

REPORT NUMBER KAR-20-02

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

**TOYOTA MOTOR CORPORATION
2000 TOYOTA TUNDRA
SR 5 PICKUP
NHTSA NUMBER: MY5103**

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



NOVEMBER 26, 1999

FINAL REPORT

**PREPARED FOR:
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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2000 Toyota Tundra SR5 P/U at KARCO Engineering on November 17, 1999. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity was 56.45 km/h. The ambient temperature at the barrier face at the time of impact is 13.8 degrees Celcius. The vehicle's maximum post test static crush is 542 mm located to the right of the vehicle centerline. The test vehicle is equipped with a 3-point continuous belt system and second generation supplemental airbags in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary is as follows:																													
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SECTION 1

PURPOSE, TEST PROCEDURE AND SUMMARY OF TEST MY5103

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the FY' 99 New Car Assessment Program (NCAP) frontal barrier crash worthiness evaluation program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract Number DTNH22-97-D-02007. The purpose of this 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 November 17, 1999 at a speed of 56.45 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 eighteen (18) 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-four (94) 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 re-calibrated two tests 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 2000 TOYOTA TUNDRA SR5 P/U at a velocity of 56.45 km/h. The test vehicle weight is 2255 kilograms with two (2) part 572E 50th percentile adult male ATDs. Twenty-four (24) load cell barrier data channels were obtained in conducting the November 17, 1999 NCAP test. The test vehicle is equipped with a longitudinally mounted 4.7-liter, 8-cylinder engine and an automatic transmission.

The driver Head Injury Criteria (HIC) is 794.7. The maximum resultant chest deceleration over three (3) milliseconds is 51.4 g's. The left and right femur loads are -4632.0 and -4633.9 Newtons, respectively. Chest deflection for the driver ATD peaked at -31.8mm. The driver ATD head contacted the airbag and headrest, its chest and abdomen contacted the airbag, the left knee contacted the knee bolster and steering column, with the right knee contacting the knee bolster.

The right front passenger's HIC is 820.8. The maximum resultant chest deceleration over three (3) milliseconds is 51.2 g's. The left and right femur loads are -4126.7 and -2852.1 Newtons respectively. Chest deflection for the passenger ATD peaked at -32.0 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 seat belt spool out as measured by on-board pullout potentiometers is 134.3 mm for the driver ATD and 180.4 mm for the passenger ATD. The shoulder belt stretch measured electronically was 0.533 for the driver and 0.702 for the passenger.

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 542 mm located to the right of the vehicle centerline. Both the driver and passenger side doors opened without the aid of tools.

1.4 GENERAL COMMENTS

The 2000 TOYOTA TUNDRA SR5 P/U 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: 2000 TOYOTA TUNDRA SR5 P/U
Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
Test Date: 11/17/99

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Old 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	lb/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(tf - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

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

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

Test Vehicle: 2000 Toyota Tundra SR5
Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
Test Date: 11/17/99

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	56.45
Test Weight	kg	2255
Impact Angle	degrees	0
Average Rebound	mm	603.3
Maximum Static Crush	mm	542

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door Opening	Opened	Opened
Rear Door Opening	Opened	Opened
Seat Track Shift (mm)	0	0
Seat Back Failure	None	None

TEST DUMMY INFORMATION

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

16mm MOVIE COVERAGE

High Speed	18
Real Time	1
Total	19

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: 2000 Toyota Tundra SR5
Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
Test Date: 11/17/99

TEST VEHICLE INFORMATION

Manufacturer	Toyota Motor Corporation
Model	Toyota Tundra
Body Style	SR5 P/U
NHTSA NO.	MY5103
VIN	5TBRT3411Y5032461
Color	Black
Delivery Date	11/5/99
Odometer Reading (mile)	18
Dealer	Valley - Hi Toyota
Transmission	Automatic
Final Drive	Rear
Number of Cylinders	8
Engine Displacement (L)	4.7
Engine Placement	Longitudinal

TEST VEHICLE OPTIONS

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation	GVWR (kg)	2812
Date of Manufacture	October-99	GAWR Front (kg)	1433
		GAWR Rear (kg)	1705

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	182	245
Cold Pressure (kPa)	182	245
Recommend Tire Size	245/70/R16	245/70/R16
Tire Size on Vehicle	265/70/R16	265/70/R16
Tire Manufacturer	Dunlap	Dunlap

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bench	Bench	None	
Number of Occupants	3	3	0	6
Capacity Wt. (VCW) (kg)				836
Cargo Weight (RCLW) (kg)				136

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

Test Vehicle: 2000 Toyota Tundra SR5
 Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
 Test Date: 11/17/99

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	574	436		613	534	
Right	kg	562	404		604	504	
Ratio	%	57.5	42.5		54.0	46.0	
Totals	kg	1136	840	1976	1217	1038	2255

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1976
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Weight (RCLW)	kg	136
Calculated Vehicle Target Weight (TVTW)	kg	2264

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	875	870	938	930	1387
As Tested	mm	845	837	905	895	1502

Vehicle Wheel base (mm): 3262

Weight of Ballast secured in cargo area (kg): 32 *

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): 99.9

Usable Capacity Figure Furnished by COTR (L): 101.8

Actual Test Volume with entire fuel System Filled (L): 94.6

Test Fluid Type: Stoddard Solvent ; Specific Gravity: 0.764

Is Vehicle Fuel Pump Electric or Mechanical?: Electric

If electric, does pump operate with ignition switch "ON" & engine "OFF"? No

Fuel System Particulars: Pump only runs when engine is running.

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

Test Vehicle: 2000 Toyota Tundra SR5
Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
Test Date: 11/17/99

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	55.51 to 57.12	56.45
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	56.74
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	5259	4921	-338
Center	mm	5525	4993	-532
Right Side	mm	5258	4905	-353

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	640
Center	mm	560
Right Side	mm	610
Average	mm	603

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

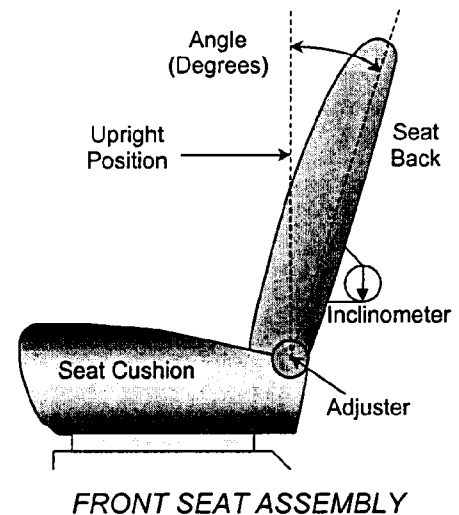
Test Vehicle: 2000 TOYOTA TUNDRA SR5 P/U
Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
Test Date: 11/17/99

NOMINAL DESIGN RIDING POSITION

The driver and passenger seat backs are positioned to the manufacturers designated angle. The procedure is as follows: The seat back angle is adjusted so that the distance from the center of the inner sunvisor bracket bolt to the center of the outer headrest mounting hole is per manufacturers specifications. 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: 10.0° with a seated dummy
Passenger seat back angle: 10.0° with a seated dummy



SEAT FORE/AFT POSITIONS

Both driver and passenger seats have manually operated seats. The total travel on the driver is 15 seat positions and the passenger is 14 seat positions. The fore/aft position is set at the middle position for both driver and passenger.

Driver seat fore/aft total travel: 15 seat detent positions
Passenger seat fore/aft total travel: 14 seat detent positions
Driver seat fore/aft position: Set at 8th detent position
Passenger seat fore/aft position: Set at 8th detent position

SEAT BELT UPPER ANCHORAGE

The test vehicle is equipped with adjustable anchorages for both driver and passenger seat positions. There are 14 positions or detents. The anchorages were placed in the full up position.

DATA SHEET NO. 4...(continued)

TEST VEHICLE INFORMATION

Test Vehicle: 2000 TOYOTA TUNDRA SR5 P/U

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 MPH NCAP

Test Date: 11/17/99

FUEL TANK CAPACITY DATA

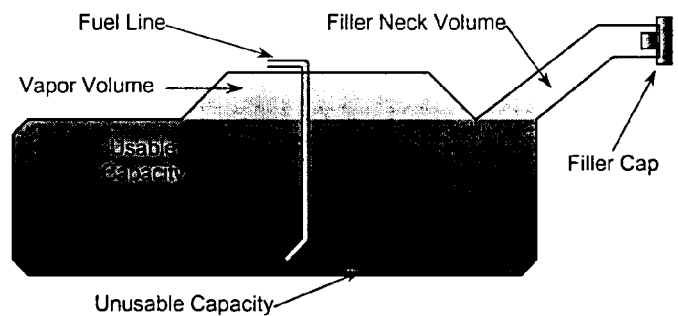
The "Usable Capacity" of the standard equipment fuel tank is: 101.8 liters

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

"Usable Capacity" used for certification tests FMVSS 301 requirements: 93.7 to 95.7 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 94.6 liters

The test vehicle is equipped with an electric fuel pump. The fuel pump operates only when the engine is running. The fuel filler door is located on the left rear fender.



VEHICLE FUEL TANK ASSEMBLY

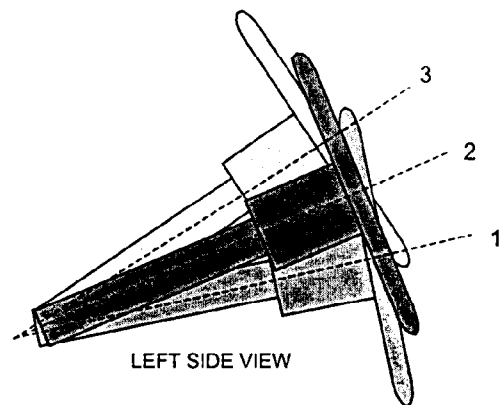
STEERING COLUMN ADJUSTMENT

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

Lowermost, position 1: 17°

Geometric center, position 2: 25°

Uppermost, position 3: 32°

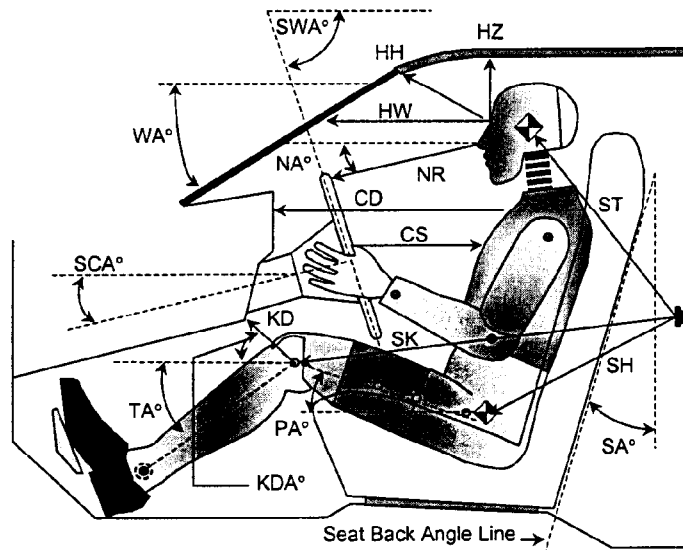


STEERING COLUMN ASSEMBLY

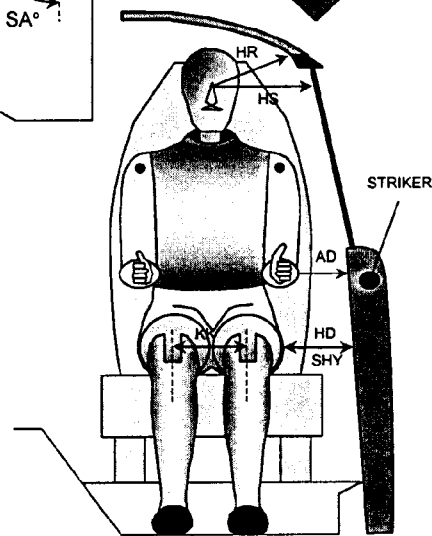
DATA SHEET NO. 5 **DUMMY POSITIONING IN VEHICLE**

Test Vehicle: 2000 TOYOTA TUNDRA SR5 P/U
 Test Program: 2000 NHTSA 35 MPH NCAP

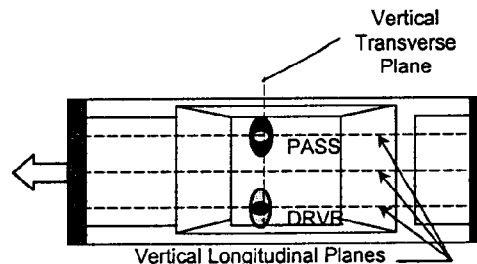
NHTSA No.: MY5103
 Test Date: 11/17/99



AD Arm to Door
 HD H-Point to Door
 HR Head to Side Header
 HS Head to Side Window
 KK Knee to Knee
 SHY Striker to H-Point
 (Y Axis)



CD Chest to Dash
 CS Chest to Steering Wheel Hub
 HH Head to Header
 HW Head to Windshield
 HZ Head to Roof
 KDA Knee to Dash Angle
 KDL Left Knee to Dash
 KDR Right Knee to Dash
 NA Nose to Rim Angle
 NR Nose to Rim
 PA Pelvic Angle
 RA Rim to Abdomen
 SA Seat Back Angle
 SCA Steering Column Angle
 SH Striker to H-Point
 SK Striker to Knee
 ST Striker to Head
 SWA Steering Wheel Angle
 TA Tibial Angle
 WA Windshield Angle



DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

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

Test Vehicle: 2000 Toyota Tundra SR5
Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
Test Date: 11/17/99

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		40		
SWA	Steering Wheel Angle		65		
SCA	Steering Column Angle		21		
SA	Seat Back Angle		20		20
HZ	Head to Roof (Z)	240	90	240	90
HH	Head to Header	417	0	427	0
HW	Head to Windshield	549	0	565	0
HR	Head to Side Header (Y)	260		263	
NR	Nose to Rim	411	12		
CD	Chest to Dash	539		544	
CS	Chest to Steering Hub	286	0		
RA	Rim to Abdomen	165	0		
KDL	Left Knee to Dash	188	30	163	
KDR	Right Knee to Dash	191		165	31
PA	Pelvic Angle		23		23
TA	Tibia Angle		37		36
KK	Knee to Knee (Y)	300		200	
SK	Striker to Knee	757	4	760	4
ST	Striker to Head	585	23	560	22
SH	Striker to H-Point	367	20	382	21
SHY	Striker to H-Point (Y)	245		222	
HS	Head to Side Window	295		277	
HD	H-Point to Door (Y)	165		173	
AD	Arm to Door (Y)	90		45	
AA	Ankle to Ankle	n/a		n/a	

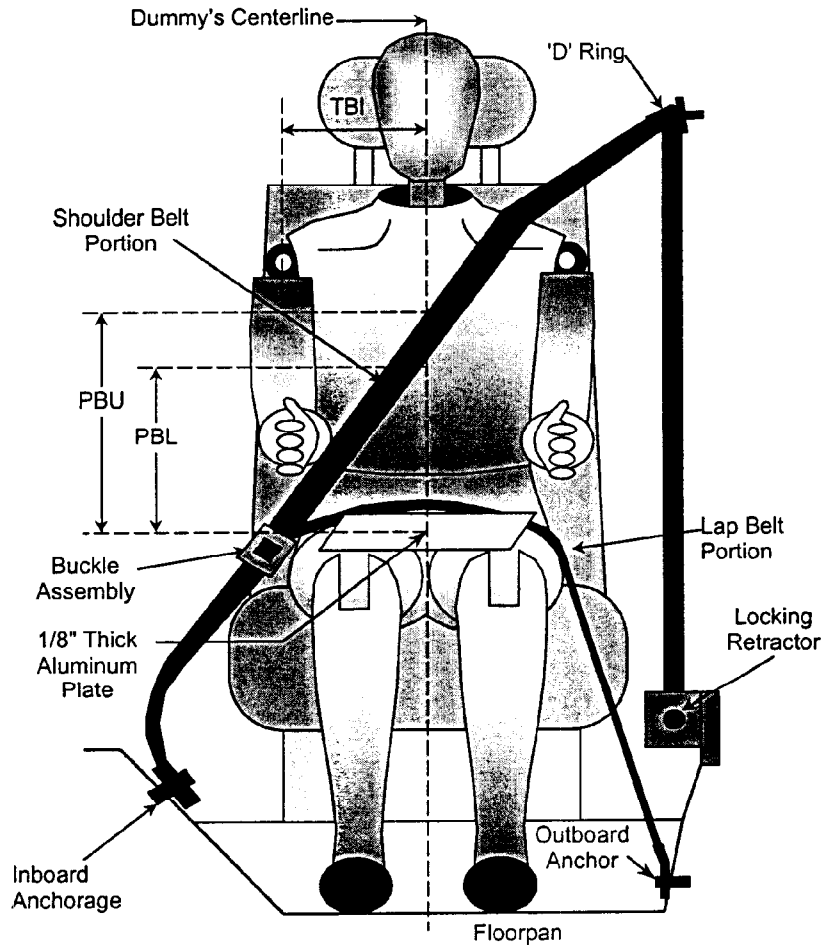
DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 MPH NCAP

Test Date: 11/17/99



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy centerline to shoulder bolt	mm	230	235
PBU - Top surface of reference to belt upper edge	mm	350	350
PBL - Top surface of reference to belt lower edge	mm	269	269
Lap Belt tension	Newtons	10	10
Shoulder Belt tension	N/A	Retractor	Retractor

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

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 mph NCAP

Test Date: 11/7/99

VEHICLE X-AXIS ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

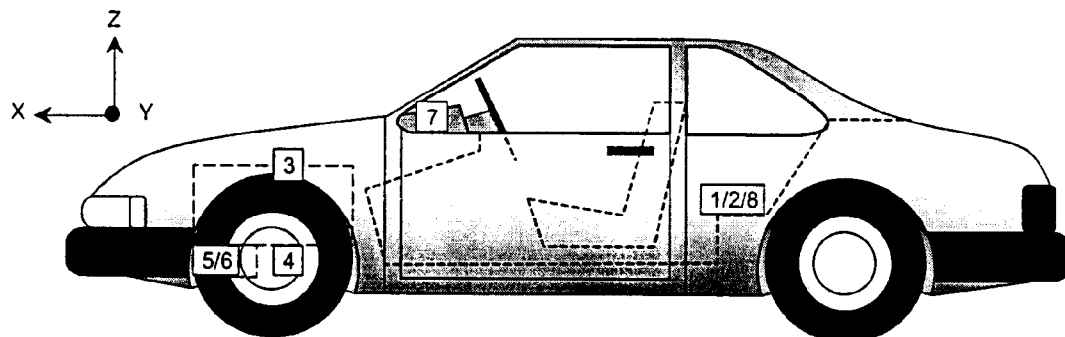
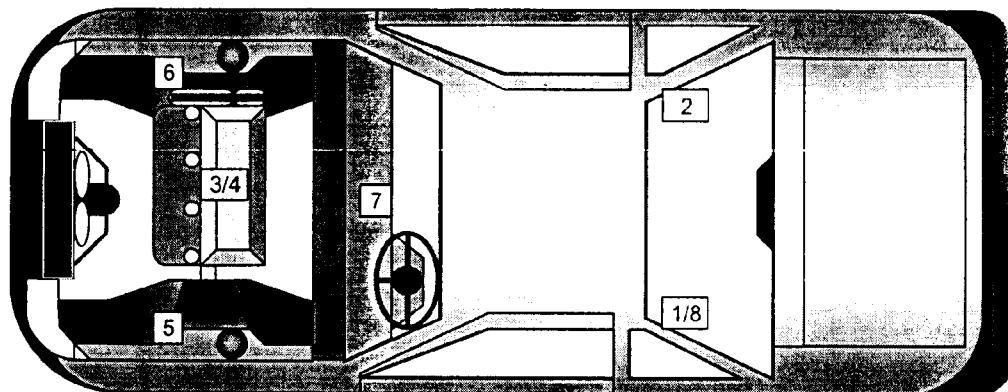
No.	Accelerometer Location	Measurements (mm)			Peak Values				e
		X	Y	Z	Units	Max	Time	Min	
1	Left Rear X-Member (Pri.)	2950	-635	648	G's	4.6	106.3	-44.6	1.4
2	Right Rear X-Member (Pri.)	2915	640	648	G's	6.1	117.1	-40.2	4.0
3	Engine Top	4745	0	1140	G's	55.9	42.6	-155.5	3.7
4	Engine Bottom	4815	33	405	G's	34.4	41.9	-134.9	4.9
5	Left Brake Caliper	4840	-723	370	G's	58.7	62.1	-116.6	4.5
6	Right Brake Caliper	4845	723	370	G's	56.4	60.6	-129.6	4.5
7	Instrument Panel	3805	54	1170	G's	43.2	84.1	-77.6	8.9
8	Left Rear X-Member (Rednt.)	2910	-635	648	G's	4.3	121.2	-45.2	1.2

Reference Points

X - From Rear Surface of Vehicle

Y - Vehicle Centerline

Z - Ground Plane



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

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 mph NCAP

Test Date: 11/17/99

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	76.3	181.8	-68.1	79.1	72.8	182.8	-70.3	76.7
Head CG	Y	G's	9.8	84.8	-14.0	181.8	10.8	182.5	-12.7	88.5
Head CG	Z	G's	37.4	49.2	-8.3	87.6	24.8	55.5	-5.6	126.7
Head CG Resultant	N/A	G's	79.5	181.8			76.7	182.8		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	8.6	172.3	-51.7	56.5	8.1	179.8	-52.4	61.9
Chest CG	Y	G's	12.2	82.2	-5.1	173.2	4.3	179.1	-7.9	64.9
Chest CG	Z	G's	21.8	47.5	-6.7	98.4	10.9	43.7	-4.7	63.1
Chest CG Resultant	N/A	G's	52.3	56.0			52.9	62.0		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	690.4	46.6	-4632.0	51.9	1162.1	43.5	-4126.7	53.8
Right Femur	Z	Newtons	1432.4	50.4	-4633.9	59.5	821.9	46.8	-2852.1	60.2

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt Force	N/A	Newtons	8917.7	62.0	-7.3	0.0	9070.5	57.3	-12.6	141.5
Shoulder Belt Force	N/A	Newtons	5719.8	49.1	-2.7	156.9	5986.9	71.2	-24.3	161.0
Shoulder Belt Pullout	N/A	MM	134.3	86.6	-10.0	52.1	180.4	89.8	-21.0	45.5
Shoulder Belt Stretch	N/A	MM/CM	0.533	296.4	-0.085	53.7	0.702	296.4	-0.091	22.2

HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg G's	T ¹	T ²	HIC	Avg G's	T ¹	T ²
Head CG Primary	794.7	54.7	55.5	91.4	820.8	58.3	61.7	93.3

CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	51.4	55.6	58.6	51.2	59.7	62.7

DATA SHEET NO. 8...(continued)

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 mph NCAP

Test Date: 11/17/99

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	8.3	86.2	-69.3	58.1	6.0	126.8	-67.3	56.8
Pelvis	Y	G's	20.5	48.1	-29.0	44.5	3.6	178.0	-9.9	49.7
Pelvis	Z	G's	14.5	45.4	-30.1	58.6	6.3	213.2	-33.4	59.9

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	227.3	71.9	-434.0	50.3	236.9	83.0	-442.9	49.1
Neck Force	Y	Newtons	210.0	121.6	-325.5	80.3	186.0	71.9	-185.4	126.9
Neck Force	Z	Newtons	1746.8	52.5	-349.4	202.2	1599.6	59.6	-766.9	206.6
Neck Moment	X	N·m	20.3	73.5	-7.9	242.3	12.9	228.1	-20.7	63.2
Neck Moment	Y	N·m	22.7	125.3	-39.5	81.8	15.9	186.3	-30.4	210.1
Neck Moment	Z	N·m	7.9	149.2	-13.9	103.0	25.8	101.1	-11.1	152.8

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	17.0	57.0	-113.2	35.8	30.4	53.1	-275.6	42.1
Left Foot Aft	Z	G's	4.7	42.5	-94.4	37.9	30.6	36.0	-82.6	46.0
Left Foot Fore	Z	G's	97.2	36.2	-126.4	40.6	56.2	27.3	-229.3	40.1
Right Foot Aft	X	G's	42.1	55.5	-269.9	42.7	28.3	53.0	-88.6	44.5
Right Foot Aft	Z	G's	56.5	55.8	-266.1	42.4	9.4	24.8	-69.0	50.1
Right Foot Fore	Z	G's	92.2	57.6	-263.2	42.2	40.3	24.6	-73.5	36.3

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	49.3	37.9	-75.8	68.6	44.4	70.8	-22.8	47.3
Left Lower Moment	Y	N·m	23.5	90.0	-38.2	39.5	49.8	72.4	-144.1	42.7
Left Lower Force	Z	Newtons	164.0	122.3	-3212.1	37.3	878.7	33.1	-2065.4	46.8
Left Upper Moment	X	N·m	18.8	79.5	-58.6	38.9	16.3	73.3	-53.6	53.2
Left Upper Moment	Y	N·m	17.7	120.2	-111.8	38.8	24.9	145.8	-266.6	42.8
Right Lower Moment	X	N·m	57.3	43.2	-41.8	58.7	19.2	45.5	-3.5	111.6
Right Lower Moment	Y	N·m	108.9	61.4	-147.3	42.3	18.3	51.1	-37.5	37.6
Right Lower Force	Z	Newtons	236.9	145.1	-10760.7	44.7	200.6	167.1	-1720.6	45.0
Right Upper Moment	X	N·m	75.7	42.9	-41.7	47.3	52.6	45.7	-12.9	141.1
Right Upper Moment	Y	N·m	17.3	94.8	-371.6	43.6	23.6	131.2	-95.3	45.2

DATA SHEET NO. 8...(continued)

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 mph NCAP

Test Date: 11/17/99

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.2	9.9	-31.8	84.2	0.3	0.3	-32.0	80.7

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	79.2	181.7	-67.4	78.0	73.1	182.6	-69.2	77.6
Head CG	Y	G's	13.0	86.6	-14.6	181.6	10.8	182.2	-13.7	86.9
Head CG	Z	G's	33.8	48.7	-10.2	86.2	21.7	45.3	-5.5	127.1
Head CG Resultant	N/A	G's	80.7	181.7			73.9	182.6		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	9.5	172.1	-52.0	56.6	7.9	179.6	-52.0	61.8
Chest CG	Y	G's	13.6	82.2	-4.9	171.6	4.9	178.4	-9.9	64.9
Chest CG	Z	G's	20.6	47.3	-6.1	99.3	12.2	43.6	-4.0	116.5
Chest CG Resultant	N/A	G's	52.2	56.5			52.4	61.9		

REDUNDANT HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg G's	T ¹	T ²	HIC	Avg G's	T ¹	T ²
Head CG Redundant	785.4	54.4	55.5	91.4	795.5	57.7	61.6	92.9

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	51.2	55.9	58.9	50.7	59.4	62.4

DATA SHEET NO. 9
SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP
 Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
 Test Date: 11/17/99

SEAT BELT PLACEMENT MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TCI - Dummy centerline to shoulder bolt	mm	230	235
PBU - Top surface of reference to belt upper edge	mm	350	350
PBL - Top surface of reference to belt lower edge	mm	269	269
Lap Belt tension	Newtons	10	10
Shoulder Belt tension	N/A	Retractor	Retractor

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Retractor reel to 'D' ring	mm	815	815
Shoulder belt length as measured on ATD	mm	850	870
Lap belt length as measured on ATD	mm	900	895
Remainder of belt on reel	mm	685	690
Total belt length for continuous webbing systems	mm	3250	3270

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	130.0	148.0
As determined electronically	mm	134.3	180.4

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
Electronically from shoulder belt load cell and "D" ring	mm/cm	0.53	0.70
Mechanically	mm/cm	0.00	3.00

DATA SHEET NO. 10
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 MPH NCAP

Test Date: 11/17/99

Windshield Mounting Details:

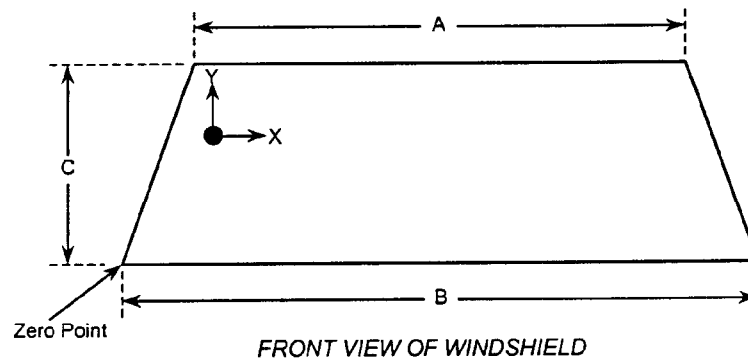
Windshield glass is secured to the vehicle frame with a rubber type adhesive. There is no molding that covers the windshield periphery at any point.

The standard requires that the post test 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 which 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	2023.5	2023.5	100
Right Side	2023.5	2023.5	100
Total	4047.0	4047.0	100



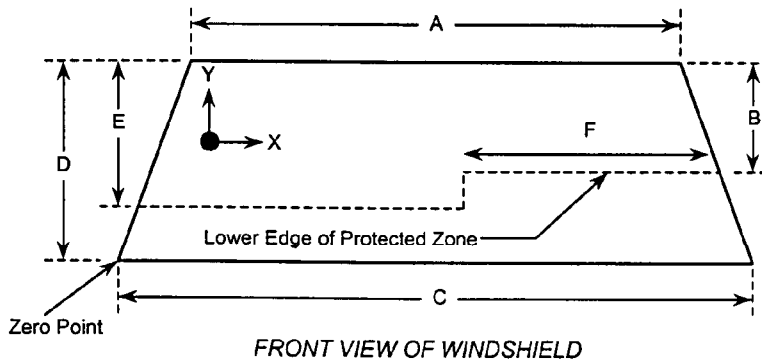
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1287	20
B	mm	1580	18
C	mm	640	10

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

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP
 Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
 Test Date: 11/17/99



**WINDSHIELD AND
PROTECTED ZONE**

Item	Units	Value
A	mm	1287
B	mm	349
C	mm	1580
D	mm	640
E	mm	405
F	mm	605

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: 2000 TOYOTA TUNDRA SR5 PICKUP
Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
Test Date: 11/17/99

Test Time: 12:45 PM Temperature at Time of Impact: 13.8 °C

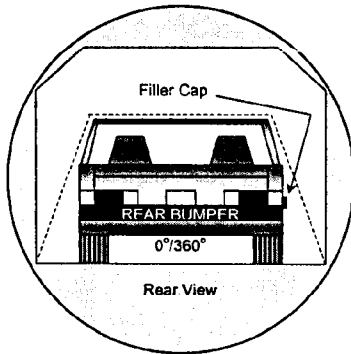
STODDARD SOLVENT SPILLAGE MEASUREMENT

- 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

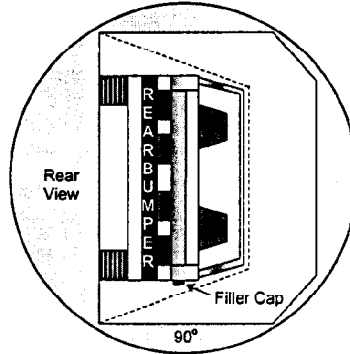
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA SHEET

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP
 Test Program: 2000 NHTSA 35 MPH NCAP

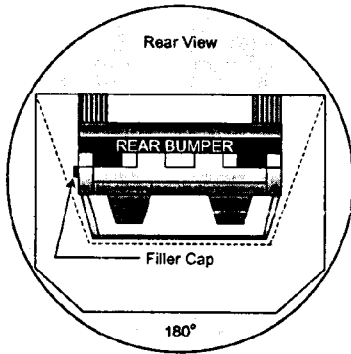
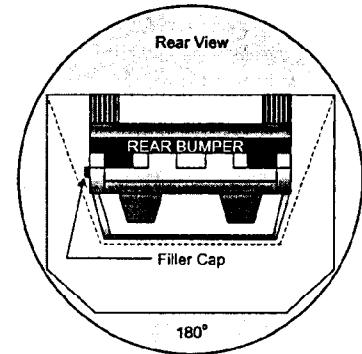
NHTSA No.: MY5103
 Test Date: 11/17/99



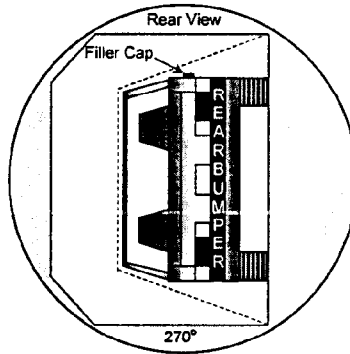
0° TO 90°



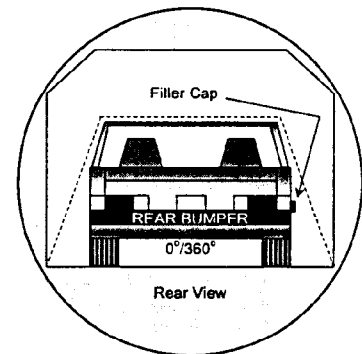
90° TO 180°



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. Details of Stoddard Solvent spillage locations:
 No solvent leakage occurred during static rollover testing.

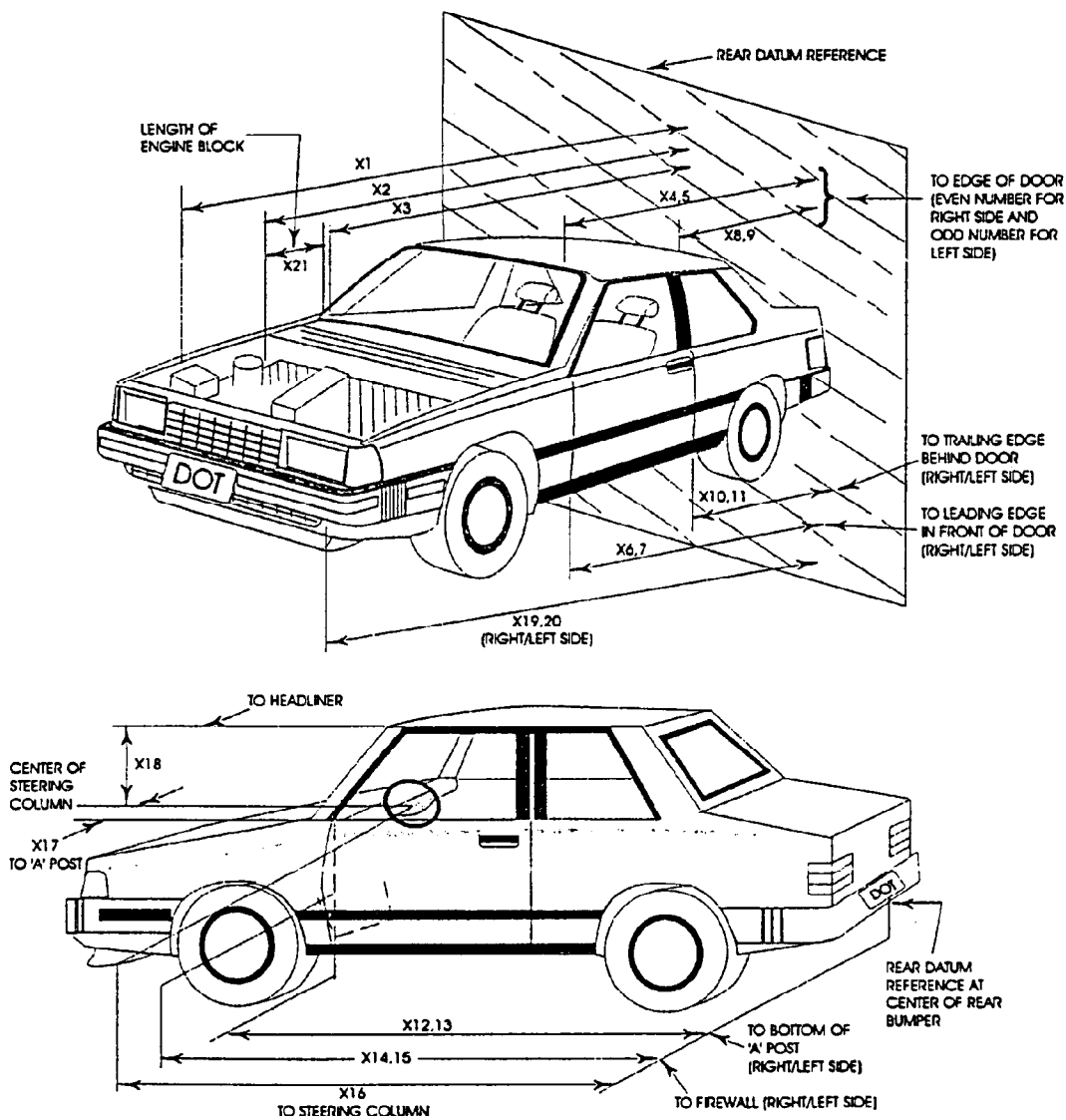
TEST PHASE	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° TO 90°	80	300	0.0
90° TO 180°	82	300	0.0
180° TO 270°	79	300	0.0
270° TO 360°	80	300	0.0

DATA SHEET NO. 14
VEHICLE MEASUREMENTS

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP
Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
Test Date: 11/17/99

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	5525	4993	-532
2	RSOV to front of engine	mm	4940	4765	-175
3	RSOV to firewall centerline	mm	4335	4320	-15
4	RSOV to leading edge of right door	mm	4070	4090	20
5	RSOV to leading edge of left door	mm	4072	4105	33
6	RSOV to lower leading edge of right door	mm	4029	4035	6
7	RSOV to lower leading edge of left door	mm	4025	4044	19
8	RSOV to upper trailing edge of right door	mm	2915	2935	20
9	RSOV to upper trailing edge of left door	mm	2915	2950	35
10	RSOV to lower trailing edge of right door	mm	2900	2905	5
11	RSOV to lower trailing edge of left door	mm	2900	2912	12
12	RSOV to bottom of right 'A' pillar	mm	4040	4040	0
13	RSOV to bottom of left 'A' pillar	mm	4043	4050	7
14	RSOV to firewall on right side	mm	4330	4338	8
15	RSOV to firewall of left side	mm	4325	4335	10
16	RSOV to steering column	mm	3585	3732	147
17	Center of steering column to left 'A' pillar	mm	395	410	15
18	Center of steering column to headlining	mm	425	415	-10
19	RSOV to right side of front bumper	mm	5258	4905	-353
20	RSOV to left side of front bumper	mm	5259	4921	-338
21	Length of engine block	mm	510	510	0
RD	RSOV to right side of dash panel	mm	3830	3824	-6
CD	RSOV to center of dash panel	mm	3867	3810	-57
LD	RSOV to left side of dash panel	mm	3860	3880	20



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 MPH NCAP

Test Date: 11/17/99

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	2000	8500	1310	1	2960	12	1030
3A	Left Side No. 2	1450	8600	1700	1	3960	35	990
3B	Left Side No. 3A	1380	9700	1340	1	9100	50	820
4	Left Side No. 3B	8000	10800	2960	10	1200	80	990
5	Left Side, No. 4	1850	8700	3250	17	8230	19	1020
6	Left Side, No. 5	1850	8600	2820	13	8100	19	1020
7	Right Side, No. 1	2100	8360	1030	3	7900	13	1000
8A	Right Side, No. 2A	1600	8600	1665	1	8050	35	1030
8B	Right Side, No. 2B	1600	10800	1455	2	10350	50	660
9	Right Side, No. 3	8000	9350	3000	10	11200	80	920
10	Right Side, No. 4	2400	7960	1290	3	7900	24	1000
11	Overhead Overall	300	0	5486	90	N/A	13	1000
12	Front View, Driver	-400	345	2822	42	N/A	13	1000
13	Front View, Passenger	-400	335	2822	42	N/A	13	1010
14	Pit Camera, Engine	550	0	-1430	90	N/A	13	850
15	Pit Camera, Fuel Tank	4950	0	-1640	50	N/A	19	900
16	Onboard, Driver	1280	20	1651	8	3555	13	1030
17	Onboard, Passenger	1300	165	1590	10	3550	13	DNR

X - Barrier Face Y - Monorail Centerline Z - Ground

DNR -DID NOT RUN

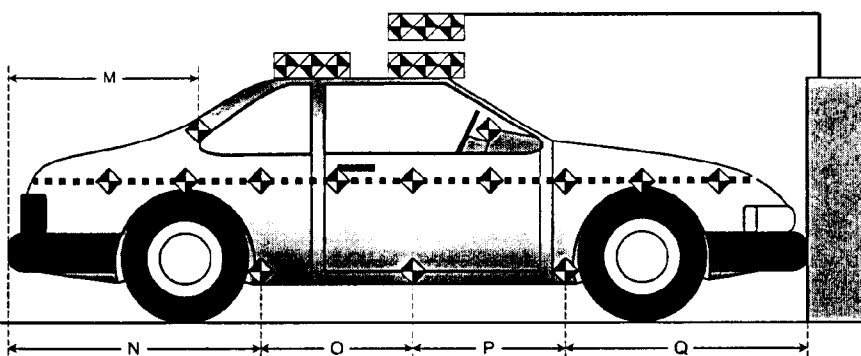
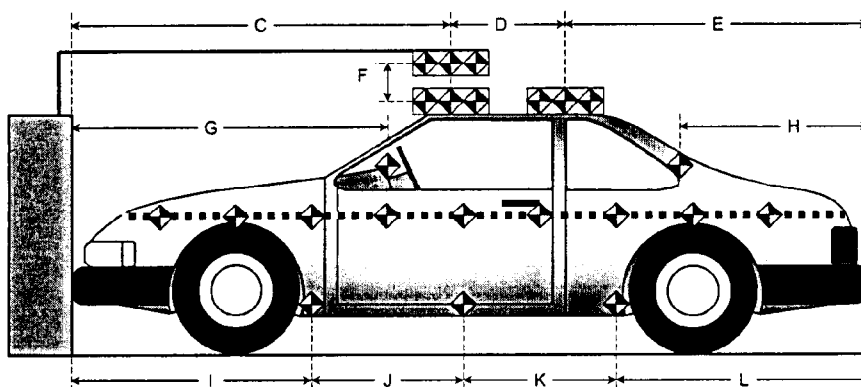
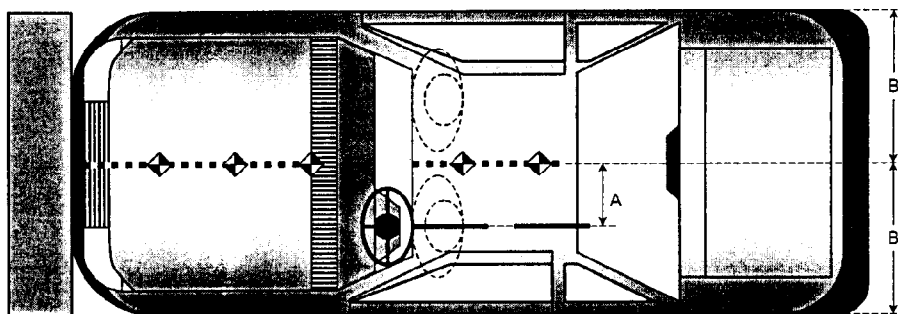
DATA SHEET NO. 16
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP
 Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
 Test Date: 11/17/99

All Dimensions
 in mm

Item	Value
A	433
B	1000
C	2166
D	607
E	2769
F	153.6
G	1712
H	2320
I	1485
J	1074
K	1077
L	1882
M	2310
N	1870
O	1077
P	1076
Q	1510



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 MPH NCAP

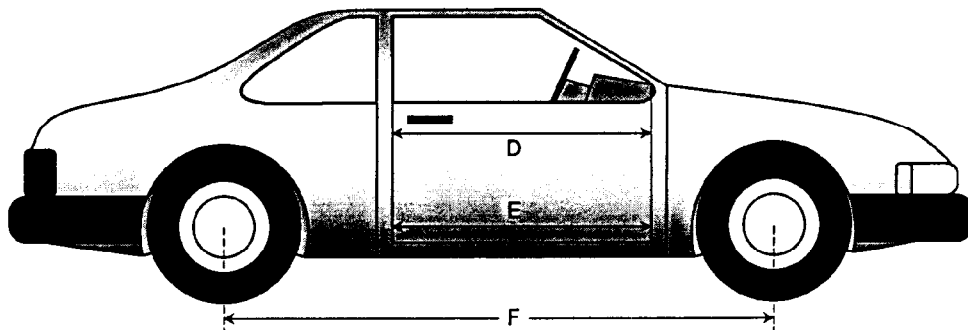
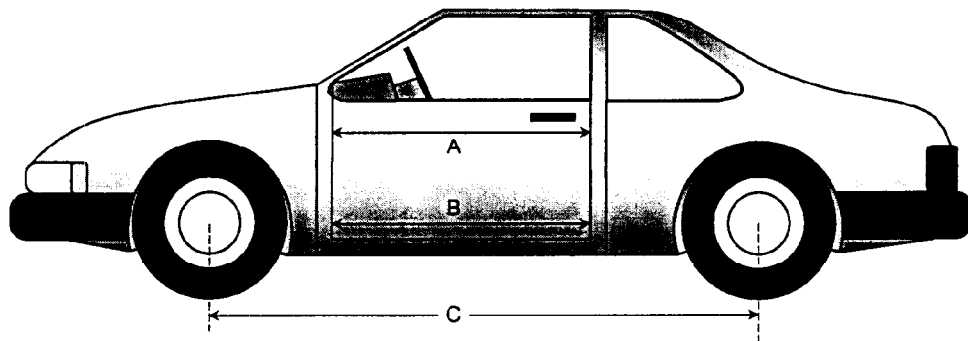
Test Date: 11/17/99

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1096	1086	-10
B	Left Side Lower	mm	1083	1076	-7
D	Right Side Upper	mm	1095	1086	-9
E	Right Side Lower	mm	1080	1079	-1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheel base	mm	3262	3220	-42
F	Right Side Wheel base	mm	3262	3230	-32



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

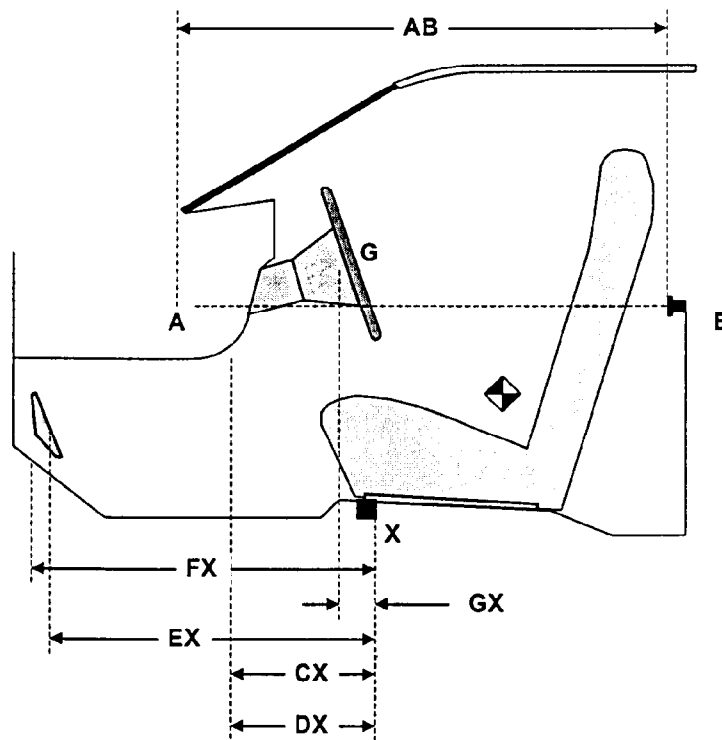
Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP
 Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
 Test Date: 11/17/99

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	1096	1086	-10
CX	Left Knee Bolster to X	mm	280	325	45
DX	Right Knee Bolster to X	mm	265	290	25
EX	Brake Pedal to X	mm	548	570	22
FX	Foot Rest to X	mm	603	620	17
GX	Center of Steering Wheel Hub to X	mm	33	60	27

X = Left Front Seat Outboard Anchor Bolt Head



DRIVER COMPARTMENT

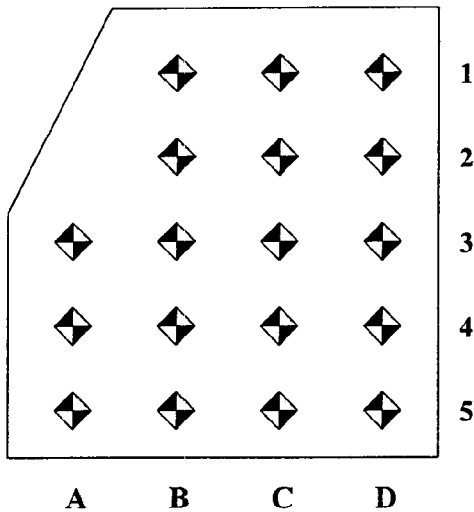
DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 MPH NCAP

Test Date: 11/17/99



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	N/A	716	713	714	N/A	661	653	633	N/A	-55	-60	-81
2	N/A	621	616	611	N/A	598	593	560	N/A	-23	-23	-51
3	509	509	510	510	504	498	503	500	-5	-11	-7	-10
4	409	409	410	410	404	400	403	400	-5	-9	-7	-10
5	310	309	303	313	306	302	305	304	-4	-7	2	-9

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	N/A	68	55	63	N/A	50	52	70	15	-18	-3	7
2	N/A	-35	-40	-35	N/A	-60	-40	-35	-15	-25	0	0
3	-45	-45	-50	-45	-65	-65	-63	-50	-20	-20	-13	-5
4	-40	-45	-48	-48	-60	-60	-55	-47	-20	-15	-7	1
5	-47	-55	-53	-50	-60	-60	-50	-40	-13	-5	3	10

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

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP
 Test Program: 2000 NHTSA 35 MPH NCAP

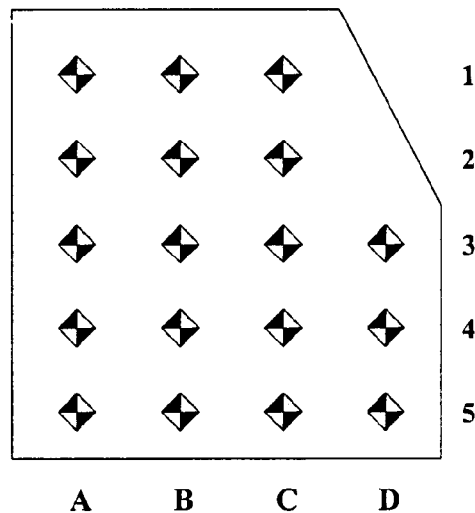
NHTSA No.: MY5103
 Test Date: 11/17/99

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	680	681	677	N/A	634	635	670	N/A	-46	-46	-7	N/A
2	579	579	575	N/A	574	575	580	N/A	-5	-4	5	N/A
3	477	478	474	476	474	475	478	490	-3	-3	4	14
4	378	380	375	376	375	375	379	390	-3	-5	4	14
5	275	278	275	275	275	275	276	275	0	-3	1	0

PASSENGER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	31	28	31	N/A	75	55	30	N/A	44	27	-1	N/A
2	-45	-45	-45	N/A	-40	-40	-55	N/A	5	5	-10	N/A
3	-47	-50	-47	-41	-54	-70	-68	-65	-7	-20	-21	-24
4	-48	-50	-46	-47	-57	-58	-65	-61	-9	-8	-19	-14
5	-47	-47	-44	-43	-64	-64	-60	-58	-17	-17	-16	-15

DATA SHEET NO. 18
FIXED BARRIER TYPE

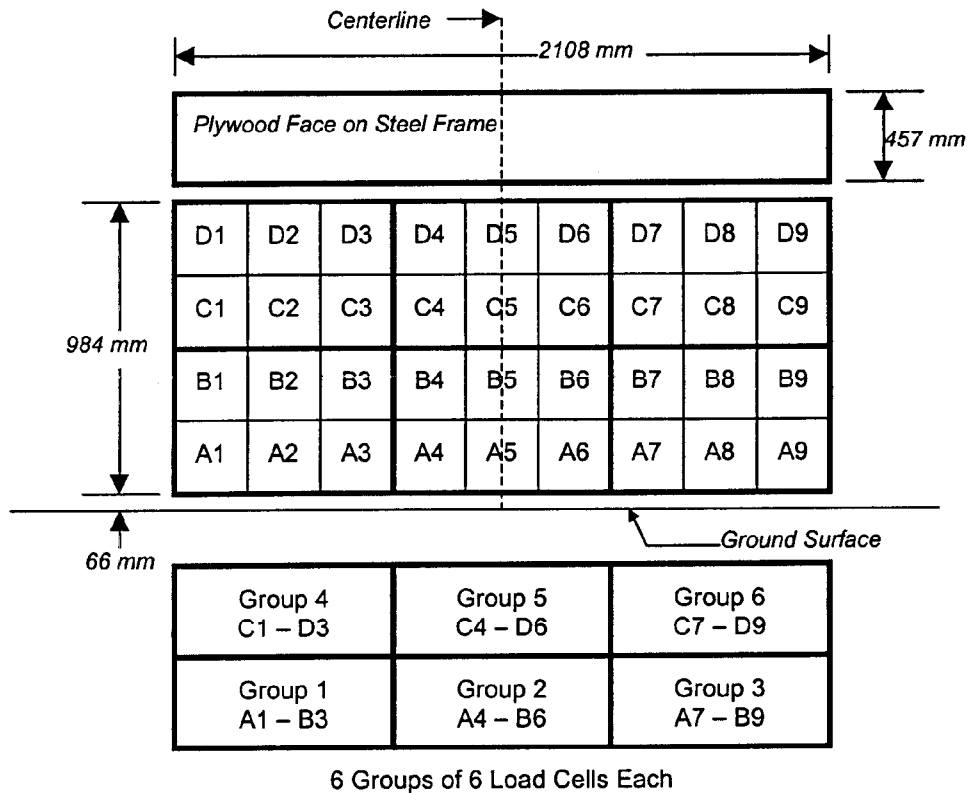
Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 MPH NCAP

Test Date: 11/17/99

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: 2000 Toyota Tundra SR5
Test Program: 2000 NHTSA 35 MPH NCAP

NHTSA No.: MY5103
Test Date: 11/17/99

VEHICLE INFORMATION

VIN: 5TBRT3411Y5032461
Vehicle Size Category: SR 5 P/U

Wheel base (mm): 3262
Test Weight (kg): 2255

ACCELEROMETER DATA

Accelerometer Location: Left rear floor pan
Cal. Procedure/Interval: 6 months / drop test
Integration Algorithm: NHTSA Standard
Impact Velocity (km/h): 56.45
Velocity Change (km/h): 66.07

Linearity: Good

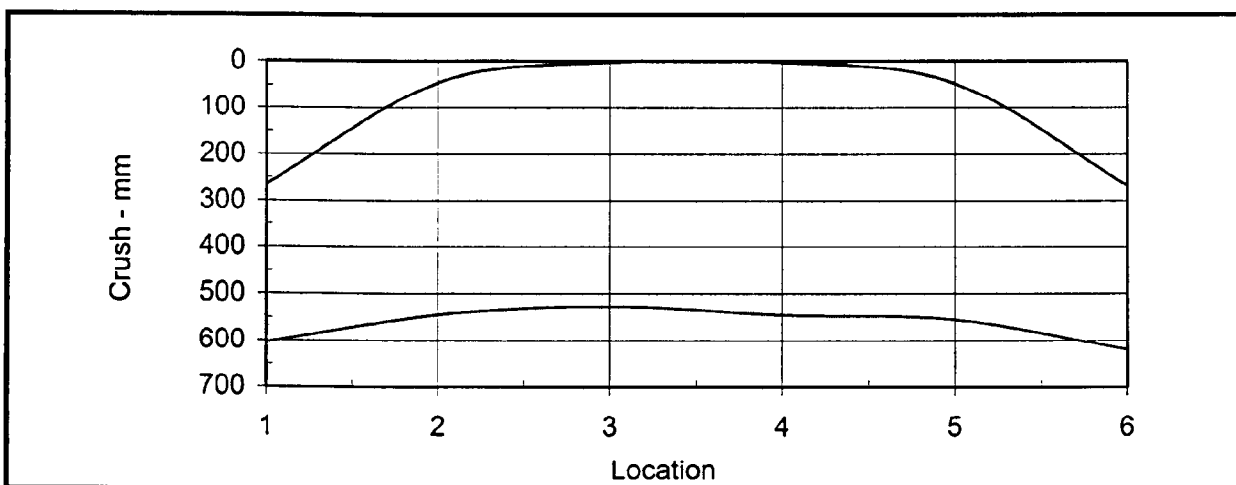
Time of Separation (msec): 65.7

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
Damage Region Length (mm): 1745

Midpoint of Damage: Vehicle Centerline
Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	266	604	-338
C2	Crush zone 2 on left side	mm	46	545	-499
C3	Crush zone 3 on left side	mm	3	527	-524
C4	Crush zone 4 on right side	mm	3	545	-542
C5	Crush zone 5 on right side	mm	47	555	-508
C6	Crush zone 6 at right side	mm	267	620	-353



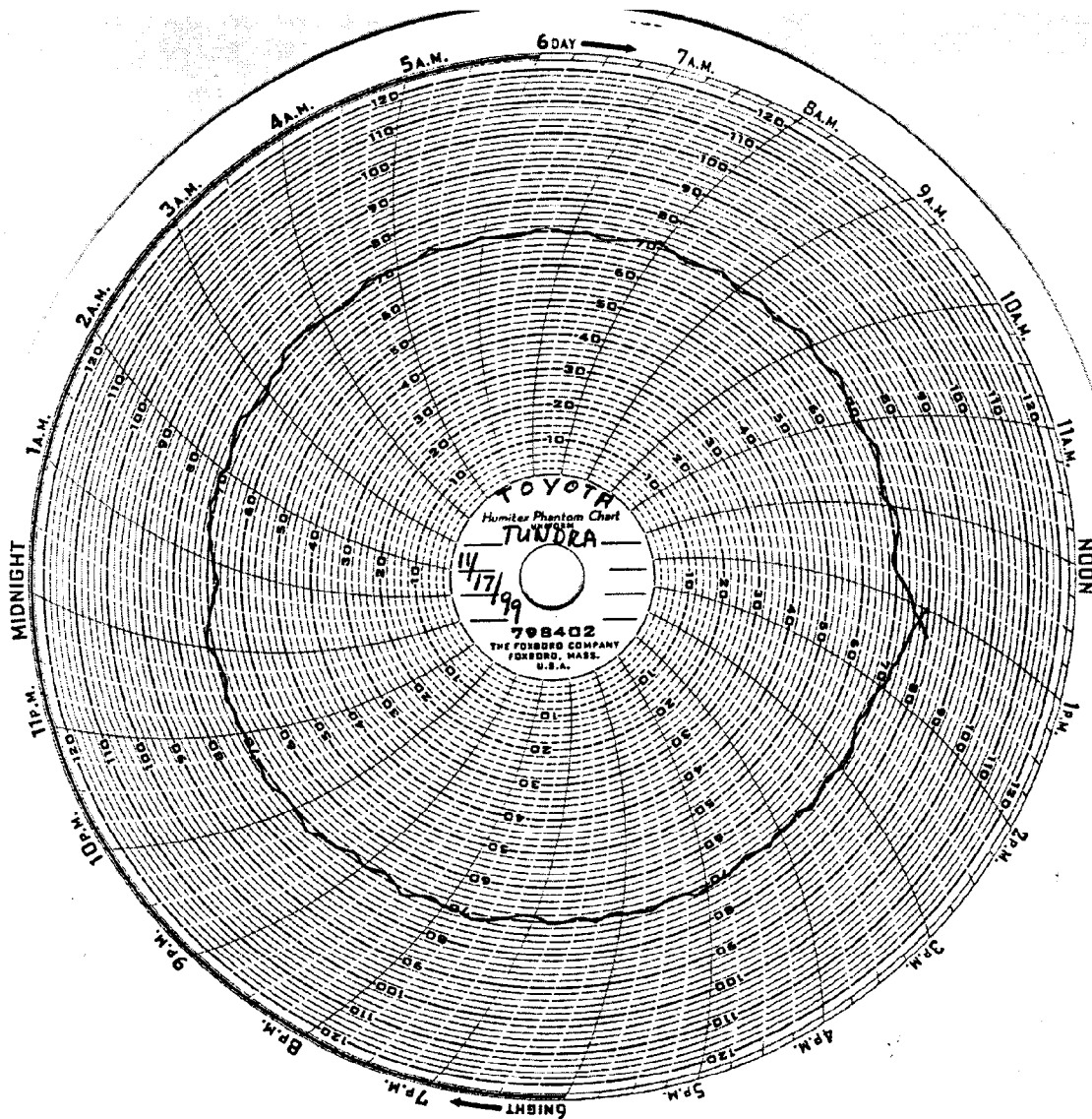
DATA SHEET NO. 20
DUMMY/ VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2000 TOYOTA TUNDRA SR5 PICKUP

NHTSA No.: MY5103

Test Program: 2000 NHTSA 35 MPH NCAP

Test Date: 11/17/99



APPENDIX A
PHOTOGRAPHS

KAR200001-02

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A-43	Pre-test Passenger Dummy (Through Window)	A-43
A-44	Post-test Passenger Dummy (Through Window)	A-44
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A-46	Post-test Passenger Dummy (Door Open)	A-46
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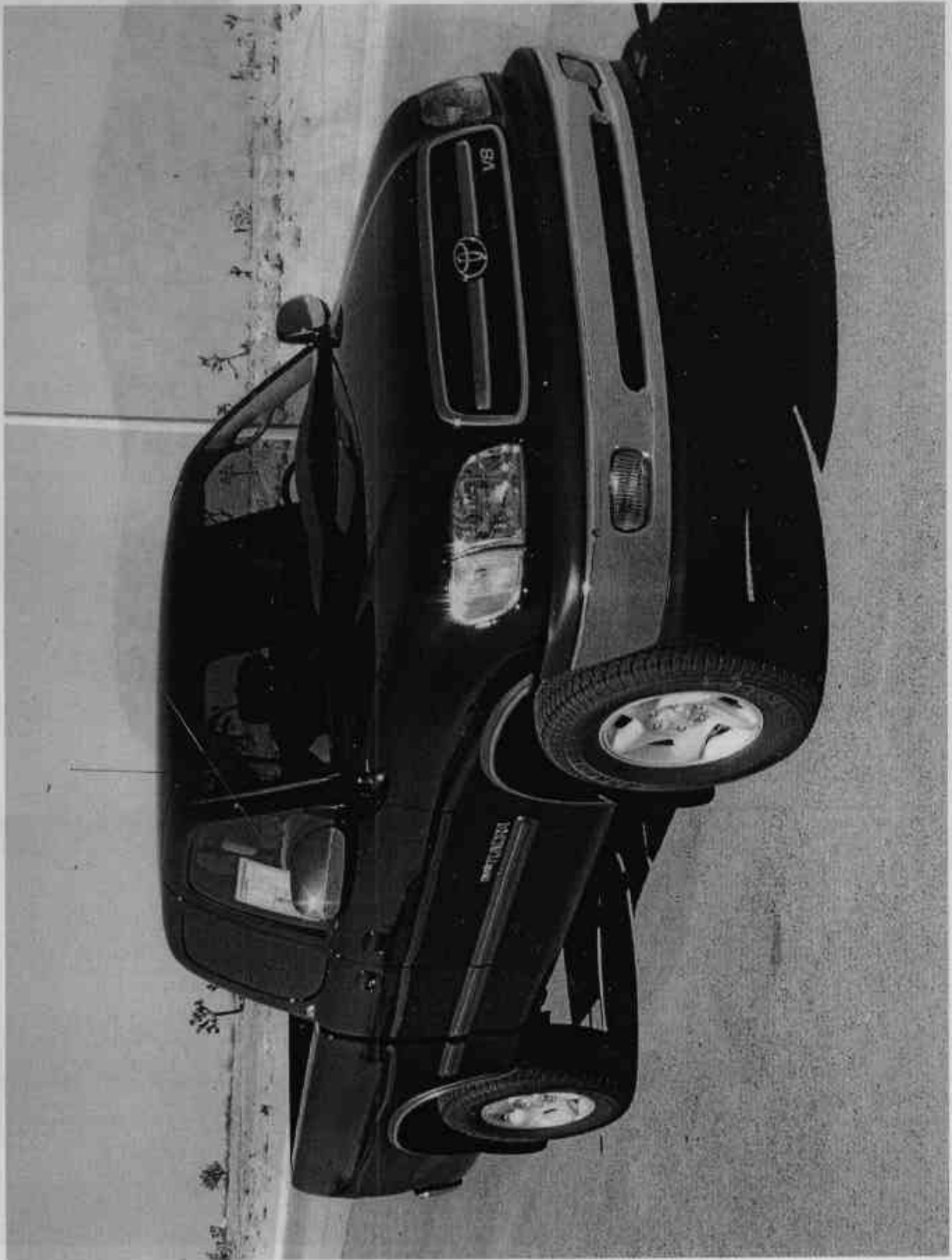


FIGURE A-1. RIGHT FRONT AS RECEIVED

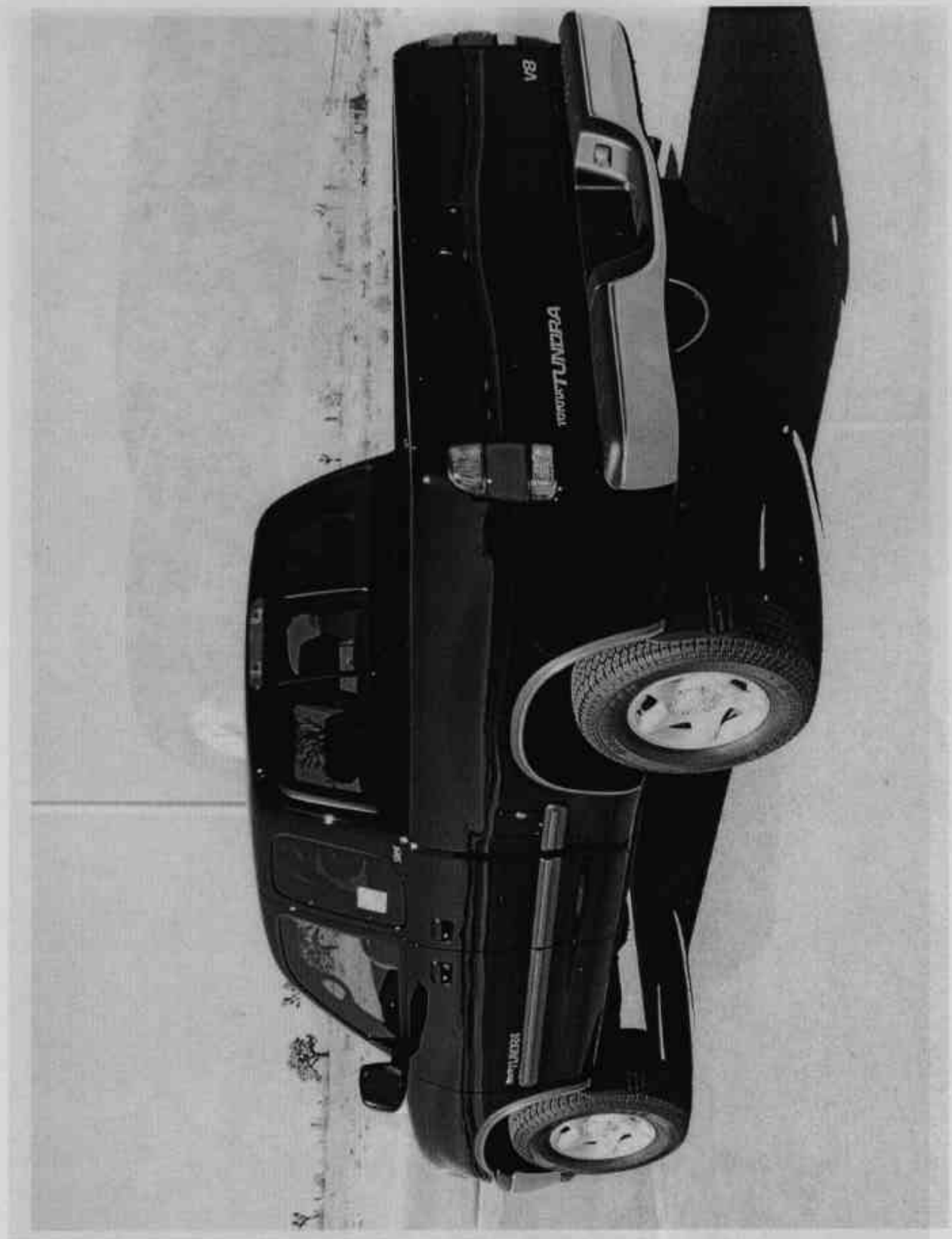


FIGURE A-2. LEFT REAR AS RECEIVED

MFD. BY: TOYOTA MOTOR MANUFACTURING, INDIANA, INC.
GVWR (LBS): 6200
GAWR (LBS): FRT. 3160 WITH P245/70R16
16X7JJ RIMS.AT 26 PSI COLD
RR. 3760 WITH P245/70R16
16X7JJ RIMS.AT 35 PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL
MOTOR VEHICLE SAFETY AND THEFT PREVENTION
STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE
SHOWN ABOVE. 5TBRT3411YS032461 TRUCK



C/TR 202/FE40,ATM A01A/A340E UCK30L ARSSKA
NO.927

FIGURE A-3. VEHICLE CERTIFICATION LABEL

MFD. BY: TOYOTA MOTOR MANUFACTURING. INDIANA, INC.	
GVWR (LBS): 6200	DATE 10/99
GAWR (LBS): FRT. 3160 WITH P245/70R16	TIRES.
16X7JJ	RIMS. AT 26 PSI COLD.
RR. 3760 WITH P245/70R16	TIRES.
16X7JJ	RIMS. AT 35 PSI COLD.

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE. 5TBRT3411YS032461 TRUCK



C/TR 202/FE40.A/TM A01A/A340E UCK30L ARSSKA NO.927

FIGURE A-4. VEHICLE TIRE PLACARD



FIGURE A-5. PRETEST FRONT VIEW

KAR20001-02

A-5

KAR20001-02

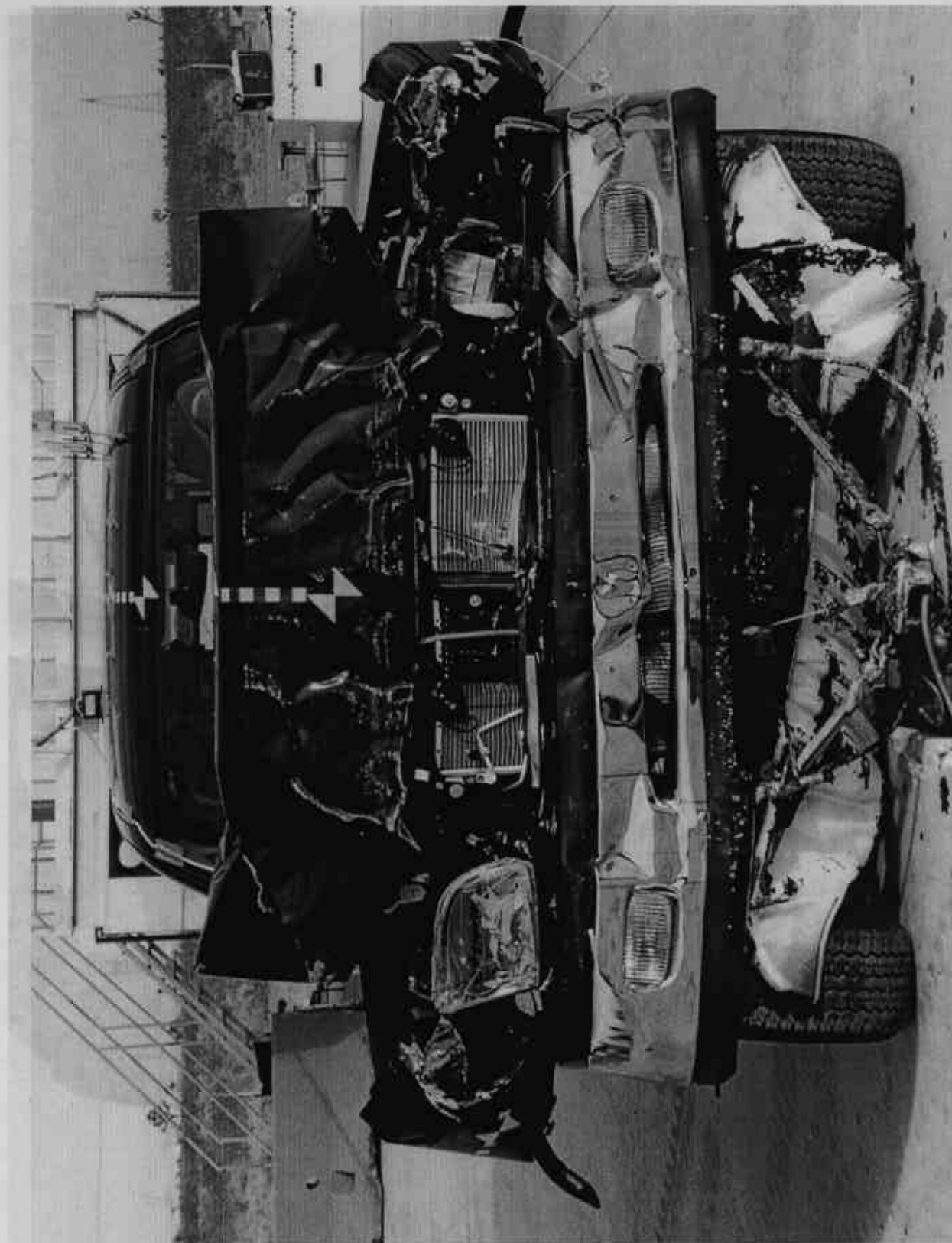


FIGURE A-6. POST TEST FRONT VIEW

KAR20001-02

A-6

KAR20001-02

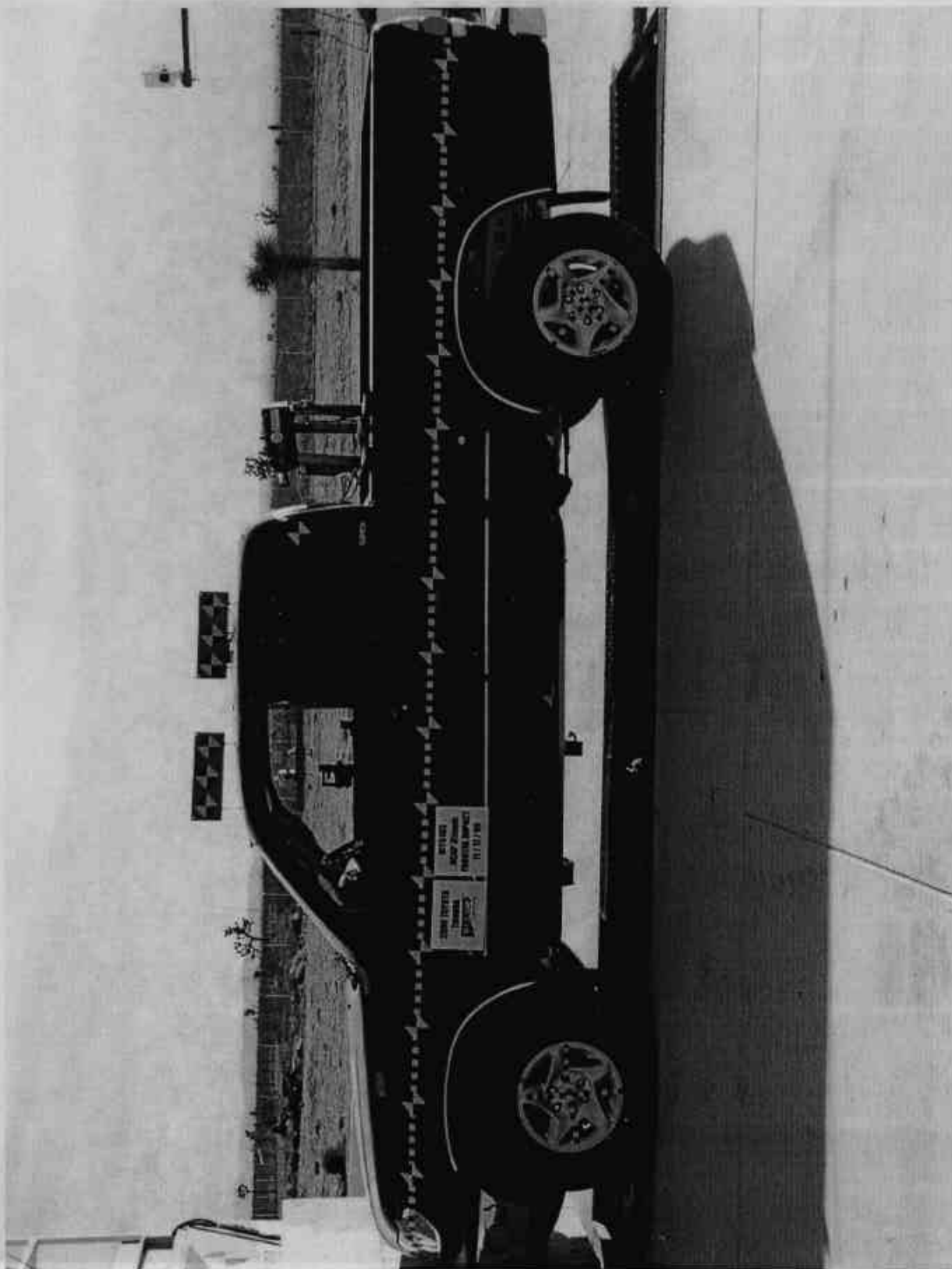


FIGURE A-7. PRETEST LEFT SIDE VIEW

KAR20001-02

A-7

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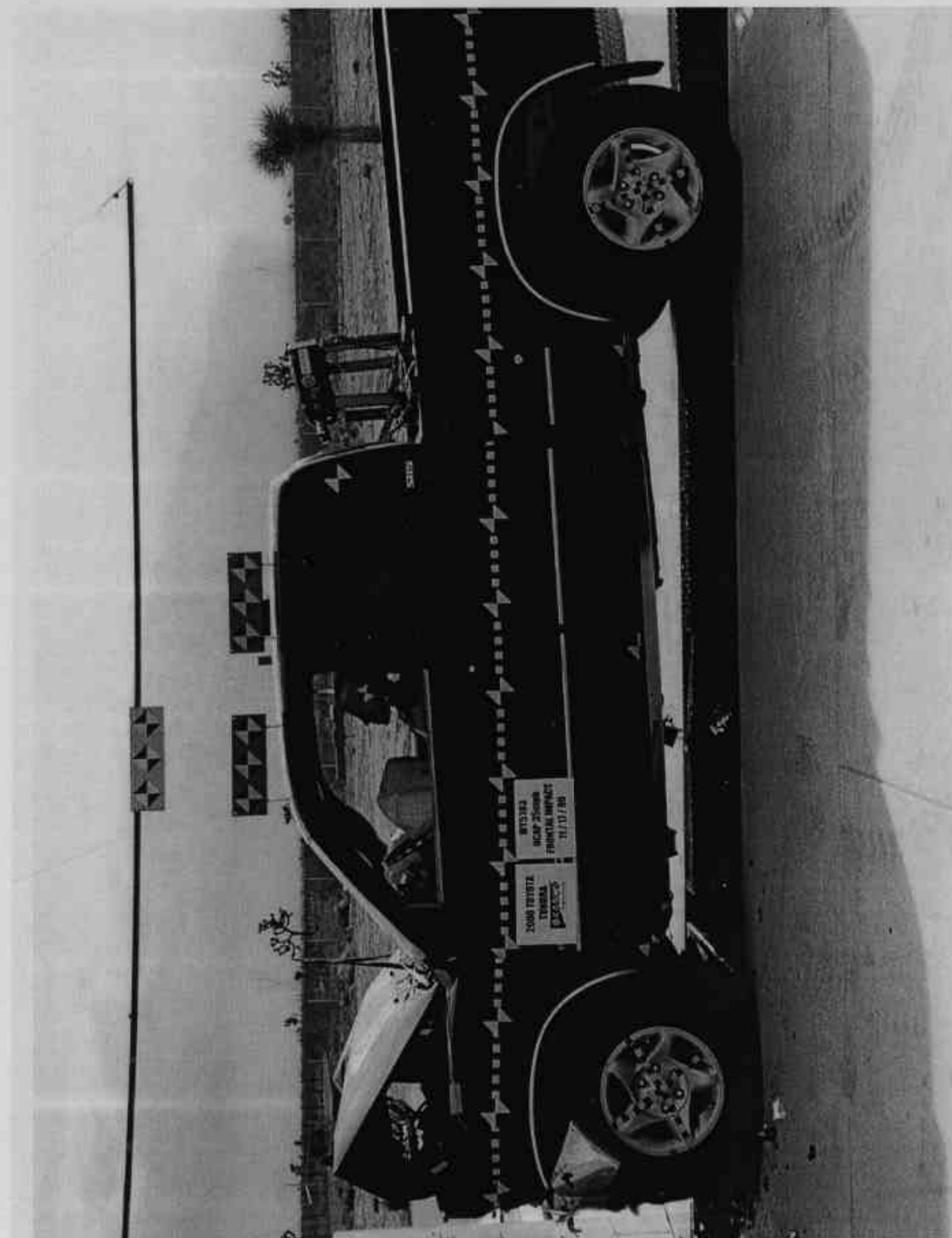


FIGURE A-8. POST TEST LEFT SIDE VIEW

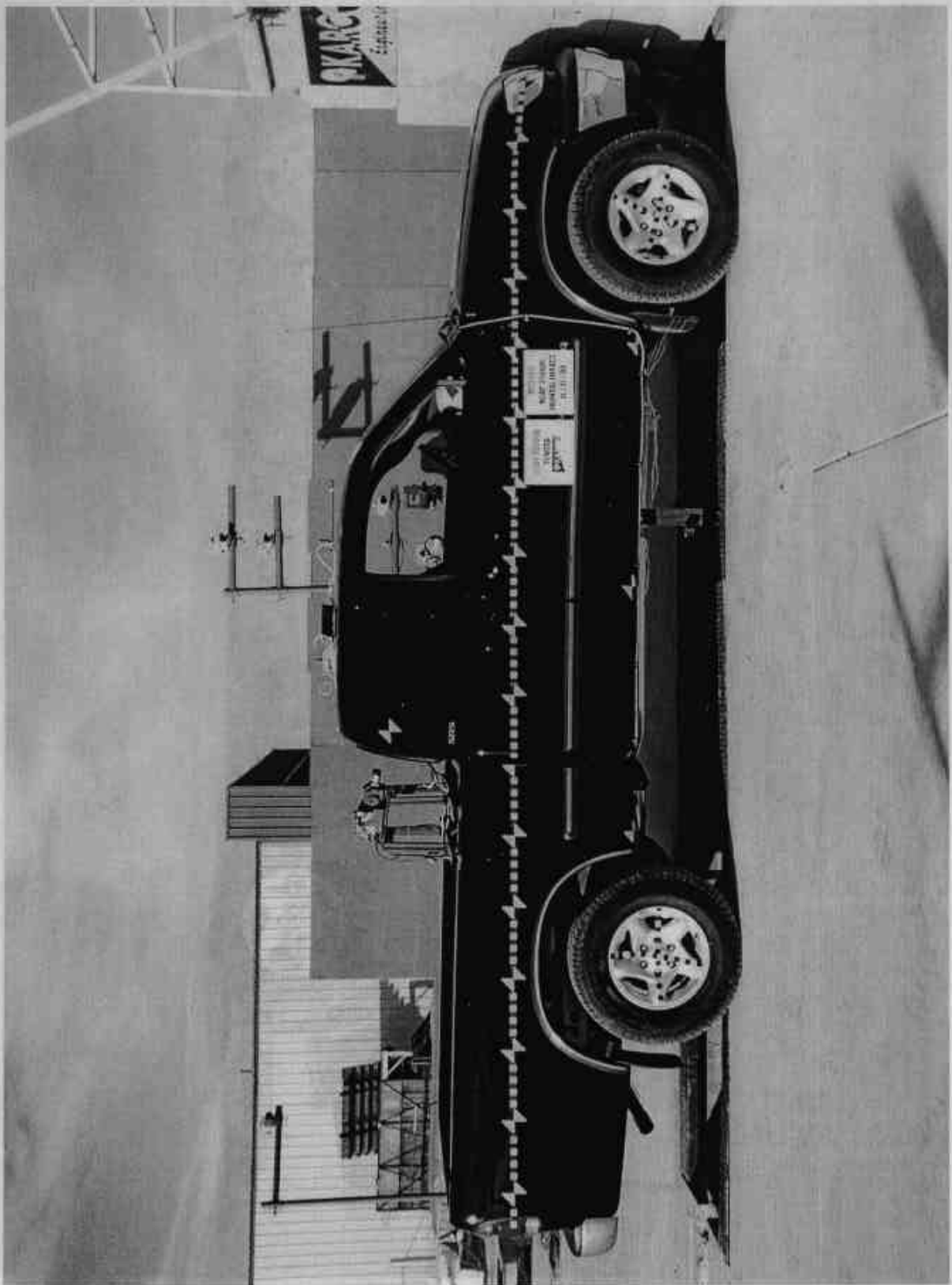


FIGURE A-9. PRETEST RIGHT SIDE VIEW

KAR2001-02

A-9

KAR20001-02

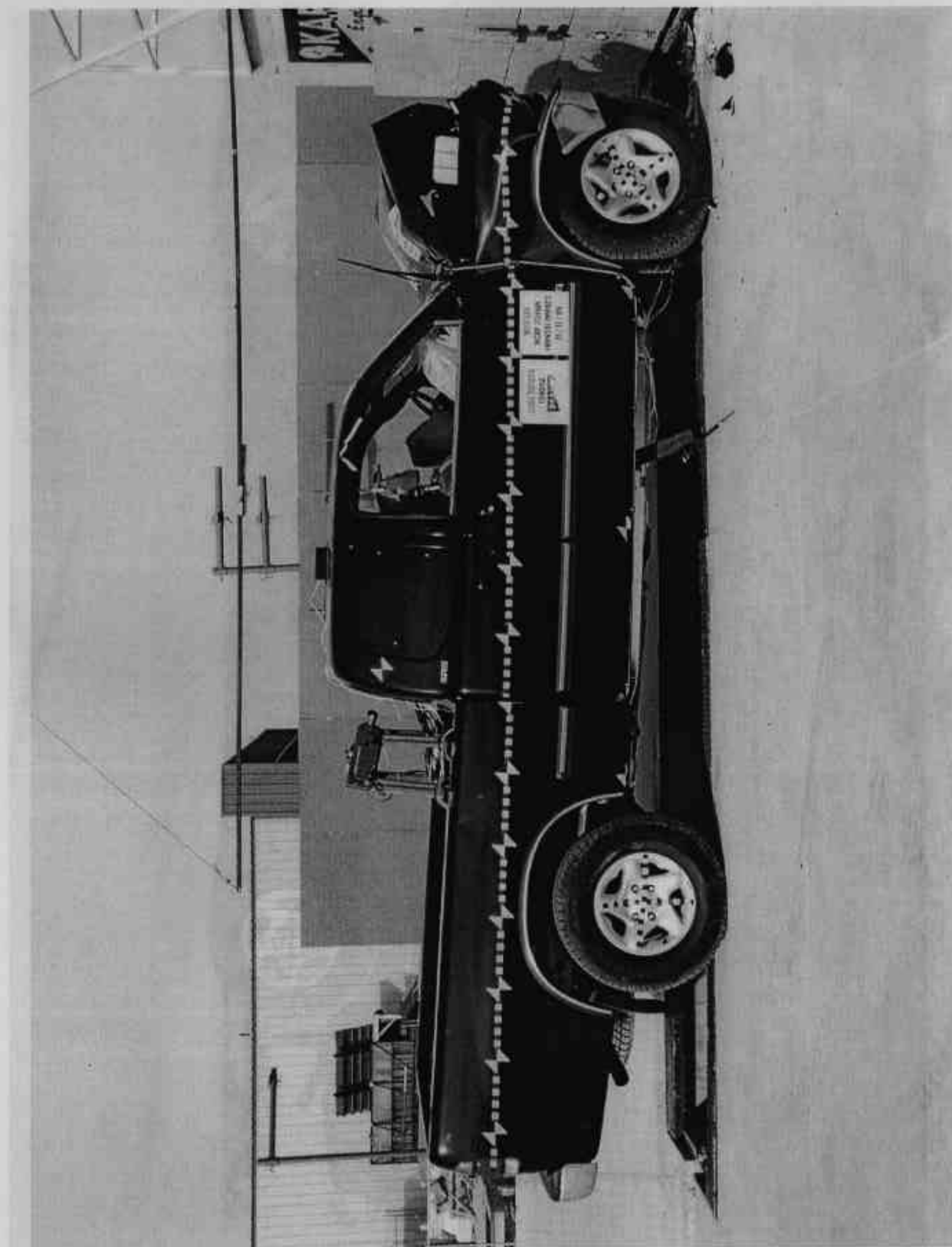


FIGURE A-10. POST TEST RIGHT SIDE VIEW



W FIGURE A-11. PRETEST RIGHT FRONT VIEW

50-100031AM

A-11

KAR20001-02



FIGURE A-12. POST TEST RIGHT FRONT VIEW



FIGURE A-13. PRETEST LEFT REAR VIEW

KAR20001-02



FIGURE A-14. POST TEST LEFT REAR VIEW

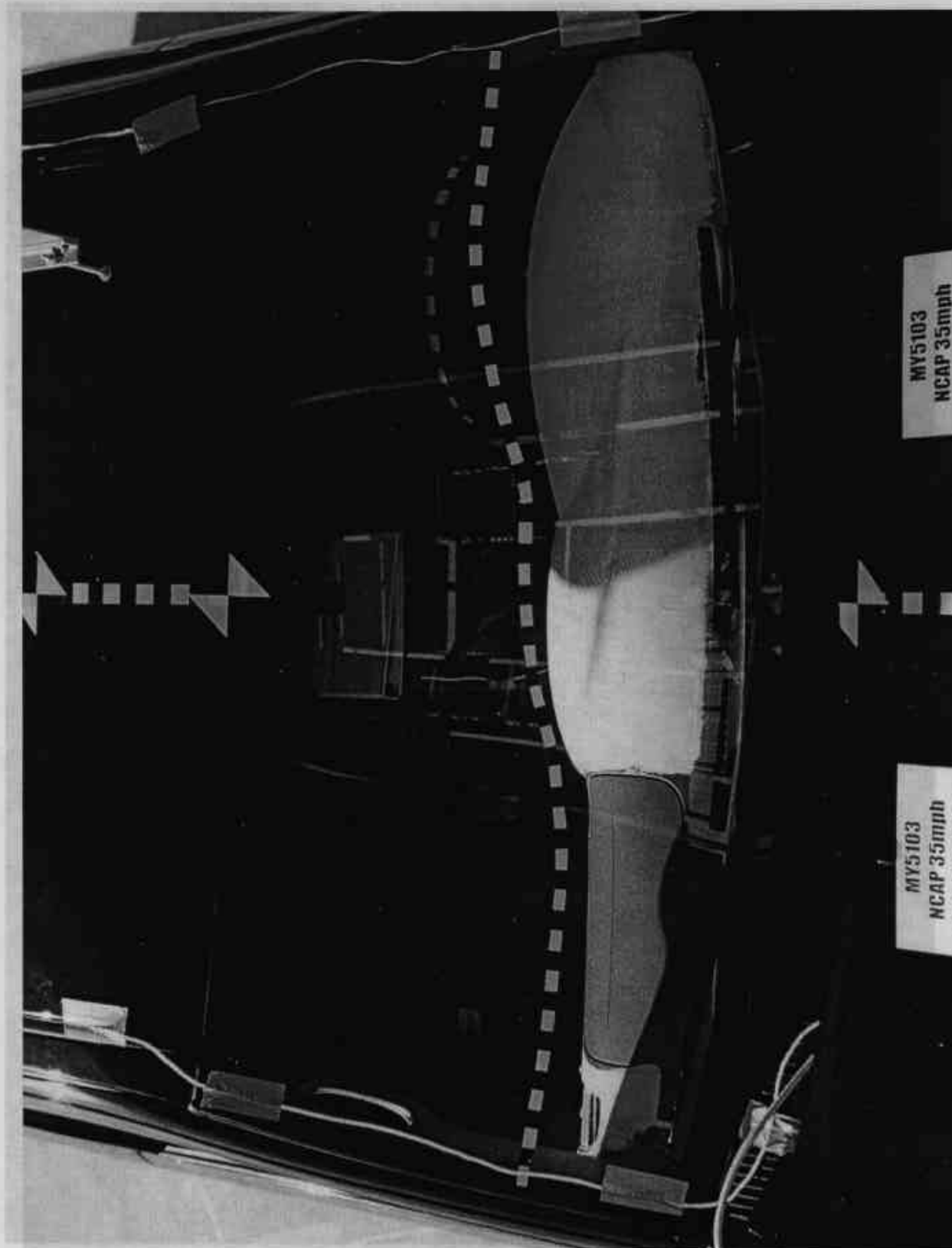


FIGURE A-15. PRETEST WINDSHIELD

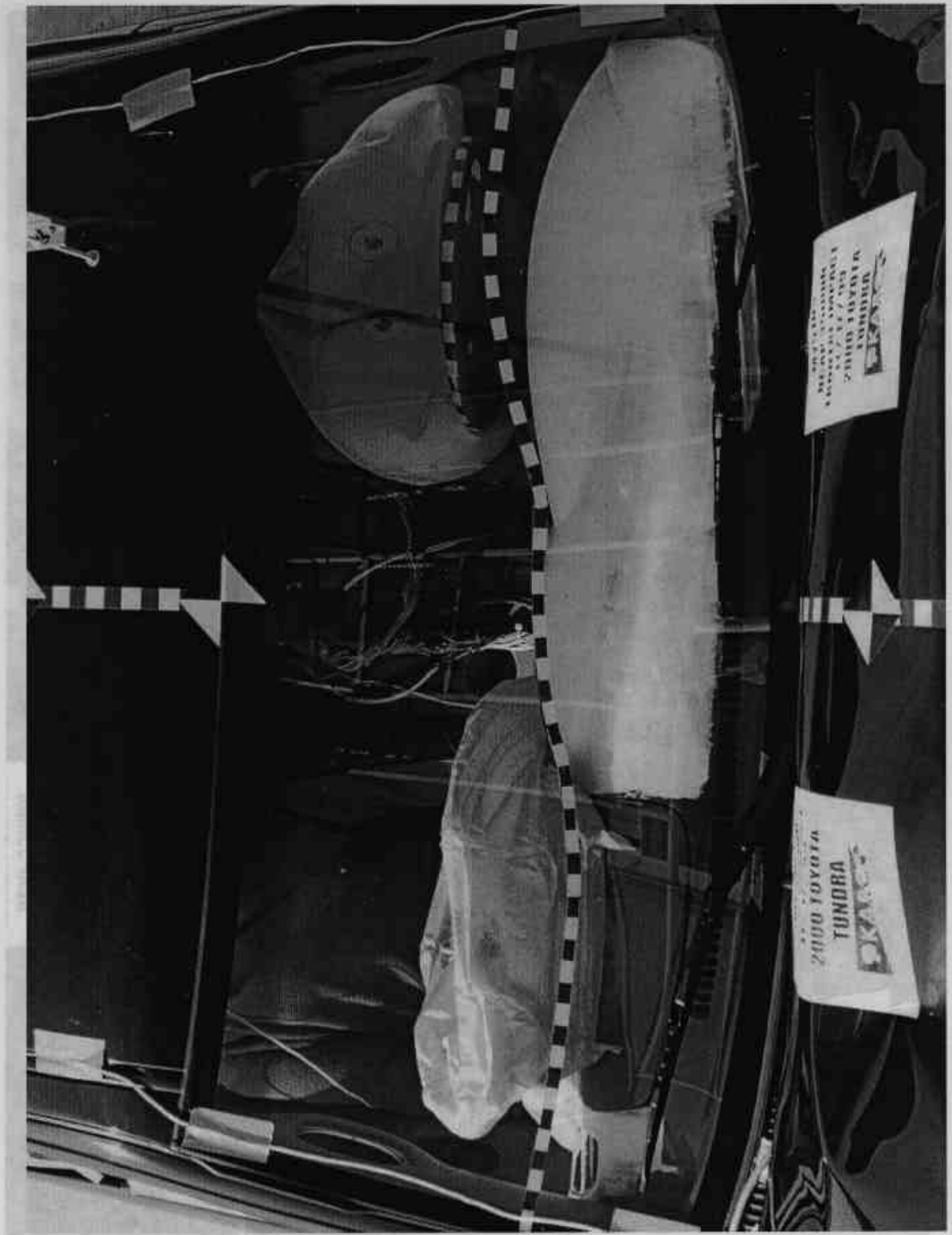


FIGURE A-16. POST TEST WINDSHIELD



FIGURE A-17. PRETEST ENGINE COMPARTMENT

KAR20001-02

A-17

KAR20001-02

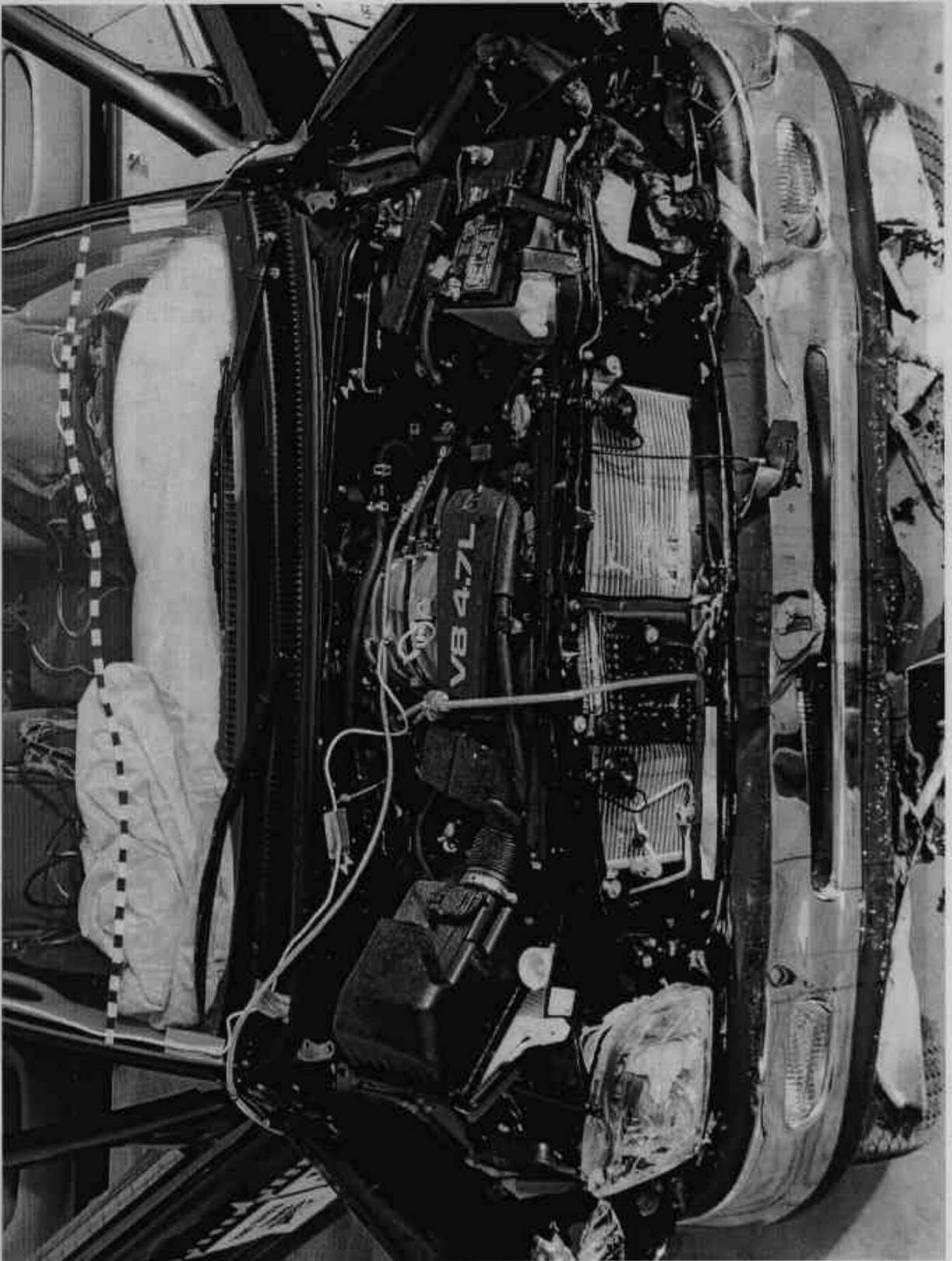


FIGURE A-18. POST TEST ENGINE COMPARTMENT



FIGURE A-19. PRETEST FUEL CAP

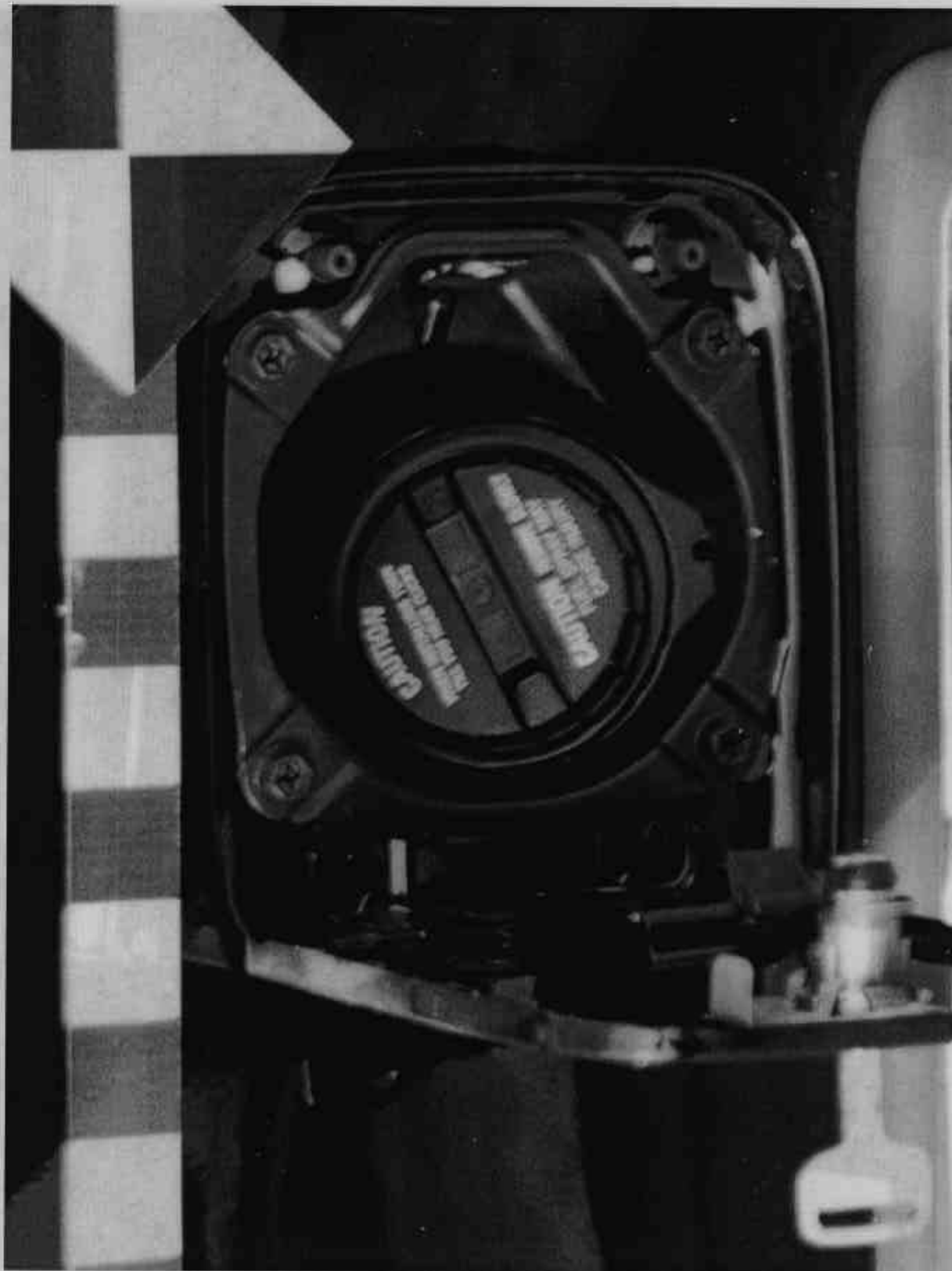


FIGURE A-20. POST TEST FUEL CAP

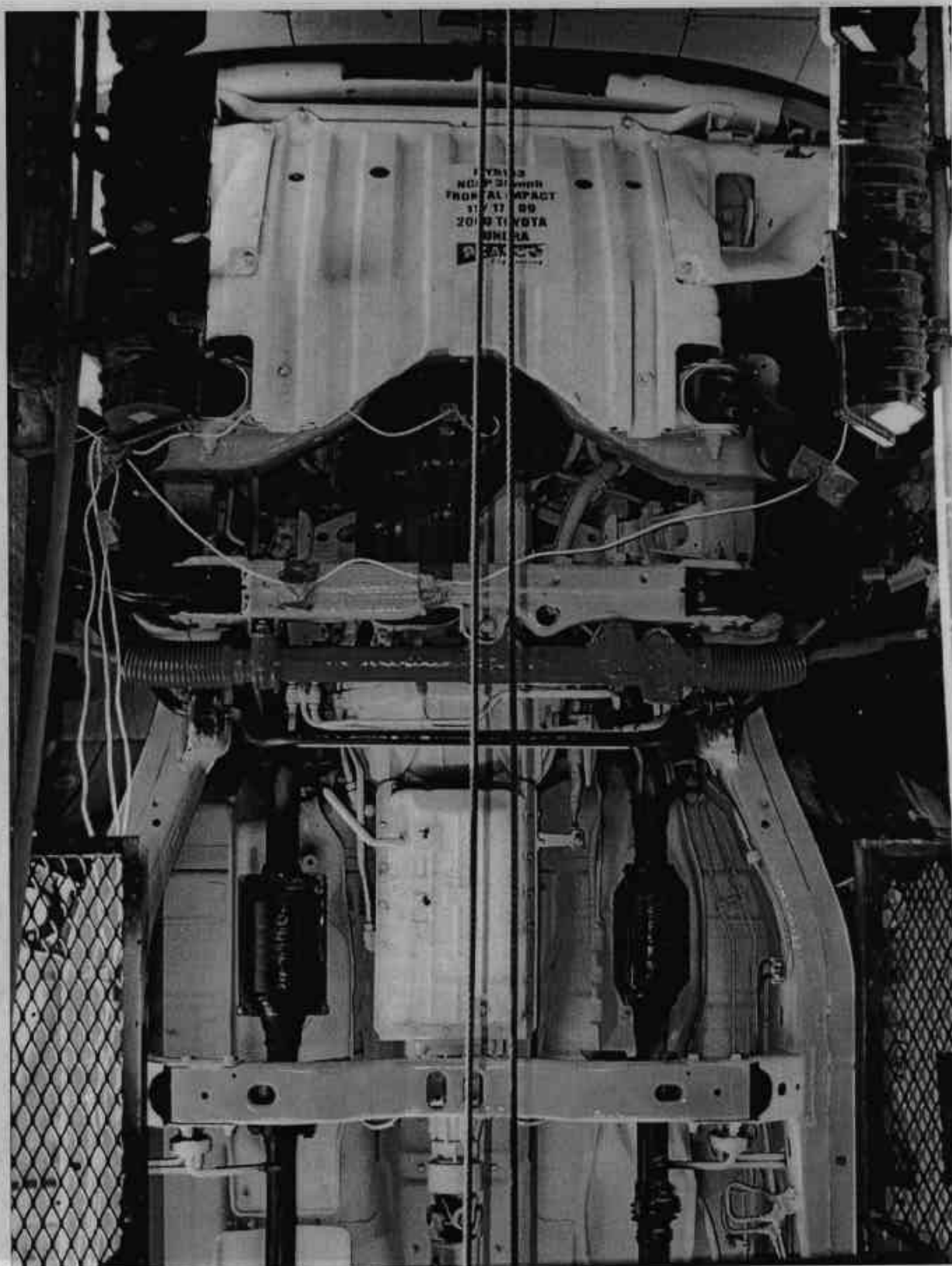


FIGURE A-21. PRETEST FRONT UNDERSIDE

50-10005RAK

A-21

KAR20001-02

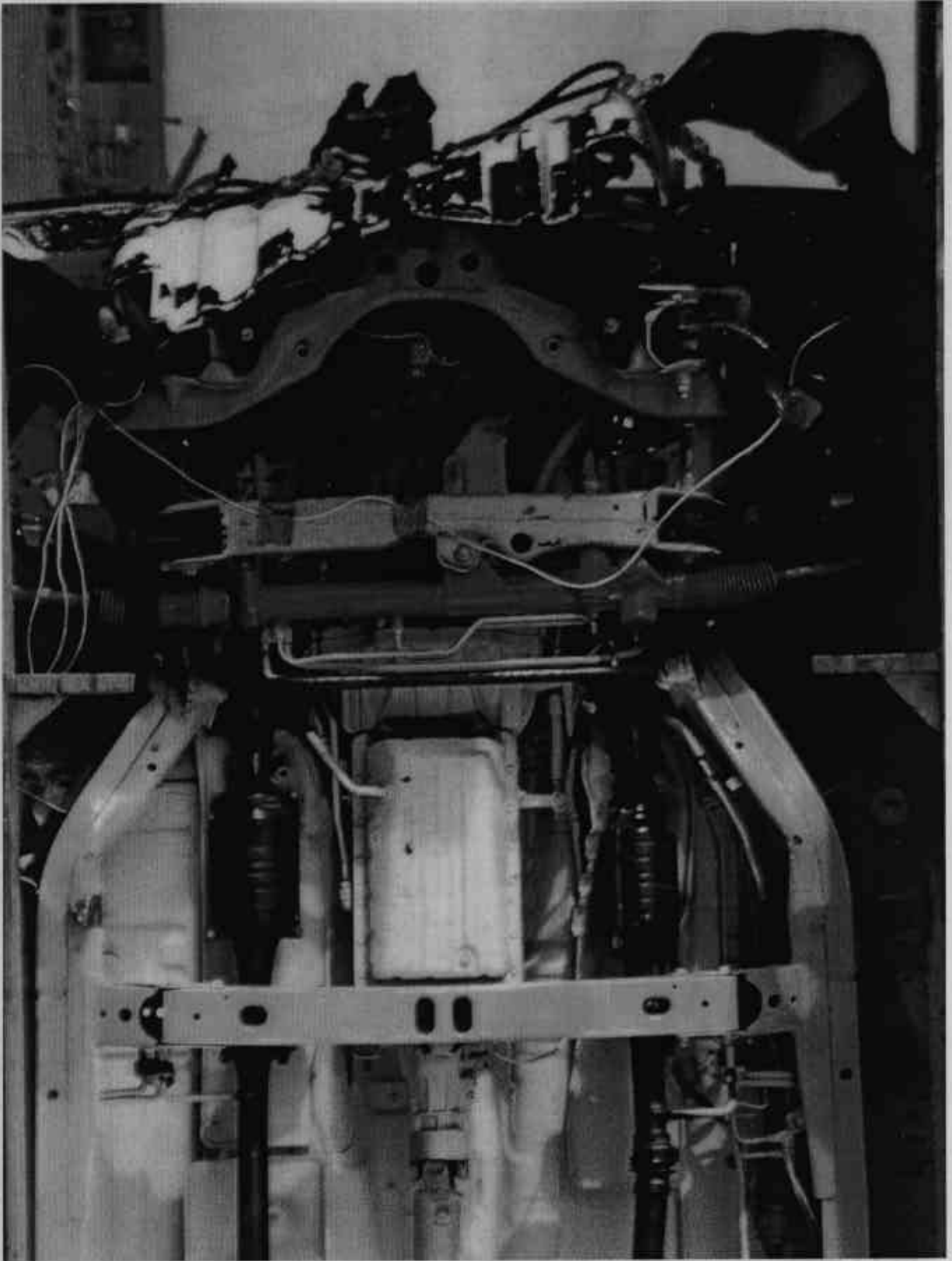


FIGURE A-22. POST TEST FRONT UNDERSIDE

KAR5001-03

A-22

KAR20001-02

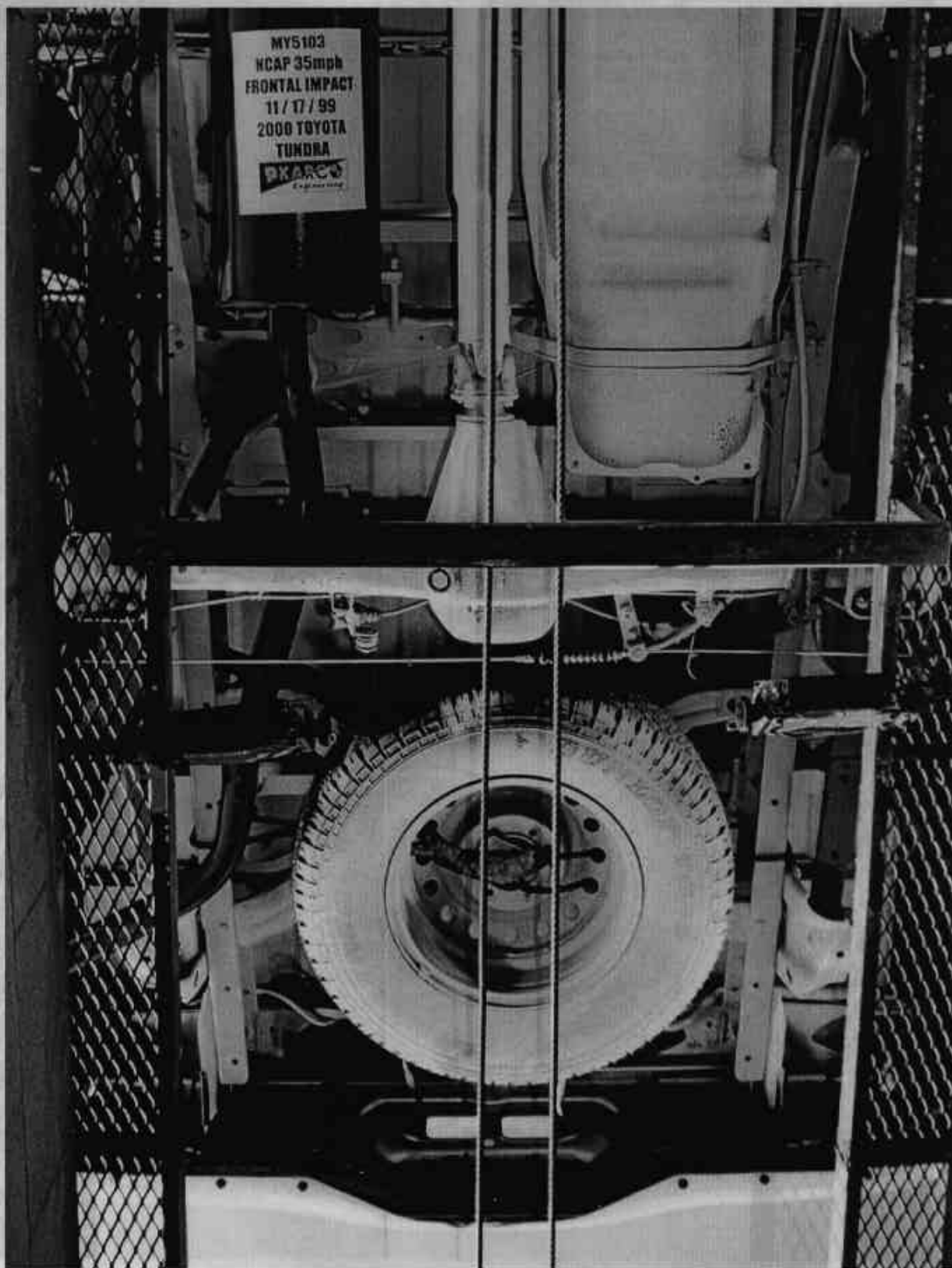


FIGURE A-23. PRETEST REAR UNDERSIDE

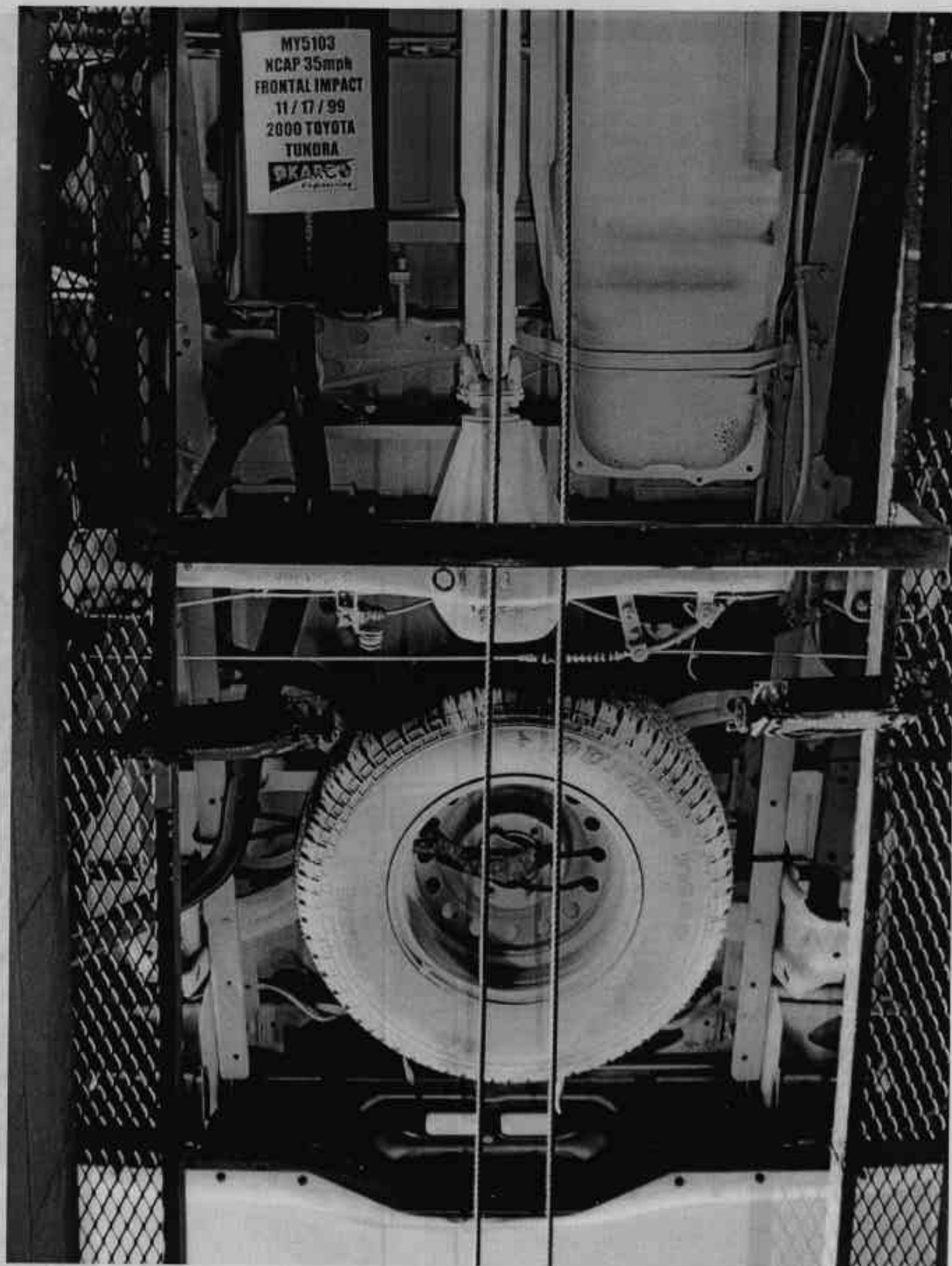


FIGURE A-24. POST TEST REAR UNDERSIDE



FIGURE A-25. PRETEST DRIVER DUMMY (FRONT VIEW)

KAR20001-02

A-25

KAR20001-02

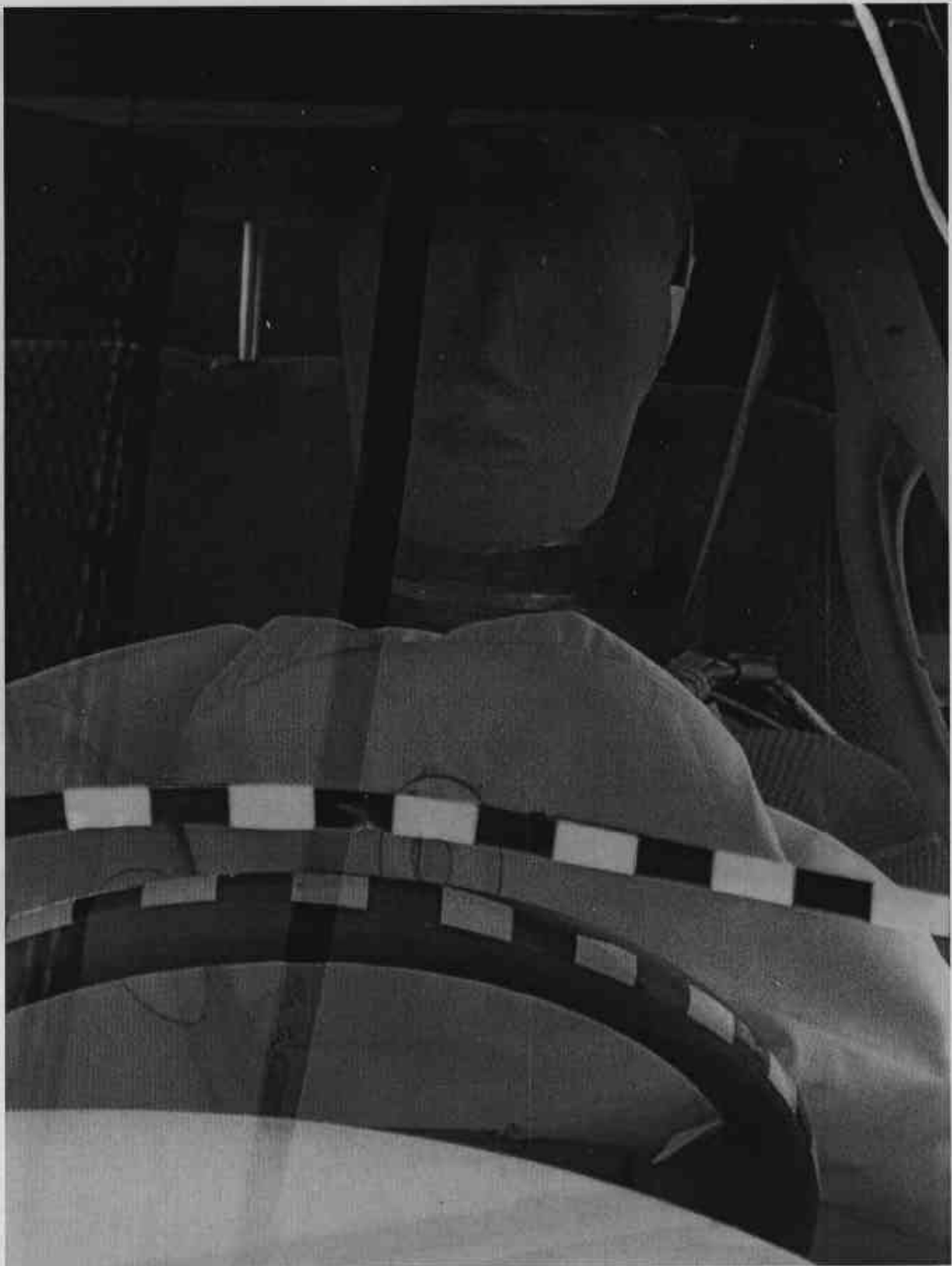
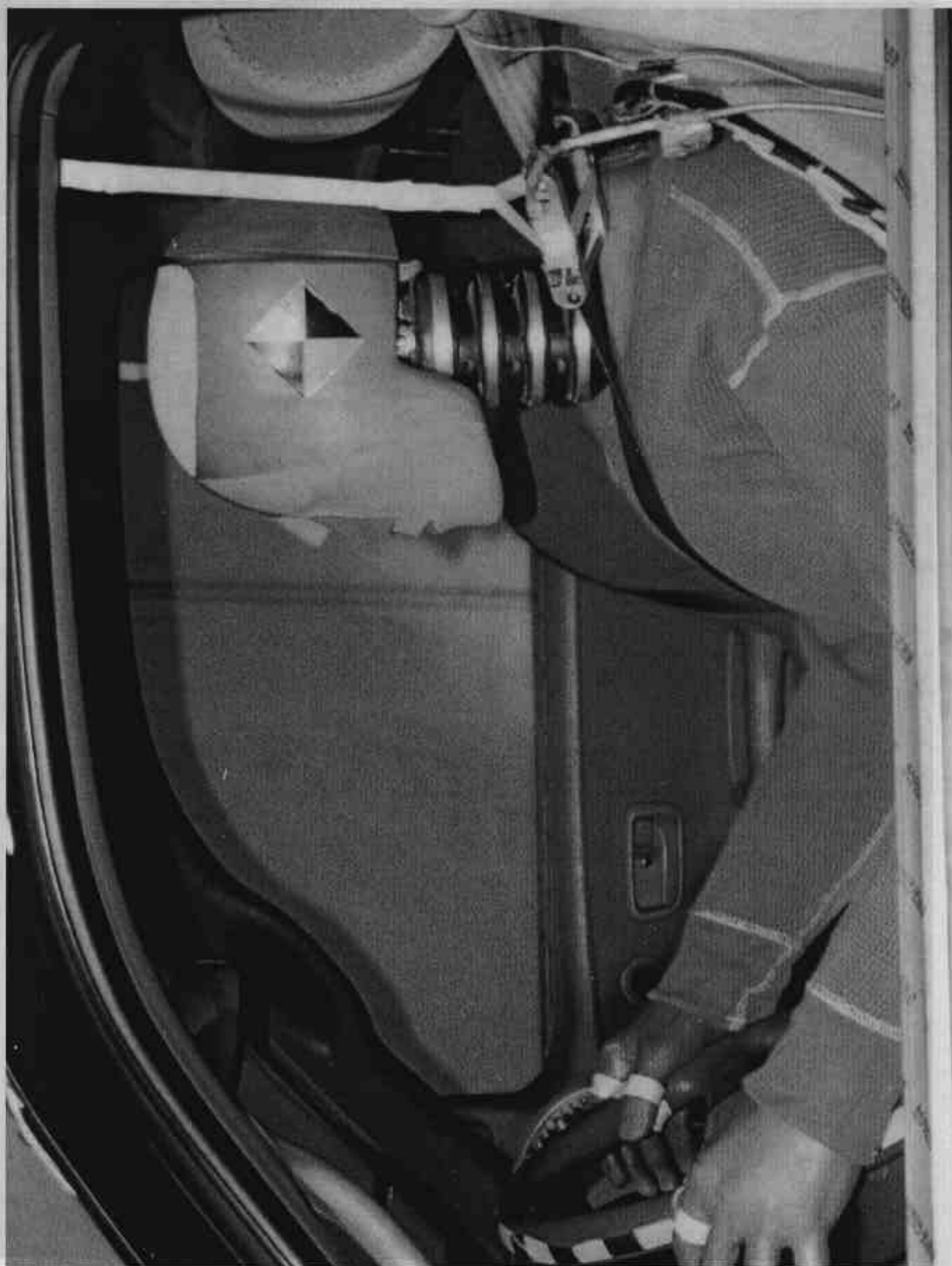


FIGURE A-26. POST TEST DRIVER DUMMY (FRONT VIEW)



(W) **FIGURE A-27. PRETEST DRIVER DUMMY (THRU WINDOW)**

KAR20001-02

A-27

KAR20001-02



FIGURE A-28. POST TEST DRIVER DUMMY (THRU WINDOW)

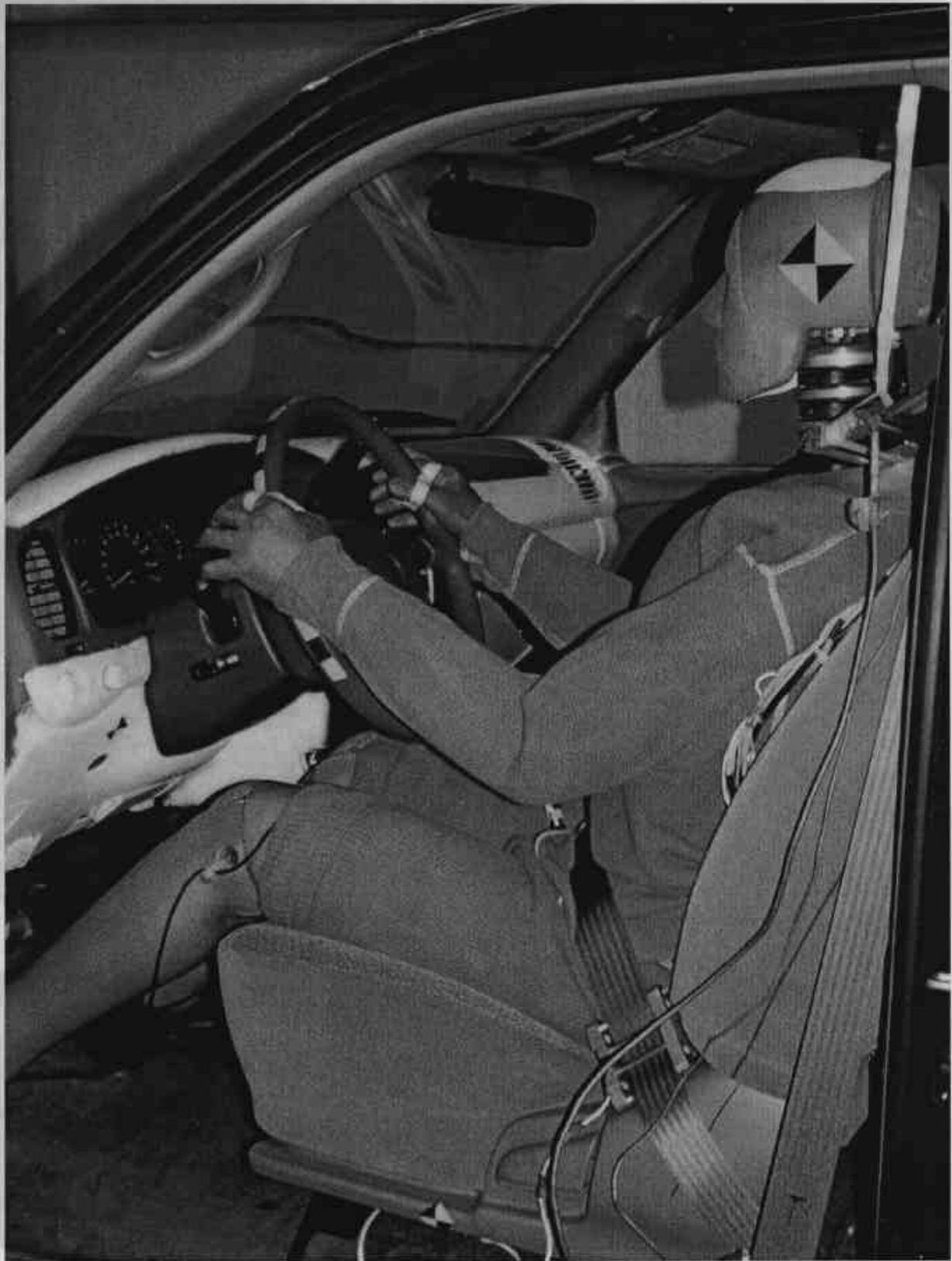


FIGURE A-29. PRETEST DRIVER DUMMY (DOOR OPEN)

KAR20001-02



FIGURE A-30. POST TEST DRIVER DUMMY (DOOR OPEN)

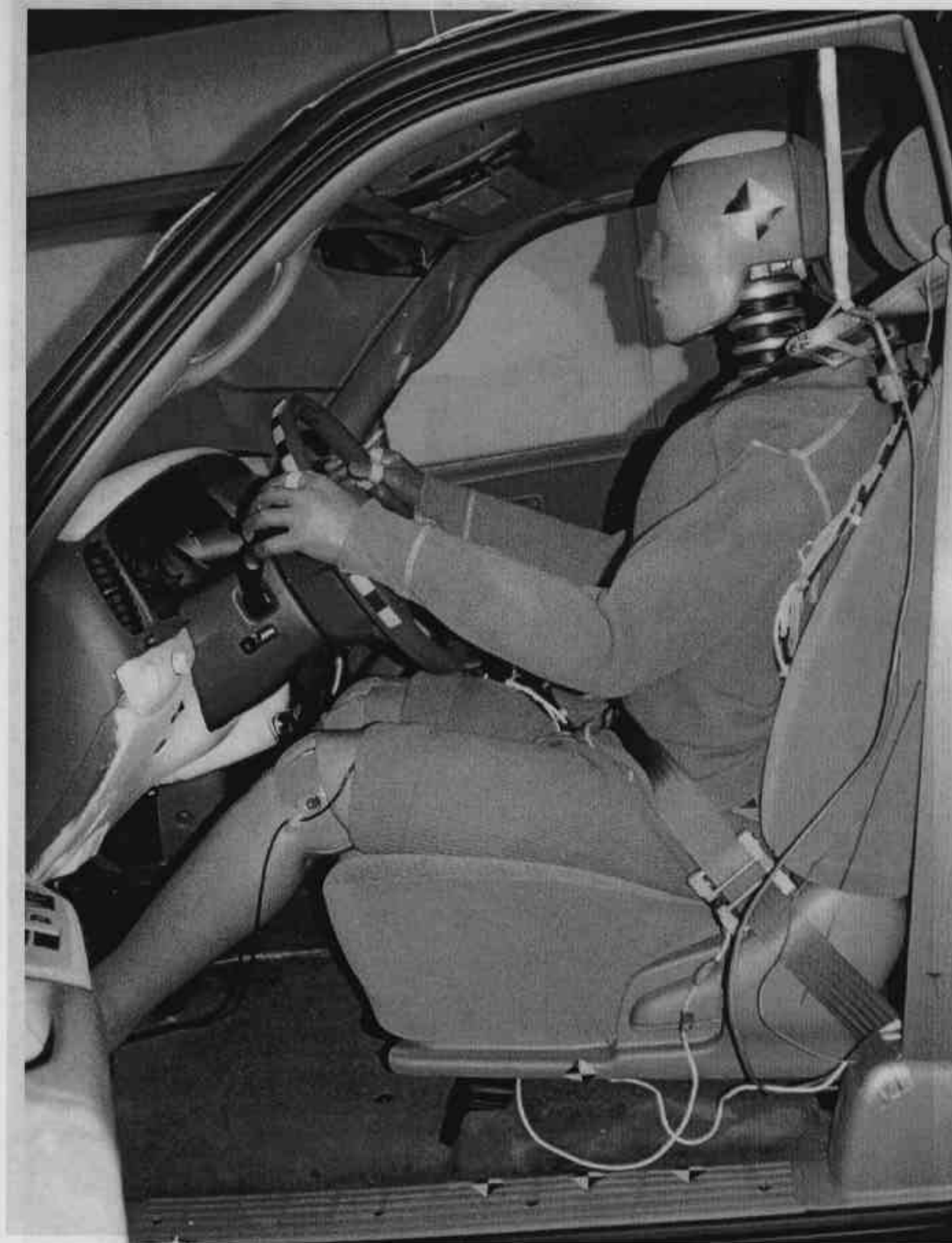


FIGURE A-31. PRETEST DRIVER DUMMY (90° TO VEHICLE)

KAR20001-02

A-31

KAR20001-02



FIGURE A-32. POST TEST DRIVER DUMMY (90° TO VEHICLE)



FIGURE A-33. PRETEST DRIVER DUMMY FEET



FIGURE A-34. POST TEST DRIVER DUMMY FEET AND KNEE CONTACT



FIGURE A-35. PRE TEST DRIVER KNEE BOLSTER

KAR20001-02

A-35

KAR20001-02

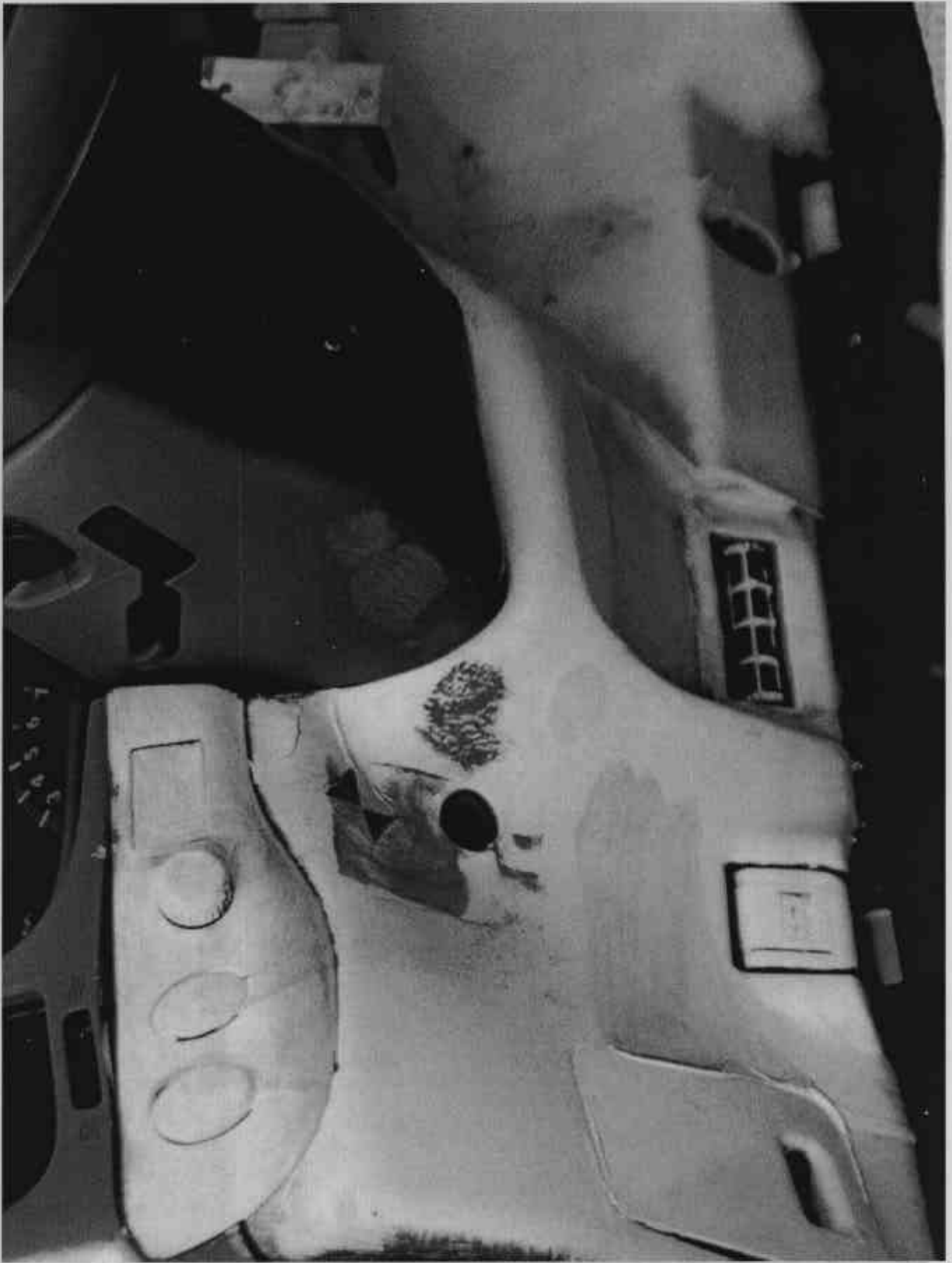


FIGURE A-36. POST TEST DRIVER KNEE BOLSTER



FIGURE A-37. PRE TEST DRIVER SIDE FLOOR PAN

KAR20001-02

A-37

KAR20001-02



FIGURE A-38. POST TEST DRIVER SIDE FLOOR PAN

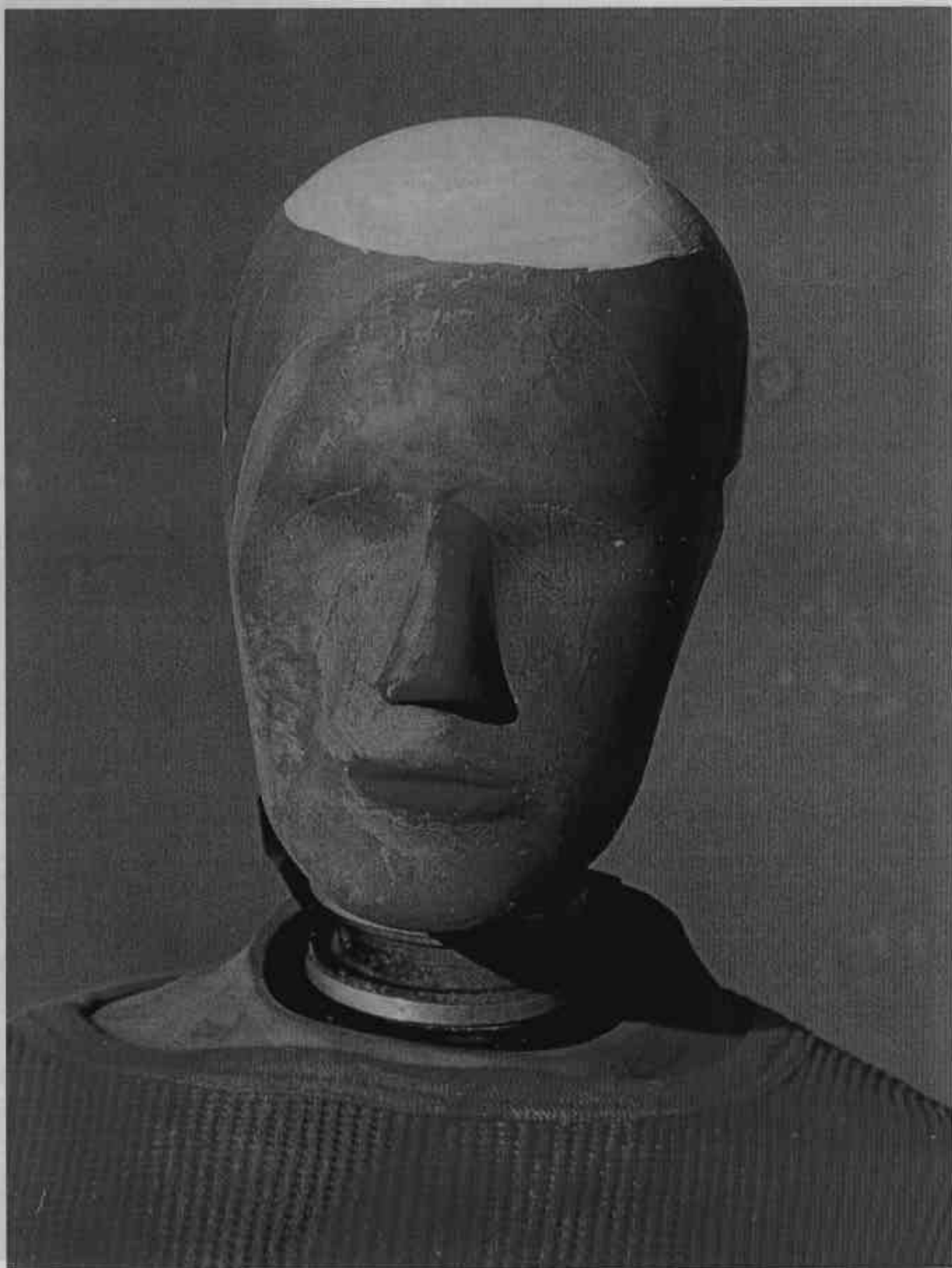


FIGURE A-39. POST TEST DRIVER HEAD

A-39

KAR20001-02



FIGURE A-40. POST TEST DRIVER DUMMY CONTACT



FIGURE A-41. PRE TEST PASSENGER DUMMY (FRONT VIEW)

KAR20001-02

A-41

KAR20001-02



FIGURE A-42. POST TEST PASSENGER DUMMY (FRONT VIEW)

**Photograph Not
Available**

FIGURE A-43. PRE TEST PASSENGER DUMMY (THRU WINDOW)



FIGURE A-44. POST TEST PASSENGER DUMMY (THRU WINDOW)



FIGURE A-45. PRE TEST PASSENGER DUMMY (DOOR OPEN)



FIGURE A-46. POST TEST PASSENGER DUMMY (DOOR OPEN)

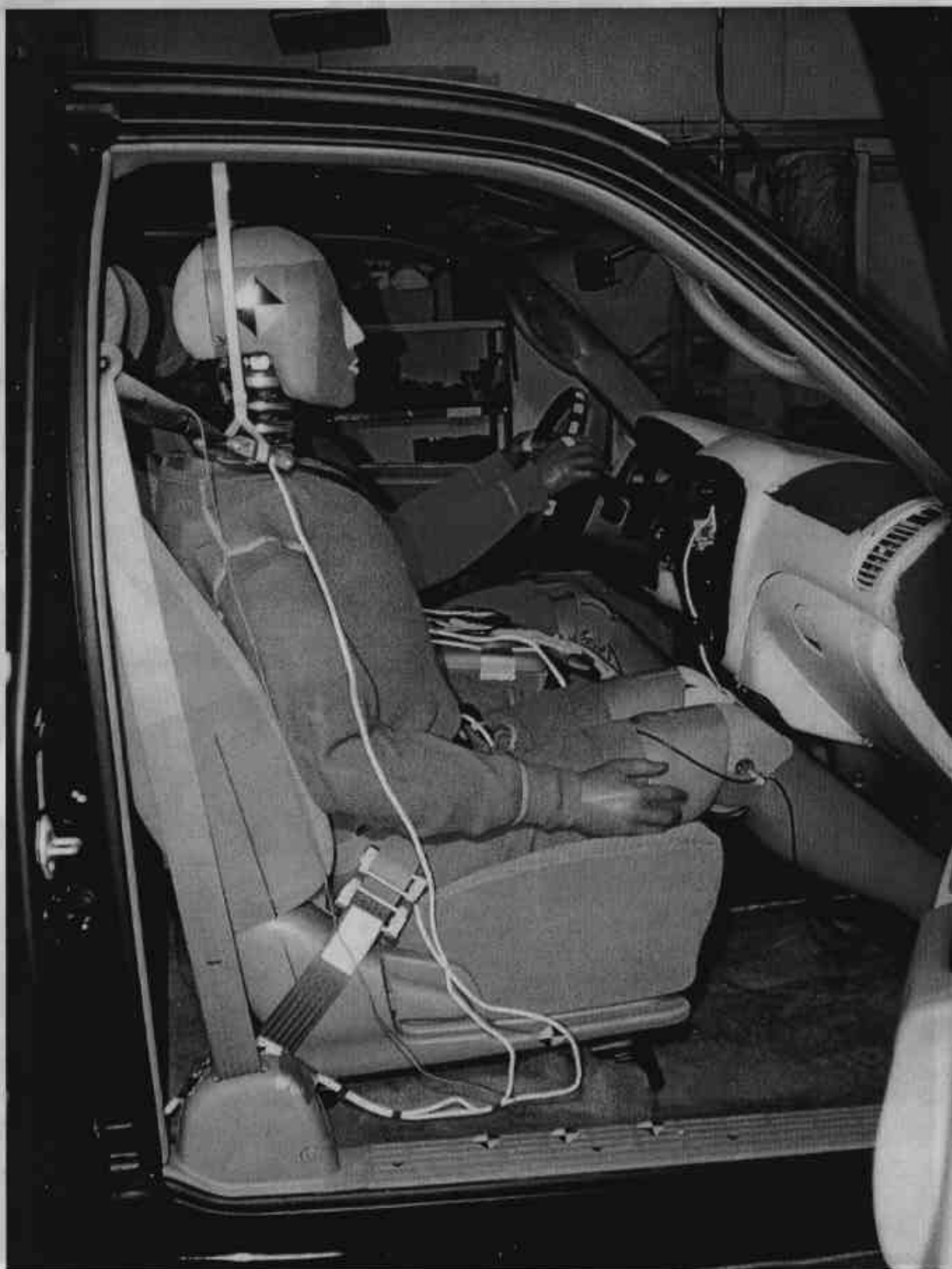


FIGURE A-47. PRE TEST PASSENGER DUMMY (90° TO VEHICLE)

KAR20001-02

A-47

KAR20001-02



FIGURE A-48. POST TEST PASSENGER DUMMY (90° TO VEHICLE)



FIGURE A-49. PRE TEST PASSENGER DUMMY FEET



FIGURE A-50. POST TEST PASSENGER DUMMY FEET AND CONTACT POINT



FIGURE A-51. PRETEST PASSENGER SIDE FLOOR PAN

KAR20001-02

A-51

KAR20001-02



FIGURE A-52. POST TEST PASSENGER SIDE FLOOR PAN

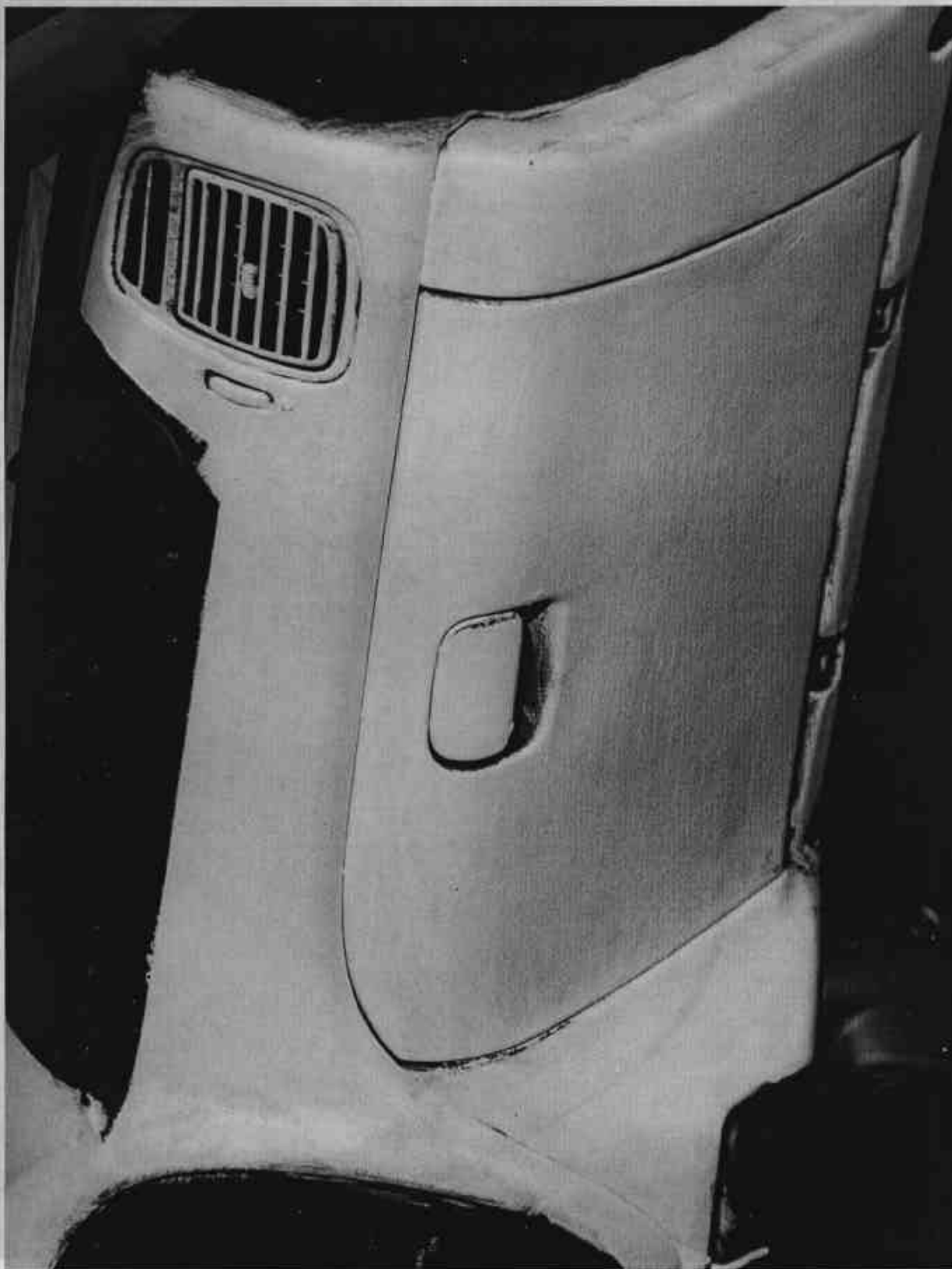


FIGURE A-53. PRE TEST PASSENGER SIDE KNEE BOLSTER



FIGURE A-54. POST TEST PASSENGER SIDE KNEE BOLSTER AND DUMMY CONTACT

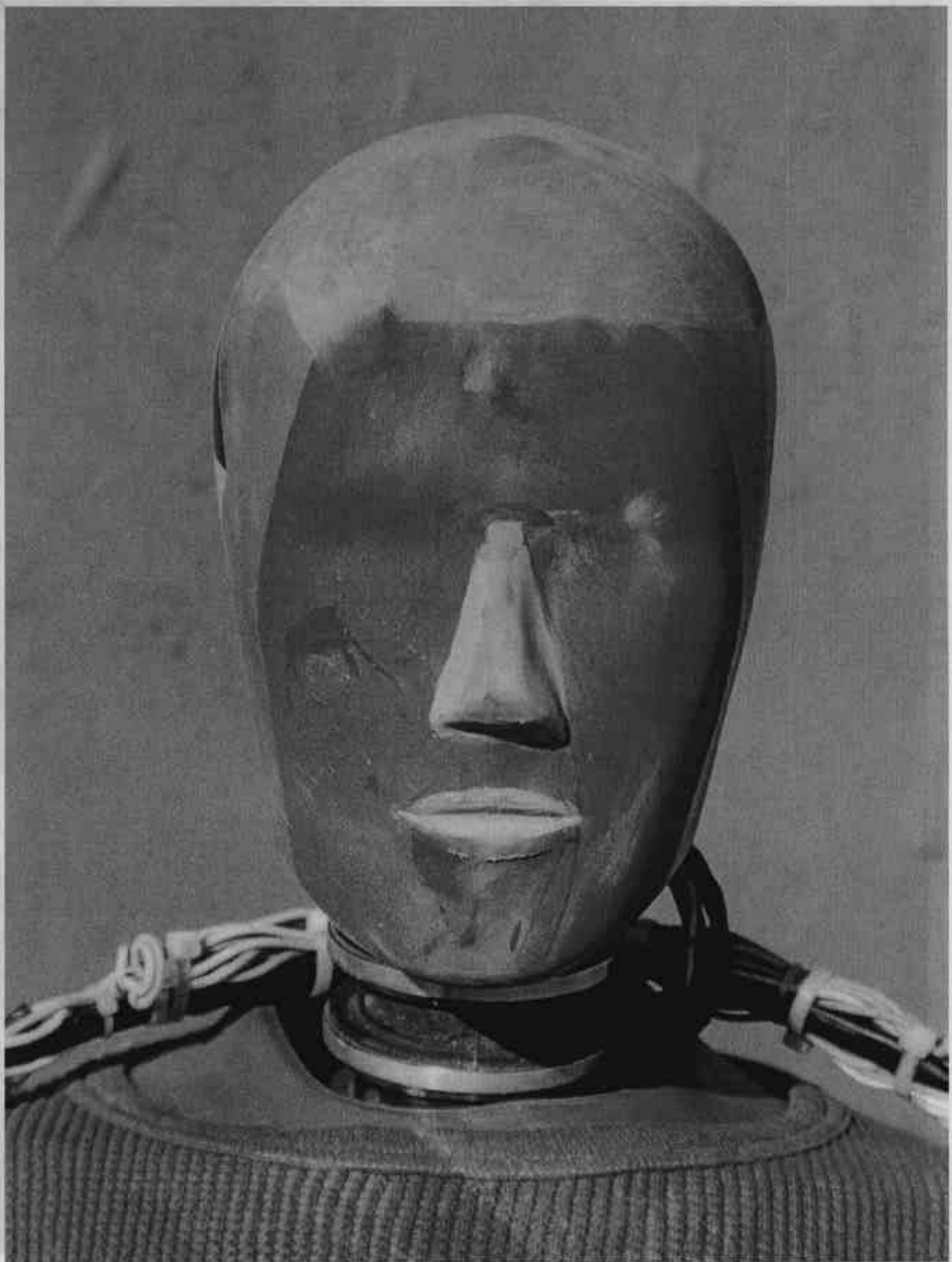


FIGURE A-55. POST TEST PASSENGER HEAD

A-55

KAR20001-02



FIGURE A-56. POST TEST PASSENGER DUMMY CONTACT

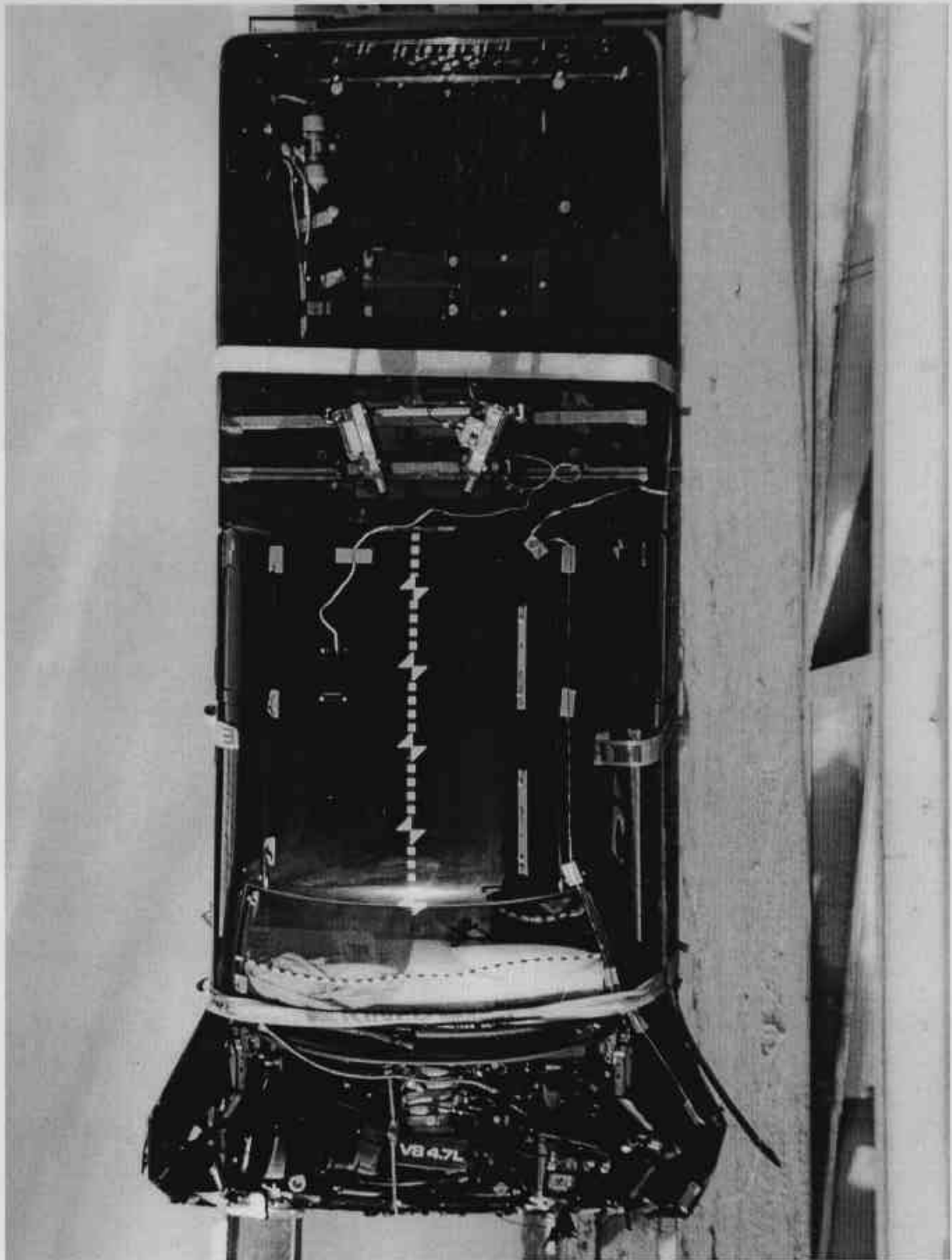


FIGURE A-57. VEHICLE ON ROLLOVER

KAR2001-02

A-57

KAR2001-02

**Photograph Not
Available**

FIGURE A-58. VEHICLE DURING IMPACT

APPENDIX B
DUMMY AND VEHICLE RESPONSE DATA TRACES

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B-19 Driver Neck Moment Z	B-19
B-20 Driver Neck Moment Resultant	B-20
B-21 Driver Chest Primary X	B-21
B-22 Driver Chest Primary X Velocity	B-22
B-23 Driver Chest Primary X Displacement	B-23
B-24 Driver Chest Primary Y	B-24
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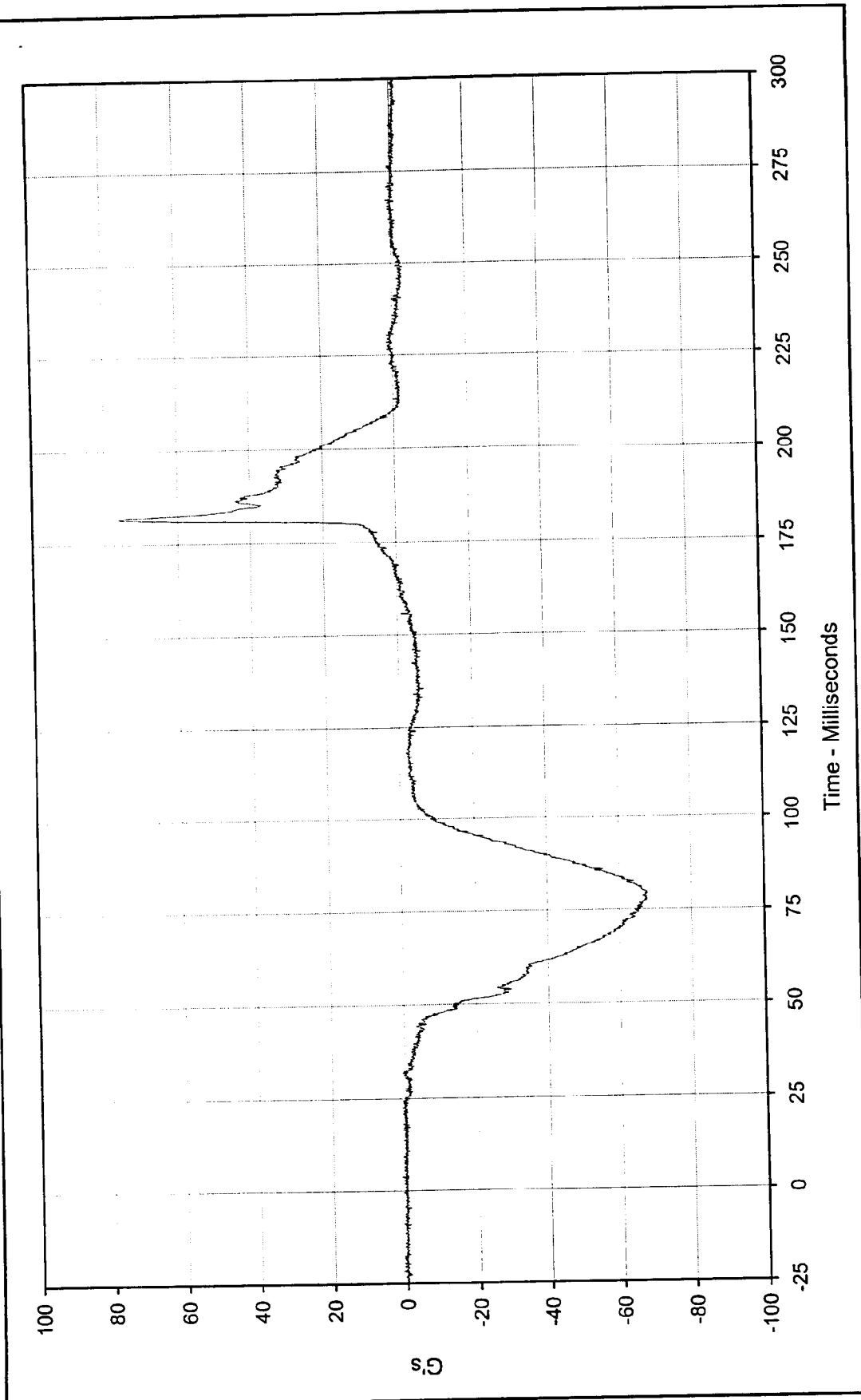
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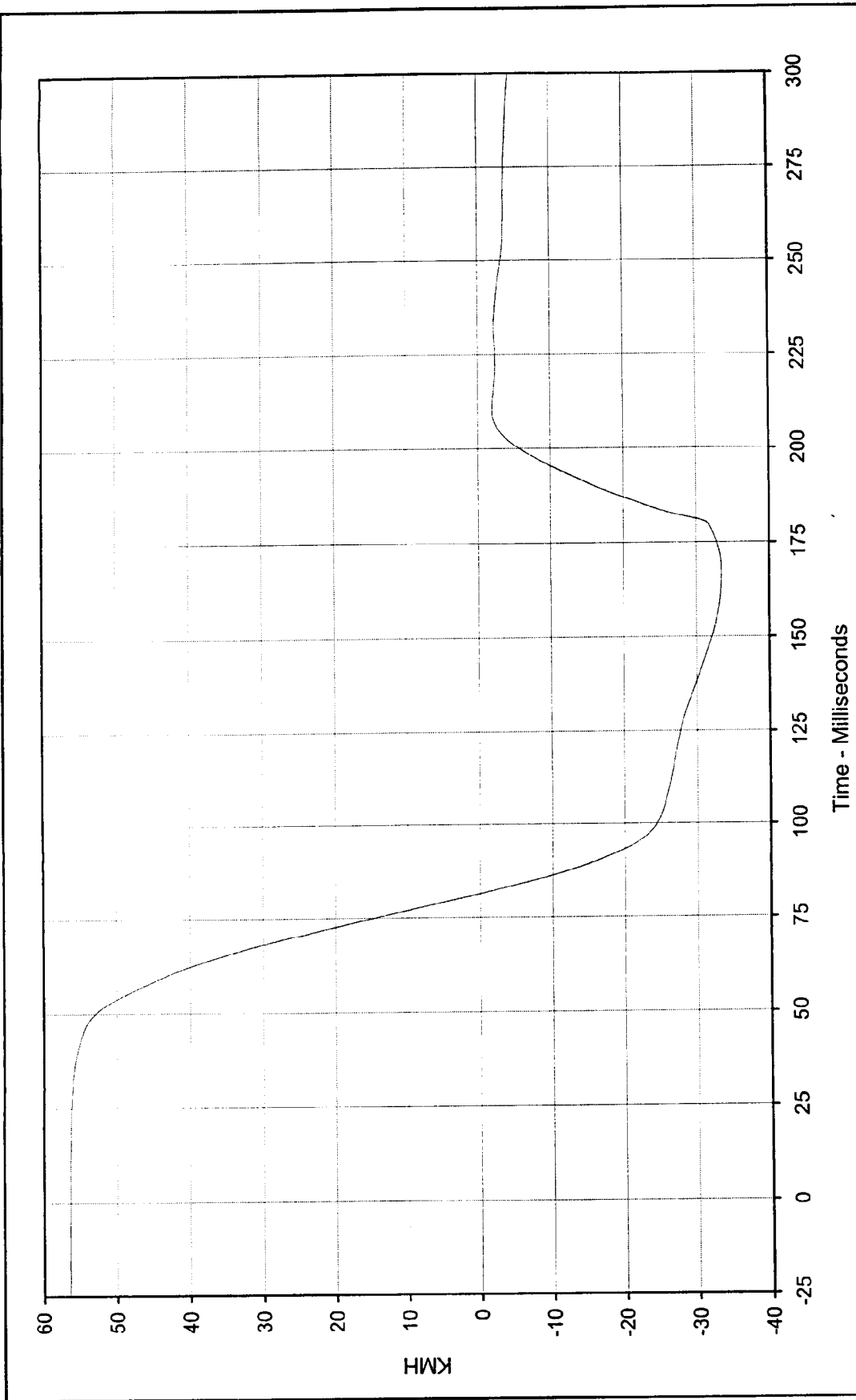
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Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Curve Description: Driver Head Primary X
Maximum Value: 76.3 at 181.8 Milliseconds
Minimum Value: -68.1 at 79.1 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/17/99
Curve Number: FIL-001

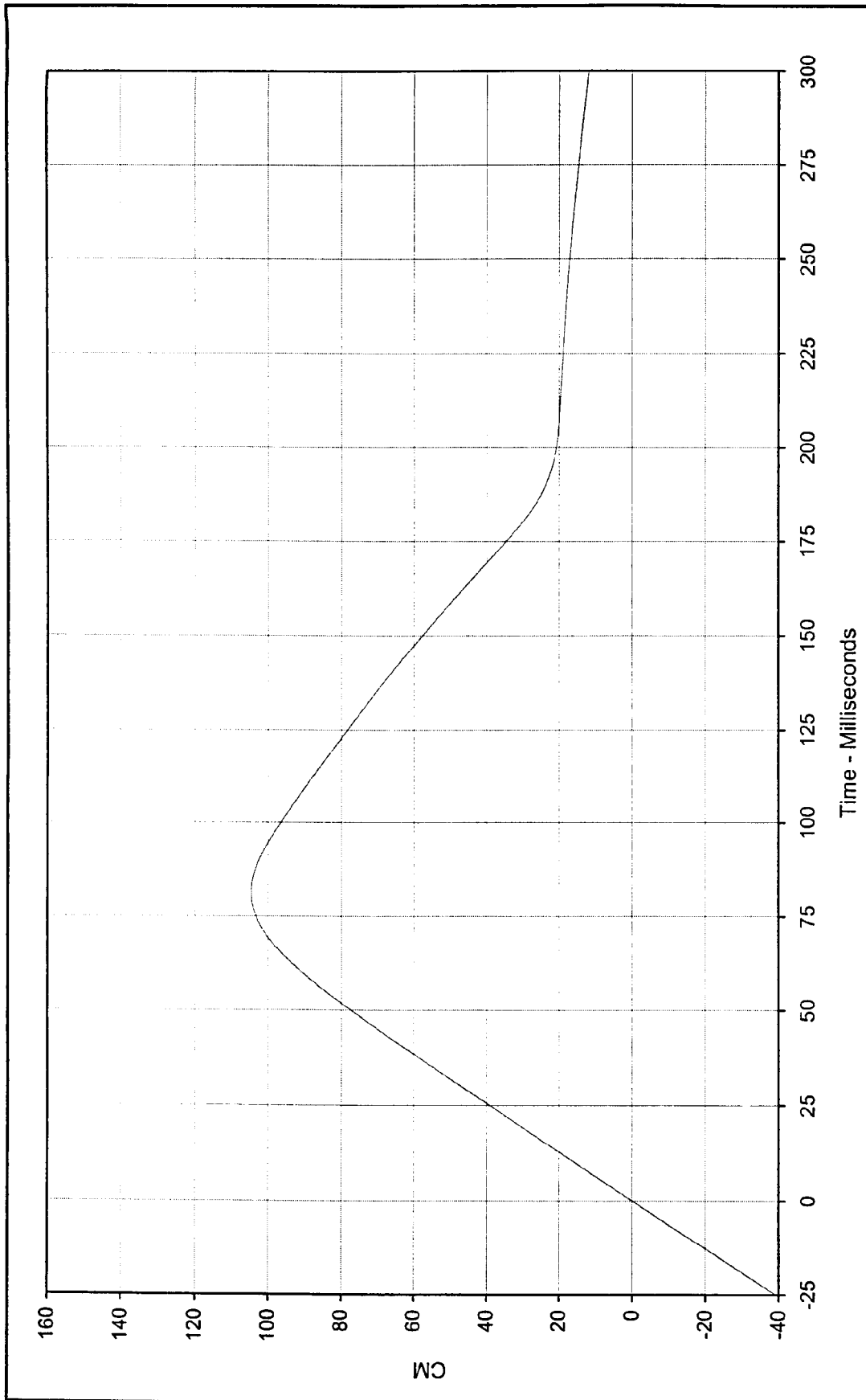




Curve Description: Driver Head Primary X Velocity
 Maximum Value: 56.4 at 0.0 Milliseconds
 Minimum Value: -33.5 at 165.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN1-001

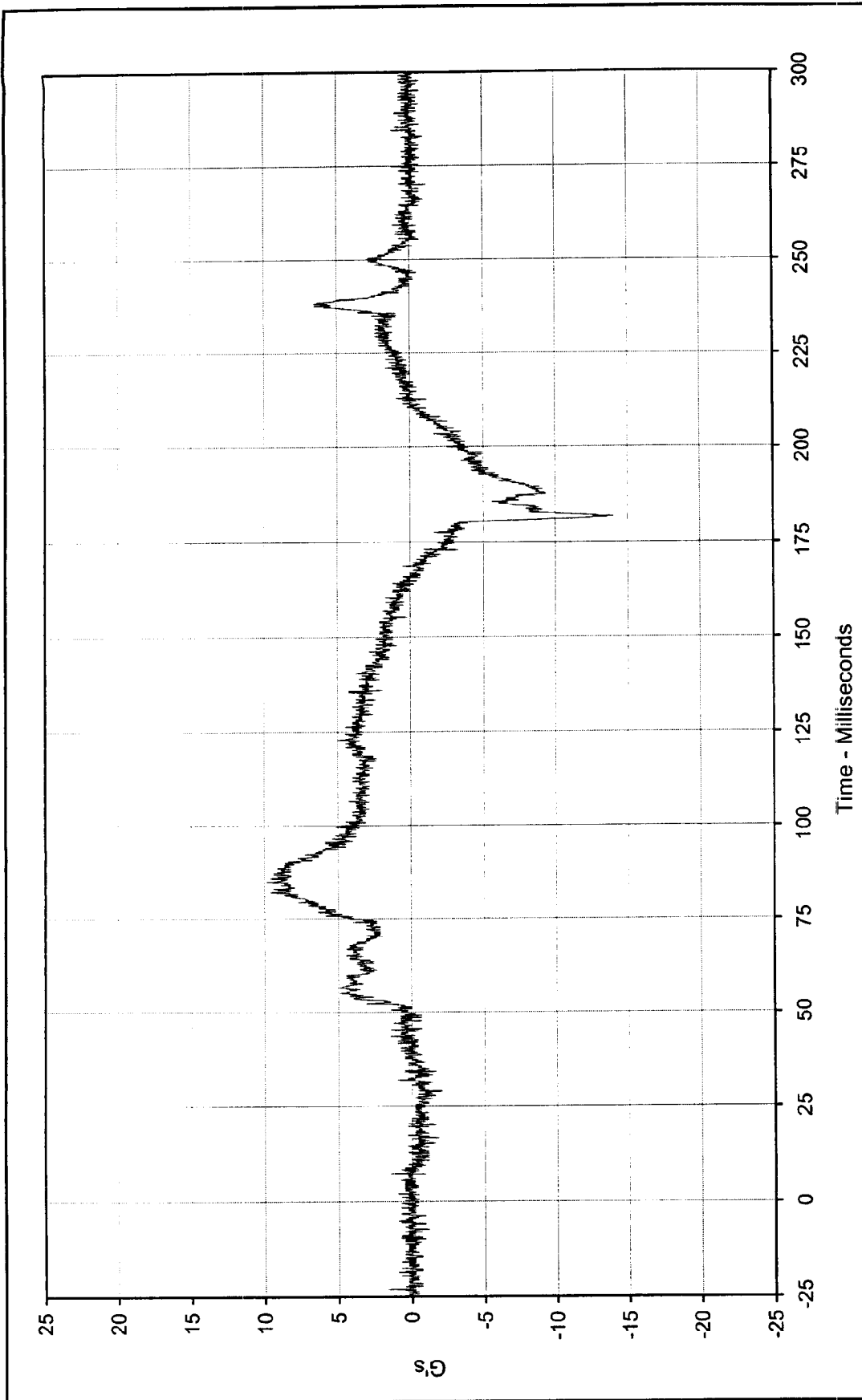
Testing Program 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





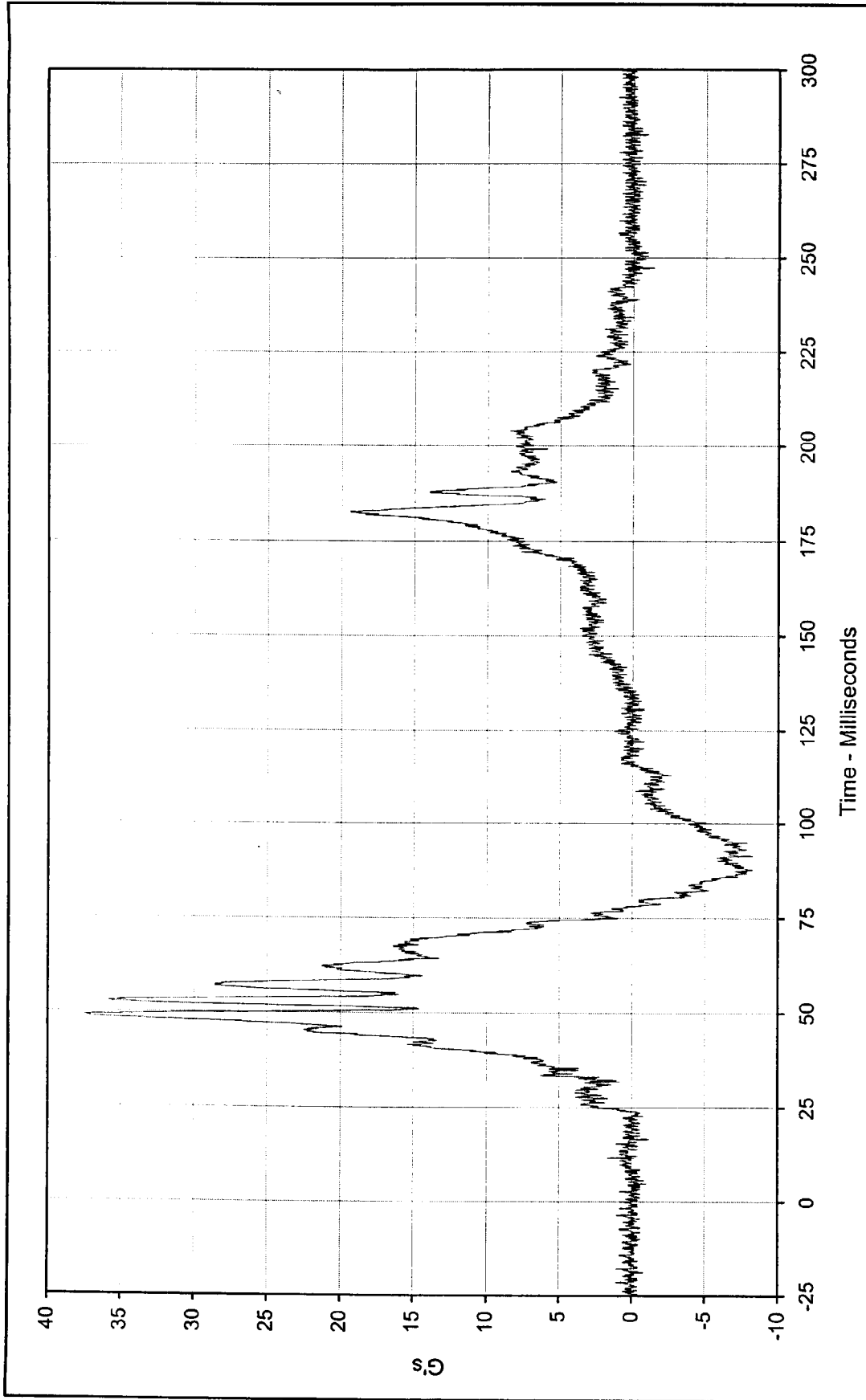
Curve Description:	Driver Head Primary X Displ.	Test Program:	2000 NHTSA 35 mph NCAP No.: MY5103
Maximum Value:	104.6 at 81.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup
Minimum Value:	0.0 at 0.0 Milliseconds		
SAE Filter Class:	180		
Date of Test:	11/17/99		
Curve Number:	IN2-001		





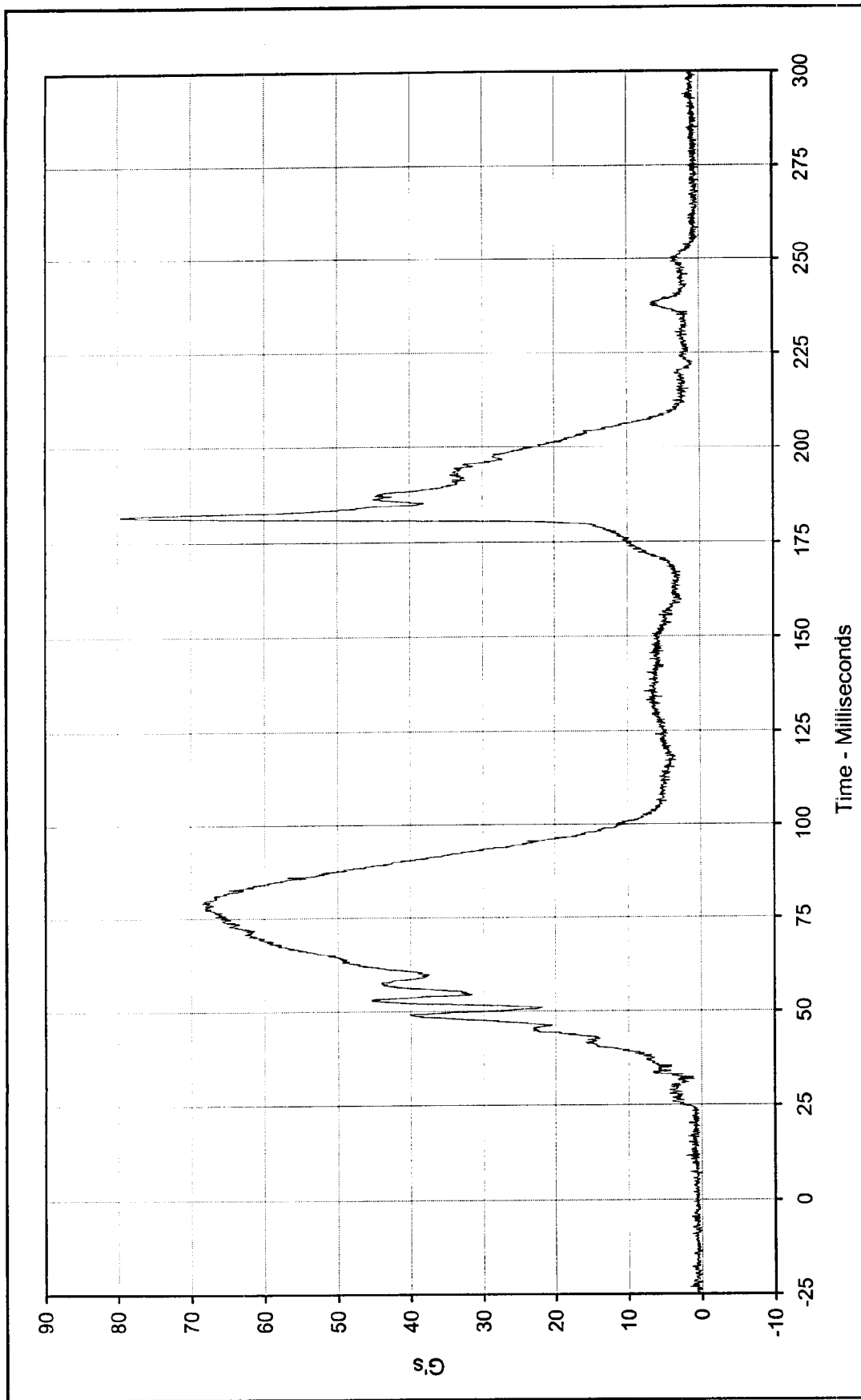
Curve Description:	Driver Head Primary Y	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	9.8 at 84.8 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-14.0 at 181.8 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-002			





Curve Description:	Driver Head Primary Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	37.4 at 49.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-8.3 at 87.6 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-003			





Curve Description: Driver Head Resultant Primary

Maximum Value: 79.5 at 181.8 Milliseconds

Minimum Value: 0.0 at 6.9 Milliseconds

SAE Filter Class: 1000

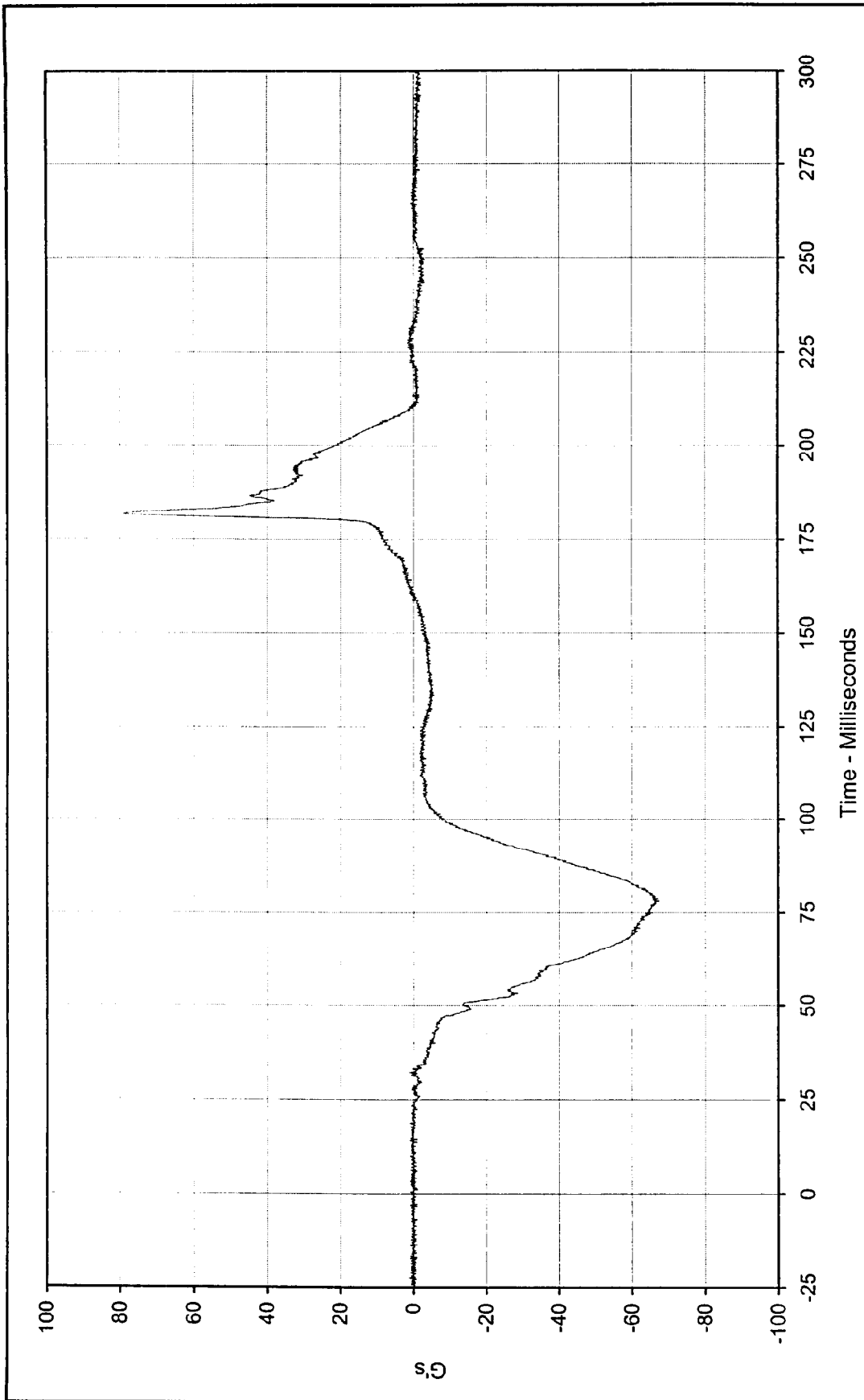
Date of Test: 11/17/99

Curve Number: RES-001

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

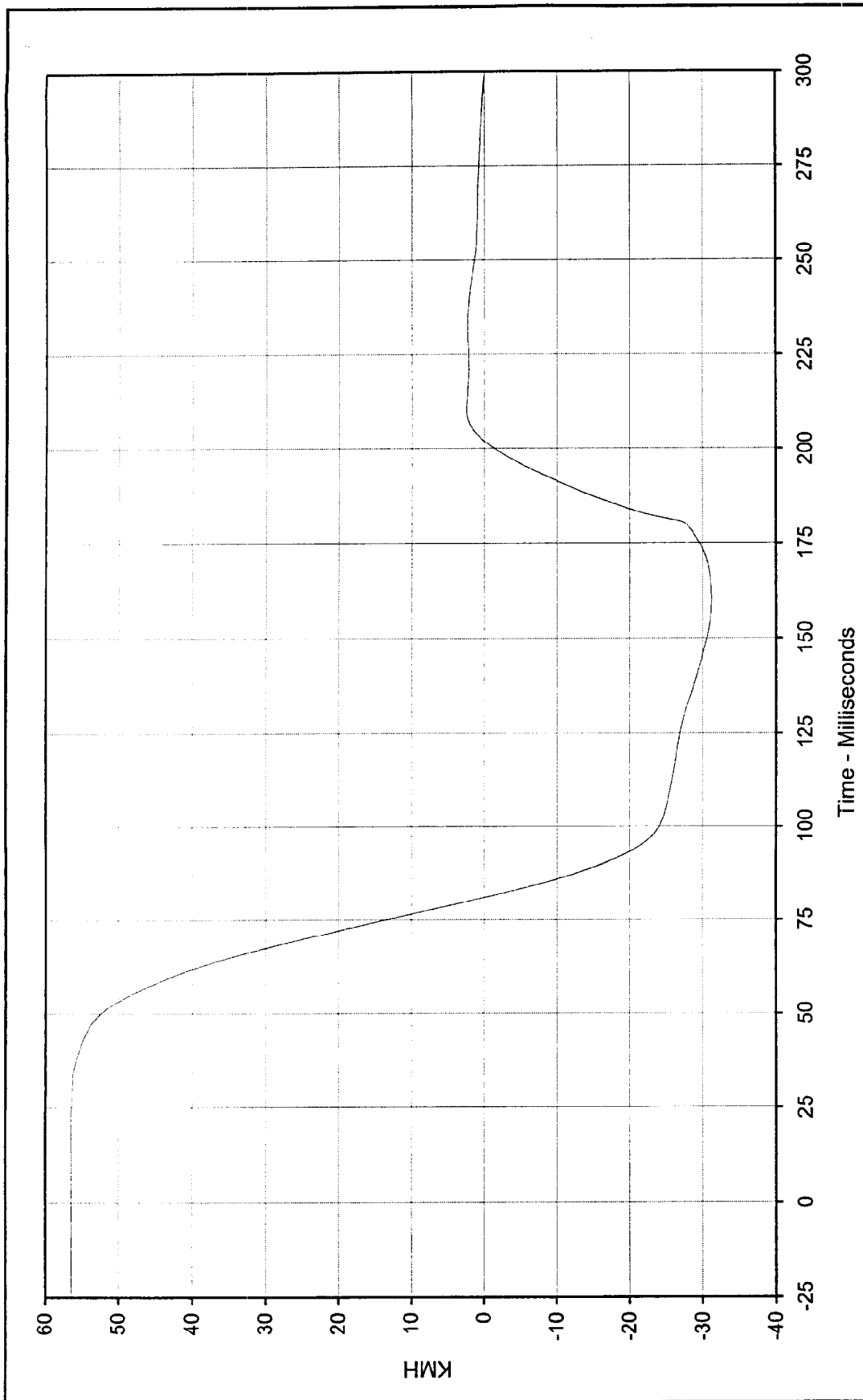
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:	Driver Head Redundant X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	79.2 at 181.7 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-67.4 at 78.0 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-004			

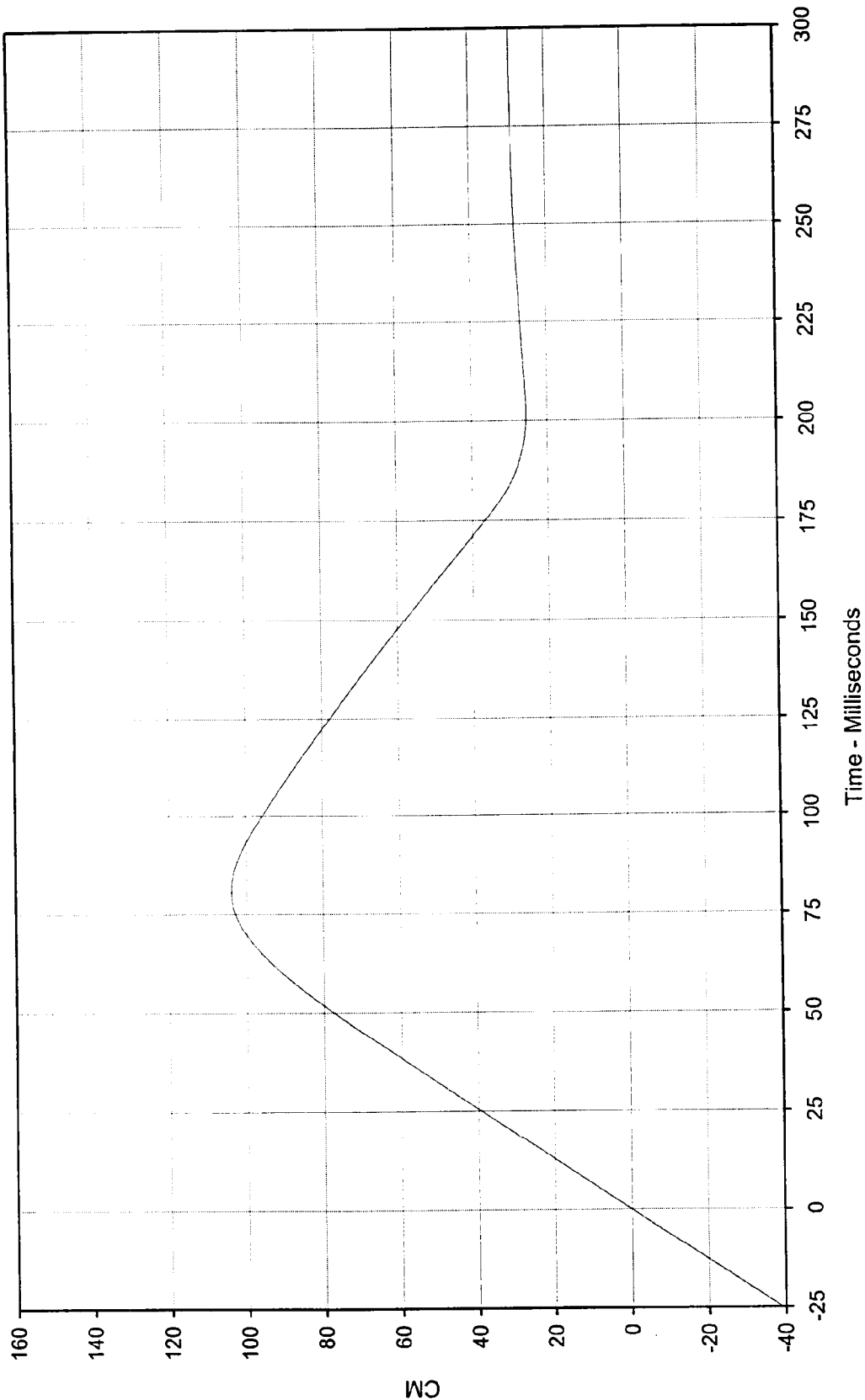




Curve Description: Driver Head Redundant X Velocity
Maximum Value: 56.5 at 18.0 Milliseconds
Minimum Value: -31.2 at 160.2 Milliseconds
SAE Filter Class: 180
Date of Test: 11/17/99
Curve Number: IN1-004

Testing Program 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup

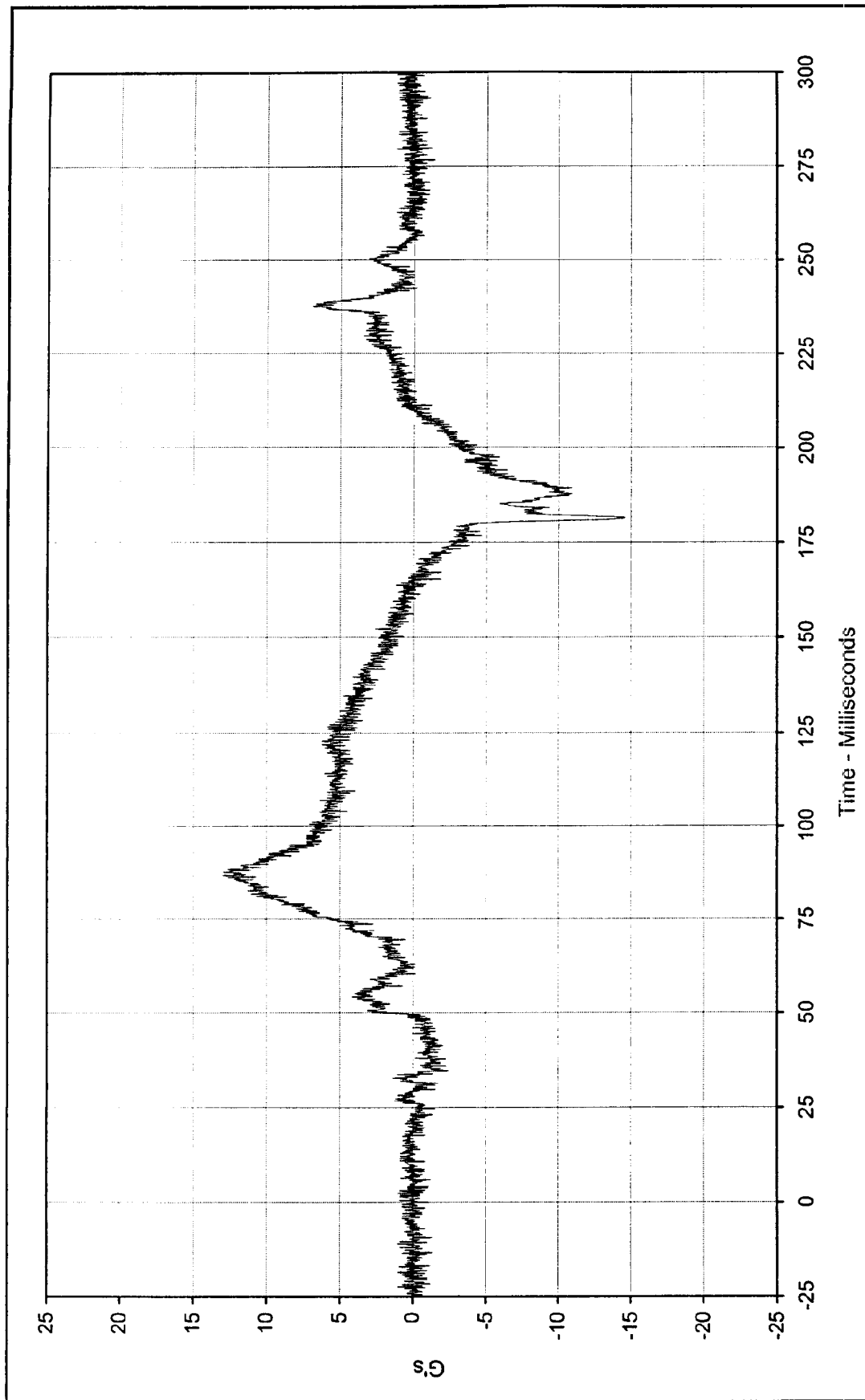




Curve Description: Driver Head Redundant X Displ.
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

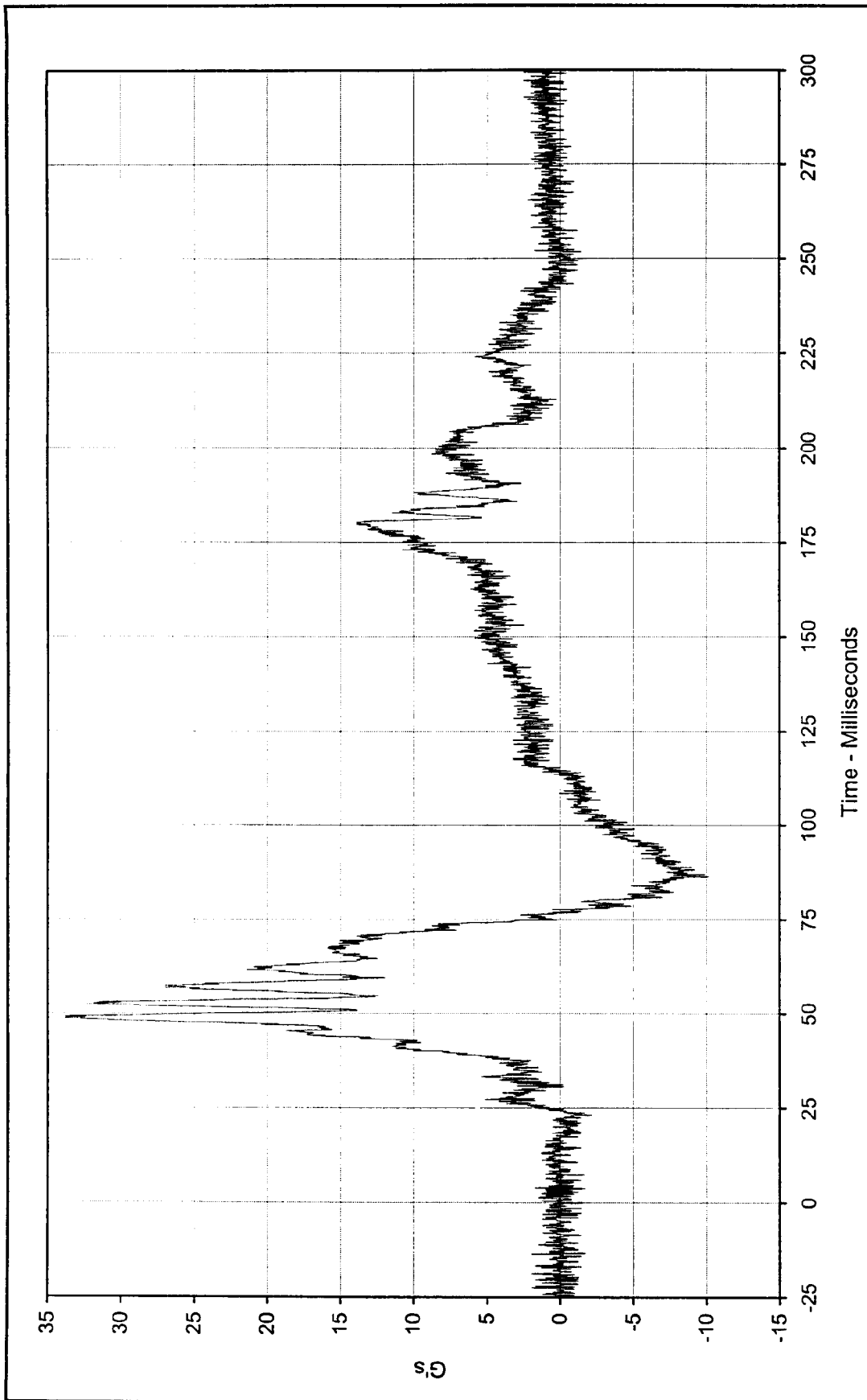
Maximum Value: 103.9 at 80.8 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN2-004





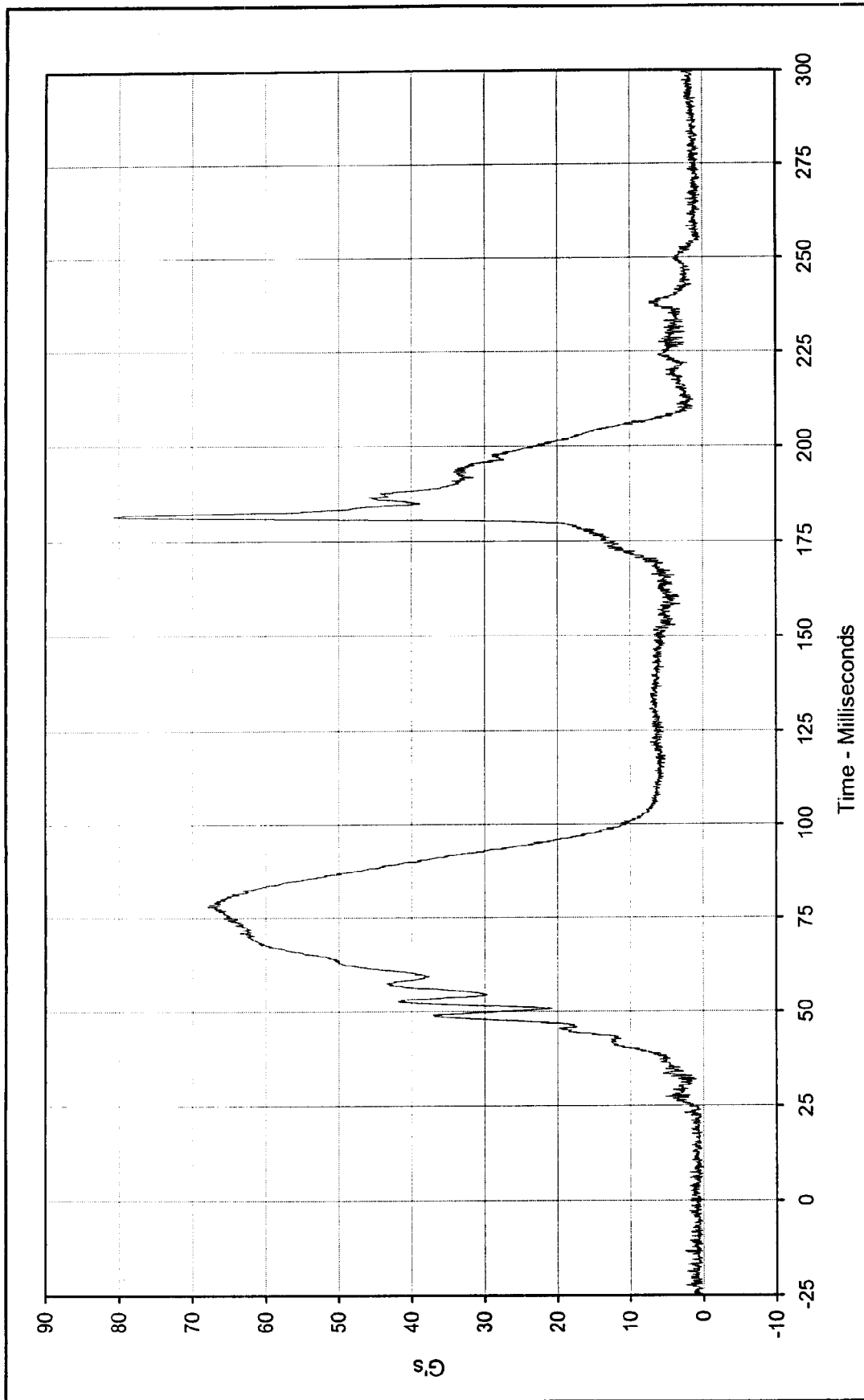
Curve Description:	Driver Head Redundant Y	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	13.0 at 86.6 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-14.6 at 181.6 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-005			





Curve Description:	Driver Head Redundant Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	33.8 at 48.7 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-10.2 at 86.2 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-006			





Curve Description: Driver Head Resultant Redundant

Maximum Value: 80.7 at 181.7 Milliseconds

Minimum Value: 0.0 at 0.1 Milliseconds

SAE Filter Class: 1000

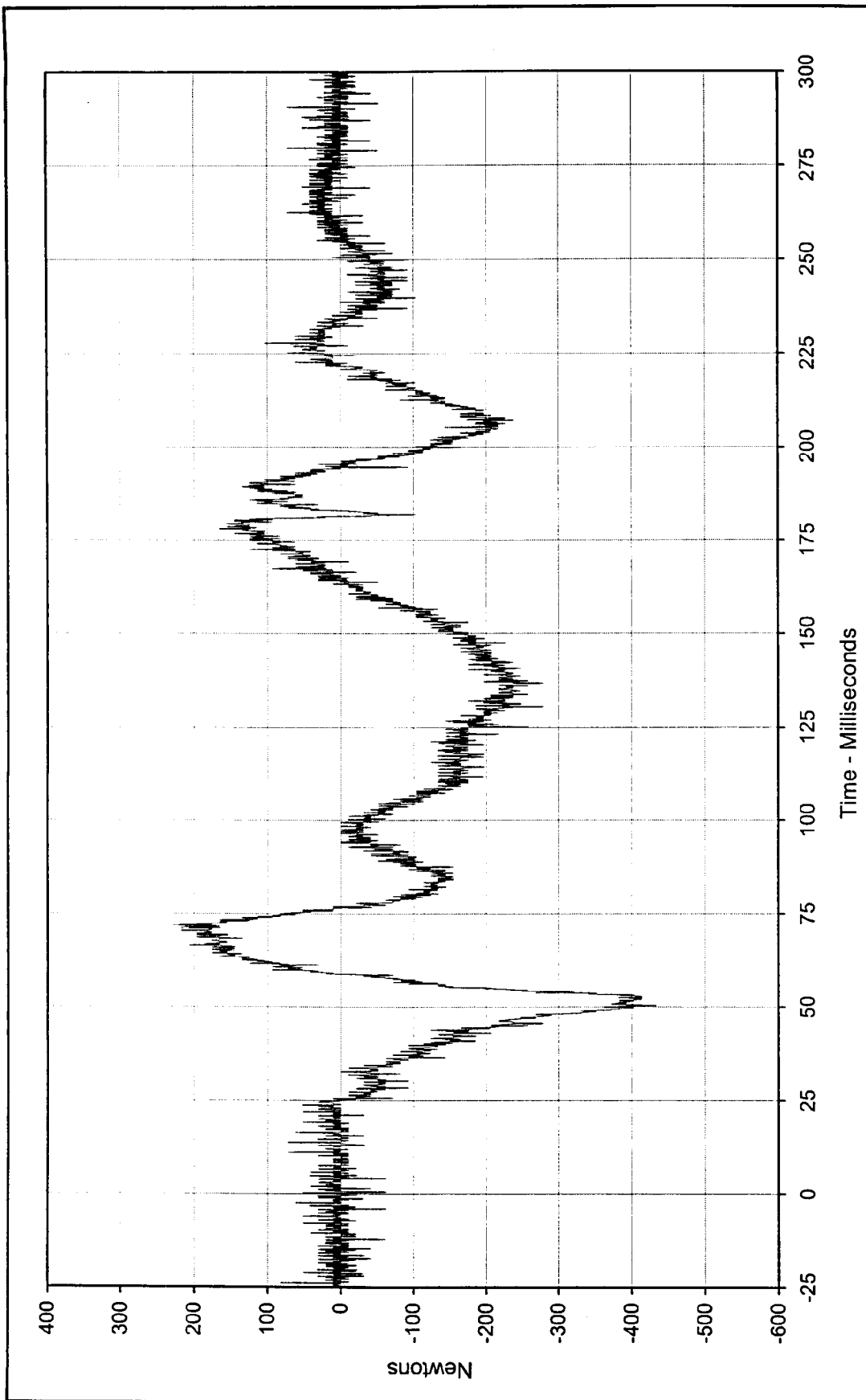
Date of Test: 11/17/99

Curve Number: RES-004

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

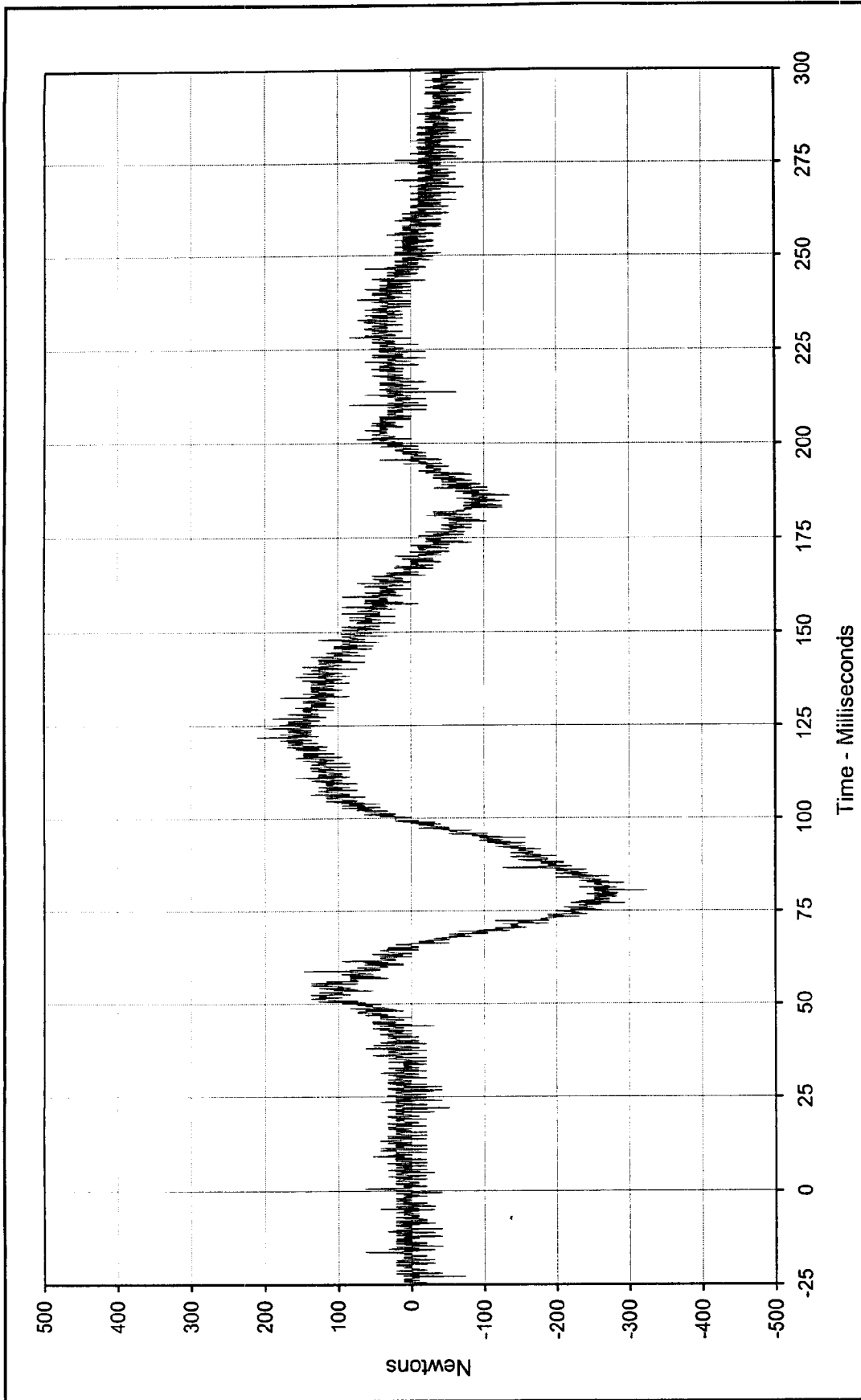
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





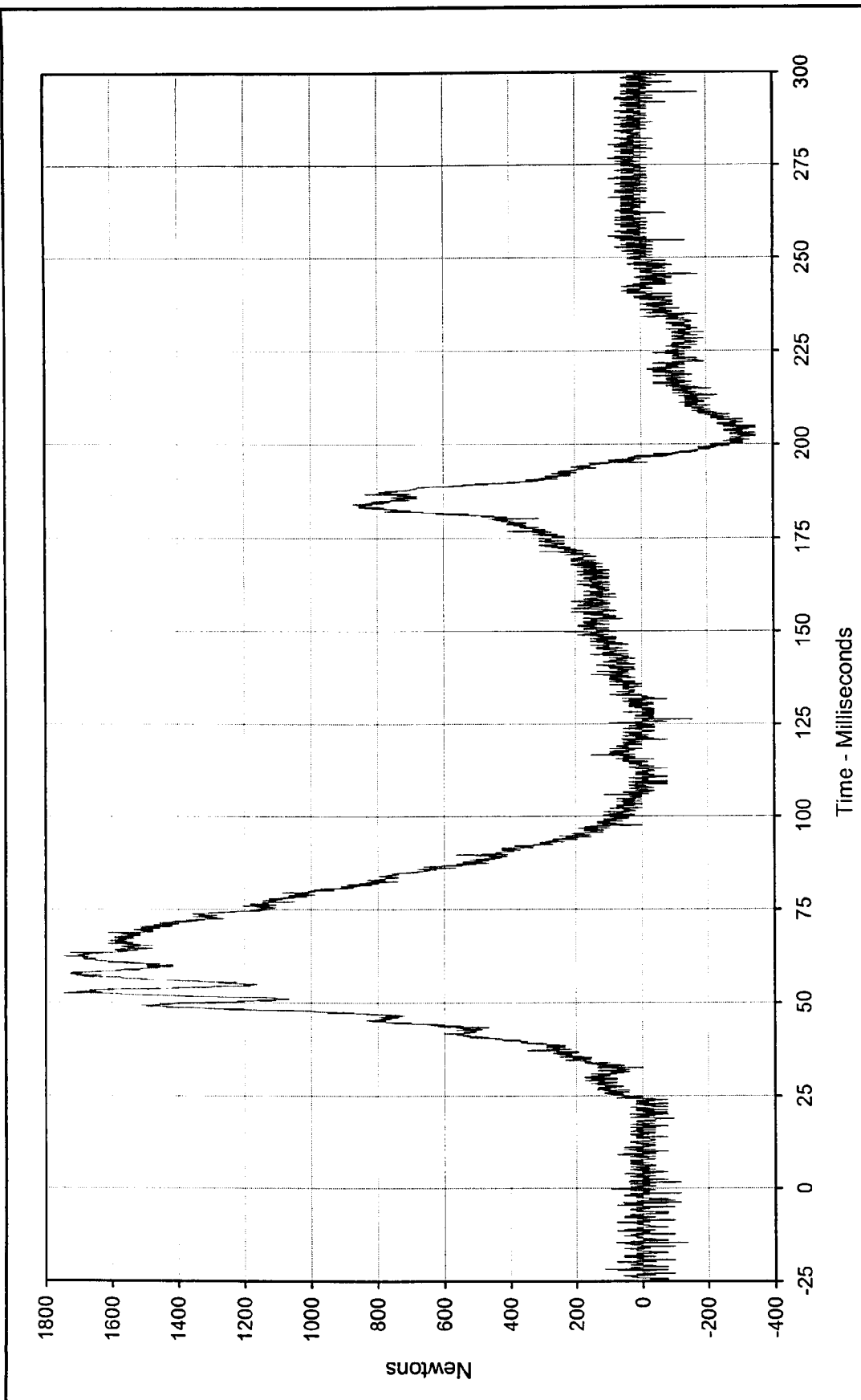
Curve Description:	Driver Neck Force X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	227.3 at 71.9 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-434.0 at 50.3 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-007			





Curve Description:	Driver Neck Force Y	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	210.0 at 121.6 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-325.5 at 80.3 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-008			





Curve Description: Driver Neck Force Z

Maximum Value: 1746.8 at 52.5 Milliseconds

Minimum Value: -349.4 at 202.2 Milliseconds

SAE Filter Class: 1000

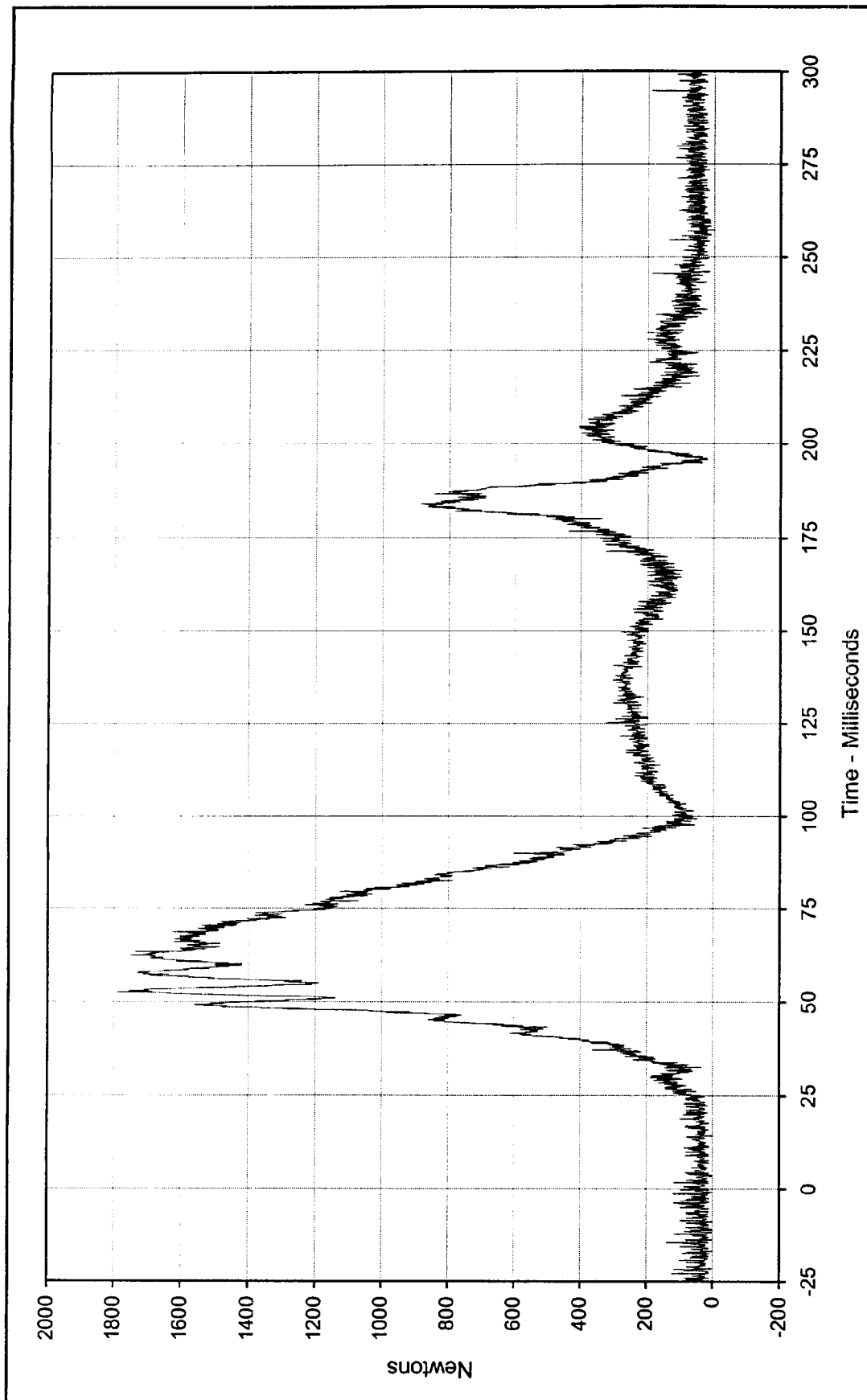
Date of Test: 11/17/99

Curve Number: FIL-009

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

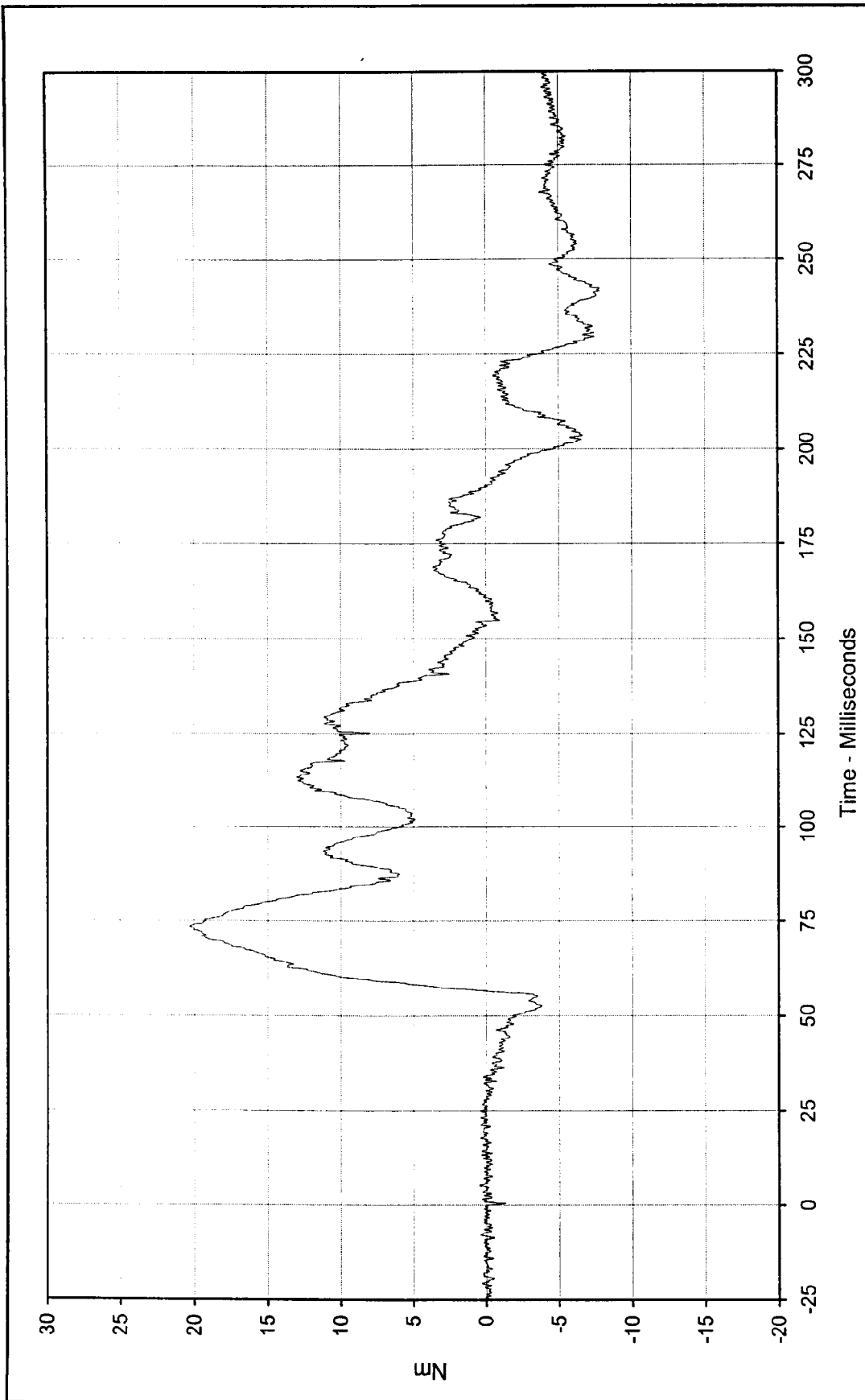




Curve Description: Driver Neck Force Resultant
 Maximum Value: 1790.1 at 52.5 Milliseconds
 Minimum Value: 0.0 at 3.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: RES-007

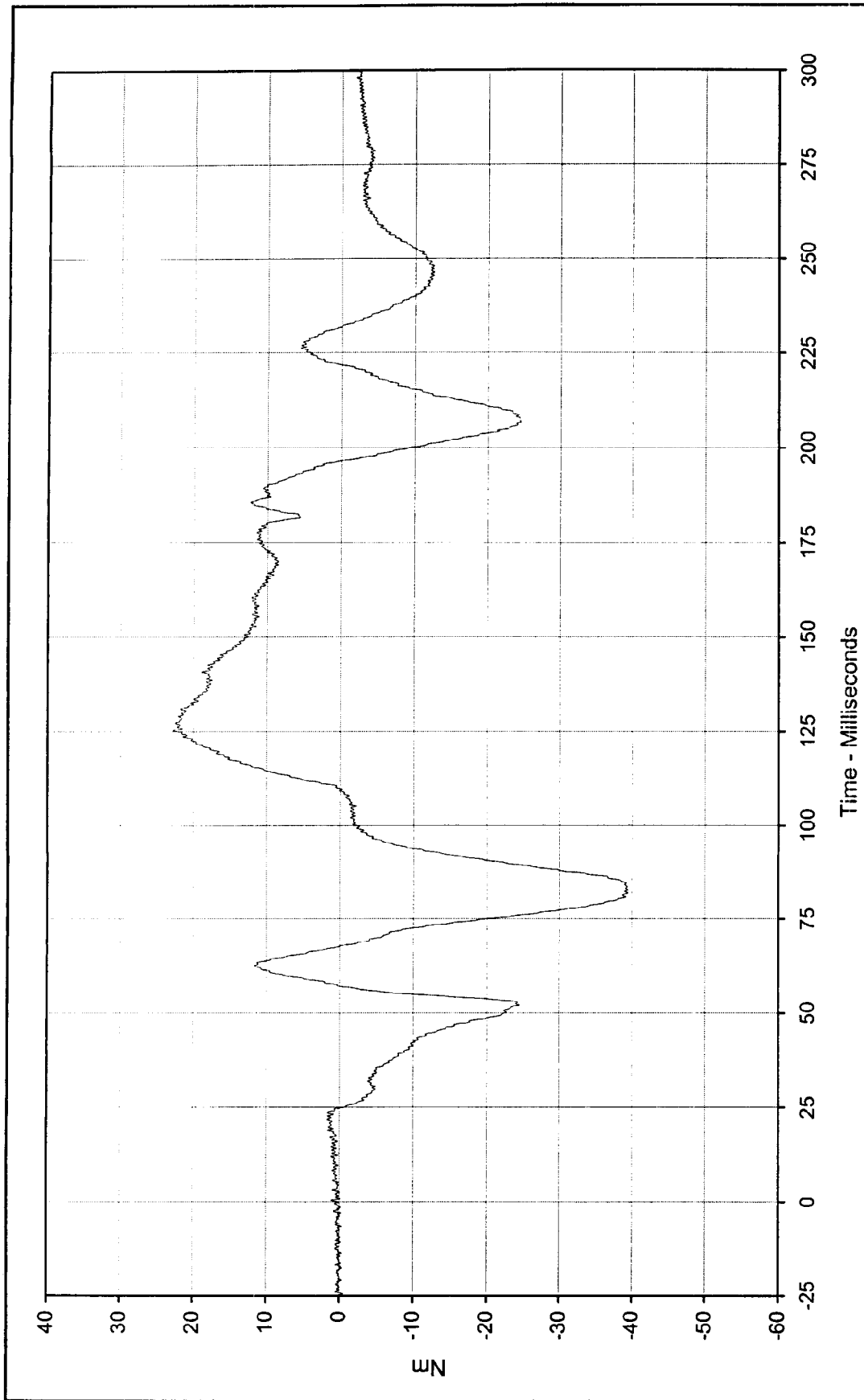
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:		Driver Neck Moment X		Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	20.3	at	73.5	Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup
Minimum Value:	-7.9	at	242.3	Milliseconds		
SAE Filler Class:	600					
Date of Test:	11/17/99					
Curve Number:	FIL-010					





Curve Description: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Program: 2000 Toyota Tundra SR5 Pickup

Maximum Value: 22.7 at 125.3 Milliseconds

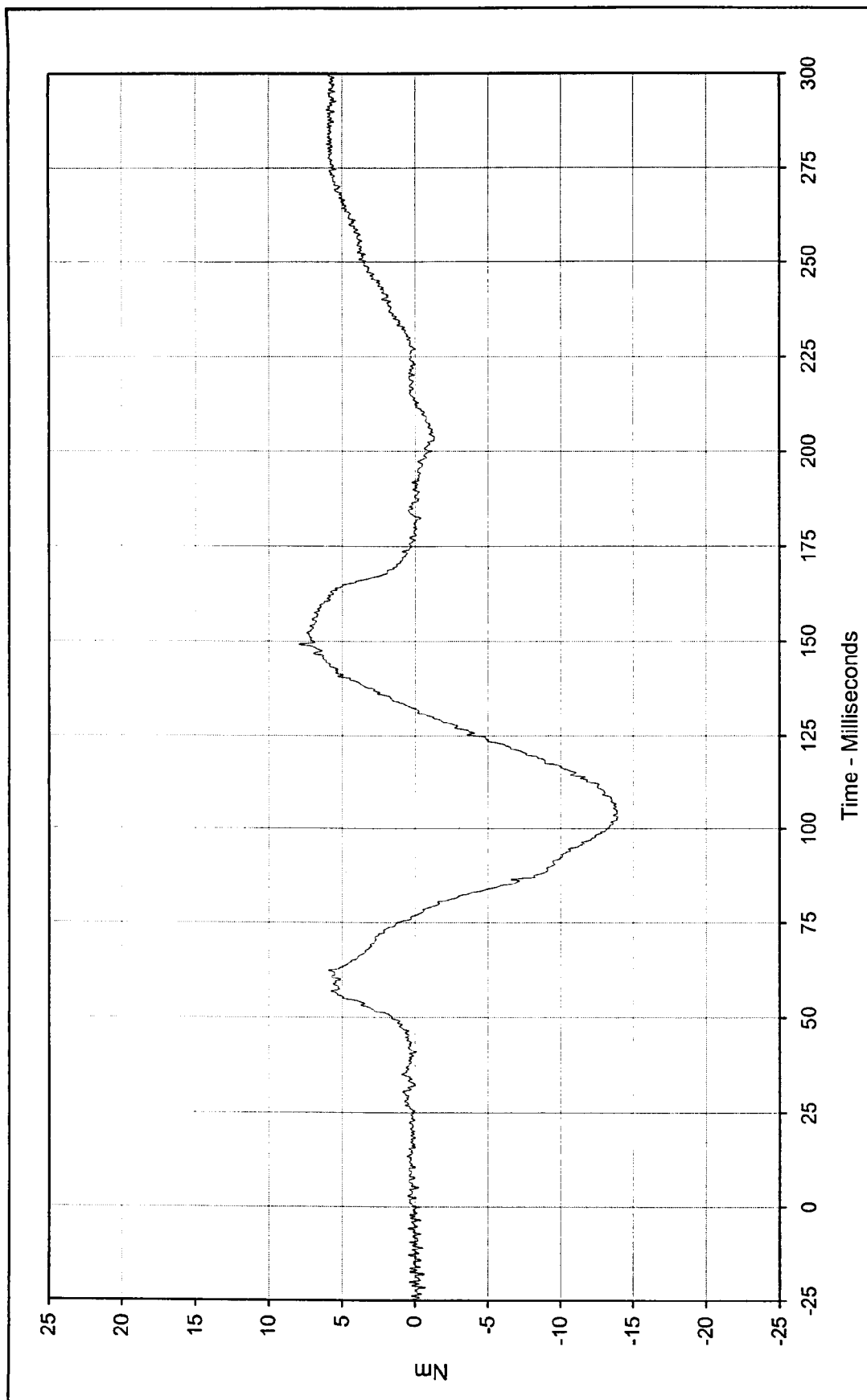
Minimum Value: -39.5 at 81.8 Milliseconds

SAE Filter Class: 600

Date of Test: 11/17/99

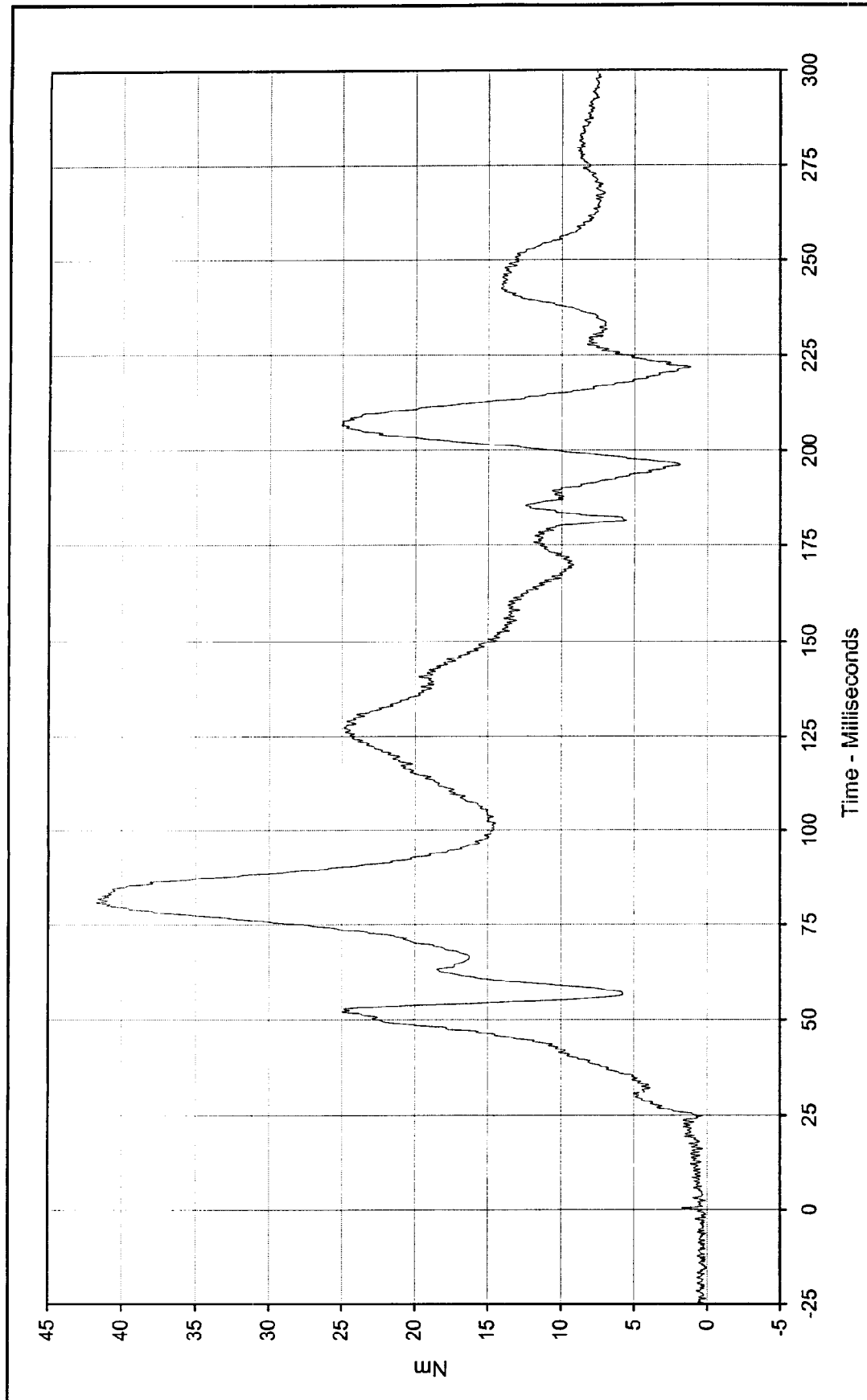
Curve Number: FIL-011





Curve Description:	Driver Neck Moment Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	7.9 at 149.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-13.9 at 103.0 Milliseconds			
SAE Filter Class:	600			
Date of Test:	11/17/99			
Curve Number:	FIL-012			



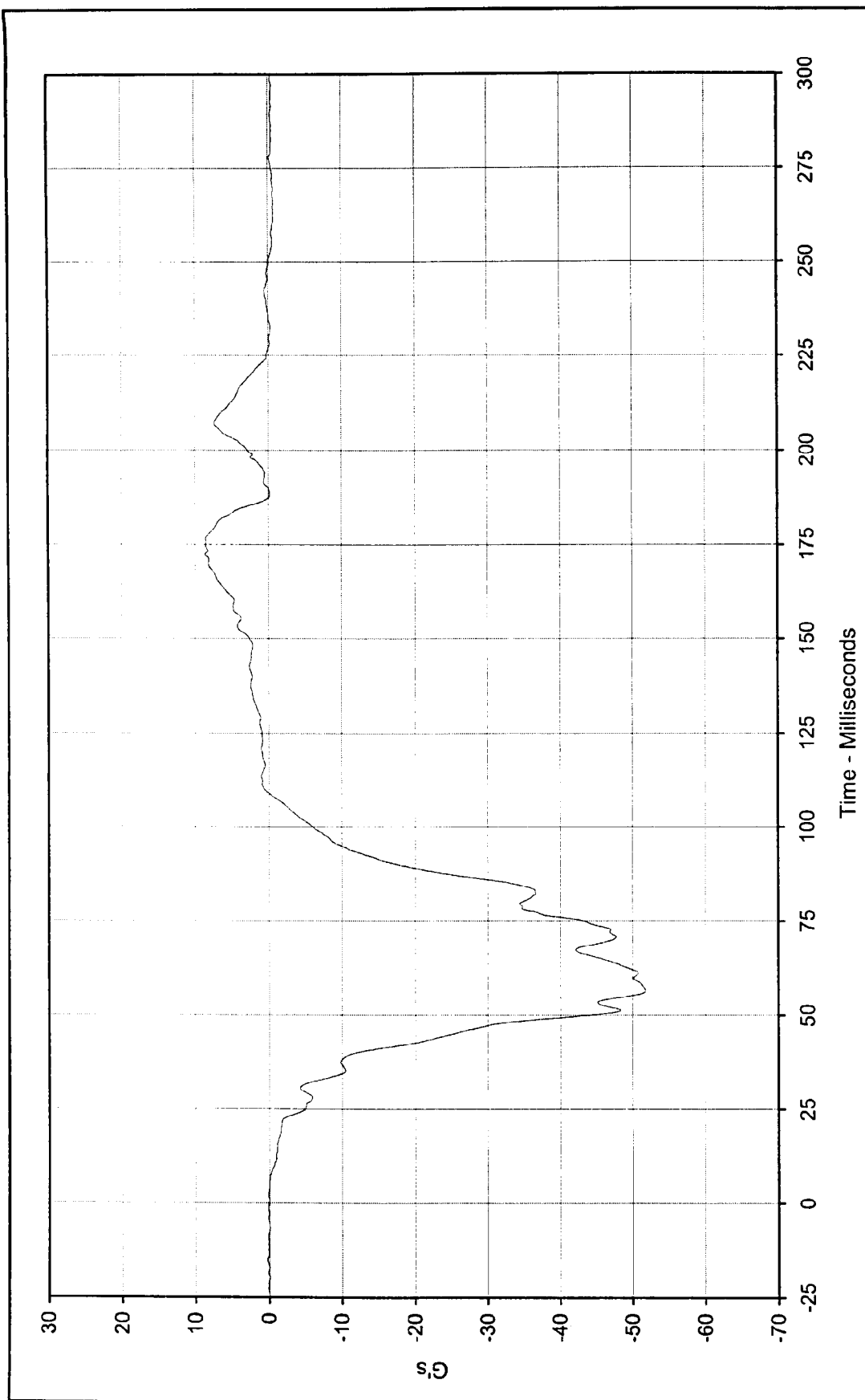


Curve Description: Driver Neck Moment Resultant
 Maximum Value: 41.7 at 80.8 Milliseconds
 Minimum Value: 0.1 at 2.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 11/17/99
 Curve Number: RES-010

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

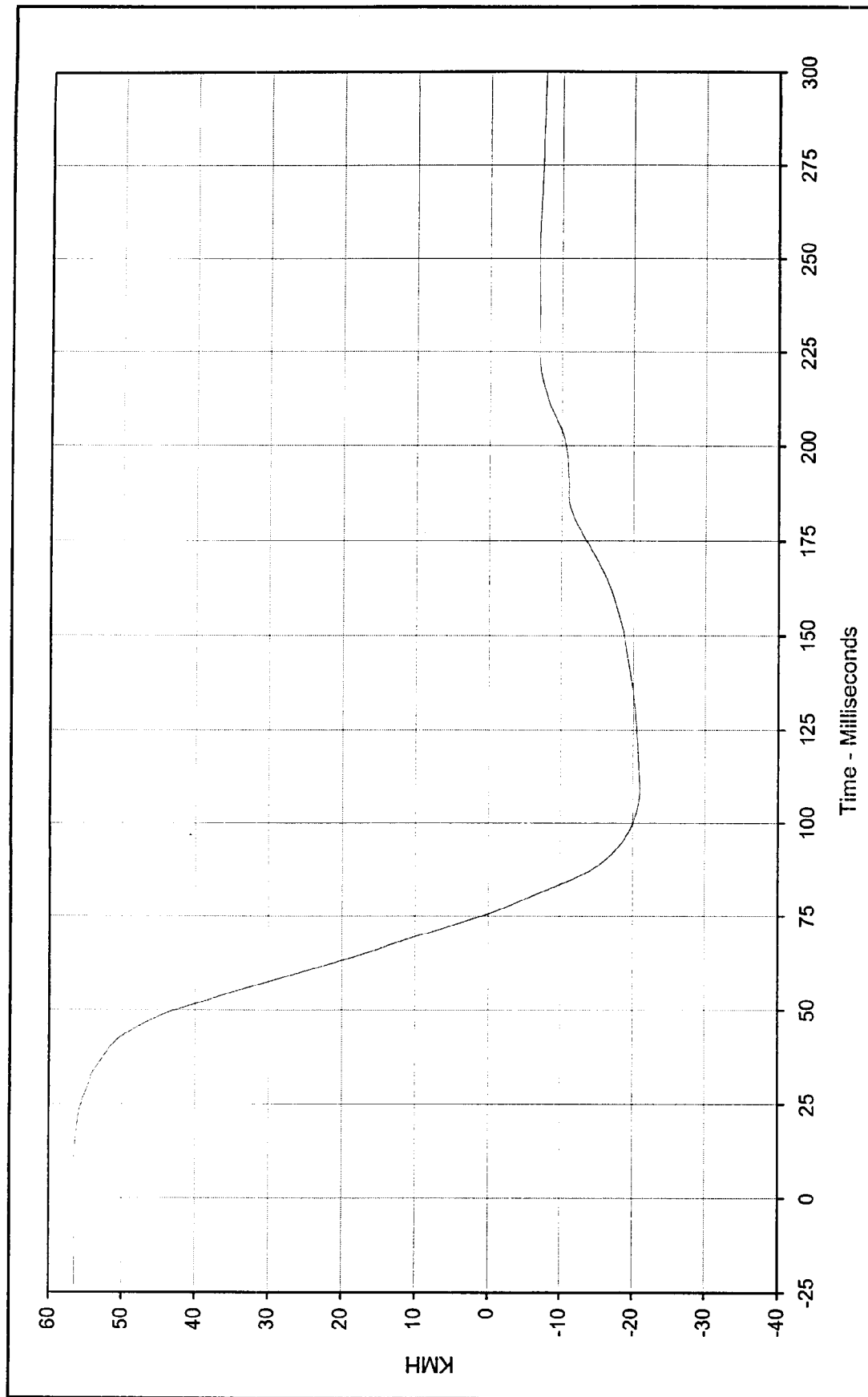
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





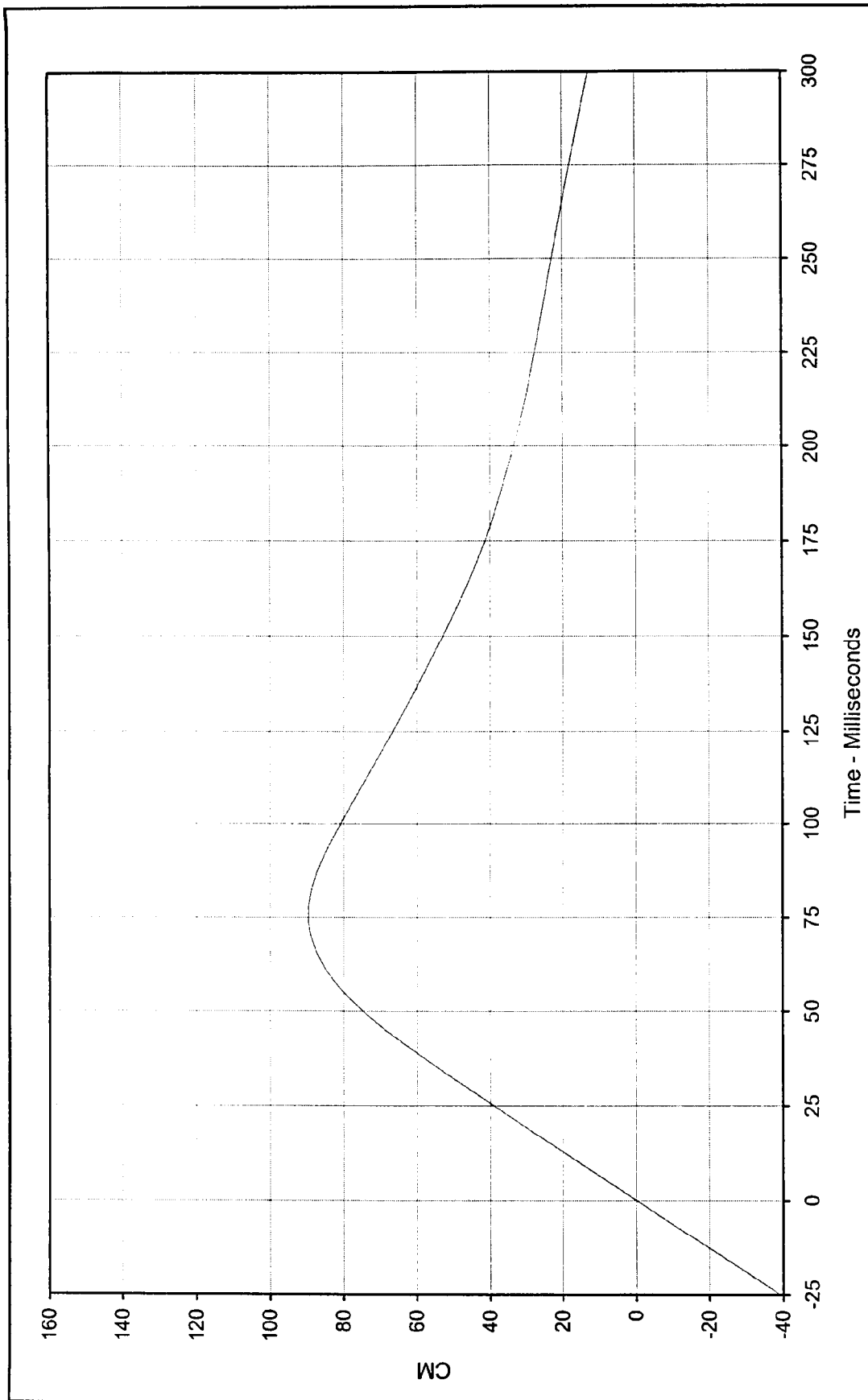
Curve Description:	Driver Chest Primary X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	8.6 at 172.3 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-51.7 at 56.5 Milliseconds			
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	FIL-013			





Curve Description:	Driver Chest Primary X Velocity	Testing Program	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	56.5 at 5.4 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-21.0 at 108.9 Milliseconds			
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	IN1-013			

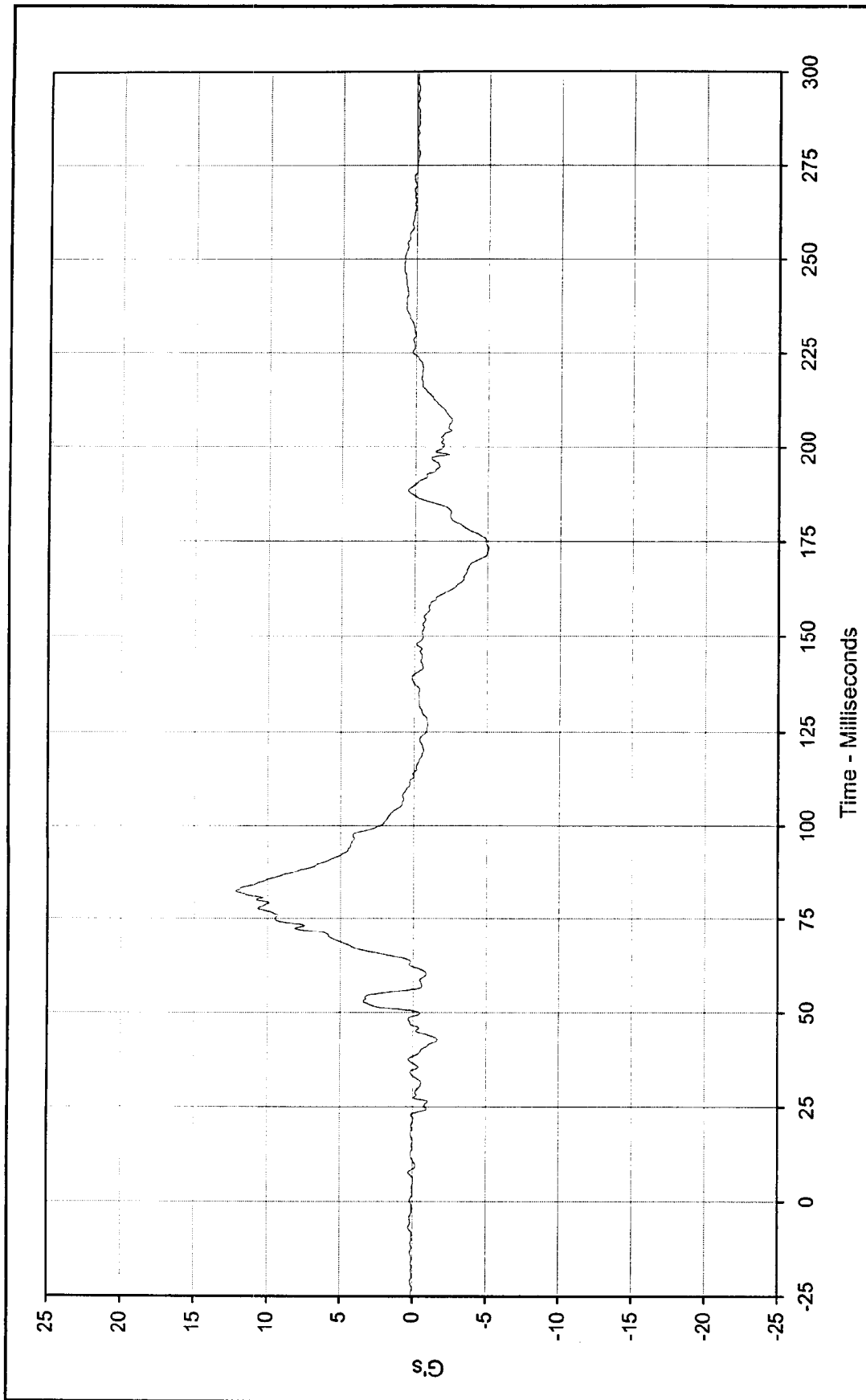




Curve Description: Driver Chest Primary X Displ.
 Maximum Value: 89.6 at 75.5 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN2-013

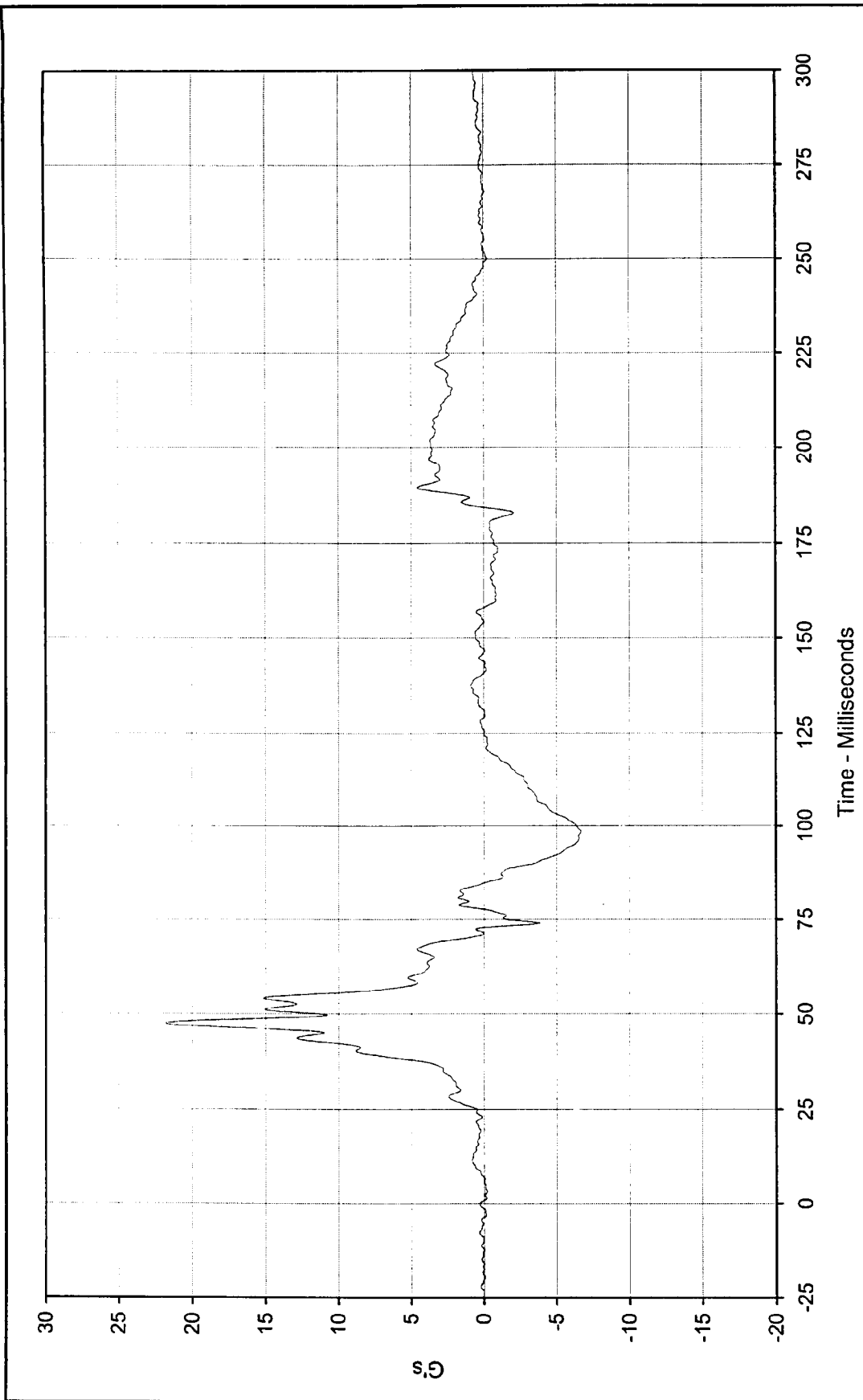
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





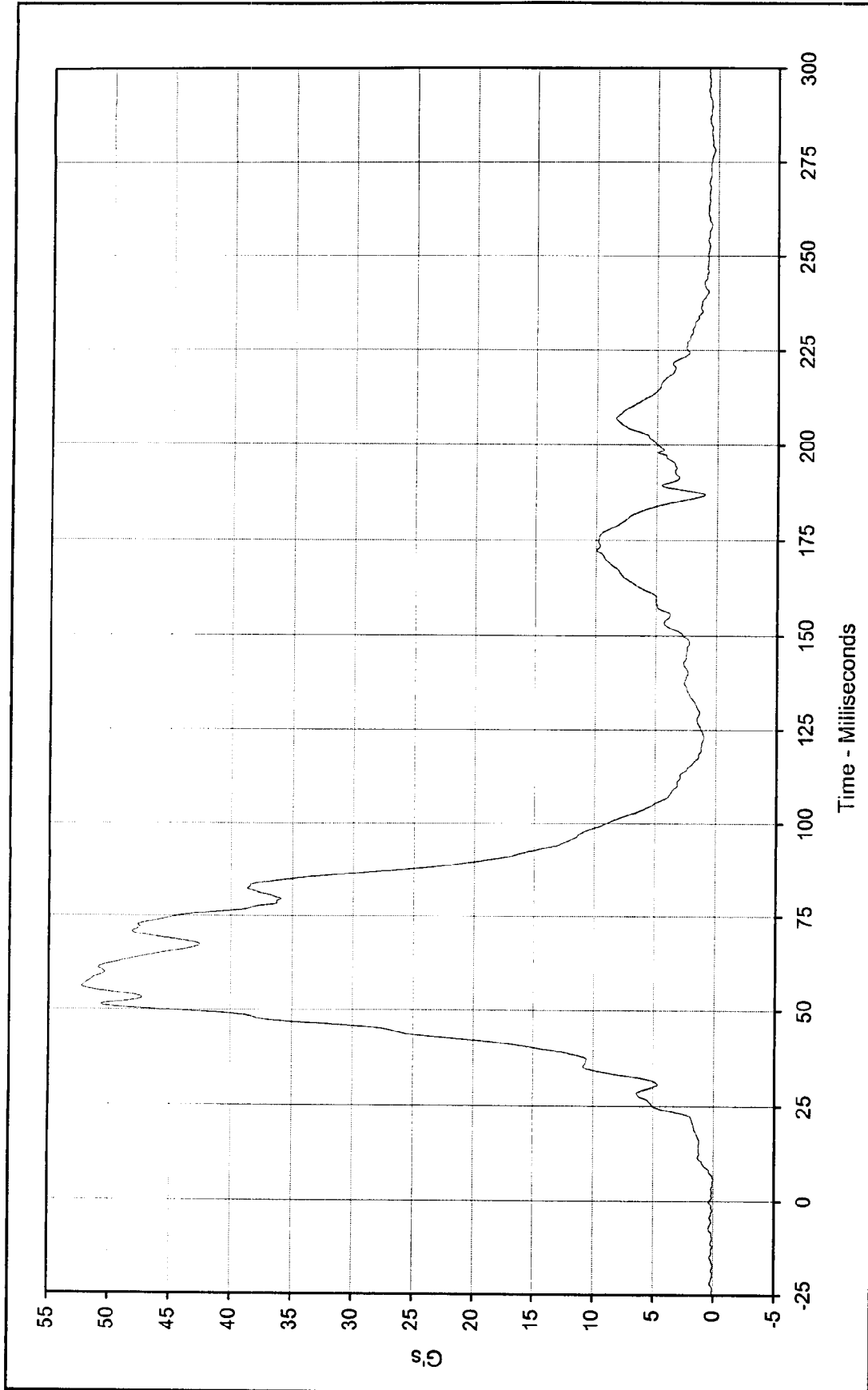
Curve Description:	Driver Chest Primary Y		Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	12.2	at 82.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-5.1	at 173.2 Milliseconds			
SAE Filter Class:	180				
Date of Test:	11/17/99				
Curve Number:	FIL-014				





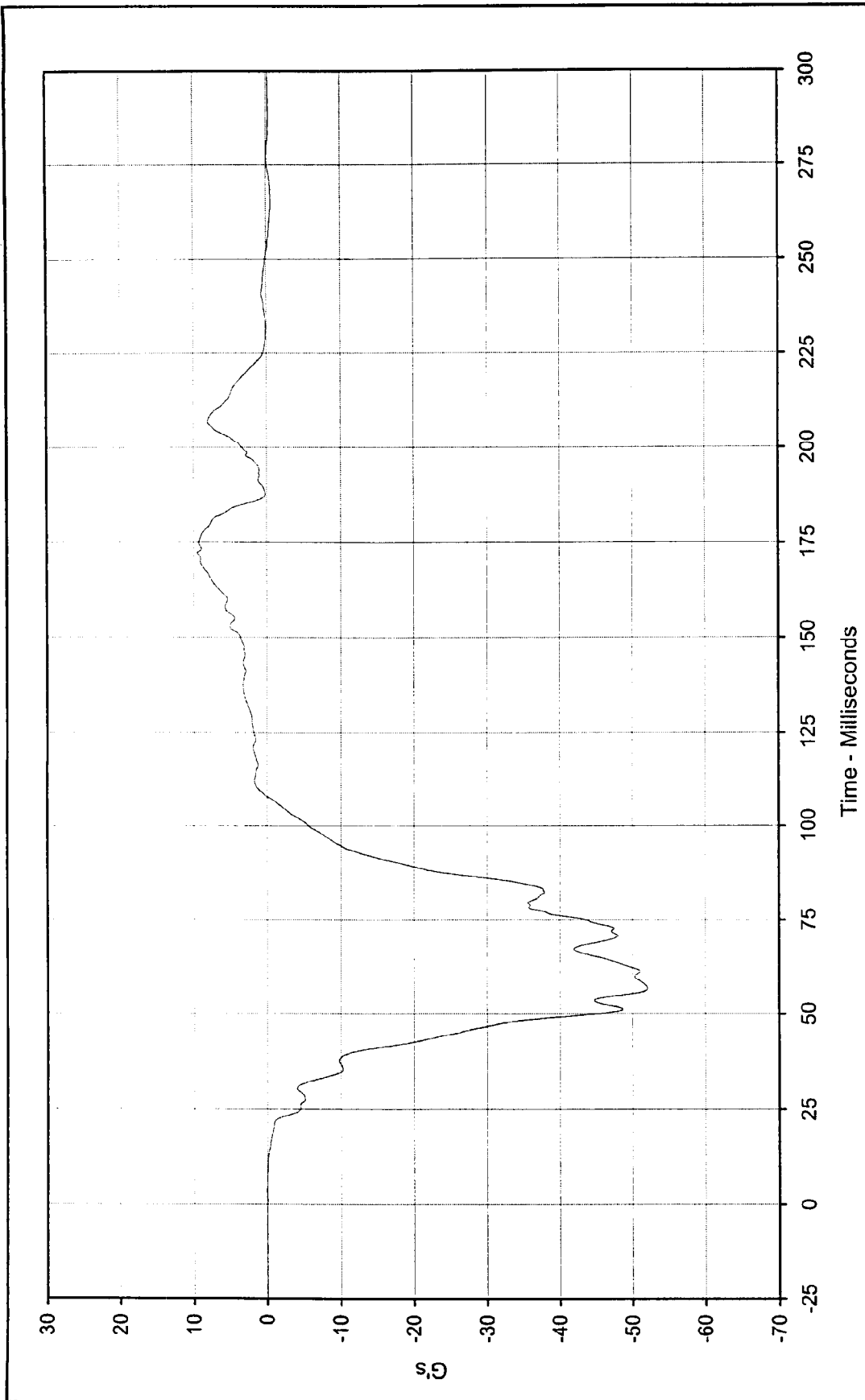
Curve Description:	Driver Chest Primary Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	21.8 at 47.5 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-6.7 at 98.4 Milliseconds			
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	FIL-015			





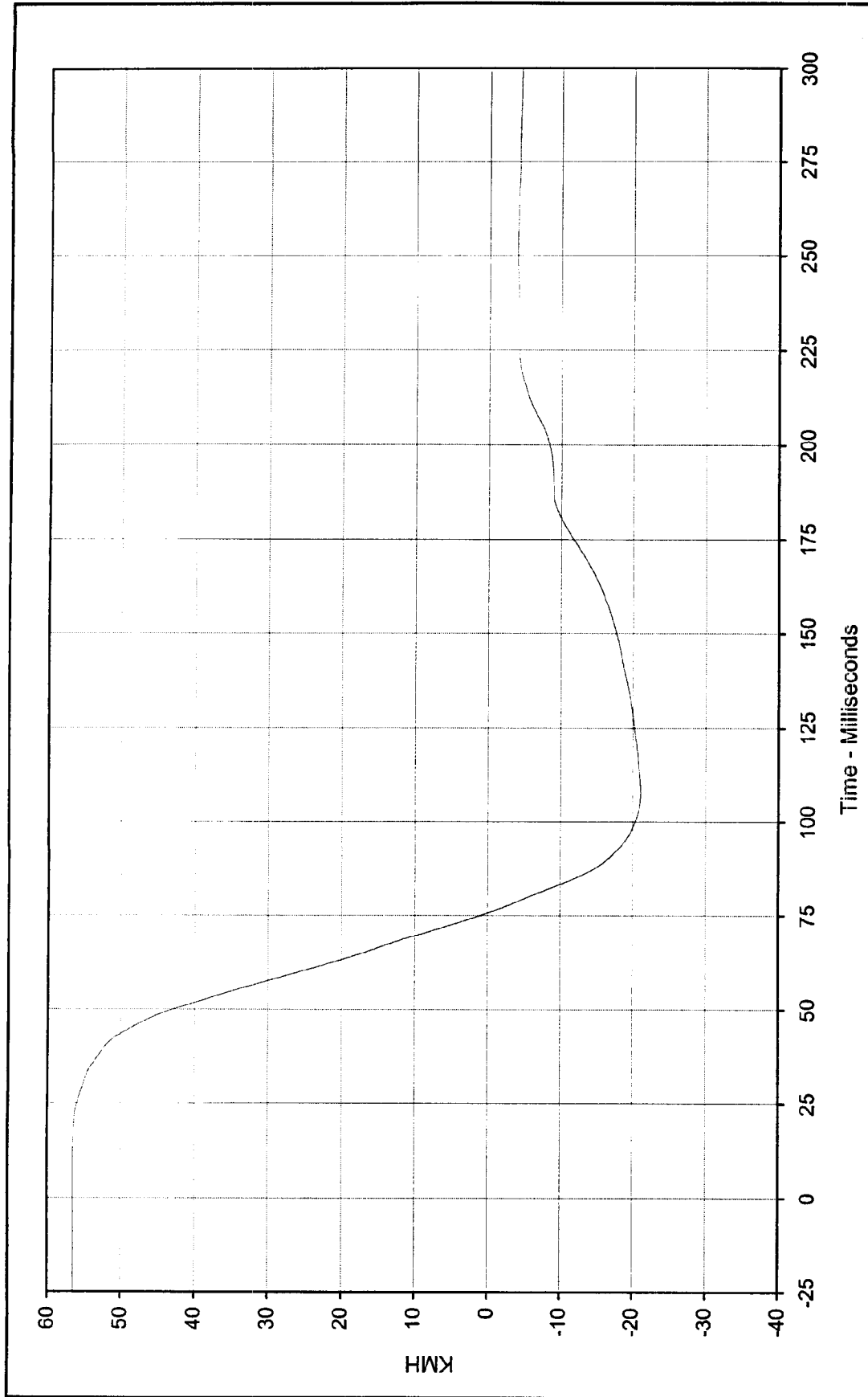
Curve Description:	Driver Chest Resultant Primary	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	52.3 at 56.0 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	0.0 at 5.6 Milliseconds			
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	RES-013			





Curve Description:	Driver Chest Redundant X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	9.5 at 172.1 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-52.0 at 56.6 Milliseconds			
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	FIL-016			

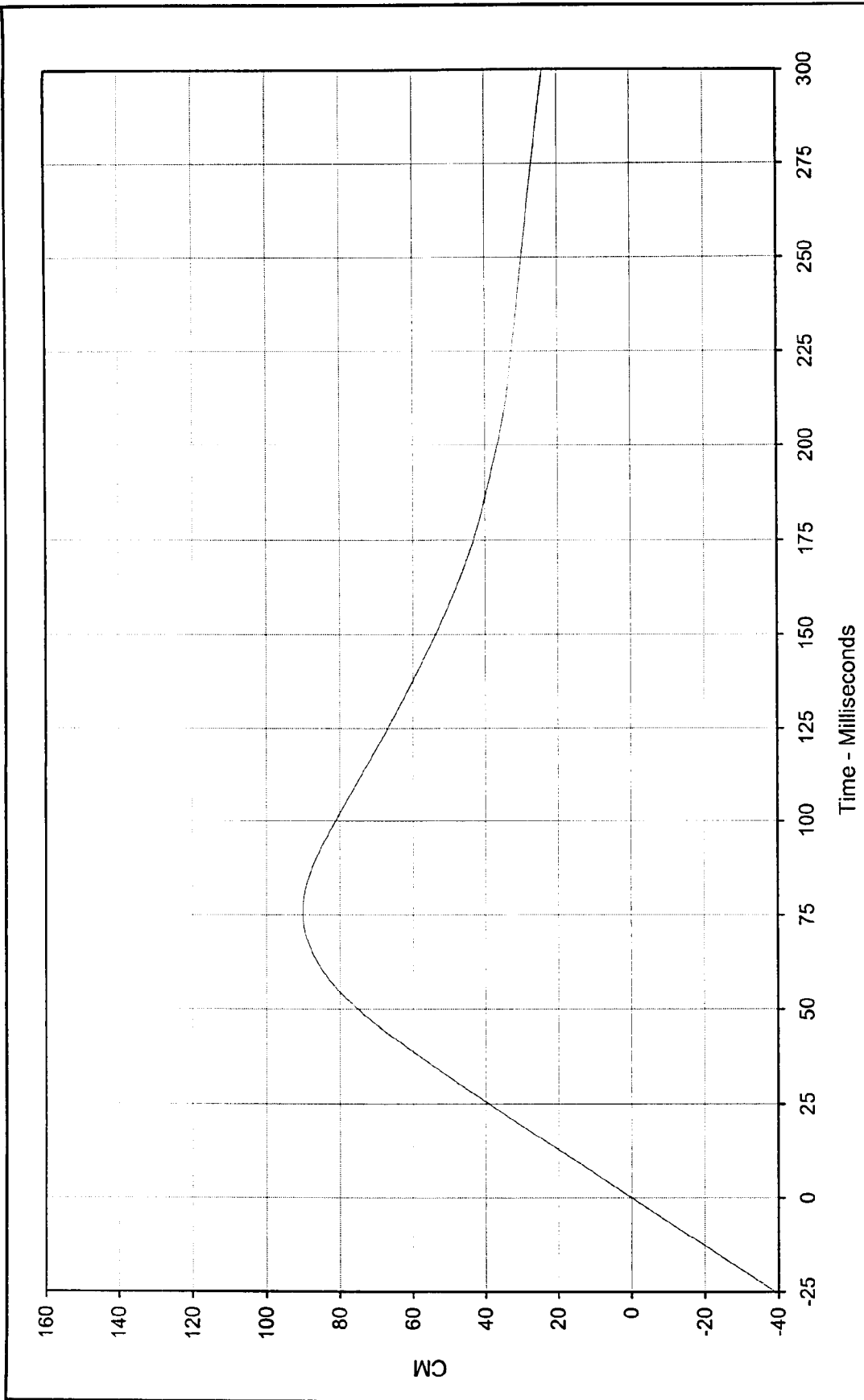




Curve Description: Driver Chest Redundant X Velocity
Maximum Value: 56.5 at 7.7 Milliseconds
Minimum Value: -21.1 at 107.7 Milliseconds
SAE Filter Class: 180
Date of Test: 11/17/99
Curve Number: IN1-016

Testing Program 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Driver Chest Redundant X Displ.

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Maximum Value: 90.1 at 75.6 Milliseconds

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

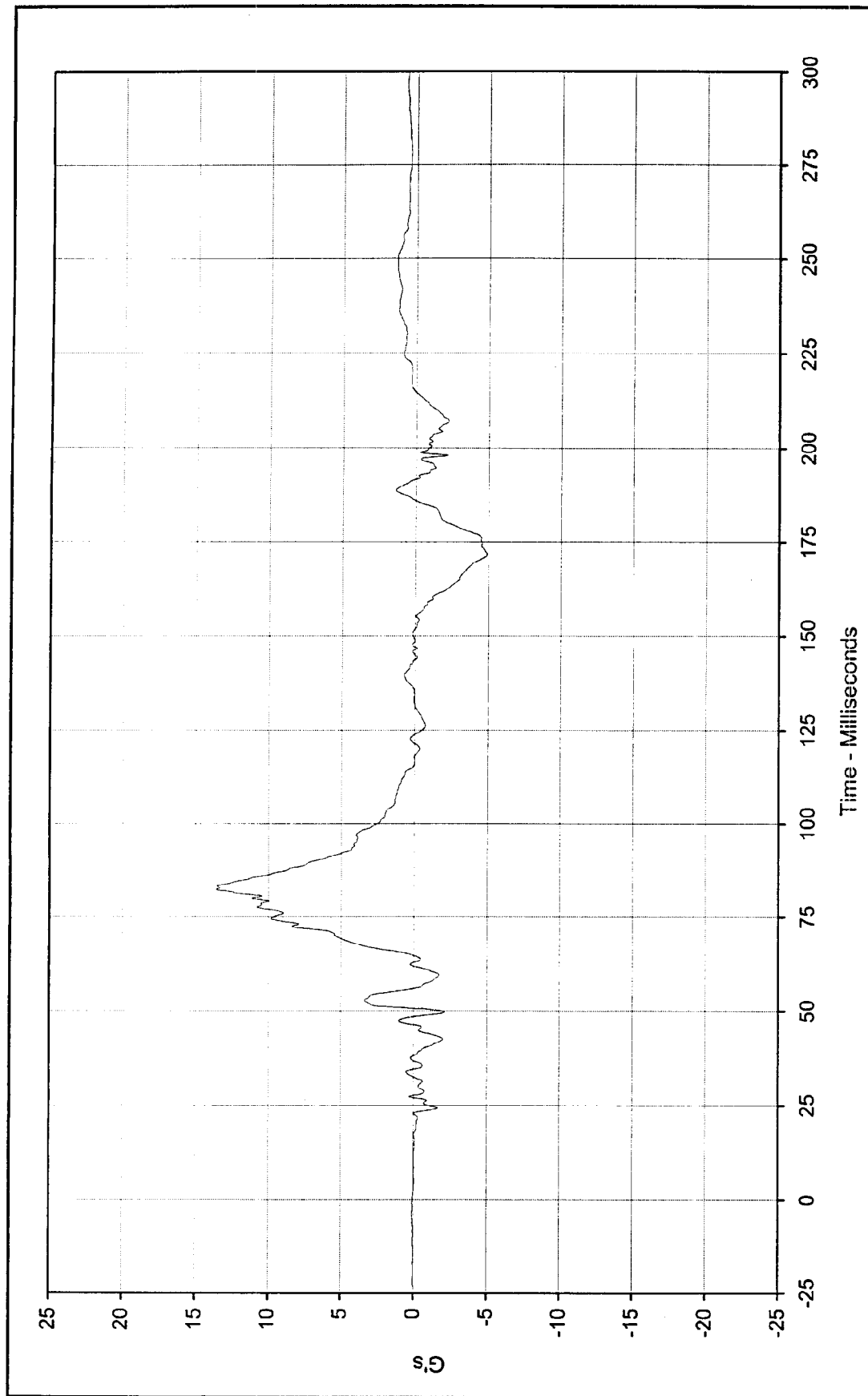
Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

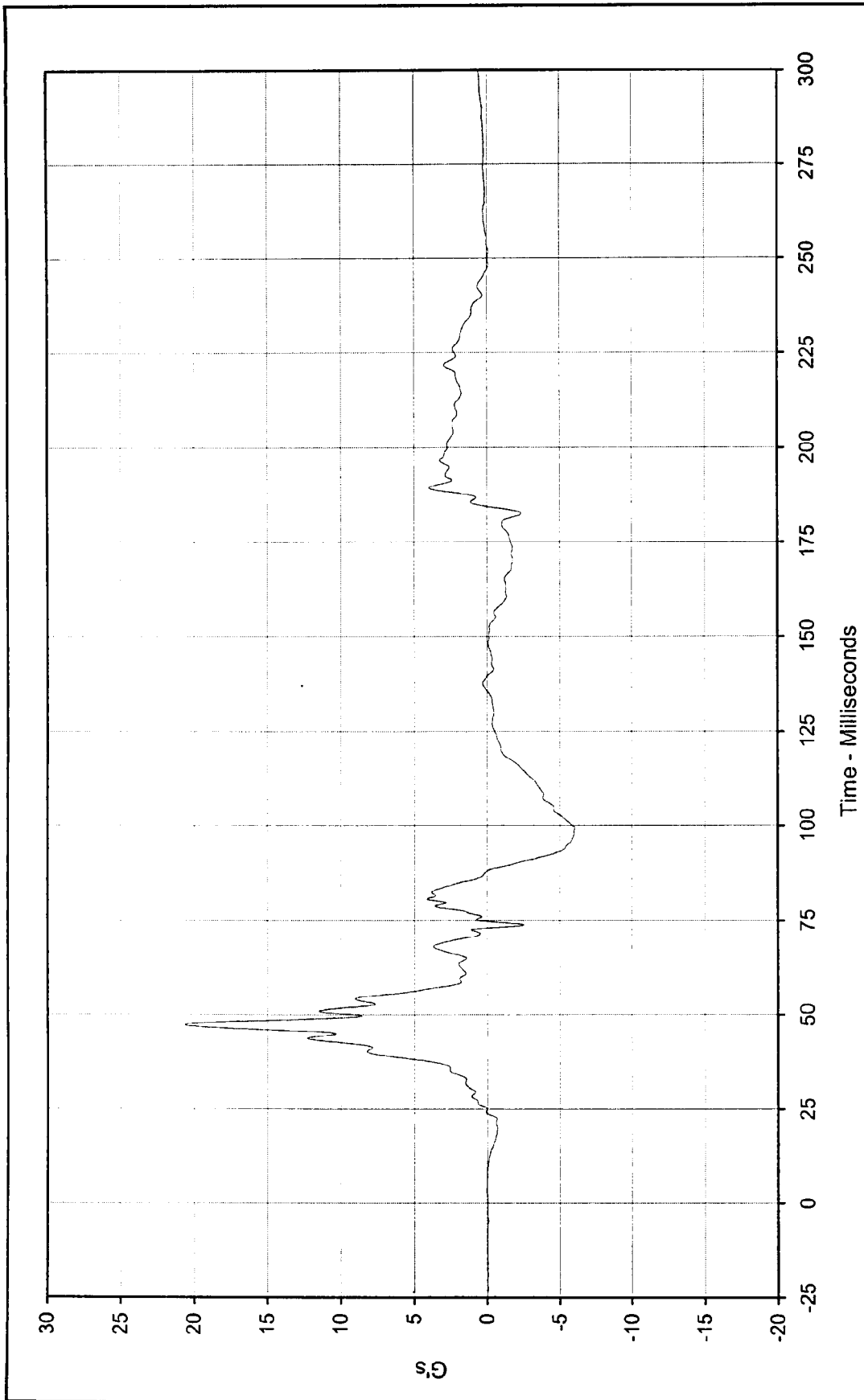
Curve Number: IN2-016





Curve Description:	Driver Chest Redundant Y	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	13.6 at 82.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-4.9 at 171.6 Milliseconds			
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	FIL-017			





Curve Description: Driver Chest Redundant Z

Maximum Value: 20.6 at 47.3 Milliseconds

Minimum Value: -6.1 at 99.3 Milliseconds

SAE Filter Class: 180

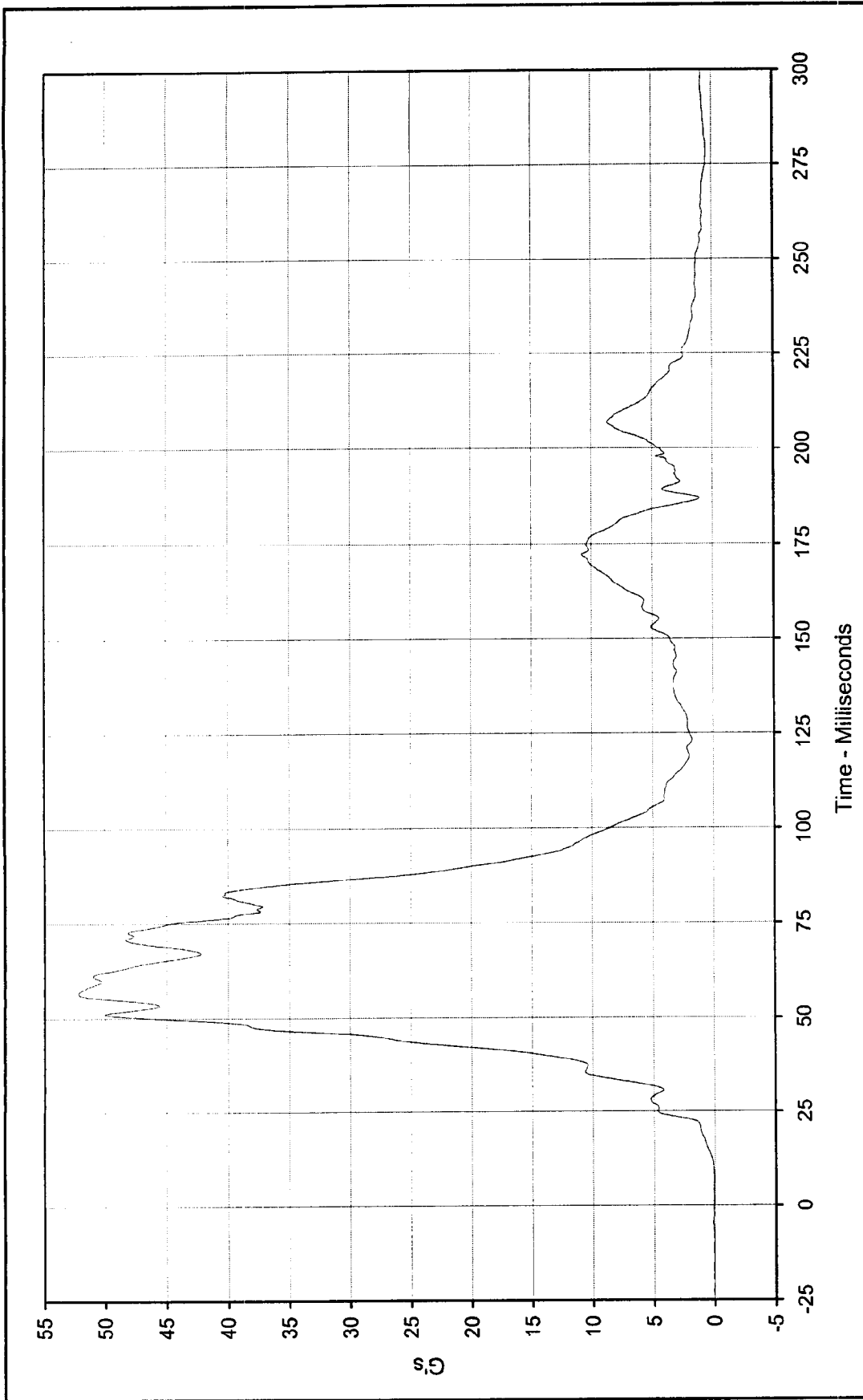
Date of Test: 11/17/99

Curve Number: FIL-018

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

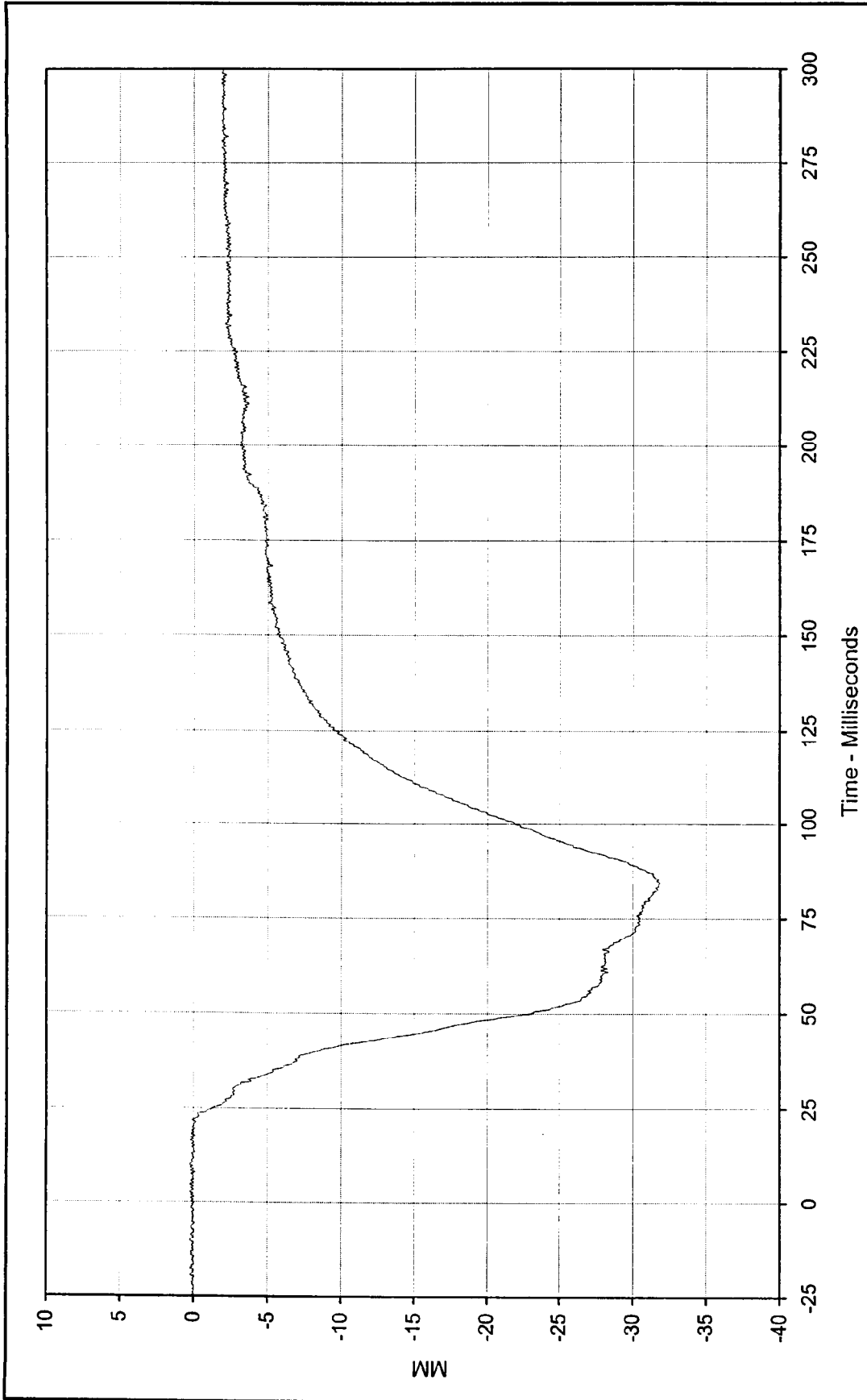
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





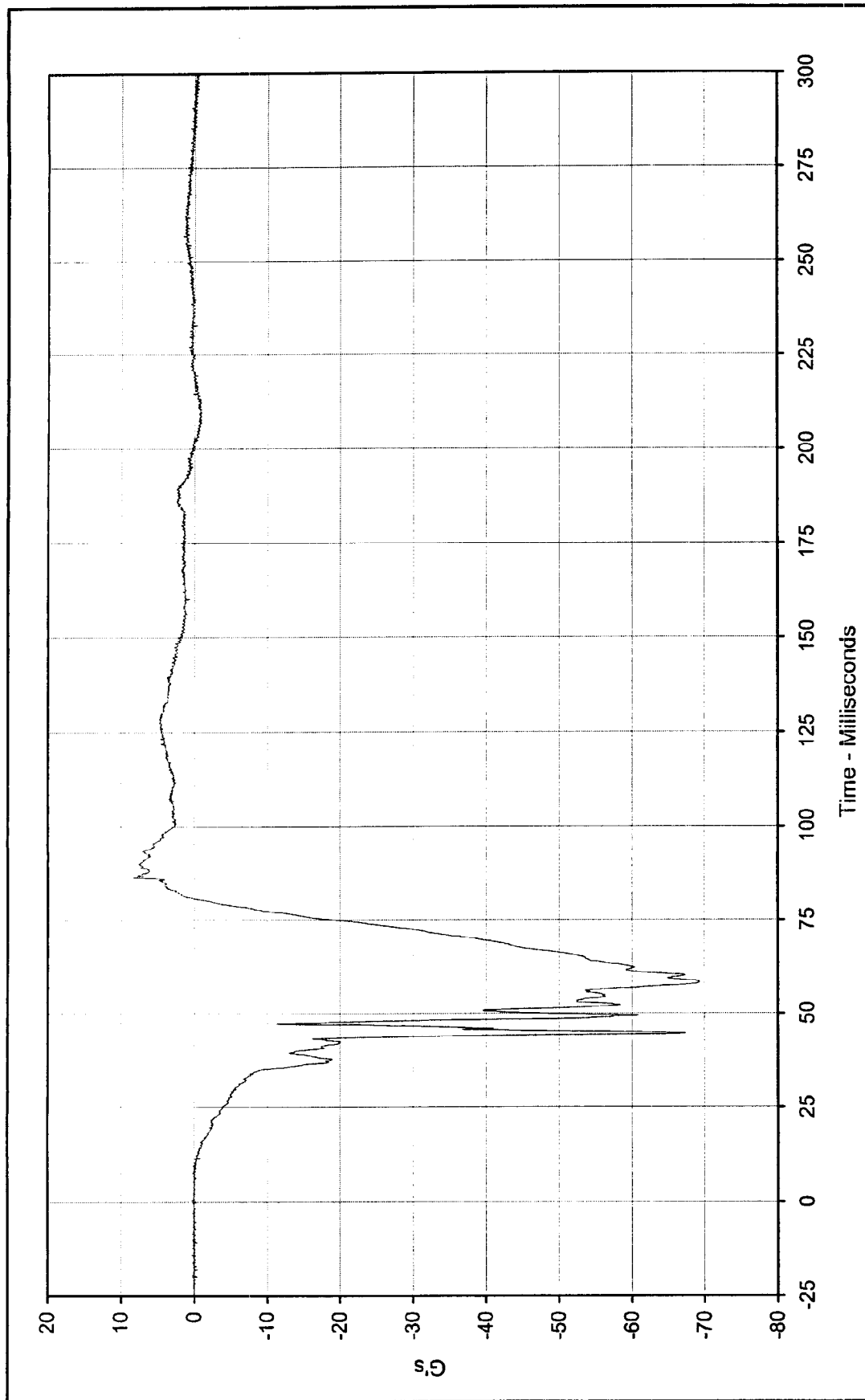
Curve Description:	Driver Chest Resultant Redundant	Test Program:	2000 NHTSA 35 mph NCAP	No.:	MY5103
Maximum Value:	52.2 at 56.5 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup		
Minimum Value:	0.0 at 2.3 Milliseconds				
SAE Filter Class:	180				
Date of Test:	11/17/99				
Curve Number:	RES-016				





Curve Description:	Driver Chest Displacement X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	0.2 at 9.9 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-31.8 at 84.2 Milliseconds			
SAE Filter Class:	600			
Date of Test:	11/17/99			
Curve Number:	FIL-019			

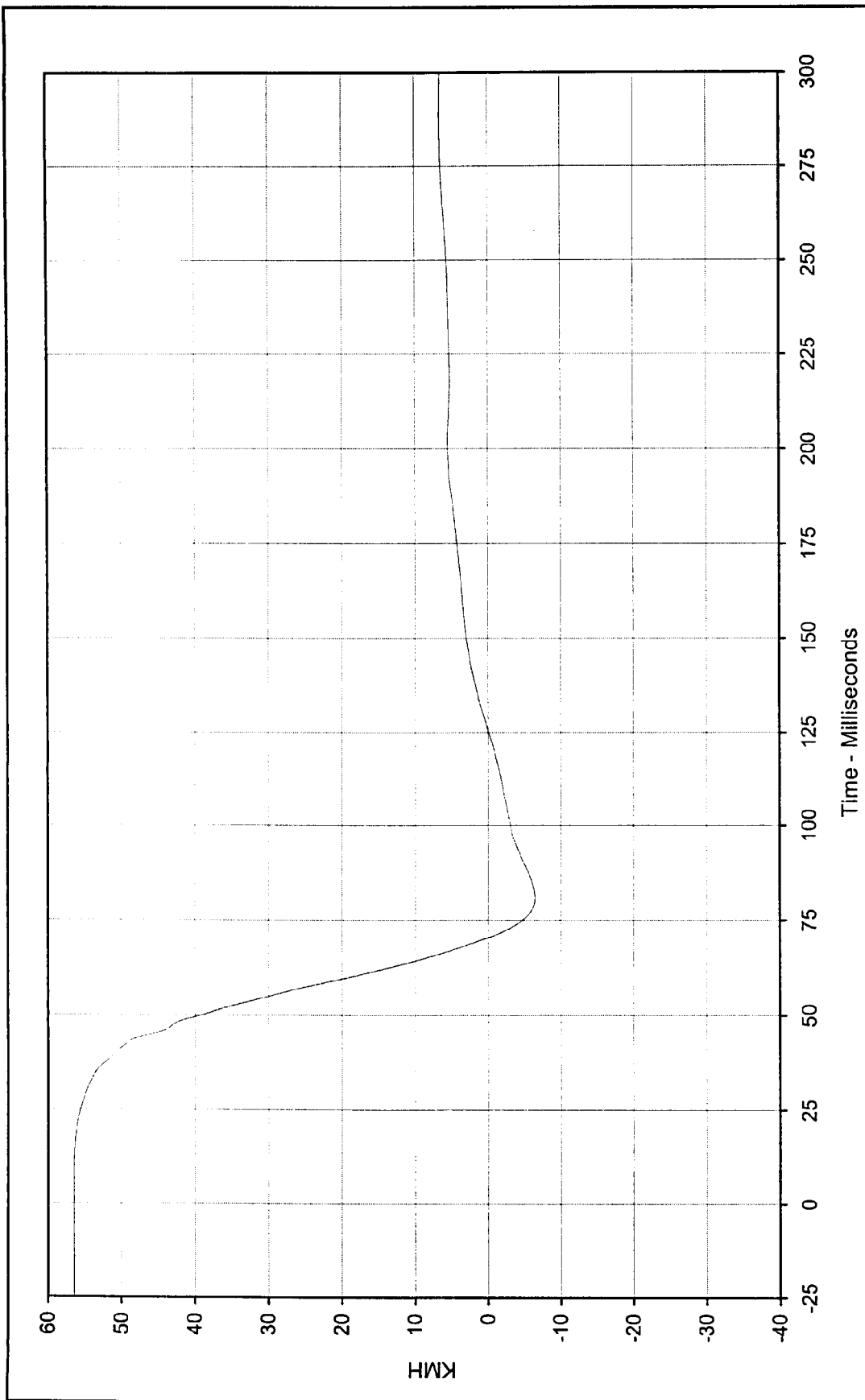




Curve Description: Driver Pelvis X
 Maximum Value: 8.3 at 86.2 Milliseconds
 Minimum Value: -69.3 at 58.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: FIL-020

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Testing Program 2000 NHTSA 35 mph NCAP No.: MY5103

Maximum Value: 56.5 at 4.5 Milliseconds Test Vehicle: 2000 Toyota Tundra SR5 Pickup

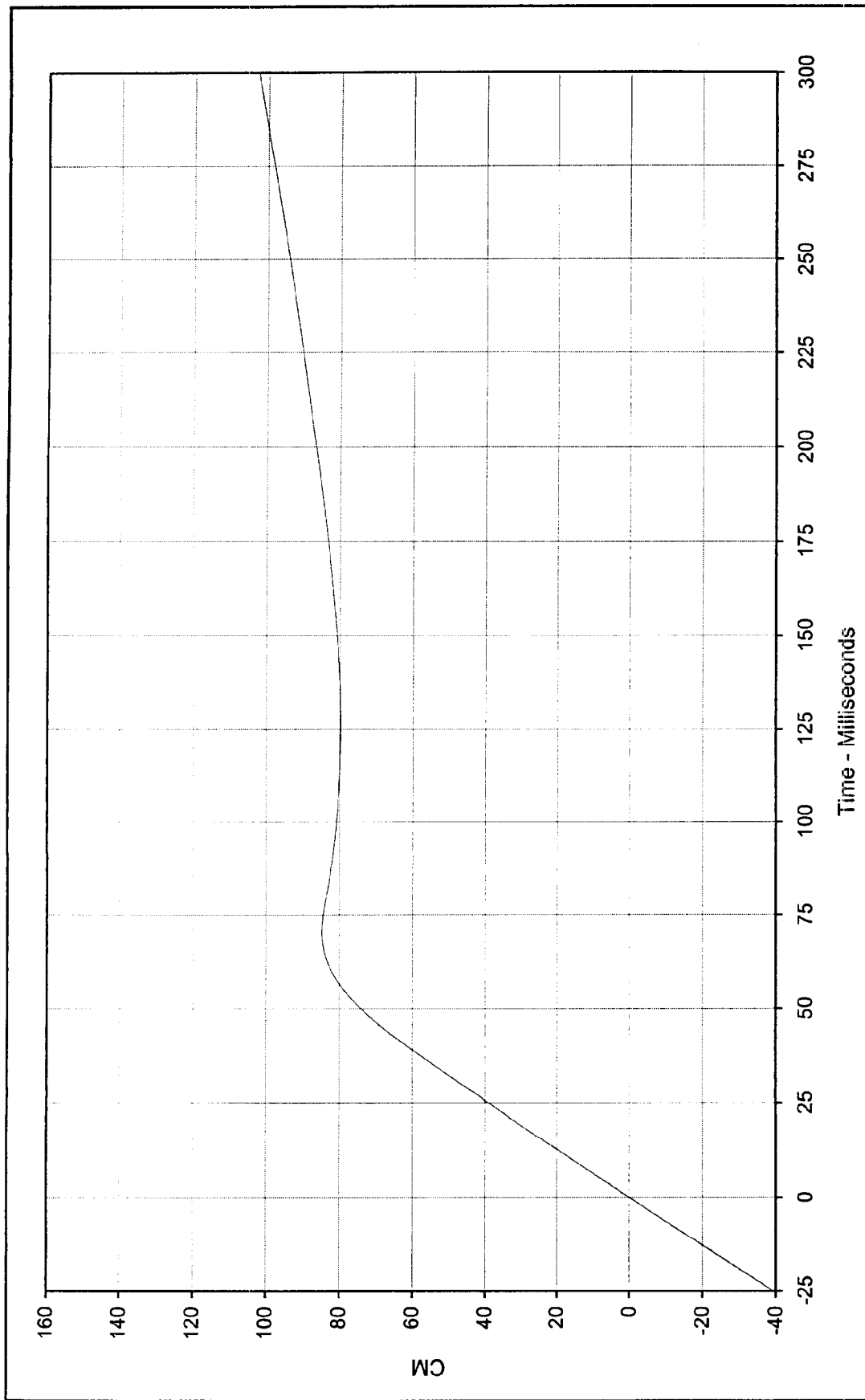
Minimum Value: -6.5 at 80.7 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

Curve Number: IN1-020





Curve Description: Driver Pelvis X Displ.

Maximum Value: 102.6 at 299.9 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

Curve Number: IN2-020

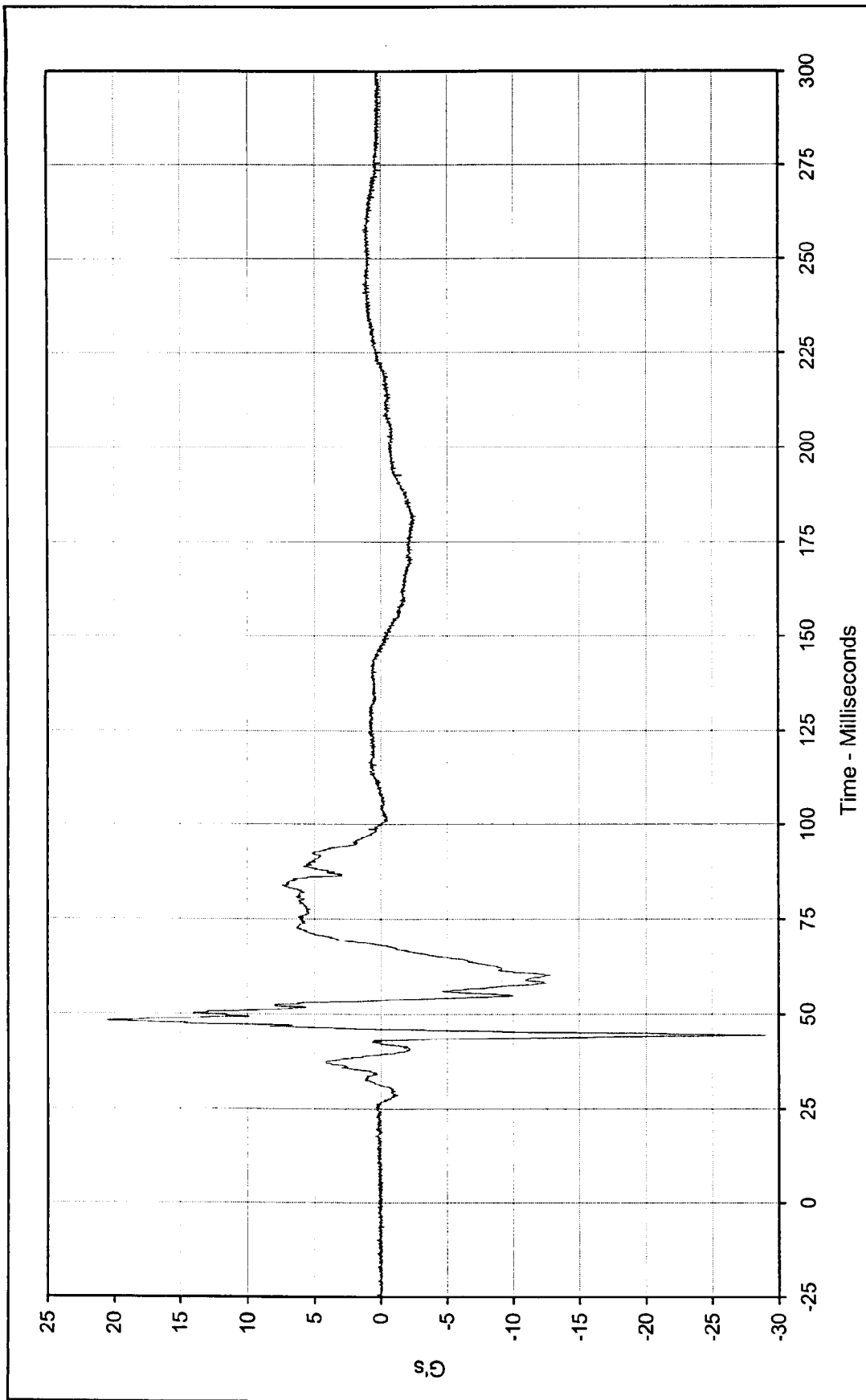
Test Program:

2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle:

2000 Toyota Tundra SR5 Pickup

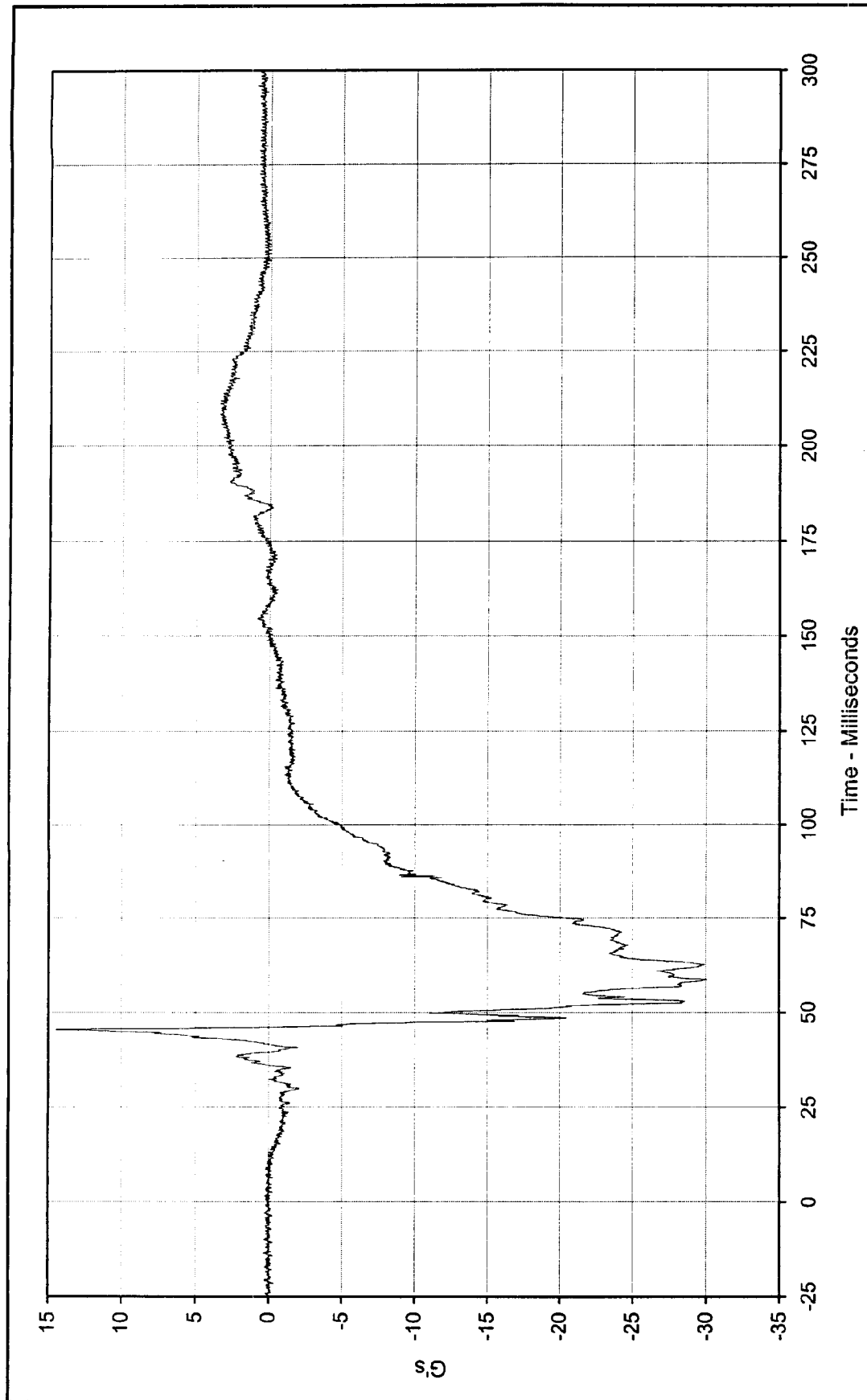




Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup



Curve Description: Driver Pelvis Y
 Maximum Value: 20.5 at 48.1 Milliseconds
 Minimum Value: -29.0 at 44.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: FIL-021



Curve Description:

Driver Pelvis Z

Maximum Value: 14.5 at 45.4 Milliseconds

Minimum Value: -30.1 at 58.6 Milliseconds

SAE Filter Class: 1000

Date of Test: 11/17/99

Curve Number: FIL-022

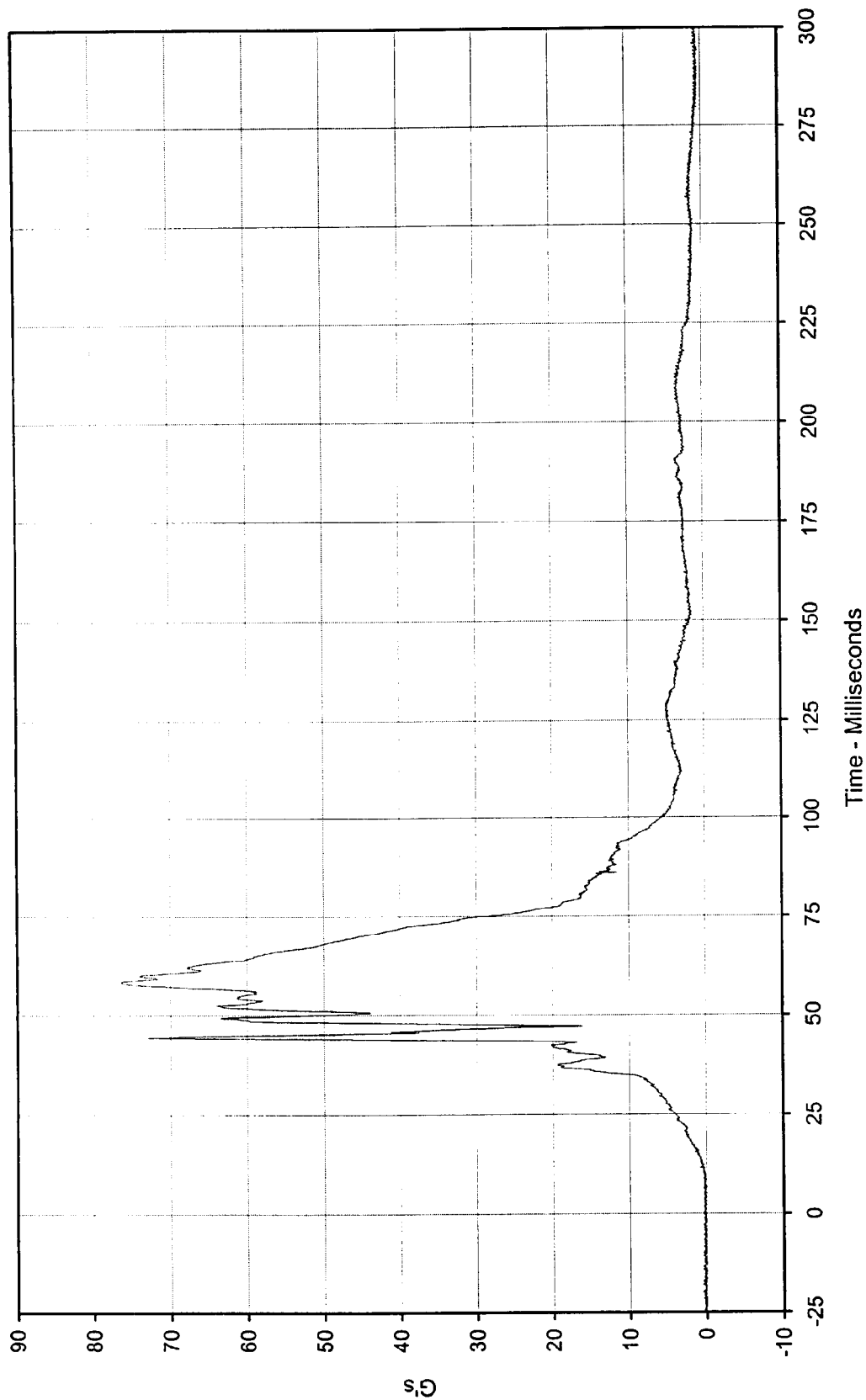
Test Program:

2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle:

2000 Toyota Tundra SR5 Pickup



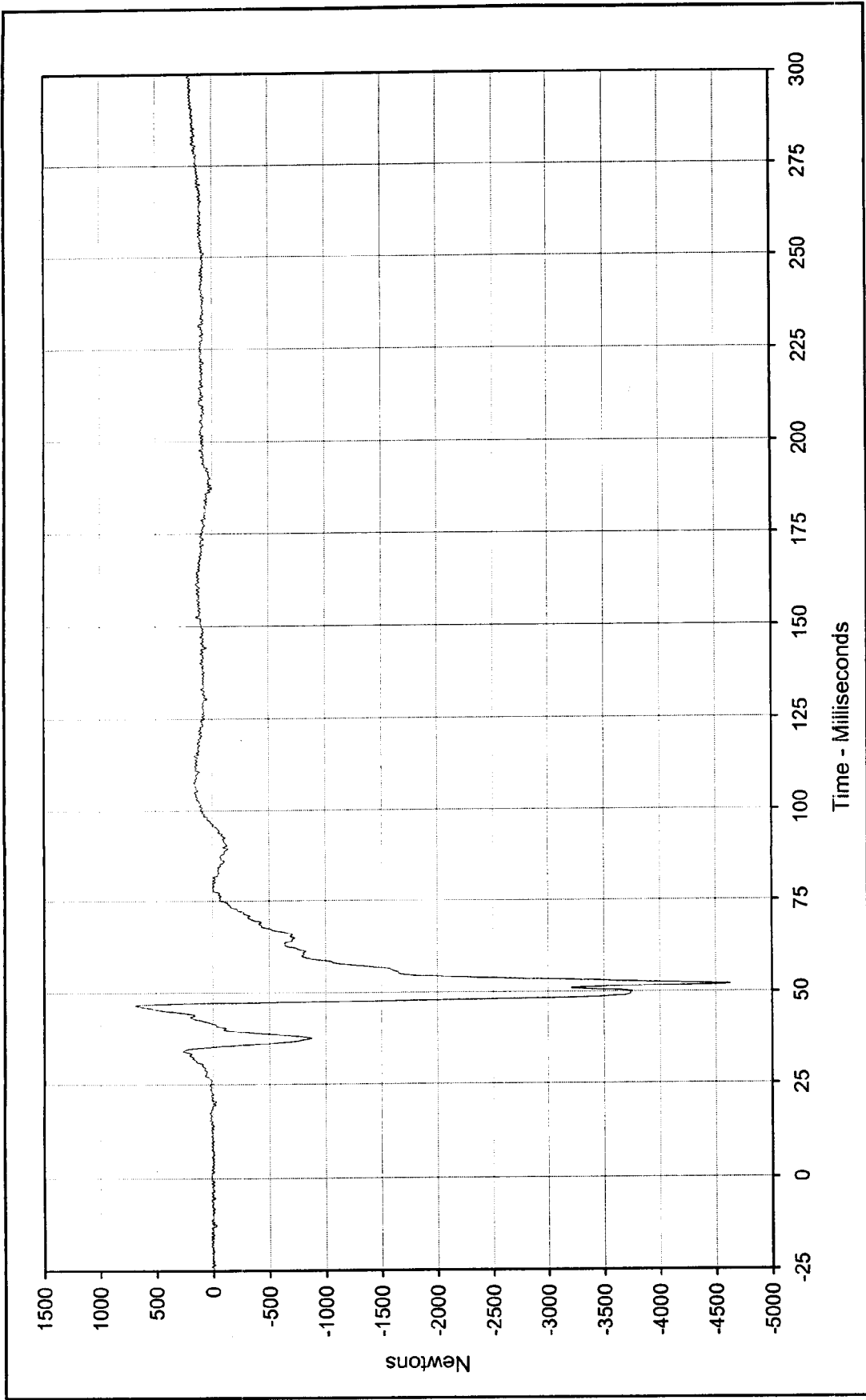


Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

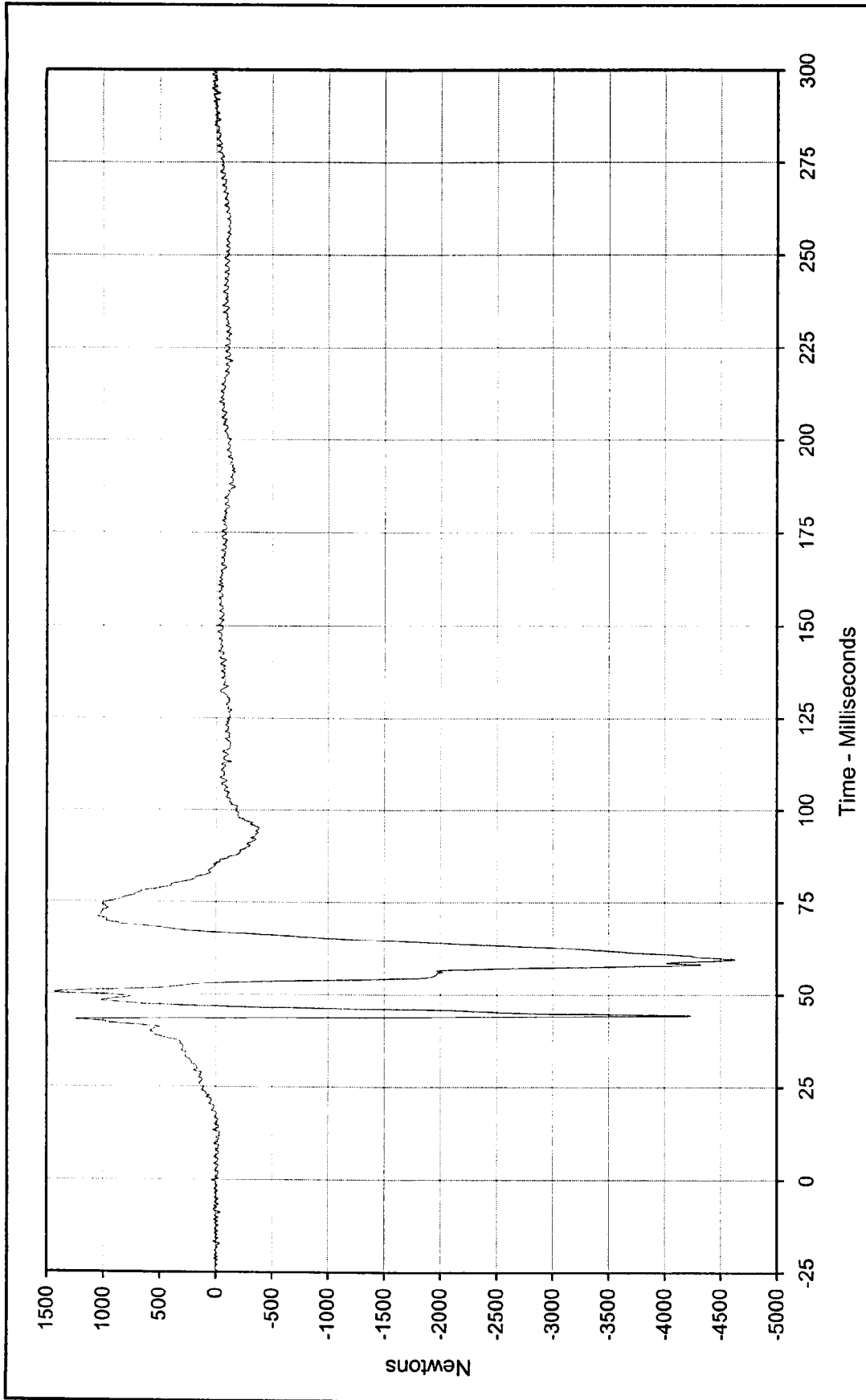
Curve Description: Driver Pelvis Resultant
 Maximum Value: 76.4 at 58.4 Milliseconds
 Minimum Value: 0.0 at 5.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: RES-020





Curve Description:	Driver Left Femur Force	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	690.4 at 46.6 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-4632.0 at 51.9 Milliseconds			
SAE Filter Class:	600			
Date of Test:	11/17/99			
Curve Number:	FIL-023			





Curve Description: Driver Right Femur Force

Maximum Value: 1432.4 at 50.4 Milliseconds

Minimum Value: -4633.9 at 59.5 Milliseconds

SAE Filter Class: 600

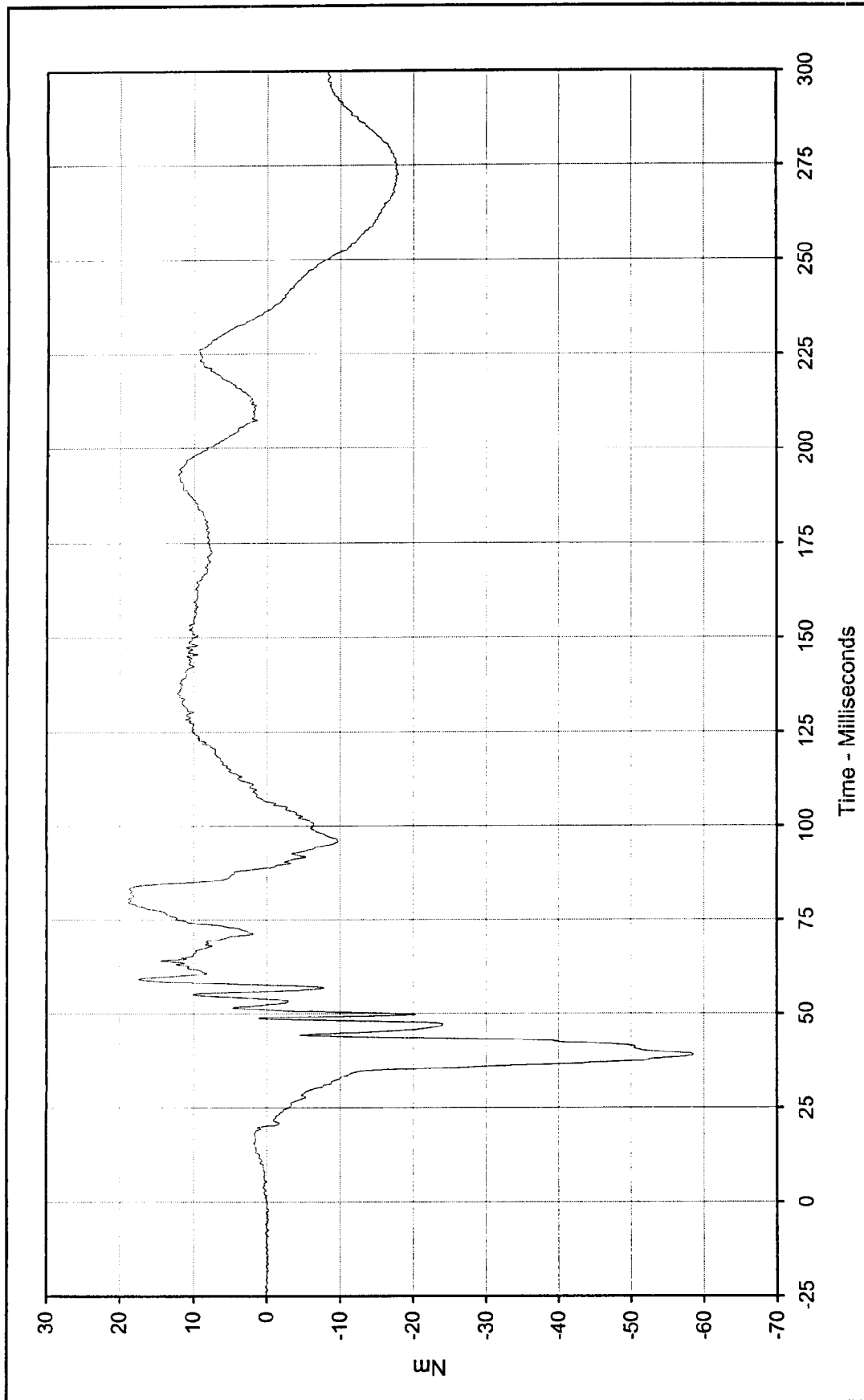
Date of Test: 11/17/99

Curve Number: FIL-024

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

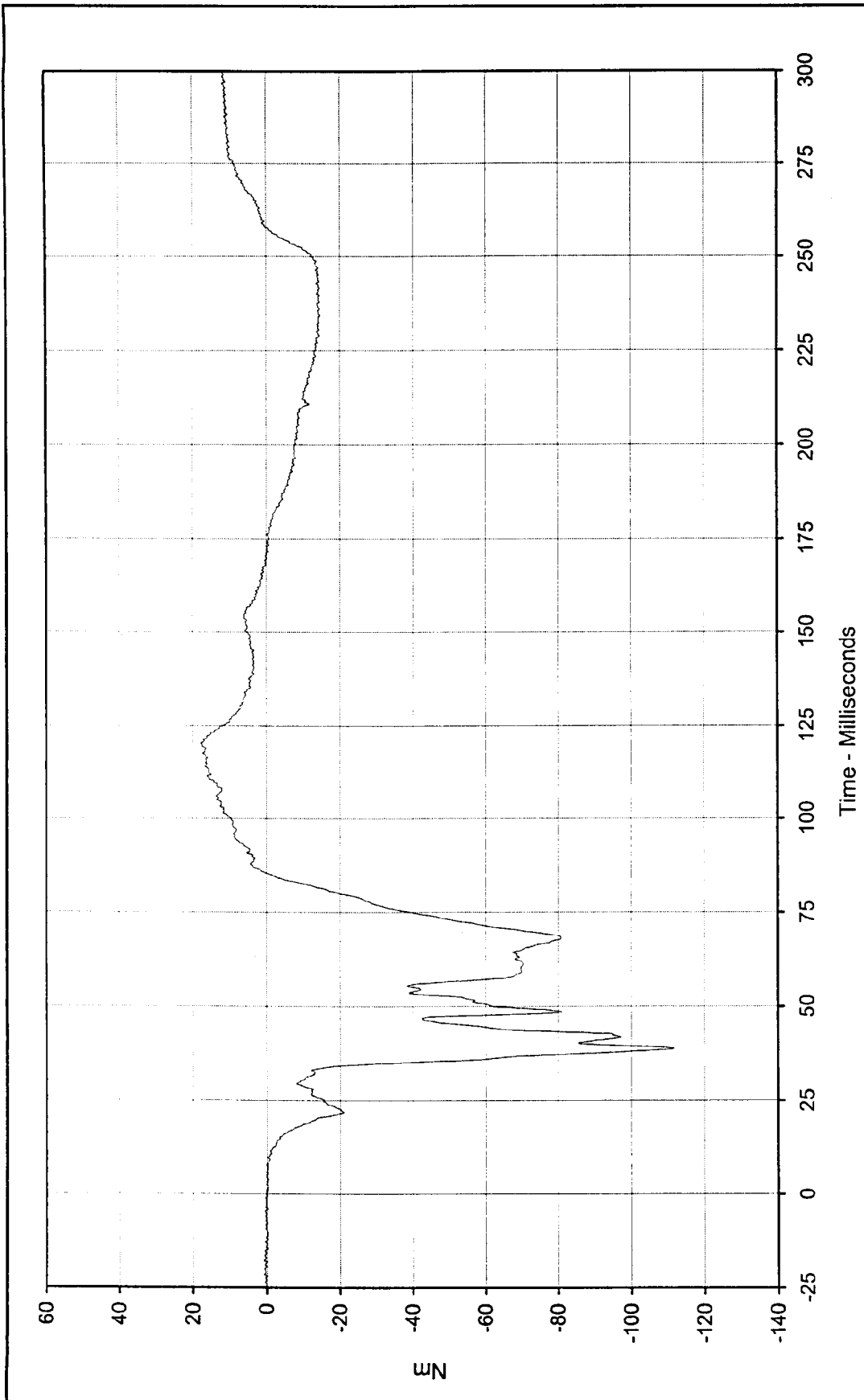




Curve Description: Driver Left Upper Tibia Moment X
 Maximum Value: 18.8 at 79.5 Milliseconds
 Minimum Value: -58.6 at 38.9 Milliseconds
 SAE Filter Class: 600
 Date of Test: 11/17/99
 Curve Number: FIL-025

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Driver Left Upper Tibia Moment Y

Maximum Value: 17.7 at 120.2 Milliseconds

Minimum Value: -111.8 at 38.8 Milliseconds

SAE Filter Class: 600

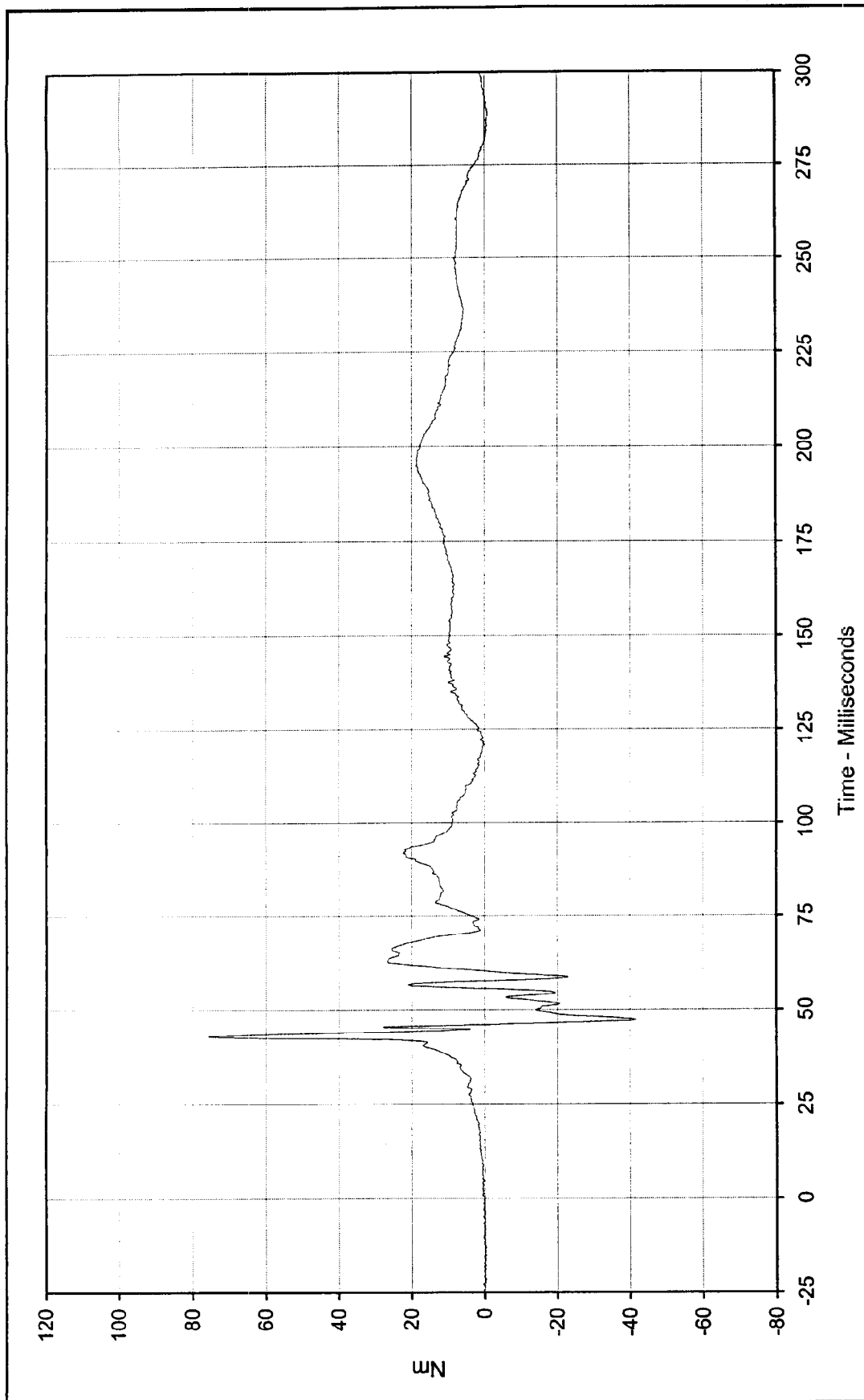
Date of Test: 11/17/99

Curve Number: FIL-026

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Driver Right Upper Tibia Moment X

Maximum Value: 75.7 at 42.9 Milliseconds

Minimum Value: -41.7 at 47.3 Milliseconds

SAE Filter Class: 600

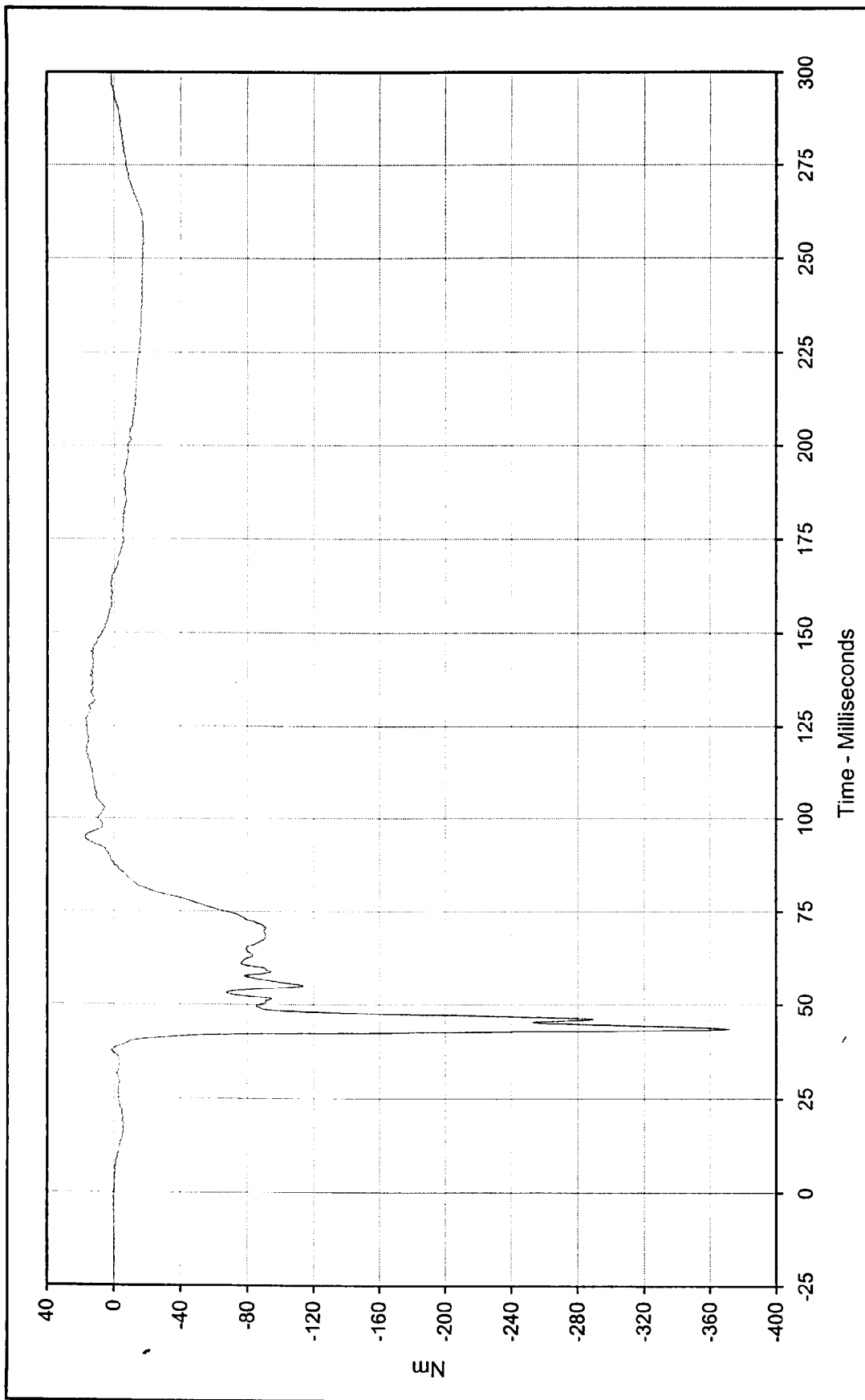
Date of Test: 11/17/99

Curve Number: FIL-027

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

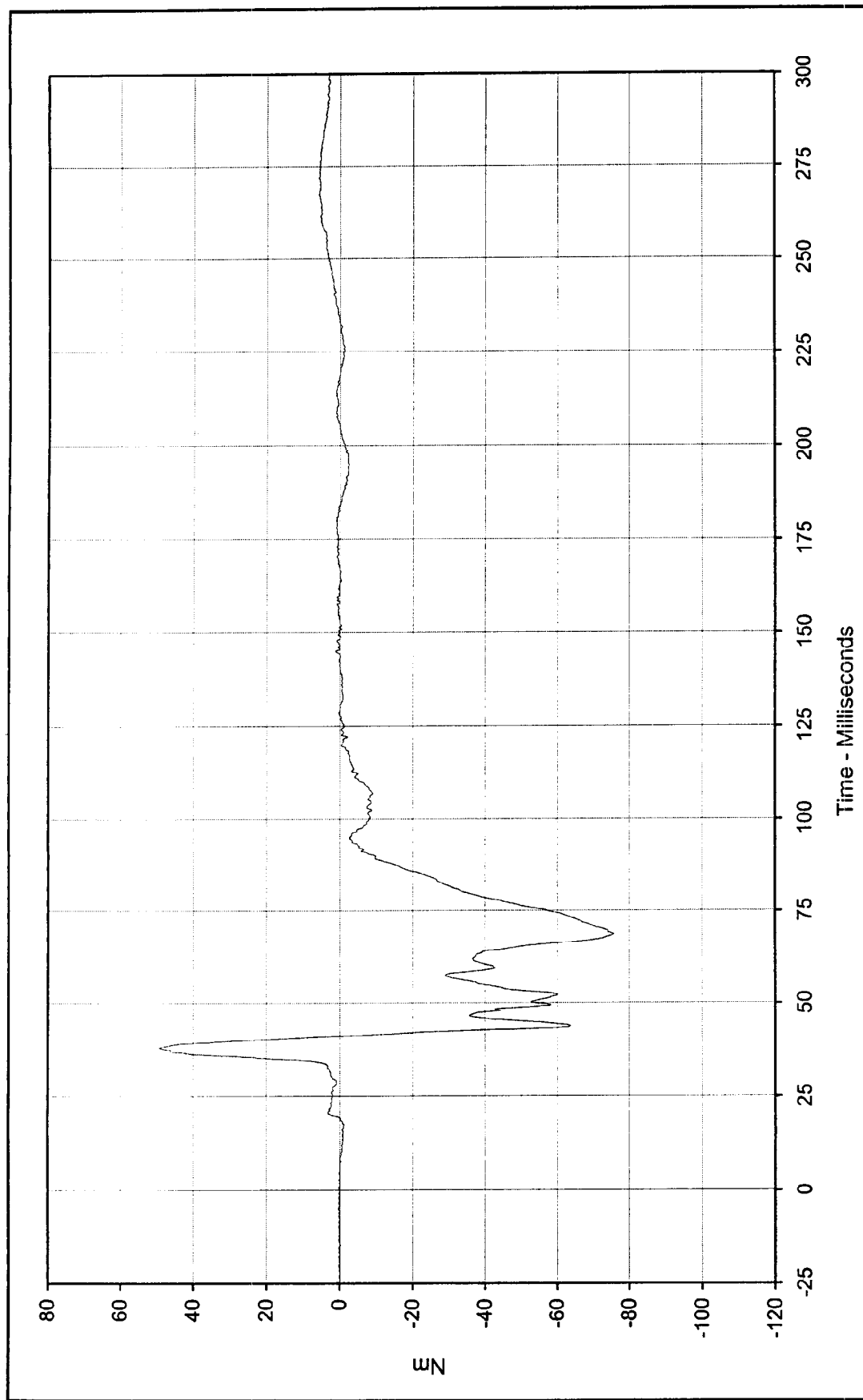
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





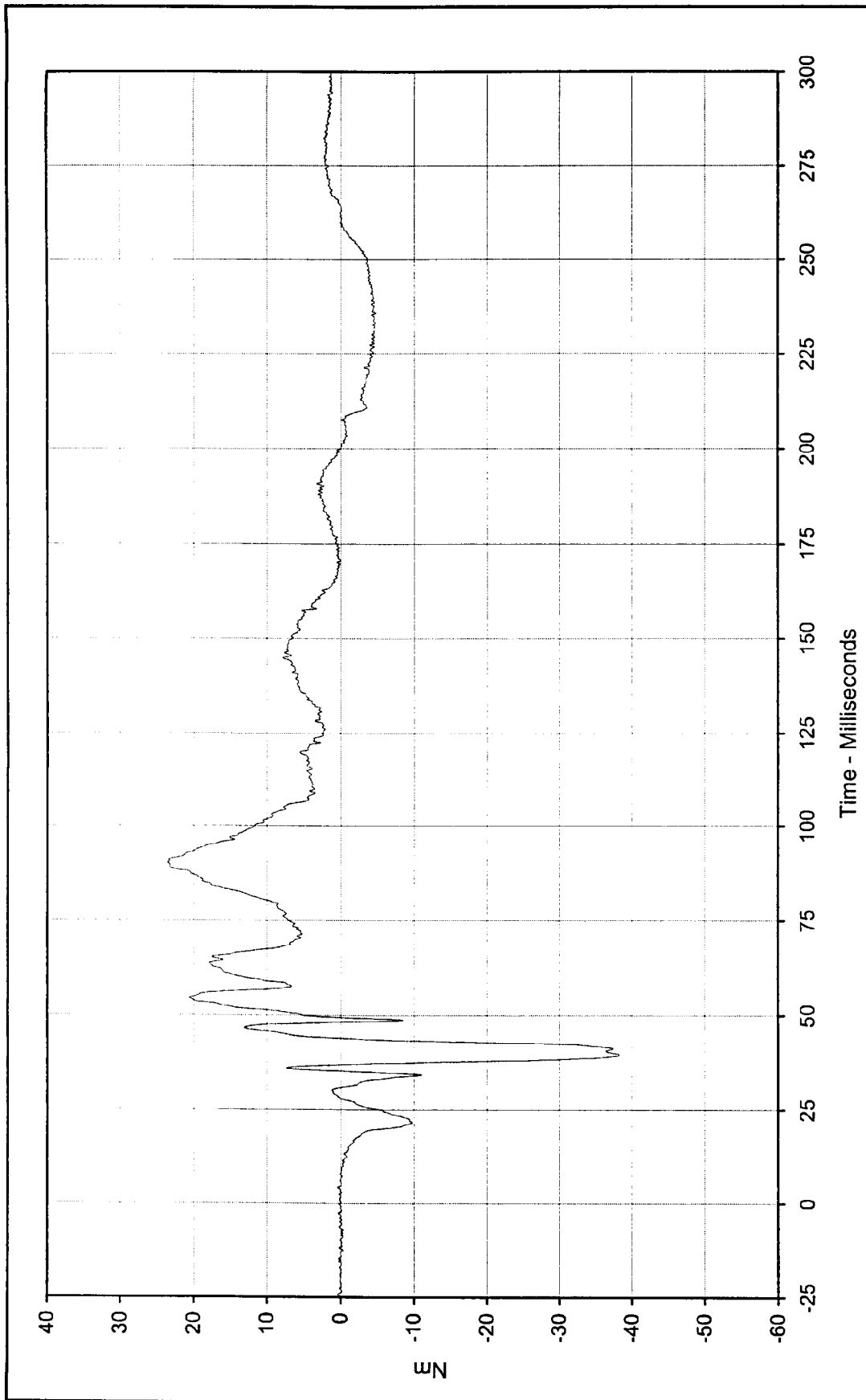
Curve Description:	Driver Right Upper Tibia Moment Y	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	17.3 at 94.8 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-371.6 at 43.6 Milliseconds			
SAE Filter Class:	600			
Date of Test:	11/17/99			
Curve Number:	FIL-028			





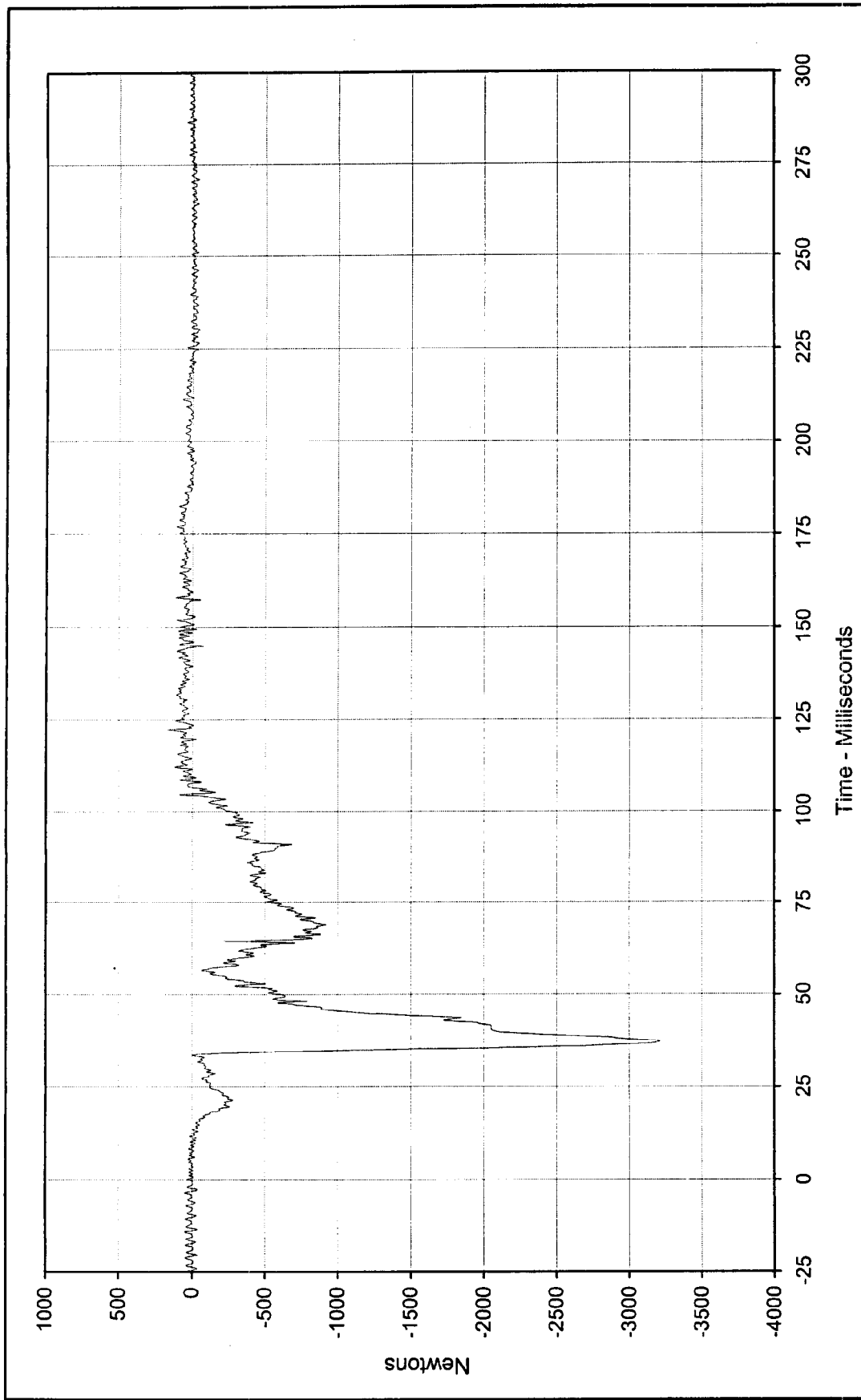
Curve Description:	Driver Left Lower Tibia Moment X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	49.3 at 37.9 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-75.8 at 68.6 Milliseconds			
SAE Filter Class:	600			
Date of Test:	11/17/99			
Curve Number:	FIL-029			





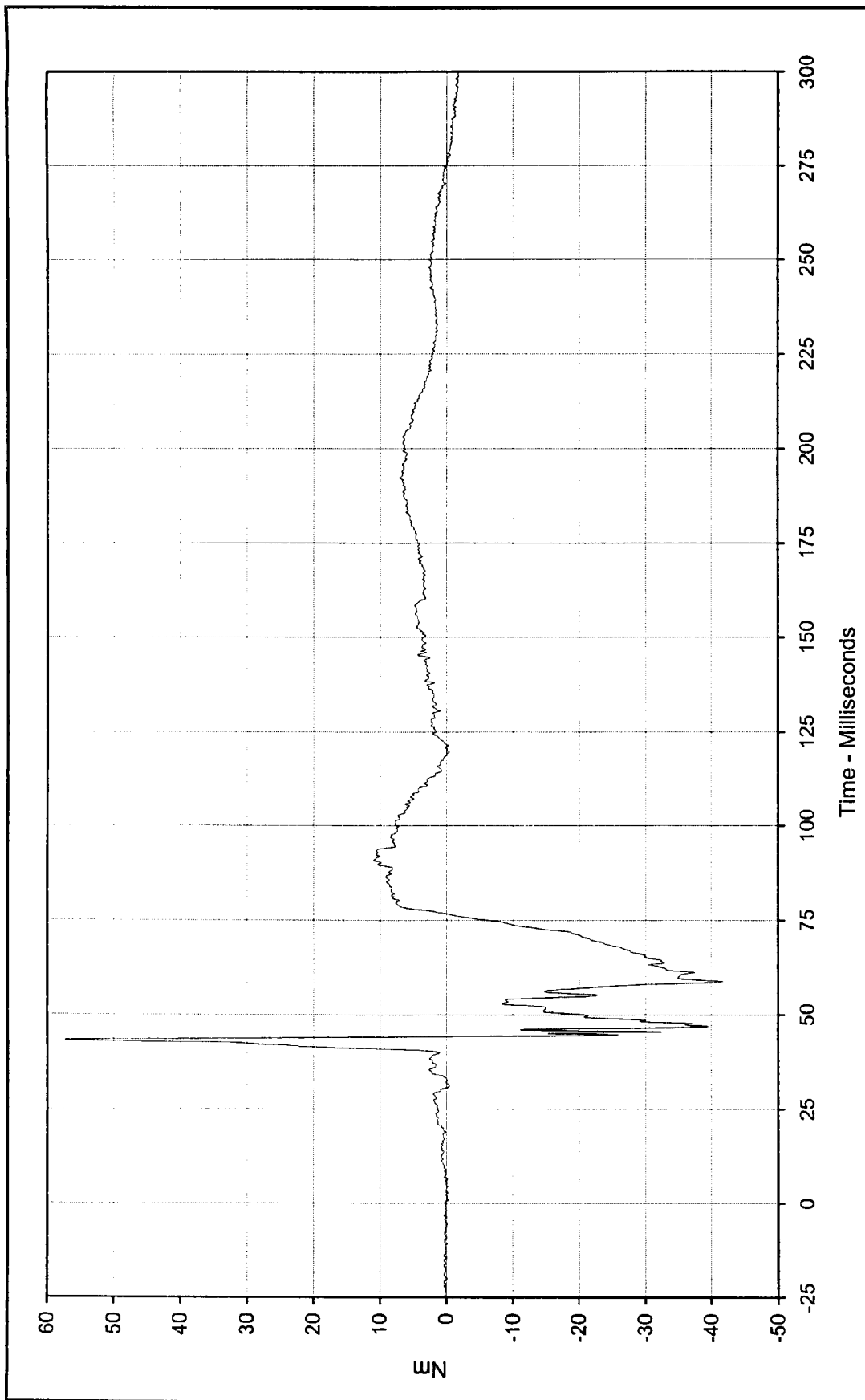
Curve Description:	Driver Left Lower Tibia Moment Y	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	23.5 at 90.0 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-38.2 at 39.5 Milliseconds			
SAE Filter Class:	600			
Date of Test:	11/17/99			
Curve Number:	FIL-030			





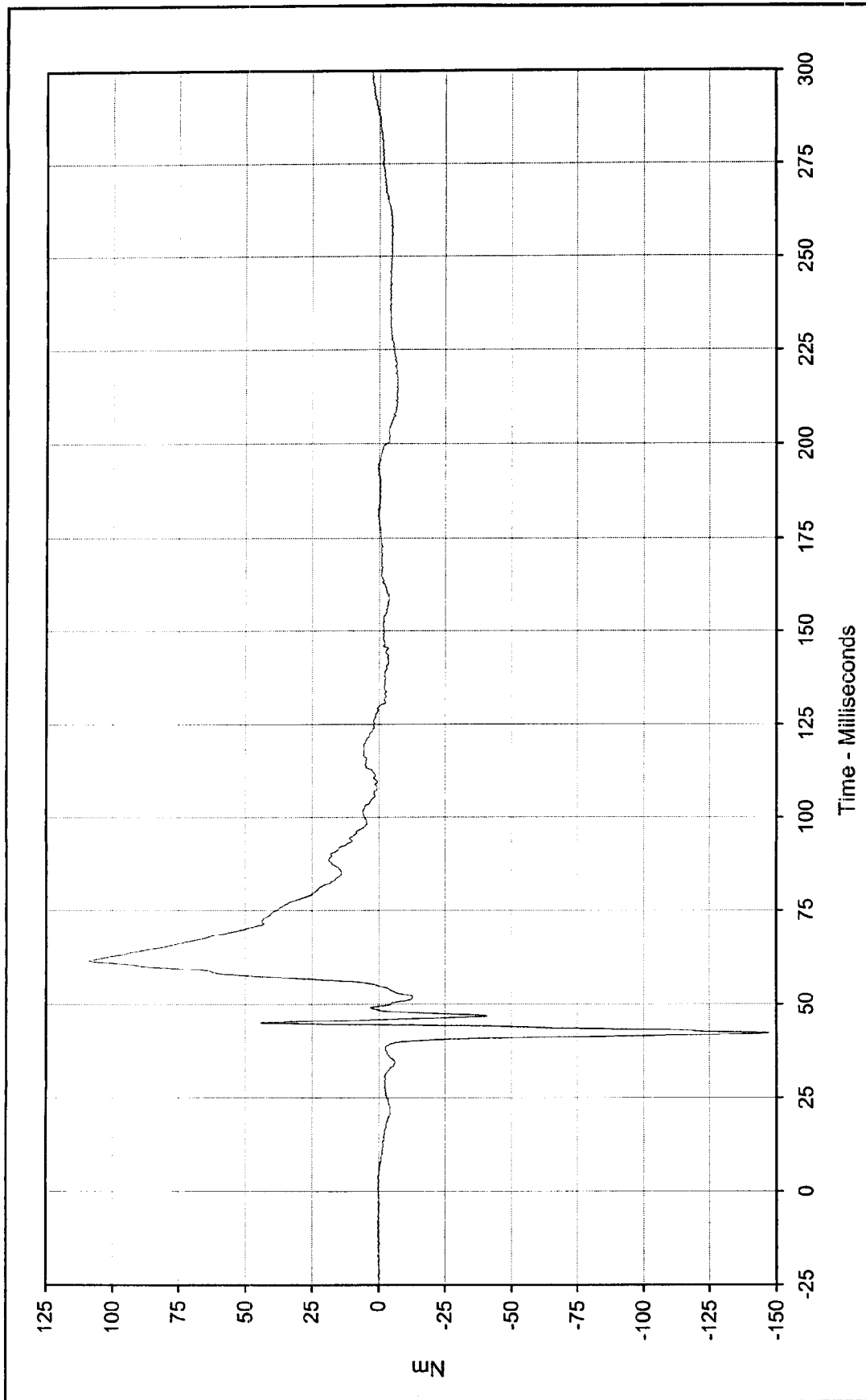
Curve Description:	Driver Left Lower Tibia Force Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	164.0	at	122.3	Milliseconds
Minimum Value:	-3212.1	at	37.3	Milliseconds
SAE Filter Class:	600	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Date of Test:	11/17/99			
Curve Number:	FIL-031			





Curve Description:	Driver Right Lower Tibia Moment X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	57.3 at 43.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-41.8 at 58.7 Milliseconds			
SAE Filter Class:	600			
Date of Test:	11/17/99			
Curve Number:	FIL-032			



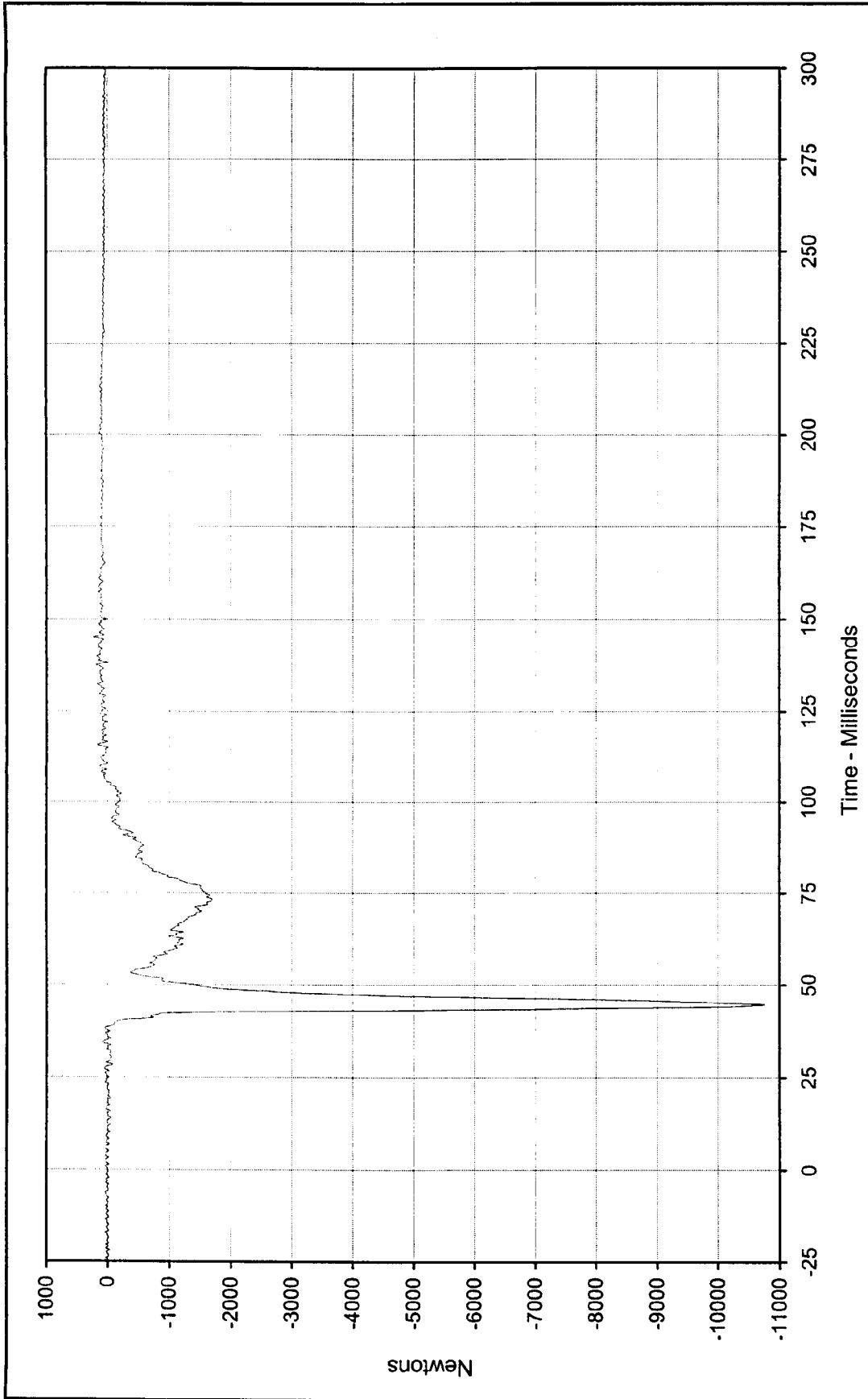


Curve Description: Driver Right Lower Tibia Moment Y
 Maximum Value: 108.9 at 61.4 Milliseconds
 Minimum Value: -147.3 at 42.3 Milliseconds
 SAE Filter Class: 600
 Date of Test: 11/17/99
 Curve Number: FIL-033

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Driver Right Lower Tibia Force Z

Maximum Value: 236.9 at 145.1 Milliseconds

Minimum Value: -10760.7 at 44.7 Milliseconds

SAE Filter Class: 600

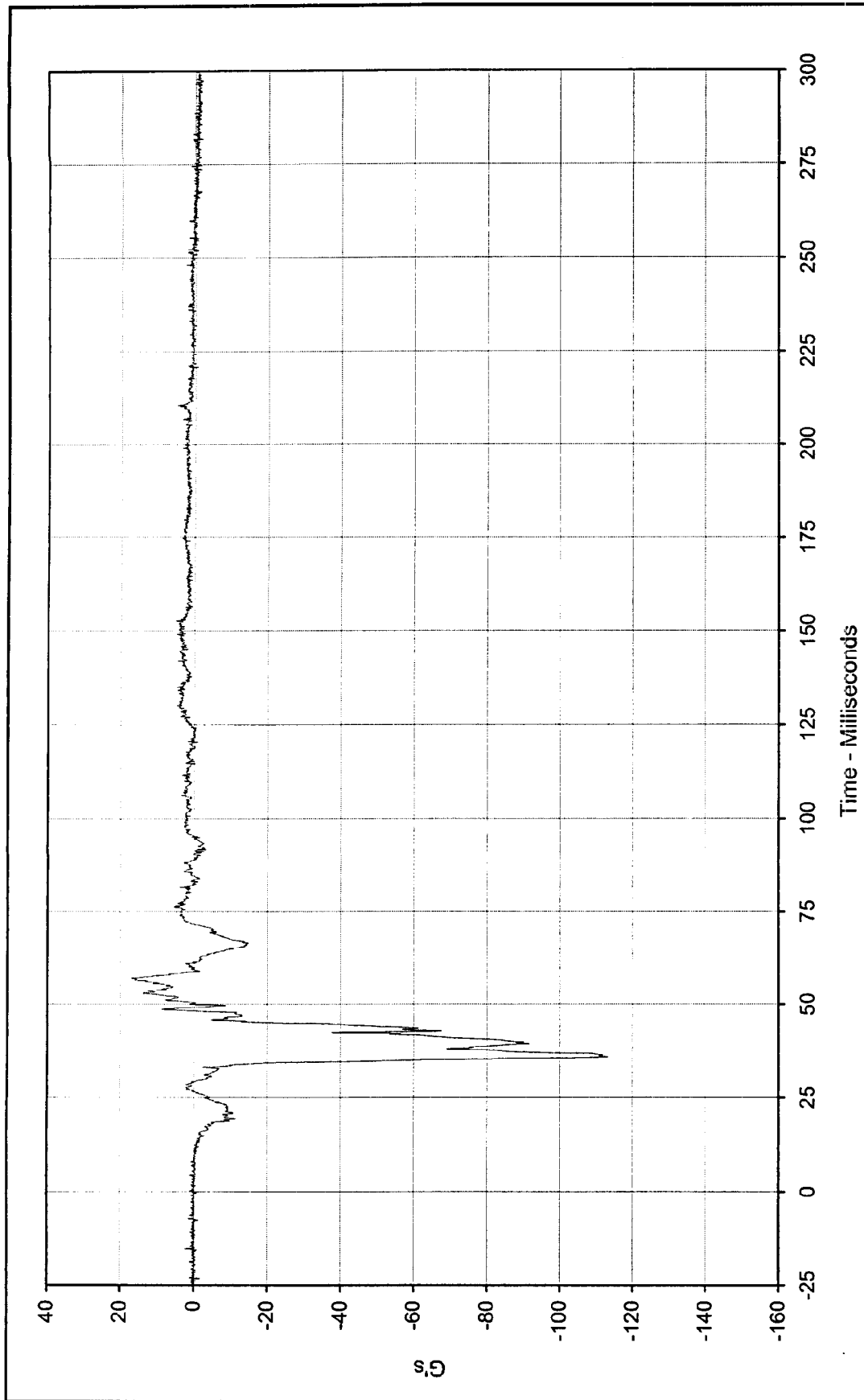
Date of Test: 11/17/99

Curve Number: FIL-034

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Driver Left Foot Aft X Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Maximum Value: 17.0 at 57.0 Milliseconds Test Vehicle: 2000 Toyota Tundra SR5 Pickup

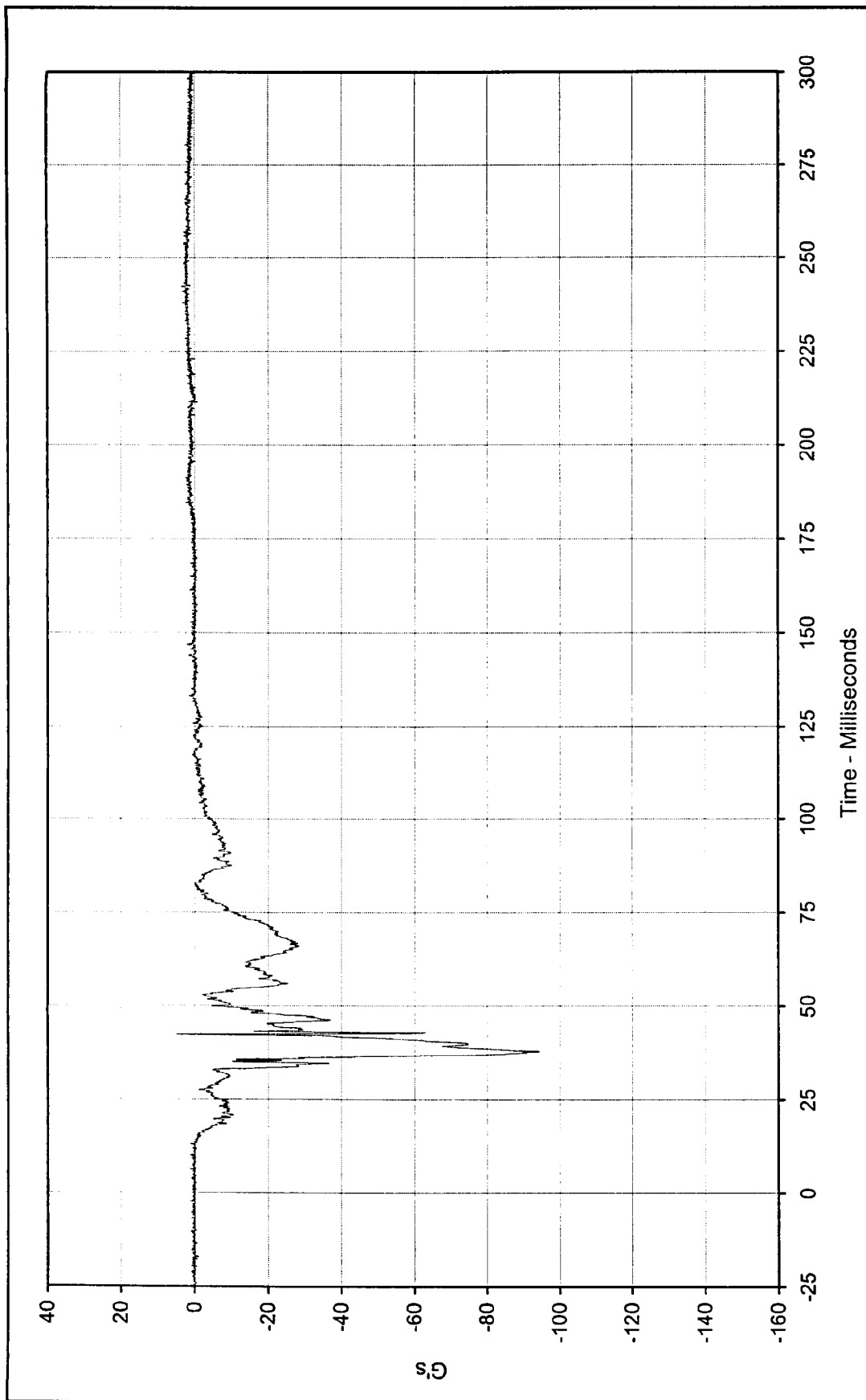
Minimum Value: -113.2 at 35.8 Milliseconds

SAE Filter Class: 1000

Date of Test: 11/17/99

Curve Number: FIL-035

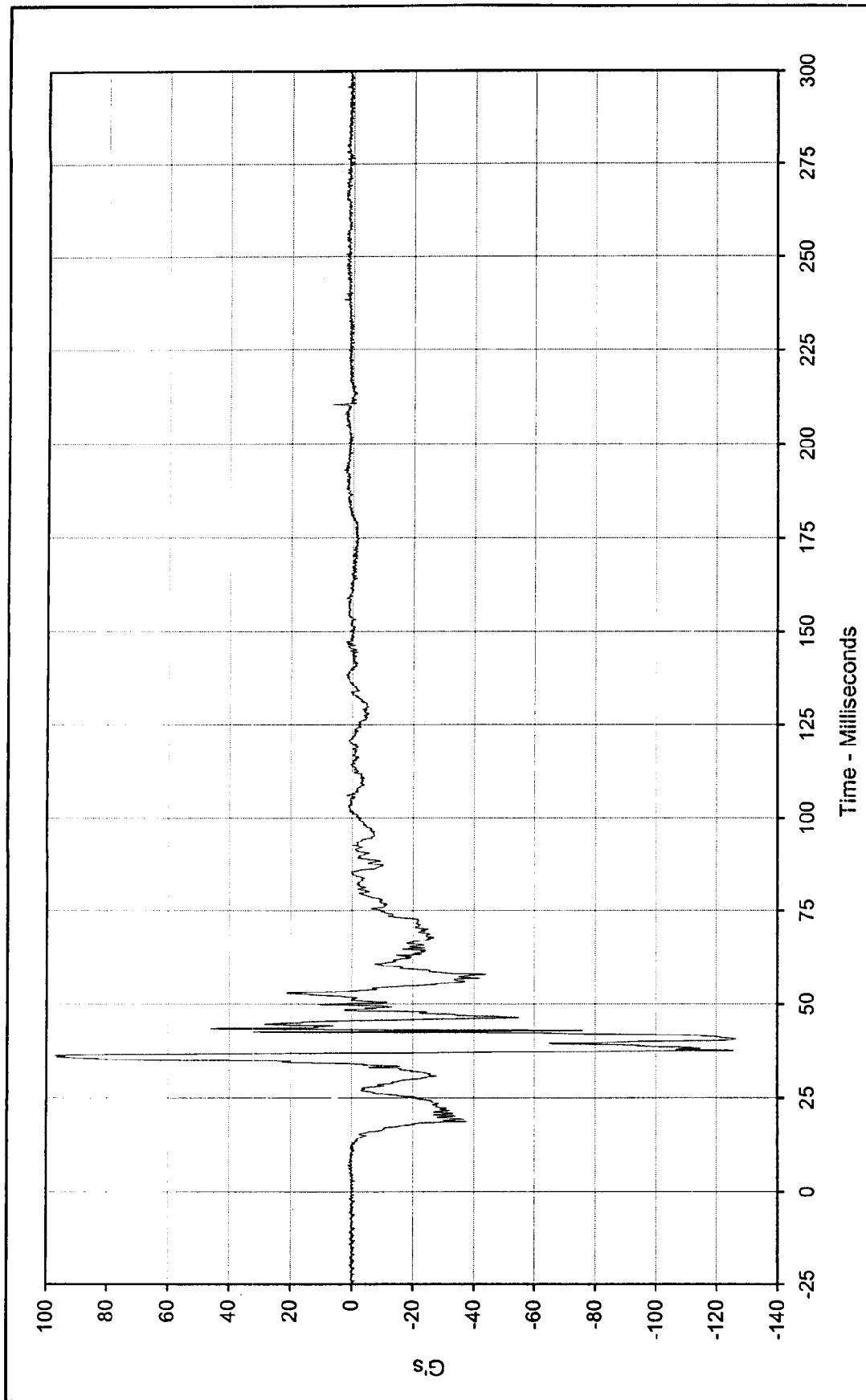




Curve Description: Driver Left Foot Aft Z Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
Maximum Value: 4.7 at 42.5 Milliseconds Test Vehicle: 2000 Toyota Tundra SR5 Pickup
Minimum Value: -94.4 at 37.9 Milliseconds

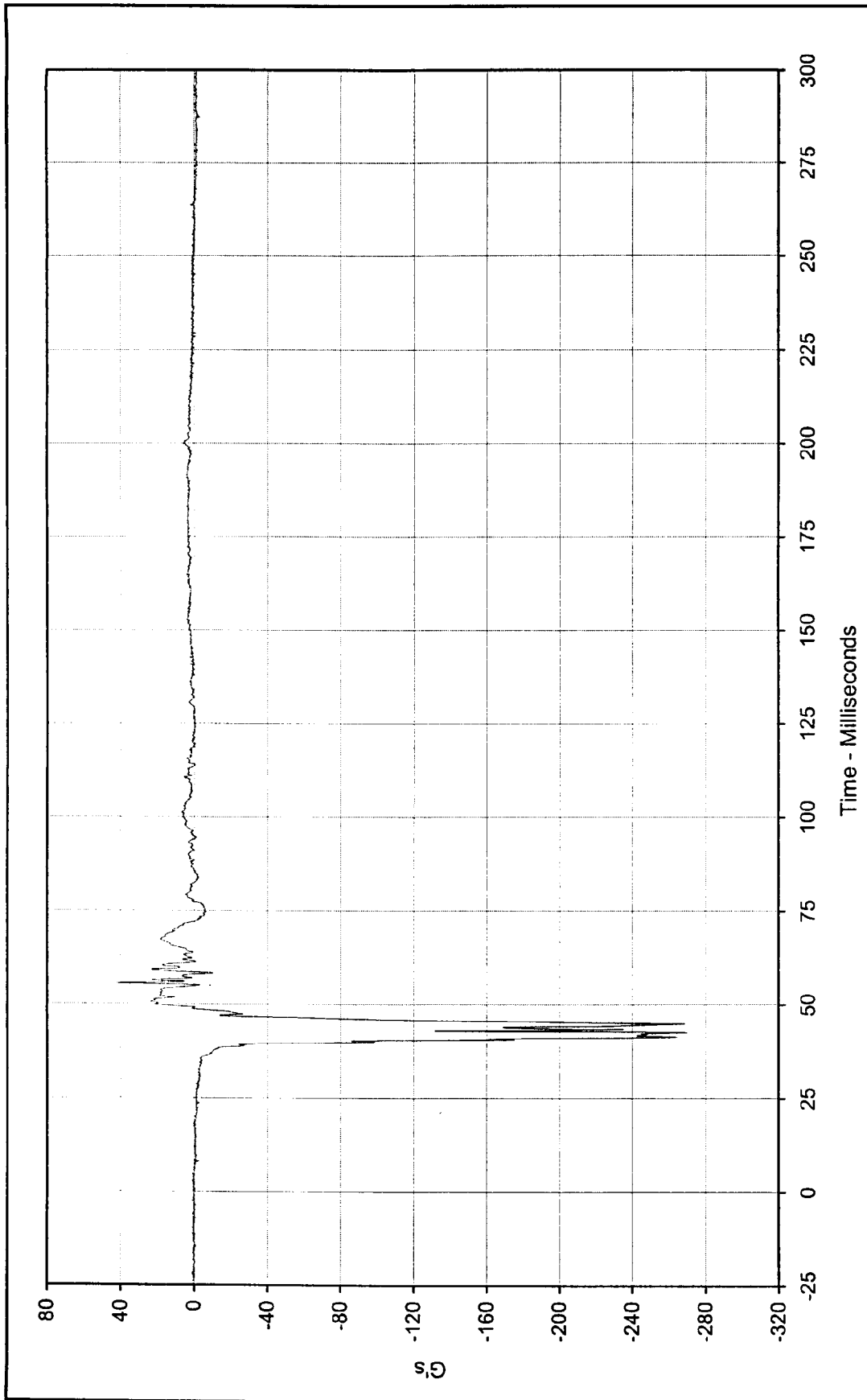


SAE Filter Class: 1000
Date of Test: 11/17/99
Curve Number: FIL-036



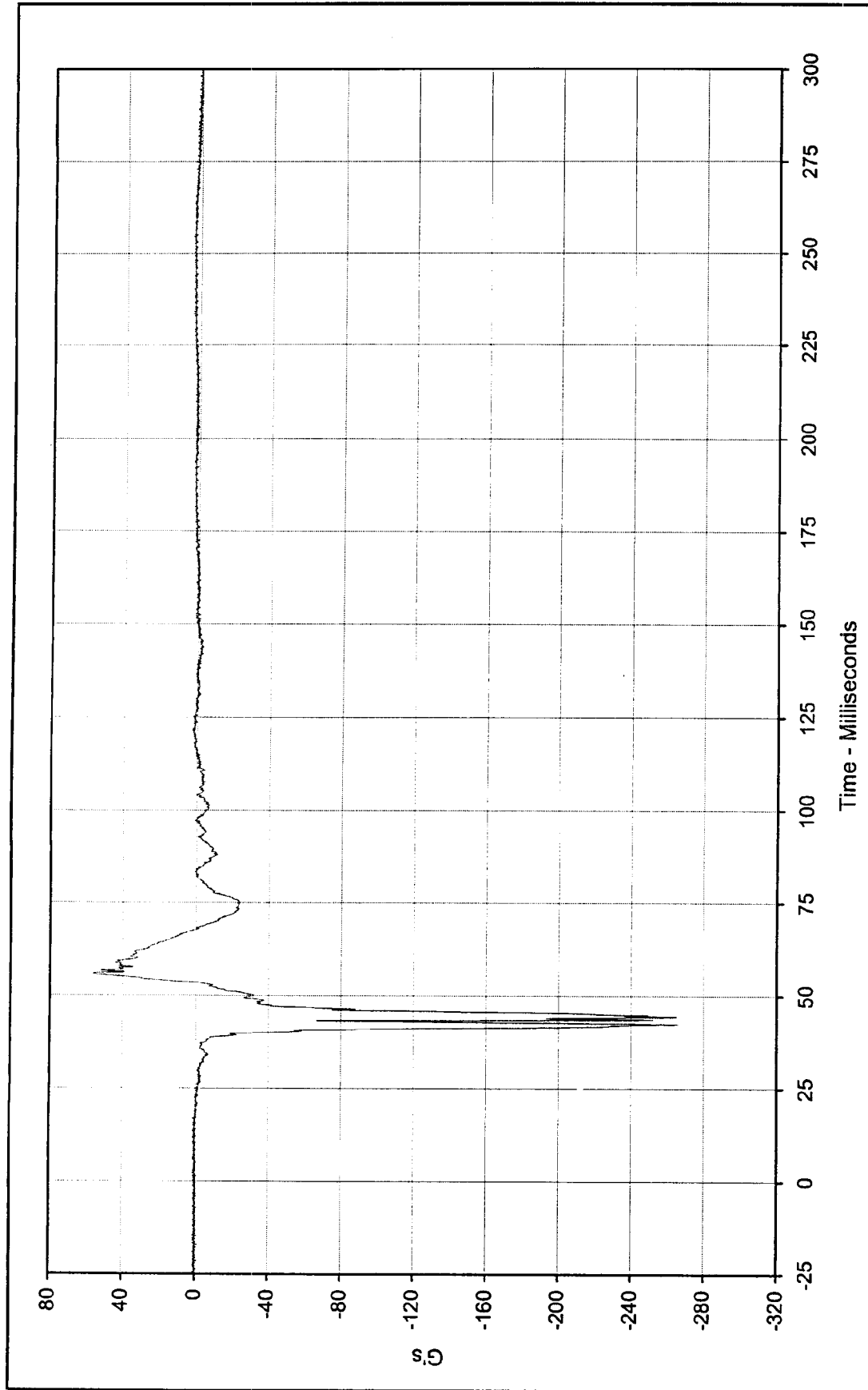
Curve Description:	Driver Left Foot Fore Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	97.2 at 36.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-126.4 at 40.6 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-037			





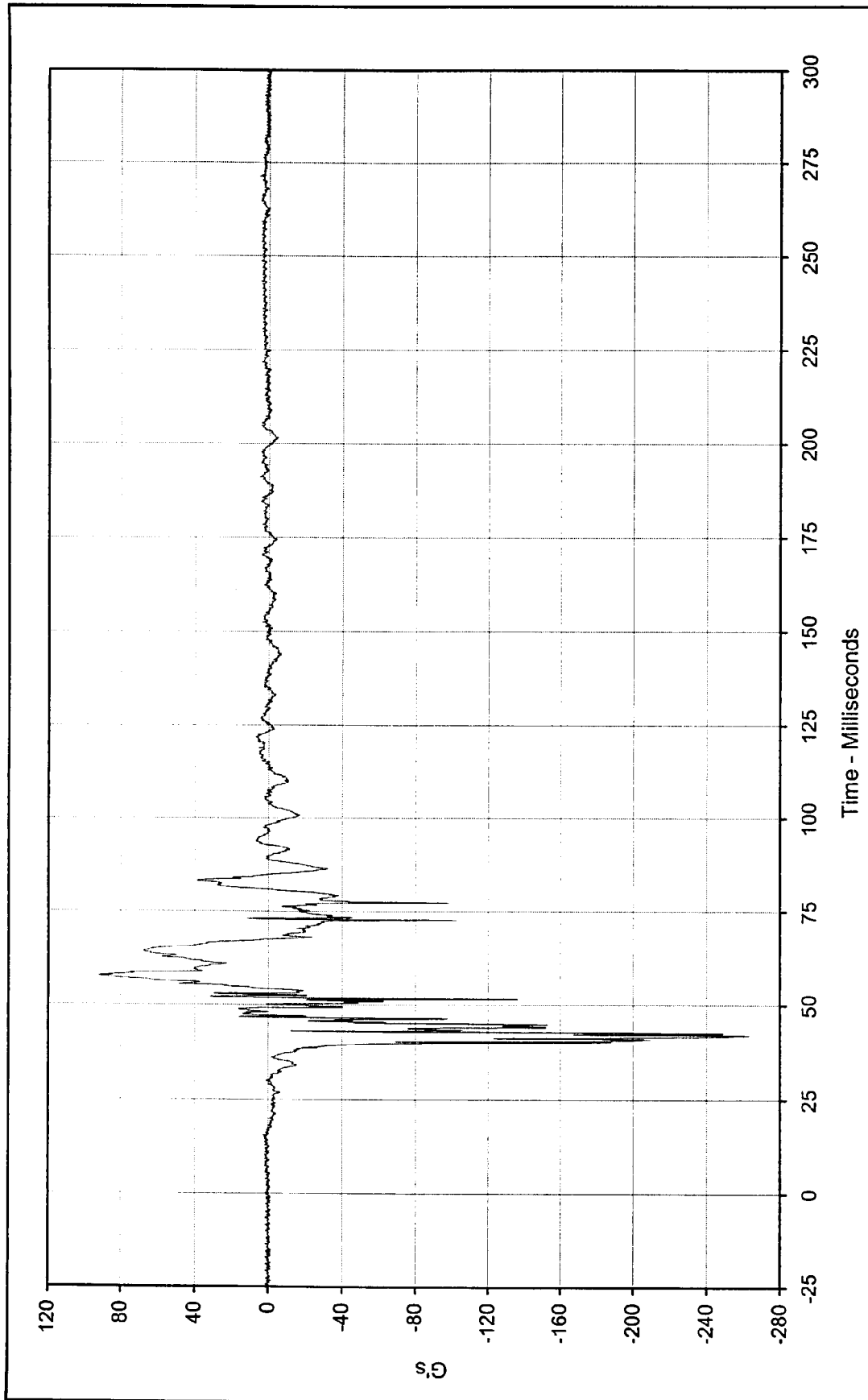
Curve Description:	Driver Right Foot Aft X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	42.1 at 55.5 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-269.9 at 42.7 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-038			





Curve Description:	Driver Right Foot Aft Z		Test Program:	2000 NHTSA 35 mph NCAP No.: MY5103	
Maximum Value:	56.5	at 55.8	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-266.1	at 42.4			
SAE Filter Class:	1000				
Date of Test:	11/17/99				
Curve Number:	FIL-039				

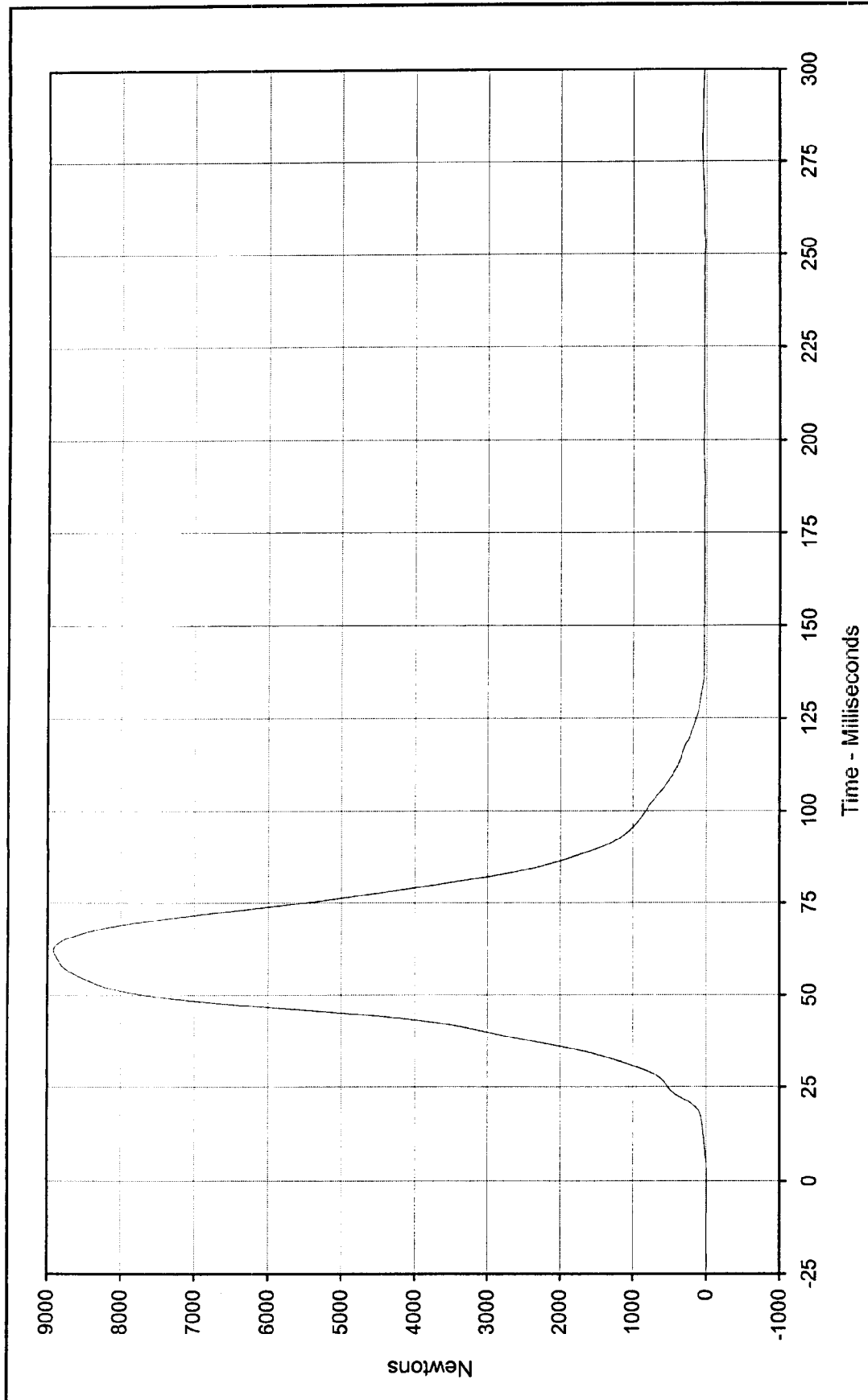




Curve Description: Driver Right Foot Fore Z
 Maximum Value: 92.2 at 57.6 Milliseconds
 Minimum Value: -263.2 at 42.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: FIL-040

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Driver Lap Belt Force

Maximum Value: 8917.7 at 62.0 Milliseconds

Minimum Value: -7.3 at 0.0 Milliseconds

SAE Filter Class: 60

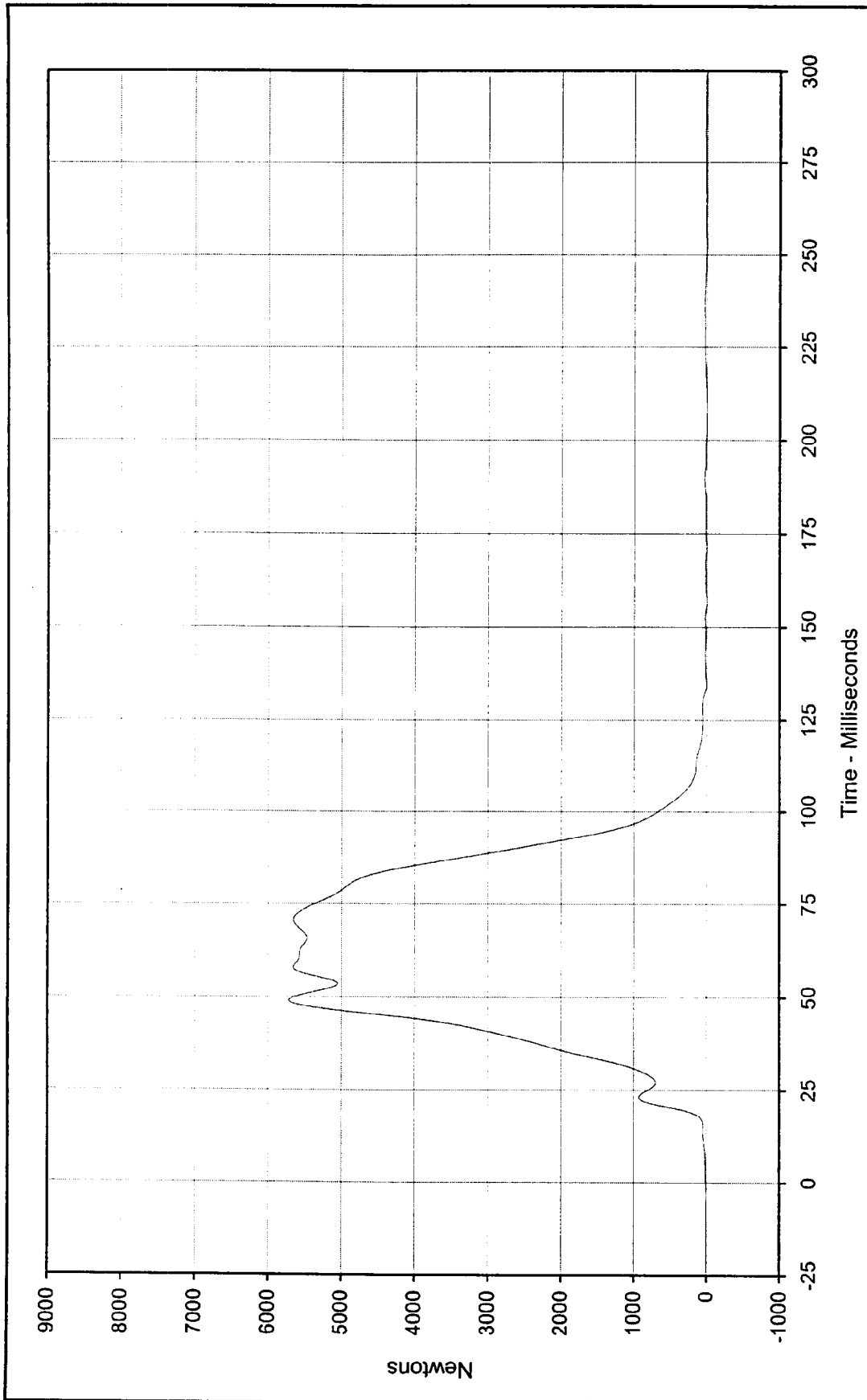
Date of Test: 11/17/99

Curve Number: FIL-041

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

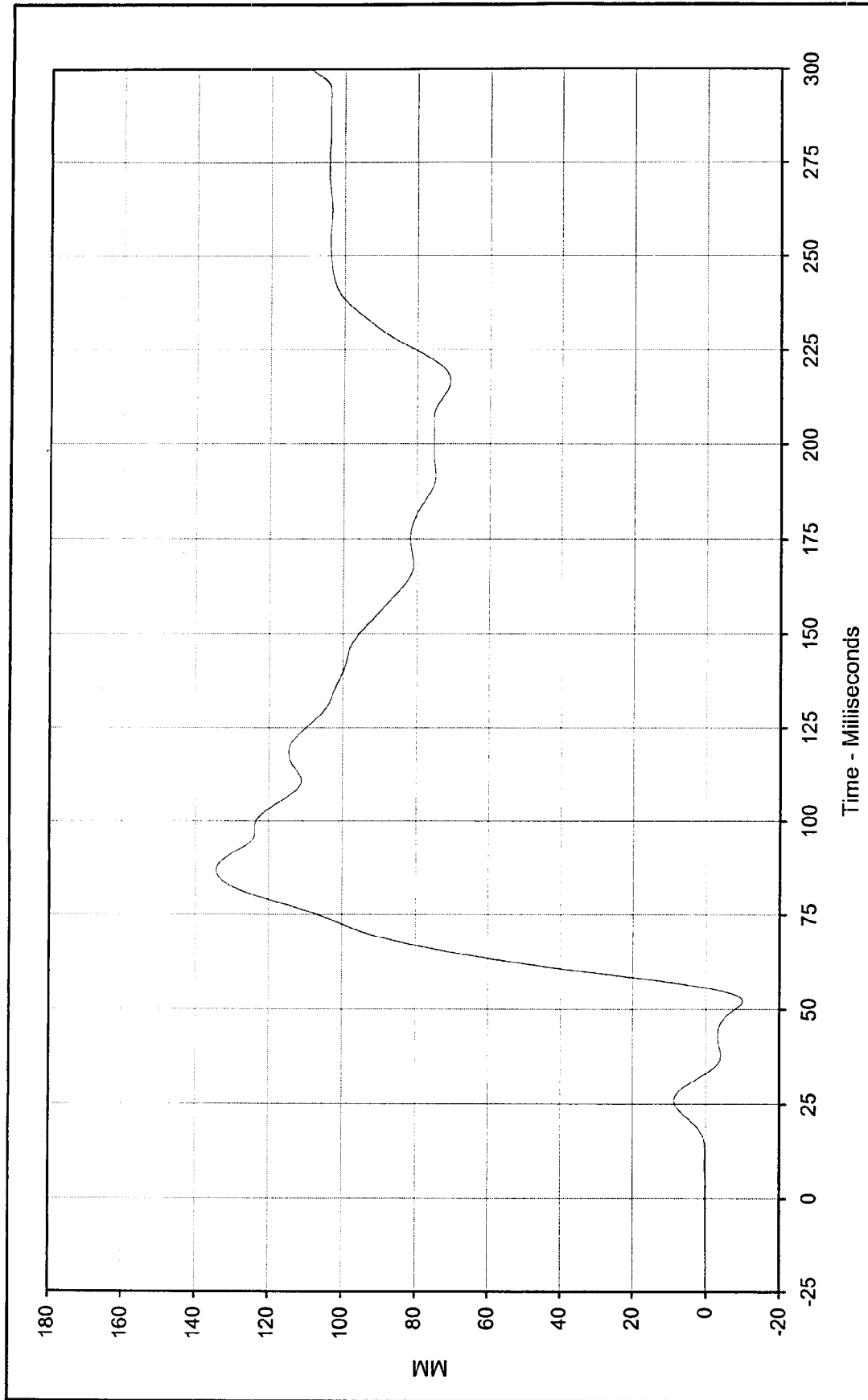




Curve Description: Driver Shoulder Belt Force
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Maximum Value: 5719.8 at 49.1 Milliseconds
 Minimum Value: -2.7 at 156.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-042

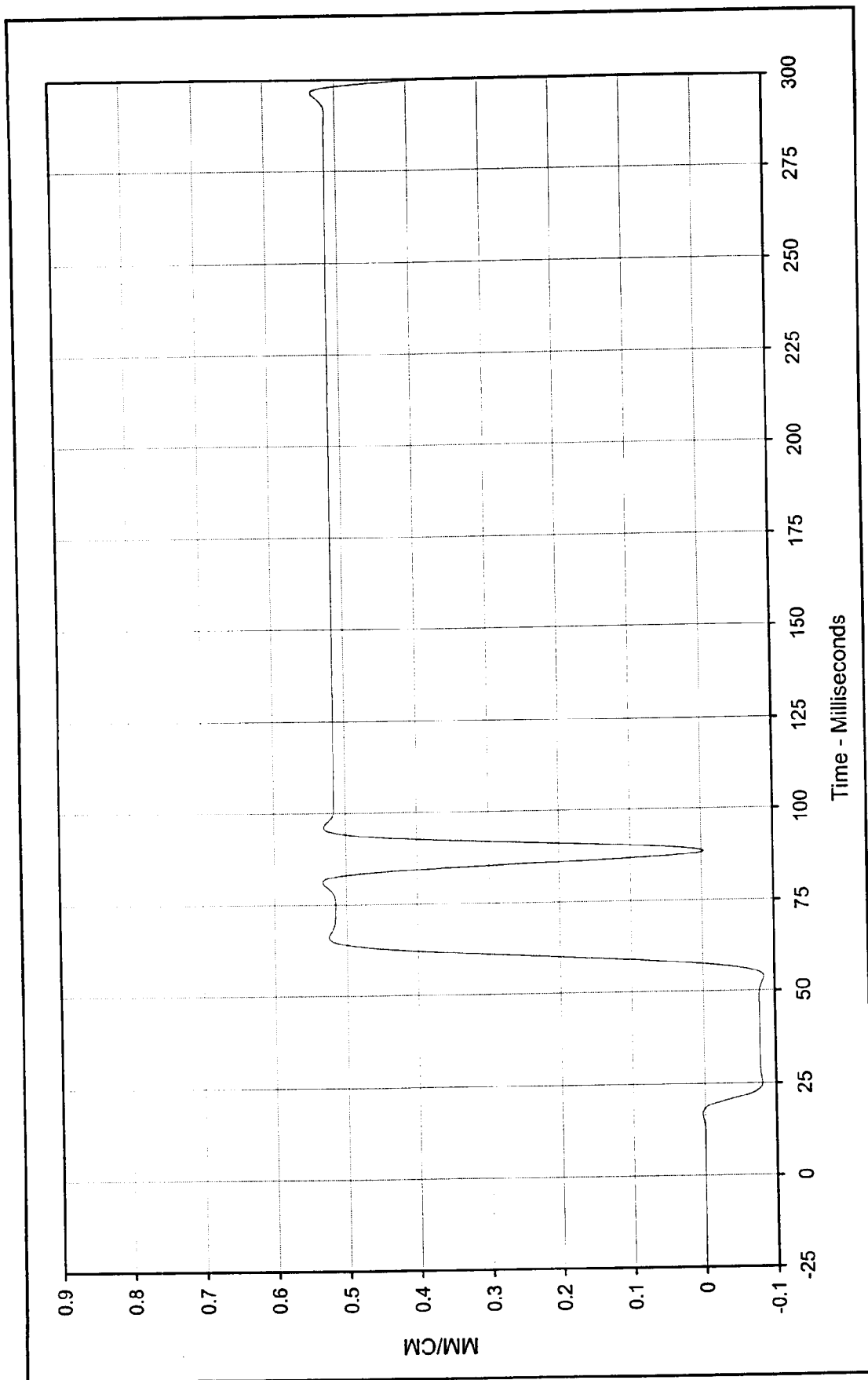




Curve Description: Driver Shoulder Belt Pullout
Maximum Value: 134.3 at 86.6 Milliseconds
Minimum Value: -10.0 at 52.1 Milliseconds
SAE Filter Class: 60
Date of Test: 11/17/99
Curve Number: FIL-043

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup

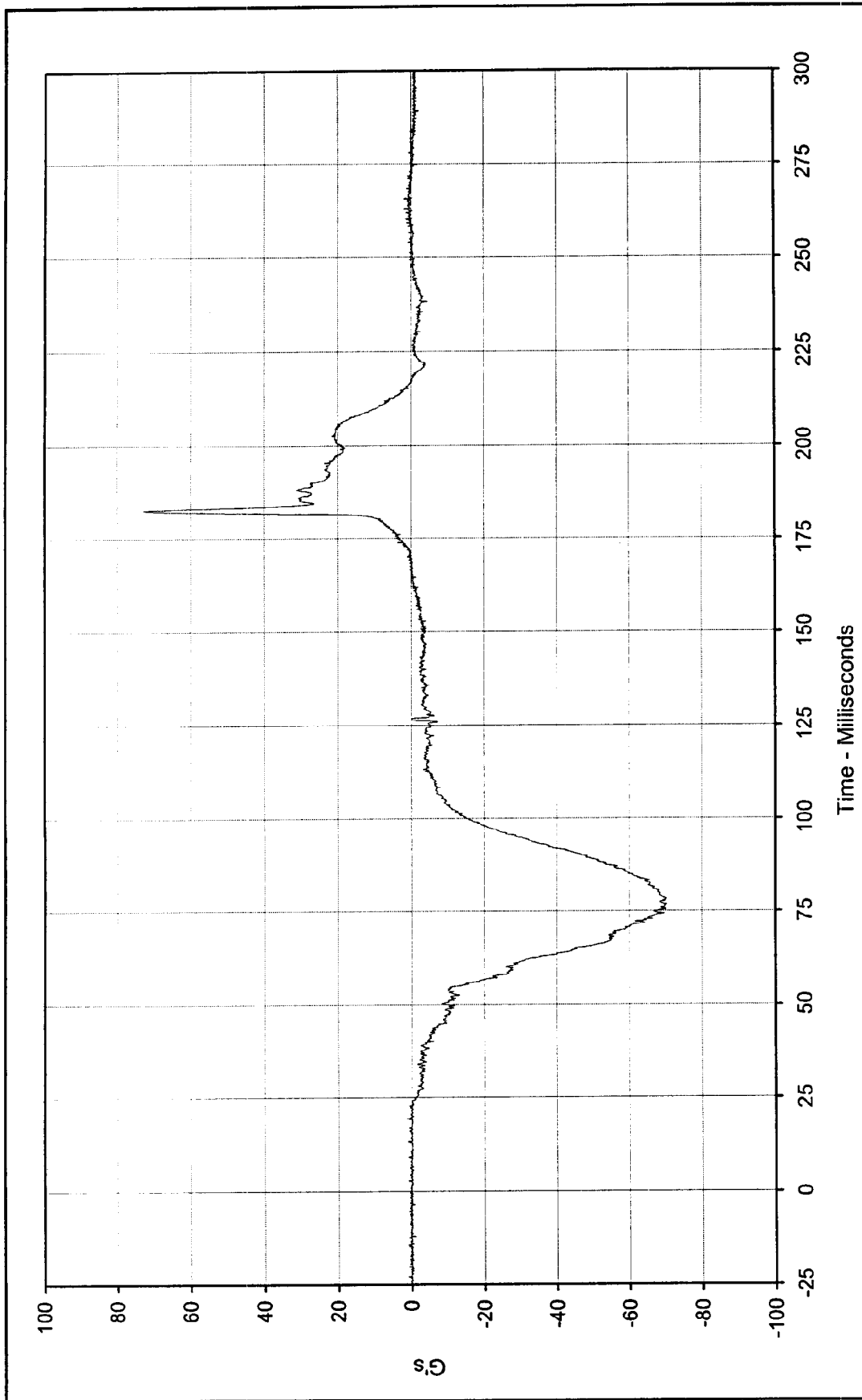




Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Curve Description: Driver Shoulder Belt Elongation
 Maximum Value: 0.53 at 296.4 Milliseconds
 Minimum Value: -0.08 at 53.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-044





Curve Description: Passenger Head Primary X

Test Program: 2000 NHTSA 35 mph NCAP

Maximum Value: 72.8 at 182.8 Milliseconds

Minimum Value: -70.3 at 76.7 Milliseconds

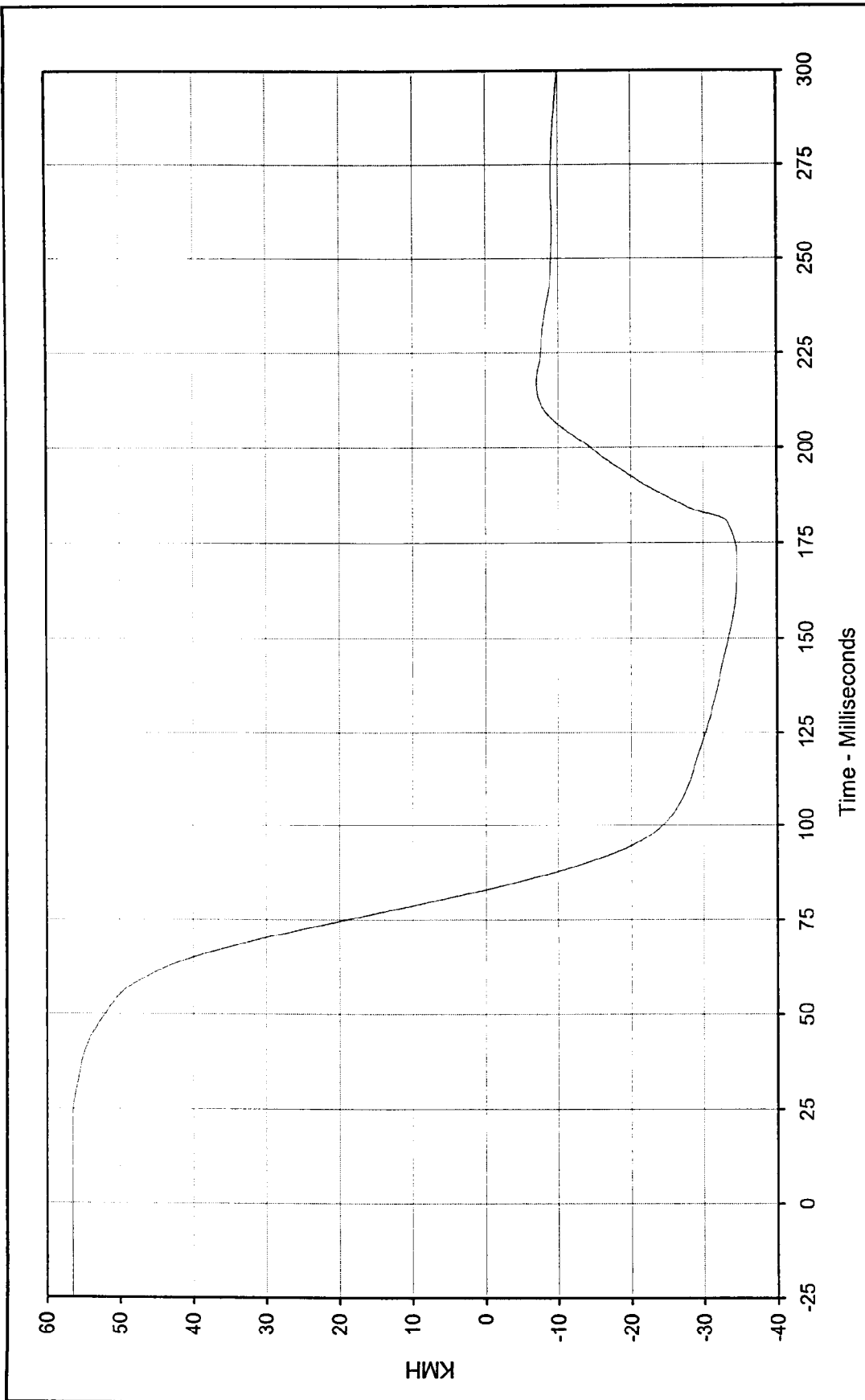
Test Vehicle: 2000 Toyota Tundra SR5 Pickup

SAE Filter Class: 1000

Date of Test: 11/17/99

Curve Number: FIL-045





Curve Description: Passenger Head Primary X Velocity

Maximum Value: 56.5 at 9.5 Milliseconds

Minimum Value: -34.6 at 169.1 Milliseconds

SAE Filter Class: 180

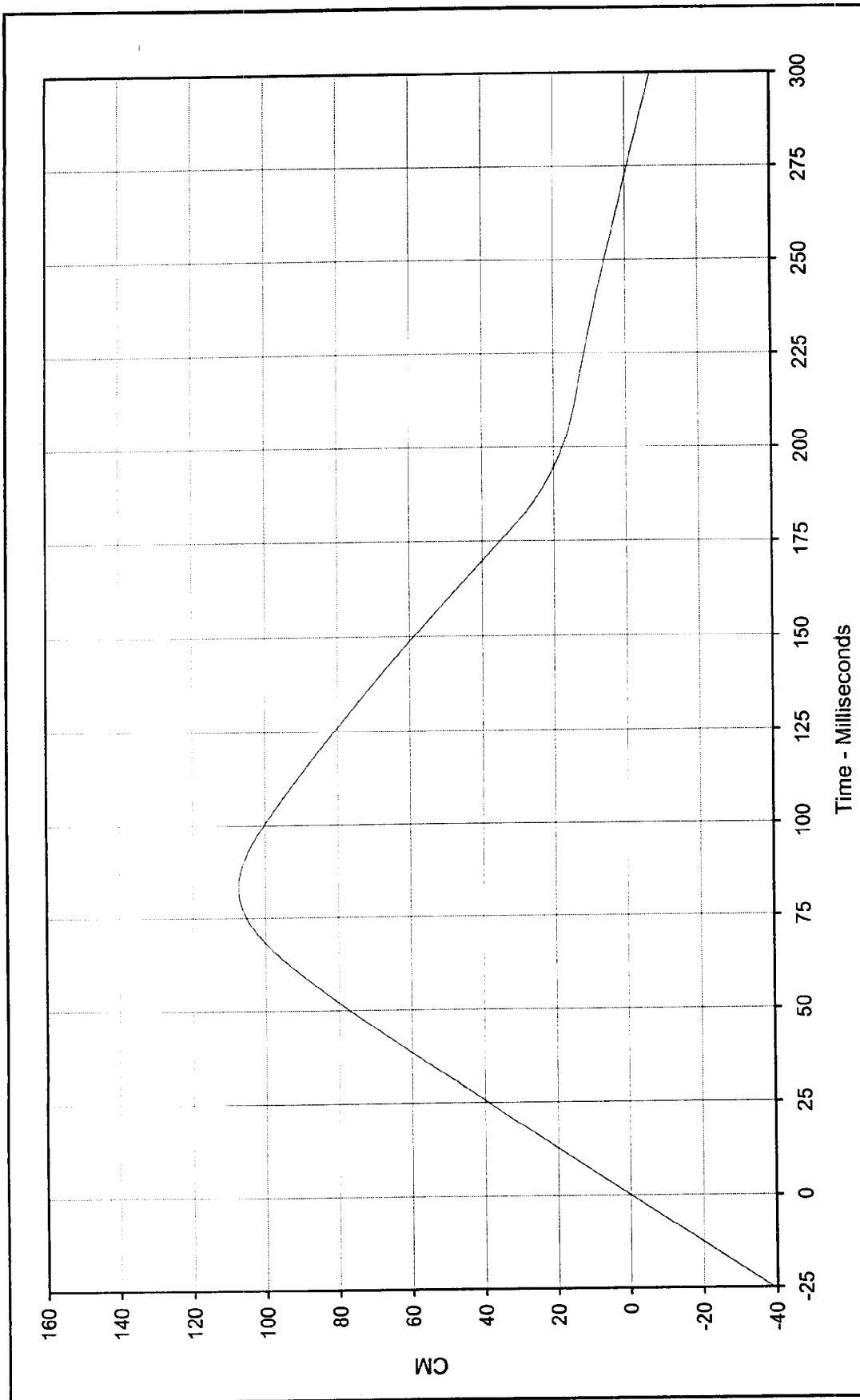
Date of Test: 11/17/99

Curve Number: IN1-045

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Head Primary X Displ. Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Maximum Value: 107.3 at 82.9 Milliseconds Test Vehicle: 2000 Toyota Tundra SR5 Pickup

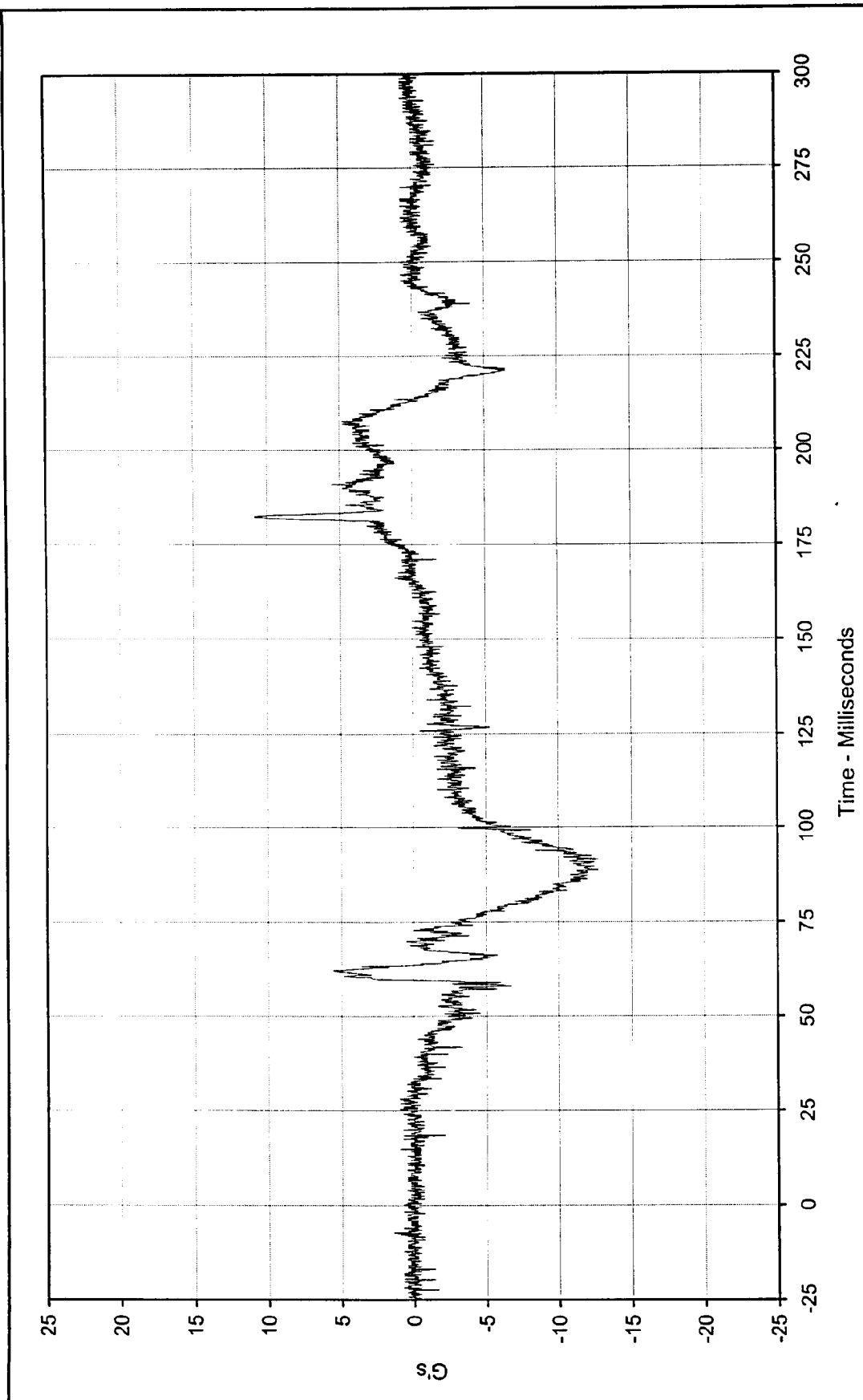
Minimum Value: -7.1 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

Curve Number: IN2-045

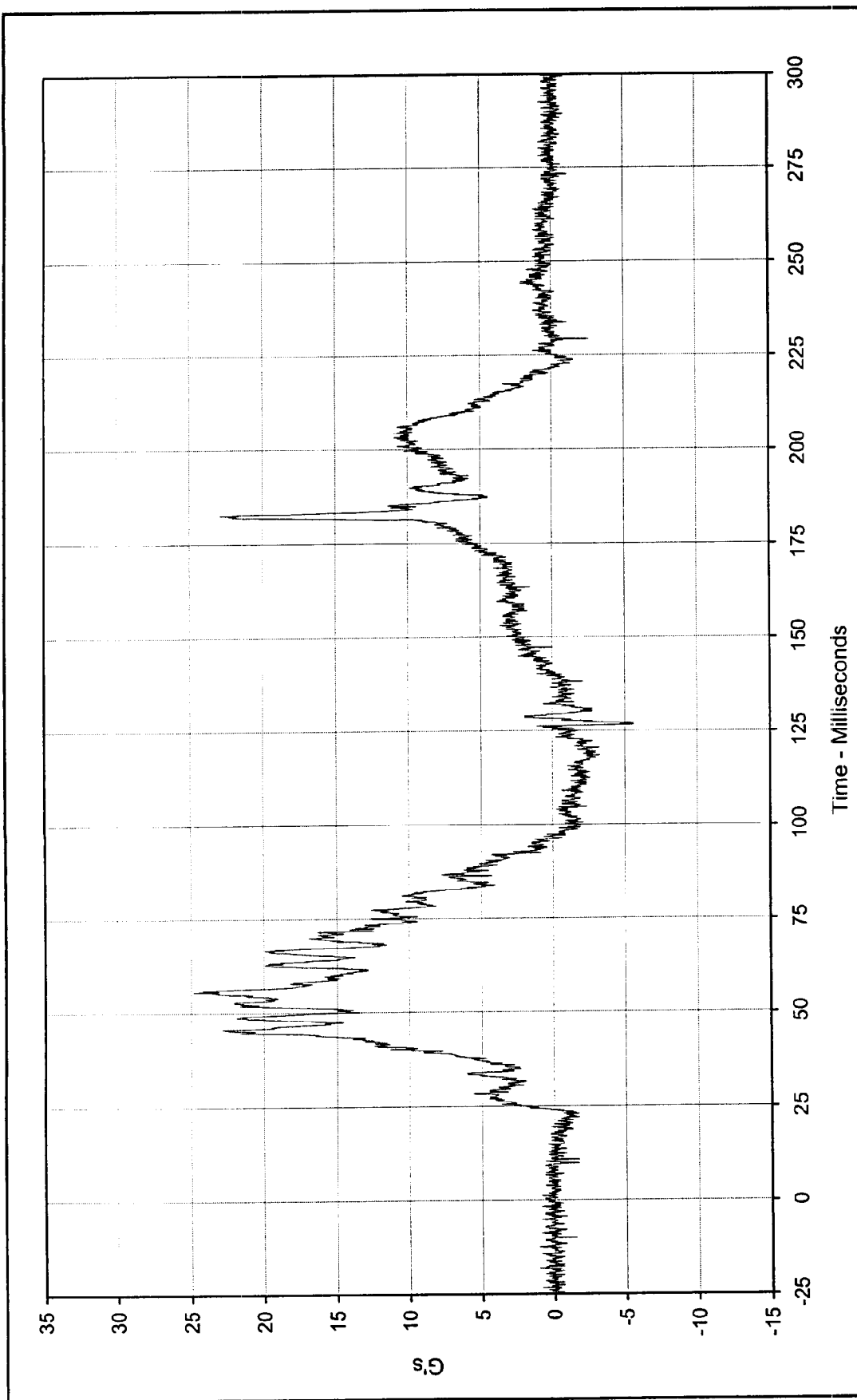




Curve Description: Passenger Head Primary Y
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

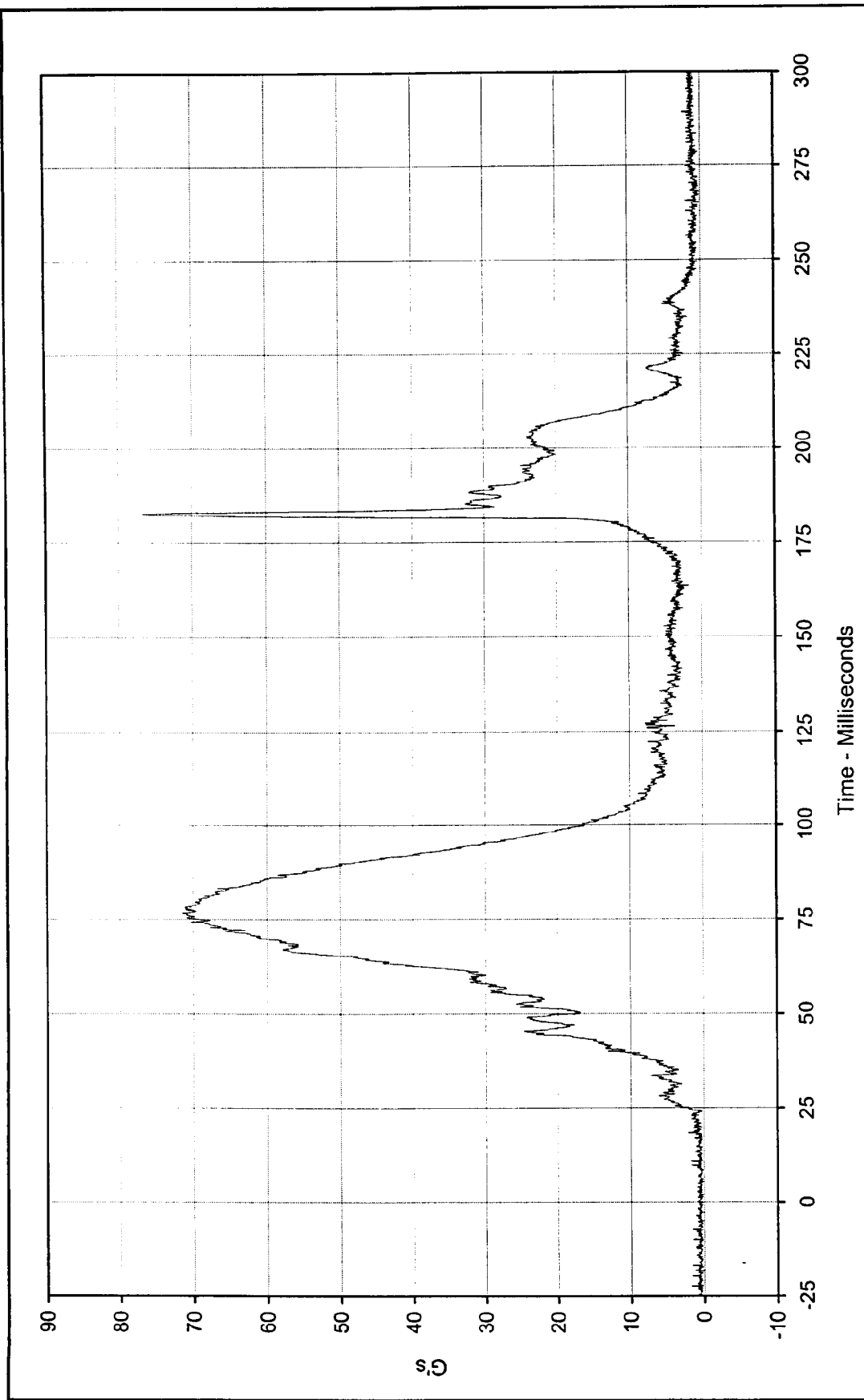
Maximum Value: 10.8 at 182.5 Milliseconds
 Minimum Value: -12.7 at 88.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: FIL-046





Curve Description:	Passenger Head Primary Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	24.8 at 55.5 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-5.6 at 126.7 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-047			

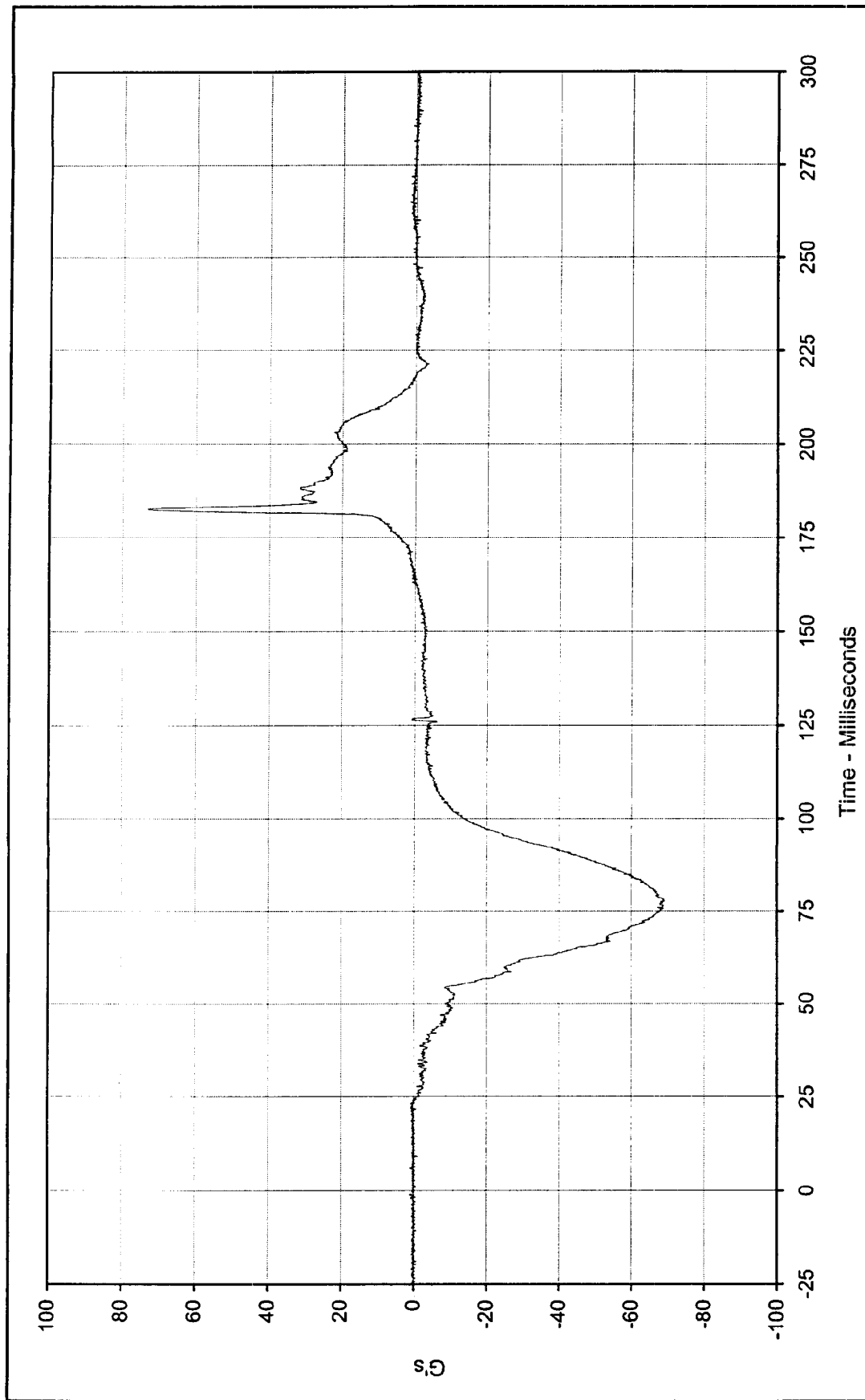




Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

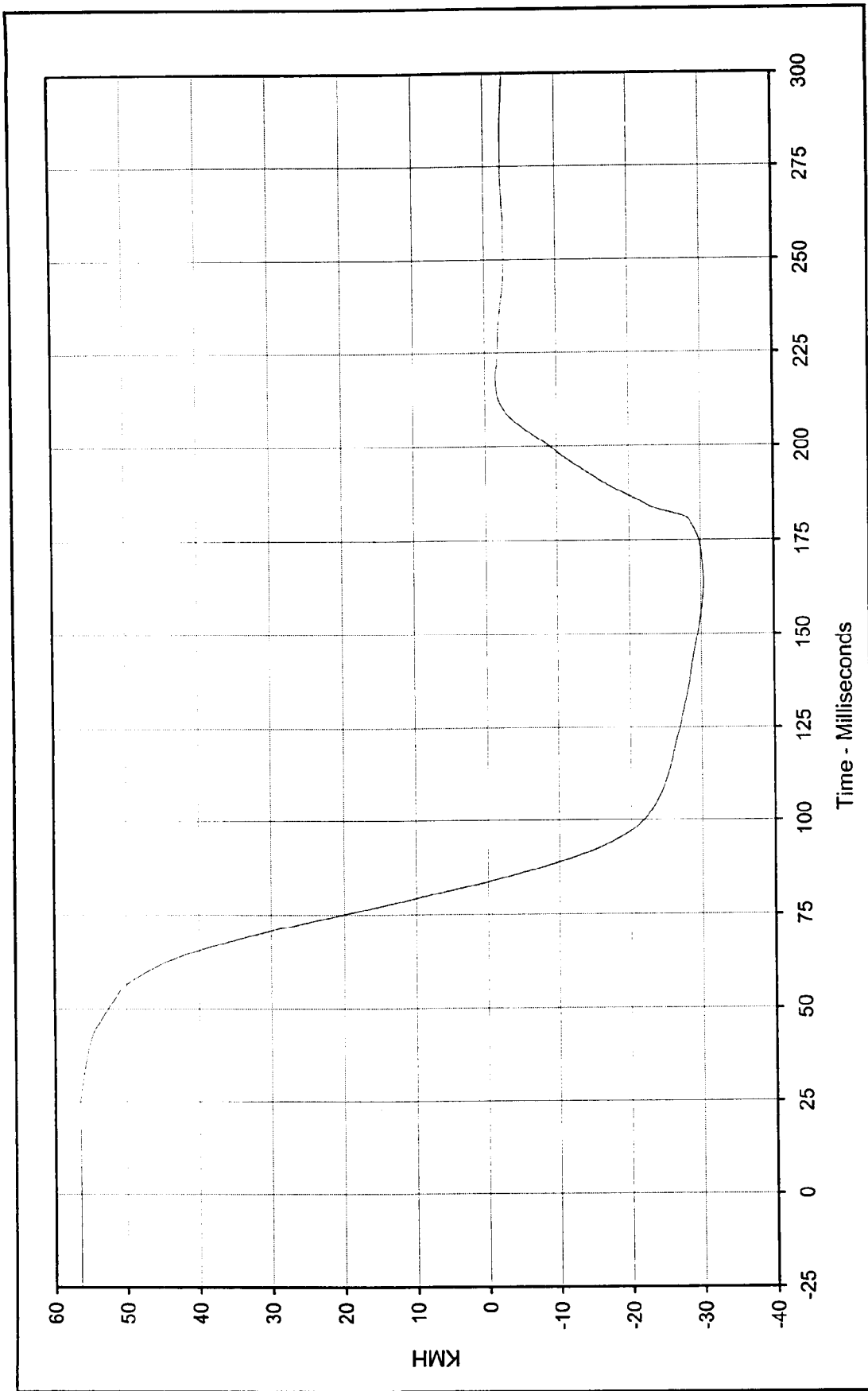
Curve Description: Passenger Head Resultant Primary
 Maximum Value: 76.7 at 182.8 Milliseconds
 Minimum Value: 0.1 at 5.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: RES-045





Curve Description:	Passenger Head Redundant X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	73.1 at 73.1 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-69.2 at 182.6 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-048			

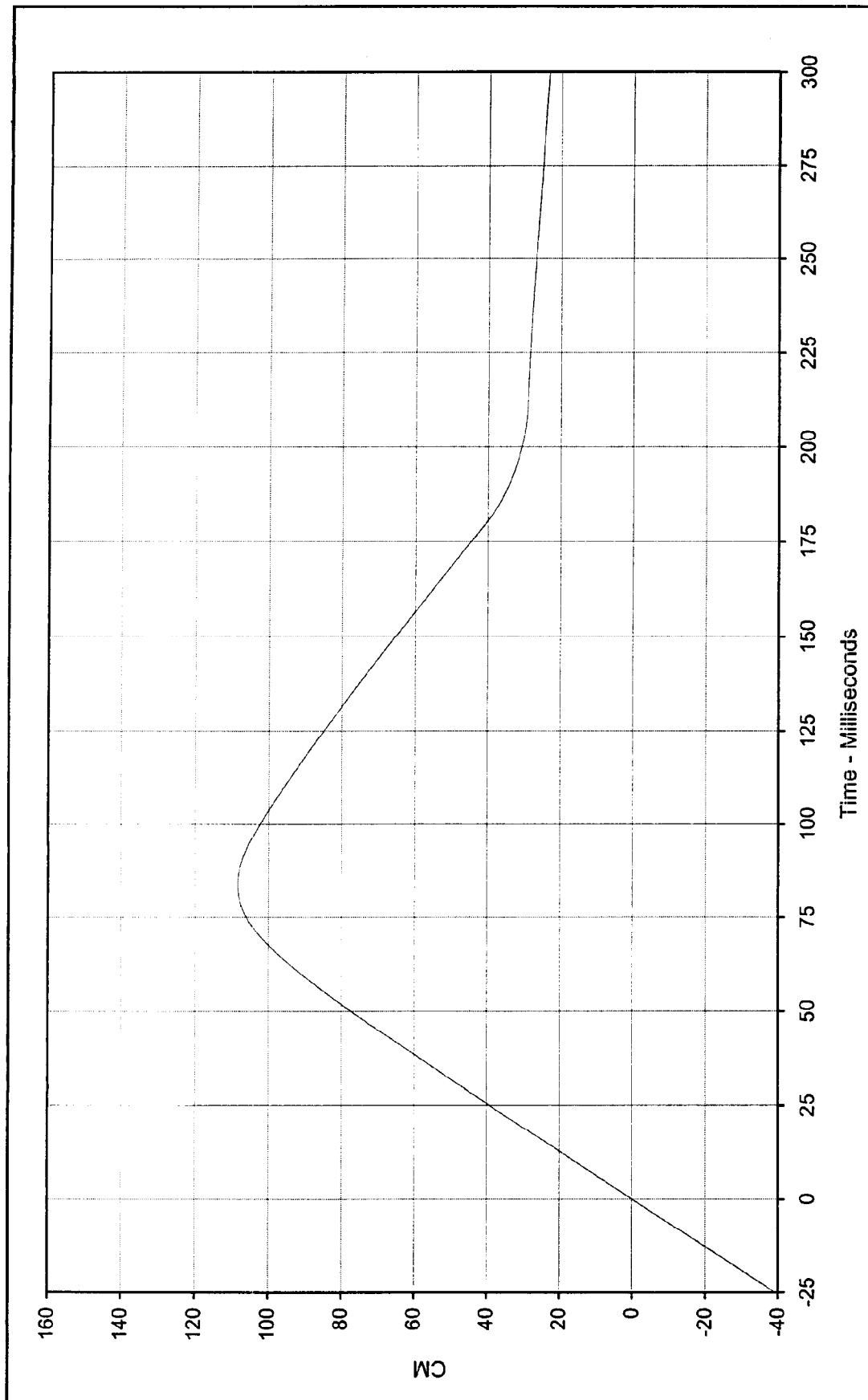




Curve Description: Passenger Head Redundant X Velocity
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Maximum Value: 56.6 at 23.8 Milliseconds
 Minimum Value: -30.3 at 163.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN1-048





Curve Description: Passenger Head Redundant X Displ.

Maximum Value: 108.4 at 83.6 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

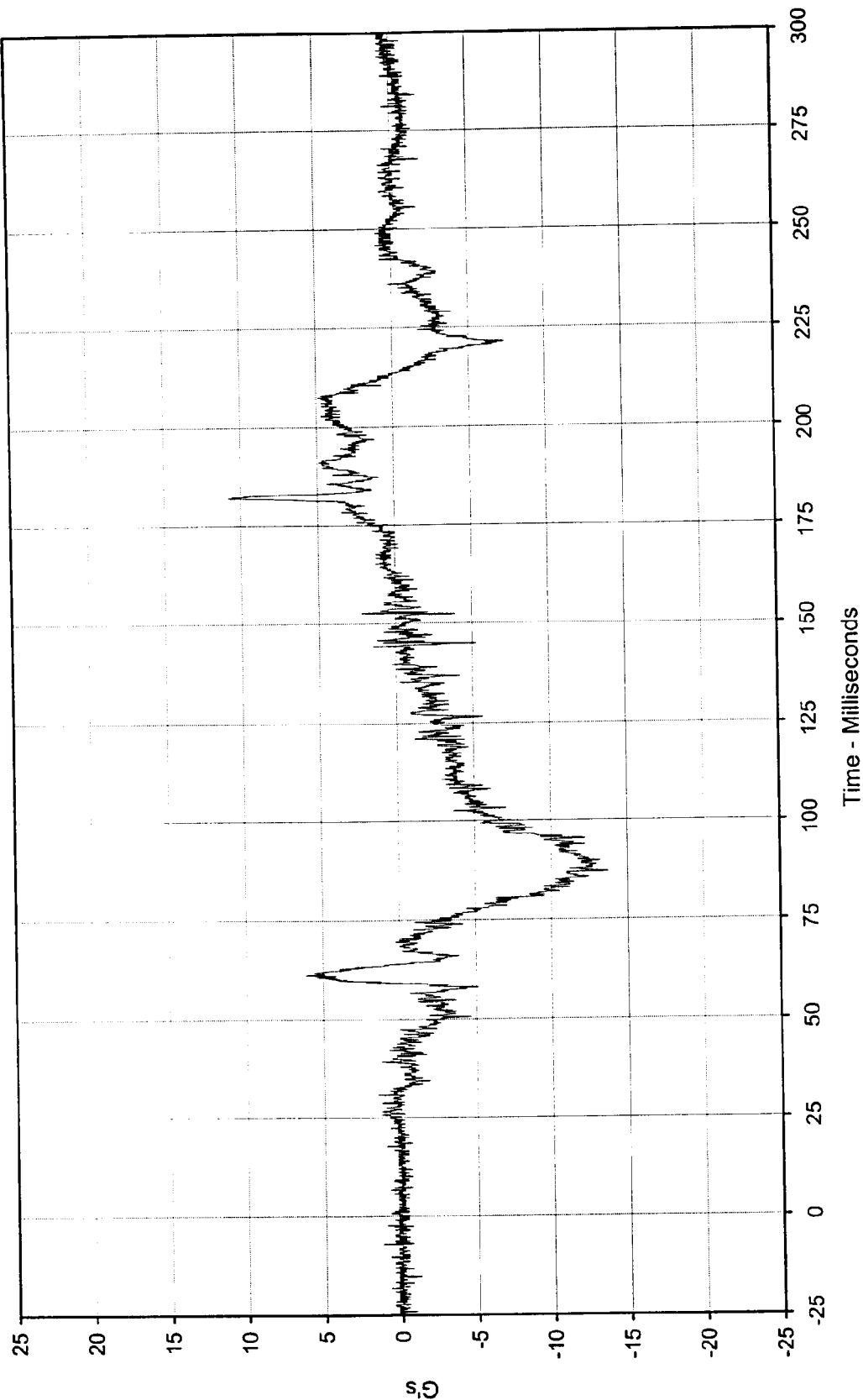
Date of Test: 11/17/99

Curve Number: IN2-048

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Head Redundant Y

Maximum Value: 10.8 at 182.2 Milliseconds

Minimum Value: -13.7 at 86.9 Milliseconds

SAE Filter Class: 1000

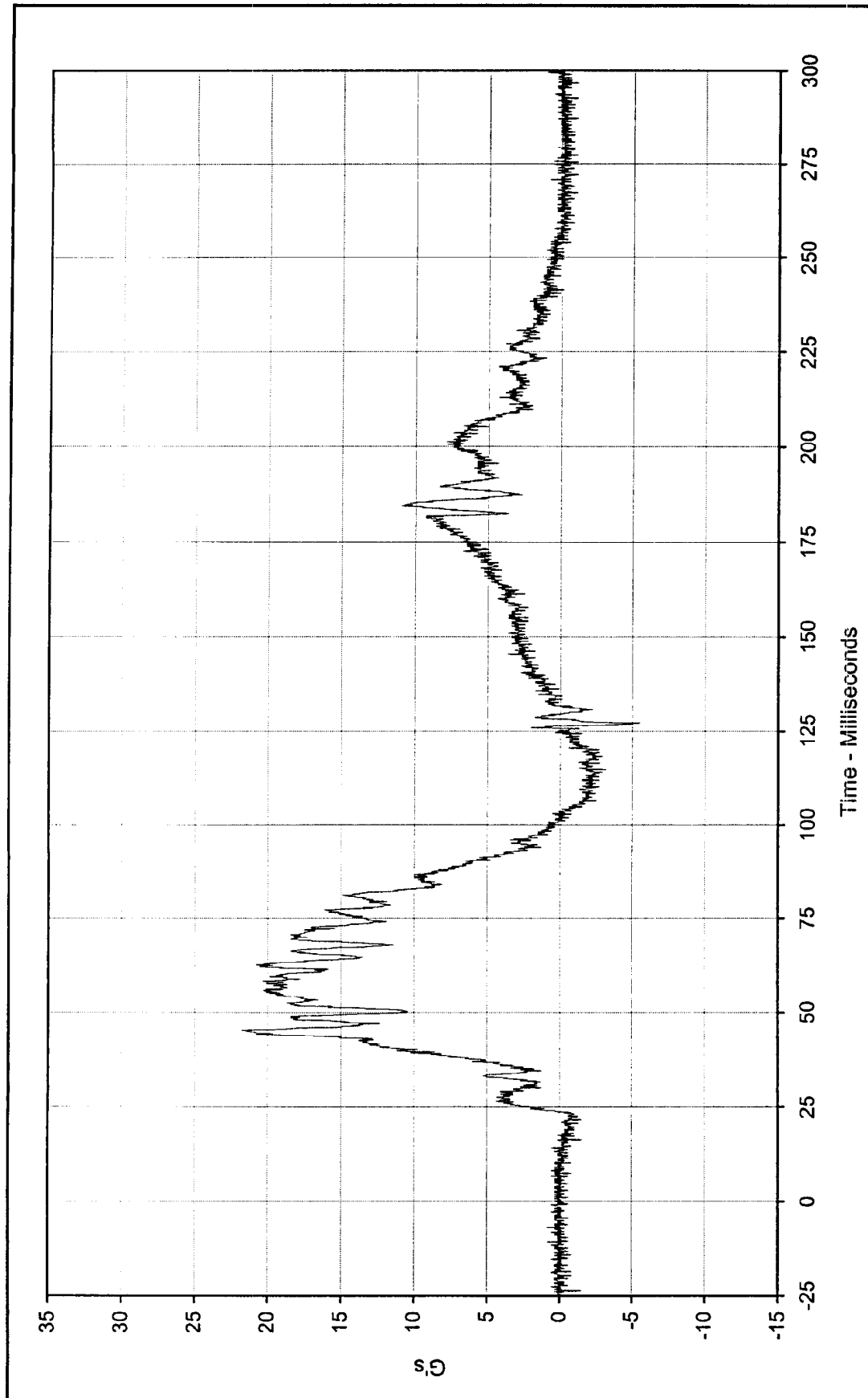
Date of Test: 11/17/99

Curve Number: FIL-049

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Head Redundant Z

Test Program: 2000 NHTSA 35 mph NCAP

No.: MY5103

Maximum Value: 21.7 at 45.3 Milliseconds

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

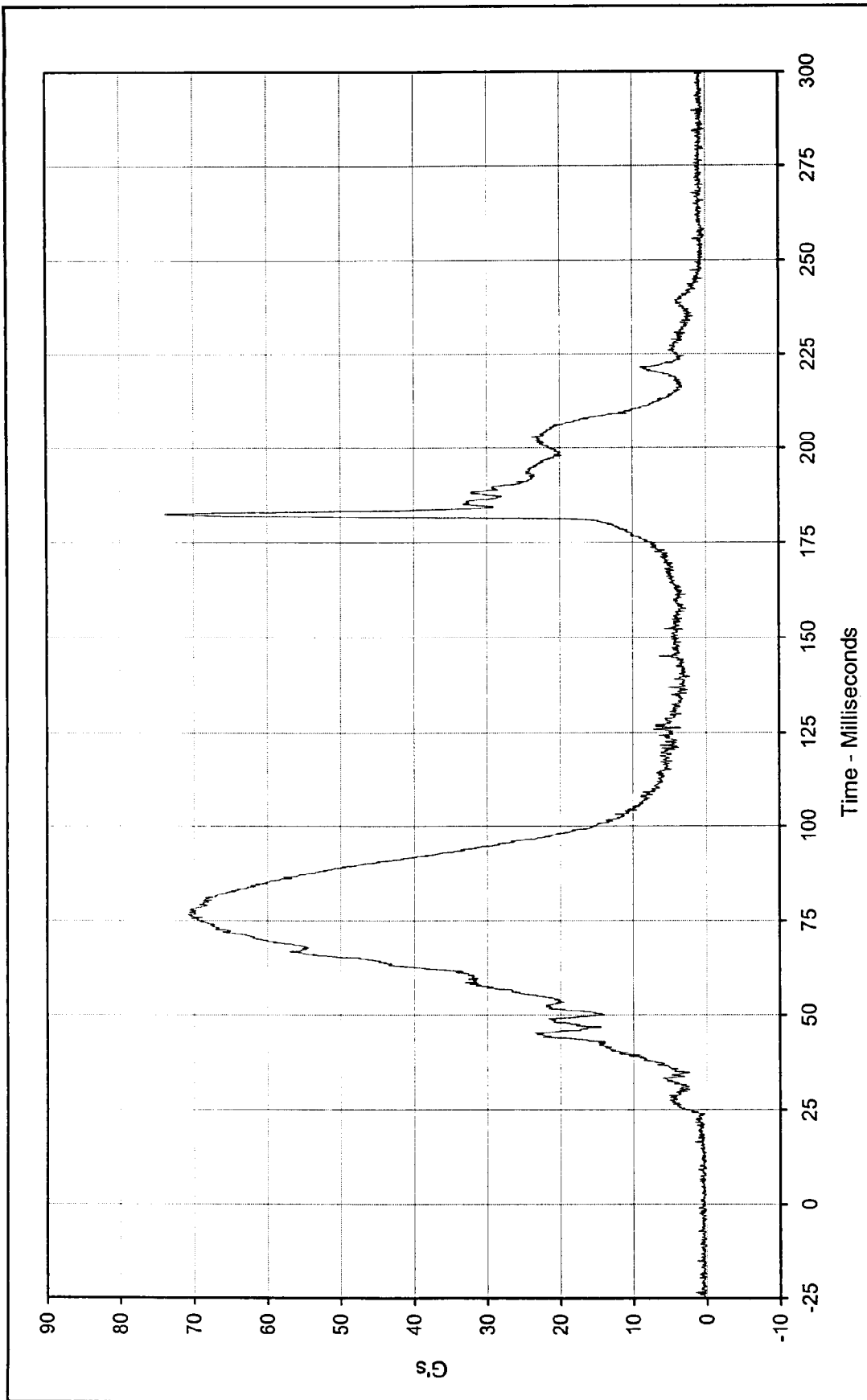
Minimum Value: -5.5 at 127.1 Milliseconds

SAE Filter Class: 1000

Date of Test: 11/17/99

Curve Number: FIL-050

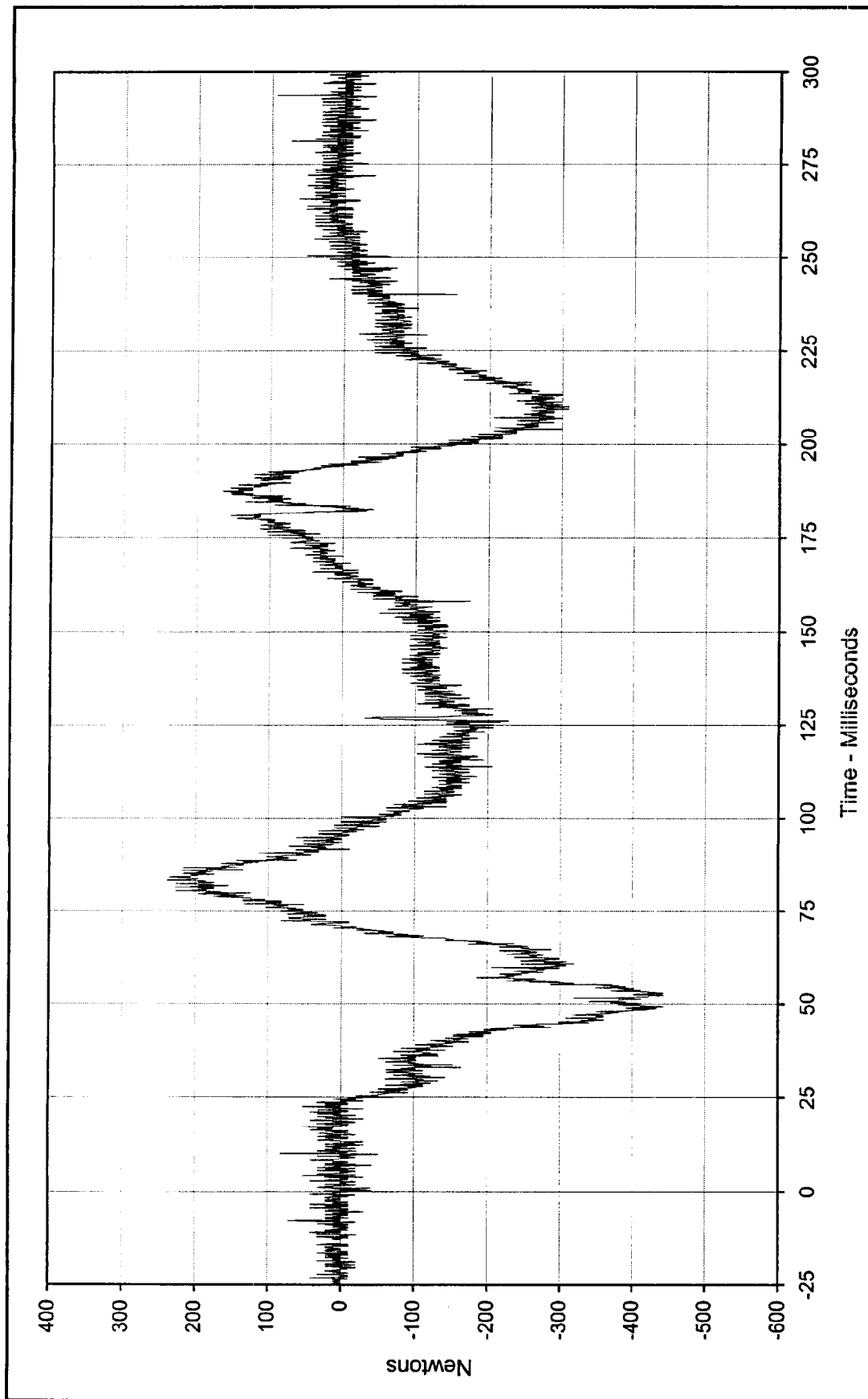




Curve Description: Passenger Head Resultant Redundant
 Maximum Value: 73.9 at 182.6 Milliseconds
 Minimum Value: 0.1 at 7.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: RES-048

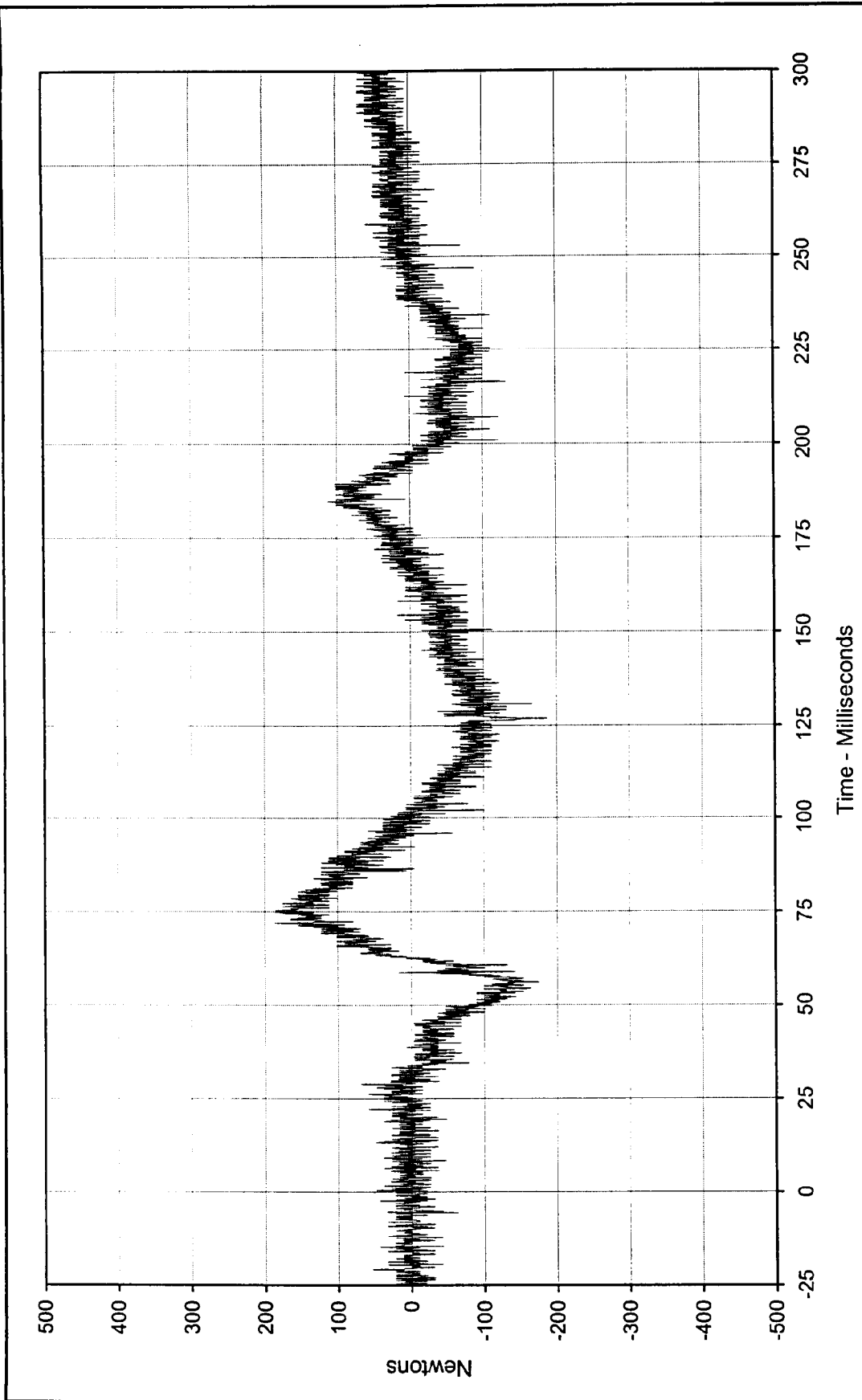
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





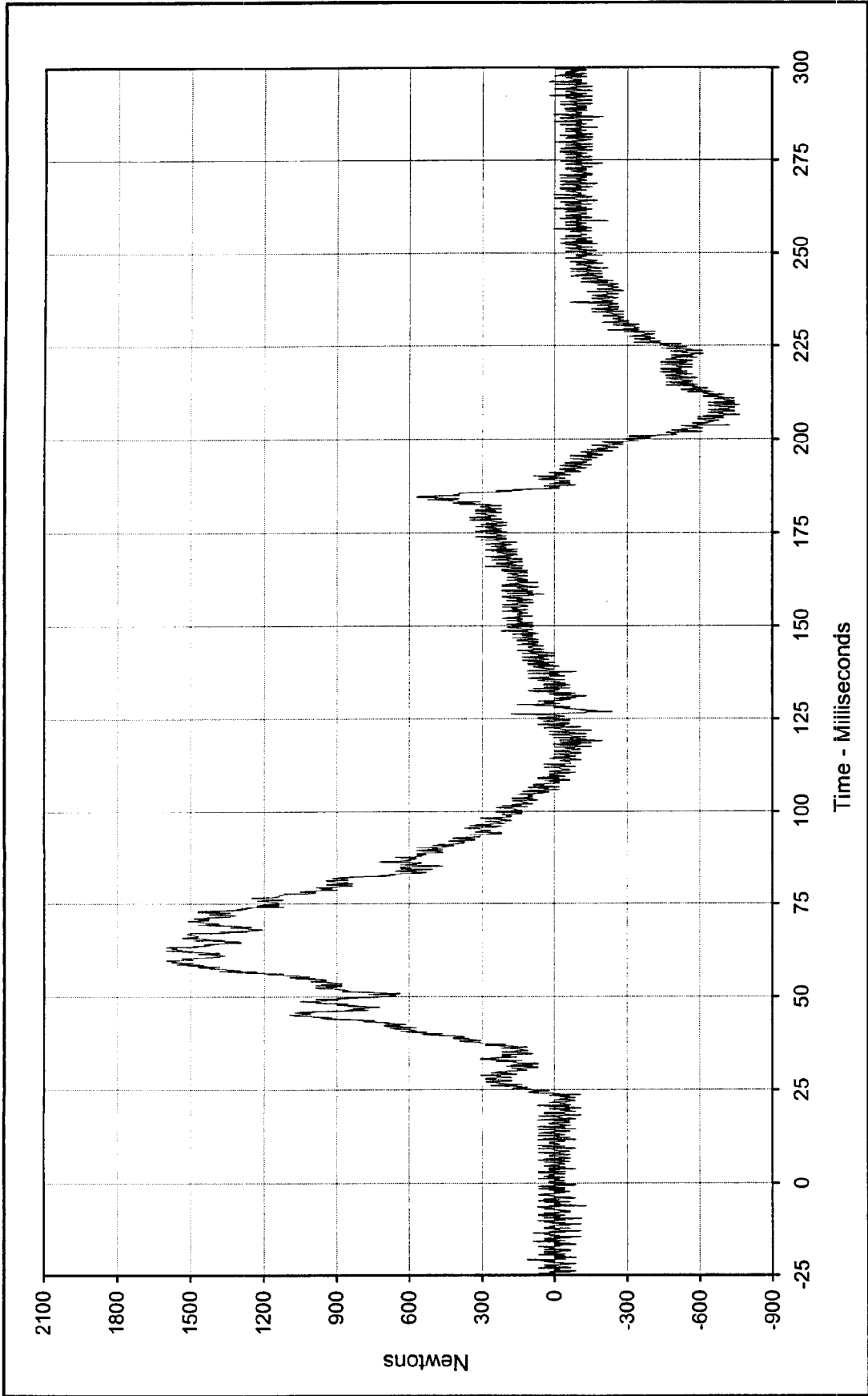
Curve Description:	Passenger Neck Force X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	236.9 at 83.0 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-442.9 at 49.1 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-051			





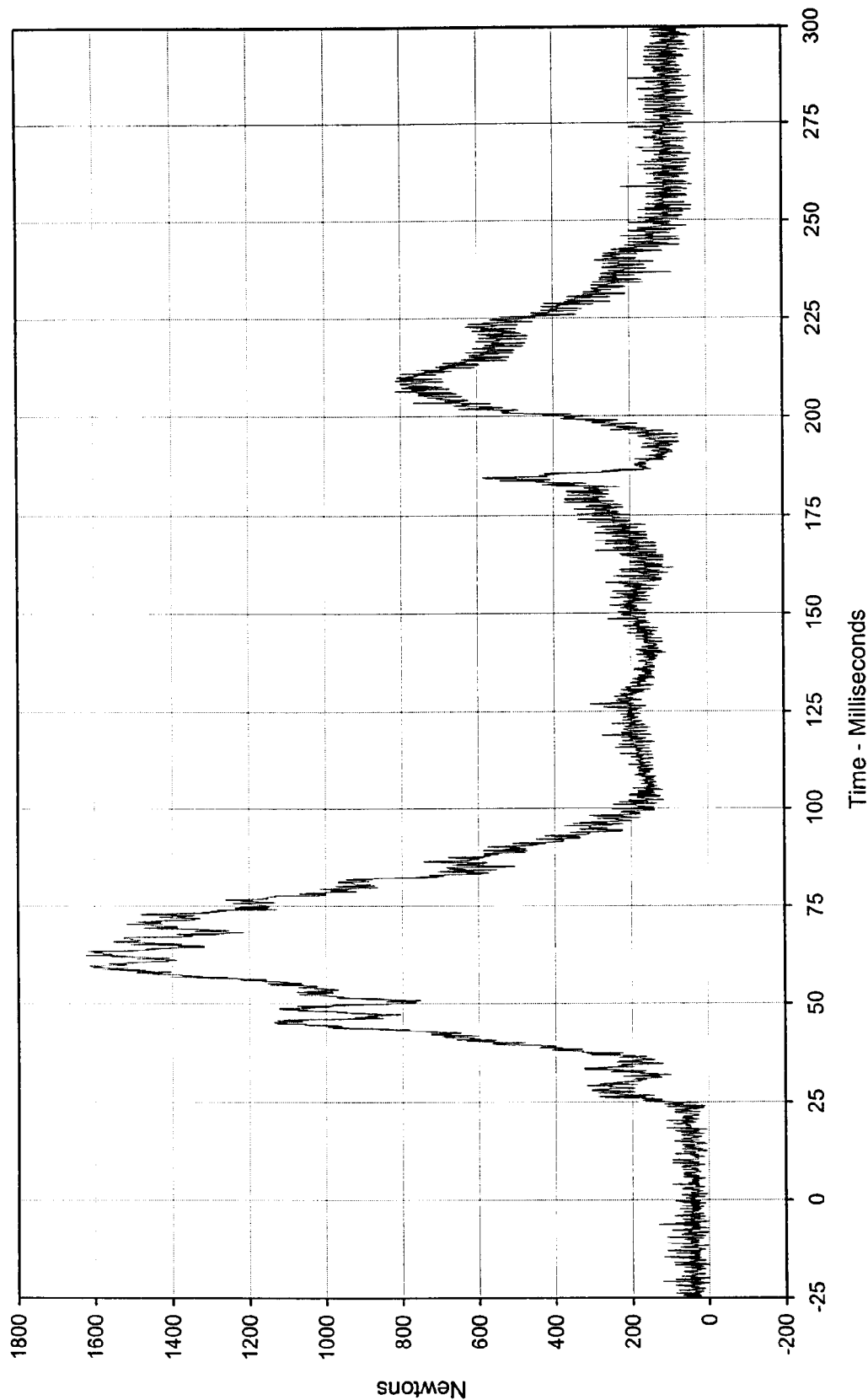
Curve Description:	Passenger Neck Force Y	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	186.0 at 71.9 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-185.4 at 126.9 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-052			





Curve Description:	Passenger Neck Force Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	1599.6	at	59.6	Milliseconds
Minimum Value:	-766.9	at	206.6	Milliseconds
SAE Filter Class:	1000	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Date of Test:	11/17/99			
Curve Number:	FIL-053			





Curve Description: Passenger Neck Force Resultant

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Maximum Value: 1623.6 at 62.2 Milliseconds

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

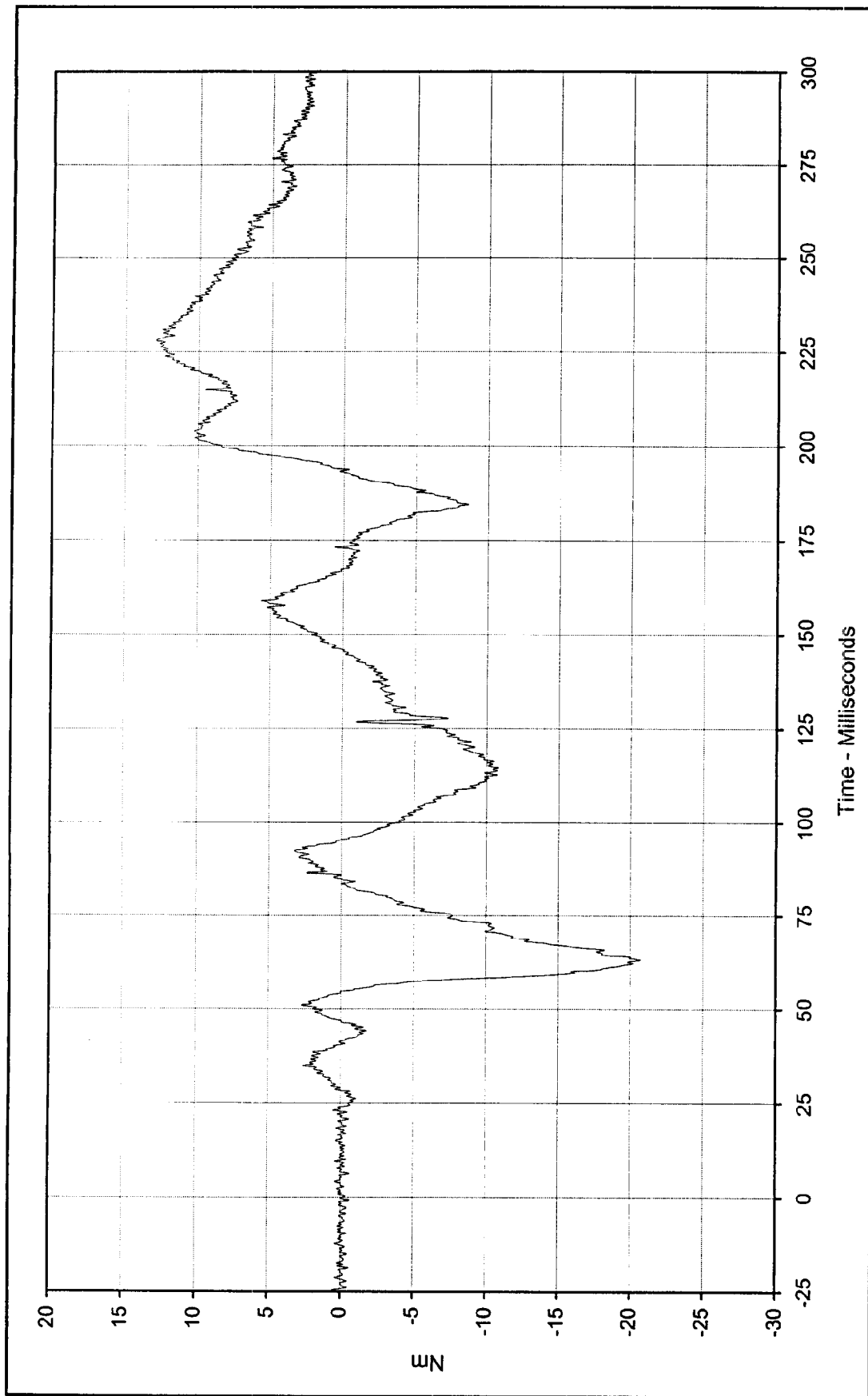
Minimum Value: 5.0 at 1.5 Milliseconds

SAE Filter Class: 1000

Date of Test: 11/17/99

Curve Number: RES-051

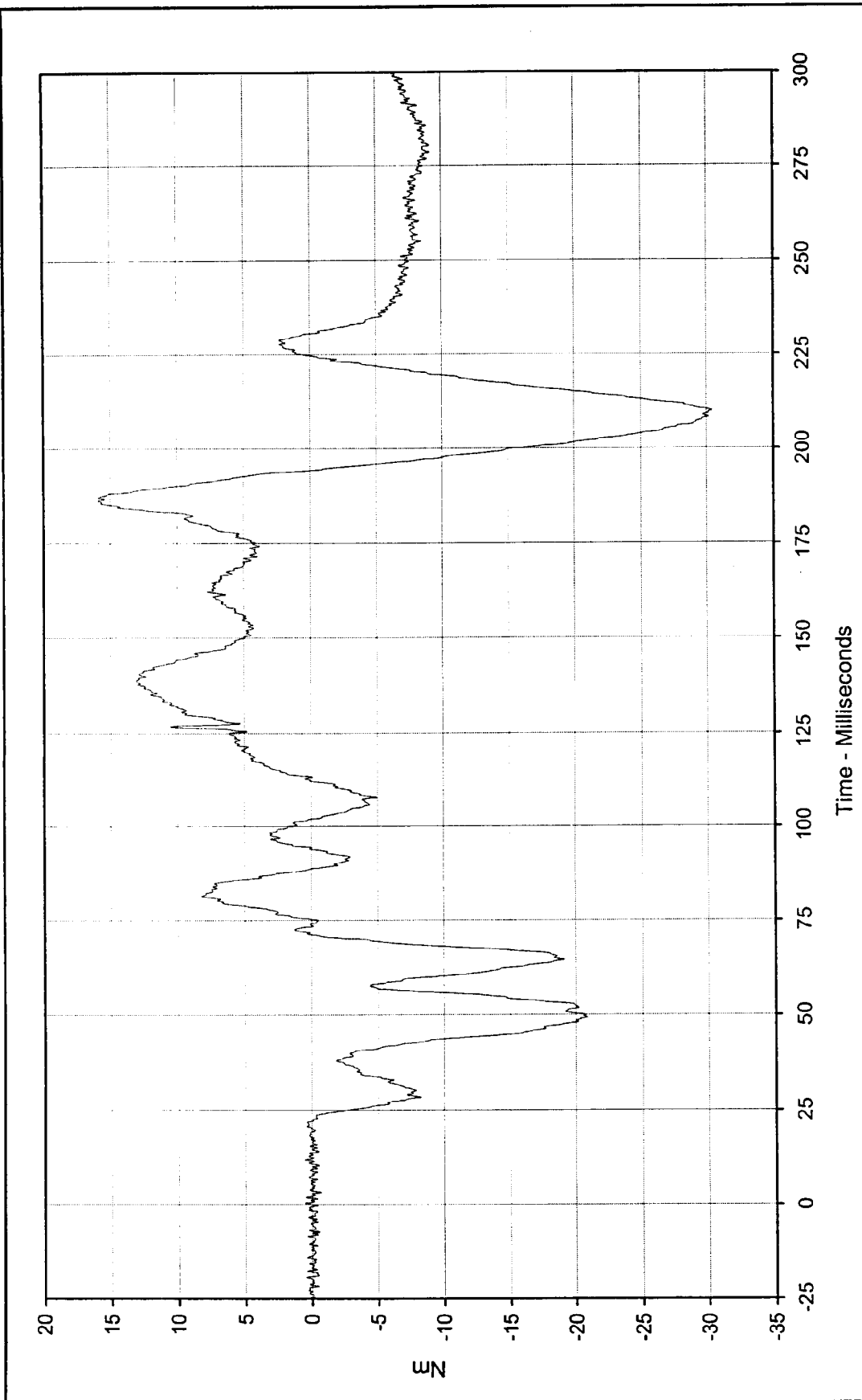




Curve Description: Passenger Neck Moment X
 Maximum Value: 12.9 at 228.1 Milliseconds
 Minimum Value: -20.7 at 63.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 11/17/99
 Curve Number: FIL-054

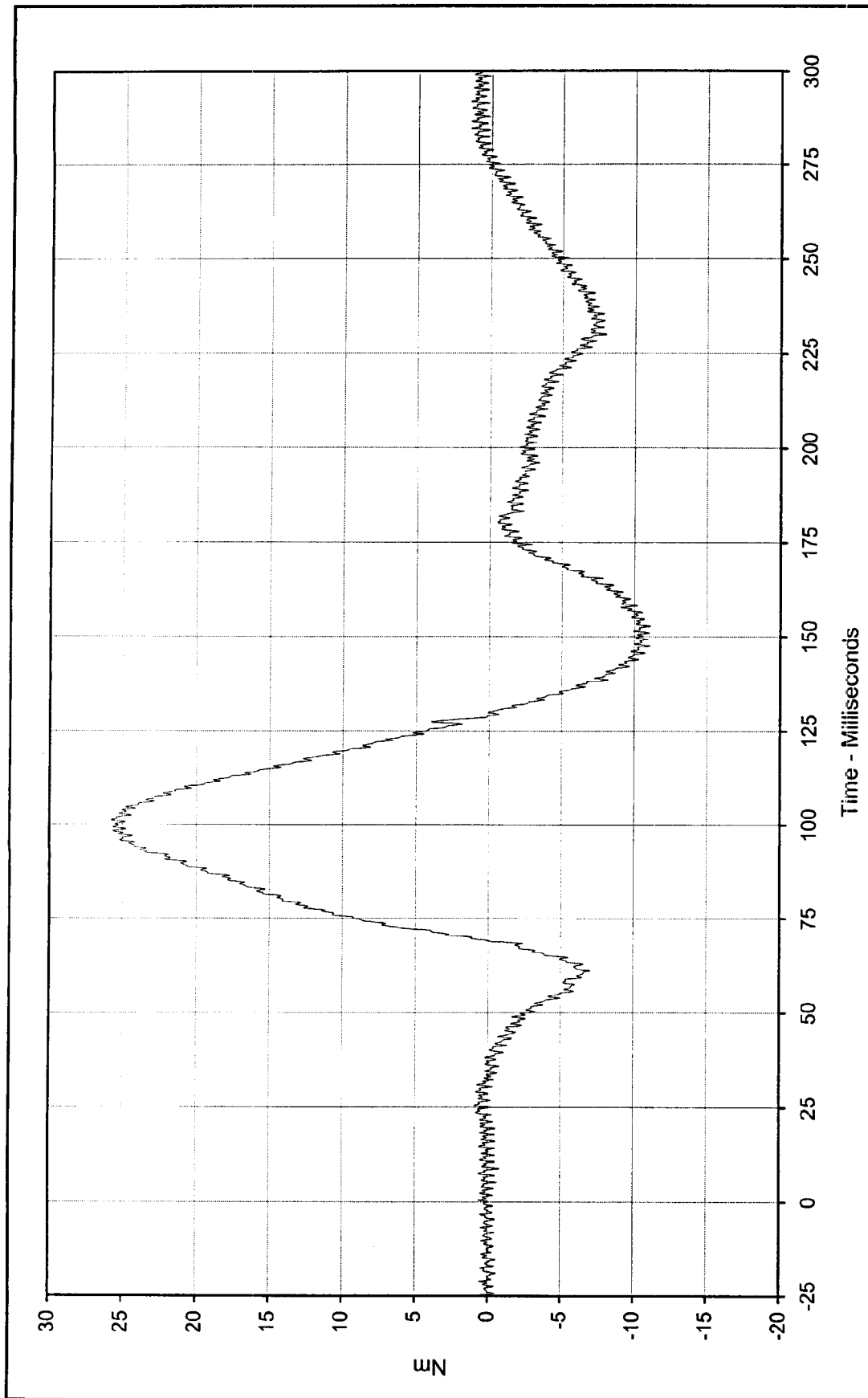
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:		Passenger Neck Moment Y	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	15.9	at 186.3	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-30.4	at 210.1			
SAE Filter Class:	600				
Date of Test:	11/17/99				
Curve Number:	FIL-055				

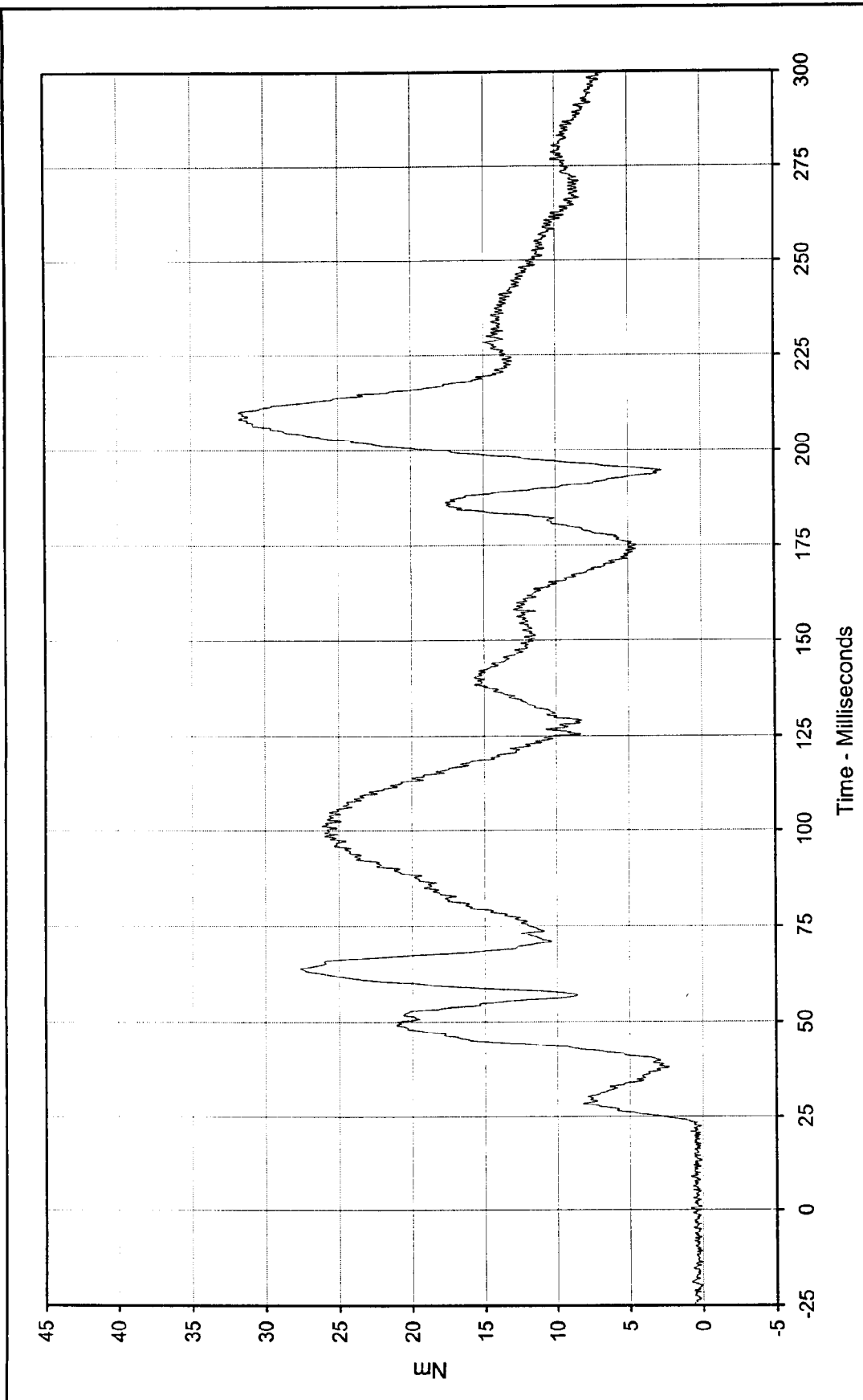




Curve Description:	Passenger Neck Moment Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	25.8	at	101.1	Milliseconds
Minimum Value:	-11.1	at	152.8	Milliseconds
SAE Filter Class:	600	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Date of Test:	11/17/99			
Curve Number:	FIL-056			

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Curve Description: Passenger Neck Moment Resultant

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Maximum Value: 31.7 at 210.1 Milliseconds

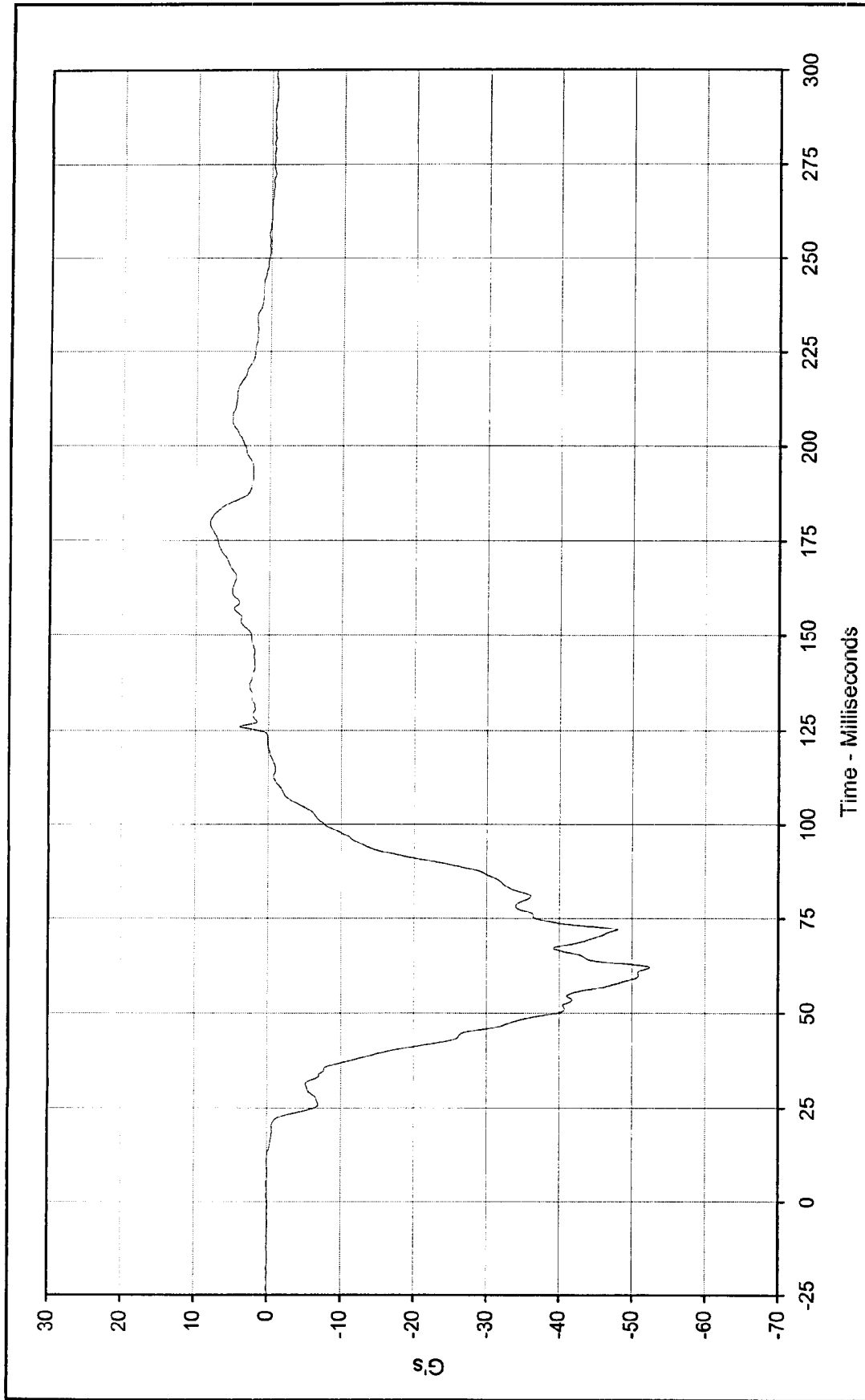
Minimum Value: 0.1 at 13.3 Milliseconds

SAE Filter Class: 600

Date of Test: 11/17/99

Curve Number: RES-054

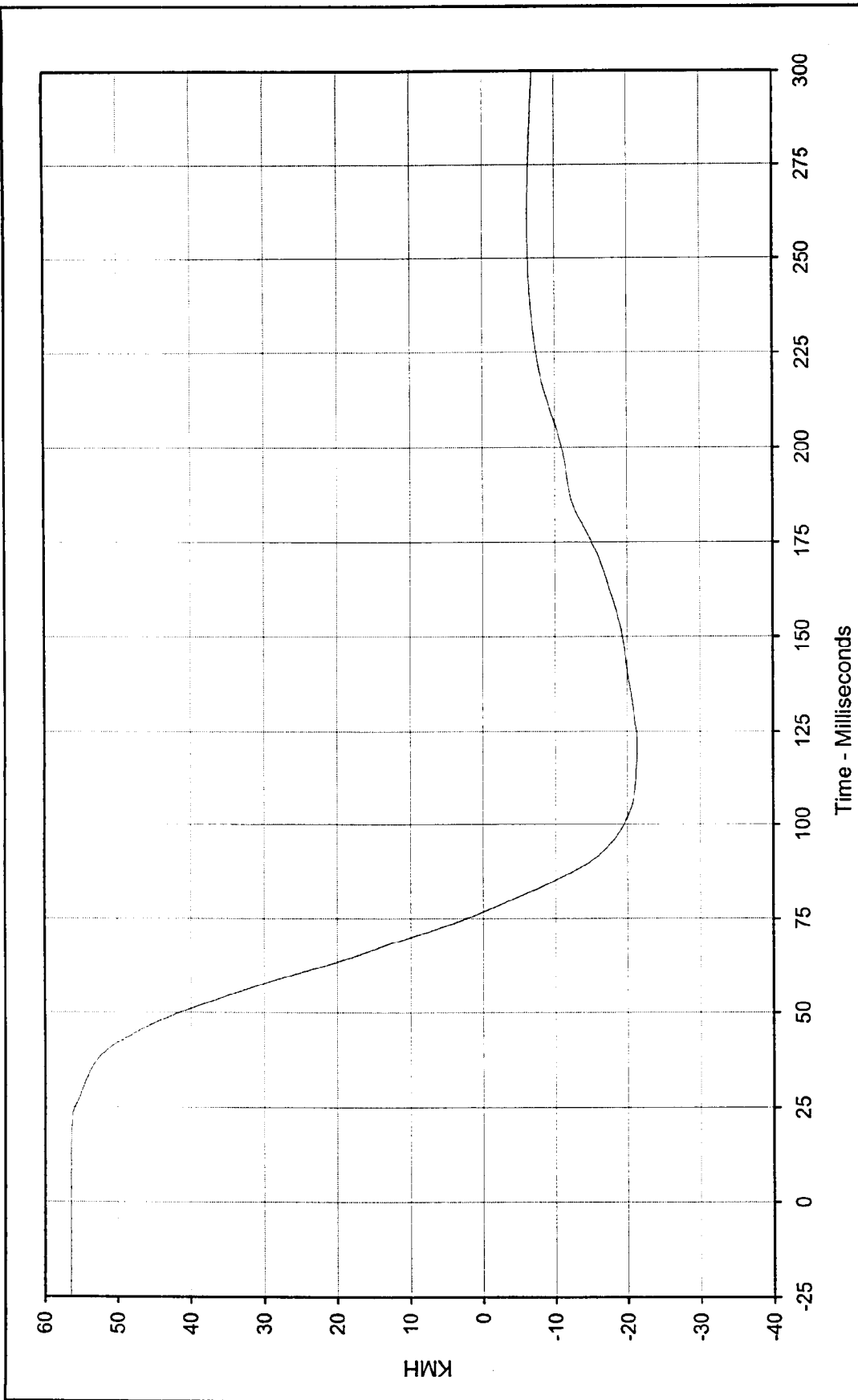




Curve Description: Passenger Chest Primary X
Maximum Value: 8.1 at 179.8 Milliseconds
Minimum Value: -52.4 at 61.9 Milliseconds
SAE Filter Class: 180
Date of Test: 11/17/99
Curve Number: FIL-057

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup

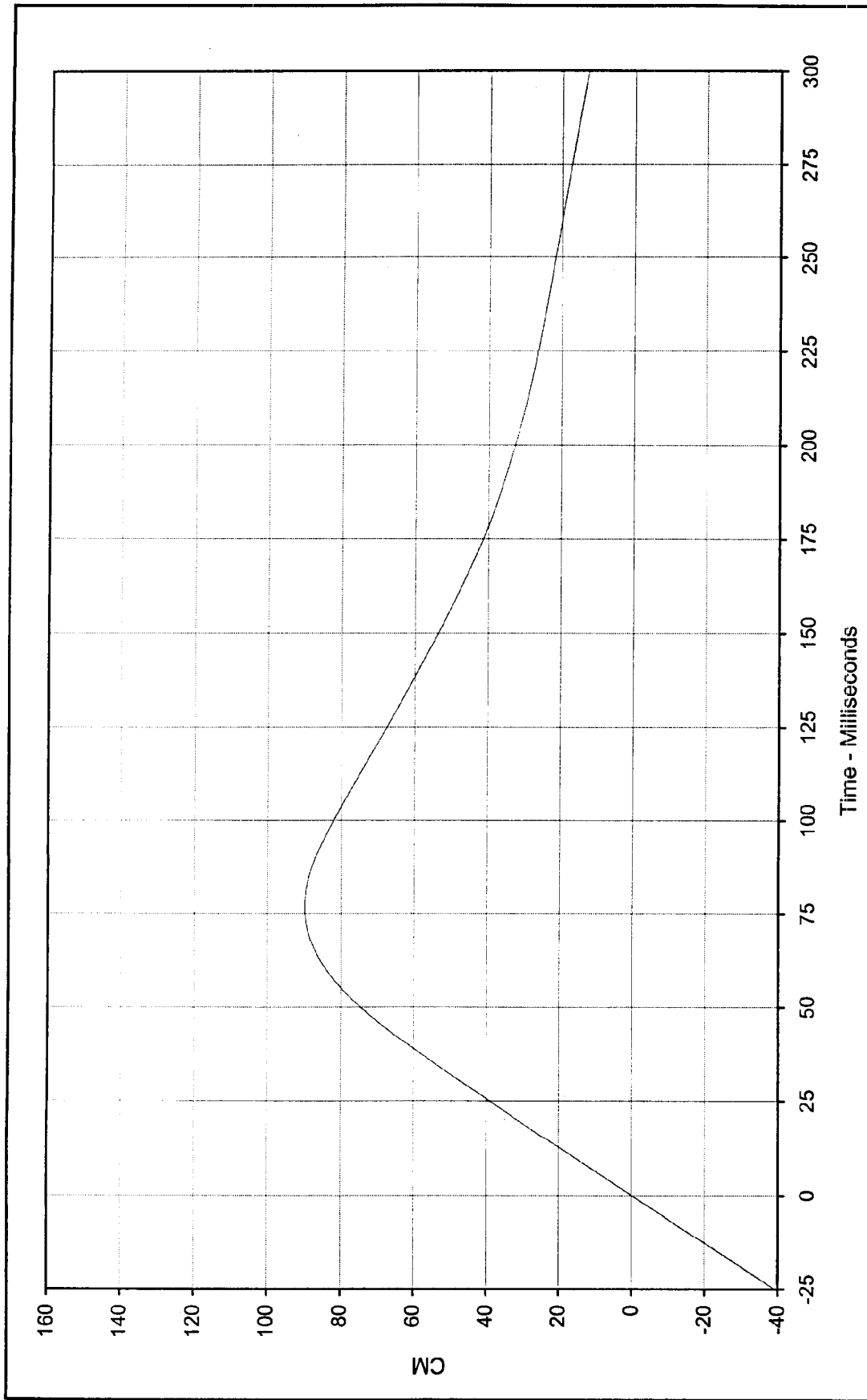




Curve Description: Passenger Chest Primary X Velocity
 Maximum Value: 56.5 at 5.8 Milliseconds
 Minimum Value: -21.3 at 120.1 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN1-057

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

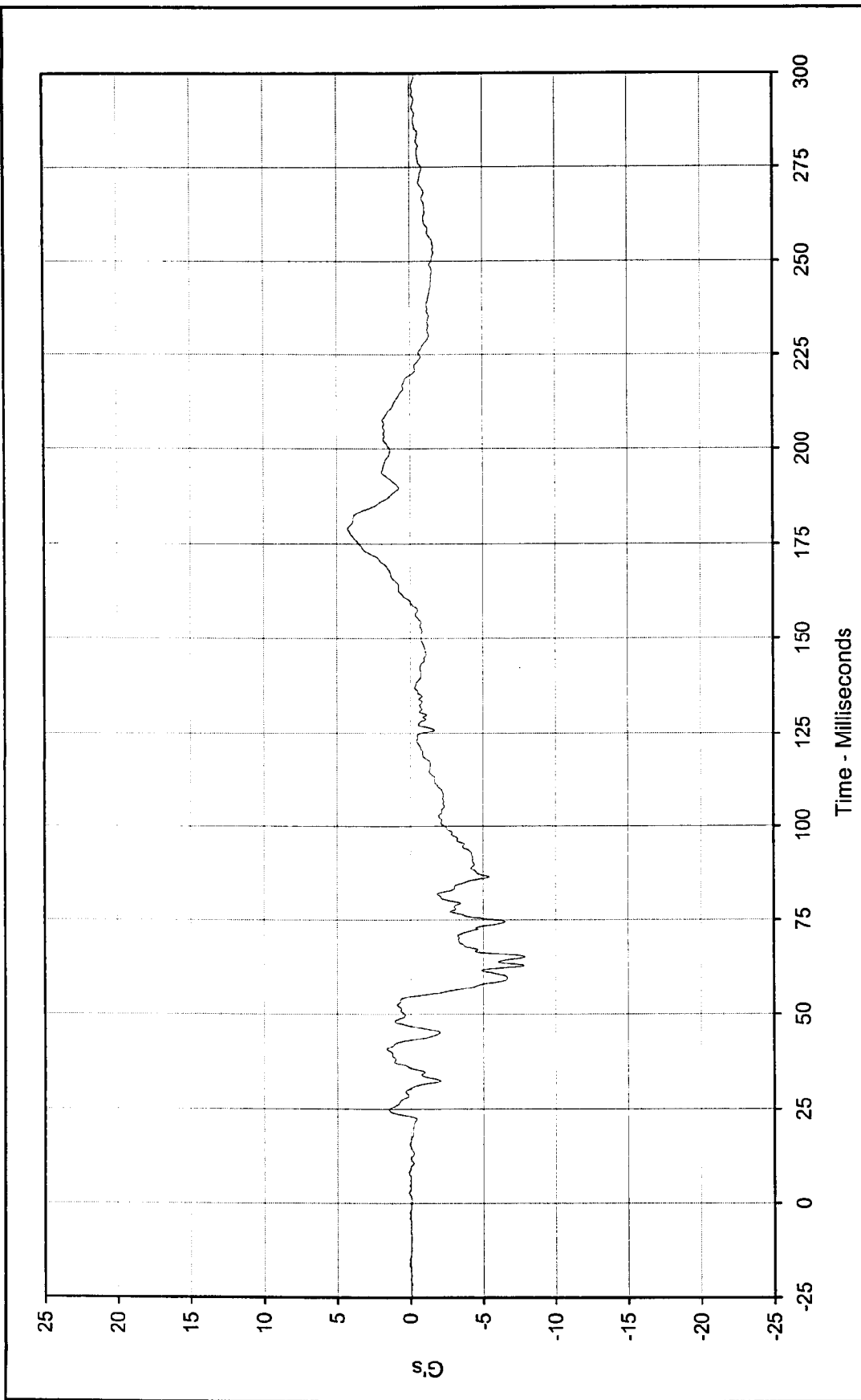




Curve Description: Passenger Chest Primary X Displ.
 Maximum Value: 89.8 at 76.8 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN2-057

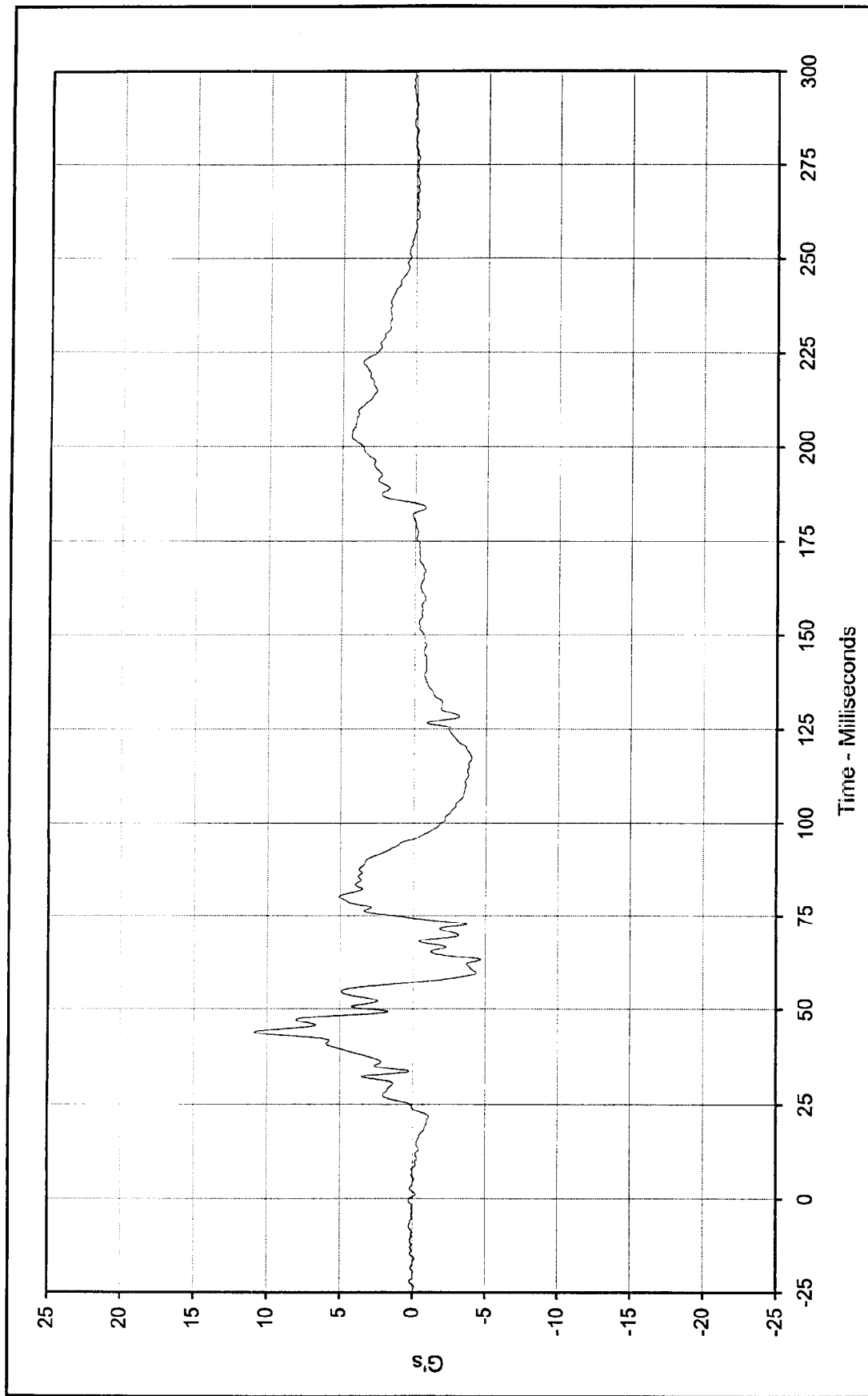
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:	Passenger Chest Primary Y	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	4.3 at 179.1 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-7.9 at 64.9 Milliseconds			
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	FIL-058			

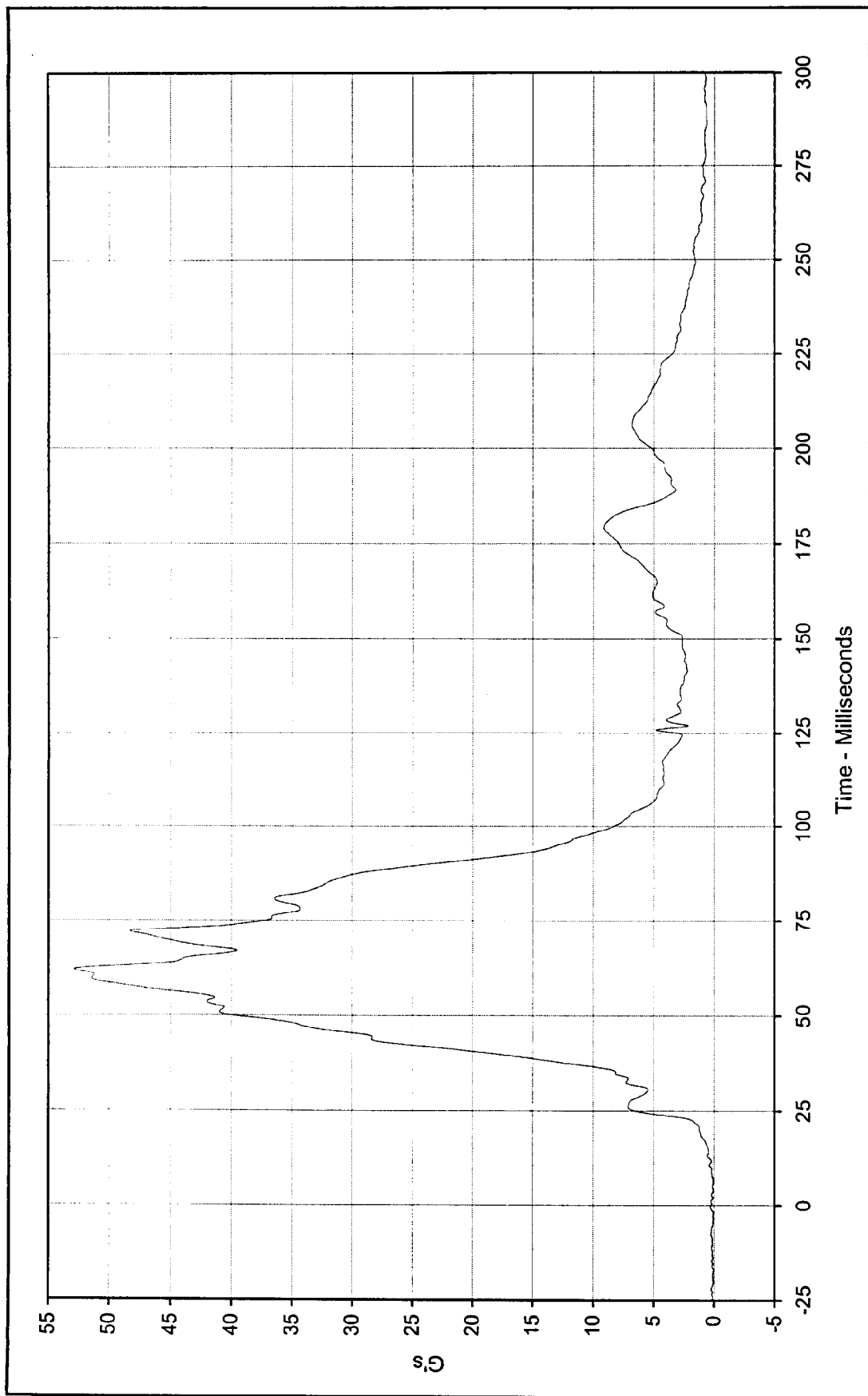




Curve Description: Passenger Chest Primary Z
 Maximum Value: 10.9 at 43.7 Milliseconds
 Minimum Value: -4.7 at 63.1 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: FIL-059

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

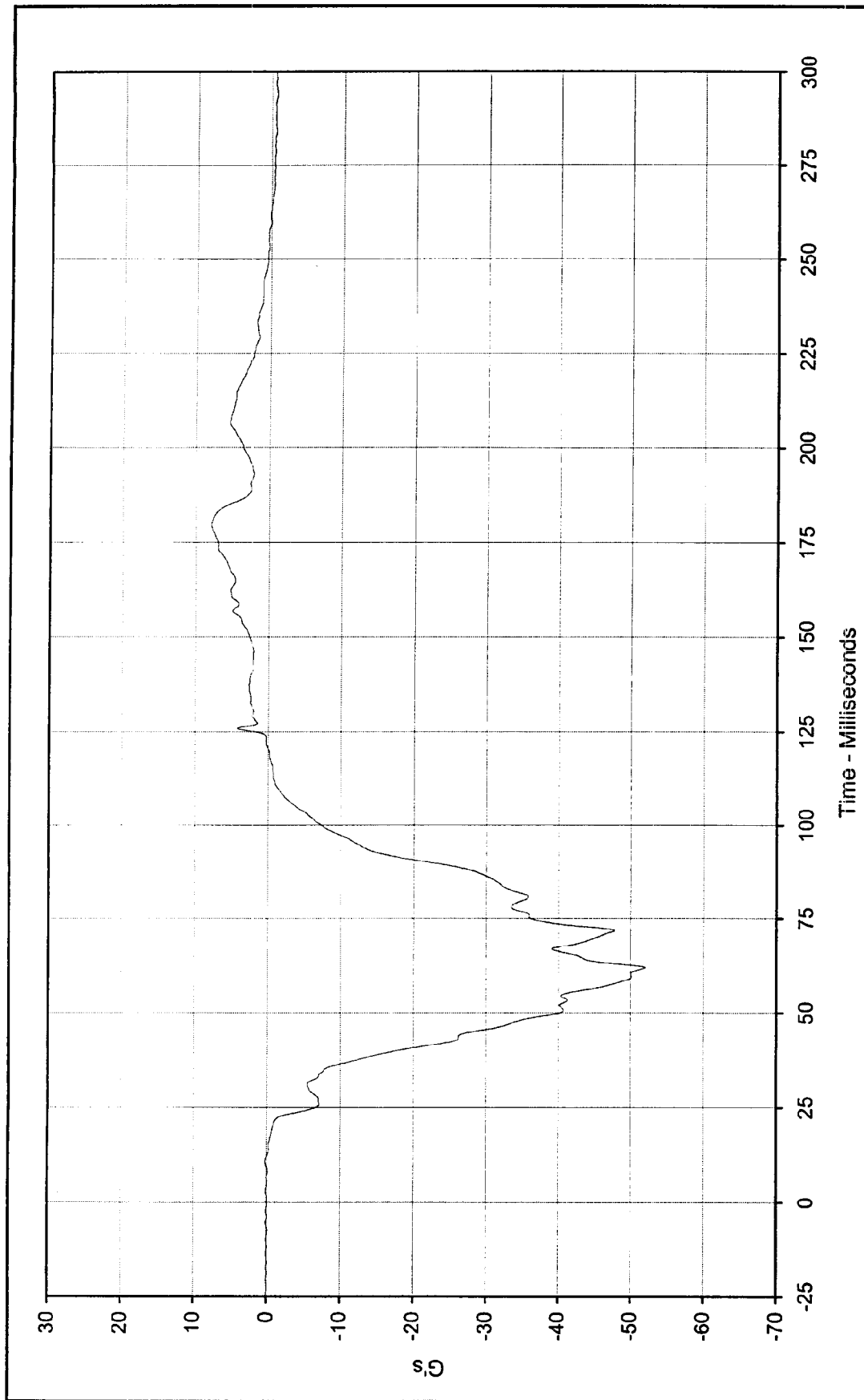




Curve Description: Passenger Chest Resultant Primary
 Maximum Value: 52.9 at 62.0 Milliseconds
 Minimum Value: 0.0 at 5.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: RES-057

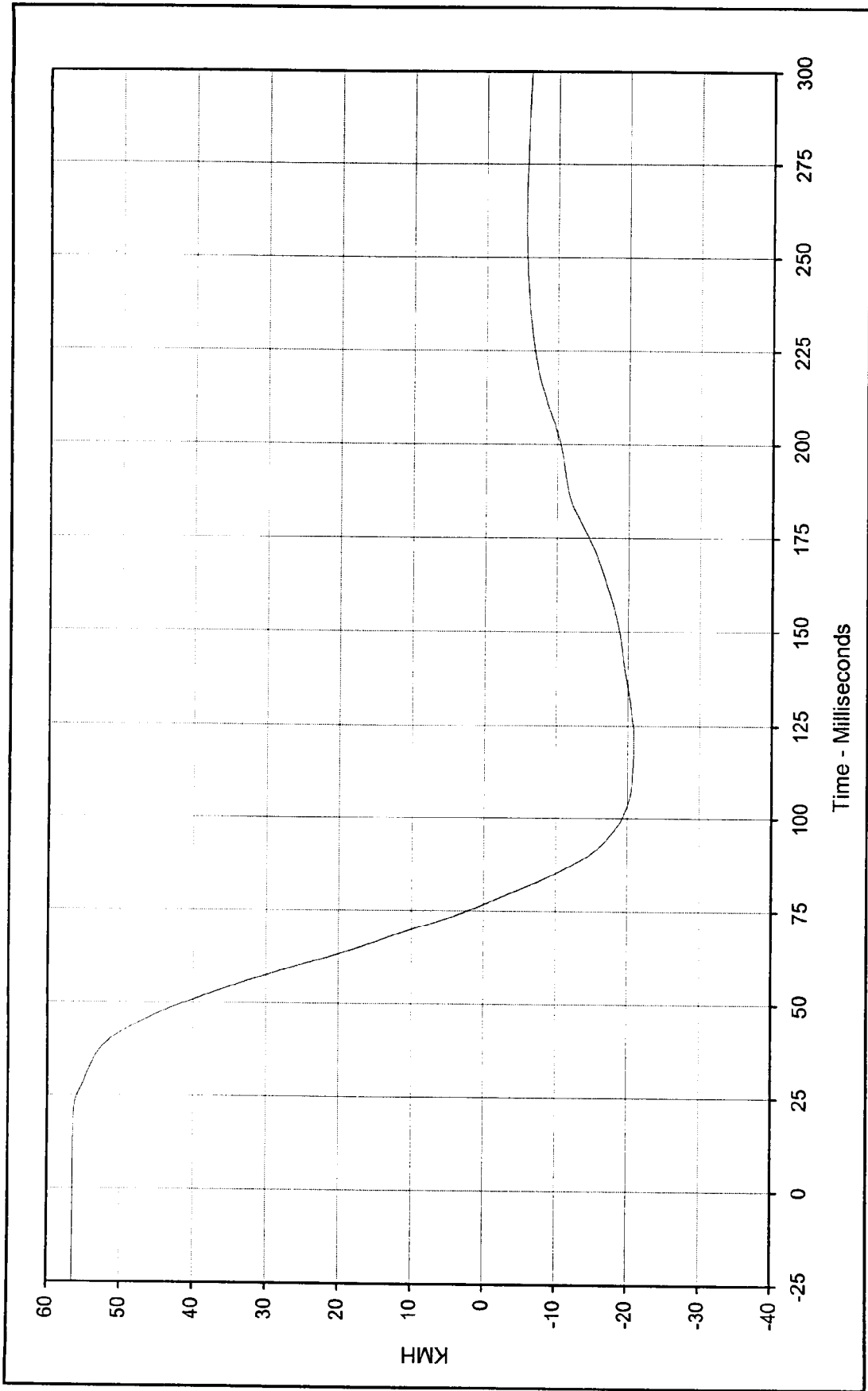
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Chest Redundant X
 Maximum Value: 7.9 at 179.6 Milliseconds
 Minimum Value: -52.0 at 61.8 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: FIL-060





Curve Description: Passenger Chest Redundant X Velocity

Maximum Value: 56.5 at 12.1 Milliseconds

Minimum Value: -20.9 at 120.5 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

Curve Number: IN1-060

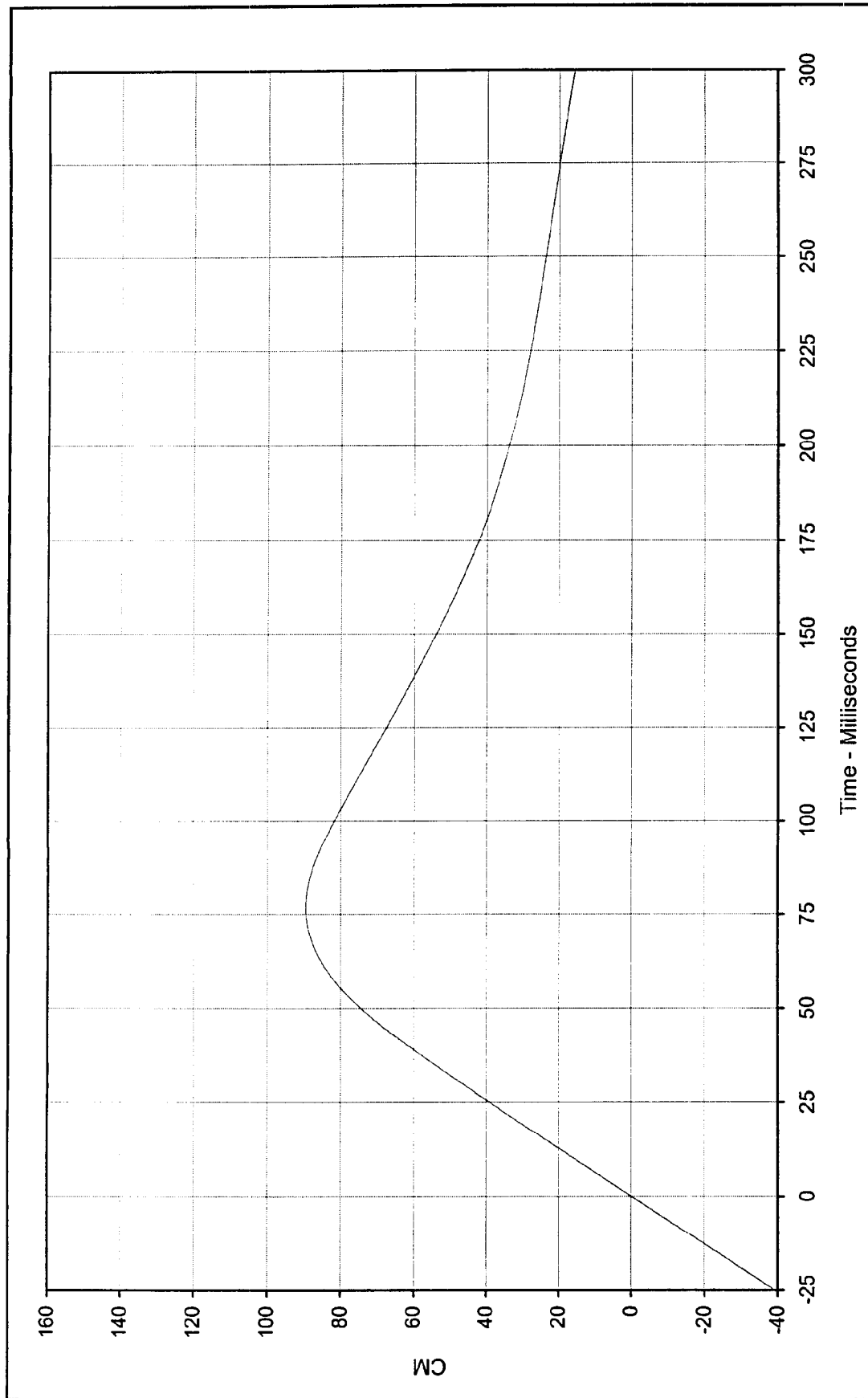
Test Program:

2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle:

2000 Toyota Tundra SR5 Pickup





B-90

Curve Description: Passenger Chest Redundant X Displ.

Maximum Value: 89.5 at 76.7 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

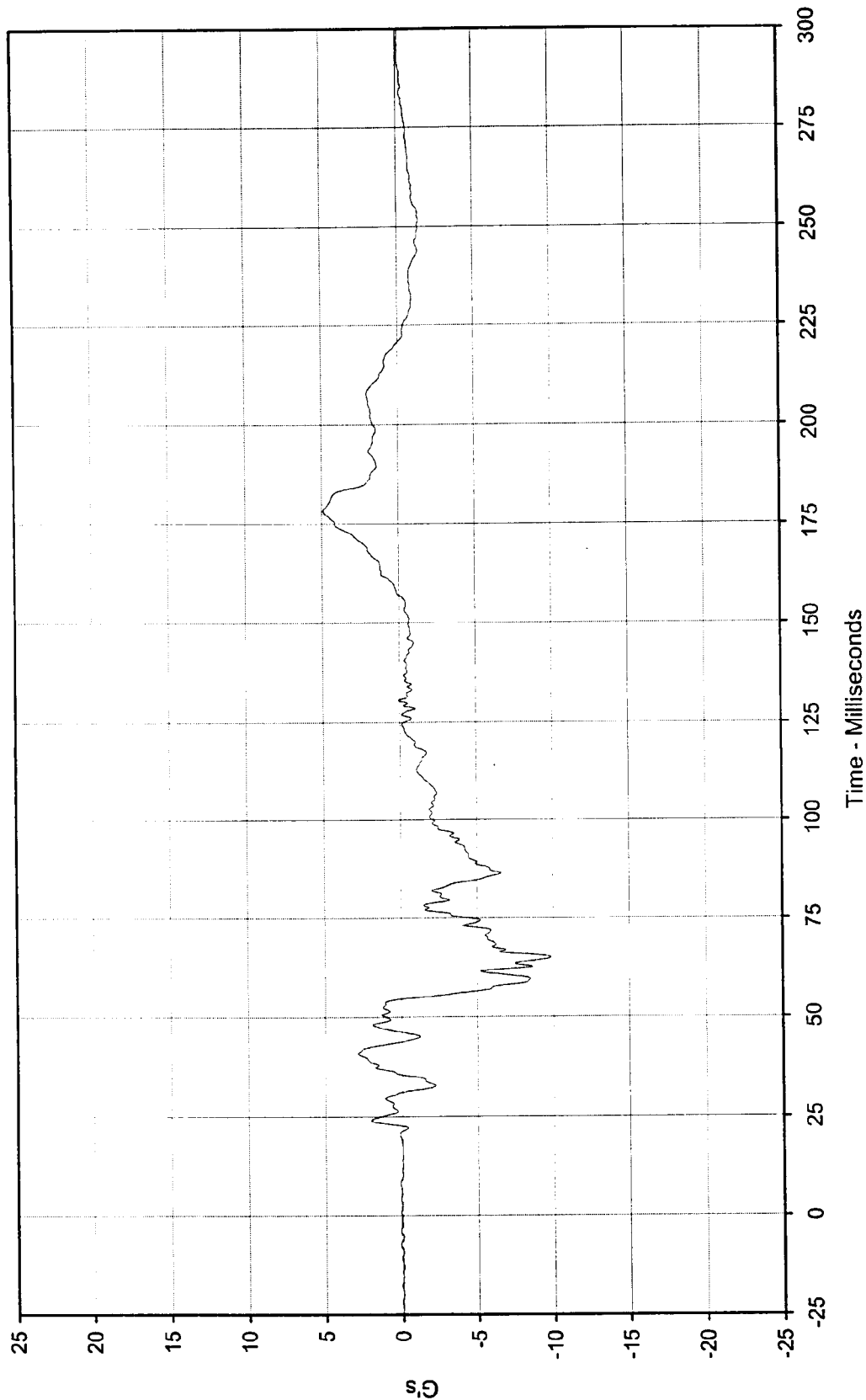
Curve Number: IN2-060

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup



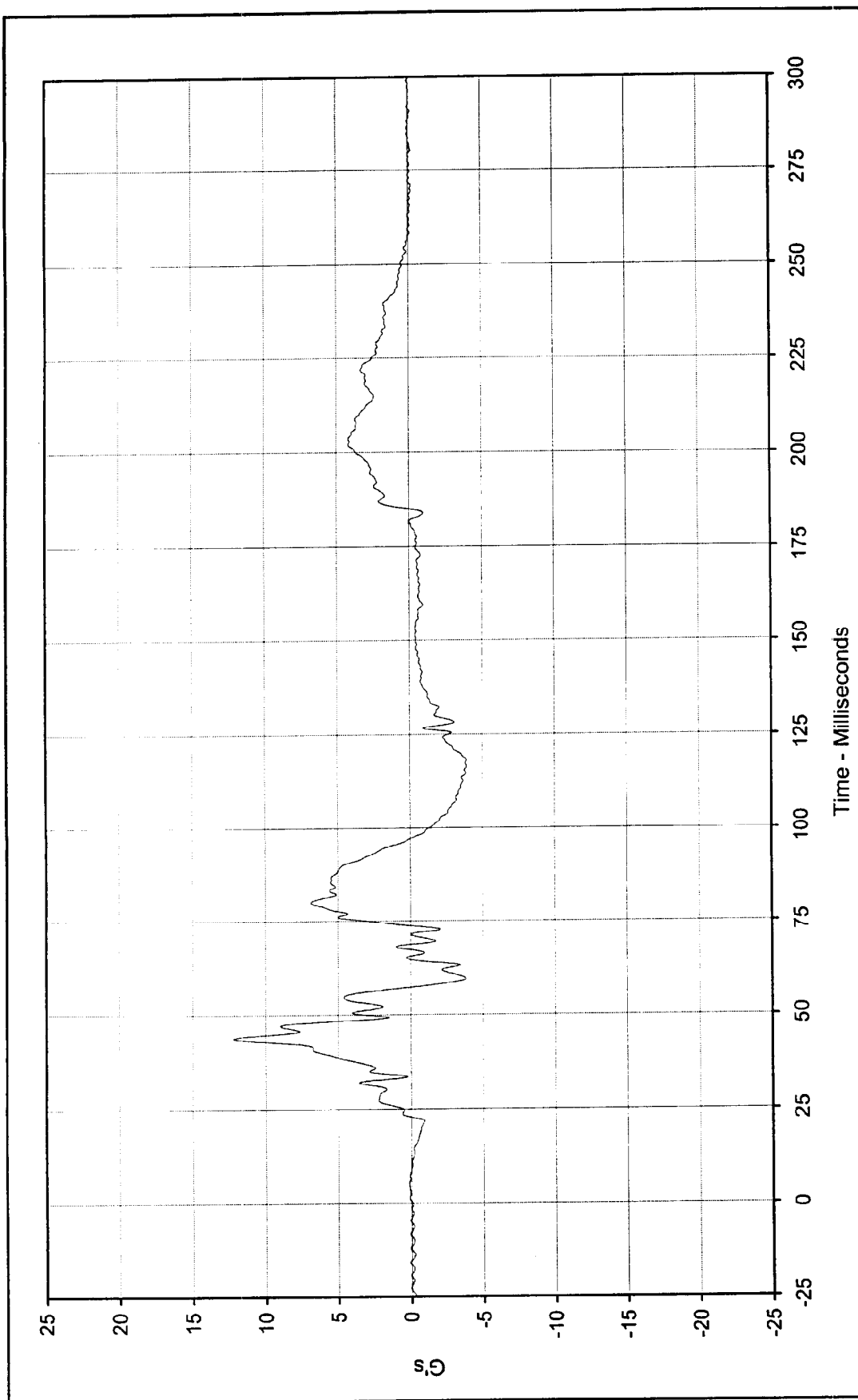
KAR20001-02



Curve Description: Passenger Chest Redundant Y
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

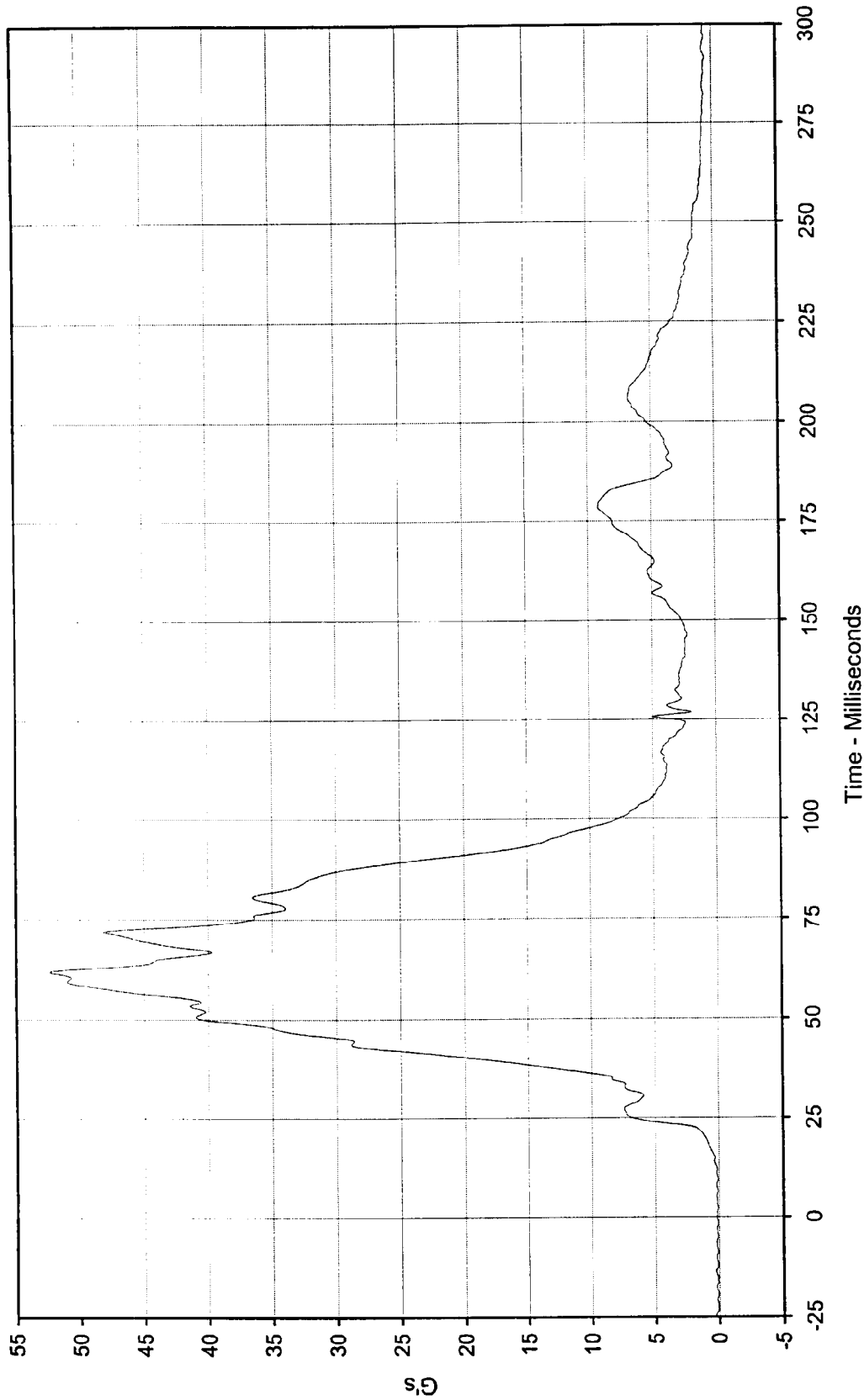
Maximum Value: 4.9 at 178.4 Milliseconds
 Minimum Value: -9.9 at 64.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: FIL-061





Curve Description:	Passenger Chest Redundant Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	12.2 at 43.6 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-4.0 at 116.5 Milliseconds			
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	FIL-062			





Curve Description: Passenger Chest Resultant Redundant

Maximum Value: 52.4 at 61.9 Milliseconds

Minimum Value: 0.1 at 9.3 Milliseconds

SAE Filter Class: 180

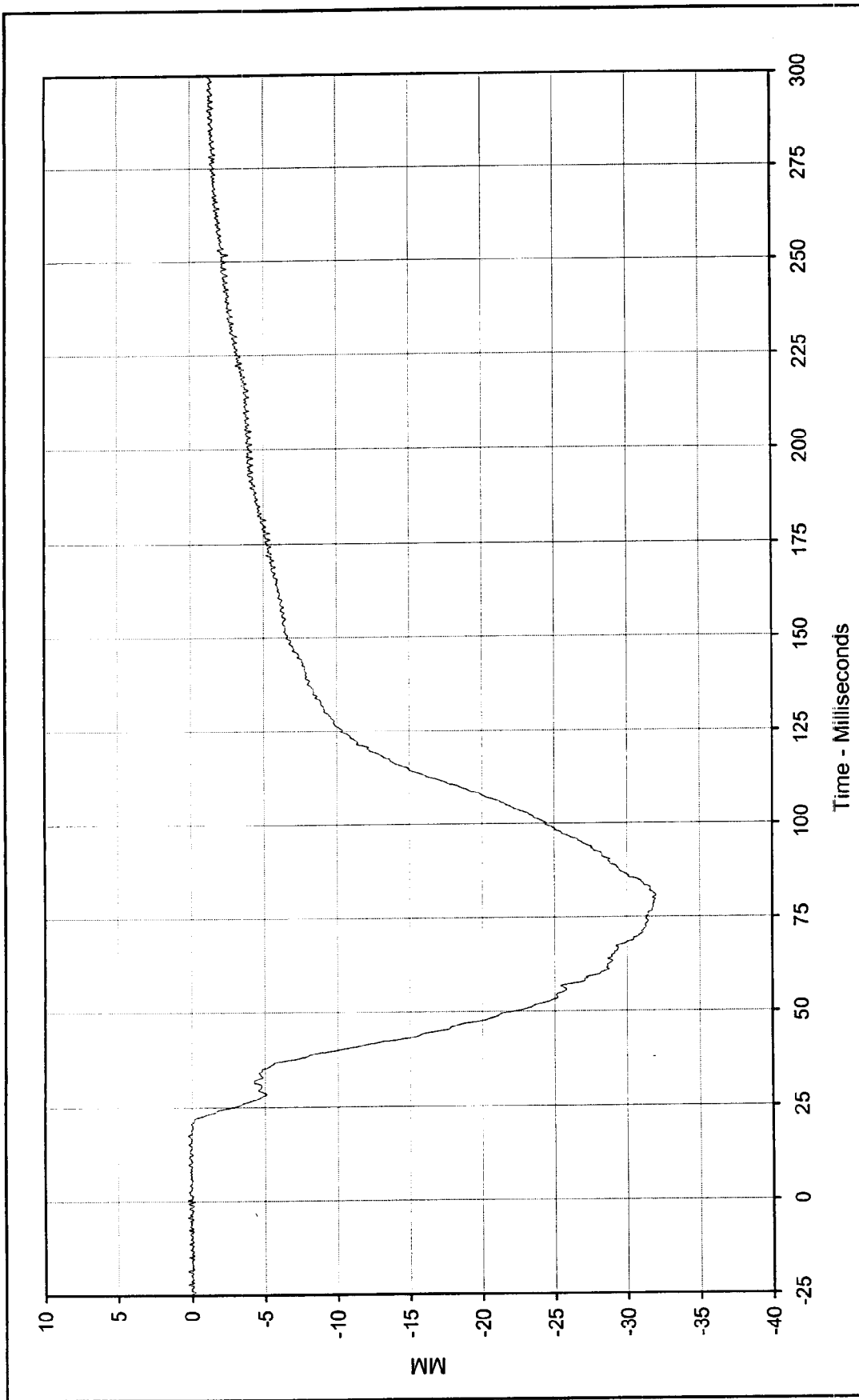
Date of Test: 11/17/99

Curve Number: RES-060

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Chest Displacement X

Maximum Value: 0.3 at 0.3 Milliseconds

Minimum Value: -32.0 at 80.7 Milliseconds

SAE Filter Class: 600

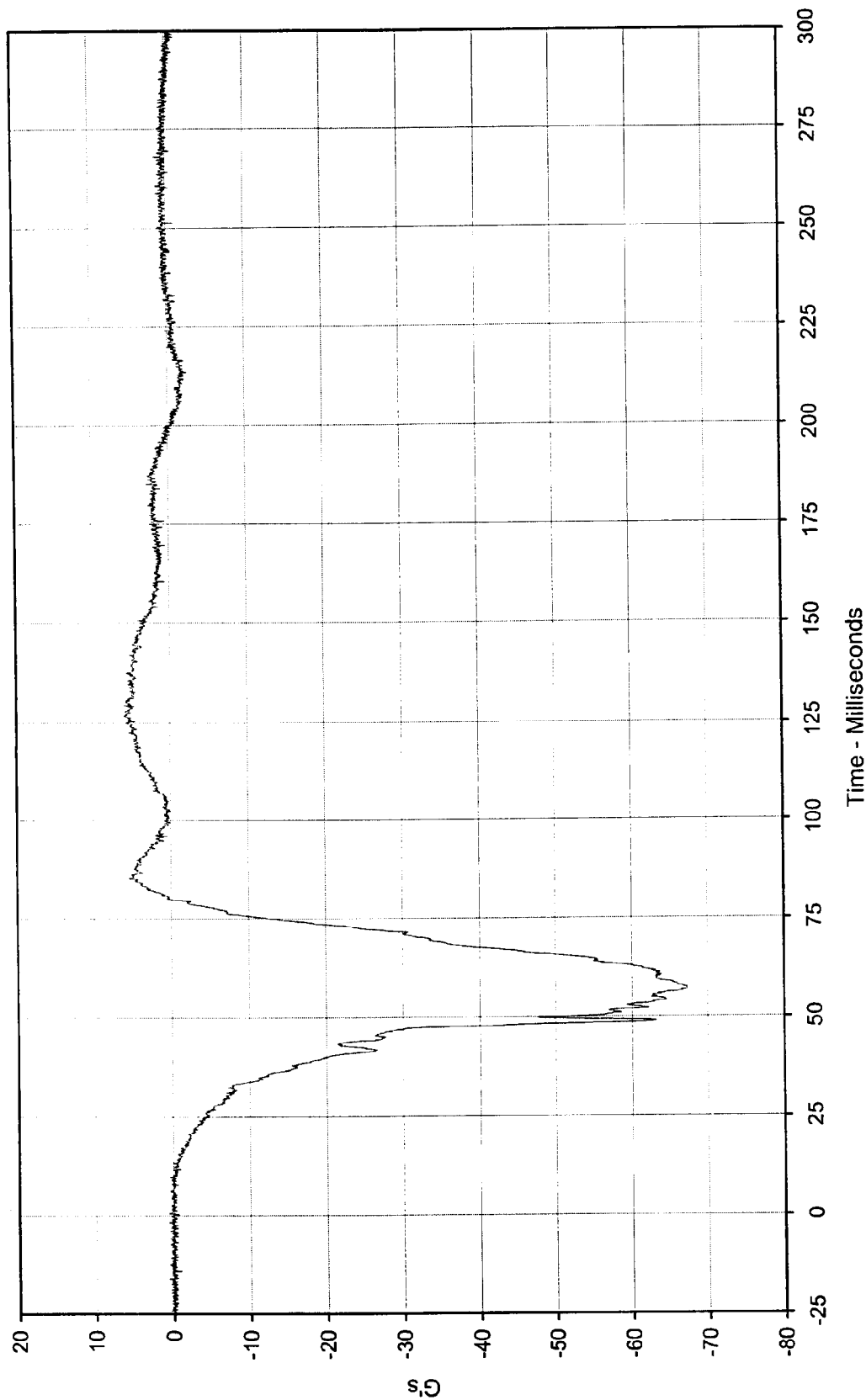
Date of Test: 11/17/99

Curve Number: FIL-063

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

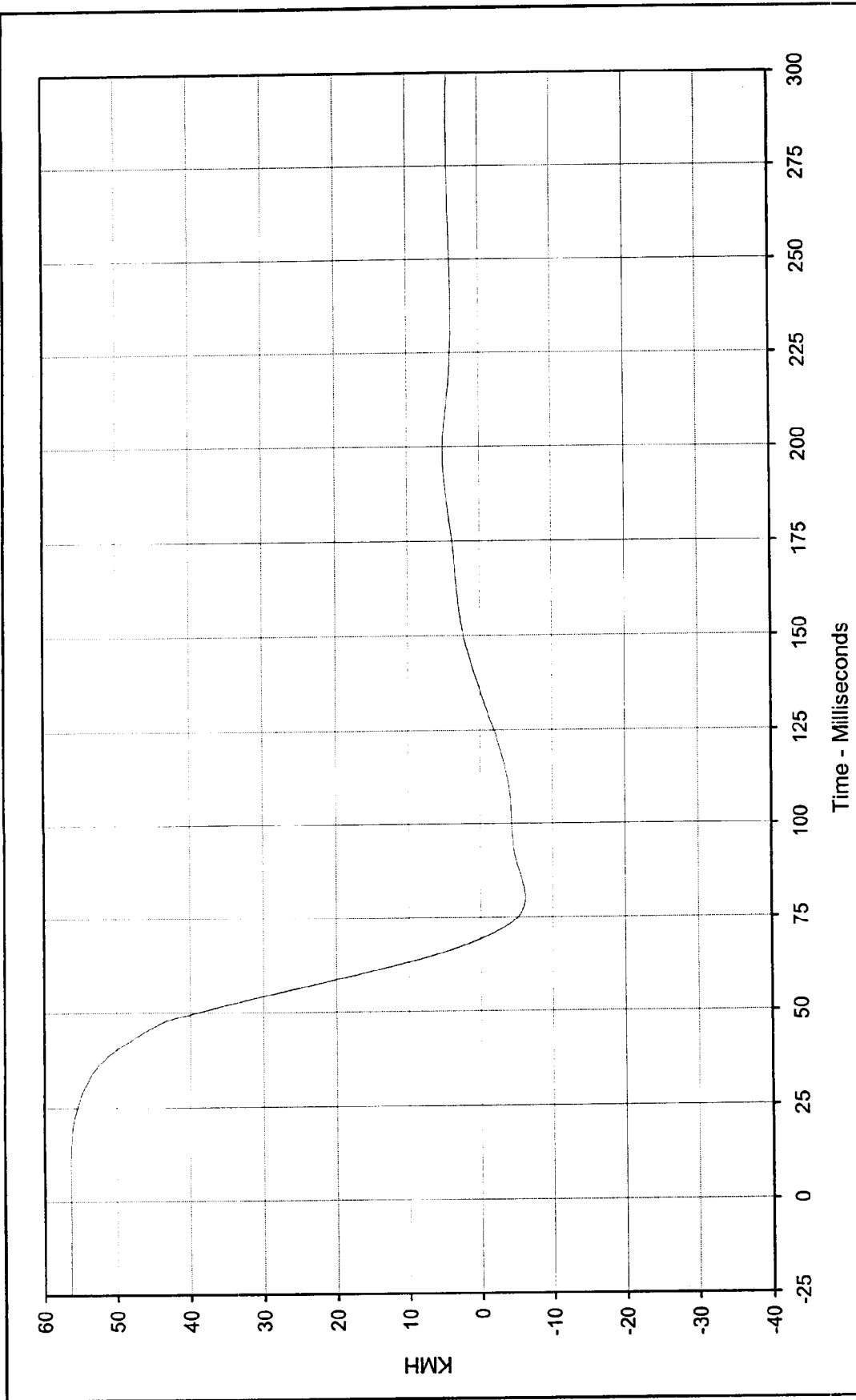




Curve Description: Passenger Pelvis X
 Maximum Value: 6.0 at 126.8 Milliseconds
 Minimum Value: -67.3 at 56.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: FIL-064

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Pelvis X Velocity

Maximum Value: 56.4 at 0.0 Milliseconds

Minimum Value: -6.2 at 80.1 Milliseconds

SAE Filter Class: 180

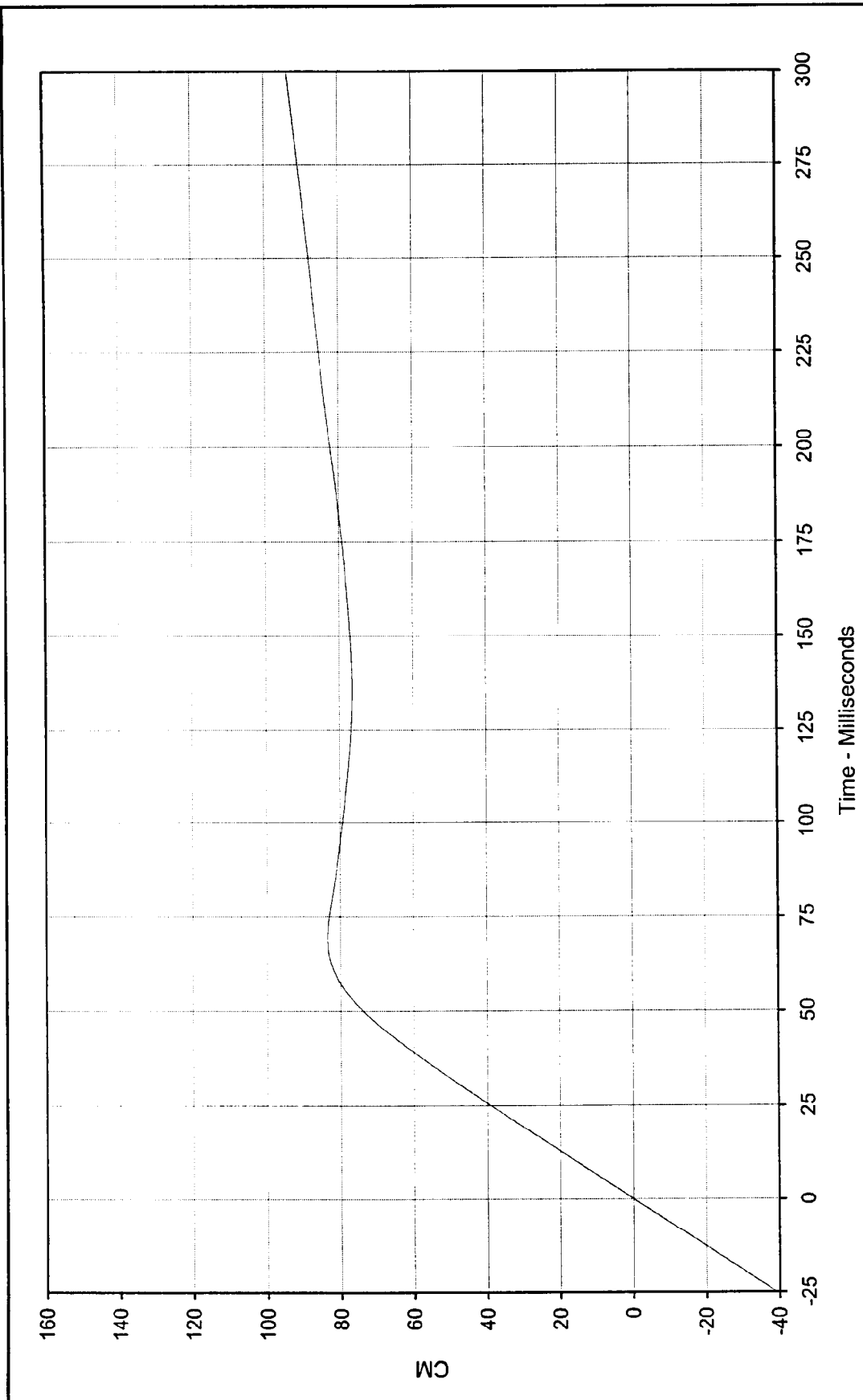
Date of Test: 11/17/99

Curve Number: IN1-064

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

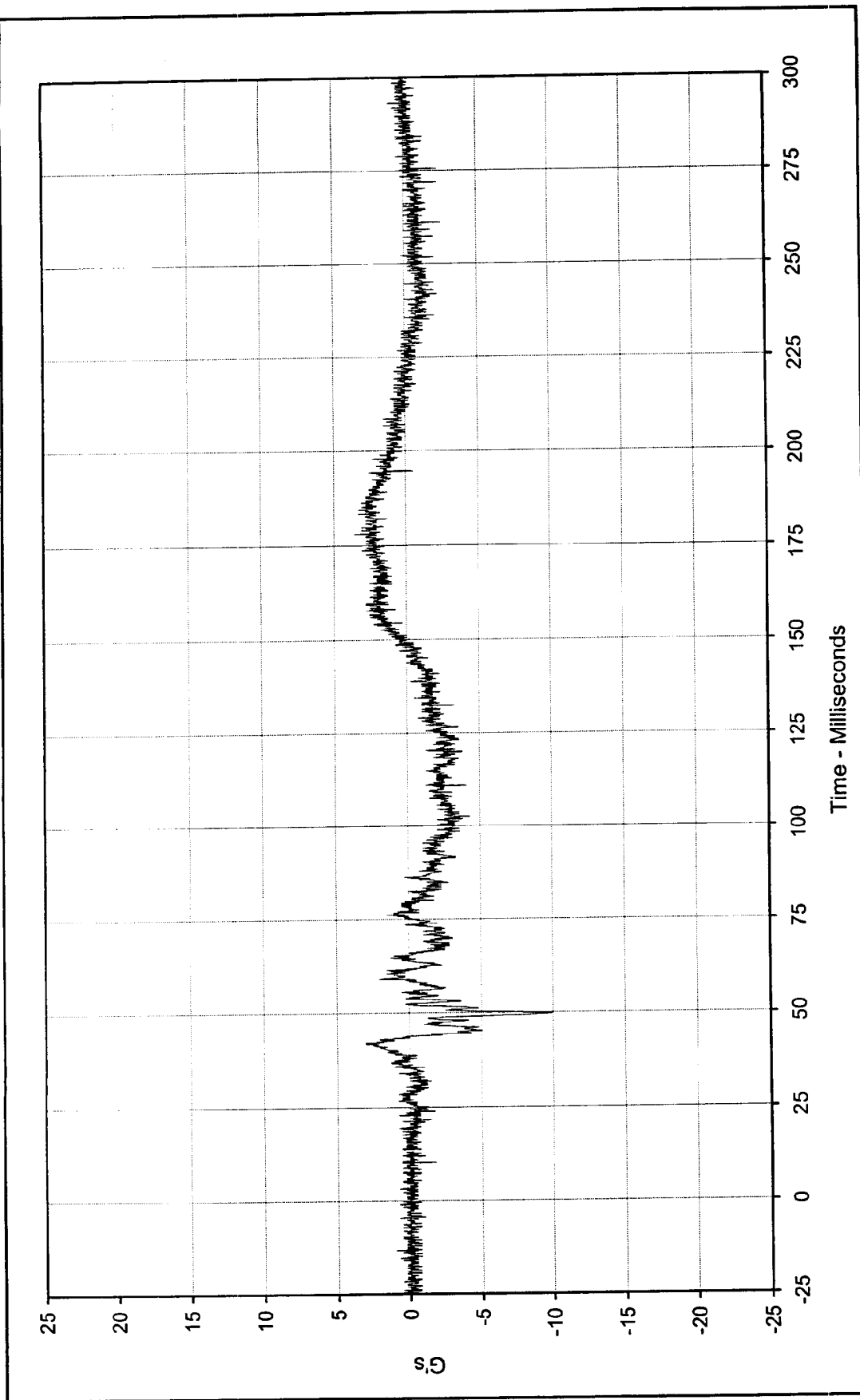




Curve Description: Passenger Pelvis X Displ.
 Maximum Value: 93.7 at 299.9 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN2-064

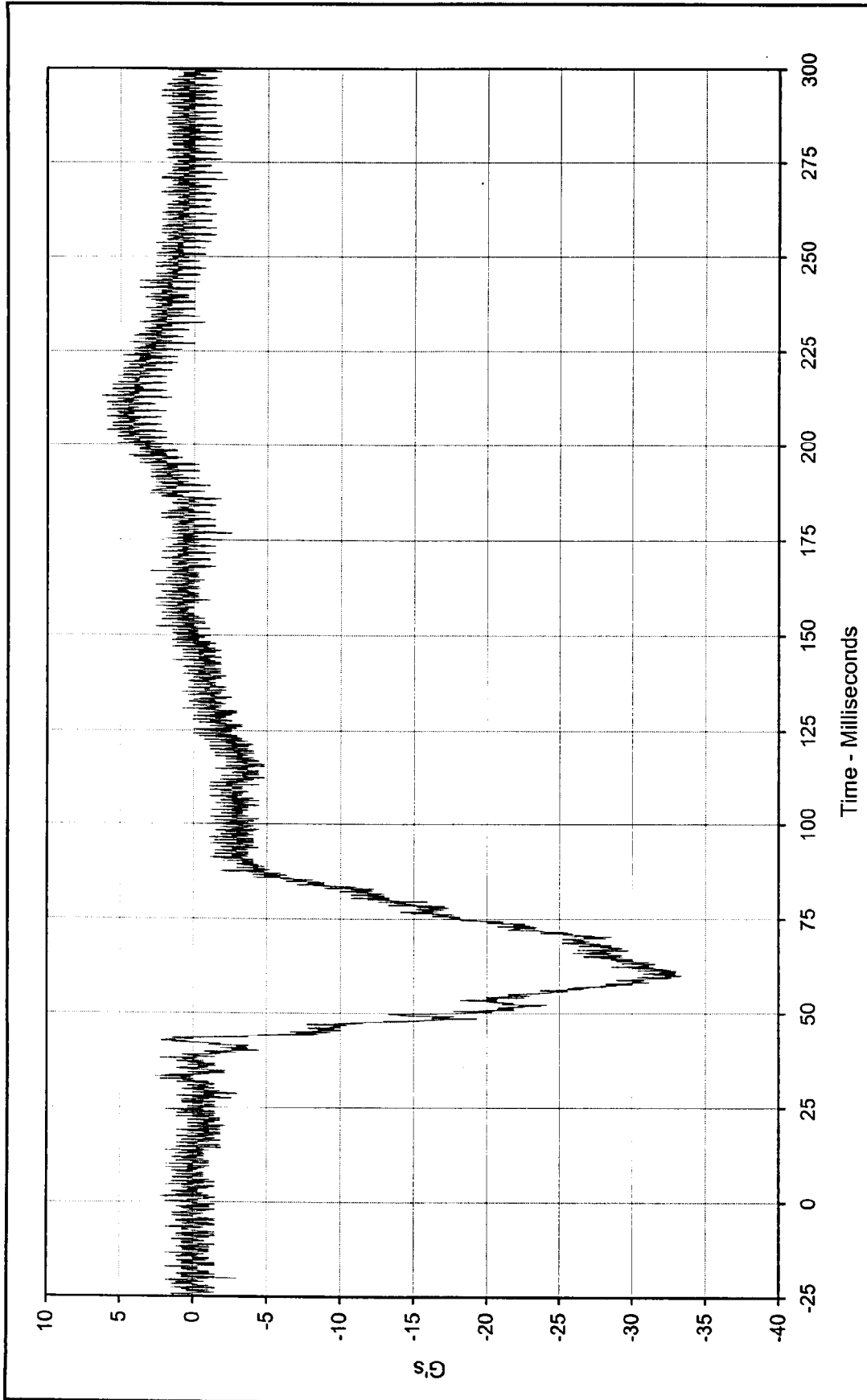
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:	Passenger Pelvis Y	Test Program:	2000 NHTSA 35 mph NCAP No.: MY5103
Maximum Value:	3.6 at 178.0 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup
Minimum Value:	-9.9 at 49.7 Milliseconds		
SAE Filter Class:	1000		
Date of Test:	11/17/99		
Curve Number:	FIL-065		

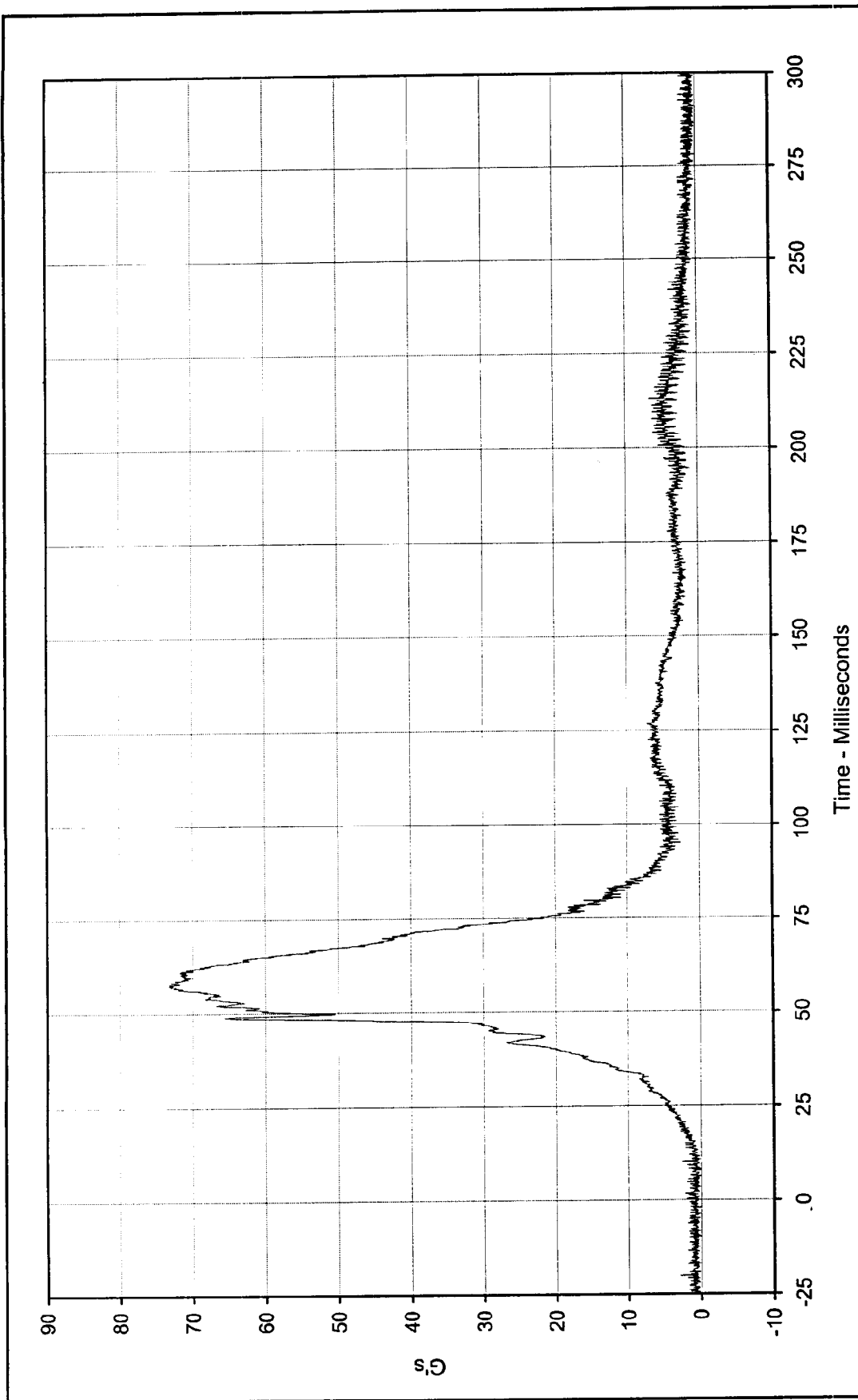




Curve Description: Passenger Pelvis Z
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Maximum Value: 6.3 at 213.2 Milliseconds
 Minimum Value: -33.4 at 59.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: FIL-066

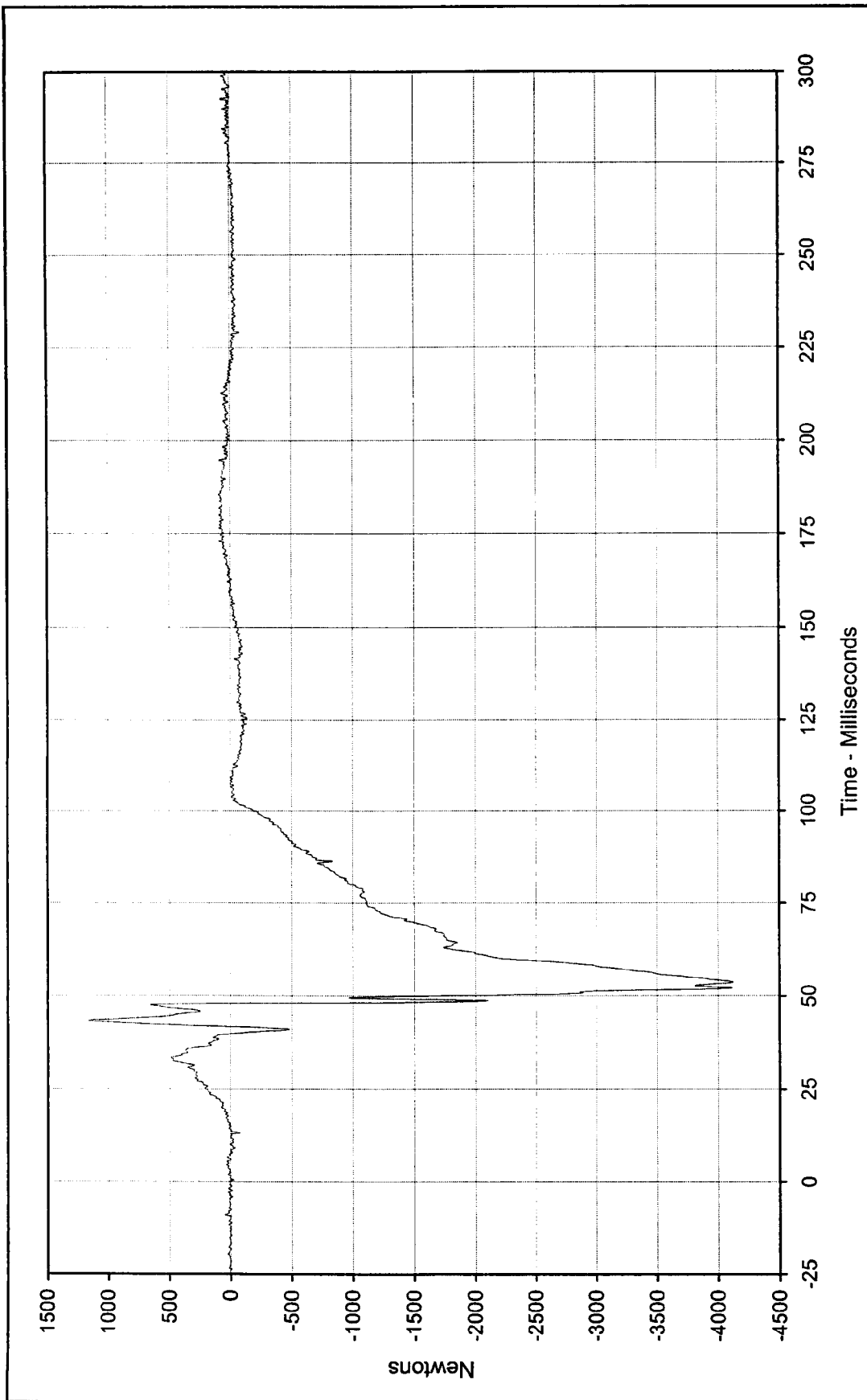




Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup



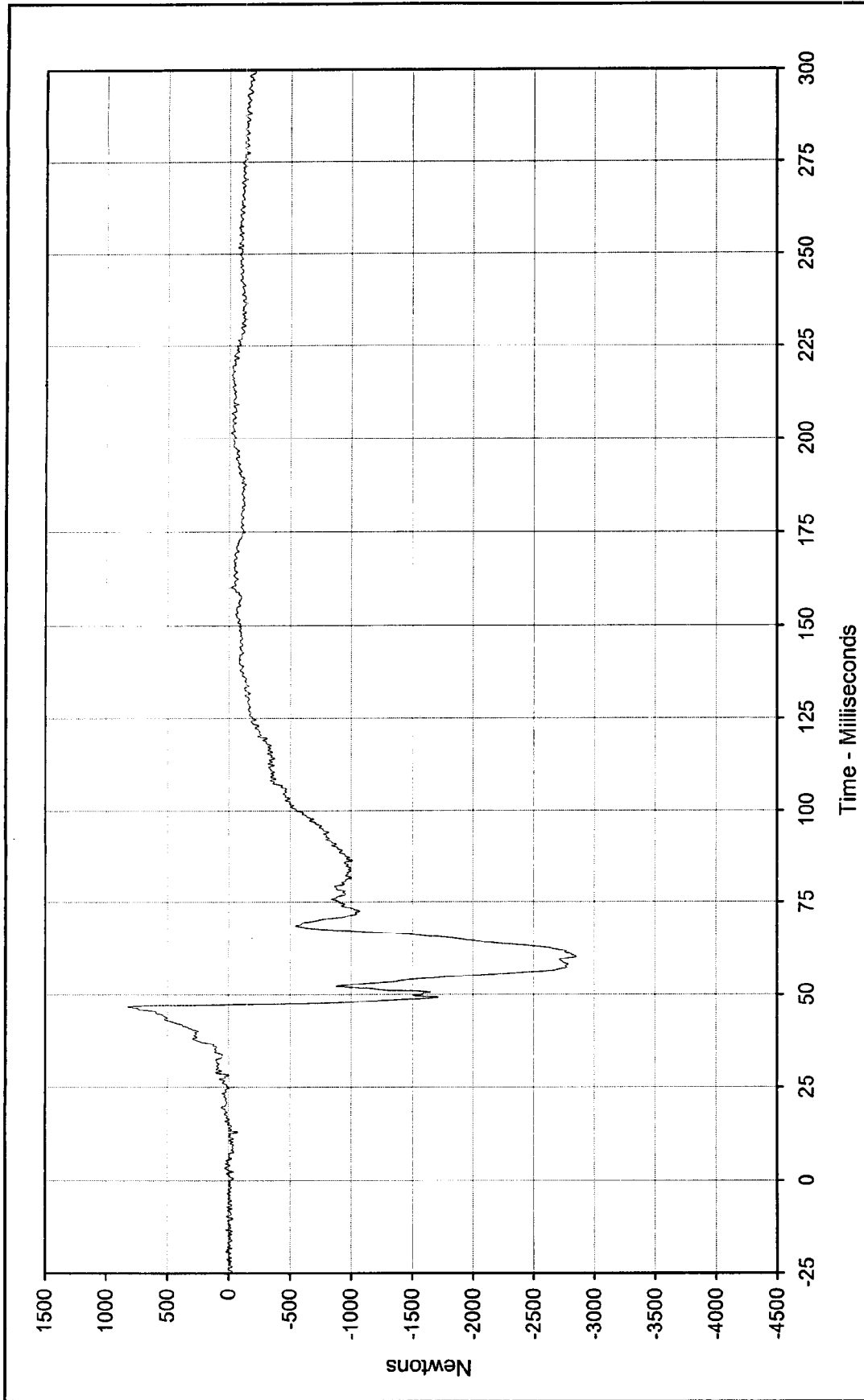
Curve Description: Passenger Pelvis Resultant
 Maximum Value: 73.3 at 57.3 Milliseconds
 Minimum Value: 0.0 at 6.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: RES-064



Curve Description: Passenger Left Femur Force
Maximum Value: 1162.1 at 43.5 Milliseconds
Minimum Value: -4126.7 at 53.8 Milliseconds
SAE Filter Class: 600
Date of Test: 11/17/99
Curve Number: FIL-067

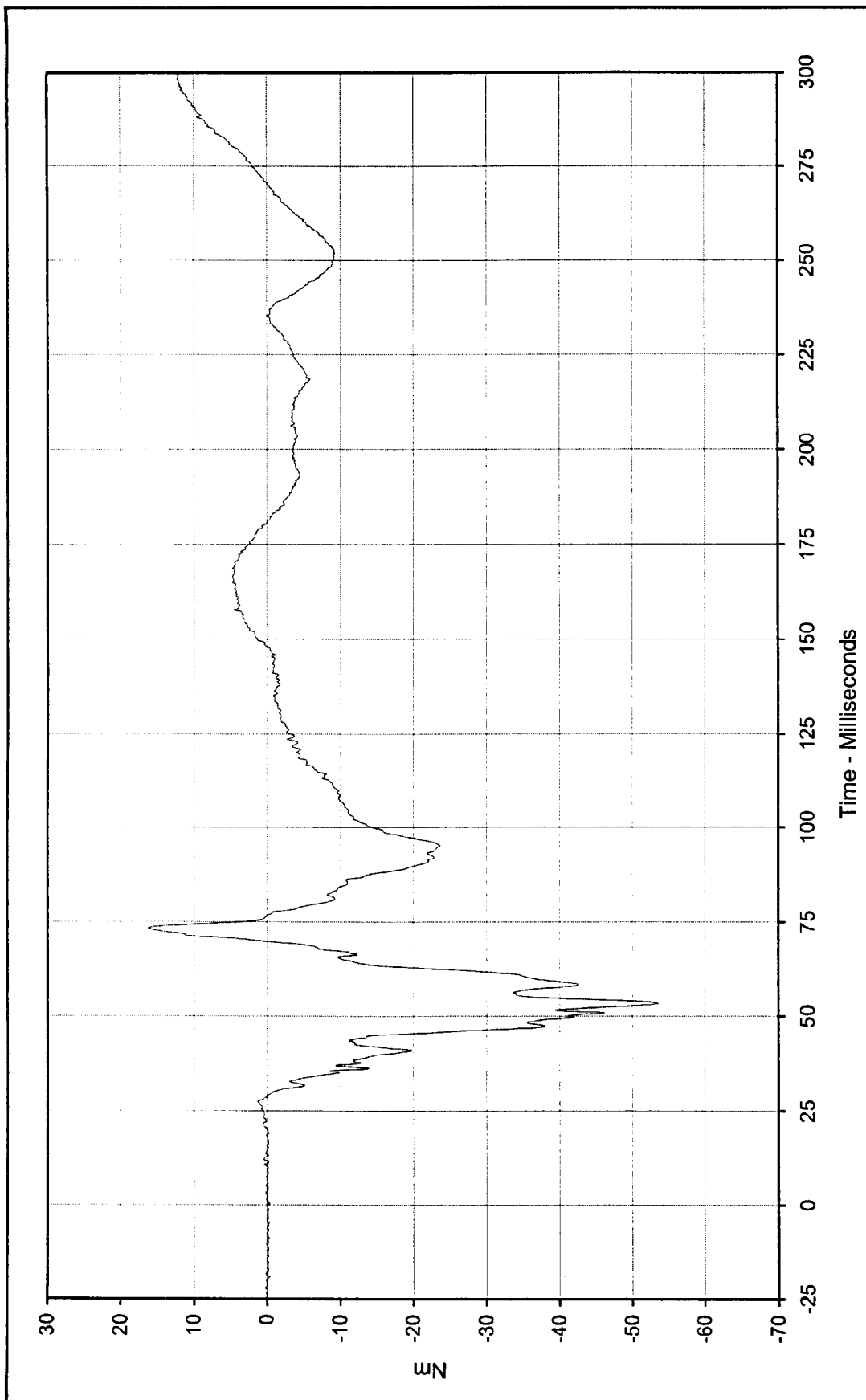
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:	Passenger Right Femur Force	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	821.9	at	46.8	Milliseconds
Minimum Value:	-2852.1	at	60.2	Milliseconds
SAE Filter Class:	600	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Date of Test:	11/17/99			
Curve Number:	FIL-068			





Curve Description: Passenger Left Upper Tibia Moment X

Maximum Value: 16.3 at 73.3 Milliseconds

Minimum Value: -53.6 at 53.2 Milliseconds

SAE Filter Class: 600

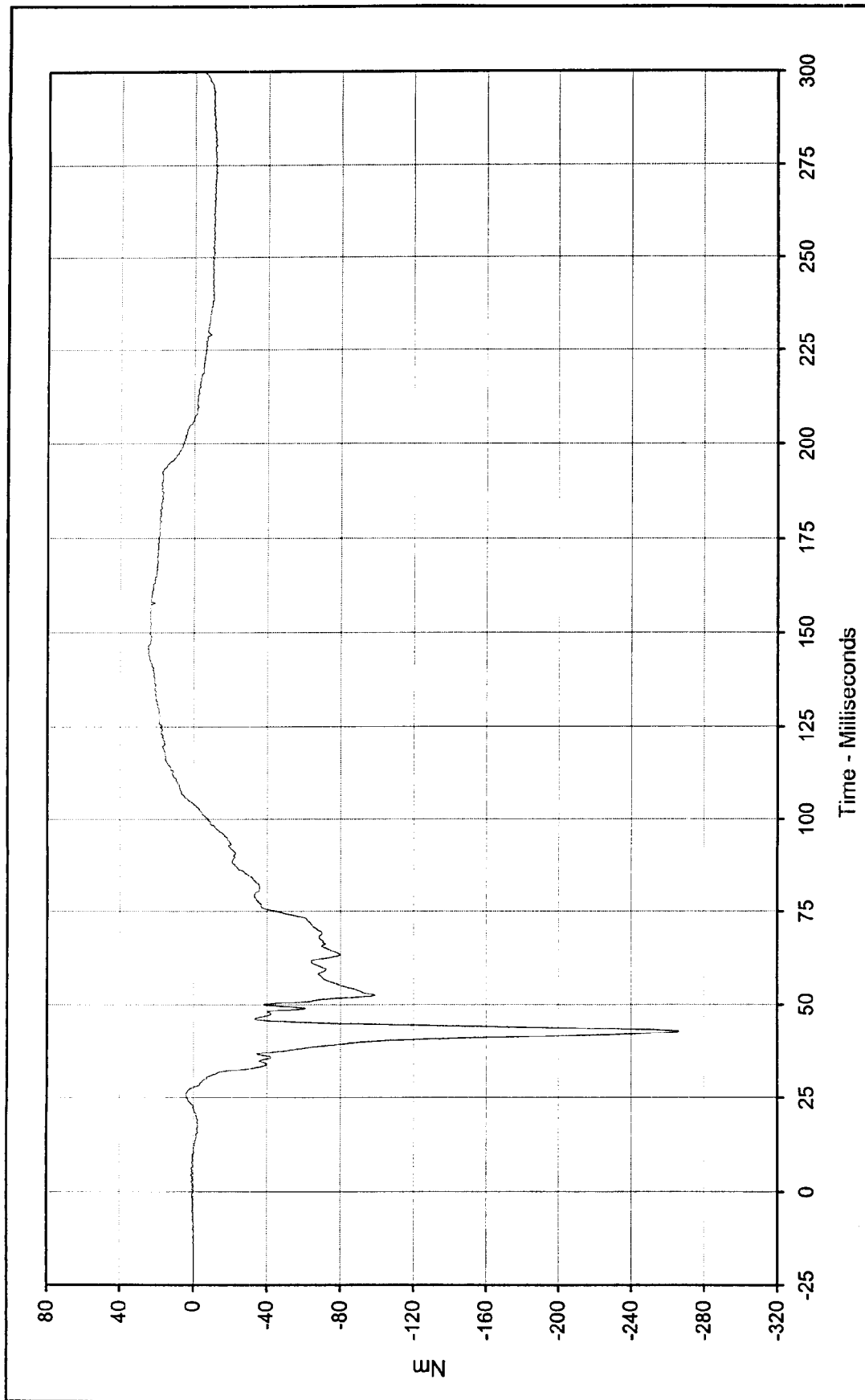
Date of Test: 11/17/99

Curve Number: FIL-069

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Left Upper Tibia Moment Y

Maximum Value: 24.9 at 145.8 Milliseconds

Minimum Value: -266.6 at 42.8 Milliseconds

SAE Filter Class: 600

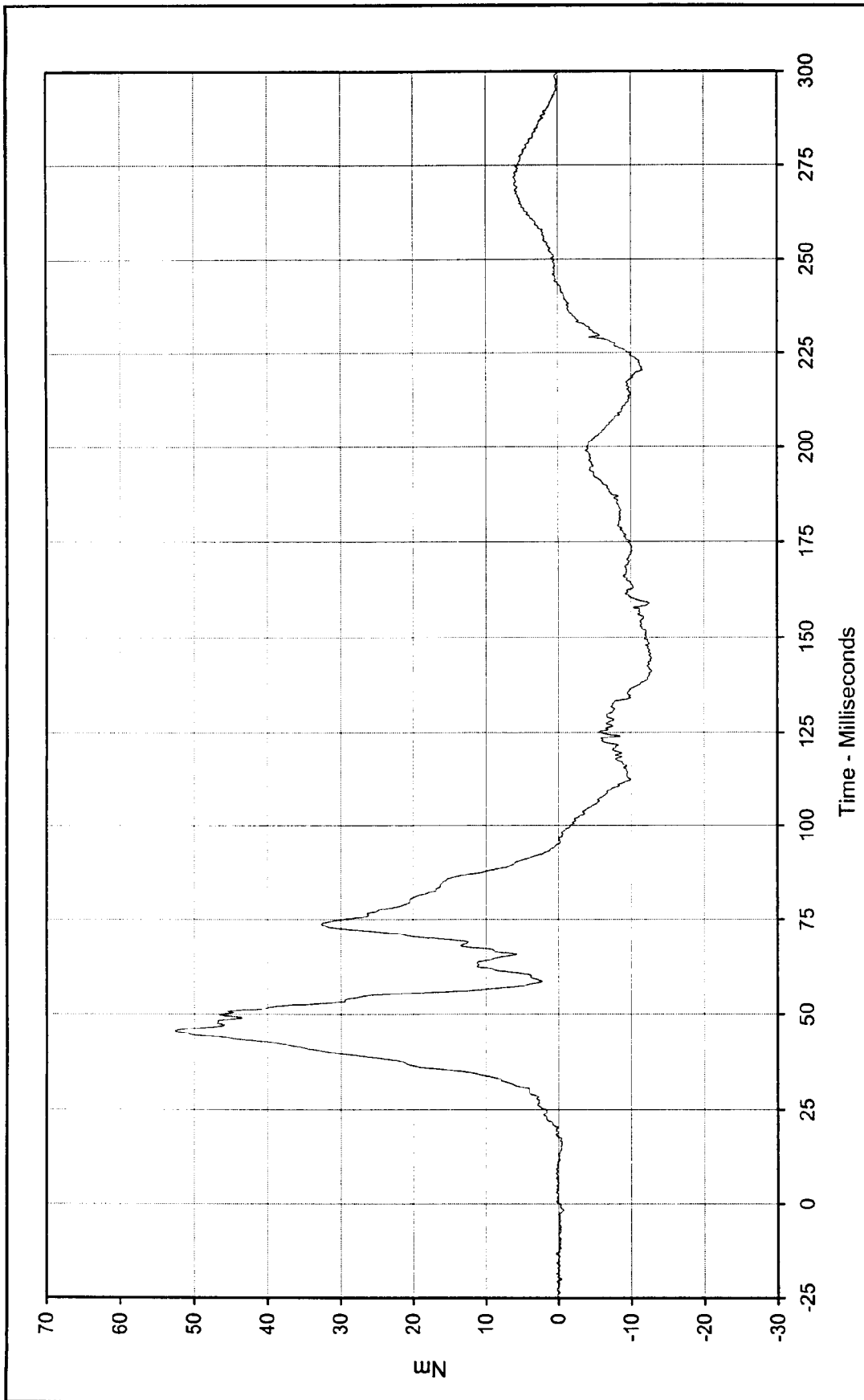
Date of Test: 11/17/99

Curve Number: FIL-070

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

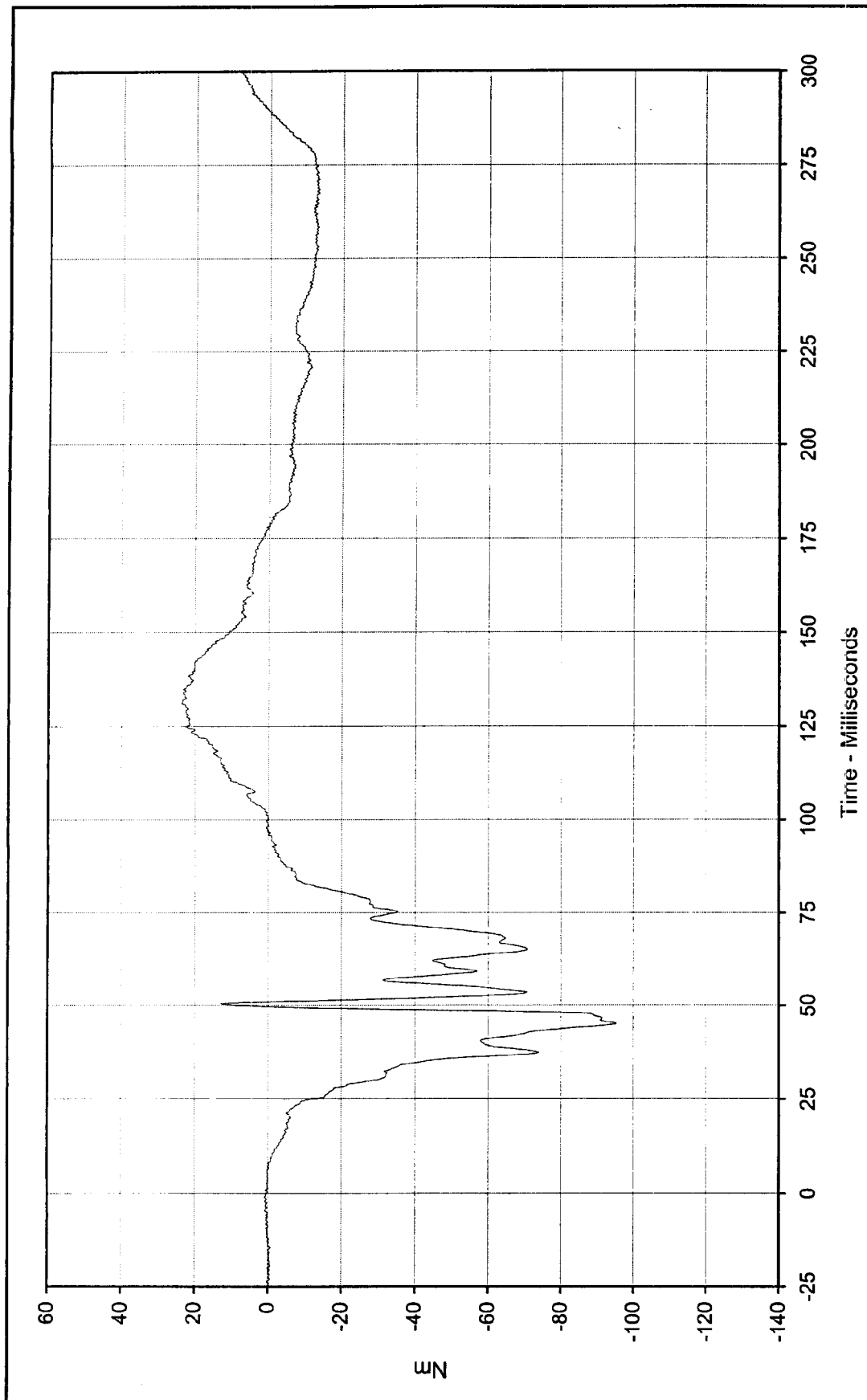




Curve Description: Passenger Right Upper Tibia Moment X				Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	52.6	at	45.7	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-12.9	at	141.1			
SAE Filter Class:	600					
Date of Test:	11/17/99					
Curve Number:	FIL-071					

The logo for KARCO Engineering features a stylized lightbulb with a gear-like base, positioned to the left of the word "KARCO" in a large, bold, sans-serif font. Below "KARCO", the word "Engineering" is written in a smaller, italicized, sans-serif font. The entire logo is enclosed in a rectangular border.





Curve Description: Passenger Right Upper Tibia Moment Y

Maximum Value: 23.6 at 131.2 Milliseconds

Minimum Value: -95.3 at 45.2 Milliseconds

SAE Filter Class: 600

Date of Test: 11/17/99

Curve Number: FIL-072

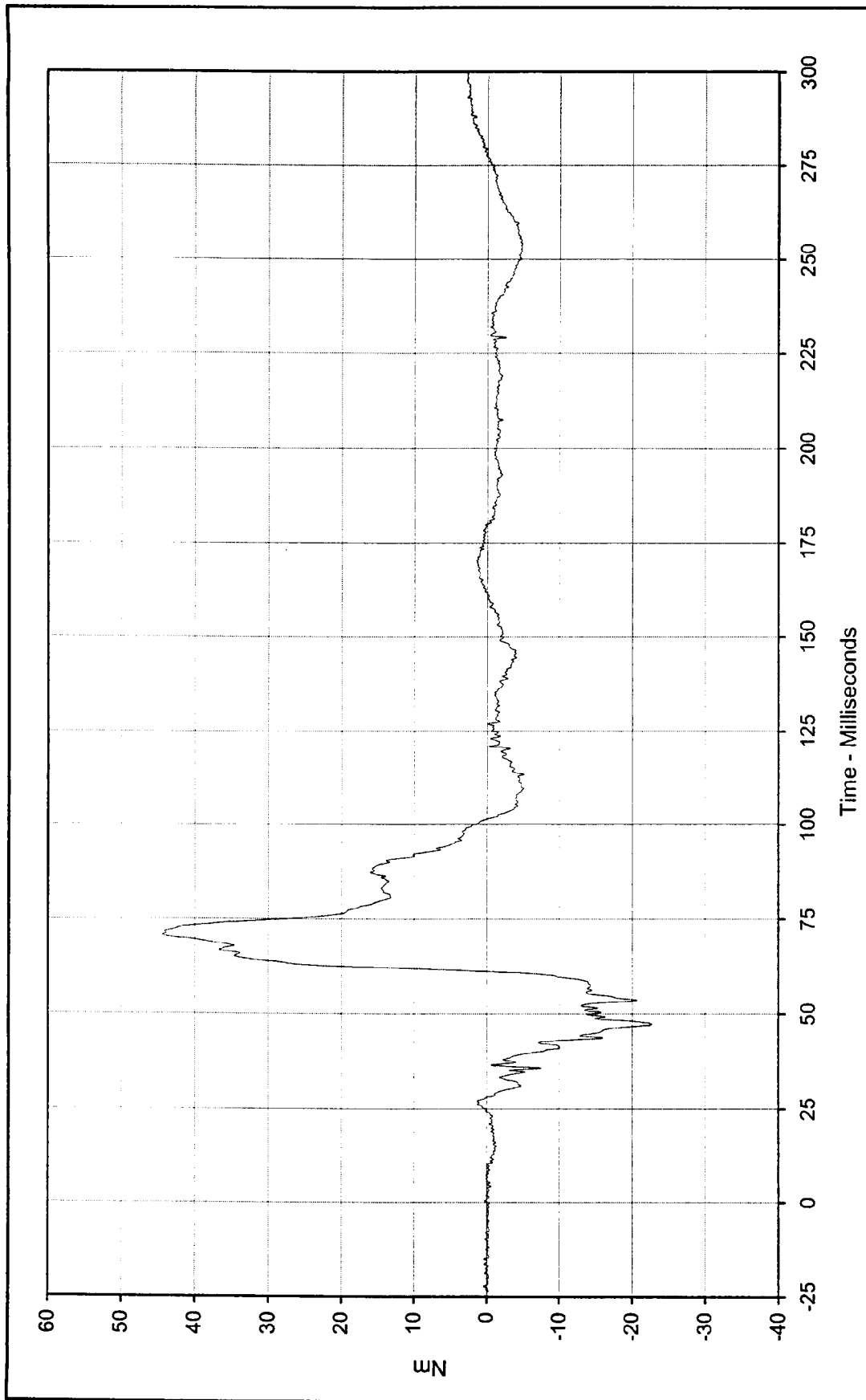
Test Program:

2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle:

2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Left Lower Tibia Moment X

Maximum Value: 44.4 at 70.8 Milliseconds

Minimum Value: -22.8 at 47.3 Milliseconds

SAE Filter Class: 600

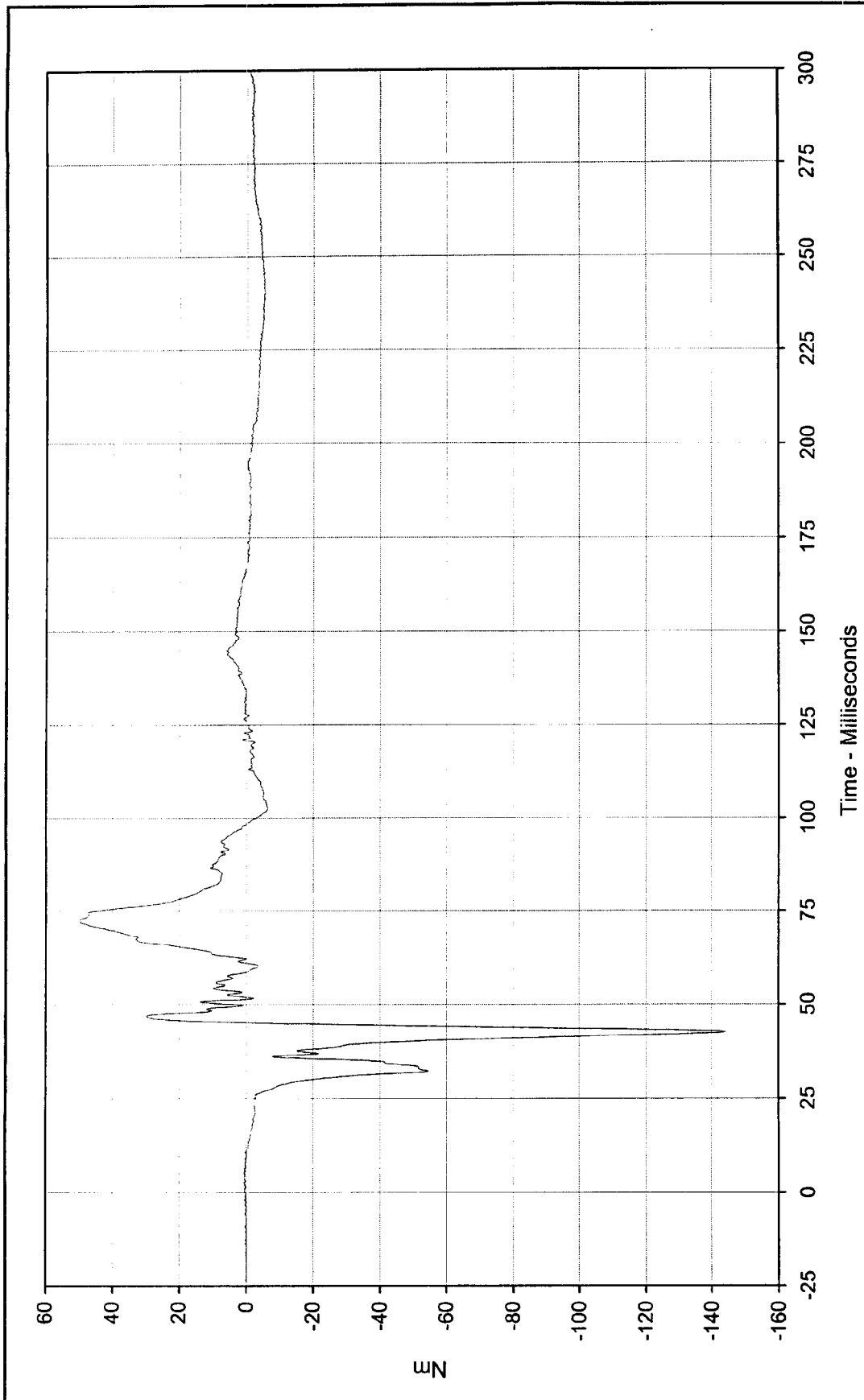
Date of Test: 11/17/99

Curve Number: FIL-073

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

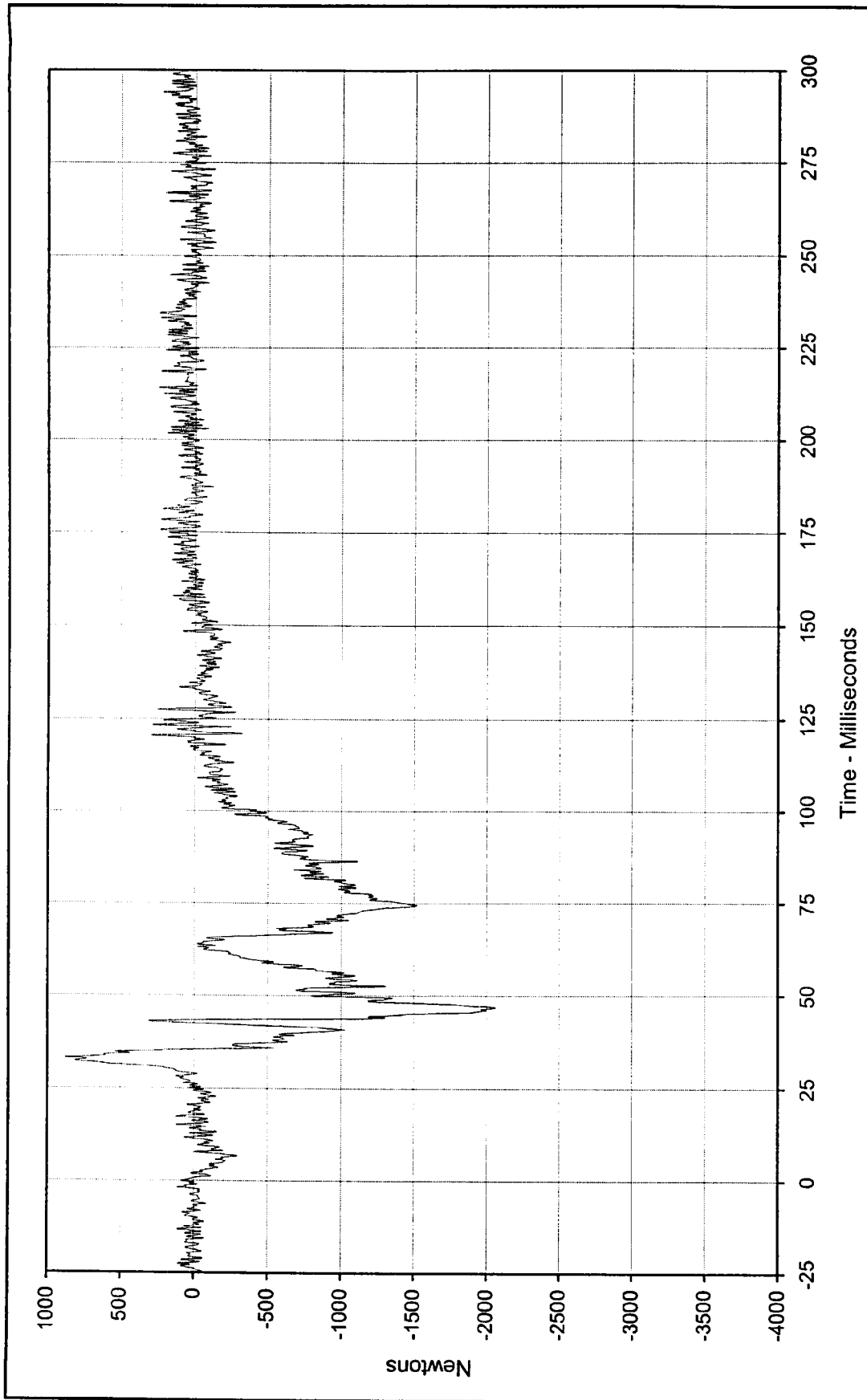
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Left Lower Tibia Moment Y		Test Program: 2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value: 49.8	at 72.4 Milliseconds	Test Vehicle: 2000 Toyota Tundra SR5 Pickup	
Minimum Value: -144.1	at 42.7 Milliseconds		
SAE Filter Class: 600			
Date of Test: 11/17/99			
Curve Number: FIL-074			



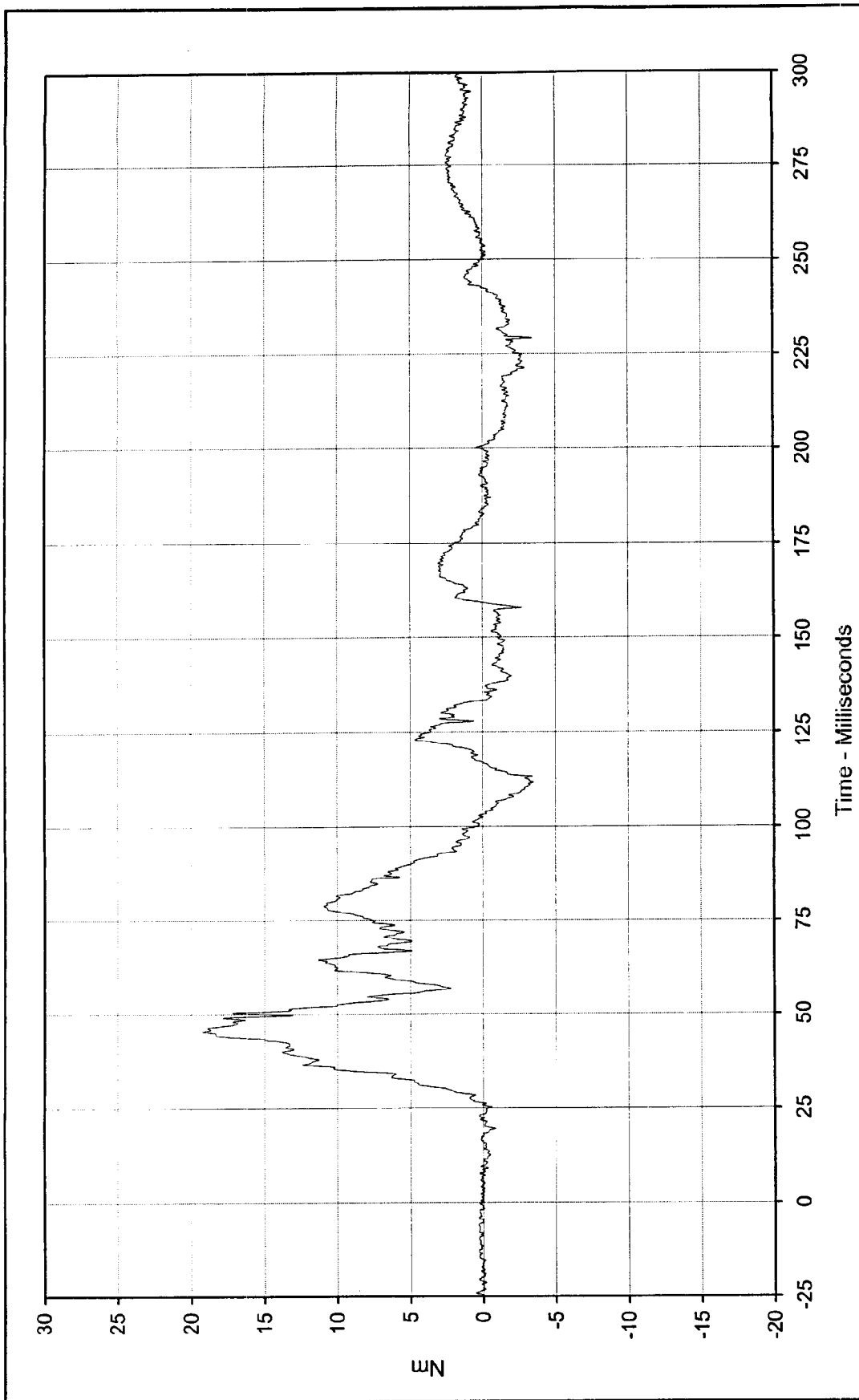


Curve Description: Passenger Left Lower Tibia Force Z
 Maximum Value: 878.7 at 33.1 Milliseconds
 Minimum Value: -2065.4 at 46.8 Milliseconds
 SAE Filter Class: 600
 Date of Test: 11/17/99
 Curve Number: FIL-075

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Right Lower Tibia Moment X

Maximum Value: 19.2 at 45.5 Milliseconds

Minimum Value: -3.5 at 111.6 Milliseconds

SAE Filter Class: 600

Date of Test: 11/17/99

Curve Number: FIL-076

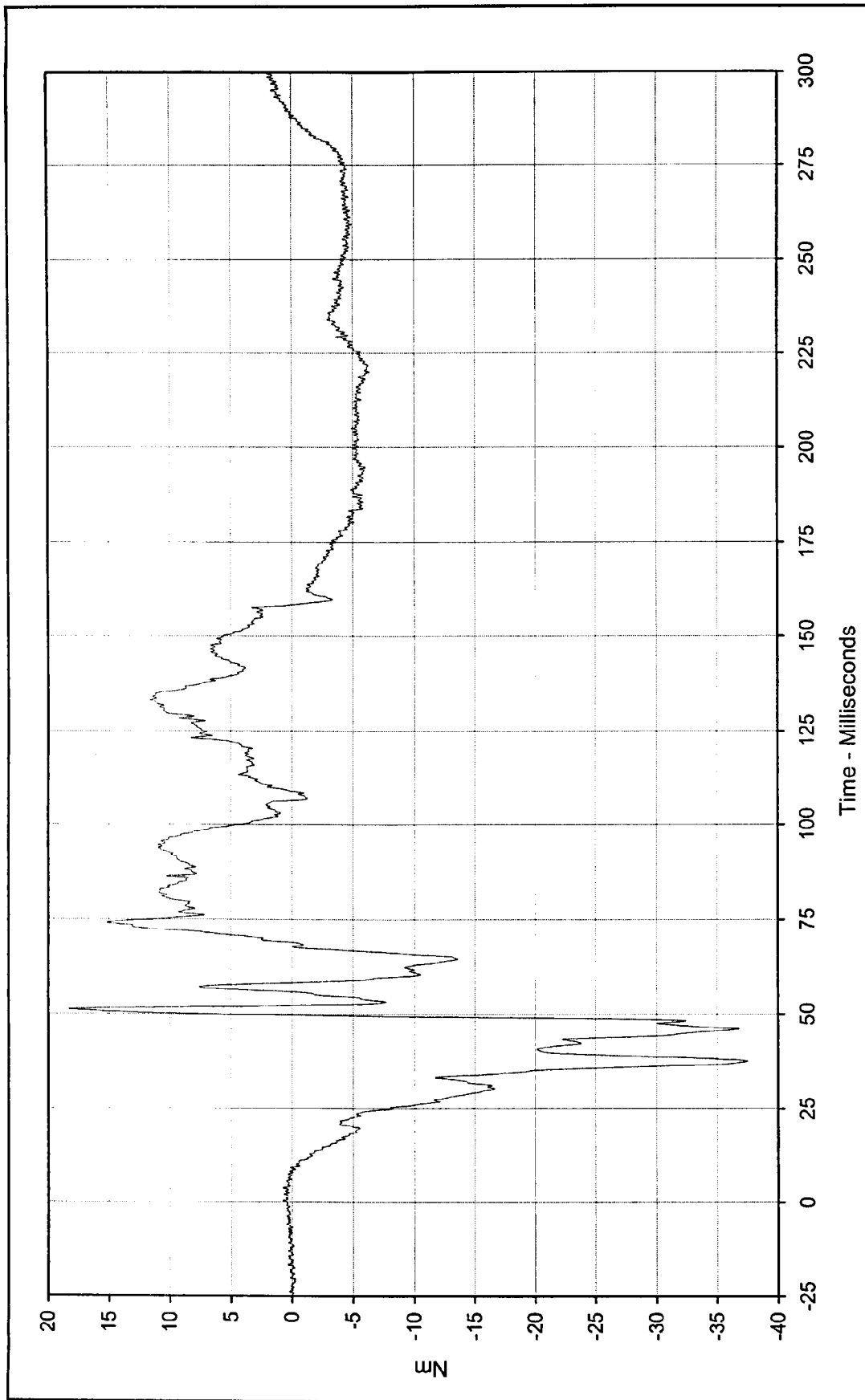
Test Program:

2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle:

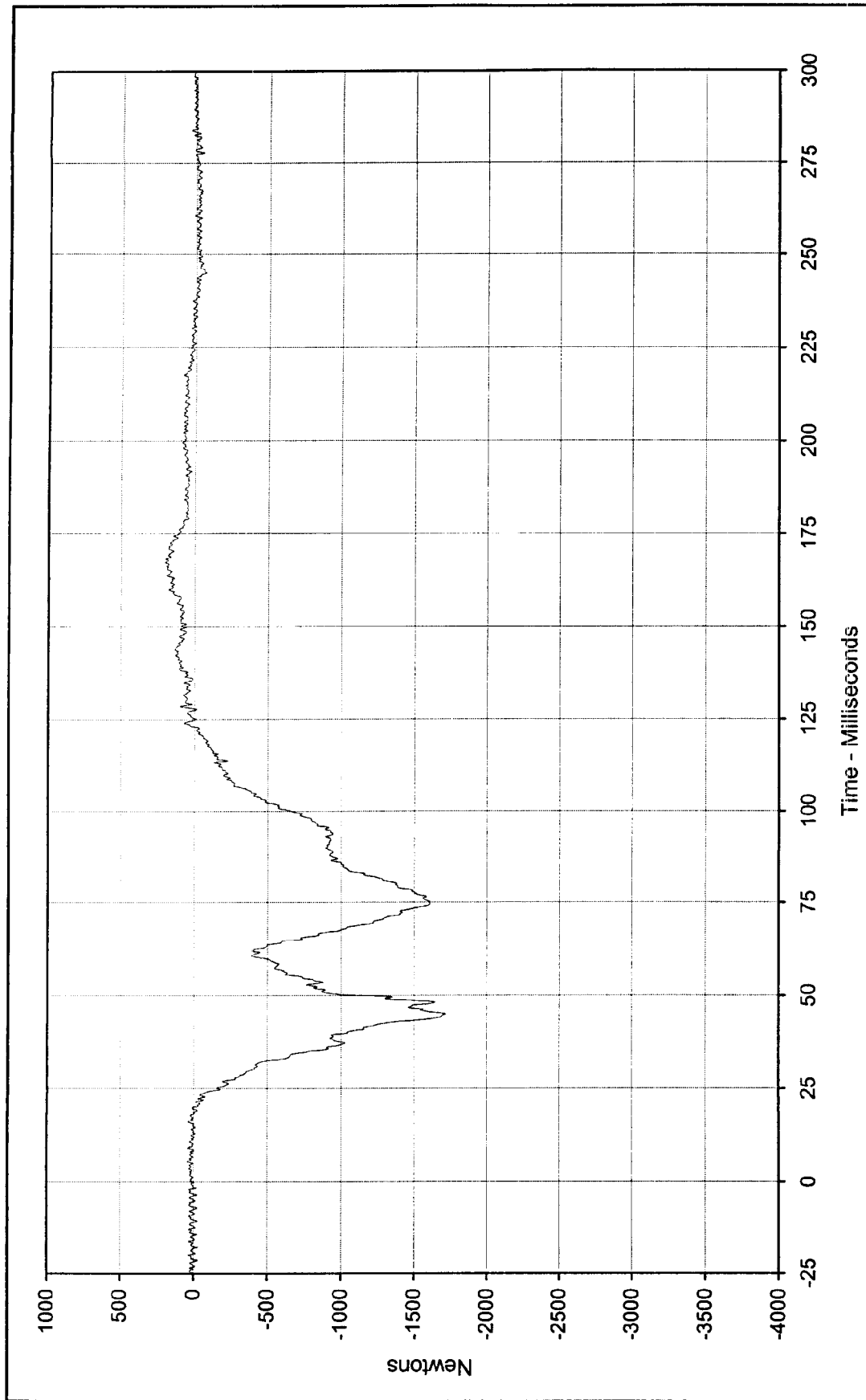
2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Right Lower Tibia Moment Y		Test Program: 2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value: 18.3	at 51.1	Test Vehicle: 2000 Toyota Tundra SR5 Pickup	
Minimum Value: -37.5	at 37.6		
SAE Filter Class: 600			
Date of Test: 11/17/99			
Curve Number: FIL-077			



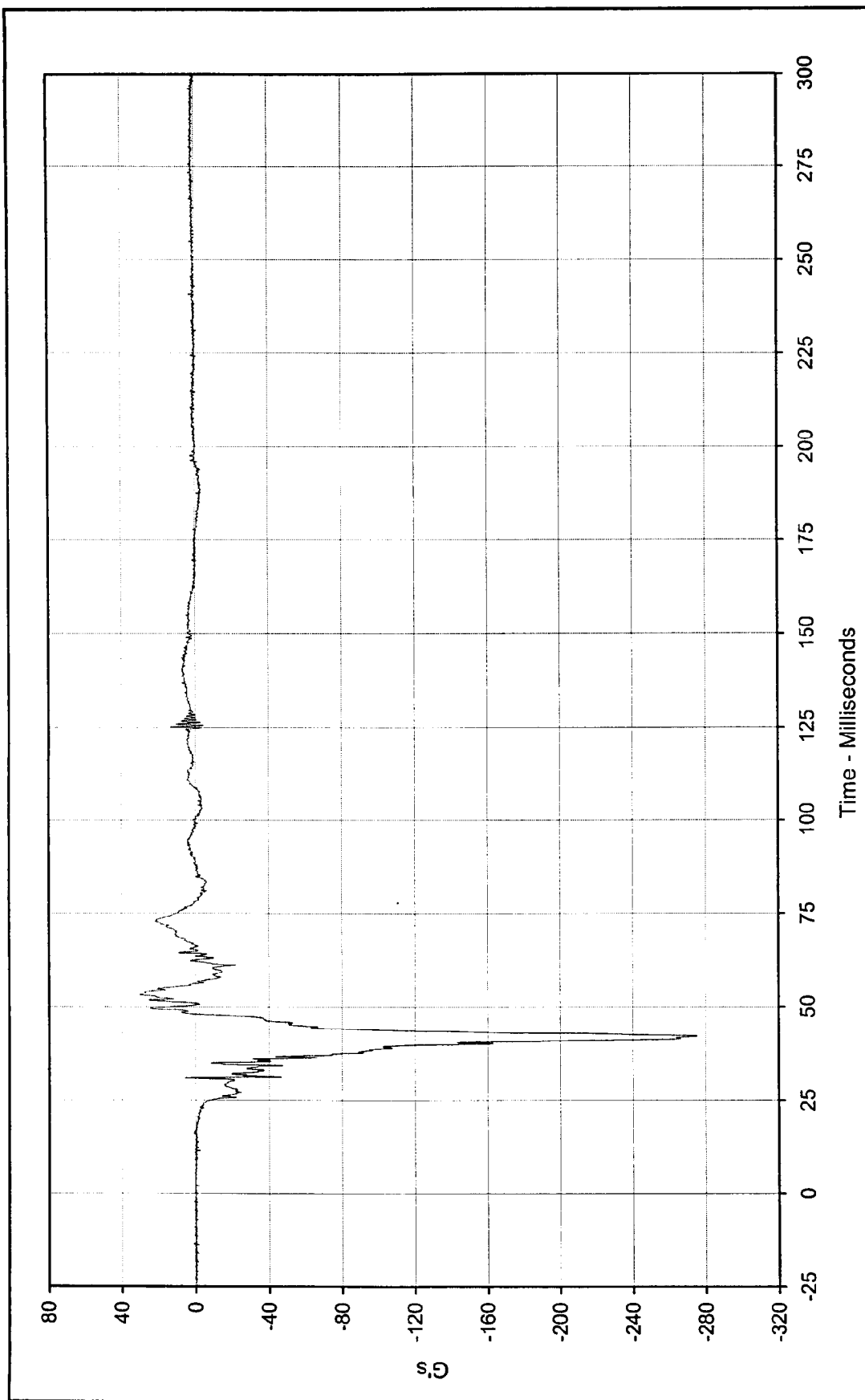


Curve Description:	Passenger Right lower Tibia Force Z		Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	200.6	at 167.1	Milliseconds		
Minimum Value:	-1720.6	at 45.0	Milliseconds	2000 Toyota Tundra SR5 Pickup	
SAE Filter Class:	600				
Date of Test:	11/17/99				
Curve Number:	FIL-078				



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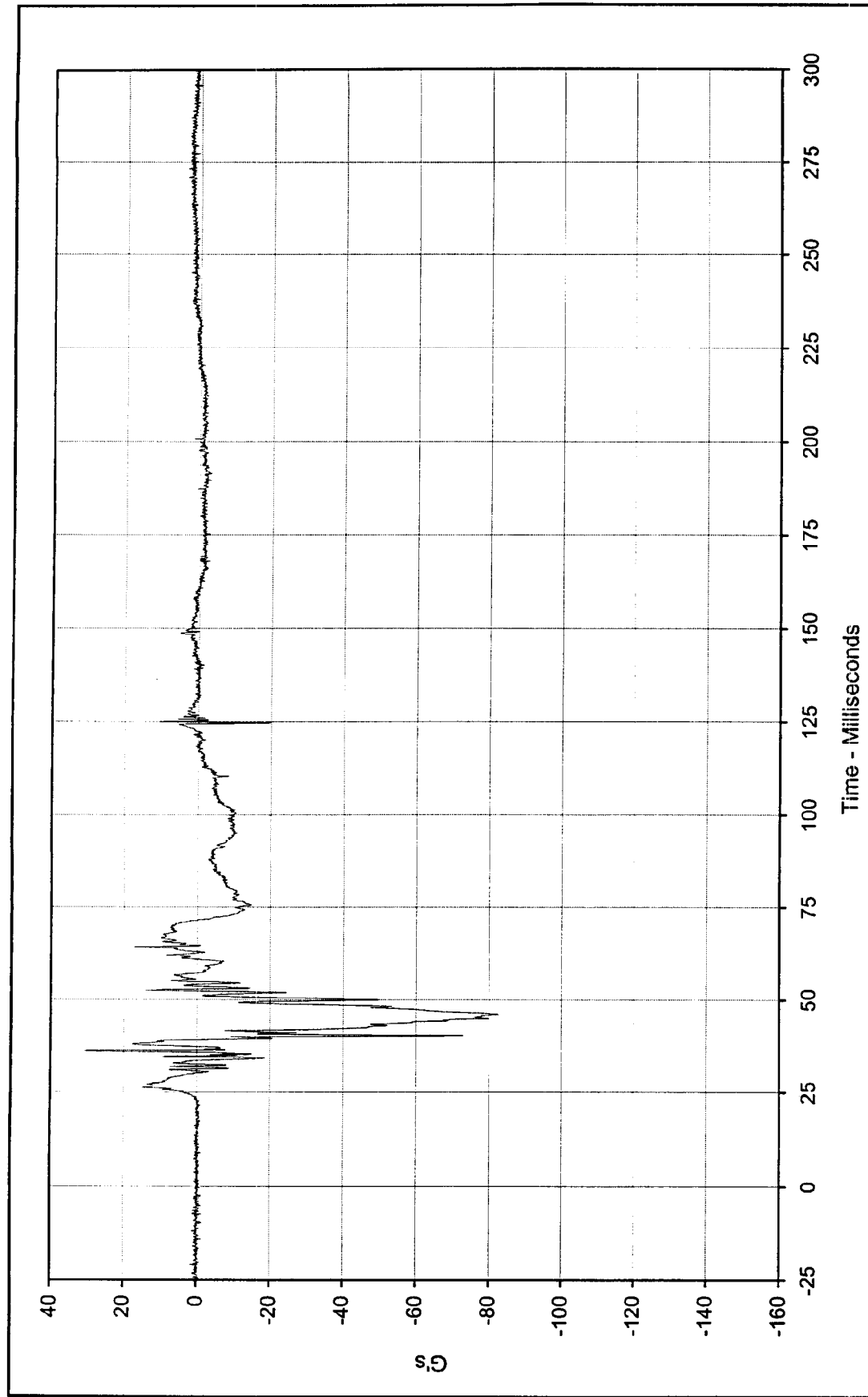




Curve Description: Passenger Left Foot Aft X
 Maximum Value: 30.4 at 53.1 Milliseconds
 Minimum Value: -275.6 at 42.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: FIL-079

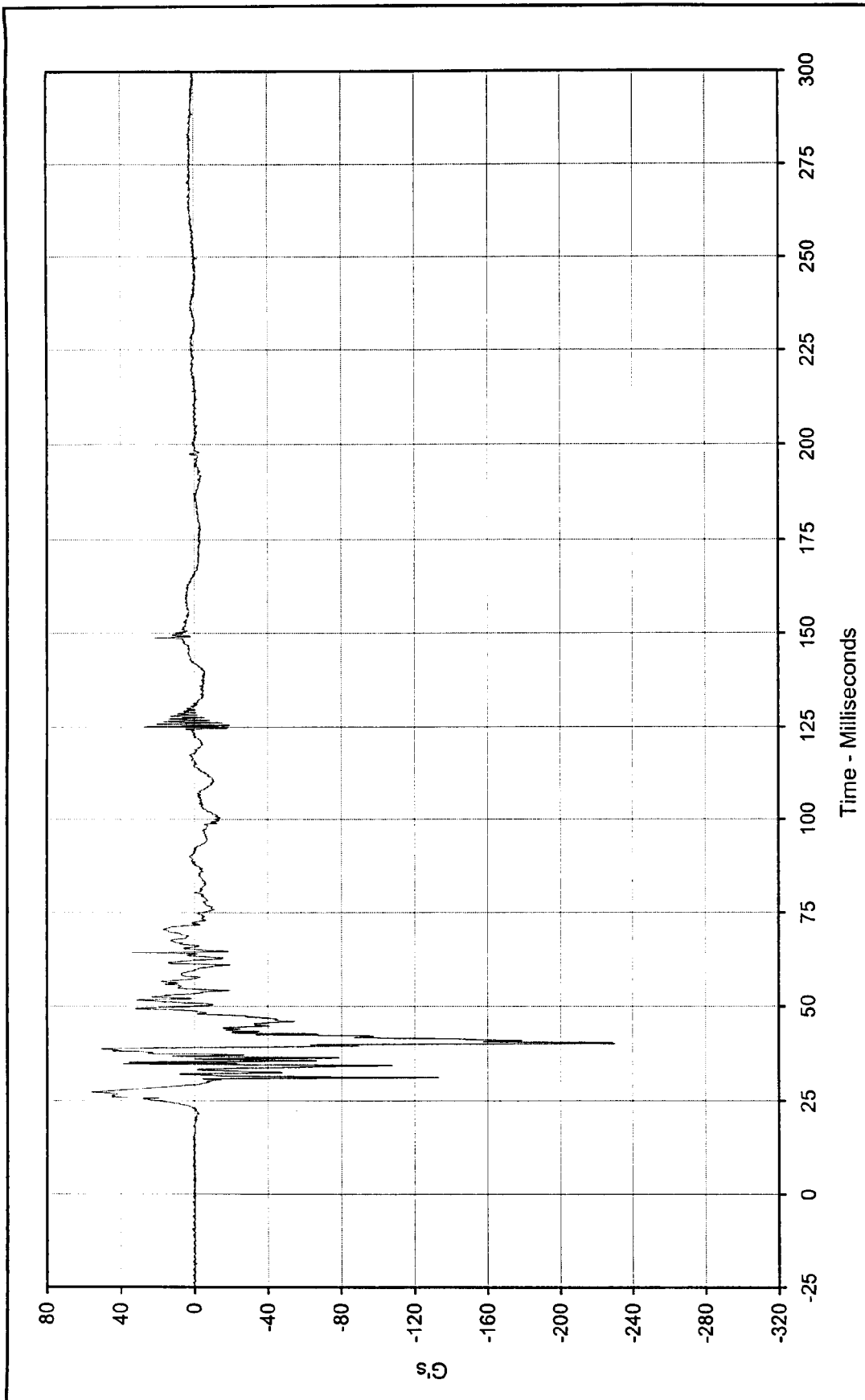
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:	Passenger Left Foot Aft Z	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	30.6 at 36.0 milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-82.6 at 46.0 milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-080			

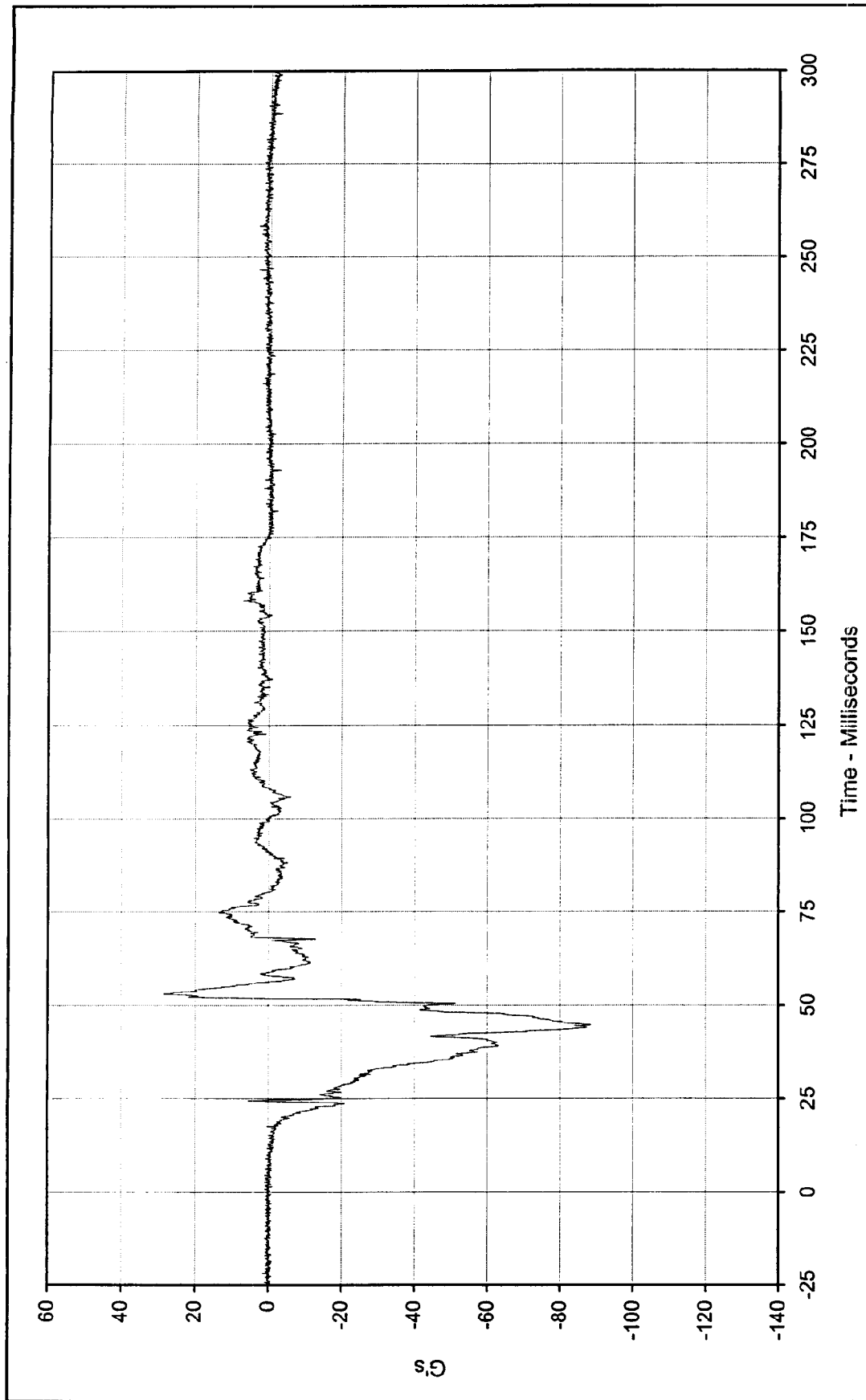




Curve Description: Passenger Left Foot Fore Z
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

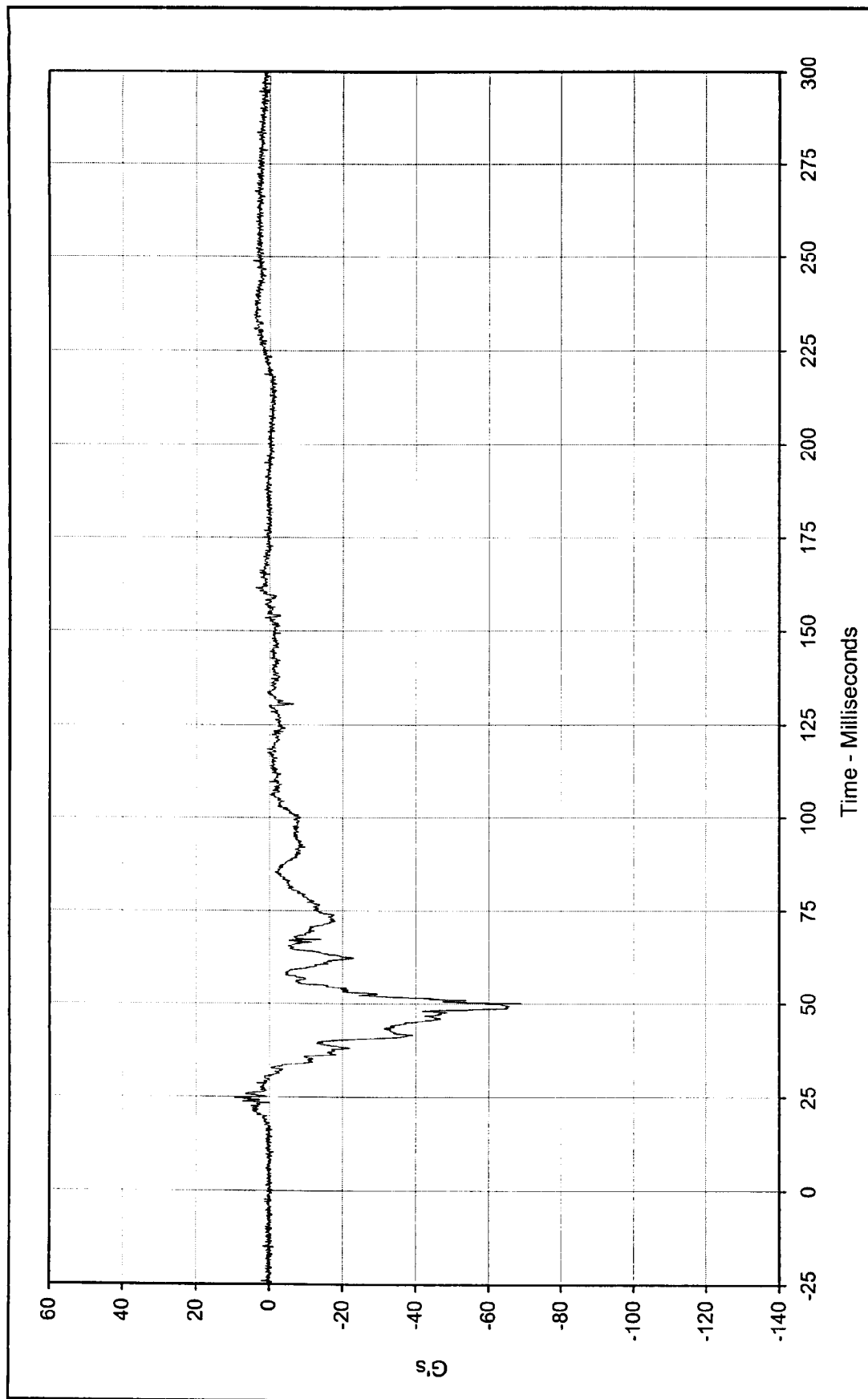
Maximum Value: 56.2 at 27.3 Milliseconds
 Minimum Value: -229.3 at 40.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: FIL-081





Curve Description:	Passenger Right Foot Aft X	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	28.3 at 53.0 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-88.6 at 44.5 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	11/17/99			
Curve Number:	FIL-082			

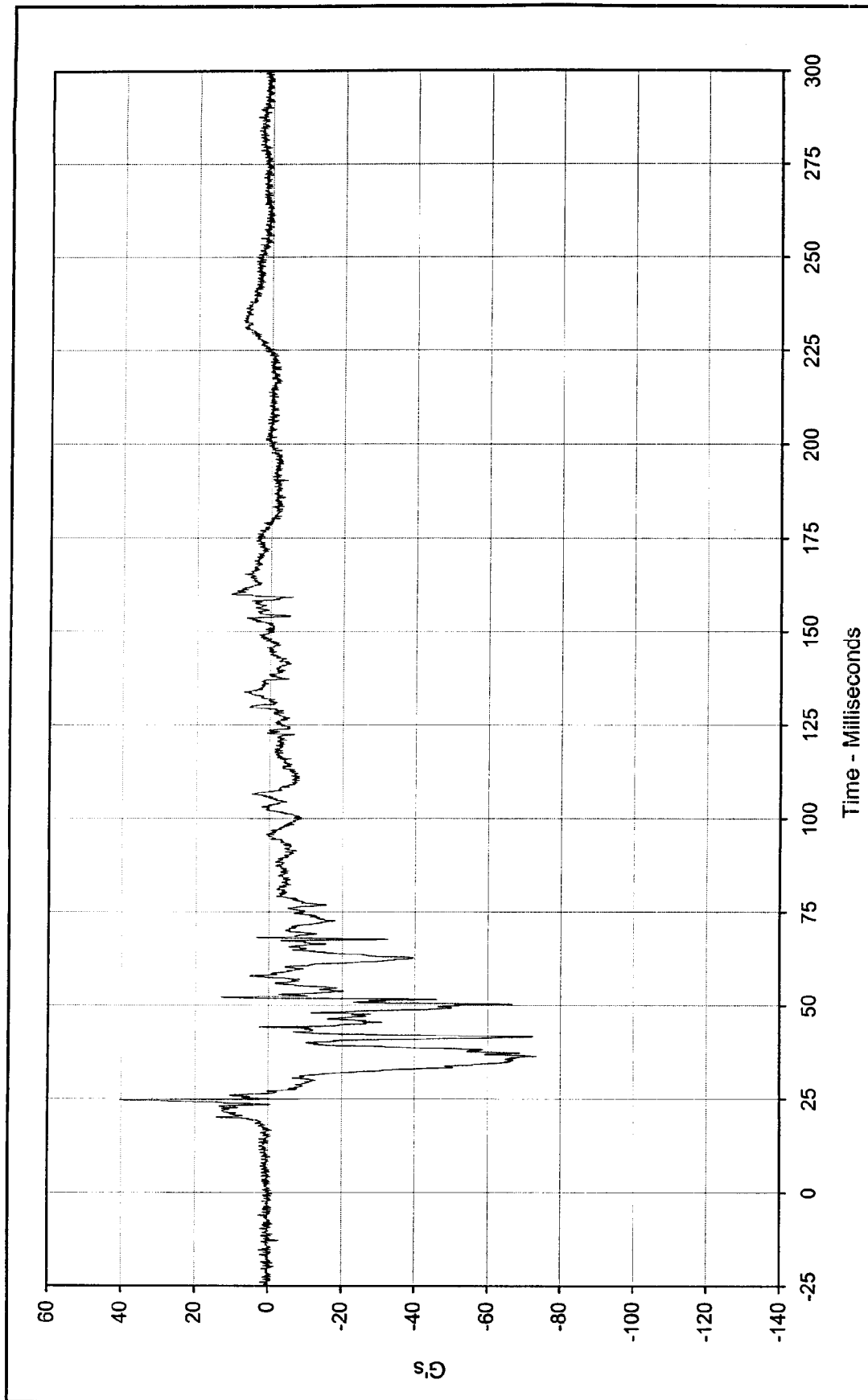




Curve Description: Passenger Right Foot Aft Z
 Maximum Value: 9.4 at 24.8 Milliseconds
 Minimum Value: -69.0 at 50.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/17/99
 Curve Number: FIL-083

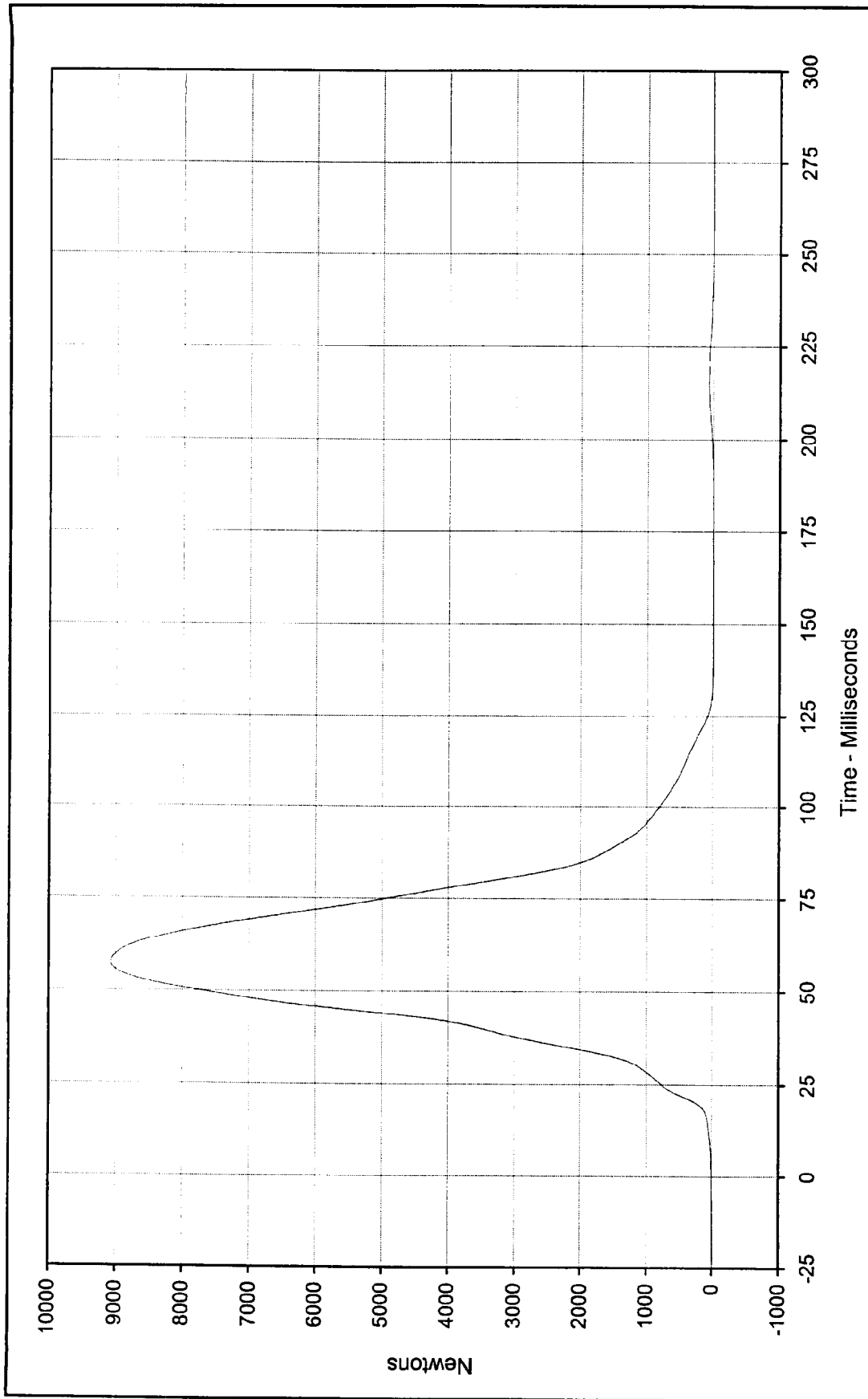
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:	Passenger Right Foot Fore Z				Test Program:	2000 NHTSA 35 mph NCAP No.: MY5103	
Maximum Value:	40.3	at	24.6	Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-73.5	at	36.3	Milliseconds			
SAE Filter Class:	1000						
Date of Test:	11/17/99						
Curve Number:	FIL-084						

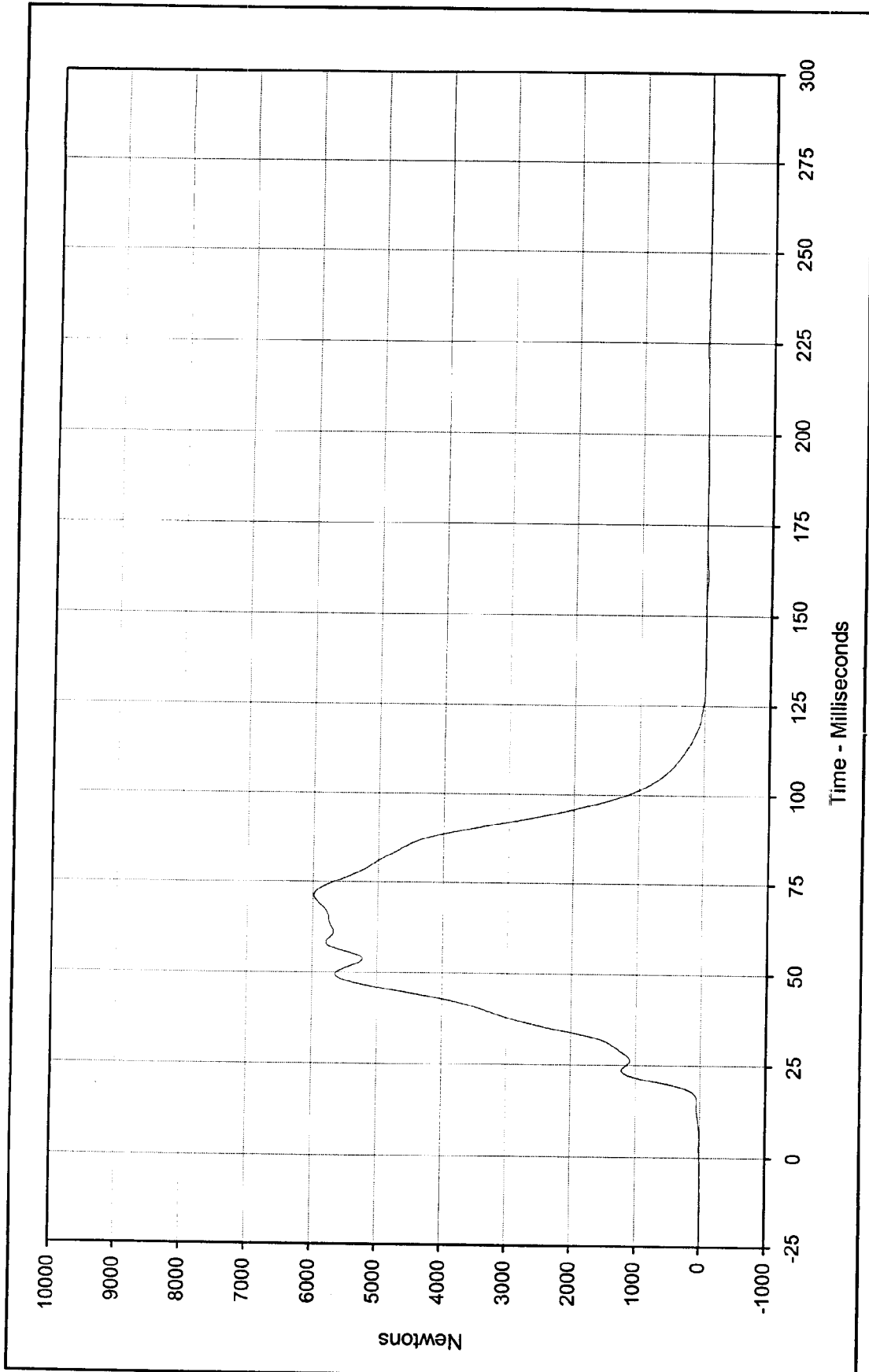




Curve Description: Passenger Lap Belt Force
 Maximum Value: 9070.5 at 57.3 Milliseconds
 Minimum Value: -12.6 at 141.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-085

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

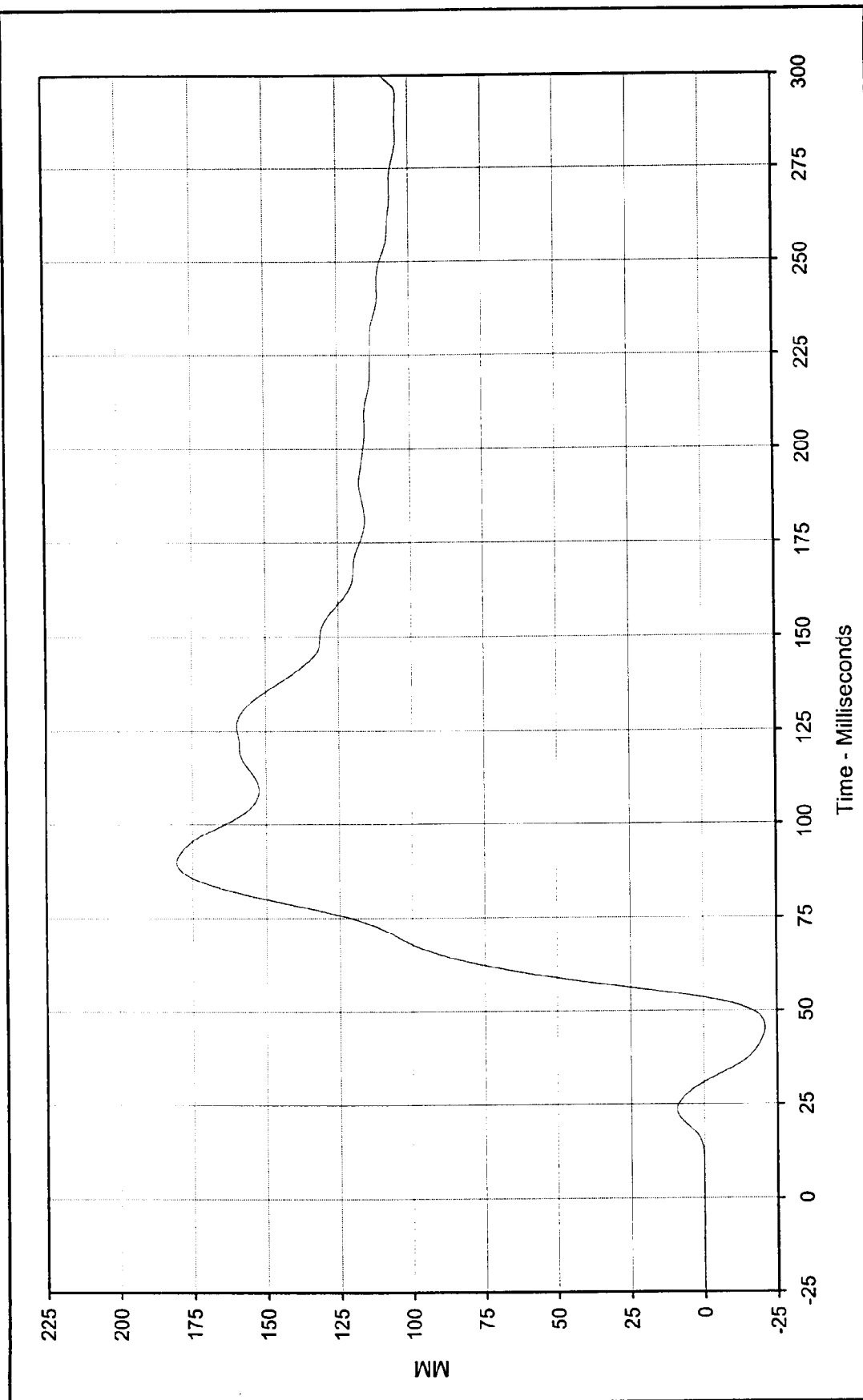




Curve Description: Passenger Shoulder Belt Force
Maximum Value: 5986.9 at 71.2 Milliseconds
Minimum Value: -24.3 at 161.0 Milliseconds
SAE Filter Class: 60
Date of Test: 11/17/99
Curve Number: FIL-086

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup

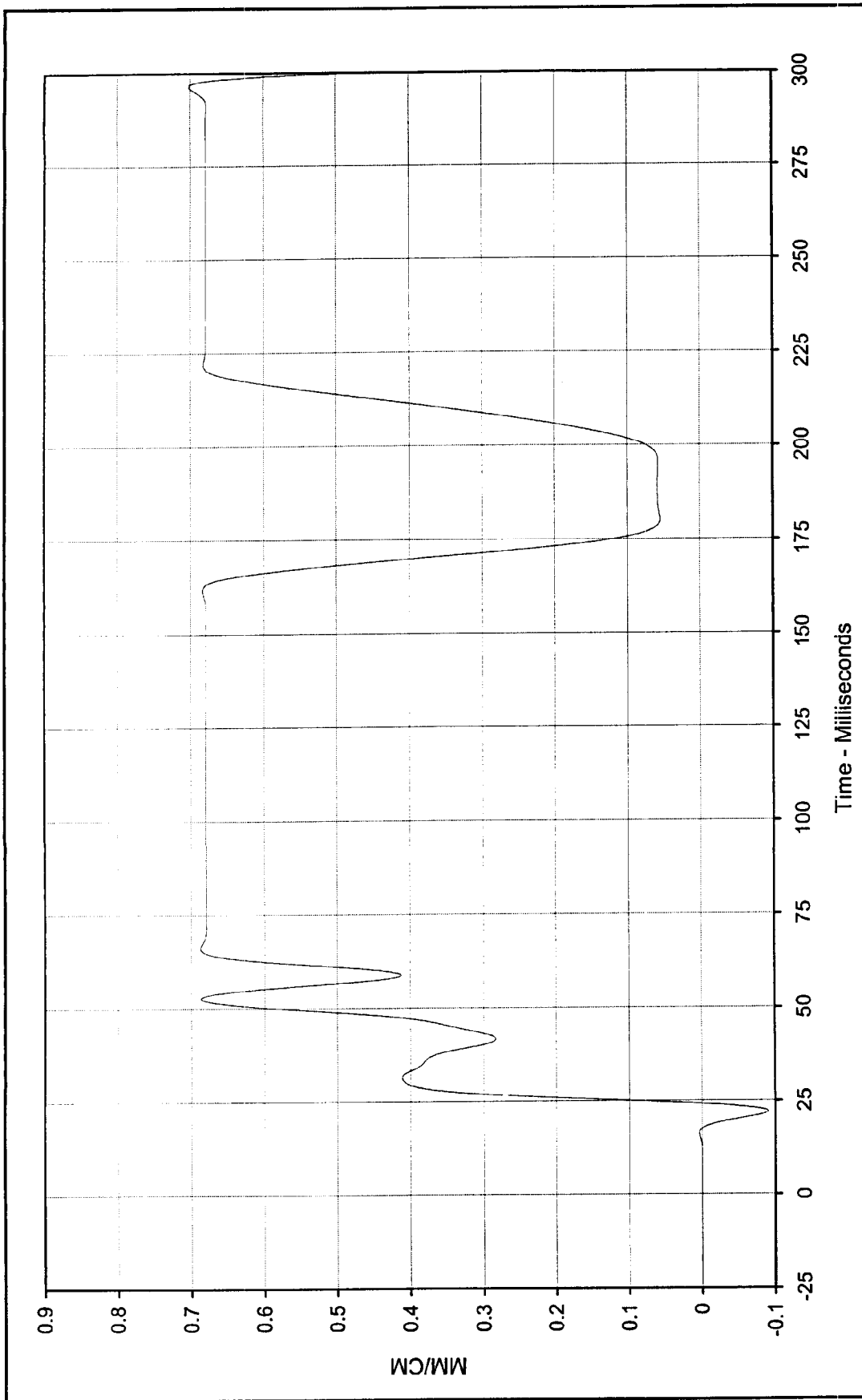




Curve Description: Passenger Shoulder Belt Pullout
 Maximum Value: 180.4 at 89.8 Milliseconds
 Minimum Value: -21.0 at 45.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-087

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Passenger Shoulder Belt Elongation

Maximum Value: 0.70 at 296.4 Milliseconds

Minimum Value: -0.09 at 22.2 Milliseconds

SAE Filter Class: 60

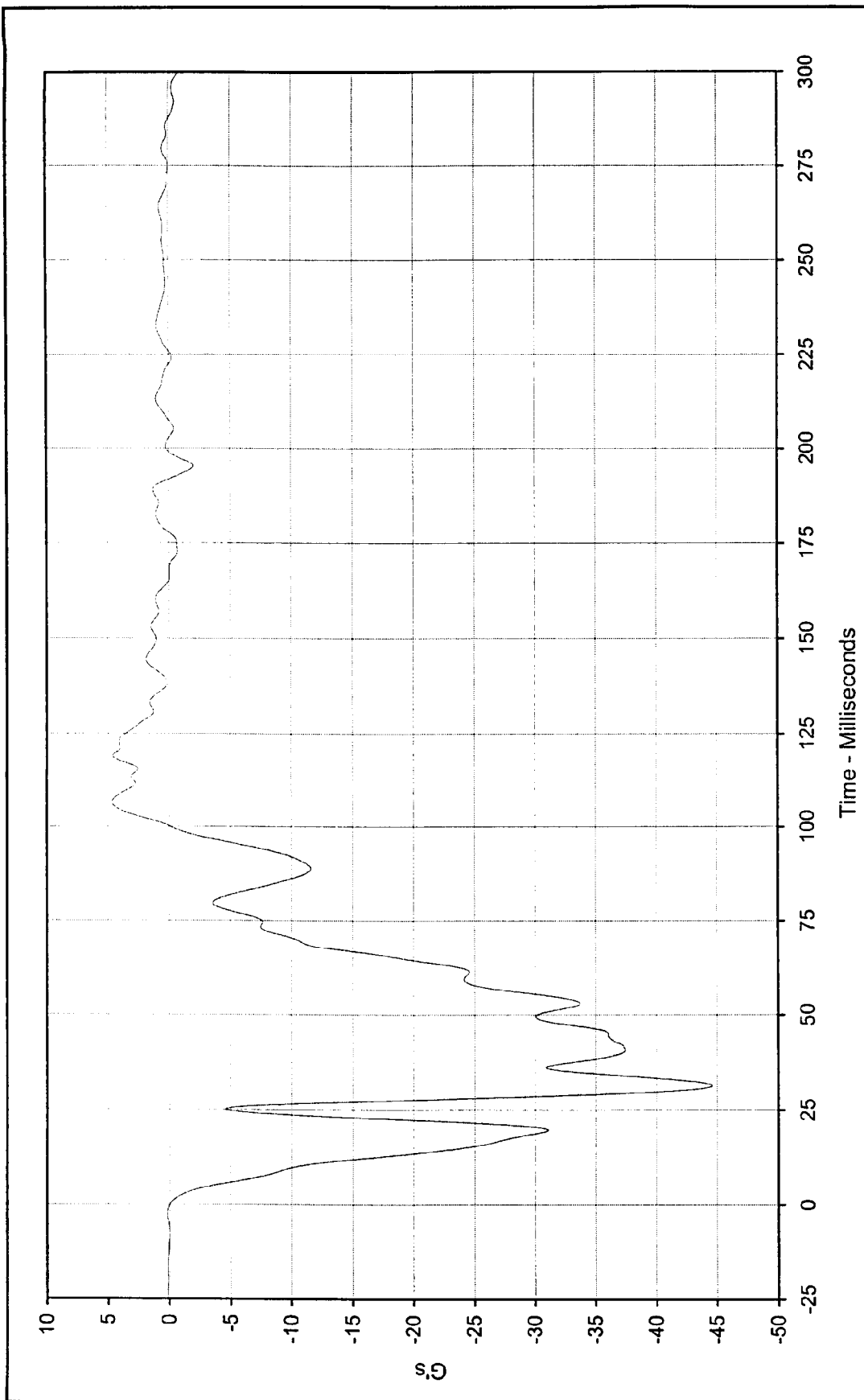
Date of Test: 11/17/99

Curve Number: FIL-088

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup



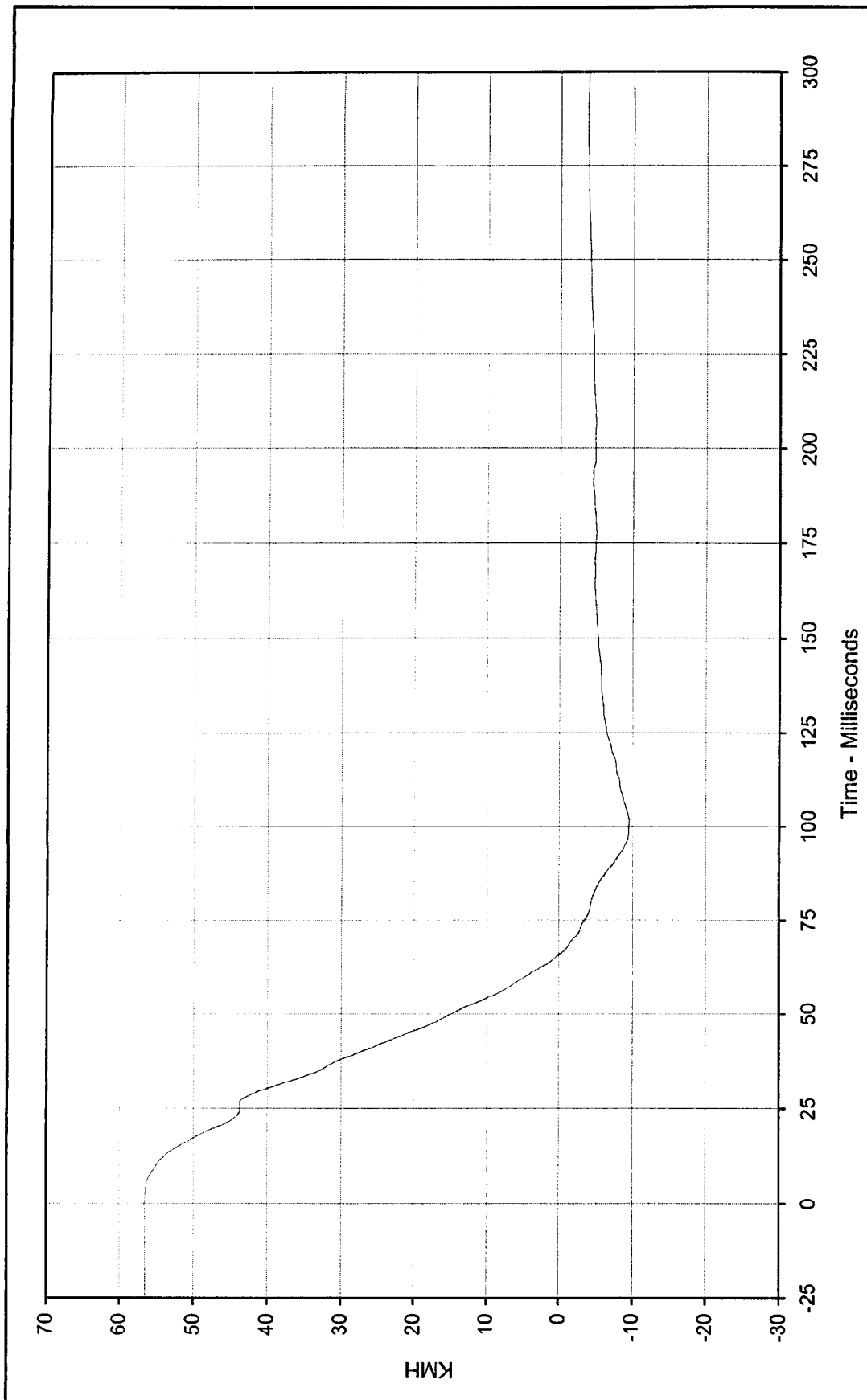


Curve Description:	Vehicle Left Rear Primary	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	4.6 at 106.3 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-44.6 at 31.4 Milliseconds			
SAE Filter Class:	60			
Date of Test:	11/17/99			
Curve Number:	FIL-089			



KARCO
Engineering

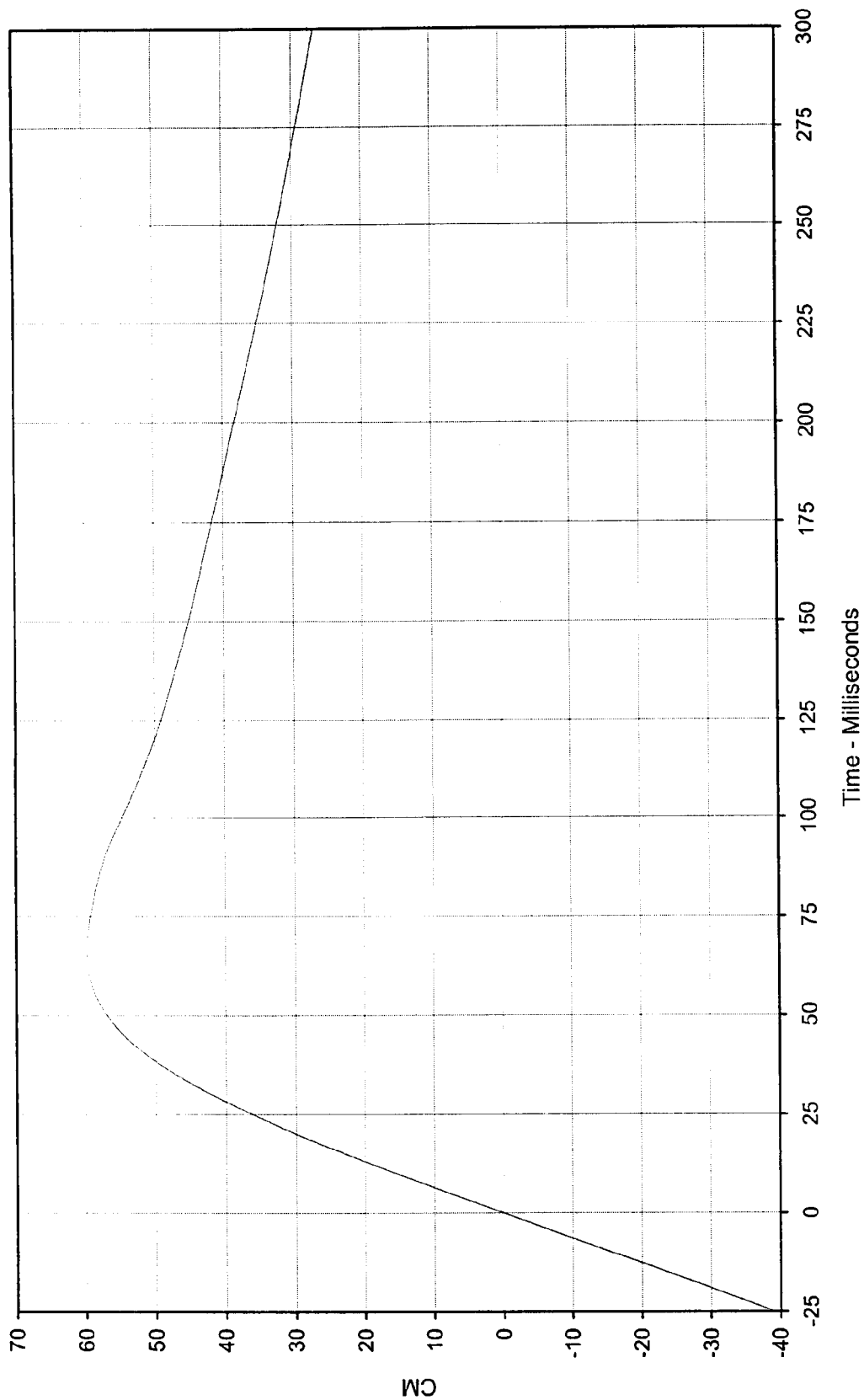




Curve Description: Vehicle Left Rear Primary Velocity
 Maximum Value: 56.6 at 0.6 Milliseconds
 Minimum Value: -9.5 at 101.5 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN1-089

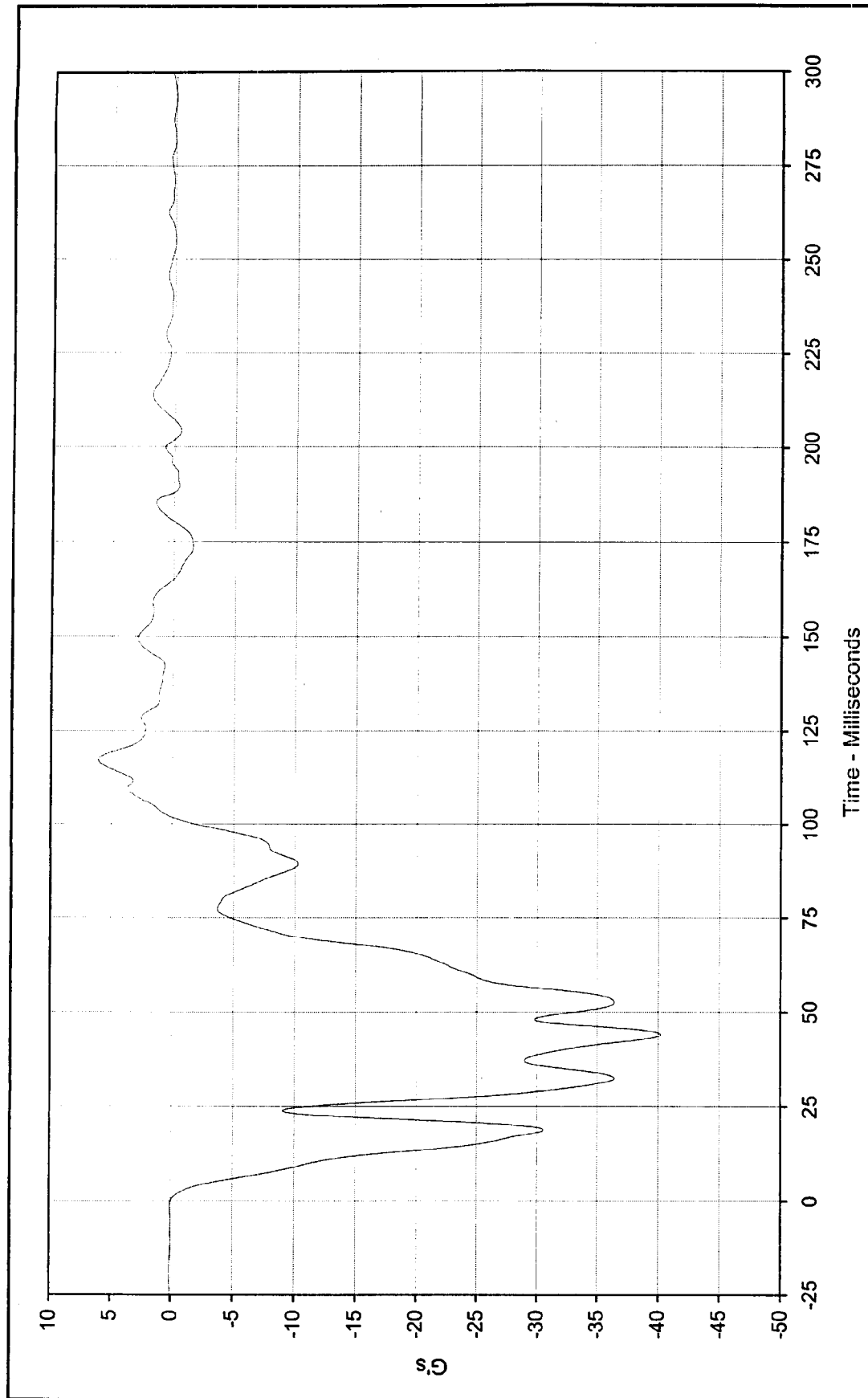
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:	Vehicle Left Rear Primary Displ.	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	59.8	at	65.6	Milliseconds
Minimum Value:	0.0	at	0.0	Milliseconds
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	IN2-089			
		Test Vehicle:	2000 Toyota Tundra SR5 Pickup	

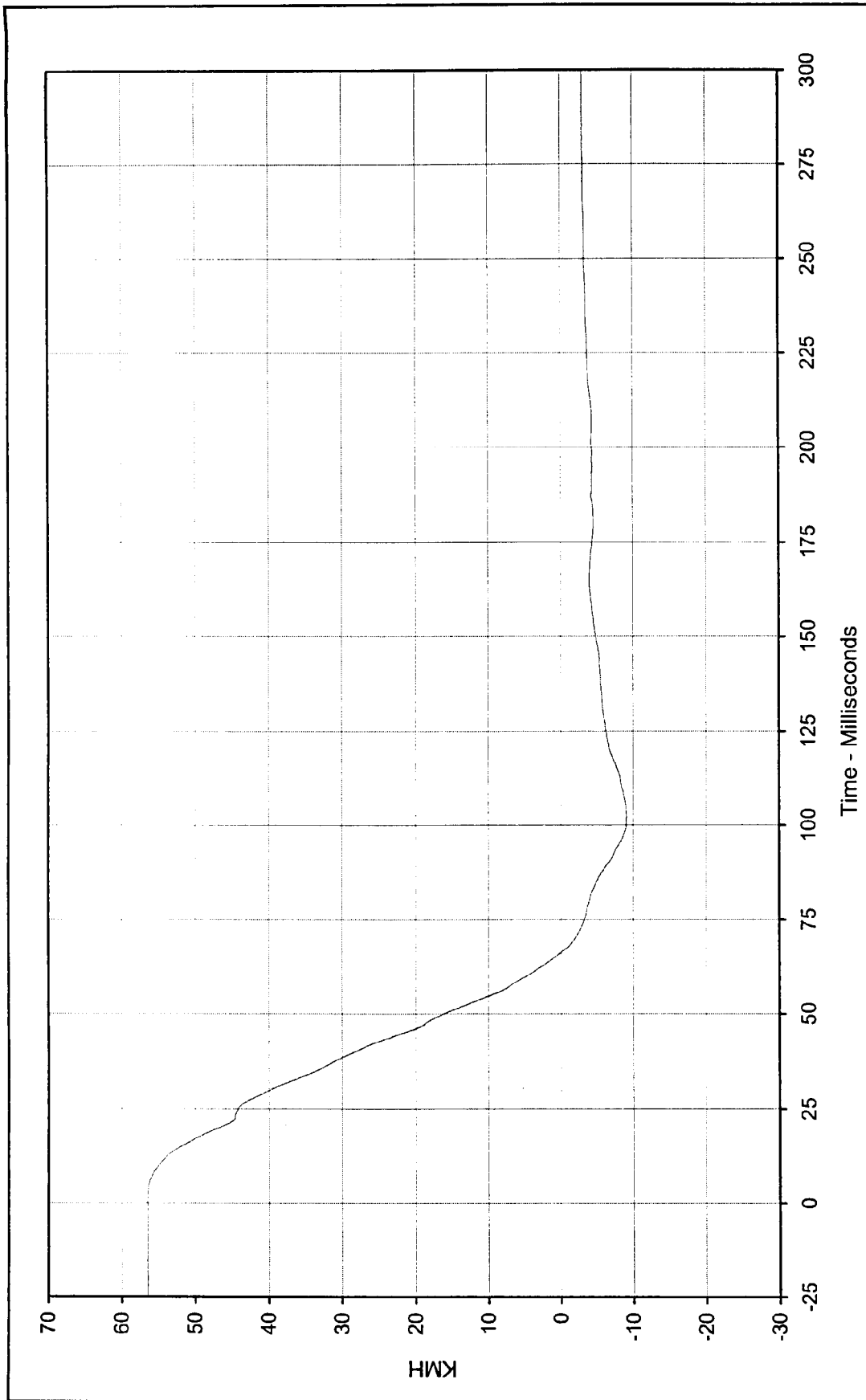




Curve Description: Vehicle Right Rear Primary
 Maximum Value: 6.1 at 117.1 Milliseconds
 Minimum Value: -40.2 at 44.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-090

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

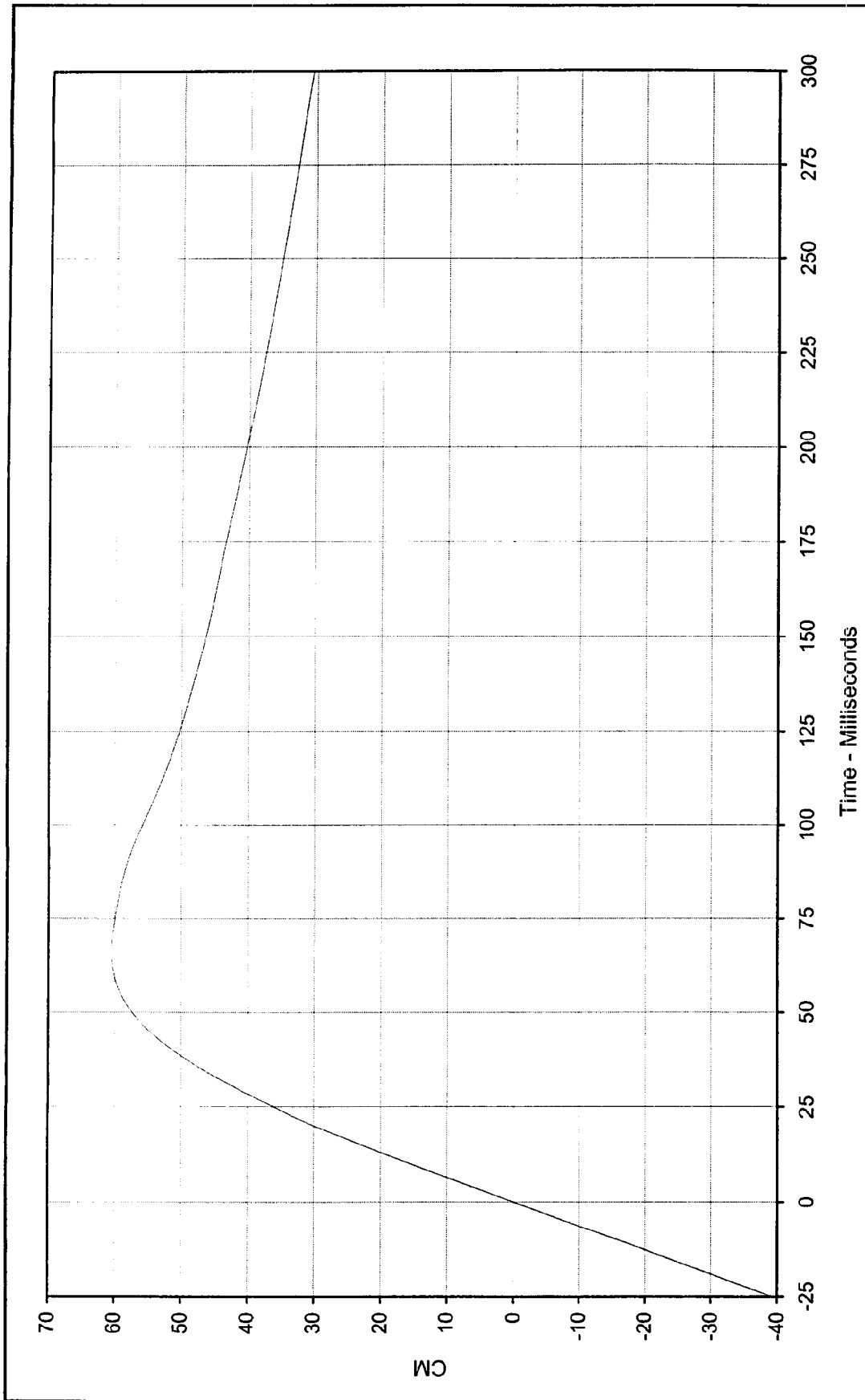




Curve Description: Vehicle Right Rear Primary Velocity
 Maximum Value: 56.5 at 0.8 Milliseconds
 Minimum Value: -9.1 at 102.4 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN1-090

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

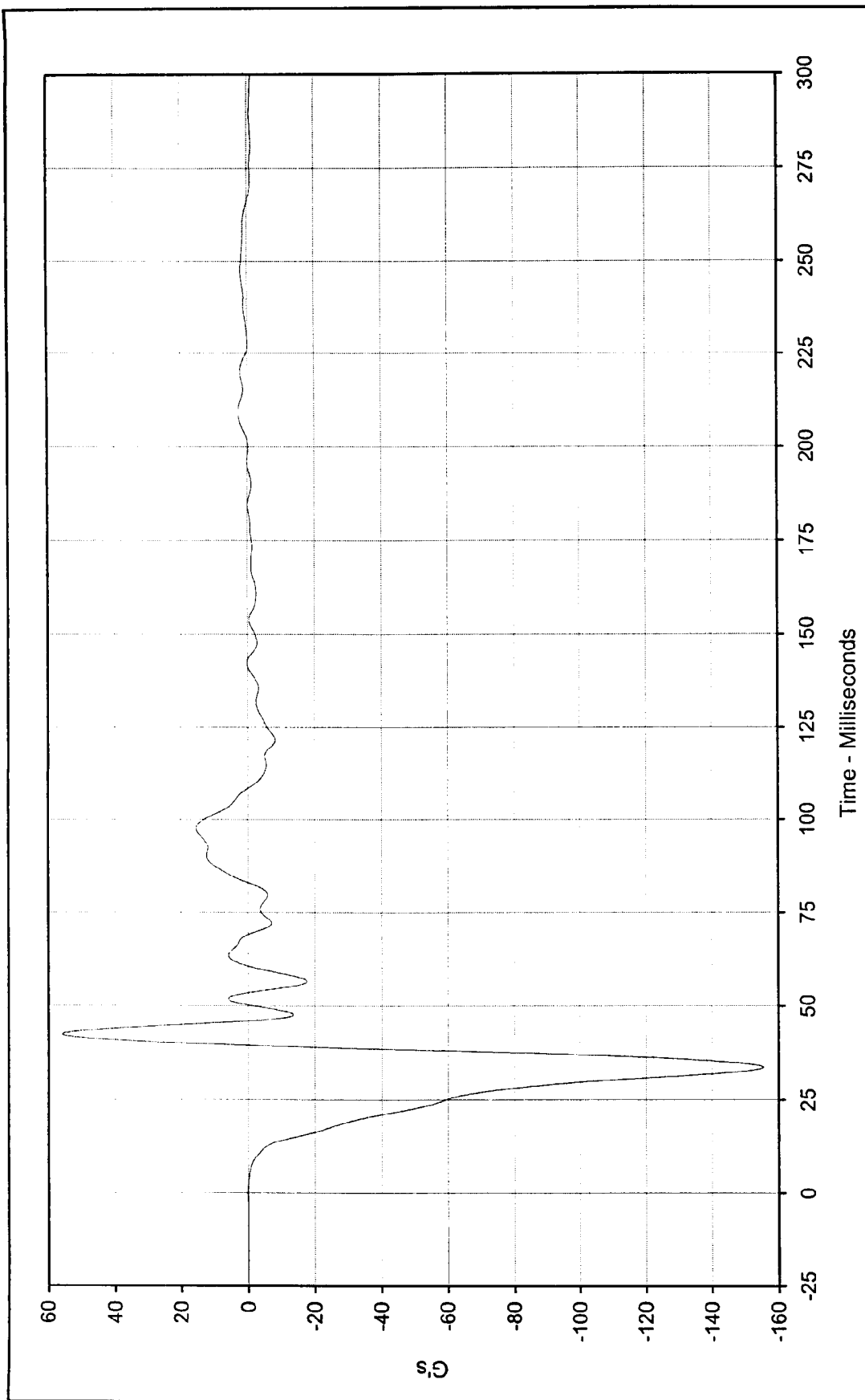




Curve Description: Vehicle Right Rear Primary Displ.
Maximum Value: 60.4 at 66.1 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 11/17/99
Curve Number: IN2-090

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup

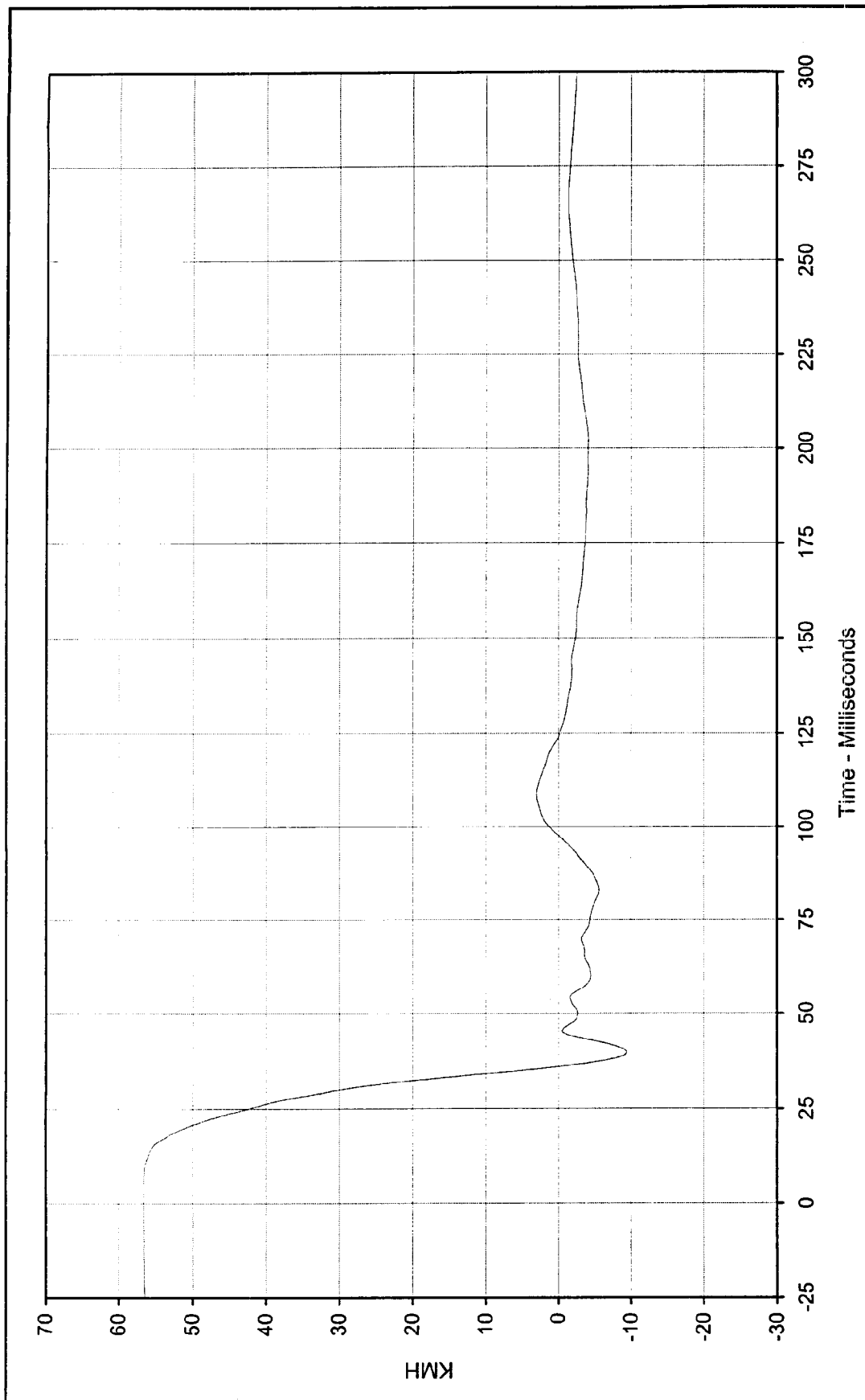




Curve Description: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Program: 2000 Toyota Tundra SR5 Pickup
 Test Vehicle:

Vehicle Engine Top
 Maximum Value: 55.9 at 42.6 Milliseconds
 Minimum Value: -155.5 at 33.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-091

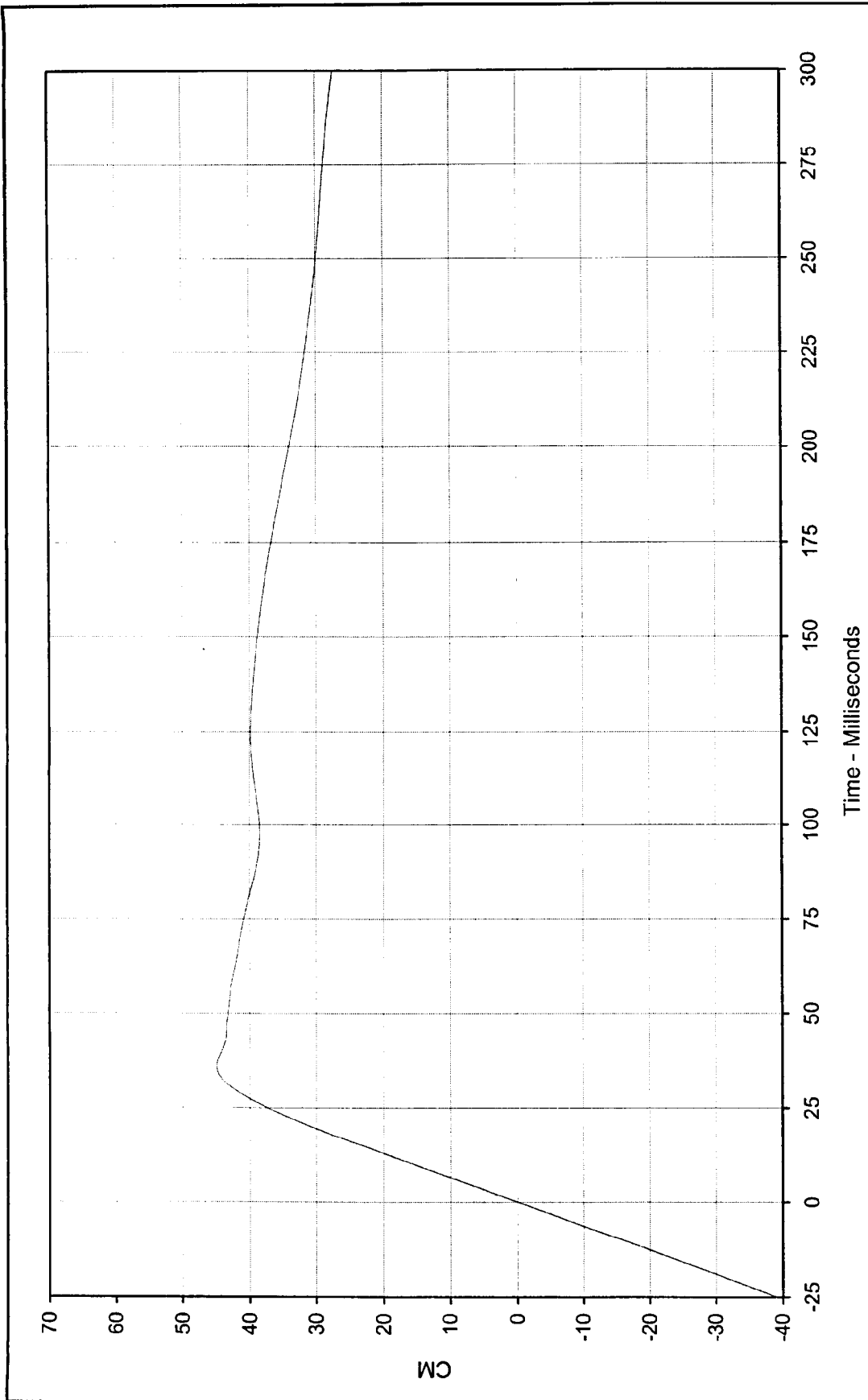




Curve Description: Vehicle Engine Top Velocity
 Maximum Value: 56.6 at 3.1 Milliseconds
 Minimum Value: -9.4 at 39.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN1-091

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

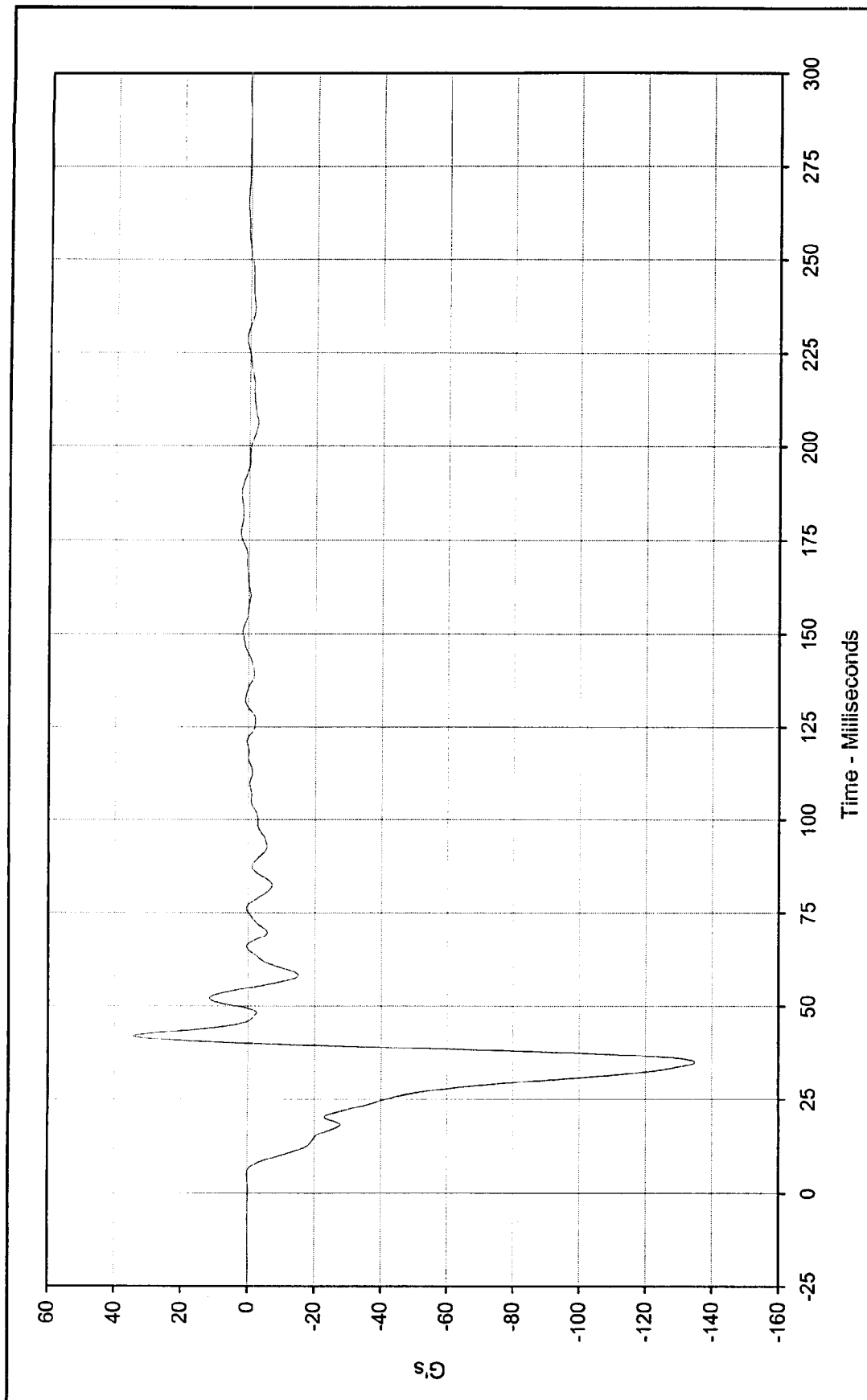




Curve Description: Vehicle Engine Top Displacement
 Maximum Value: 45.0 at 35.9 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN2-091

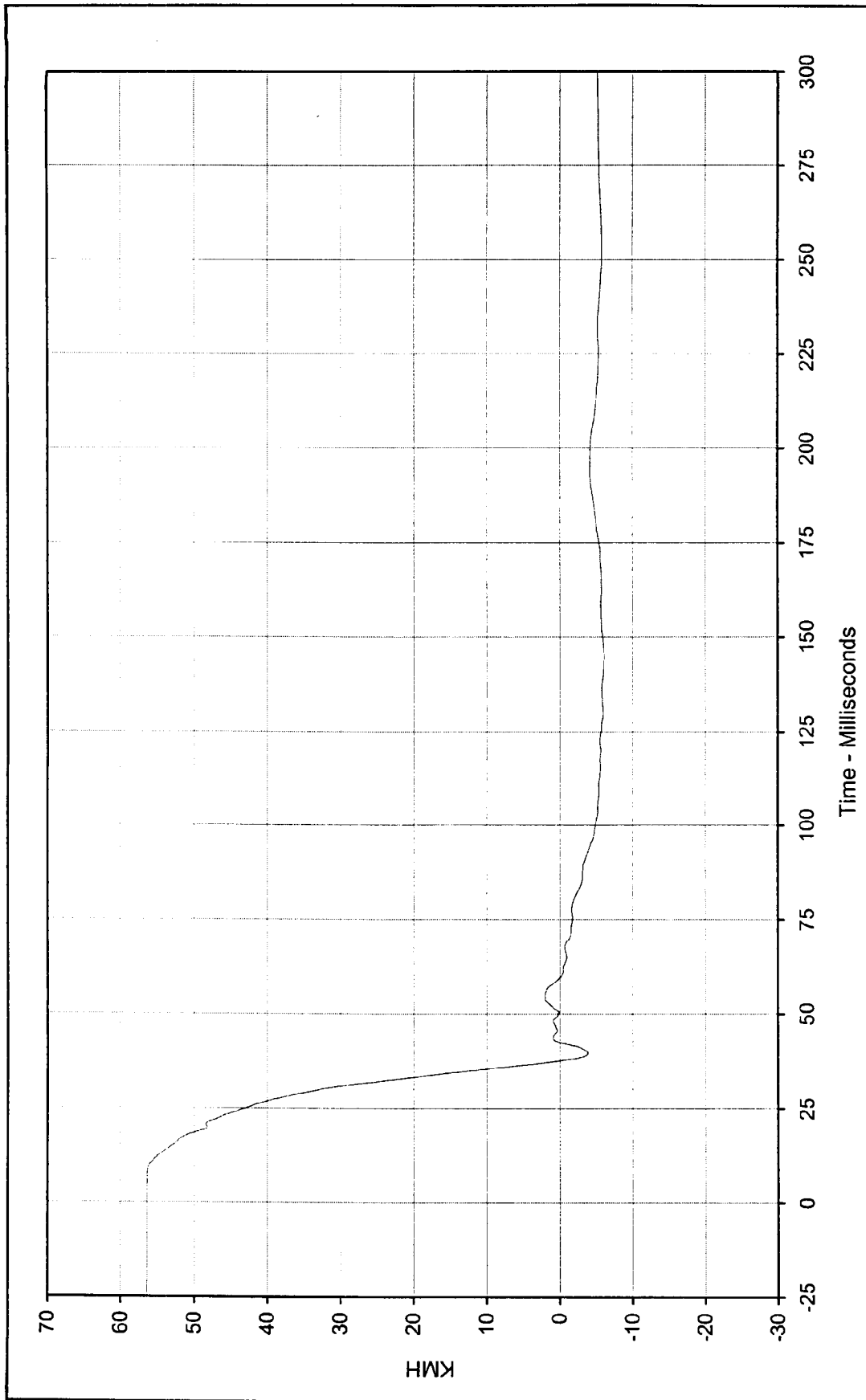
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





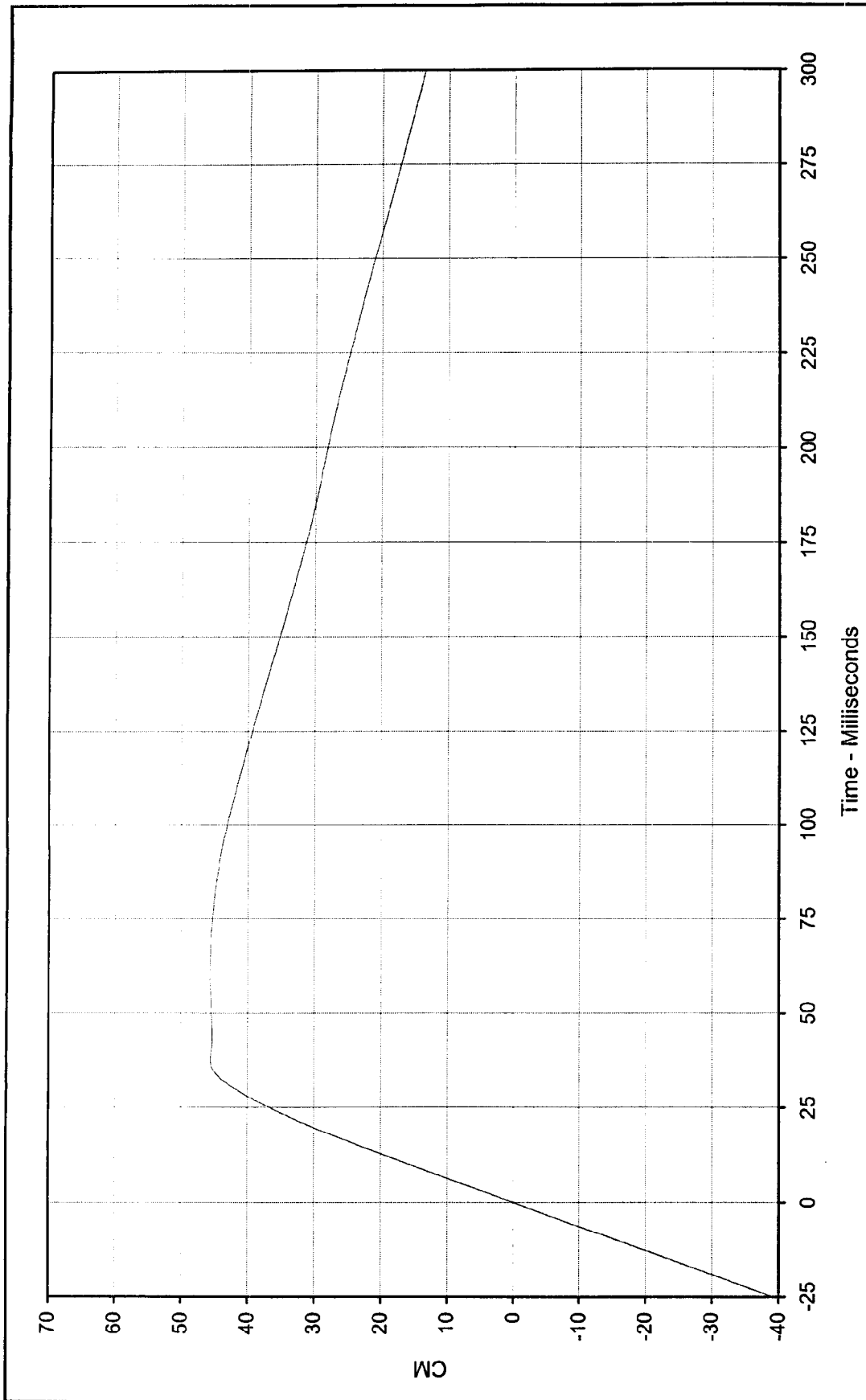
Curve Description:	Vehicle Engine Bottom		Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	34.4	at 41.9 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-134.9	at 34.9 Milliseconds			
SAE Filter Class:	60				
Date of Test:	11/17/99				
Curve Number:	FIL-092				





Curve Description:	Vehicle Engine Bottom Velocity	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	56.4 at 0.0 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-6.1 at 144.5 Milliseconds			
SAE Filter Class:	180			
Date of Test:	11/17/99			
Curve Number:	IN1-092			





B-134

Curve Description: Vehicle Engine Bottom Displacement

Maximum Value: 45.7 at 59.4 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

Curve Number: IN2-092

Test Program:

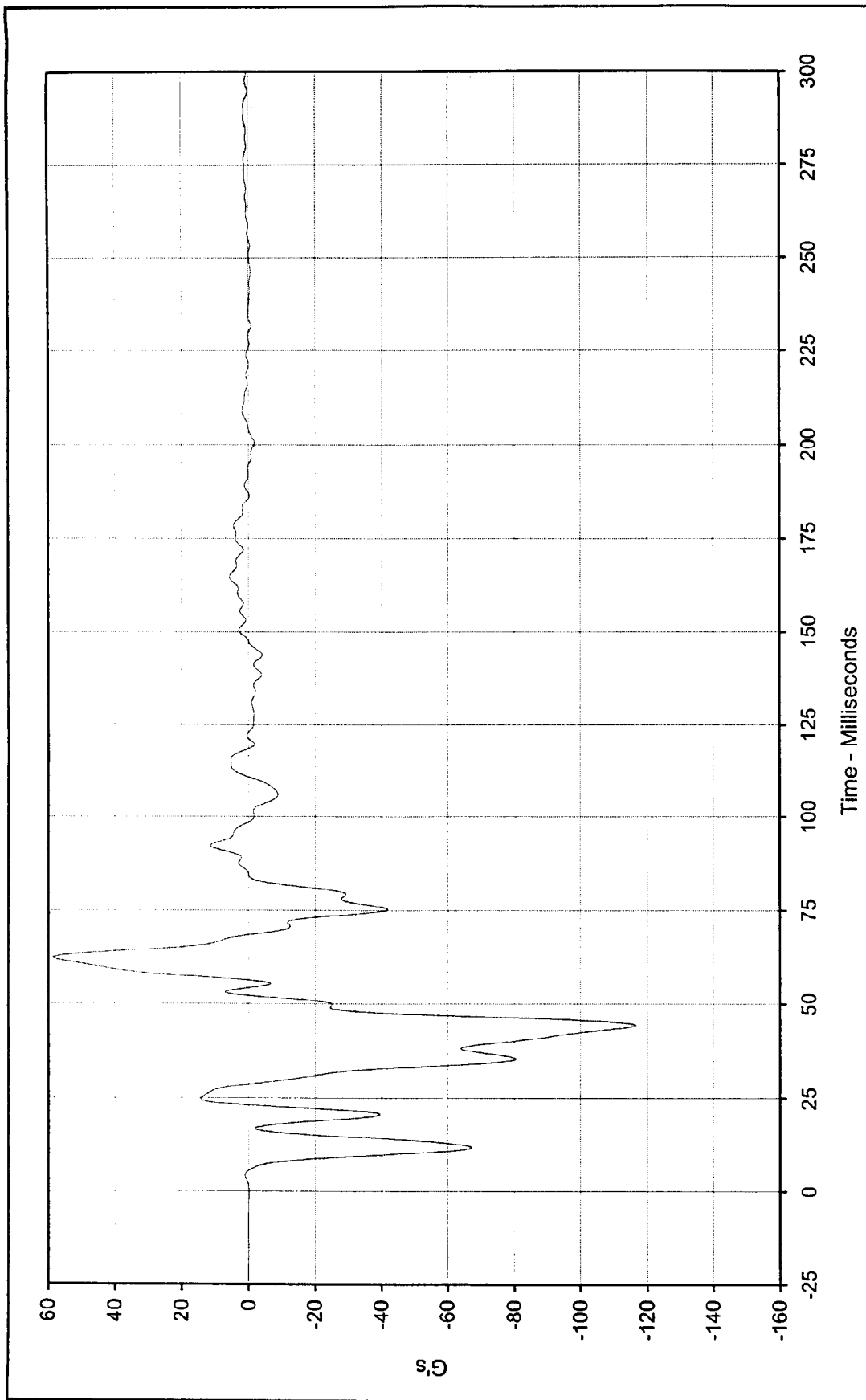
2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle:

2000 Toyota Tundra SR5 Pickup



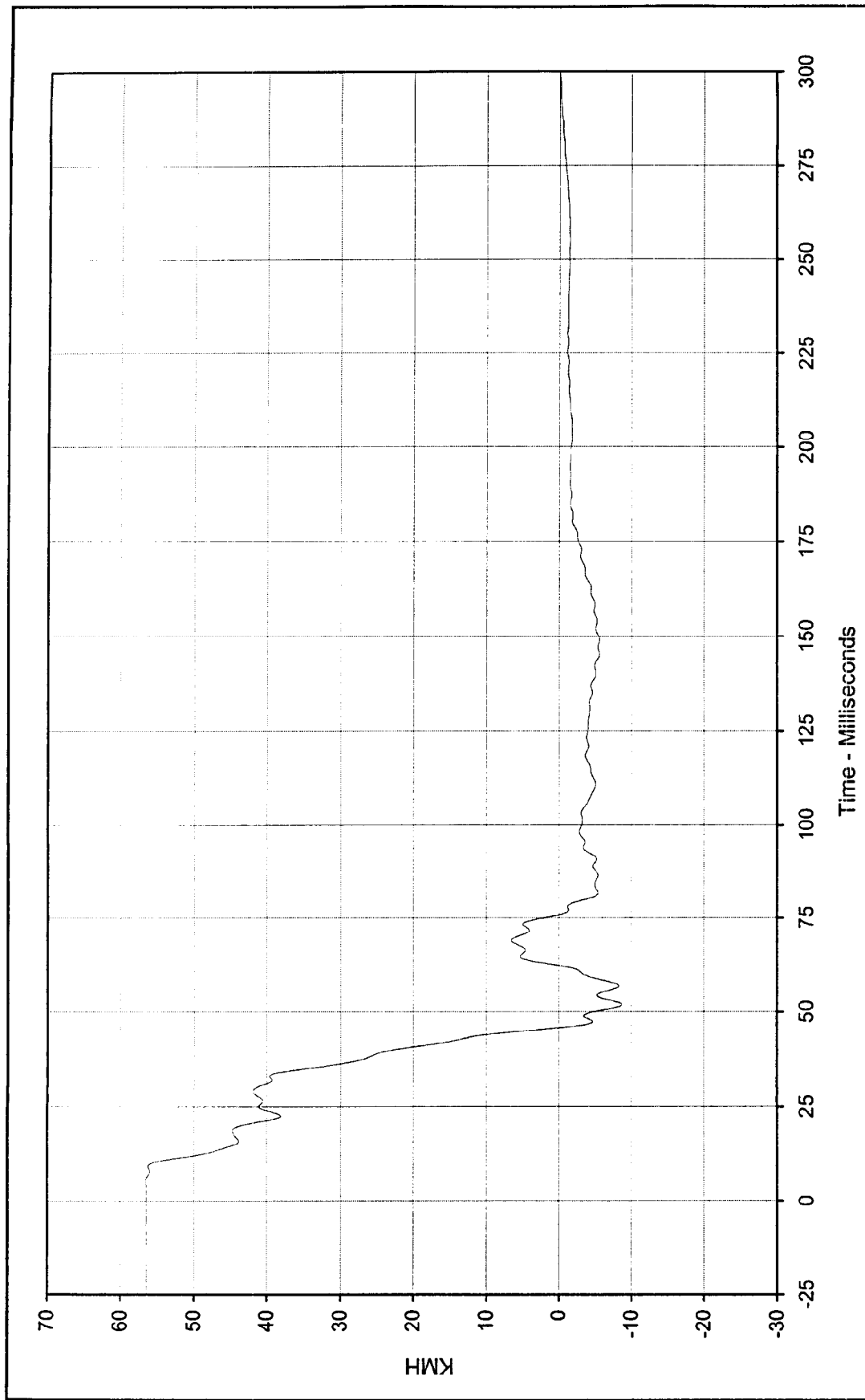
KAR20001-02



Curve Description: Vehicle Left Brake Caliper
 Maximum Value: 58.7 at 62.1 Milliseconds
 Minimum Value: -116.6 at 44.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-093

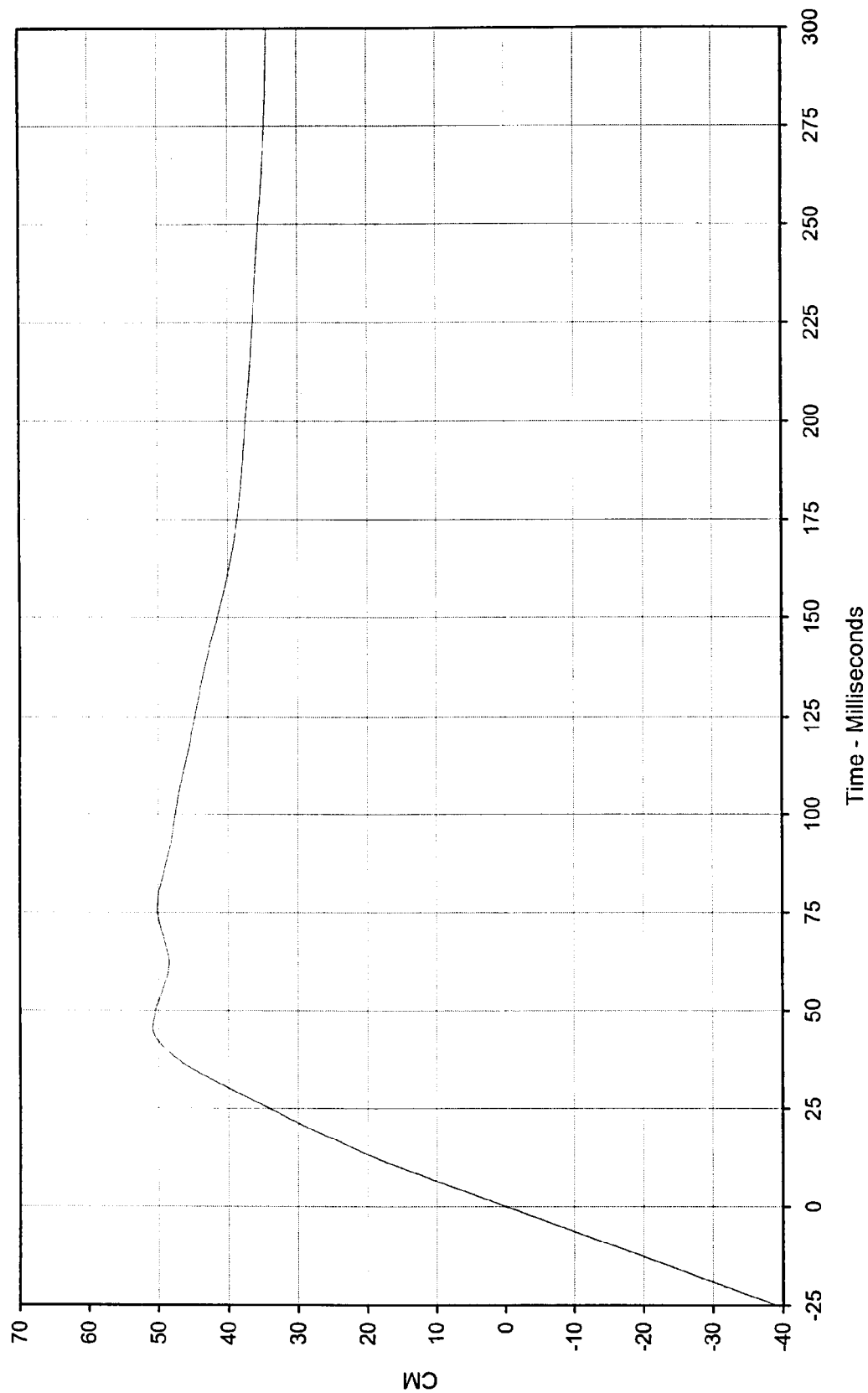
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:	Vehicle Left Brake Caliper Velocity	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	56.6	at	5.2	Milliseconds
Minimum Value:	-8.7	at	51.8	Milliseconds
SAE Filter Class:	180	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Date of Test:	11/17/99			
Curve Number:	IN1-093			





Curve Description: Vehicle Left Brake Caliper Displ.

Maximum Value: 50.9 at 45.7 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

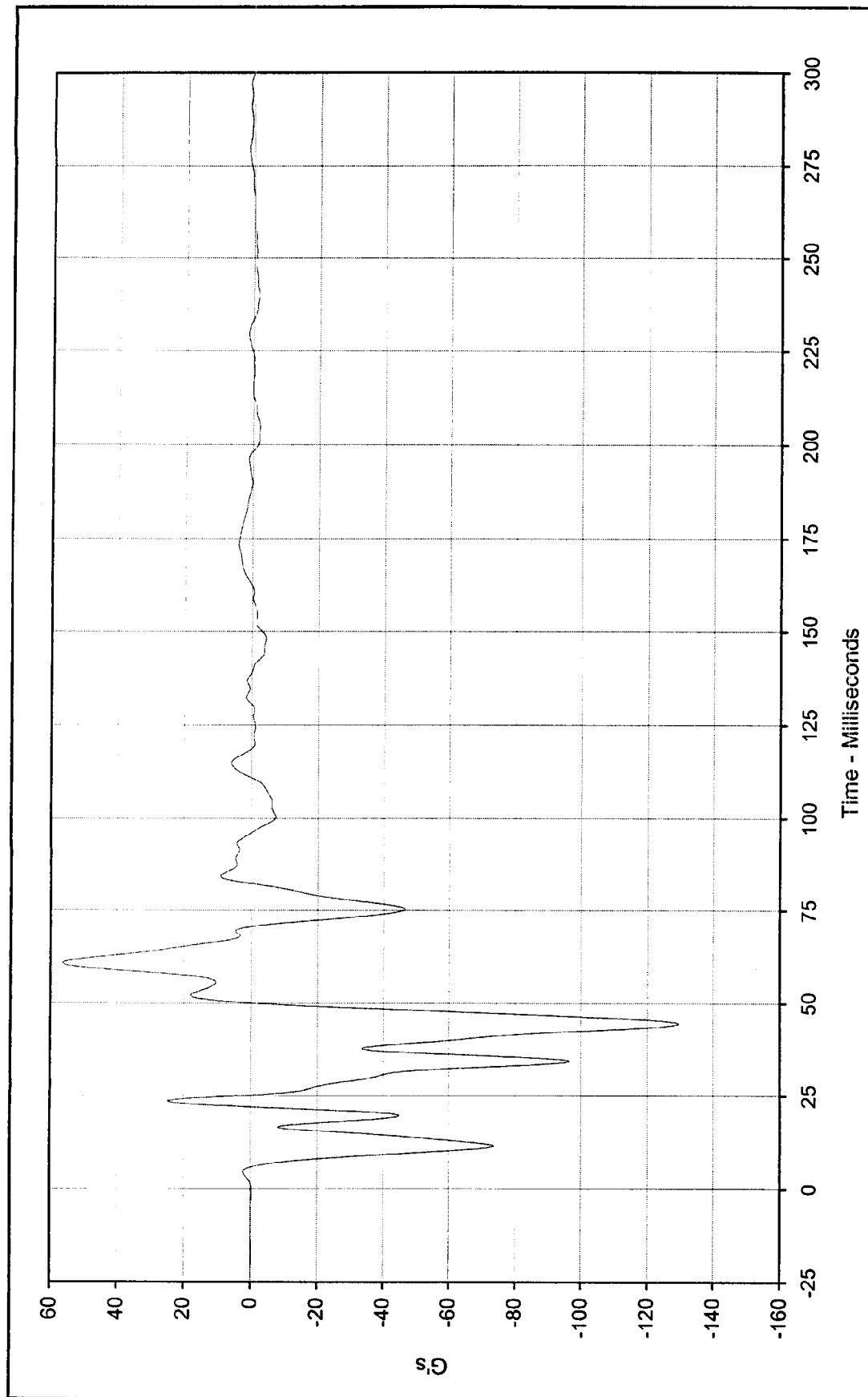
Curve Number: IN2-093

Test Program: 2000 NHTSA 35 mph NCAP

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

No.: MY5103

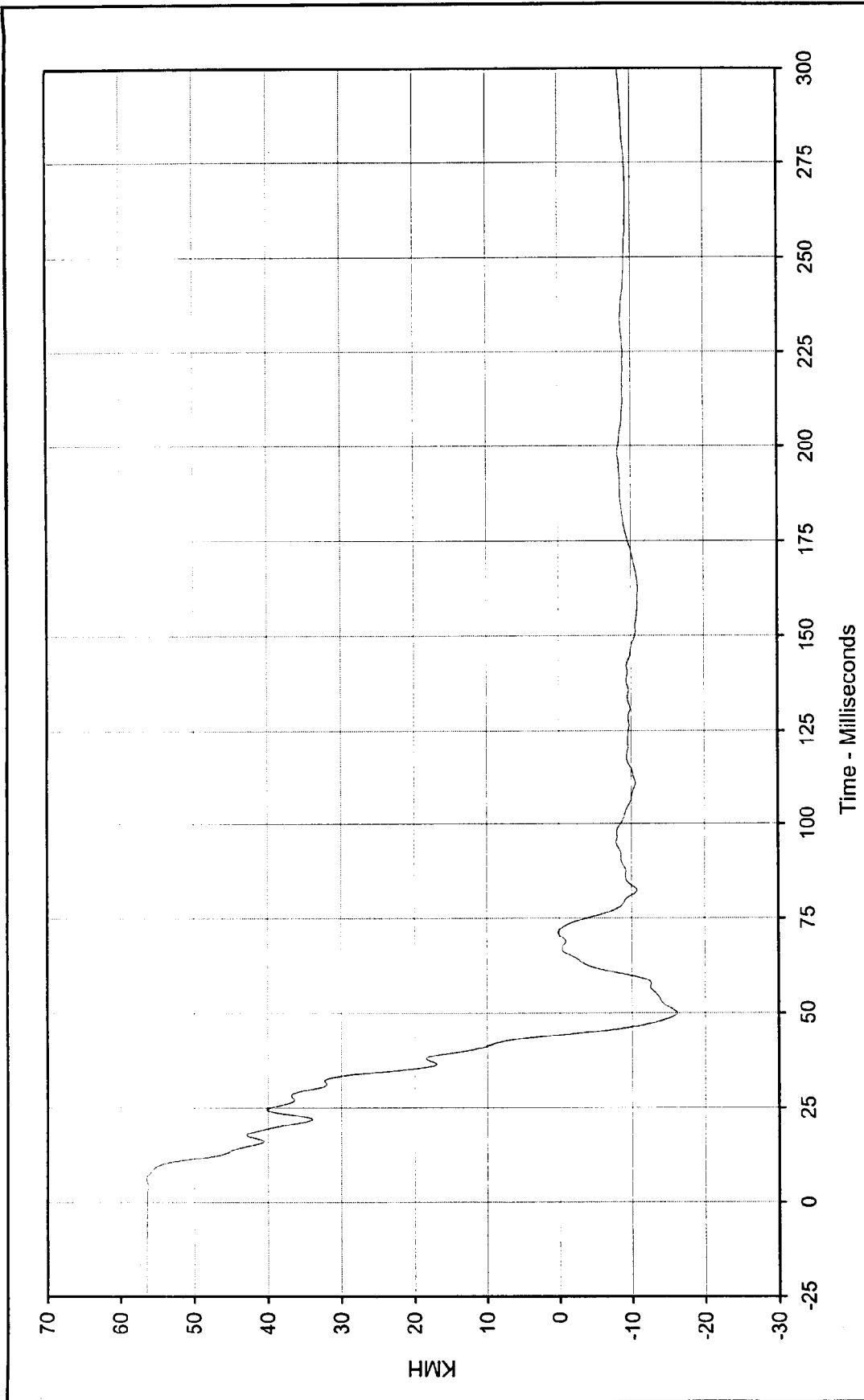




Curve Description: Vehicle Right Brake Caliper
 Maximum Value: 56.4 at 60.6 Milliseconds
 Minimum Value: -129.6 at 44.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-094

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Vehicle Right Brake Caliper Velocity

Maximum Value: 56.5 at 6.2 Milliseconds

Minimum Value: -16.2 at 49.9 Milliseconds

SAE Filter Class: 180

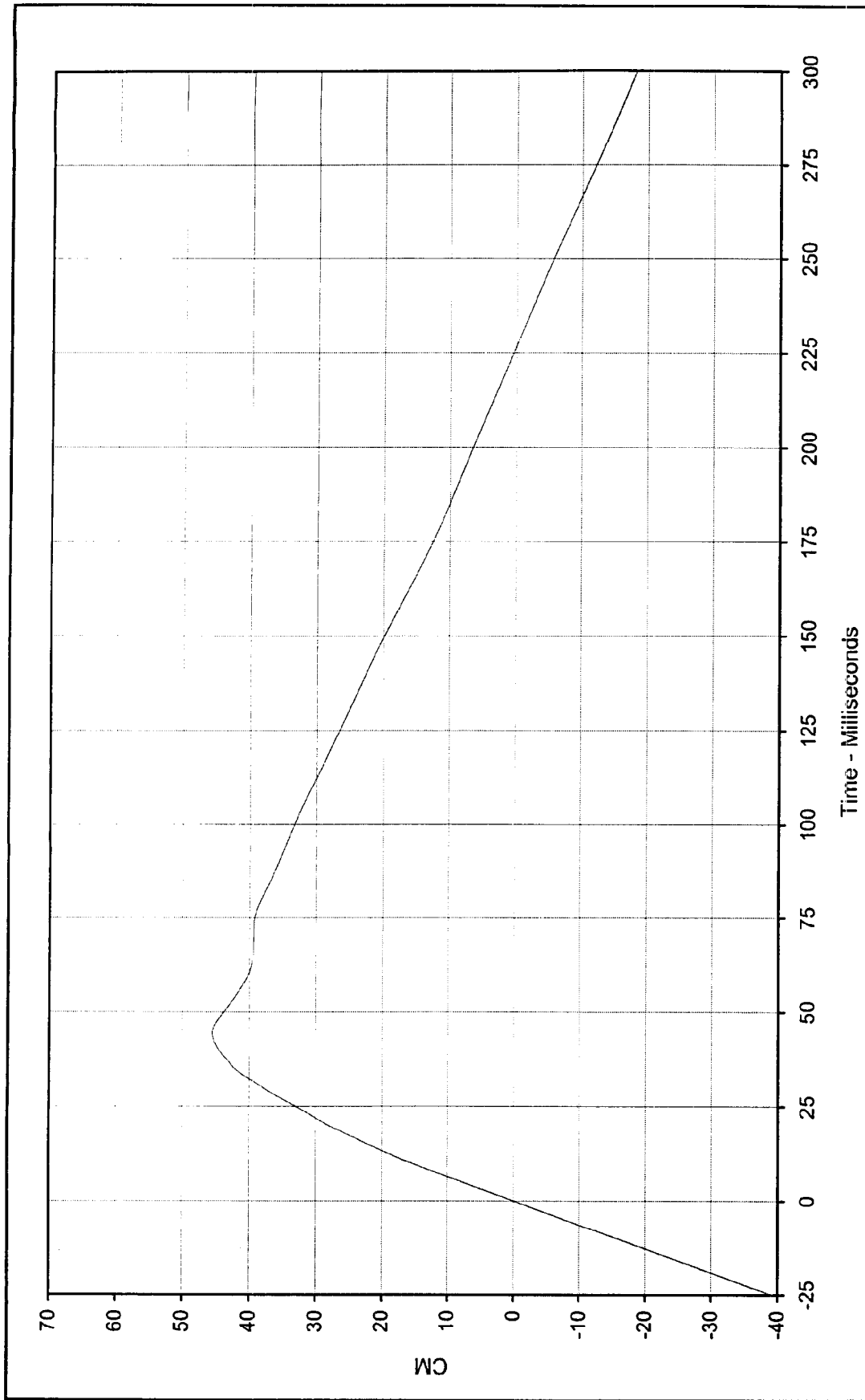
Date of Test: 11/17/99

Curve Number: IN1-094

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Vehicle Right Brake Caliper Displ.

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Maximum Value: 45.6 at 44.2 Milliseconds

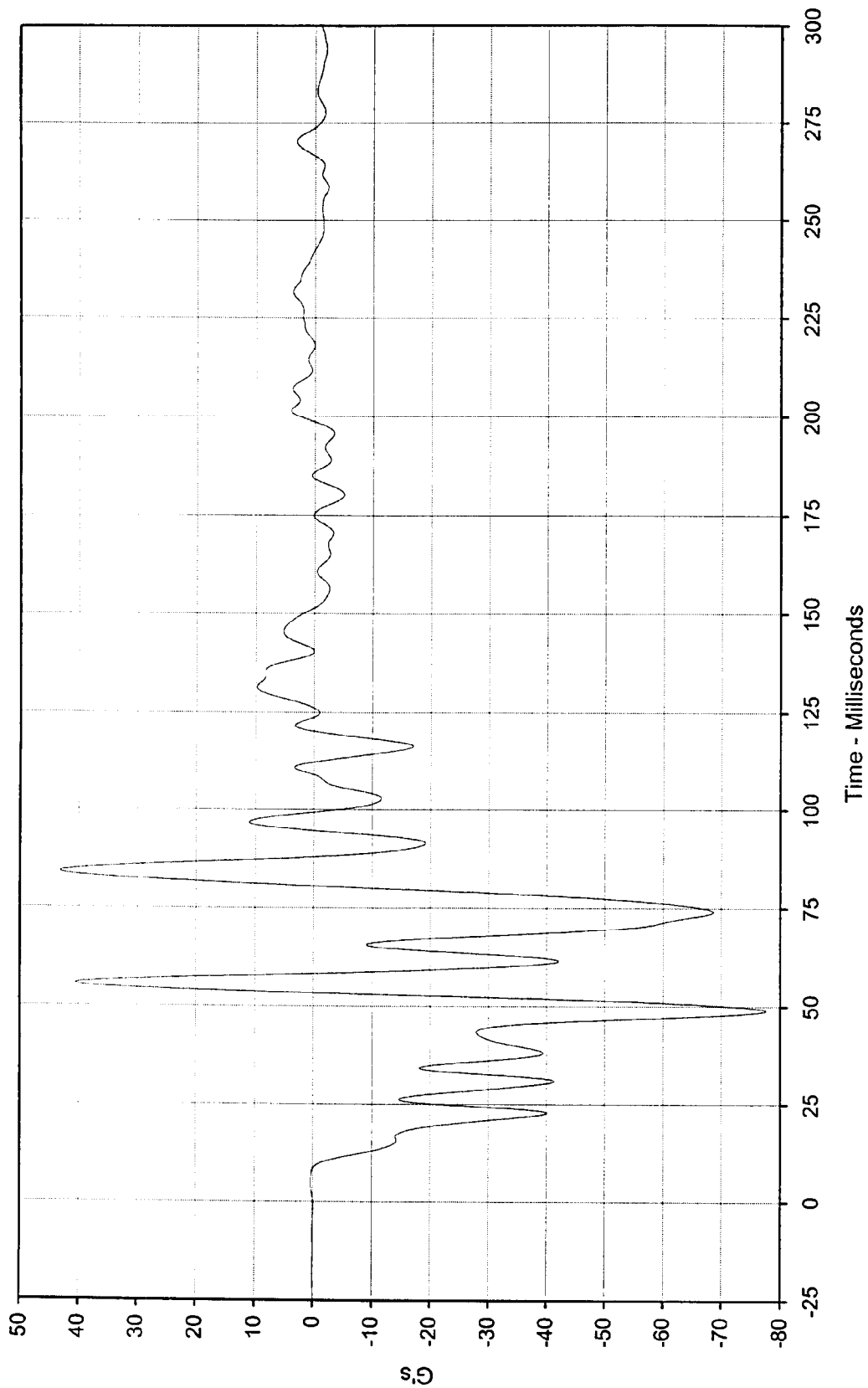
Minimum Value: -18.2 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

Curve Number: IN2-094





Curve Description: Vehicle Instrument Panel Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Maximum Value: 43.2 at 84.1 Milliseconds Test Vehicle: 2000 Toyota Tundra SR5 Pickup

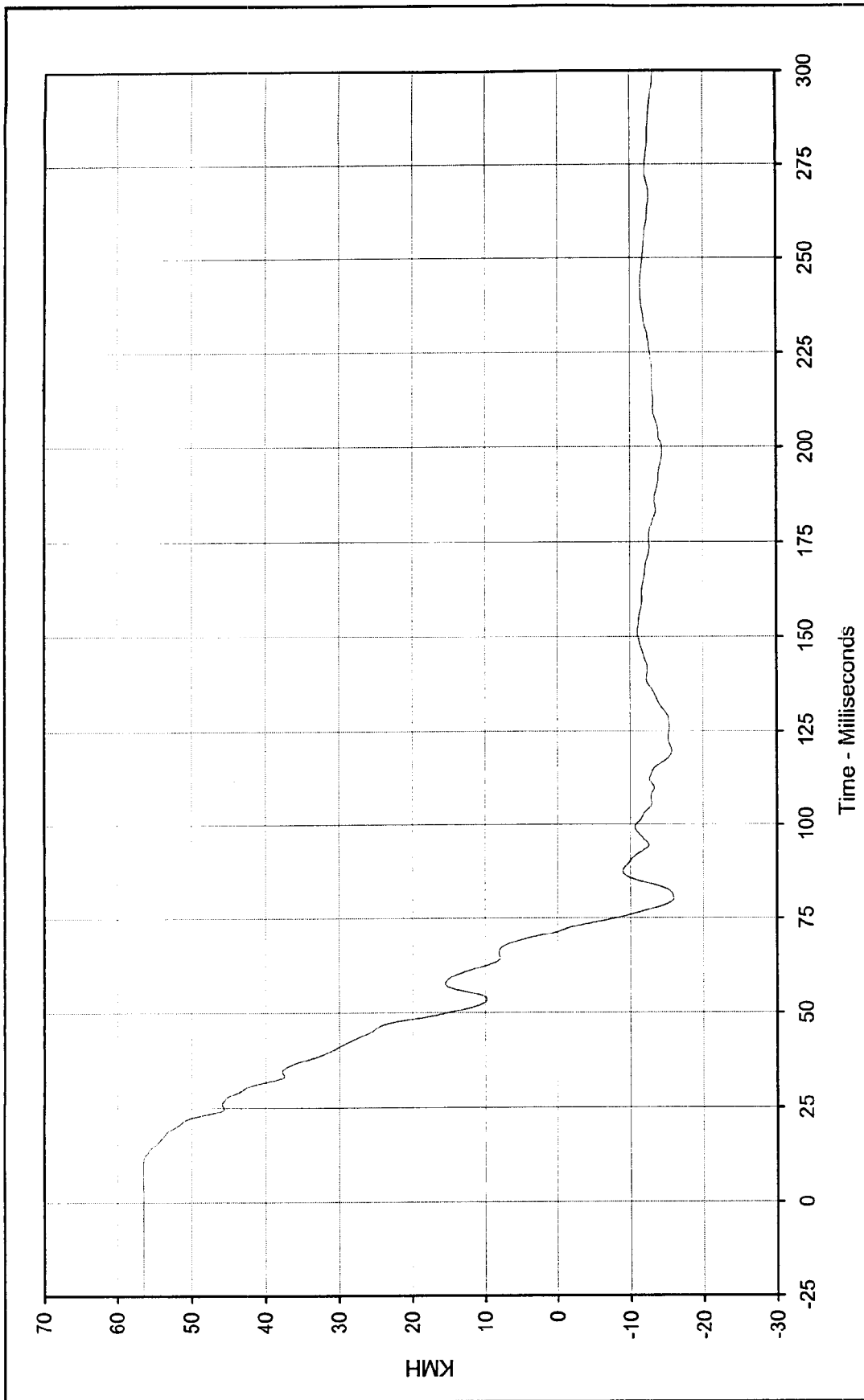
Minimum Value: -77.6 at 48.9 Milliseconds

SAE Filter Class: 60

Date of Test: 11/17/99

Curve Number: FIL-095

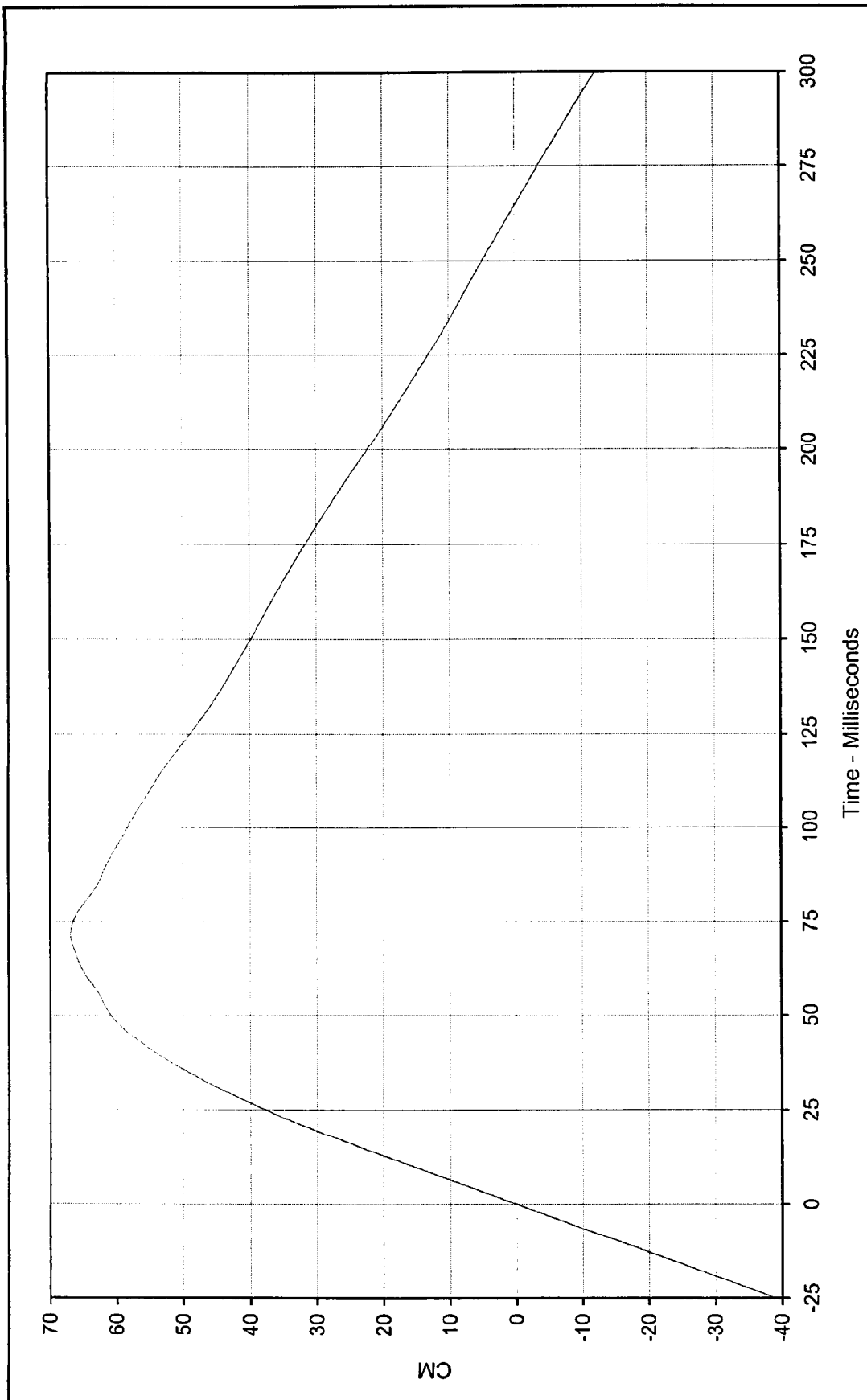




Curve Description: Vehicle Instrument Panel Velocity
 Maximum Value: 56.5 at 6.3 Milliseconds
 Minimum Value: -15.9 at 80.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 11/17/99
 Curve Number: IN1-095

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Vehicle Instrument Panel Displacement

Maximum Value: 66.9 at 71.4 Milliseconds

Minimum Value: -12.2 at 299.9 Milliseconds

SAE Filter Class: 180

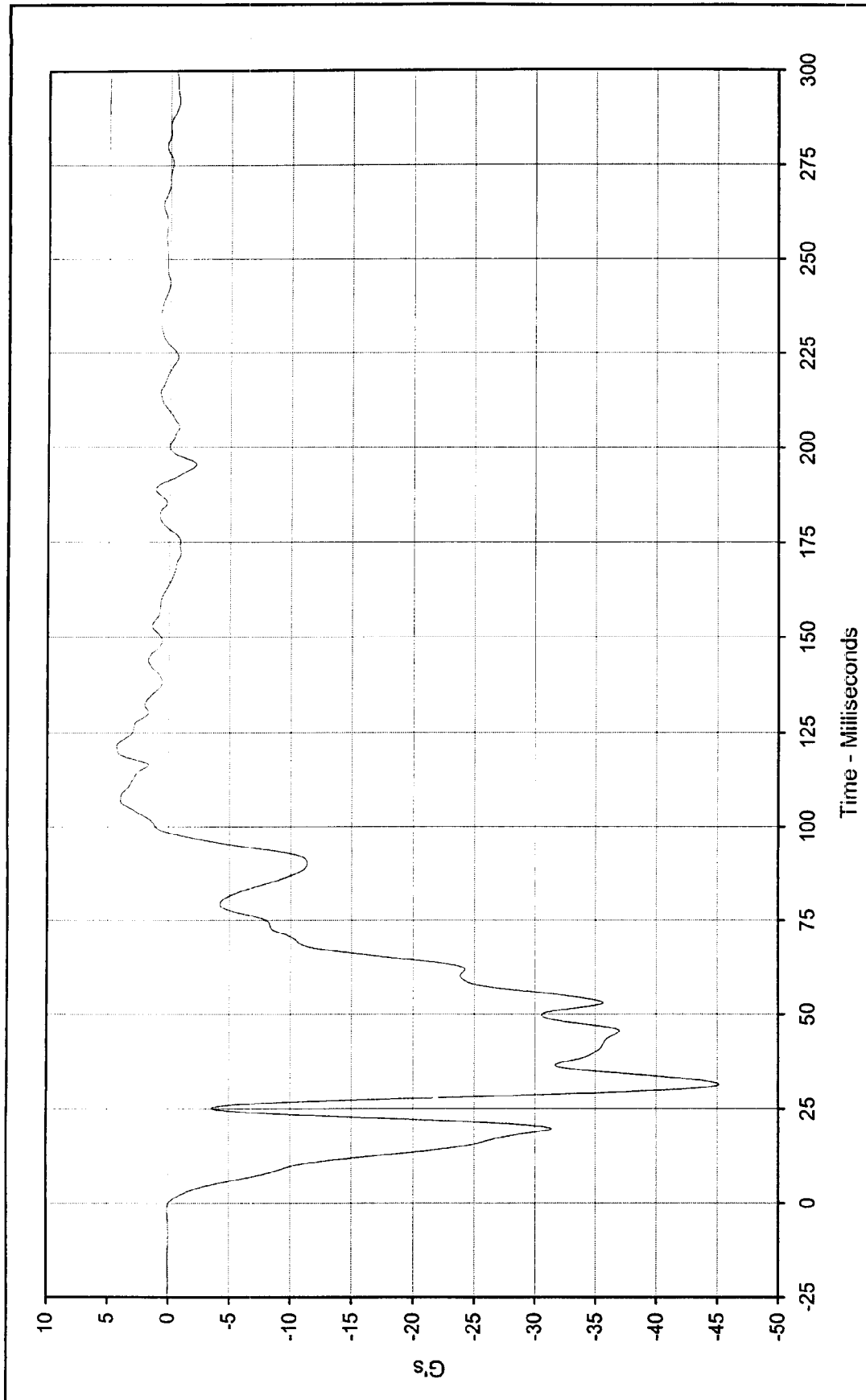
Date of Test: 11/17/99

Curve Number: IN2-095

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

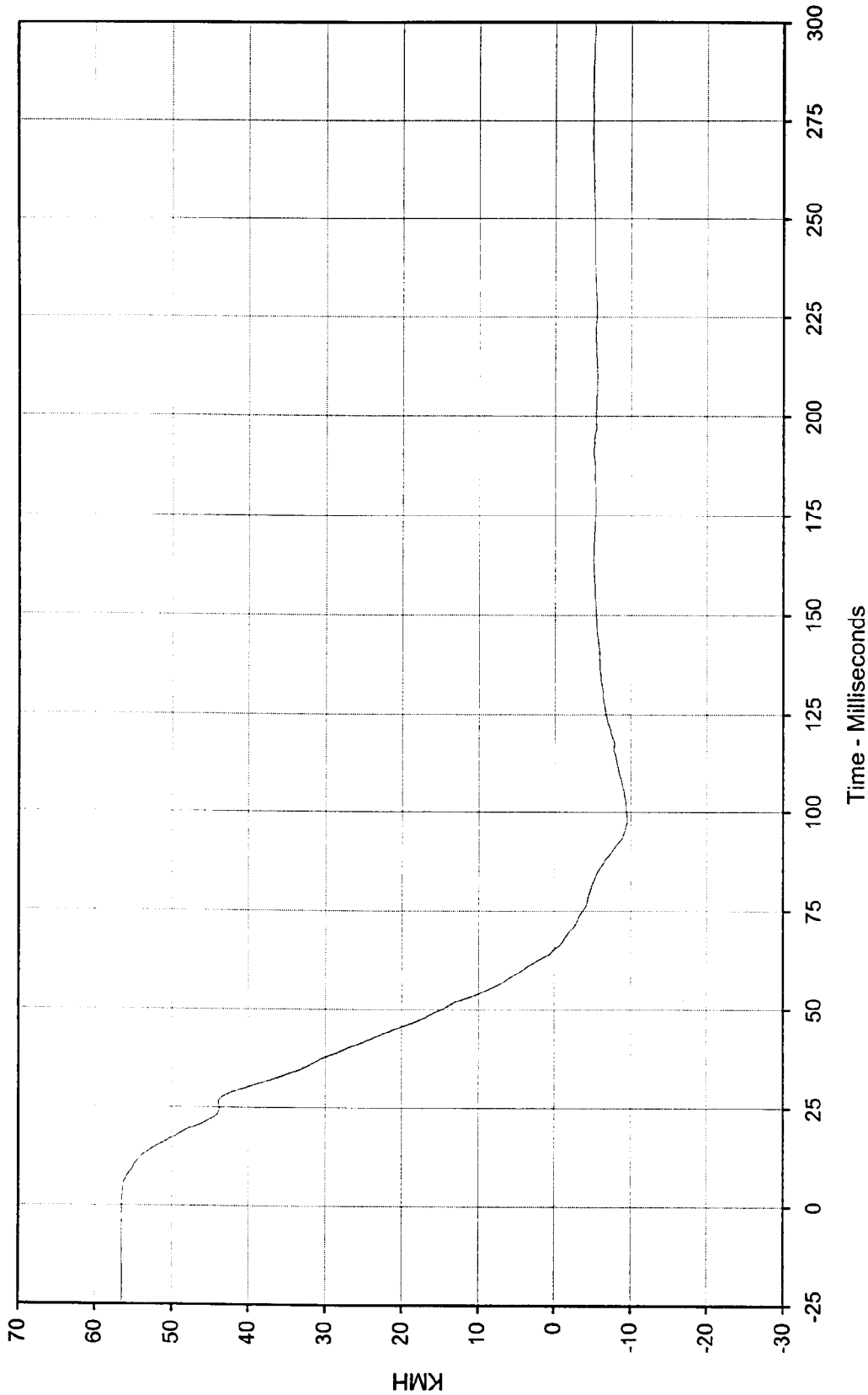




Curve Description: Vehicle Left Rear Redundant
Maximum Value: 4.3 at 121.2 Milliseconds
Minimum Value: -45.2 at 31.2 Milliseconds
SAE Filter Class: 60
Date of Test: 11/17/99
Curve Number: FIL-096

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Vehicle Left Rear Redundant Velocity

Maximum Value: 56.5 at 0.7 Milliseconds

Minimum Value: -9.5 at 98.0 Milliseconds

SAE Filter Class: 180

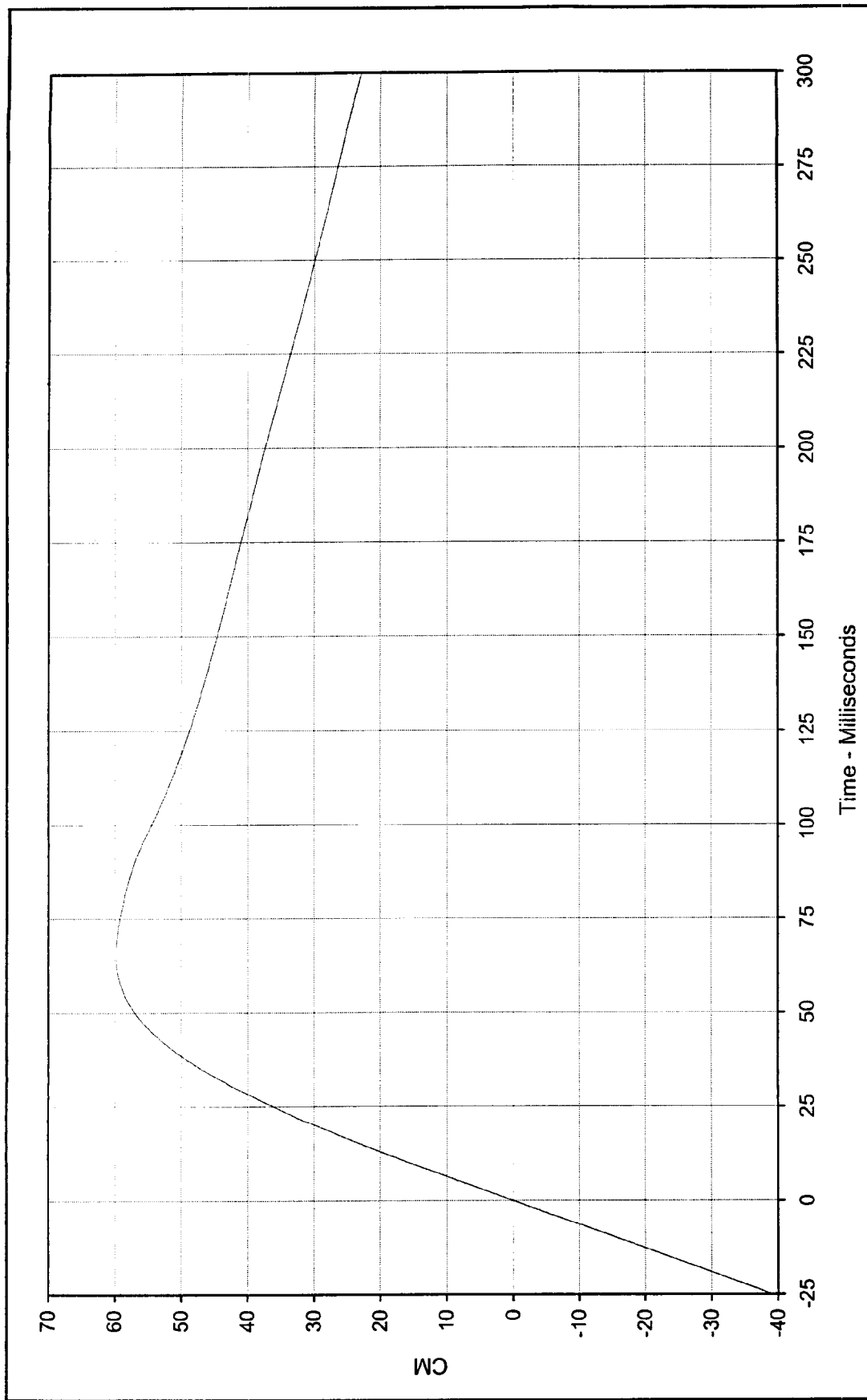
Date of Test: 11/17/99

Curve Number: IN1-096

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Vehicle Left Rear Redundant Displ.

Maximum Value: 59.7 at 65.2 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/17/99

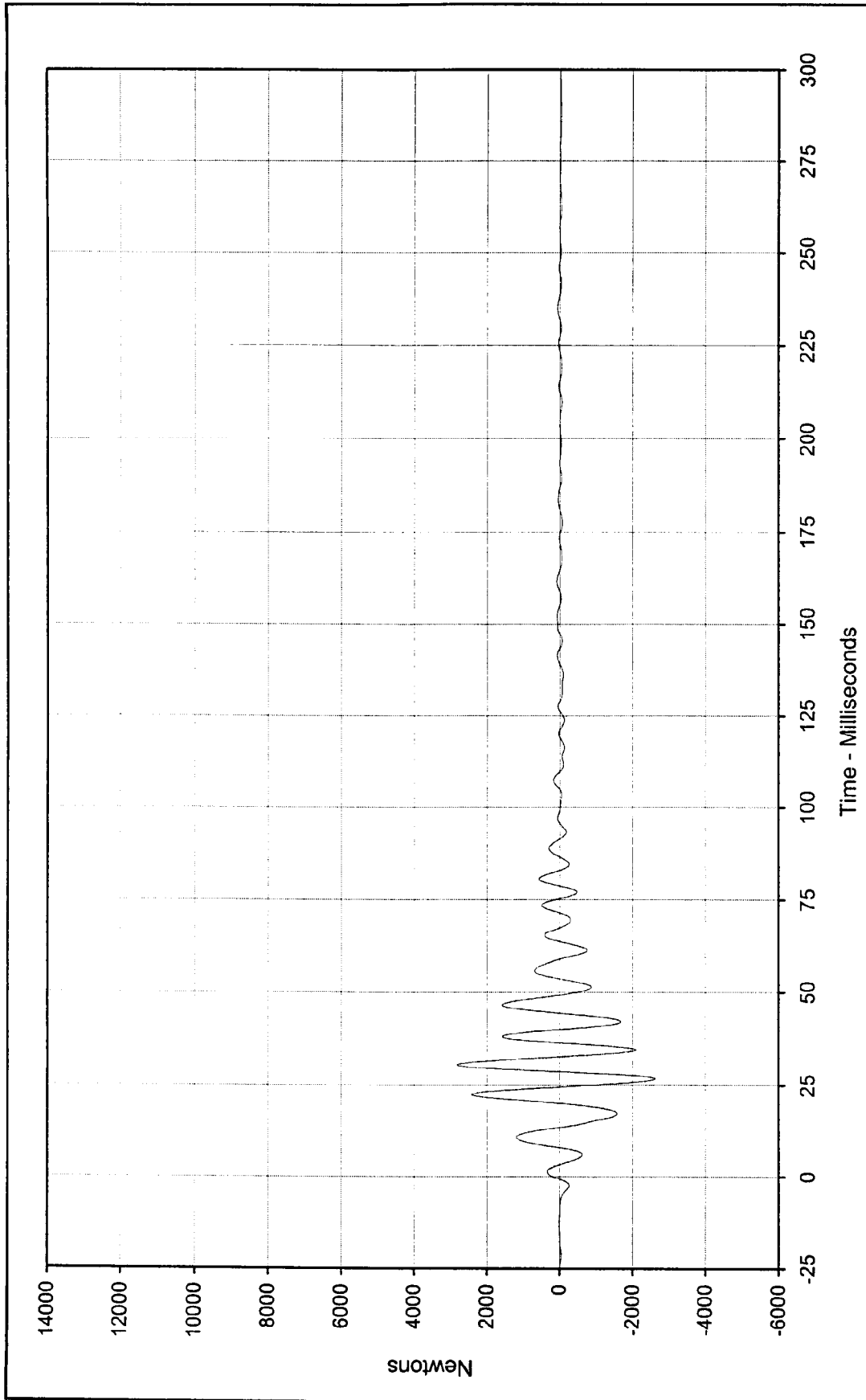
Curve Number: IN2-096

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup



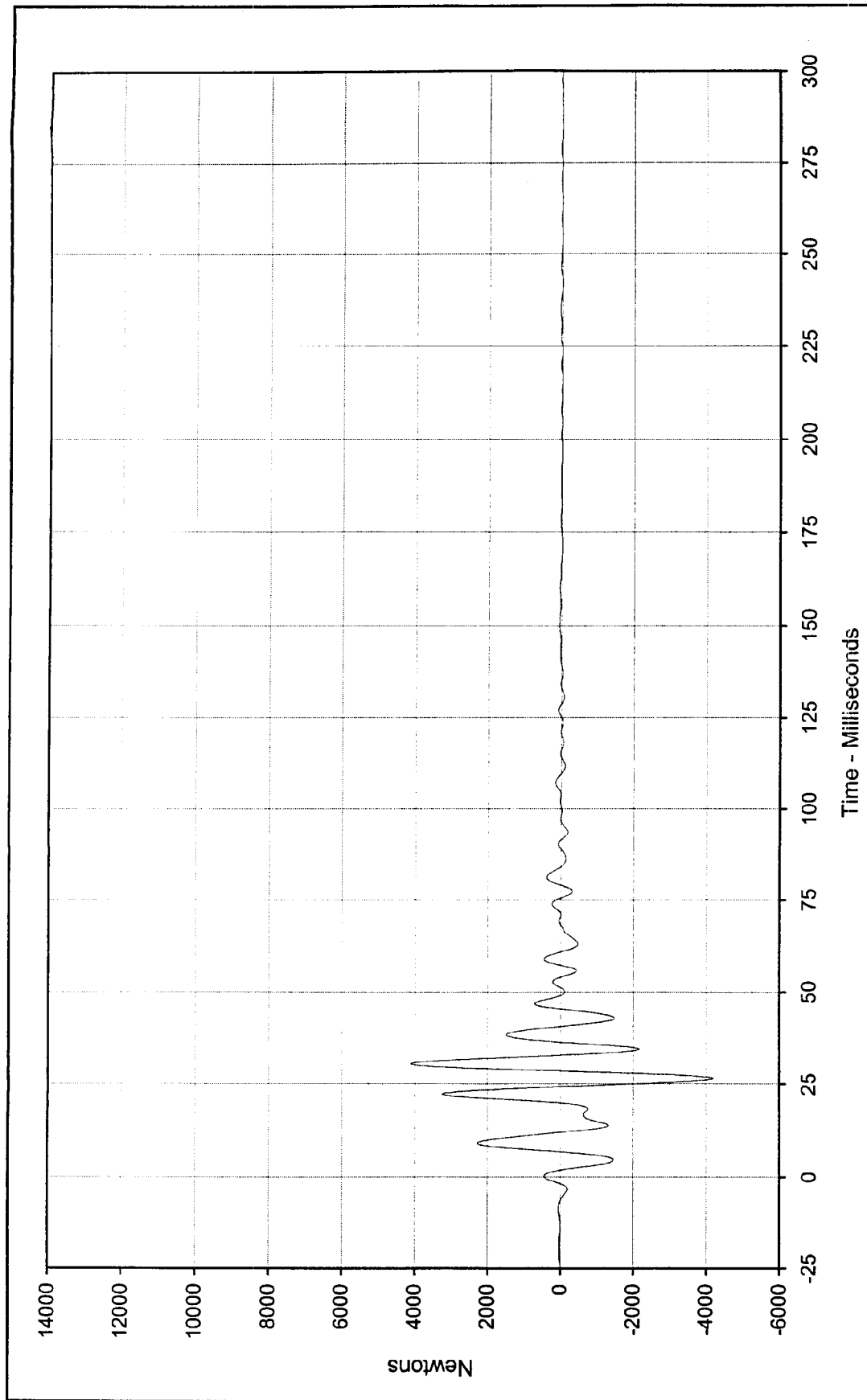
APPENDIX C
LOAD CELL BARRIER INFORMATION



Curve Description: Barrier Force A2
Maximum Value: 2812.8 at 30.6 Milliseconds
Minimum Value: -2623.9 at 26.8 Milliseconds
SAE Filter Class: 60
Date of Test: 11/17/99
Curve Number: FIL-099

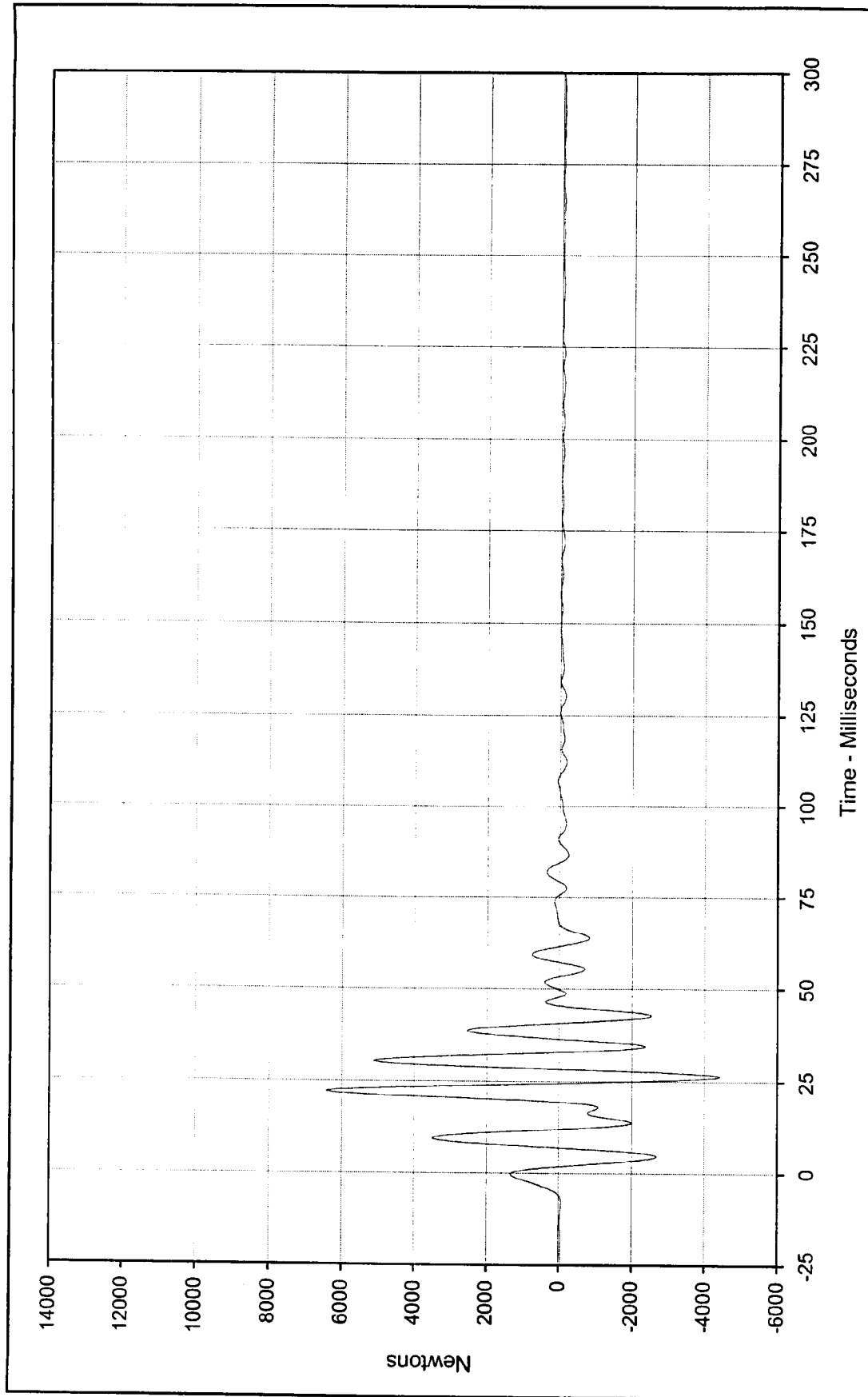
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
Test Vehicle: 2000 Toyota Tundra SR5 Pickup





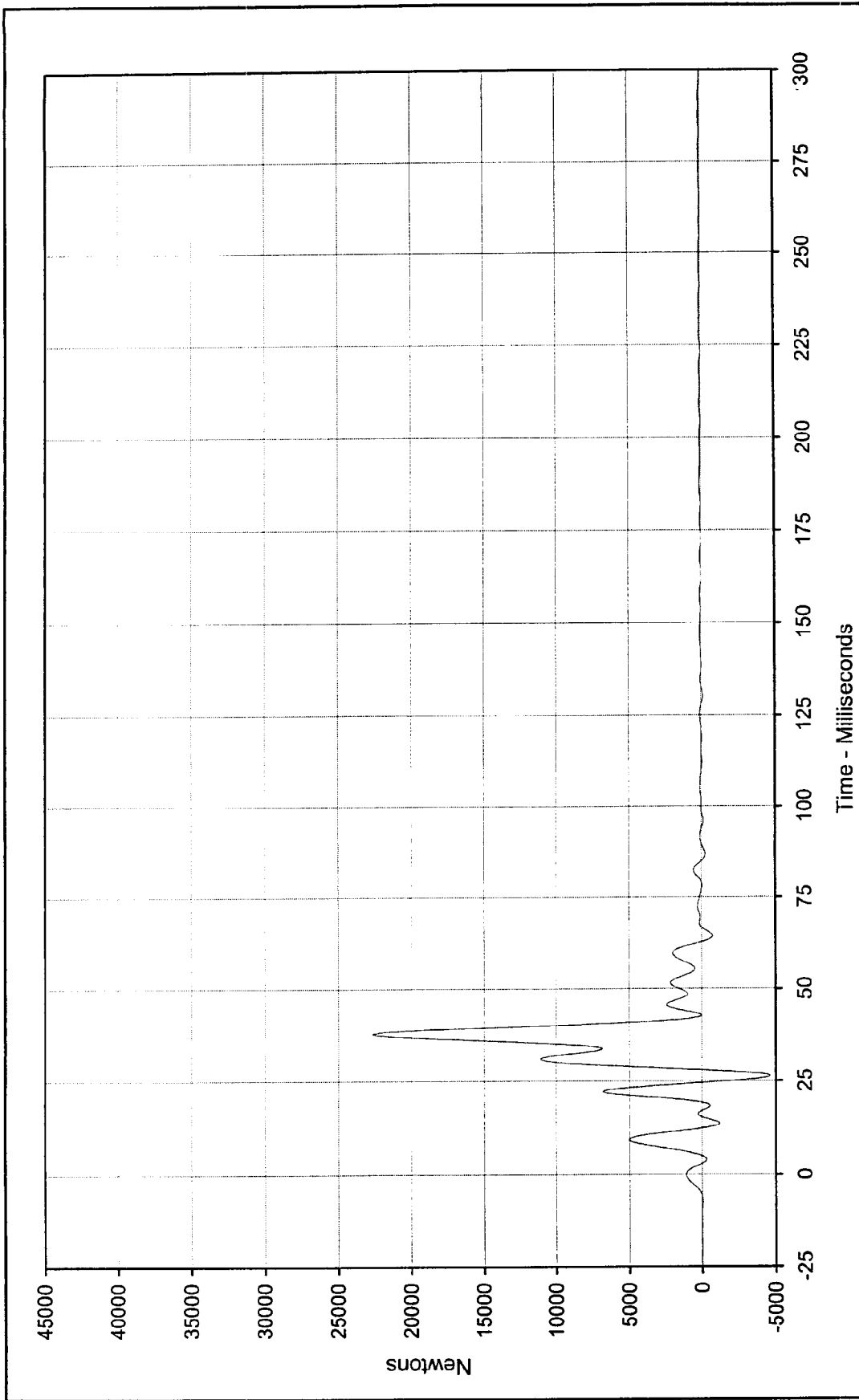
Curve Description:		Barrier Force A3		Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	4100.8	at	30.5	Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup
Minimum Value:	-4215.2	at	26.6	Milliseconds		
SAE Filter Class:	60					
Date of Test:	11/17/99					
Curve Number:	FIL-100					





Curve Description:	Barrier Force A4	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	6421.3 at 22.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-4432.7 at 26.4 Milliseconds			
SAE Filter Class:	60			
Date of Test:	11/17/99			
Curve Number:	FIL-101			

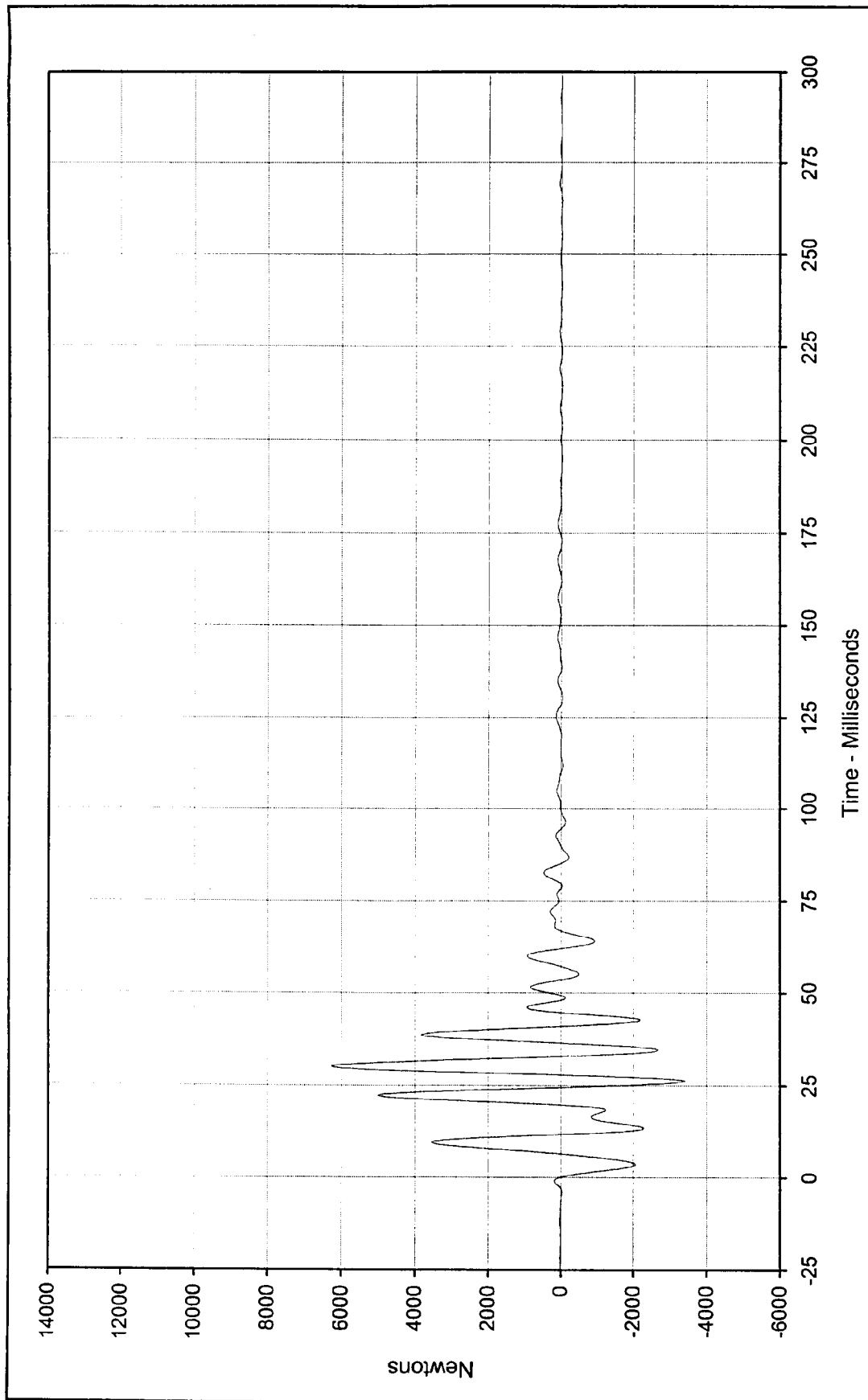




Curve Description: Barrier Force A5
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Maximum Value: 22648.4 at 37.7 Milliseconds
 Minimum Value: -4636.9 at 26.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-102

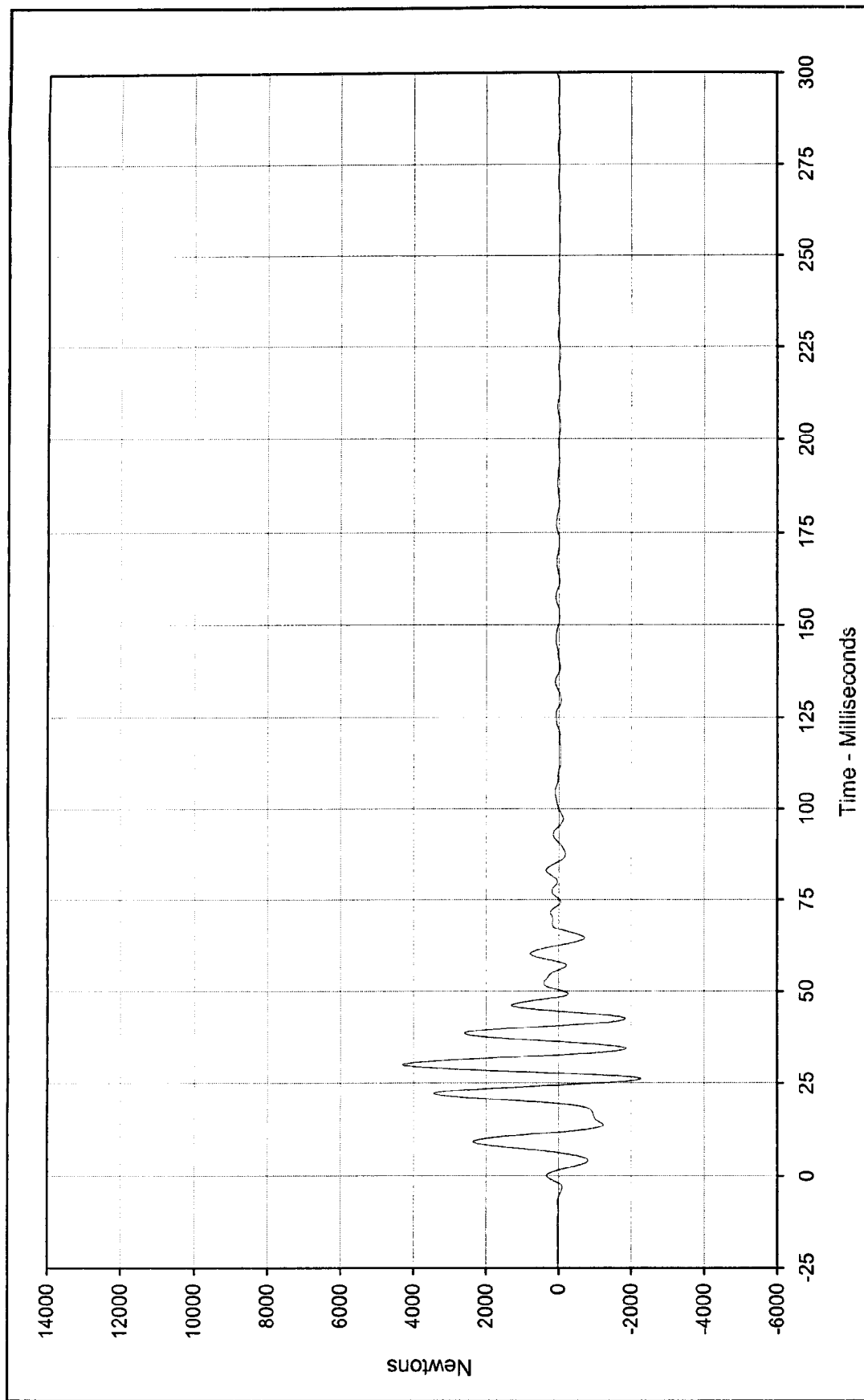




Curve Description: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Program:
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

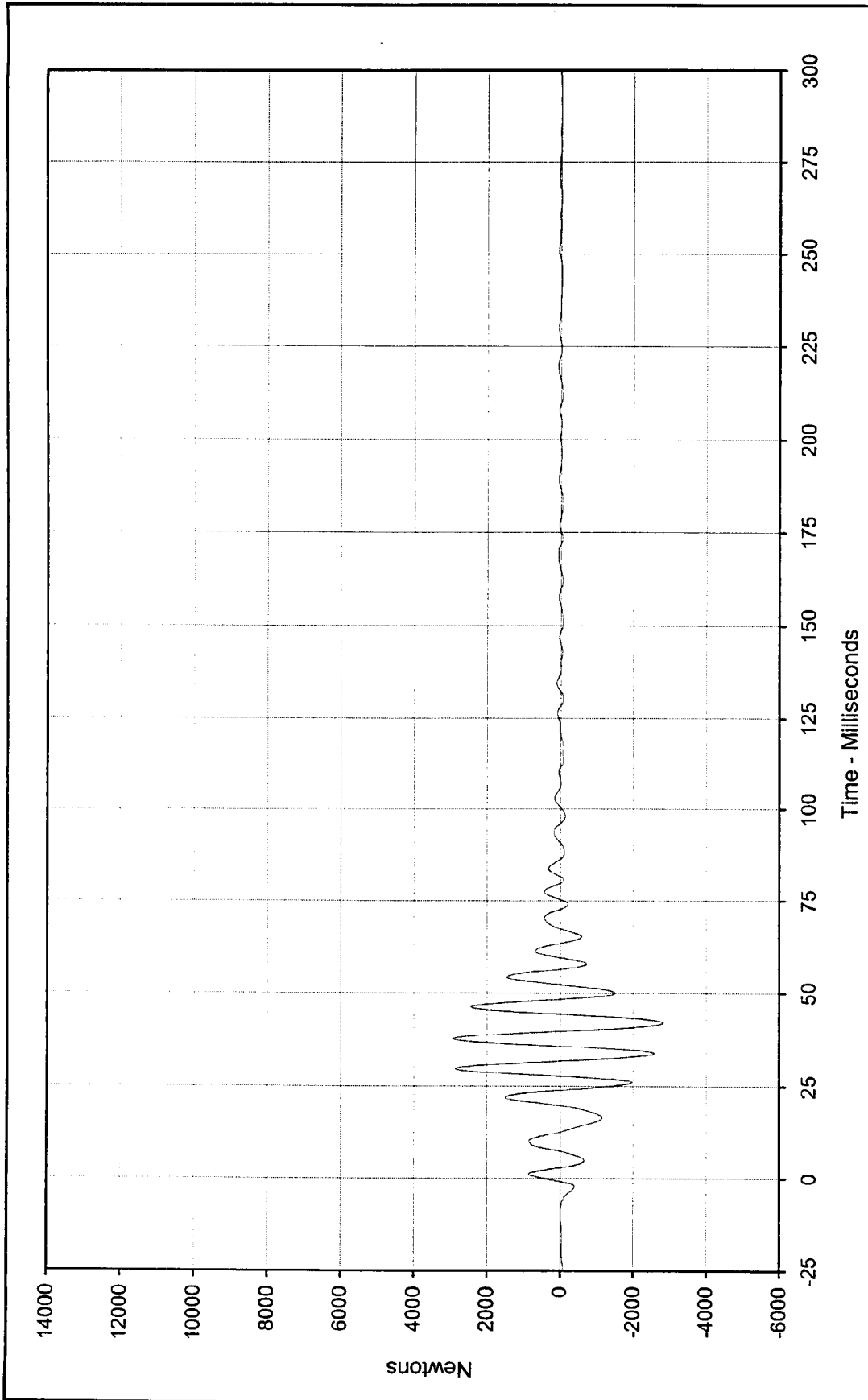
Barrier Force A6
 Maximum Value: 6270.2 at 30.2 Milliseconds
 Minimum Value: -3426.8 at 26.2 Milliseconds
 SAE Filler Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-103





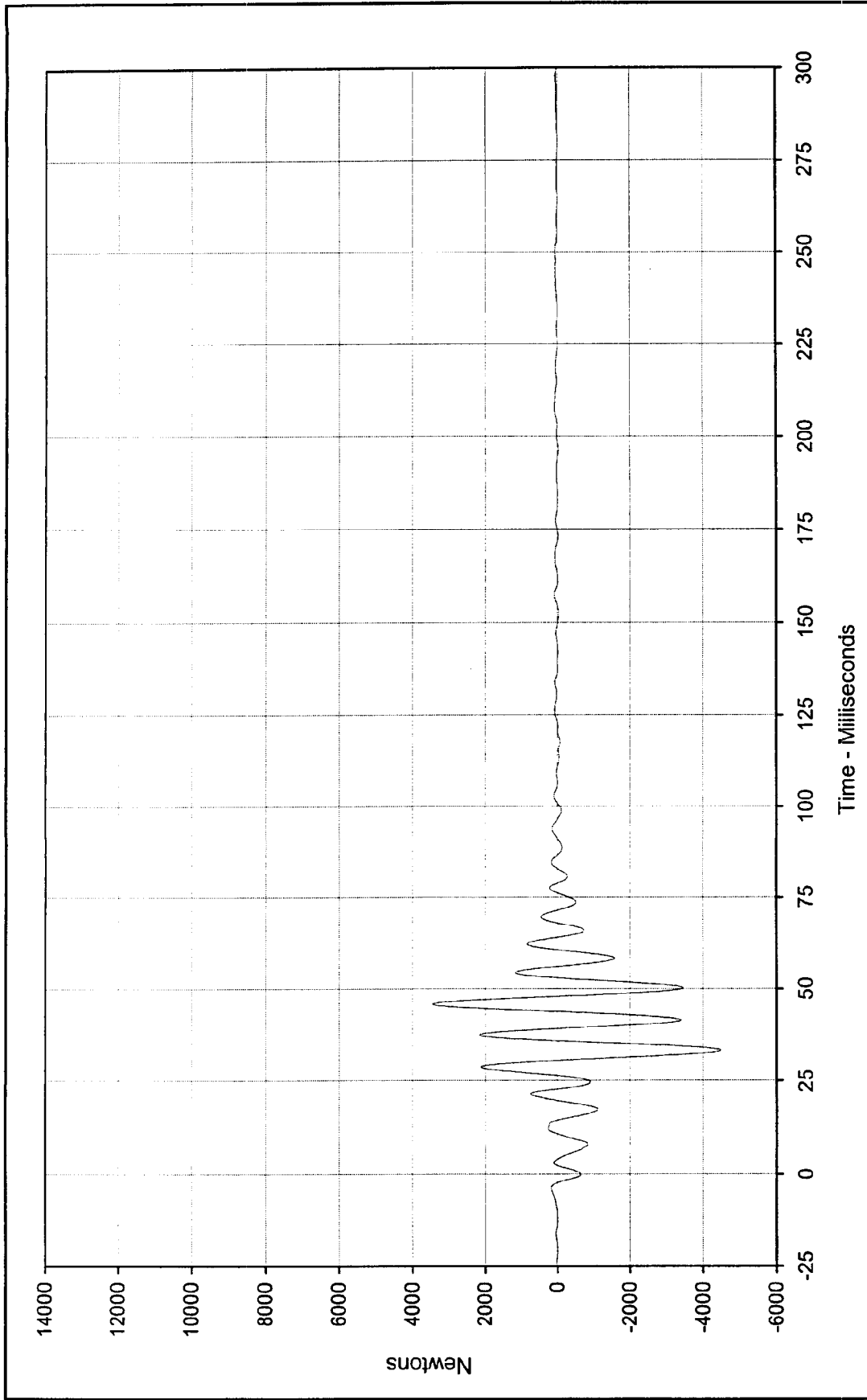
Curve Description:	Barrier Force A7		Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	4299.7	at 30.0	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-2267.9	at 26.2			
SAE Filter Class:	60				
Date of Test:	11/17/99				
Curve Number:	FIL-104				





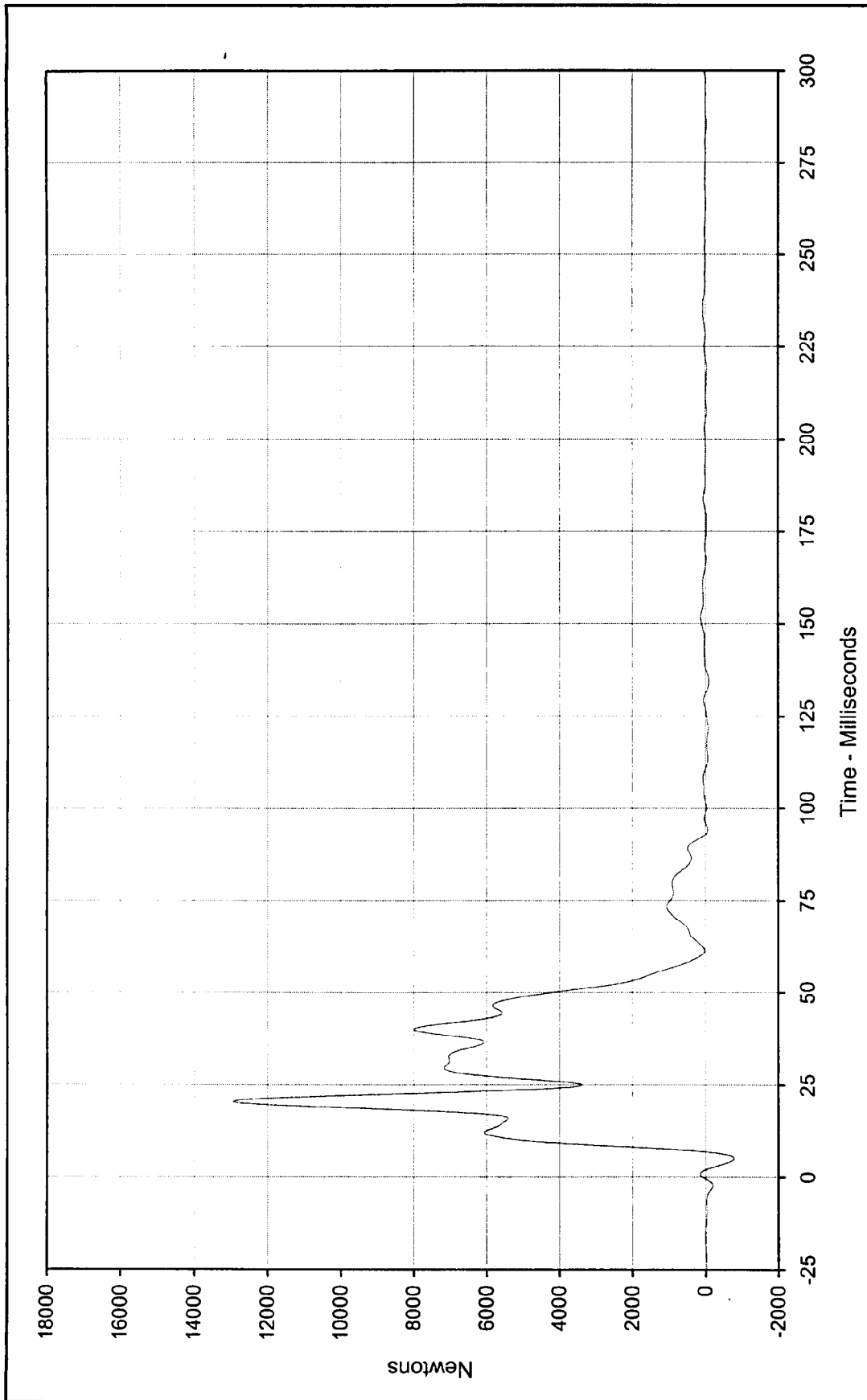
Curve Description:	Barrier Force A8	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	2933.1 at 37.8 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-2826.0 at 42.1 Milliseconds			
SAE Filter Class:	60			
Date of Test:	11/17/99			
Curve Number:	FIL-105			





Curve Description:	Barrier Force A9	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	3445.8 at 45.9 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-4492.8 at 33.2 Milliseconds			
SAE Filter Class:	60			
Date of Test:	11/17/99			
Curve Number:	FIL-106			

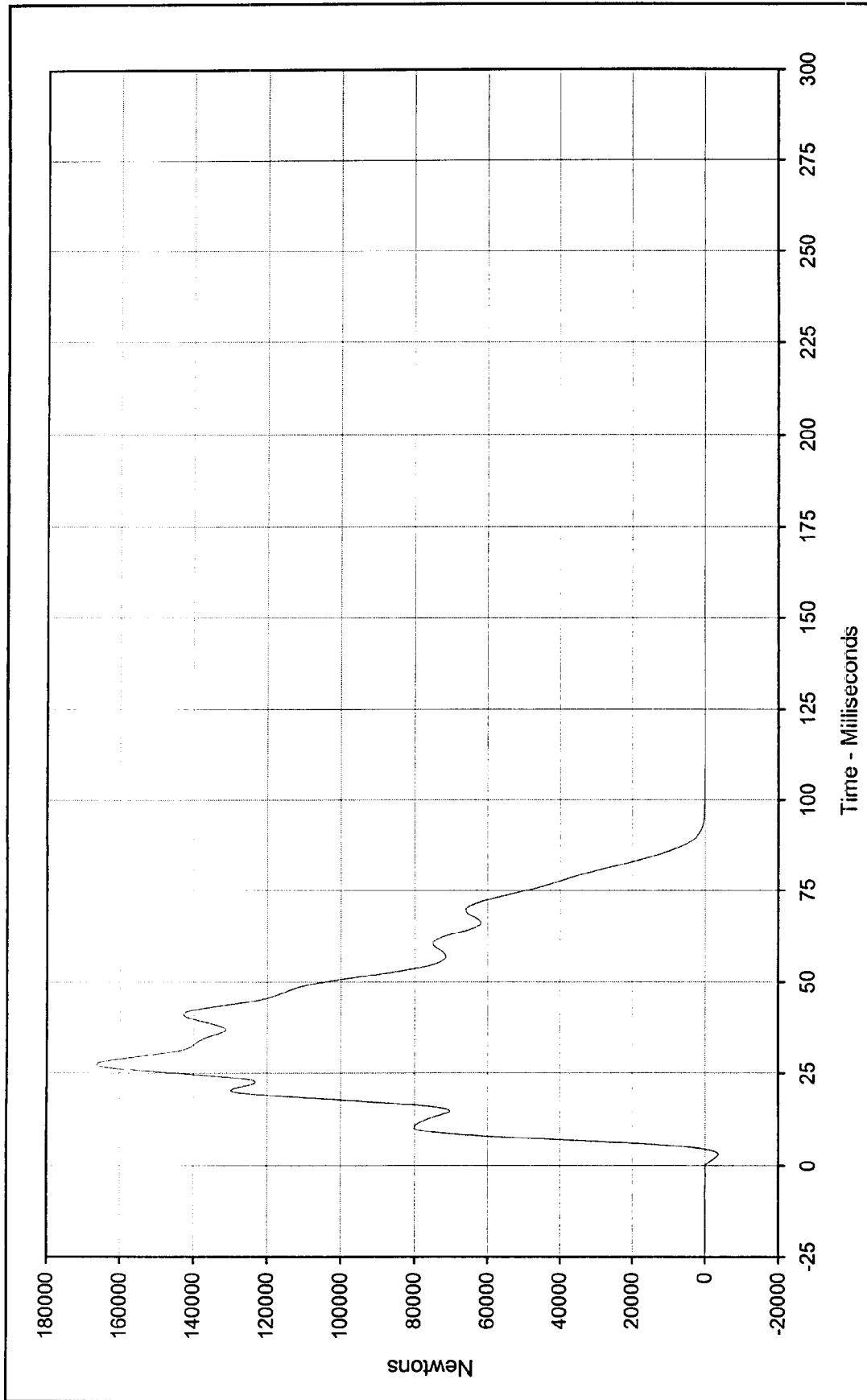




Curve Description: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Program: 2000 Toyota Tundra SR5 Pickup
 Test Vehicle:

Barrier Force B2
 Maximum Value: 12941.3 at 20.5 Milliseconds
 Minimum Value: -797.2 at 5.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-108



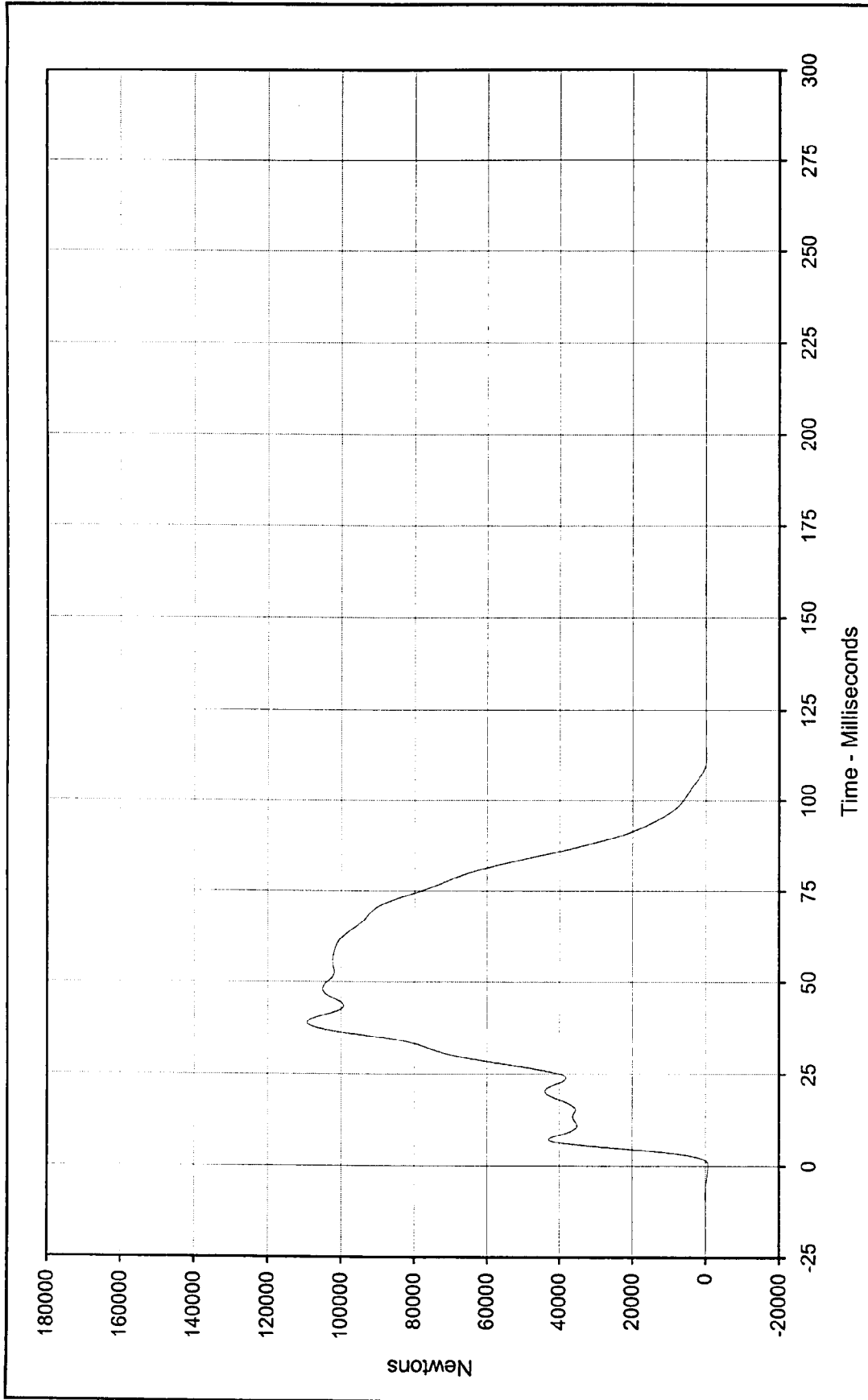


Curve Description: Barrier Force B3
 Maximum Value: 166430.5 at 27.5 Milliseconds
 Minimum Value: -36744.6 at 3.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-109

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

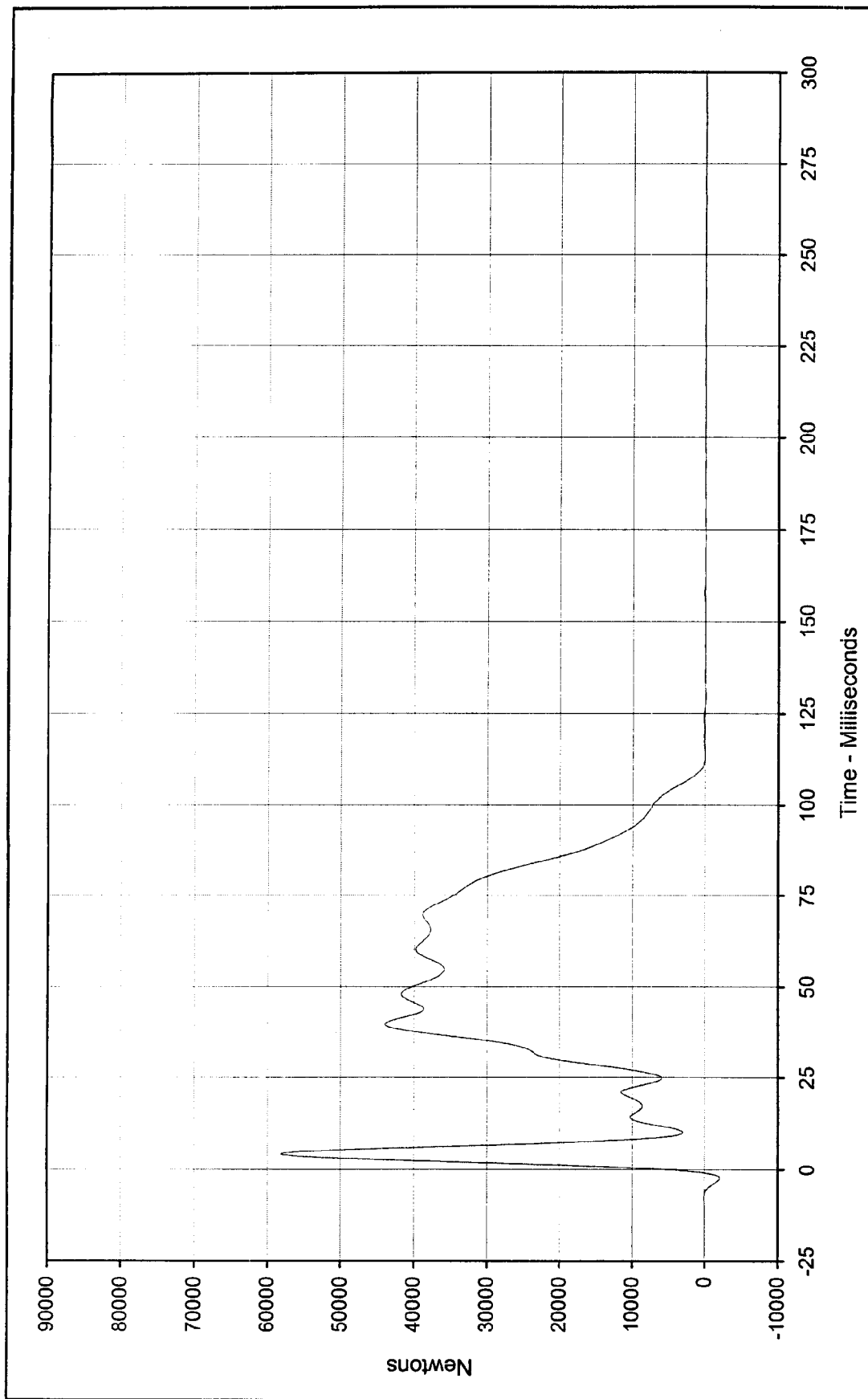




Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

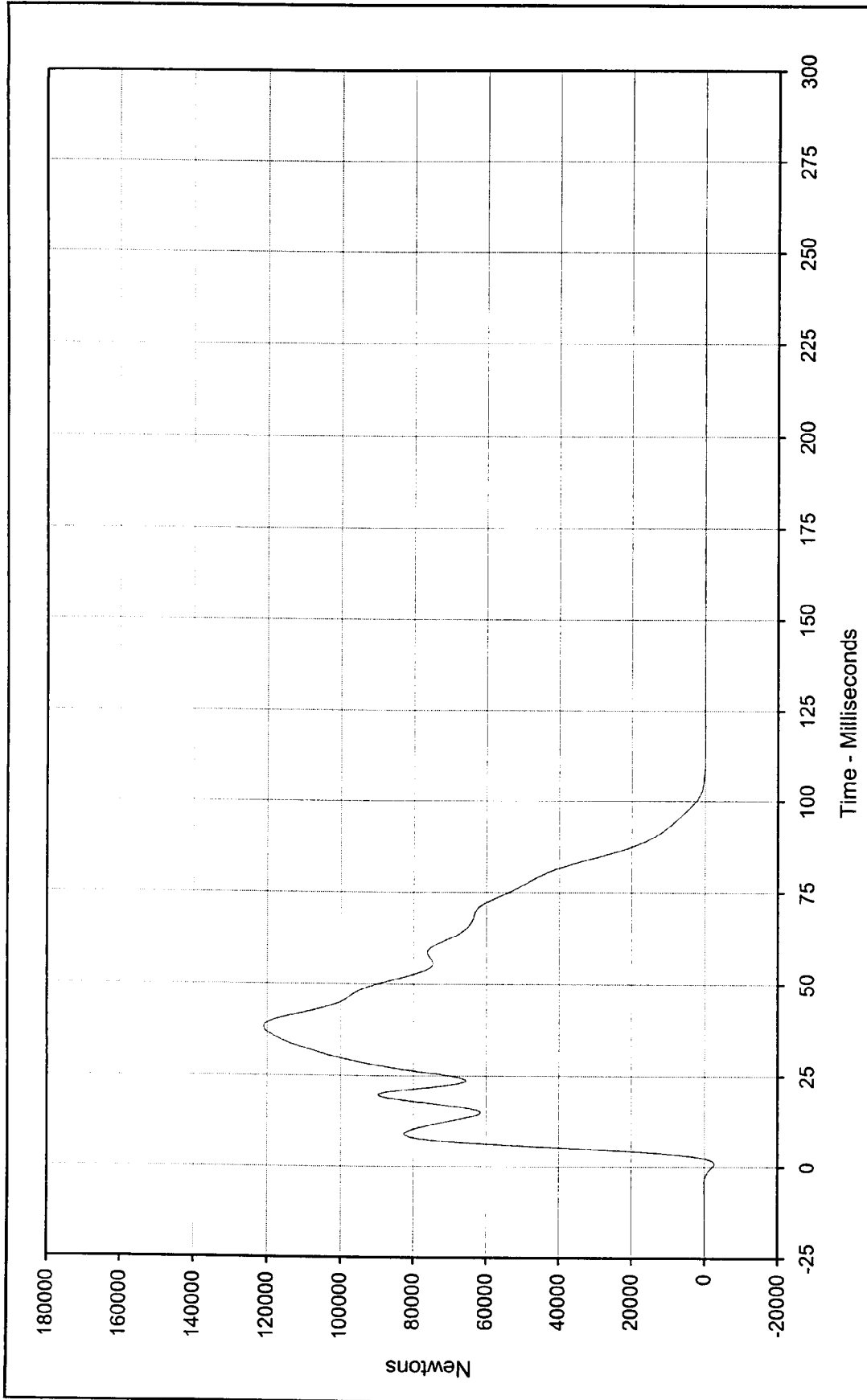
Curve Description: Barrier Force B4
 Maximum Value: 109194.3 at 39.0 Milliseconds
 Minimum Value: -732.3 at 0.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-110





Curve Description:	Barrier Force B5	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	58092.5 at 4.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-90.0 at 129.5 Milliseconds			
SAE Filter Class:	60			
Date of Test:	11/17/99			
Curve Number:	FIL-111			

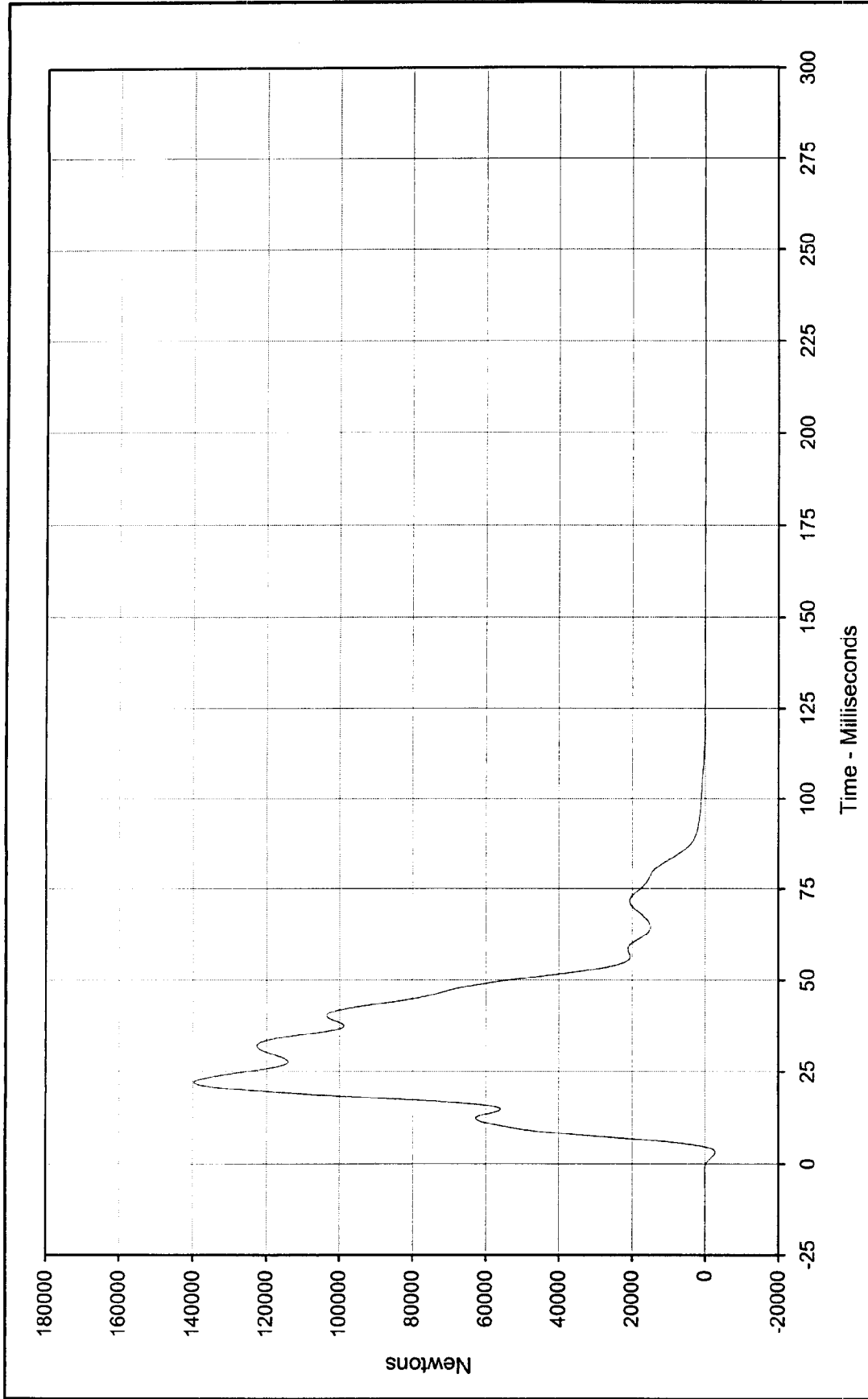




Curve Description: Barrier Force B6
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Maximum Value: 121010.3 at 38.3 Milliseconds
 Minimum Value: -2634.6 at 0.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-112

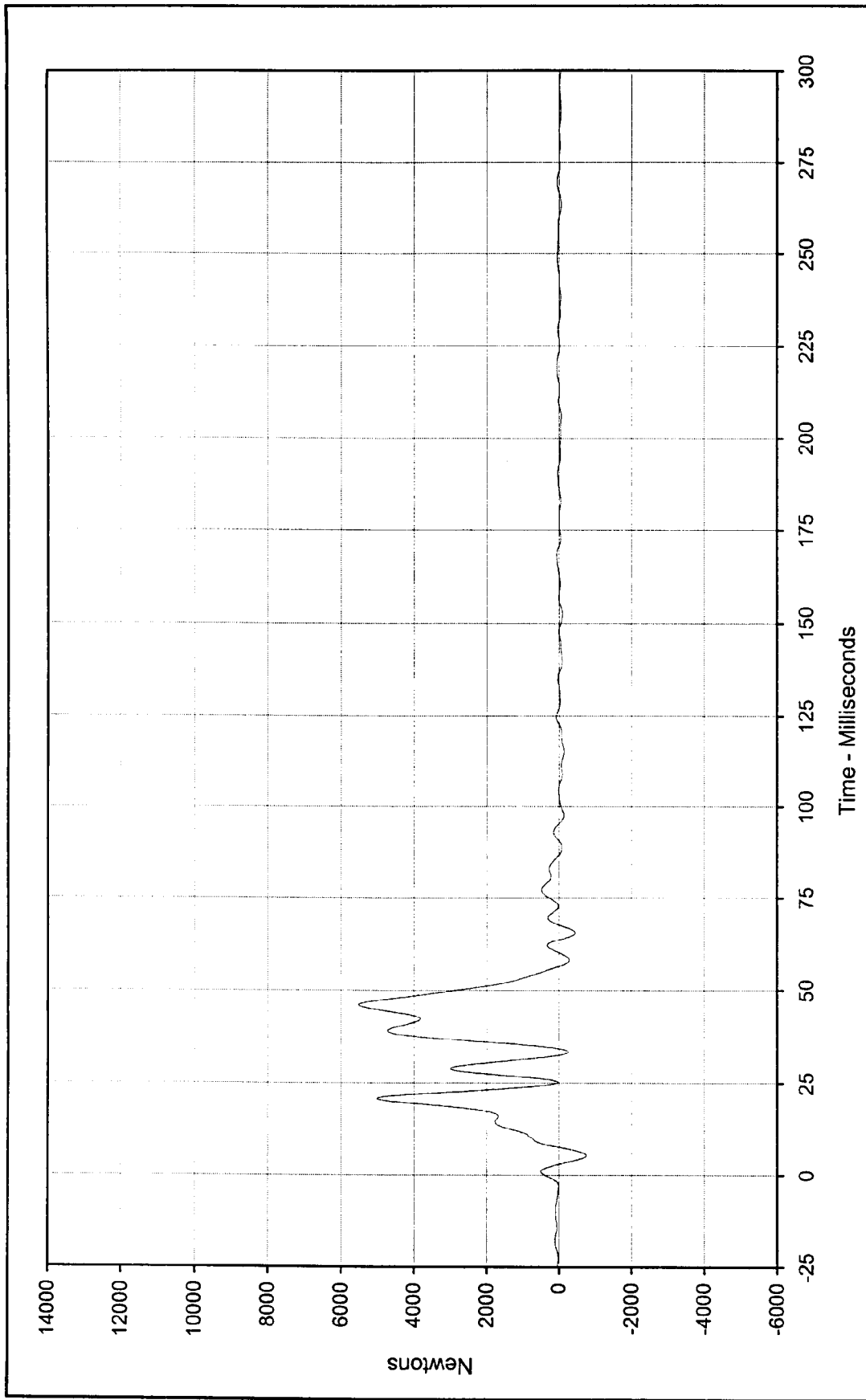




Curve Description: Barrier Force B7
 Maximum Value: 139690.7 at 22.1 Milliseconds
 Minimum Value: -2764.7 at 3.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-113

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

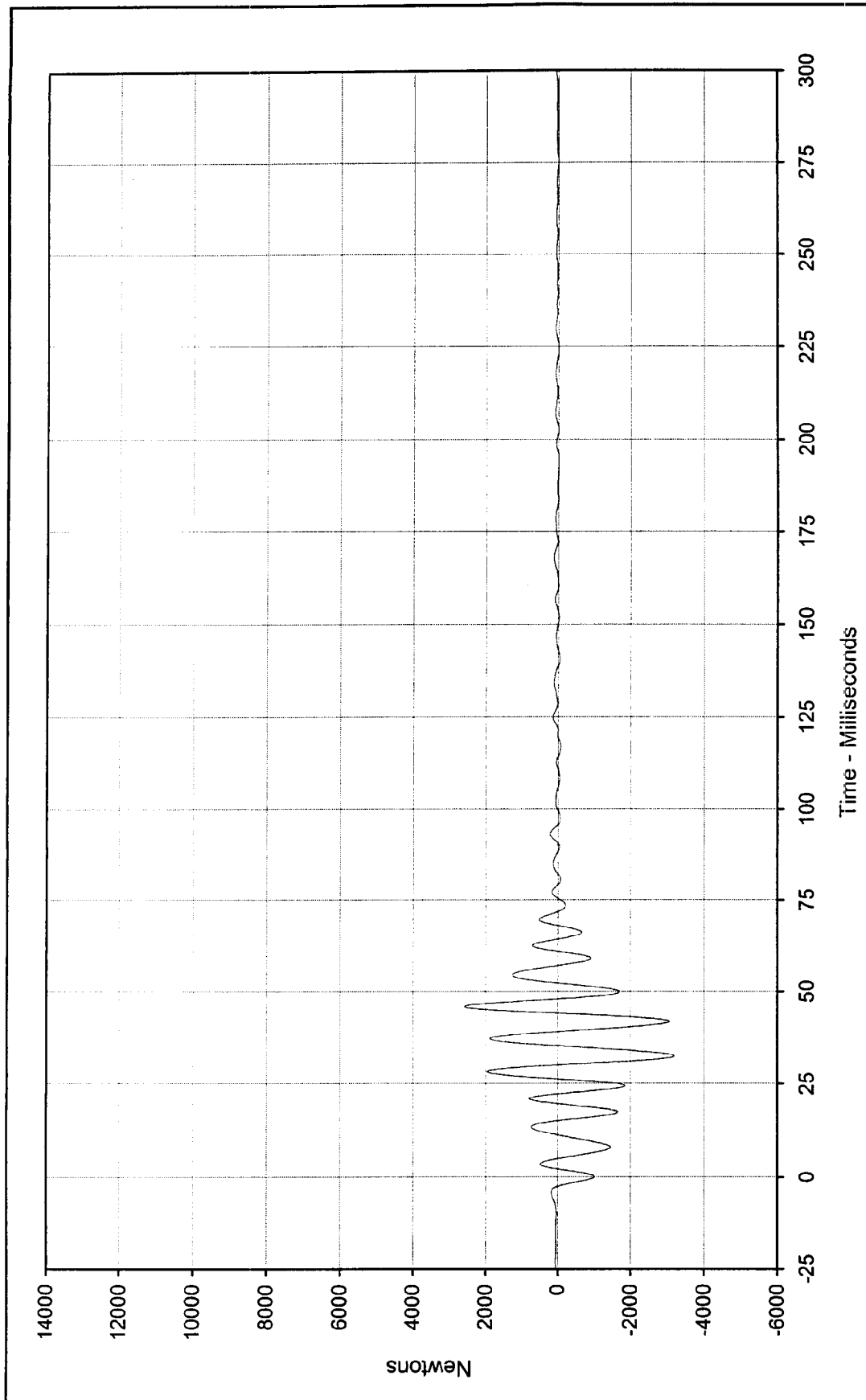




Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

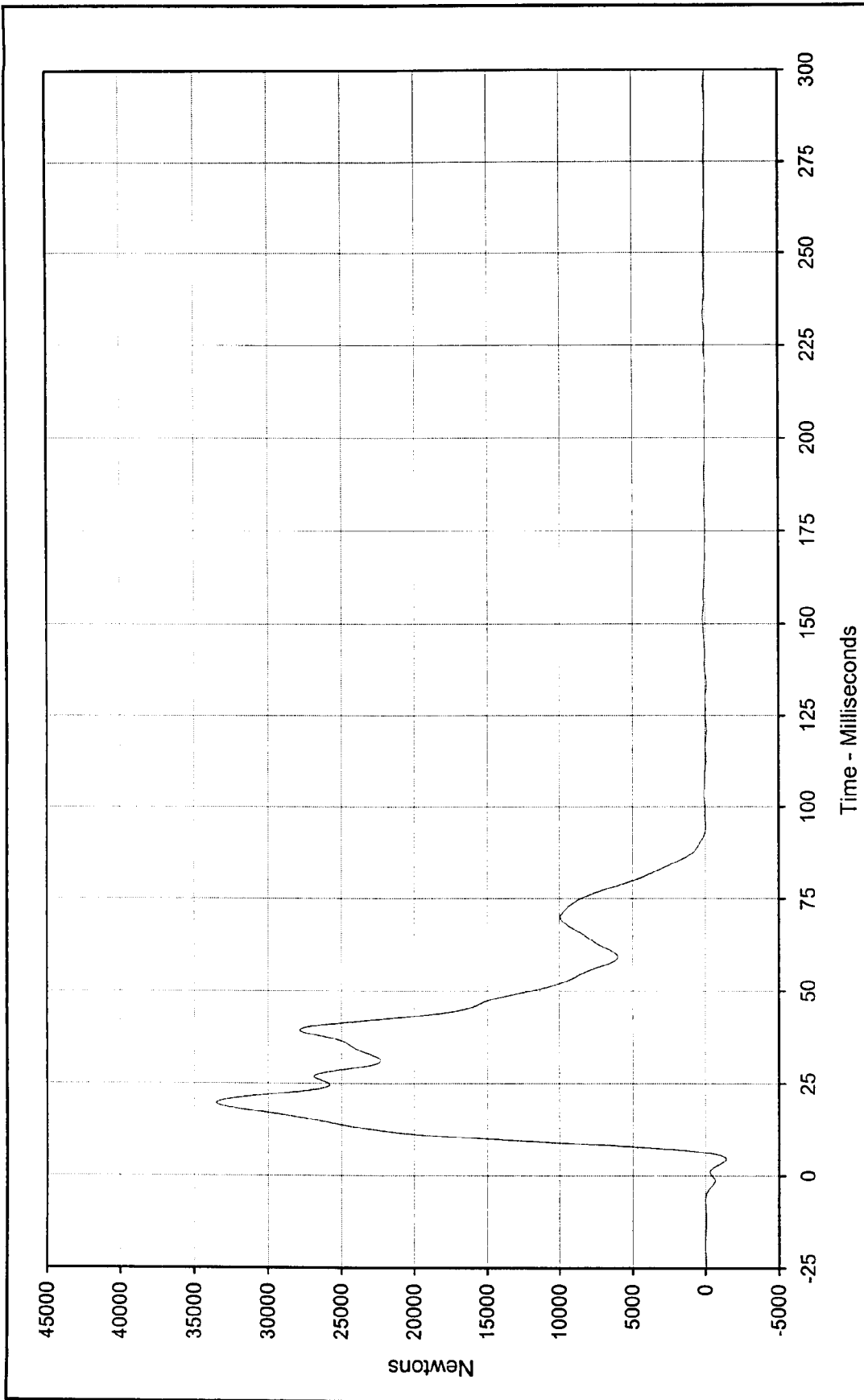
Curve Description: Barrier Force B8
 Maximum Value: 5517.5 at 46.0 Milliseconds
 Minimum Value: -747.0 at 5.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-114





Curve Description:	Barrier Force B9		Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	2580.7	at 45.9 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-3197.2	at 32.4 Milliseconds			
SAE Filter Class:	60				
Date of Test:	11/17/99				
Curve Number:	FIL-115				

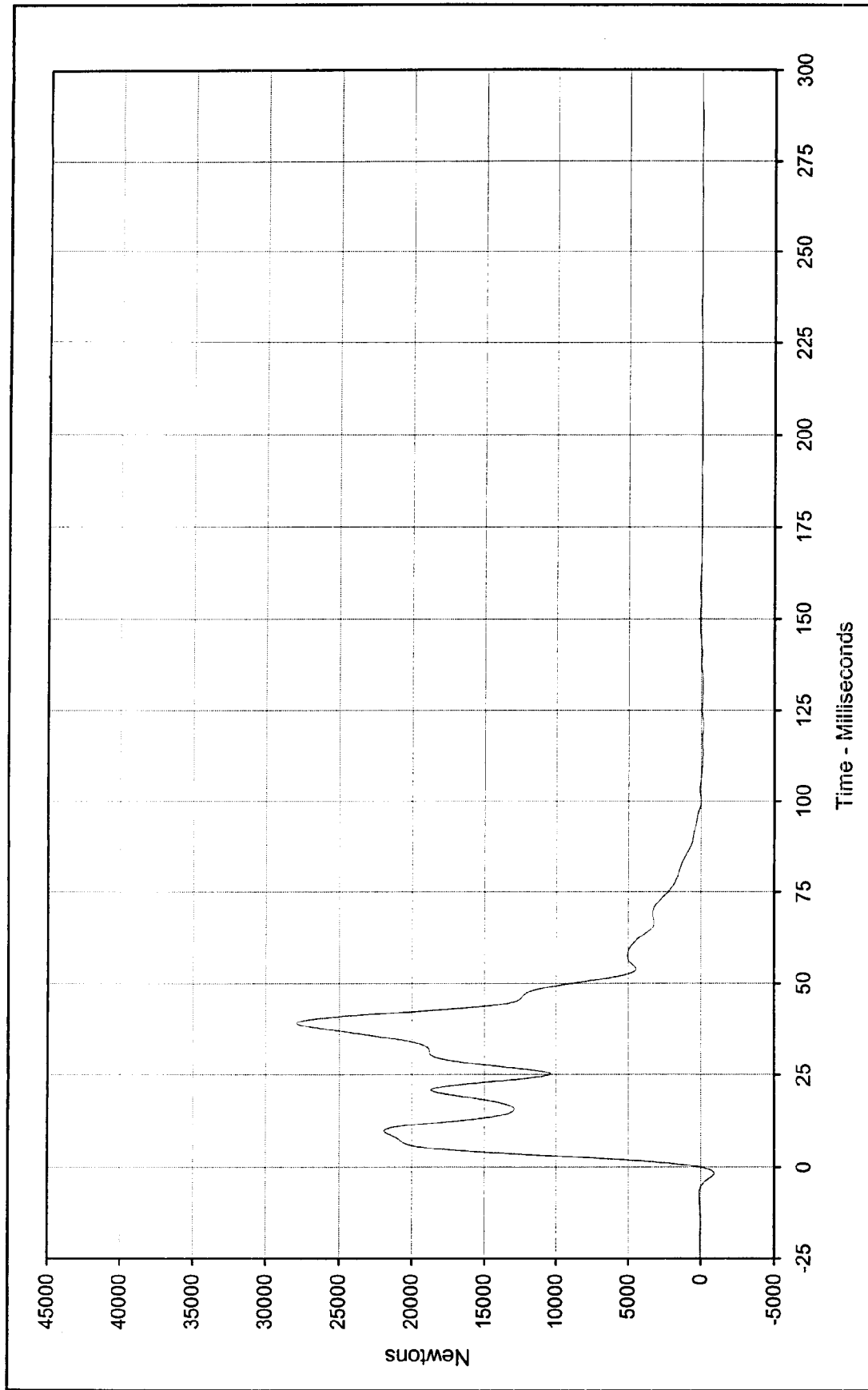




Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

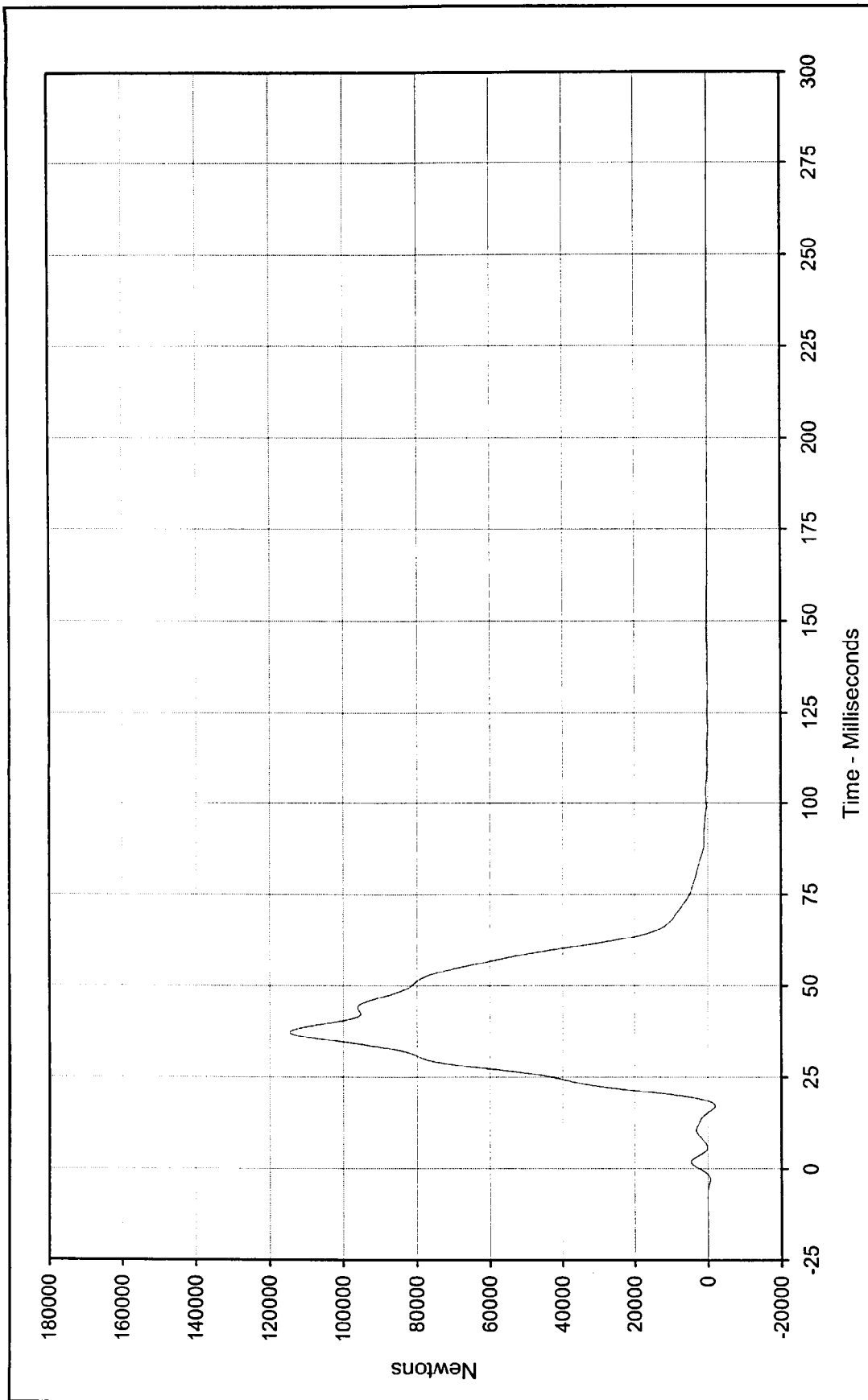
Curve Description: Barrier Force C2
 Maximum Value: 33551.2 at 19.7 Milliseconds
 Minimum Value: -1417.0 at 4.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-117





Curve Description:	Barrier Force C3	Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	27889.5 at 39.2 Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-167.5 at 121.0 Milliseconds			
SAE Filter Class:	60			
Date of Test:	11/17/99			
Curve Number:	FIL-118			

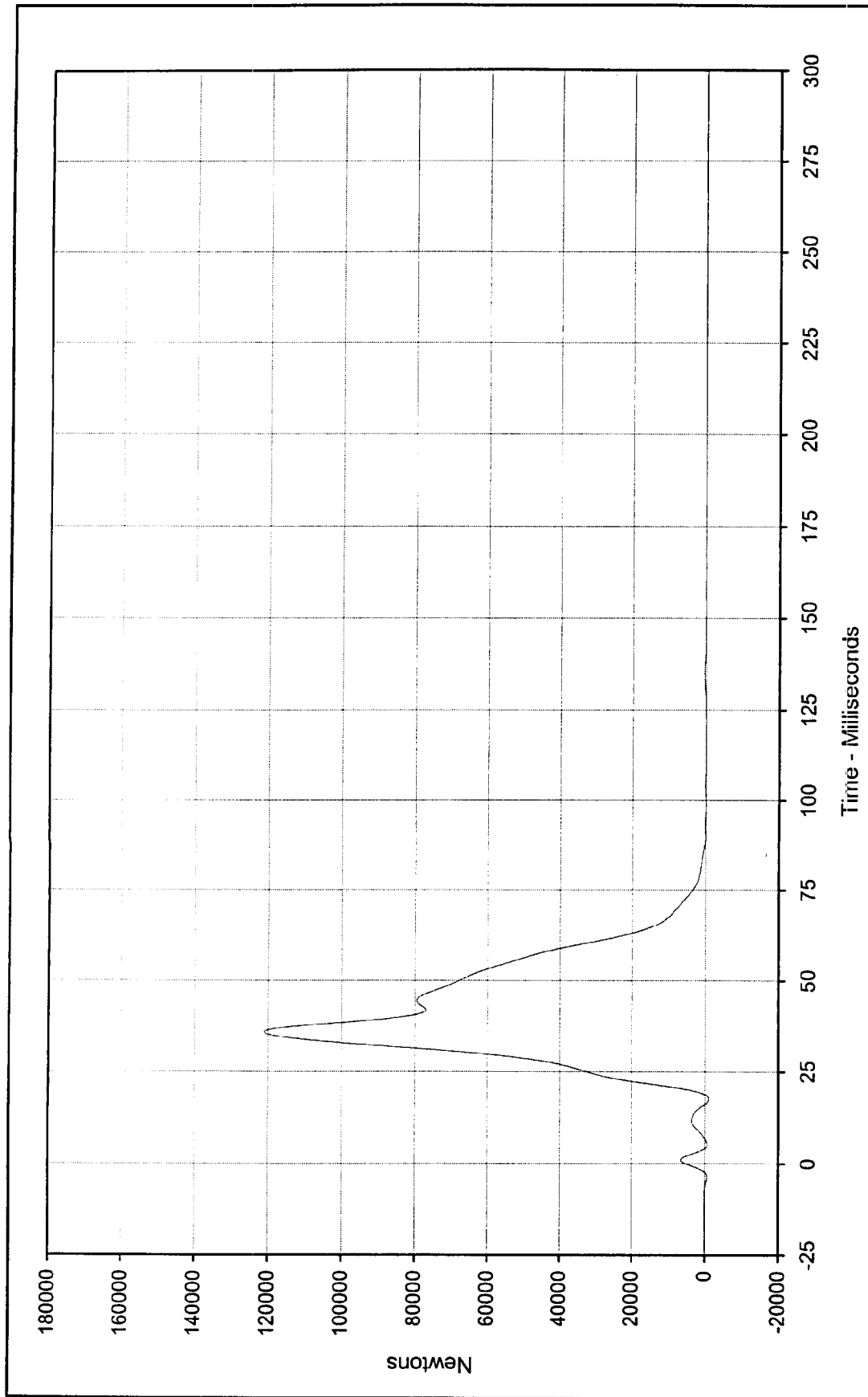




Curve Description: Barrier Force C4
 Maximum Value: 114552.2 at 37.4 Milliseconds
 Minimum Value: -1937.1 at 17.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-119

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup



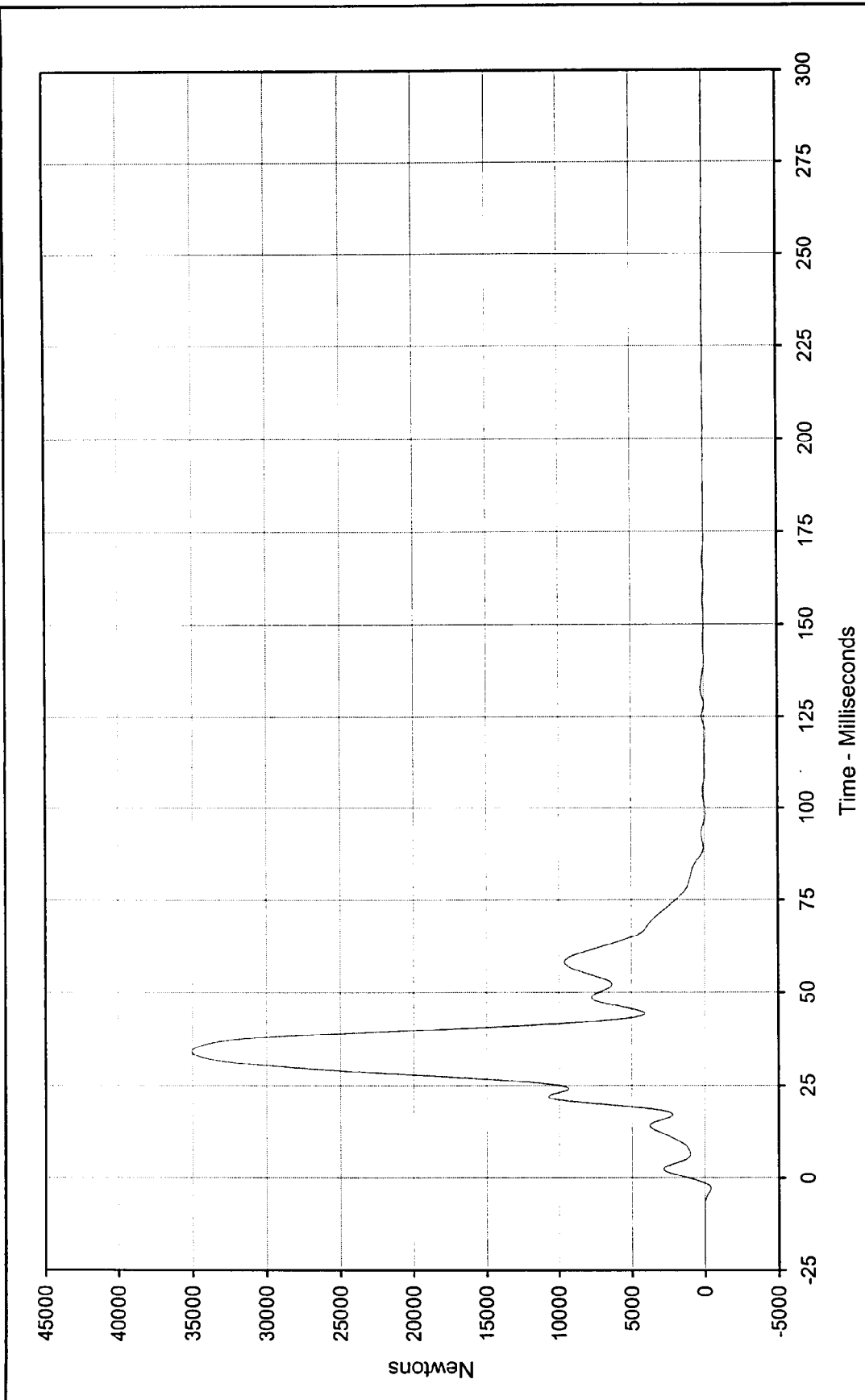


Curve Description:	Barrier Force C5			Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	121029.0	at	35.8	Milliseconds	Test Vehicle:	2000 Toyota Tundra SR5 Pickup
Minimum Value:	-1175.7	at	17.7	Milliseconds		
SAE Filter Class:	60					
Date of Test:	11/17/99					
Curve Number:	FIL-120					



KARCO
Engineering

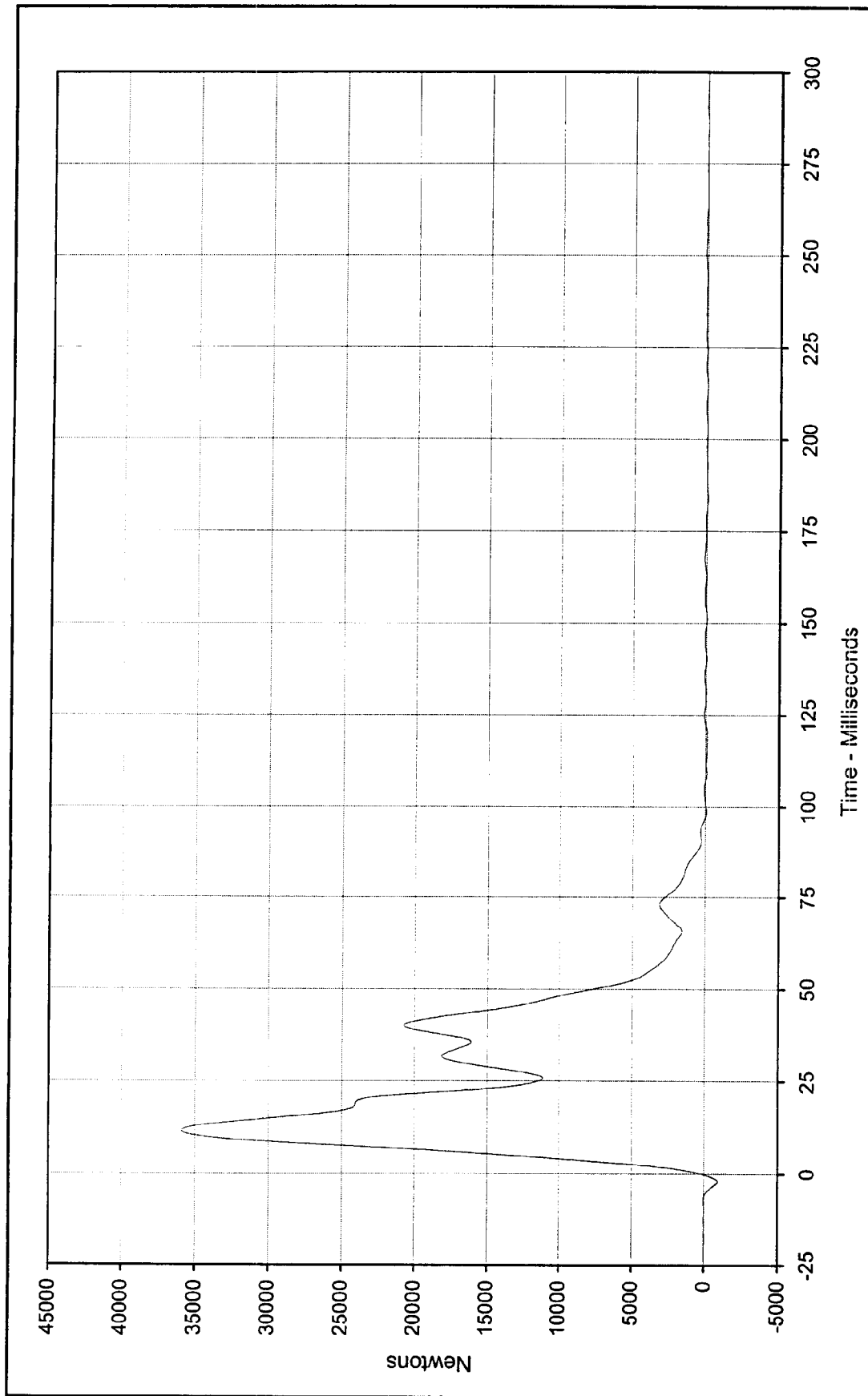




Curve Description: Barrier Force C6
 Maximum Value: 35083.8 at 34.1 Milliseconds
 Minimum Value: -123.5 at 98.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-121

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

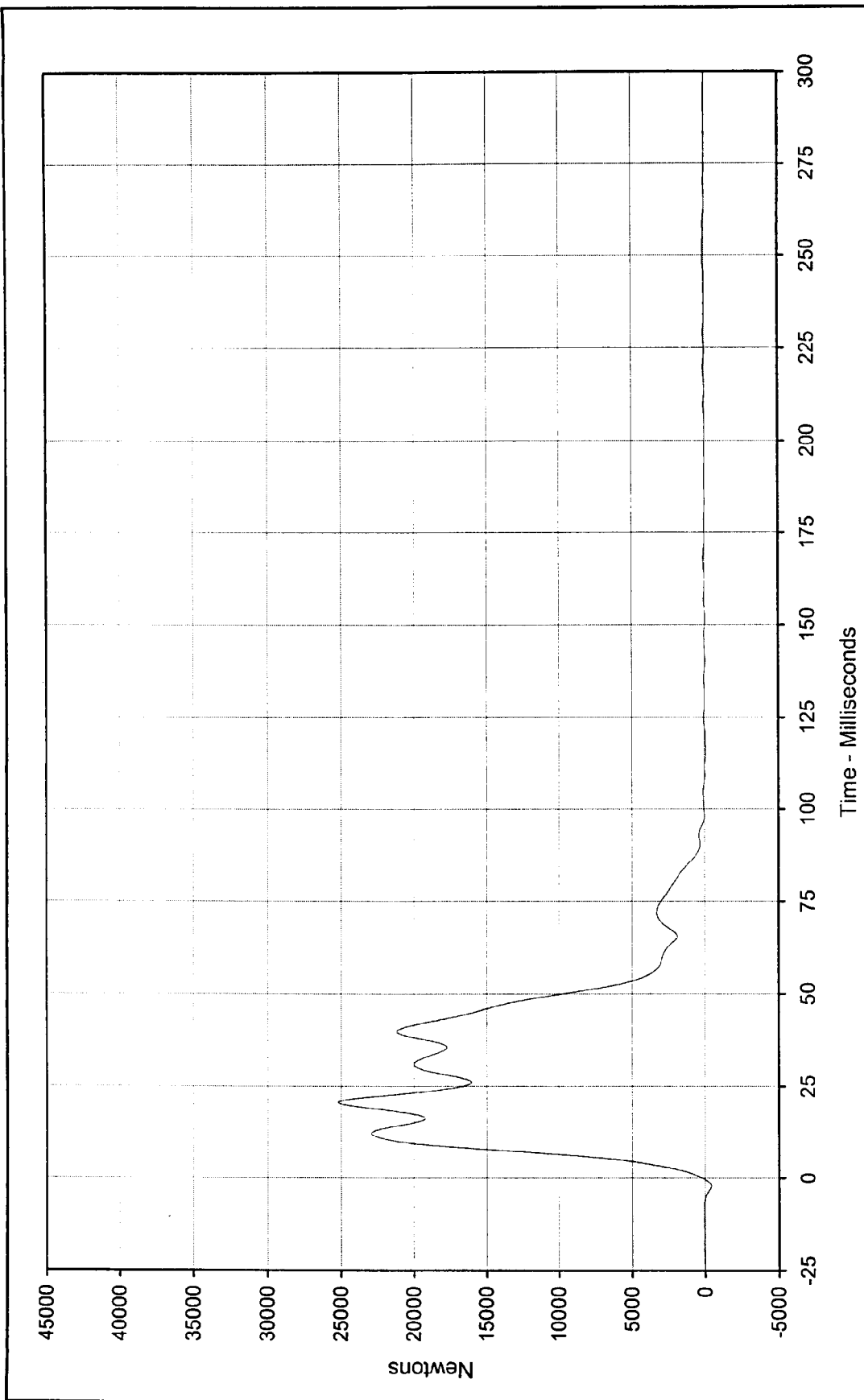




Curve Description: Barrier Force C7
 Maximum Value: 35899.4 at 11.6 Milliseconds
 Minimum Value: -97.8 at 119.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-122

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

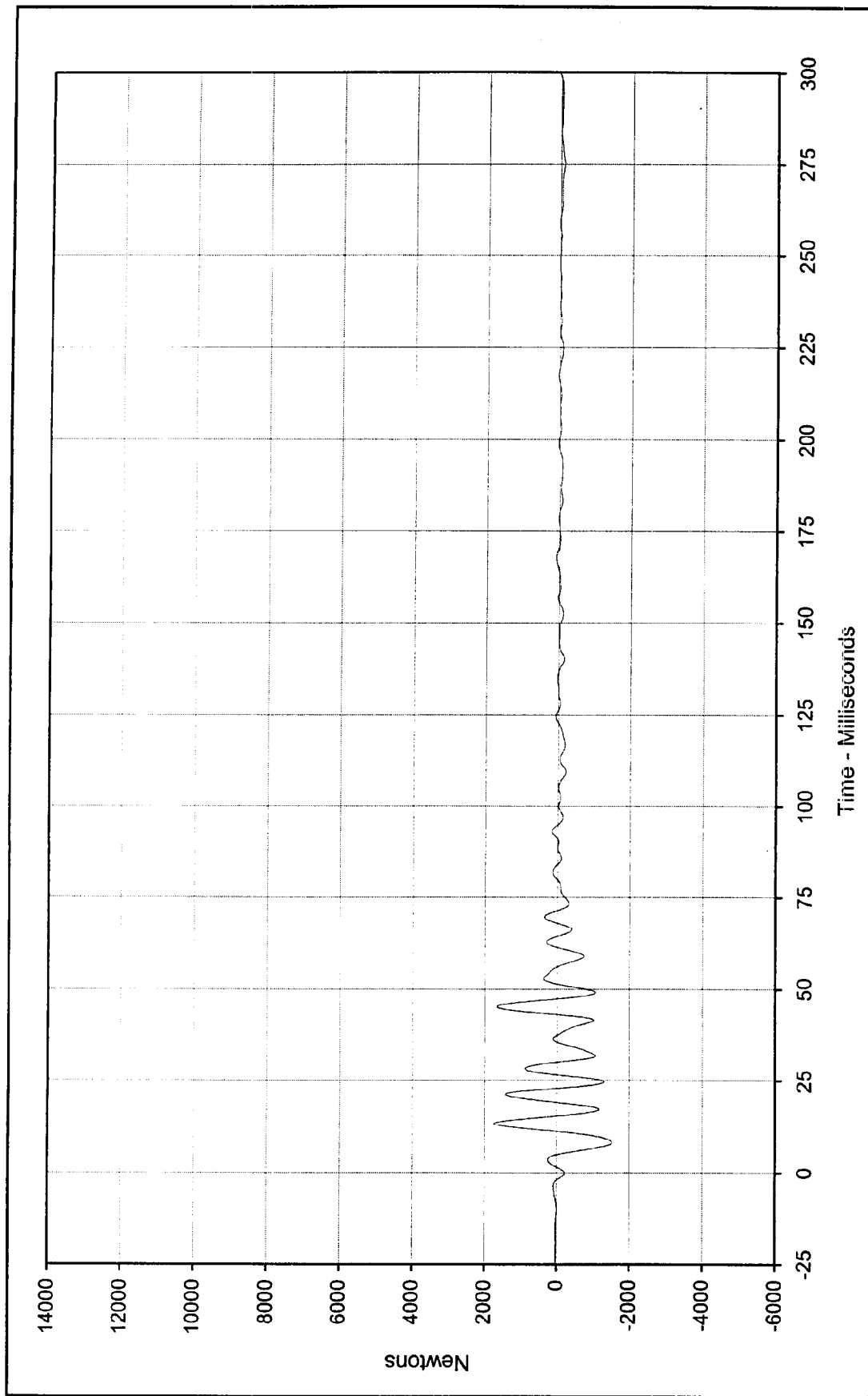




Curve Description: Barrier Force C8
 Maximum Value: 25196.3 at 20.7 Milliseconds
 Minimum Value: -97.4 at 115.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: FIL-123

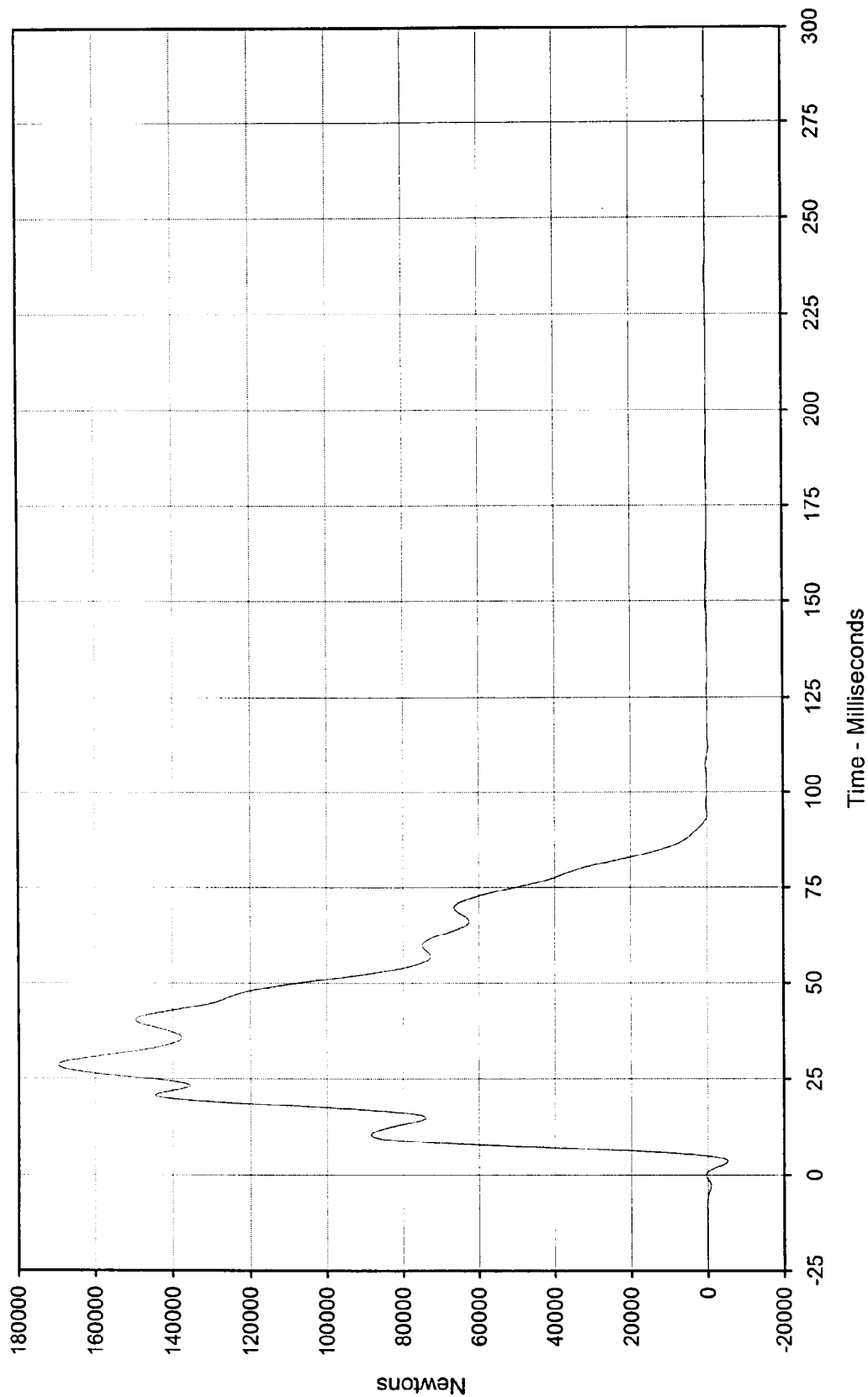
Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description:	Barrier Force C9		Test Program:	2000 NHTSA 35 mph NCAP	No.: MY5103
Maximum Value:	1745.3	at 13.5	Test Vehicle:	2000 Toyota Tundra SR5 Pickup	
Minimum Value:	-1525.1	at 8.2			
SAE Filter Class:	60				
Date of Test:	11/17/99				
Curve Number:	FIL-124				





Curve Description: Driver Barrier Force Sum Group 1

Maximum Value: 169670.0 at 28.6 Milliseconds

Minimum Value: -5272.7 at 3.5 Milliseconds

SAE Filter Class: 60

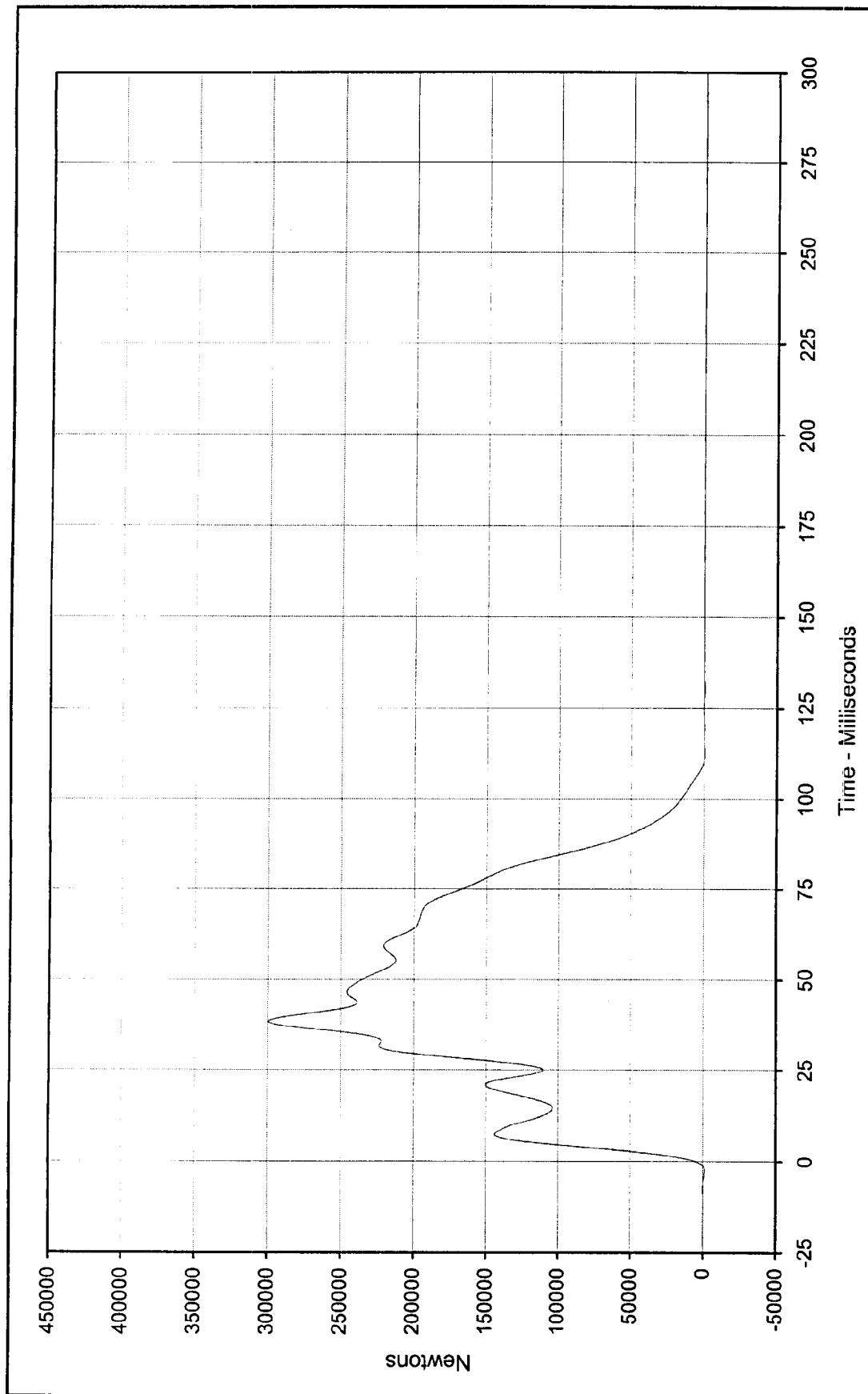
Date of Test: 11/17/99

Curve Number: SUM-001

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup



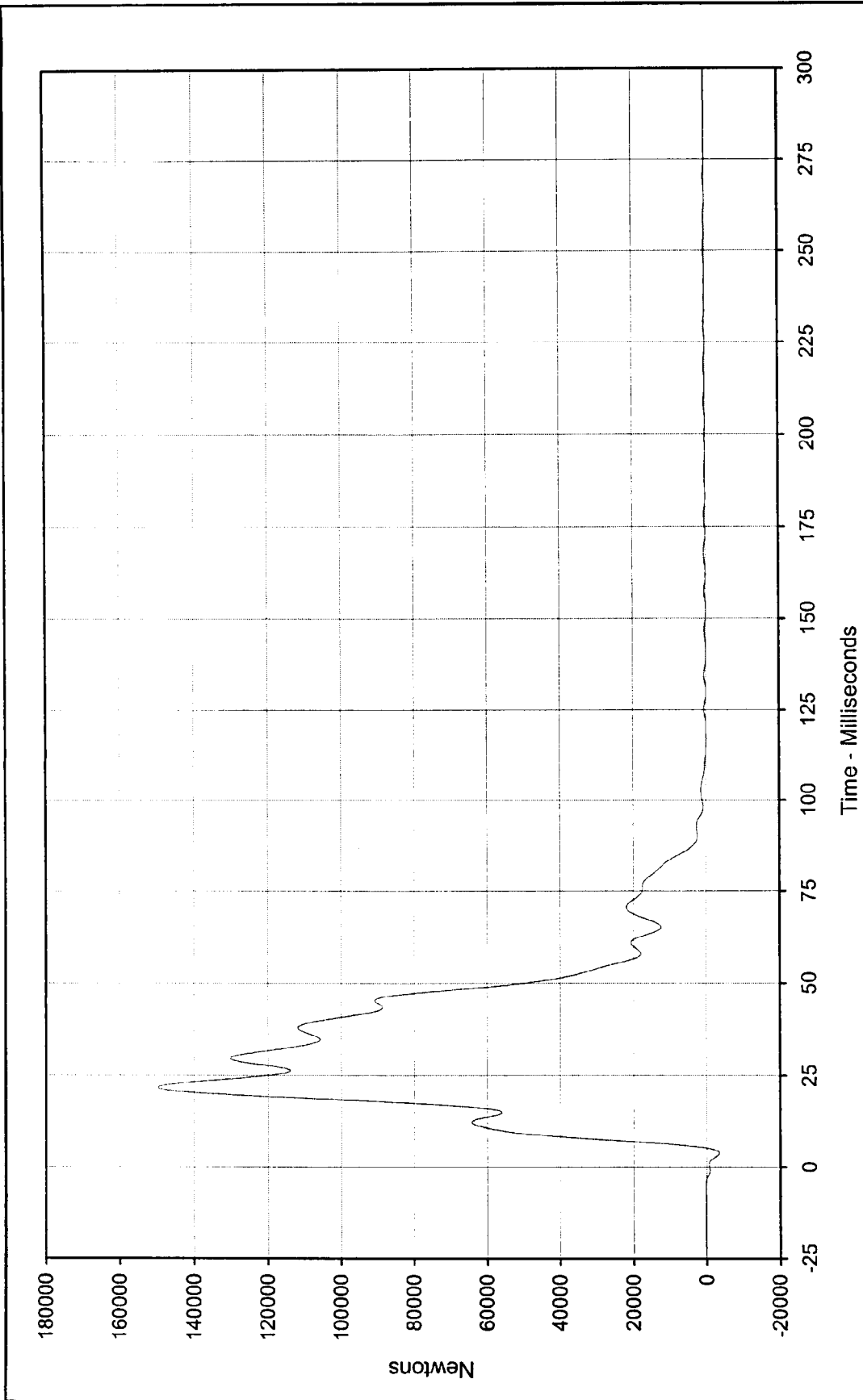


Curve Description: Driver Barrier Force Sum Group 2
 Maximum Value: 299630.4 at 38.5 Milliseconds
 Minimum Value: -614.7 at 130.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: SUM-002

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

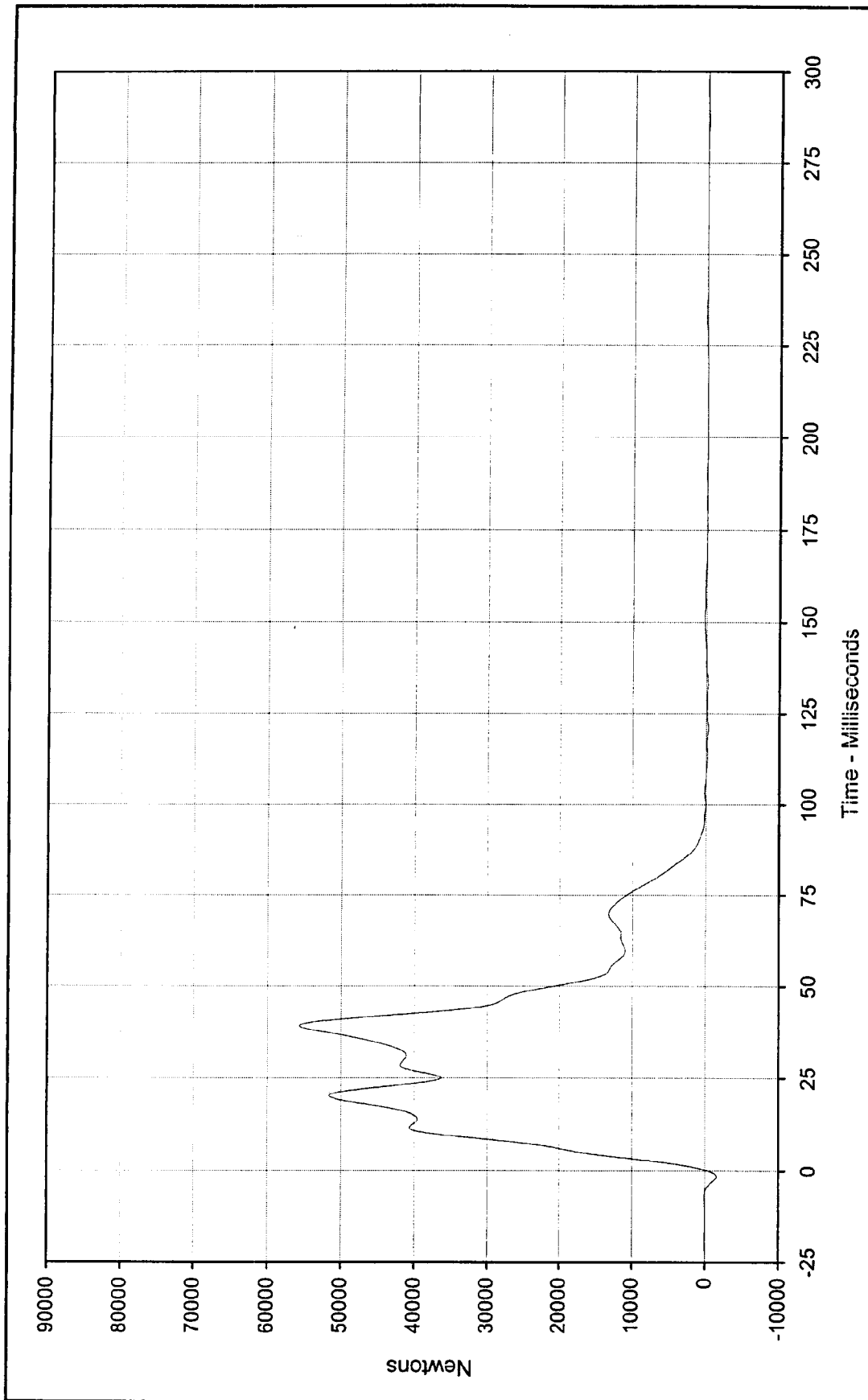




Curve Description: Driver Barrier Force Sum Group 3
 Maximum Value: 149698.8 at 21.8 Milliseconds
 Minimum Value: -3488.1 at 3.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: SUM-003

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

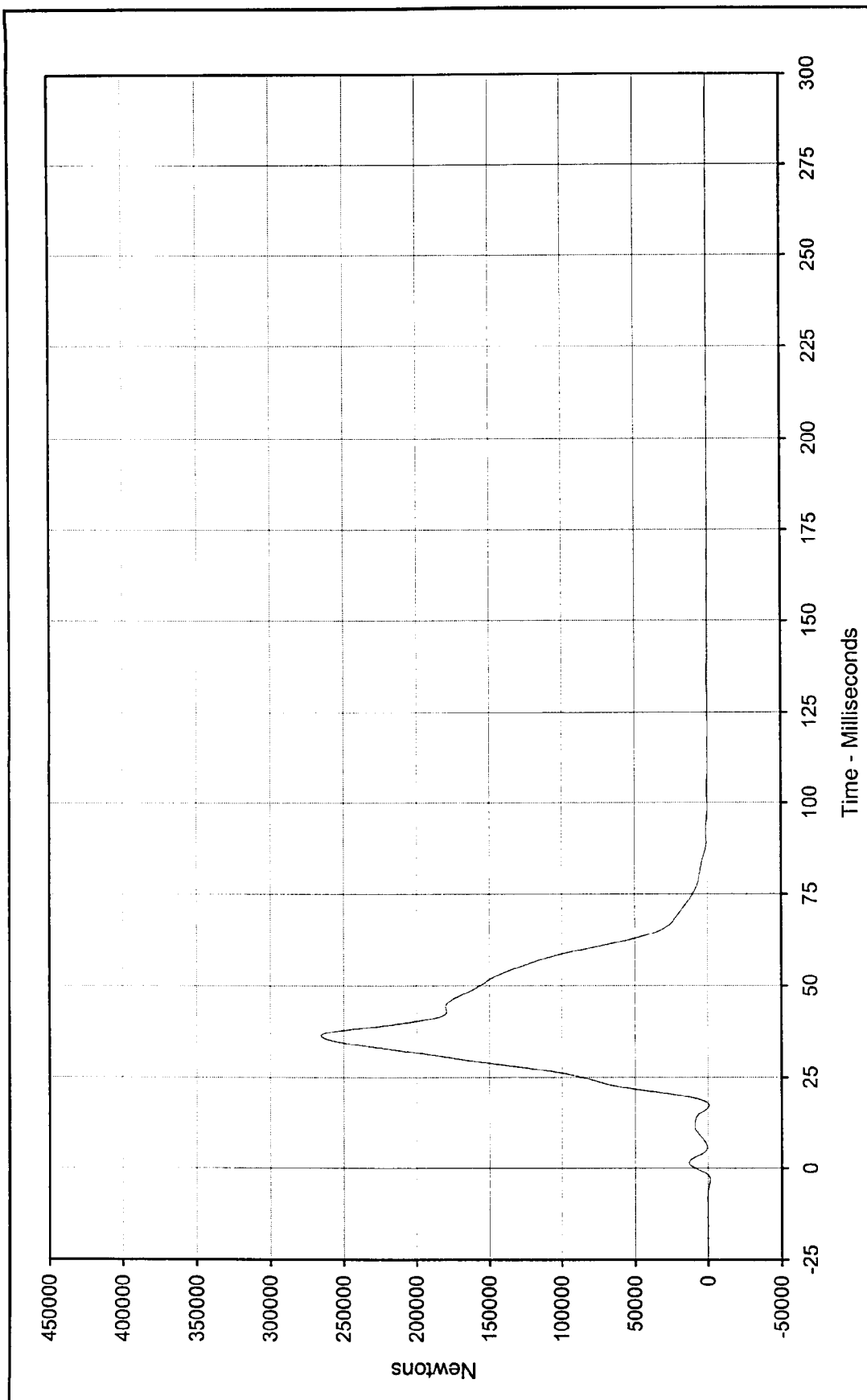




Curve Description: Driver Barrier Force Sum Group 4
 Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup

Maximum Value: 55679.0 at 39.3 Milliseconds
 Minimum Value: -430.7 at 0.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: SUM-004

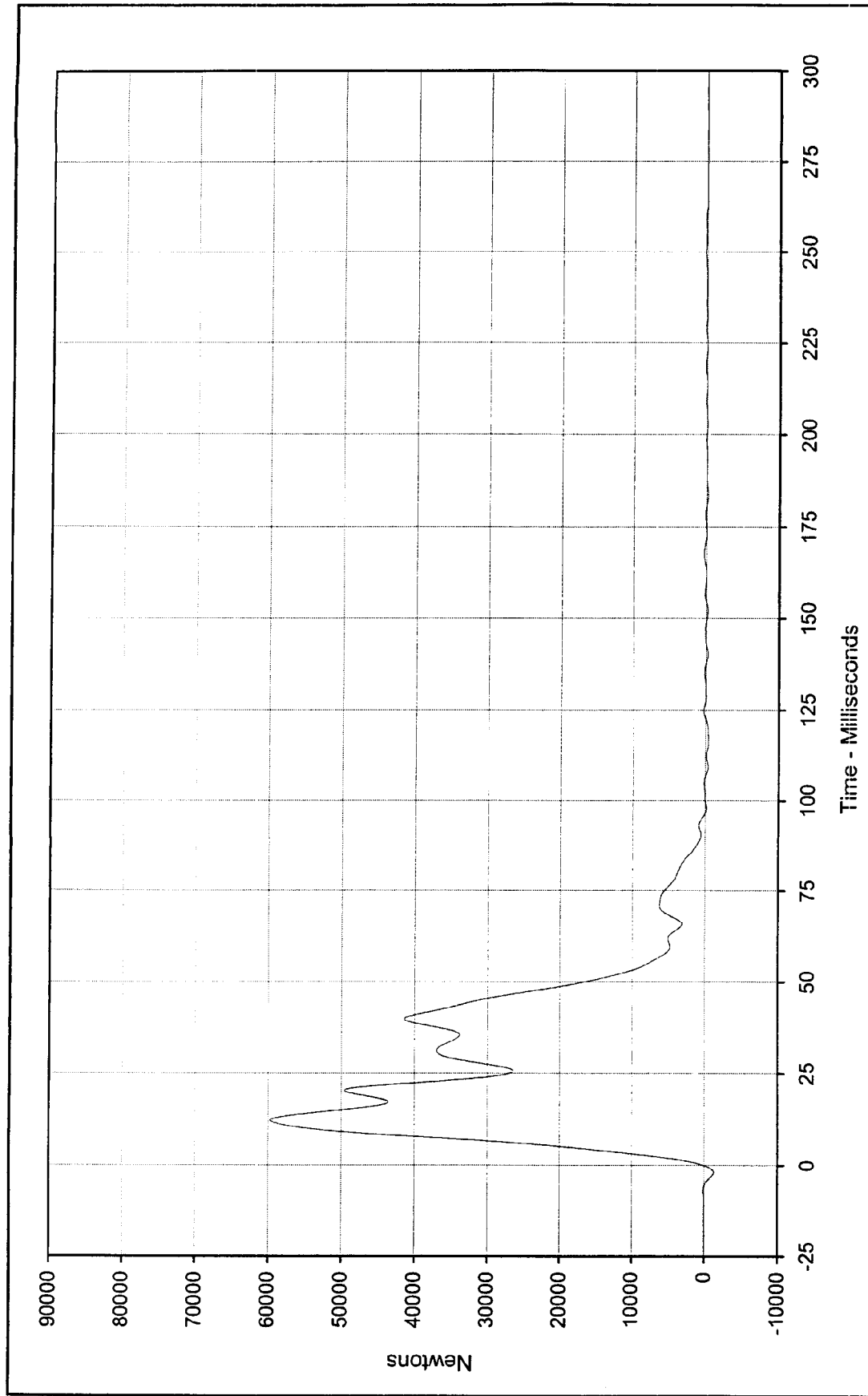




Curve Description: Driver Barrier Force Sum Group 5
 Maximum Value: 265557.0 at 36.4 Milliseconds
 Minimum Value: -869.2 at 17.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: SUM-005

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Driver Barrier Force Sum Group 6

Maximum Value: 59691.7 at 12.3 Milliseconds

Minimum Value: -377.2 at 116.2 Milliseconds

SAE Filter Class: 60

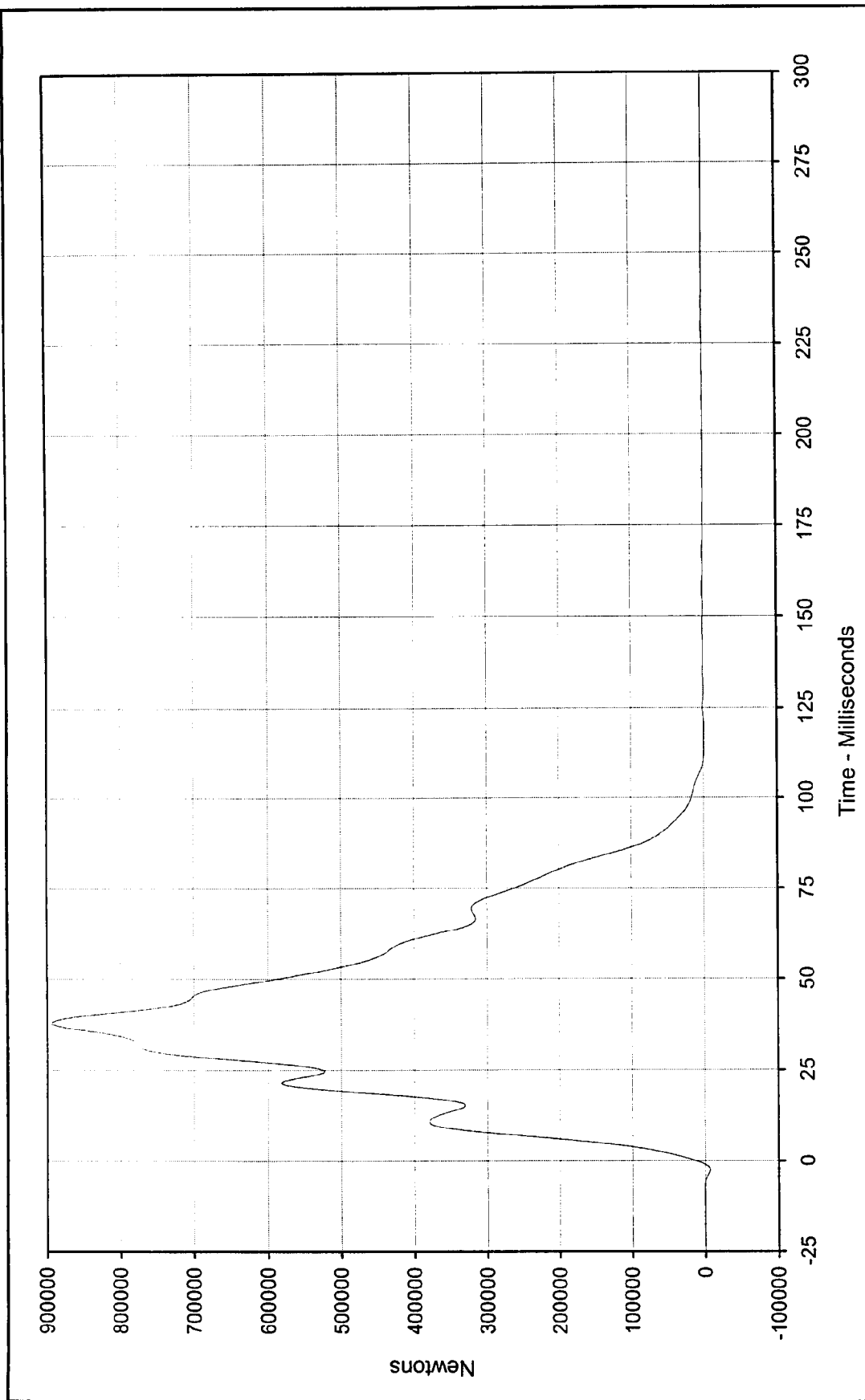
Date of Test: 11/17/99

Curve Number: SUM-006

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103

Test Vehicle: 2000 Toyota Tundra SR5 Pickup

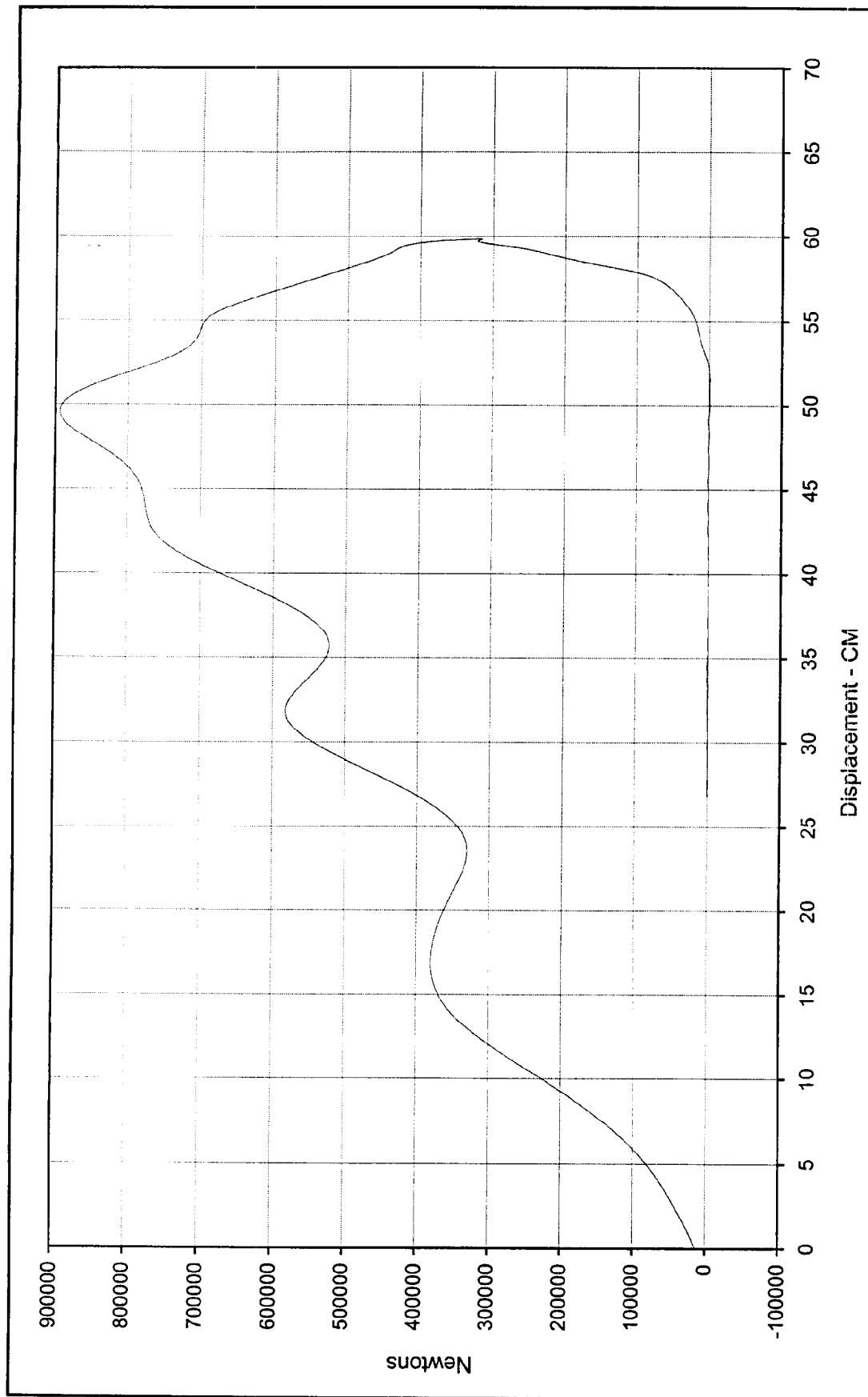




Curve Description: Driver Barrier Force Sum Total
 Maximum Value: 894026.7 at 37.9 Milliseconds
 Minimum Value: -1164.0 at 120.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/17/99
 Curve Number: SUM-007

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup





Curve Description: Sum Force Total vs. Dynamic Crush
 Maximum Displ.: 59.8 at 65.6 Milliseconds
 Maximum Force: 894026.7 at 37.9 Milliseconds
 Measured Energy: 277,880 joules
 Date of Test: 11/17/99
 Curve Number: XVY-001

Test Program: 2000 NHTSA 35 mph NCAP No.: MY5103
 Test Vehicle: 2000 Toyota Tundra SR5 Pickup



BARRIER LOAD CELL SUMMARY DATATest Vehicle: 2000 Toyota Tundra SR5 PickupNHTSA No.: MY5103Test Program: 2000 NHTSA 35 mph NCAPTest Date: 11/17/99**BARRIER LOAD CELL PEAK FORCES**

Location	Units	Max	Time	Min	Time
Barrier Force A2	Newtons	2812.8	30.6	-2623.9	26.8
Barrier Force A3	Newtons	4100.8	30.5	-4215.2	26.6
Barrier Force A4	Newtons	6421.3	22.2	-4432.7	26.4
Barrier Force A5	Newtons	22648.4	37.7	-4636.9	26.3
Barrier Force A6	Newtons	6270.2	30.2	-3426.8	26.2
Barrier Force A7	Newtons	4299.7	30.0	-2267.9	26.2
Barrier Force A8	Newtons	2933.1	37.8	-2826.0	42.1
Barrier Force A9	Newtons	3445.8	45.9	-4492.8	33.2
Barrier Force B2	Newtons	12941.3	20.5	-797.2	5.0
Barrier Force B3	Newtons	166430.5	27.5	-3674.6	3.1
Barrier Force B4	Newtons	109194.3	39.0	-732.3	0.2
Barrier Force B5	Newtons	58092.5	4.2	-90.0	129.5
Barrier Force B6	Newtons	121010.3	38.3	-2634.6	0.9
Barrier Force B7	Newtons	139690.7	22.1	-2764.7	3.1
Barrier Force B8	Newtons	5517.5	46.0	-747.0	5.4
Barrier Force B9	Newtons	2580.7	45.9	-3197.2	32.4
Barrier Force C2	Newtons	33551.2	19.7	-1417.0	4.5
Barrier Force C3	Newtons	27889.5	39.2	-167.5	121.0
Barrier Force C4	Newtons	114552.2	37.4	-1937.1	17.3
Barrier Force C5	Newtons	121029.0	35.8	-1175.7	17.7
Barrier Force C6	Newtons	35083.8	34.1	-123.5	98.3
Barrier Force C7	Newtons	35899.4	11.6	-97.8	119.5
Barrier Force C8	Newtons	25196.3	20.7	-97.4	115.7
Barrier Force C9	Newtons	1745.3	13.5	-1525.1	8.2
Barrier Force Sum Group 1	Newtons	169670.0	28.6	-5272.7	3.5
Barrier Force Sum Group 2	Newtons	299630.4	38.5	-614.7	130.0
Barrier Force Sum Group 3	Newtons	149698.8	21.8	-3488.1	3.8
Barrier Force Sum Group 4	Newtons	55679.0	39.3	-430.7	0.0
Barrier Force Sum Group 5	Newtons	265557.0	36.4	-869.2	17.4
Barrier Force Sum Group 6	Newtons	59691.7	12.3	-377.2	116.2
Barrier Force Sum Total	Newtons	894026.7	37.9	-1164.0	120.2

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

APPENDIX D
INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

KAR20001-02

2000 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 34
11/17/99
2000 Toyota Tundra SR5 Pickup

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

2000 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 34
11/17/99
2000 Toyota Tundra SR5 Pickup

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
26	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
27	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
28	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
29	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
30	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
31	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
32	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
33	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
34	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
35	FOOT LEFT	X	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
36	FOOT LEFT	Y	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
37	FOOT LEFT	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
38	FOOT RIGHT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
39	FOOT RIGHT	Y	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
40	FOOT RIGHT	Z	KEIC004Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
41	LAP BELT FORCE	X	KELC001	Load cell, Seat belt	Lebow	3371	N
42	SHOULDER BELT FORCE	X	KELC002	Load cell, Seat belt	Lebow	3371	N
43	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
44	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

2000 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 35
11/17/99
2000 Toyota Tundra SR5 Pickup

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

2000 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 35
11/17/99
2000 Toyota Tundra SR5 Pickup

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPU09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
70	UP. TIBIA LEFT MOM.	Y	GPU09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
71	UP. TIBIA RIGHT MOM.	X	GPU09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
72	UP. TIBIA RIGHT MOM.	Y	GPU09MY	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	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT	Y	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT	Y	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT	Z	KEIC001Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	X	KELC003	Load cell, Seat belt	Lebow	3371	N
86	SHOULDER BELT FORCE	X	KELC004	Load cell, Seat belt	Lebow	3371	N
87	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celeco	PTX101-0030	CM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

2000 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers and Reference Channel
11/17/99
2000 Toyota Tundra SR5 Pickup

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	Left Rear X-Member (Pri.)	X	KEVA002	Accel., Pre-Amp	I.C. S/Karco	3031-500	G
90	Right Rear X-Member (Pri.)	X	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	X	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-500	G
93	Left Brake Caliper	X	KEVA008	Accel., Vehicle block	I.C. Sensor	3031-500	G
94	Right Brake Caliper	X	KEVA003	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	Instrument Panel	X	KEVA005	Accel., Vehicle block	I.C. Sensor	3031-500	G
96	Left Rear X-Member (Rednt.)	X	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

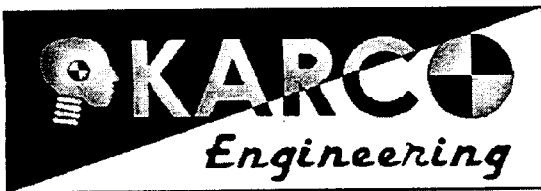
2000 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
11/17/99
2000 Toyota Tundra SR5 Pickup

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

2000 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
11/17/99
2000 Toyota Tundra SR5 Pickup

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.: RK09B

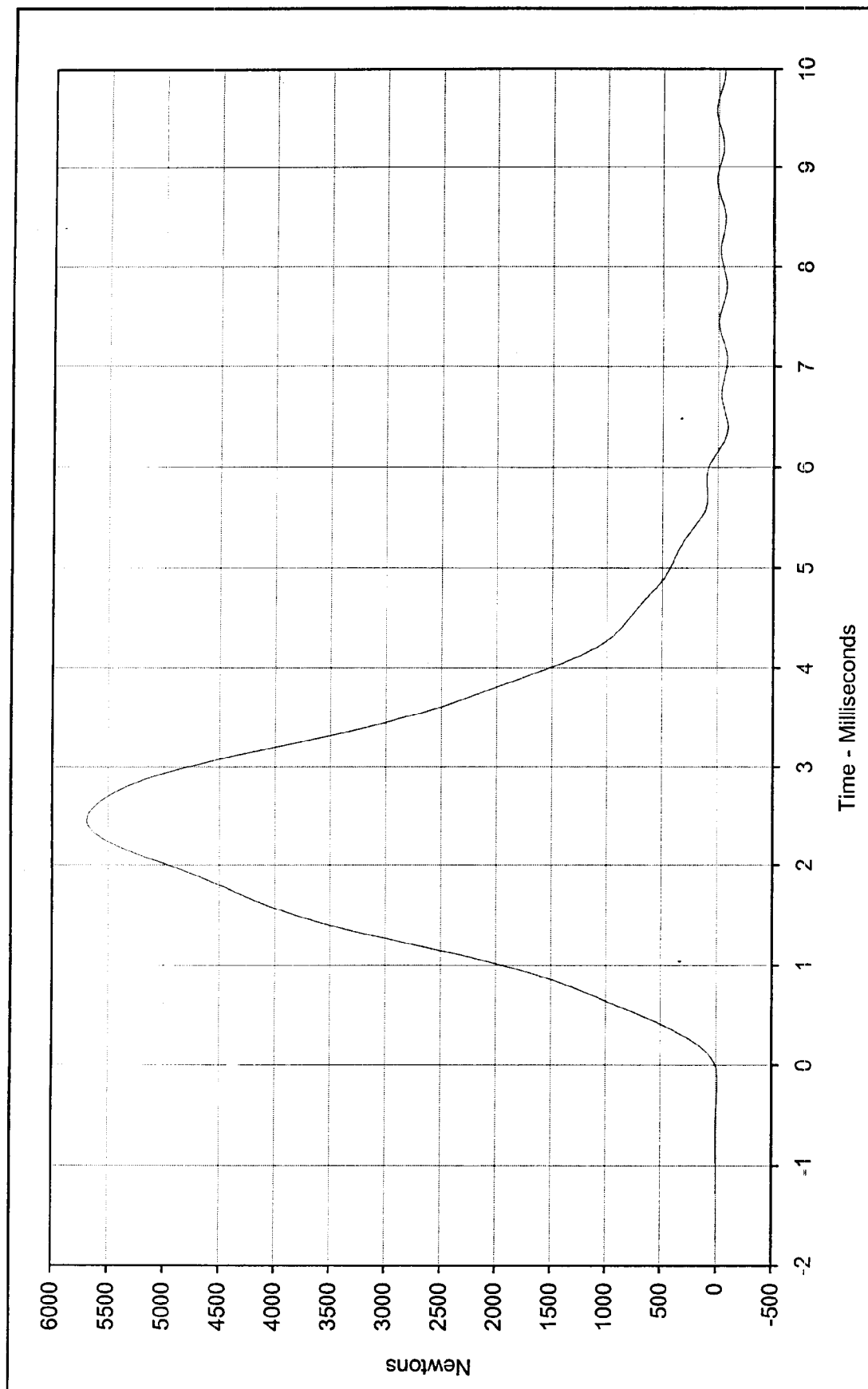
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.092	Pass
Peak Probe Force	Newtons	4715 to 5782	5684.1	Pass
Overall Test Results				Pass

N 2000
Laboratory Technician

James E. North
Approved By

September 28, 1999
Test Date

9/29/99
Date



Curve Description: _____ Testing Program: Hybrid III Left Knee Impact Test
Maximum Value: 5684.1 at 2.5 Milliseconds
Minimum Value: -87.7 at 6.4 Milliseconds



SAE Filter Class: 600
Date of Test: 9/28/99
ATD Serial No.: 034



Hybrid III Calibration Data Sheet

50TH Percentile Male

Right Knee Impact Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: LK09A

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	2.097	Pass
Peak Probe Force	Newtons	4715 to 5782	5611.8	Pass
Overall Test Results				Pass

Laboratory Technician

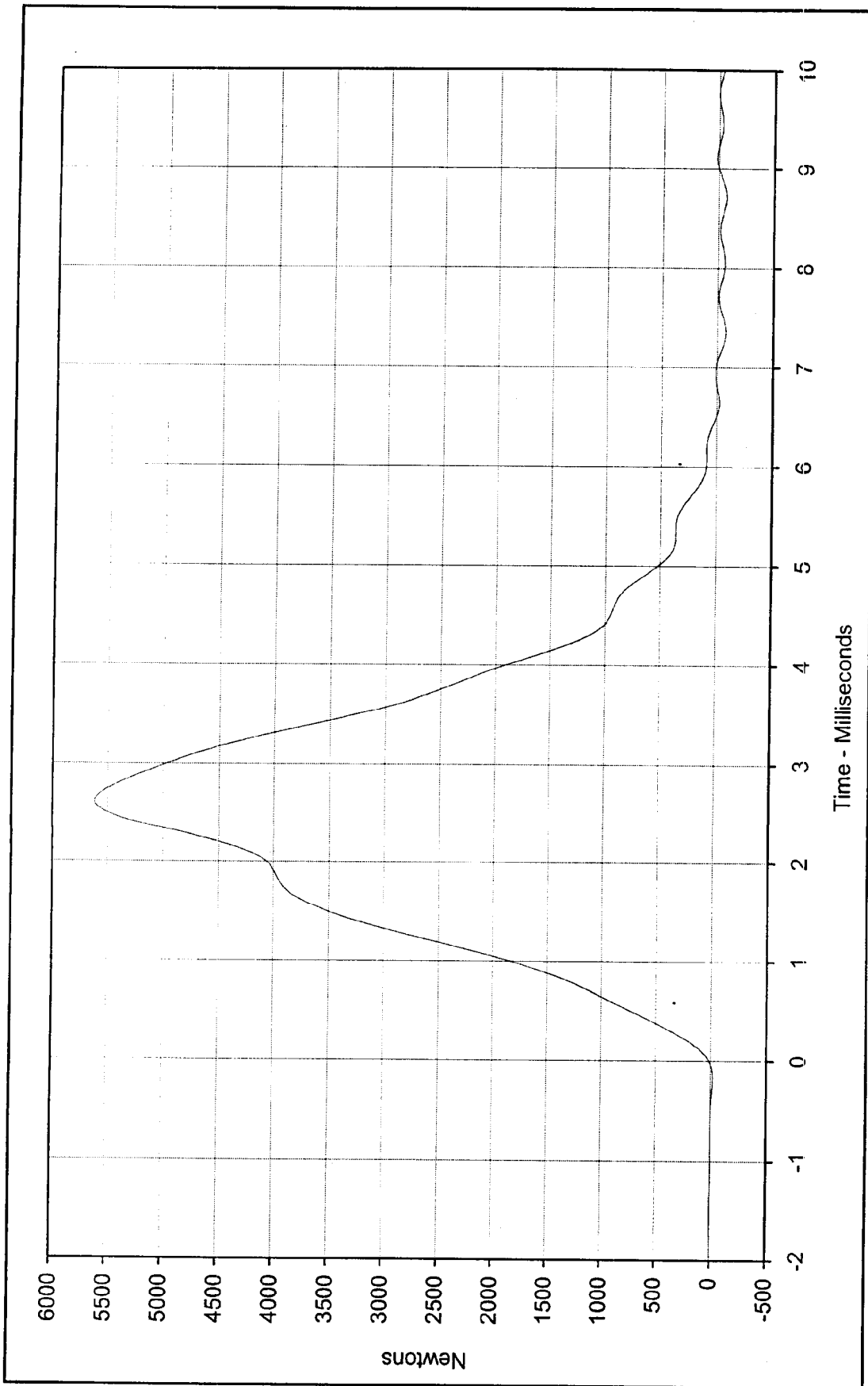
Approved By

September 28, 1999

Test Date

9/29/99

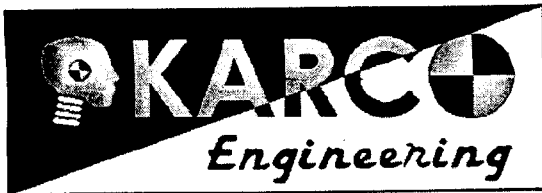
Date



Testing Program: Hybrid III Right Knee Impact Test
Test Information: Part S/N: n/a Test I.D.: LK09A



Curve Description: Probe Force
Maximum Value: 5611.8 at 2.6 Milliseconds
Minimum Value: -72.8 at 7.4 Milliseconds
SAE Filter Class: 600
Date of Test: 9/28/99
ATD Serial No.: 034



Hybrid III Calibration Data Sheet

50TH Percentile Male

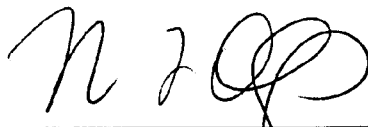
Head Drop Calibration

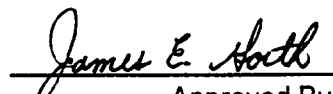
ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: HD09A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	259.2	Pass
Peak Lateral Acceleration	G's	≤15.0	8.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

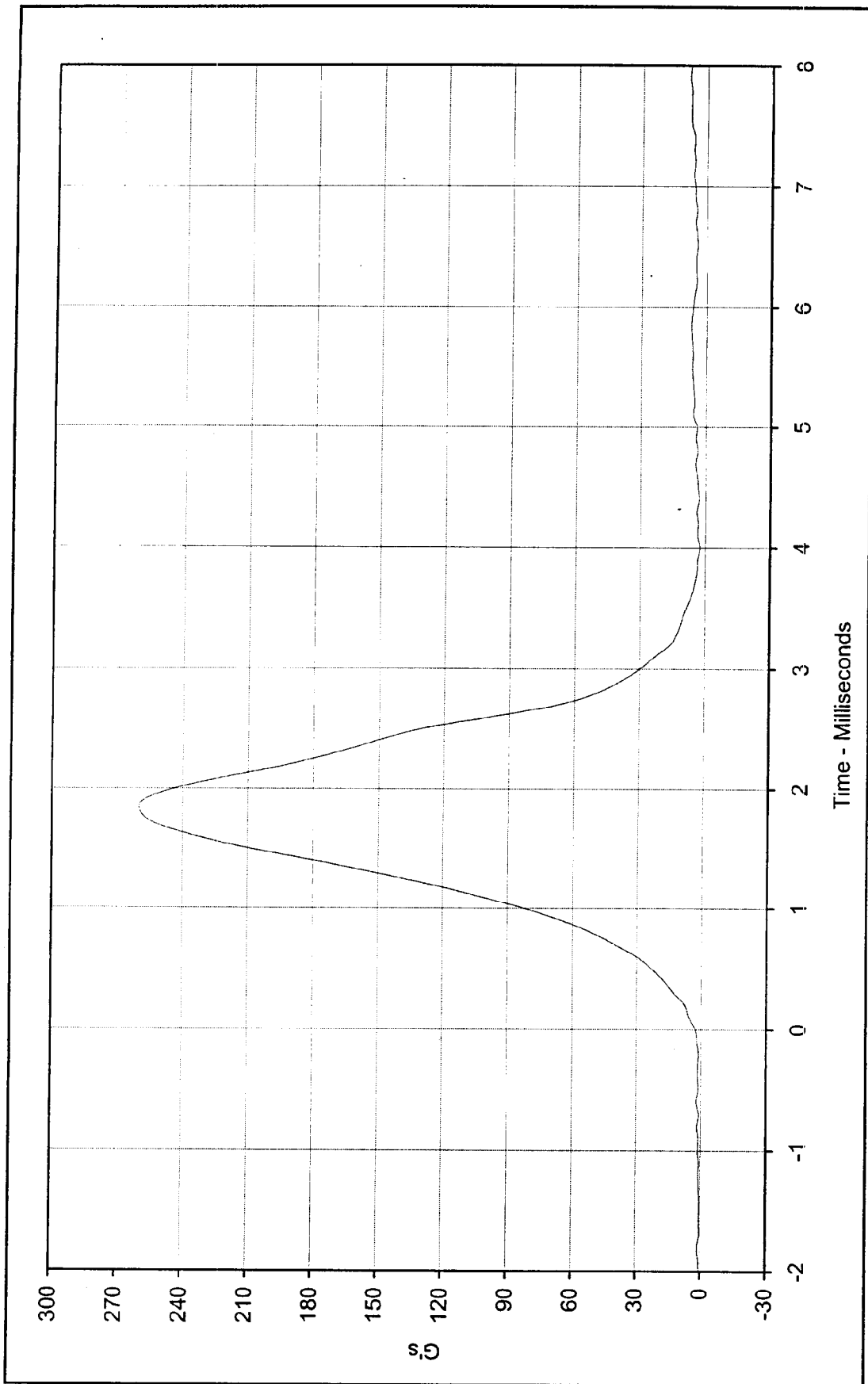

Approved By

October 1, 1999

Test Date

10/2/99

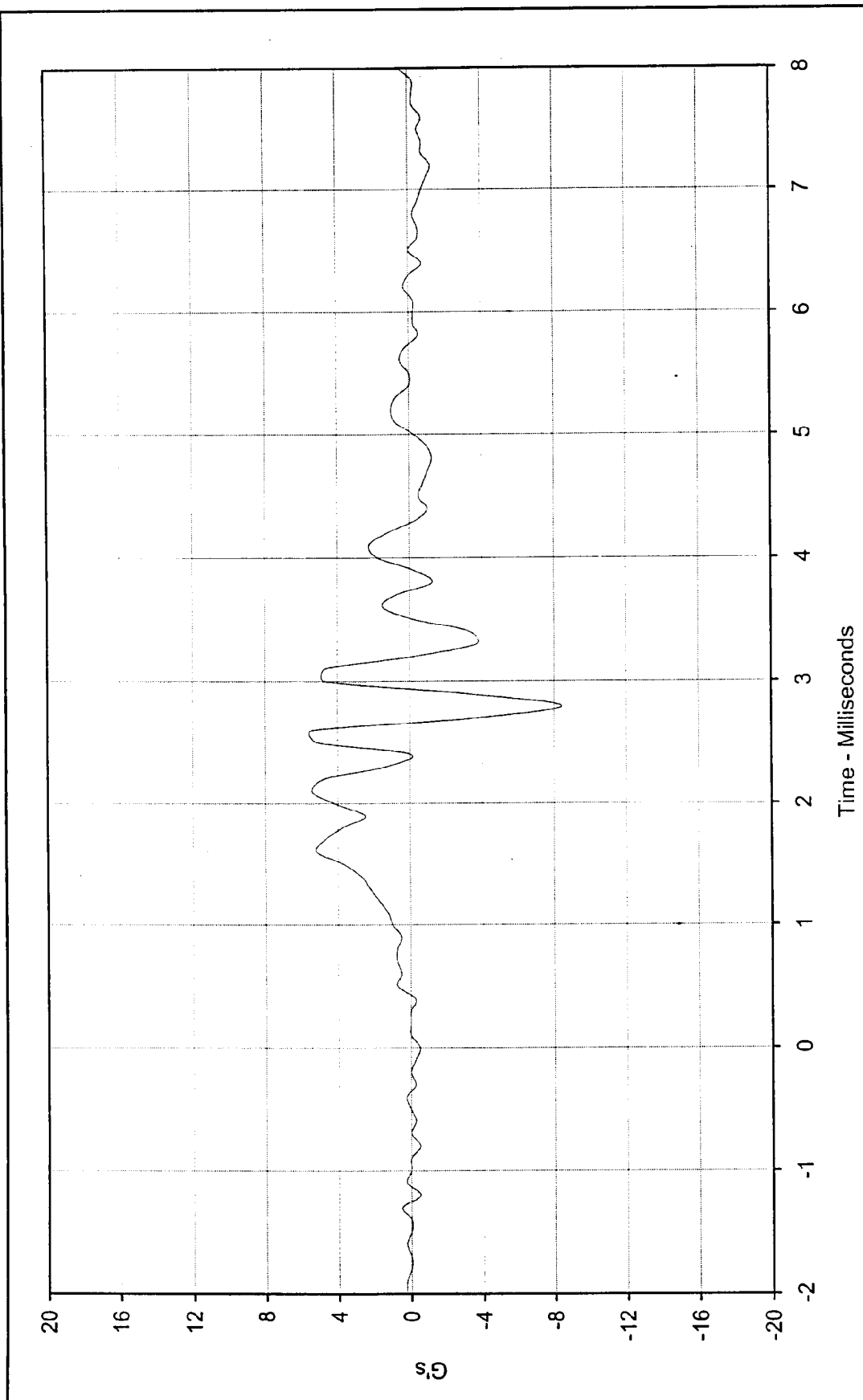
Date



Testing Program: Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: HD09A



Curve Description: Head Resultant Acceleration
 Maximum Value: 259.2 at 1.8 Milliseconds
 Minimum Value: 0.6 at -1.7 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 10/1/99
 ATD Serial No.: 034



Testing Program Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: HD09A



Curve Description: Head Acceleration Y Axis
 Maximum Value: 5.4 at 2.1 Milliseconds
 Minimum Value: -8.4 at 2.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 10/1/99
 ATD Serial No.: 034



Hybrid III Calibration Data Sheet

50TH Percentile Male

Thorax Impact Test

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: CH01C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Probe Velocity	m/s	6.58 to 6.82	6.75	Pass
Peak Probe Force	Newtons	5159 to 5893	5275	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	7.10	Pass
Internal Hysteresis	%	69 to 85	75.7	Pass
Overall Test Results				Pass

Laboratory Technician

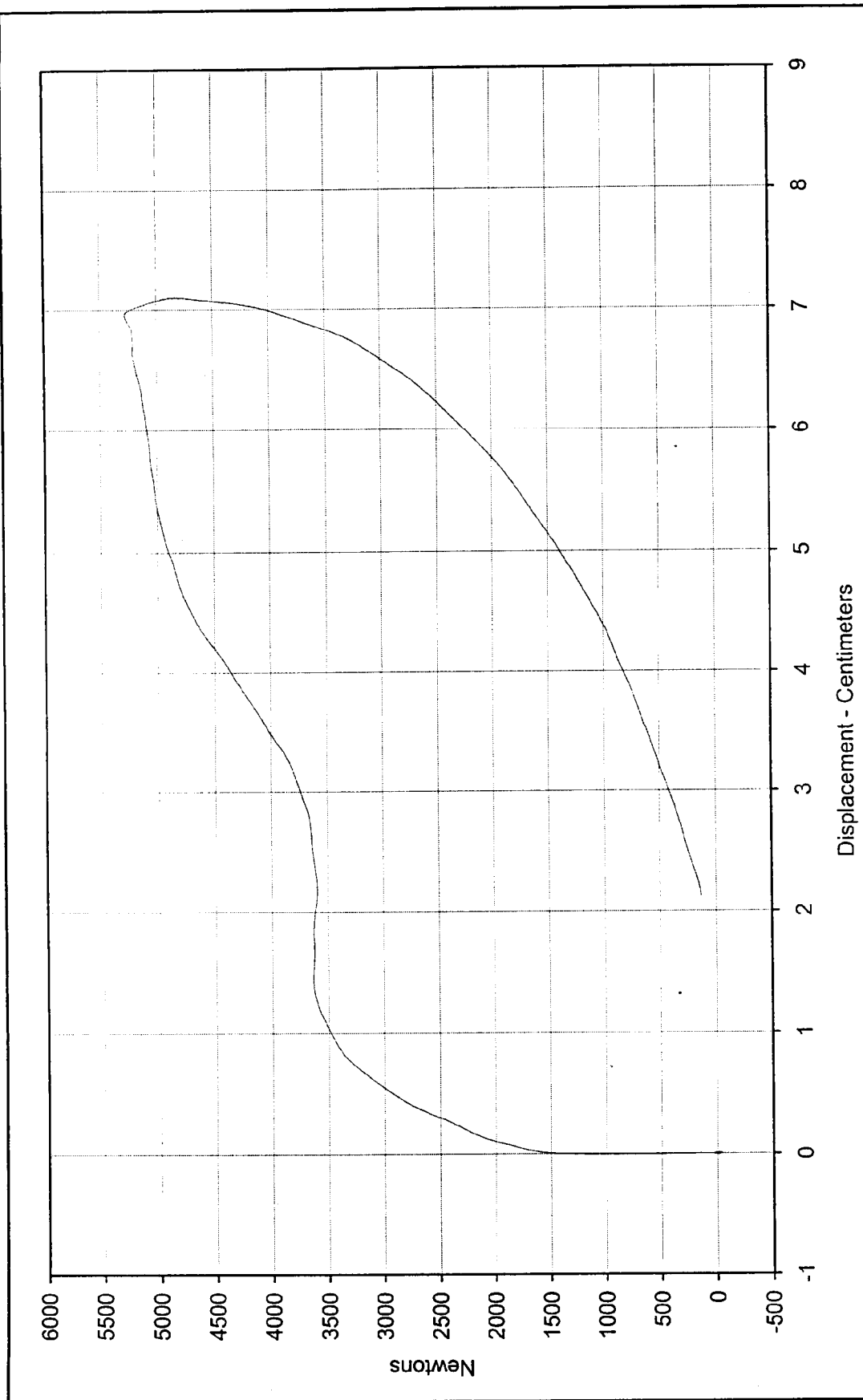
October 6, 1999

Test Date

Approved By

10/17/99

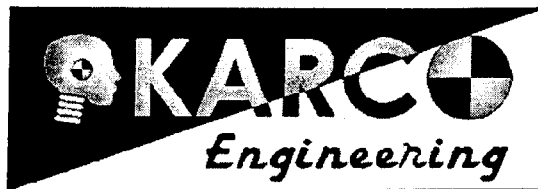
Date



Testing Program: Hybrid III Thorax Impact Test
 Test Information: S/N of Part: N/A Test I.D.: CH01C

Curve Description: Probe Force vs. Chest Displacement
 Probe Force: 5275.1 Newtons
 Chest Displ.: 7.10 Centimeters
 SAE Filter Class: 180
 Date of Test: 10/6/99
 ATD Serial No: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male

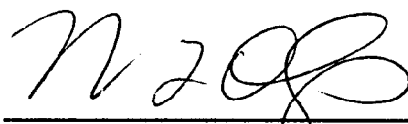
Neck Flexion Test

ATD Serial No.: 034

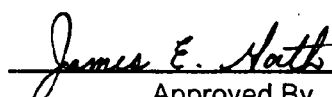
Part Serial No.: n/a

Test I.D.: NF09A

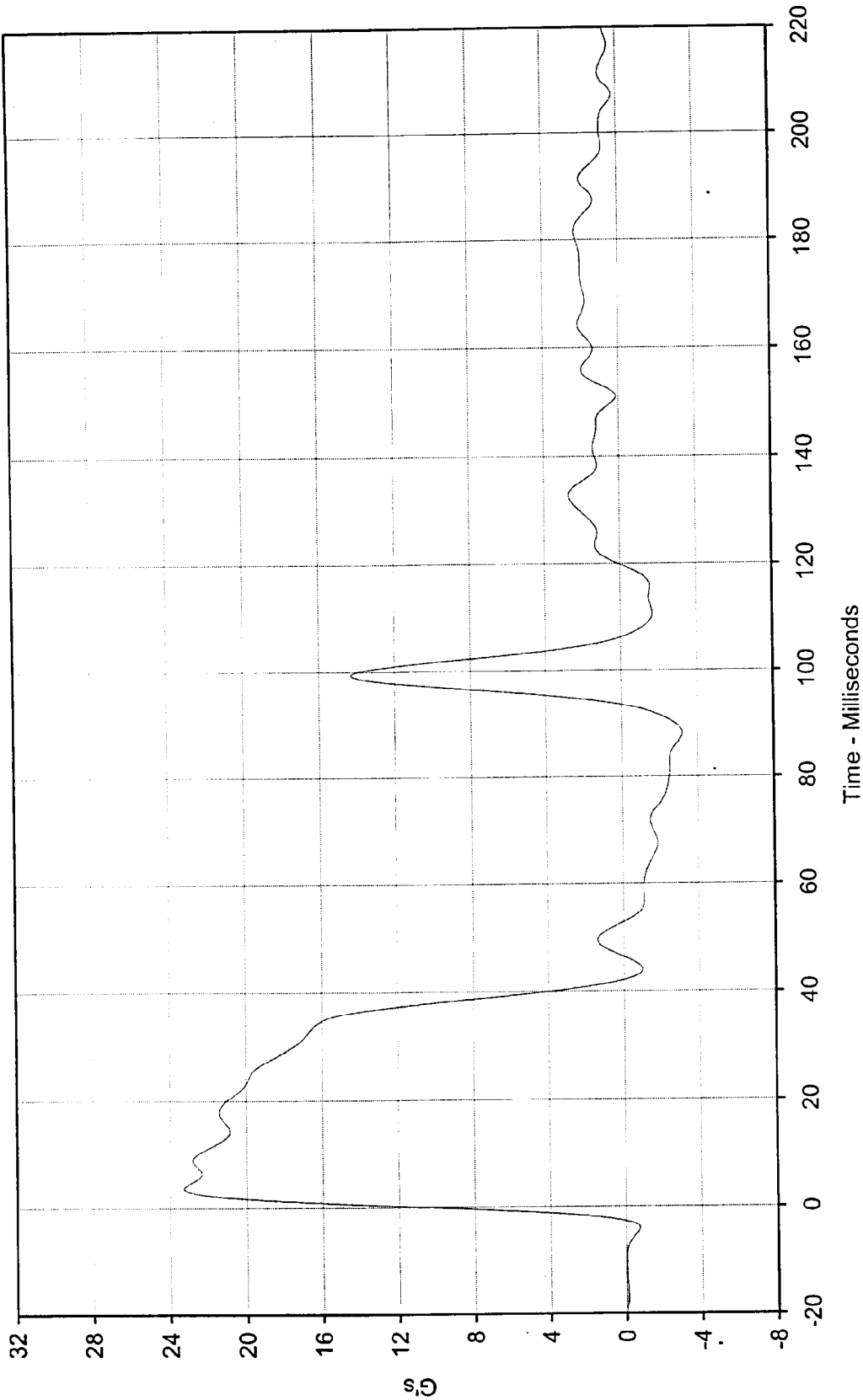
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity		%	10 to 70	40	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.94	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	22.6	Pass
	20 Msec.	G's	17.6 to 22.6	21.0	Pass
	30 Msec.	G's	12.5 to 18.5	17.5	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.5	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	39.6	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	74.2	Pass
	Time	Msec.	57.0 to 64.0	61.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	121.9	Pass
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	86.4	Pass
	Time	Msec.	47.0 to 58.0	57.8	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	101.8	Pass
Overall Test Results				Pass	


Laboratory Technician

September 29, 1999
Test Date


Approved By

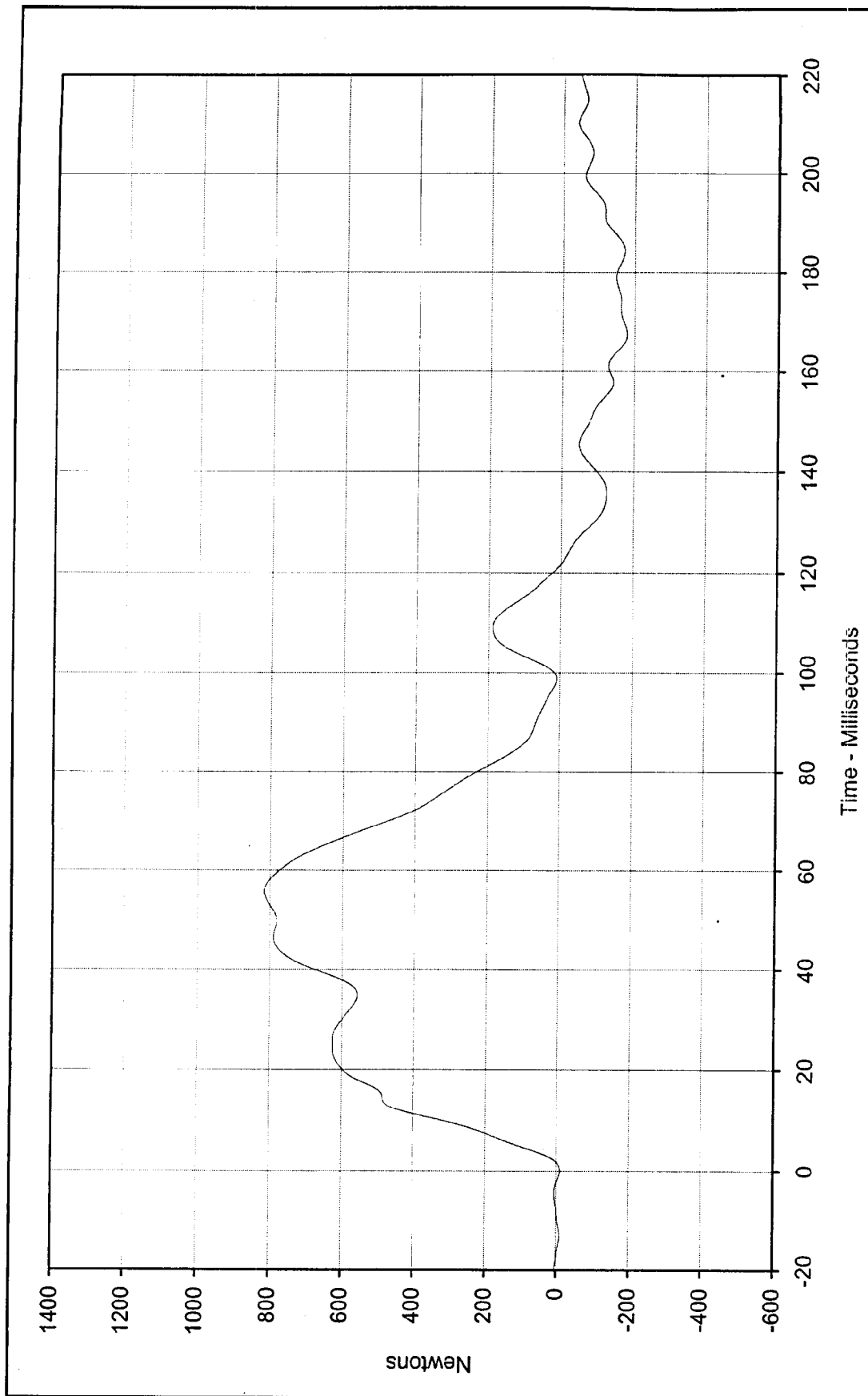
9/30/99
Date



Curve Description: Hybrid III Neck Flexion Test (Male)
 Testing Program: S/N of Part: n/a Test I.D.: NF09A

Pendulum Deceleration
 Maximum Value: 23.3 at 3.6 Milliseconds
 Minimum Value: -3.2 at 88.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 9/29/99
 ATD Serial No.: 034

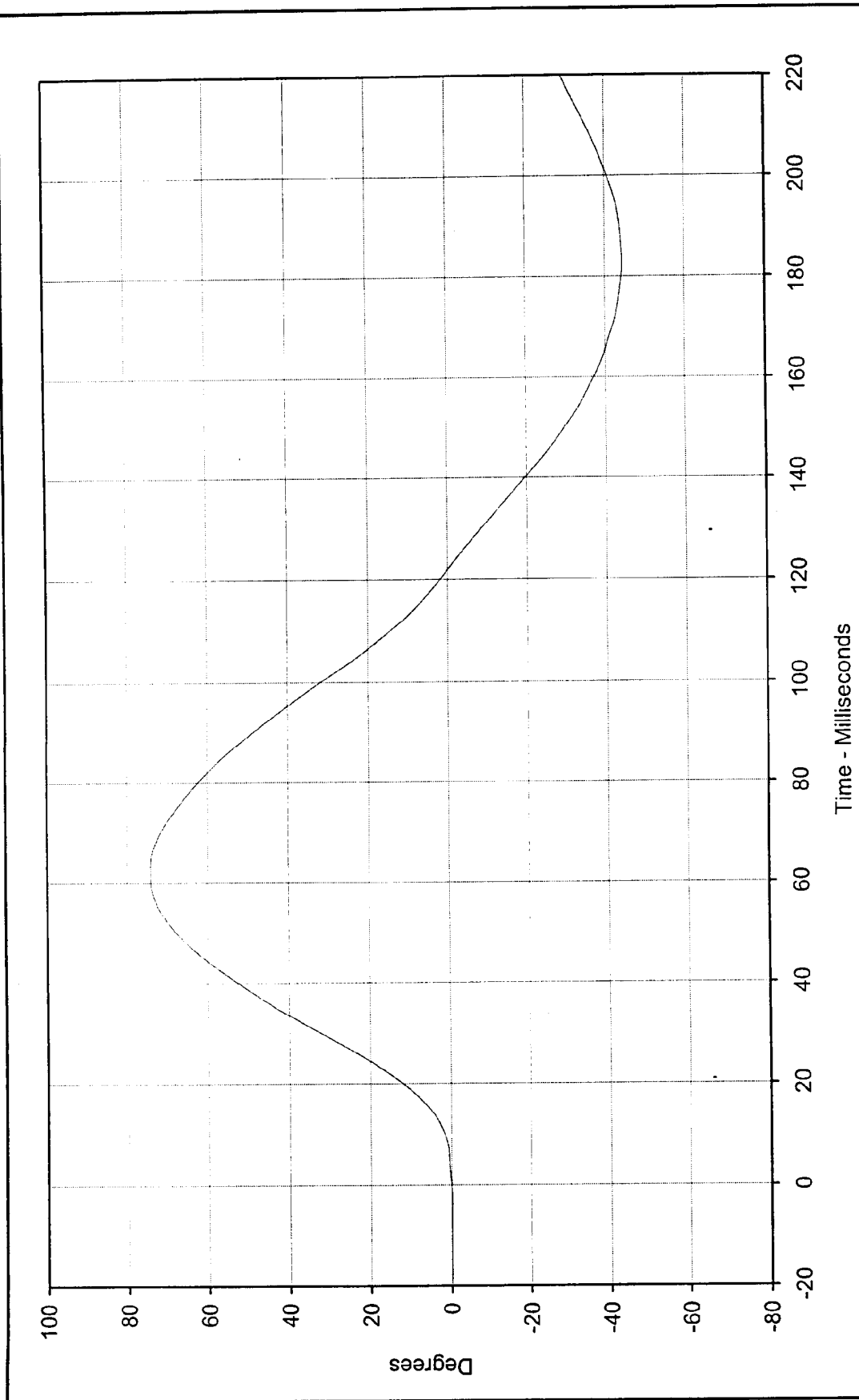




Curve Description: Neck Force X
 Maximum Value: 816.3 at 55.8 Milliseconds
 Minimum Value: -178.8 at 167.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 9/29/99
 ATD Serial No.: 034

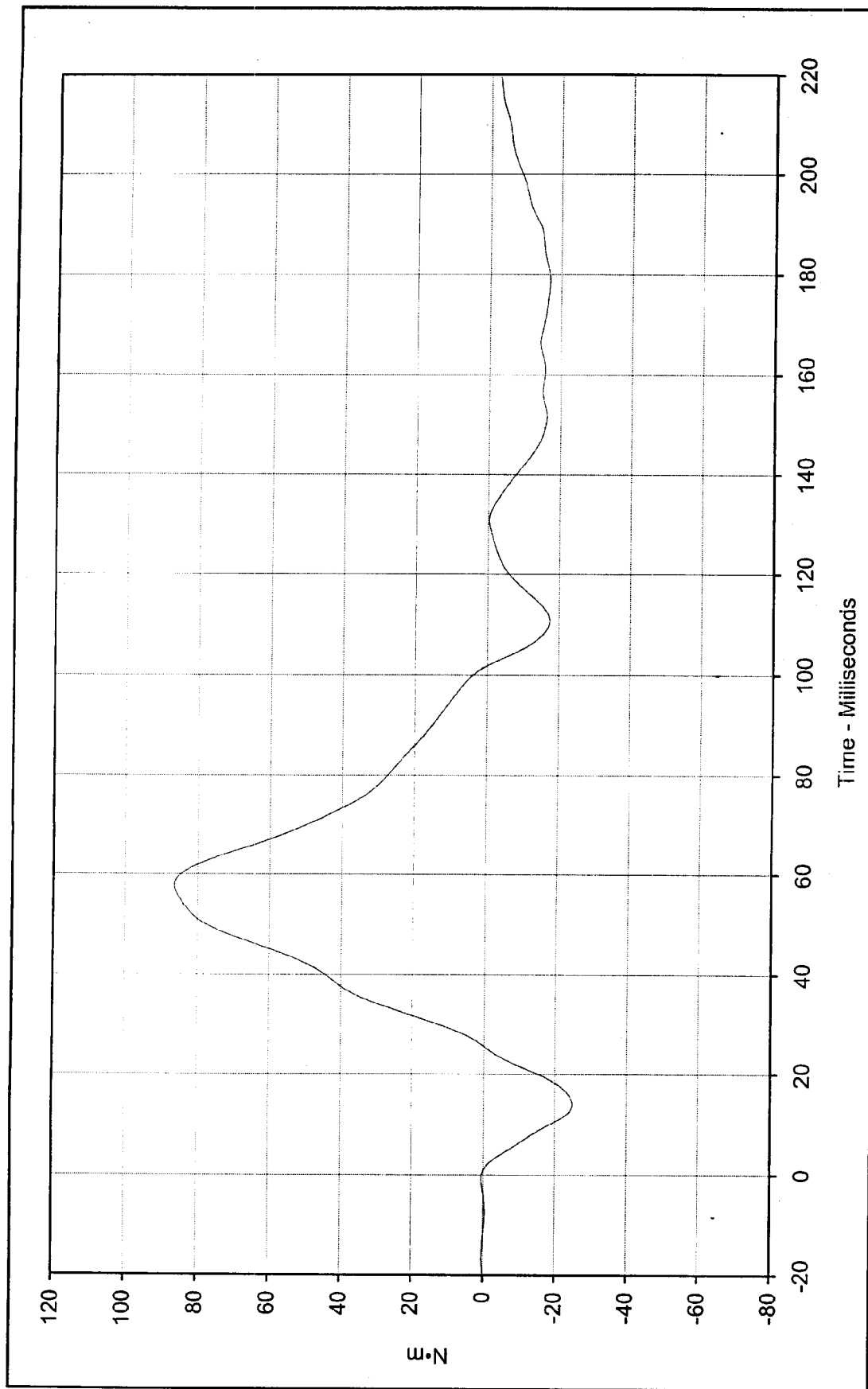
Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF09A





Curve Description: Hybrid III Neck Flexion Test (Male)
 Maximum Value: 74.2 at 61.9 Milliseconds
 Minimum Value: -44.4 at 182.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 9/29/99
 ATD Serial No.: 034





Curve Description: Moment About Occipital Condyles
 Maximum Value: 86.4 at 57.8 Milliseconds
 Minimum Value: -24.9 at 14.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 9/29/99
 ATD Serial No.: 034

Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF09A





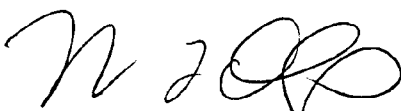
Hybrid III Calibration Data Sheet

50TH Percentile Male

Neck Extension Test

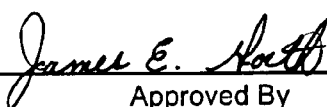
ATD Serial No.: 034Part Serial No.: n/aTest I.D.: NE09A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.13	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	20.1	Pass
	20 Msec.	G's	14.0 to 19.0	18.4	Pass
	30 Msec.	G's	11.0 to 16.0	15.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	45.4	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	96.4	Pass
	Time	Msec.	72.0 to 82.0	73.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	155.0	Pass
Moment About Occipital Condyle	Maximum	N • m	-52.9 to- 79.9	-70.9	Pass
	Time	Msec.	65.0 to 79.0	67.7	Pass
Negative Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	141.3	Pass
Overall Test Results					Pass


Laboratory Technician

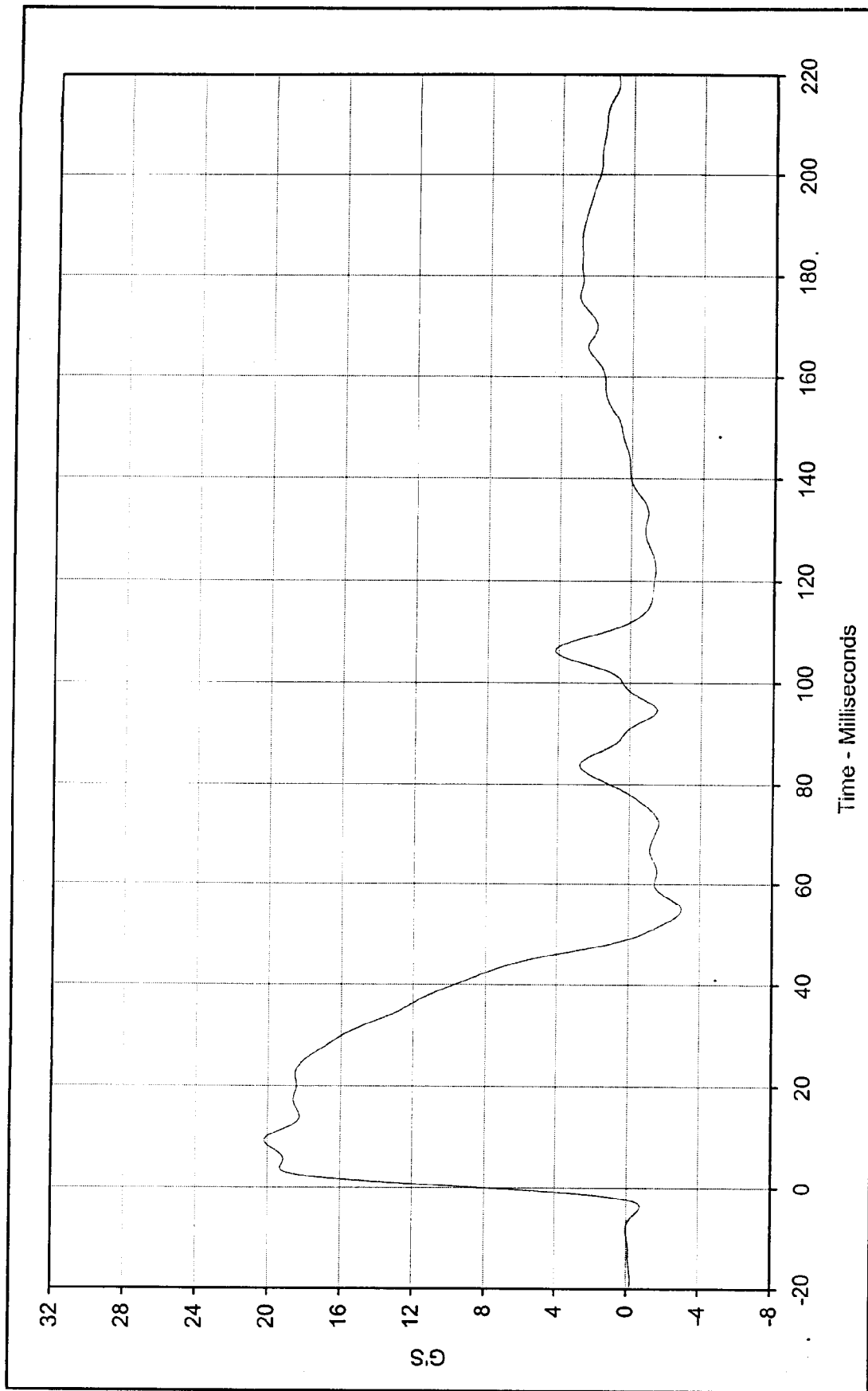
September 28, 1999

Test Date


Approved By

9/29/99

Date



Curve Description: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: n/a Test I.D.: NE09A

Pendulum Deceleration

Maximum Value: 20.2 at 9.3 Milliseconds

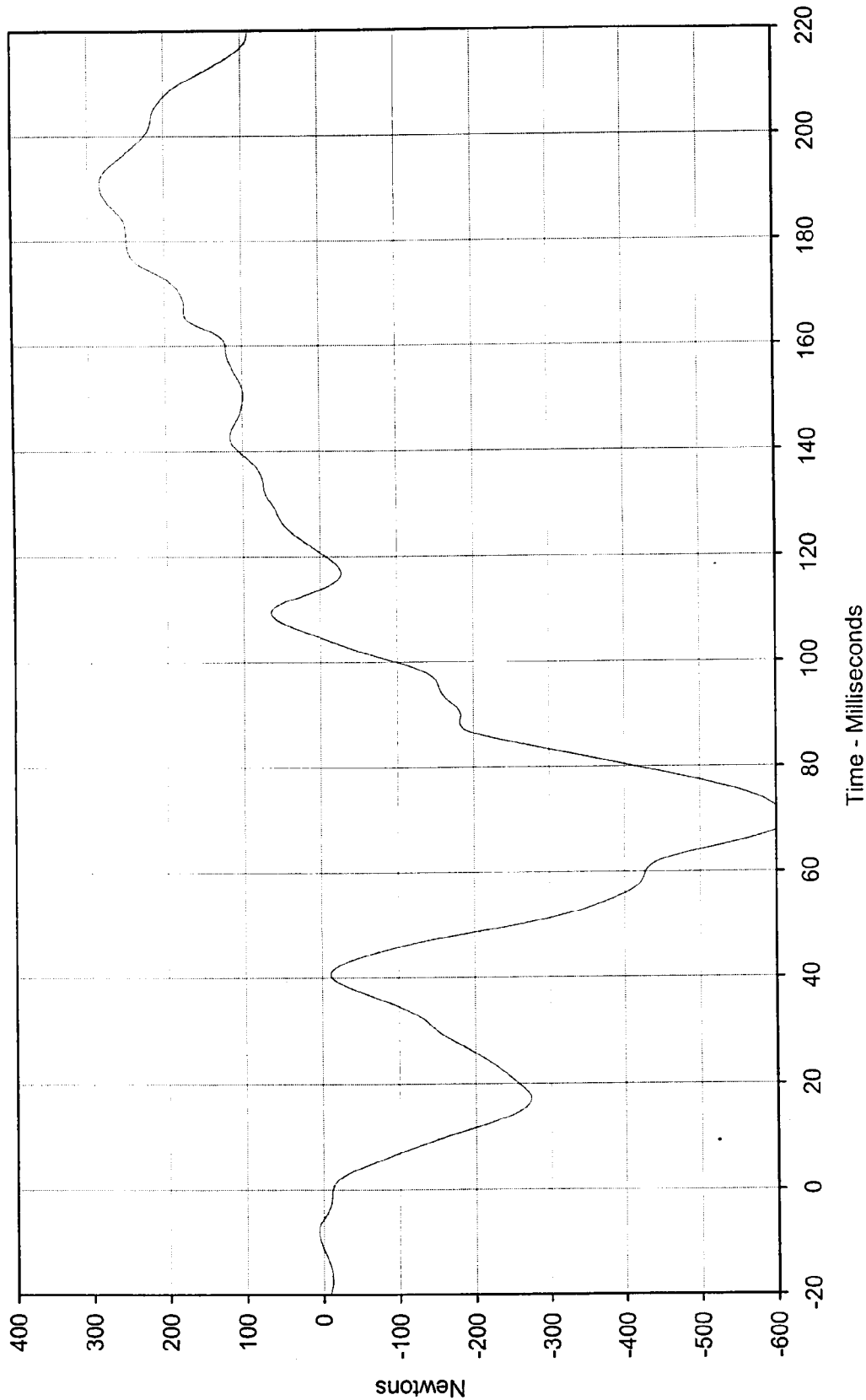
Minimum Value: -3.0 at 54.8 Milliseconds

SAE Filter Class: 60

Date of Test: 9/28/99

ATD Serial No.: 034





Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: n/a Test I.D.: NE09A

Curve Description: Neck Force X

Maximum Value: 283.6 at 190.9 Milliseconds

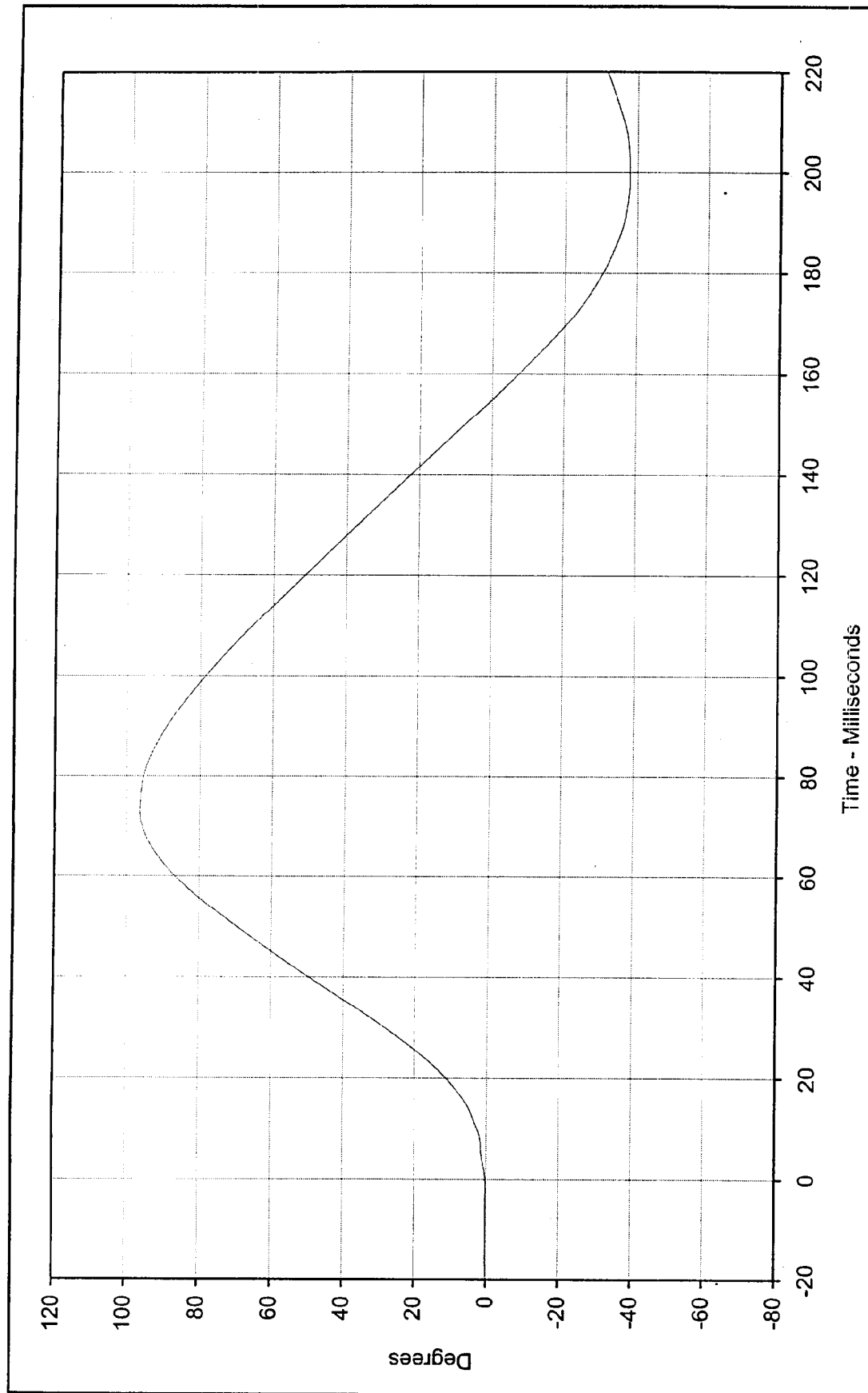
Minimum Value: -614.7 at 69.8 Milliseconds

SAE Filter Class: 60

Date of Test: 9/28/99

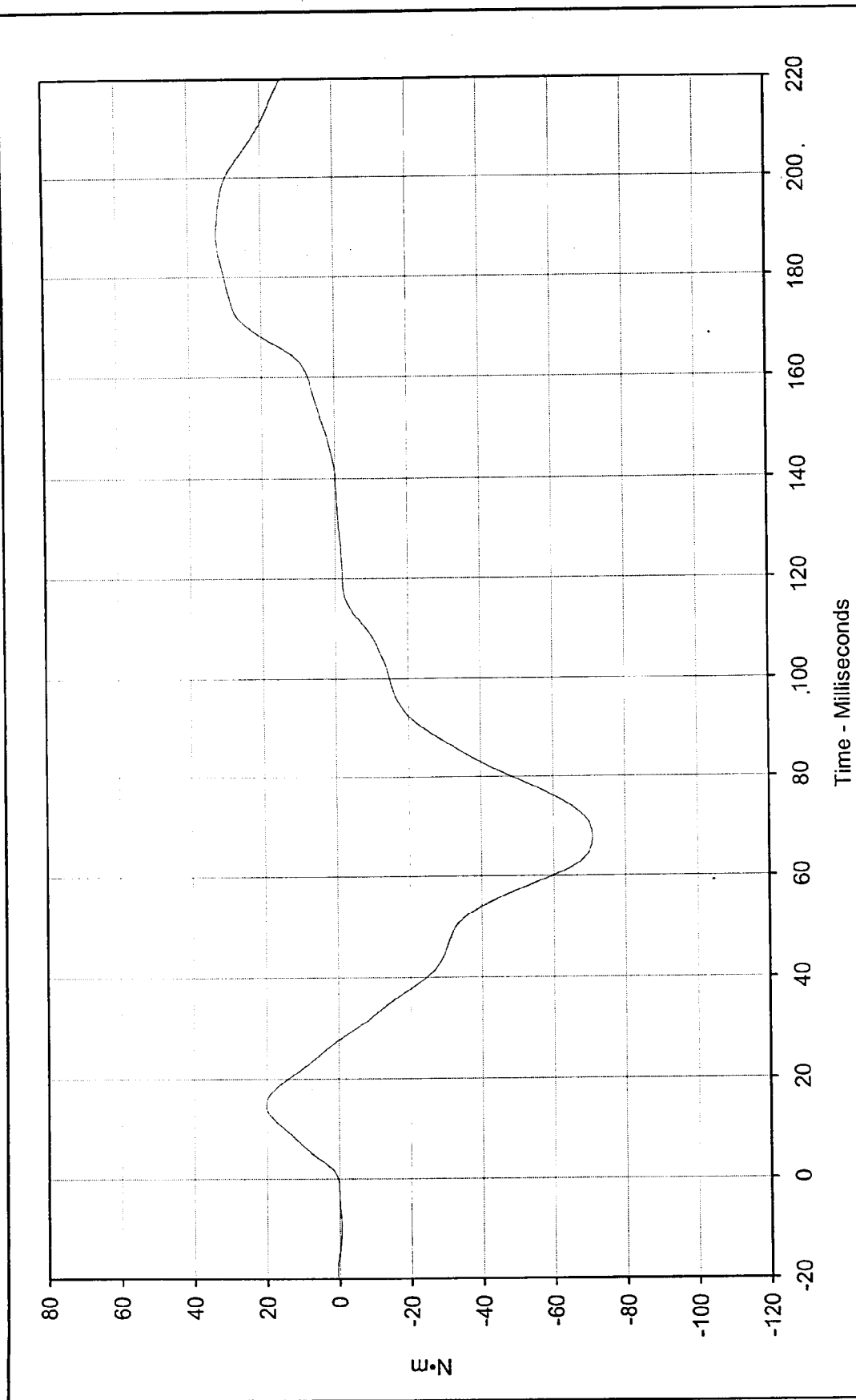
ATD Serial No.: 034





Curve Description:	"D" Plane Rotation		Testing Program	Hybrid III Neck Extension Test (Male)
Maximum Value:	96.4	at 73.4	Test Information:	S/N of Part: n/a Test I.D.: NE09A
Minimum Value:	-37.8	at 198.9		
SAE Filter Class:	60			
Date of Test:	9/28/99			
ATD Serial No.:	034			





Testing Program: Hybrid III Neck Extension Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NE09A

Curve Description: Moment About Occipital Condyles
 Maximum Value: 32.3 at 32.3 Milliseconds
 Minimum Value: -70.9 at 188.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 9/28/99
 ATD Serial No.: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male

External Measurements

ATD Serial No.: 034Part Serial No.: N/ATest 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	43	Pass
A - Total sitting height	mm	878.8 to 889.0	880.0	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	515.0	Pass
C - "H" point height	mm	83.8 to 88.9	87.1	Pass
D - "H" point from seat back	mm	134.6 to 139.7	137.0	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	92.0	Pass
F - Thigh clearance	mm	139.7 to 154.9	153.0	Pass
G - Elbow back to wrist pivot	mm	289.6 to 304.8	300.5	Pass
H - Skull cap to back line	mm	40.6 to 45.7	44.0	Pass
I - Shoulder to elbow length	mm	330.2 to 345.4	335.0	Pass
J - Elbow rest height	mm	190.5 to 210.8	208.0	Pass
K - Buttock to knee length	mm	579.1 to 604.5	603.1	Pass
L - Popliteal length	mm	429.3 to 454.7	451.0	Pass
M - Knee pivot height	mm	485.1 to 500.4	490.0	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	476.0	Pass
O - Chest depth	mm	213.4 to 228.6	225.0	Pass
P - Foot length	mm	251.5 to 266.7	255.0	Pass
V - Shoulder breadth	mm	421.6 to 436.9	430.0	Pass
W - Foot breadth	mm	91.4 to 106.7	103.2	Pass
Y - Chest circumference	mm	970.3 to 1000.8	980.3	Pass
Z - Waist circumference	mm	835.7 to 866.1	851.0	Pass
AA - Location for chest circumference	mm	429.3 to 434.3	430.0	Pass
BB - Location for waist circumference	mm	226.1 to 231.1	229.0	Pass
Overall Test Results				Pass

Laboratory Technician

Approved By

October 9, 1999

Test Date

10/10/99

Date



Hybrid III Calibration Data Sheet

50TH Percentile Male

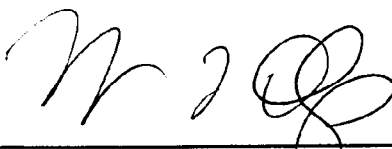
Left Knee Impact Test

ATD Serial No.: 035

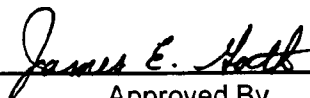
Part Serial No.: n/a

Test I.D.: LK09C

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	2.094	Pass
Peak Probe Force	Newtons	4715 to 5782	5523.6	Pass
Overall Test Results				Pass



Laboratory Technician



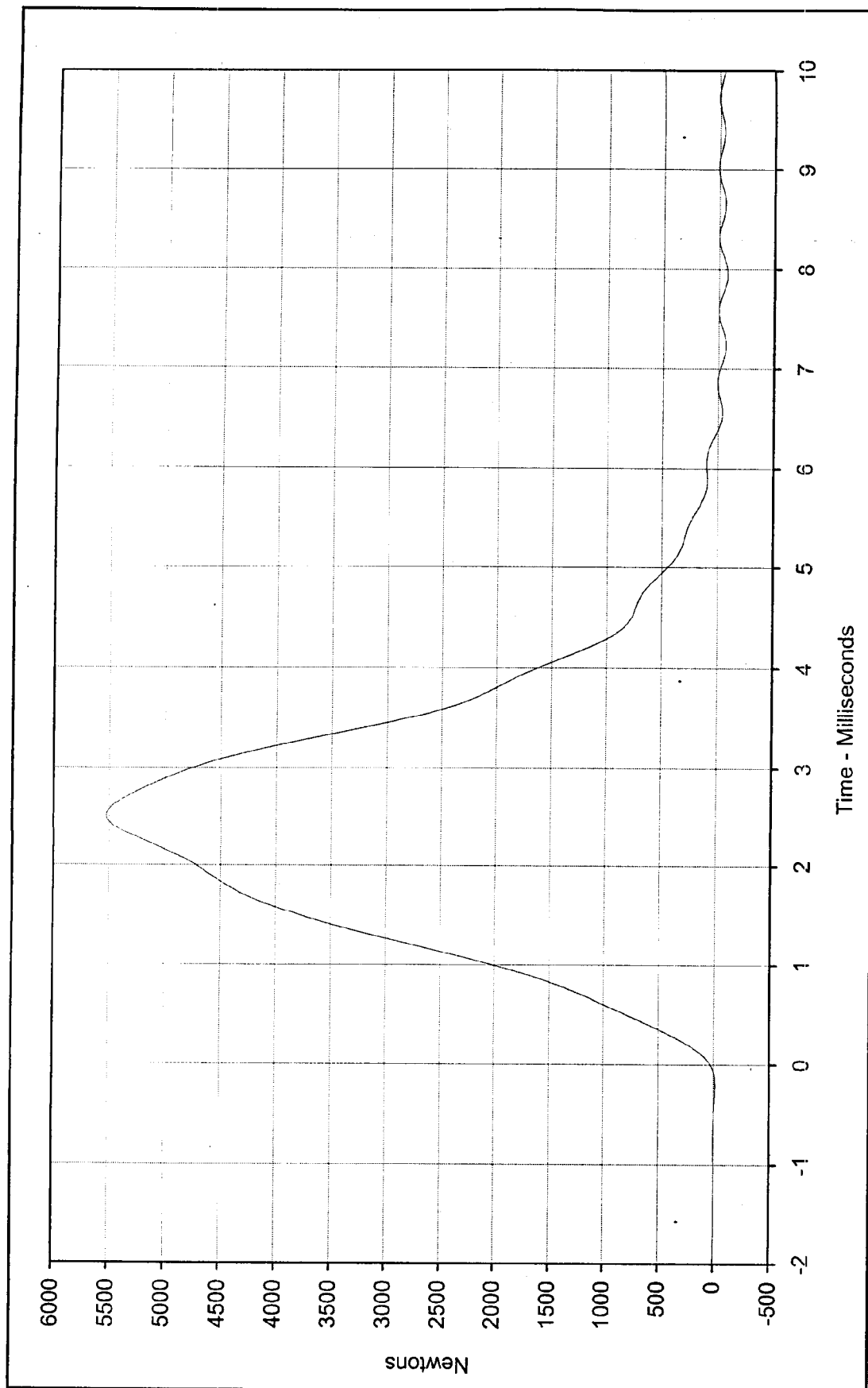
Approved By

September 28, 1999

Test Date

9/29/99

Date



Curve Description: Hybrid III Left Knee Impact Test
Testing Program: Part S/N: n/a Test I.D.: LK09C

Maximum Value: 5523.6 at 2.5 Milliseconds
Minimum Value: -75.9 at 7.9 Milliseconds
SAE Filter Class: 600
Date of Test: 9/28/99
ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male

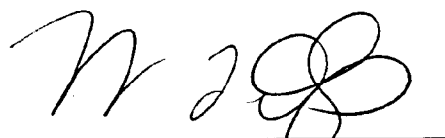
Right Knee Impact Test

ATD Serial No.: 035

Part Serial No.: n/a

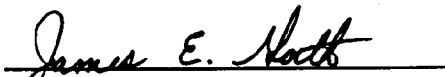
Test I.D.: LK09E

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	2.091	Pass
Peak Probe Force	Newtons	4715 to 5782	4966.7	Pass
Overall Test Results				Pass


Laboratory Technician

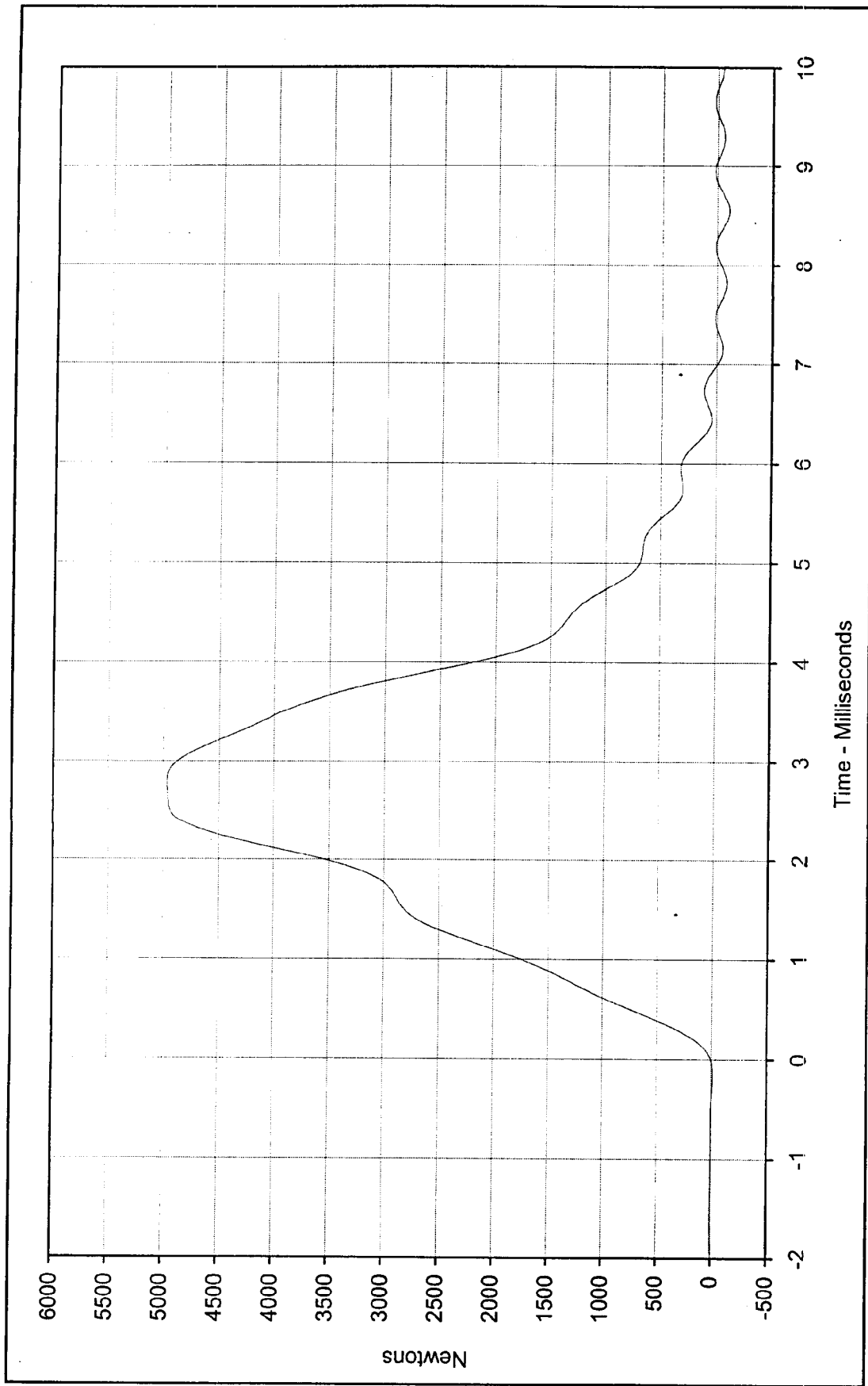
September 28, 1999

Test Date


Approved By

9/29/99

Date



Testing Program: Hybrid III Right Knee Impact Test
 Test Information: Part S/N: n/a Test I.D.: LK09E



Curve Description: Probe Force
 Maximum Value: 4966.7 at 2.8 Milliseconds
 Minimum Value: -85.5 at 7.8 Milliseconds
 SAE Filter Class: 600
 Date of Test: 9/28/99
 ATD Serial No.: 035



Hybrid III Calibration Data Sheet

50TH Percentile Male

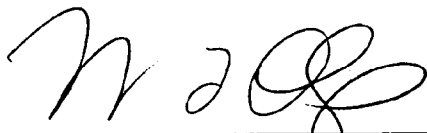
Head Drop Calibration

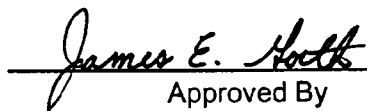
ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: HD09C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	263.7	Pass
Peak Lateral Acceleration	G's	≤15.0	5.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

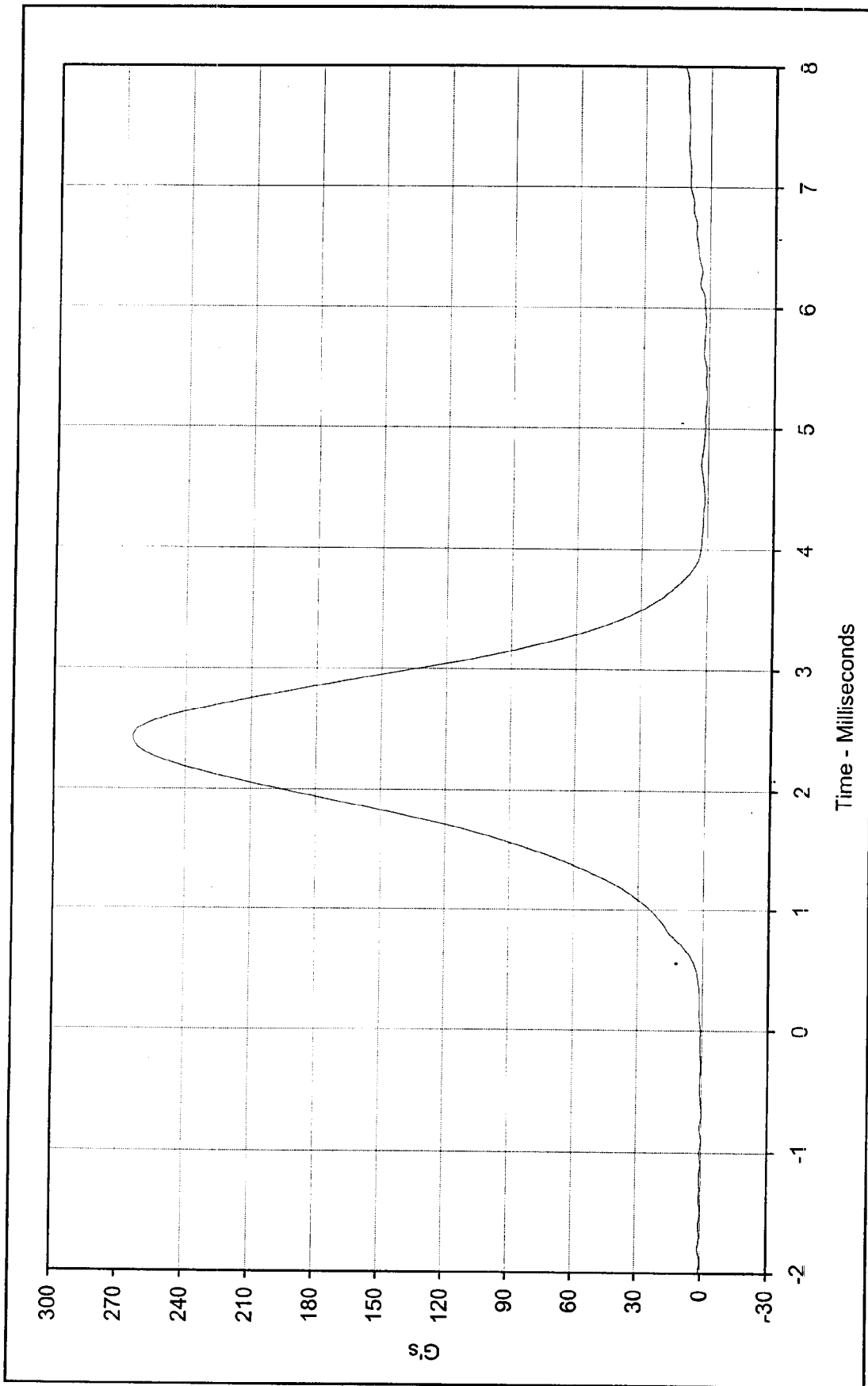

Approved By

October 1, 1999

Test Date

10/2/99

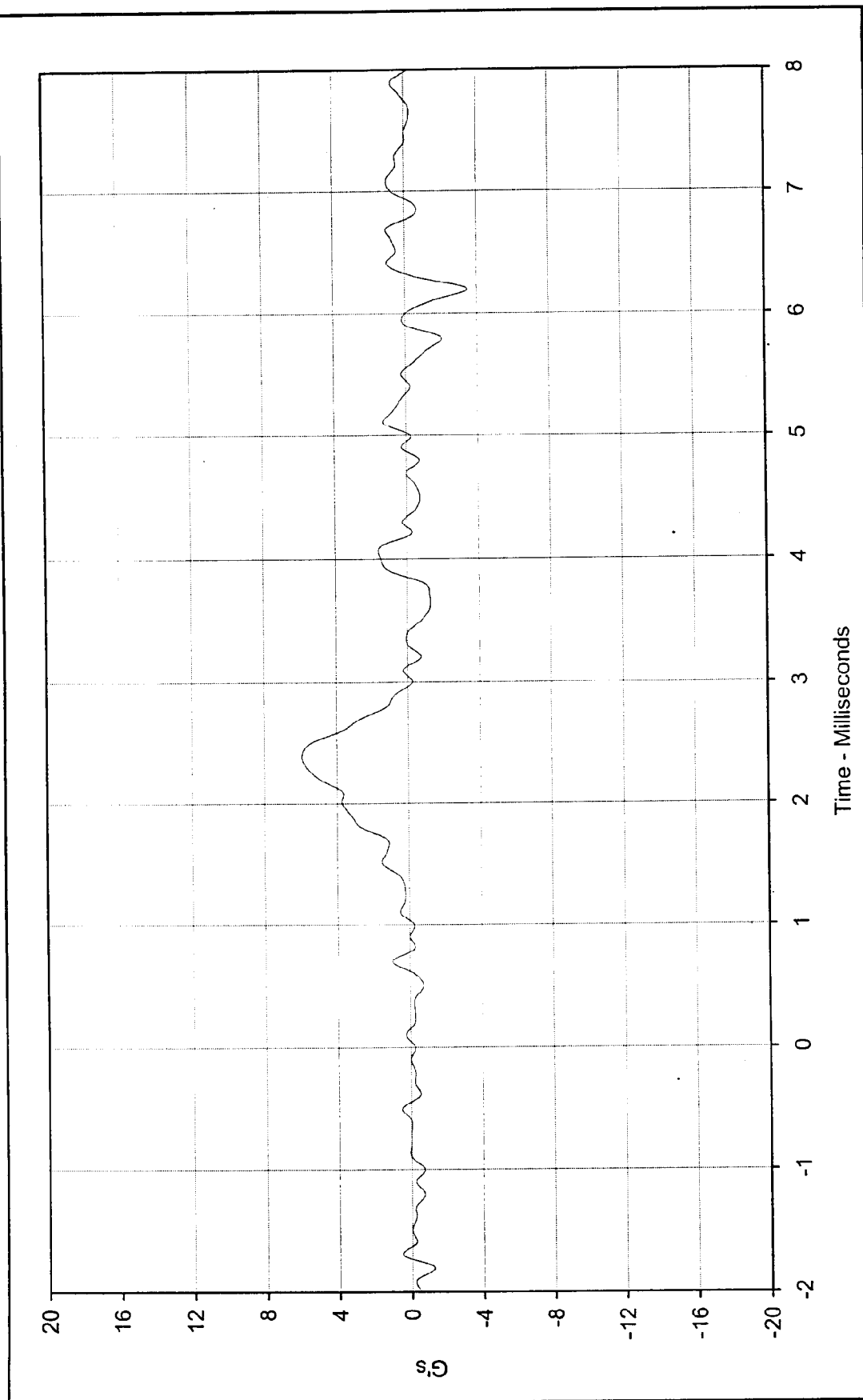
Date



Curve Description: Head Resultant Acceleration
 Maximum Value: 263.7 at 2.4 Milliseconds
 Minimum Value: 0.0 at -0.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 10/1/99
 ATD Serial No.: 035

Testing Program Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: HD09C

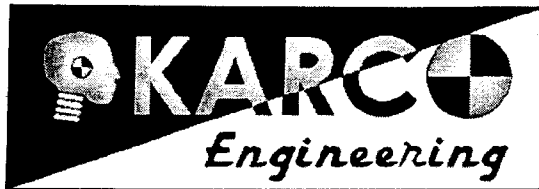




Testing Program: Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: HD09C

Curve Description: Head Acceleration Y Axis
 Maximum Value: 5.9 at 2.4 Milliseconds
 Minimum Value: -3.5 at 6.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 10/1/99
 ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male

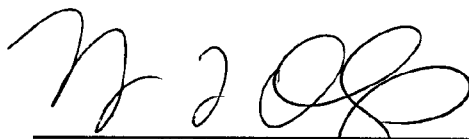
Thorax Impact Test

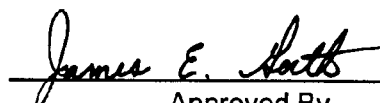
ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: CH10B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Probe Velocity	m/s	6.58 to 6.82	6.80	Pass
Peak Probe Force	Newtons	5159 to 5893	5515	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.61	Pass
Internal Hysteresis	%	69 to 85	74.6	Pass
Overall Test Results				Pass


Laboratory Technician

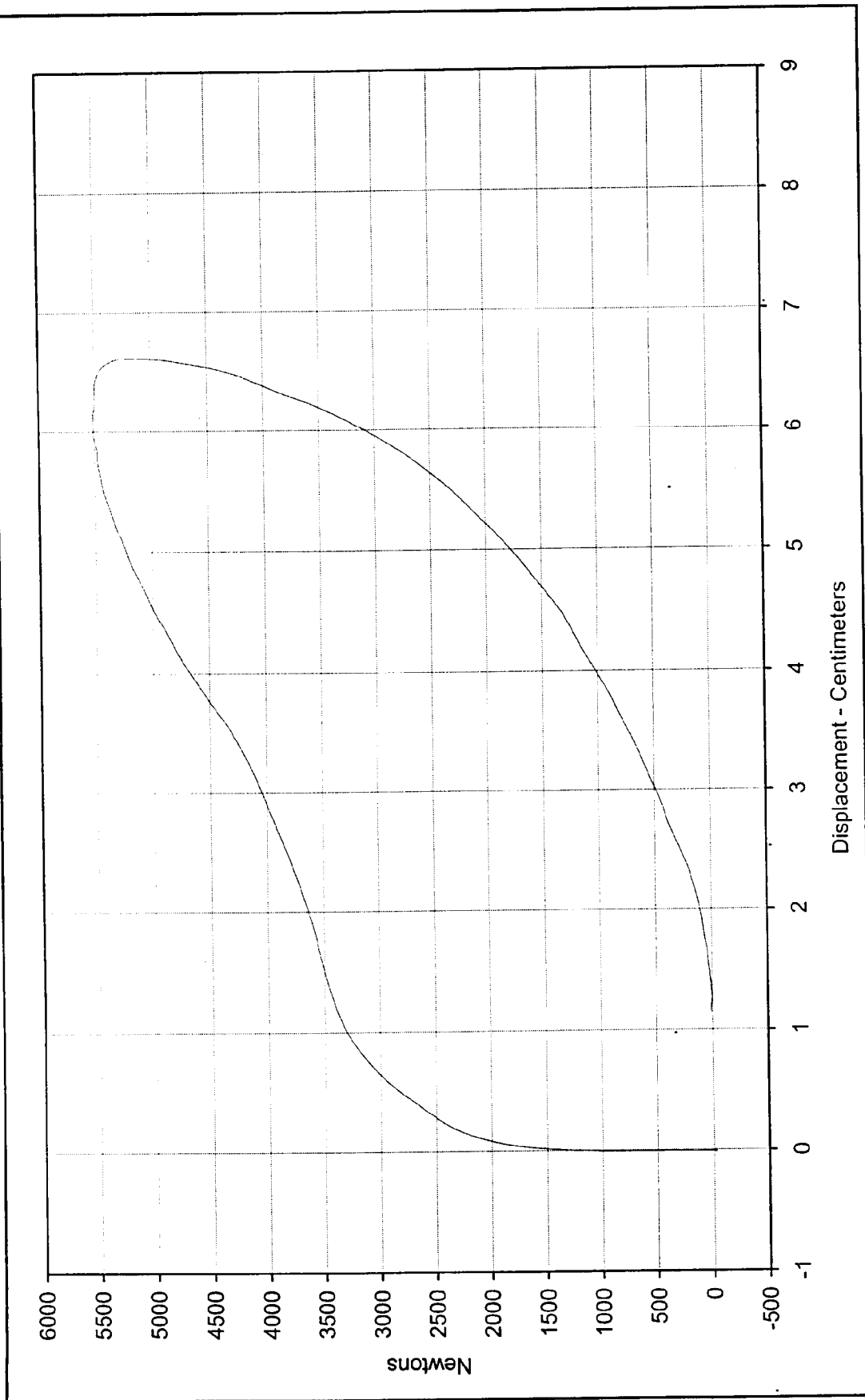

Approved By

October 6, 1999

Test Date

10/7/99

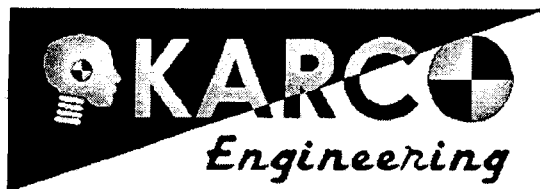
Date



Curve Description: Probe Force vs. Chest Displacement
 Testing Program: Hybrid III Thorax Impact Test
 Test Information: S/N of Part: N/A Test I.D.: CH10B

Probe Force: 5515.2 Newtons
 Chest Displ.: 6.61 Centimeters
 SAE Filter Class: 180
 Date of Test: 10/6/99
 ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male

Neck Flexion Test

ATD Serial No.: 035Part Serial No.: n/aTest I.D.: NF09B

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity		%	10 to 70	40	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	22.7	Pass
	20 Msec.	G's	17.6 to 22.6	21.3	Pass
	30 Msec.	G's	12.5 to 18.5	18.5	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	18.5	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	40.8	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	66.8	Pass
	Time	Msec.	57.0 to 64.0	58.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	114.6	Pass
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	92.5	Pass
	Time	Msec.	47.0 to 58.0	53.0	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	98.8	Pass
Overall Test Results				Pass	

Laboratory Technician

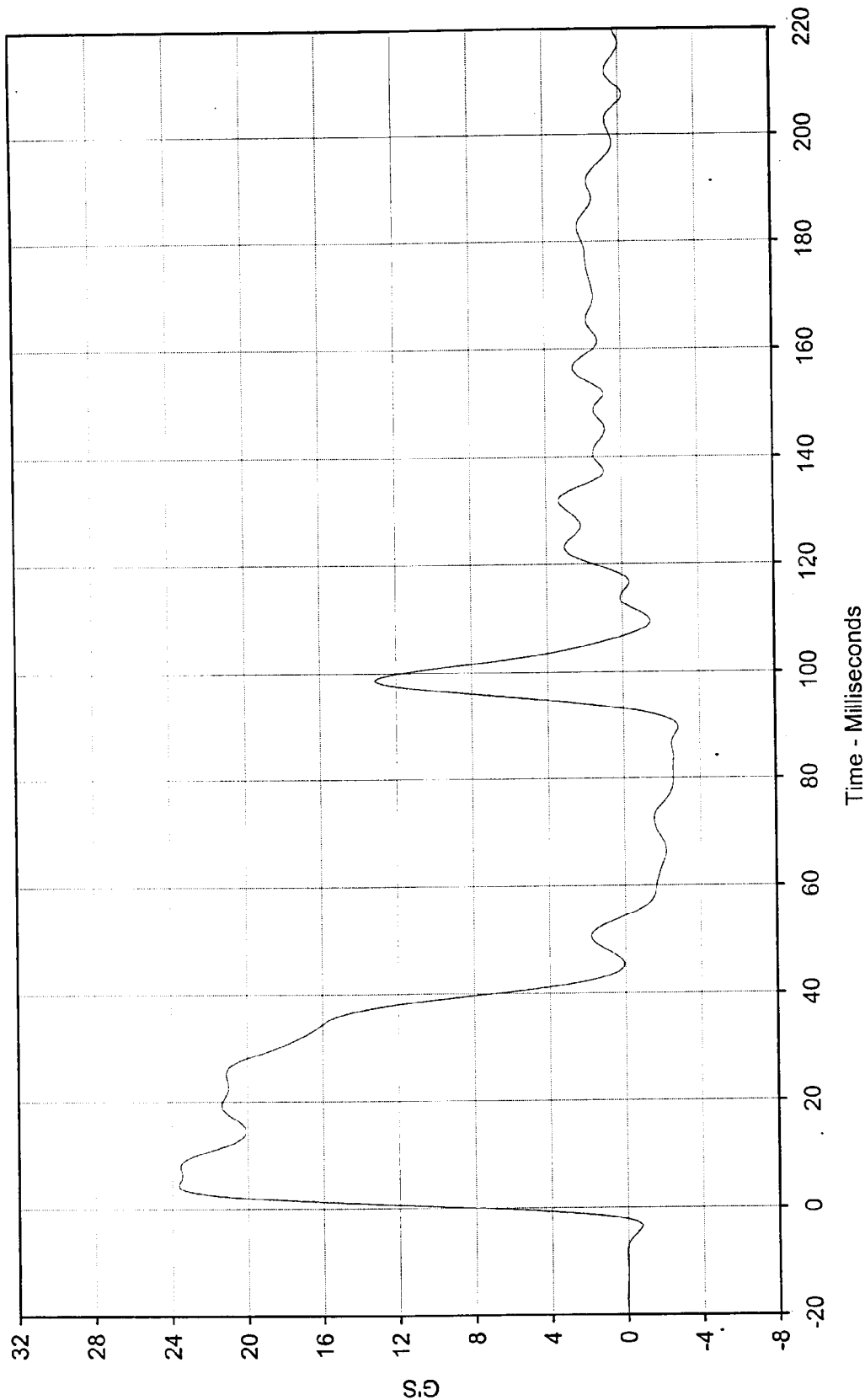
Approved By

October 1, 1999

Test Date

10/2/99

Date



Curve Description: Hybrid III Neck Flexion Test (Male)

Testing Program

Test Information: S/N of Part: n/a Test I.D.: NF09B

Pendulum Deceleration

Maximum Value: 23.6 at 4.3 Milliseconds

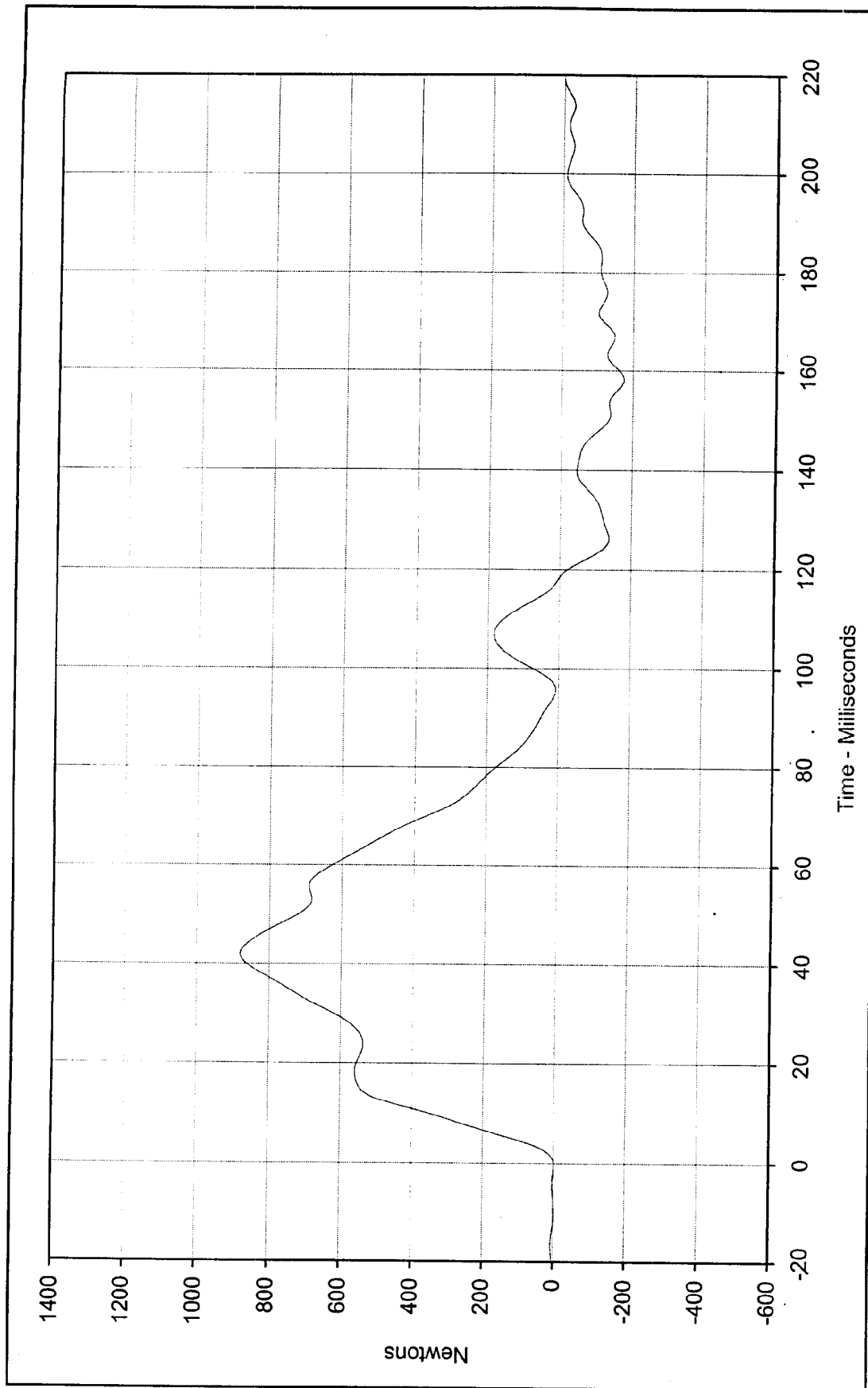
Minimum Value: -2.9 at 89.5 Milliseconds

SAE Filter Class: 60

Date of Test: 10/1/99

ATD Serial No.: 035

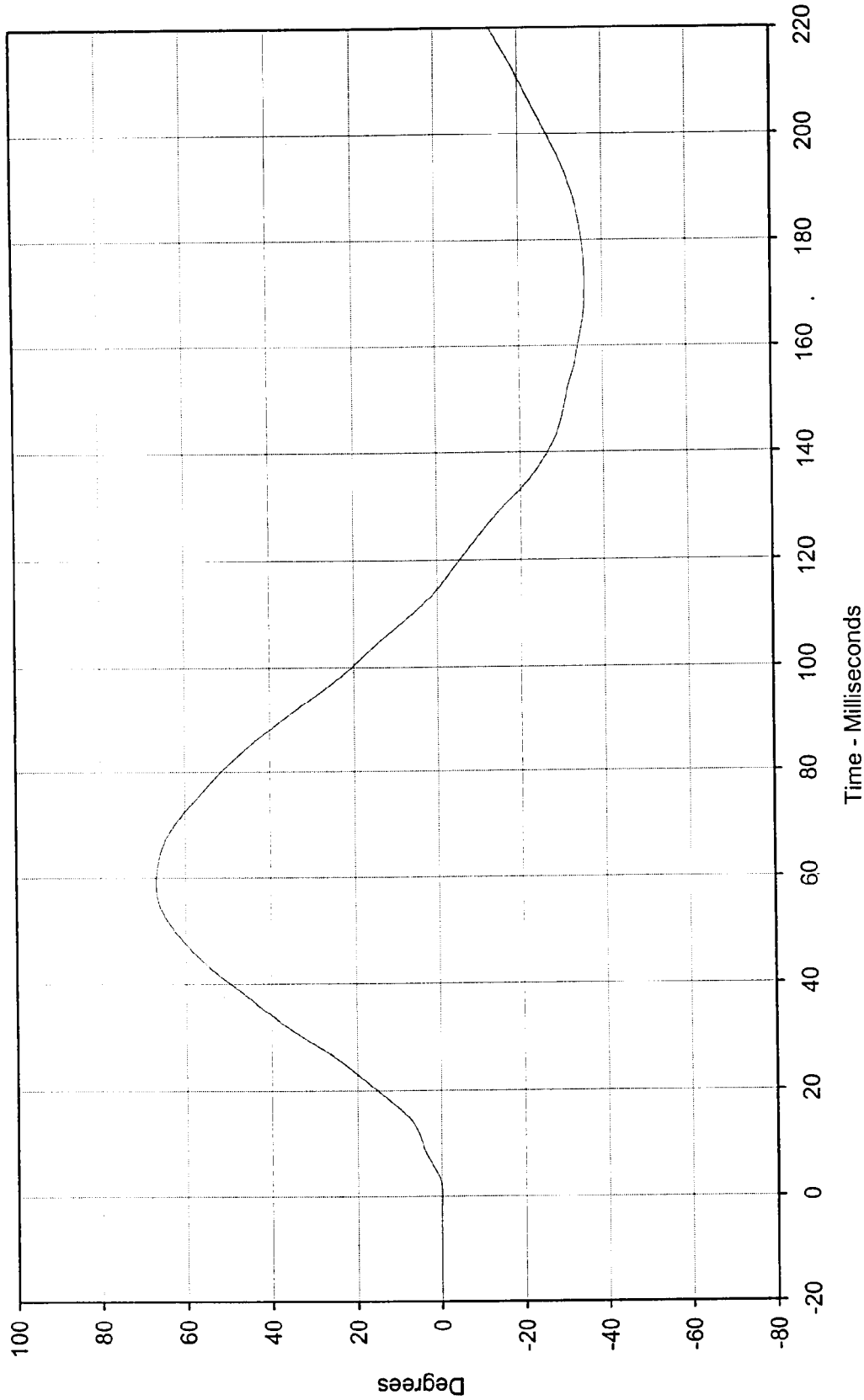




Curve Description: Neck Force X
 Maximum Value: 879.8 at 41.9 Milliseconds
 Minimum Value: -174.5 at 158.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 10/1/99
 ATD Serial No.: 035

Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF09B

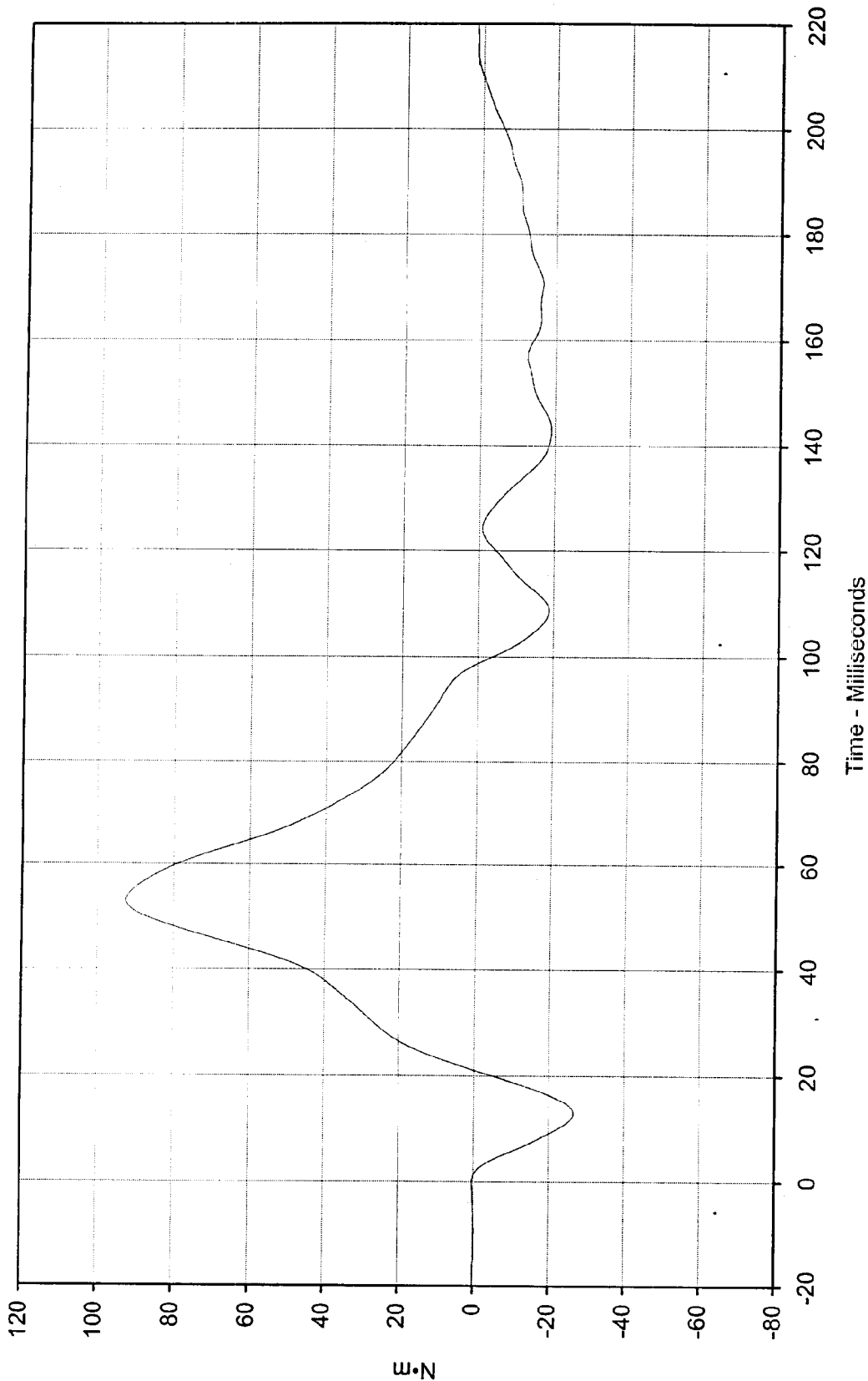




Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF09B

Curve Description: "D" Plane Rotation
 Maximum Value: 66.8 at 58.9 Milliseconds
 Minimum Value: -35.7 at 172.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 10/1/99
 ATD Serial No.: 035





Curve Description: Moment About Occipital Condyles
 Maximum Value: 92.5 at 53.0 Milliseconds
 Minimum Value: -26.5 at 13.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 10/1/99
 ATD Serial No.: 035

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: S/N of Part: n/a Test I.D.: NF09B





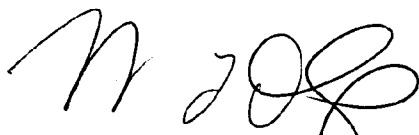
Hybrid III Calibration Data Sheet

50TH Percentile Male

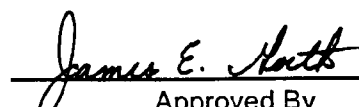
Neck Extension Test

ATD Serial No.: 035Part Serial No.: n/aTest I.D.: NE09B

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.10	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.5	Pass
	20 Msec.	G's	14.0 to 19.0	17.0	Pass
	30 Msec.	G's	11.0 to 16.0	13.0	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	13.0	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	45.1	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	89.8	Pass
	Time	Msec.	72.0 to 82.0	74.8	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	155.9	Pass
Moment About Occipital Condyle	Maximum	N • m	-52.9 to- 79.9	-69.2	Pass
	Time	Msec.	65.0 to 79.0	67.9	Pass
Negative Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	136.3	Pass
Overall Test Results					Pass



Laboratory Technician



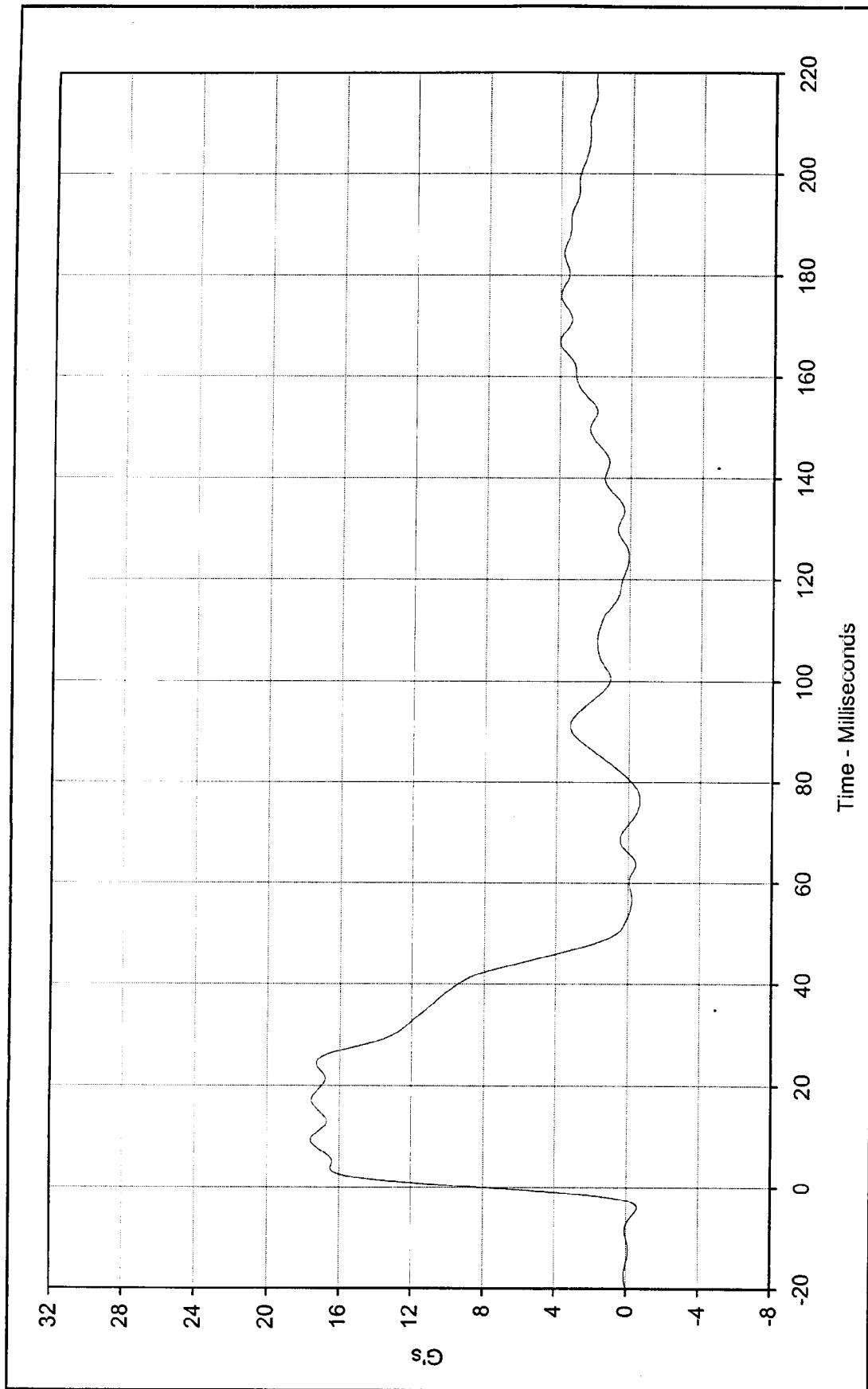
Approved By

October 1, 1999

Test Date

10/2/99

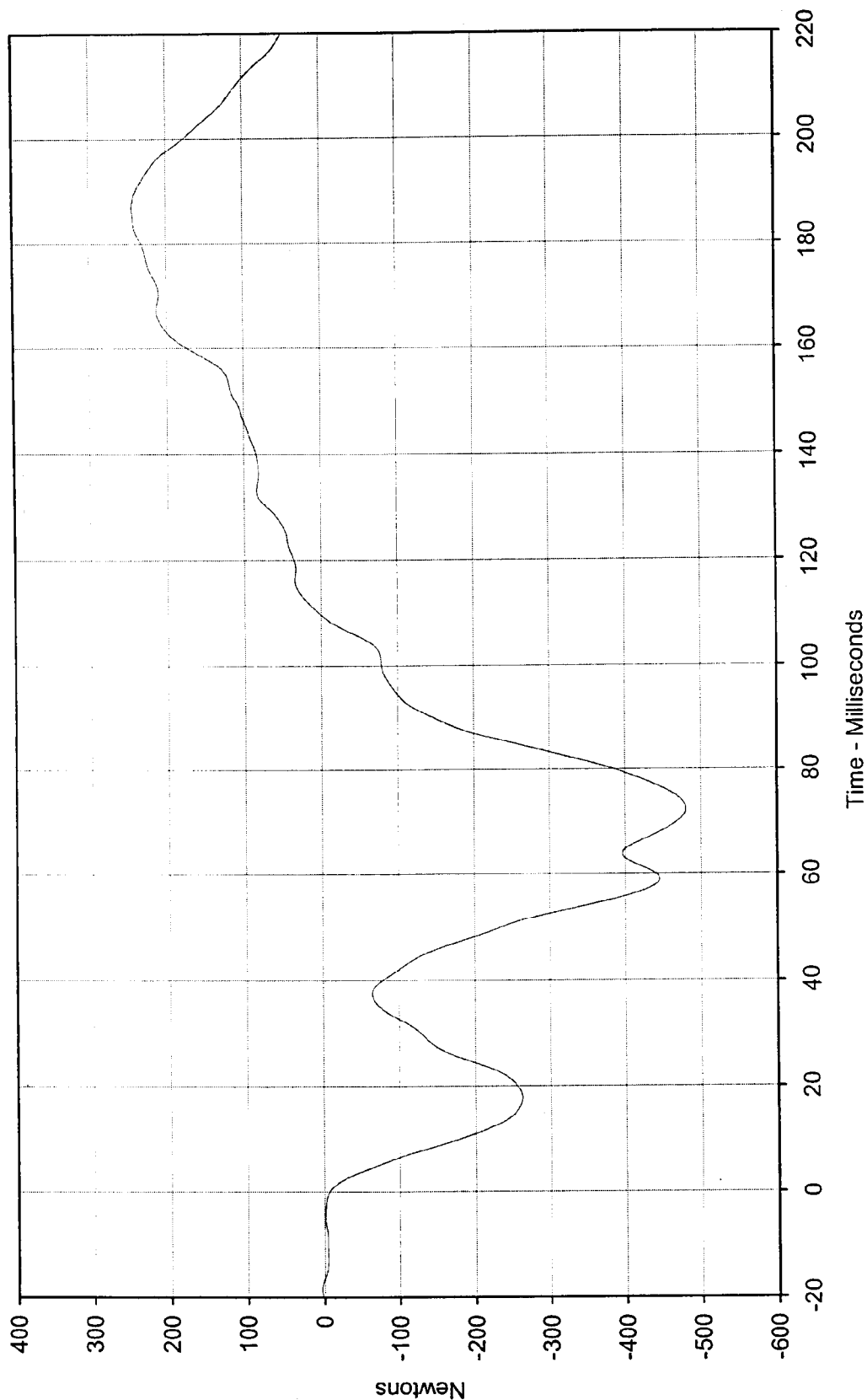
Date



Testing Program: Hybrid III Neck Extension Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NE09B

Curve Description: Pendulum Deceleration
 Maximum Value: 17.6 at 9.3 Milliseconds
 Minimum Value: -0.6 at 76.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 10/1/99
 ATD Serial No.: 035





Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: n/a Test I.D.: NE09B

Curve Description: Neck Force X

Maximum Value: 243.8 at 187.0 Milliseconds

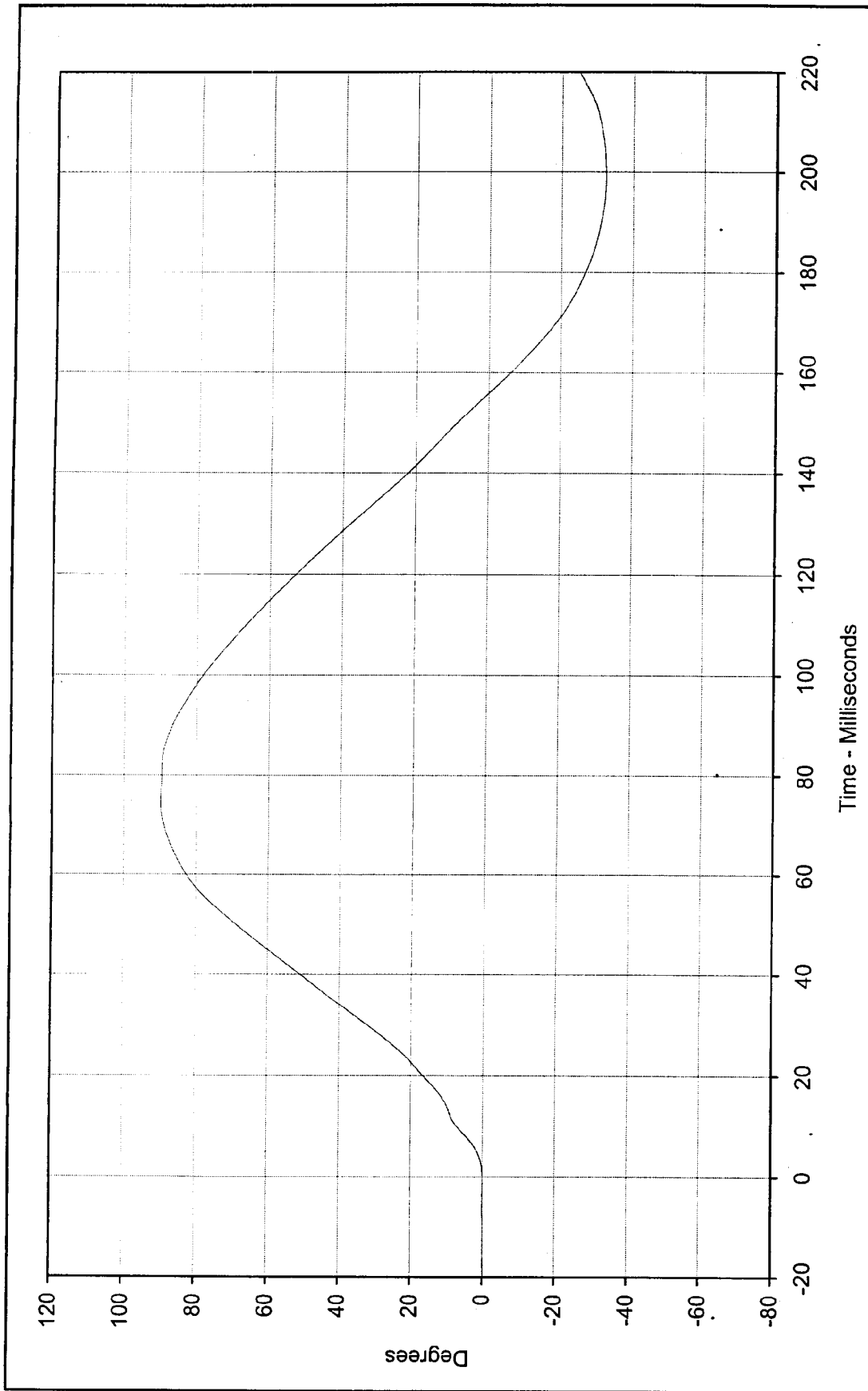
Minimum Value: -480.0 at 72.3 Milliseconds

SAE Filter Class: 60

Date of Test: 10/1/99

ATD Serial No.: 035

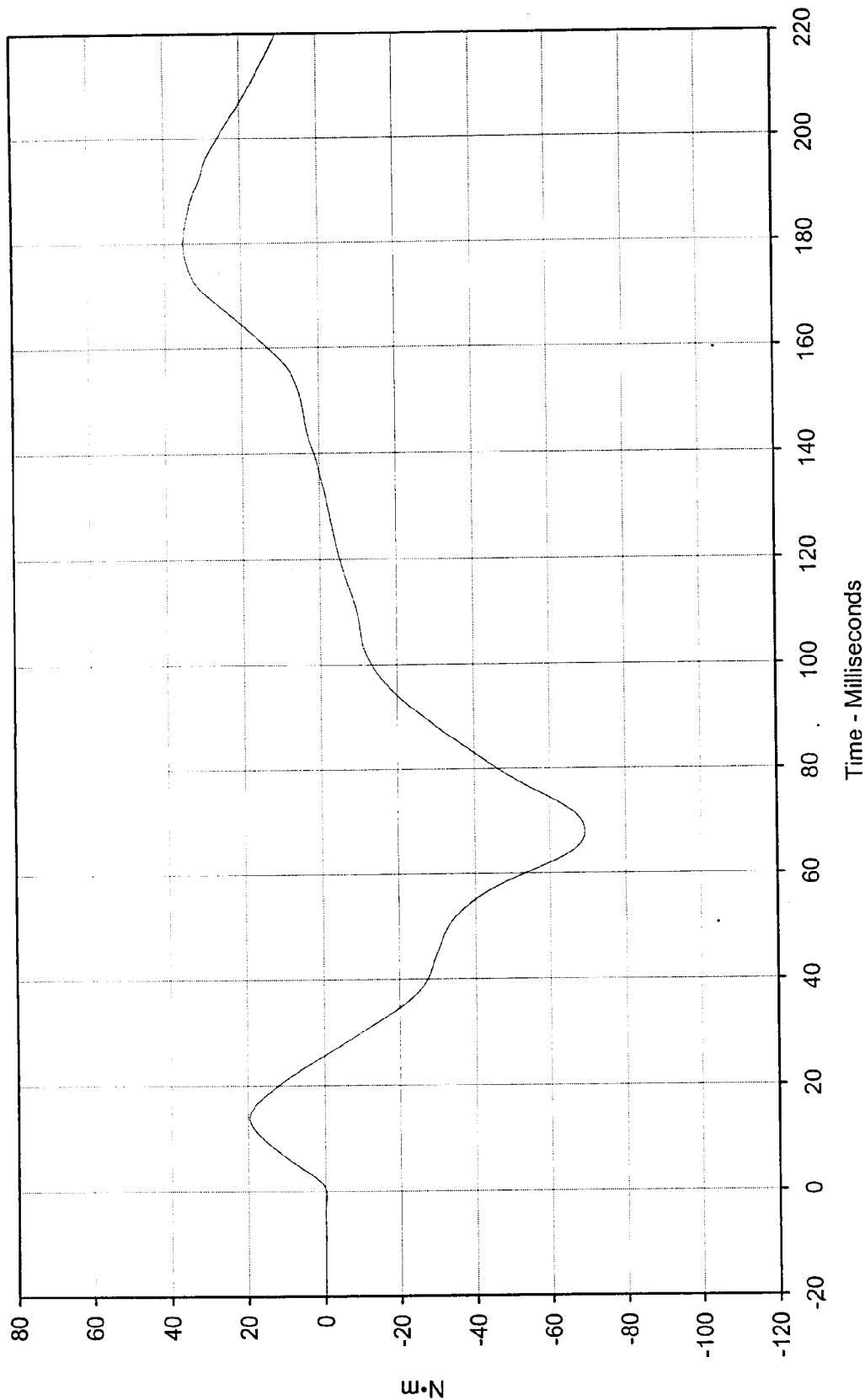




Curve Description: Hybrid III Neck Extension Test (Male)
 Testing Program: S/N of Part: n/a Test I.D.: NE09B
 Test Information:

"D" Plane Rotation
 Maximum Value: 89.8 at 74.8 Milliseconds
 Minimum Value: -32.3 at 199.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 10/1/99
 ATD Serial No.: 035





Curve Description: Moment About Occipital Condyles

Maximum Value: 35.0 at 180.0 Milliseconds

Minimum Value: -69.2 at 67.9 Milliseconds

SAE Filter Class: 60

Date of Test: 10/1/99

ATD Serial No.: 035

Testing Program: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: n/a Test I.D.: NE09B





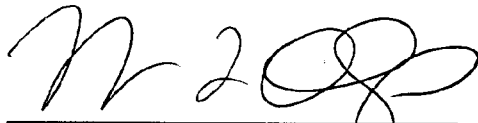
Hybrid III Calibration Data Sheet

50TH Percentile Male

External Measurements

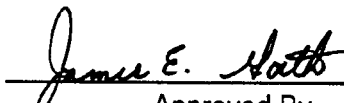
ATD Serial No.: 035Part Serial No.: N/ATest I.D.: N/A

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	43	Pass
A - Total sitting height	mm	878.8 to 889.0	888.1	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	506.0	Pass
C - "H" point height	mm	83.8 to 88.9	87.1	Pass
D - "H" point from seat back	mm	134.6 to 139.7	137.0	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	90.0	Pass
F - Thigh clearance	mm	139.7 to 154.9	153.0	Pass
G - Elbow back to wrist pivot	mm	289.6 to 304.8	300.4	Pass
H - Skull cap to back line	mm	40.6 to 45.7	44.0	Pass
I - Shoulder to elbow length	mm	330.2 to 345.4	335.0	Pass
J - Elbow rest height	mm	190.5 to 210.8	207.0	Pass
K - Buttock to knee length	mm	579.1 to 604.5	603.1	Pass
L - Popliteal length	mm	429.3 to 454.7	451.0	Pass
M - Knee pivot height	mm	485.1 to 500.4	500.0	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	476.0	Pass
O - Chest depth	mm	213.4 to 228.6	225.0	Pass
P - Foot length	mm	251.5 to 266.7	255.0	Pass
V - Shoulder breadth	mm	421.6 to 436.9	429.0	Pass
W - Foot breadth	mm	91.4 to 106.7	103.2	Pass
Y - Chest circumference	mm	970.3 to 1000.8	980.3	Pass
Z - Waist circumference	mm	835.7 to 866.1	865.0	Pass
AA - Location for chest circumference	mm	429.3 to 434.3	430.0	Pass
BB - Location for waist circumference	mm	226.1 to 231.1	229.0	Pass
Overall Test Results				Pass


Laboratory Technician

October 9, 1999

Test Date


Approved By

10/10/99

Date

APPENDIX F
VEHICLE OWNER'S MANUAL
OCCUPANT RESTRAINT INSTRUCTIONS

Front seats—

—Seat adjustment precautions

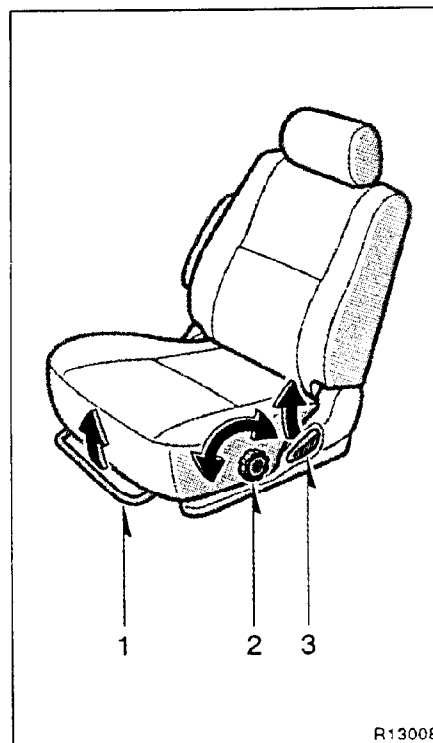
Adjust the driver's seat so that the foot pedals, steering wheel and instrument panel controls are within easy reach of the driver.

CAUTION

- Adjustments should not be made while the vehicle is moving, as the seat may unexpectedly move and cause the driver to lose control of the vehicle.
- When adjusting the seat, be careful not to hit the seat against a passenger or luggage.
- After adjusting the seat position, try sliding it forward and backward to make sure it is locked in position.
- After adjusting the seatback, exert body pressure to make sure it is locked in position.
- Do not put objects under the seats. The objects may interfere with the seat-lock mechanism or unexpectedly push up the seat position adjusting lever; the seat may suddenly move, causing the driver to lose control of the vehicle.

- While adjusting the seat, do not put your hands under the seat or near the moving parts. You may catch and injure your hands or fingers.

—Adjusting front seats (manual seat)

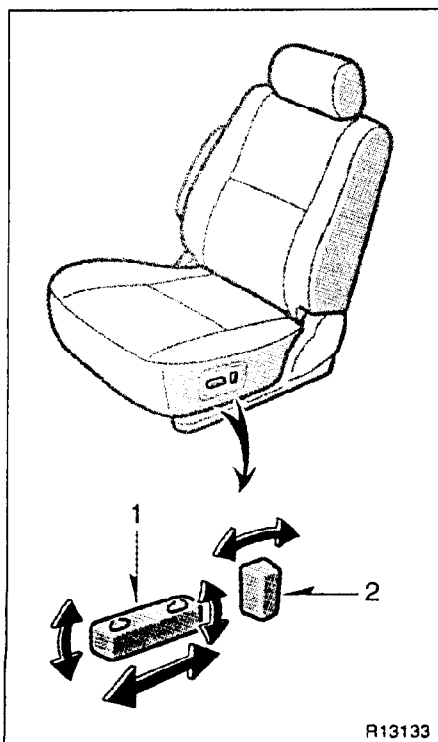


R13008

Separate and split bench seat

20

—Adjusting front seats (power seats)



R13133

1. SEAT POSITION AND SEAT CUSHION HEIGHT ADJUSTING SWITCH

Move the control switch in the desired direction.

Releasing the switch will stop the seat at that position.

Do not place anything under the front seats. It might interfere with the seat movement.

2. SEATBACK ANGLE ADJUSTING SWITCH

Move the control switch in the desired direction.

Releasing the switch will stop the seatback at that position.

CAUTION

To reduce the risk of sliding under the lap belt during a collision, avoid reclining the seatback any more than needed. The seat belts provide maximum protection in a frontal or rear collision when the driver and the passenger are sitting up straight and well back in the seats. If you are reclined, the lap belt may slide past your hips and apply restraint forces directly to the abdomen. Therefore, in the event of a frontal collision, the risk of personal injury may increase with increasing recline of the seatback.

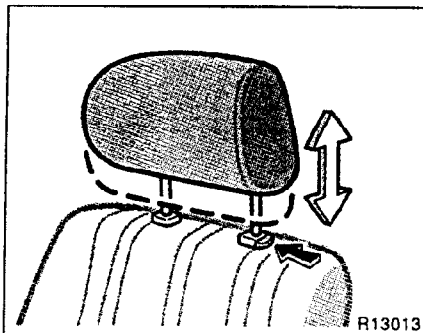
22

⚠ CAUTION

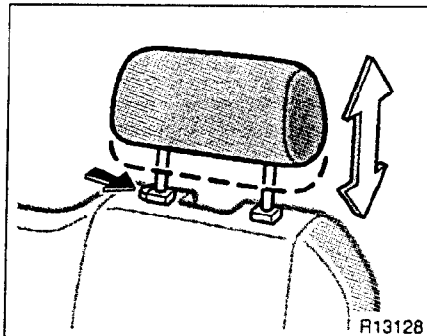
When returning the bottom cushion to its original position:

- Make sure the seat belts are not twisted or caught under the bottom cushion and are arranged in their proper position and are ready to use.
- Make sure the bottom cushion is securely locked by trying to pull up the edge of the bottom cushion. Failure to do so will prevent seat belt from operating properly.

Head restraints



Front



Rear

For your safety and comfort, adjust the head restraint before driving.

To raise: Pull it up.

To lower: Push it down while pressing the lock release button.

The head restraint is most effective when it is close to your head. Therefore, using a cushion on the seatback is not recommended.

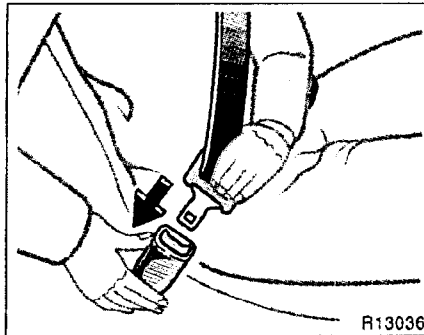
⚠ CAUTION

- Adjust the center of the head restraint so that it is closest to the top of your ears.
- After adjusting the head restraint, make sure it is locked in position.
- Do not drive with the head restraints removed.

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—Front outside seat belts and rear outside seat belts

- Keep the belts clean and dry. If they need cleaning, use a mild soap solution or lukewarm water. Never use bleach, dye, or abrasive cleaners—they may severely weaken the belts. (See "Cleaning the interior" in Part 5.)
- Replace the belt assembly (including bolts) if it has been used in a severe impact. The entire assembly should be replaced even if damage is not obvious.



Adjust the seat as needed (front seats only) and sit up straight and well back in the seat. To fasten your belt, pull it out of the retractor and insert the tab into the buckle.

You will hear a click when the tab locks into the buckle.

The seat belt length automatically adjusts to your size and the seat position.

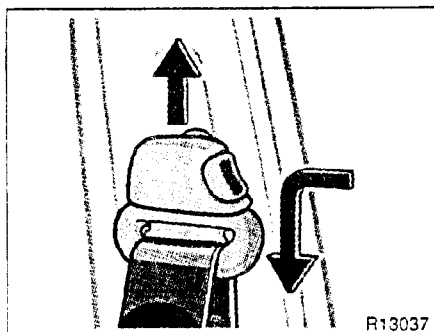
The retractor will lock the belt during a sudden stop or on impact. It also may lock if you lean forward too quickly. A slow, easy motion will allow the belt to extend, and you can move around freely.

If the seat belt cannot be pulled out of the retractor, firmly pull the belt and release it. You will then be able to smoothly pull the belt out of the retractor.

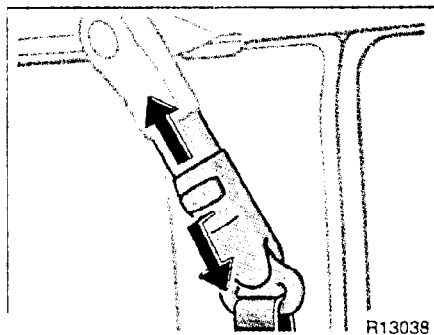
When a passenger's shoulder belt is completely extended and is then retracted even slightly, the belt is locked in that position and cannot be extended. This feature is used to hold the child restraint system securely. (For details, see "Child restraint" in this chapter.) To free the belt again, fully retract the belt and then pull the belt out once more.

⚠ CAUTION

- After inserting the tab, make sure the tab and buckle are locked and that the belt is not twisted.
- Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.
- If the seat belt does not function normally, immediately contact your Toyota dealer. Do not use the seat until the seat belt is fixed. It cannot protect an adult occupant or your child from injury.



Standard cab models



Access cab models

Seat belts with an adjustable shoulder anchor—

Adjust the shoulder anchor position to your size.

Standard cab models—

To raise: Slide the anchor up.

To lower: Push in the lock release button and slide the anchor down.

Access cab models—

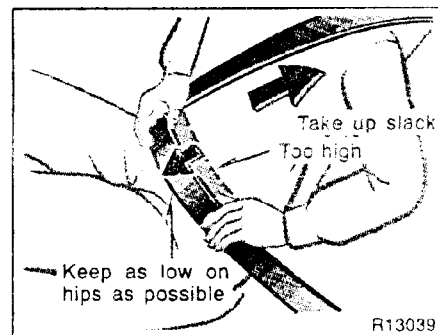
To raise: Slide the anchor up.

To lower: Pull the lock release knob and slide the anchor down.

After adjustment, make sure the anchor is locked in position.

CAUTION

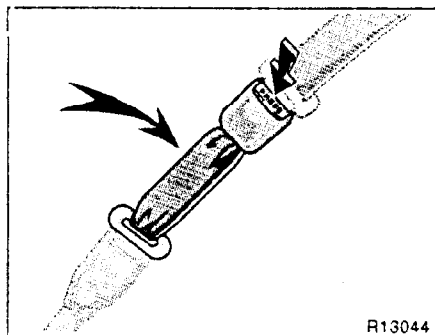
Always make sure the shoulder belt is positioned across the center of your shoulder. The belt should be kept away from your neck, but not falling off your shoulder. Failure to do so could reduce the amount of protection in an accident and cause severe injuries in a collision.



Adjust the position of the lap and shoulder belts.

Position the lap belt as low as possible on your hips—not on your waist, then adjust it to a snug fit by pulling the shoulder portion upward through the latch plate.

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To connect the extender to the seat belt, insert the tab into the seat belt buckle so that the "PRESS" signs on the buckle-release buttons of the extender and the seat belt are both facing outward as shown.

You will hear a click when the tab locks into the buckle.

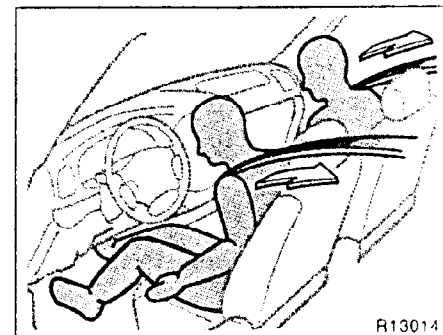
When releasing the seat belt, press on the buckle-release button on the extender, not on the seat belt. This helps prevent damage to the vehicle interior and extender itself.

When not in use, remove the extender and store in the vehicle for future use.

CAUTION

- After inserting the tab, make sure the tab and buckle are locked and that the seat belt extender is not twisted.
- Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.
- If the seat belt does not function normally, immediately contact your Toyota dealer. Do not use the seat until the seat belt is fixed. It cannot protect an adult occupant or your child from injury.

—Front seat belt pretensioners



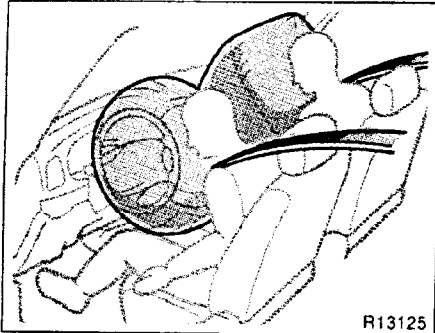
The driver and front passenger's seat belt pretensioners are designed to be activated in response to a severe frontal impact.

When the airbag sensor detects the shock of a severe frontal impact, the front seat belt is quickly drawn back in by the retractor so that the belt snugly restrains the front seat occupants.

The seat belt pretensioners are activated even with no passenger in the front seat.

Collisions occurring at certain speeds and angles may cause the seat belt pretensioners and SRS airbags not to operate all together.

SRS driver and front passenger airbags



The SRS (Supplemental Restraint System) airbags are designed to provide further protection for the driver and front passenger in addition to the primary safety protection provided by the seat belts.

- Vehicles with separate front seats—The SRS airbags are designed to protect the driver and front passenger.
- Vehicles with bench type front seats—The SRS airbags are designed to protect the driver and right-front passenger. They are not designed to protect occupant in the center position.

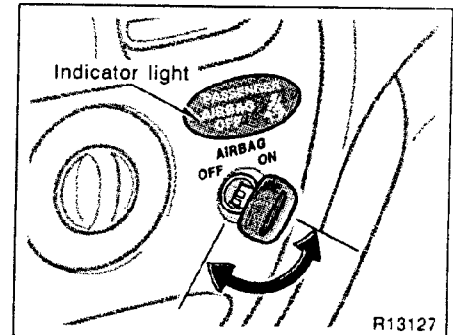
In response to a severe frontal impact, the SRS airbags work together with the seat belts to help reduce injury by inflating. The SRS airbags help to reduce injuries mainly to the driver's or front passenger's head or chest directly hitting the steering wheel or dashboard. The passenger airbag is activated even with no passenger in the front seat.

Be sure to wear your seat belt.

⚠ CAUTION

A driver or front passenger too close to the steering wheel or dashboard during airbag deployment can be killed or seriously injured. Toyota strongly recommends that:

- The driver sit as far back as possible from the steering wheel while still maintaining control of the vehicle.
- The front passenger sit as far back as possible from the dashboard.
- All vehicle occupants be properly restrained using the available seat belts.



The passenger airbag system is equipped with a manual on-off switch and indicator light. Turning the passenger airbag manual on-off switch clockwise to the "ON" position makes the passenger airbag system operational. Turning the passenger airbag manual on-off switch counterclockwise to the "OFF" position disables the passenger airbag system. The indicator light on the passenger airbag manual on-off switch will come on when the passenger airbag system has been disabled.

See "Passenger airbag manual on-off switch" in this chapter for detail.