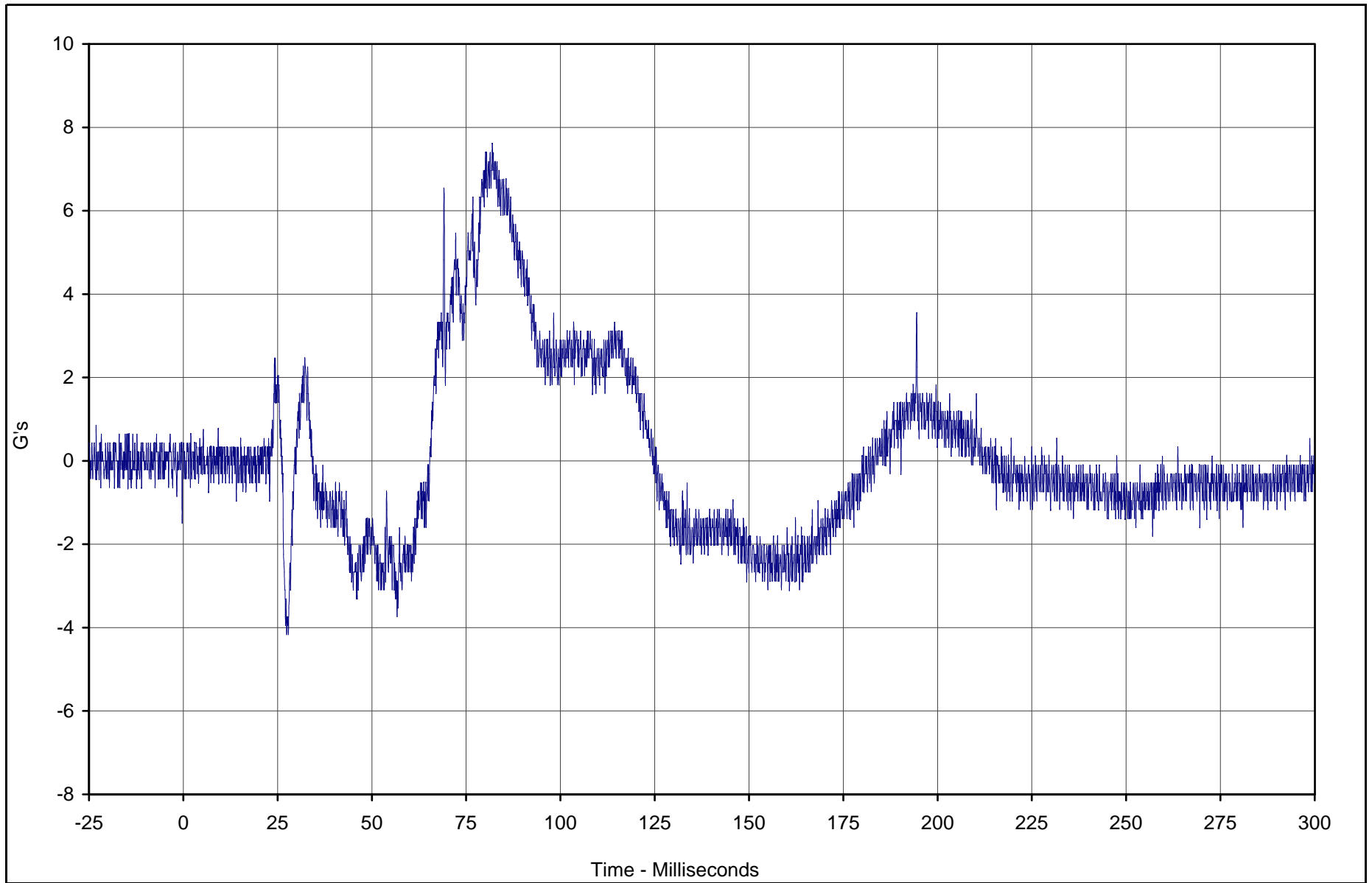


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Y	021	FIL	G's	7.6	81.9	-4.2	27.4	1000

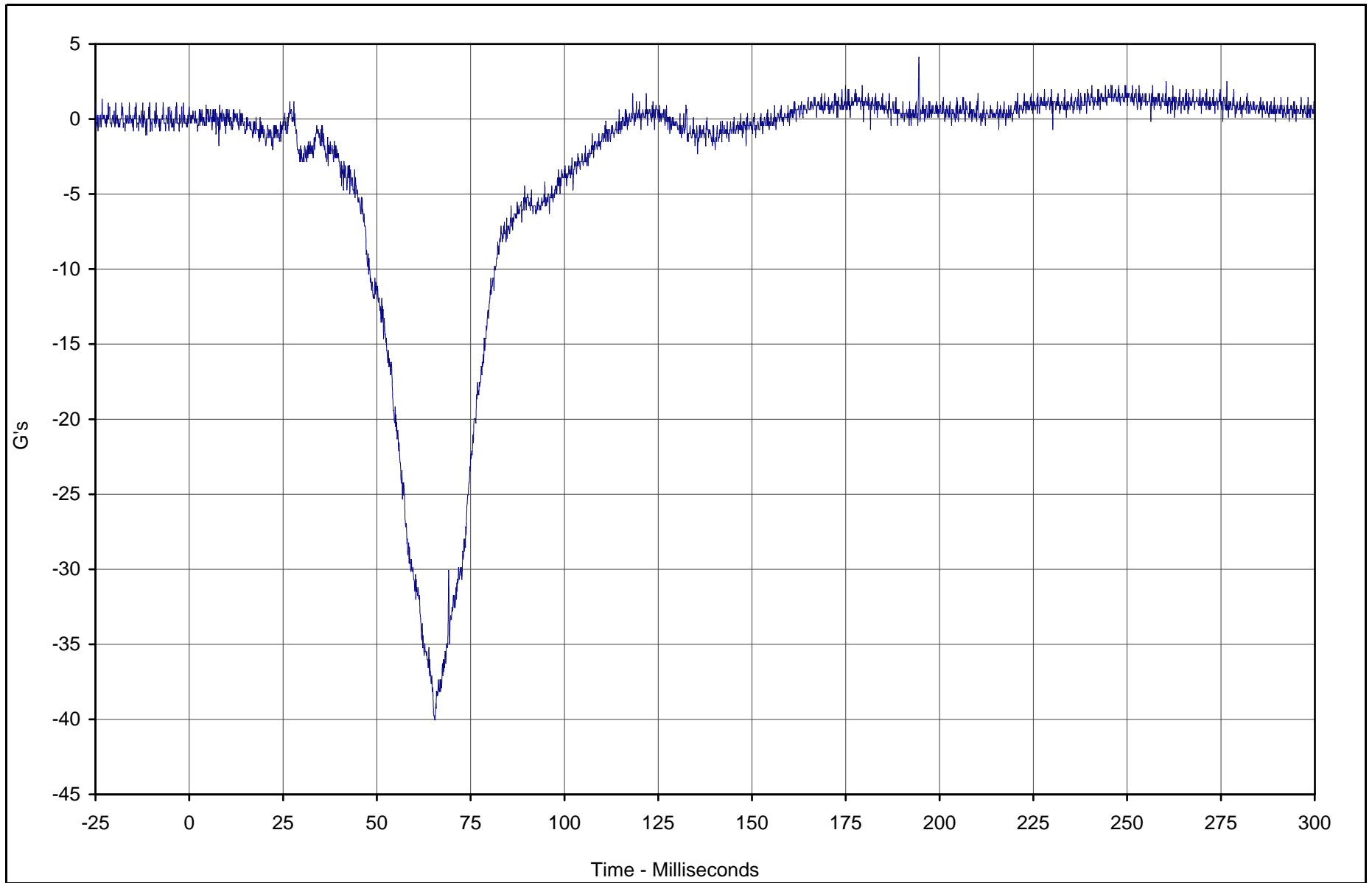


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Z	022	FIL	G's	4.1	194.5	-40.0	65.4	1000

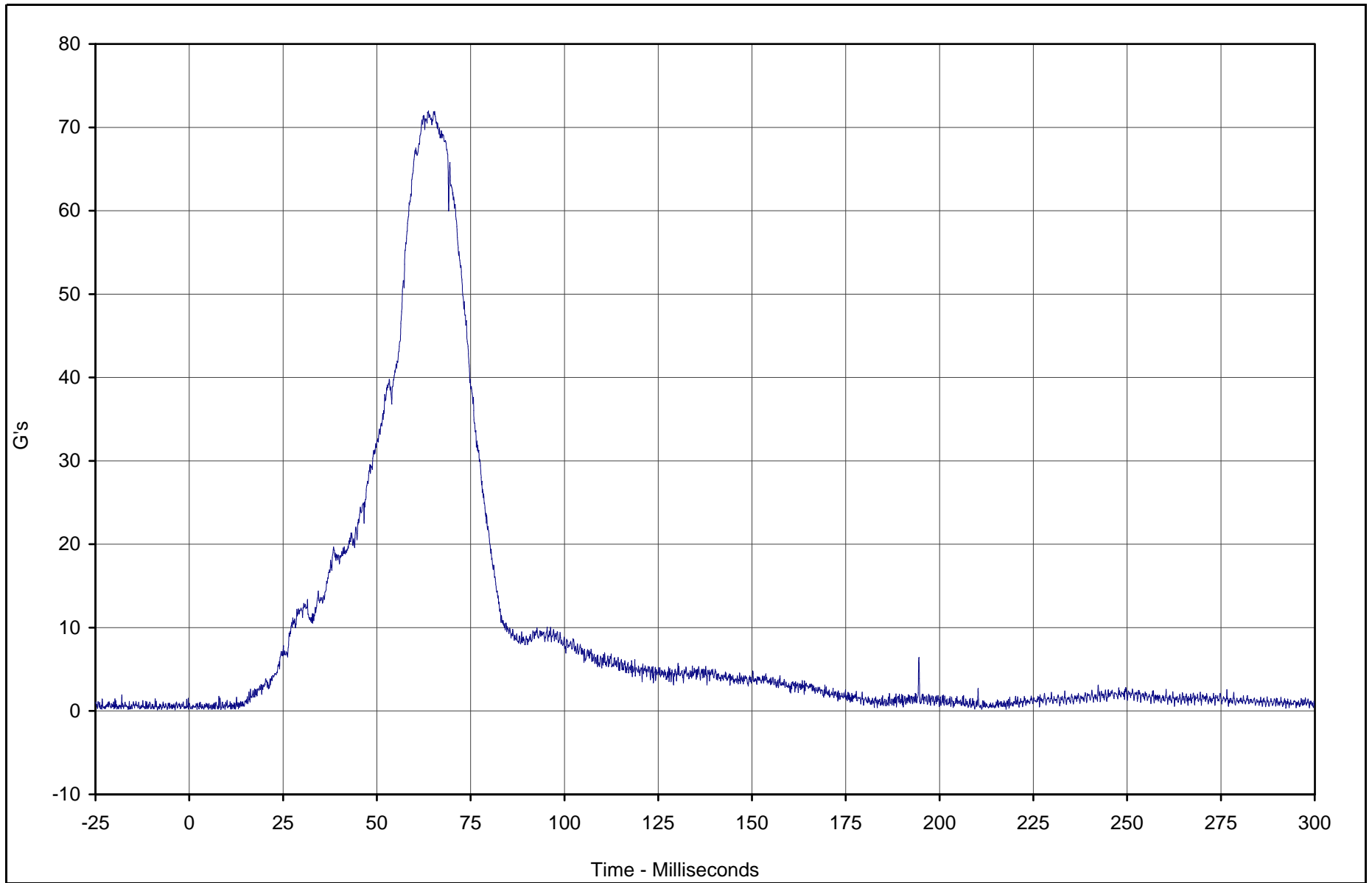


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Resultant	023	RES	G's	71.9	63.8	0.2	2.1	1000



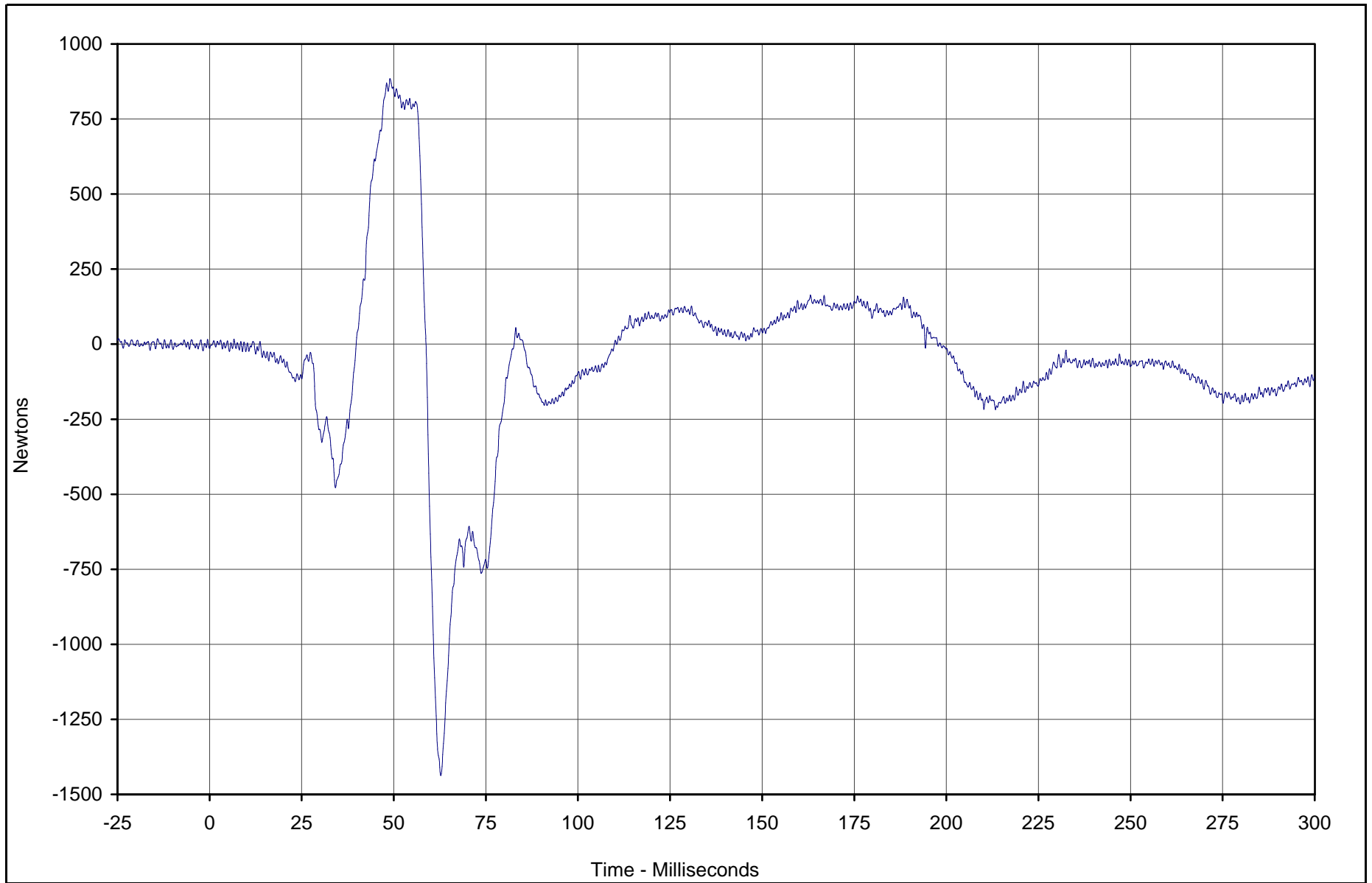
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Femur Force	023	FIL	Newtons	884.9	49.0	-1437.0	62.8	600



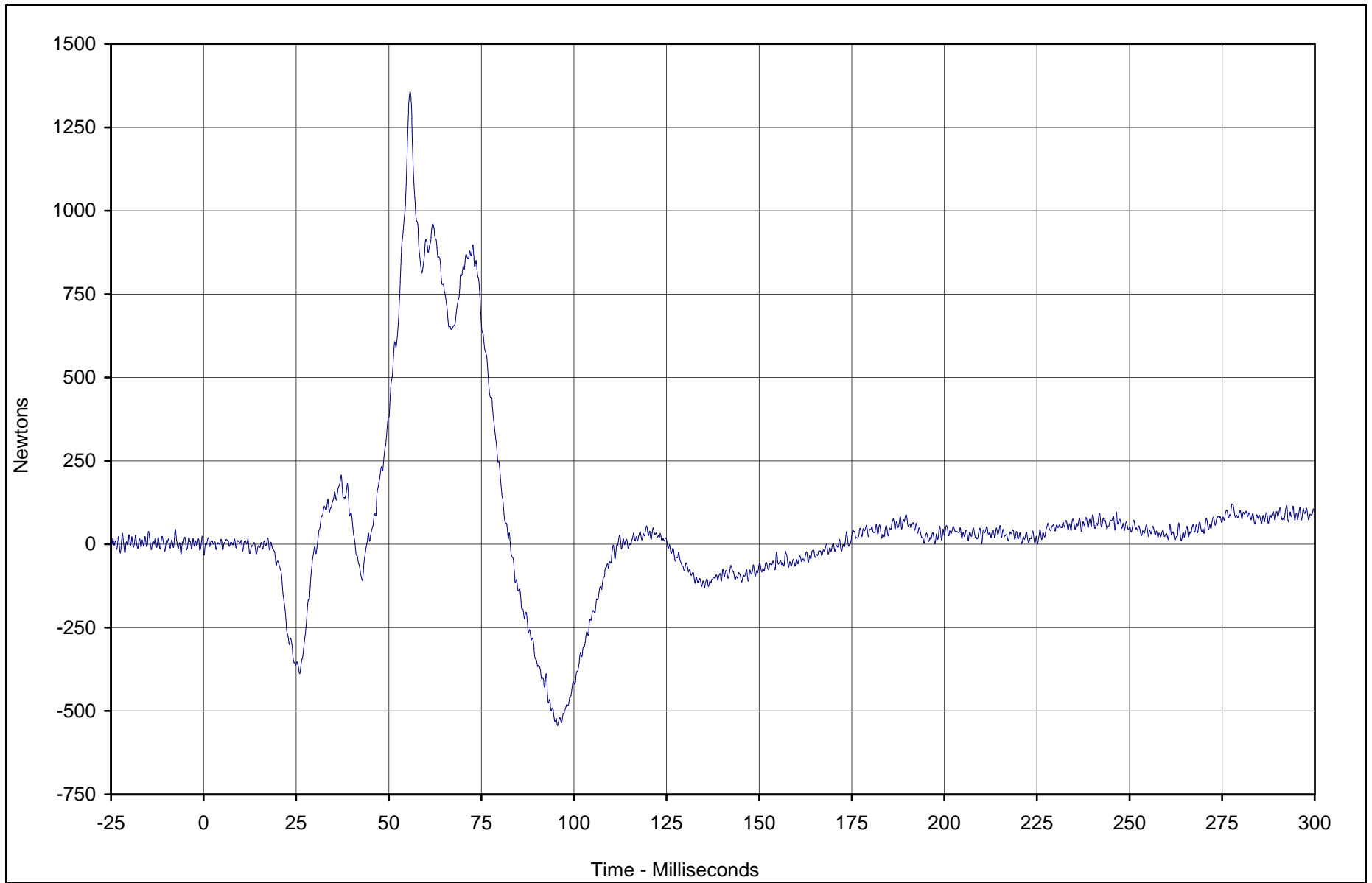
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Femur Force	024	FIL	Newtons	1356.9	55.8	-543.8	95.6	600



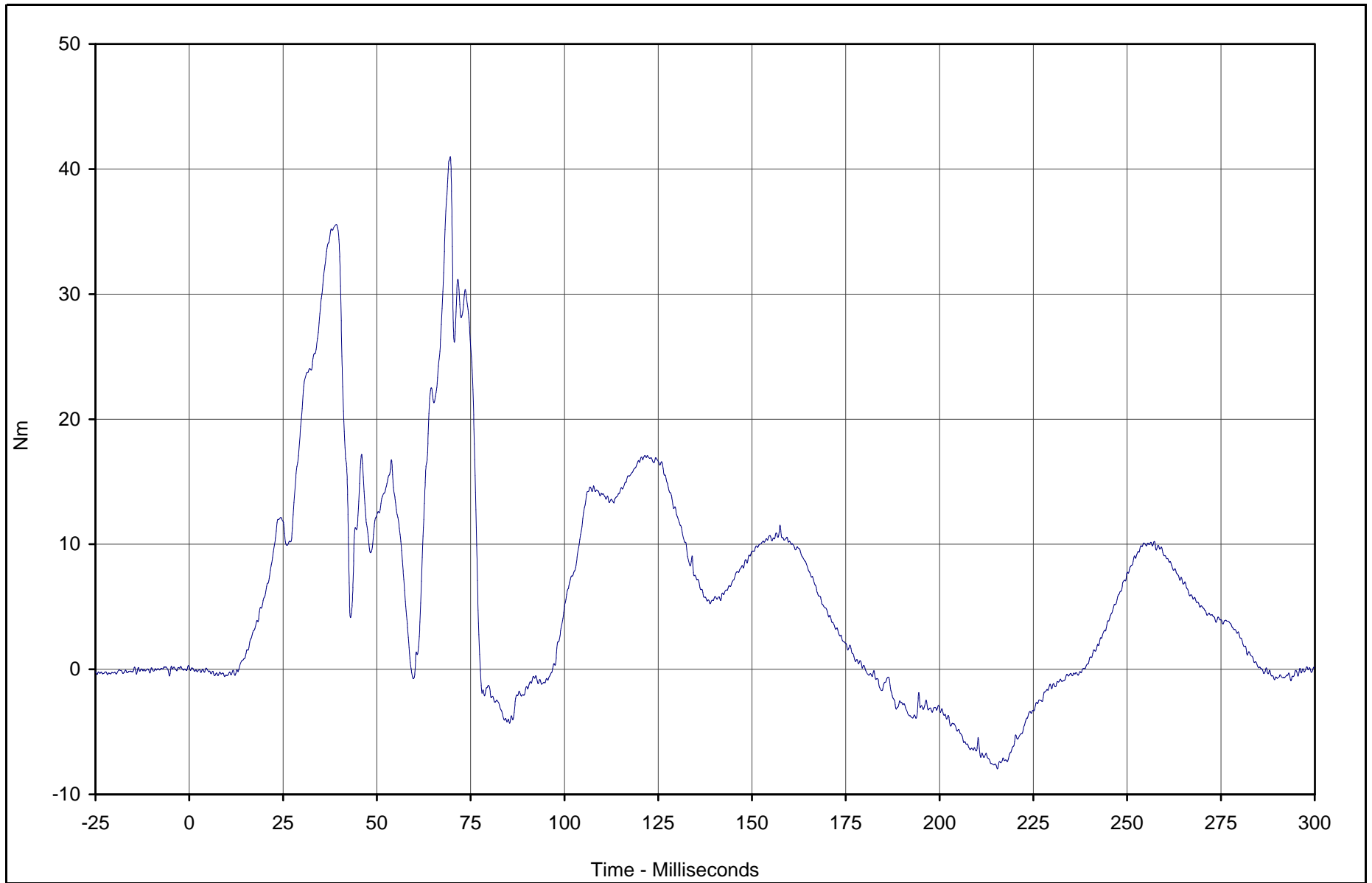
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Upper Tibia Moment X	025	FIL	Nm	41.0	69.6	-8.0	215.4	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

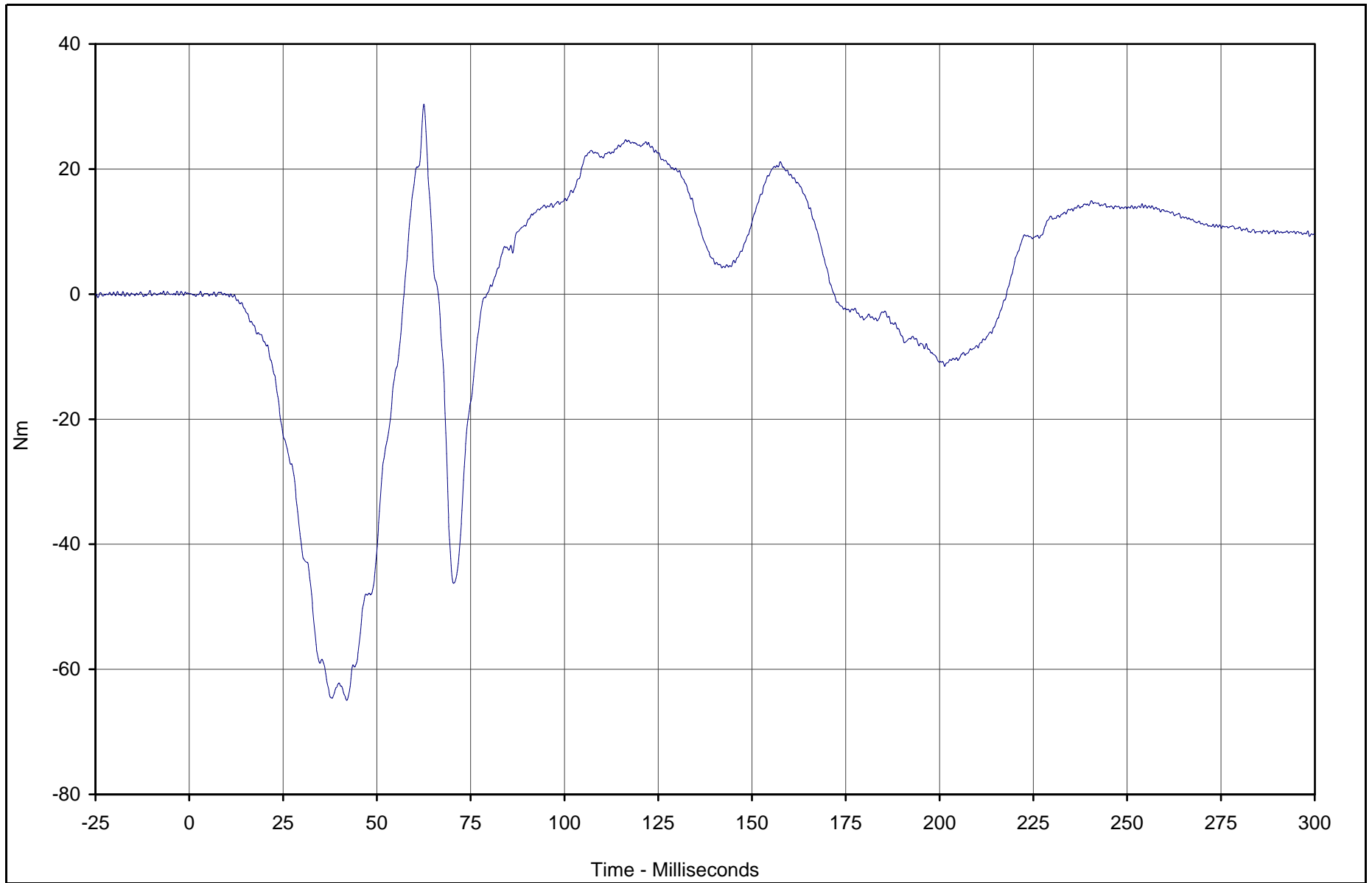
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-43



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Upper Tibia Moment Y	026	FIL	Nm	30.4	62.5	-64.9	42.0	600



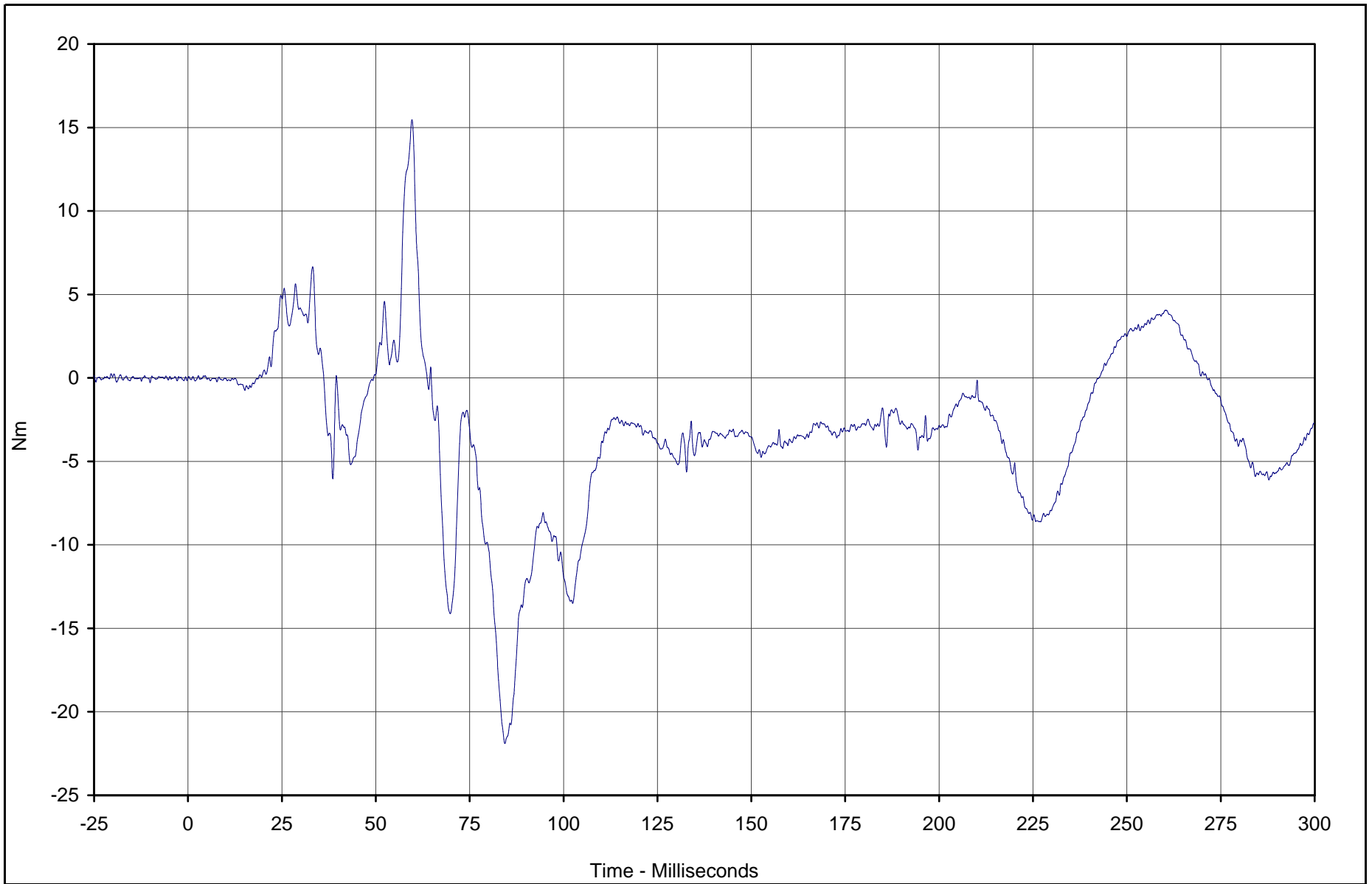
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Upper Tibia Moment X	027	FIL	Nm	15.5	59.6	-21.9	84.4	600



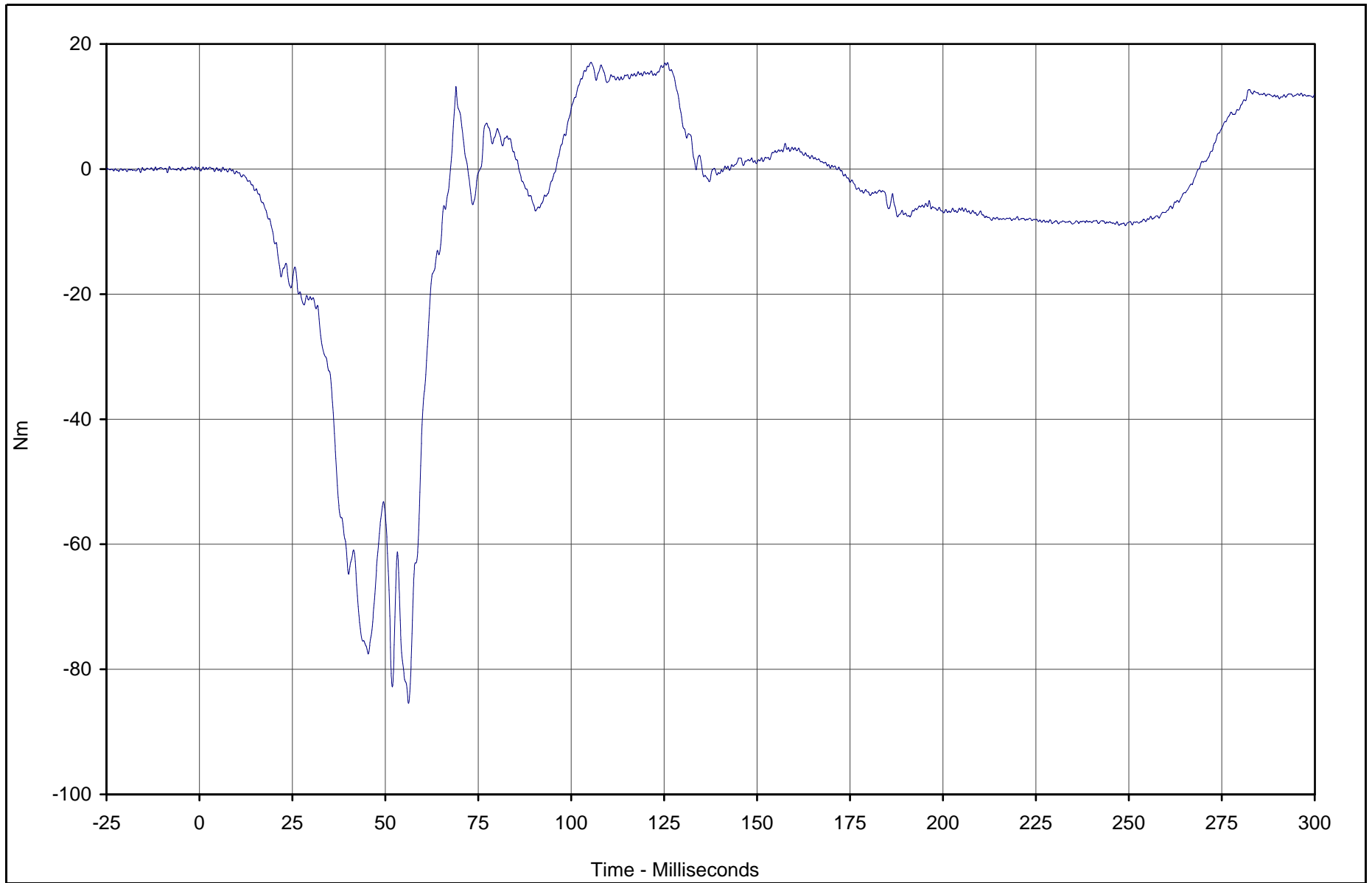
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Upper Tibia Moment Y	028	FIL	Nm	17.0	105.4	-85.4	56.3	600



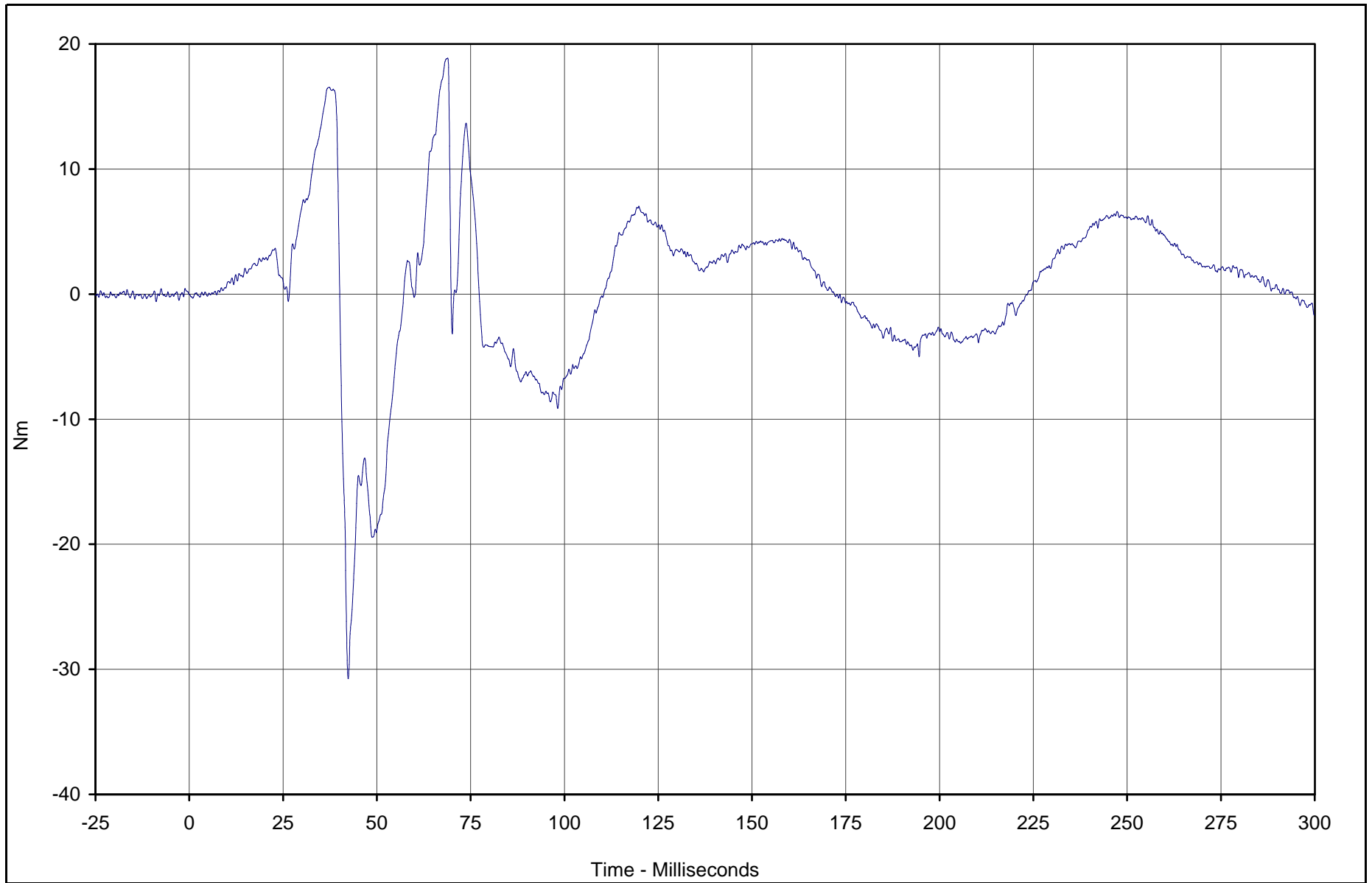
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Lower Tibia Moment X	029	FIL	Nm	18.9	68.9	-30.8	42.4	600



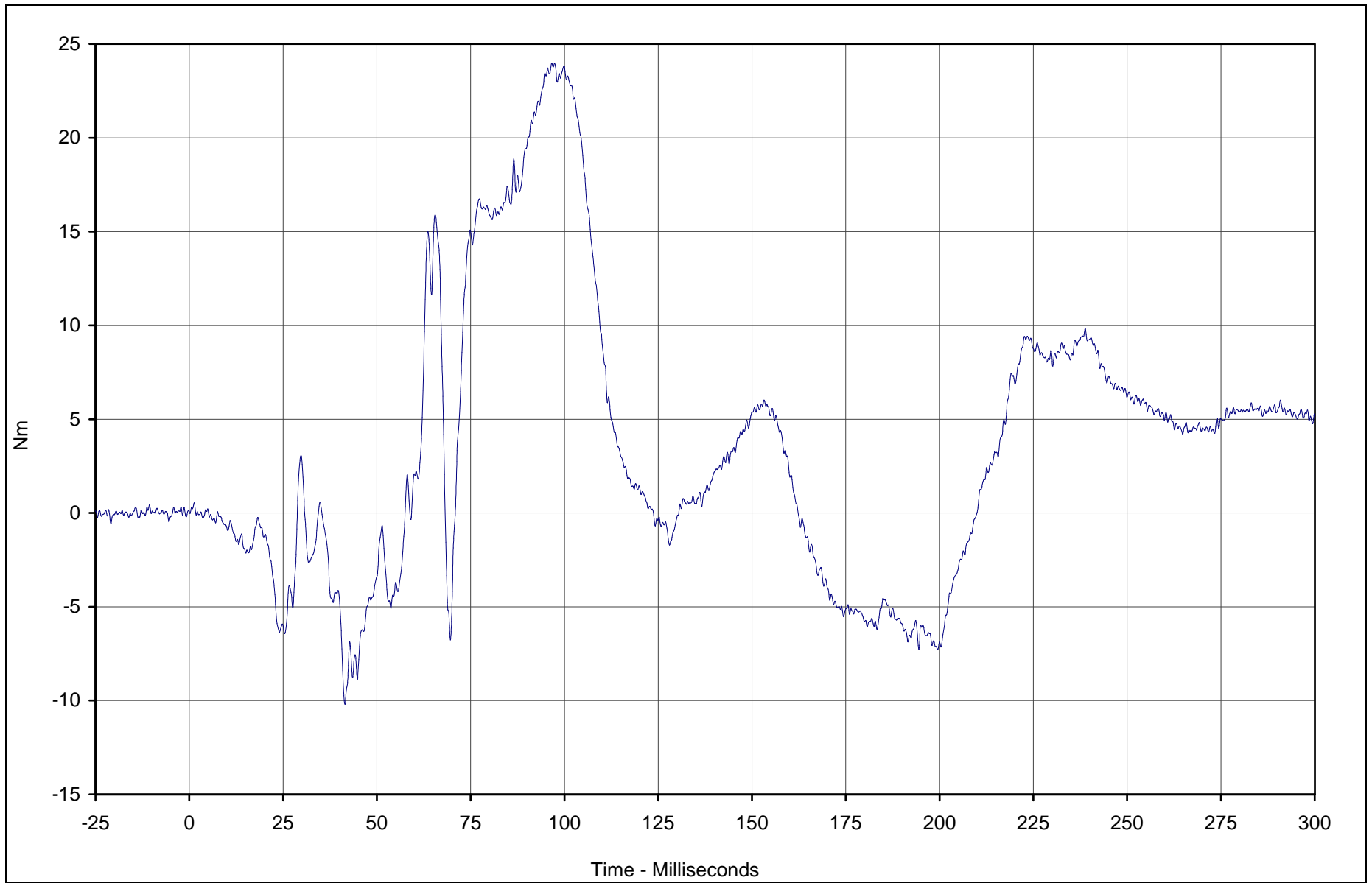
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-47



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Lower Tibia Moment Y	030	FIL	Nm	24.0	96.6	-10.2	41.5	600



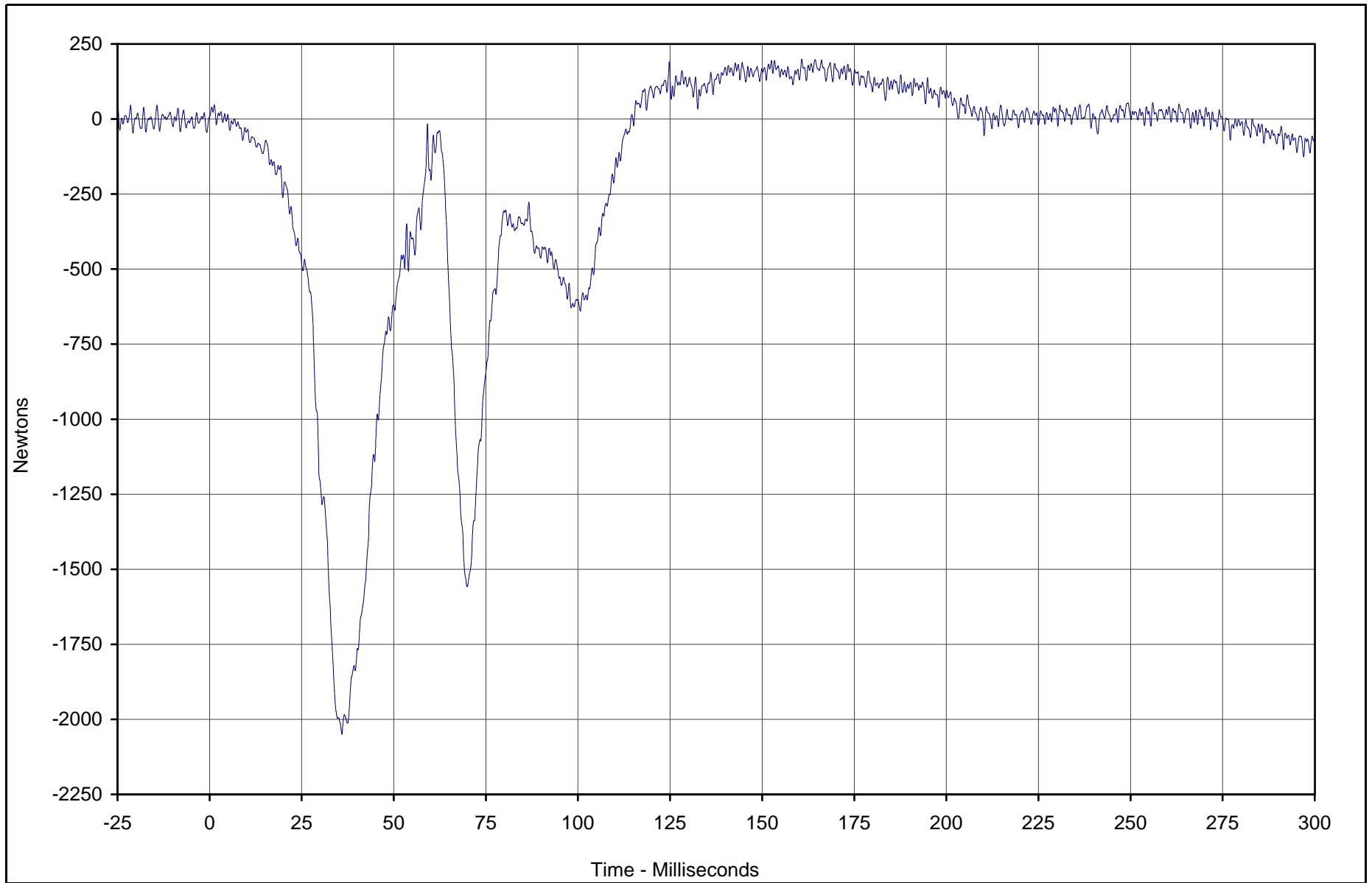
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Lower Tibia Force Z	031	FIL	Newtons	199.9	160.8	-2049.9	35.9	600

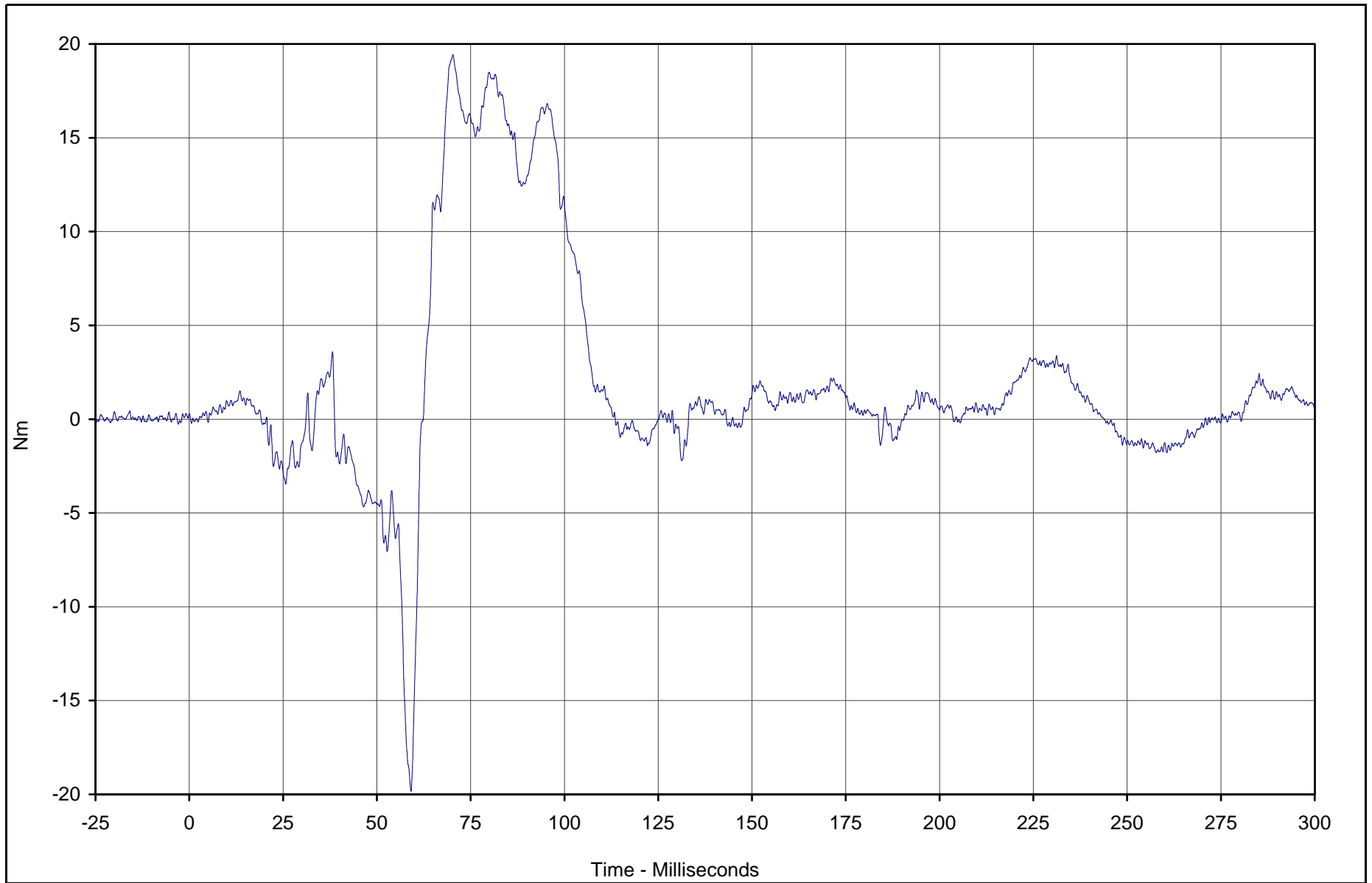


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Lower Tibia Moment X	032	FIL	Nm	19.4	70.3	-19.8	59.1	600



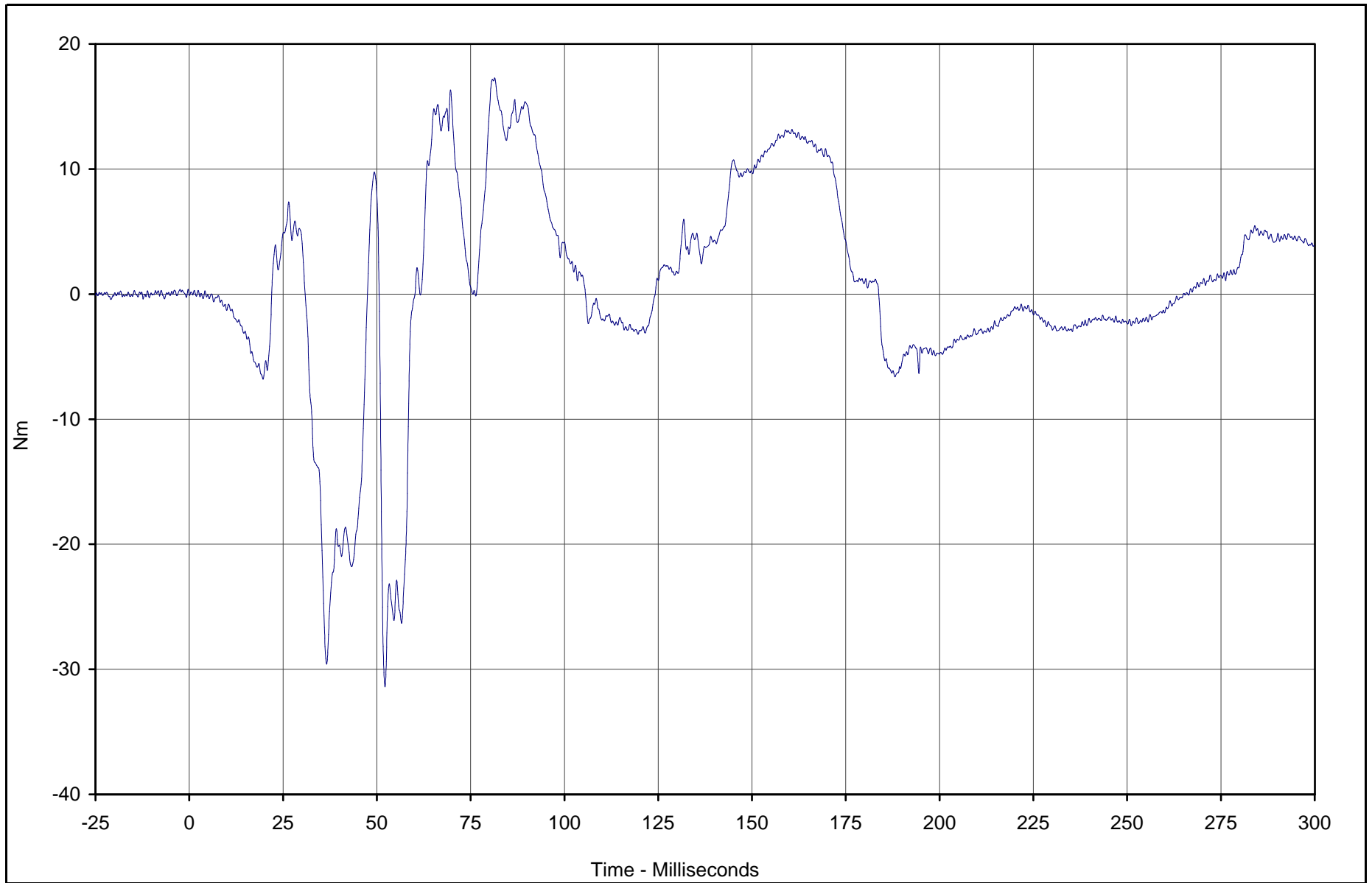
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-50



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Lower Tibia Moment Y	033	FIL	Nm	17.3	81.4	-31.4	52.2	600



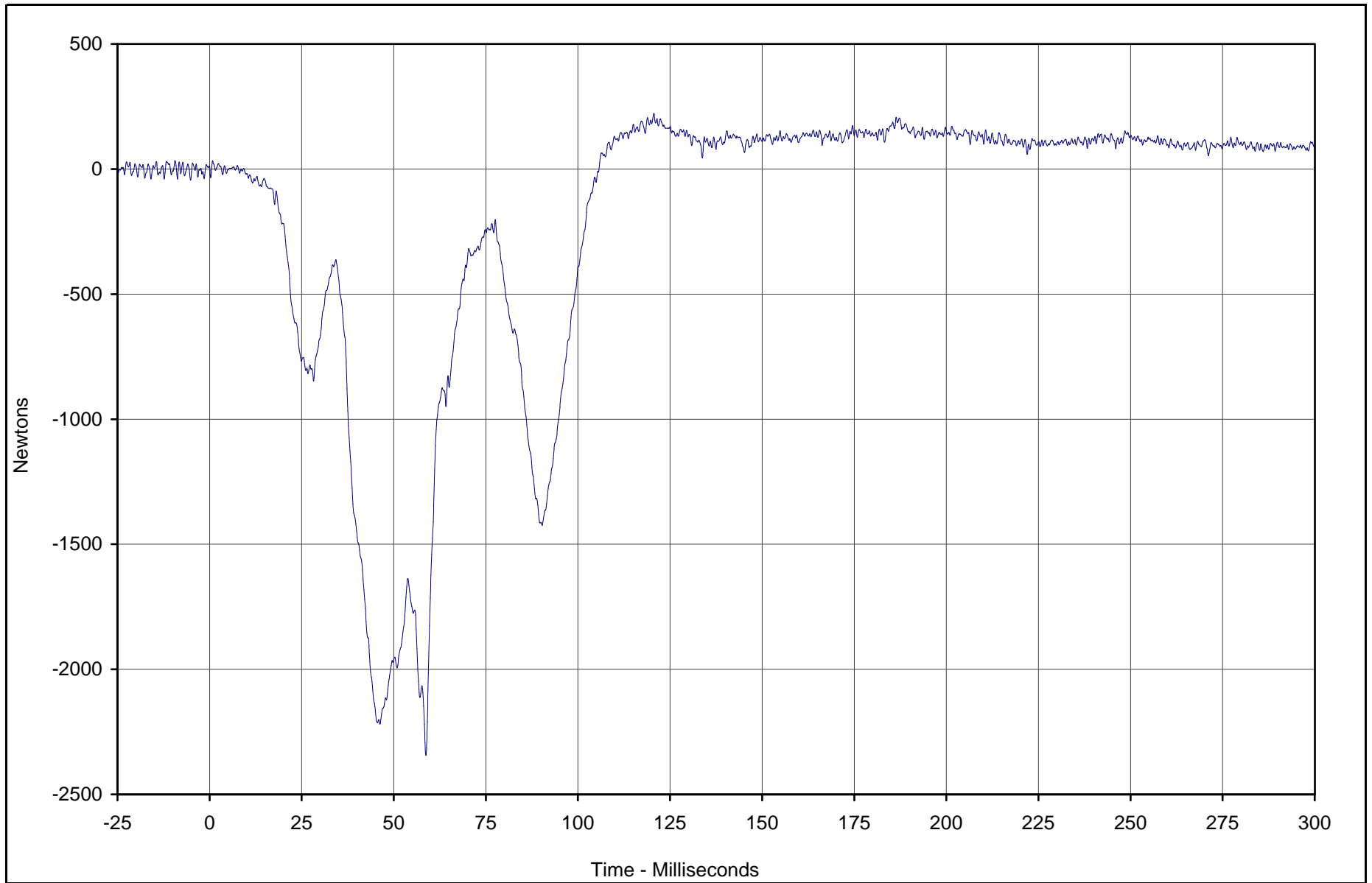
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Lower Tibia Force Z	034	FIL	Newtons	222.9	120.6	-2344.7	58.7	600

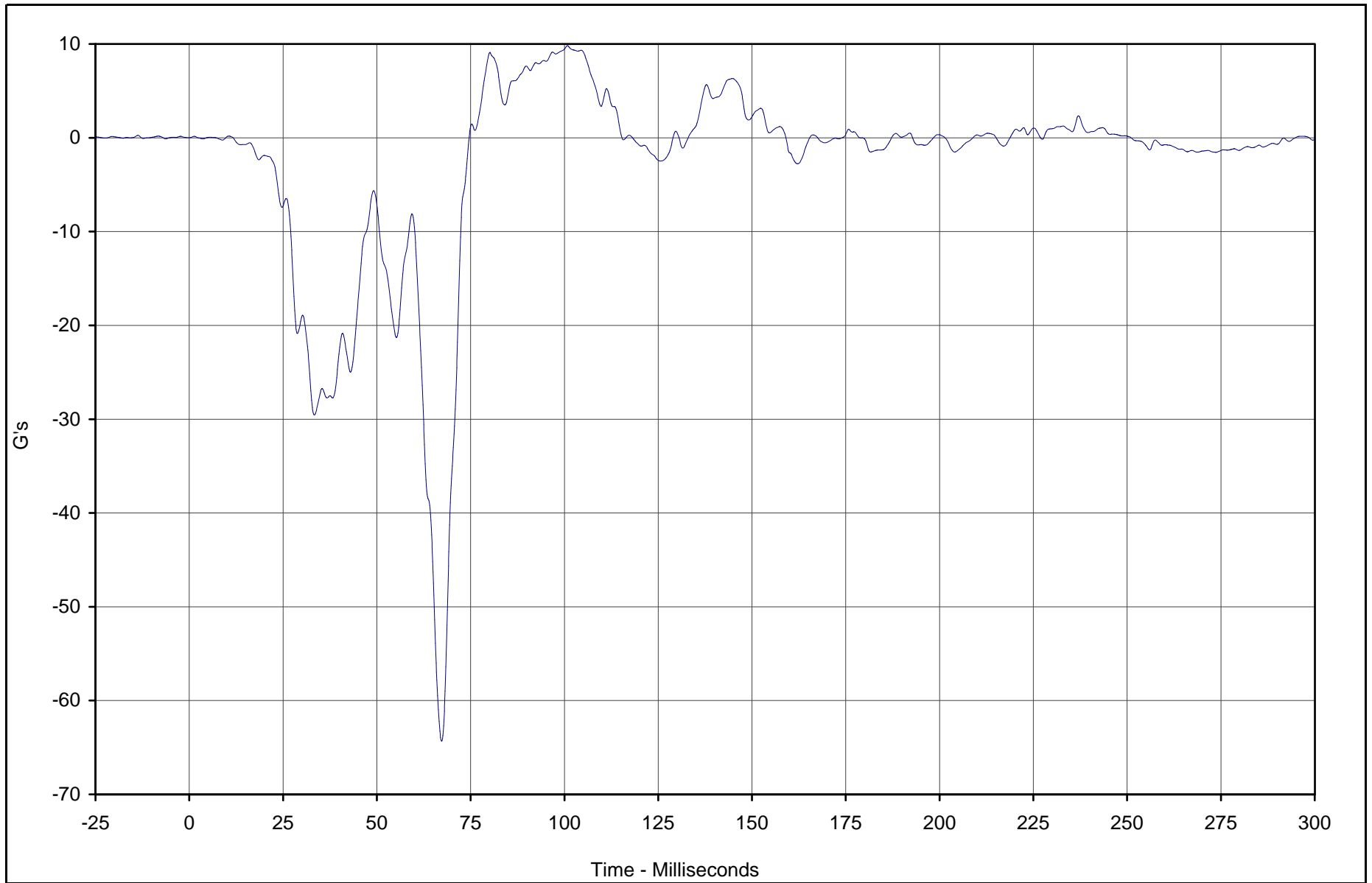


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Foot Aft X	035	FIL	G's	9.8	100.8	-64.3	67.3	180

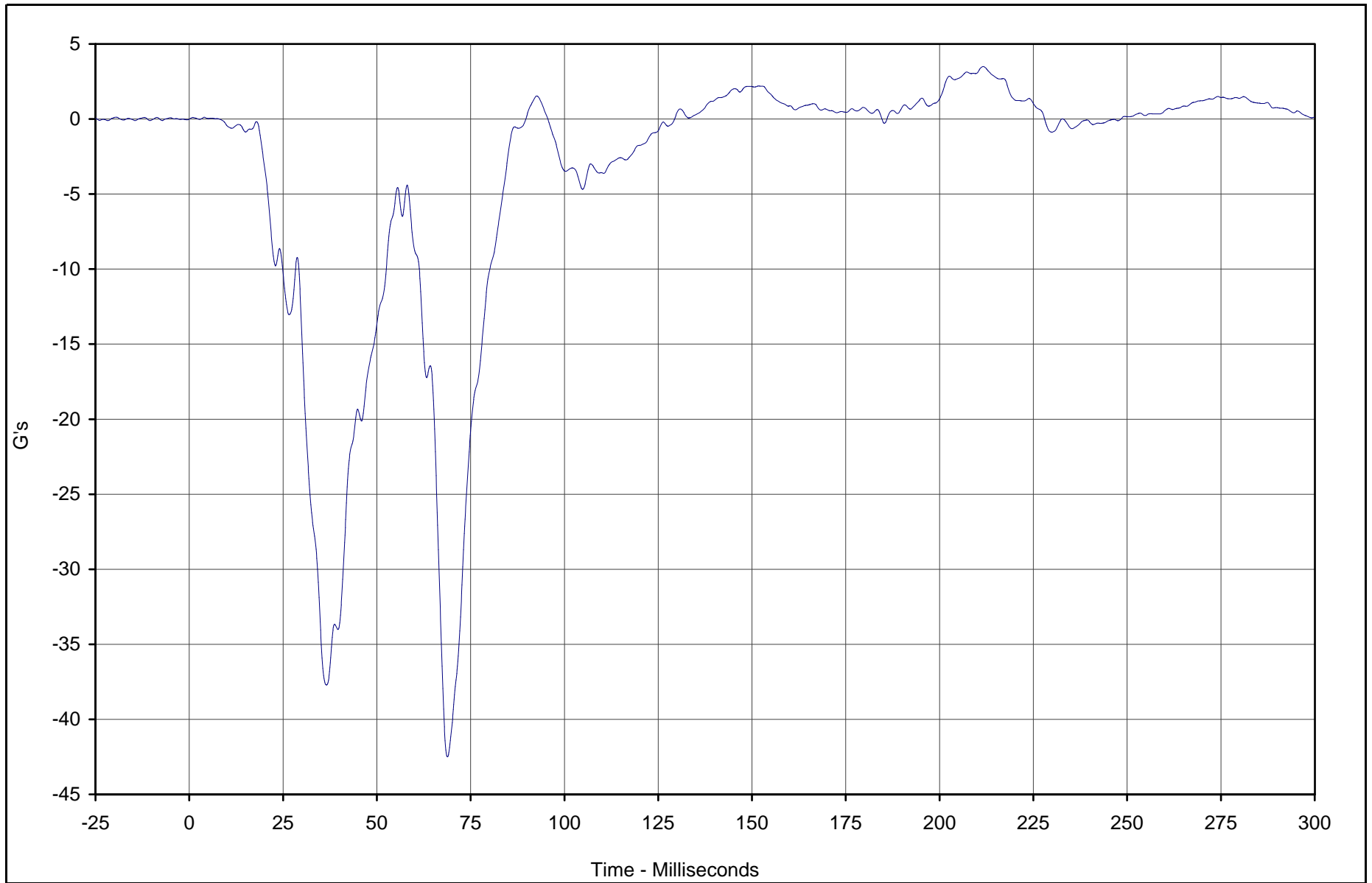


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Foot Aft Z	036	FIL	G's	3.5	211.6	-42.5	68.8	180



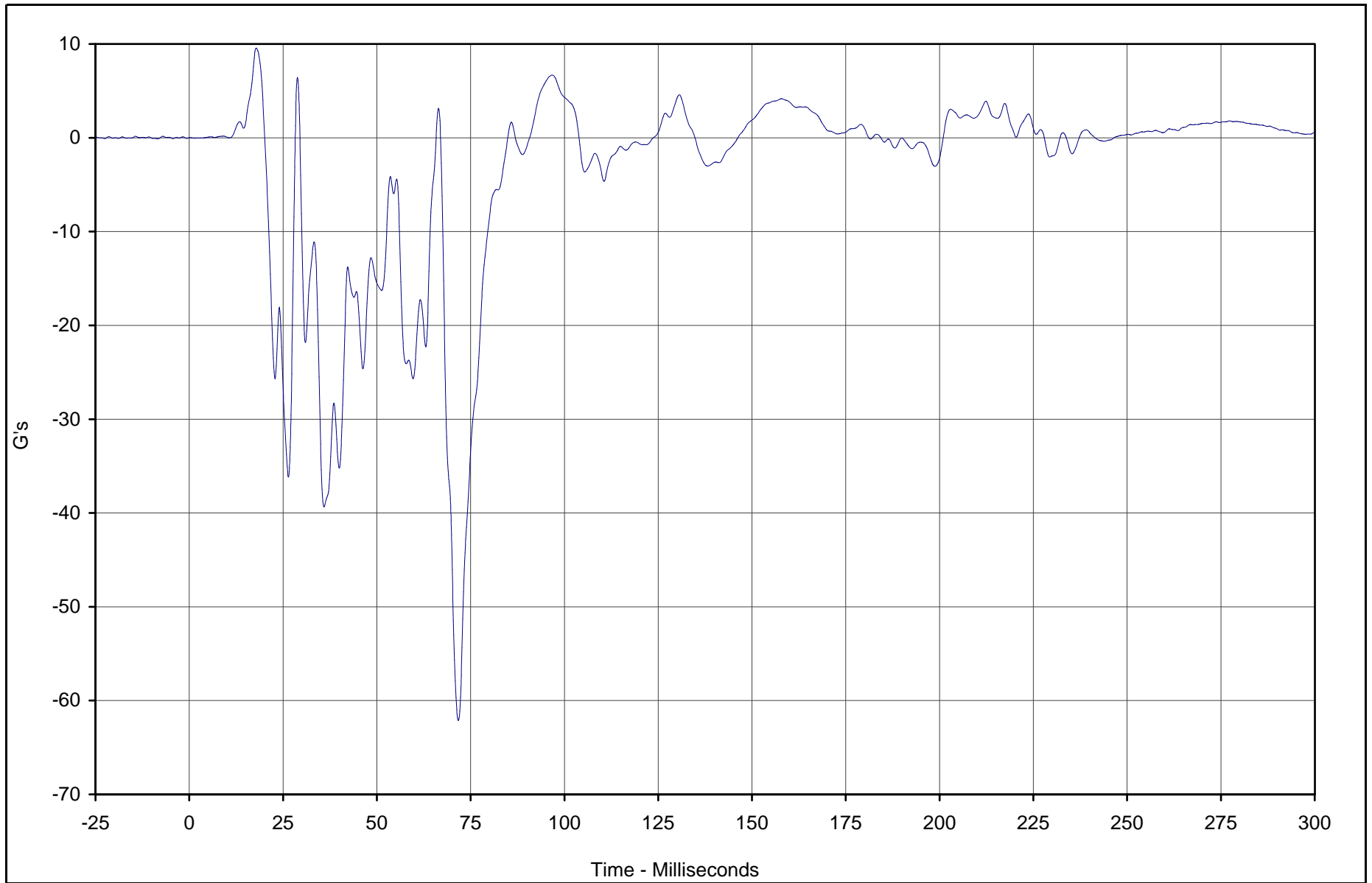
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Foot Fore Z	037	FIL	G's	9.6	17.8	-62.1	71.7	180



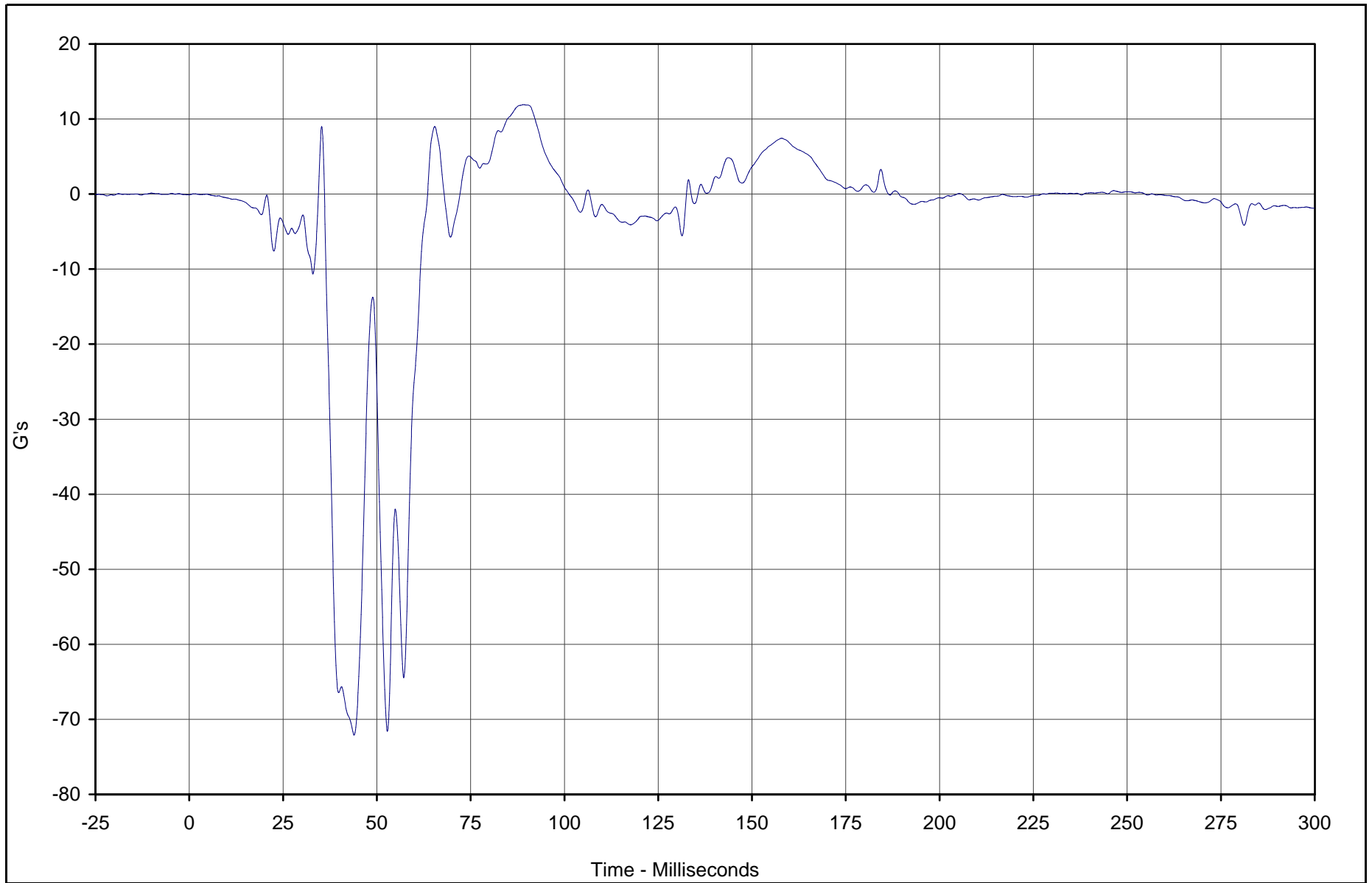
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Foot Aft X	038	FIL	G's	11.9	89.1	-72.1	43.9	180

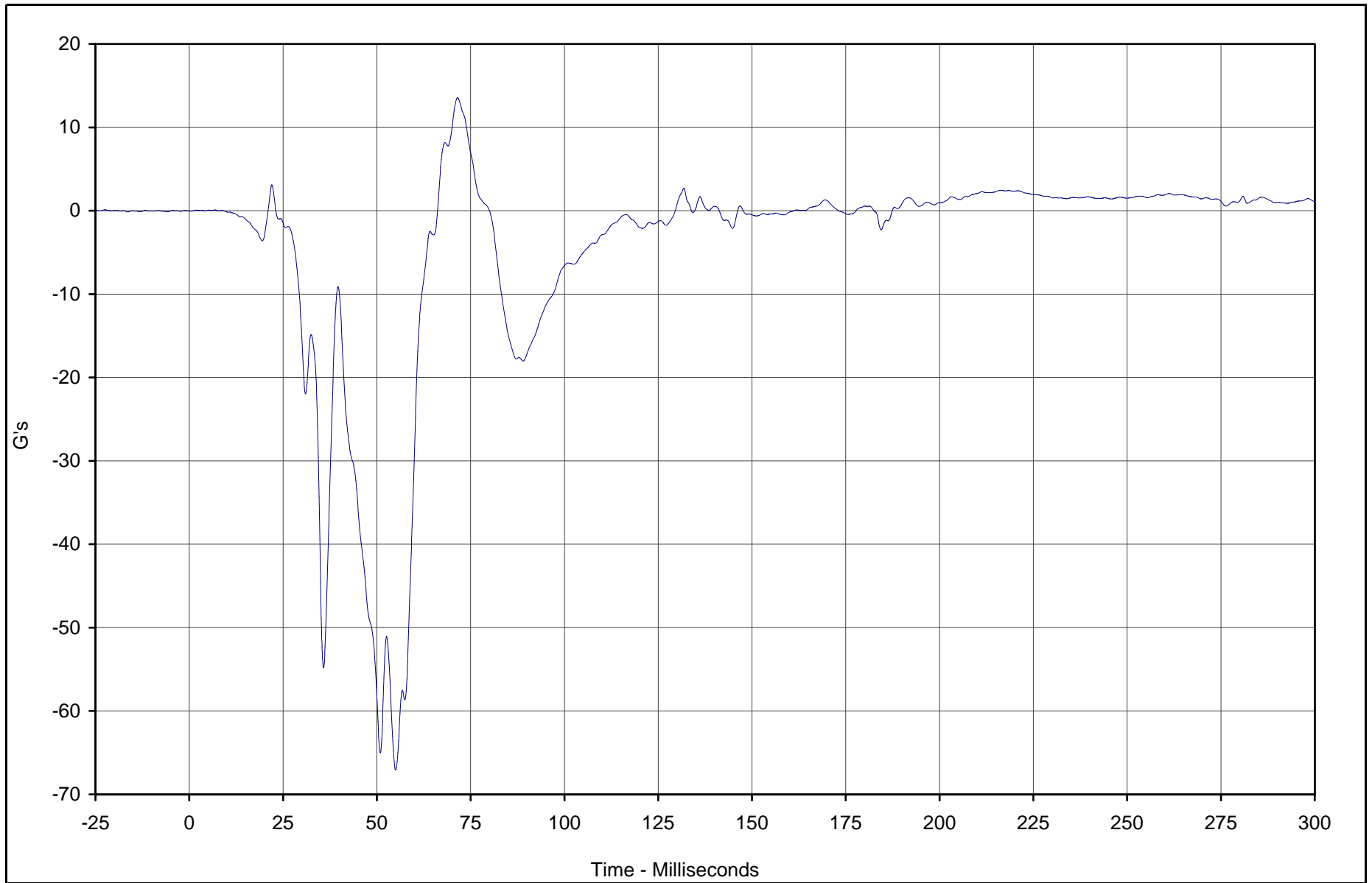


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Foot Aft Z	039	FIL	G's	13.6	71.5	-67.1	55.0	180

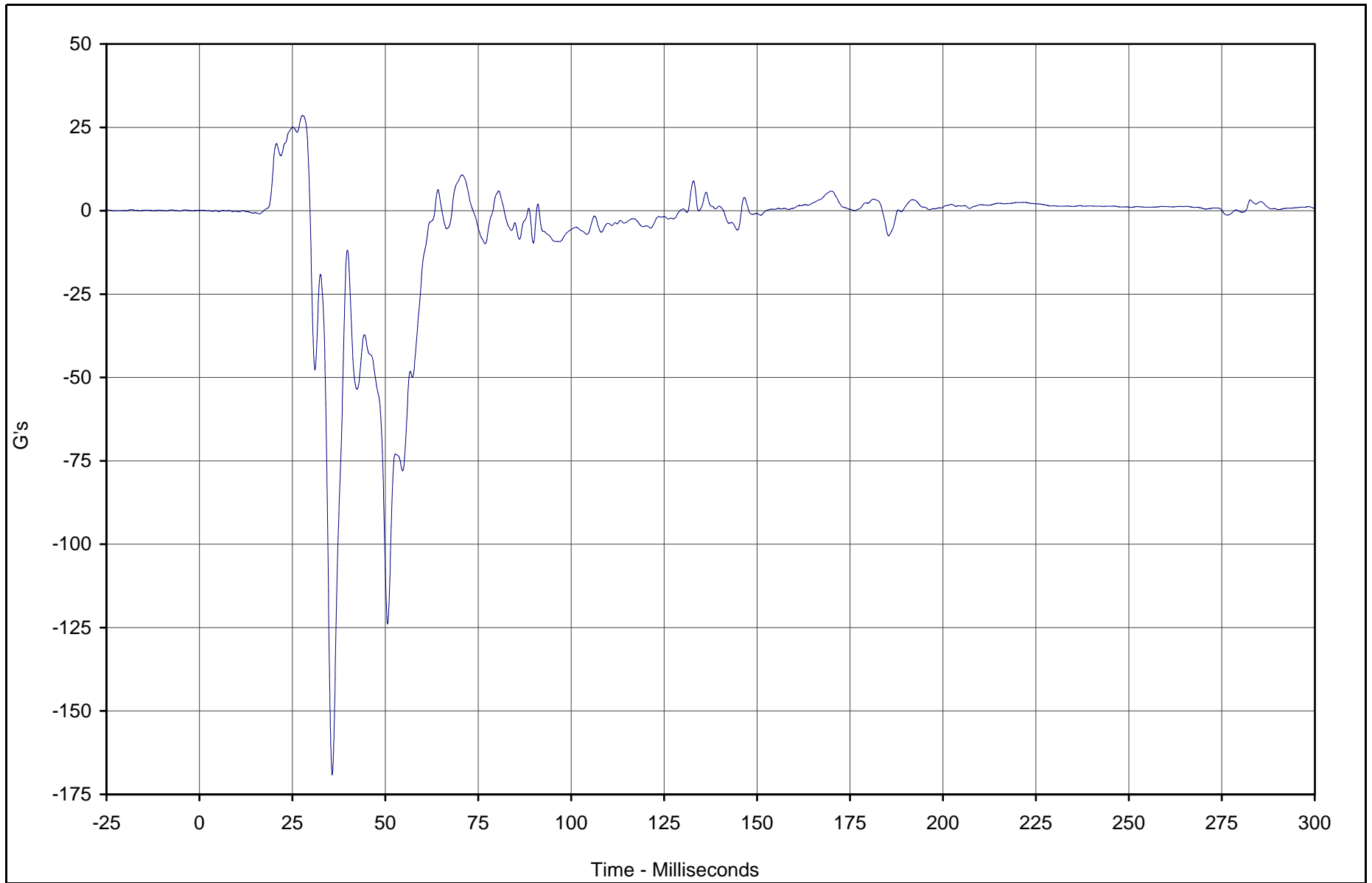


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Foot Fore Z	040	FIL	G's	28.5	27.7	-169.2	35.7	180

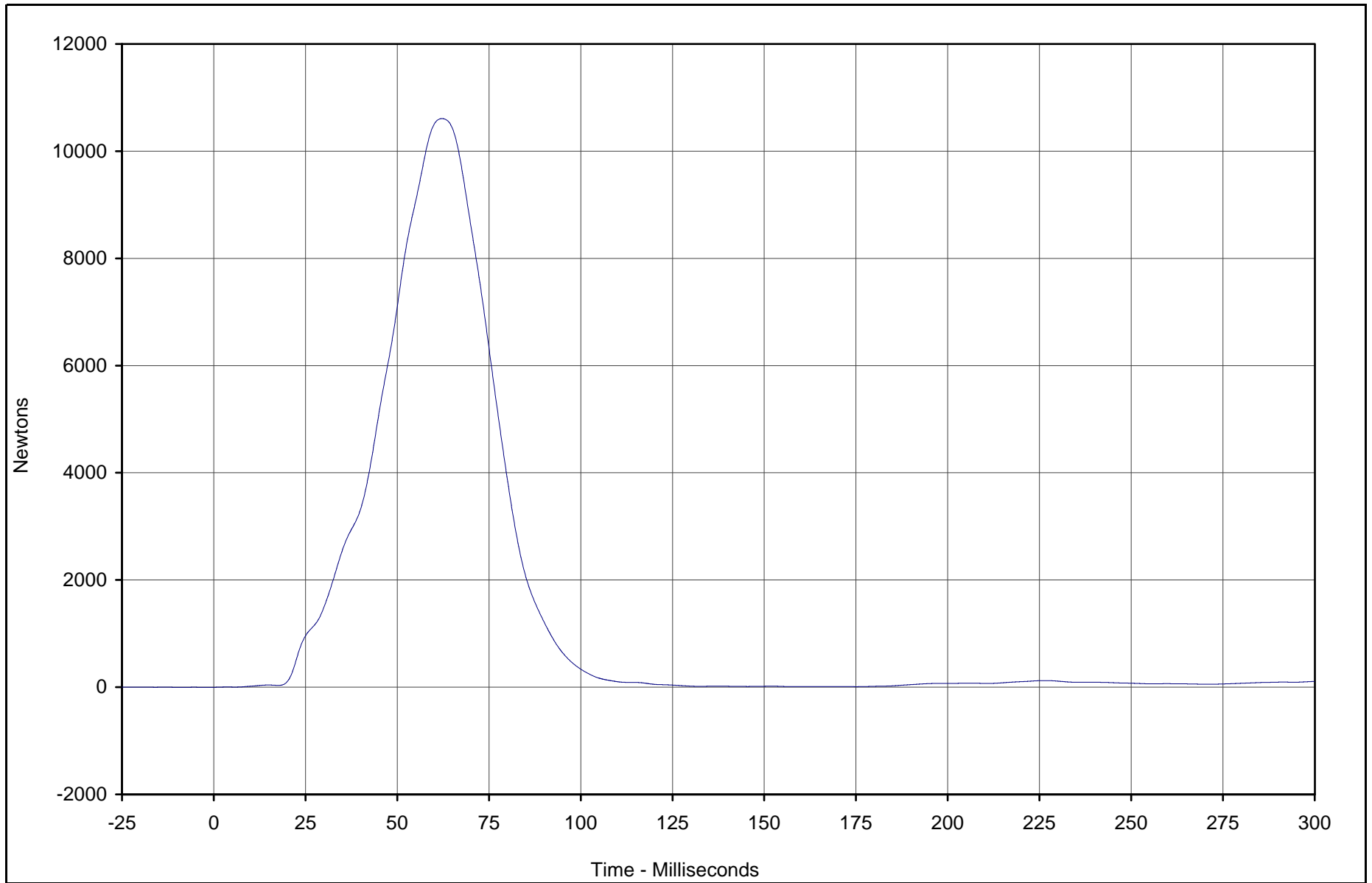


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lap Belt Force	041	FIL	Newtons	10608.1	62.2	-2.5	0.0	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

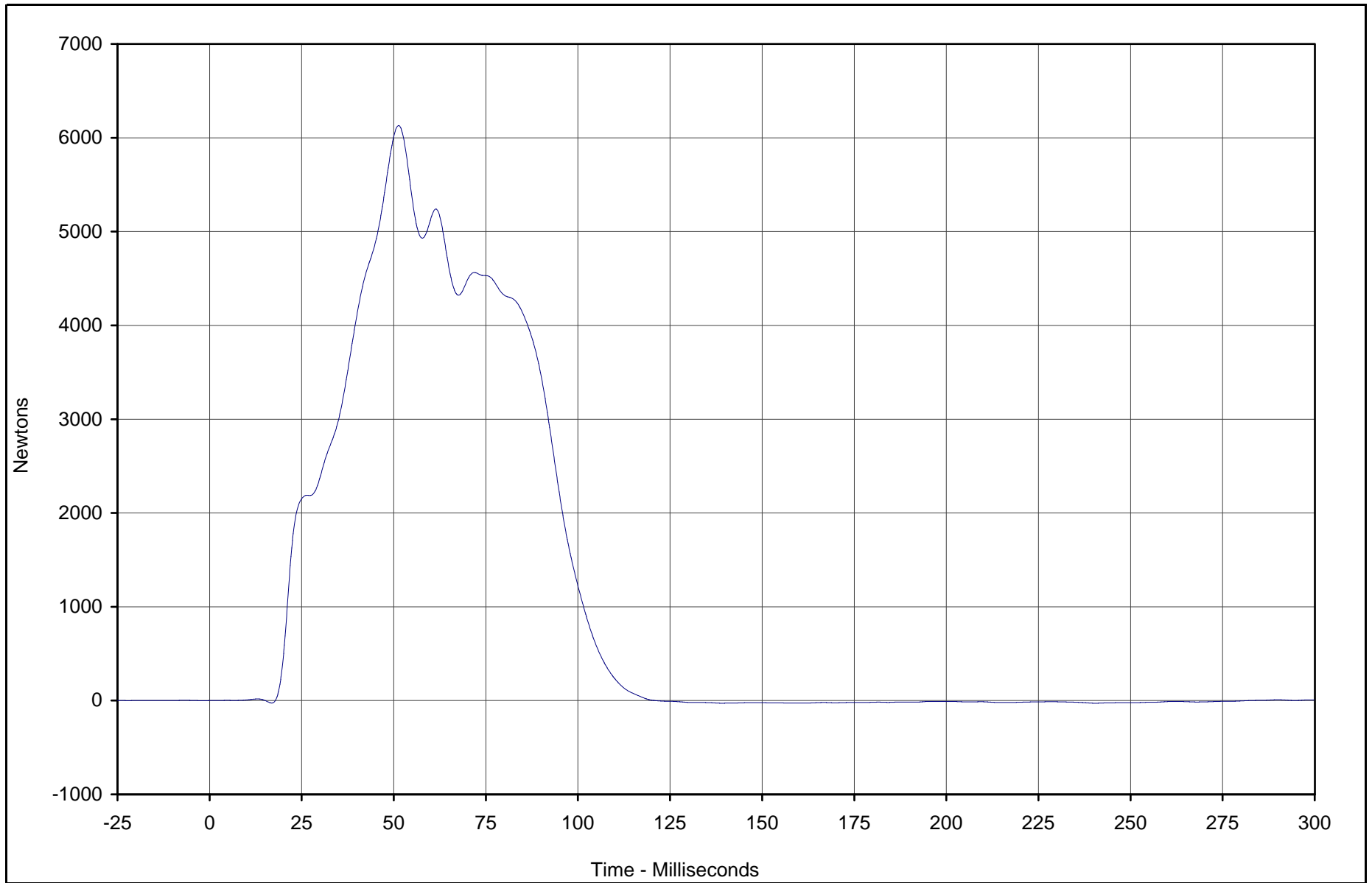
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Shoulder Belt Force	042	FIL	Newtons	6130.8	51.3	-28.0	240.4	60



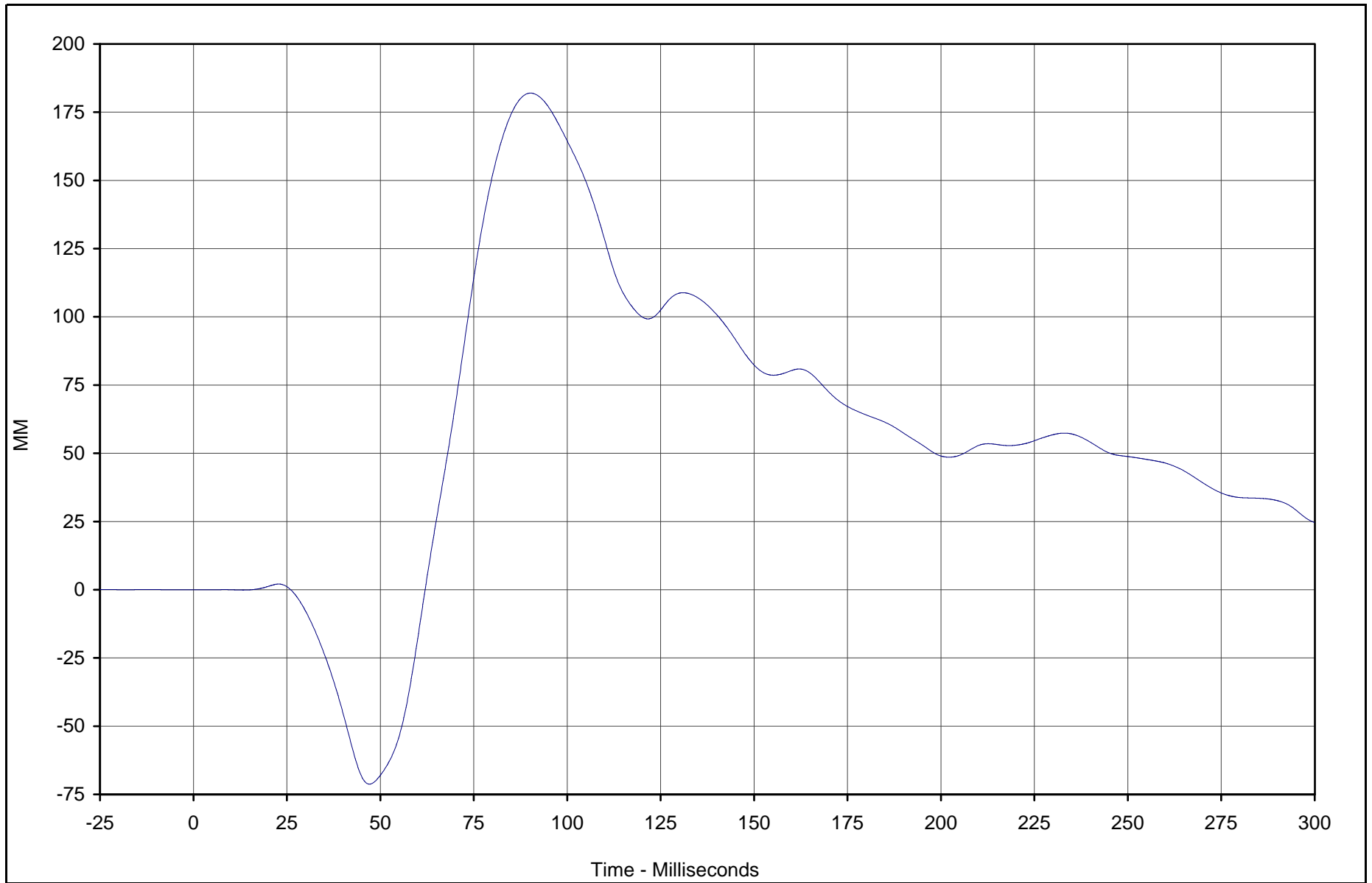
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-60



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Shoulder Belt Pullout	043	FIL	MM	182.0	90.2	-71.3	47.1	60



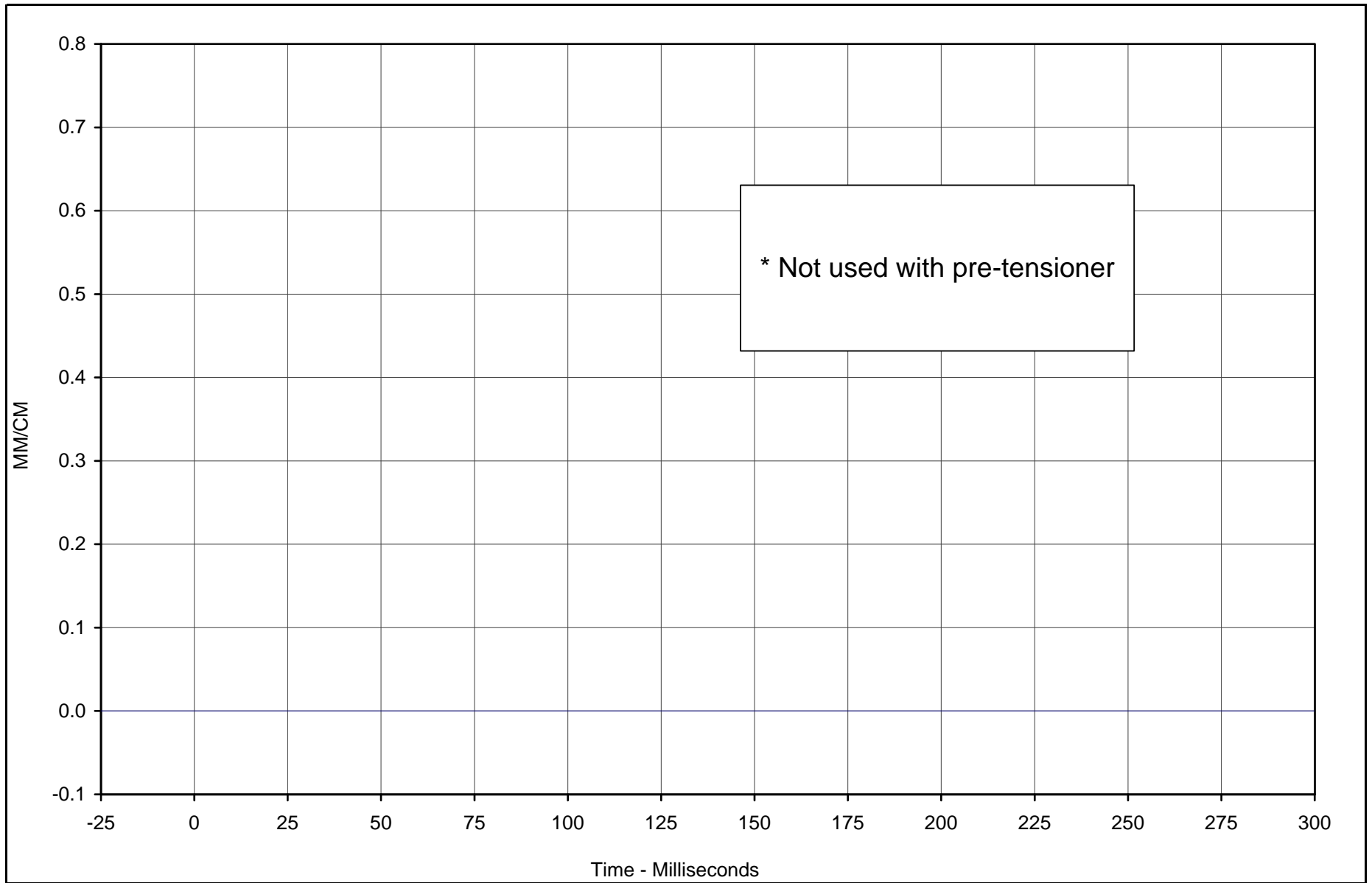
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



* 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 Toyota 4 Runner SR5 4WD SUV

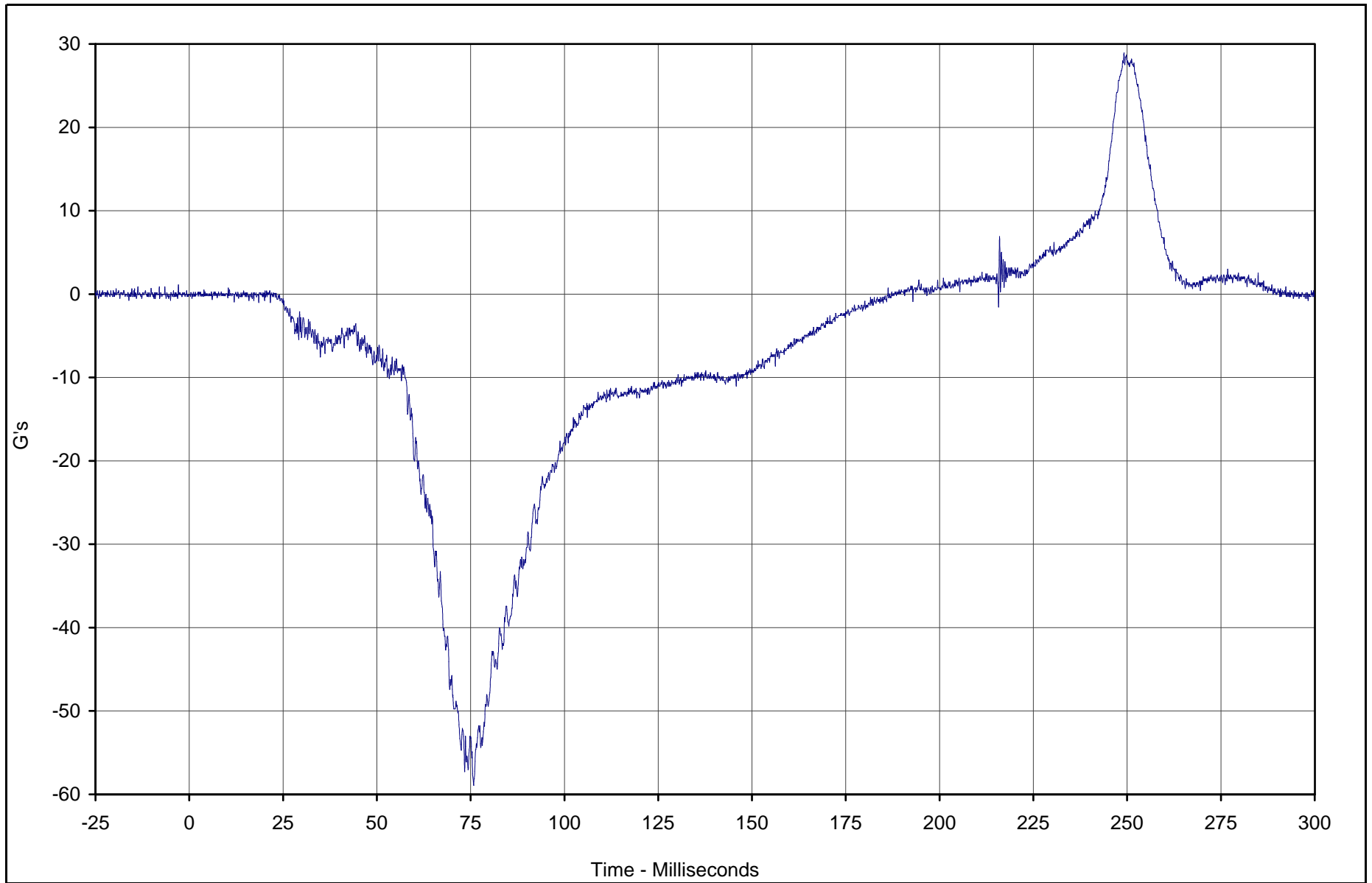
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X	045	FIL	G's	28.9	249.2	-58.9	75.8	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

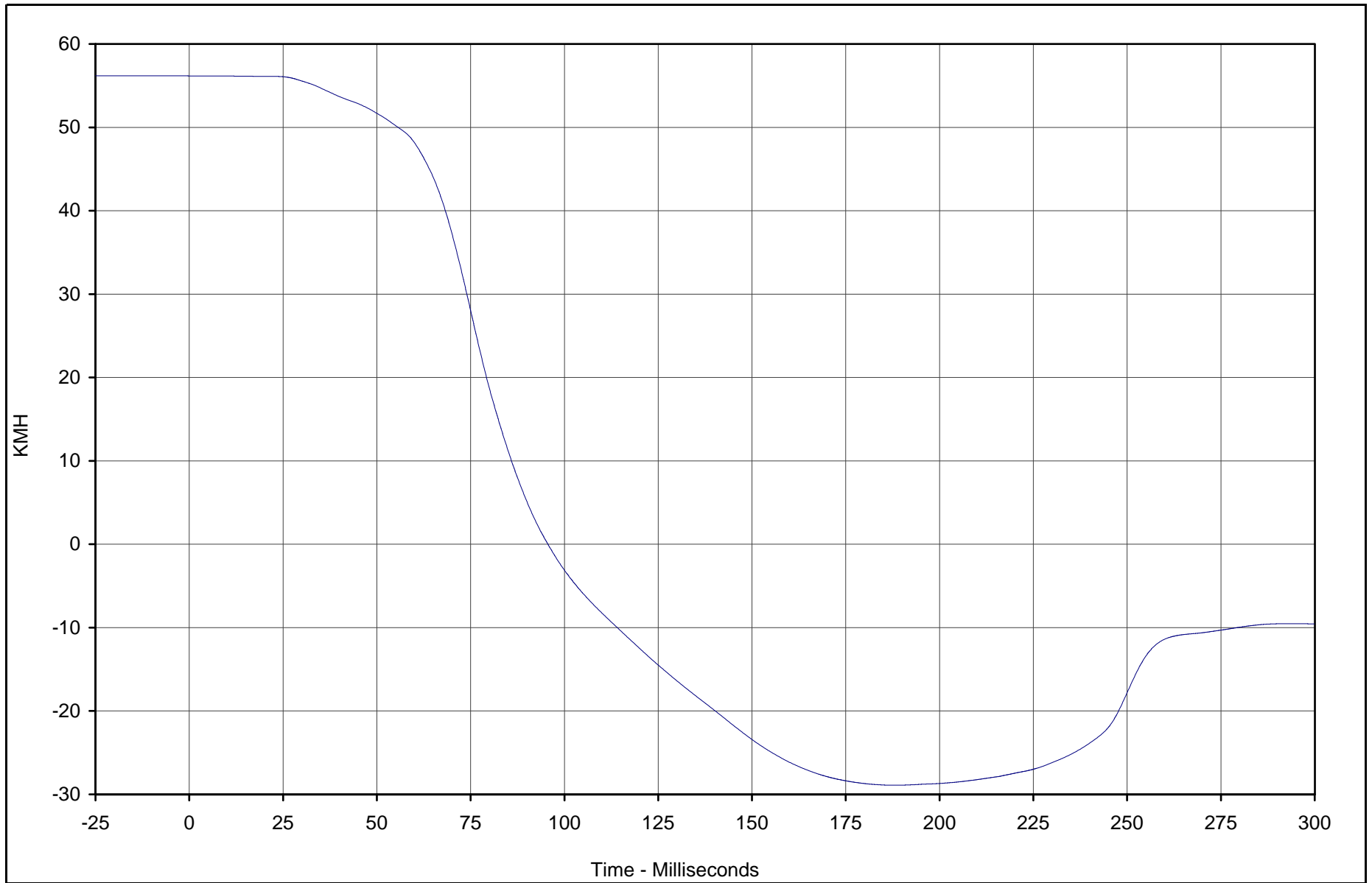
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-63

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X Velocity	045	IN1	KMH	56.2	0.0	-28.9	187.8	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

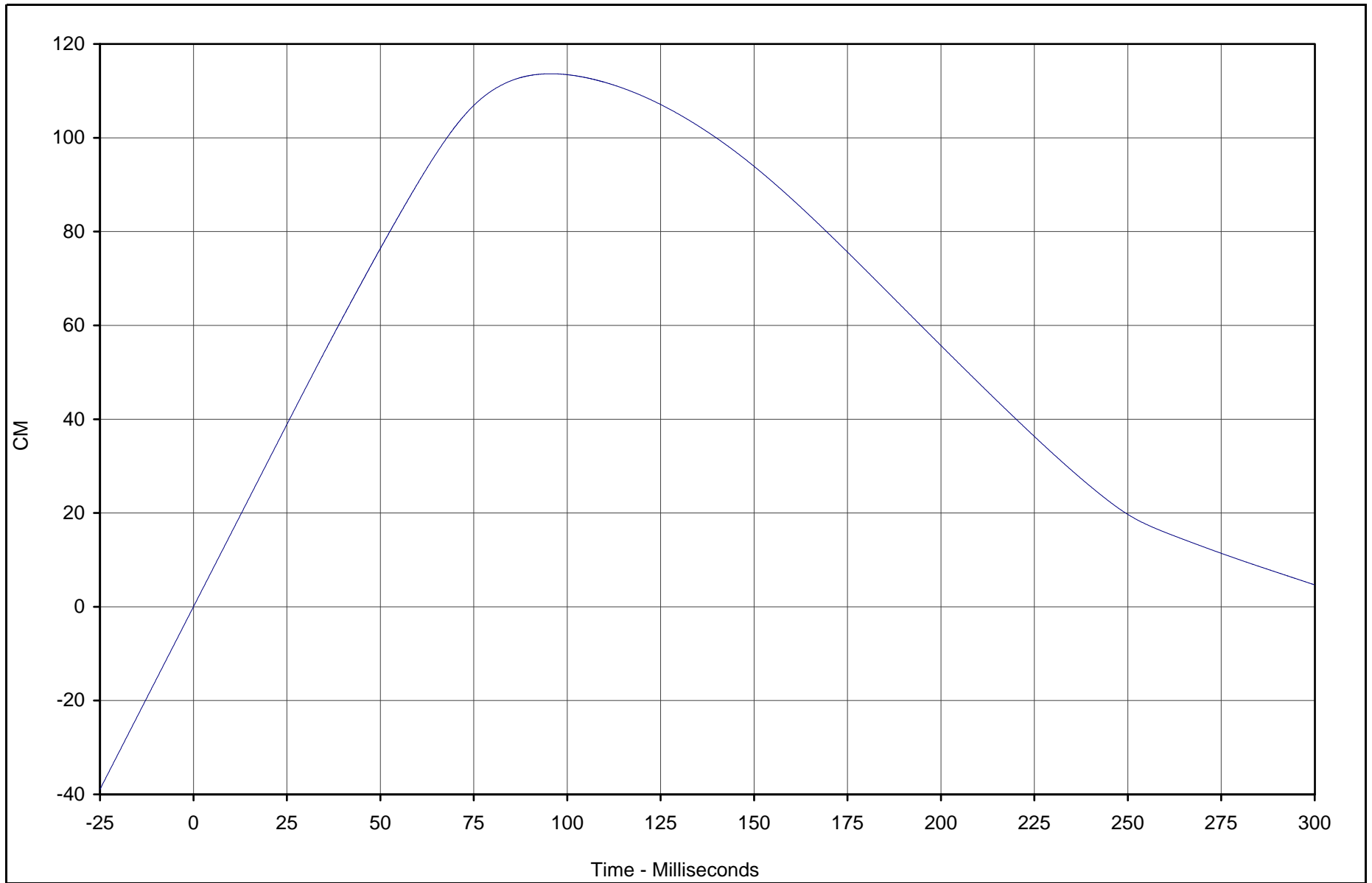
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X Displ.	045	IN2	CM	113.7	95.6	0.0	0.0	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

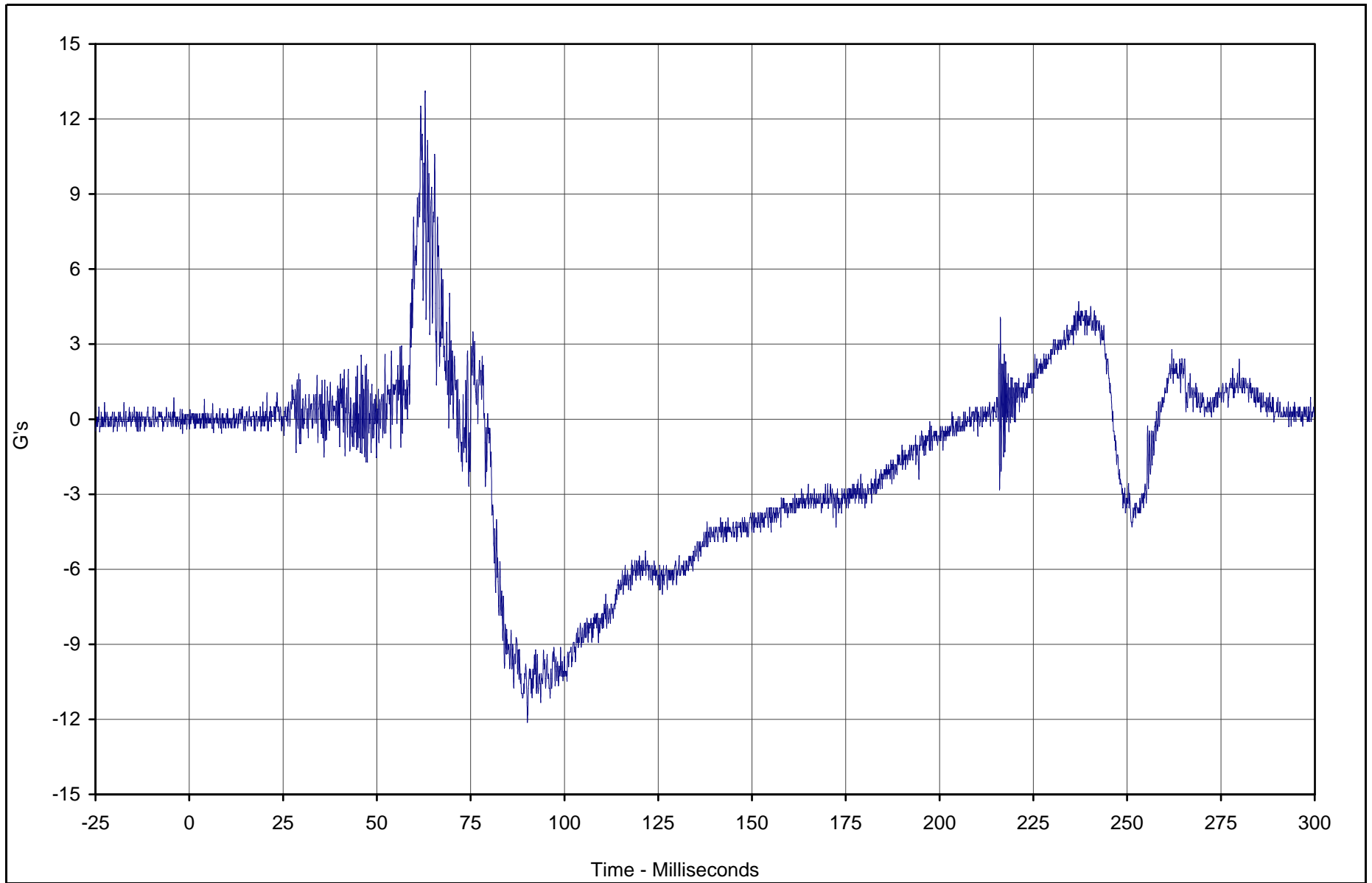
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary Y	046	FIL	G's	13.1	62.9	-12.1	90.1	1000

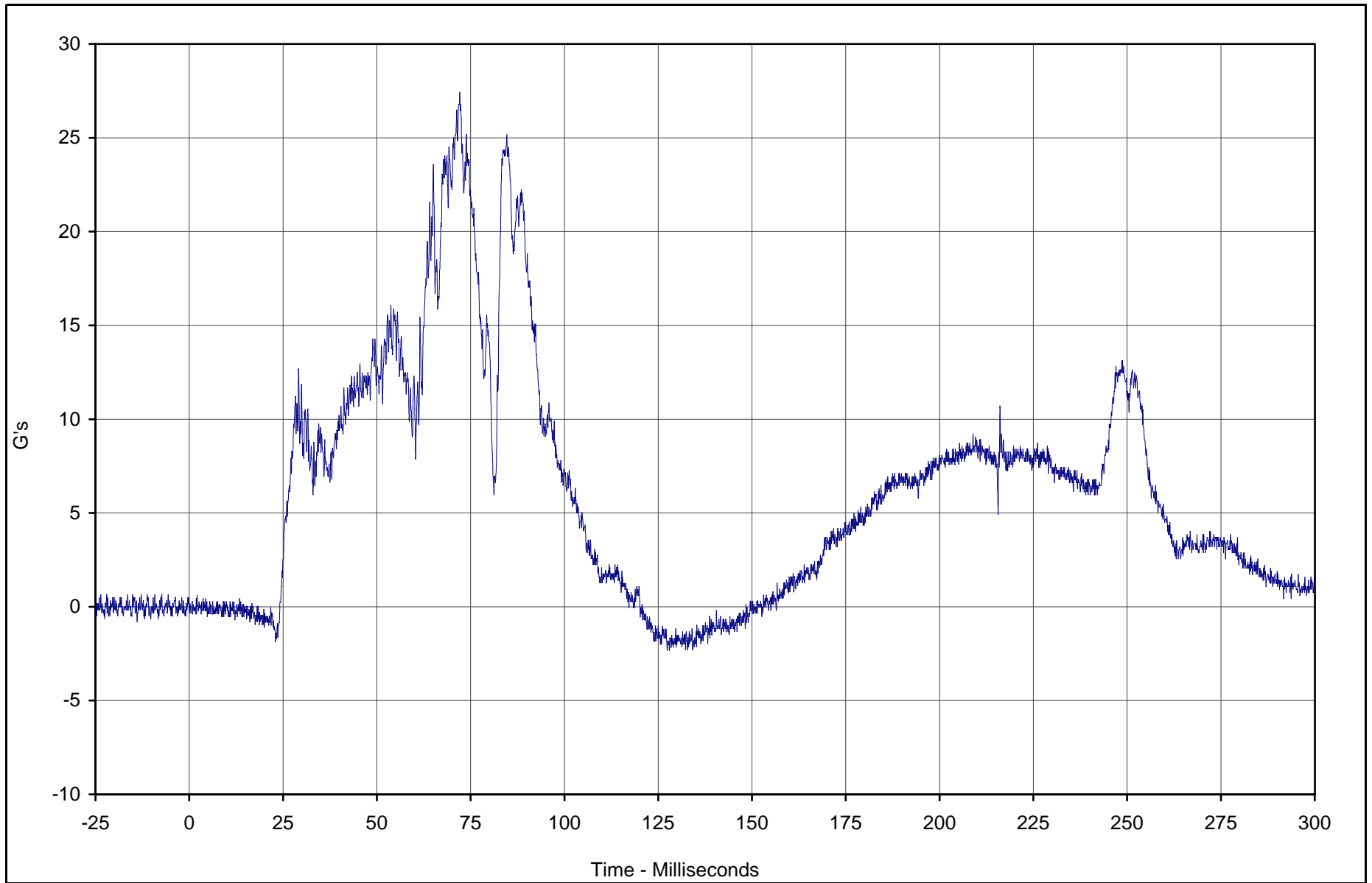


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary Z	047	FIL	G's	27.4	72.1	-2.3	127.4	1000

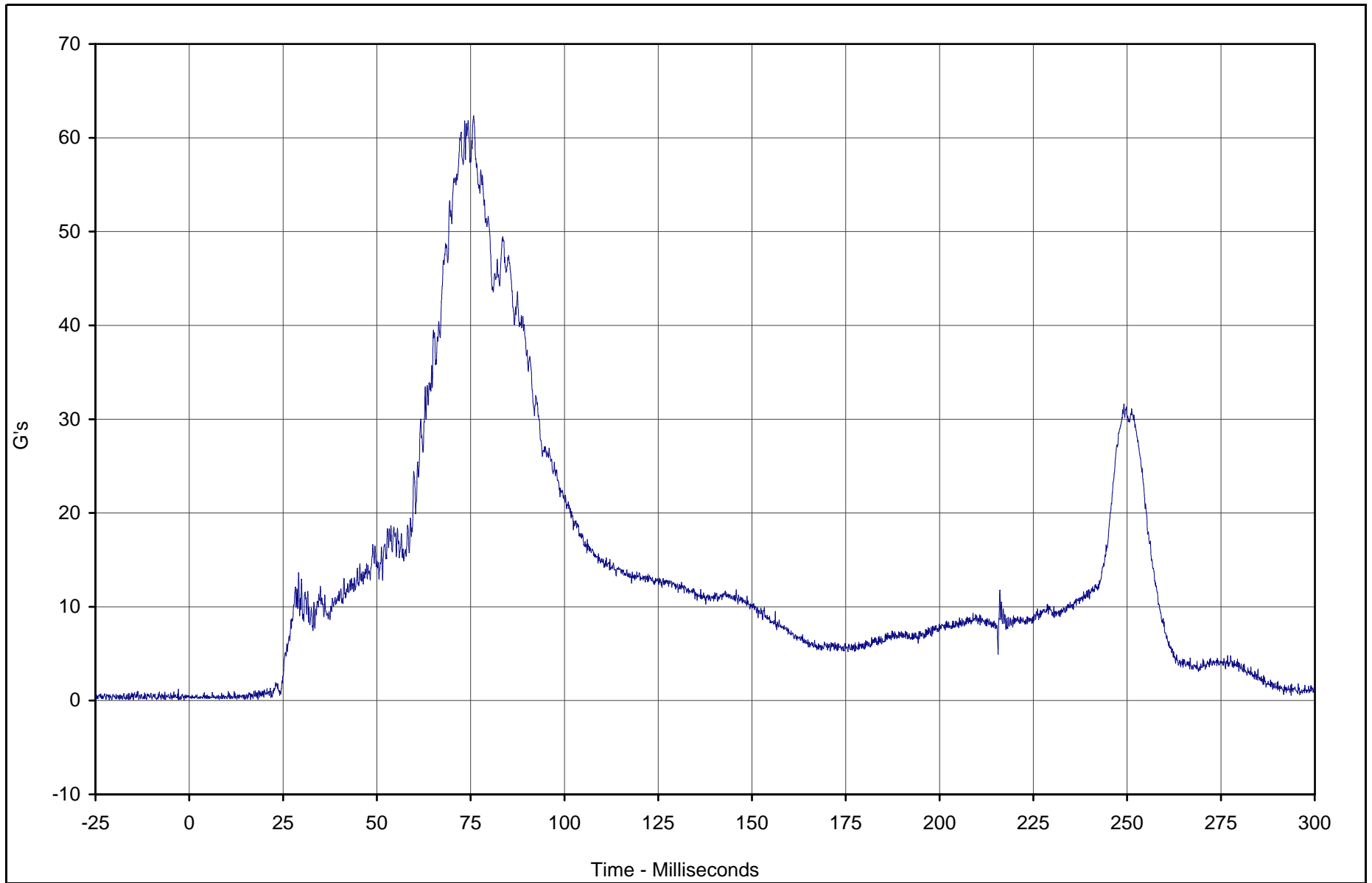


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Resultant Primary	045	RES	G's	62.4	75.8	0.1	12.7	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

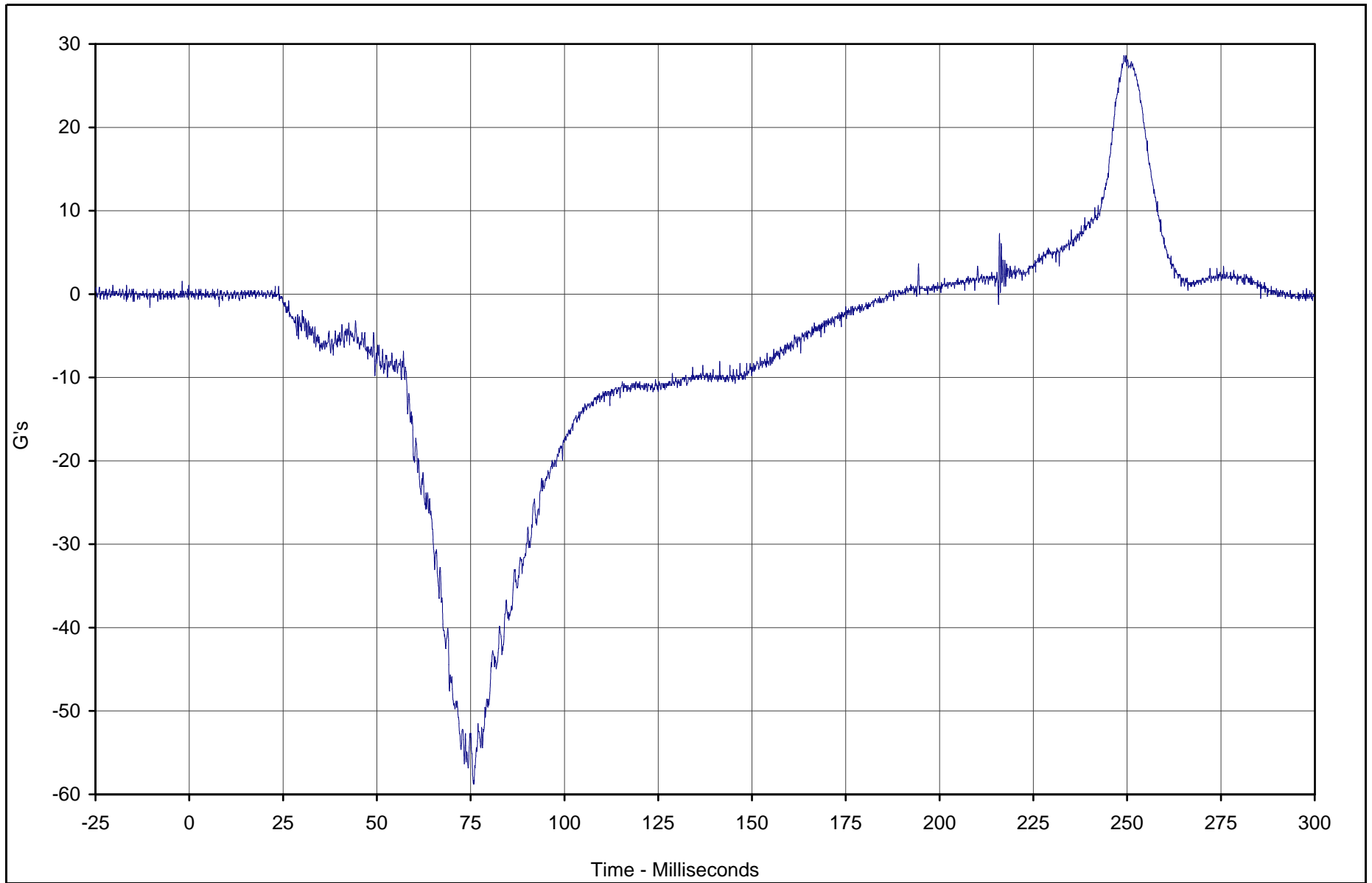
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant X	048	FIL	G's	28.6	249.1	-58.8	75.7	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

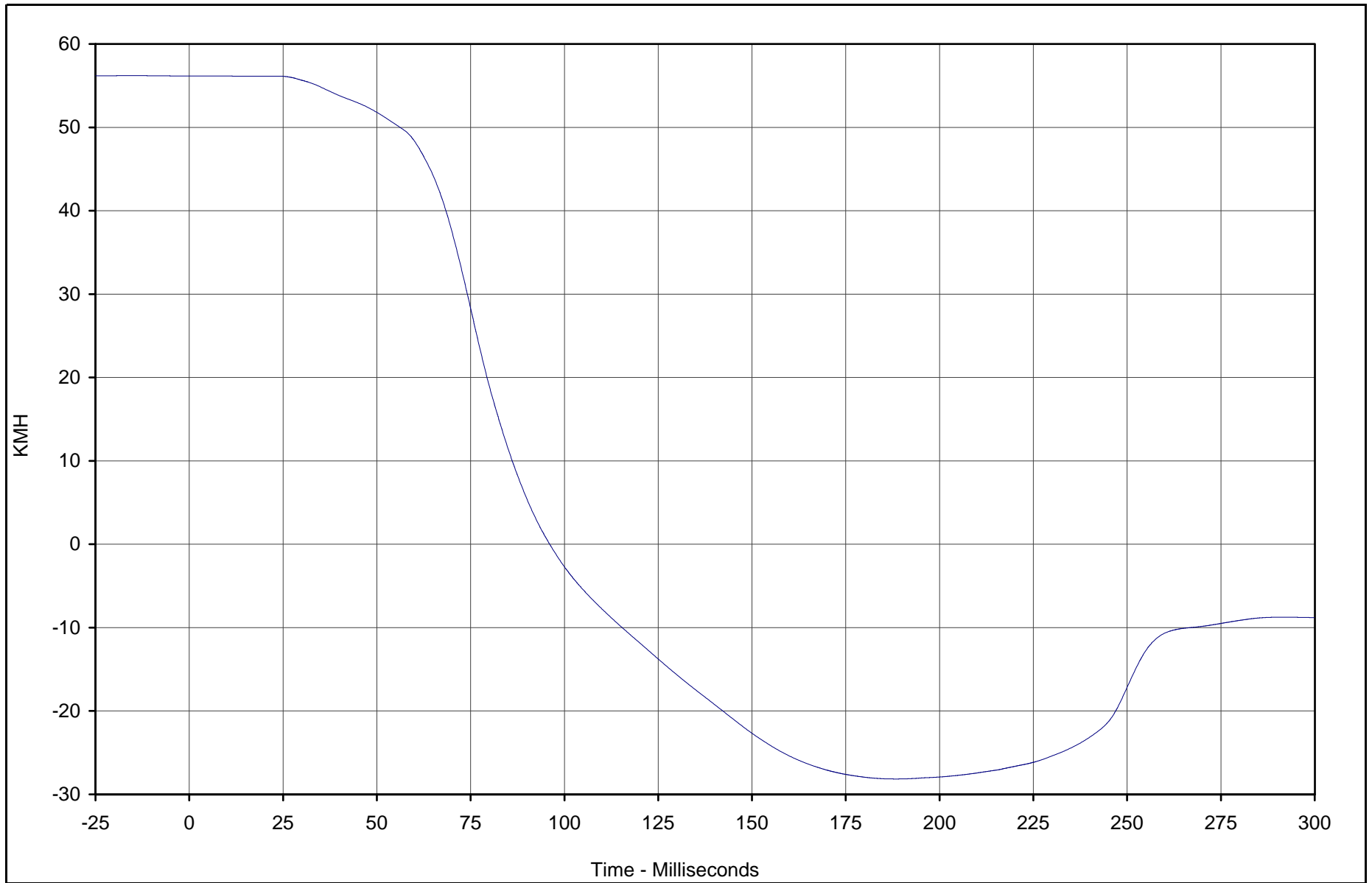
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant X Velocity	048	IN1	KMH	56.2	0.8	-28.2	188.4	180



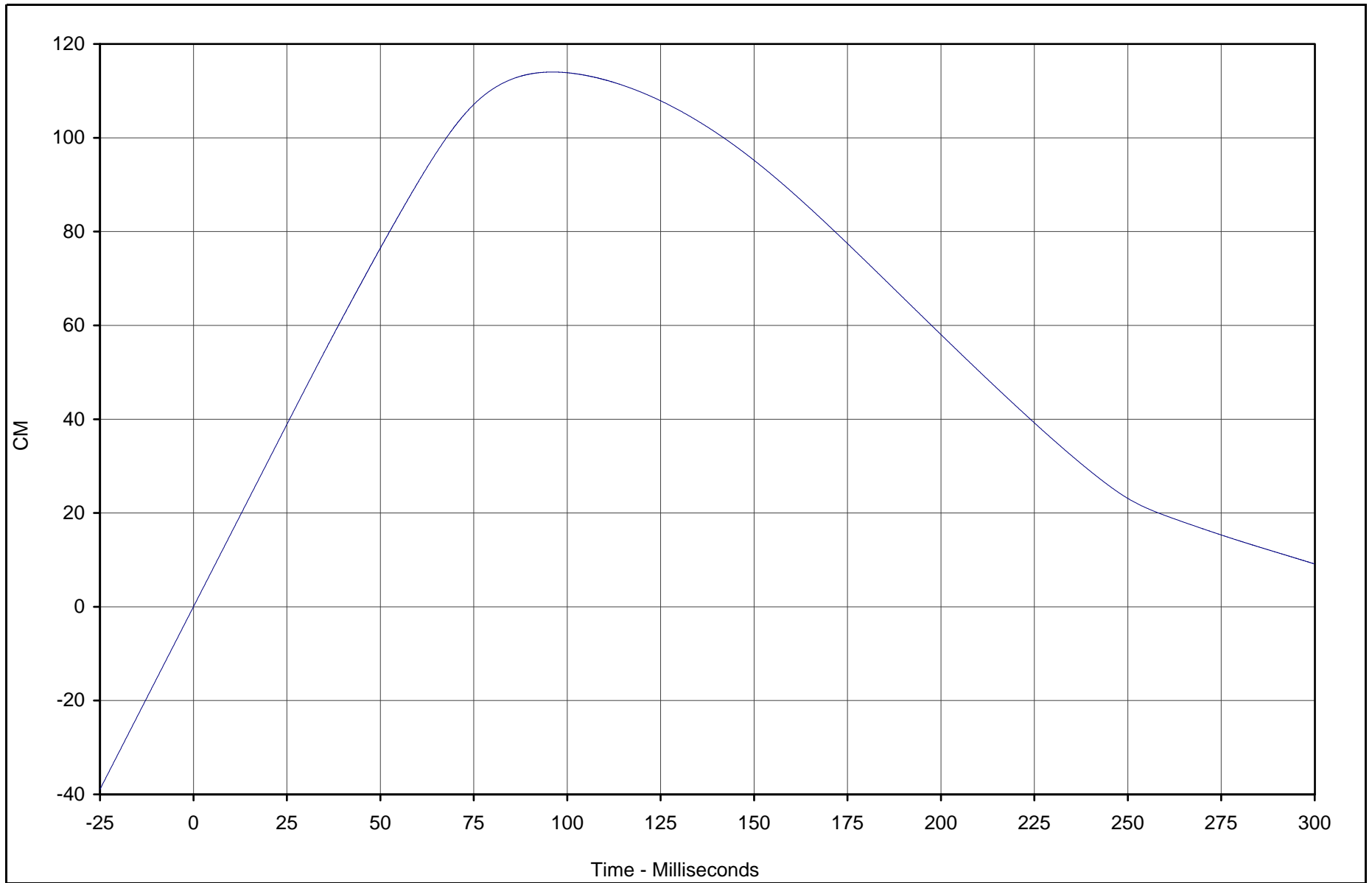
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-70



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant X Displ.	048	IN2	CM	114.0	96.1	0.0	0.0	180



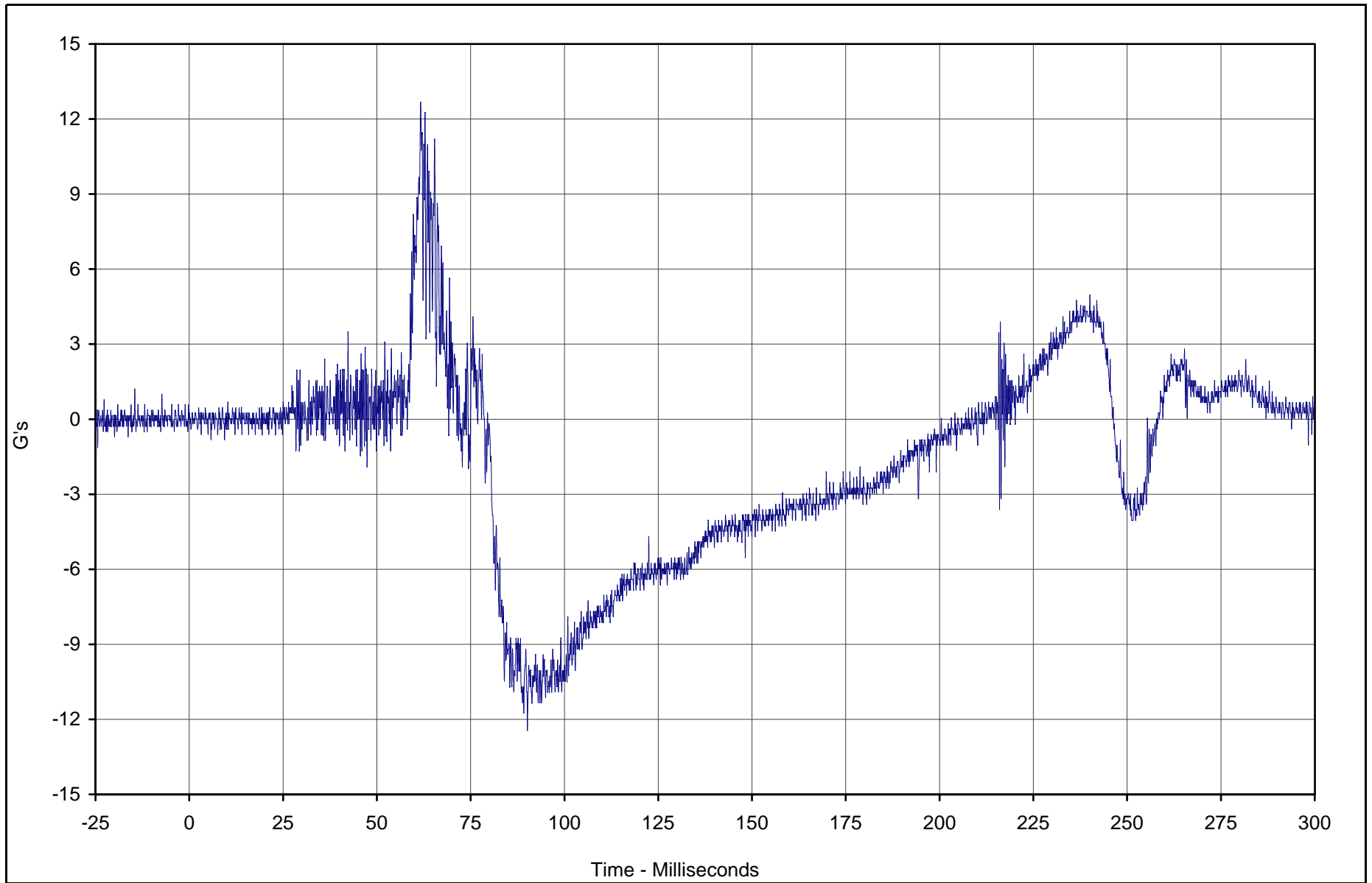
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant Y	049	FIL	G's	12.7	61.7	-12.4	90.1	1000



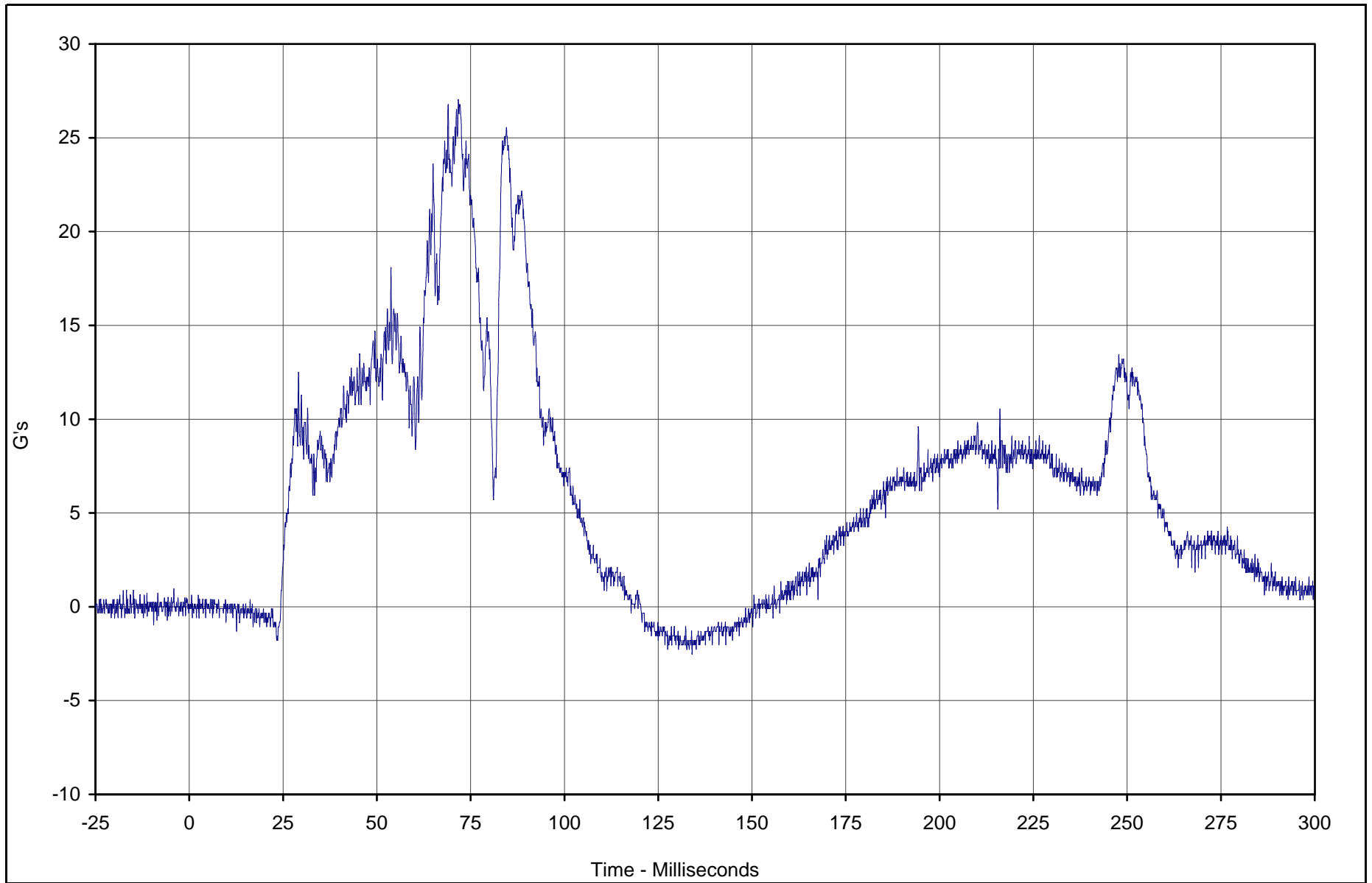
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-72



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant Z	050	FIL	G's	27.0	71.7	-2.5	134.0	1000



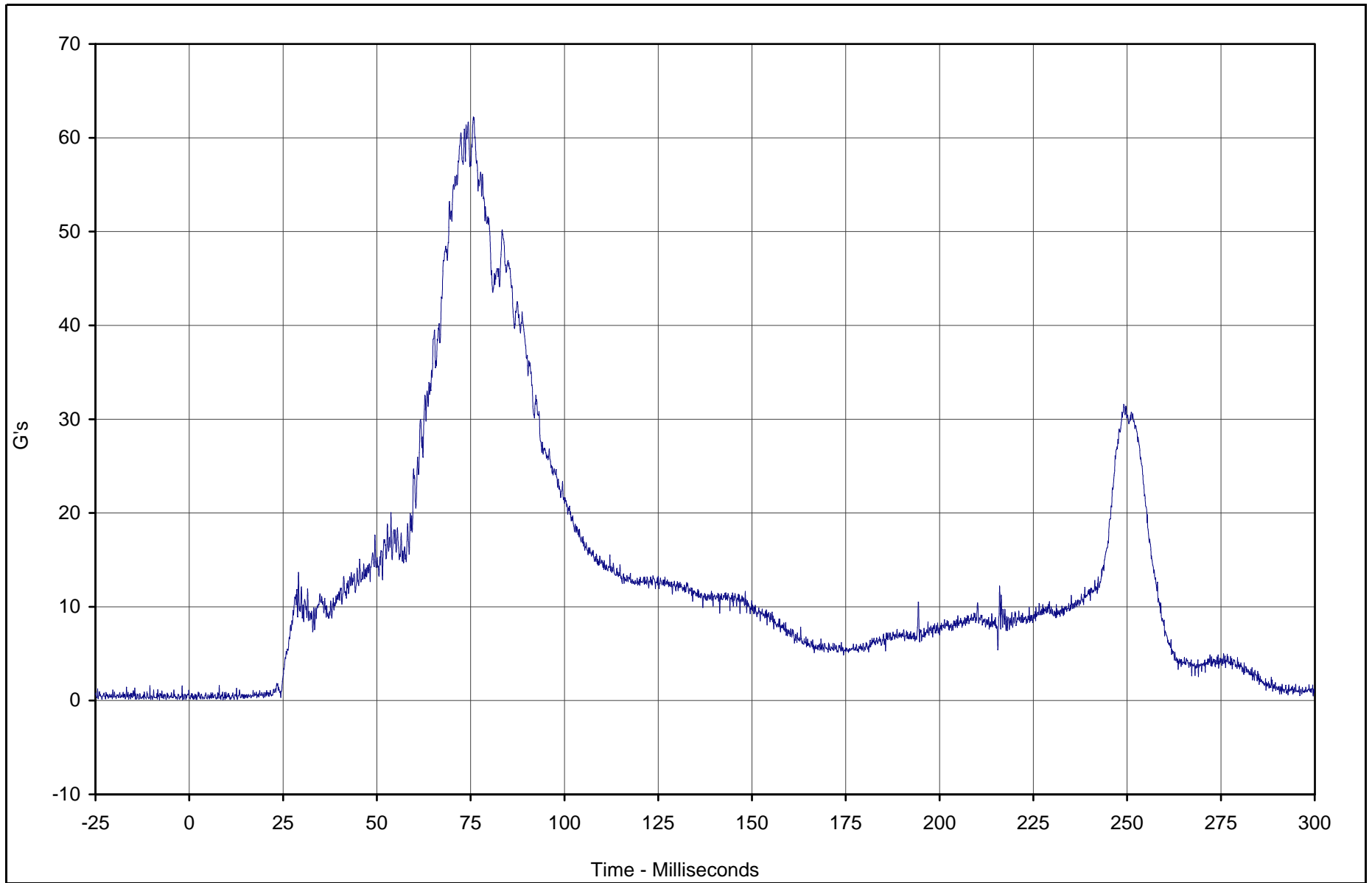
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Resultant Redundant	048	RES	G's	62.2	75.7	0.1	8.4	1000



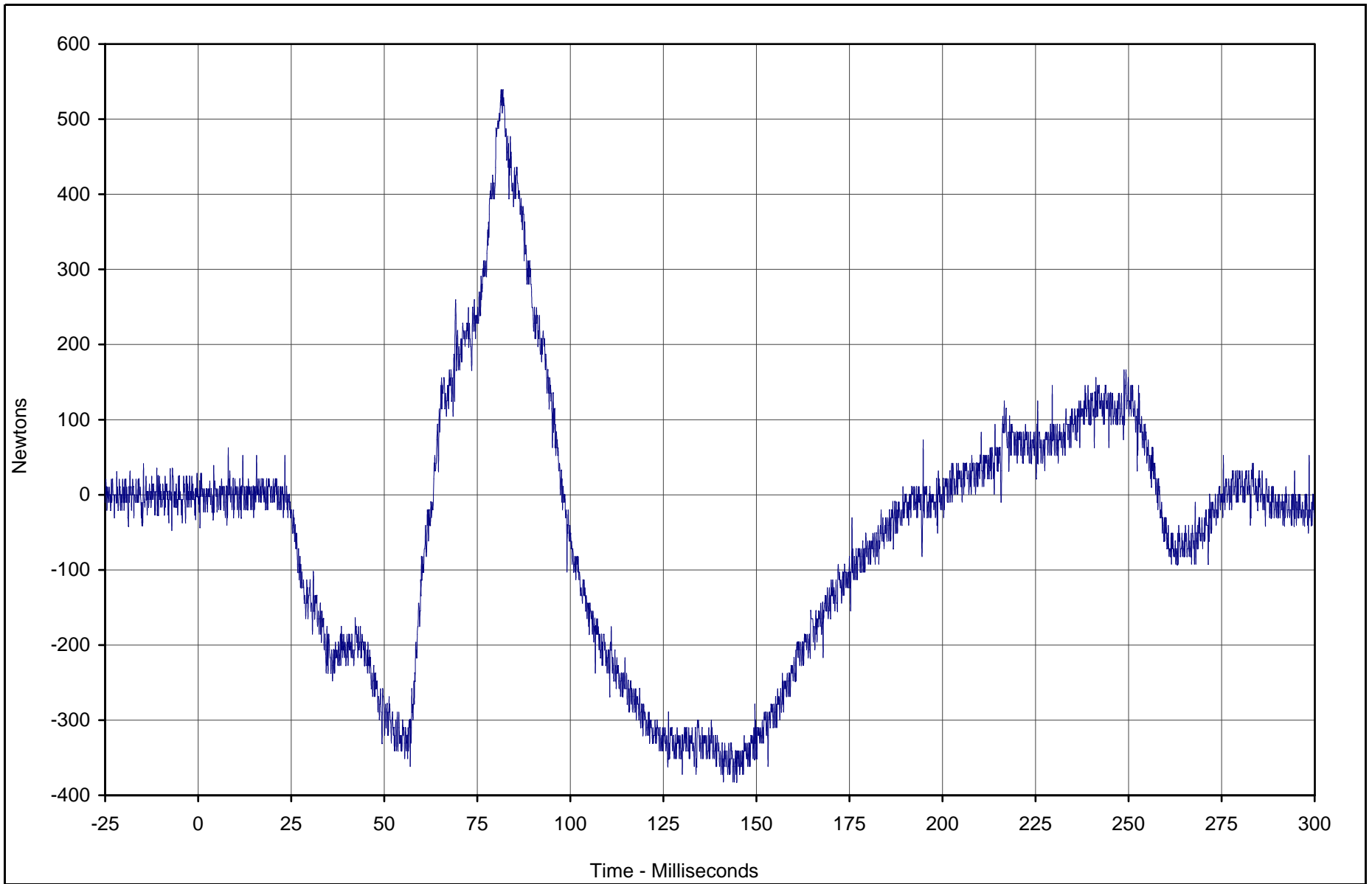
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force X	051	FIL	Newtons	539.1	81.4	-382.5	141.1	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

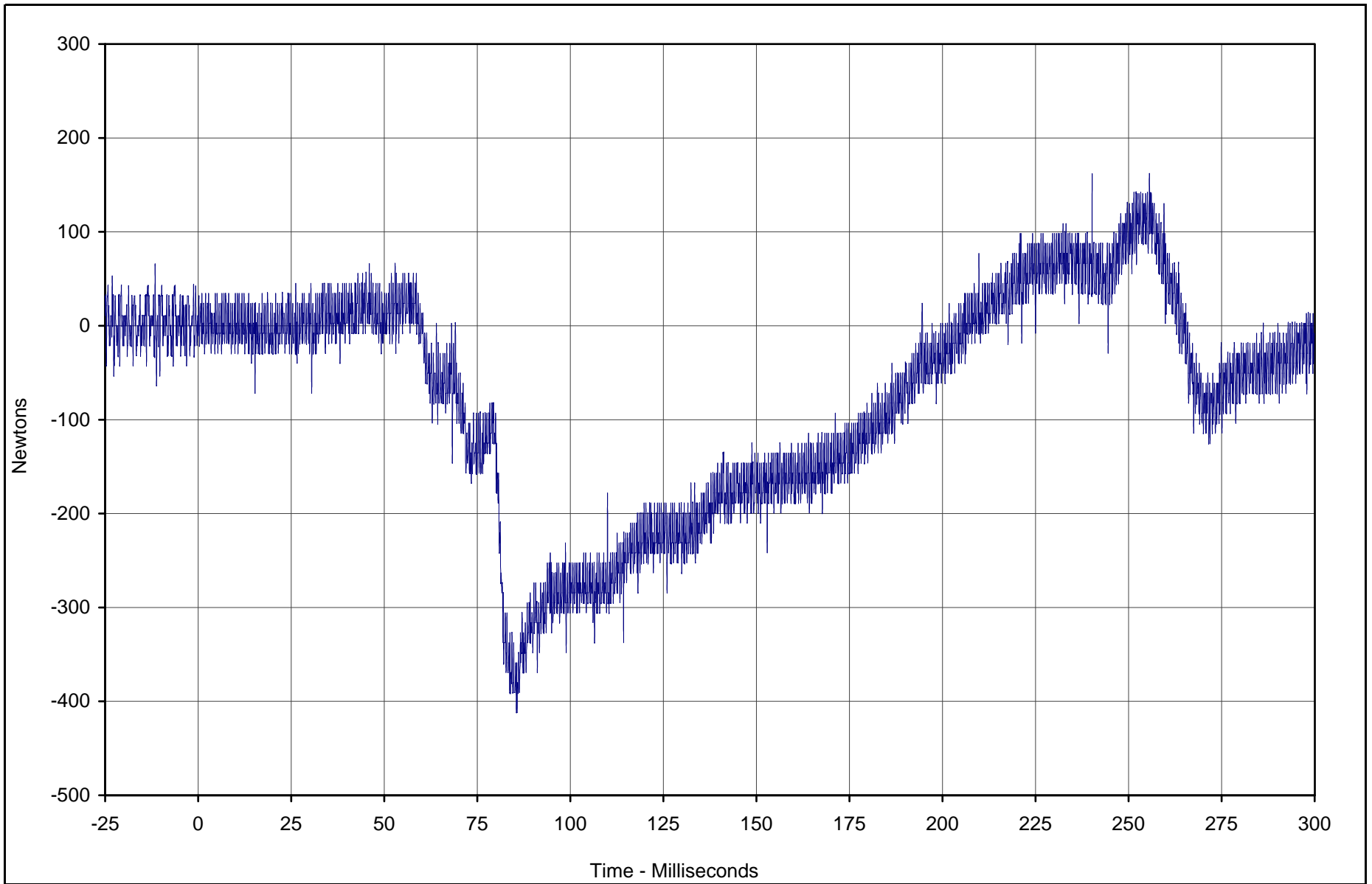
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-75



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force Y	052	FIL	Newtons	162.1	240.2	-411.9	85.5	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

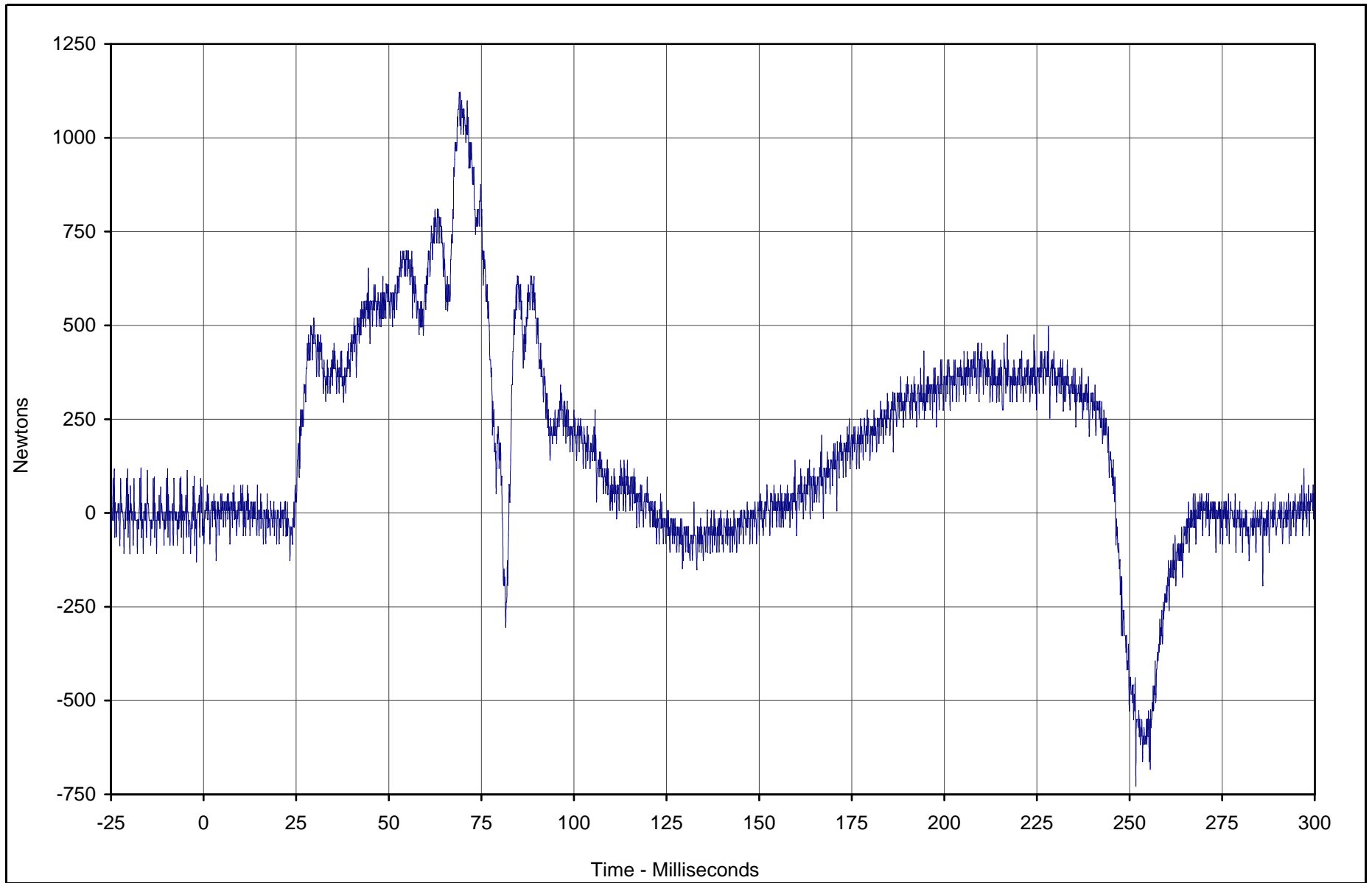
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-76



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force Z	053	FIL	Newtons	1121.3	69.1	-728.1	251.7	1000



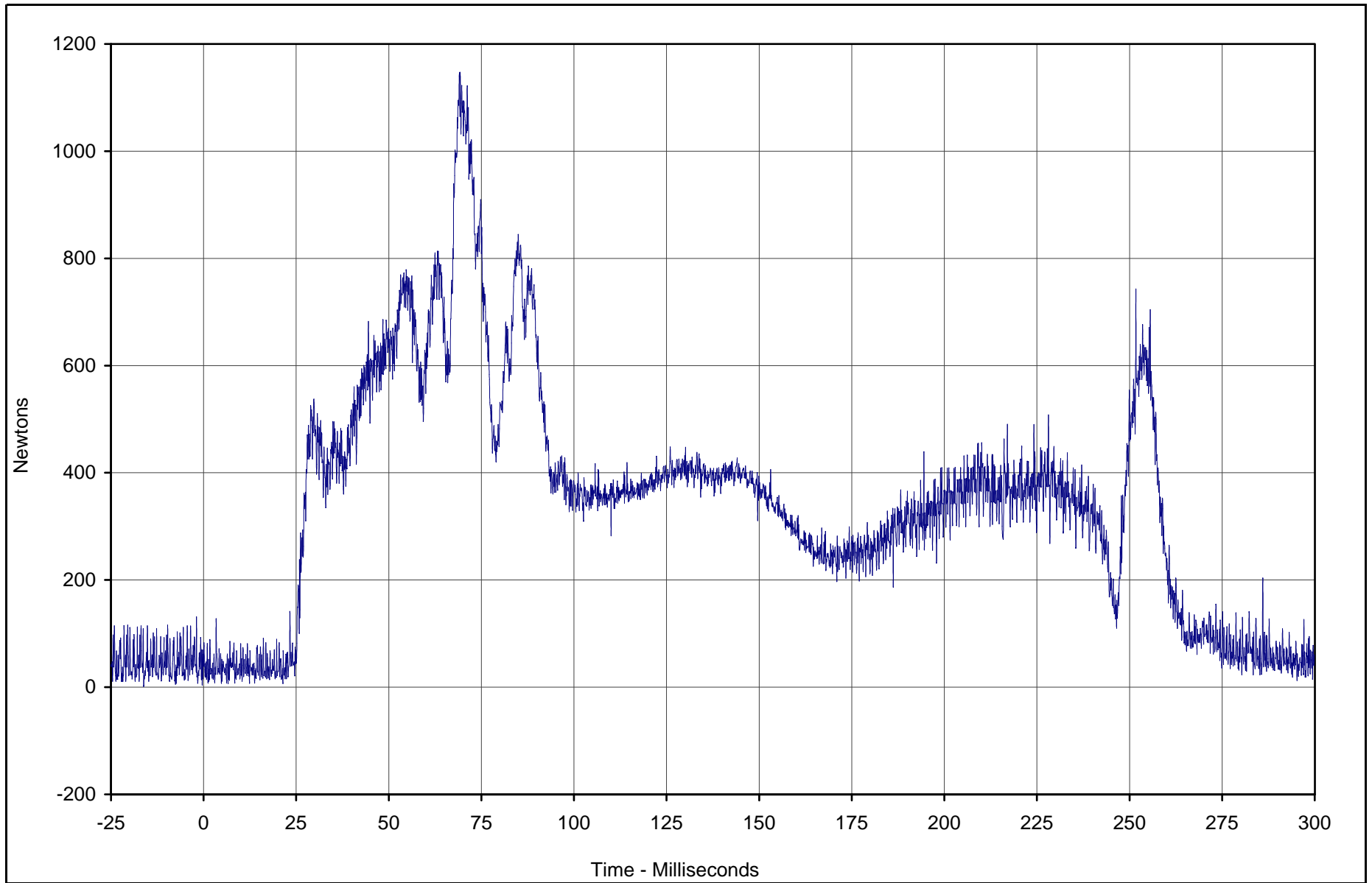
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force Resultant	051	RES	Newtons	1146.8	69.3	7.5	6.2	1000

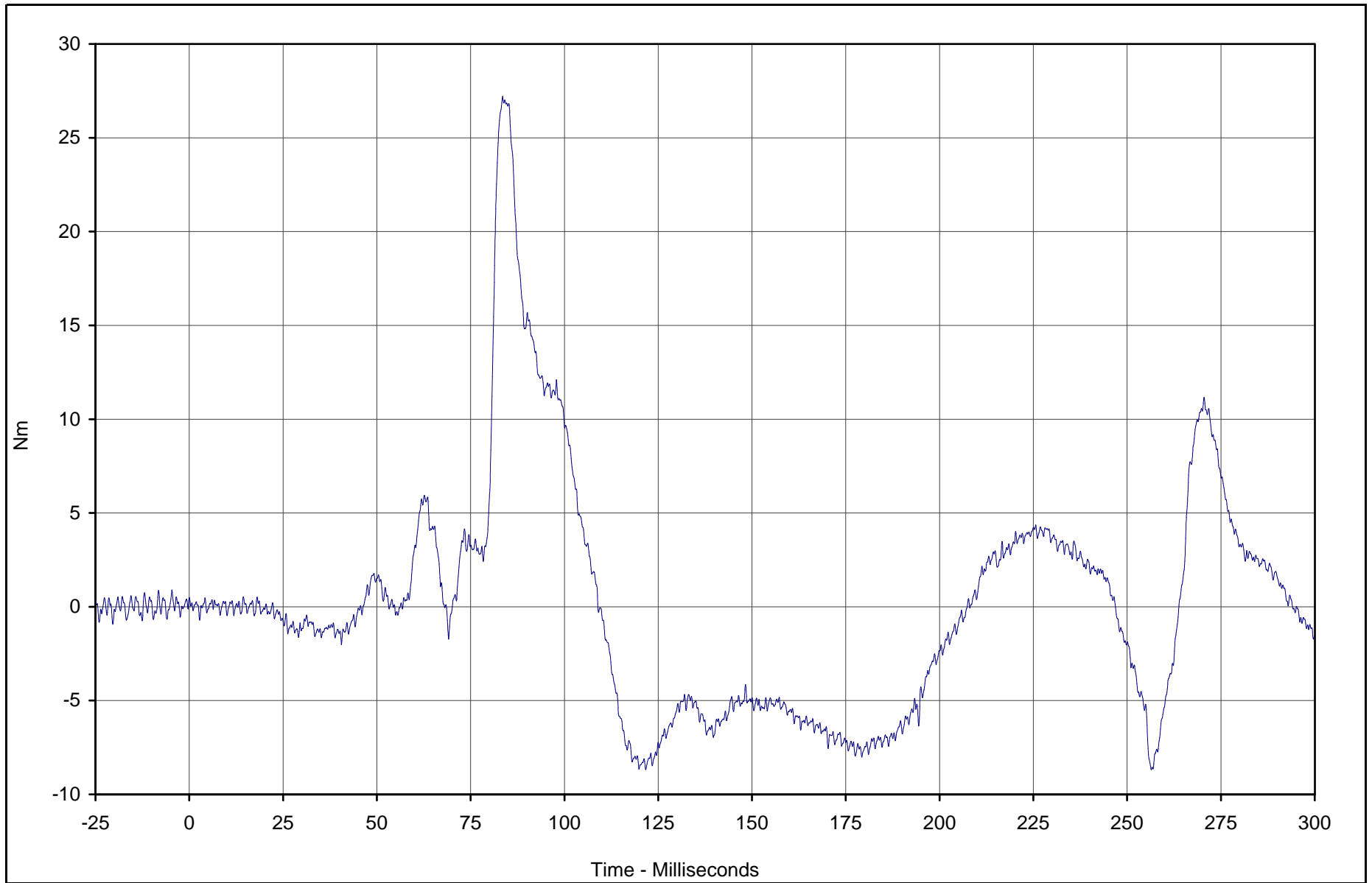


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment X	054	FIL	Nm	27.2	83.5	-8.7	256.4	600



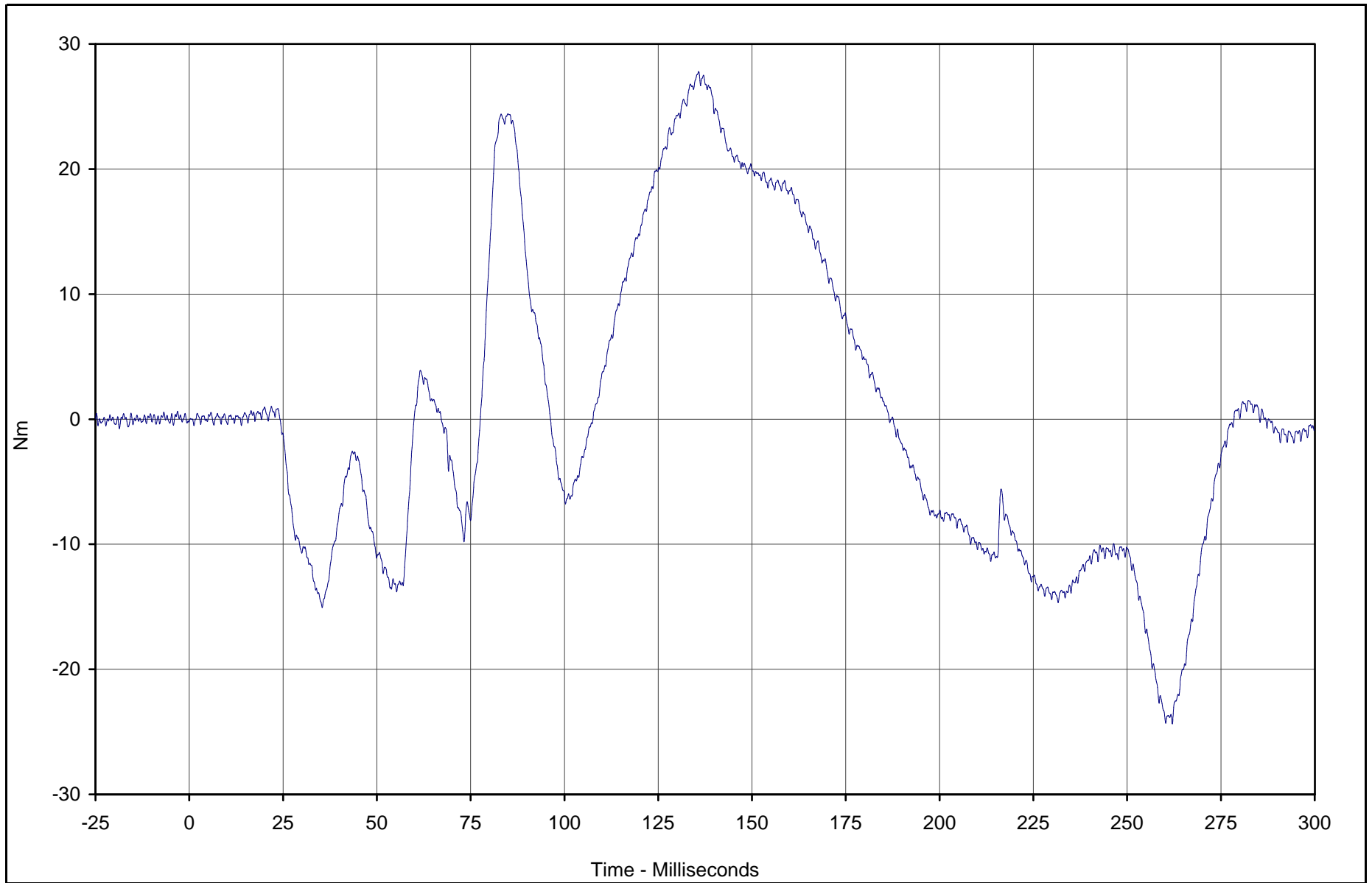
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-79



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment Y	055	FIL	Nm	27.8	135.8	-24.4	262.1	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

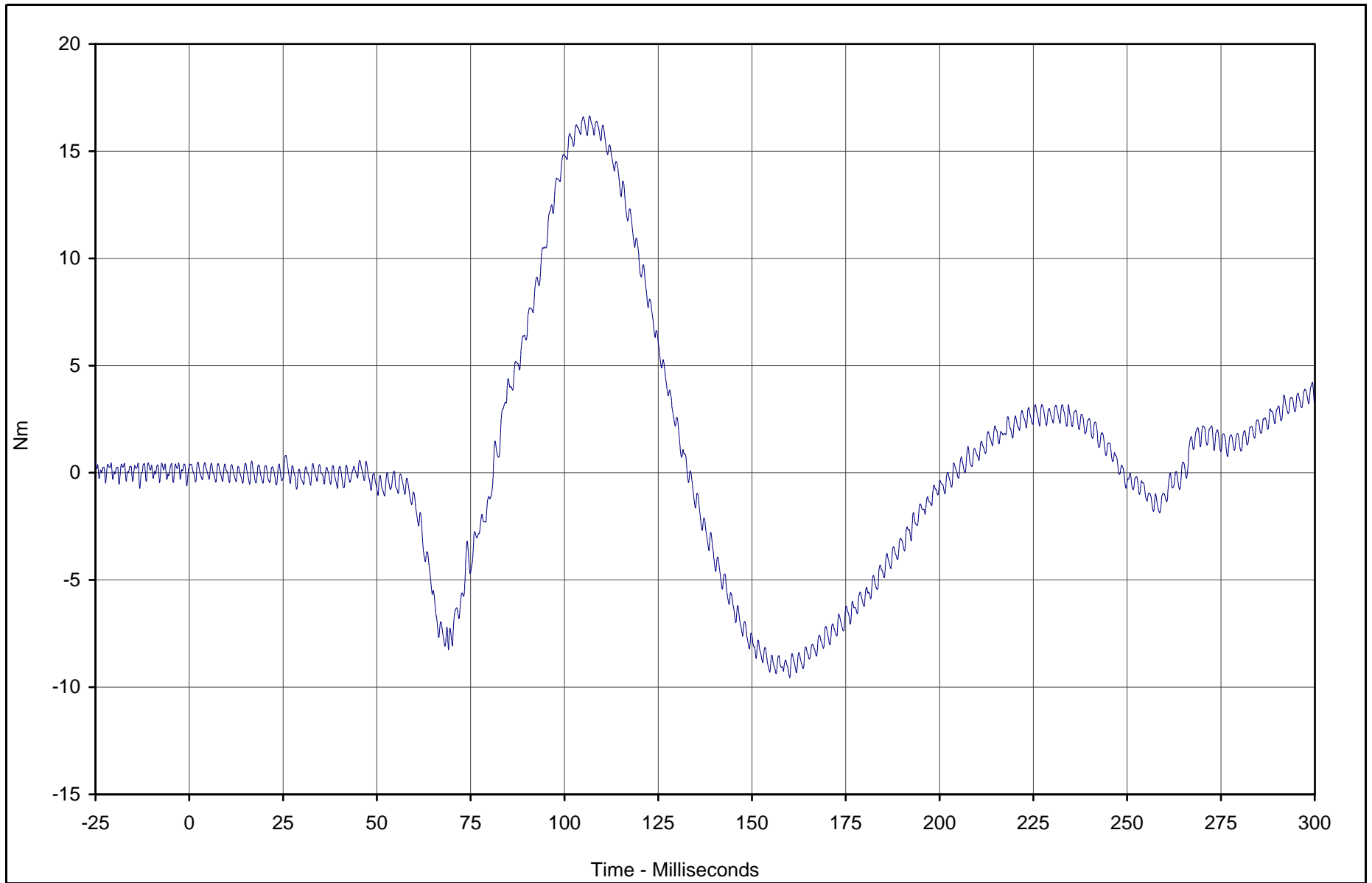
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-80



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment Z	056	FIL	Nm	16.6	106.7	-9.5	160.1	600



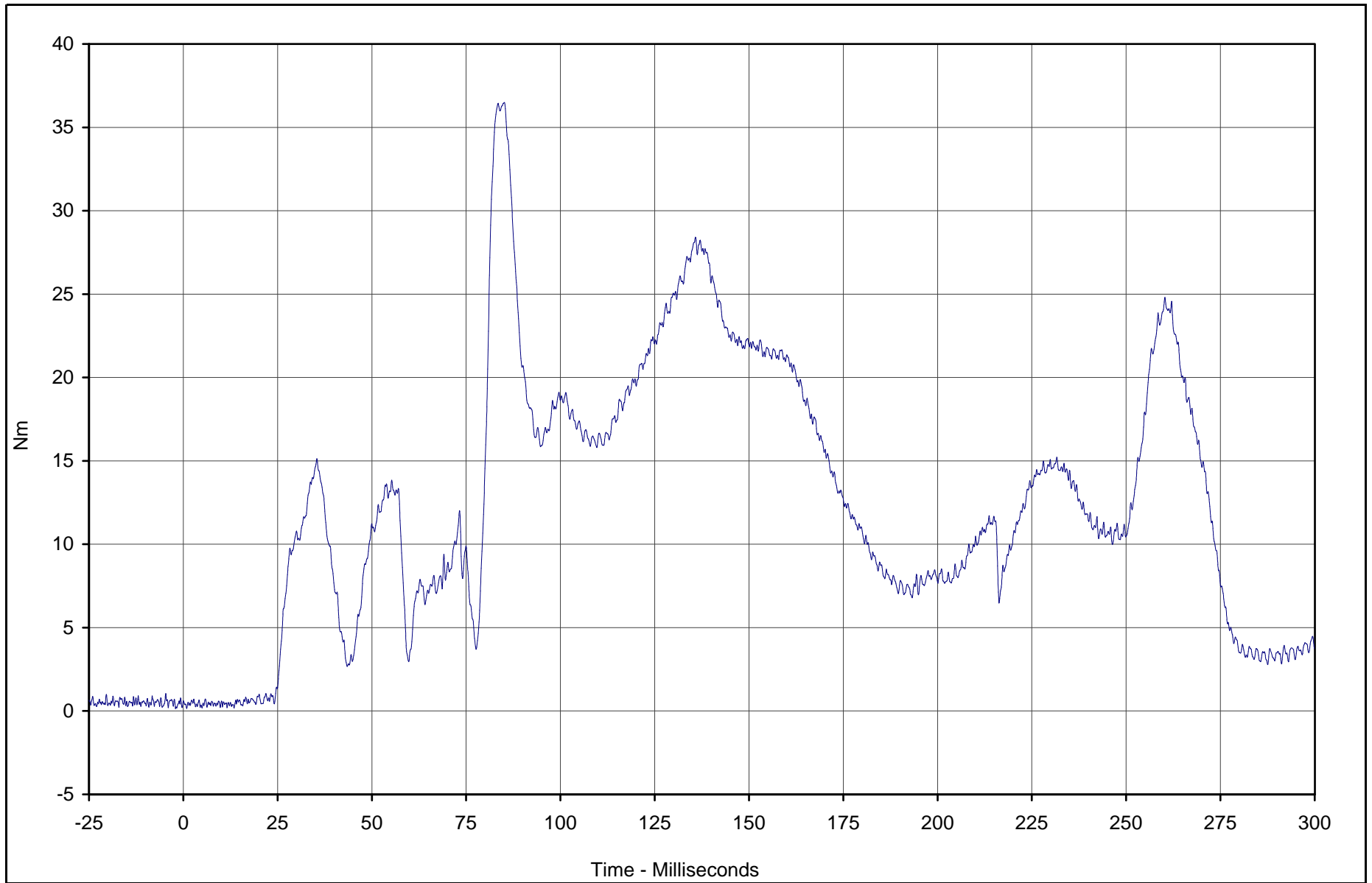
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment Resultant	054	RES	Nm	36.5	85.1	0.1	0.9	600



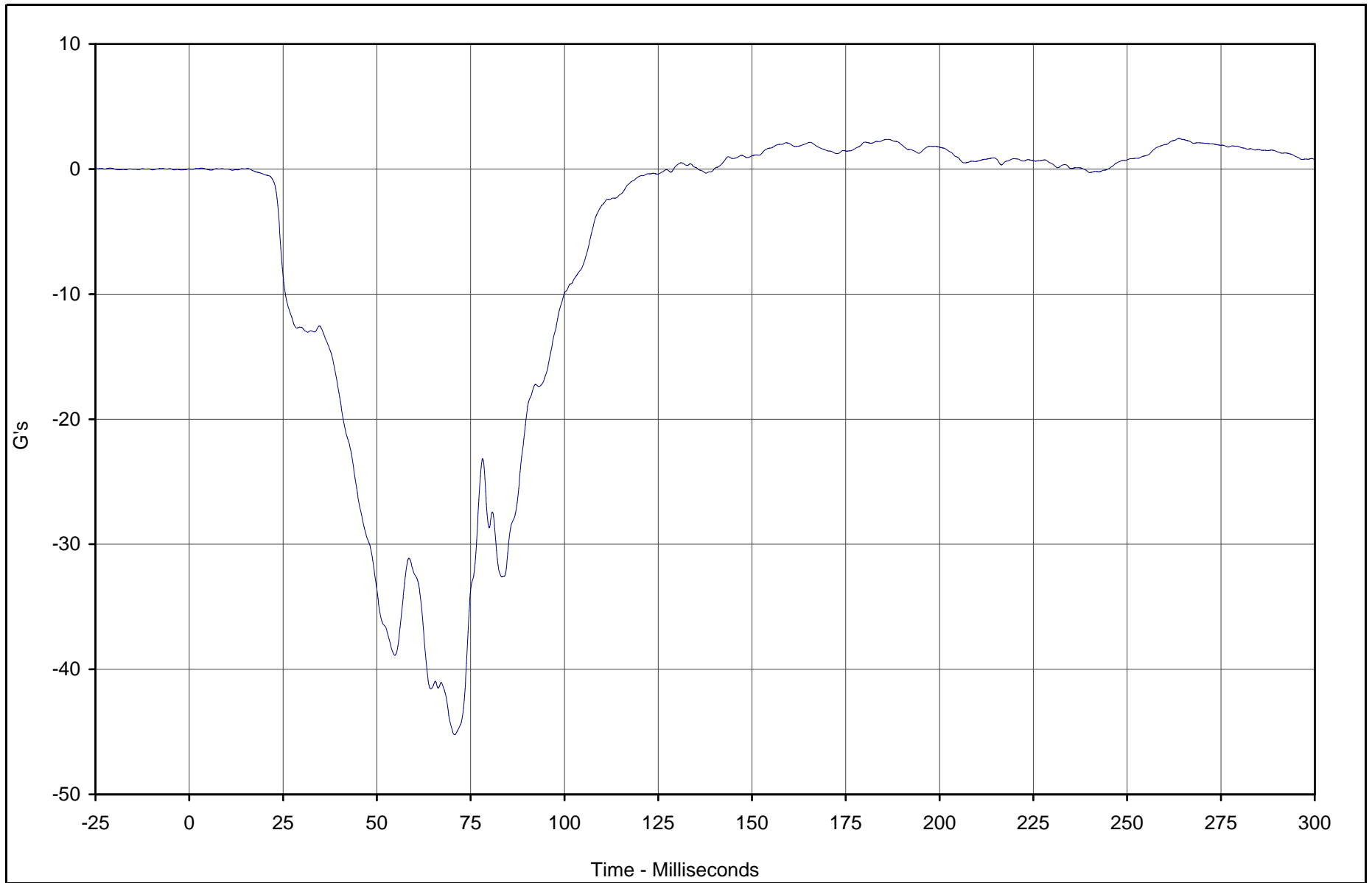
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-82



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary X	057	FIL	G's	2.4	263.8	-45.2	70.7	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

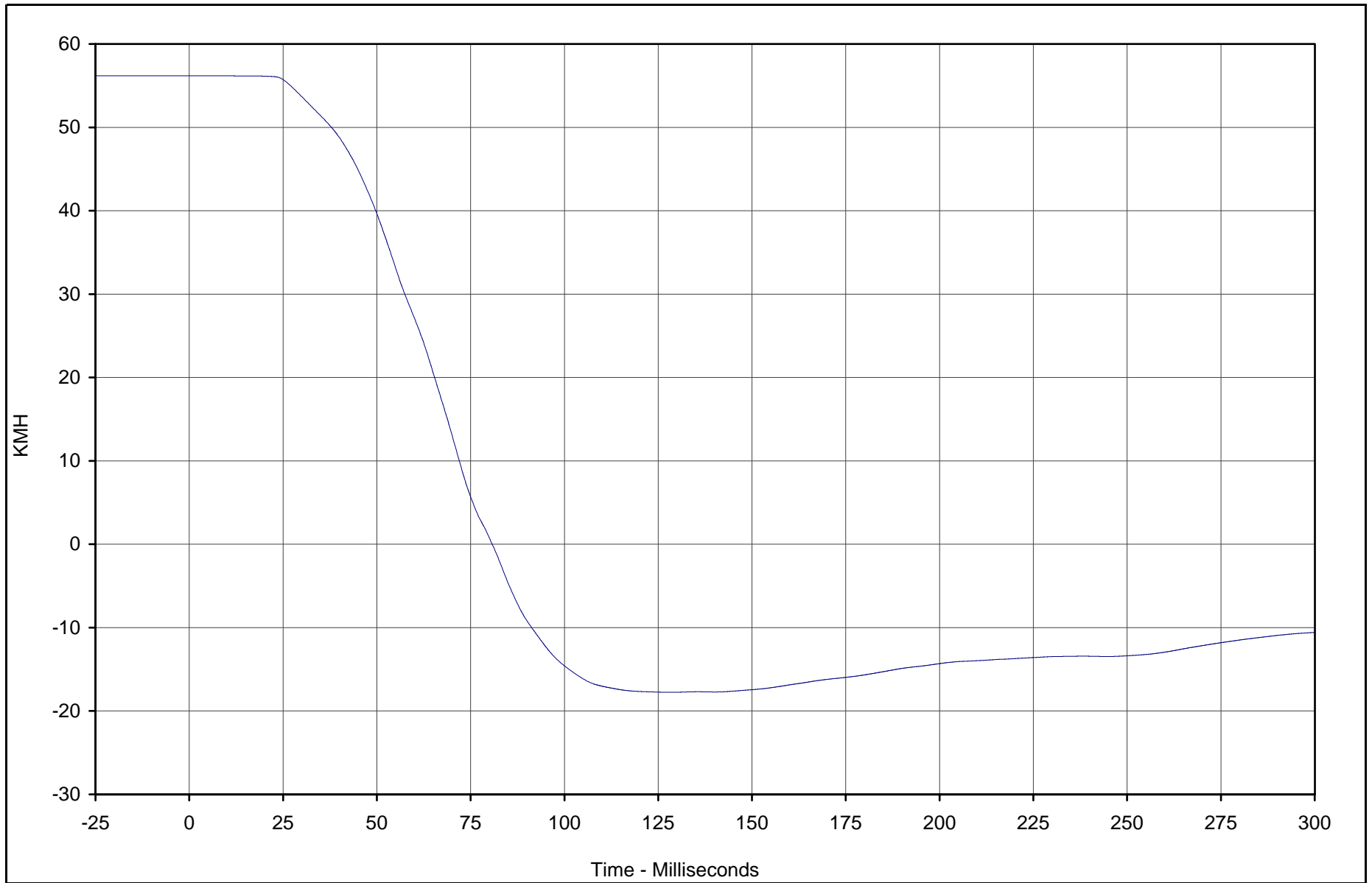
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-83



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary X Velocity	057	IN1	KMH	56.2	4.4	-17.8	129.1	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

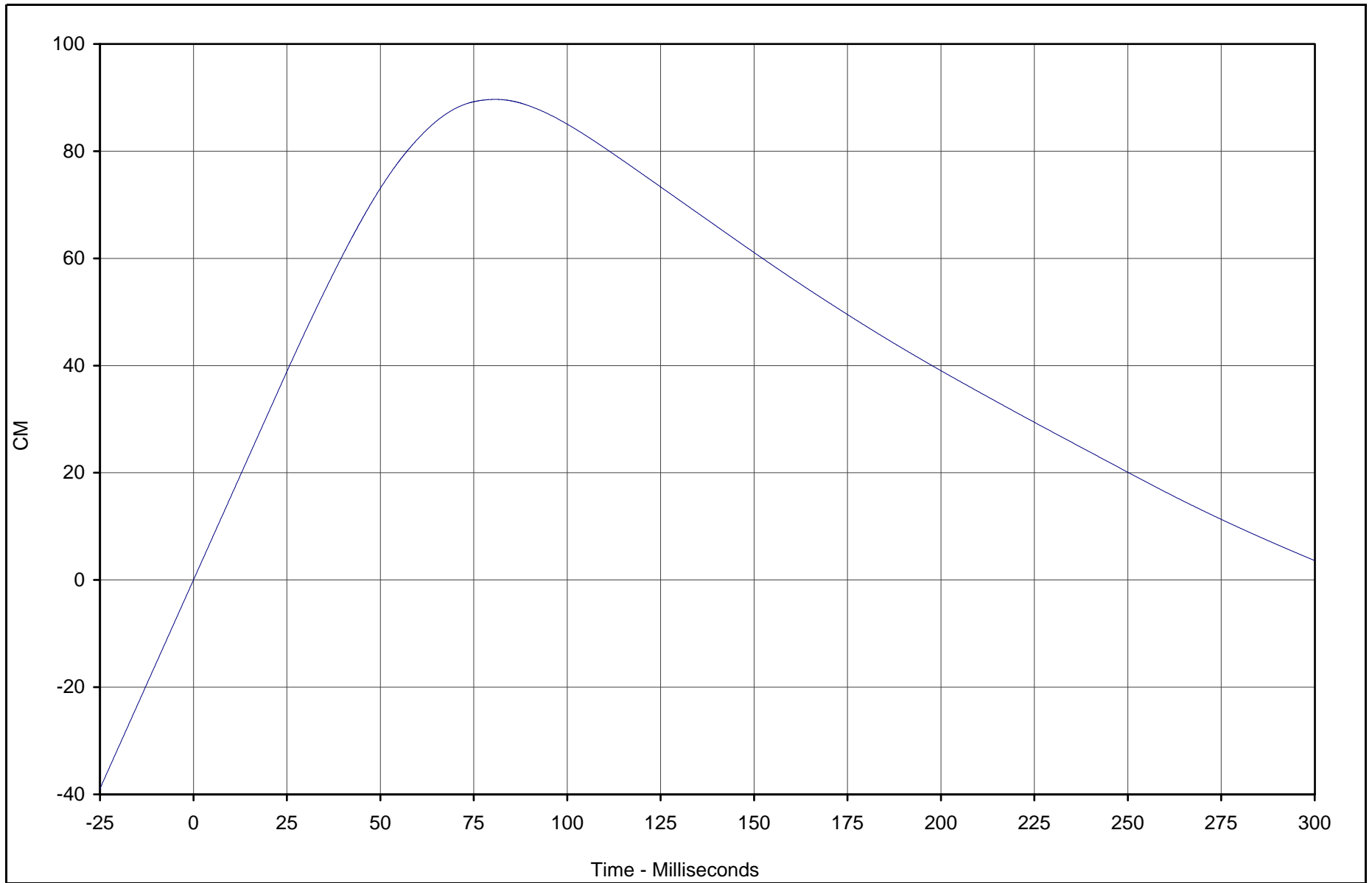
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-84



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary X Displ.	057	IN2	CM	89.7	80.7	0.0	0.0	180



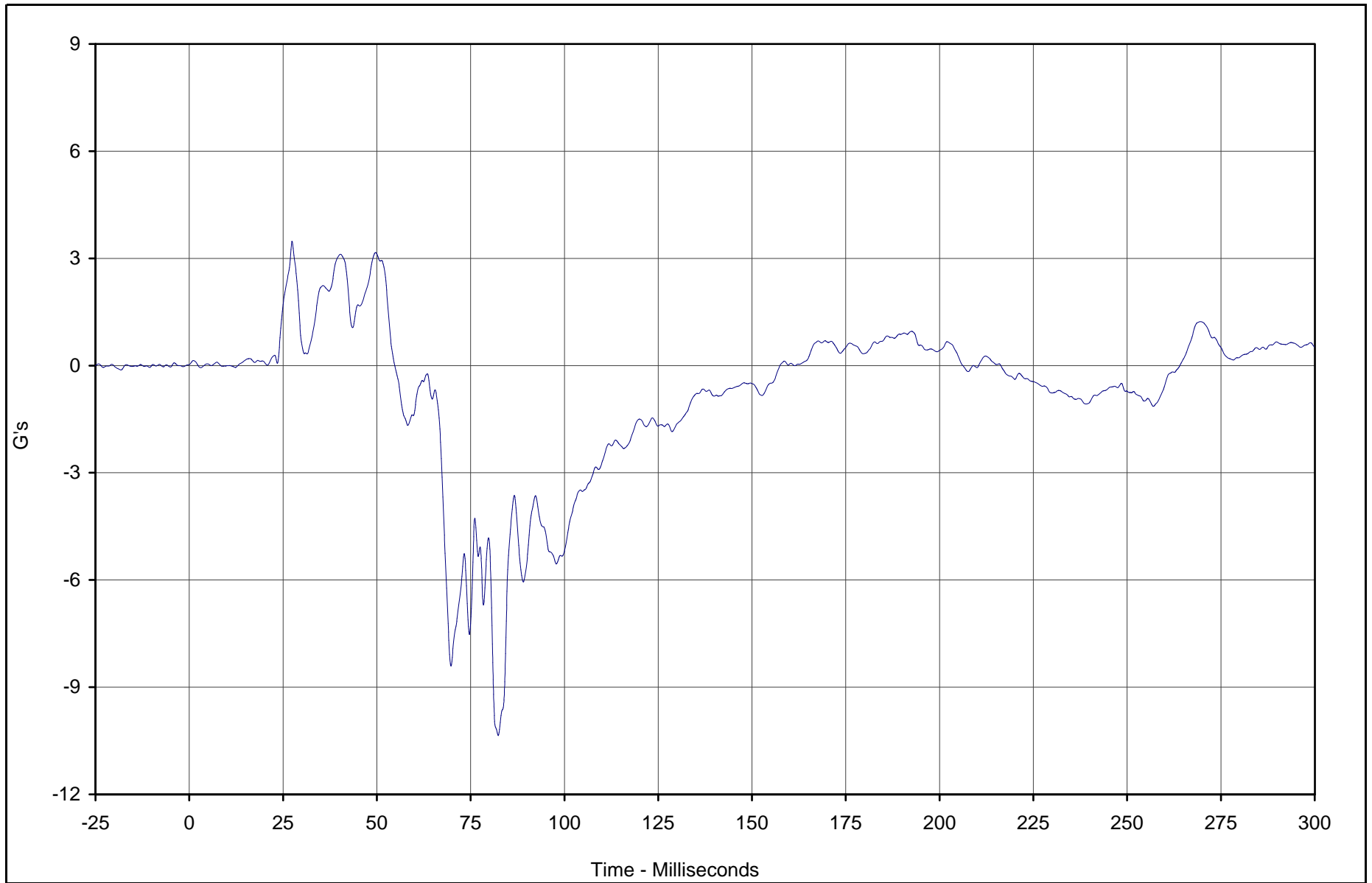
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary Y	058	FIL	G's	3.5	27.4	-10.4	82.4	180

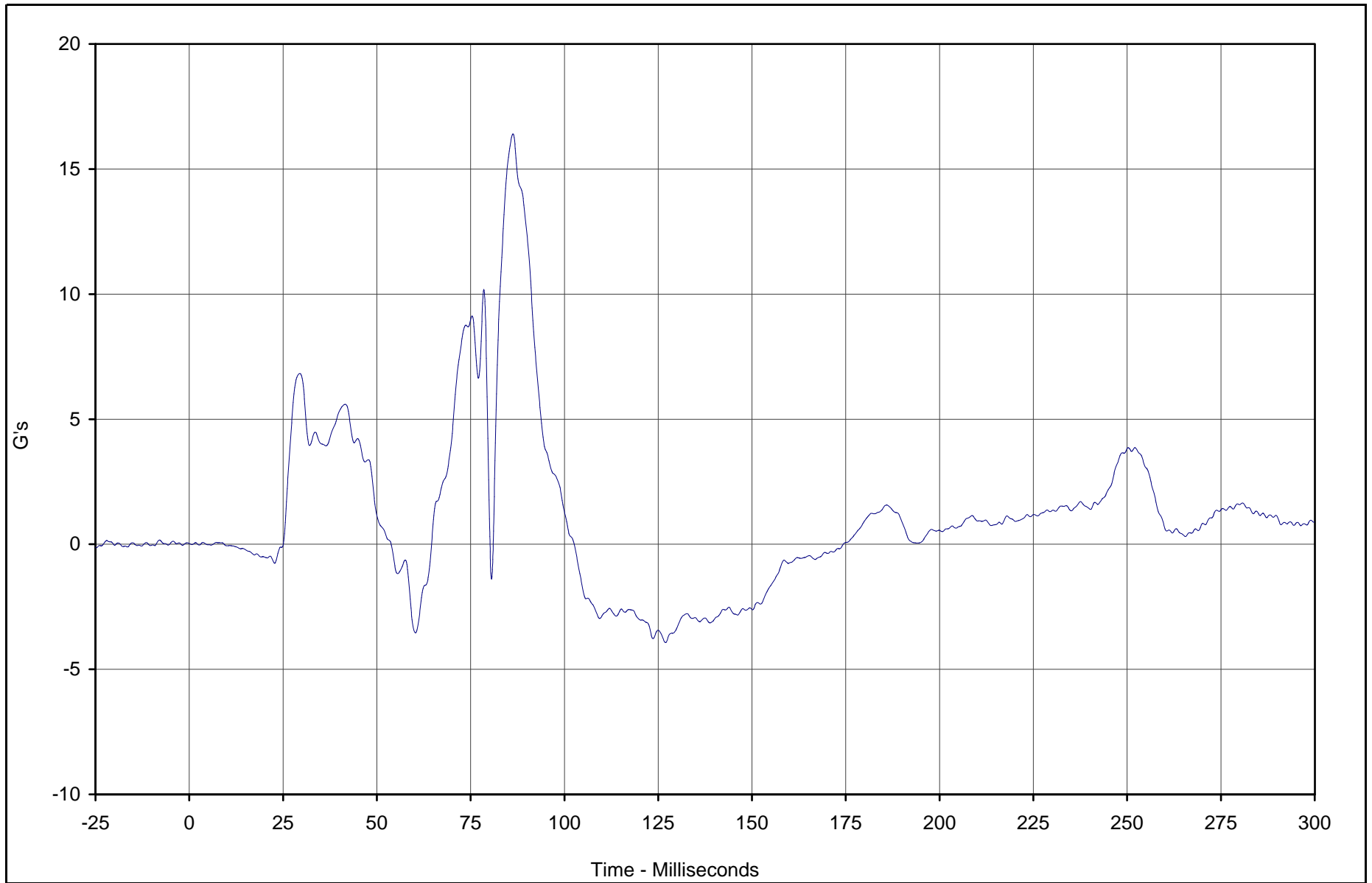


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary Z	059	FIL	G's	16.4	86.3	-3.9	127.0	180



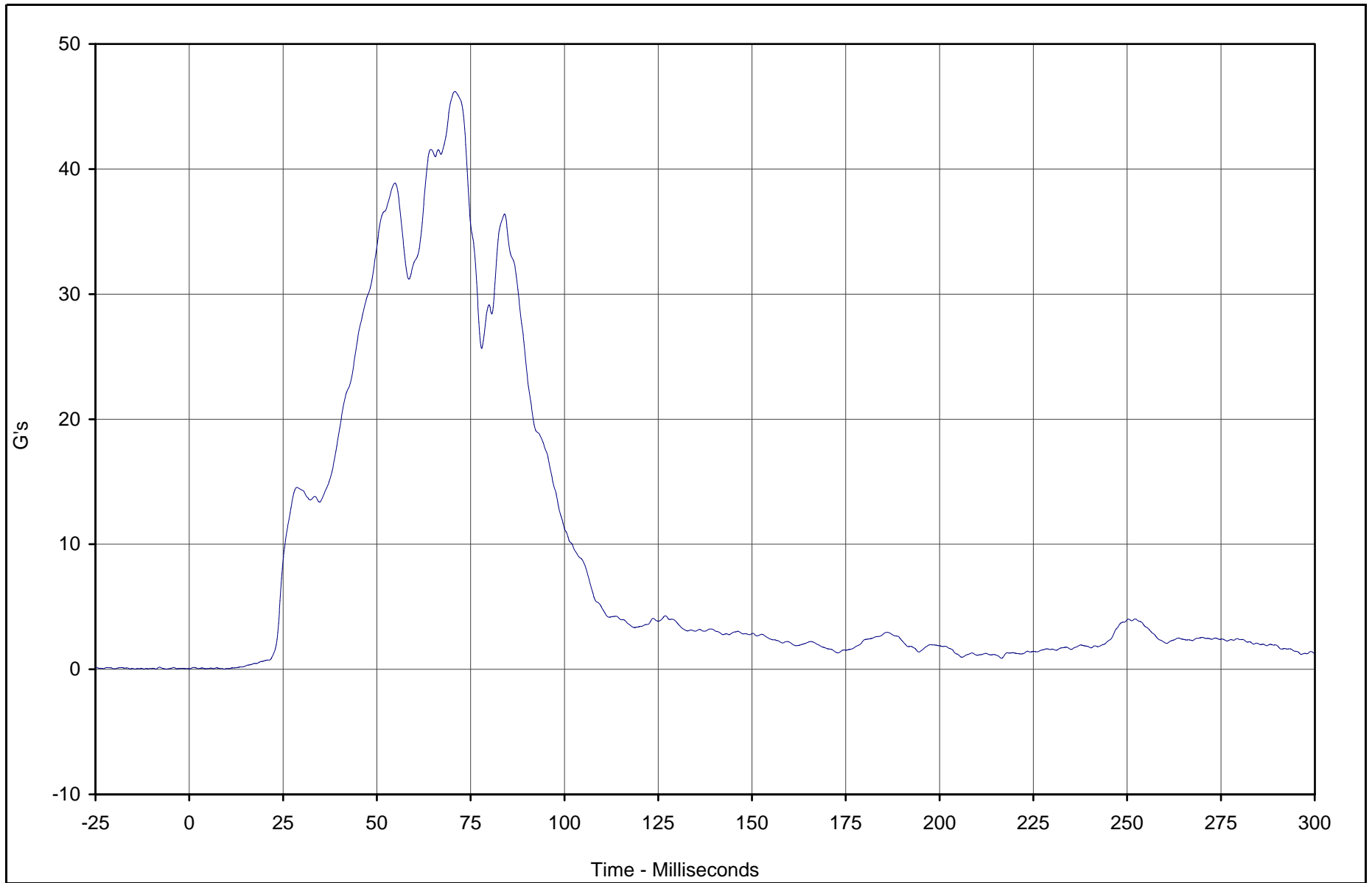
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-87



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Resultant Primary	057	RES	G's	46.2	70.8	0.0	9.3	180



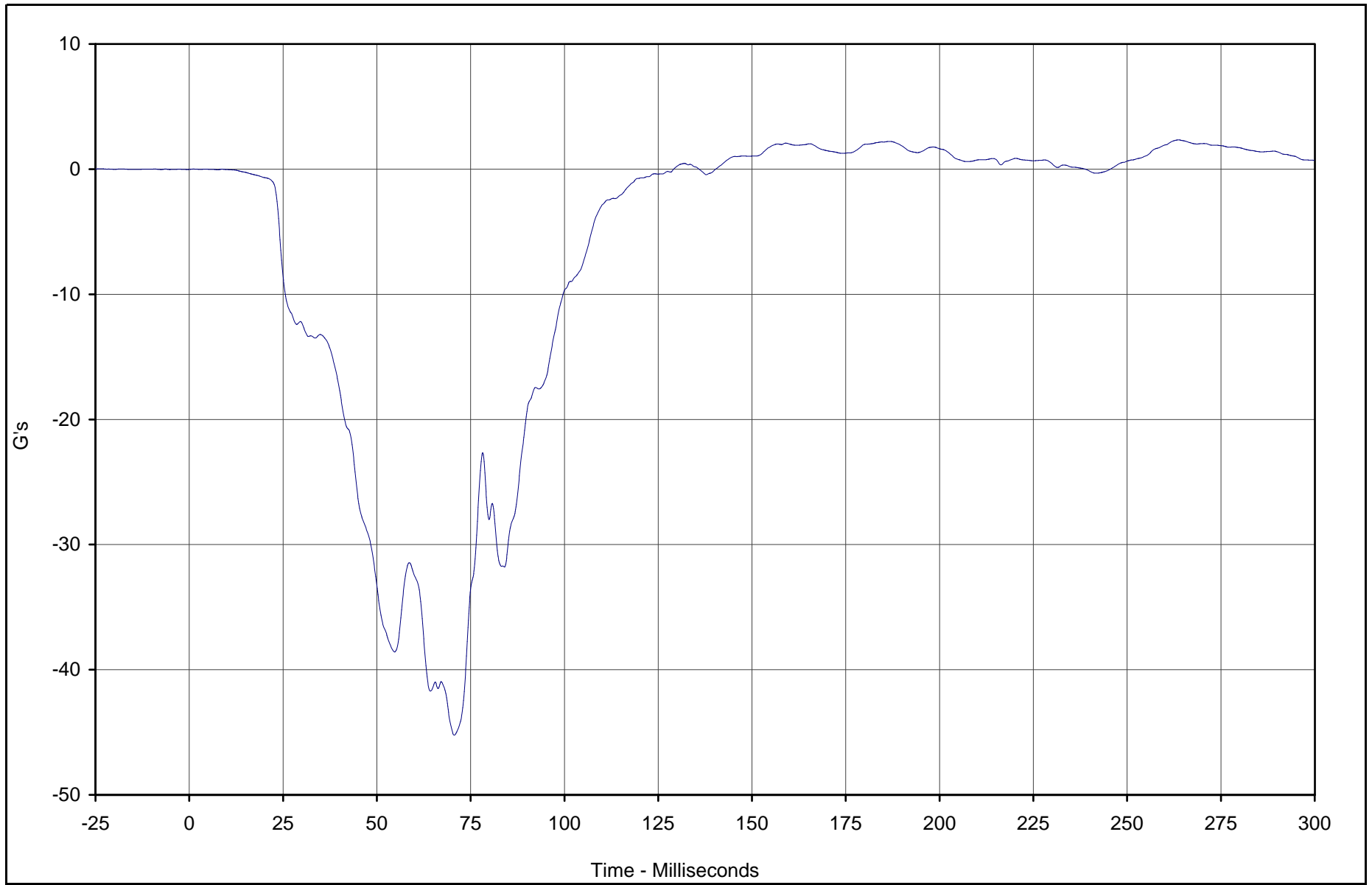
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant X	060	FIL	G's	2.3	263.7	-45.2	70.7	180

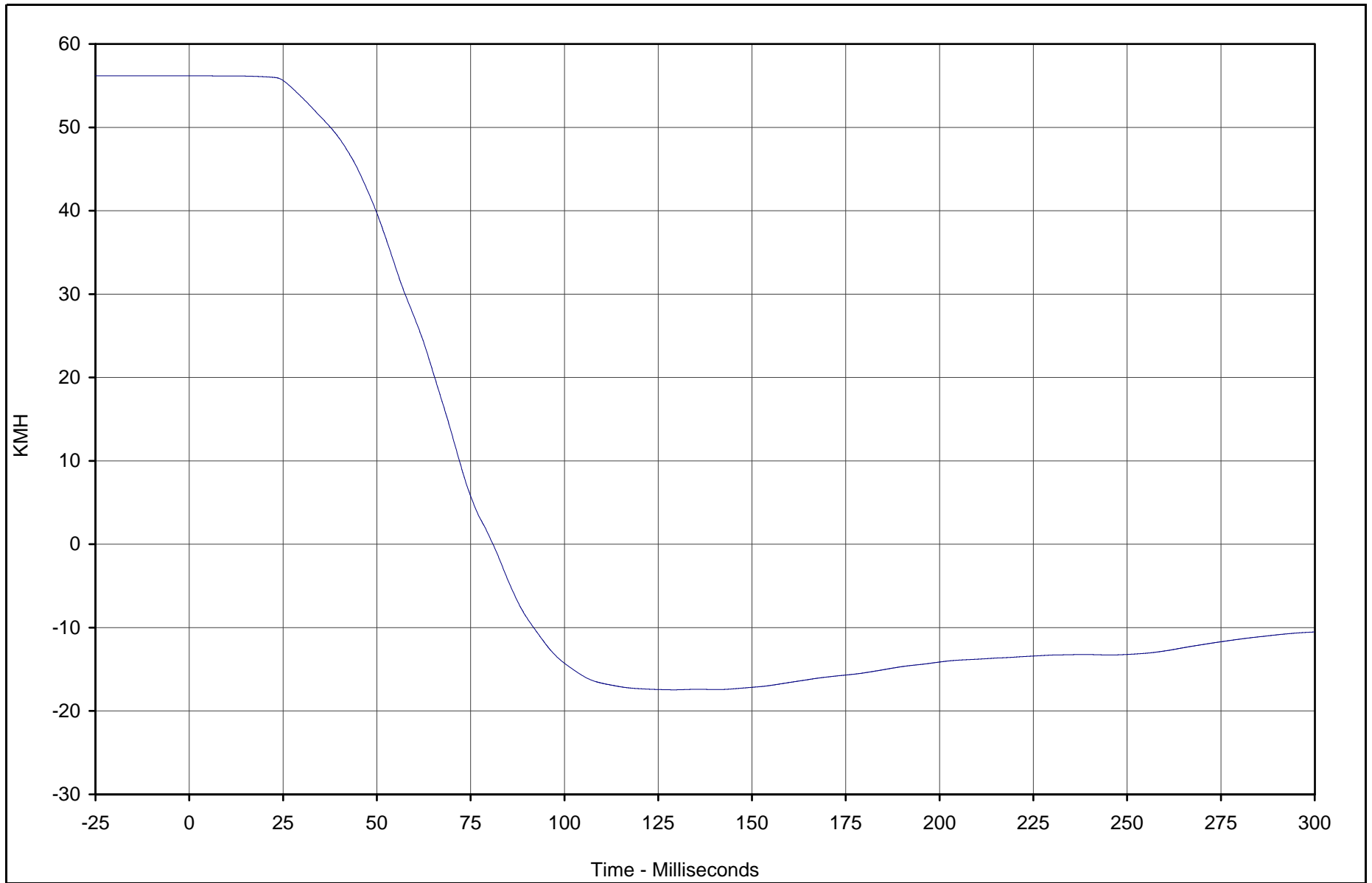


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant X Velocity	060	IN1	KMH	56.2	0.0	-17.5	129.1	180

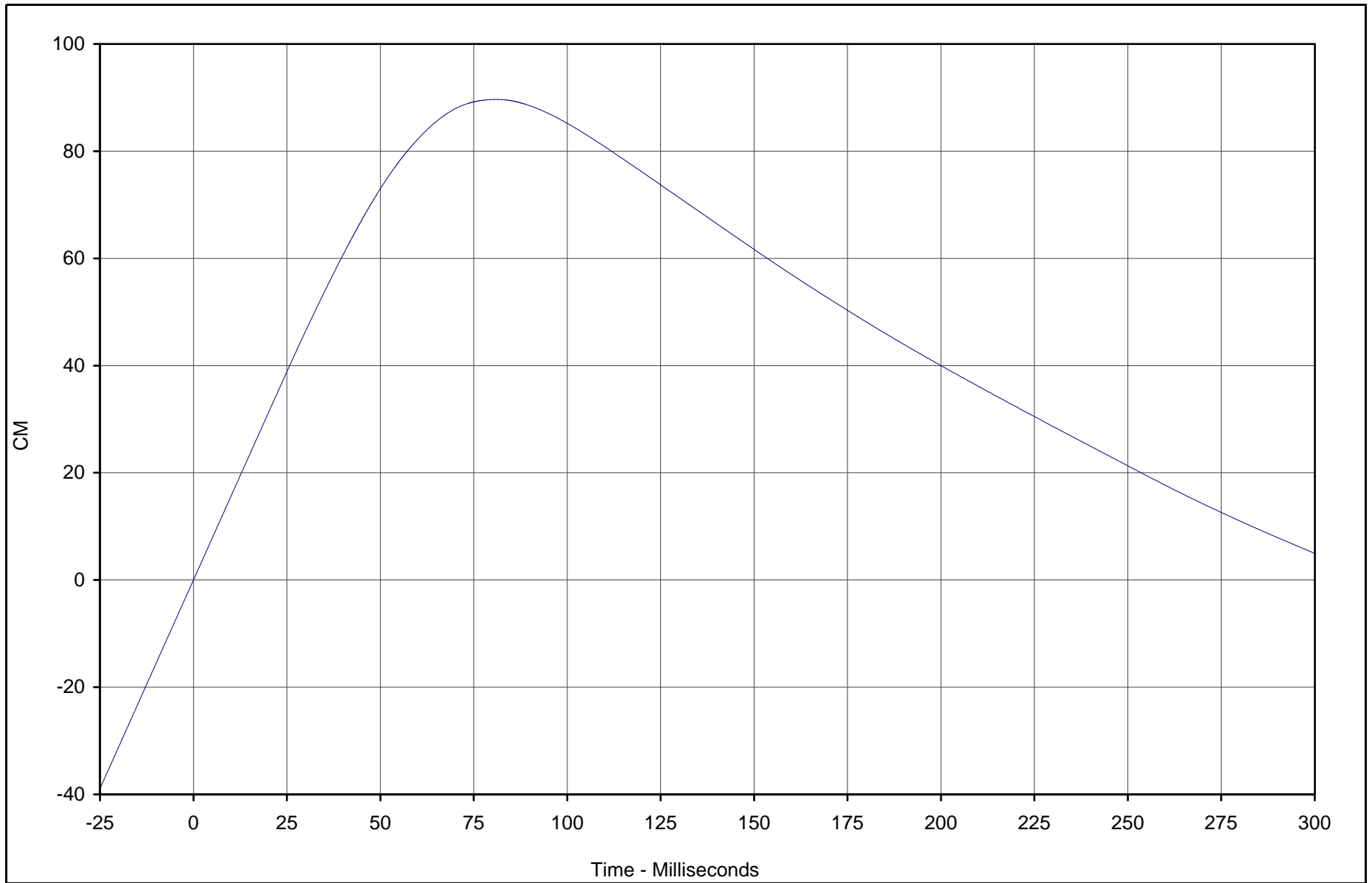


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant X Displ.	060	IN2	CM	89.7	80.9	0.0	0.0	180



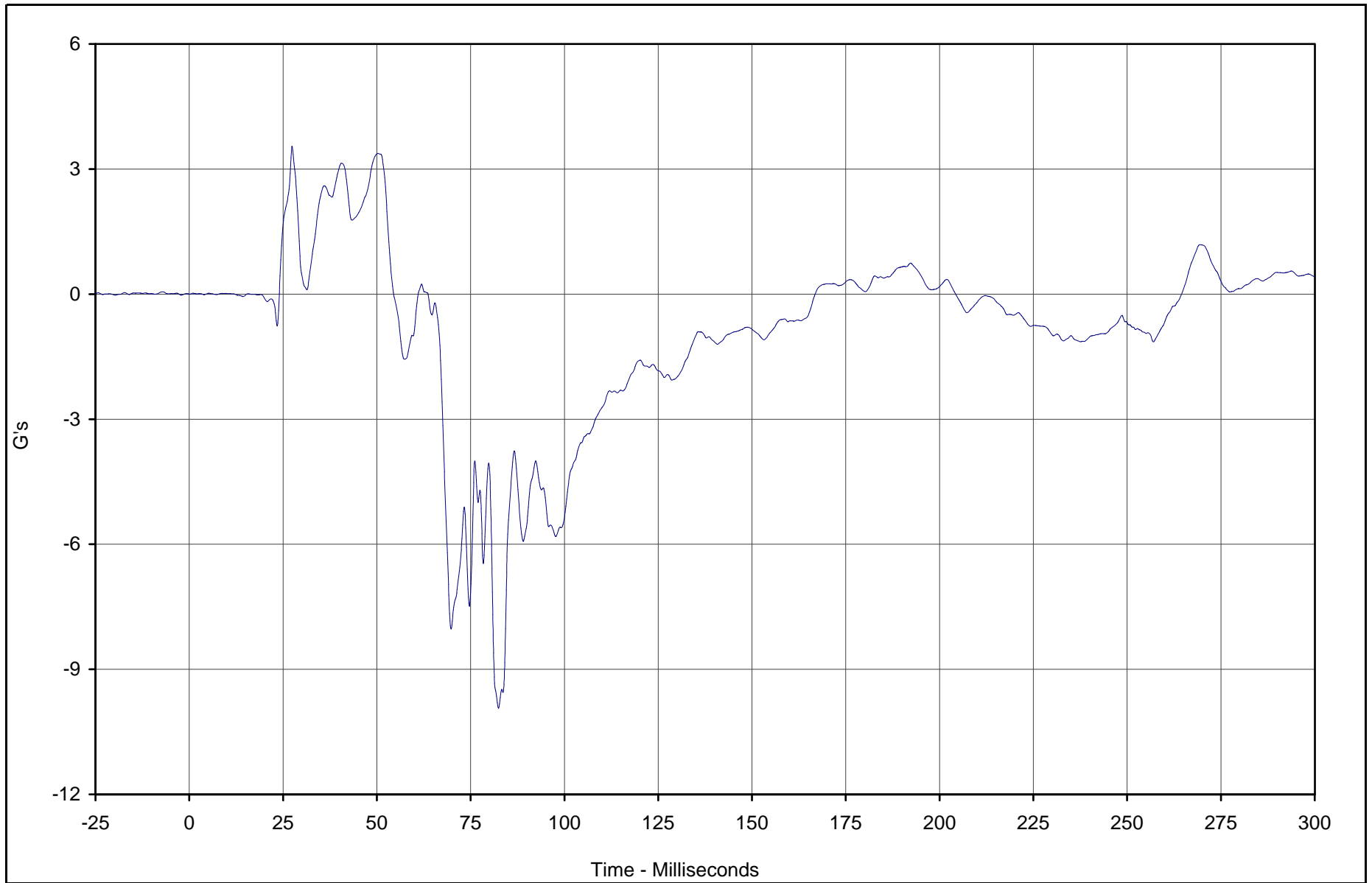
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-91



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant Y	061	FIL	G's	3.6	27.4	-9.9	82.4	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

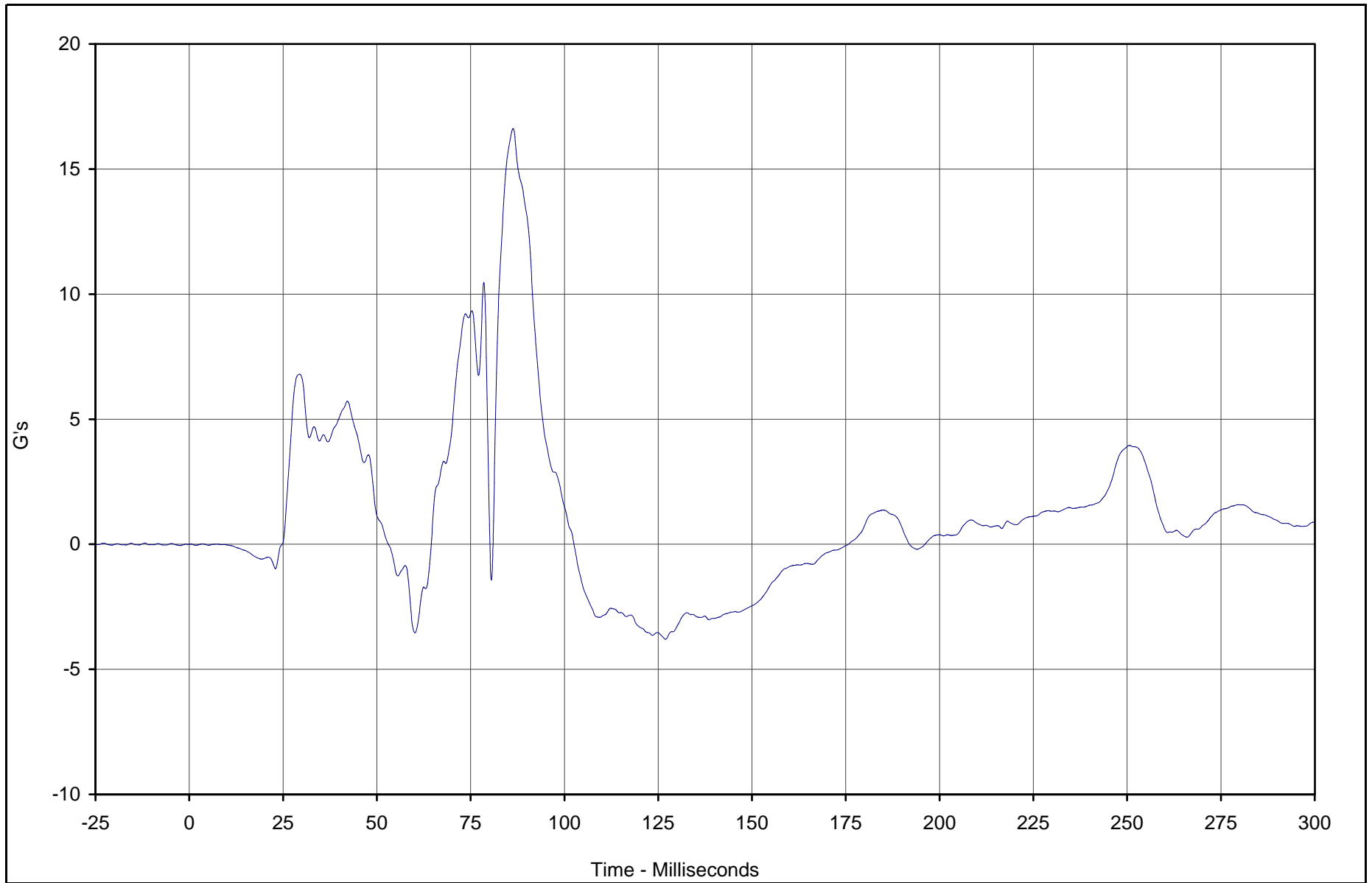
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-92



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant Z	062	FIL	G's	16.6	86.3	-3.8	127.0	180



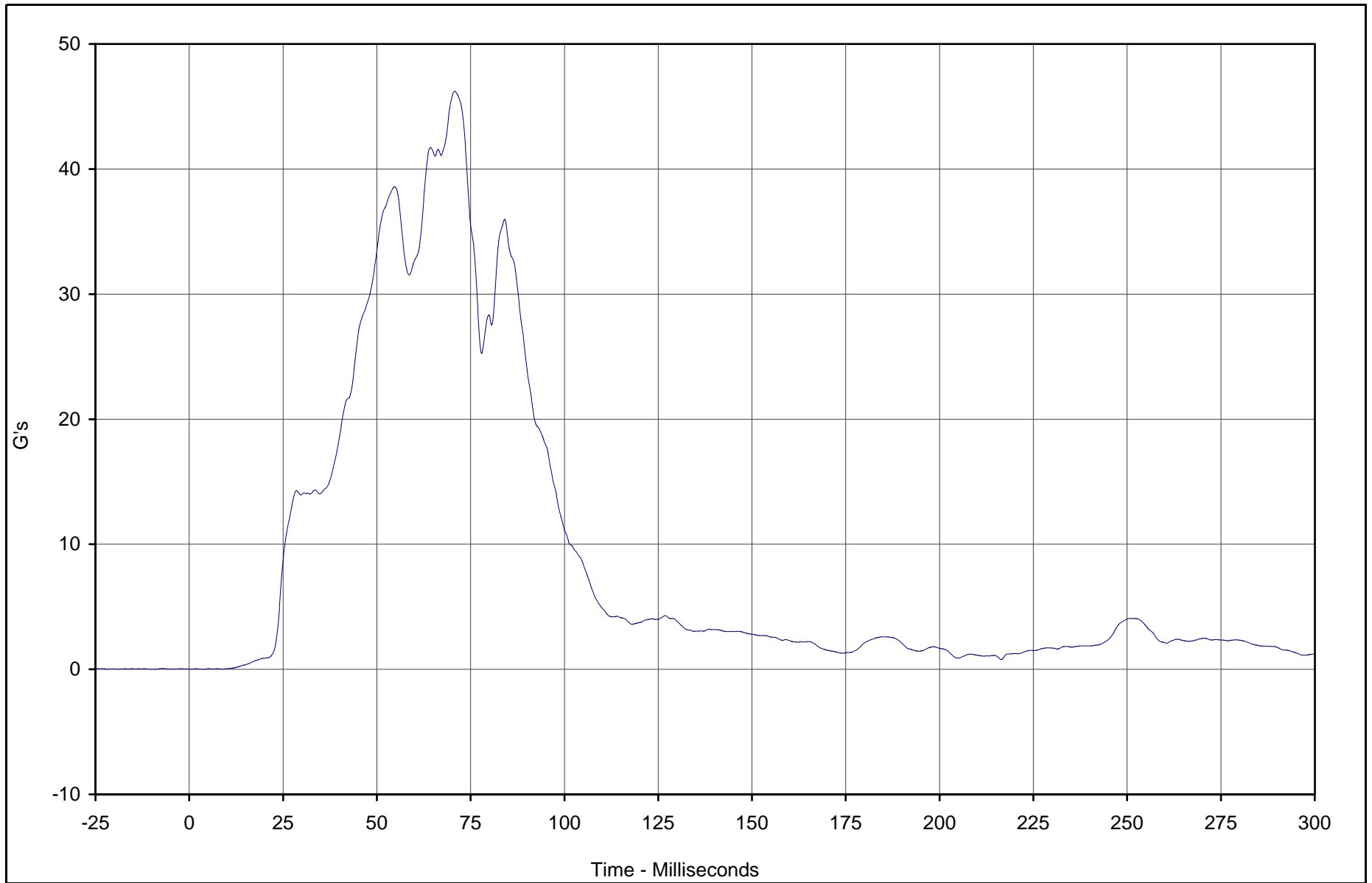
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Resultant Redundant	060	RES	G's	46.2	70.8	0.0	4.3	180



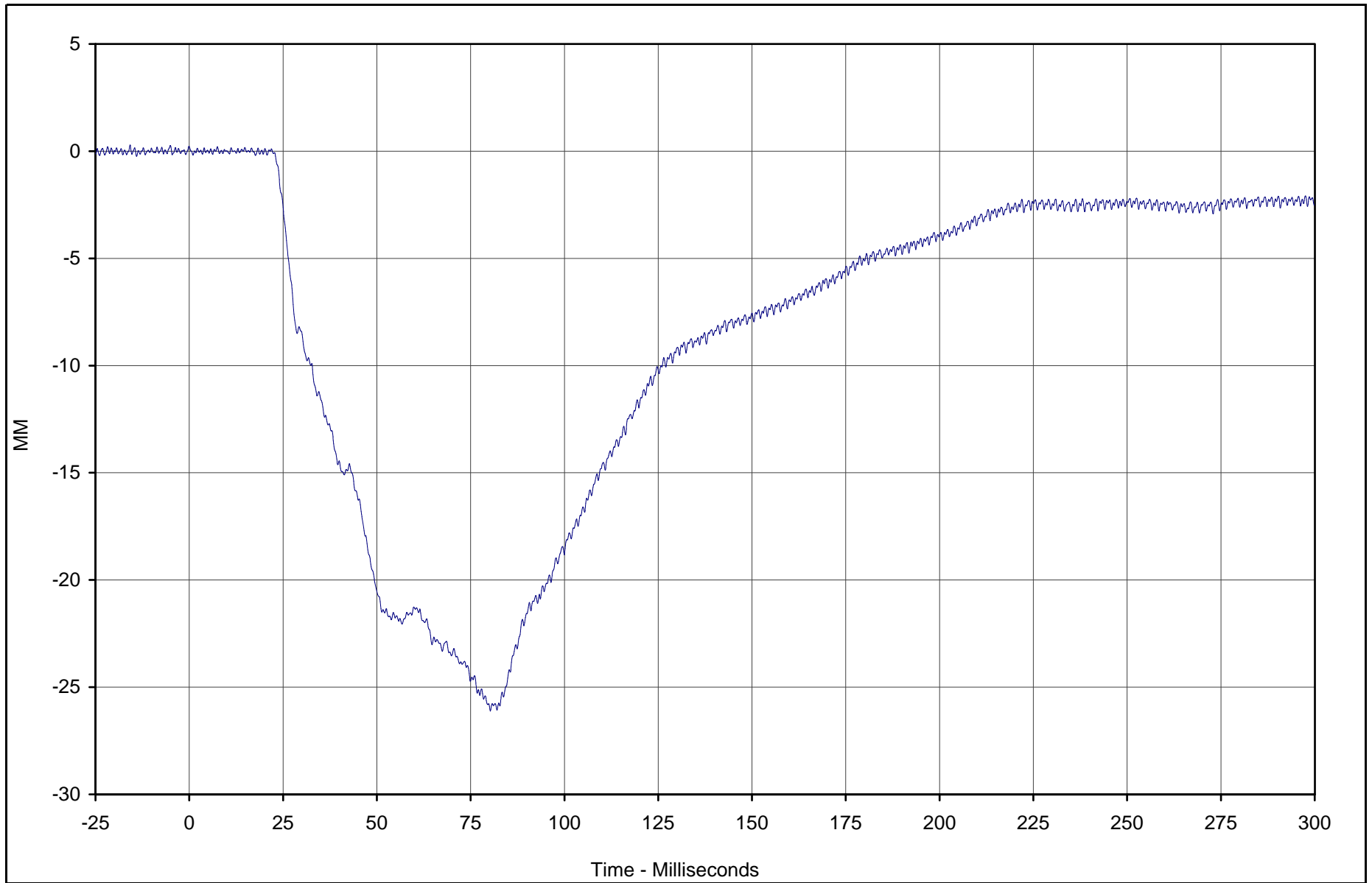
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-94



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Displacement X	063	FIL	MM	0.2	0.0	-26.1	80.2	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

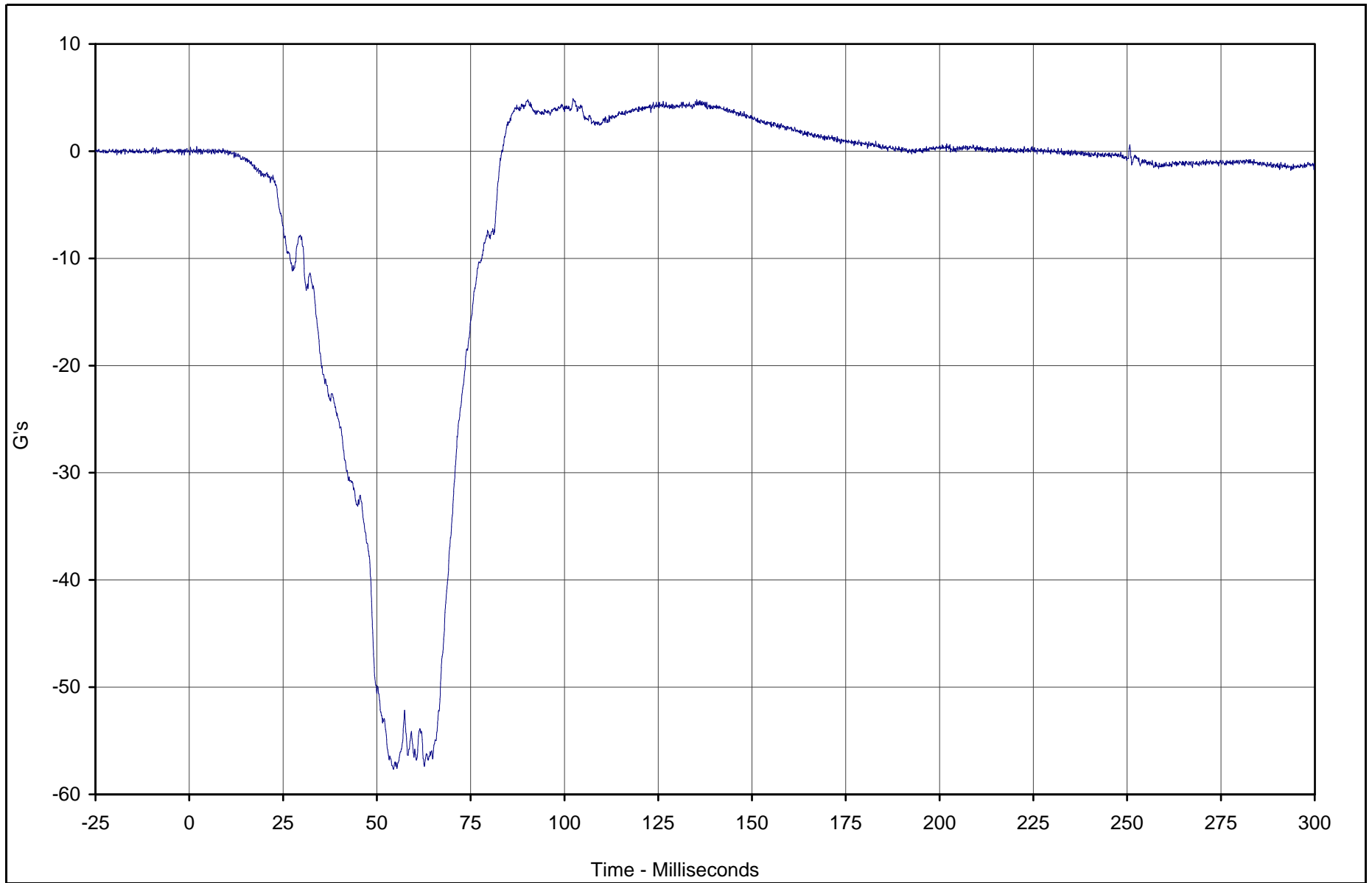
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-95



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis X	064	FIL	G's	4.9	102.3	-57.7	54.4	1000



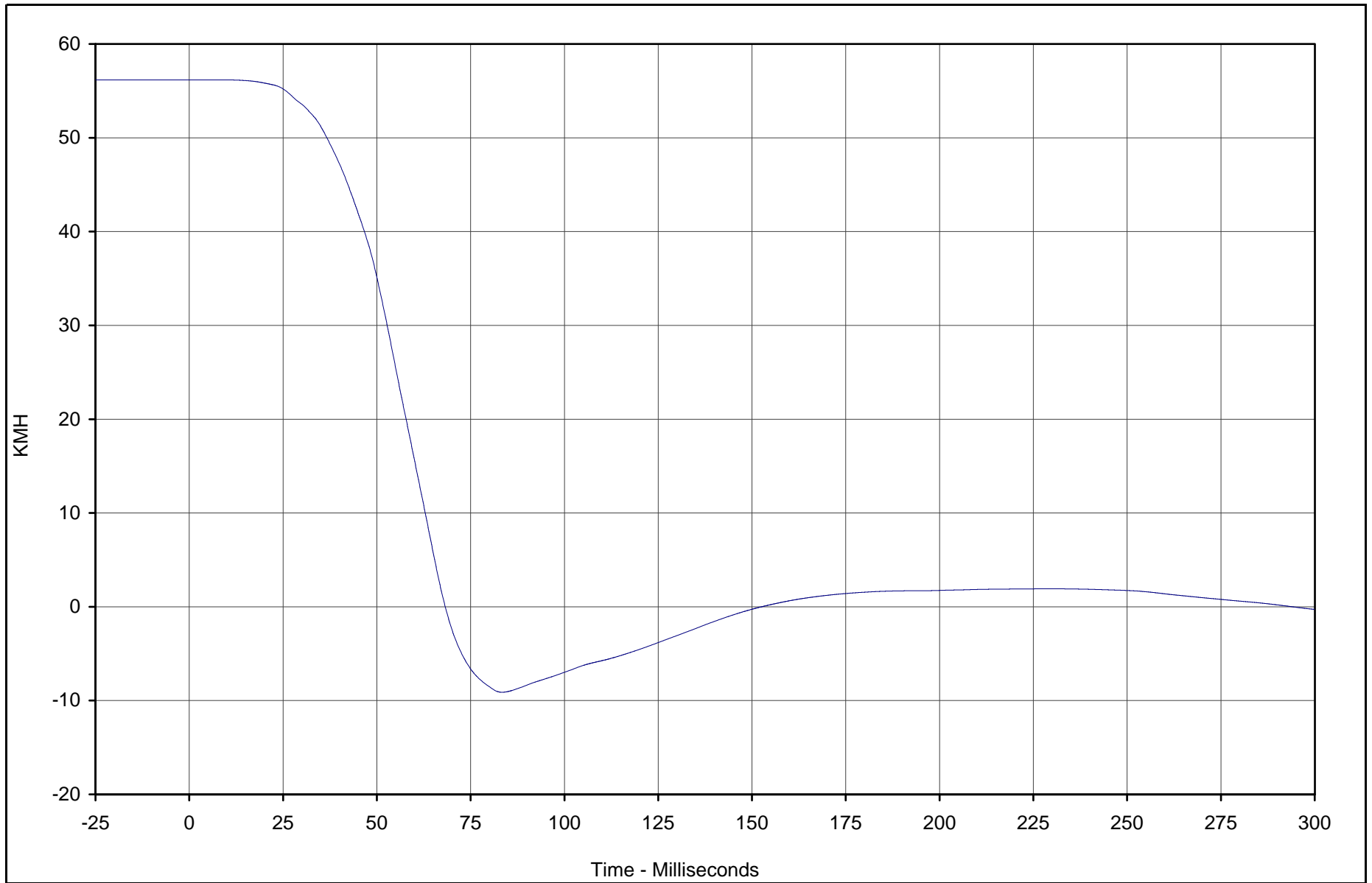
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis X Velocity	064	IN1	KMH	56.2	2.9	-9.1	83.4	180



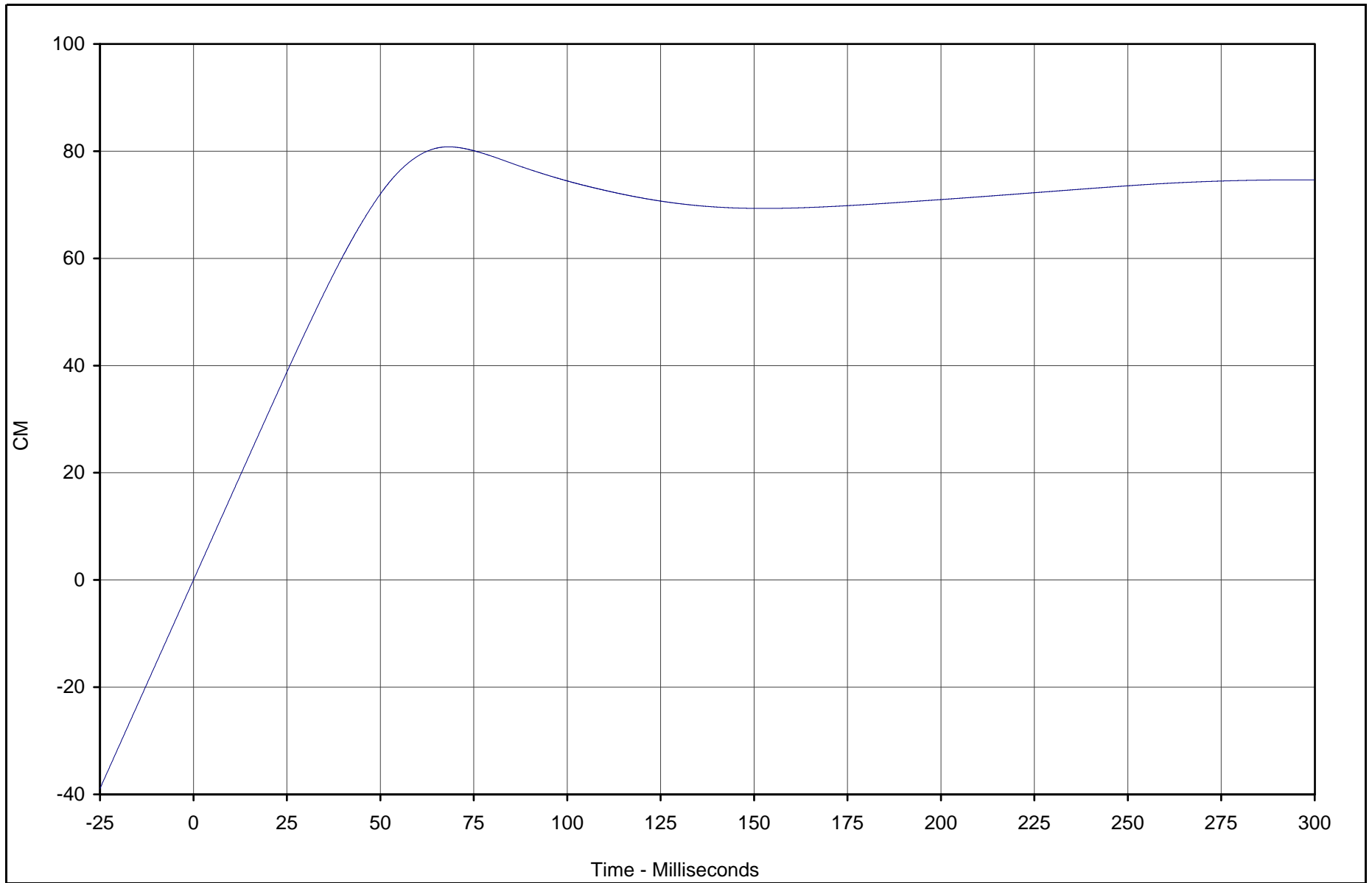
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-97



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis X Displ.	064	IN2	CM	80.8	68.2	0.0	0.0	180



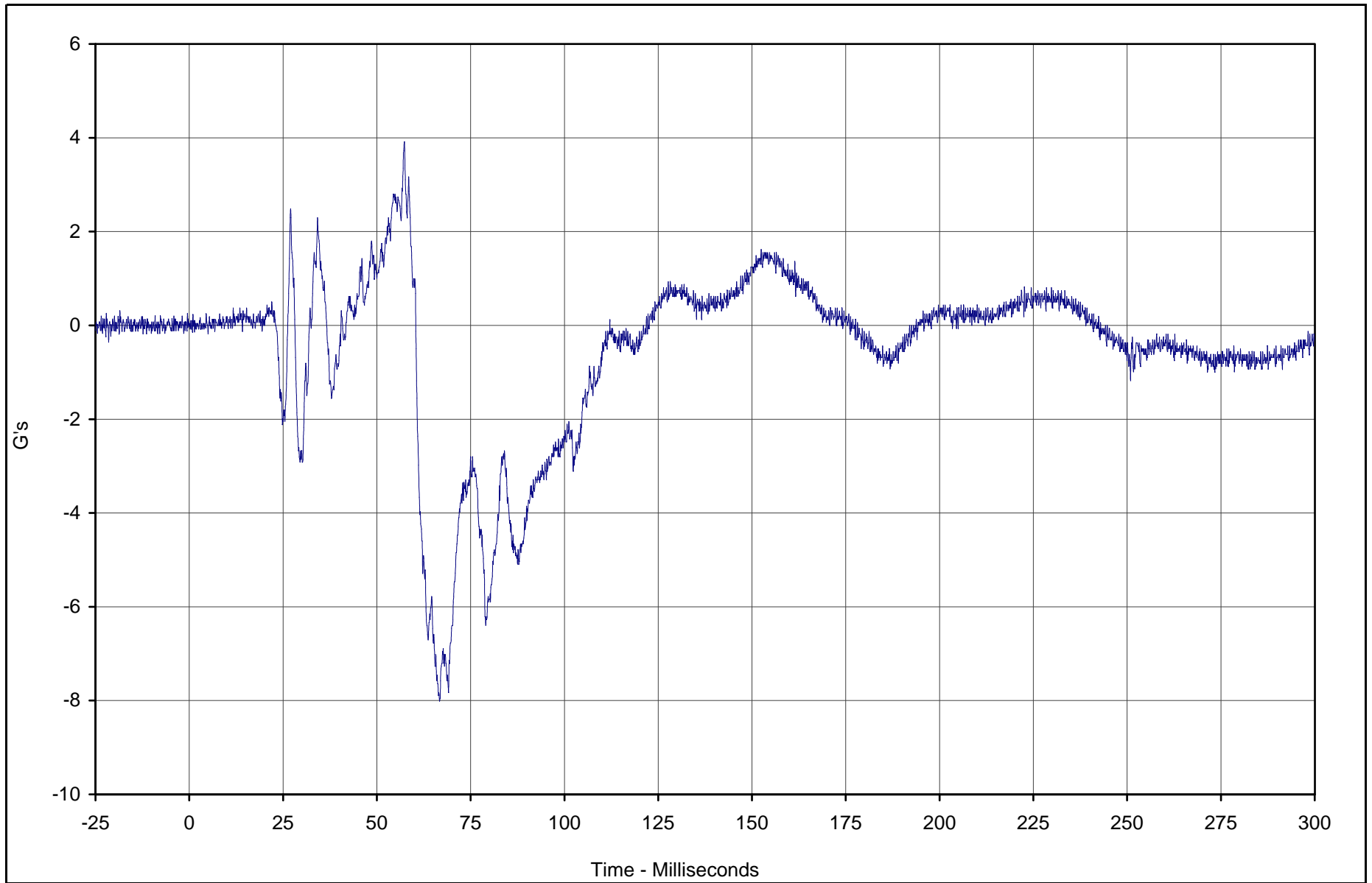
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis Y	065	FIL	G's	3.9	57.3	-8.0	66.7	1000

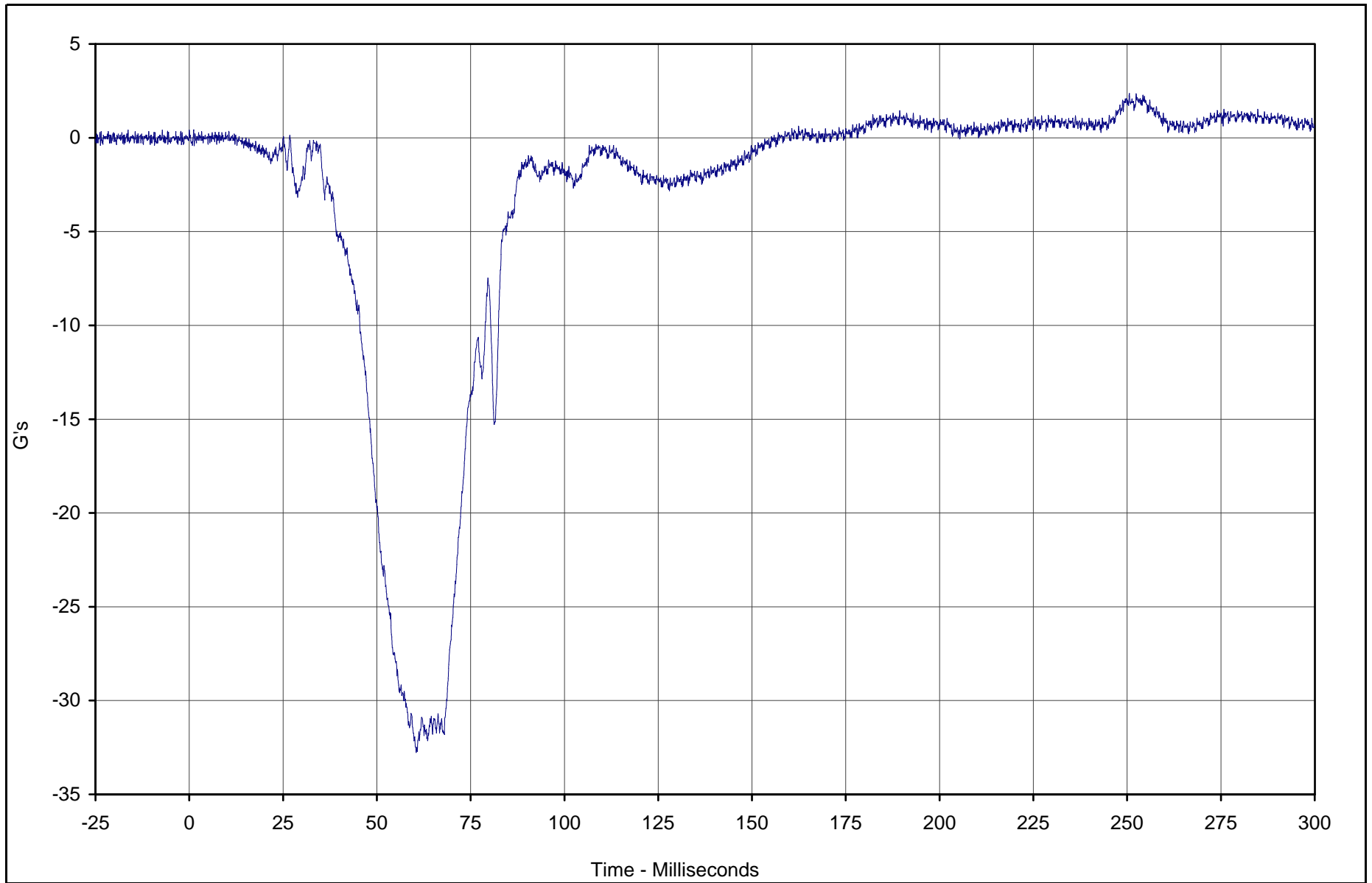


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis Z	066	FIL	G's	2.4	250.6	-32.8	60.5	1000



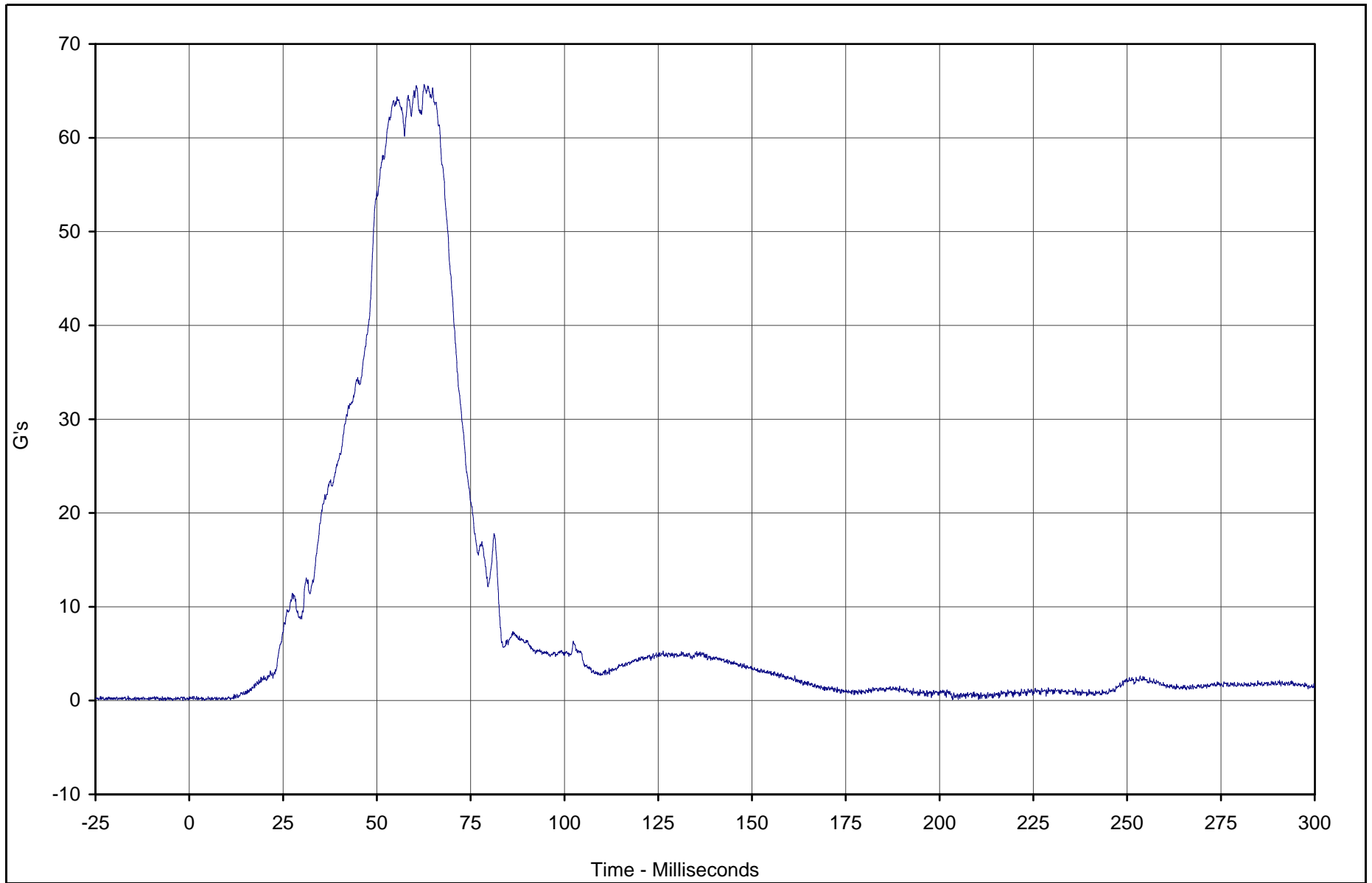
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-100



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis Resultant	066	RES	G's	65.7	62.6	0.0	3.4	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

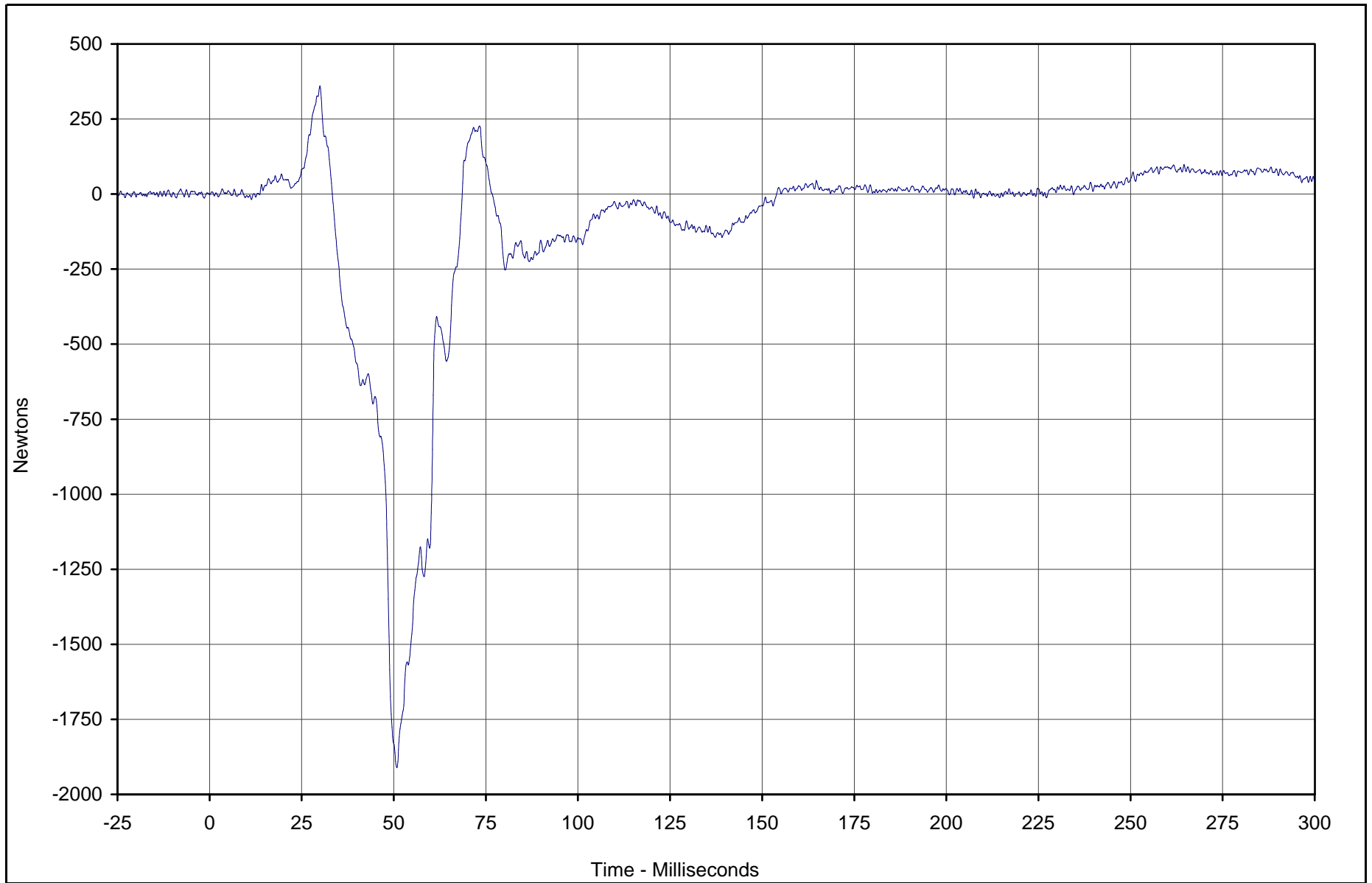
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-101



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Femur Force	067	FIL	Newtons	359.7	30.0	-1910.8	50.8	600



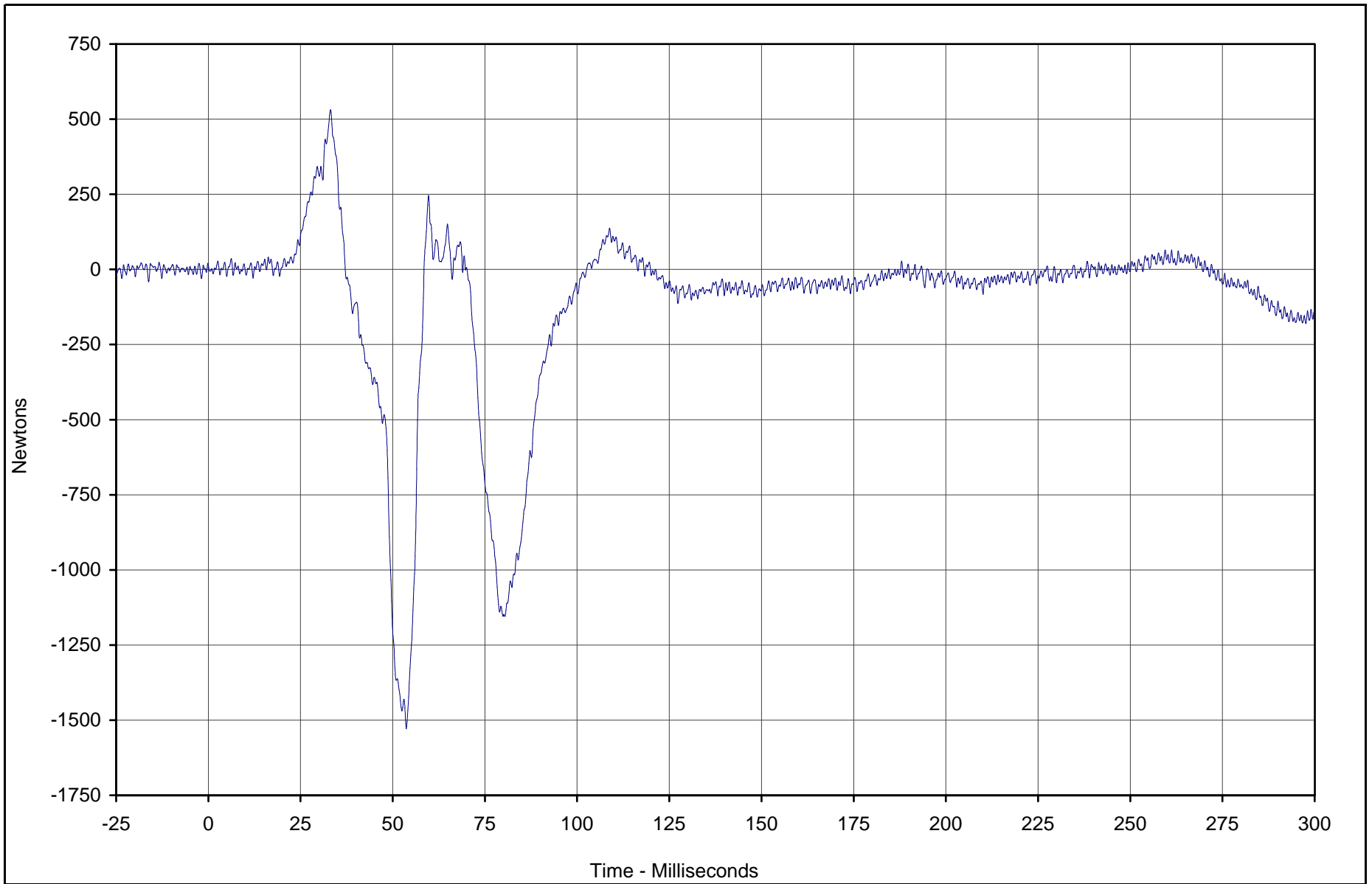
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Femur Force	068	FIL	Newtons	531.1	33.2	-1529.1	53.7	600



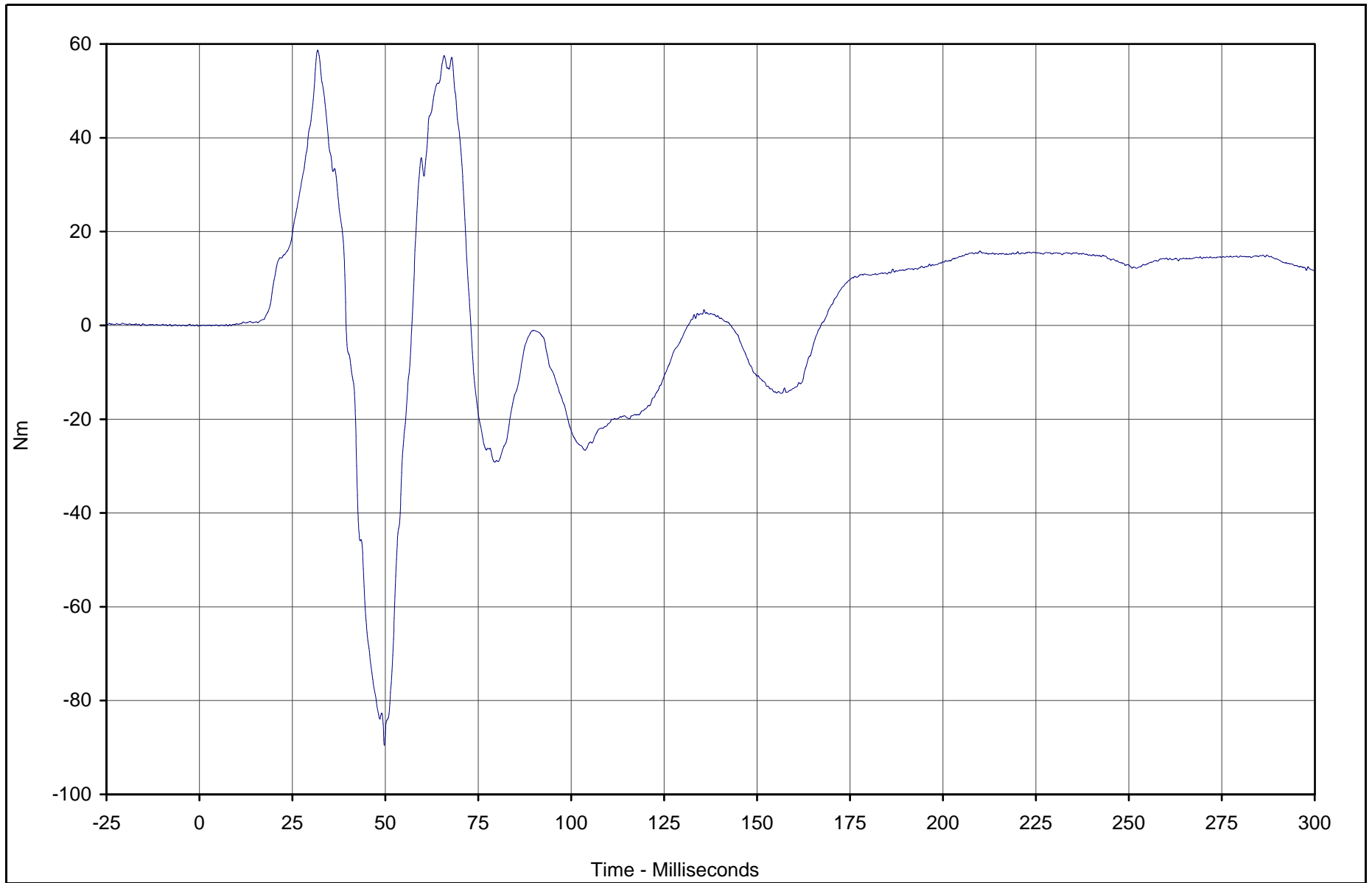
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-103



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Upper Tibia Moment X	069	FIL	Nm	58.7	31.8	-89.5	49.8	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

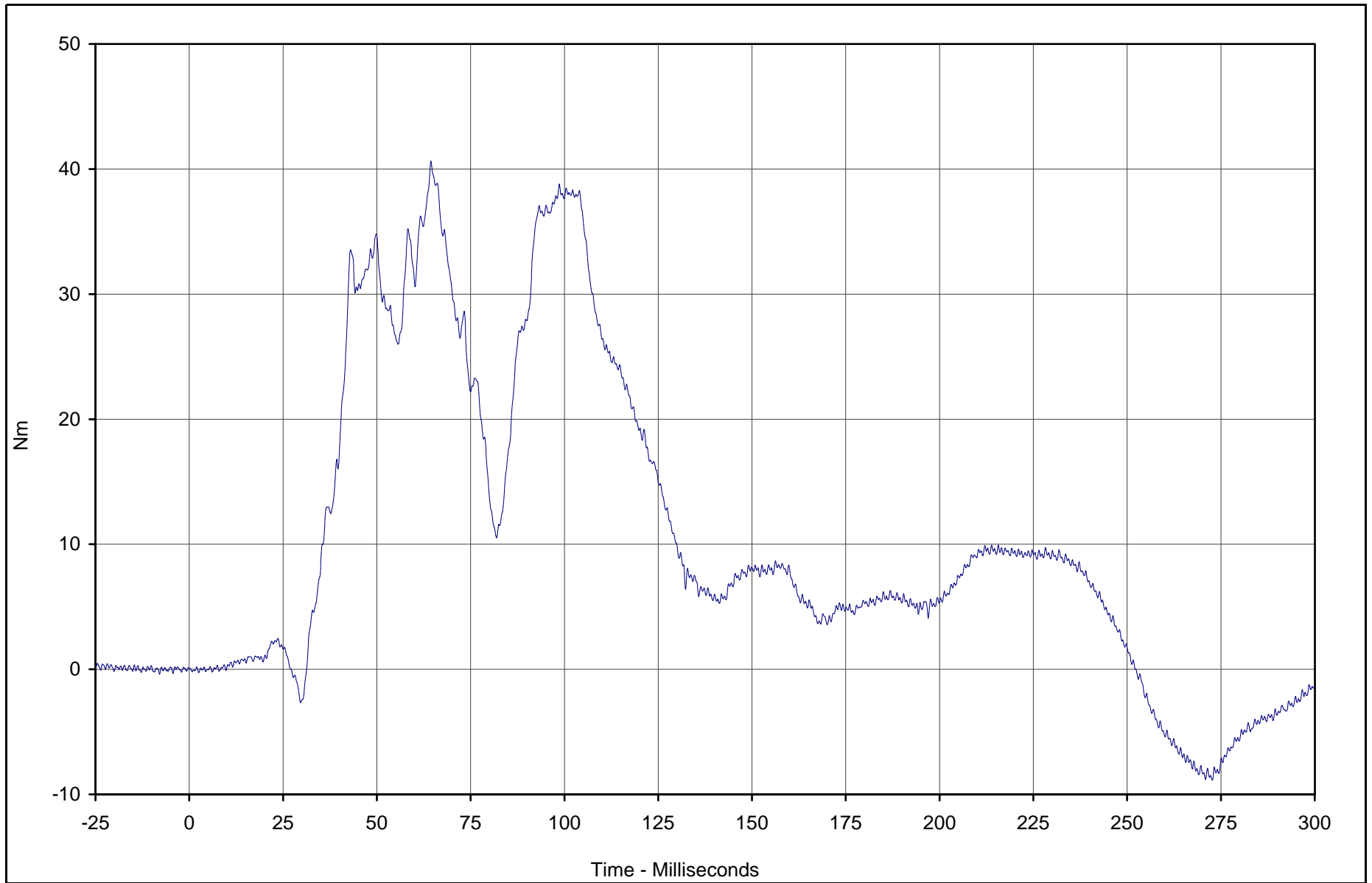
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-104



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Upper Tibia Moment Y	070	FIL	Nm	40.6	64.4	-8.9	272.7	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

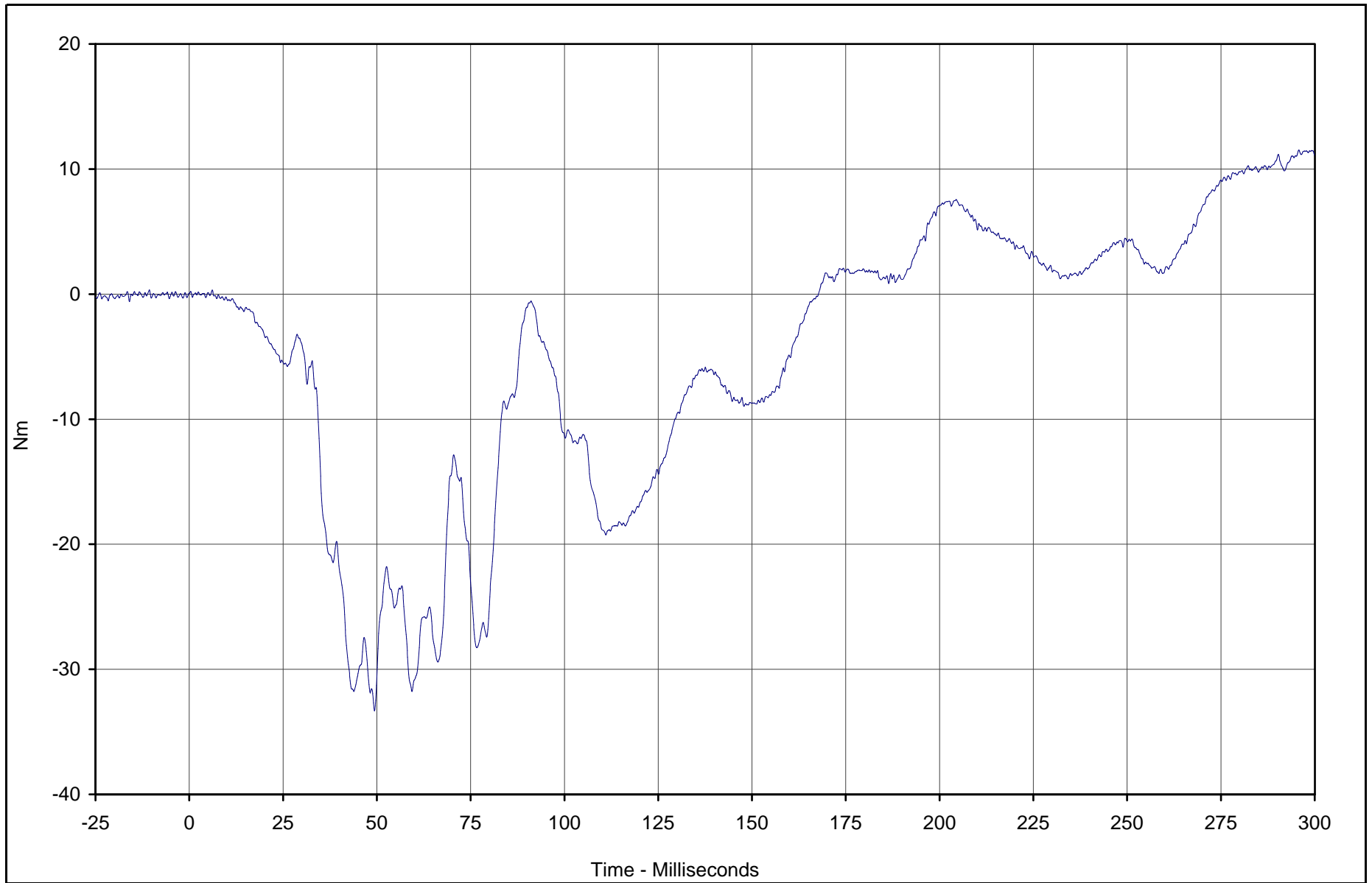
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-105



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Upper Tibia Moment X	071	FIL	Nm	11.5	295.8	-33.3	49.4	600



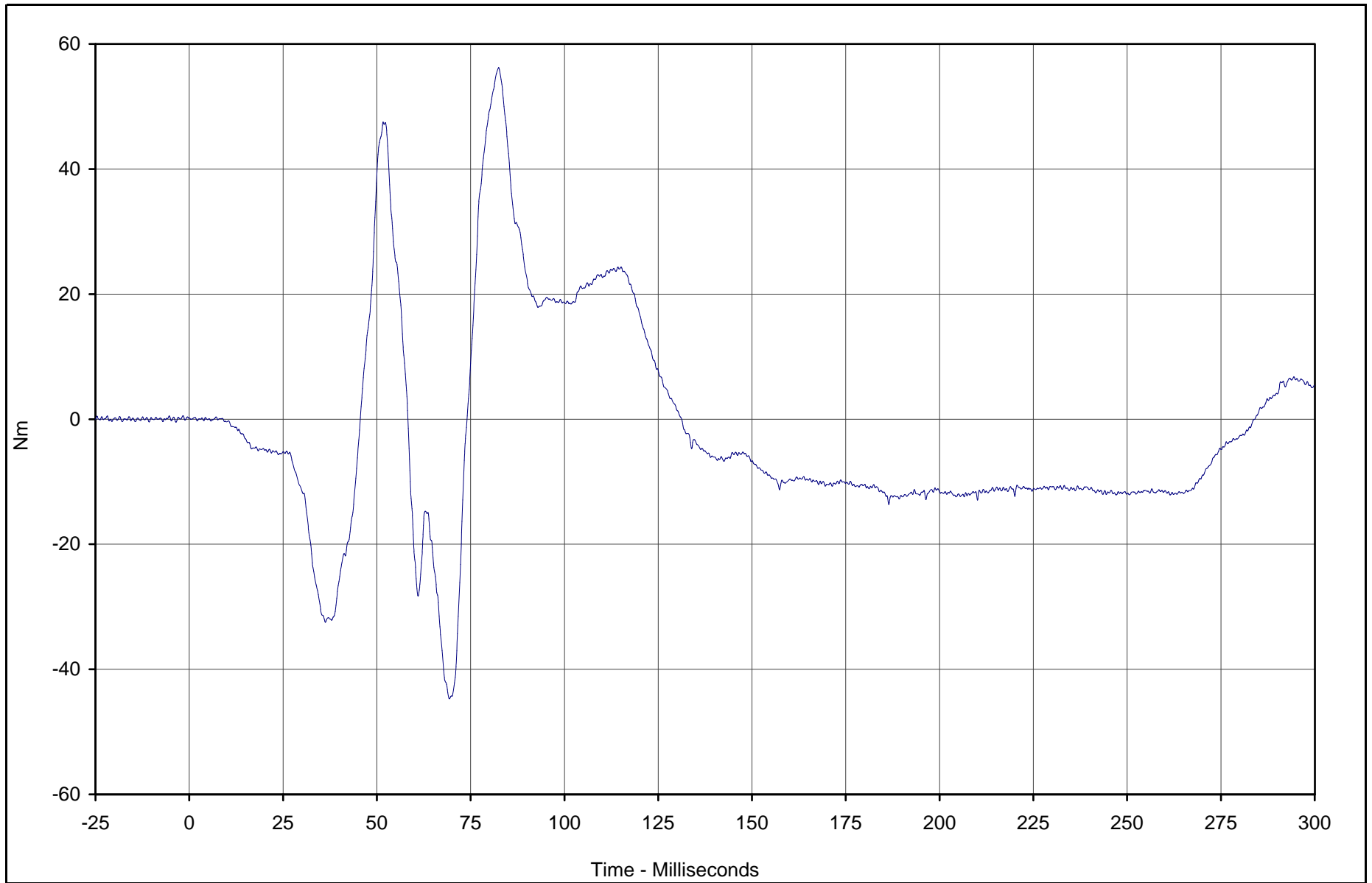
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Upper Tibia Moment Y	072	FIL	Nm	56.2	82.5	-44.7	69.3	600

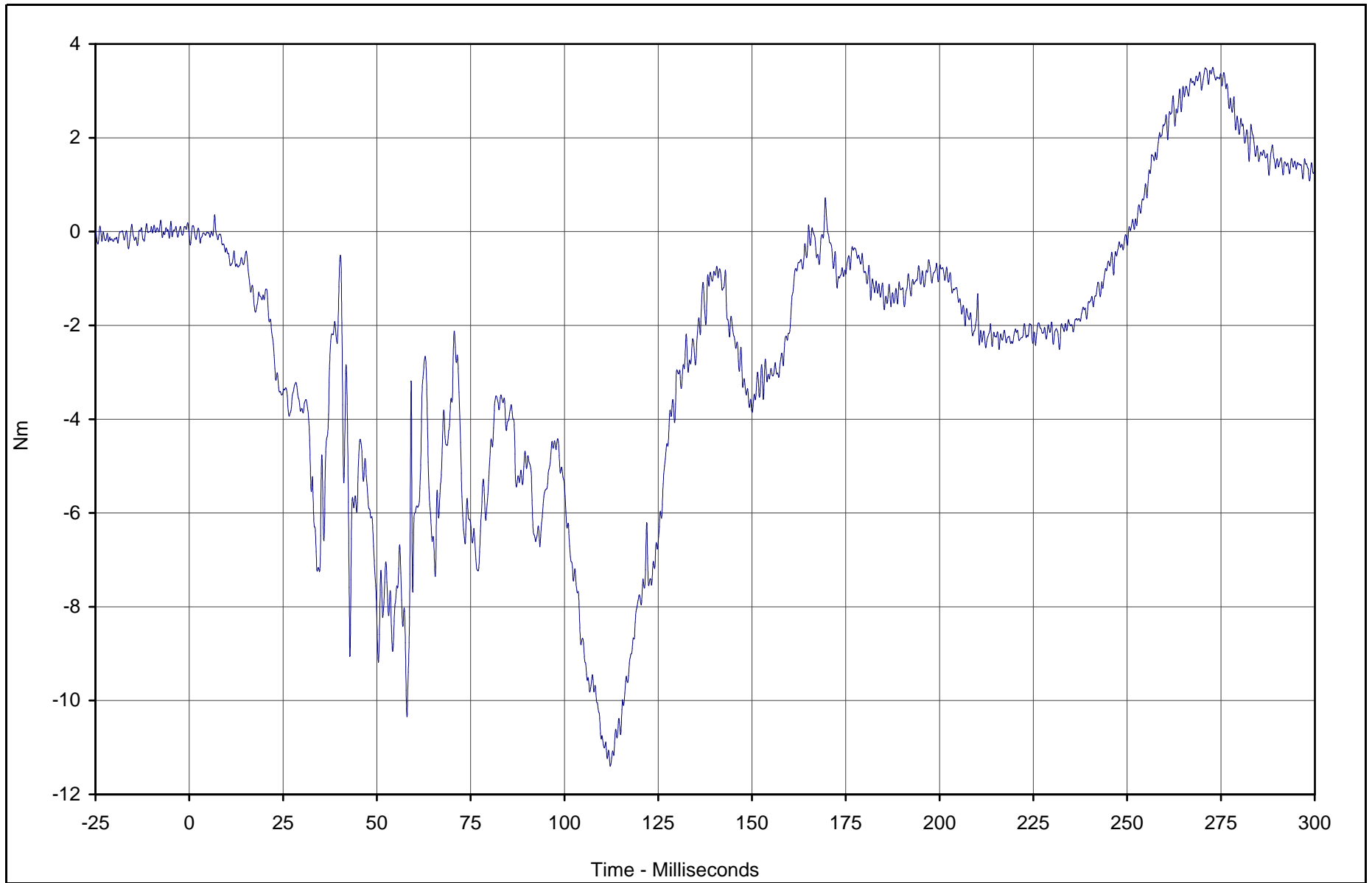


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Lower Tibia Moment X	073	FIL	Nm	3.5	272.8	-11.4	112.2	600



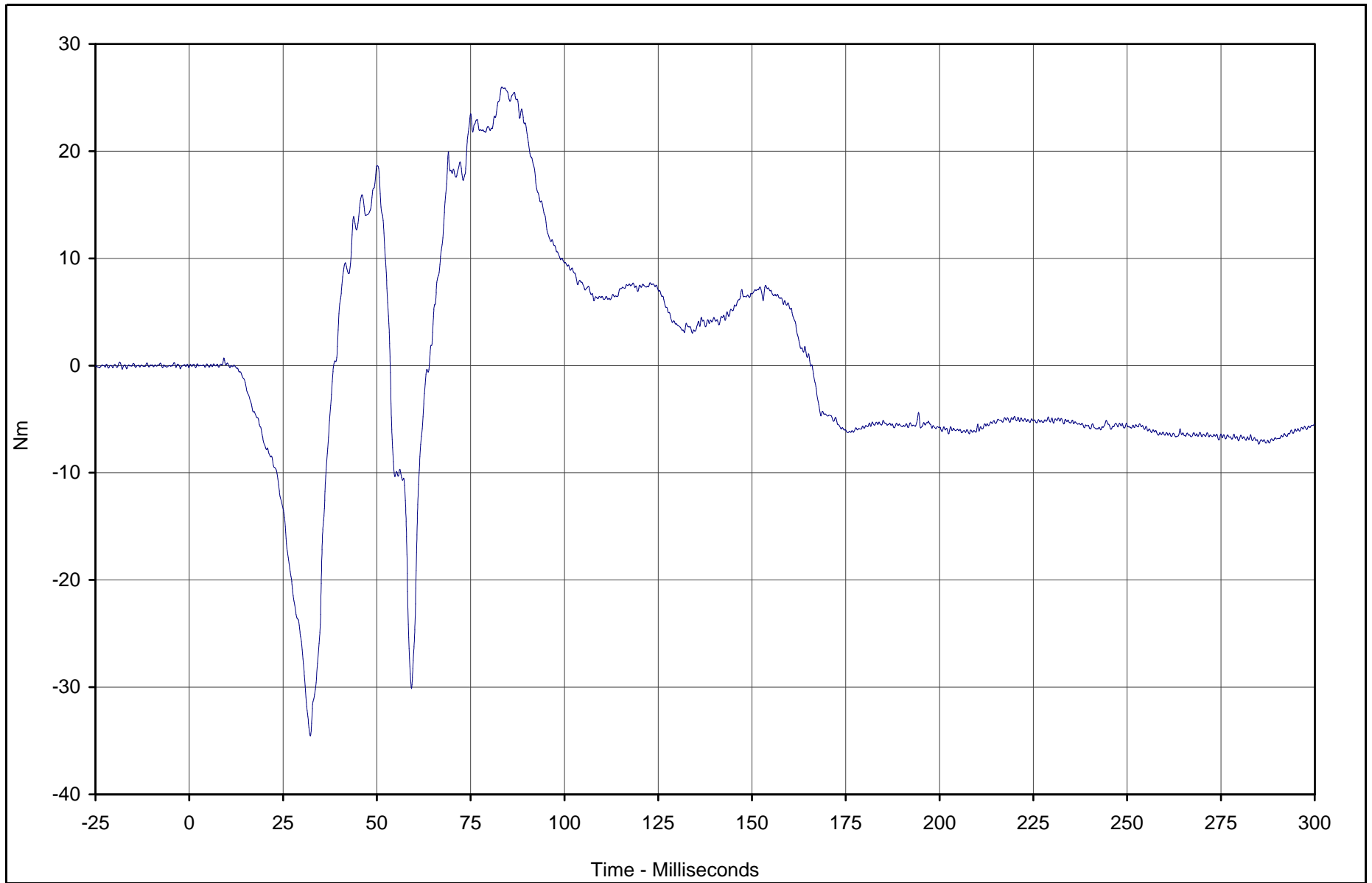
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-108



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Lower Tibia Moment Y	074	FIL	Nm	26.0	83.3	-34.5	32.3	600



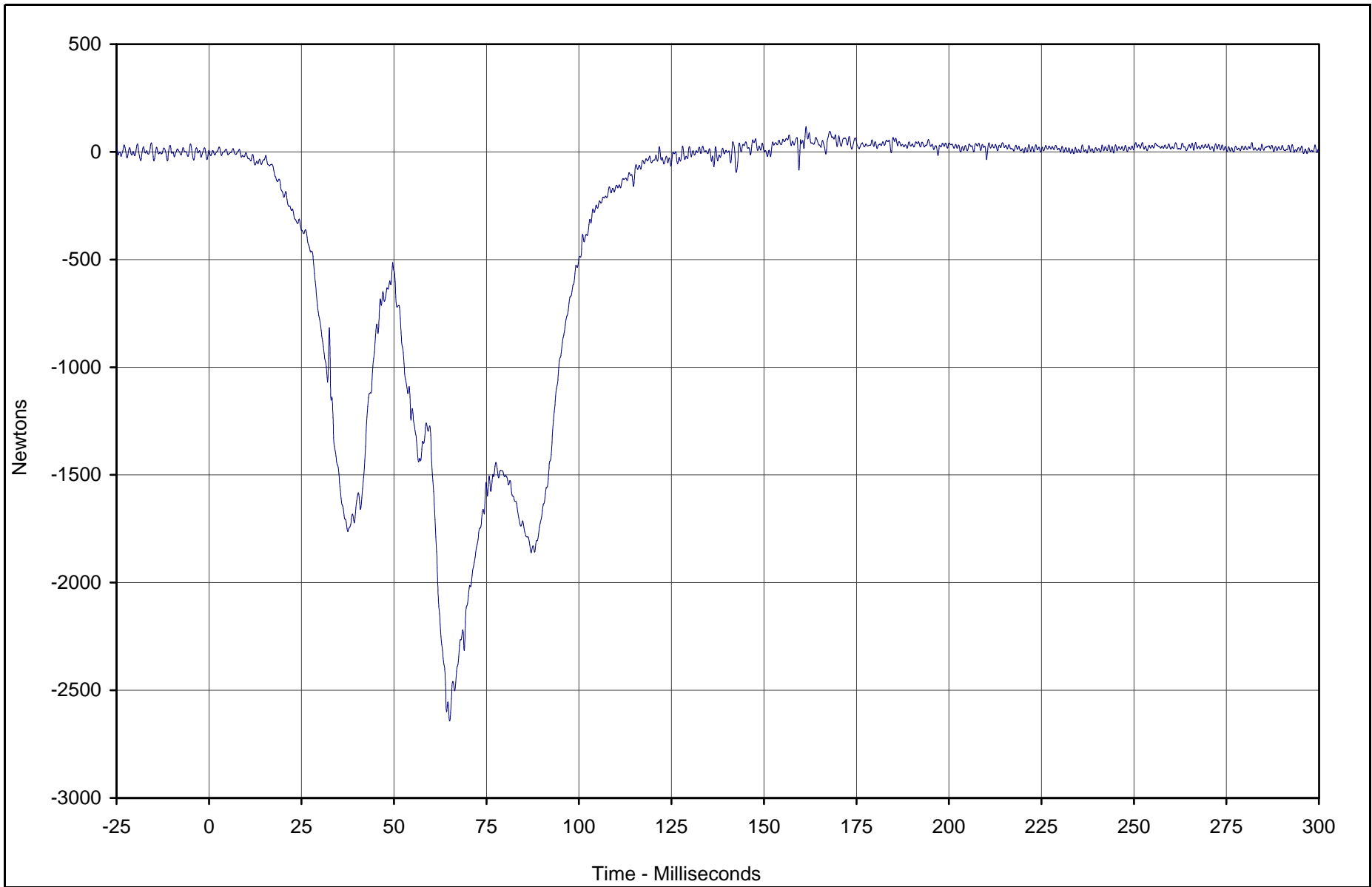
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



B-109

TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Lower Tibia Force Z	075	FIL	Newtons	117.0	161.4	-2641.6	65.1	600



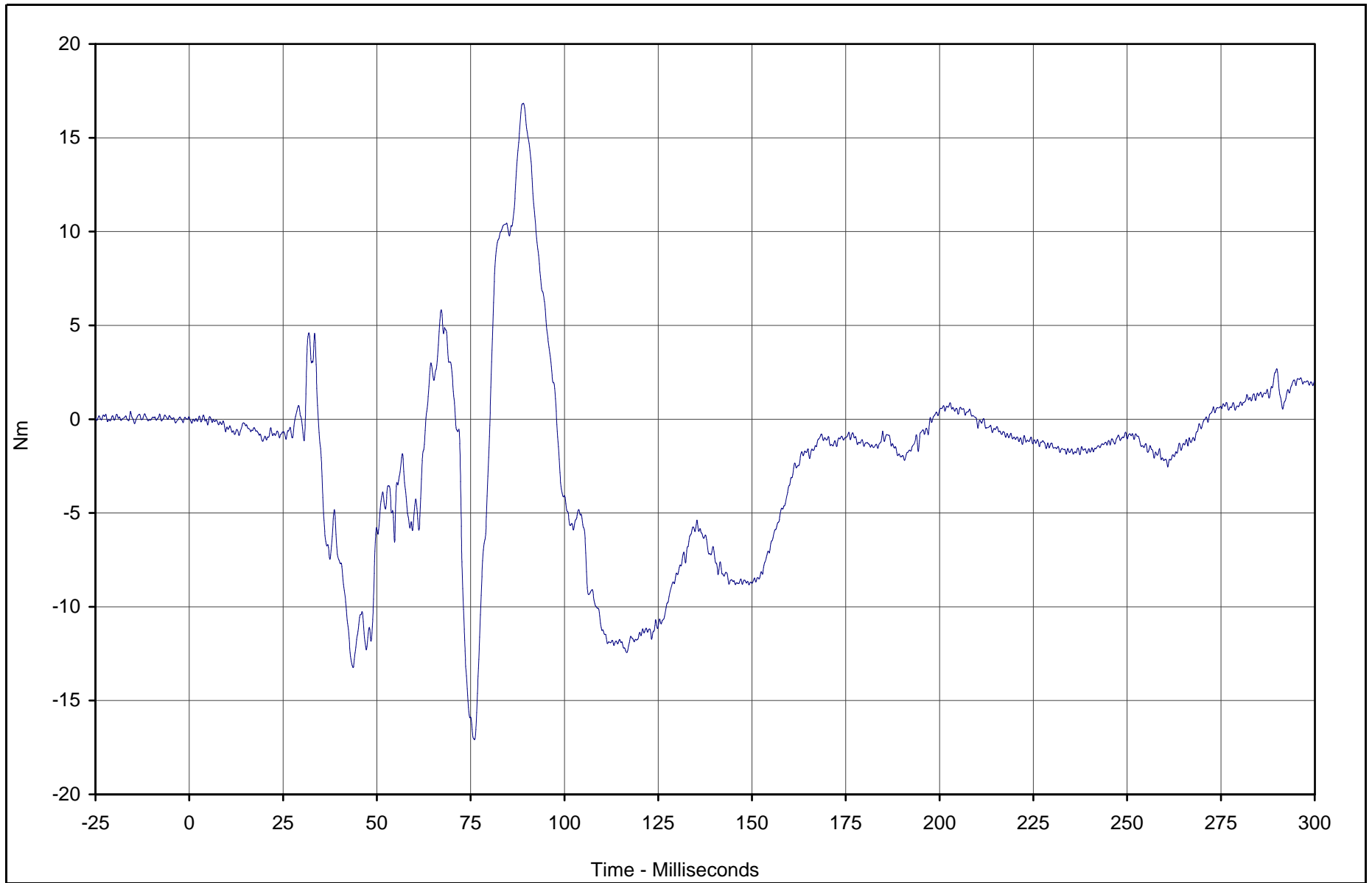
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-110



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Lower Tibia Moment X	076	FIL	Nm	16.8	89.0	-17.1	76.1	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

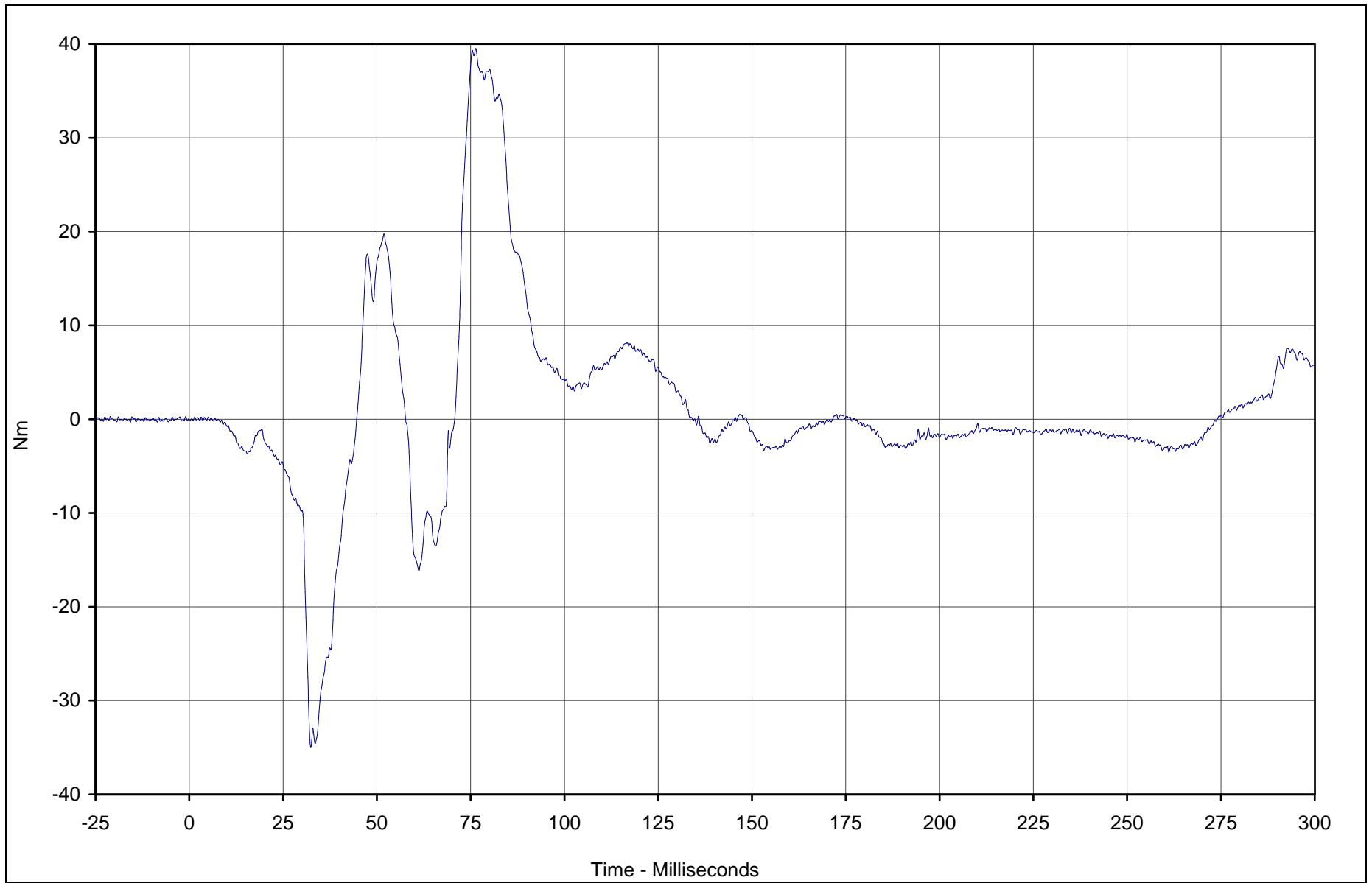
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-111



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Lower Tibia Moment Y	077	FIL	Nm	39.5	76.4	-35.0	32.4	600



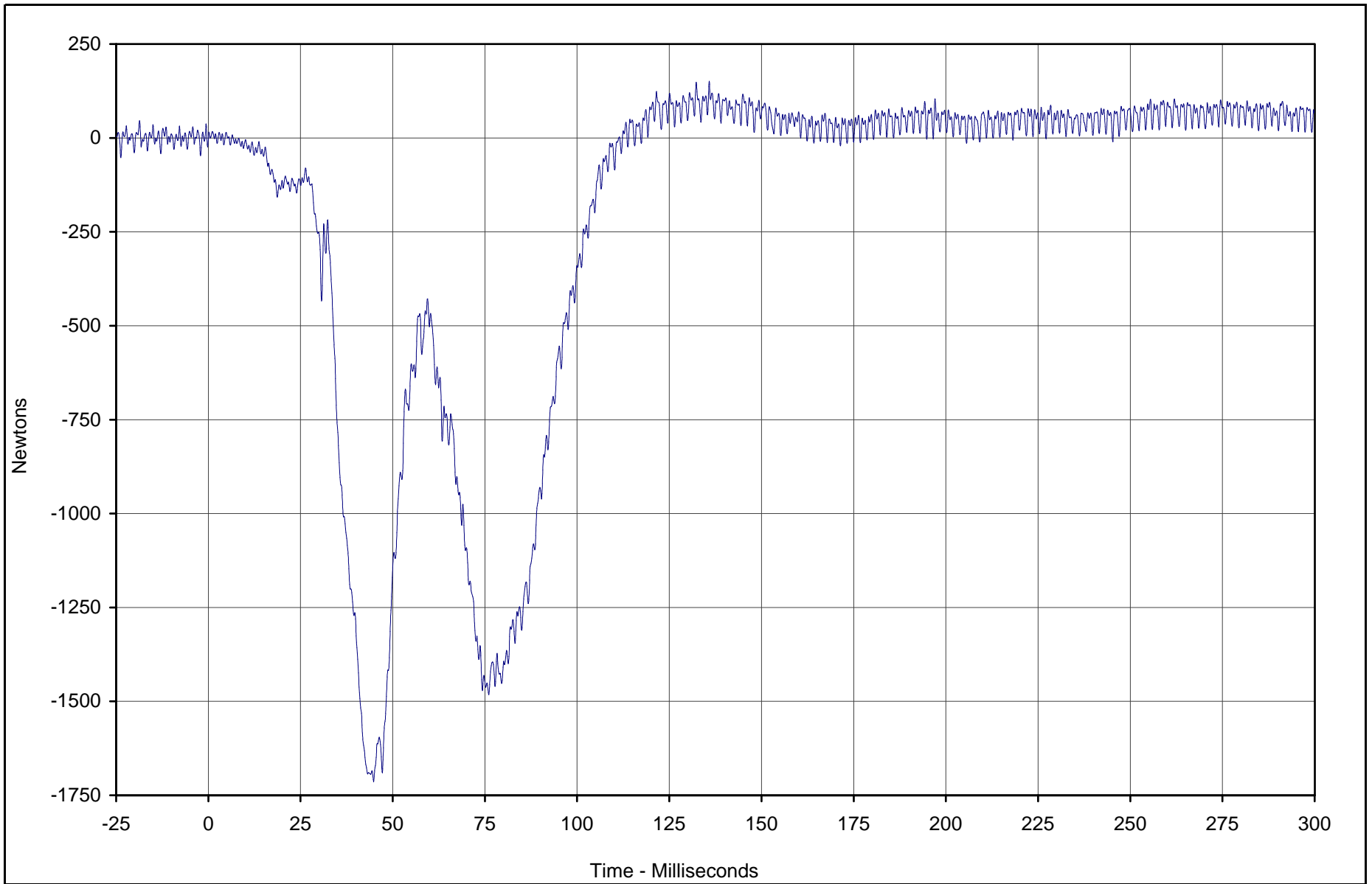
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right lower Tibia Force Z	078	FIL	Newtons	151.0	135.8	-1714.5	44.8	600

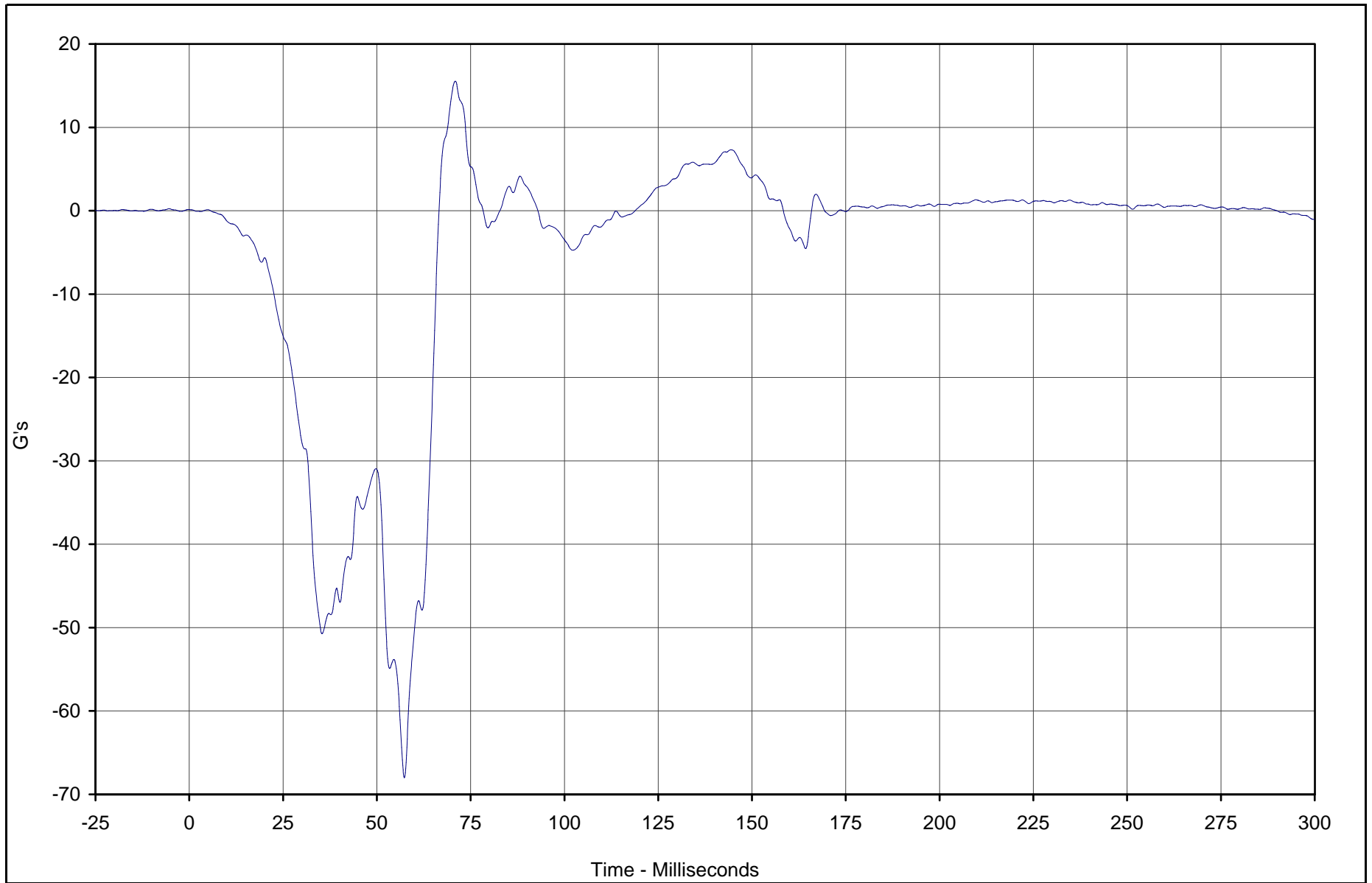


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Foot Aft X	079	FIL	G's	15.6	70.9	-68.0	57.3	180



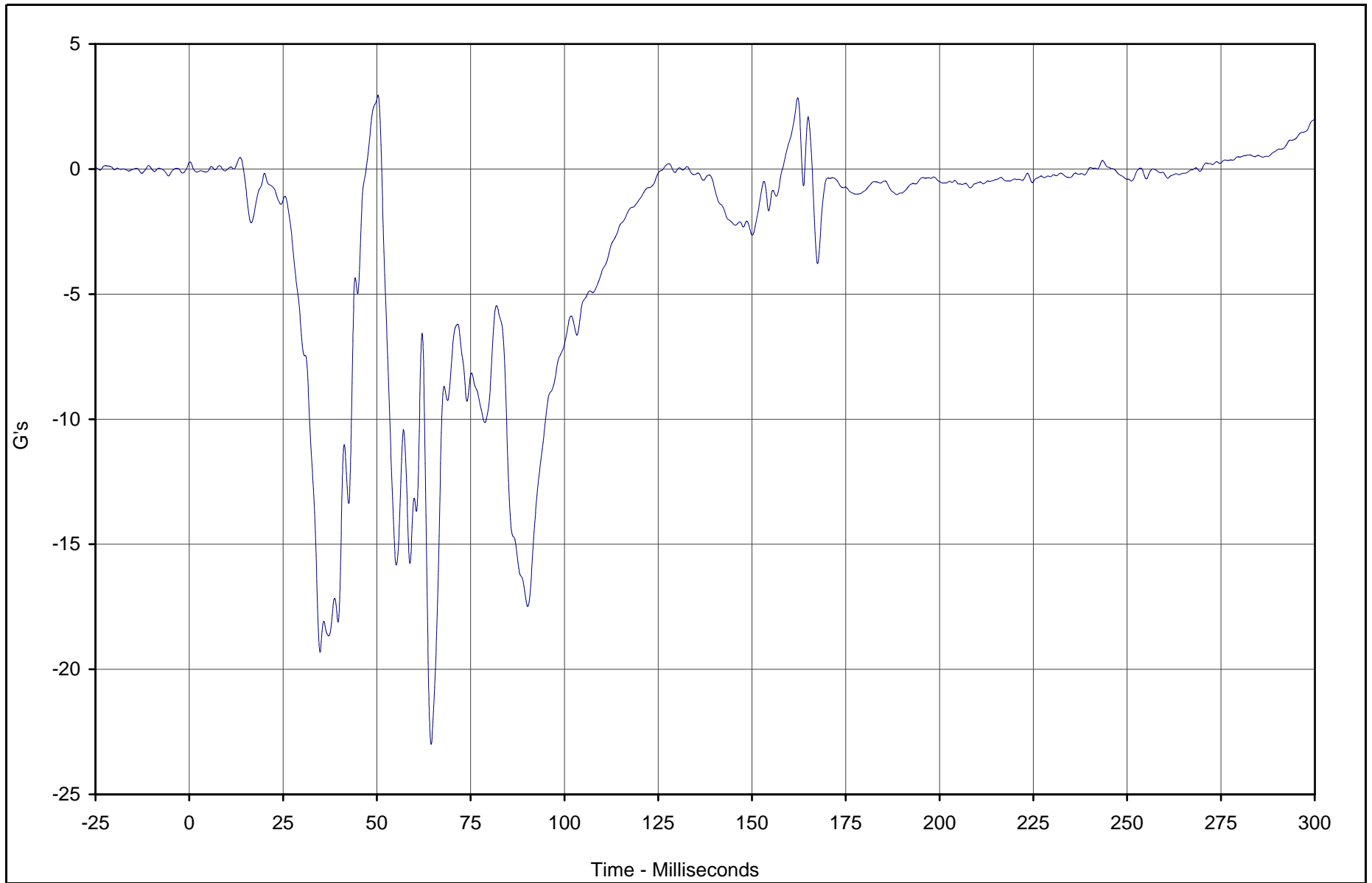
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-114



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Foot Aft Z	080	FIL	G's	3.0	50.3	-23.0	64.5	180



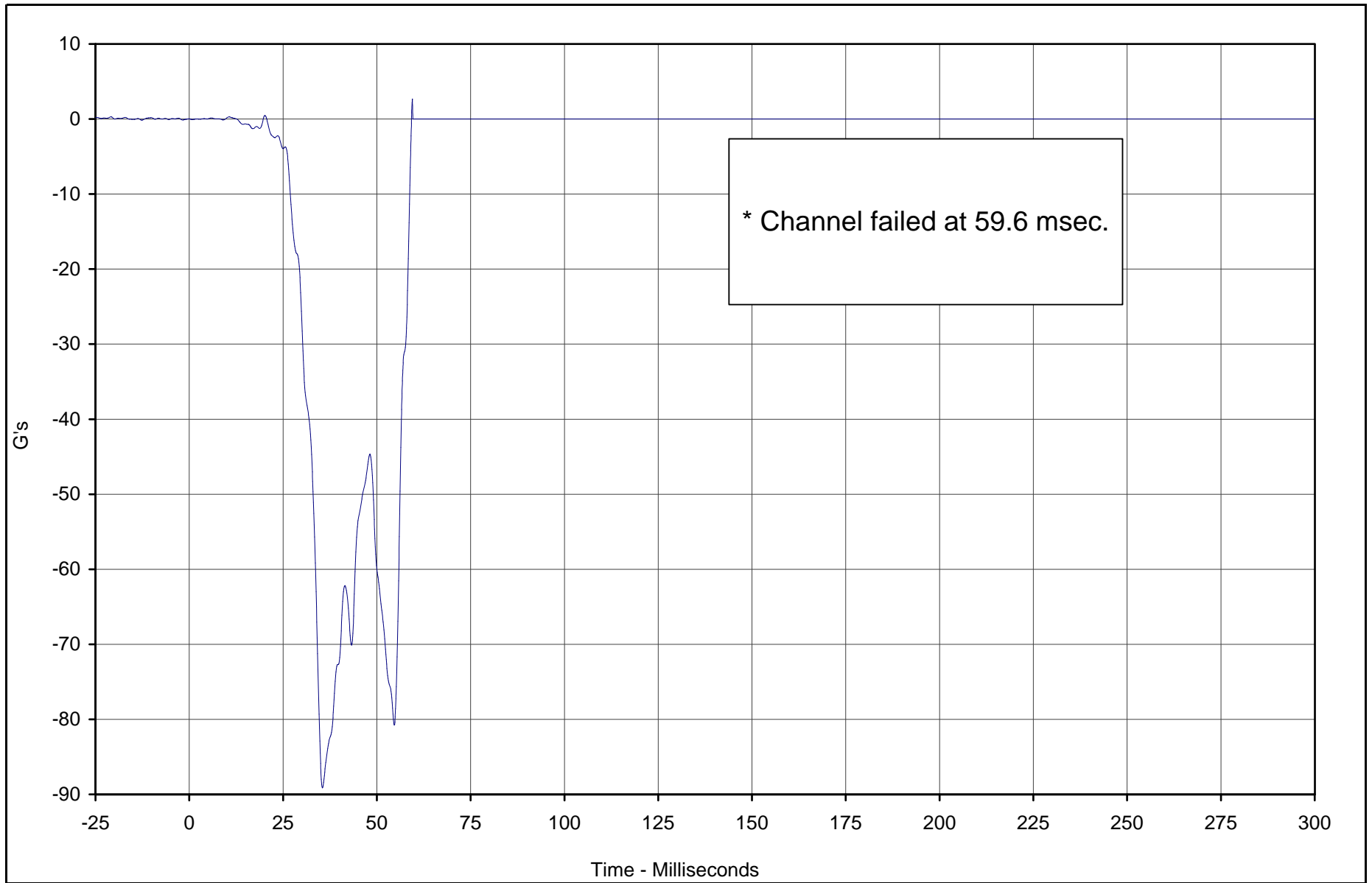
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



* Channel failed at 59.6 msec.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Foot Fore Z	081	FIL	G's	2.6	59.5	-89.1	35.5	180

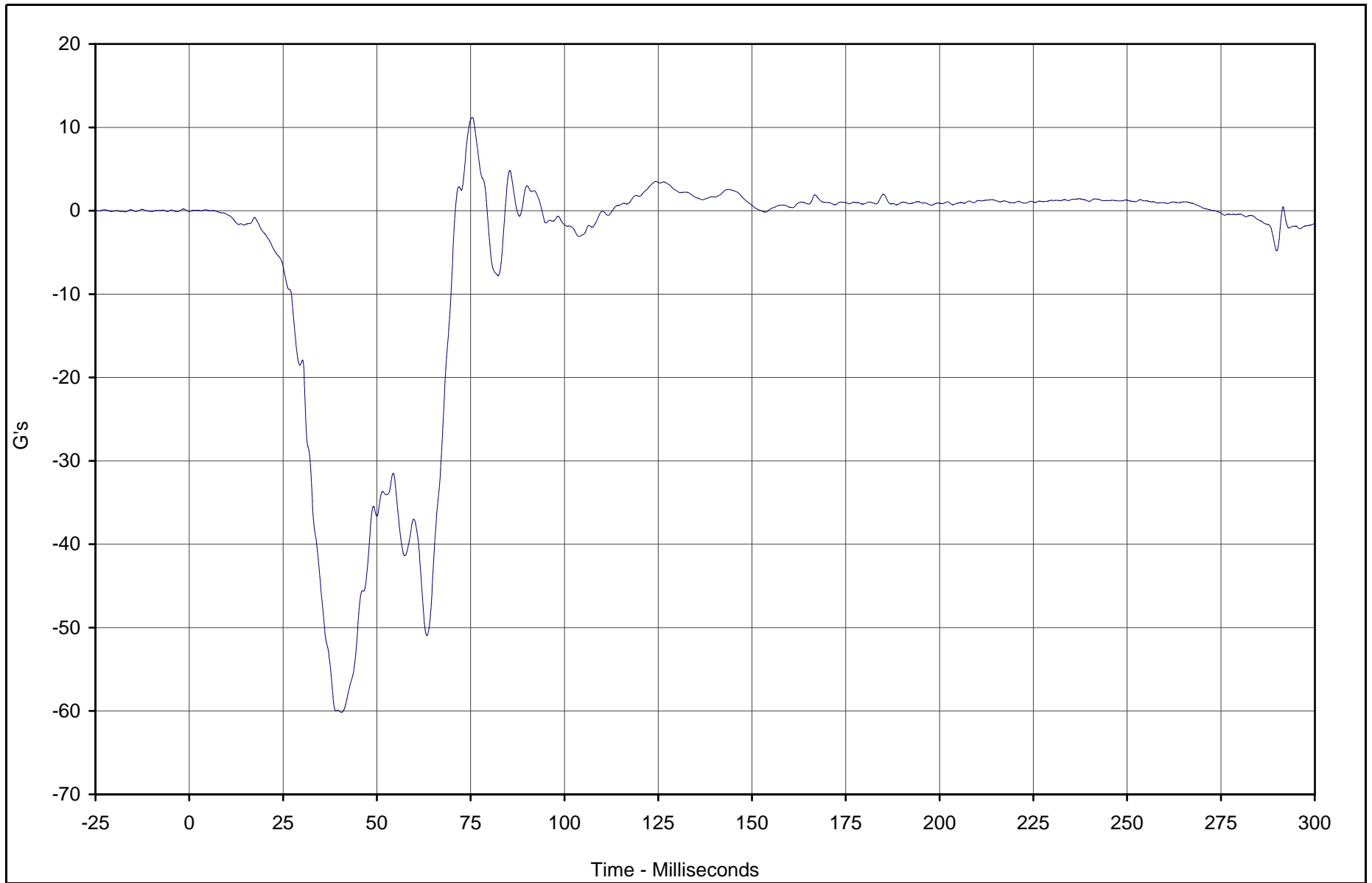


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Foot Aft X	082	FIL	G's	11.2	75.4	-60.2	40.5	180



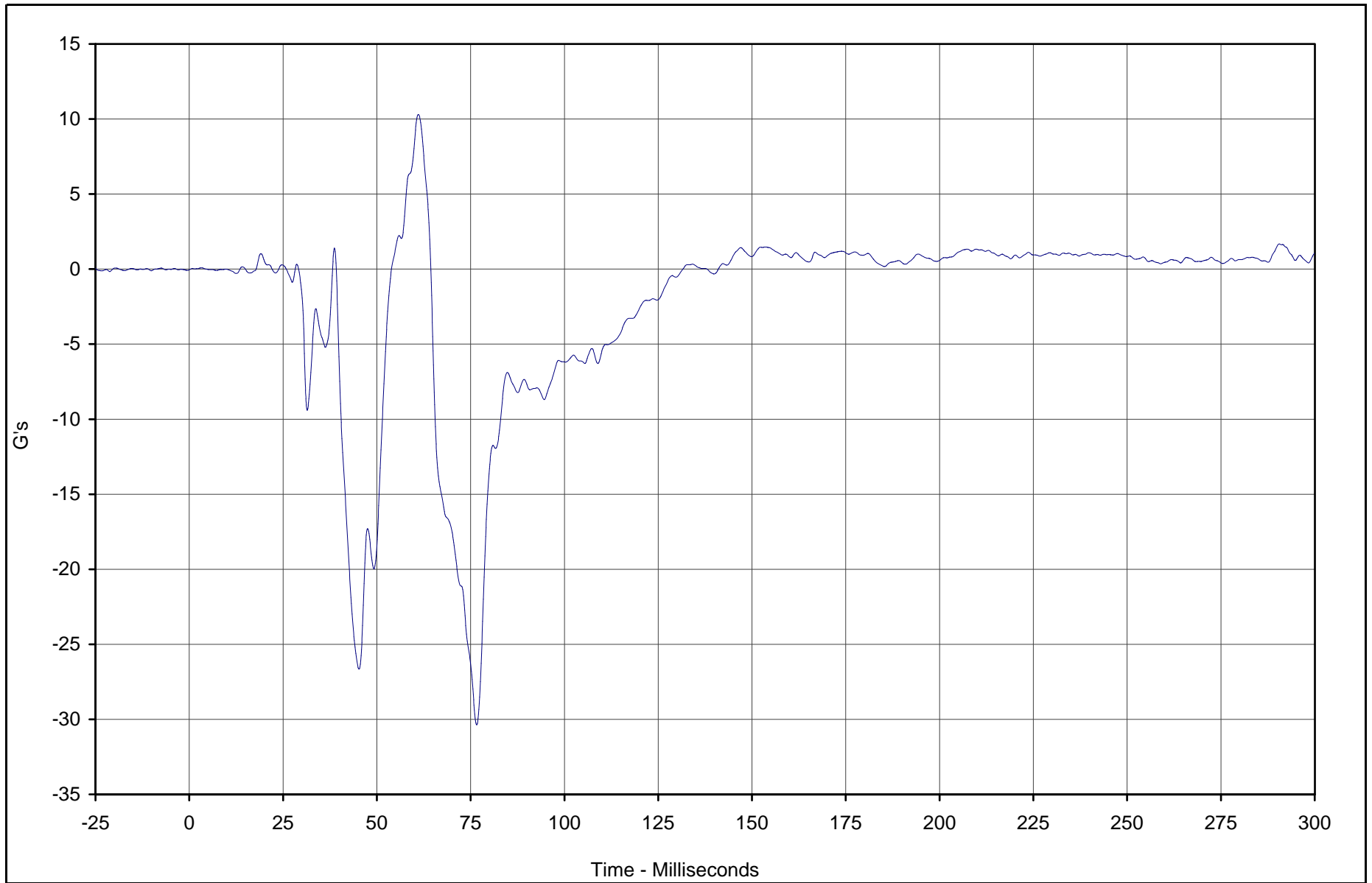
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-117



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Foot Aft Z	083	FIL	G's	10.3	61.1	-30.4	76.6	180



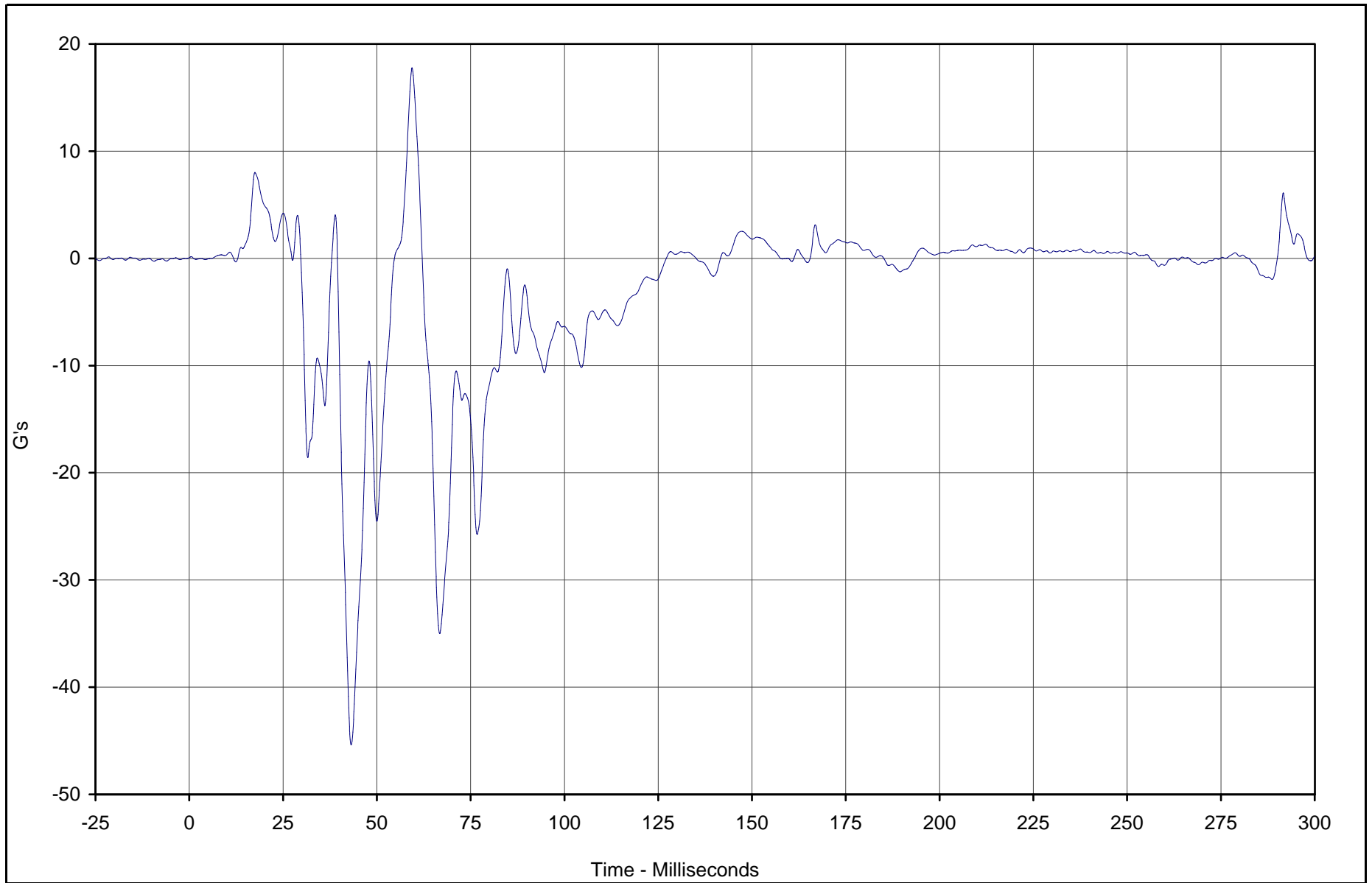
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Foot Fore Z	084	FIL	G's	17.8	59.4	-45.4	43.2	180

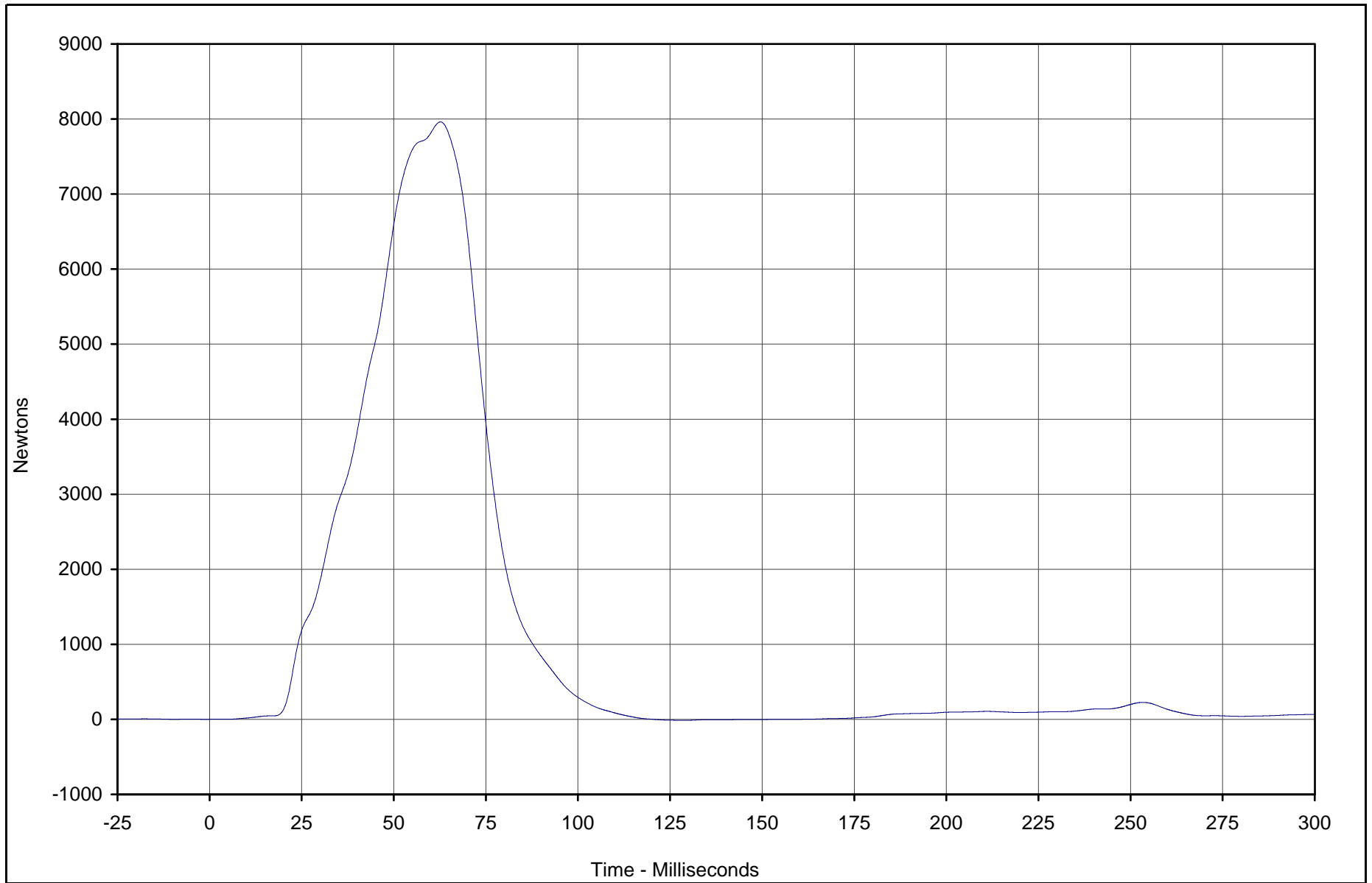


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Lap Belt Force	085	FIL	Newtons	7961.6	62.7	-13.6	128.8	60



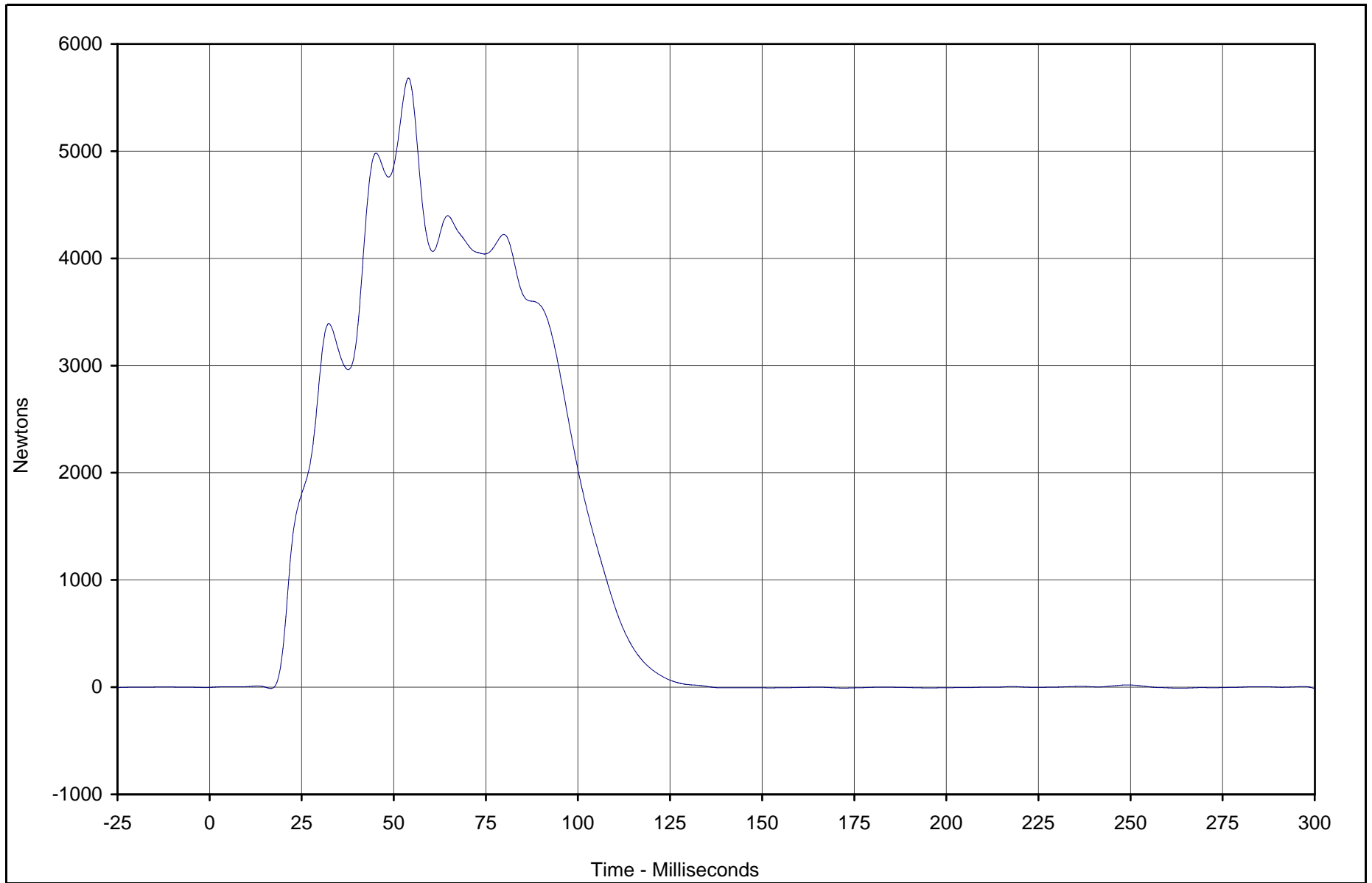
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-120



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Shoulder Belt Force	086	FIL	Newtons	5682.1	54.0	-14.4	299.9	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

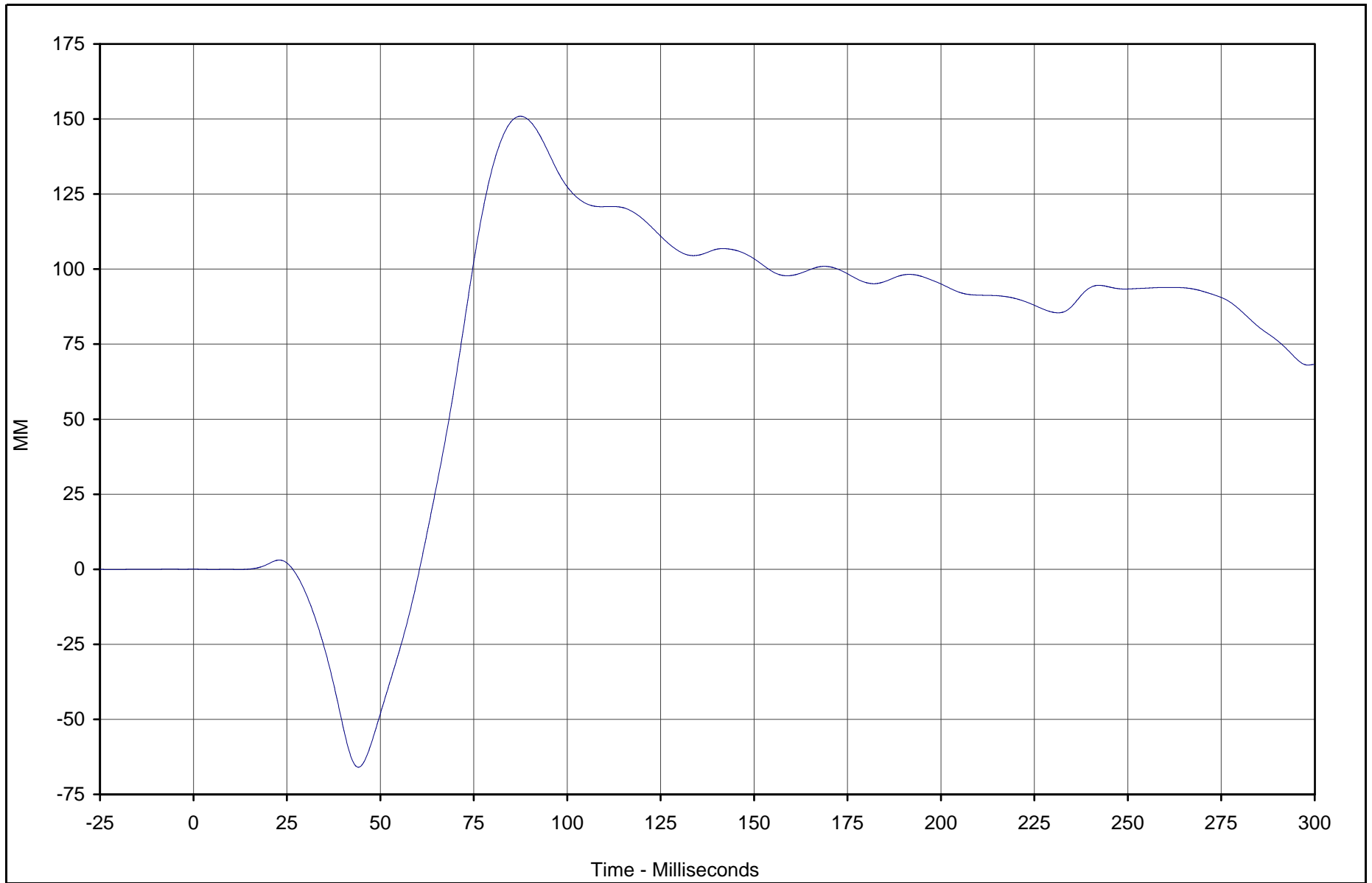
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-121



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Shoulder Belt Pullout	087	FIL	MM	150.9	87.5	-66.0	44.1	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

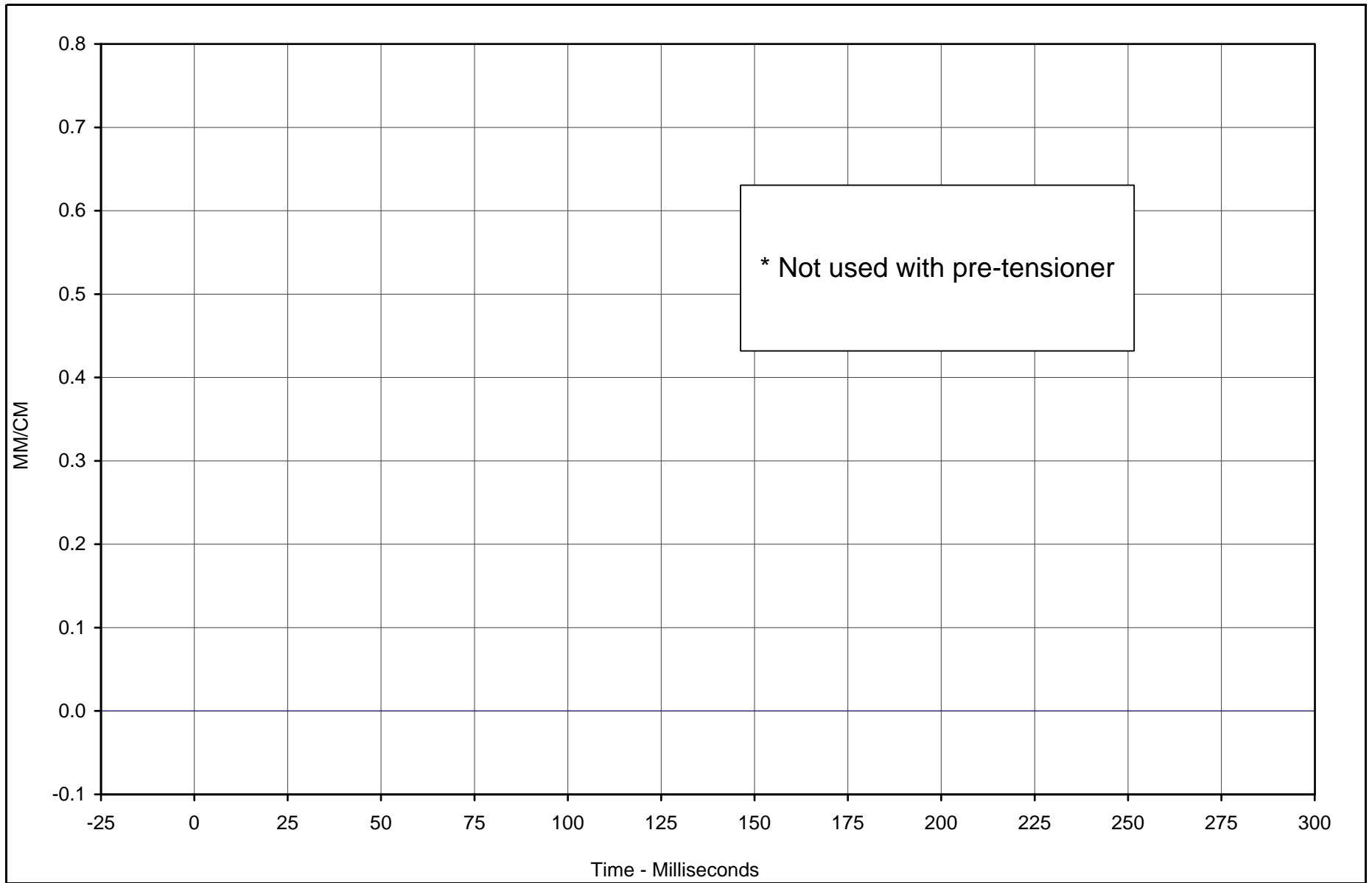
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-122



* 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 Toyota 4 Runner SR5 4WD SUV

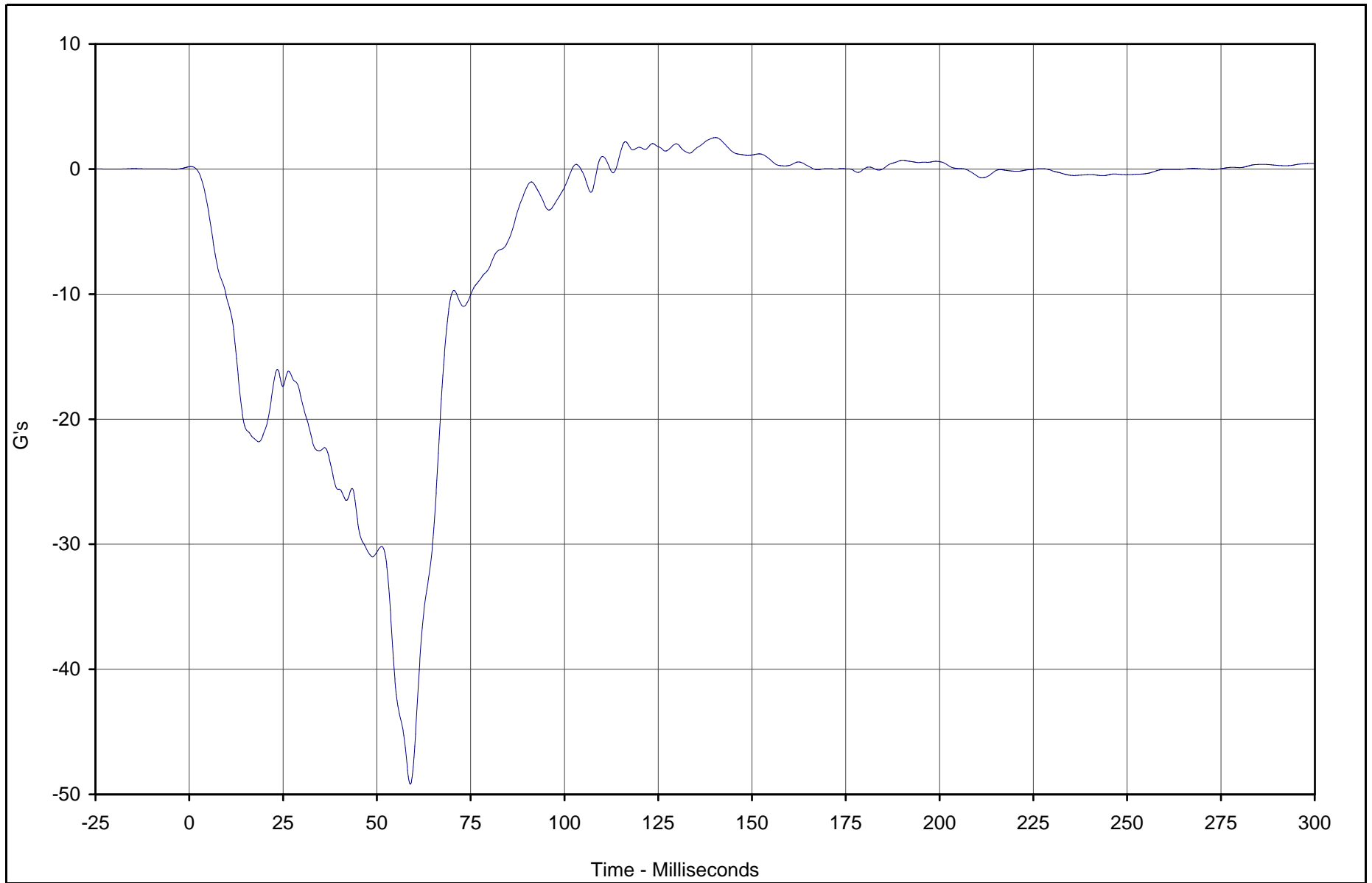
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-123



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear X	089	FIL	G's	2.5	140.2	-49.2	58.9	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

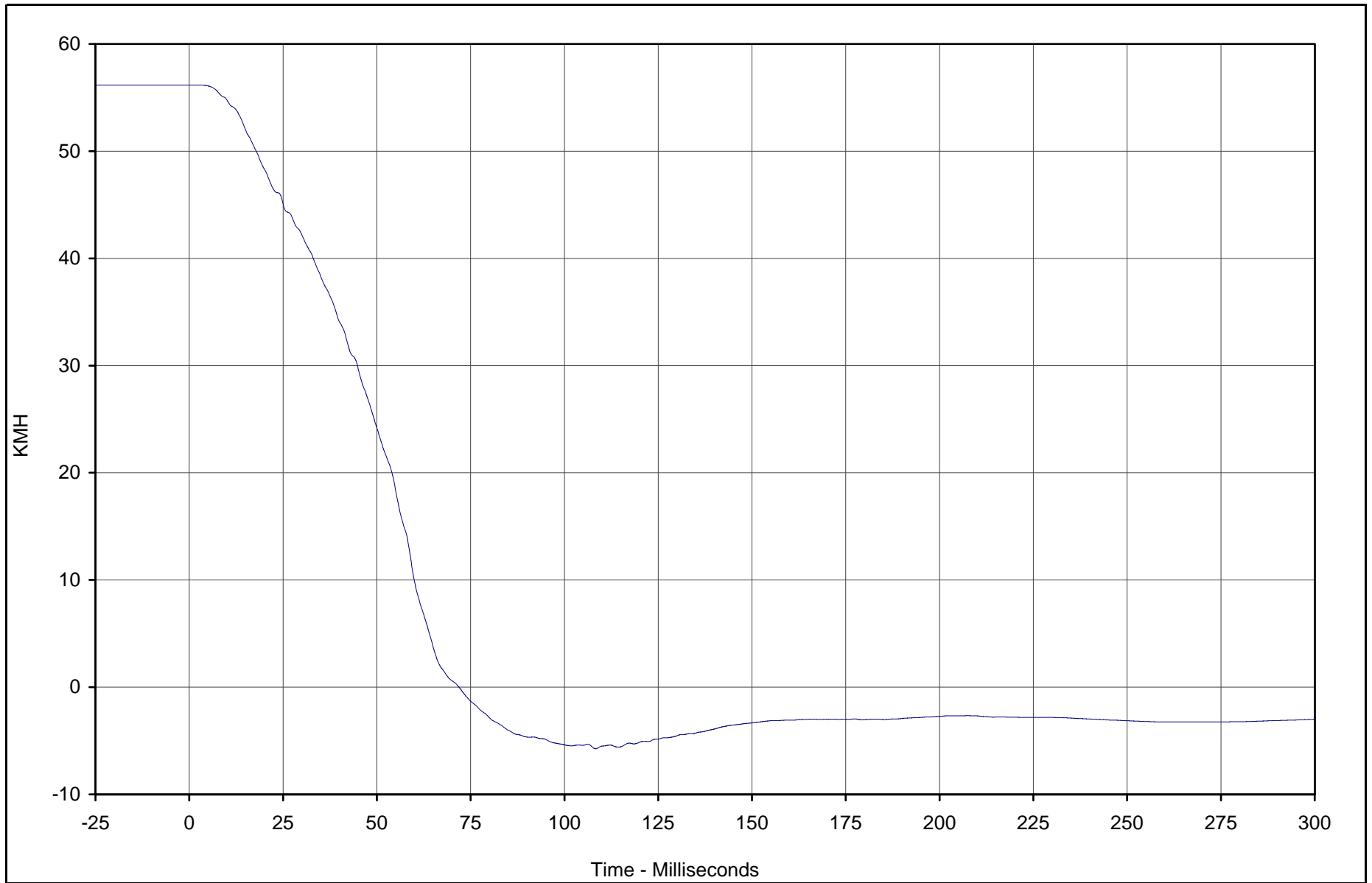
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-124



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear X Velocity	089	IN1	KMH	56.2	2.4	-5.7	108.3	180



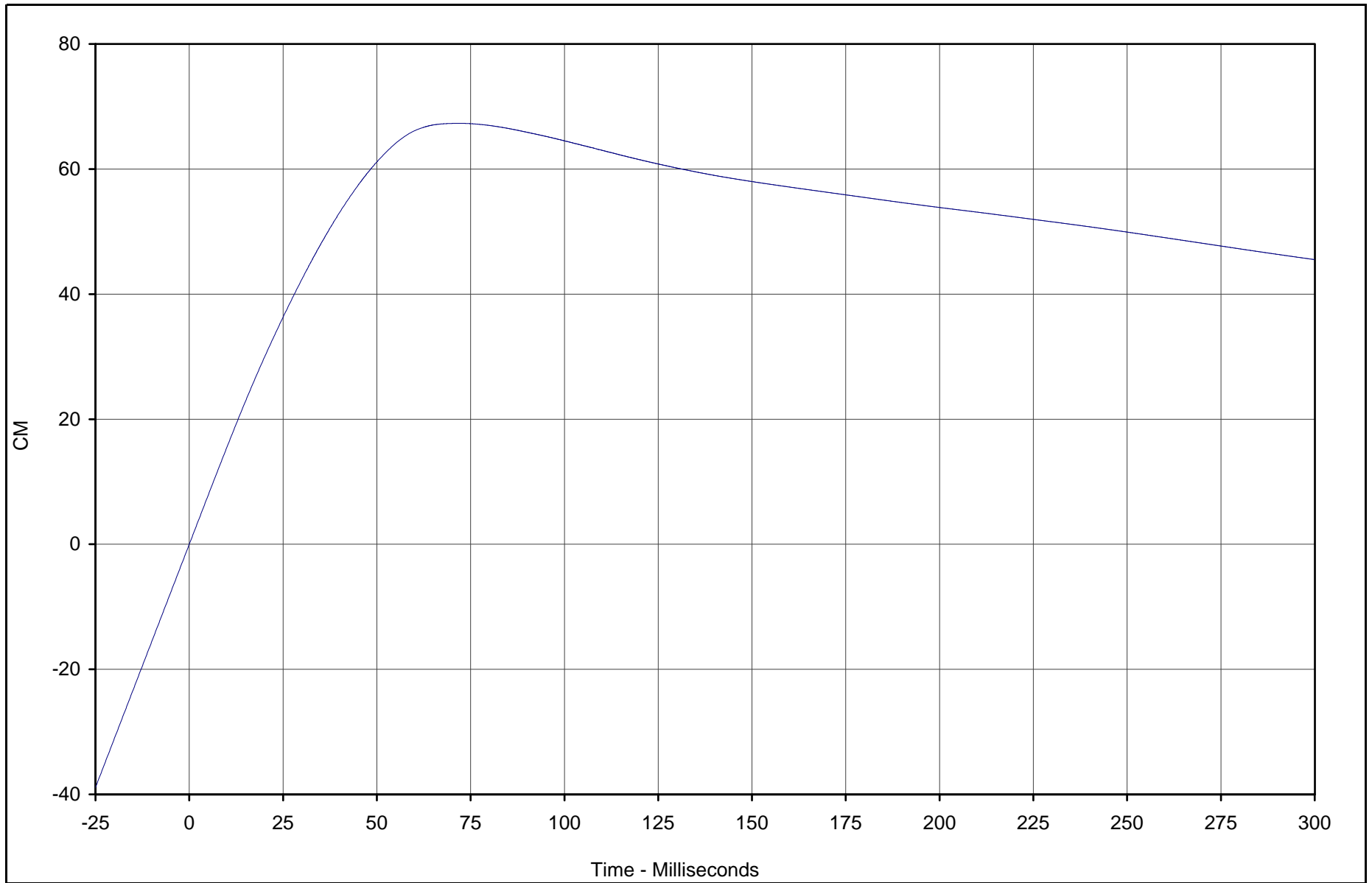
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-125



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear X Displ.	089	IN2	CM	67.3	71.9	0.0	0.0	180



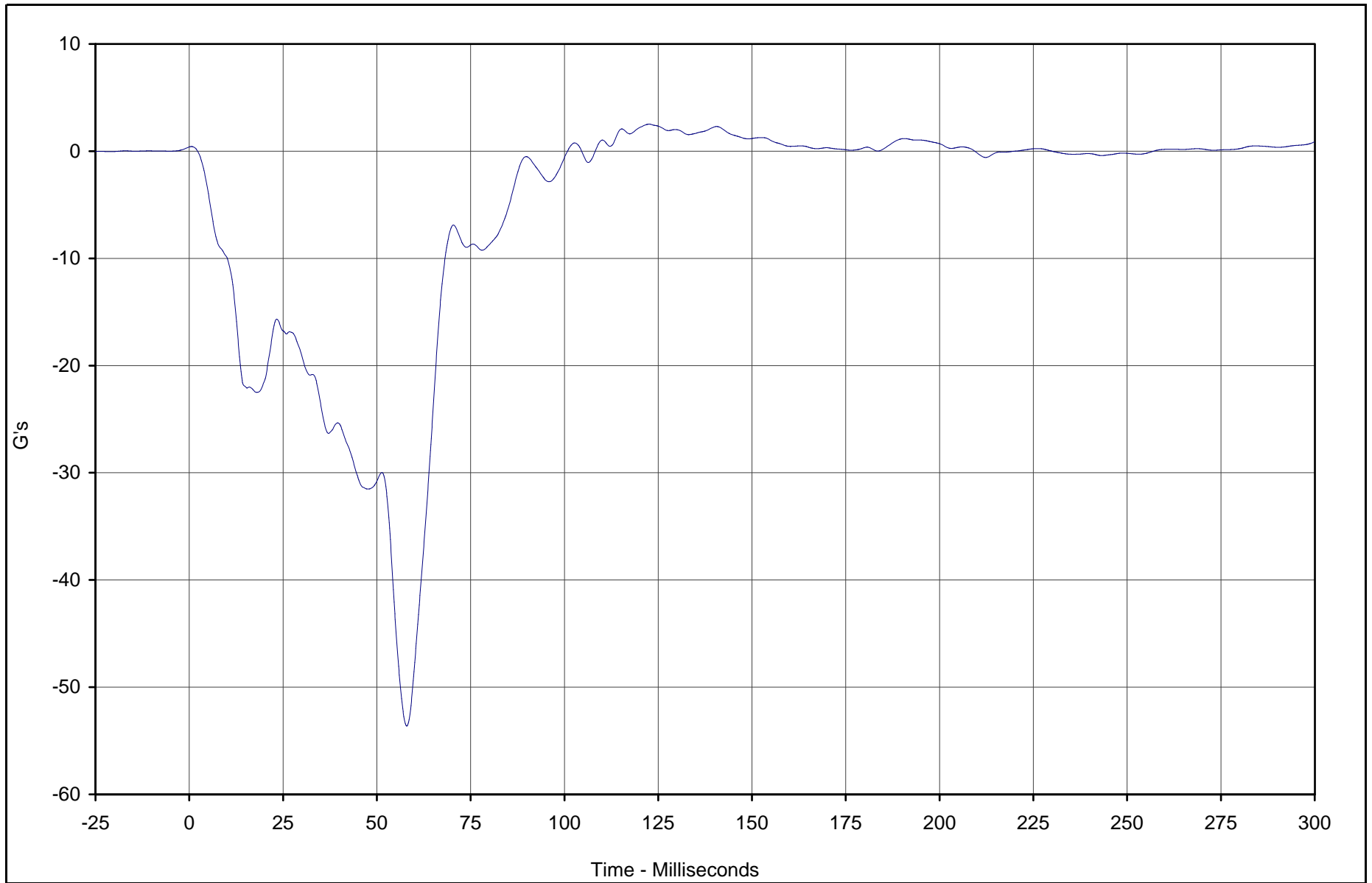
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear X	090	FIL	G's	2.5	122.6	-53.6	58.0	60



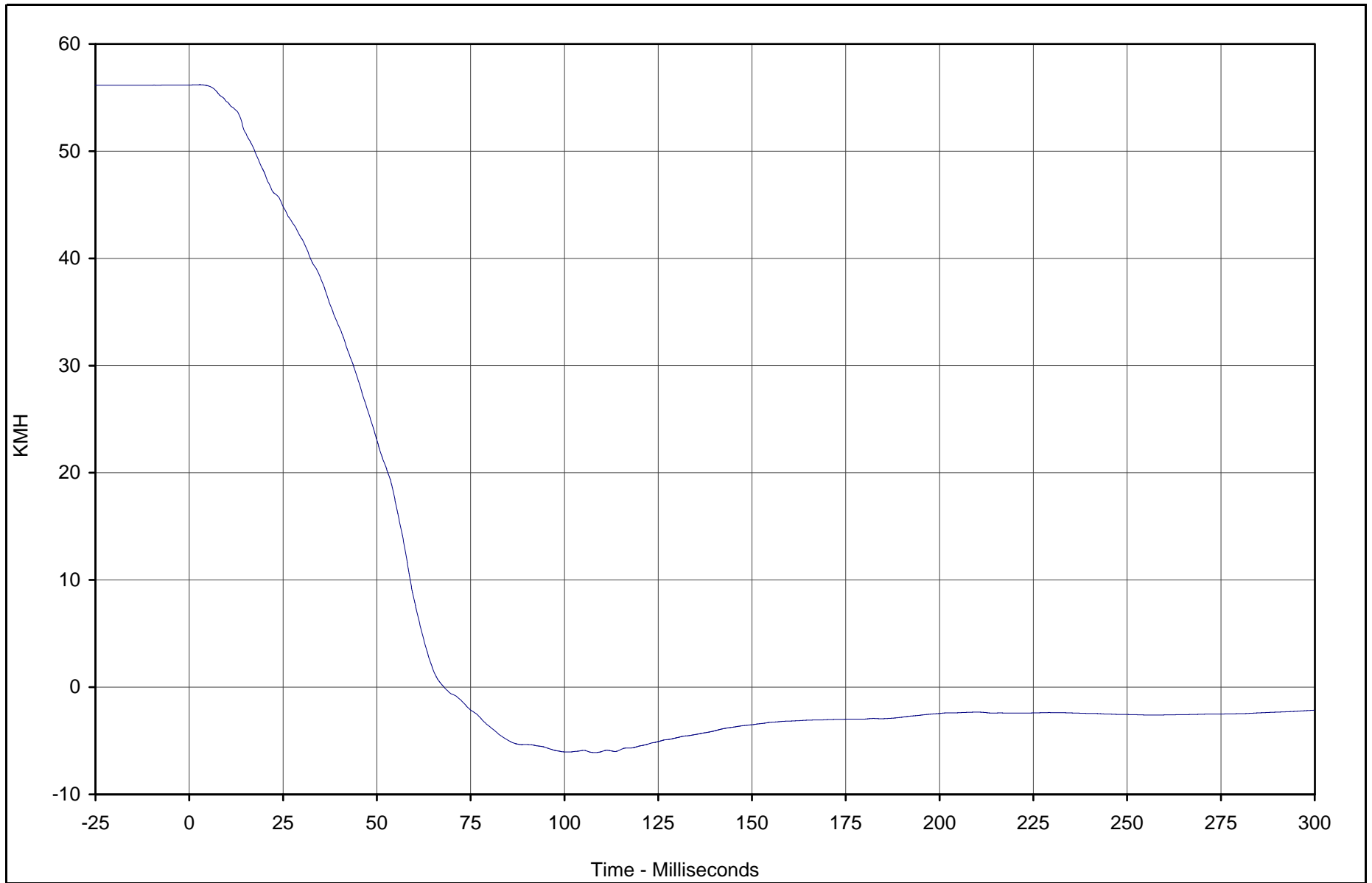
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-127



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear X Velocity	090	IN1	KMH	56.2	2.9	-6.1	108.1	180



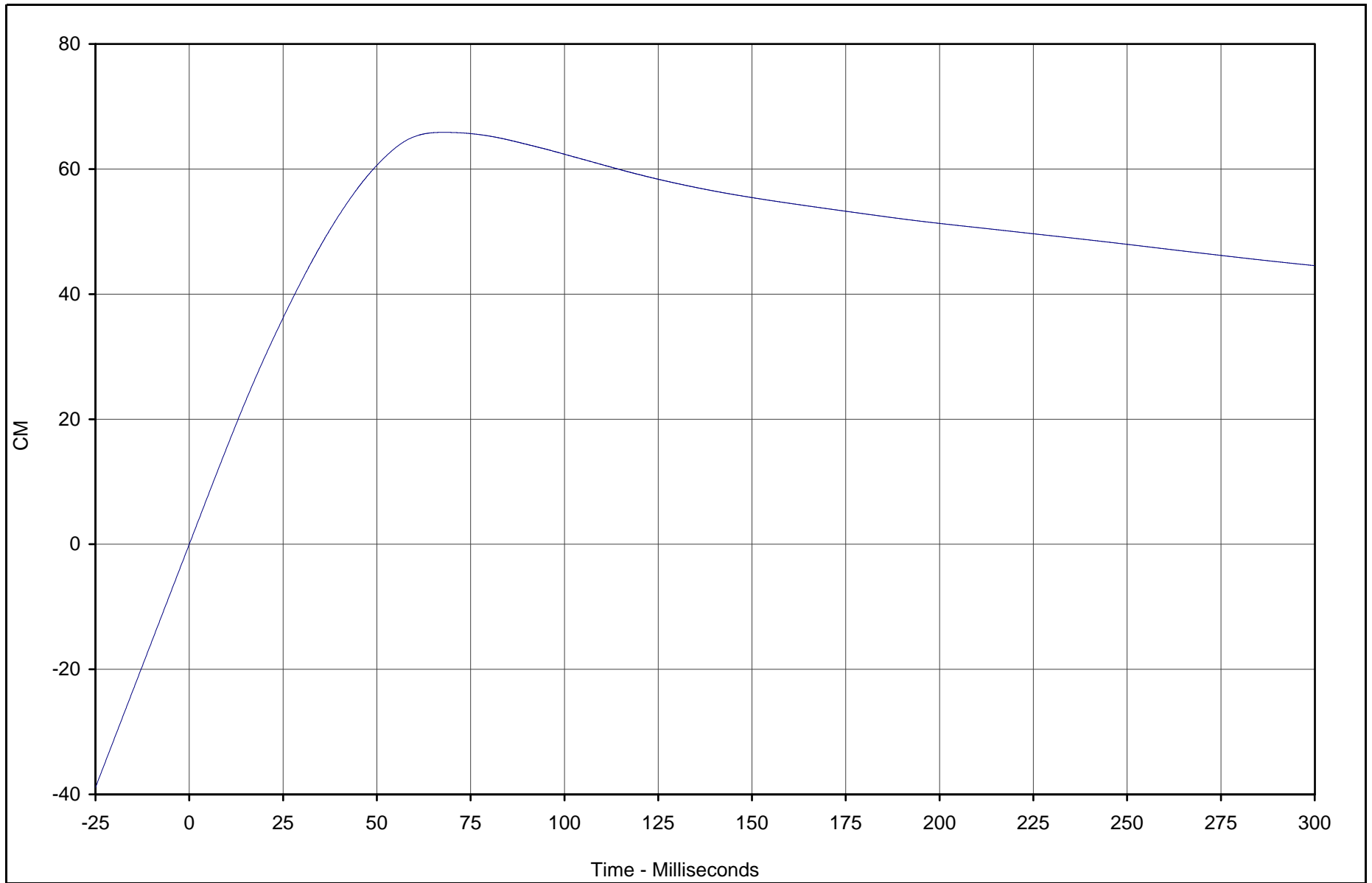
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-128



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear X Displ.	090	IN2	CM	65.9	67.9	0.0	0.0	180



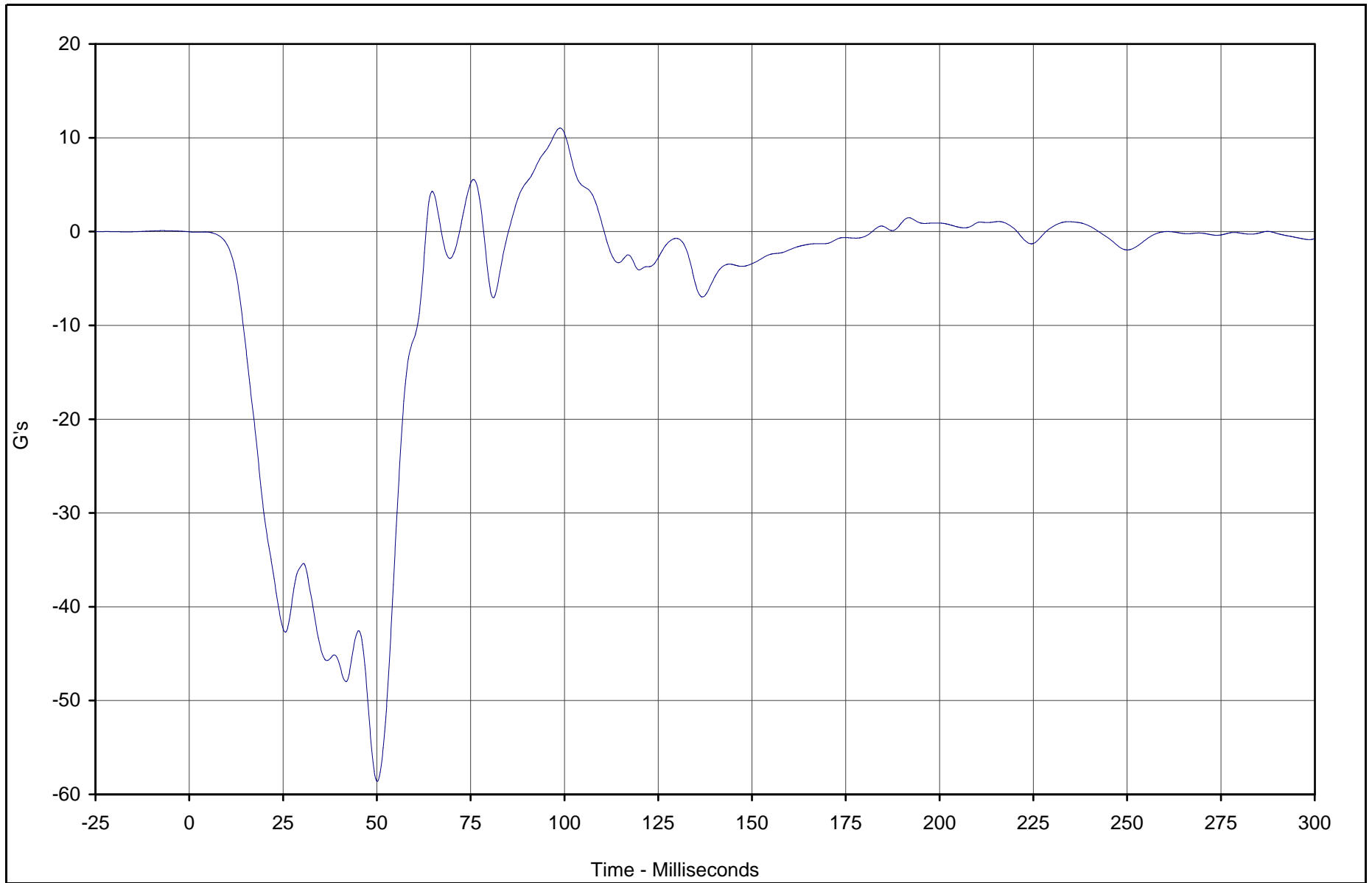
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-129



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Top	091	FIL	G's	11.0	98.9	-58.6	50.1	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

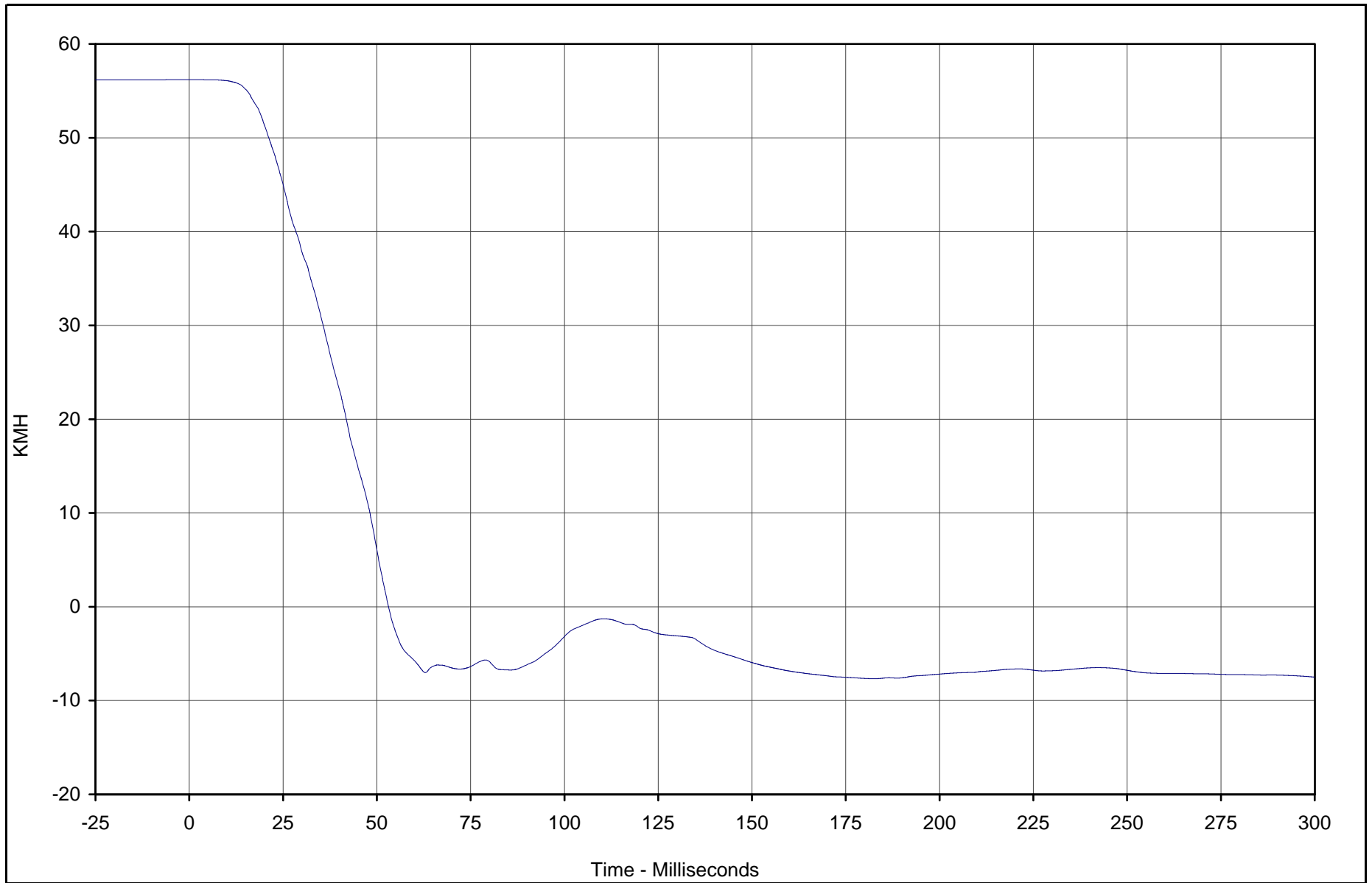
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-130



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Top Velocity	091	IN1	KMH	56.2	0.0	-7.7	182.4	180



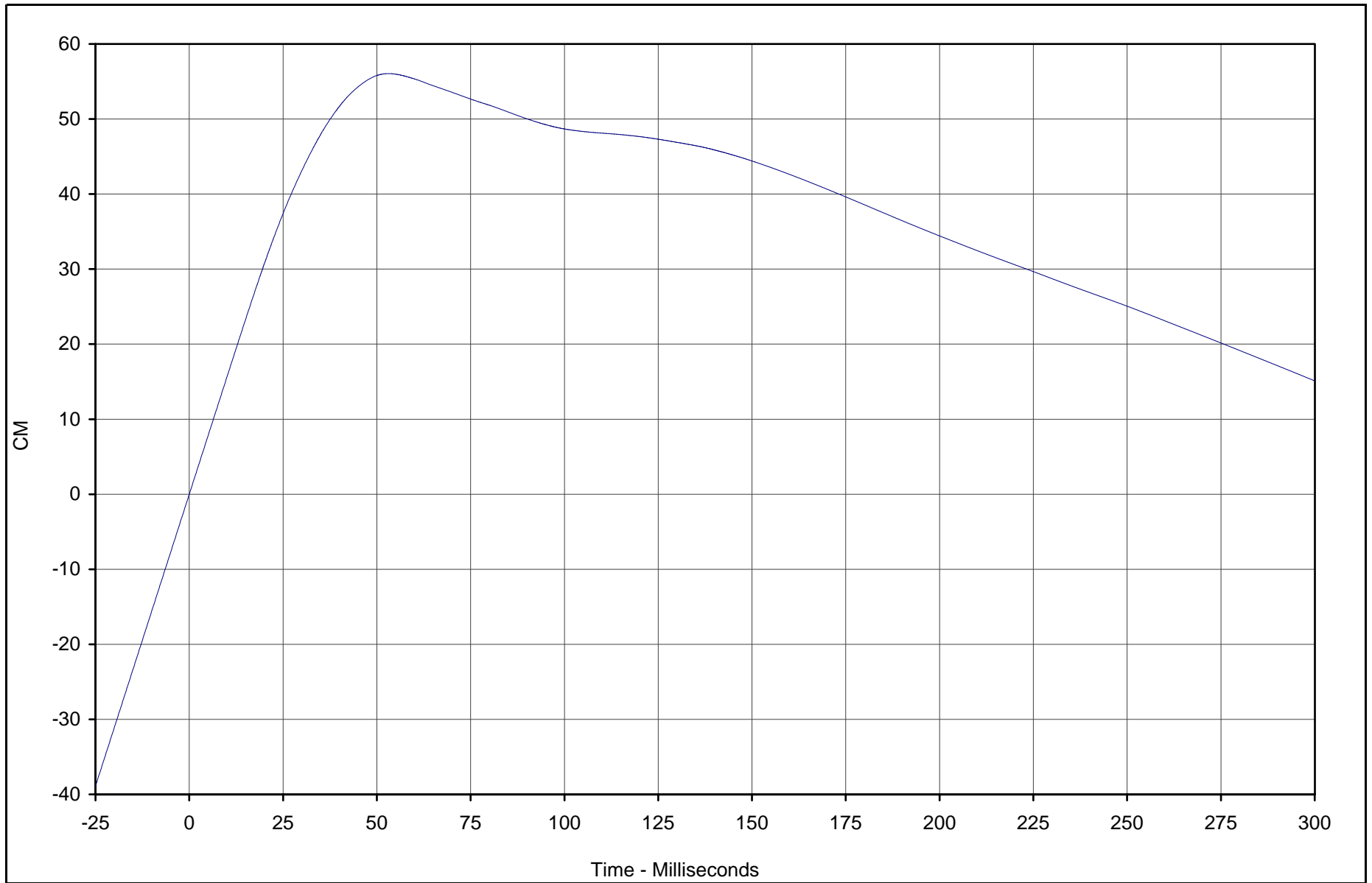
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-131



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Top Displacement	091	IN2	CM	56.1	53.1	0.0	0.0	180



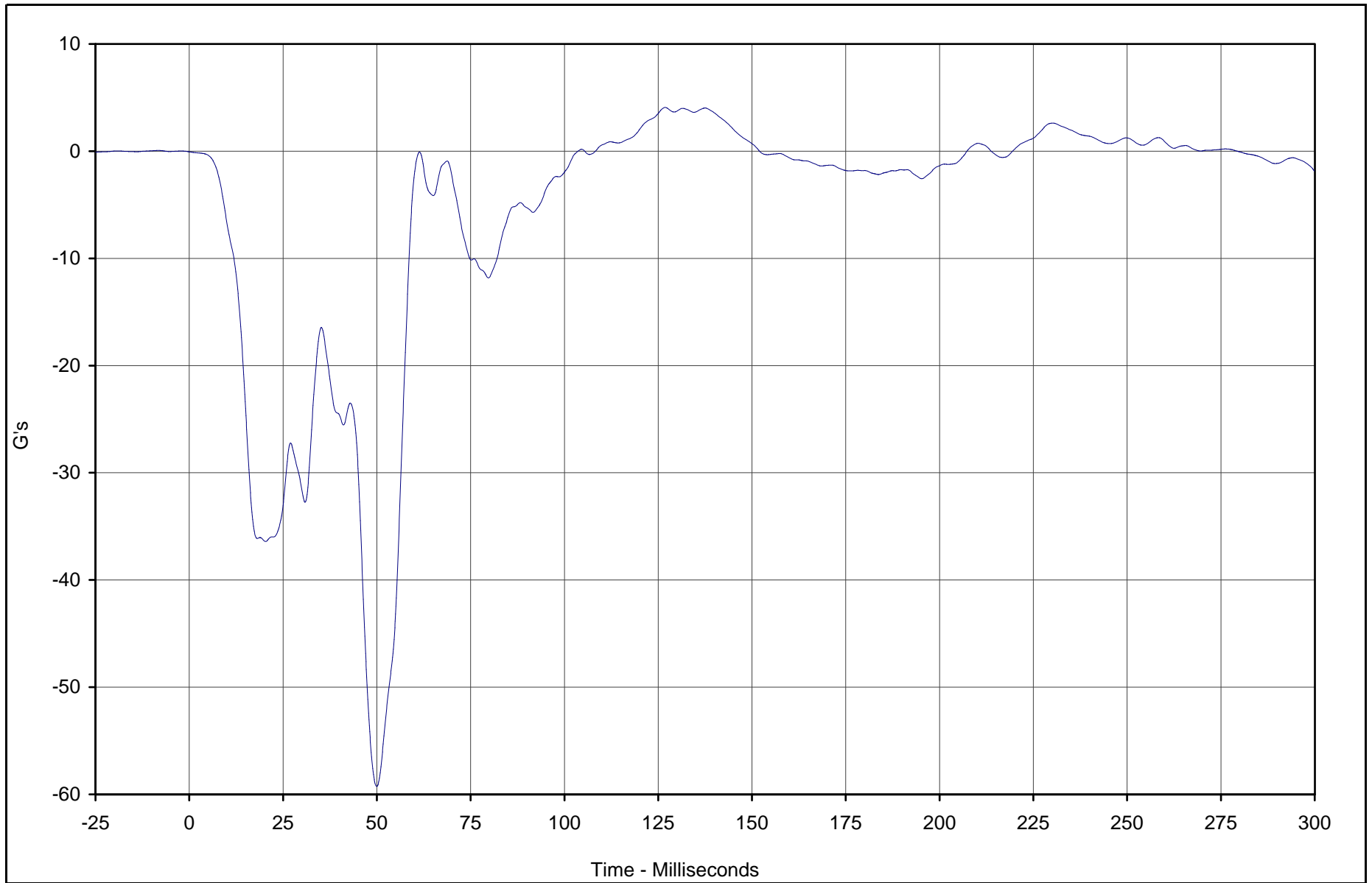
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-132



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Bottom	092	FIL	G's	4.1	126.8	-59.3	50.0	60



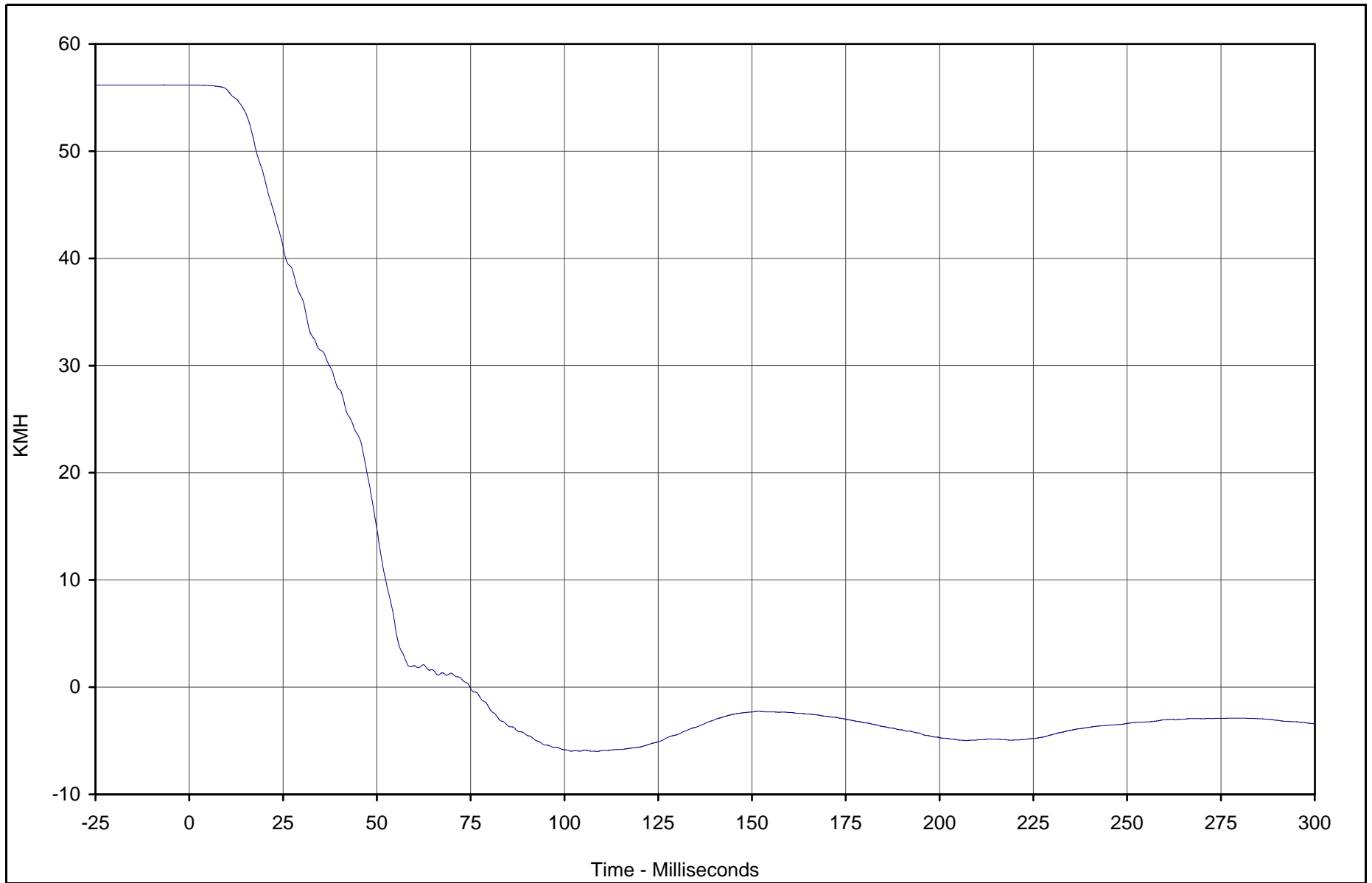
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-133



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Bottom Velocity	092	IN1	KMH	56.2	0.0	-6.0	108.6	180



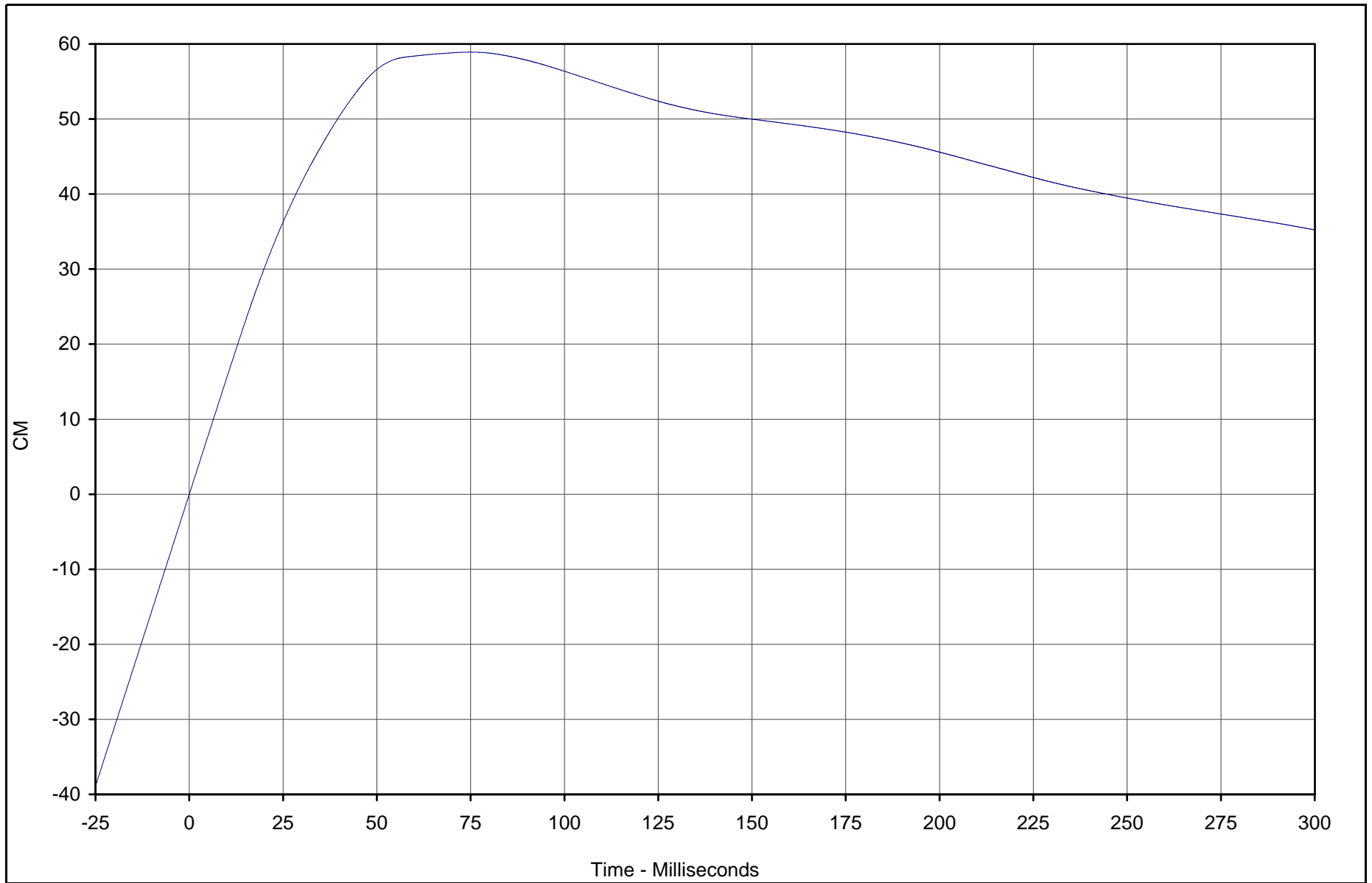
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-134



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Bottom Displacement	092	IN2	CM	58.9	74.8	0.0	0.0	180



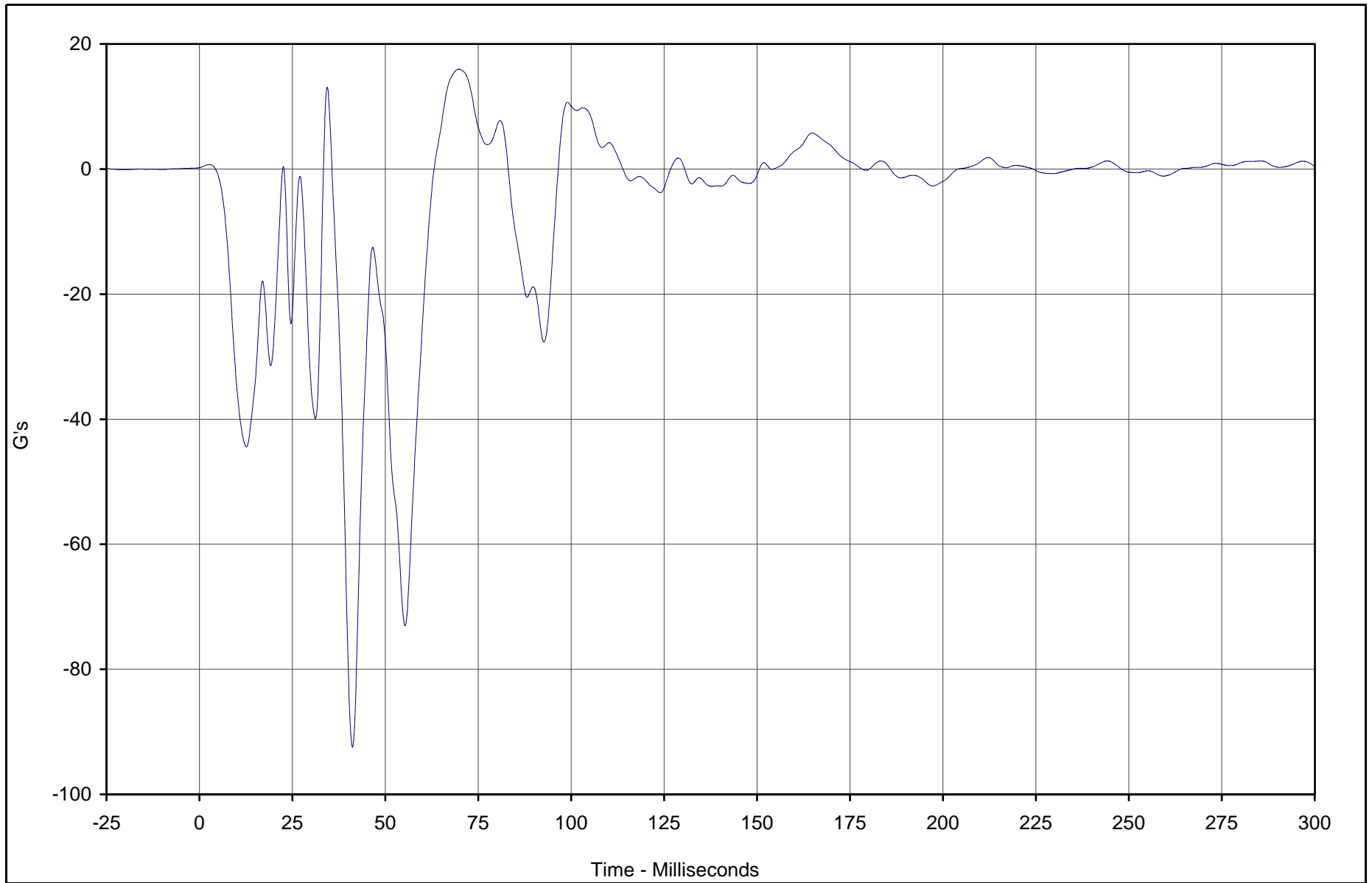
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-135



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Brake Caliper	093	FIL	G's	16.0	69.8	-92.5	41.2	60



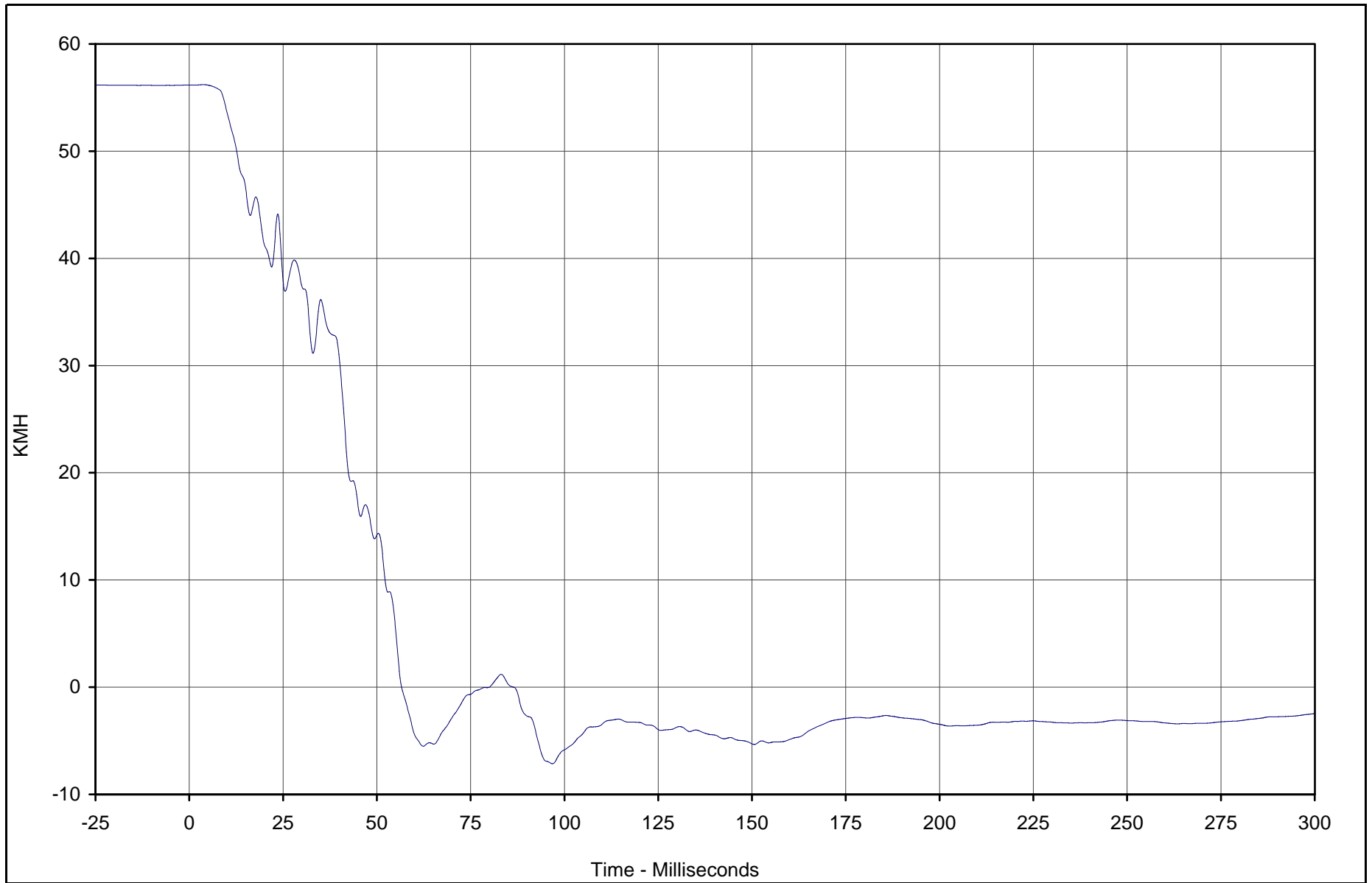
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Brake Caliper Velocity	093	IN1	KMH	56.2	3.8	-7.1	96.8	180



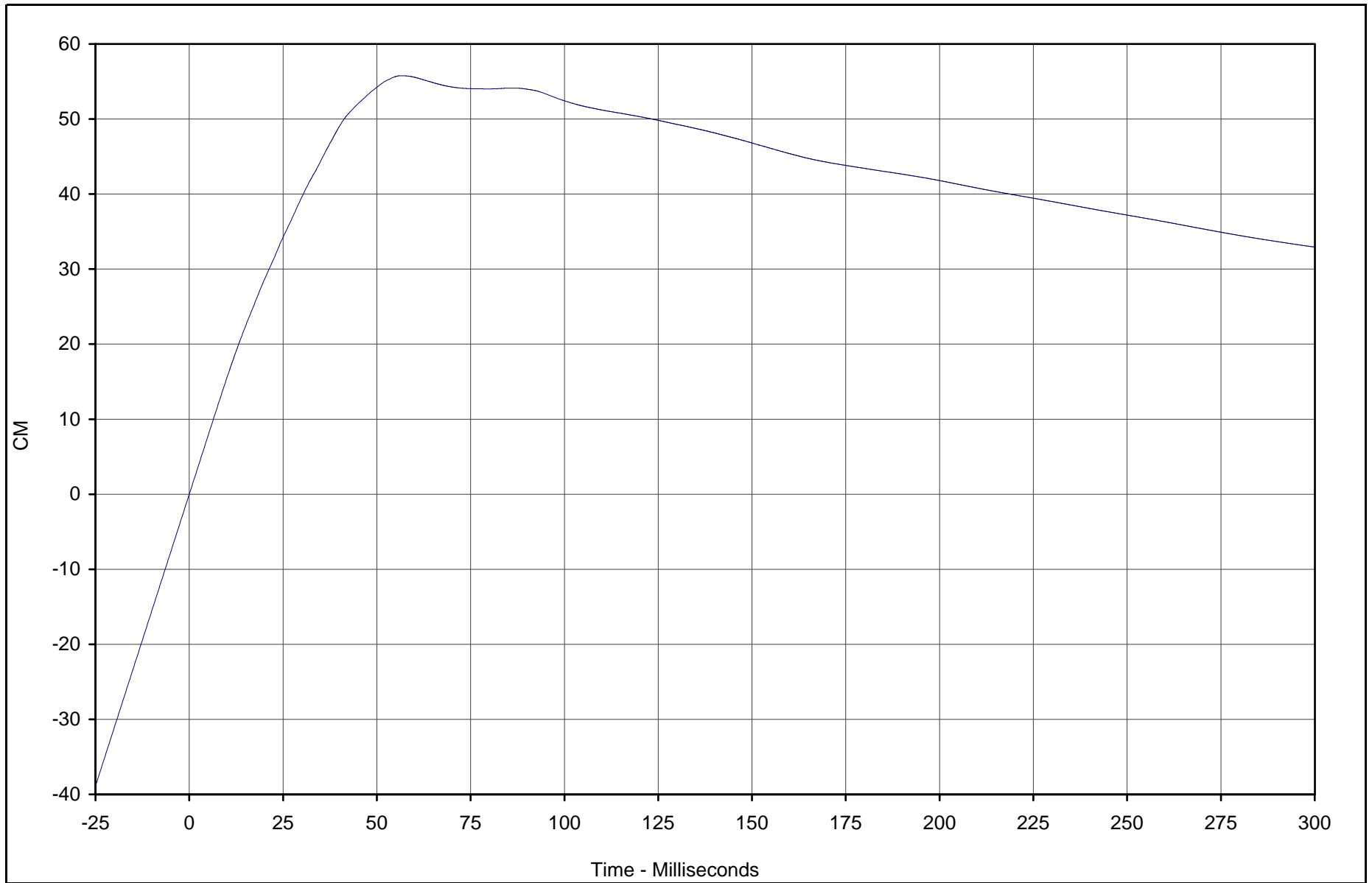
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-137



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Brake Caliper Displ.	093	IN2	CM	55.8	56.6	0.0	0.0	180



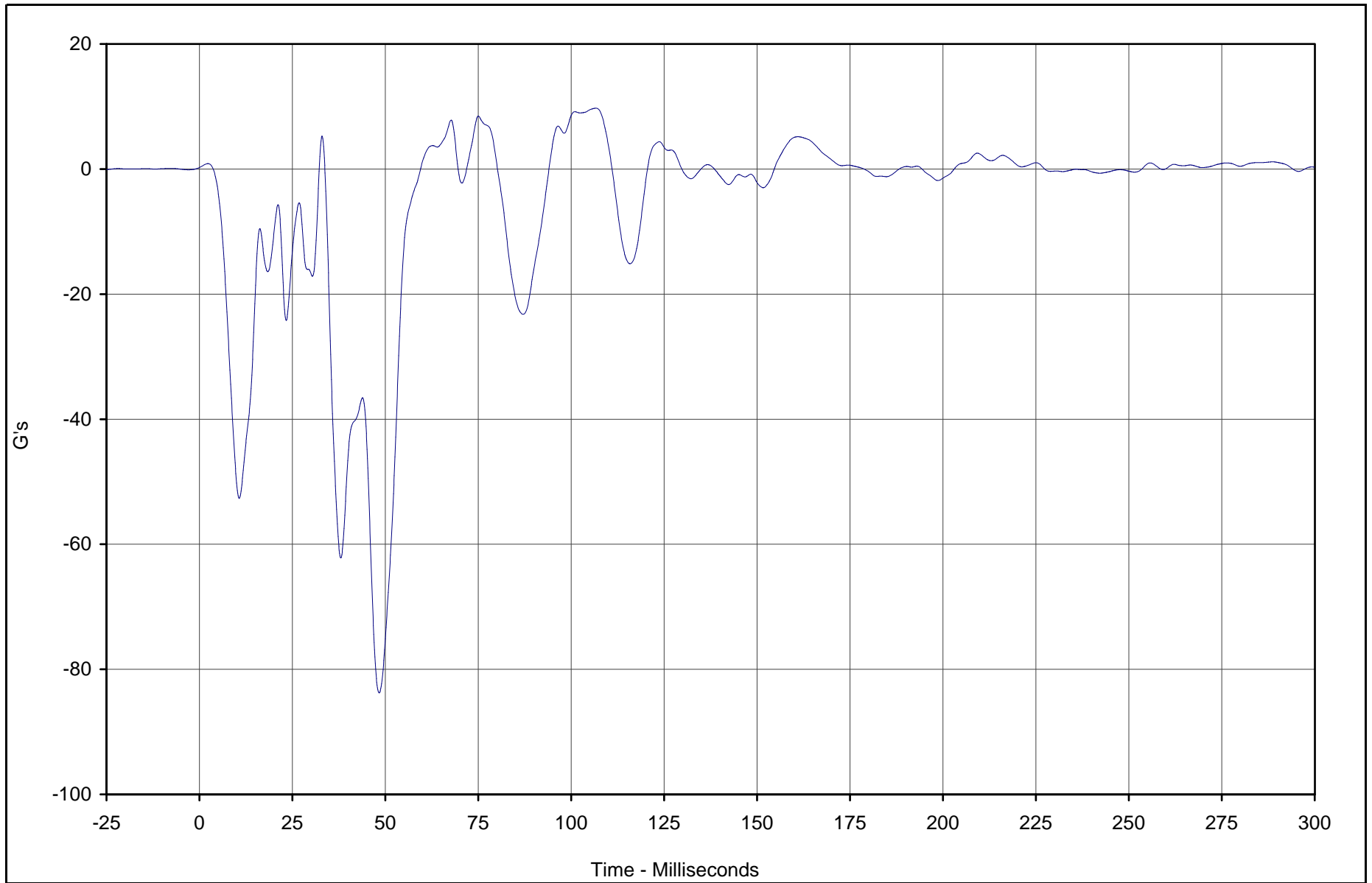
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-138



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Brake Caliper	094	FIL	G's	9.7	106.6	-83.8	48.3	60



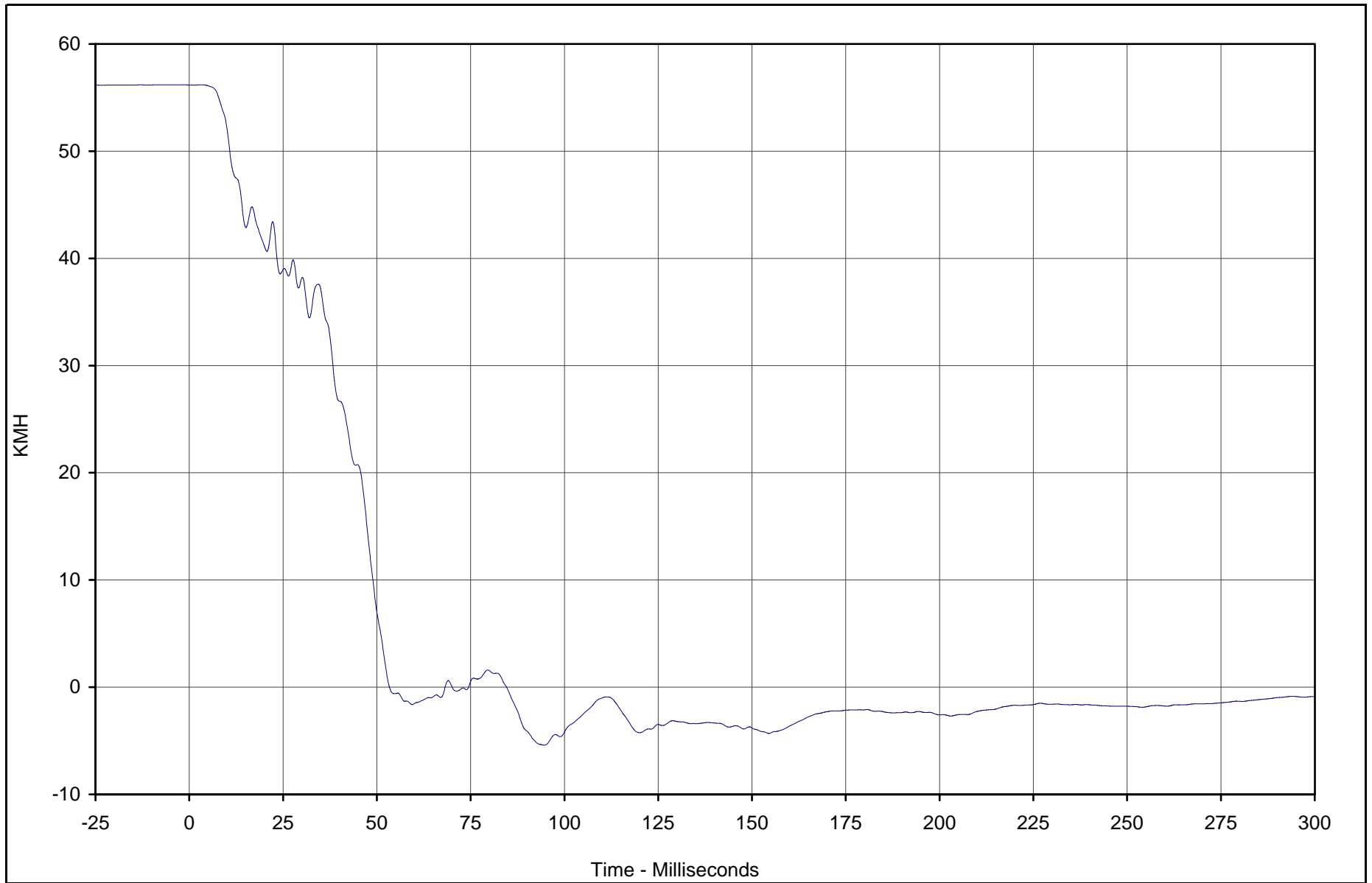
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-139



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Brake Caliper Velocity	094	IN1	KMH	56.2	3.5	-5.4	94.6	180



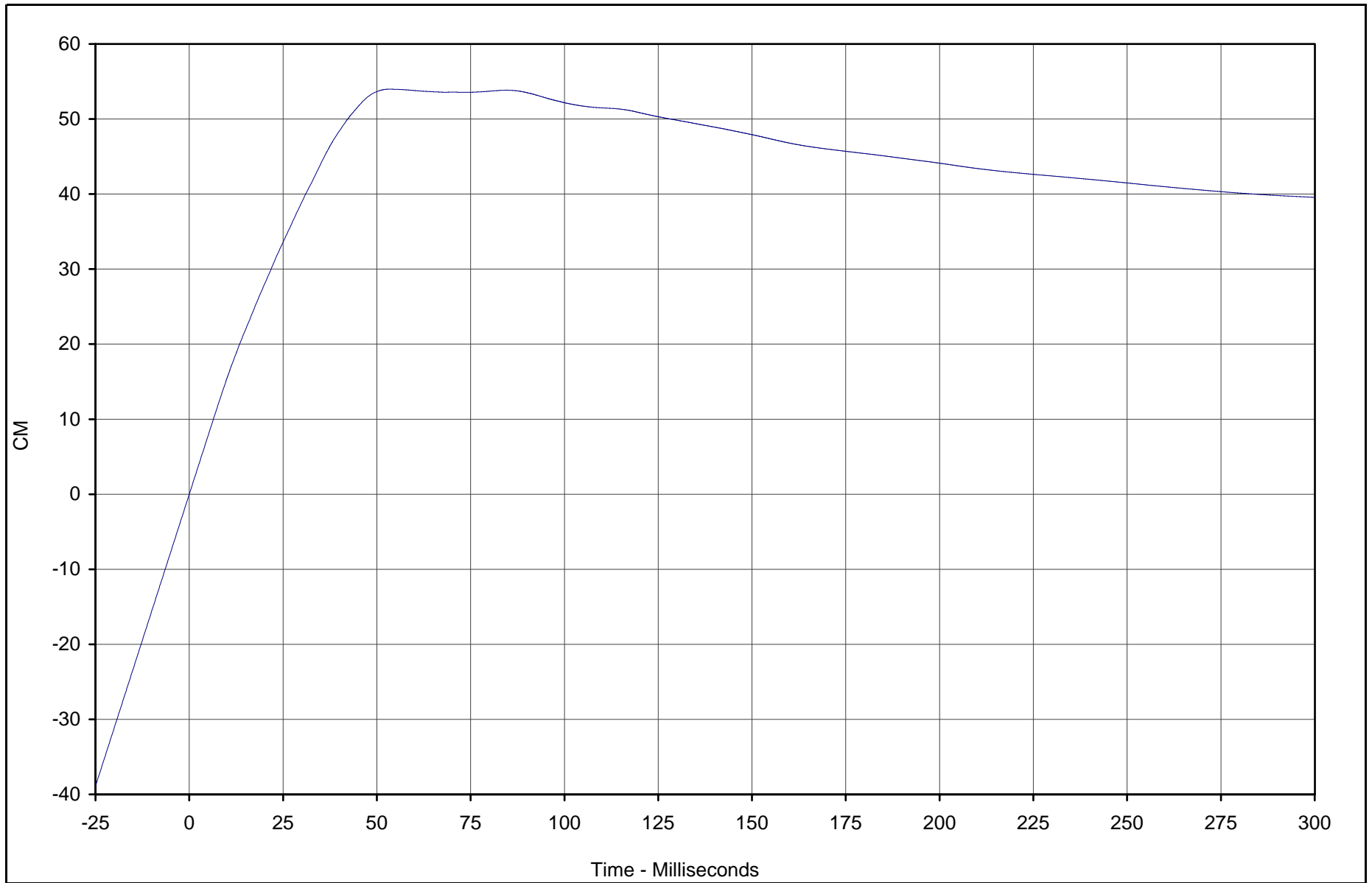
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-140



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Brake Caliper Displ.	094	IN2	CM	54.0	53.4	0.0	0.0	180



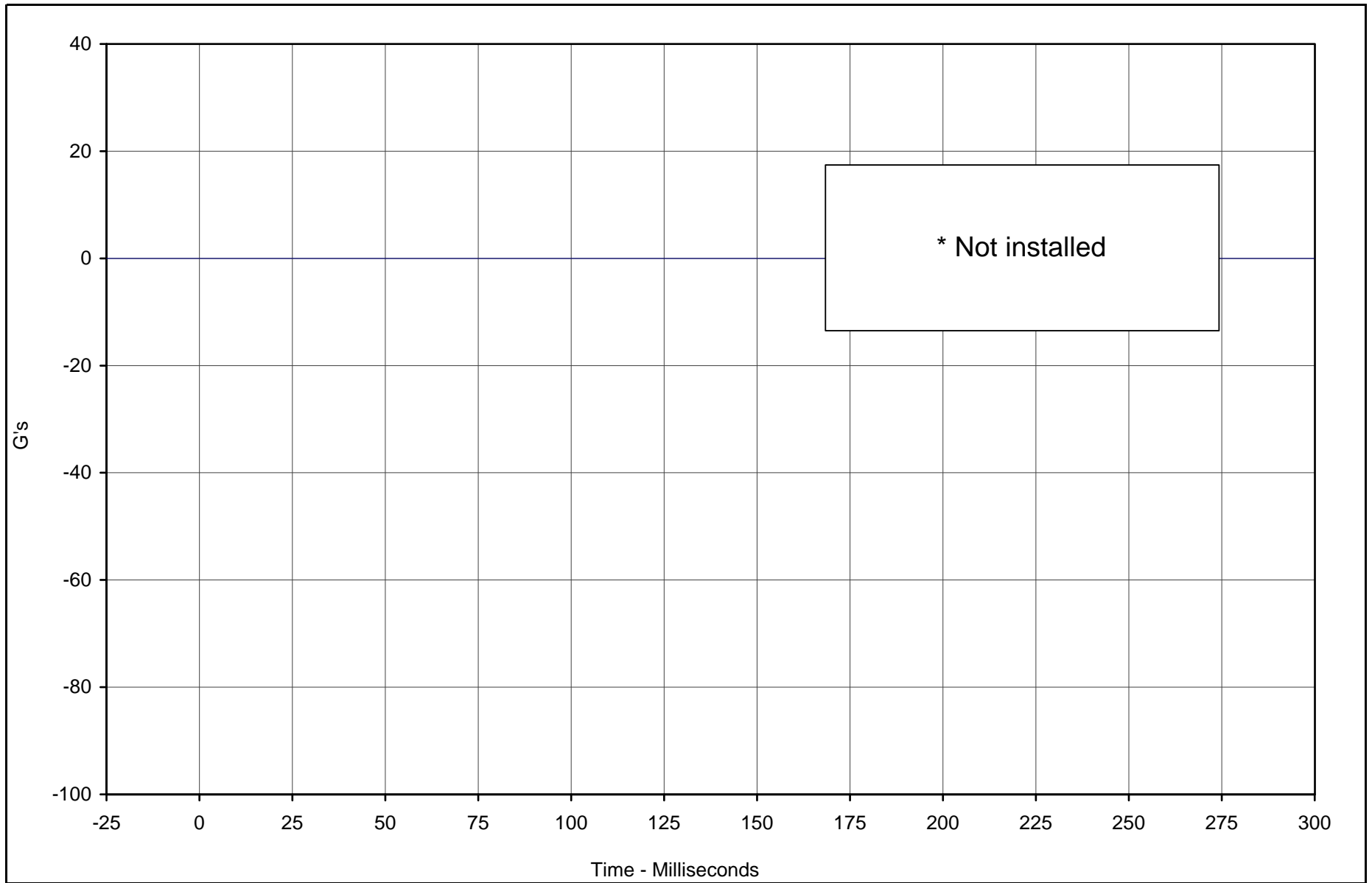
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



* Not installed

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Instrument Panel	095	FIL	G's	0.0	0.0	0.0	0.0	60



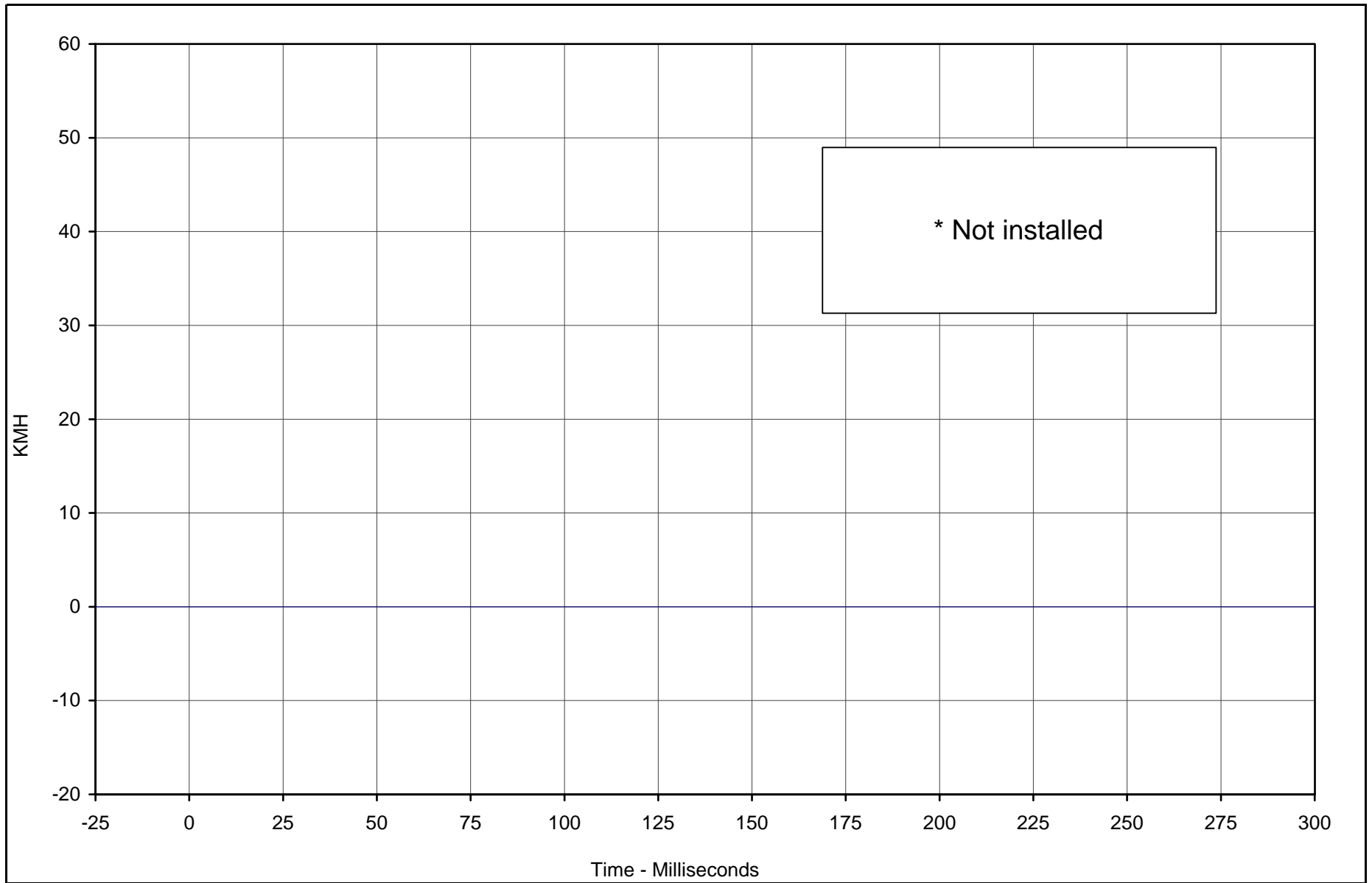
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-142



* Not installed

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Instrument Panel Velocity	095	IN1	KMH	0.0	0.0	0.0	0.0	180



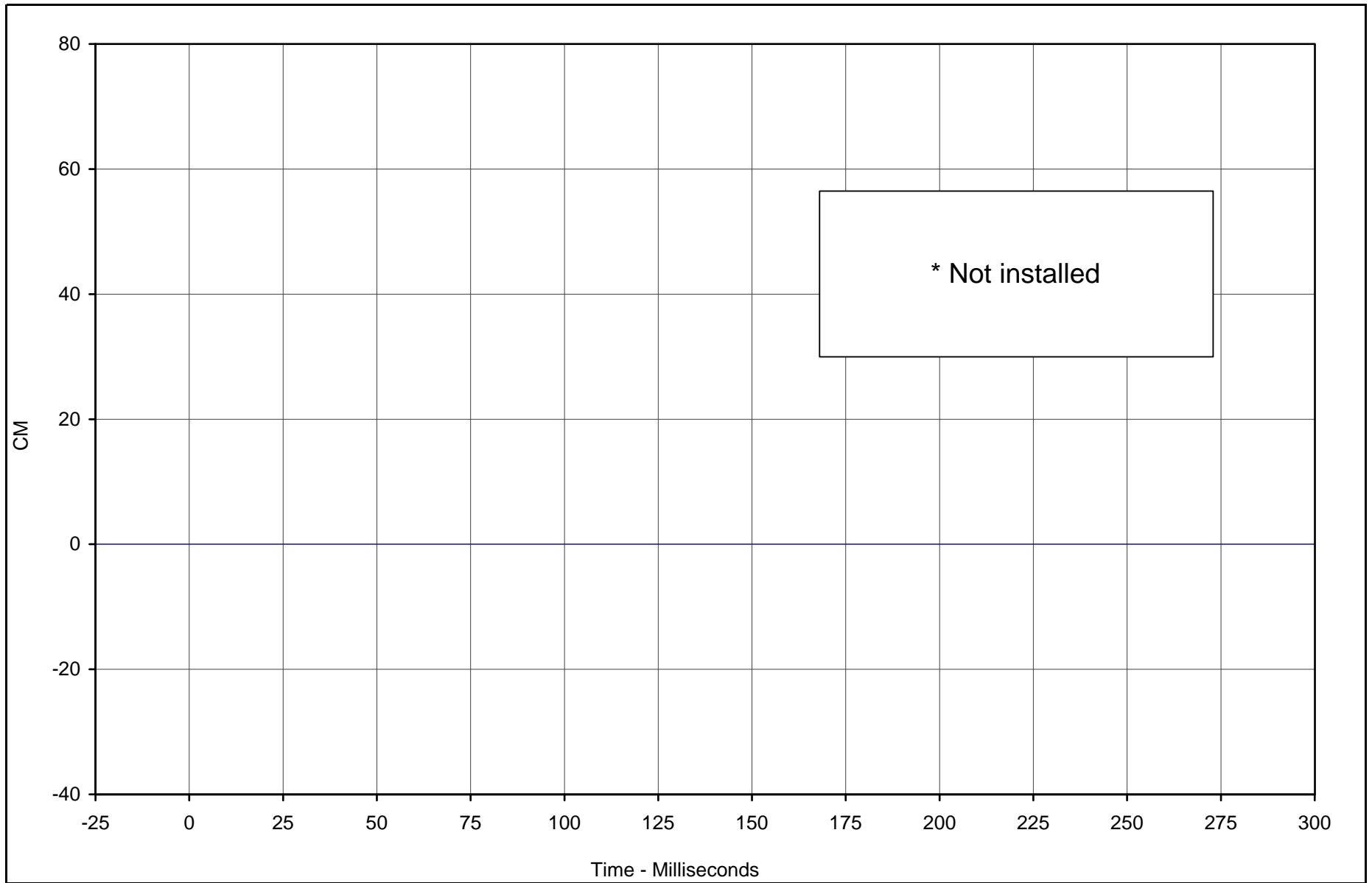
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



* Not installed

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

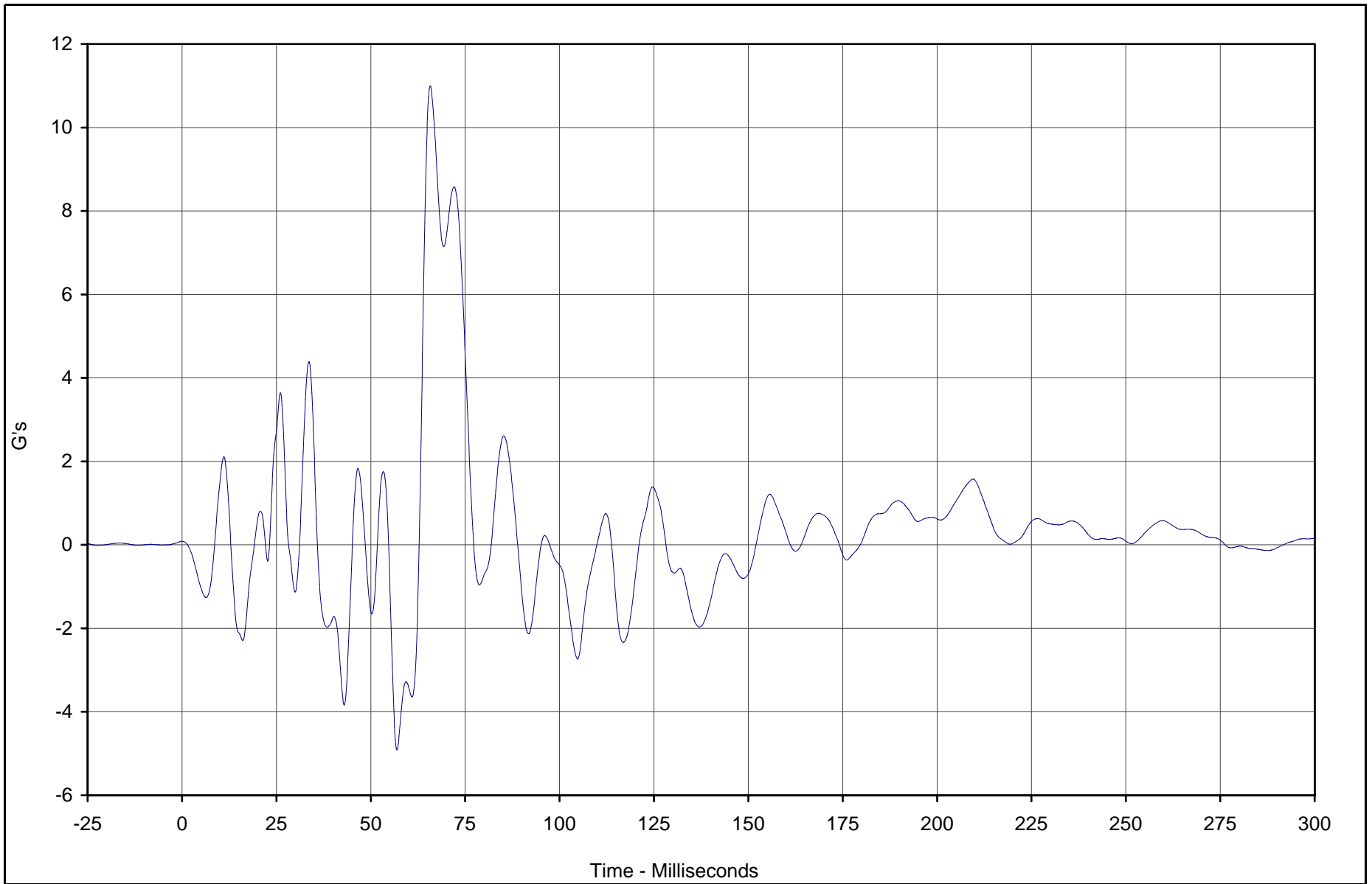


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear Z	096	FIL	G's	11.0	65.7	-4.9	56.9	60



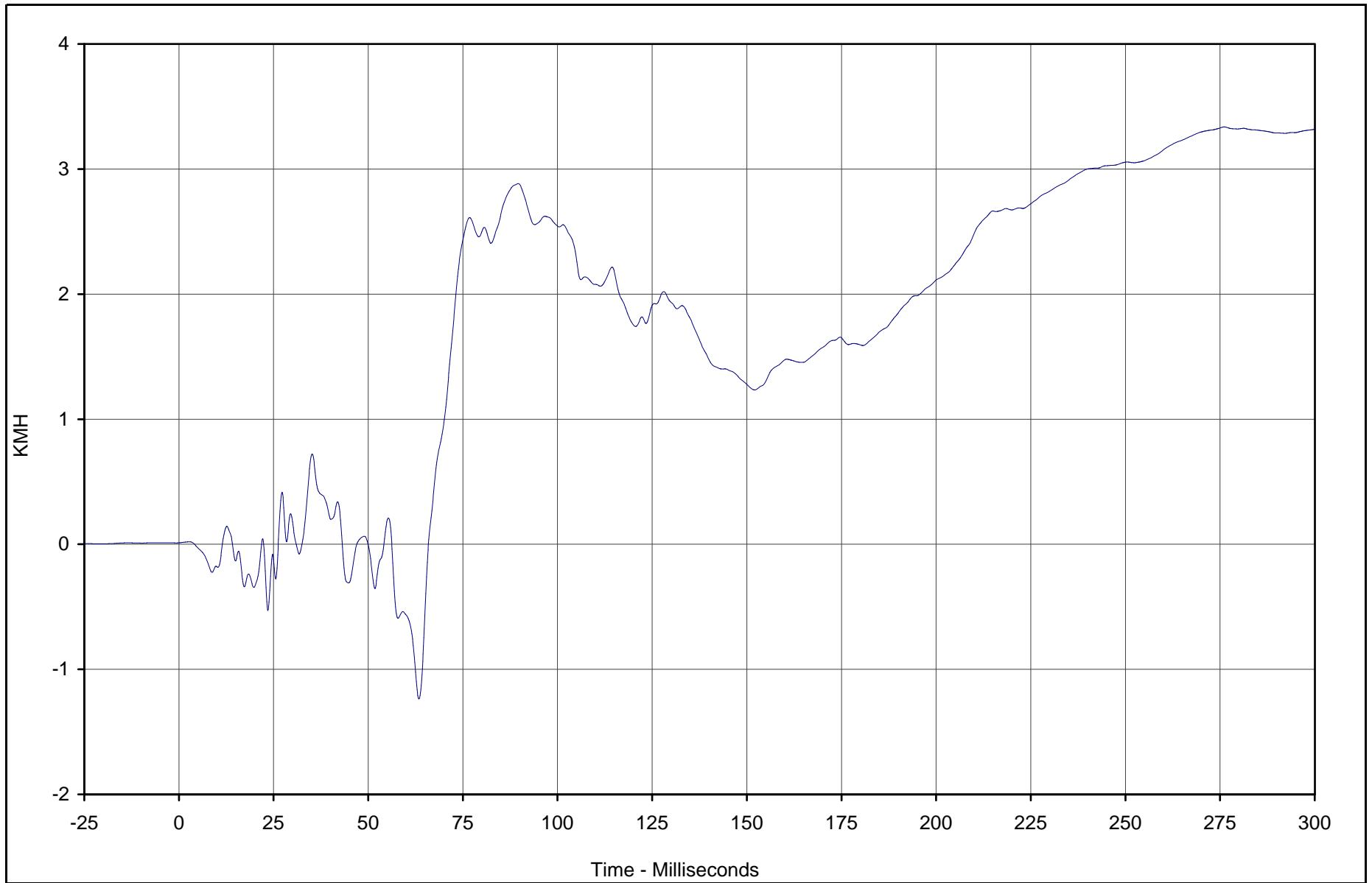
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

B-145



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear Z Velocity	096	IN1	KMH	3.3	276.1	-1.2	63.4	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

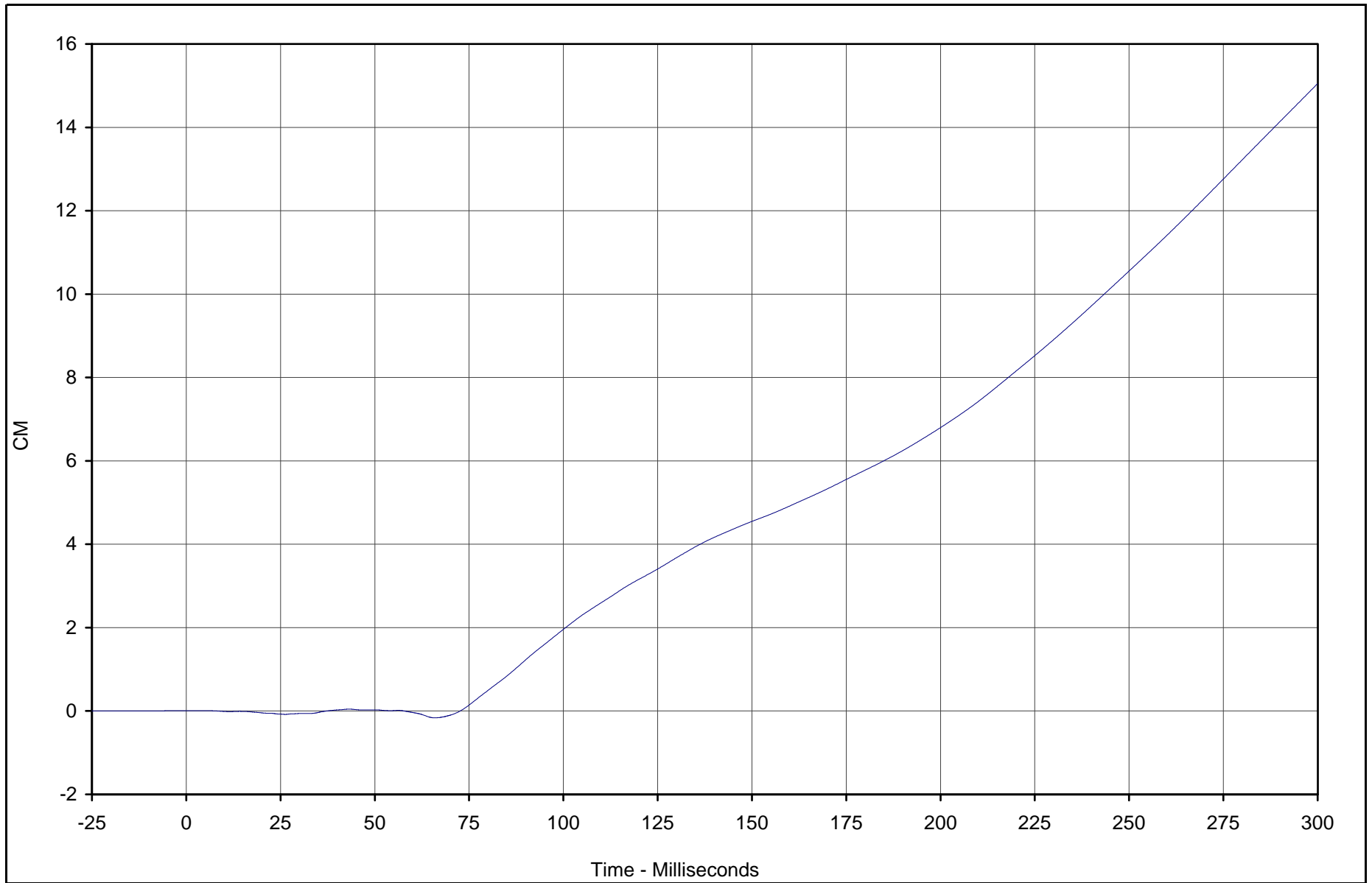
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-146



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear Z Displ.	096	IN2	CM	15.0	299.9	-0.2	65.9	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

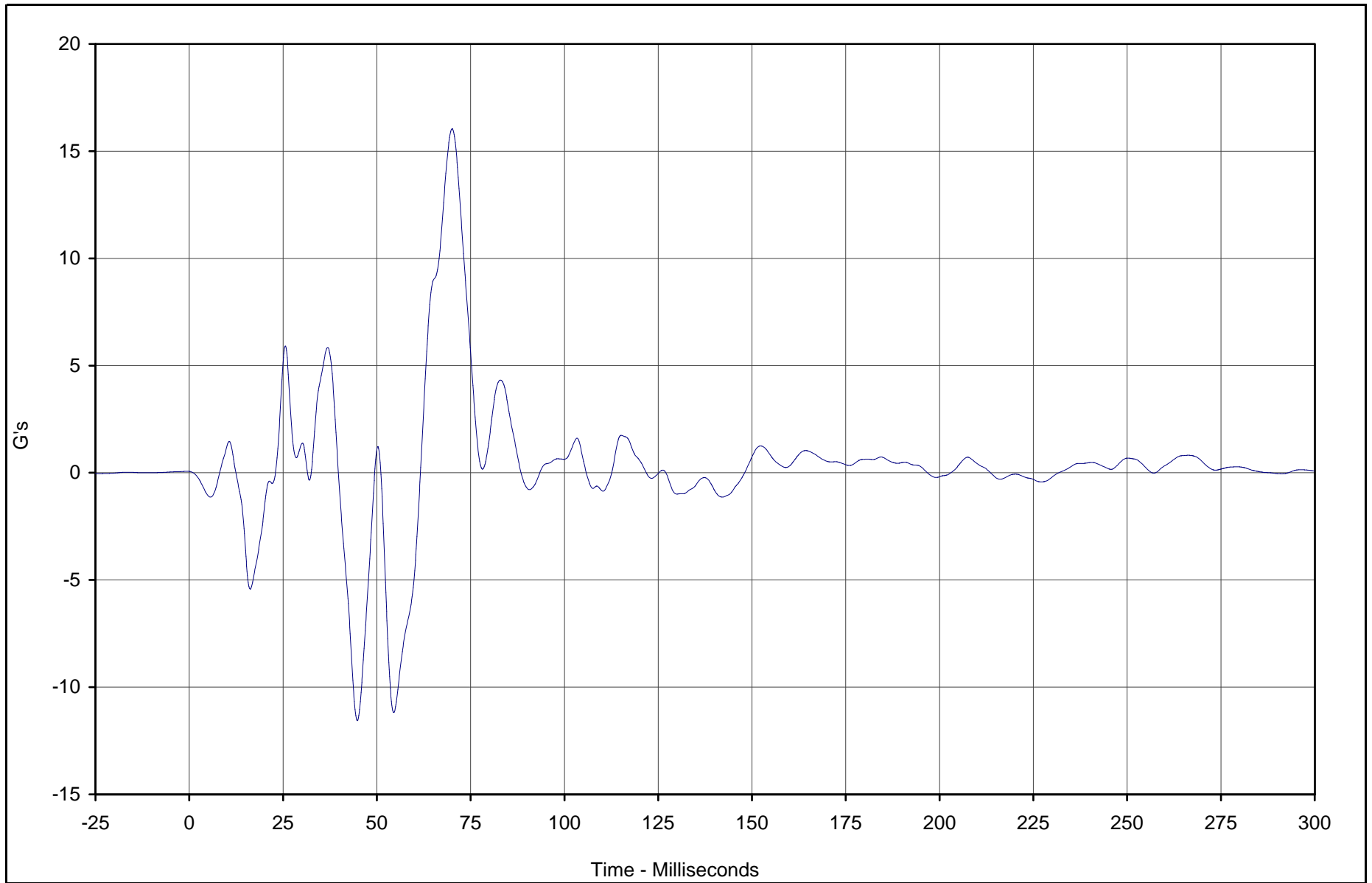
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-147



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear Z	097	FIL	G's	16.0	70.1	-11.6	44.8	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

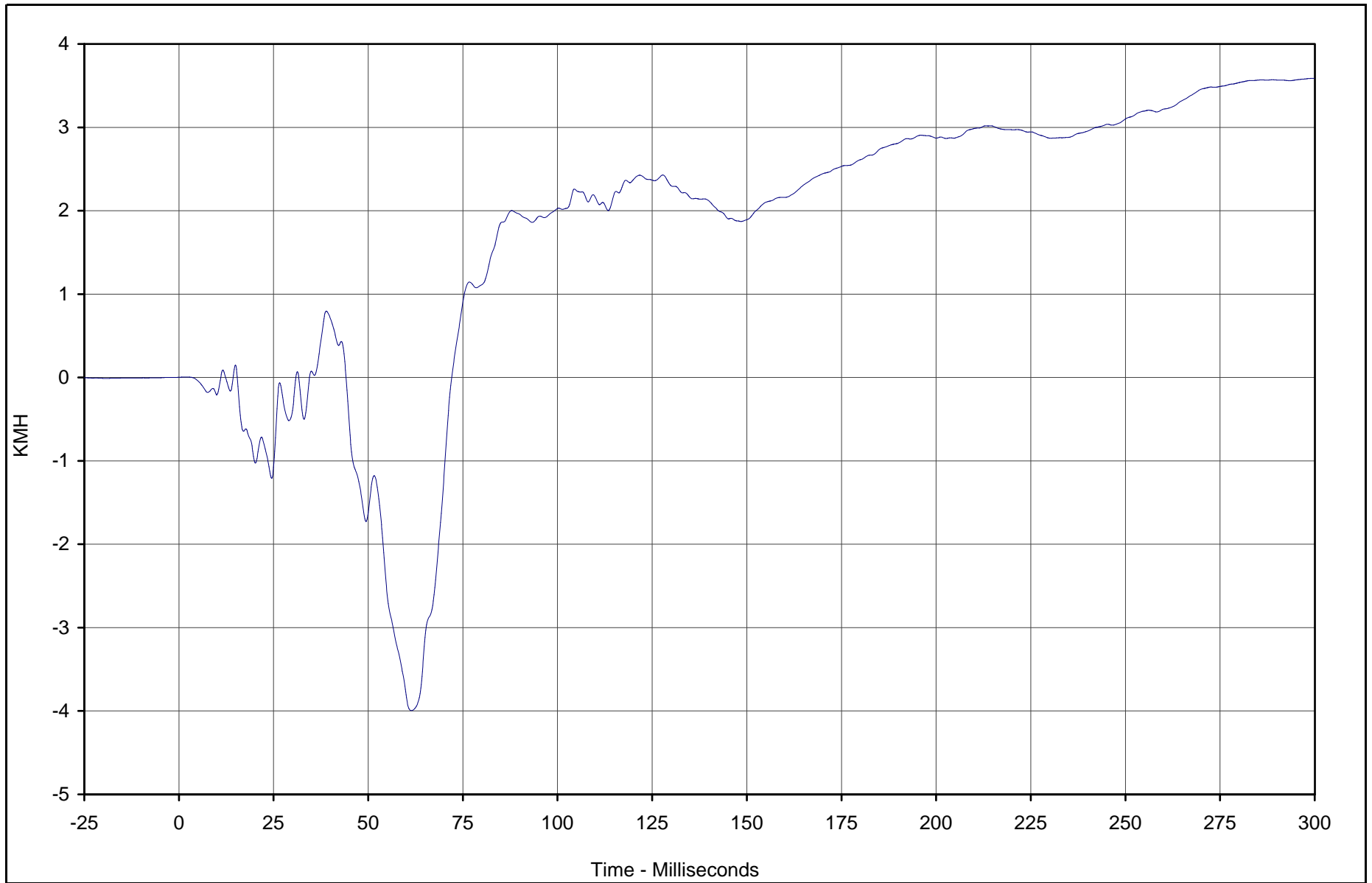
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

B-148



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear Z Velocity	097	IN1	KMH	3.6	299.9	-4.0	61.4	180



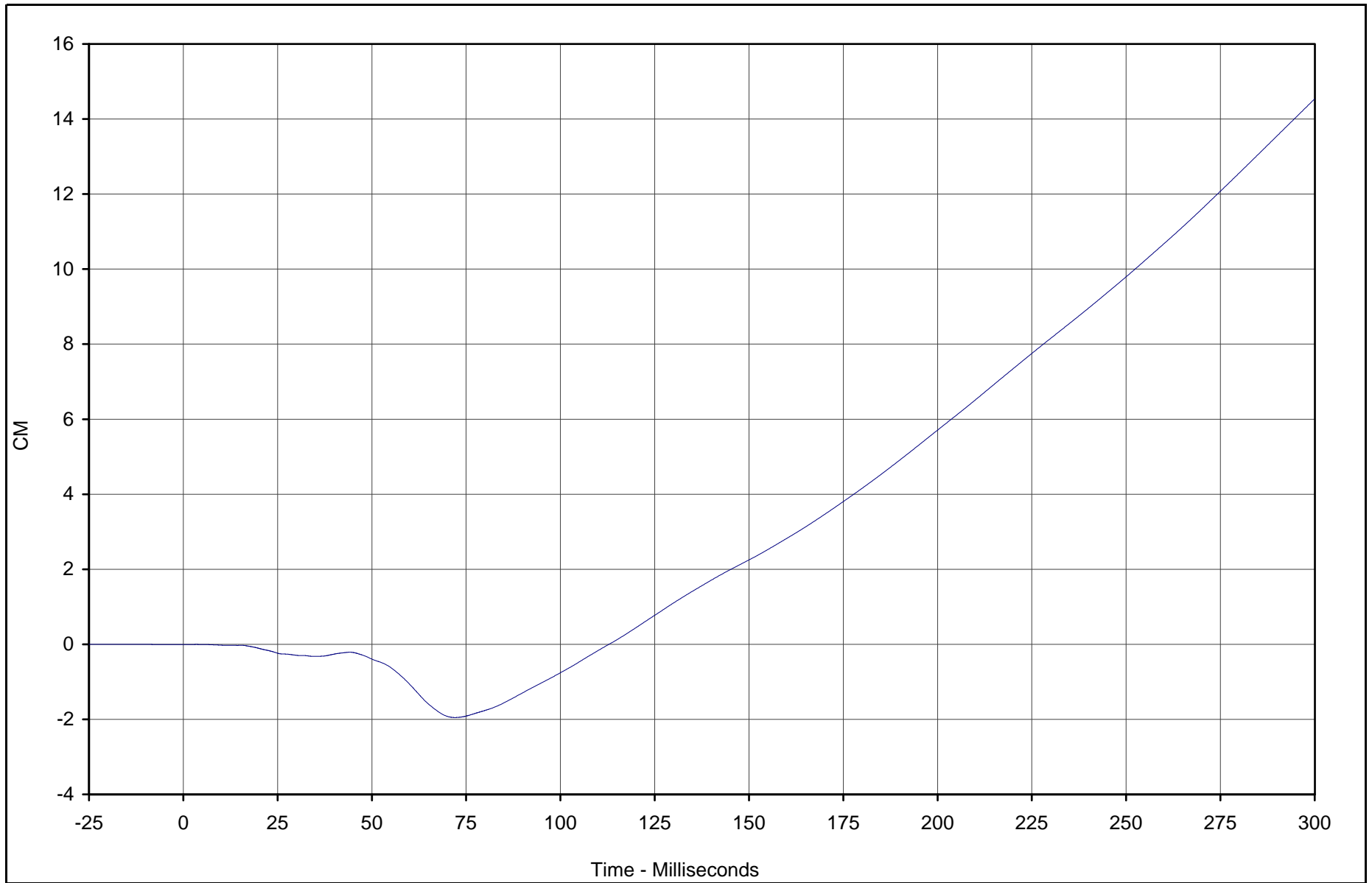
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear Z Displ.	097	IN2	CM	14.5	299.9	-2.0	72.0	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

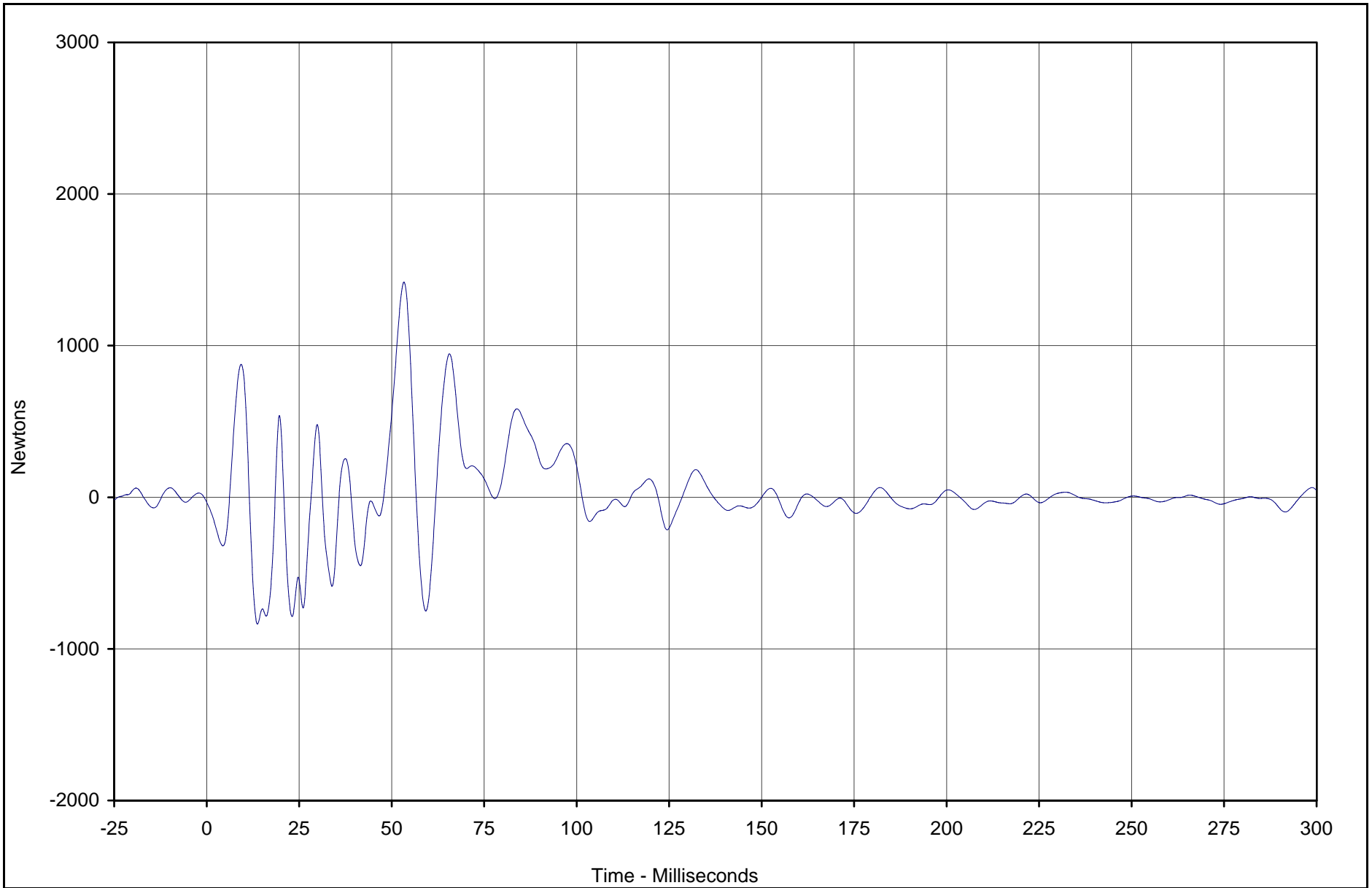
Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

APPENDIX C

LOAD CELL BARRIER DATA PLOTS

C-1



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A1	098	FIL	Newtons	1419.4	53.3	-835.6	13.7	60

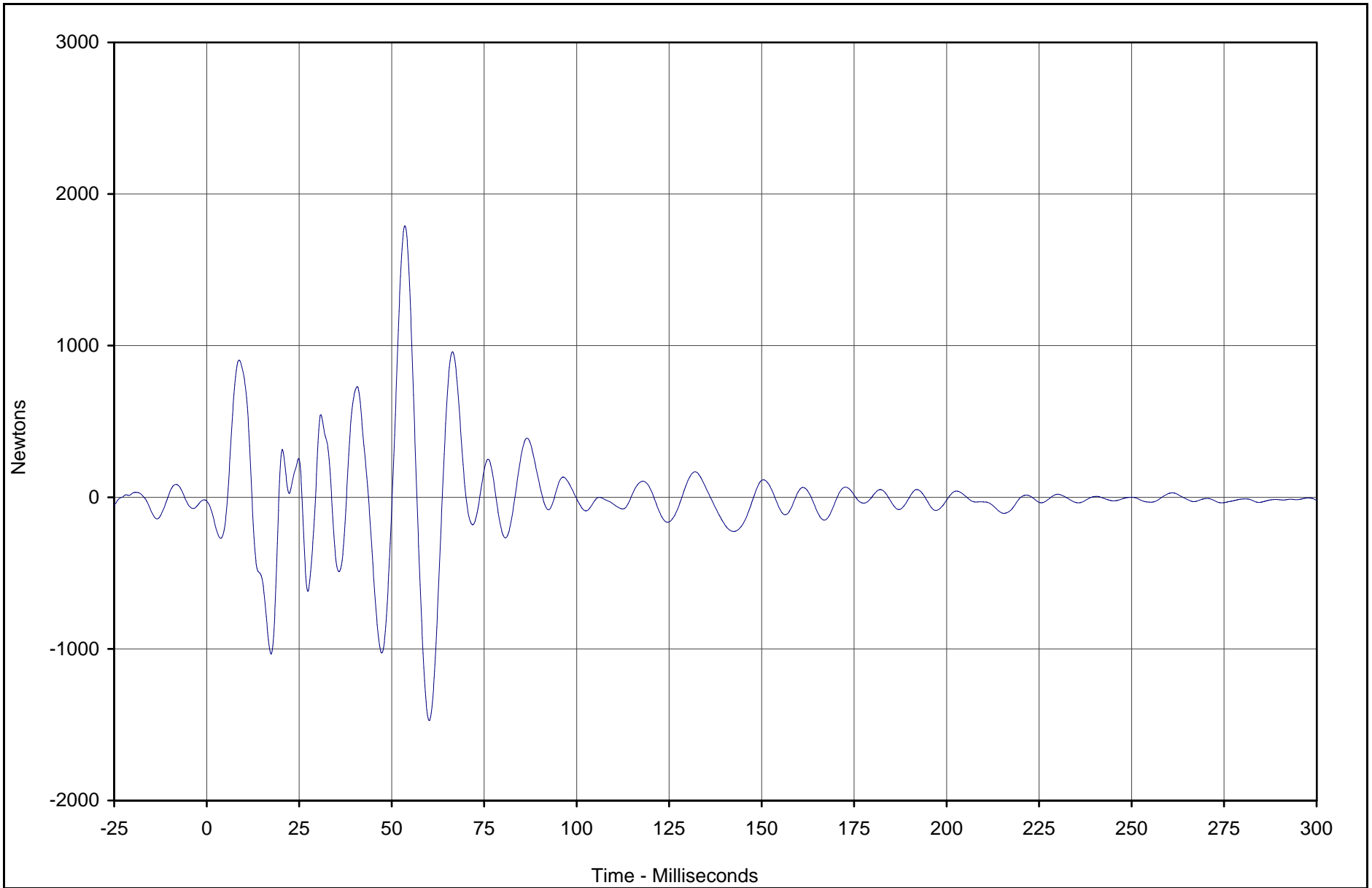


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A2	099	FIL	Newtons	1790.0	53.6	-1472.7	60.2	60

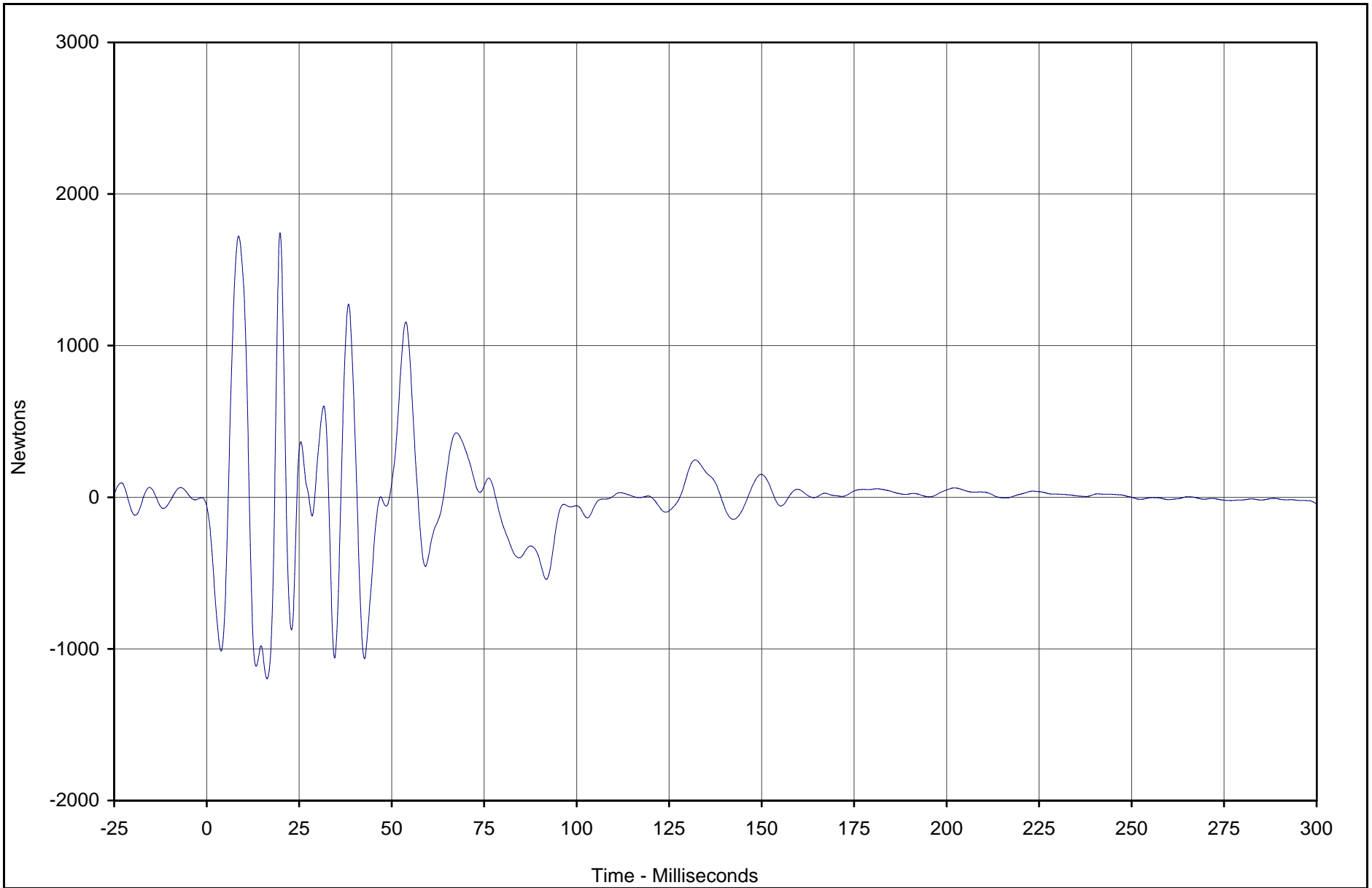


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A3	100	FIL	Newtons	1743.9	19.8	-1197.4	16.3	60



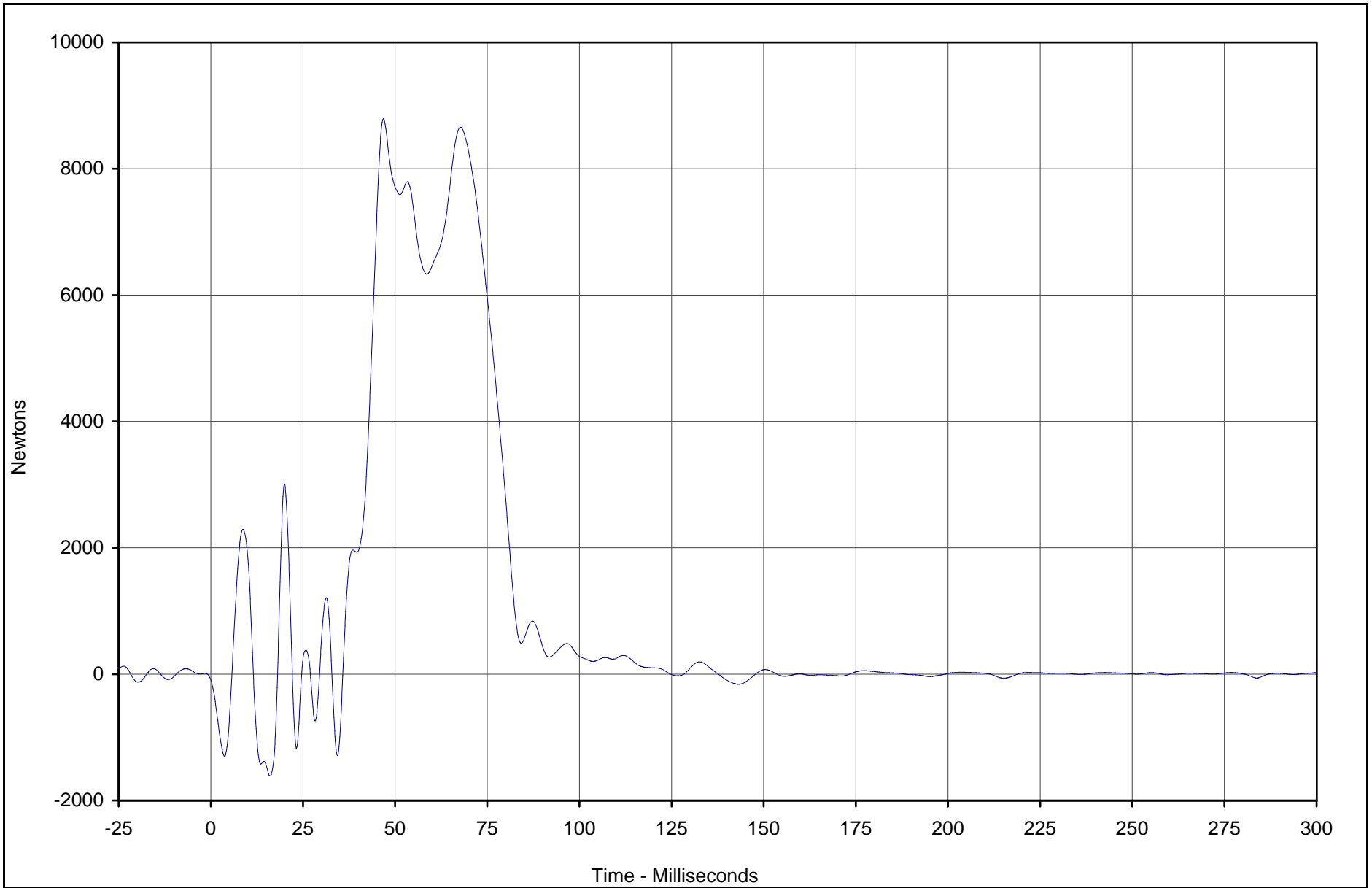
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

C-4



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A4	101	FIL	Newtons	8791.7	46.8	-1612.2	16.1	60

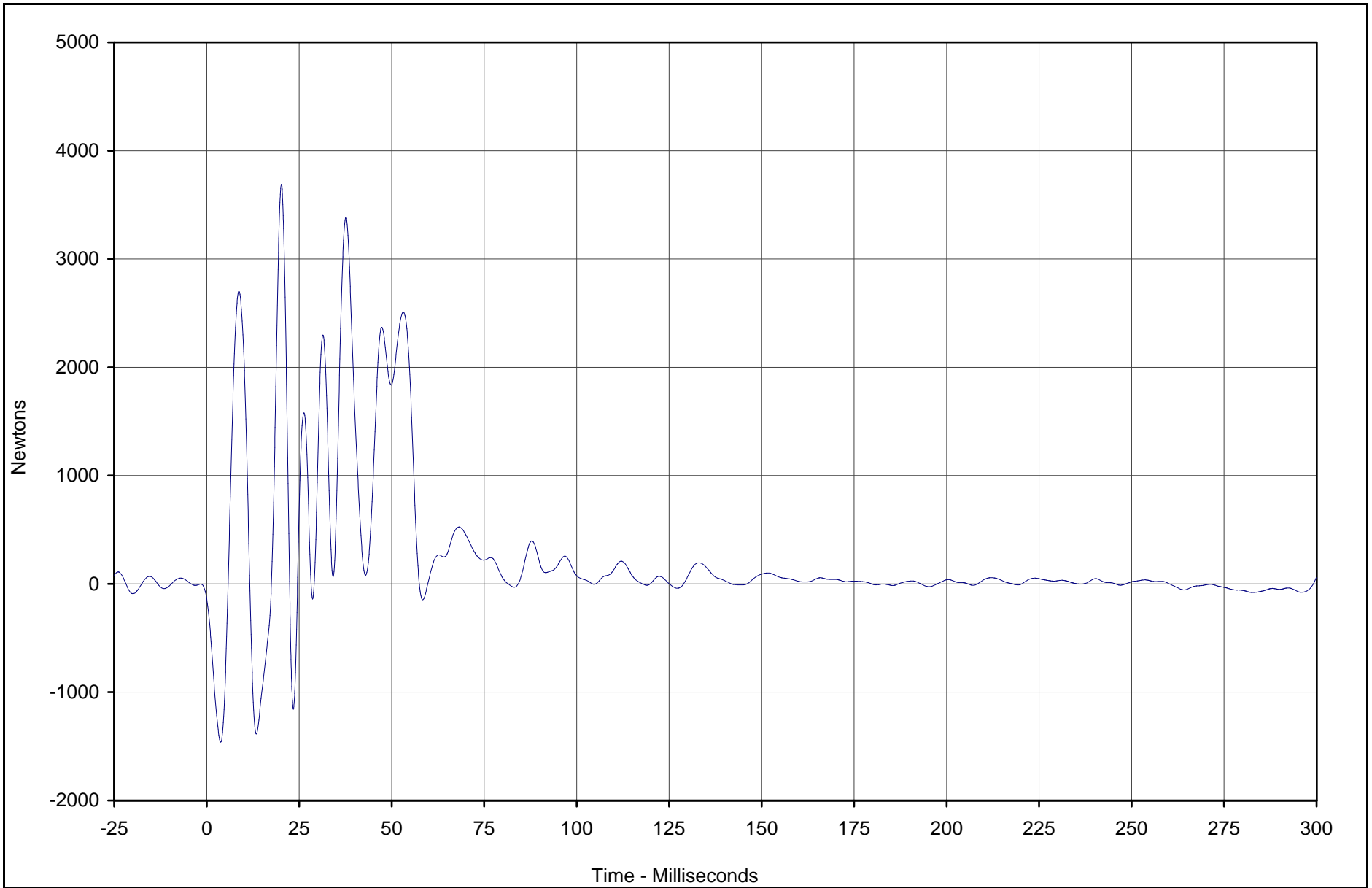


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A5	102	FIL	Newtons	3690.7	20.2	-1460.8	3.8	60

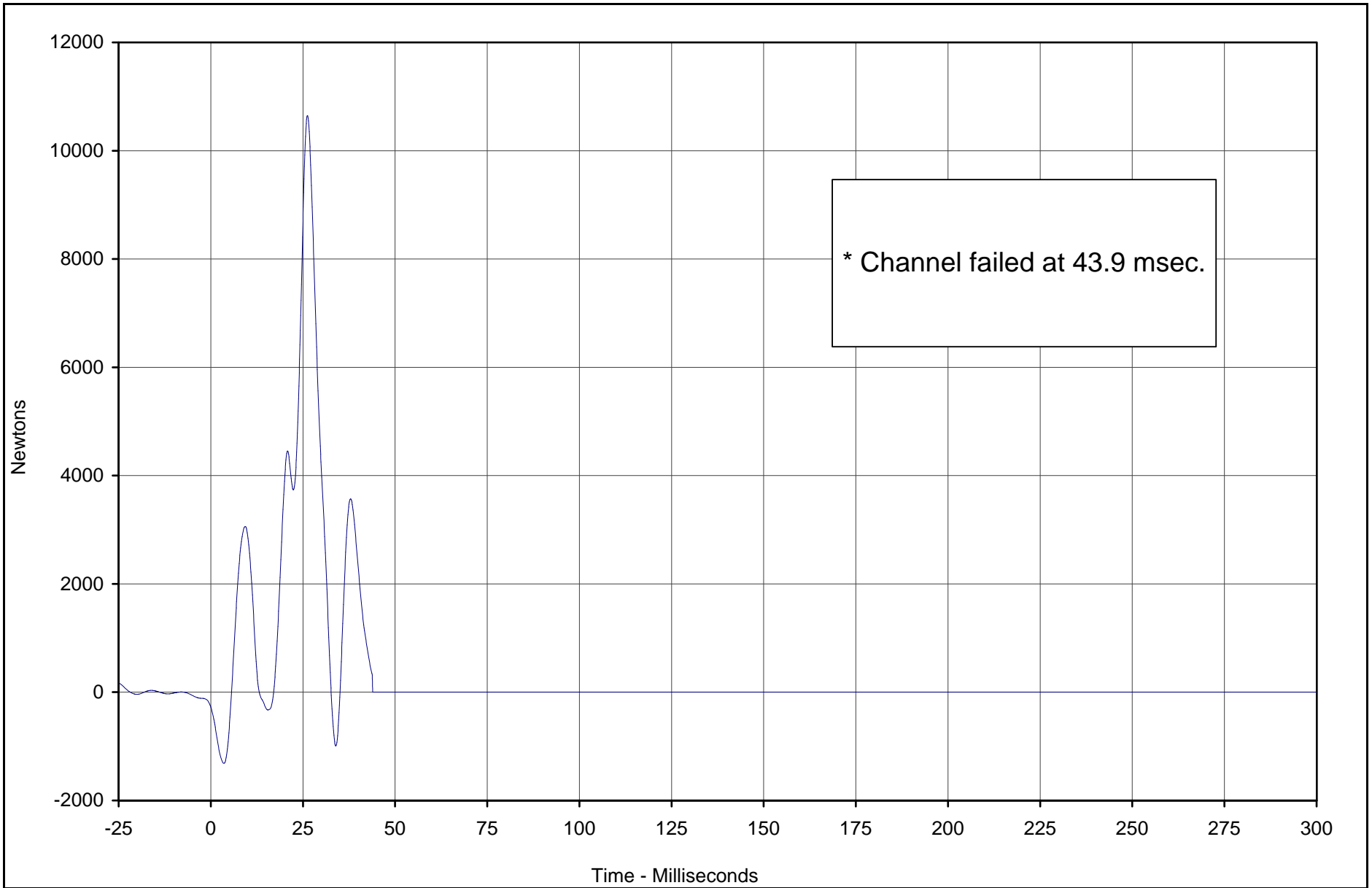


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



* Channel failed at 43.9 msec.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A6	103	FIL	Newtons	10648.6	26.2	-1312.7	3.5	60



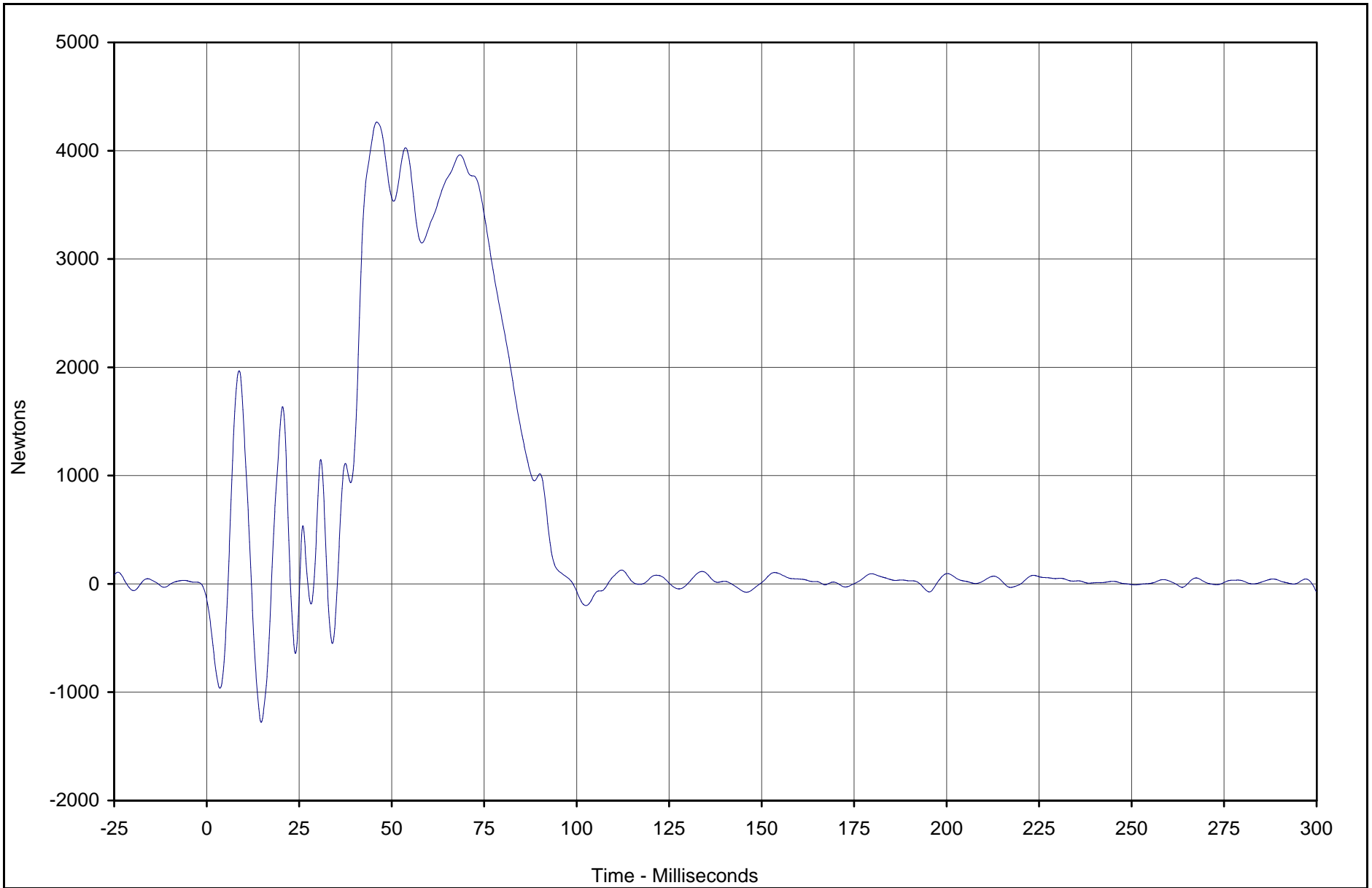
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

C-7



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A7	104	FIL	Newtons	4264.9	46.0	-1278.5	14.7	60

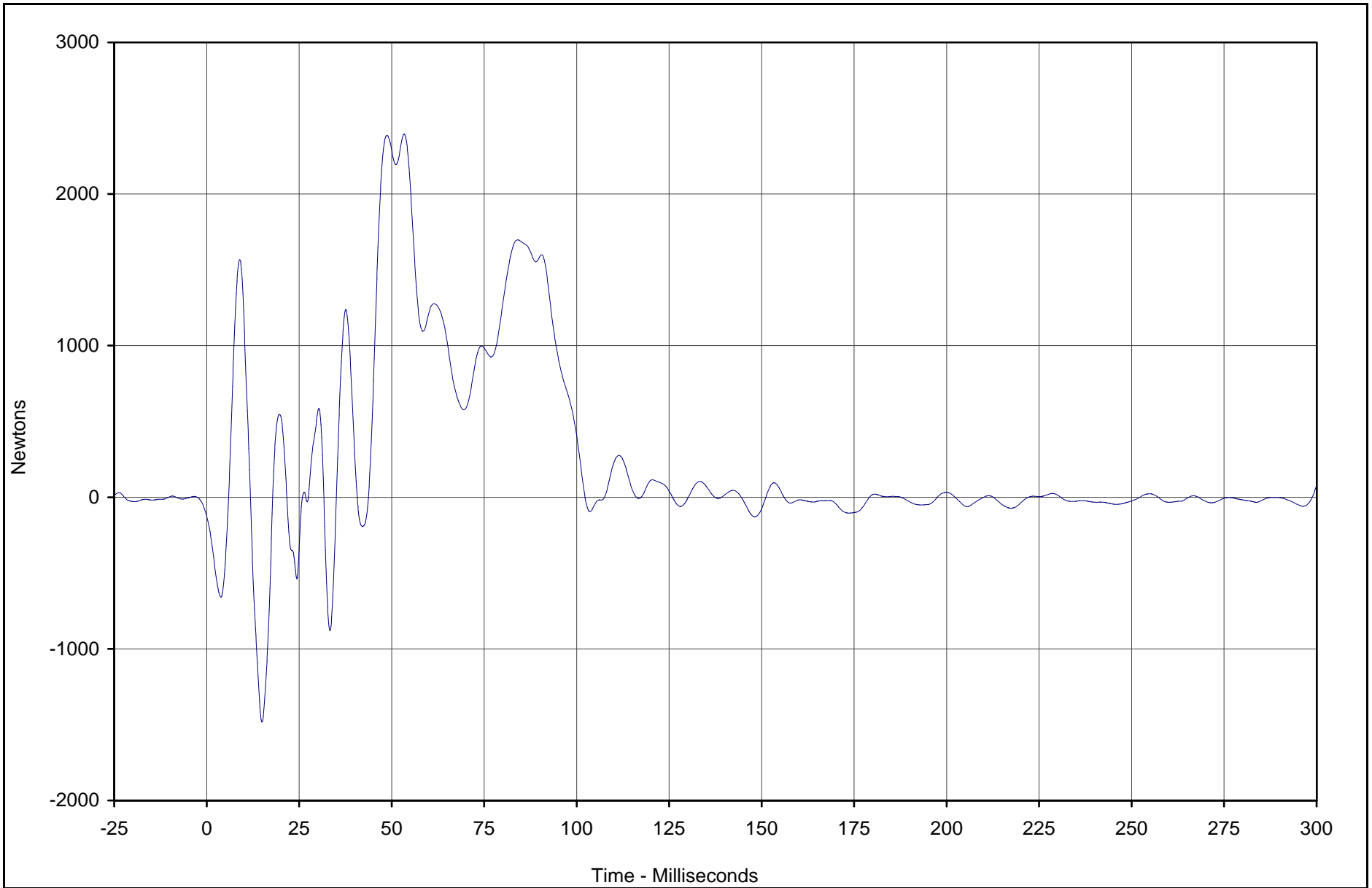


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A8	105	FIL	Newtons	2395.6	53.4	-1482.7	15.0	60

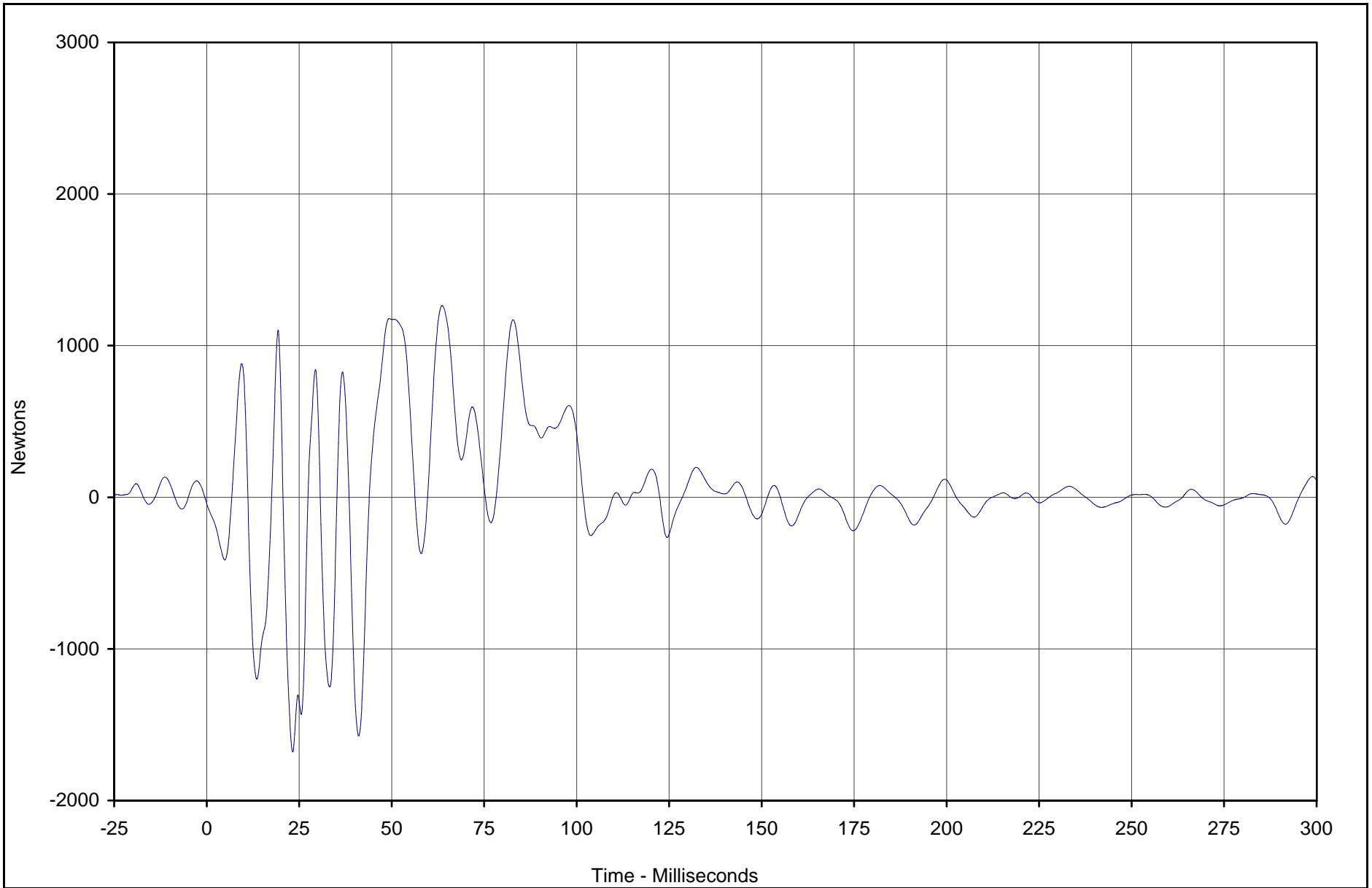


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A9	106	FIL	Newtons	1264.5	63.6	-1679.6	23.3	60

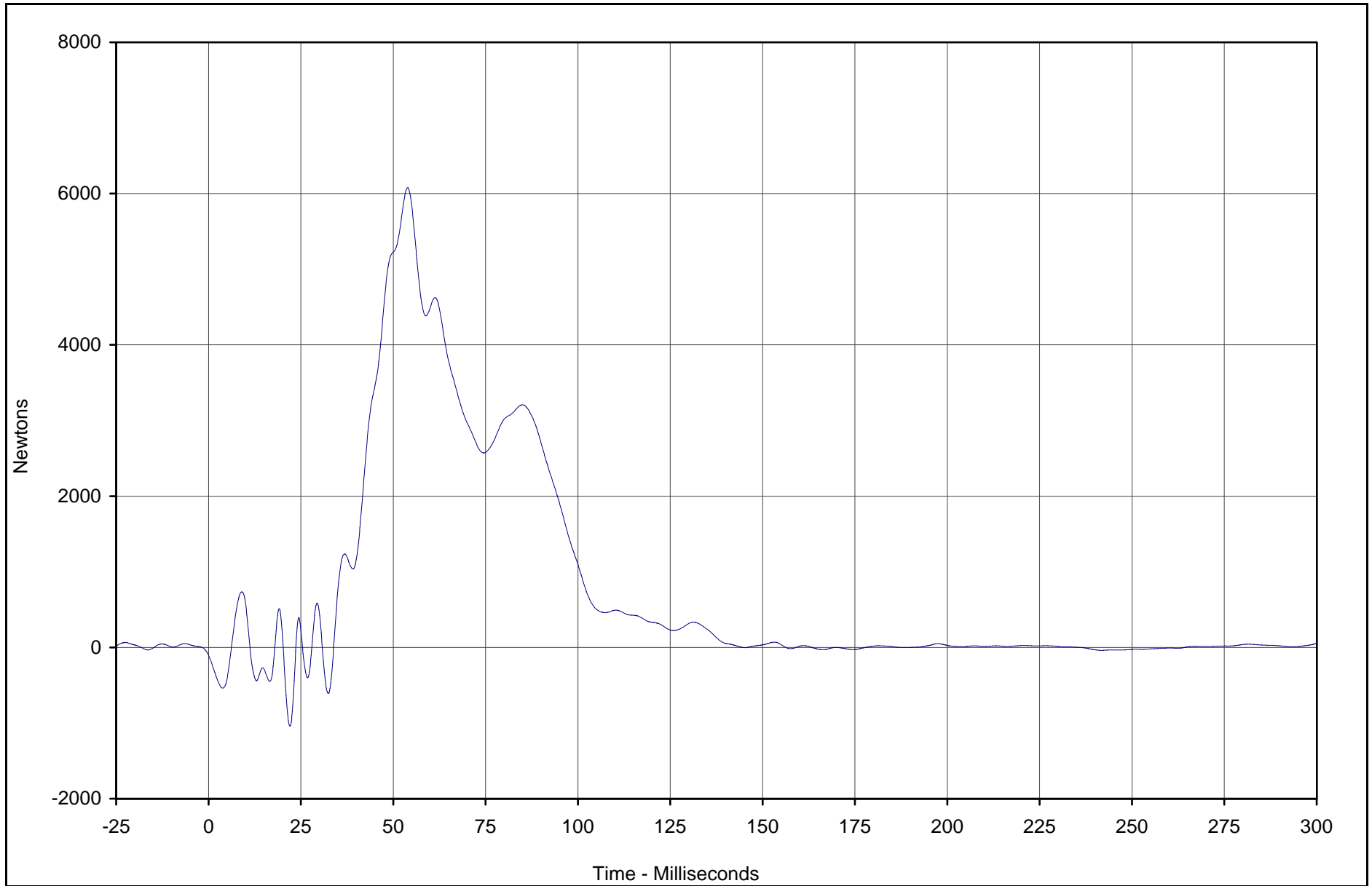


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B1	107	FIL	Newtons	6078.2	53.9	-1041.0	22.0	60



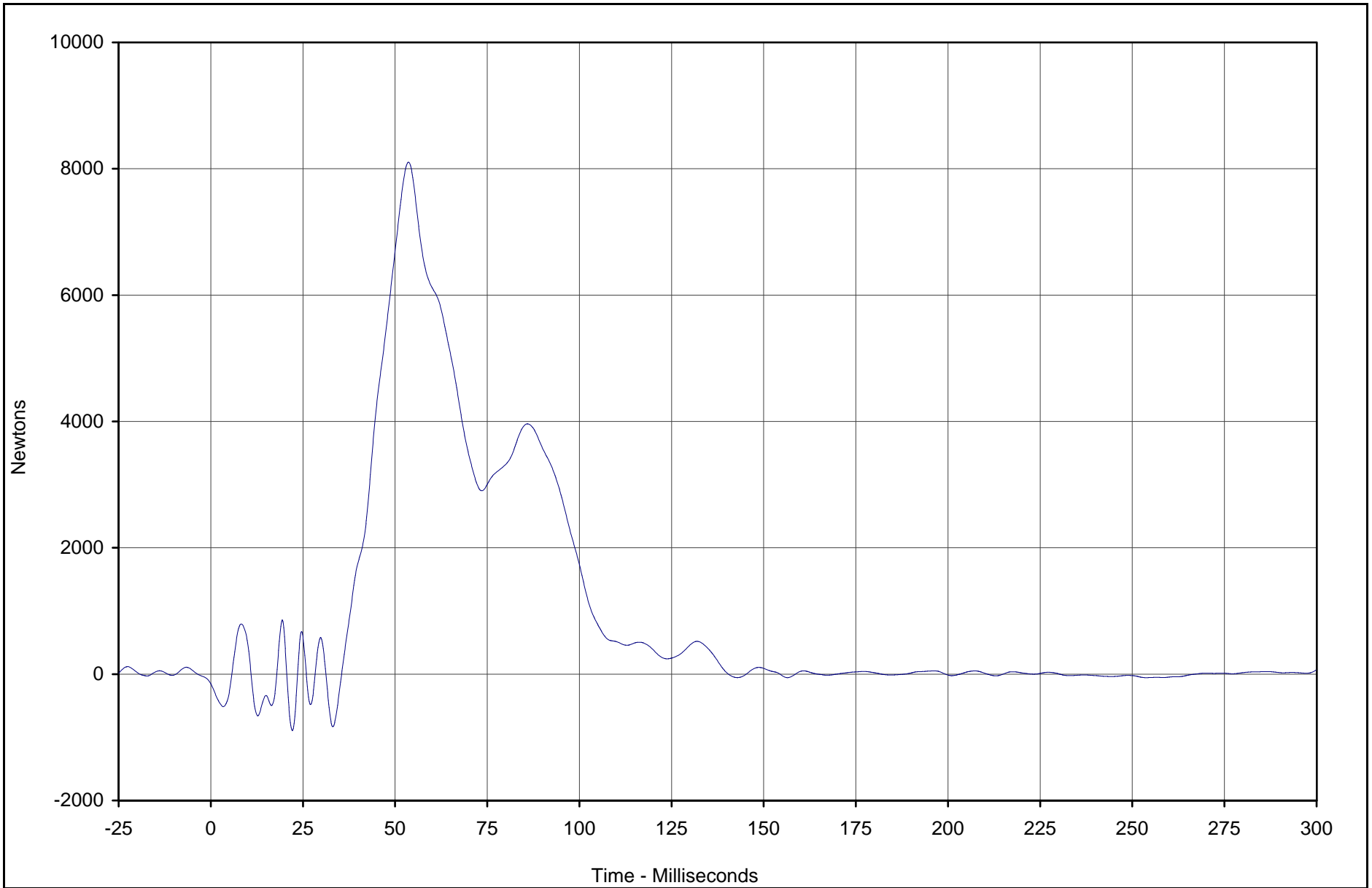
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

C-11



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B2	108	FIL	Newtons	8104.6	53.6	-893.9	22.1	60

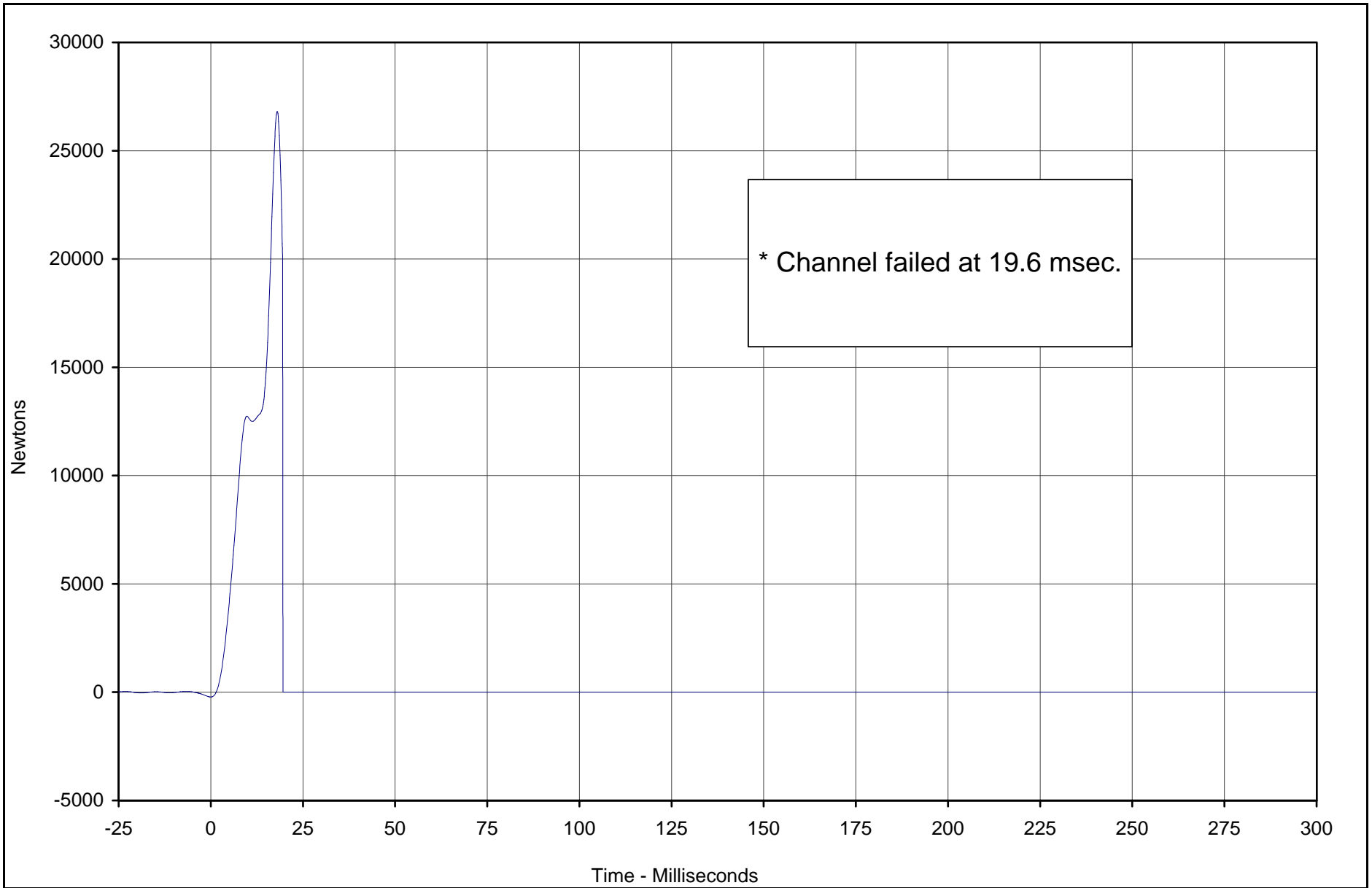


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



* Channel failed at 19.6 msec.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B3	109	FIL	Newtons	26814.0	18.0	-221.1	0.0	60

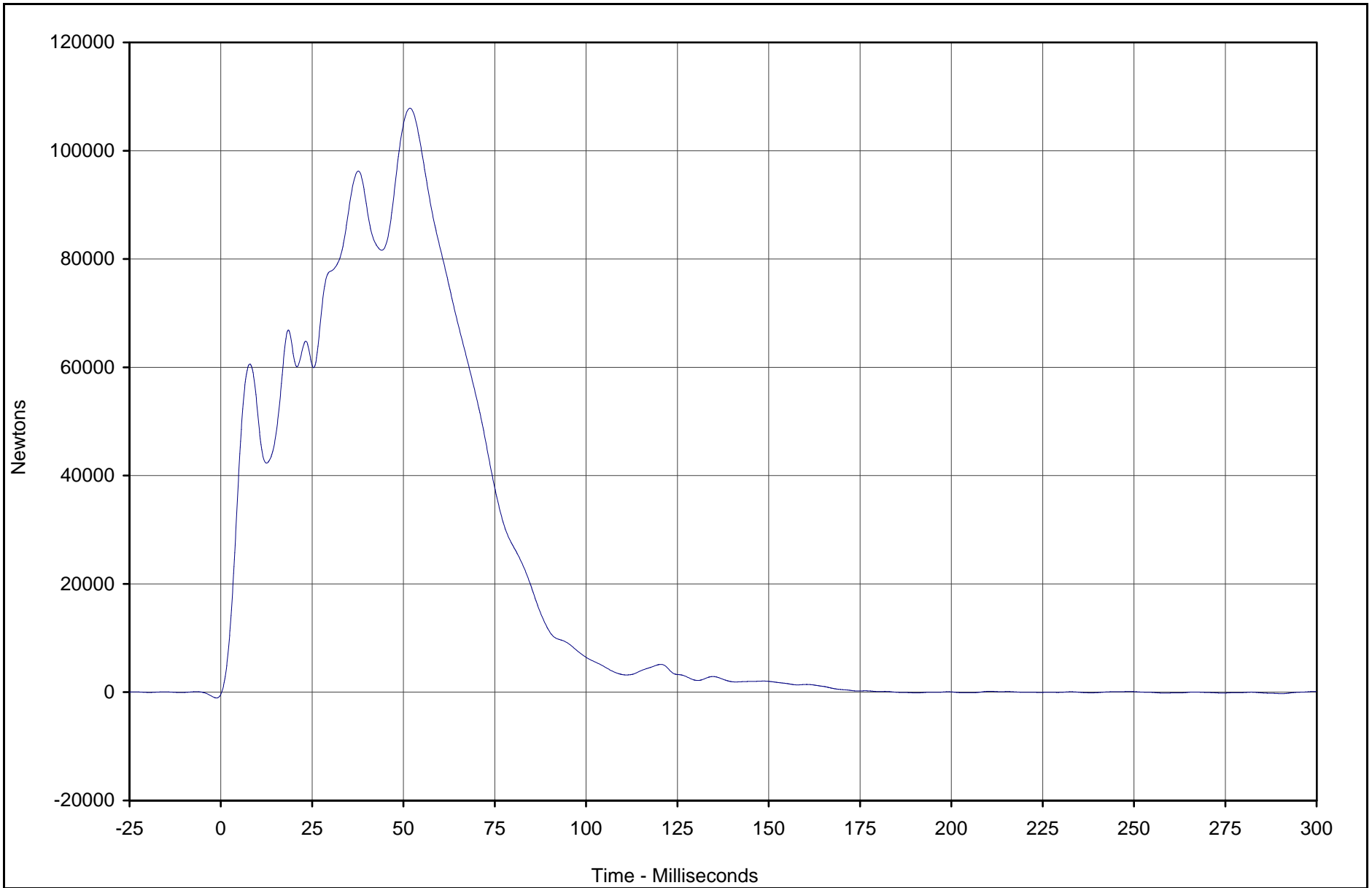


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B4	110	FIL	Newtons	107856.4	51.8	-381.3	0.0	60



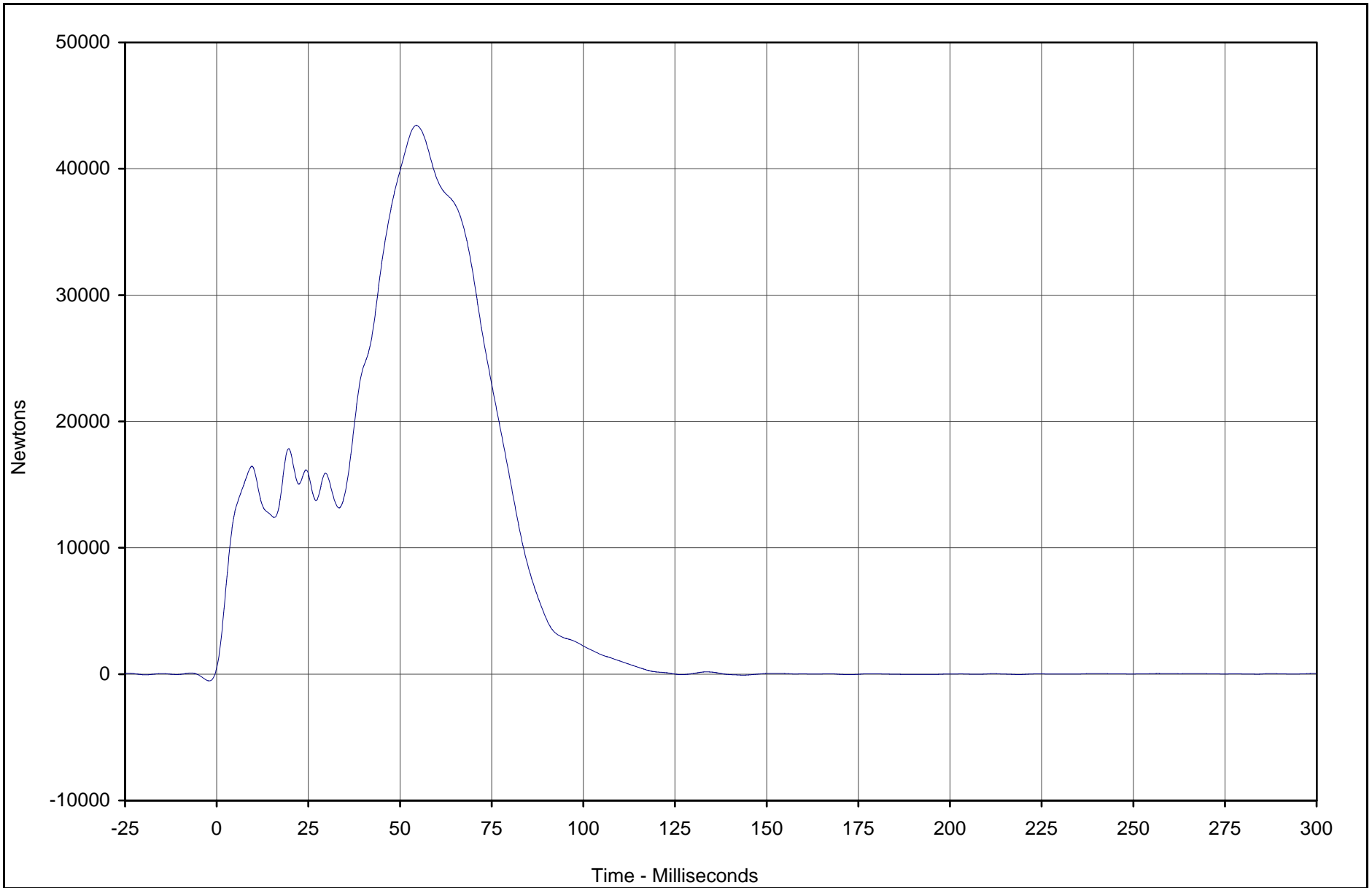
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B5	111	FIL	Newtons	43418.1	54.4	-79.4	143.7	60

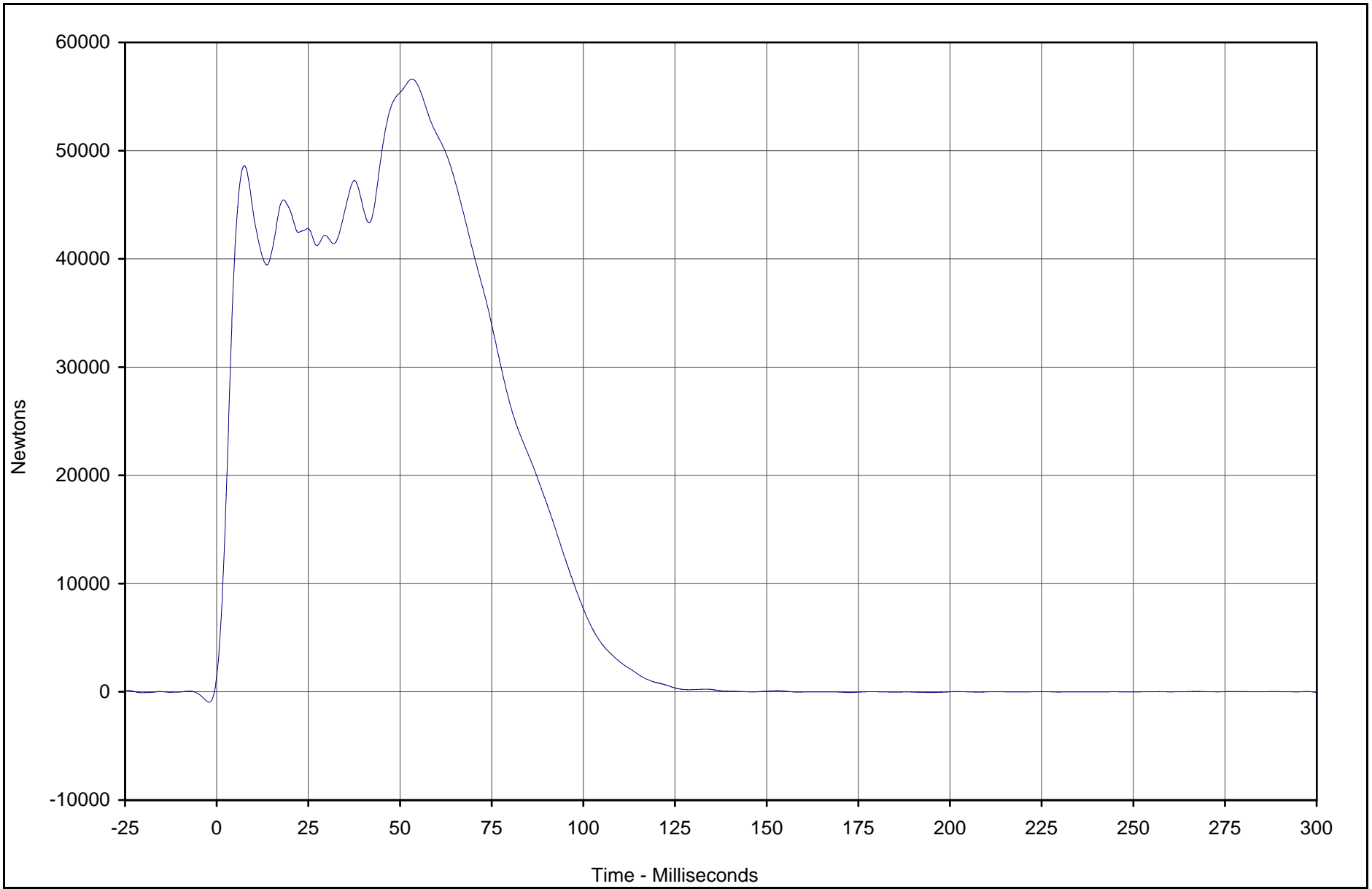


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B6	112	FIL	Newtons	56608.9	53.3	-65.0	194.9	60

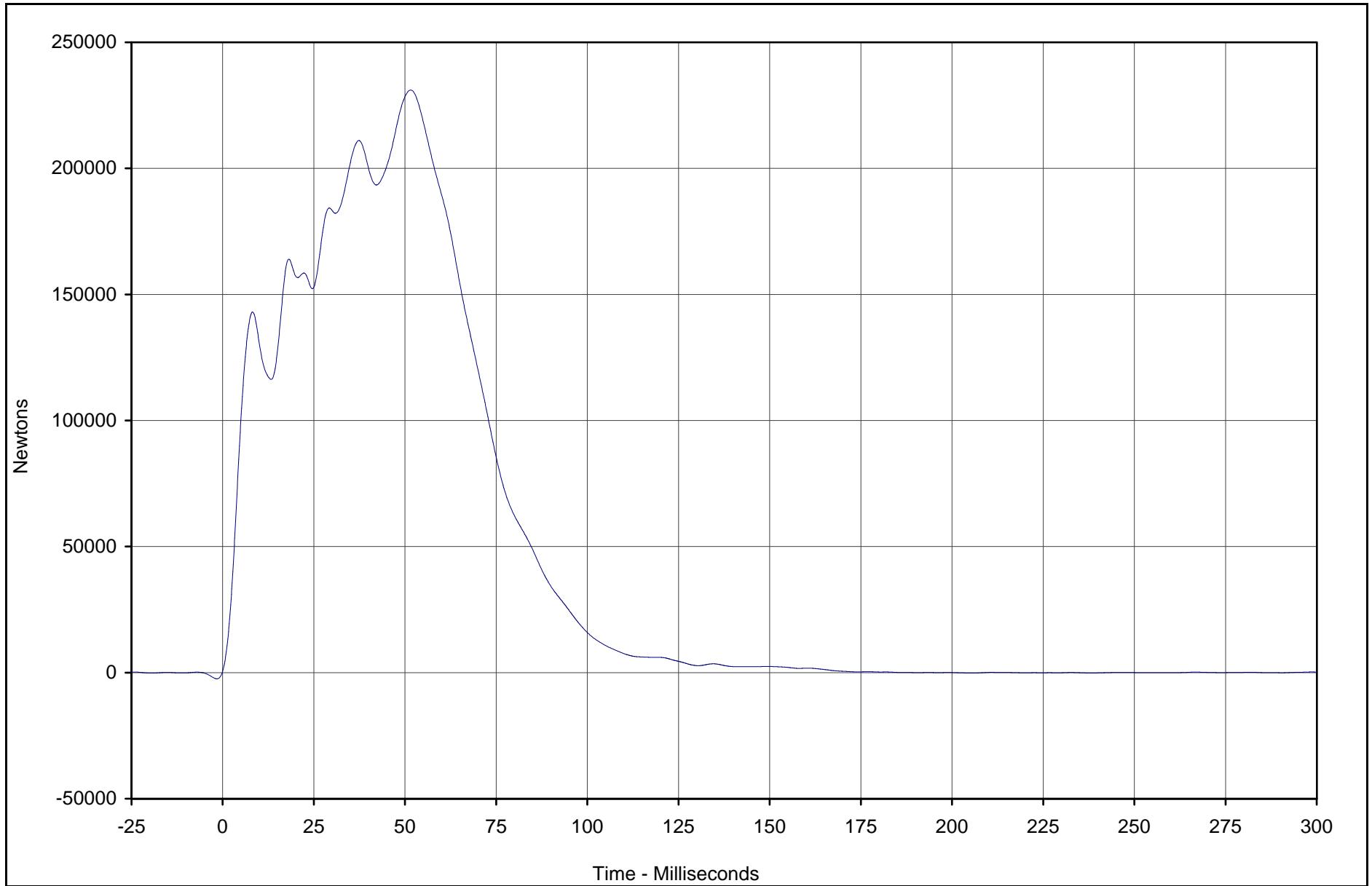


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B7	113	FIL	Newtons	231073.7	51.6	-180.1	205.8	60

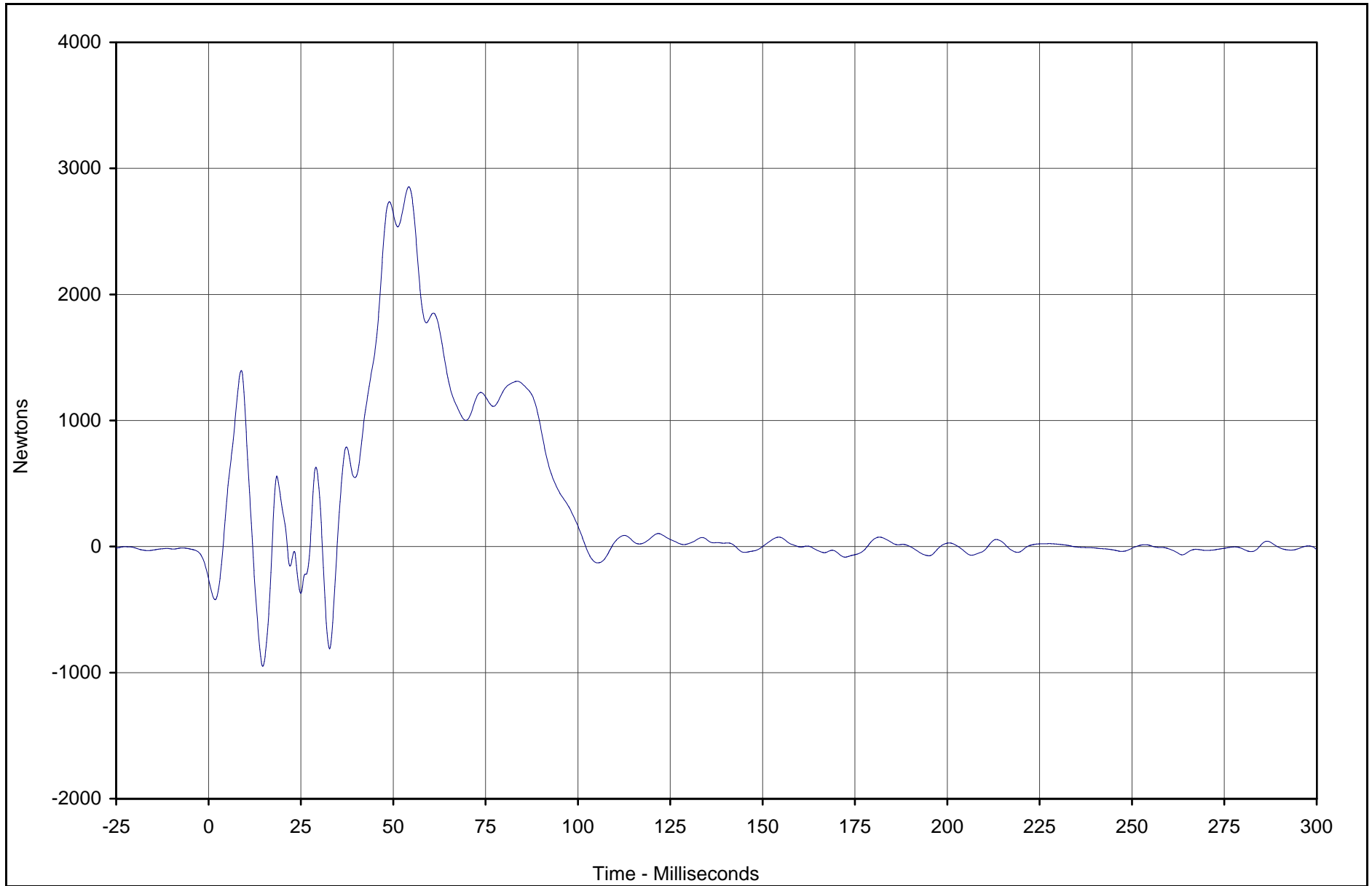


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B8	114	FIL	Newtons	2854.3	54.2	-949.5	14.7	60

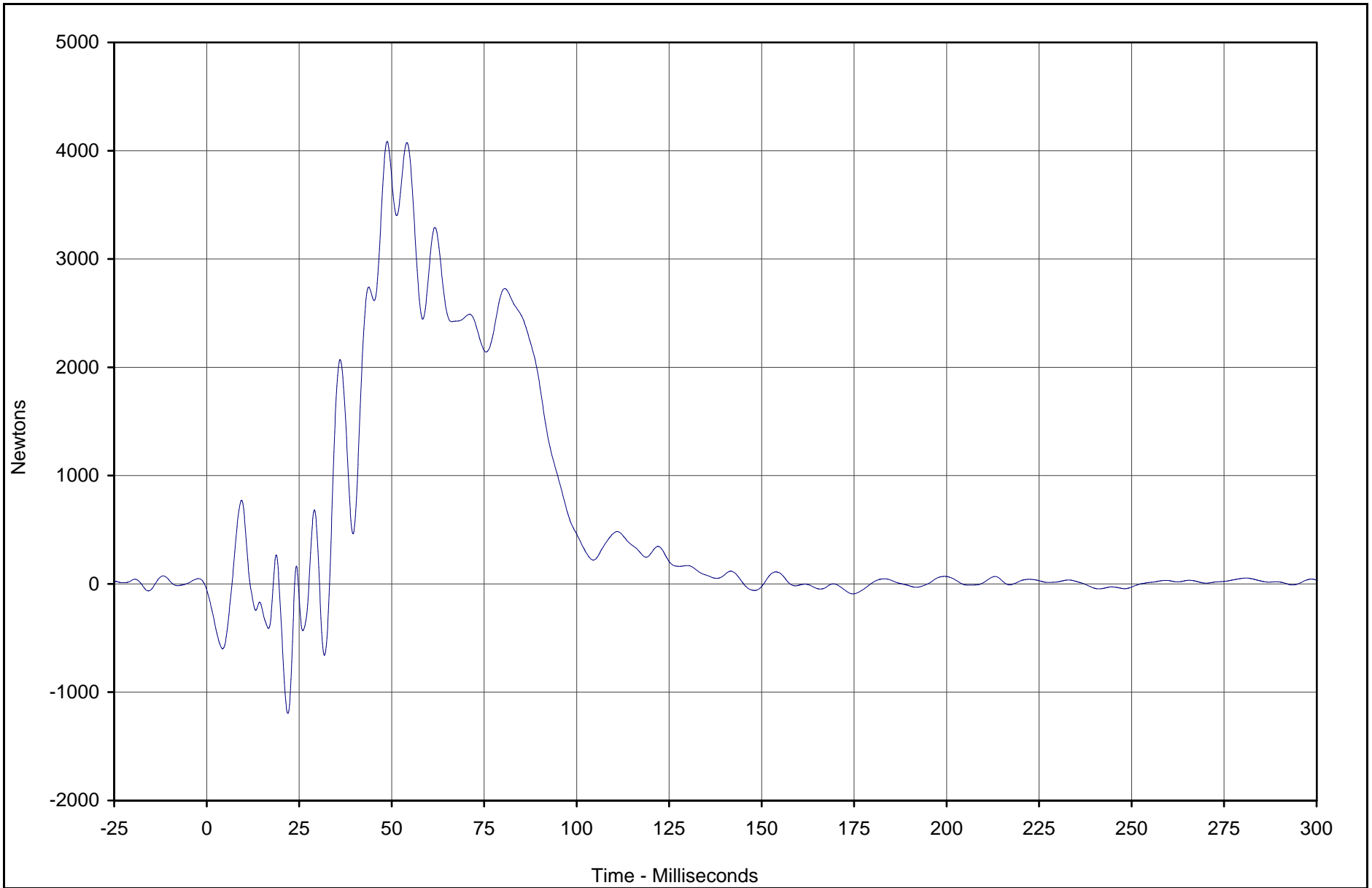


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B9	115	FIL	Newtons	4085.8	48.8	-1195.9	21.9	60

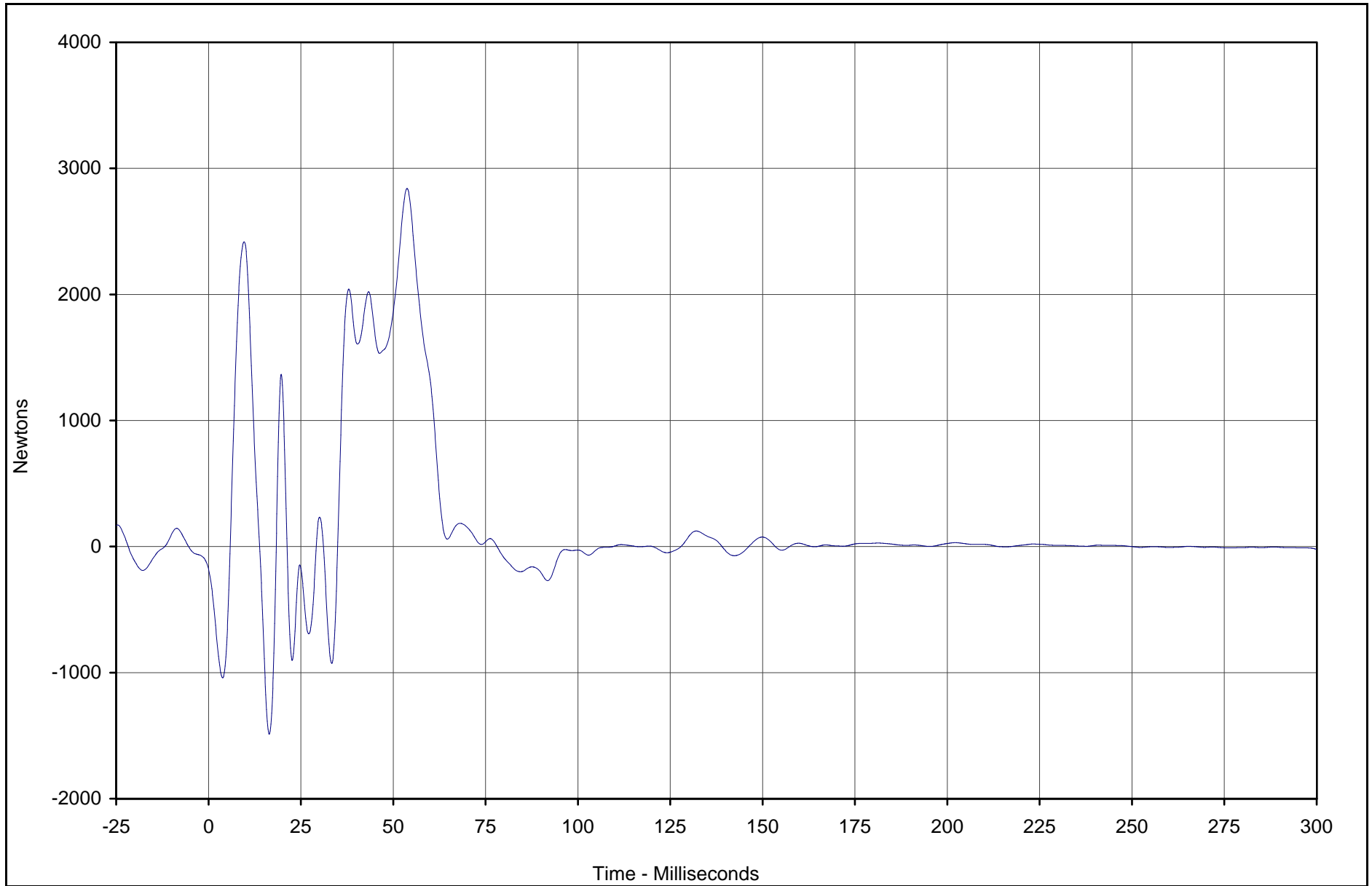


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C1	116	FIL	Newtons	2839.9	53.7	-1488.3	16.4	60

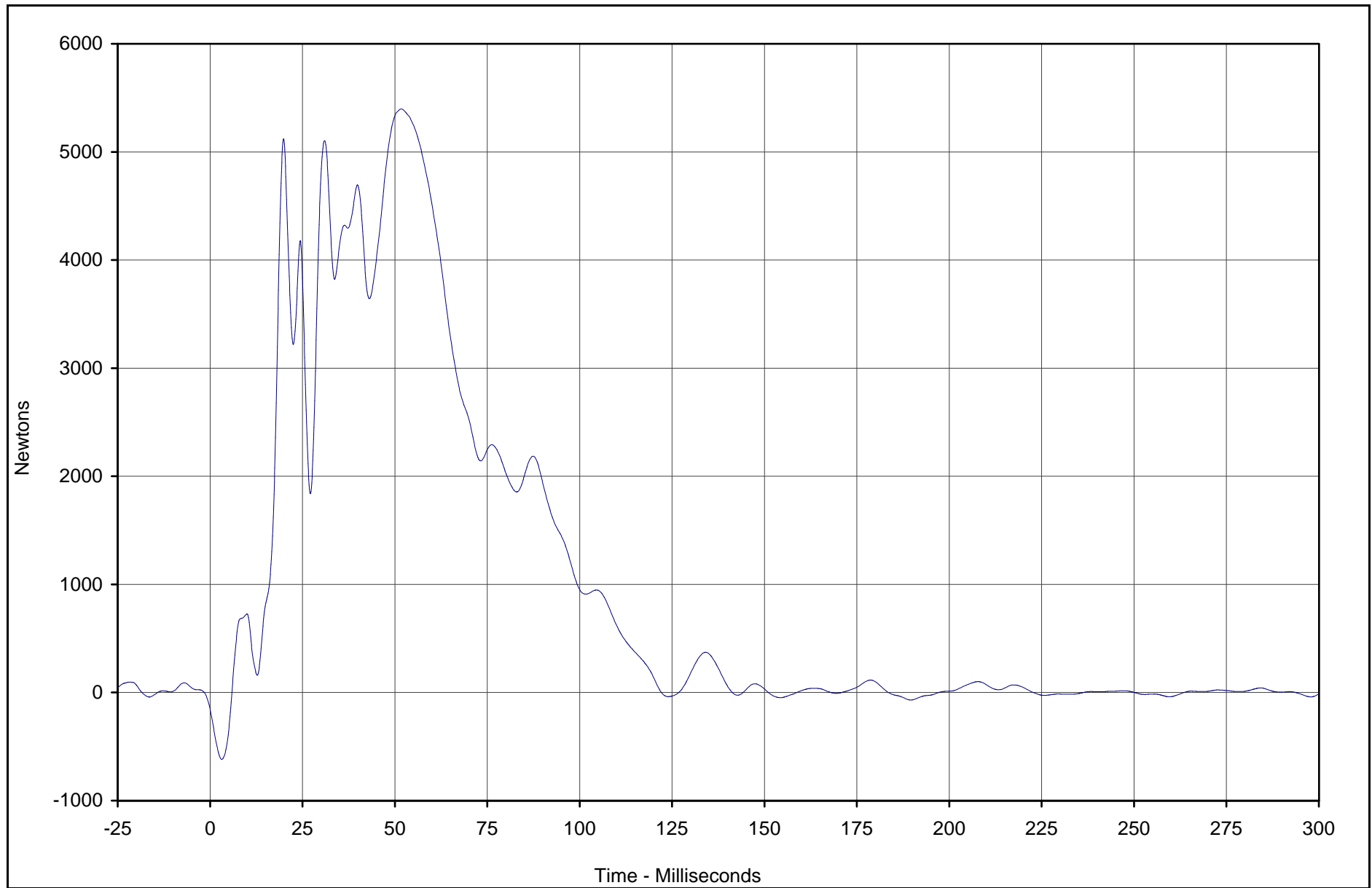


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C2	117	FIL	Newtons	5397.1	51.7	-619.1	3.2	60



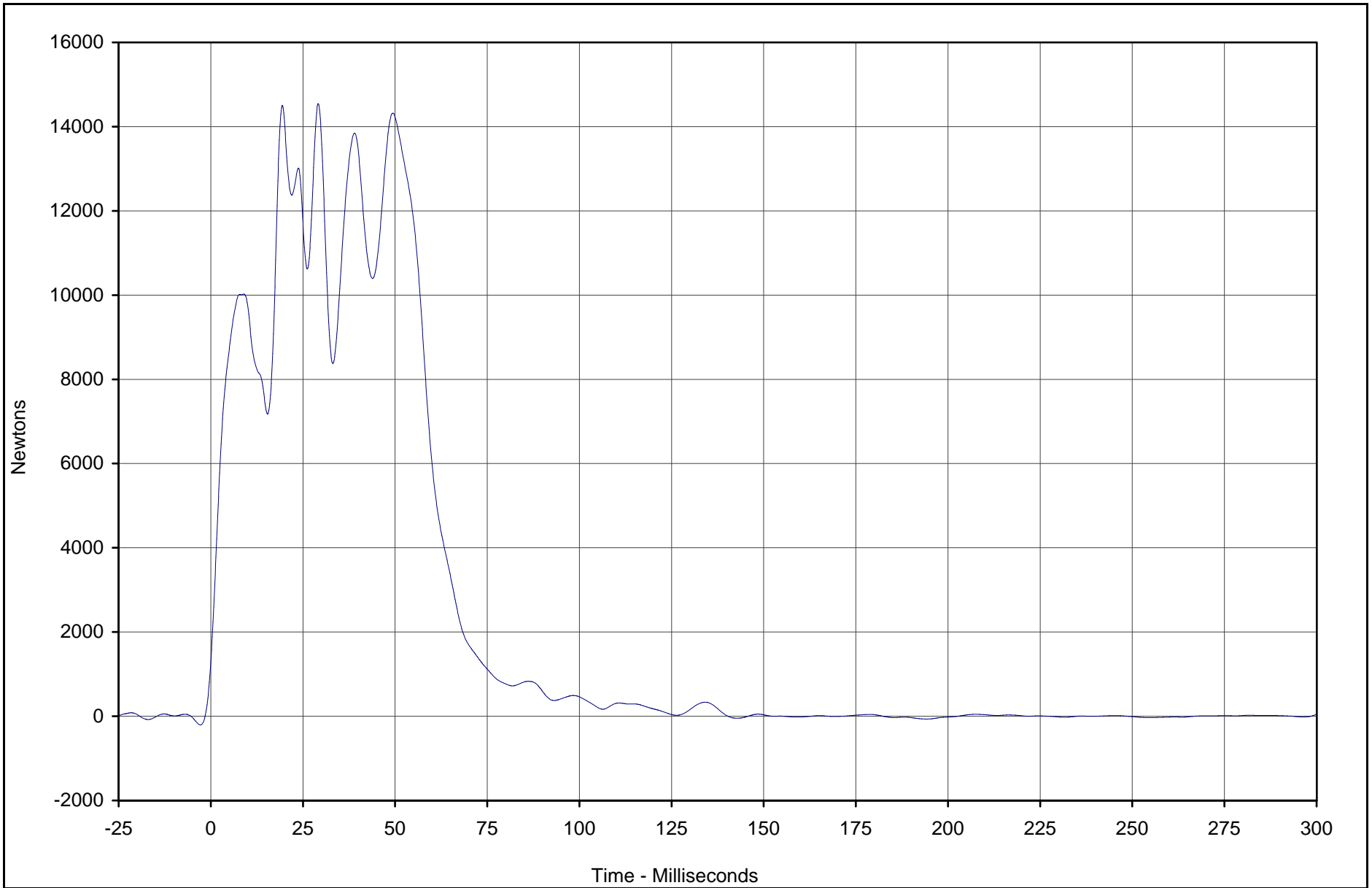
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C3	118	FIL	Newtons	14546.6	29.1	-66.7	194.2	60



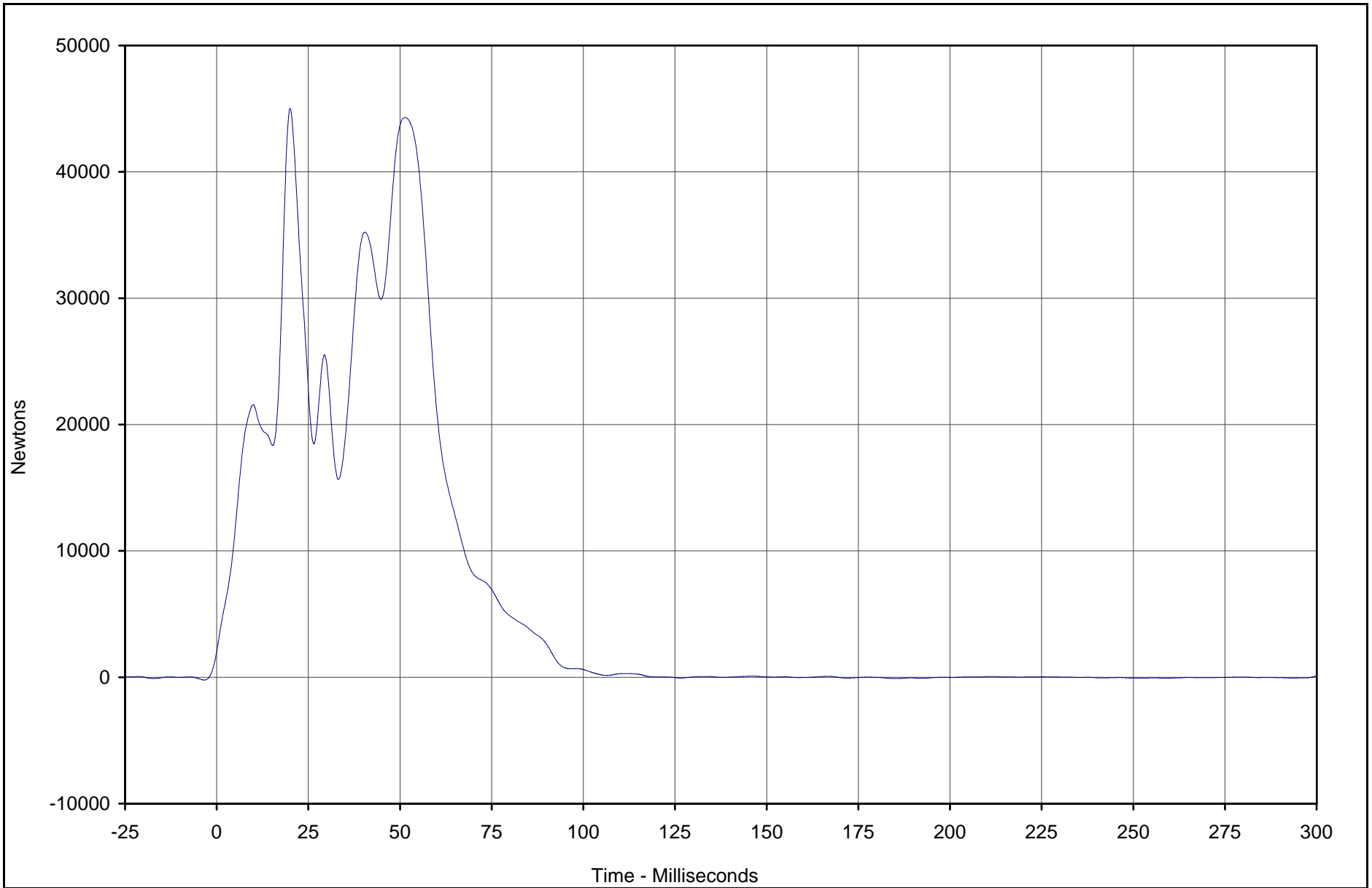
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C4	119	FIL	Newtons	45009.3	20.0	-99.9	185.2	60

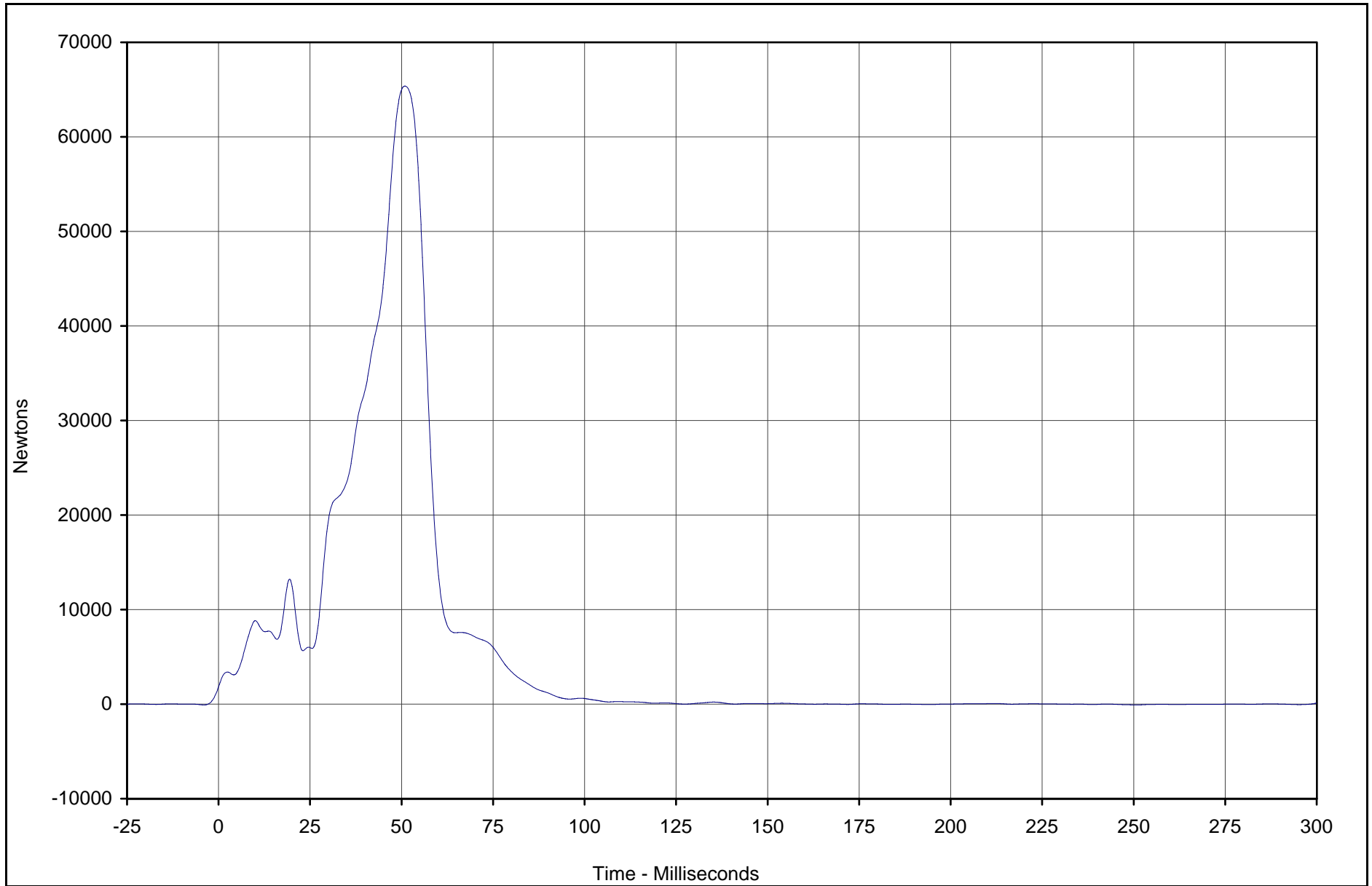


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C5	120	FIL	Newtons	65370.8	50.9	-85.4	250.7	60



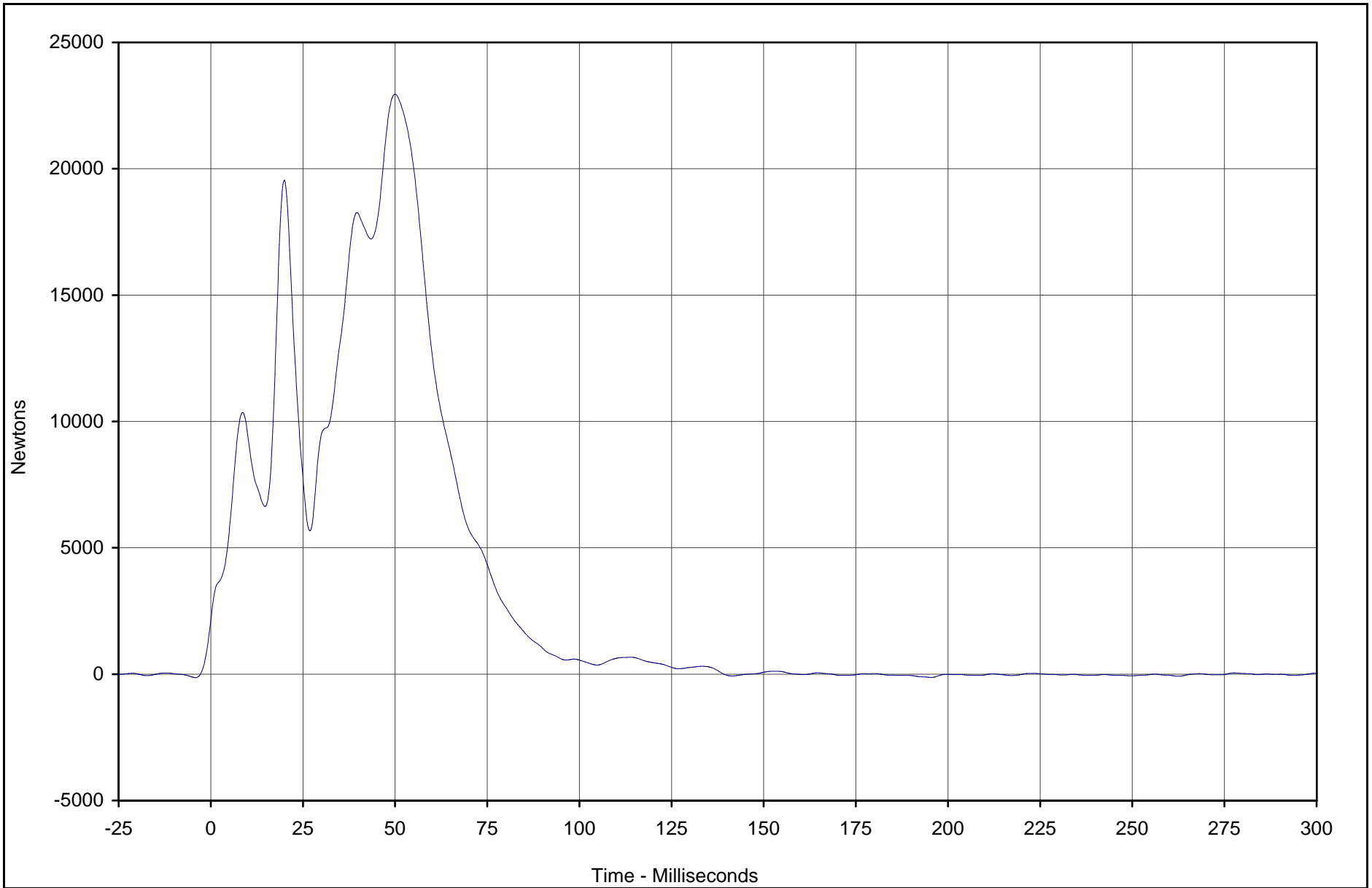
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C6	121	FIL	Newtons	22953.3	50.0	-131.5	195.5	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

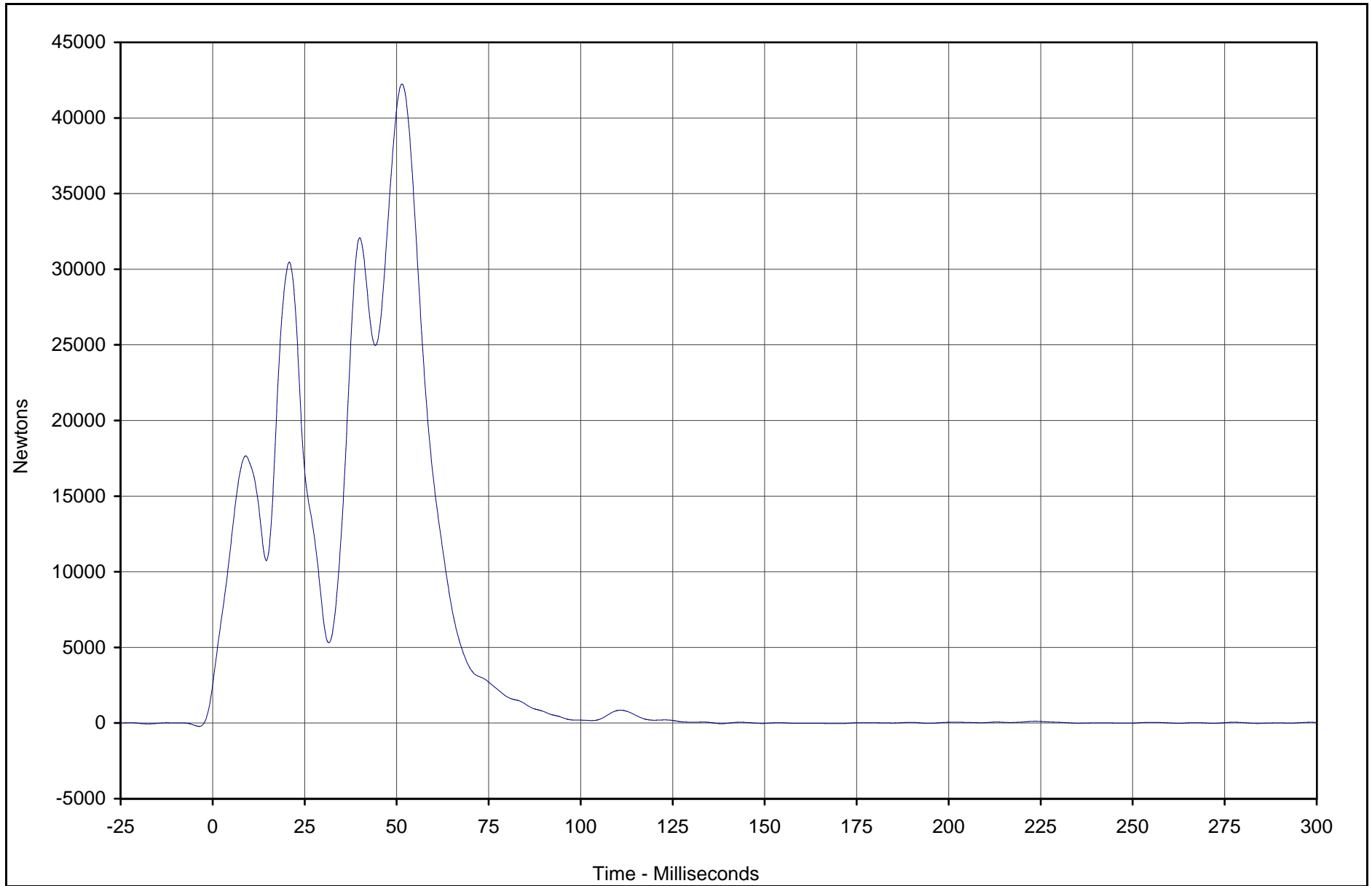
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C7	122	FIL	Newtons	42239.7	51.4	-42.6	138.2	60

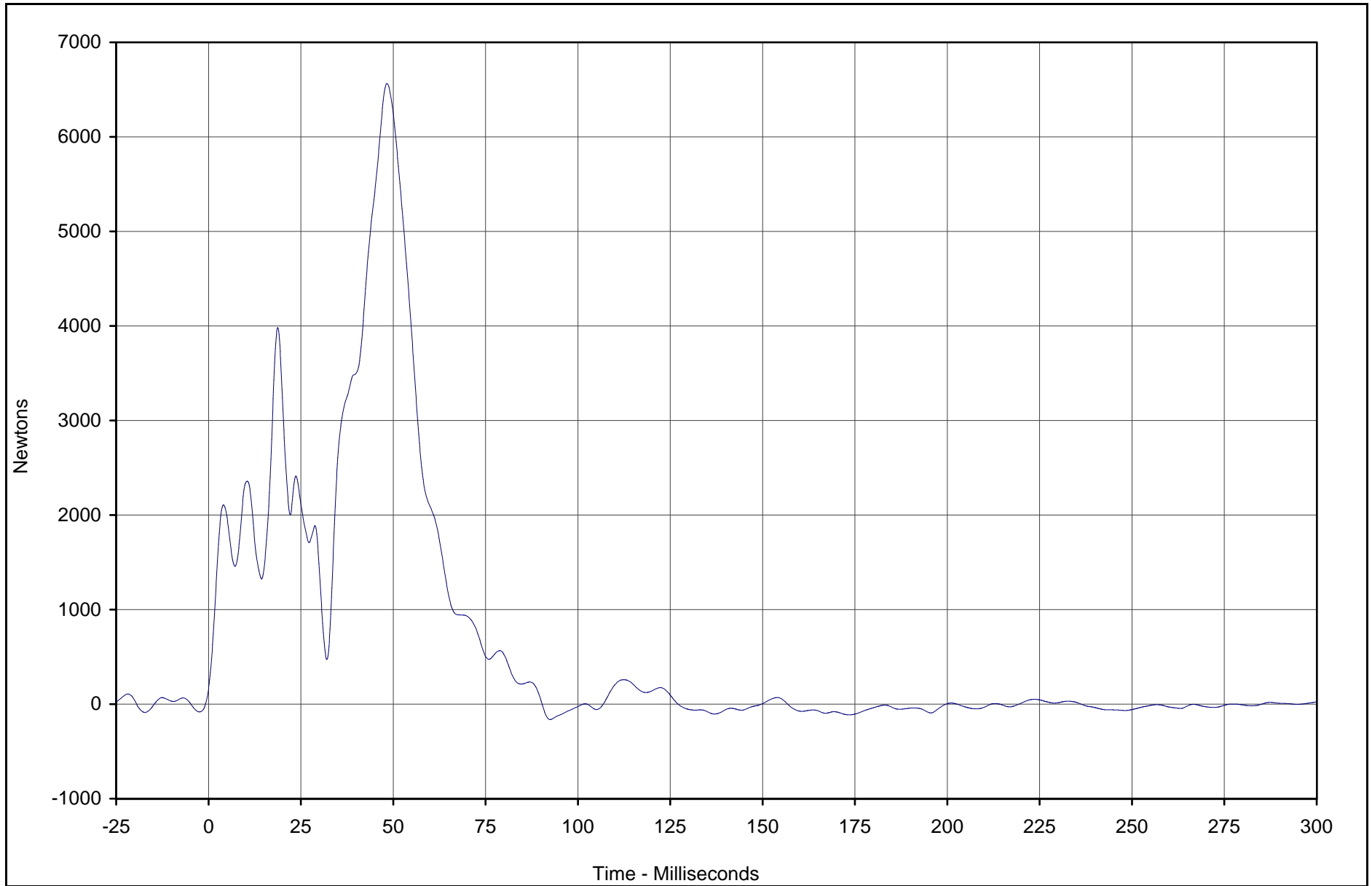


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C8	123	FIL	Newtons	6564.1	48.3	-163.6	92.5	60

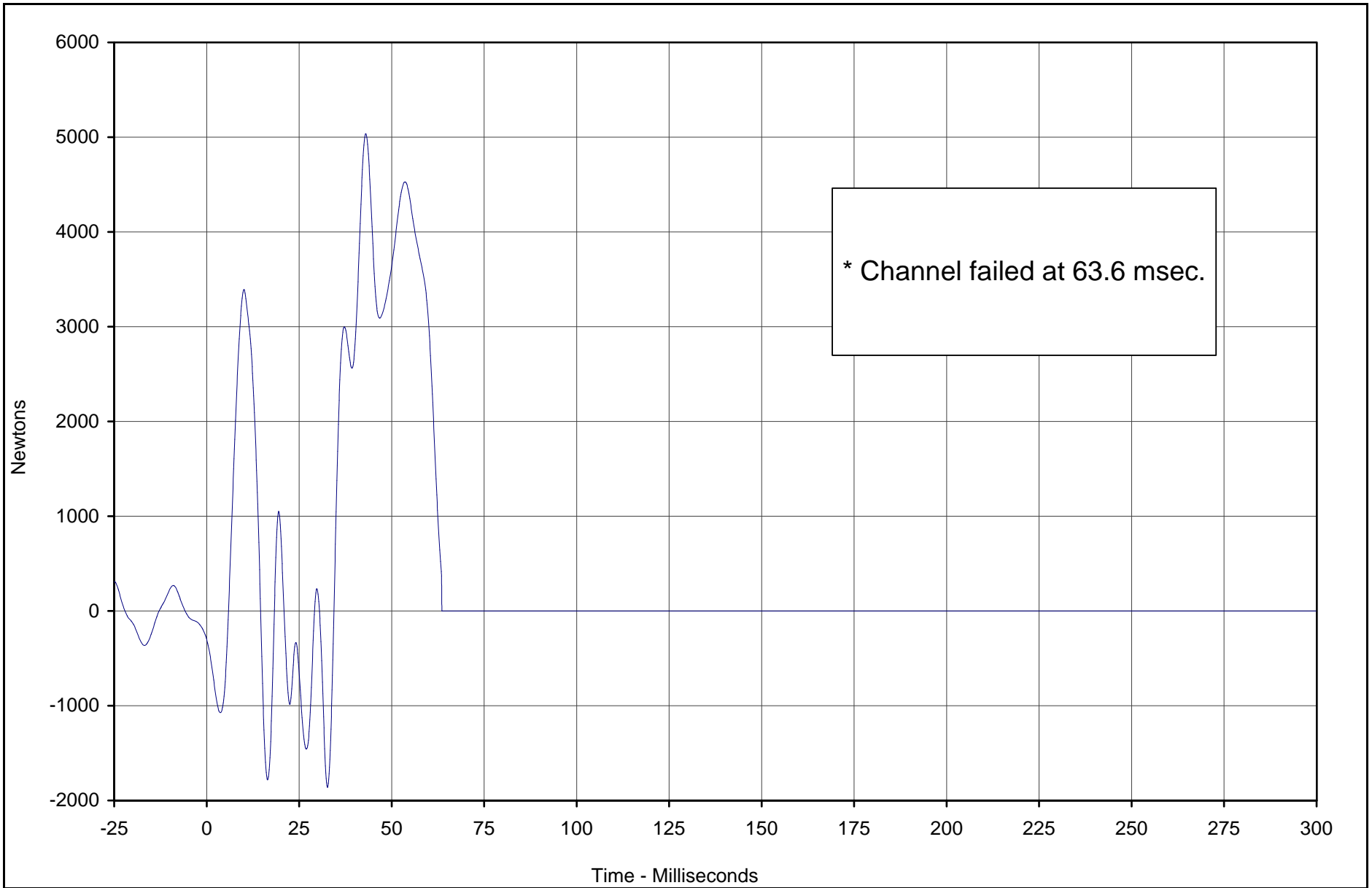


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



* Channel failed at 63.6 msec.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C9	124	FIL	Newtons	5037.7	43.0	-1861.1	32.7	60



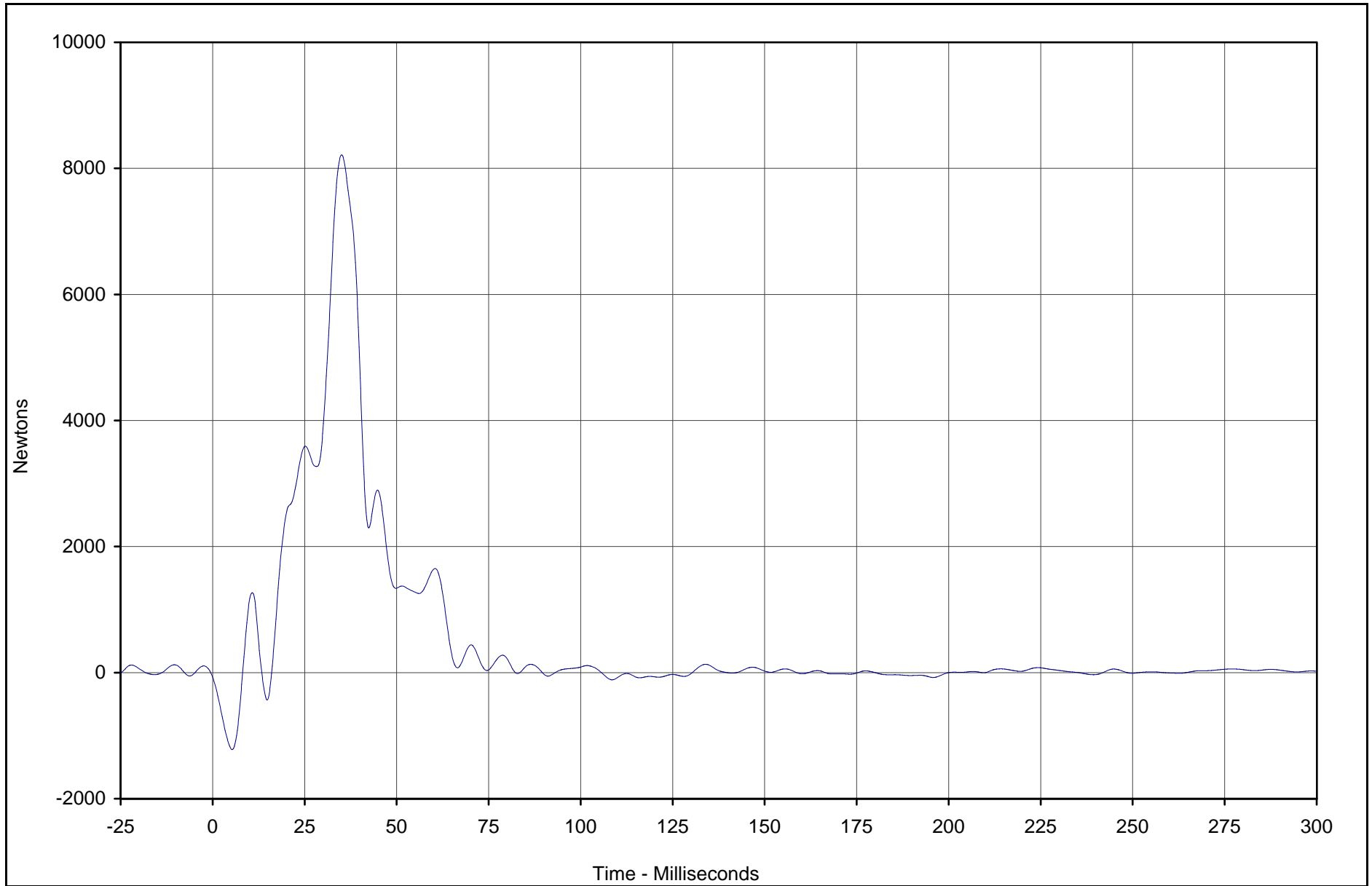
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D1	125	FIL	Newtons	8213.6	35.1	-1221.7	5.3	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

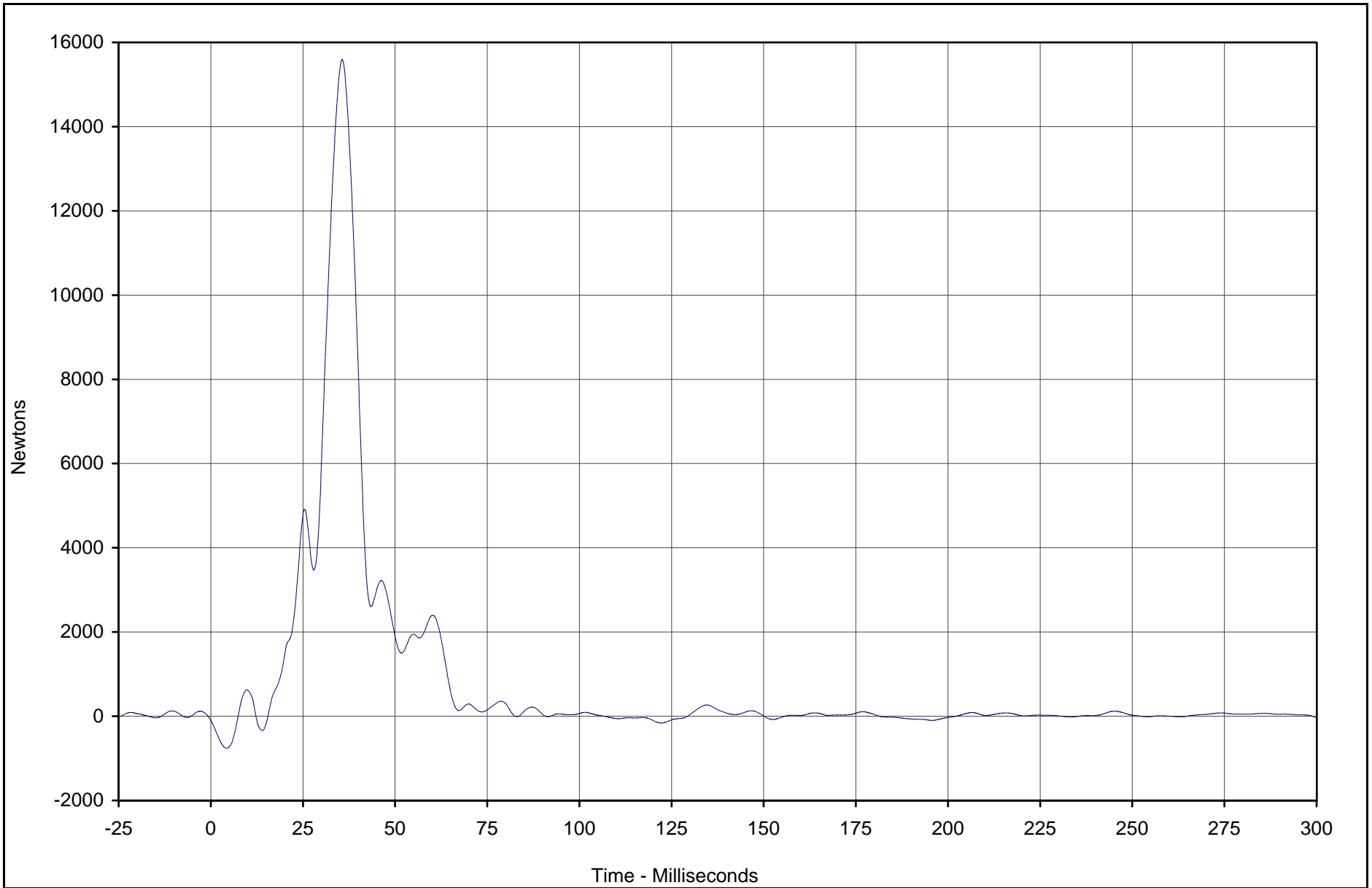
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D2	126	FIL	Newtons	15592.7	35.6	-758.6	4.3	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

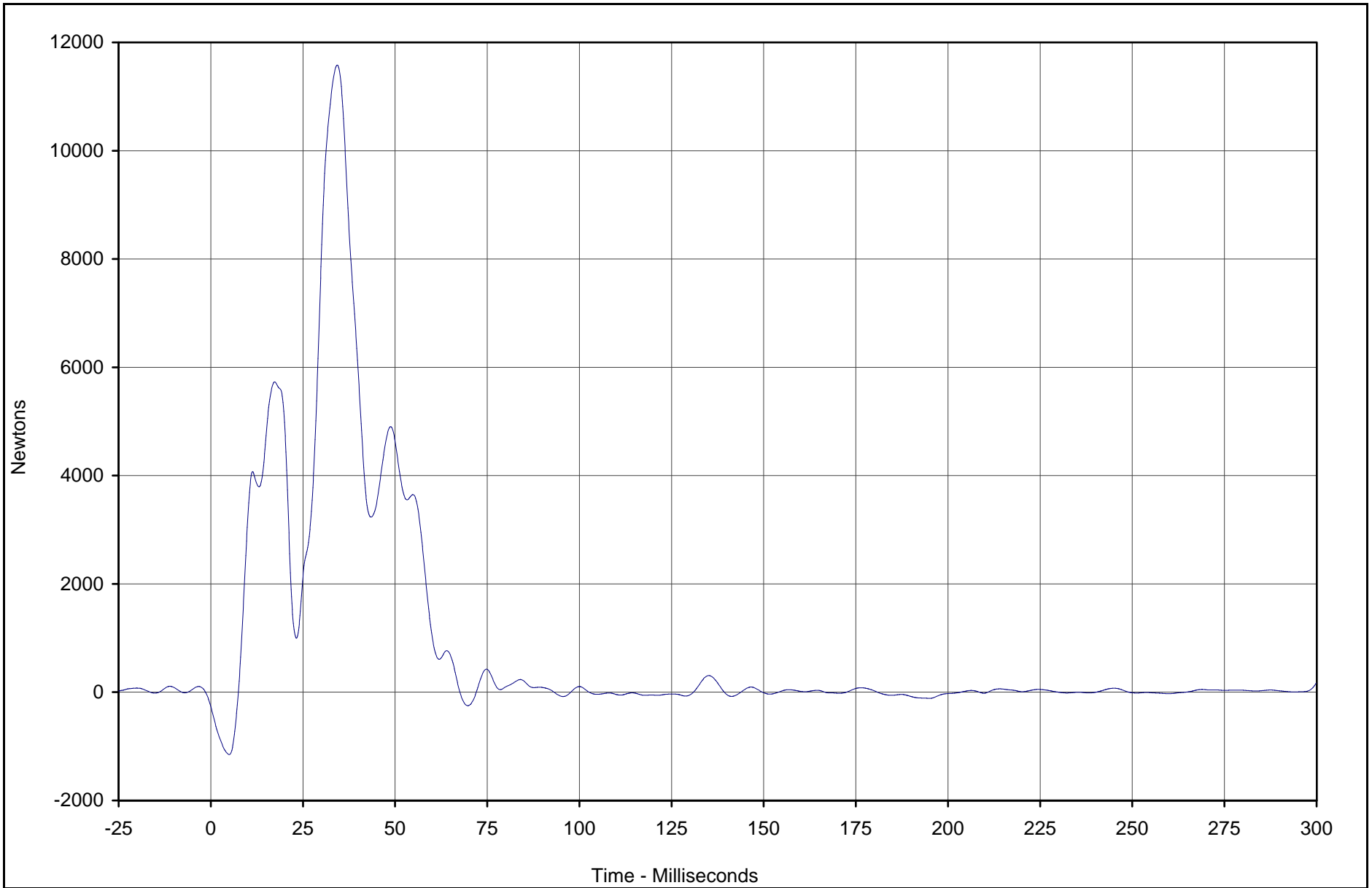
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D3	127	FIL	Newtons	11581.4	34.3	-1153.5	5.0	60



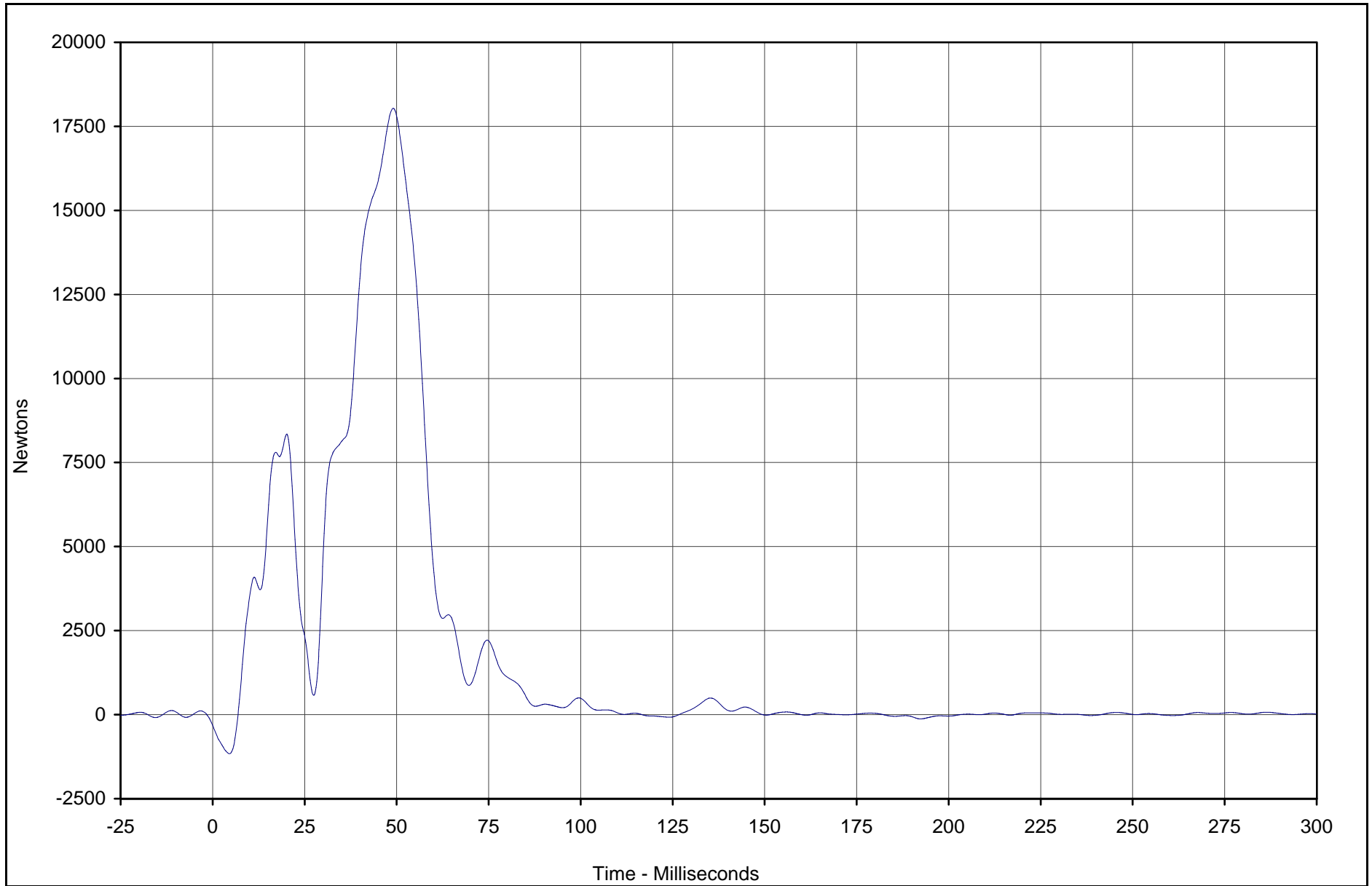
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D4	128	FIL	Newtons	18037.5	49.1	-1161.0	4.6	60



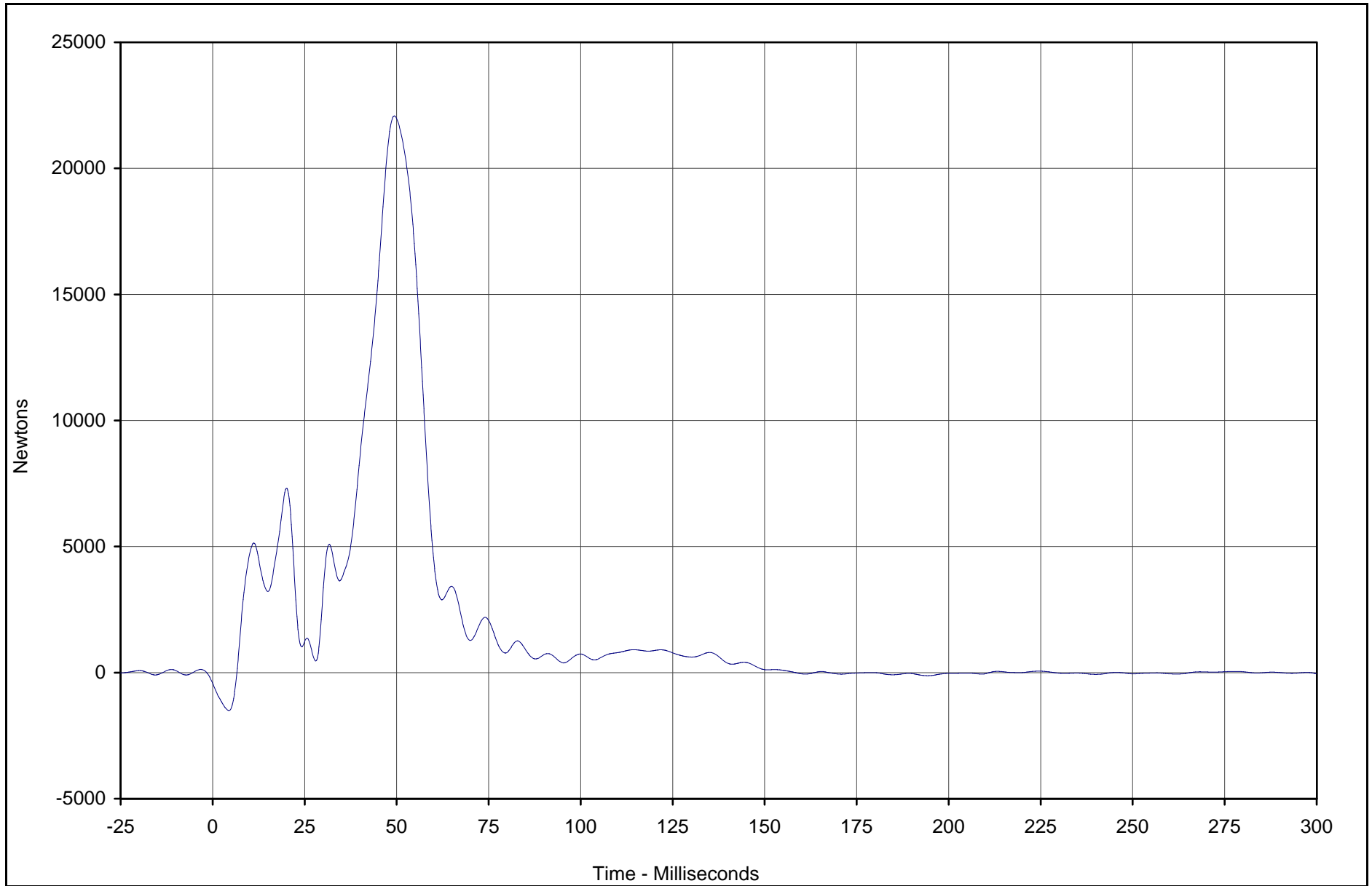
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D5	129	FIL	Newtons	22079.2	49.4	-1501.8	4.4	60

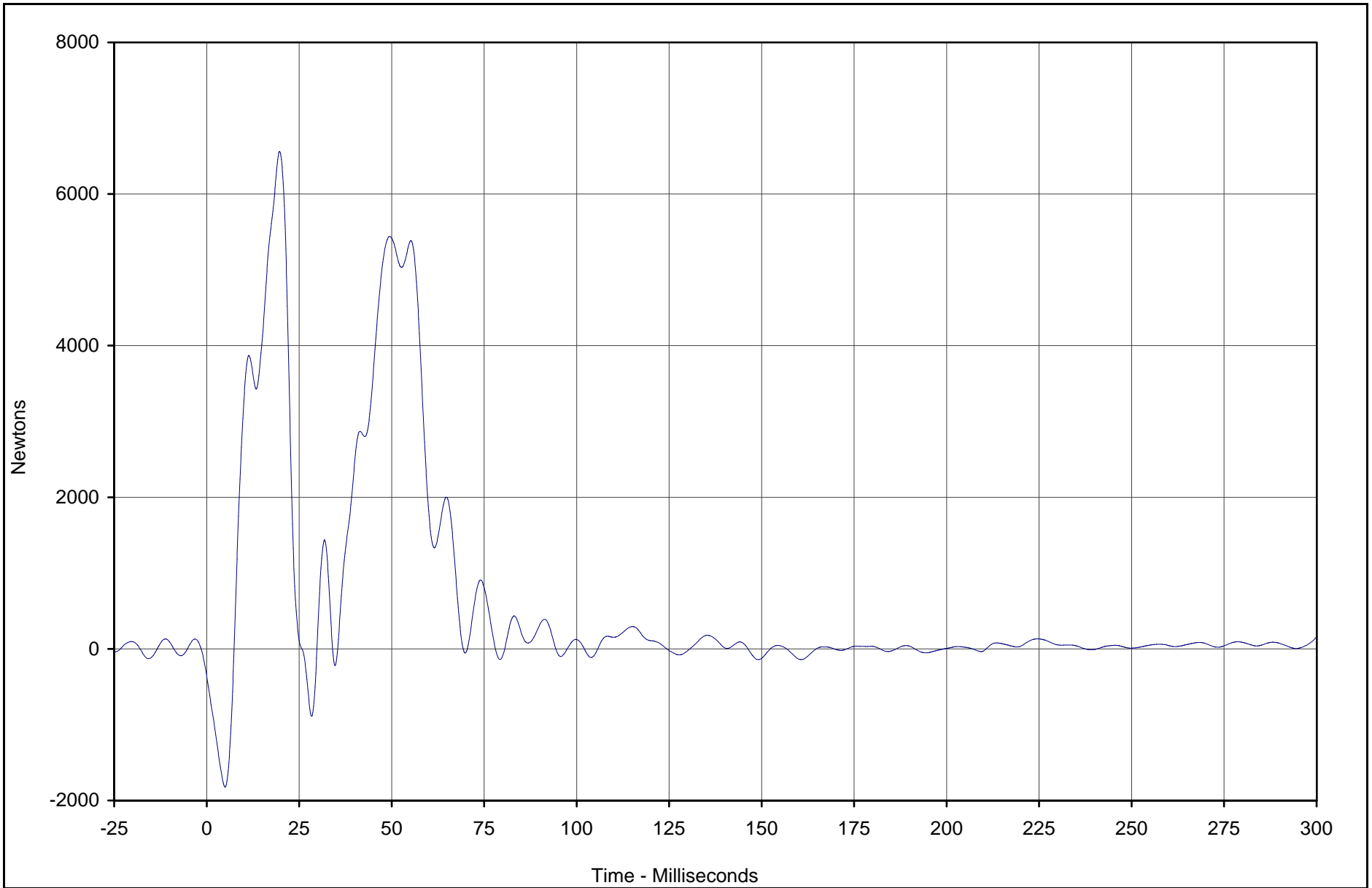


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D6	130	FIL	Newtons	6561.7	19.7	-1824.1	5.0	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

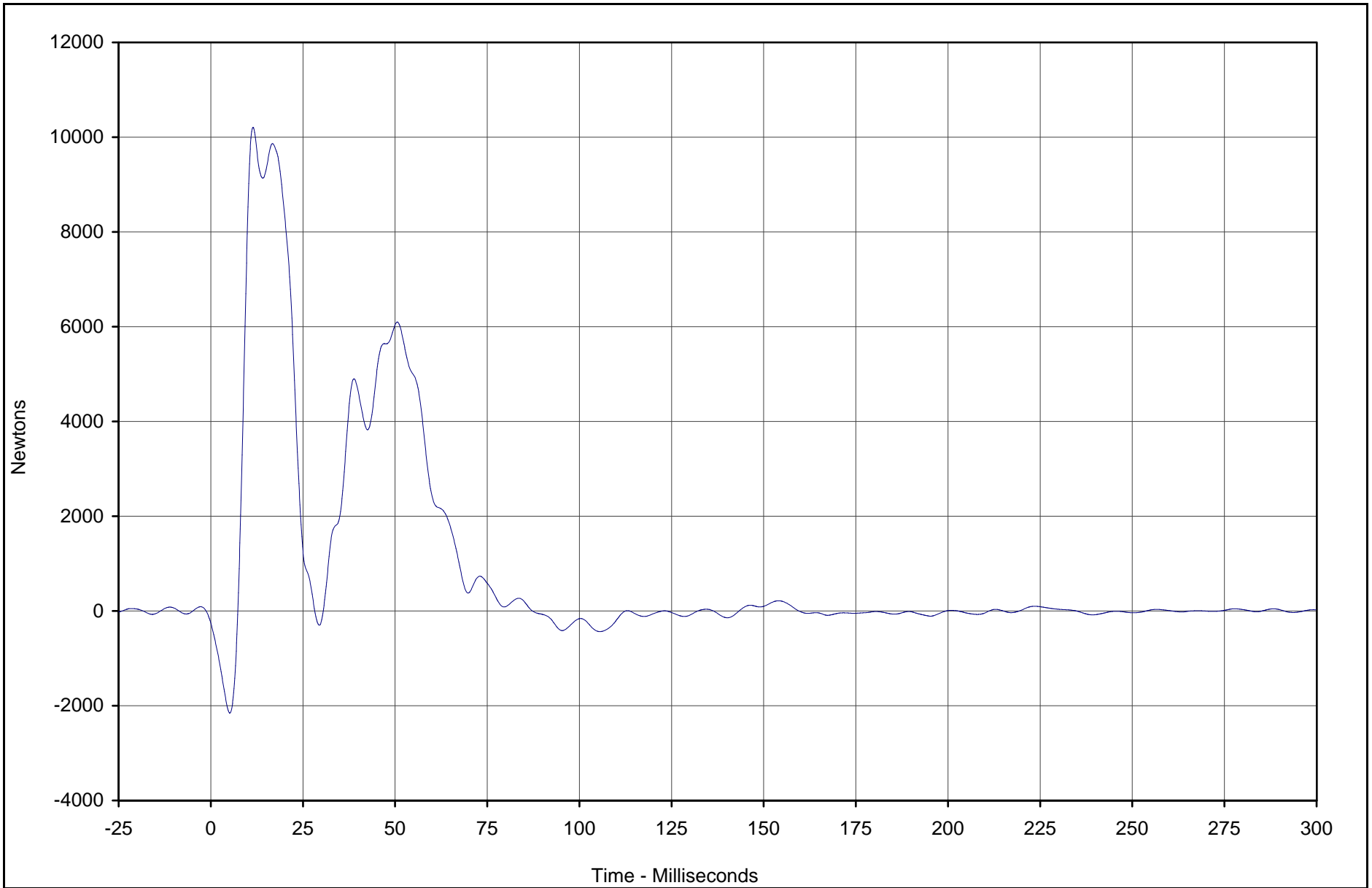
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

C-34

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D7	131	FIL	Newtons	10209.1	11.5	-2155.2	5.2	60



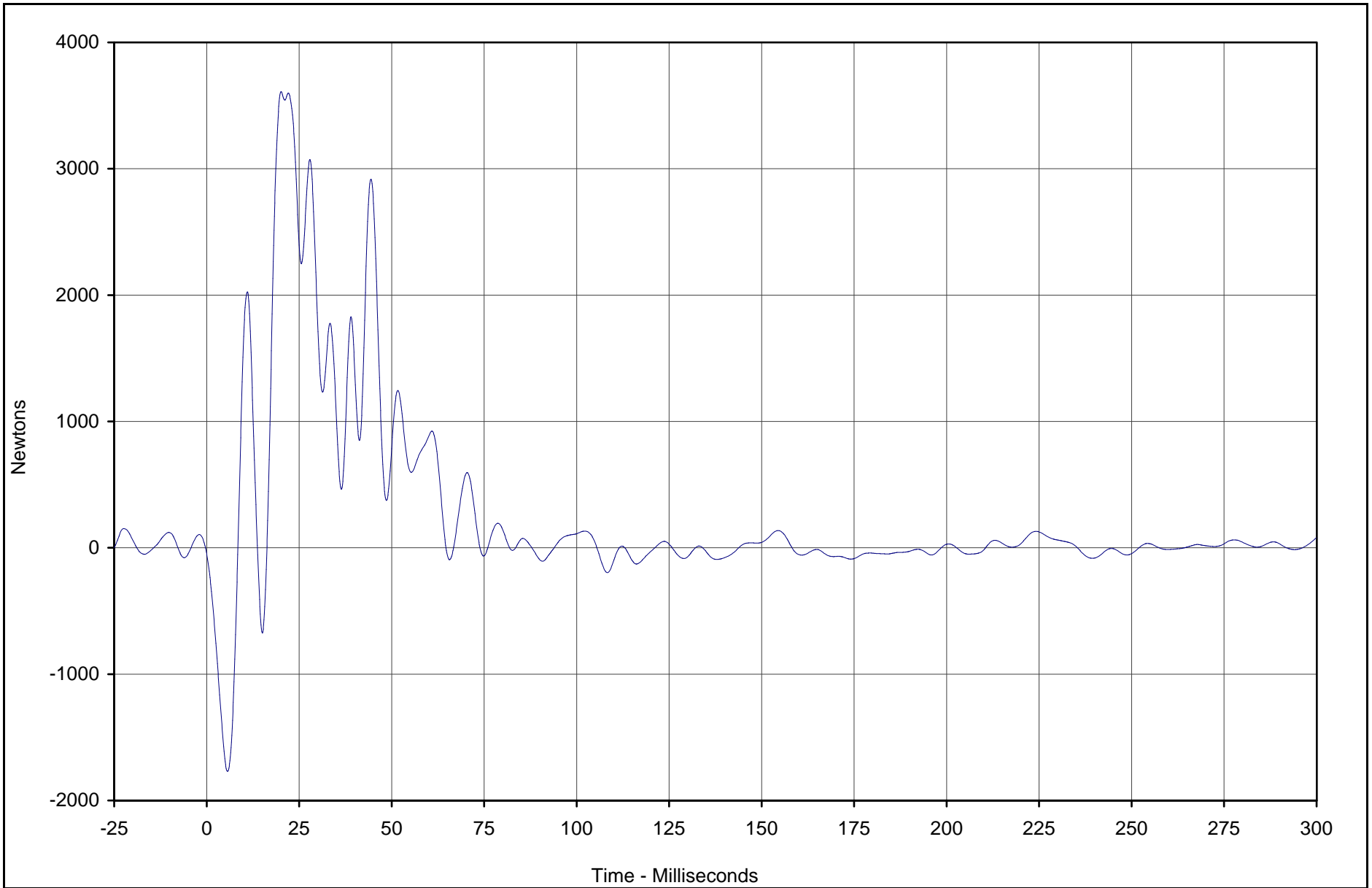
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D8	132	FIL	Newtons	3610.4	20.1	-1769.4	5.6	60

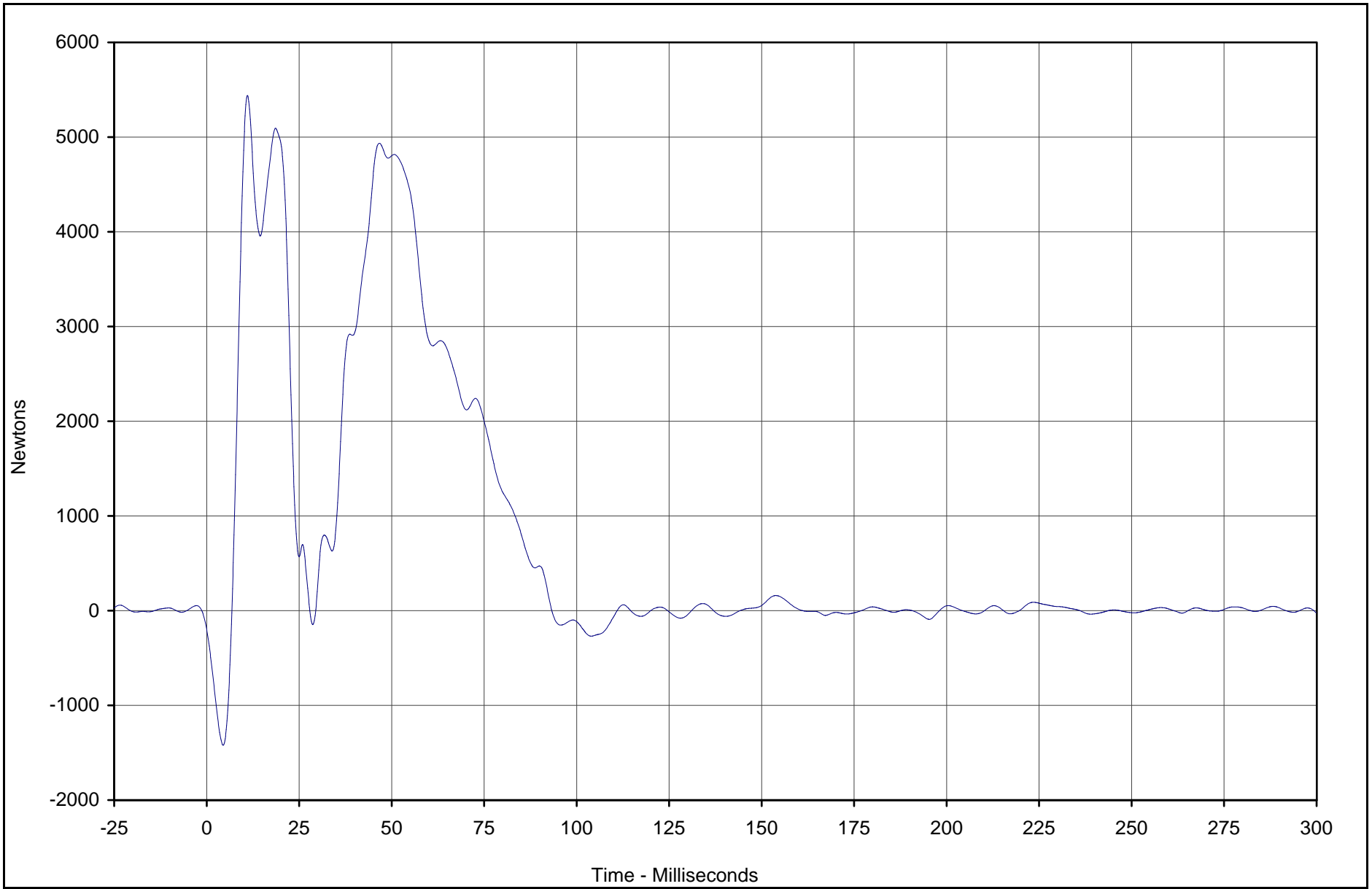


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D9	133	FIL	Newtons	5439.3	11.0	-1420.0	4.5	60

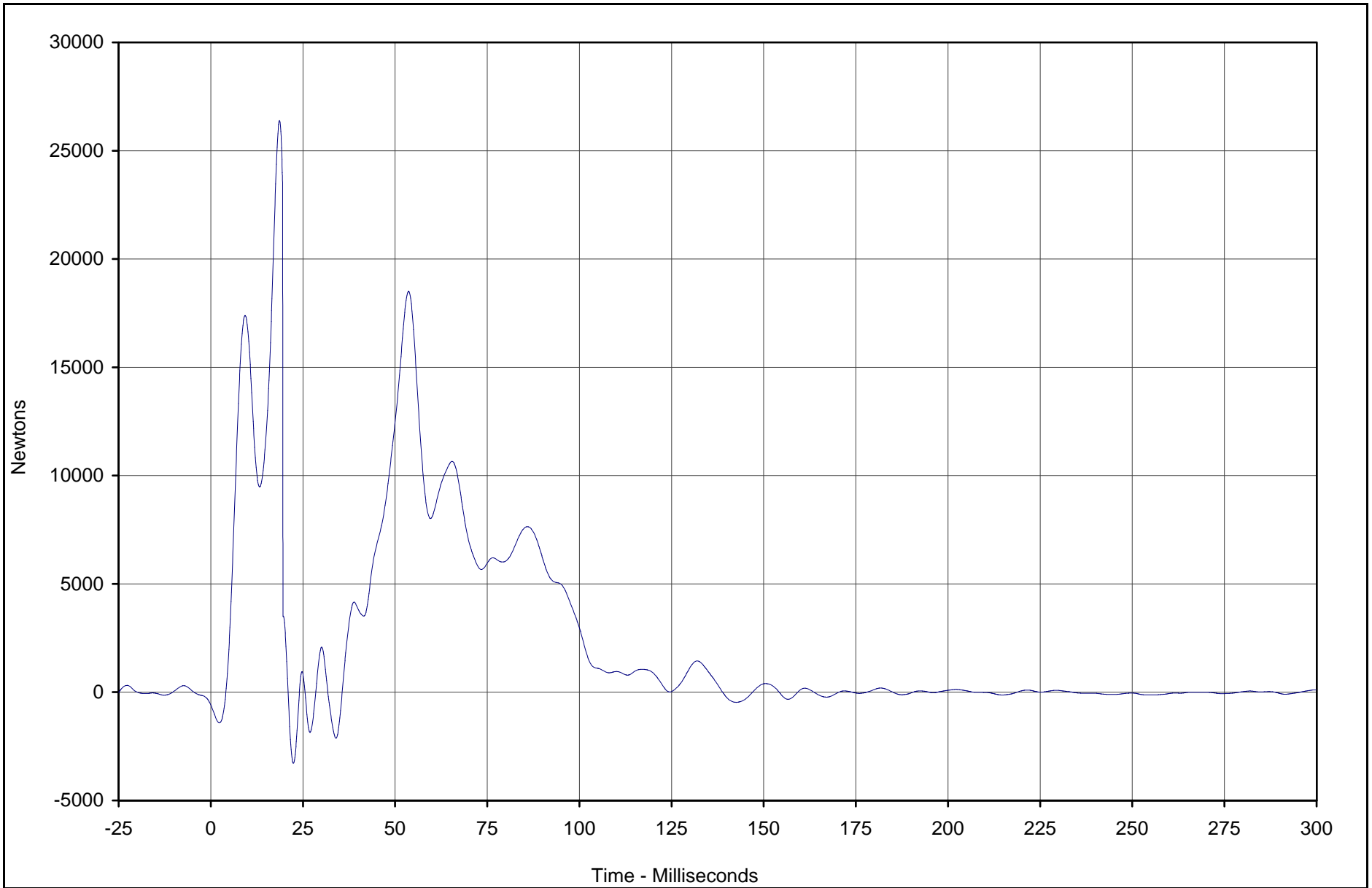


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



* Includes load cell data which failed during the test.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 1	001	SUM	Newtons	26390.8	18.6	-3286.1	22.4	60

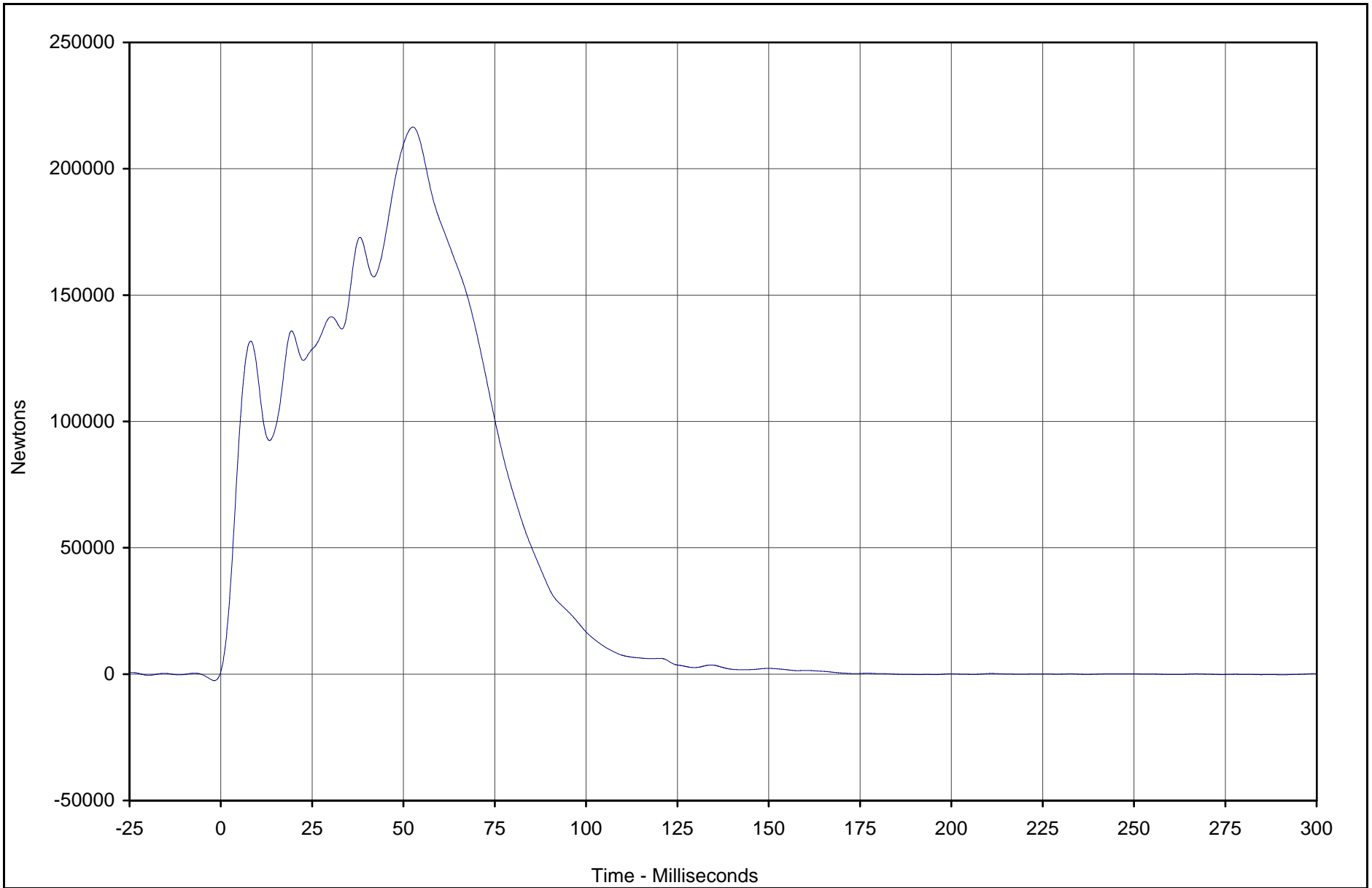


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



* Includes load cell data which failed during the test.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 2	002	SUM	Newtons	216507.6	52.6	-273.3	290.6	60



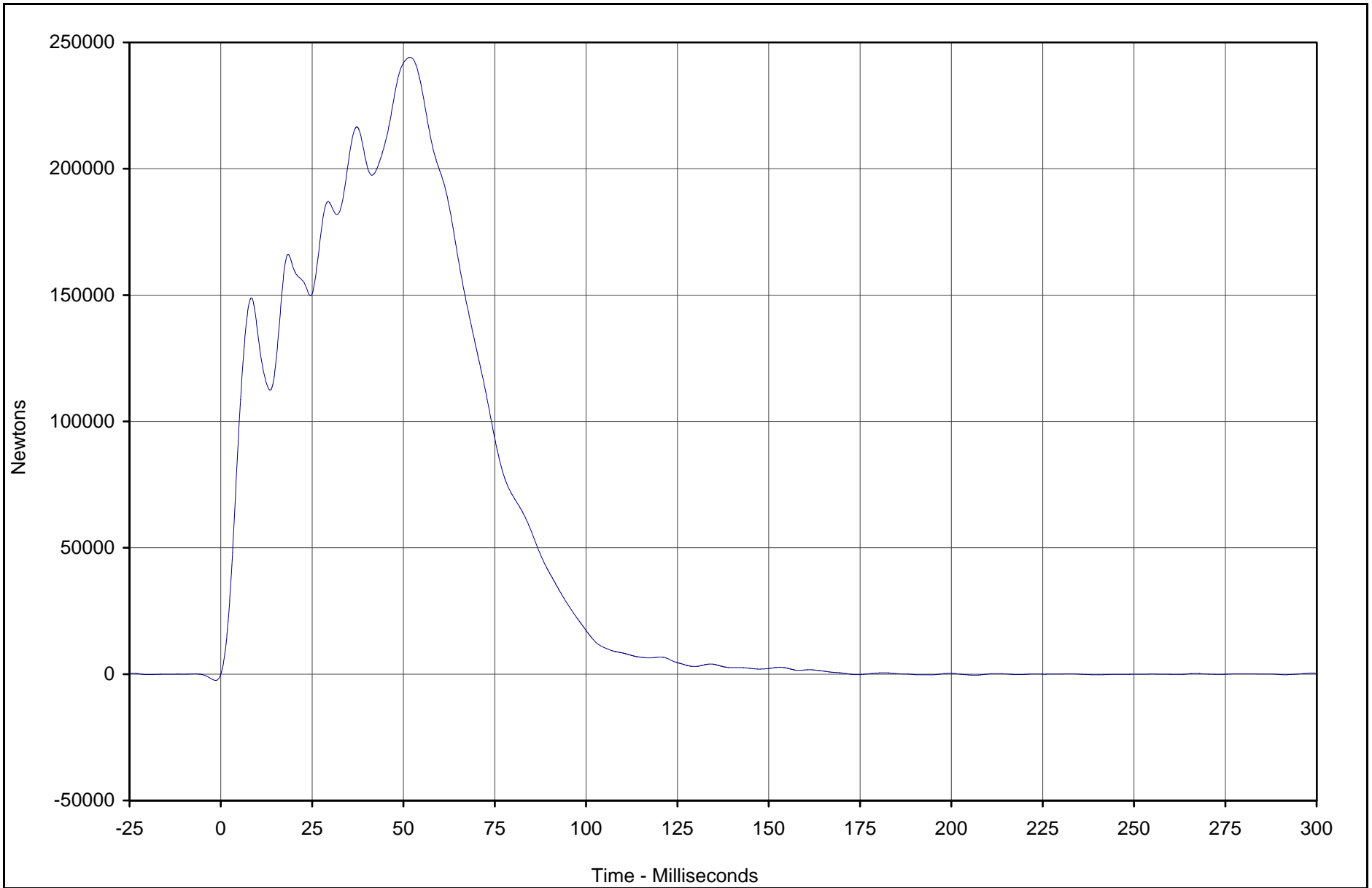
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

C-39



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 3	003	SUM	Newtons	244096.2	51.8	-412.6	206.4	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

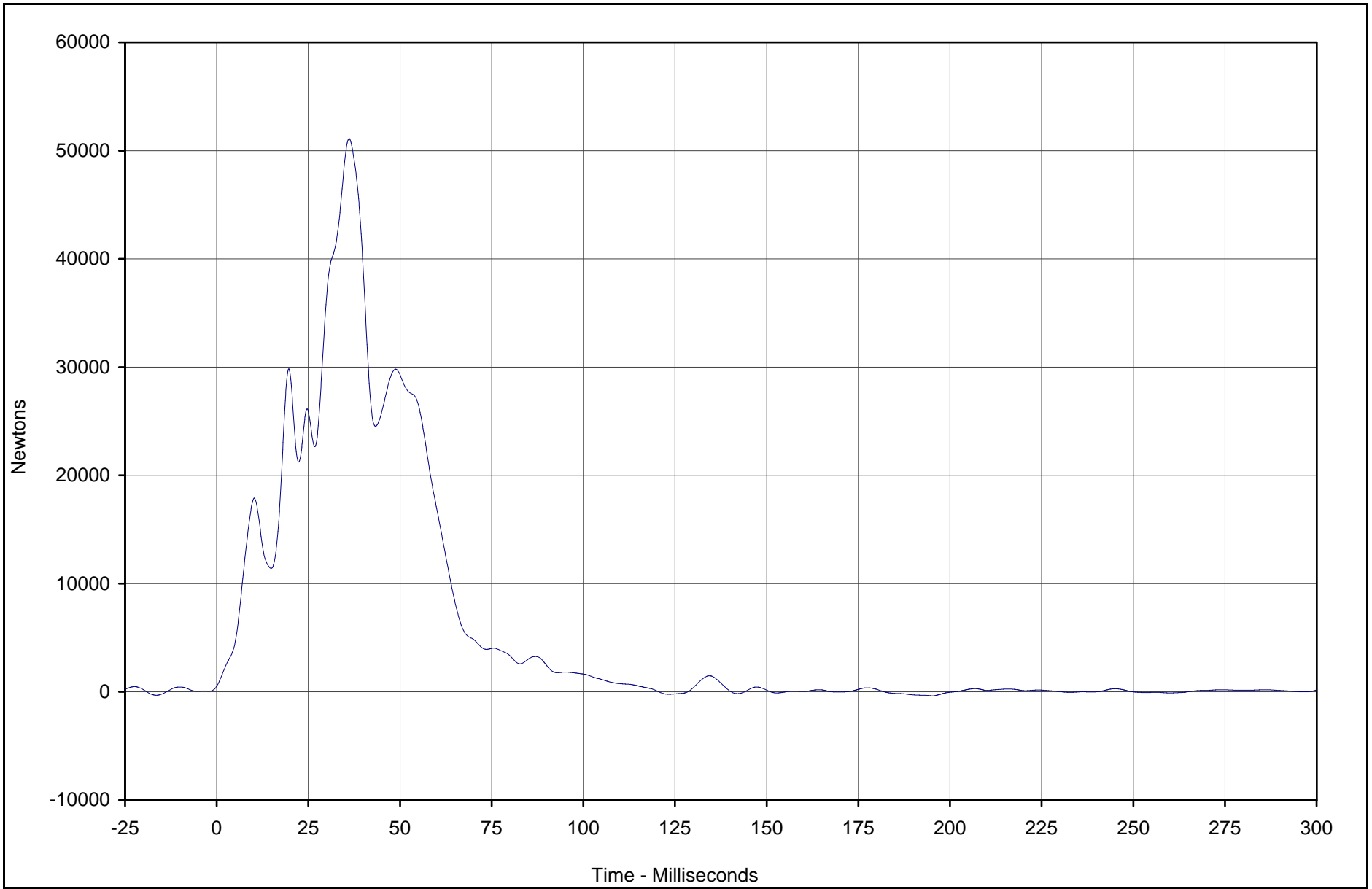
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

C-40

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 4	004	SUM	Newtons	51110.4	36.1	-370.6	195.3	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

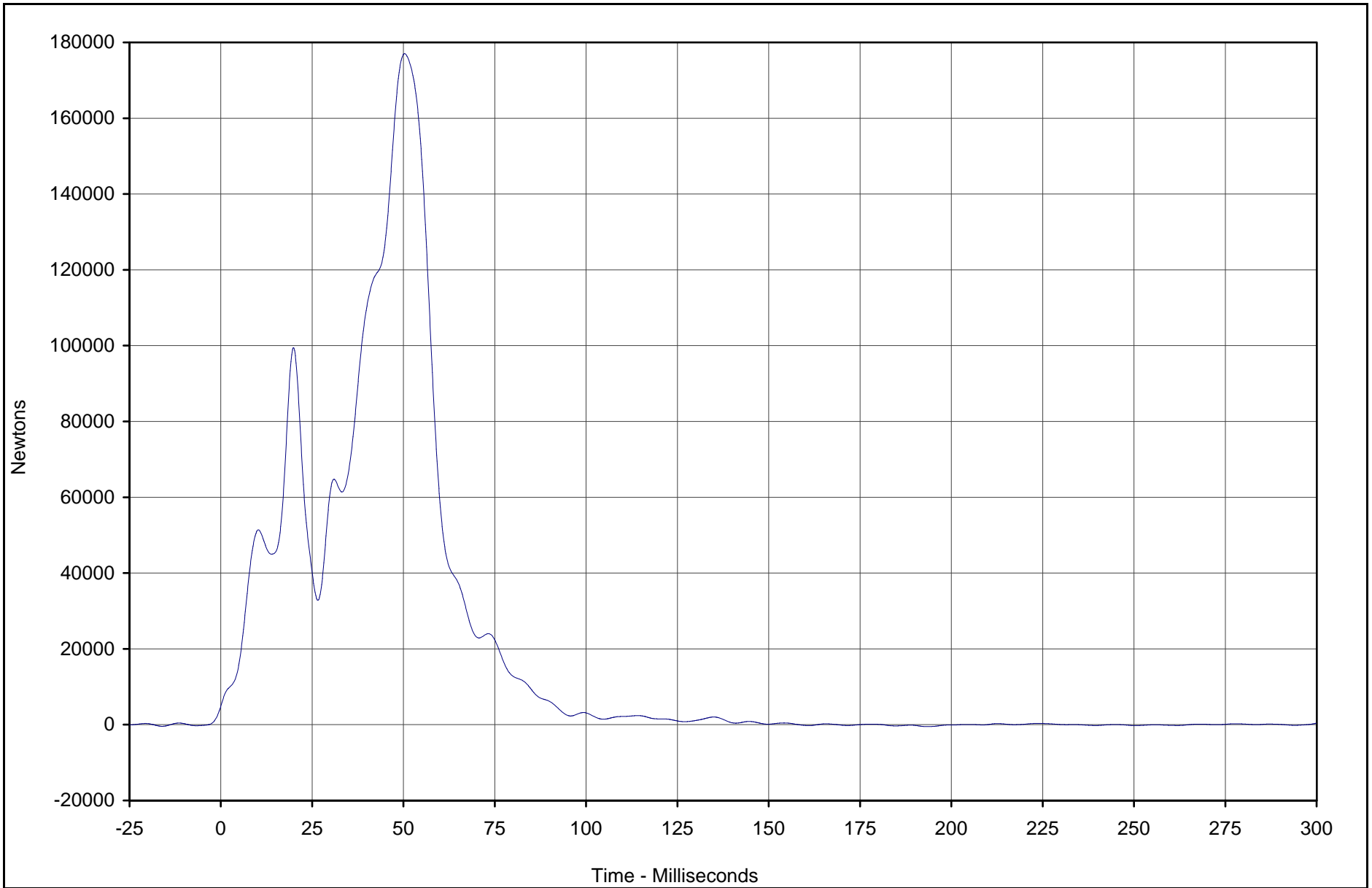
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 5	005	SUM	Newtons	177018.4	50.3	-508.0	193.3	60

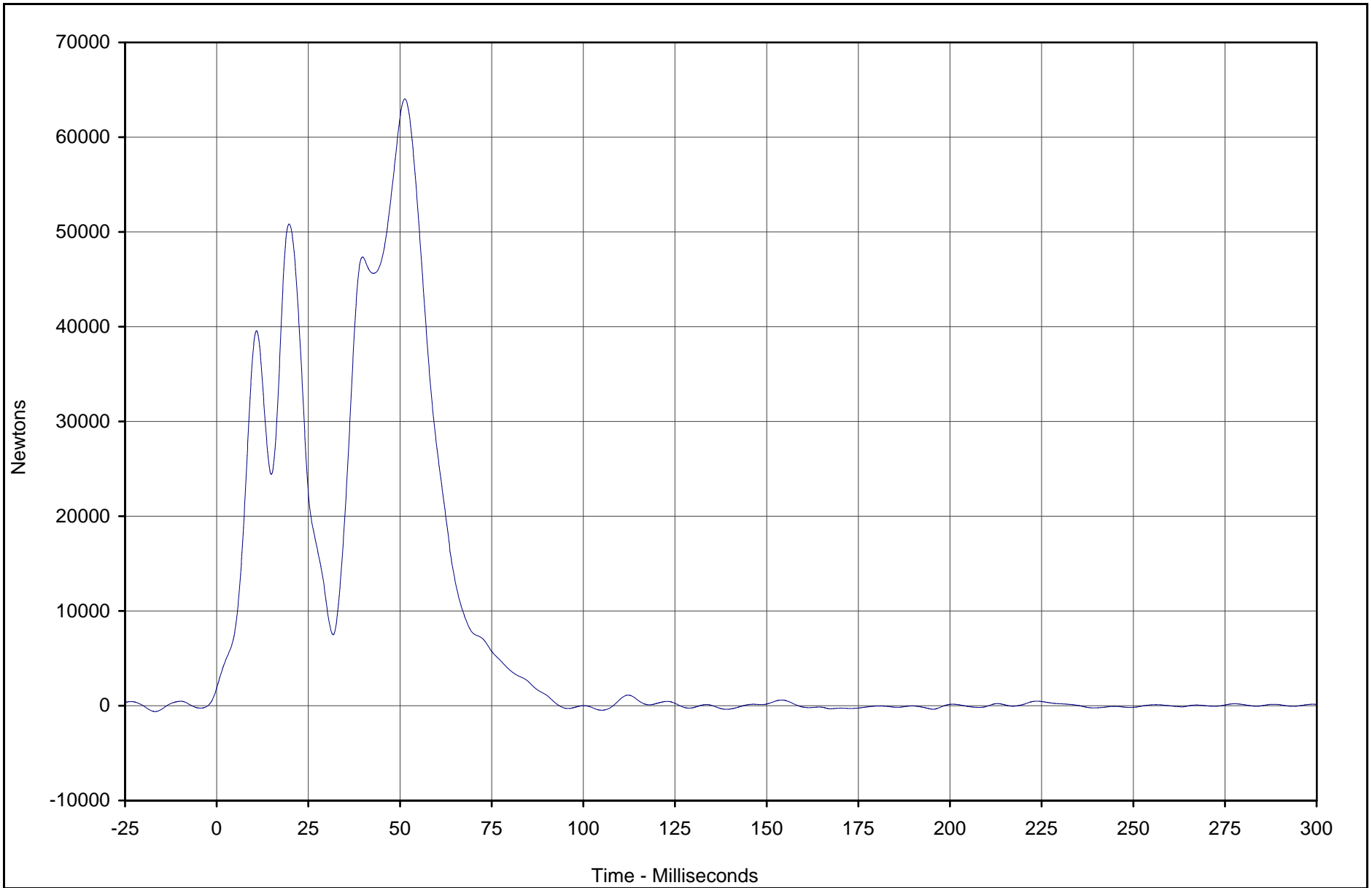


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



* Includes load cell data which failed during the test.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 6	006	SUM	Newtons	64035.9	51.3	-476.4	105.1	60



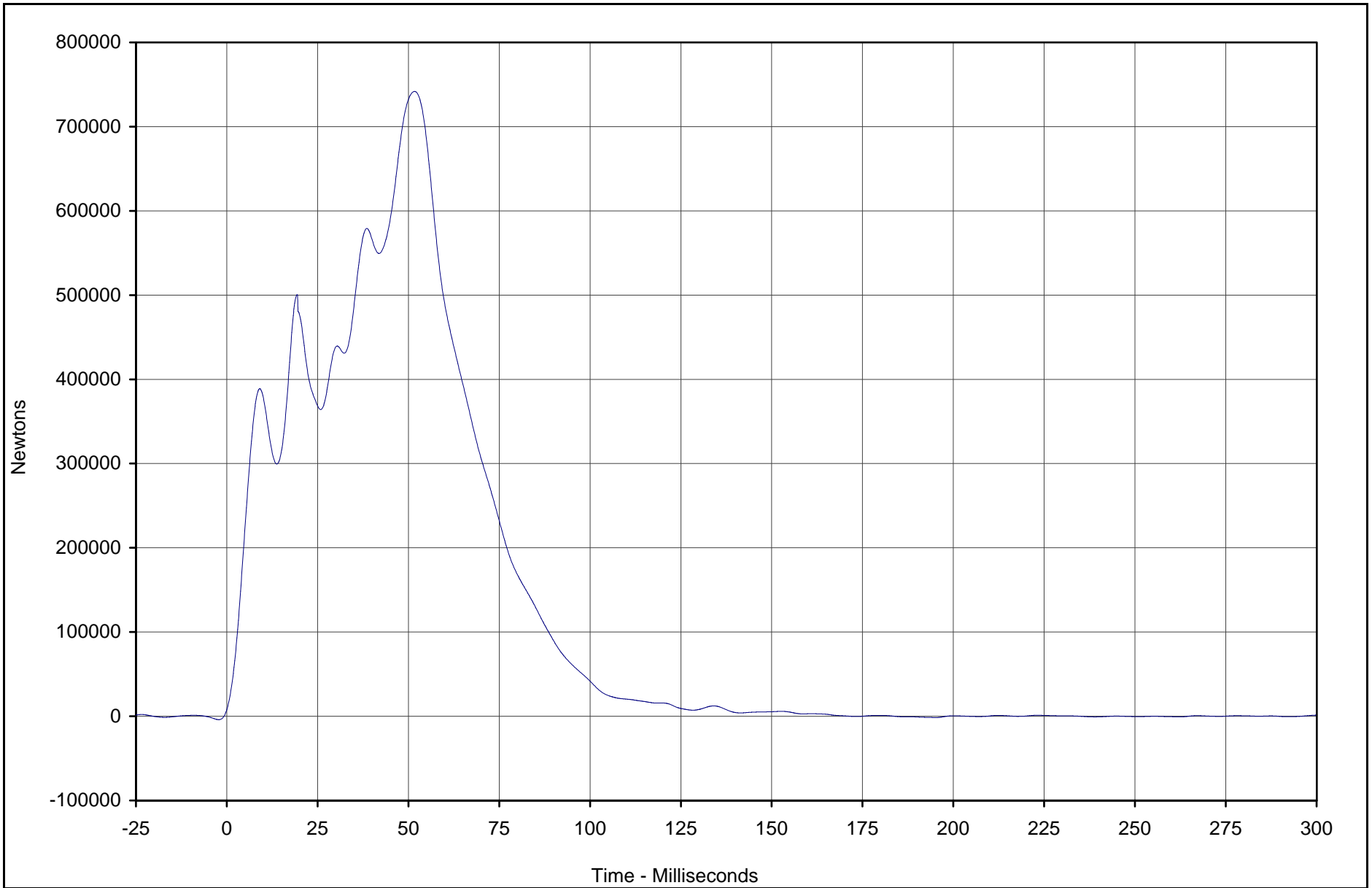
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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* Includes load cell data which failed during the test.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Total Sum	007	SUM	Newtons	741791	51.7	-1609.6	195.2	60



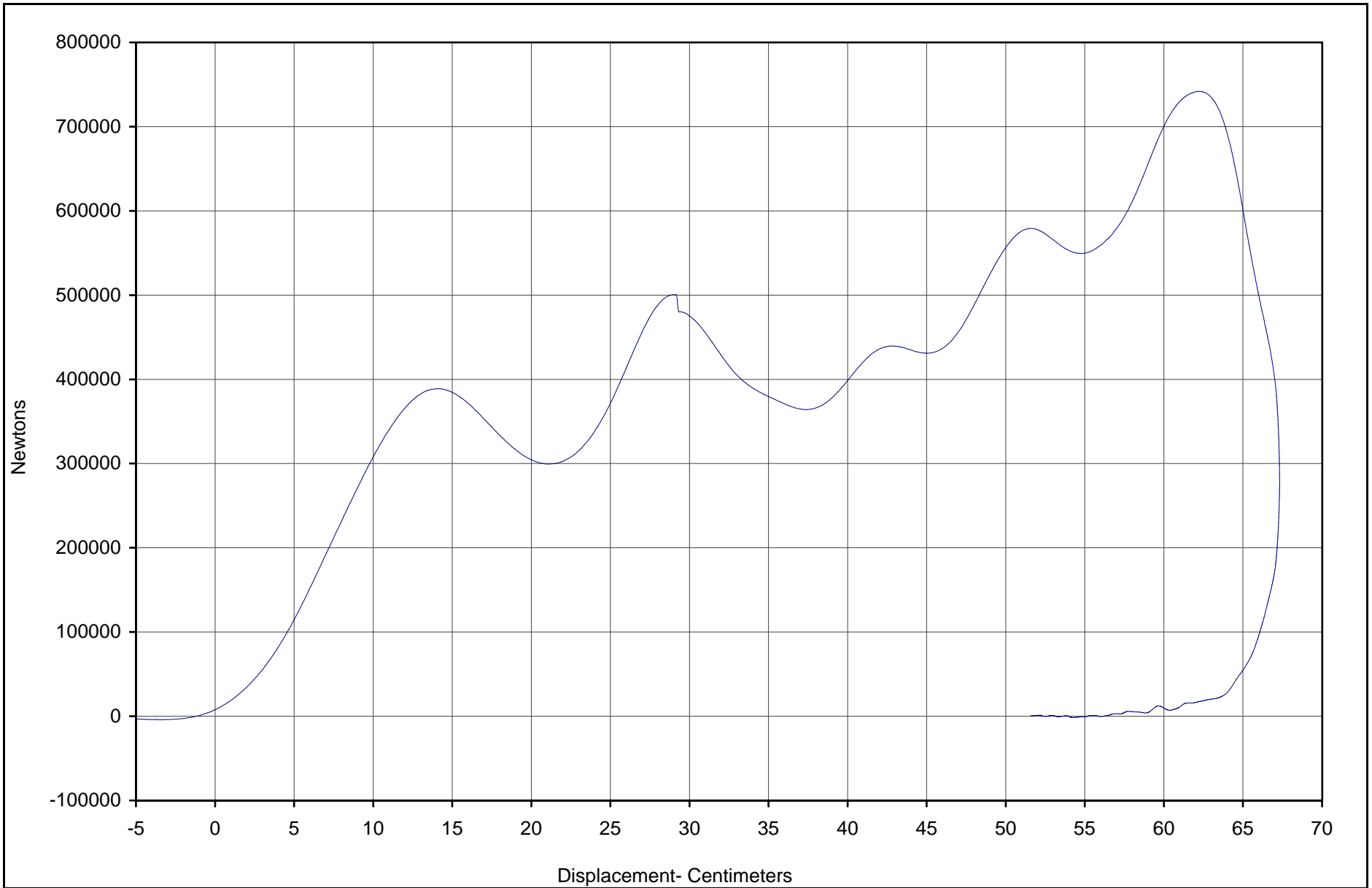
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



* Includes load cell data which failed during the test.

Curve Description	CURNO	Type	Units	Max	CM	Energy (Joules)	SAE Class
Barrier Force Total Sum vs. Displ.	001	XVY	Newtons	741791	62.2	274007	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

BARRIER LOAD CELL SUMMARY DATA

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

NHTSA No.: M35106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 2/26/03

Location	Units	Max	Time	Min	Time
Barrier Force A1	Newtons	1419.4	53.3	-835.6	13.7
Barrier Force A2	Newtons	1790.0	53.6	-1472.7	60.2
Barrier Force A3	Newtons	1743.9	19.8	-1197.4	16.3
Barrier Force A4	Newtons	8791.7	46.8	-1612.2	16.1
Barrier Force A5	Newtons	3690.7	20.2	-1460.8	3.8
Barrier Force A6	Newtons	10648.6	26.2	-1312.7	3.5
Barrier Force A7	Newtons	4264.9	46.0	-1278.5	14.7
Barrier Force A8	Newtons	2395.6	53.4	-1482.7	15.0
Barrier Force A9	Newtons	1264.5	63.6	-1679.6	23.3
Barrier Force B1	Newtons	6078.2	53.9	-1041.0	22.0
Barrier Force B2	Newtons	8104.6	53.6	-893.9	22.1
Barrier Force B3	Newtons	26814.0	18.0	-221.1	0.0
Barrier Force B4	Newtons	107856.4	51.8	-381.3	0.0
Barrier Force B5	Newtons	43418.1	54.4	-79.4	143.7
Barrier Force B6	Newtons	56608.9	53.3	-65.0	194.9
Barrier Force B7	Newtons	231073.7	51.6	-180.1	205.8
Barrier Force B8	Newtons	2854.3	54.2	-949.5	14.7
Barrier Force B9	Newtons	4085.8	48.8	-1195.9	21.9
Barrier Force C1	Newtons	2839.9	53.7	-1488.3	16.4
Barrier Force C2	Newtons	5397.1	51.7	-619.1	3.2
Barrier Force C3	Newtons	14546.6	29.1	-66.7	194.2
Barrier Force C4	Newtons	45009.3	20.0	-99.9	185.2
Barrier Force C5	Newtons	65370.8	50.9	-85.4	250.7
Barrier Force C6	Newtons	22953.3	50.0	-131.5	195.5
Barrier Force C7	Newtons	42239.7	51.4	-42.6	138.2
Barrier Force C8	Newtons	6564.1	48.3	-163.6	92.5
Barrier Force C9	Newtons	5037.7	43.0	-1861.1	32.7
Barrier Force D1	Newtons	8213.6	35.1	-1221.7	5.3
Barrier Force D2	Newtons	15592.7	35.6	-758.6	4.3
Barrier Force D3	Newtons	11581.4	34.3	-1153.5	5.0
Barrier Force D4	Newtons	18037.5	49.1	-1161.0	4.6
Barrier Force D5	Newtons	22079.2	49.4	-1501.8	4.4
Barrier Force D6	Newtons	6561.7	19.7	-1824.1	5.0
Barrier Force D7	Newtons	10209.1	11.5	-2155.2	5.2
Barrier Force D8	Newtons	3610.4	20.1	-1769.4	5.6
Barrier Force D9	Newtons	5439.3	11.0	-1420.0	4.5
Barrier Force Sum Group 1	Newtons	26390.8	18.6	-3286.1	22.4
Barrier Force Sum Group 2	Newtons	216507.6	52.6	-273.3	290.6
Barrier Force Sum Group 3	Newtons	244096.2	51.8	-412.6	206.4
Barrier Force Sum Group 4	Newtons	51110.4	36.1	-370.6	195.3
Barrier Force Sum Group 5	Newtons	177018.4	50.3	-508.0	193.3
Barrier Force Sum Group 6	Newtons	64035.9	51.3	-476.4	105.1
Barrier Force Total Sum	Newtons	741790.6	51.7	-1609.6	195.2

1.) Channel failed at 43.9 msec.

2.) Channel failed at 19.6 msec.

3.) Channel failed at 63.6 msec.

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

**2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 35
2/26/03
2003 Toyota 4 Runner SR5 4WD SUV**

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

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**2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 35
2/26/03
2003 Toyota 4 Runner SR5 4WD SUV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
26	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
27	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
28	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
29	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
30	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
31	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
32	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
33	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
34	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
35	FOOT LEFT, AFT	X	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
36	FOOT LEFT, AFT	Z	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
37	FOOT LEFT, FORE	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
38	FOOT RIGHT, AFT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
39	FOOT RIGHT, AFT	Z	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
40	FOOT RIGHT, FORE	Z	KEIC001Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
41	LAP BELT FORCE	X	KELC001	Load cell, Seat belt	Lebow	3371	N
42	SHOULDER BELT FORCE	X	KELC002	Load cell, Seat belt	Lebow	3371	N
43	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
44	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

**2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 34
2/26/03
2003 Toyota 4 Runner SR5 4WD SUV**

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

**2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 34
2/26/03
2003 Toyota 4 Runner SR5 4WD SUV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
70	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
71	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
72	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
73	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
74	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
75	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
76	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
77	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
78	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
79	FOOT LEFT, AFT	X	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT, AFT	Z	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT, FORE	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT, AFT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT, AFT	Z	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT, FORE	Z	KEIC004Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	X	KELC003	Load cell, Seat belt	Lebow	3371	N
86	SHOULDER BELT FORCE	X	KELC004	Load cell, Seat belt	Lebow	3371	N
87	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	CM
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
2/26/03
2003 Toyota 4 Runner SR5 4WD SUV**

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
2/26/03
2003 Toyota 4 Runner SR5 4WD SUV**

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
2/26/03
2003 Toyota 4 Runner SR5 4WD SUV**

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.: LK01C

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	5622	Pass
Overall Test Results				Pass

ATD Serial No.: 034

Location: Right Knee

Test I.D.: RK01C

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	5212	Pass
Overall Test Results				Pass

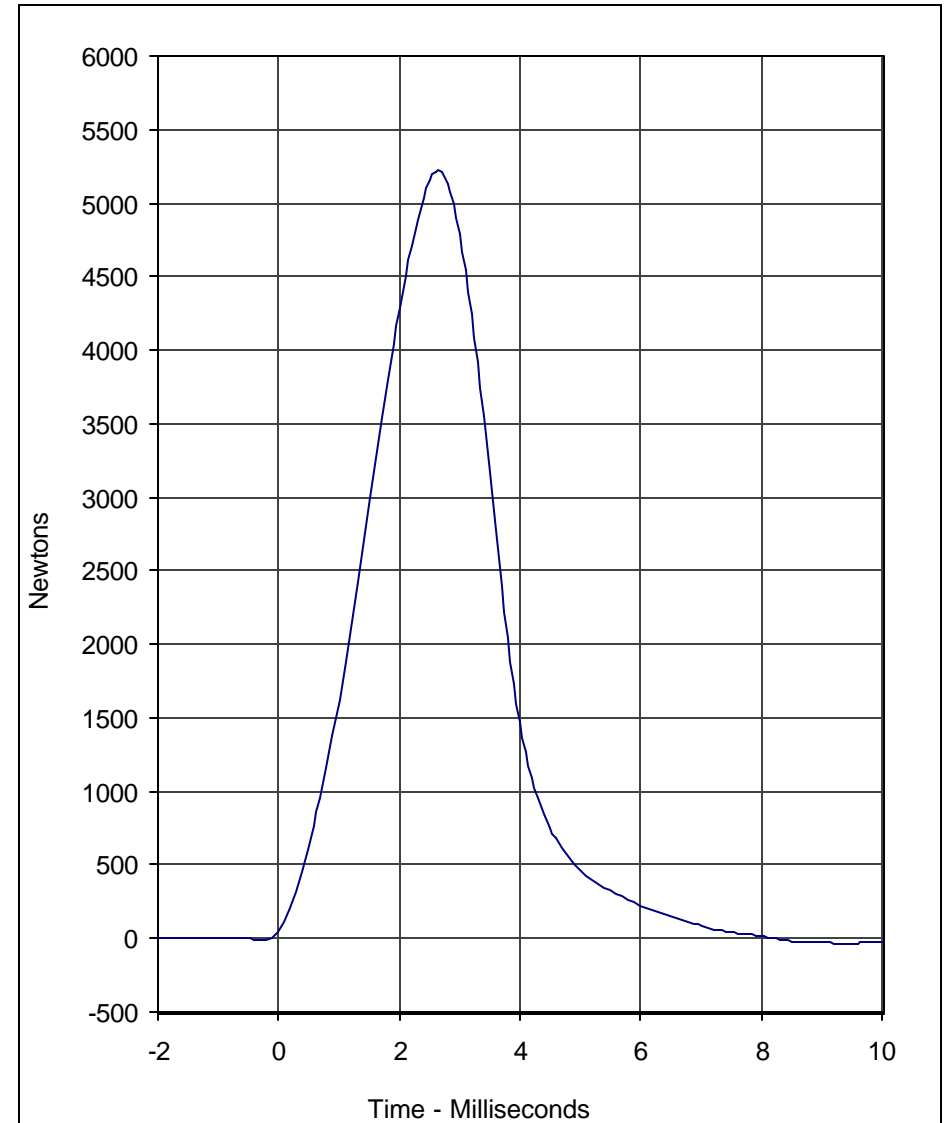
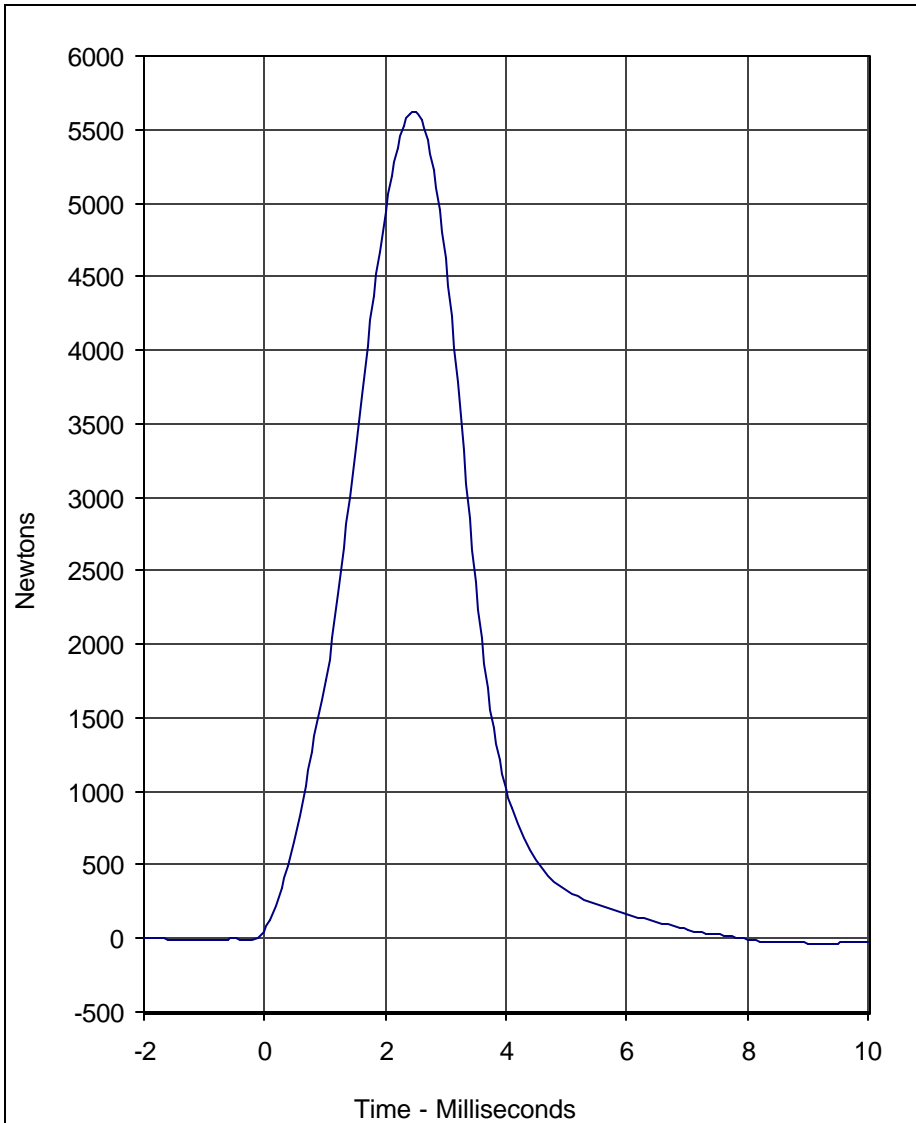
Laboratory Technician

February 14, 2003

Test Date

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Curve Description	Location	Test I.D.	CURNO	Type
Probe Force	Left Knee	LK01C	001	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	5622.4	2.5	-38.9	9.2	600

Curve Description	Location	Test I.D.	CURNO	Type
Probe Force	Right Knee	RK01C	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	5212.0	2.6	-38.8	9.4	600

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 Test Date: 2/14/03

A.T.D. Serial No.: 034





Calibration Data Sheet Hybrid III 50th Percentile Male Head Drop Test

ATD Serial No.: 034

Test I.D.: HD01C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	234.0	Pass
Peak Lateral Acceleration	G's	≤15.0	9.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

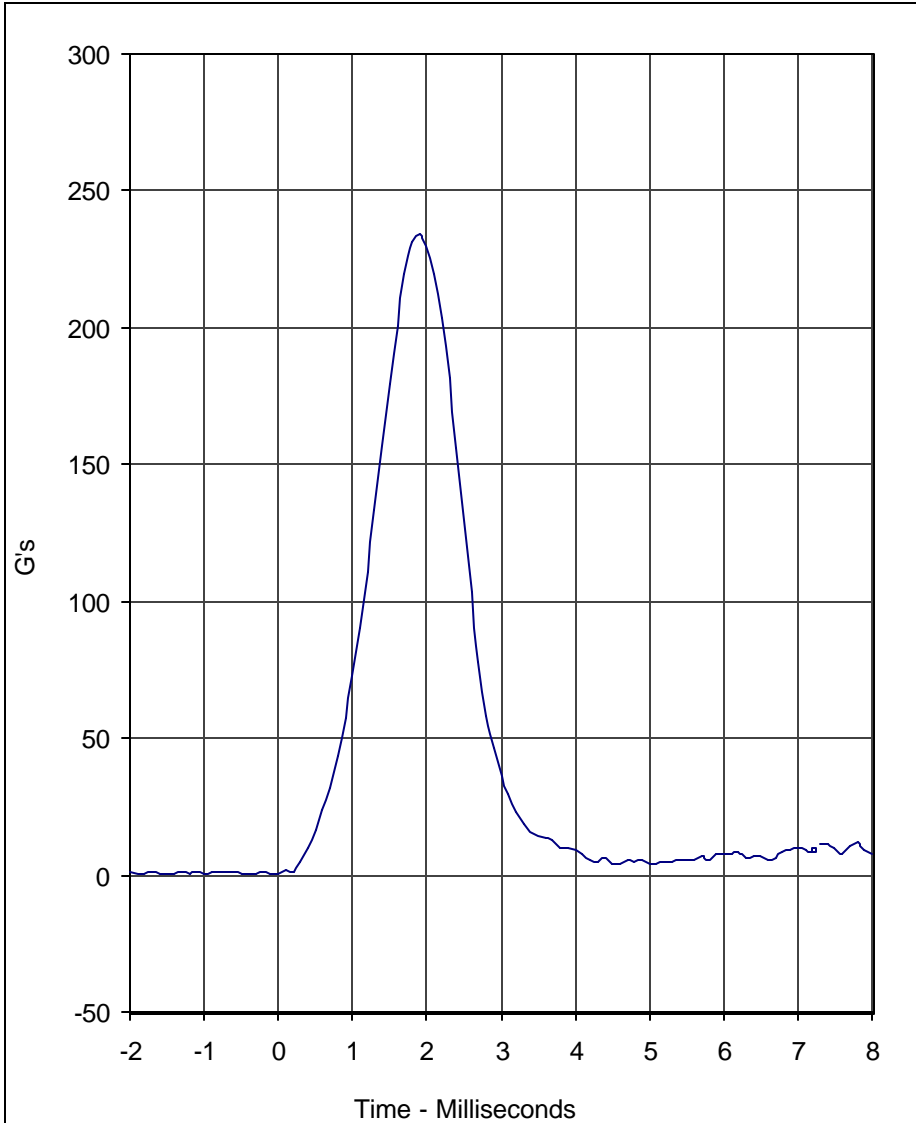
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February 14, 2003

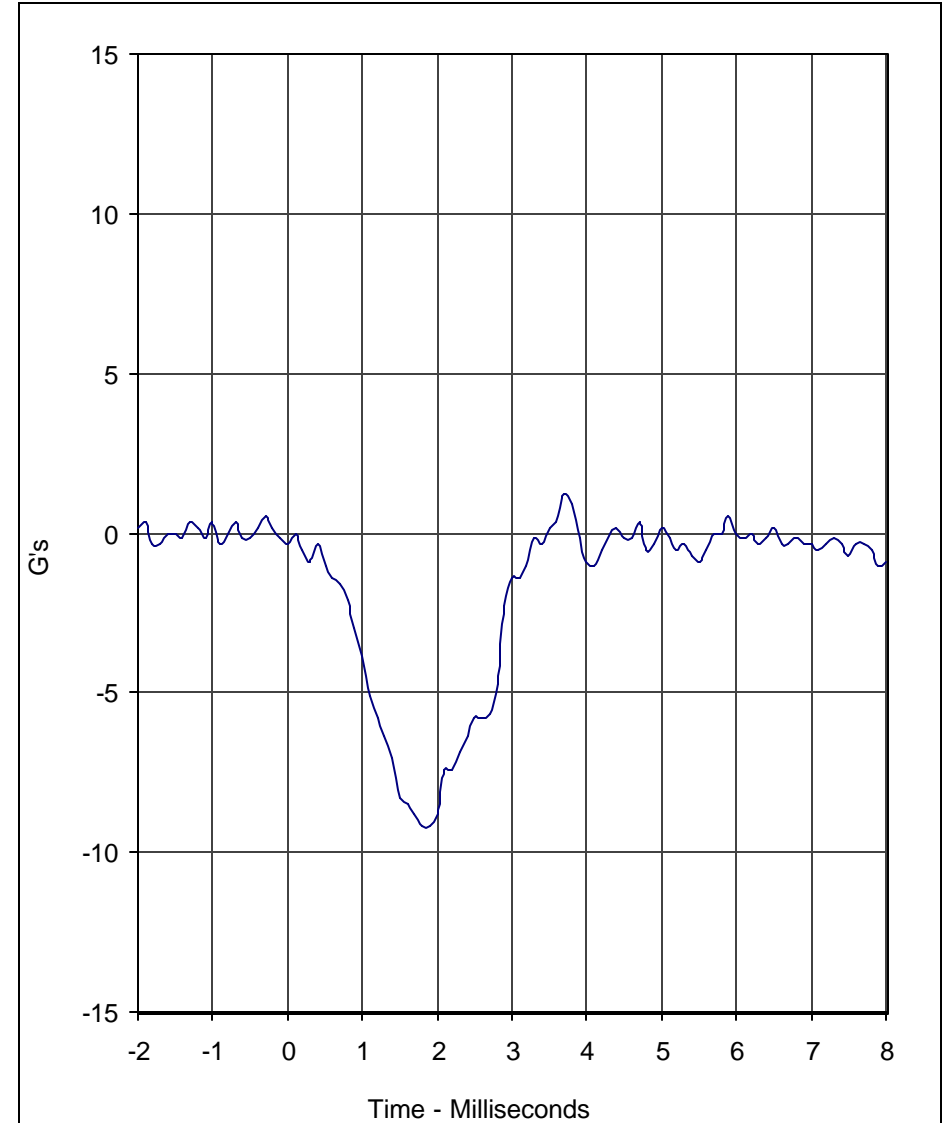
Test Date



Curve Description	CURNO	Type
Head Resultant	001	RES

Units	Max	Time	Min	Time	SAE Class
G's	234.0	1.9	0.3	-1.5	1000

Test Program: Hybrid III 50th Percentile Male Head Drop Test
 Test Date: 2/14/03



Curve Description	CURNO	Type
Head Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	1.2	3.7	-9.2	1.8	1000

A.T.D. Serial No.: 034
 Test I.D.: HD01C





Calibration Data Sheet Hybrid III 50th Percentile Male Thorax Impact Test

ATD Serial No.: 034

Test I.D.: CH01C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.74	Pass
Peak Probe Force	Newtons	5159 to 5893	5324	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	7.13	Pass
Internal Hysteresis	%	69 to 85	75.9	Pass
Overall Test Results				Pass

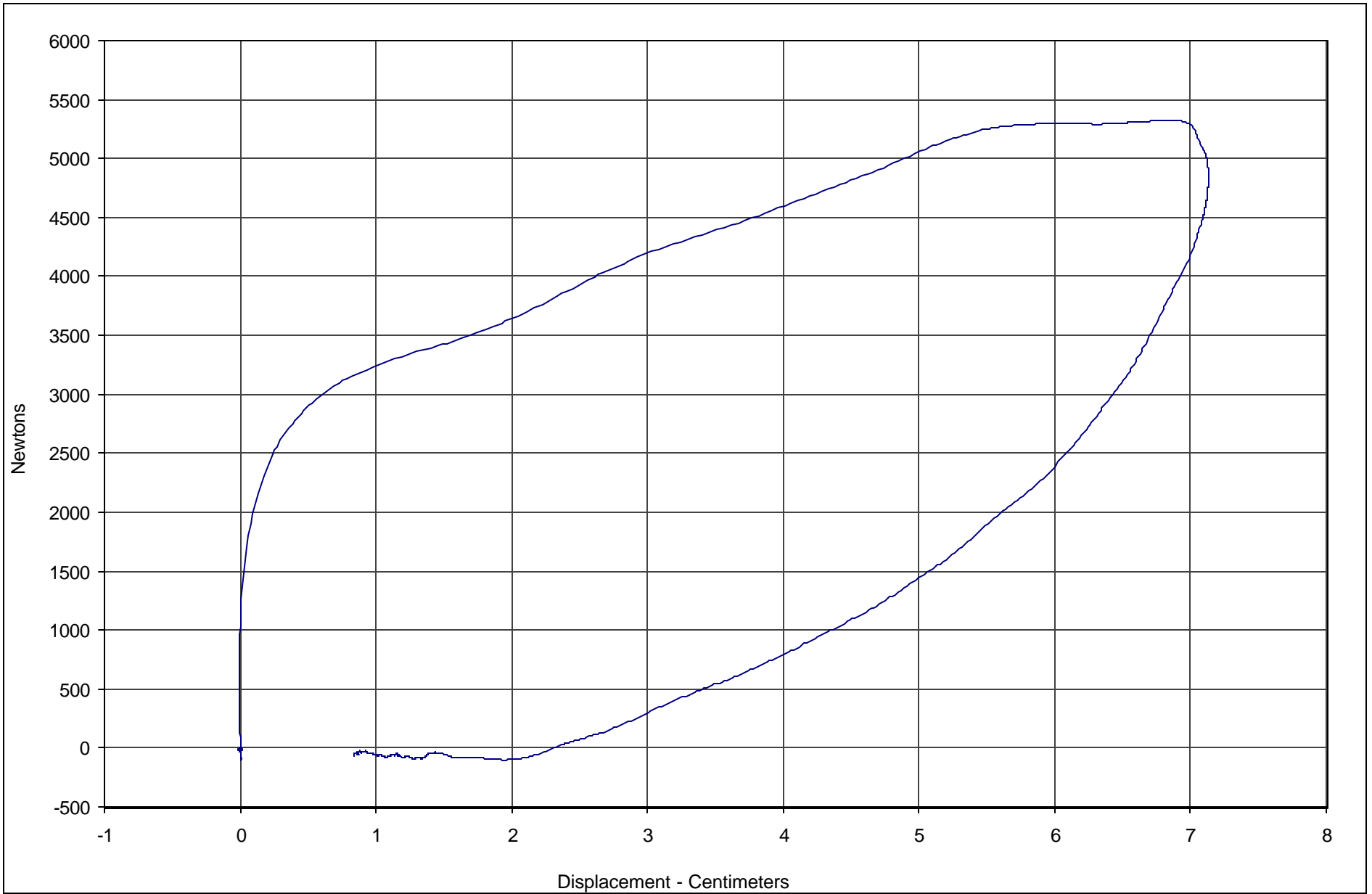
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Laboratory Technician

February 17, 2003

Test Date



Curve Description	CURNO	Type	Hysteresis	Peak Chest Displ.	Peak Probe Force	SAE Class
Probe Force vs. Chest Displacement	001	FIL	75.9	7.13	5324.0	180



Test Program: Hybrid III 50th Percentile Male Thorax Impact

A.T.D. Serial No.: 034

Test Date: 2/17/03

Test I.D.: CH01C



Calibration Data Sheet Hybrid III 50th Percentile Male Neck Flexion Test

ATD Serial No.: 034

Test I.D.: NF02A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.92	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.3	Pass
	20 Msec.	G's	17.6 to 22.6	20.6	Pass
	30 Msec.	G's	12.5 to 18.5	18.1	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	18.1	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	37.1	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	66.9	Pass
	Time	Msec.	57.0 to 64.0	60.8	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	113.1	Pass
Moment About Occipital Condyle	Maximum	Nm	84.1 to 108.5	89.0	Pass
	Time	Msec.	47.0 to 58.0	49.0	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.7	Pass
Overall Test Results					Pass

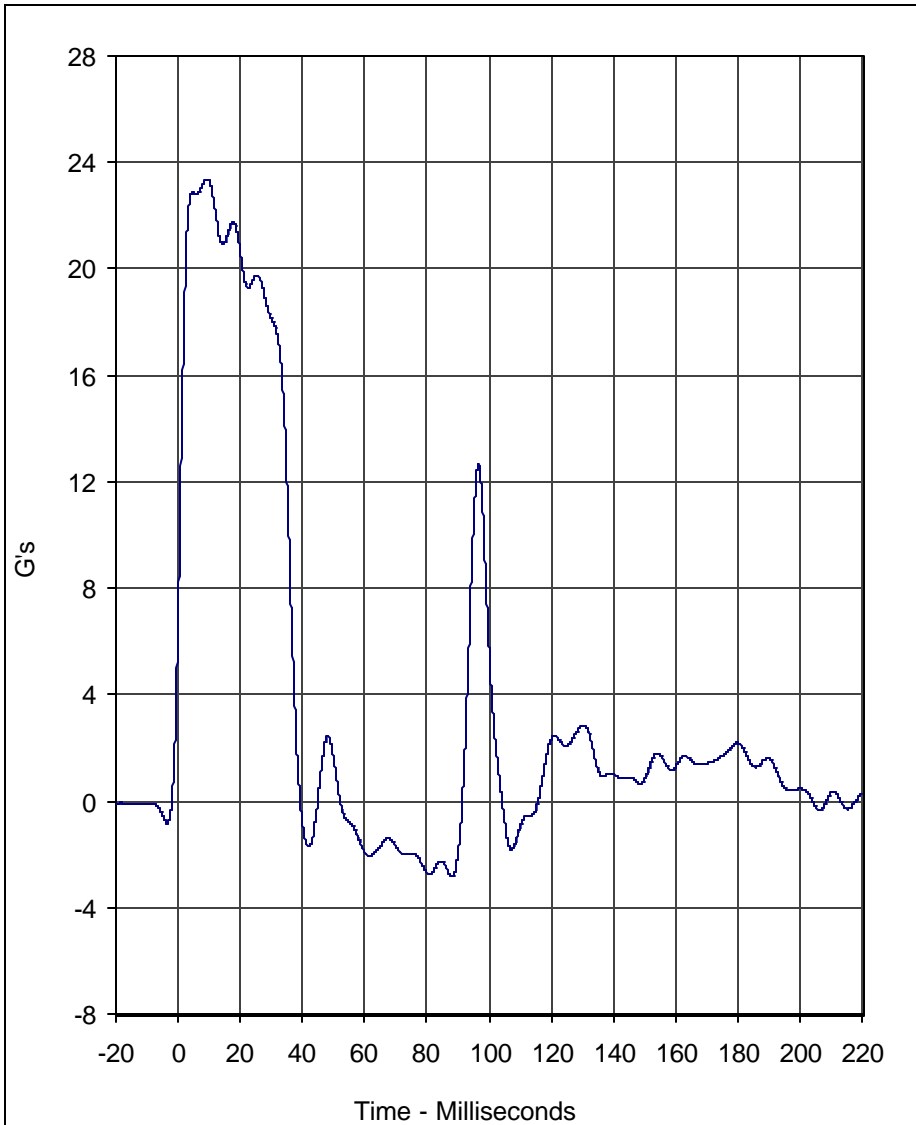
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Laboratory Technician

February 14, 2003

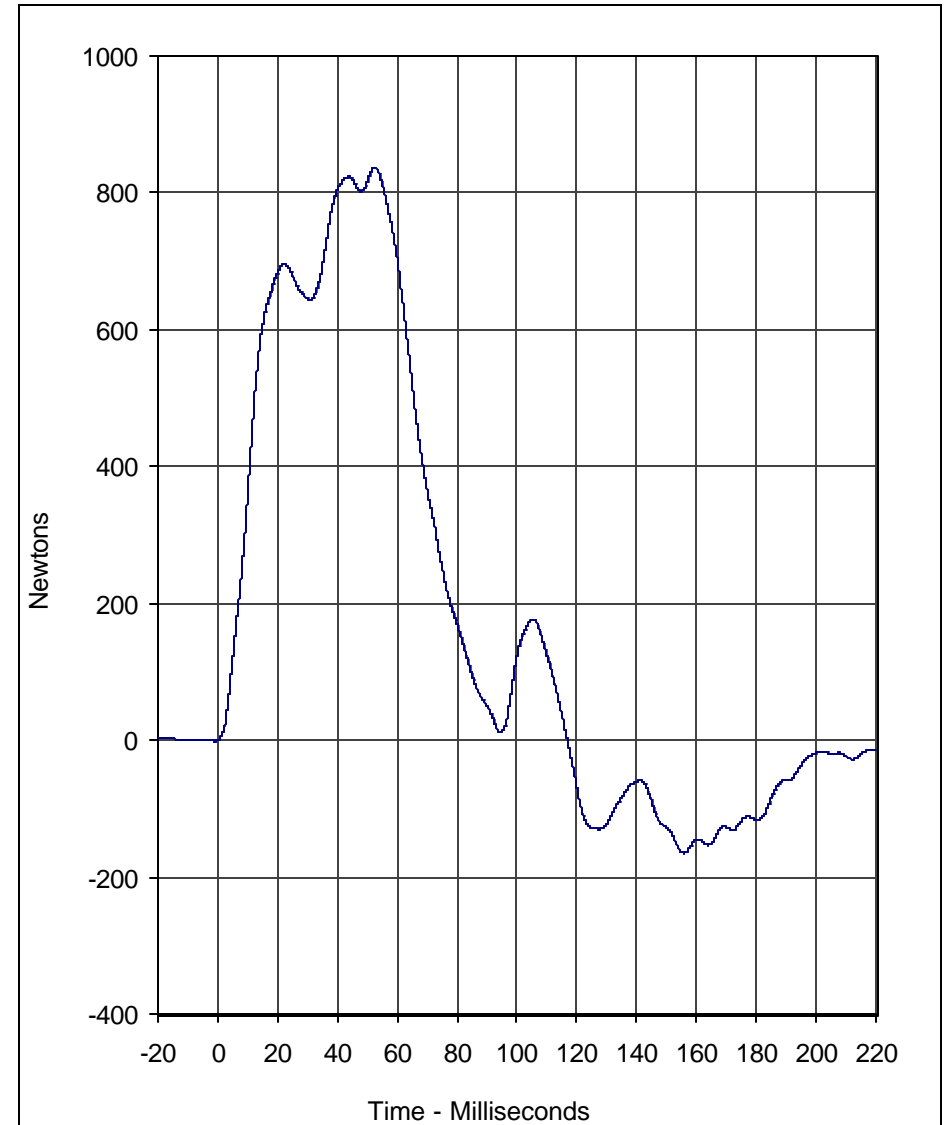
Test Date



Curve Description	CURNO	Type
Pendulum Deceleration	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	23.4	9.4	-2.8	88.1	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 2/14/03

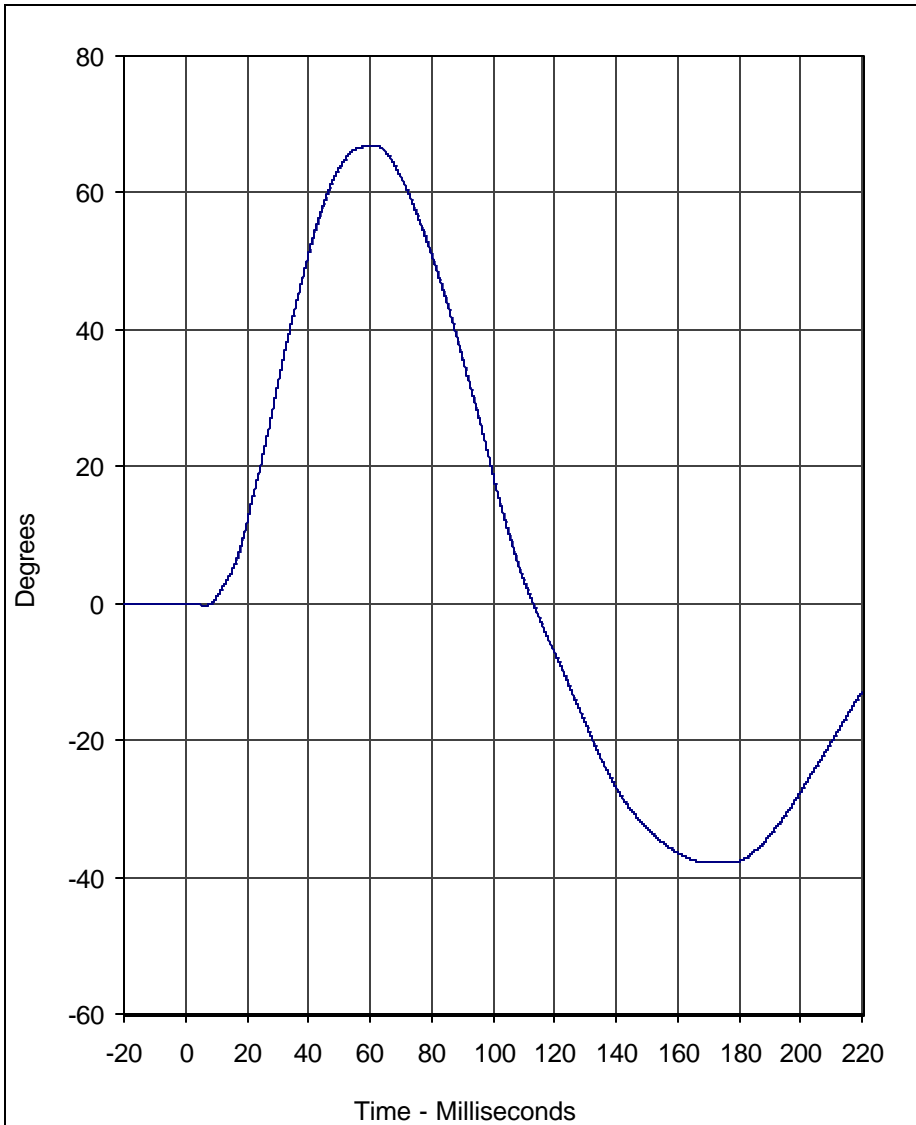


Curve Description	CURNO	Type
Neck Force X	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	837.5	52.4	-164.9	155.8	60

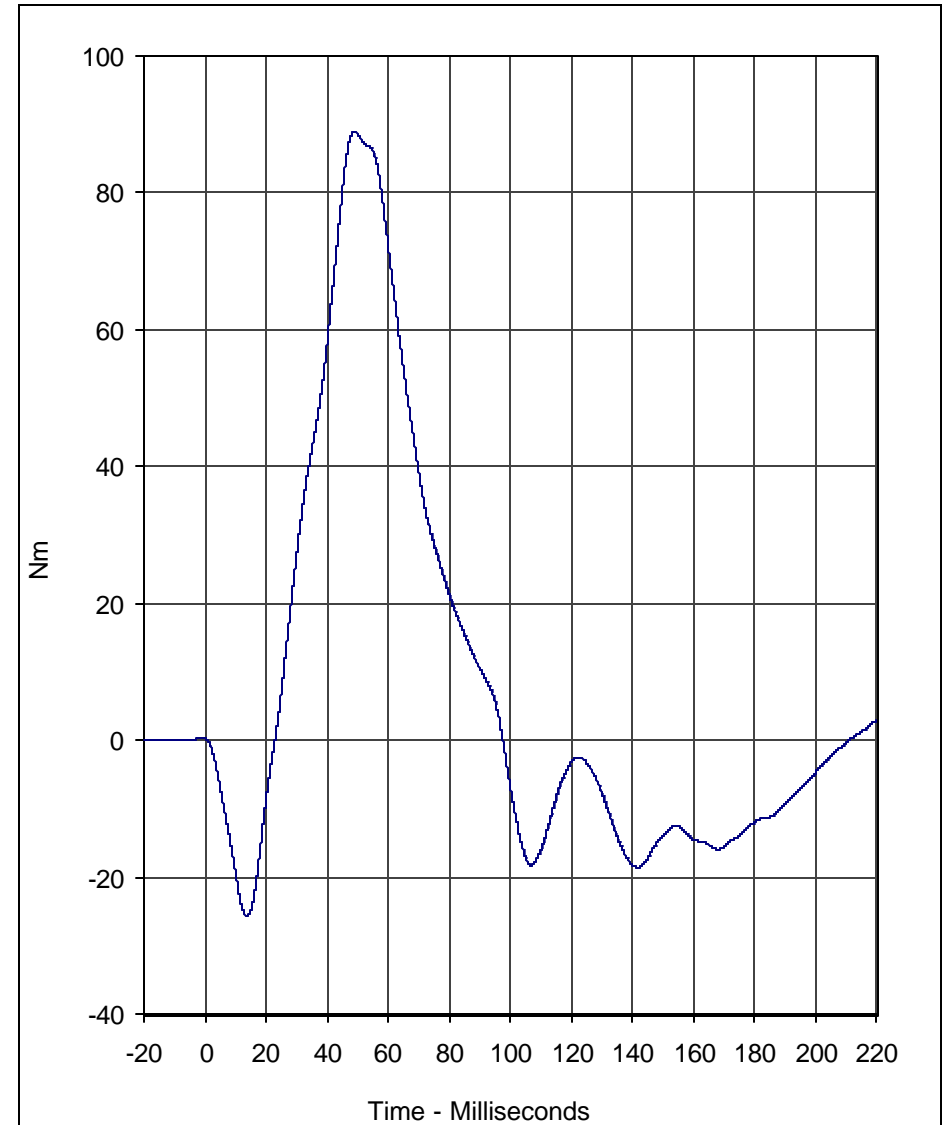
A.T.D. Serial No.: 034
 Test I.D.: NF02A





Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	66.9	60.8	-37.9	170.0	60



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	89.0	49.0	-25.8	13.8	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 2/14/03

A.T.D. Serial No.: 034
 Test I.D.: NF02A





Calibration Data Sheet Hybrid III 50th Percentile Male Neck Extension Test

ATD Serial No.: 034

Test I.D.: NE02A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.13	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.8	Pass
	20 Msec.	G's	14.0 to 19.0	17.3	Pass
	30 Msec.	G's	11.0 to 16.0	15.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	16.0	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	38.3	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	86.8	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	154.0	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to- 79.9	-61.6	Pass
	Time	Msec.	65.0 to 79.0	73.2	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	141.2	Pass
Overall Test Results					Pass

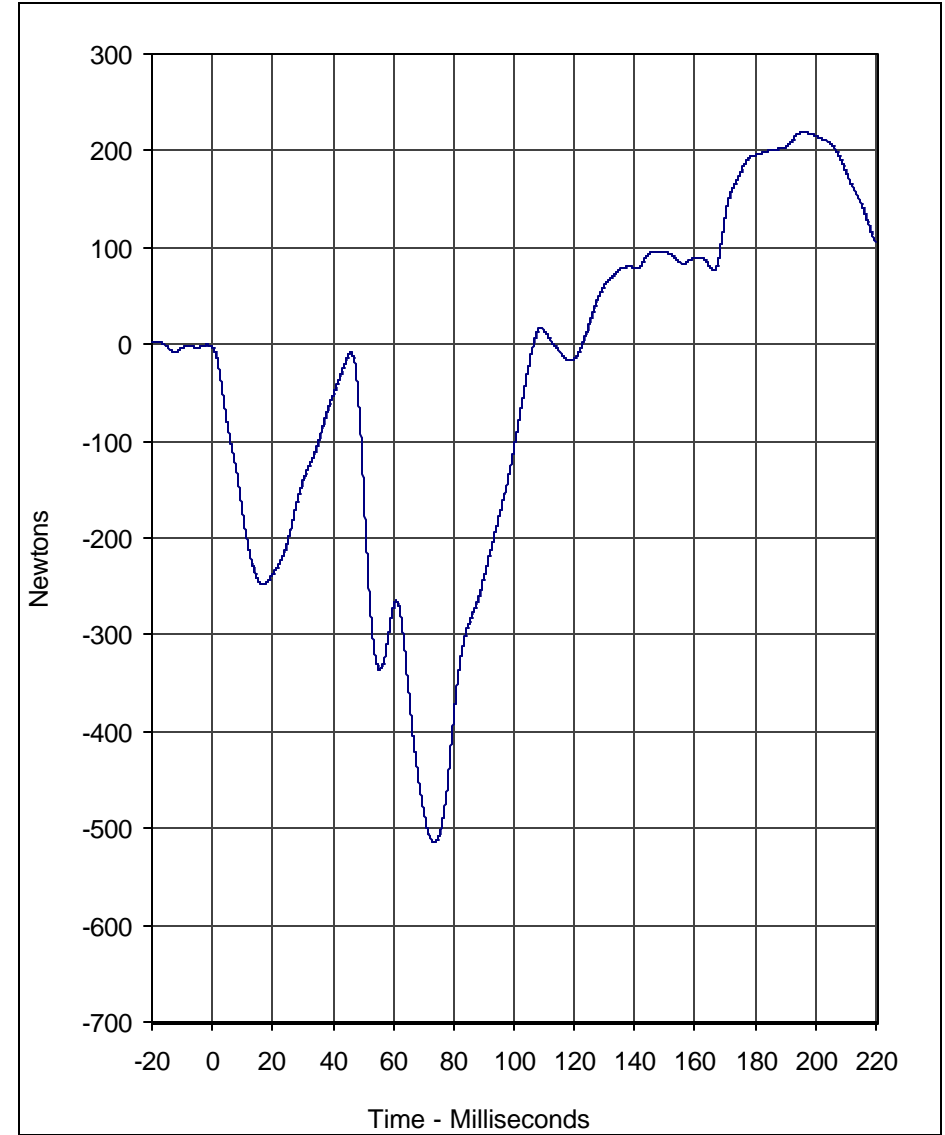
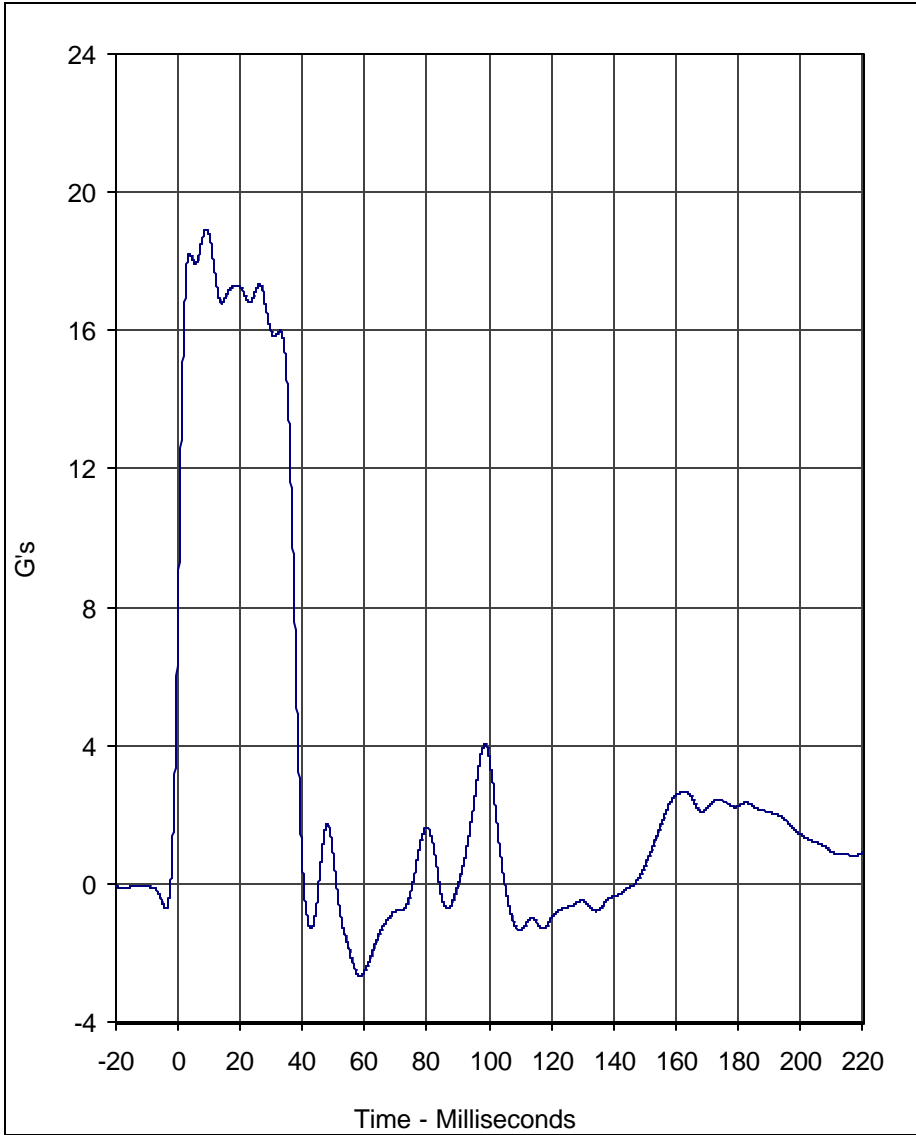
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Curve Description		CURNO	Type
Pendulum Deceleration		001	FIL

Curve Description		CURNO	Type
Neck Force X		002	FIL

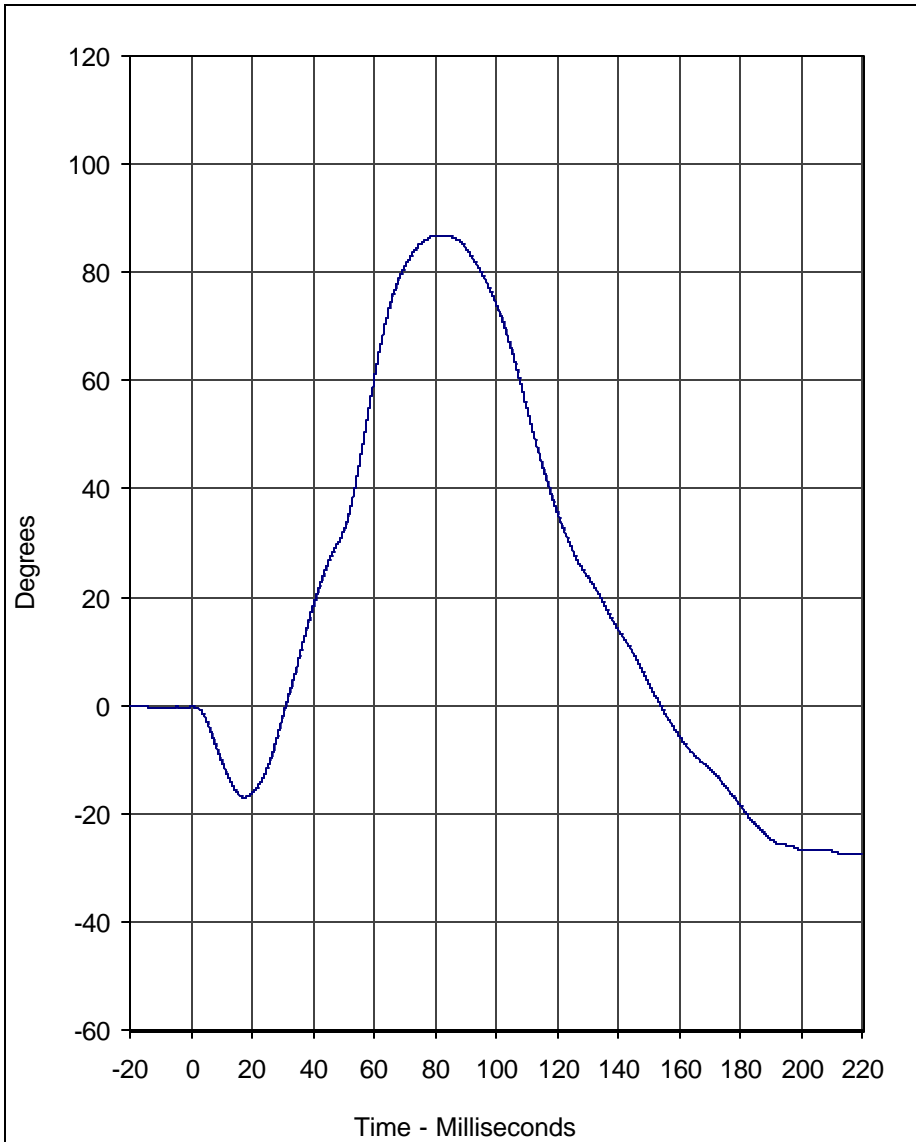
Units	Max	Time	Min	Time	SAE Class
G's	18.9	9.1	-2.7	58.4	60

Units	Max	Time	Min	Time	SAE Class
Newtons	218.8	195.9	-514.2	73.5	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 2/14/03

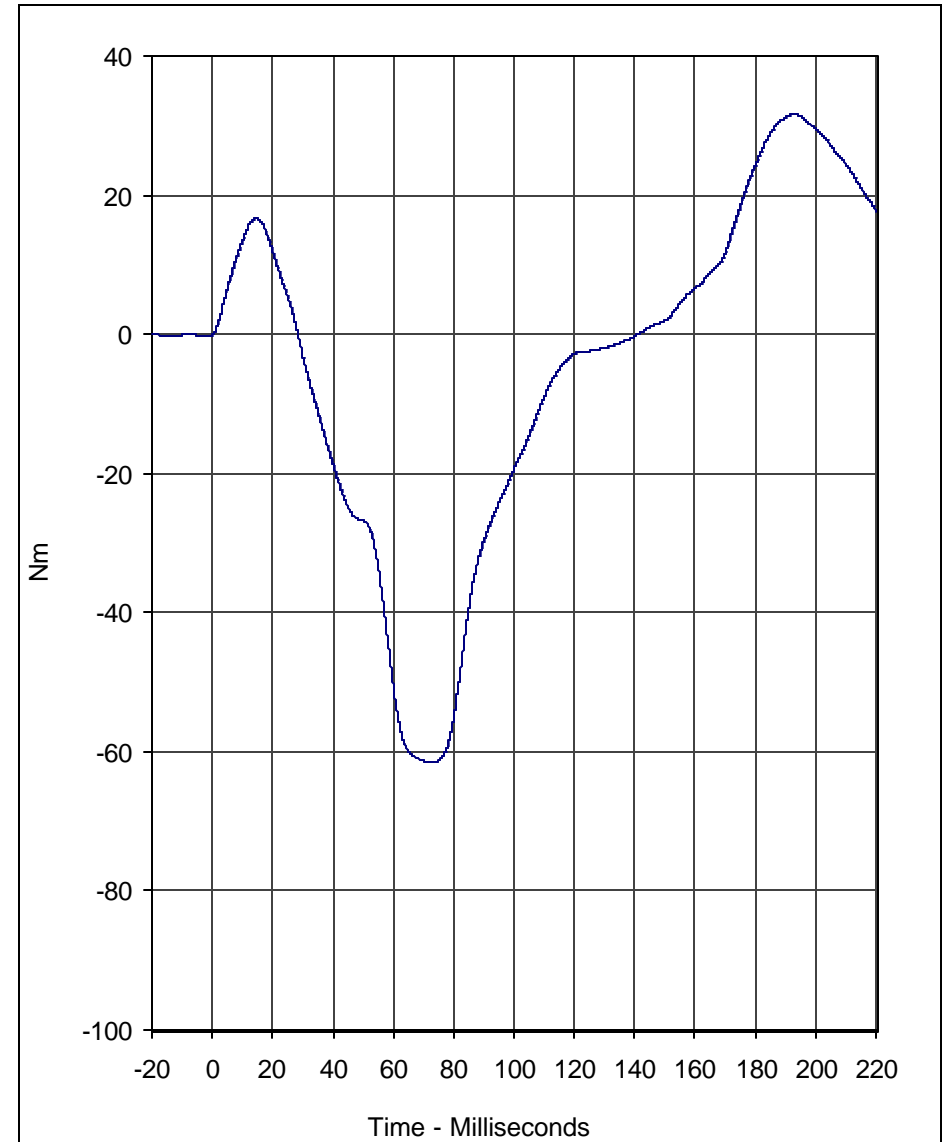
A.T.D. Serial No.: 034
 Test I.D.: NE02A





Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	86.8	80.6	-27.6	214.9	60



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	31.6	192.9	-61.6	73.2	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 2/14/03

A.T.D. Serial No.: 034
 Test I.D.: NE02A





Calibration Data Sheet Hybrid III 50th Percentile Male External Measurements

ATD Serial No.: 034

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	880	Pass
B - Shoulder pivot height	mm	505 to 521	510	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	210	Pass
K - Buttock to knee length	mm	579 to 604	595	Pass
L - Popliteal length	mm	429 to 455	445	Pass
M - Knee pivot height	mm	485 to 500	500	Pass
N - Buttock popliteal length	mm	452 to 477	470	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	95	Pass
Y - Chest circumference	mm	970 to 1001	990	Pass
Z - Waist circumference	mm	836 to 866	860	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

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Test Date

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Calibration Data Sheet Hybrid III 50th Percentile Male Knee Impact Test

ATD Serial No.: 035

Location: Left Knee

Test I.D.: LK01D

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	5335	Pass
Overall Test Results				Pass

ATD Serial No.: 035

Location: Right Knee

Test I.D.: RK01D

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	5442	Pass
Overall Test Results				Pass

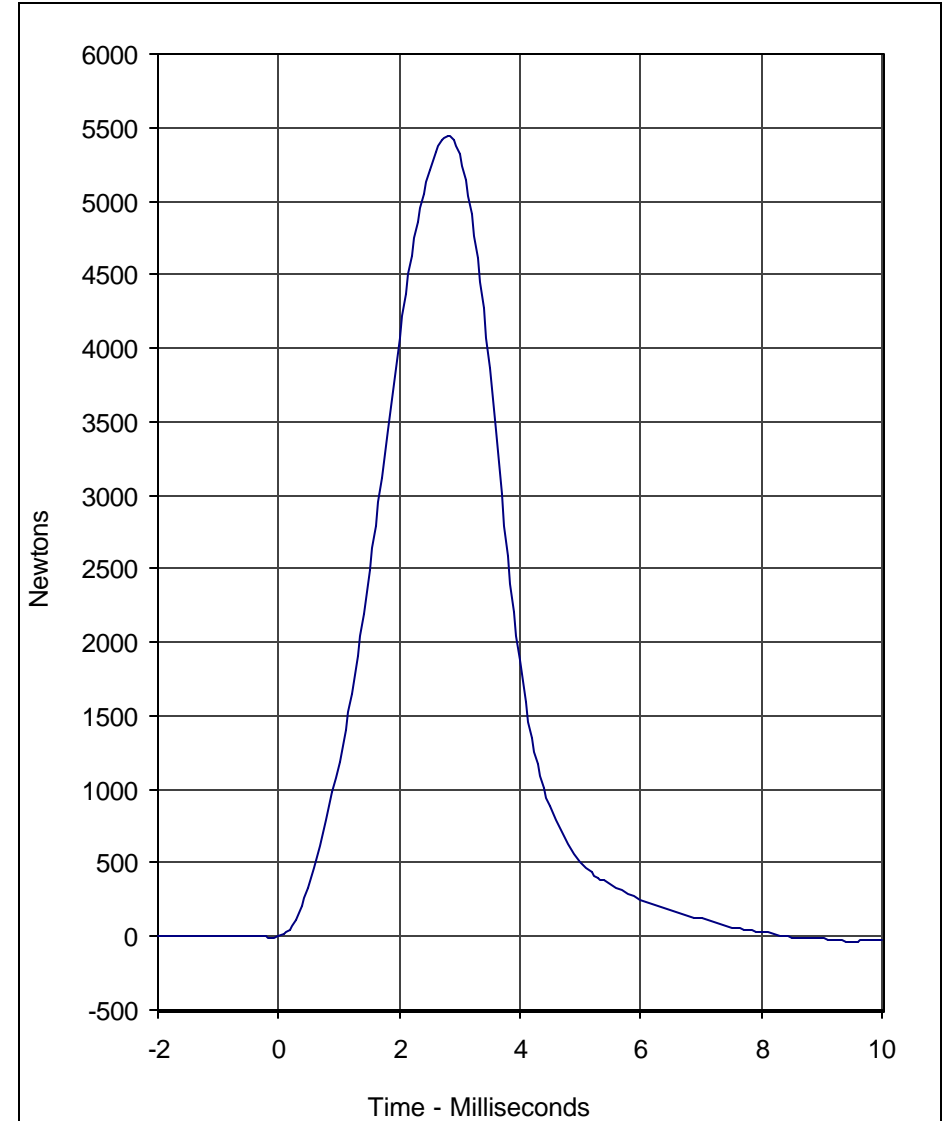
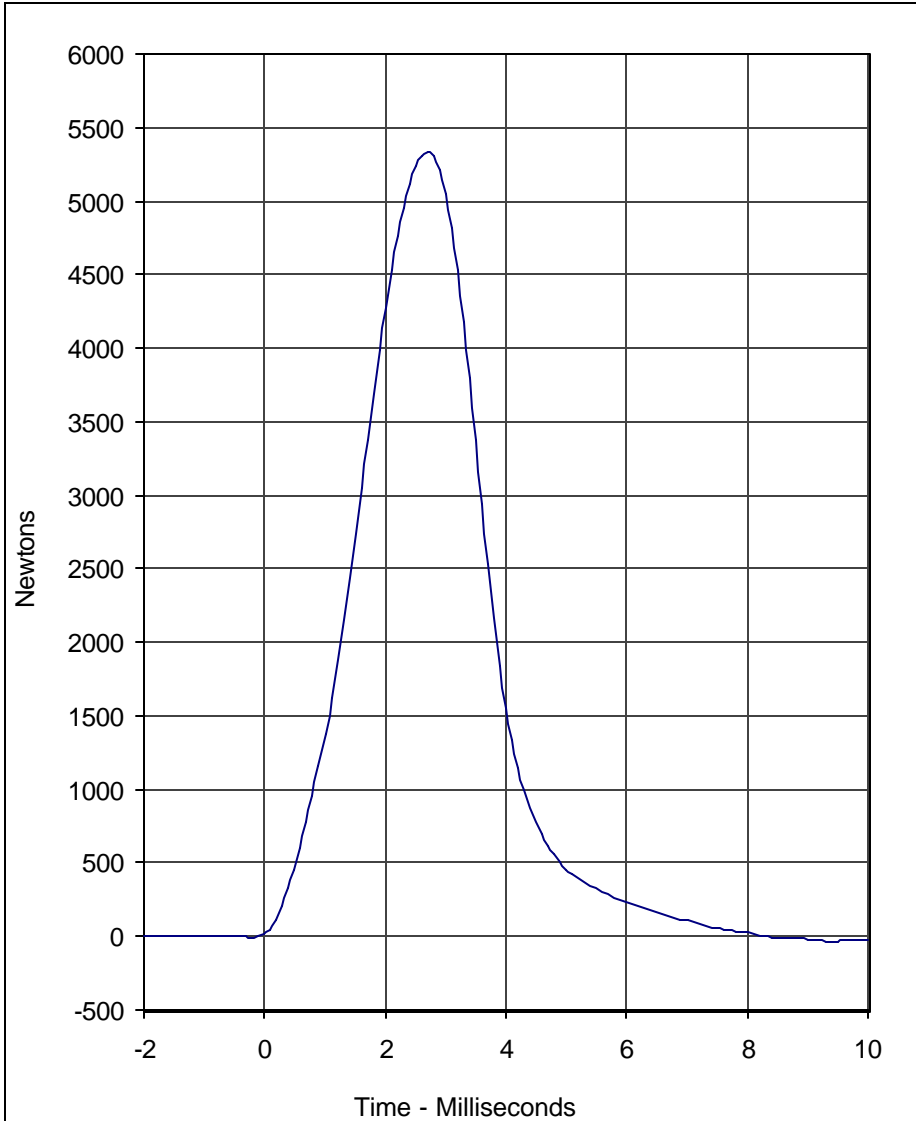
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Curve Description	Location	Test I.D.	CURNO	Type
Probe Force	Left Knee	LK01D	001	FIL

Curve Description	Location	Test I.D.	CURNO	Type
Probe Force	Right Knee	RK01D	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	5335.5	2.7	-34.0	9.4	600

Units	Max	Time	Min	Time	SAE Class
Newtons	5442.2	2.8	-34.7	9.5	600

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 Test Date: 2/14/03

A.T.D. Serial No.: 035





Calibration Data Sheet Hybrid III 50th Percentile Male Head Drop Test

ATD Serial No.: 035

Test I.D.: HD01D

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	228.7	Pass
Peak Lateral Acceleration	G's	≤15.0	3.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

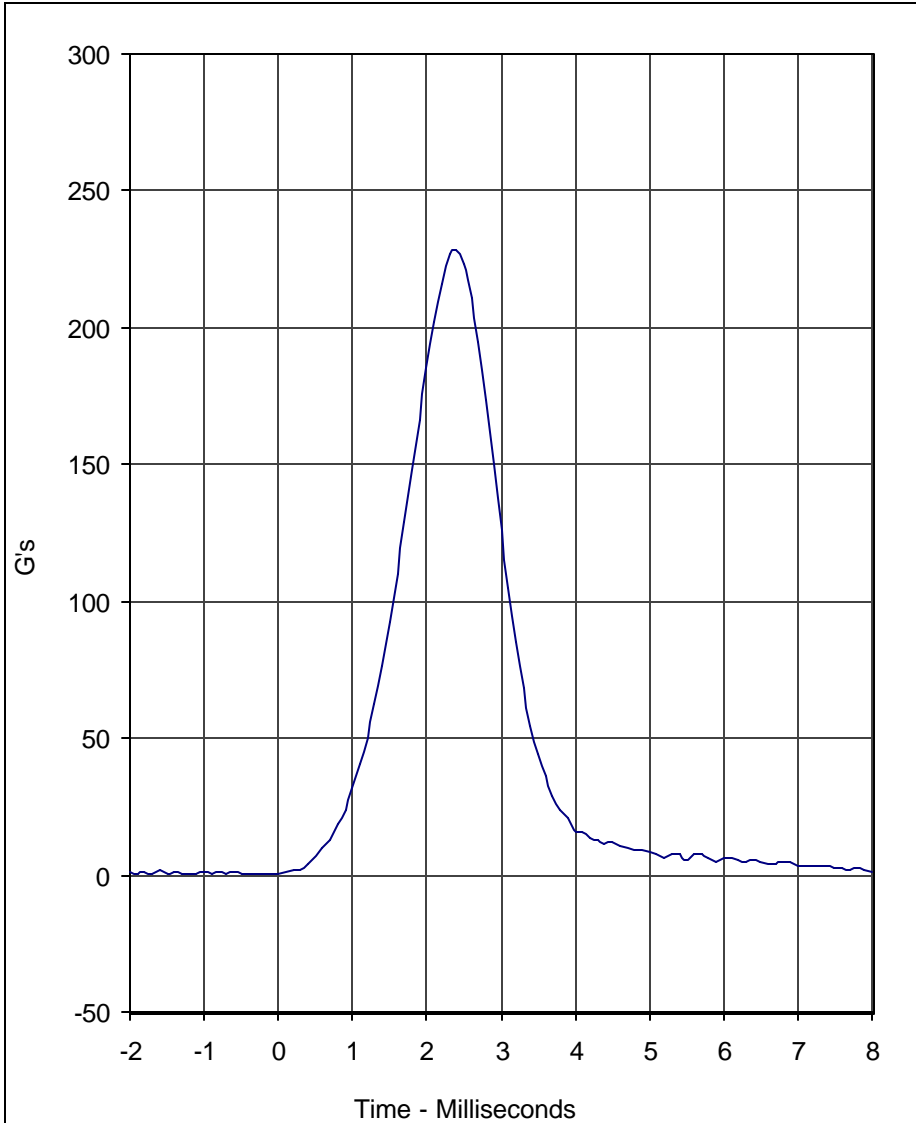
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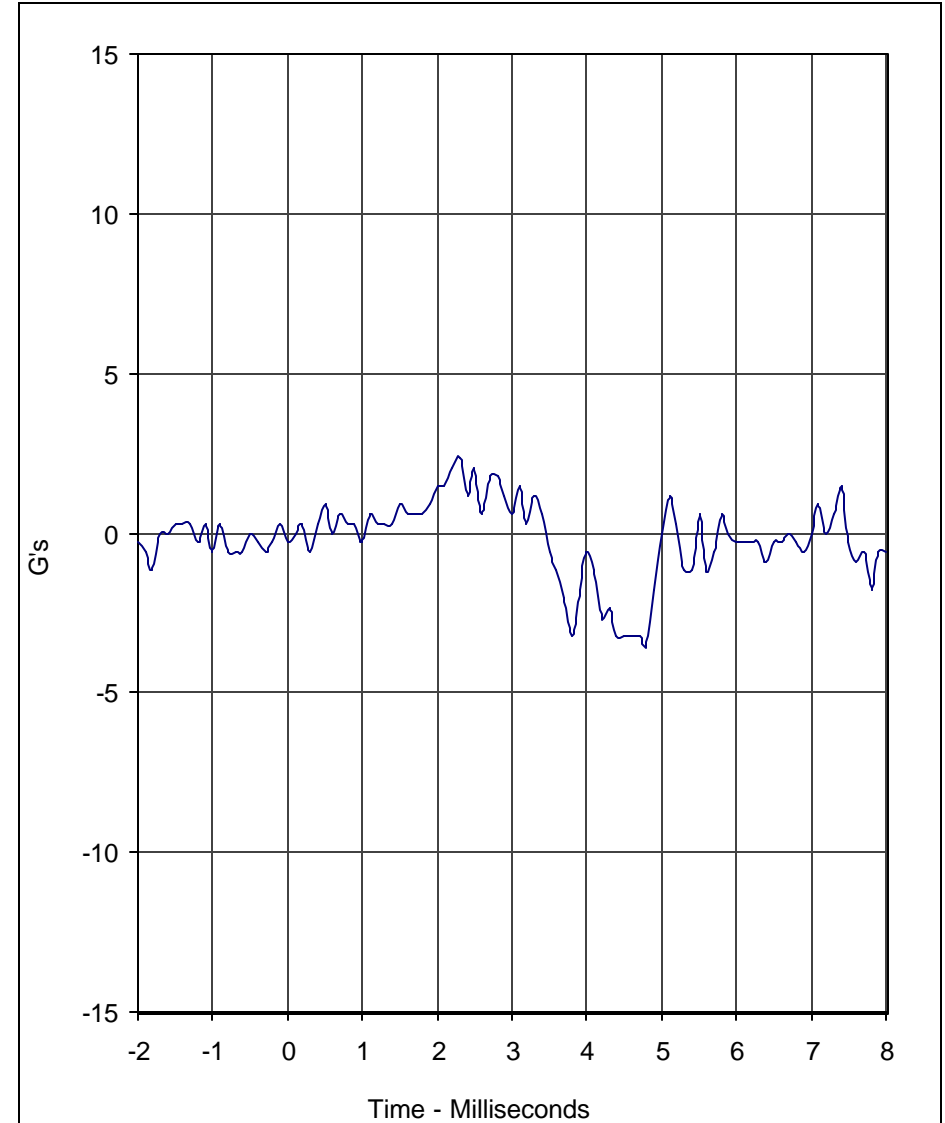
Test Date



Curve Description	CURNO	Type
Head Resultant	001	RES

Units	Max	Time	Min	Time	SAE Class
G's	228.7	2.4	0.3	-0.5	1000

Test Program: Hybrid III 50th Percentile Male Head Drop Test
 Test Date: 2/14/03



Curve Description	CURNO	Type
Head Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	2.4	2.3	-3.5	4.8	1000

A.T.D. Serial No.: 035
 Test I.D.: HD01D





Calibration Data Sheet Hybrid III 50th Percentile Male Thorax Impact Test

ATD Serial No.: 035

Test I.D.: CH01D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.61	Pass
Peak Probe Force	Newtons	5159 to 5893	5466	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.72	Pass
Internal Hysteresis	%	69 to 85	75.8	Pass
Overall Test Results				Pass

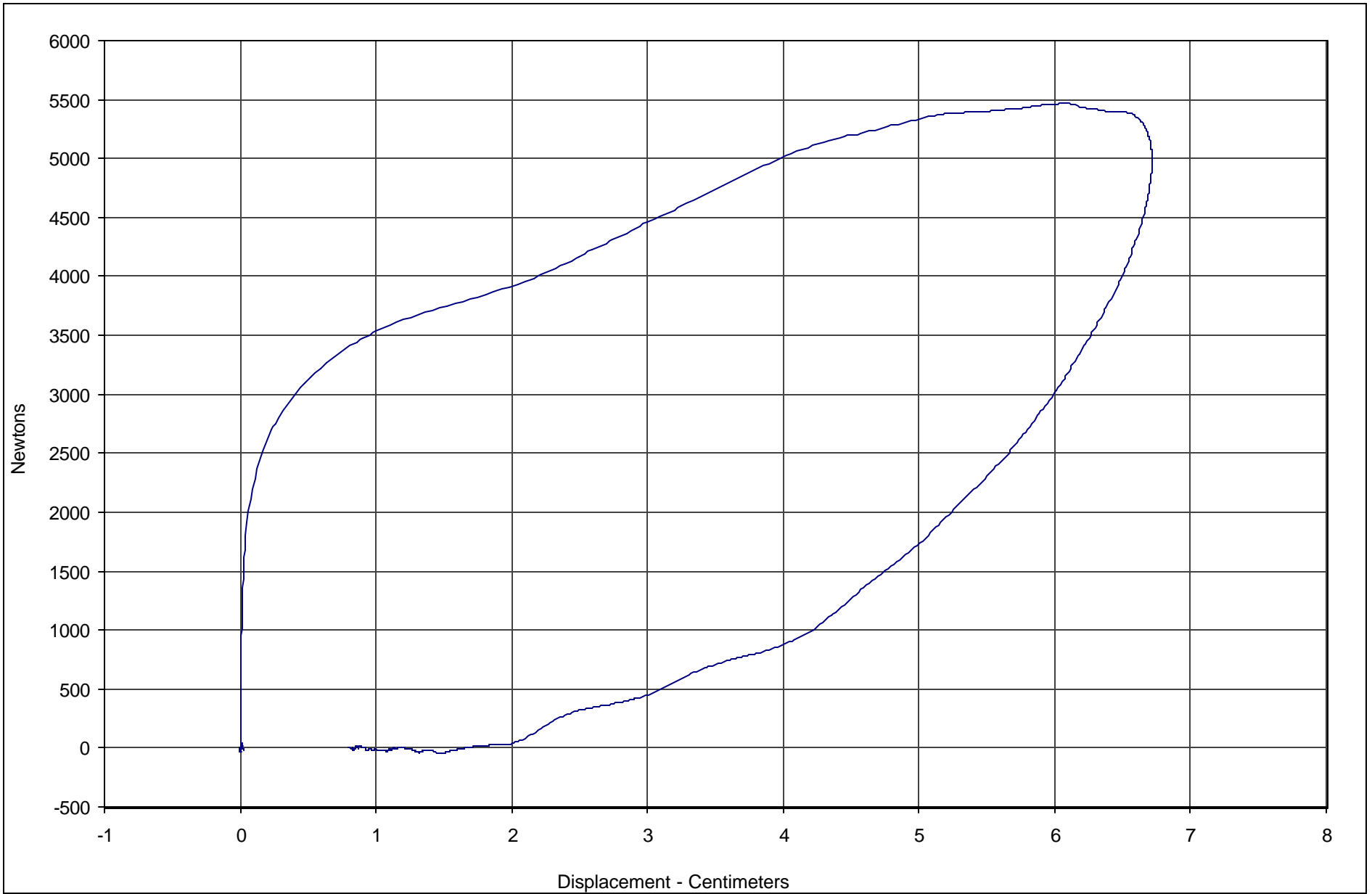
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Laboratory Technician

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Test Date



Curve Description	CURNO	Type	Hysteresis	Peak Chest Displ.	Peak Probe Force	SAE Class
Probe Force vs. Chest Displacement	001	FIL	75.8	6.72	5465.8	180



Test Program: Hybrid III 50th Percentile Male Thorax Impact

A.T.D. Serial No.: 035

Test Date: 2/17/03

Test I.D.: CH01D



Calibration Data Sheet Hybrid III 50th Percentile Male Neck Flexion Test

ATD Serial No.: 035

Test I.D.: NF02B

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	7.04	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.1	Pass
	20 Msec.	G's	17.6 to 22.6	19.6	Pass
	30 Msec.	G's	12.5 to 18.5	18.2	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	18.2	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	37.3	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	70.0	Pass
	Time	Msec.	57.0 to 64.0	63.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	118.7	Pass
Moment About Occipital Condyle	Maximum	Nm	84.1 to 108.5	85.8	Pass
	Time	Msec.	47.0 to 58.0	54.8	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	100.5	Pass
Overall Test Results					Pass

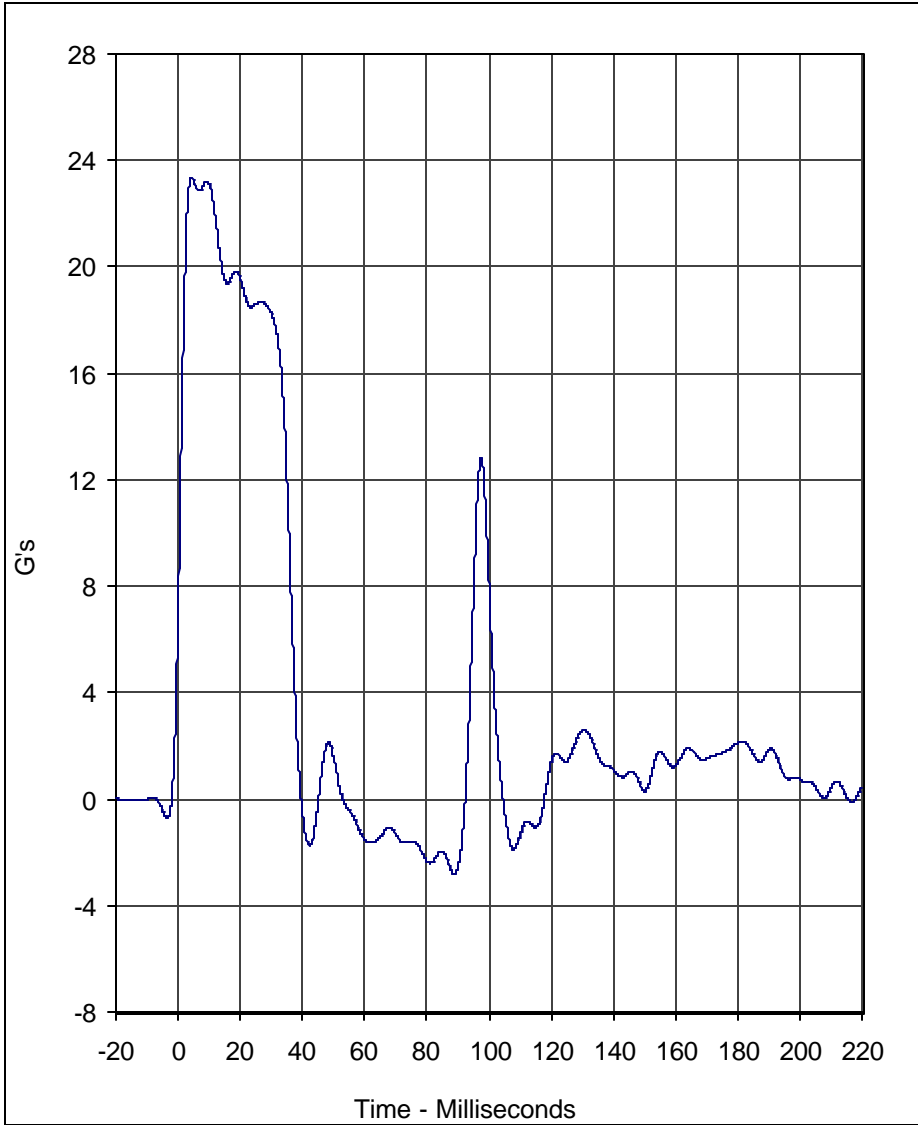
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Laboratory Technician

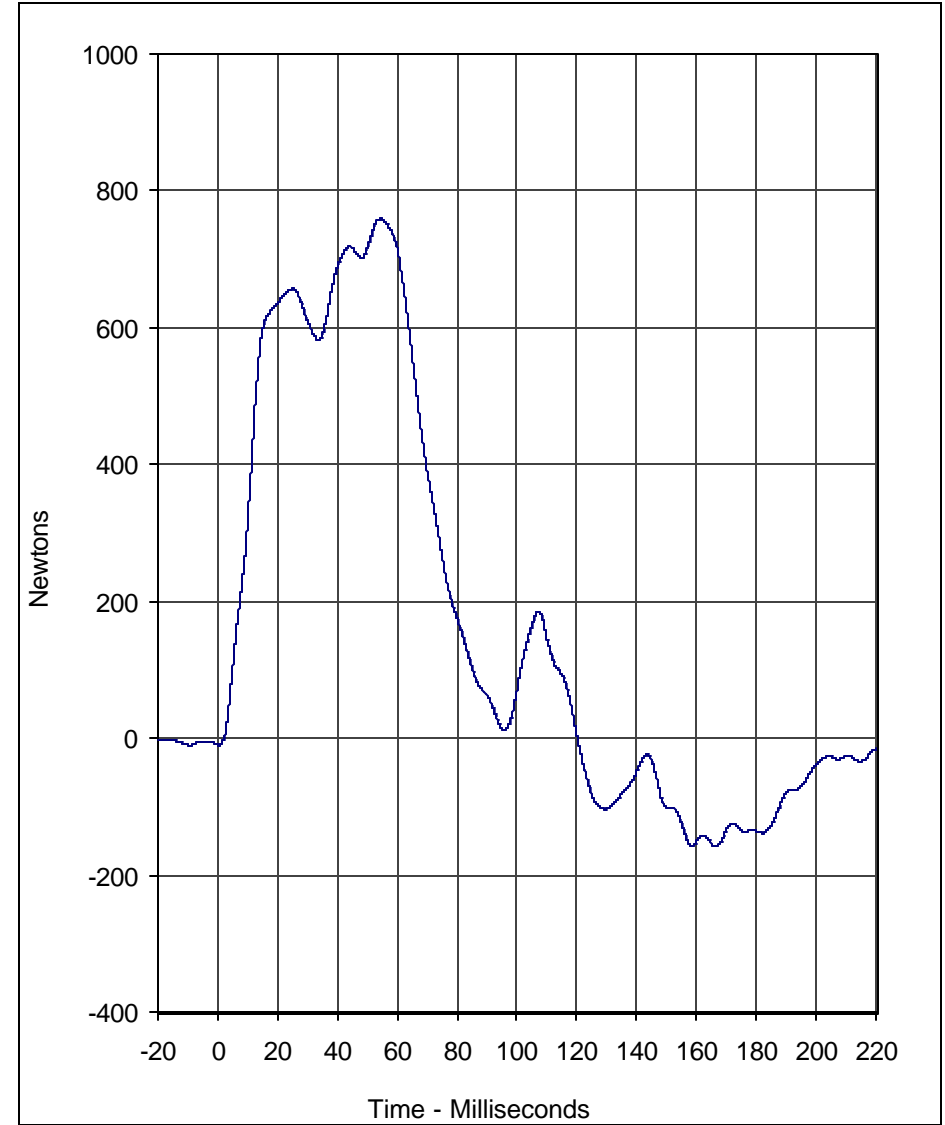
February 14, 2003

Test Date



Curve Description	CURNO	Type
Pendulum Deceleration	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	23.4	4.3	-2.8	88.8	60



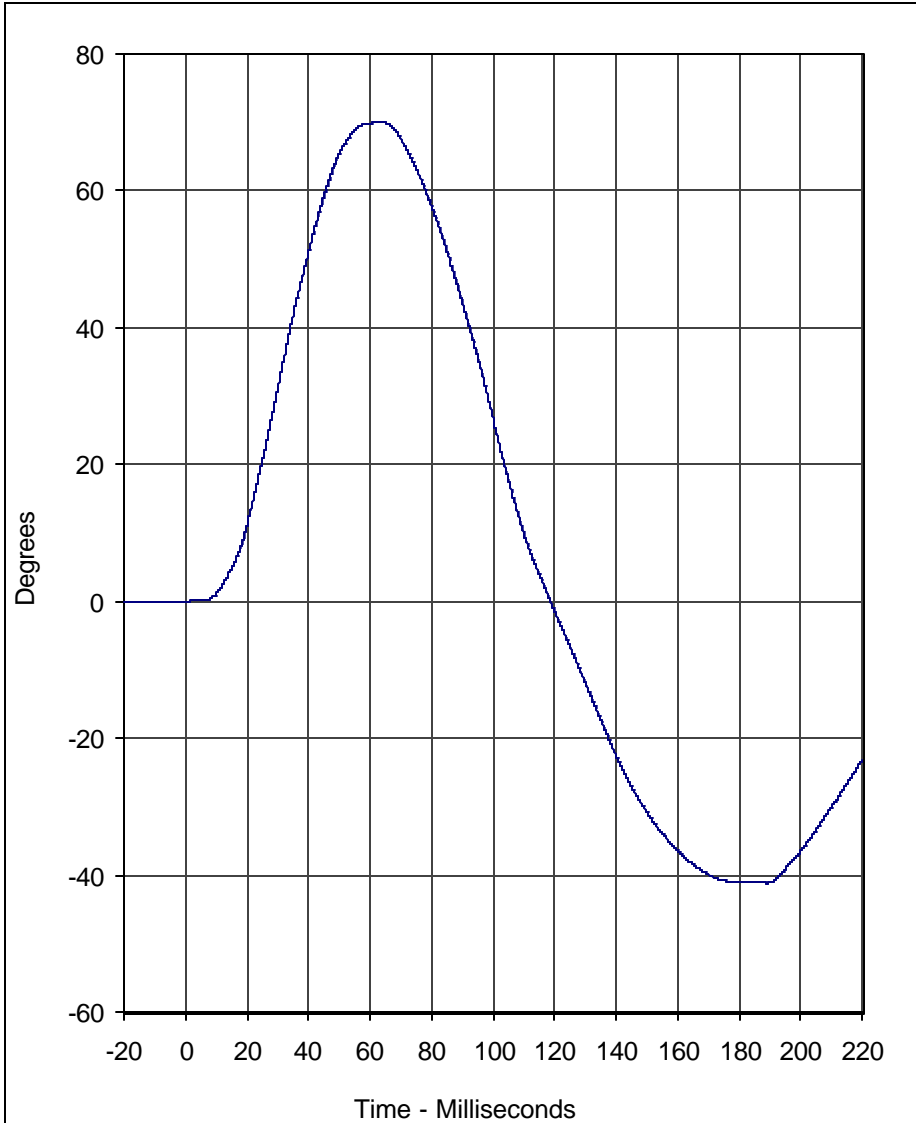
Curve Description	CURNO	Type
Neck Force X	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	759.0	54.4	-158.5	166.5	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 2/14/03

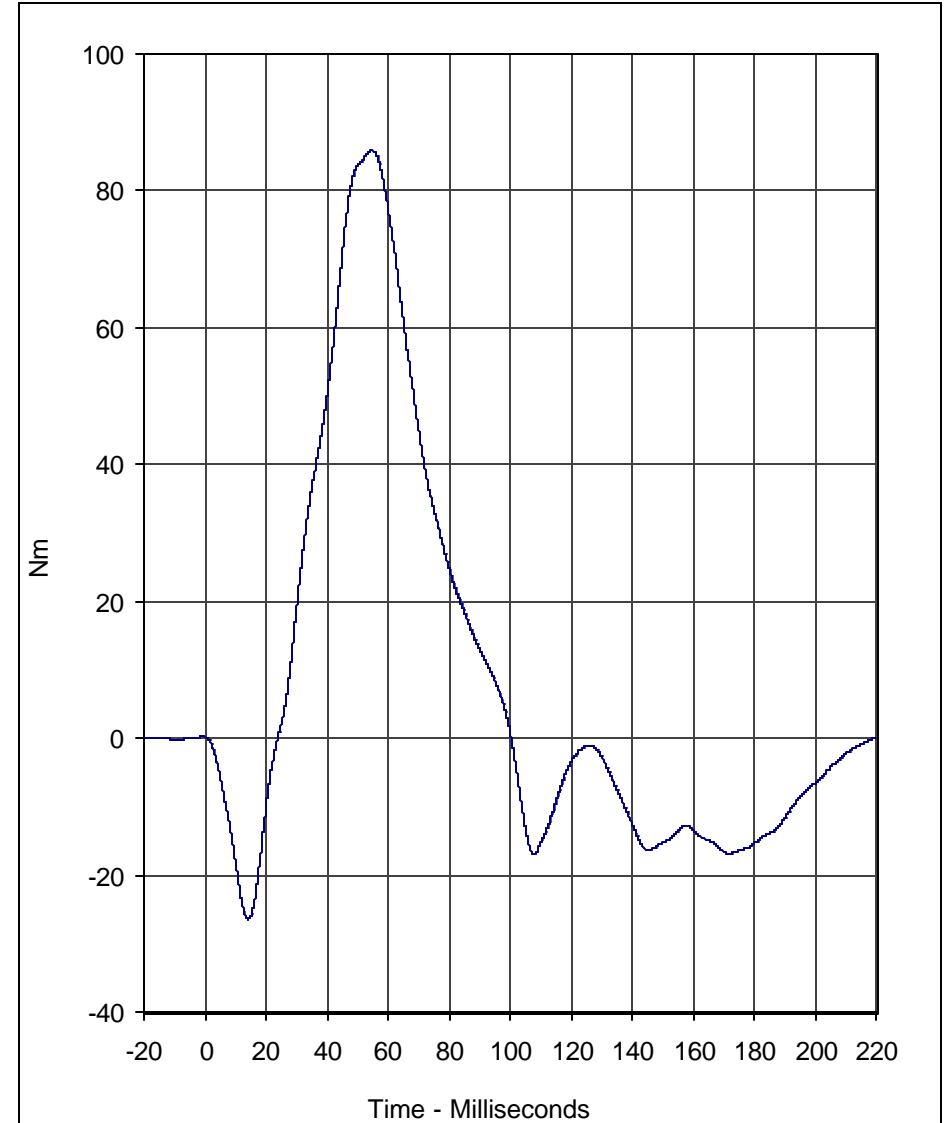
A.T.D. Serial No.: 035
 Test I.D.: NF02B





Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	70.0	63.0	-41.2	189.3	60



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	85.8	54.8	-26.5	14.1	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 2/14/03

A.T.D. Serial No.: 035
 Test I.D.: NF02B





Calibration Data Sheet

Hybrid III 50th Percentile Male Neck Extension Test

ATD Serial No.: 035

Test I.D.: NE02A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.13	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.4	Pass
	20 Msec.	G's	14.0 to 19.0	16.5	Pass
	30 Msec.	G's	11.0 to 16.0	15.1	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.1	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	38.6	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	95.6	Pass
	Time	Msec.	72.0 to 82.0	79.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	155.3	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to- 79.9	-65.4	Pass
	Time	Msec.	65.0 to 79.0	68.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	137.6	Pass
Overall Test Results					Pass

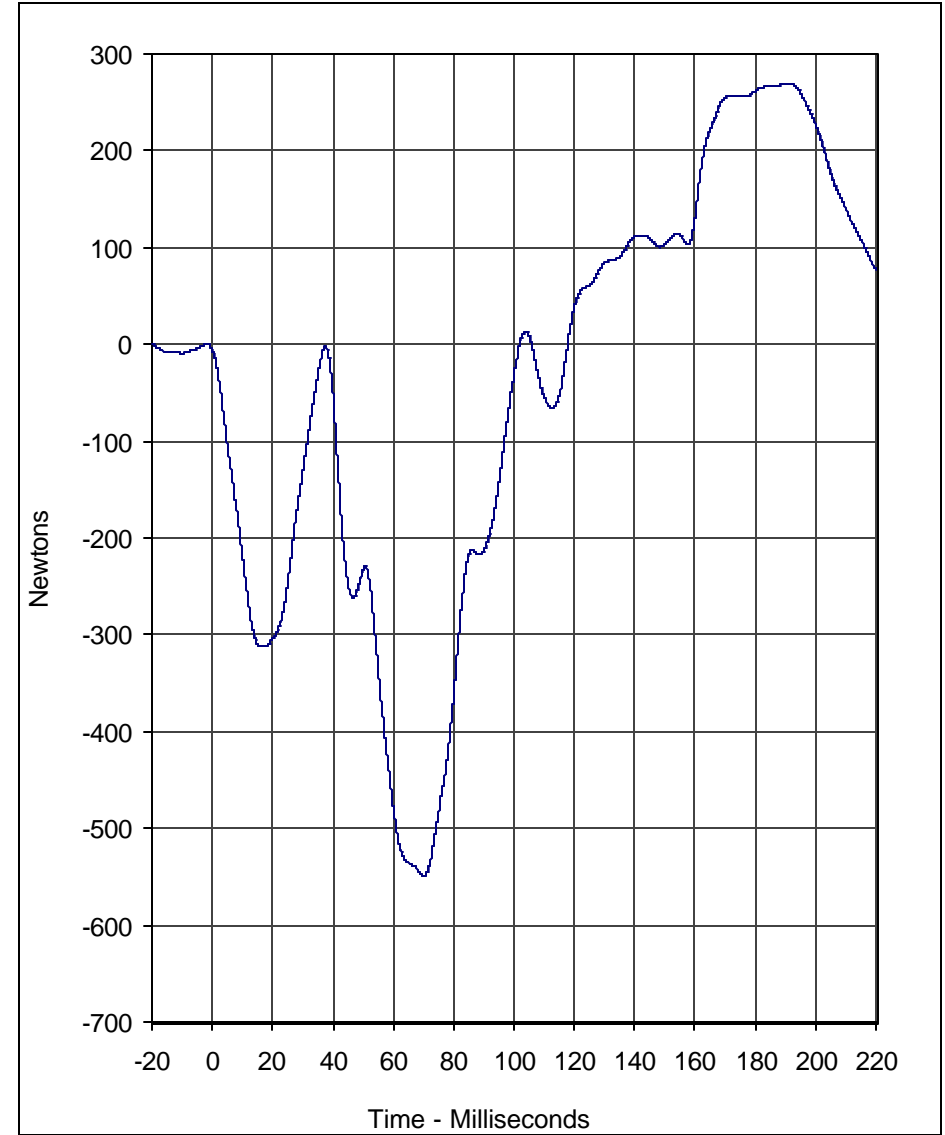
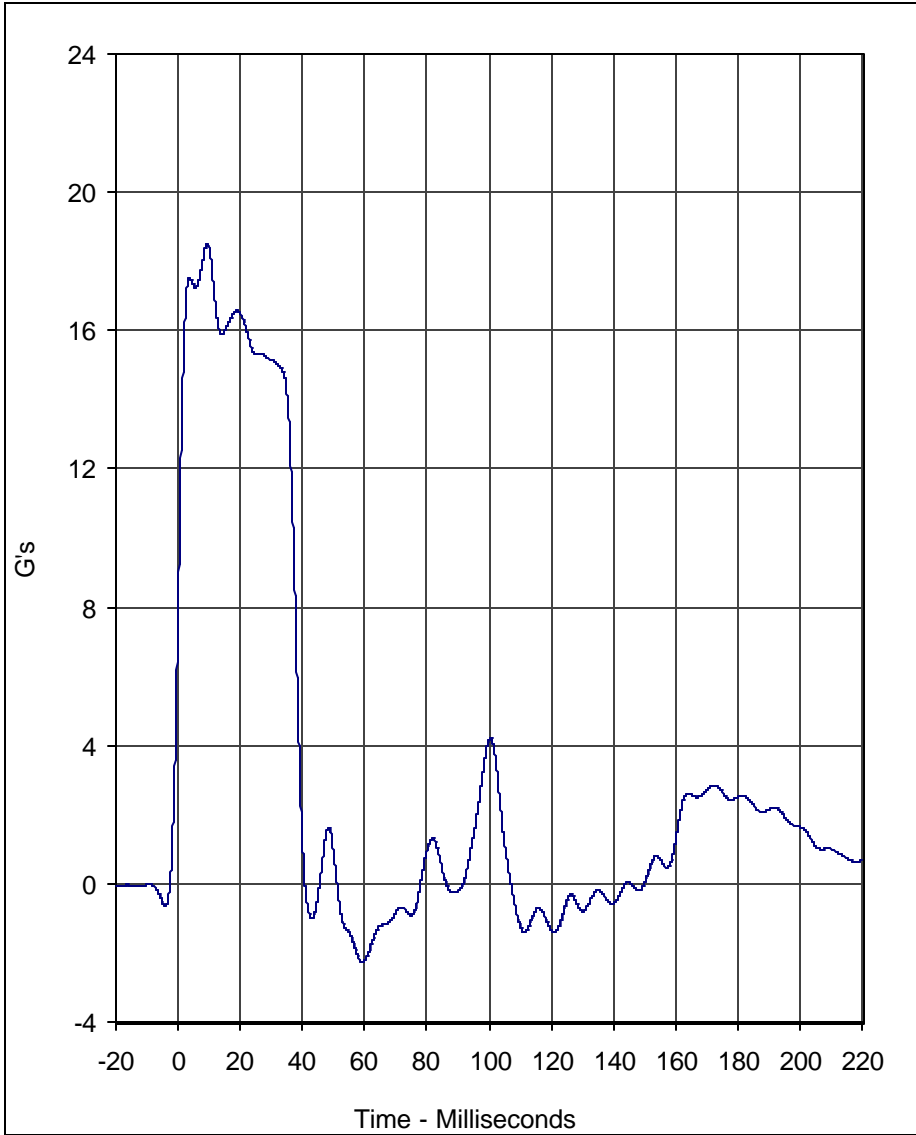
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Test Date



Curve Description				CURNO	Type
Pendulum Deceleration				001	FIL

Curve Description				CURNO	Type
Neck Force X				002	FIL

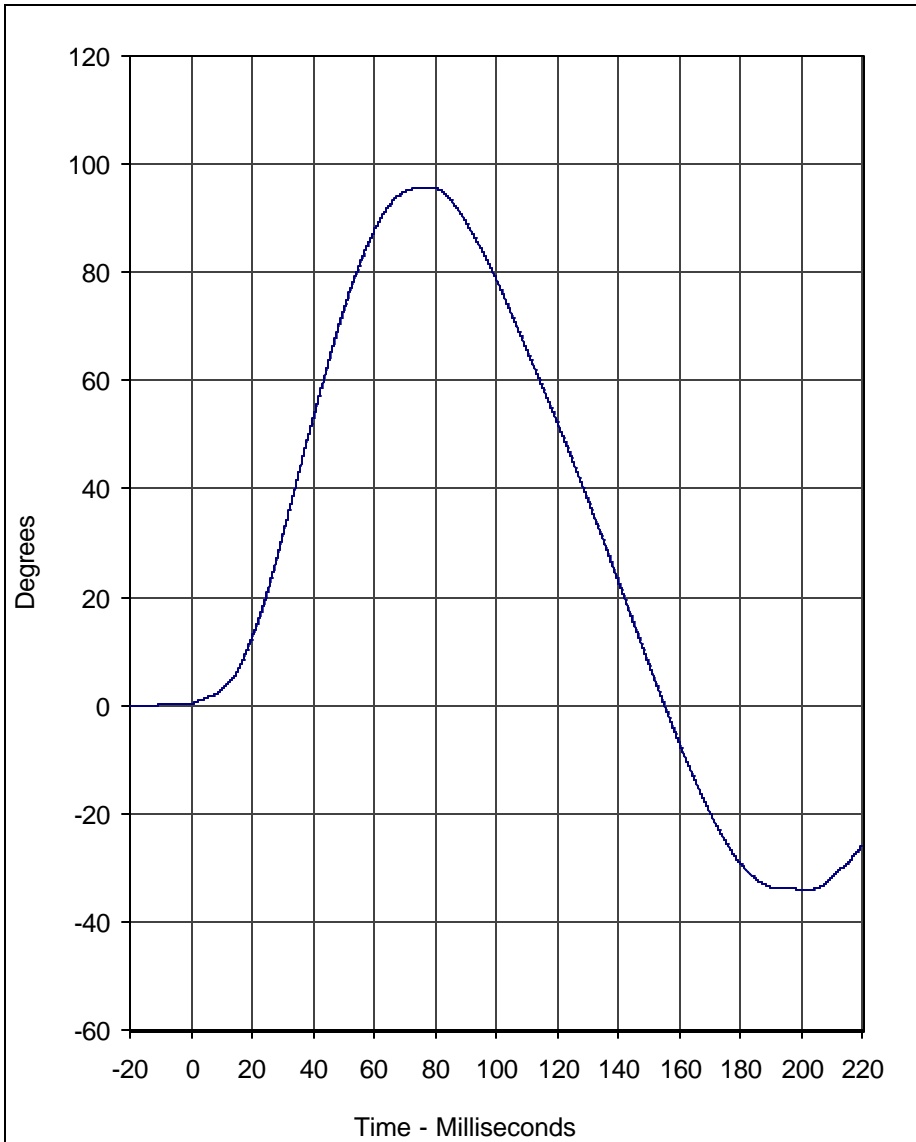
Units	Max	Time	Min	Time	SAE Class
G's	18.5	9.4	-2.3	59.2	60

Units	Max	Time	Min	Time	SAE Class
Newtons	270.0	191.3	-548.6	70.1	60

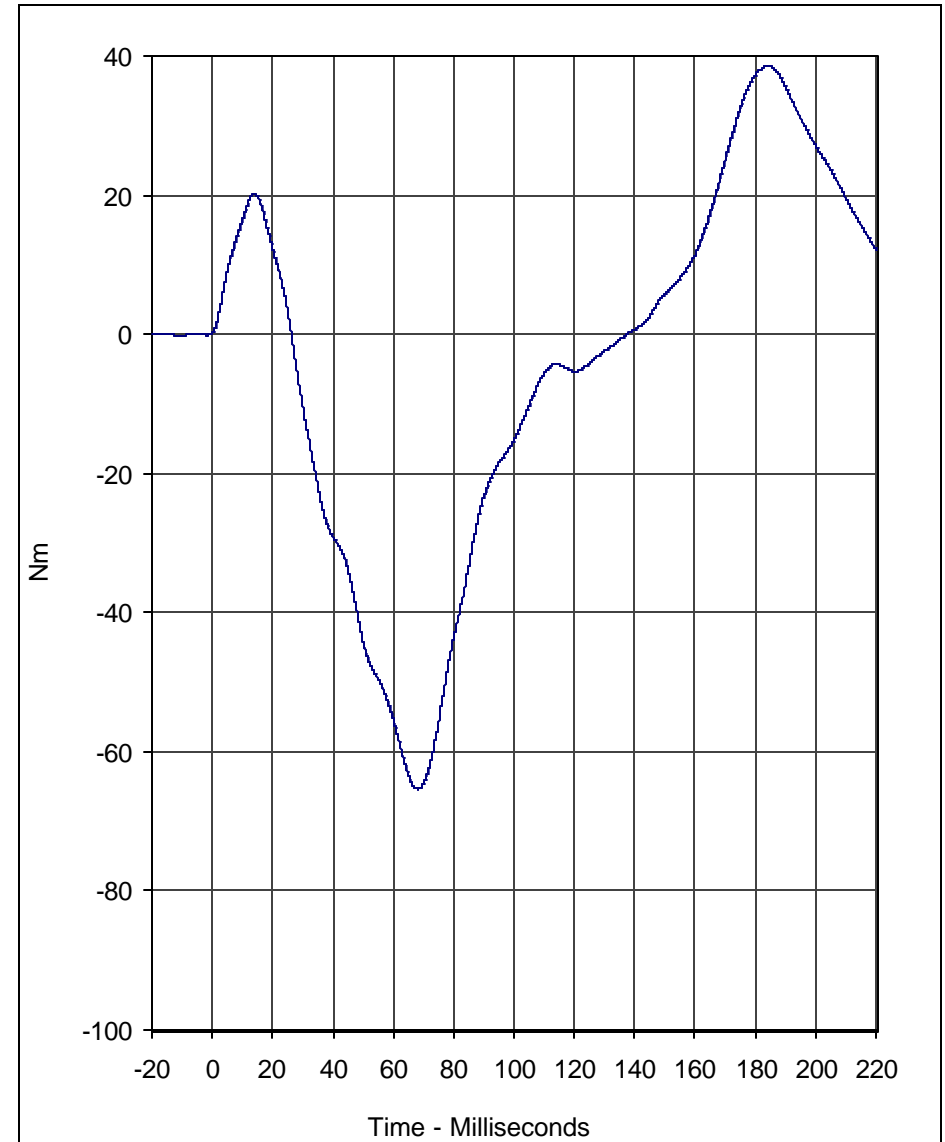
Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 2/14/03

A.T.D. Serial No.: 035
 Test I.D.: NE02A





Curve Description				CURNO	Type
"D" Plane Rotation				003	FIL
Units	Max	Time	Min	Time	SAE Class
Degrees	95.6	79.2	-34.0	201.9	60



Curve Description				CURNO	Type
Moment About Occipital Condyle				004	FIL
Units	Max	Time	Min	Time	SAE Class
Nm	38.5	184.1	-65.4	68.1	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 2/14/03

A.T.D. Serial No.: 035
 Test I.D.: NE02A





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	510	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	340	Pass
J - Elbow rest height	mm	190 to 211	195	Pass
K - Buttock to knee length	mm	579 to 604	595	Pass
L - Popliteal length	mm	429 to 455	445	Pass
M - Knee pivot height	mm	485 to 500	500	Pass
N - Buttock popliteal length	mm	452 to 477	465	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	95	Pass
Y - Chest circumference	mm	970 to 1001	1000	Pass
Z - Waist circumference	mm	836 to 866	860	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
			Overall Test Results	Pass

Laboratory Technician

February 17, 2003

Test Date

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TR-P23001-12-NC

APPENDIX F

CHILD RESTRAINT SYSYEM

REPORT NUMBER TR-P23001-12-NC

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

**TOYOTA MOTOR CORPORATION
2003 TOYOTA 4 RUNNER SR5
4WD SUV**

NHTSA NUMBER: M35106

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



FEBRUARY 26, 2003

FINAL REPORT

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

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Reviewed by: _____ Date: March 7, 2003
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KARCO Engineering, LLC

Approved by: _____ Date: March 7, 2003
Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

Technical Report Documentation Page

1. Report No. TR-P23001-12-NC	2. Government Accession No.	3. Recipients Catalog No.			
4. Title and Subtitle Final Report of Evenflo Vanguard 5 Convertible Final Report of Graco My Cargo Highback Booster NHTSA No. M35106		5. Report Date March 7, 2003		6. Performing Organization Code KAR	
		8. Performing Organization Report No. TR-P23001-12-NC			
7. Authors Mr. James E. Gorth, Project Engineer, Karco Mr. Frank Richardson, Project Manager, Karco		10. Work Unit No.			
9. Performing Organization Name and Address KARCO Engineering, LLC 9270 Holly Road Adelanto, CA 92301		11. Contract or Grant No. DTNH22-01-D-02005			
		13. Type of Report and Period Covered Final Test Report Option Year 2			
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 Street, SW, Room 5311 Washington, D.C 20590		14. Sponsoring Agency Code DOT/NHTSA/NRM/OCS/NVS 111			
		15. Supplementary Notes			
16. Abstract A CRS Test was performed in conjunction with a New Car Assessment Program (NCAP) Load Cell Barrier Test. This test was conducted at Karco Engineering, LLC on February 26, 2003					
Measurement Description		Units		Left Rear	Right Rear
Head Injury Criteria (HIC) 36		N/A		2313.0	659.6
Head Injury Criteria (HIC) 15		N/A		1763.0	371.4
3 M sec. Chest Clip		G's		62.9	45.8
Peak Chest Displacement		mm		-28.3	-16.1
17. Key Words 56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) 2003 Toyota 4 Runner SR5 4WD SUV NHTSA No. M35106			18. Distribution Statement Copies of this report available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, D.C. 20590		
19. Security Classification (this report)		20. Security Classification (this page)		21. No. Pages	22. Price
Unclassified		Unclassified		130	

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	6. CRS Camera Data	9
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SECTION F-1

PURPOSE AND SUMMARY OF TEST M35106

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

The 56.18 km/h NCAP frontal impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) NCAP Laboratory Test Procedure.

SUMMARY

The three year old and six year old child dummies were instrumented with head, chest, and pelvic triaxial accelerometers. A chest displacement potentiometer and a lower neck load cell were used on the 3yr. old dummy. The 6yr. old dummy was instrumented with upper neck load cells and a chest displacement potentiometer. Triaxial accelerometers were installed on the CRS.

The right rear (Position 3) child dummy (Serial No. 082) and the left rear (Position 4) child dummy (Serial No. 027) were calibrated prior to this test. Child dummy certification information is found in Section F-5.

CHILD DUMMY VALUES

	HIC36 Values	HIC15 Values	3 Msec Chest Clip	Peak Chest Disp.
Left Rear Child	2313.0	1763.0	62.9	-28.3
Right Rear Child	659.6	371.4	45.8	-14.2

SECTION F-1

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

TEST DUMMY INFORMATION

Description	Position #3 CRS	Position # 4 CRS
Manufacturer	Evenflo	Graco
Model Name	Vanguard 5	My Cargo
Serial No.	3691261 P1	8481LAN
Type	Convertible	Highback Booster
Forward/Rearward	Forward	Forward

VISIBLE DUMMY CONTACT POINTS

Description	Position #3 CRS	Position # 4 CRS
Head Contact	Headrest, Chin to Retaining Clip	Chest, seatbelt
Chest Contact	Harness	Belt
Abdomen Contact	Harness	Belt
Left Knee Contact	None	None
Right Knee Contact	None	None
Left Toe contact	Seatback	Seatback
Right Toe Contact	Seatback	Seatback

POST TEST DOOR OPENING

Description	Front	Rear
Left Side Doors	Remained closed/latched, opened w/o tools	Remained closed/latched, opened w/o tools
Right Side Doors	Remained closed/latched, opened w/o tools	Remained closed/latched, opened w/o tools
Hatch/Other Door	None	None

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	4
Real Time	0

SECTION F-1

DATA SHEET NO. 2.....CRS PARAMETER DATA

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

TEST VEHICLE WEIGHTS

	Units	As Delivered			As Tested		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	549	442		574	522	
Right	kg	483	428		525	519	
Ratio	%	54.3	45.7		51.4	48.6	
Totals	kg	1032	870	1902	1099	1041	2140

TARGET TEST WEIGHT CALCULATION

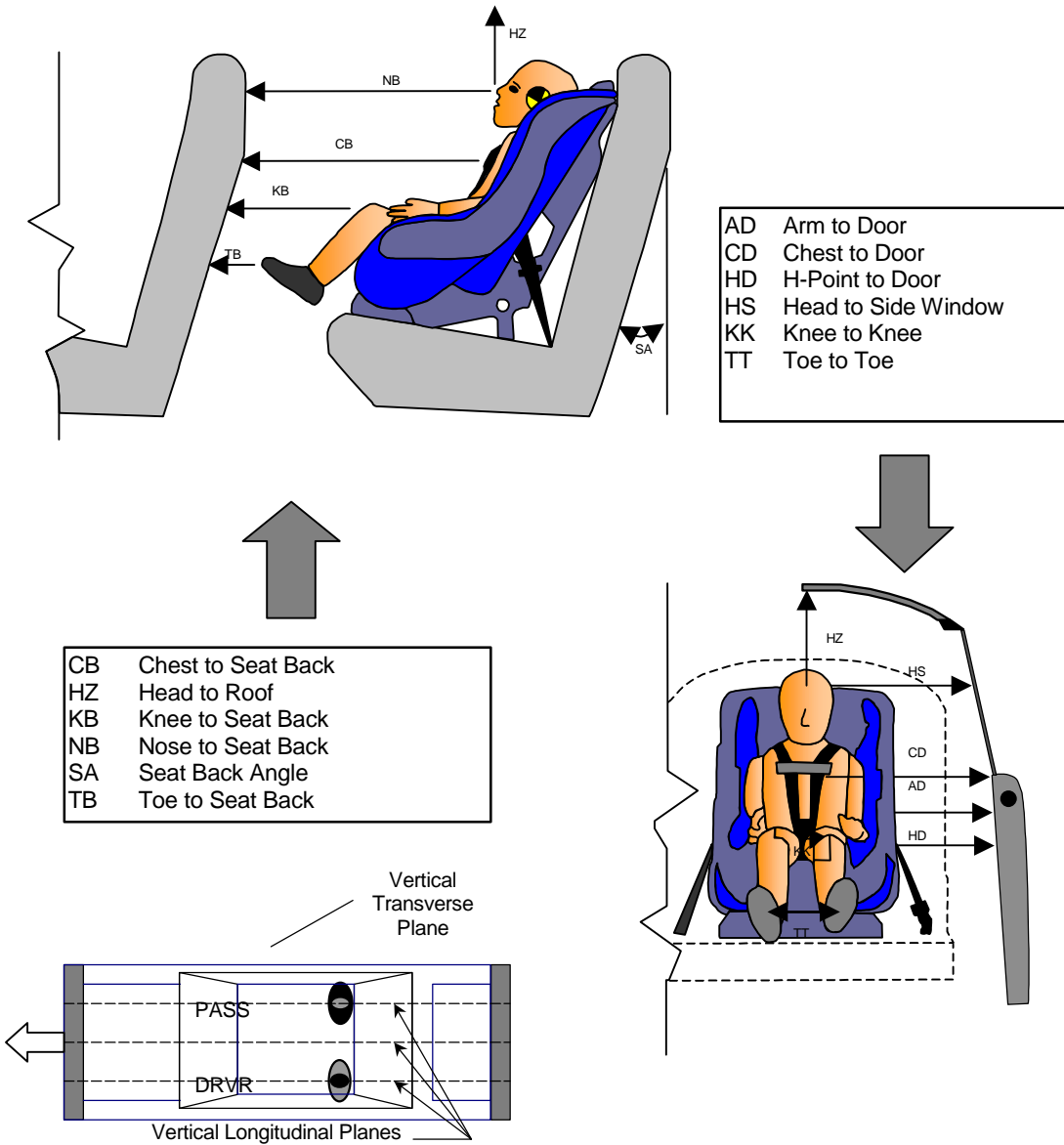
Measured Parameter	Units	Value
Total Delivered Weight (<i>UVW</i>)	kg	1902
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Weight (<i>RCLW</i>)	kg	91
Calculated Vehicle Target Weight (<i>TVTW</i>)	kg	2145

SECTION F-1

DATA SHEET NO. 3CHILD DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03



DUMMY MEASUREMENTS FOR REAR SEAT OCCUPANTS

SECTION F-1

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

CHILD DUMMY POSITION MEASUREMENTS

Code	Measurement	P3 CRS (082)		P4 CRS (027)	
		Pre-Test	Post-test	Pre-Test	Post-test
SA	Seat Back Angle	60	60	60	60
HZ	Head to Roof (Z)	360	375	390	350
CD	Chest to Dash	385	410	370	340
KK	Knee to Knee (Y)	260	240	270	180
HS	Head to Side Window	315	320	315	265
HD	H-Point to Door (Y)	375	380	370	375
AD	Arm to Door (Y)	660	660	655	654
NB	Nose to Seat Back	655	640	600	600
CB	Chest to Seat Back	190	175	160	140
FF	Foot to Foot	210	190	215	100
KB-LEFT	Knee to Seat Back	390	415	305	305
KB-RIGHT	Knee to Seat Back	400	420	315	330
TB-LEFT	Toe to Seat Back	155	105	125	200
TB-RIGHT	Toe to Seat Back	165	108	130	180

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

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

NHTSA No.: M35106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 2/26/03

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Right Rear (3 Yr.)				Left Rear (6 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	55.8	195.4	-30.4	104.4	6.5	234.8	-56.6	108.8
Head CG	Y	G's	14.3	104.4	-6.0	196.3	4.9	111.7	-5.1	106.3
Head CG	Z	G's	53.7	80.5	-11.4	51.8	108.1	79.6	-9.8	42.9
Head CG Resultant	N/A	G's	62.0	195.1			114.1	79.6		

PRIMARY HEAD INJURY CRITERAS (HIC)

Location	Right Rear (3 Yr.)				Left Rear (6 Yr.)			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Primary (HIC36)	659.6	63.8	99.8	50.7	2313.0	66.1	94.6	91.9
Head CG Primary (HIC15)	371.4	69.0	84.0	57.2	1763.0	71.7	86.7	106.6

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Right Rear (3 Yr.)				Left Rear (6 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	6.9	181.2	-37.0	77.2	5.1	147.1	-63.4	70.9
Chest CG	Y	G's	3.5	60.5	-2.8	72.4	10.2	81.9	-6.0	55.6
Chest CG	Z	G's	14.3	89.3	-37.7	55.1	14.1	90.9	-17.3	59.3
Chest CG Resultant	N/A	G's	46.9	55.1			63.8	71.0		

PRIMARY CHEST CLIP (3MSEC)

Location	Right Rear (3 Yr.)			Left Rear (6 Yr.)		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	45.8	53.7	56.7	62.9	69.2	72.2

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Right Rear (3 Yr.)				Left Rear (6 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.0	24.9	-16.1	107.0	0.1	18.7	-28.3	110.5

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Right Rear (3 Yr.)				Left Rear (6 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	7.1	116.6	-39.2	63.0	15.8	100.5	-49.1	63.0
Pelvis	Y	G's	5.3	55.1	-3.9	104.1	16.8	72.0	-9.1	43.5
Pelvis	Z	G's	14.0	201.3	-35.9	55.8	9.1	95.6	-42.2	61.2
Pelvis Resultant	N/A	G's	52.0	61.4			60.2	61.4		

DATA SHEET NO. 4...(continued)

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

NHTSA No.: M35106

Test Program: 2003 NHTSA 35mph NCAP

Test Date: 2/26/03

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Right Rear (3 Yr.)				Left Rear (6 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	108.3	187.0	-621.5	95.6	202.3	107.0	-1078.8	71.9
Neck Force	Y	Newtons	95.7	102.3	-43.0	194.2	101.9	114.0	-30.5	194.5
Neck Force	Z	Newtons	1737.4	83.0	-319.7	51.8	3504.2	77.7	-313.5	42.3
Neck Force Resultant	N/A	Newtons	1822.4	83.2			3640.2	77.7		
Neck Moment	X	Nm	5.7	113.9	-3.0	65.4	7.4	59.5	-10.6	112.8
Neck Moment	Y	Nm	8.1	157.6	-7.3	67.4	40.4	99.8	-52.4	67.1
Neck Moment	Z	Nm	1.7	71.2	-2.3	102.9	4.4	109.3	-3.4	257.8
Neck Moment Resultant	N/A	Nm	8.1	157.6			52.7	67.1		

LOWER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Right Rear (3 Yr.)				Left Rear (6 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	281.4	194.8	-792.6	86.6				
Neck Force	Y	Newtons	142.6	100.7	-58.9	194.9				
Neck Force	Z	Newtons	1225.1	80.7	-503.9	52.7				
Neck Force Resultant	N/A	Newtons	1405.1	83.1						
Neck Moment	X	Nm	17.0	103.8	-5.4	60.0				
Neck Moment	Y	Nm	90.1	86.1	-17.6	194.9				
Neck Moment	Z	Nm	5.0	139.1	-4.7	64.5				
Neck Moment Resultant	N/A	Nm	90.4	86.1						

CHILD SEAT TETHER BELT SENSOR PEAK VALUES

Location	Axis	Units	Right Rear (3 Yr.)				Left Rear (6 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Tether Belt Force	N/A	Newtons	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1.) Not installed

CHILD SEAT ACCELEROMETER PEAK VALUES

Location	Axis	Units	Right Rear (3 Yr.)				Left Rear (6 Yr.)			
			Max	Time	Min	Time	Max	Time	Min	Time
Child Seat	X	G's	6.6	151.7	-47.6	58.2	14.9	119.9	-60.9	59.2
Child Seat	Y	G's	3.4	38.7	-4.5	58.1	6.9	114.1	-20.3	53.9
Child Seat	Z	G's	12.2	158.8	-24.1	70.1	52.4	53.8	-32.0	69.5
Child Seat Resultant	N/A	G's	47.9	58.1			78.3	54.0		

SECTION F-1

DATA SHEET NO. 5.....CRS PERFORMANCE DATA

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

CRS PERFORMANCE DATA

Location	Serial # Position # 3		Serial # Position # 4	
	Damage	Remarks	Damage	Remarks
Upper Tether Strap	No	None	N/A	N/A
Upper Tether Buckle	No	None	N/A	N/A
Upper Tether Hook	No	None	N/A	N/A
Veh. Upper Tether Anchor	No	None	N/A	N/A
Lower Anchor Strap	No	None	N/A	N/A
Lower Anchor Buckle	No	None	N/A	N/A
Lower Anchor Hooks	No	None	N/A	N/A
Veh. Lower CRS Anchors	No	None	N/A	N/A
5 Point Harness Connections	No	None	N/A	N/A
Cracks on CRS	No	None	No	None
Fabric Tears on CRS	No	None	No	None
Vehicle Seat Structure	No	None	No	None
Vehicle Seat Fabric Tears	No	None	No	None
Child Dummy	No	None	No	None

SECTION F-1

DATA SHEET NO. 6.....CRS CAMERA DATA

Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV
 Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106
 Test Date: 2/26/03

No.	Camera View	Location (mm)			Angle (Deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Driver Side Child	2743	-584	1194	10	1184	6	No Time
2	Driver Side Child	2642	8230	2286	1	7867	25	1000
3	Passenger Side Child	2743	584	1194	10	1184	6	No Time
4	Passenger Side Child	2743	-8331	1524	1	7898	25	DNR

X - Barrier Face Y - Monorail Centerline Z - Ground DNR =Did Not Run

SECTION F-2

PHOTOGRAPHS

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4	Pre-Test Rear View of Position 3 CRS	F-4
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Manufactured in 22NOV02

Model # 3691261 P1

EVENFLO COMPANY INC
PITTSBURGH, PA 15106 (USA)

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



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



Figure F-3: Post-Test Frontal View of Position 3 CRS



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



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



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



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



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



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



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



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



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



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



Figure F-14: Pre-Test Position 3 Right Side View



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



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

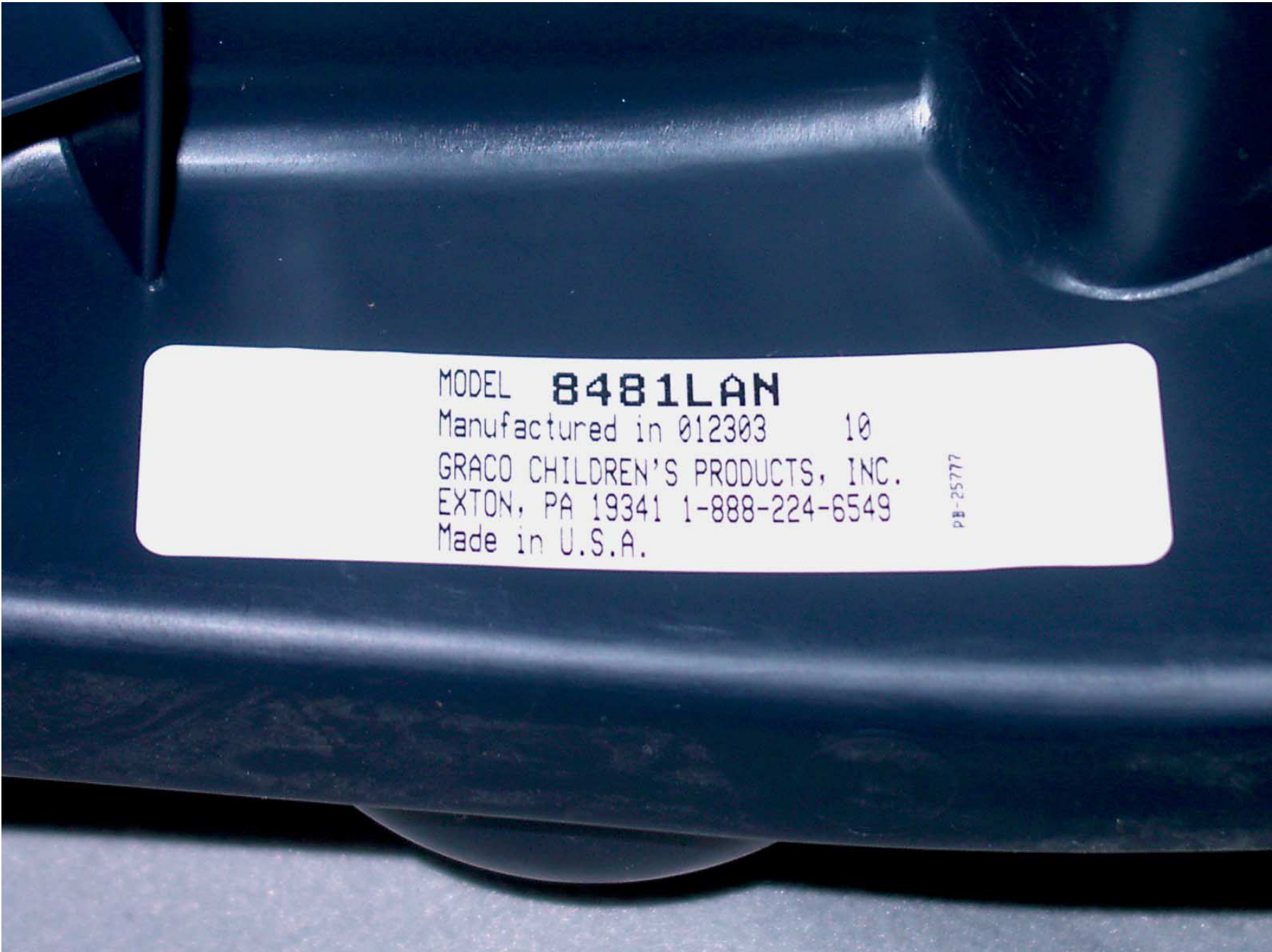


Figure F-17: Close-up View Position 4 CRS Label



Figure F-18: Pre-Test Frontal View of Position 4 CRS



Figure F-19: Post-Test Front View of Position 4 CRS



Figure F-20: Pre-Test Rear View of Position 4 CRS



Figure F-21: Post-Test Rear View of Position 4 CRS



Figure F-22: Pre-Test Left Side View of Position 4 CRS



Figure F-23: Post-Test Left Side View of Position 4 CRS



Figure F-24: Pre-Test Right Side View of Position 4 CRS



Figure F-25: Post-Test Right Side View of Position 4 CRS



Figure F-26: Pre-Test Position 4 Front View



Figure F-27: Post-Test Position 4 Front View



Figure F-28: Pre-Test Position 4 Left Side View



Figure F-29: Post-Test Position 4 Left Side View



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Figure F-30: Pre-Test Position 4 Right Side View



Figure F-31: Post-Test Position 4 Right Side View



Figure F-32: Post-Test Position 4 Right Side View



Figure F-33: Post-Test Position 4 Child Seat Damage



Figure F-34: Post-Test Position 4 Child Seat Damage

SECTION F-3

CHILD DUMMY RESPONSE AND CRS DATA TRACES

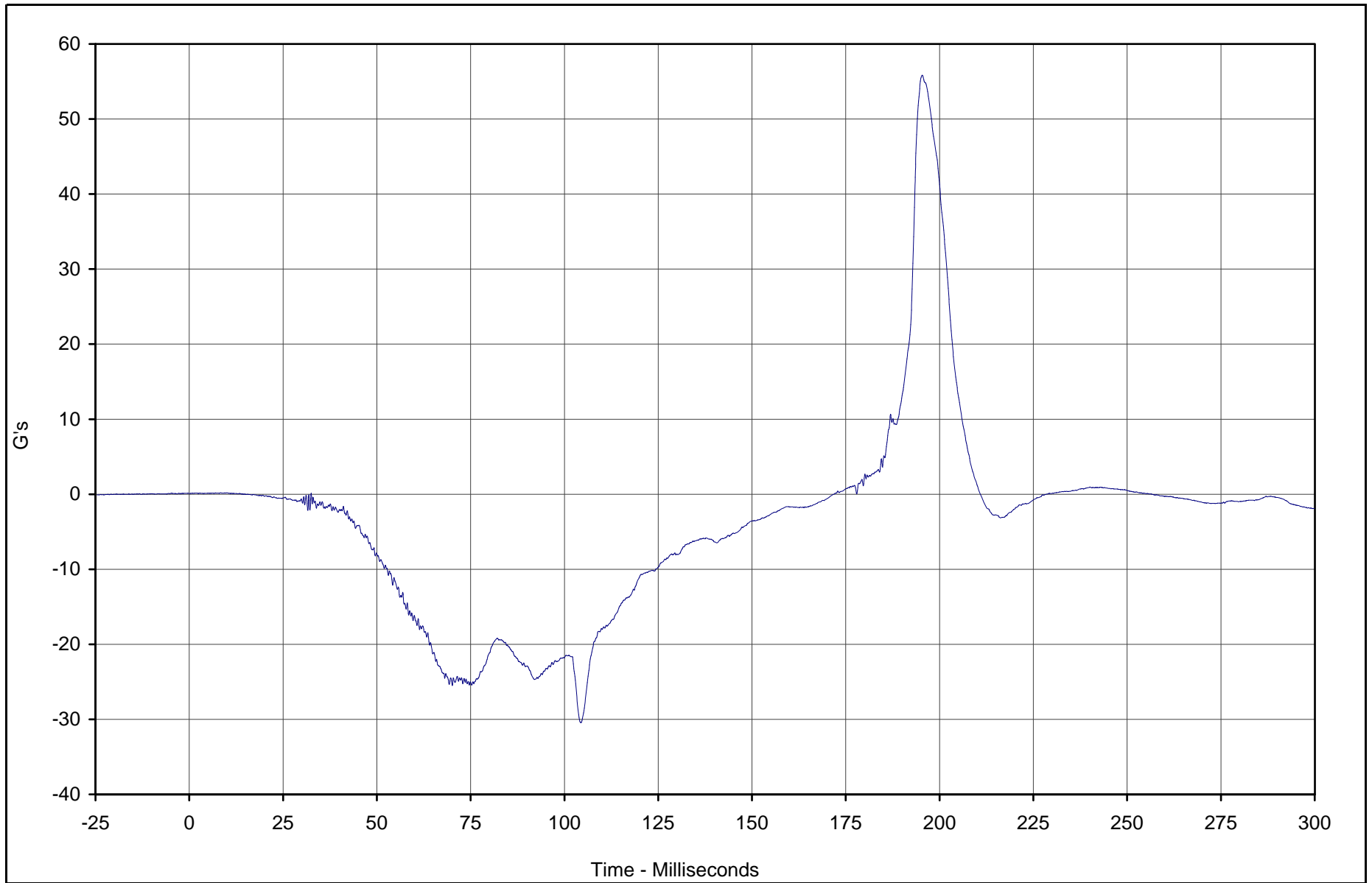
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F3-1



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Head X	134	FIL	G's	55.8	195.4	-30.4	104.4	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

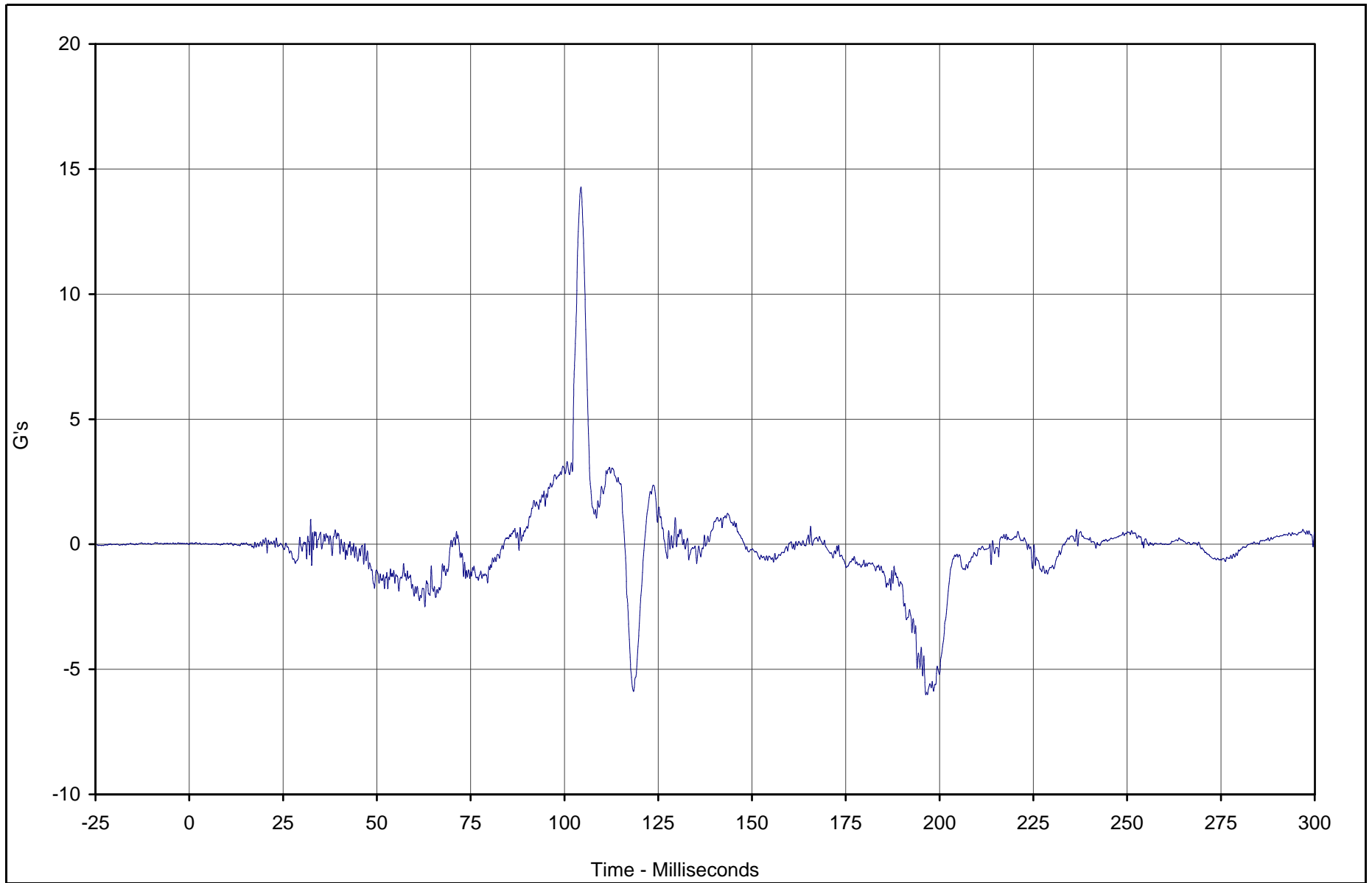
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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F3-2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Head Y	135	FIL	G's	14.3	104.4	-6.0	196.3	1000



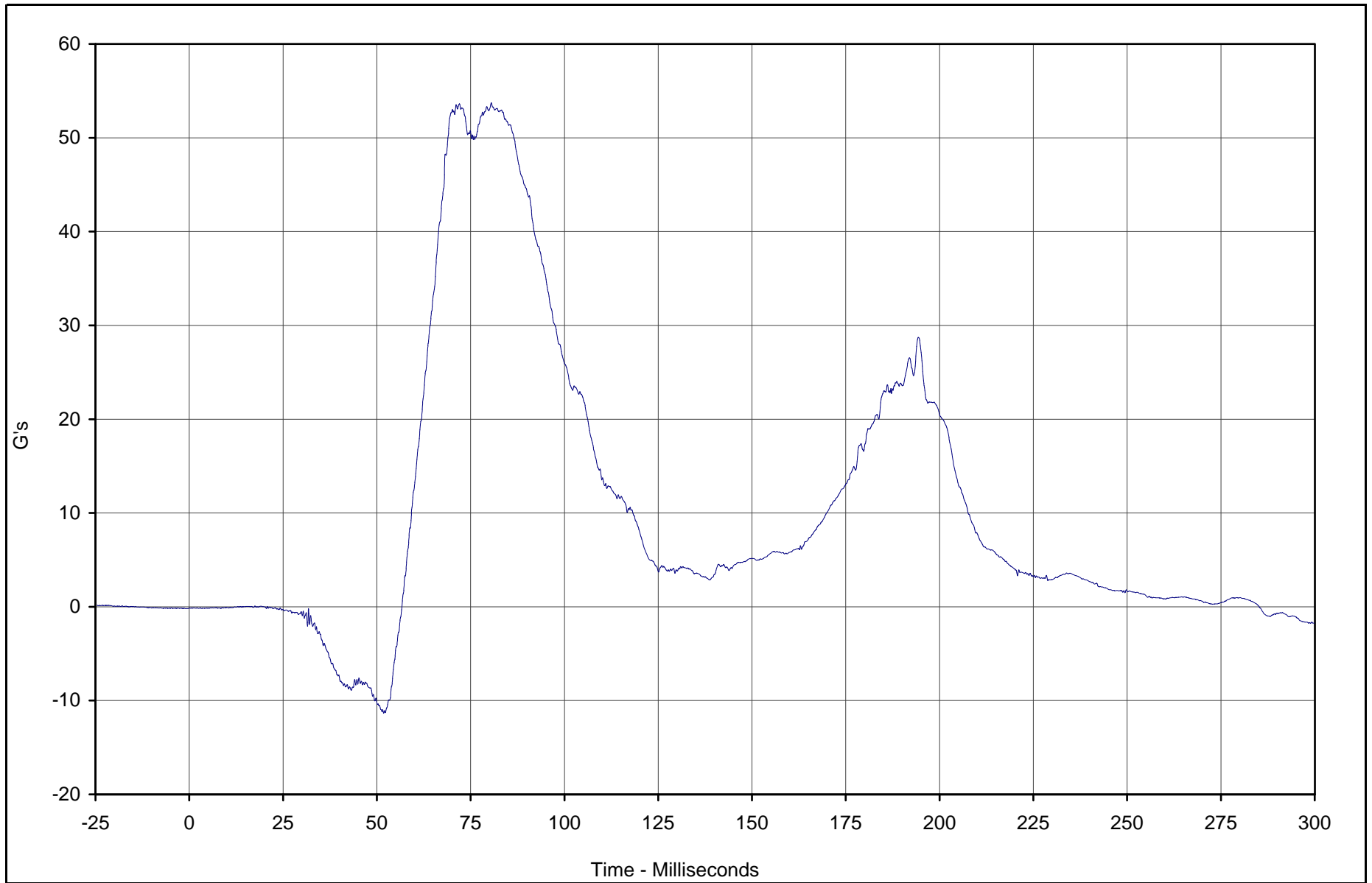
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Head Z	136	FIL	G's	53.7	80.5	-11.4	51.8	1000



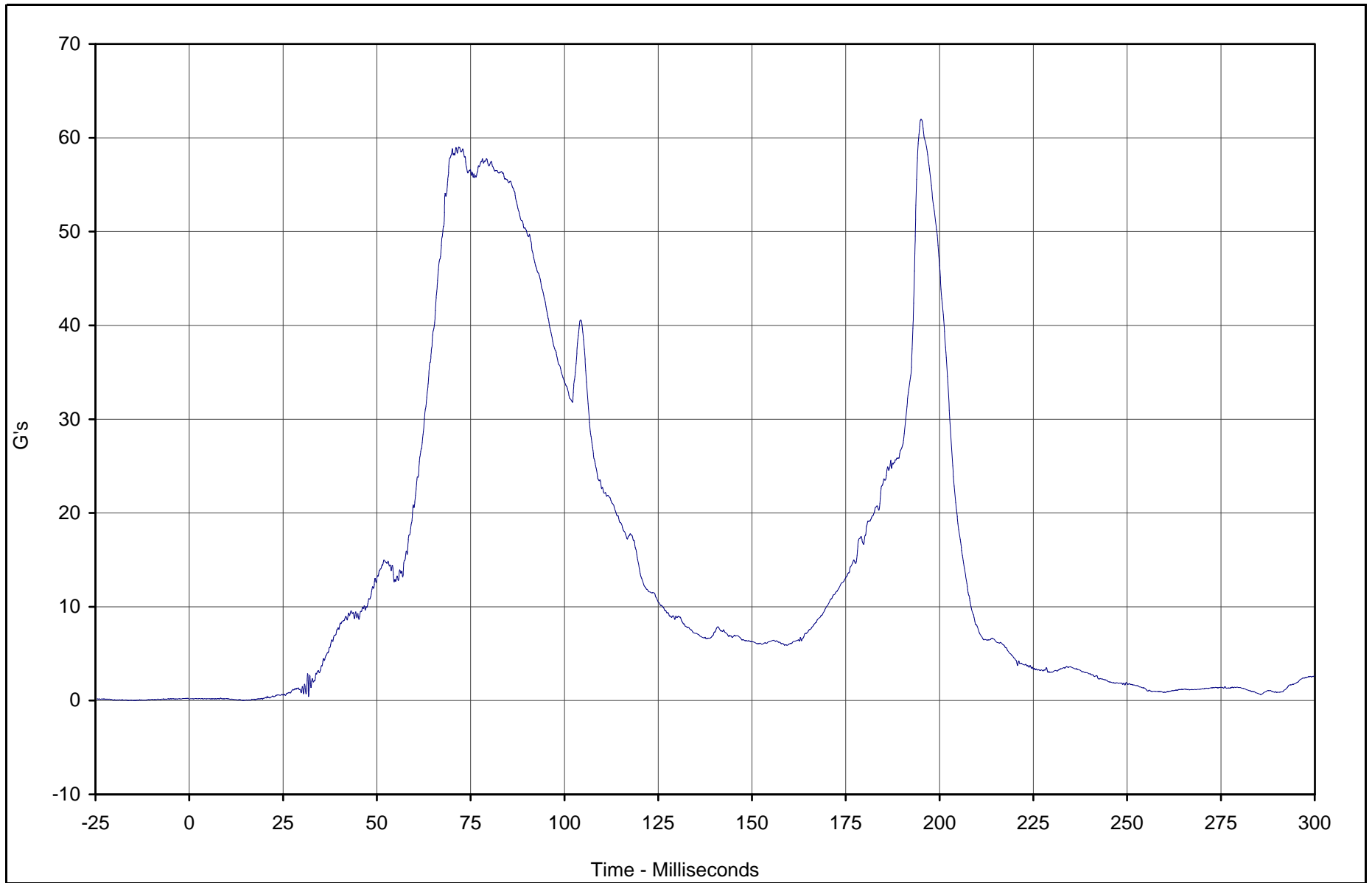
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-4



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Head Resultant	134	RES	G's	62.0	195.1	0.0	14.4	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

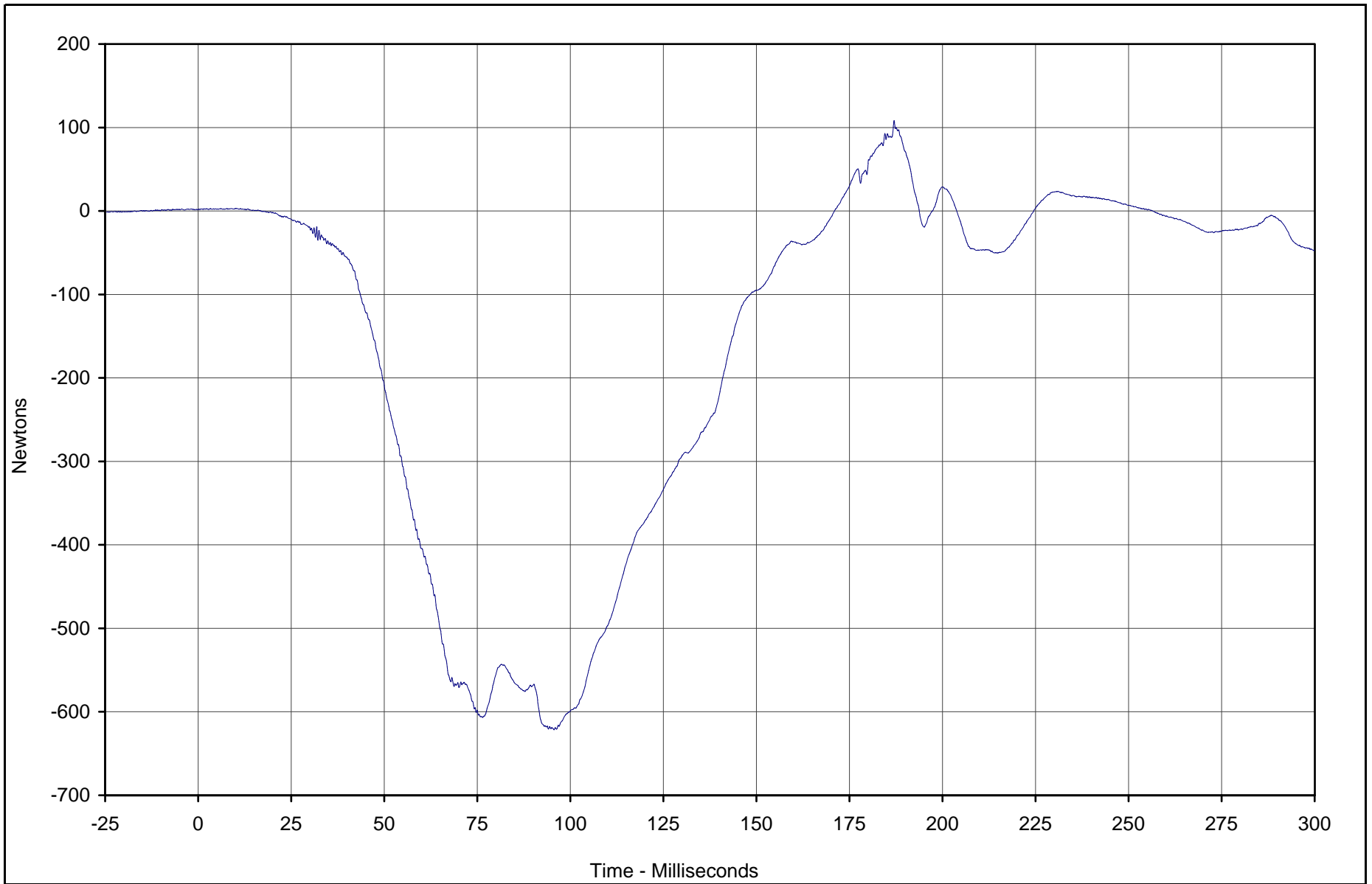
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

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F3-5



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Upper Neck Force X	137	FIL	Newtons	108.3	187.0	-621.5	95.6	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

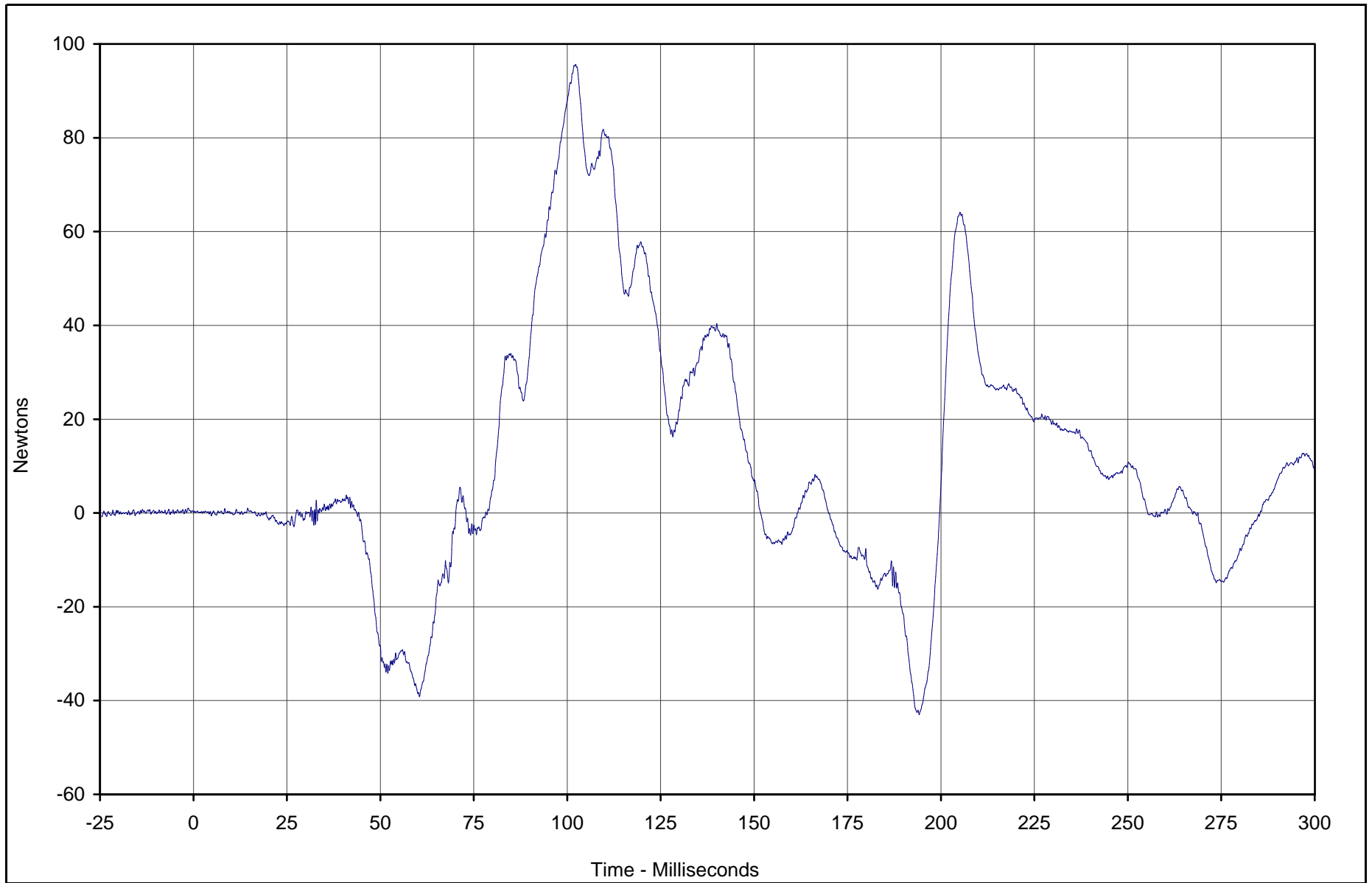
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-6



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Upper Neck Force Y	138	FIL	Newtons	95.7	102.3	-43.0	194.2	1000



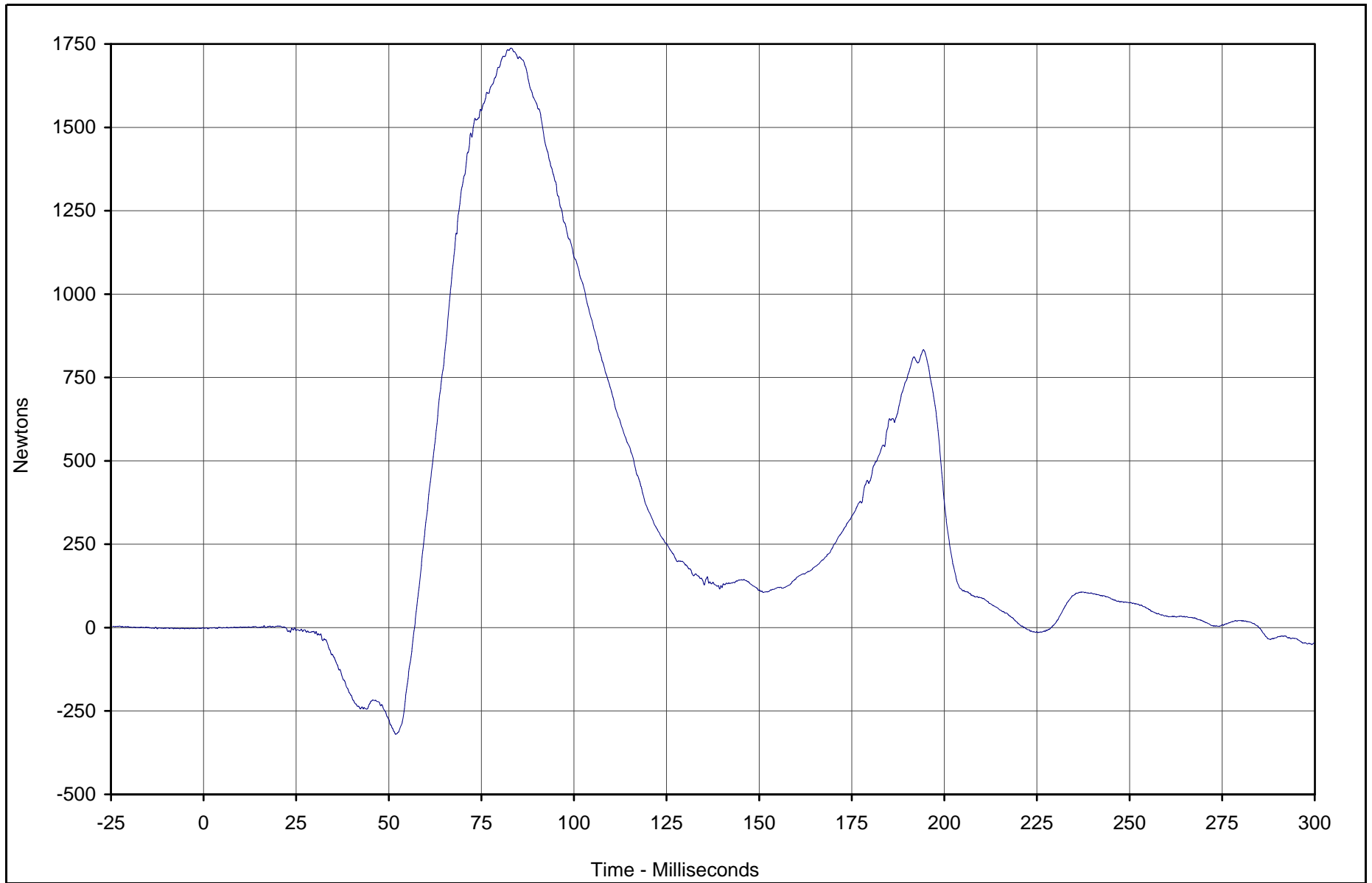
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Upper Neck Force Z	139	FIL	Newtons	1737.4	83.0	-319.7	51.8	1000

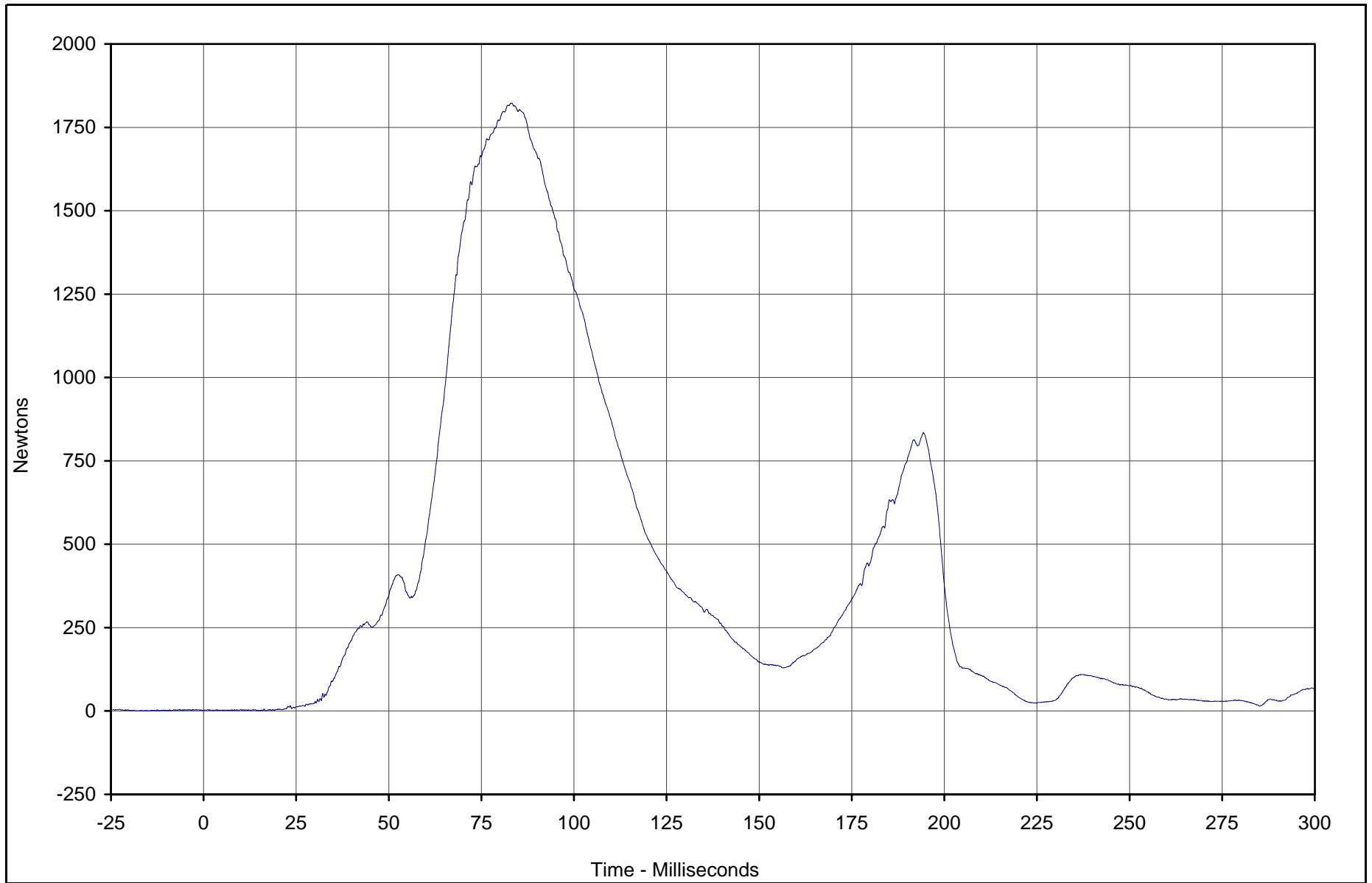


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Upper Neck Force Res.	137	RES	Newtons	1822.4	83.2	0.4	16.7	1000



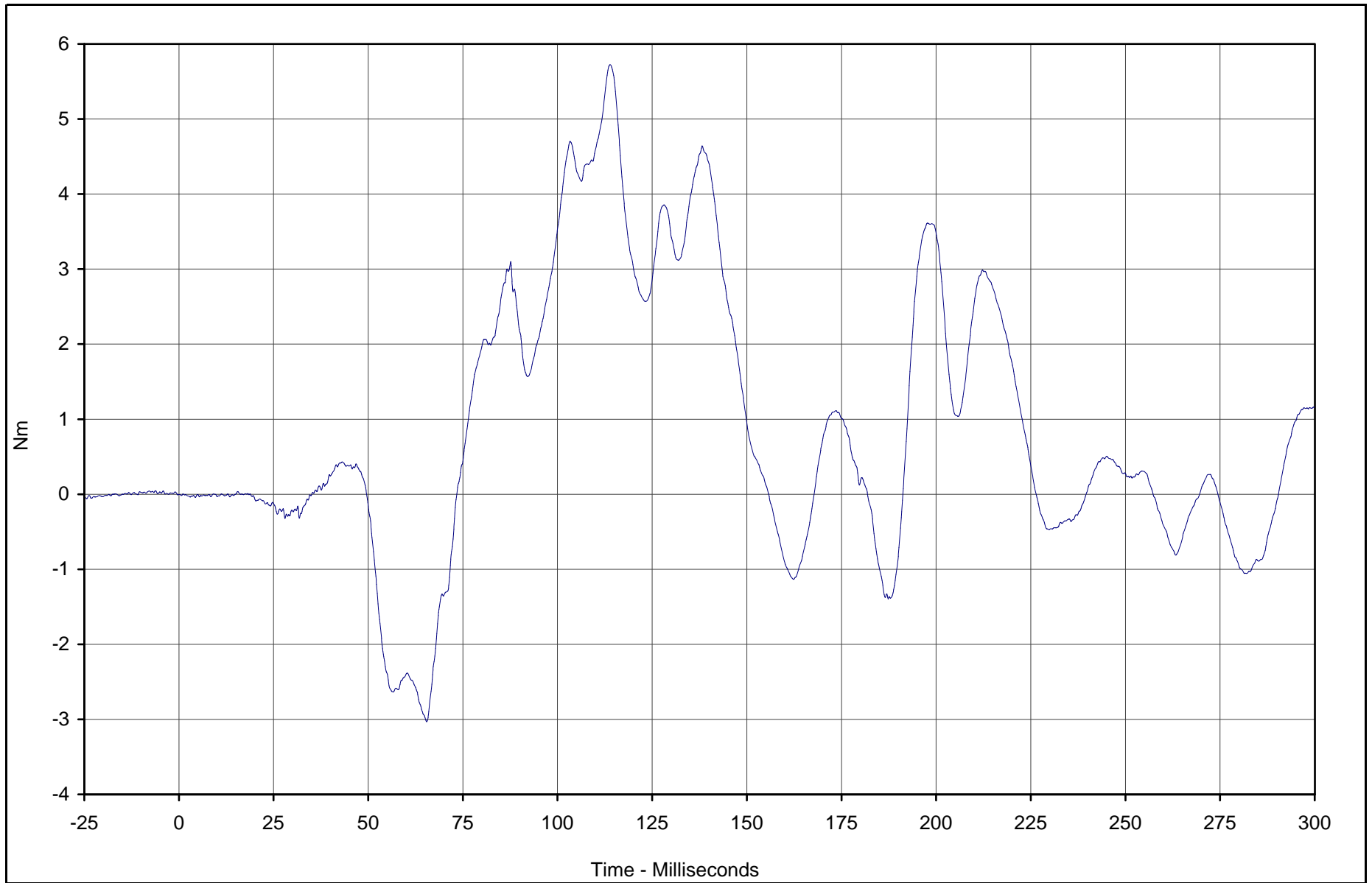
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-9



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Upper Neck Moment X	140	FIL	Nm	5.7	113.9	-3.0	65.4	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

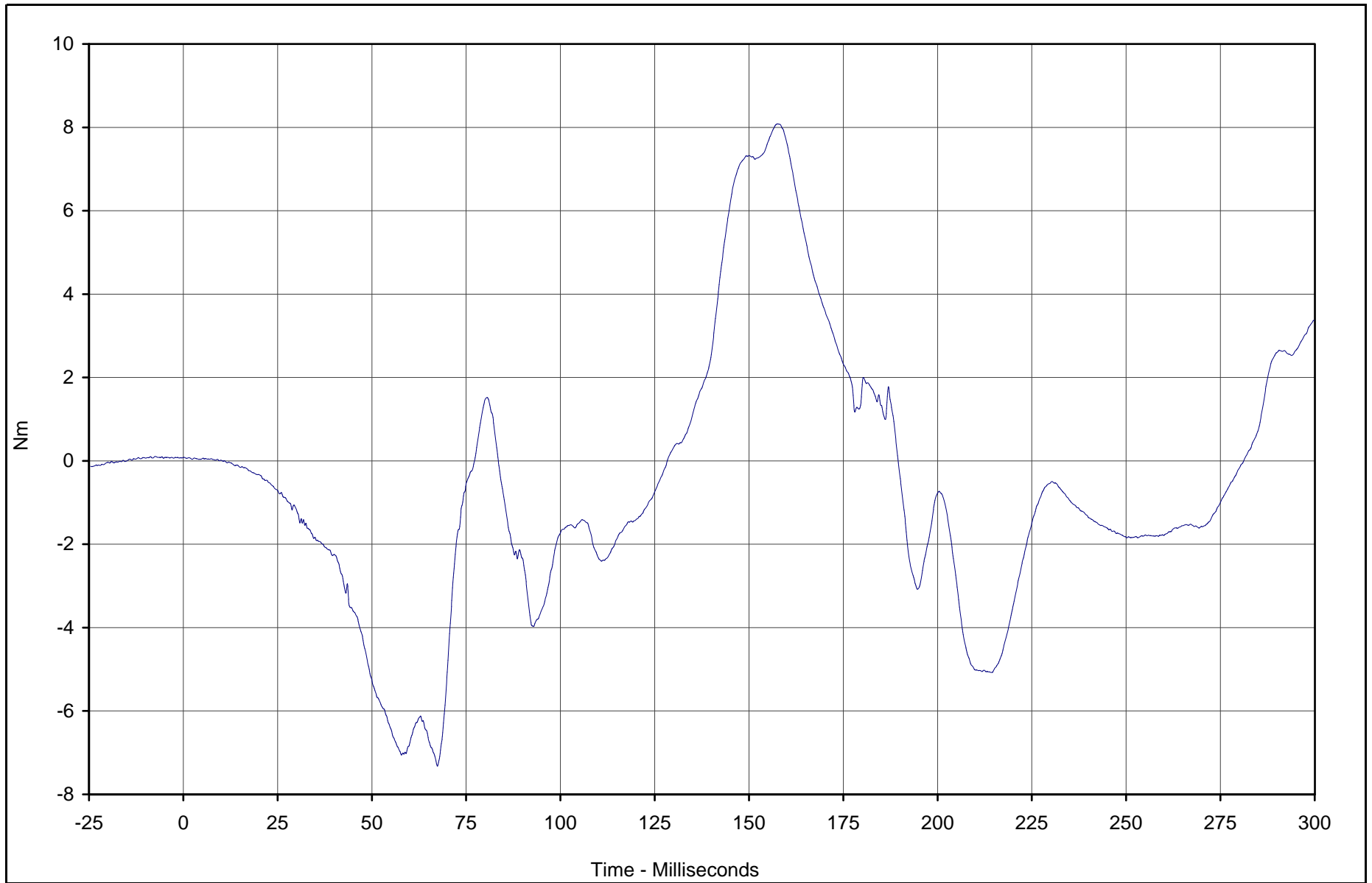
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-10



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Upper Neck Moment Y	141	FIL	Nm	8.1	157.6	-7.3	67.4	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

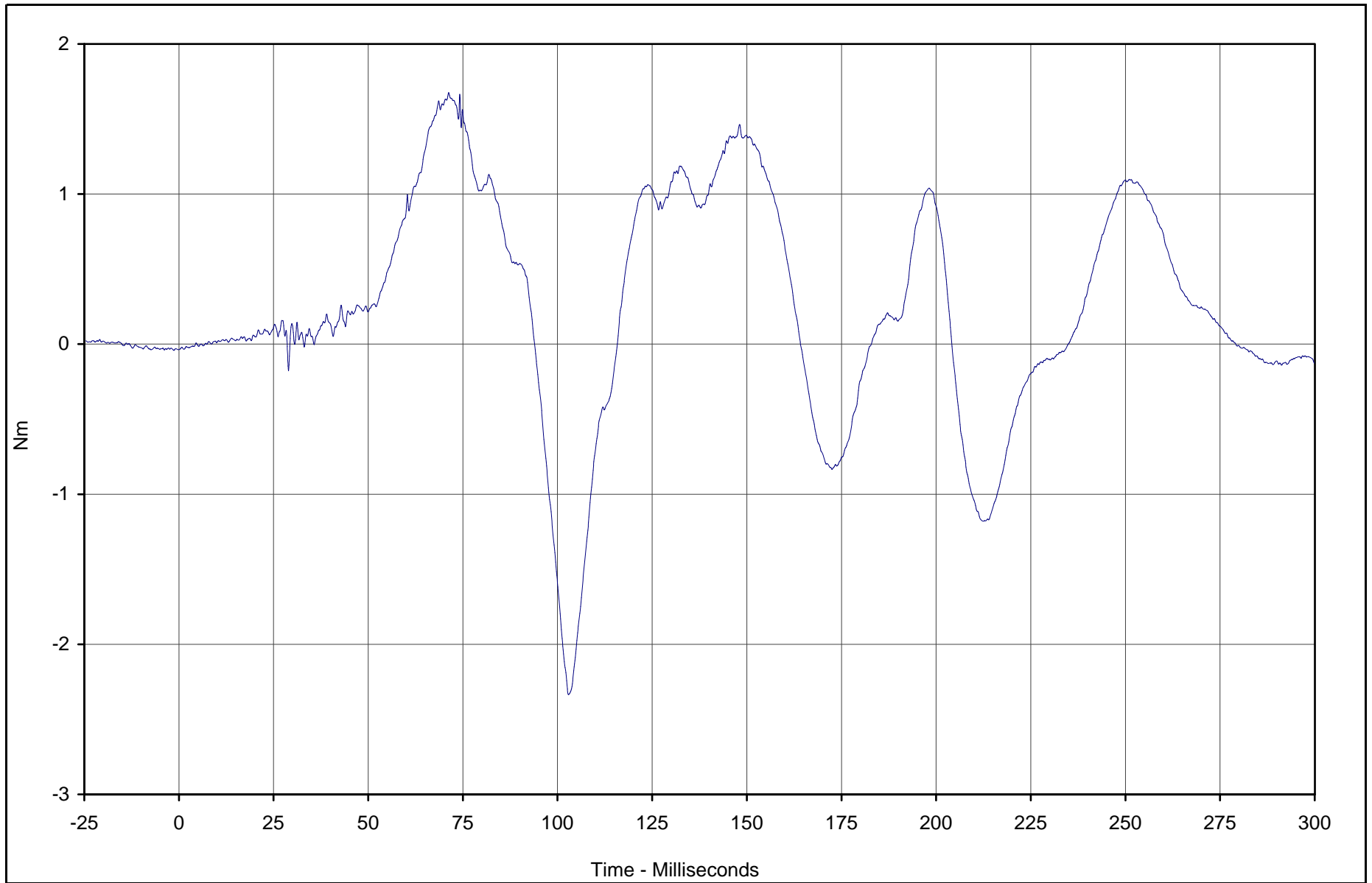
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-11



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Upper Neck Moment Z	142	FIL	Nm	1.7	71.2	-2.3	102.9	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

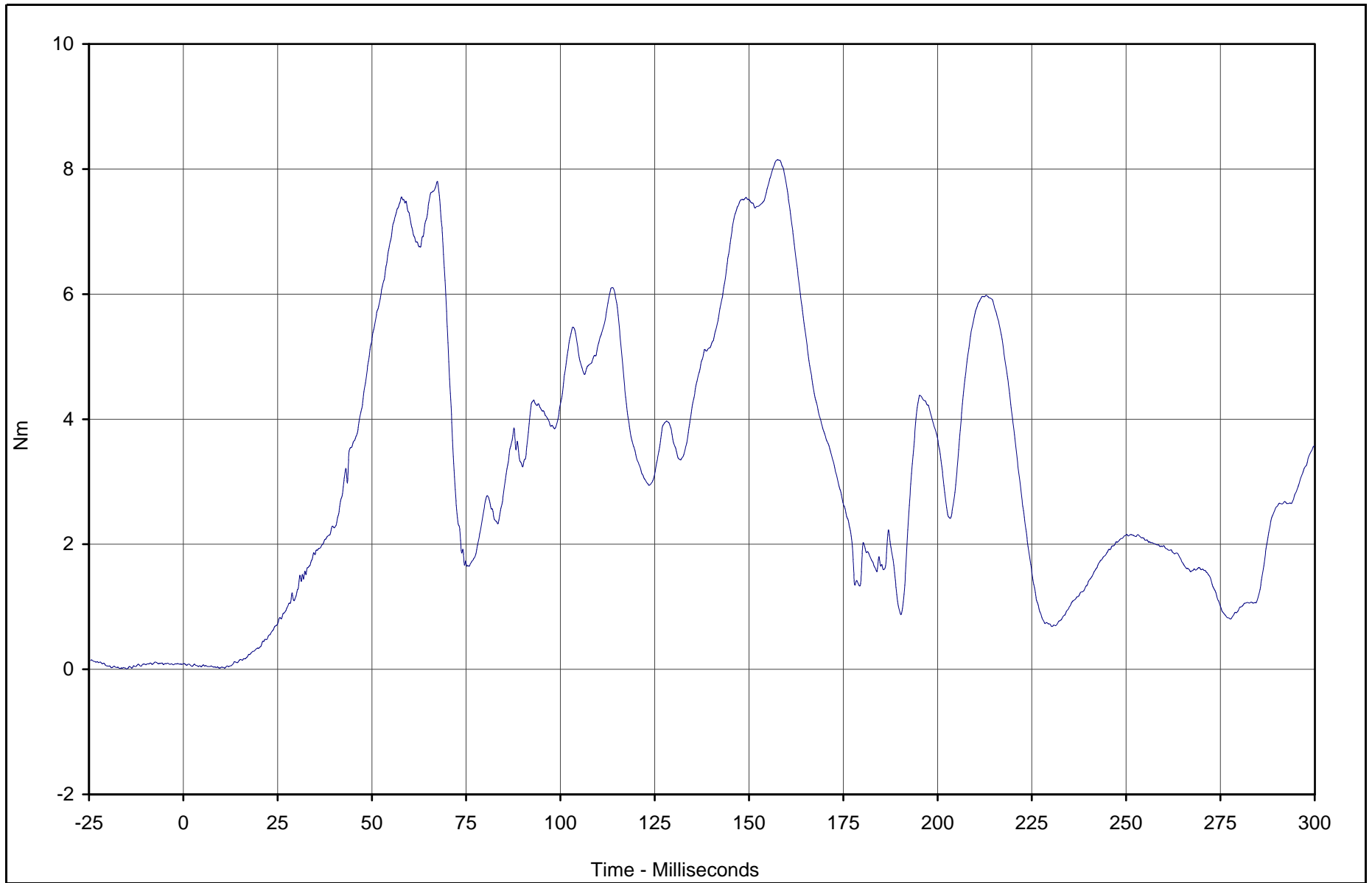
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-12



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Upper Neck Mom Res.	140	RES	Nm	8.1	157.6	0.0	11.0	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

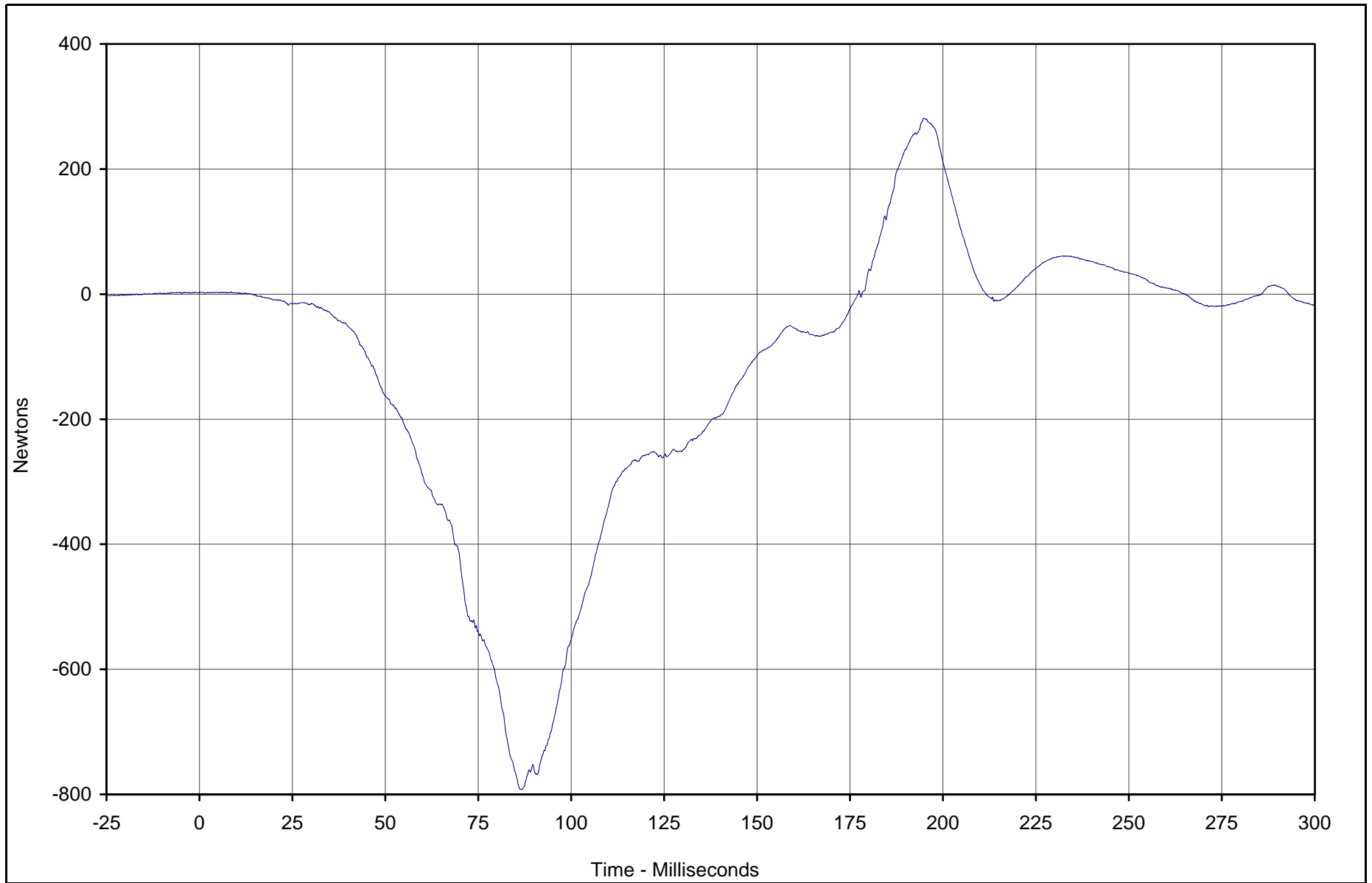
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-13



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Lower Neck Force X	143	FIL	Newtons	281.4	194.8	-792.6	86.6	1000



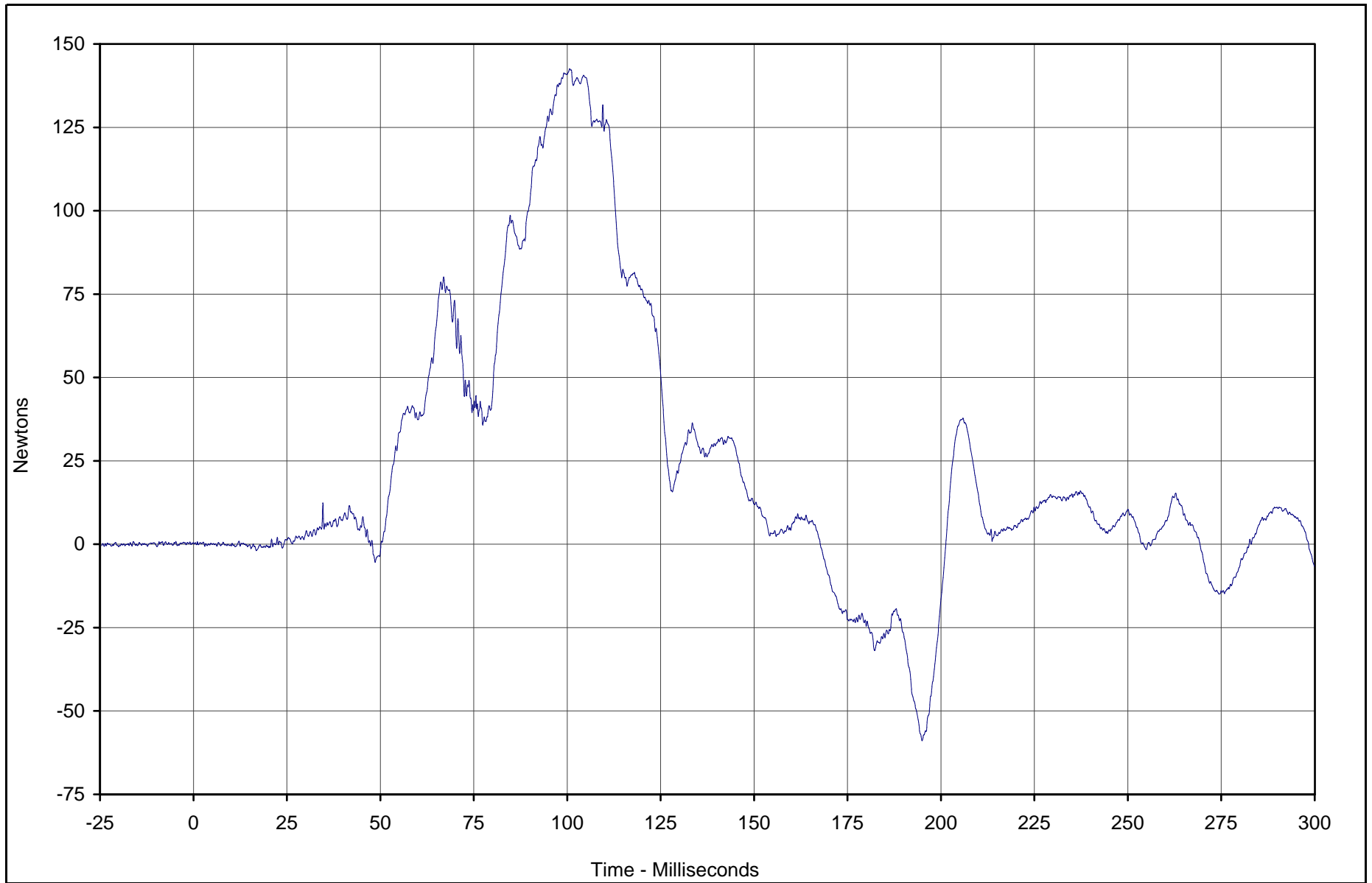
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Lower Neck Force Y	144	FIL	Newtons	142.6	100.7	-58.9	194.9	1000

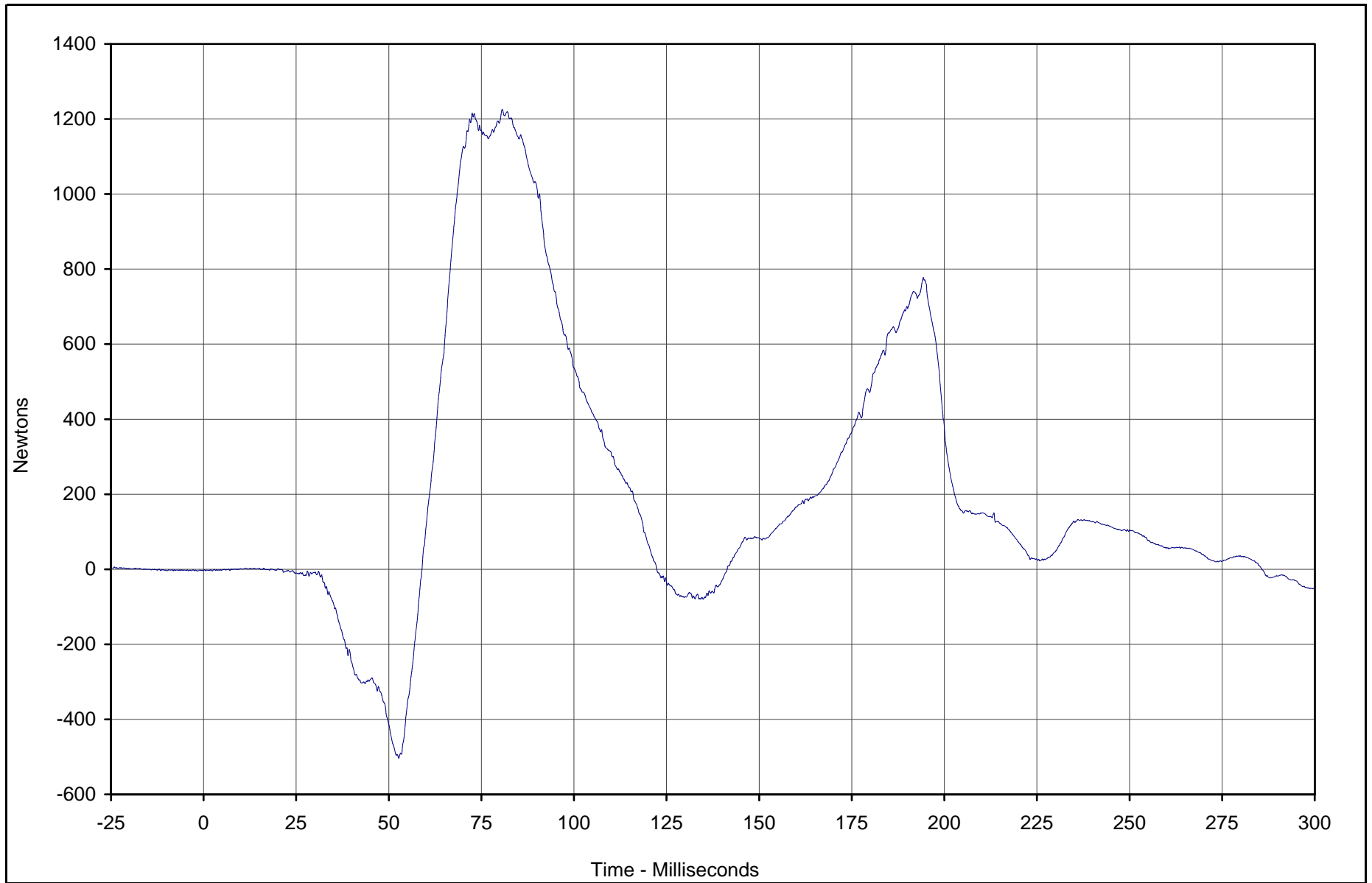


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Lower Neck Force Z	145	FIL	Newtons	1225.1	80.7	-503.9	52.7	1000

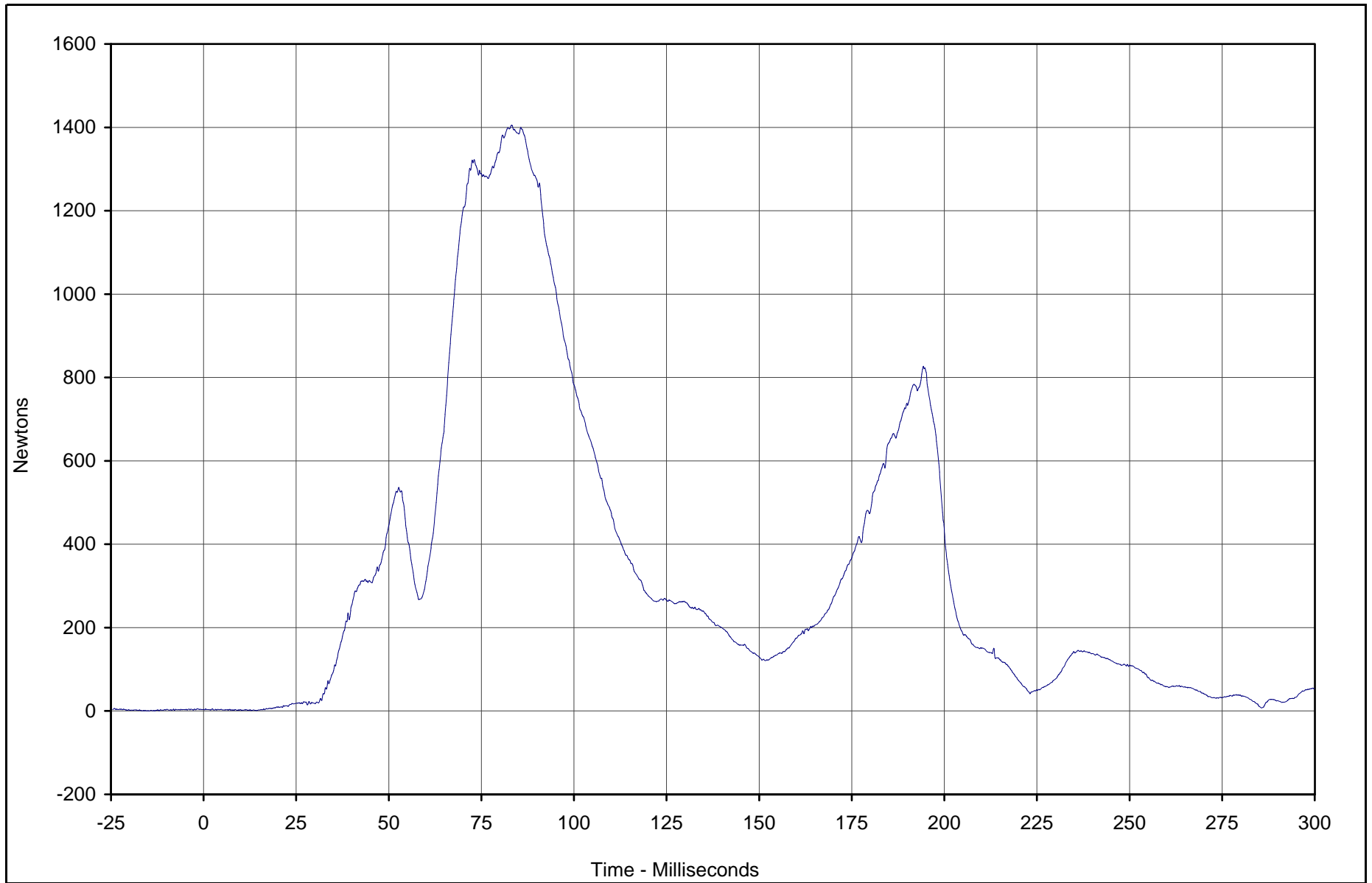


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Lower Neck Force Res.	143	RES	Newtons	1405.1	83.1	0.9	14.2	1000



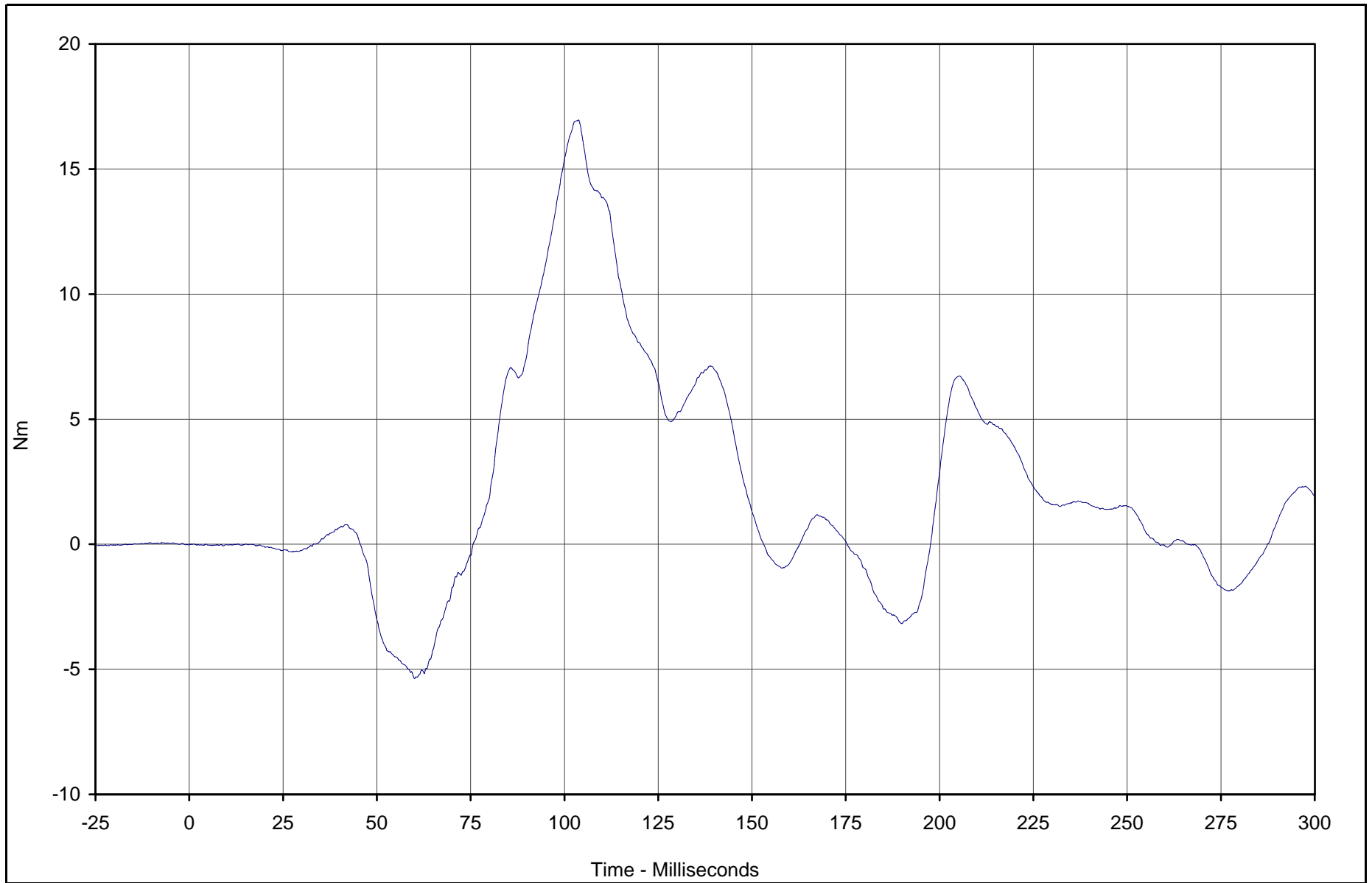
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-17



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Lower Neck Moment X	146	FIL	Nm	17.0	103.8	-5.4	60.0	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

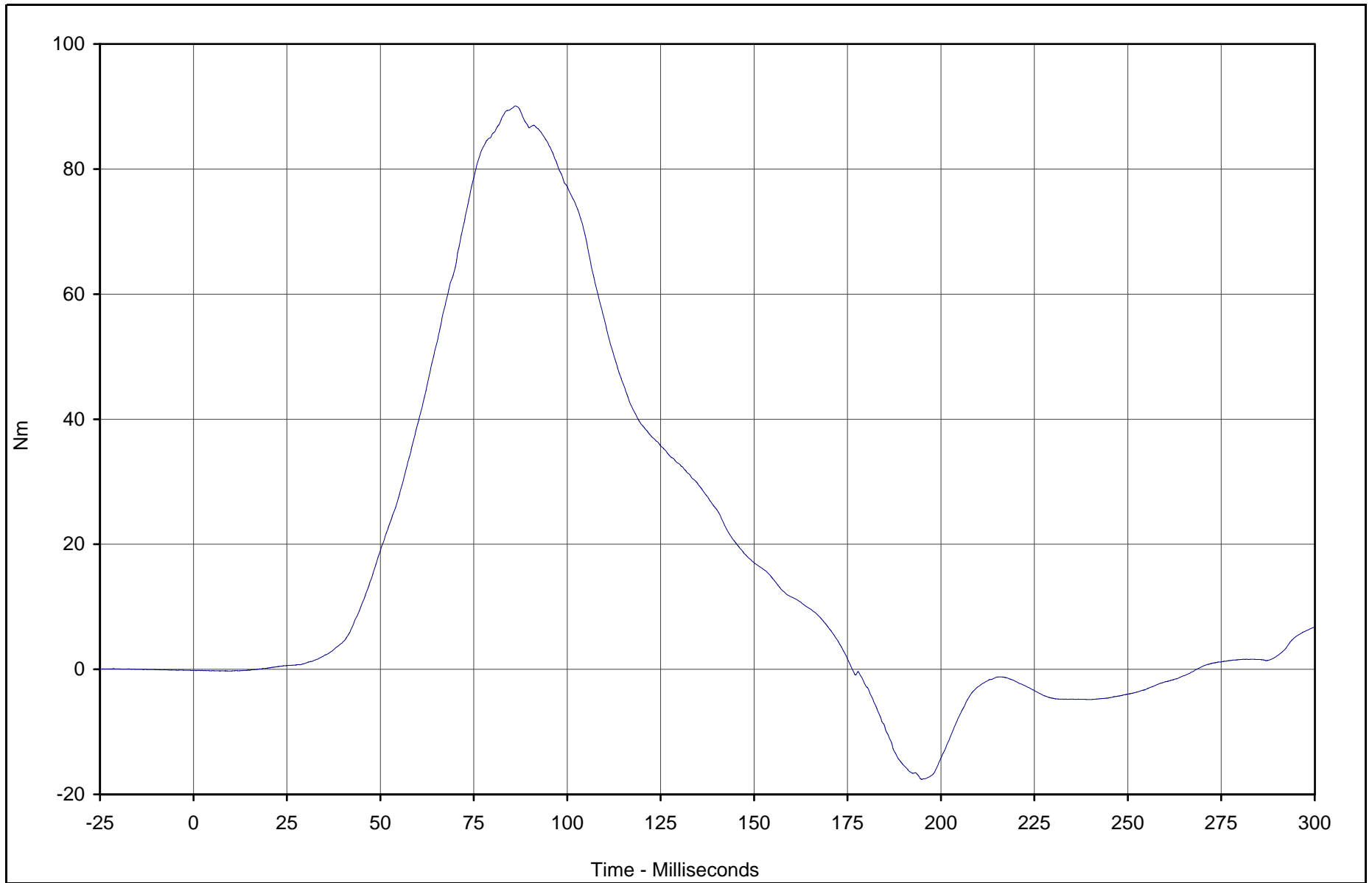
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-18



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Lower Neck Moment Y	147	FIL	Nm	90.1	86.1	-17.6	194.9	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

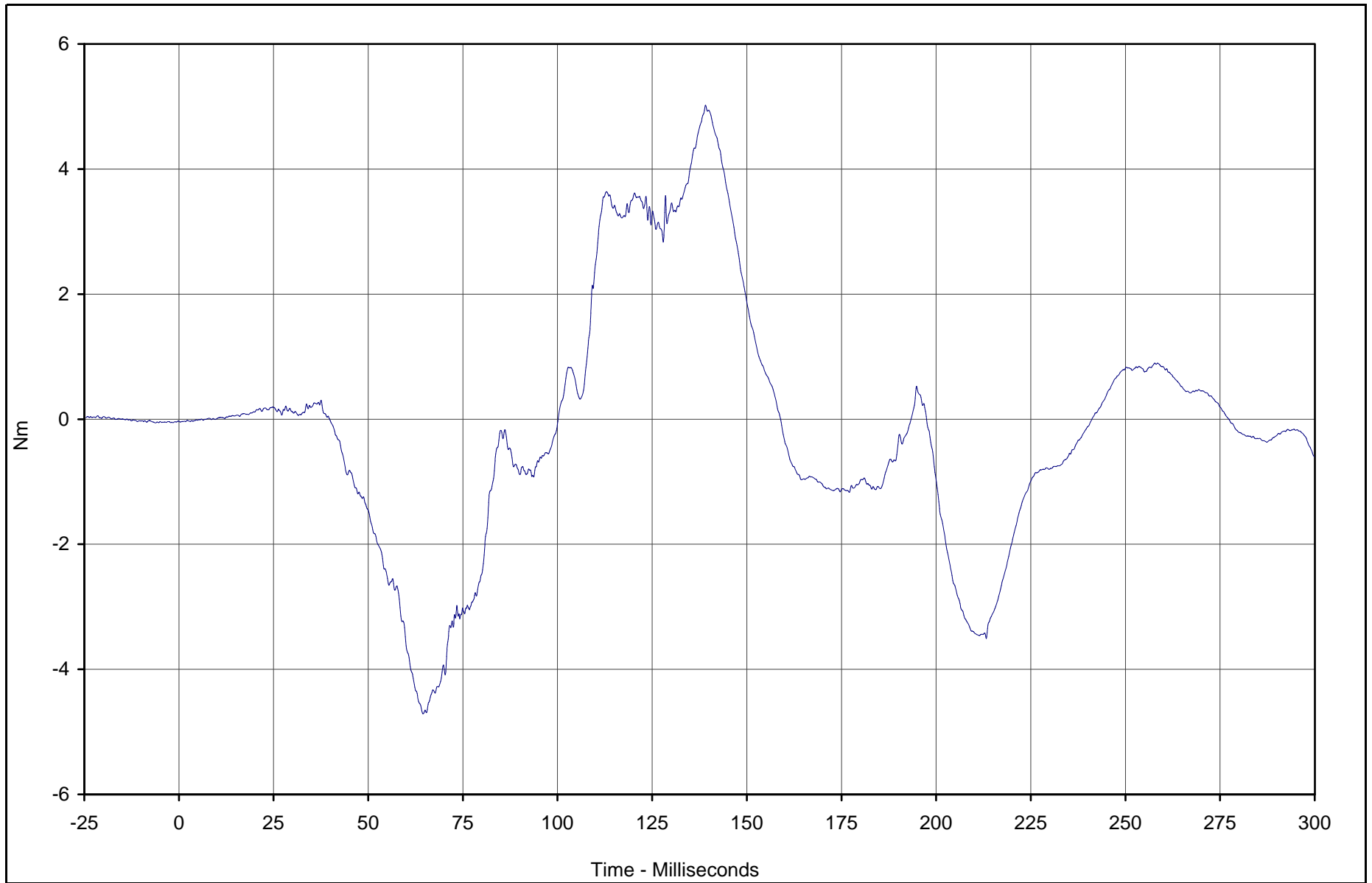
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-19



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Lower Neck Moment Z	148	FIL	Nm	5.0	139.1	-4.7	64.5	600



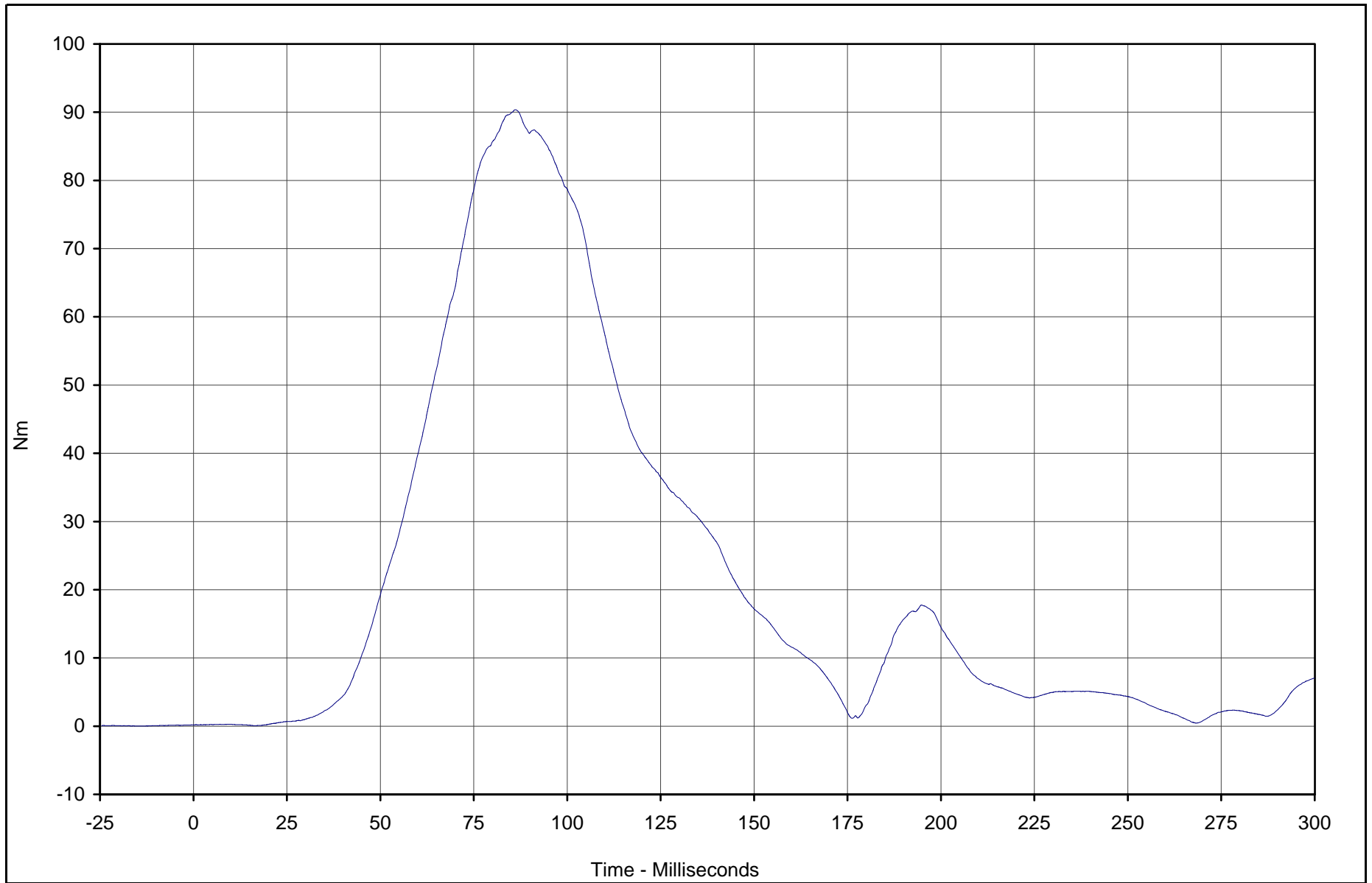
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Lower Neck Mom Res.	146	RES	Nm	90.4	86.1	0.1	16.1	600



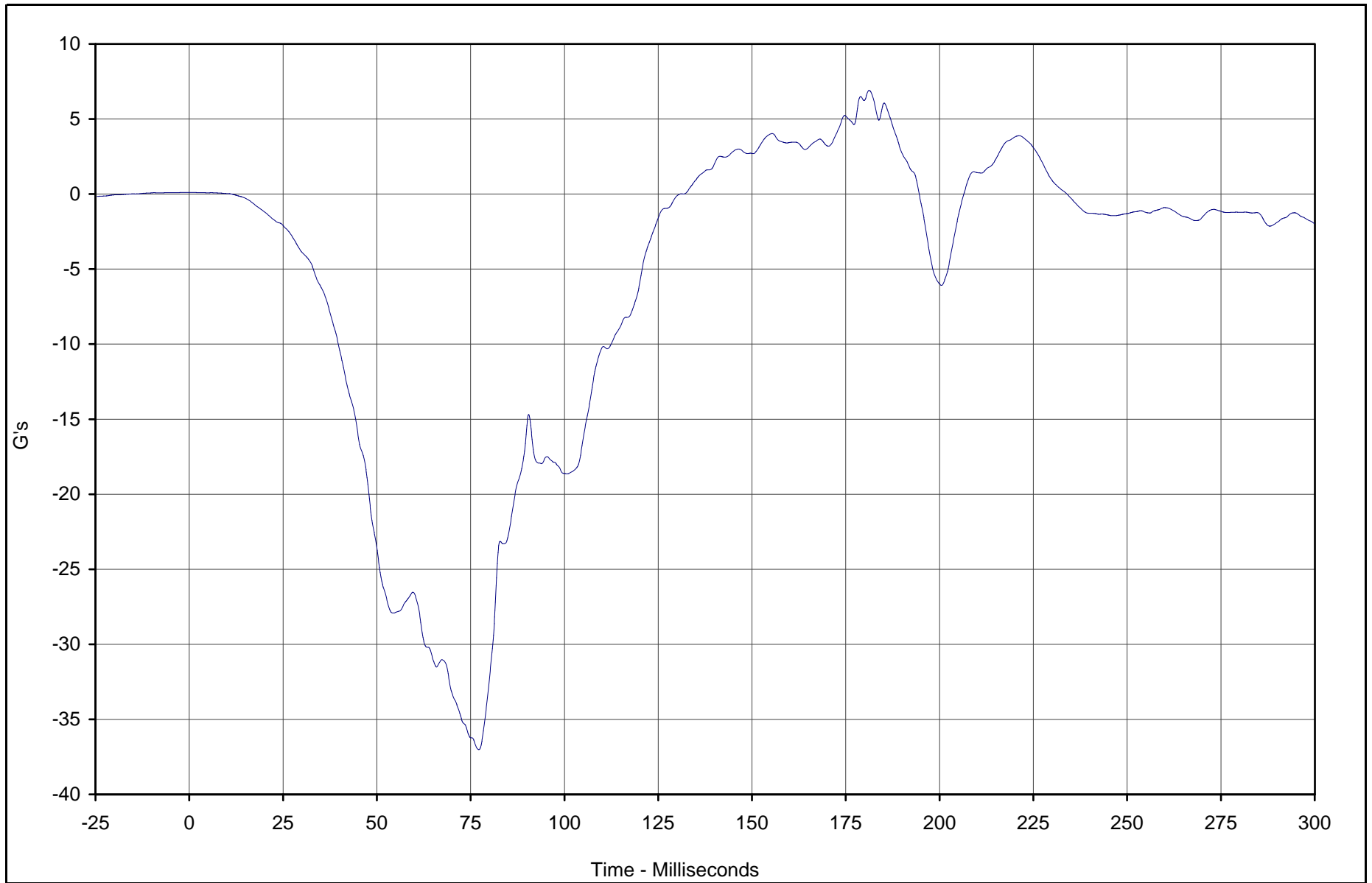
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-21



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Chest X	149	FIL	G's	6.9	181.2	-37.0	77.2	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

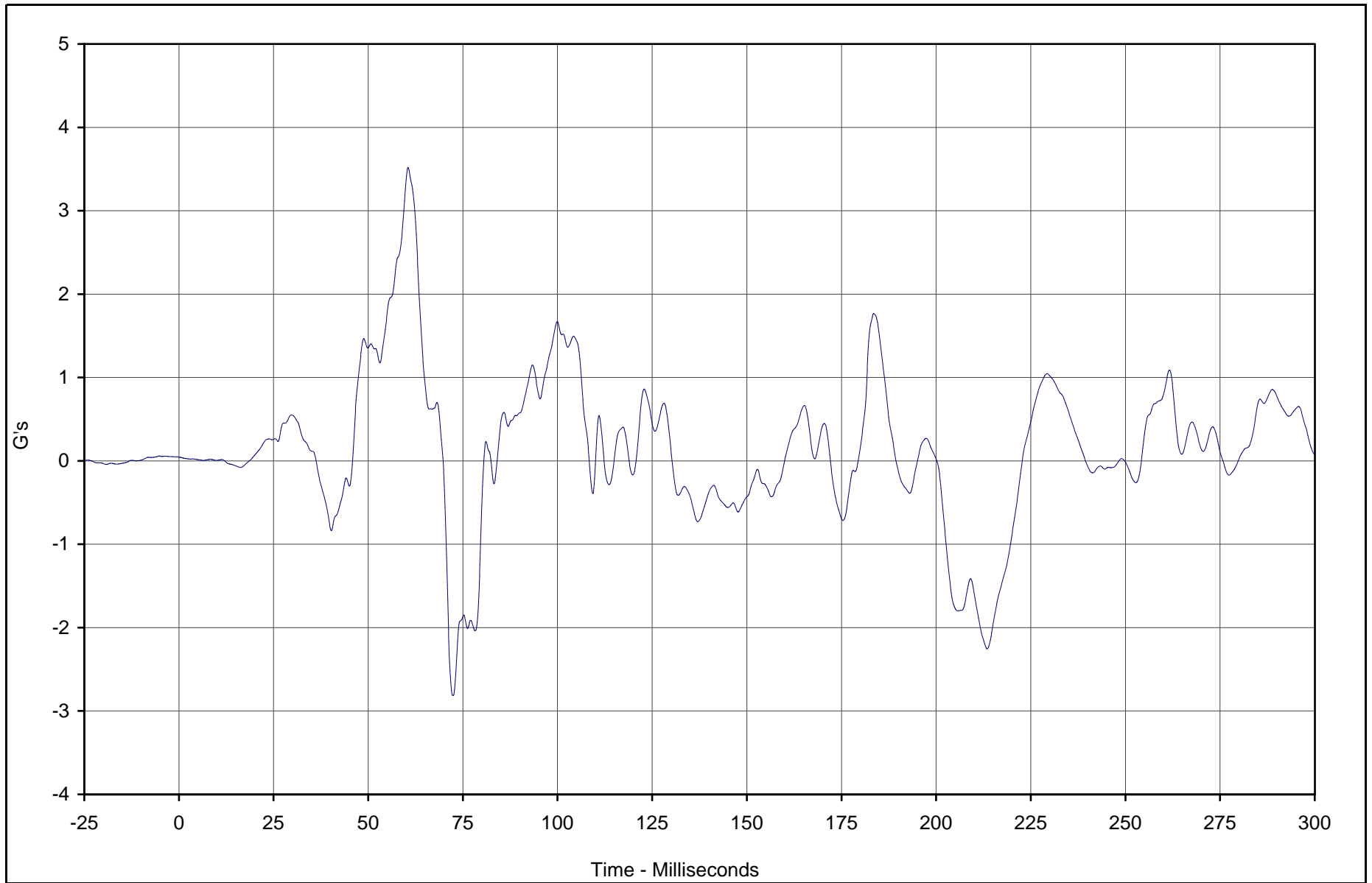
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-22



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Chest Y	150	FIL	G's	3.5	60.5	-2.8	72.4	180



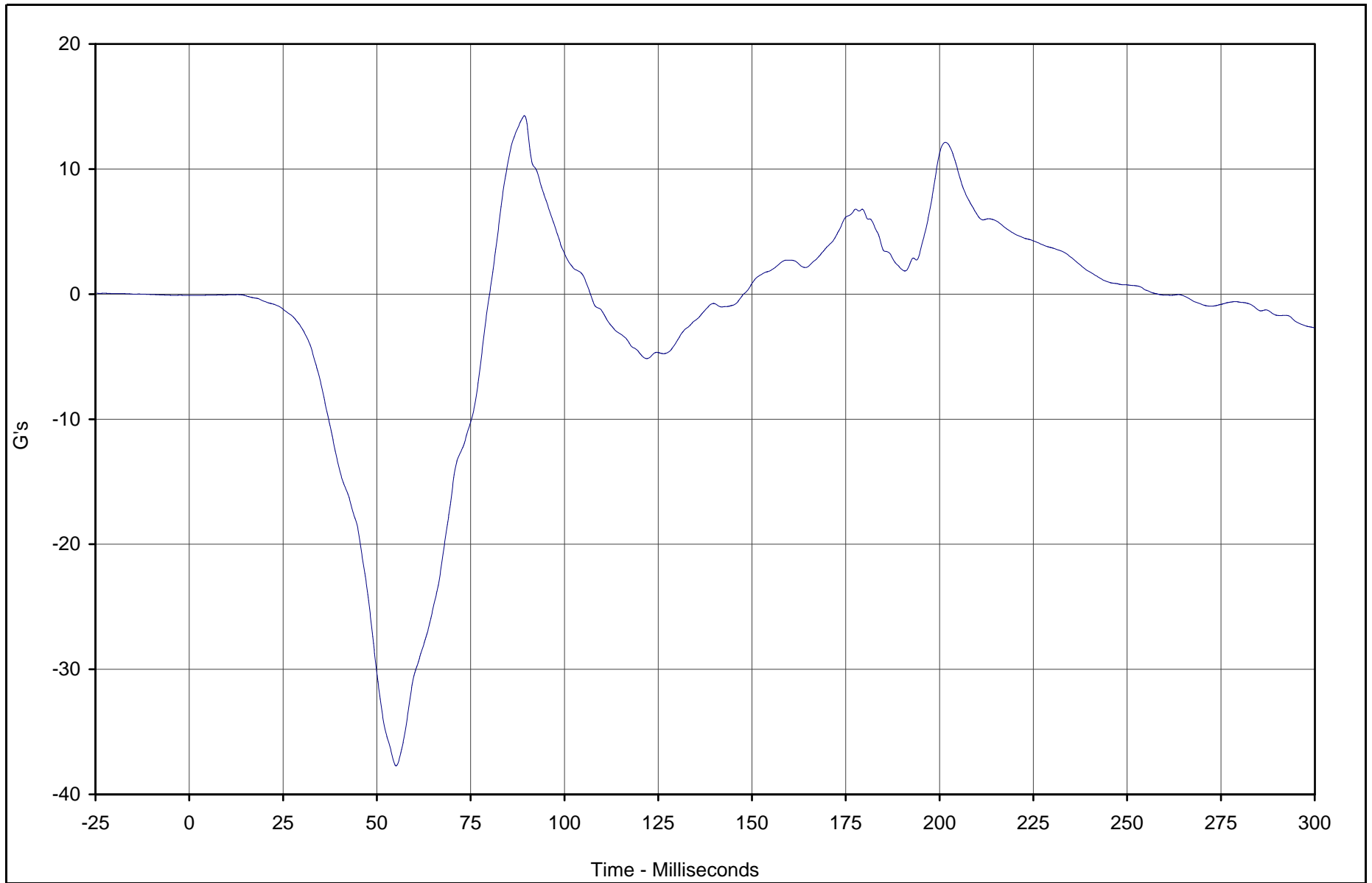
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-23



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Chest Z	151	FIL	G's	14.3	89.3	-37.7	55.1	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

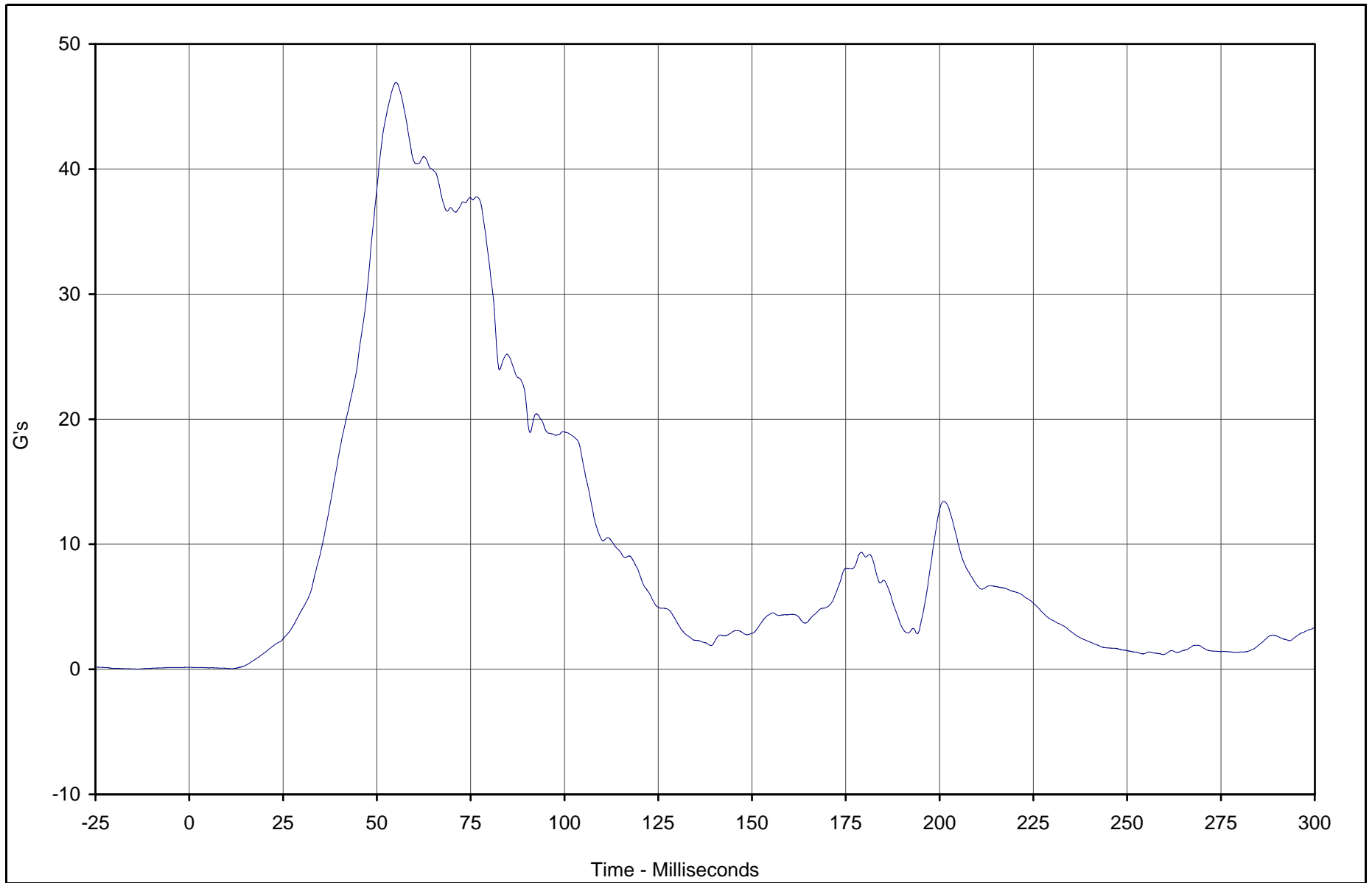
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-24



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Chest Resultant	149	RES	G's	46.9	55.1	0.1	11.2	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

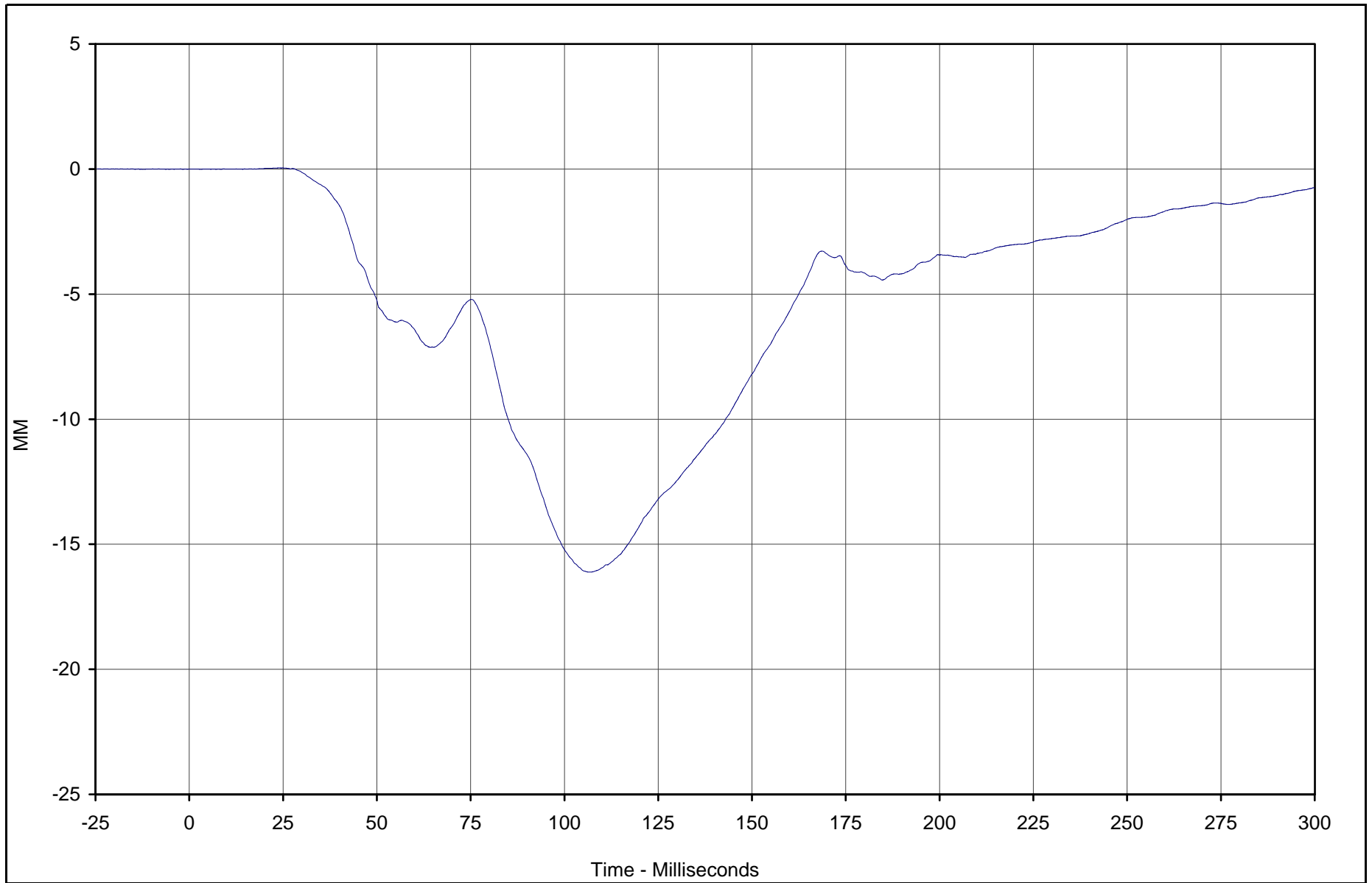
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-25



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Chest Deflection	152	FIL	MM	0.0	24.9	-16.1	107.0	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

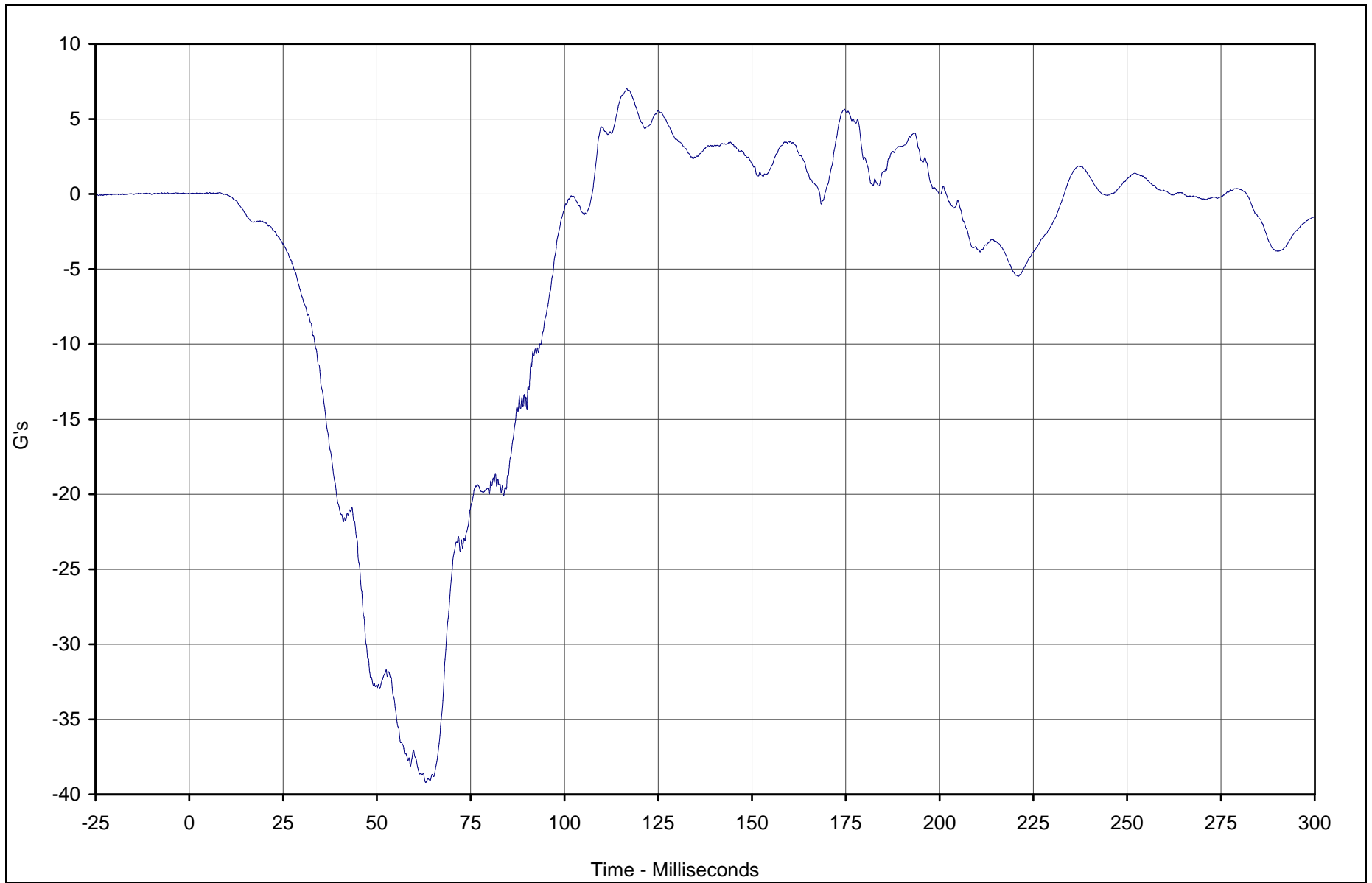
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-26



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Pelvis X	153	FIL	G's	7.1	116.6	-39.2	63.0	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

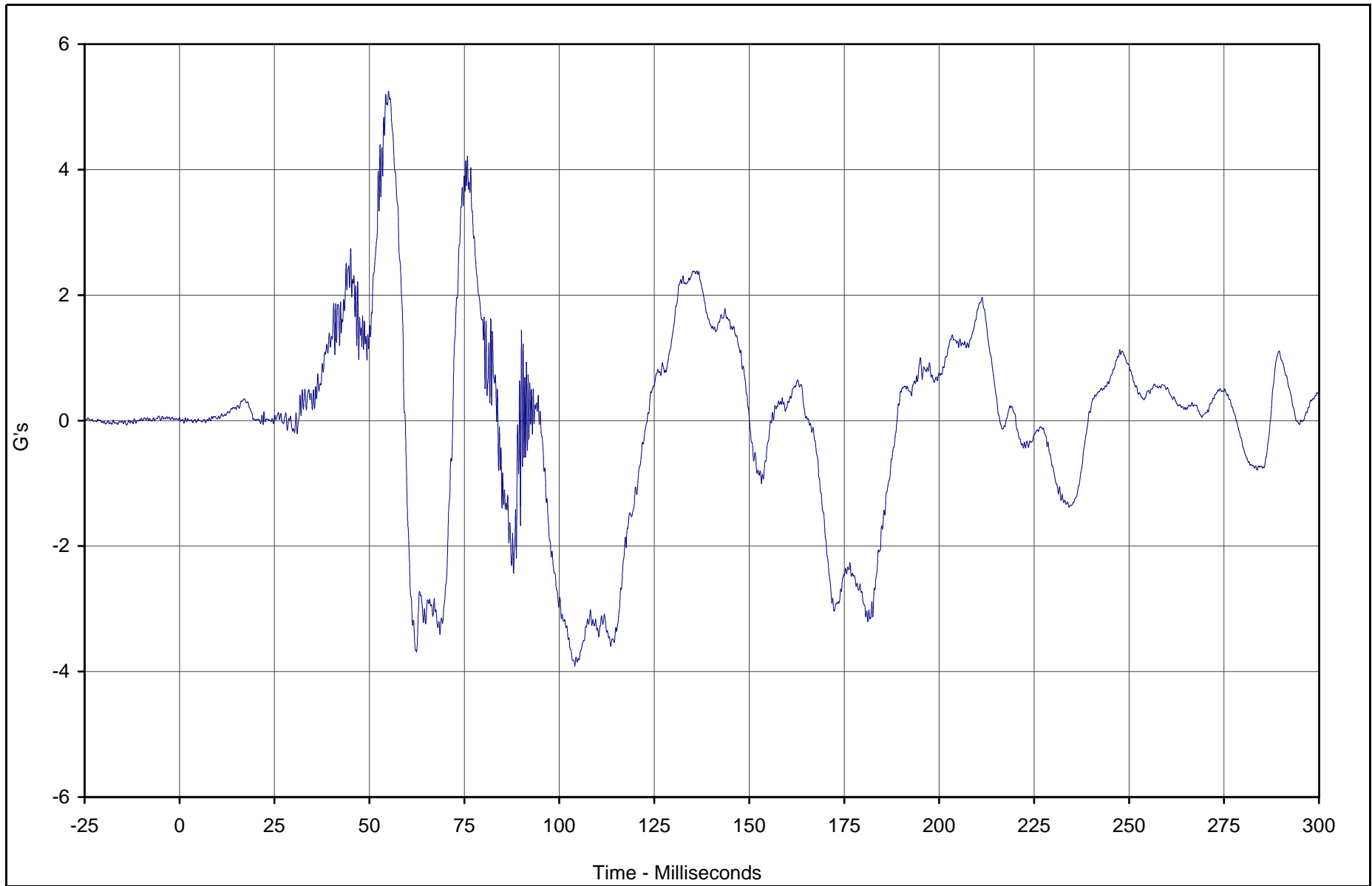
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-27



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Pelvis Y	154	FIL	G's	5.3	55.1	-3.9	104.1	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

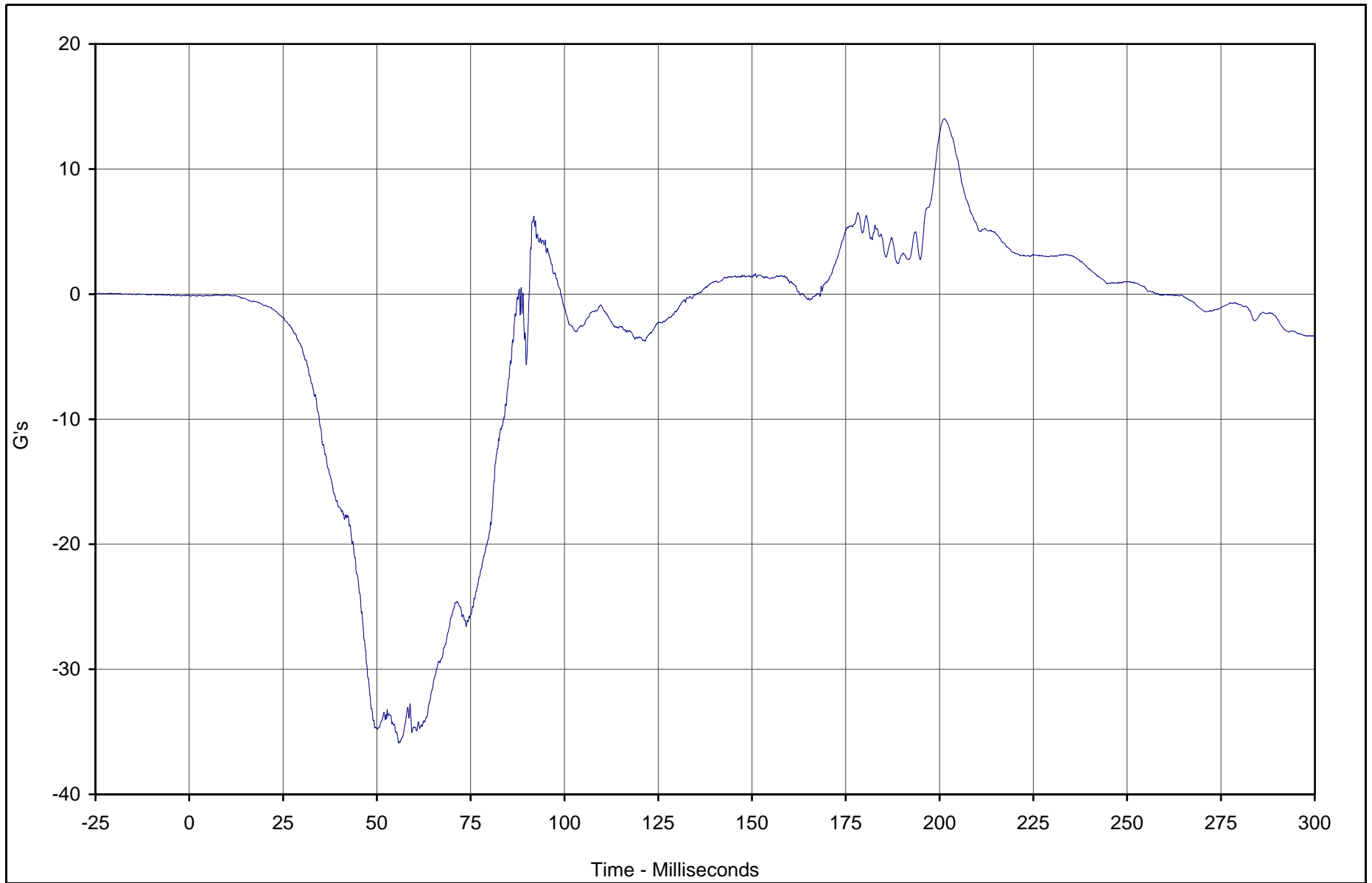
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-28



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Pelvis Z	155	FIL	G's	14.0	201.3	-35.9	55.8	1000



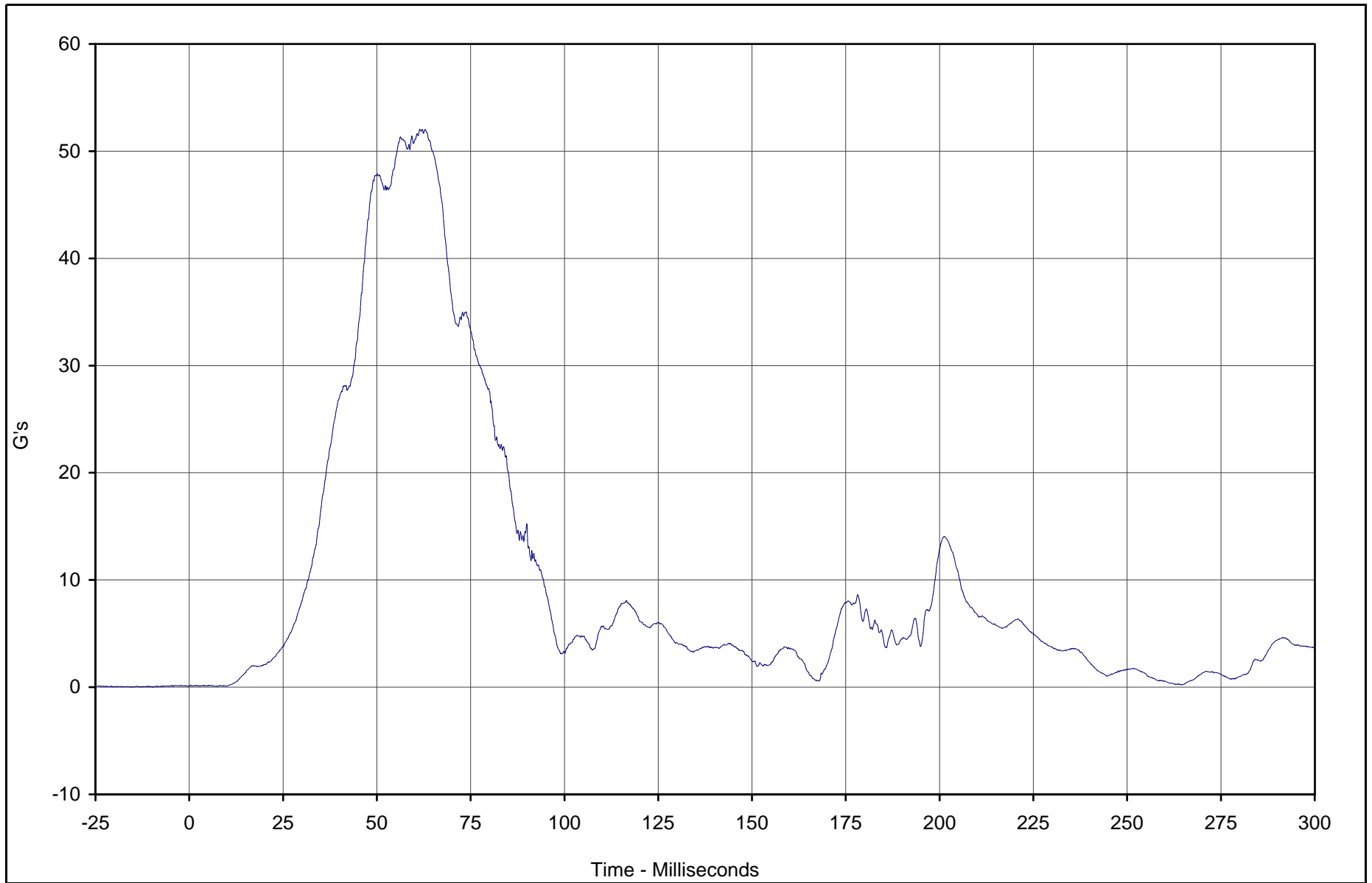
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Pelvis Resultant	153	RES	G's	52.0	61.4	0.1	7.4	1000

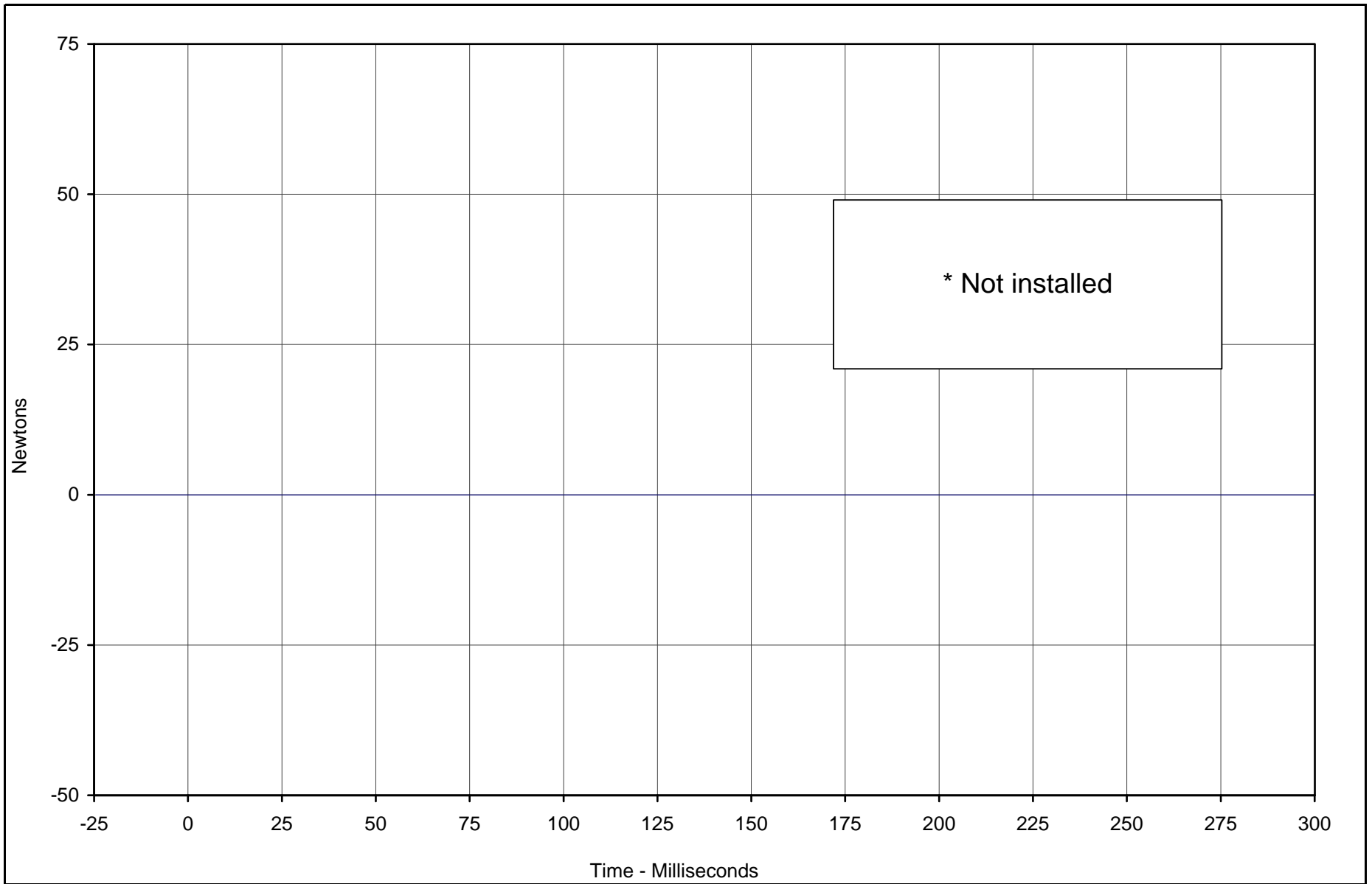


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



* Not installed

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Seat Tether Load	156	FIL	Newtons	0.0	0.0	0.0	0.0	60



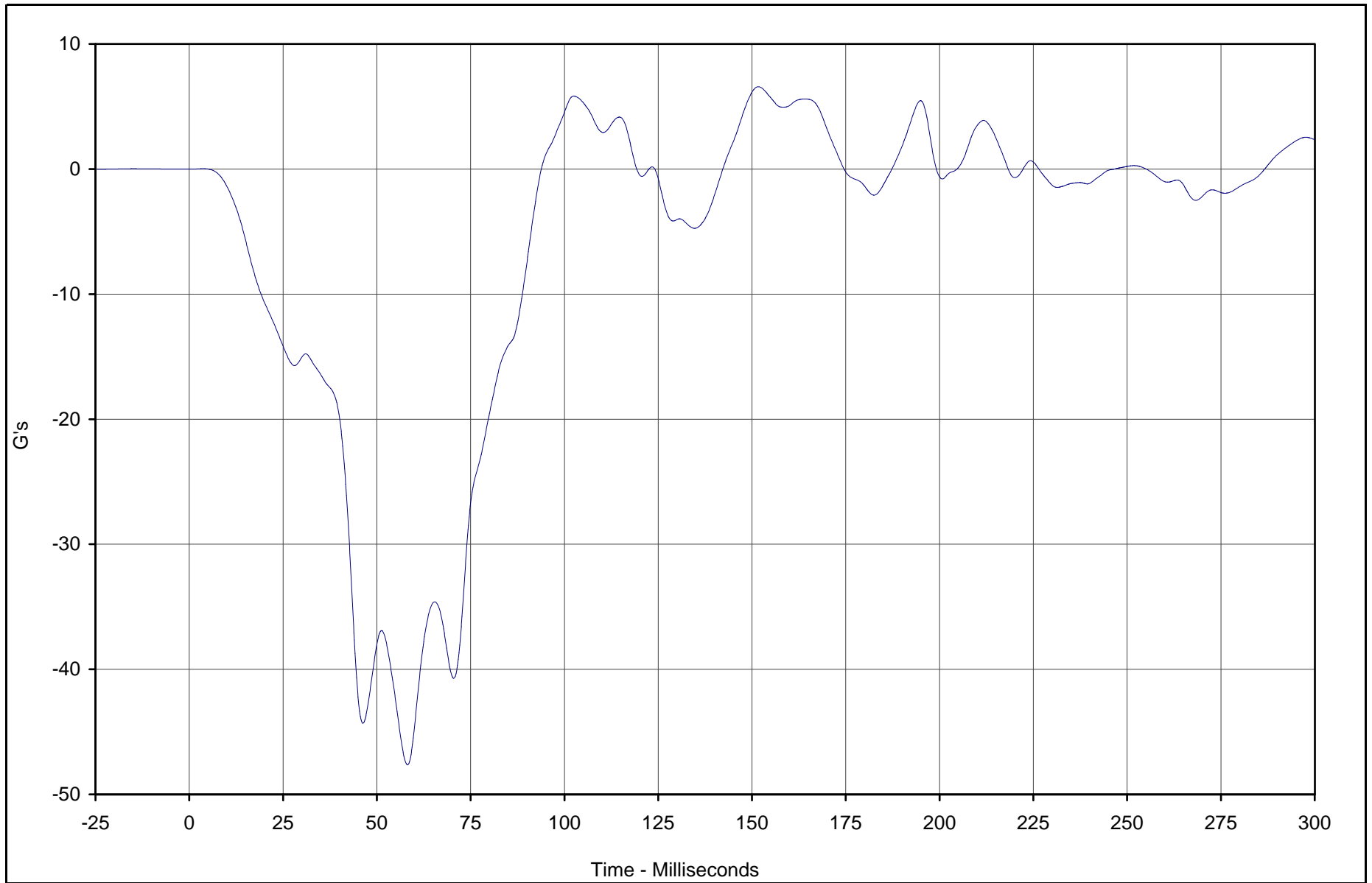
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-31



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Car Seat X	157	FIL	G's	6.6	151.7	-47.6	58.2	60



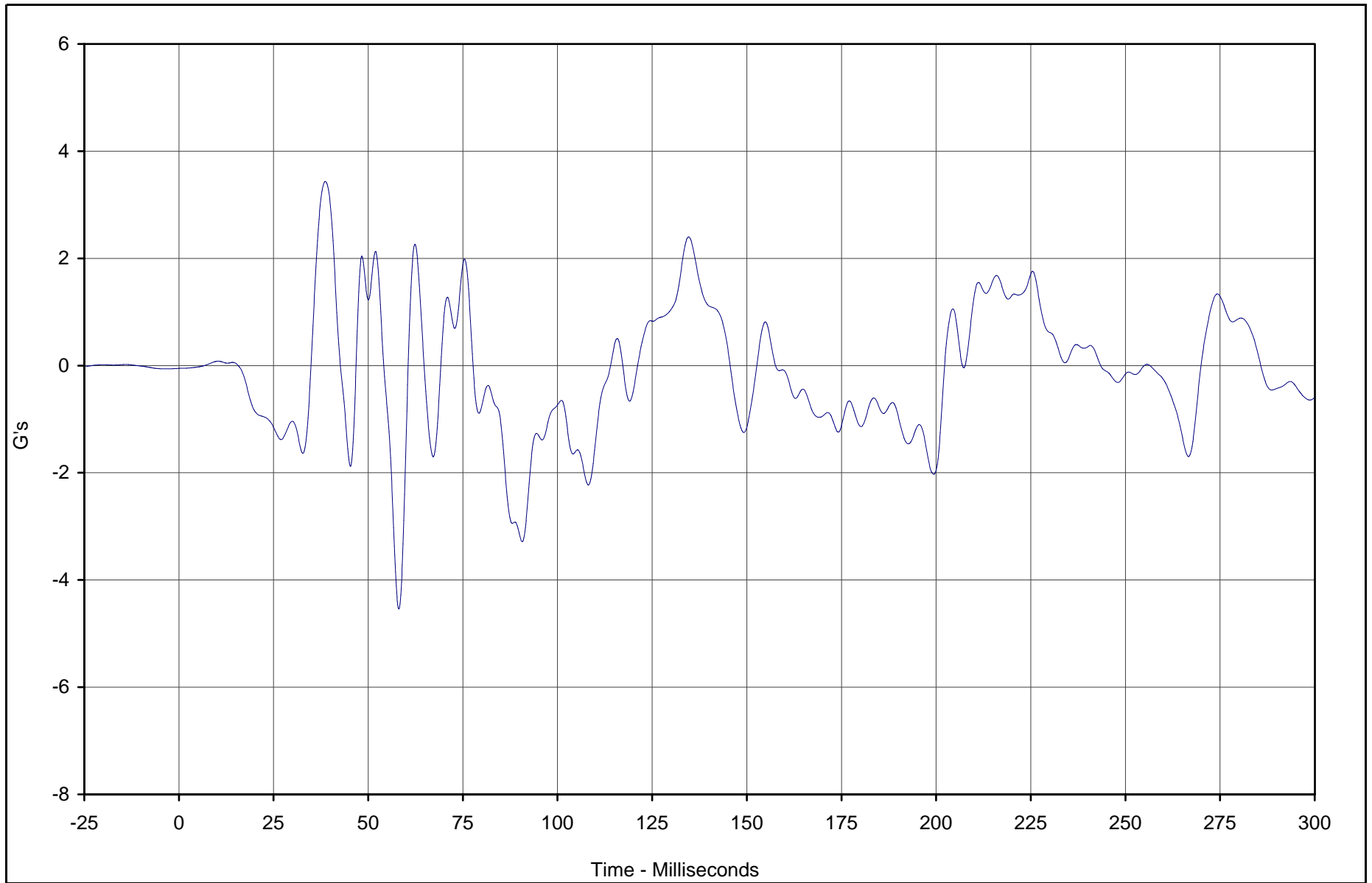
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Car Seat Y	158	FIL	G's	3.4	38.7	-4.5	58.1	60

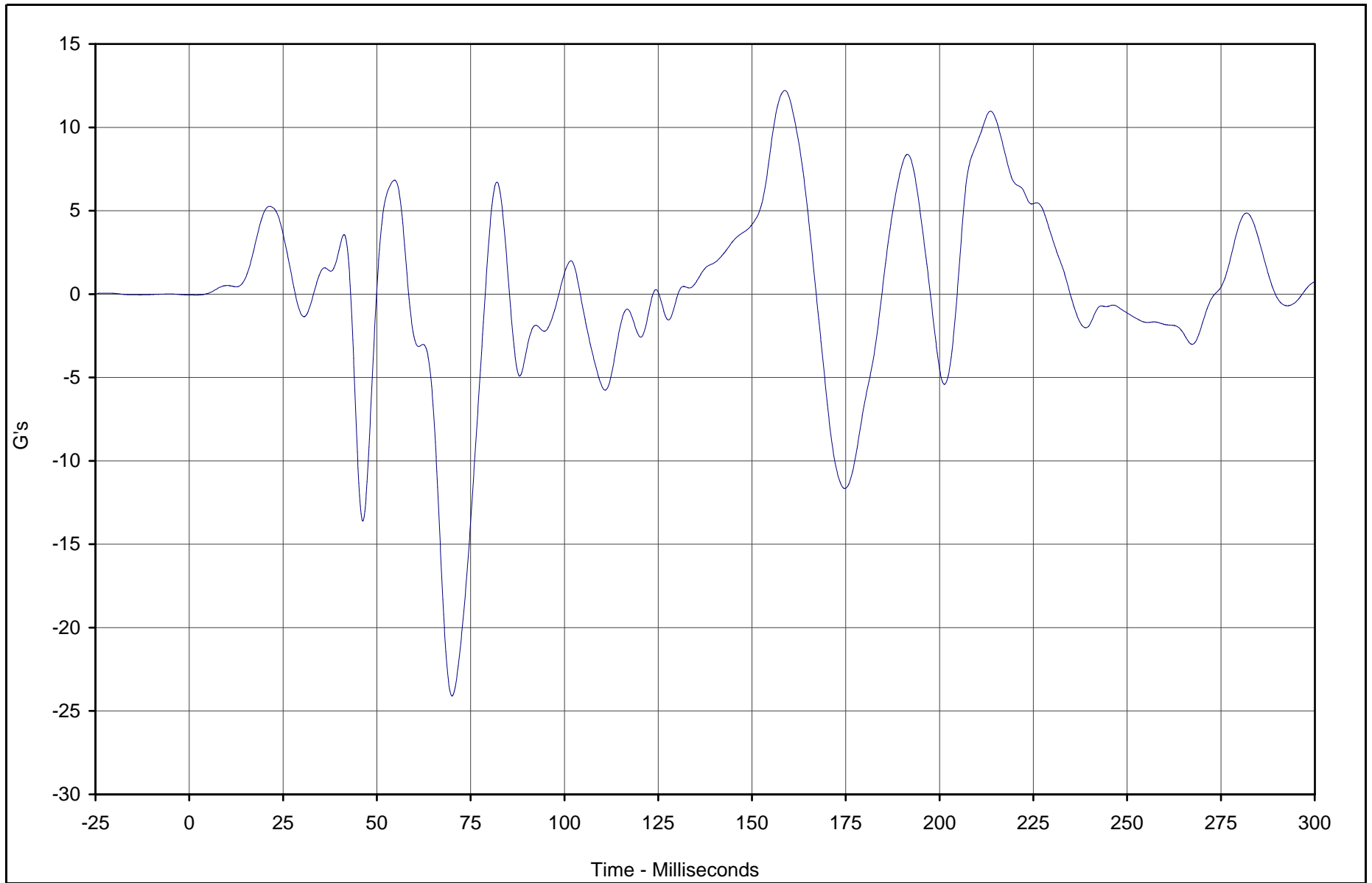


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Car Seat Z	159	FIL	G's	12.2	158.8	-24.1	70.1	60



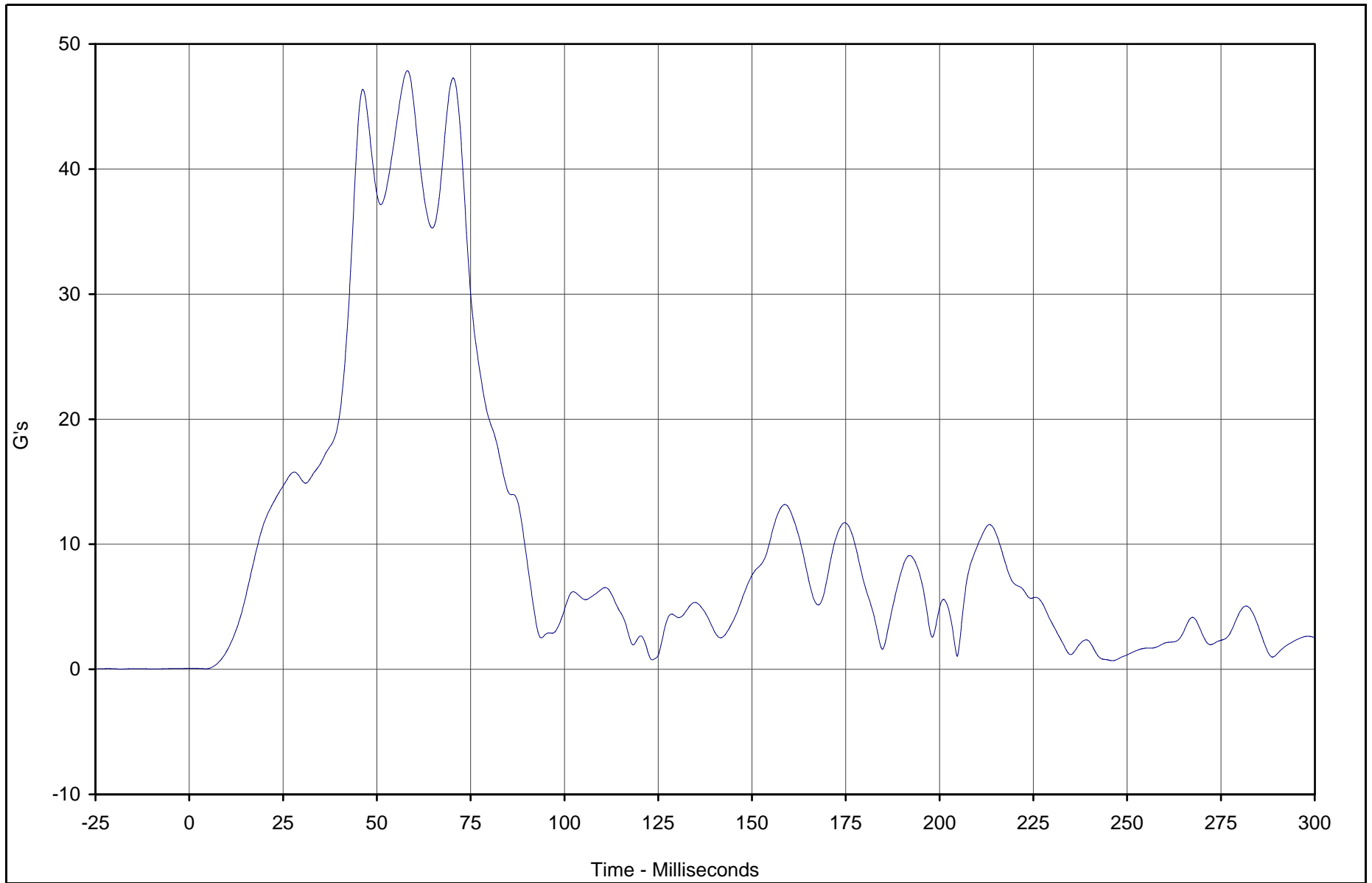
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-34



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear (3 Yr.) Car Seat Resultant	157	RES	G's	47.9	58.1	0.0	4.5	60



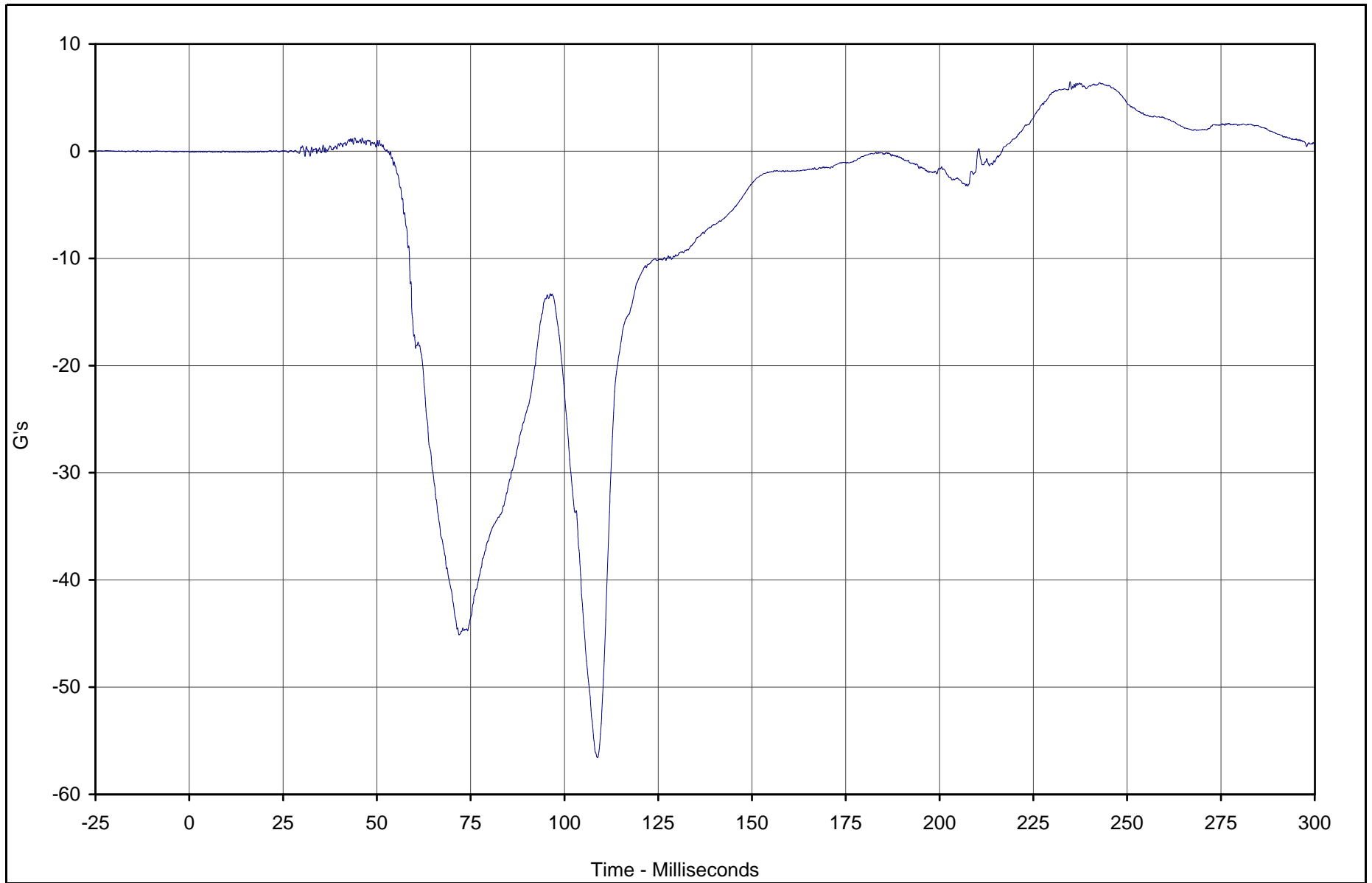
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Head X	160	FIL	G's	6.5	234.8	-56.6	108.8	1000

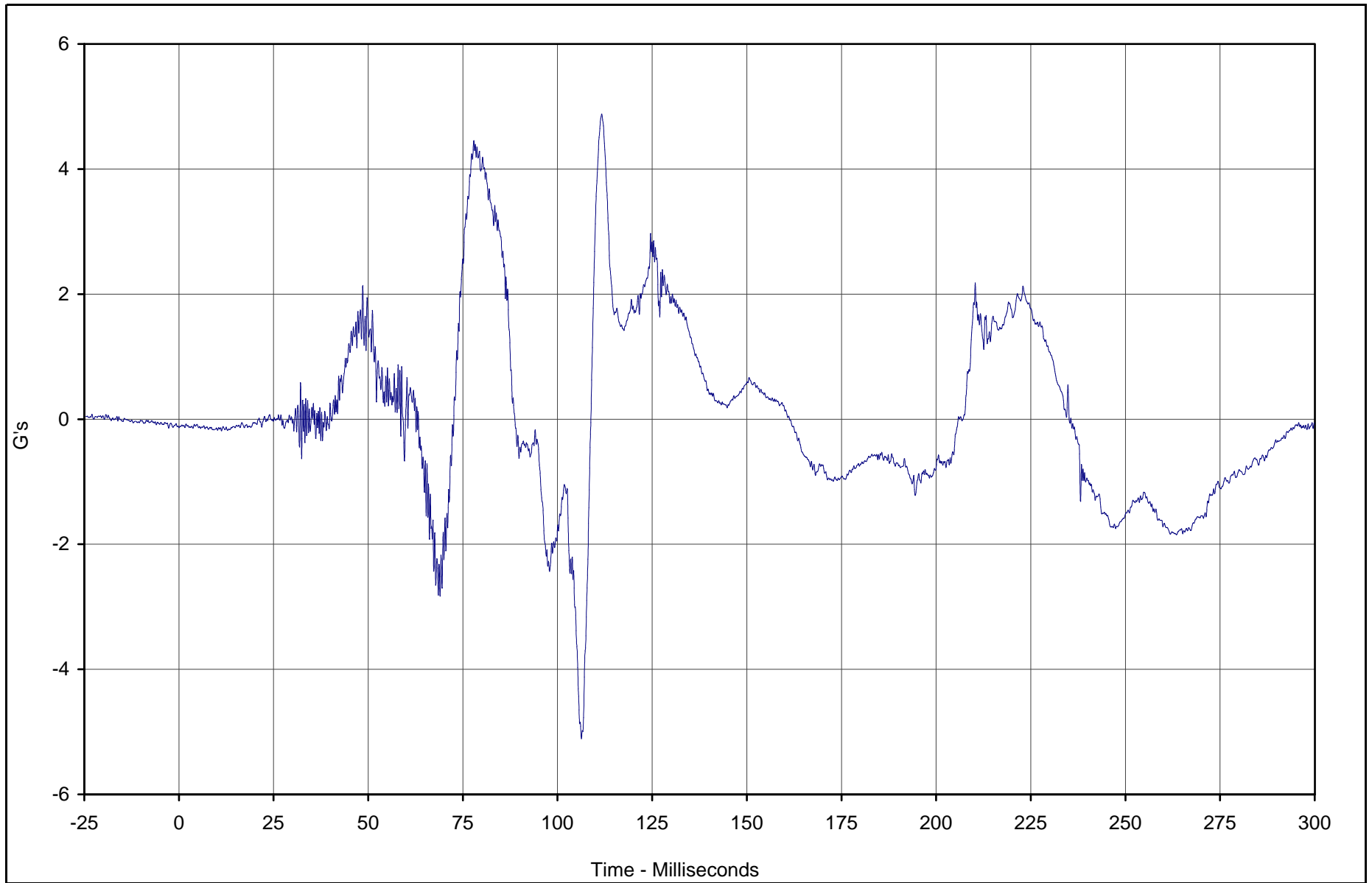


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Head Y	161	FIL	G's	4.9	111.7	-5.1	106.3	1000

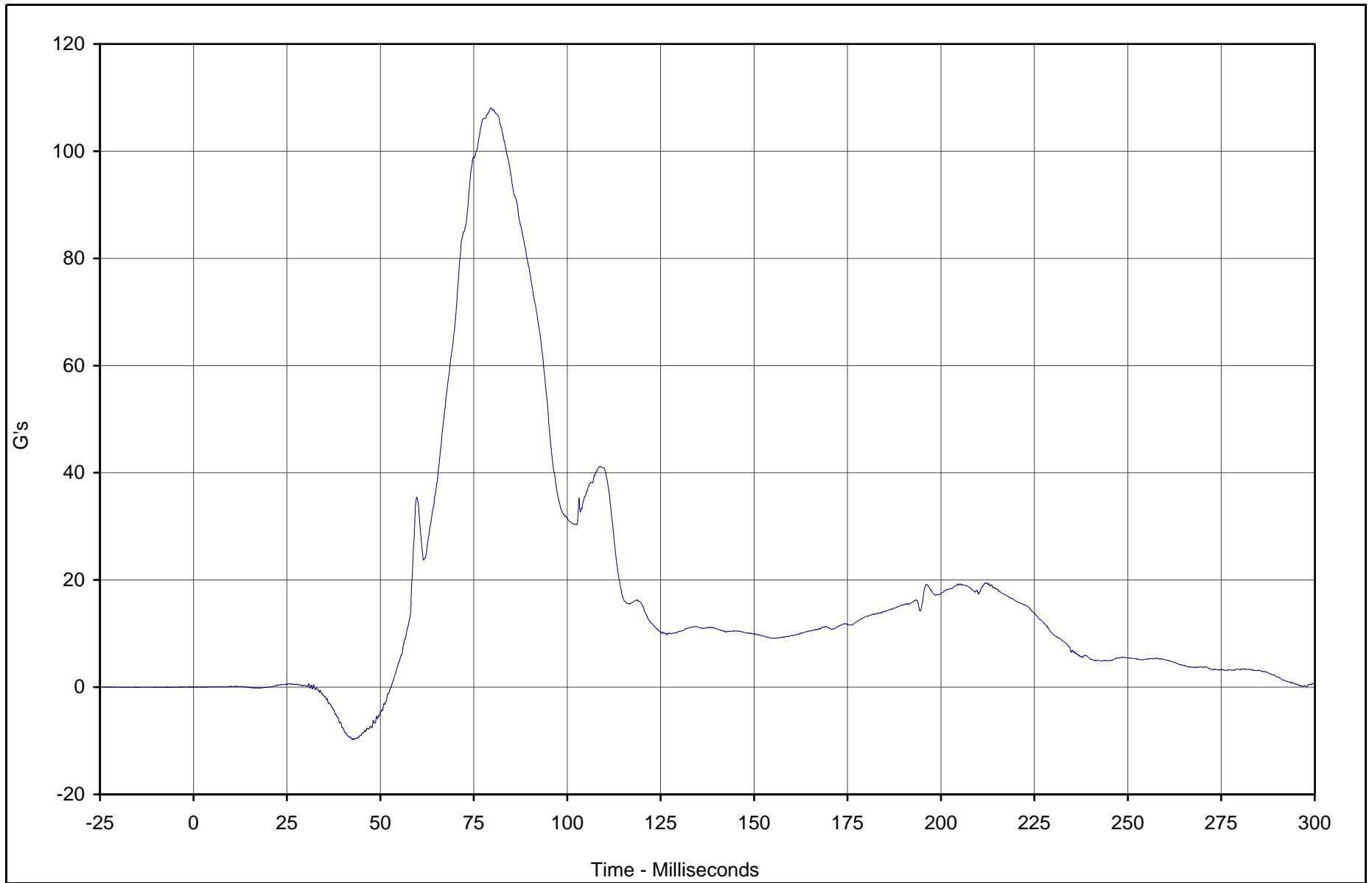


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Head Z	162	FIL	G's	108.1	79.6	-9.8	42.9	1000

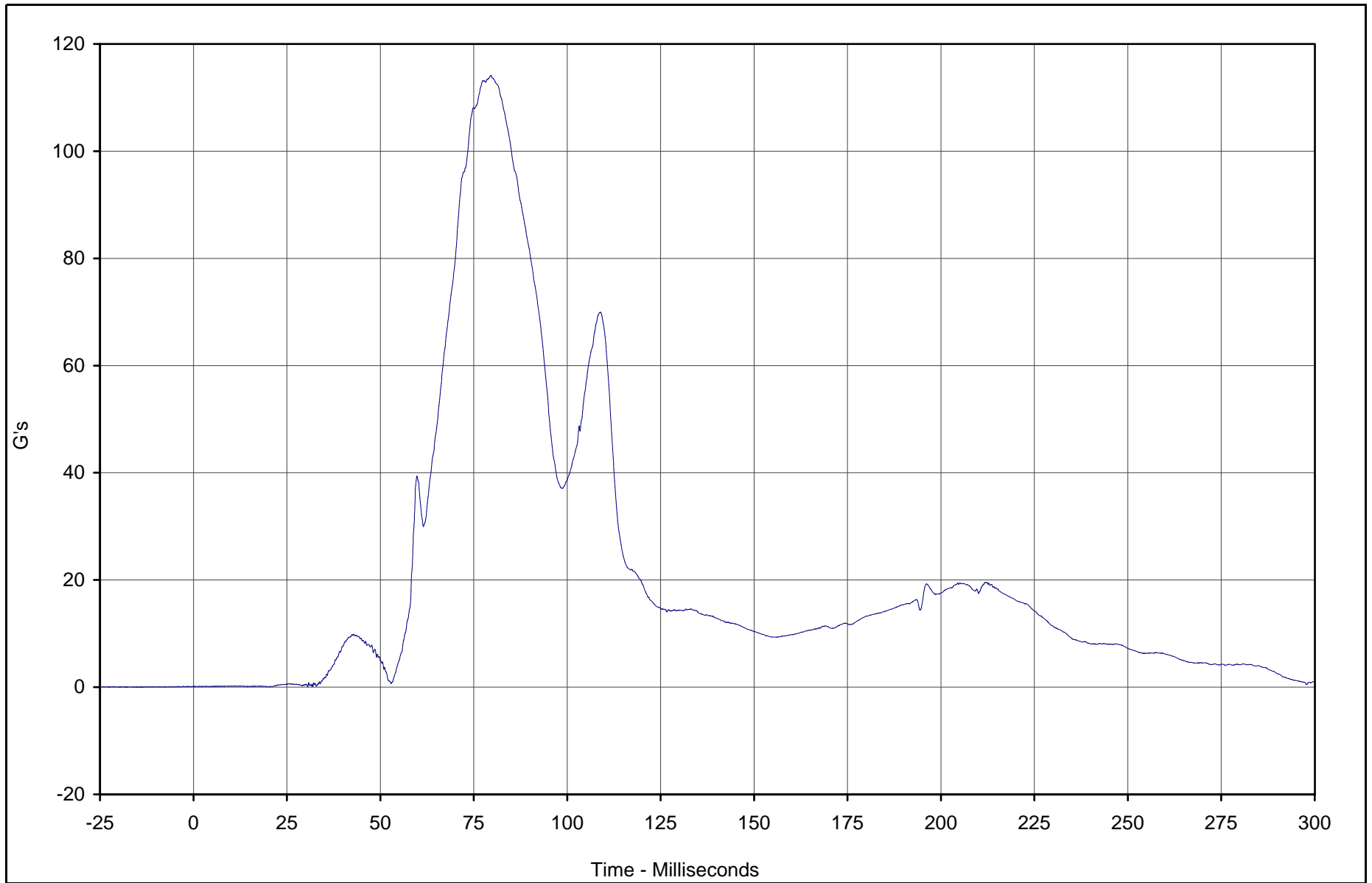


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Head Resultant	160	RES	G's	114.1	79.6	0.1	20.1	1000

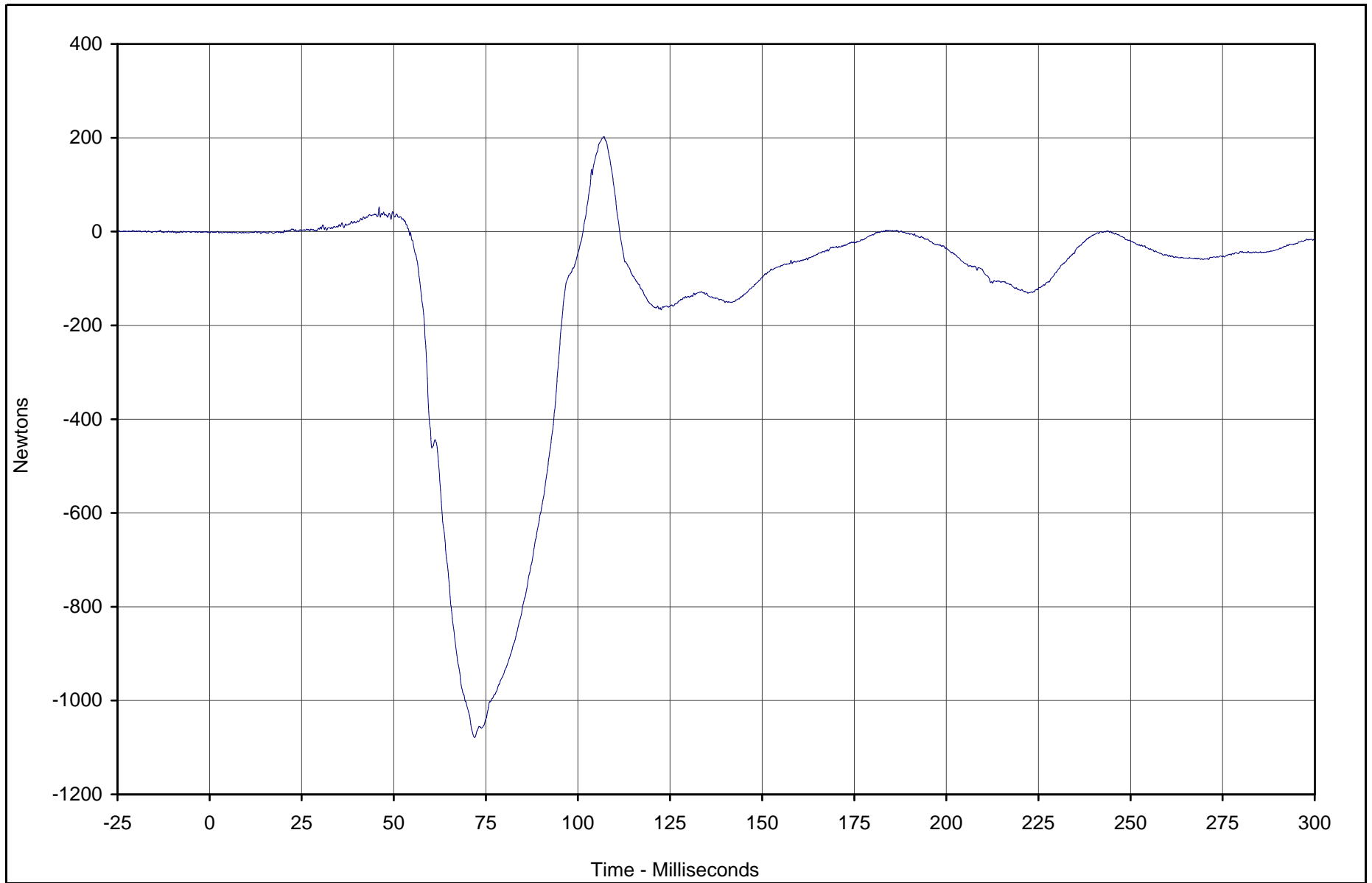


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Upper Neck Force X	163	FIL	Newtons	202.3	107.0	-1078.8	71.9	1000



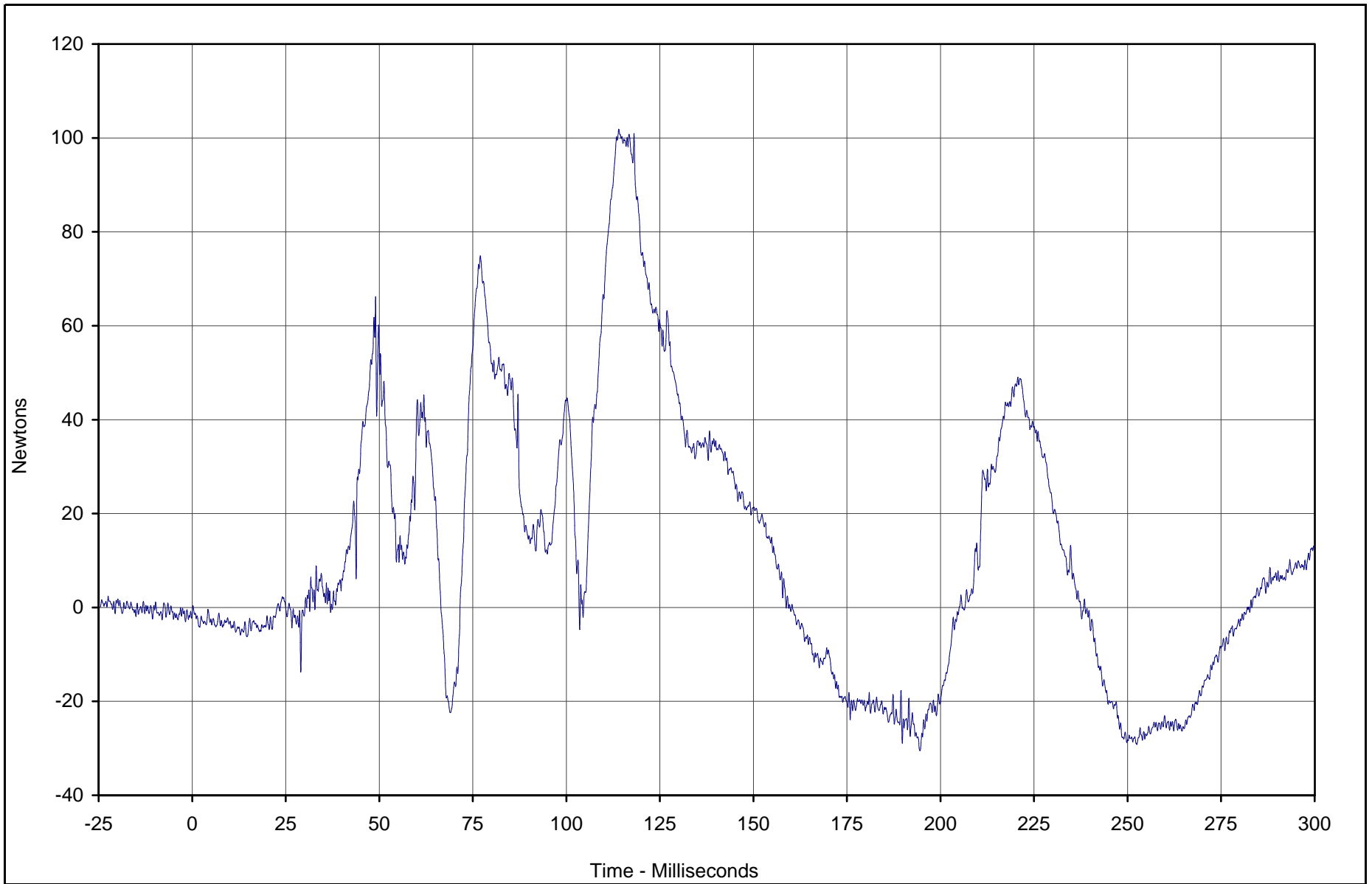
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-40



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Upper Neck Force Y	164	FIL	Newtons	101.9	114.0	-30.5	194.5	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

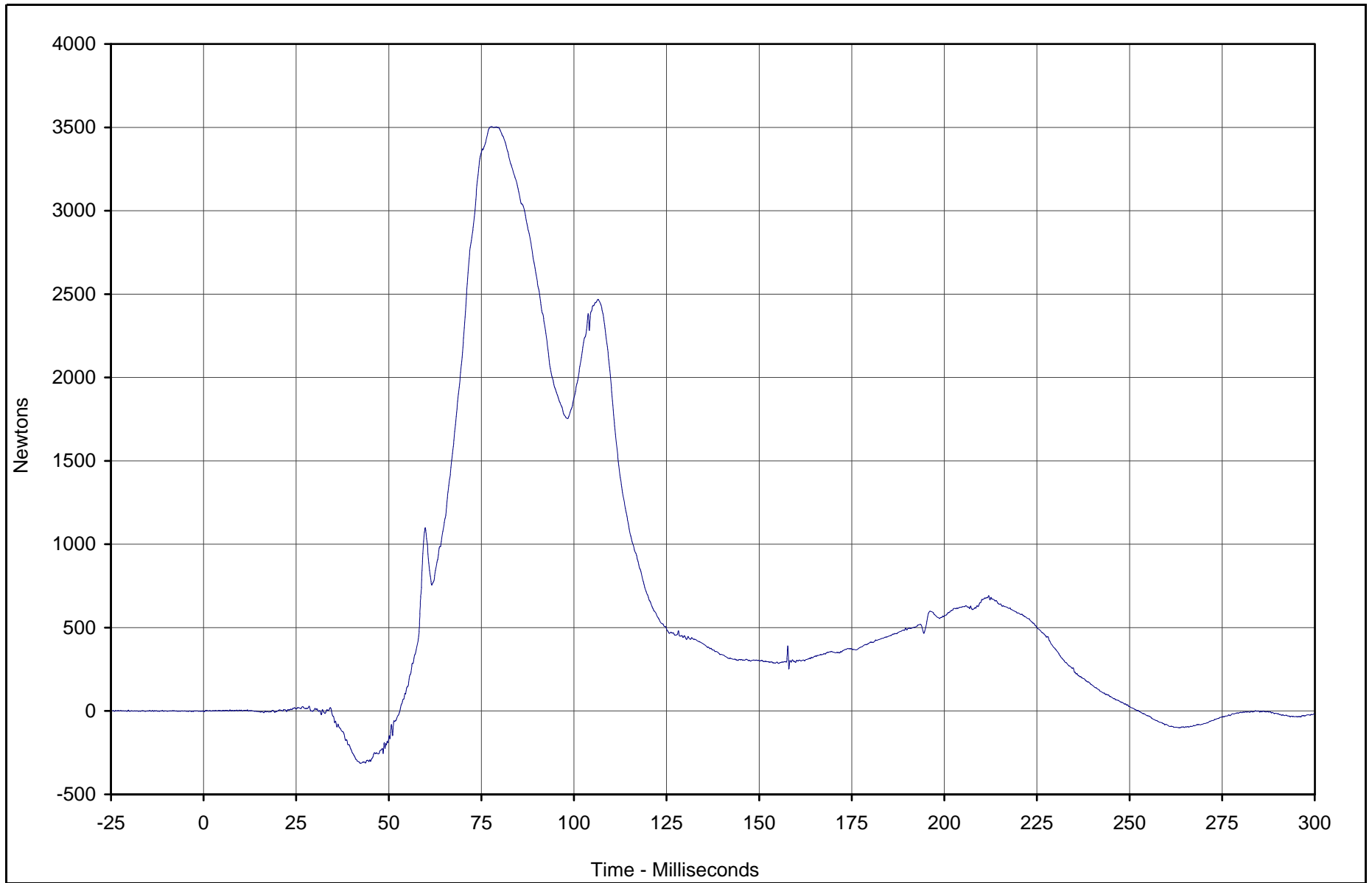
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-41



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Upper Neck Force Z	165	FIL	Newtons	3504.2	77.7	-313.5	42.3	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

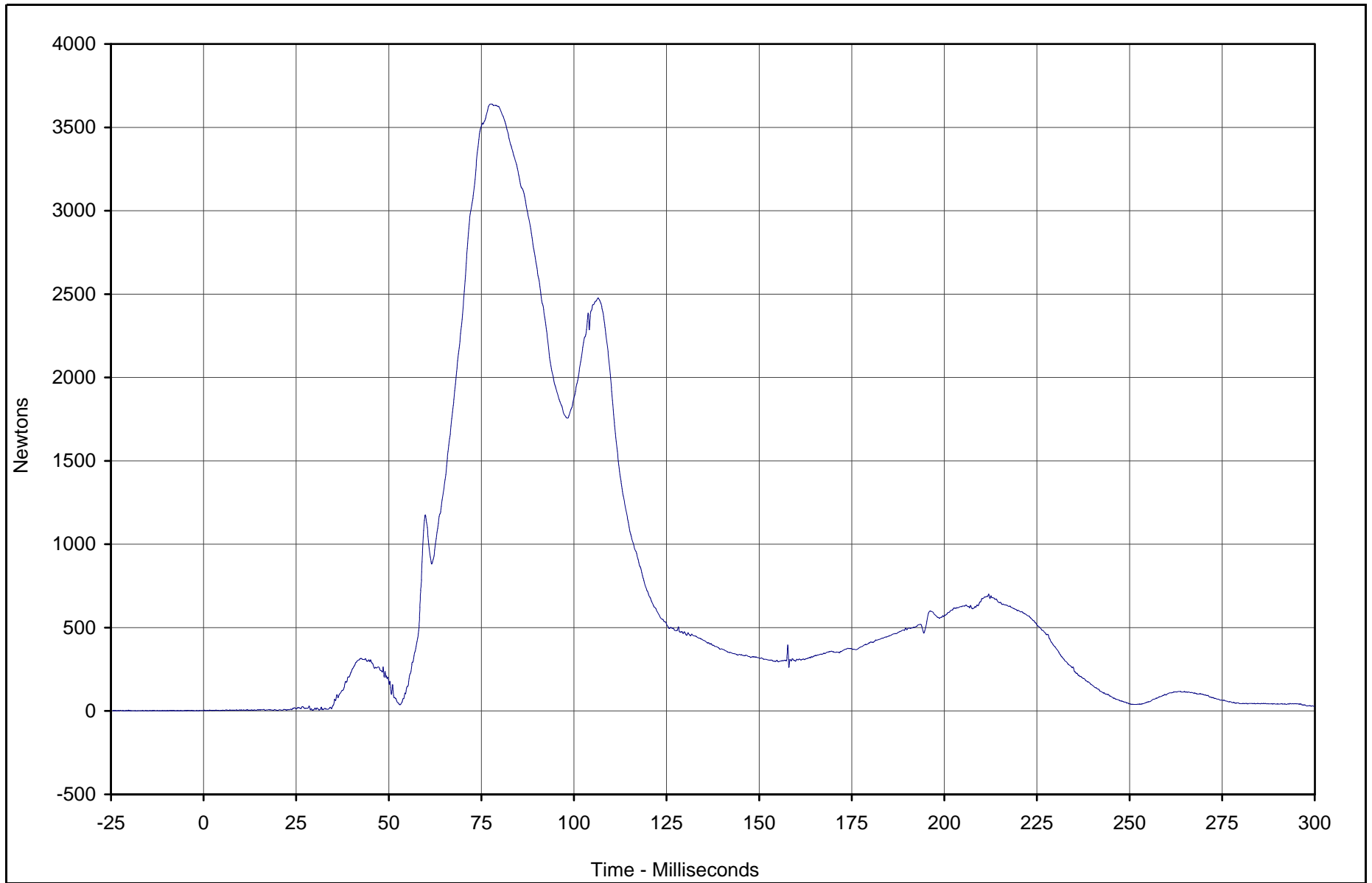
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-42



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Upper Neck Force Res.	163	RES	Newtons	3640.2	77.7	1.1	0.4	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

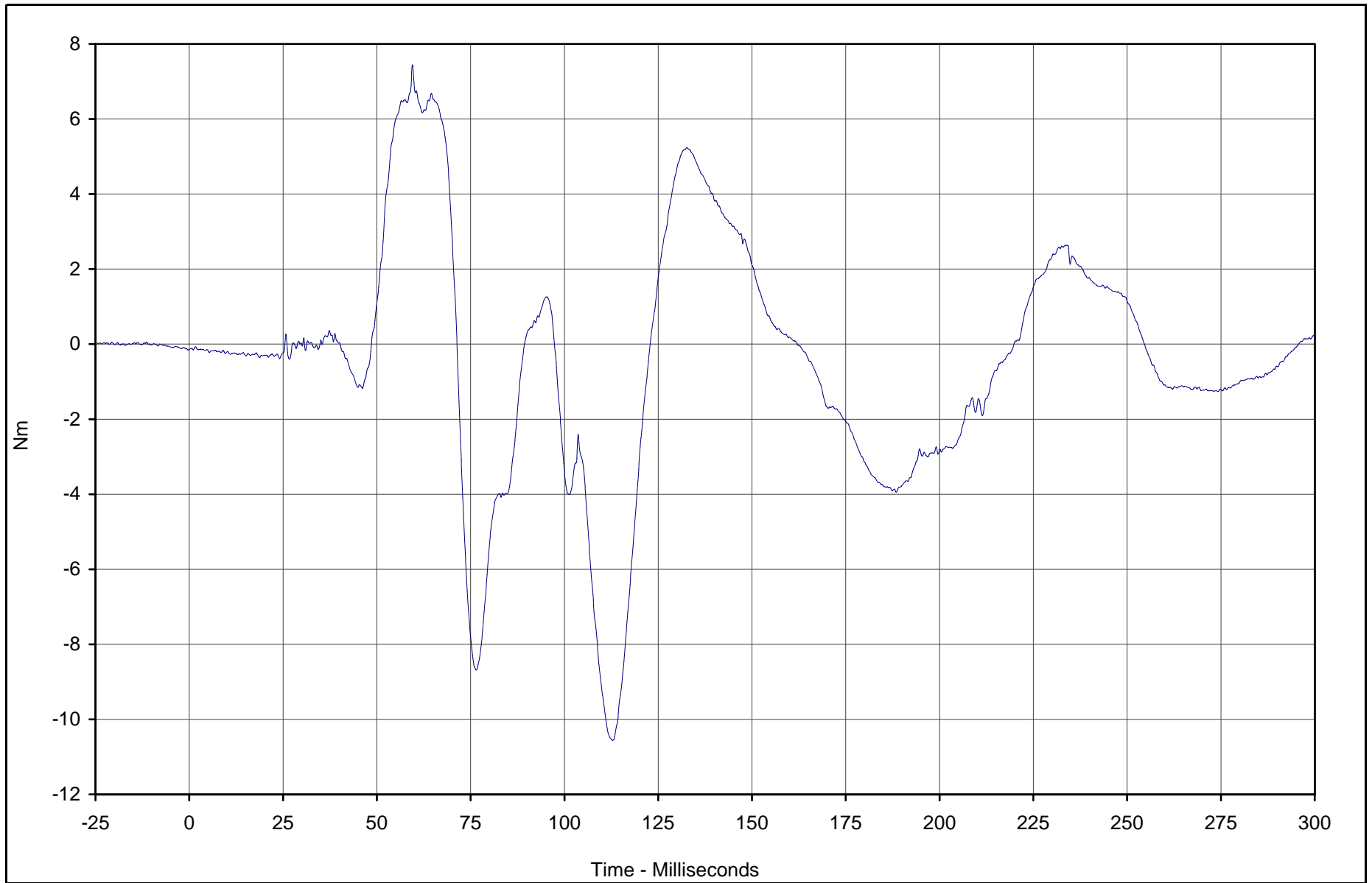
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-43



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Upper Neck Moment X	166	FIL	Nm	7.4	59.5	-10.6	112.8	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

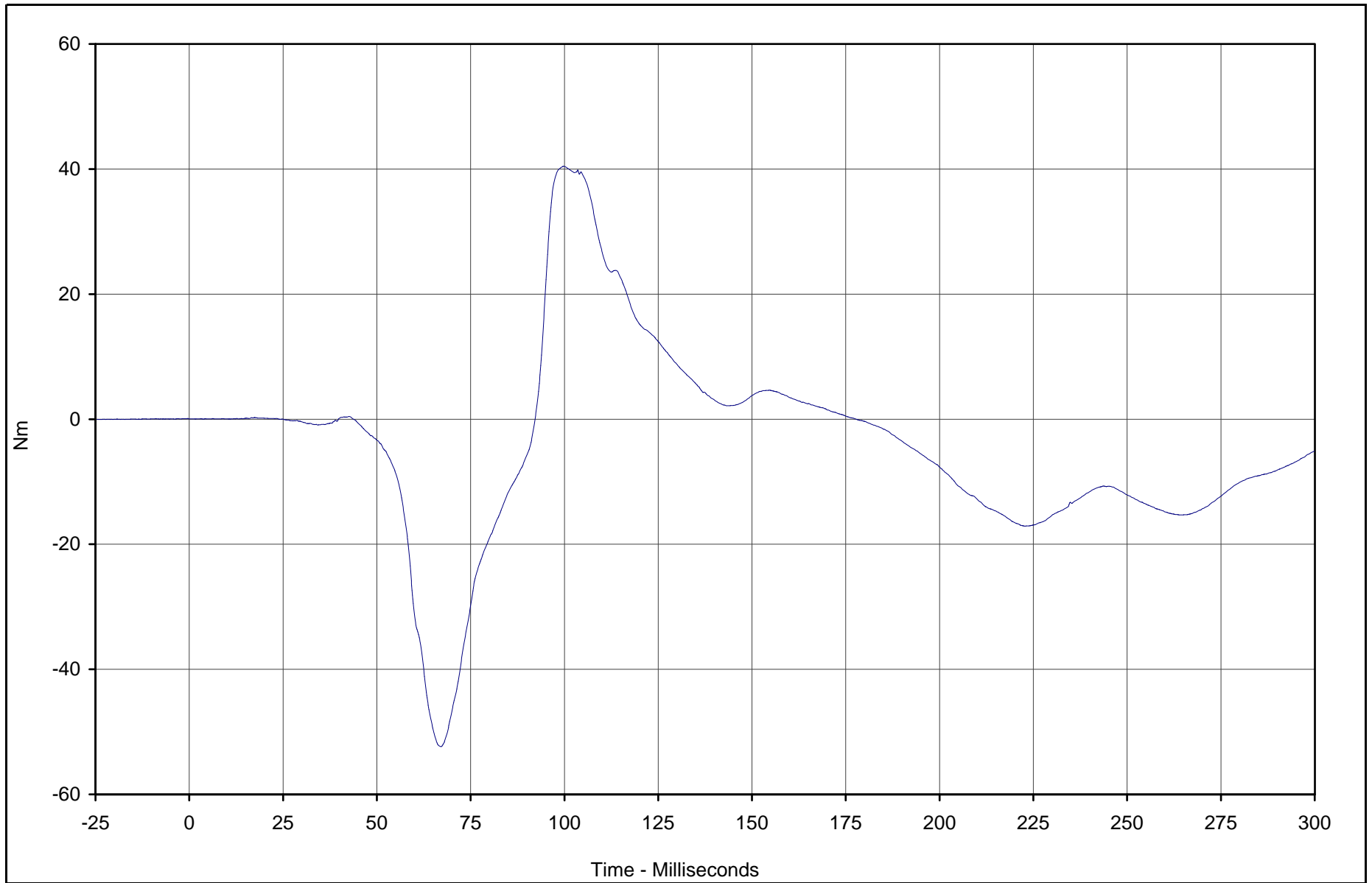
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-44



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Upper Neck Moment Y	167	FIL	Nm	40.4	99.8	-52.4	67.1	600



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

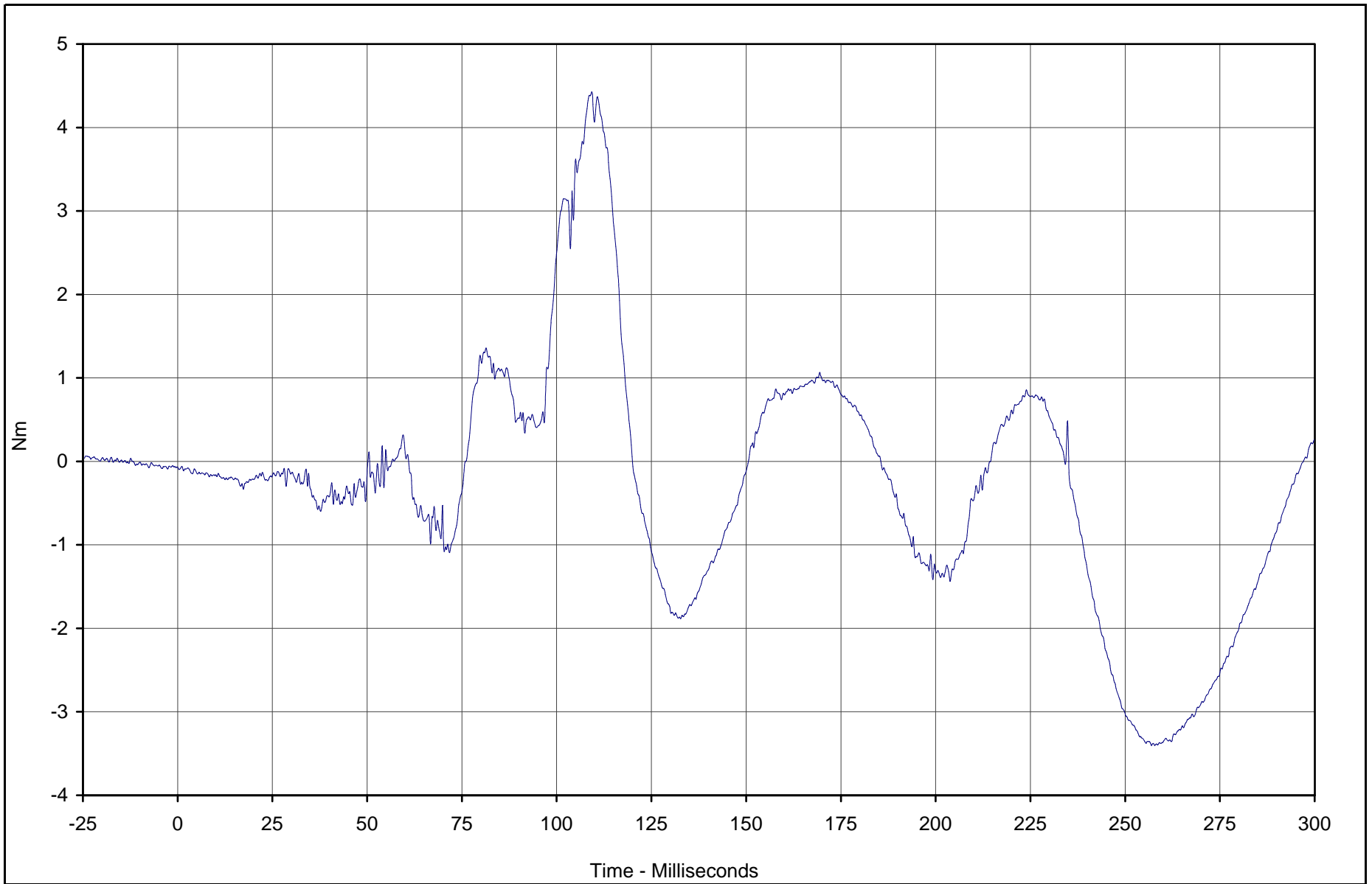
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-45



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Upper Neck Moment Z	168	FIL	Nm	4.4	109.3	-3.4	257.8	600



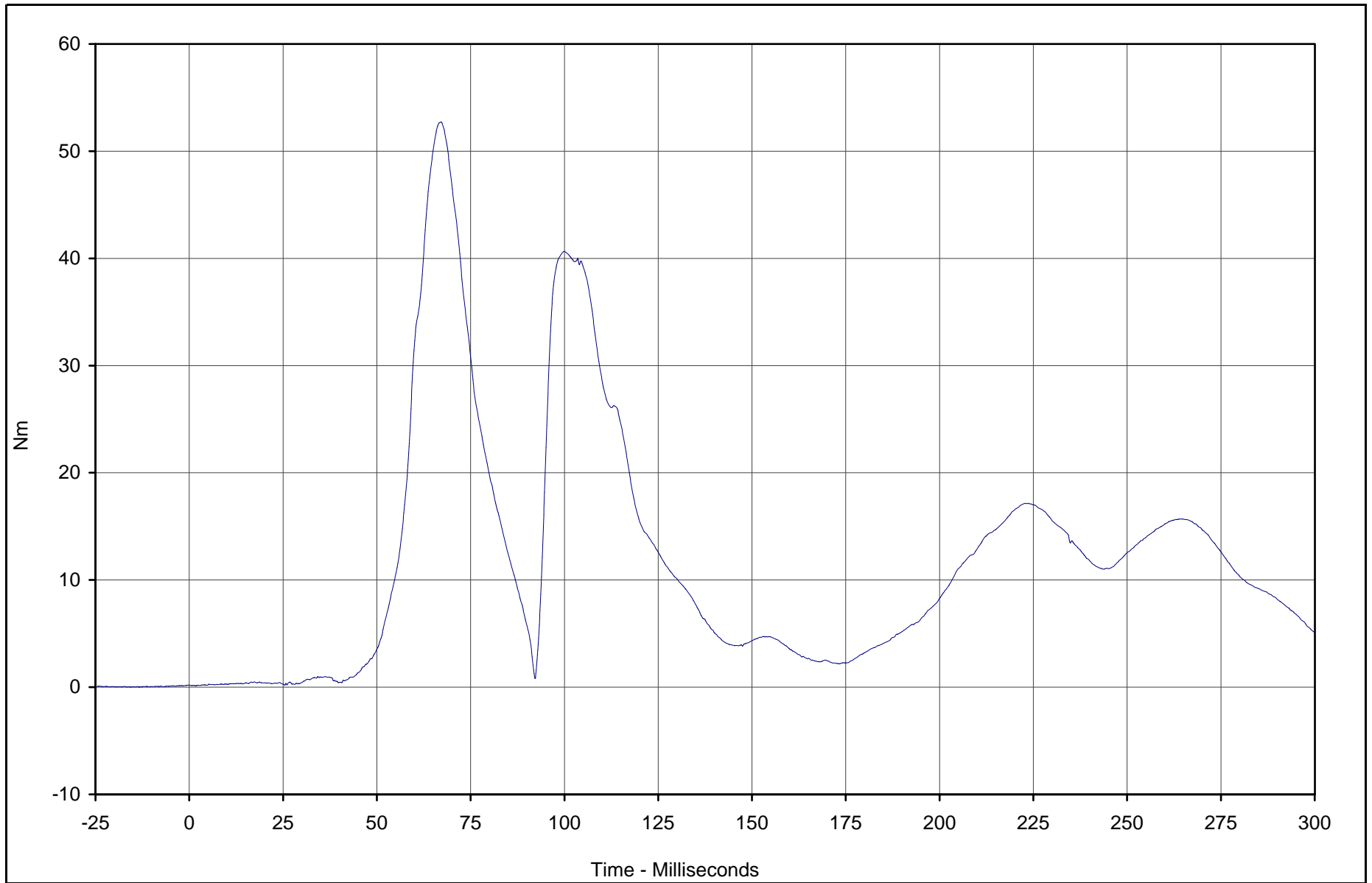
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Upper Neck Mom Res.	166	RES	Nm	52.7	67.1	0.1	1.8	600



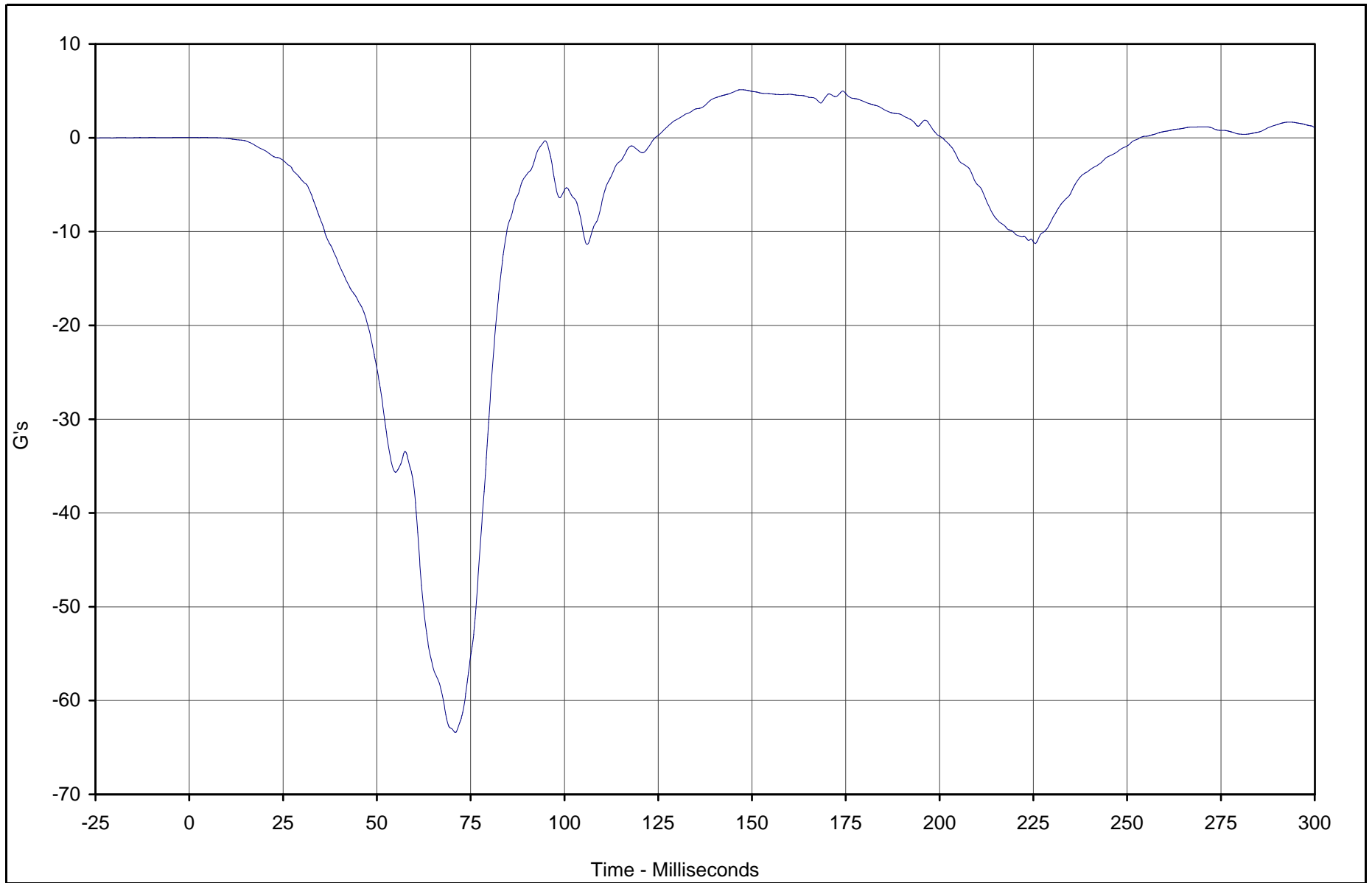
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-47



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Chest X	169	FIL	G's	5.1	147.1	-63.4	70.9	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

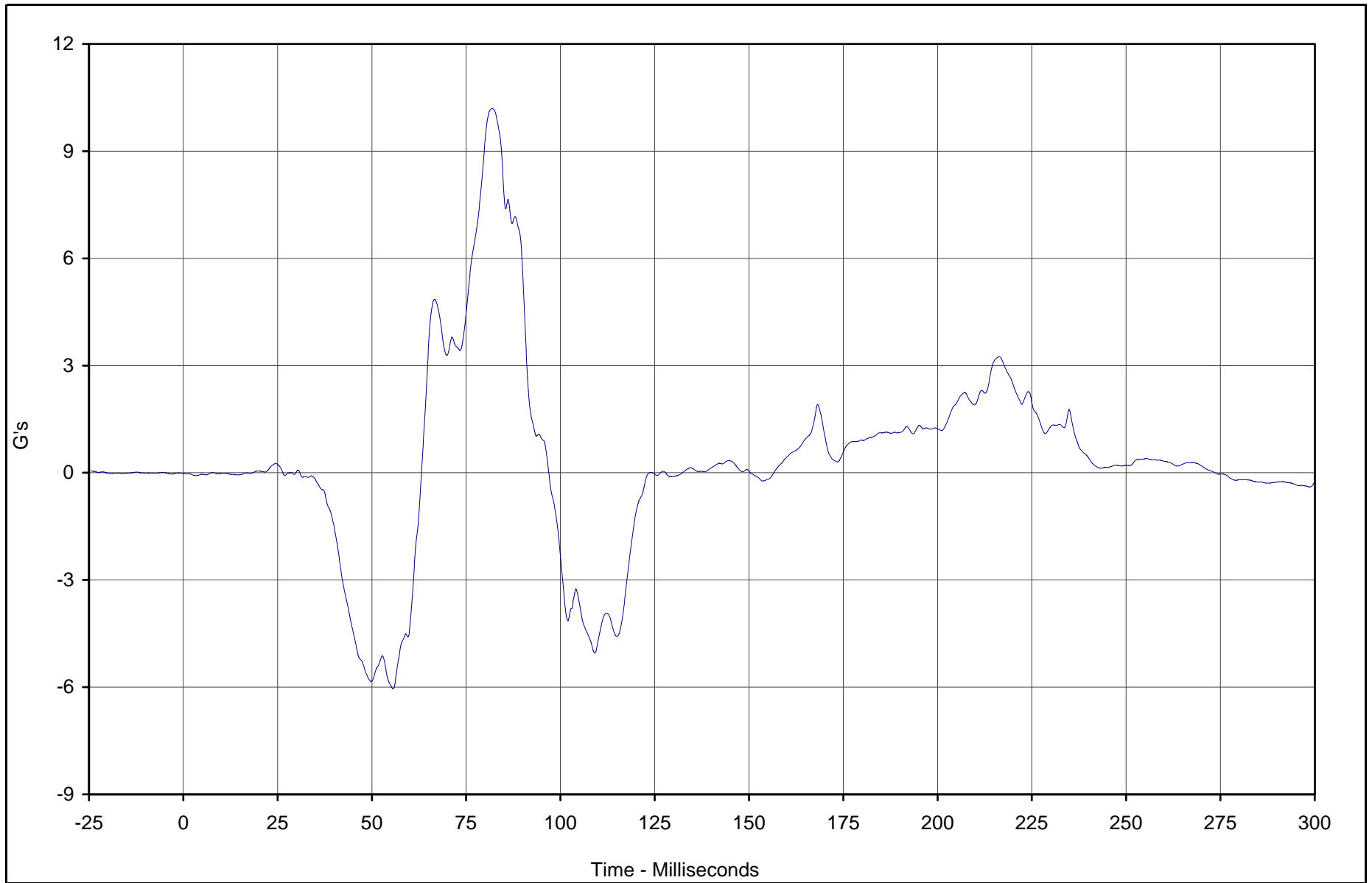
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-48



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Chest Y	170	FIL	G's	10.2	81.9	-6.0	55.6	180



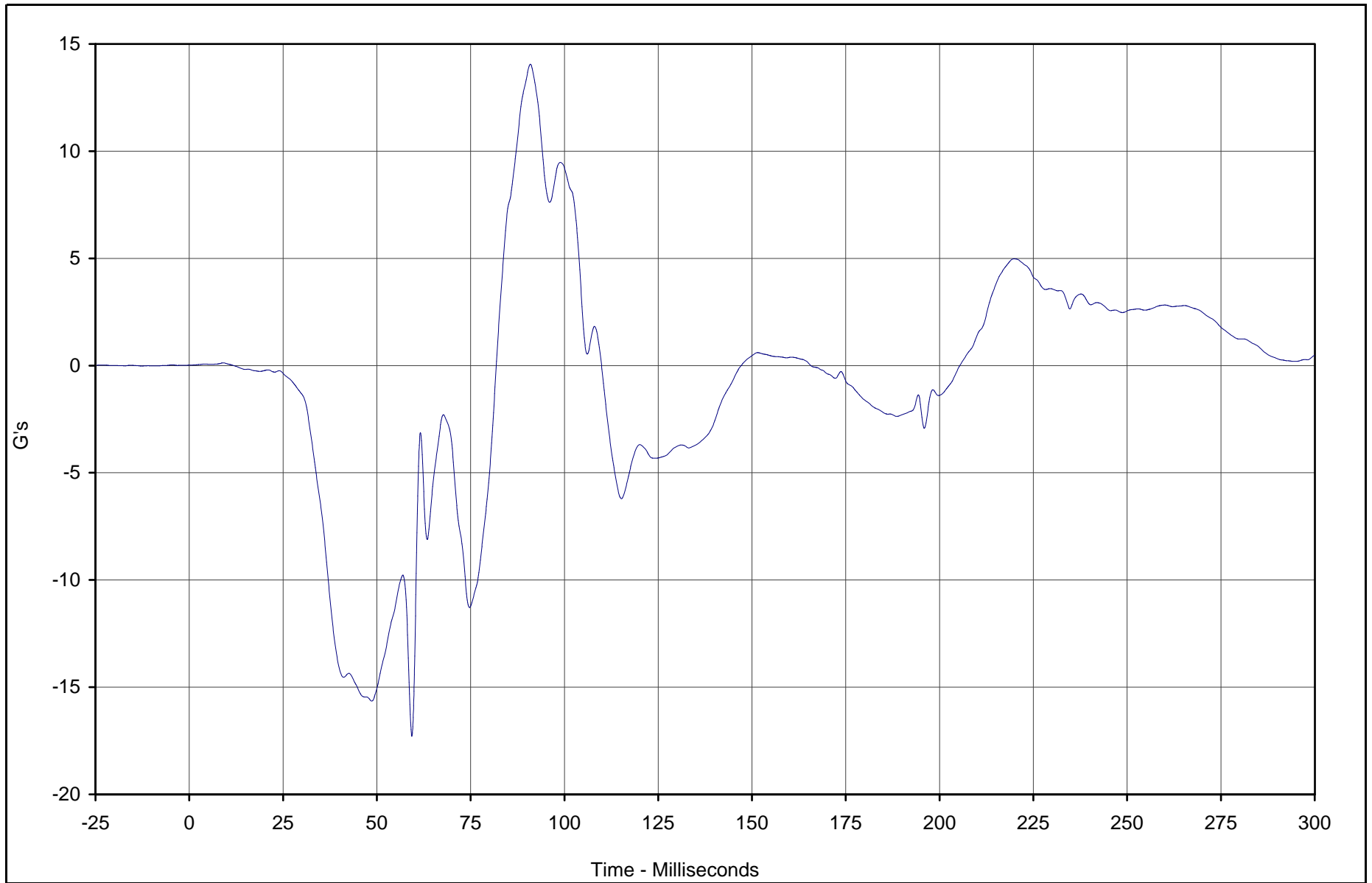
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Chest Z	171	FIL	G's	14.1	90.9	-17.3	59.3	180



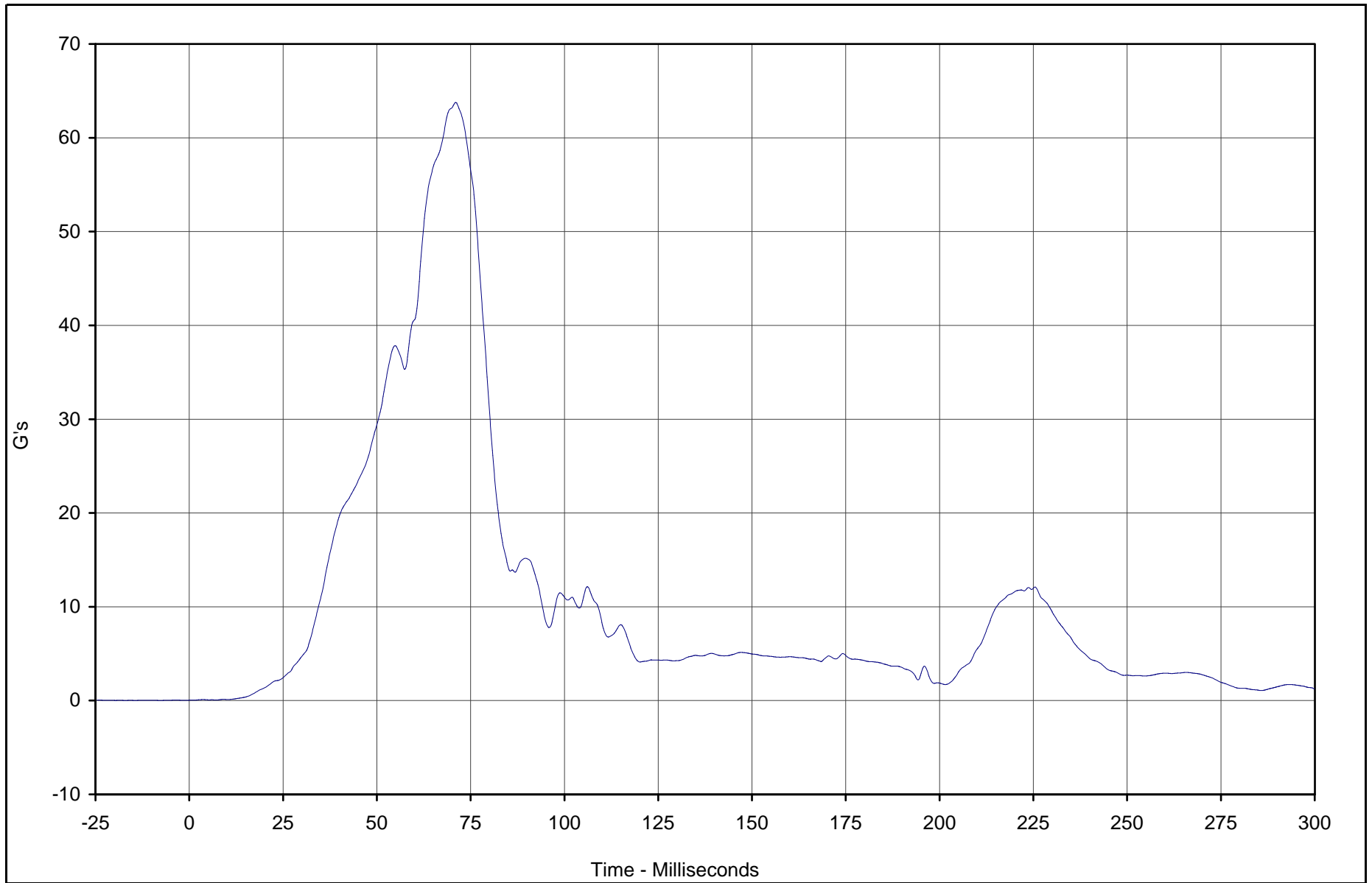
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-50



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Chest Resultant	169	RES	G's	63.8	71.0	0.0	0.0	180



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

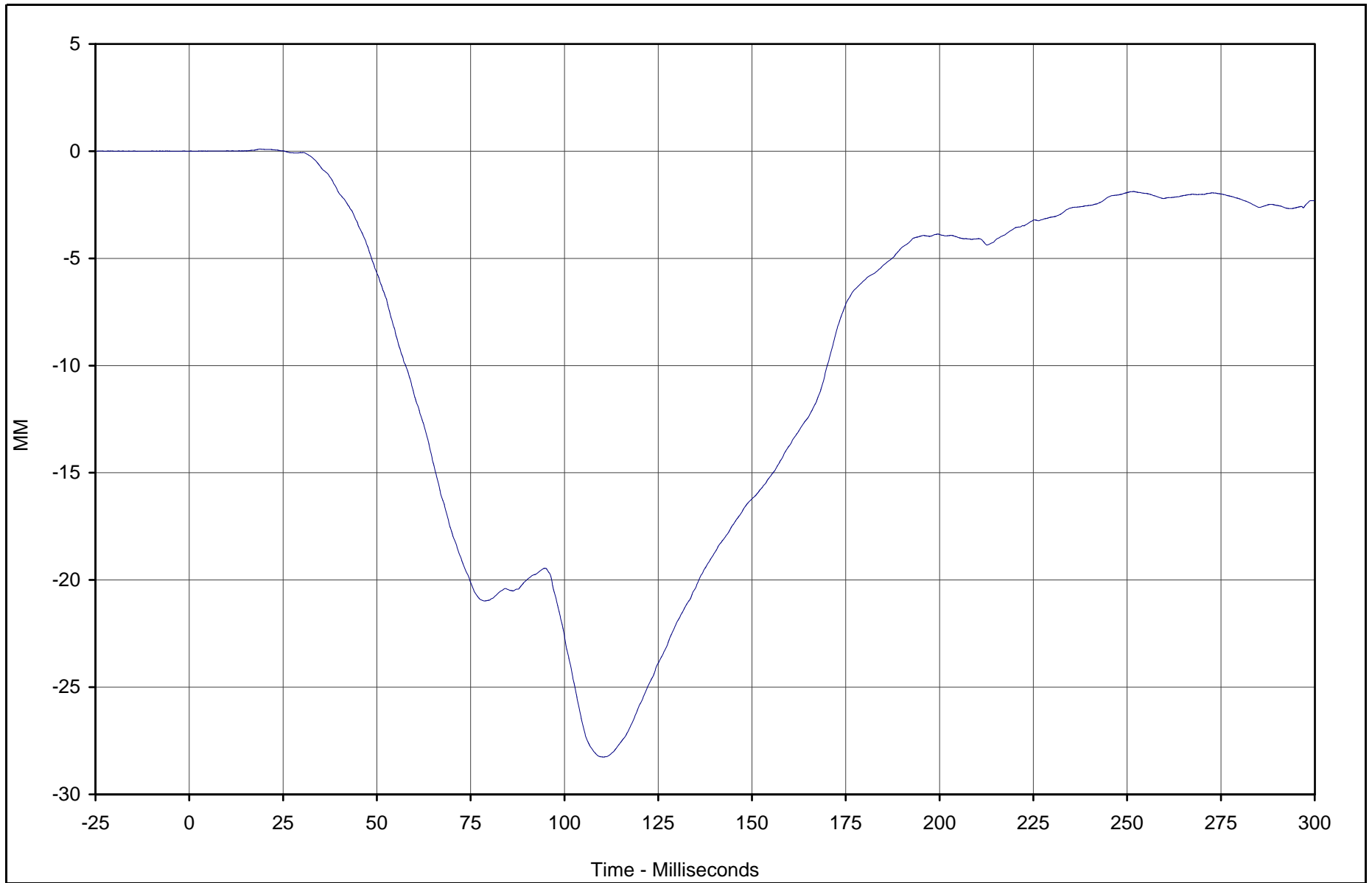
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-51



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Chest Deflection	172	FIL	MM	0.1	18.7	-28.3	110.5	600



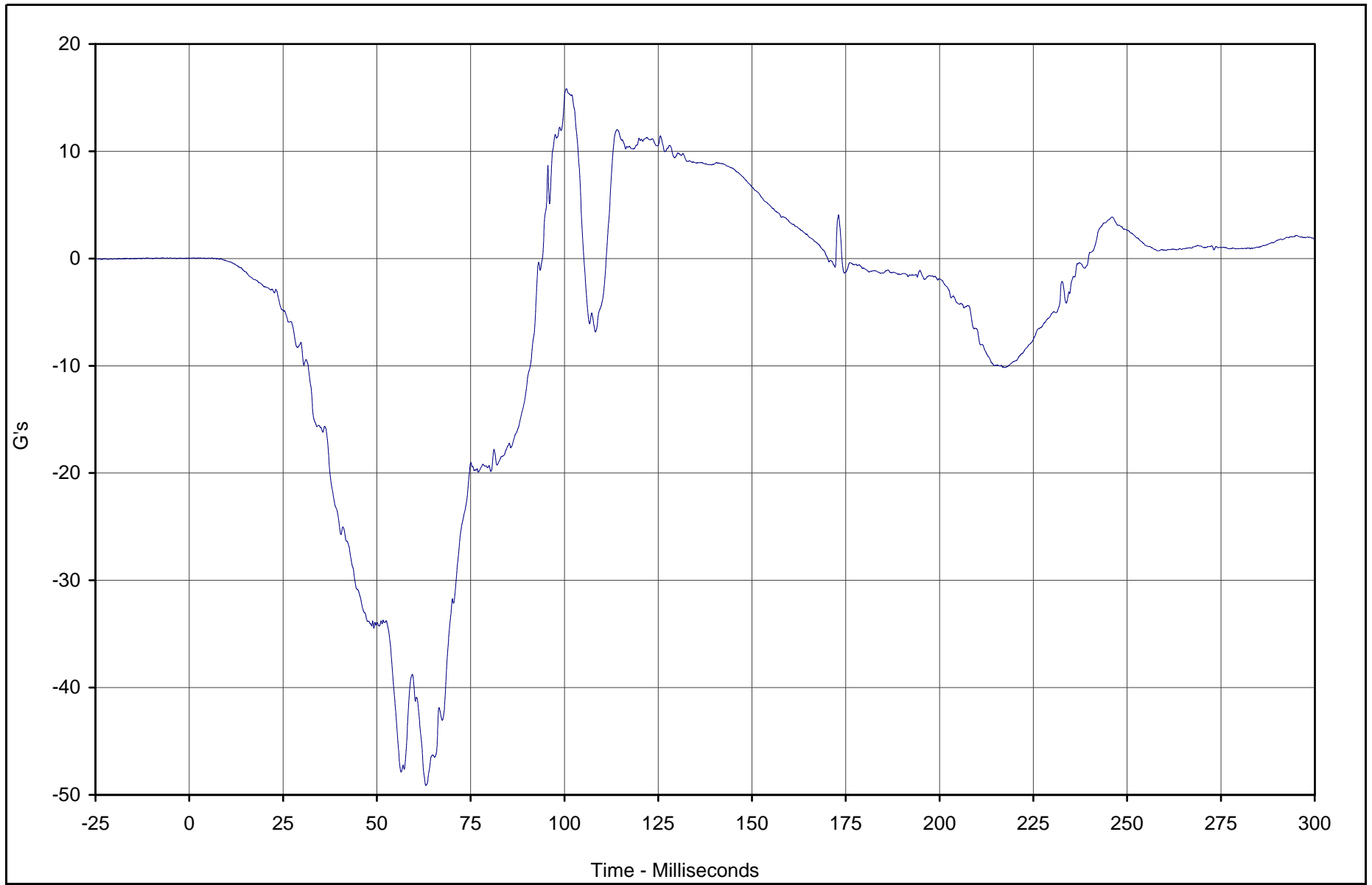
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-52



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Pelvis X	173	FIL	G's	15.8	100.5	-49.1	63.0	1000



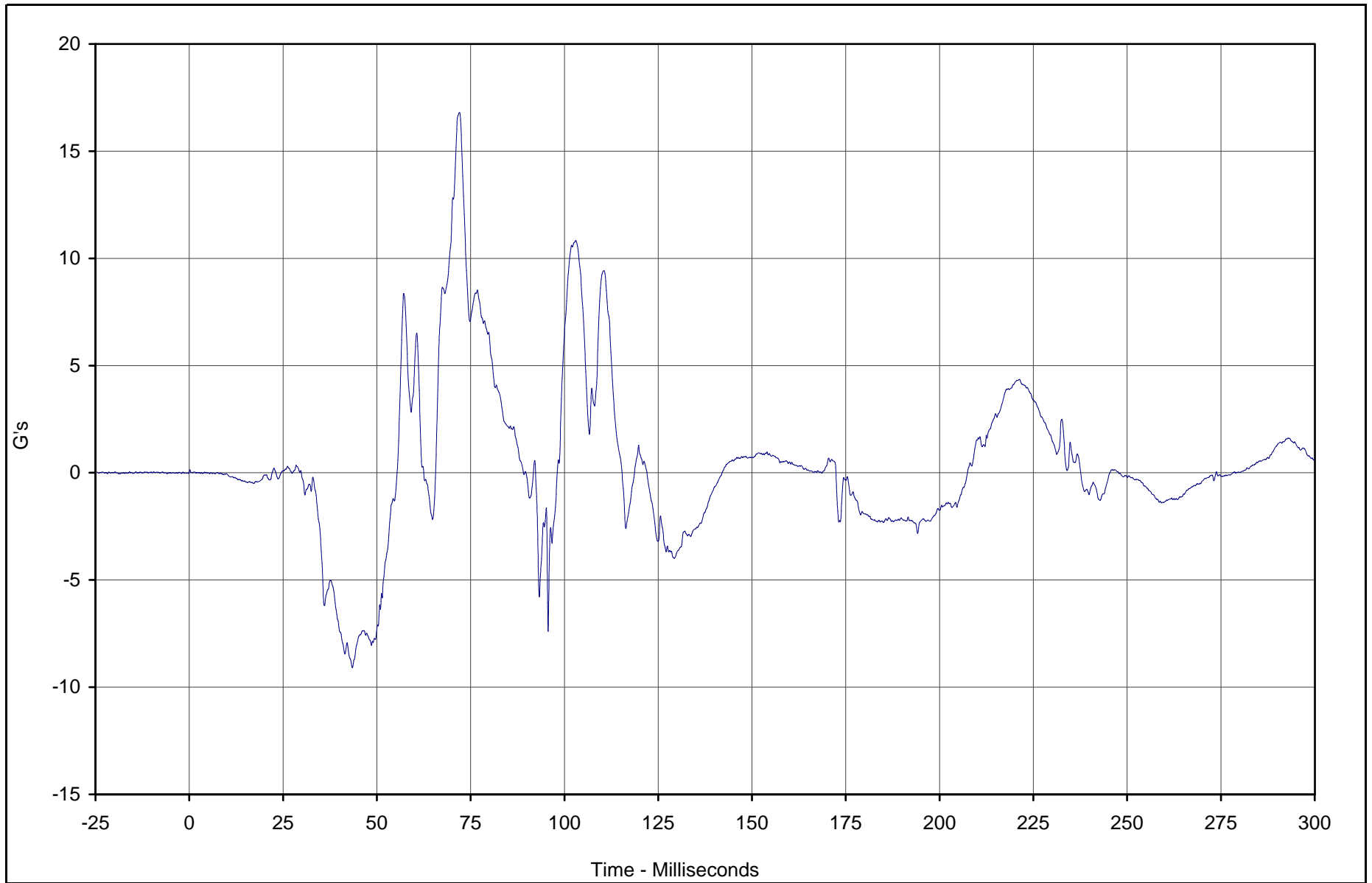
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Pelvis Y	174	FIL	G's	16.8	72.0	-9.1	43.5	1000



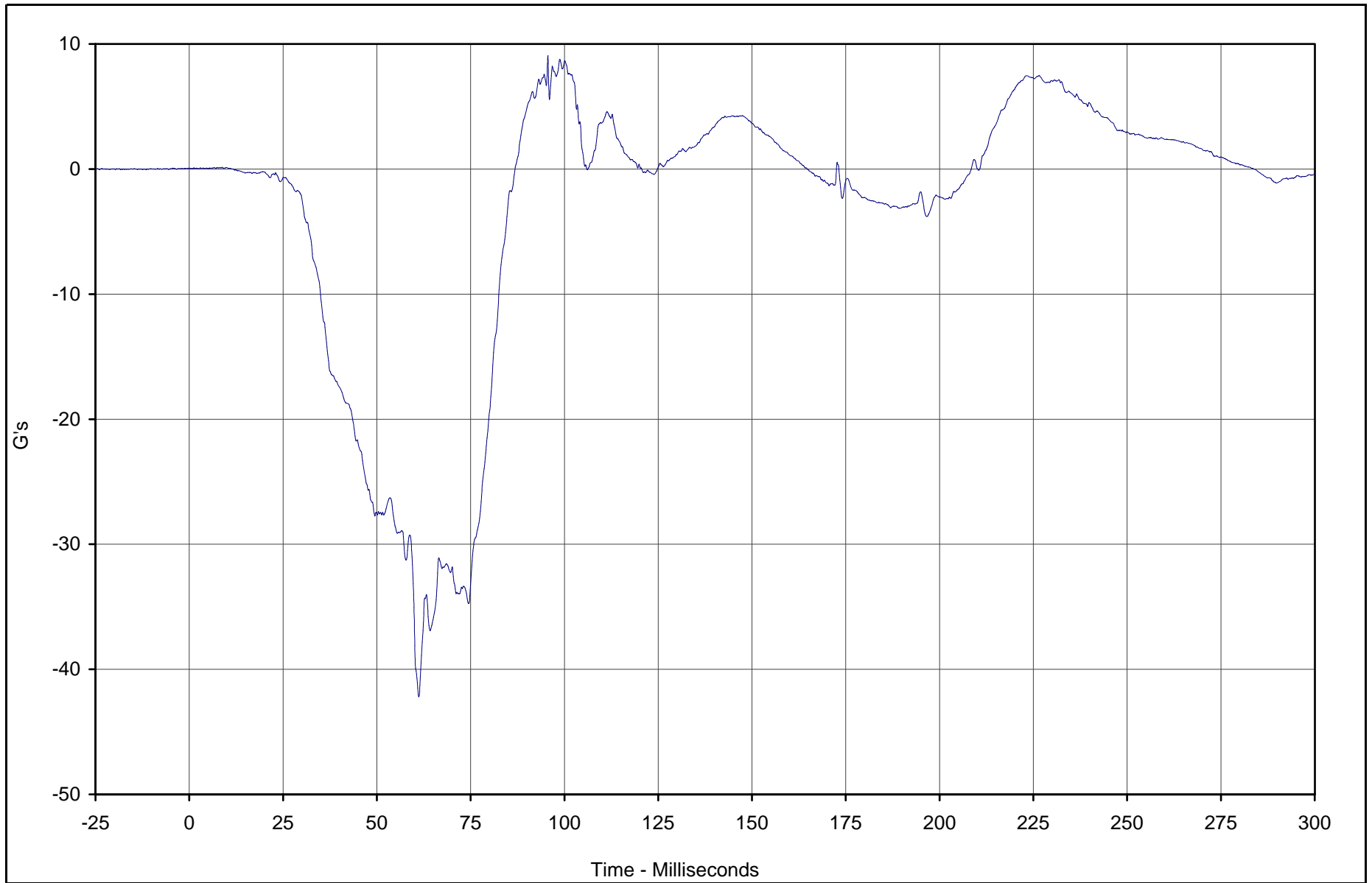
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-54



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Pelvis Z	175	FIL	G's	9.1	95.6	-42.2	61.2	1000



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

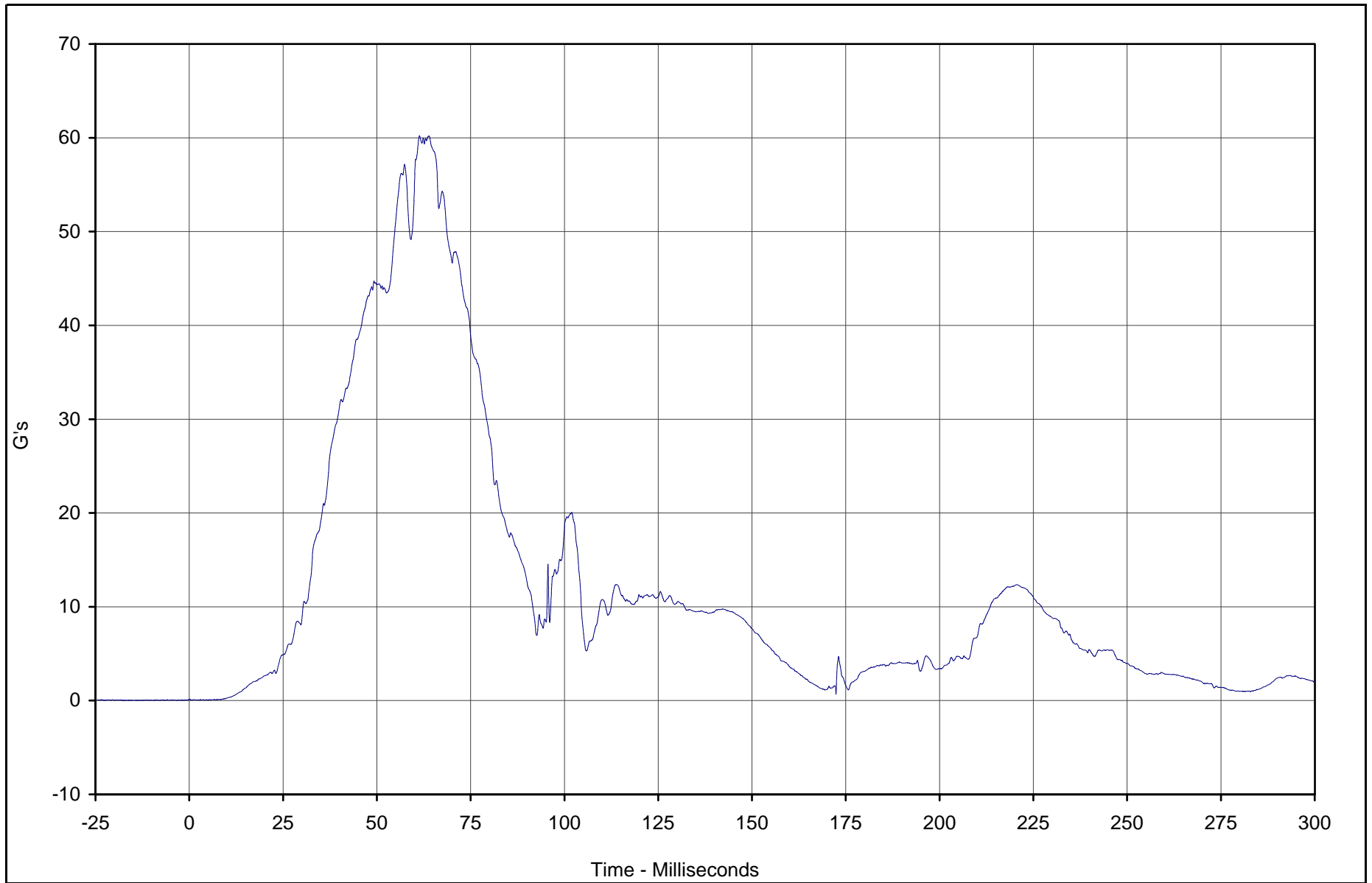
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-55



TR-P23001-12-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Pelvis Resultant	173	RES	G's	60.2	61.4	0.0	2.6	1000

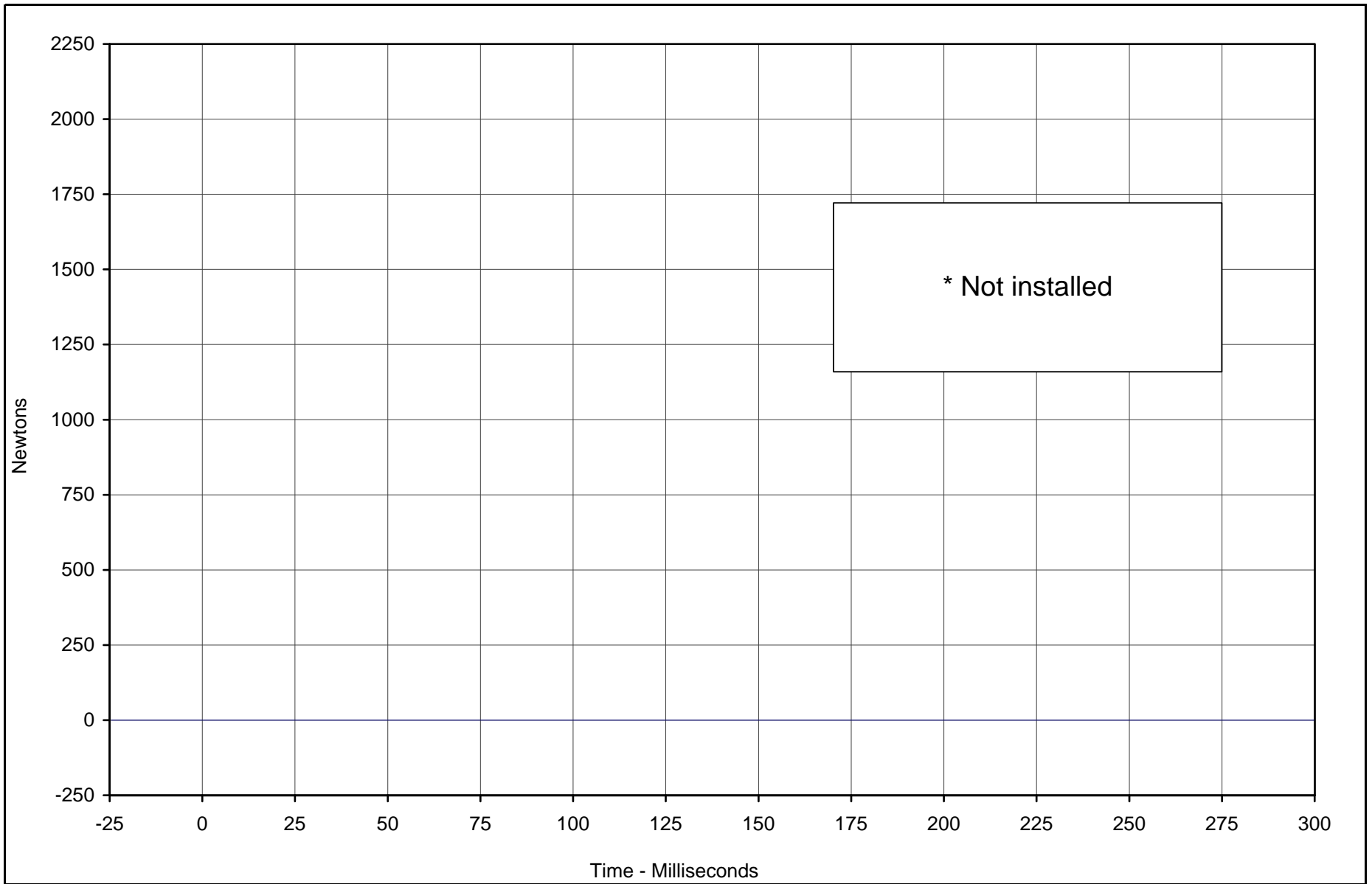


Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106



* Not installed

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Seat Tether Load	176	FIL	Newtons	0.0	0.0	0.0	0.0	60



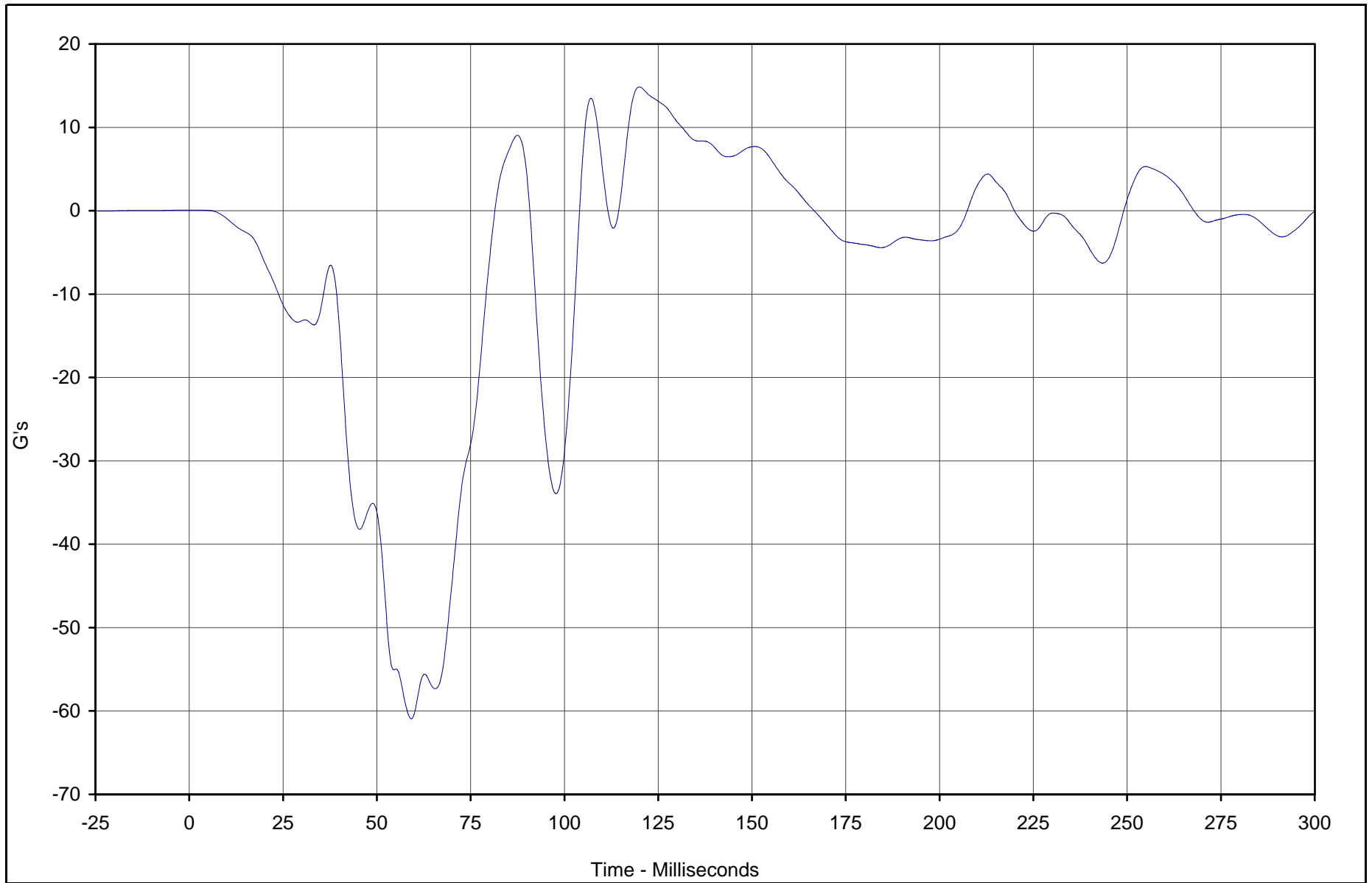
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

F3-57



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Car Seat X	177	FIL	G's	14.9	119.9	-60.9	59.2	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

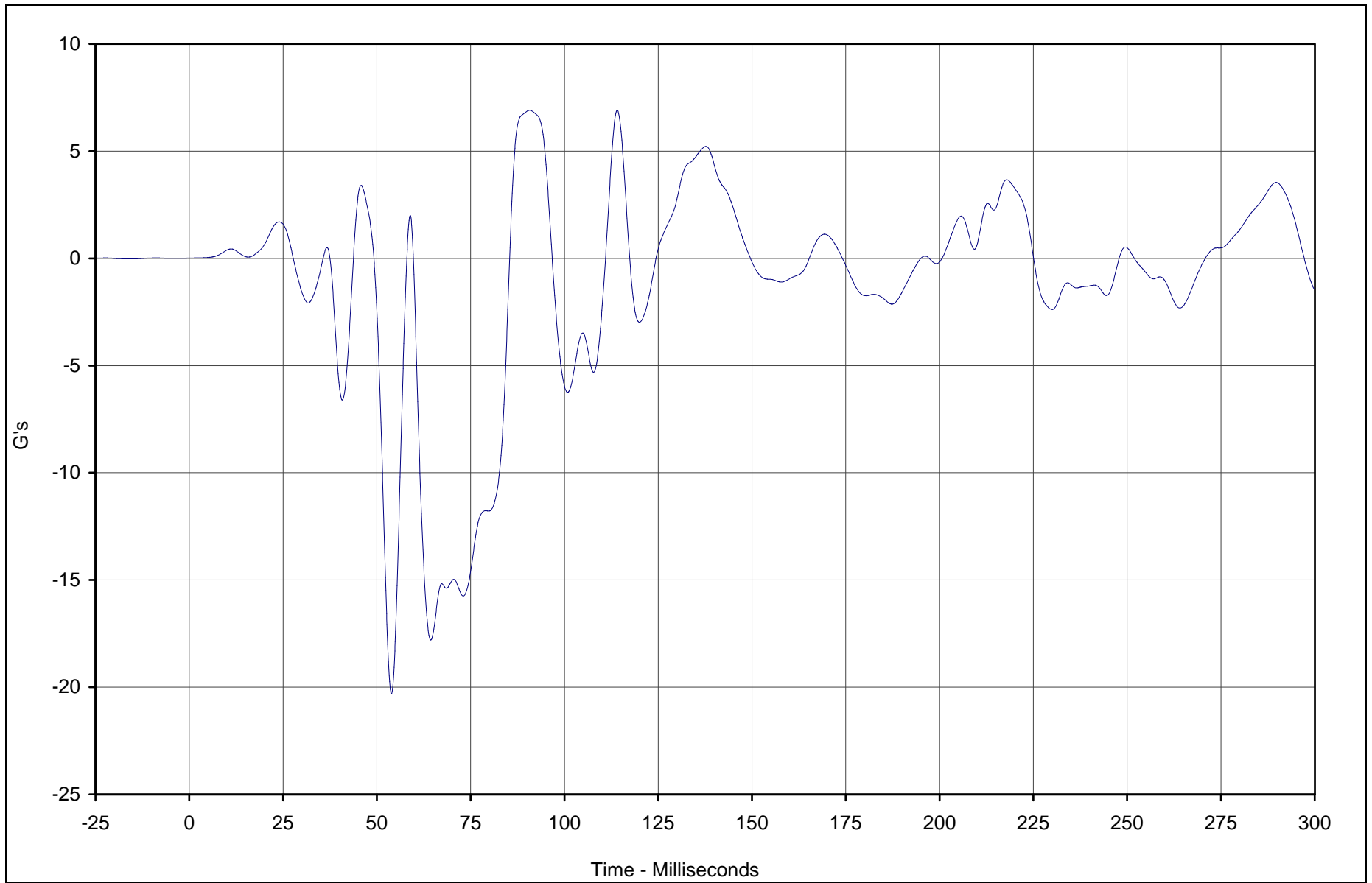
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-58



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Car Seat Y	178	FIL	G's	6.9	114.1	-20.3	53.9	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

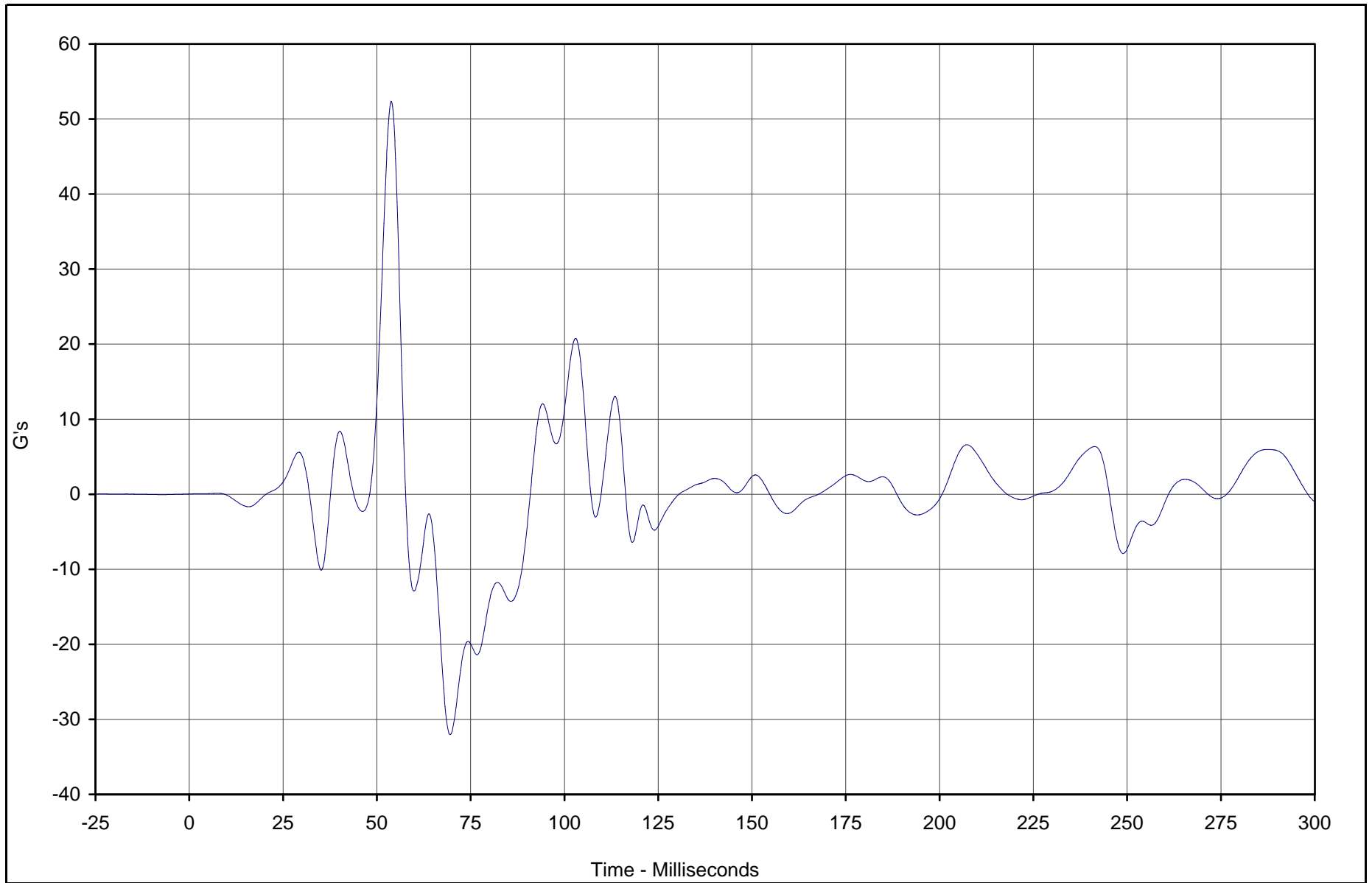
Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC

F3-59



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Car Seat Z	179	FIL	G's	52.4	53.8	-32.0	69.5	60



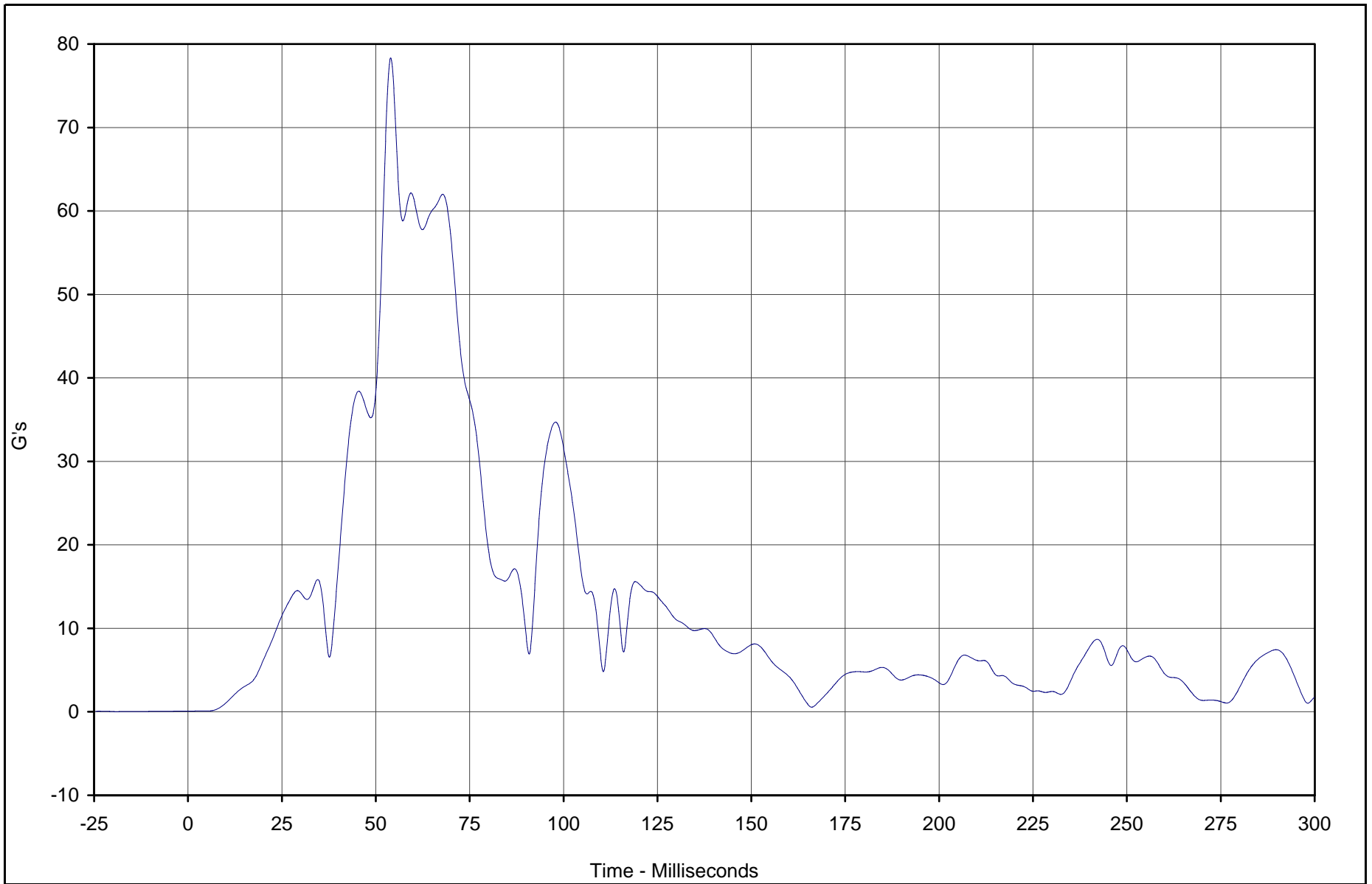
Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

TR-P23001-12-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear (6 Yr.) Car Seat Resultant	177	RES	G's	78.3	54.0	0.1	0.0	60



Test Vehicle: 2003 Toyota 4 Runner SR5 4WD SUV

Test Date: 2/26/03

Test Program: 2003 NHTSA 35mph NCAP

NHTSA No.: M35106

SECTION F-4

CHILD DUMMY INSTRUMENTATION INFORMATION

**2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Right Rear Child A.T.D. Serial Number 082
2/26/03
2003 Toyota 4 Runner SR5 4WD SUV**

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	I.C. Sensor	7264-200	G
158	CAR SEAT	Y	KETX1B	Accel.,1/2 bridge	I.C. Sensor	7264-200	G
159	CAR SEAT	Z	KETX1C	Accel.,1/2 bridge	I.C. Sensor	7264-200	G

E4-1

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**2003 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Left Rear Child A.T.D. Serial Number 027
2/26/03
2003 Toyota 4 Runner SR5 4WD SUV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
160	HEAD, PRIMARY	X	GPAC047	Accel.,1/2 bridge	Endevco	7264-2000	G
161	HEAD, PRIMARY	Y	GPAC048	Accel.,1/2 bridge	Endevco	7264-2000	G
162	HEAD, PRIMARY	Z	GPAC049	Accel.,1/2 bridge	Endevco	7264-2000	G
163	UPPER NECK FORCE	X	027UNFX	Load cell, six axis neck	R. A. Denton	IF-234	N
164	UPPER NECK FORCE	Y	027UNFY	Load cell, six axis neck	R. A. Denton	IF-234	N
165	UPPER NECK FORCE	Z	027UNFZ	Load cell, six axis neck	R. A. Denton	IF-234	N
166	UPPER NECK MOMENT	X	027UNMX	Load cell, six axis neck	R. A. Denton	IF-234	Nm
167	UPPER NECK MOMENT	Y	027UNMY	Load cell, six axis neck	R. A. Denton	IF-234	Nm
168	UPPER NECK MOMENT	Z	027UNMZ	Load cell, six axis neck	R. A. Denton	IF-234	Nm
169	CHEST , PRIMARY	X	2116-A01	Accel., Full Bridge	Entran	2000JF	G
170	CHEST , PRIMARY	Y	2116-A06	Accel., Full Bridge	Entran	2000JF	G
171	CHEST , PRIMARY	Z	2116-A07	Accel., Full Bridge	Entran	2000JF	G
172	CHEST DISPLACEMENT	X	027CP	Rotary Pot Chest	Servo	14CBI	MM
173	PELVIS, PRIMARY	X	2116-N07	Accel., Full Bridge	Entran	2000JF	G
174	PELVIS, PRIMARY	Y	2116-A03	Accel., Full Bridge	Entran	2000JF	G
175	PELVIS, PRIMARY	Z	2116-A17	Accel., Full Bridge	Entran	2000JF	G
176	CAR SEAT TETHER	X	BL113	Load cell, Seat belt	FGP	FN4060	N
177	CAR SEAT	X	KETX4A	Accel.,1/2 bridge	I.C. Sensor	7264-200	G
178	CAR SEAT	Y	KETX4B	Accel.,1/2 bridge	I.C. Sensor	7264-200	G
179	CAR SEAT	Z	KETX4C	Accel.,1/2 bridge	I.C. Sensor	7264-200	G

SECTION F-5

CHILD DUMMY CALIBRATION INFORMATION



Calibration Data Sheet Hybrid III 3 Year Old Head Drop Test

ATD Serial No.: 082

Test I.D.: HD02A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 280.0	272.0	Pass
Peak Lateral Acceleration	G's	≤15.0	5.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<10	3.0	Pass
Overall Test Results				Pass

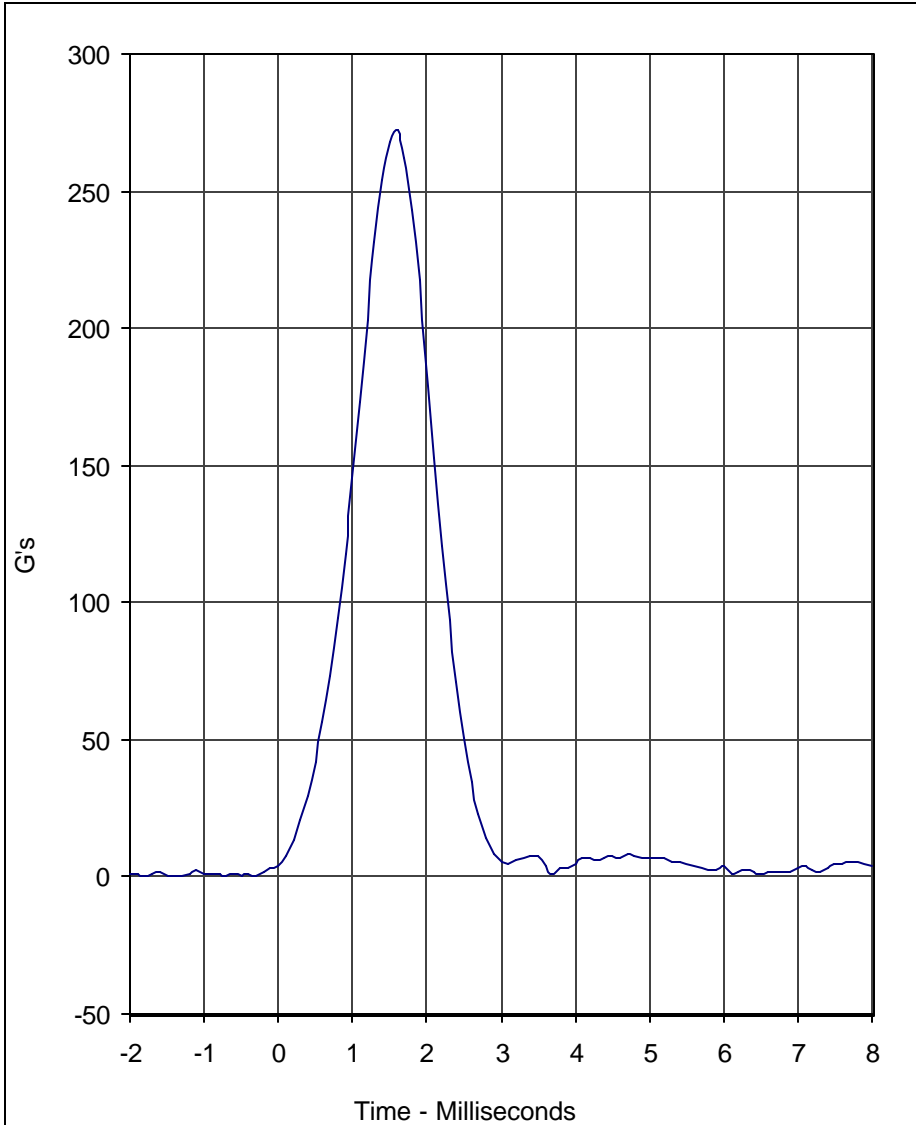
F5-1

TR-P23001-12-NC

Laboratory Technician

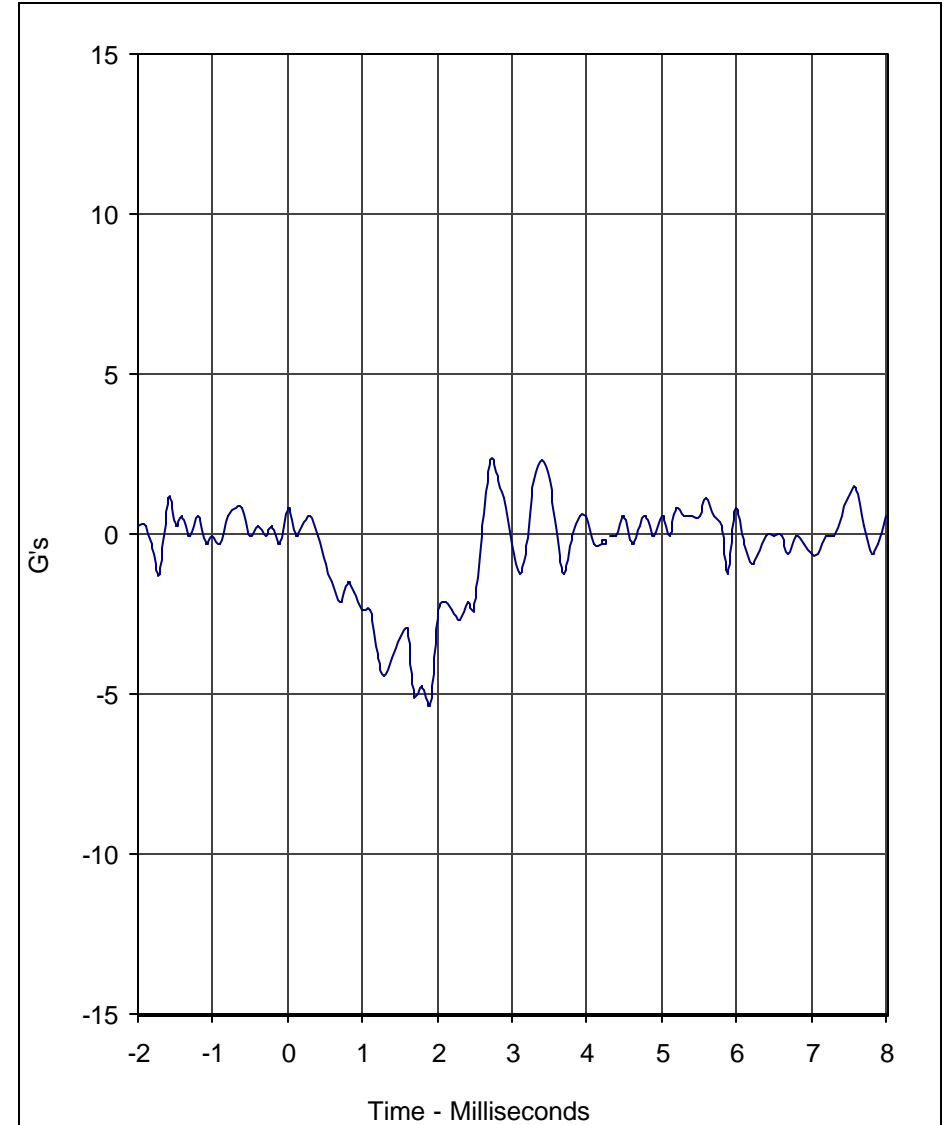
February 14, 2003

Test Date



Curve Description				CURNO	Type
Head Resultant				001	RES

Units	Max	Time	Min	Time	SAE Class
G's	272.0	1.6	0.2	-1.3	1000



Curve Description				CURNO	Type
Head Y				002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	2.3	2.7	-5.3	1.9	1000

Test Program: Hybrid III 3 Year Old Head Drop Test
 Test Date: 2/14/03

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





Calibration Data Sheet

Hybrid III 3 Year Old

Thorax Impact Test

ATD Serial No.: 082

Test I.D.: CH02A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	5.9 to 6.1	5.93	Pass
Peak Chest Compression	MM	32 to 38	36.7	Pass
Peak Probe Force Between 32 and 38 MM	Newtons	680 to 810	805.8	Pass
Peak Probe Force Between 12.5 and 32 MM	Newtons	≤860	777.7	Pass
Internal Hysteresis	%	65 to 85	69.8	Pass
Overall Test Results				Pass

F5-3

TR-P23001-12-NC

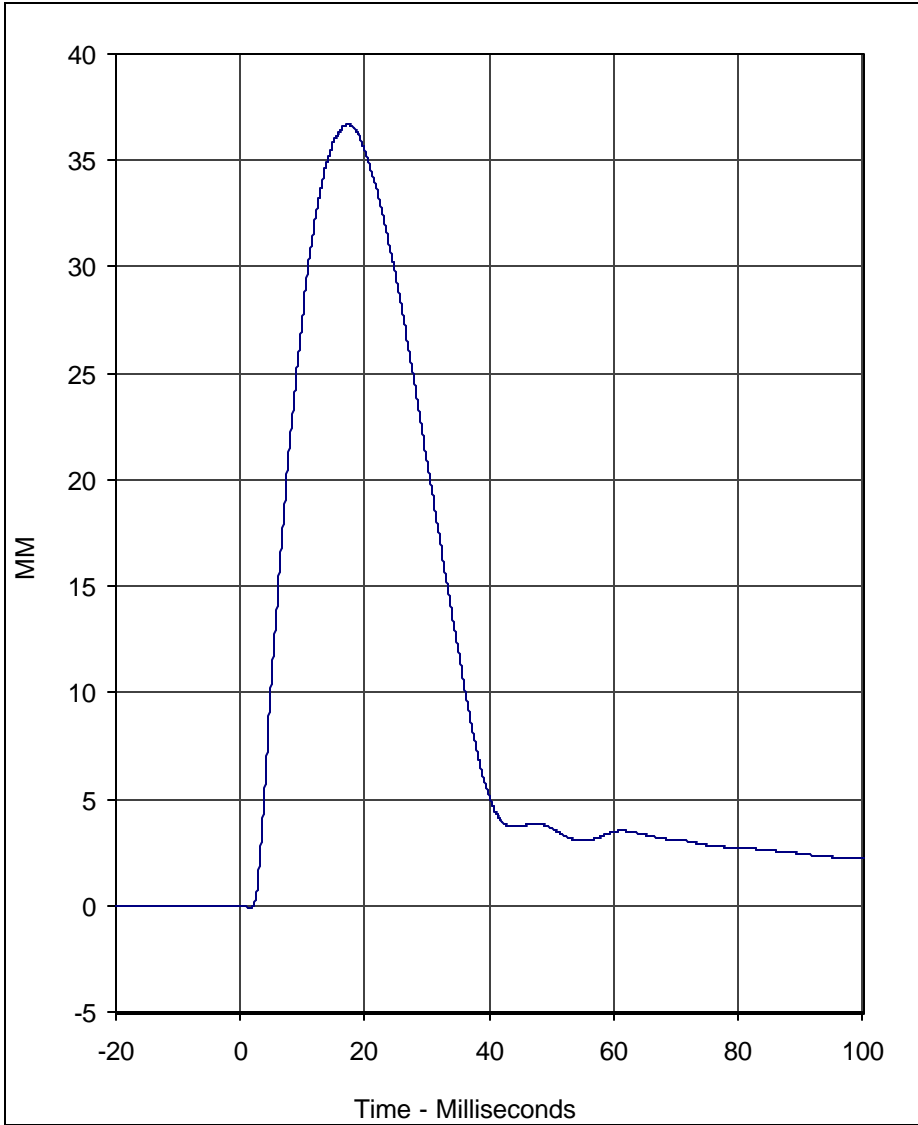
Laboratory Technician

February 14, 2003

Test Date

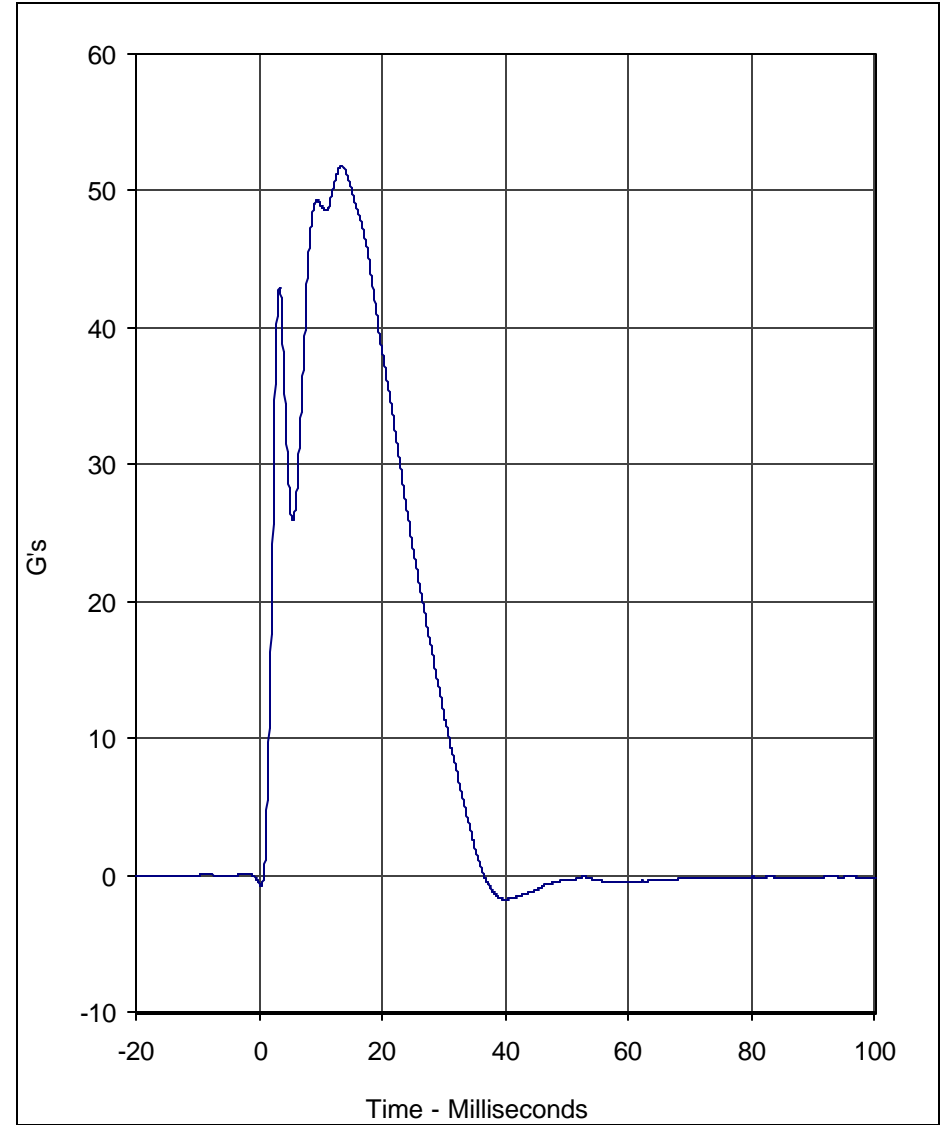
F5-4

TR-P23001-12-NC



Curve Description	CURNO	Type
Chest Compression	001	FIL

Units	Max	Time	Min	Time	SAE Class
MM	36.7	17.4	-0.1	1.7	180



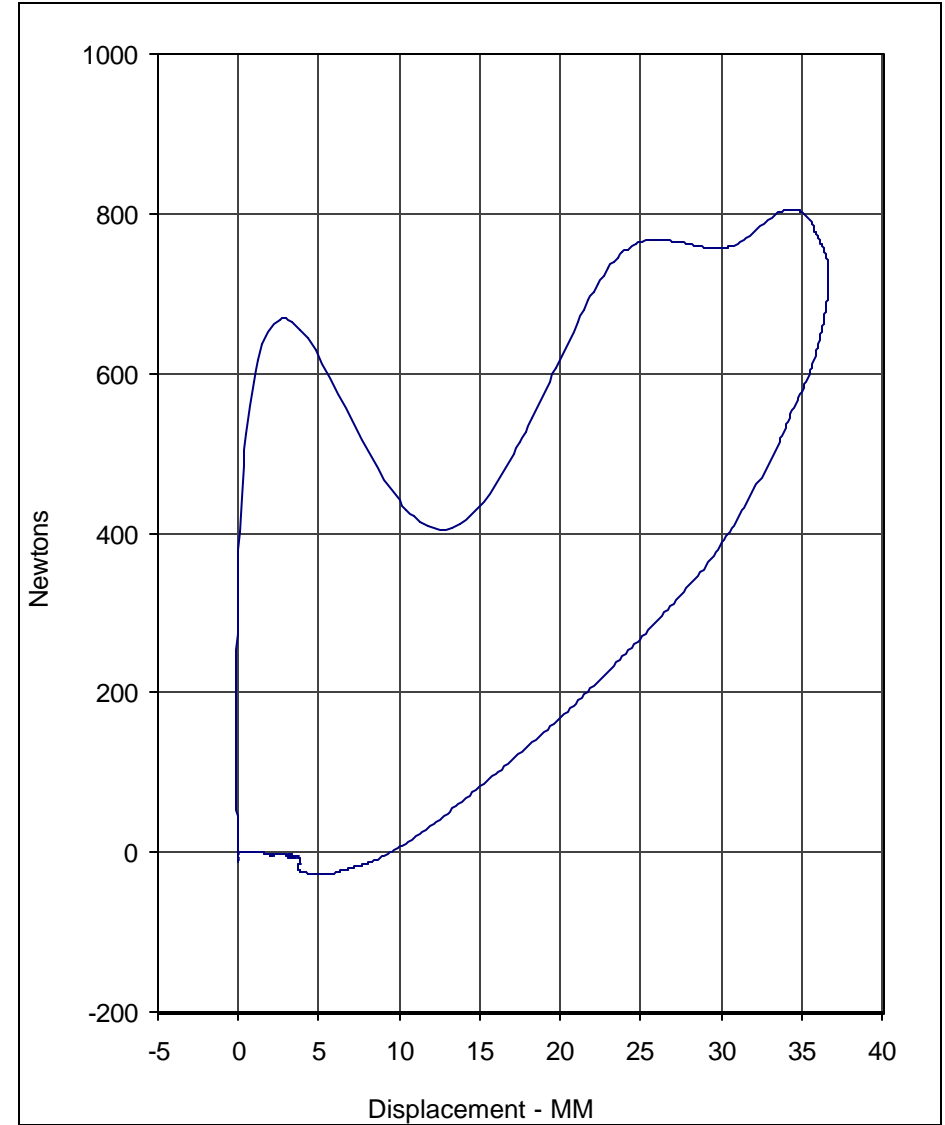
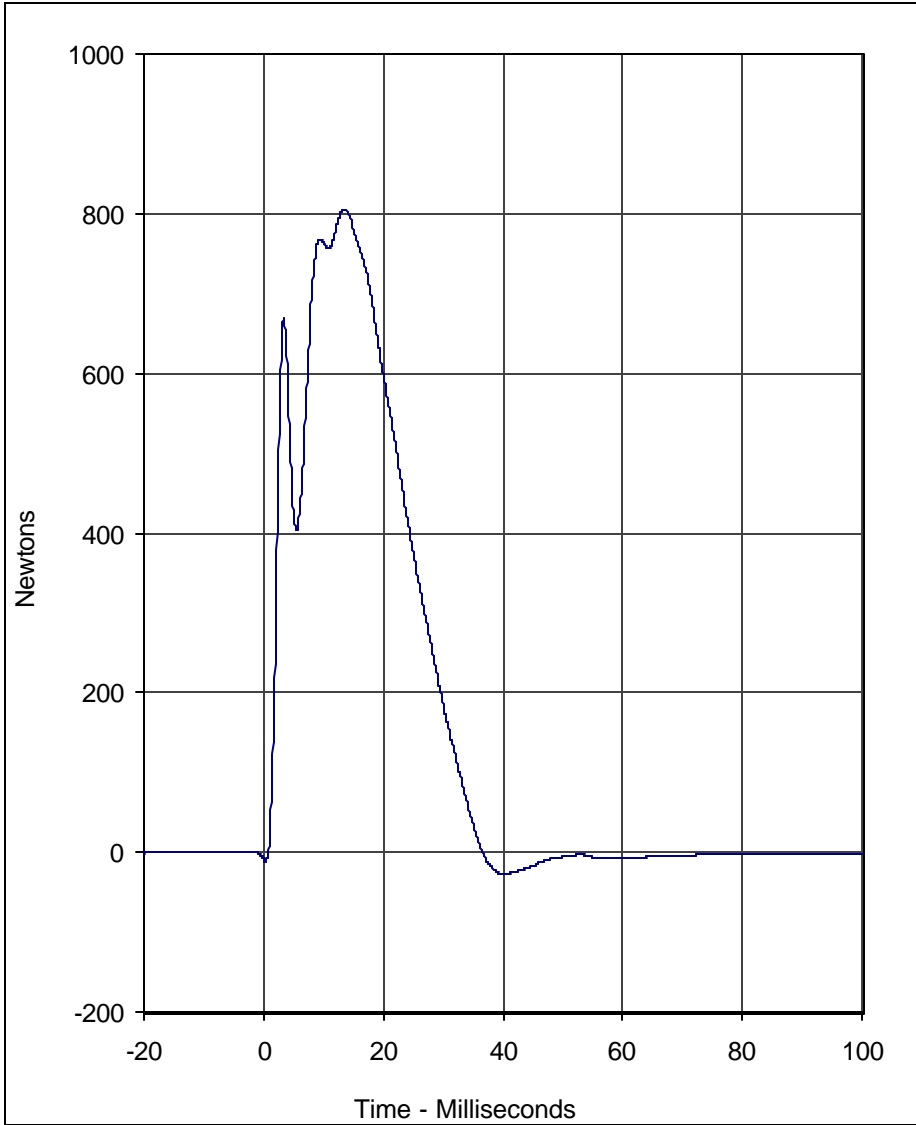
Curve Description	CURNO	Type
Probe Acceleration	002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	51.8	13.5	-1.8	40.0	180

Test Program: Hybrid III 3 Year Old Thorax Impact
 Test Date: 2/14/03

A.T.D. Serial No.: 082
 Test I.D.: CH02A





Curve Description	CURNO	Type
Probe Force	003	FIL

Curve Description	CURNO	Type
Probe Force vs. Chest Displacement	004	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	805.8	13.5	-27.8	40.0	180

Units	Hysteresis	SAE Class
%	69.8	180

Test Program: Hybrid III 3 Year Old Thorax Impact
 Test Date: 2/14/03

A.T.D. Serial No.: 082
 Test I.D.: CH02A





Calibration Data Sheet

Hybrid III 3 Year Old Neck Flexion Test

ATD Serial No.: 082

Test I.D.: NE02A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.40 to 5.60	5.43	Pass
Pendulum Deceleration	10 Msec.	m/s	2.0 to 2.7	2.2	Pass
	20 Msec.	m/s	3.0 to 4.0	4.0	Pass
	30 Msec.	m/s	4.0 to 5.1	4.7	Pass
"D" Plane Rotation	Maximum	Degrees	70.0 to 82.0	73.6	Pass
Peak Moment in Rotation	Maximum	Nm	42.0 to 53.0	43.3	Pass
Positive Moment Decay, Time to 10Nm		Msec.	60.0 to 80.0	73.2	Pass
Overall Test Results					Pass

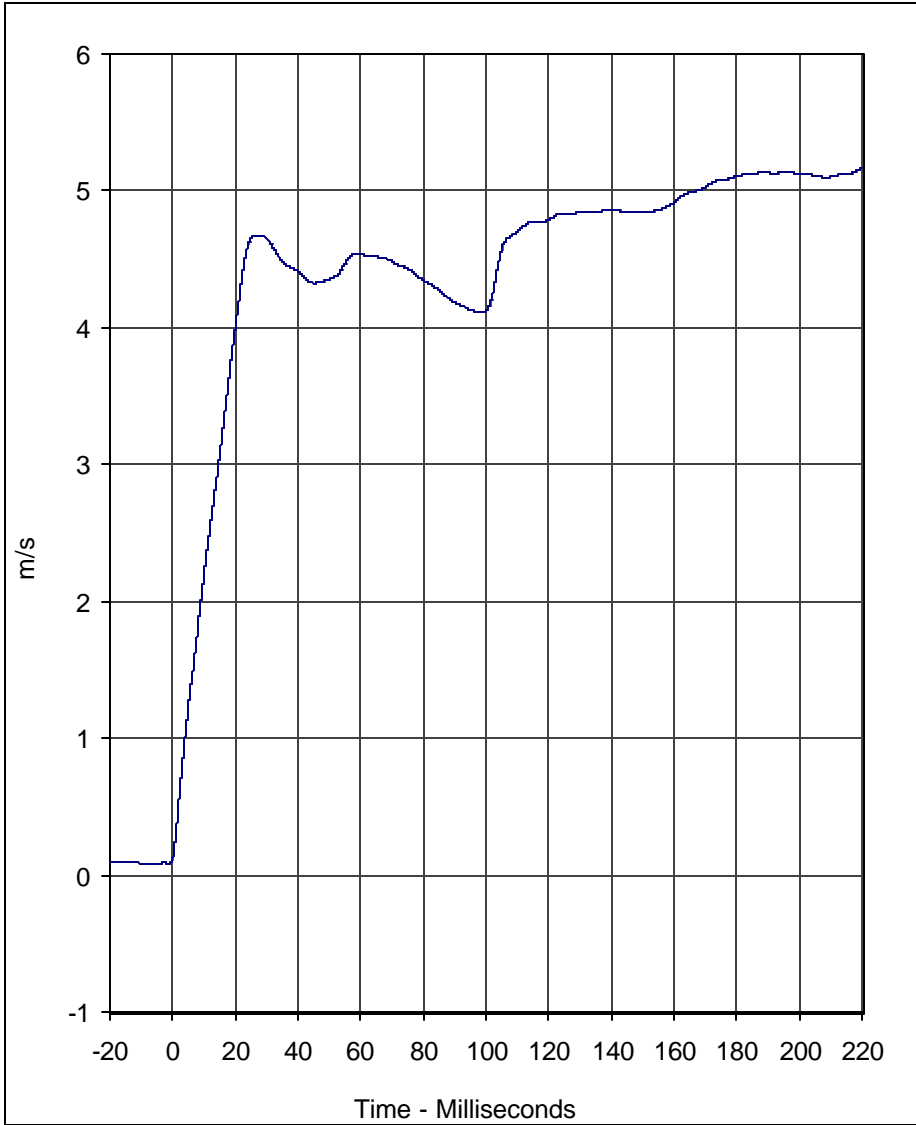
Laboratory Technician

February 14, 2003

Test Date

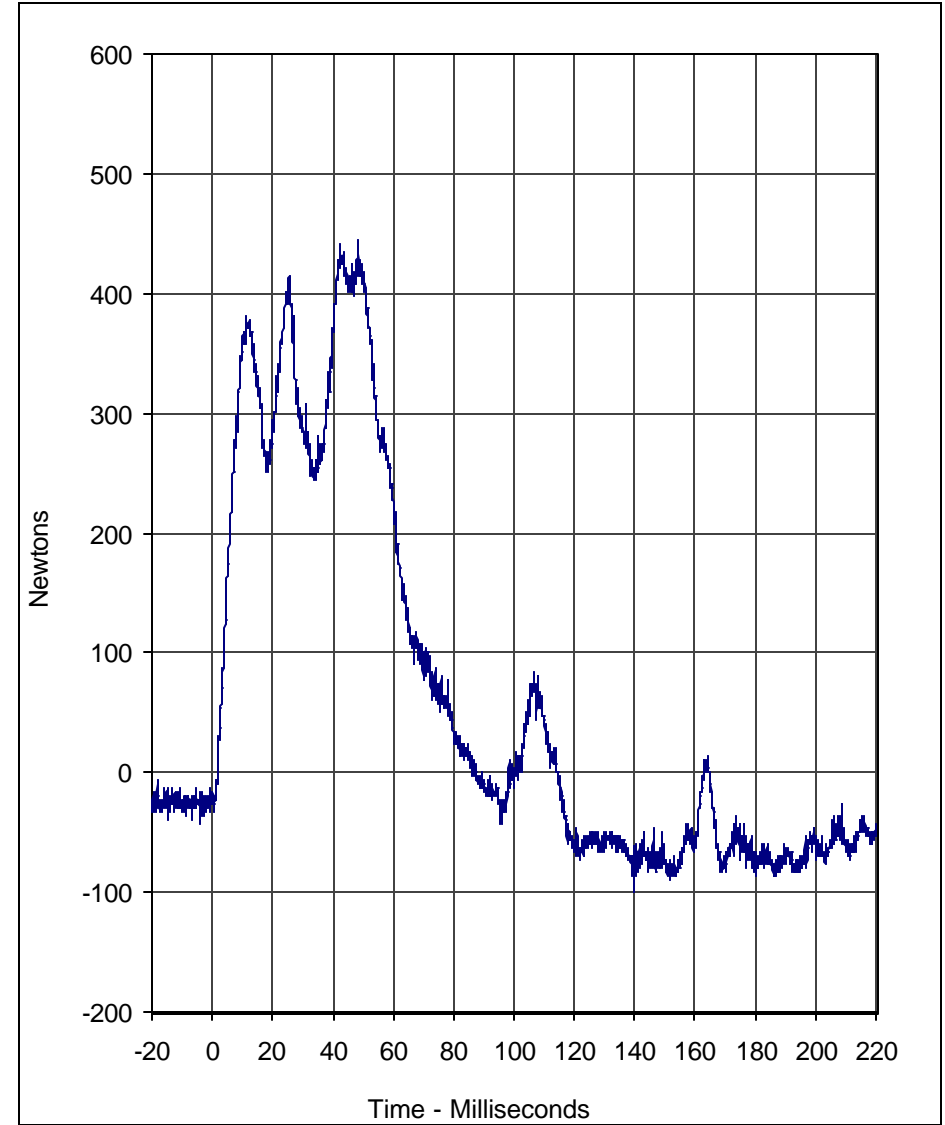
F5-6

TR-P23001-12-NC



Curve Description	CURNO	Type
Pendulum Velocity	001	FIL

Units	Max	Time	Min	Time	SAE Class
m/s	5.2	220.0	0.1	-1.0	180



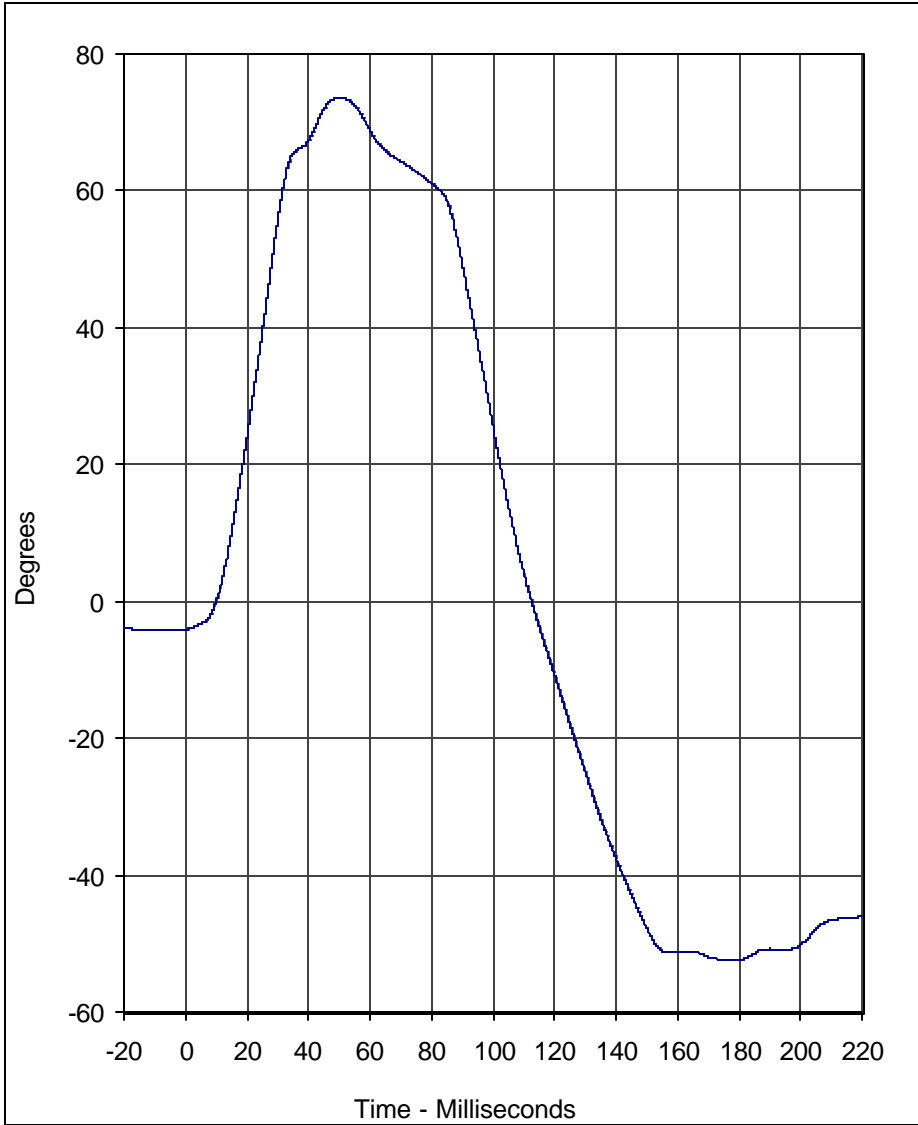
Curve Description	CURNO	Type
Neck Force X	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	444.3	48.6	-99.8	139.7	1000

Test Program: 3 Year Old Hybrid III Neck Flexion Test
 Test Date: 2/14/03

A.T.D. Serial No.: 082
 Test I.D.: NE02A

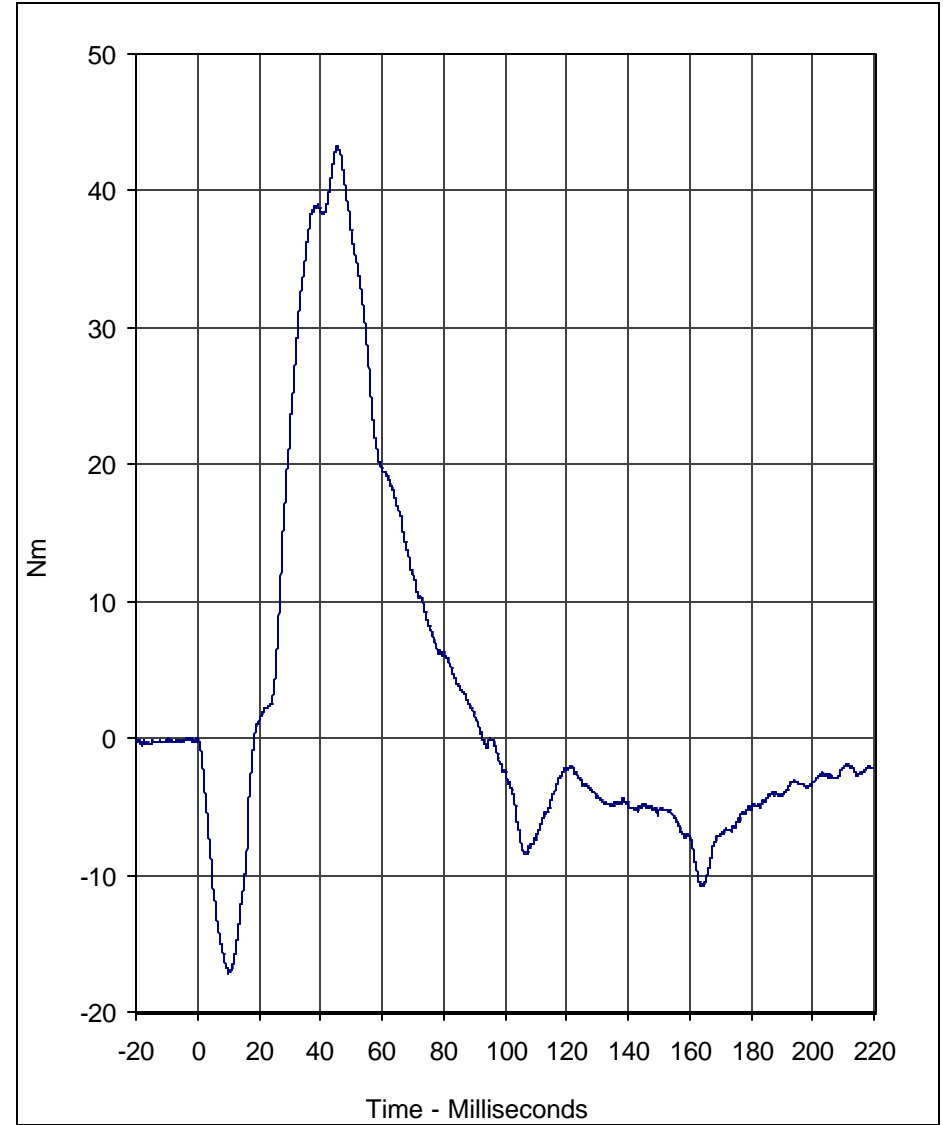




Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	73.6	50.1	-52.5	177.8	60

Test Program: 3 Year Old Hybrid III Neck Flexion Test
 Test Date: 2/14/03



Curve Description	CURNO	Type
Neck Moment Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	43.3	45.6	-17.3	10.1	600

A.T.D. Serial No.: 082
 Test I.D.: NE02A





Calibration Data Sheet

Hybrid III 3 Year Old Neck Extension Test

ATD Serial No.: 082

Test I.D.: NF03A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	3.55 to 3.75	3.72	Pass
Pendulum Deceleration	10 Msec.	m/s	1.0 to 1.4	1.2	Pass
	20 Msec.	m/s	1.9 to 2.5	2.4	Pass
	30 Msec.	m/s	2.8 to 3.5	2.9	Pass
"D" Plane Rotation	Maximum	Degrees	83.0 to 93.0	91.4	Pass
Peak Moment in Rotation	Maximum	Nm	-43.7 to -53.3	-47.2	Pass
Positive Moment Decay, Time to 10Nm		Msec.	60.0 to 80.0	73.8	Pass
Overall Test Results					Pass

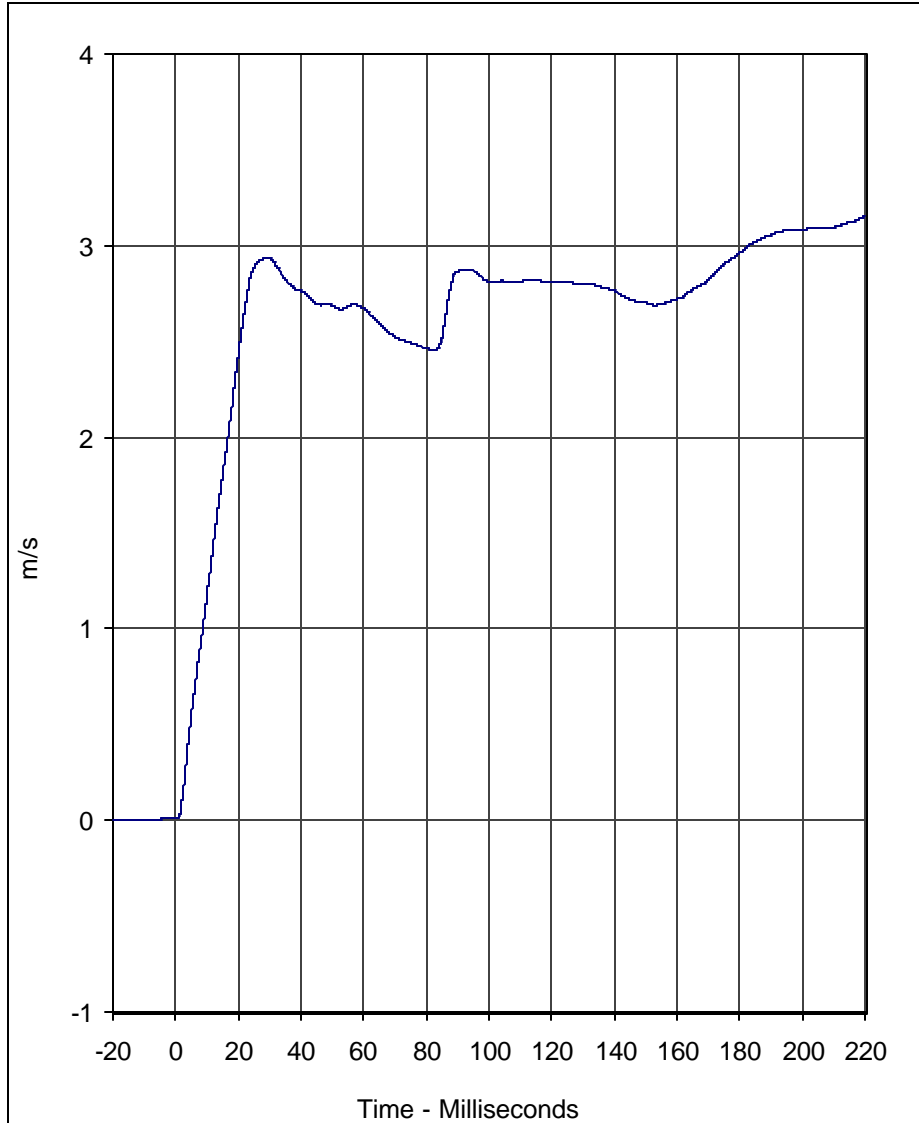
F5-9

TR-P23001-12-NC

Laboratory Technician

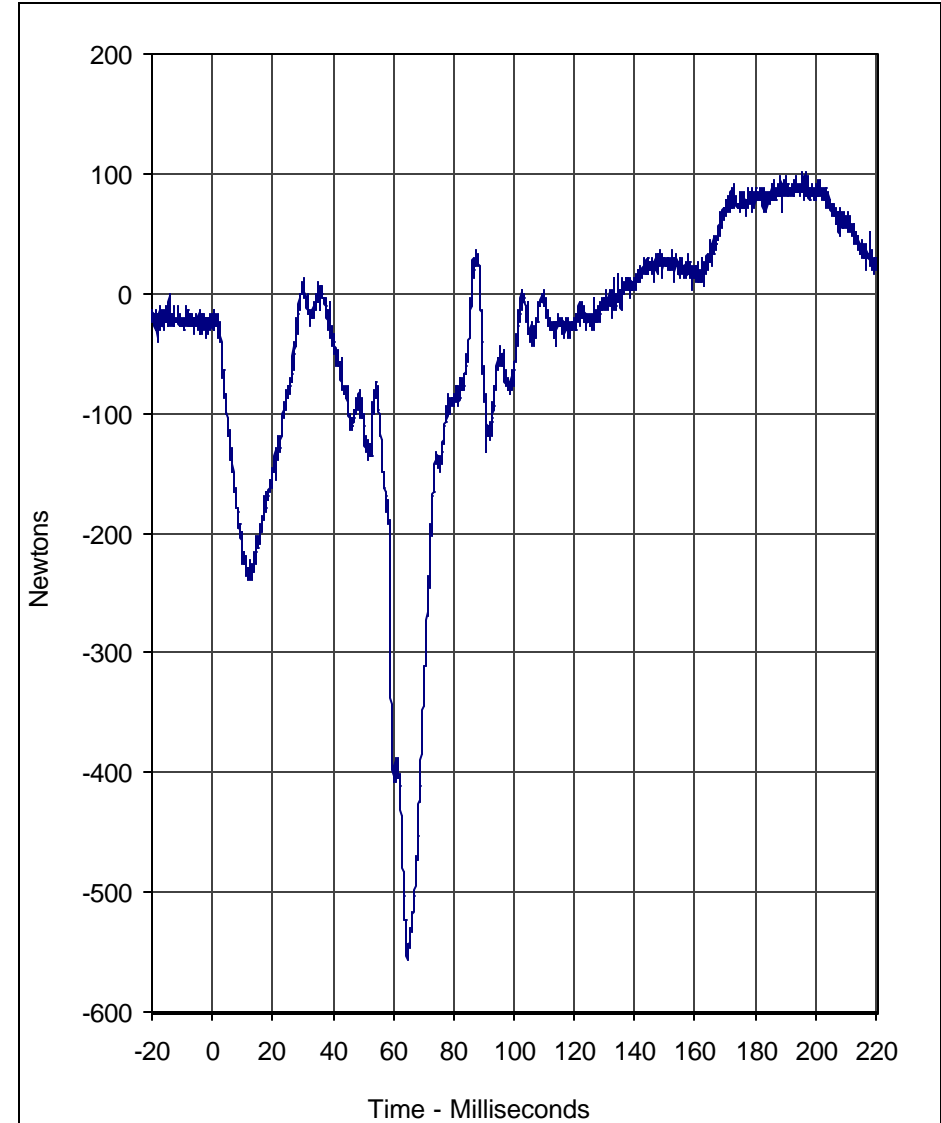
February 14, 2003

Test Date



Curve Description	CURNO	Type
Pendulum Velocity	001	FIL

Units	Max	Time	Min	Time	SAE Class
m/s	3.2	220.0	0.0	-20.0	180



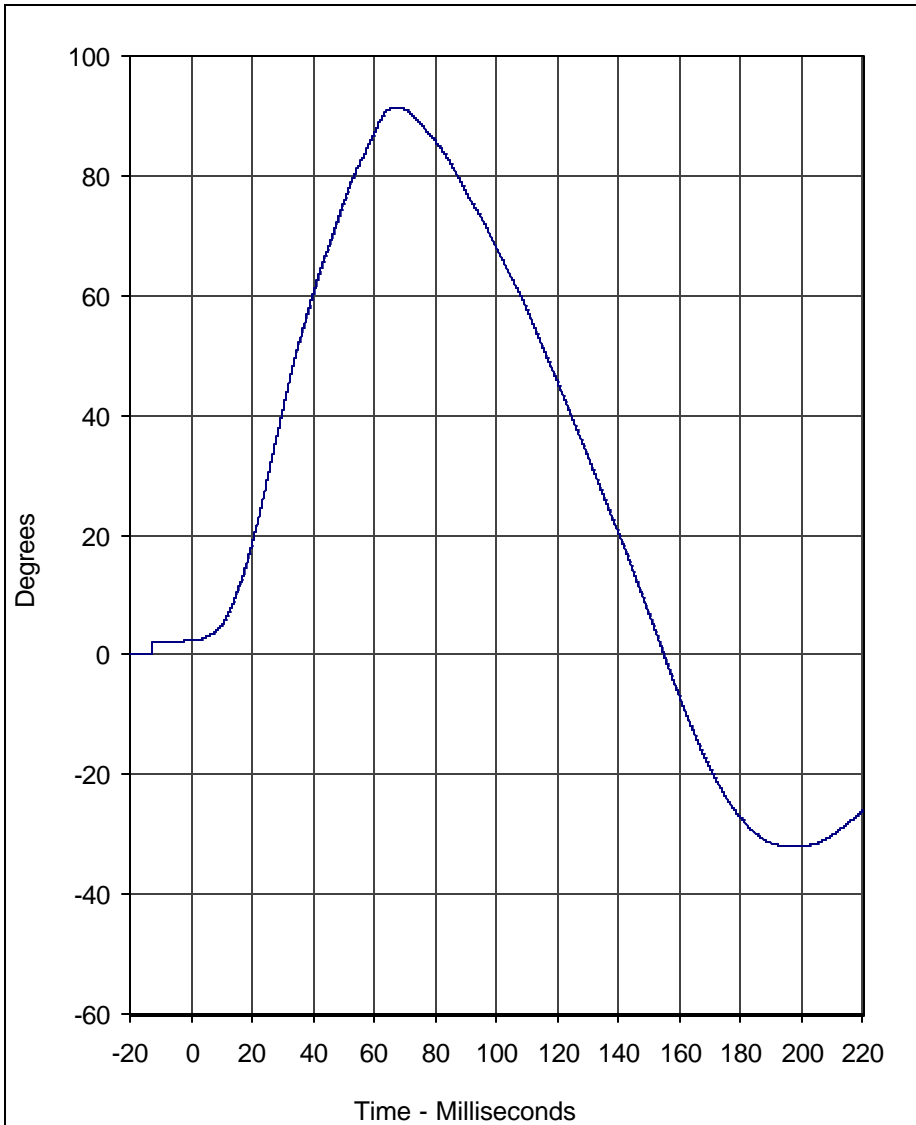
Curve Description	CURNO	Type
Neck Force X	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	101.3	195.4	-557.1	64.6	1000

Test Program: 3 Year Old Hybrid III Neck Extension Test
 Test Date: 2/14/03

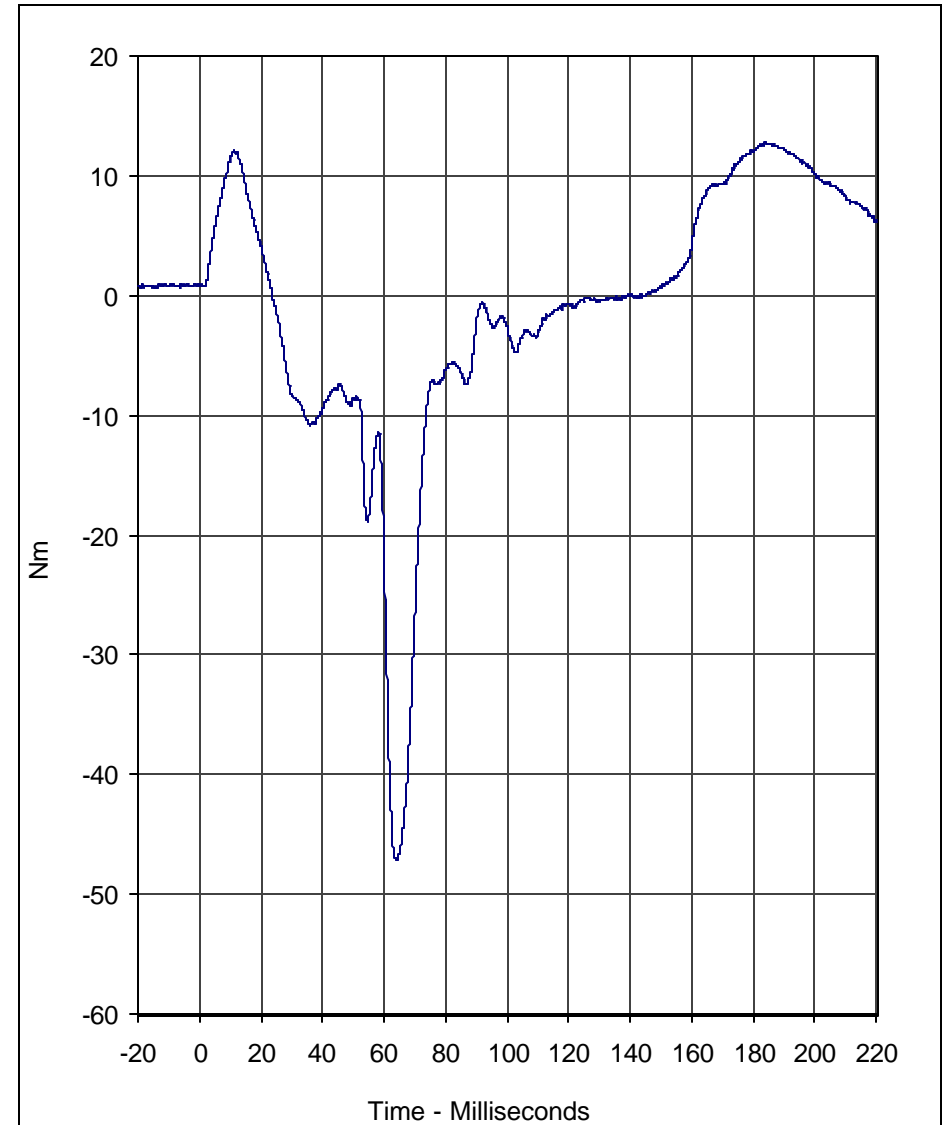
A.T.D. Serial No.: 082
 Test I.D.: NF03A





Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	91.4	67.1	-32.0	196.8	60



Curve Description	CURNO	Type
Neck Moment Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	12.8	184.1	-47.2	64.0	600

Test Program: 3 Year Old Hybrid III Neck Extension Test
 Test Date: 2/14/03

A.T.D. Serial No.: 082
 Test I.D.: NF03A





Calibration Data Sheet

Hybrid III 3 Year Old

Torso Flexion Test

ATD Serial No.: 082

Test I.D.: LF02A

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	4.2	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	130.0 to 180.0	170.0	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	0.7	Pass
Final reference plane angle	Degrees	+/-10	4.1	Pass
Overall Test Results				Pass

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Laboratory Technician

February 17, 2003

Test Date



Calibration Data Sheet Hybrid III 3 Year Old External Measurements

ATD Serial No.: 082

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	539 to 554	550	Pass
B - Shoulder pivot height	mm	307 to 323	315	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	260	Pass
H - Skull cap to back line	mm	48 to 58	50	Pass
I - Shoulder to elbow length	mm	185 to 201	195	Pass
J - Elbow rest height	mm	134 to 149	140	Pass
K - Buttock to knee length	mm	285 to 300	290	Pass
L - Popliteal length	mm	219 to 234	230	Pass
M - Knee pivot height	mm	242 to 257	250	Pass
N - Buttock popliteal length	mm	218 to 233	225	Pass
O - Chest depth with jacket	mm	139 to 154	150	Pass
P - Foot length	mm	138 to 148	140	Pass
R - Buttock to knee pivot length	mm	251 to 262	260	Pass
S - Head Breadth	mm	128 to 144	135	Pass
T - Head Depth	mm	167 to 183	180	Pass
U - Hip breadth	mm	201 to 216	215	Pass
V - Shoulder breadth	mm	237 to 252	245	Pass
W - Foot breadth	mm	54 to 64	60	Pass
X - Head circumference	mm	500 to 516	510	Pass
Y - Chest circumference with jacket	mm	527 to 553	550	Pass
Z - Waist circumference	mm	527 to 553	545	Pass
AA - Location for chest circumference	mm	249 to 259	255	Pass
BB - Location for waist circumference	mm	160 to 170	160	Pass
Overall Test Results				Pass

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Laboratory Technician

February 17, 2003

Test Date

HYBRID III 6 YEAR OLD S/N 027 CALIBRATED BY VRTC PRIOR TO TEST PROGRAM