

REPORT NUMBER KAR21001-05

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

**DAIMLER CHRYSLER CORPORATION
2001 DODGE RAM 1500
VAN
NHTSA NUMBER: M10310**

**PREPARED BY:
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9270 HOLLY ROAD
ADELANTO, CALIFORNIA 92301**



FEBRUARY 9, 2001

FINAL REPORT

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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2001 Dodge Ram 1500 Van at KARCO Engineering on 1/16/01. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity is 55.86 km/h. The ambient temperature at the barrier face at the time of impact is 5.0 degrees Celcius. The vehicle's maximum post test static crush is 536 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: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 35%;">Measurement Description</th> <th style="width: 15%;">Units</th> <th style="width: 15%;">Threshold</th> <th style="width: 20%;">Driver ATD</th> <th style="width: 15%;">Passenger ATD</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC)</td> <td>N/A</td> <td>1000</td> <td>661.2</td> <td>491.8</td> </tr> <tr> <td>Max. Thorax Accel. (3 msec Clip)</td> <td>G's</td> <td>60</td> <td>45.7</td> <td>45.9</td> </tr> <tr> <td>Left Femur force</td> <td>Newtons</td> <td>10009</td> <td>-7532.9</td> <td>-4959.5</td> </tr> <tr> <td>Right Femur Force</td> <td>Newtons</td> <td>10009</td> <td>-3705.3</td> <td>-3541.3</td> </tr> </tbody> </table>						Measurement Description	Units	Threshold	Driver ATD	Passenger ATD	Head Injury Criteria (HIC)	N/A	1000	661.2	491.8	Max. Thorax Accel. (3 msec Clip)	G's	60	45.7	45.9	Left Femur force	Newtons	10009	-7532.9	-4959.5	Right Femur Force	Newtons	10009	-3705.3	-3541.3
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SECTION 1

PURPOSE, TEST PROCEDURE AND SUMMARY OF TEST M10310

1.1 PURPOSE

The purpose of this 35 mph (56.3 km/h) frontal barrier impact test is to obtain vehicle crashworthiness, occupant restraint system performance, and lower leg data for frontal barrier impacts. The impact velocity used in this test is in excess of the current 30 mph (48.3 km/h) FMVSS 208/212/219/301 requirements.

1.2 TEST PROCEDURE

This 56.3-km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) New Car Assessment Program (NCAP) Laboratory Indicant Test Procedure, dated 01 October 1996 and the corresponding KARCO Engineering Test Procedure KTP-001, dated October 18, 1996. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion (Partial)"; and FMVSS 301 "Fuel System Integrity" performance. Procedures for receiving, inspection testing and reporting of test results are described in the test procedures and are not repeated in this report.

The test was conducted at KARCO Engineering on January 16, 2001 at a speed of 55.86 km/h. The test vehicle was instrumented with eight (8) accelerometers to measure longitudinal axis accelerations. The driver and passenger's restraint systems were instrumented with four (4) seat belt load cells to measure lap and shoulder belt tension. The specified impact velocity range was 55.5 to 57.1 km/h. The frontal barrier impact event was documented by one (1) real-time panning motion picture camera and seventeen (17) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information is documented in the data sheets. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The test vehicle contained two (2) part 572E 50th percentile adult male anthropomorphic test devices (ATDs). Both ATDs were instrumented with head, chest, and pelvic tri-axial accelerometers, left and right femur load cells, upper and lower tibia sensors, and foot accelerometers. In addition, chest displacement and upper neck six-axis force and moment sensors were utilized. The ATDs were positioned in the front outboard seating positions according to the dummy placement procedures specified in the Laboratory Indicant Test Procedure. Ninety-six (96) channels of data were recorded with a PC based (TDAS) on-board data acquisition system. The data was digitally sampled at 10,000 samples per second and processed per section IP11 of the Laboratory Indicant Test Procedure.

The Driver ATD (Serial No. 34) and the right-front passenger ATD (Serial No. 35) were calibrated one test prior to this test. FMVSS 208 "Occupant Crash Protection" injury criteria were not exceeded by either ATD during this frontal barrier impact test.

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

A rigid load cell barrier was impacted by a 2001 Dodge Ram 1500 Van at a velocity of 55.86 km/h. The test vehicle weight is 2182 kilograms with two (2) part 572E 50th percentile adult male ATDs. Twenty-four (24) load cell barrier data channels were obtained in conducting the January 16, 2001 NCAP test. The test vehicle is a gasoline vehicle, equipped with a longitudinally mounted, 6-cylinder engine and a 3-speed automatic transmission.

The driver Head Injury Criteria (HIC) is 661.2. The maximum resultant chest deceleration over three (3) milliseconds is 45.7 g's. The left and right femur loads are -7532.9 and -3705.3 Newton's, respectively. Chest deflection for the driver ATD peaked at -24.9 mm. The driver ATD head contacted the airbag and headrest, its chest and abdomen contacted the seat belt, and both knees contacted the knee bolster and the steering column.

The right front passenger's HIC is 491.8. The maximum resultant chest deceleration over three (3) milliseconds is 45.9 g's. The left and right femur loads are -4959.5 and -3541.3 Newton's respectively. Chest deflection for the passenger ATD peaked at -25.9 mm. The passenger ATD head contacted the airbag and headrest, the chest and abdomen contacted the airbag and both knees contacted the glove box.

Maximum shoulder belt spool out as measured by on-board potentiometers is 143.9 mm for the driver ATD and 32.0 mm for the passenger ATD. Shoulder belt stretch not measured with pretensioners.

There was 100 percent windshield retention (minimum 50 percent required for passive restraint systems). No intrusion occurred into the protected or unprotected zone of the windshield. No Stoddard solvent leakage occurred after impact or during any phase of the rollover.

The test vehicle sustained a maximum static crush of 536 mm located at the vehicle centerline. Both the driver and passenger side doors opened without the aid of tools.

1.4 GENERAL COMMENTS

The 2001 Dodge Ram 1500 Van passed the requirements of FMVSS 208, FMVSS 212, FMVSS 219 and FMVSS 301-75. Data pertaining to these standards are presented in the data sheets.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. Appendix B contains the dummy and vehicle 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 owner's manual instructions for the occupant seating and restraint systems.

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01

CONVERSION FACTORS USED IN THIS REPORT*

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

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

DATA SHEET NO. 1
CRASH TEST SUMMARY

Test Vehicle: 2001 Dodge Ram 1500 Van
Test Program: 2001 NHTSA 35 mph NCAP

NHTSA No.: M10310
Test Date: 01/16/01

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	55.86
Test Weight	kg	2182
Impact Angle	degrees	0
Average Rebound	mm	939
Maximum Static Crush	mm	536

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door Opening	Opened	Opened
Rear Door Opening	N/A	N/A
Seat Track Shift (mm)	None	None
Seat Back Failure	None	None

TEST DUMMY INFORMATION

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

16mm MOVIE COVERAGE

High Speed	17
Real Time	1
Total	18

DATA CHANNELS

Driver ATD Sensors	40
Passenger ATD Sensors	40
Belt Assessment Sensors	8
Vehicle Structure Accelerometers	8
Rigid Barrier Load Cells	24
Total	120

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01

TEST VEHICLE INFORMATION

Make	Dodge
Model	Ram 1500
Body Style	Van
NHTSA No.	M10310
VIN	2B7HB11X01K513084
Color	White
Delivery Date	1/8/01
Odometer Reading (mile)	165
Dealer	Wothington Dodge
Transmission	3-Speed Automatic
Final Drive	Rear
Number of Cylinders	6
Engine Displacement (L)	3.9
Engine Placement	Longitudinal

TEST VEHICLE OPTIONS

Driver Airbag	Yes
Passenger Airbag	Yes
Power Windows	No
Power Steering	Yes
Power Door Locks	No
Tilt Wheel	No
Air Conditioning	Yes
Power Brakes	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	No
Anti-lock Brakes	Yes
AM/FM/Cassette	Yes
Anti-Theft System	No
Cruise Control	No

DATA FROM CERTIFICATION LABEL

Manufactured By	Daimler Chrysler Corporation	GVWR (kg)	2994
Date of Manufacture	October-00	GAWR Front (kg)	1588
		GAWR Rear (kg)	1746

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	245	285
Cold Pressure (kPa)	245	285
Recommend Tire Size	P235/75/R15XL	P235/75/R15XL
Tire Size on Vehicle	P235/75/R15XL	P235/75/R15XL
Tire Manufacturer	Michelin	Michelin

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	None	
Number of Occupants	2	0	0	2
Capacity Wt. (VCW) (kg)				1092
Cargo Weight (RCLW) (kg)				136

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

Test Vehicle: 2001 Dodge Ram 1500 Van
 Test Program: 2001 NHTSA 35 mph NCAP

NHTSA No.: M10310
 Test Date: 01/16/01

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	569	370		651	438	
Right	kg	598	365		641	452	
Ratio	%	61.4	38.6		59.2	40.8	
Totals	kg	1167	735	1902	1292	890	2182

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1902
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Weight (RCLW)	kg	136
Calculated Vehicle Target Weight (TVTW)	kg	2190

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	798	800	814	816	1073
As Tested	mm	770	770	800	805	1134

Vehicle Wheel base (mm): 2780

Weight of Ballast secured in cargo area (kg): 7

Vehicle Components Removed: Side mirrors, jack, tools, spare tire and paneling.

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

FUEL SYSTEM DATA

Fuel System Capacity From Owner's Manual (L): 117.3

Usable Capacity Figure Furnished by COTR (L): N/A

Actual Test Volume with entire fuel System Filled (L): 109.1

Test Fluid Type: Stoddard Solvent ; Specific Gravity: 0.764

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

Is Vehicle Fuel Pump Electric or Mechanical?: Electric

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

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

DATA SHEET NO. 3
POST IMPACT DATA

Test Vehicle: 2001 Dodge Ram 1500 Van
Test Program: 2001 NHTSA 35 mph NCAP

NHTSA No.: M10310
Test Date: 01/16/01

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	55.51 to 57.12	55.86
Trap No. 1 Entry Distance	mm	< 1524	1524
Trap No. 1 Exit Distance	mm	< 1524	305
Trap No. 2 Velocity (Redundant)	km/h	55.51 to 57.12	56.36
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	4585	4266	-319
Center	mm	4876	4340	-536
Right Side	mm	4583	4225	-358

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	990
Center	mm	880
Right Side	mm	947
Average	mm	939

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

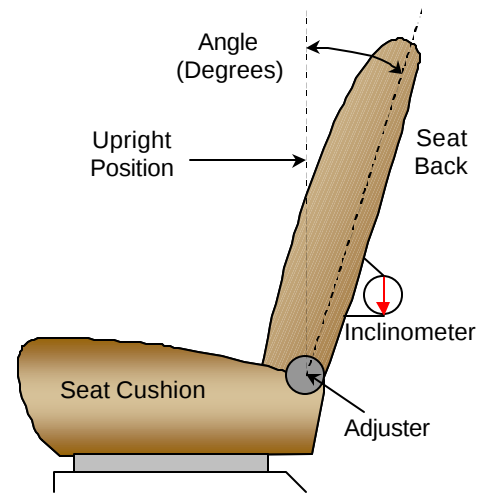
Test Date: 01/16/01

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.

Driver seat back angle: 22° with a seated dummy

Passenger seat back angle: 22° with a seated dummy



FRONT SEAT ASSEMBLY

SEAT FORE/AFT POSITIONS

Both driver and passenger seats have 19 positions or detents. 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 driver and passenger.

Driver seat fore/aft total travel: 19 seating positions or detents

Passenger seat fore/aft total travel: 19 seating positions or detents

Driver seat fore/aft position: 10th detent from forward most

Passenger seat fore/aft position: 10th detent from forward most

SEAT BELT UPPER ANCHORAGE

The test vehicle is equipped with adjustable anchorages for both driver and passenger seat positions. The driver side has 6 positions and is set in the 3rd from the top; the passenger has 5 positions and is set in the mid position.

DATA SHEET NO. 4...(continued)

TEST VEHICLE INFORMATION

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01

FUEL TANK CAPACITY DATA

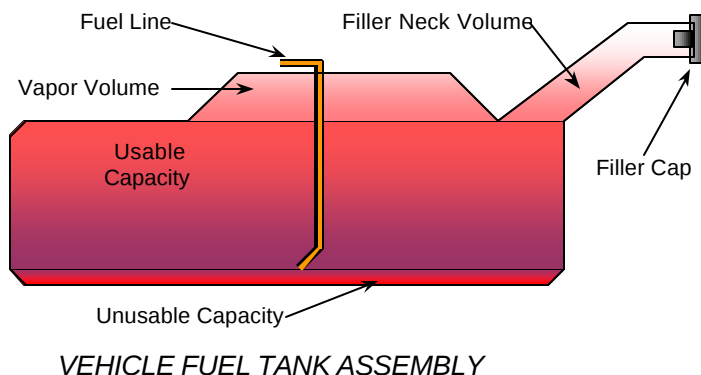
The "Usable Capacity" of the standard equipment fuel tank is: 117.3 liters

The "Usable Capacity" of any optional equipment fuel tank is: N/A liters

"Usable Capacity" used for certification tests FMVSS 301 requirements: 107.9 to 110.3 liters

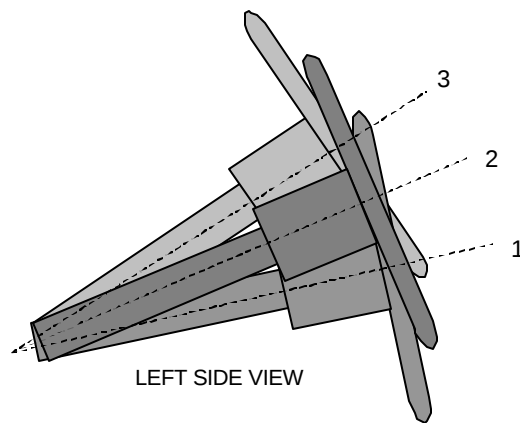
Actual amount of Stoddard solvent added to vehicle for certification test: 109.1 liters

The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed to 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. Fuel lines run along the left side of the body to the engine compartment.



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. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed onto the plate, and the angle is measured. This vehicle's steering column is not adjustable.



STEERING COLUMN ASSEMBLY

Lowermost, position 1: N/A

Geometric center, position 2: 25°

Uppermost, position 3: N/A

DATA SHEET NO. 5

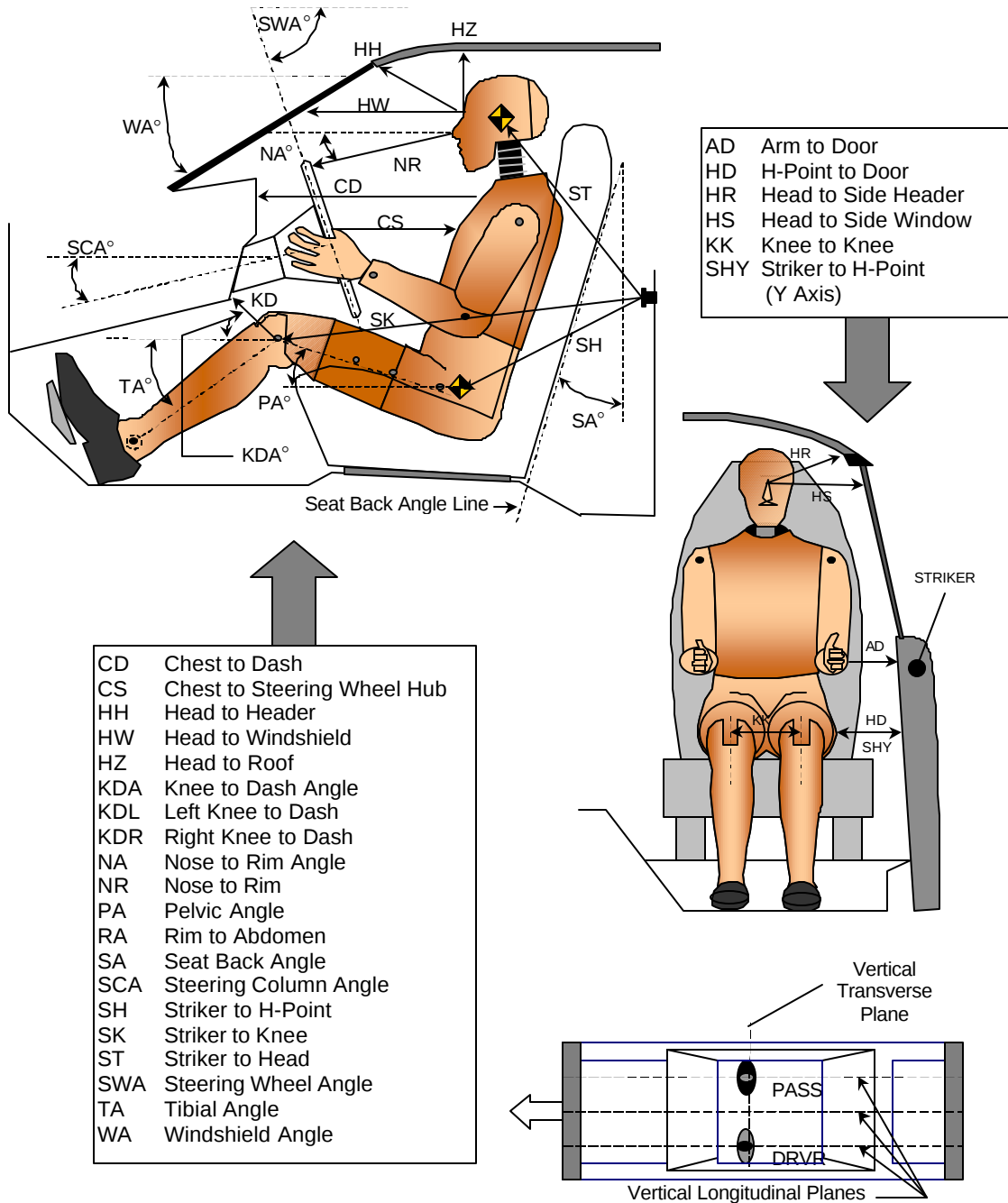
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01



DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

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

Test Vehicle: 2001 Dodge Ram 1500 Van
 Test Program: 2001 NHTSA 35 mph NCAP

NHTSA No.: M10310
 Test Date: 01/16/01

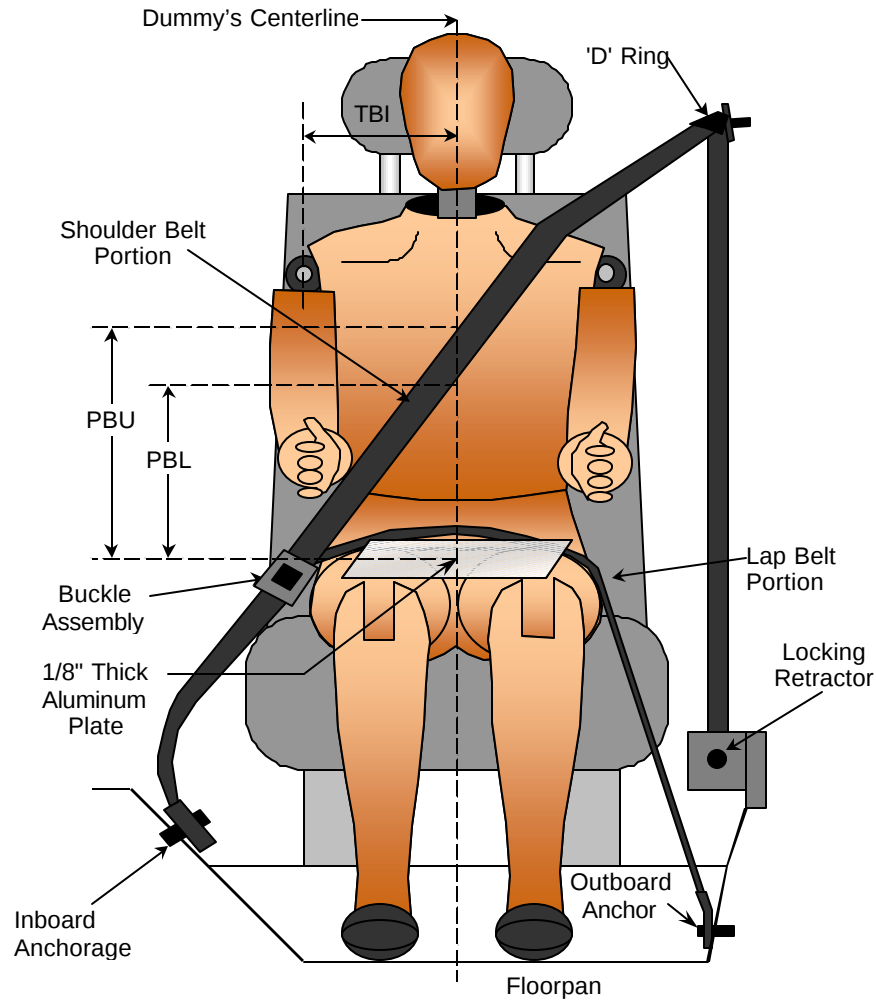
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		47		
SWA	Steering Wheel Angle		65		
SCA	Steering Column Angle		25		
SA	Seat Back Angle		22		20
HZ	Head to Roof (Z)	215	90	201	90
HH	Head to Header	642	0	720	0
HW	Head to Windshield	756	0	824	0
HR	Head to Side Header (Y)	227		252	
NR	Nose to Rim	440	16		
CD	Chest to Dash	600		530	
CS	Chest to Steering Hub	348	0		
RA	Rim to Abdomen	194	0		
KDL	Left Knee to Dash	115	27	110	
KDR	Right Knee to Dash	120		140	20
PA	Pelvic Angle		23		21
TA	Tibia Angle		39		12
KK	Knee to Knee (Y)	200		185	
SK	Striker to Head	555	18	480	20
ST	Striker to Knee	720	0	740	4
SH	Striker to H-Point	158	18	95	65
SHY	Striker to H-Point (Y)	205		200	
HS	Head to Side Window	285		295	
HD	H-Point to Door (Y)	140		145	
AD	Arm to Door (Y)	77		1	

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

Test Vehicle: 2001 Dodge Ram 1500 Van
 Test Program: 2001 NHTSA 35 mph NCAP

NHTSA No.: M10310
 Test Date: 01/16/01



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy centerline to shoulder bolt	mm	170	170
PBU - Top surface of reference to belt upper edge	mm	292	320
PBL - Top surface of reference to belt lower edge	mm	220	240
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: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35mph NCAP

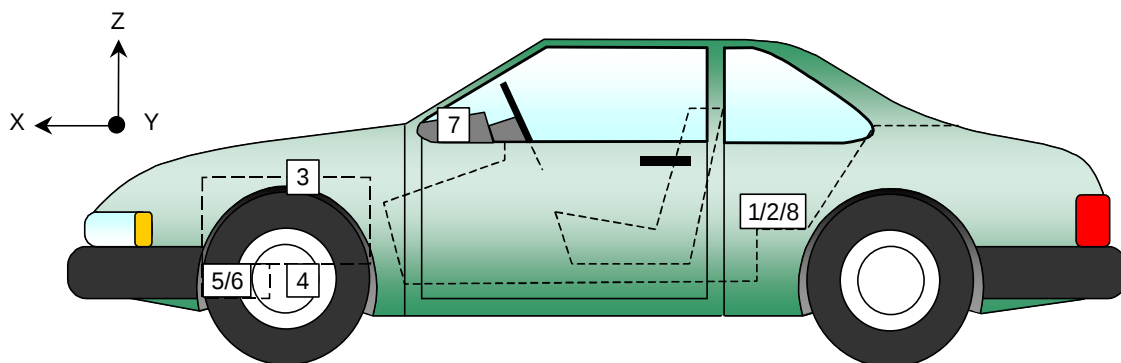
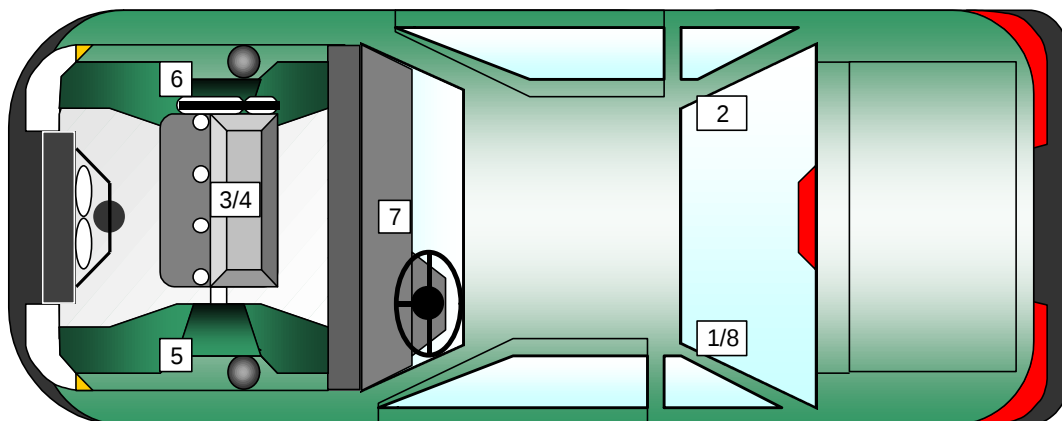
Test Date: 01/16/01

VEHICLE X-AXIS 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 (Pri.)	2290	-865	660	G's	2.0	122.2	-55.9	14.2
2	Right Rear X-Member (Pri.)	2260	775	660	G's	2.3	122.7	-57.0	13.9
3	Engine Top	3670	-300	825	G's	7.5	61.7	-92.1	48.7
4	Engine Bottom	3780	145	220	G's	0.0	2.8	-46.3	40.0 *
5	Left Brake Caliper	3860	-815	305	G's	8.5	71.6	-71.6	21.2
6	Right Brake Caliper	3860	815	305	G's	9.9	64.7	-78.6	30.1
7	Instrument Panel	3810	20	1475	G's	18.1	42.9	-55.3	60.5
8	Left Rear X-Member (Rednt.)	2370	-865	660	G's	1.9	120.7	-57.8	14.6

Reference Points X - From Rear Surface of Vehicle Y - Vehicle Centerline Z - Ground Plane

* Channel failed at 49.6 msec.



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

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35mph NCAP

Test Date: 01/16/01

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	9.6	213.0	-69.5	71.5	15.3	181.9	-50.9	69.9
Head CG	Y	G's	18.5	82.6	-5.8	105.9	2.7	173.4	-18.1	84.1
Head CG	Z	G's	18.0	57.7	-32.8	88.5	24.3	56.7	-14.0	83.0
Head CG Resultant	N/A	G's	72.0	71.5			53.0	71.7		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	4.2	155.4	-45.1	77.7	6.2	138.5	-46.7	64.2
Chest CG	Y	G's	10.2	79.3	-2.3	35.7	1.8	34.4	-8.8	72.0
Chest CG	Z	G's	6.1	65.9	-11.0	83.6	8.7	56.3	-18.0	81.0
Chest CG Resultant	N/A	G's	46.8	78.0			47.5	64.2		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	142.5	33.4	-7532.9	42.7	144.9	22.9	-4959.5	43.8
Right Femur	Z	Newtons	249.6	35.1	-3705.3	43.8	489.5	35.6	-3541.3	42.6

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt Force	N/A	Newtons	3083.3	44.3	-39.6	102.5	4655.0	54.6	-25.7	144.5
Shoulder Belt Force	N/A	Newtons	4432.2	53.5	-25.4	10.3	4437.9	60.3	-68.5	144.5
Shoulder Belt Pullout	N/A	MM	143.9	88.7	-101.9	44.5	32.0	84.4	-109.4	47.6
Shoulder Belt Stretch	N/A	MM/CM	0.000	0.0	0.000	0.0	0.000	0.0	0.000	0.0

* Not used with pre-tensioners.

HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg G	T ¹	T ²	HIC	Avg G	T ¹	T ²
Head CG Primary	661.2	52.6	57.6	90.5	491.8	45.1	52.1	88.0

CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	45.7	77.0	80.0	45.9	63.3	66.3

DATA SHEET NO. 8...(continued)

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35mph NCAP

Test Date: 01/16/01

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	3.3	127.8	-68.6	43.3	8.7	99.9	-68.1	42.2
Pelvis	Y	G's	8.9	85.0	-13.7	51.4	3.1	64.3	-15.8	42.7
Pelvis	Z	G's	2.3	171.0	-23.8	73.1	2.9	16.1	-29.6	79.2

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	496.0	93.4	-485.7	41.9	496.0	63.1	-382.0	47.6
Neck Force	Y	Newtons	178.2	149.5	-345.9	79.0	275.5	71.6	-127.2	139.7
Neck Force	Z	Newtons	2076.8	68.0	-446.4	93.1	1987.7	50.9	-436.9	98.4
Neck Moment	X	N•m	20.6	77.4	-10.1	89.6	4.5	209.4	-25.8	51.9
Neck Moment	Y	N•m	18.0	54.6	-36.9	84.6	43.2	63.4	-18.6	209.5
Neck Moment	Z	N•m	16.6	170.7	-40.0	93.8	18.1	100.0	-6.0	143.6

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	12.0	66.9	-129.4	50.2	14.2	53.9	-51.1	43.2
Left Foot Aft	Z	G's	13.1	75.2	-47.8	49.6	25.8	41.0	-47.1	47.9
Left Foot Fore	Z	G's	26.8	48.5	-91.2	43.5	59.4	54.0	-73.4	44.7
Right Foot Aft	X	G's	10.5	61.5	-108.3	45.0	13.3	48.0	-140.1	60.5
Right Foot Aft	Z	G's	4.7	68.1	-55.8	48.4	21.4	57.2	-45.4	65.9
Right Foot Fore	Z	G's	33.8	18.9	-104.2	35.8	126.6	53.1	-91.0	62.9

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Lower Moment	X	N•m	6.3	39.3	-51.9	51.6	65.4	55.6	-24.0	45.9
Left Lower Moment	Y	N•m	85.6	50.7	-12.3	21.9	30.4	40.6	-37.2	64.7
Left Lower Force	Z	Newtons	73.5	174.0	-2831.5	51.4	72.6	133.0	-2927.8	54.1
Left Upper Moment	X	N•m	31.0	44.0	-20.5	30.7	20.2	42.0	-49.4	54.2
Left Upper Moment	Y	N•m	249.9	43.3	-29.5	22.8	67.3	40.4	-149.7	53.8
Right Lower Moment	X	N•m	28.3	49.3	-79.4	51.3	52.7	68.9	-44.2	61.8
Right Lower Moment	Y	N•m	31.0	51.8	-43.8	39.0	24.0	100.5	-147.5	63.1
Right Lower Force	Z	Newtons	100.6	171.1	-1447.0	51.9	138.3	49.6	-2399.0	62.4
Right Upper Moment	X	N•m	97.2	50.7	-8.1	112.5	20.0	36.6	-84.6	62.7
Right Upper Moment	Y	N•m	71.0	43.8	-50.9	67.7	14.5	113.2	-243.9	63.9

DATA SHEET NO. 8...(continued)Test Vehicle: 2001 Dodge Ram 1500 VanNHTSA No.: M10310Test Program: 2001 NHTSA 35mph NCAPTest Date: 01/16/01**CHEST PEAK DISPLACEMENTS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.2	0.5	-24.9	61.0	0.4	3.9	-25.9	62.3

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	8.2	209.3	-68.9	70.8	14.0	181.0	-53.9	72.7
Head CG	Y	G's	19.0	84.3	-3.6	105.2	2.8	29.3	-20.1	84.4
Head CG	Z	G's	17.9	66.4	-33.7	89.1	22.4	56.5	-16.6	82.8
Head CG Resultant	N/A	G's	71.1	70.9			55.8	72.7		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	5.0	155.2	-44.6	78.0	7.0	141.0	-46.8	64.1
Chest CG	Y	G's	10.9	78.8	-3.4	35.2	4.7	40.3	-10.9	72.2
Chest CG	Z	G's	5.5	66.2	-9.0	82.0	9.5	56.4	-18.9	83.9
Chest CG Resultant	N/A	G's	46.4	78.1			47.6	64.1		

REDUNDANT HEAD INJURY CRITERA (HIC)

Location	Driver				Passenger			
	HIC	Avg G	T ¹	T ²	HIC	Avg G	T ¹	T ²
Head CG Redundant	649.2	52.0	57.7	90.9	518.2	46.1	52.3	88.2

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	45.2	77.0	80.0	45.6	62.8	65.8

DATA SHEET NO. 9**SEAT BELT PERFORMANCE ASSESSMENT TEST DATA**Test Vehicle: 2001 Dodge Ram 1500 VanNHTSA No.: M10310Test Program: 2001 NHTSA 35 mph NCAPTest Date: 01/16/01**SEAT BELT PLACEMENT MEASUREMENTS**

Measurement Description	Units	Driver	Passenger
TCI - Dummy centerline to shoulder bolt	mm	280	285
PBU - Top surface of reference to belt upper edge	mm	320	321
PBL - Top surface of reference to belt lower edge	mm	245	240
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	820	820
Shoulder belt length as measured on ATD	mm	942	936
Lap belt length as measured on ATD	mm	986	1034
Remainder of belt on reel	mm	649	500
Total belt length for continuous webbing systems	mm	3397	3290

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	126.0	30.0
As determined electronically	mm	143.9	32.0

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
Electronically from shoulder belt load cell and "D" ring	mm/cm	N/A	N/A
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: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01

Windshield Mounting Details:

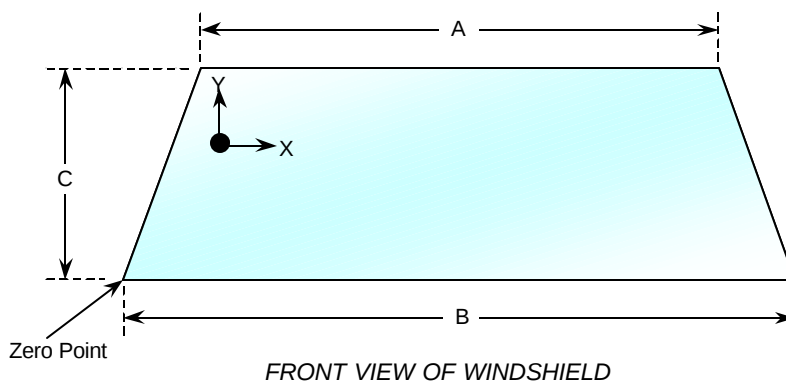
Windshield glass is secured to the vehicle frame with a rubber type adhesive. There is no molding that covers the windshield periphery at any point.

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	2332.5	2332.5	100
Right Side	2332.5	2332.5	100
Total	4665.0	4665.0	100



WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1660	25
B	mm	1855	N/A
C	mm	75	25

DATA SHEET NO. 11

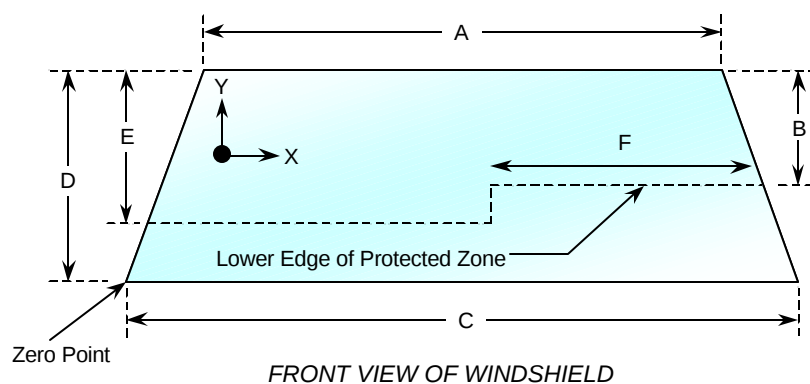
WINDSHIELD ZONE INTRUSION FMVSS 219 (PARTIAL) DATA

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01



WINDSHIELD AND PROTECTED ZONE

Item	Units	Value
A	mm	1660
B	mm	310
C	mm	1855
D	mm	575
E	mm	320
F	mm	520

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: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01

Test Time: 12:23 PM

Temperature at Time of Impact: 5.0 °C

STODDARD SOLVENT SPILLAGE MEASUREMENT

- 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 Details: No leakage occurred

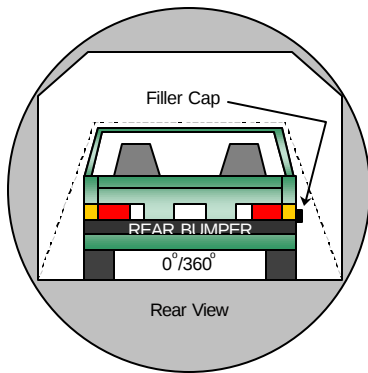
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA SHEET

Test Vehicle: 2001 Dodge Ram 1500 Van

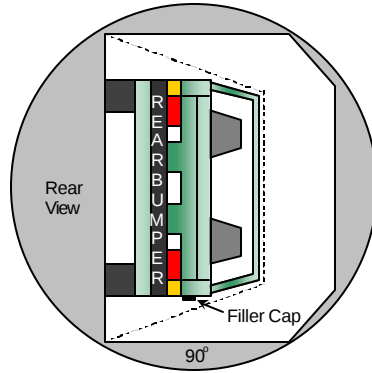
NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

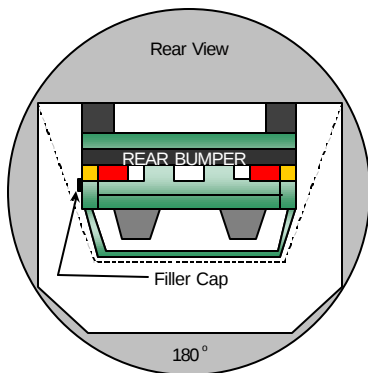
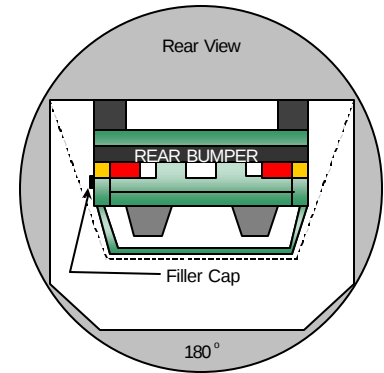
Test Date: 01/16/01



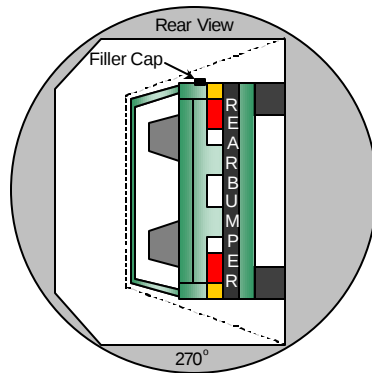
0° TO 90°



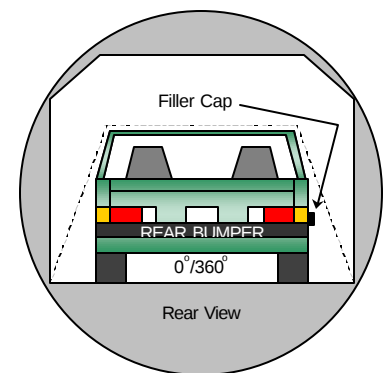
90° TO 180°



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.

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° TO 90°	82	300	0.0
90° TO 180°	81	300	0.0
180° TO 270°	76	300	0.0
270° TO 360°	82	300	0.0

DATA SHEET NO. 14
VEHICLE MEASUREMENTS

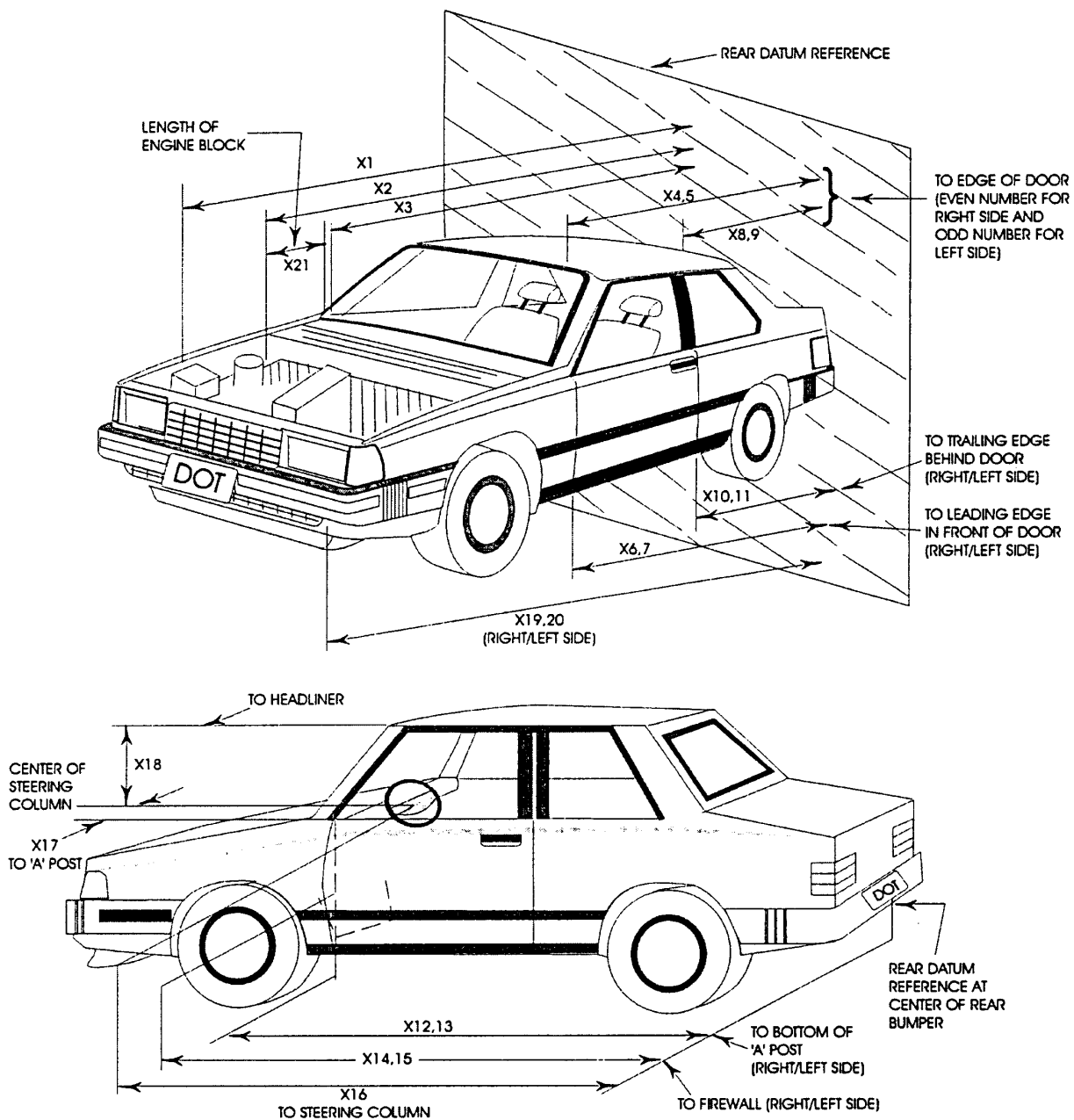
Test Vehicle: 2001 Chevrolet Malibu 4 Door Sedan

NHTSA No.: M10104

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/04/01

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	4830	4267	-563
2	RSOV to front of engine	mm	4250	4006	-244
3	RSOV to firewall centerline	mm	3700	3574	-126
4	RSOV to leading edge of right door	mm	3270	3275	5
5	RSOV to leading edge of left door	mm	3275	3274	-1
6	RSOV to lower leading edge of right door	mm	3274	3272	-2
7	RSOV to lower leading edge of left door	mm	3275	3276	1
8	RSOV to upper trailing edge of right door	mm	2240	2245	5
9	RSOV to upper trailing edge of left door	mm	2244	2239	-5
10	RSOV to lower trailing edge of right door	mm	2241	2241	0
11	RSOV to lower trailing edge of left door	mm	2240	2246	6
12	RSOV to bottom of right 'A' pillar	mm	3269	3268	-1
13	RSOV to bottom of left 'A' pillar	mm	3271	3268	-3
14	RSOV to firewall on right side	mm	3697	3546	-151
15	RSOV to firewall of left side	mm	3715	3623	-92
16	RSOV to steering column	mm	2848	2812	-36
17	Center of steering column to left 'A' pillar	mm	393	415	22
18	Center of steering column to headlining	mm	453	255	-198
19	RSOV to right side of front bumper	mm	4488	4062	-426
20	RSOV to left side of front bumper	mm	4488	4081	-407
21	Length of engine block	mm	415	415	0
RD	RSOV to right side of dash panel	mm	3017	3000	-17
CD	RSOV to center of dash panel	mm	2944	2866	-78
LD	RSOV to left side of dash panel	mm	2994	2989	-5



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2001 Chevrolet Malibu 4 Door Sedan

NHTSA No.: M10104

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/04/01

No.	Camera View	Location (mm)			Angle (Deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Right Side, Real Time	3454	10973	1245	0	1651	Zoom	24
2	Left Side, No. 1	1955	-8250	880	-1	7901	13	1020
3	Left Side, No. 2	1455	-8250	1460	-4	7932	35	1020
4	Left Side, No. 3	Did Not Run						
5	Left Side, No. 4	1455	-8250	3100	-16	8138	19	990
6	Left Side, No. 5	1455	-8250	2700	-13	8057	19	980
7	Right Side, No. 1	1955	8150	730	-1	8577	19	1030
8	Right Side, No. 2	1655	8150	1450	-4	8584	35	1010
9	Right Side, No. 3	7855	8900	2800	-9	N/A	80	980
10	Right Side, No. 4	970	12358	1150	-2	12840	50	970
11	Overhead Overall	251	0	4460	-86	N/A	13	970
12	Front View, Driver	-525	-380	2590	-43	N/A	12	880
13	Front View, Passenger	-525	380	2590	-44	N/A	13	1050
14	Pit Camera, Engine	638	0	1640	86	N/A	13	960
15	Pit Camera, Fuel Tank	Did Not Run						
16	Driver Belt	3260	-440	1078	-4	785	13	580
17	Passenger Belt	3268	382	1078	-4	1041	13	960
18	Left Side Extra	800	-6681	1450	-2	6514	24	1080

X - Barrier Face Y - Monorail Centerline Z - Ground

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

Test Vehicle: 2001 Chevrolet Malibu 4 Door Sedan

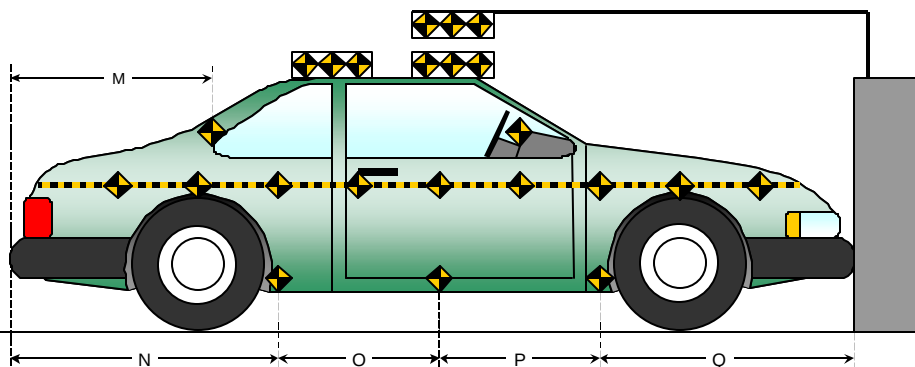
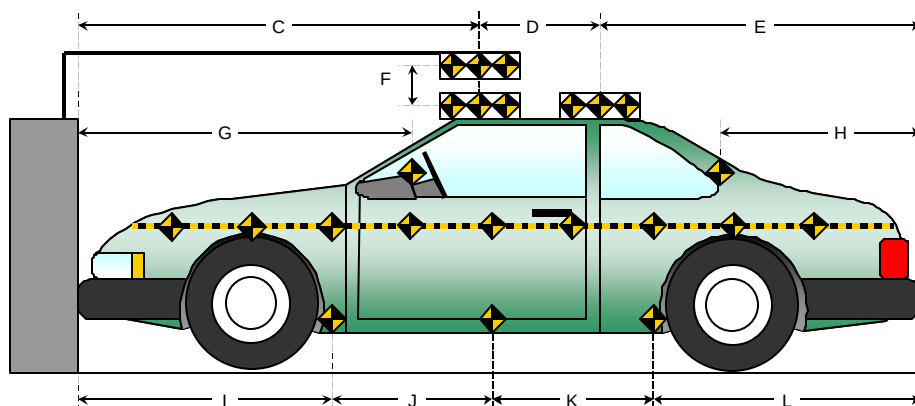
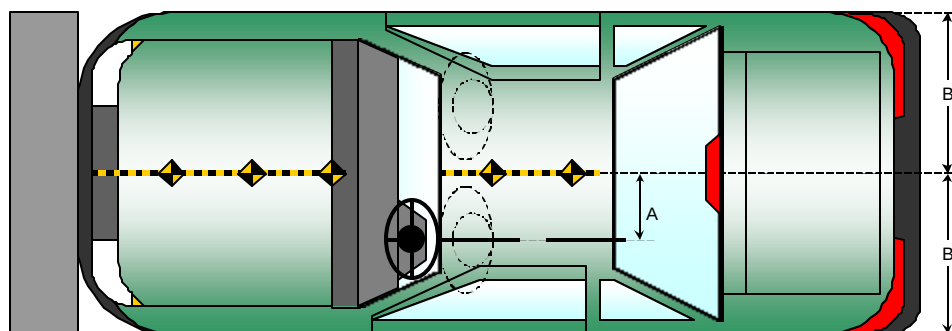
NHTSA No.: M10104

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/04/01

All Dimensions
in mm

Item	Value
A	353
B	880
C	2244
D	611
E	1975
F	155
G	1899
H	1163
I	1434
J	942
K	940
L	1514
M	1162
N	1505
O	950
P	941
Q	1430



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

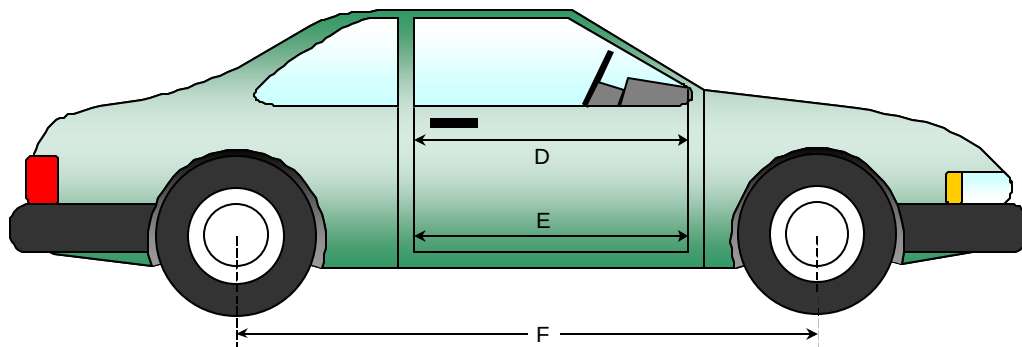
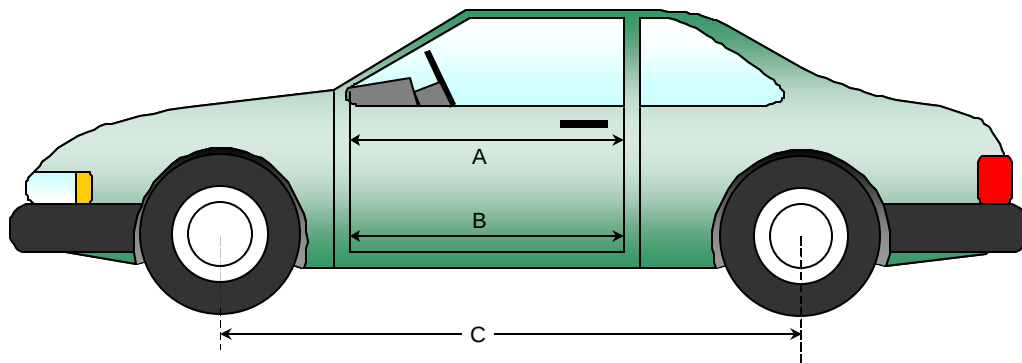
Test Date: 01/16/01

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	924	921	-3
B	Left Side Lower	mm	923	913	-10
D	Right Side Upper	mm	928	928	0
E	Right Side Lower	mm	924	917	-7

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheel base	mm	2780	2730	-50
F	Right Side Wheel base	mm	2780	2768	-12



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

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

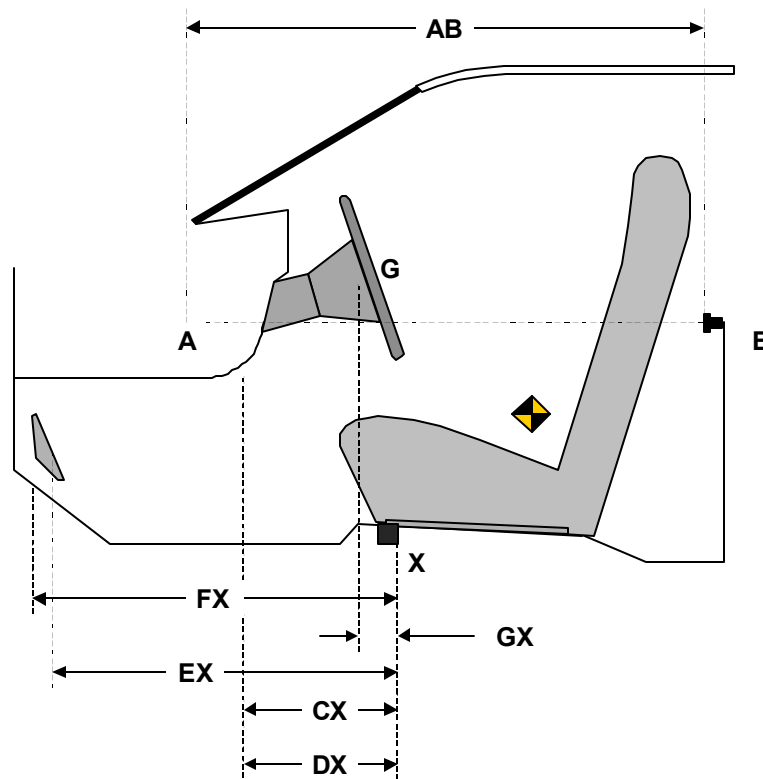
Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	924	921	-3
CX	Left Knee Bolster to X	mm	445	496	51
DX	Right Knee Bolster to X	mm	435	492	57
EX	Brake Pedal to X	mm	780	693	-87
FX	Foot Rest to X	mm	551	517	-34
GX	Center of Steering Wheel Hub to X	mm	241	305	64

X = Left Front Seat Outboard Anchor Bolt Head



DRIVER COMPARTMENT

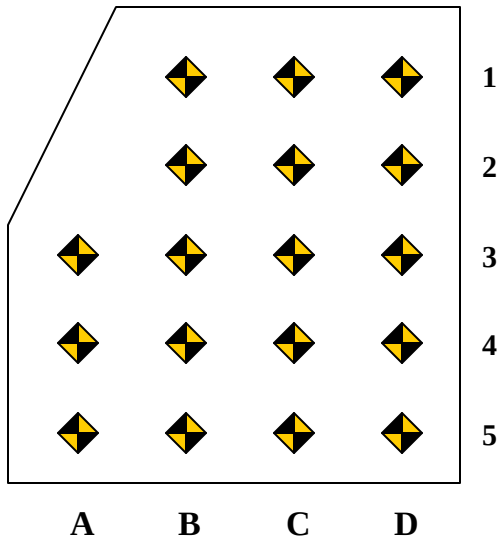
DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01



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		806	802	804		788	792	796		-18	-10	-8
2		711	707	706		698	702	703		-13	-5	-3
3	606	609	603	603	606	603	602	603	0	-6	-1	0
4	499	504	500	502	502	501	499	501	3	-3	-1	-1
5	397	402	397	400	401	398	398	401	4	-4	1	1

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		61	62	64		60	52	59		-1	-10	-5
2		36	34	36		32	21	31		-4	-13	-5
3	9	10	7	10	6	2	-7	5	-3	-8	-14	-5
4	3	2	-2	3	3	-8	-15	-2	0	-10	-13	-5
5	-10	-7	-10	-9	-22	-18	-22	-17	-12	-11	-12	-8

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

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

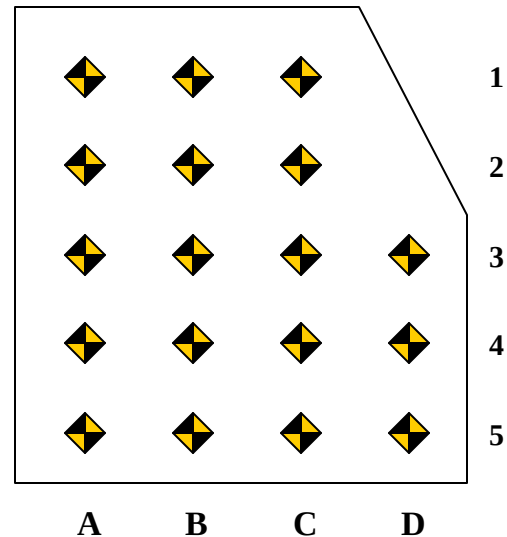
Test Date: 01/16/01

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	834	834	834		835	836	838		1	2	4	
2	741	744	753		740	748	745		-1	4	-8	
3	651	651	651	651	645	648	640	645	-6	-3	-11	-6
4	549	551	548	550	542	545	540	545	-7	-6	-8	-5
5	451	448	450	451	447	445	445	447	-4	-3	-5	-4

PASSENGER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	100	98	97		121	114	115		21	16	18	
2	50	48	46		63	61	66		13	13	20	
3	-2	-2	2	71	13	16	28	82	15	18	26	11
4	-10	-10	-6	43	5	3	16	54	15	13	22	11
5	-18	-21	-20	-20	-8	-18	-12	-5	10	3	8	15

DATA SHEET NO. 18
FIXED BARRIER TYPE

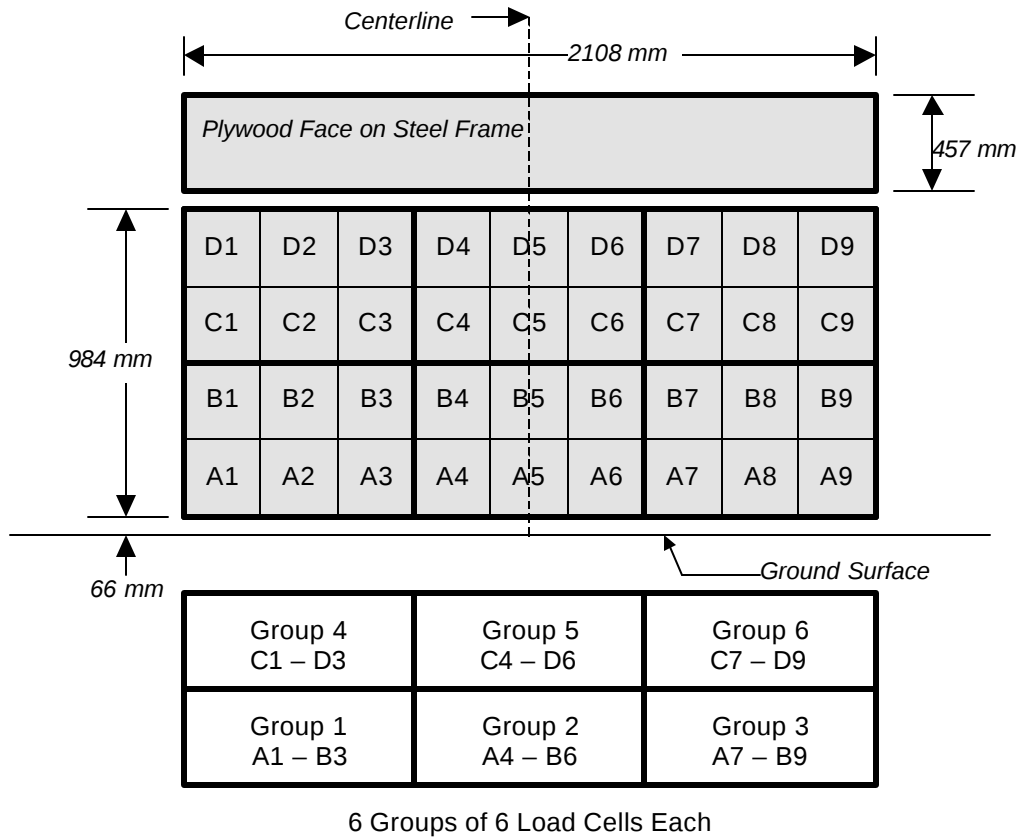
Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01

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



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

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

DATA SHEET NO. 19
ACCIDENT INVESTIGATION DATA

Test Vehicle: 2001 Dodge Ram 1500 Van
Test Program: 2001 NHTSA 35 mph NCAP

NHTSA No.: M10310
Test Date: 01/16/01

VEHICLE INFORMATION

VIN: 2B7HB11X01K513084
Vehicle Size Category: Van

Wheel base (mm): 2780
Test Weight (kg): 2182

ACCELEROMETER DATA

Accelerometer Location: Left rear floor pan
Cal. Procedure/Interval: 6 months / drop test
Integration Algorithm: NHTSA Standard
Impact Velocity (km/h): 55.86
Velocity Change (km/h): 61.34

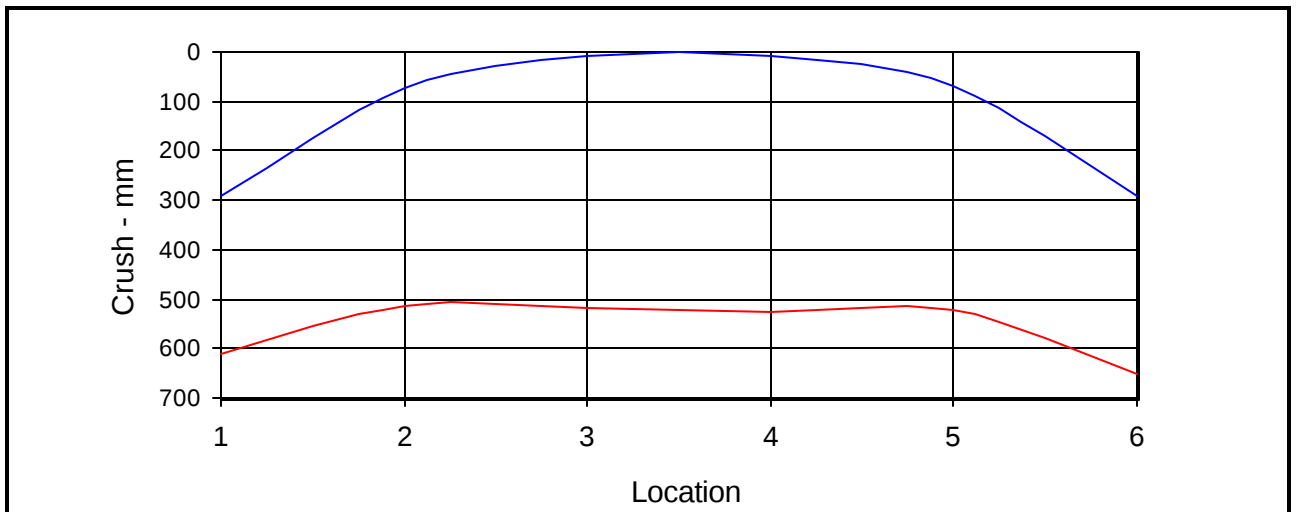
Linearity: Good

Time of Separation (msec): 66.4

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6 ; Midpoint of Damage: Vehicle Centerline
Damage Region Length (mm): 1798 ; Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	293	610	-317
C2	Crush zone 2 on left side	mm	72	512	-440
C3	Crush zone 3 on left side	mm	8	516	-508
C4	Crush zone 4 on right side	mm	10	524	-514
C5	Crush zone 5 on right side	mm	68	521	-453
C6	Crush zone 6 at right side	mm	293	651	-358



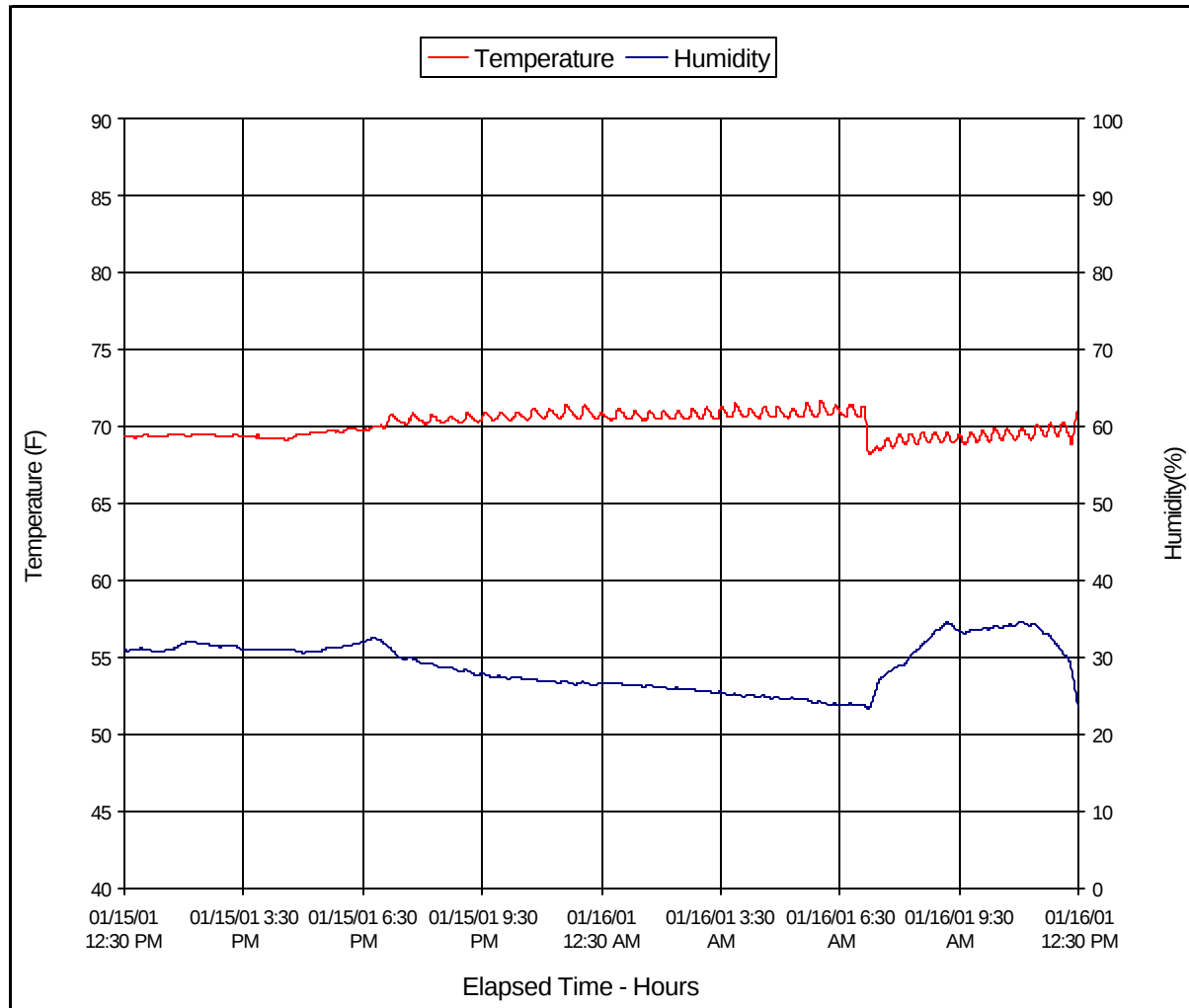
DATA SHEET NO. 20
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2001 Dodge Ram 1500 Van

NHTSA No.: M10310

Test Program: 2001 NHTSA 35 mph NCAP

Test Date: 01/16/01



APPENDIX A
PHOTOGRAPHS

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Figure A-1: Right Front, as Received



Figure A-2: Left Rear, as Received

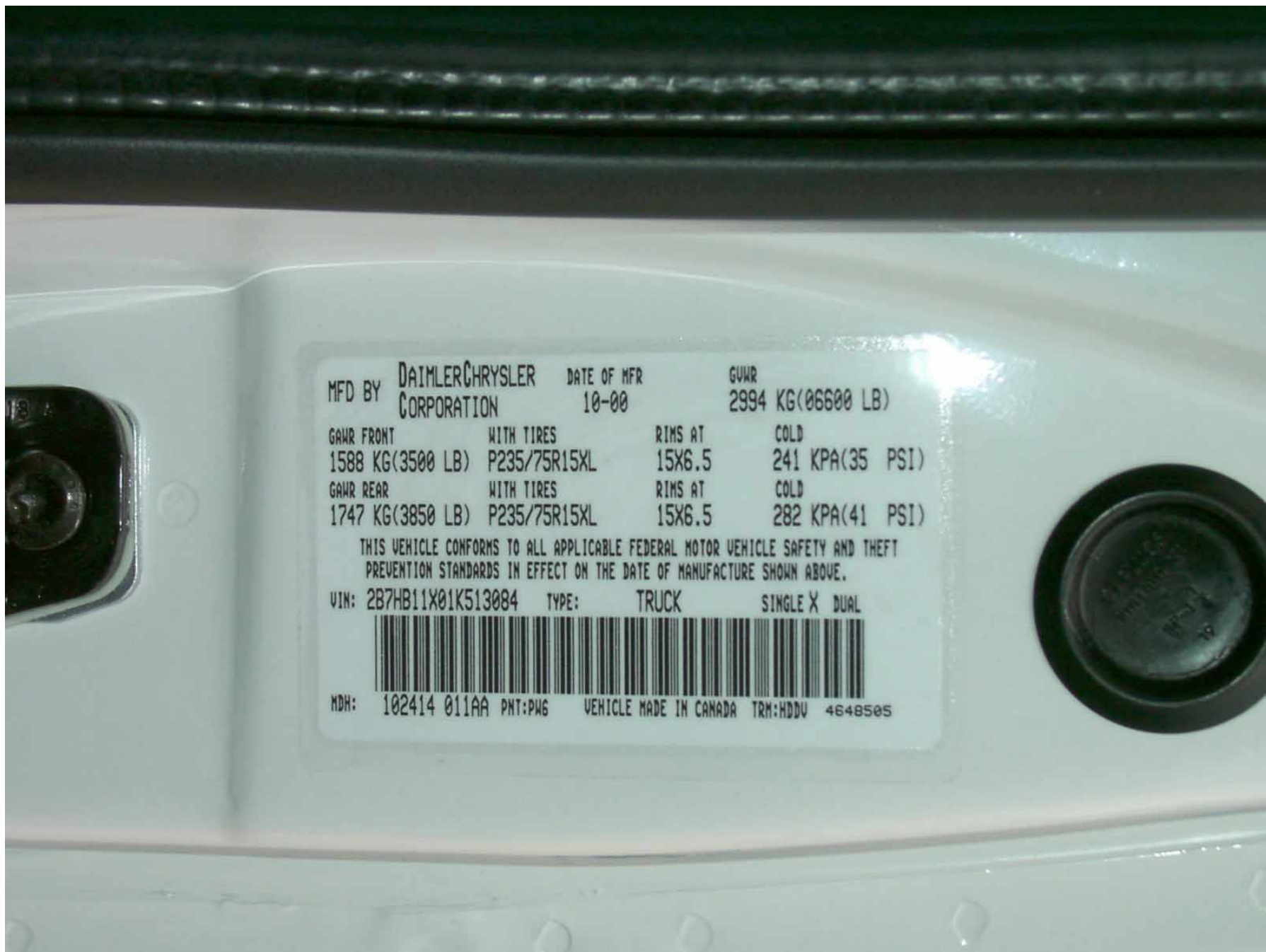


Figure A-3: Vehicle Certification Label

MFD BY DAIMLERCHRYSLER CORPORATION DATE OF MFR 10-00 GWR 2994 KG(06600 LB)

GAWR FRONT	WITH TIRES	RIMS AT	COLD
1588 KG(3500 LB)	P235/75R15XL	15X6.5	241 KPA(35 PSI)
GAWR REAR	WITH TIRES	RIMS AT	COLD
1747 KG(3850 LB)	P235/75R15XL	15X6.5	282 KPA(41 PSI)

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

VIN: 2B7HB11X01K513084 TYPE: TRUCK SINGLE X DUAL



MDH: 102414 011AA PNT:PW6 VEHICLE MADE IN CANADA TRM:HDDU 4648505

Figure A-4: Vehicle Tire Label



Figure A-5: Front View, Pre-Test



Figure A-6: Front View, Post-Test



Figure A-7: Left Side View, Pre-Test



Figure A-8: Left Side View, Post-Test



Figure A-9: Right Side View, Pre-Test



Figure A-10: Right Side View, Post-Test



Figure A-11: Right Front View, Pre-Test



Figure A-12: Right Front View, Post-Test



Figure A-13: Left Rear View, Pre-Test



Figure A-14: Left Rear View, Post-Test



Figure A-15: Windshield, Pre-Test



Figure A-16: Windshield, Post-Test



Figure A-17: Engine Compartment, Pre-Test



Figure A-18: Engine Compartment, Post-Test



Figure A-19: Fuel Cap, Pre-test



Figure A-20: Fuel Cap, Post-Test

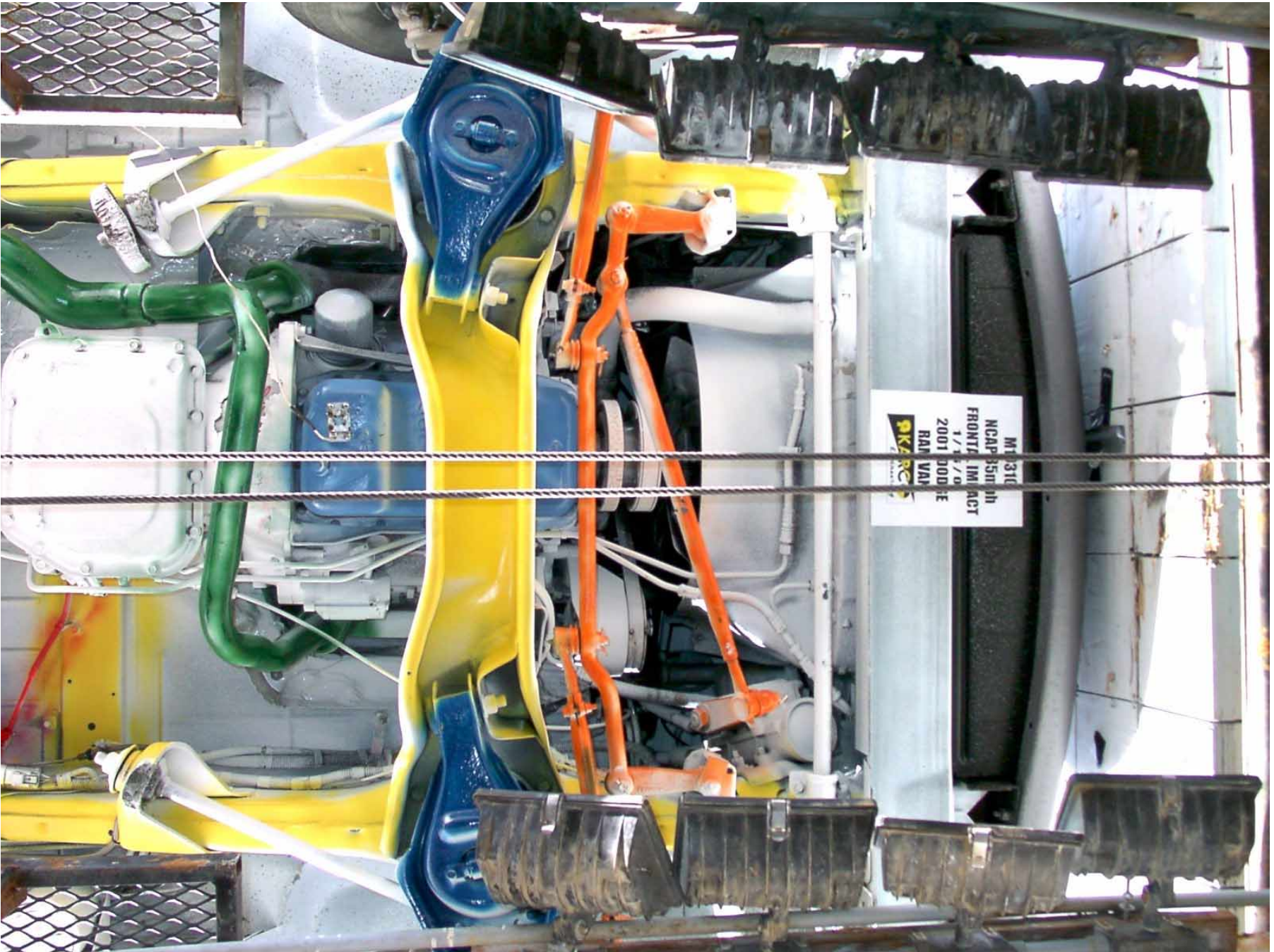


Figure A-21: Front Underside, Pre-Test

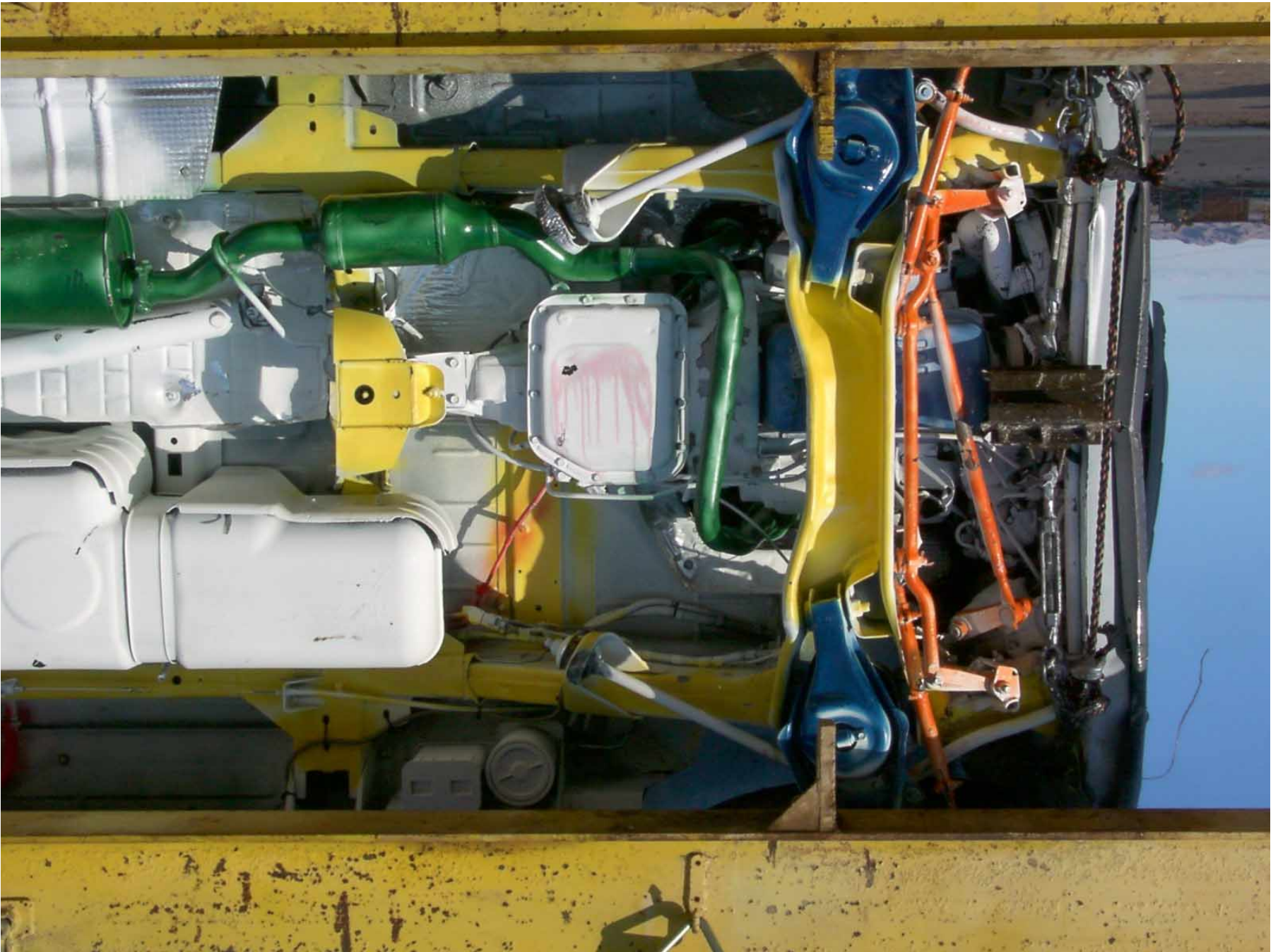


Figure A-22: Front Underside, Post-Test



Figure A-23: Rear Underside, Pre-Test

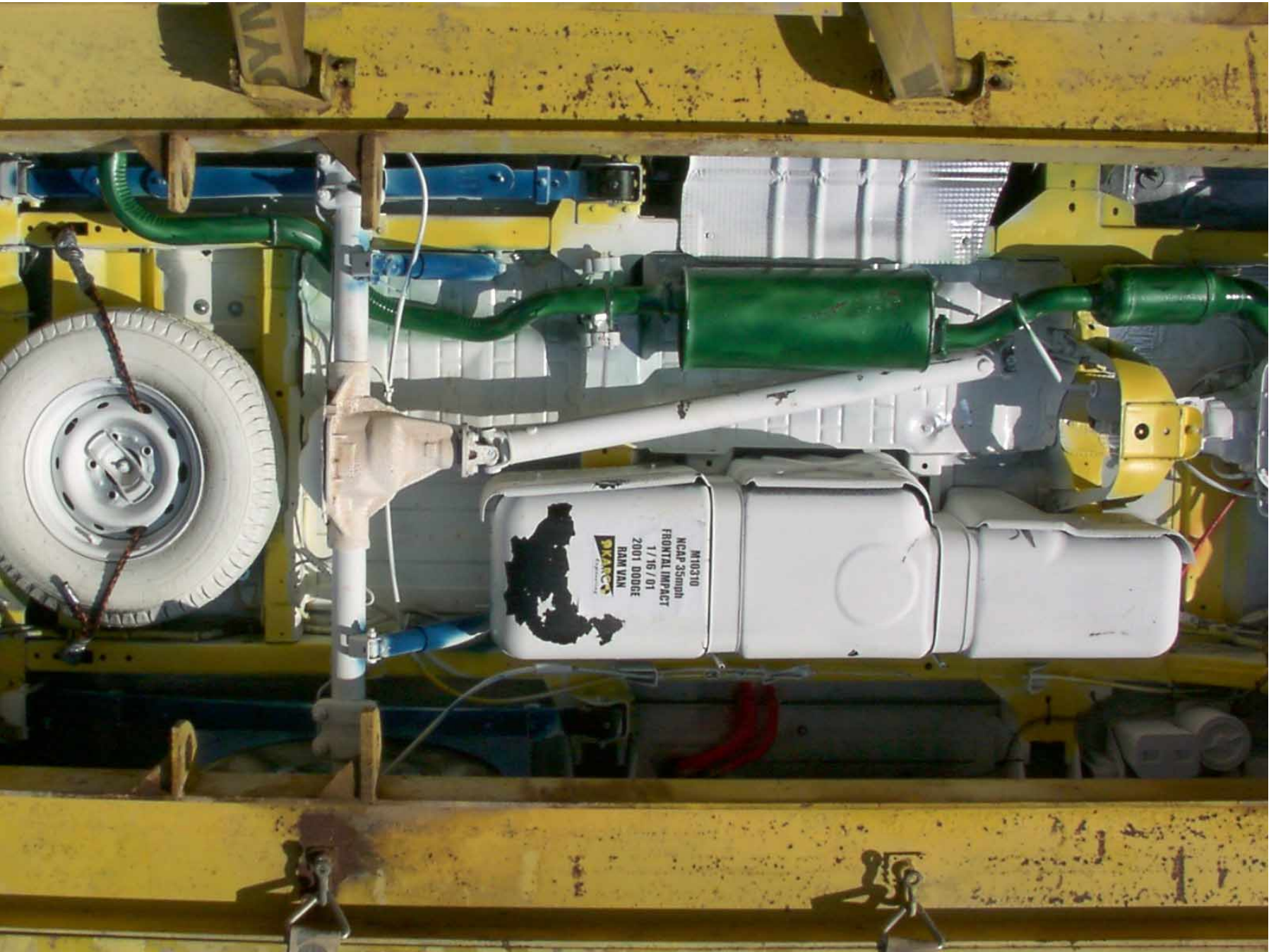


Figure A-24: Rear Underside, Post-Test

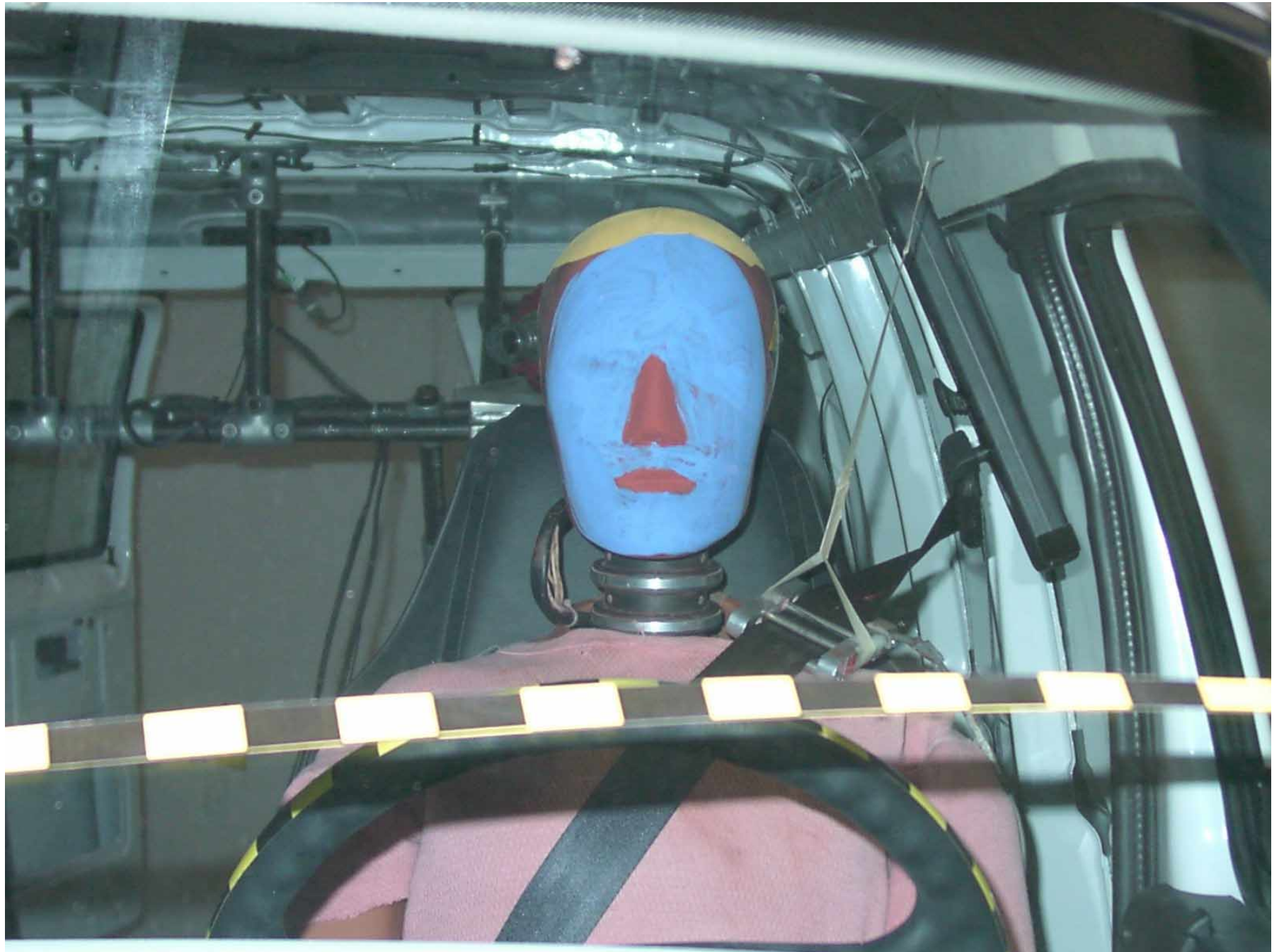


Figure A-25: Driver Dummy Front View, Pre-Test



Figure A-26: Driver Dummy Front View, Post-Test



Figure A-27: Driver Dummy Through Window, Pre-Test



Figure A-28: Driver Dummy Through Window, Post-Test



Figure A-29: Driver Dummy Door Open, Pre-Test



Figure A-30: Driver Dummy Door Open, Post-Test



Figure A-31: Driver Dummy 90° To Vehicle, Pre-Test



Figure A-32: Driver Dummy 90° To Vehicle, Post-Test



Figure A-33: Driver Dummy Feet, Pre-Test



Figure A-34: Driver Dummy Feet and Knee Contact, Post-Test



Figure A-35: Driver Side Knee Bolster, Pre-Test

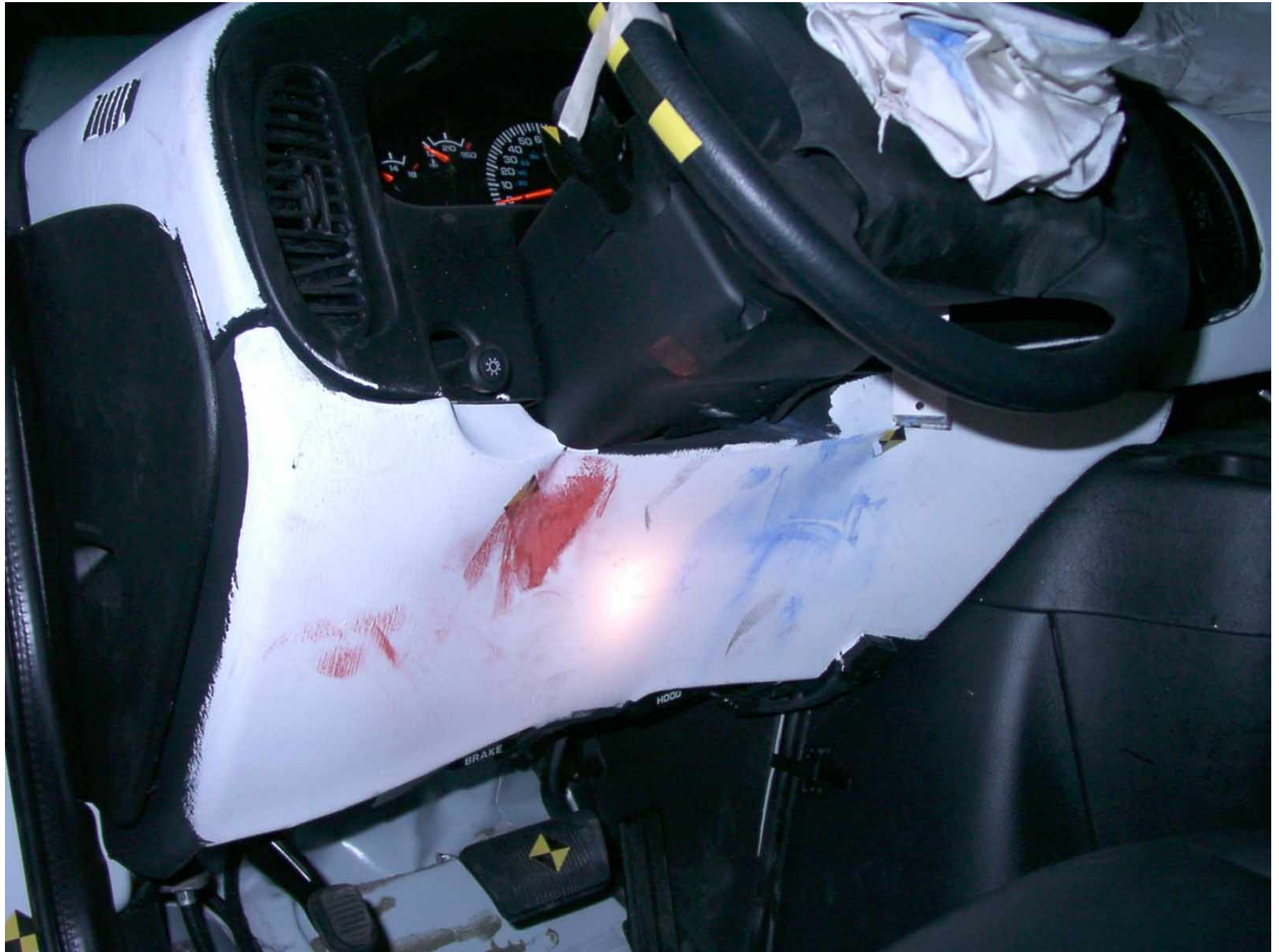


Figure A-36: Driver Side Knee Bolster, Post-Test

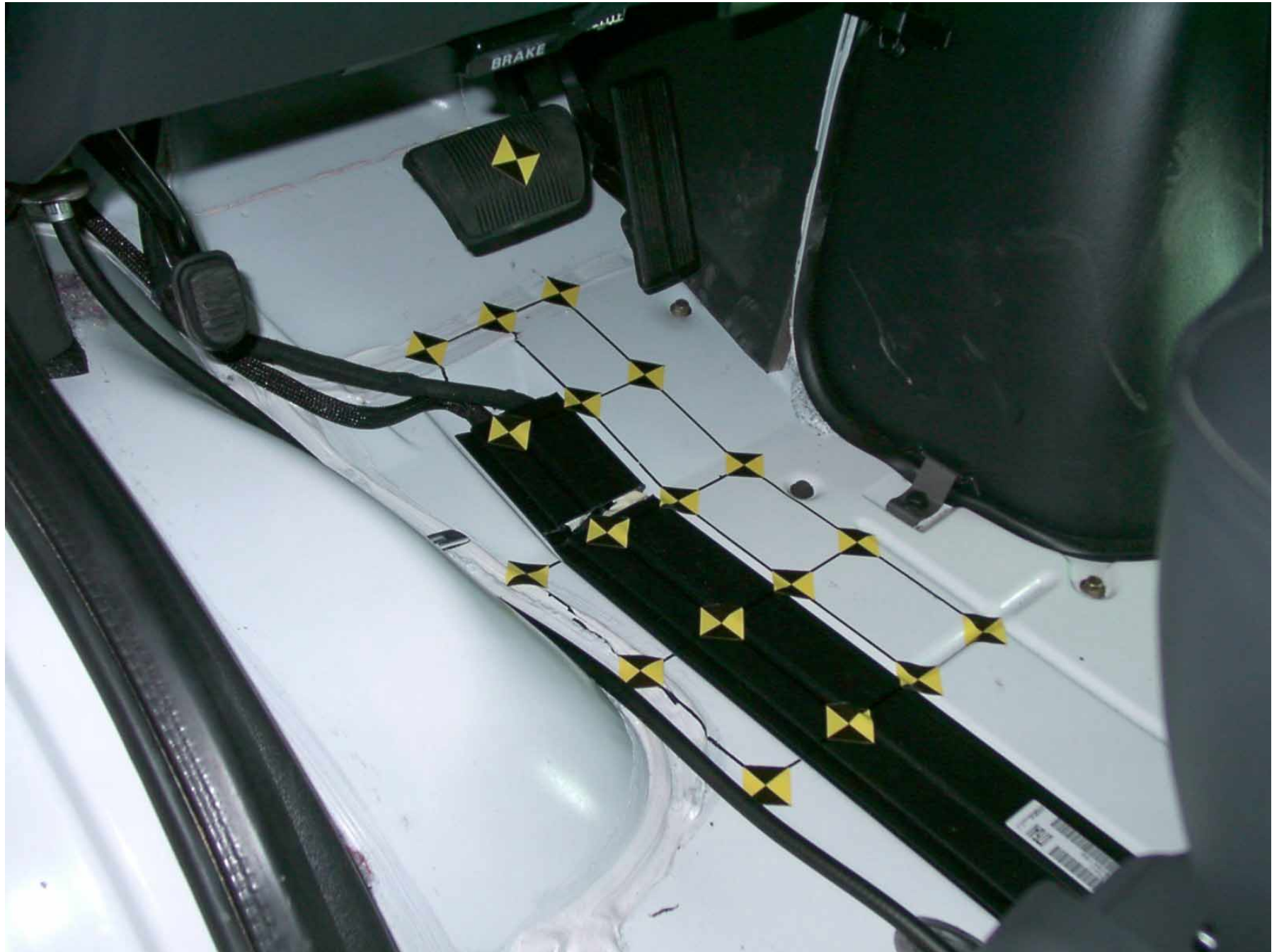


Figure A-37: Driver Side Floor Pan, Pre-Test



Figure A-38: Driver Side Floor Pan, Post-Test



Figure A-39: Driver Dummy Head, Post-Test



Figure A-40: Driver Dummy Contact, Post-Test

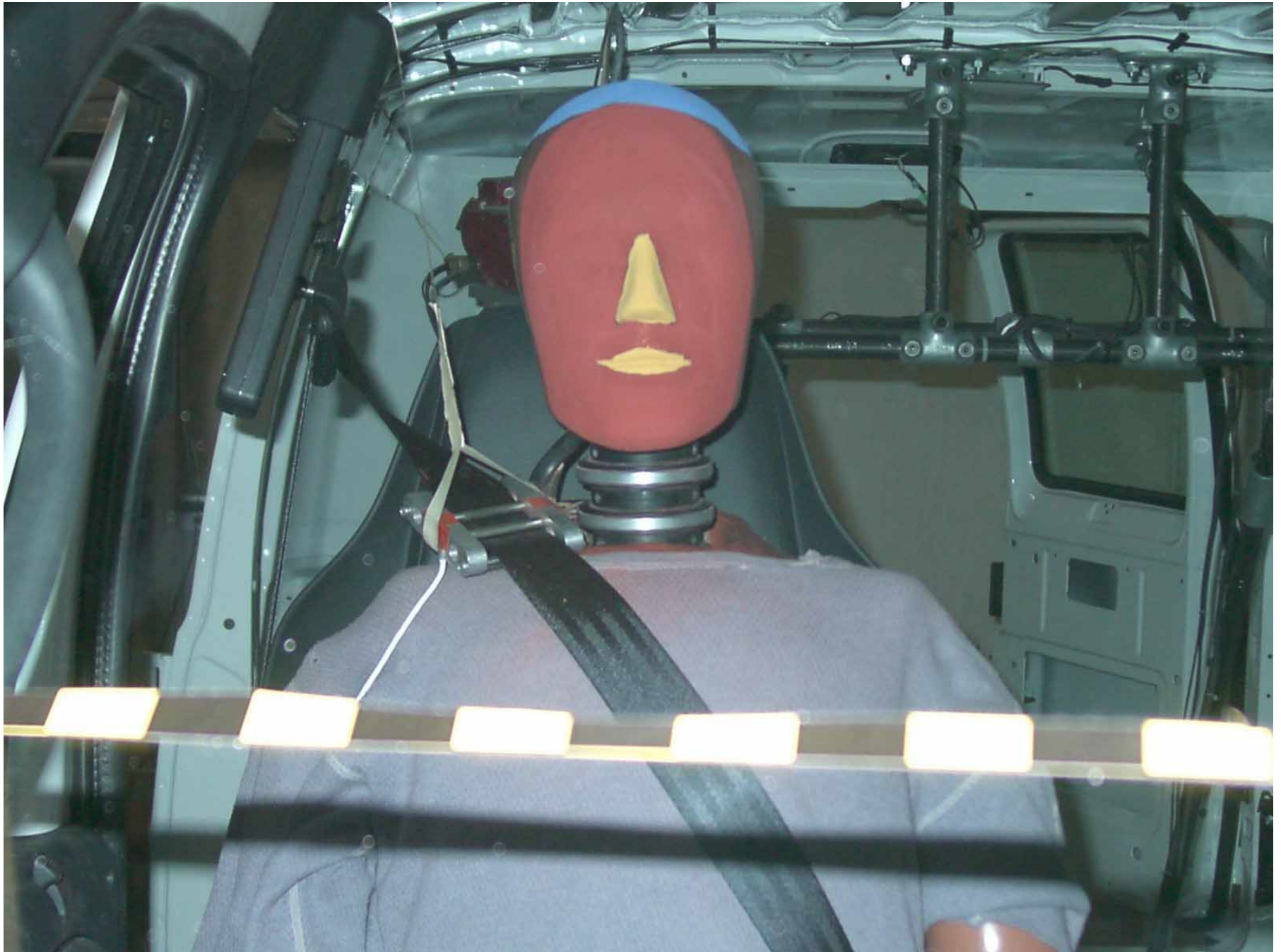


Figure A-41: Passenger Dummy Front View, Pre-Test



Figure A-42: Passenger Dummy Front View, Post-Test



Figure A-43: Passenger Dummy Through Window, Pre-Test



Figure A-44: Passenger Dummy Through Window, Post-Test



Figure A-45: Passenger Dummy Door Open, Pre-Test



Figure A-46: Passenger Dummy Door Open, Post-Test



Figure A-47: Passenger Dummy 90° To Vehicle, Pre-Test



Figure A-48: Passenger Dummy 90° To Vehicle, Post-Test



Figure A-49: Passenger Dummy Feet, Pre-Test



Figure A-50: Passenger Dummy Feet and Knee Contact, Post-Test



Figure A-51: Passenger Side Floor Pan, Pre-Test



Figure A-52: Passenger Side Floor Pan, Post-Test



Figure A-53: Passenger Side Knee Bolster, Pre-Test



Figure A-54: Passenger Side Knee Bolster, Post-Test



Figure A-55: Passenger Head, Post-Test



Figure A-56: Passenger Dummy Contact, Post-Test



Figure A-57: Vehicle on Rollover Device



Figure A-58: Vehicle During Impact

APPENDIX B

DUMMY AND VEHICLE RESPONSE DATA TRACES

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B-24	Driver Chest Primary Y	B-24
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B-43 Driver Left Upper Tibia Moment Y	B-43
B-44 Driver Right Upper Tibia Moment X	B-44
B-45 Driver Right Upper Tibia Moment Y	B-45
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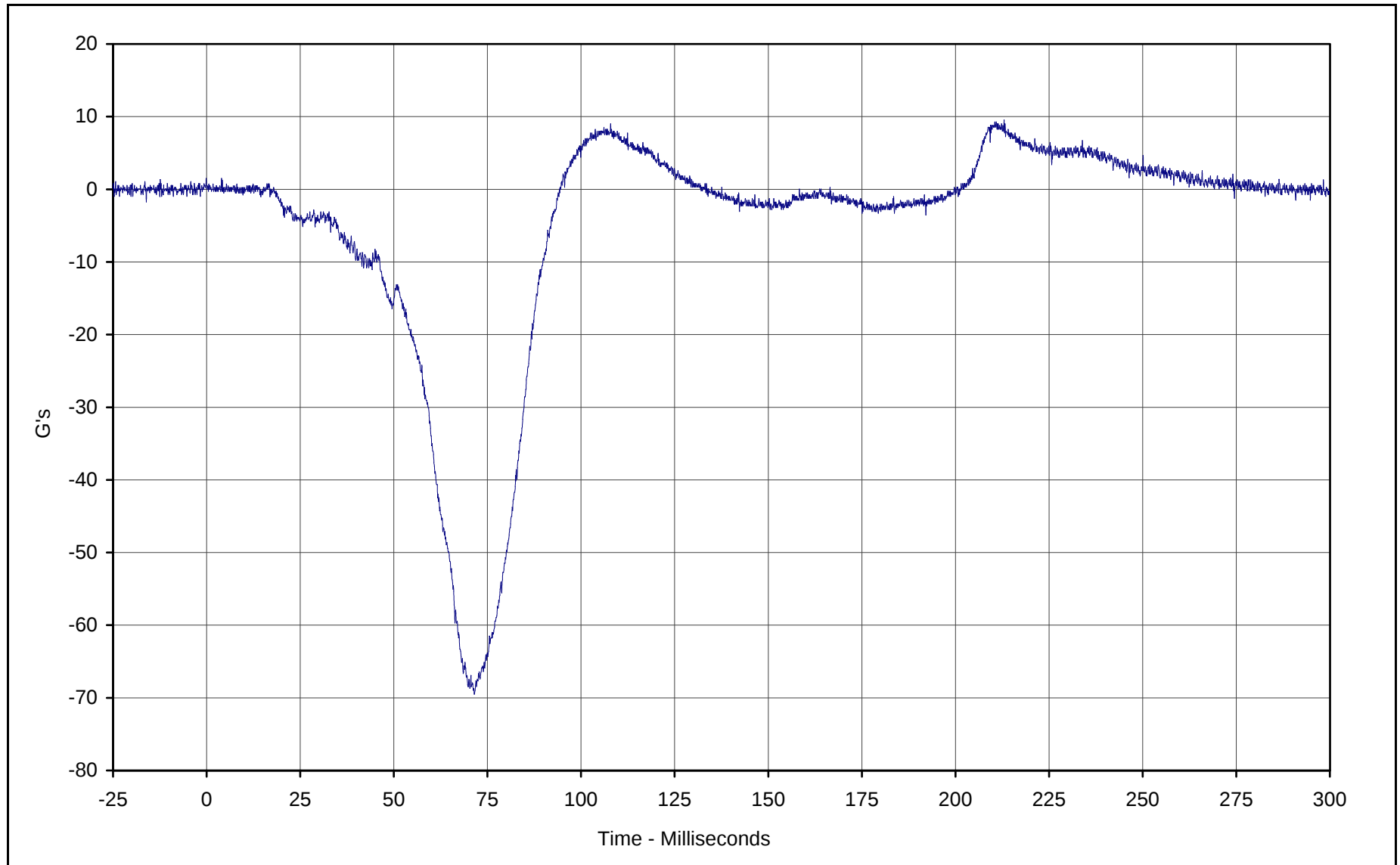
LIST OF DATA PLOTS...(Continued)

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B-96 Passenger Pelvis X Velocity	B-96
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B-1

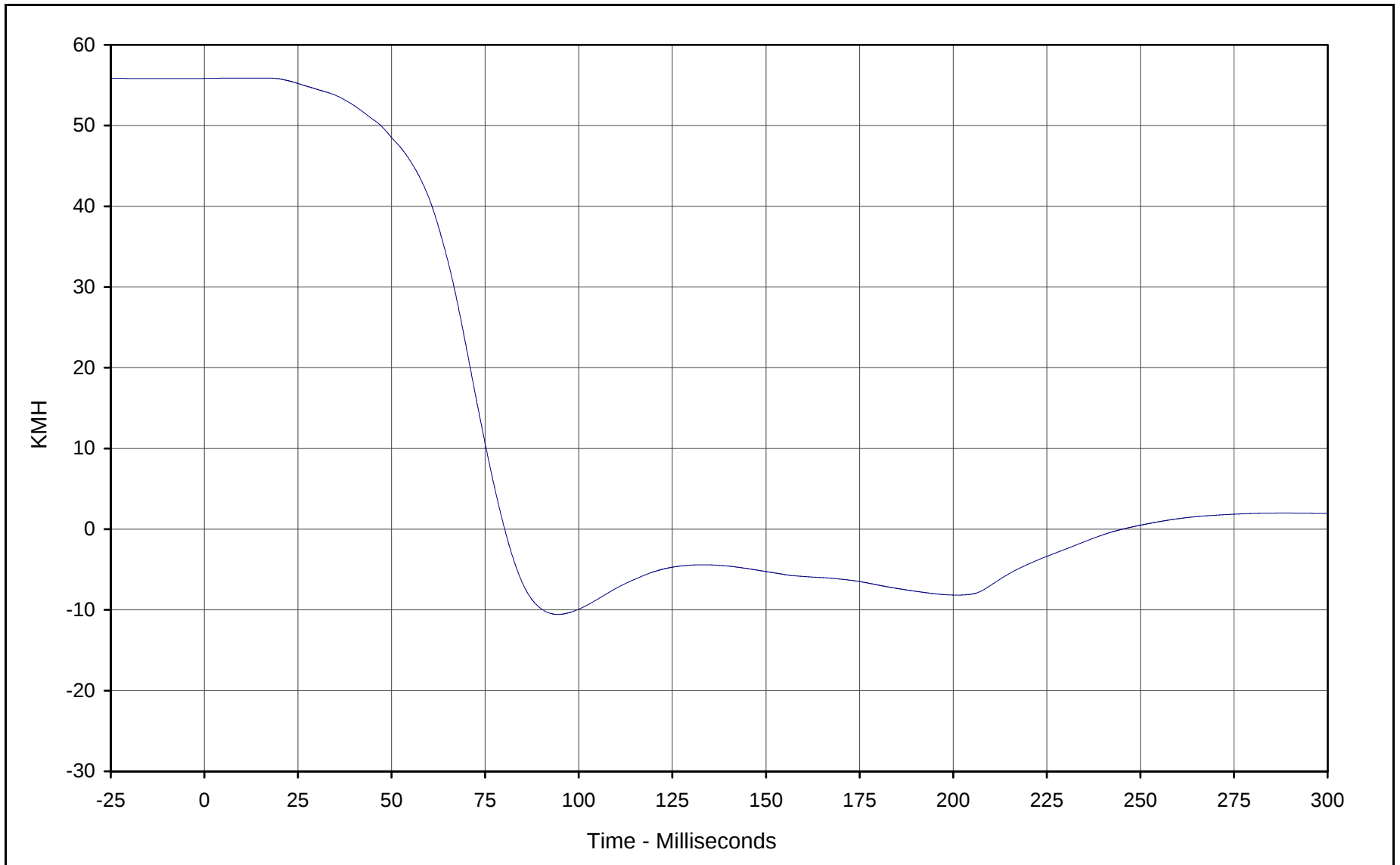


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Maximum Value: 9.6 at 213.0 Milliseconds
Minimum Value: -69.5 at 71.5 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-001

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



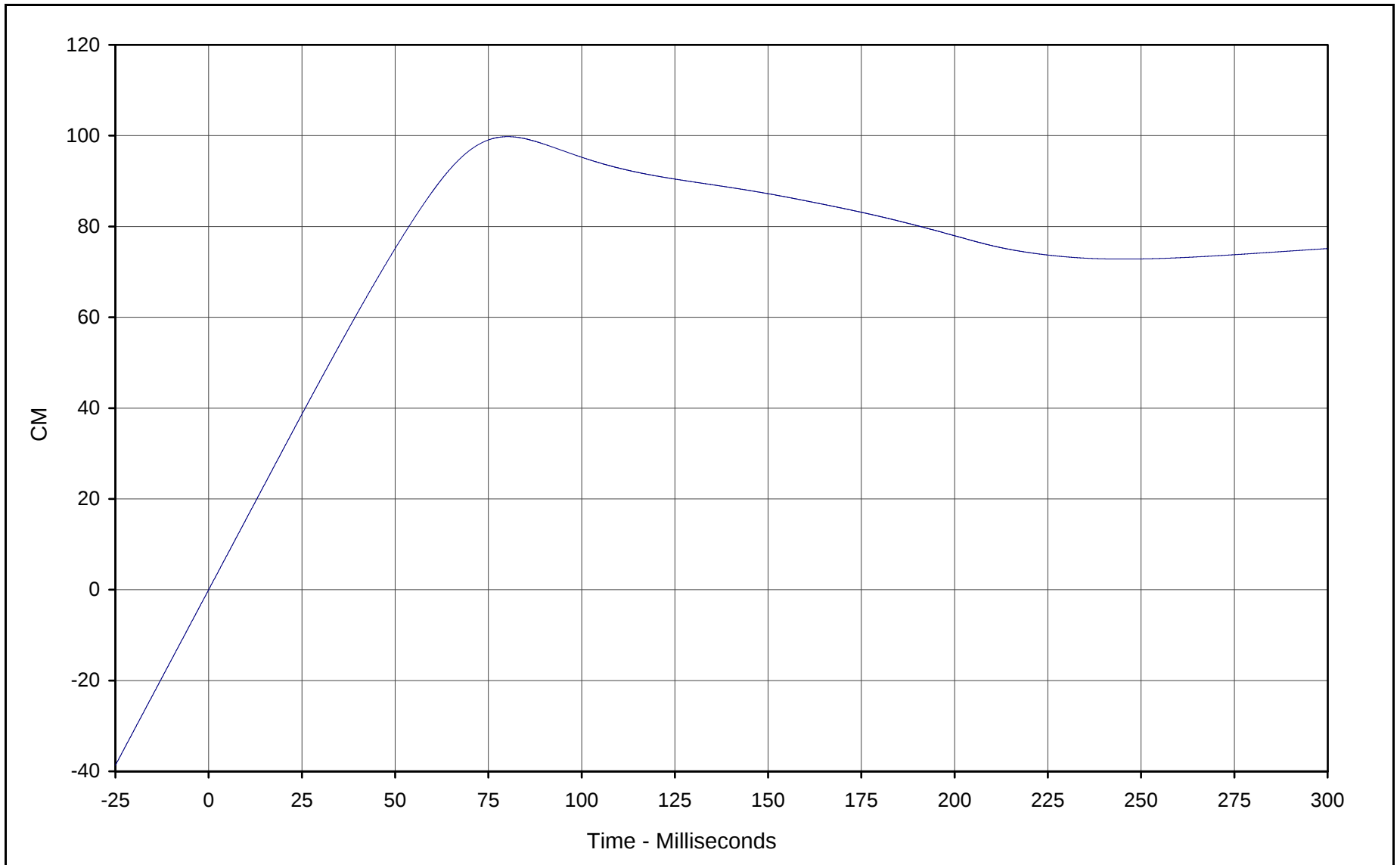
KAR21001-05



Curve Description: Driver Head Primary X Velocity
Maximum Value: 55.9 at 13.8 Milliseconds
Minimum Value: -10.6 at 94.4 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-001

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

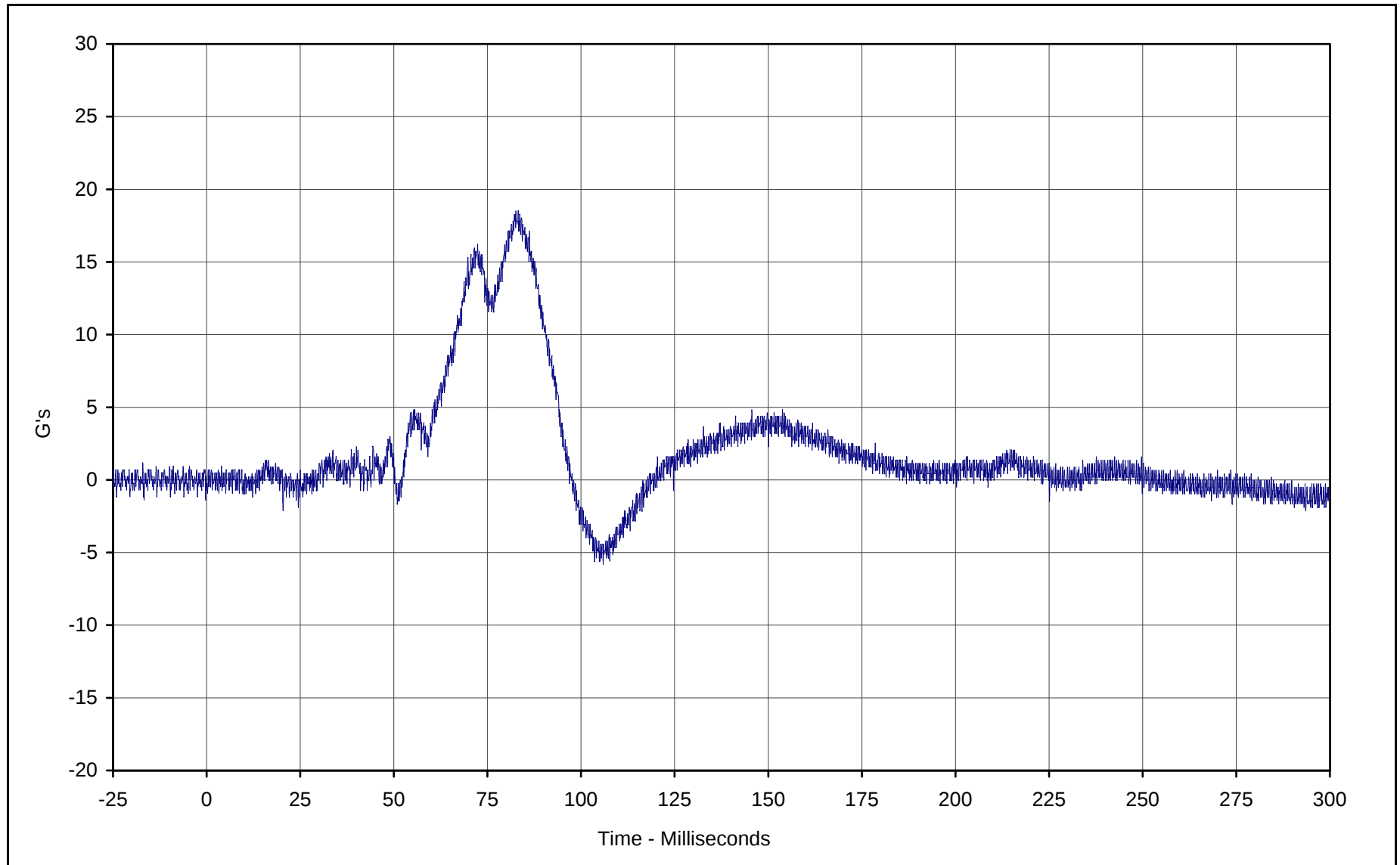




Curve Description: Driver Head Primary X Displ.
Maximum Value: 99.8 at 80.2 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
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Date of Test: 01/16/01
Curve Number: IN2-001

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

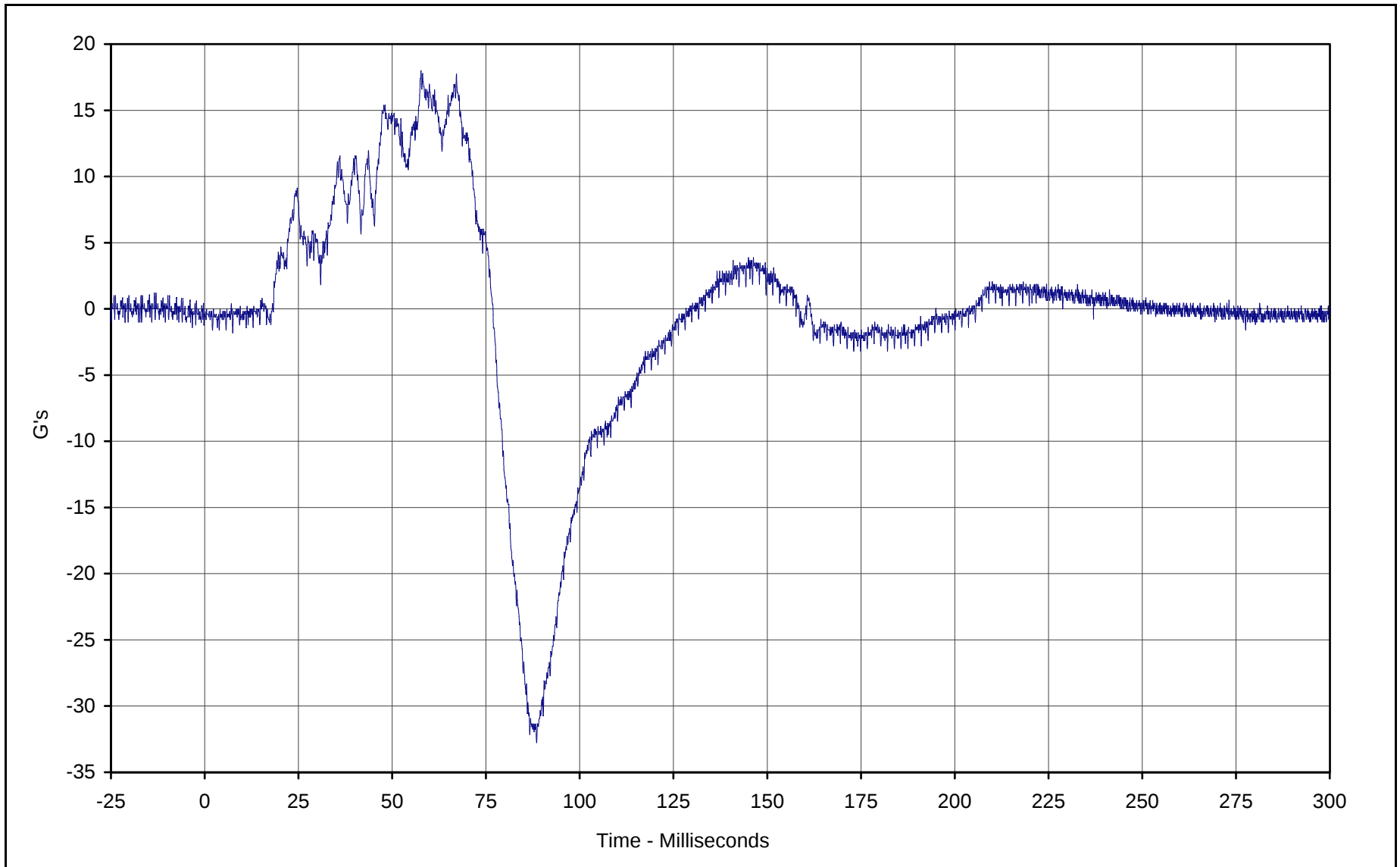




Curve Description: Driver Head Primary Y
Maximum Value: 18.5 at 82.6 Milliseconds
Minimum Value: -5.8 at 105.9 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-002

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

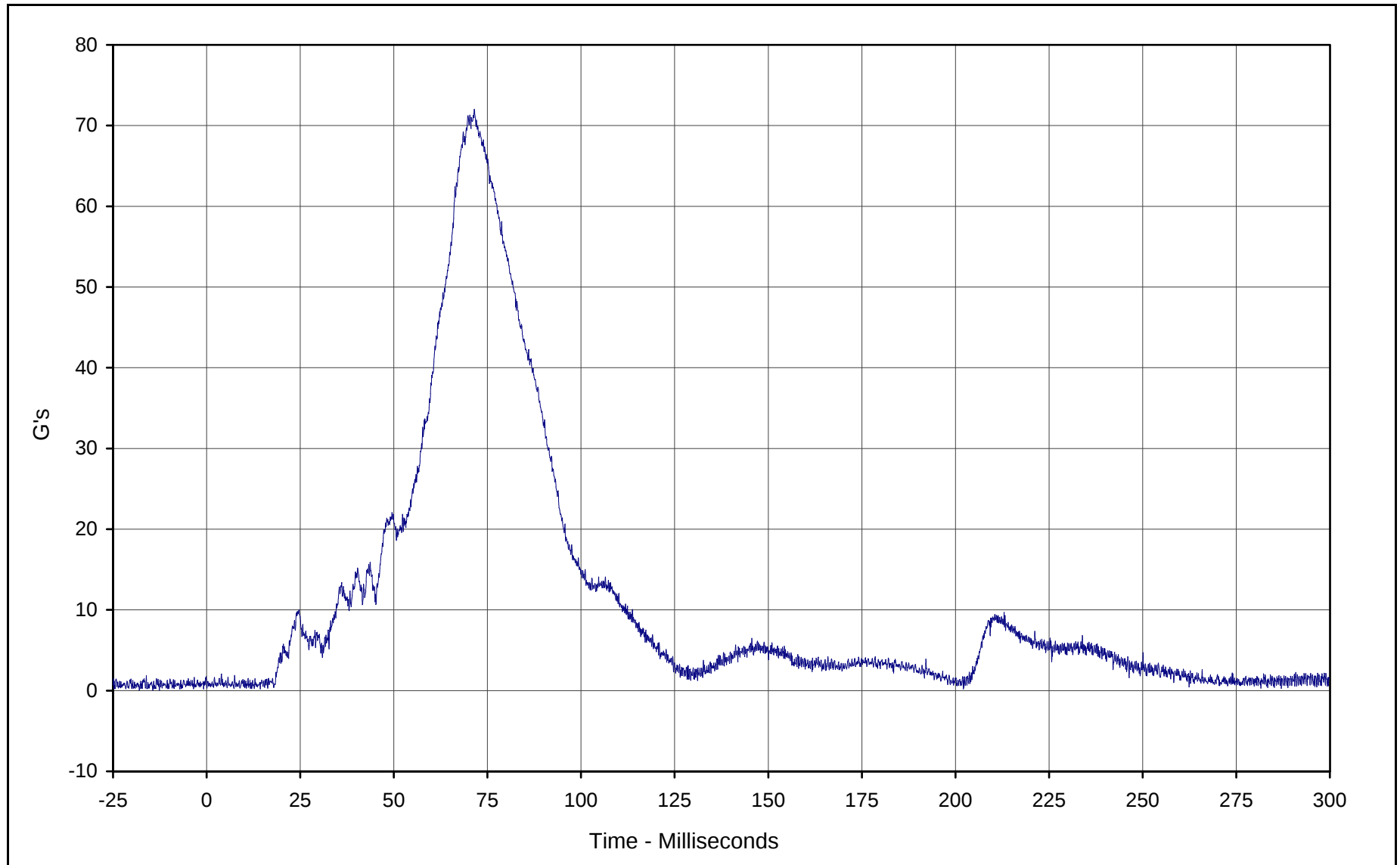




Curve Description: Driver Head Primary Z
Maximum Value: 18.0 at 57.7 Milliseconds
Minimum Value: -32.8 at 88.5 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-003

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

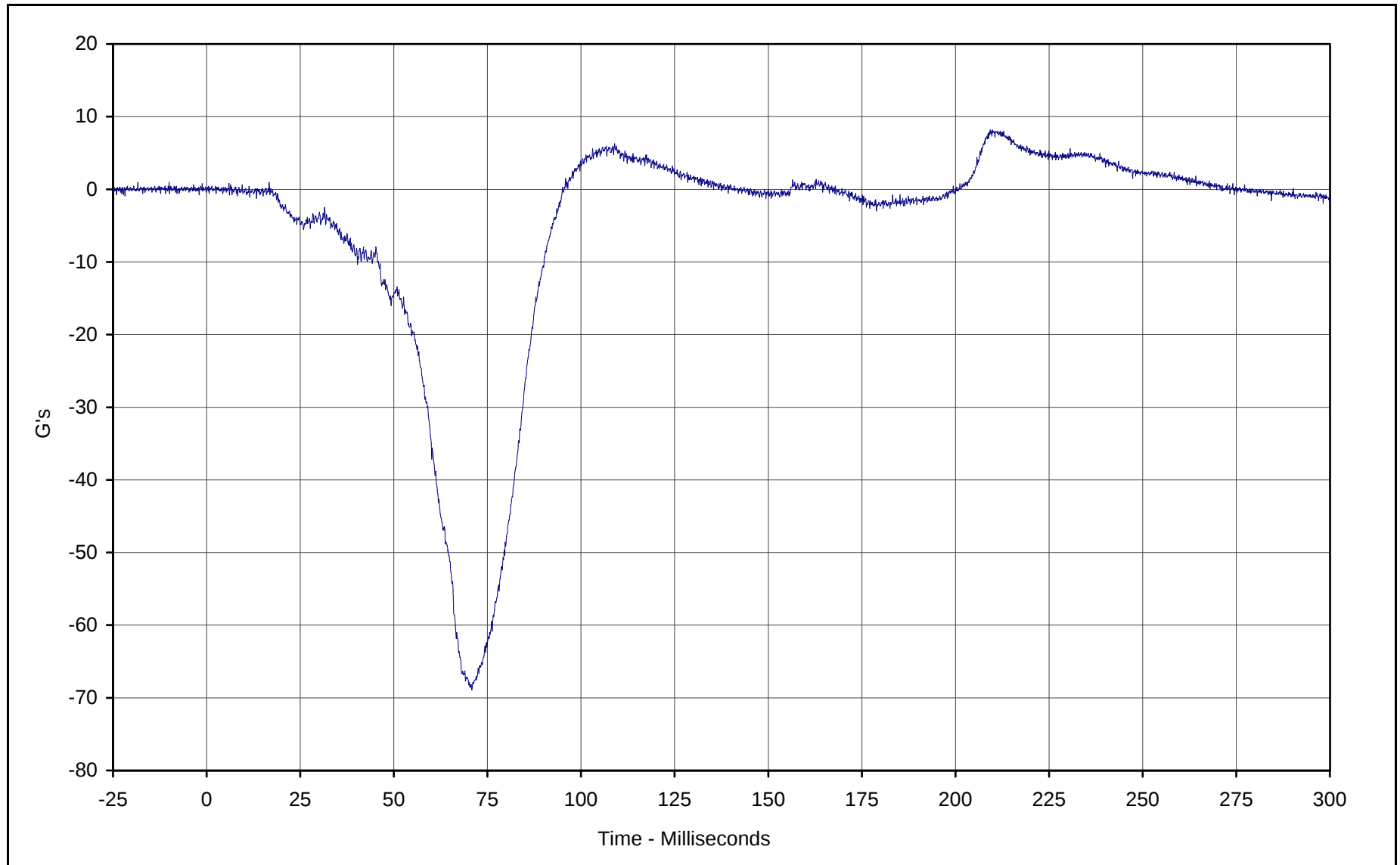




Curve Description: Driver Head Resultant Primary
Maximum Value: 72.0 at 71.5 Milliseconds
Minimum Value: 0.2 at 202.1 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: RES-001

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



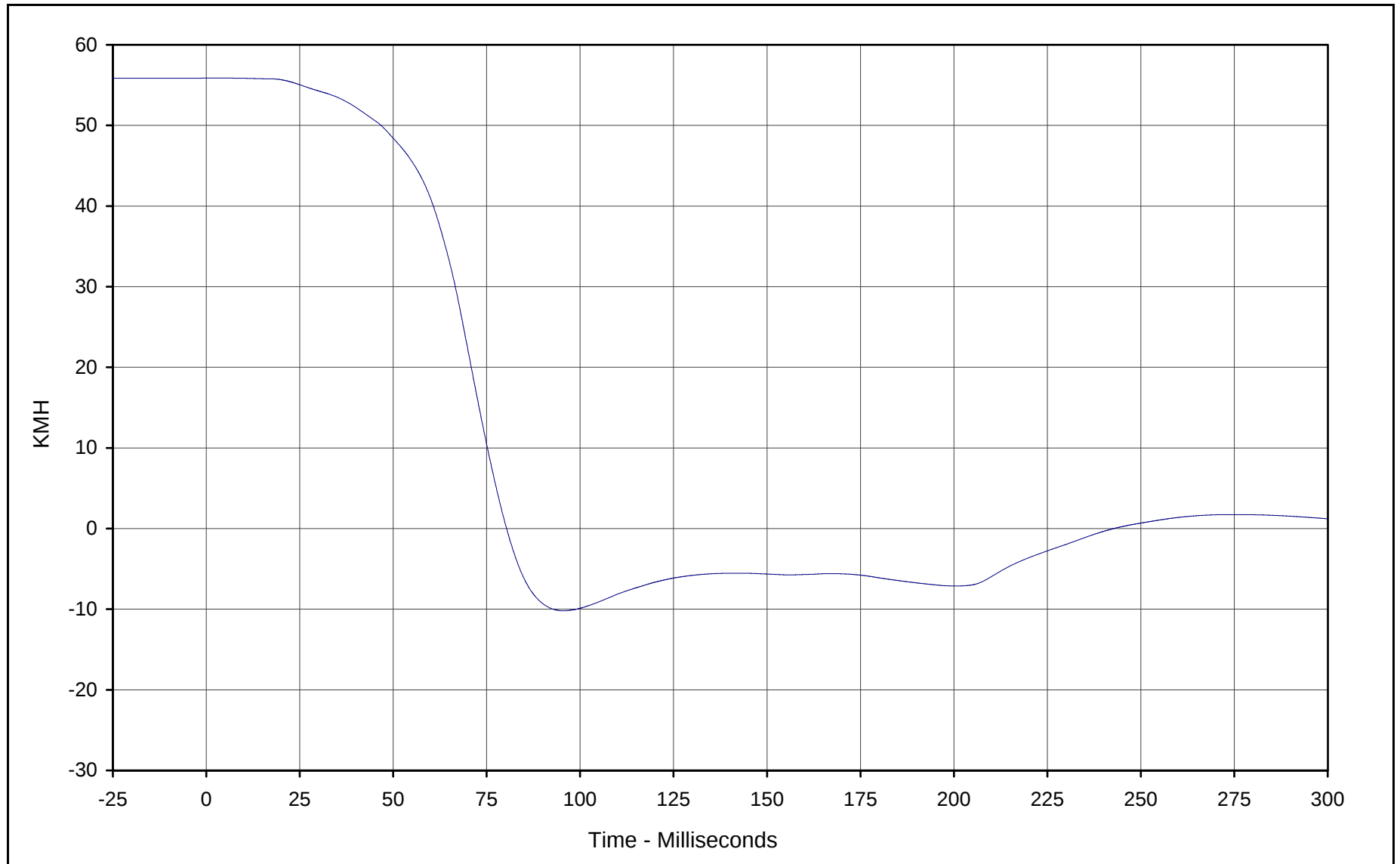


Curve Description: Driver Head Redundant X
Maximum Value: 8.2 at 209.3 Milliseconds
Minimum Value: -68.9 at 70.8 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-004

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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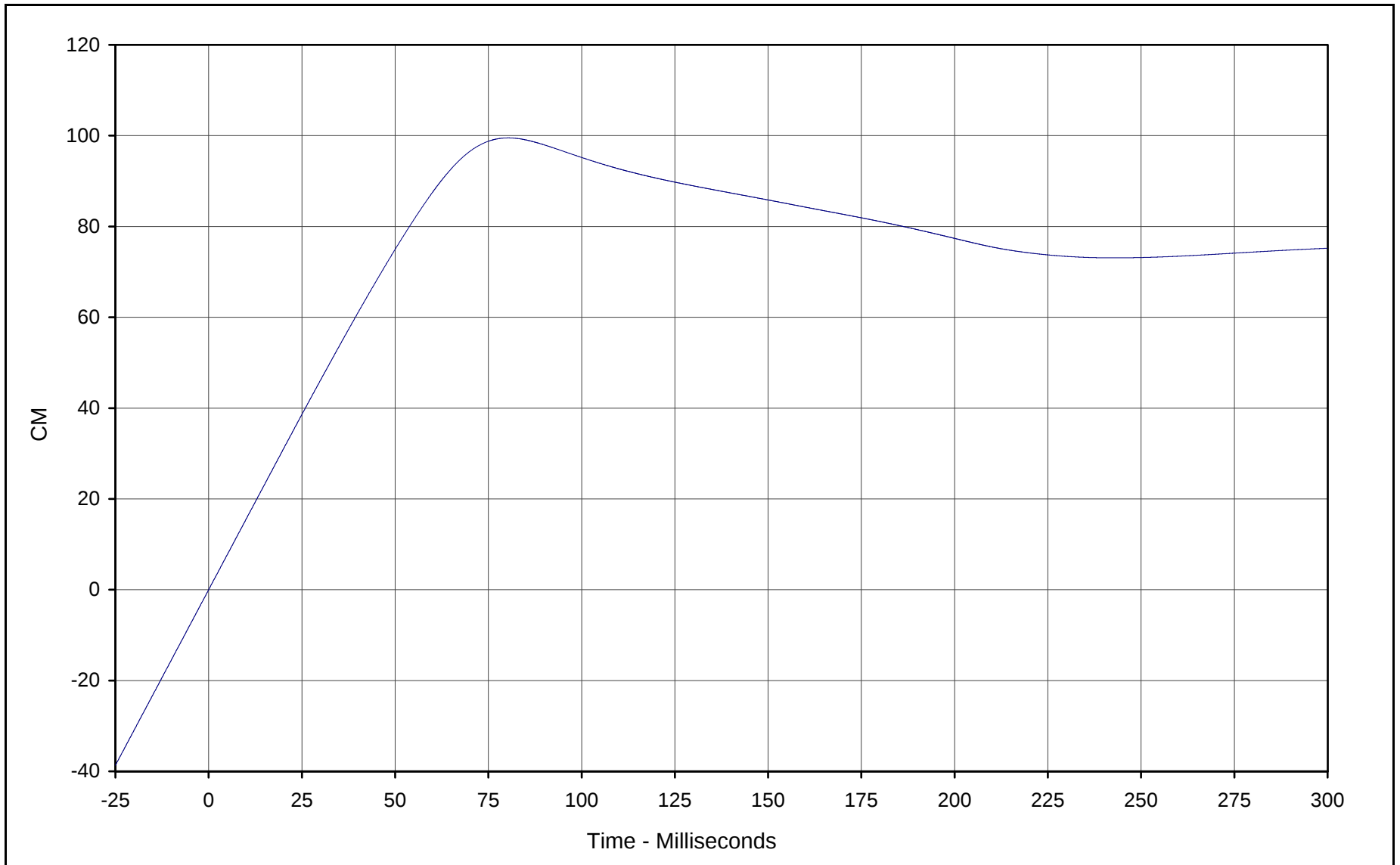


Curve Description: Driver Head Redundant X Velocity
Maximum Value: 55.9 at 2.0 Milliseconds
Minimum Value: -10.2 at 95.4 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-004

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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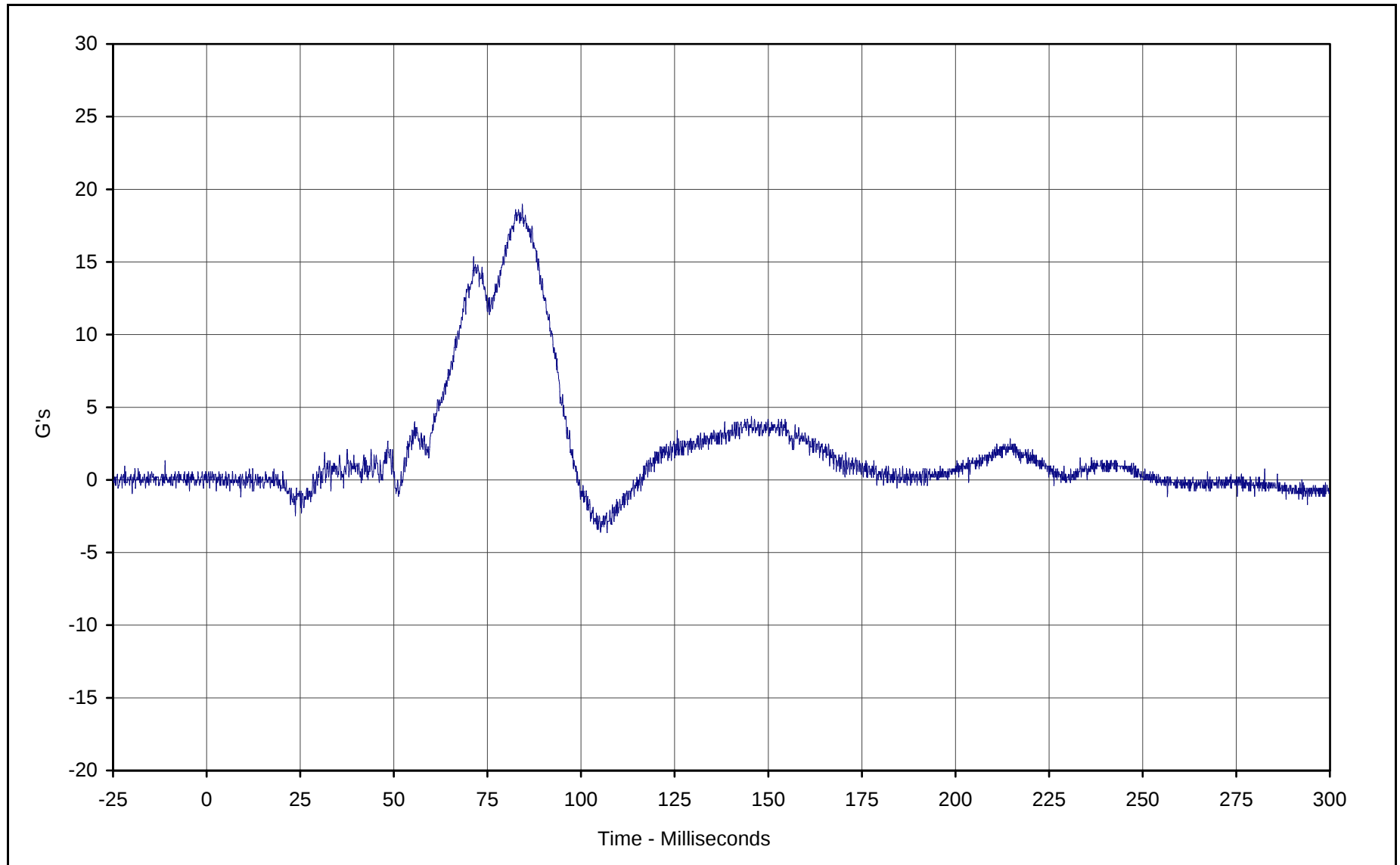


Curve Description: Driver Head Redundant X Displ.
Maximum Value: 99.5 at 80.3 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-004

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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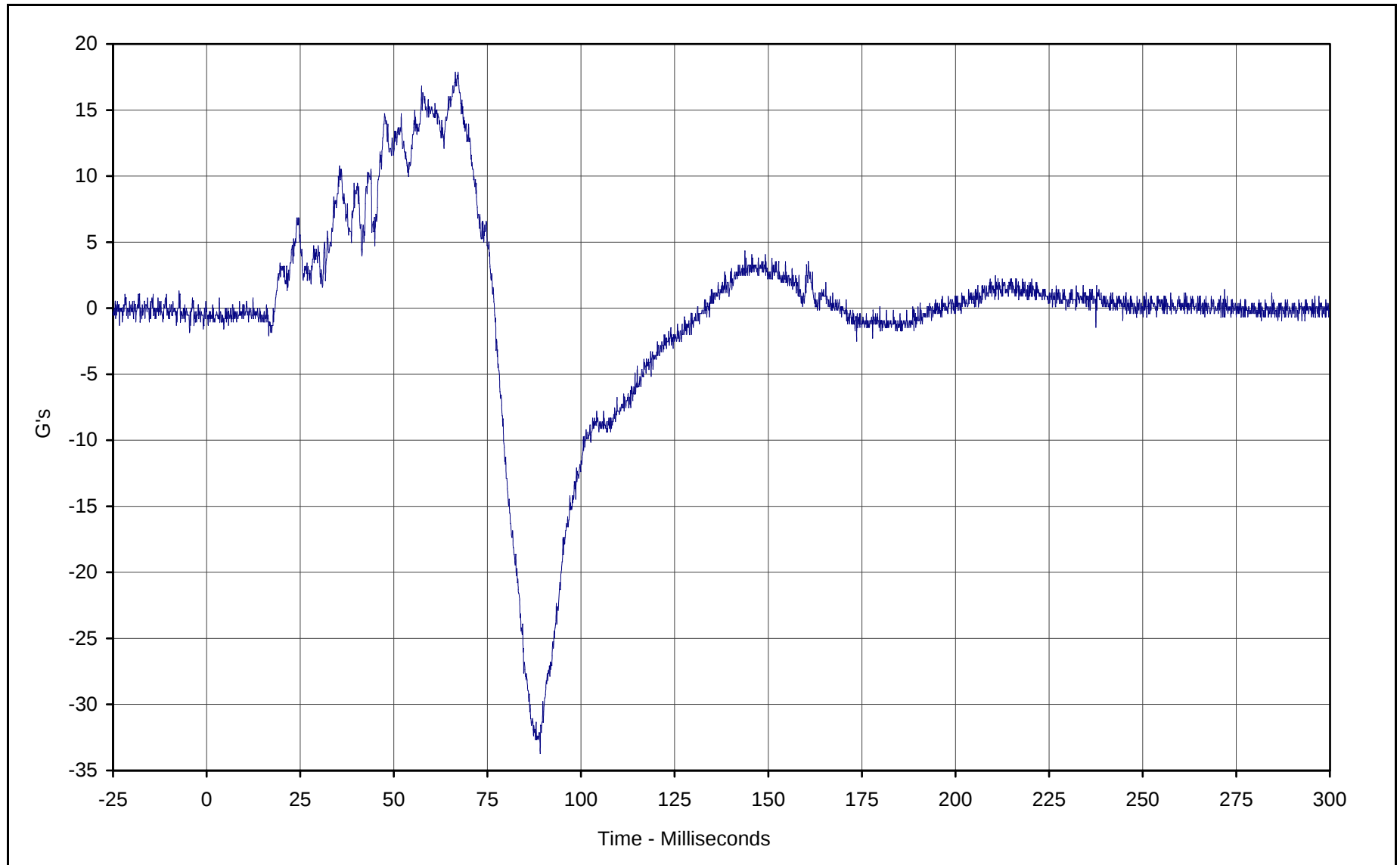


Curve Description: Driver Head Redundant Y
Maximum Value: 19.0 at 84.3 Milliseconds
Minimum Value: -3.6 at 105.2 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-005

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



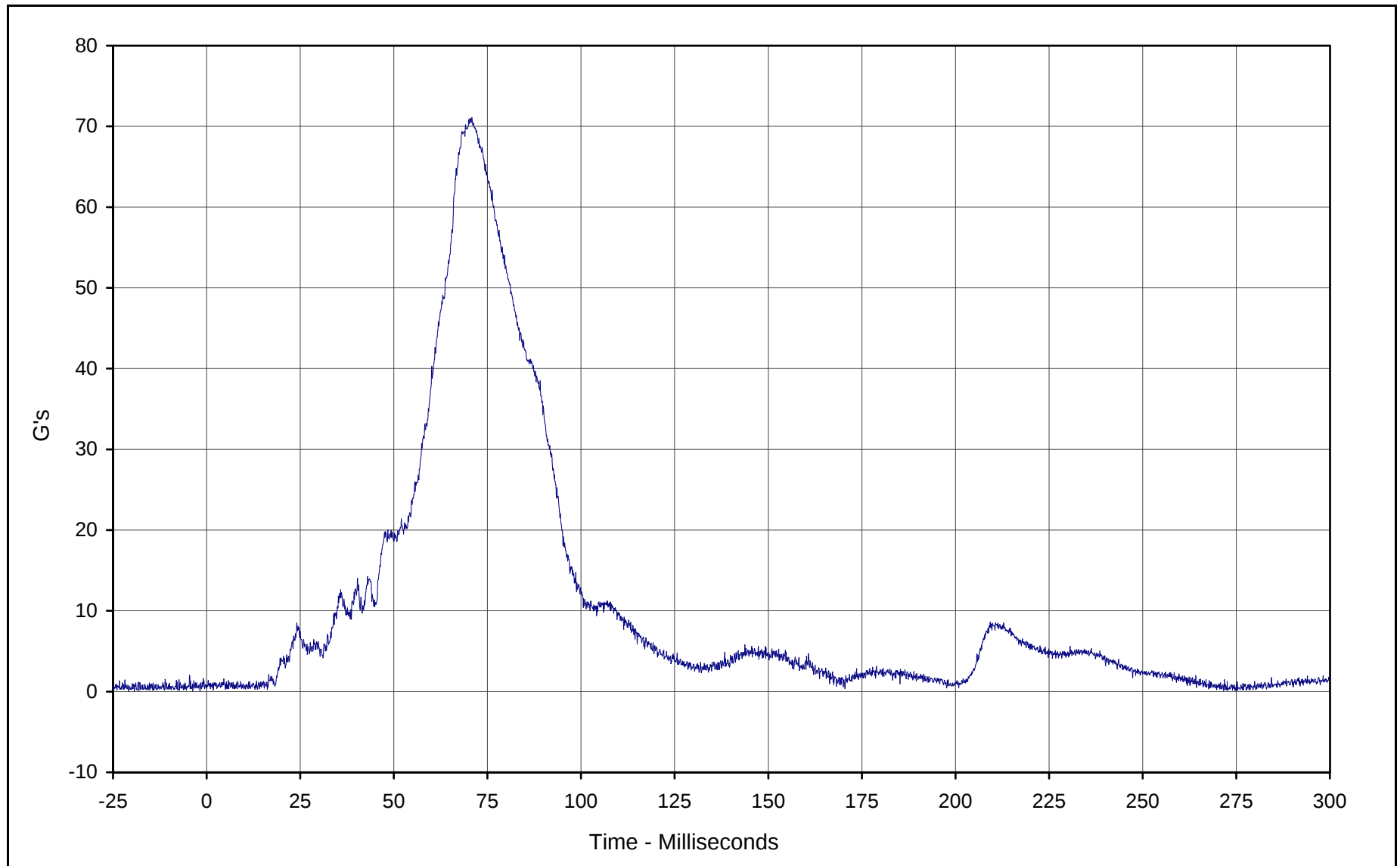
KAR21001-05



Curve Description: Driver Head Redundant Z
Maximum Value: 17.9 at 66.4 Milliseconds
Minimum Value: -33.7 at 89.1 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-006

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

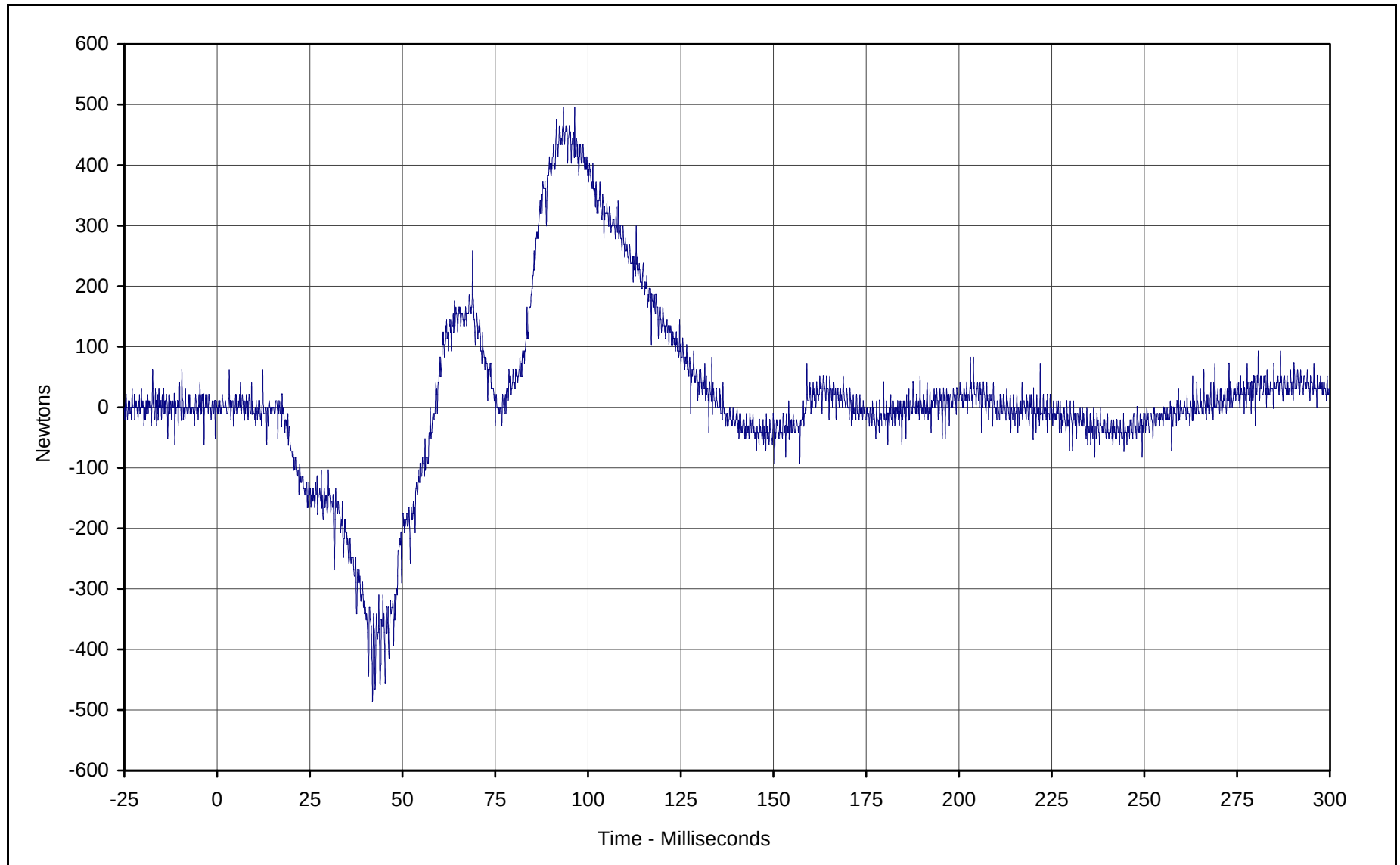




Curve Description: Driver Head Resultant Redundant
Maximum Value: 71.1 at 70.9 Milliseconds
Minimum Value: 0.1 at 271.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: RES-004

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

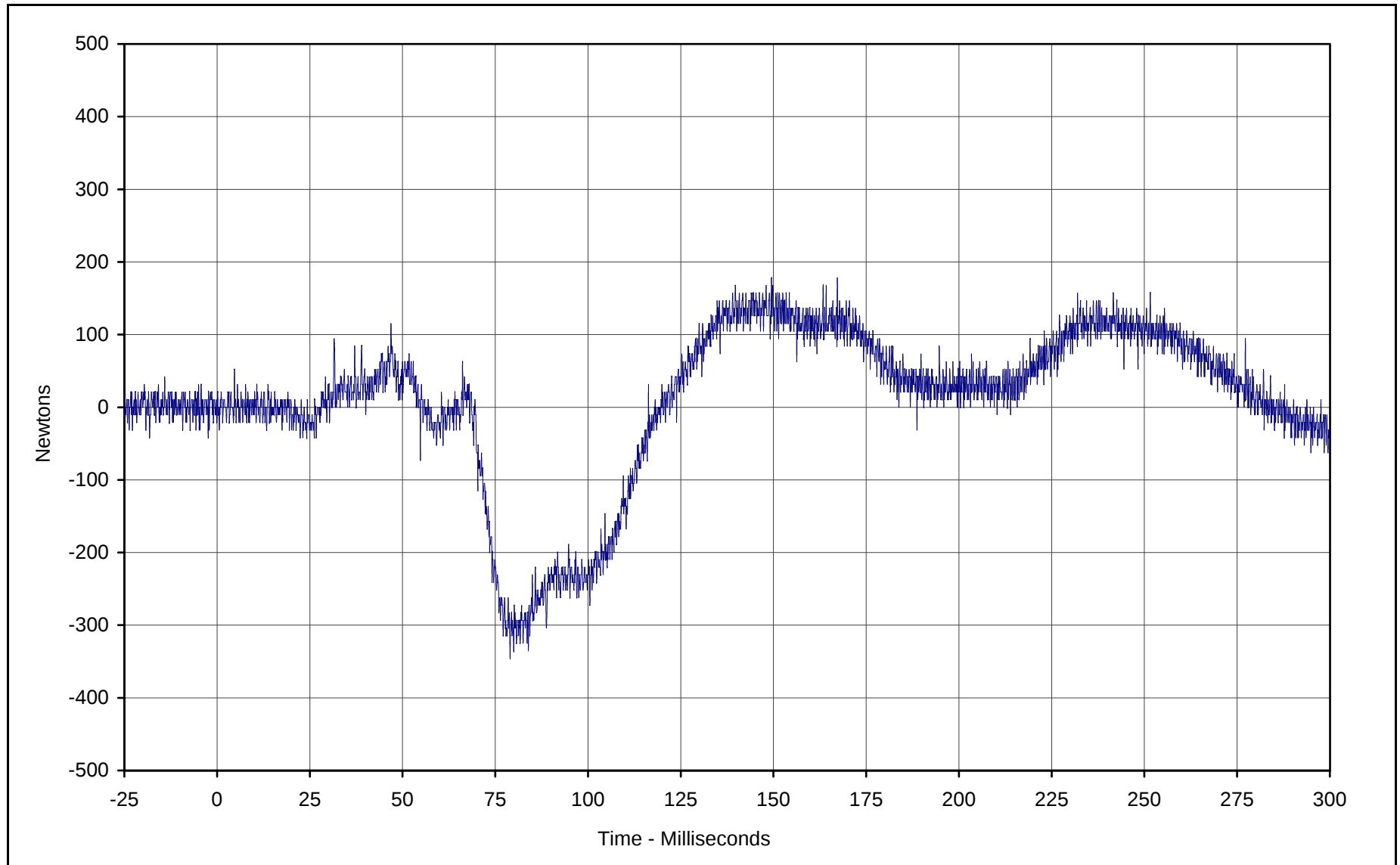




Curve Description: Driver Neck Force X
Maximum Value: 496.0 at 93.4 Milliseconds
Minimum Value: -485.7 at 41.9 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-007

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

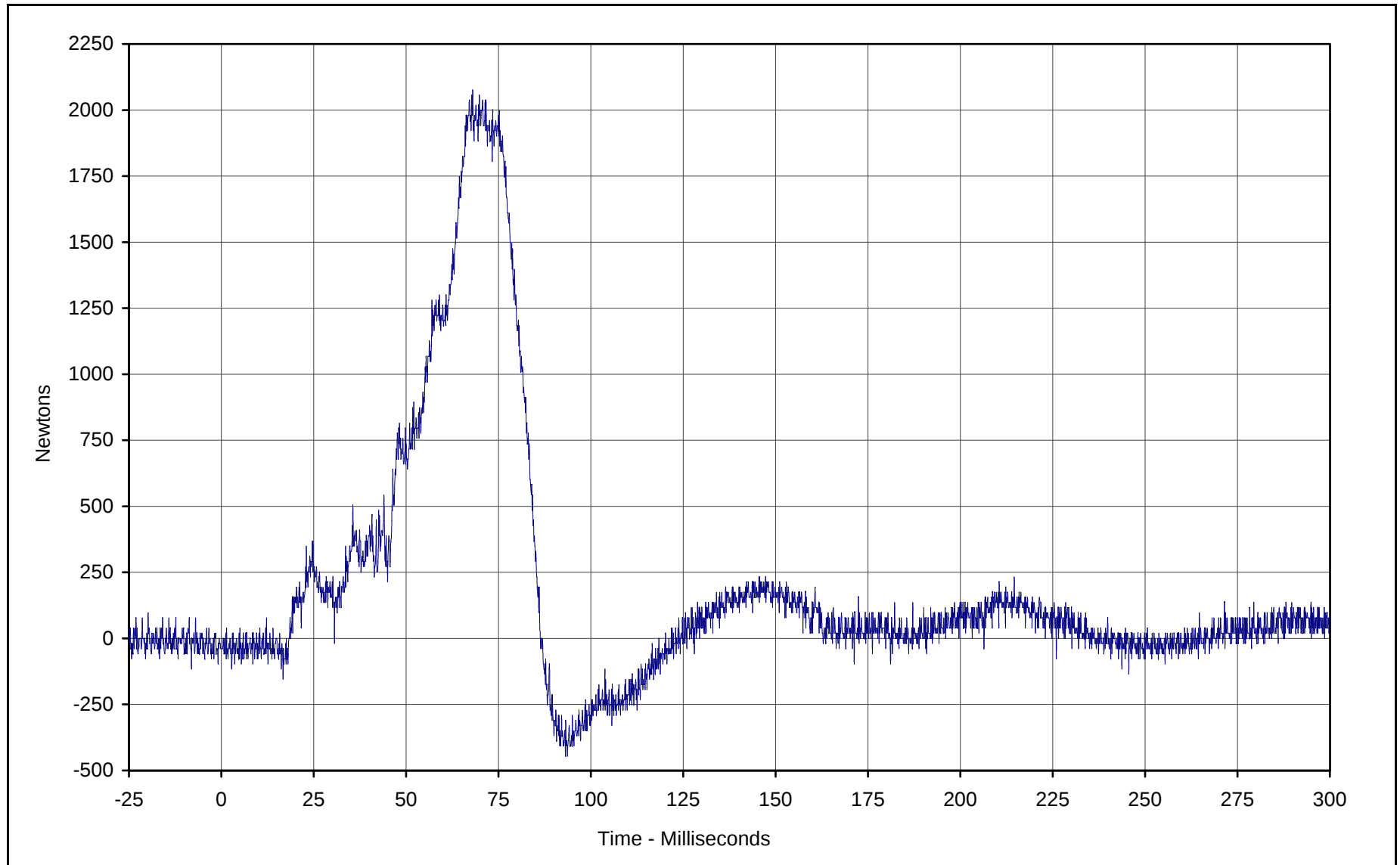




Curve Description: Driver Neck Force Y
Maximum Value: 178.2 at 149.5 Milliseconds
Minimum Value: -345.9 at 79.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-008

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

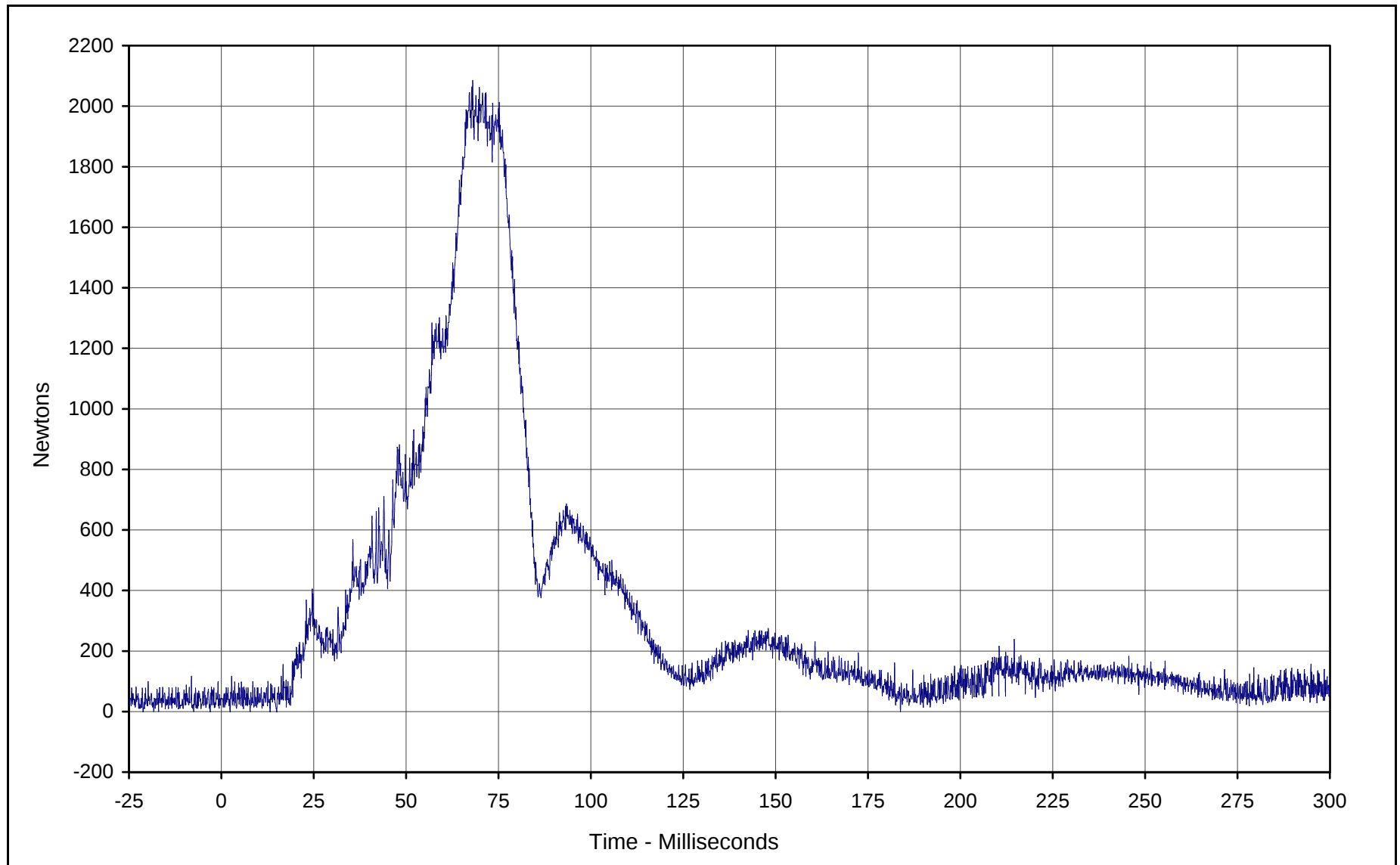




Curve Description: Driver Neck Force Z
Maximum Value: 2076.8 at 68.0 Milliseconds
Minimum Value: -446.4 at 93.1 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-009

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

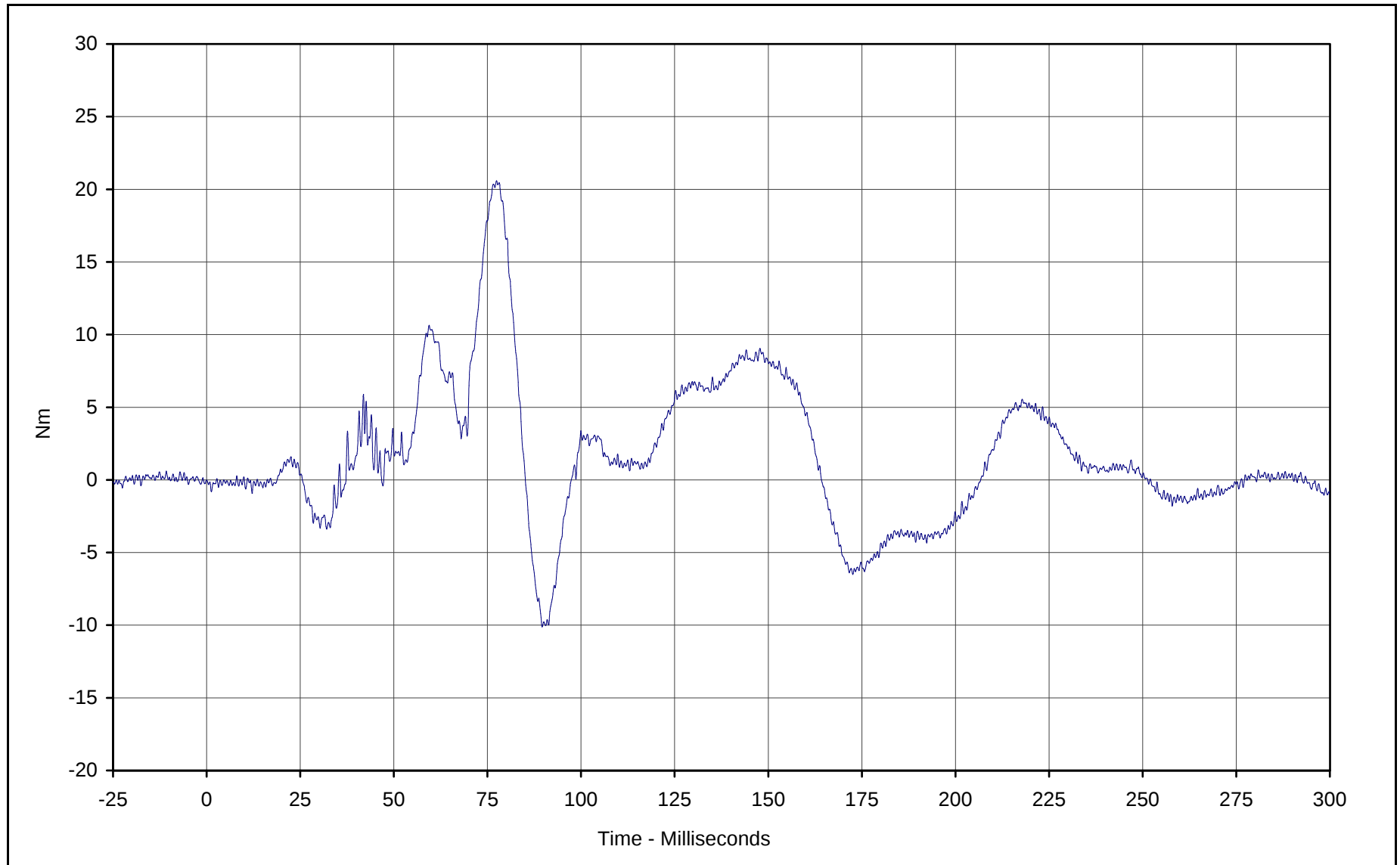




Curve Description: Driver Neck Force Resultant
Maximum Value: 2085.3 at 68.0 Milliseconds
Minimum Value: 0.0 at 2.4 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: RES-007

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

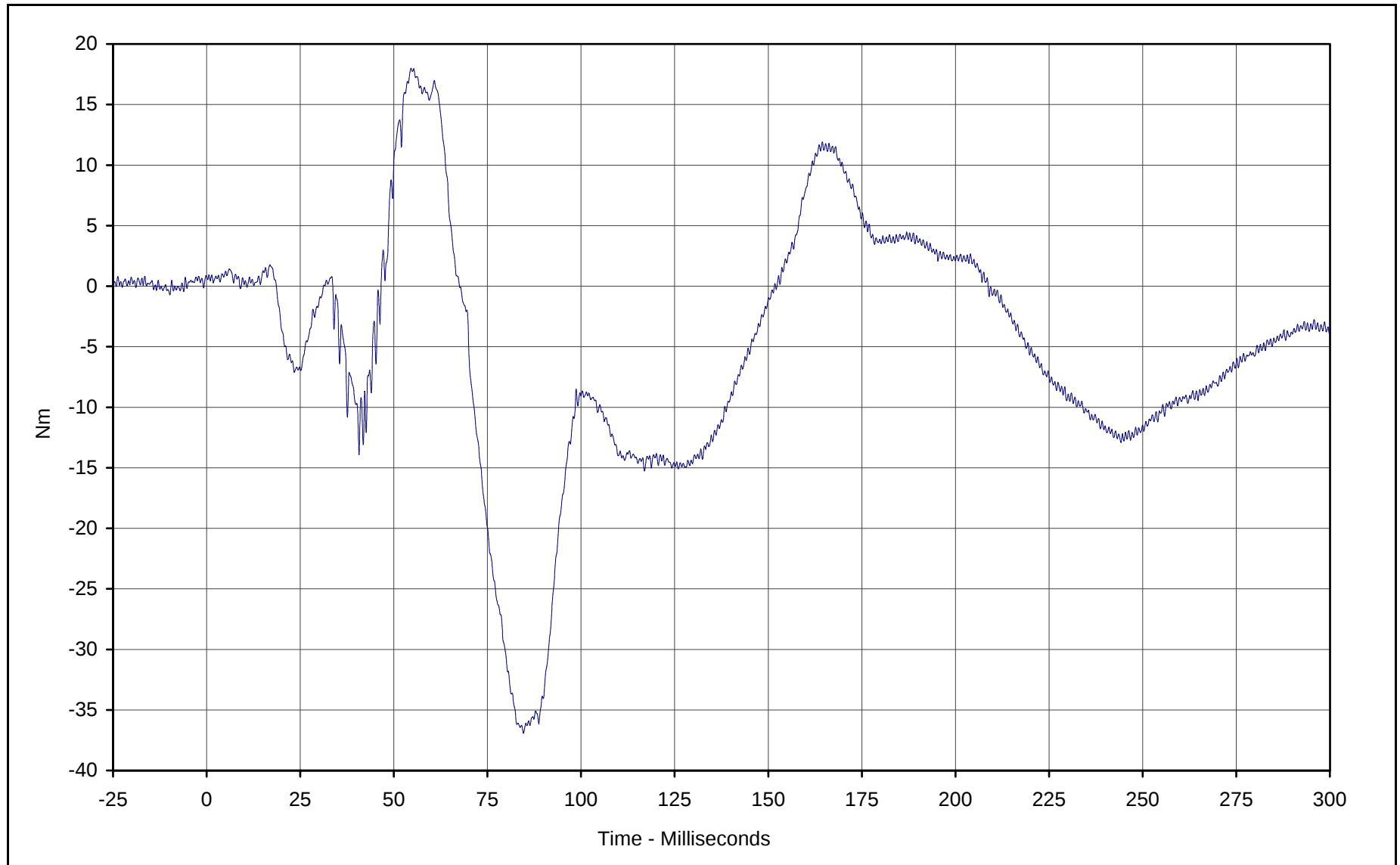




Curve Description: Driver Neck Moment X
Maximum Value: 20.6 at 77.4 Milliseconds
Minimum Value: -10.1 at 89.6 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-010

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

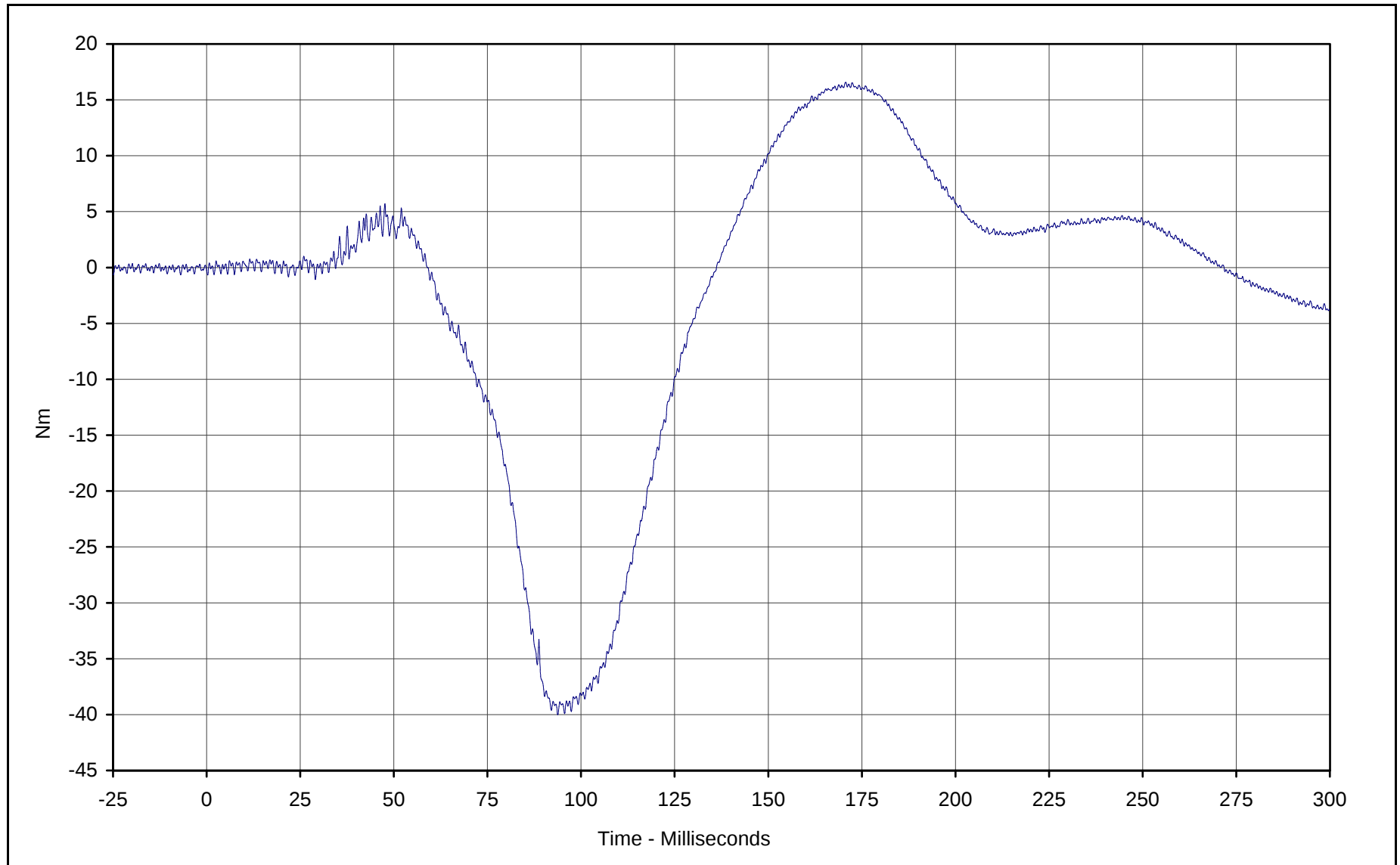




Curve Description: Driver Neck Moment Y
Maximum Value: 18.0 at 54.6 Milliseconds
Minimum Value: -36.9 at 84.6 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-011

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

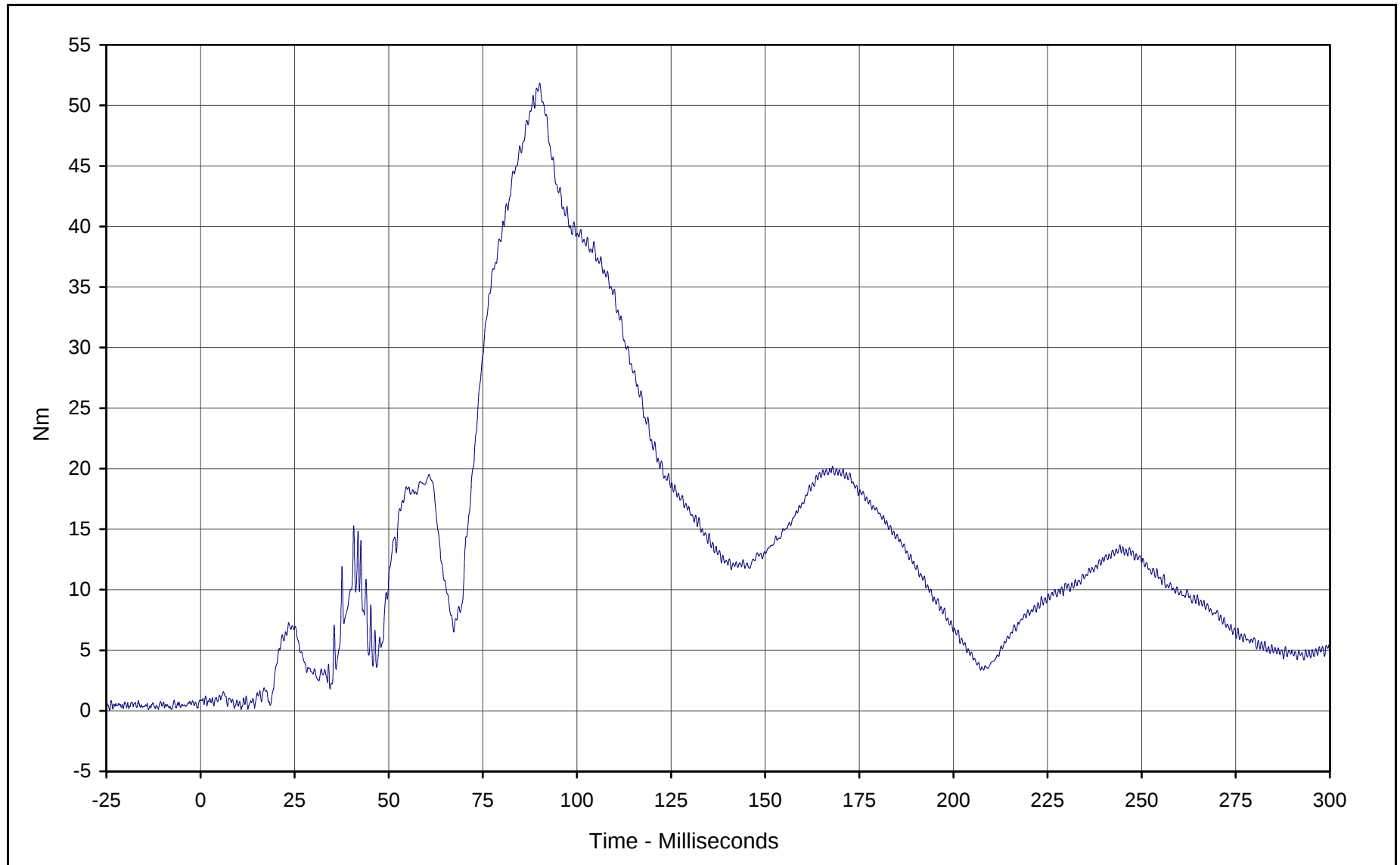




Curve Description: Driver Neck Moment Z
Maximum Value: 16.6 at 170.7 Milliseconds
Minimum Value: -40.0 at 93.8 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-012

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



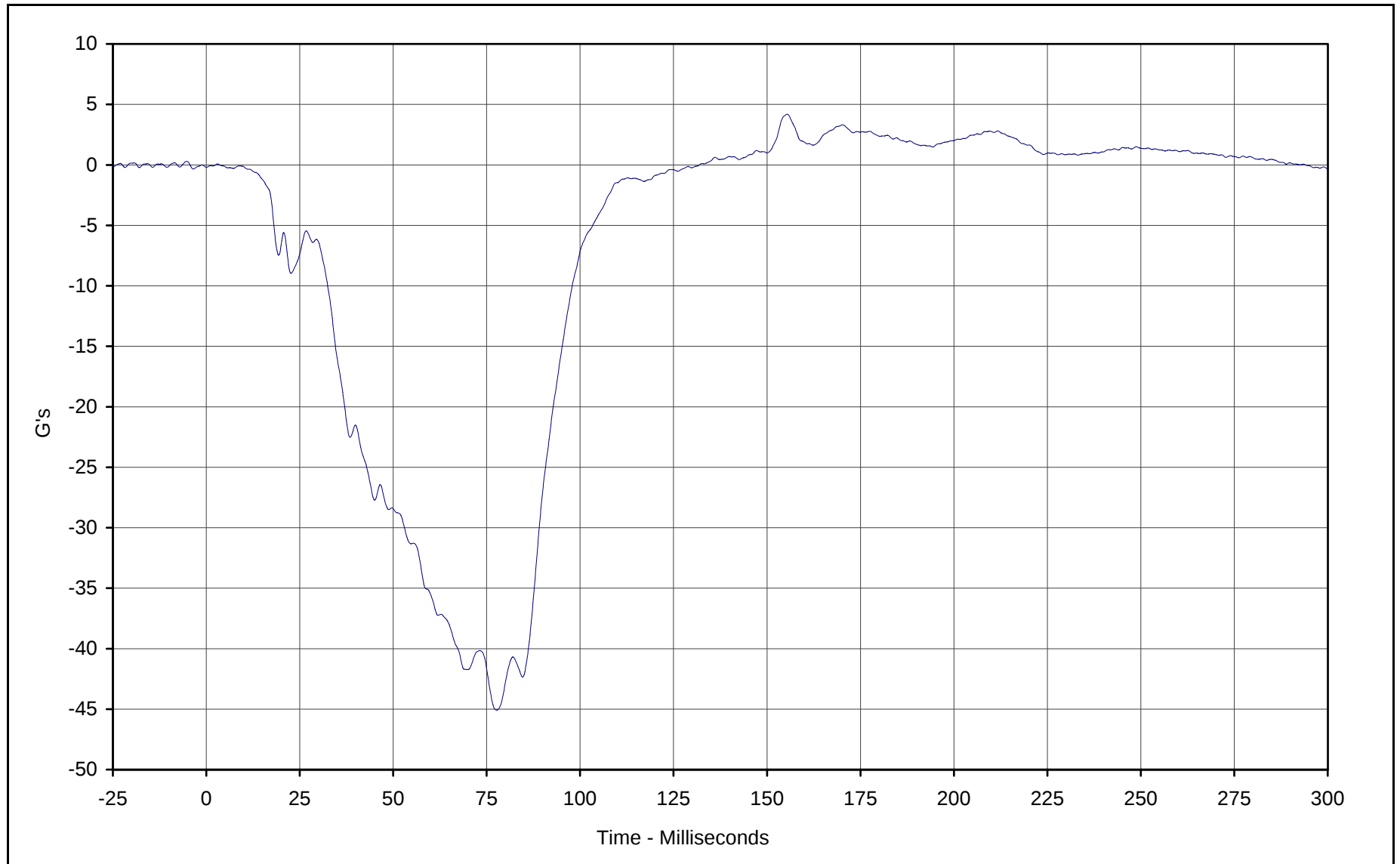


Curve Description: Driver Neck Moment Resultant
Maximum Value: 51.8 at 90.1 Milliseconds
Minimum Value: 0.1 at 10.8 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: RES-010

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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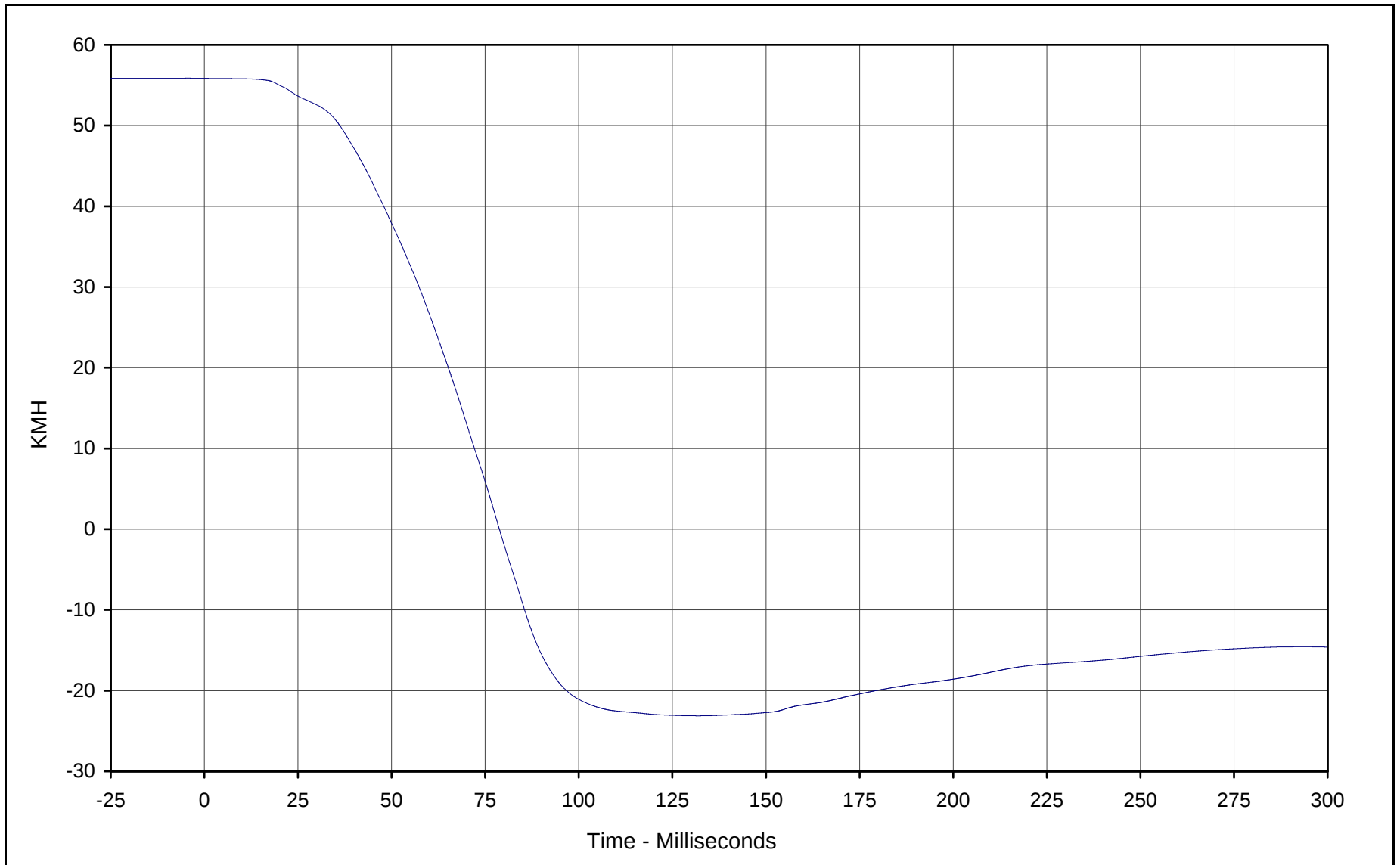


Curve Description: Driver Chest Primary X
Maximum Value: 4.2 at 155.4 Milliseconds
Minimum Value: -45.1 at 77.7 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-013

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



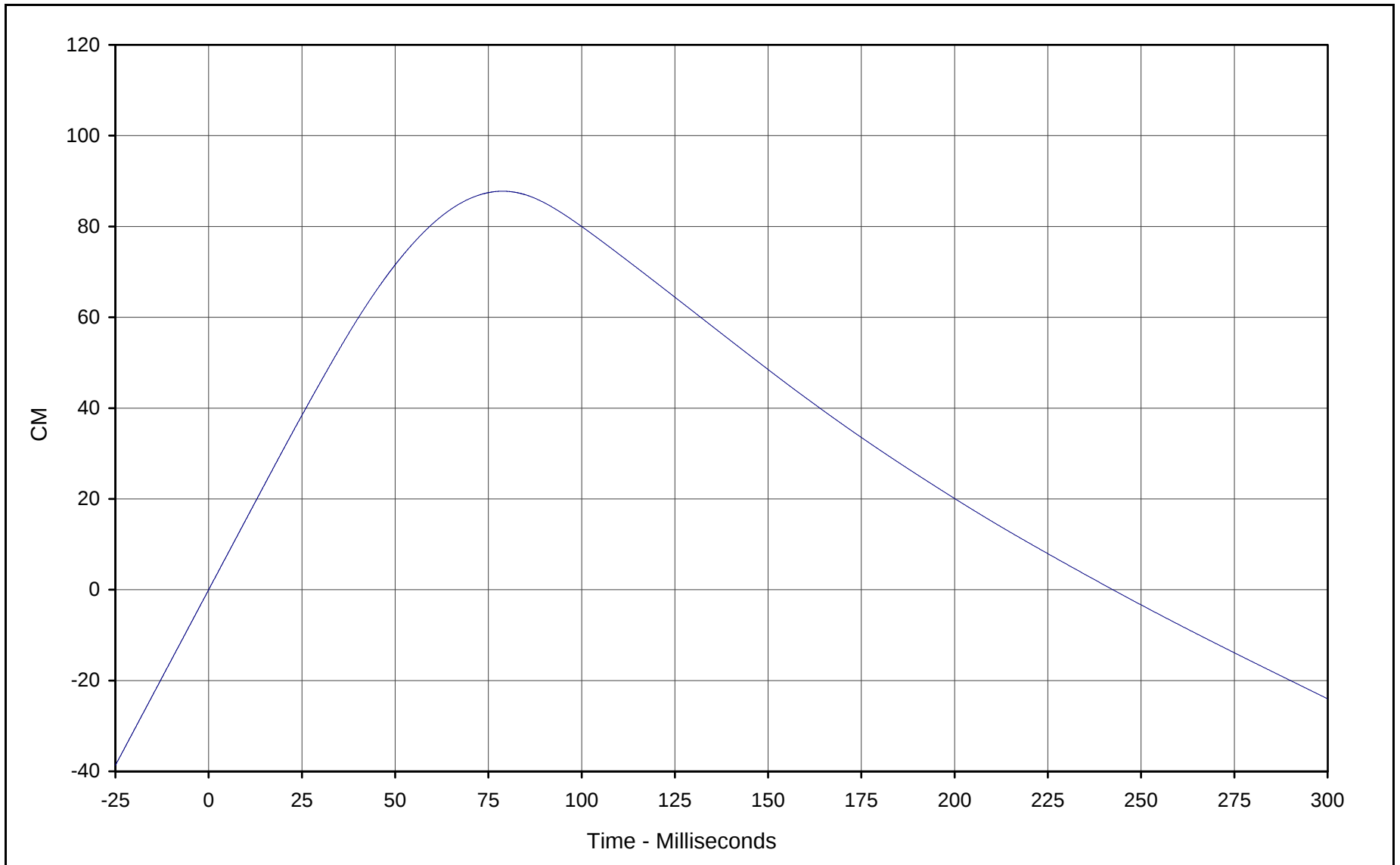
KAR21001-05



Curve Description: Driver Chest Primary X Velocity
Maximum Value: 55.8 at 0.0 Milliseconds
Minimum Value: -23.1 at 131.9 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-013

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



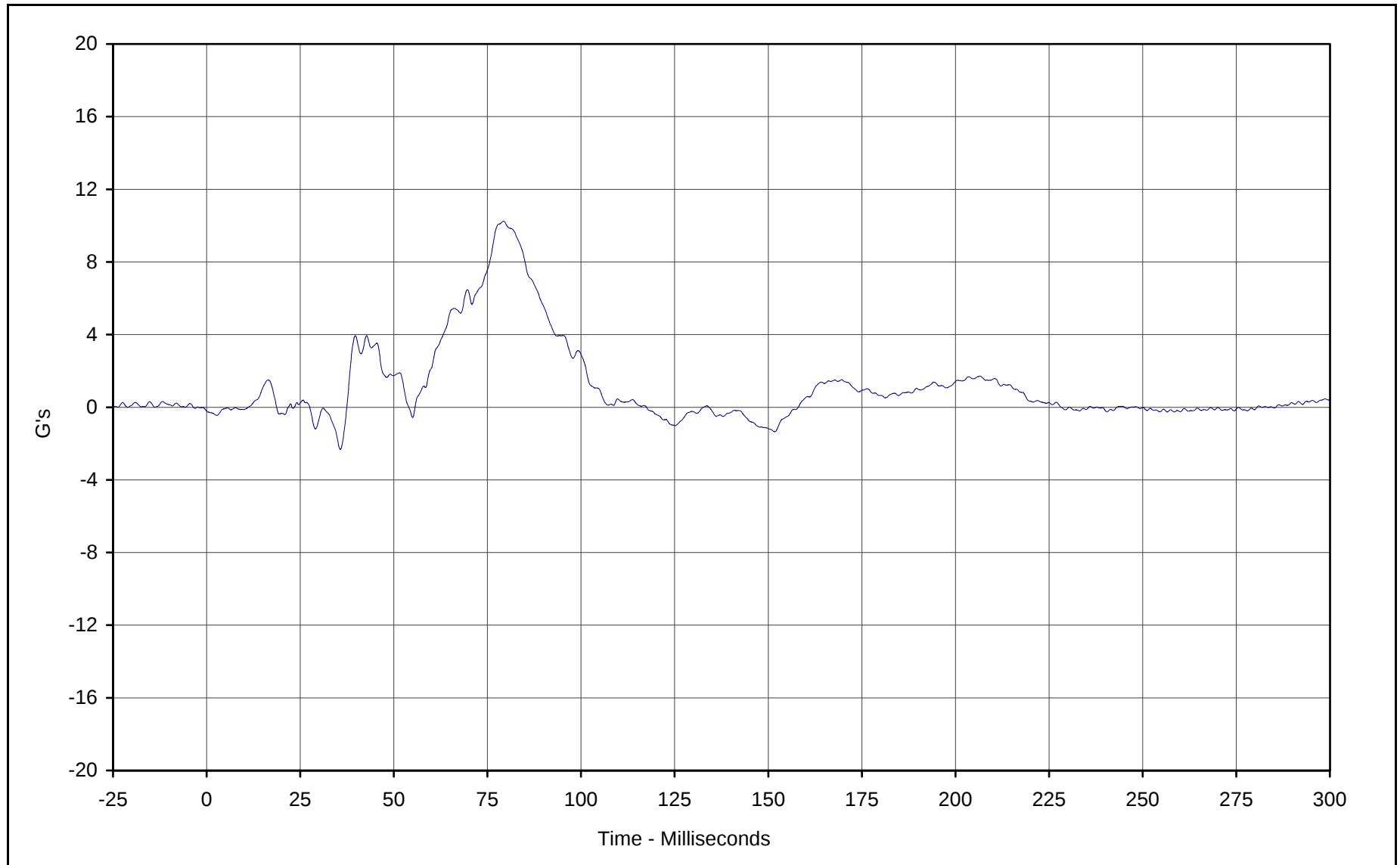


Curve Description: Driver Chest Primary X Displ.
Maximum Value: 87.8 at 78.8 Milliseconds
Minimum Value: -24.0 at 299.9 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-013

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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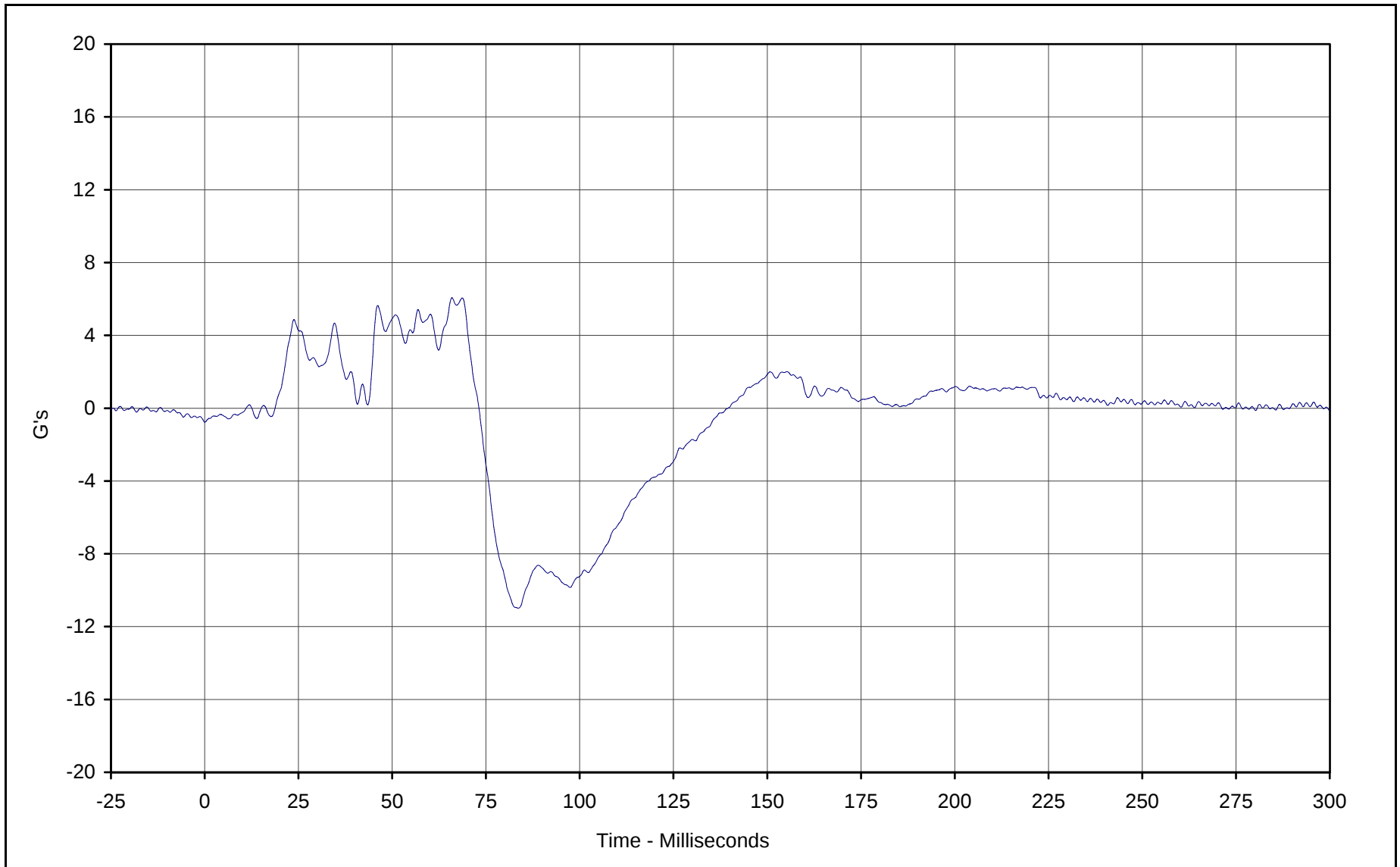
Curve Description: Driver Chest Primary Y
Maximum Value: 10.2 at 79.3 Milliseconds
Minimum Value: -2.3 at 35.7 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-014

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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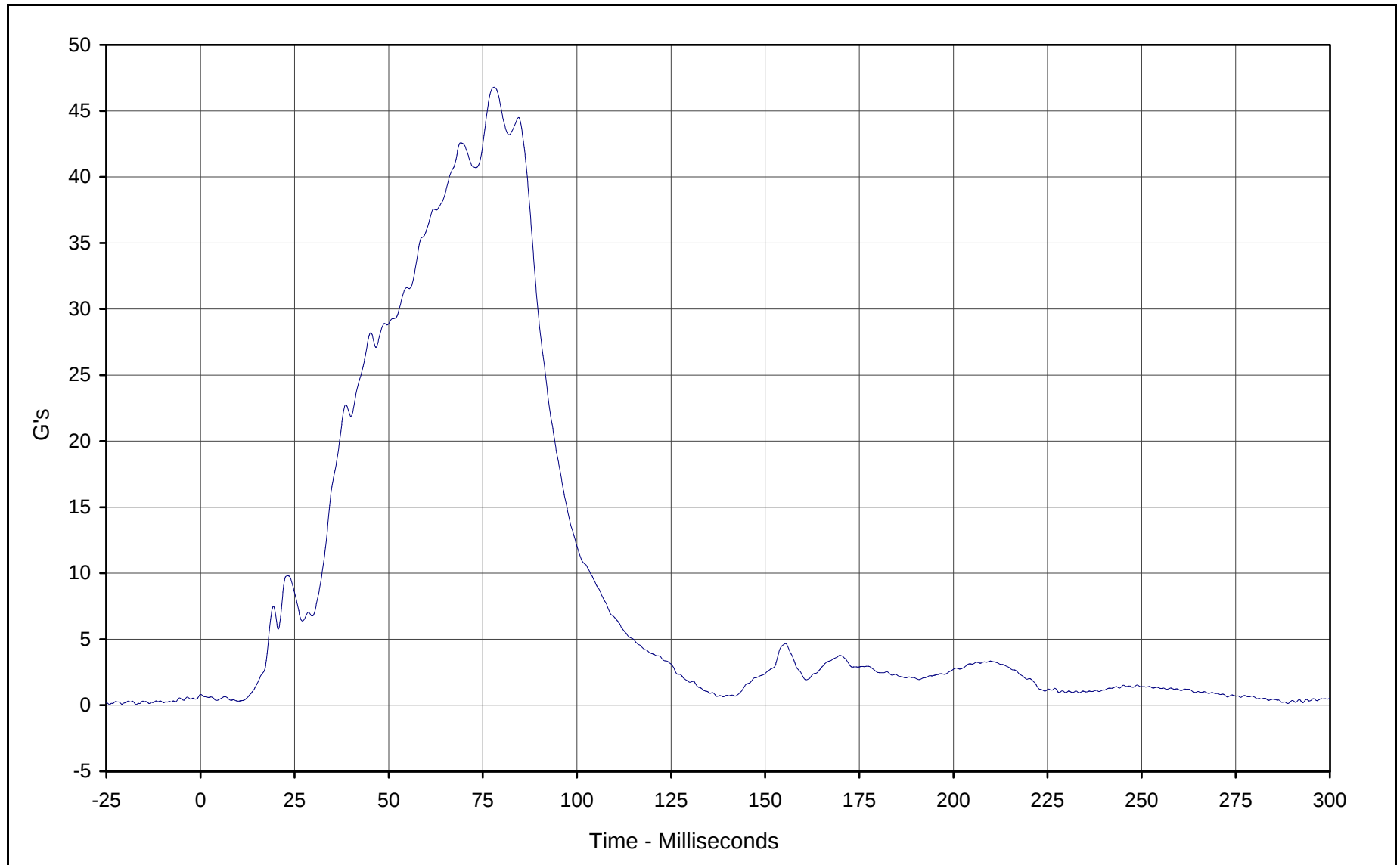


Curve Description: Driver Chest Primary Z
Maximum Value: 6.1 at 65.9 Milliseconds
Minimum Value: -11.0 at 83.6 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-015

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



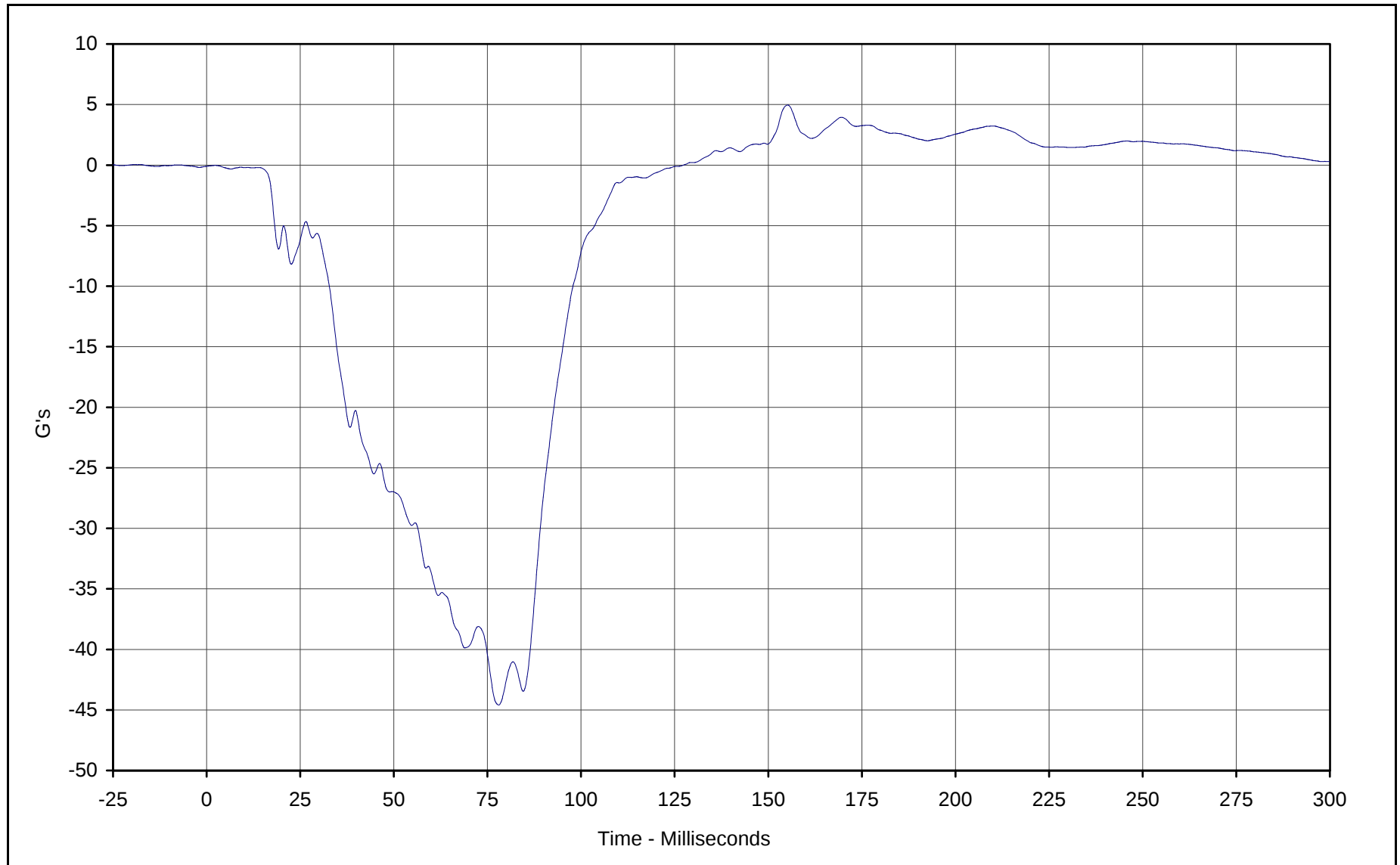
KAR21001-05



Curve Description: Driver Chest Resultant Primary
Maximum Value: 46.8 at 78.0 Milliseconds
Minimum Value: 0.1 at 288.8 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: RES-013

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

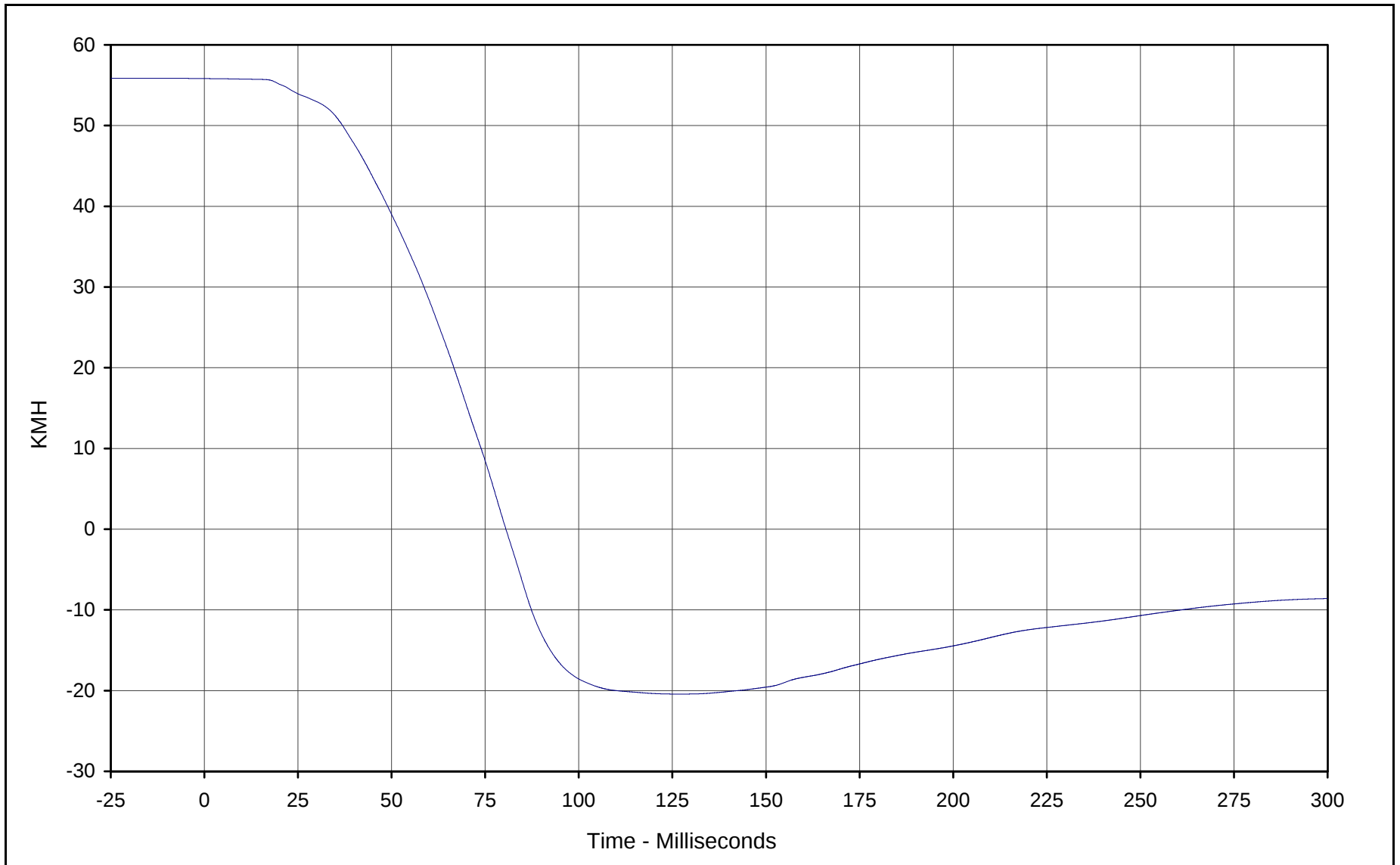




Curve Description: Driver Chest Redundant X
Maximum Value: 5.0 at 155.2 Milliseconds
Minimum Value: -44.6 at 78.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-016

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

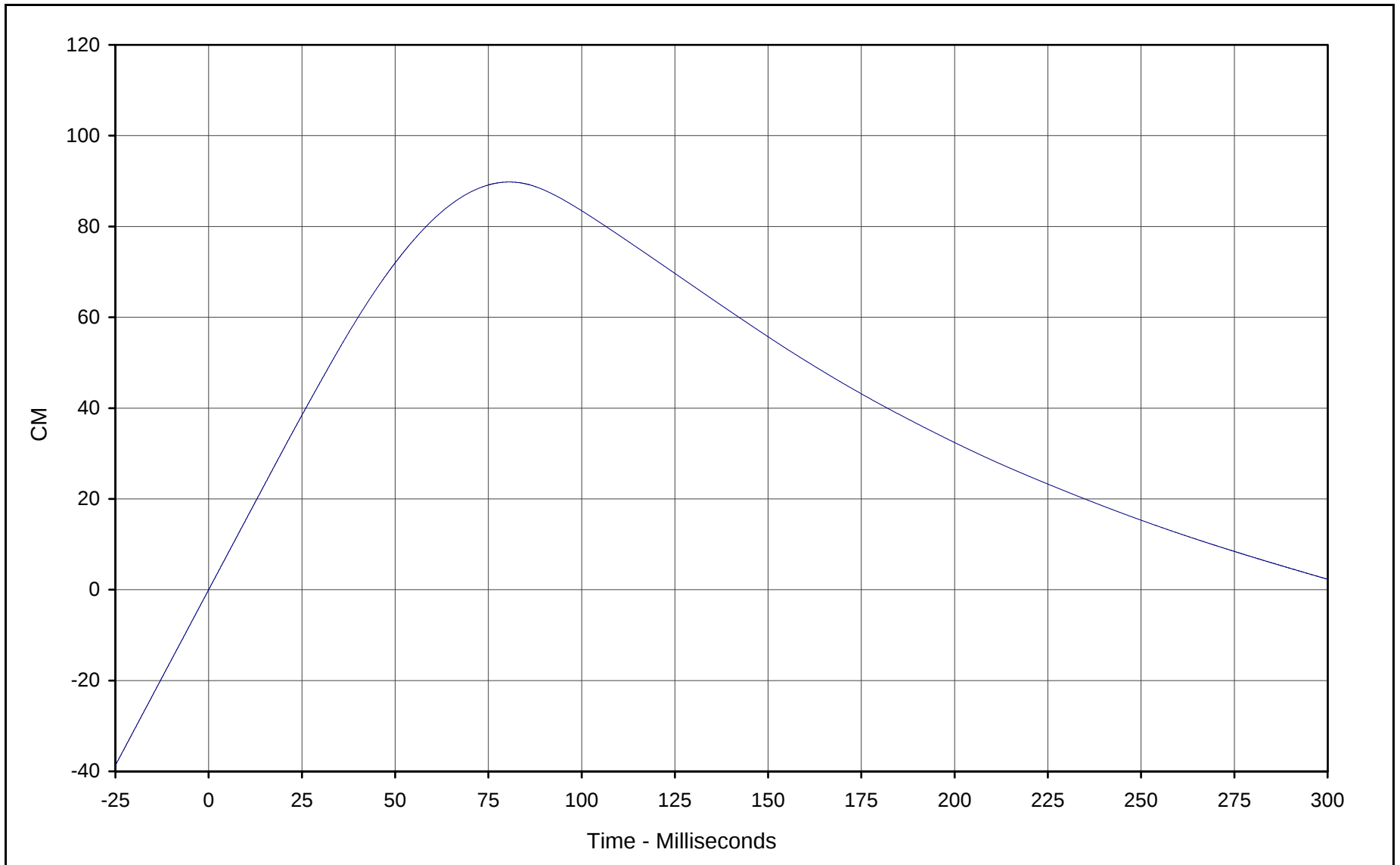




Curve Description: Driver Chest Redundant X Velocity
Maximum Value: 55.8 at 0.0 Milliseconds
Minimum Value: -20.4 at 127.3 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-016

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



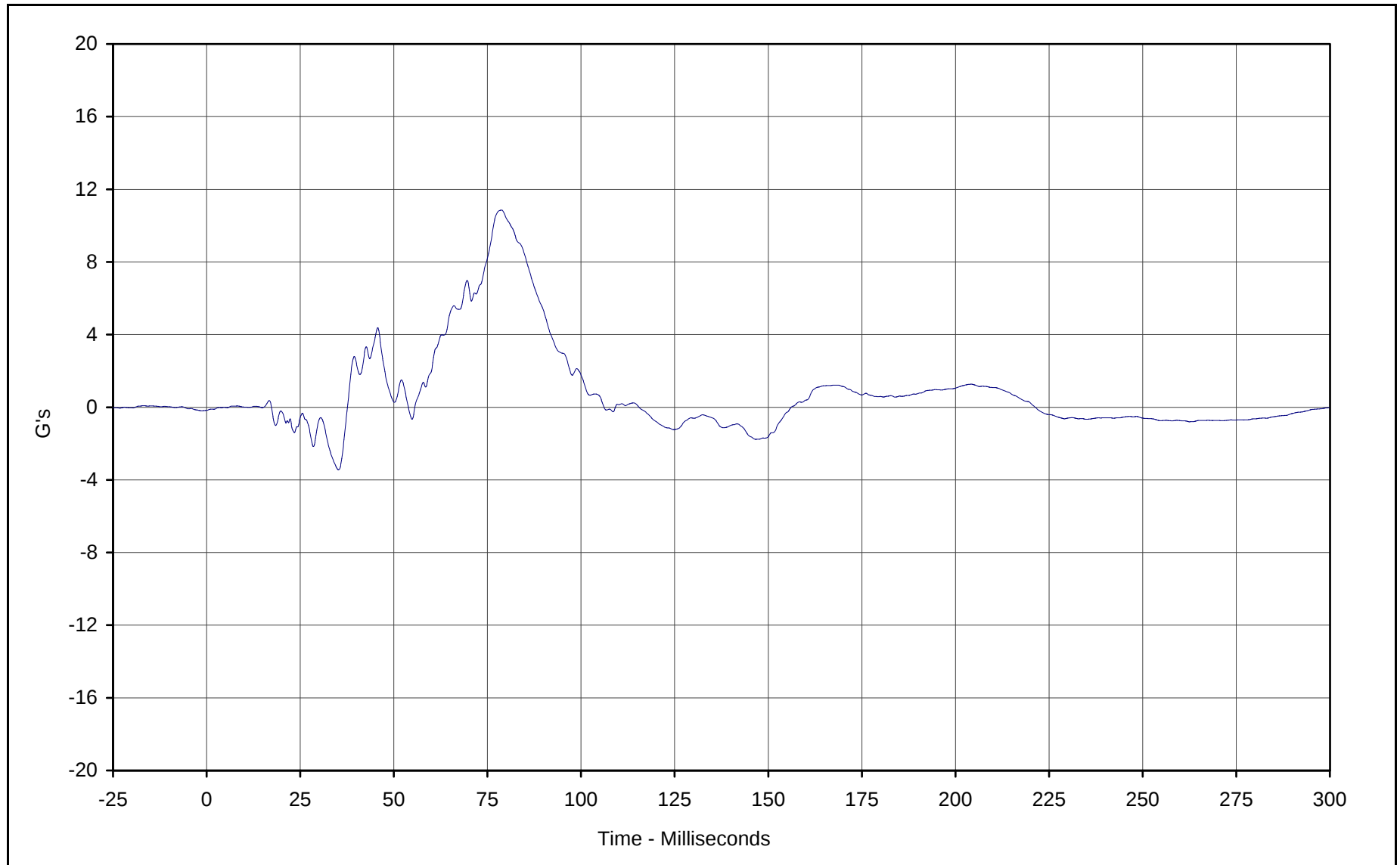


Curve Description: Driver Chest Redundant X Displ.
Maximum Value: 89.8 at 80.5 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-016

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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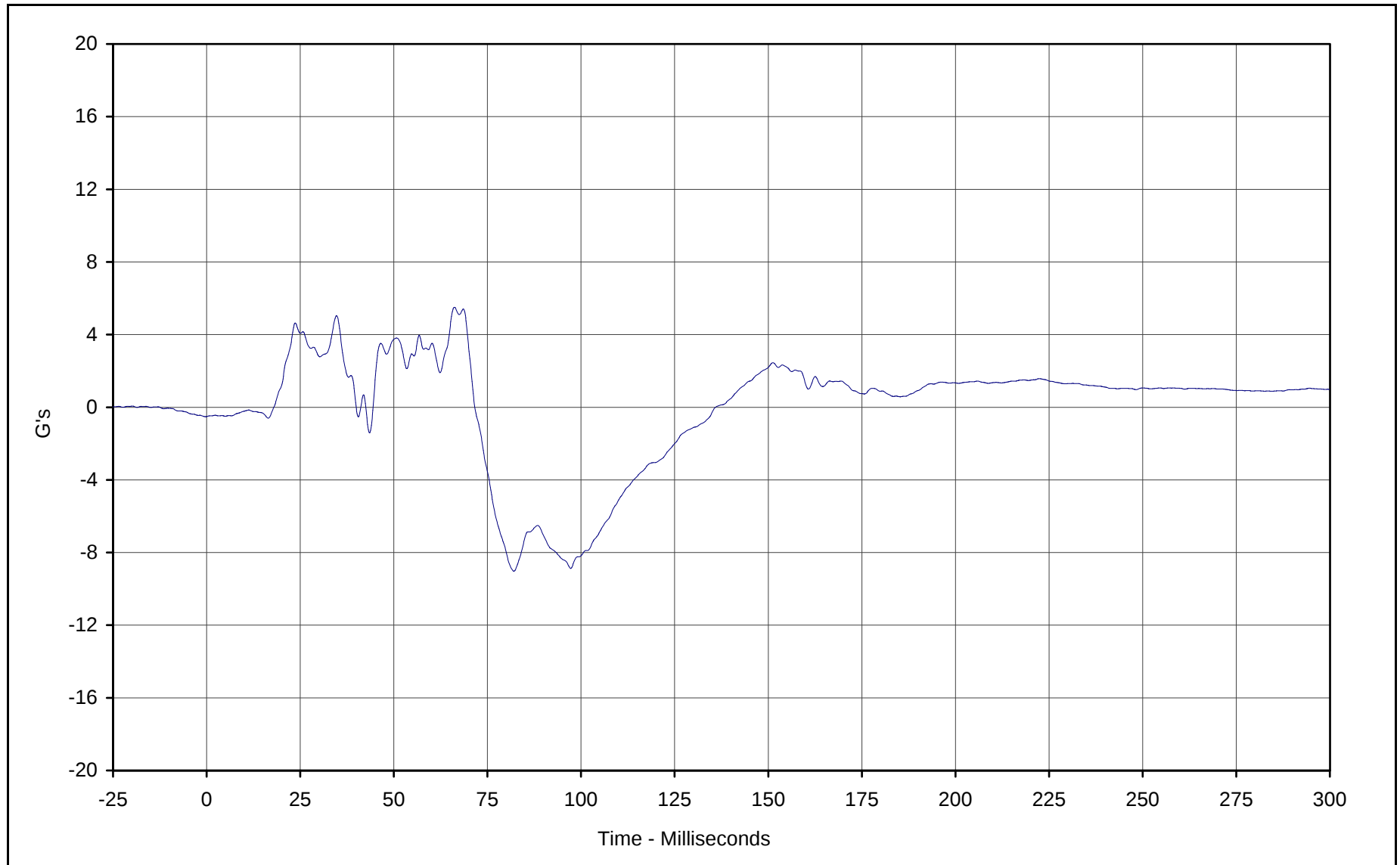
Curve Description: Driver Chest Redundant Y
Maximum Value: 10.9 at 78.8 Milliseconds
Minimum Value: -3.4 at 35.2 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-017

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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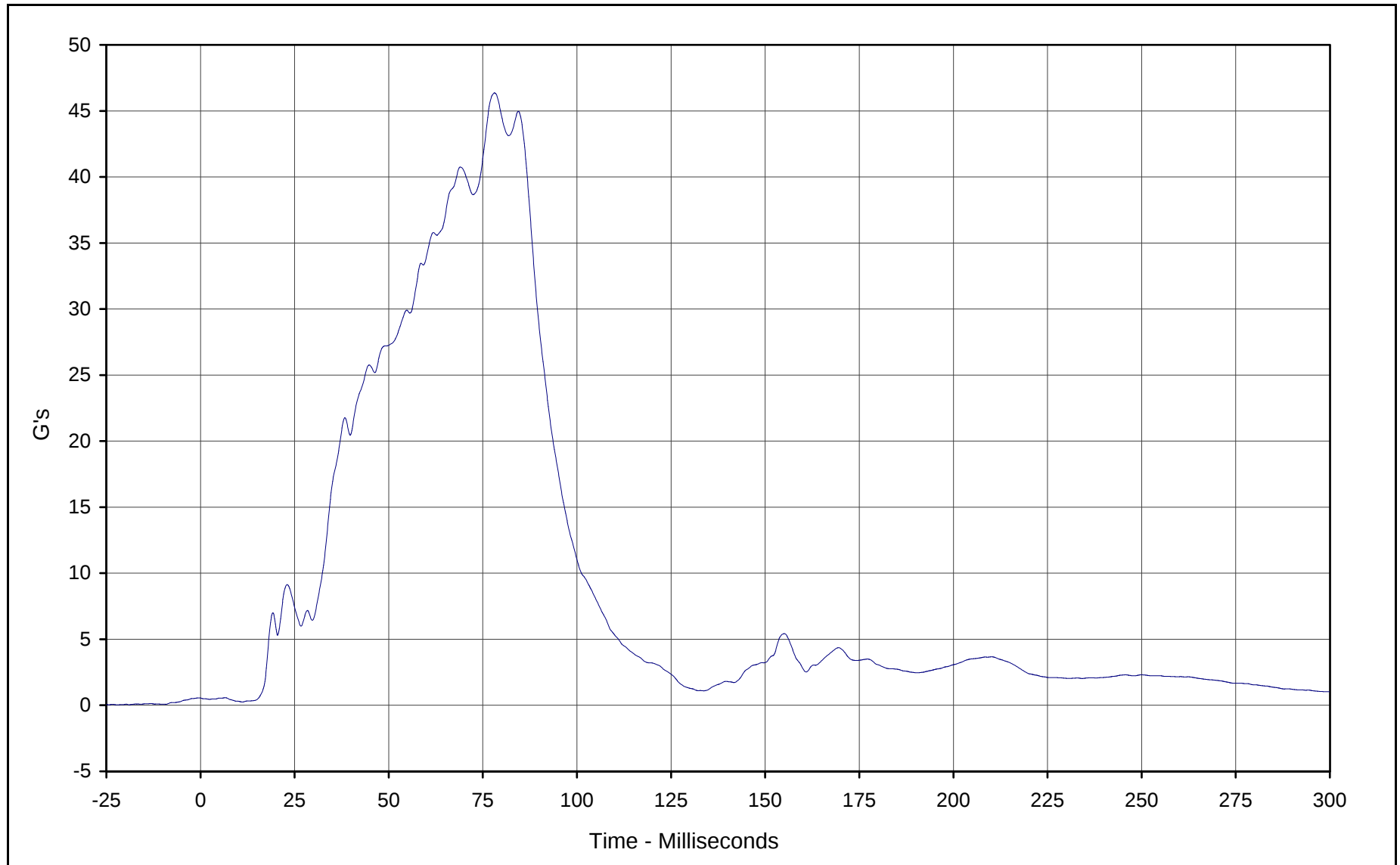


Curve Description: Driver Chest Redundant Z
Maximum Value: 5.5 at 66.2 Milliseconds
Minimum Value: -9.0 at 82.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-018

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



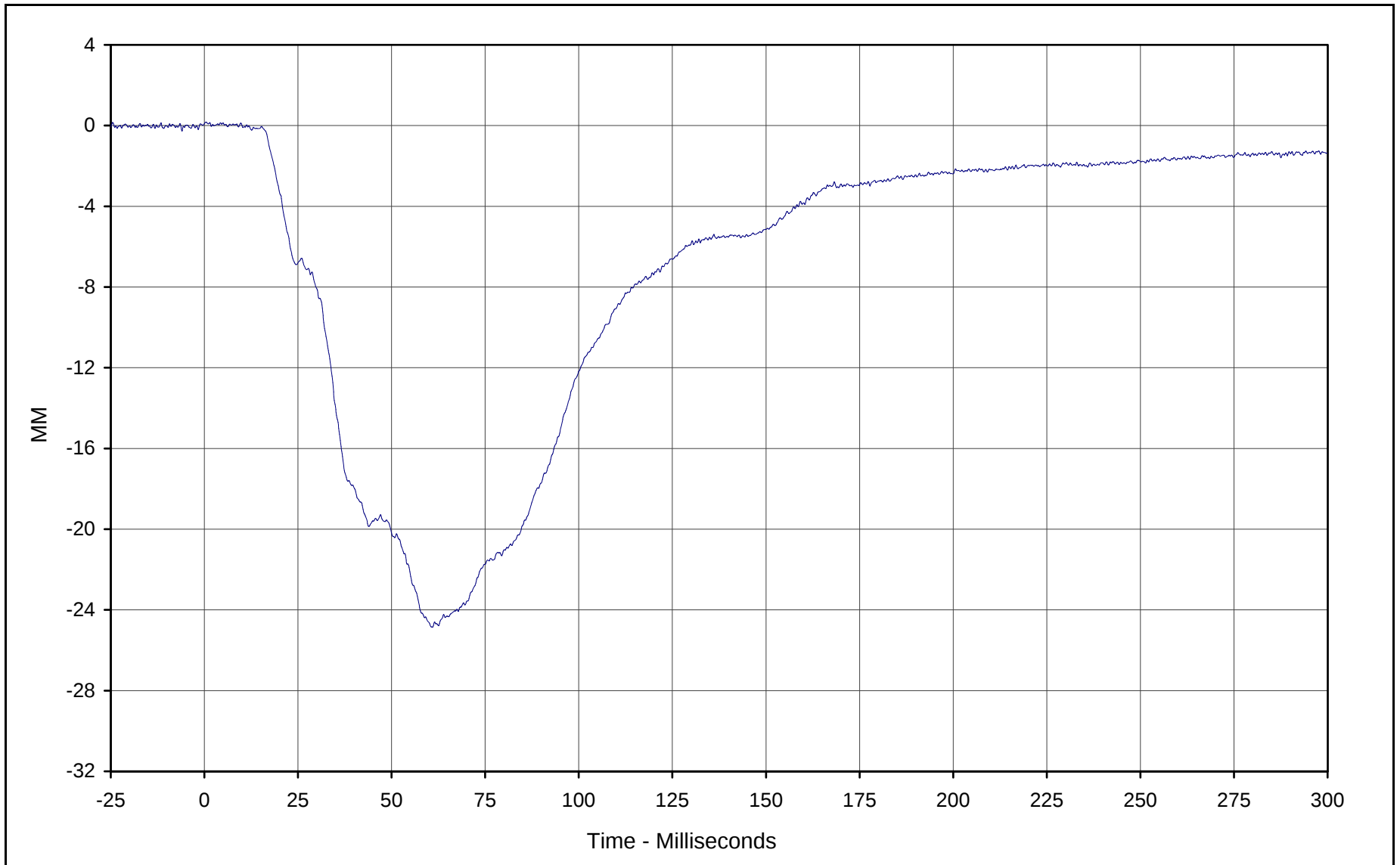
KAR21001-05



Curve Description: Driver Chest Resultant Redundant
Maximum Value: 46.4 at 78.1 Milliseconds
Minimum Value: 0.3 at 11.1 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: RES-016

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

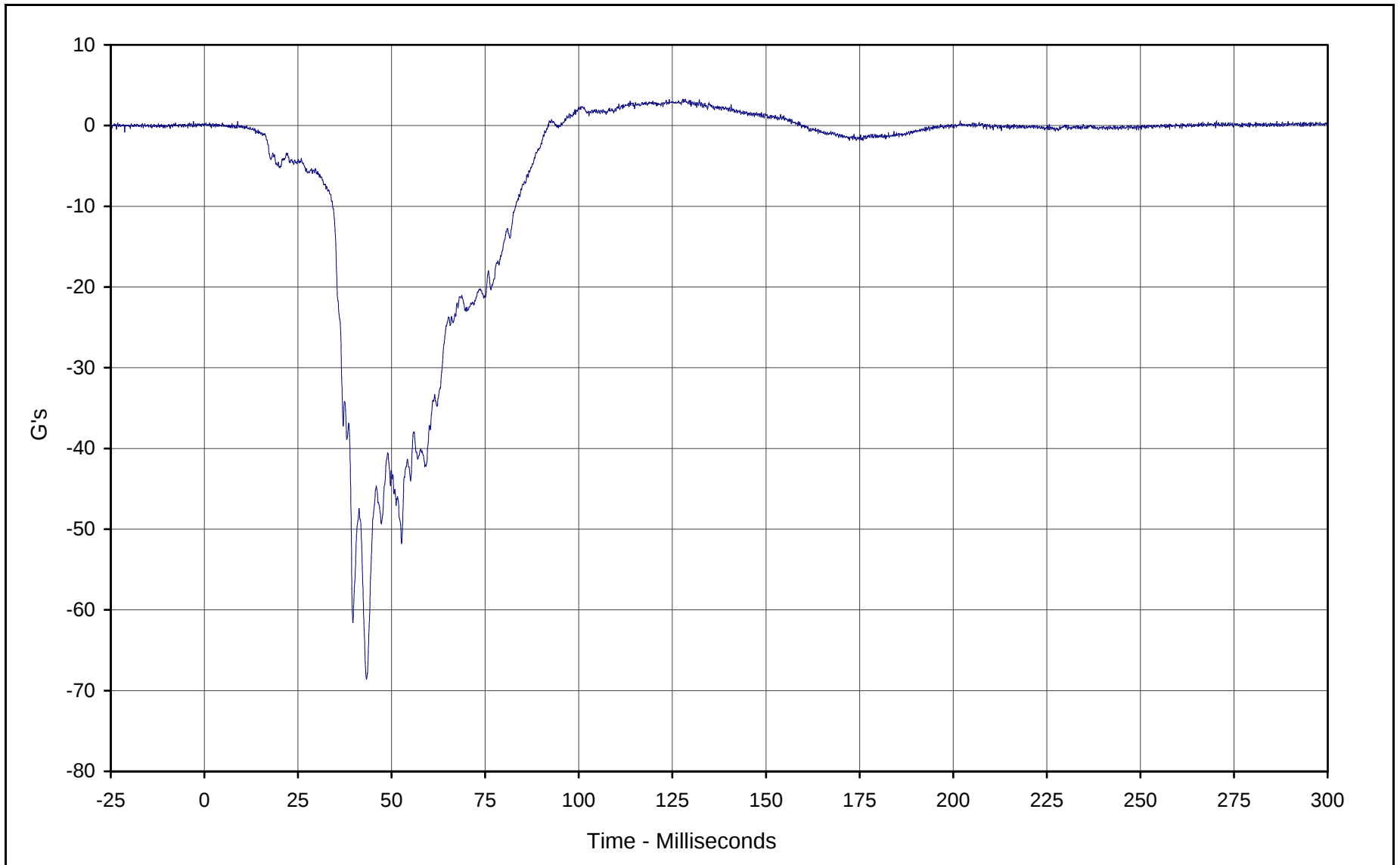




Curve Description: Driver Chest Displacement X
Maximum Value: 0.2 at 0.5 Milliseconds
Minimum Value: -24.9 at 61.0 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-019

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Driver Pelvis X

Maximum Value: 3.3 at 127.8 Milliseconds

Minimum Value: -68.6 at 43.3 Milliseconds

SAE Filter Class: 1000

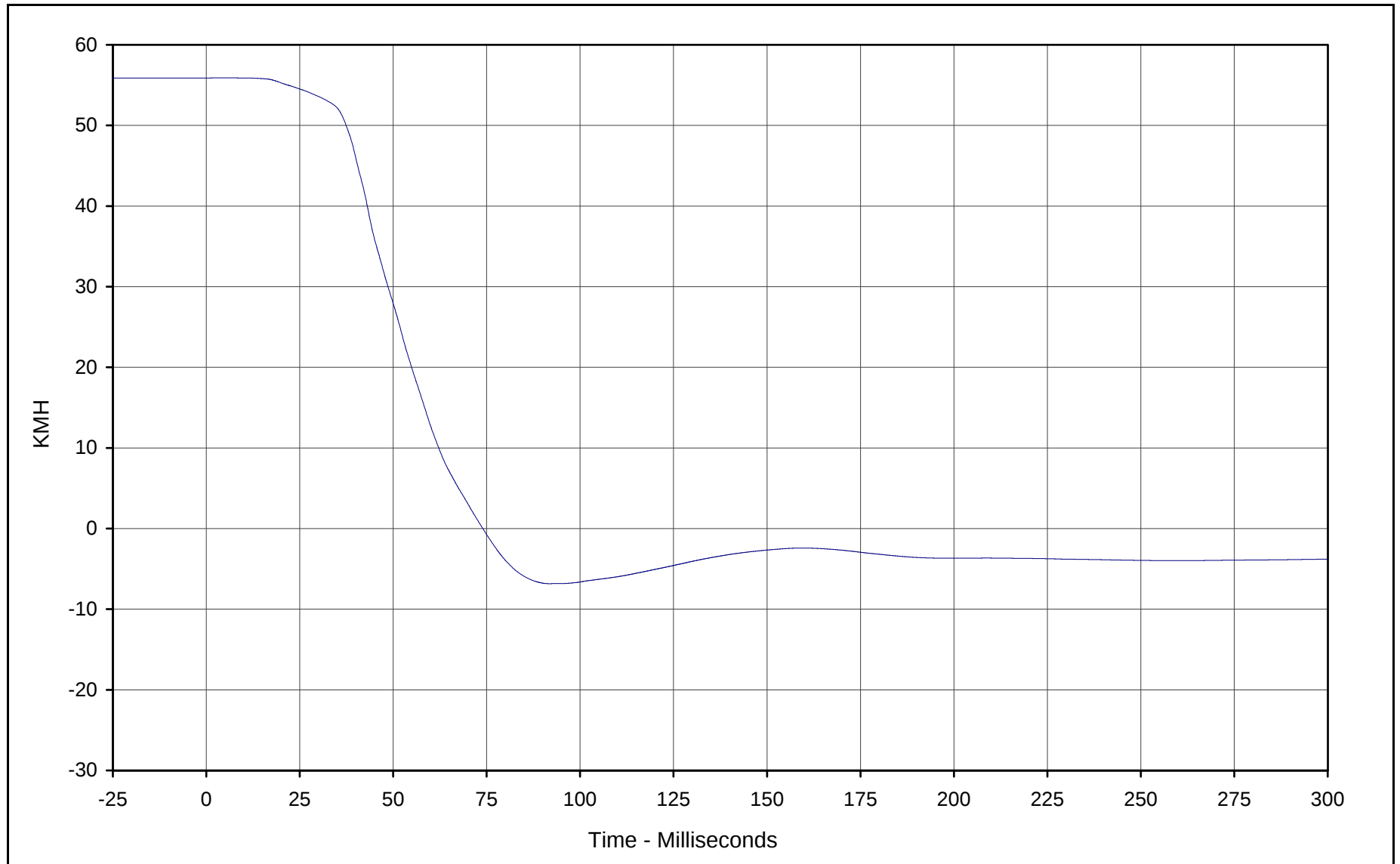
Date of Test: 01/16/01

Curve Number: FIL-020

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van

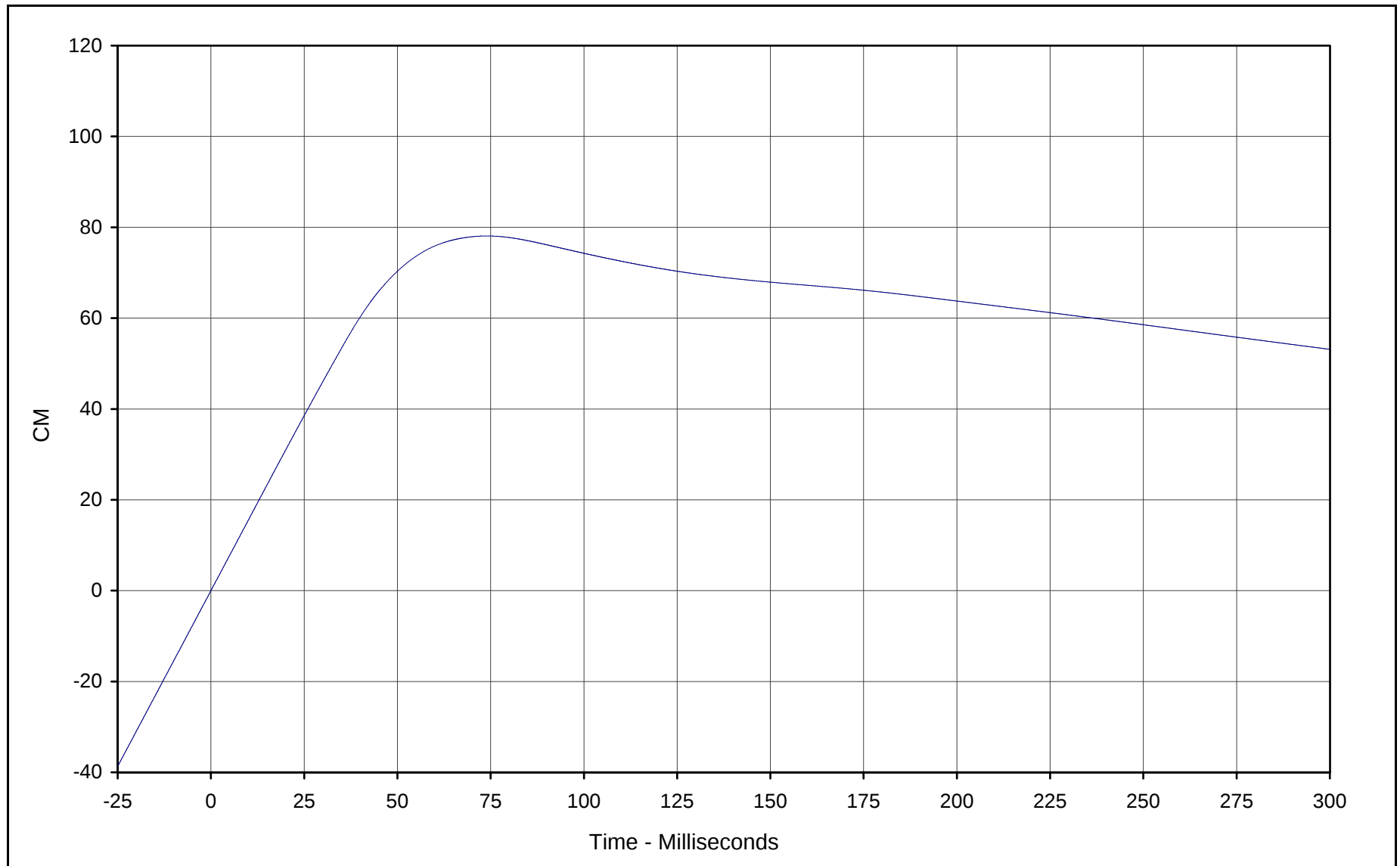




Curve Description: Driver Pelvis X Velocity
Maximum Value: 55.9 at 5.3 Milliseconds
Minimum Value: -6.8 at 91.8 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-020

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Driver Pelvis X Displ.

Maximum Value: 78.1 at 74.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

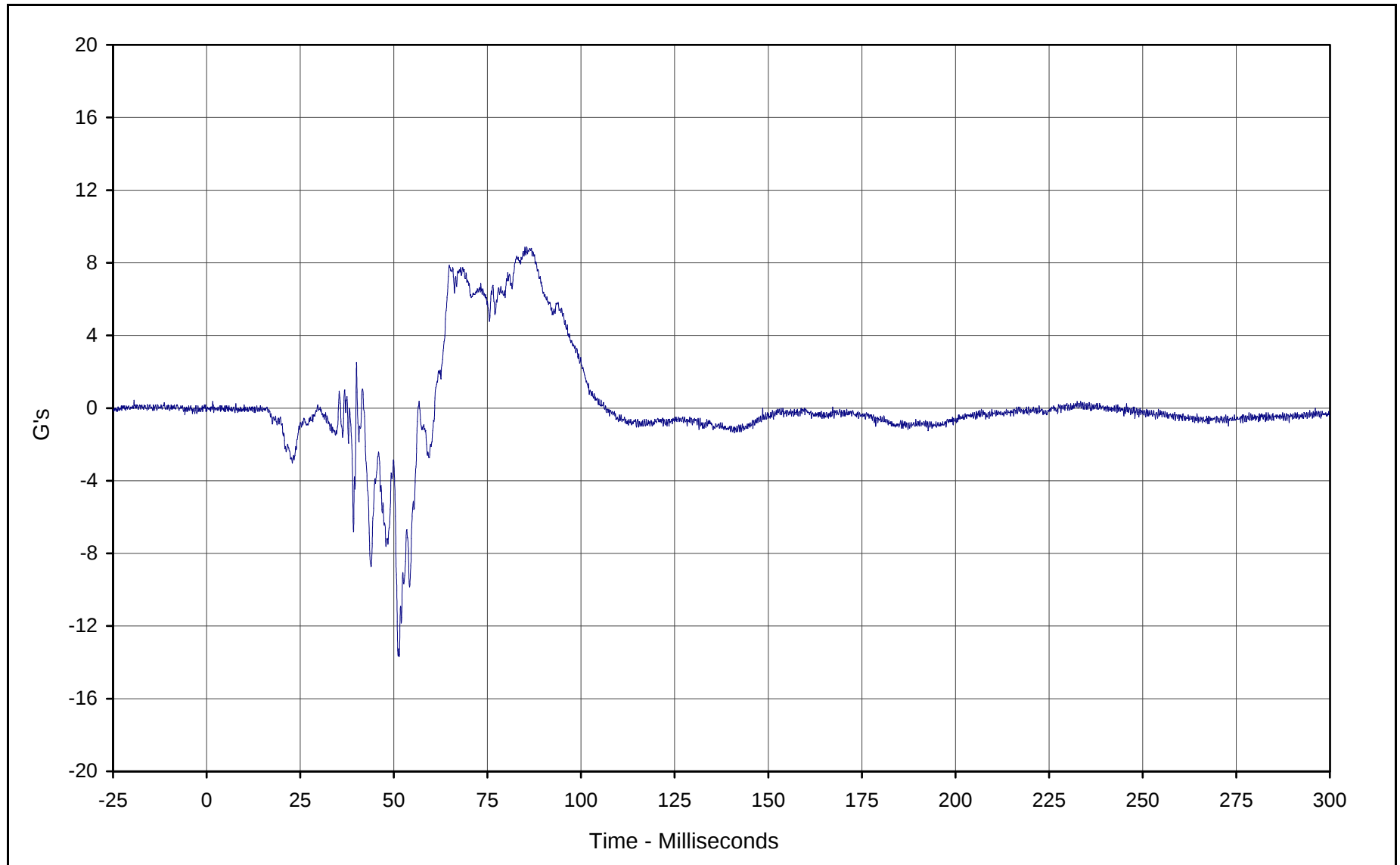
Date of Test: 01/16/01

Curve Number: IN2-020

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van

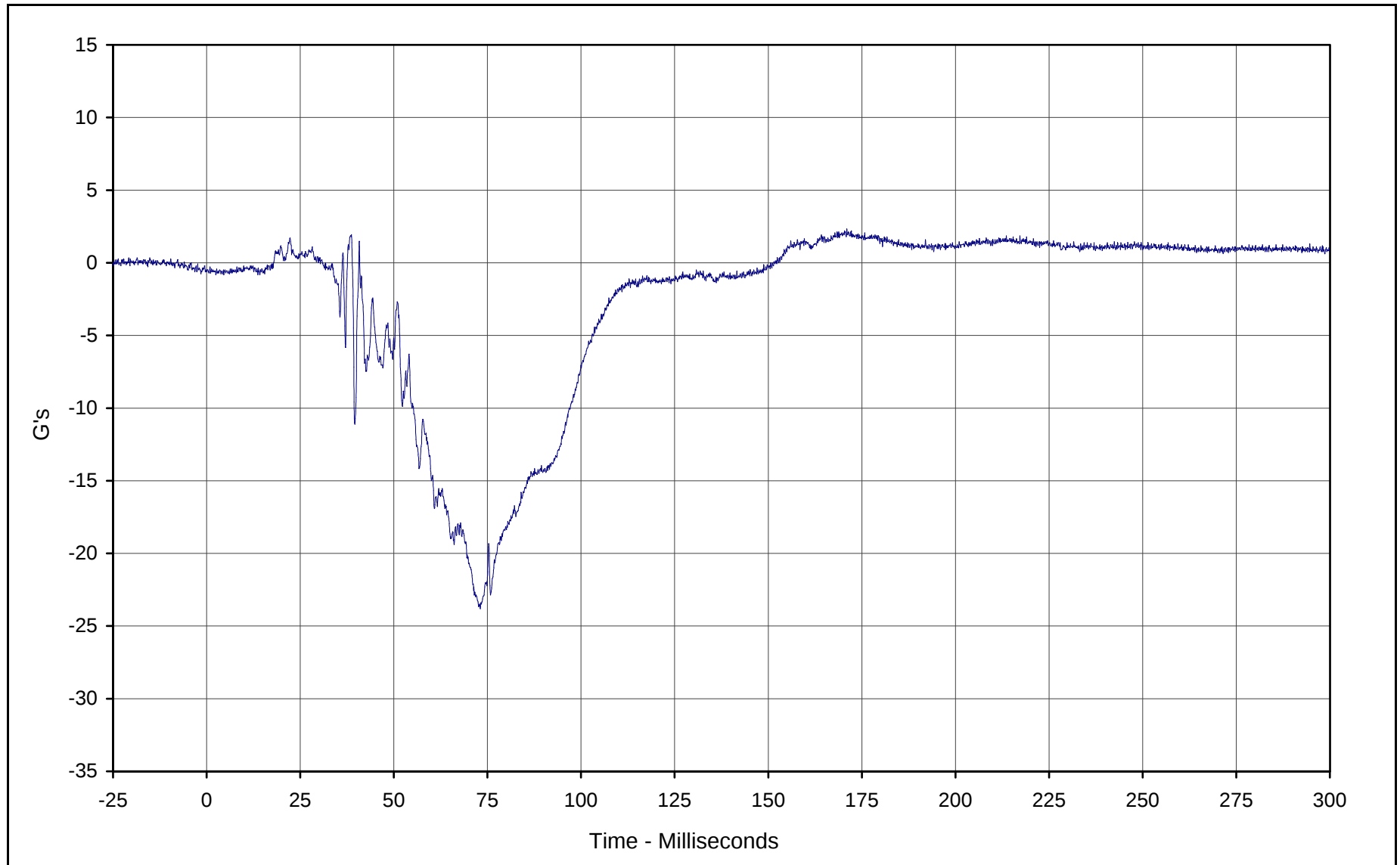




Curve Description: Driver Pelvis Y
Maximum Value: 8.9 at 85.0 Milliseconds
Minimum Value: -13.7 at 51.4 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-021

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Driver Pelvis Z

Maximum Value: 2.3 at 171.0 Milliseconds

Minimum Value: -23.8 at 73.1 Milliseconds

SAE Filter Class: 1000

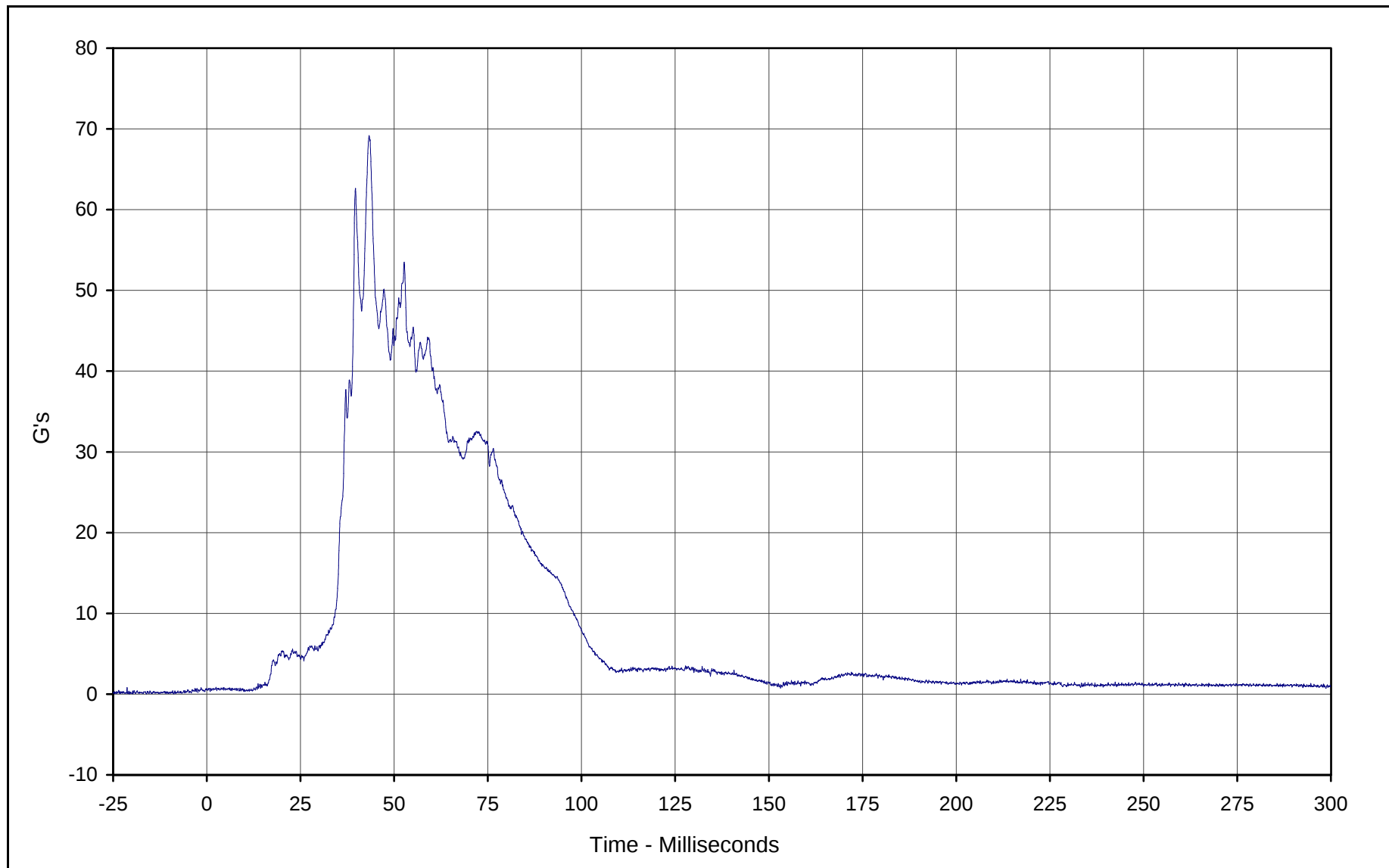
Date of Test: 01/16/01

Curve Number: FIL-022

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Driver Pelvis Resultant

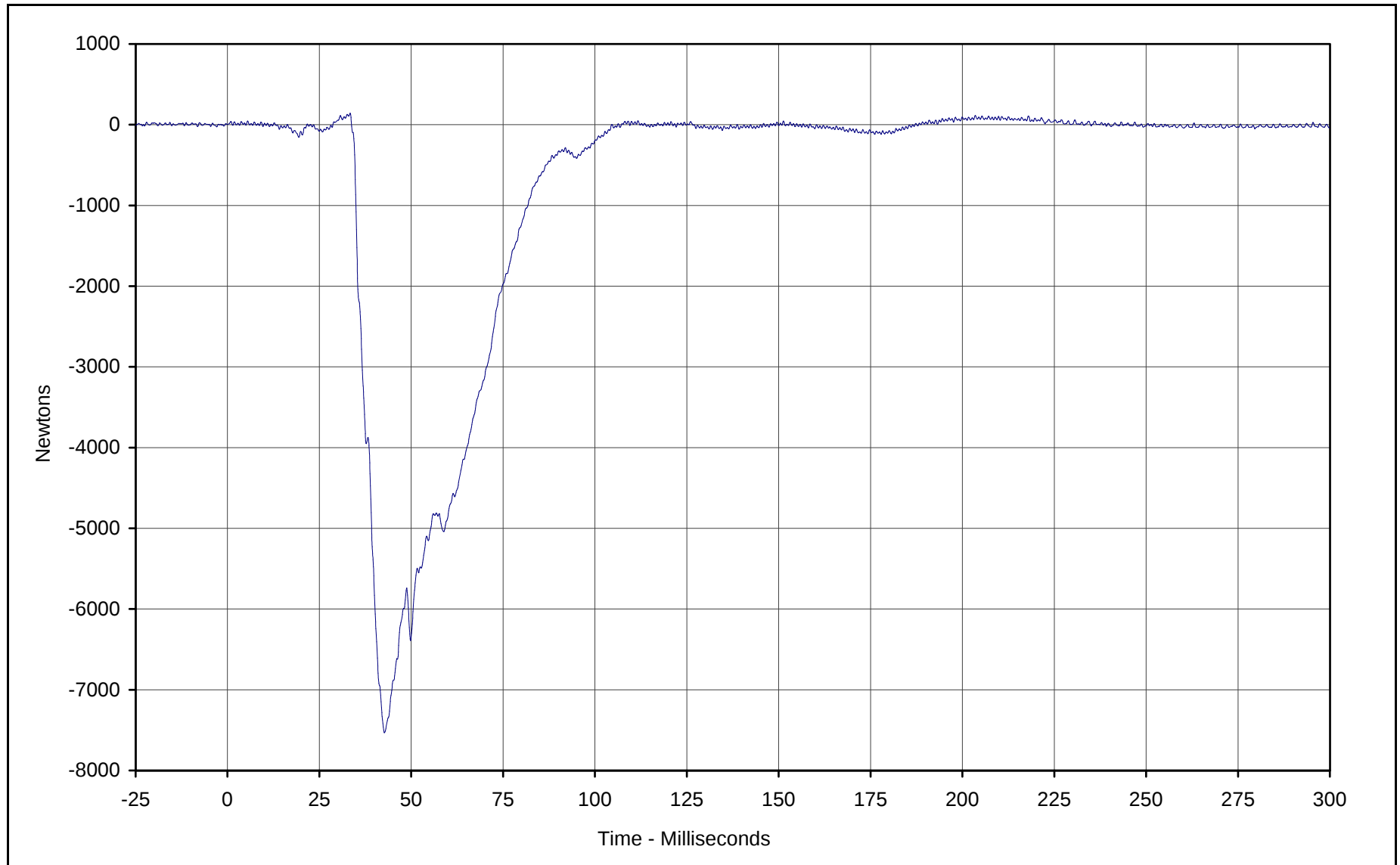
Maximum Value:	<u>69.2</u>	at	<u>43.3</u>	Milliseconds
Minimum Value:	<u>0.3</u>	at	<u>9.9</u>	Milliseconds
SAE Filter Class:	<u>1000</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>RES-020</u>			

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



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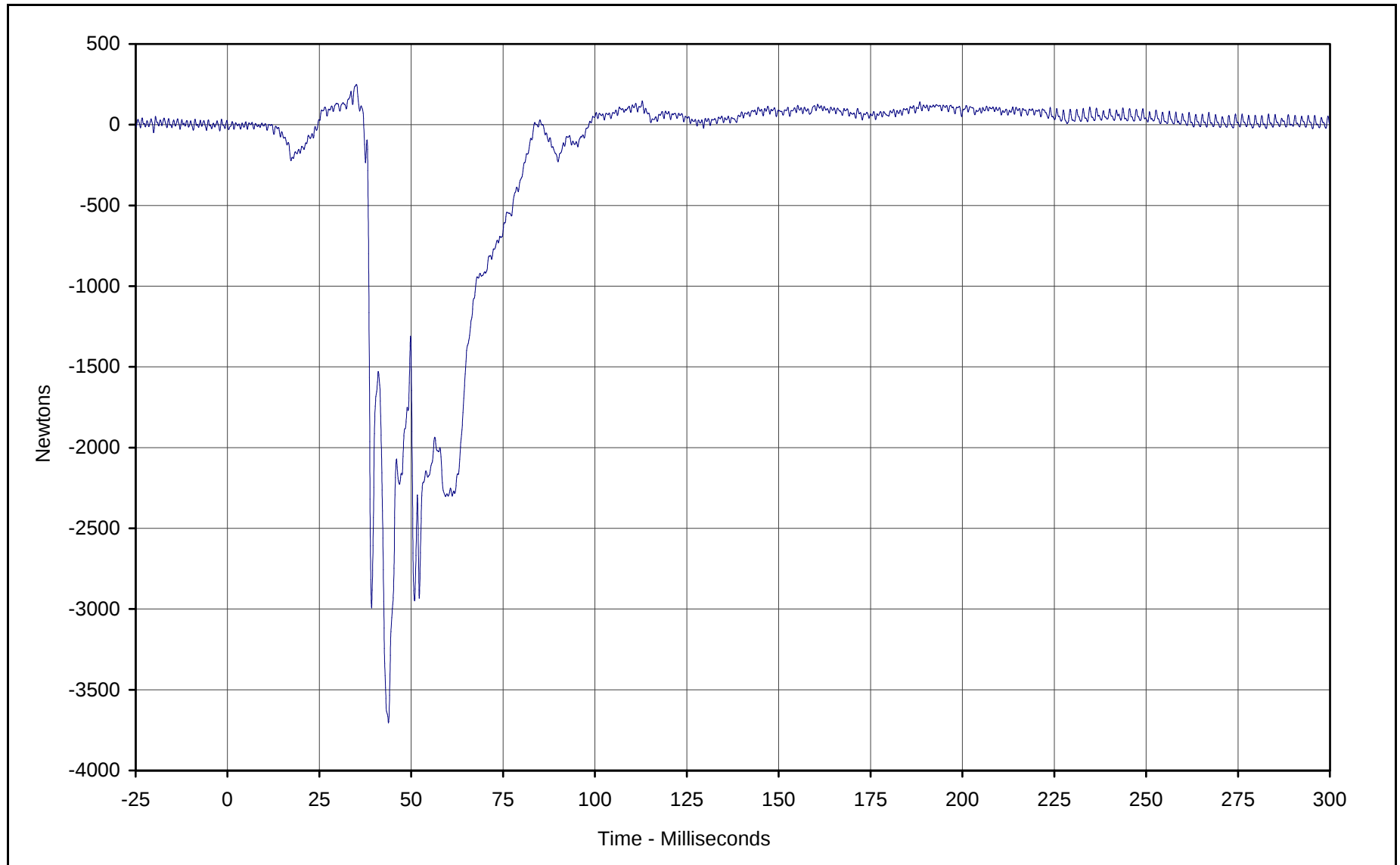
Curve Description: Driver Left Femur Force
Maximum Value: 142.5 at 33.4 Milliseconds
Minimum Value: -7532.9 at 42.7 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-023

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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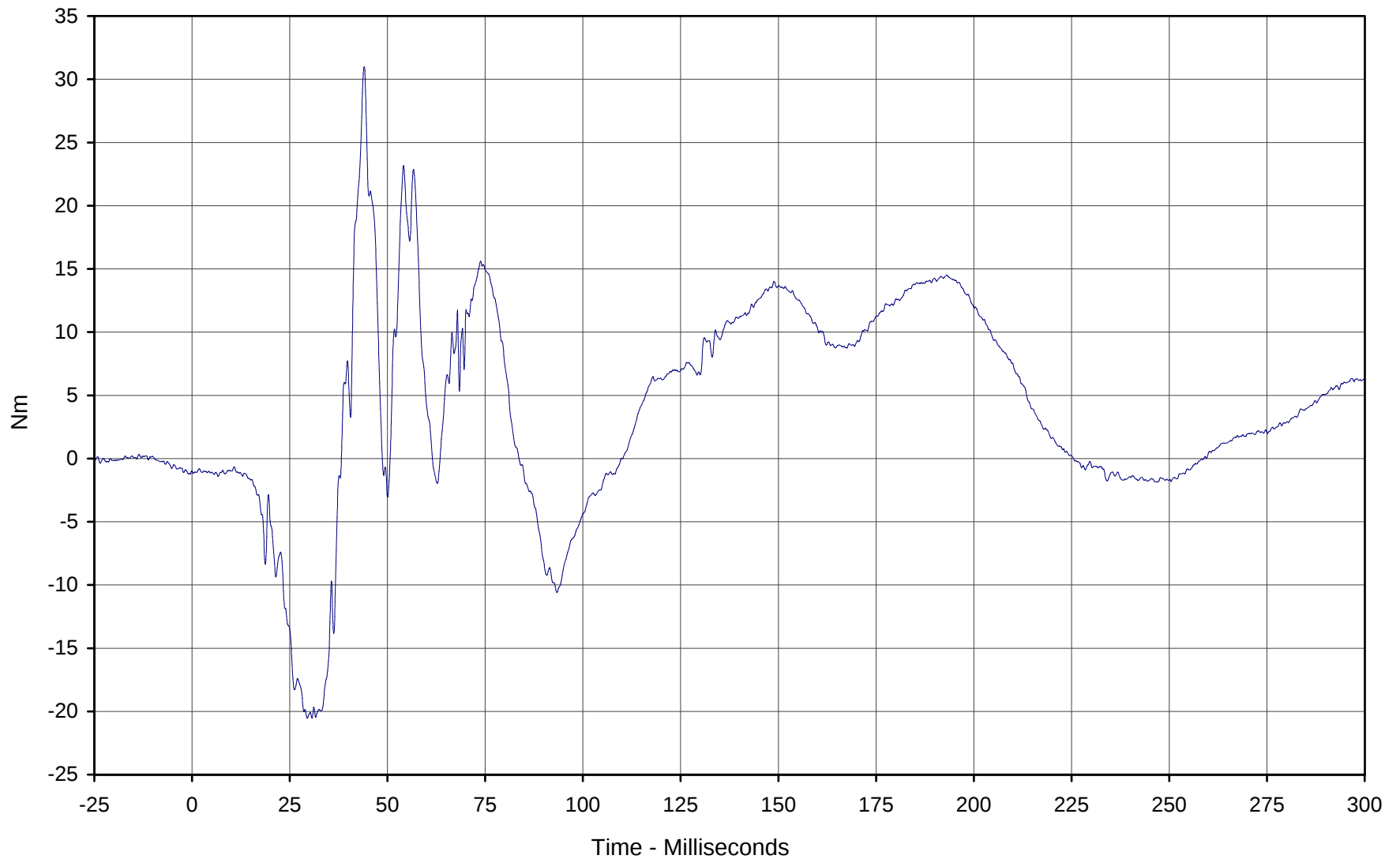


Curve Description: Driver Right Femur Force
Maximum Value: 249.6 at 35.1 Milliseconds
Minimum Value: -3705.3 at 43.8 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-024

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



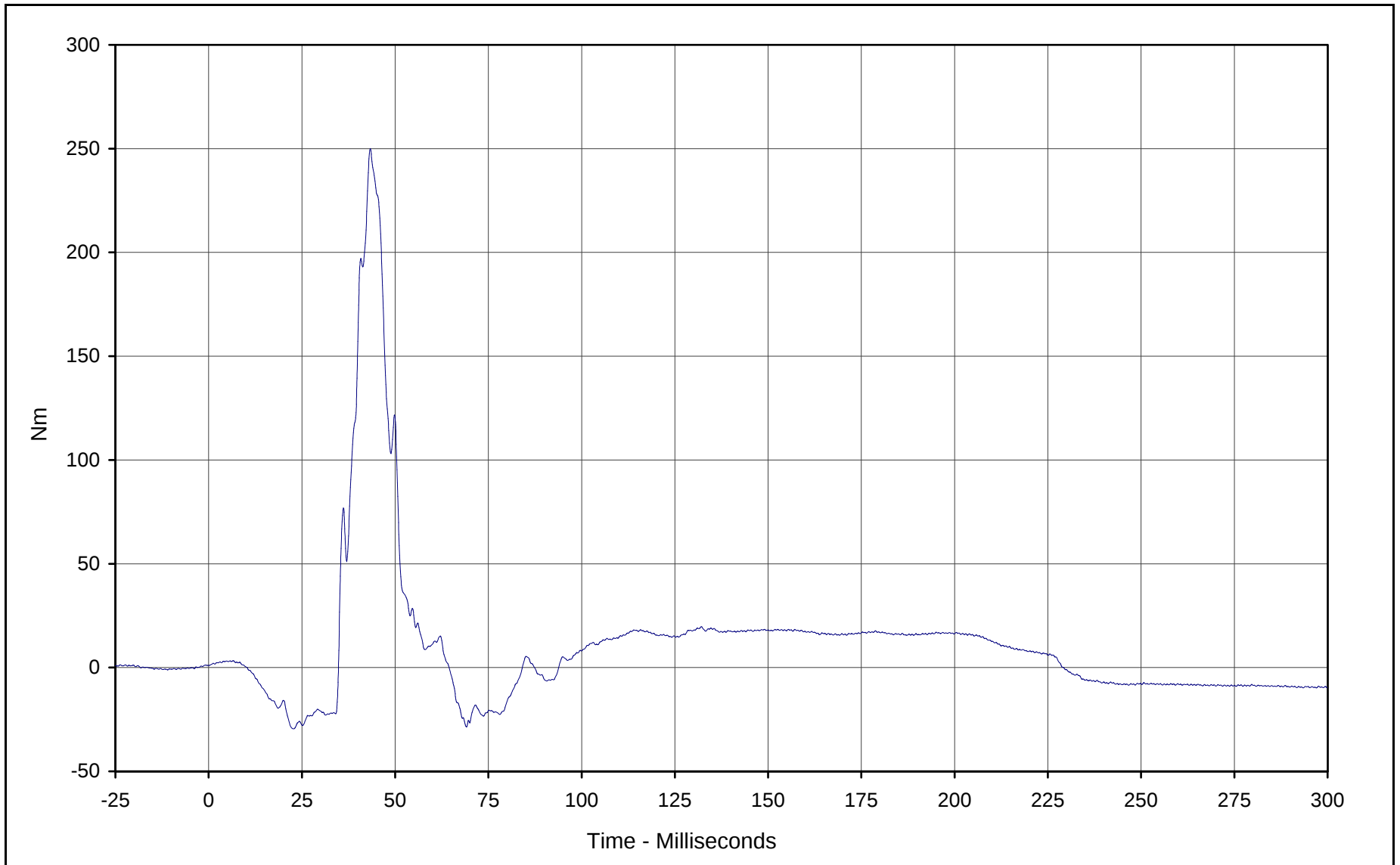
KAR21001-05



Curve Description: Driver Left Upper Tibia Moment X
Maximum Value: 31.0 at 44.0 Milliseconds
Minimum Value: -20.5 at 30.7 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-025

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

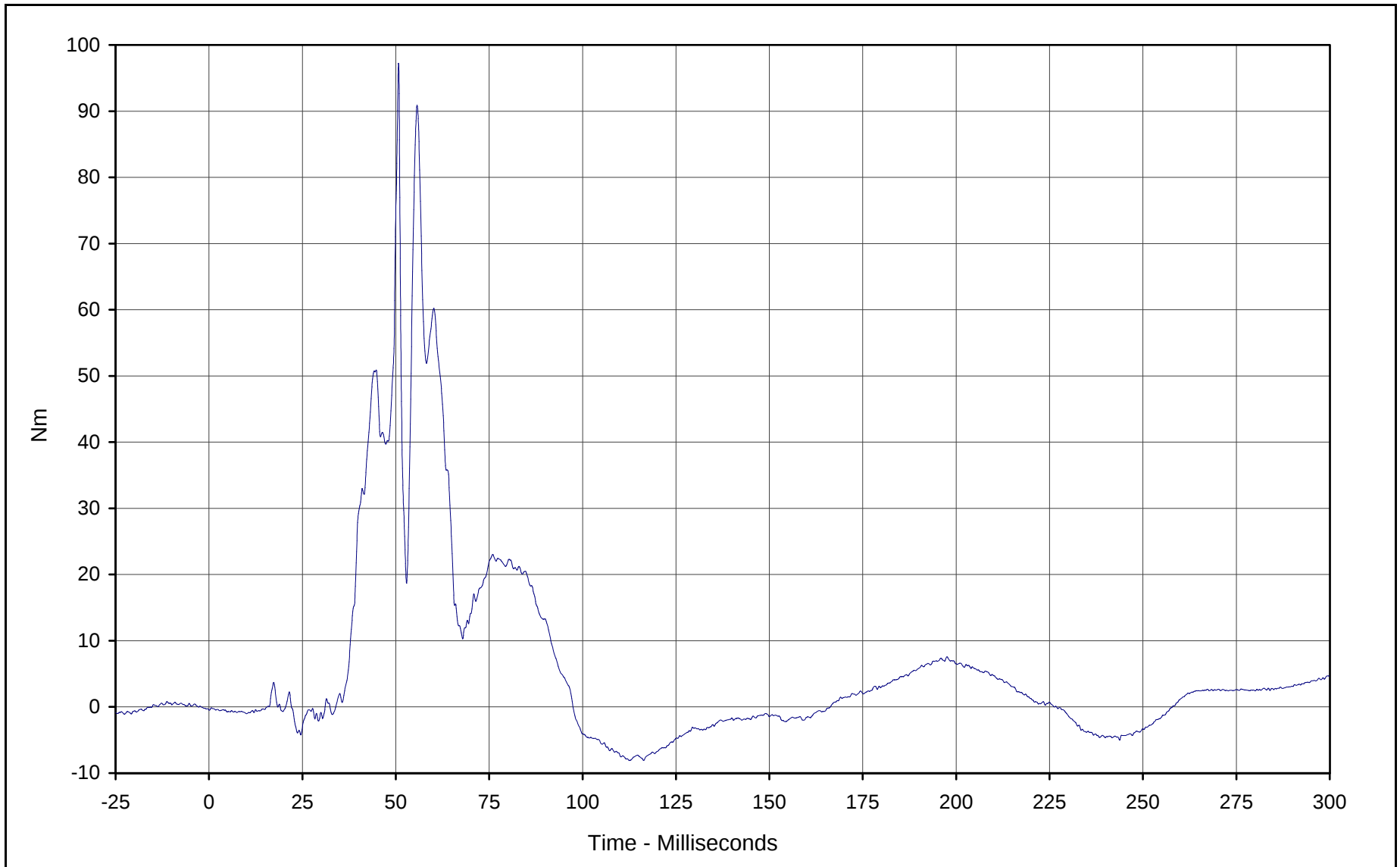




Curve Description: Driver Left Upper Tibia Moment Y
Maximum Value: 249.9 at 43.3 Milliseconds
Minimum Value: -29.5 at 22.8 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-026

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

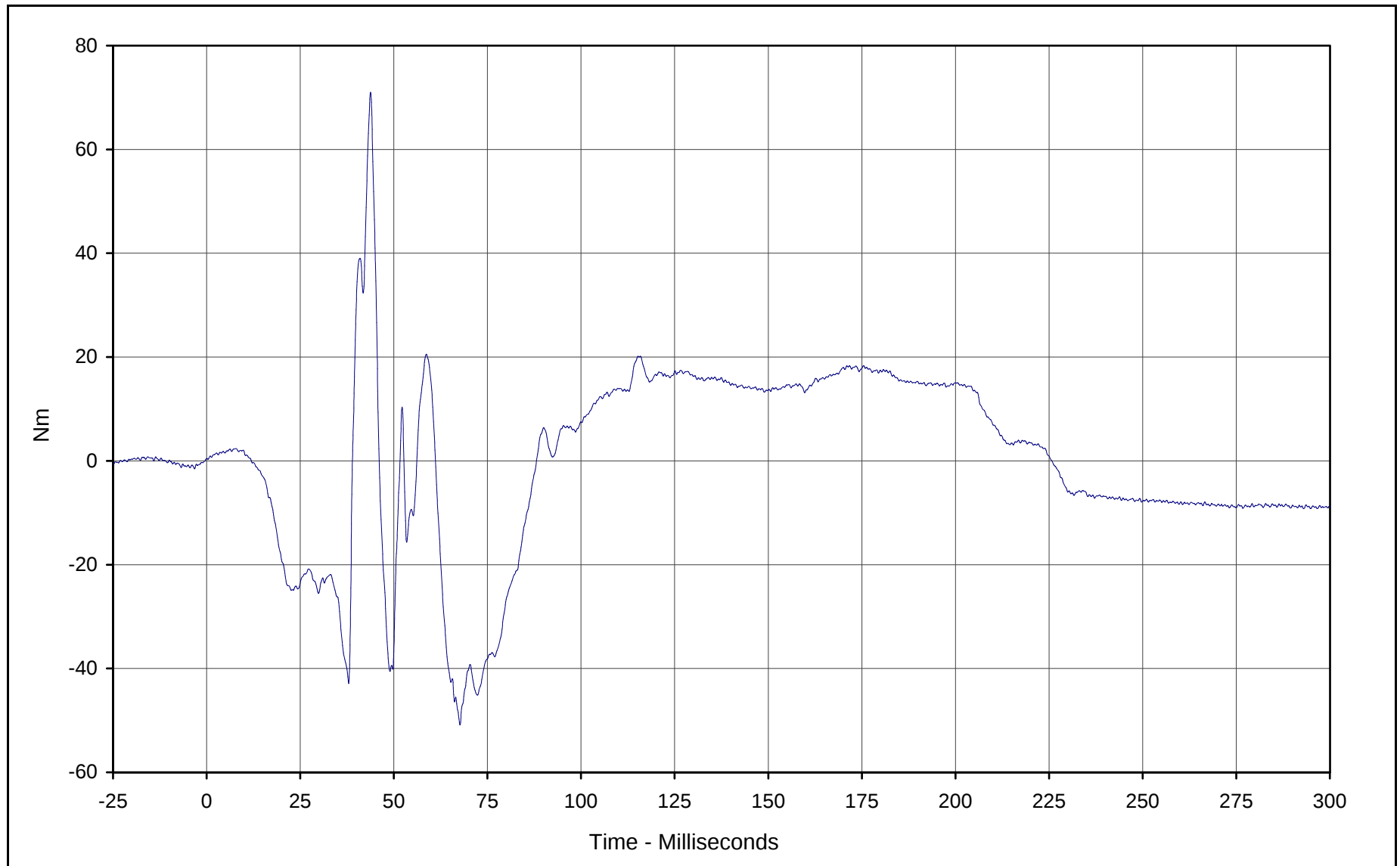




Curve Description: Driver Right Upper Tibia Moment X
Maximum Value: 97.2 at 50.7 Milliseconds
Minimum Value: -8.1 at 112.5 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-027

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

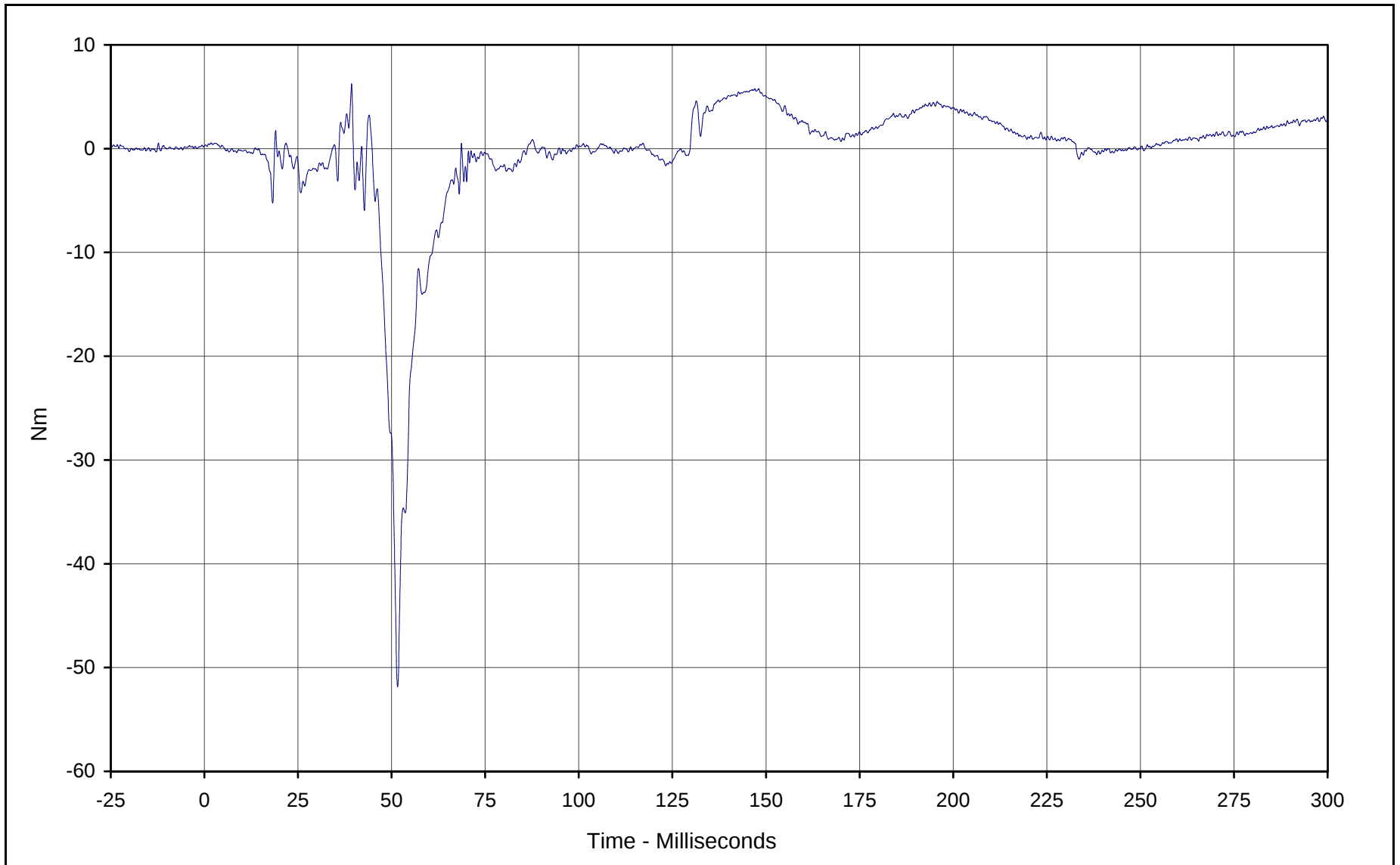




Curve Description: Driver Right Upper Tibia Moment Y
Maximum Value: 71.0 at 43.8 Milliseconds
Minimum Value: -50.9 at 67.7 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-028

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

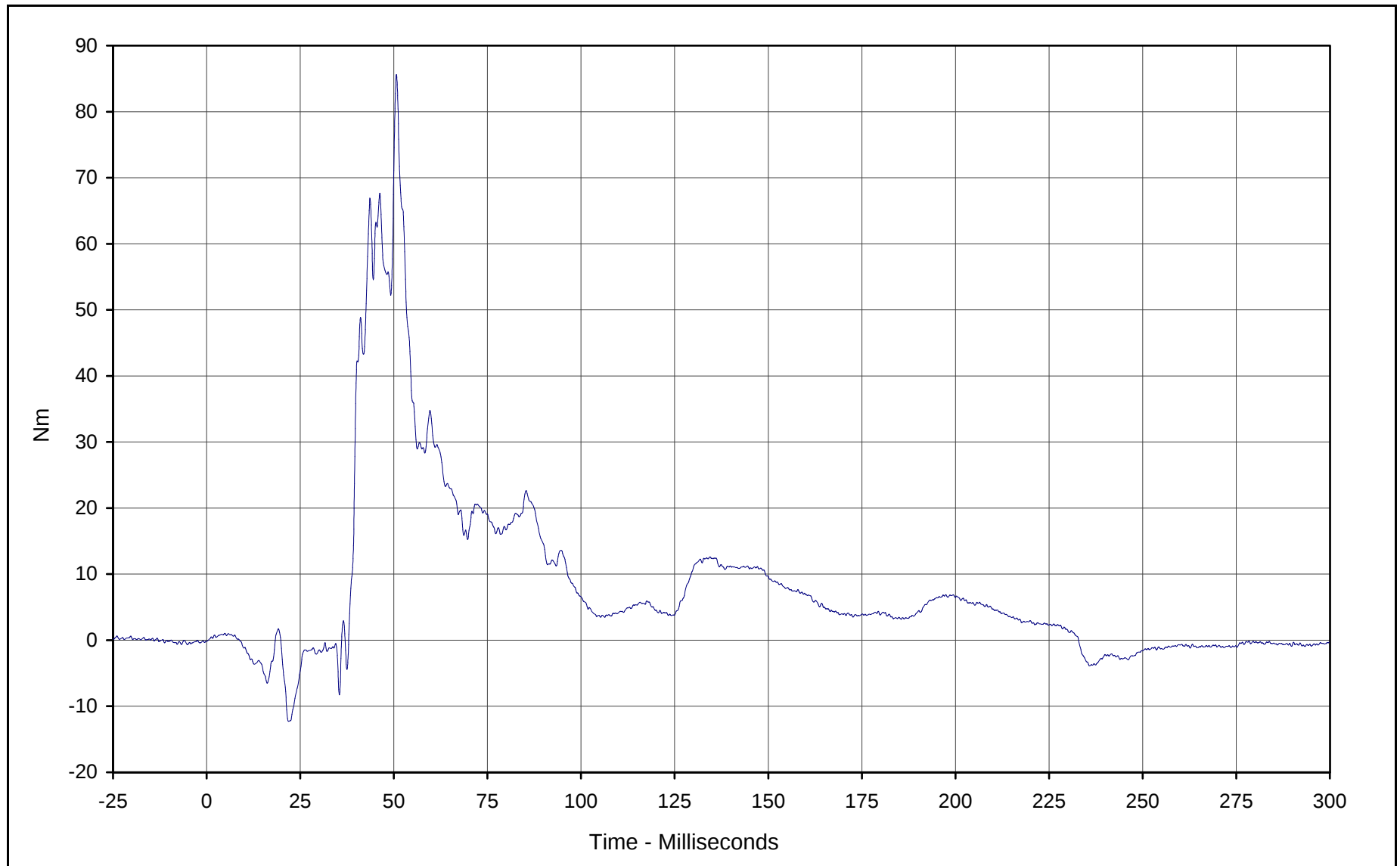




Curve Description: Driver Left Lower Tibia Moment X
Maximum Value: 6.3 at 39.3 Milliseconds
Minimum Value: -51.9 at 51.6 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-029

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

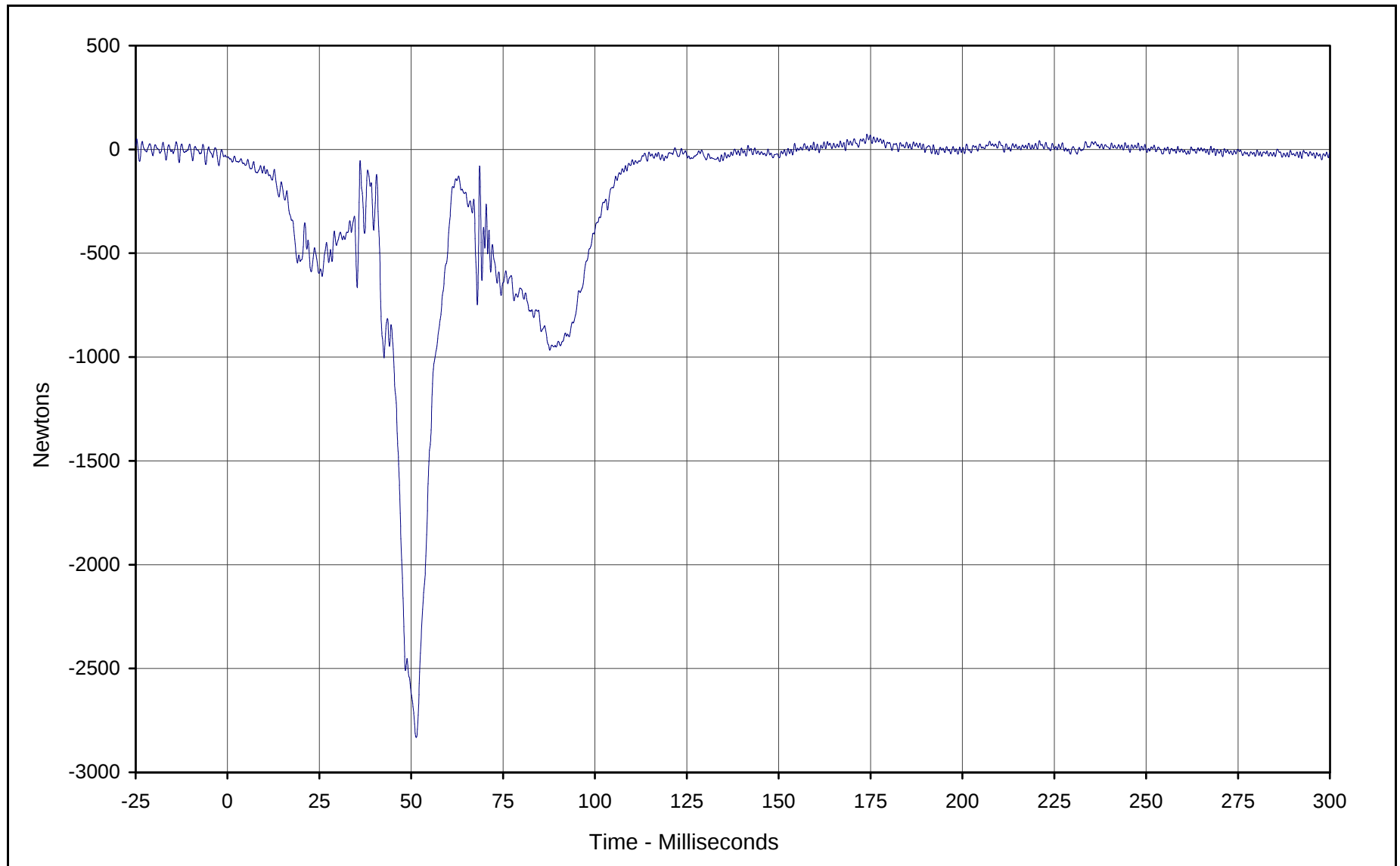




Curve Description: Driver Left Lower Tibia Moment Y
Maximum Value: 85.6 at 50.7 Milliseconds
Minimum Value: -12.3 at 21.9 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-030

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

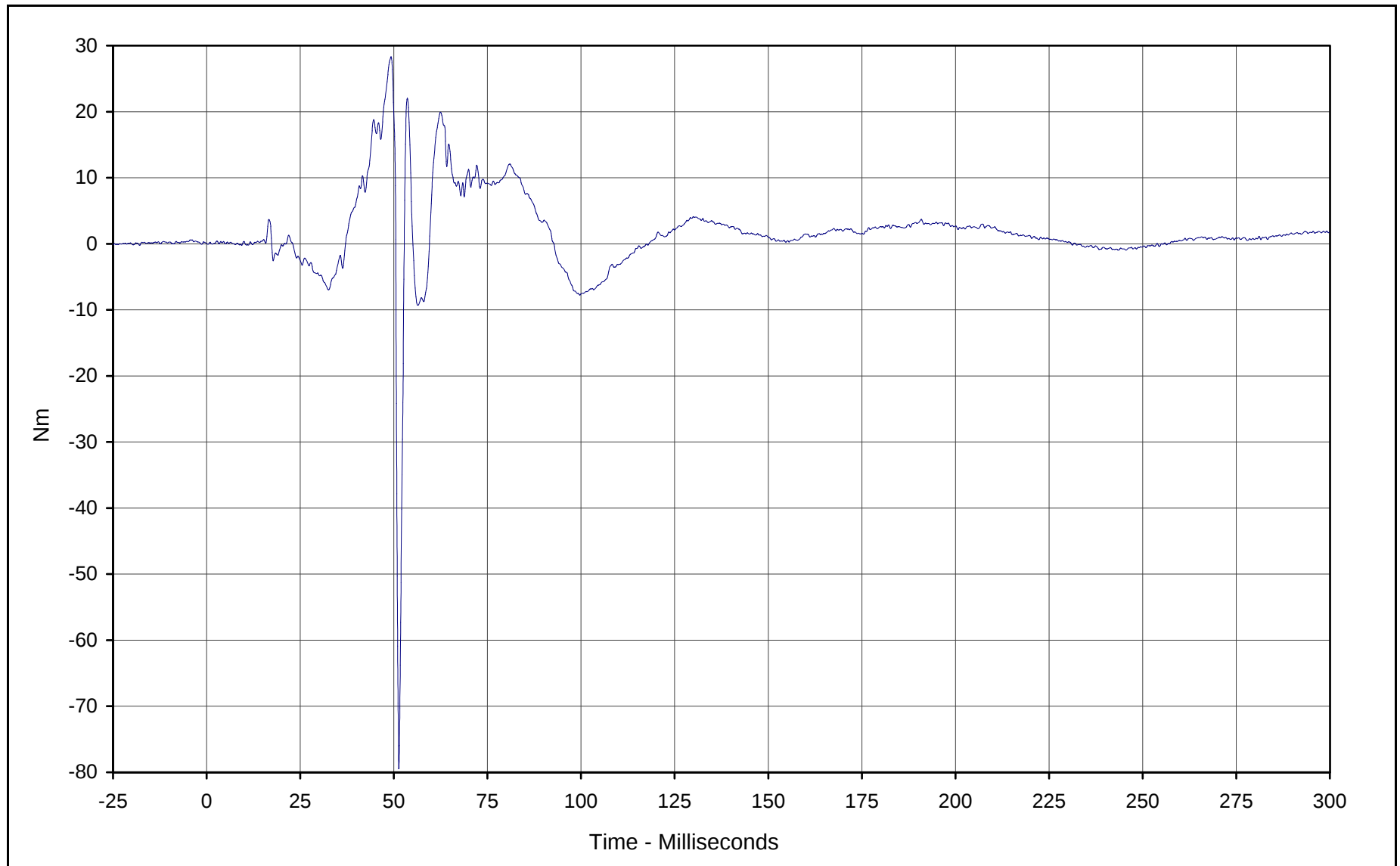




Curve Description: Driver Left Lower Tibia Force Z
Maximum Value: 73.5 at 174.0 Milliseconds
Minimum Value: -2831.5 at 51.4 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-031

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

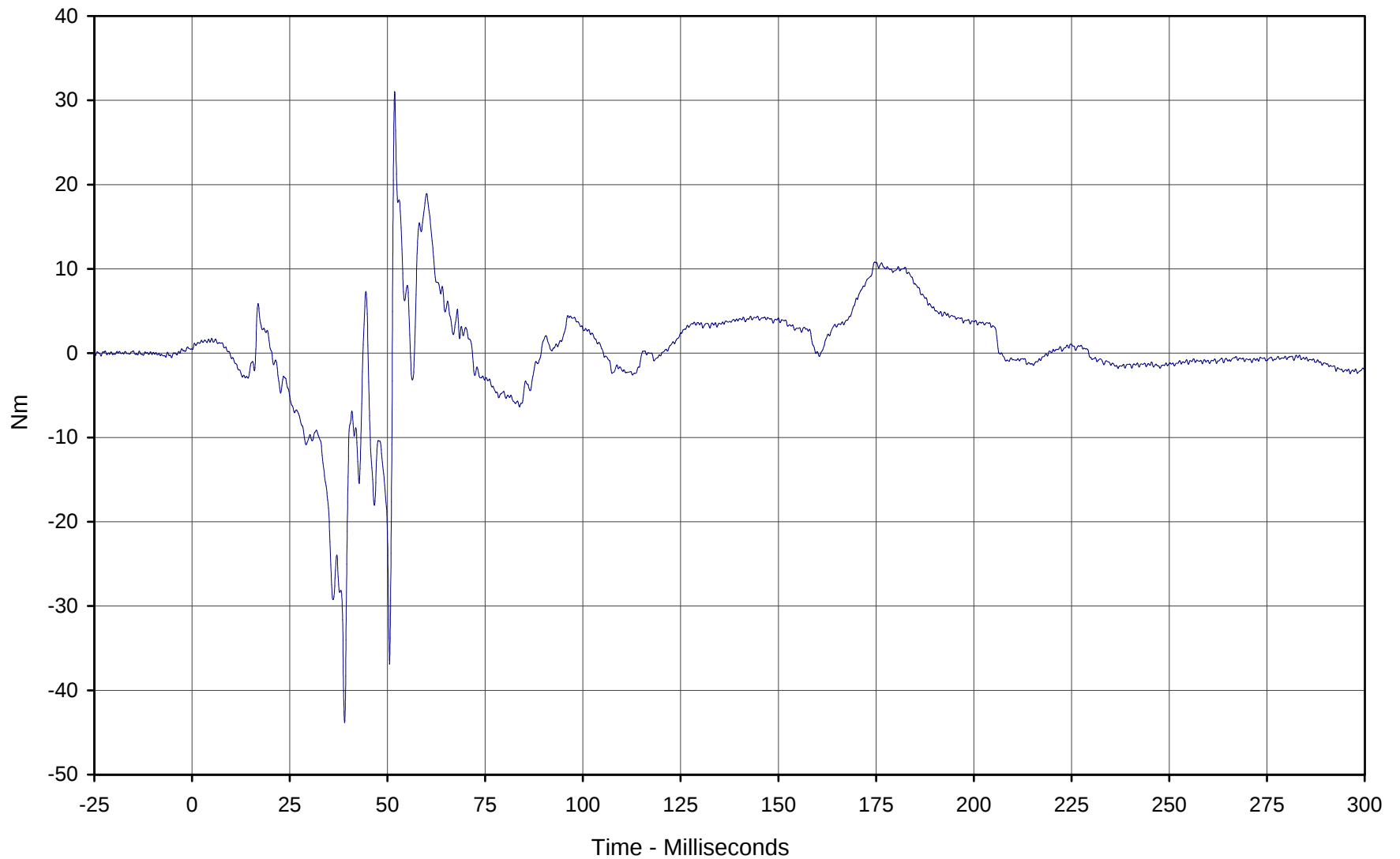




Curve Description: Driver Right Lower Tibia Moment X
Maximum Value: 28.3 at 49.3 Milliseconds
Minimum Value: -79.4 at 51.3 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-032

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

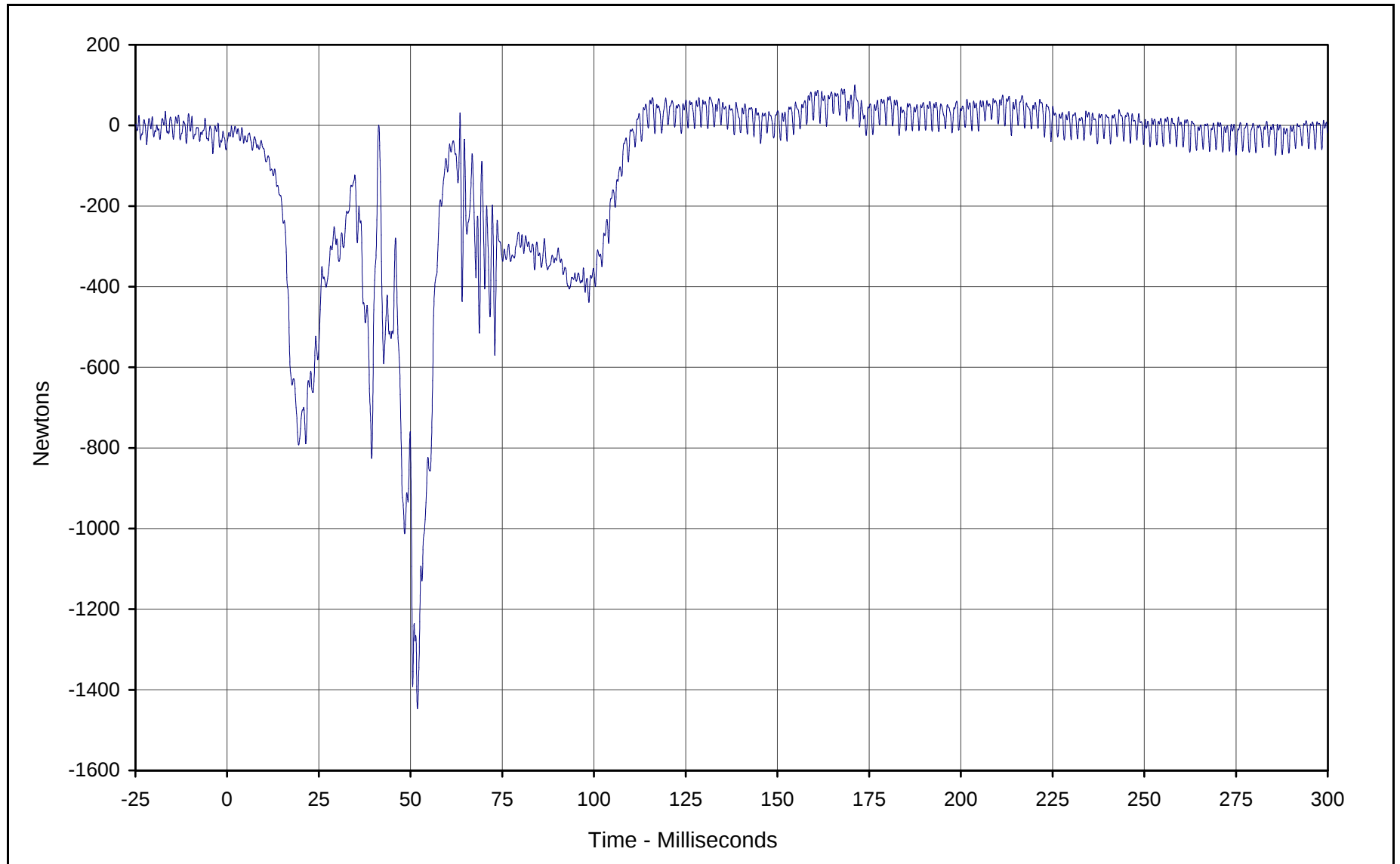




Curve Description: Driver Right Lower Tibia Moment Y
Maximum Value: 31.0 at 51.8 Milliseconds
Minimum Value: -43.8 at 39.0 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-033

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

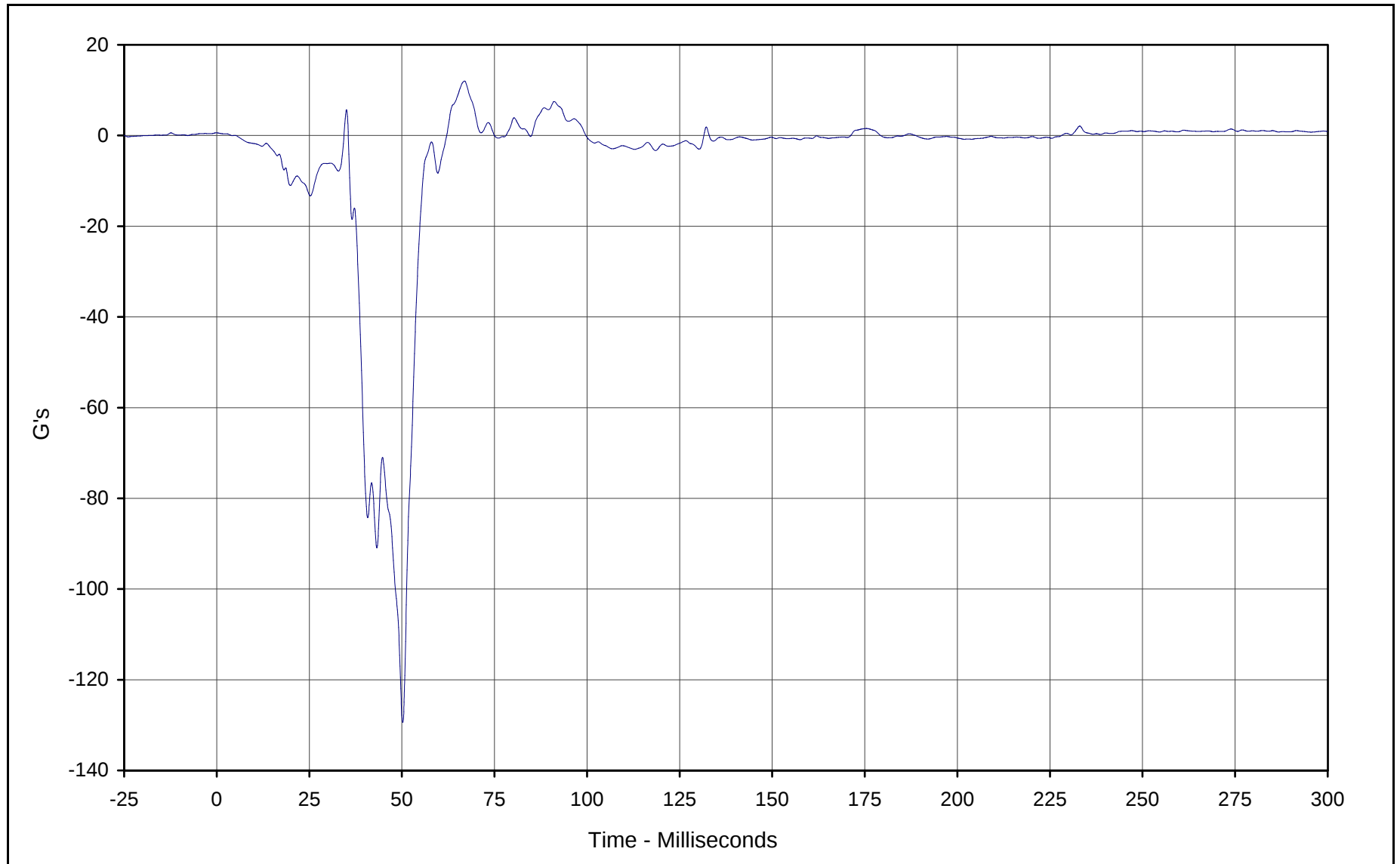




Curve Description: Driver Right Lower Tibia Force Z
Maximum Value: 100.6 at 171.1 Milliseconds
Minimum Value: -1447.0 at 51.9 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-034

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Driver Left Foot Aft X

Maximum Value: 12.0 at 66.9 Milliseconds

Minimum Value: -129.4 at 50.2 Milliseconds

SAE Filter Class: 180

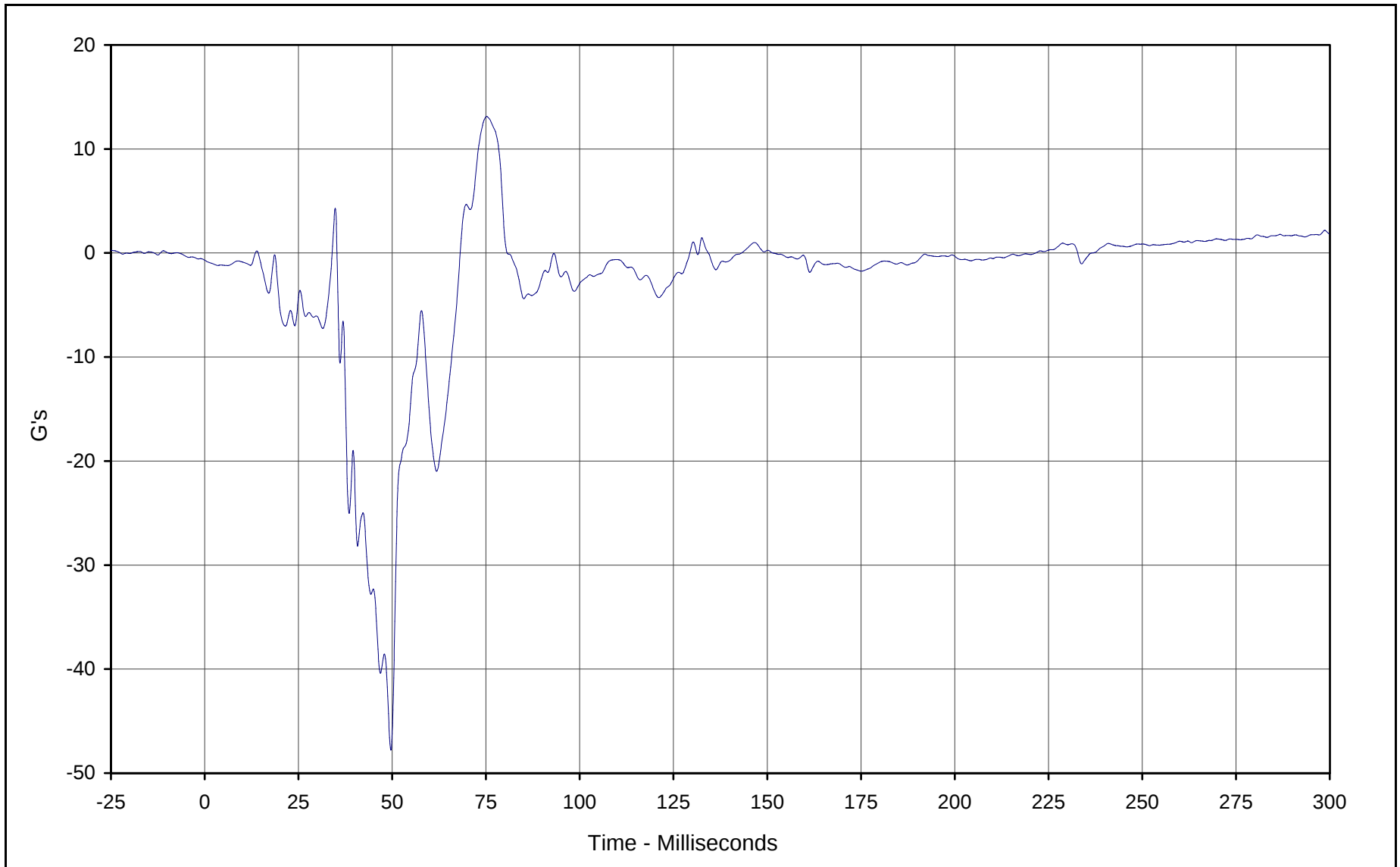
Date of Test: 01/16/01

Curve Number: FIL-035

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





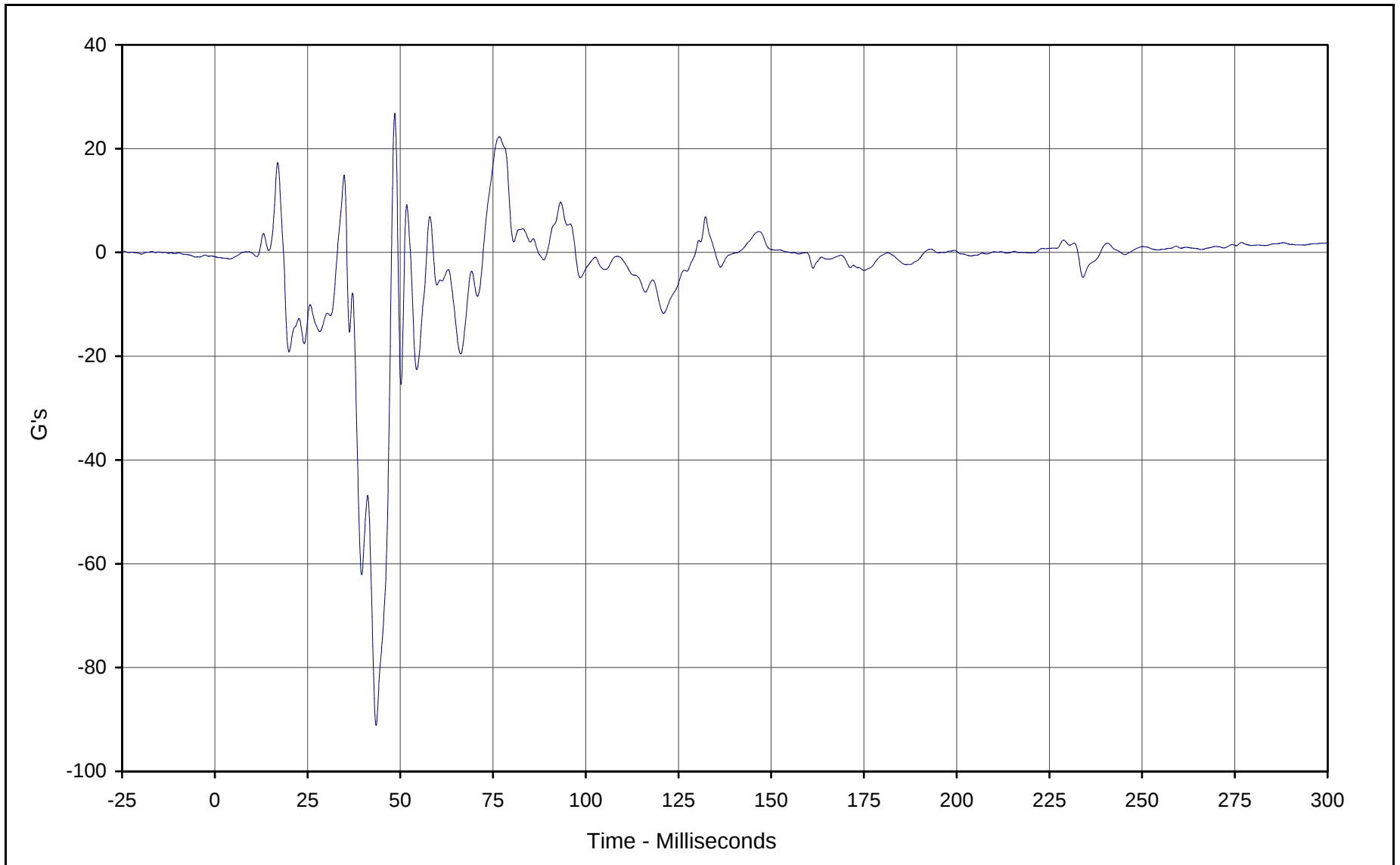
Curve Description: Driver Left Foot Aft Z

Maximum Value:	13.1	at	75.2	Milliseconds
Minimum Value:	-47.8	at	49.6	Milliseconds
SAE Filter Class:	180			
Date of Test:	01/16/01			
Curve Number:	FIL-036			

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





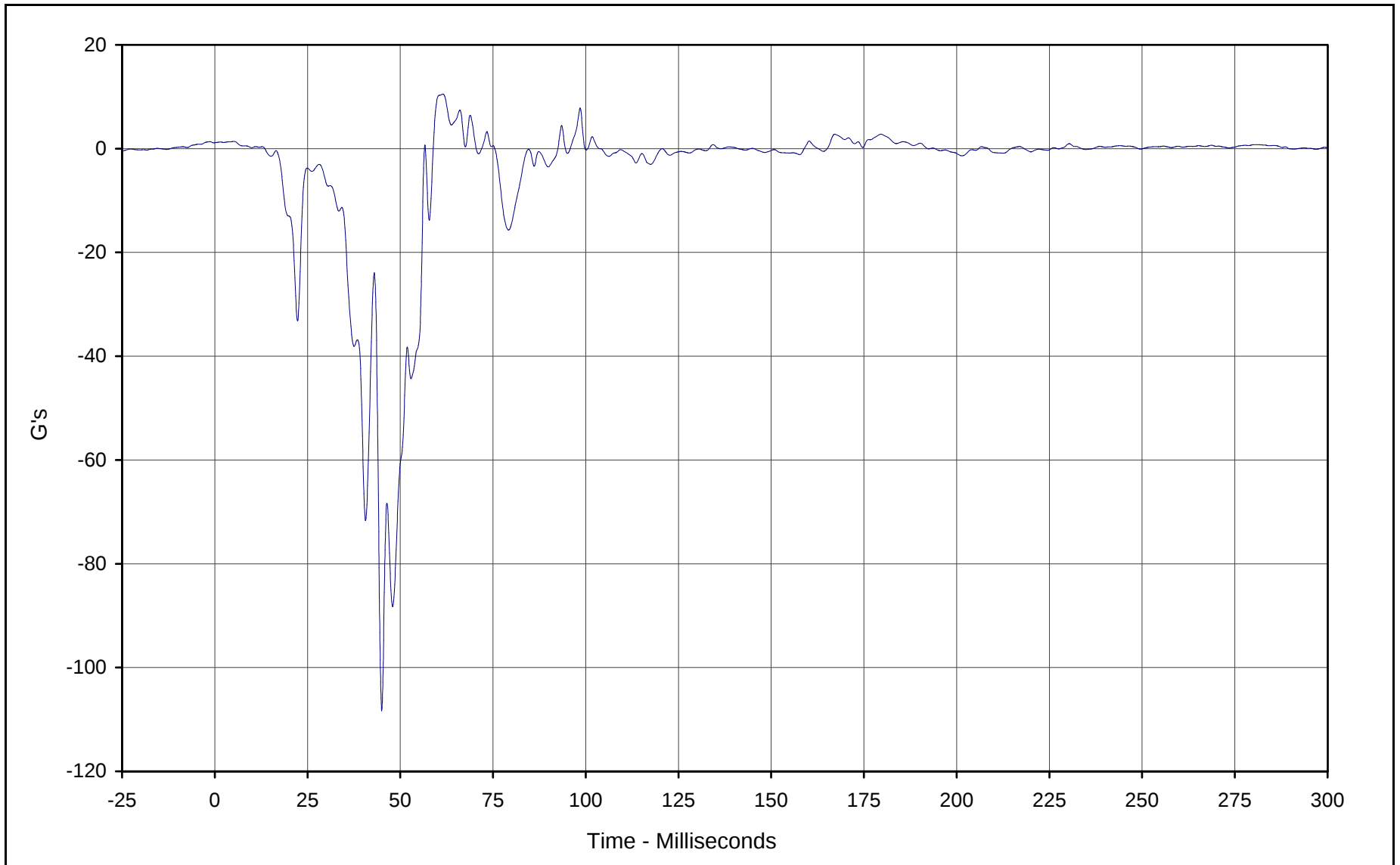
Curve Description: Driver Left Foot Fore Z

Maximum Value:	26.8	at	48.5	Milliseconds
Minimum Value:	-91.2	at	43.5	Milliseconds
SAE Filter Class:	180			
Date of Test:	01/16/01			
Curve Number:	FIL-037			

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





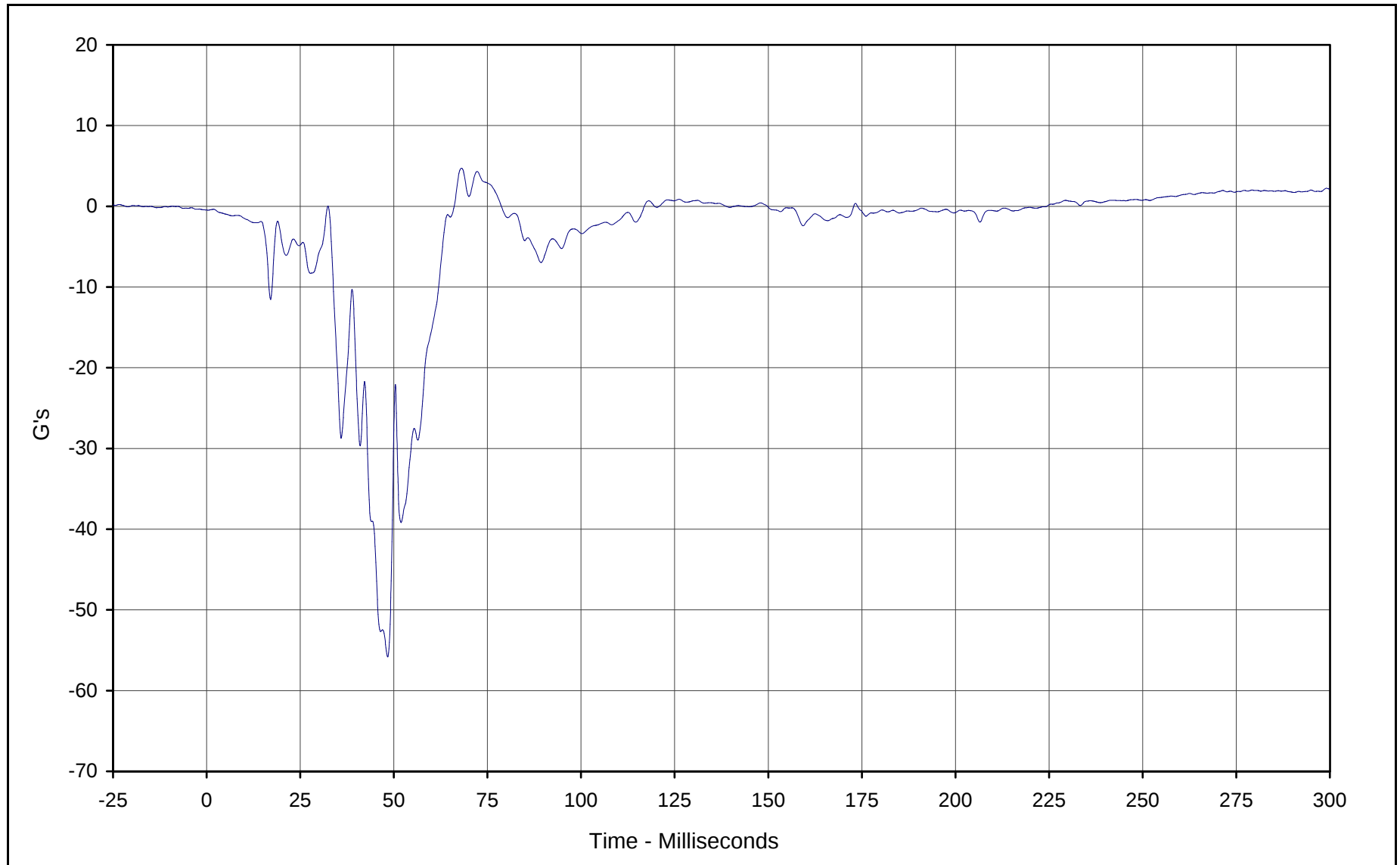
Curve Description: Driver Right Foot Aft X

Maximum Value:	10.5	at	61.5	Milliseconds
Minimum Value:	-108.3	at	45.0	Milliseconds
SAE Filter Class:	180			
Date of Test:	01/16/01			
Curve Number:	FIL-038			

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





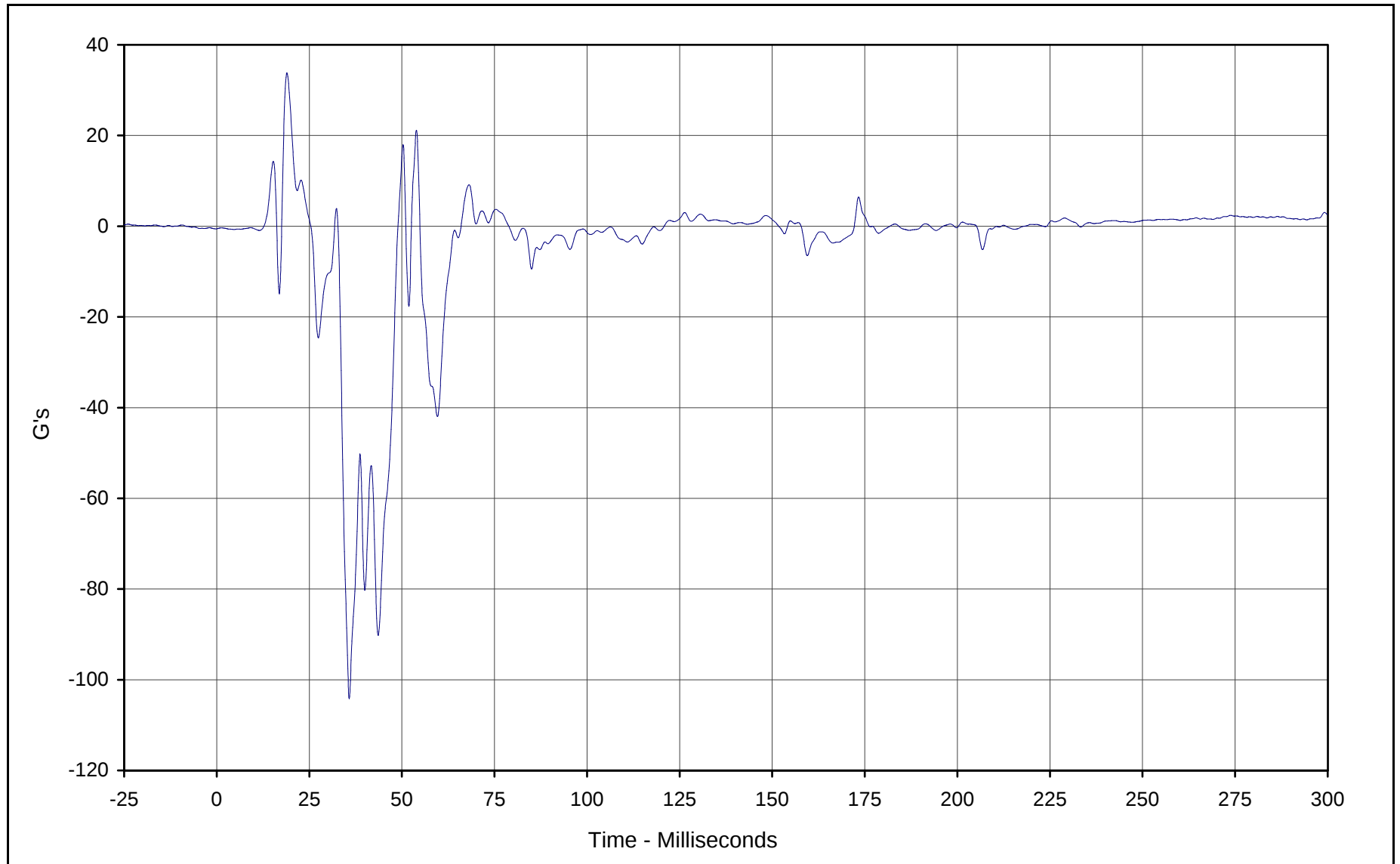
Curve Description: Driver Right Foot Aft Z

Maximum Value:	4.7	at	68.1	Milliseconds
Minimum Value:	-55.8	at	48.4	Milliseconds
SAE Filter Class:	180			
Date of Test:	01/16/01			
Curve Number:	FIL-039			

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





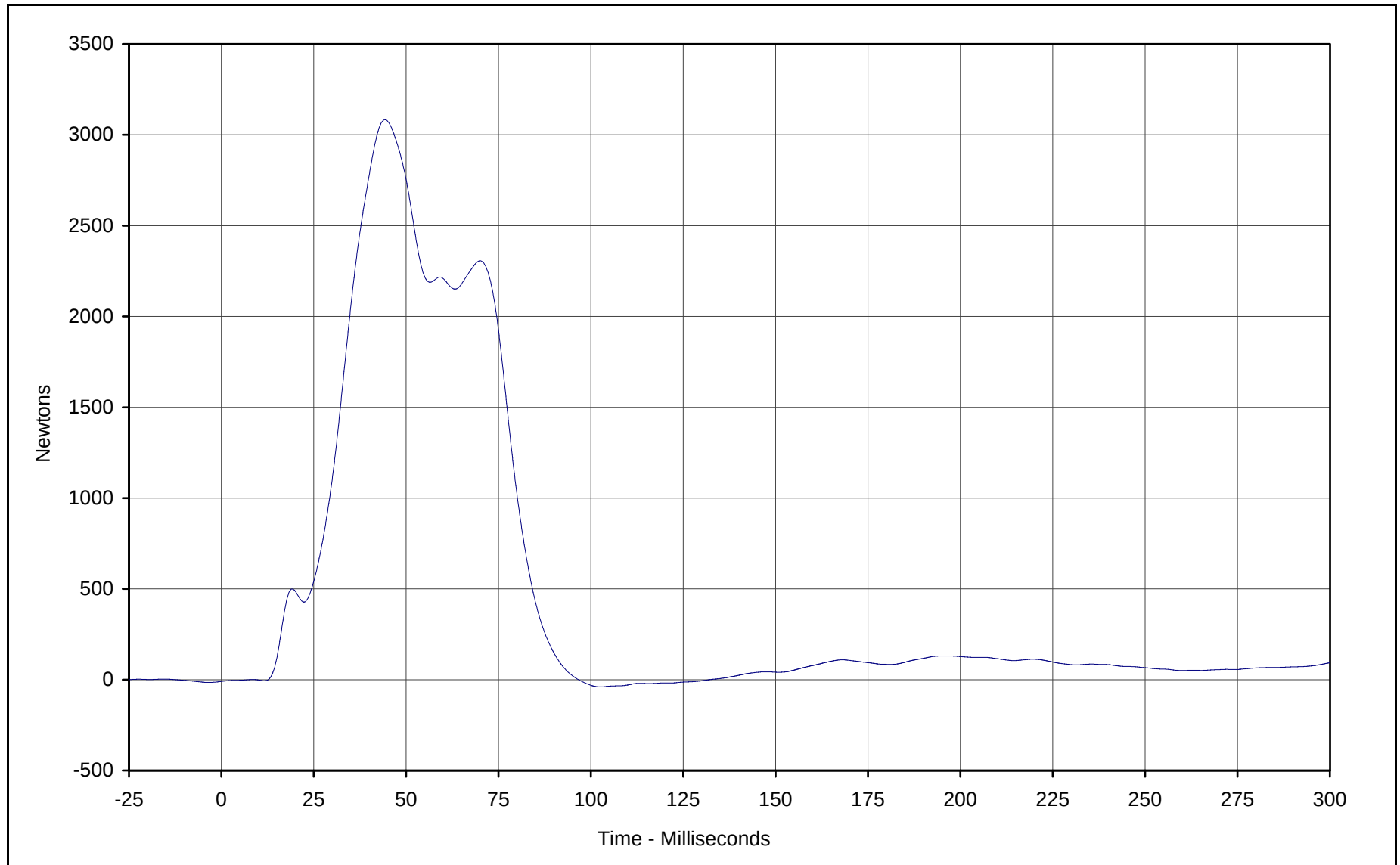
Curve Description: Driver Right Foot Fore Z

Maximum Value:	<u>33.8</u>	at	<u>18.9</u>	Milliseconds
Minimum Value:	<u>-104.2</u>	at	<u>35.8</u>	Milliseconds
SAE Filter Class:	<u>180</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-040</u>			

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



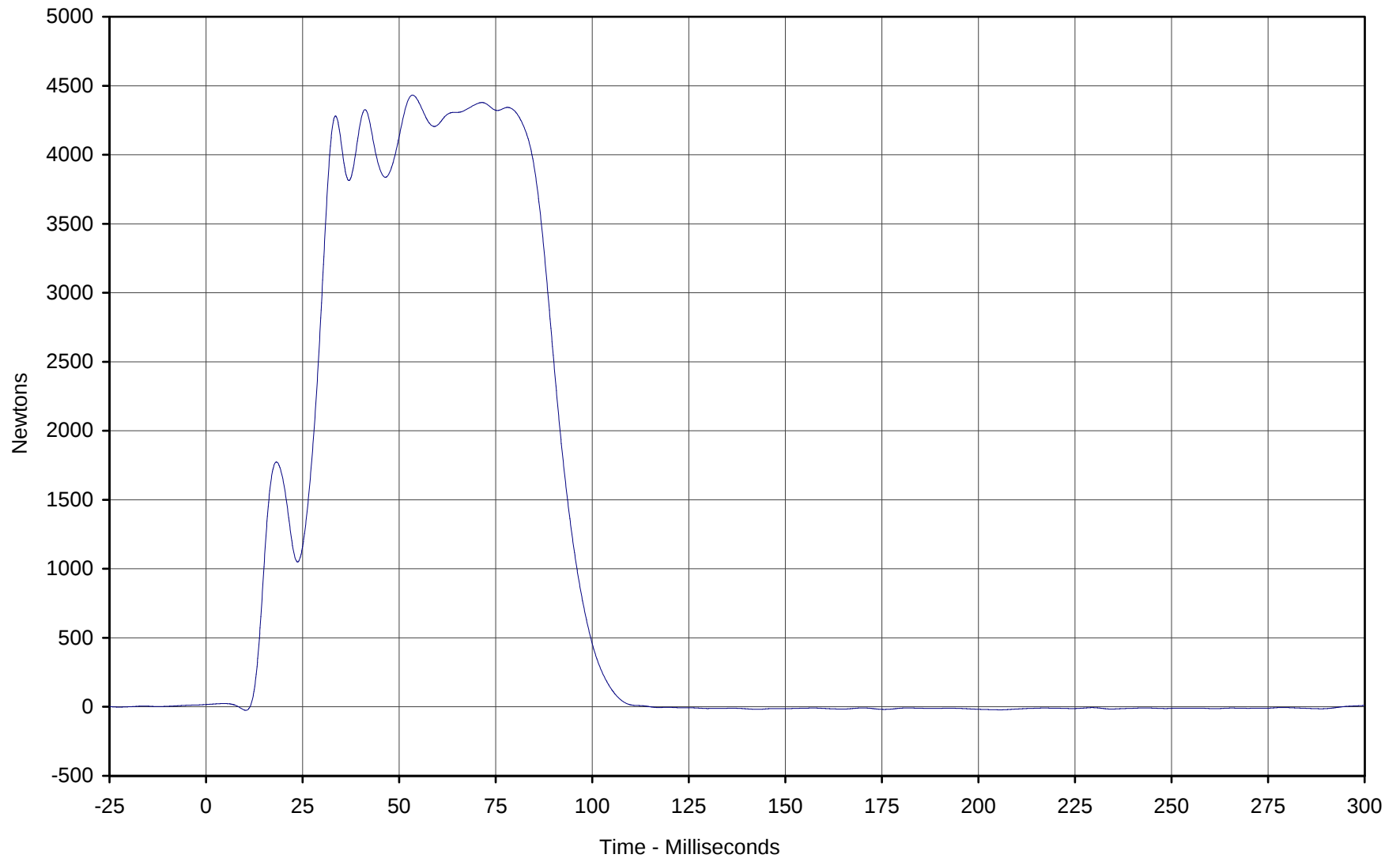


Curve Description: Driver Lap Belt Force
Maximum Value: 3083.3 at 44.3 Milliseconds
Minimum Value: -39.6 at 102.5 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: FIL-041

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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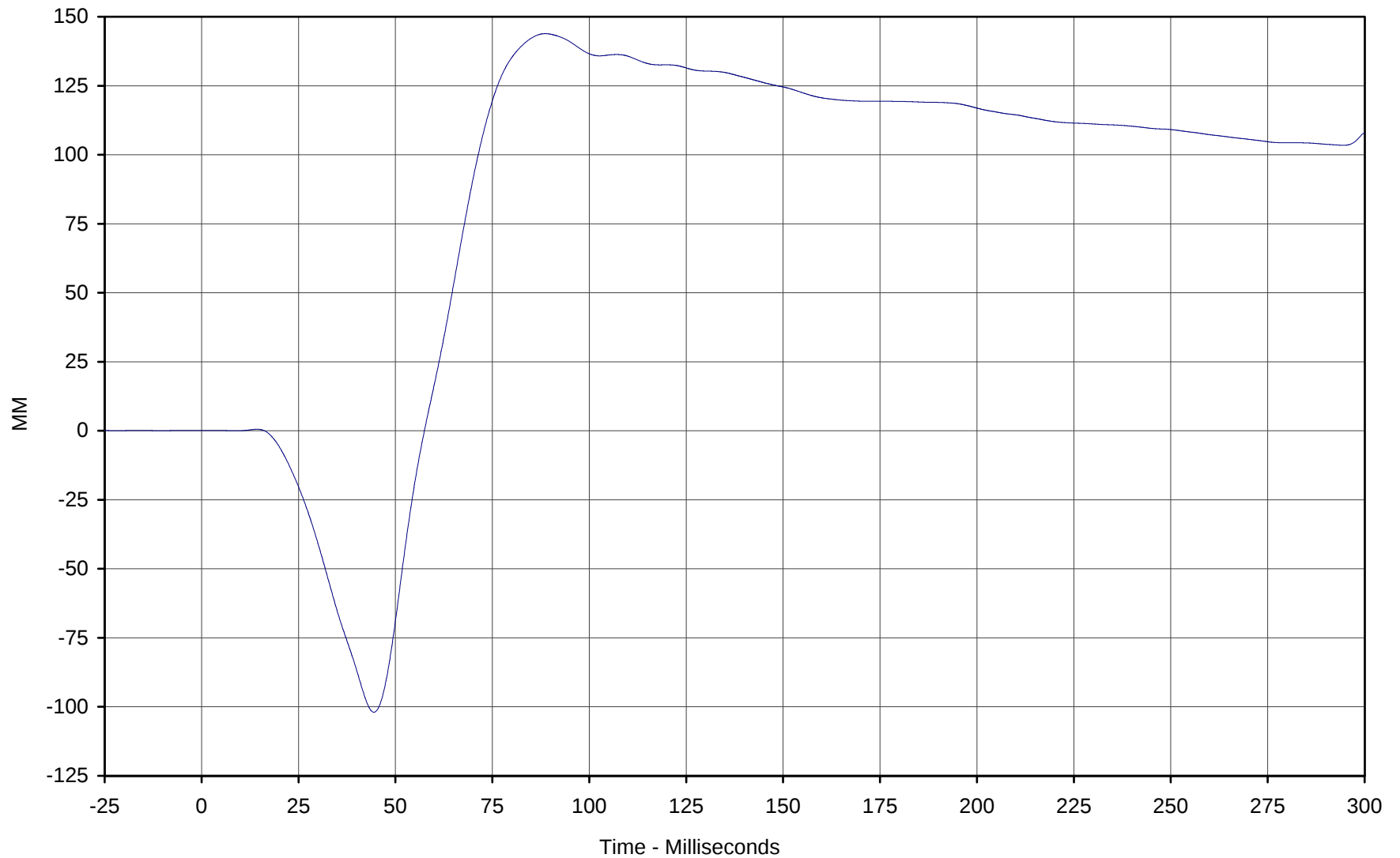
Curve Description: Driver Shoulder Belt Force
Maximum Value: 4432.2 at 53.5 Milliseconds
Minimum Value: -25.4 at 10.3 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: FIL-042

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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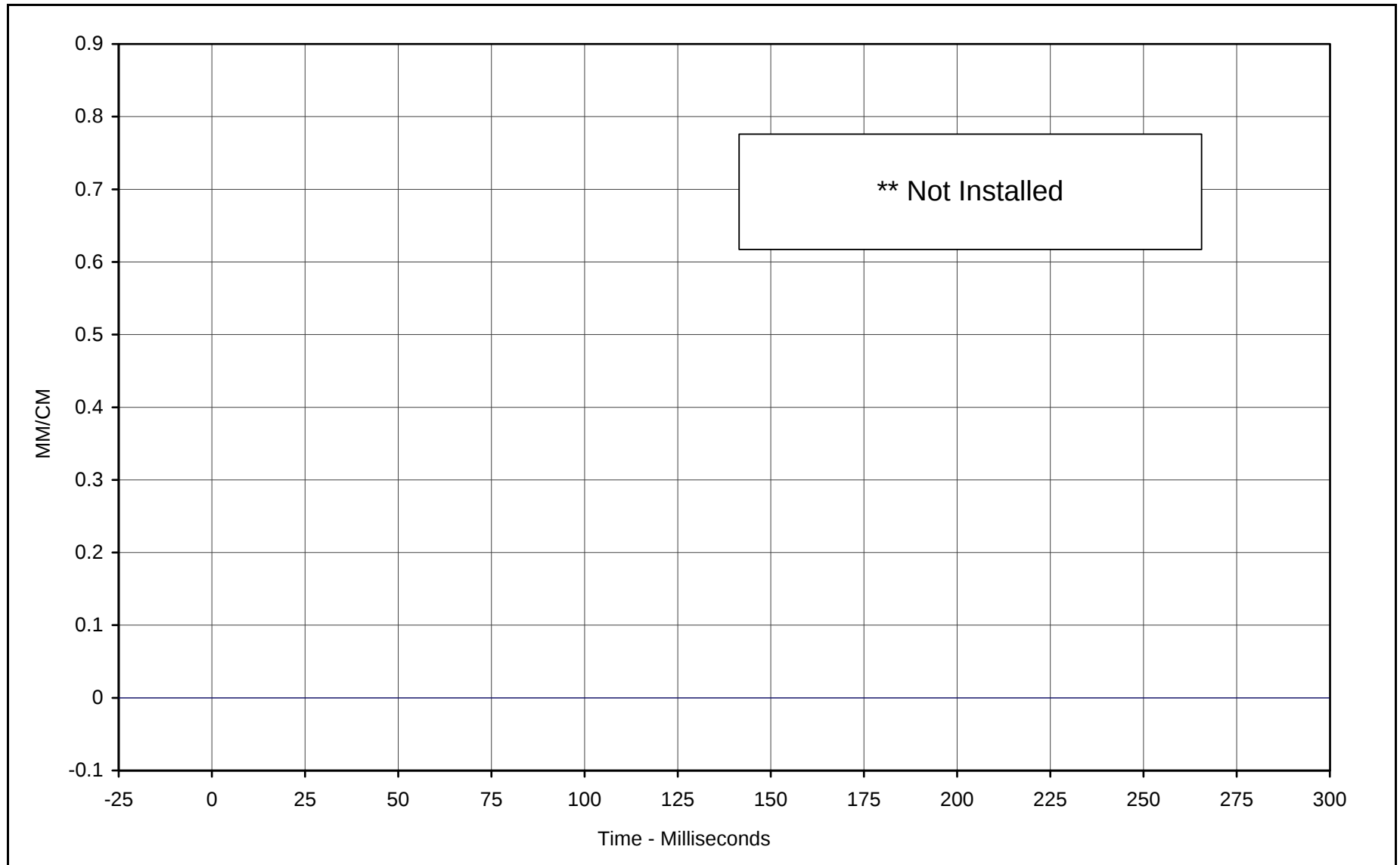


Curve Description: Driver Shoulder Belt Pullout
Maximum Value: 143.9 at 88.7 Milliseconds
Minimum Value: -101.9 at 44.5 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: FIL-043

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Driver Shoulder Belt Elongation **

Maximum Value: 0.0 at 0.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

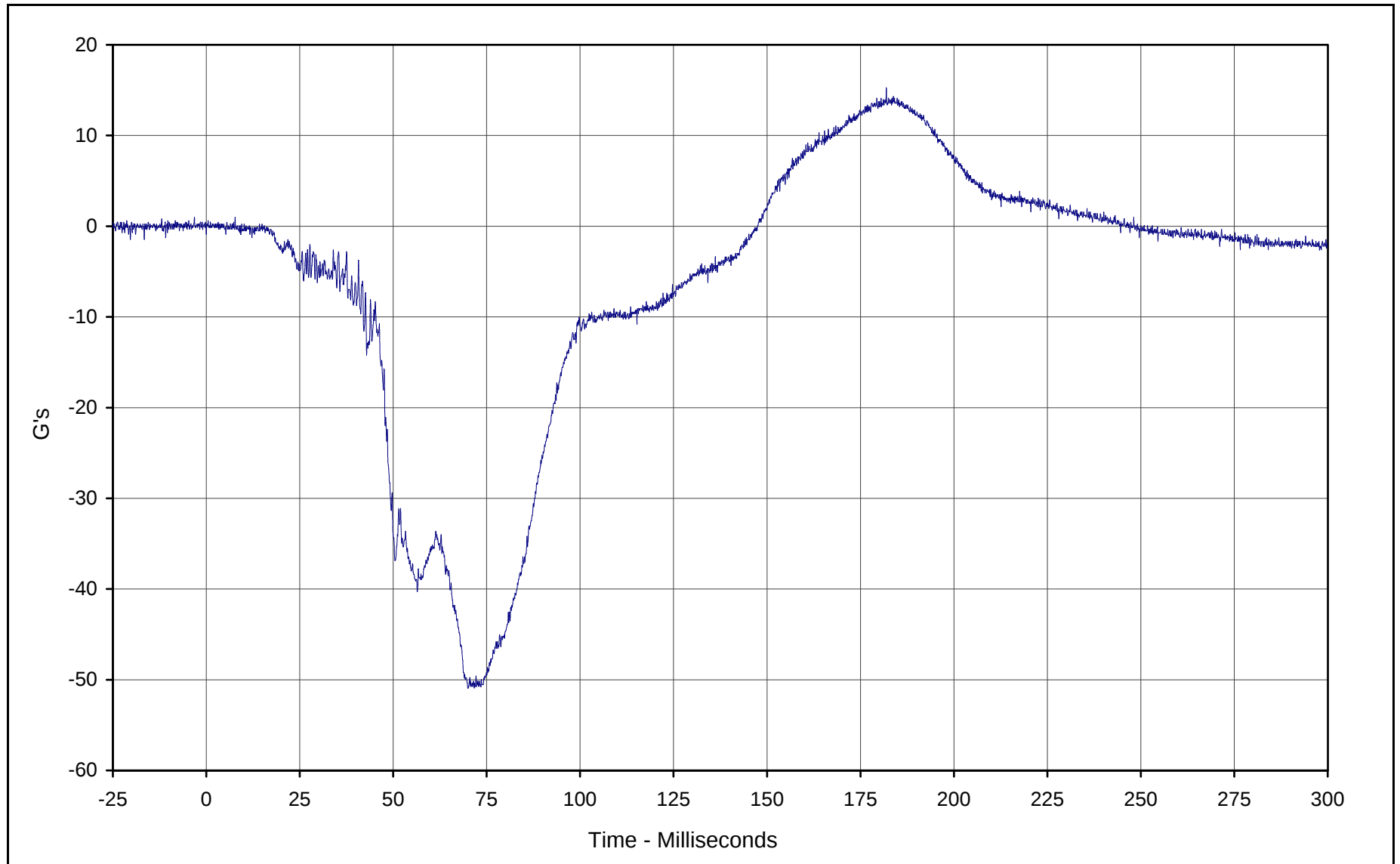
Curve Number: FIL-044

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van

** Not installed

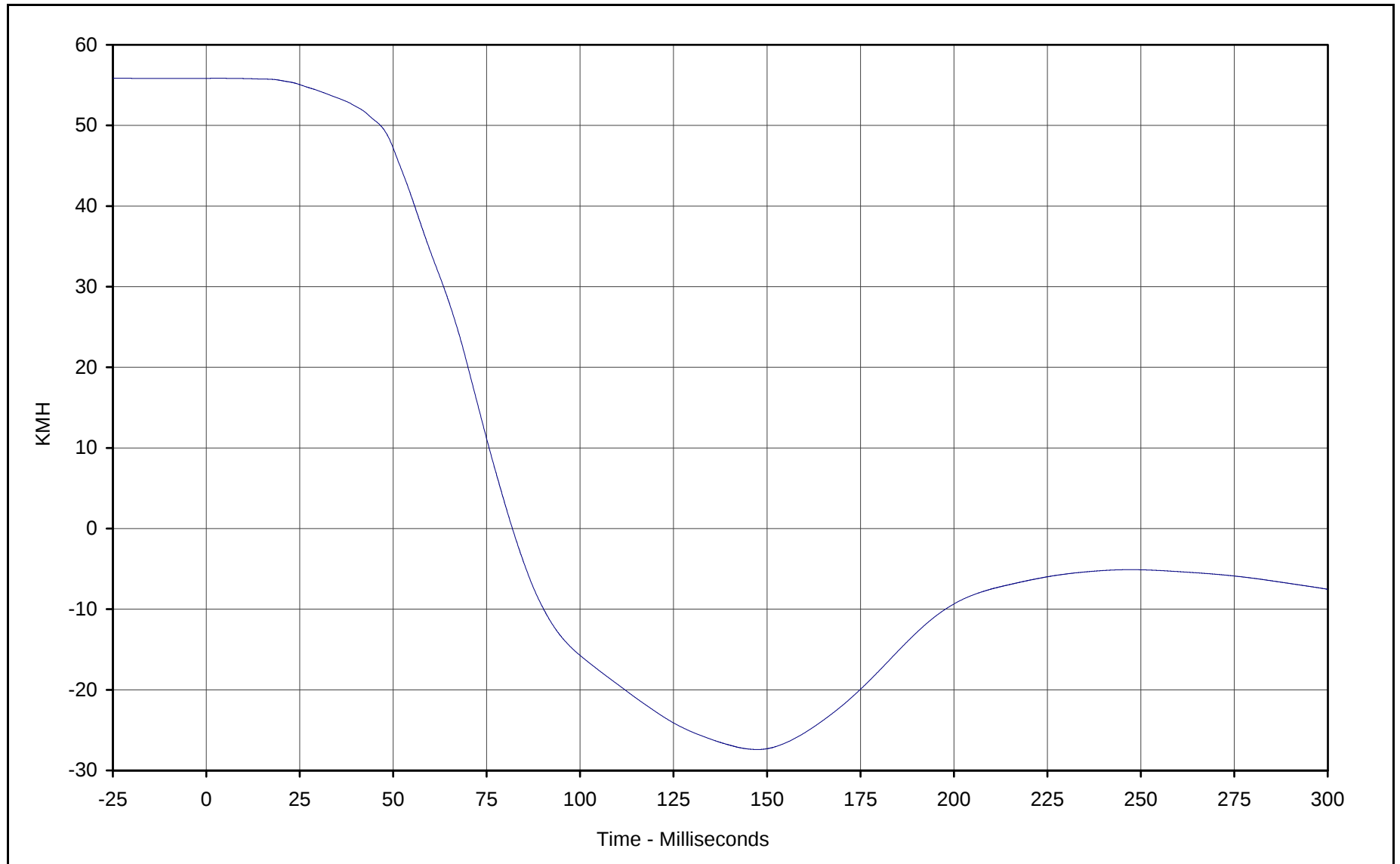




Curve Description: Passenger Head Primary X
Maximum Value: 15.3 at 181.9 Milliseconds
Minimum Value: -50.9 at 69.9 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-045

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

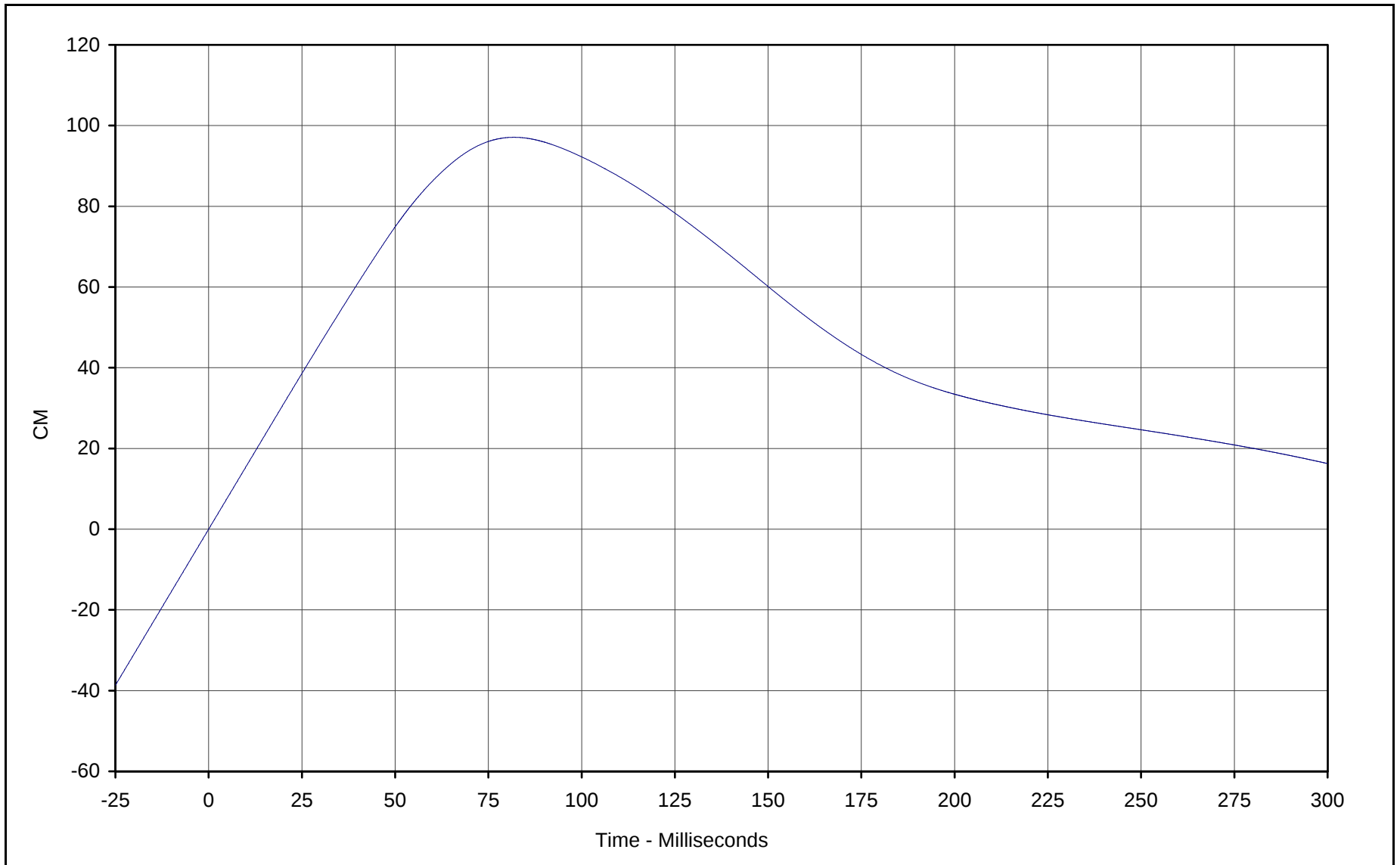




Curve Description: Passenger Head Primary X Velocity
Maximum Value: 55.8 at 3.7 Milliseconds
Minimum Value: -27.4 at 147.4 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-045

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

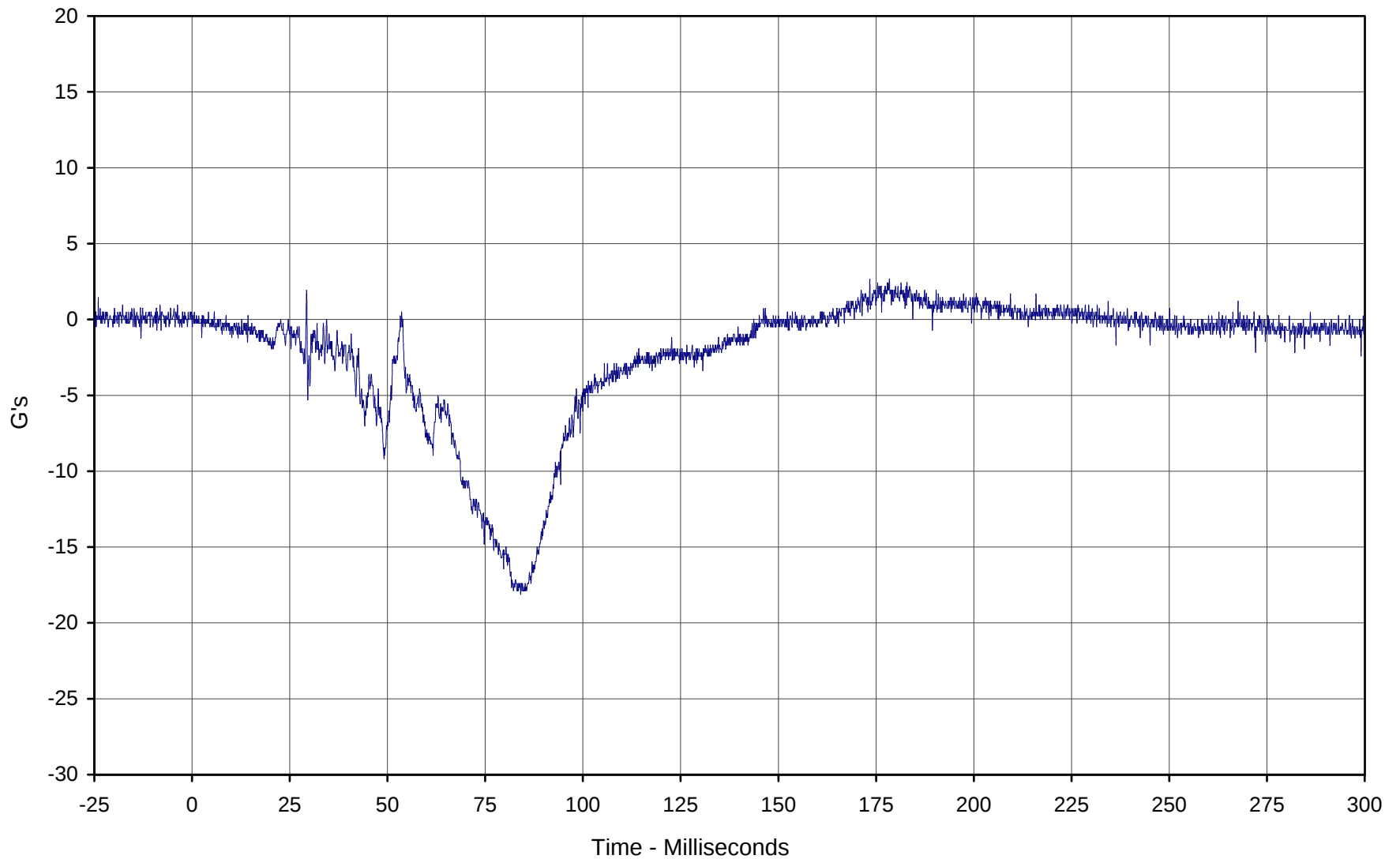




Curve Description: Passenger Head Primary X Displ.
Maximum Value: 97.1 at 81.9 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-045

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

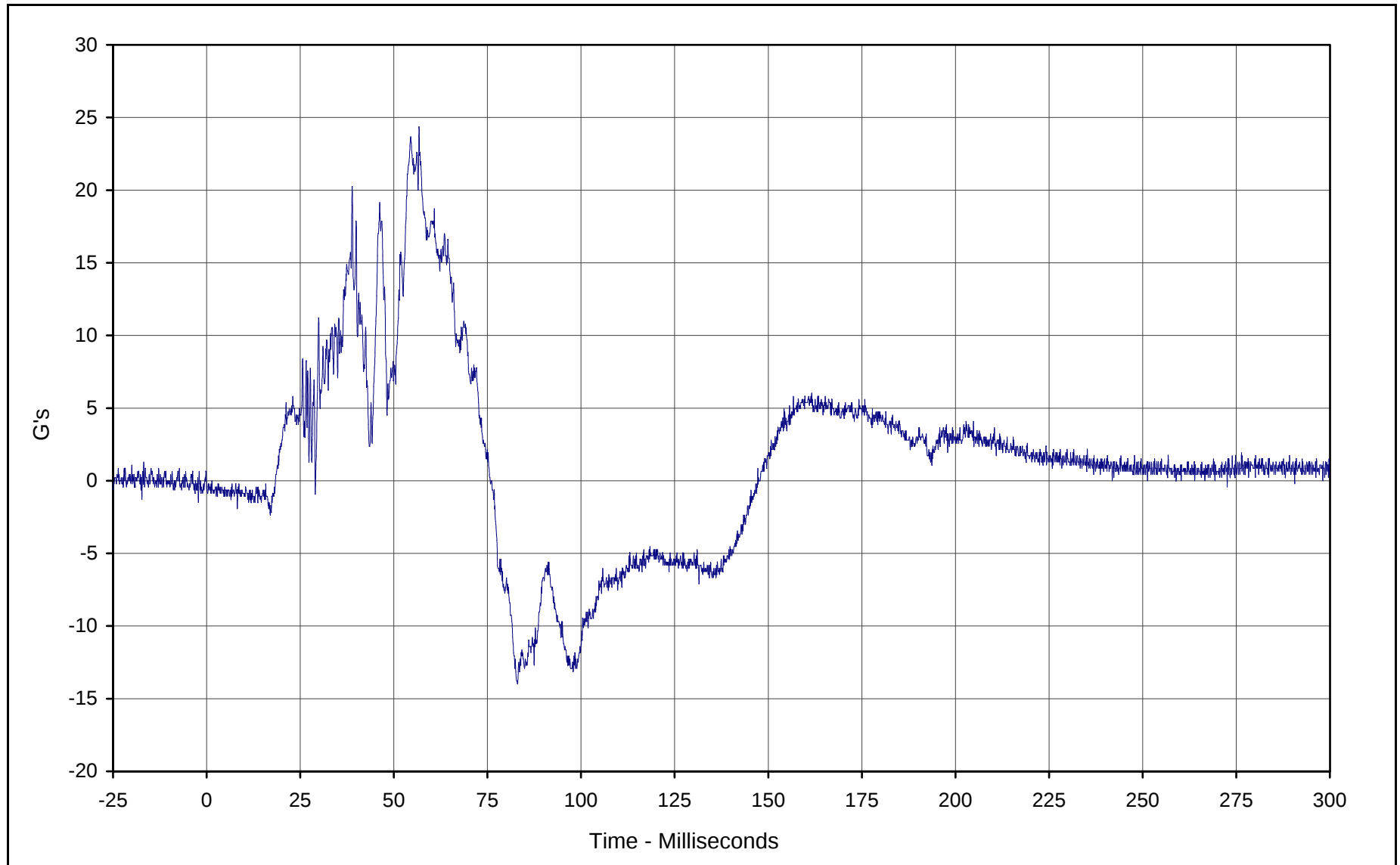




Curve Description: Passenger Head Primary Y
Maximum Value: 2.7 at 173.4 Milliseconds
Minimum Value: -18.1 at 84.1 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-046

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

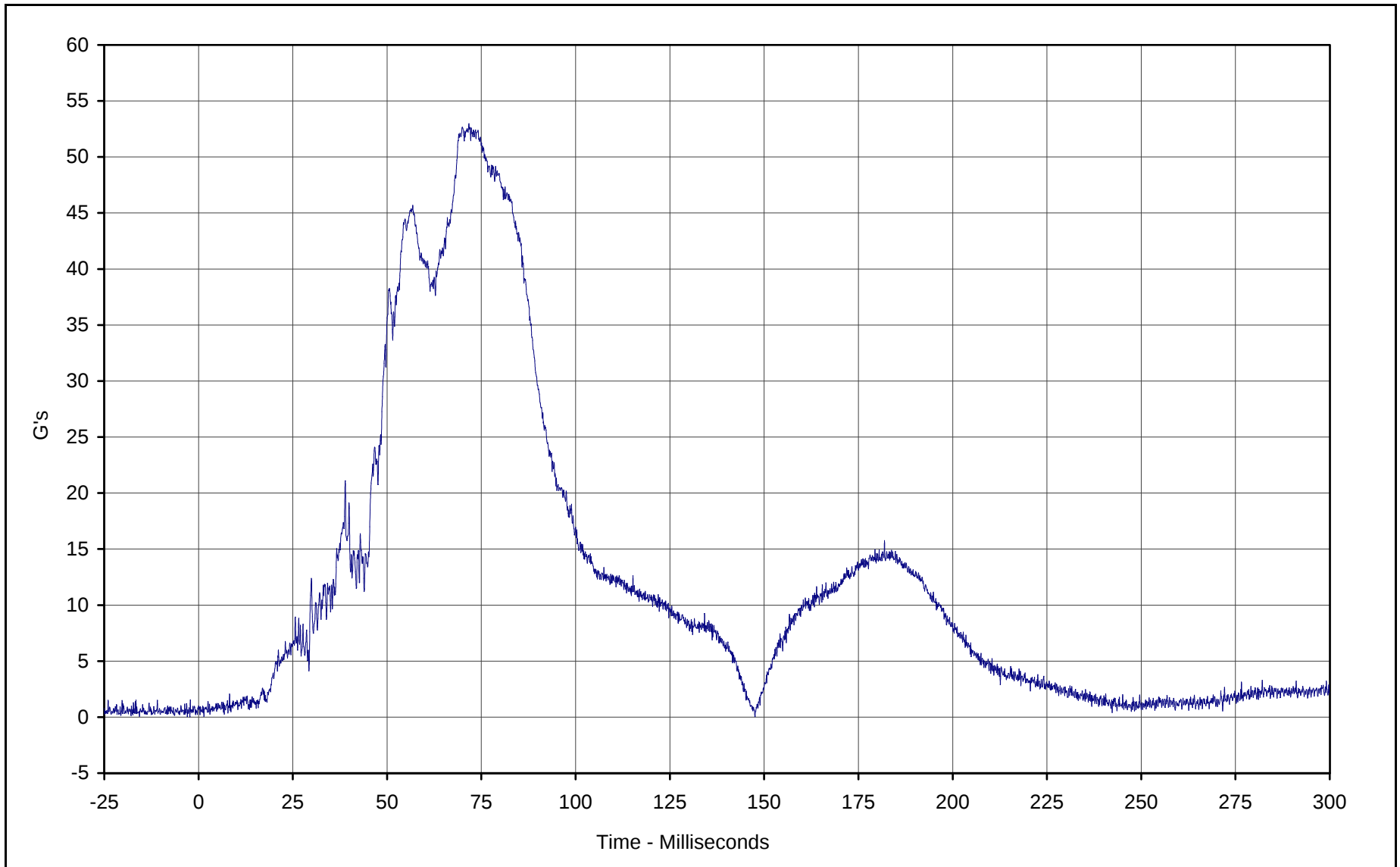




Curve Description: Passenger Head Primary Z
Maximum Value: 24.3 at 56.7 Milliseconds
Minimum Value: -14.0 at 83.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-047

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

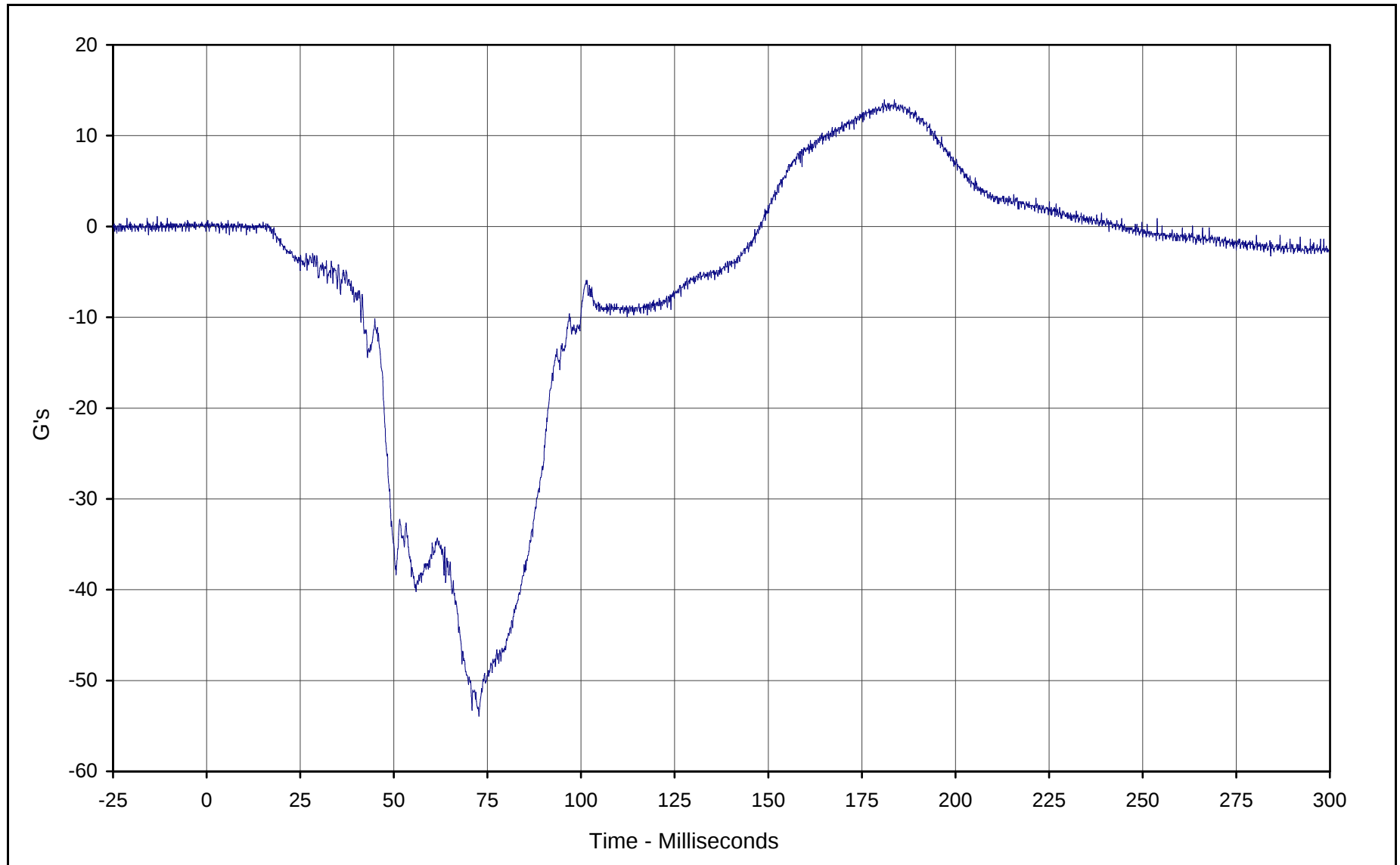




Curve Description: Passenger Head Resultant Primary
Maximum Value: 53.0 at 71.7 Milliseconds
Minimum Value: 0.1 at 1.4 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: RES-045

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

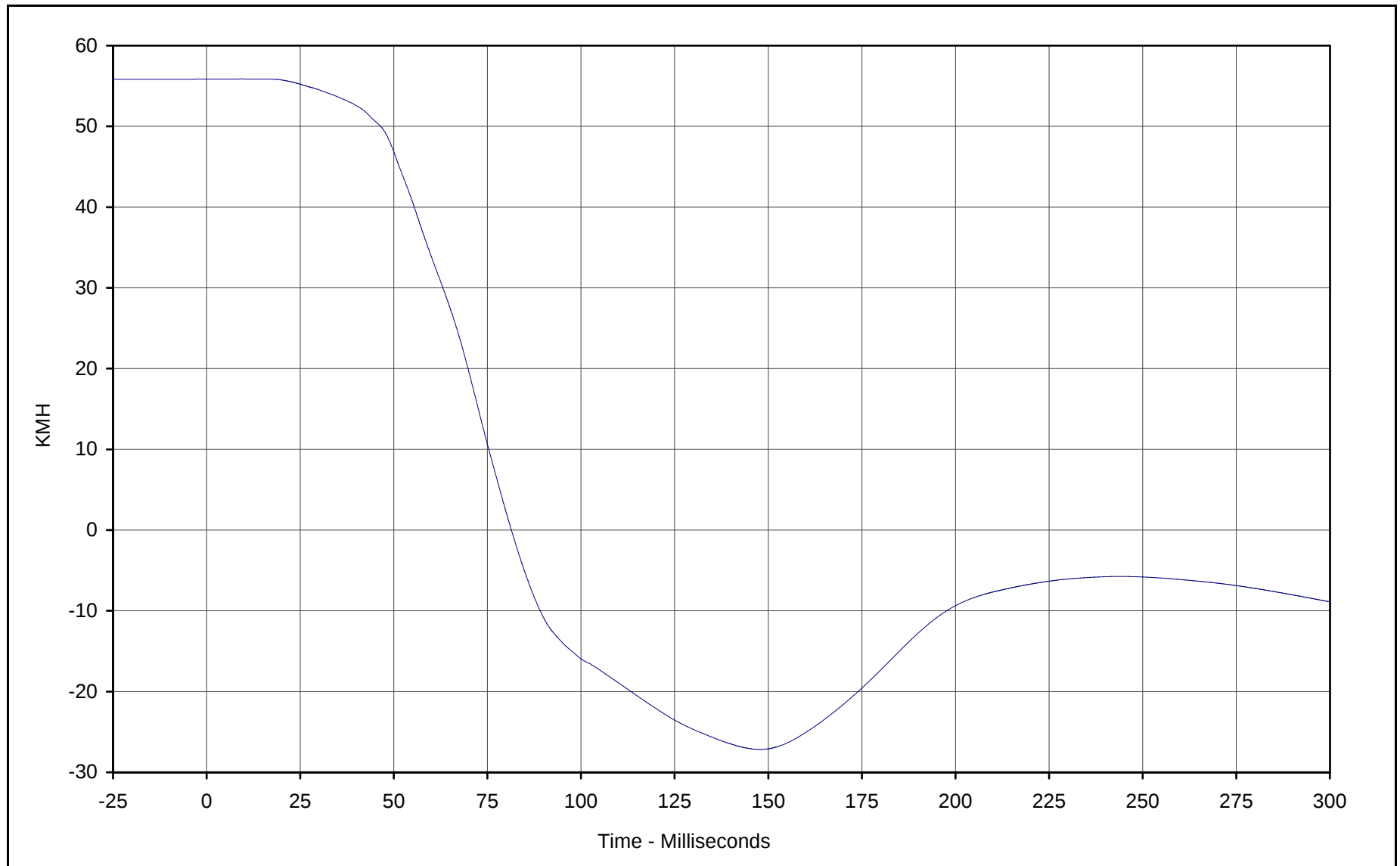




Curve Description: Passenger Head Redundant X
Maximum Value: 14.0 at 181.0 Milliseconds
Minimum Value: -53.9 at 72.7 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-048

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Head Redundant X Velocity

Maximum Value: 55.9 at 9.5 Milliseconds

Minimum Value: -27.2 at 147.8 Milliseconds

SAE Filter Class: 180

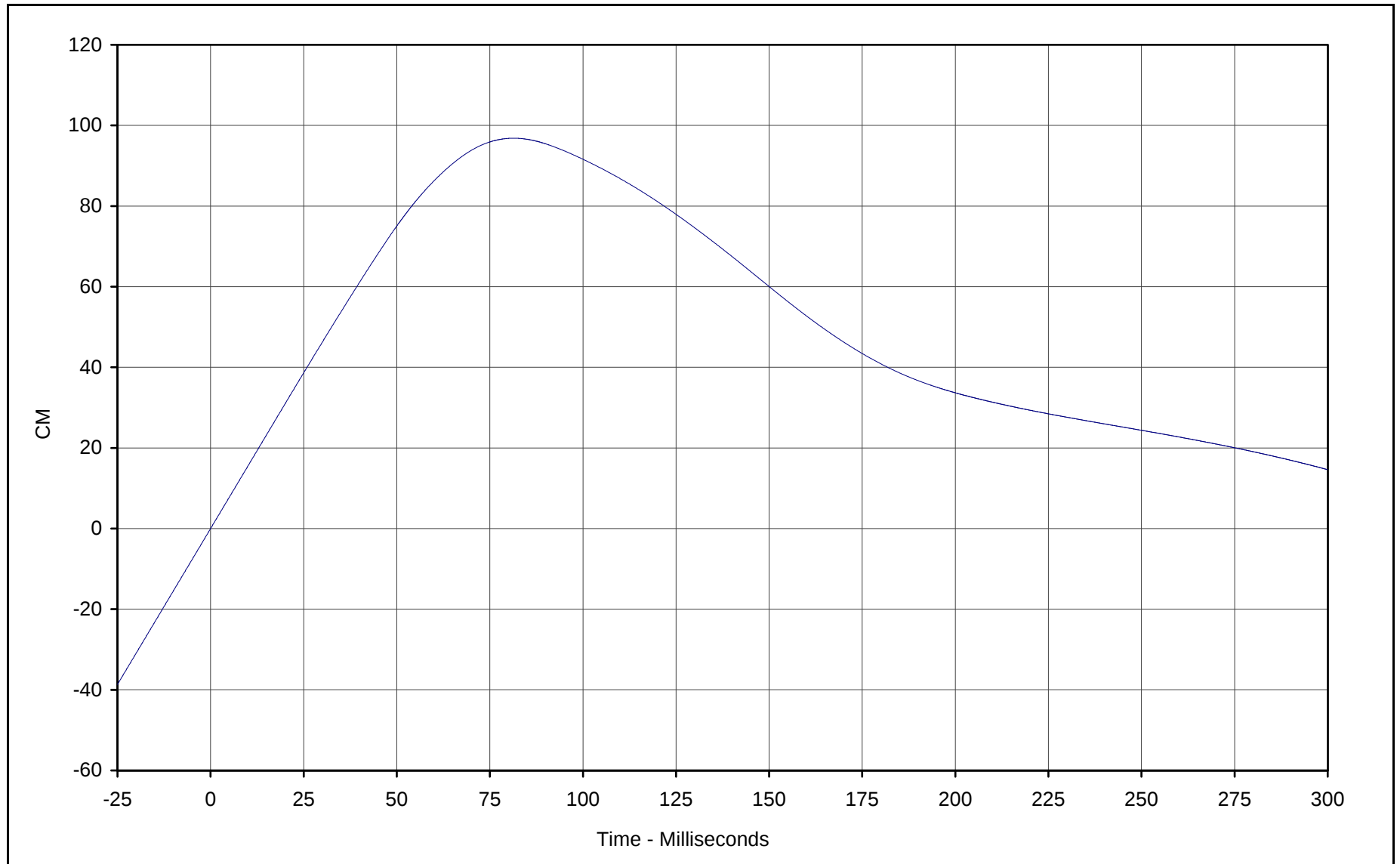
Date of Test: 01/16/01

Curve Number: IN1-048

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Head Redundant X Displ.

Maximum Value: 96.8 at 81.4 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

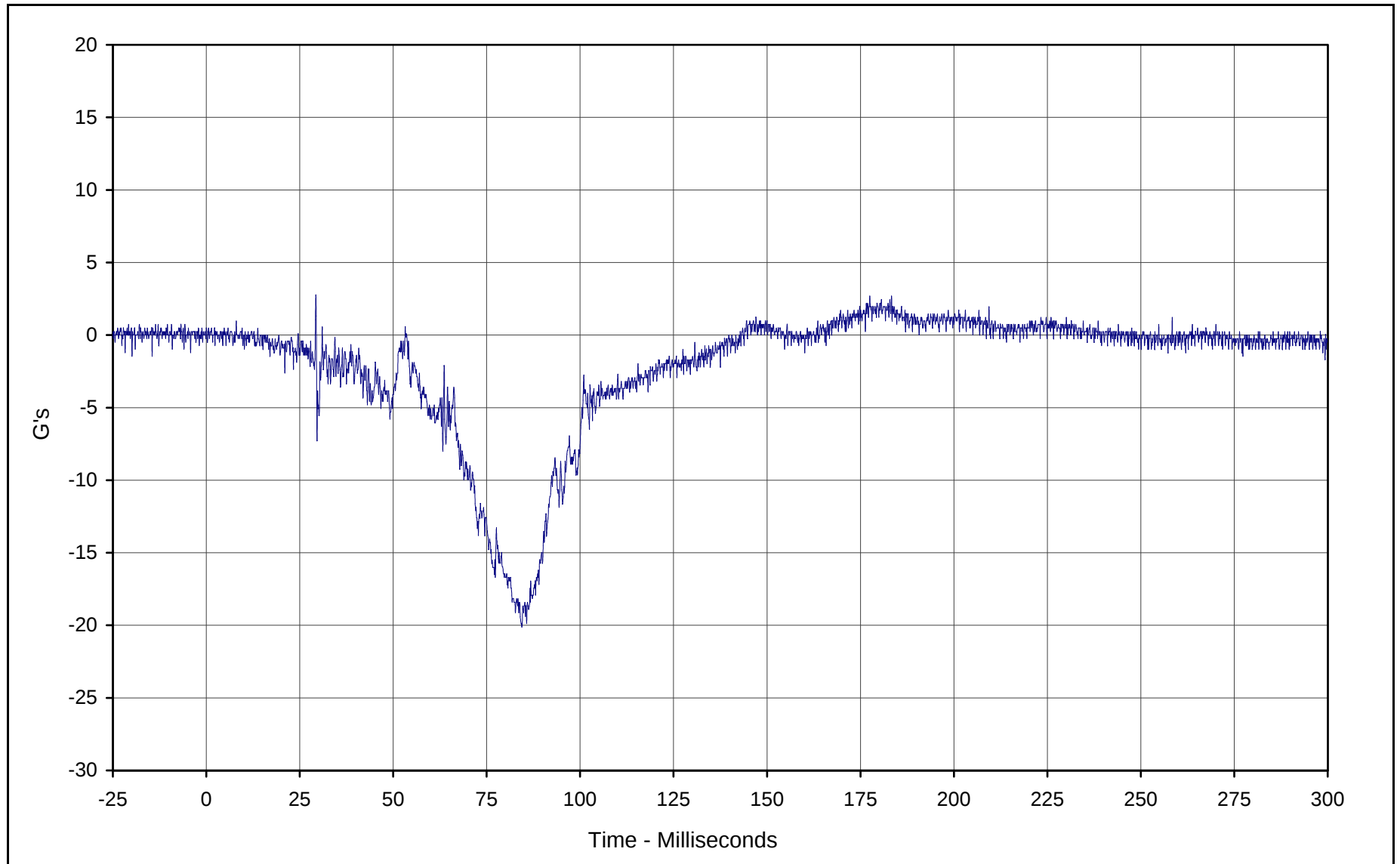
Date of Test: 01/16/01

Curve Number: IN2-048

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van

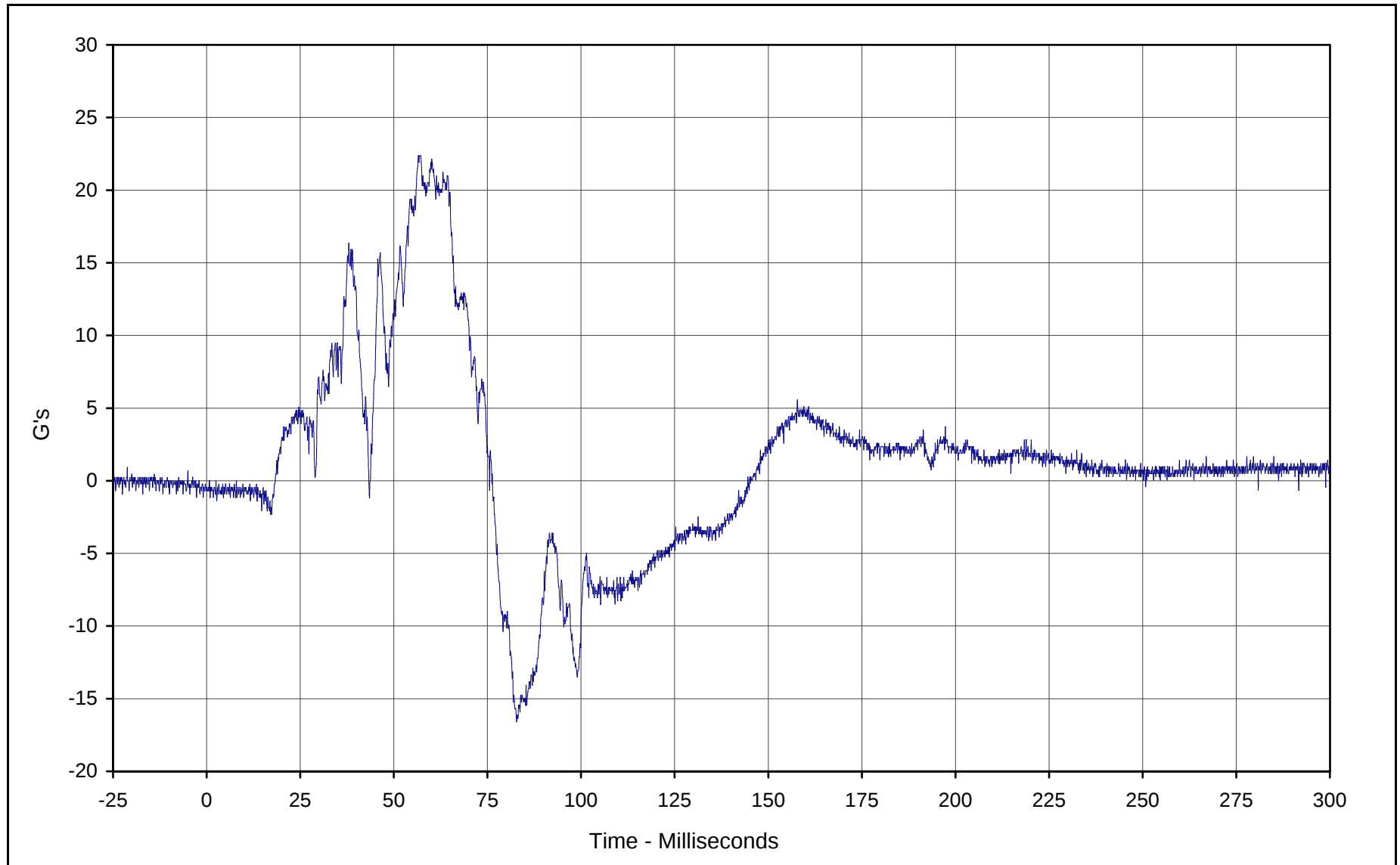




Curve Description: Passenger Head Redundant Y
Maximum Value: 2.8 at 29.3 Milliseconds
Minimum Value: -20.1 at 84.4 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-049

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

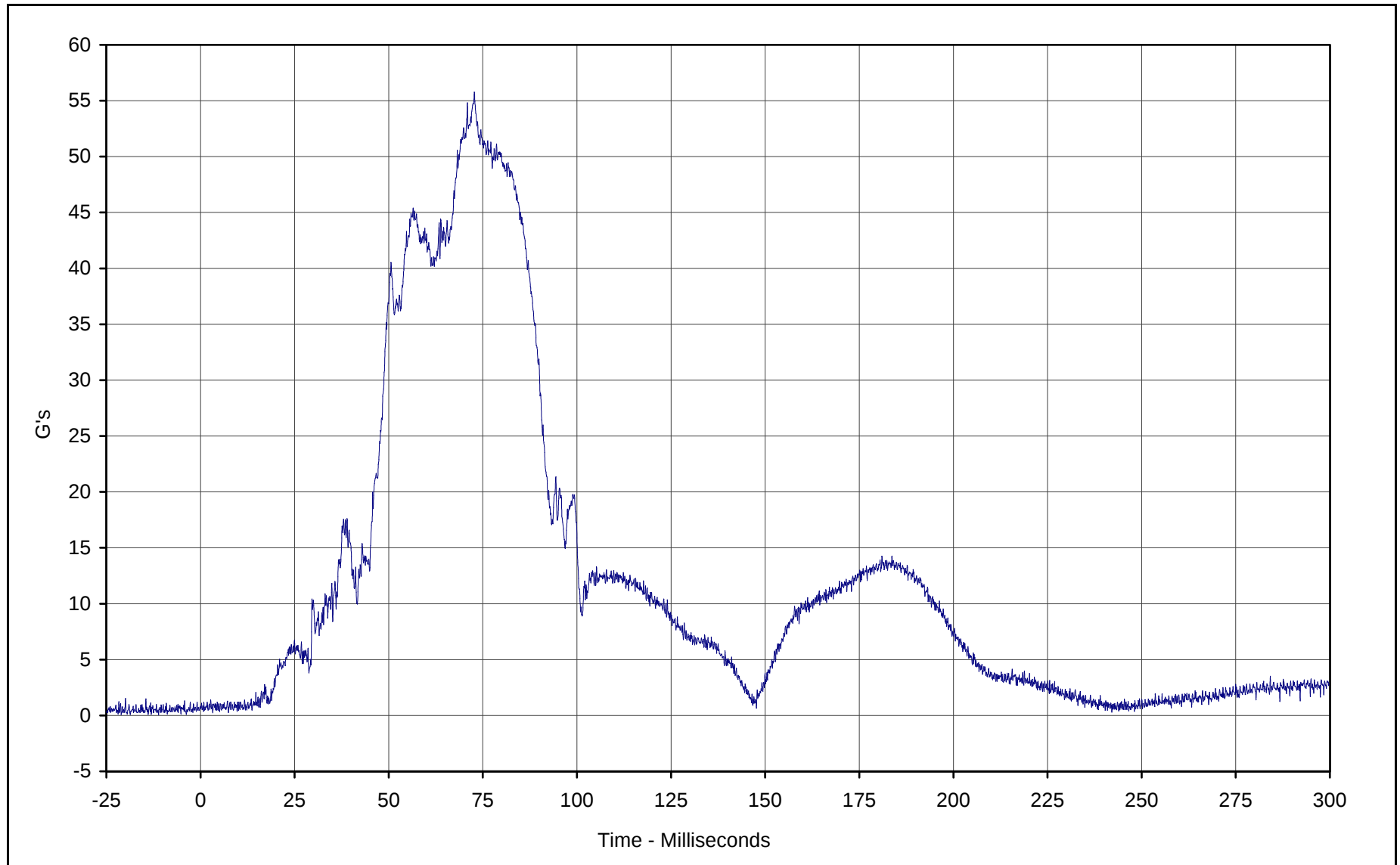




Curve Description: Passenger Head Redundant Z
Maximum Value: 22.4 at 56.5 Milliseconds
Minimum Value: -16.6 at 82.8 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-050

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Head Resultant Redundant

Maximum Value: 55.8 at 72.7 Milliseconds

Minimum Value: 0.2 at 3.3 Milliseconds

SAE Filter Class: 1000

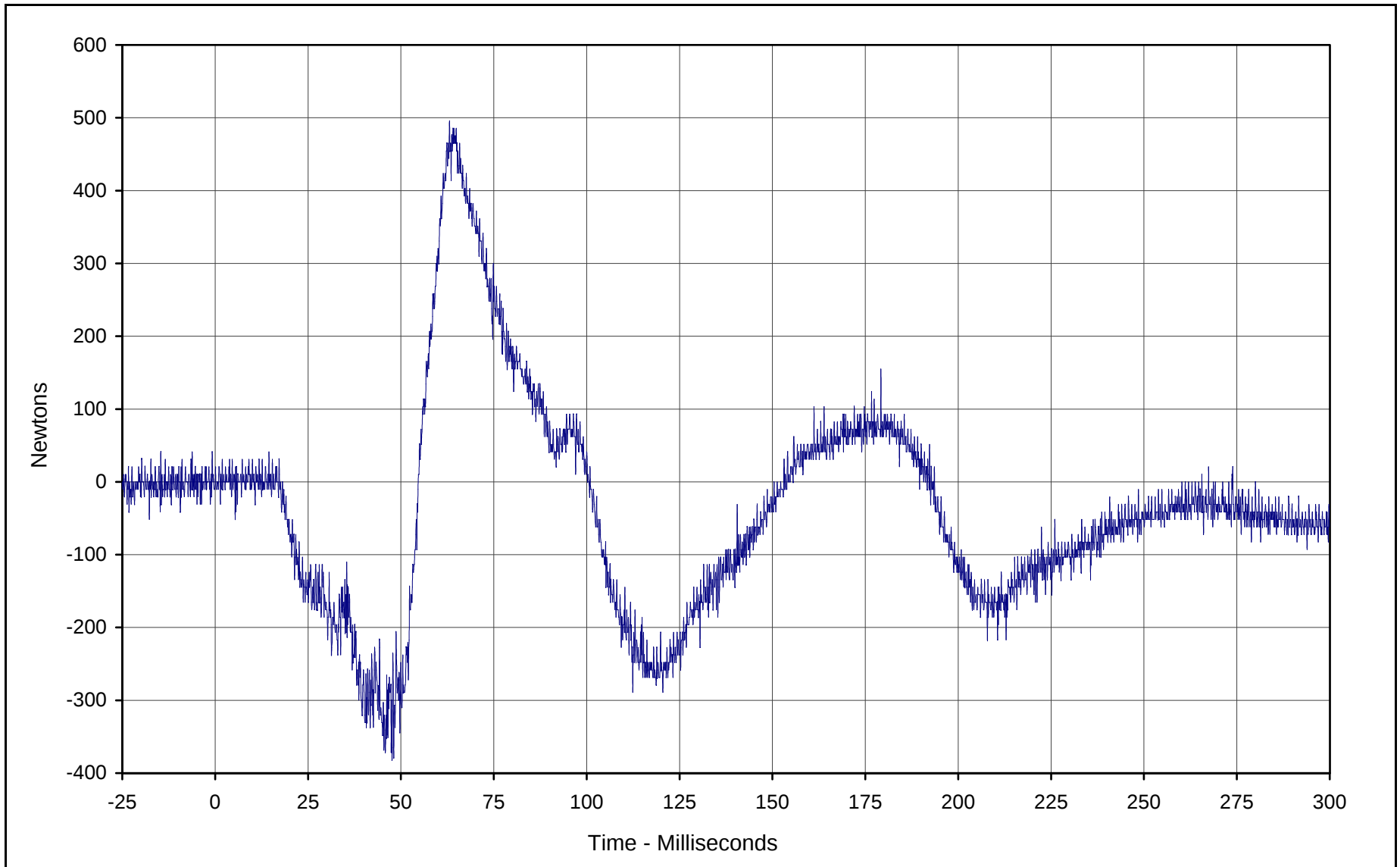
Date of Test: 01/16/01

Curve Number: RES-048

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



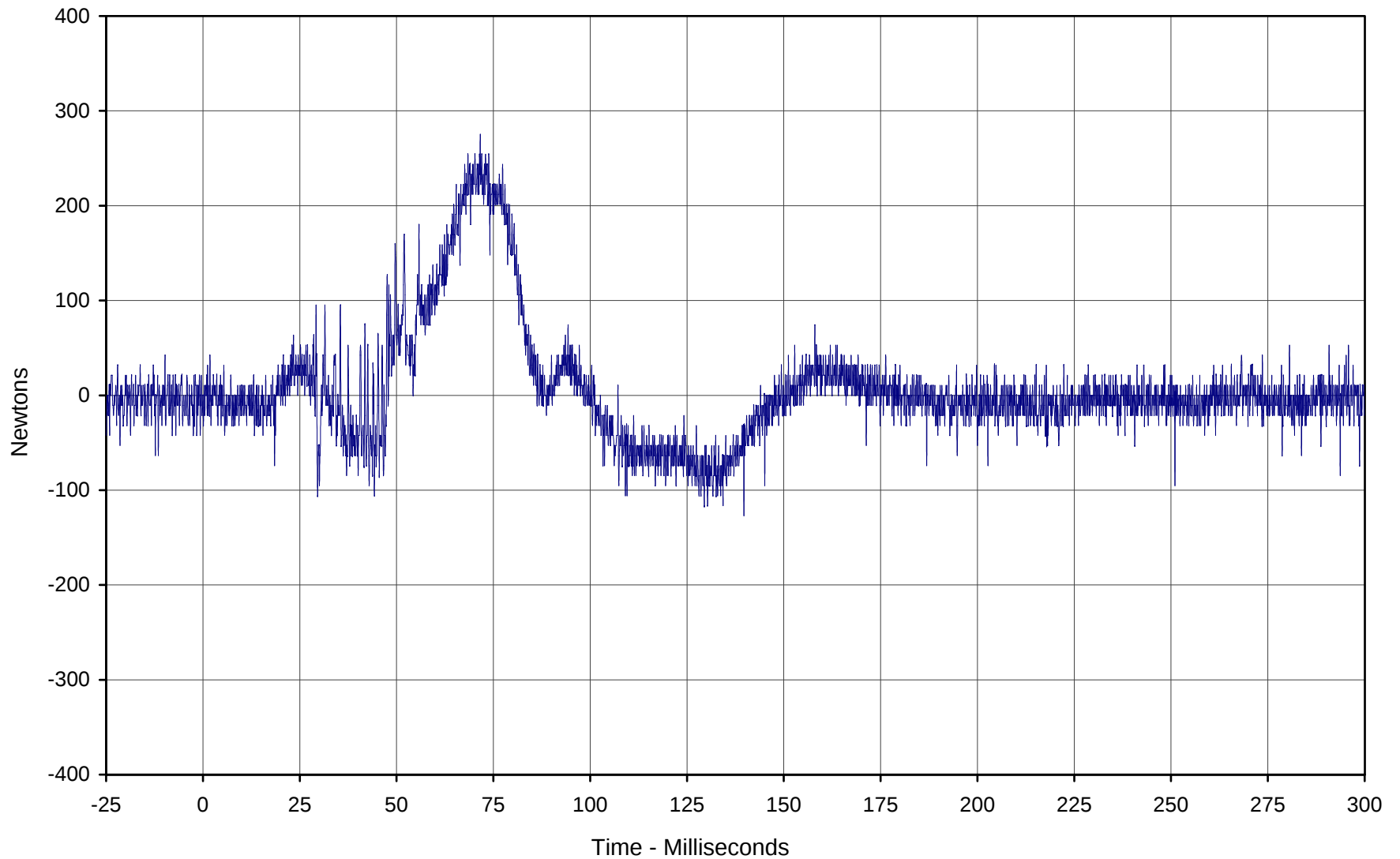


Curve Description: Passenger Neck Force X
Maximum Value: 496.0 at 63.1 Milliseconds
Minimum Value: -382.0 at 47.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-051

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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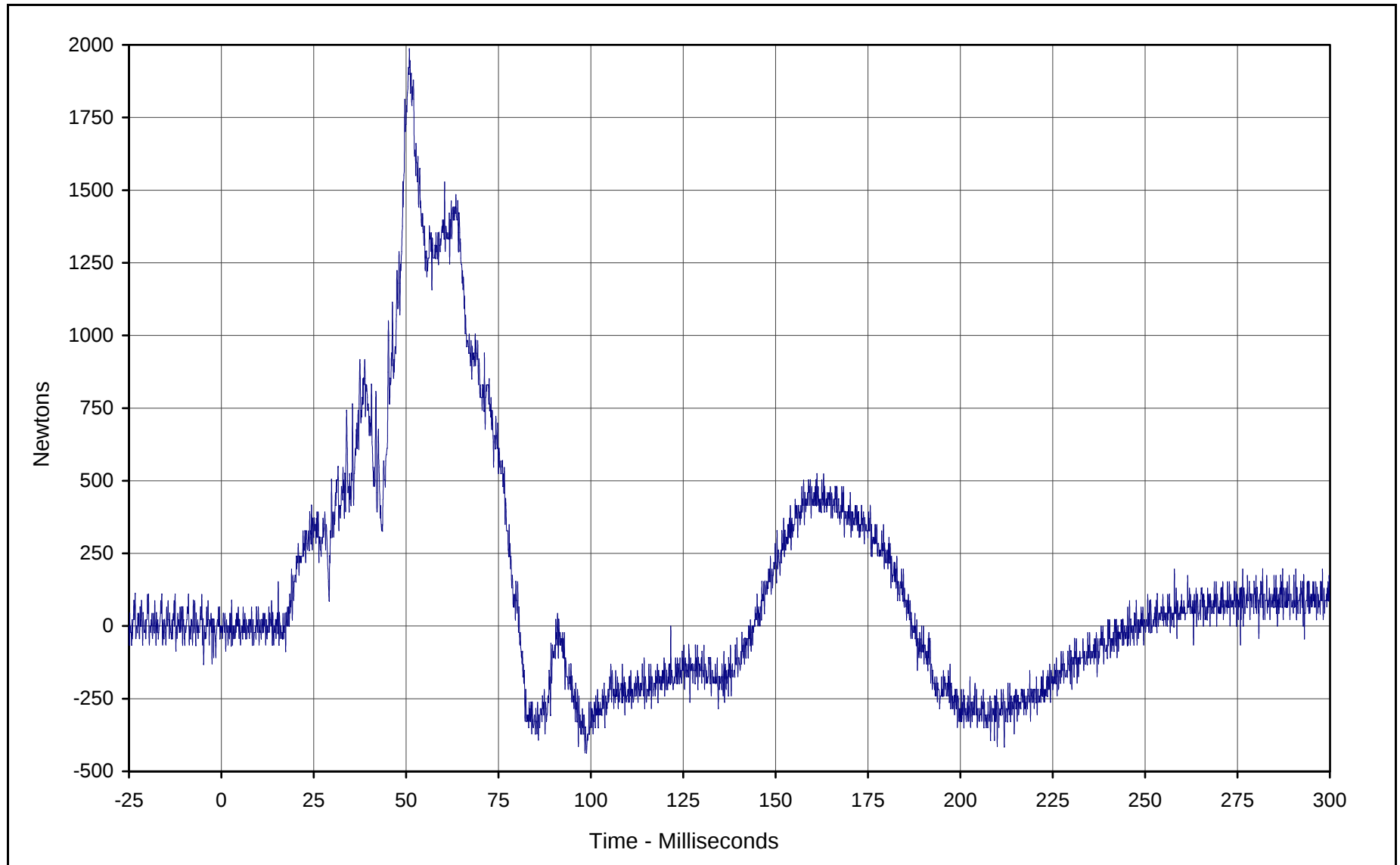


Curve Description: Passenger Neck Force Y
Maximum Value: 275.5 at 71.6 Milliseconds
Minimum Value: -127.2 at 139.7 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-052

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



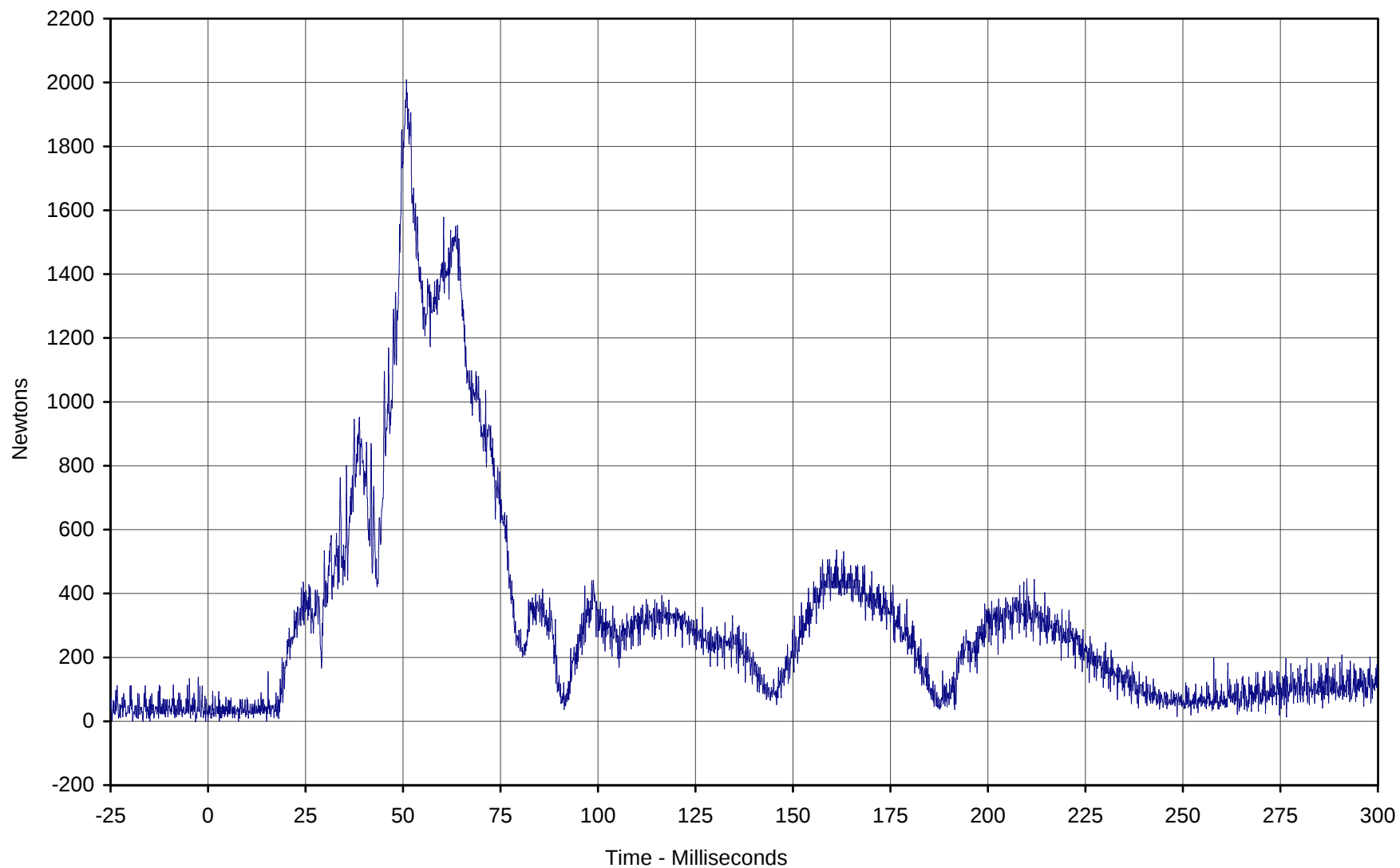
KAR21001-05



Curve Description: Passenger Neck Force Z
Maximum Value: 1987.7 at 50.9 Milliseconds
Minimum Value: -436.9 at 98.4 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: FIL-053

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

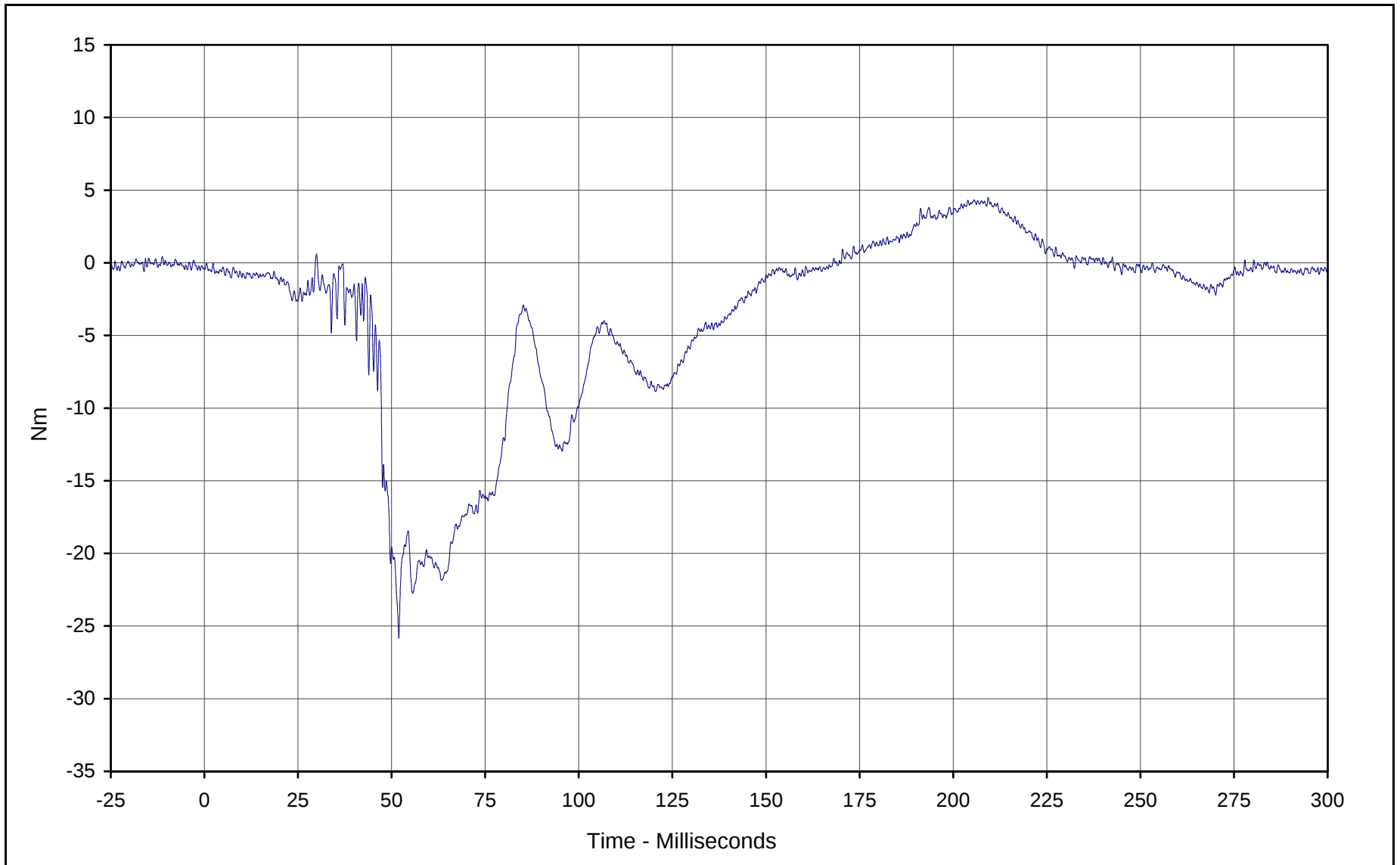




Curve Description: Passenger Neck Force Resultant
Maximum Value: 2009.1 at 50.9 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: RES-051

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

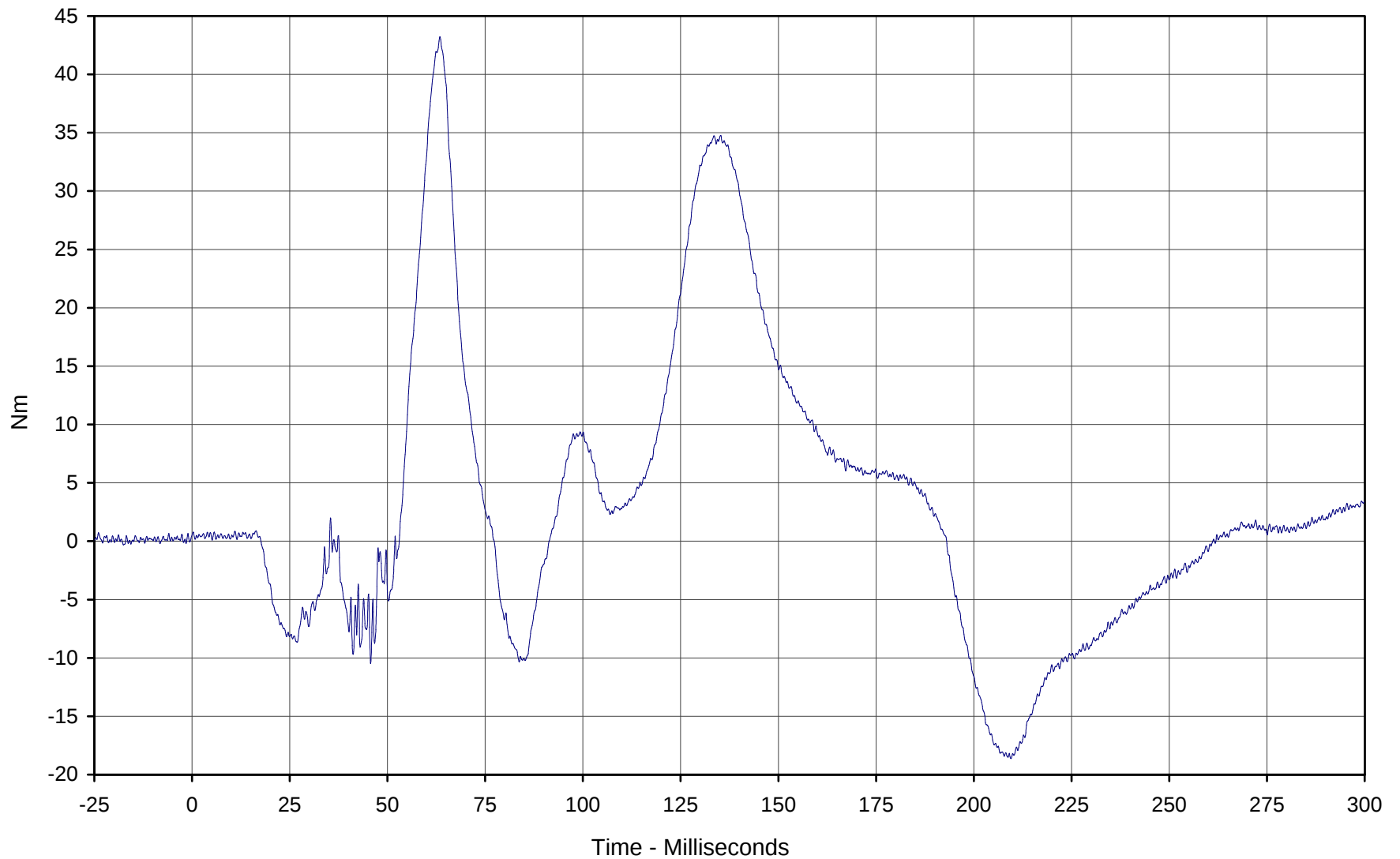




Curve Description: Passenger Neck Moment X
Maximum Value: 4.5 at 209.4 Milliseconds
Minimum Value: -25.8 at 51.9 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-054

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



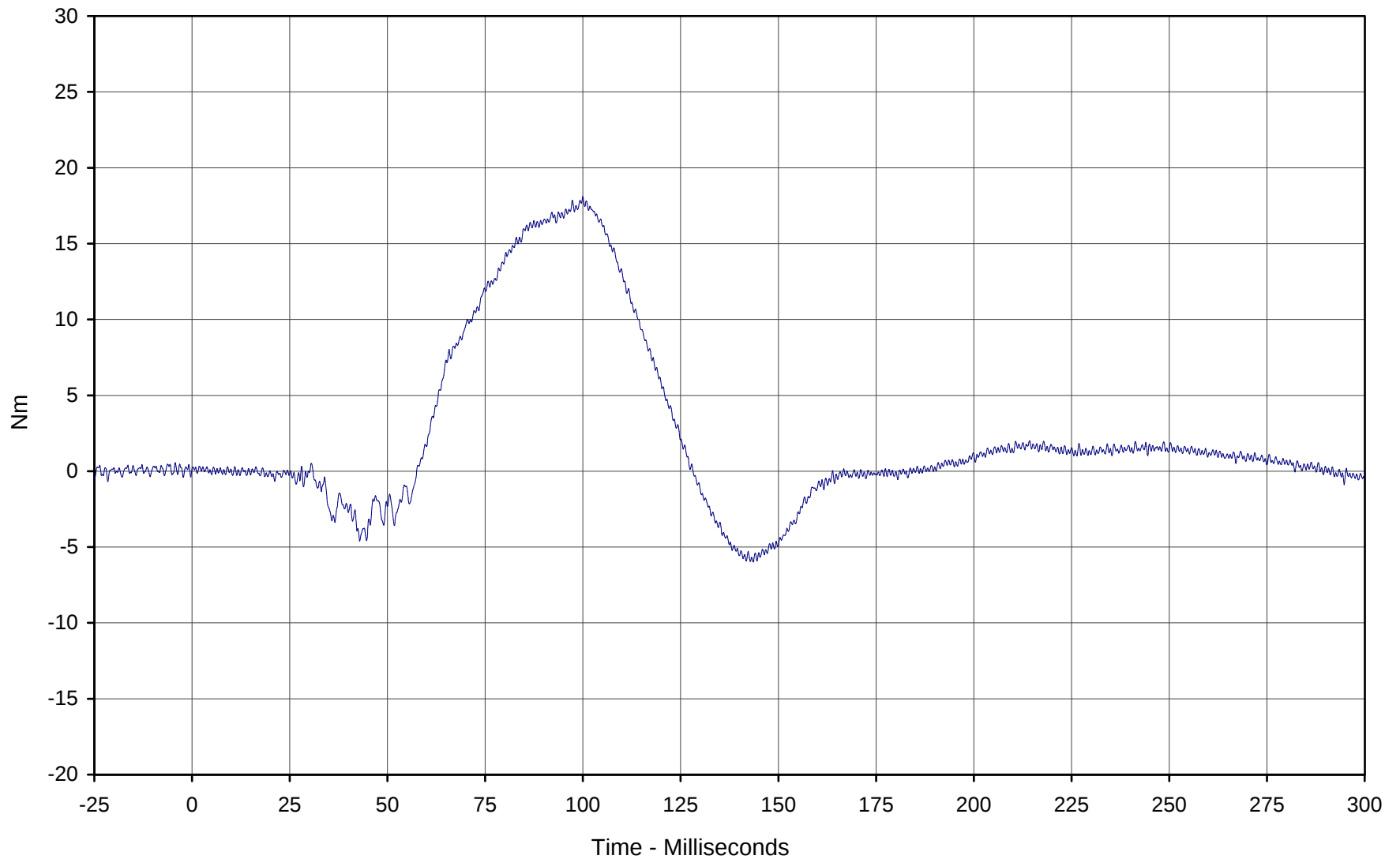


Curve Description: Passenger Neck Moment Y
Maximum Value: 43.2 at 63.4 Milliseconds
Minimum Value: -18.6 at 209.5 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-055

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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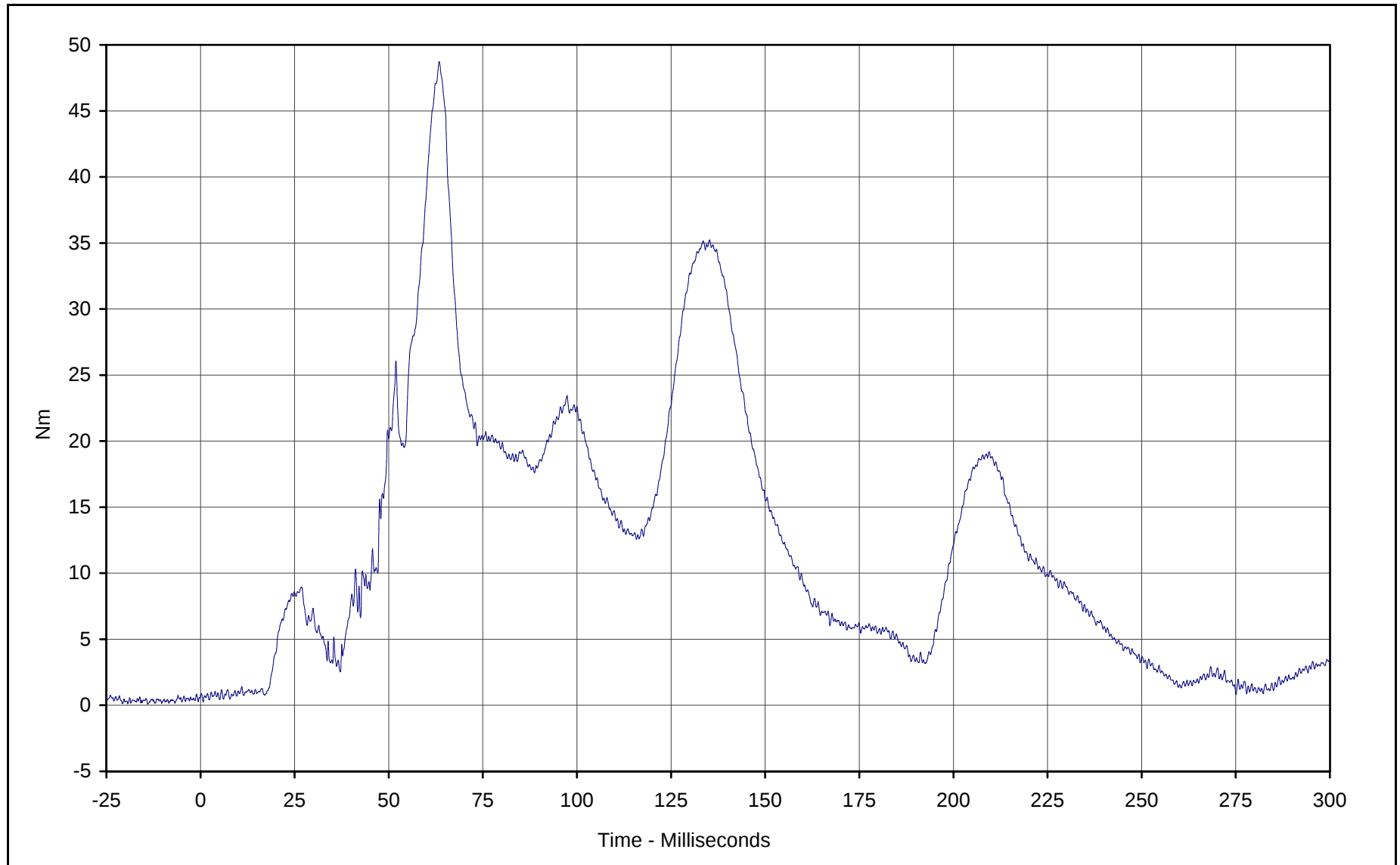


Curve Description: Passenger Neck Moment Z
Maximum Value: 18.1 at 100.0 Milliseconds
Minimum Value: -6.0 at 143.6 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-056

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



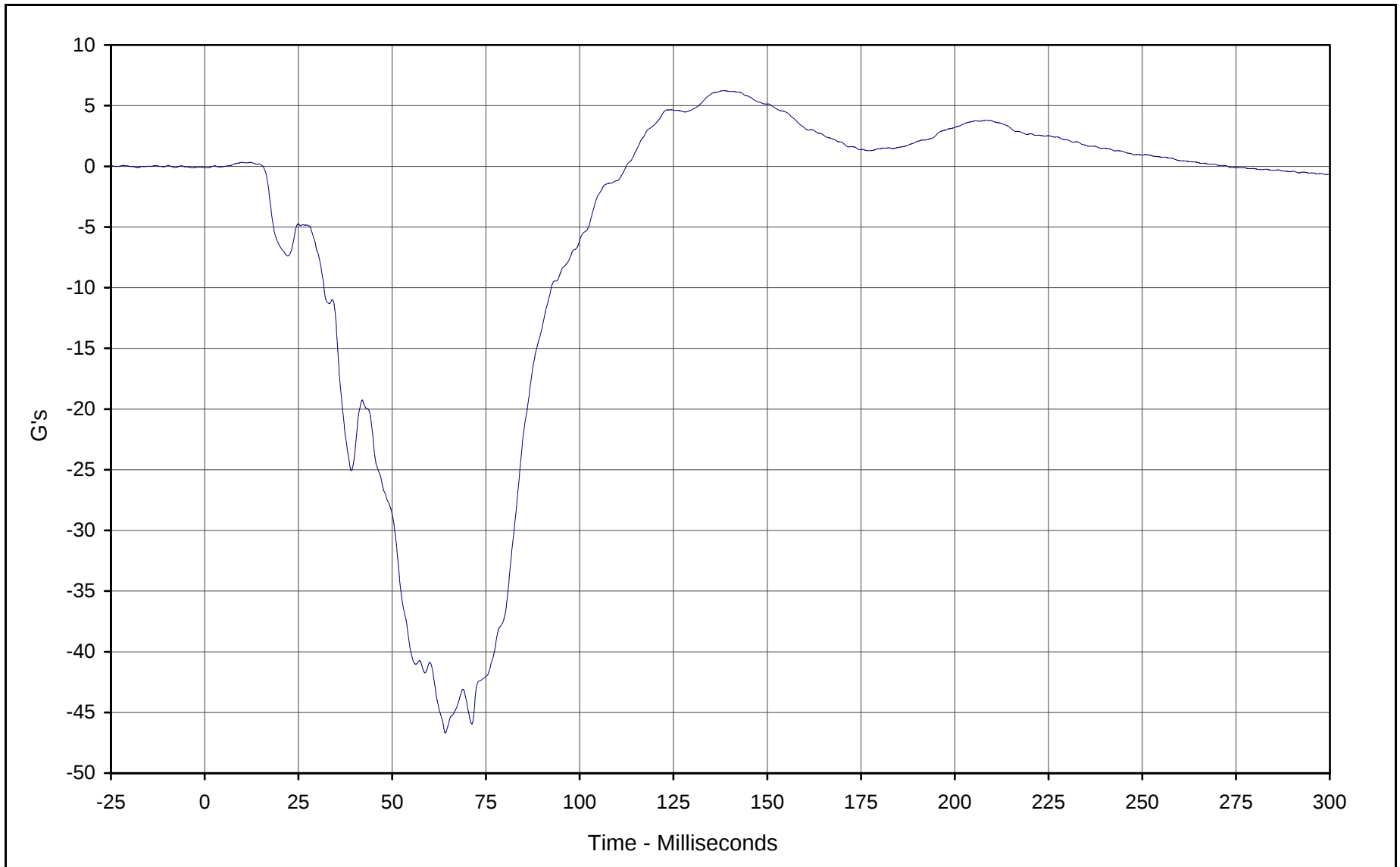
KAR21001-05



Curve Description: Passenger Neck Moment Resultant
Maximum Value: 48.7 at 63.4 Milliseconds
Minimum Value: 0.3 at 0.7 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: RES-054

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

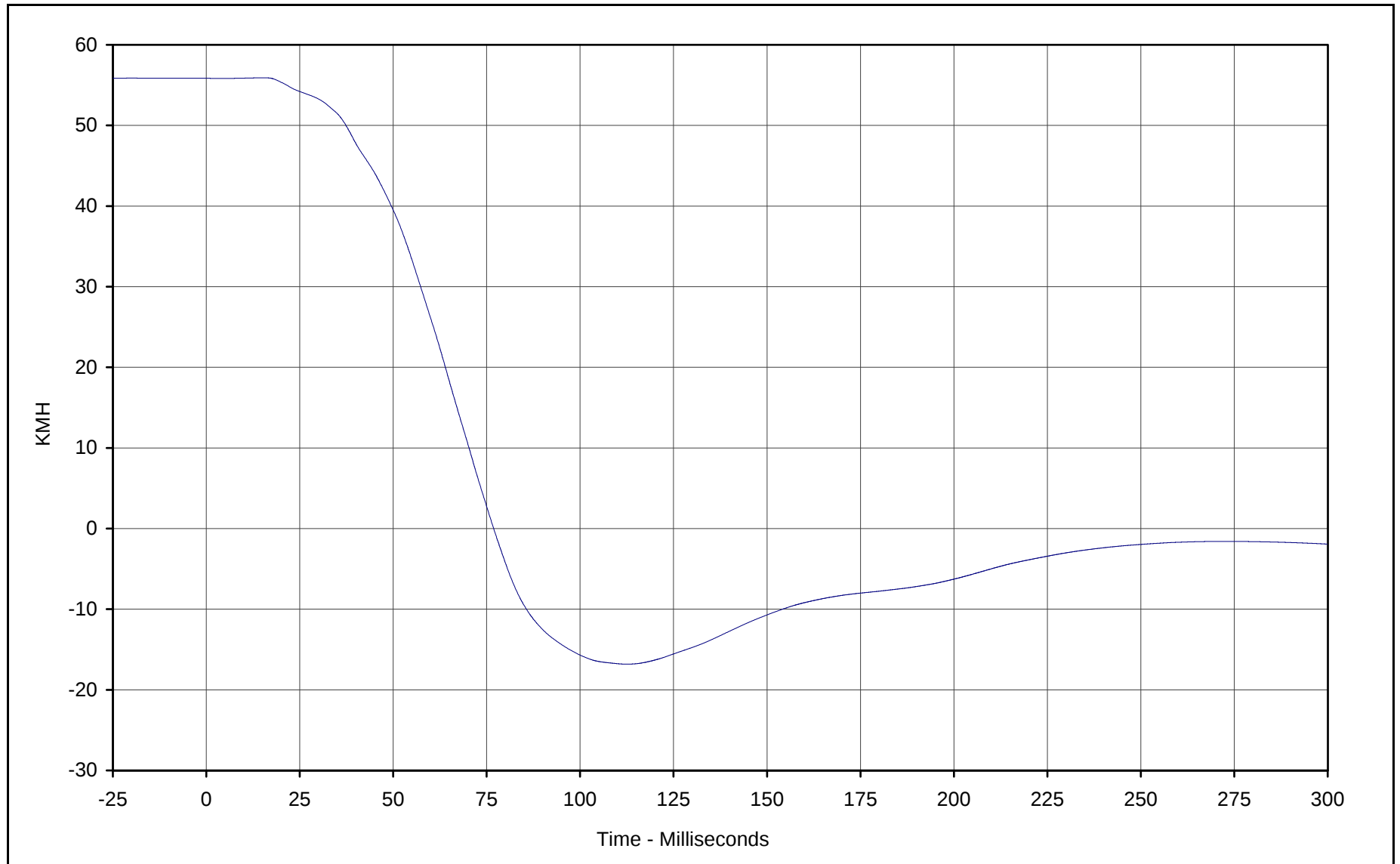




Curve Description: Passenger Chest Primary X
Maximum Value: 6.2 at 138.5 Milliseconds
Minimum Value: -46.7 at 64.2 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-057

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Chest Primary X Velocity

Maximum Value: 55.9 at 15.5 Milliseconds

Minimum Value: -16.8 at 112.4 Milliseconds

SAE Filter Class: 180

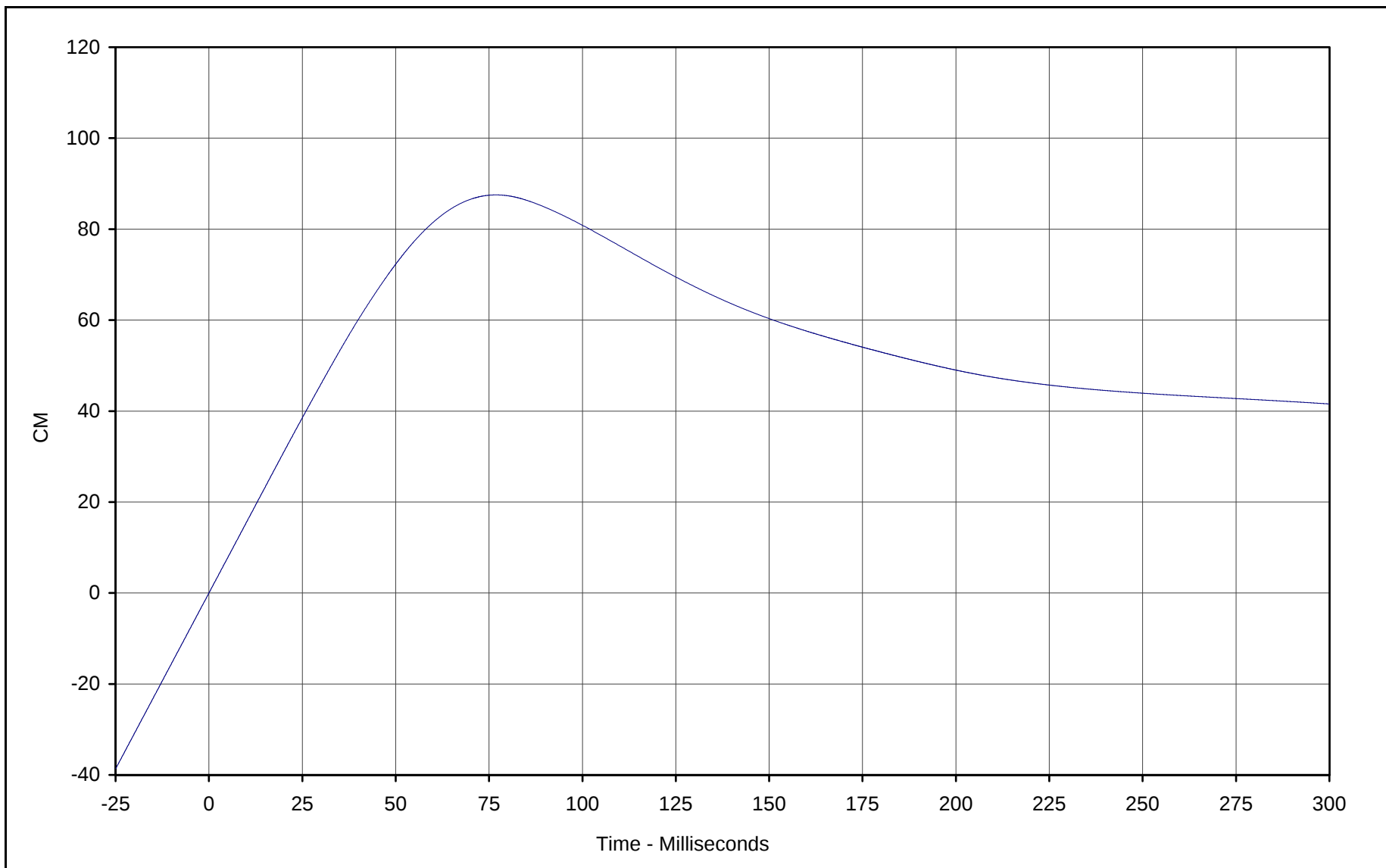
Date of Test: 01/16/01

Curve Number: IN1-057

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



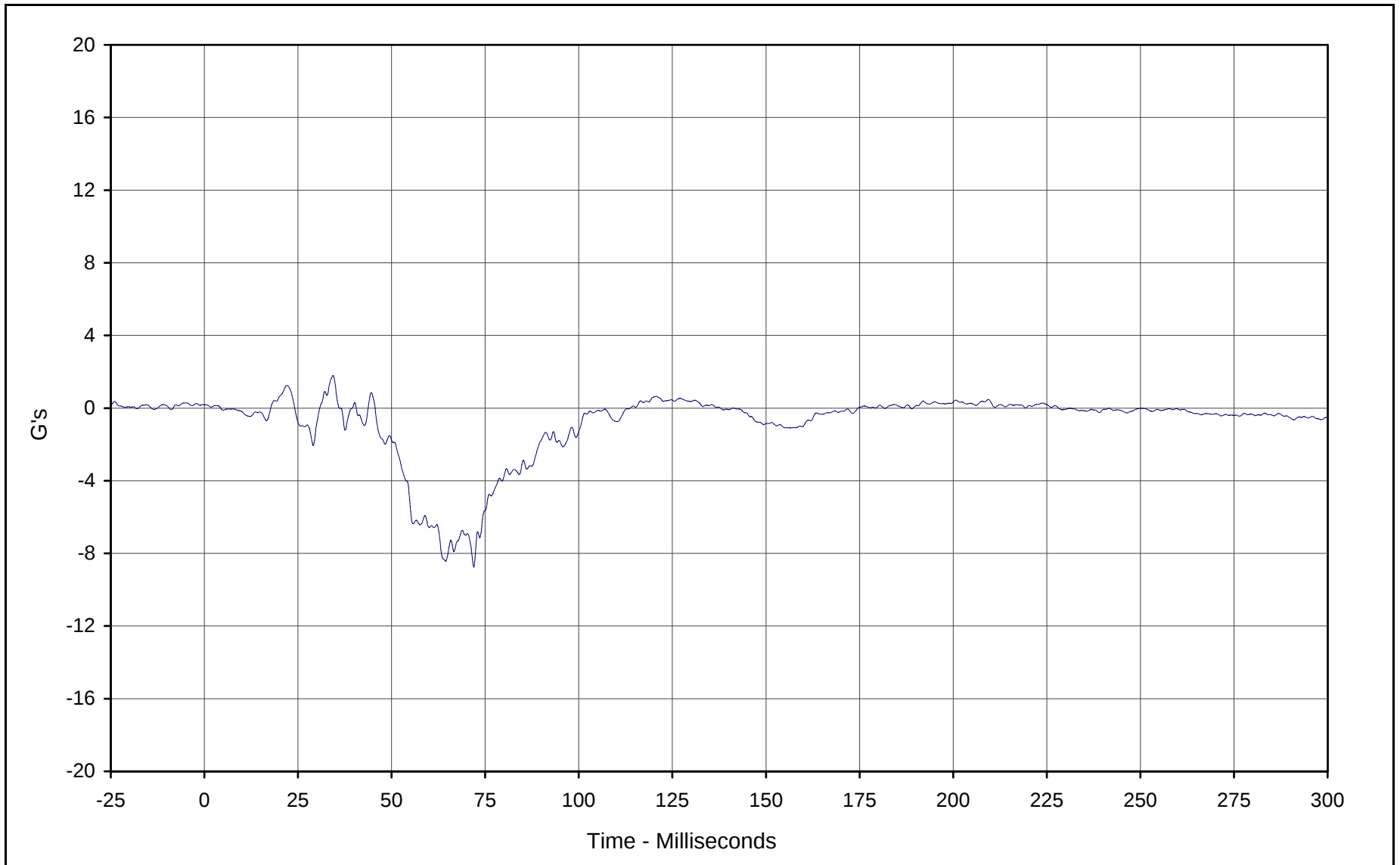


Curve Description: Passenger Chest Primary X Displ.
Maximum Value: 87.5 at 76.9 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-057

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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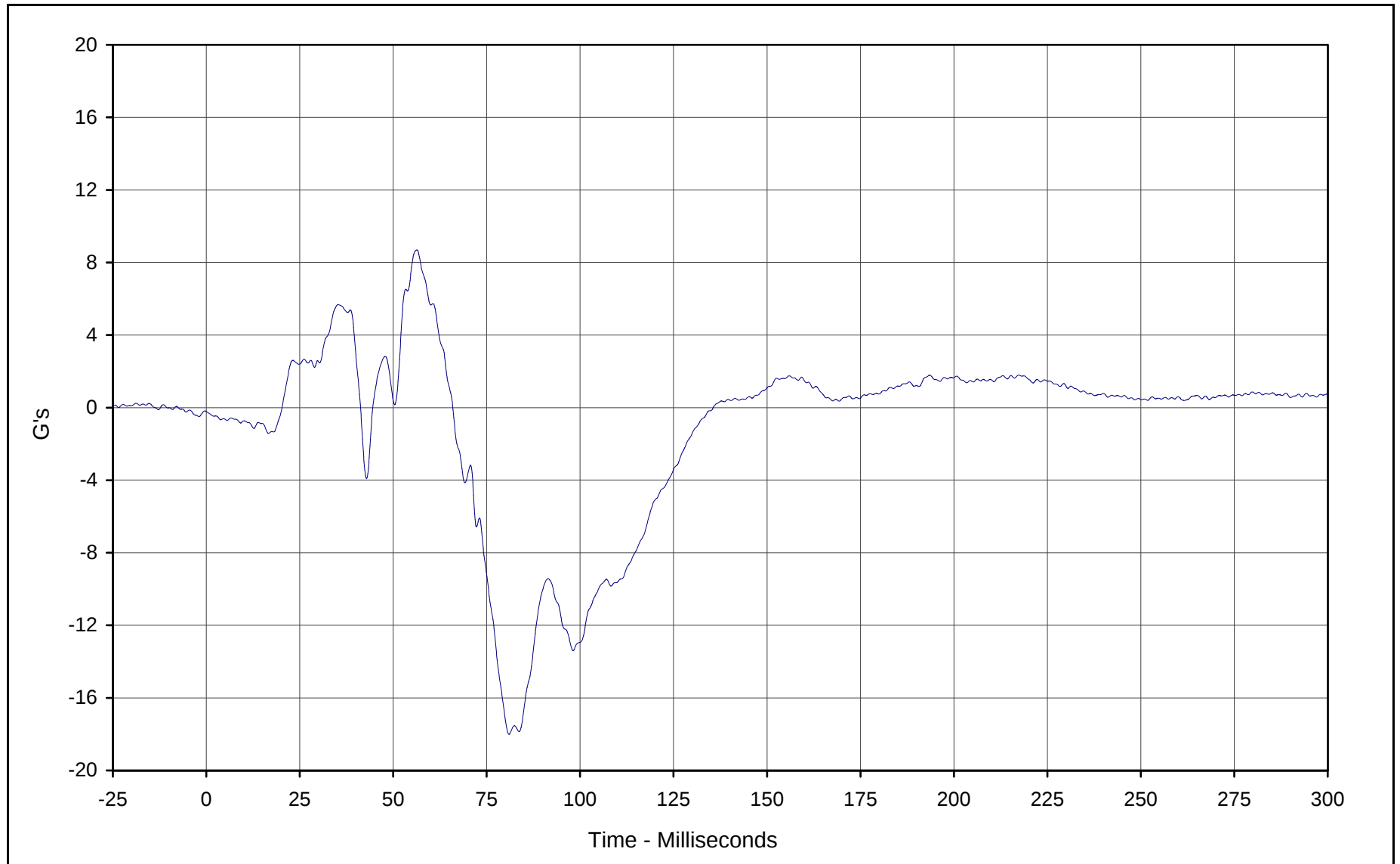


Curve Description: Passenger Chest Primary Y
Maximum Value: 1.8 at 34.4 Milliseconds
Minimum Value: -8.8 at 72.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-058

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



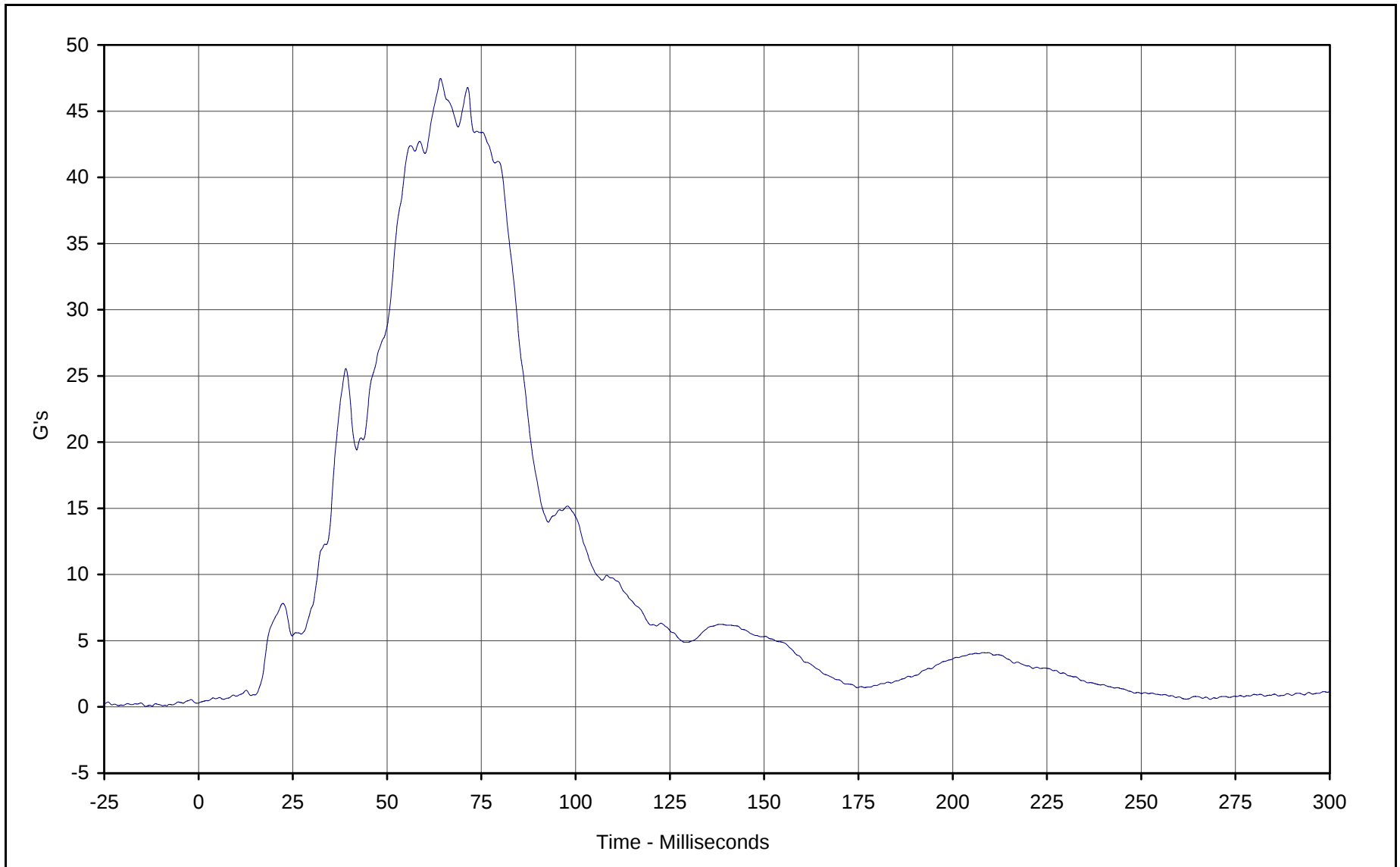
KAR21001-05



Curve Description: Passenger Chest Primary Z
Maximum Value: 8.7 at 56.3 Milliseconds
Minimum Value: -18.0 at 81.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-059

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

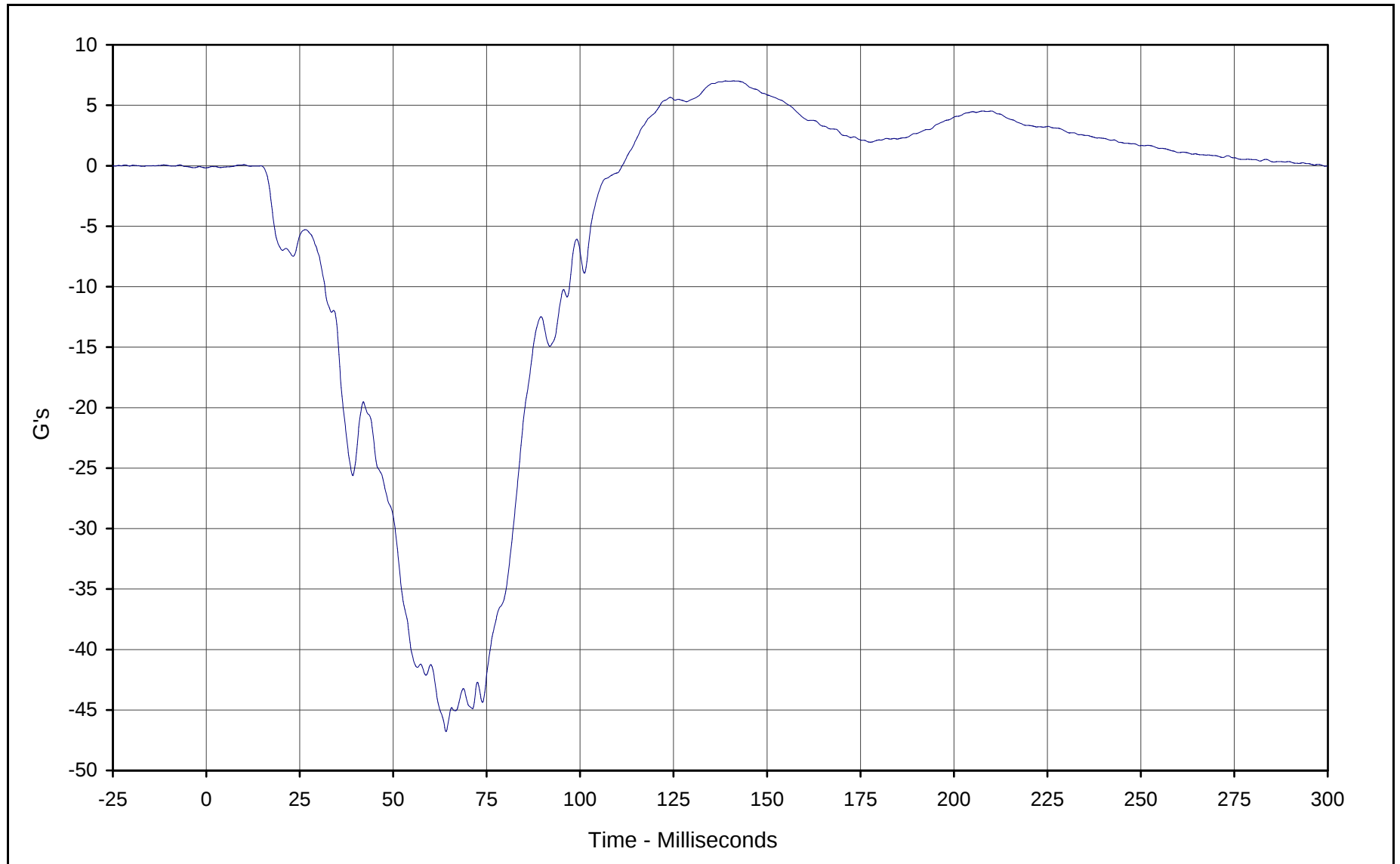




Curve Description: Passenger Chest Resultant Primary
Maximum Value: 47.5 at 64.2 Milliseconds
Minimum Value: 0.3 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: RES-057

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



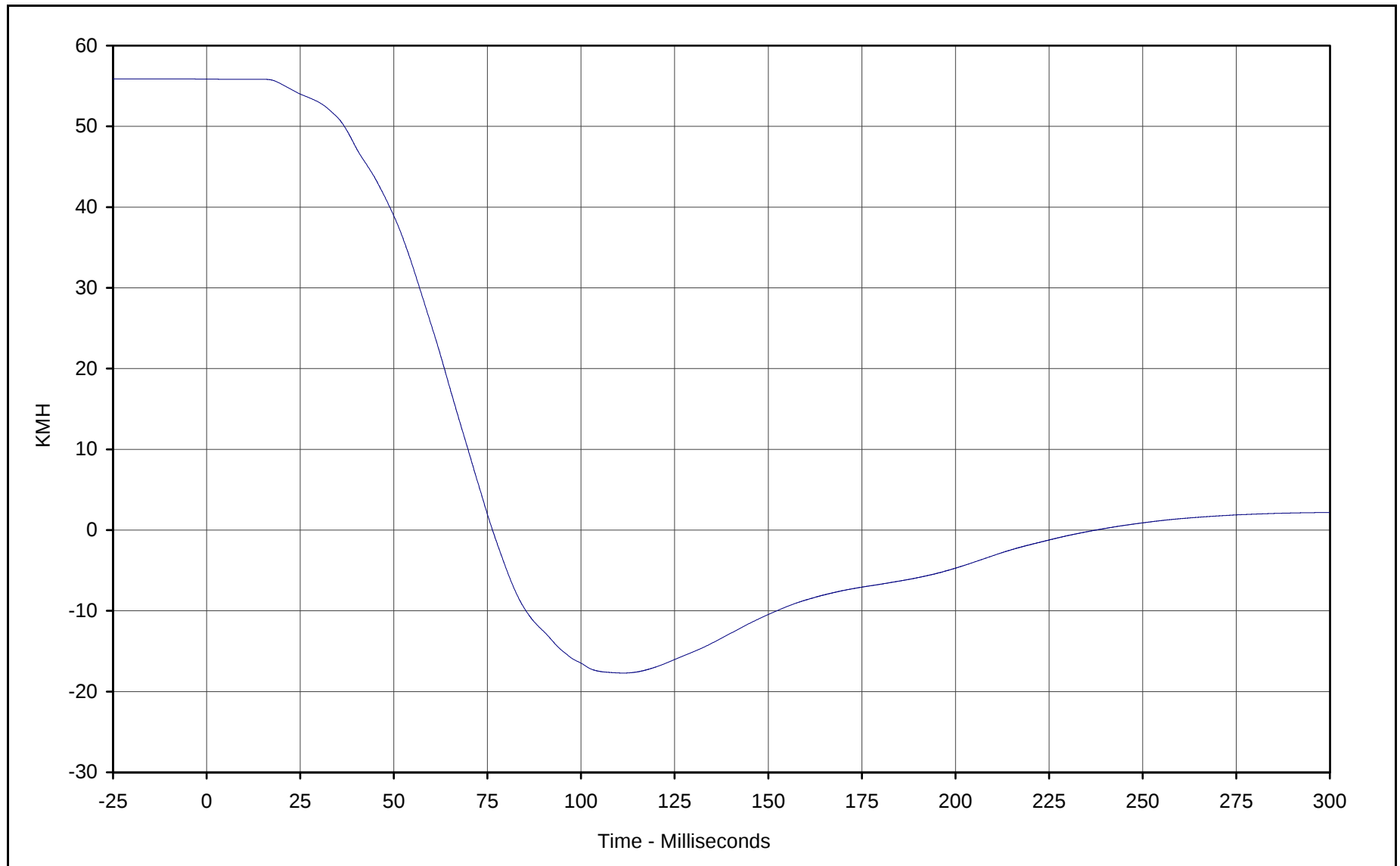


Curve Description: Passenger Chest Redundant X
Maximum Value: 7.0 at 141.0 Milliseconds
Minimum Value: -46.8 at 64.1 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-060

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Passenger Chest Redundant X Velocity

Maximum Value: 55.9 at 0.0 Milliseconds

Minimum Value: -17.7 at 111.3 Milliseconds

SAE Filter Class: 180

Date of Test: 01/16/01

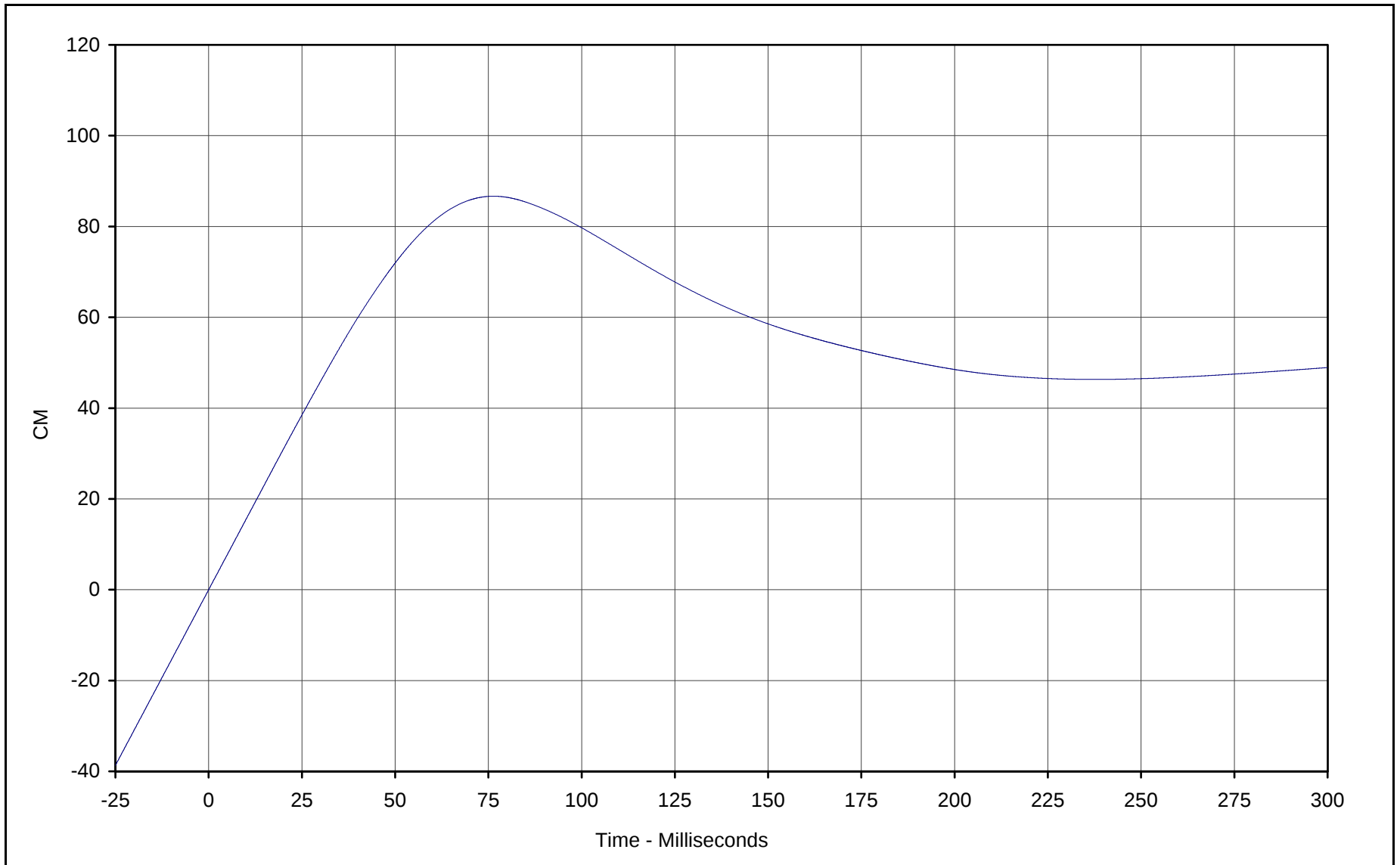
Curve Number: IN1-060

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Passenger Chest Redundant X Displ.

Maximum Value: 86.7 at 76.4 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 01/16/01

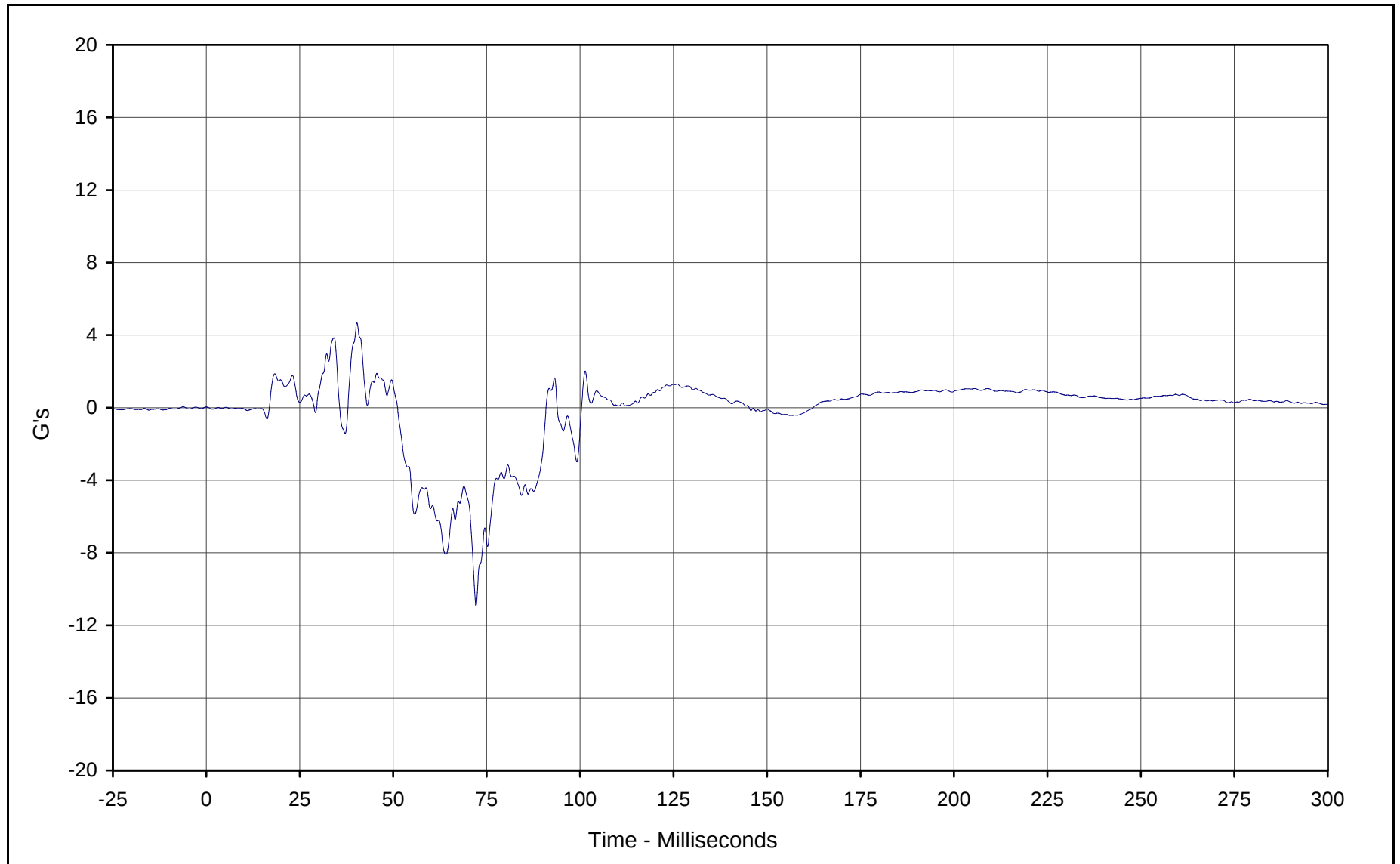
Curve Number: IN2-060

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



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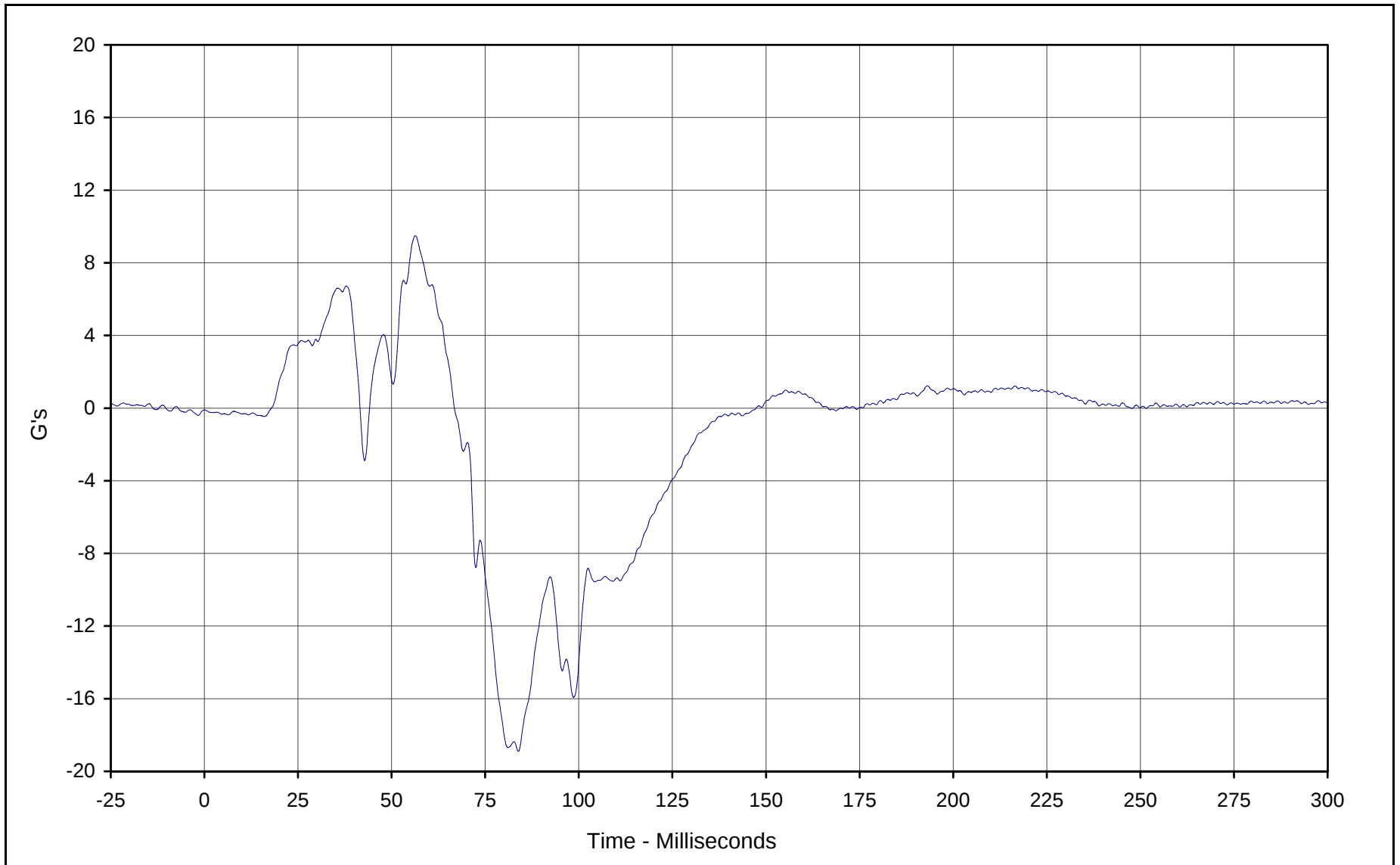
Curve Description: Passenger Chest Redundant Y
Maximum Value: 4.7 at 40.3 Milliseconds
Minimum Value: -10.9 at 72.2 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-061

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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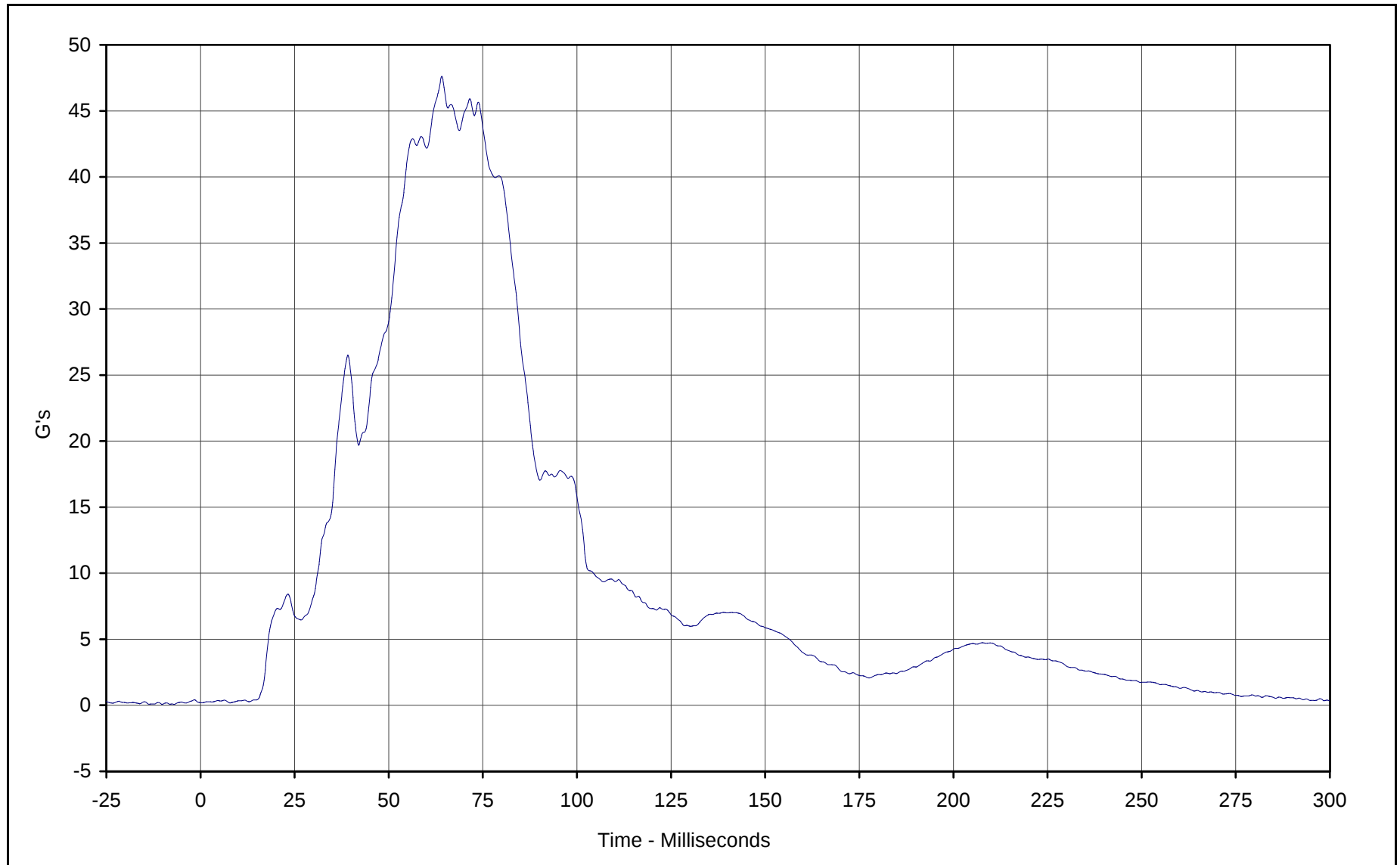


Curve Description: Passenger Chest Redundant Z
Maximum Value: 9.5 at 56.4 Milliseconds
Minimum Value: -18.9 at 83.9 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-062

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Passenger Chest Resultant Redundant

Maximum Value: 47.6 at 64.1 Milliseconds

Minimum Value: 0.2 at 7.8 Milliseconds

SAE Filter Class: 180

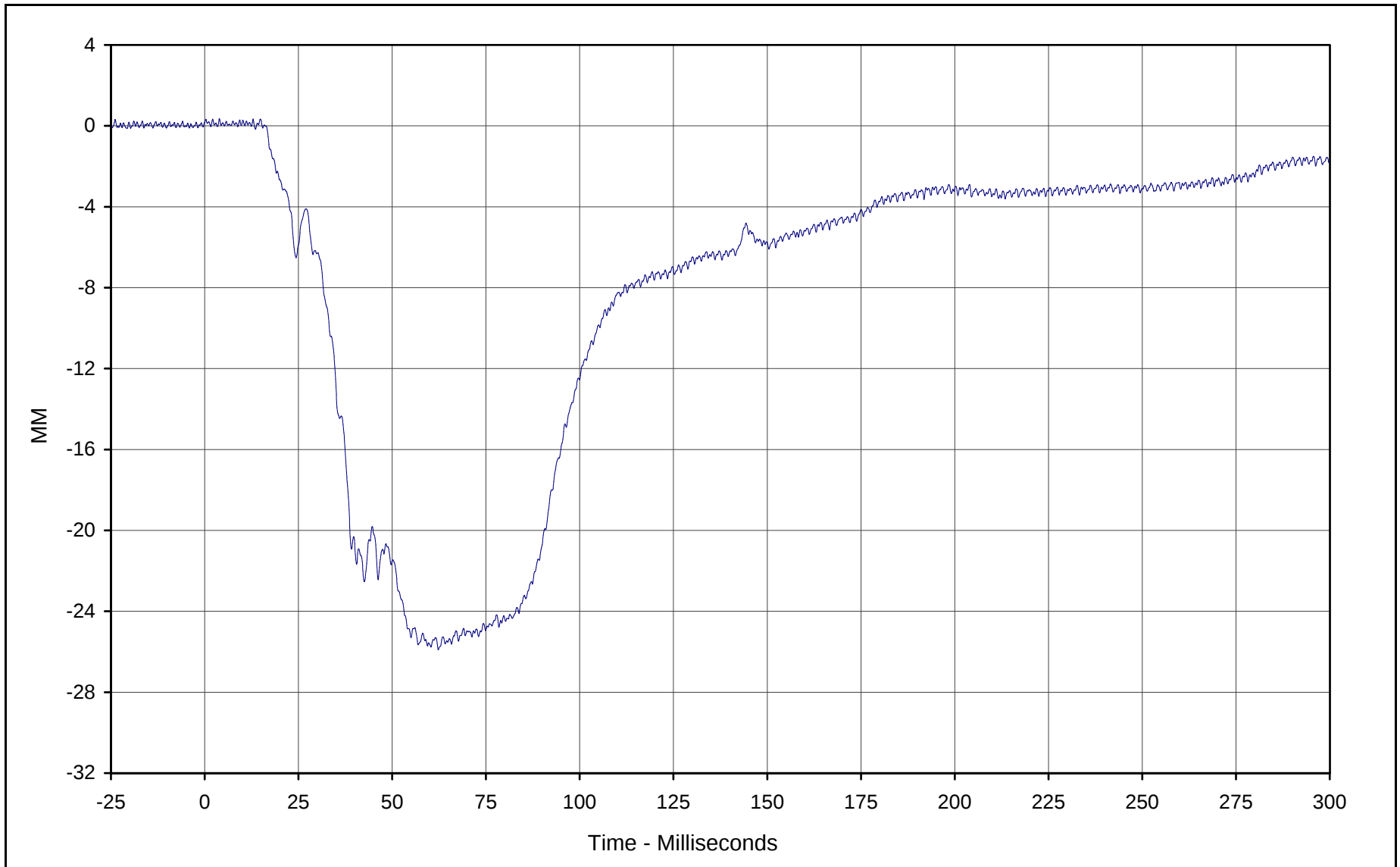
Date of Test: 01/16/01

Curve Number: RES-060

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



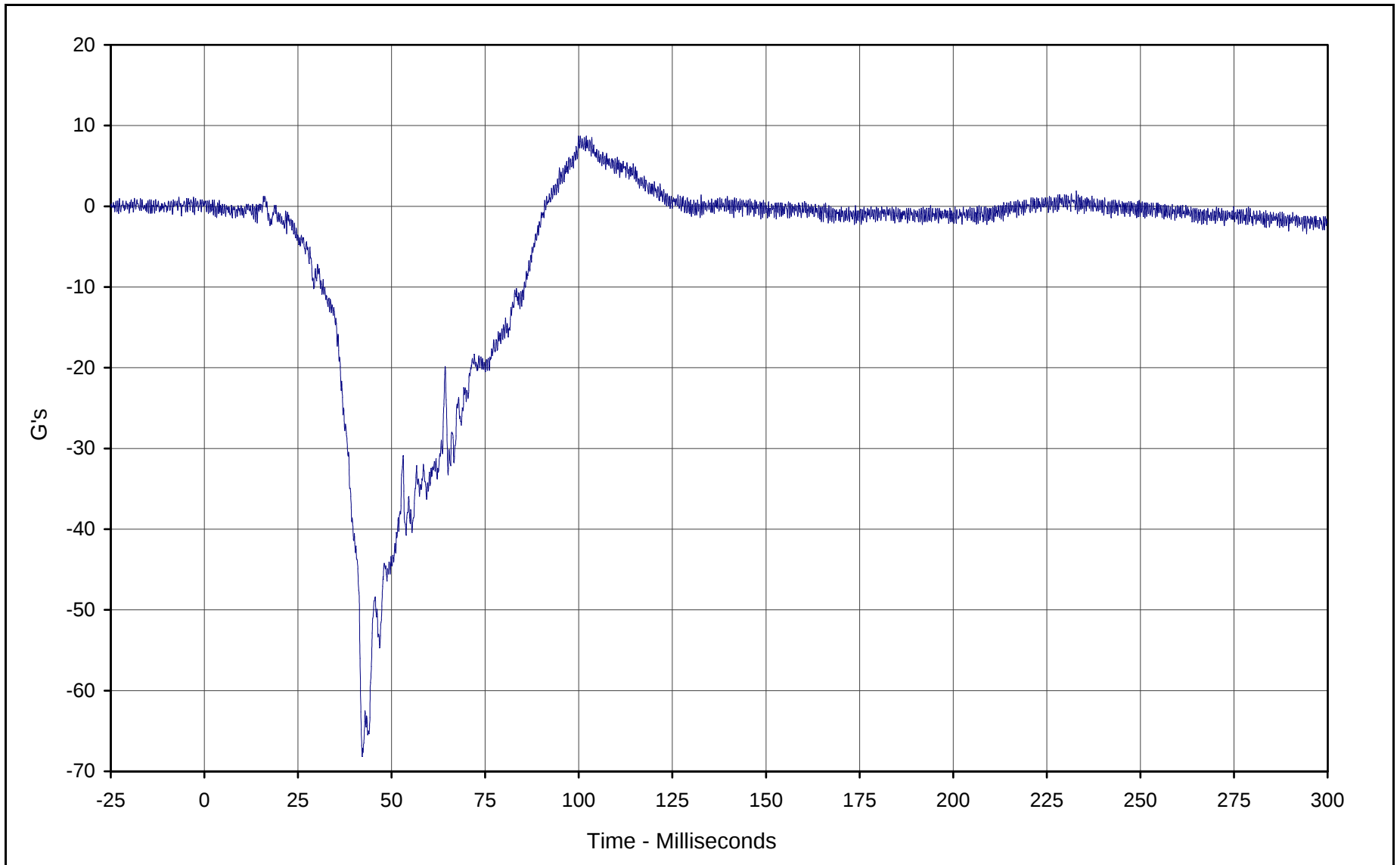


Curve Description: Passenger Chest Displacement X
Maximum Value: 0.4 at 3.9 Milliseconds
Minimum Value: -25.9 at 62.3 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-063

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Passenger Pelvis X

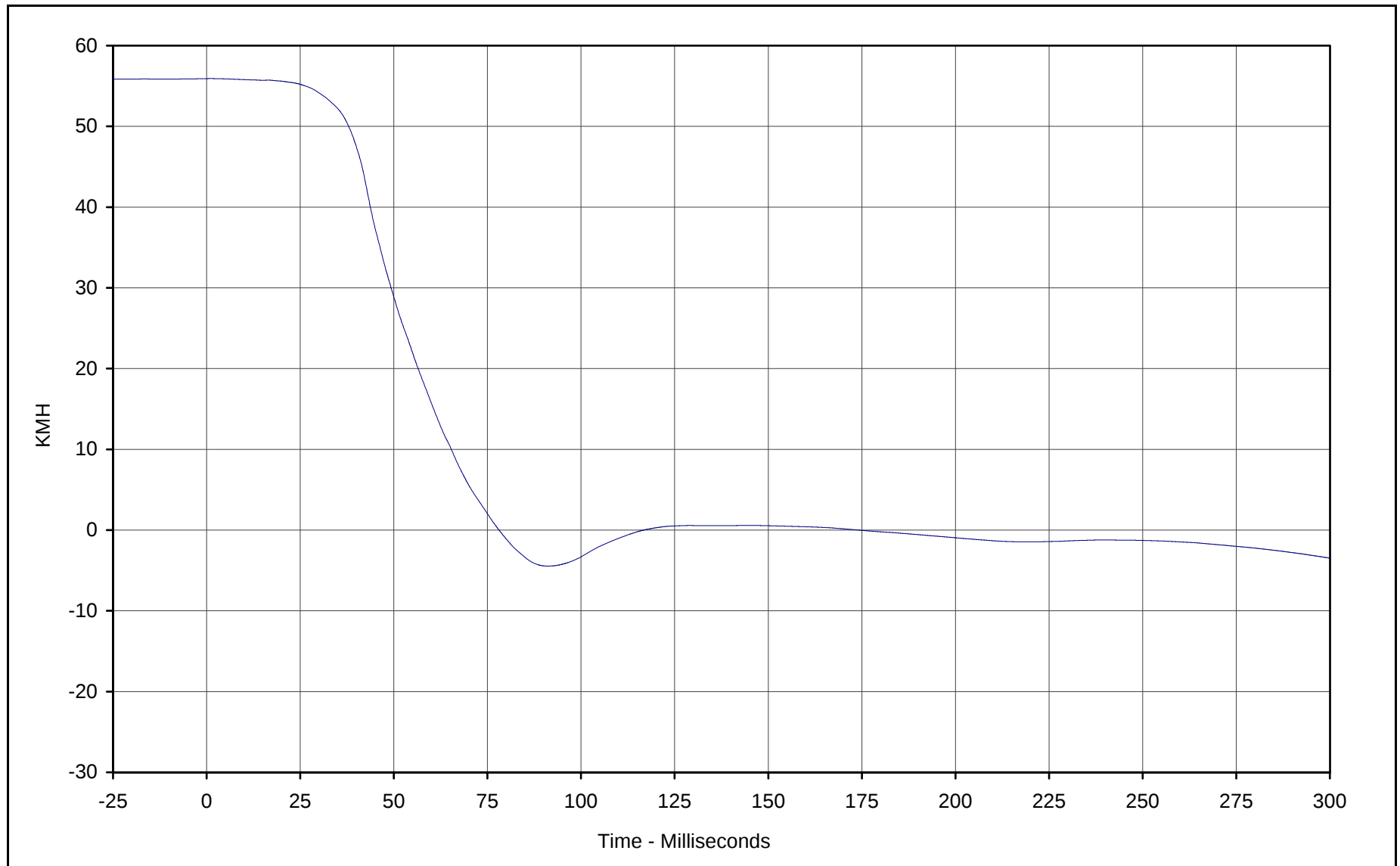
Maximum Value:	<u>8.7</u>	at	<u>99.9</u>	Milliseconds
Minimum Value:	<u>-68.1</u>	at	<u>42.2</u>	Milliseconds
SAE Filter Class:	<u>1000</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-064</u>			

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



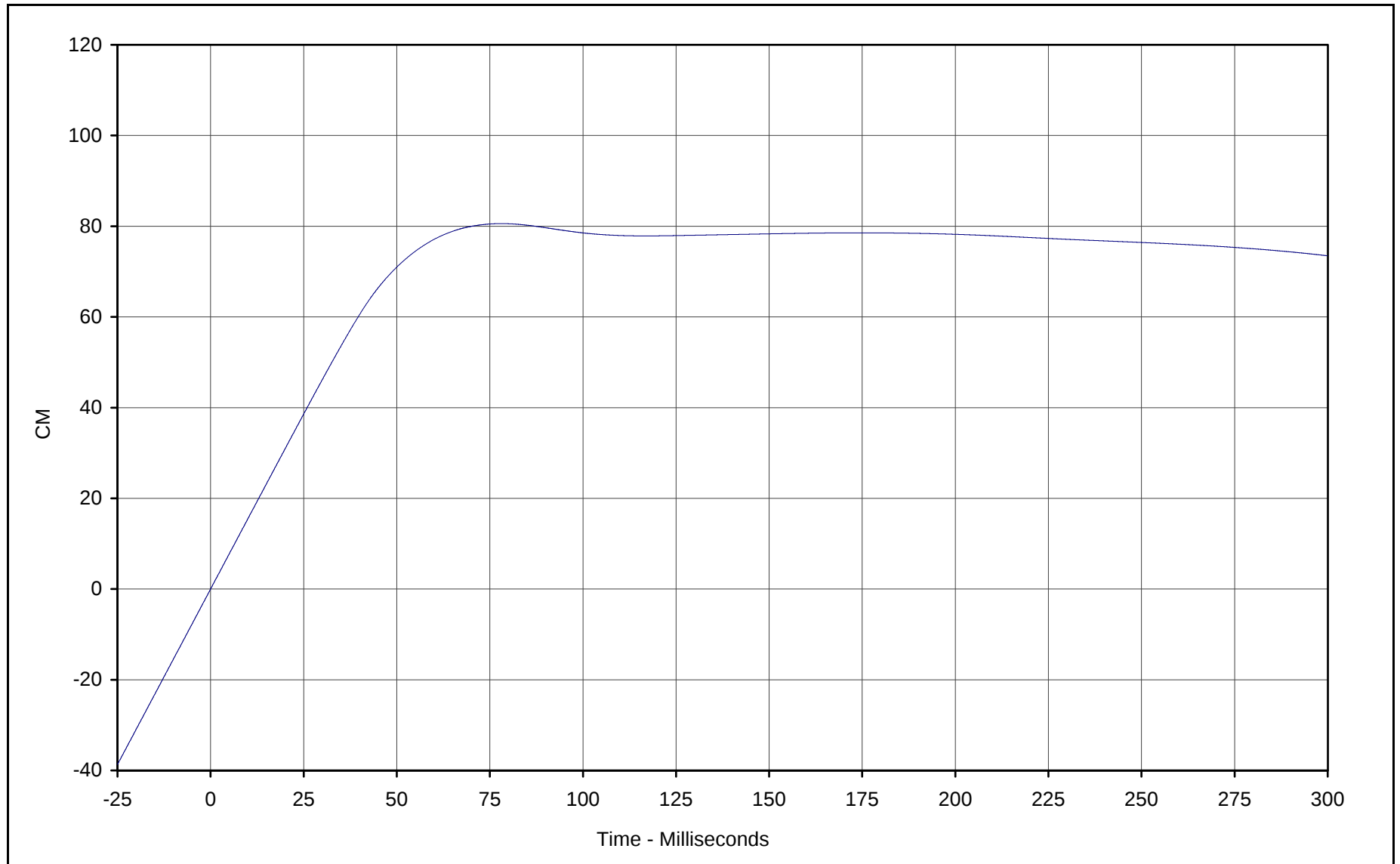
KAR21001-05



Curve Description: Passenger Pelvis X Velocity
Maximum Value: 55.9 at 1.1 Milliseconds
Minimum Value: -4.5 at 91.1 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-064

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



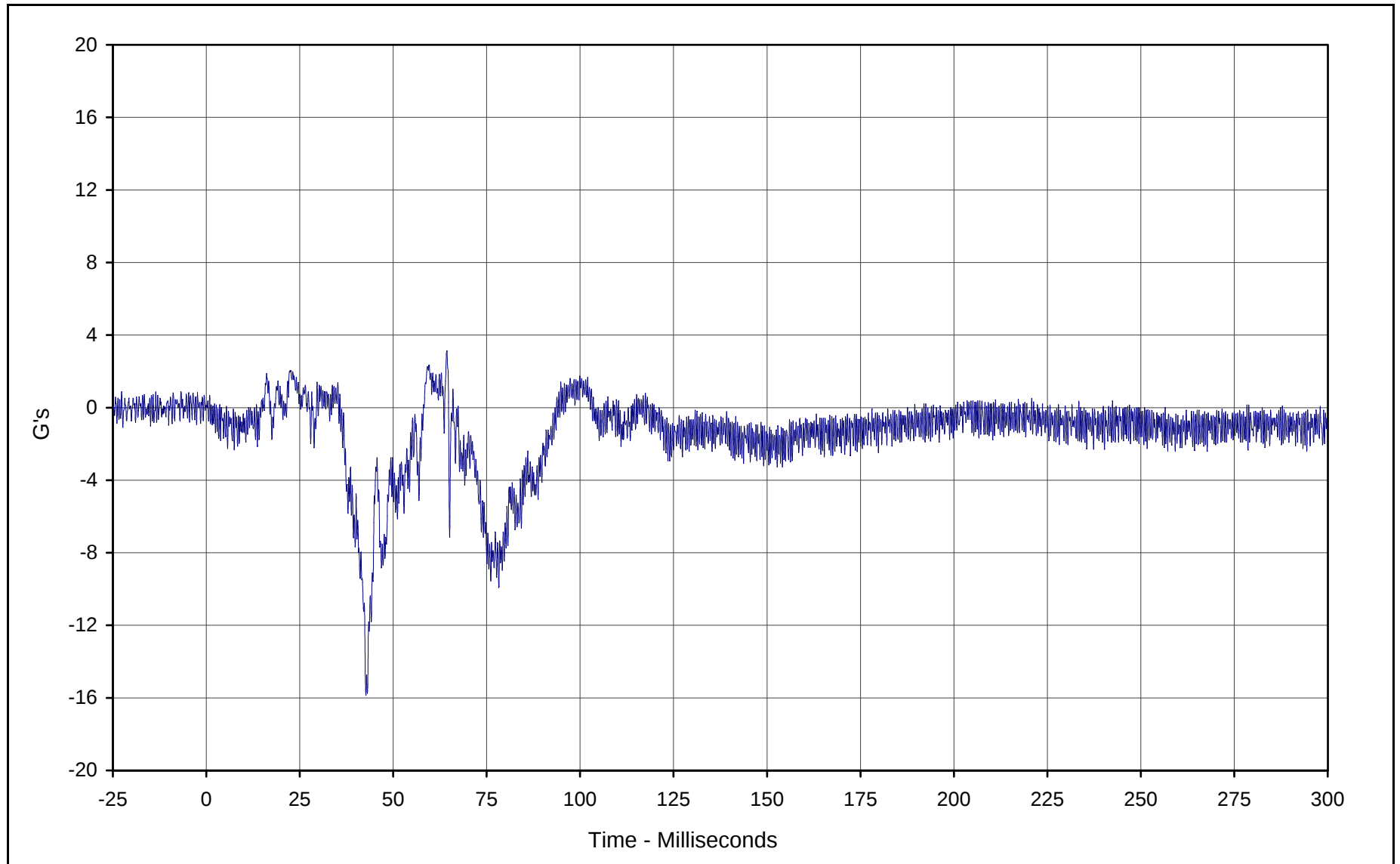


Curve Description: Passenger Pelvis X Displ.
Maximum Value: 80.6 at 78.1 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-064

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



B-98



Curve Description: Passenger Pelvis Y

Maximum Value: 3.1 at 64.3 Milliseconds

Minimum Value: -15.8 at 42.7 Milliseconds

SAE Filter Class: 1000

Date of Test: 01/16/01

Curve Number: FIL-065

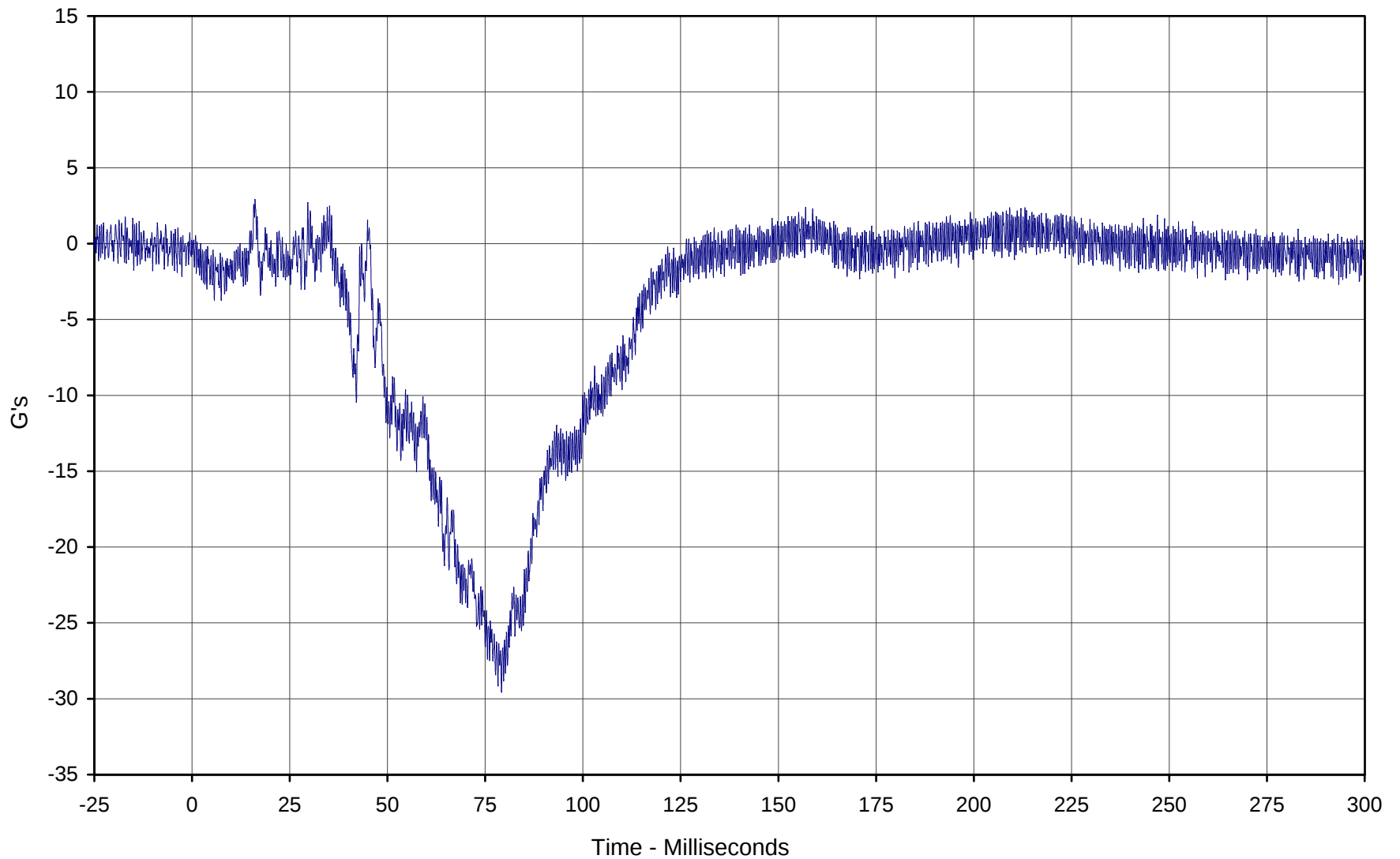
Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Passenger Pelvis Z

Maximum Value: 2.9 at 16.1 Milliseconds

Minimum Value: -29.6 at 79.2 Milliseconds

SAE Filter Class: 1000

Date of Test: 01/16/01

Curve Number: FIL-066

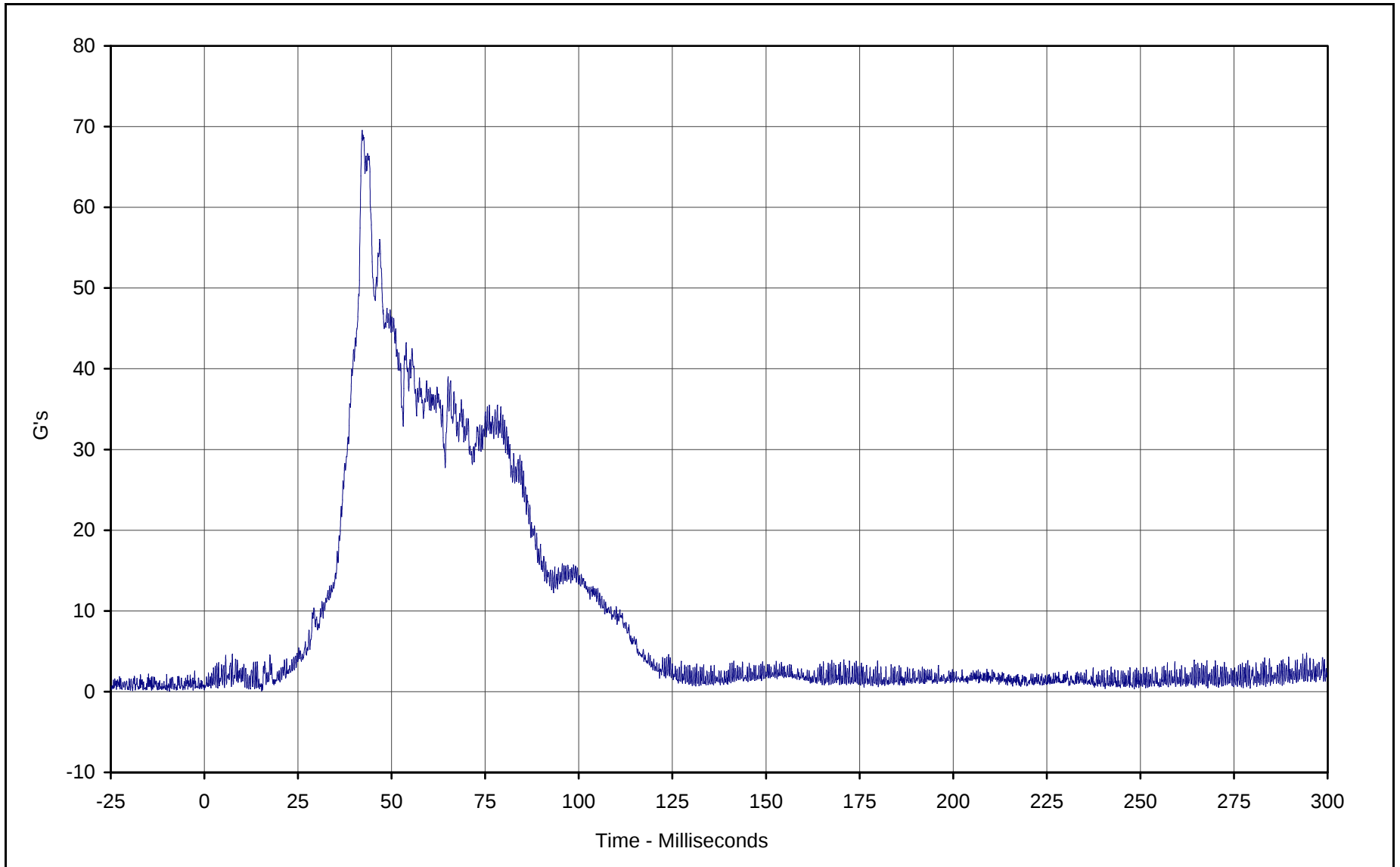
Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



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B-100

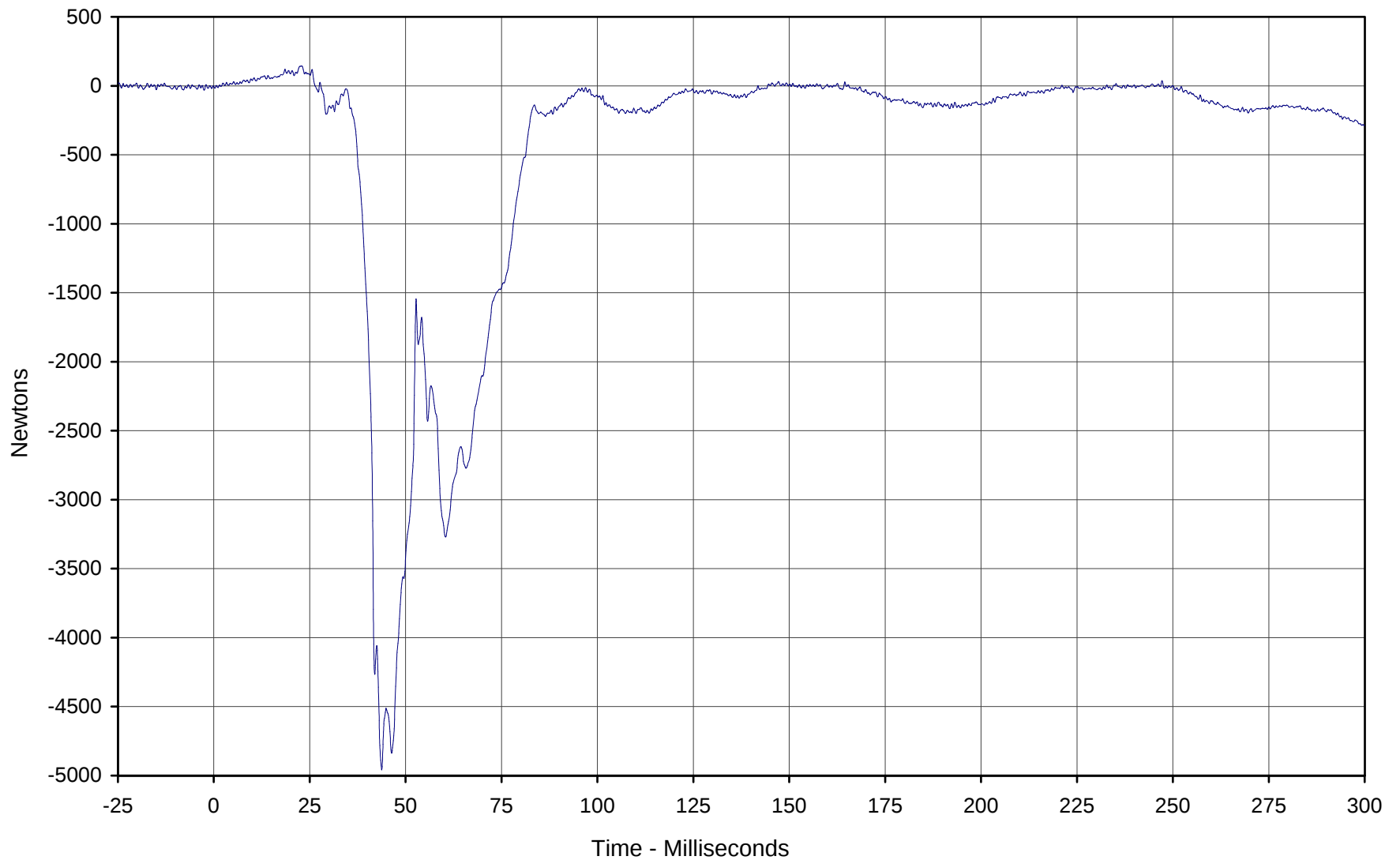


Curve Description: Passenger Pelvis Resultant
Maximum Value: 69.5 at 42.2 Milliseconds
Minimum Value: 0.1 at 15.3 Milliseconds
SAE Filter Class: 1000
Date of Test: 01/16/01
Curve Number: RES-064

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



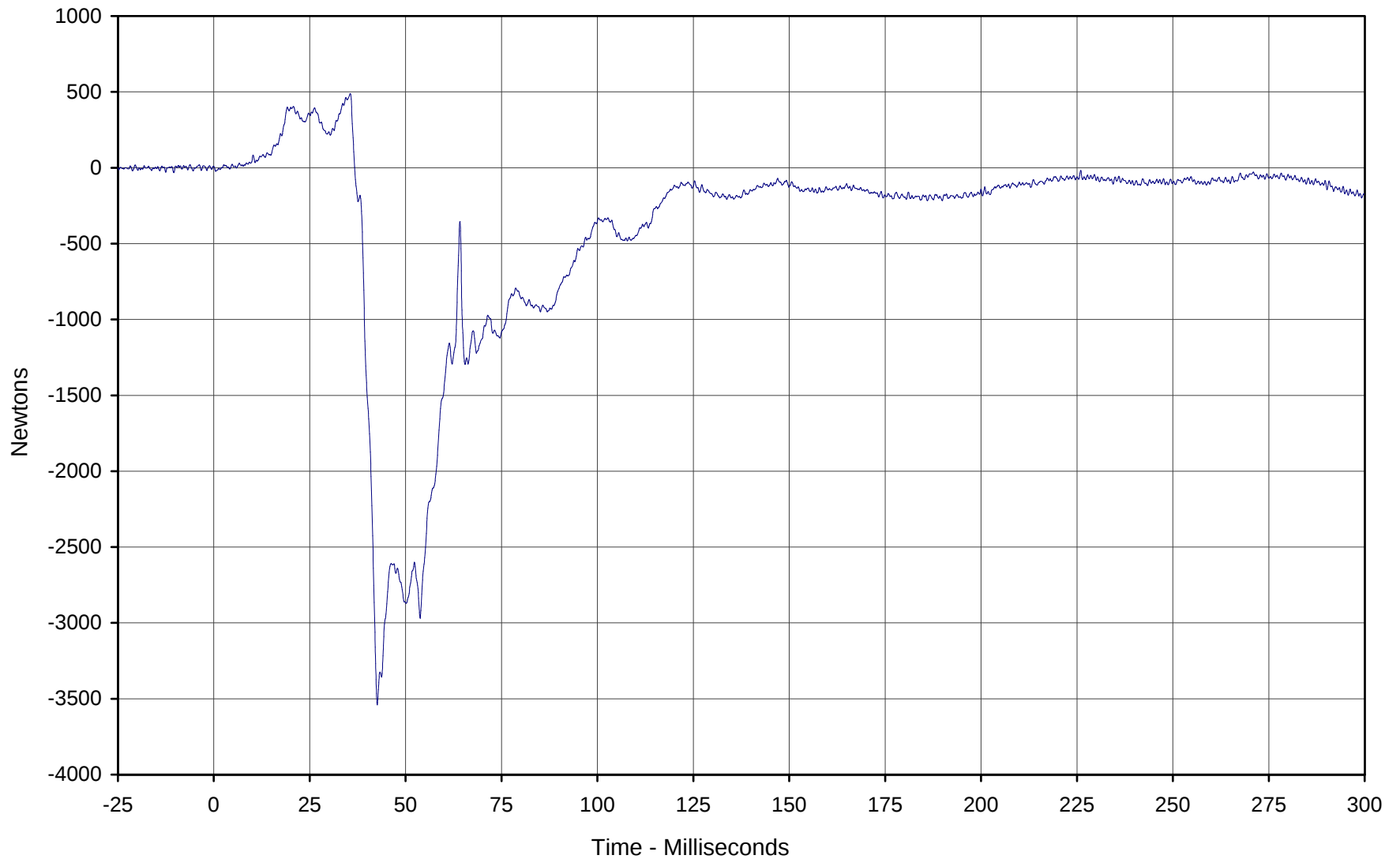
KAR21001-05



Curve Description: Passenger Left Femur Force
Maximum Value: 144.9 at 22.9 Milliseconds
Minimum Value: -4959.5 at 43.8 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-067

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

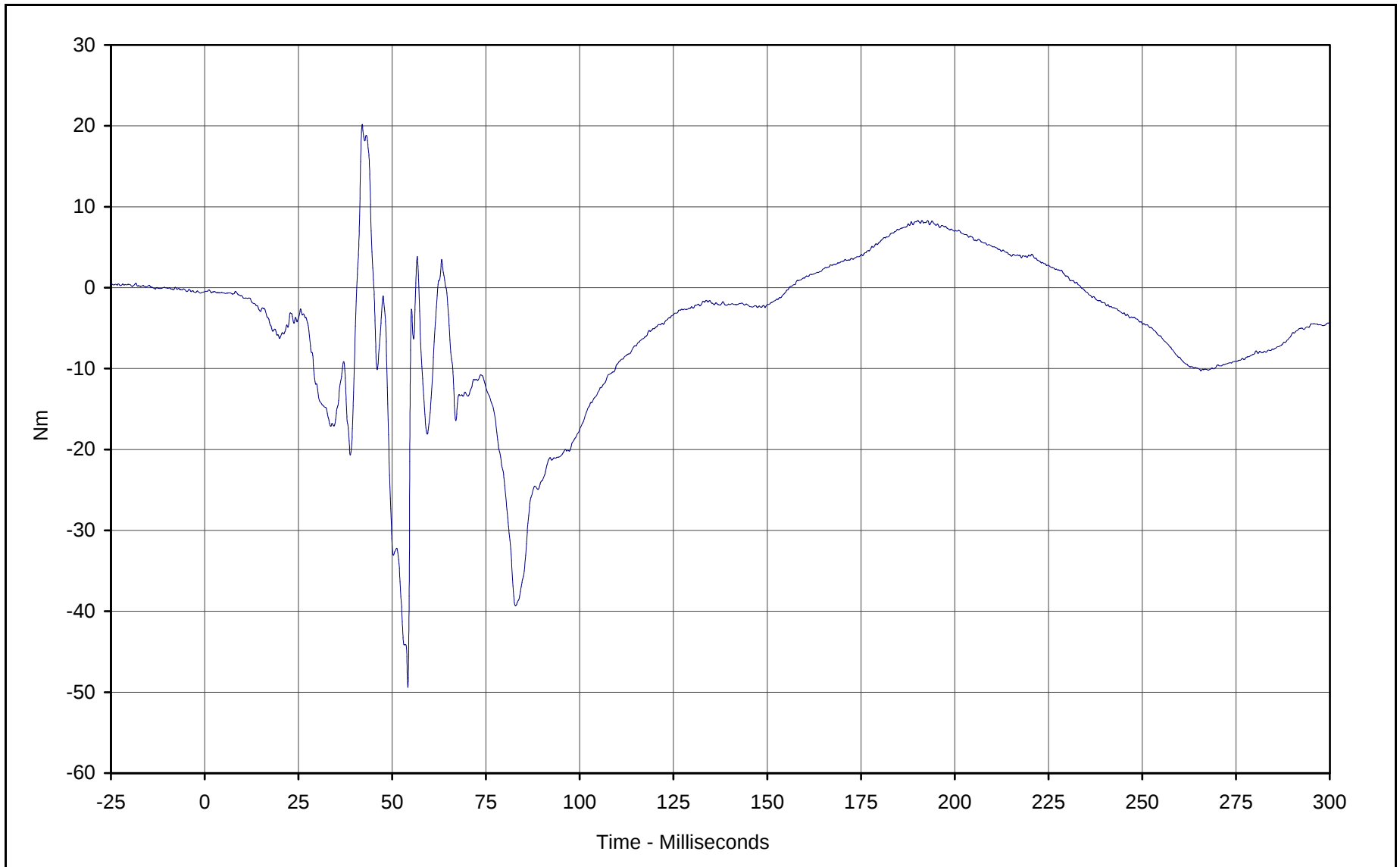




Curve Description: Passenger Right Femur Force
Maximum Value: 489.5 at 35.6 Milliseconds
Minimum Value: -3541.3 at 42.6 Milliseconds
SAE Filter Class: 600
Date of Test: 01/16/01
Curve Number: FIL-068

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Left Upper Tibia Moment X

Maximum Value: 20.2 at 42.0 Milliseconds

Minimum Value: -49.4 at 54.2 Milliseconds

SAE Filter Class: 600

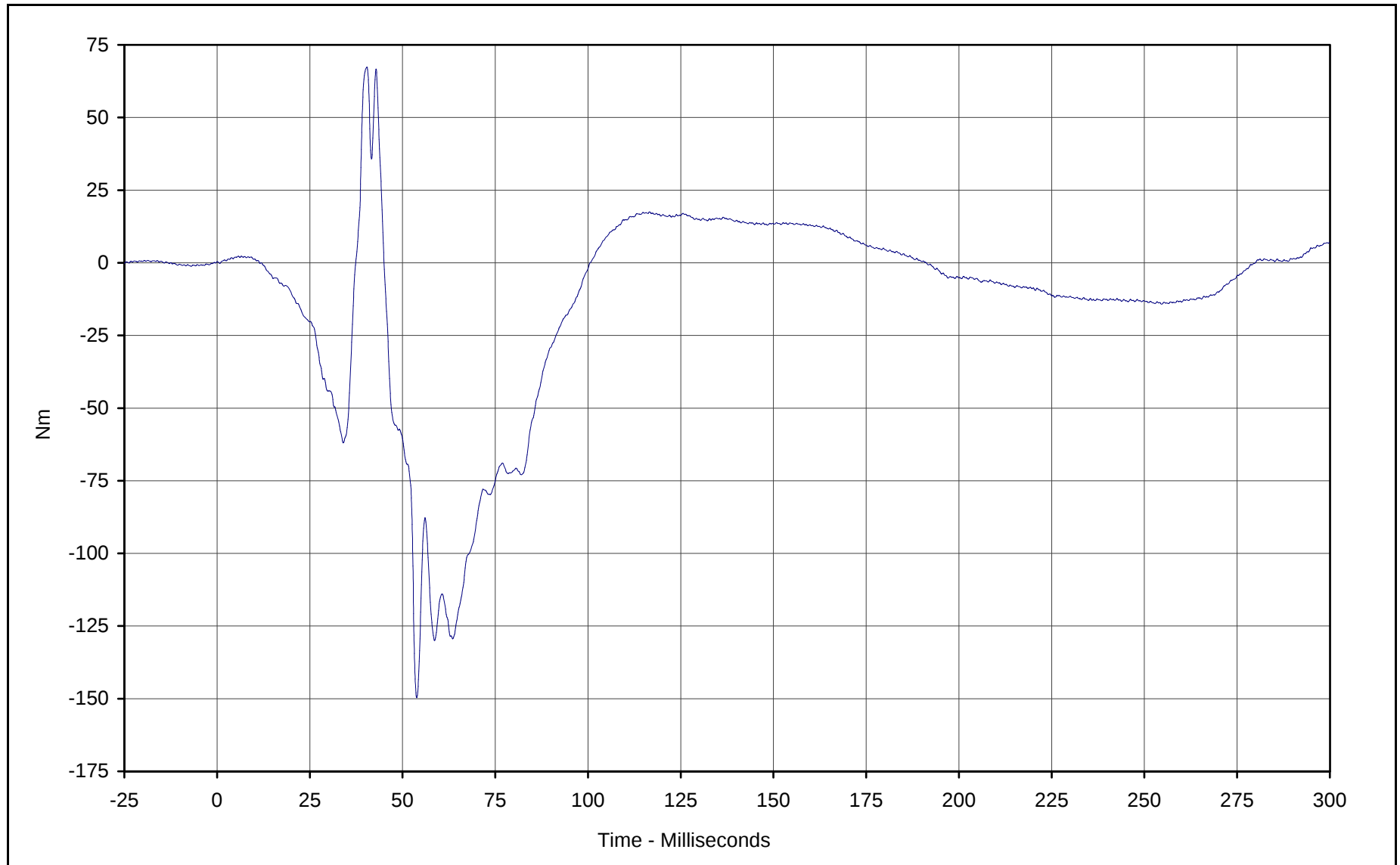
Date of Test: 01/16/01

Curve Number: FIL-069

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Left Upper Tibia Moment Y

Maximum Value: 67.3 at 40.4 Milliseconds

Minimum Value: -149.7 at 53.8 Milliseconds

SAE Filter Class: 600

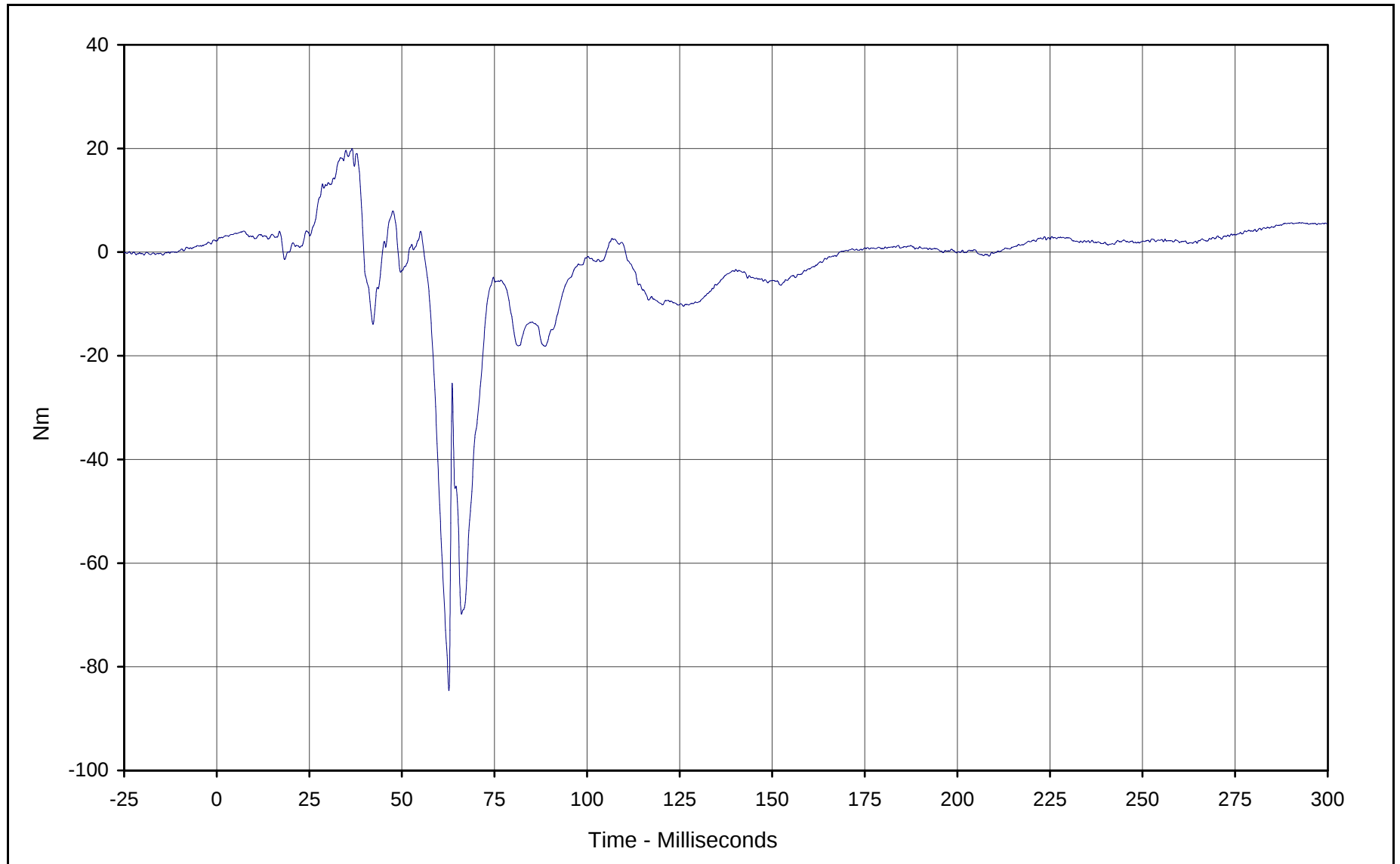
Date of Test: 01/16/01

Curve Number: FIL-070

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Right Upper Tibia Moment X

Maximum Value: 20.0 at 36.6 Milliseconds

Minimum Value: -84.6 at 62.7 Milliseconds

SAE Filter Class: 600

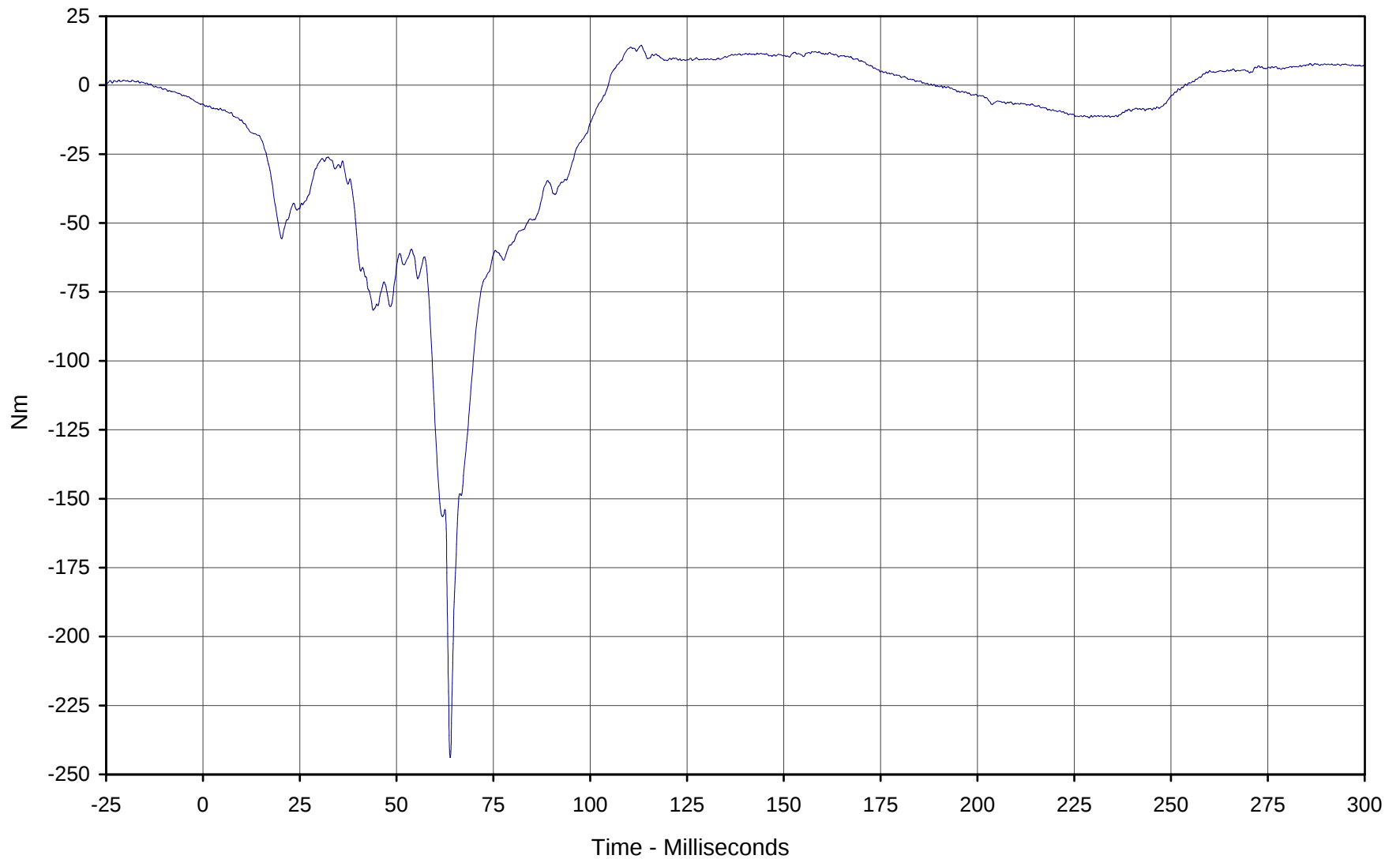
Date of Test: 01/16/01

Curve Number: FIL-071

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Right Upper Tibia Moment Y

Maximum Value: 14.5 at 113.2 Milliseconds

Minimum Value: -243.9 at 63.9 Milliseconds

SAE Filter Class: 600

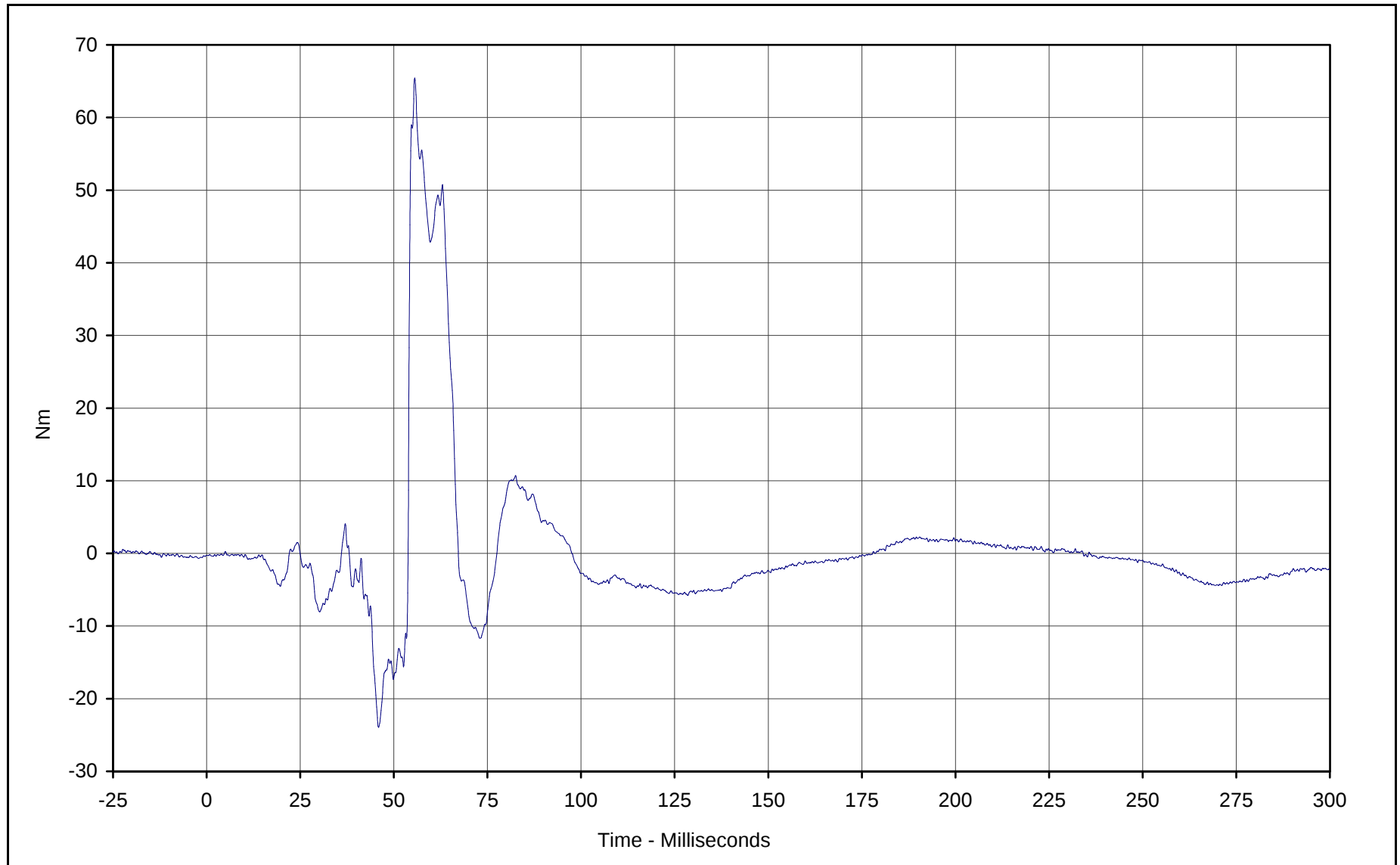
Date of Test: 01/16/01

Curve Number: FIL-072

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Left Lower Tibia Moment X

Maximum Value: 65.4 at 55.6 Milliseconds

Minimum Value: -24.0 at 45.9 Milliseconds

SAE Filter Class: 600

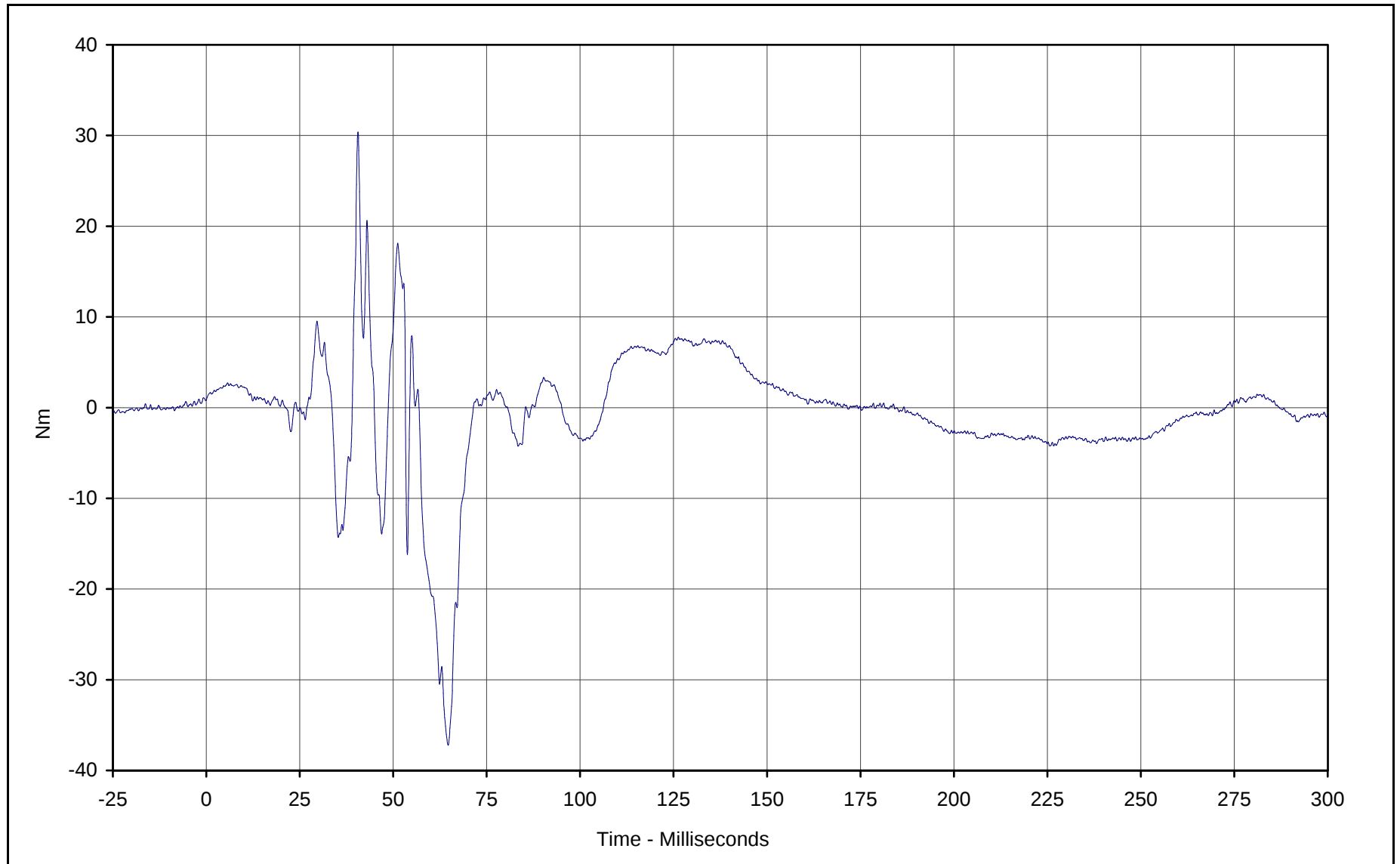
Date of Test: 01/16/01

Curve Number: FIL-073

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Left Lower Tibia Moment Y

Maximum Value: 30.4 at 40.6 Milliseconds

Minimum Value: -37.2 at 64.7 Milliseconds

SAE Filter Class: 600

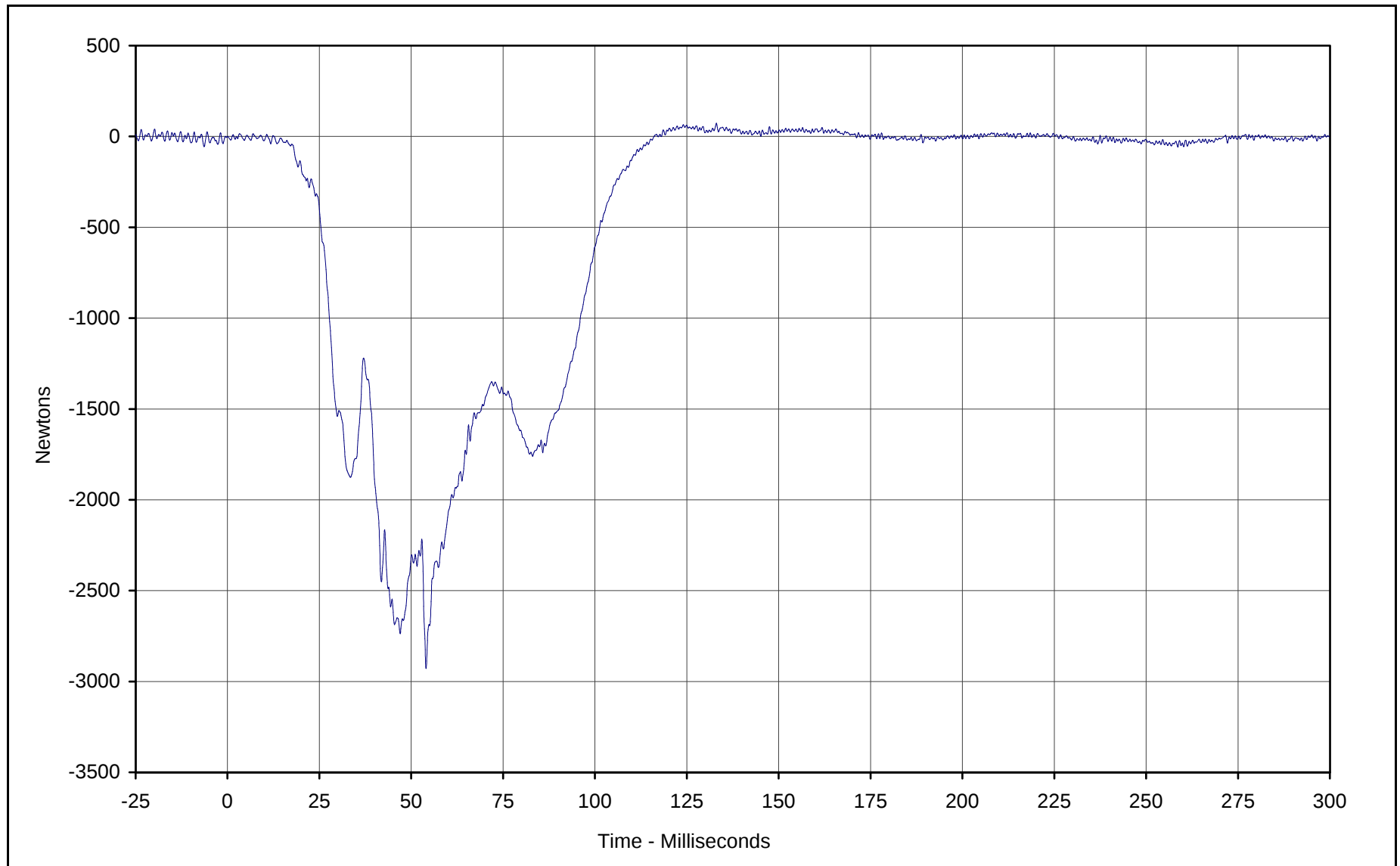
Date of Test: 01/16/01

Curve Number: FIL-074

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Left Lower Tibia Force Z

Maximum Value: 72.6 at 133.0 Milliseconds

Minimum Value: -2927.8 at 54.1 Milliseconds

SAE Filter Class: 600

Date of Test: 01/16/01

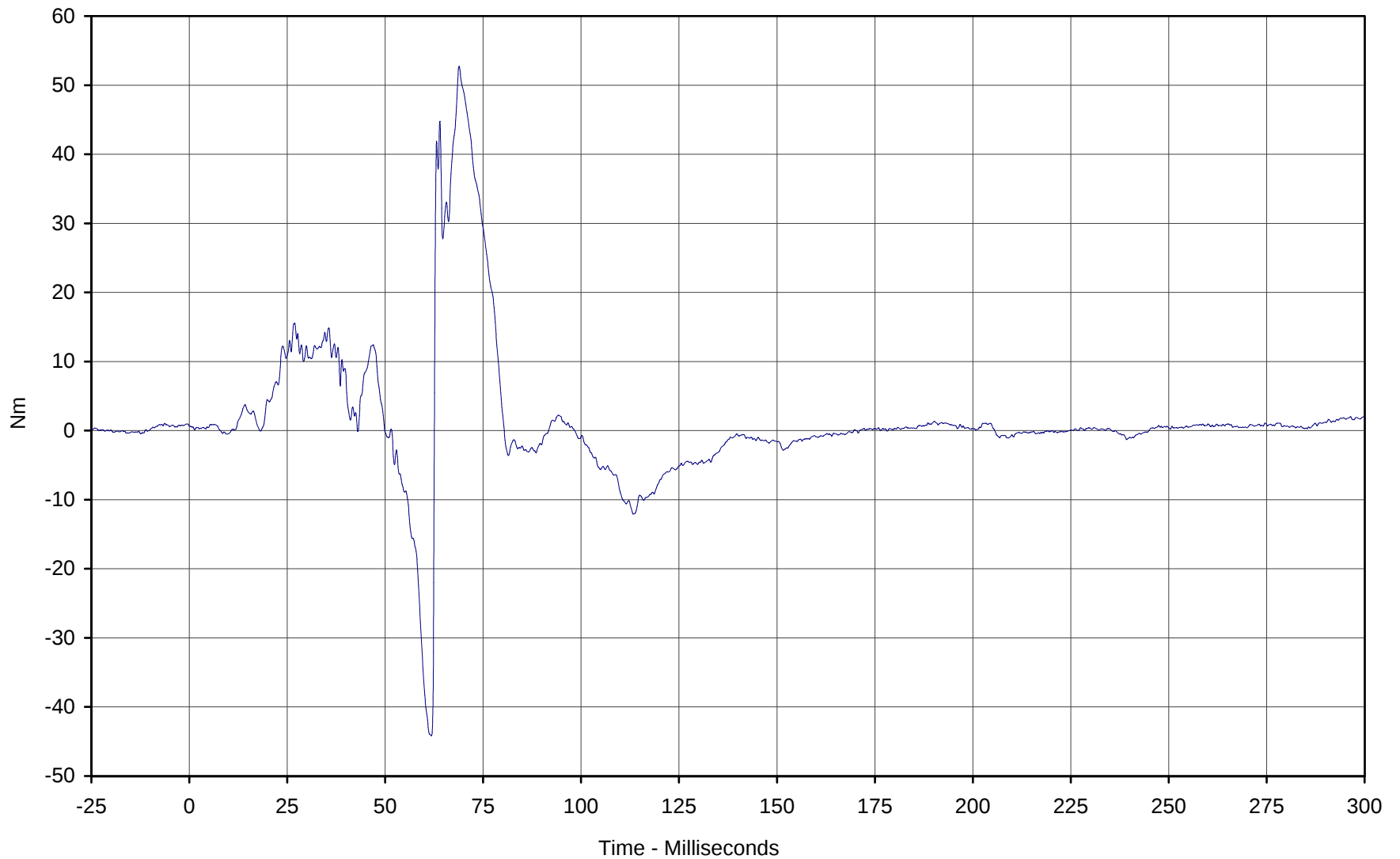
Curve Number: FIL-075

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Passenger Right Lower Tibia Moment X

Maximum Value: 52.7 at 68.9 Milliseconds

Minimum Value: -44.2 at 61.8 Milliseconds

SAE Filter Class: 600

Date of Test: 01/16/01

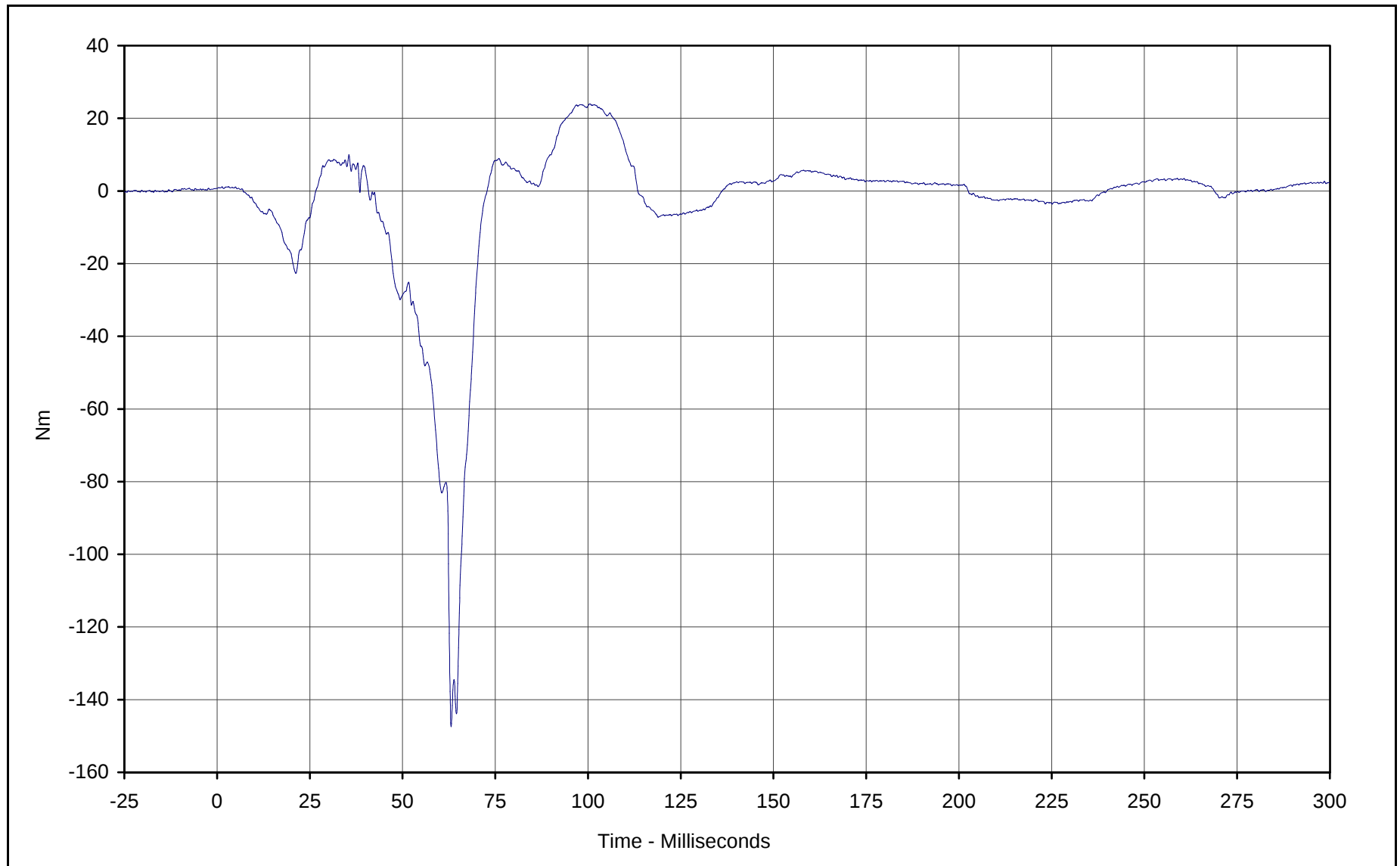
Curve Number: FIL-076

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Passenger Right Lower Tibia Moment Y

Maximum Value: 24.0 at 100.5 Milliseconds

Minimum Value: -147.5 at 63.1 Milliseconds

SAE Filter Class: 600

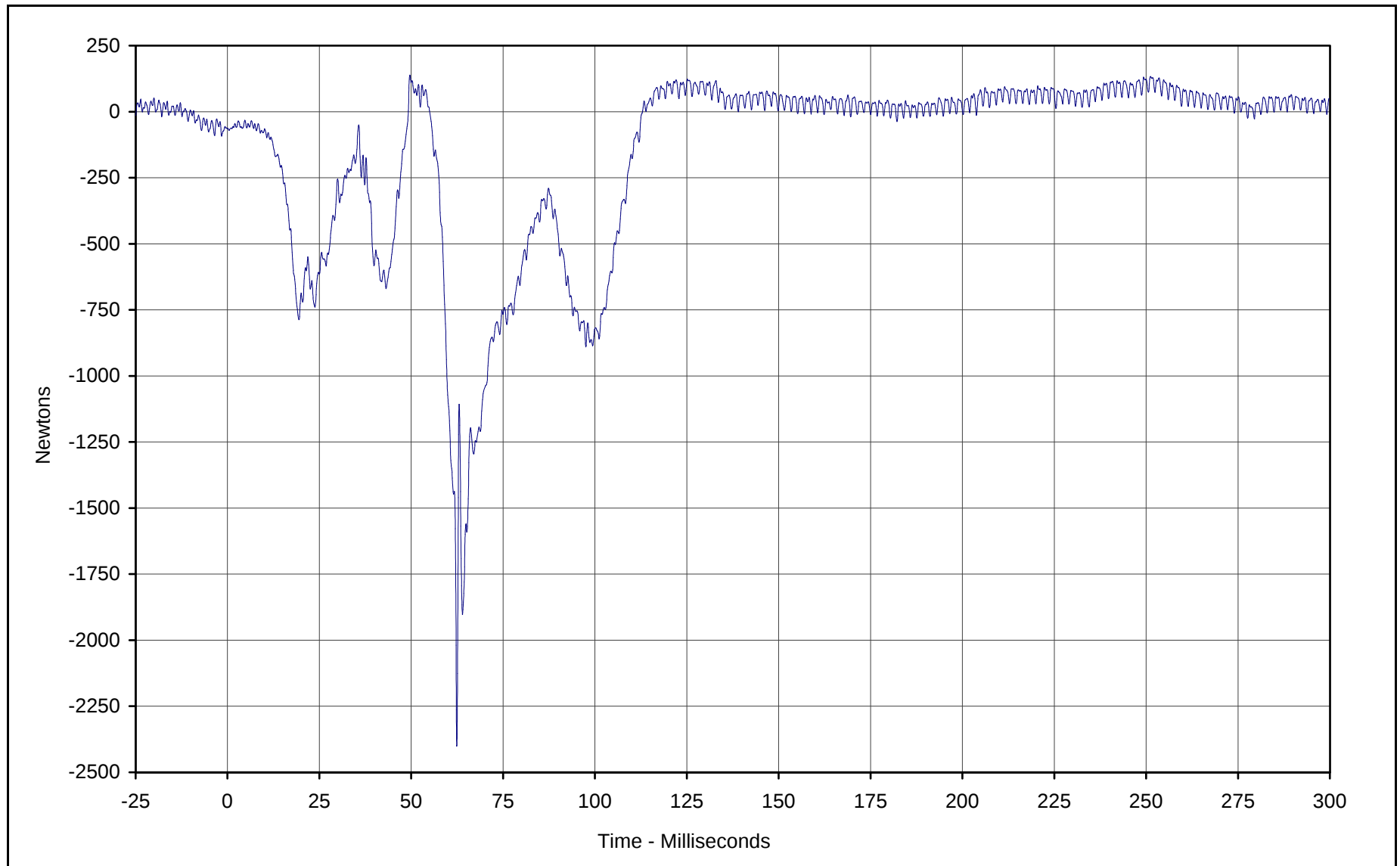
Date of Test: 01/16/01

Curve Number: FIL-077

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Passenger Right lower Tibia Force Z

Maximum Value: 138.3 at 49.6 Milliseconds

Minimum Value: -2399.0 at 62.4 Milliseconds

SAE Filter Class: 600

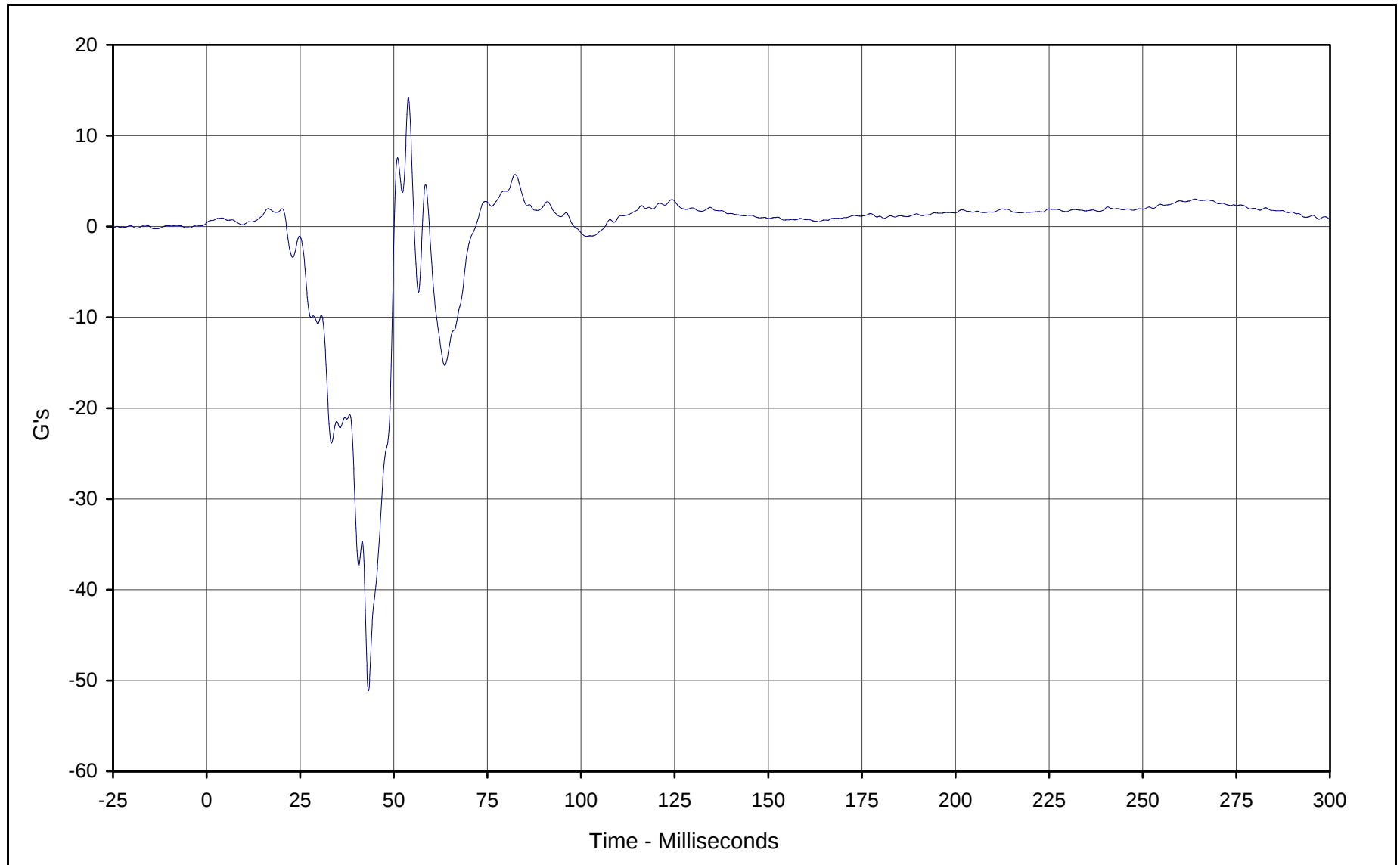
Date of Test: 01/16/01

Curve Number: FIL-078

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van

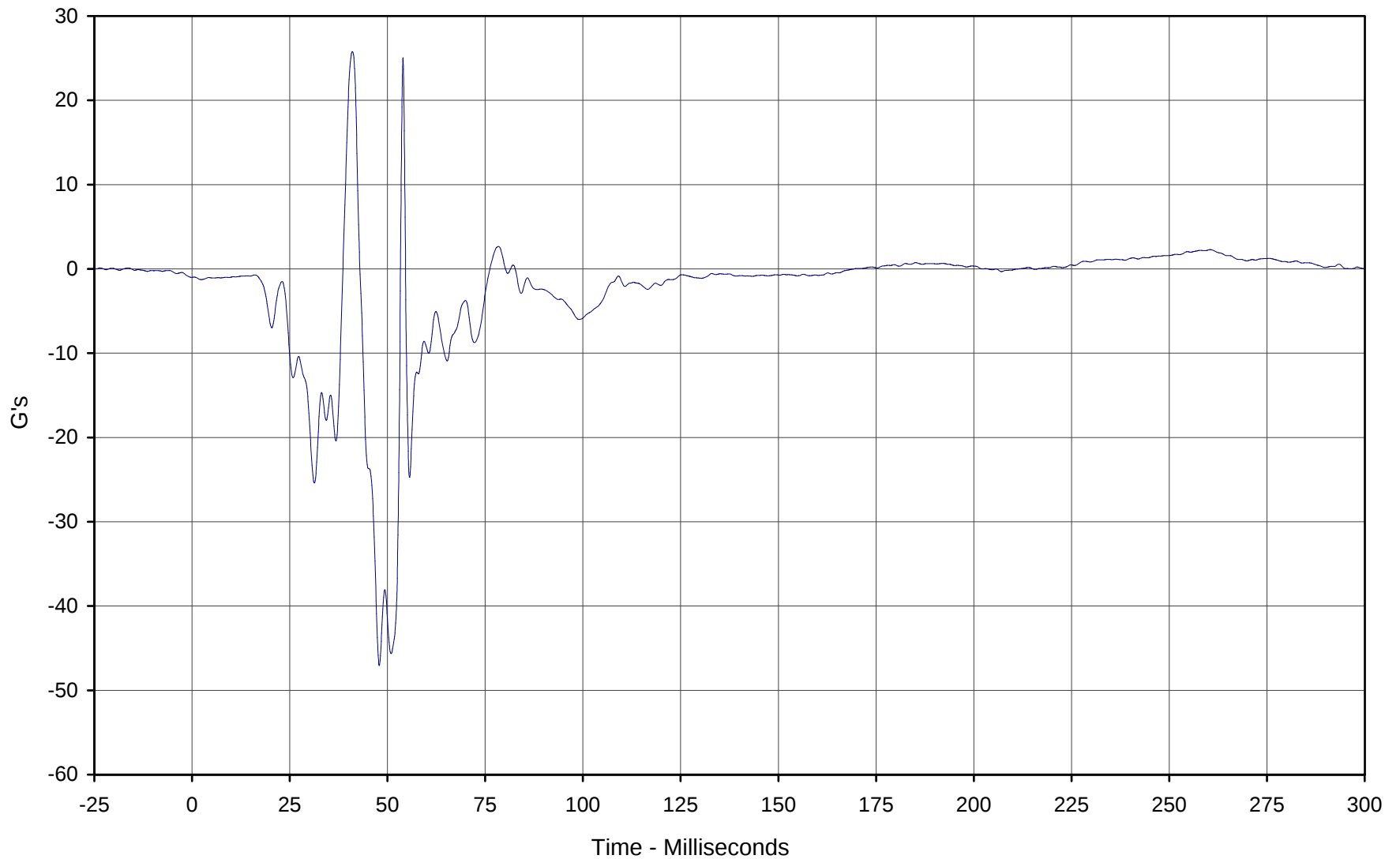




Curve Description: Passenger Left Foot Aft X
Maximum Value: 14.2 at 53.9 Milliseconds
Minimum Value: -51.1 at 43.2 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-079

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

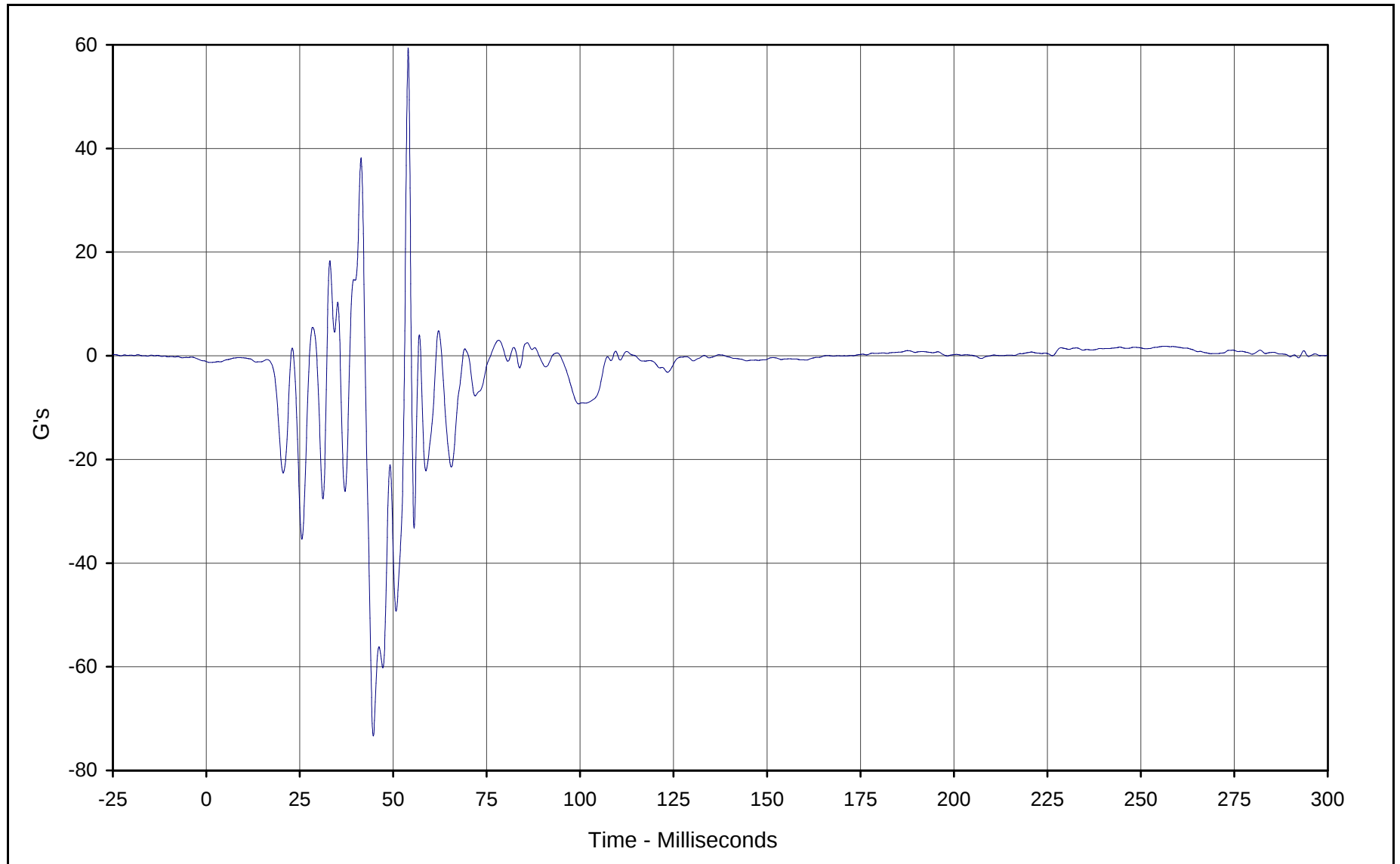




Curve Description: Passenger Left Foot Aft Z
Maximum Value: 25.8 at 41.0 Milliseconds
Minimum Value: -47.1 at 47.9 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-080

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

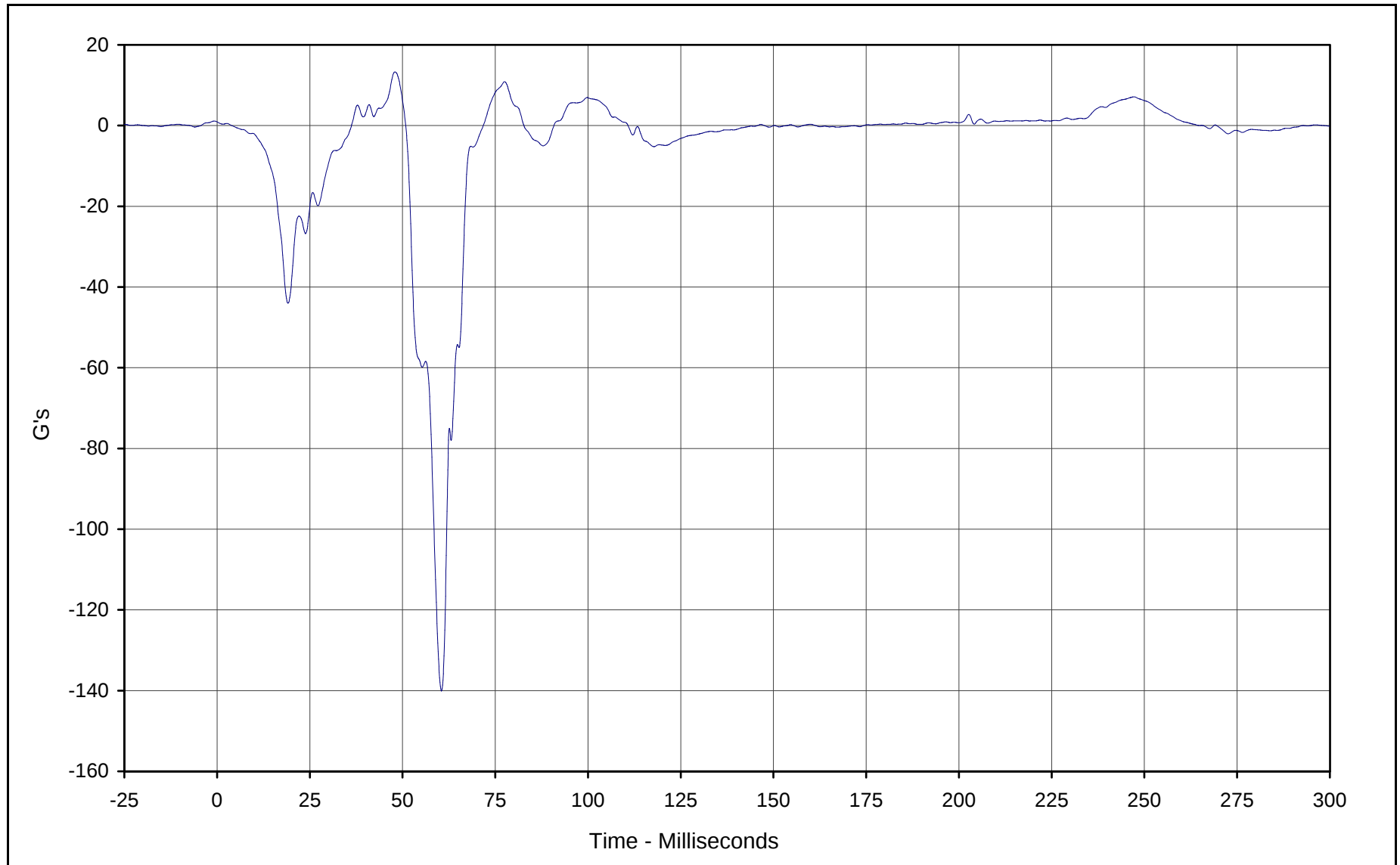




Curve Description: Passenger Left Foot Fore Z
Maximum Value: 59.4 at 54.0 Milliseconds
Minimum Value: -73.4 at 44.7 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-081

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

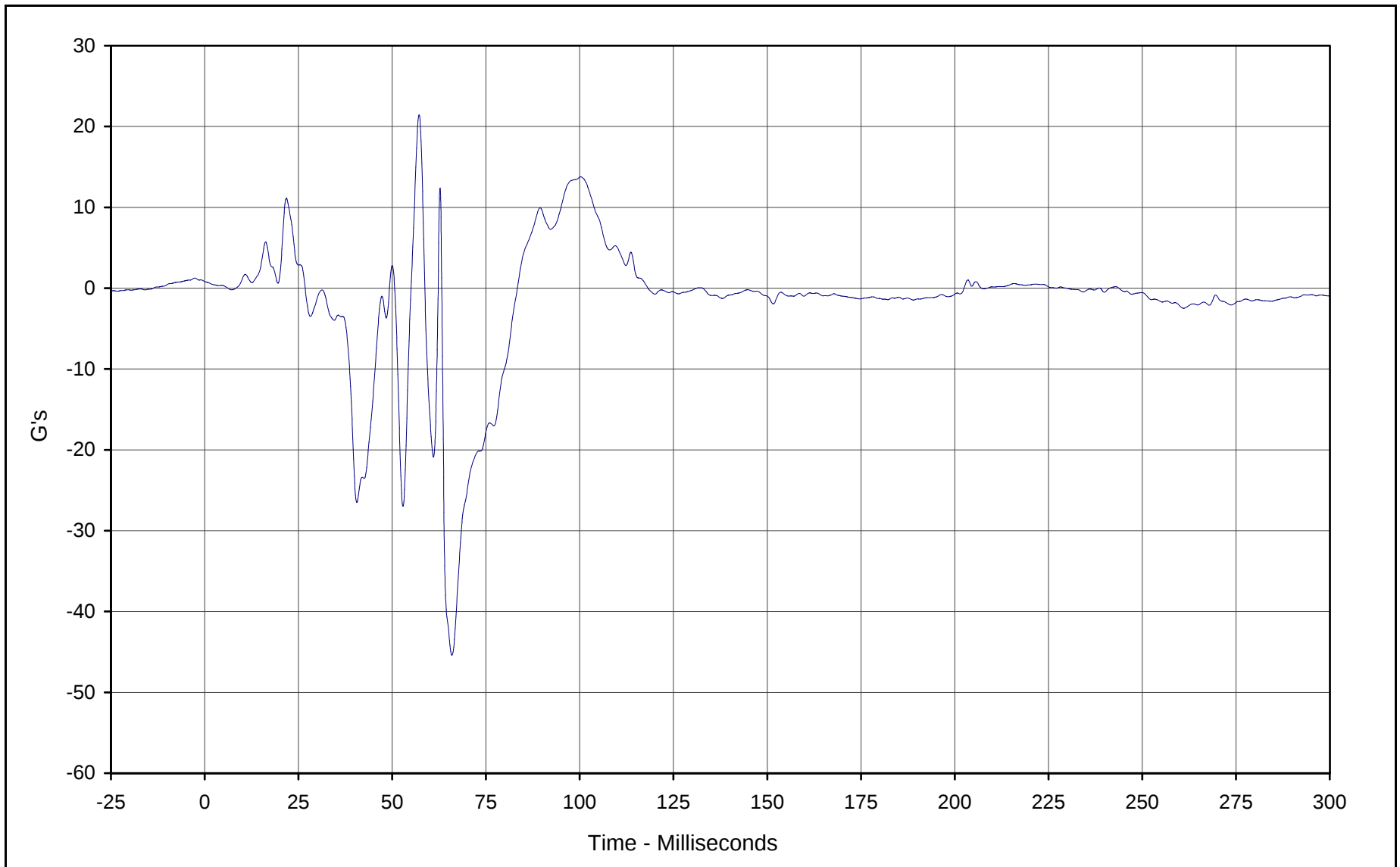




Curve Description: Passenger Right Foot Aft X
Maximum Value: 13.3 at 48.0 Milliseconds
Minimum Value: -140.1 at 60.5 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-082

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

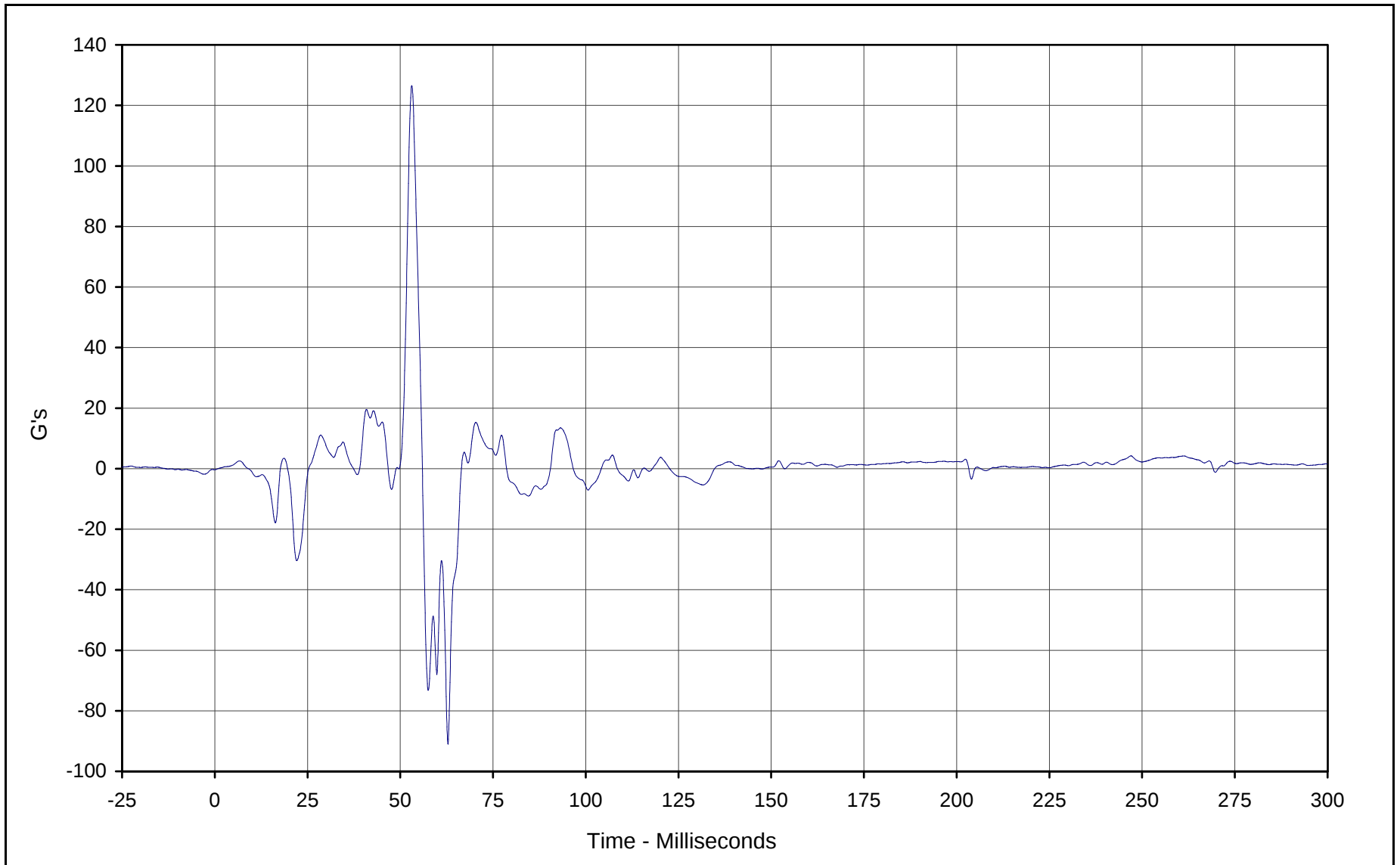




Curve Description: Passenger Right Foot Aft Z
Maximum Value: 21.4 at 57.2 Milliseconds
Minimum Value: -45.4 at 65.9 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-083

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

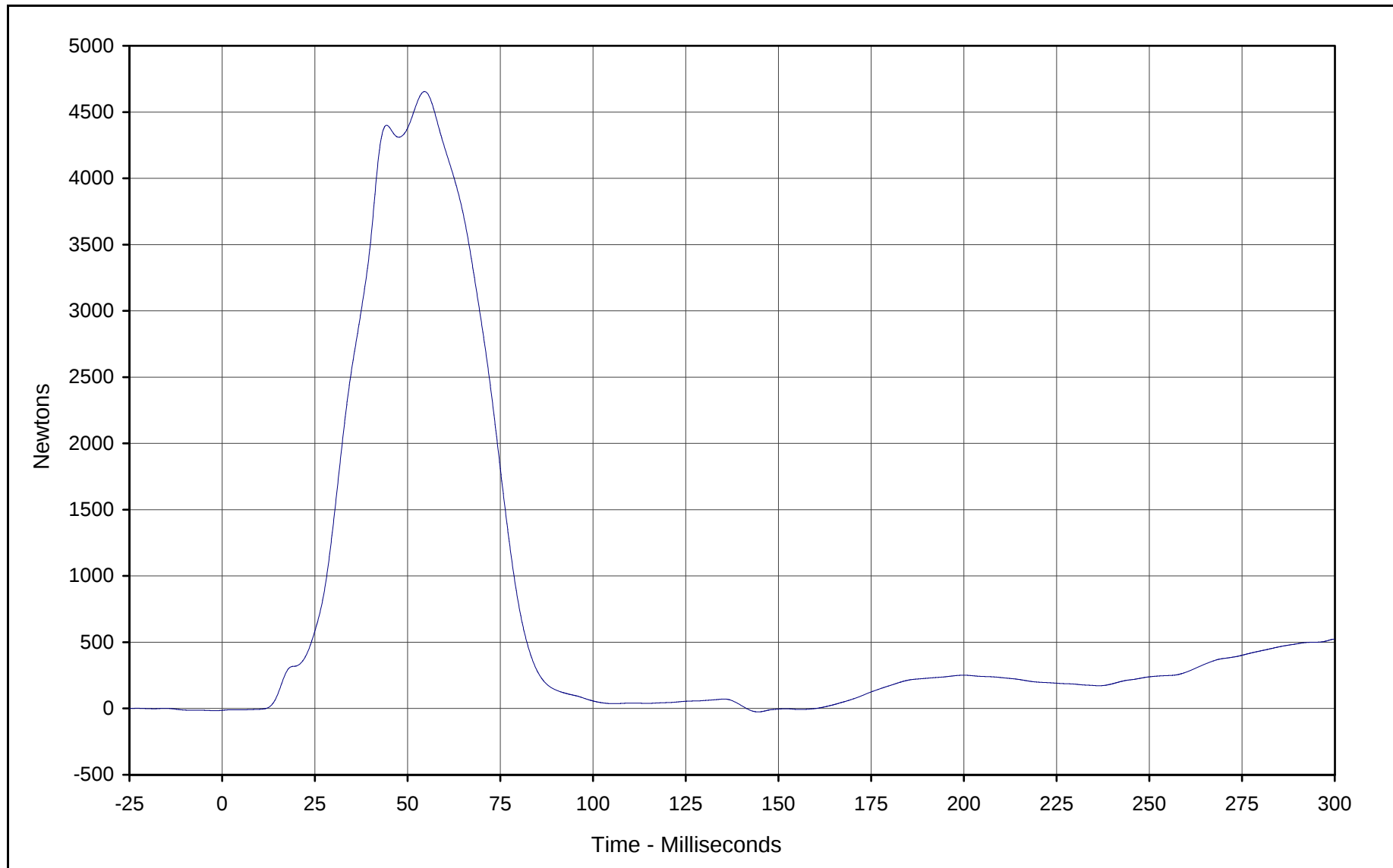




Curve Description: Passenger Right Foot Fore Z
Maximum Value: 126.6 at 53.1 Milliseconds
Minimum Value: -91.0 at 62.9 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: FIL-084

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

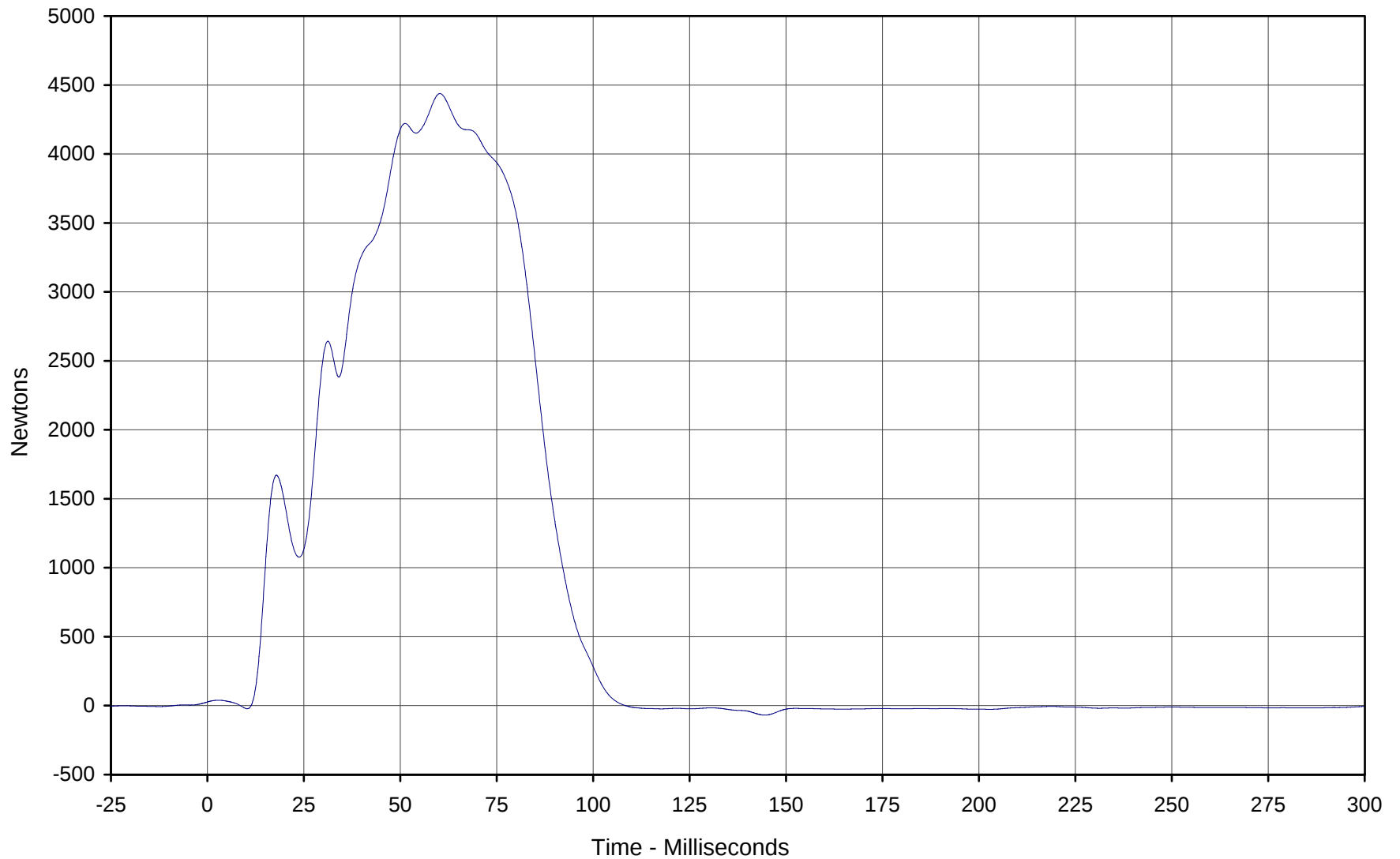




Curve Description: Passenger Lap Belt Force
Maximum Value: 4655.0 at 54.6 Milliseconds
Minimum Value: -25.7 at 144.5 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: FIL-085

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



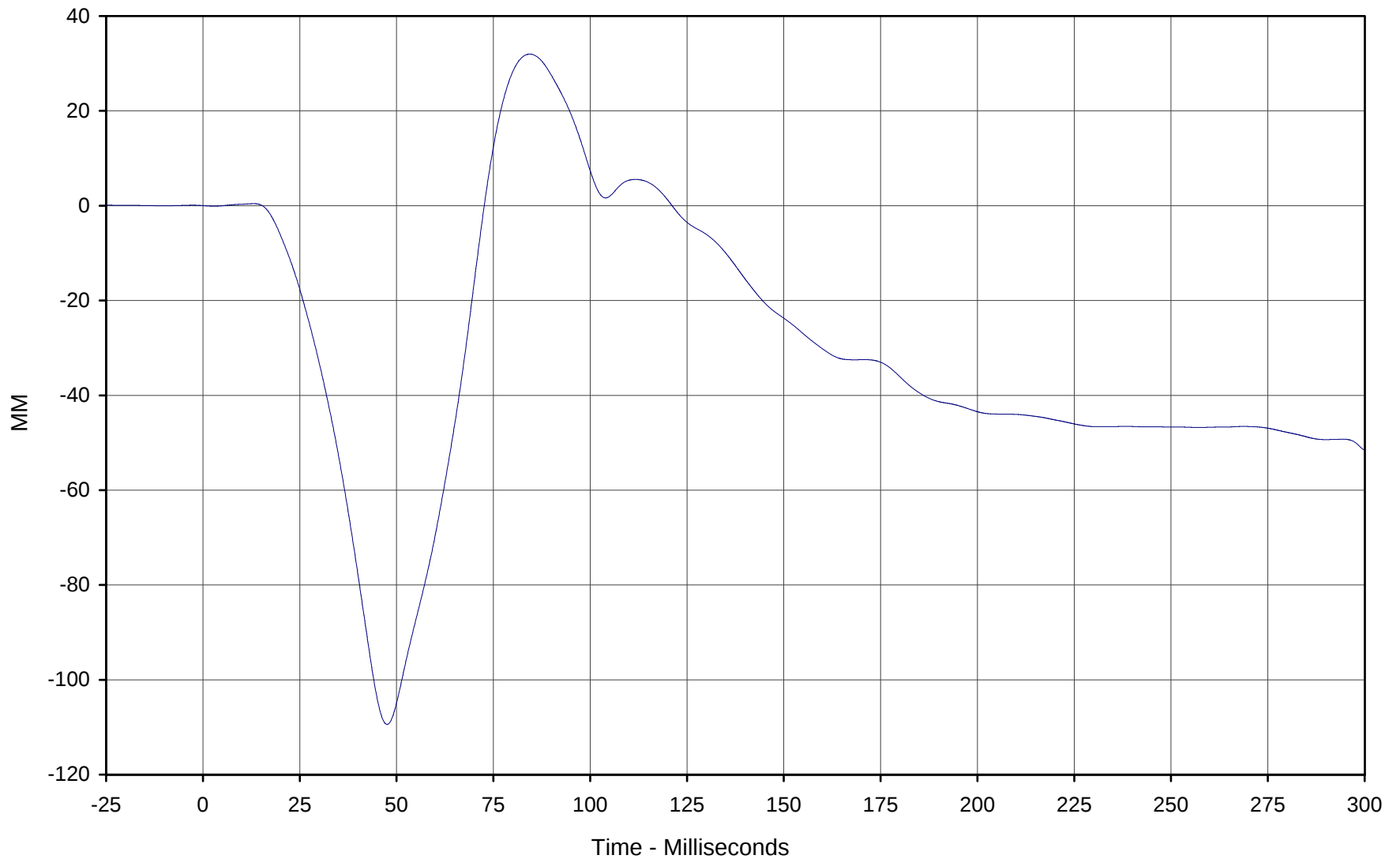


Curve Description: Passenger Shoulder Belt Force
Maximum Value: 4437.9 at 60.3 Milliseconds
Minimum Value: -68.5 at 144.5 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: FIL-086

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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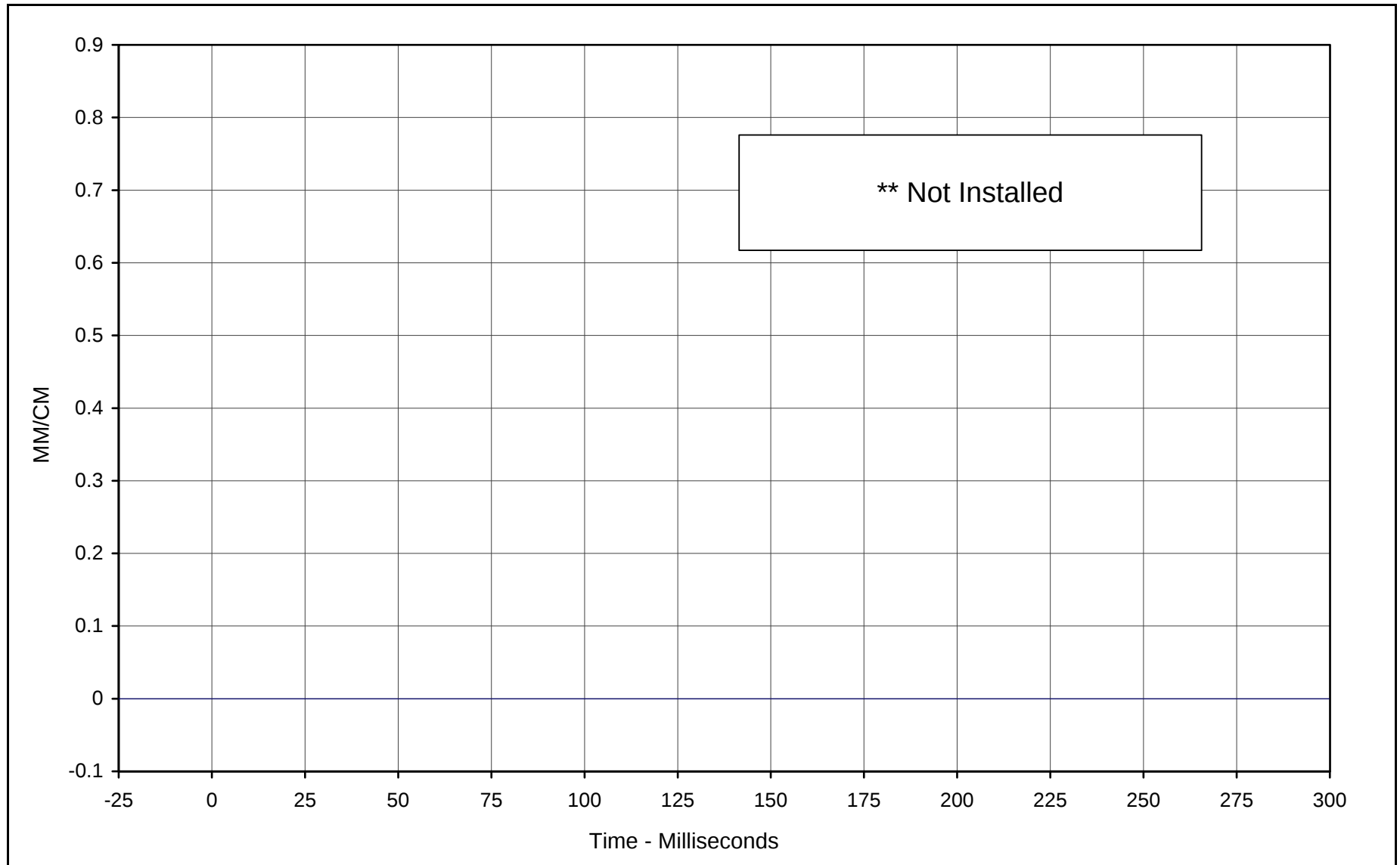


Curve Description: Passenger Shoulder Belt Pullout
Maximum Value: 32.0 at 84.4 Milliseconds
Minimum Value: -109.4 at 47.6 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: FIL-087

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Passenger Shoulder Belt Elongation **

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Maximum Value: 0.00 at 0.0 Milliseconds

Test Vehicle: 2001 Dodge Ram 1500 Van

Minimum Value: 0.00 at 0.0 Milliseconds

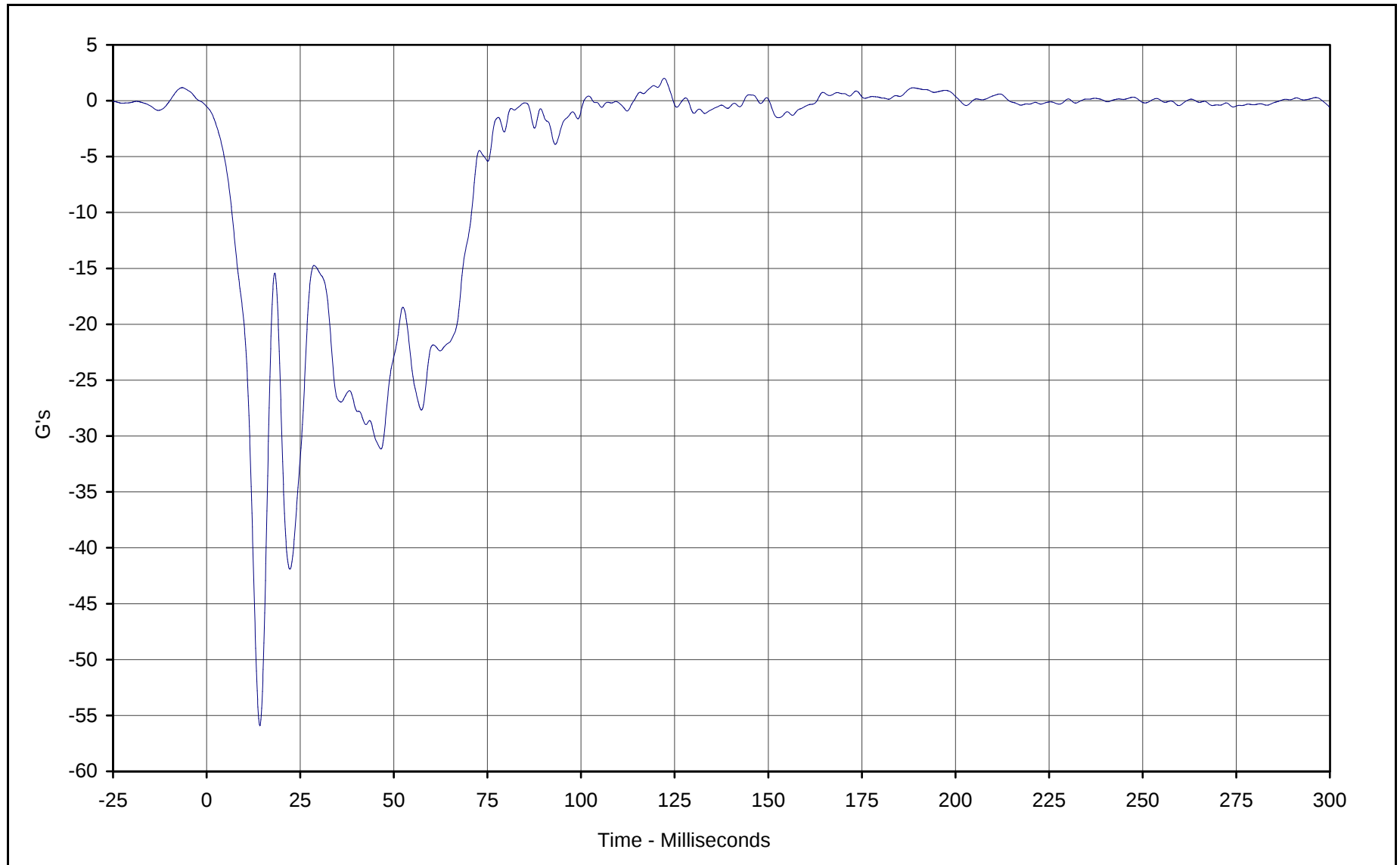
SAE Filter Class: 60

Date of Test: 01/16/01

Curve Number: FIL-088

** Not installed





Curve Description: Vehicle Left Rear Primary

Maximum Value: 2.0 at 122.2 Milliseconds

Minimum Value: -55.9 at 14.2 Milliseconds

SAE Filter Class: 60

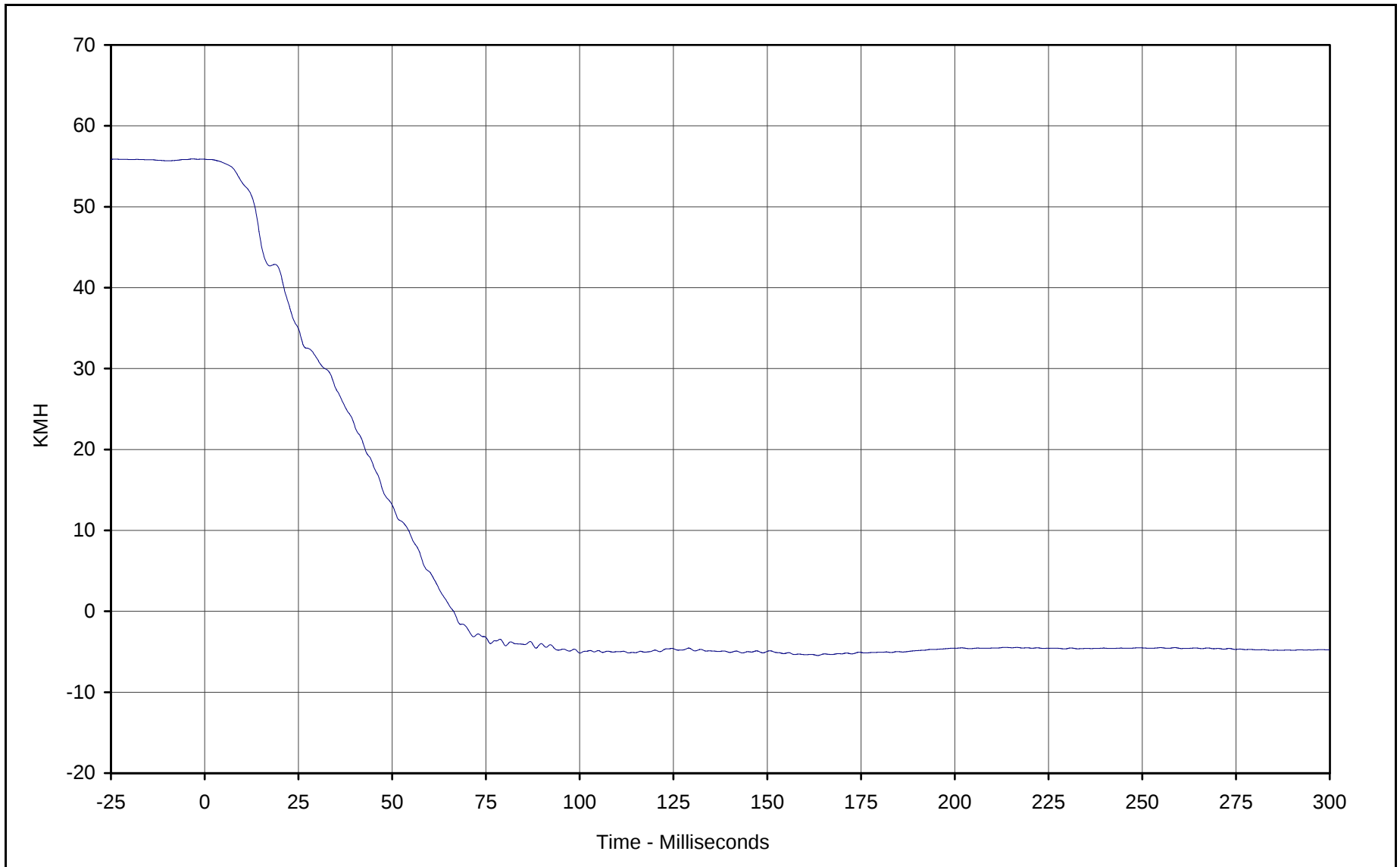
Date of Test: 01/16/01

Curve Number: FIL-089

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





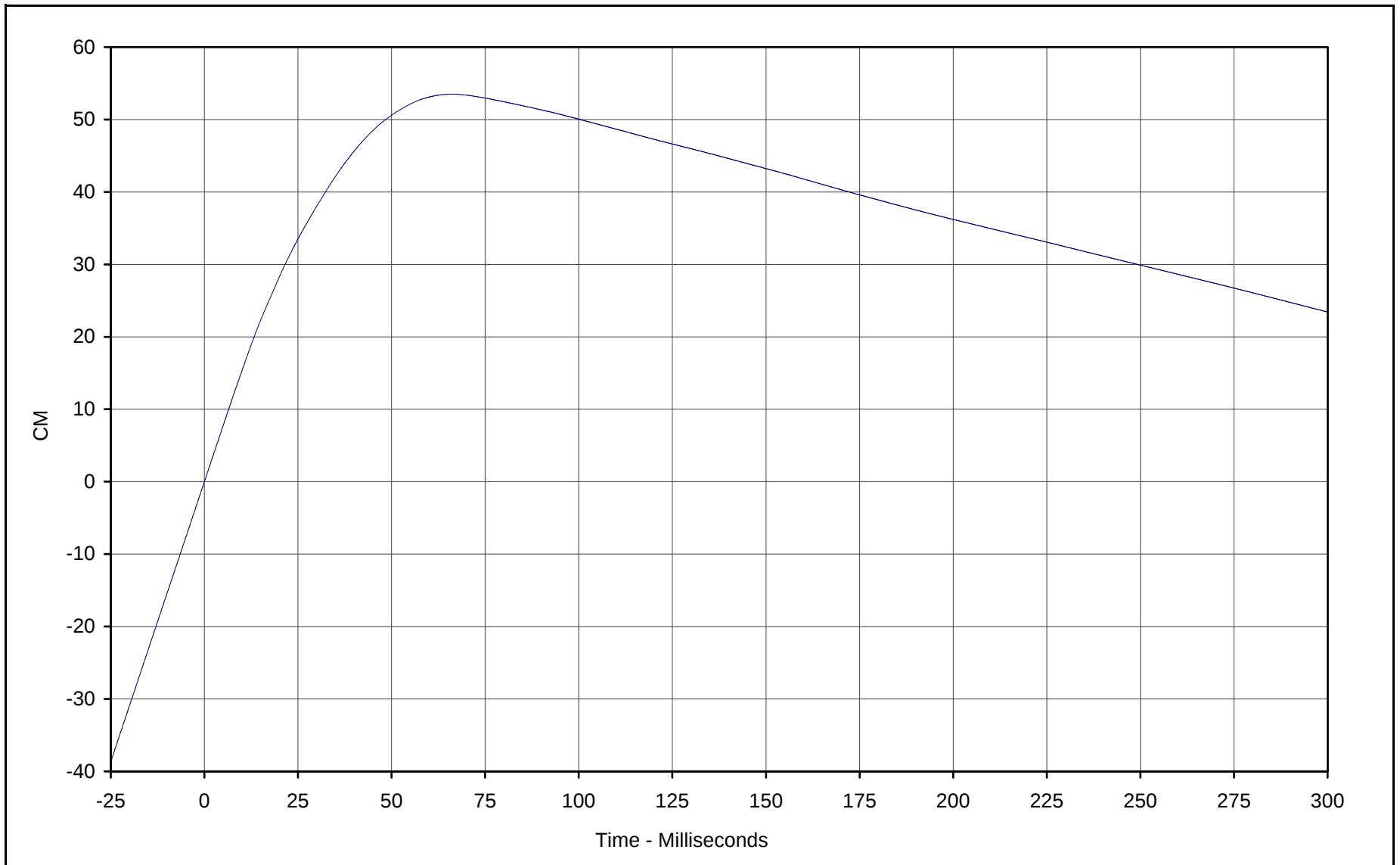
Curve Description: Vehicle Left Rear Primary Velocity
Maximum Value: 55.9 at 0.0 Milliseconds
Minimum Value: -5.5 at 163.5 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-089

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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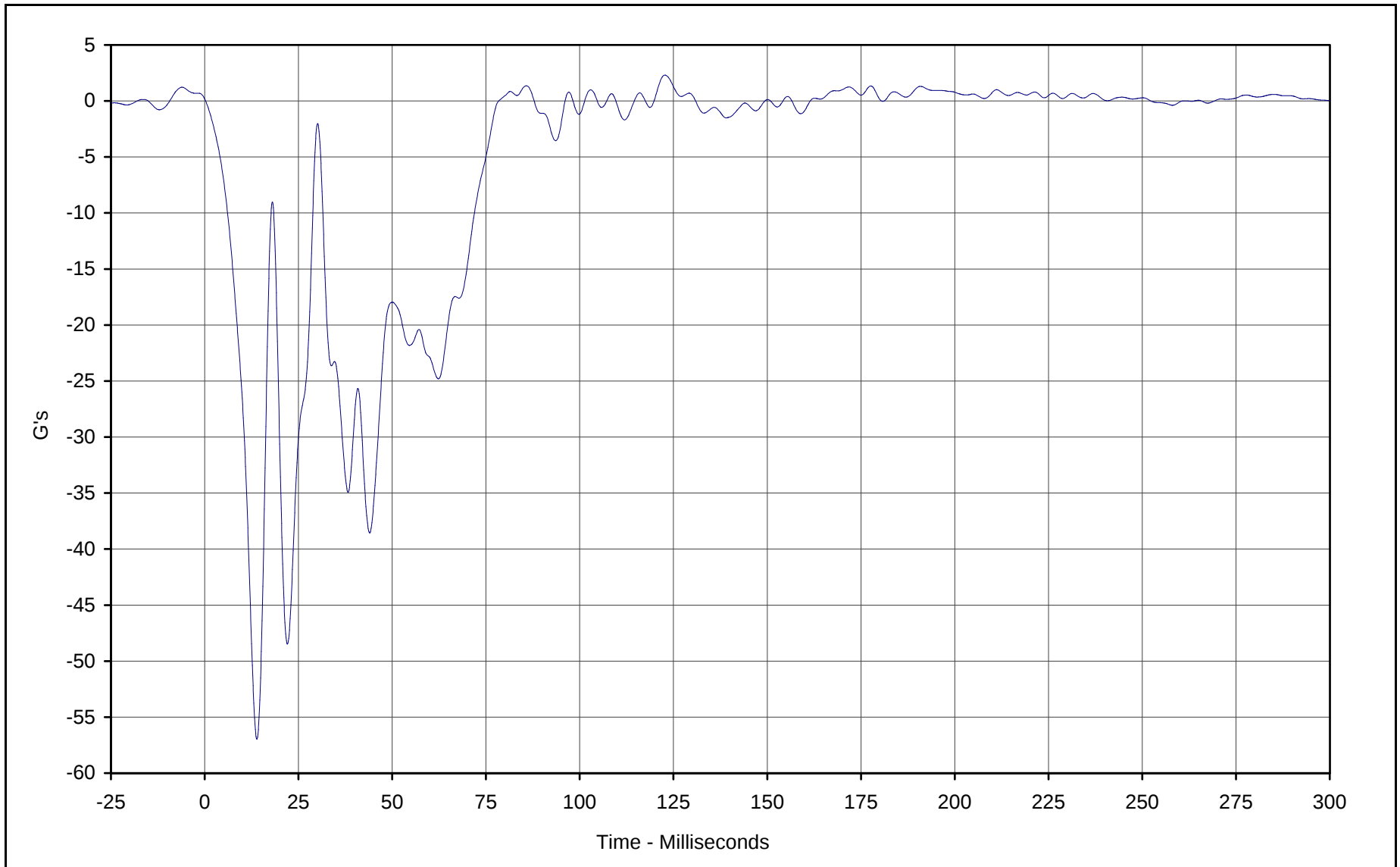
KAR21001-05



Curve Description: Vehicle Left Rear Primary Displ.
Maximum Value: 53.5 at 66.4 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-089

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



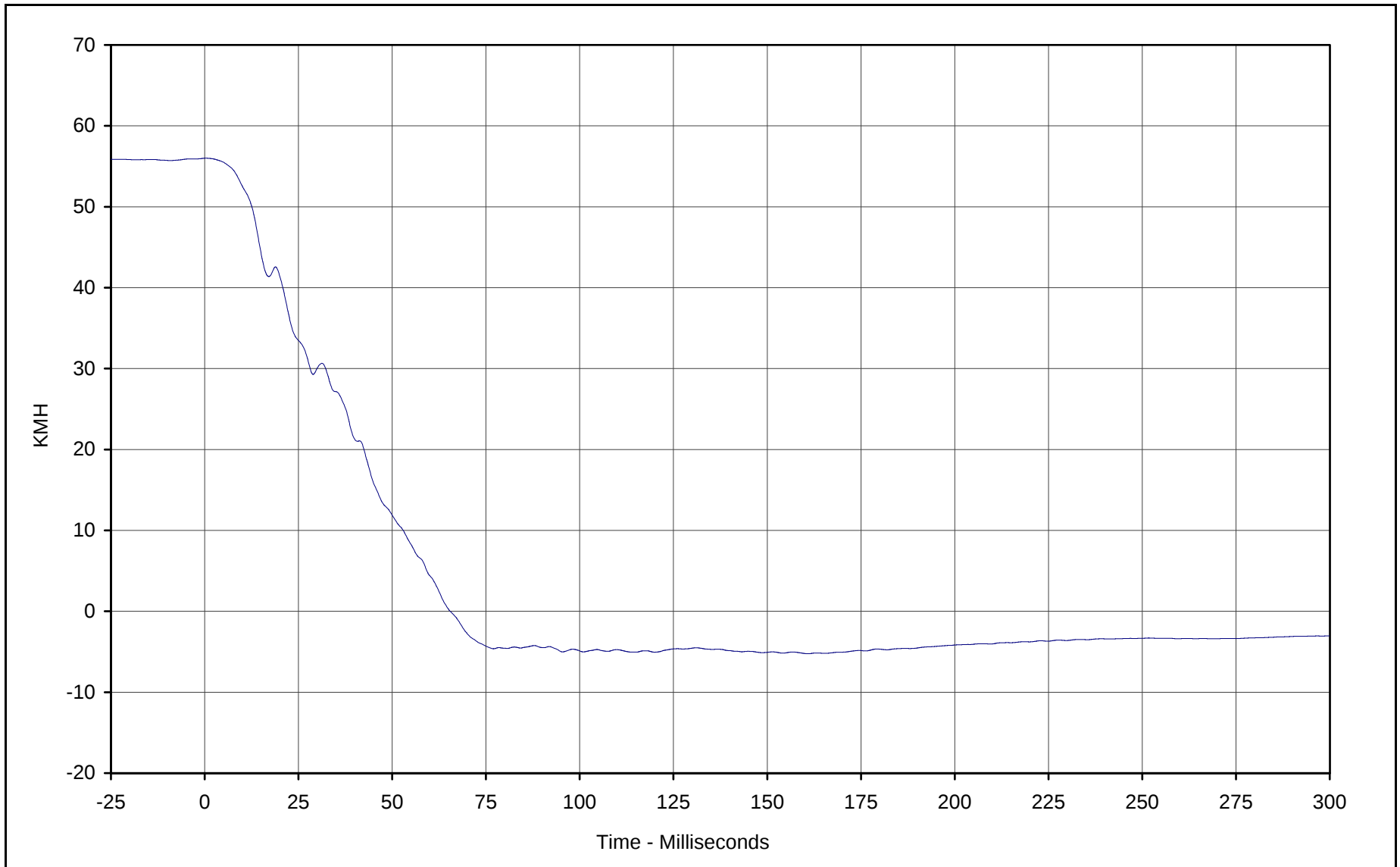


Curve Description: Vehicle Right Rear Primary
Maximum Value: 2.3 at 122.7 Milliseconds
Minimum Value: -57.0 at 13.9 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: FIL-090

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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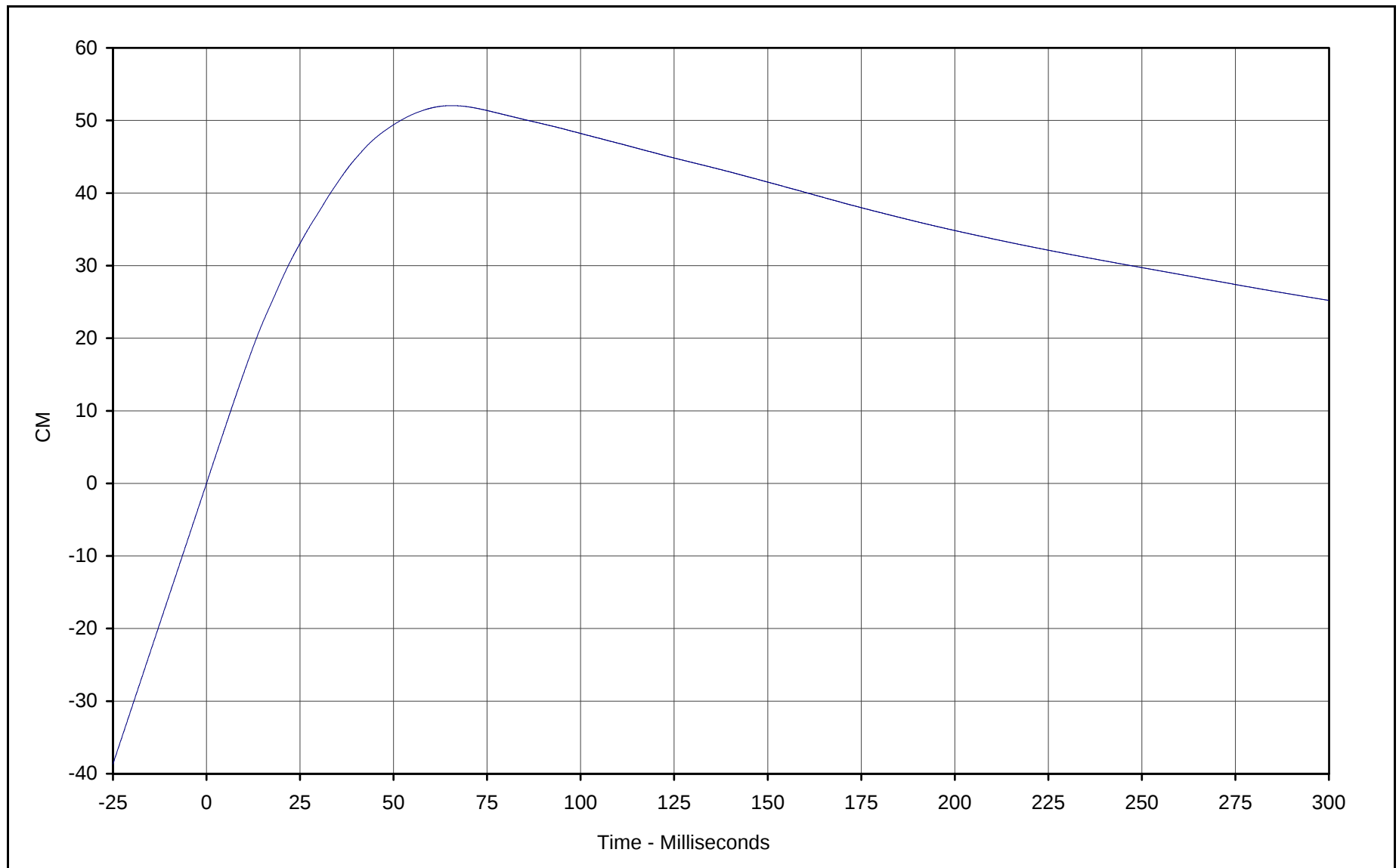


Curve Description: Vehicle Right Rear Primary Velocity
Maximum Value: 56.0 at 0.3 Milliseconds
Minimum Value: -5.2 at 160.9 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-090

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



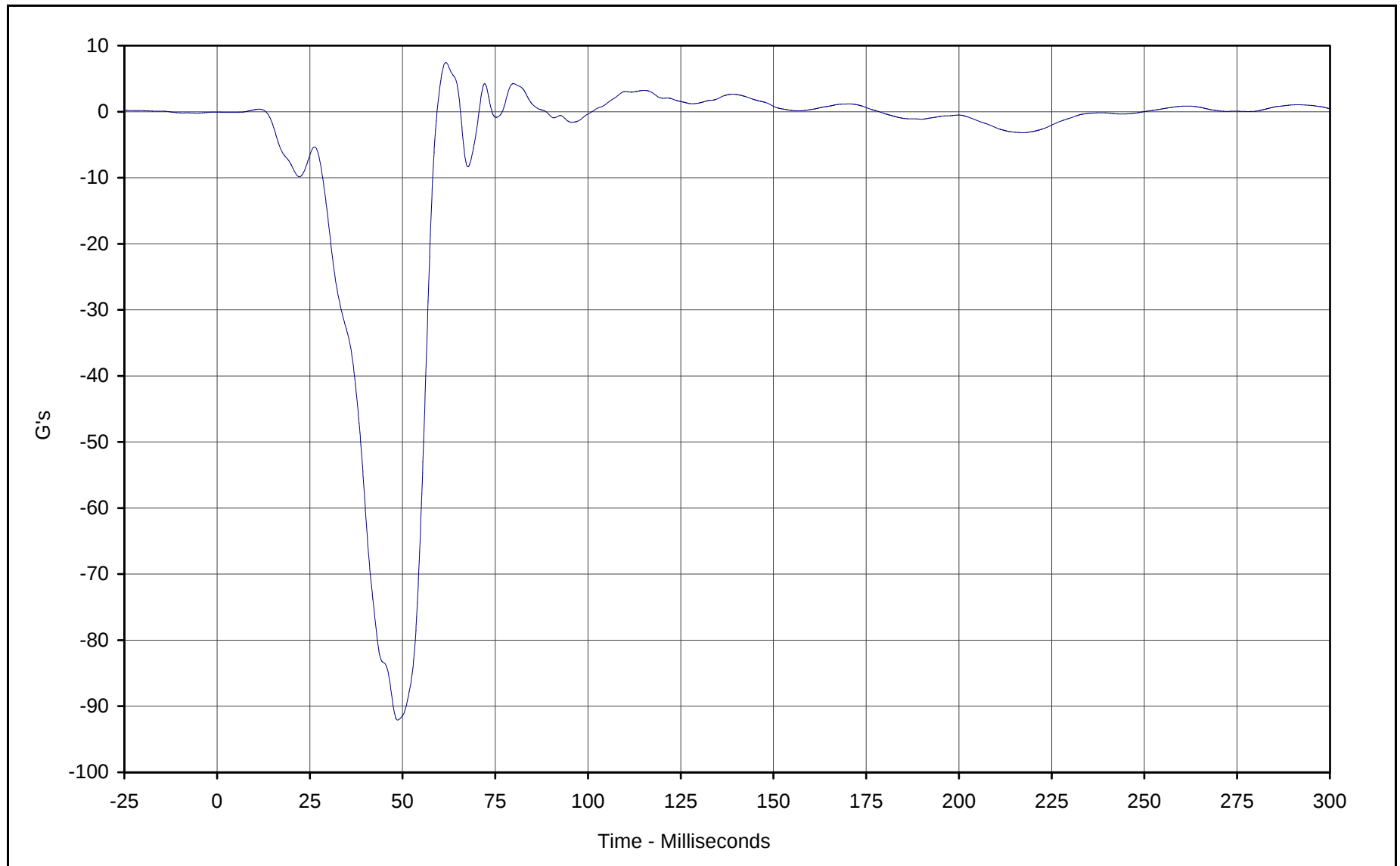
KAR21001-05



Curve Description: Vehicle Right Rear Primary Displ.
Maximum Value: 52.0 at 65.5 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-090

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Vehicle Engine Top

Maximum Value: 7.5 at 61.7 Milliseconds

Minimum Value: -92.1 at 48.7 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

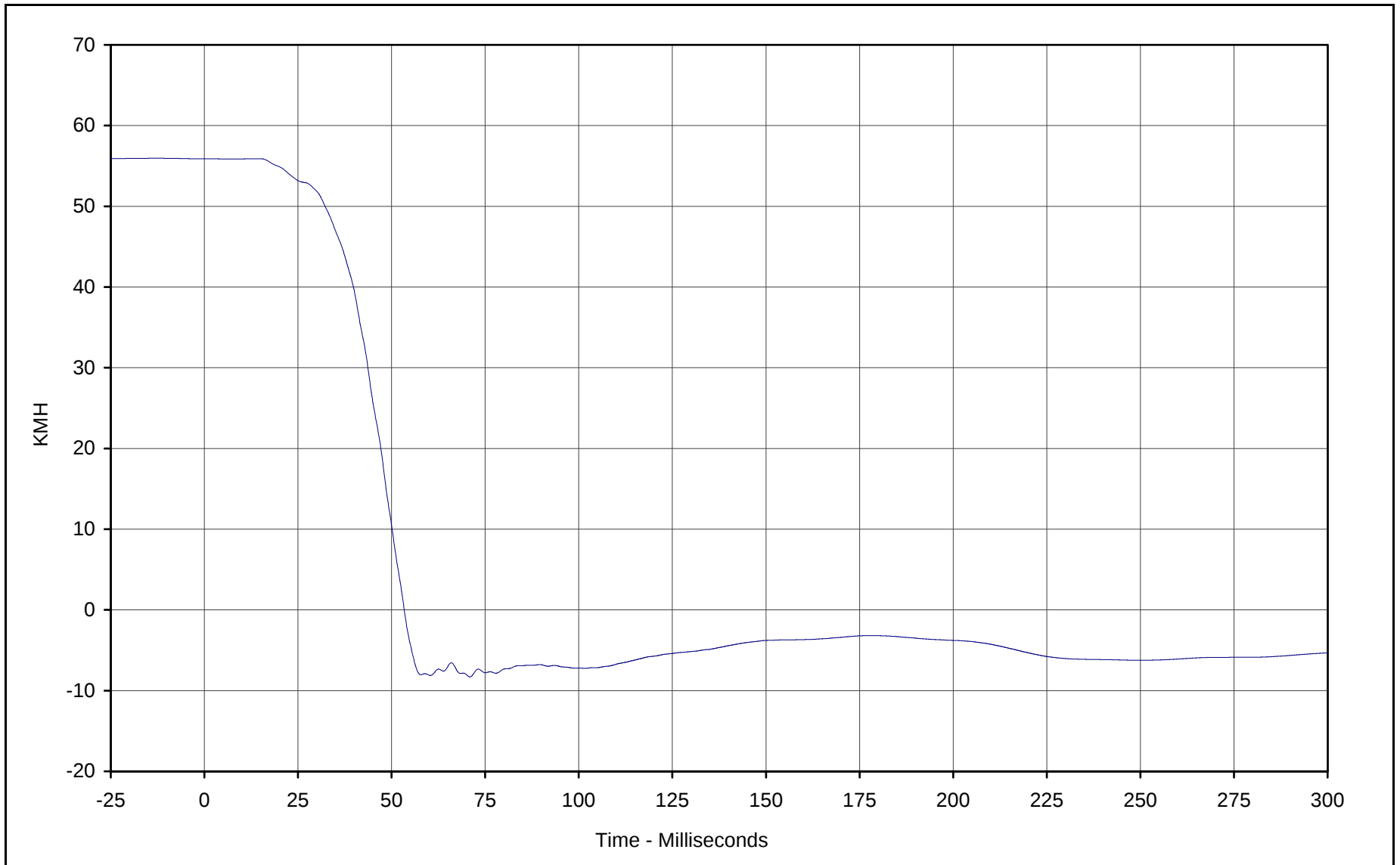
Curve Number: FIL-091

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



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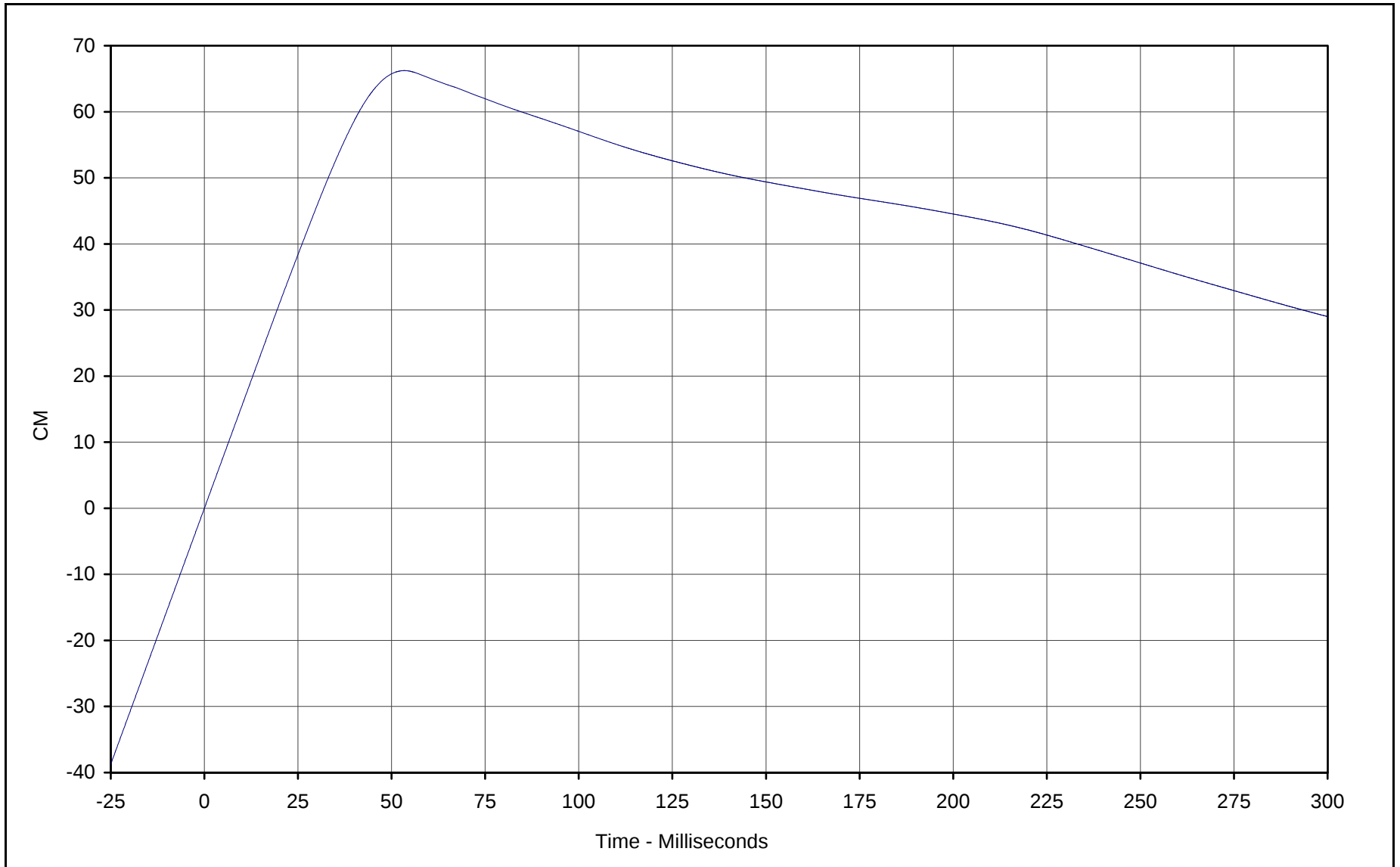


Curve Description: Vehicle Engine Top Velocity
Maximum Value: 55.9 at 14.6 Milliseconds
Minimum Value: -8.3 at 70.9 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-091

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



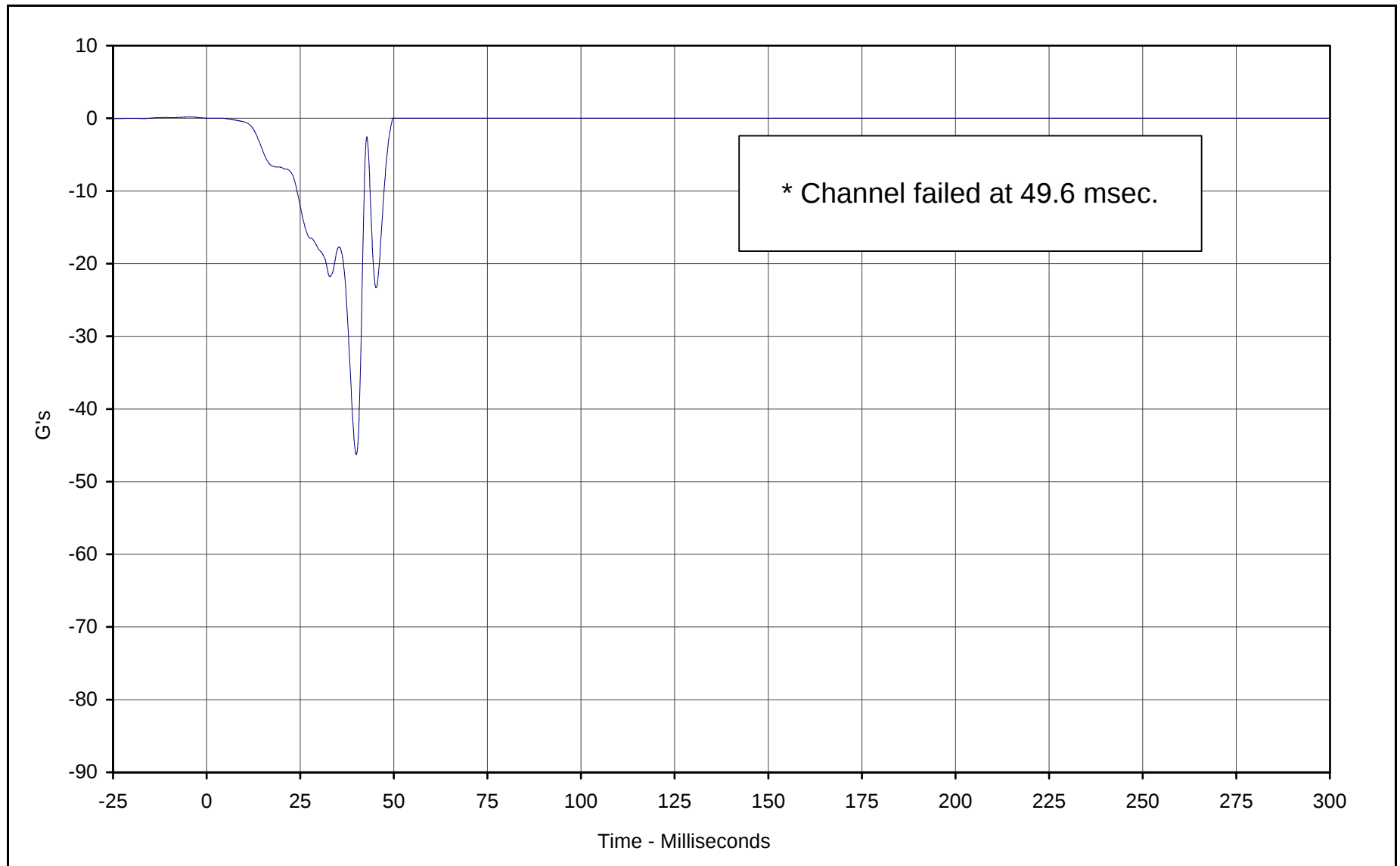
KAR21001-05



Curve Description: Vehicle Engine Top Displacement
Maximum Value: 66.2 at 53.4 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-091

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Vehicle Engine Bottom *

Maximum Value: 0.0 at 2.8 Milliseconds

Minimum Value: -46.3 at 40.0 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

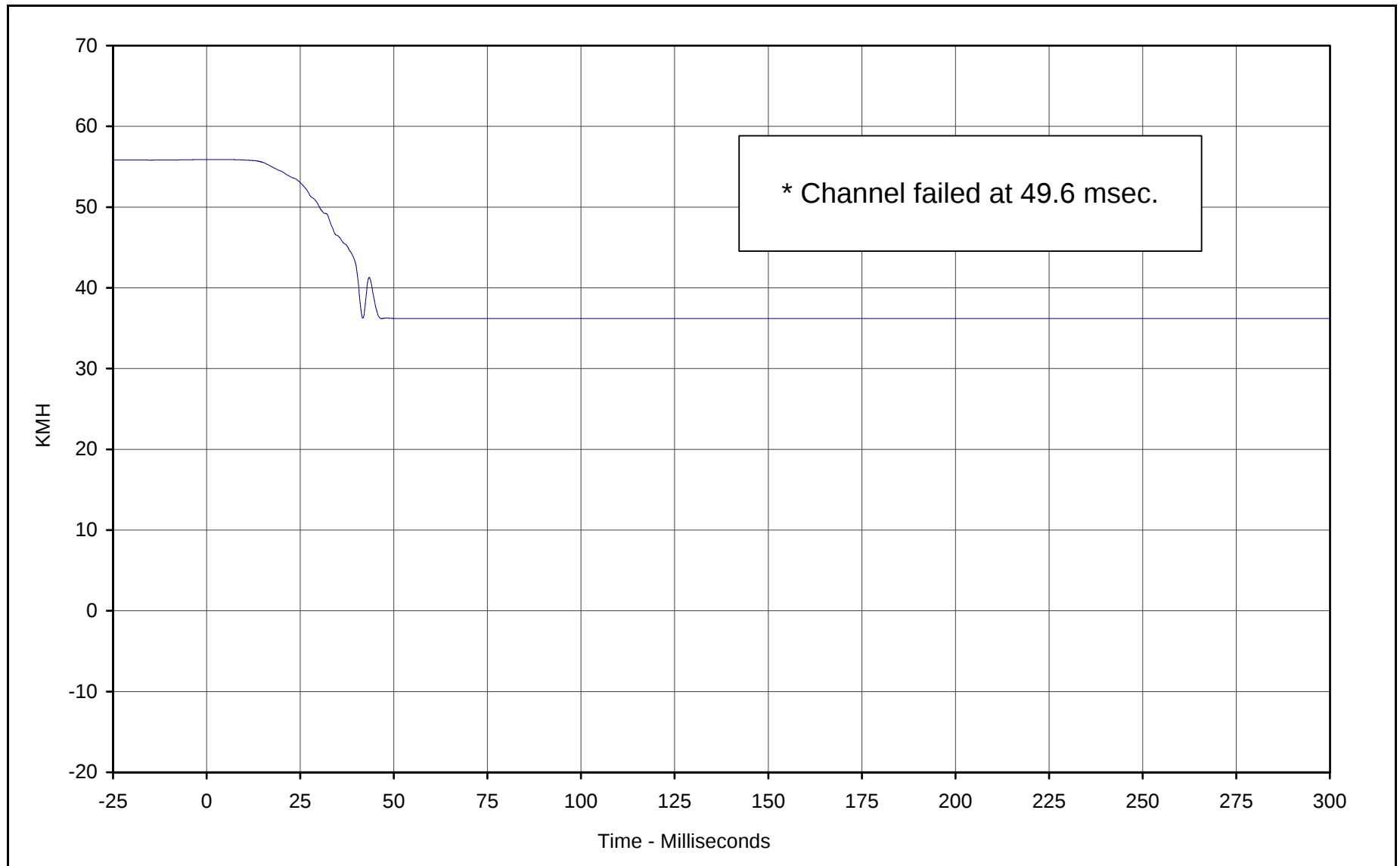
Curve Number: FIL-092

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van

* Channel failed at 49.6 msec.





Curve Description: Vehicle Engine Bottom Velocity *

Maximum Value: 55.9 at 5.0 Milliseconds

Minimum Value: 36.2 at 46.7 Milliseconds

SAE Filter Class: 180

Date of Test: 01/16/01

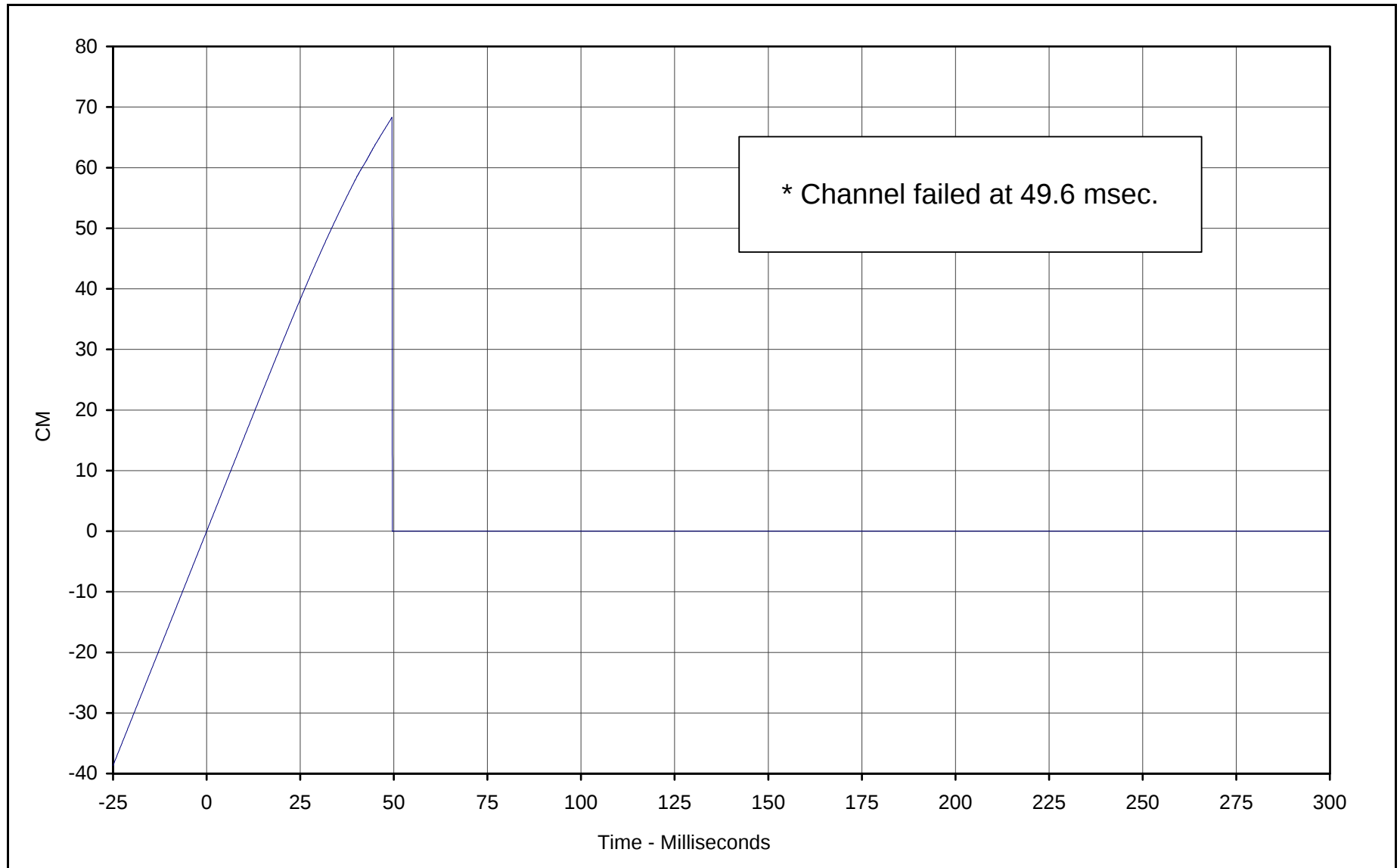
Curve Number: IN1-092

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van

* Channel failed at 49.6 msec.





Curve Description: Vehicle Engine Bottom Displacement *

Maximum Value: 68.3 at 49.5 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 01/16/01

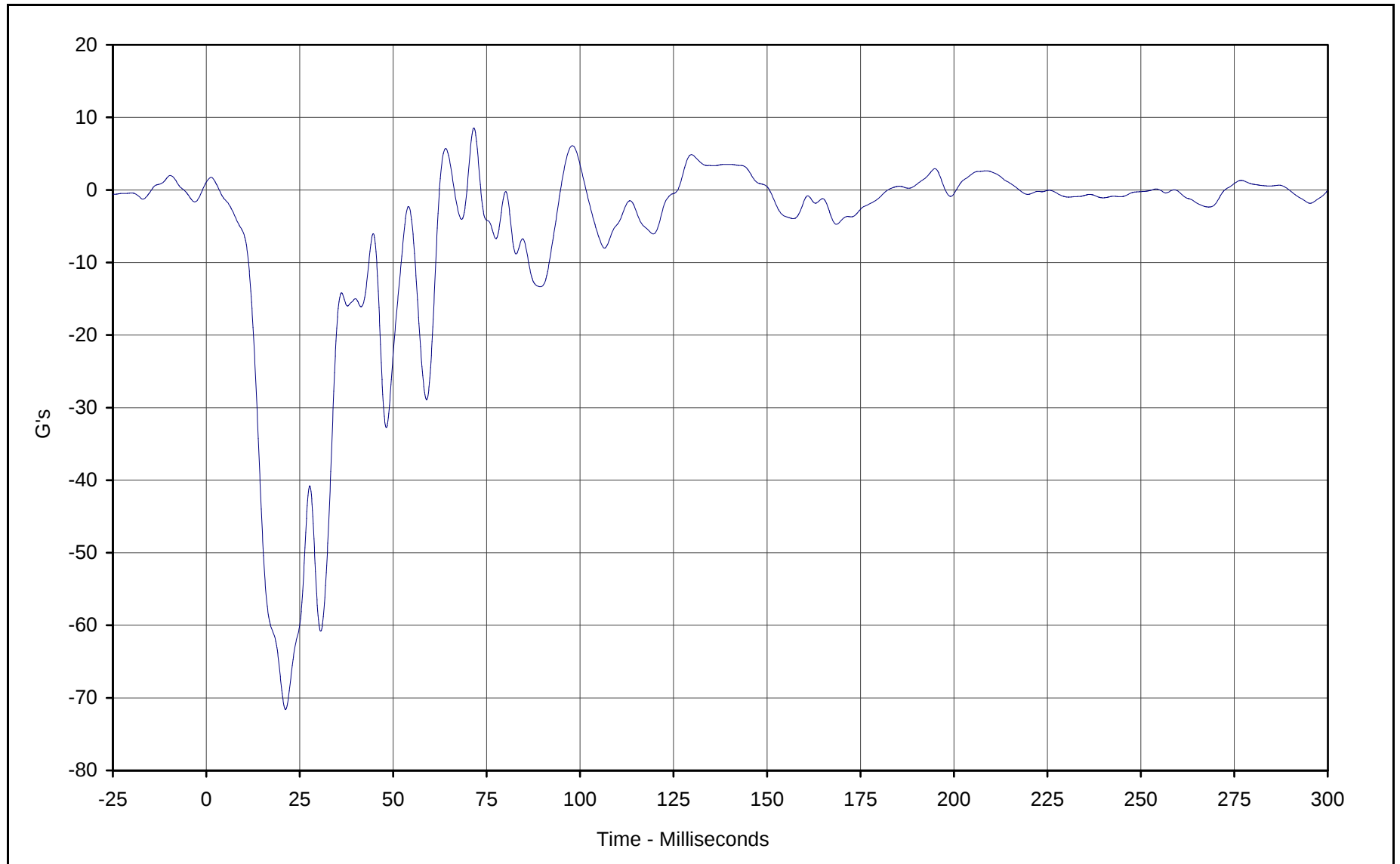
Curve Number: IN2-092

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van

* Channel failed at 49.6 msec.





Curve Description: Vehicle Left Brake Caliper

Maximum Value: 8.5 at 71.6 Milliseconds

Minimum Value: -71.6 at 21.2 Milliseconds

SAE Filter Class: 60

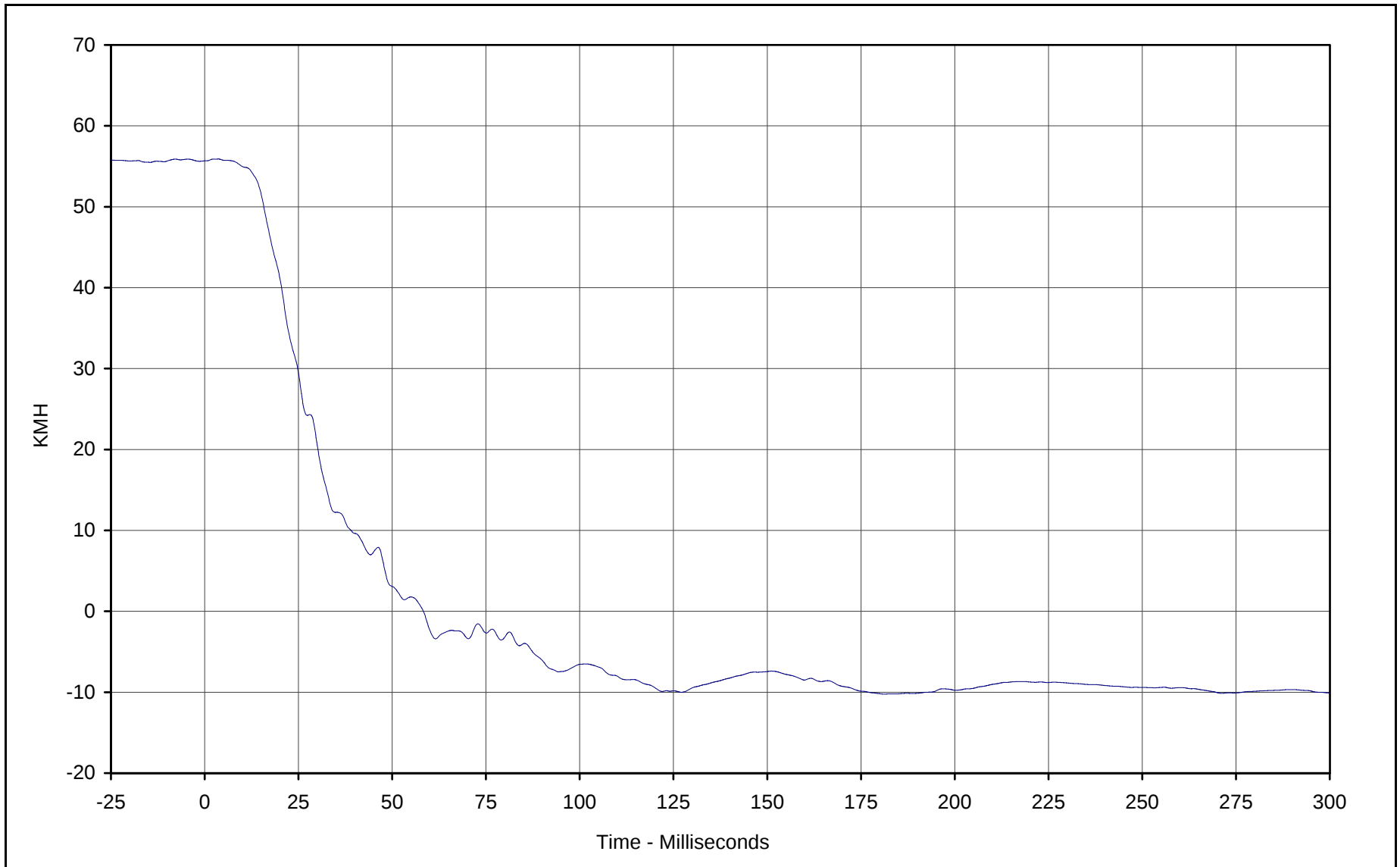
Date of Test: 01/16/01

Curve Number: FIL-093

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van

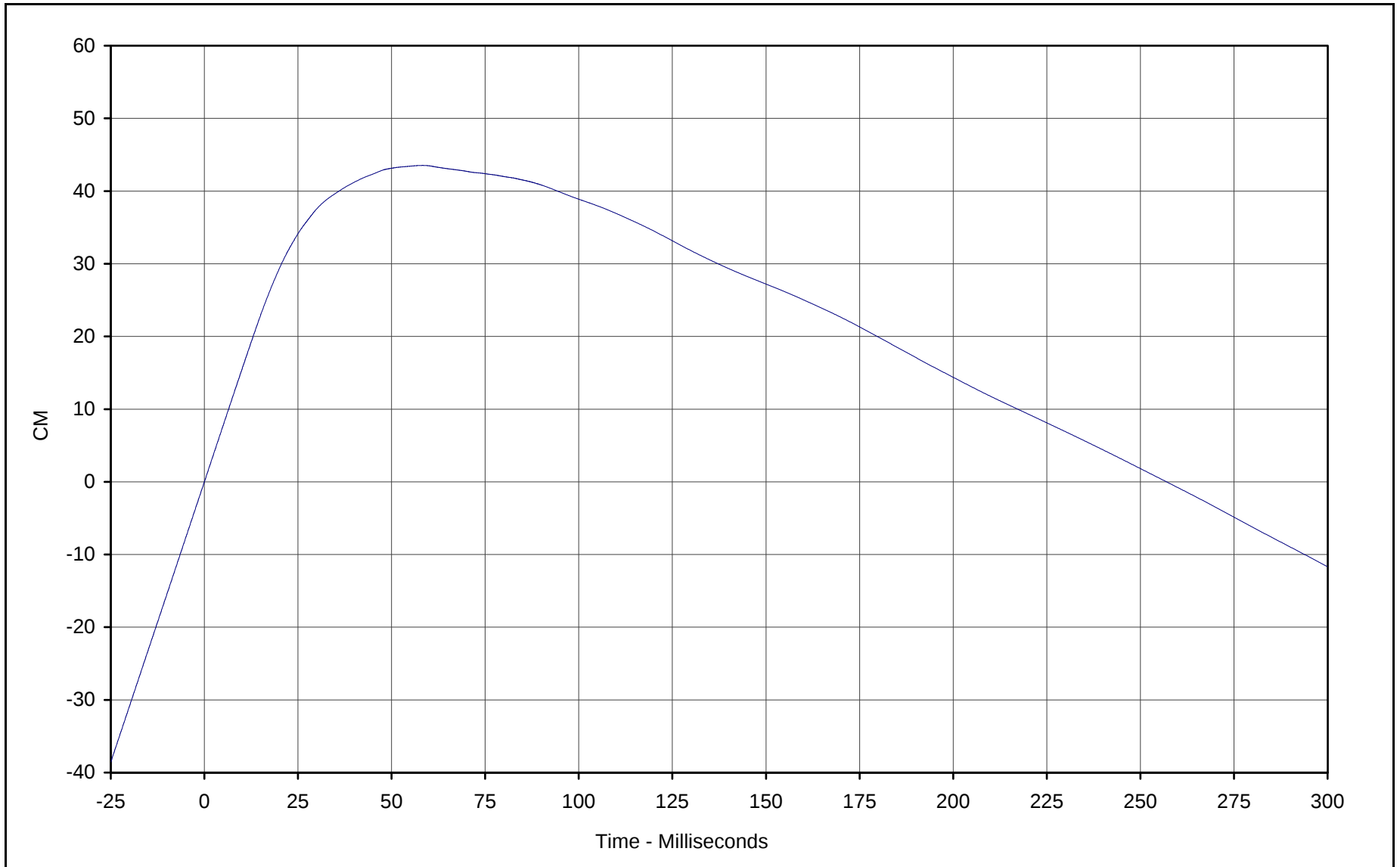




Curve Description: Vehicle Left Brake Caliper Velocity
Maximum Value: 55.9 at 3.6 Milliseconds
Minimum Value: -10.2 at 181.2 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-093

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van

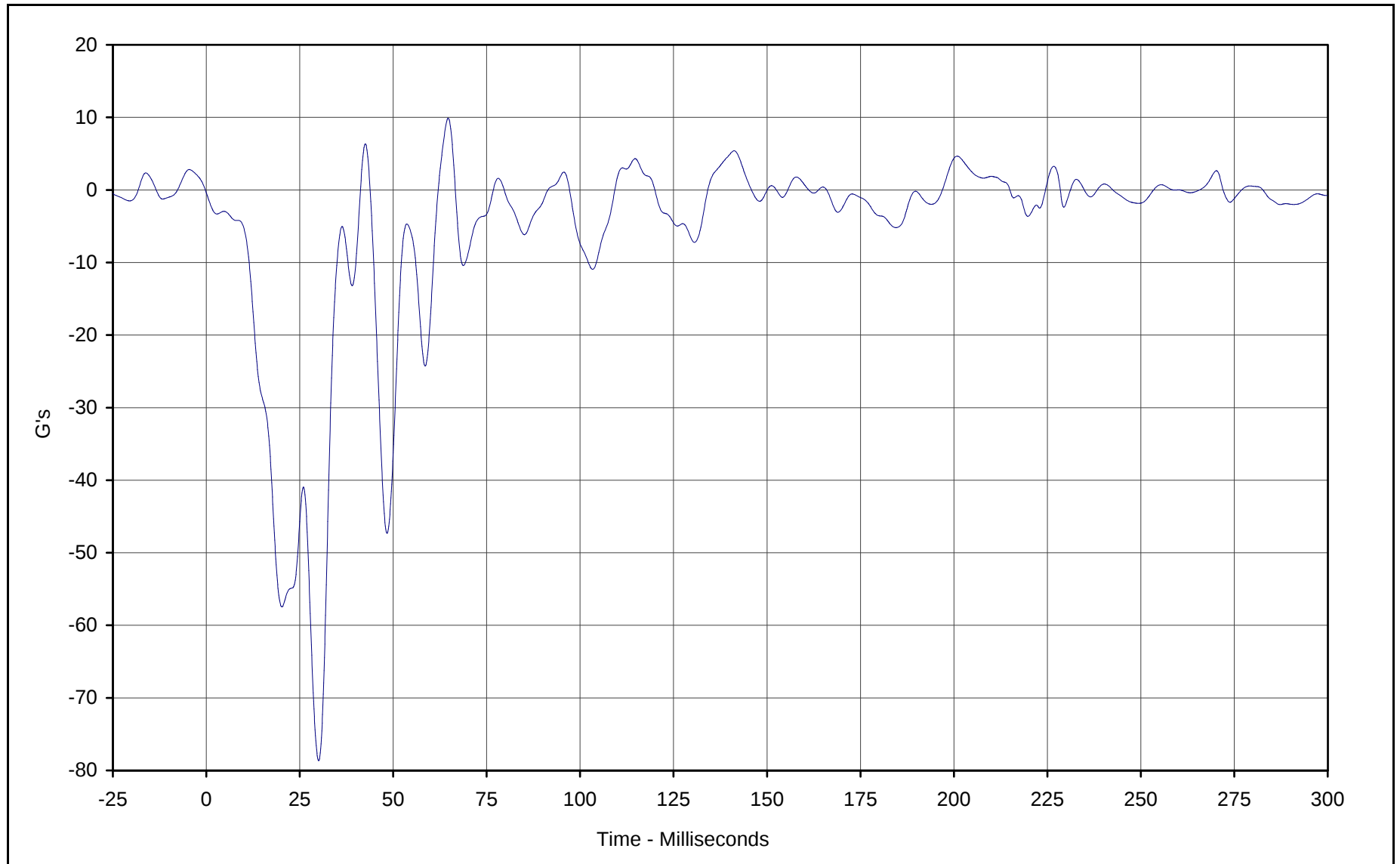




Curve Description: Vehicle Left Brake Caliper Displ.
Maximum Value: 43.5 at 58.3 Milliseconds
Minimum Value: -11.7 at 299.9 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-093

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Vehicle Right Brake Caliper

Maximum Value: 9.9 at 64.7 Milliseconds

Minimum Value: -78.6 at 30.1 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

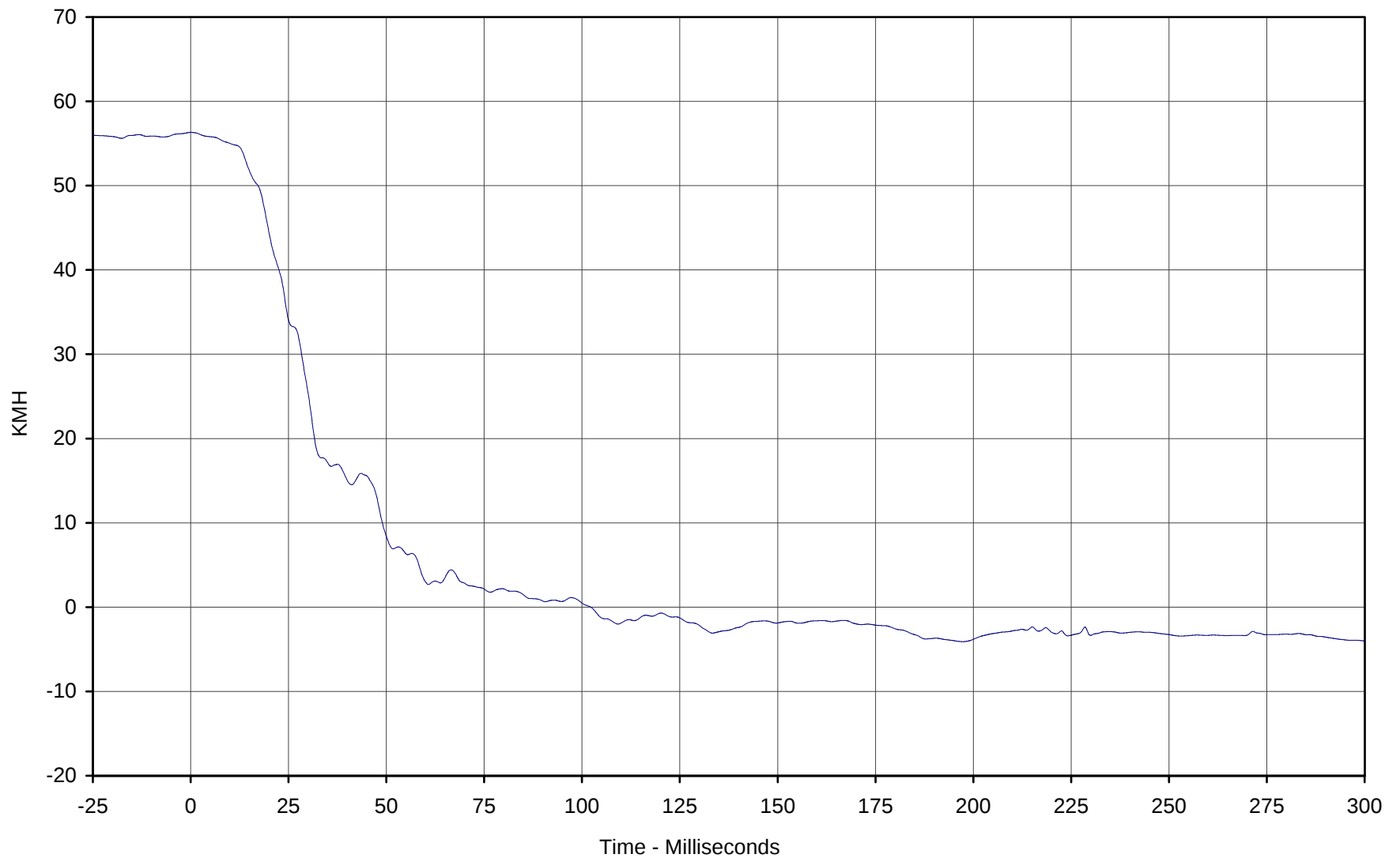
Curve Number: FIL-094

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



B-139



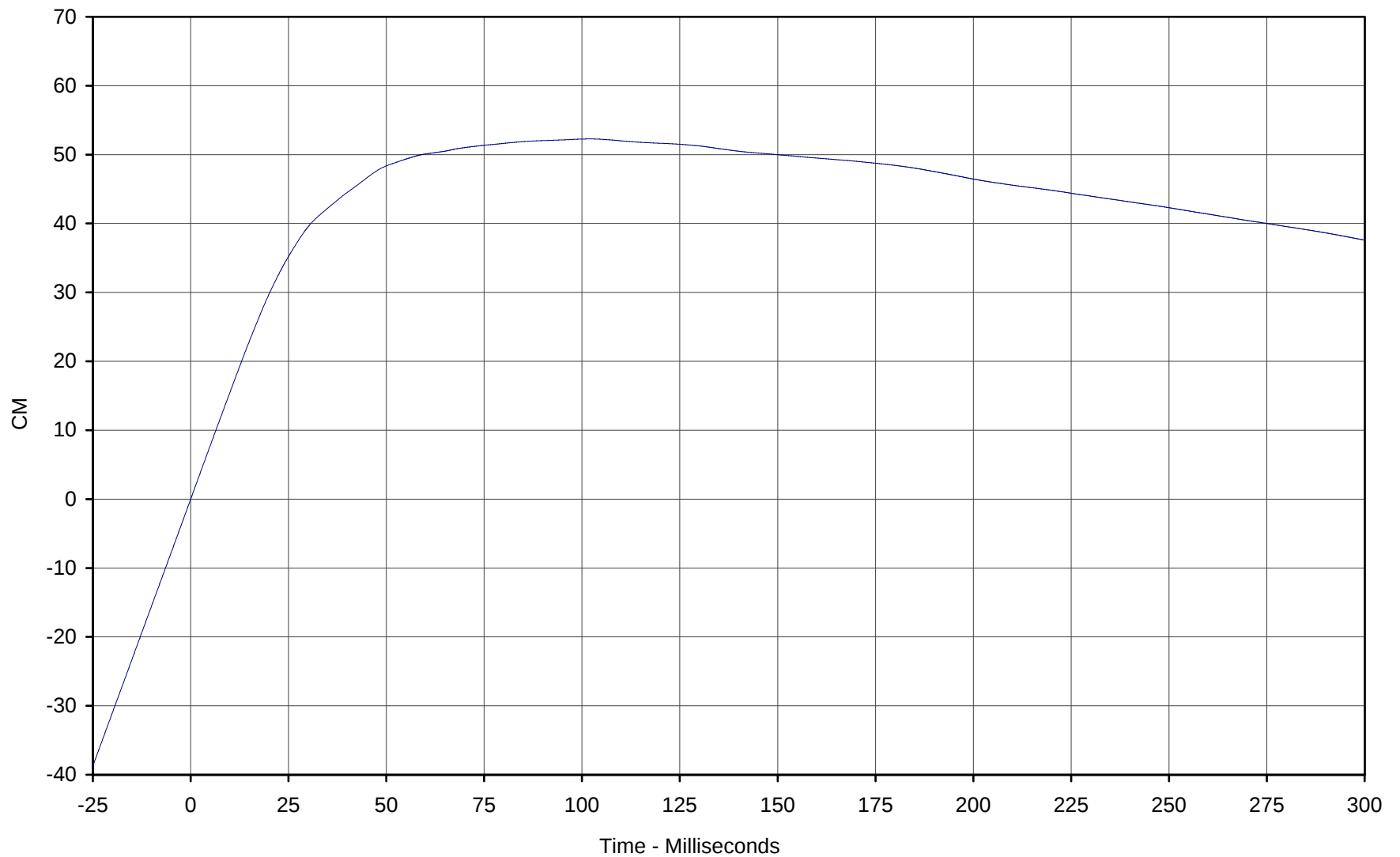
Curve Description: Vehicle Right Brake Caliper Velocity
Maximum Value: 56.3 at 0.0 Milliseconds
Minimum Value: -4.1 at 197.3 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-094

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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B-140

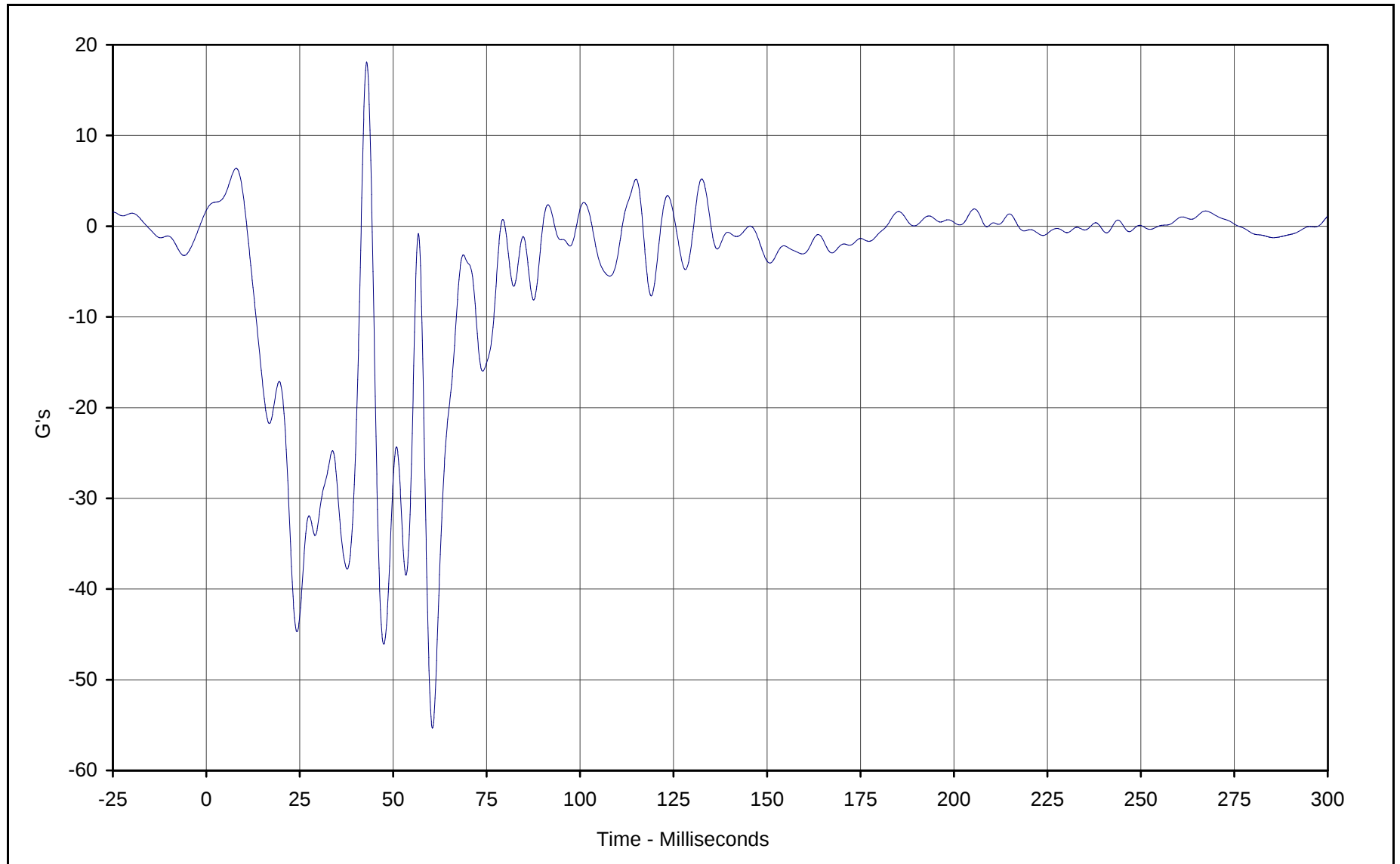


Curve Description: Vehicle Right Brake Caliper Displ.
Maximum Value: 52.3 at 102.2 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-094

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



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Curve Description: Vehicle Instrument Panel

Maximum Value: 18.1 at 42.9 Milliseconds

Minimum Value: -55.3 at 60.5 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

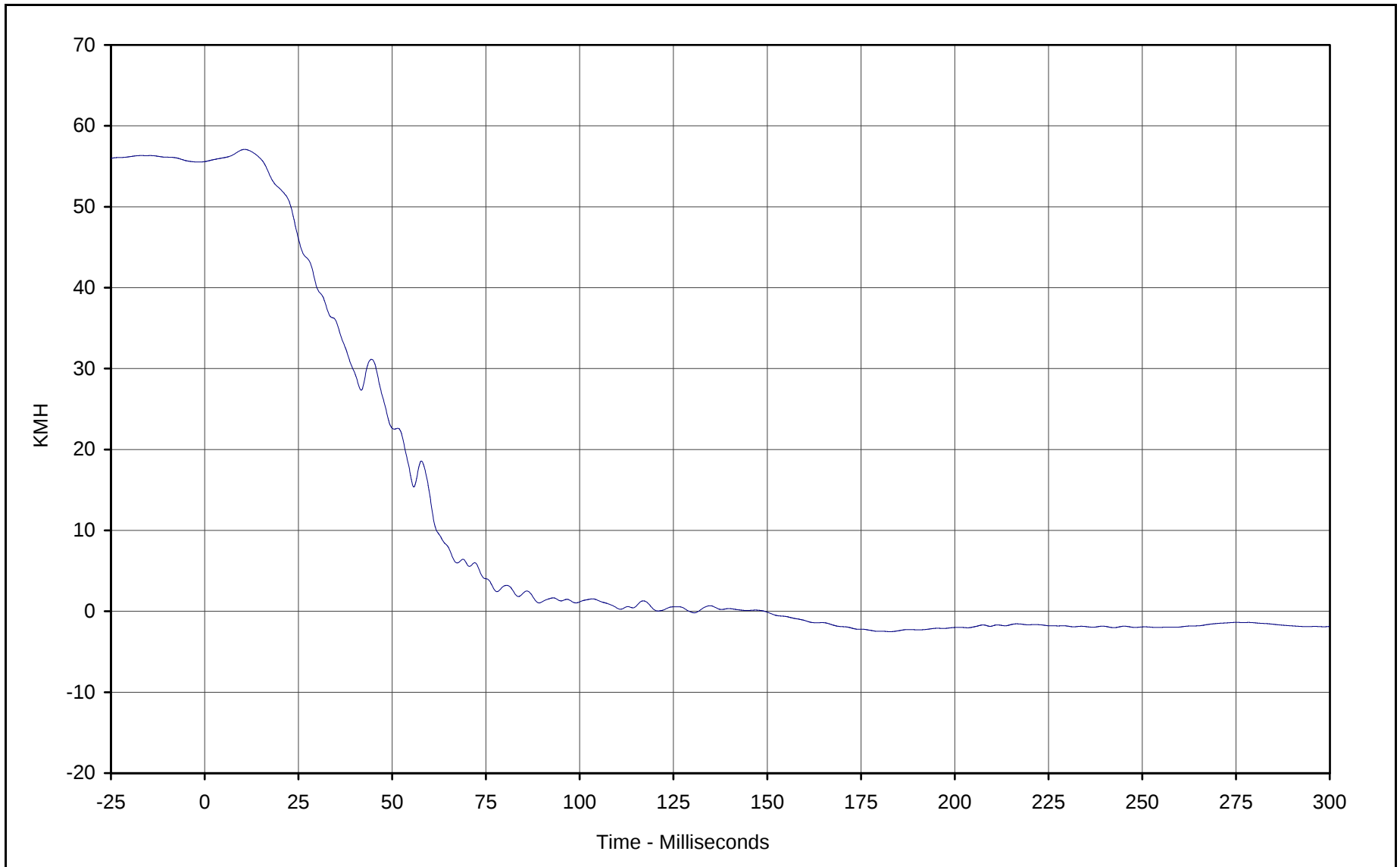
Curve Number: FIL-095

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



B-142

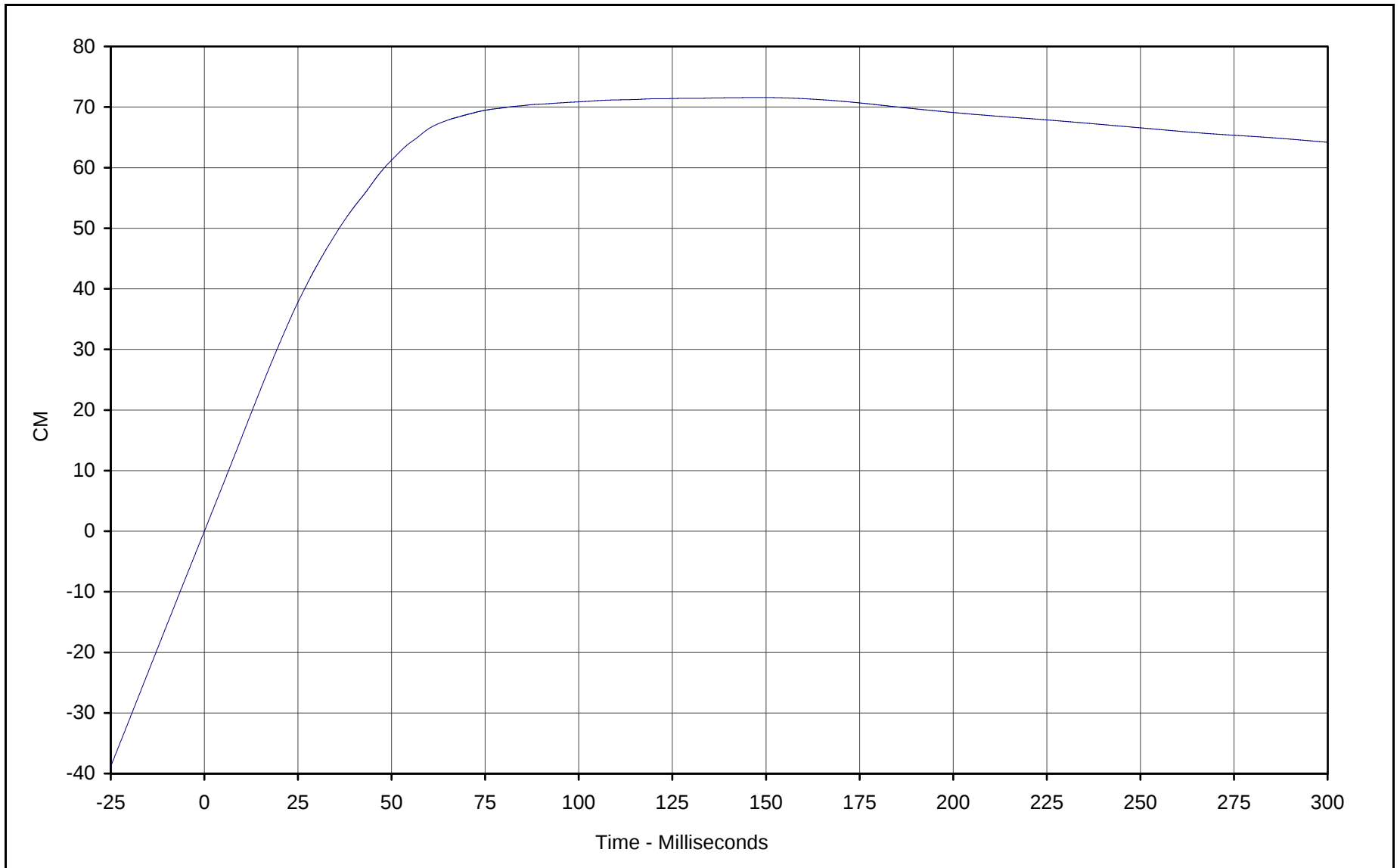


Curve Description: Vehicle Instrument Panel Velocity
Maximum Value: 57.1 at 10.6 Milliseconds
Minimum Value: -2.5 at 182.8 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN1-095

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05



Curve Description: Vehicle Instrument Panel Displacement

Maximum Value: 71.6 at 149.3 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

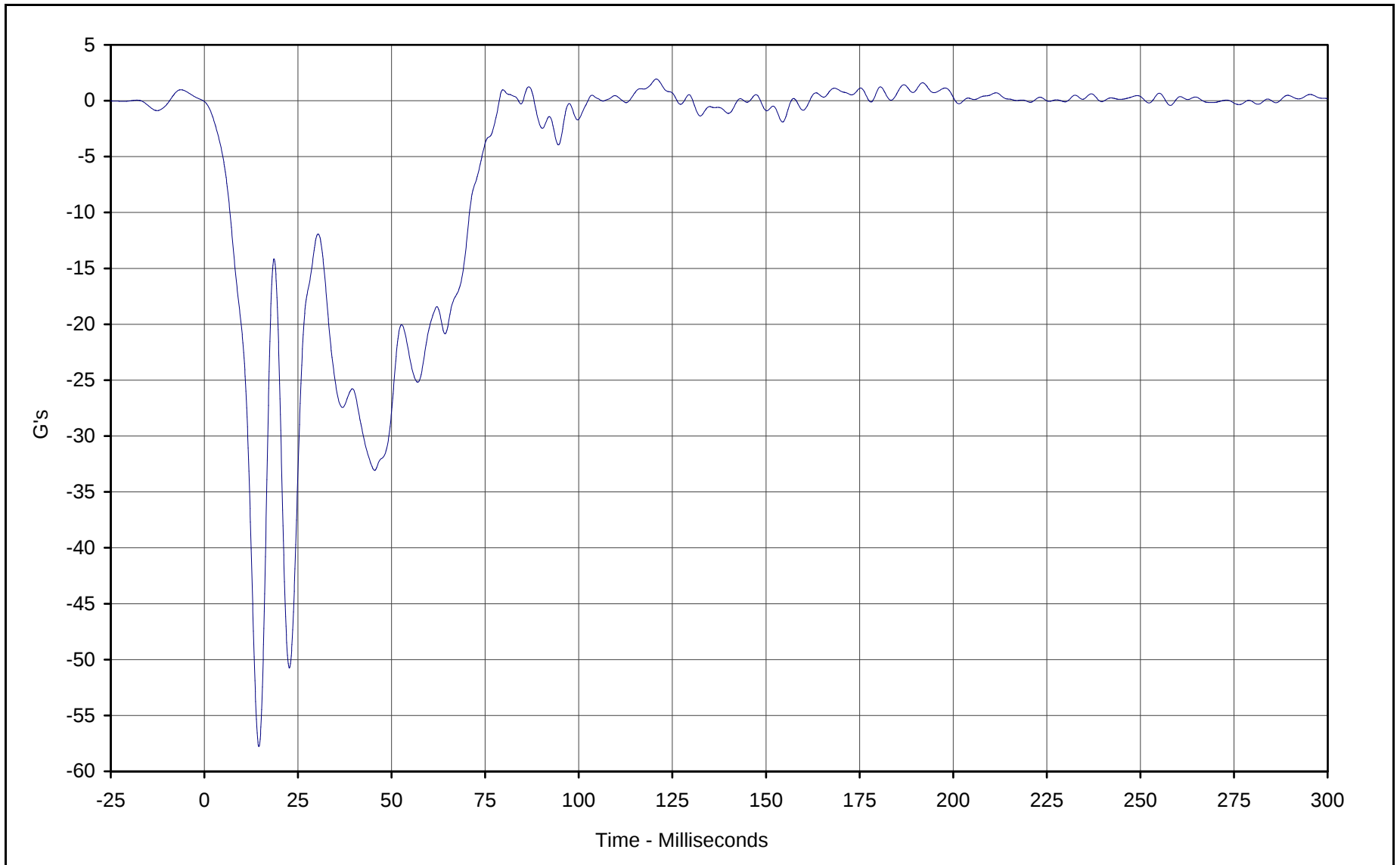
Date of Test: 01/16/01

Curve Number: IN2-095

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



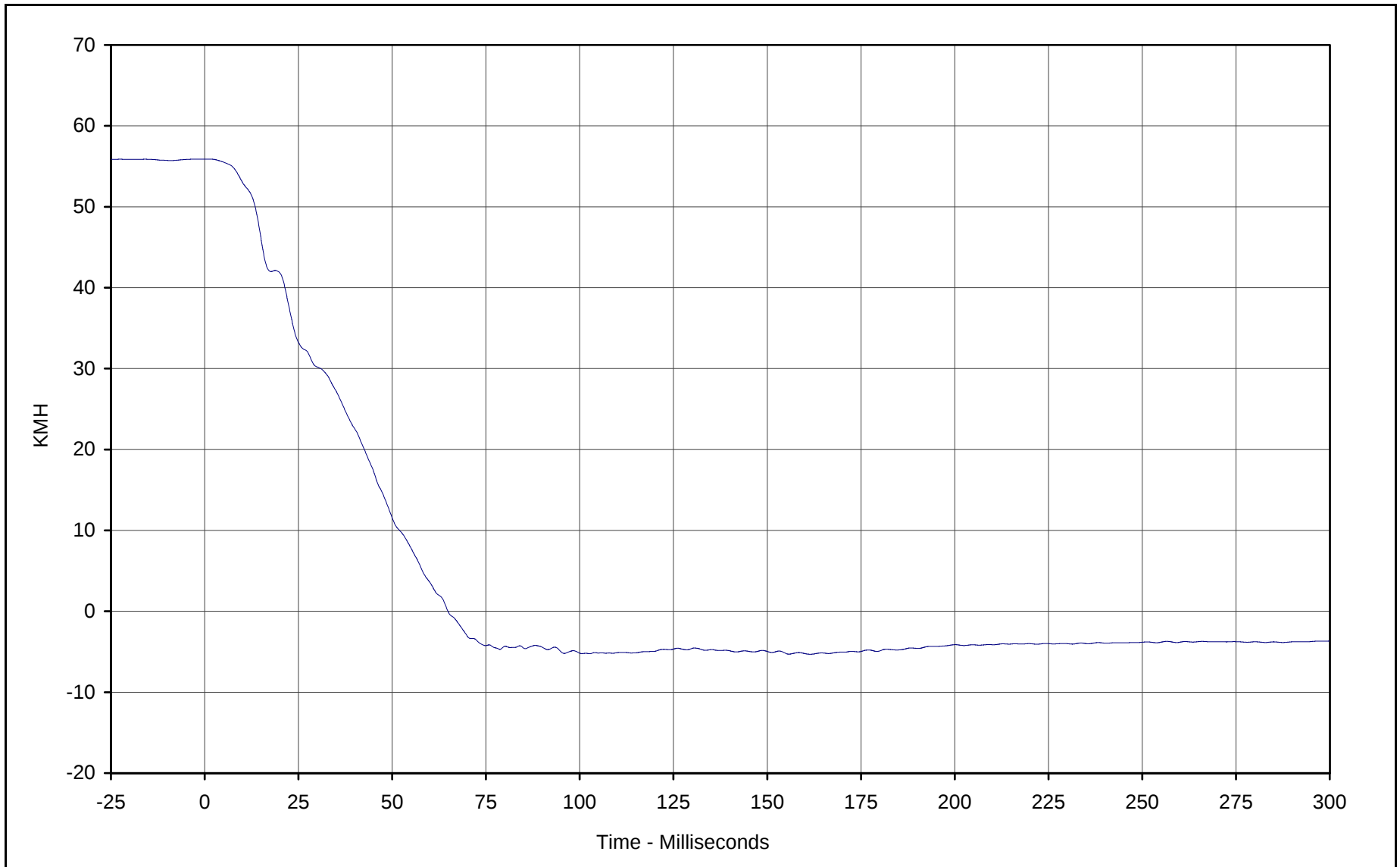


Curve Description: Vehicle Left Rear Redundant
Maximum Value: 1.9 at 120.7 Milliseconds
Minimum Value: -57.8 at 14.6 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: FIL-096

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



B-145



Curve Description: Vehicle Left Rear Redundant Velocity

Maximum Value: 55.9 at 0.6 Milliseconds

Minimum Value: -5.3 at 161.6 Milliseconds

SAE Filter Class: 180

Date of Test: 01/16/01

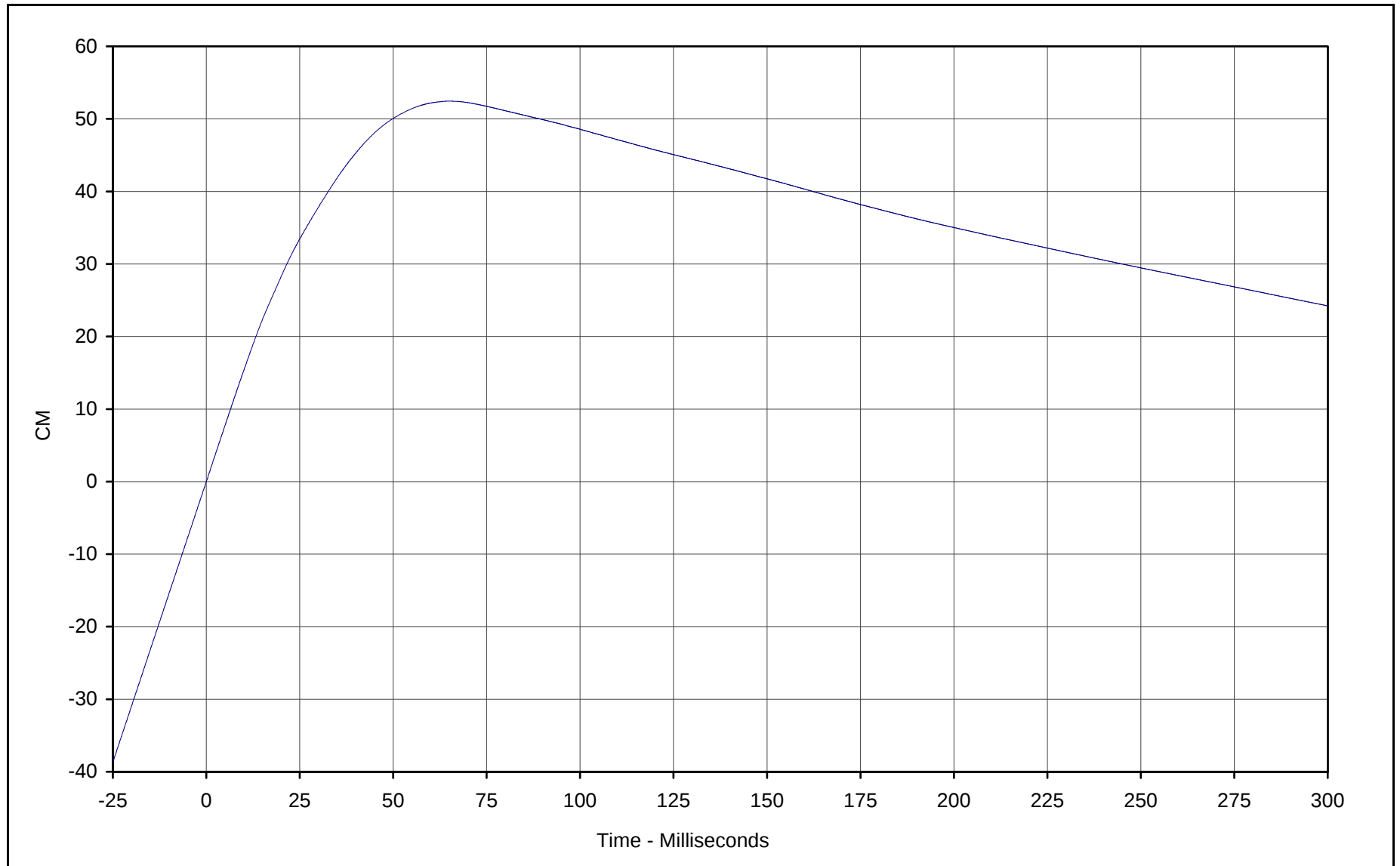
Curve Number: IN1-096

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05



Curve Description: Vehicle Left Rear Redundant Displ.
Maximum Value: 52.4 at 64.9 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 01/16/01
Curve Number: IN2-096

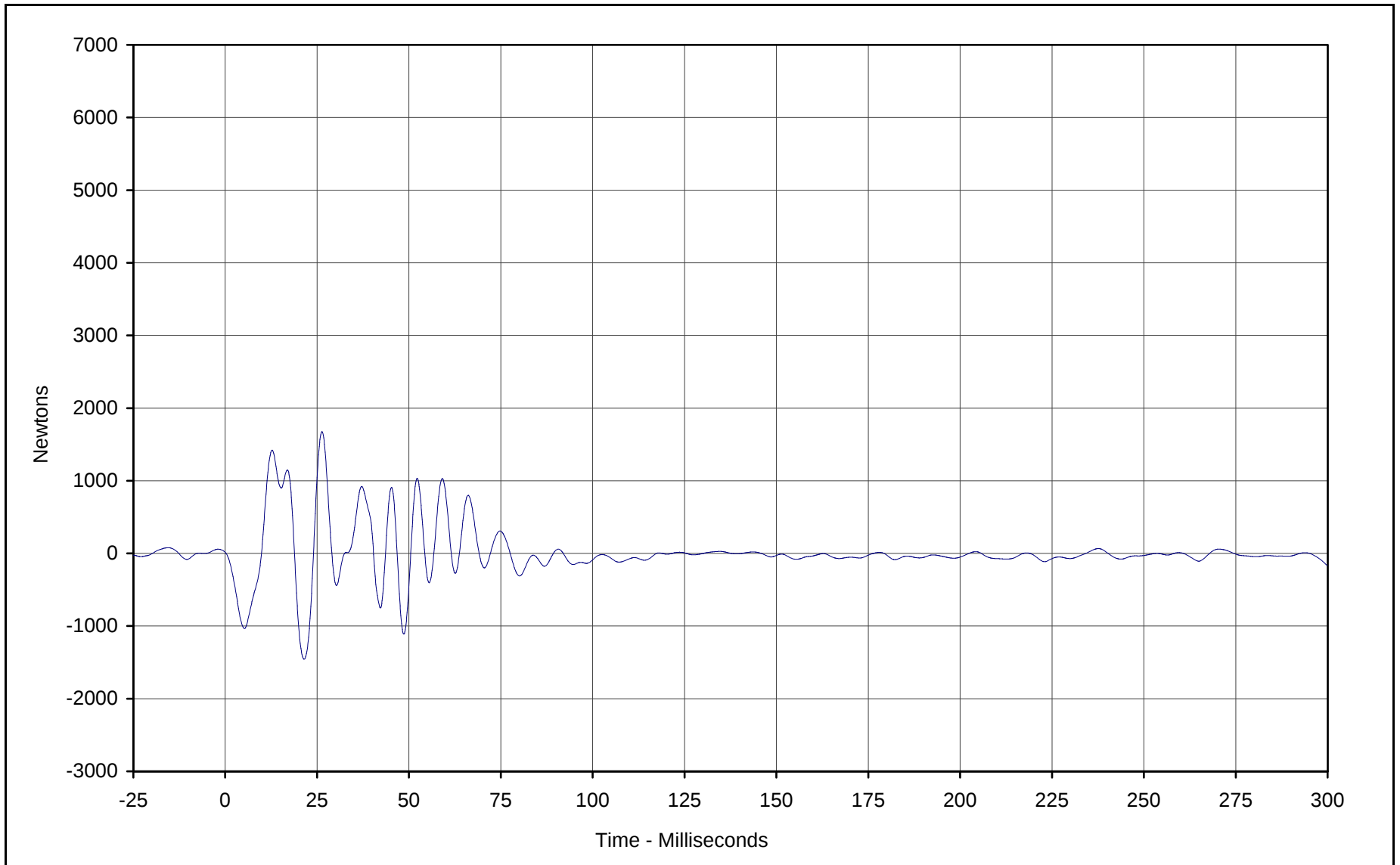
Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



APPENDIX C

LOAD CELL BARRIER INFORMATION

C-1



Curve Description: Barrier Force A2

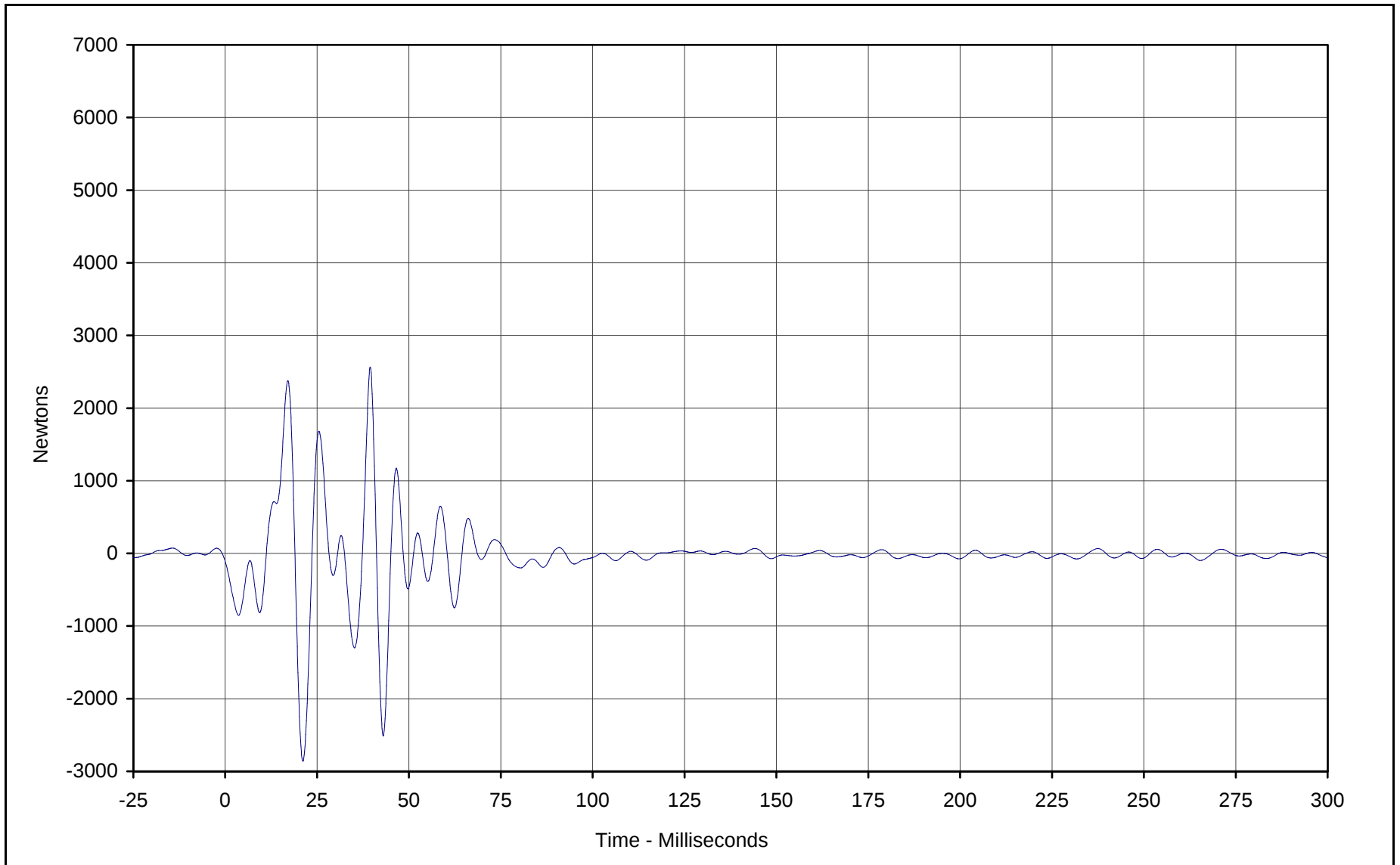
Maximum Value:	<u>1675.9</u>	at	<u>26.3</u>	Milliseconds
Minimum Value:	<u>-1456.4</u>	at	<u>21.5</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-099</u>			

Test Program:	<u>2001 NHTSA 35mph NCAP No.: M10310</u>
Test Vehicle:	<u>2001 Dodge Ram 1500 Van</u>



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C-2



Curve Description: Barrier Force A3

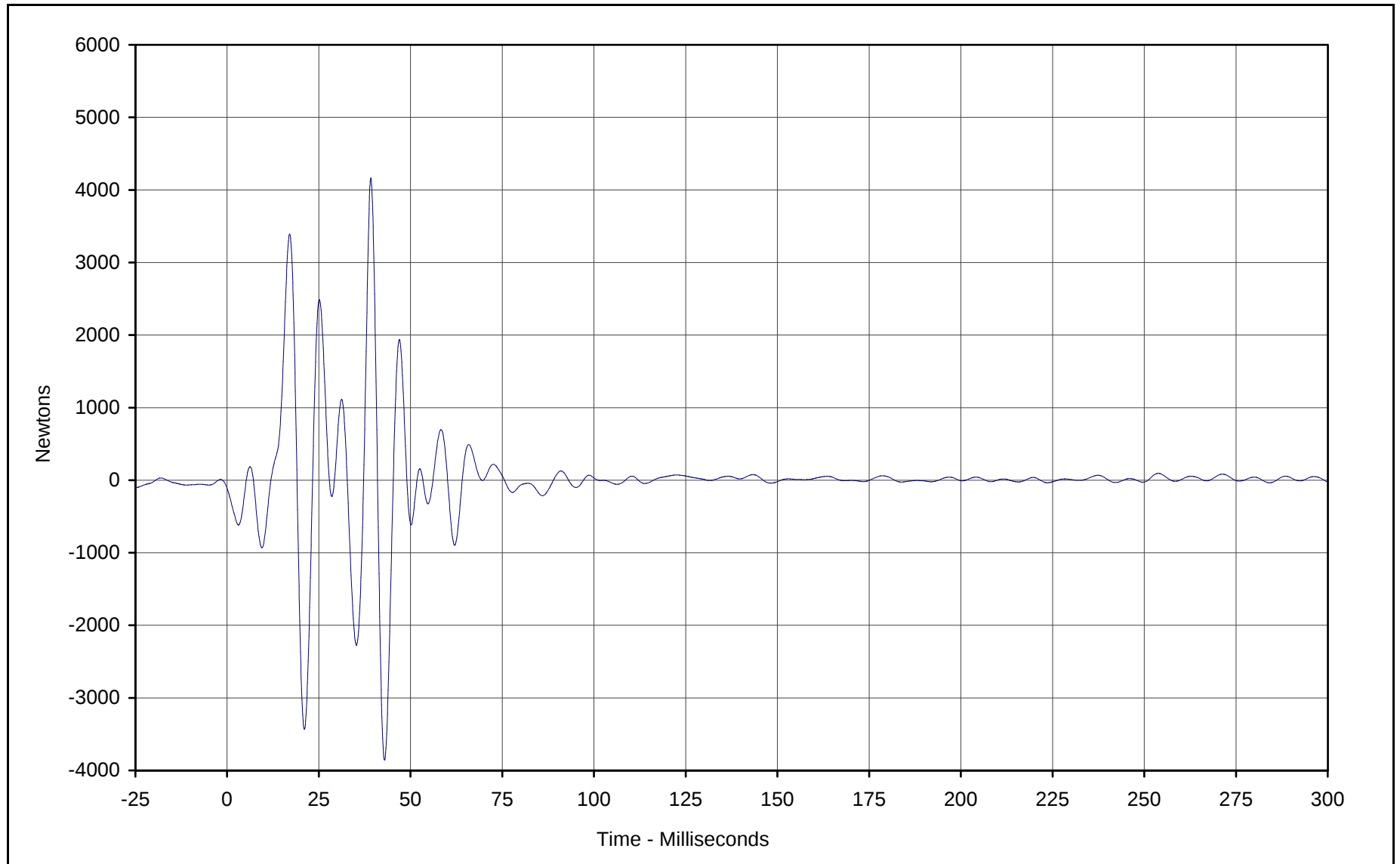
Maximum Value:	<u>2565.1</u>	at	<u>39.5</u>	Milliseconds
Minimum Value:	<u>-2860.2</u>	at	<u>21.1</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-100</u>			

Test Program:	<u>2001 NHTSA 35mph NCAP No.: M10310</u>
Test Vehicle:	<u>2001 Dodge Ram 1500 Van</u>



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C-3



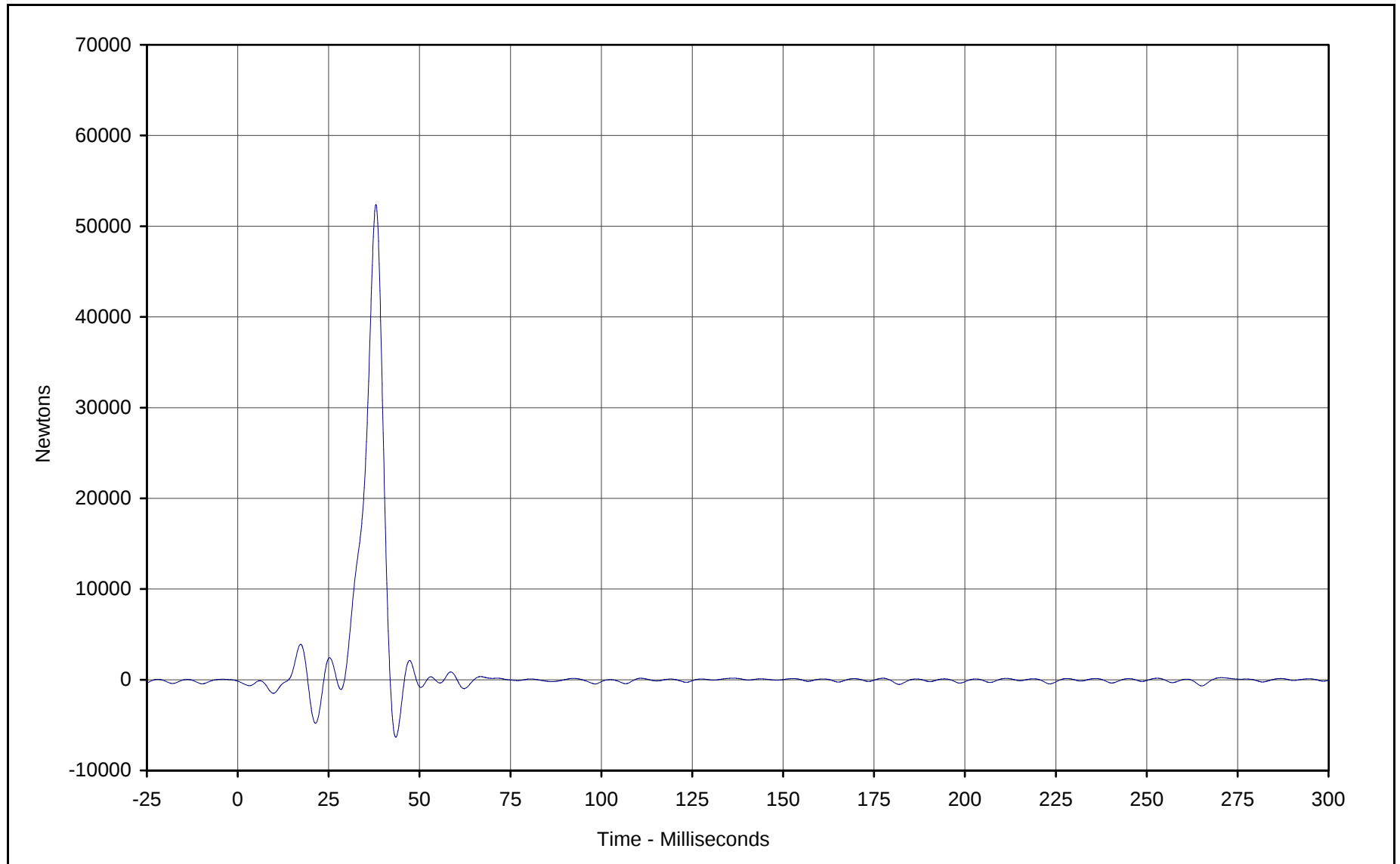
Curve Description:	Barrier Force A4		
Maximum Value:	4164.6	at	39.2 Milliseconds
Minimum Value:	-3858.0	at	42.9 Milliseconds
SAE Filter Class:	60		
Date of Test:	01/16/01		
Curve Number:	FIL-101		

Test Program:	2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle:	2001 Dodge Ram 1500 Van



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C-4



Curve Description: Barrier Force A5

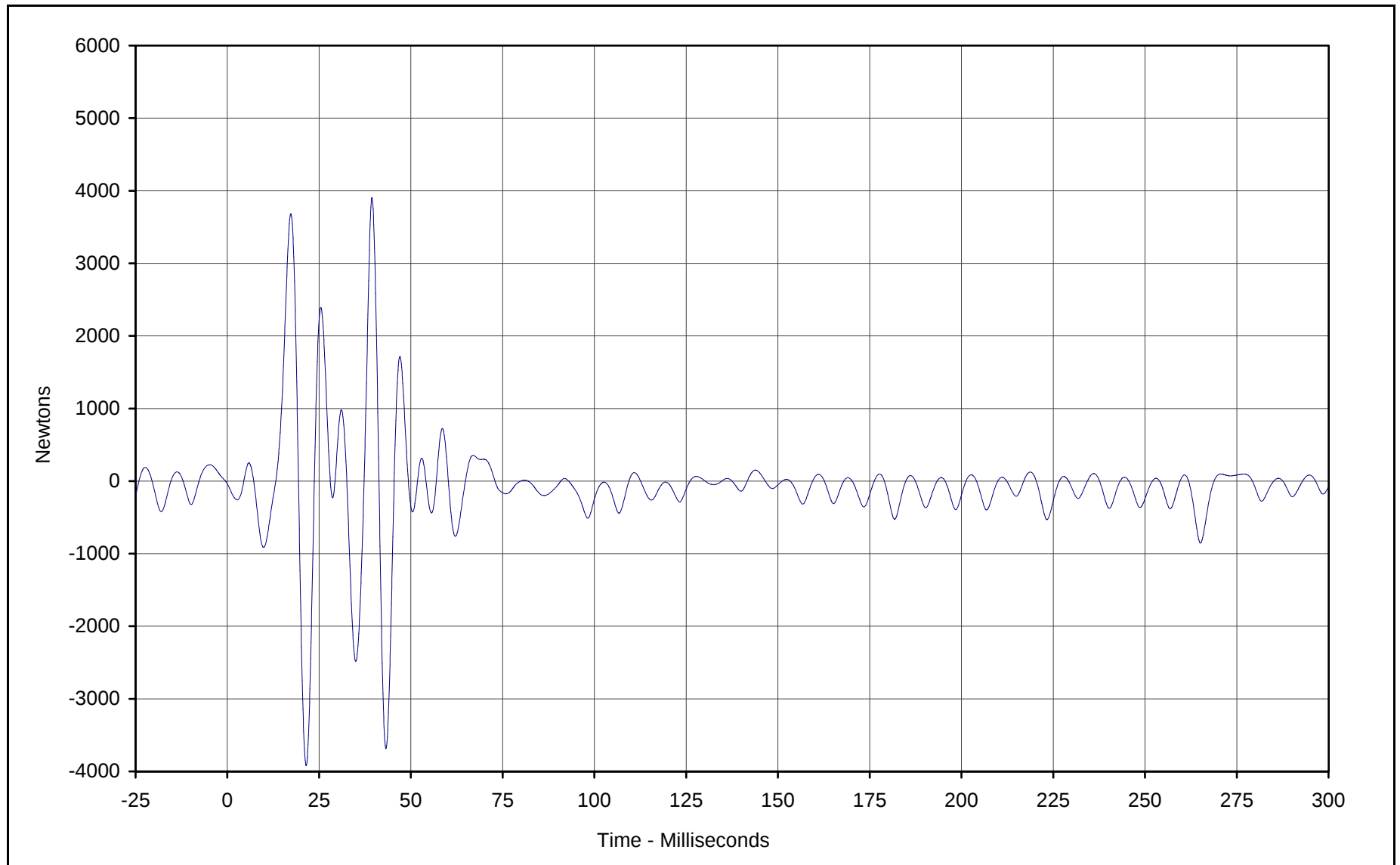
Maximum Value:	<u>52386.4</u>	at	<u>38.0</u>	Milliseconds
Minimum Value:	<u>-6341.0</u>	at	<u>43.5</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-102</u>			

Test Program:	<u>2001 NHTSA 35mph NCAP No.: M10310</u>
Test Vehicle:	<u>2001 Dodge Ram 1500 Van</u>



KAR21001-05

C-5



Curve Description: Barrier Force A6

Maximum Value: 3906.0 at 39.4 Milliseconds

Minimum Value: -3919.7 at 21.5 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

Curve Number: FIL-103

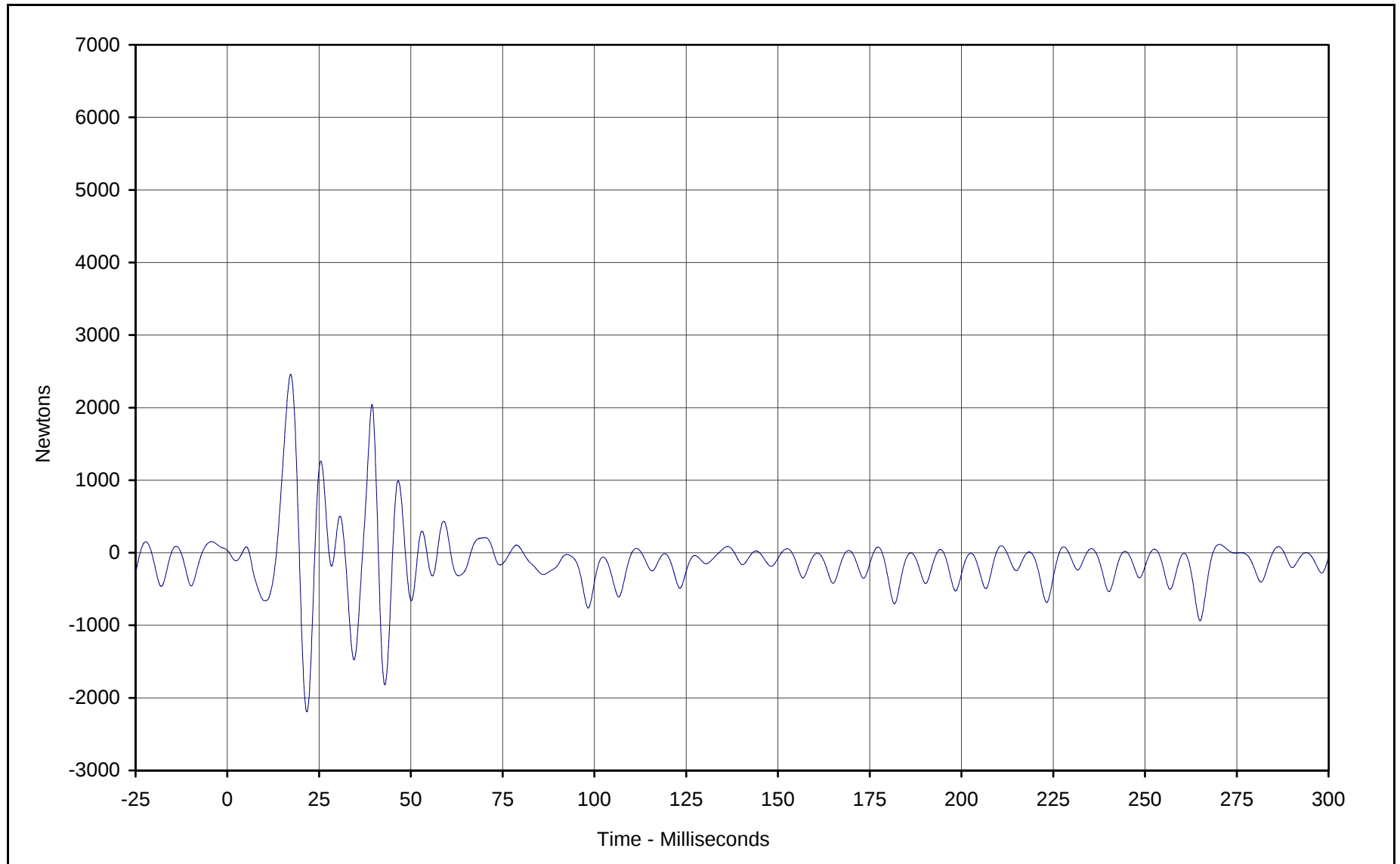
Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05

C-6



Curve Description: Barrier Force A7

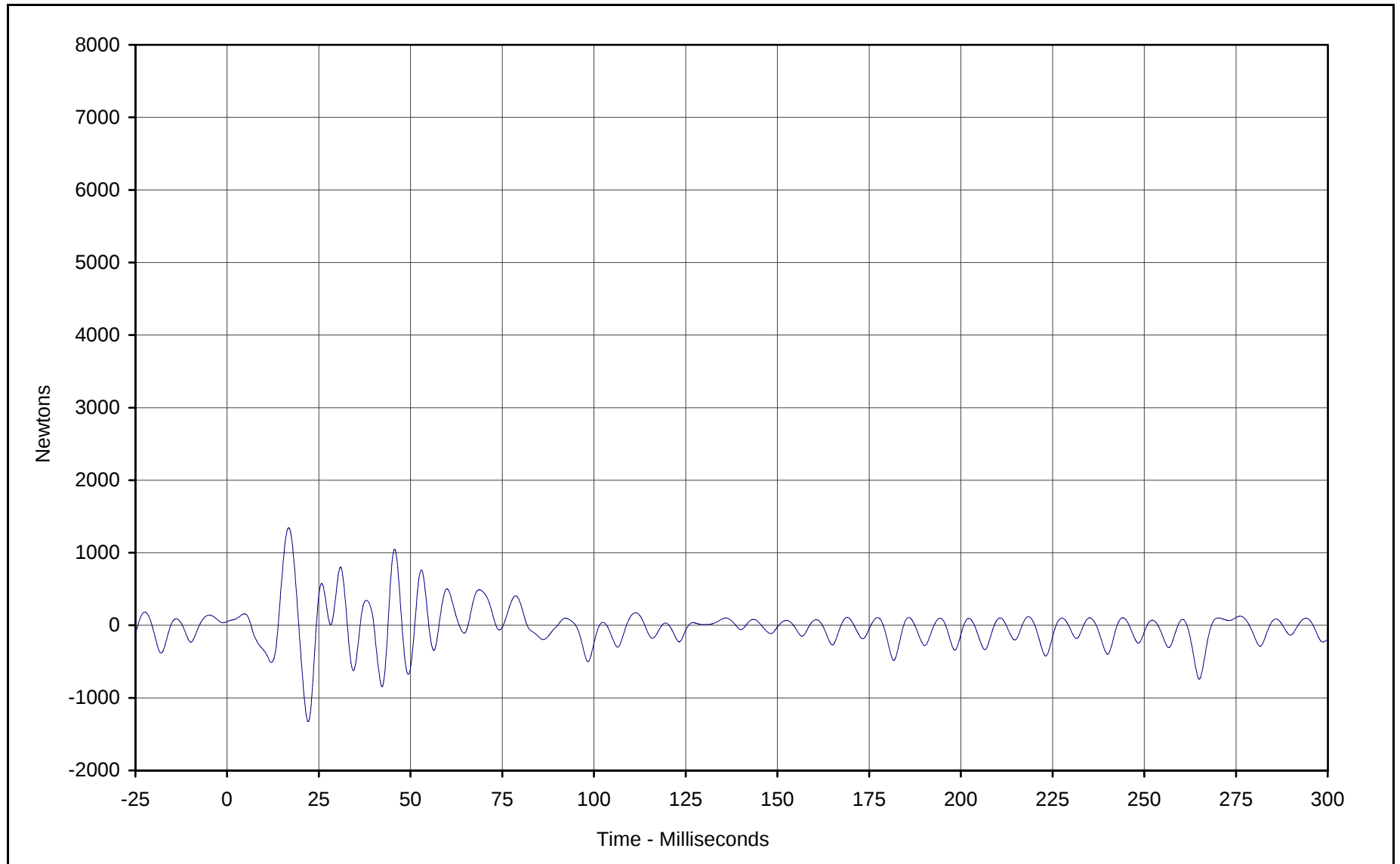
Maximum Value:	<u>2459.1</u>	at	<u>17.2</u>	Milliseconds
Minimum Value:	<u>-2191.2</u>	at	<u>21.7</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-104</u>			

Test Program:	<u>2001 NHTSA 35mph NCAP No.: M10310</u>
Test Vehicle:	<u>2001 Dodge Ram 1500 Van</u>



KAR21001-05

C-7



Curve Description: Barrier Force A8

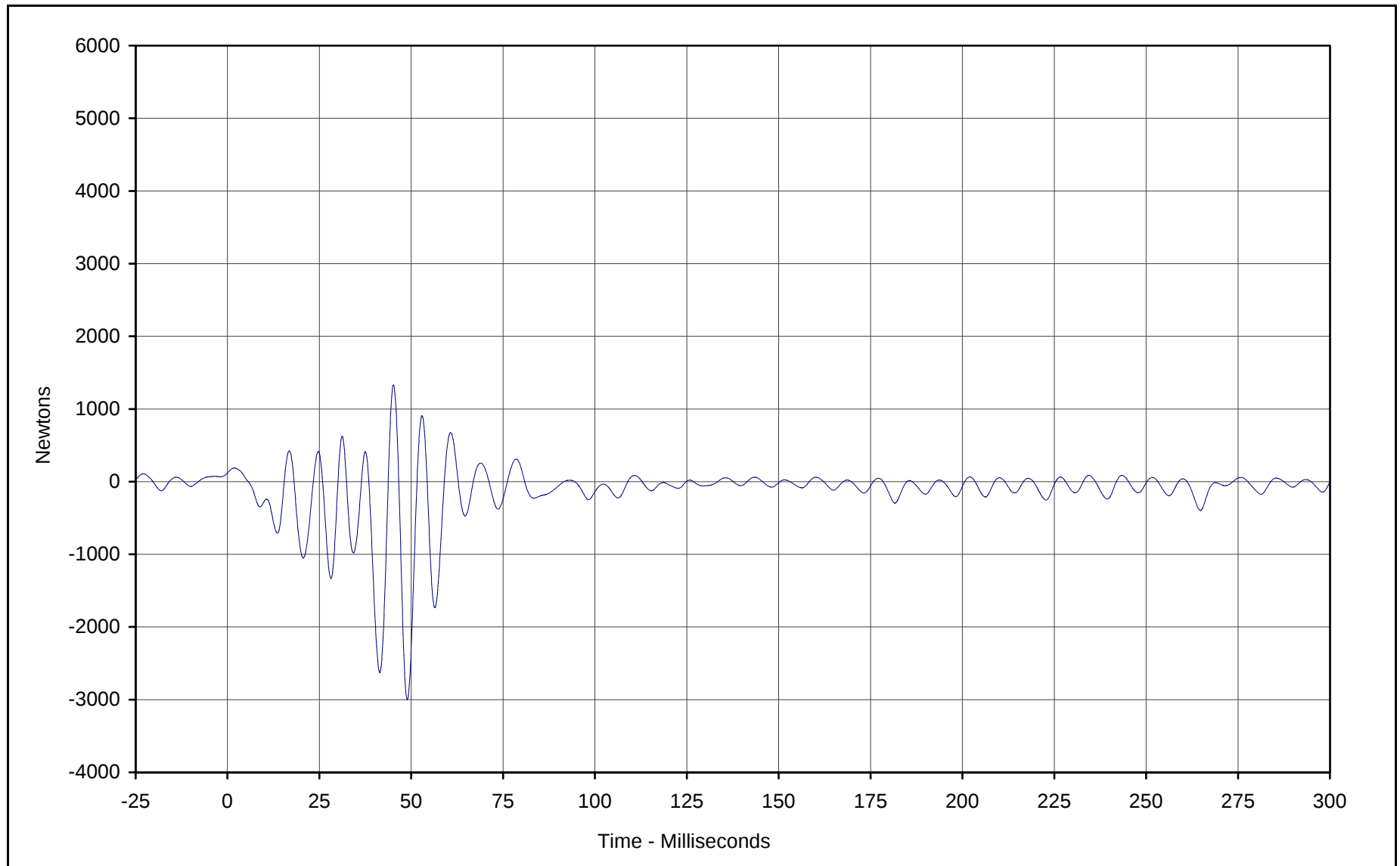
Maximum Value:	<u>1345.1</u>	at	<u>16.8</u>	Milliseconds
Minimum Value:	<u>-1328.6</u>	at	<u>22.1</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-105</u>			

Test Program:	<u>2001 NHTSA 35mph NCAP No.: M10310</u>
Test Vehicle:	<u>2001 Dodge Ram 1500 Van</u>



KAR21001-05

C-8



Curve Description: Barrier Force A9

Maximum Value:	<u>1330.2</u>	at	<u>45.2</u>	Milliseconds
Minimum Value:	<u>-2999.9</u>	at	<u>48.9</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-106</u>			

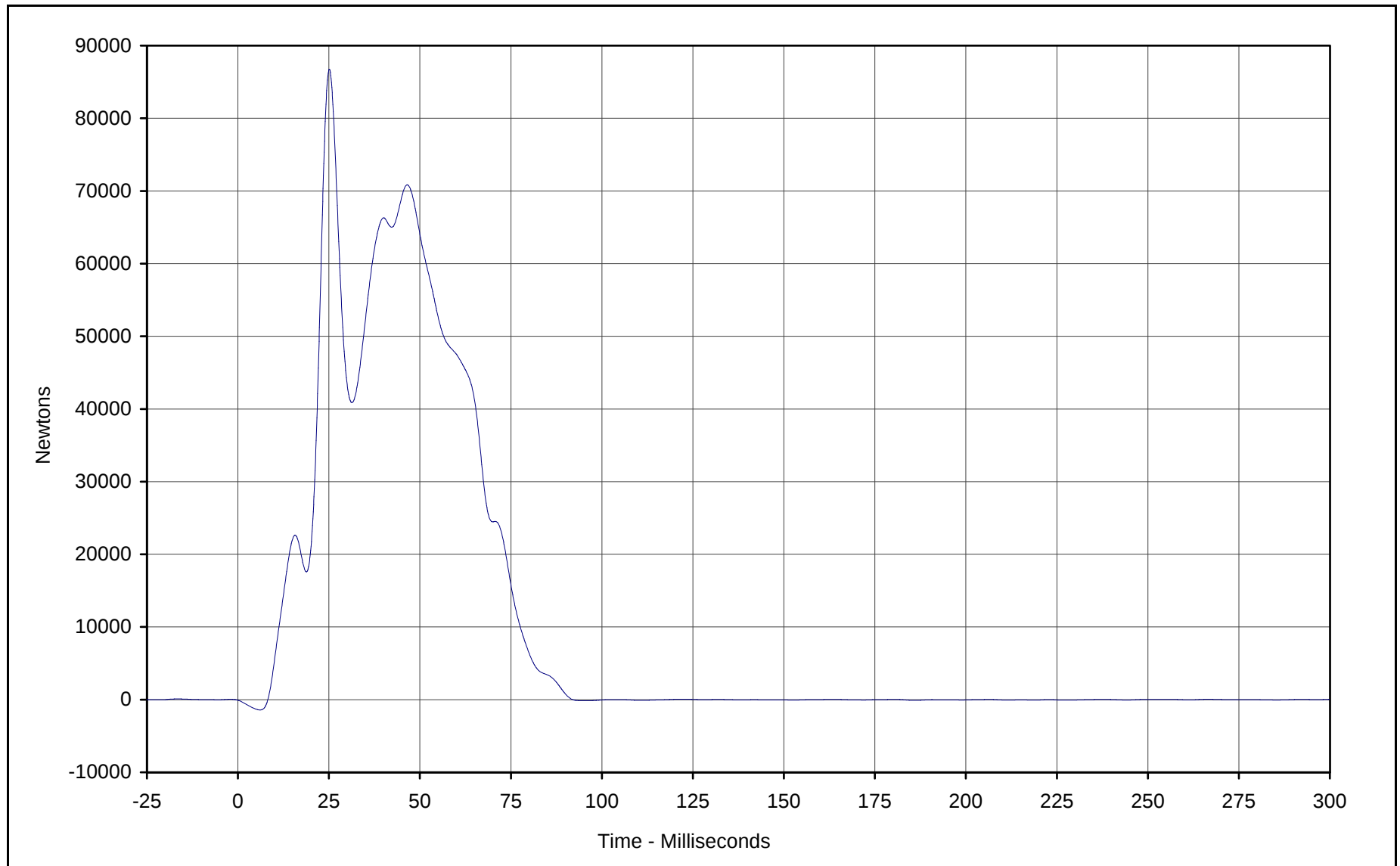
Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05

C-9



Curve Description: Barrier Force B2

Maximum Value: 86759.1 at 25.1 Milliseconds

Minimum Value: -1425.8 at 6.1 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

Curve Number: FIL-108

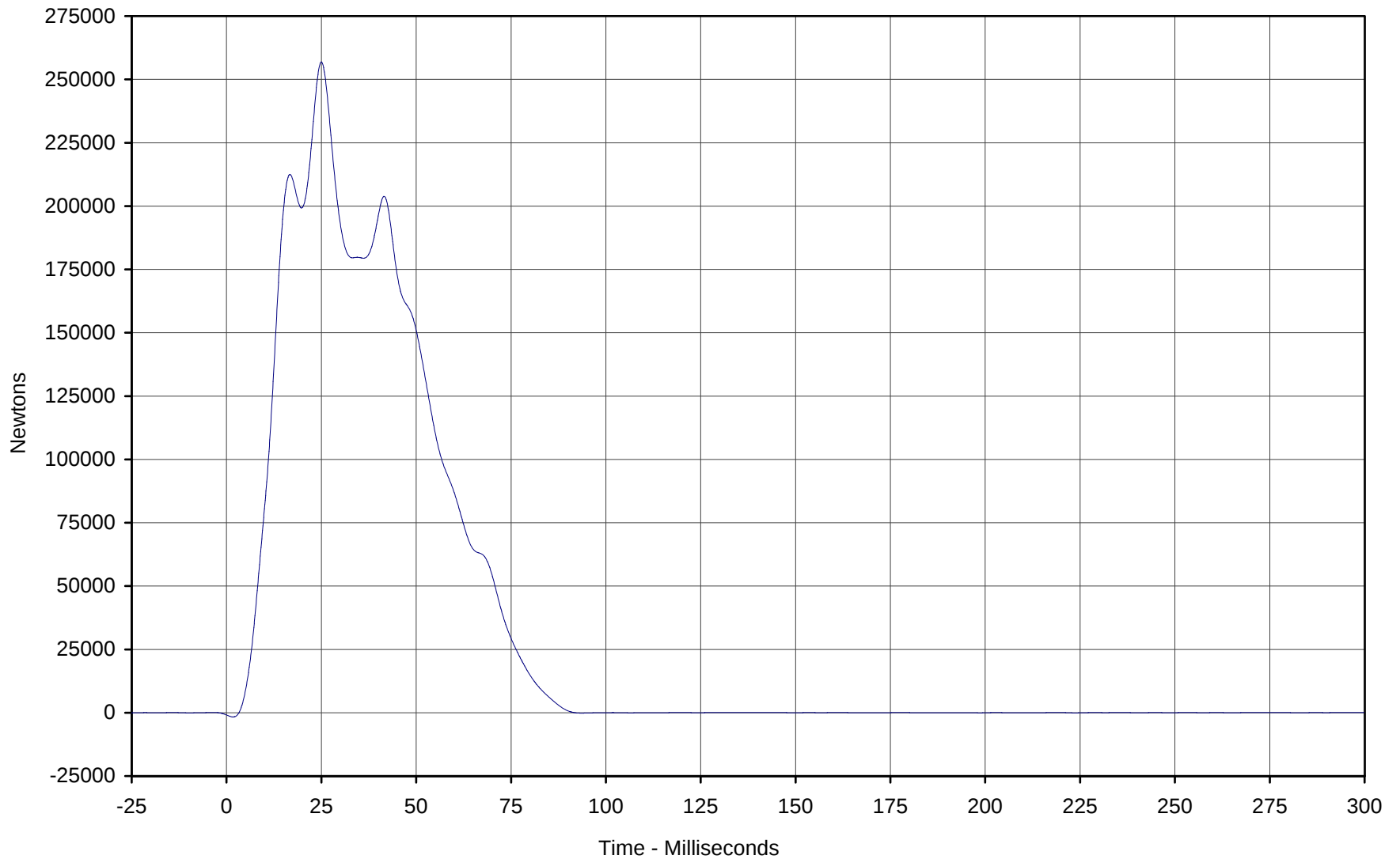
Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05

C-10



Curve Description: Barrier Force B3

Maximum Value: 256909.8 at 25.0 Milliseconds

Minimum Value: -1676.8 at 1.7 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

Curve Number: FIL-109

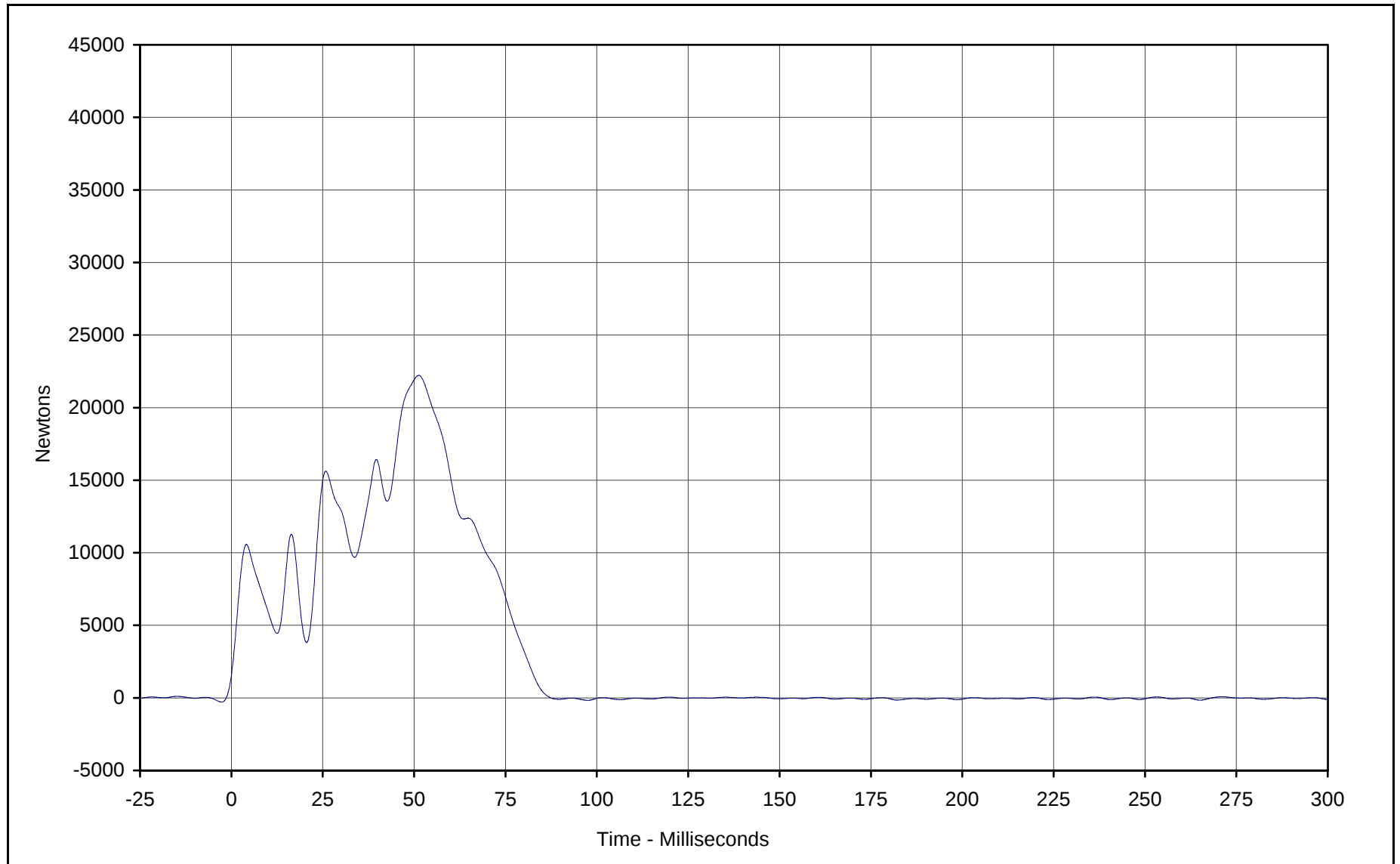
Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05

C-11



Curve Description: Barrier Force B4

Maximum Value: 22222.6 at 51.3 Milliseconds

Minimum Value: -168.1 at 97.5 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

Curve Number: FIL-110

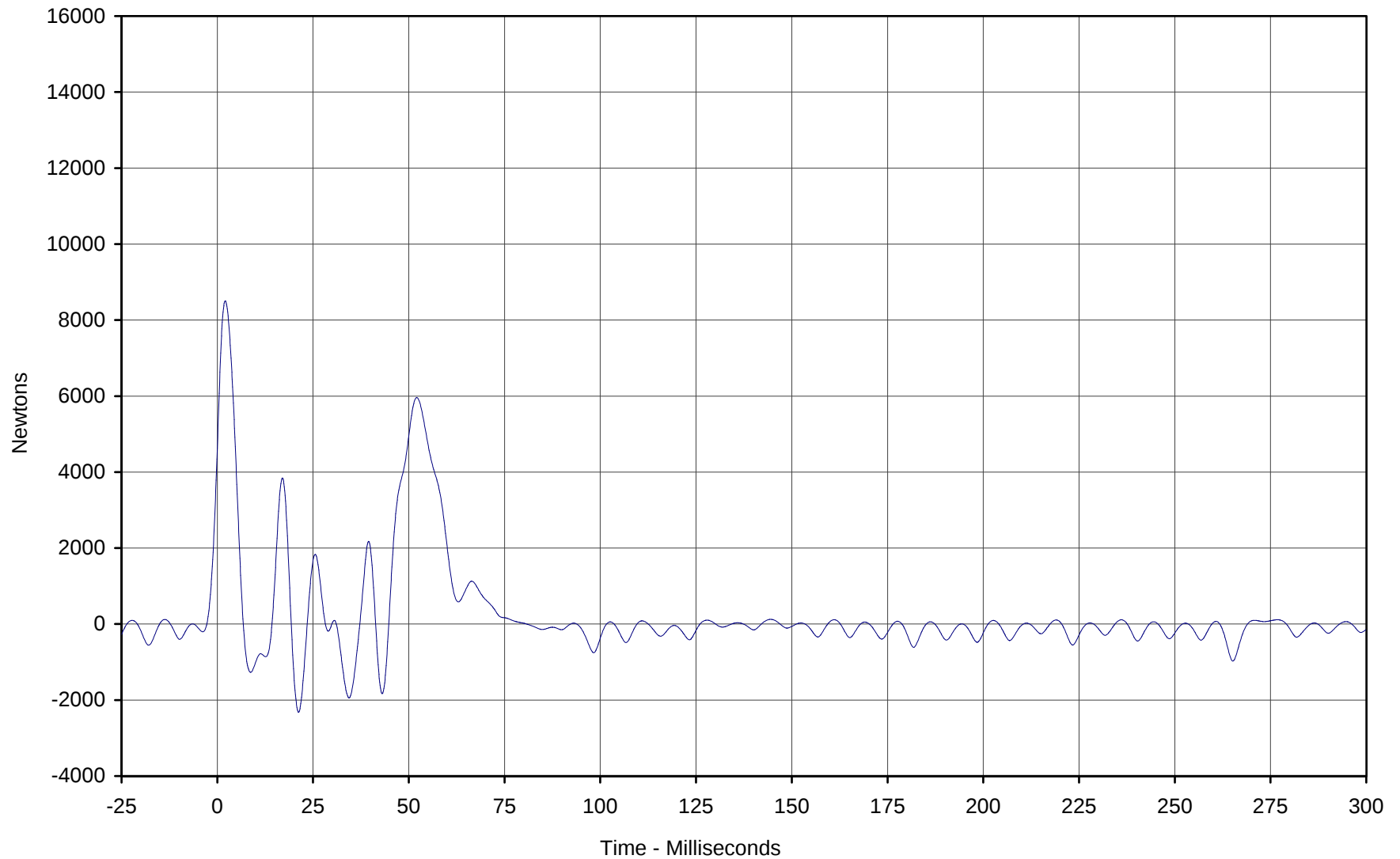
Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05

C-12



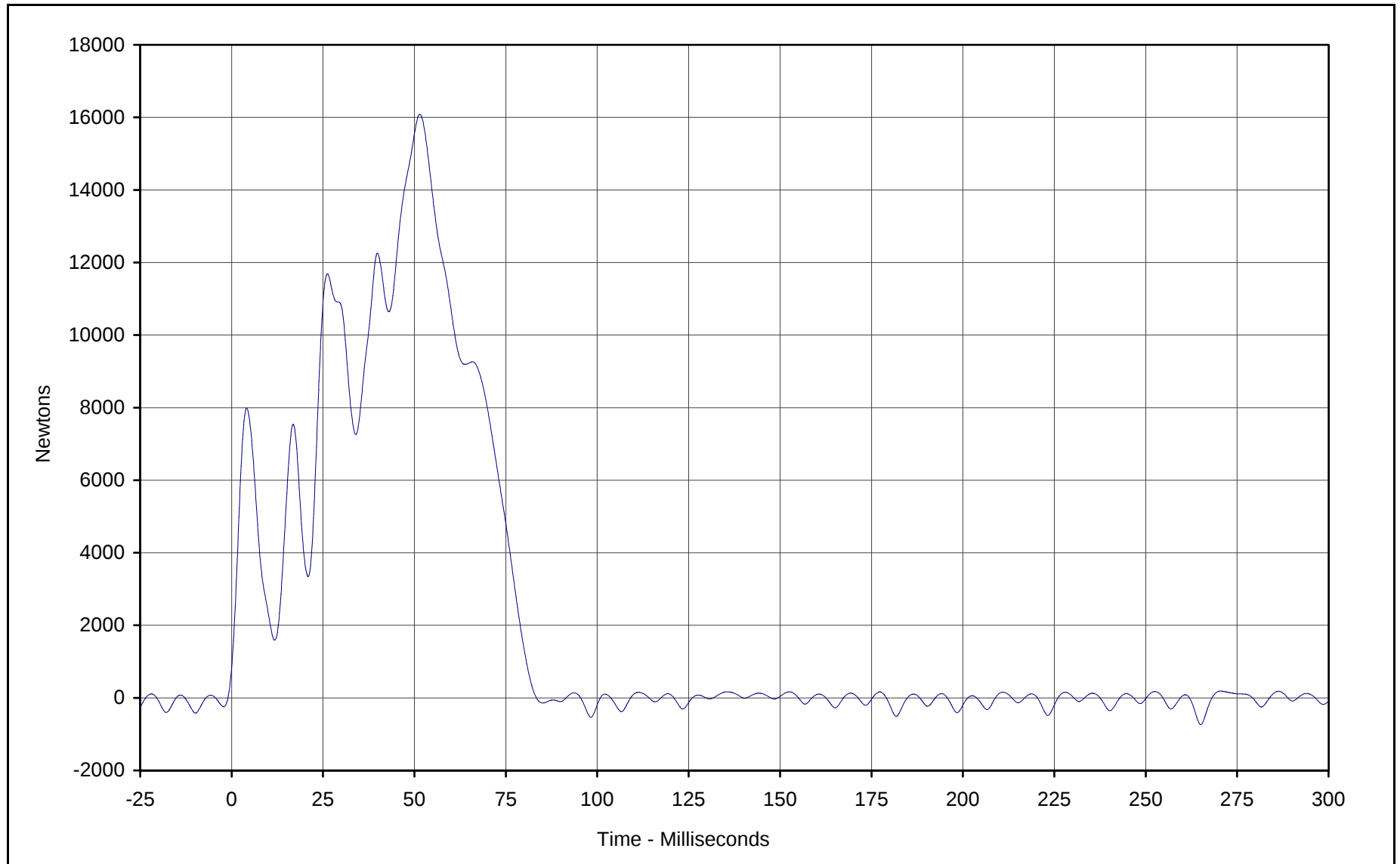
Curve Description: Barrier Force B5

Maximum Value:	<u>8505.3</u>	at	<u>2.1</u>	Milliseconds
Minimum Value:	<u>-2321.4</u>	at	<u>21.2</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-111</u>			

Test Program:	<u>2001 NHTSA 35mph NCAP No.: M10310</u>
Test Vehicle:	<u>2001 Dodge Ram 1500 Van</u>



KAR21001-05



Curve Description: Barrier Force B6

Maximum Value: 16084.3 at 51.5 Milliseconds

Minimum Value: -738.0 at 265.0 Milliseconds

SAE Filter Class: 60

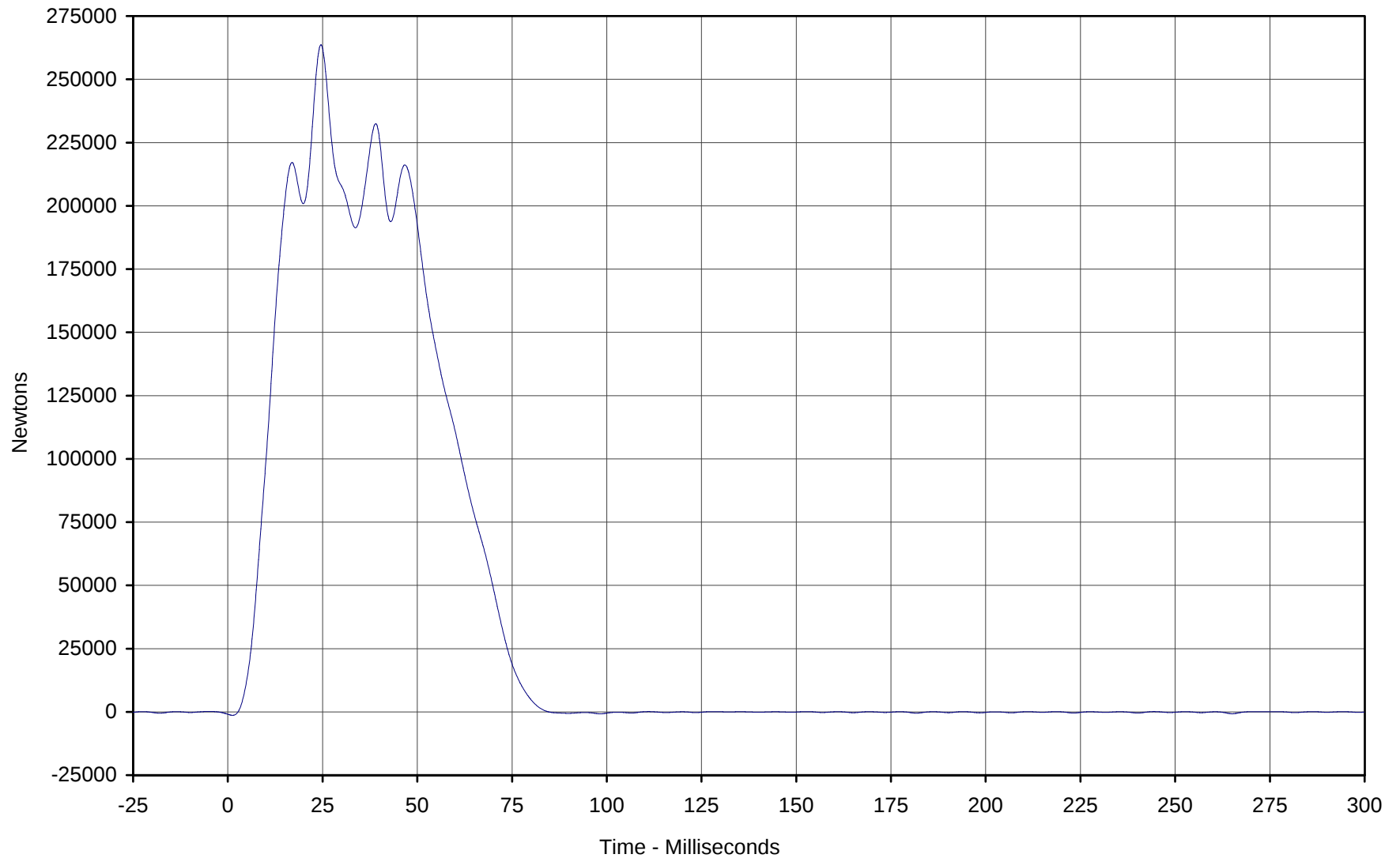
Date of Test: 01/16/01

Curve Number: FIL-112

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Barrier Force B7

Maximum Value: 263652.0 at 24.6 Milliseconds

Minimum Value: -1351.5 at 1.2 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

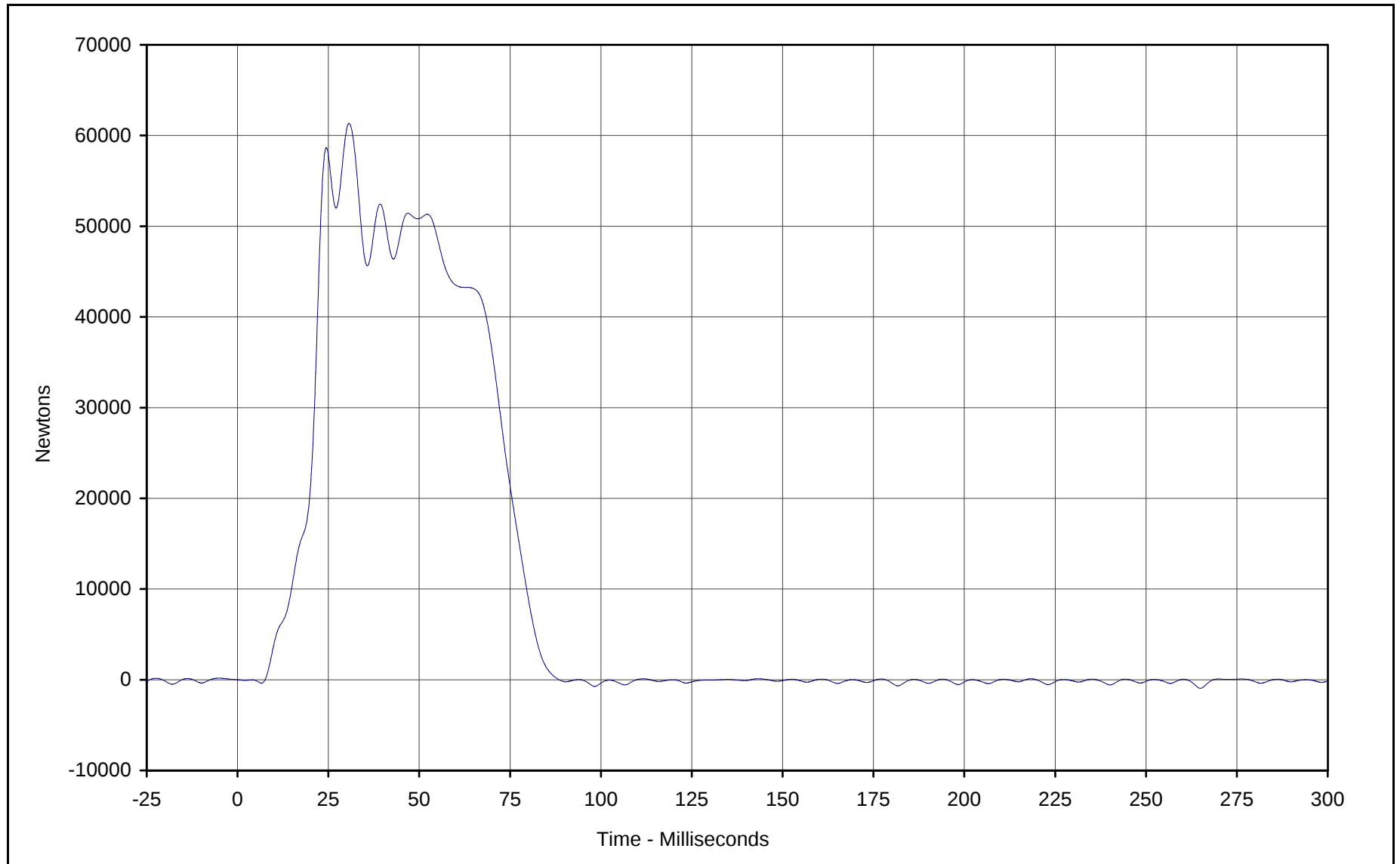
Curve Number: FIL-113

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



C-15



Curve Description: Barrier Force B8

Maximum Value: 61344.9 at 30.7 Milliseconds

Minimum Value: -950.4 at 265.0 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

Curve Number: FIL-114

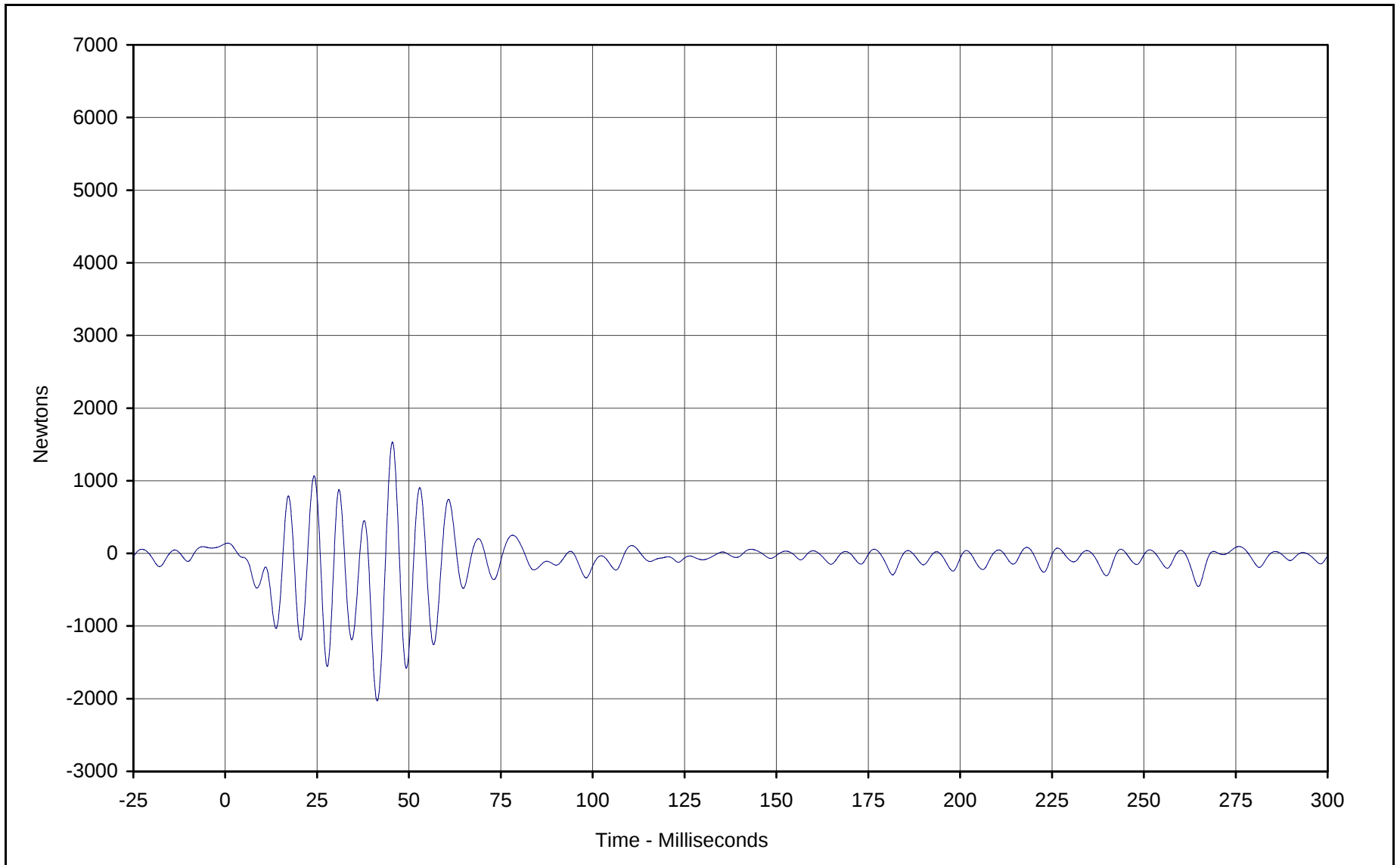
Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05

C-16



Curve Description: Barrier Force B9

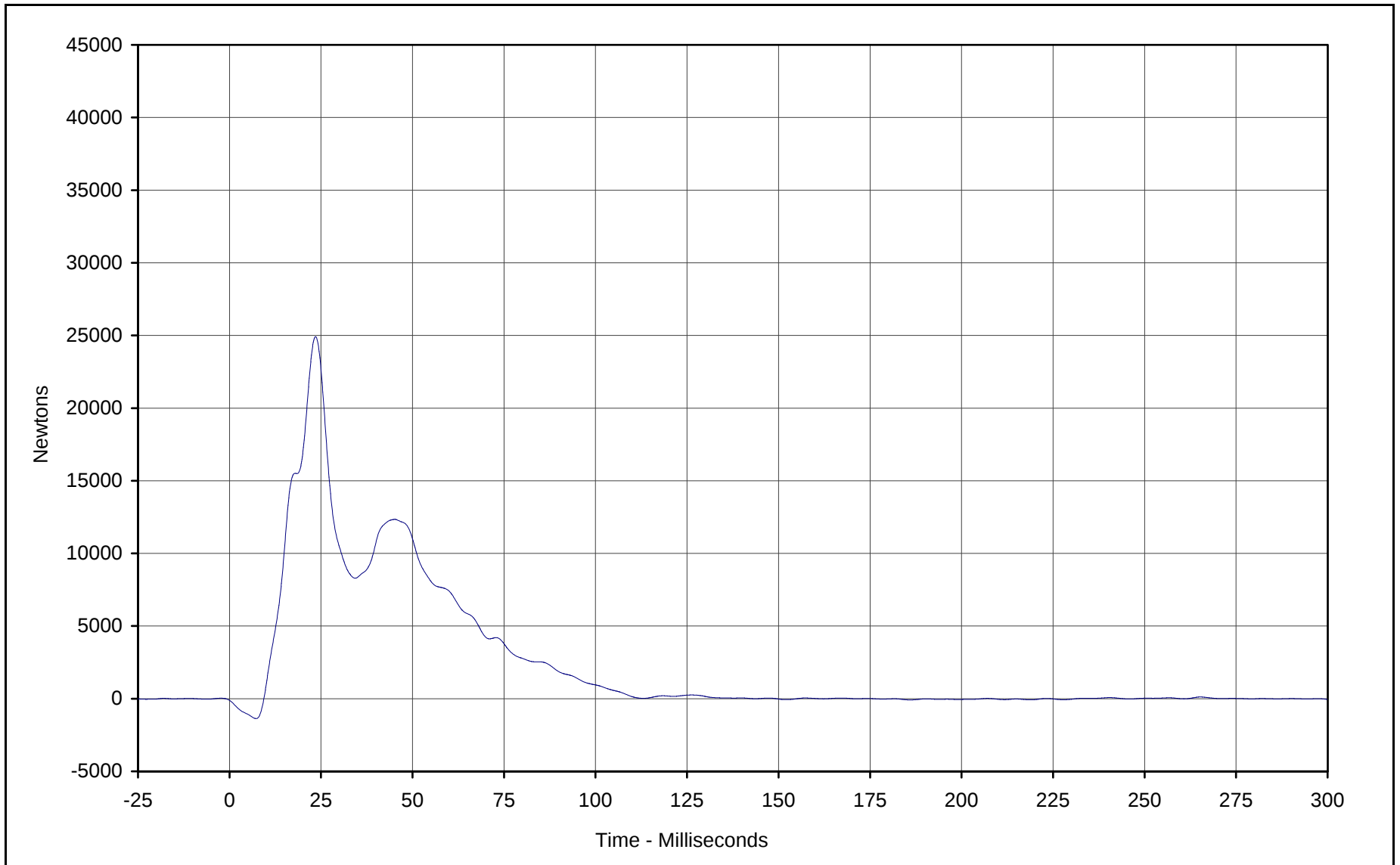
Maximum Value:	<u>1535.1</u>	at	<u>45.5</u>	Milliseconds
Minimum Value:	<u>-2029.2</u>	at	<u>41.4</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>01/16/01</u>			
Curve Number:	<u>FIL-115</u>			

Test Program:	<u>2001 NHTSA 35mph NCAP No.: M10310</u>
Test Vehicle:	<u>2001 Dodge Ram 1500 Van</u>



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C-17



Curve Description: Barrier Force C2

Maximum Value: 24922.6 at 23.5 Milliseconds

Minimum Value: -1366.9 at 7.3 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

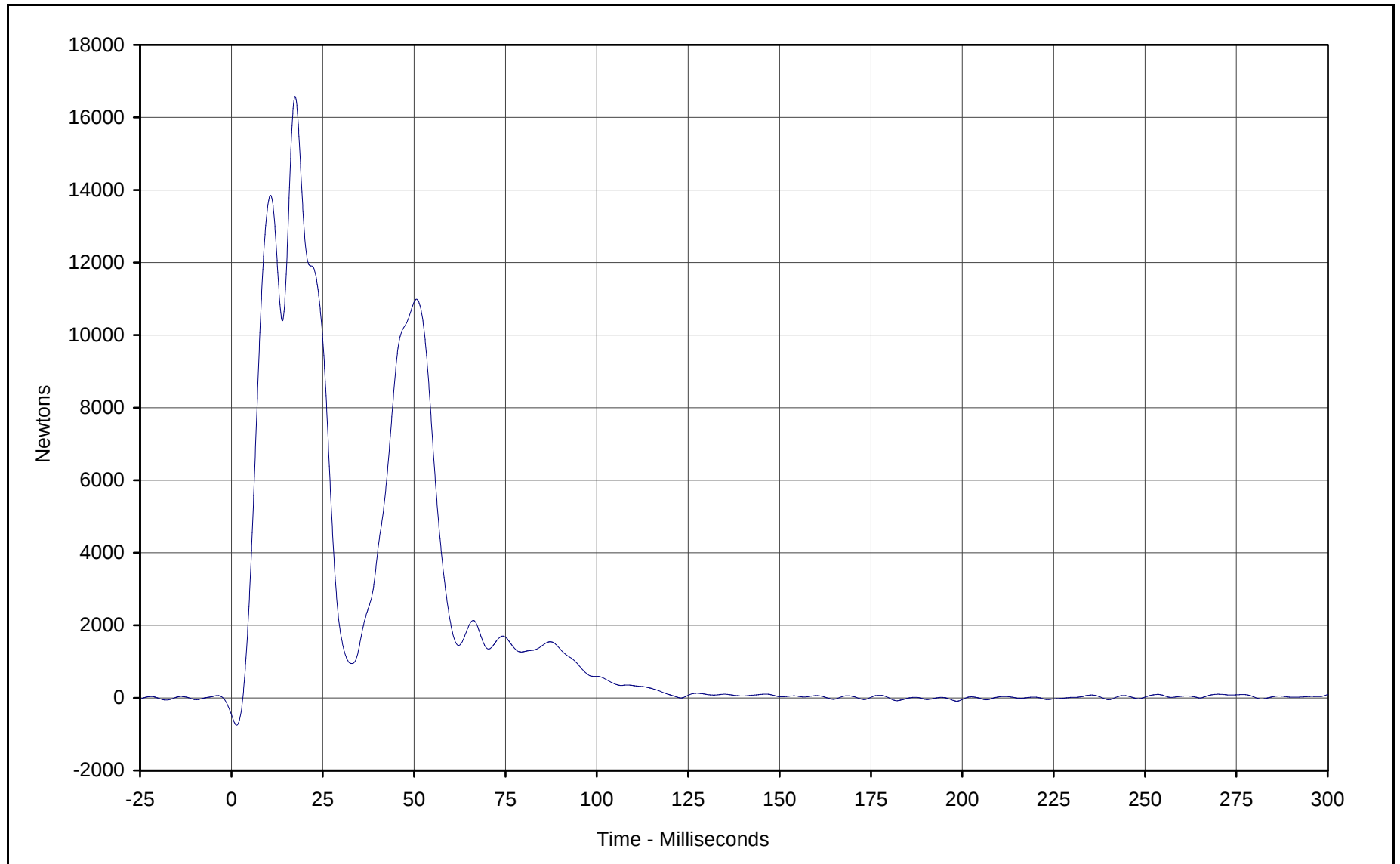
Curve Number: FIL-117

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05



Curve Description: Barrier Force C3

Maximum Value: 16573.1 at 17.4 Milliseconds

Minimum Value: -749.8 at 1.4 Milliseconds

SAE Filter Class: 60

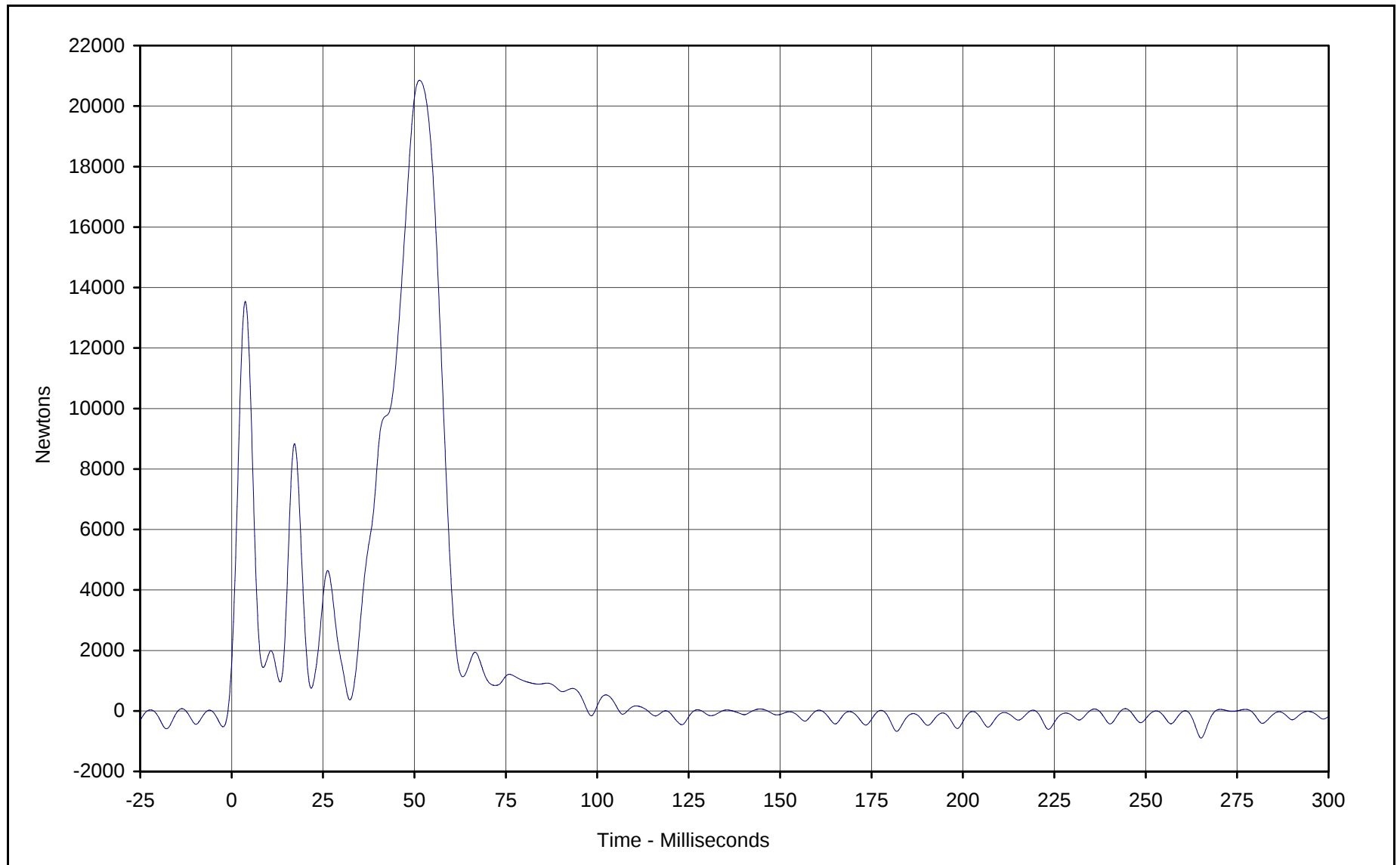
Date of Test: 01/16/01

Curve Number: FIL-118

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Barrier Force C4

Maximum Value: 20851.5 at 51.4 Milliseconds

Minimum Value: -898.6 at 265.1 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

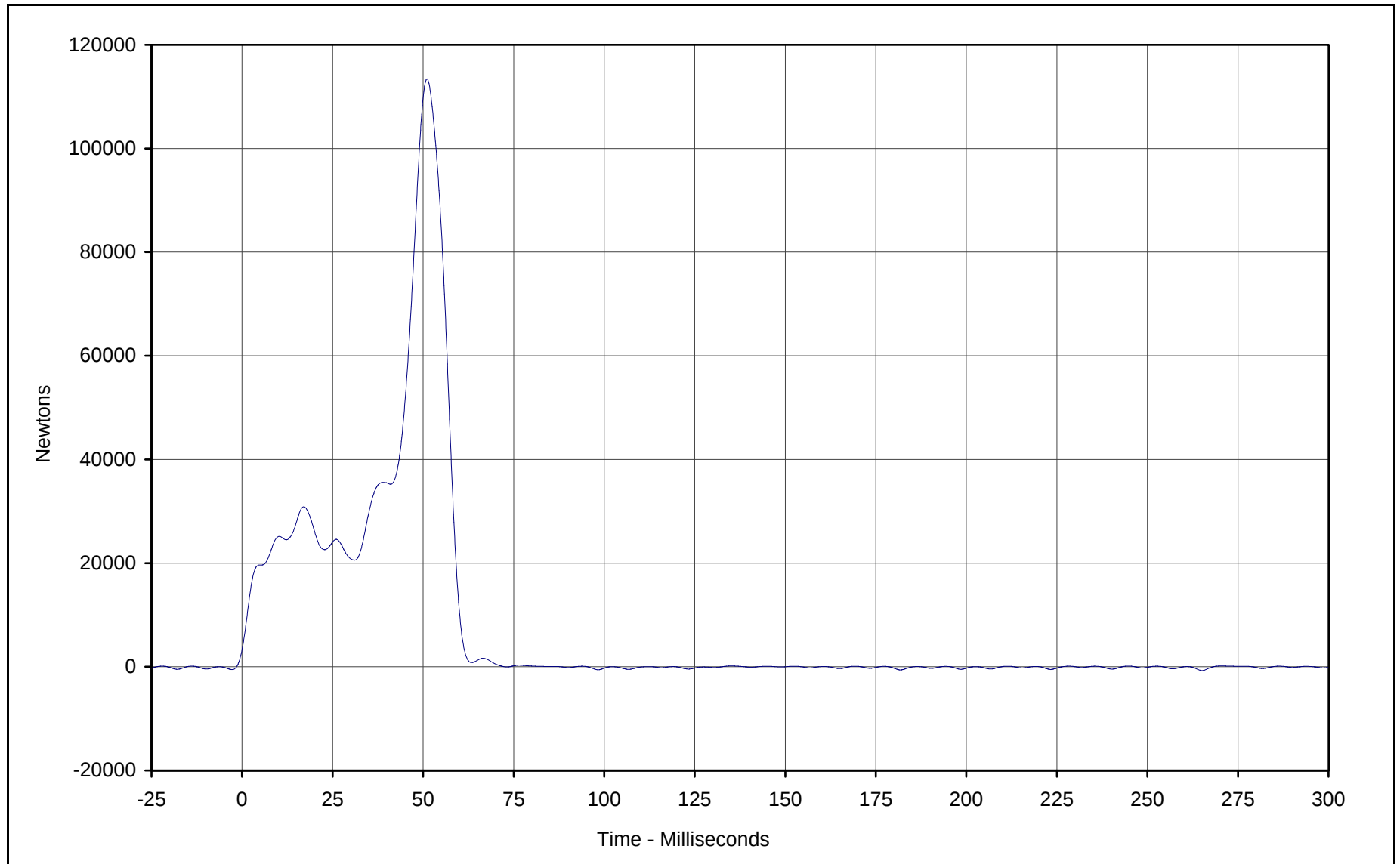
Curve Number: FIL-119

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



C-20

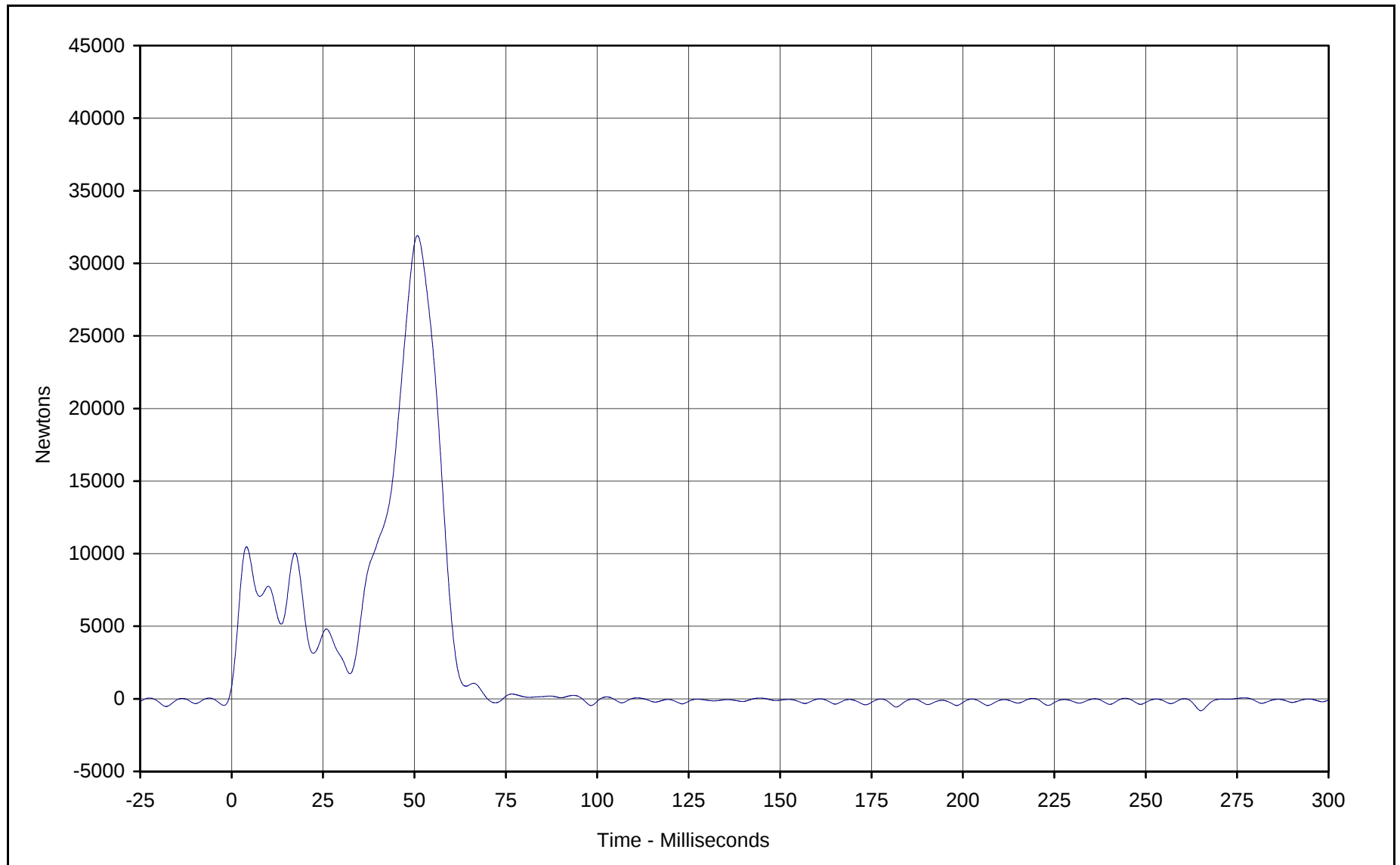


Curve Description: Barrier Force C5
Maximum Value: 113419.8 at 51.1 Milliseconds
Minimum Value: -734.9 at 265.1 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: FIL-120

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05



Curve Description: Barrier Force C6

Maximum Value: 31915.4 at 50.8 Milliseconds

Minimum Value: -821.7 at 265.1 Milliseconds

SAE Filter Class: 60

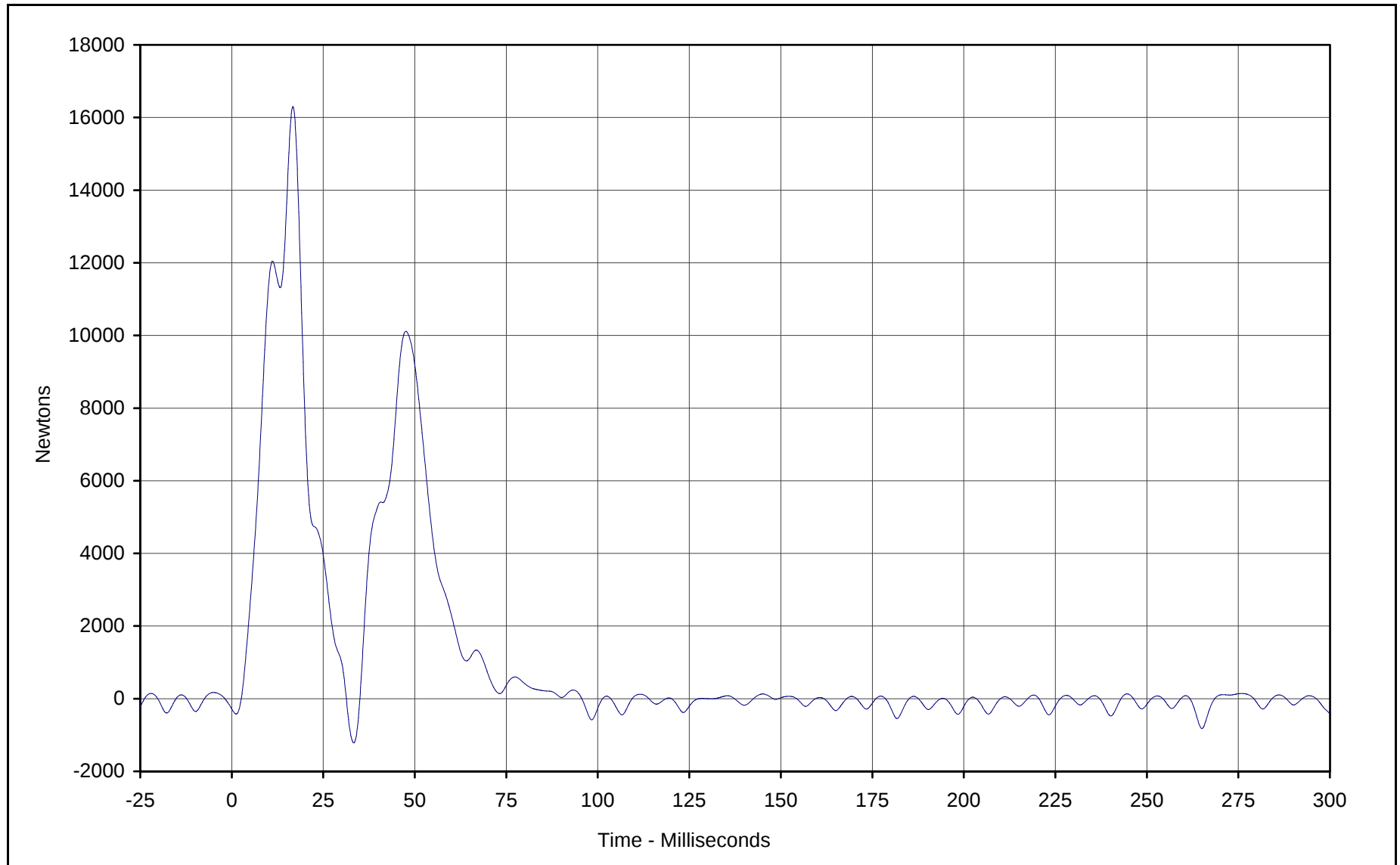
Date of Test: 01/16/01

Curve Number: FIL-121

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van





Curve Description: Barrier Force C7

Maximum Value: 16302.2 at 16.7 Milliseconds

Minimum Value: -1216.7 at 33.3 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

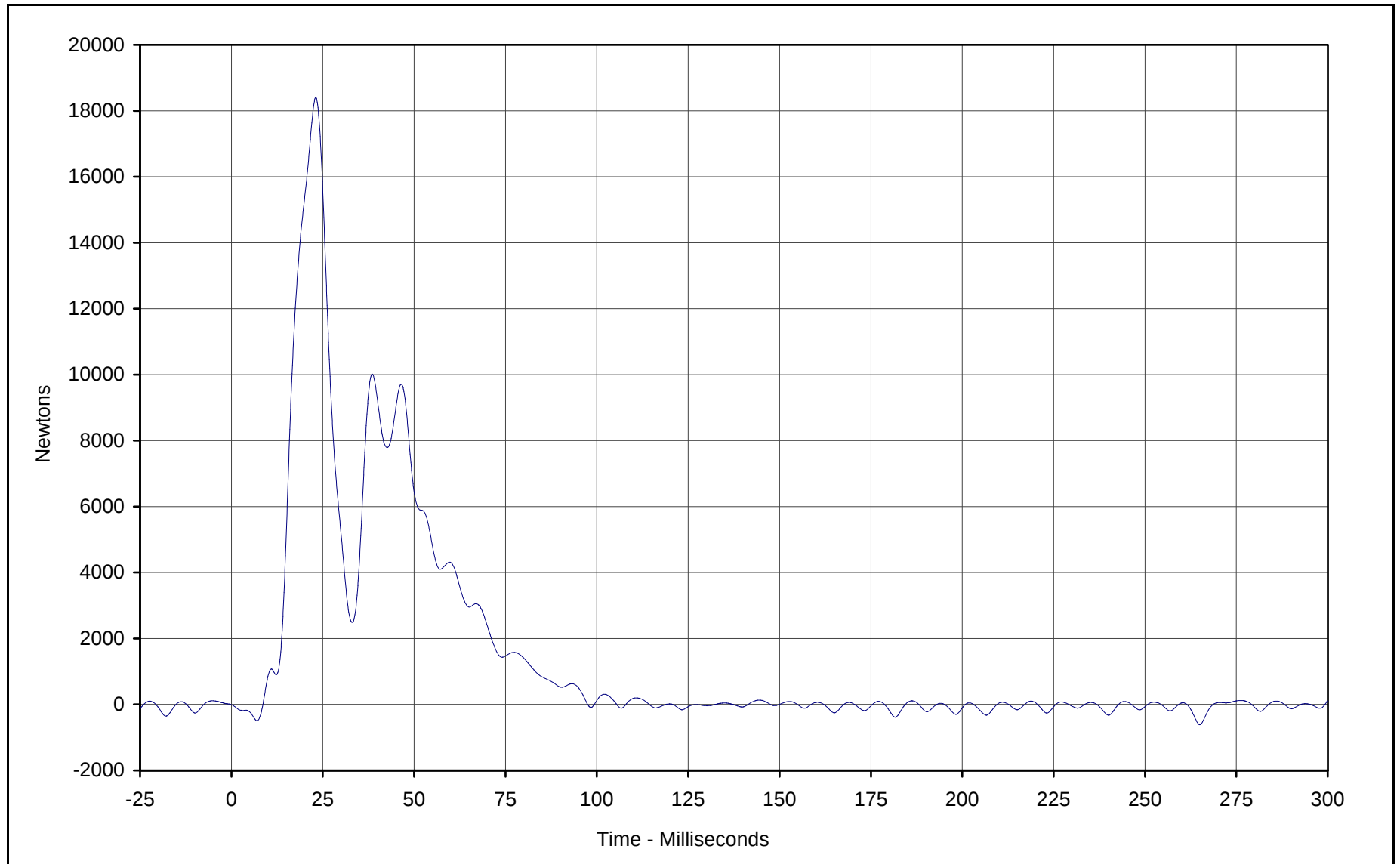
Curve Number: FIL-122

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



C-23



Curve Description: Barrier Force C8

Maximum Value: 18400.6 at 23.1 Milliseconds

Minimum Value: -611.4 at 265.0 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

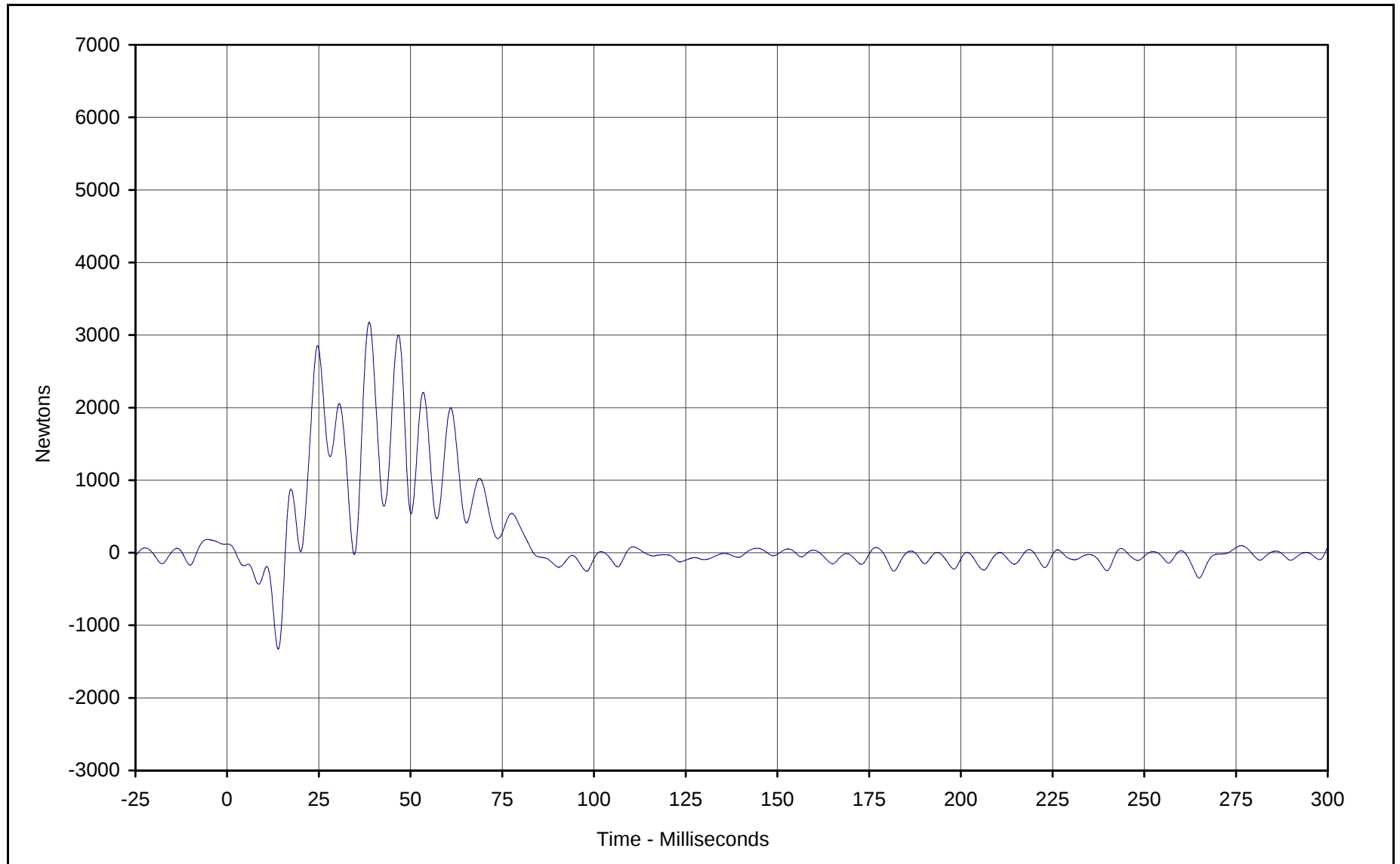
Curve Number: FIL-123

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05



Curve Description: Barrier Force C9

Maximum Value: 3177.0 at 38.7 Milliseconds

Minimum Value: -1329.4 at 13.9 Milliseconds

SAE Filter Class: 60

Date of Test: 01/16/01

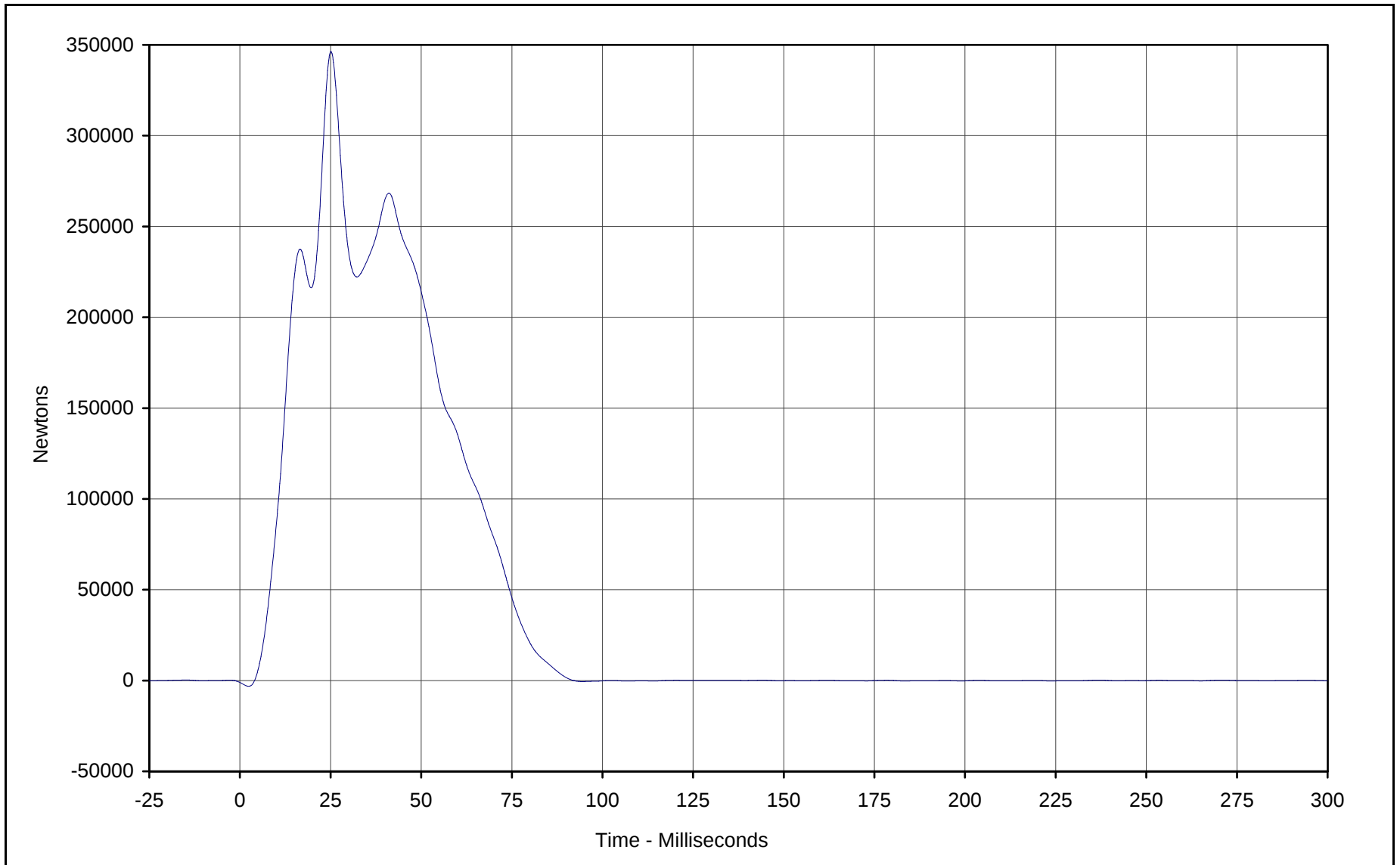
Curve Number: FIL-124

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



C-25

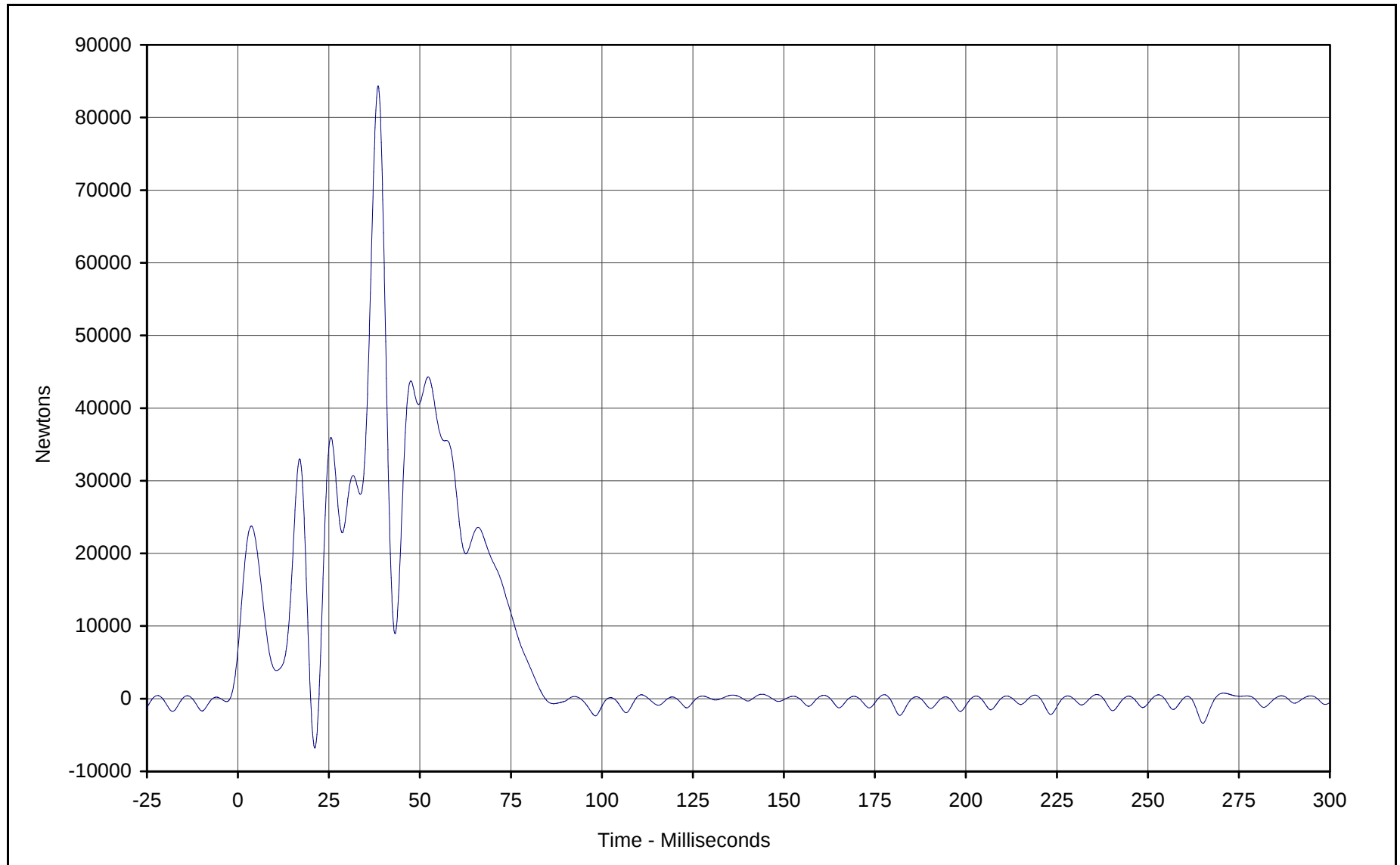


Curve Description: Barrier Force Sum Group 1
Maximum Value: 346323.0 at 25.1 Milliseconds
Minimum Value: -3169.1 at 2.4 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: SUM-001

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05

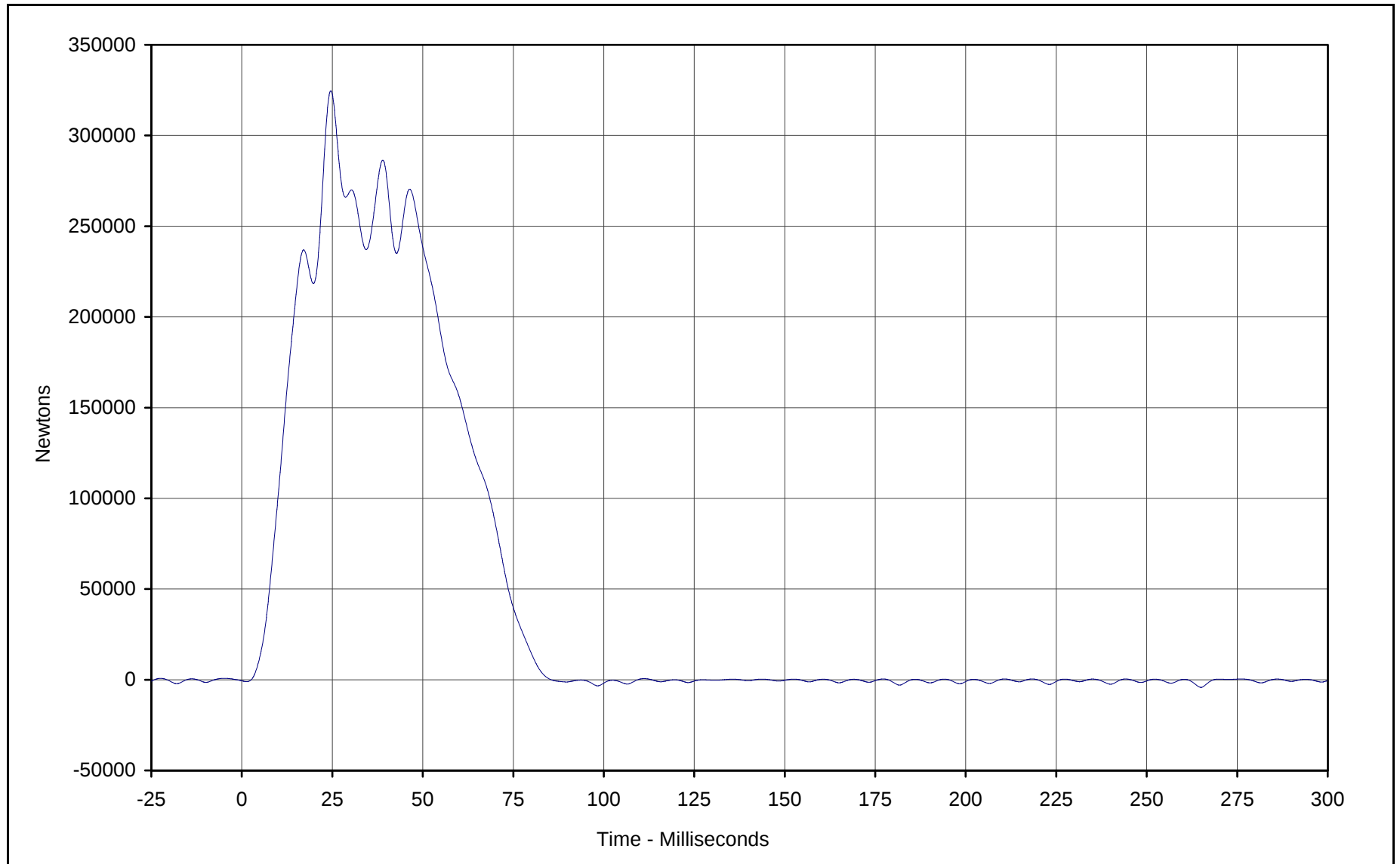


Curve Description: Barrier Force Sum Group 2
Maximum Value: 84345.9 at 38.5 Milliseconds
Minimum Value: -6777.3 at 21.1 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: SUM-002

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



C-27

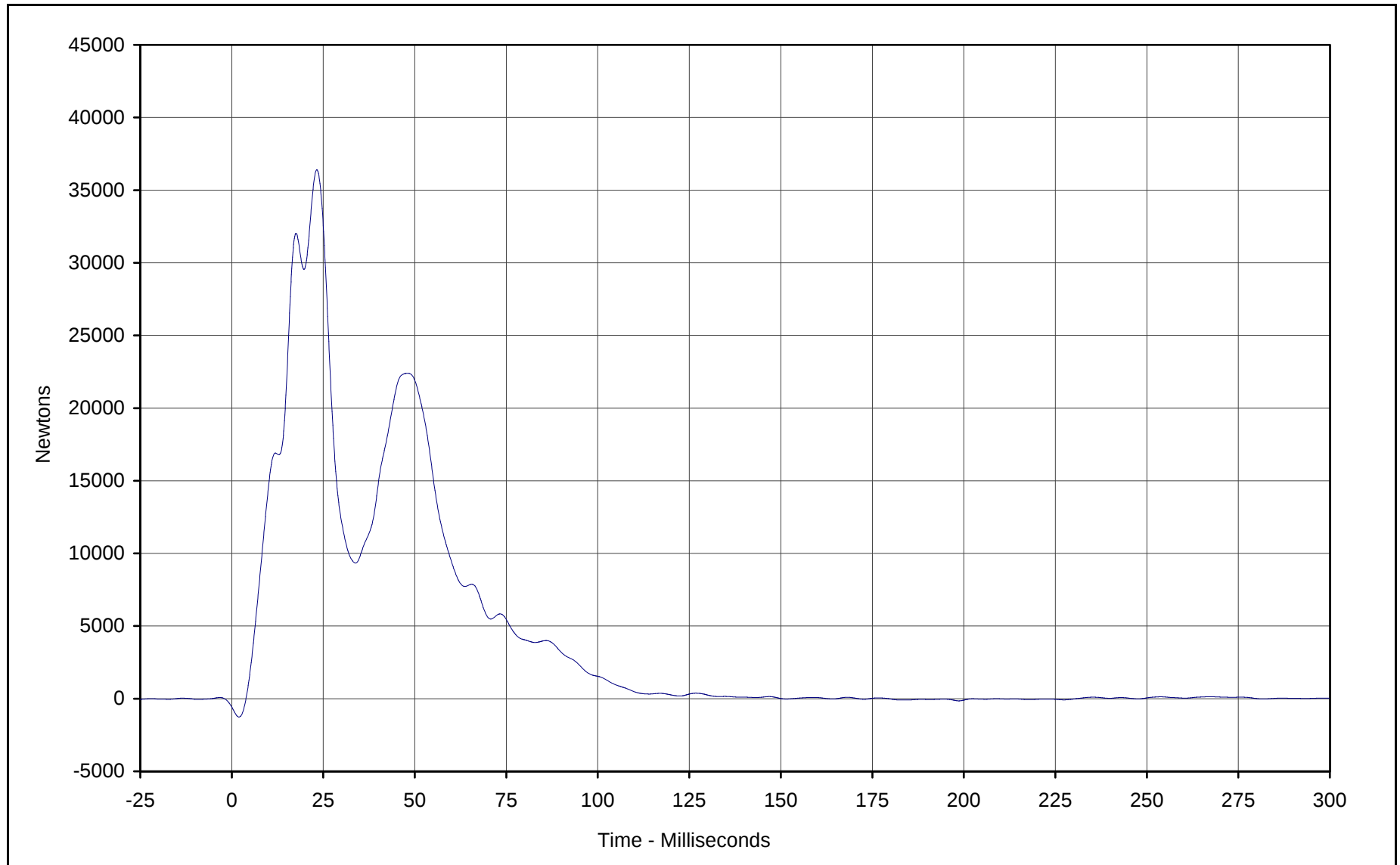


Curve Description: Barrier Force Sum Group 3
Maximum Value: 324714.6 at 24.6 Milliseconds
Minimum Value: -4225.9 at 265.0 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: SUM-003

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05



Curve Description: Barrier Force Sum Group 4

Maximum Value: 36404.8 at 23.2 Milliseconds

Minimum Value: -1261.9 at 1.9 Milliseconds

SAE Filter Class: 60

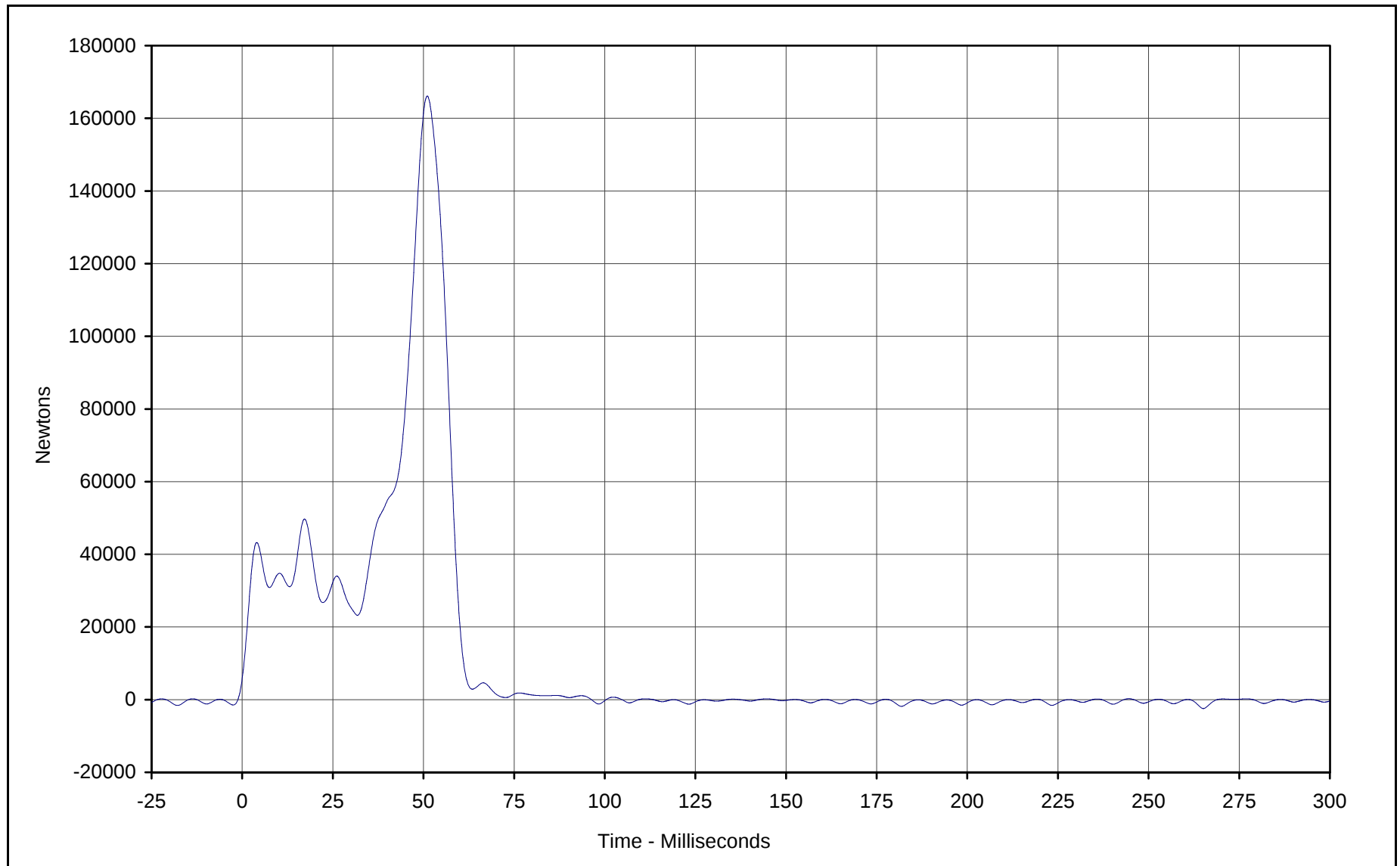
Date of Test: 01/16/01

Curve Number: SUM-004

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



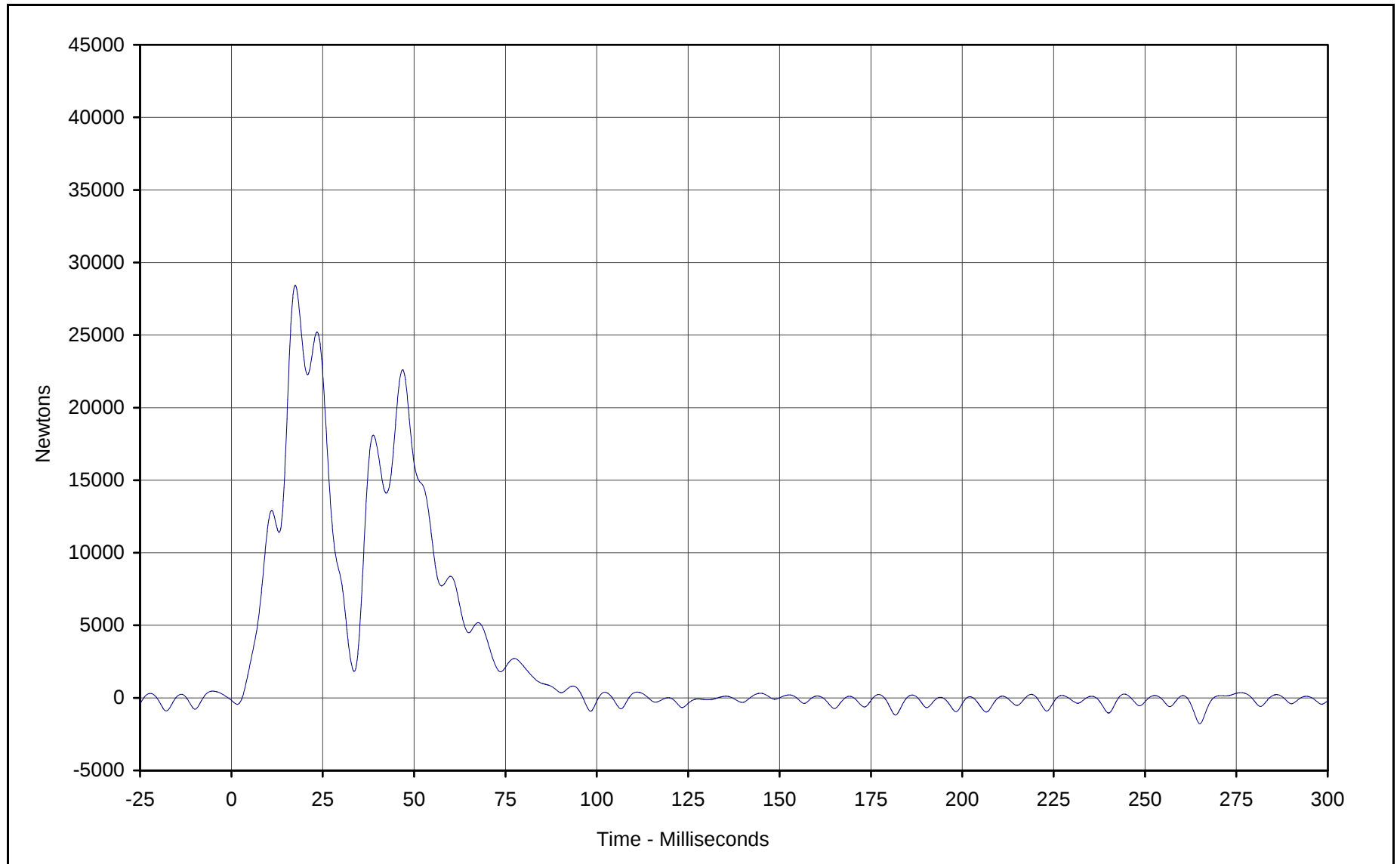


Curve Description: Barrier Force Sum Group 5
Maximum Value: 166115.7 at 51.0 Milliseconds
Minimum Value: -2455.2 at 265.1 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: SUM-005

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



C-30



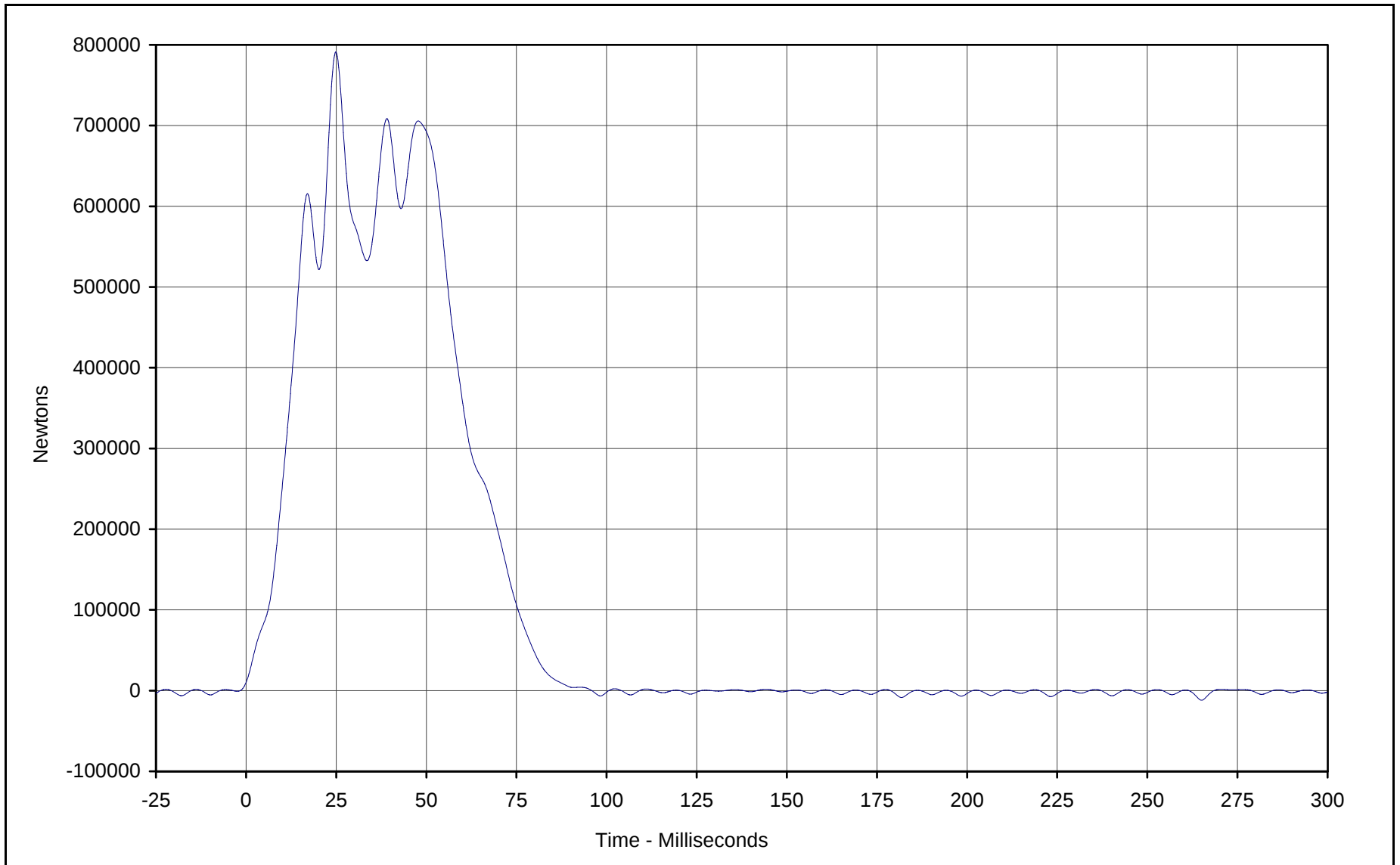
Curve Description: Barrier Force Sum Group 6
Maximum Value: 28426.8 at 17.5 Milliseconds
Minimum Value: -1784.3 at 265.0 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: SUM-006

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05

C-31

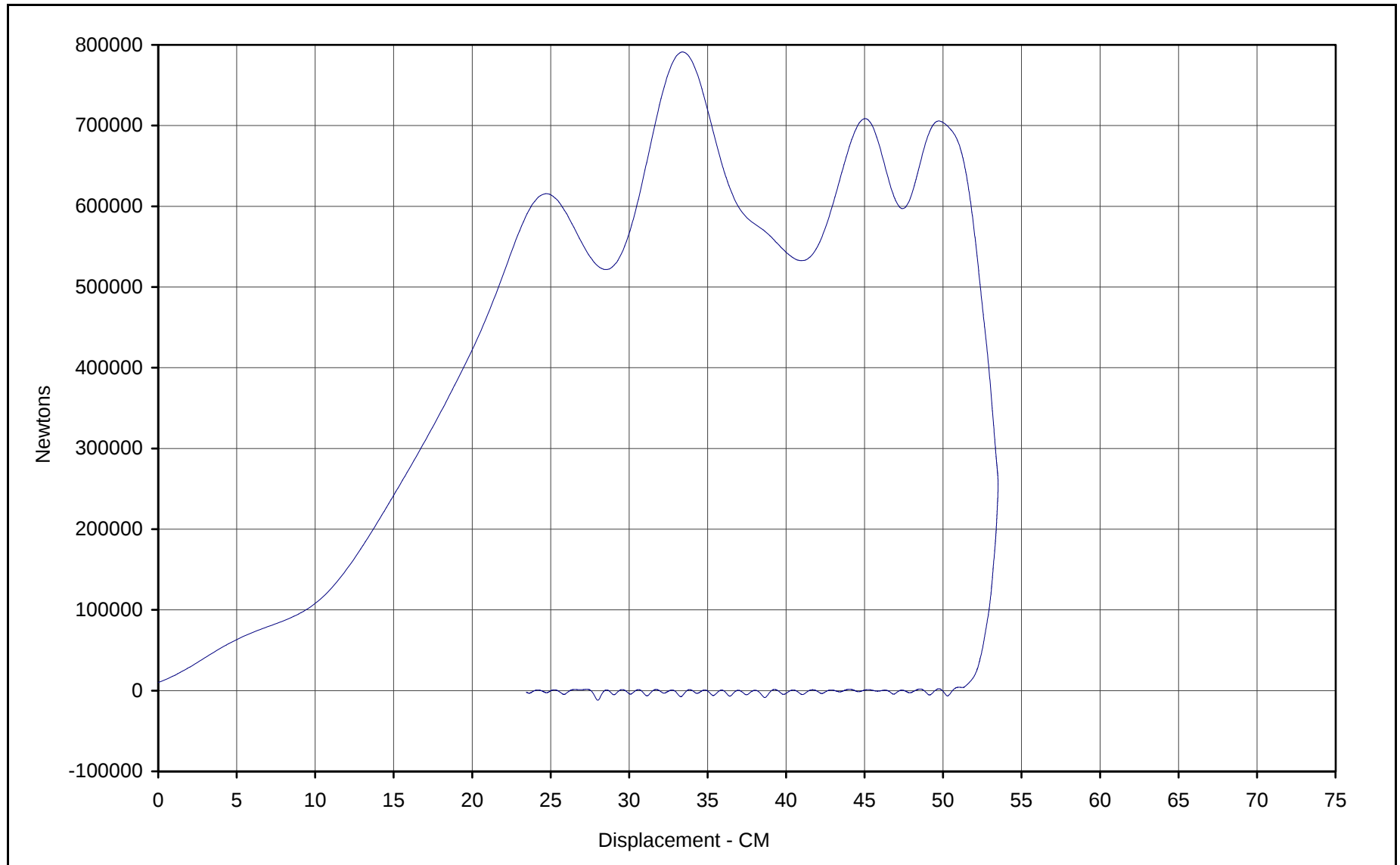


Curve Description: Barrier Force Sum Total
Maximum Value: 791218.9 at 24.9 Milliseconds
Minimum Value: -11948.1 at 265.0 Milliseconds
SAE Filter Class: 60
Date of Test: 01/16/01
Curve Number: SUM-007

Test Program: 2001 NHTSA 35mph NCAP No.: M10310
Test Vehicle: 2001 Dodge Ram 1500 Van



KAR21001-05



Curve Description: Sum Force Total vs. Dynamic Crush

Maximum Displ.: 53.5 at 66.4 Milliseconds

Maximum Force: 791218.9 at 24.9 Milliseconds

Measured Energy: 232,690 joules

Date of Test: 01/16/01

Curve Number: XVY-001

Test Program: 2001 NHTSA 35mph NCAP No.: M10310

Test Vehicle: 2001 Dodge Ram 1500 Van



BARRIER LOAD CELL SUMMARY DATATest Vehicle: 2001 Dodge Ram 1500 VanNHTSA No.: M10310Test Program: 2001 NHTSA 35mph NCAPTest Date: 01/16/01**BARRIER LOAD CELL PEAK FORCES**

Location	Units	Max	Time	Min	Time
Barrier Force A2	Newtons	1675.9	26.3	-1456.4	21.5
Barrier Force A3	Newtons	2565.1	39.5	-2860.2	21.1
Barrier Force A4	Newtons	4164.6	39.2	-3858.0	42.9
Barrier Force A5	Newtons	52386.4	38.0	-6341.0	43.5
Barrier Force A6	Newtons	3906.0	39.4	-3919.7	21.5
Barrier Force A7	Newtons	2459.1	17.2	-2191.2	21.7
Barrier Force A8	Newtons	1345.1	16.8	-1328.6	22.1
Barrier Force A9	Newtons	1330.2	45.2	-2999.9	48.9
Barrier Force B2	Newtons	86759.1	25.1	-1425.8	6.1
Barrier Force B3	Newtons	256909.8	25.0	-1676.8	1.7
Barrier Force B4	Newtons	22222.6	51.3	-168.1	97.5
Barrier Force B5	Newtons	8505.3	2.1	-2321.4	21.2
Barrier Force B6	Newtons	16084.3	51.5	-738.0	265.0
Barrier Force B7	Newtons	263652.0	24.6	-1351.5	1.2
Barrier Force B8	Newtons	61344.9	30.7	-950.4	265.0
Barrier Force B9	Newtons	1535.1	45.5	-2029.2	41.4
Barrier Force C2	Newtons	24922.6	23.5	-1366.9	7.3
Barrier Force C3	Newtons	16573.1	17.4	-749.8	1.4
Barrier Force C4	Newtons	20851.5	51.4	-898.6	265.1
Barrier Force C5	Newtons	113419.8	51.1	-734.9	265.1
Barrier Force C6	Newtons	31915.4	50.8	-821.7	265.1
Barrier Force C7	Newtons	16302.2	16.7	-1216.7	33.3
Barrier Force C8	Newtons	18400.6	23.1	-611.4	265.0
Barrier Force C9	Newtons	3177.0	38.7	-1329.4	13.9
Barrier Force Sum Group 1	Newtons	346323.0	25.1	-3169.1	2.4
Barrier Force Sum Group 2	Newtons	84345.9	38.5	-6777.3	21.1
Barrier Force Sum Group 3	Newtons	324714.6	24.6	-4225.9	265.0
Barrier Force Sum Group 4	Newtons	36404.8	23.2	-1261.9	1.9
Barrier Force Sum Group 5	Newtons	166115.7	51.0	-2455.2	265.1
Barrier Force Sum Group 6	Newtons	28426.8	17.5	-1784.3	265.0
Barrier Force Sum Total	Newtons	791218.9	24.9	-11948.1	265.0

Barrier Load cells A1,B1,C1, and D1 through D9 (12 locations) were not recorded.

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

2001 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 34
01/16/01
2001 Dodge Ram 1500 Van

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

2001 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 34
01/16/01
2001 Dodge Ram 1500 Van

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPOT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
26	UP. TIBIA LEFT MOM.	Y	GPOT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
27	UP. TIBIA RIGHT MOM.	X	GPOT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
28	UP. TIBIA RIGHT MOM.	Y	GPOT09MY	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	X	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
36	FOOT LEFT	Y	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
37	FOOT LEFT	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
38	FOOT RIGHT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
39	FOOT RIGHT	Y	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
40	FOOT RIGHT	Z	KEIC001Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
41	LAP BELT FORCE	X	KELC003	Load cell, Seat belt	Lebow	3371	N
42	SHOULDER BELT FORCE	X	KELC004	Load cell, Seat belt	Lebow	3371	N
43	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
44	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

2001 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 35
01/16/01
2001 Dodge Ram 1500 Van

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

2001 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 35
01/16/01
2001 Dodge Ram 1500 Van

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPOT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
70	UP. TIBIA LEFT MOM.	Y	GPOT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
71	UP. TIBIA RIGHT MOM.	X	GPOT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
72	UP. TIBIA RIGHT MOM.	Y	GPOT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
73	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
74	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
75	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
76	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
77	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
78	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
79	FOOT LEFT	X	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT	Y	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT	Y	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT	Z	KEIC004Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	X	KELC001	Load cell, Seat belt	Lebow	3371	N
86	SHOULDER BELT FORCE	X	KELC002	Load cell, Seat belt	Lebow	3371	N
87	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	CM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

2001 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers and Reference Channel
01/16/01
2001 Dodge Ram 1500 Van

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	Left Rear Primary	X	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-200	G
90	Right Rear Primary	Y	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
91	Engine Top	X	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G
92	Engine Bottom	Y	KEVA008	Accel., Vehicle block	I.C. Sensor	3031-500	G
93	Left Brake Caliper	X	KEVA004	Accel., Vehicle block	I.C. Sensor	3031-500	G
94	Right Brake Caliper	Y	KEVA009	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	Instrument Panel	X	KEVA003	Accel., Vehicle block	I.C. Sensor	3031-500	G
96	Left Rear Redundant	Y	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	G
97	Zero Reference	N/A	N/A	N/A	N/A	N/A	N/A

2001 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
01/16/01
2001 Dodge Ram 1500 Van

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
98	BARRIER FORCE A1	X	BARRIER	Not Used	N/A	N/A	N/A
99	BARRIER FORCE A2	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
100	BARRIER FORCE A3	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
101	BARRIER FORCE A4	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
102	BARRIER FORCE A5	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
103	BARRIER FORCE A6	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
104	BARRIER FORCE A7	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
105	BARRIER FORCE A8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
106	BARRIER FORCE A9	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
107	BARRIER FORCE B1	X	BARRIER	Not Used	N/A	N/A	N/A
108	BARRIER FORCE B2	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
109	BARRIER FORCE B3	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
110	BARRIER FORCE B4	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
111	BARRIER FORCE B5	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
112	BARRIER FORCE B6	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
113	BARRIER FORCE B7	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
114	BARRIER FORCE B8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
115	BARRIER FORCE B9	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N

2001 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
01/16/01
2001 Dodge Ram 1500 Van

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
116	BARRIER FORCE C1	X	BARRIER	Not Used	N/A	N/A	N/A
117	BARRIER FORCE C2	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
118	BARRIER FORCE C3	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
119	BARRIER FORCE C4	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
120	BARRIER FORCE C5	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
121	BARRIER FORCE C6	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
122	BARRIER FORCE C7	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
123	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
124	BARRIER FORCE C9	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
125	BARRIER FORCE D1	X	BARRIER	Not Used	N/A	N/A	N/A
126	BARRIER FORCE D2	X	BARRIER	Not Used	N/A	N/A	N/A
127	BARRIER FORCE D3	X	BARRIER	Not Used	N/A	N/A	N/A
128	BARRIER FORCE D4	X	BARRIER	Not Used	N/A	N/A	N/A
129	BARRIER FORCE D5	X	BARRIER	Not Used	N/A	N/A	N/A
130	BARRIER FORCE D6	X	BARRIER	Not Used	N/A	N/A	N/A
131	BARRIER FORCE D7	X	BARRIER	Not Used	N/A	N/A	N/A
132	BARRIER FORCE D8	X	BARRIER	Not Used	N/A	N/A	N/A
133	BARRIER FORCE D9	X	BARRIER	Not Used	N/A	N/A	N/A

APPENDIX E
DUMMY CALIBRATION DATA



Hybrid III Calibration Data Sheet

50TH Percentile Male

Left Knee Impact Test

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: LK01D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.100	Pass
Peak Probe Force	Newtons	4715 to 5782	5658.6	Pass
Overall Test Results			Pass	

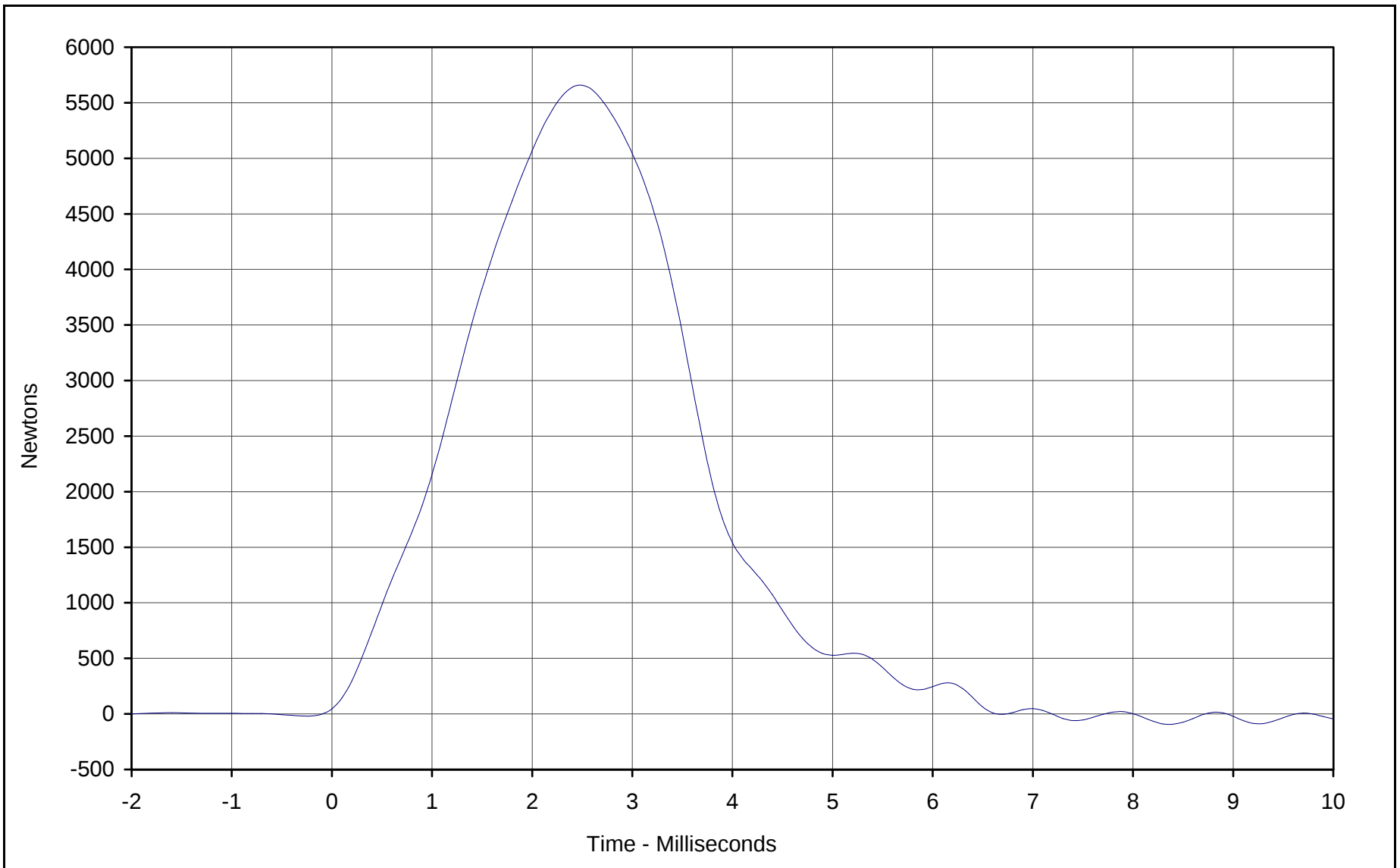
Laboratory Technician

January 10, 2001
Test Date

Approved By

Date

E-2



Curve Description:	Probe Force
Maximum Value:	5658.6 at 2.5 Milliseconds
Minimum Value:	-60.4 at 7.4 Milliseconds
SAE Filter Class:	600
Date of Test:	1/10/01
ATD Serial No.:	034

Testing Program:	Hybrid III Left Knee Impact Test
Test Information:	Part S/N: N/A Test I.D.: LK01D



KAR21001-05



Hybrid III Calibration Data Sheet

50TH Percentile Male

Right Knee Impact Test

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: RK01B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.113	Pass
Peak Probe Force	Newtons	4715 to 5782	5389.1	Pass
Overall Test Results				Pass

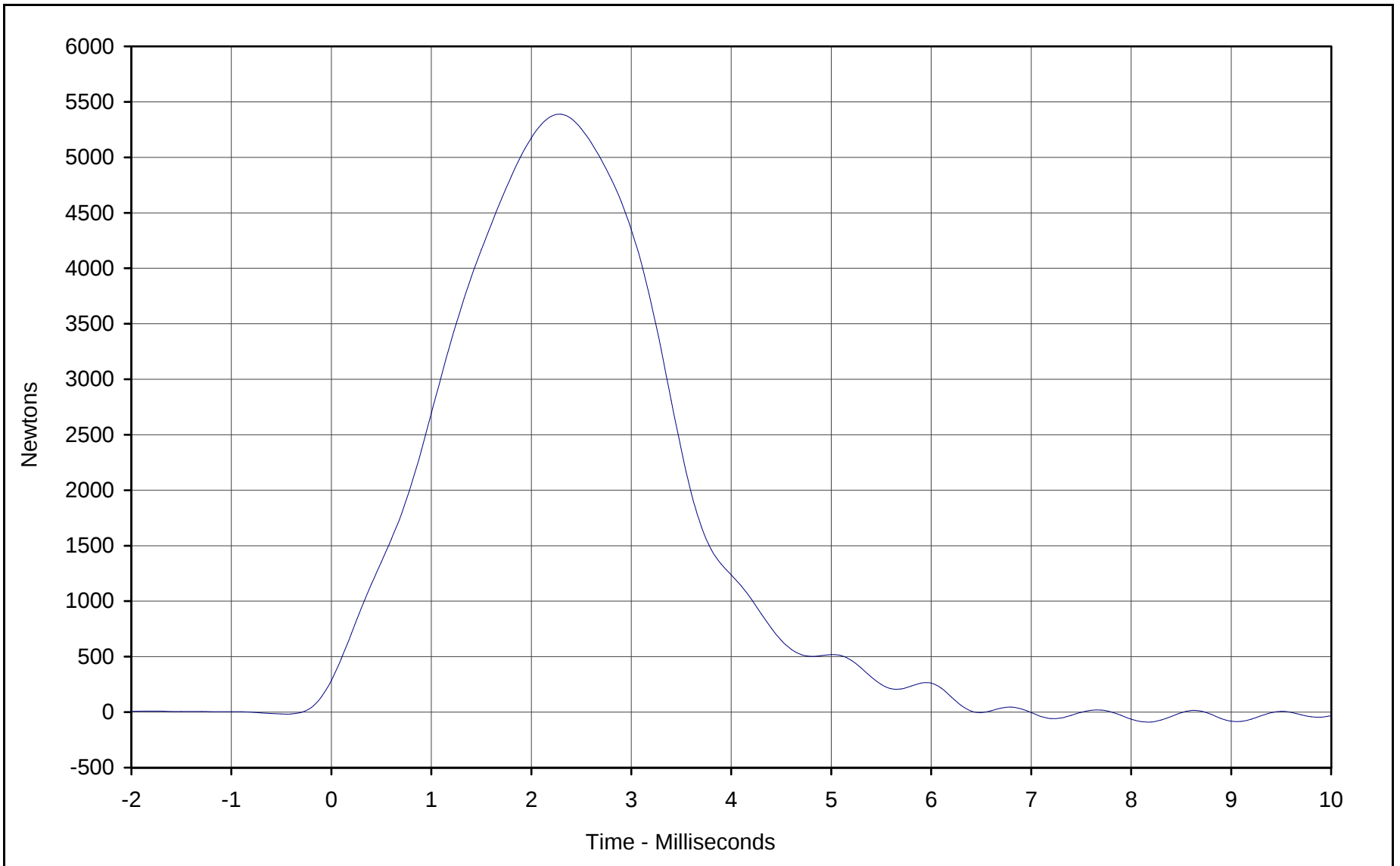
Laboratory Technician

January 10, 2001
Test Date

Approved By

Date

E-4



Curve Description: Probe Force

Maximum Value:	<u>5389.1</u>	at	<u>2.3</u>	Milliseconds
Minimum Value:	<u>-62.9</u>	at	<u>8.0</u>	Milliseconds
SAE Filter Class:	<u>600</u>			
Date of Test:	<u>1/10/01</u>			
ATD Serial No.:	<u>034</u>			

Testing Program: Hybrid III Right Knee Impact Test

Test Information: Part S/N: N/A Test I.D.: RK01B



KAR21001-05



Hybrid III Calibration Data Sheet

50TH Percentile Male

Head Drop Calibration

ATD Serial No.: 034

Part Serial No.: N/A

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	244.9	Pass
Peak Lateral Acceleration	G's	≤15.0	2.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

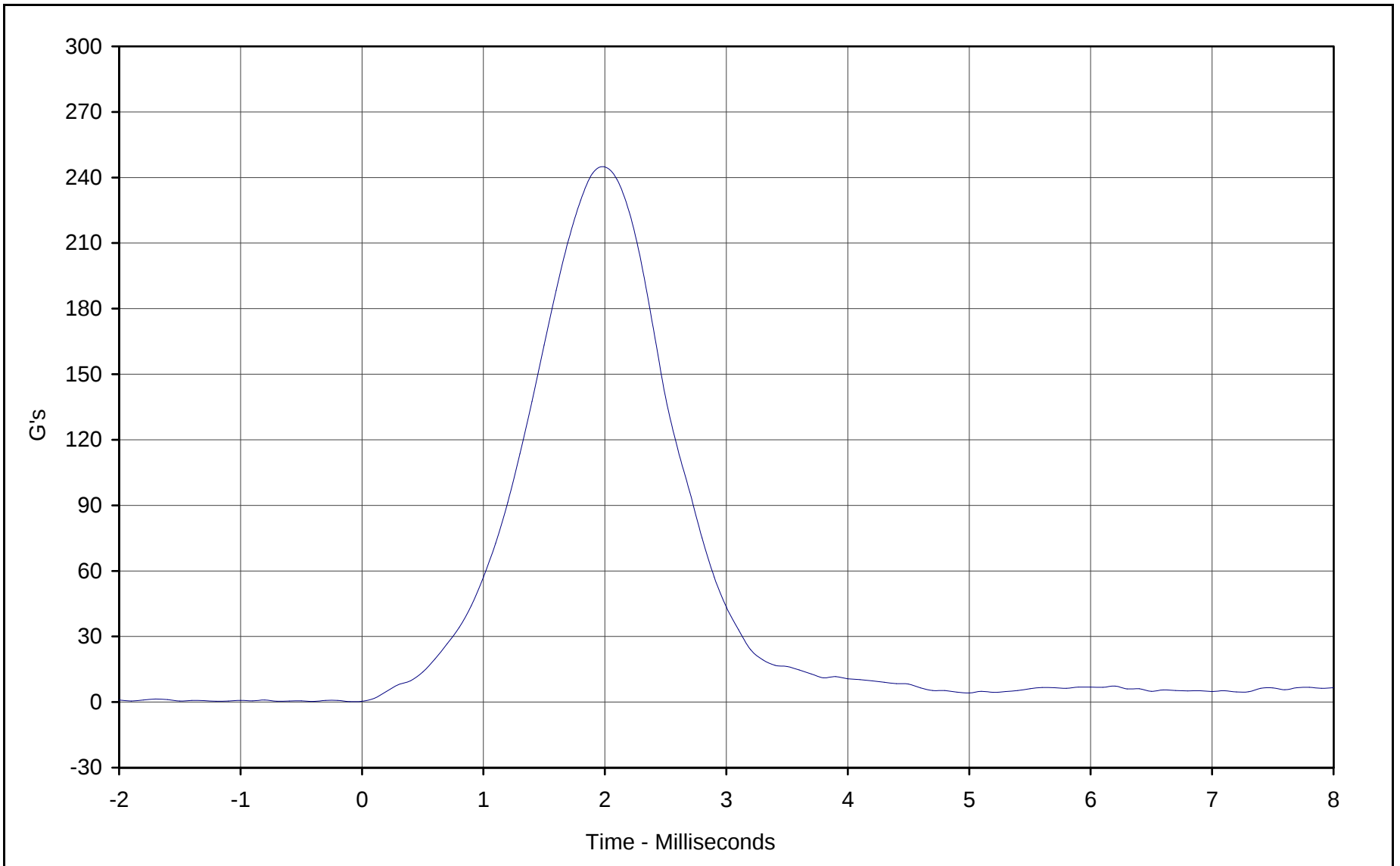
Laboratory Technician

January 10, 2001

Test Date

Approved By

Date



Curve Description: Head Resultant Acceleration

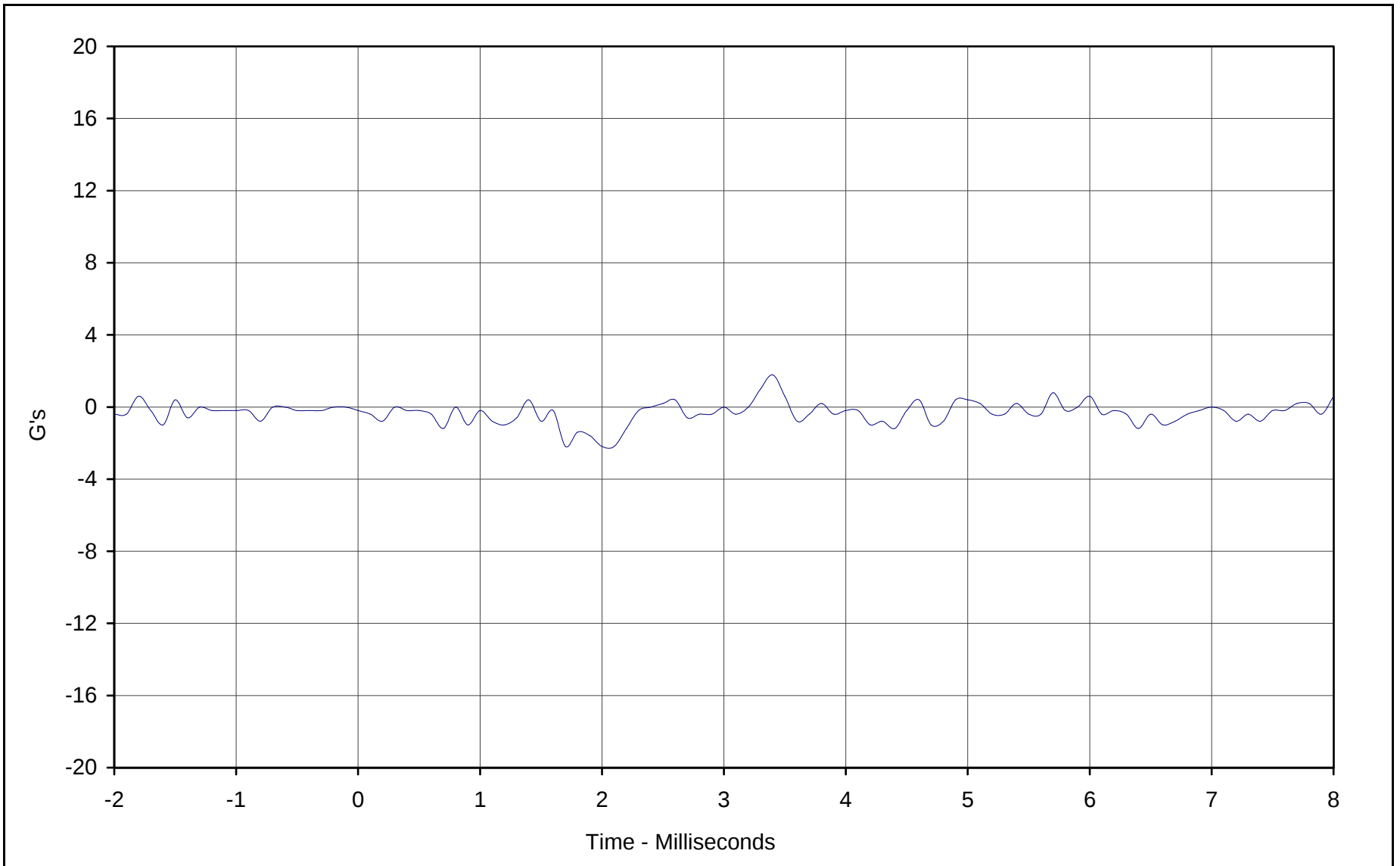
Maximum Value:	<u>244.9</u>	at	<u>2.0</u>	Milliseconds
Minimum Value:	<u>0.2</u>	at	<u>-0.1</u>	Milliseconds
SAE Filter Class:	<u>1000</u>			
Date of Test:	<u>1/10/01</u>			
ATD Serial No.:	<u>034</u>			

Testing Program: Hybrid III Head Drop Calibration (Male)

Test Information: S/N of Part: N/A Test I.D.: HD01D



E-7



Curve Description: Head Acceleration Y Axis

Maximum Value:	1.8	at	3.4	Milliseconds
Minimum Value:	-2.2	at	1.7	Milliseconds
SAE Filter Class:	1000			
Date of Test:	1/10/01			
ATD Serial No.:	034			

Testing Program: Hybrid III Head Drop Calibration (Male)

Test Information: S/N of Part: N/A Test I.D.: HD01D



KAR21001-05



Hybrid III Calibration Data Sheet

50TH Percentile Male

Thorax Impact Test

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: CH01E

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	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	5378	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.86	Pass
Internal Hysteresis	%	69 to 85	74.2	Pass
Overall Test Results				Pass

Laboratory Technician

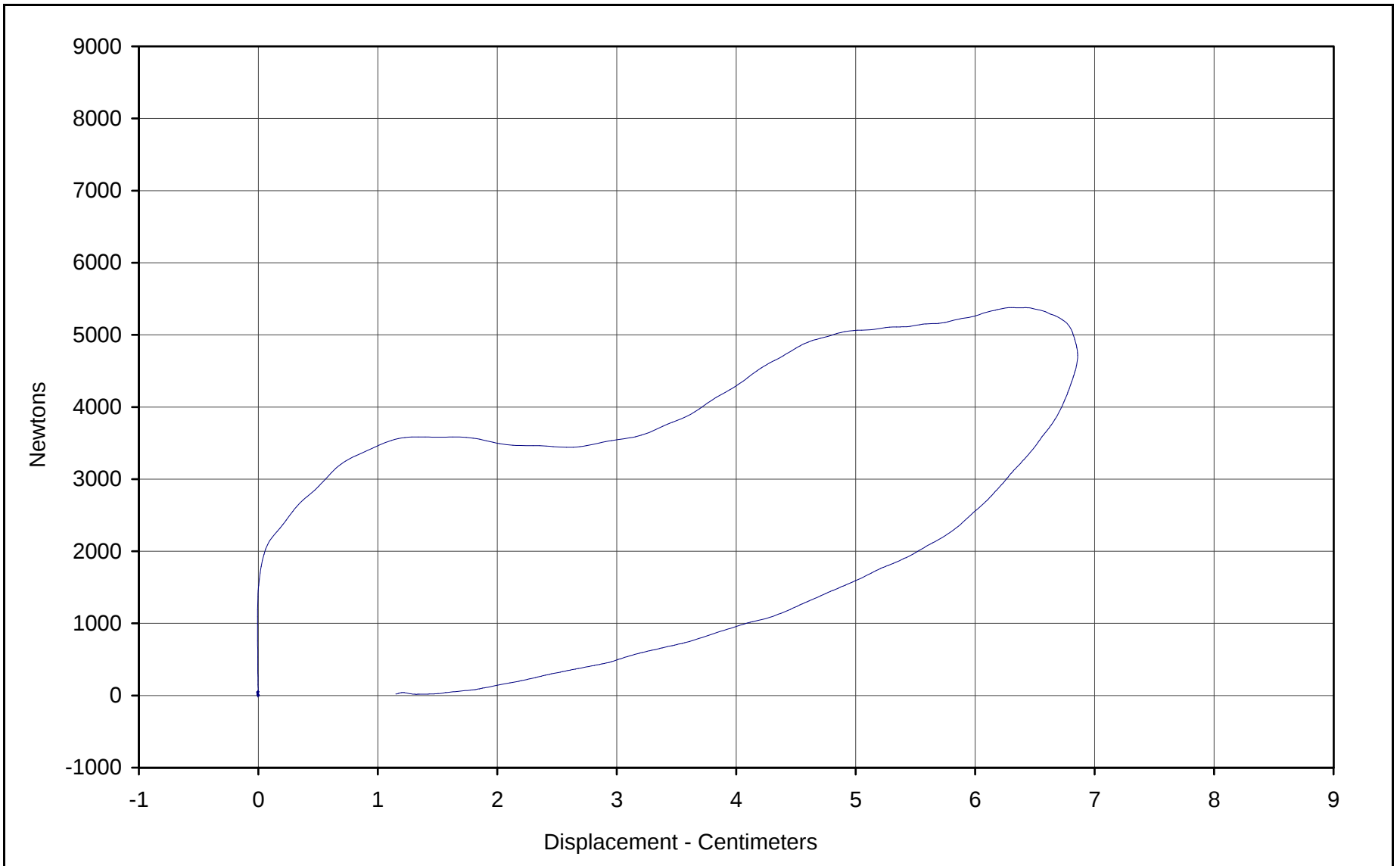
January 10, 2001

Test Date

Approved By

Date

E-9



Curve Description: Probe Force vs. Chest Displacement

Probe Force: 5378.1 Newtons

Chest Displ.: 6.86 Centimeters

SAE Filter Class: 180

Date of Test: 1/10/01

ATD Serial No.: 034

Testing Program: Hybrid III Thorax Impact Test

Test Information: S/N of Part: N/A Test I.D.: CH01E



KAR21001-05



Hybrid III Calibration Data Sheet

50TH Percentile Male

Neck Flexion Test

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: NF01C

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	6.89	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	24.2	Pass
	20 Msec.	G's	17.6 to 22.6	20.6	Pass
	30 Msec.	G's	12.5 to 18.5	17.3	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.3	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	38.8	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	65.4	Pass
	Time	Msec.	57.0 to 64.0	57.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	116.1	Pass
Moment About Occipital Condyle	Maximum	N·m	84.1 to 108.5	87.8	Pass
	Time	Msec.	47.0 to 58.0	51.0	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.4	Pass
Overall Test Results					Pass

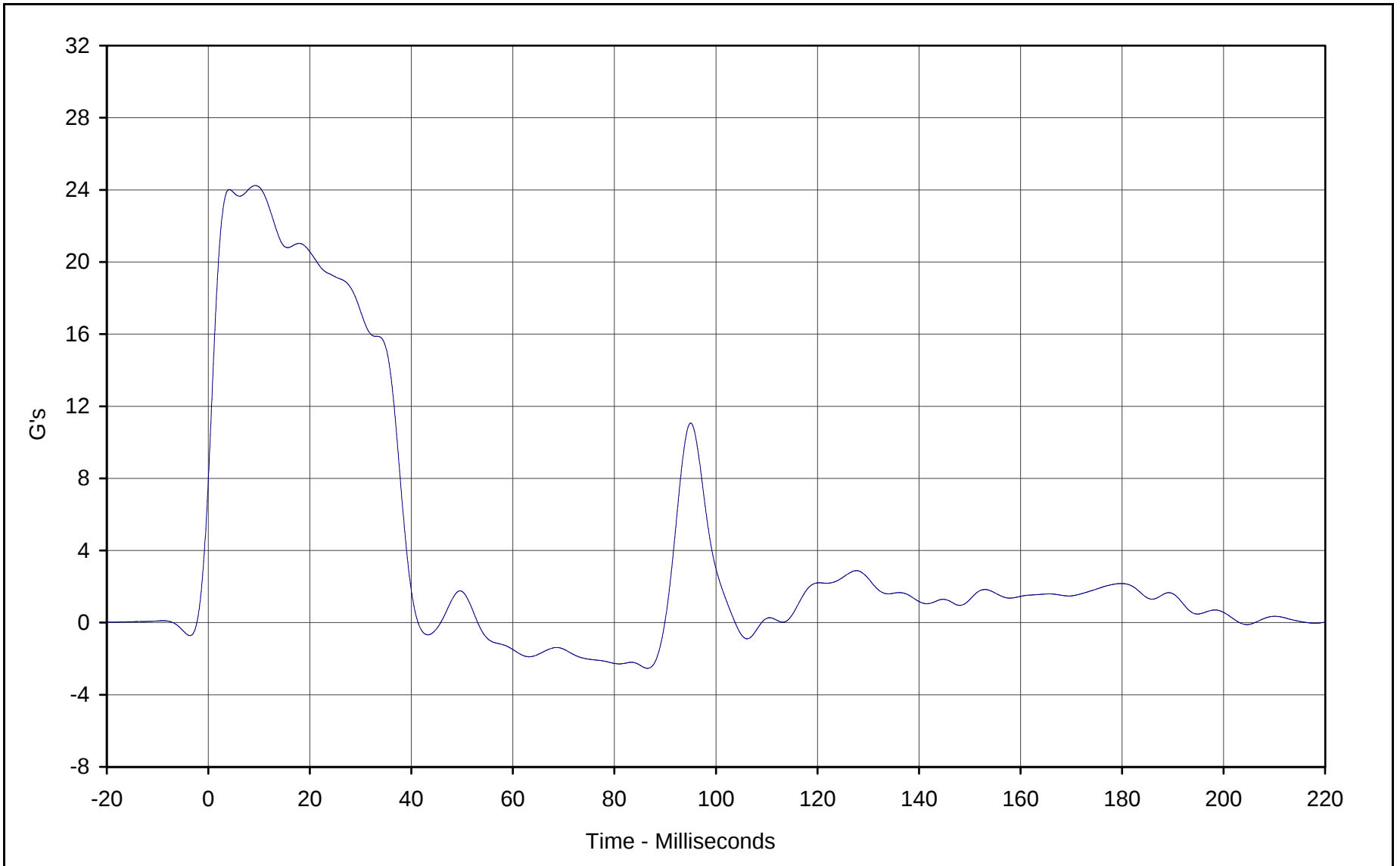
Laboratory Technician

January 10, 2001
Test Date

Approved By

Date

E-11



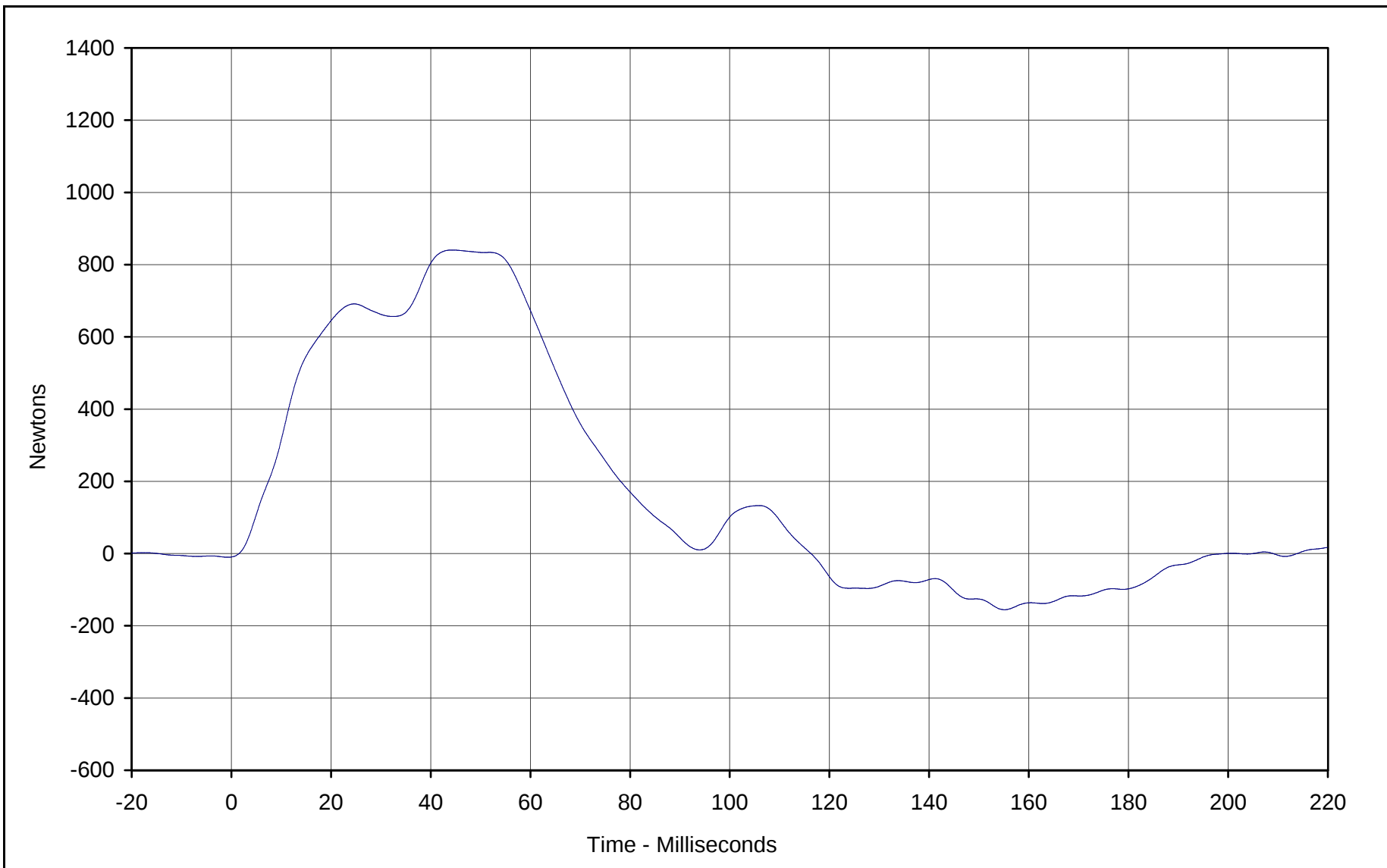
Curve Description:	Pendulum Deceleration		
Maximum Value:	24.2	at	9.3 Milliseconds
Minimum Value:	-2.5	at	86.5 Milliseconds
SAE Filter Class:	60		
Date of Test:	1/10/01		
ATD Serial No.:	034		

Testing Program:	Hybrid III Neck Flexion Test (Male)
Test Information:	S/N of Part: N/A Test I.D.: NF01C



KAR21001-05

E-12



Curve Description: Neck Force X

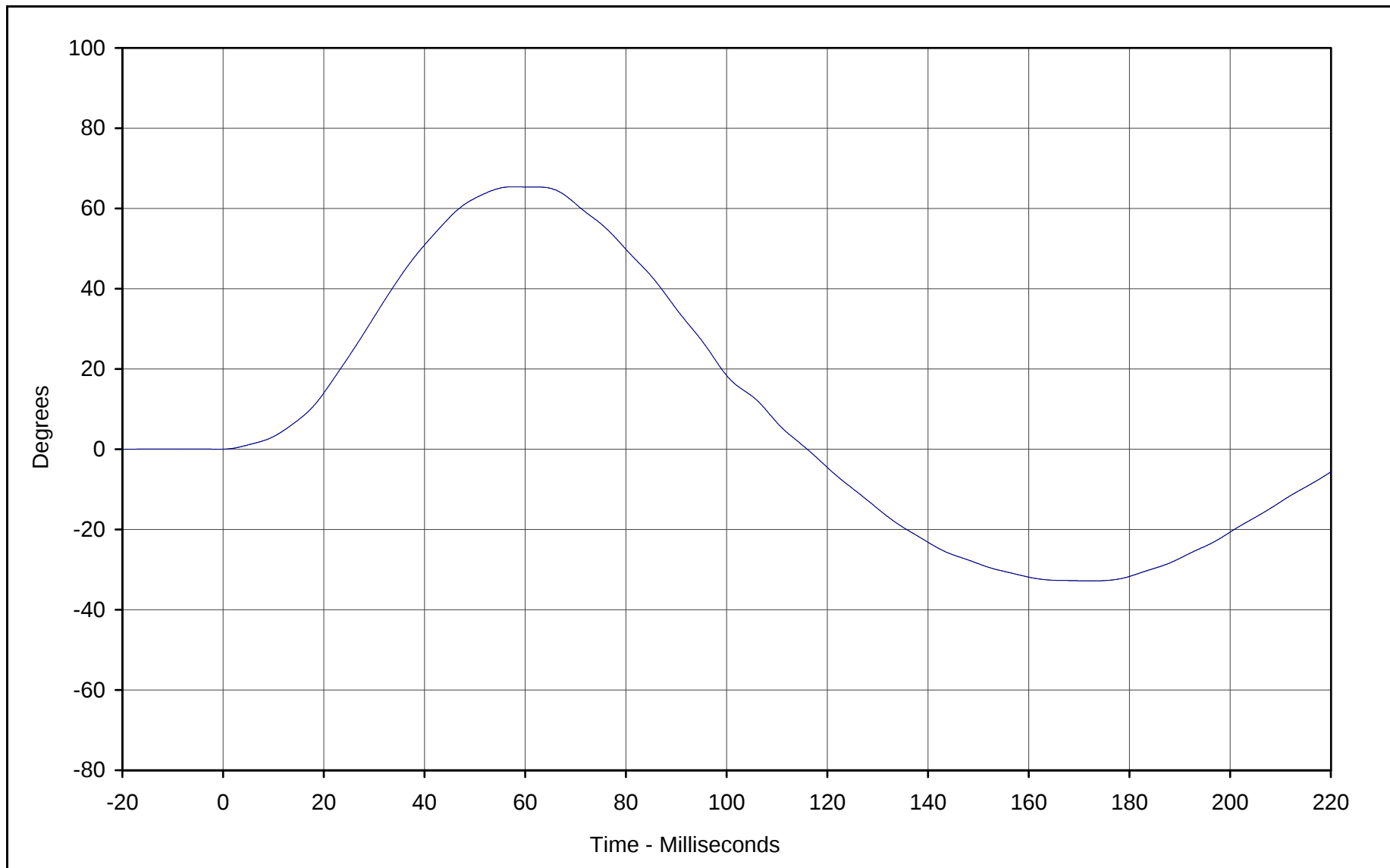
Maximum Value:	840.4	at	44.3	Milliseconds
Minimum Value:	-155.5	at	155.1	Milliseconds
SAE Filter Class:	60			
Date of Test:	1/10/01			
ATD Serial No.:	034			

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NF01C



KAR21001-05



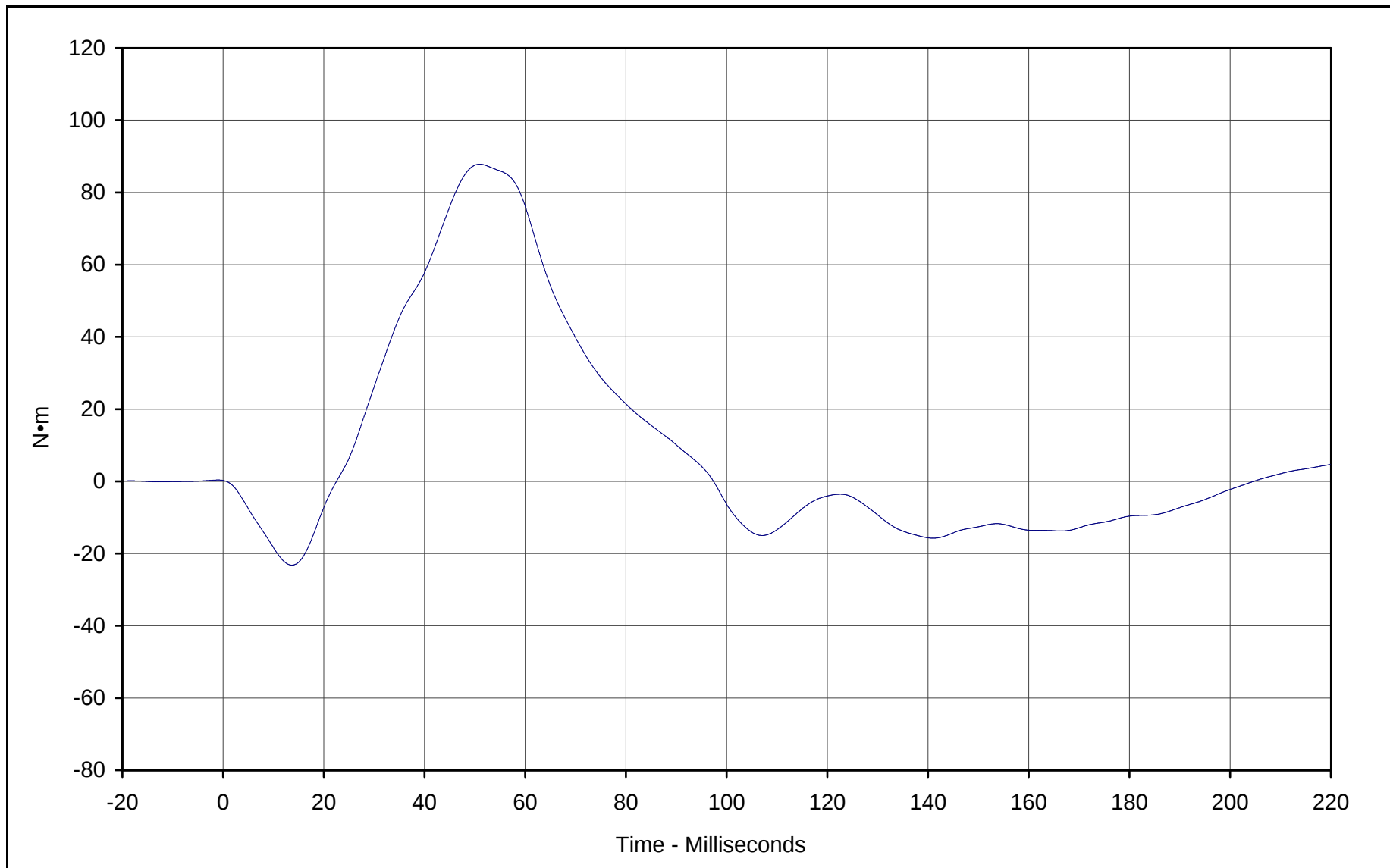
Curve Description: "D" Plane Rotation

Maximum Value:	65.4	at	57.7	Milliseconds
Minimum Value:	-32.8	at	172.4	Milliseconds
SAE Filter Class:	60			
Date of Test:	1/10/01			
ATD Serial No.:	034			

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NF01C





Curve Description: Moment About Occipital Condyles

Maximum Value: 87.8 at 51.0 Milliseconds

Minimum Value: -23.2 at 13.7 Milliseconds

SAE Filter Class: 60

Date of Test: 1/10/01

ATD Serial No.: 034

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NF01C





Hybrid III Calibration Data Sheet

50TH Percentile Male

Neck Extension Test

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: NE01C

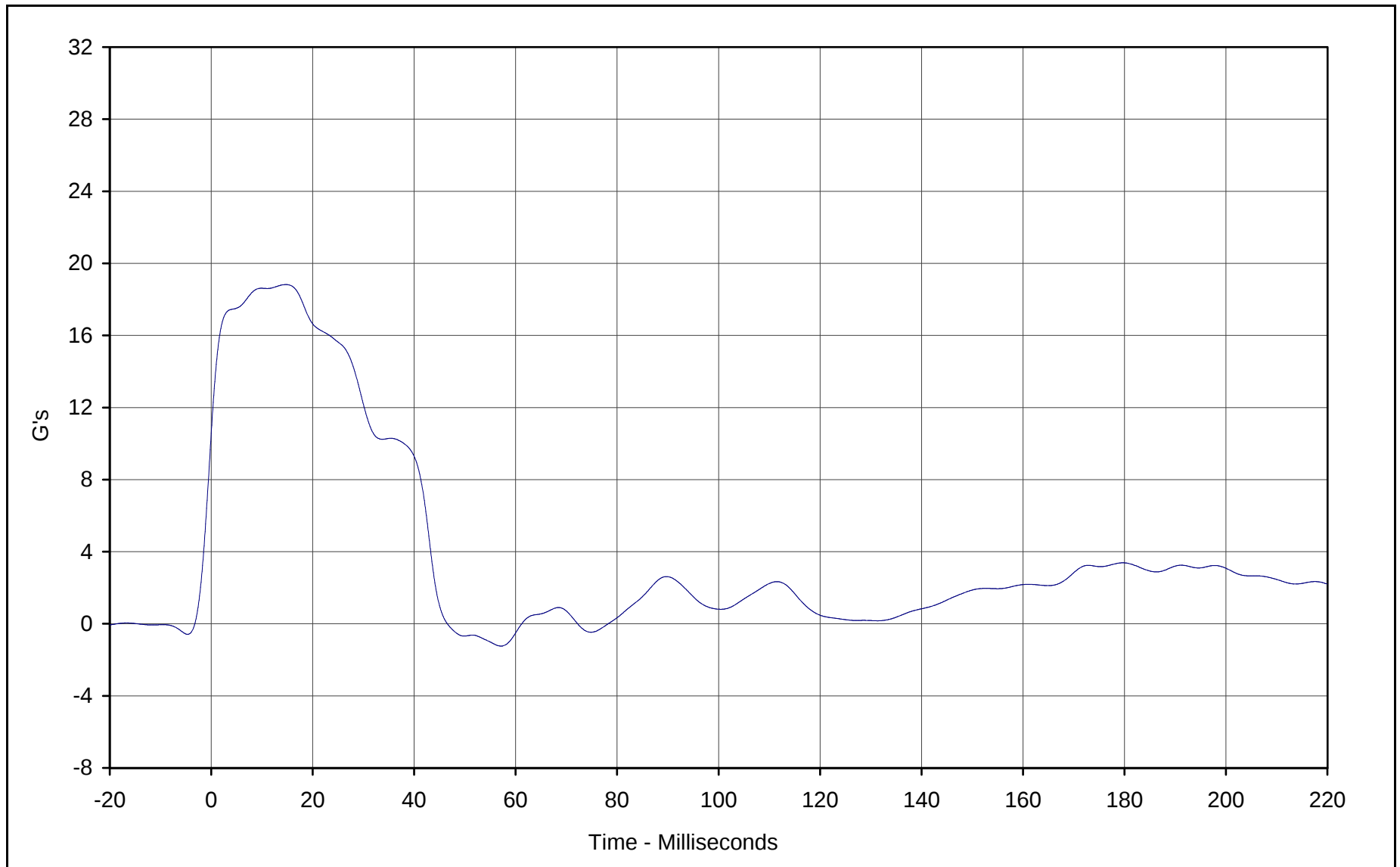
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.10	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.6	Pass
	20 Msec.	G's	14.0 to 19.0	16.6	Pass
	30 Msec.	G's	11.0 to 16.0	12.2	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	12.2	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	42.9	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	94.3	Pass
	Time	Msec.	72.0 to 82.0	81.8	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	156.9	Pass
Moment About Occipital Condyle	Maximum	N•m	-52.9 to- 79.9	-73.0	Pass
	Time	Msec.	65.0 to 79.0	68.5	Pass
Negative Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	136.5	Pass
Overall Test Results					Pass

Laboratory Technician

January 10, 2001
Test Date

Approved By

Date



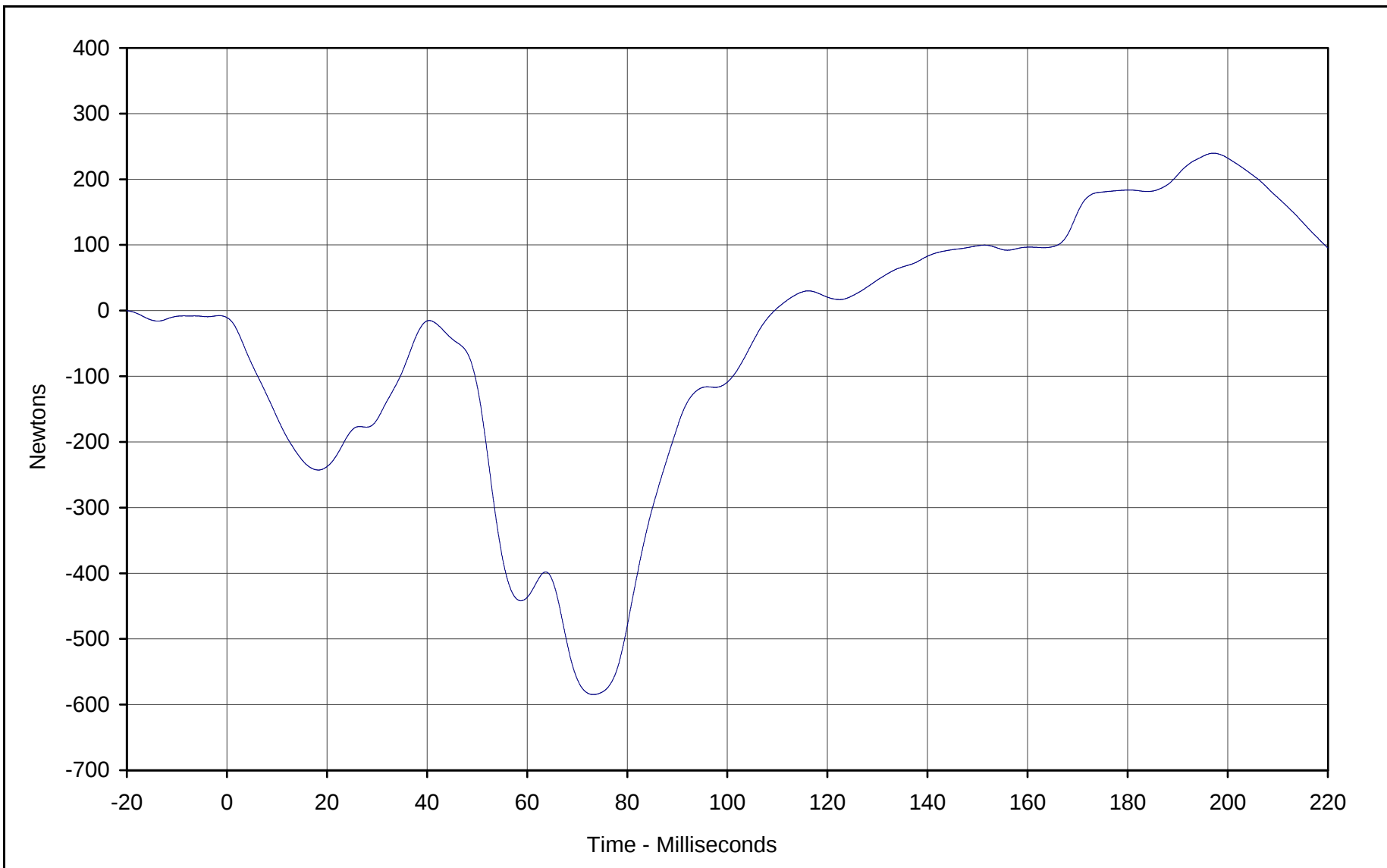
Curve Description: Pendulum Deceleration

Maximum Value:	<u>18.8</u>	at	<u>14.7</u>	Milliseconds
Minimum Value:	<u>-1.2</u>	at	<u>57.1</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>1/10/01</u>			
ATD Serial No.:	<u>034</u>			

Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NE01C





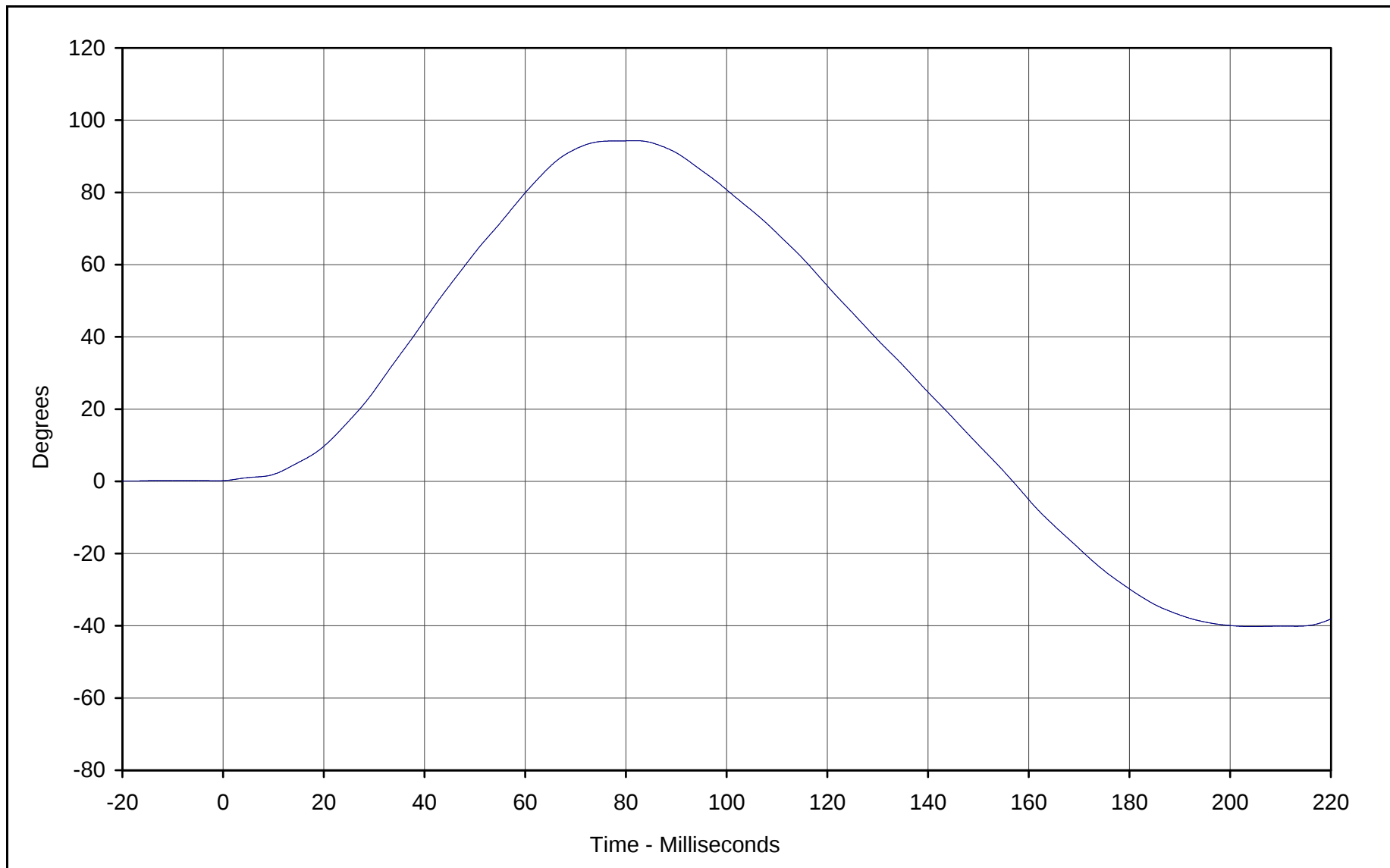
Curve Description: Neck Force X

Maximum Value:	239.7	at	197.1	Milliseconds
Minimum Value:	-584.7	at	73.2	Milliseconds
SAE Filter Class:	60			
Date of Test:	1/10/01			
ATD Serial No.:	034			

Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NE01C





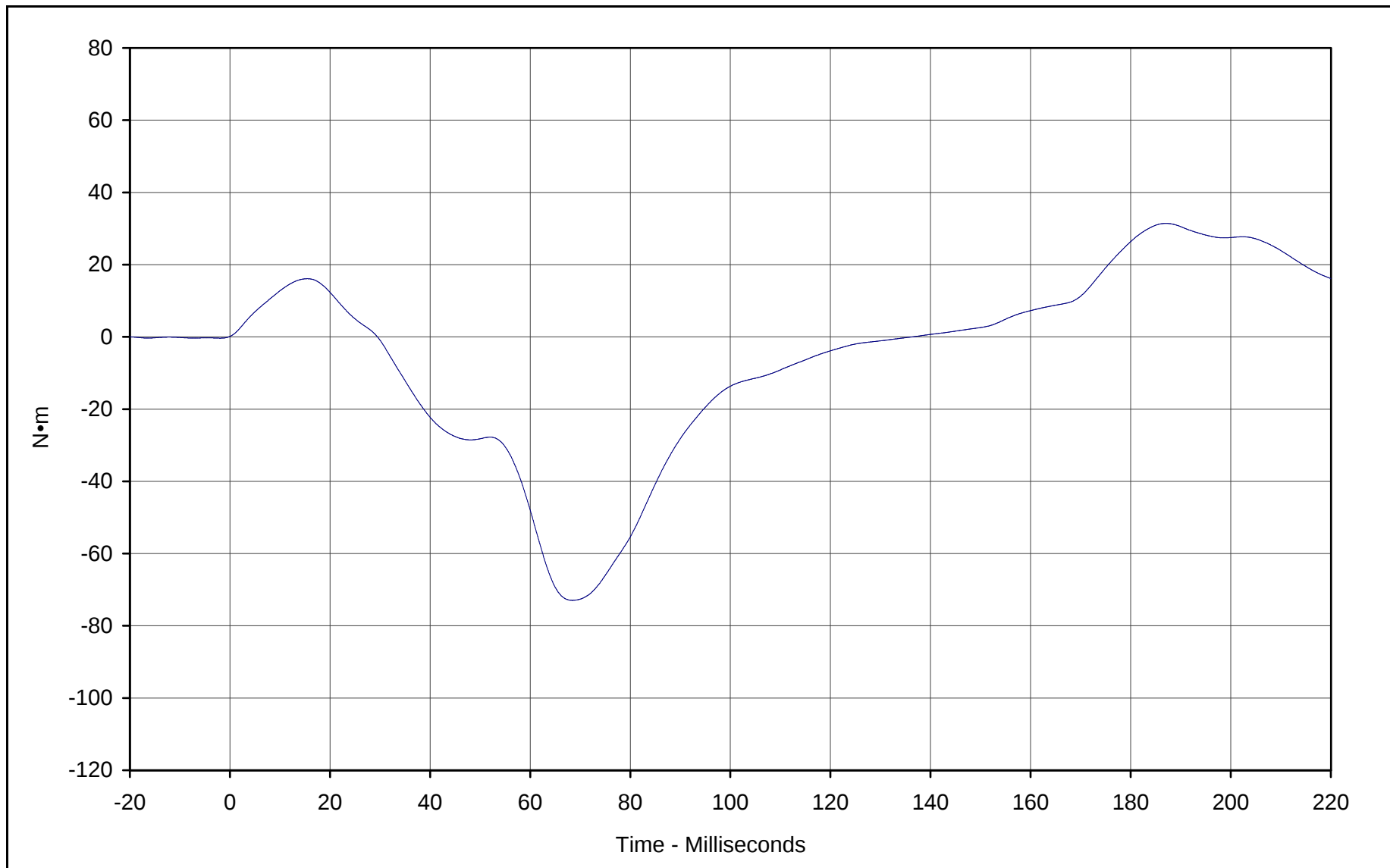
Curve Description: "D" Plane Rotation

Maximum Value:	94.3	at	81.8	Milliseconds
Minimum Value:	-40.2	at	204.5	Milliseconds
SAE Filter Class:	60			
Date of Test:	1/10/01			
ATD Serial No.:	034			

Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NE01C





Curve Description: Moment About Occipital Condyles

Maximum Value: 31.4 at 187.0 Milliseconds

Minimum Value: -73.0 at 68.5 Milliseconds

SAE Filter Class: 60

Date of Test: 1/10/01

ATD Serial No.: 034

Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NE01C





Hybrid III Calibration Data Sheet

50TH Percentile Male

External Measurements

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: N/A

External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	20.9	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	885	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	150	Pass
G - Elbow back to wrist pivot	mm	290 to 305	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	495	Pass
N - Buttock popliteal length	mm	452 to 477	475	Pass
O - Chest depth	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	255	Pass
V - Shoulder breadth	mm	422 to 437	430	Pass
W - Foot breadth	mm	91 to 107	100	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

Laboratory Technician

January 10, 2001

Test Date

Approved By

Date



Hybrid III Calibration Data Sheet

50TH Percentile Male

Left Knee Impact Test

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: LK01G

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.113	Pass
Peak Probe Force	Newtons	4715 to 5782	5296.7	Pass
Overall Test Results				Pass

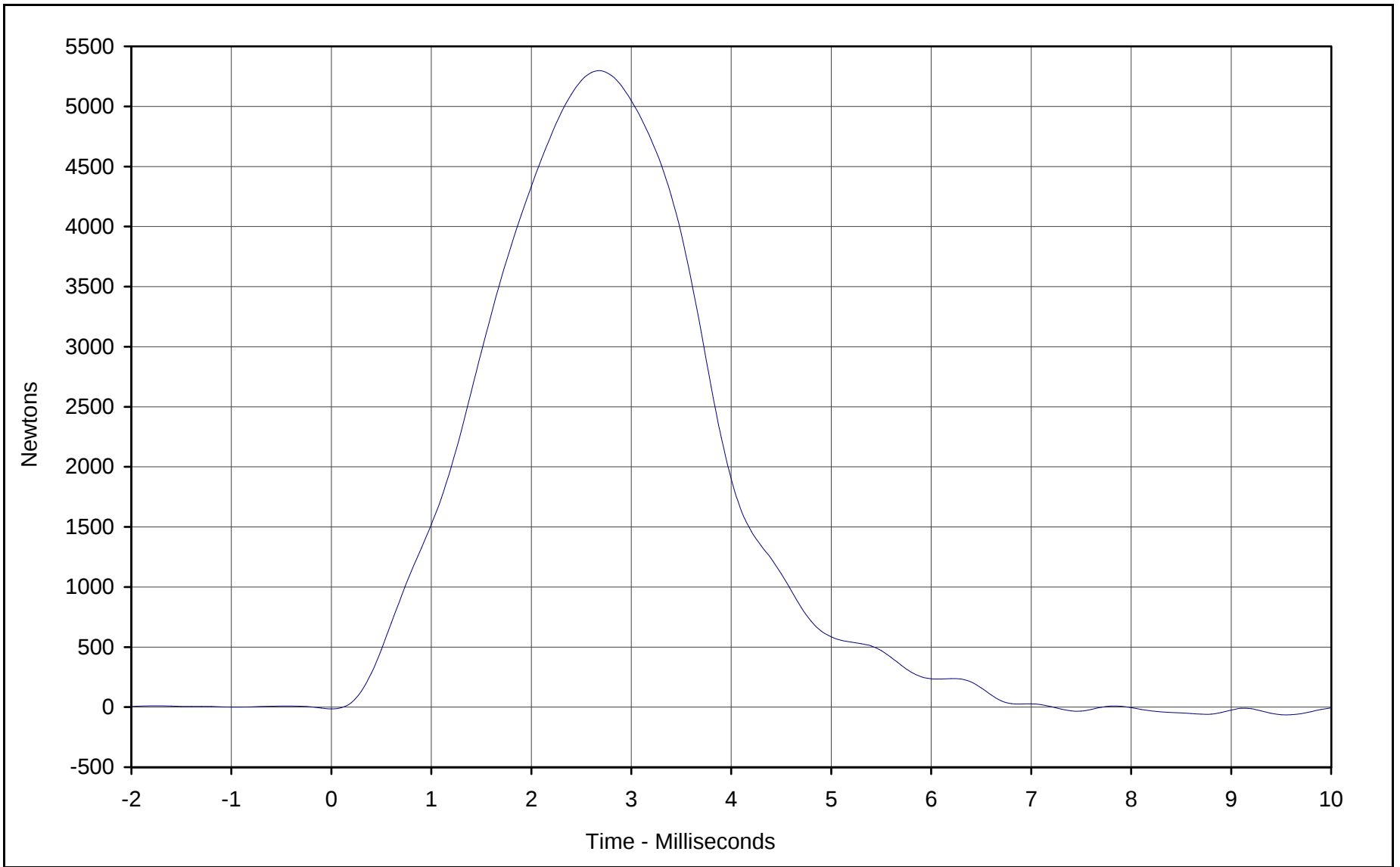
Laboratory Technician

January 10, 2001
Test Date

Approved By

Date

E-22



Curve Description: Probe Force

Maximum Value:	<u>5296.7</u>	at	<u>2.7</u>	Milliseconds
Minimum Value:	<u>-32.5</u>	at	<u>7.5</u>	Milliseconds
SAE Filter Class:	<u>600</u>			
Date of Test:	<u>1/10/01</u>			
ATD Serial No.:	<u>035</u>			

Testing Program: Hybrid III Left Knee Impact Test

Test Information: Part S/N: N/A Test I.D.: LK01G



KAR21001-05



Hybrid III Calibration Data Sheet

50TH Percentile Male

Right Knee Impact Test

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: RK01C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.113	Pass
Peak Probe Force	Newtons	4715 to 5782	5432.5	Pass
Overall Test Results				Pass

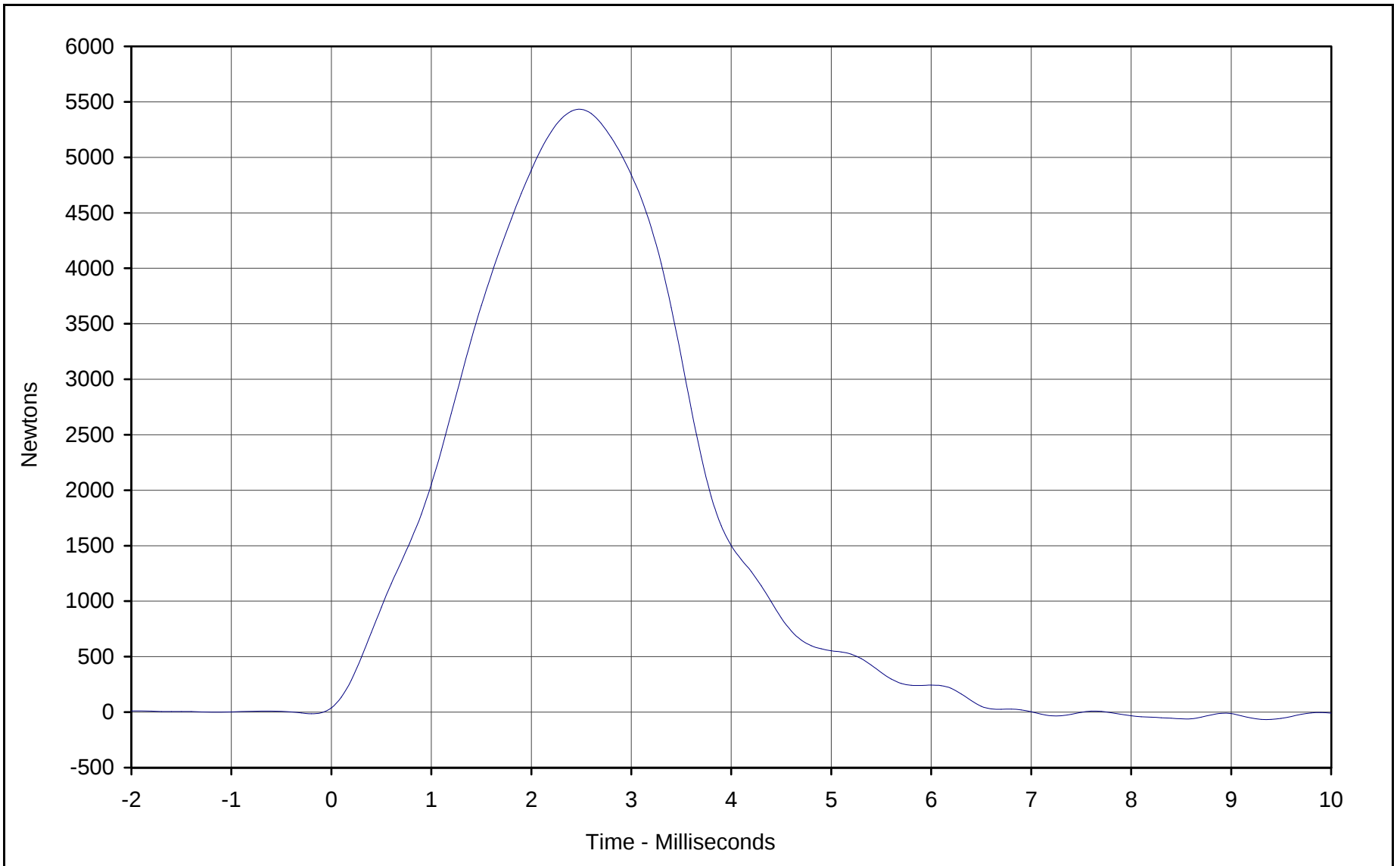
Laboratory Technician

January 10, 2001
Test Date

Approved By

Date

E-24



Curve Description: Probe Force

Maximum Value:	<u>5432.5</u>	at	<u>2.5</u>	Milliseconds
Minimum Value:	<u>-33.3</u>	at	<u>7.3</u>	Milliseconds
SAE Filter Class:	<u>600</u>			
Date of Test:	<u>1/10/01</u>			
ATD Serial No.:	<u>035</u>			

Testing Program: Hybrid III Right Knee Impact Test

Test Information: Part S/N: N/A Test I.D.: RK01C



KAR21001-05



Hybrid III Calibration Data Sheet

50TH Percentile Male

Head Drop Calibration

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: HD01E

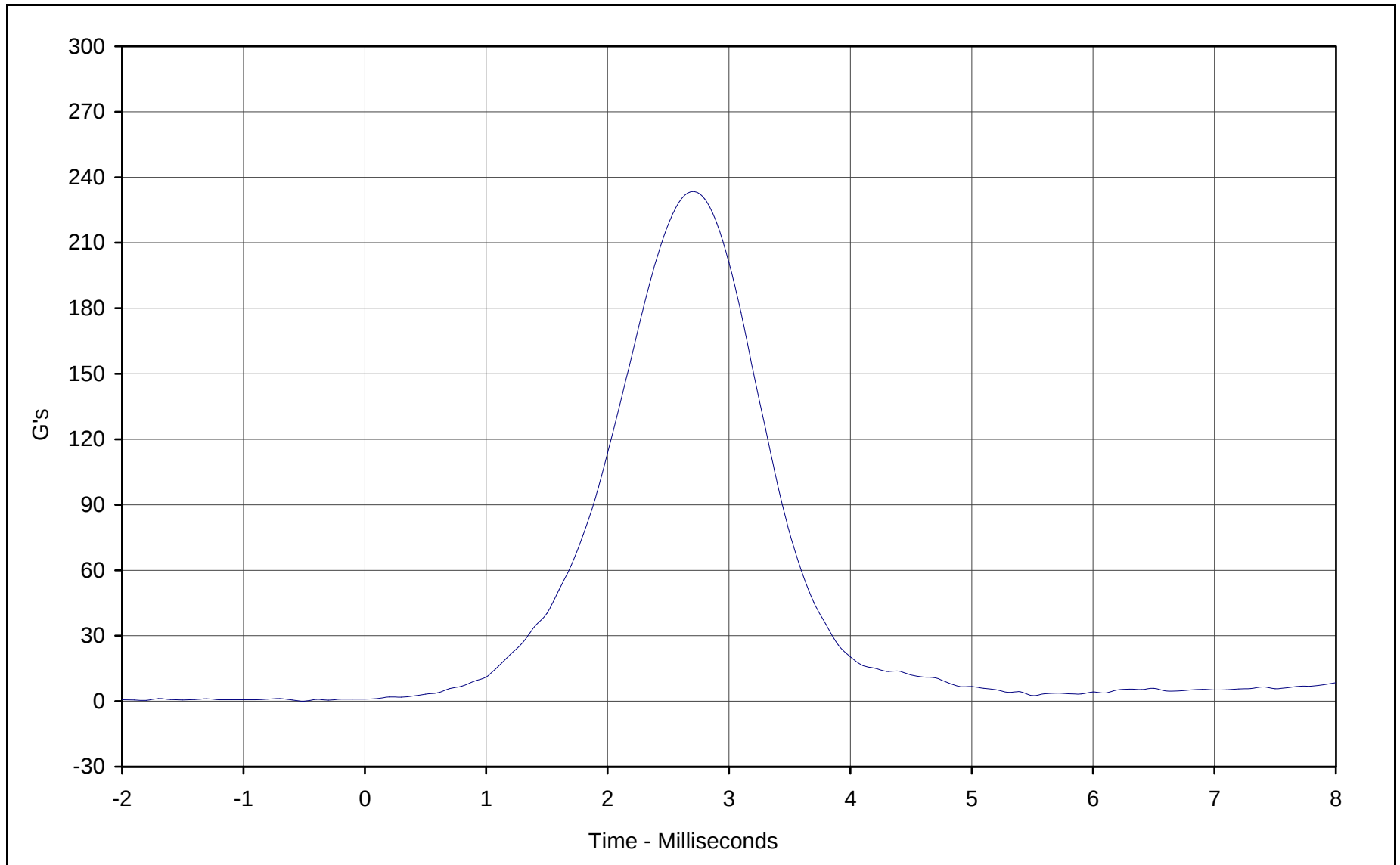
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	233.5	Pass
Peak Lateral Acceleration	G's	≤15.0	10.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

January 10, 2001
Test Date

Approved By

Date



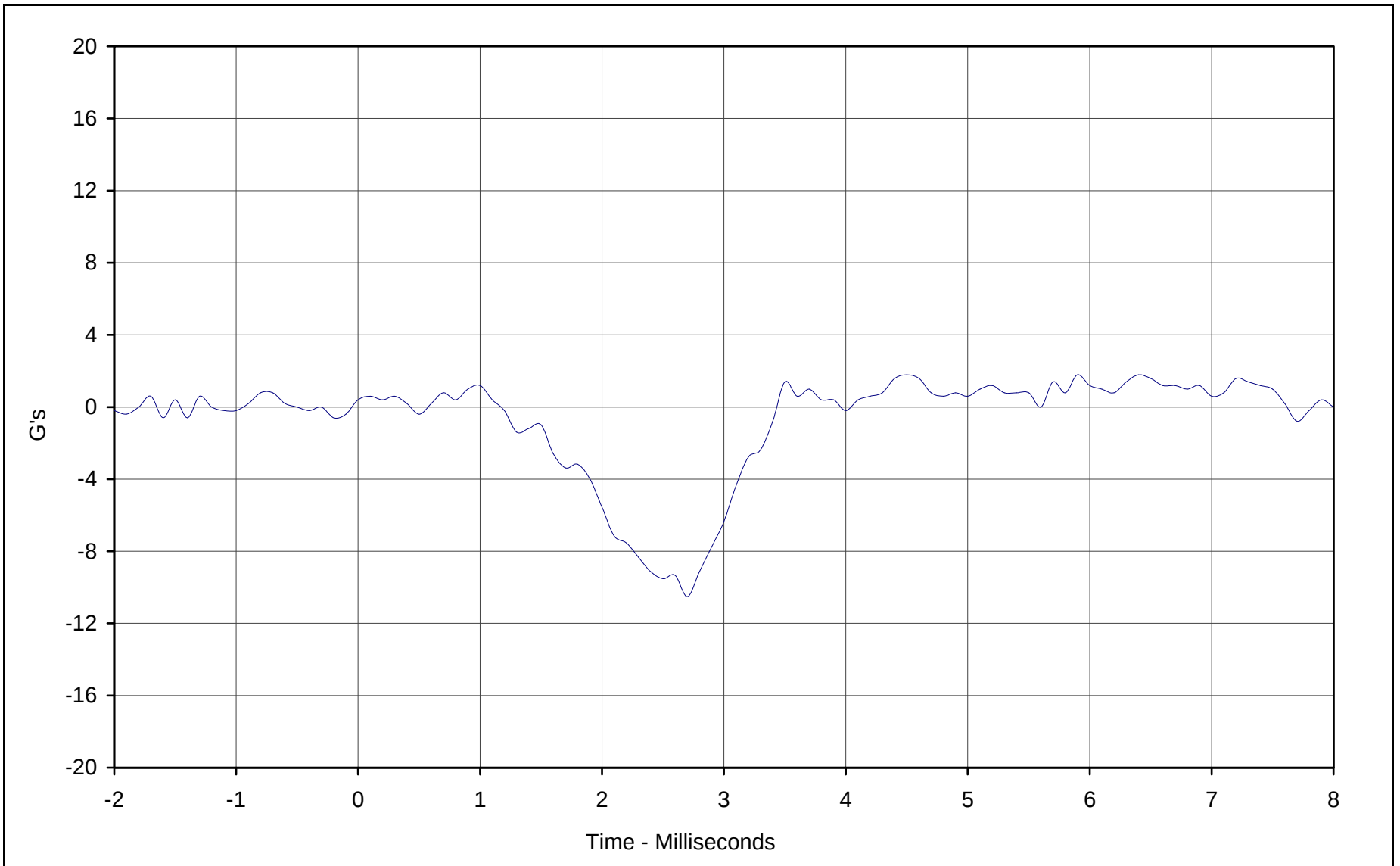
Curve Description: Head Resultant Acceleration

Maximum Value:	<u>233.5</u>	at	<u>2.7</u>	Milliseconds
Minimum Value:	<u>0.0</u>	at	<u>-0.5</u>	Milliseconds
SAE Filter Class:	<u>1000</u>			
Date of Test:	<u>1/10/01</u>			
ATD Serial No.:	<u>035</u>			

Testing Program: Hybrid III Head Drop Calibration (Male)

Test Information: S/N of Part: N/A Test I.D.: HD01E





Curve Description: Head Acceleration Y Axis

Maximum Value: 1.8 at 4.5 Milliseconds

Minimum Value: -10.5 at 2.7 Milliseconds

SAE Filter Class: 1000

Date of Test: 1/10/01

ATD Serial No.: 035

Testing Program: Hybrid III Head Drop Calibration (Male)

Test Information: S/N of Part: N/A Test I.D.: HD01E





Hybrid III Calibration Data Sheet

50TH Percentile Male

Thorax Impact Test

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: CH01G

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	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	5352	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	7.12	Pass
Internal Hysteresis	%	69 to 85	73.5	Pass
Overall Test Results				Pass

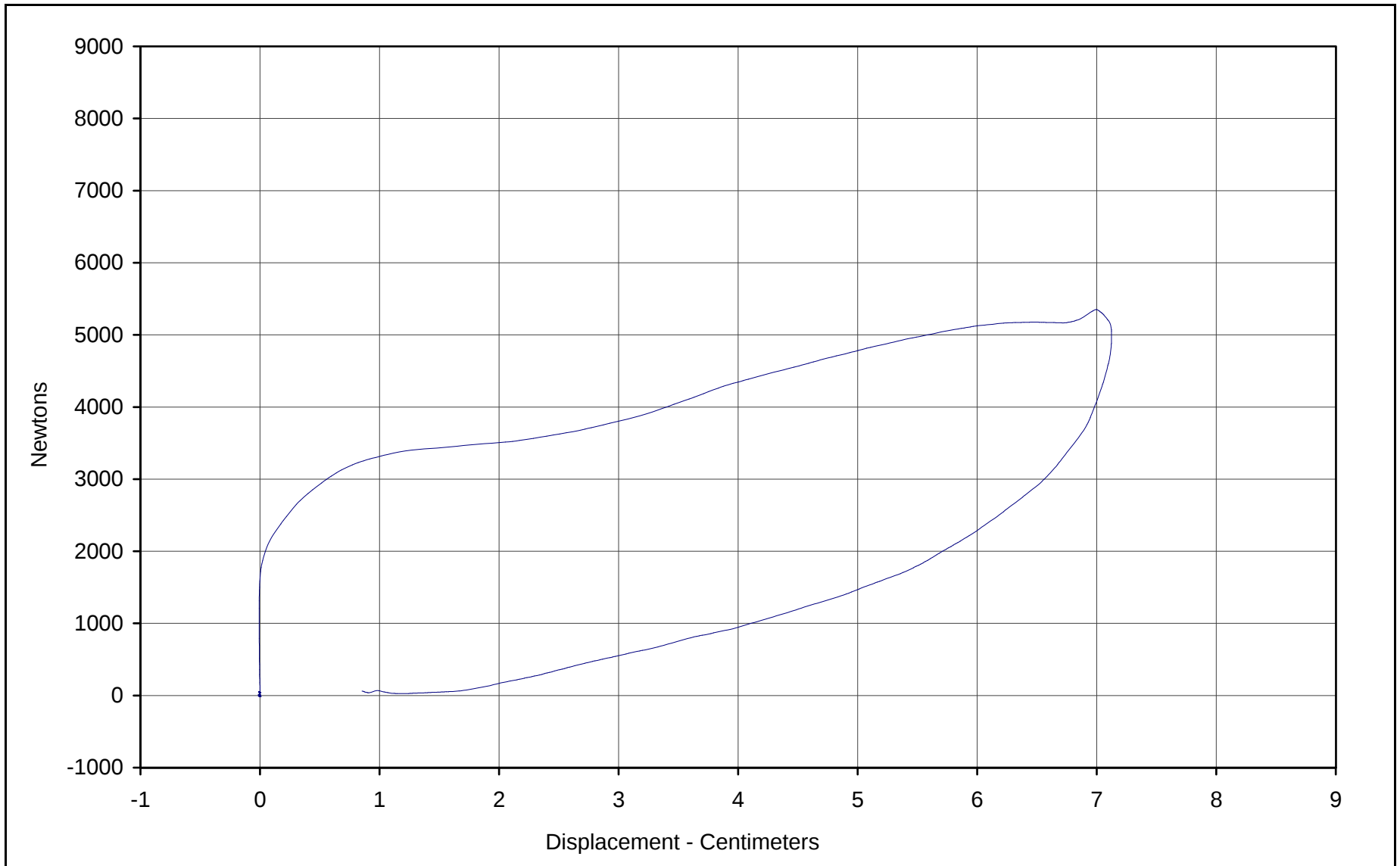
Laboratory Technician

January 10, 2001

Test Date

Approved By

Date



Curve Description: Probe Force vs. Chest Displacement

Probe Force: 5351.7 Newtons

Chest Displ.: 7.12 Centimeters

SAE Filter Class: 180

Date of Test: 1/10/01

ATD Serial No.: 035

Testing Program: Hybrid III Thorax Impact Test

Test Information: S/N of Part: N/A Test I.D.: CH01G





Hybrid III Calibration Data Sheet

50TH Percentile Male

Neck Flexion Test

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: NF01D

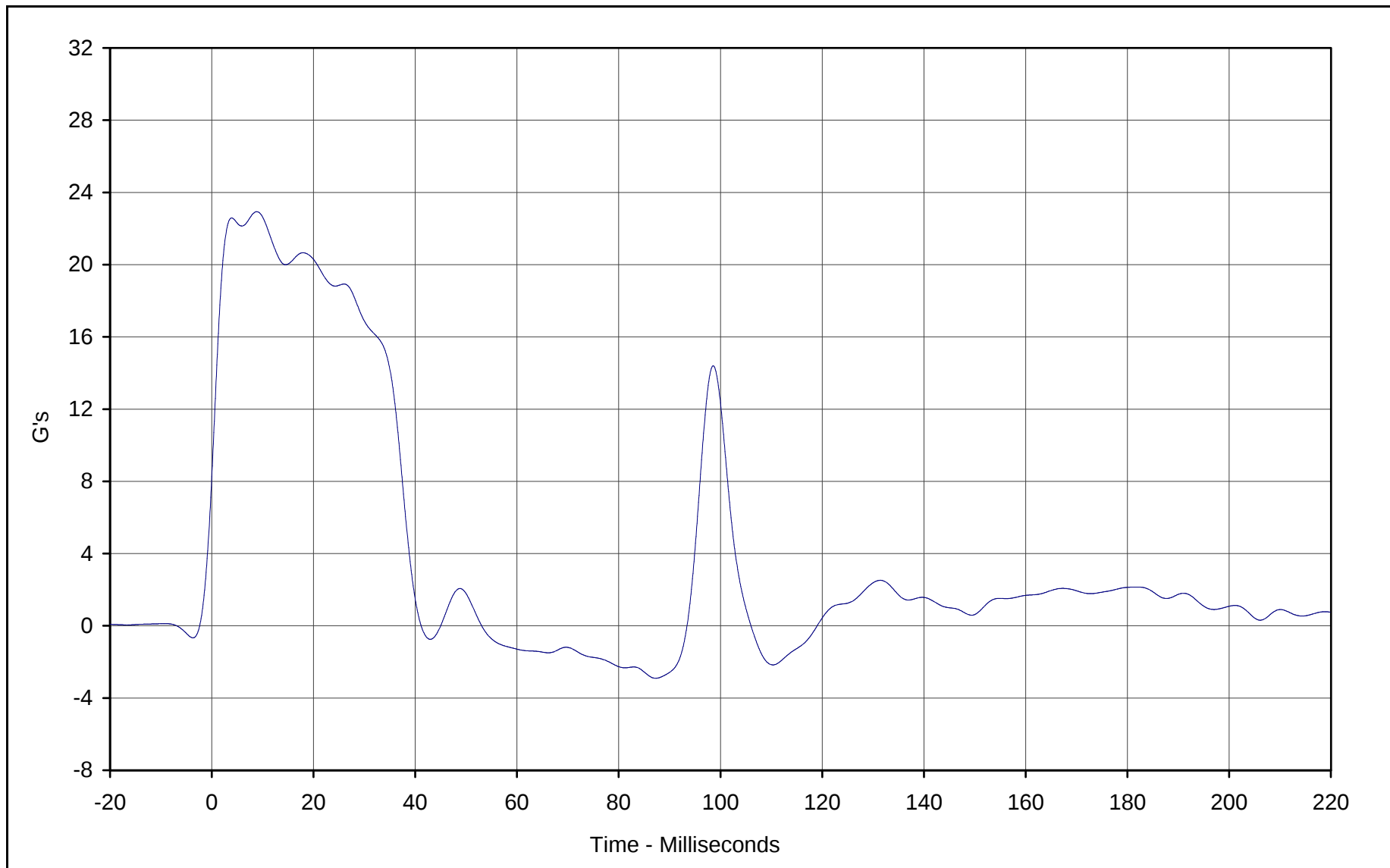
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.89	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	22.6	Pass
	20 Msec.	G's	17.6 to 22.6	20.3	Pass
	30 Msec.	G's	12.5 to 18.5	16.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	16.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	38.5	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	75.7	Pass
	Time	Msec.	57.0 to 64.0	63.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	122.7	Pass
Moment About Occipital Condyle	Maximum	N·m	84.1 to 108.5	89.4	Pass
	Time	Msec.	47.0 to 58.0	57.3	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	102.1	Pass
Overall Test Results					Pass

Laboratory Technician

January 10, 2001
Test Date

Approved By

Date

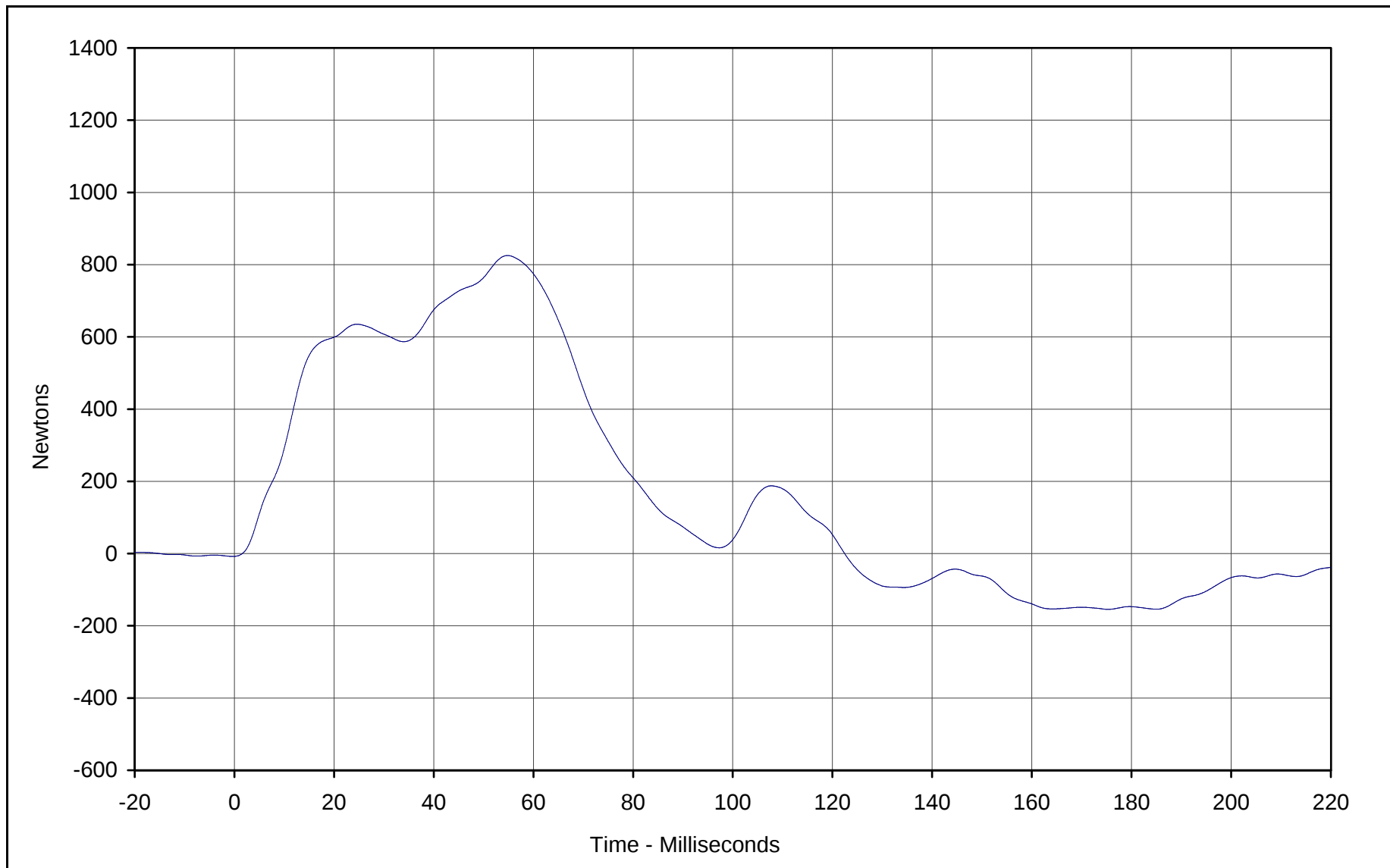


Curve Description:	Pendulum Deceleration		
Maximum Value:	22.9	at	8.8 Milliseconds
Minimum Value:	-2.9	at	87.3 Milliseconds
SAE Filter Class:	60		
Date of Test:	1/10/01		
ATD Serial No.:	035		

Testing Program:	Hybrid III Neck Flexion Test (Male)
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Test Information:	S/N of Part: N/A Test I.D.: NF01D
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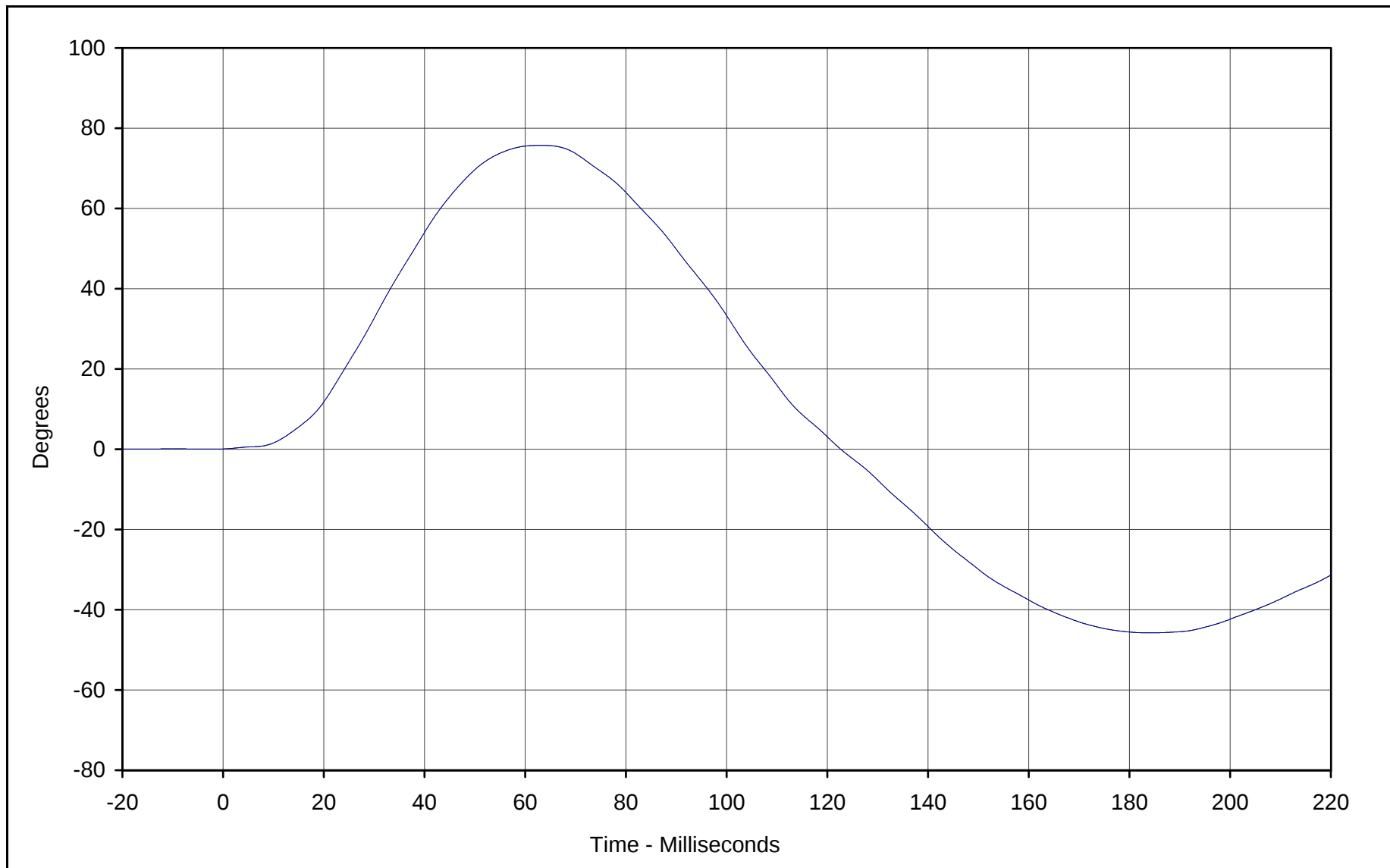
Curve Description: Neck Force X

Maximum Value:	825.3	at	54.8	Milliseconds
Minimum Value:	-154.5	at	175.3	Milliseconds
SAE Filter Class:	60			
Date of Test:	1/10/01			
ATD Serial No.:	035			

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NF01D





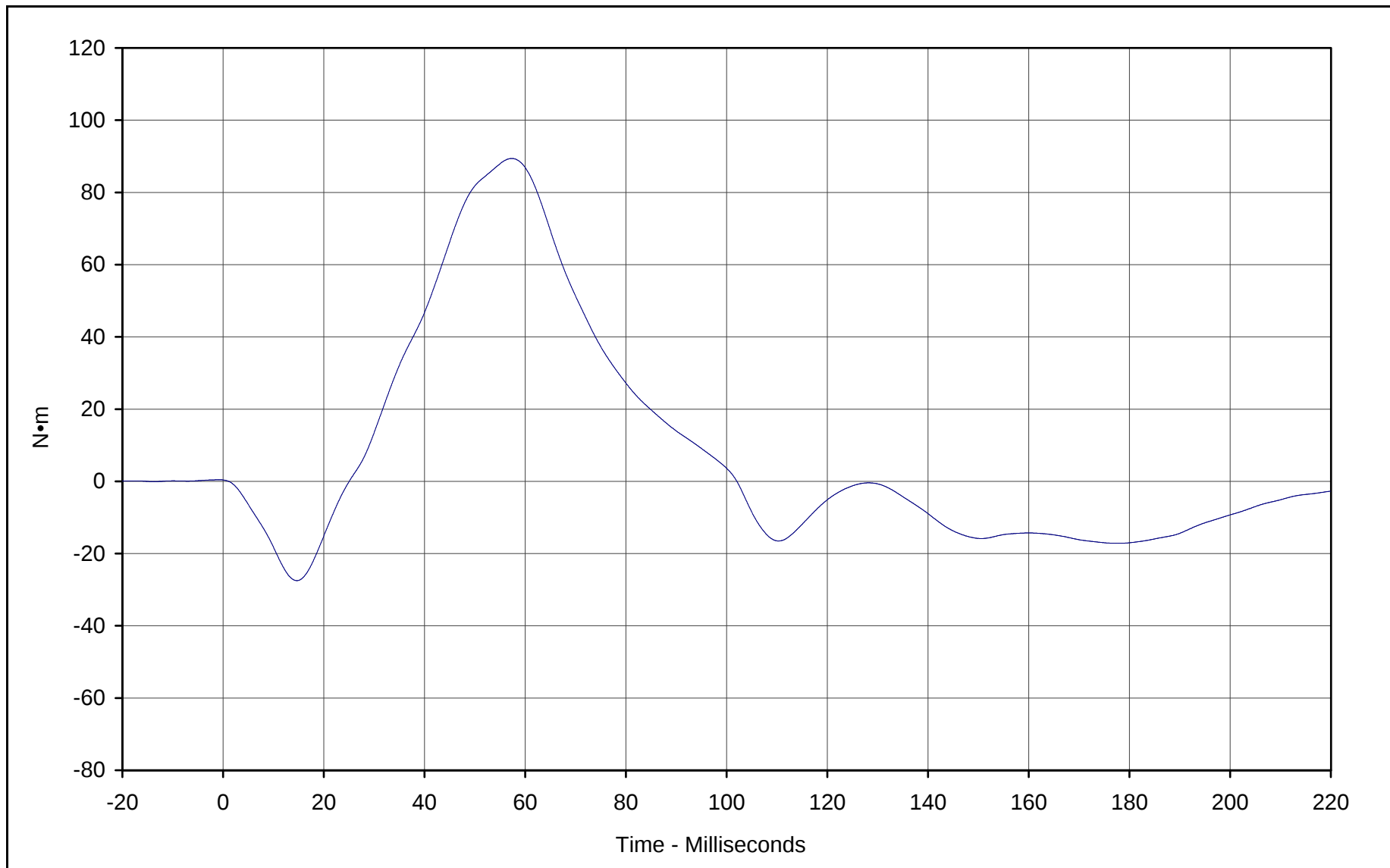
Curve Description: "D" Plane Rotation

Maximum Value:	75.7	at	63.1	Milliseconds
Minimum Value:	-45.8	at	184.1	Milliseconds
SAE Filter Class:	60			
Date of Test:	1/10/01			
ATD Serial No.:	035			

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NF01D





Curve Description: Moment About Occipital Condyles

Maximum Value: 89.4 at 57.3 Milliseconds

Minimum Value: -27.5 at 14.6 Milliseconds

SAE Filter Class: 60

Date of Test: 1/10/01

ATD Serial No.: 035

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NF01D





Hybrid III Calibration Data Sheet

50TH Percentile Male

Neck Extension Test

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: NE01D

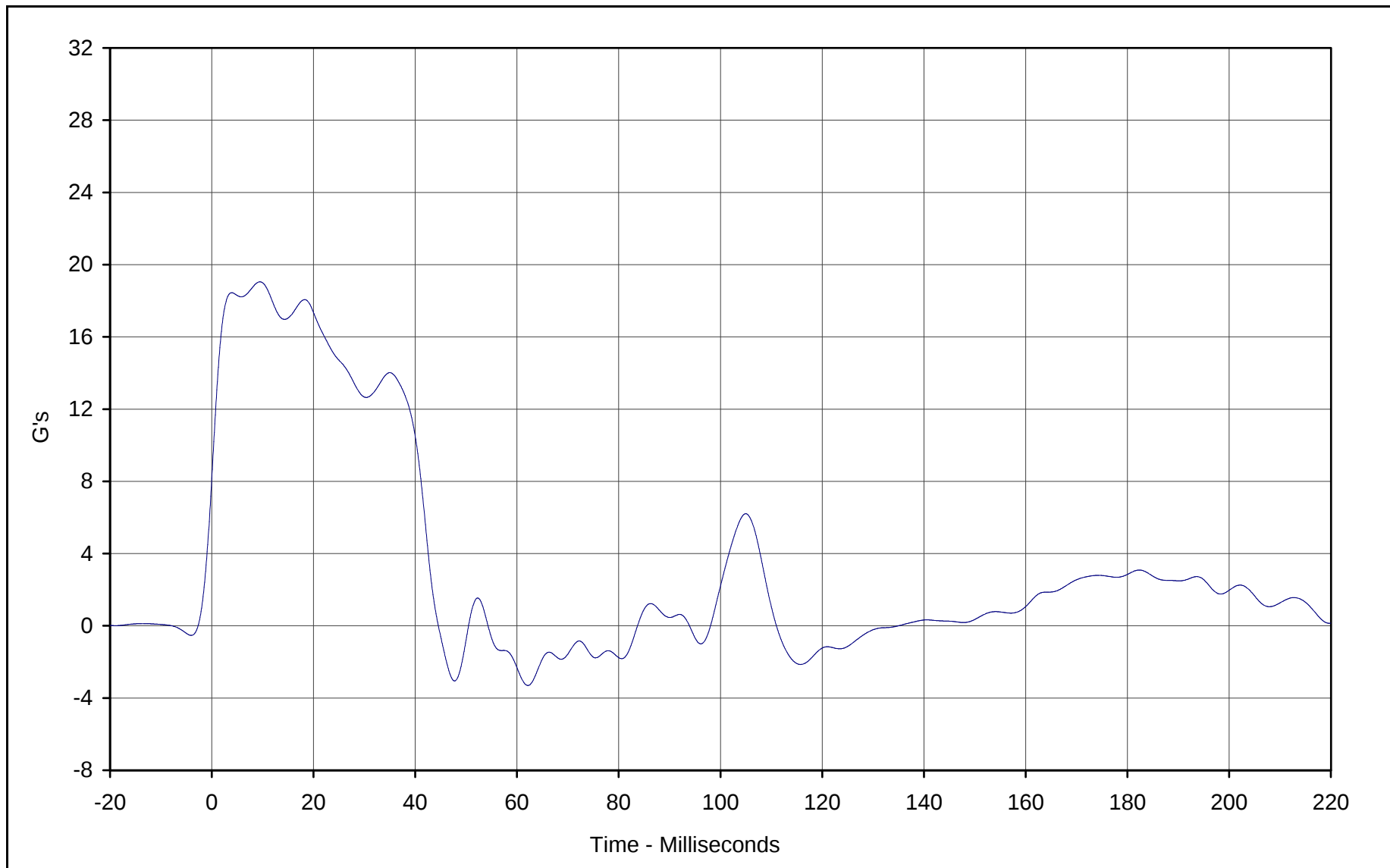
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.10	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.0	Pass
	20 Msec.	G's	14.0 to 19.0	17.3	Pass
	30 Msec.	G's	11.0 to 16.0	12.7	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	14.0	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	42.3	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	90.7	Pass
	Time	Msec.	72.0 to 82.0	81.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	155.3	Pass
Moment About Occipital Condyle	Maximum	N•m	-52.9 to- 79.9	-61.8	Pass
	Time	Msec.	65.0 to 79.0	73.2	Pass
Negative Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	138.4	Pass
Overall Test Results					Pass

Laboratory Technician

January 10, 2001
Test Date

Approved By

Date



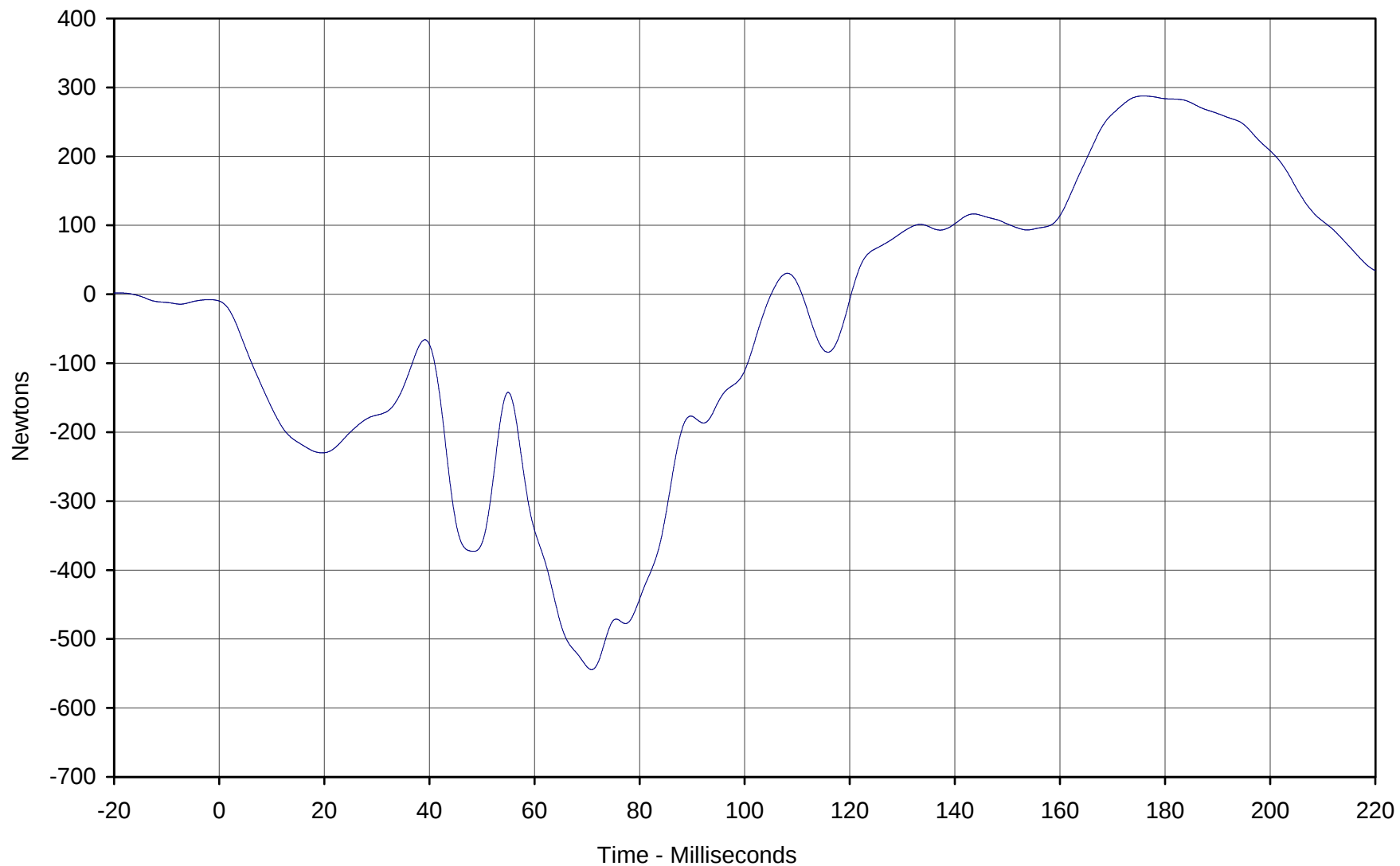
Curve Description: Pendulum Deceleration

Maximum Value:	<u>19.1</u>	at	<u>9.5</u>	Milliseconds
Minimum Value:	<u>-3.3</u>	at	<u>62.1</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>1/10/01</u>			
ATD Serial No.:	<u>035</u>			

Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NE01D





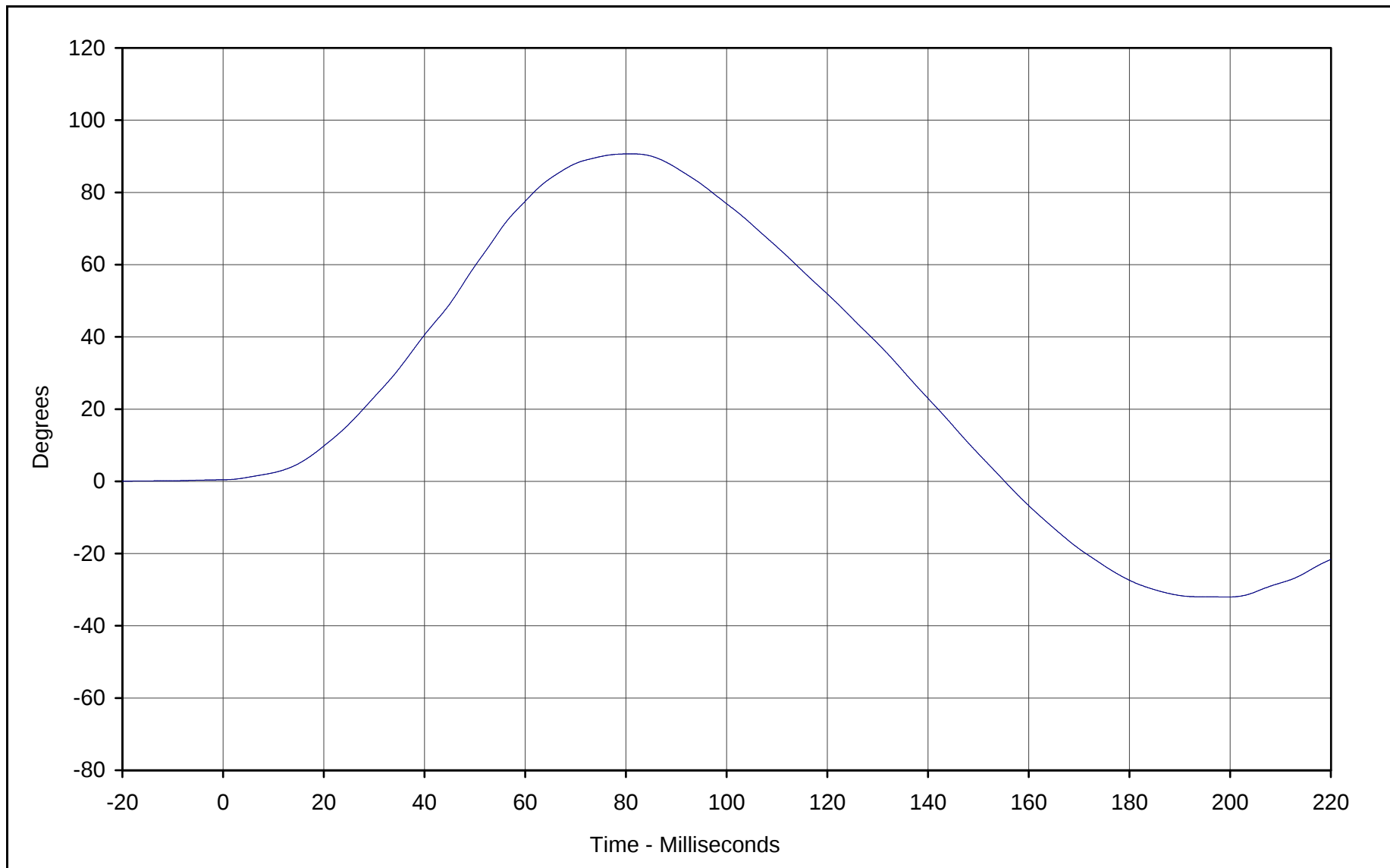
Curve Description: Neck Force X

Maximum Value:	287.7	at	175.9	Milliseconds
Minimum Value:	-544.4	at	70.9	Milliseconds
SAE Filter Class:	60			
Date of Test:	1/10/01			
ATD Serial No.:	035			

Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NE01D





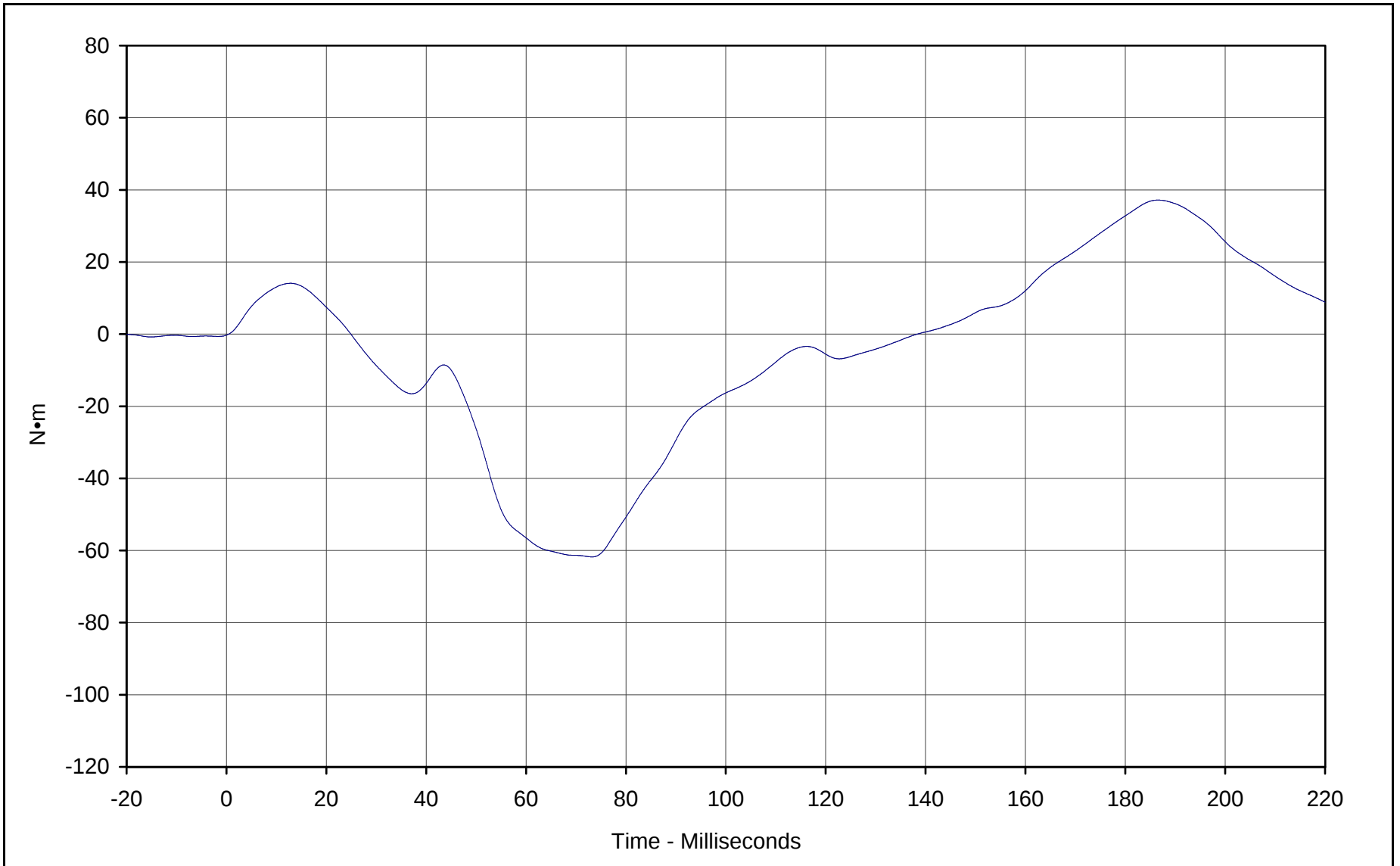
Curve Description: "D" Plane Rotation

Maximum Value:	90.7	at	81.0	Milliseconds
Minimum Value:	-32.0	at	199.4	Milliseconds
SAE Filter Class:	60			
Date of Test:	1/10/01			
ATD Serial No.:	035			

Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NE01D





Curve Description: Moment About Occipital Condyles

Maximum Value: 37.2 at 186.5 Milliseconds

Minimum Value: -61.8 at 73.2 Milliseconds

SAE Filter Class: 60

Date of Test: 1/10/01

ATD Serial No.: 035

Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: N/A Test I.D.: NE01D





Hybrid III Calibration Data Sheet

50TH Percentile Male

External Measurements

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: N/A

External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	20.9	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	885	Pass
B - Shoulder pivot height	mm	505 to 521	510	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	145	Pass
G - Elbow back to wrist pivot	mm	290 to 305	295	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	340	Pass
J - Elbow rest height	mm	190 to 211	210	Pass
K - Buttock to knee length	mm	579 to 604	590	Pass
L - Popliteal length	mm	429 to 455	440	Pass
M - Knee pivot height	mm	485 to 500	490	Pass
N - Buttock popliteal length	mm	452 to 477	470	Pass
O - Chest depth	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	265	Pass
V - Shoulder breadth	mm	422 to 437	435	Pass
W - Foot breadth	mm	91 to 107	105	Pass
Y - Chest circumference	mm	970 to 1001	990	Pass
Z - Waist circumference	mm	836 to 866	855	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

January 10, 2001
Test Date

Approved By

Date

APPENDIX F
VEHICLE OWNER'S MANUAL
OCCUPANT RESTRAINT INSTRUCTIONS

OCCUPANT RESTRAINTS

Some of the most important safety features in your vehicle are the restraint systems. These include the front and rear seat belts for the driver and all passengers, and front airbags for both the driver and front passenger. If you will be carrying children too small for adult-size belts, your seat belts can also be used to hold infant and child restraint systems.

Please pay close attention to the information in this section. It tells you how to use your restraint system properly to keep you and your passengers as safe as possible.

WARNING!

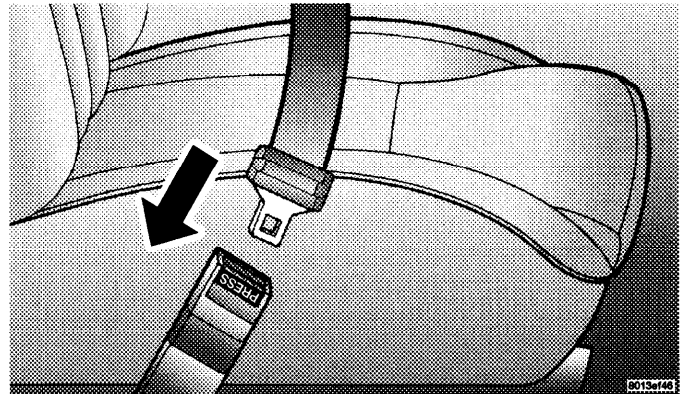
In a collision, you and your passengers can suffer much greater injuries if you are not properly buckled up. You can strike the interior of your vehicle or other passengers, or you can be thrown out of the vehicle. Always be sure you and others in your vehicle are buckled up properly.

Buckle up even though you are an excellent driver, even on short trips. Someone on the road may be a poor driver and cause a collision which involves you. This can happen far from home or on your own street.

2

Lap/Shoulder Belt Operating Instructions

1. Enter the vehicle and close the door. Sit back and adjust the seat.
2. The seat belt latch plate is above the back of your seat, next to your arm in the rear seat. Grasp the latch plate and pull out the belt. Slide the latch plate up the webbing as far as necessary to make the belt go around your lap.
3. When the belt is long enough to fit, insert the latch plate into the buckle until you hear a “click.”



2

Research has shown that seat belts save lives, and they can reduce the seriousness of injuries in a collision. Some of the worst injuries happen when people are thrown from the vehicle. Seat belts reduce the possibility of ejection and the risk of injury caused by striking the inside of the vehicle. Everyone in a motor vehicle needs to be buckled up all the time.

Lap/Shoulder Belts

The outboard front and rear seats of your vehicle have combination lap/ shoulder belts. The retractor is designed to lock during very sudden stops or impacts, and the driver's side seatbelt retractor will also lock if the belt is pulled very rapidly from the retractor. This feature allows the shoulder part of the belt to move freely with you under normal conditions. But in a collision, the belt will lock and reduce the risk of your striking the inside of the vehicle or being thrown out.

WARNING!

- Wearing a seat belt incorrectly is dangerous. Seat belts are designed to go around the large bones of your body. These are the strongest parts of your body and can take the forces of a collision the best. Wearing your belt in the wrong place could make your injuries in a collision much worse. You might suffer internal injuries, or you could even slide out of part of the belt. Follow these instructions to wear your seat belt safely and to keep your passengers safe, too.
- Two people should never be belted into a single seat belt. People belted together can crash into one another in an accident, hurting one another badly. Never use a lap/shoulder belt or a lap belt for more than one person, no matter what their size.

WARNING!

Wearing a seat belt incorrectly is dangerous. Seat belts are designed to go around the large bones of your body. These are the strongest parts of your body and can take the forces of a collision the best. Wearing your belt in the wrong place could make your injuries in a collision much worse. You might suffer internal injuries, or you could even slide out of part of the belt. Follow these instructions to wear your seat belt safely and to keep your passengers safe, too.

A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your seat belt snugly. A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your seat belt snugly. A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your seat belt snugly.

WARNING!

A belt that is worn under your arm is very dangerous. Your body could strike the inside surfaces of the vehicle in a collision, increasing head and neck injury. A belt worn under the arm can cause internal injuries. Ribs aren't as strong as shoulder bones. Wear the belt over your shoulder so that your strongest bones will take the force in a collision.

A shoulder belt placed behind you will not protect you from injury during a collision. You are more likely to hit your head in a collision if you do not wear your shoulder belt. The lap and shoulder belt are meant to be used together.

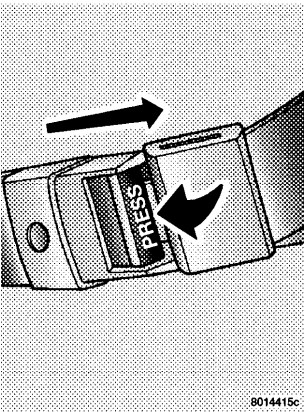
4. Position the lap belt across your thighs, below your abdomen. If you need the lap portion tighter, pull up a bit on the shoulder part. A snug belt reduces the risk of sliding under the belt in a collision.

WARNING!

A lap belt worn too high can increase the risk of internal injury in a collision. The belt forces won't be at the strong hip and pelvic bones, but across your abdomen. Always wear the lap part as low as possible and keep it snug.

A twisted belt cannot do its job as well. In a collision it could even cut into you. Be sure the belt is straight. If you cannot straighten a belt in your vehicle, take it to your dealer and have it fixed.

5. Position the shoulder belt on your chest so that it is comfortable and not resting on your neck. The retractor will withdraw any slack in the belt.



6. To release the belt, push the red button marked **PRESS** on the buckle. The belt will automatically retract to its stowed position. If necessary, slide the latch plate down the webbing to allow the belt to retract fully. If necessary, slide the latch plate down the webbing to allow the belt to retract fully.

2

As a guide, if you are shorter than average, you will prefer a lower position, and if you are taller than average, you'll prefer a higher position. When you release the anchorage, try to move it up or down to make sure that it is locked in position. In the rear seat, move toward the center of the seat to position the belt away from your neck.

Rear Center Lap Belts

The rear center seating positions have a lap belt only. To fasten a lap belt, slip the latch plate into the buckle until you hear a "click." To lengthen the lap belt, tilt the latch plate and pull. To shorten the belt, pull the loose end of the webbing. Wear the lap belt snug against the hips. Sit back and erect in the seat, then adjust the belt as tightly as is comfortable.

WARNING!

- A lap belt worn too loose or too high is dangerous.
- A belt worn too loose can allow you to slip down and under the belt in a collision.
- A belt that is too high will apply crash forces to the abdomen, not to the stronger hip bones. In either case, the risk of internal injuries is greater. Wear a lap belt low and snug.

2

Pretensioners

The seat belts for both the front seating positions are equipped with pretensioning devices that are designed to remove any slack from the seat belt systems in the event of a collision. These devices improve the performance of the seat belt by assuring that the belt is tight around the occupant early in a collision. Pretensioners work for all size occupants, including those in child restraints.

NOTE: These devices are not a substitute for proper seat belt placement by the occupant. The seat belt must still be worn snugly and positioned properly.

The pretensioners are triggered by the front Airbag Control Module. Like the front airbags, the pretensioners are single use items. After a collision that is severe enough to deploy the airbags and pretensioners, they both must be replaced.

Seat Belts and Pregnant Women

We recommend that pregnant women use the seat belts throughout their pregnancy. Keeping the mother safe is the best way to keep the baby safe.

Pregnant women should wear the lap part of the belt across the thighs and as snug against the hips as possible. Keep the belt low so that it does not come across the abdomen. That way the strong bones of the hips will take the force if there is a collision.

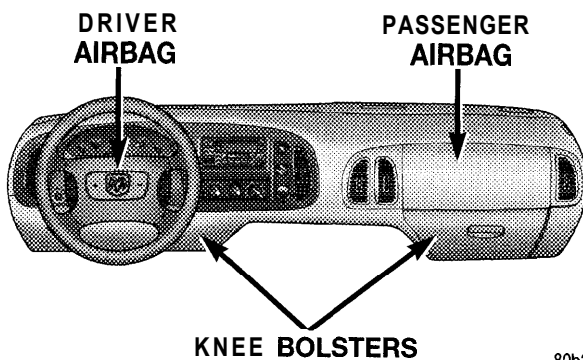
Seat Belt Extender

If a seat belt is too short, even when fully extended, your dealer can provide you with a seat belt extender. This extender should be used only if the existing belt is not long enough. When it is not required, remove the extender and stow it.

WARNING!

Using a seat belt extender when not needed can increase the risk of injury in a collision. Only use when the lap belt is not long enough when it is worn low and snug, and in the recommended seating positions. Remove and stow when not needed.

Driver And Front Passenger Supplemental Restraint Systems (SRS) — Airbags



This vehicle has airbags for the driver and the right front passenger as a supplement to the seat belt restraint system.

The driver's airbag is mounted in the steering wheel. The passenger airbag is mounted in the instrument panel, above the glove compartment, under a cover marked SRS / AIRBAG.

NOTE: These airbags are certified to the Federal regulations that allow less forceful deployments.

NOTE: Airbag covers may not be obvious in the interior trim; but they will open to allow airbag deployment.

WARNING!

Do not put anything on or around the front **airbag** covers or attempt to manually open them. You may damage the **airbags** and you could be injured because the **airbags** are not there to protect you. These protective covers for the **airbag** cushions are designed to open only when the **airbags** are inflating.

Airbags inflate in higher speed impacts. Along with the seatbelts, they work with the instrument panel knee bolsters to provide improved protection for the driver and front passenger.

The seat belts are designed to protect you in many types of collisions. The **airbags** deploy only in moderate to severe frontal collisions. But even in collisions where the **airbags** do work, you need the seat belts to keep you in the right position for the **airbags** to protect you properly.

Here are some simple steps you can follow to minimize the risk of harm from a deploying **airbag**.

- Children 12 years and under should always ride buckled up in a rear seat, if available.
- Infants in rear-facing child restraints must NEVER ride in the front seat of a vehicle with a passenger **airbag**, unless the **airbag** is turned off. An **airbag**

deployment could cause serious injury or death to an infant in that position. See “Passenger Airbag On/ Off Switch” in this section.

- If a child from 1 to 12 years old must ride in the front passenger seat because the vehicle is crowded, move the seat as far back as possible, and use the proper child restraint, See “Child Restraint” in this section.
- All occupants should use their seat belts properly.
- The driver and front passenger seats should be moved back as far as practical to allow the **airbag** room to inflate.

WARNING!

Relying on the **airbags** alone could lead to more severe injuries in a collision. The **airbags** work with your seat belt to restrain you properly. In some collisions, the **airbags** won't deploy at all. Always wear your seat belt even though you have **airbags**.

Being too close to the steering wheel or instrument panel during **airbag** deployment could cause serious injury. **Airbags** need room to inflate. Sit back, comfortably extending your arms to reach the steering wheel or instrument panel.

THINGS TO KNOW BEFORE STARTING YOUR VEHICLE 29

Airbag System Components

The **airbag** system consists of the following:

- Airbag Control Module (ACM)
- Airbag Warning Light
- Driver and Passenger Airbag/ Inflator Units
- Unique Steering Wheel and Column
- Interconnecting Wiring
- Knee Impact Bolsters
- Passenger Airbag On/Off Switch (2 Passenger Van Only)

How The **Airbag** System Works

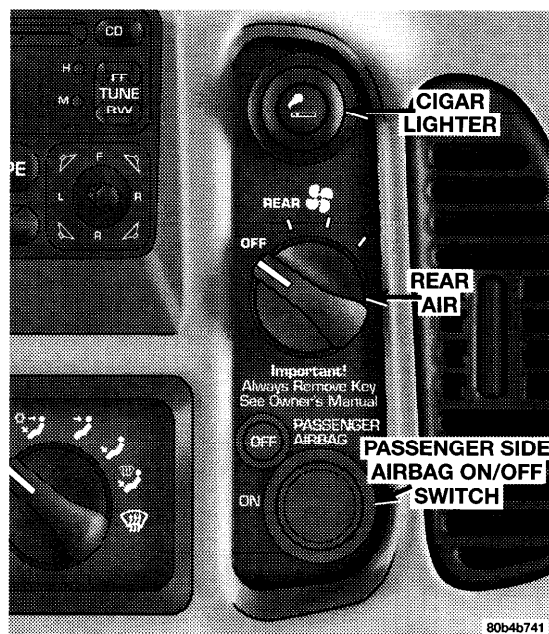
- The **Airbag** Control Module (ACM) monitors the readiness of the electronic parts of the system whenever the ignition switch is in the START or RUN position. These include all of the items listed above except the knee bolster and the steering wheel and column. The Control Module also turns on the AIR-BAG warning light in the instrument panel for 6 to 8 seconds when the ignition is first turned on, then turns the light off. If it detects a malfunction in any part of the system, it turns on the light either momentarily or continuously. The ACM monitors the driver and front passenger seatbelt pretensioners.

- The Driver and Passenger Airbag/Inflator Units are in the center of the steering wheel and in the instrument panel. When the Control Module detects an impact requiring the airbags, it signals the inflator units. A large quantity of nontoxic nitrogen gas is generated to inflate the airbags. The steering wheel hub and instrument panel trim covers separate and fold out of the way as the bags inflate to full size. The bags fully inflate in about 50 milliseconds. This is about half of the time it takes to blink your eyes. They then quickly deflate by venting the nitrogen gas through the cushion fabric and/ or through the vent holes in the airbag, towards the instrument panel.

Passenger **Airbag** On/Off Switch (2 Passenger Van Only)

NOTE: The Passenger Airbag “On/ Off” Switch is designed so that the switch position can be changed using the ignition key. The key inserts into the switch far enough to depress a spring-loaded locking plunger, and then rotates to the desired position. The key will not insert fully into the switch, and the spring-loaded locking plunger prevents the key from remaining in the switch.

If your vehicle does not have rear seats, a Passenger Airbag On/Off Switch will be provided.



The passenger airbag is to be turned off only if the passenger:

- is an infant (less than **1** year old) who must ride in the front seat because there is no rear seat, because the rear seat is too small for a rear-facing infant restraint or because the infant has a medical condition which makes it necessary for the driver to be able to see the infant,
- is a child, age 1 to 12 who must ride in the front seat because there is no rear seat, because there is no rear seat position available, or because the child has a medical condition which makes it necessary for the driver to be able to see the child,
- has a medical condition which makes passenger airbag inflation (deployment) a greater risk for the passenger than the risk of hitting the dashboard (instrument panel) or windshield in a crash.

WARNING!

Whenever an **airbag** is turned off, even a lap/shoulder belted passenger may hit their head, neck, or chest on the dashboard (instrument panel) or windshield in a crash. This may result in serious injury or death.

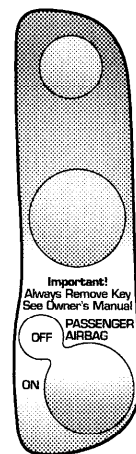
To Turn Off the Passenger **Airbag**:

- Using the ignition key only, turn the switch from the horizontal position to the "Off" position (pointing at the airbag OFF indicator light). Make sure it has turned as far as possible.

When the ignition switch is turned ON, the airbag OFF indicator light located to the left of the switch will light.

To Turn On the Passenger **Airbag**:

- Reverse the procedure above so that the key slot is in a horizontal position.
- When turning the Passenger Airbag Switch to the OFF or the ON position, make sure that the actuator has reached its extreme detent position and that the switch stays in its new position.



If A Deployment Occurs

The airbag system is designed to deploy when the impact sensors detect a moderate-to-severe frontal collision, and then immediately deflate.

NOTE: A frontal collision that is not severe enough to need airbag protection will not activate the system. This does not mean something is wrong with the airbag system.

If you do have a collision which deploys the airbags, any or all of the following may occur:

- The nylon airbag material may sometimes cause abrasions and/ or skin reddening to the occupants as the airbag deploys and unfolds itself from the steering wheel or instrument panel.

- The abrasions are similar to friction rope burns or those you might get sliding along a carpet or gymnasium floor. They are not caused by contact with chemicals. They are not permanent and normally heal quickly. However, if you haven't healed significantly within a few days, or if you have any blistering, see your doctor immediately.
- As the airbags deflate you may see some smoke-like particles. The particles are a normal by product of the process that generates the non toxic nitrogen gas used for airbag inflation. These airborne particles may irritate the skin, eyes, nose, or throat. If you have skin or eye irritation, rinse the area with cool water. For nose or throat irritation, move to fresh air. If the irritation continues, see your doctor.

- If these particles settle on your clothing, follow the garment manufacturer's instructions for cleaning.
- Your vehicle may be safely drivable after the airbags deploy. If so, you can tuck the deployed airbags inside the opening in the steering wheel hub and instrument panel trim covers to make driving somewhat easier.
- It is not advisable to drive your vehicle after the airbags have deployed. If you are involved in another collision, the airbags will not be in place to protect you.
- The seatbelt pretensioners must also be replaced when there is an airbag deployment.

WARNING!
Deployed airbags cannot protect you in another collision. Have the airbags replaced by an authorized dealer as soon as possible.

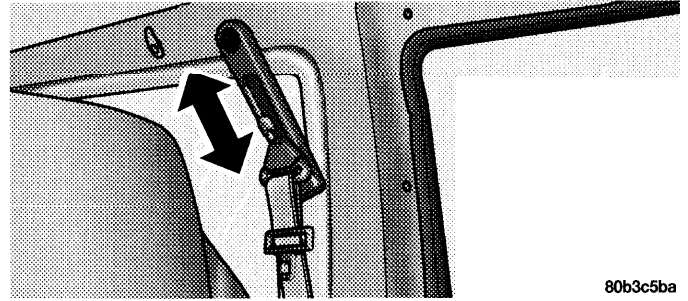
Enhanced Accident Response System
If the airbags deploy after an impact and the electrical system remains functional, vehicles equipped with the vehicle theft system will unlock the doors automatically. In addition, after the vehicle has stopped moving for approximately 10 seconds, the interior lights will illuminate until the ignition switch is turned off.

WARNING!

A frayed or torn belt could rip apart in a collision and leave you with no protection. Inspect the belt system periodically, checking for cuts, frays, or loose parts. Damaged parts must be replaced immediately. Do not disassemble or modify the system. Seat belt assemblies must be replaced after a collision if they have been damaged (bent retractor, torn webbing, etc.).

Adjustable Upper Shoulder Belt Anchorage

In the front seats, the shoulder belt anchorage can be adjusted upward or downward to position the belt away from your neck. Push up or down on the anchorage control to release the anchorage, and move it up or down to the position that serves you best.



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36 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

Maintaining Your Airbag System

WARNING!

- Modifications to any part of the **airbag** system could cause it to fail when you need it. You could be injured because the airbags are not there to protect you. Do not modify the components or wiring, including adding any kind of badges or **stickers** to the steering wheel hub trim cover or the upper right side of the instrument panel. Do not modify the front bumper, vehicle body structure, or frame.
- You need proper knee impact protection in a collision. Do not mount or locate any aftermarket equipment on or behind the knee bolster.
- It is dangerous to try to repair any part of the **airbag** system yourself. Be sure to tell anyone who works on your vehicle that it has **airbags**.

Airbag Warning Light

You will want to have the airbags ready to inflate for your protection in an impact. While the airbag system is designed to be maintenance free, if any of the following occurs, have an authorized dealer service the system promptly:

- The AIRBAG warning light does not come on or flickers during the 6 to 8 seconds when the ignition switch is first turned on.
- The AIRBAG warning light remains on or flickers after the 6 to 8 second interval.
- The AIRBAG warning light flickers or comes on and remains on while driving.

NOTE: If the speedometer and engine gauges are not working, the airbag module may also be disabled. The airbag may not be ready to inflate for your protection. Promptly check fuses (5, 7, and 9) in the fuse block.