

REPORT NO. KAR-99-07

3002

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST

GENERAL MOTORS CORPORATION
1999 CHEVROLET TAHOE LS SUV
NHTSA NO. MX0106

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



JANUARY 19, 1999
FINAL REPORT

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Prepared by: James E. Gorth
Mr. James E. Gorth, Project Engineer
KARCO Engineering

Date: JANUARY 19, 1999

Reviewed by: Jerry L. Kratzke
Mr. Jerry L. Kratzke, Director of Operations
KARCO Engineering

Date: JANUARY 19, 1999

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

Date: JANUARY 19, 1999

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

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16. <i>Abstract</i> A 35 mph (56.3 km/h) frontal barrier impact test was conducted on a 1999 CHEVROLET TAHOE LS SUV at KARCO Engineering on January 5, 1999. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301 and footwell intrusion performance. The impact velocity was 56.3 km/h. The ambient temperature at the barrier face at the time of impact was 15.5°C. The vehicle's maximum post-test static crush was 619 mm, located at the vehicle centerline. The test vehicle was equipped with a 3-point continuous belt system and second generation supplemental airbags at both frontal outboard-seating positions. With respect to FMVSS 208 "Occupant Crash Protection – Injury Criteria" the occupant injury response data summary is as follows:																									
<table border="1"> <thead> <tr> <th><u>Injury Criteria</u></th> <th><u>Threshold Value</u></th> <th><u>Driver Dummy</u></th> <th><u>Passenger Dummy</u></th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC)</td> <td>1000</td> <td>618.4</td> <td>619.7</td> </tr> <tr> <td>Chest Resultant Peak 3 msec clip</td> <td>60 G's</td> <td>48.5</td> <td>50.8</td> </tr> <tr> <td>Left Femur Force</td> <td>10009 N</td> <td>-9550.5</td> <td>-1423.9</td> </tr> <tr> <td>Right Femur Force</td> <td>10009 N</td> <td>-7554.9</td> <td>-4403.8</td> </tr> </tbody> </table>						<u>Injury Criteria</u>	<u>Threshold Value</u>	<u>Driver Dummy</u>	<u>Passenger Dummy</u>	Head Injury Criteria (HIC)	1000	618.4	619.7	Chest Resultant Peak 3 msec clip	60 G's	48.5	50.8	Left Femur Force	10009 N	-9550.5	-1423.9	Right Femur Force	10009 N	-7554.9	-4403.8
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SECTION 1

PURPOSE, TEST PROCEDURE AND SUMMARY OF TEST MX0106

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 was to obtain vehicle crashworthiness, occupant restraint system performance data and lower leg data for frontal barrier impacts. The velocity used in this test was in excess of the current 30 mph (48 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 corresponding KARCO Engineering Test Procedure KTP-001, dated October 18, 1996. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion (Partial)"; and FMVSS 301 "Fuel System Integrity" performance. Procedures for receiving, inspection testing and reporting of test results are described in the test procedures and are not repeated in this report.

The test was conducted at KARCO Engineering on January 5, 1999 at a speed of 56.3 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 sixteen (16) 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/right femur load cells, left/right lower leg sensors and left/right foot accelerometers. In addition, chest displacement and neck six-axis load and moment sensors were utilized. The ATDs were positioned in the front outboard seating positions according to the dummy placement procedures specified in the Laboratory Indicant Test Procedure. Ninety-six channels of data were recorded with a PC based (TDAS) on-board data acquisition system. The data was digitally sampled at 10,000 samples per second and processed per section IP11 of the Laboratory Indicant Test Procedure.

The Driver ATD (serial No. 34) and the right-front passenger ATD (serial No.35) were calibrated for this NCAP test. Injury criteria were not exceeded by either ATD during this frontal barrier impact test.

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

An immovable barrier was impacted by a 1999 CHEVROLET TAHOE LS SUV at a velocity of 56.3 km/h. The test weight, with two (2) 50th percentile male ATDs, was 2720 kg. Twenty four (24) load cell barrier data channels were obtained in conducting the January 5, 1999 NCAP test. The test vehicle was equipped with a longitudinal mounted 5.7 liter, 8 cyl. engine and an automatic transmission.

The driver's Head Injury Criteria (HIC) was 618.4, the maximum chest deceleration over three (3) milliseconds was 48.5 g and the left and right femur loads were -9550.5 and -7554.9 Newtons, respectively. Chest deflection for the driver ATD was -33.3 mm. The driver ATD head contacted the airbag and headrest, its chest and abdomen contacted the airbag, the left and right knees contacted the steering column and knee bolster.

The right front passenger's HIC was 619.7, maximum chest deceleration over three (3) milliseconds was 50.8 g and the left and right femur loads were -1423.9 and -4403.8 Newtons respectively. Chest deflection for the passenger ATD was -38.3 mm. The passenger ATD head contacted the airbag headrest and seat, the chest and abdomen contacted the airbag and both knees contacted the glovebox.

Seat belt spoolout, measured by on-board pullout potentiometers was 75.7 mm for the driver ATD and 0.0 mm for the passenger ATD. Shoulder belt stretch was 0.02 mm/cm for the driver ATD and 0.0 mm/cm for the passenger ATD. Channel failed for the passenger, no data available.

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

The test vehicle sustained a maximum static crush of 619 mm at the vehicle centerline. Both the driver side doors required the aid of tools to open, the passenger side front door required the aid of tools to open and the passenger rear door opened without the aid of tools.

1.4 GENERAL COMMENTS

The 1999 CHEVROLET TAHOE LS SUV 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 restraint systems.

SECTION 2.

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

CONVERSION FACTORS USED IN THIS REPORT:

2.2 pounds (lb.)	=	1 kilogram (kg)
1 mile (mi.)	=	1.609 kilometer (km)
1 gallon (gal.)	=	3.785 liters (L)
1 pound/square inch (psi)	=	7000 Pascal (7 kPa)

DATA SHEET NO. 1

CRASH TEST SUMMARY

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

VEHICLE REBOUND

Measurements in mm	Left	Center	Right
Vehicle Rebound	430	462	530

VEHICLE REBOUND AND STATIC CRUSH; REBOUND ANGLE = 0°

Measurements in mm	Left	Center	Right
Pre-test Measurements	4866	5076	4866
Post-test Measurements	4340	4457	4350
Static Crush	-526	-619	-516
Average	-554		

DOOR OPENING AND SEAT TRACK INFORMATION

	Driver	Passenger
Door Opening (Front)	JAMMED	JAMMED
Door Opening (Rear)	JAMMED	OPENED
Seat Track Shift (mm of shift)	NONE	NONE
Seat Back Failure	NONE	NONE

DUMMY INFORMATION

	Driver	Passenger
Dummy Type/No.	50% Male Hybrid III (S/N 34)	50% Male Hybrid III (S/N 35)
Data Channels	44	44
Visible Contact Points		
Head	AIR BAG/HEADREST	AIR BAG/HEADREST
Chest	AIR BAG	AIRBAG
Abdomen	AIRBAG	AIRBAG
Left Knee	KNEE BOLSTER/STEERING COLUMN	GLOVE BOX
Right Knee	KNEE BOLSTER/STEERING COLUMN	GLOVE BOX

DATA SHEET NO. 2

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

TEST VEHICLE INFORMATION			
Manufacturer	GENERAL MOTORS CORPORATION	VIN	1GNEK13R9XJ423008
Manufacturing Date	11/98	Delivery Date	12/16/98
Dealer	RICHARD HIBBARD CHEVROLET	NHTSA NO.	MX0106
Odometer Reading	73.1 mi	Fuel Type	UNLEADED
Engine Displacement	5.7 Liters	Cylinders	8
Transmission	AUTOMATIC	Final Drive	FRONT/REAR 4WD
Engine Placement	LONGITUDINAL	Color	RED
Tire Press./Max. Cap. Front	245 kpa	Cold Tire Press. Front	245 kpa
Tire Press./Max. Cap. Rear	245 kpa	Cold Tire Press. Rear	245 kpa
Recommend Tire Size	P245/75/16	Type of Spare	FULL SIZE P245/75/16
Tire Size on Vehicle	P245/75/16	Manufacturer	B. F. GOODRICH
GVWR	3084 kg	Cargo Capacity	307 kg
GAWR Front	1633 kg	GAWR Rear	1701 kg
Air Conditioning	YES	Power Steering	YES
Power Brakes	YES	AM/FM/Cassette	YES
Disc Brakes (Front)	YES	Disc Brakes (Rear)	NO
Power Windows	YES	Tilt Steering	YES
Anti-lock Brakes (ABS)	YES	Power Seats	YES
Driver Airbag	YES	Passenger Airbag	YES

DATA SHEET NO. 3

POST IMPACT DATA

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

REQUIRED IMPACT VELOCITY RANGE: 55.51 km/h to 57.11 km/h

BARRIER IMPACT VELOCITY: (speed traps within 5 feet of impact plane)

Trap No. 1 = 56.3 km/h Trap No. 2 = 56.2 km/h

Distance from vehicle to barrier - -

A. entering trap = 1524 mm

B. leaving trap = 305 mm

VEHICLE STATIC CRUSH: (for Frontal and Rear Impacts Only)

Vehicle Length	Left	Center	Right
Pre-test Measurements (mm)	4866	5076	4866
Post-test Measurements (mm)	4340	4471	4350
Static Crush (mm)	-526	-619	-516

VEHICLE REBOUND: (from rigid barrier with rotational movement offsets only)

Measurements in mm		Left Front	Right Front	Left Rear	Right Rear
Vehicle Rebound	X axis	N/A	N/A	N/A	N/A
Vehicle Rebound	Y axis	N/A	N/A	N/A	N/A
Average	X axis	N/A			
Average	Y axis	N/A			

DATA SHEET NO. 4

TEST VEHICLE INFORMATION

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

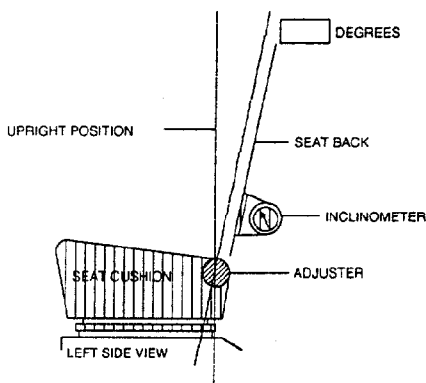
NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

1. NOMINAL DESIGN RIDING POSITION -

For adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable. Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?).



FRONT SEAT ASSEMBLY

Measurement Instructions: A special application tool with pointed probes was inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly approximately 13 inches above the pivot point of the seat back. The inclinometer was placed against the flat surface of the tool and the seat back angle was measured directly from the dial face. For reference purposes the first detent from the front of the seat was identified as number "1".

Seat back angle for driver's seat = 24° w/seated dummy, taken at seat back cushion.

Measurement Instructions: A special application tool with pointed probes was inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly approximately 13 inches above the pivot point of the seat back. The inclinometer was placed against the flat surface of the tool and the seat back angle was measured directly from the dial face. For reference purposes the first detent from the front of the seat was identified as number "1".

Seat back angle for passenger's seat = 24° w/seated dummy, taken at seat back cushion.

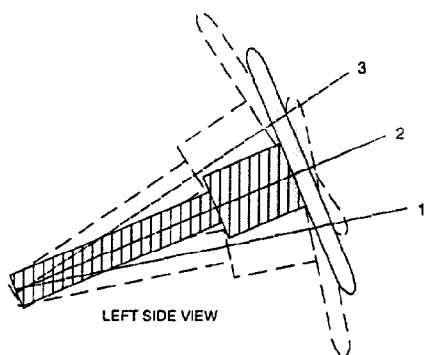
2. SEAT FORE & AFT POSITIONS:

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat: Power seat w/ 182 mm of travel, set at 91 mm.

Positioning of the passenger's seat (if applicable): 11 seating positions, set to 6th detent from the front.

3. STEERING COLUMN ADJUSTMENTS:



STEERING COLUMN ASSEMBLY

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 driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions:

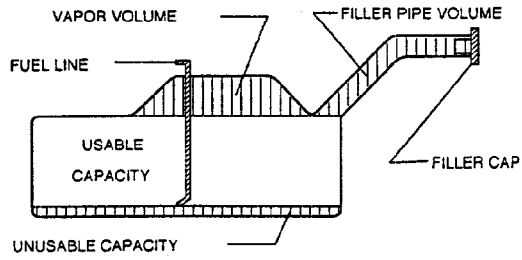
- Position No. 1 is at 16°
- Position No. 2 is at 26°
- Position No. 3 is at 41°

4. SEAT BELT UPPER ANCHORAGE:

Set to mid position, #3 position of 5.

DATA SHEET NO. 4 (continued)

5. FUEL TANK CAPACITY DATA



5.1 A. "Usable Capacity" of standard equipment fuel tank = 113.5 liters.

B. "Usable Capacity" of optional equipment fuel tank = N/A liters.

C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 99.2 to 101.4 liters.

VEHICLE FUEL TANK ASSEMBLY

Operational Instructions:

5.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 100.4 liters

5.3 Is vehicle equipped with electric fuel pump?

Yes X No

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

Key operated w/automatic shutoff after a few seconds.

DATA SHEET NO. 5

DUMMY POSITIONING IN VEHICLE

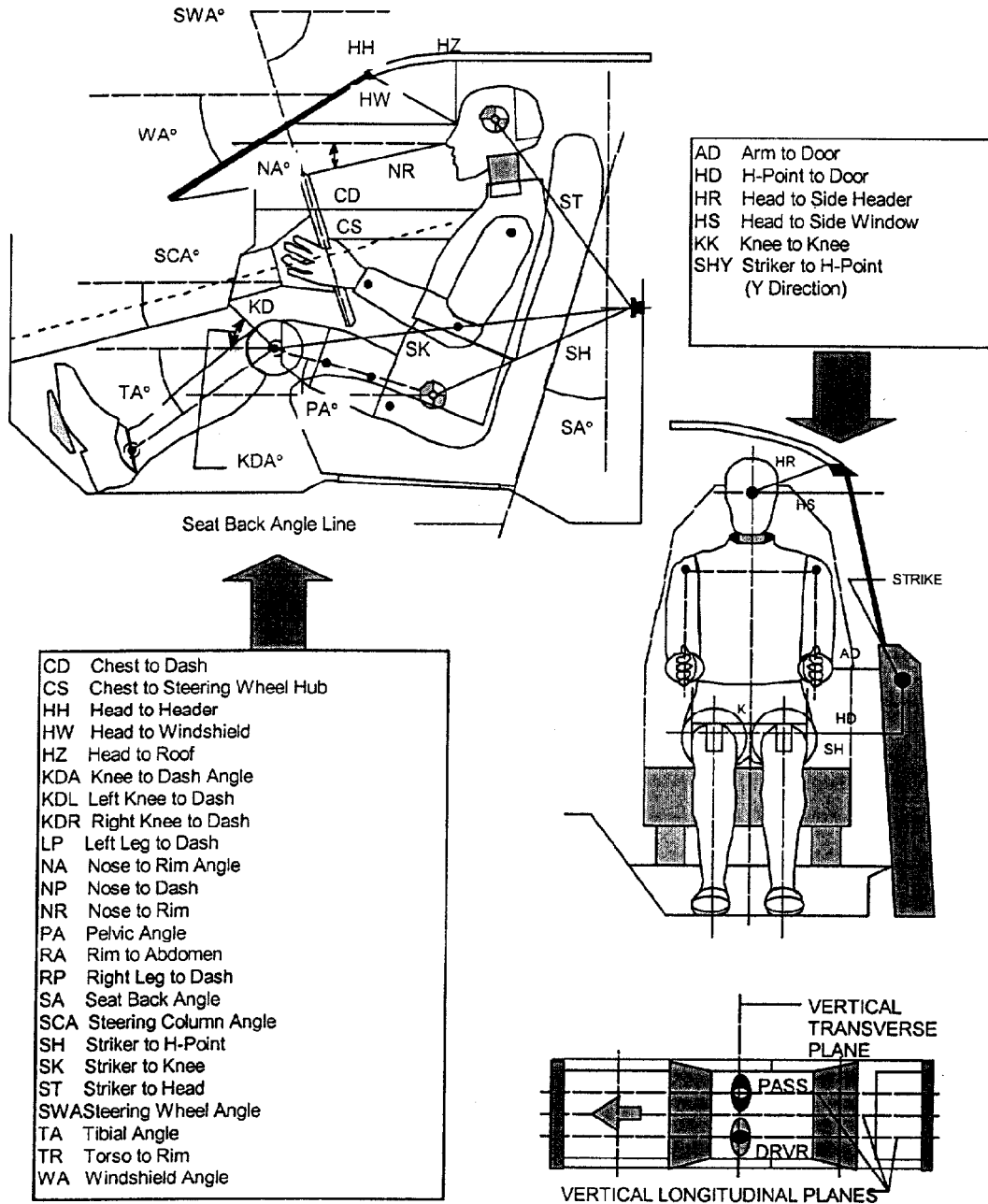
Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



DATA SHEET NO. 5...(continued)

DUMMY POSITIONING IN VEHICLE

FRONT SEAT MEASUREMENT TABLE

	DRIVER (Serial No. <u>34</u>)		PASS. (Serial No. <u>35</u>)	
	DISTANCE (mm)	ANGLE (°)	DISTANCE (mm)	ANGLE (°)
WA°		40		
SWA°		65		
SCA°		30		
SA°		25		25
HZ	250	90	228	90
HH	505	0	500	0
HW	664	0	685	0
HR	270		250	
NR	410	11		
CD	578		570	
CS	293	0		
RA	175	0		
KDL	175	30	204	
KDR	175		215	21
PA°		23		22
TA°		42		50
KK	275		205	
ST	670	17	690	19
SH	300	0	275	0
SHY	250		240	
HS	330		315	
HD	150		140	
AD	125		46	

DATA SHEET NO. 6

SEAT BELT POSITIONING DATA

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

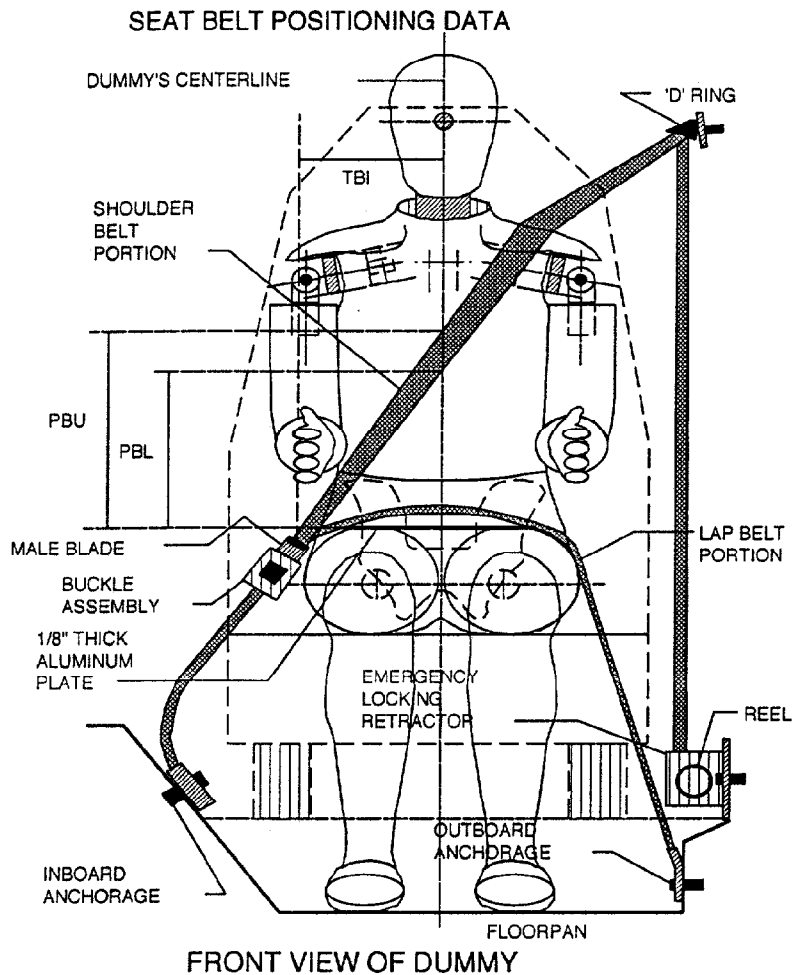
NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

SEAT BELT PLACEMENT MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TCI - Dummy centerline to shoulder bolt	mm	190	200
PBU - Top surface of reference to belt upper edge	mm	315	305
PBL - Top surface of reference to belt lower edge	mm	240	230
Lap Belt tension	Newtons	10	10
Shoulder Belt tension	N/A	Retractor	Retractor



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

TEST VEHICLE: 1999 CHEVROLET TAHOE LS SUV NHTSA No.: MX0106
 TEST PROGRAM: 1999 NHTSA 35 MPH NCAP TEST DATE: 1/5/99

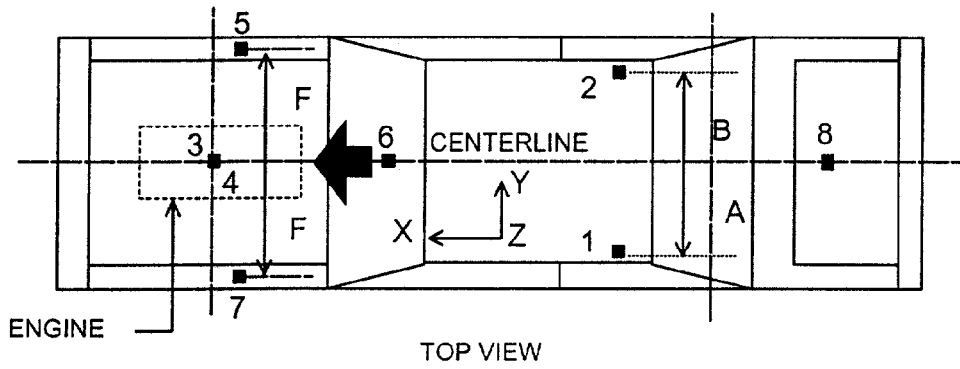
VEHICLE X-AXIS ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member (Pri.)	1420	-534	755	G's	2.0	204.1	-27.7	54.9
2	Right Rear X-Member (Pri.)	1420	521	754	G's	2.7	180.1	-25.4	52.5
3	Engine Top	4120	-219	910	G's	16.8	58.7	-79.5	36.0
4	Engine Bottom	3980	55	351	G's	37.9	57.6	-76.4	41.8
5	Left Brake Caliper	4330	-730	405	G's	2.2	38.0	-60.8	32.7*
6	Right Brake Caliper	4331	731	406	G's	28.2	54.0	-82.3	37.6
7	Instrument Panel	3260	0	1359	G's	77.9	61.4	-78.2	44.6*
8	Left Rear X-Member (Rednt.)	1350	-534	755	G's	2.1	201.1	-27.7	55.0

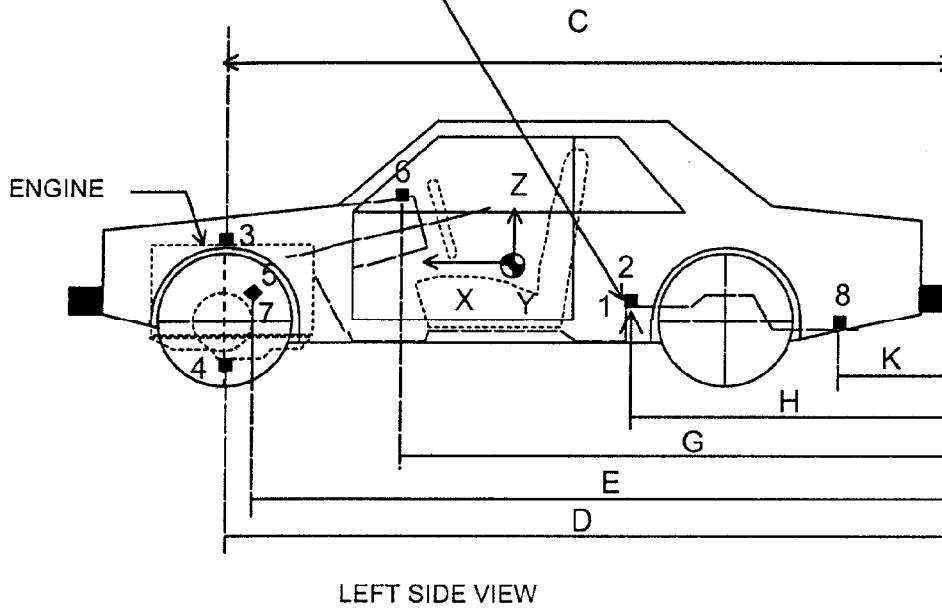
Reference Points X - Rear Surface of Vehicle Y - Vehicle Centerline Z - Ground Plane

* Channels Failed, Check Plots for Time of Failure

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



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

TEST VEHICLE: 1999 CHEVROLET TAHOE LS SUV NHTSA No.: MX0106

TEST PROGRAM: 1999 NHTSA 35 MPH NCAP TEST DATE: 1/5/99

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	10.4	221.2	-59.9	73.7	19.9	201.6	-56.9	87.6
Head CG	Y	G's	6.9	166.8	-5.0	209.8	11.7	83.6	-3.6	154.5
Head CG	Z	G's	33.1	59.8	-9.1	134.2	40.1	82.6	-8.2	157.0
Head CG Resultant	N/A	G's	64.9	73.7			67.7	86.2		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	3.7	172.8	-47.5	64.5	6.4	172.2	-53.1	82.1
Chest CG	Y	G's	3.7	56.7	-2.5	170.0	8.3	55.1	-6.0	95.6
Chest CG	Z	G's	22.7	60.8	-11.1	142.3	18.6	63.8	-18.1	127.9
Chest CG Resultant	N/A	G's	49.6	64.4			53.1	82.1		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	205.4	46.1	-9550.5	54.7	888.0	54.4	-1423.9	64.8
Right Femur	Z	Newtons	573.4	46.0	-7554.9	56.3	378.1	46.8	-4403.8	69.0

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt Force	N/A	Newtons	3916.3	61.9	-27.2	178.7	7347.2	69.7	-81.8	132.6
Shoulder Belt Force	N/A	Newtons	6478.0	74.4	-15.4	219.2	10810.9	80.3	-16.4	299.9
Shoulder Belt Spoolout	N/A	MM	75.7	97.0	-0.1	0.0	0.0	0.0	0.0	0.0*
Shoulder Belt Stretch	N/A	MM/CM	0.022	92.8	0.001	299.9	0.000	0.0	0.000	0.0*

* No data collected on passenger belt stretch or spoolout

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	618.4	50.0	58.3	93.2	619.7	49.5	63.9	99.8

CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	48.5	63.8	66.8	50.8	77.8	80.8

DATA SHEET NO. 8...(continued)

TEST VEHICLE: 1999 CHEVROLET TAHOE LS SUV NHTSA No.: MX0106
 TEST PROGRAM: 1999 NHTSA 35 MPH NCAP TEST DATE: 1/5/99

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	7.7	129.4	-81.3	52.8	10.7	133.4	-74.2	67.8
Pelvis	Y	G's	14.5	64.0	-16.5	52.4	9.0	47.5	-15.9	70.4
Pelvis	Z	G's	11.6	52.7	-14.8	124.6	6.4	47.3	-19.6	91.7

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	517.5	93.9	-403.7	59.2	155.2	245.9	-1015.6	87.4
Neck Force	Y	Newtons	220.1	172.4	-304.0	89.3	214.4	97.3	-193.5	256.8
Neck Force	Z	Newtons	2092.9	69.4	-406.9	137.2	2781.5	83.0	-825.5	269.5
Neck Moment	X	N·m	15.9	171.6	-15.5	103.5	31.7	269.6	-8.6	185.7
Neck Moment	Y	N·m	38.5	95.5	-24.5	265.2	44.5	153.2	-35.3	85.9
Neck Moment	Z	N·m	6.4	140.5	-7.2	79.0	7.4	299.3	-15.2	111.3

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	22.9	69.2	-116.2	54.6	0.0	0.0	0.0	0.0
Left Foot Aft	Z	G's	13.5	51.7	-73.9	66.6	0.0	0.0	0.0	0.0
Left Foot Fore	Z	G's	89.8	64.2	-163.5	54.0	0.0	0.0	0.0	0.0
Right Foot Aft	X	G's	24.6	58.0	-317.4	51.5	0.0	0.0	0.0	0.0
Right Foot Aft	Z	G's	2.9	34.5	-270.6	51.3	0.0	0.0	0.0	0.0
Right Foot Fore	Z	G's	35.7	54.6	-348.8	49.1	0.0	0.0	0.0	0.0

* No Data Collected on Passenger Channels

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	38.7	55.1	-85.8	70.3	43.9	63.8	-39.9	57.3
Left Lower Moment	Y	N·m	58.8	62.9	-45.0	54.1	90.6	65.9	-113.5	46.5
Left Lower Force	Z	Newtons	67.4	88.1	-3719.9	66.4	1747.3	38.3	-1315.9	67.2
Left Upper Moment	X	N·m	110.9	55.6	-19.6	96.2	4.0	197.7	-70.5	57.6
Left Upper Moment	Y	N·m	127.4	56.1	-55.5	66.7	15.5	141.8	-194.4	46.3
Right Lower Moment	X	N·m	71.2	52.5	-175.1	56.6	7.9	38.2	-23.7	71.5
Right Lower Moment	Y	N·m	119.6	61.1	-134.5	51.1	33.4	69.5	-67.4	56.7
Right Lower Force	Z	Newtons	171.2	188.1	-6826.9	53.1	606.0	64.7	-1662.3	53.9
Right Upper Moment	X	N·m	87.1	53.3	-13.4	150.0	0.0	0.0	0.0	0.0
Right Upper Moment	Y	N·m	30.0	60.4	-221.3	51.3	0.0	0.0	0.0	0.0

* No Data Collected on Passenger Channels

DATA SHEET NO. 8...(continued)

TEST VEHICLE: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

TEST PROGRAM: 1999 NHTSA 35 MPH NCAP

TEST DATE: 1/5/99

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.2	20.2	-33.3	70.1	0.3	2.2	-38.3	80.7

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	10.4	221.9	-59.4	74.4	22.6	201.7	-55.4	87.2
Head CG	Y	G's	5.9	160.7	-5.6	215.9	10.6	90.8	-4.1	163.8
Head CG	Z	G's	34.1	62.1	-9.5	136.2	38.5	82.7	-6.4	128.8
Head CG Resultant	N/A	G's	64.2	73.7			65.1	86.3		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	4.0	173.2	-46.6	65.1	6.8	172.3	-53.1	82.0
Chest CG	Y	G's	5.1	57.5	-2.8	169.8	4.5	57.0	-8.0	97.5
Chest CG	Z	G's	20.4	60.9	-11.0	132.8	17.7	72.9	-16.0	128.2
Chest CG Resultant	N/A	G's	48.5	65.3			53.3	81.9		

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	608.8	49.9	58.8	93.3	602.1	48.9	64.5	100.4

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	48.1	64.9	67.9	50.1	81.1	84.1

DATA SHEET NO. 9

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Retractor reel to 'D' ring	mm	800	800
Shoulder belt length as measured on ATD	mm	810	790
Lap belt length as measured on ATD	mm	710	700
Remainder of belt on reel	mm	300	280
Total belt length for continuous webbing systems	mm	2620	2570

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	48.0	50.0
As determined electronically	mm	75.7	no data

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
Electronically from shoulder belt load cell and "D" ring	mm/cm	0.02	no data
Mechanically	mm/cm	2.00	BROKE

DATA SHEET NO. 10

SUMMARY OF FMVSS 212 DATA

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

Details of windshield mounting (method of retention, type of trim, etc.):

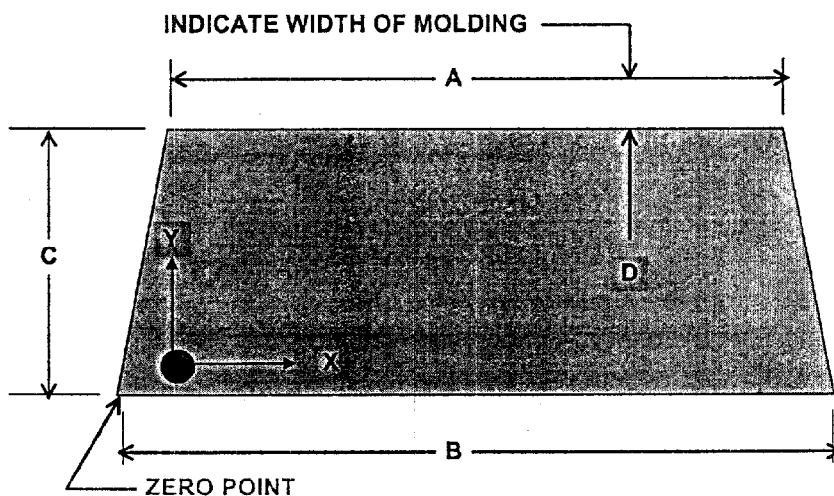
Windshield glass is secured to the vehicle frame with a rubber type adhesive, with rubber molding along the top and sides with rubber and plastic molding along the bottom.

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.

WINDSHIELD PERIPHERY MEASUREMENTS

	Units	Left Side	Right Side	Total
Pre-Test	mm	2258	2258	100%
Post-Test	mm	2258	2258	100%
Percent of retention	Percent	100%	100%	

Indicate area of retention failure.



FRONT VIEW OF WINDSHIELD

Width of molding: Top: 11 mm, Sides: 11 mm, Bottom: 11 mm

Temperature of windshield molding during test: 21.1 °C

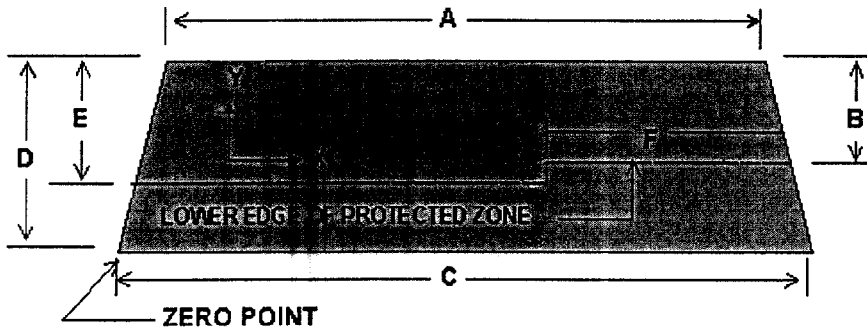
DATA SHEET NO. 11
WINDSHIELD ZONE INTRUSION FMVSS 219 (PARTIAL) DATA

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99



FRONT VIEW OF WINDSHIELD

Item	Units	Value
A	mm	1375
B	mm	331
C	mm	1698
D	mm	676
E	mm	297
F	mm	1082

Provide all dimensions necessary to reproduce the protected area.

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 which 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 template 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: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

Test Time: 12:20 PM

Temperature at Time of Impact: 15.5° C

STODDARD SOLVENT SPILLAGE MEASUREMENT:

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

DATA SHEET NO. 13

FMVSS 301 STATIC ROLLOVER DATA SHEET

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

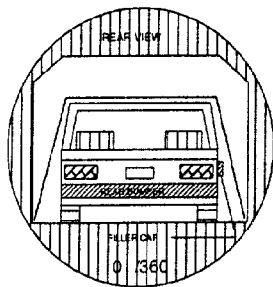
NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

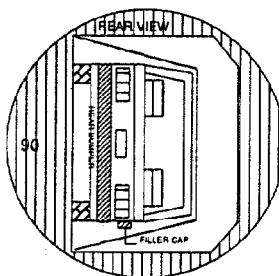
Test Date: 1/5/99

Time: 12:20 PM

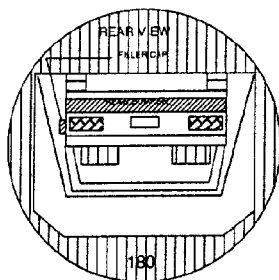
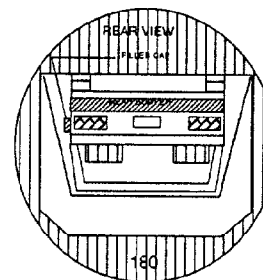
Temperature: 15.5 °C



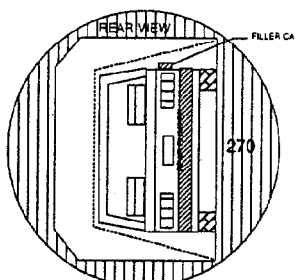
0° TO 90°



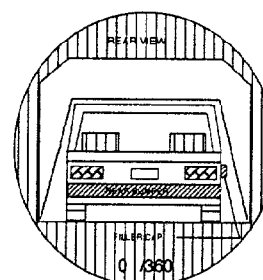
90° TO 180°



180° TO 270°



270° TO 360°



1. The specified fixture rollover rate for each 90° of rotation = 60 to 120 seconds.
2. The position hold time at each position = 300 seconds (minimum).
3. Provide details of Stoddard Solvent spillage locations:
No solvent leakage occurred during rollover testing.

TEST PHASE	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° TO 90°	81	300	0.0
90° TO 180°	81	300	0.0
180° TO 270°	79	300	0.0
270° TO 360°	80	300	0.0

DATA SHEET NO. 14

VEHICLE MEASUREMENTS

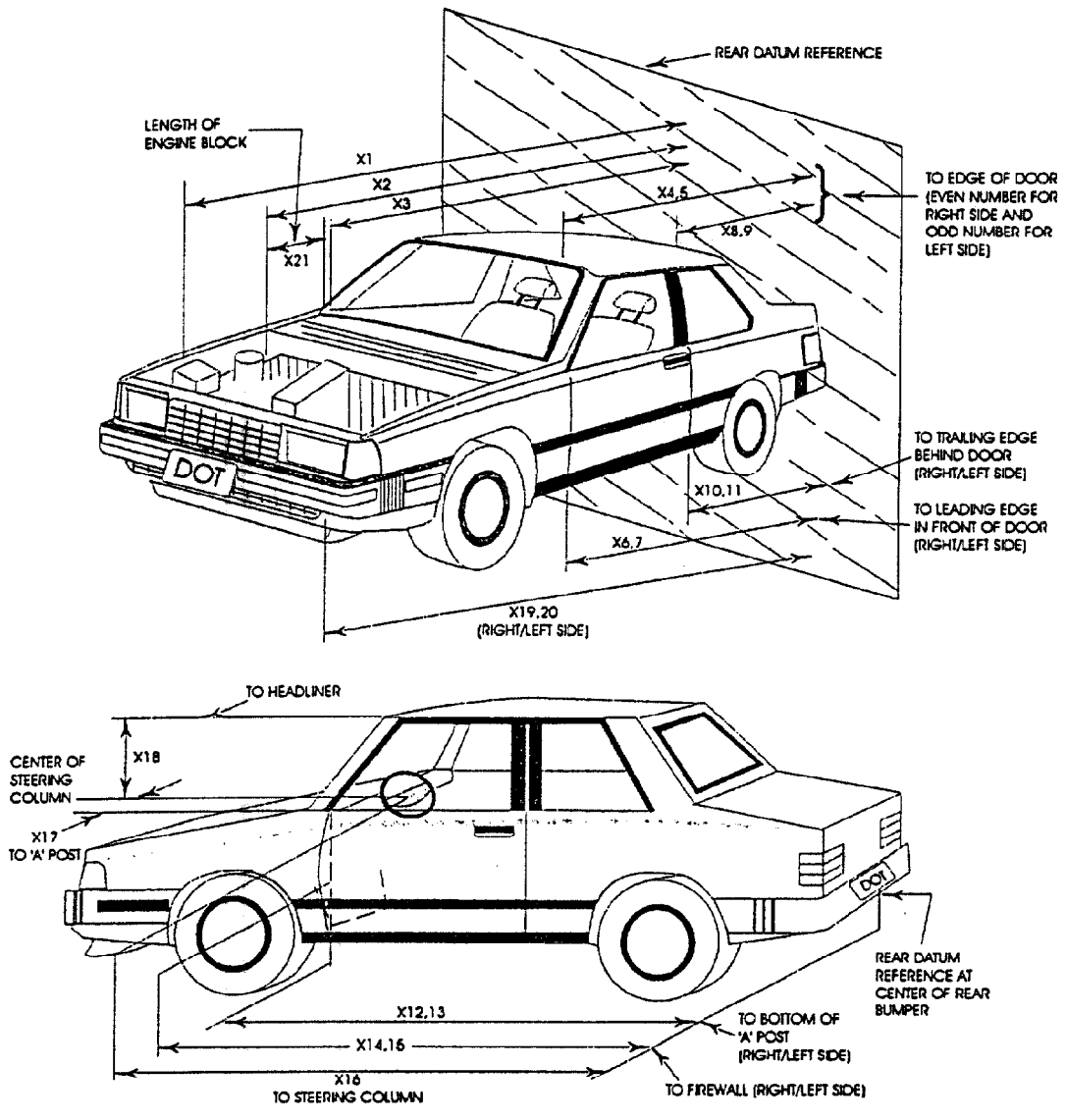
Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	5076	4457	-619
2	RSOV to front of engine	mm	4291	4057	-234
3	RSOV to firewall centerline	mm	3826	3820	-6
4	RSOV to leading edge of right door	mm	3609	3610	1
5	RSOV to leading edge of left door	mm	3611	3616	5
6	RSOV to lower leading edge of right door	mm	3530	3505	-25
7	RSOV to lower leading edge of left door	mm	3535	3495	-40
8	RSOV to upper trailing edge of right door	mm	2390	2398	8
9	RSOV to upper trailing edge of left door	mm	2390	2415	25
10	RSOV to lower trailing edge of right door	mm	2374	2345	-29
11	RSOV to lower trailing edge of left door	mm	2378	2334	-44
12	RSOV to bottom of right 'A' pillar	mm	3583	3580	-3
13	RSOV to bottom of left 'A' pillar	mm	3580	3589	9
14	RSOV to firewall on right side	mm	3825	3828	3
15	RSOV to firewall of left side	mm	3825	3790	-35
16	RSOV to steering column	mm	3057	2990	-67
17	Center of steering column to left 'A' pillar	mm	415	375	-40
18	Center of steering column to headlining	mm	505	493	-12
19	RSOV to right side of front bumper	mm	4866	4350	-516
20	RSOV to left side of front bumper	mm	4866	4340	-526
21	Length of engine block	mm	480	480	0
RD	RSOV to right side of dash panel	mm	3300	3294	-6
CD	RSOV to center of dash panel	mm	3258	3220	-38
LD	RSOV to left side of dash panel	mm	3247	3222	-25



DATA SHEET NO. 15

CAMERA LOCATIONS

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

No.	Camera View	Location (mm)			Angle (°)	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	1994	8280	1206	1	7620	13	
3	Left Side, No. 2	1054	5969	1460	0	5588	25	
4	Left Side, No. 3	3658	3200	2146	15	2946	19	
5	Left Side, No. 4	2108	8357	2603	14	7722	19	
6	Left Side, No. 5	2108	8382	3048	16	7798	19	
7	Right Side, No. 1	1956	8357	902	0	7798	12	
8	Right Side, No. 2	1702	8280	1524	0	7747	40	
9	Right Side, No. 3	3505	3708	2083	10	3353	19	
10	Right Side, No. 4	2464	7874	1473	1	7366	35	
11	Overhead Overall	737	0	457	85	N/A	13	
12	Front View Driver	-356	406	2642	39	N/A	13	
13	Front View, Passenger	-356	406	2642	40	N/A	13	
14	Pit Camera, Engine	686	0	-1613	87	N/A	10	
15	Pit Camera, Fuel Tank	5156	0	-261	45	N/A	12	
16	Onboard, Driver	3607	267	1638	10	1092	13	
17	Onboard, Passenger	3607	267	1638	10	1092	13	

* X - Barrier Face Y - Monorail Centerline Z -

Film speeds not available at this time due to original film being in the possession of NHTSA.

**DATA SHEET NO. 16
REFERENCE PHOTOGRAPH TARGETS**

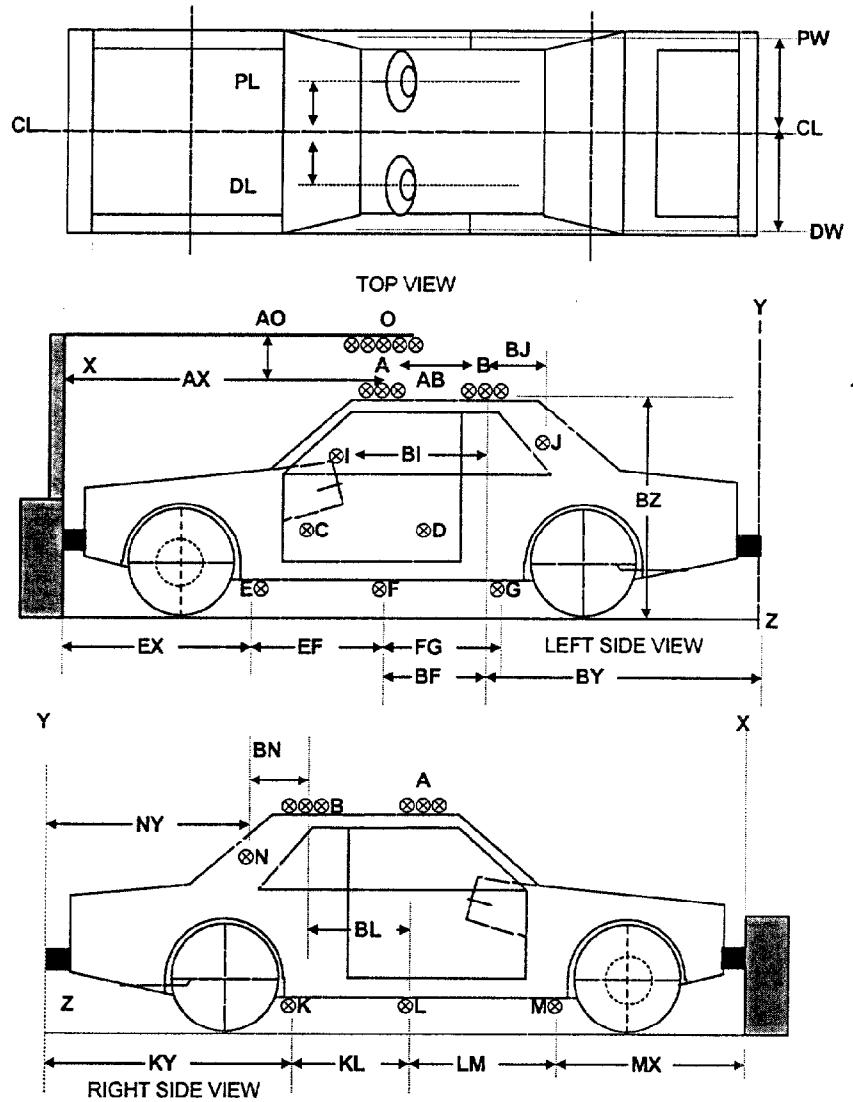
Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

Item	Value
AX	2345
AB	608
AO	152
BJ	740
BI	1096
BZ	1903
EX	1438
EF	961
FG	963
BF	550
BY	2137
NY	1395
BN	710
KY	1736
KL	941
BL	558
LM	944
MX	1428
CL/PL	438
CL/PW	890
CL/DL	438
CL/DW	890



DATA SHEET NO. 17

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

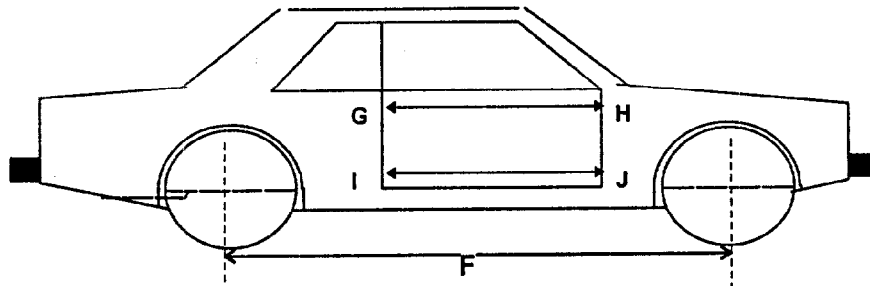
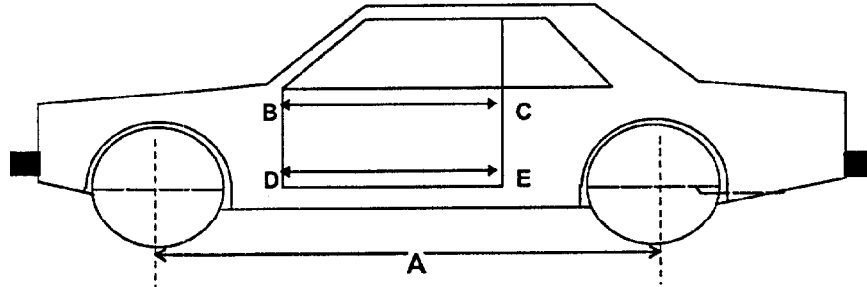
Test Date: 1/5/99

DOOR OPENING WIDTH

UNITS (mm)	LEFT SIDE		RIGHT SIDE	
	BC	DE	GH	IJ
PRE-TEST	1149	1140	1165	1145
POST-TEST	1143	1124	1152	1133
DIFFERENCE	-6	-16	-13	-12

VEHICLE WHEELBASE CHANGE

UNITS (mm)	A = LEFT SIDE WHEELBASE	F = RIGHT SIDE WHEELBASE
PRE-TEST	2995	2995
POST-TEST	2826	2865
DIFFERENCE	-169	-130



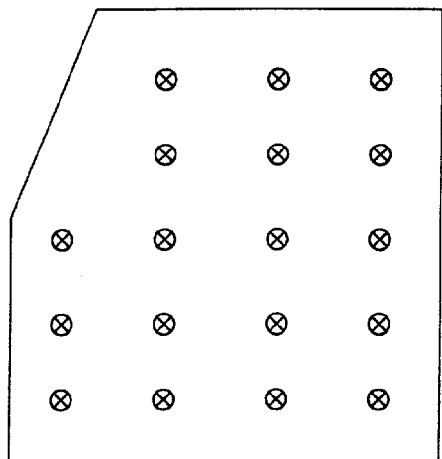
Data Sheet No. 17(Continued)

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

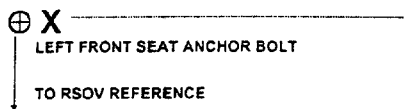
NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

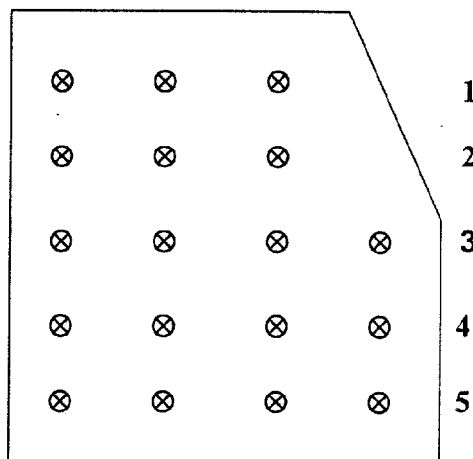
Test Date: 1/5/99



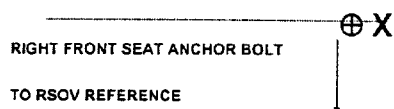
A B C D



DRIVER SIDE FLOOR PLAN



A B C D



PASSENGER SIDE FLOORPAN

(Data Sheet No. 17Continued)

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

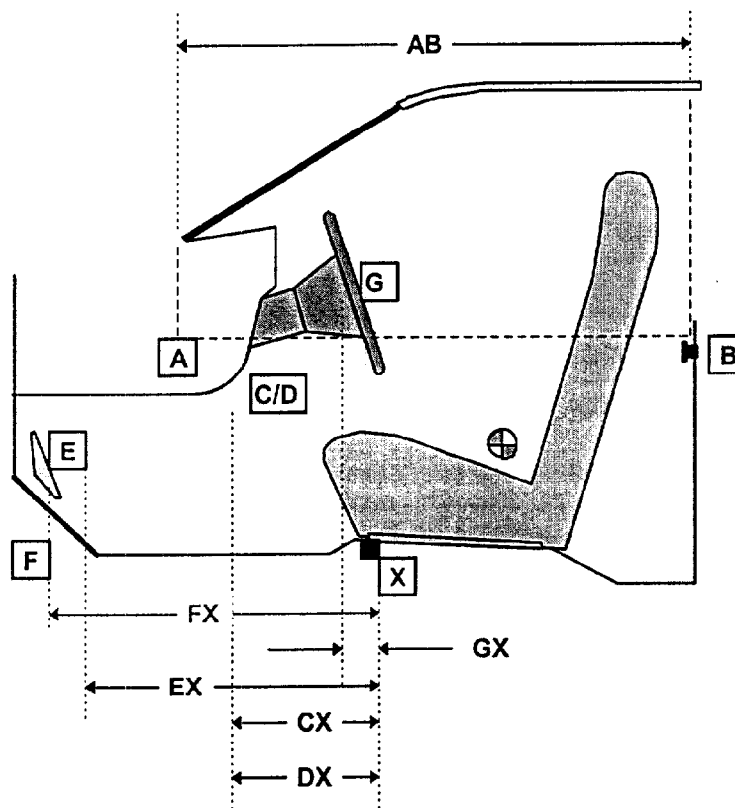
Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

DRIVER COMPARTMENT INTRUSION (Distances in mm)

REF.	DESCRIPTION	PRE-TEST	POST-TEST
AB	DOOR OPENING (INSIDE WINDOW JAM)	1149	1143
CX	LOWER LEFT KNEE BOLSTER TO X	345	332
DX	LOWER RIGHT KNEE BOLSTER TO X	346	302
EX	BRAKE PEDAL TO X	561	510
FX	FOOT REST TO X	775	755
GX	STEERING COLUMN HUB (CENTER) TO X	118	106

X = LEFT FRONT SEAT ANCHOR BOLT



DRIVER COMPARTMENT

(Data Sheet No. 17Continued)

DRIVER SIDE "X"

	A			B			C			D		
	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.
1				835	738	-97	829	711	-118	829	680	-149
2				719	653	-66	719	612	-107	715	596	-119
3	625	591	-34	620	576	-44	620	579	-41	615	567	-48
4	525	492	-33	520	495	-25	520	497	-23	514	495	-19
5	425	425	0	420	418	-2	420	401	-19	415	396	-19

DRIVER SIDE "Z"

	A			B			C			D		
	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.
1				80	125	45	83	141	58	84	146	62
2				12	62	50	16	102	86	15	98	83
3	-35	-44	-9	-35	-28	7	-38	-18	20	-14	-29	-15
4	-37	-45	-8	-43	-38	5	-48	-39	9	-40	-23	17
5	-38	-78	-40	-43	-93	-50	-48	-67	-19	-45	-51	-6

PASSENGER SIDE "X"

	A			B			C			D		
	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.
1	785	655	-130	835	722	-113	840	764	-76			
2	735	584	-151	736	622	-114	737	674	-63			
3	633	605	-28	636	614	-22	636	607	-29	630	612	-18
4	535	524	-11	535	523	-12	535	525	-10	535	521	-14
5	435	425	-10	435	427	-8	435	434	-1	435	435	0

PASSENGER SIDE "Z"

	A			B			C			D		
	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.
1	140	195	55	97	129	32	98	106	8			
2	27	104	77	31	80	49	23	42	19			
3	-48	-27	21	-45	-32	13	-42	-38	4	-30	-49	-19
4	-51	-52	-1	-47	-68	-21	-48	-76	-28	-45	-54	-9
5	-51	-75	-24	-46	-86	-40	-45	-80	-35	-46	-68	-22

RSOV to anchor bolt
Ground level to anchor bolt

DRIVER		
PRE	POST	DIFF.
2924	2918	-6
N/A	N/A	

PASSENGER		
PRE	POST	DIFF.
2924	2916	-8
N/A	N/A	

DATA SHEET NO. 18

OFFSET BARRIER ORIENTATION

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

NOT APPLICABLE TO THIS TEST

A = VEHICLE WIDTH MEASURED AT WIDEST POINT N/A mm

B = 40% OFFSET FROM LEFT EDGE OF VEHICLE N/A mm

ACTUAL OFFSET DURING TEST N/A mm=N/A

DATA SHEET NO. 19

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99

VIN: 1GNEK13R9XJ423008 Wheelbase: 2995 mm Test Weight: 2720 kg

Vehicle Size Category: CHEVROLET TAHOE LS SUV

ACCELEROMETER DATA:

LOCATION: Left and right rear floor pans

CALIBRATION PROCEDURE: 6 months/ drop test

LINEARITY: Good

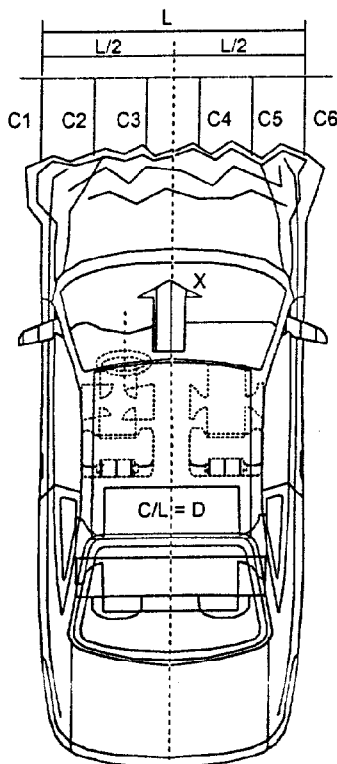
INTEGRATION ALGORITHM: NHTSA Standard

VEHICLE IMPACT SPEED: 56.3 km/h

TIME OF SEPARATION: 102.2 msec

VELOCITY CHANGE: 62.74 km/h

COLLISION DEFORMATION CLASSIFICATION (CDC) CODE: F (frontal)



IMPACT MODE: Full Frontal

CRUSH DEPTH DIMENSIONS:

C1 = 526 mm

C2 = 573 mm

C3 = 618 mm

C4 = 619 mm

C5 = 565 mm

C6 = 516 mm

MIDPOINT OF DAMAGE: Vehicle Centerline

LENGTH OF DAMAGE REGION: 1769 mm

DATA SHEET NO. 20

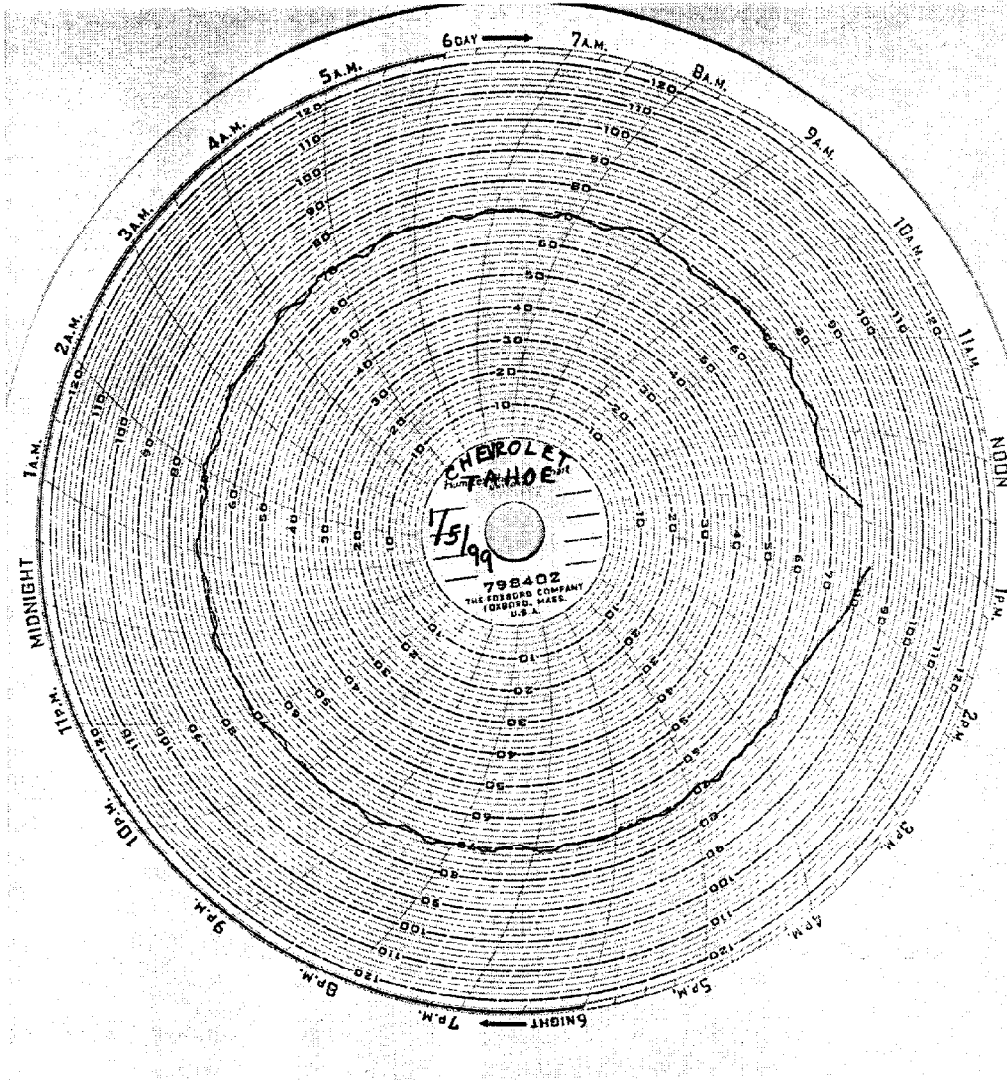
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 1999 CHEVROLET TAHOE LS SUV

NHTSA No.: MX0106

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/5/99



APPENDIX A
PHOTOGRAPHS

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FIGURE A-1. RIGHT FRONT AS RECEIVED

TO: HOOBANK

A-1

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FIGURE A-2. LEFT REAR AS RECEIVED

GM

MFD BY GENERAL MOTORS CORP 11/98

GVWR 3085KG(6800LB) GAWR FRT 1633KG(3600LB) GAWR RR 1701KG(3750LB)

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

1GNEK13R9XJ423008 TYPE M.P.V.

MODEL K10706

KPAA	TIRE SIZE	SPEED RTG	RIM	COLD TIRE PRESSURE
FRT	P245/75R16	S	16X7/6.5J	240KPA(35PSI)
RR	P245/75R16	S	16X7/6.5J	240KPA(35PSI)

SEE OWNER'S MANUAL FOR MORE INFORMATION

FIGURE A-3. VEHICLE CERTIFICATION LABEL



MFD BY GENERAL MOTORS CORP 11/98

GVWR 3085KG(6800LB) GAWR FRT 1633KG(3600LB) GAWR RR 1701KG(3750LB)

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

1GNEK13R9XJ423008 TYPE M.P.V.

MODEL K10706

KPA	TIRE SIZE	SPEED RTG	RIM	COLD TIRE PRESSURE
FRT	P245/75R16	S	16X7/6.5J	240KPA(35PSI)
RR	P245/75R16	S	16X7/6.5J	240KPA(35PSI)

SEE OWNER'S MANUAL FOR MORE INFORMATION.

FIGURE A-4. VEHICLE TIRE PLACARD

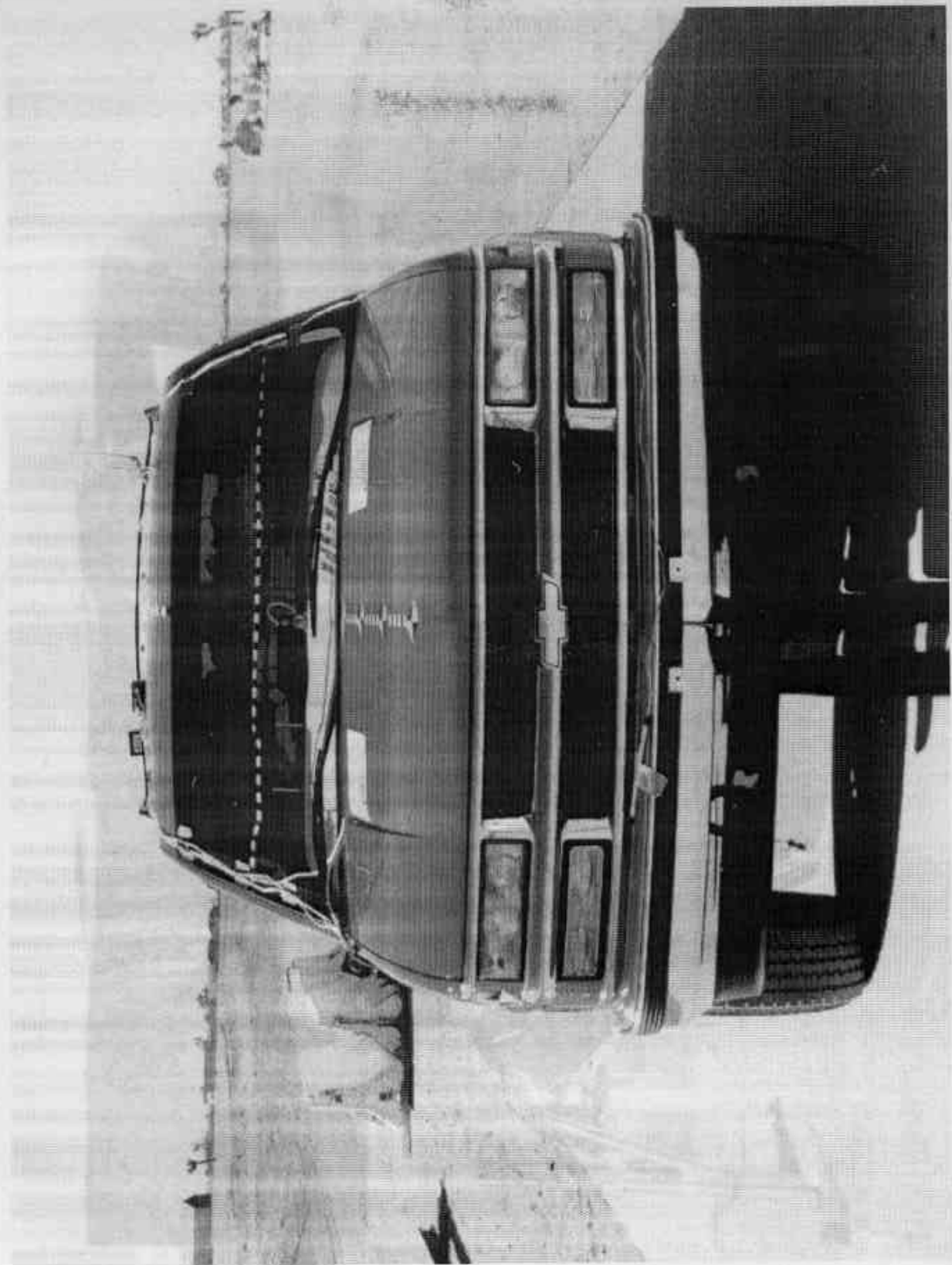


FIGURE A-5. PRETEST FRONT VIEW

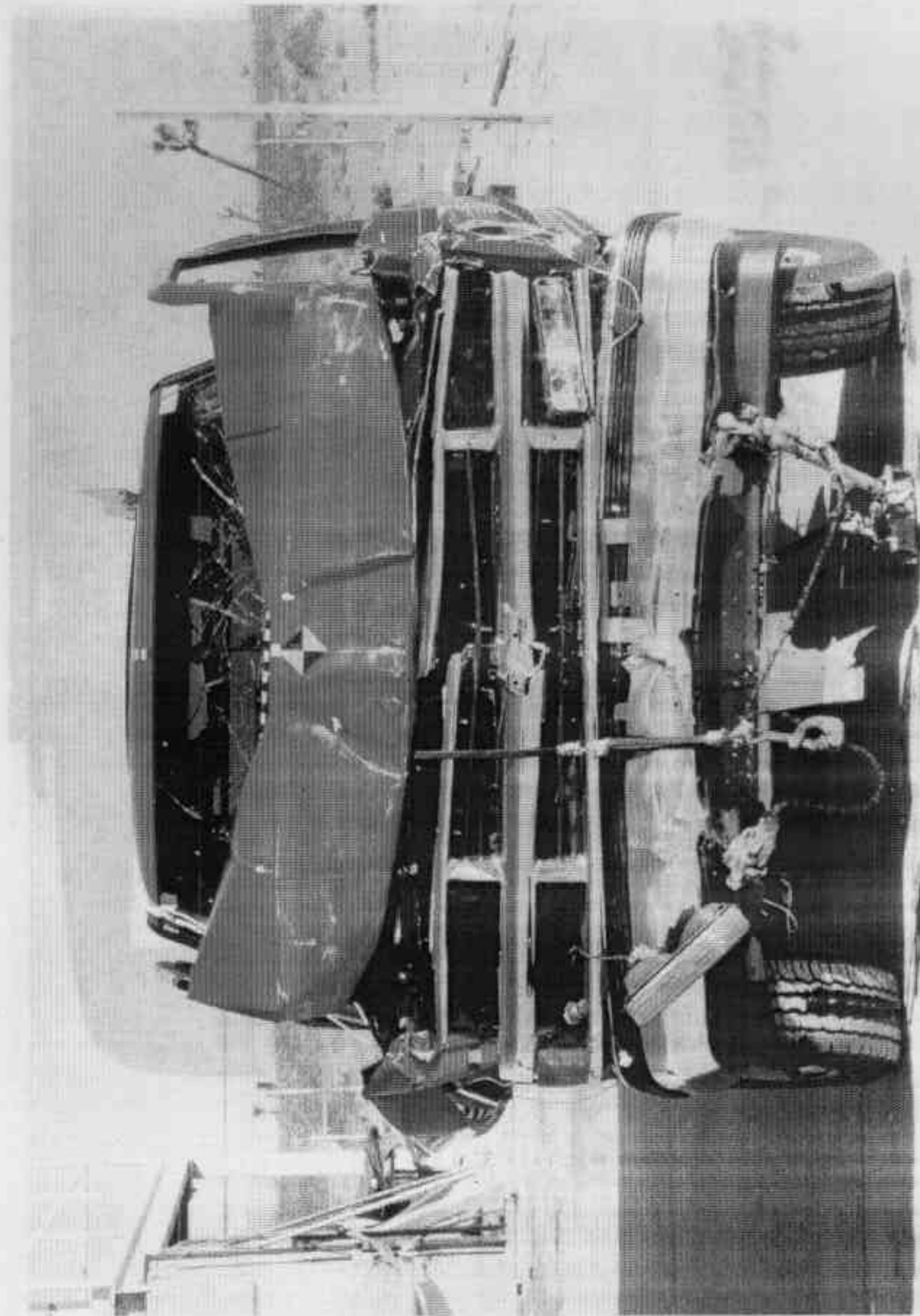


FIGURE A-6. POST TEST FRONT VIEW

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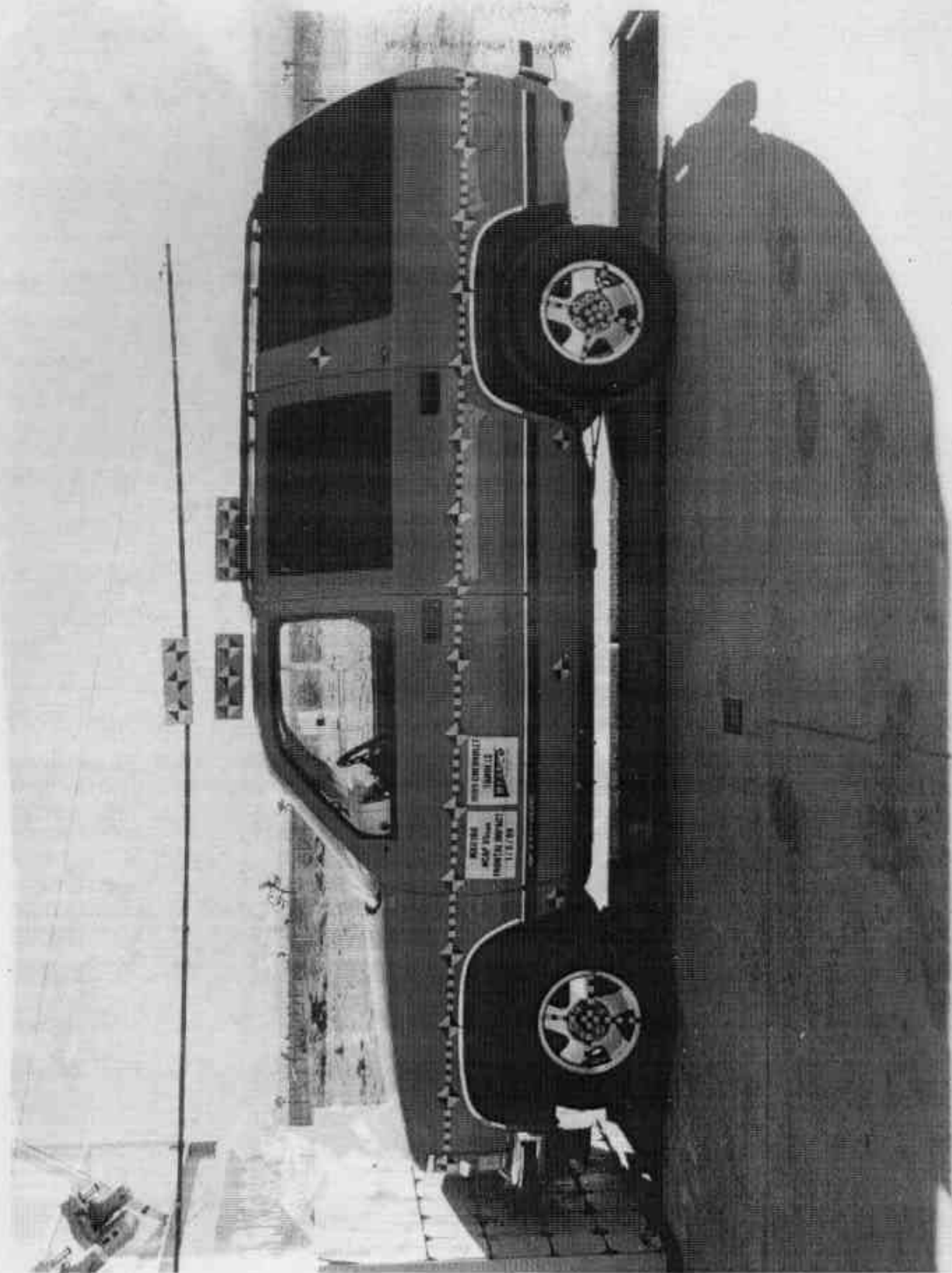


FIGURE A-7. PRETEST LEFT SIDE VIEW

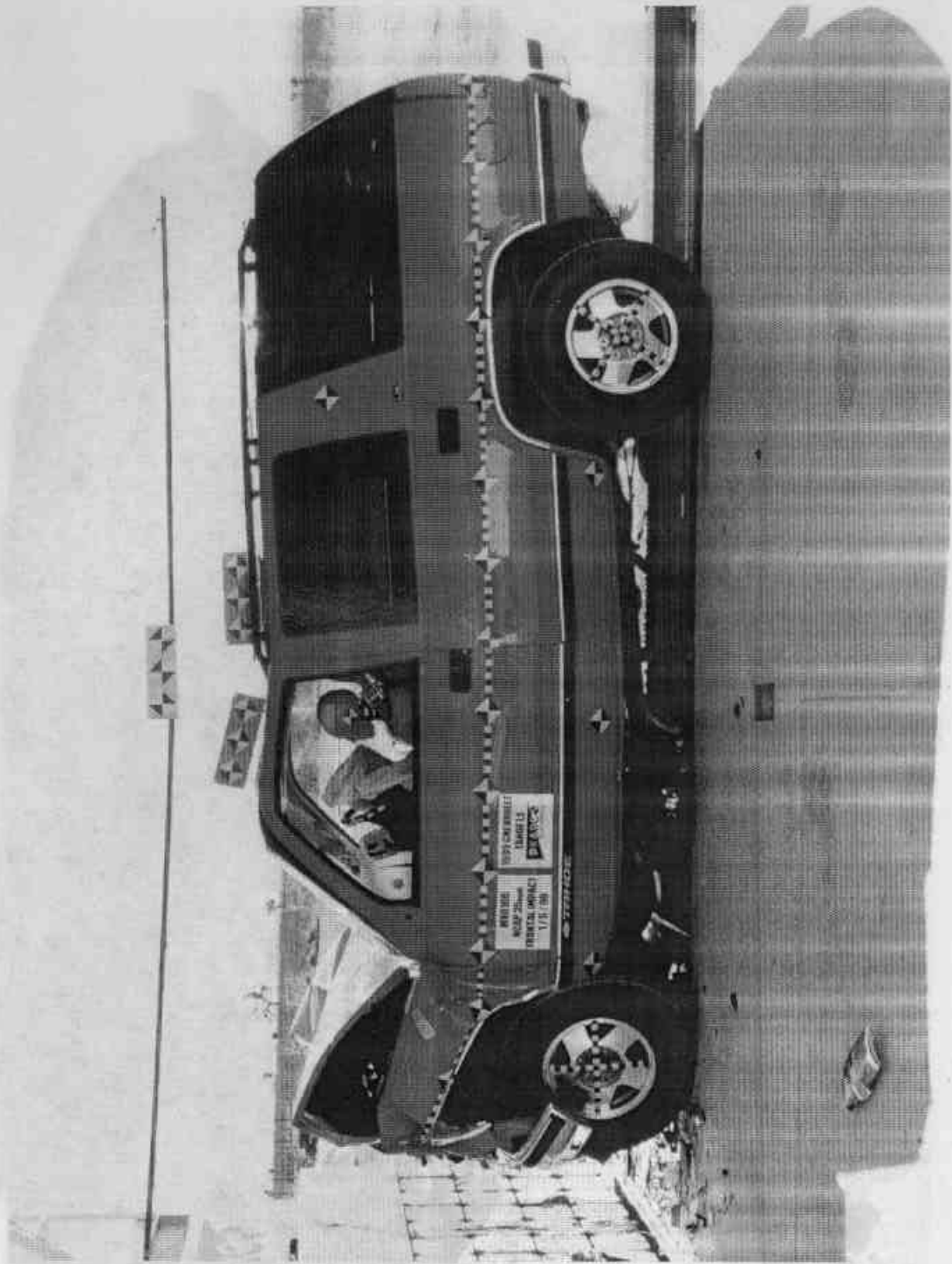


FIGURE A-8. POST TEST LEFT SIDE VIEW

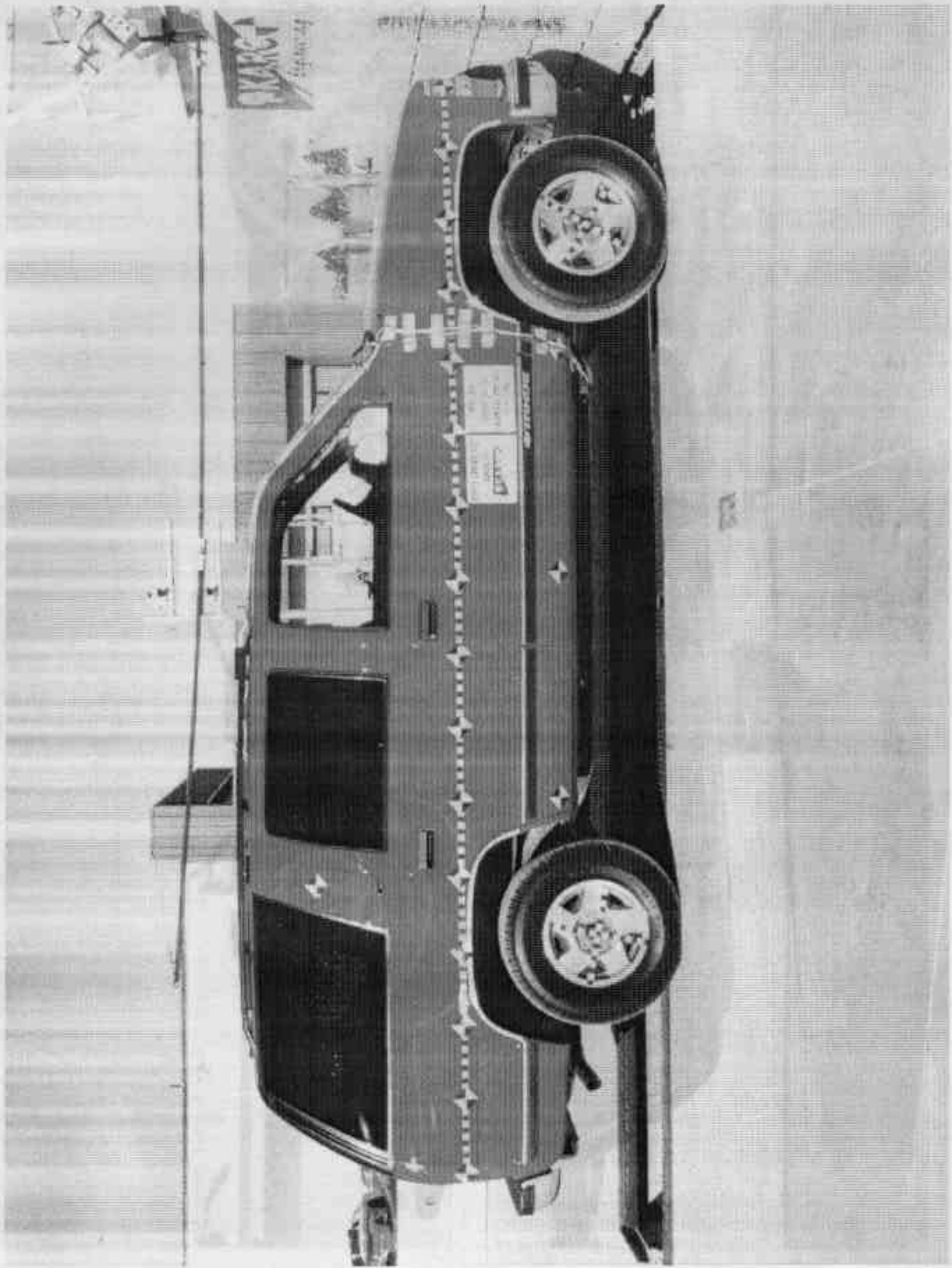


FIGURE A-9. PRETEST RIGHT SIDE VIEW

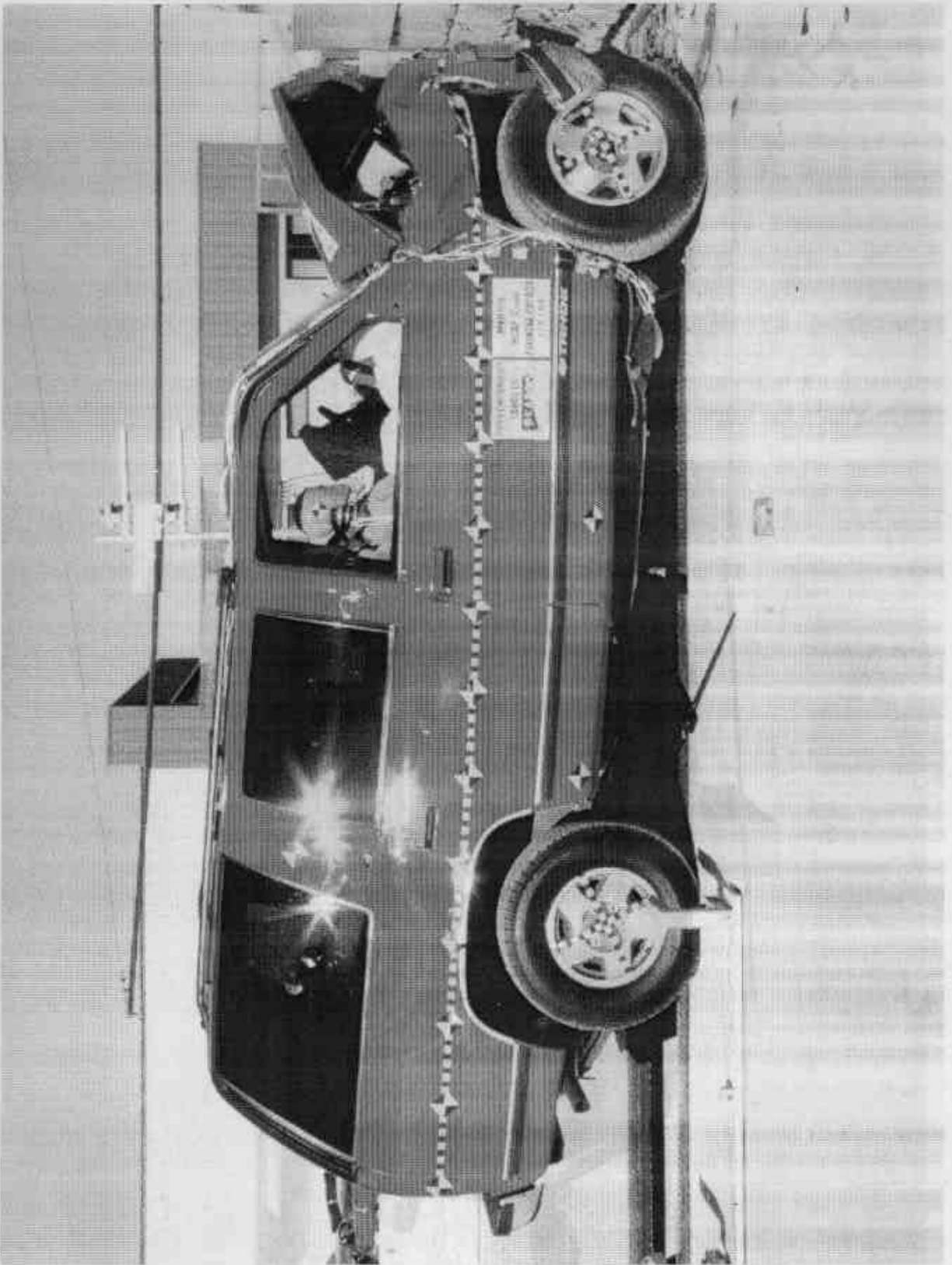


FIGURE A-10. POST TEST RIGHT SIDE VIEW

A-10

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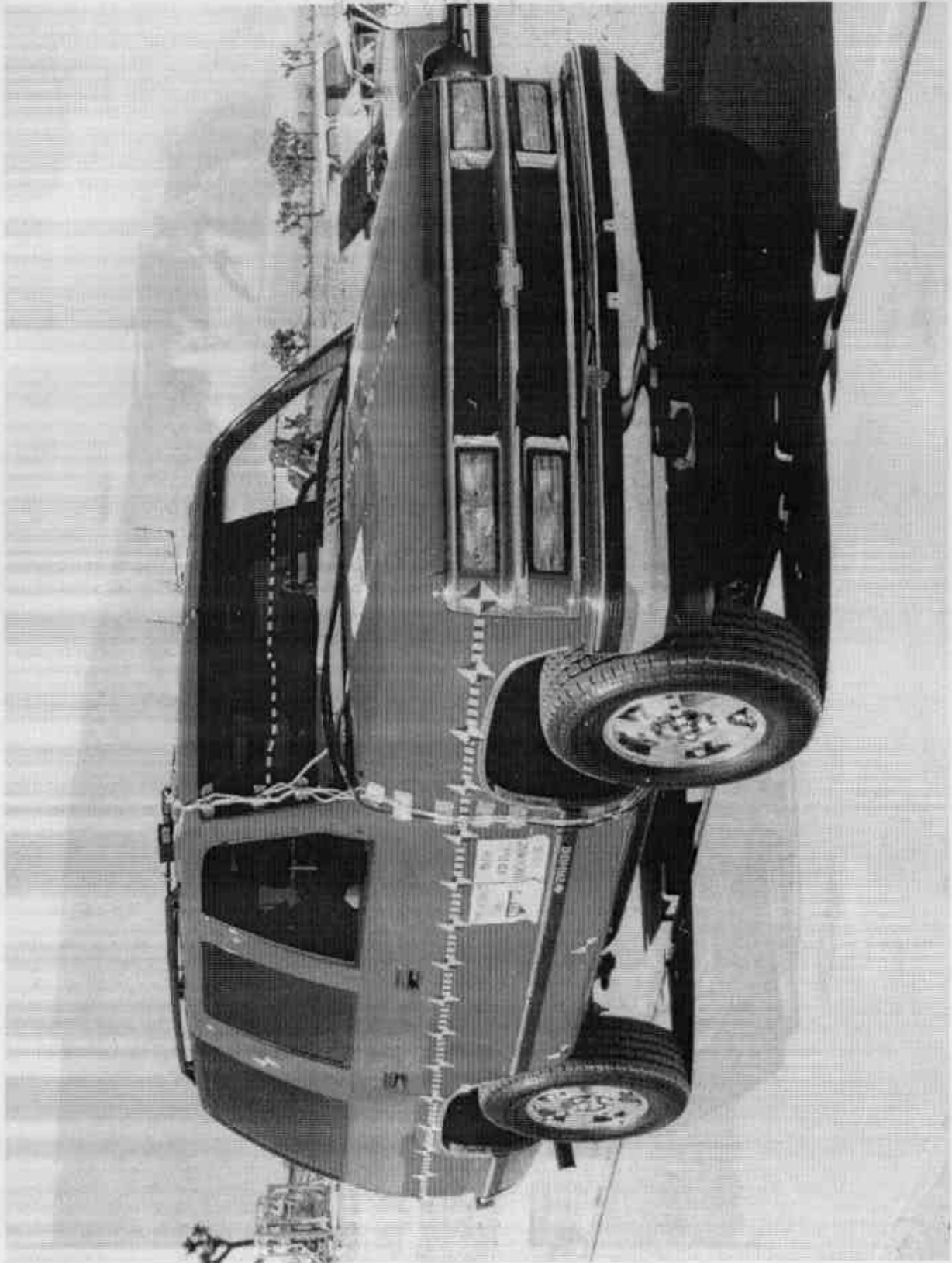


FIGURE A-11. PRETEST RIGHT FRONT VIEW

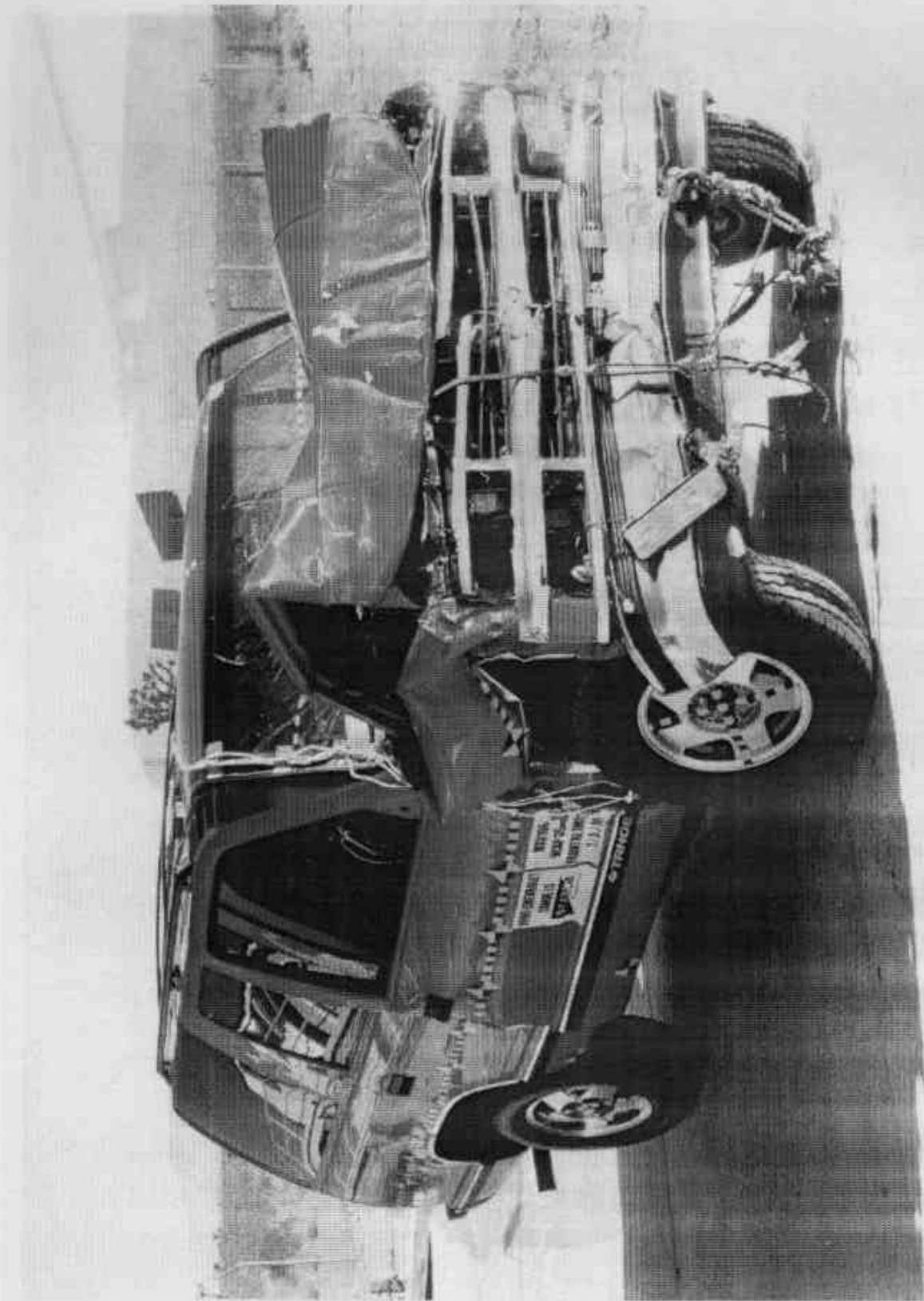


FIGURE A-12. POST TEST RIGHT FRONT VIEW

A-12

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FIGURE A-13. PRETEST LEFT REAR VIEW

KAR99001-07

A-13

KAR99001-07

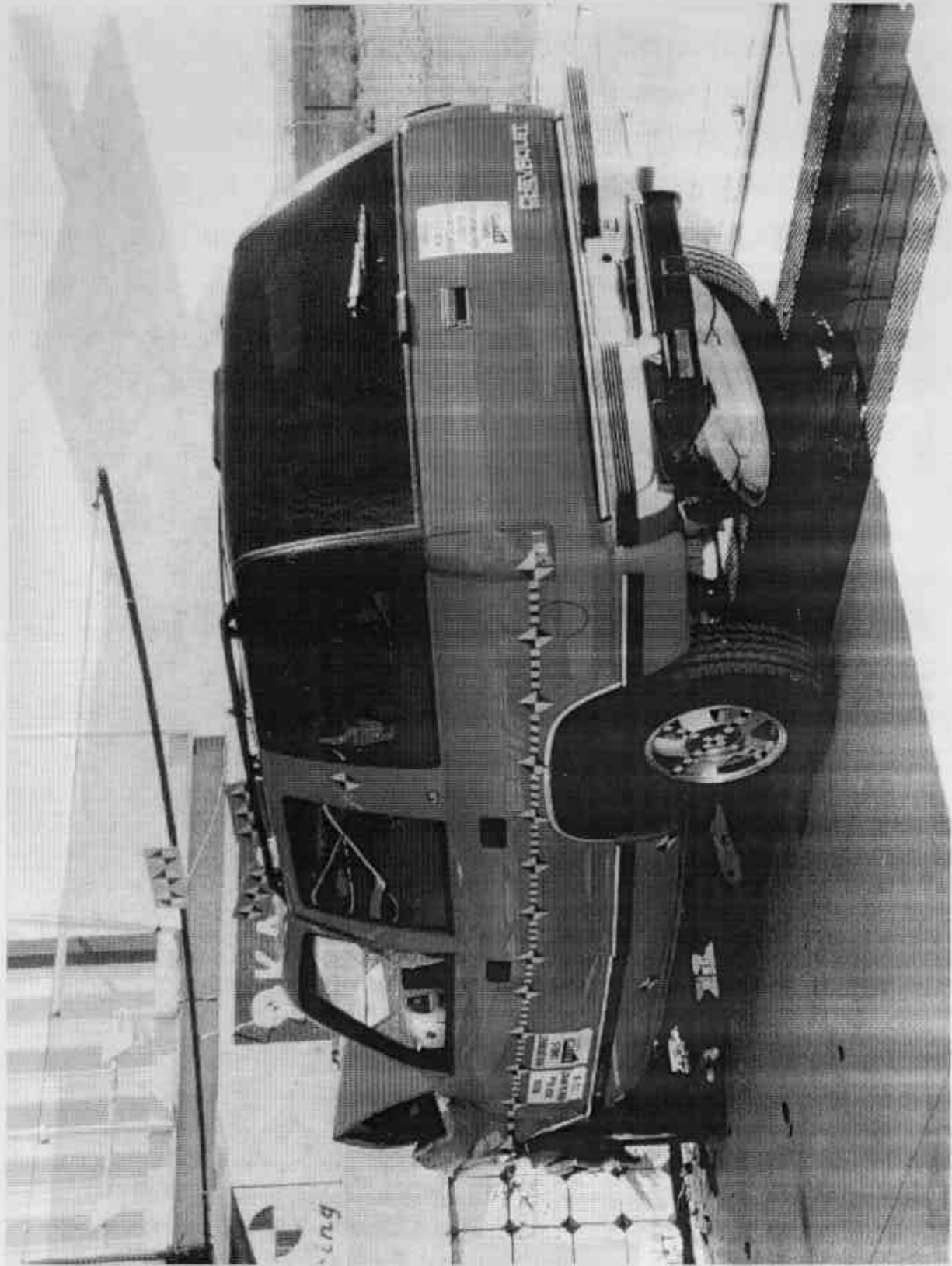


FIGURE A-14. POST TEST LEFT REAR VIEW

A-14

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KAR99001-07

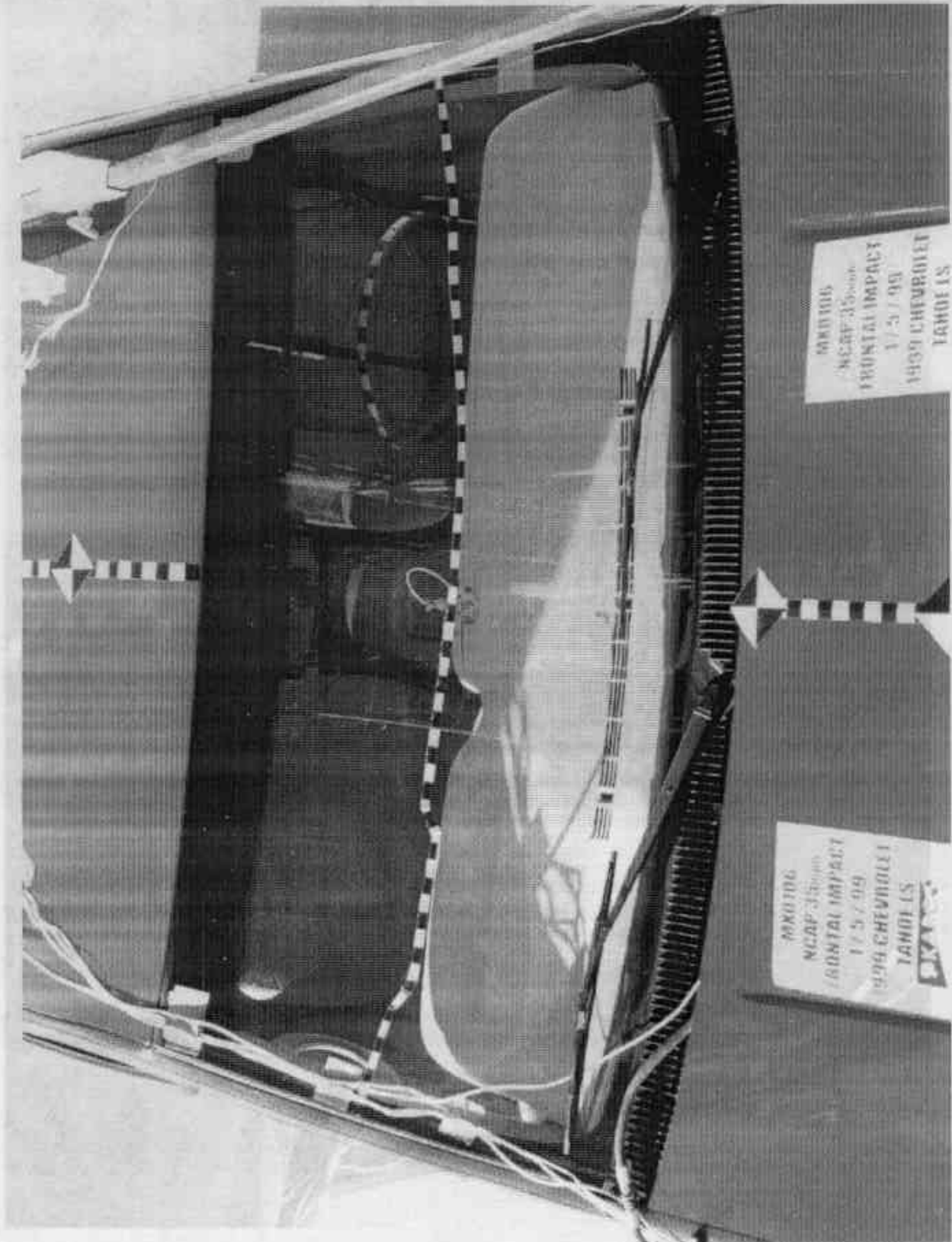


FIGURE A-15. PRETEST WINDSHIELD

KAR99001-07

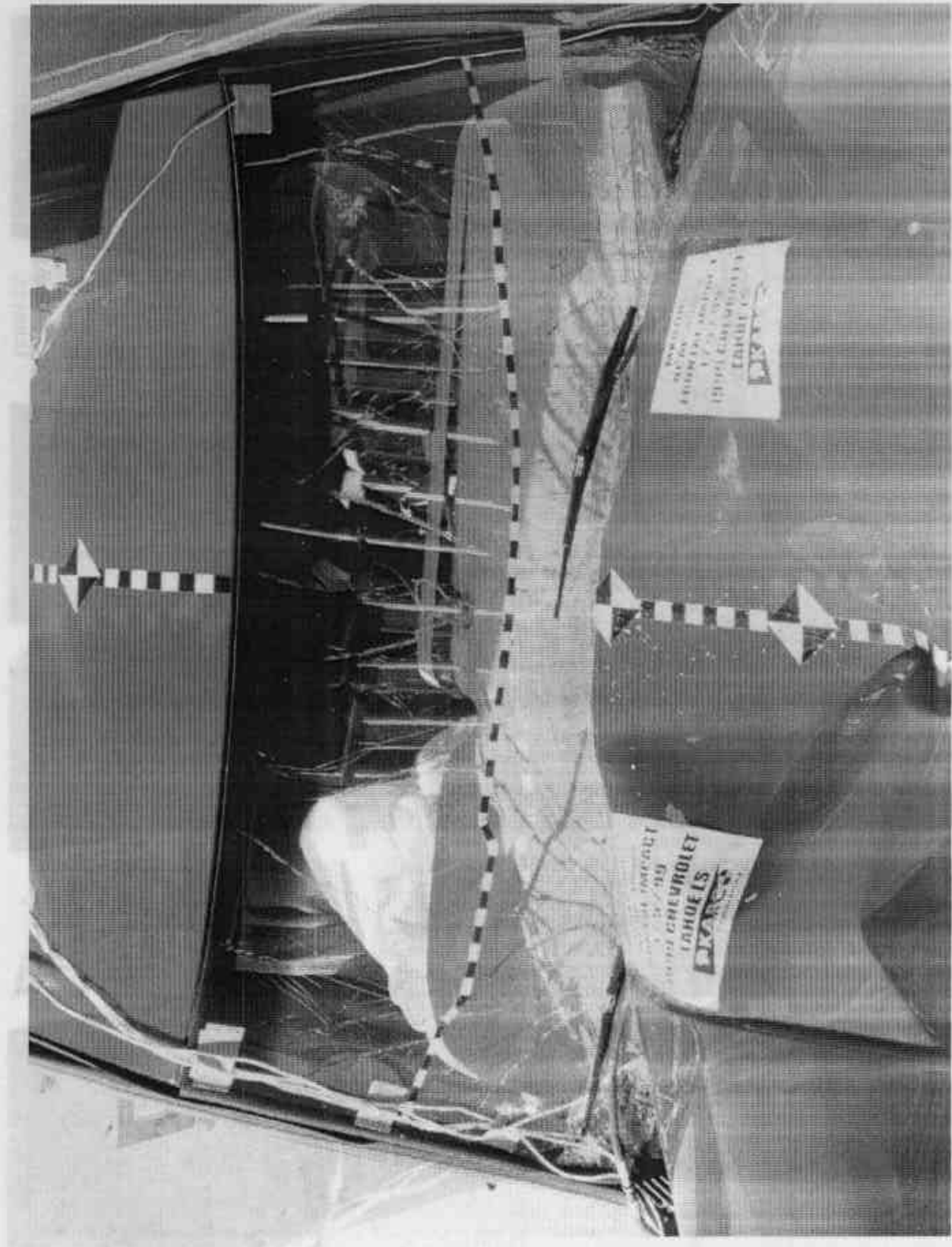


FIGURE A-16. POST TEST WINDSHIELD

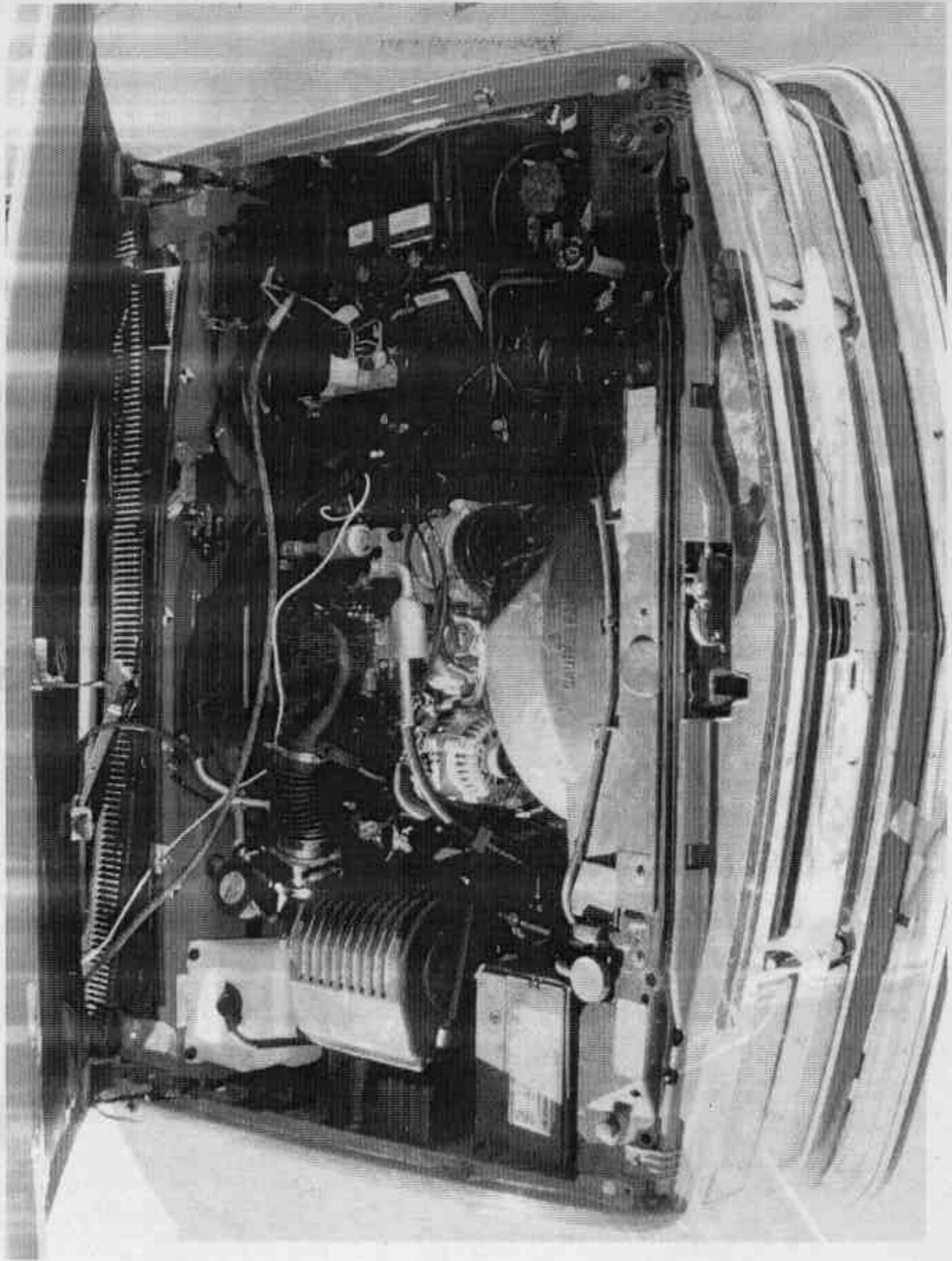


FIGURE A-17. PRETEST ENGINE COMPARTMENT

KAR99001-07

A-17

KAR99001-07

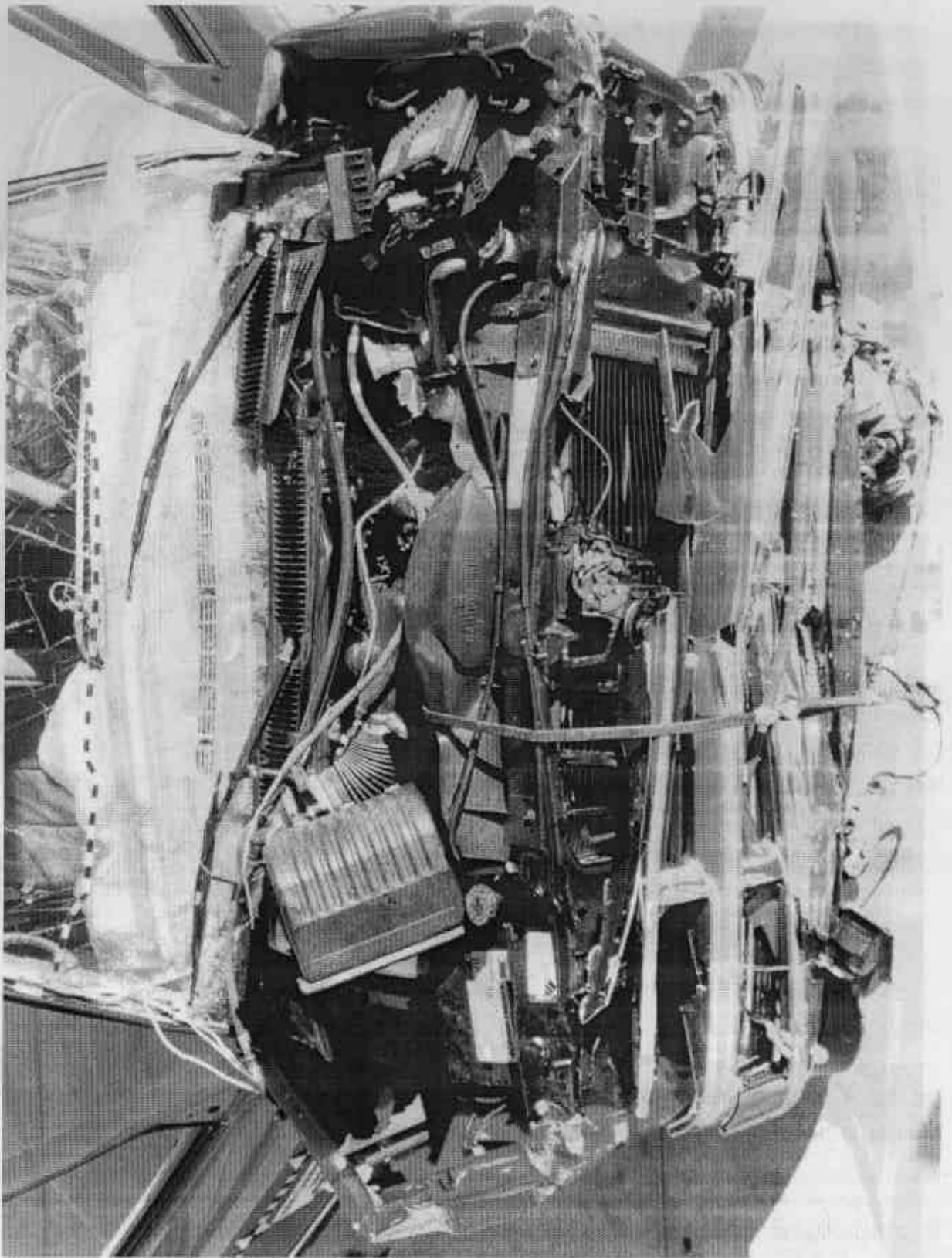


FIGURE A-18. POST TEST ENGINE COMPARTMENT

A-18

KAR99001-07

KAR99001-07

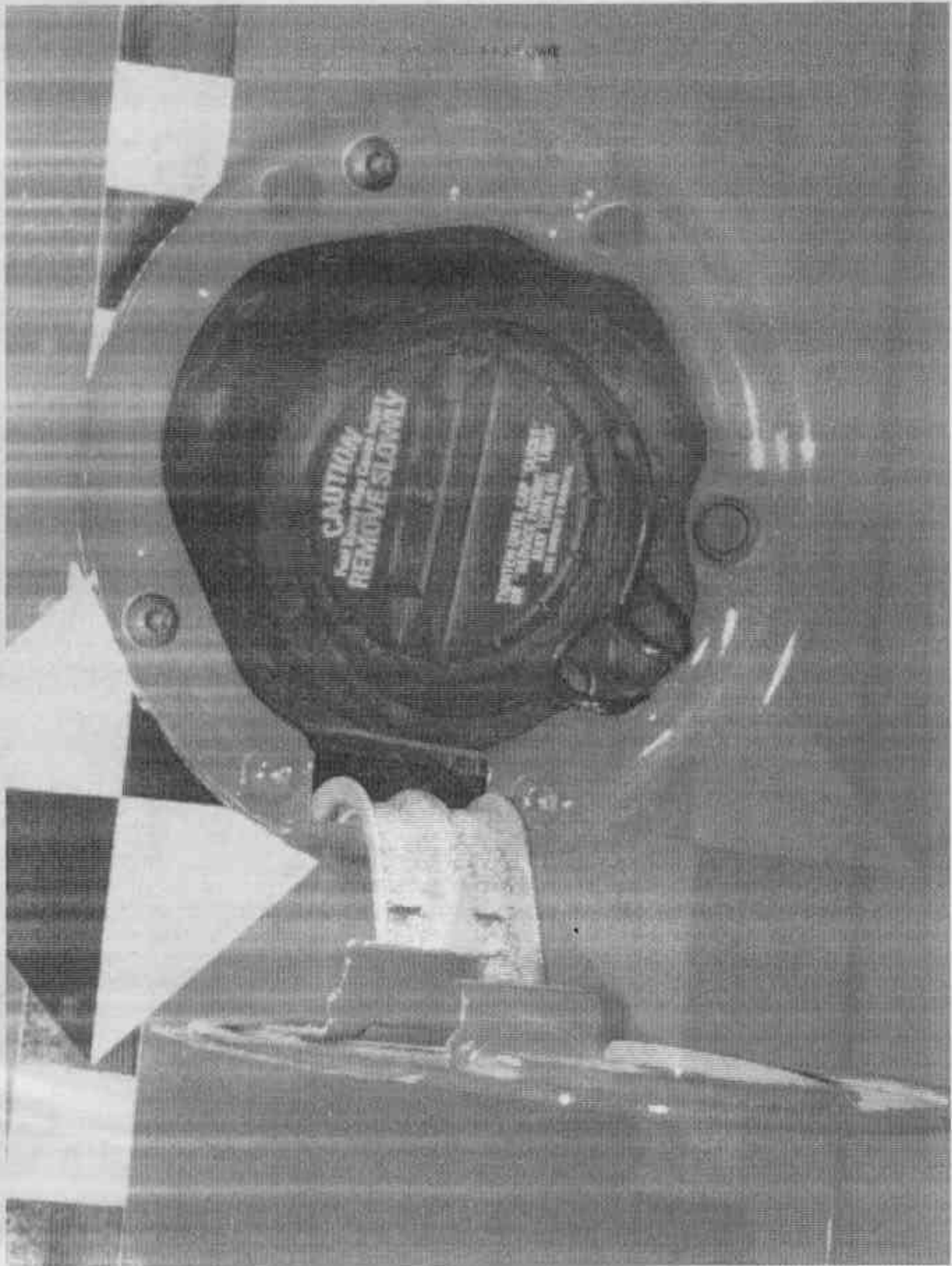


FIGURE A-19. PRETEST FUEL CAP

KAR99001-07

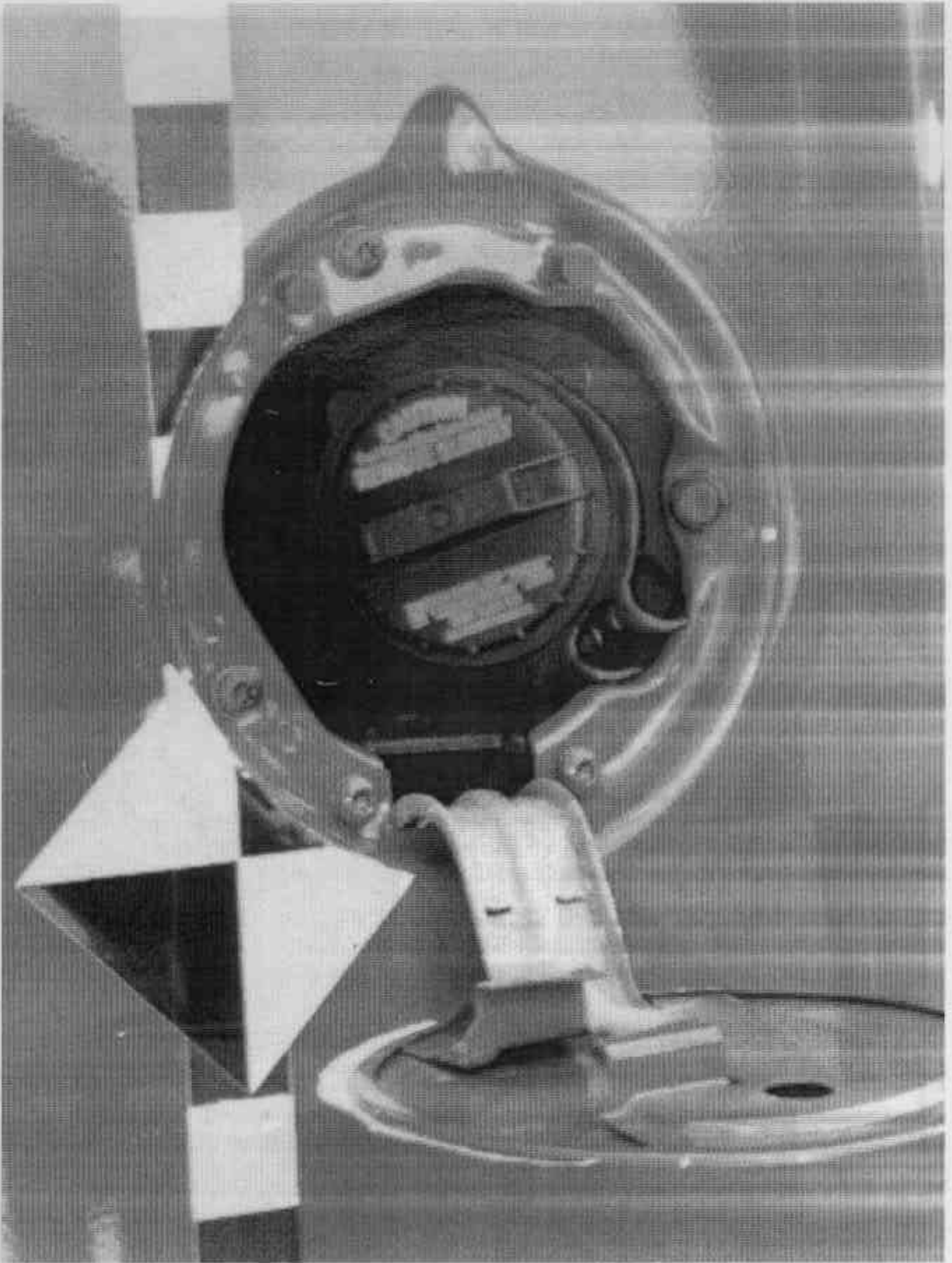


FIGURE A-20. POST TEST FUEL CAP

A-20

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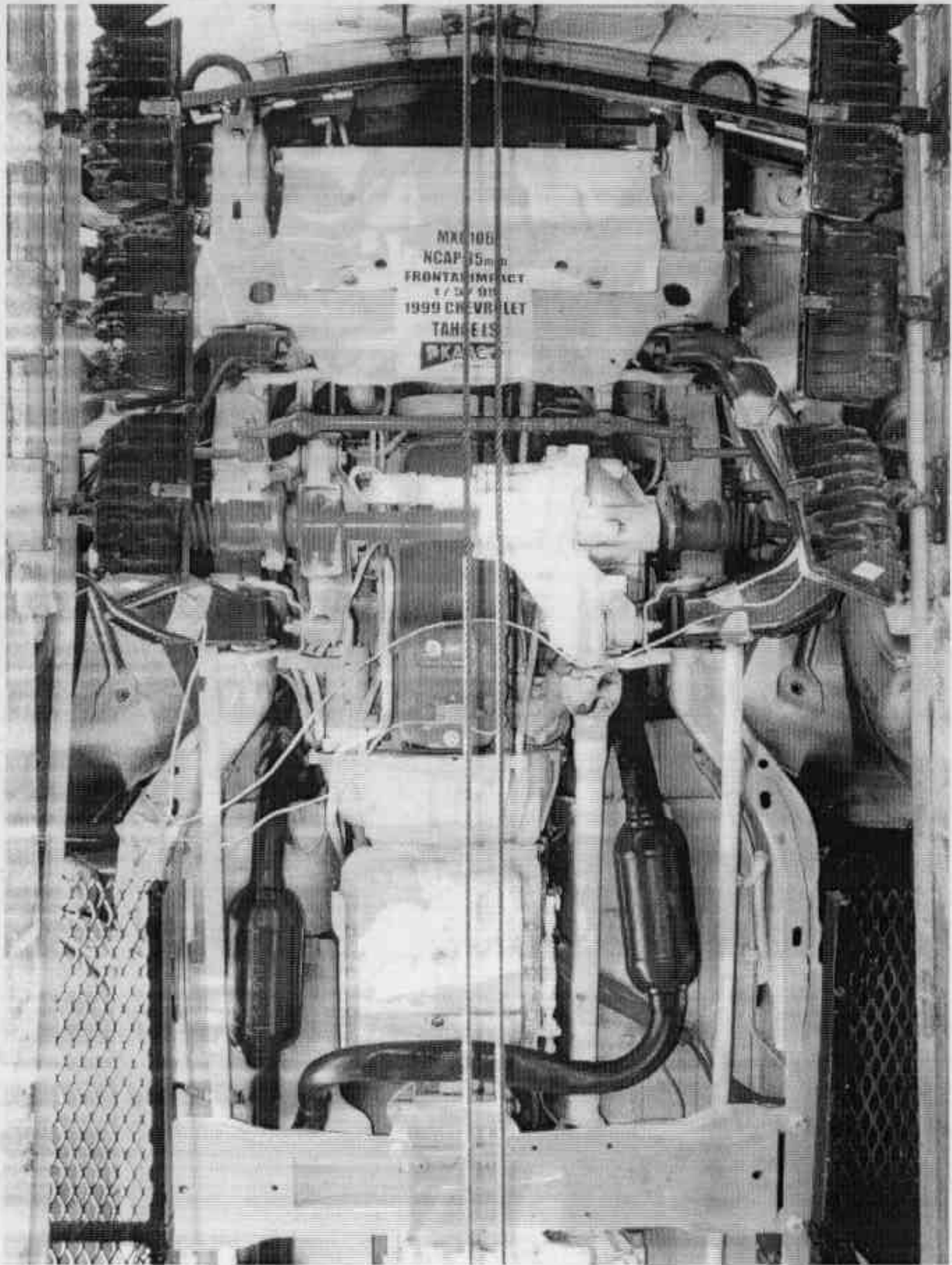


FIGURE A-21. PRETEST FRONT UNDERSIDE

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A-21

KAR99001-07

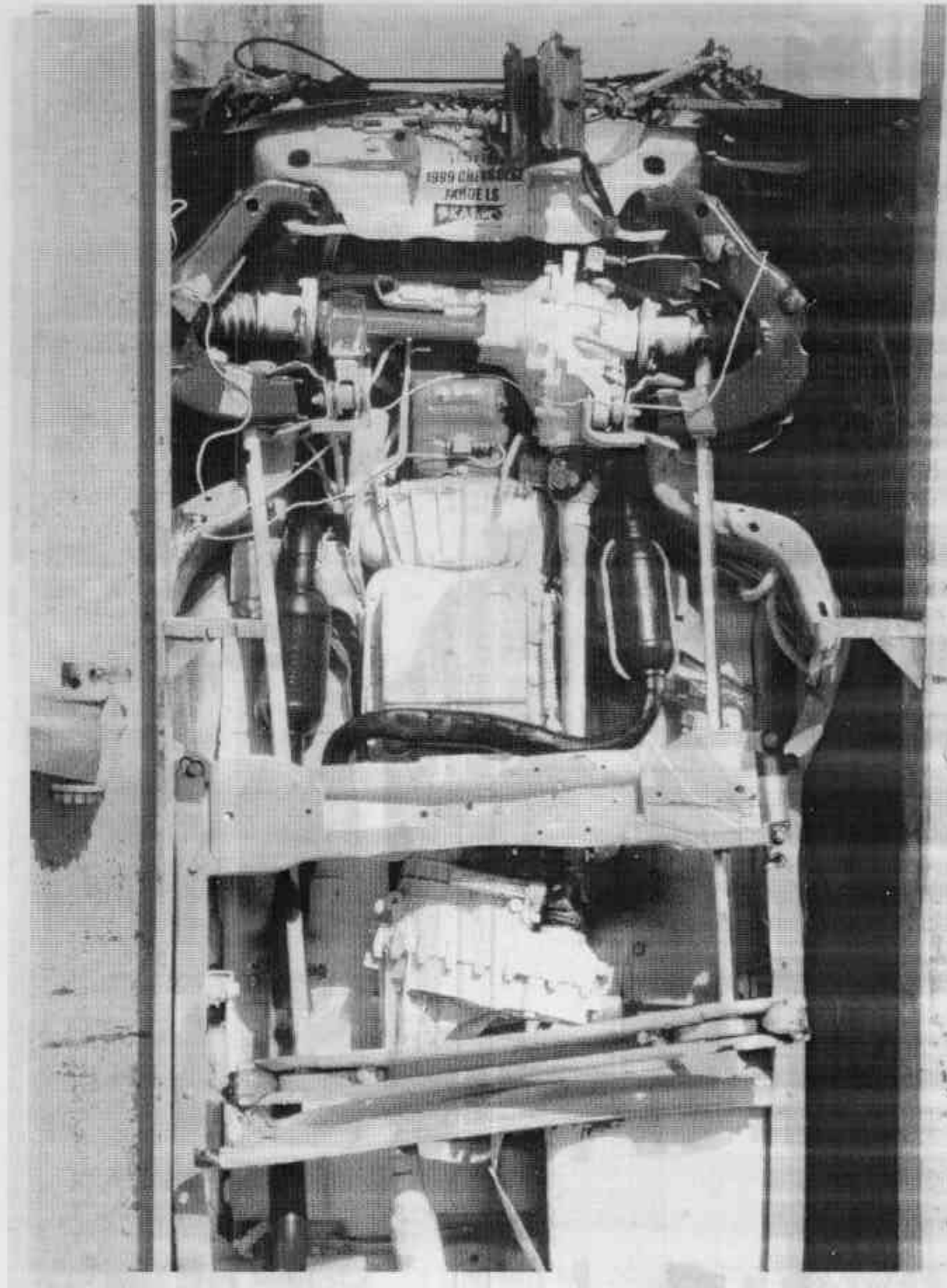


FIGURE A-22. POST TEST FRONT UNDERSIDE

A-22

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KAR99001-07

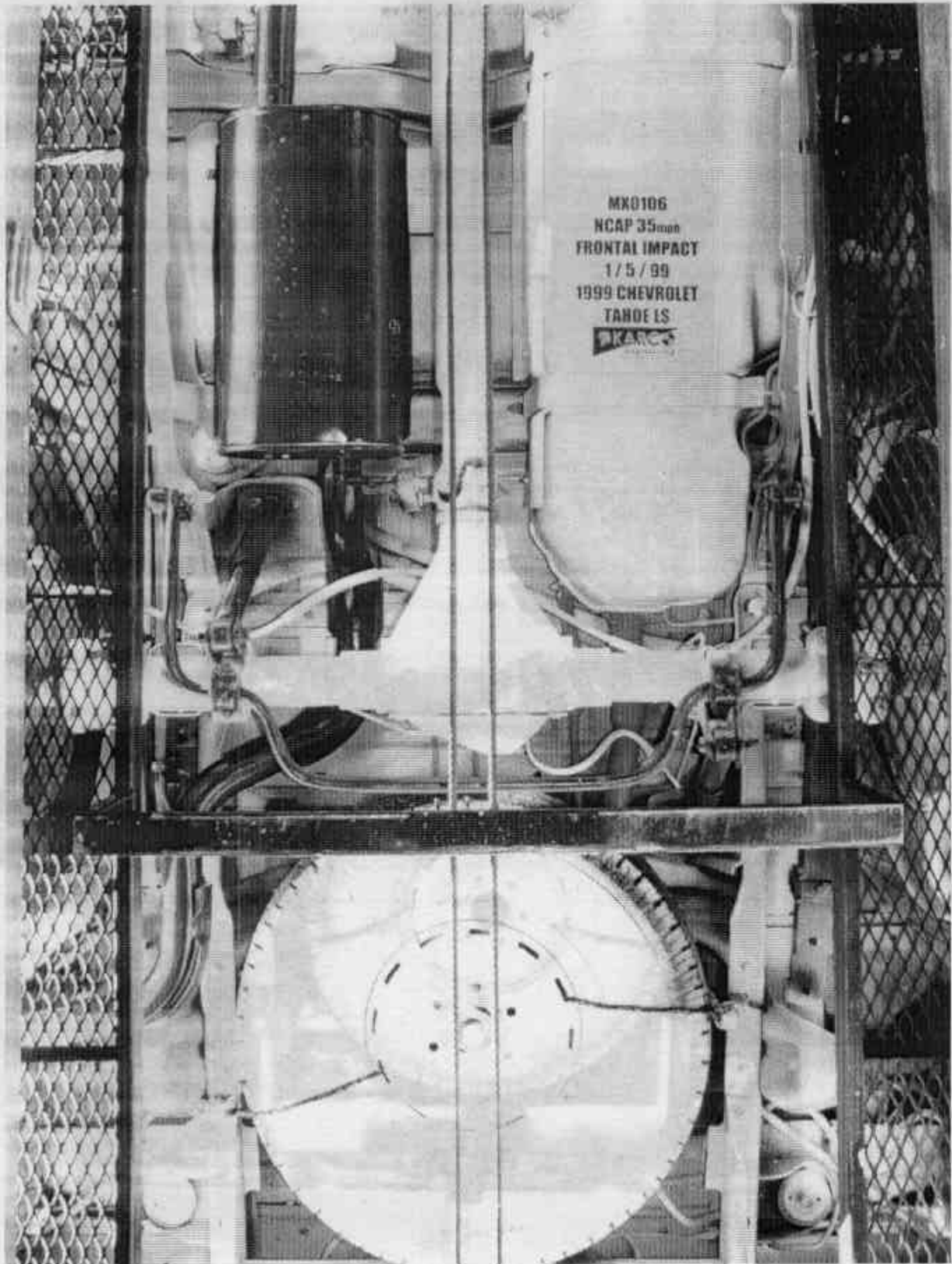


FIGURE A-24. POST TEST REAR UNDERSIDE
FIGURE A-23. PRETEST REAR UNDERSIDE

KAR99001-07

A-23
A-23

KAR99001-07

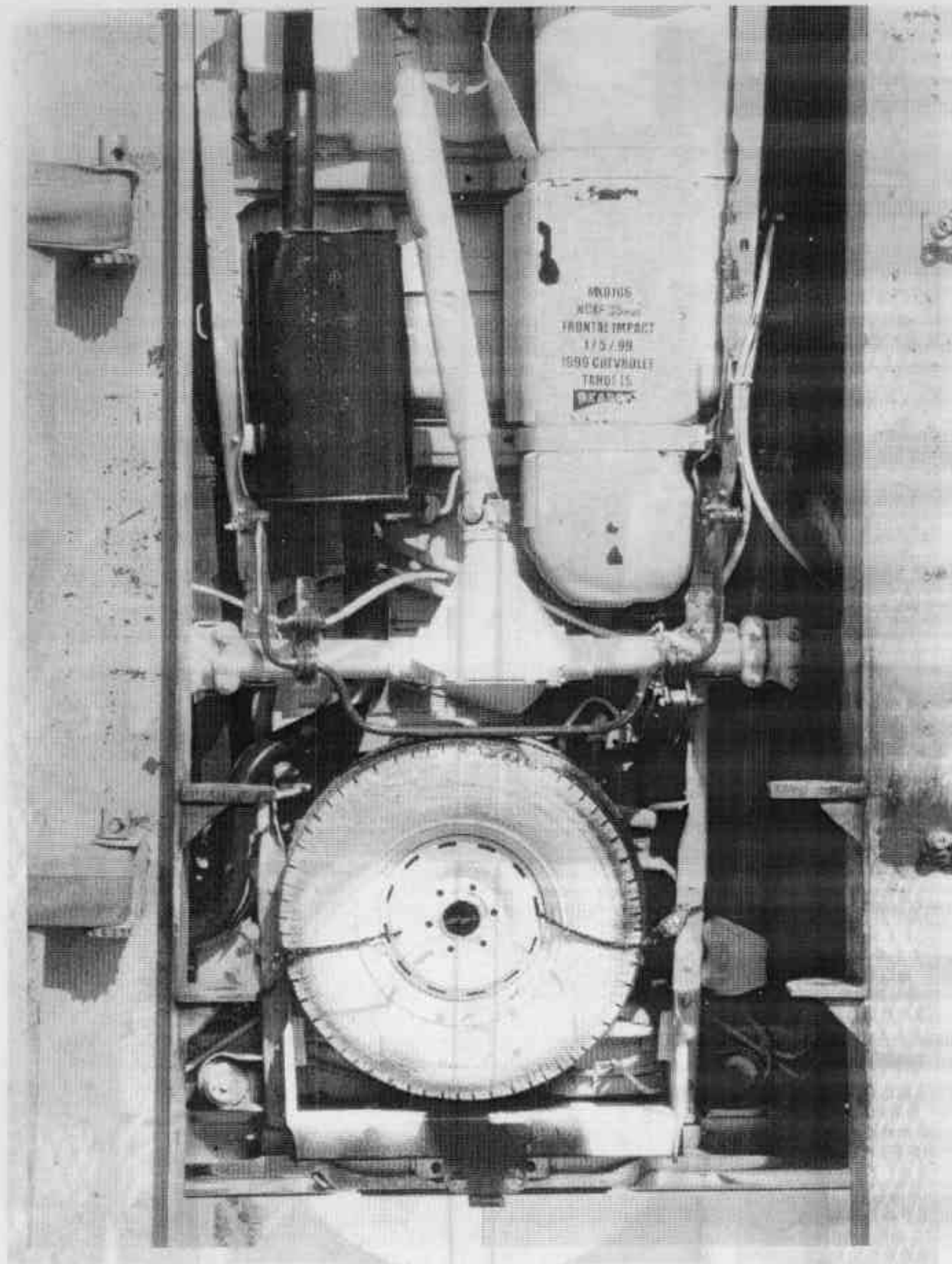


FIGURE A-24. POST TEST REAR UNDERSIDE

A-24

KAR99001-07

KAR99001-07

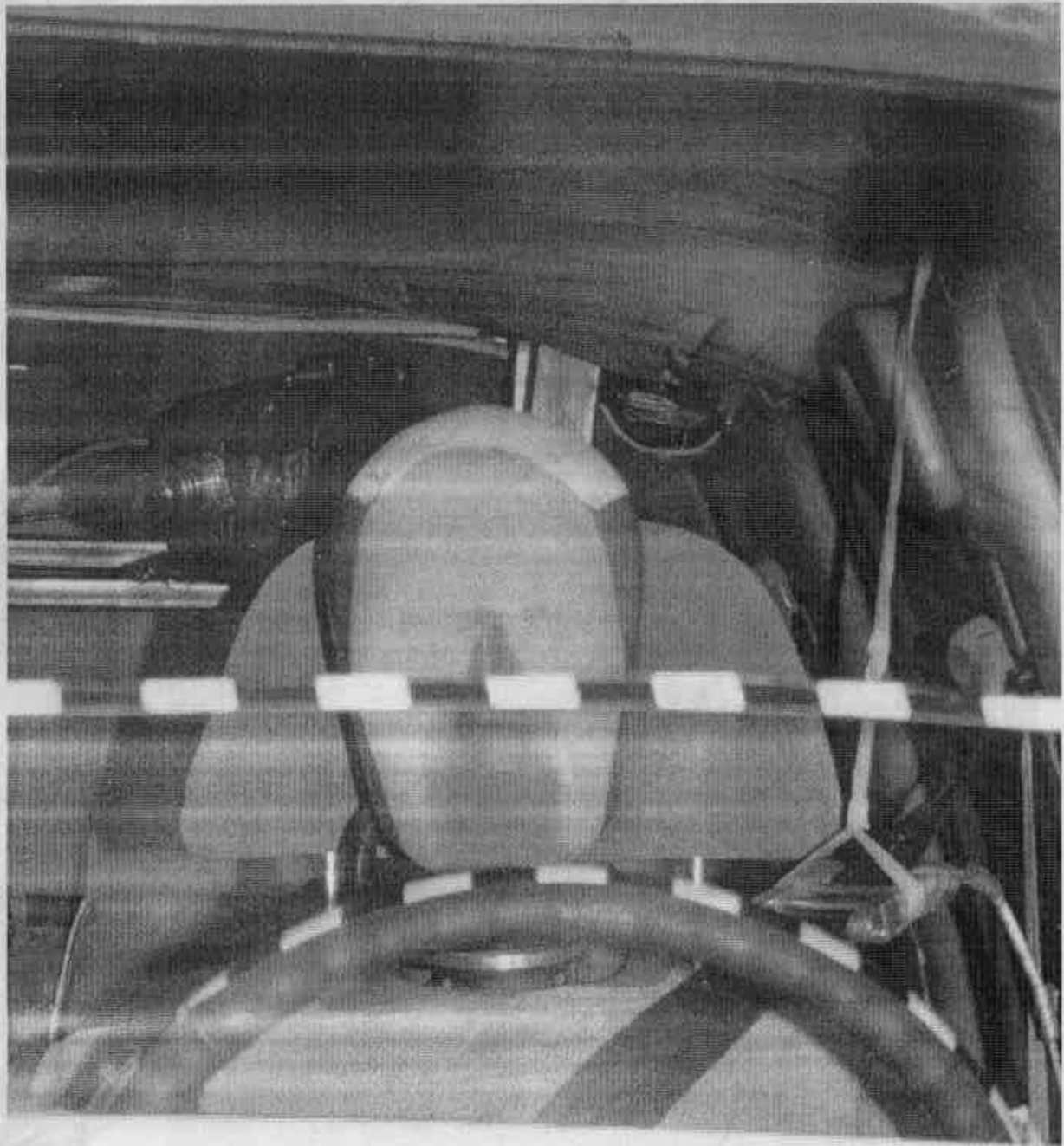


FIGURE A-25. PRETEST DRIVER DUMMY (FRONT VIEW)

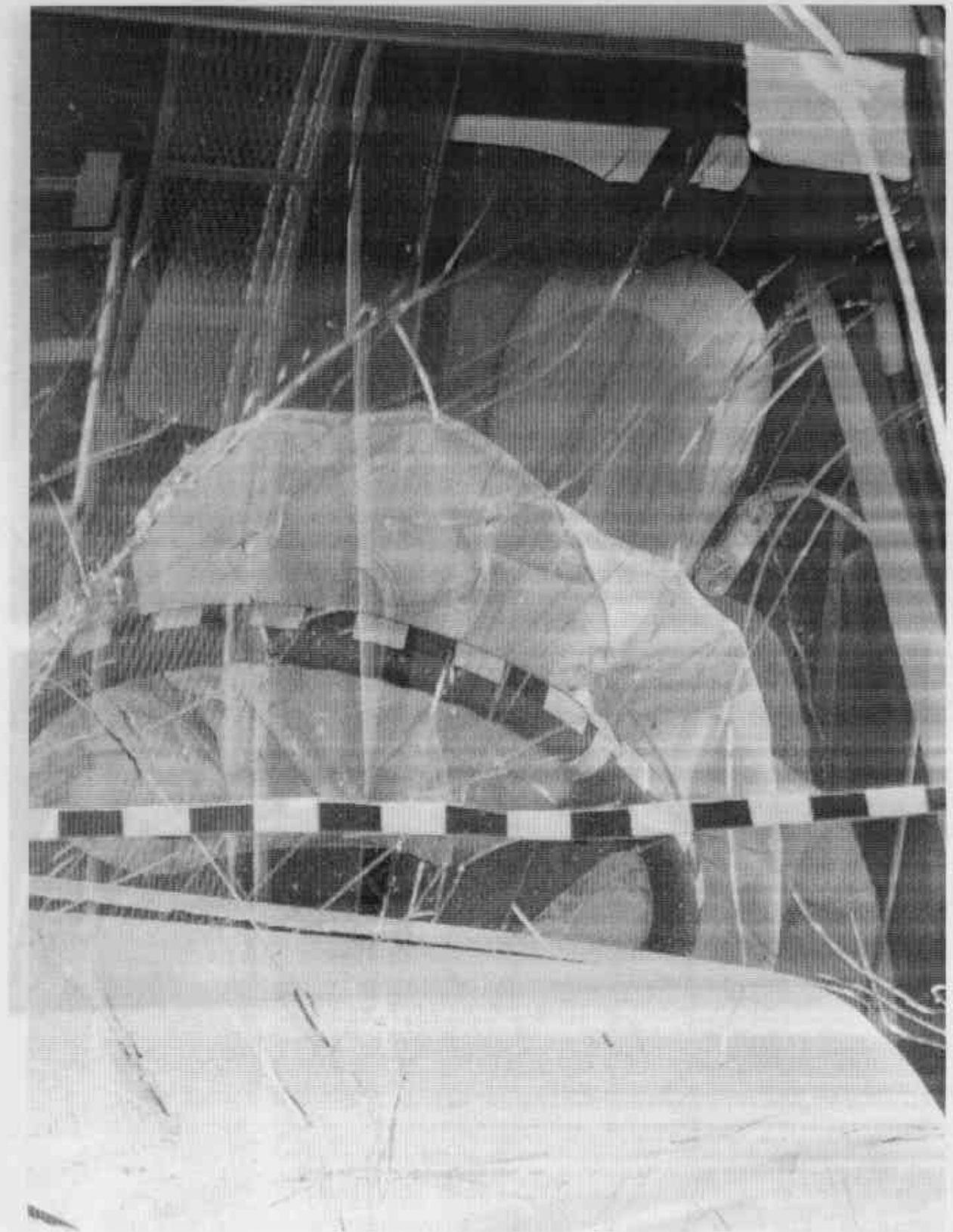


FIGURE A-26. POST TEST DRIVER DUMMY (FRONT VIEW)

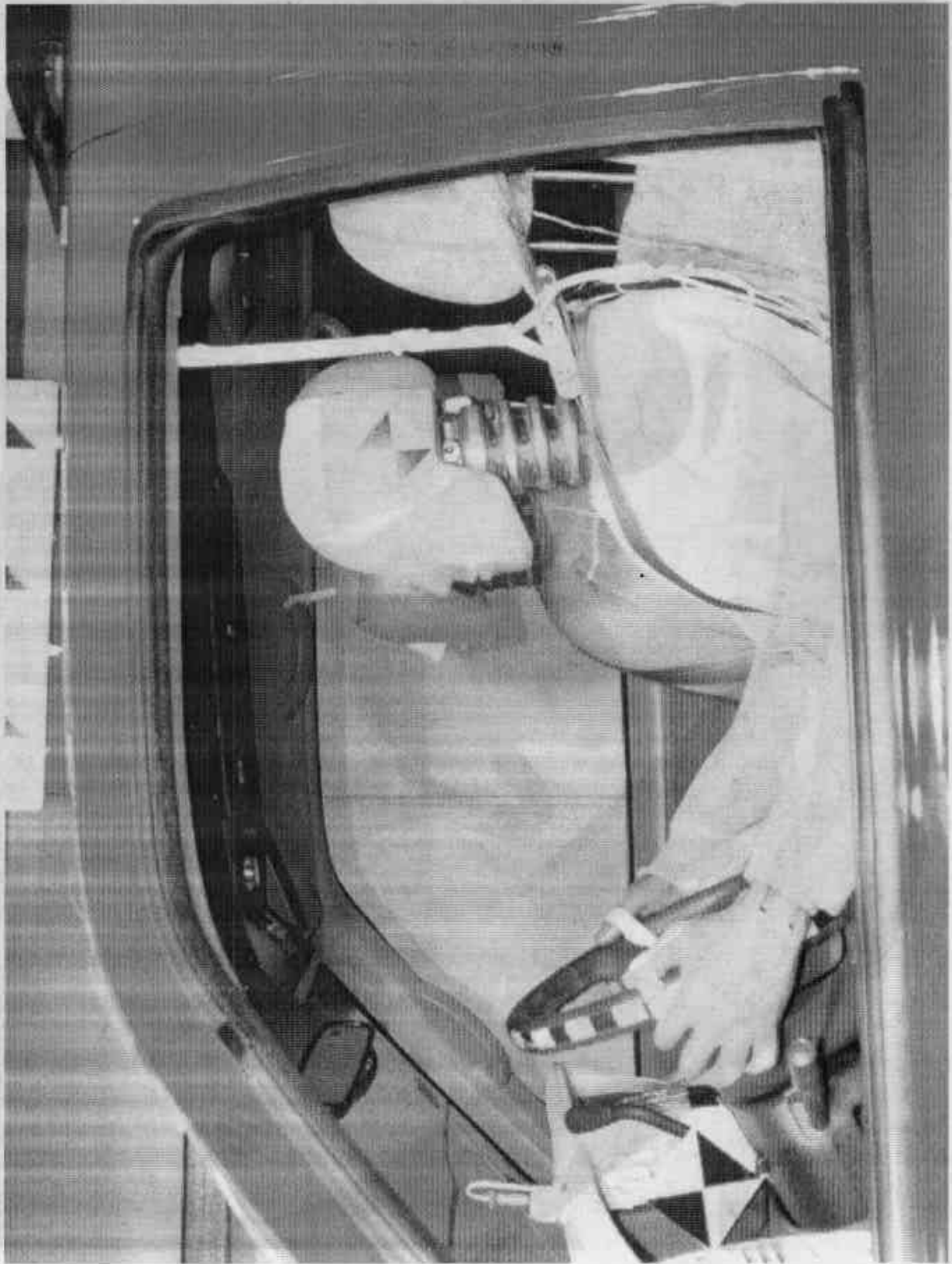


FIGURE A-27. PRETEST DRIVER DUMMY (THRU WINDOW)



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



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



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

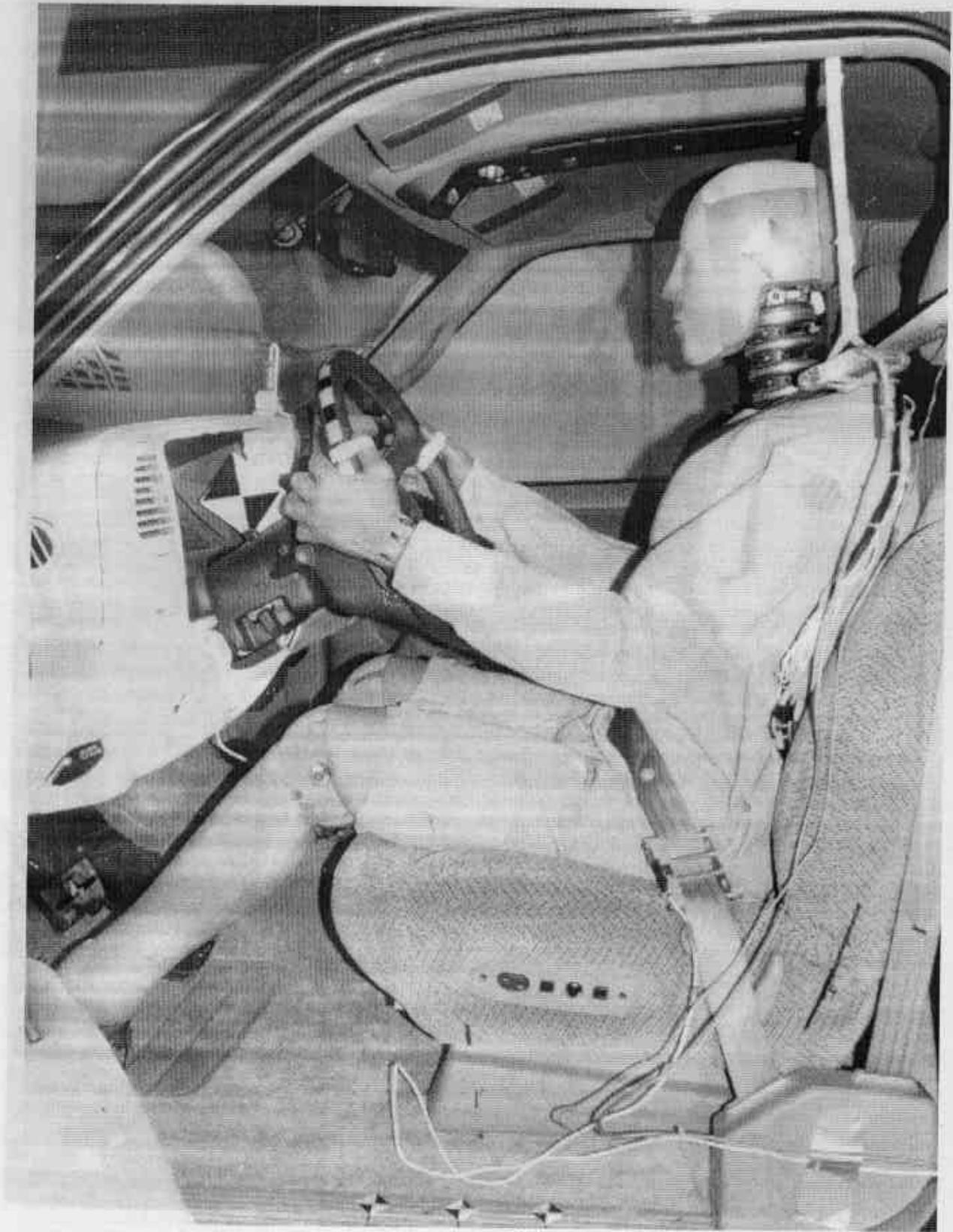


FIGURE A-31. PRETEST DRIVER DUMMY (90° TO VEHICLE)

TO-THIRDIAN



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



FIGURE A-33. PRETEST DRIVER DUMMY FEET

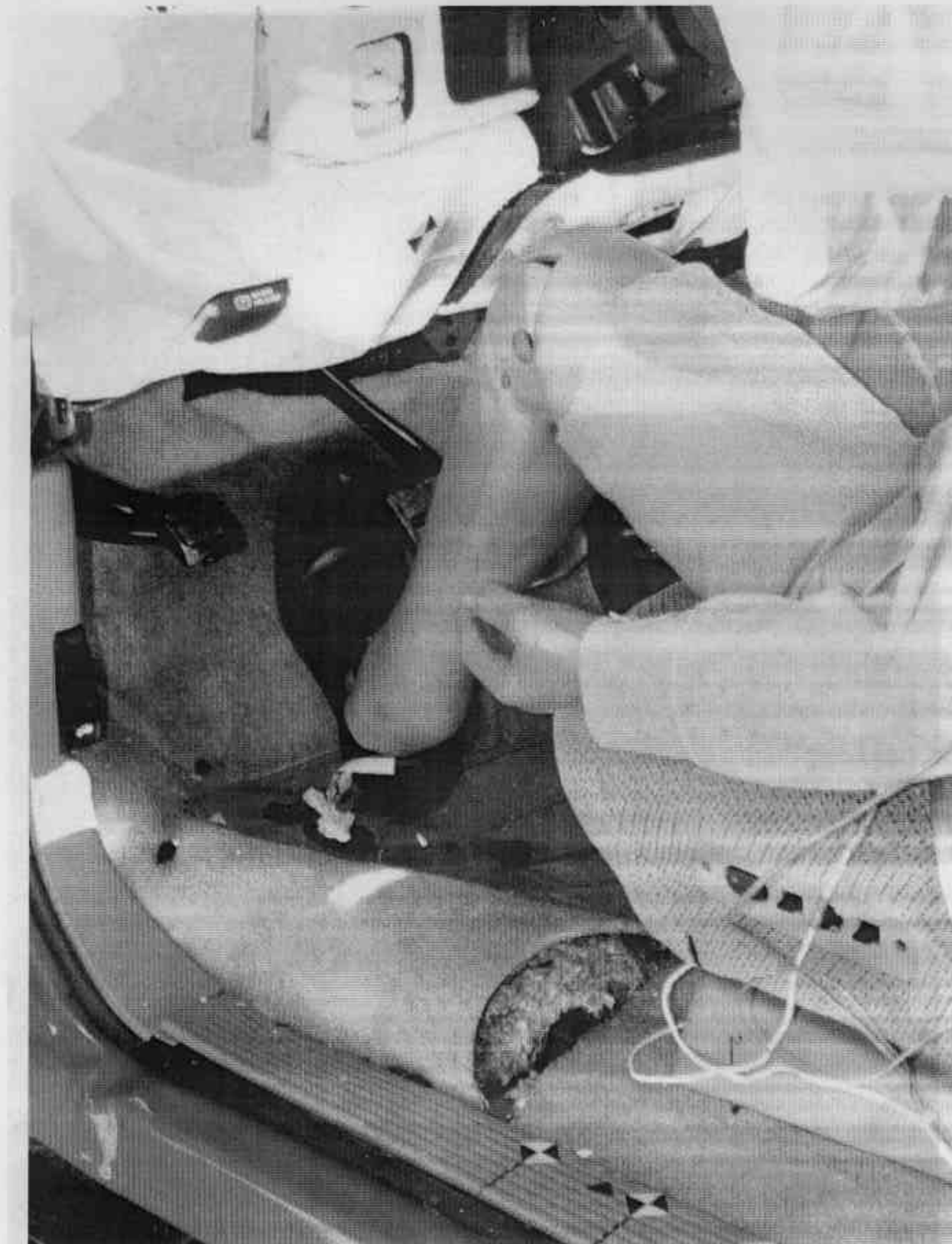


FIGURE A-34. POST TEST DRIVER DUMMY FEET AND KNEE CONTACT

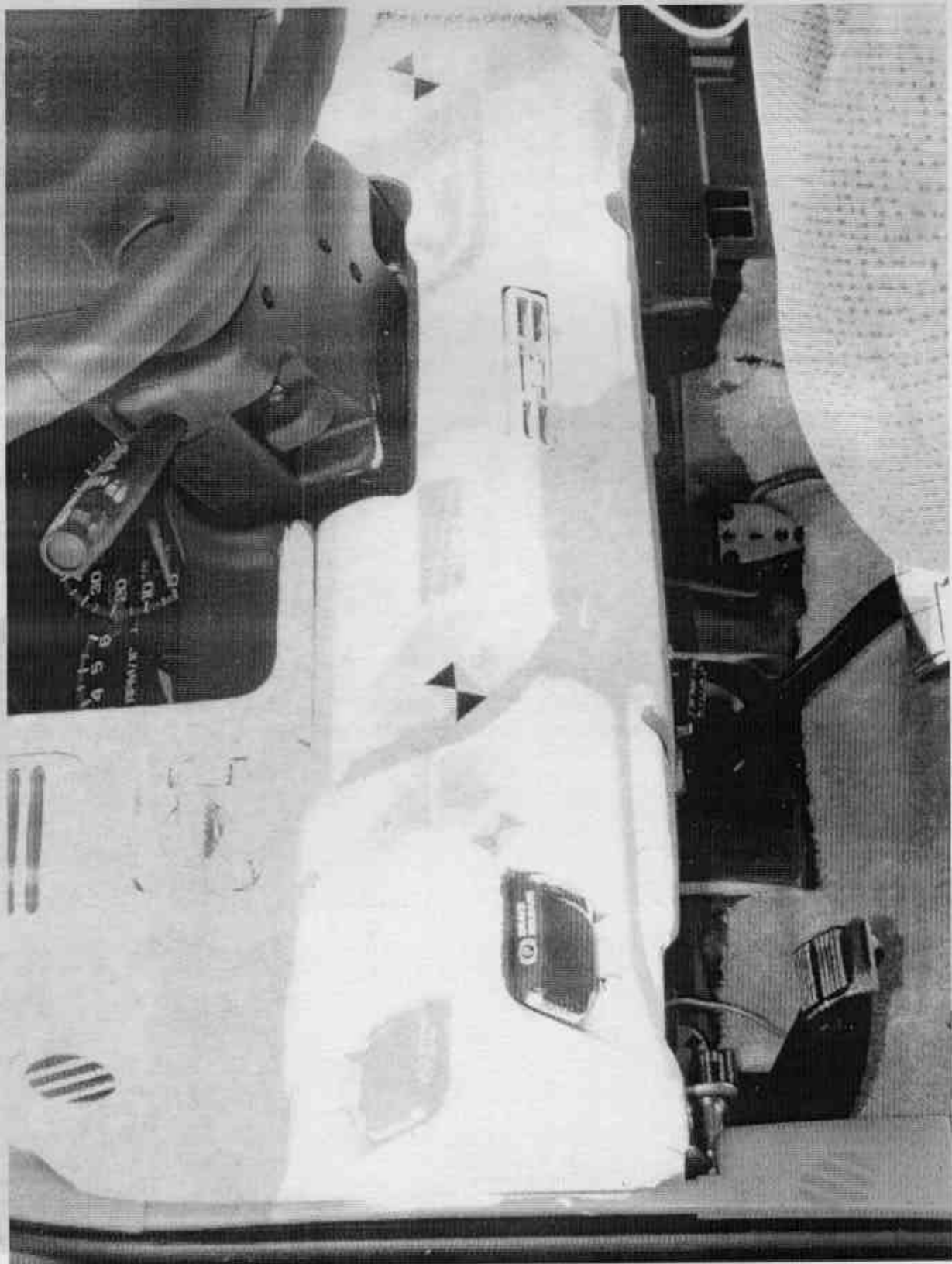


FIGURE A-35. PRETEST DRIVER KNEE BOLSTER

TO-FERRIS

A-35

KAR99001-07

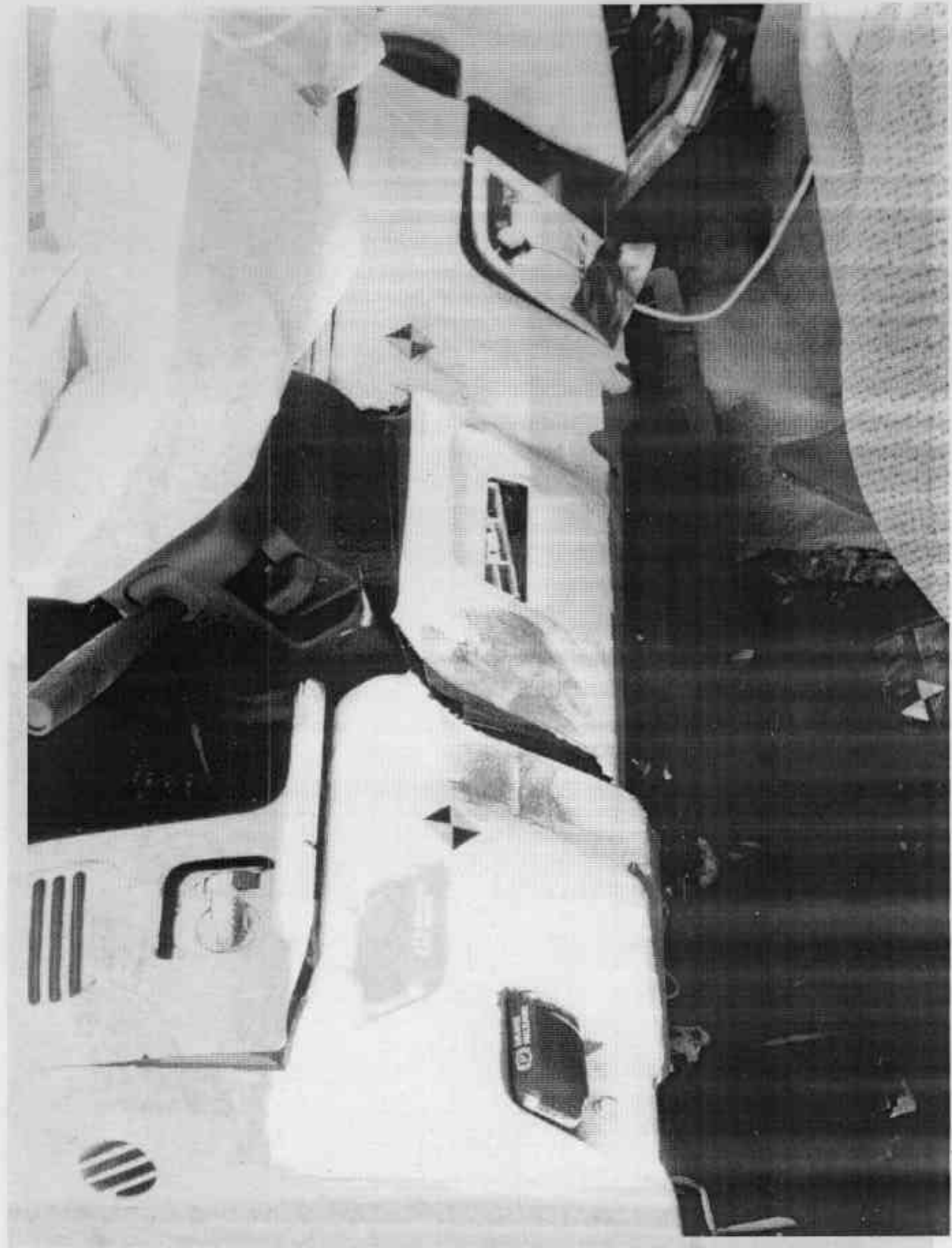


FIGURE A-36. POST TEST DRIVER KNEE BOLSTER

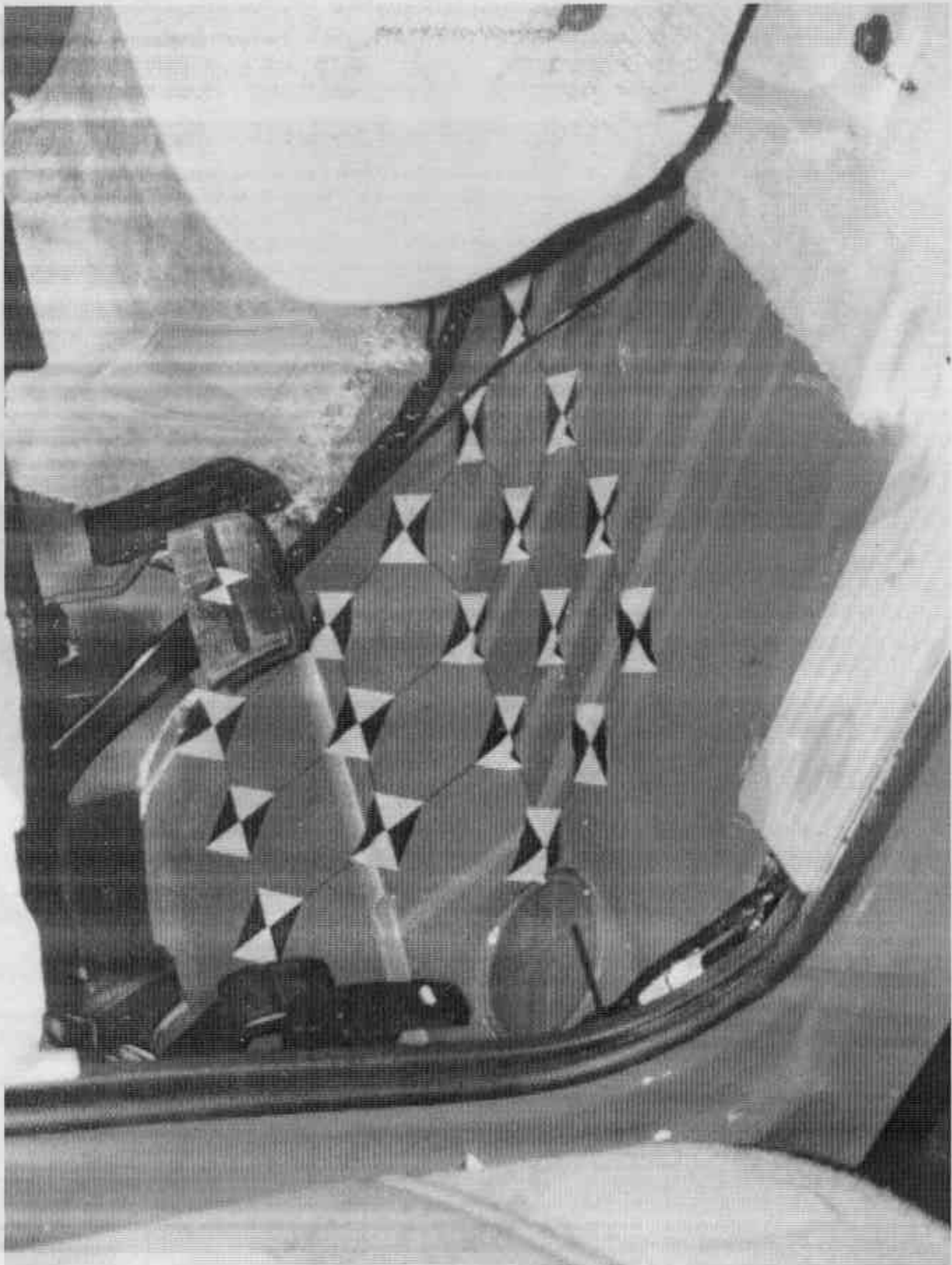


FIGURE A-37. PRETEST DRIVER SIDE FLOOR PAN

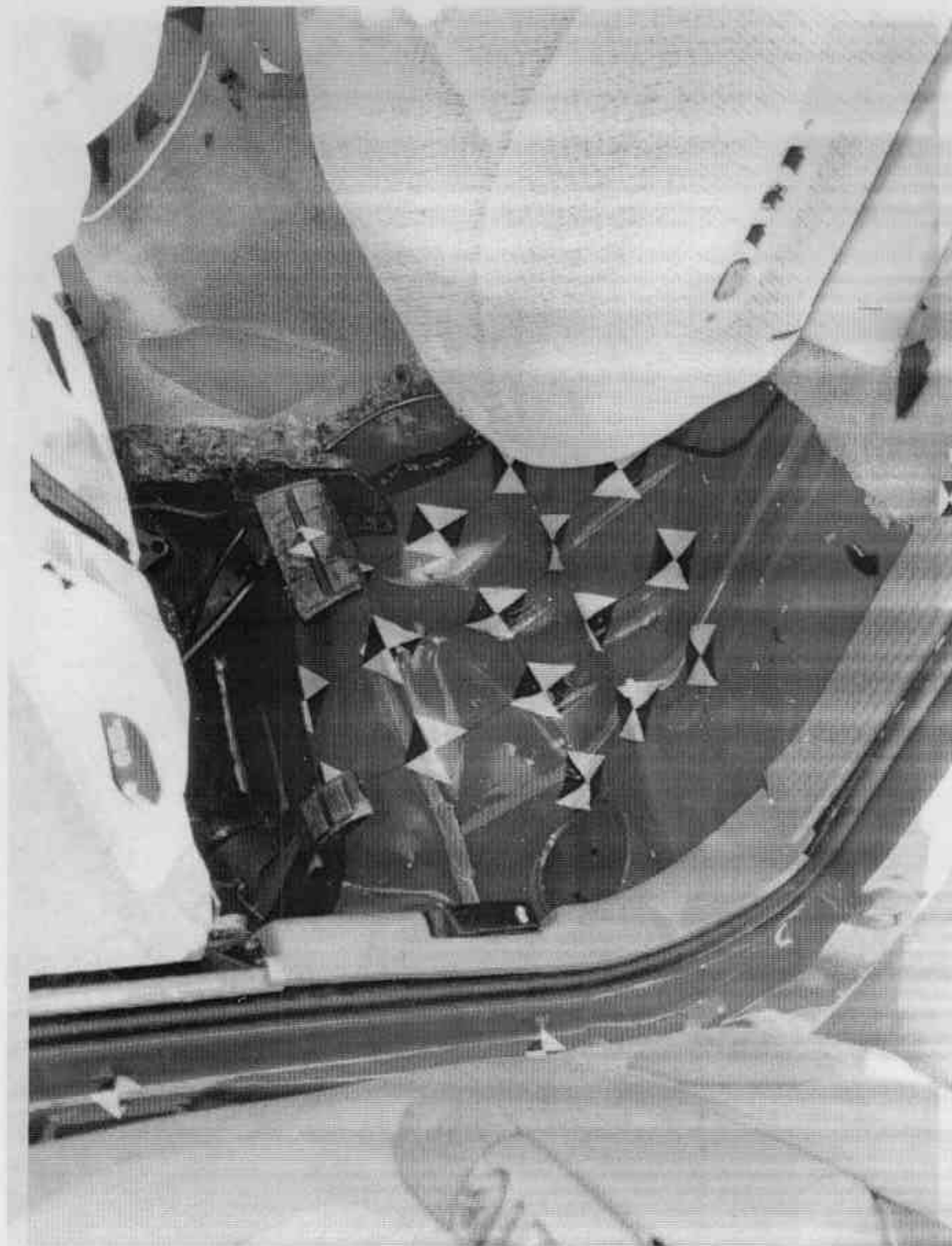


FIGURE A-38. POST TEST DRIVER SIDE FLOOR PAN

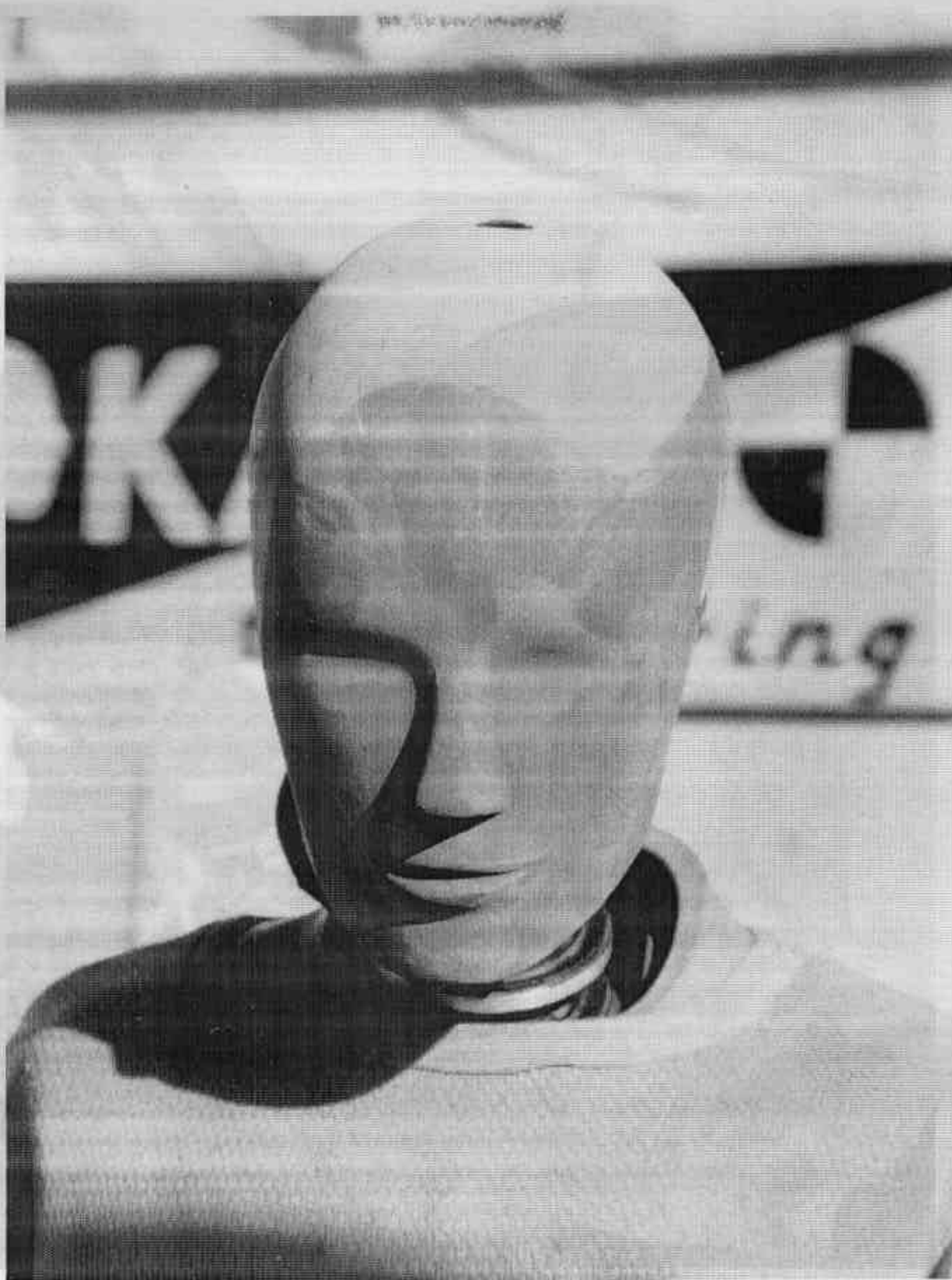


FIGURE A-39. POST TEST DRIVER HEAD

A-39

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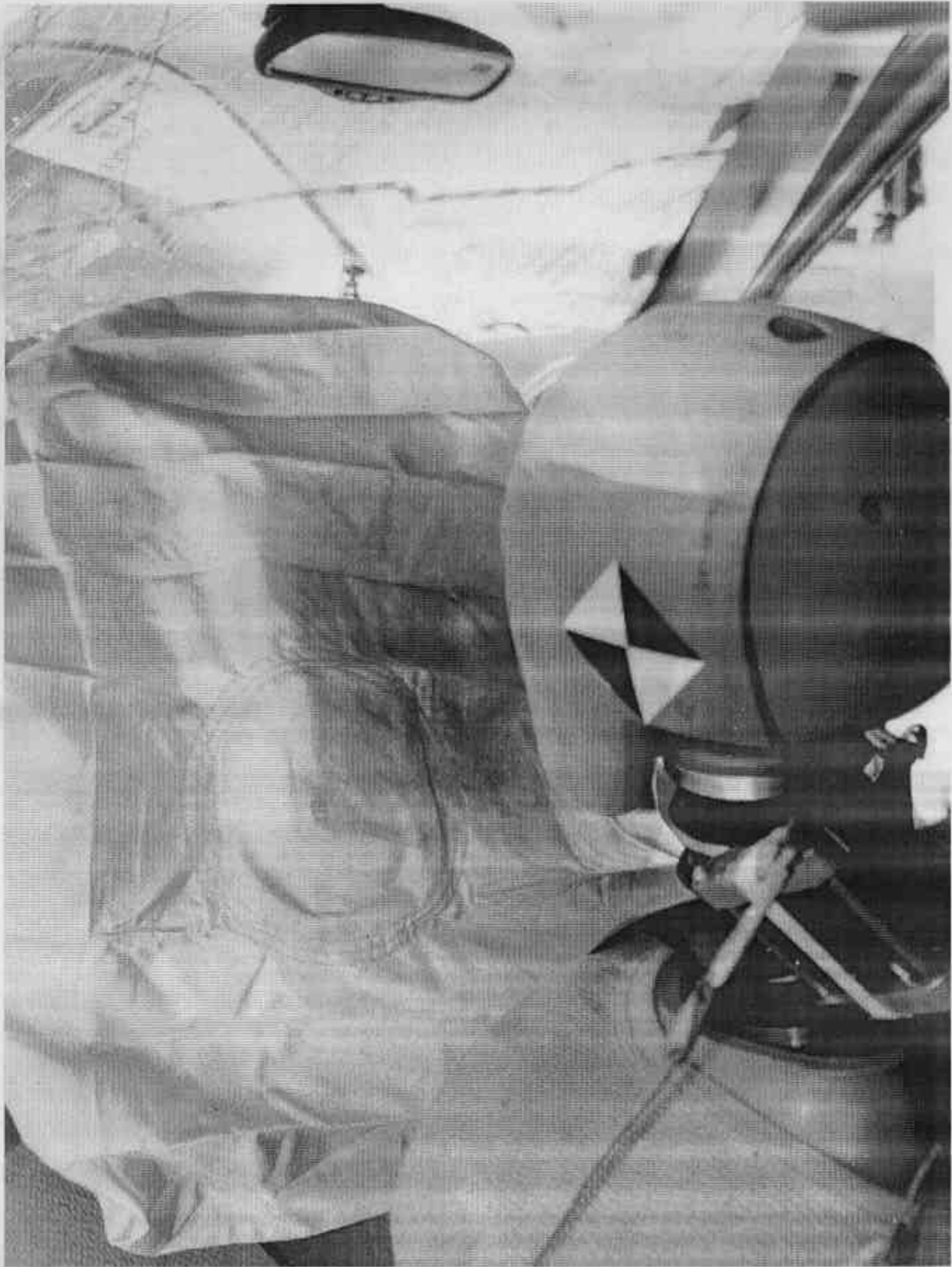


FIGURE A-40. POST TEST DRIVER DUMMY CONTACT

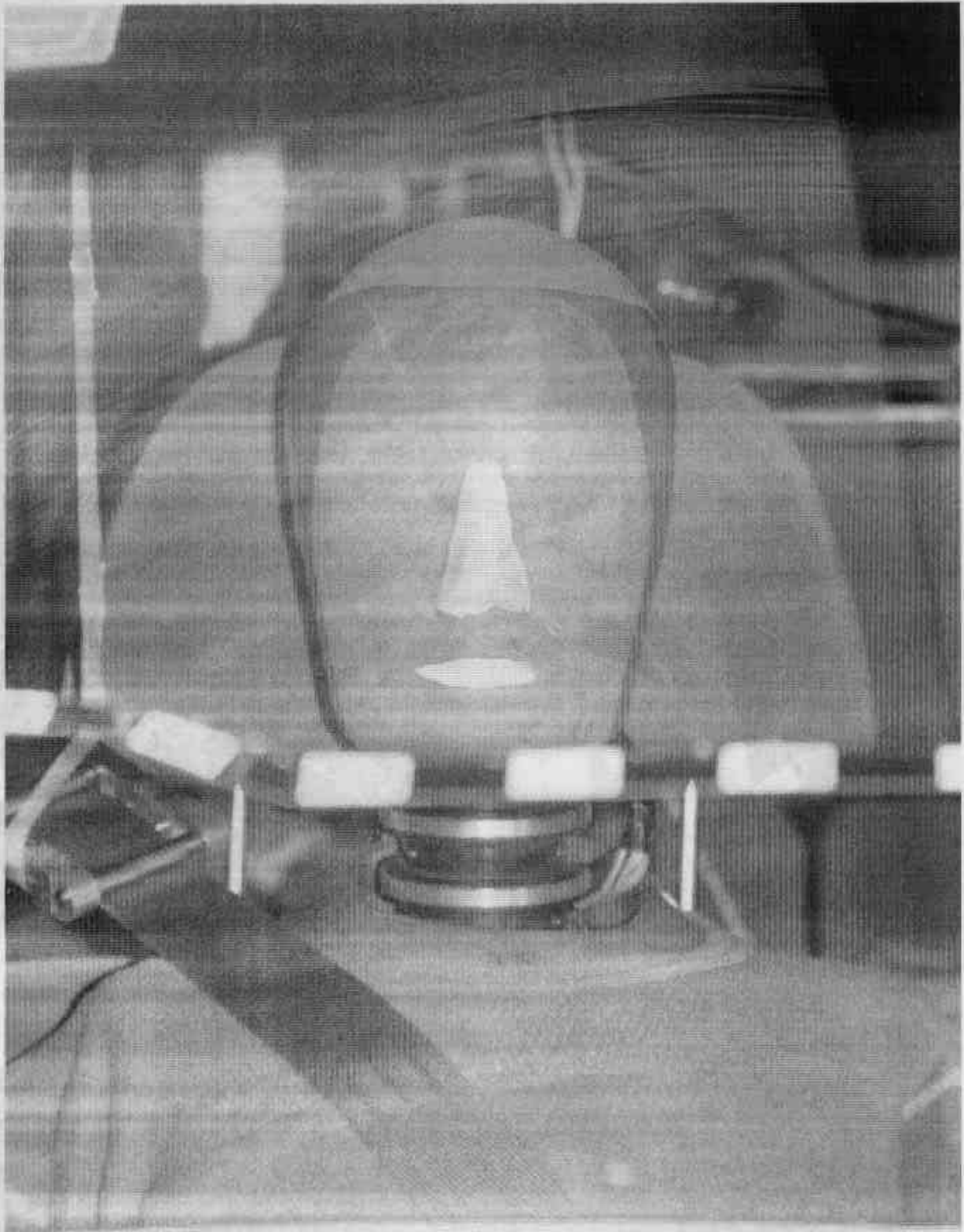


FIGURE A-41. PRETEST PASSENGER DUMMY (FRONT VIEW)

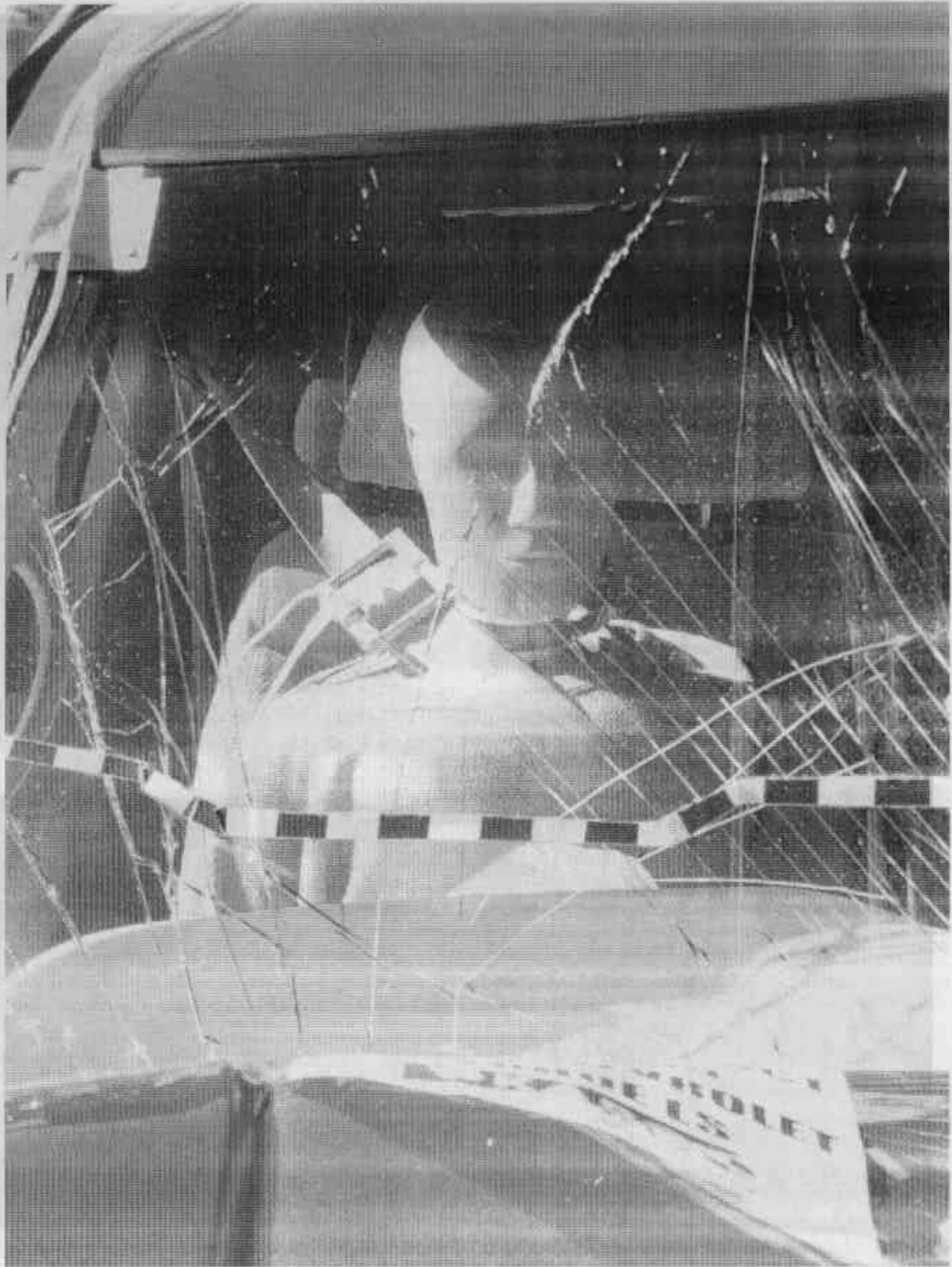


FIGURE A-42. POST TEST PASSENGER DUMMY (FRONT VIEW)

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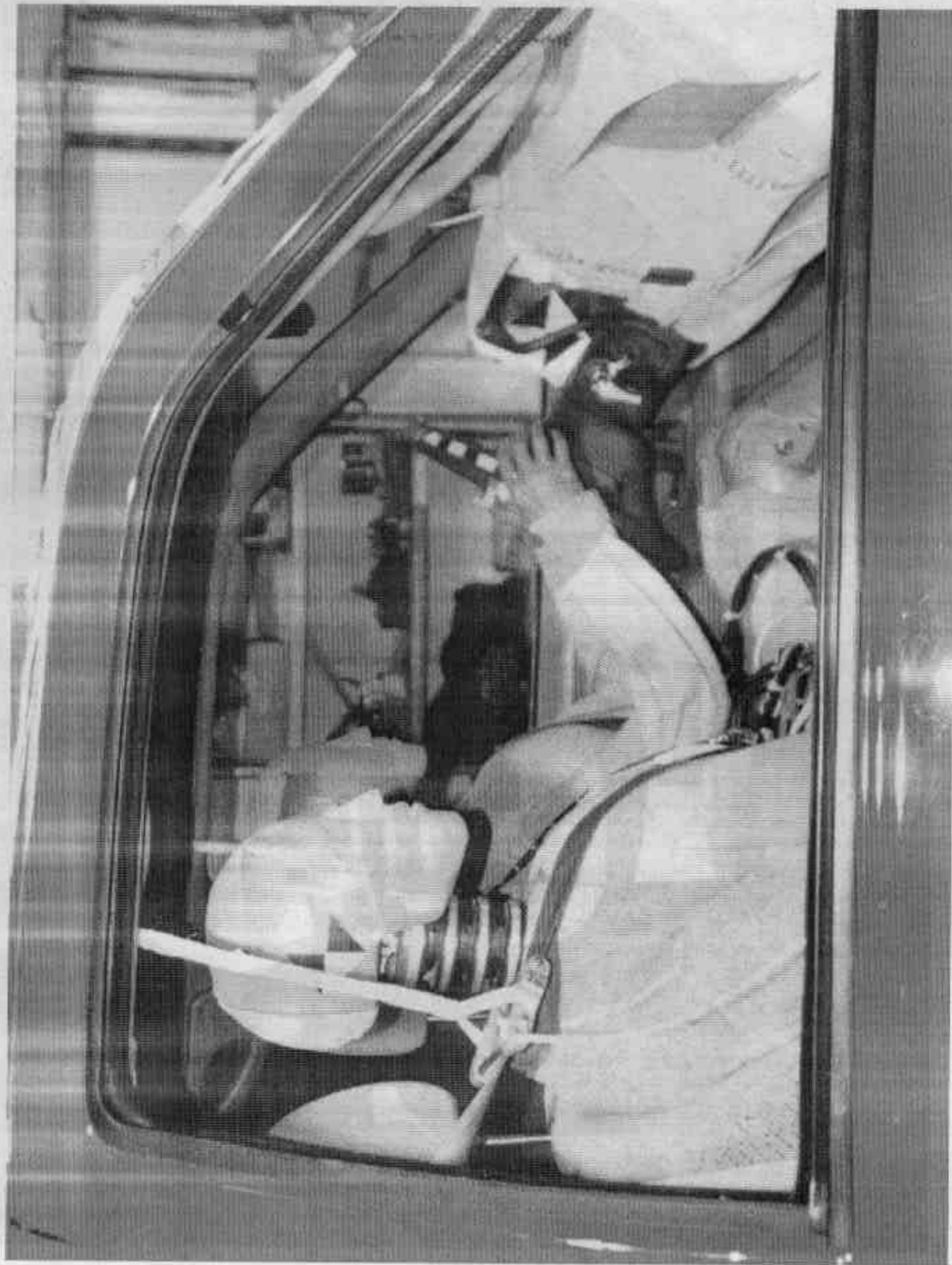


FIGURE A-43. PRETEST PASSENGER DUMMY (THRU WINDOW)

TECHNICAL

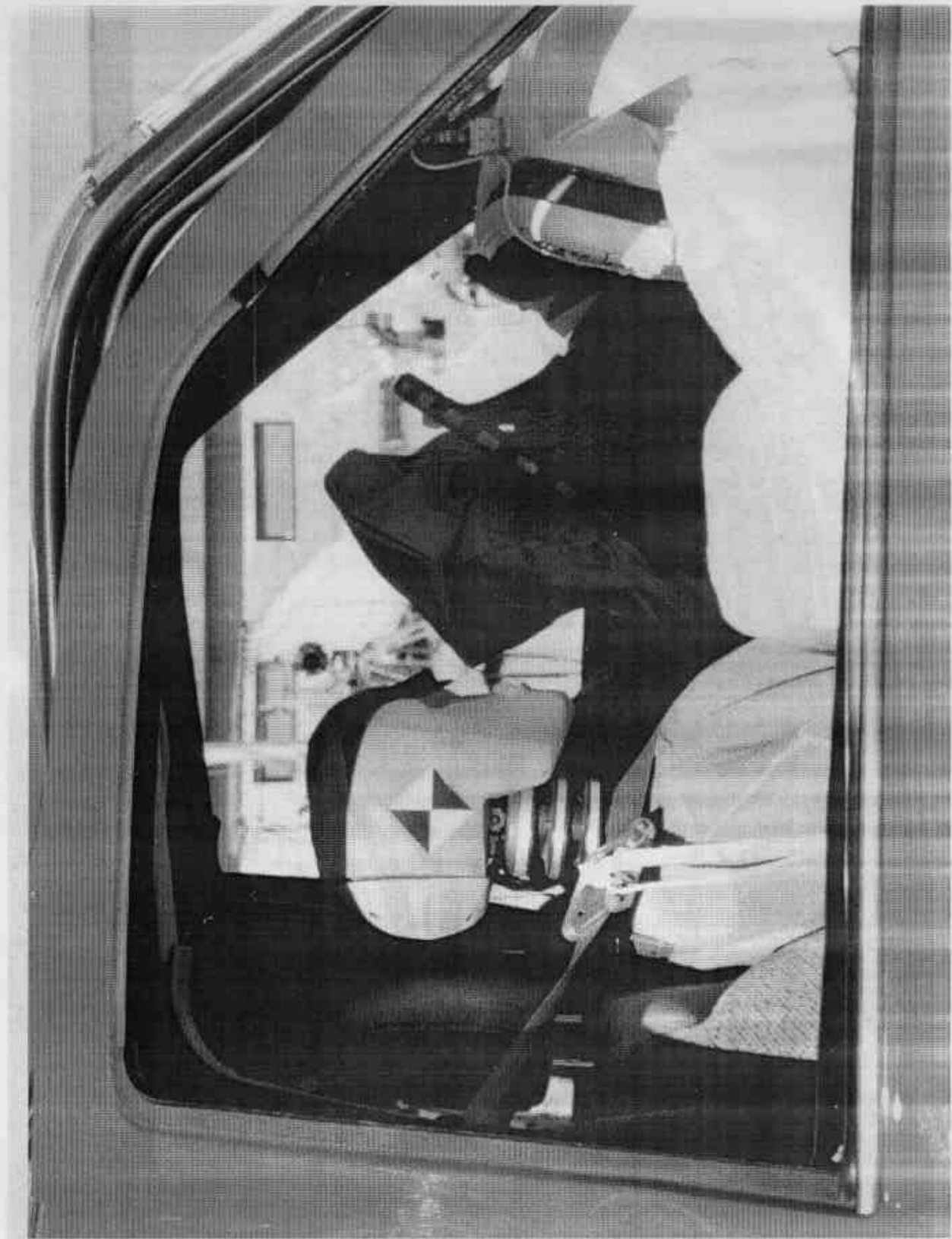


FIGURE A-44. POST TEST PASSENGER DUMMY (THRU WINDOW)

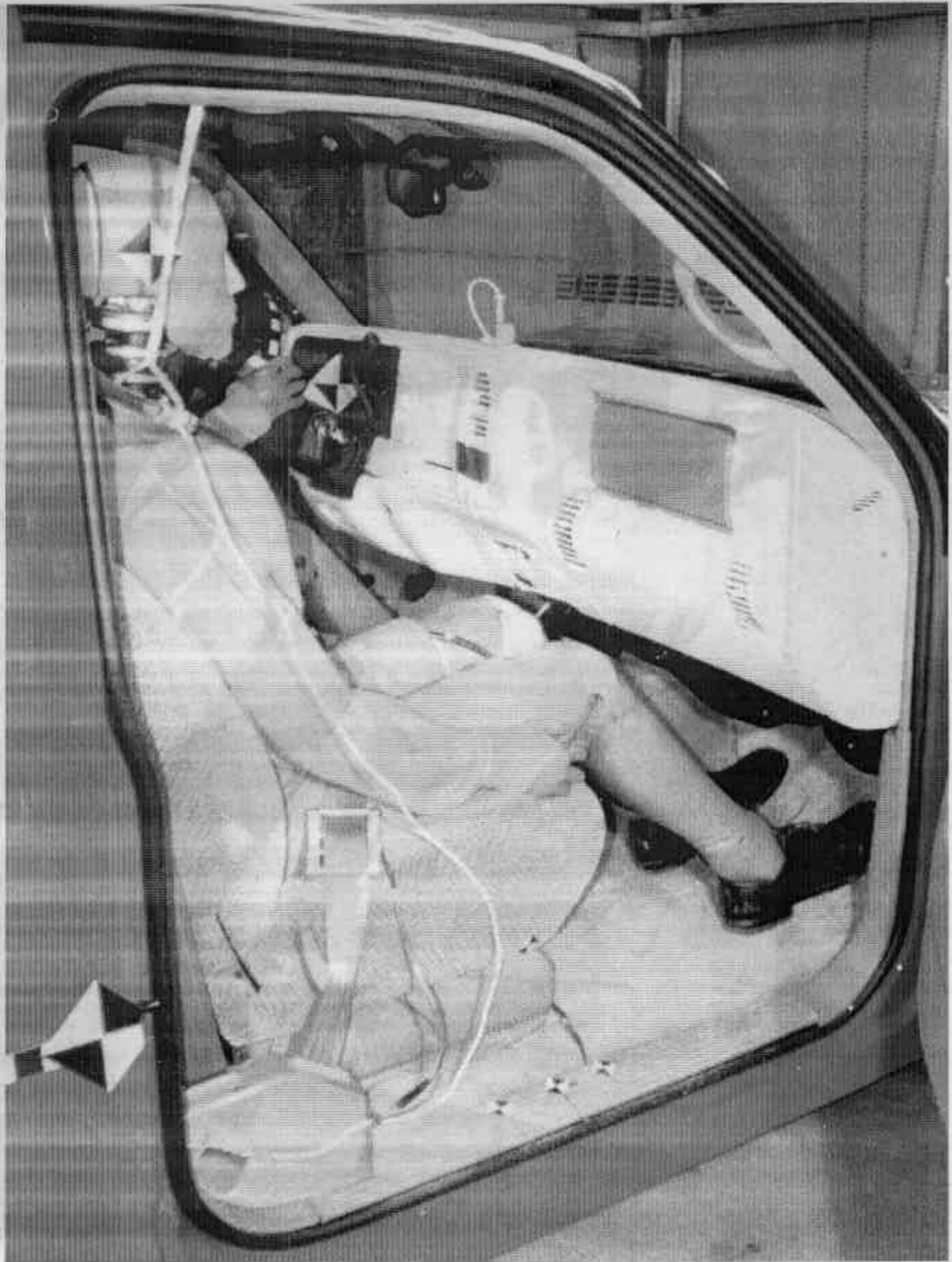


FIGURE A-45. PRETEST PASSENGER DUMMY (DOOR OPEN)

A-45

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



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

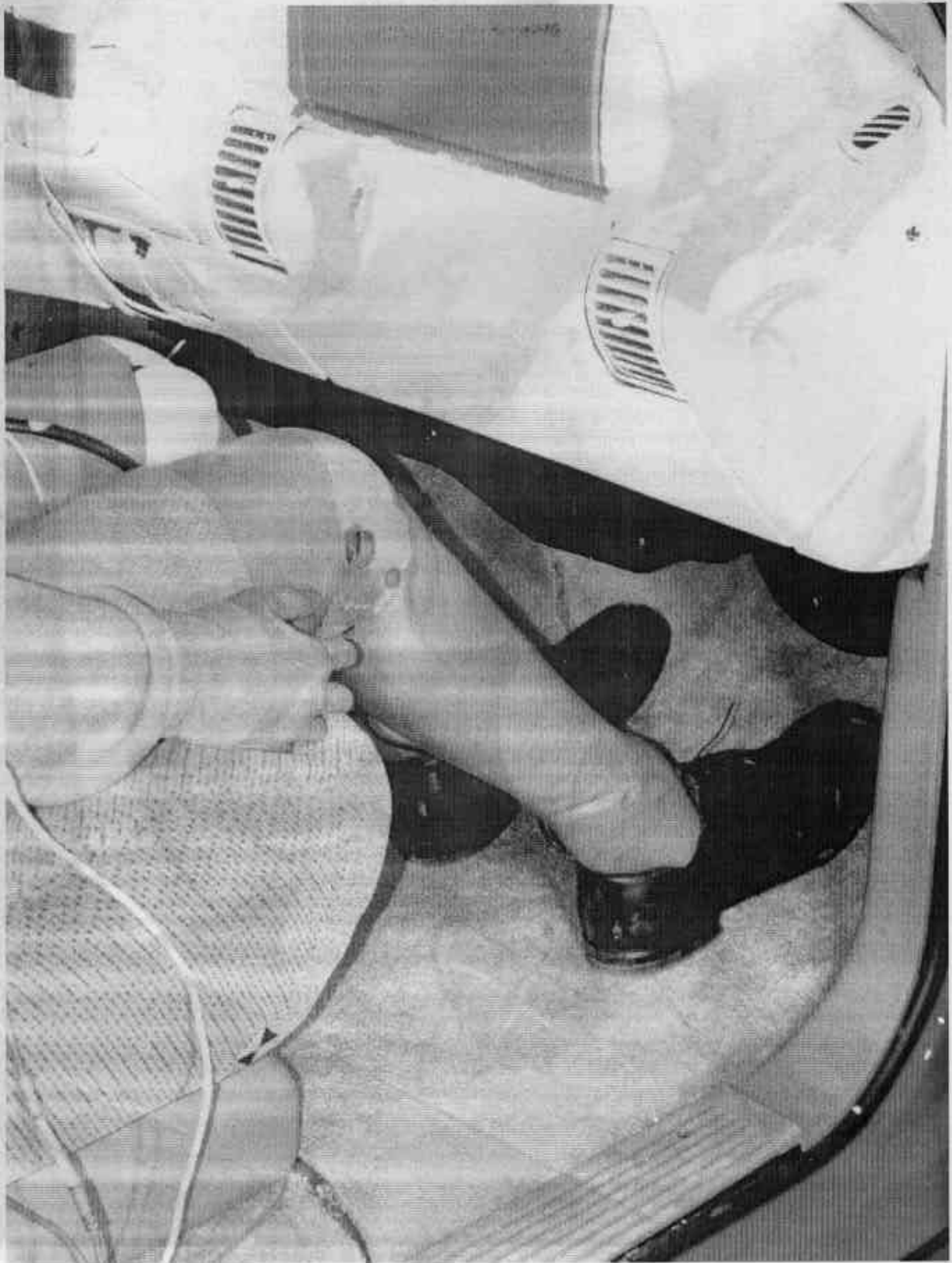


FIGURE A-49. PRETEST PASSENGER DUMMY FEET



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

A-50

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KAR99001-07

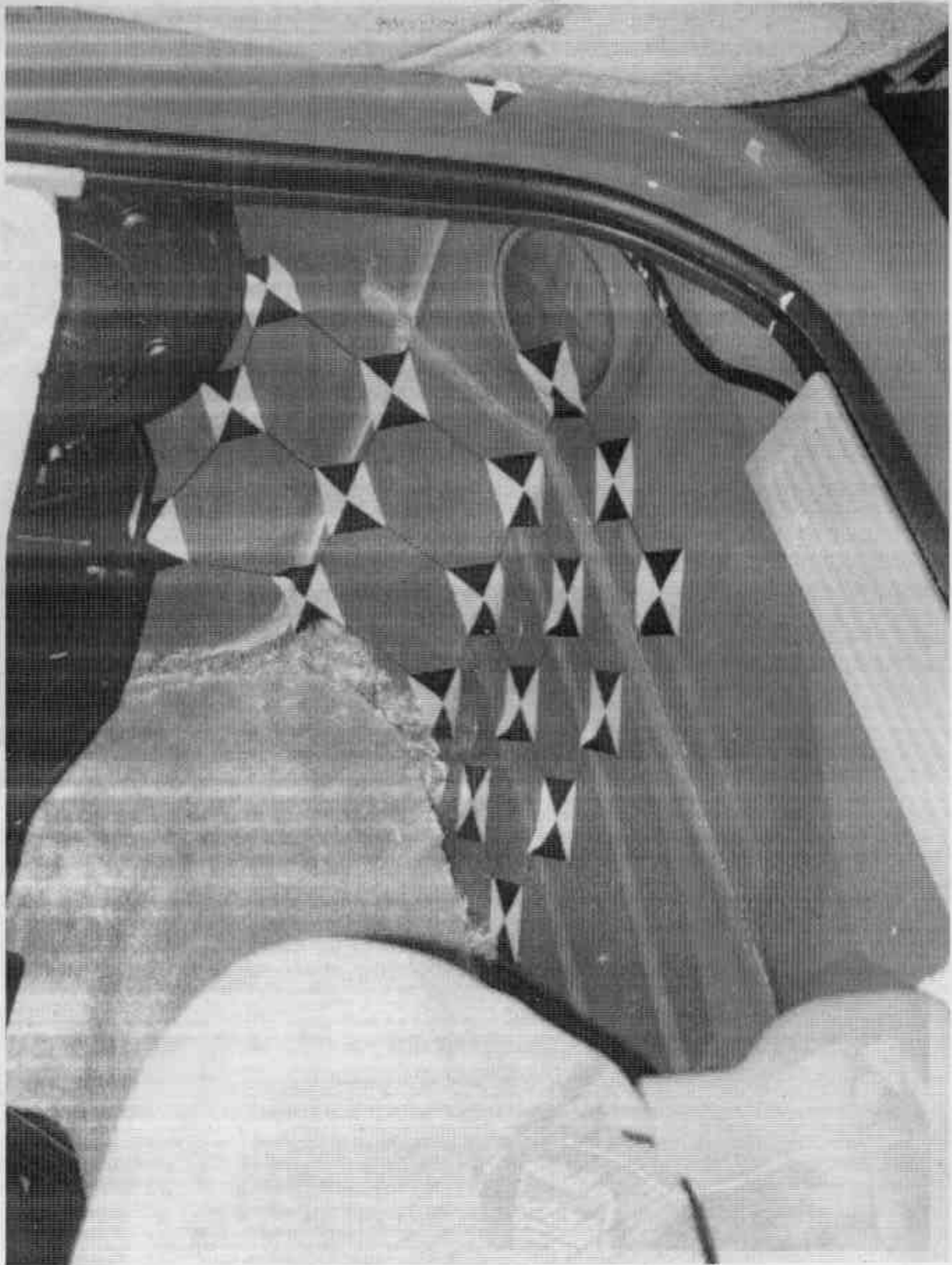


FIGURE A-51. PRETEST PASSENGER SIDE FLOOR PAN

A-51

KAR99001-07

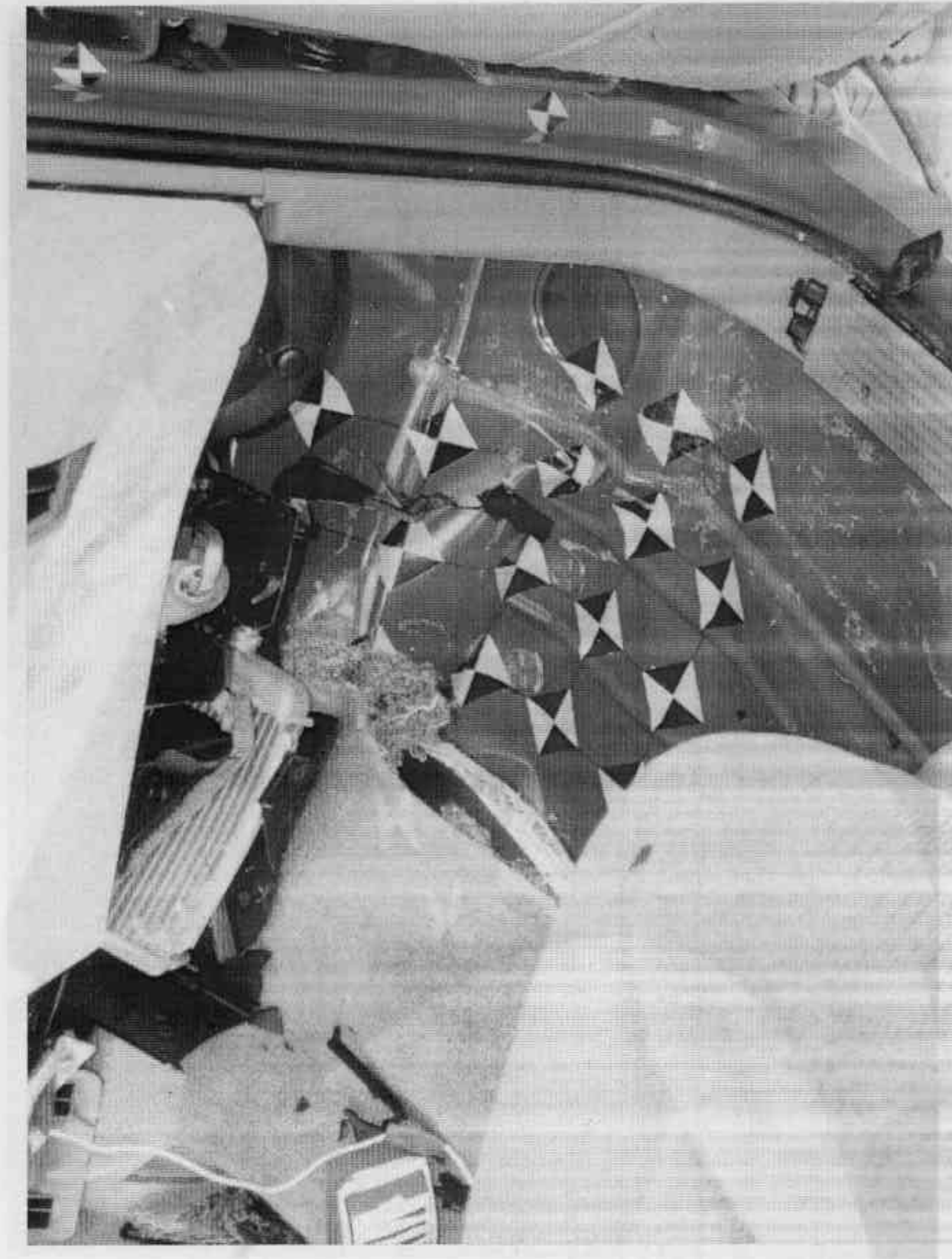


FIGURE A-52. POST TEST PASSENGER SIDE FLOOR PAN

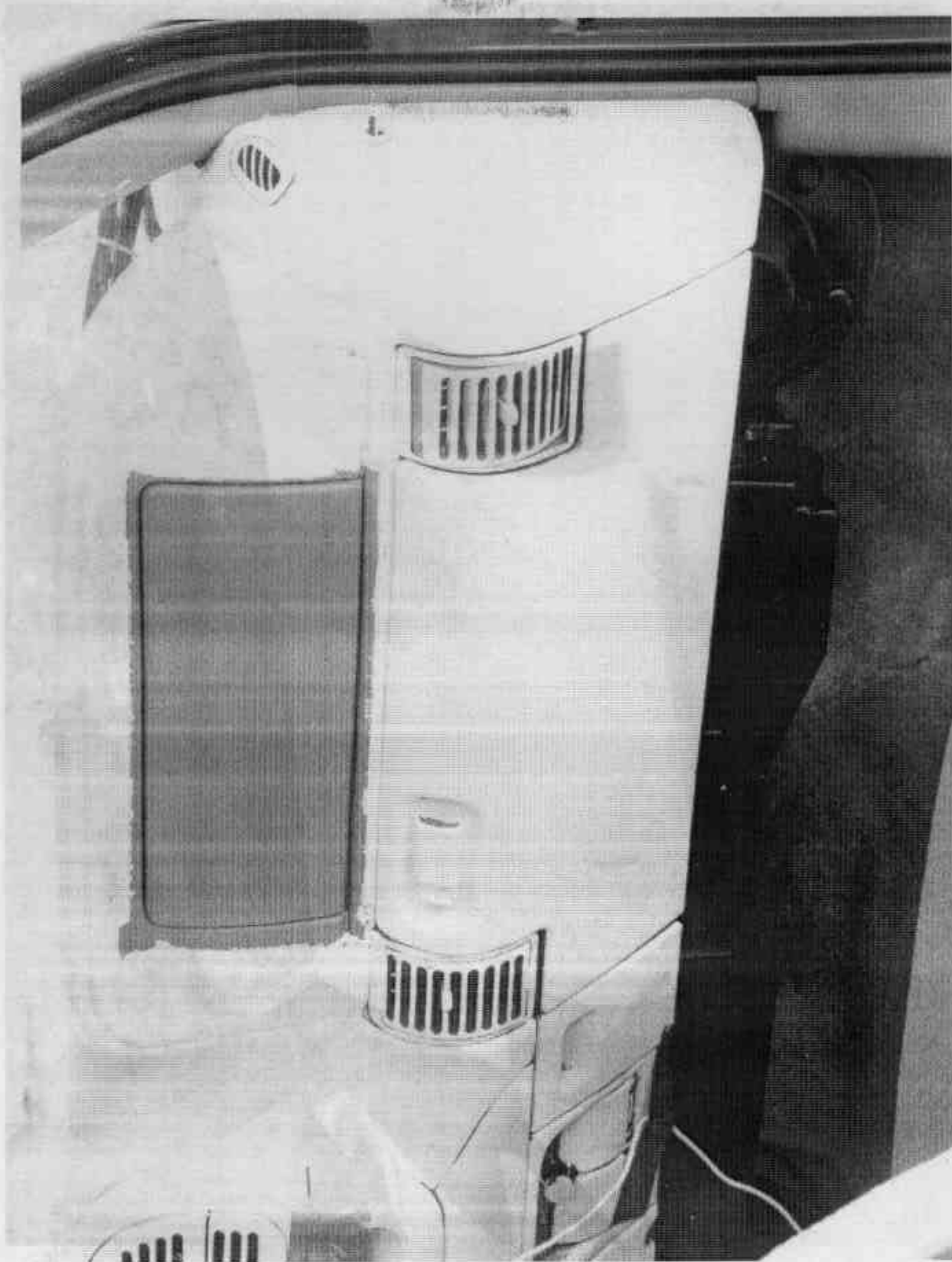


FIGURE A-53. PRETEST PASSENGER SIDE KNEE BOLSTER

A-53

KAR99001-07

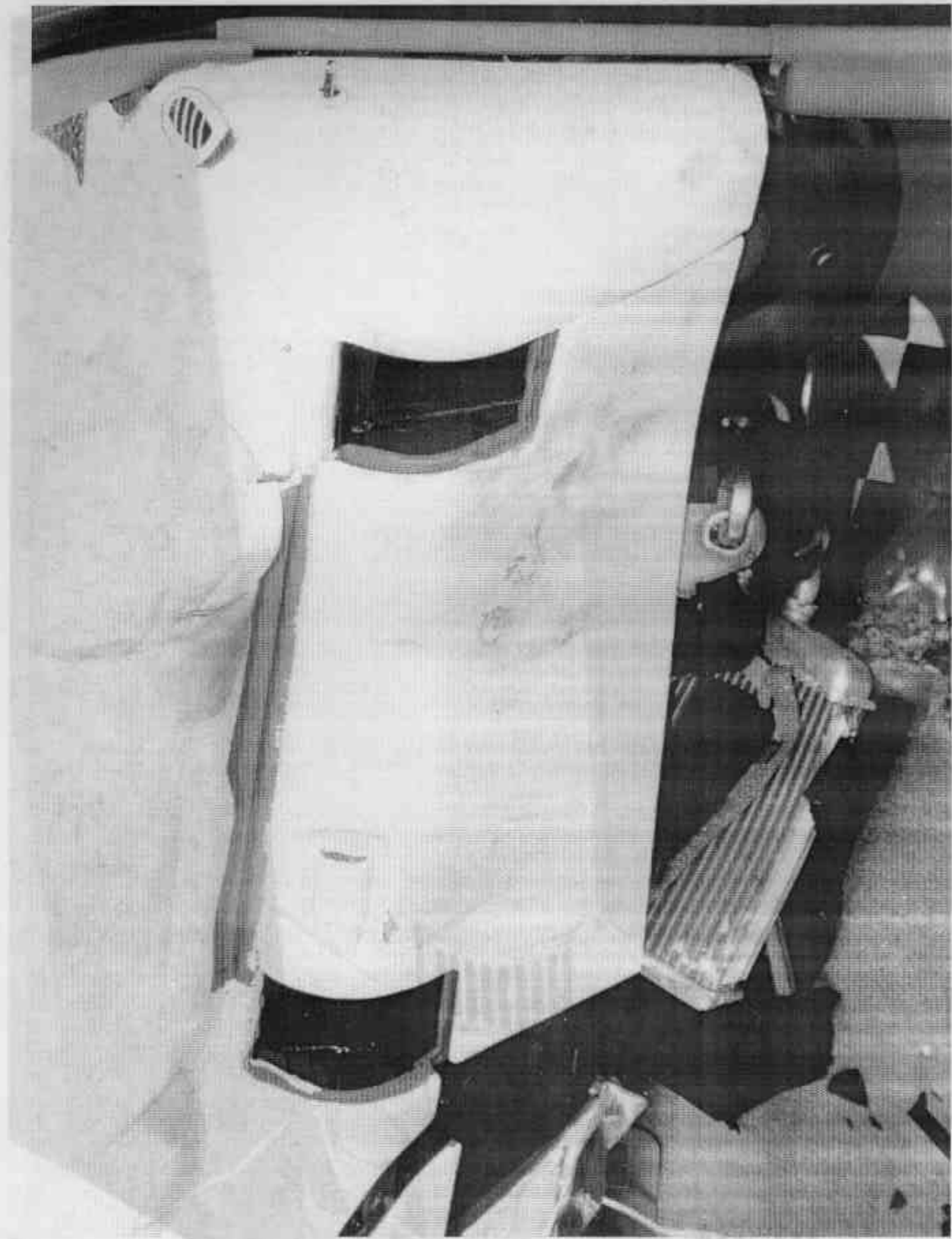


FIGURE A-54. POST TEST PASSENGER SIDE KNEE BOLSTER AND DUMMY CONTACT



FIGURE A-55. POST TEST PASSENGER HEAD

A-55

KAR99001-07

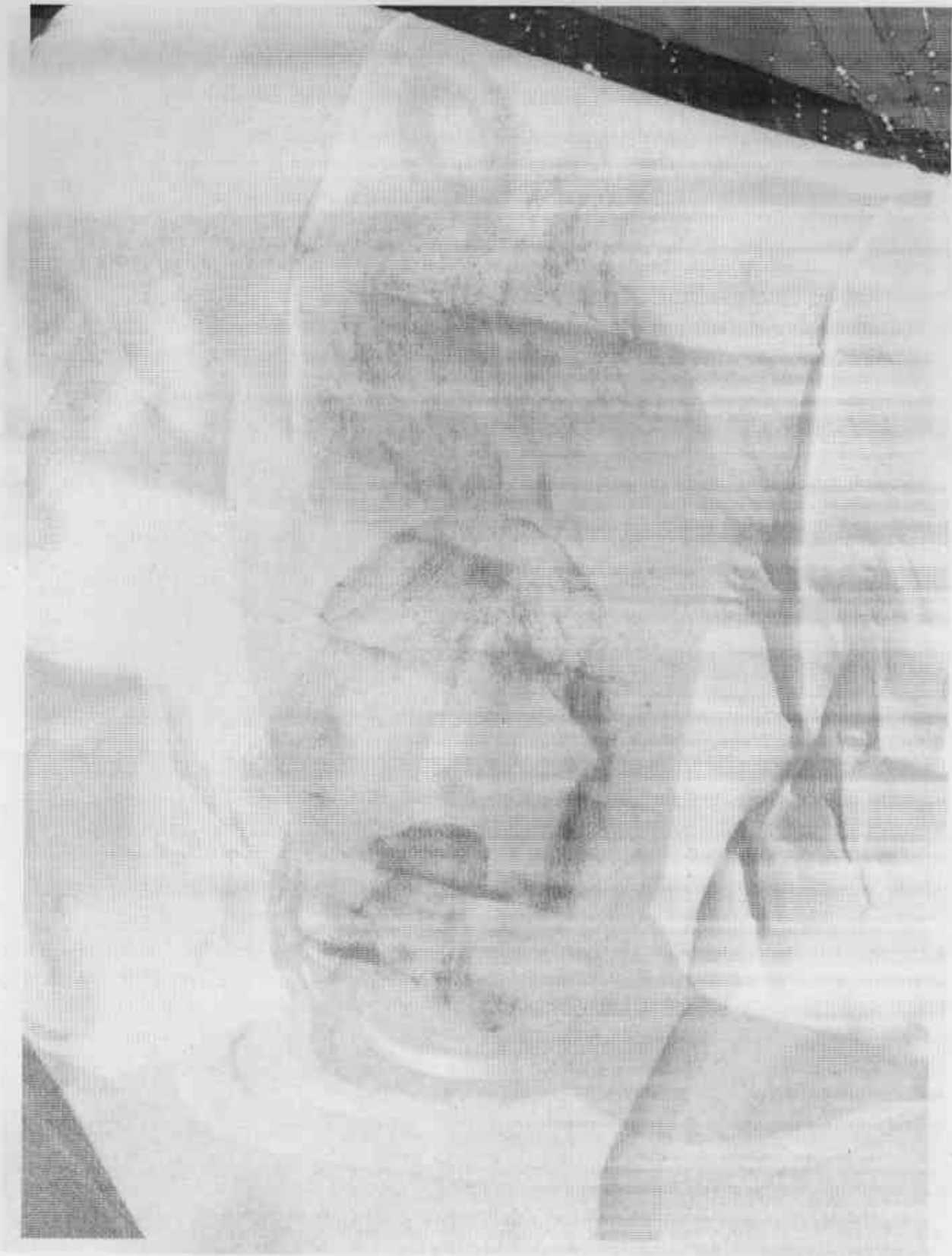


FIGURE A-56. POST TEST PASSENGER DUMMY CONTACT

A-56

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50-100000000

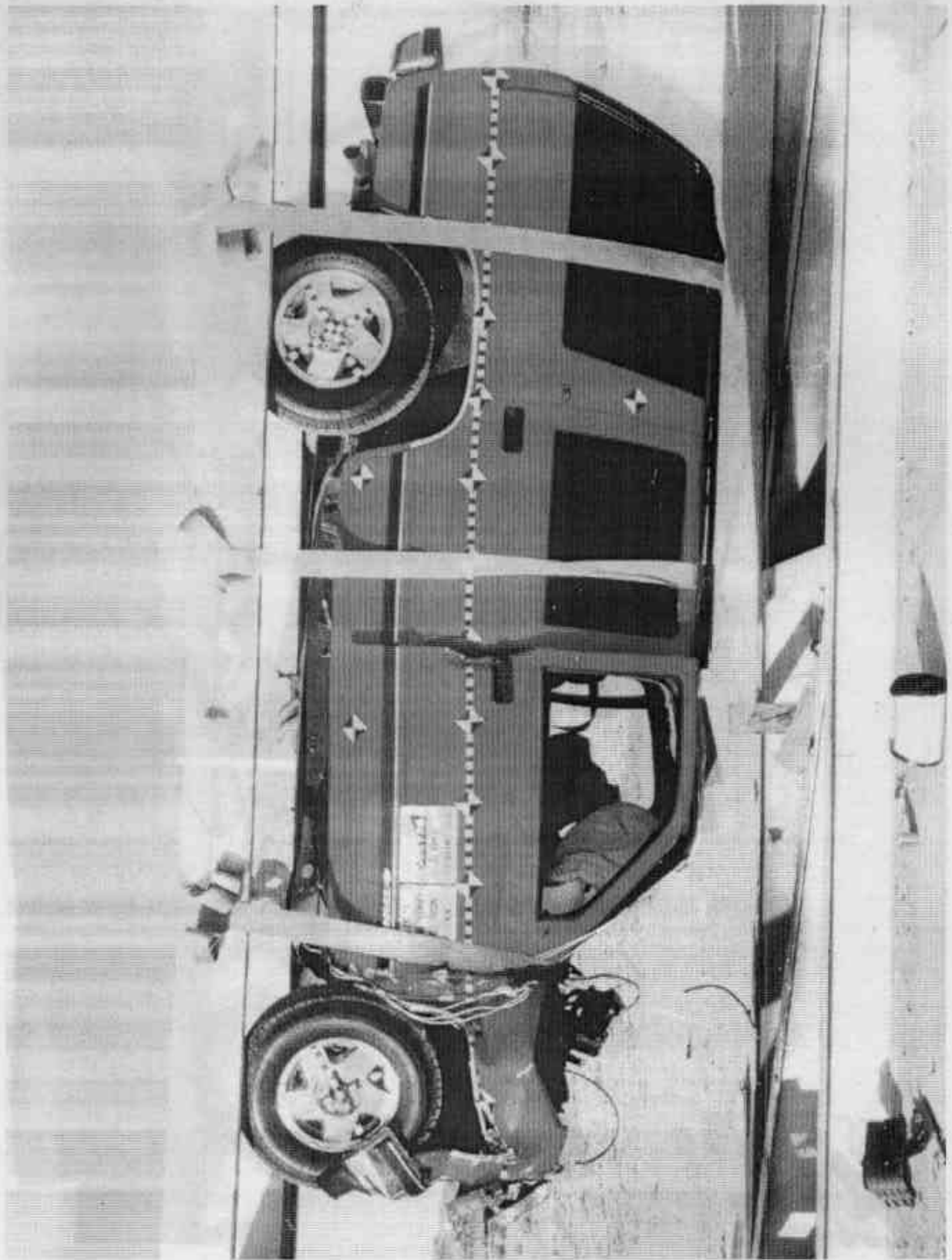


FIGURE A-57. VEHICLE ON ROLLOVER

A-57

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FIGURE A-58. VEHICLE DURING IMPACT

A-58

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20-70000000

APPENDIX B
DUMMY AND VEHICLE RESPONSE DATA TRACES

KAR99001-07

LIST OF DATA PLOTS

Data Plot		Page
B-1	Driver Head Primary X	B-1
B-2	Driver Head Primary X Velocity	B-2
B-3	Driver Head Primary X Displacement	B-3
B-4	Driver Head Primary Y	B-4
B-5	Driver Head Primary Z	B-5
B-6	Driver Head Resultant Primary	B-6
B-7	Driver Head Redundant X	B-7
B-8	Driver Head Redundant X Velocity	B-8
B-9	Driver Head Redundant X Displacement	B-9
B-10	Driver Head Redundant Y	B-10
B-11	Driver Head Redundant Z	B-11
B-12	Driver Head Resultant Redundant	B-12
B-13	Driver Neck Force X	B-13
B-14	Driver Neck Force Y	B-14
B-15	Driver Neck Force Z	B-15
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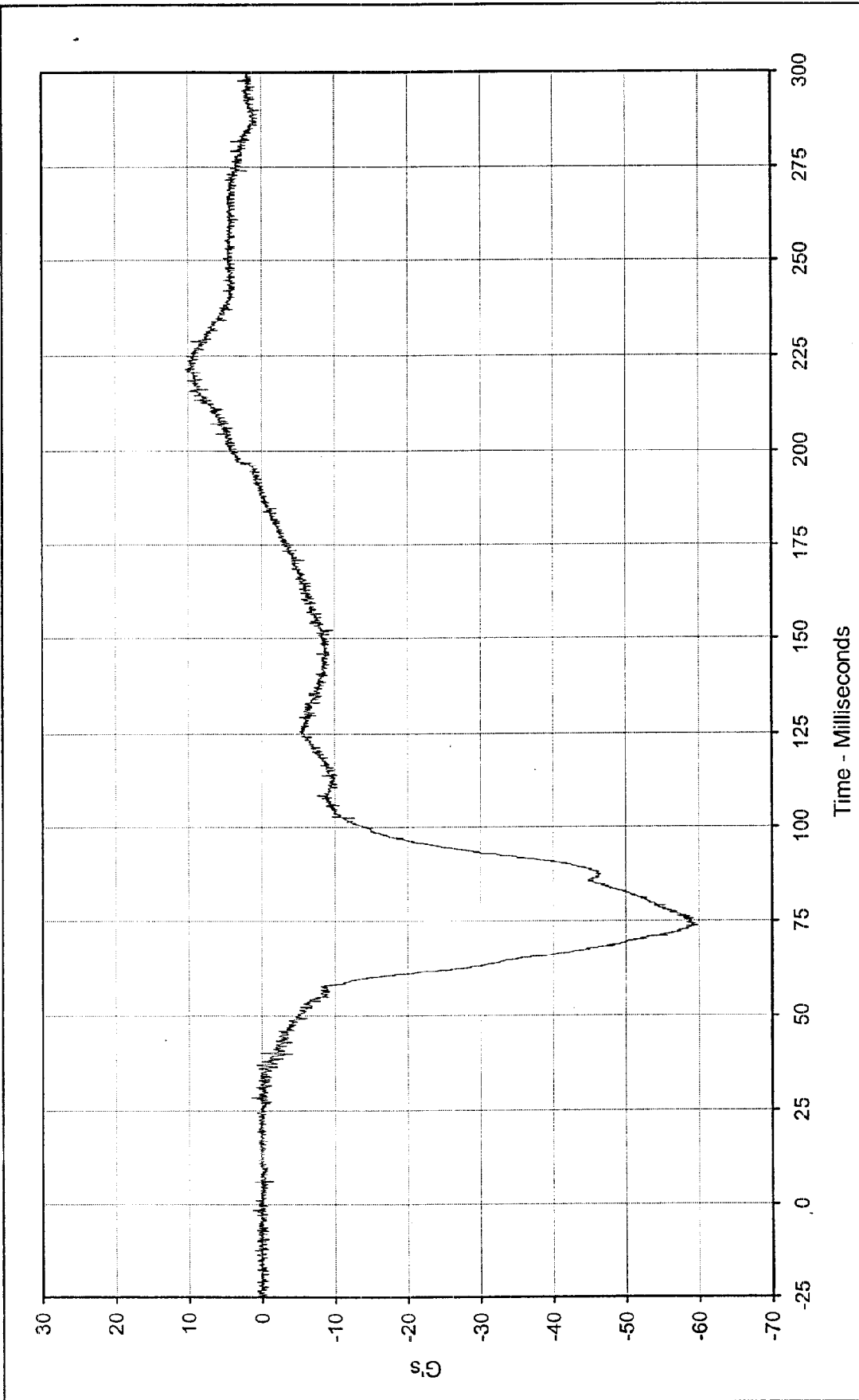
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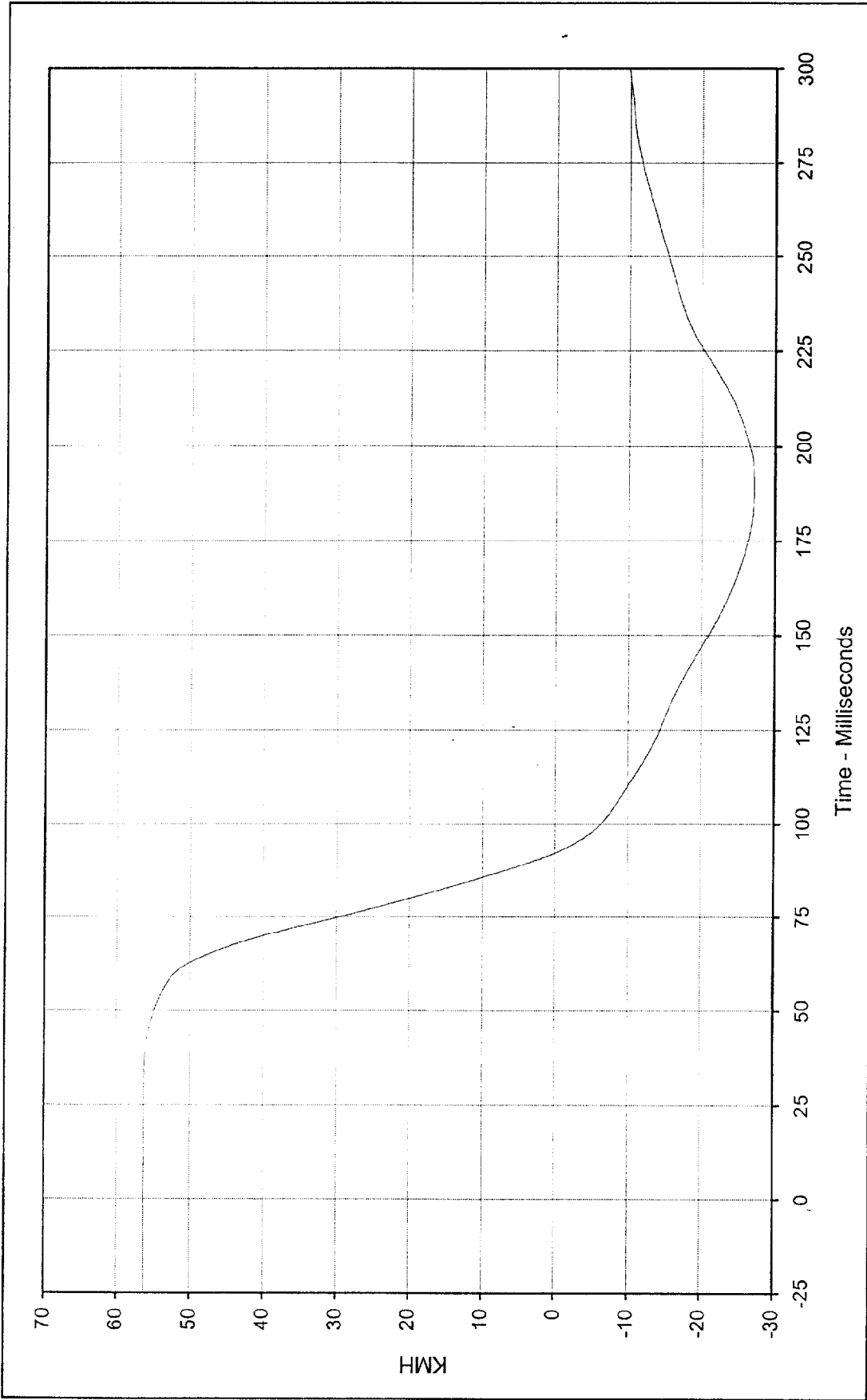
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Curve Description: Driver Head Primary X Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 10.4 at 221.2 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -59.9 at 73.7 Milliseconds



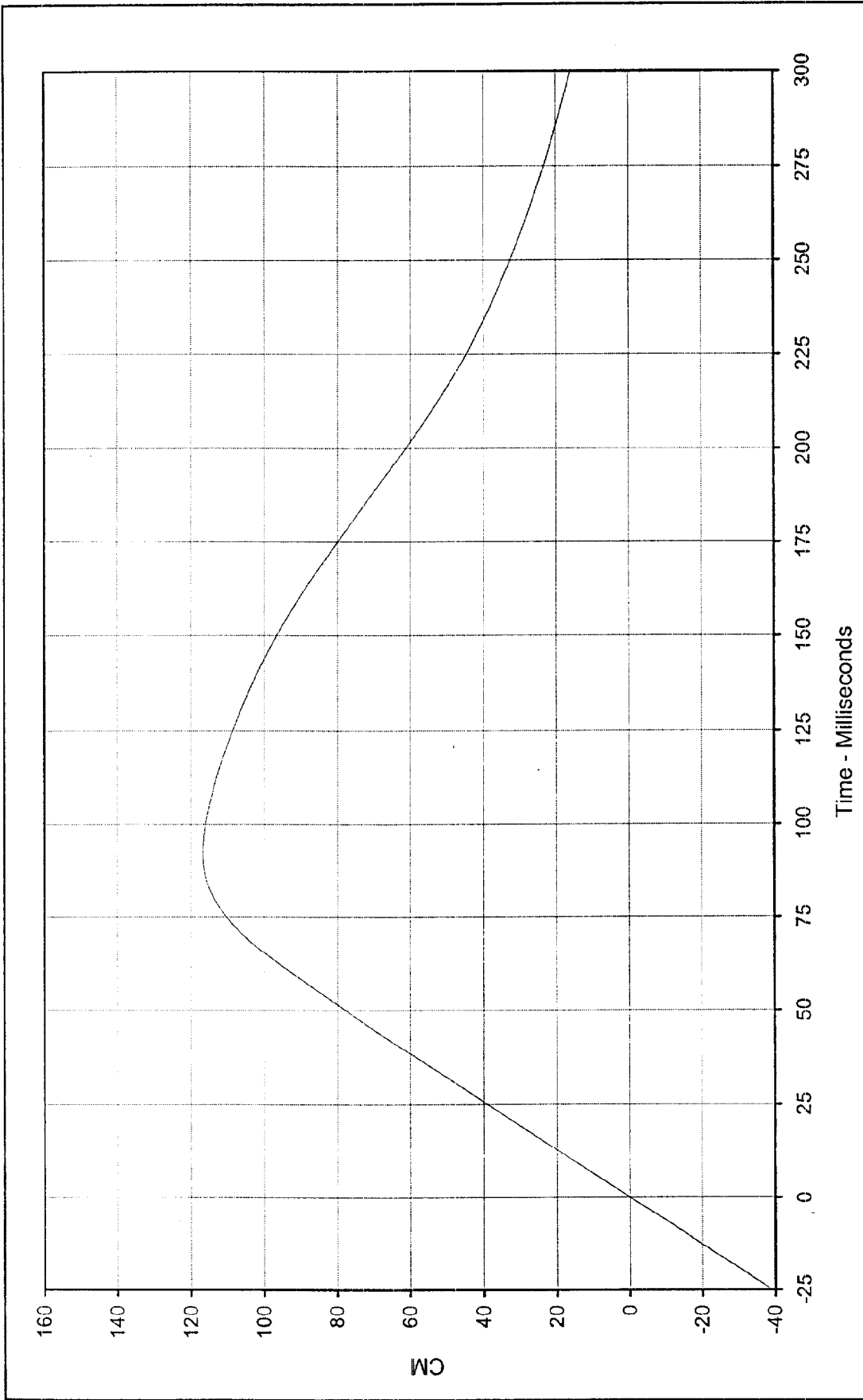
SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-001



Curve Description: Driver Head Primary X Velocity
 Maximum Value: 56.3 at 2.3 Milliseconds
 Minimum Value: -27.2 at 189.1 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-001

Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Driver Head Primary X Displ. Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 116.8 at 92.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

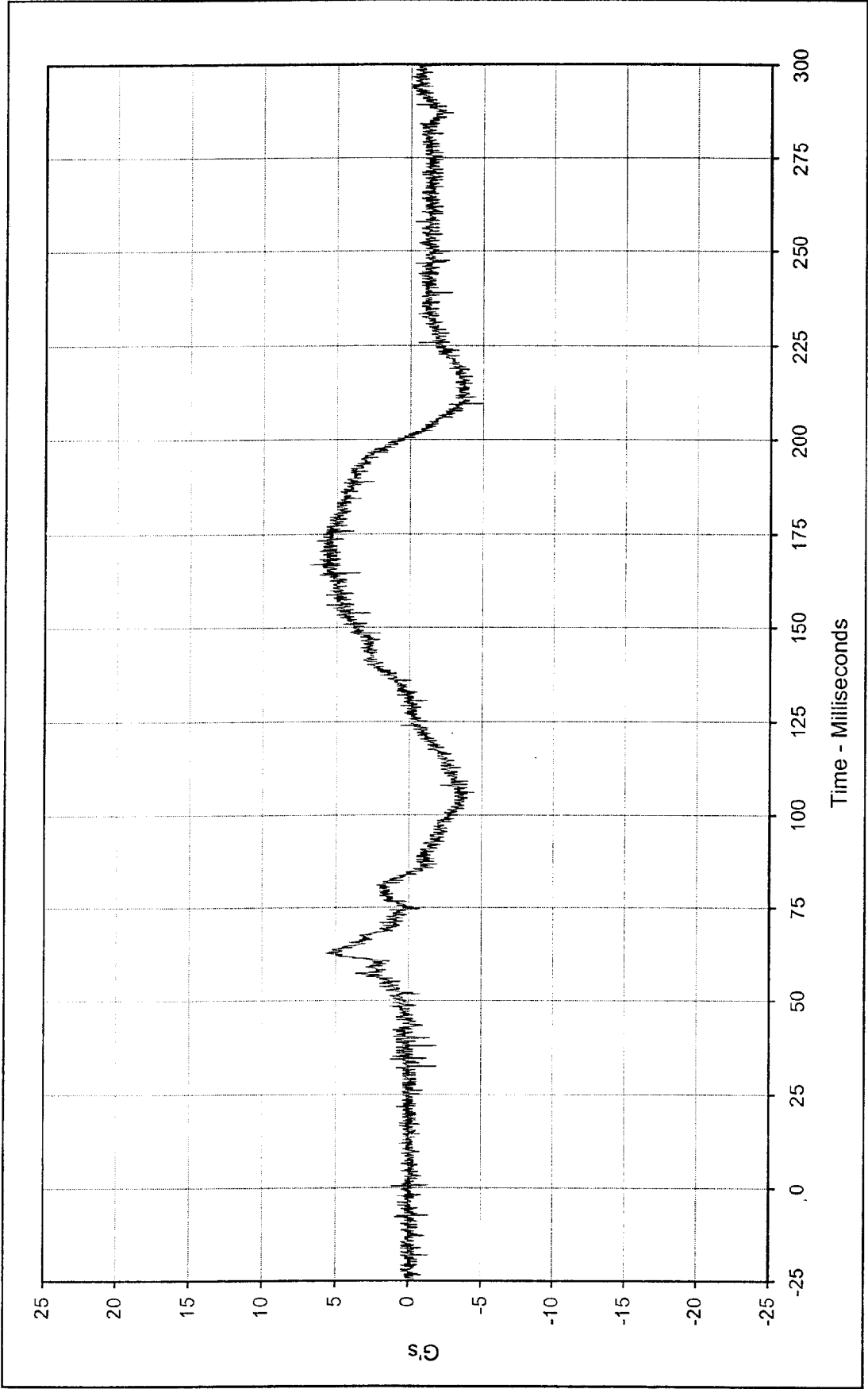
Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 1/5/99

Curve Number: IN2-001





Curve Description: Driver Head Primary Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 6.9 at 166.8 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

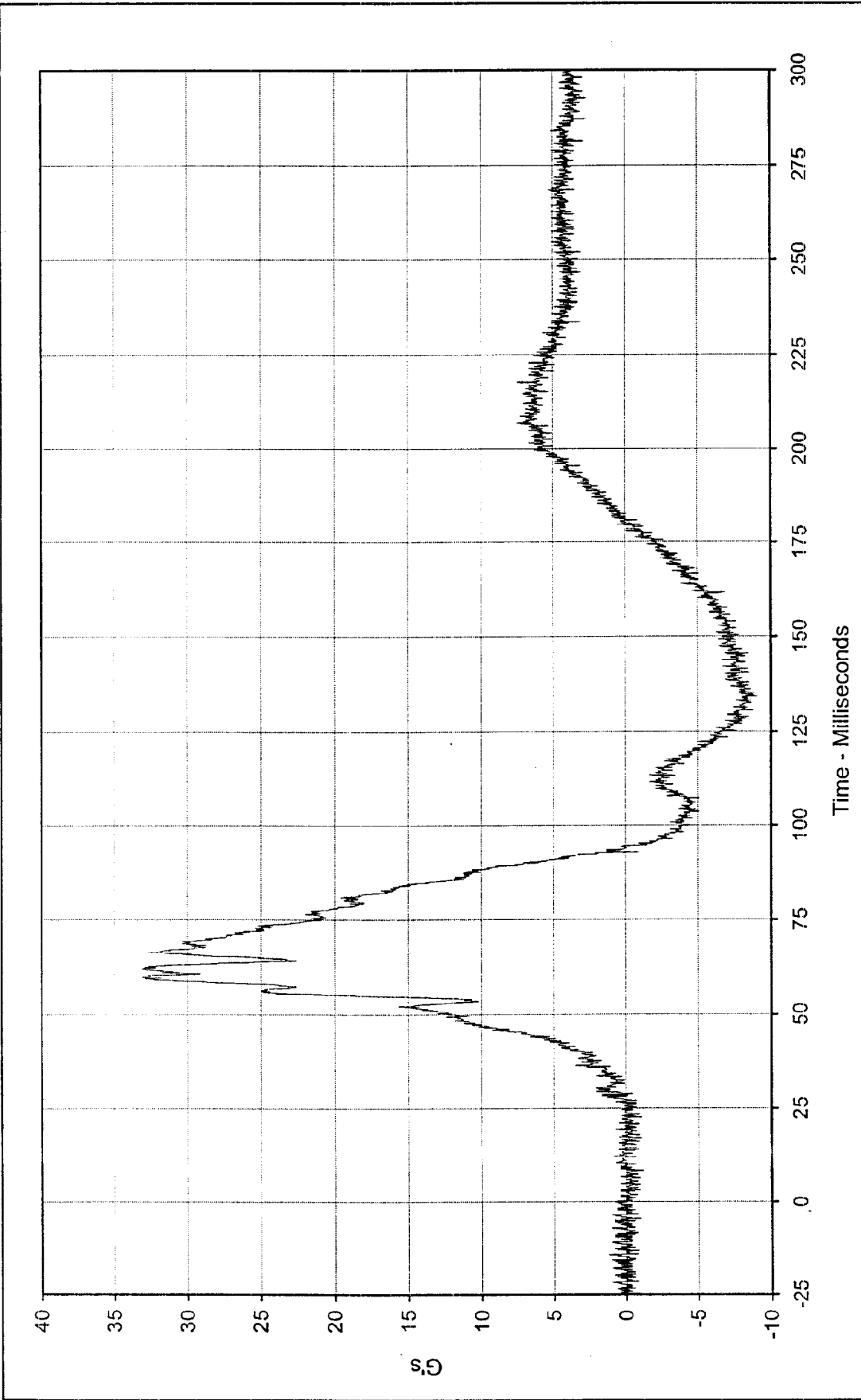
Minimum Value: -5.0 at 209.8 Milliseconds

SAE Filter Class: 1000

Date of Test: 1/5/99

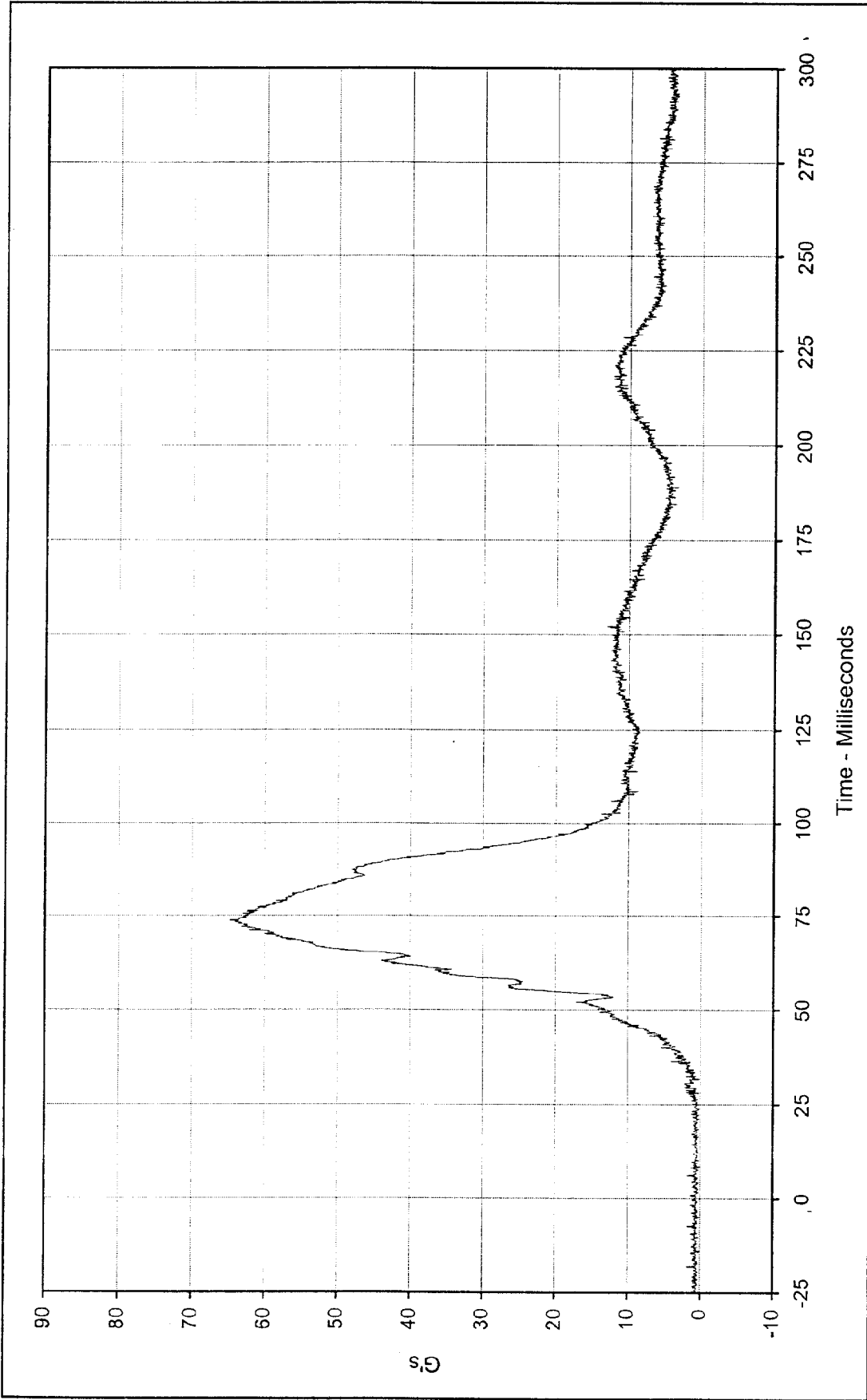
Curve Number: FIL-002





Curve Description: Driver Head Primary Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 33.1 at 59.8 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -9.1 at 134.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-003

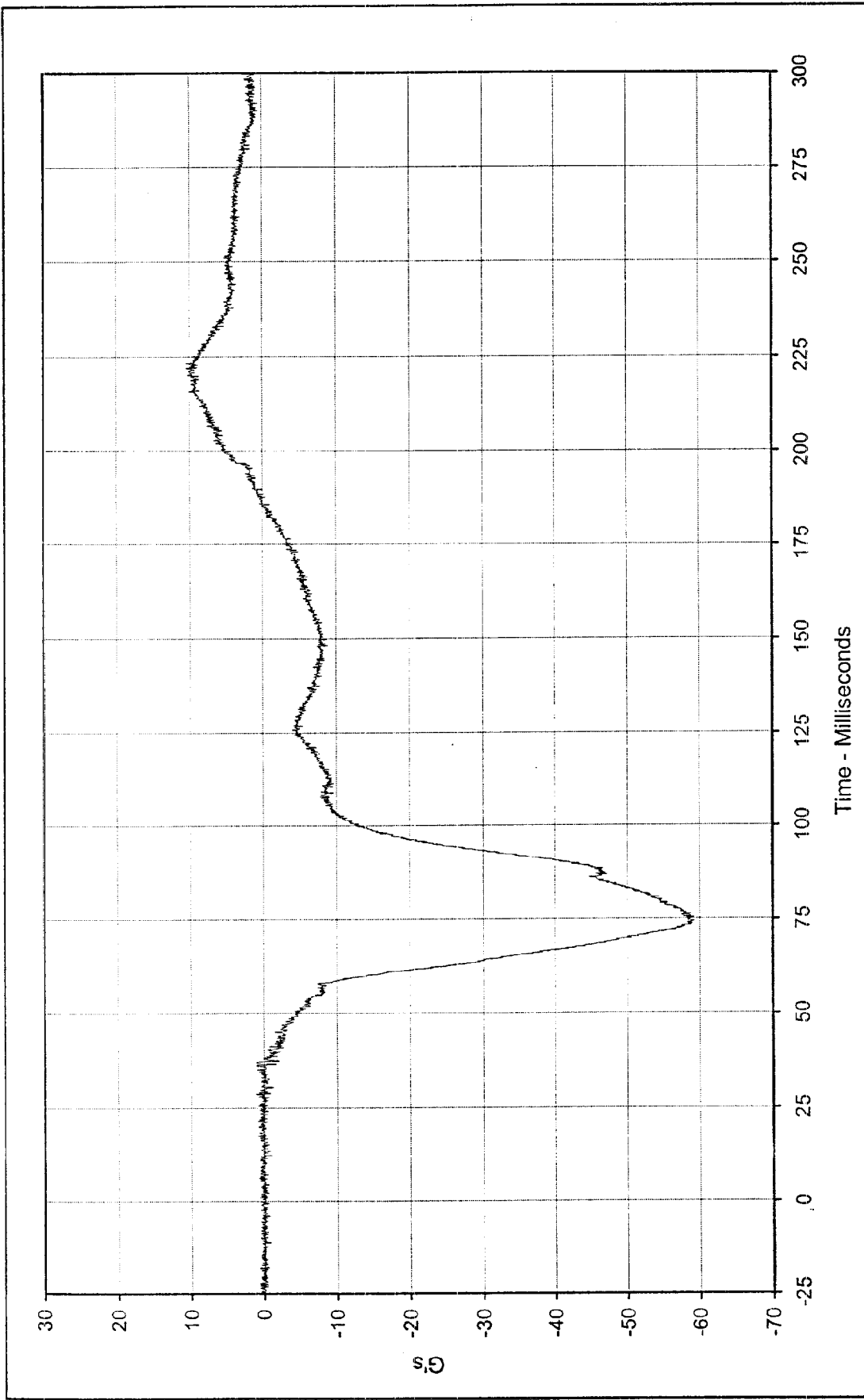




Curve Description: Driver Head Resultant Primary
 Maximum Value: 64.9 at 73.7 Milliseconds
 Minimum Value: 0.0 at 8.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: RES-001

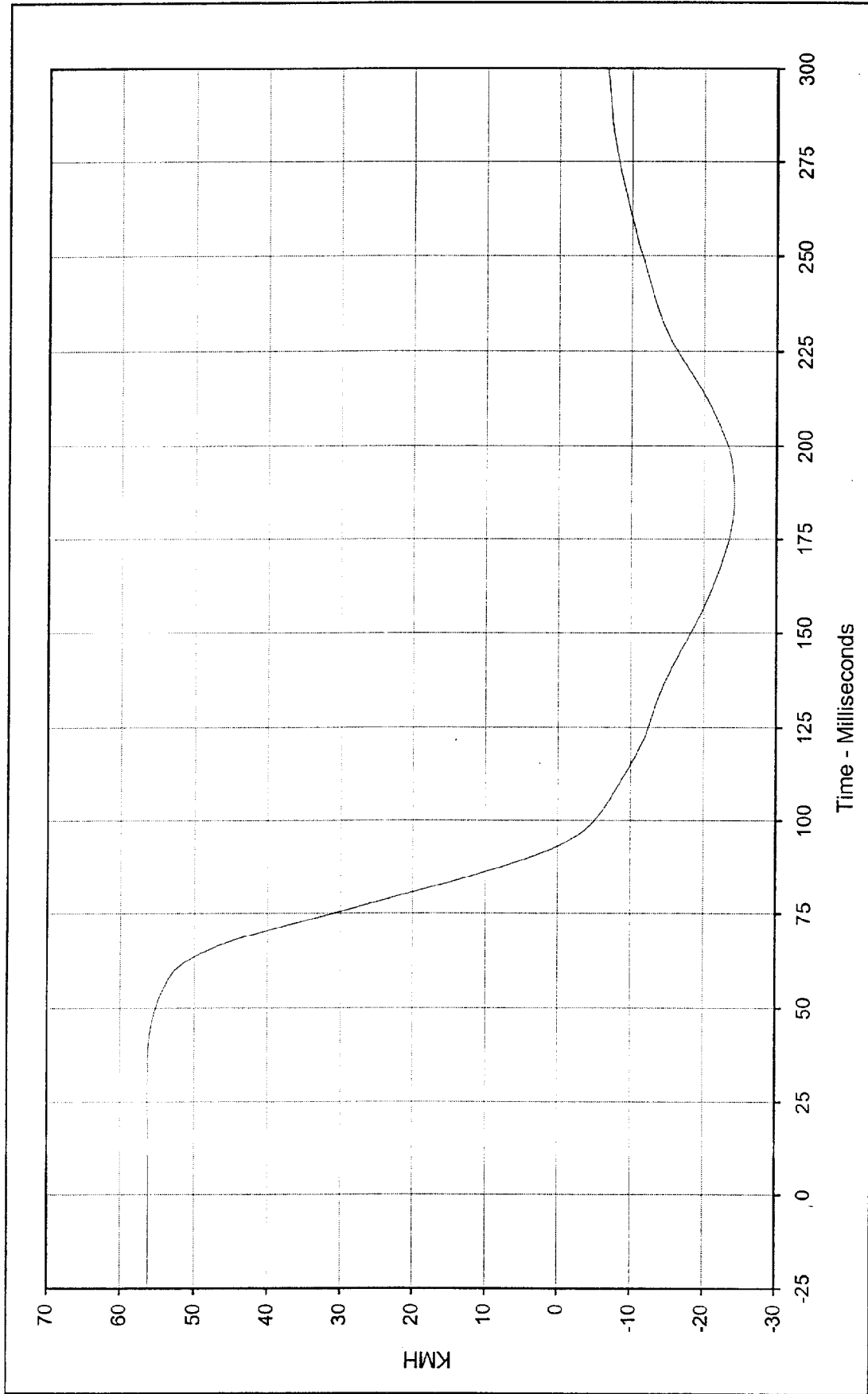
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Driver Head Redundant X Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 10.4 at 221.9 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -59.4 at 74.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-004

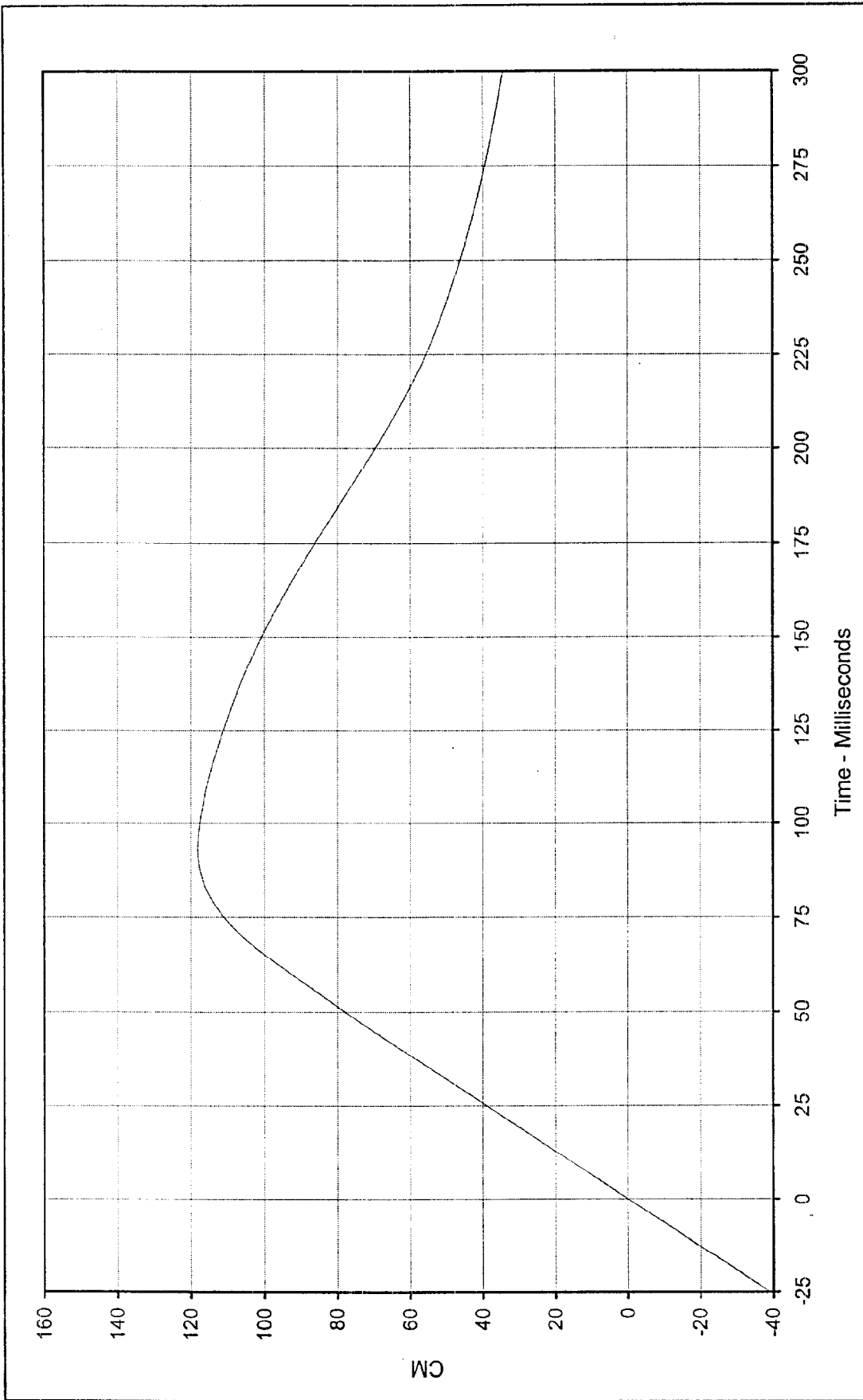




Curve Description: Driver Head Redundant X Velocity
 Maximum Value: 56.3 at 29.1 Milliseconds
 Minimum Value: -24.2 at 186.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-004

Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

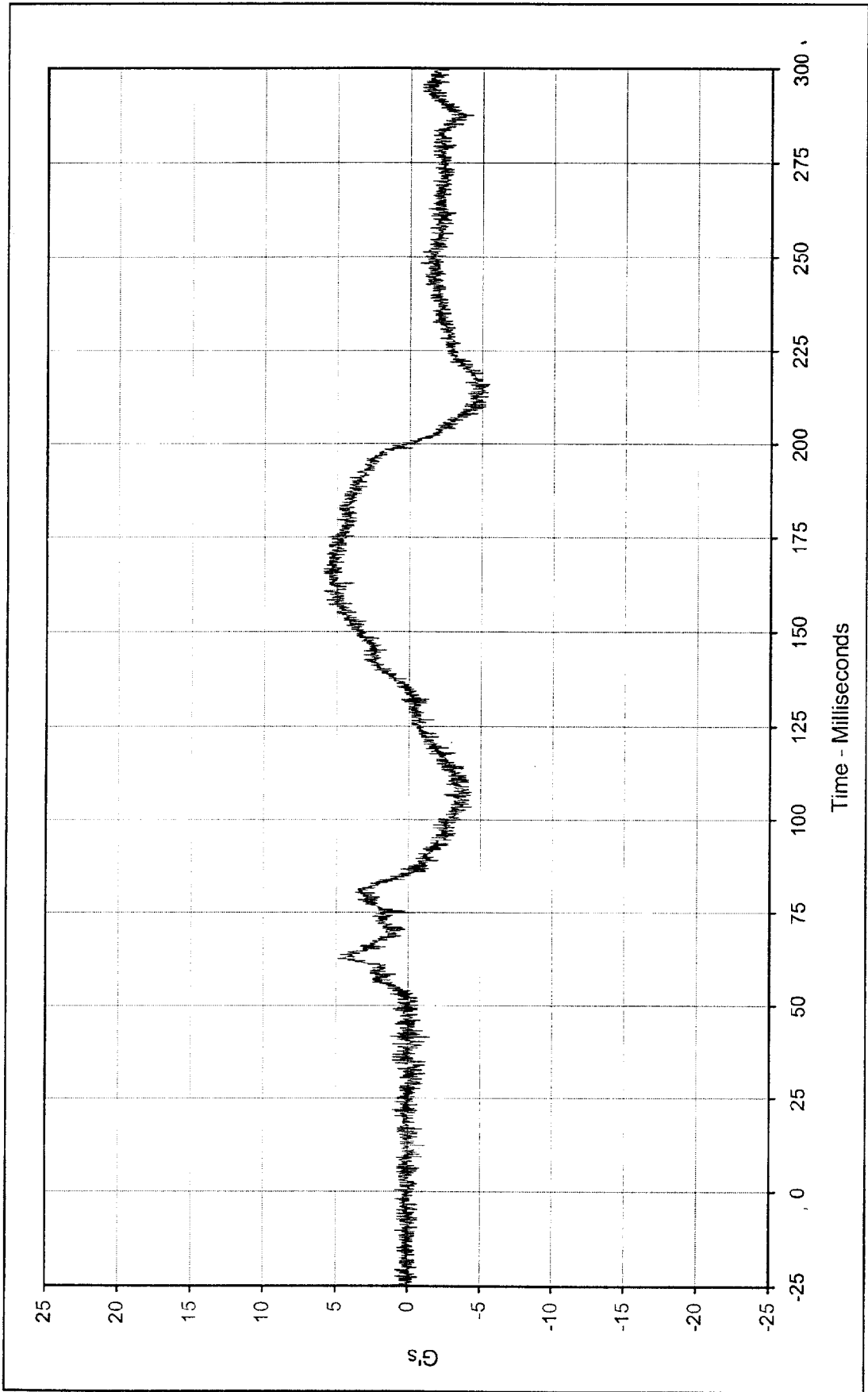




Curve Description: Driver Head Redundant X Displ. Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 118.1 at 93.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds

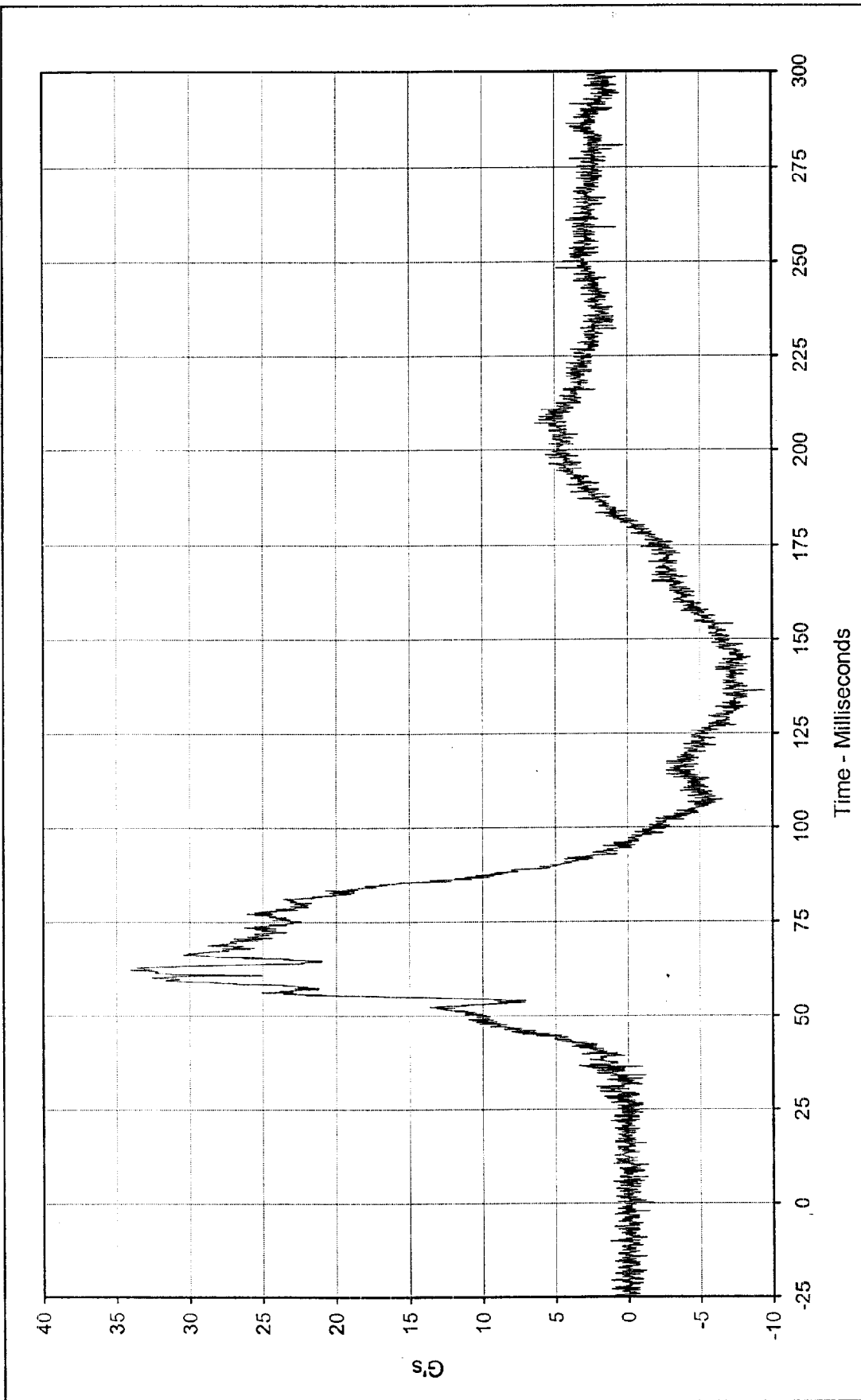


SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN2-004



Curve Description: Driver Head Redundant Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 5.9 at 160.7 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -5.6 at 215.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-005

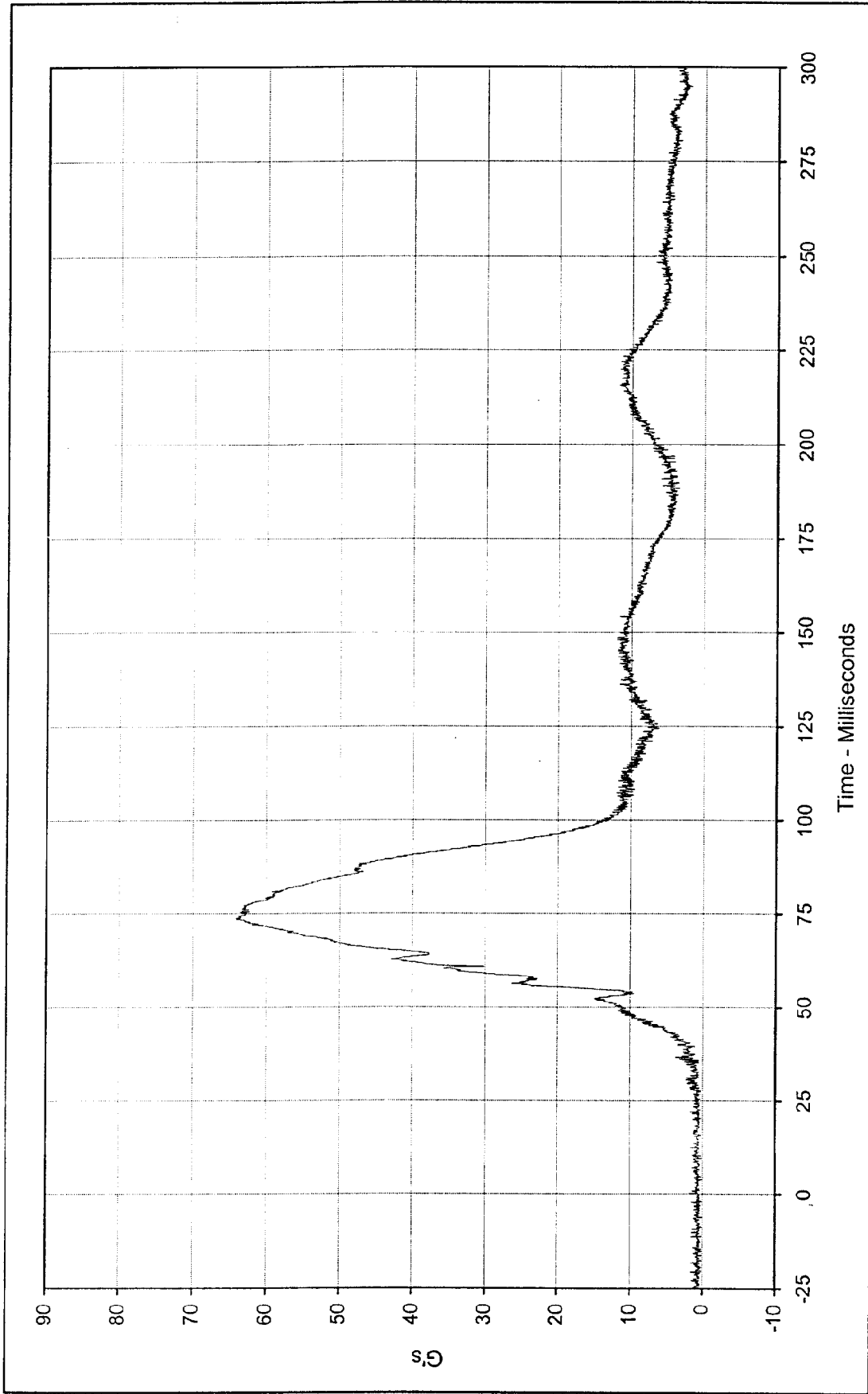




Curve Description: Driver Head Redundant Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 34.1 at 62.1 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -9.5 at 136.2 Milliseconds



SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-006



Curve Description: Driver Head Resultant Redundant

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 64.2 at 73.7 Milliseconds

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

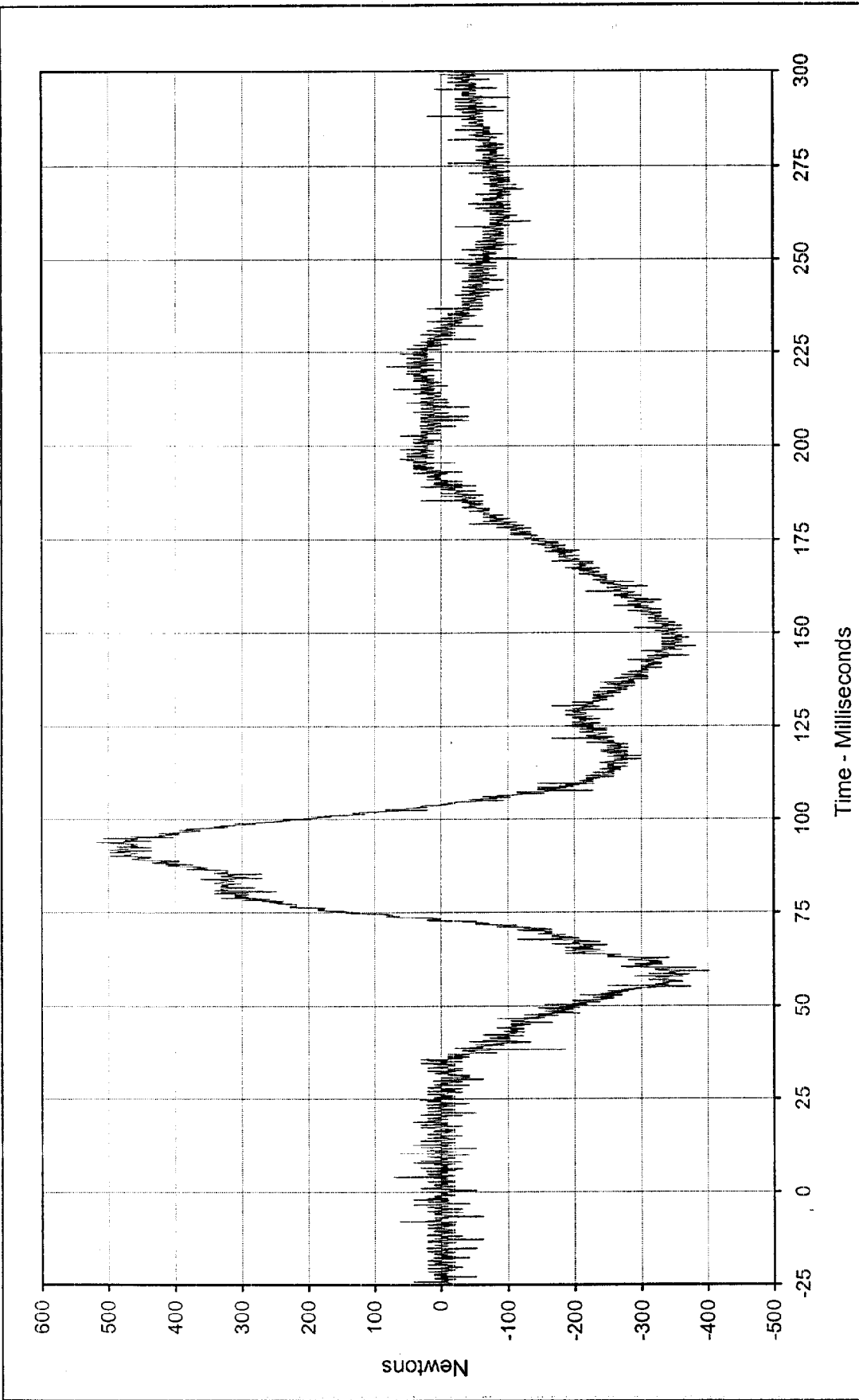
Minimum Value: 0.1 at 3.8 Milliseconds

SAE Filter Class: 1000

Date of Test: 1/5/99

Curve Number: RES-004





Curve Description: Driver Neck Force X

Maximum Value: 517.5 at 93.9 Milliseconds

Minimum Value: -403.7 at 59.2 Milliseconds

SAE Filter Class: 1000

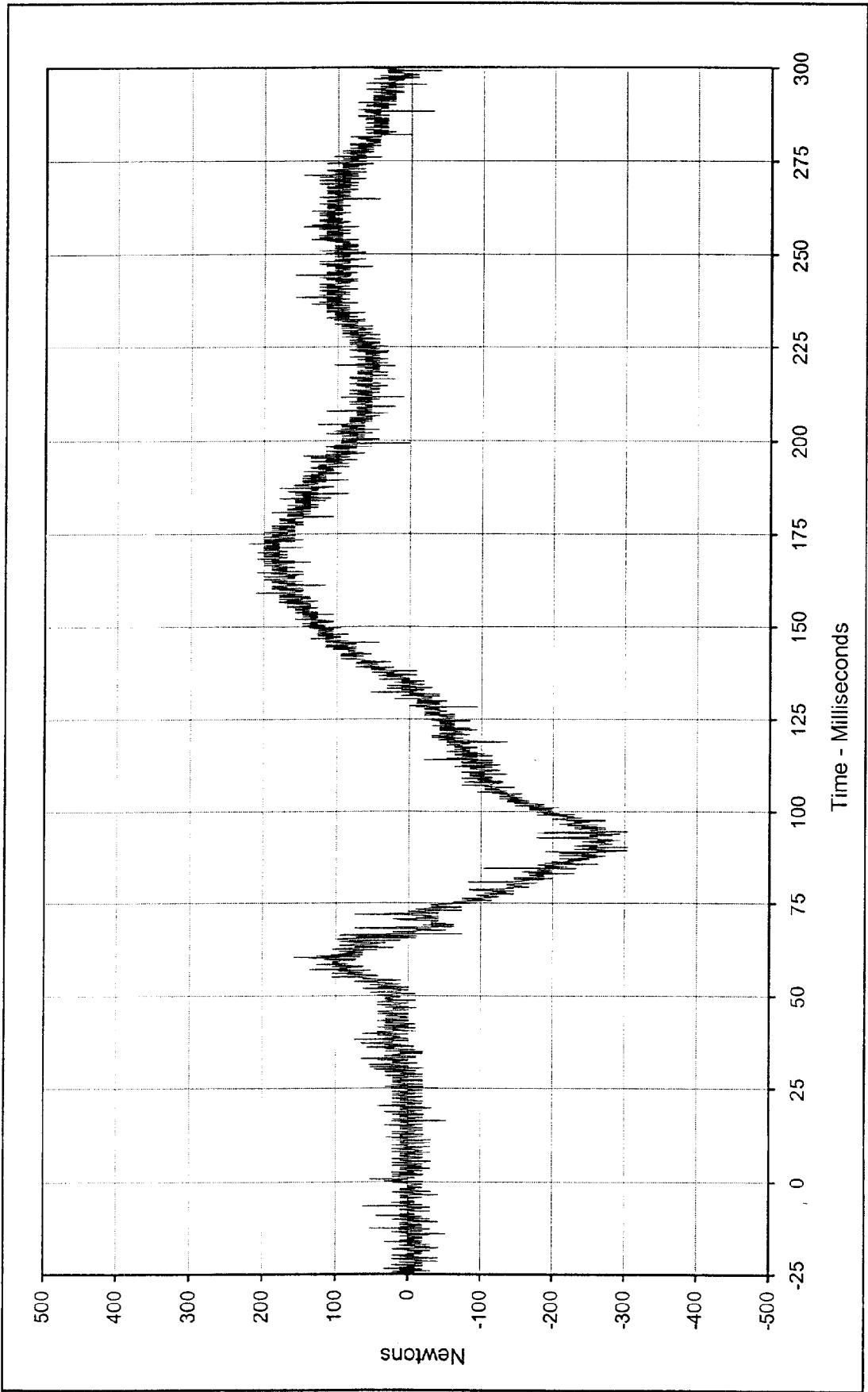
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Curve Number: FIL-007

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

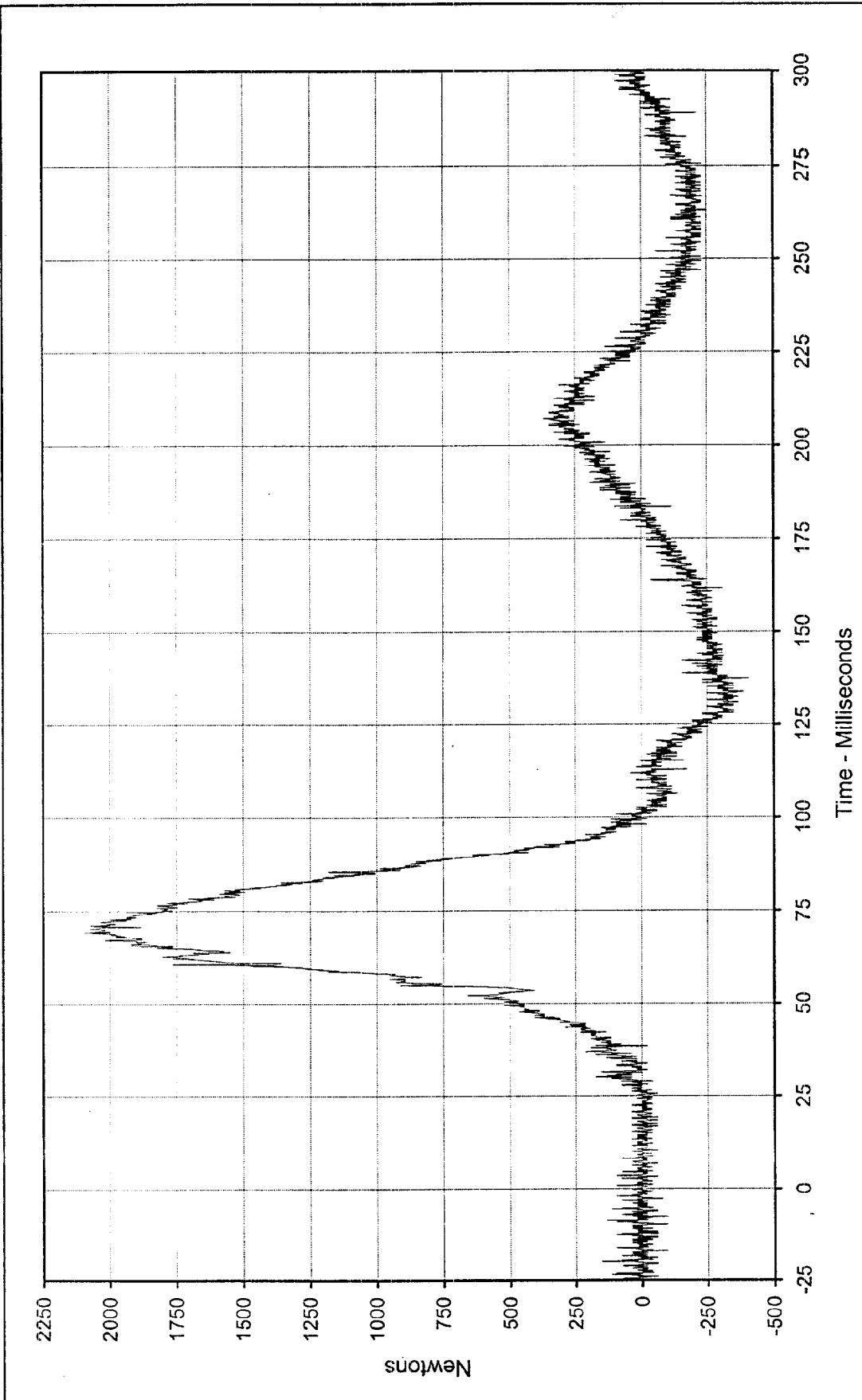




Curve Description: Driver Neck Force Y
 Maximum Value: 220.1 at 172.4 Milliseconds
 Minimum Value: -304.0 at 89.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-008

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

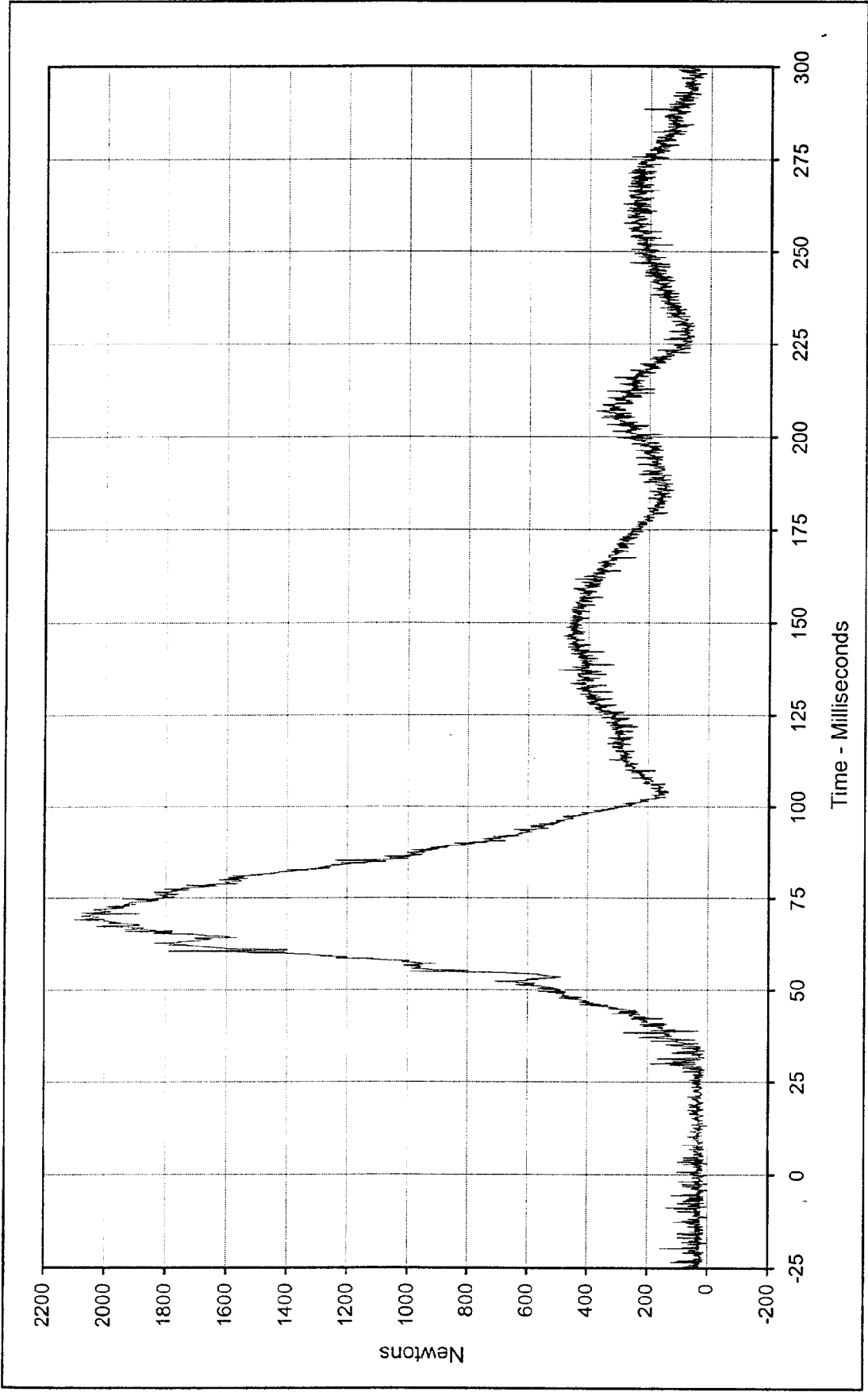




Curve Description: Driver Neck Force Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 2092.9 at 69.4 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -406.9 at 137.2 Milliseconds

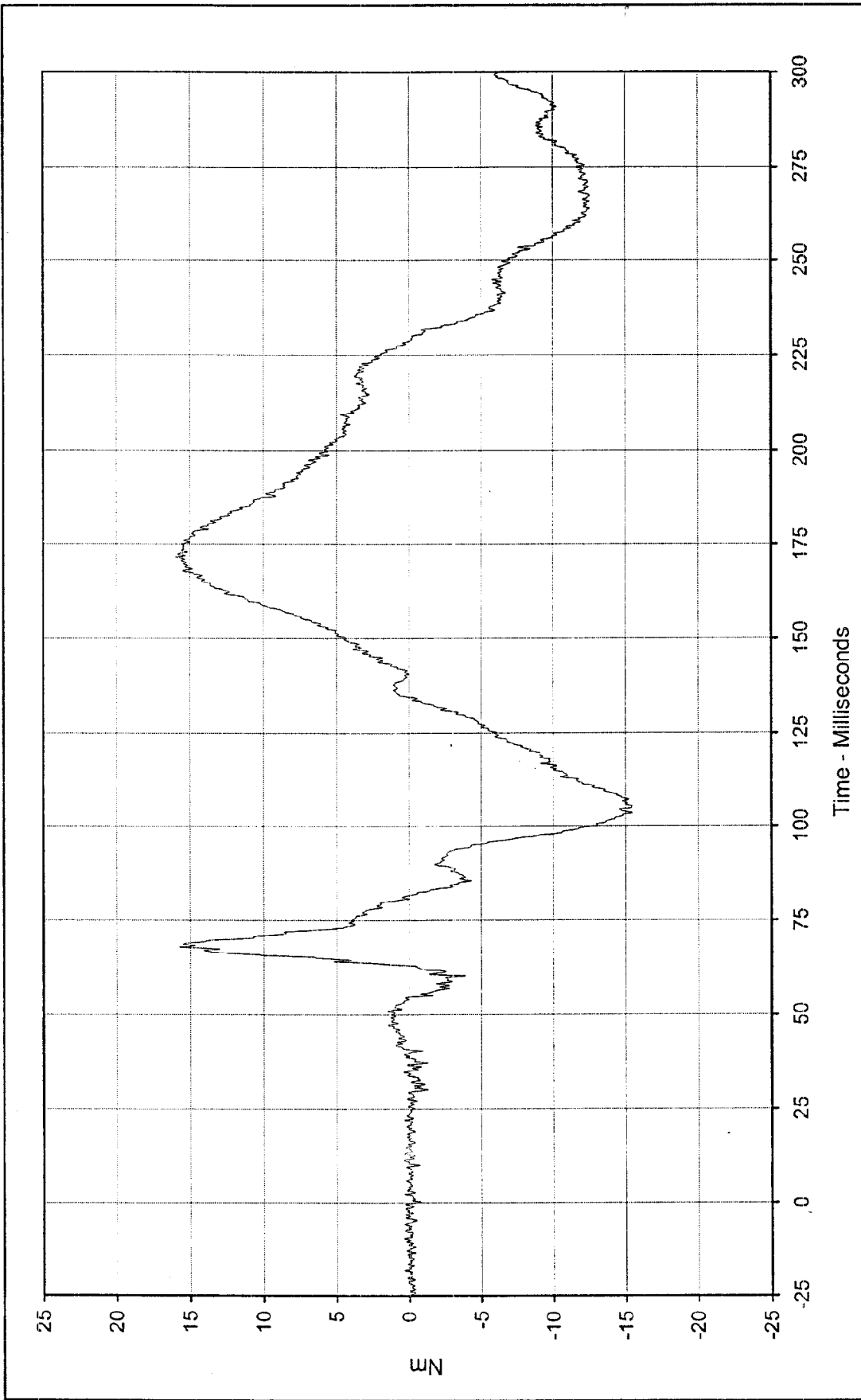


SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-009



Curve Description: Driver Neck Force Resultant
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 2099.8 at 69.4 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 3.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: RES-007





Curve Description: Driver Neck Moment X Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 15.9 at 171.6 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

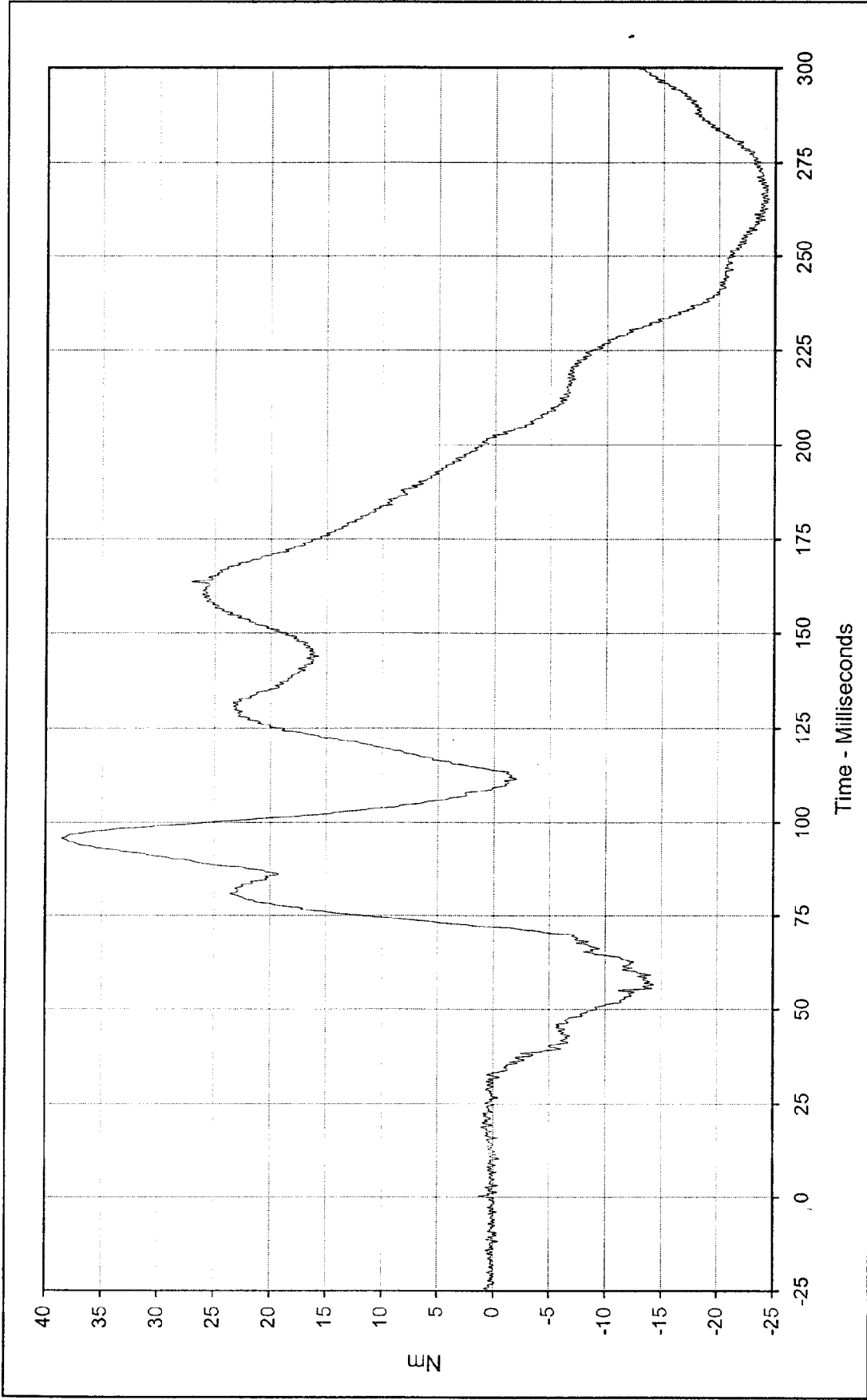
Minimum Value: -15.5 at 103.5 Milliseconds

SAE Filter Class: 600

Date of Test: 1/5/99

Curve Number: FIL-010





Curve Description: Driver Neck Moment Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 38.5 at 95.5 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

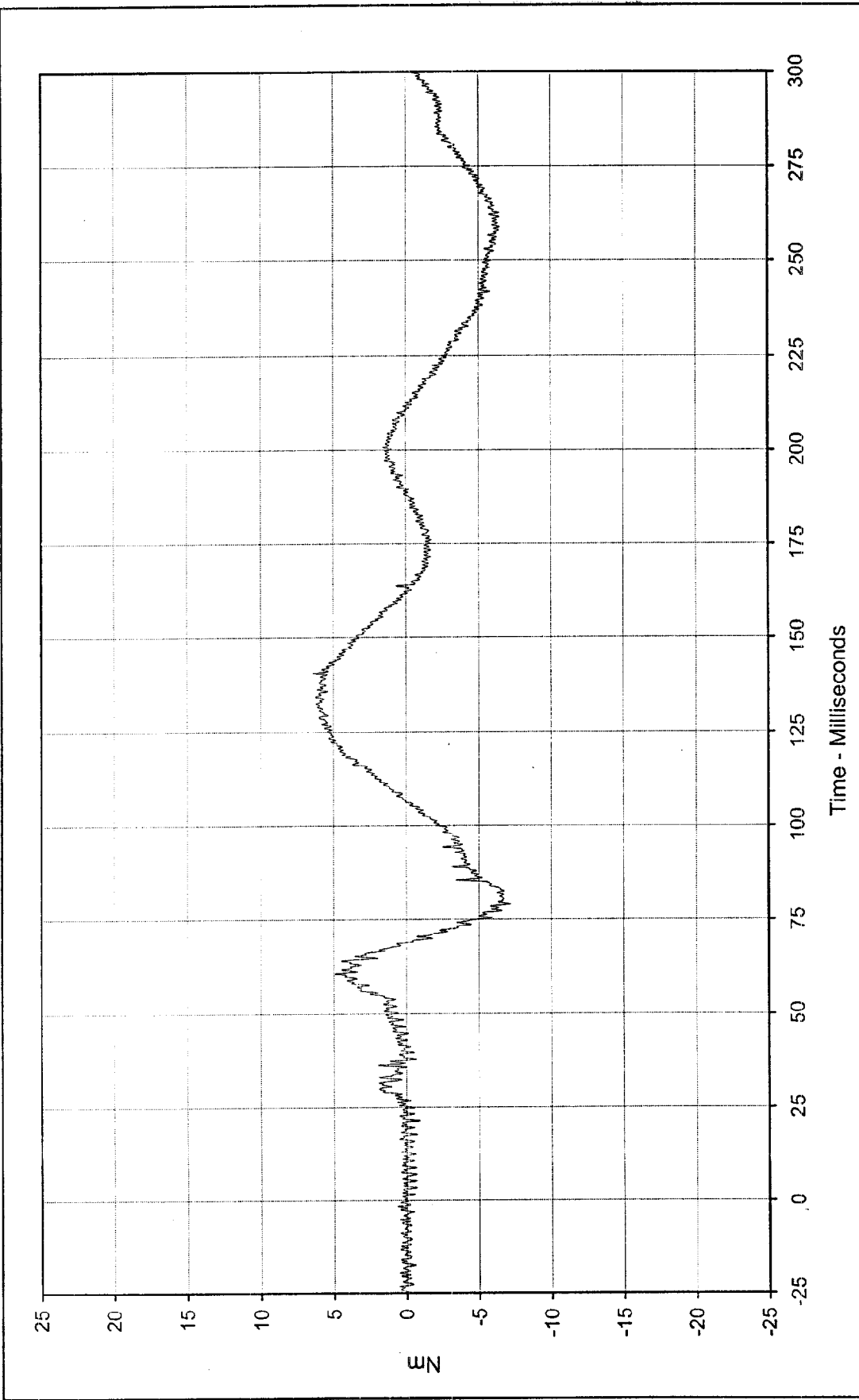
Minimum Value: -24.5 at 265.2 Milliseconds

SAE Filter Class: 600

Date of Test: 1/5/99

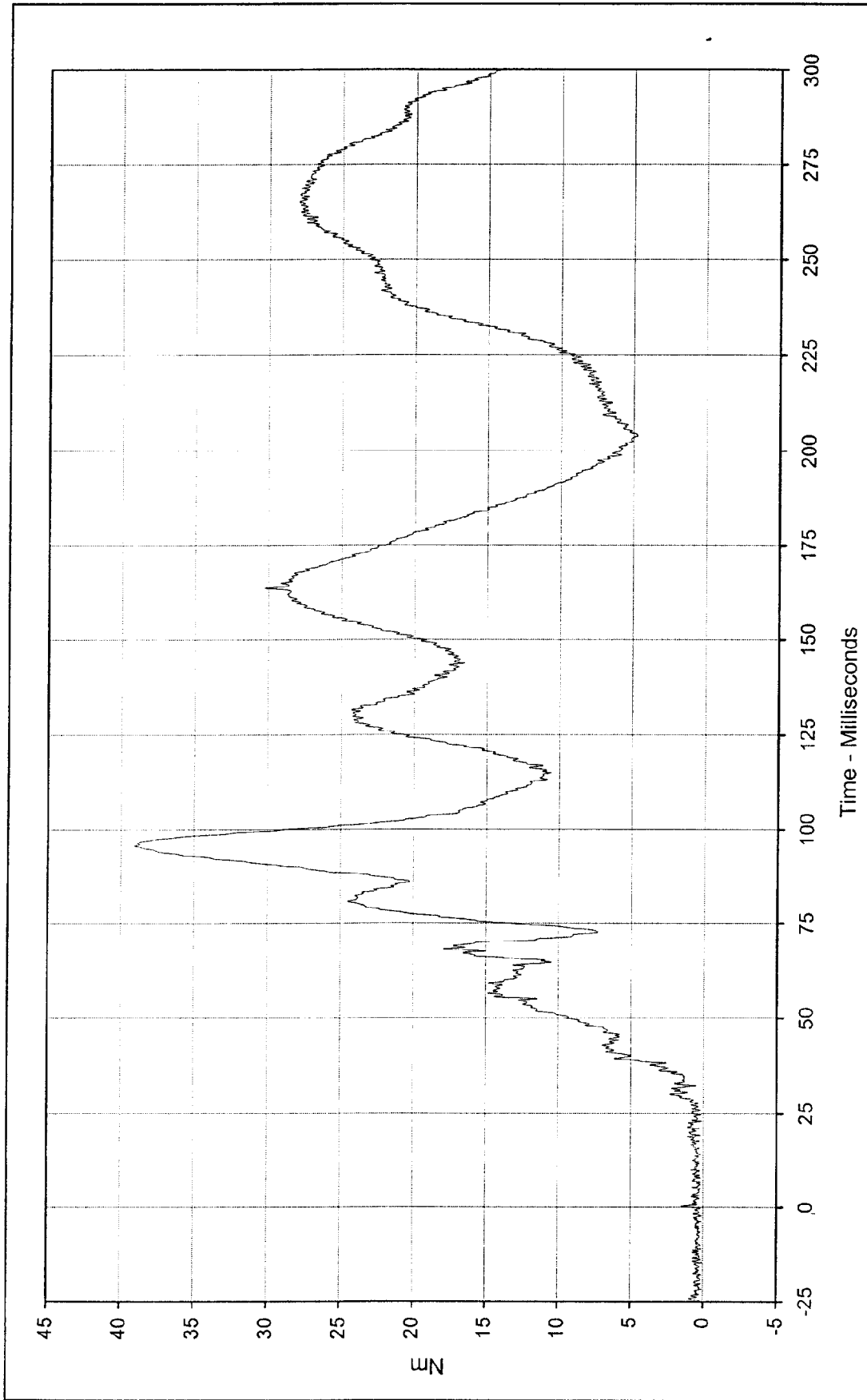
Curve Number: FIL-011





Curve Description: Driver Neck Moment Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 6.4 at 140.5 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -7.2 at 79.0 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-012

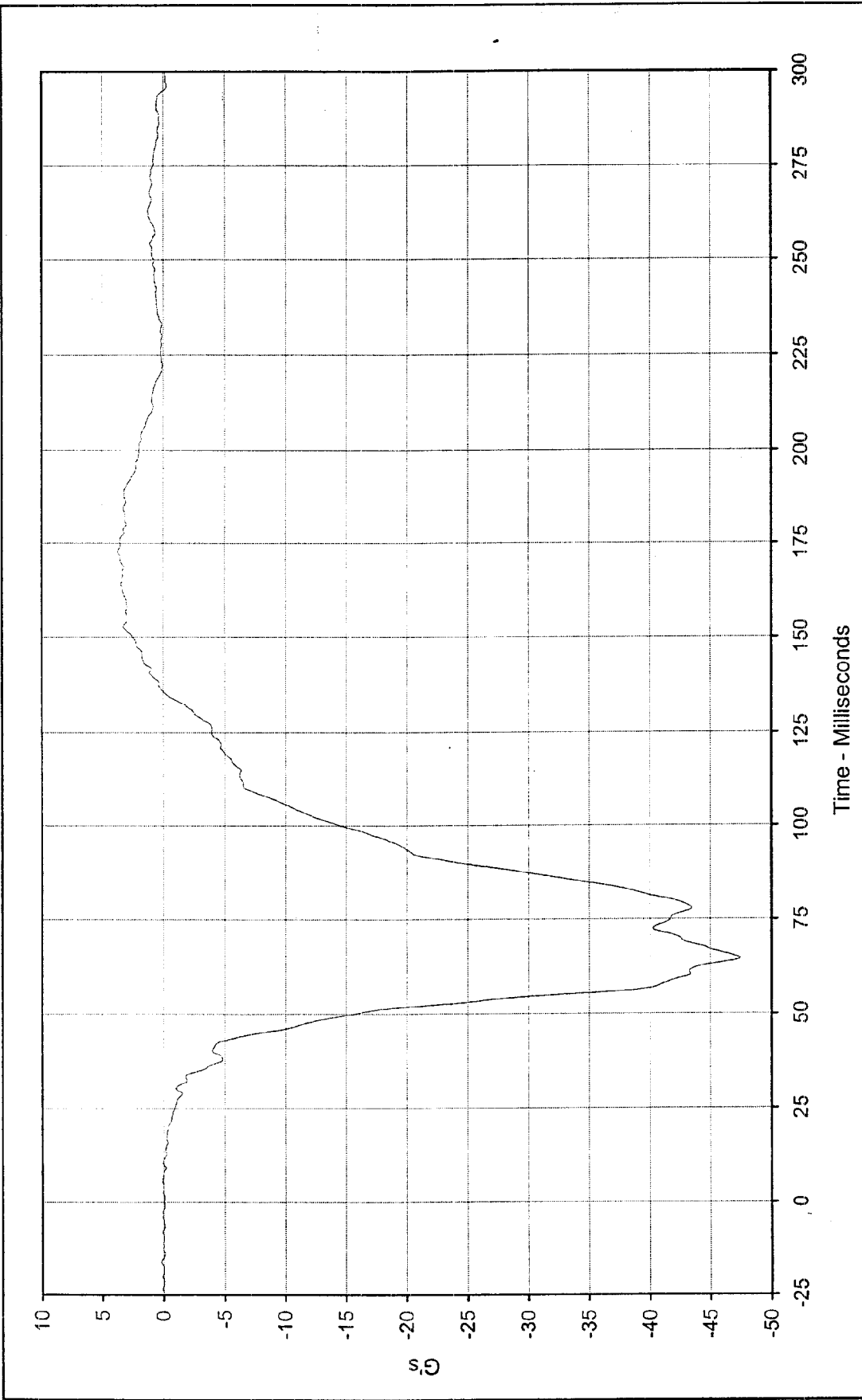




Curve Description: Driver Neck Moment Resultant
 Maximum Value: 39.1 at 95.6 Milliseconds
 Minimum Value: 0.1 at 22.9 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: RES-010

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

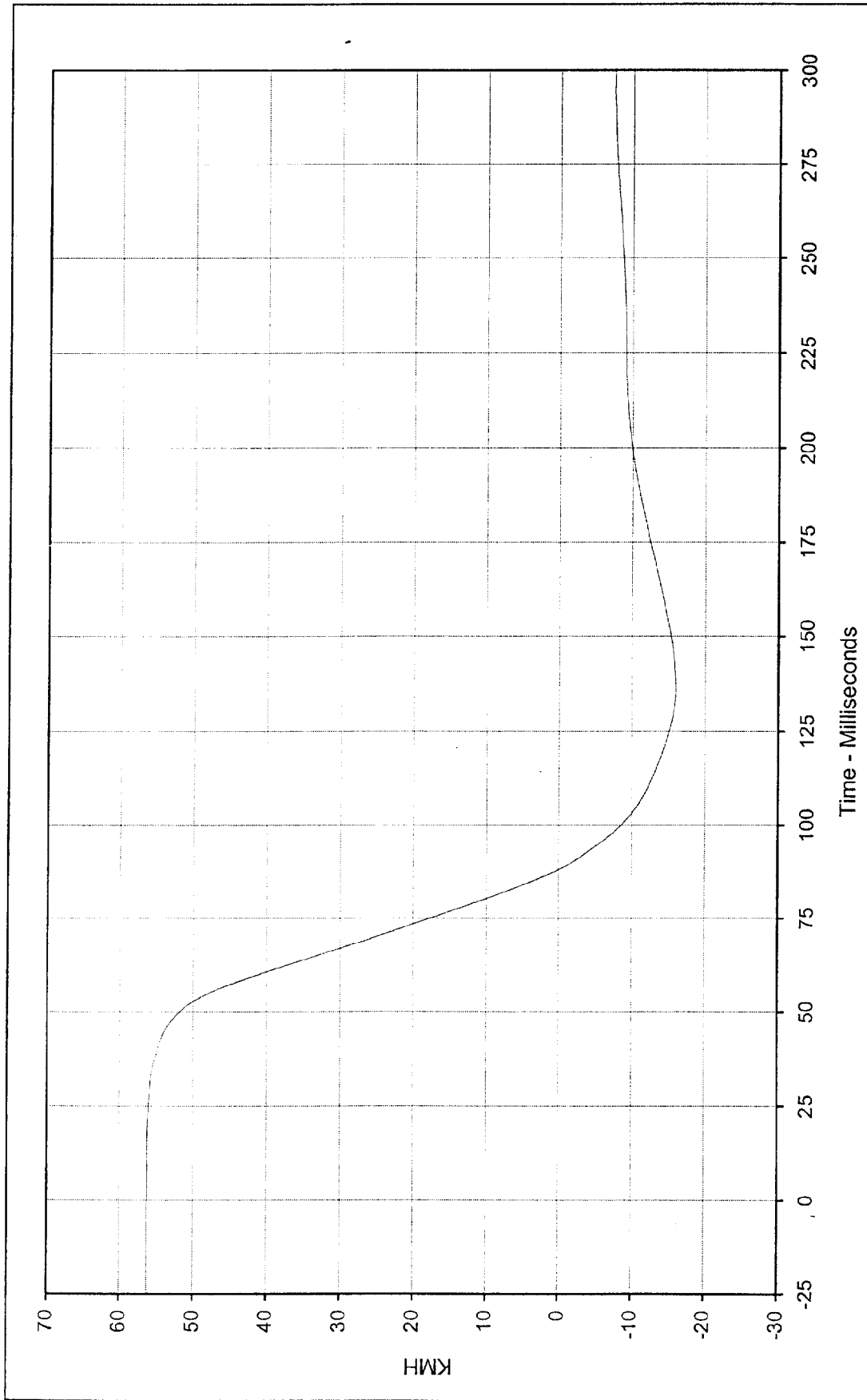




Curve Description: Driver Chest Primary X
 Maximum Value: 3.7 at 172.8 Milliseconds
 Minimum Value: -47.5 at 64.5 Milliseconds

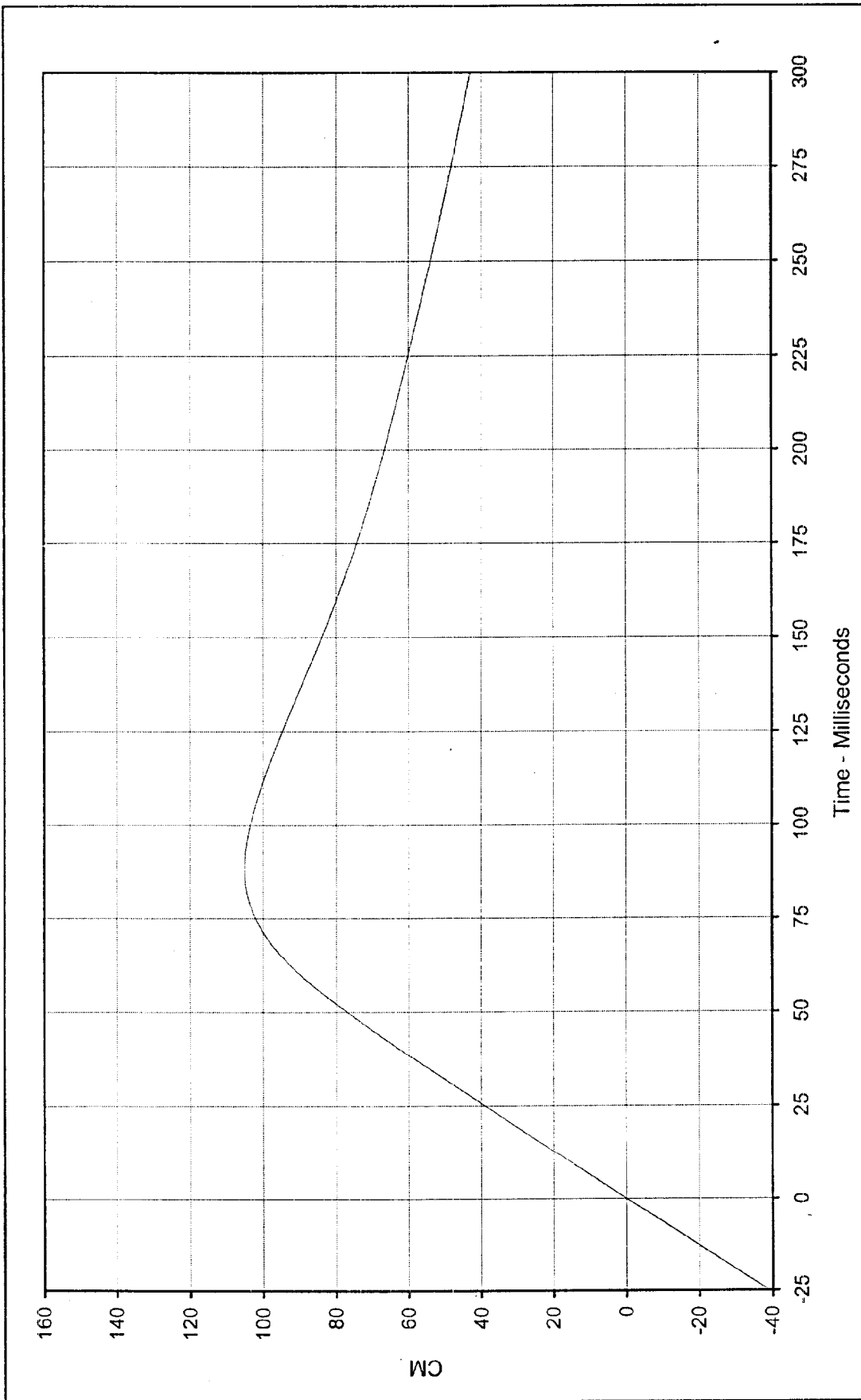
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-013





Curve Description: Driver Chest Primary X Velocity Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 56.3 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -16.0 at 135.8 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-013





Curve Description: Driver Chest Primary X Displ. Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 105.0 at 88.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

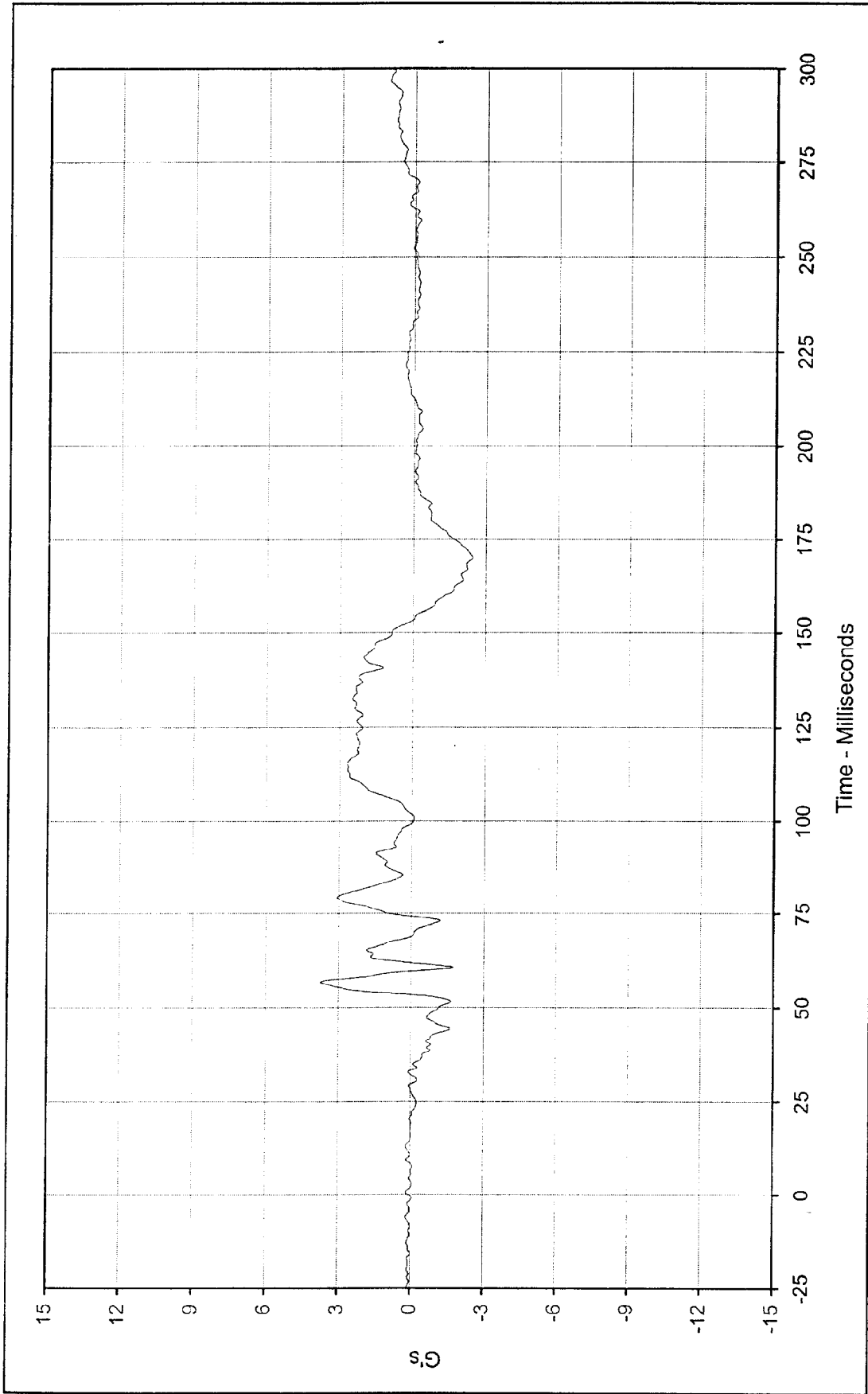
Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 1/5/99

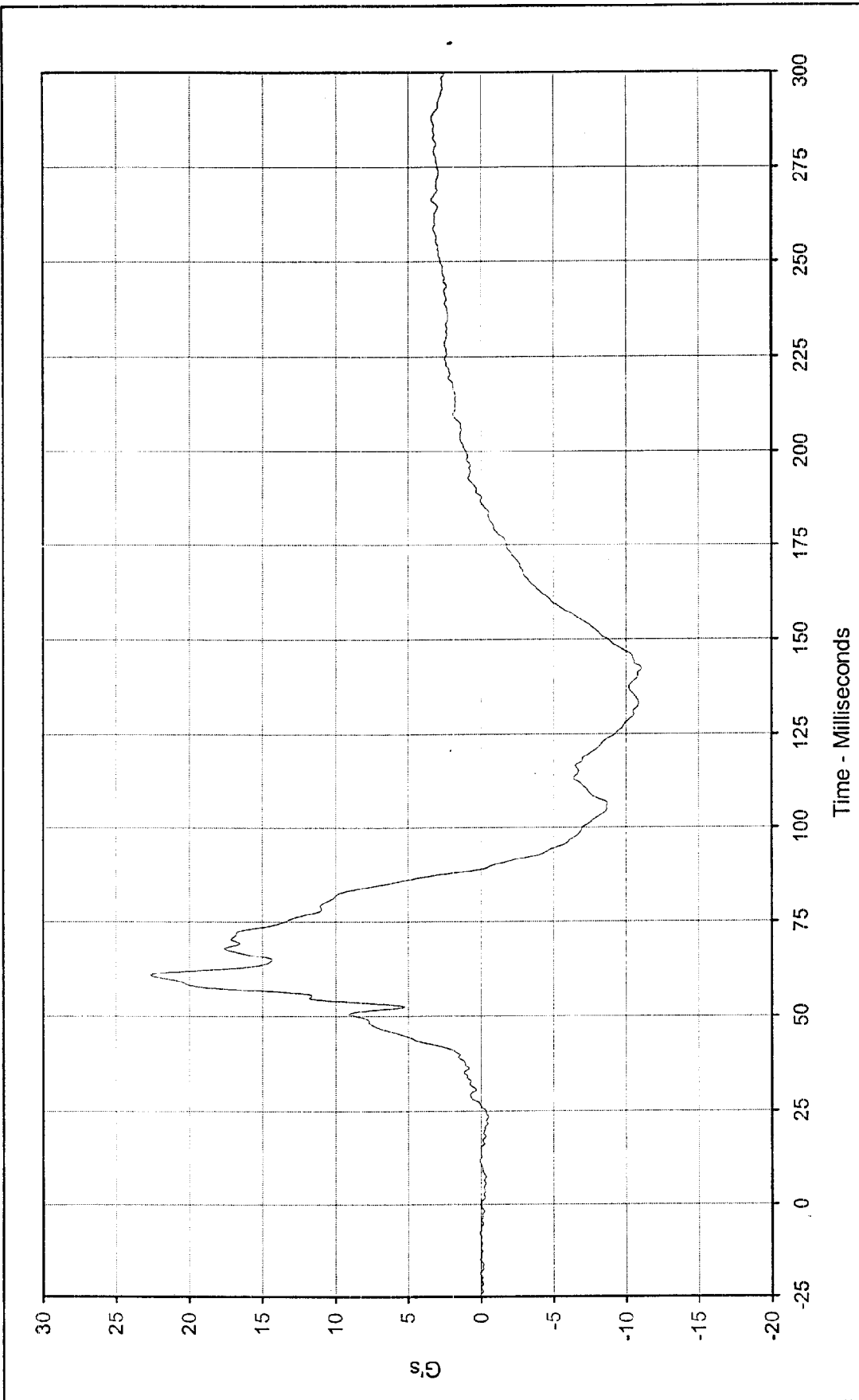
Curve Number: IN2-013





Curve Description: Driver Chest Primary Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 3.7 at 56.7 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -2.5 at 170.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-014

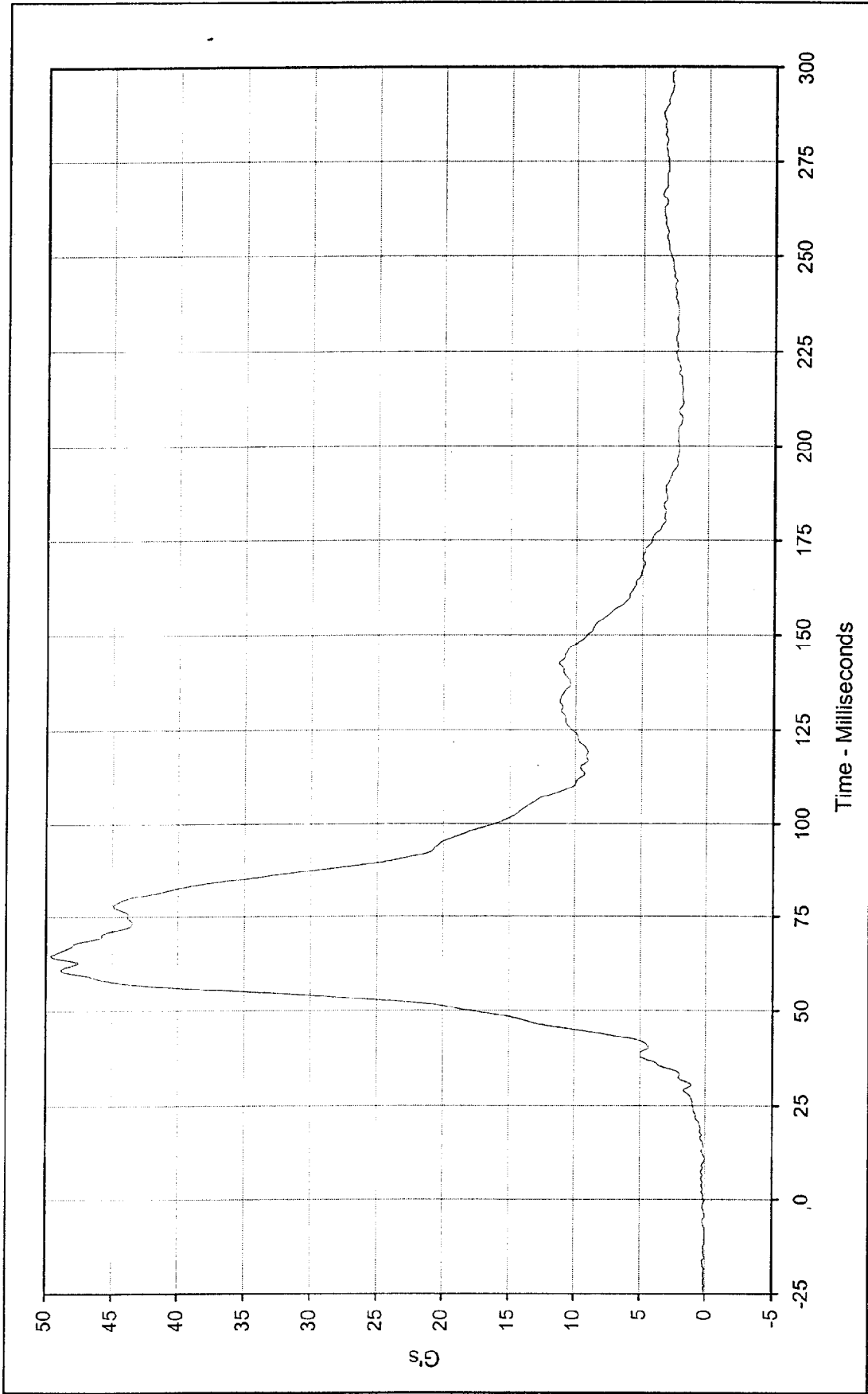




Curve Description: Driver Chest Primary Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 22.7 at 60.8 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -11.1 at 142.3 Milliseconds



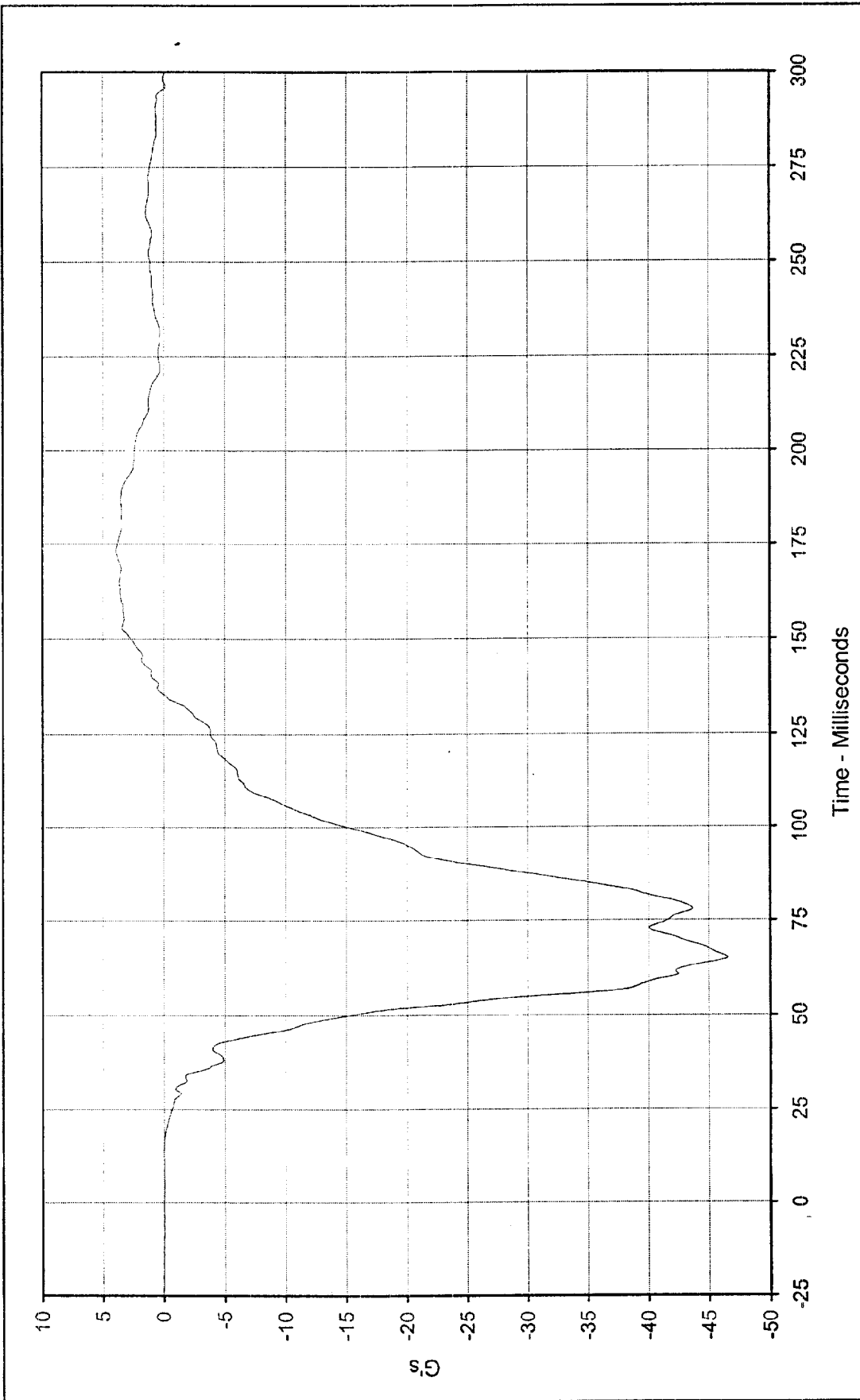
SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-015



Curve Description: Driver Chest Resultant Primary
 Maximum Value: 49.6 at 64.4 Milliseconds
 Minimum Value: 0.0 at 10.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: RES-013

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

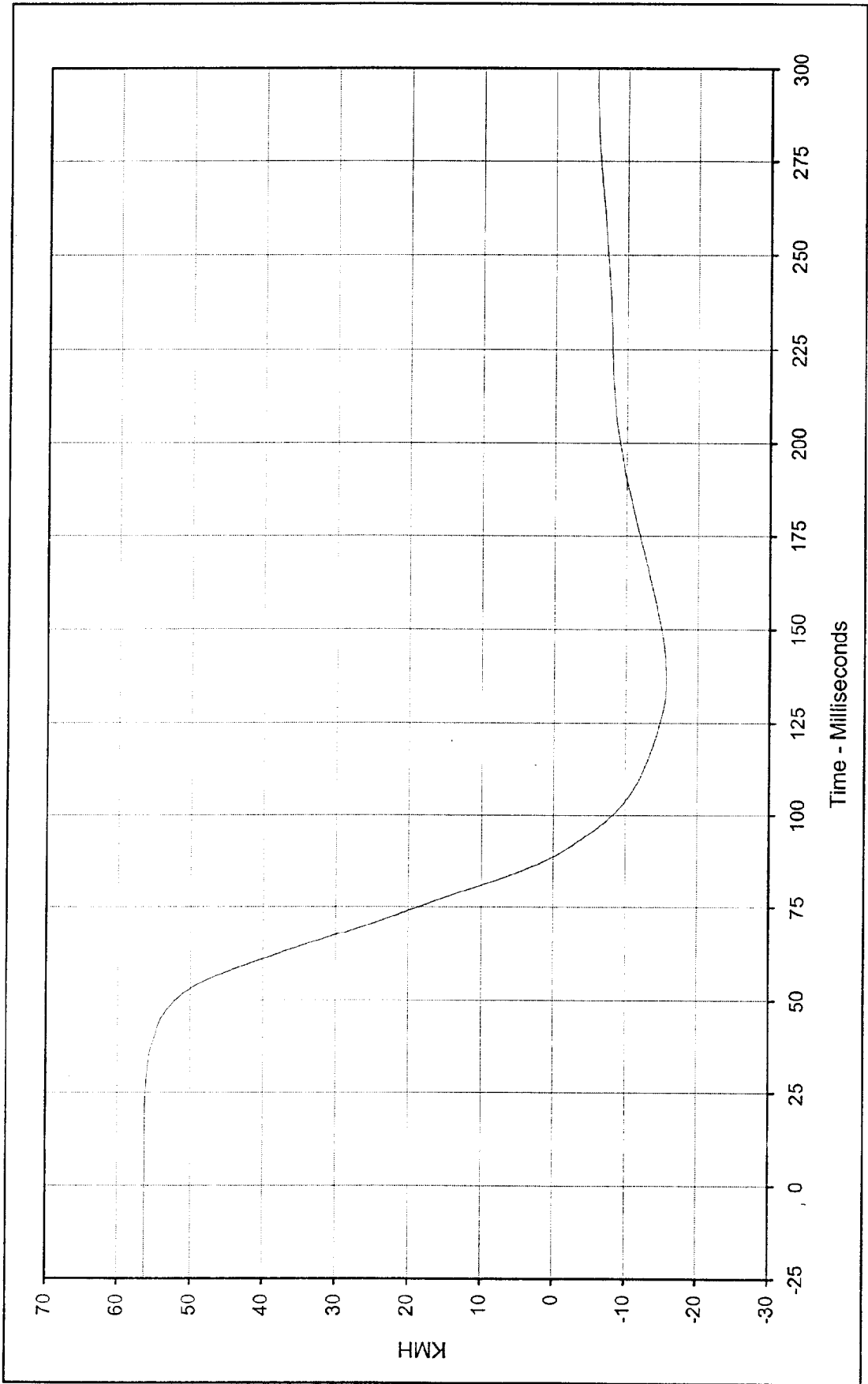




Curve Description: Driver Chest Redundant X Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 4.0 at 173.2 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -46.6 at 65.1 Milliseconds



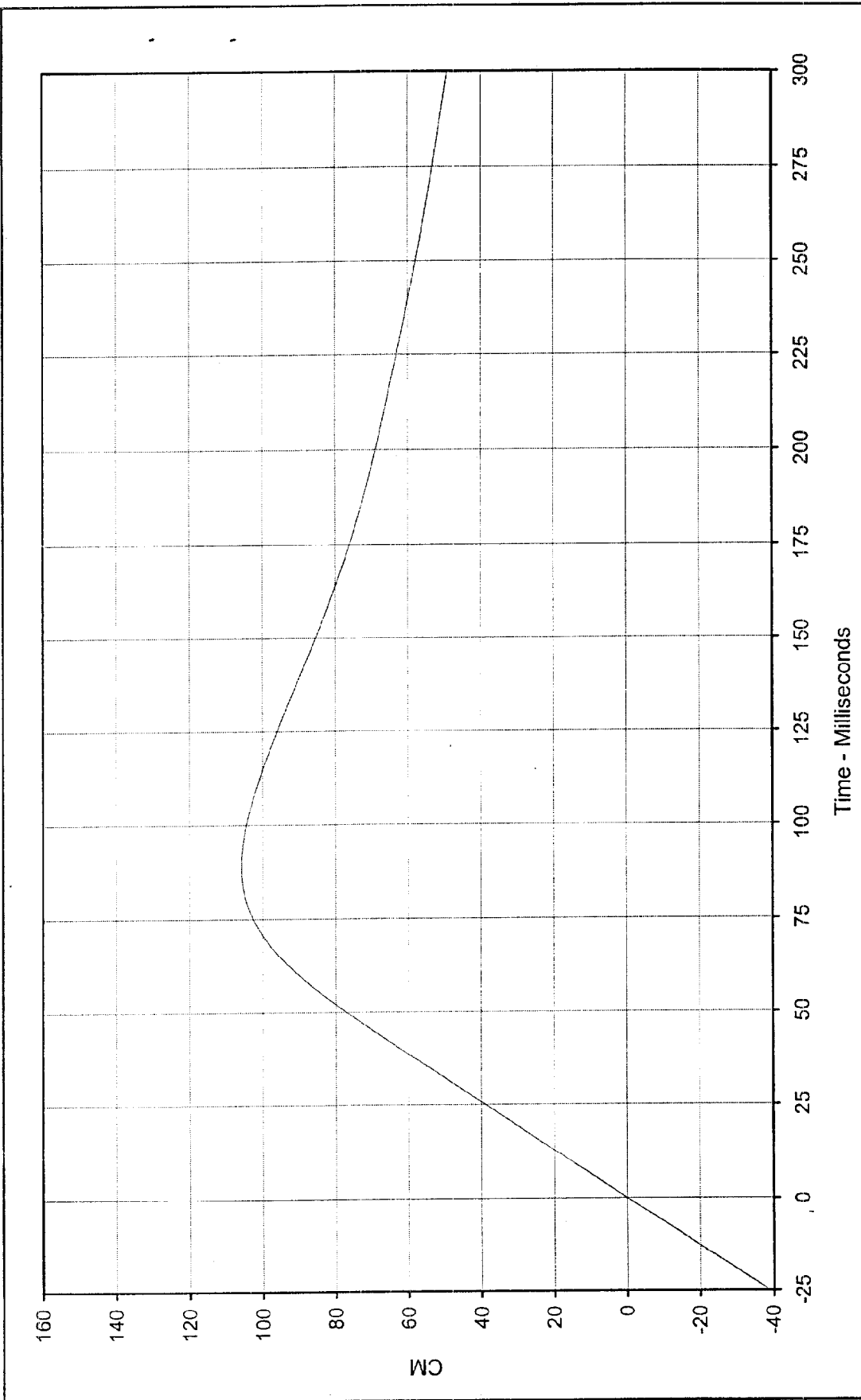
SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-016



Curve Description: Driver Chest Redundant X Velocity
 Maximum Value: 56.3 at 0.6 Milliseconds
 Minimum Value: -15.6 at 135.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-016

Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

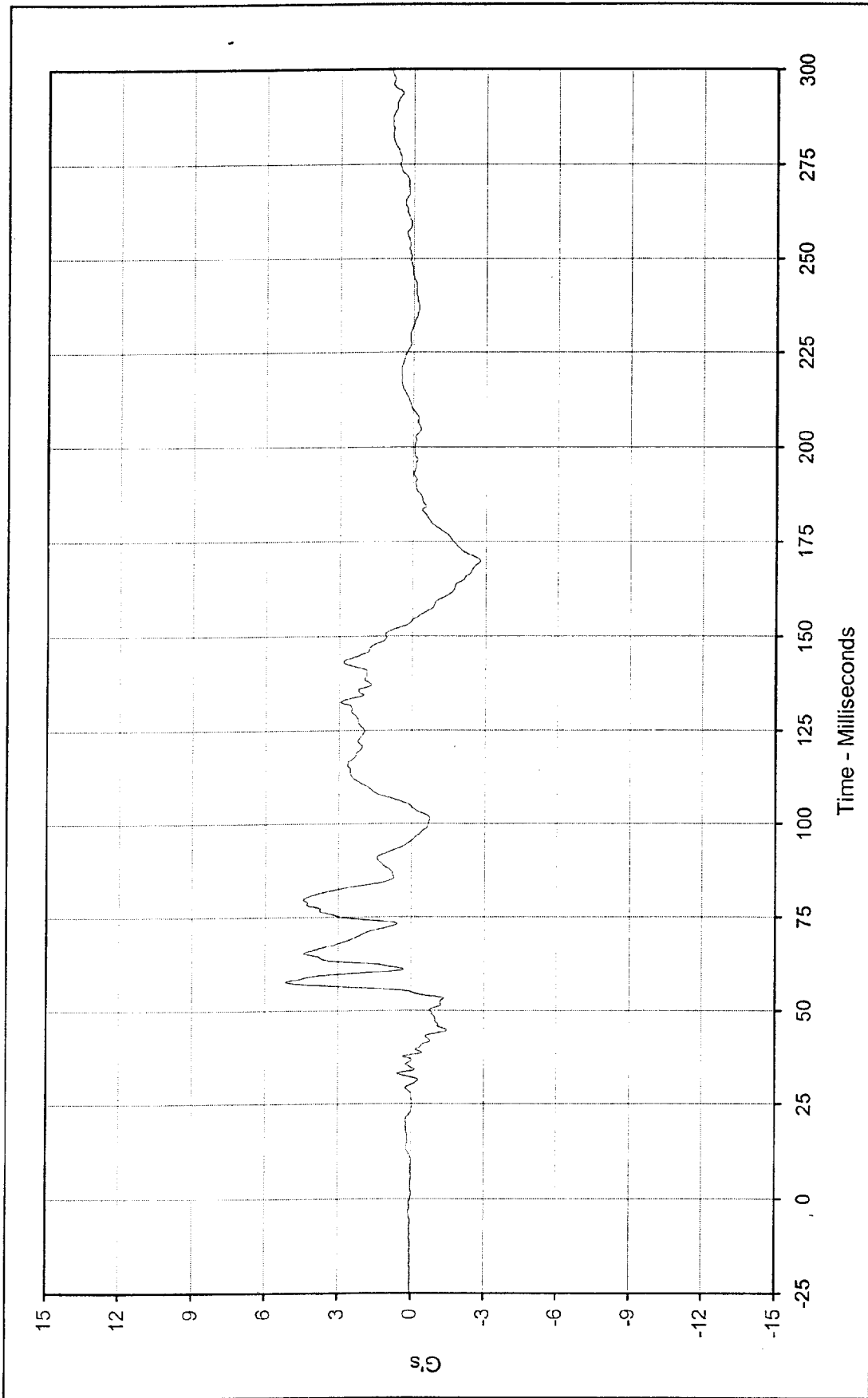




Curve Description: Driver Chest Redundant X Displ.
 Maximum Value: 105.9 at 88.7 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN2-016

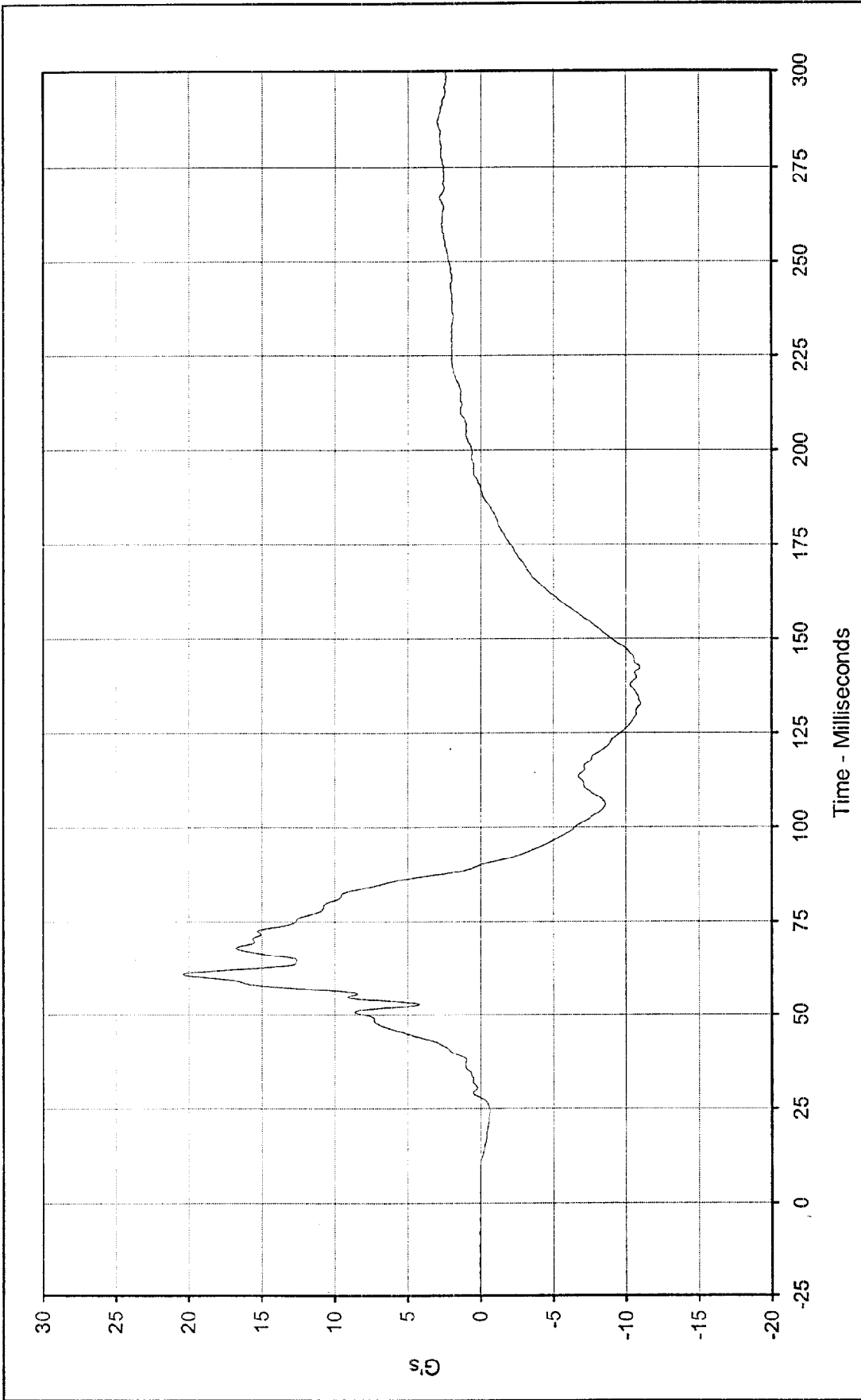
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Driver Chest Redundant Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 5.1 at 57.5 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -2.8 at 169.8 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-017

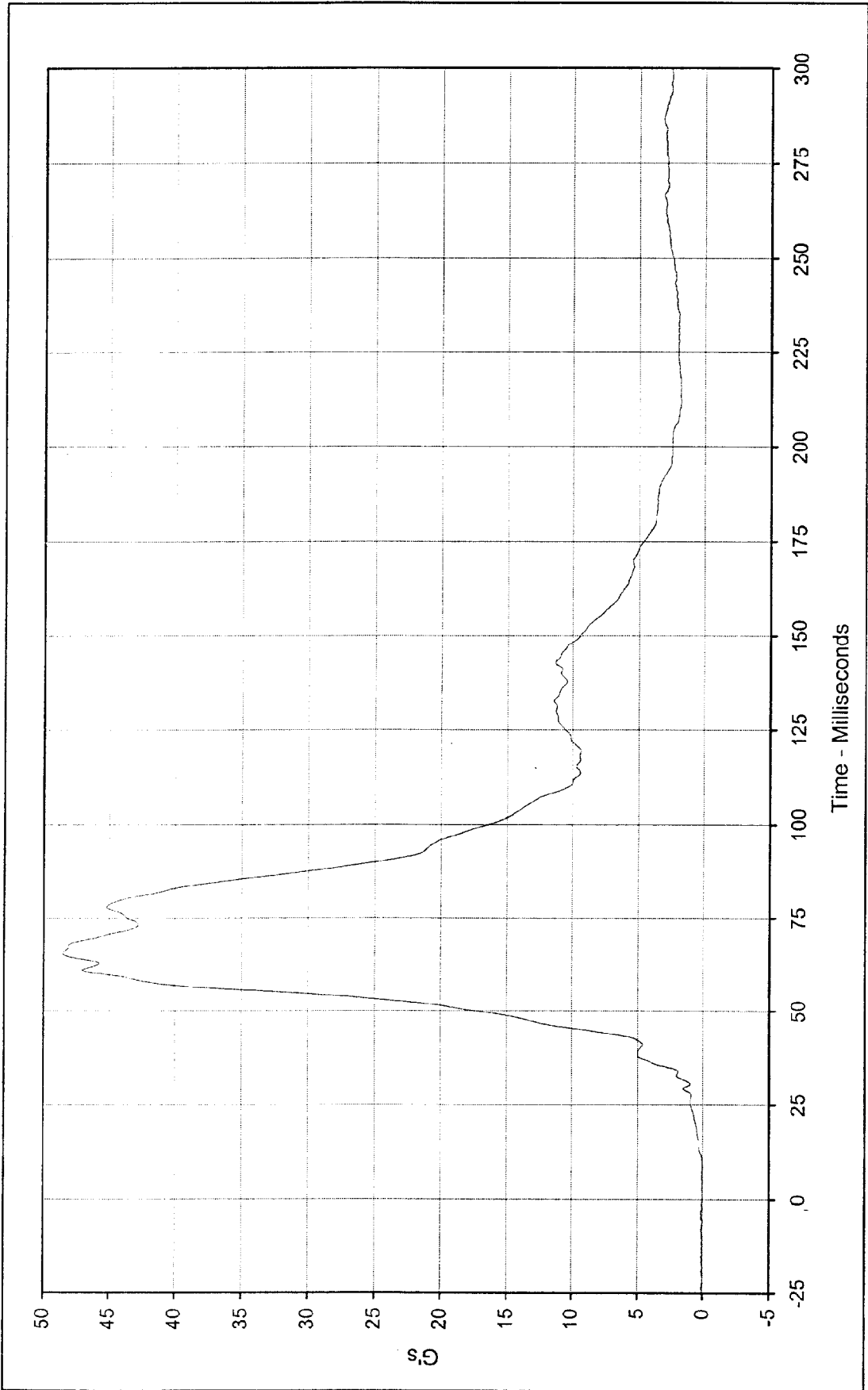




Curve Description: Driver Chest Redundant Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 20.4 at 60.9 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -11.0 at 132.8 Milliseconds



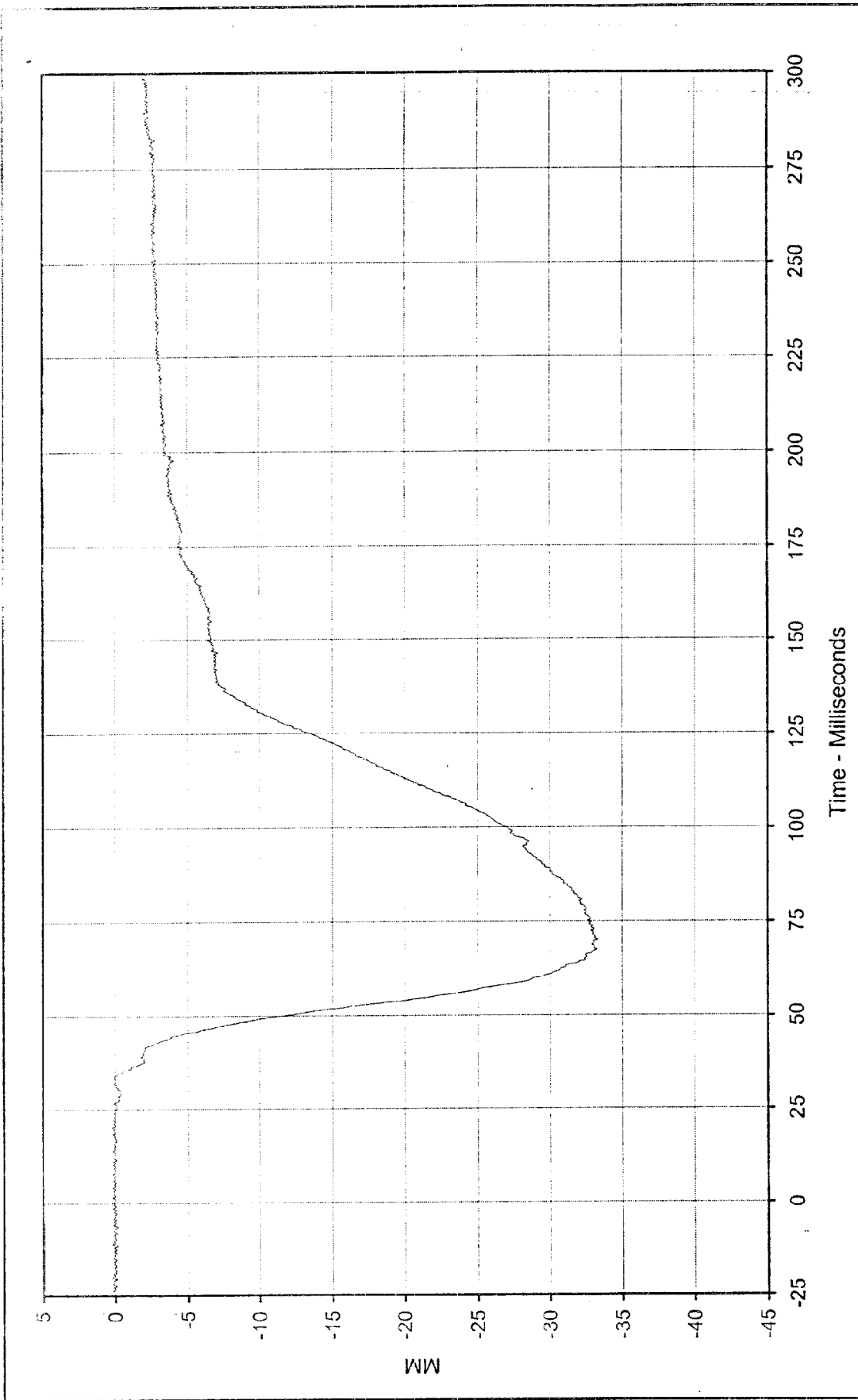
SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-018



Curve Description: Driver Chest Resultant Redundant
 Maximum Value: 48.5 at 65.3 Milliseconds
 Minimum Value: 0.0 at 0.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: RES-016

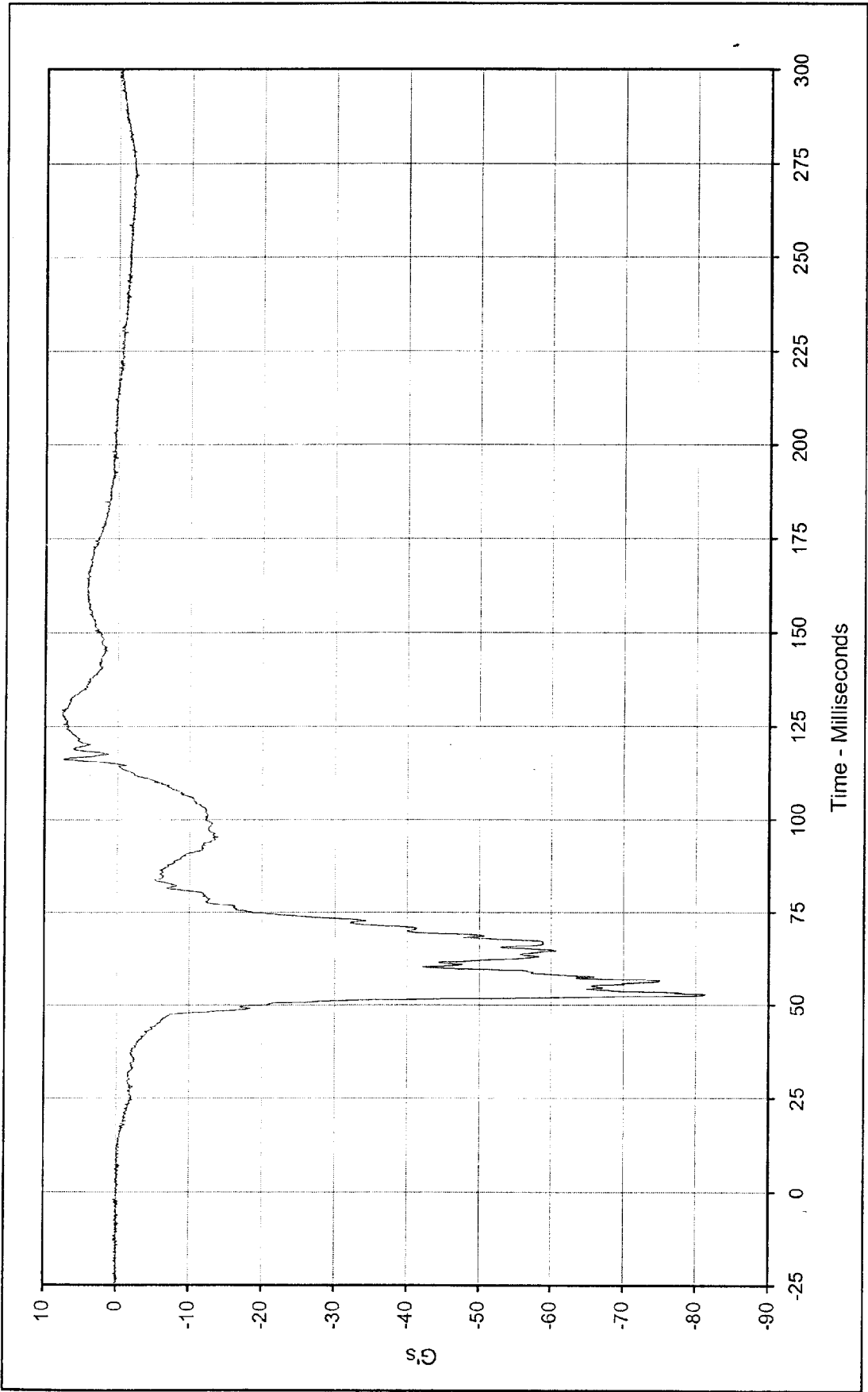
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Driver Chest Displacement X Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 0.2 at 20.2 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -33.3 at 70.1 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-019

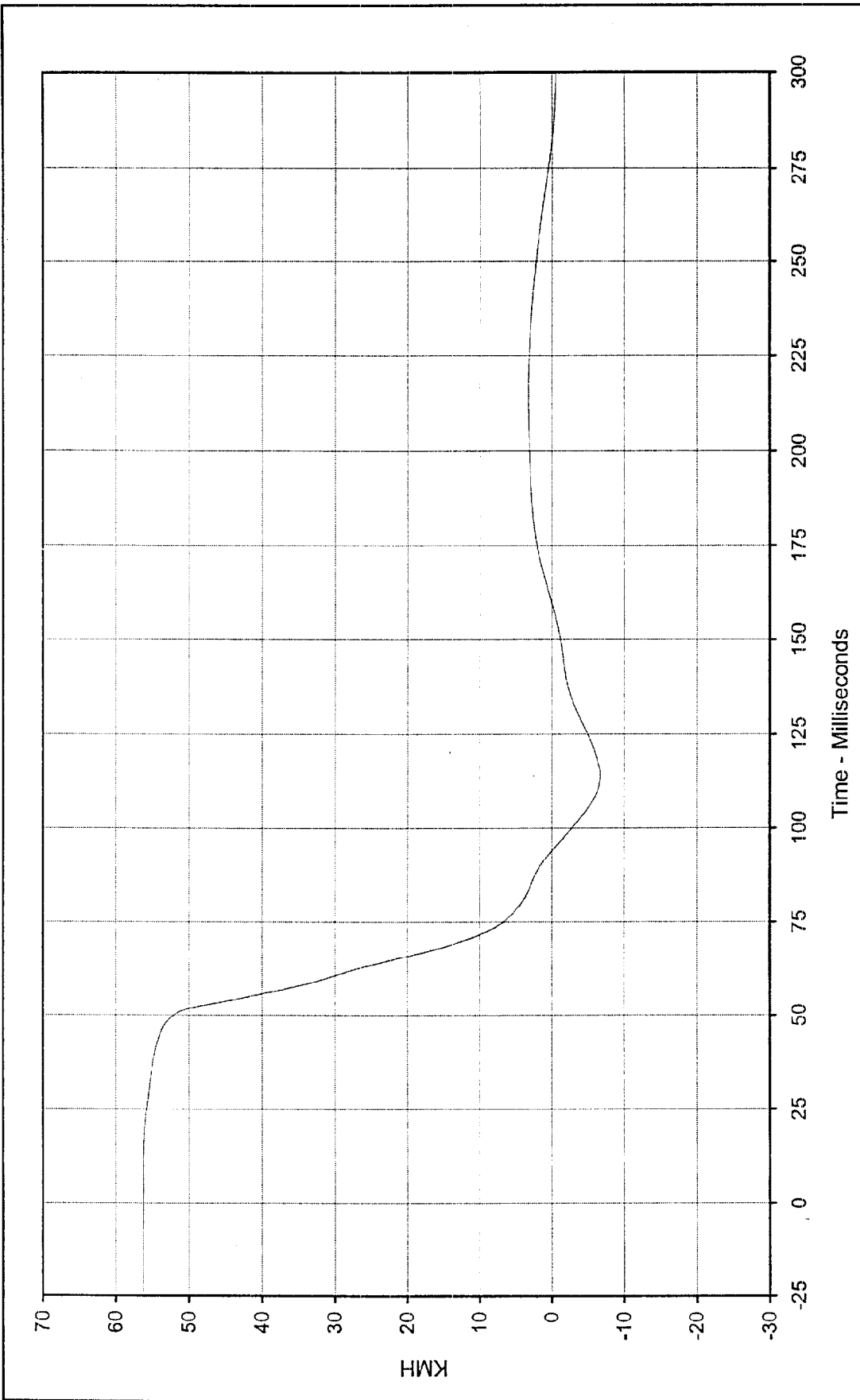




Curve Description: Driver Pelvis X
 Maximum Value: 7.7 at 129.4 Milliseconds
 Minimum Value: -81.3 at 52.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-020

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

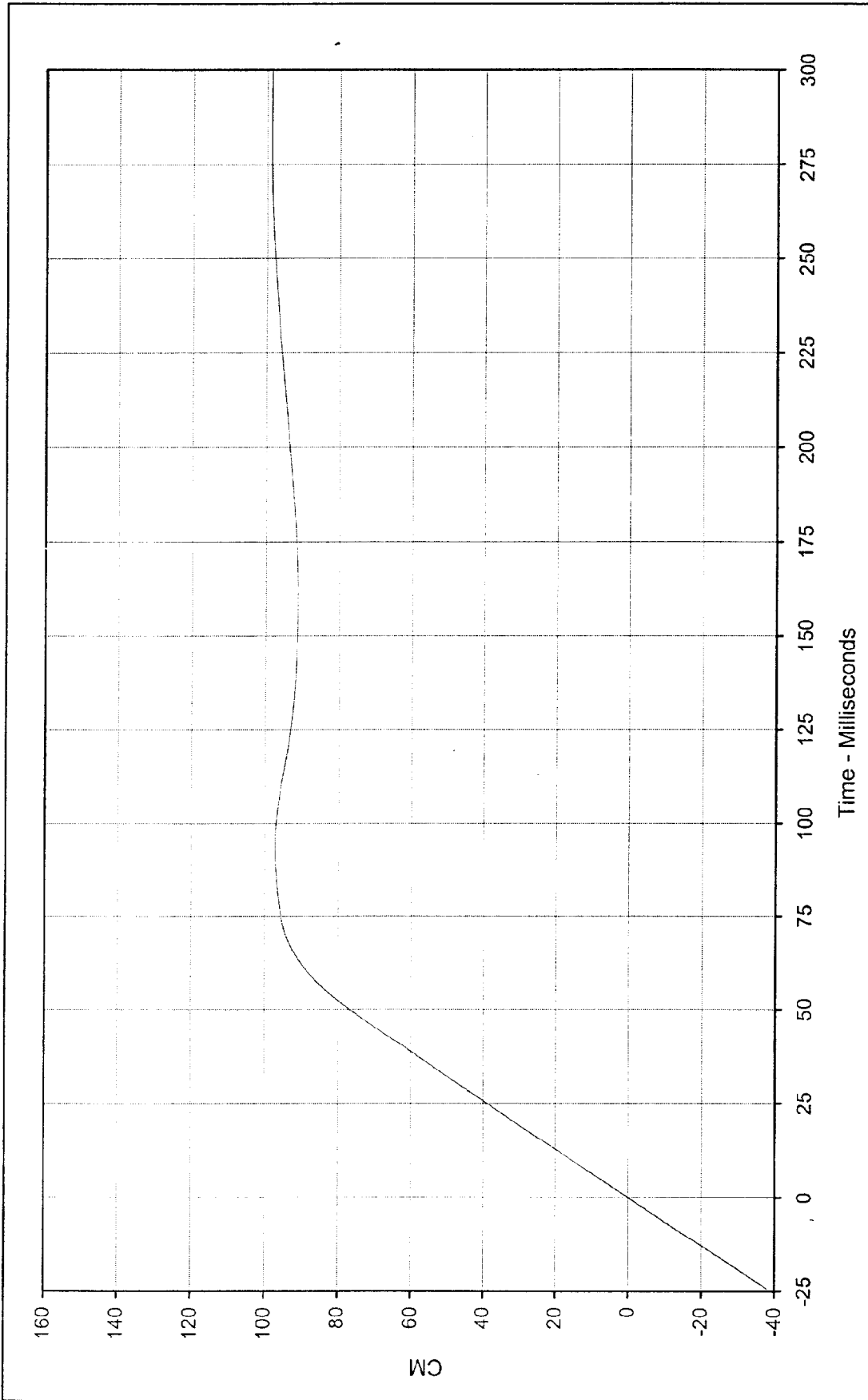




Curve Description: Driver Pelvis X Velocity Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 56.3 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -6.7 at 114.5 Milliseconds



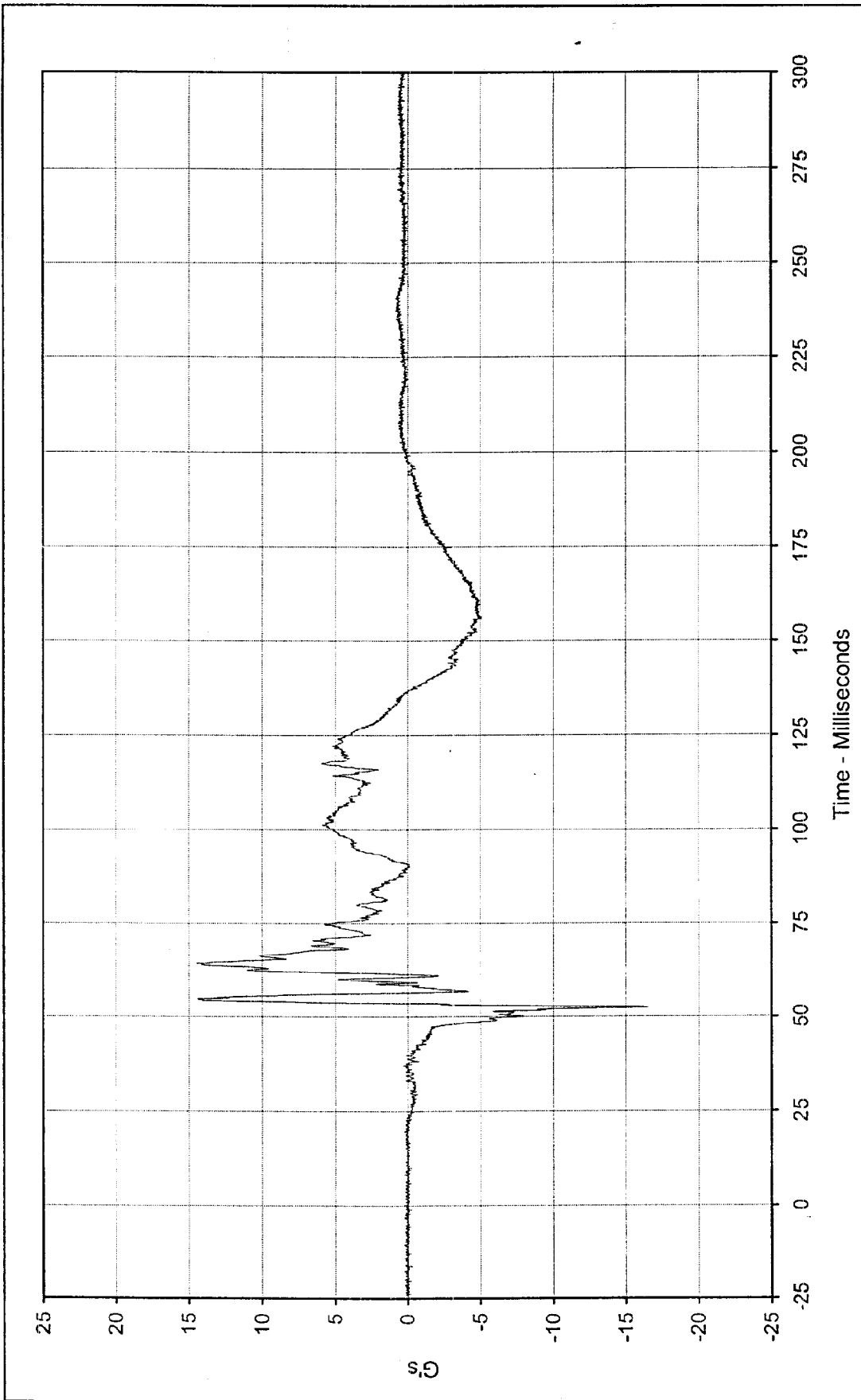
SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-020



Curve Description: Driver Pelvis X Displ.
 Maximum Value: 98.7 at 282.3 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN2-020

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

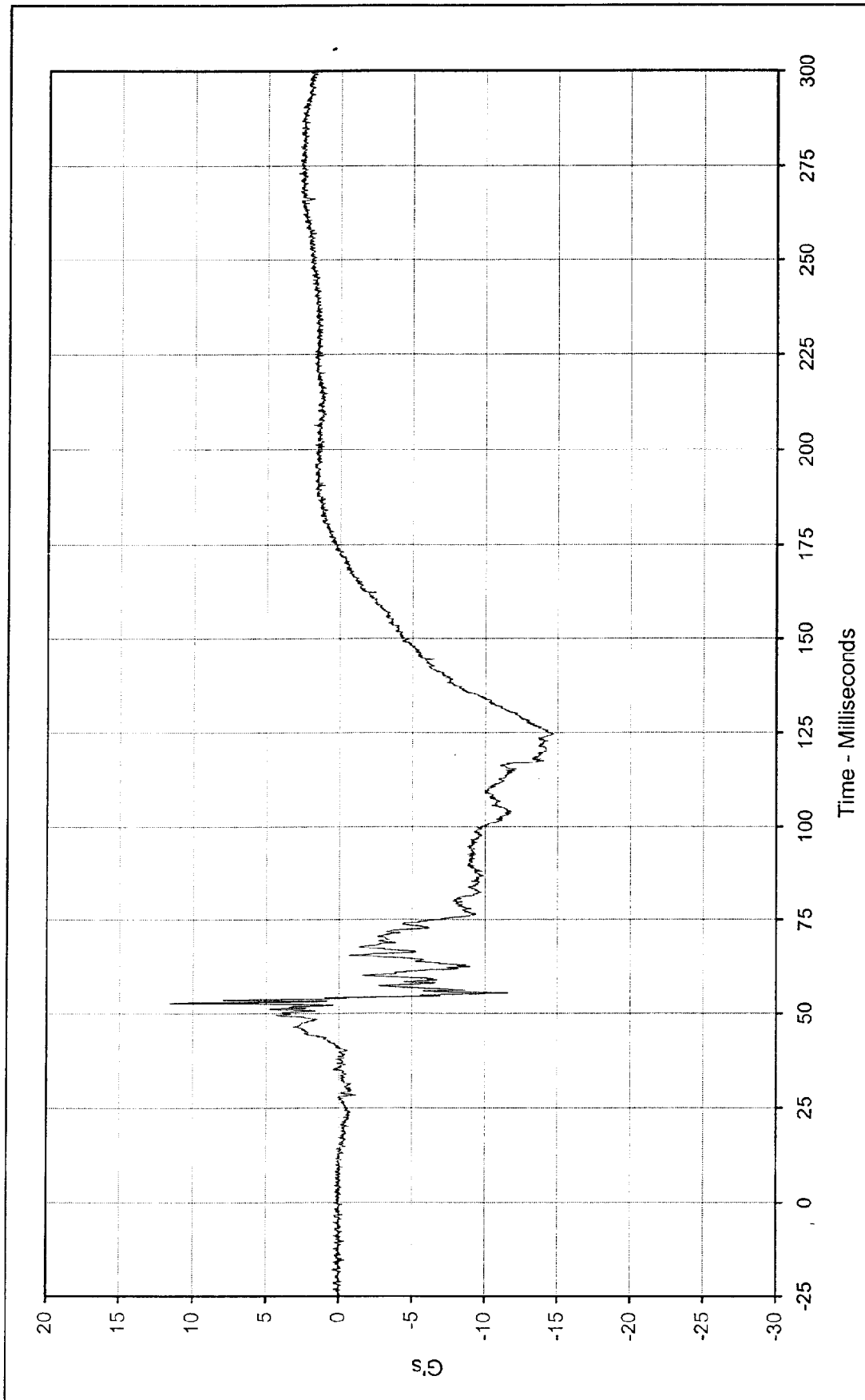




Curve Description: Driver Pelvis Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 14.5 at 64.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -16.5 at 52.4 Milliseconds



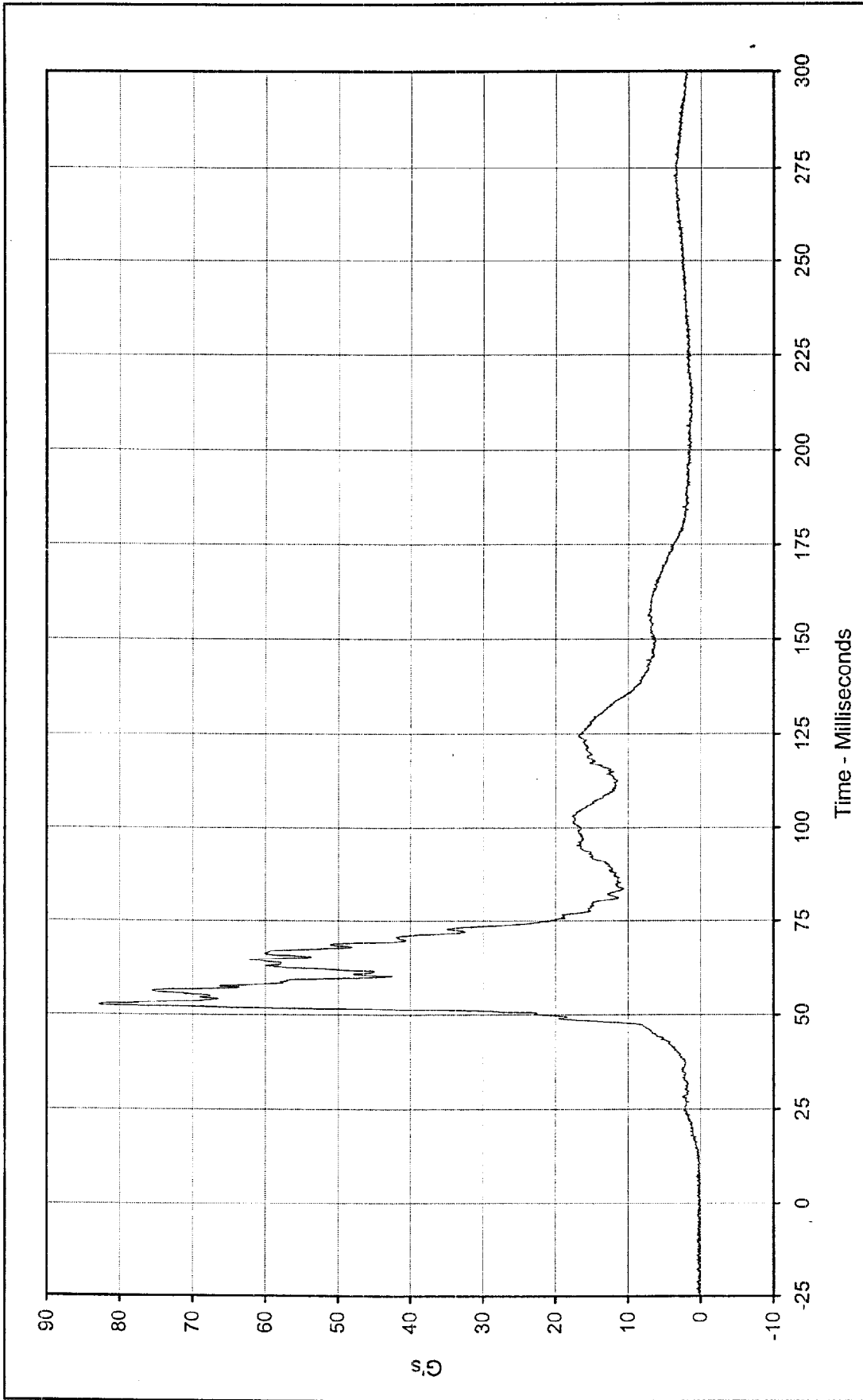
SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-021



Curve Description: Driver Pelvis Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 11.6 at 52.7 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -14.8 at 124.6 Milliseconds



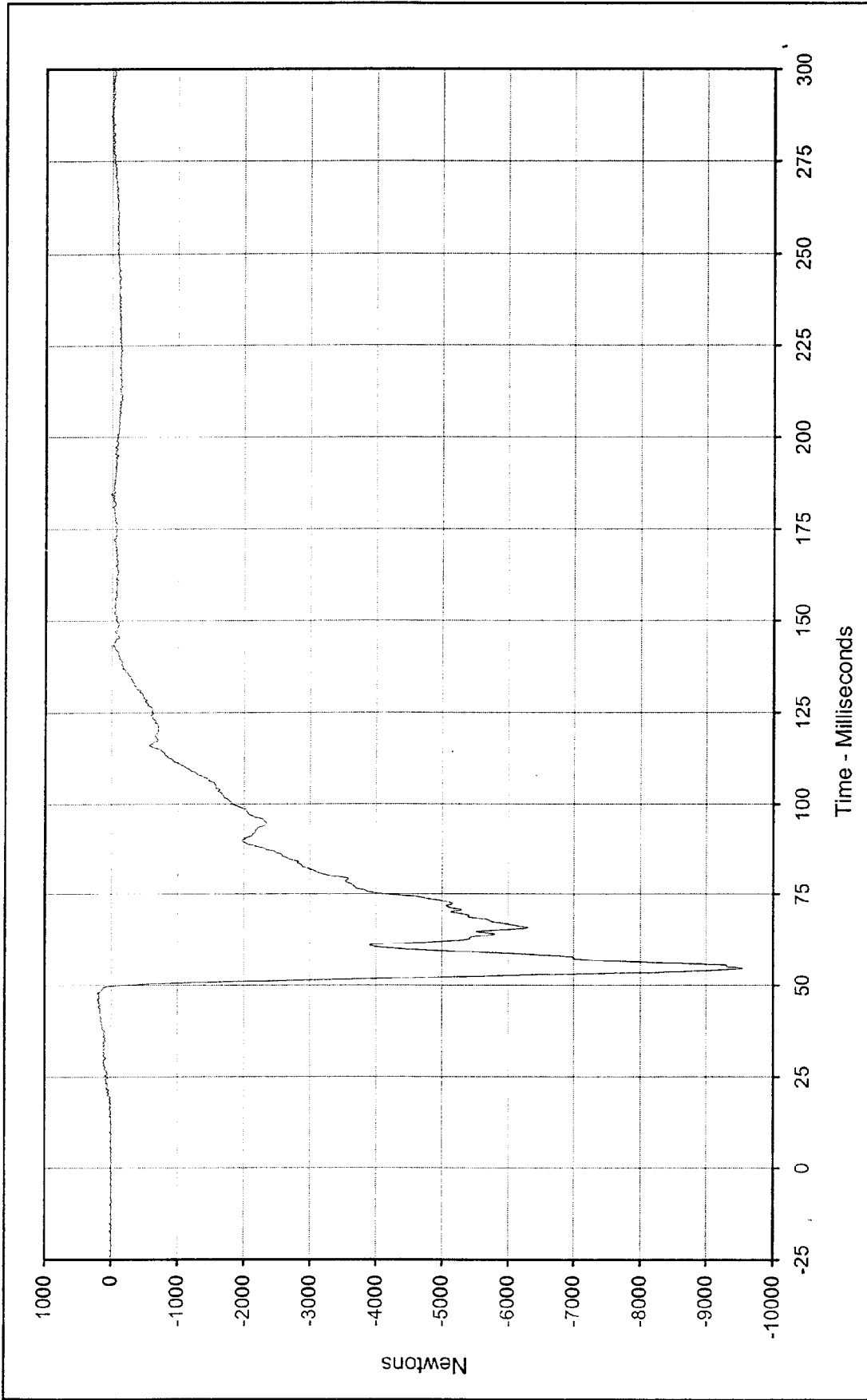
SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-022



Curve Description: Driver Pelvis Resultant
 Maximum Value: 82.8 at 52.5 Milliseconds
 Minimum Value: 0.0 at 5.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: RES-020

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

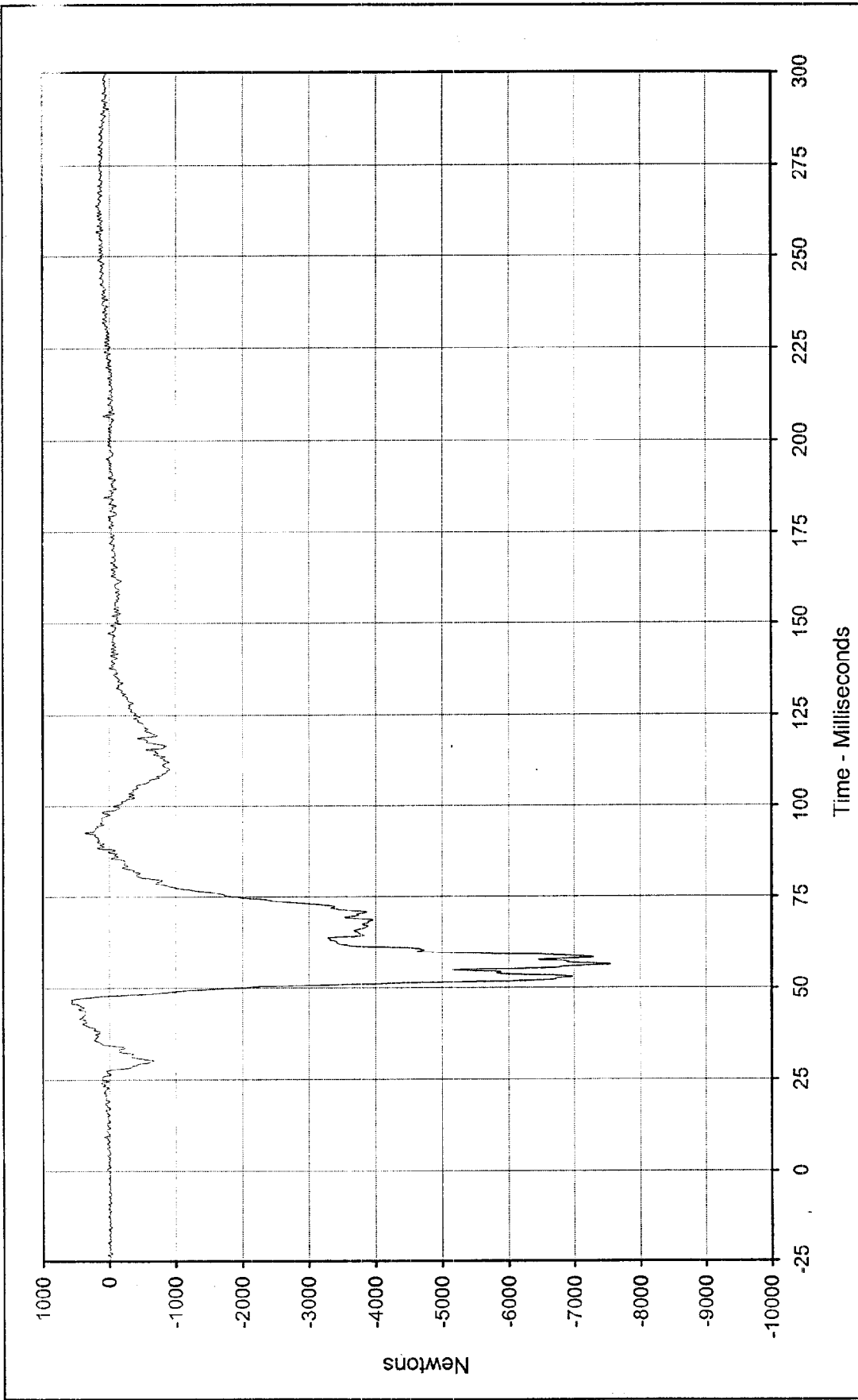




Curve Description: Driver Left Femur Force Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 205.4 at 46.1 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -9550.5 at 54.7 Milliseconds



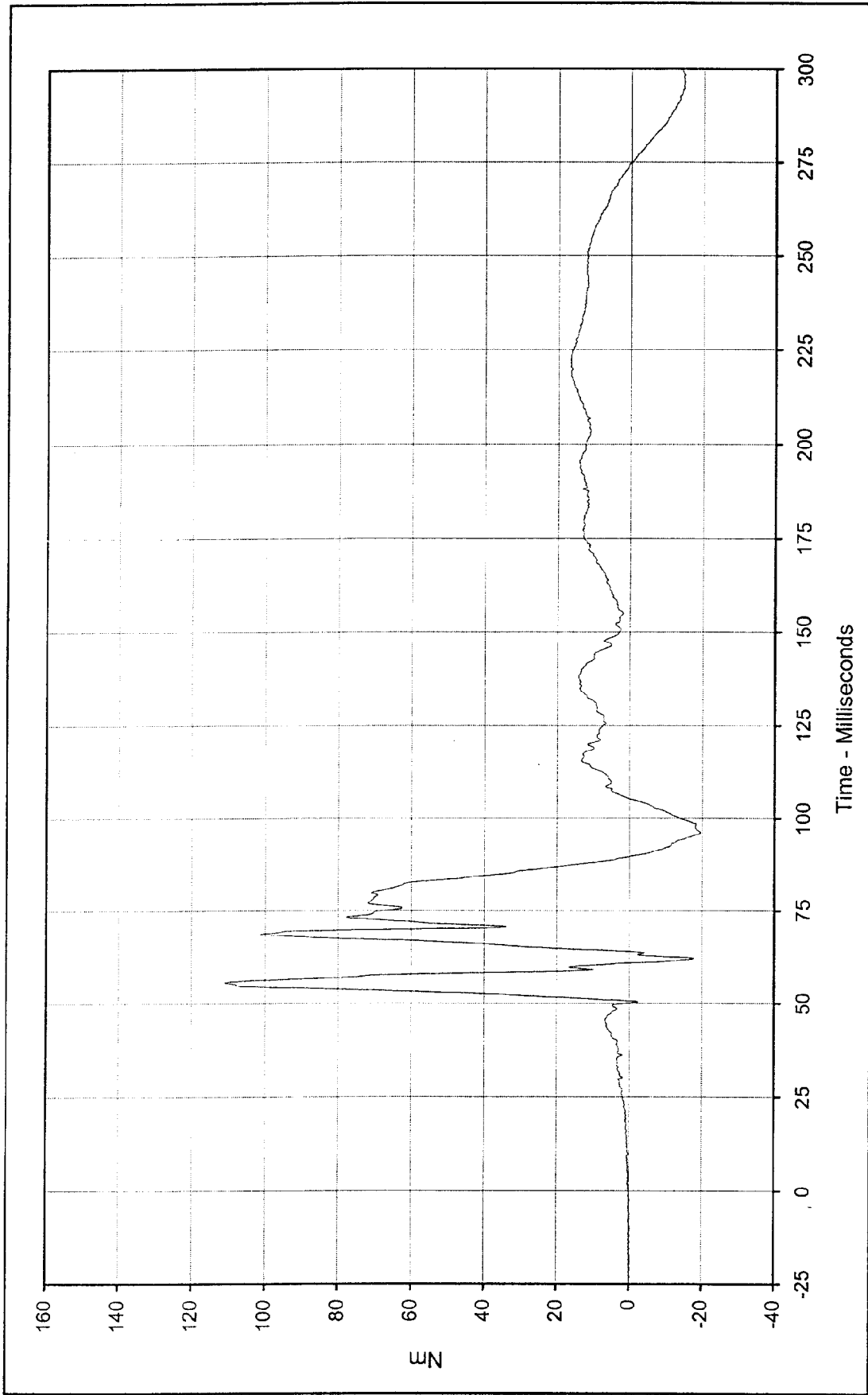
SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-023



Curve Description: Driver Right Femur Force Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 573.4 at 46.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -7554.9 at 56.3 Milliseconds



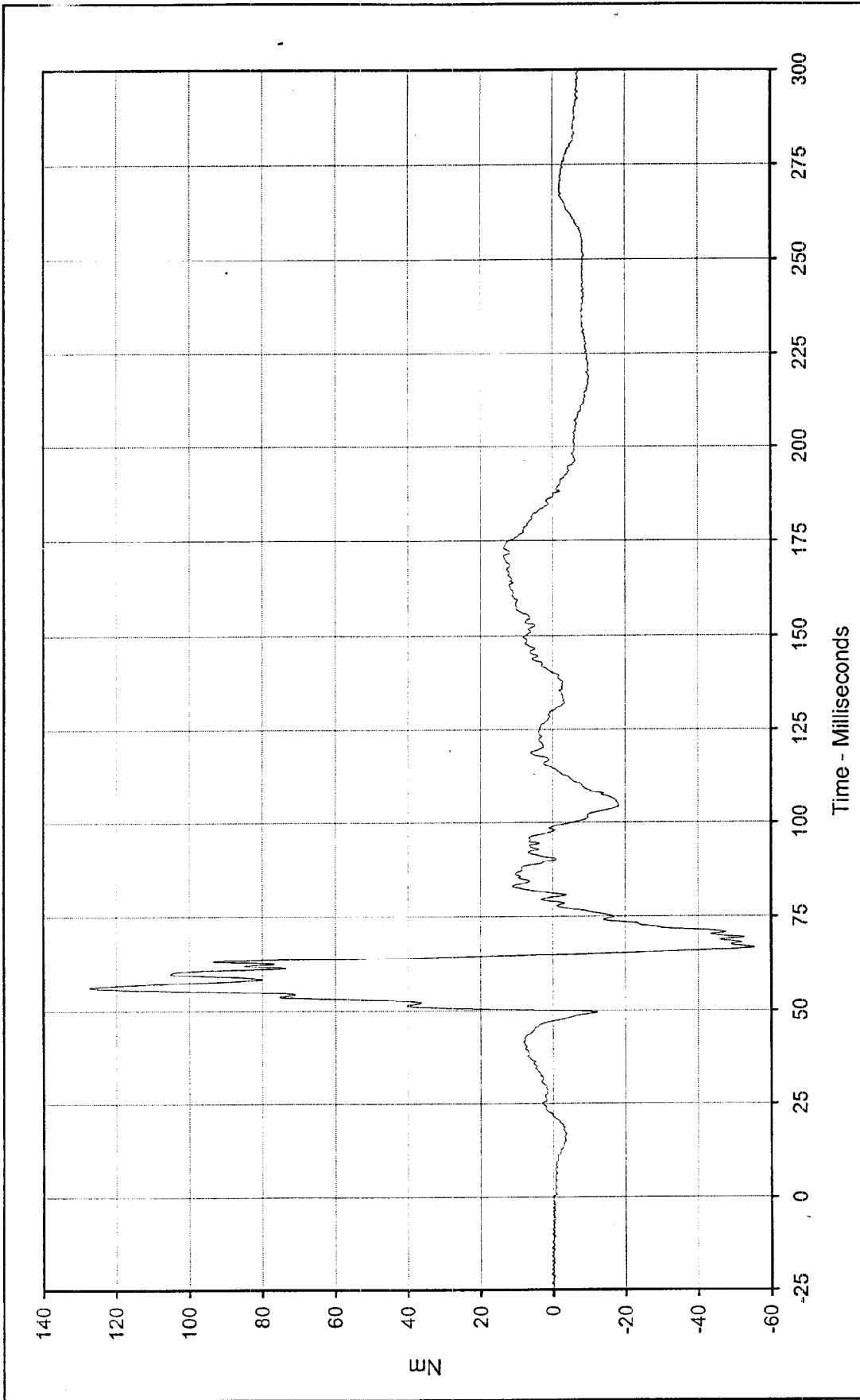
SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-024



Curve Description: Driver Left Upper Tibia Moment X
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 110.9 at 10.9 Milliseconds
 Minimum Value: -19.6 at 96.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-025

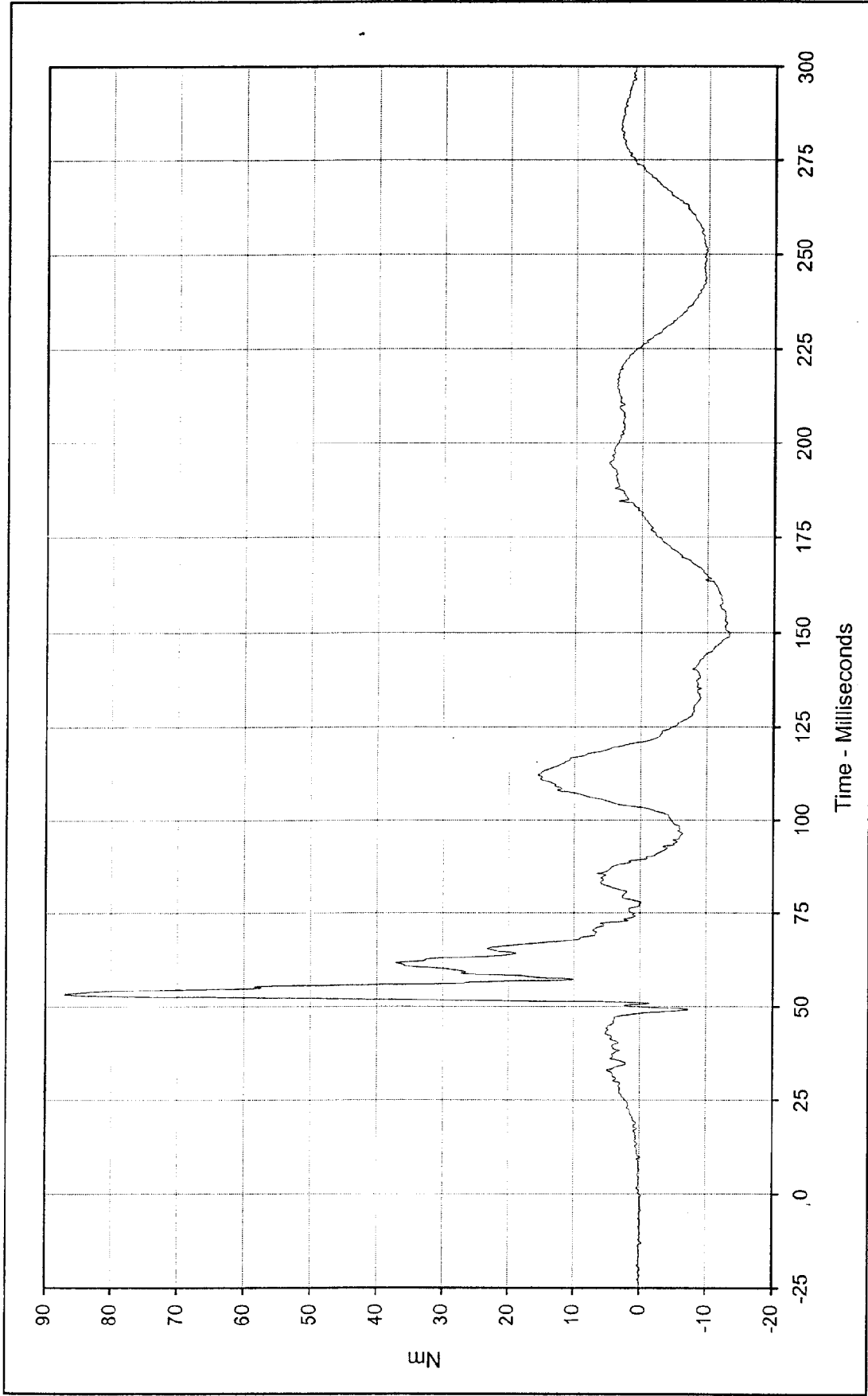




Curve Description: Driver Left Upper Tibia Moment Y
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 127.4 at 56.1 Milliseconds
 Minimum Value: -55.5 at 66.7 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-026

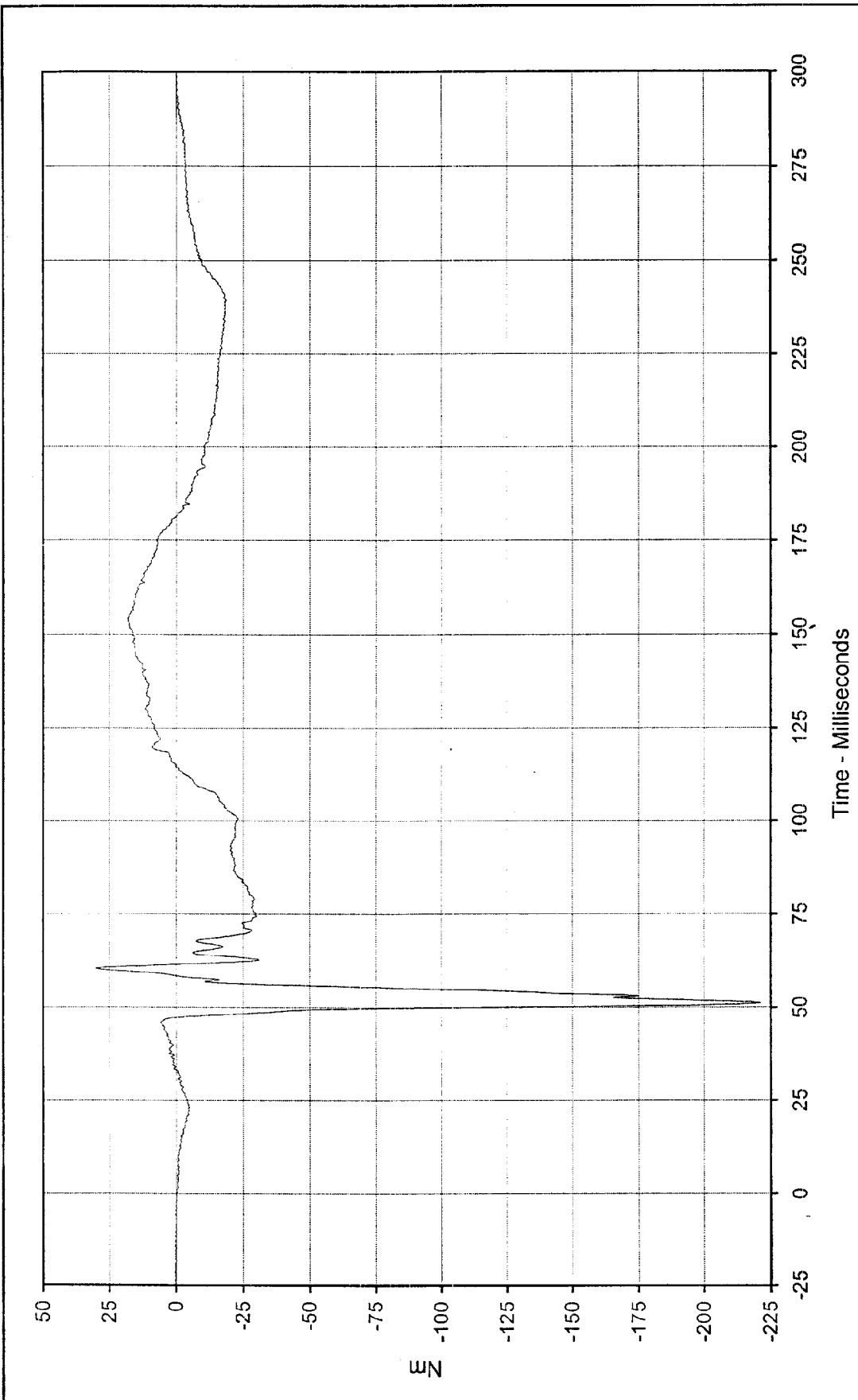




Curve Description: Driver Right Upper Tibia Moment X
 Maximum Value: 87.1 at 53.3 Milliseconds
 Minimum Value: -13.4 at 150.0 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-027

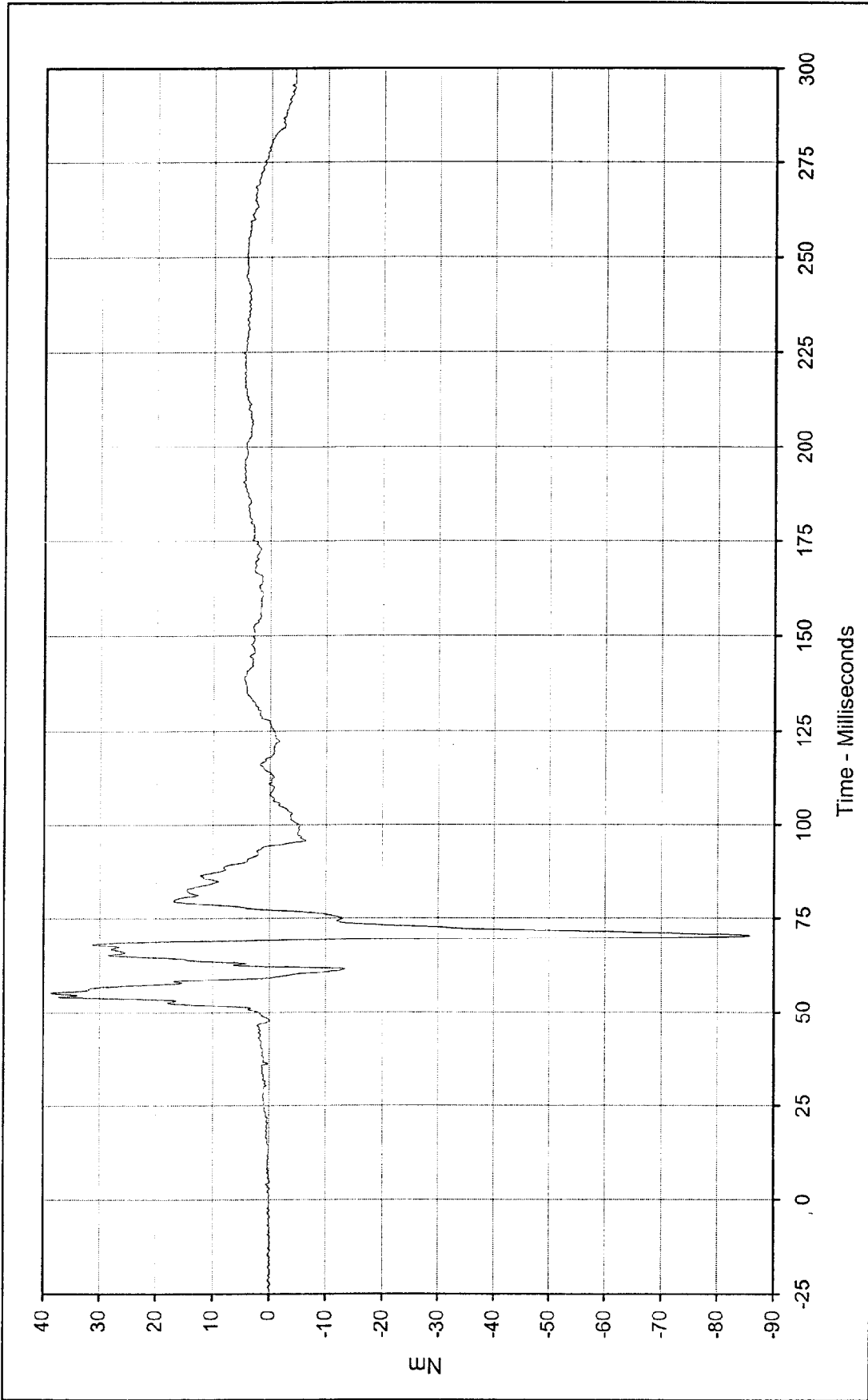
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Driver Right Upper Tibia Moment Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 30.0 at 60.4 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -221.3 at 51.3 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-028

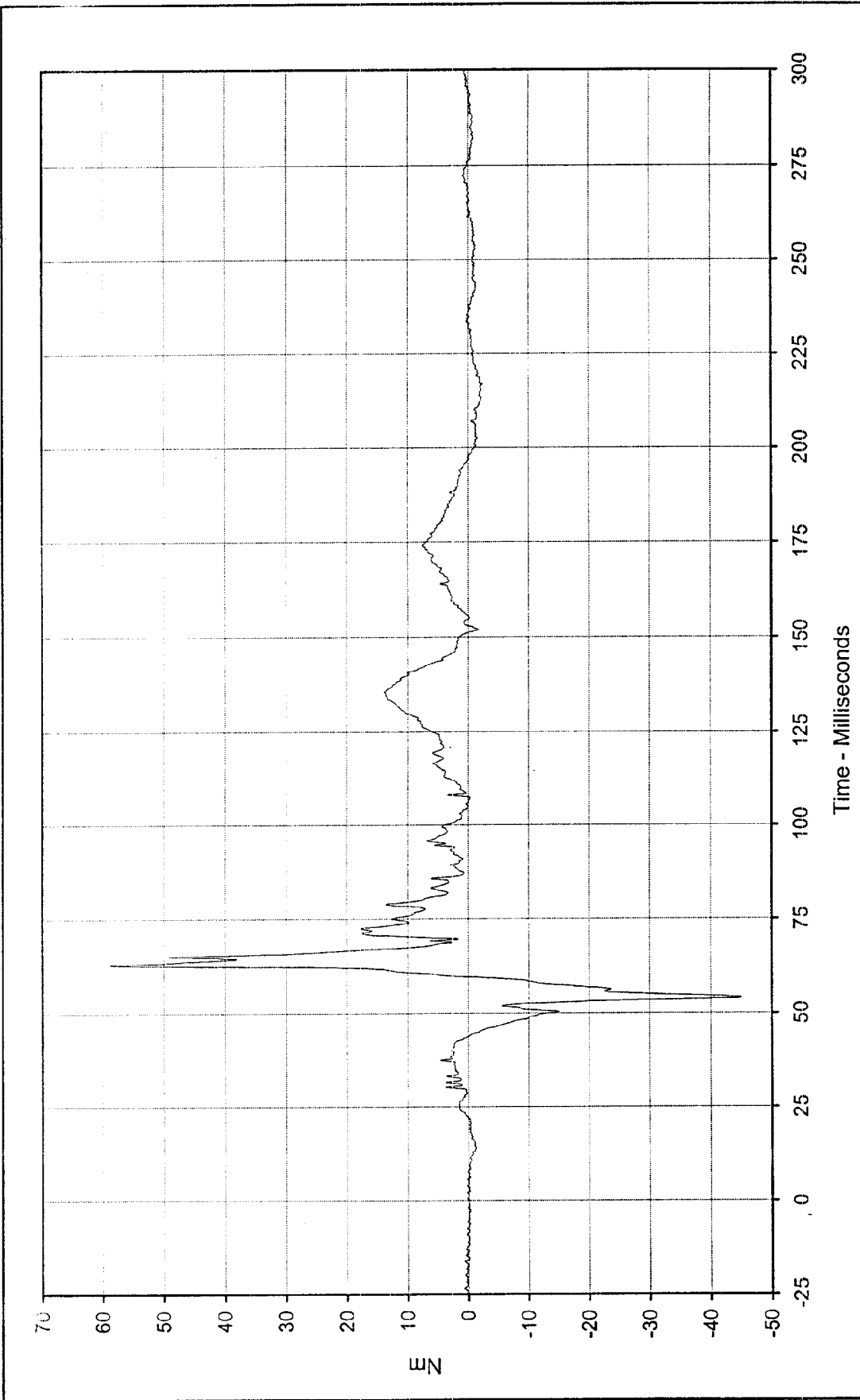




Curve Description: Driver Left Lower Tibia Moment X
 Maximum Value: 38.7 at 55.1 Milliseconds
 Minimum Value: -85.8 at 70.3 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-029

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

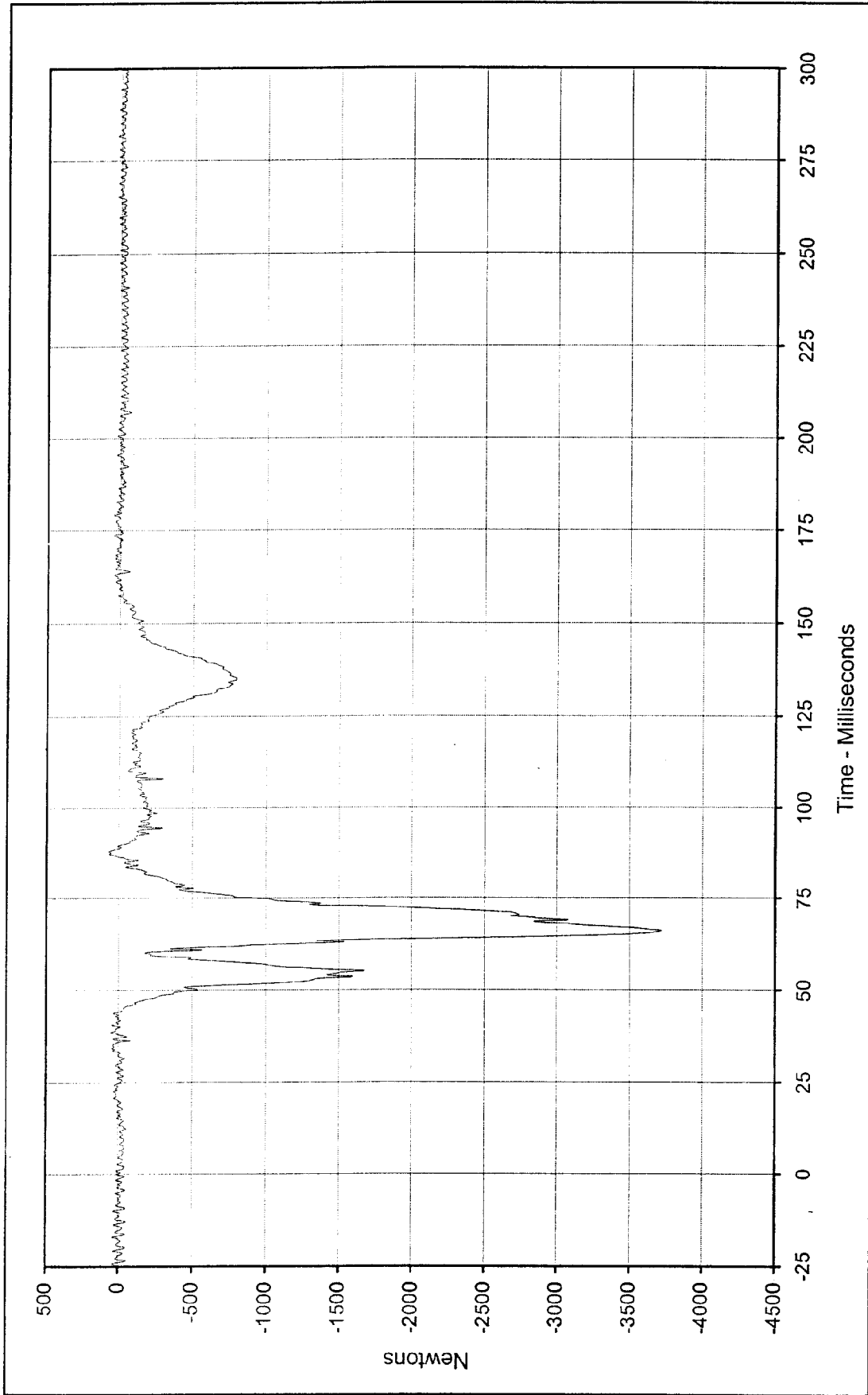




Curve Description: Driver Left Lower Tibia Moment Y
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 58.8 at 62.9 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -45.0 at 54.1 Milliseconds



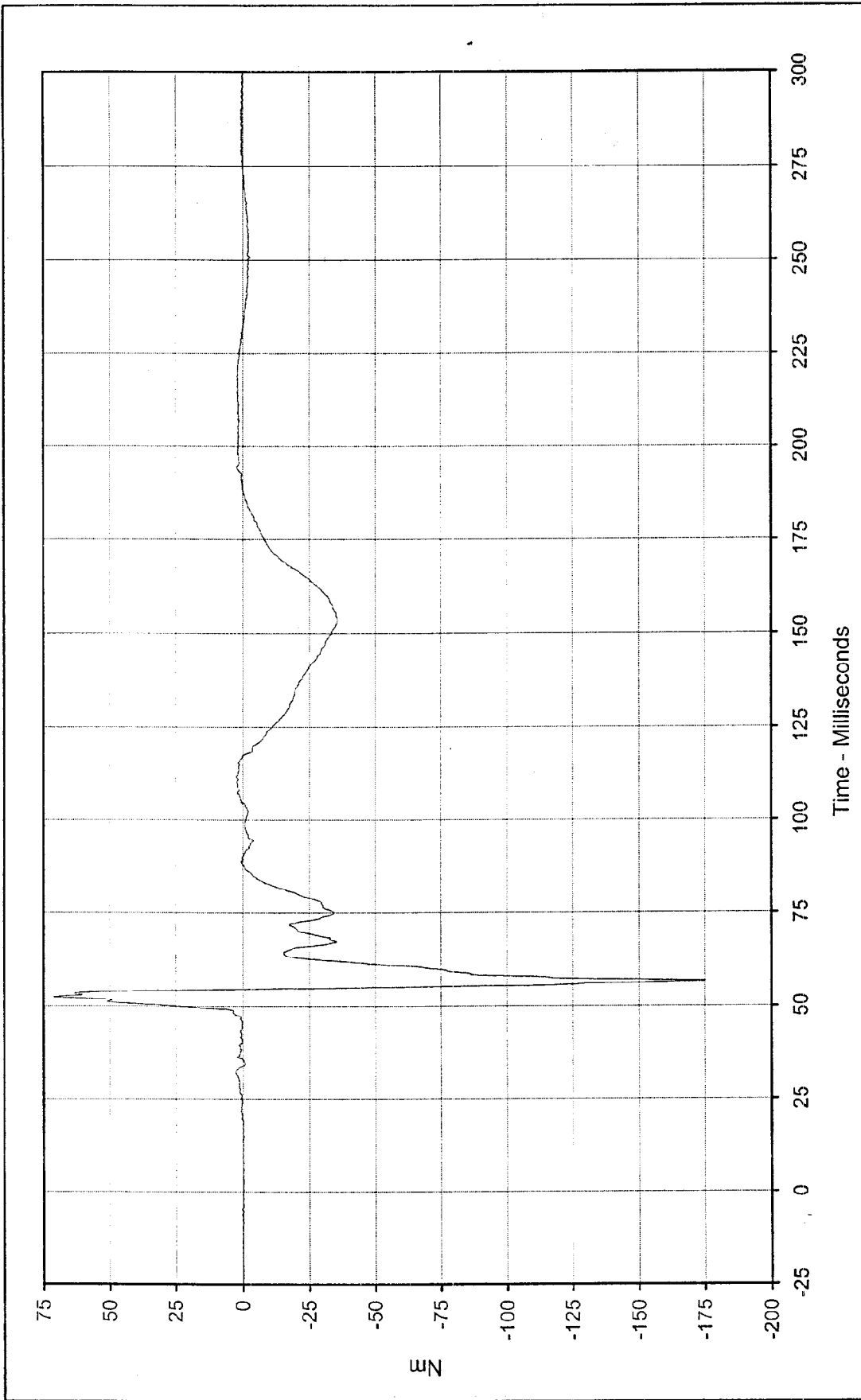
SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-030



Curve Description: Driver Left Lower Tibia Force Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 67.4 at 88.1 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -3719.9 at 66.4 Milliseconds



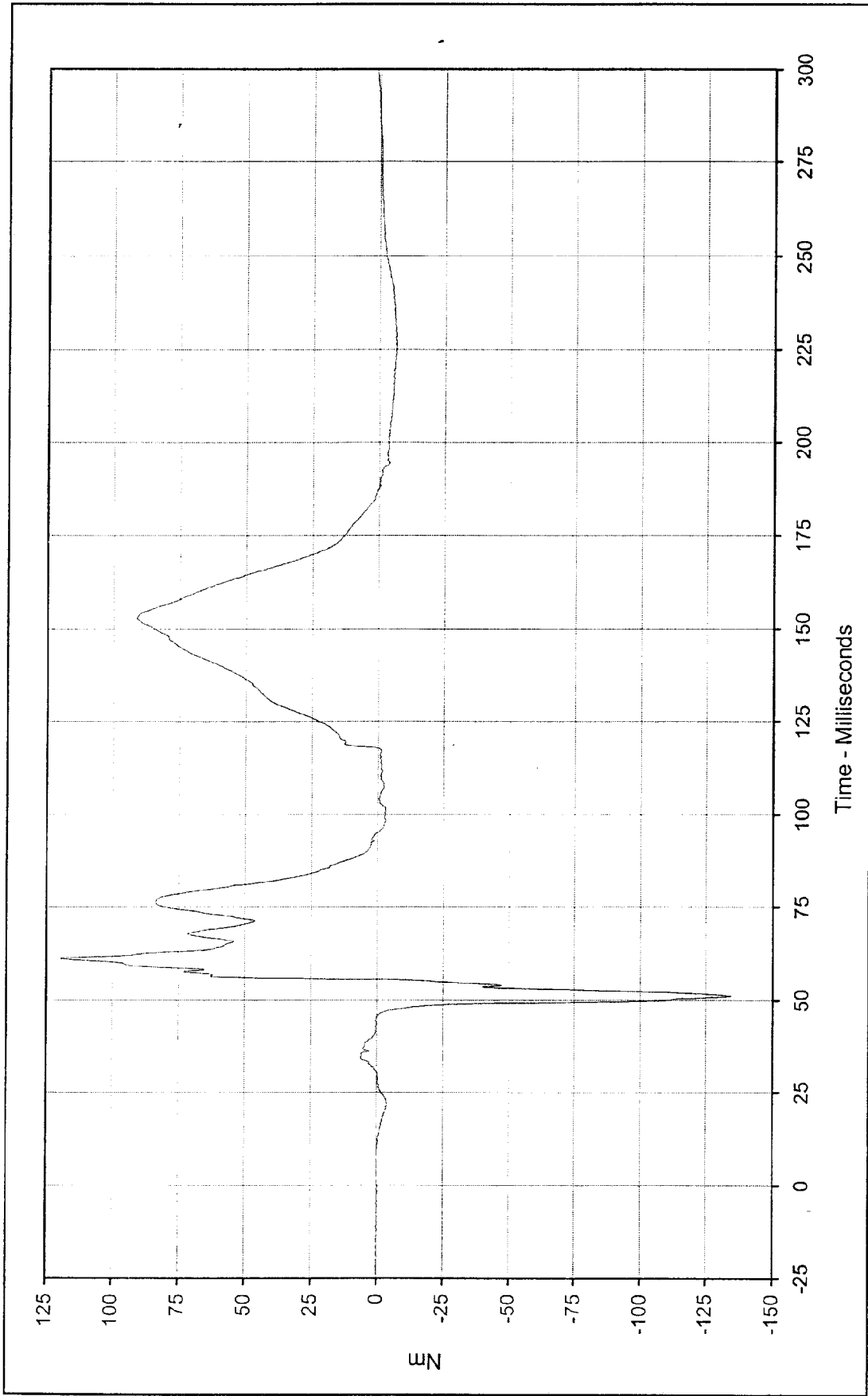
SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-031



Curve Description: Driver: Right Lower Tibia Moment X
 Maximum Value: 71.2 at 52.5 Milliseconds
 Minimum Value: -175.1 at 150.6 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-032

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

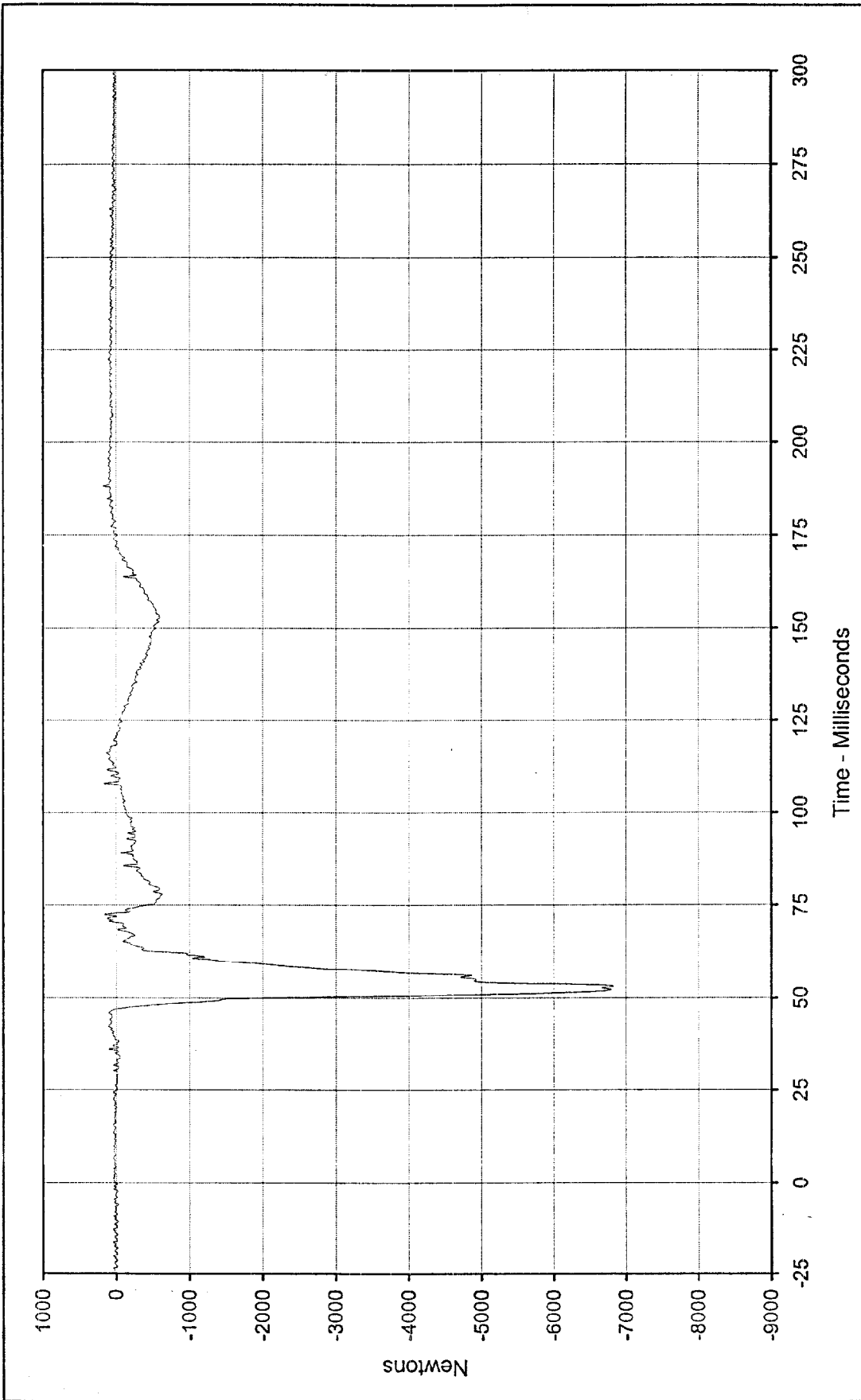




Curve Description: Driver Right Lower Tibia Moment Y
 Maximum Value: 119.6 at 61.1 Milliseconds
 Minimum Value: -134.5 at 51.1 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-033

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

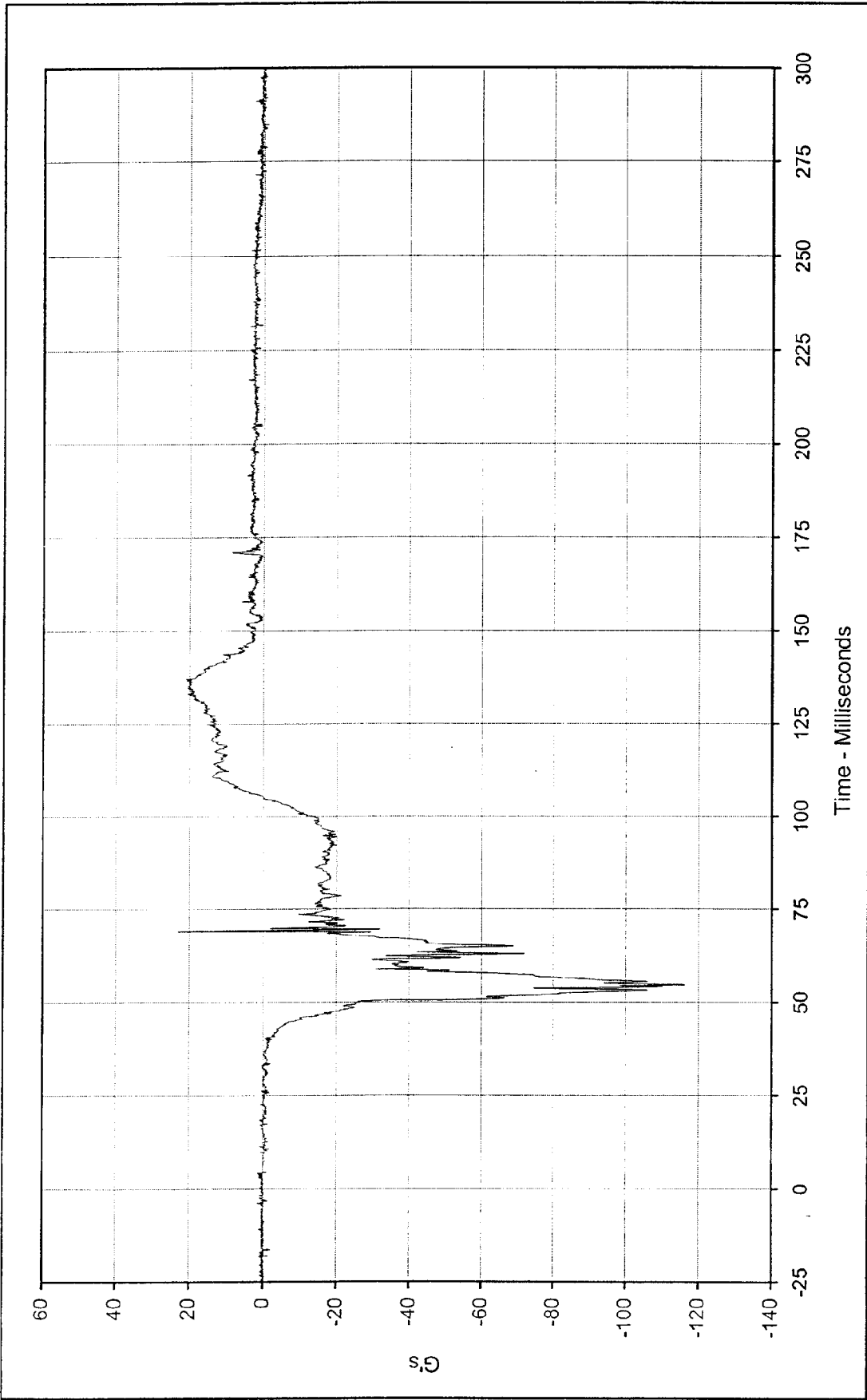




Curve Description: Driver Right Lower Tibia Force Z
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 171.2 at 188.1 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -6826.9 at 53.1 Milliseconds



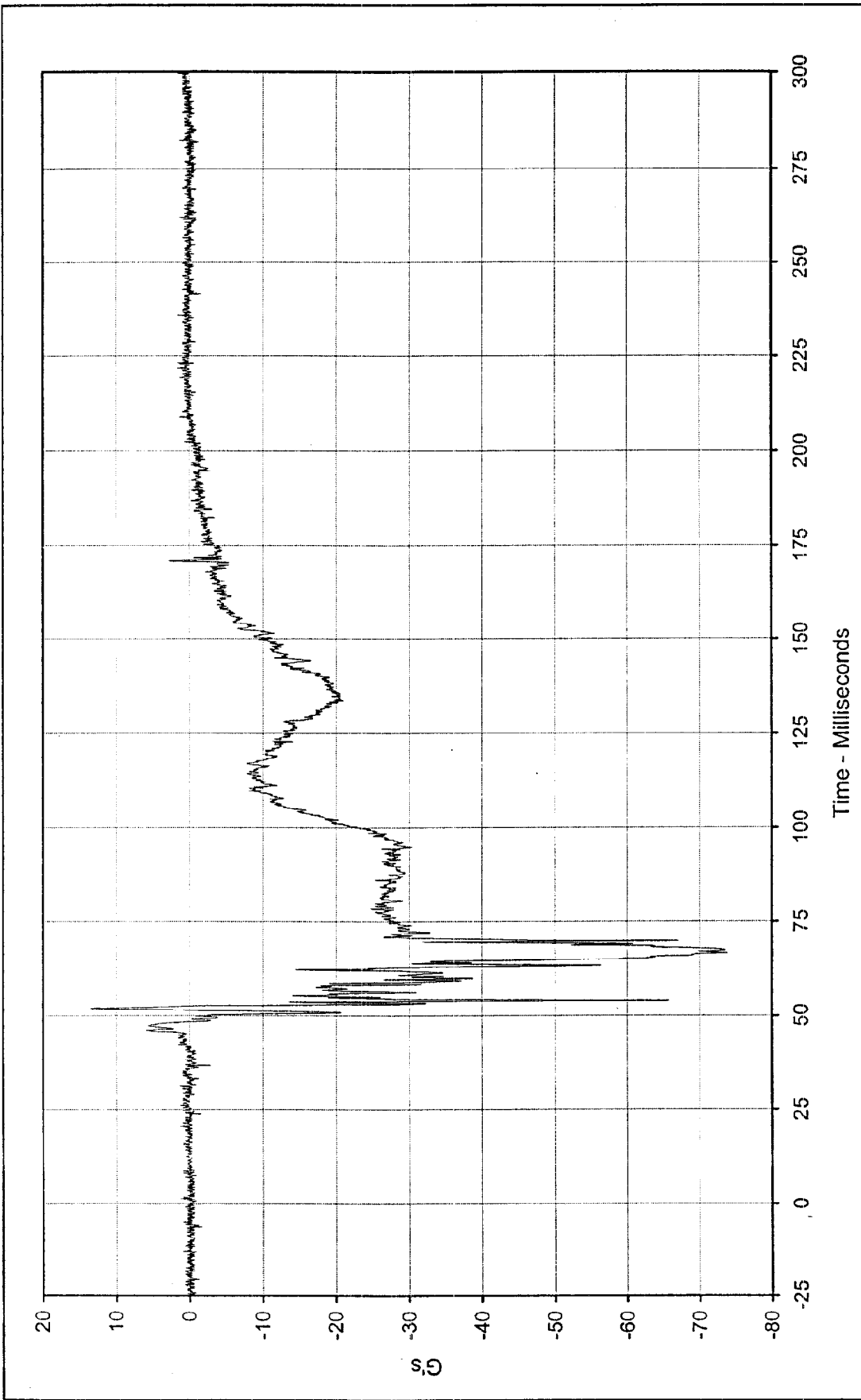
SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-034



Curve Description: Driver Left Foot Aft X Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 22.9 at 69.2 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -116.2 at 54.6 Milliseconds



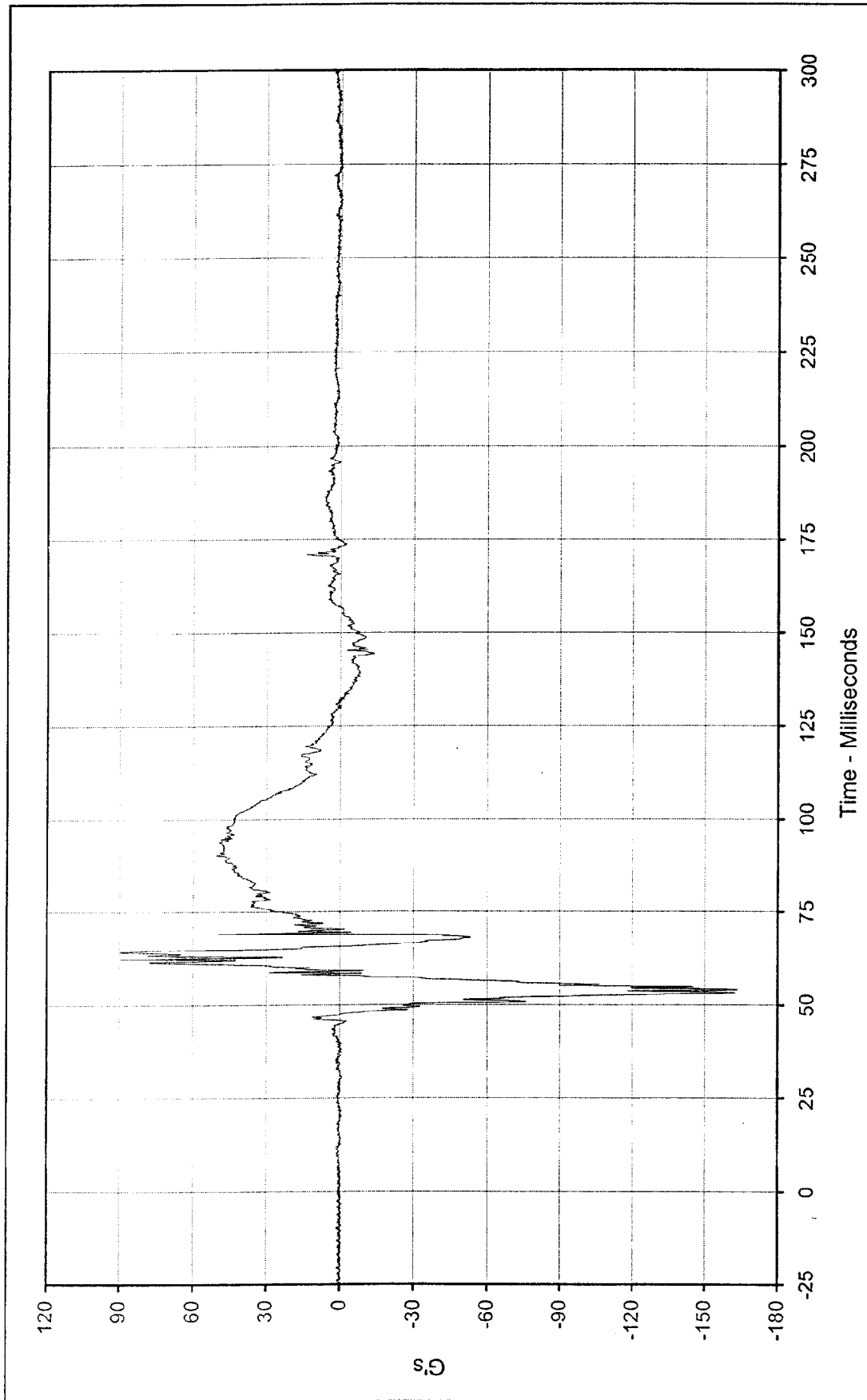
SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-035



Curve Description: Driver Left Foot Aft Z
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 13.5 at 51.7 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -73.9 at 66.6 Milliseconds

SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-036





Curve Description: Driver Left Foot Fore Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 89.8 at 64.2 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

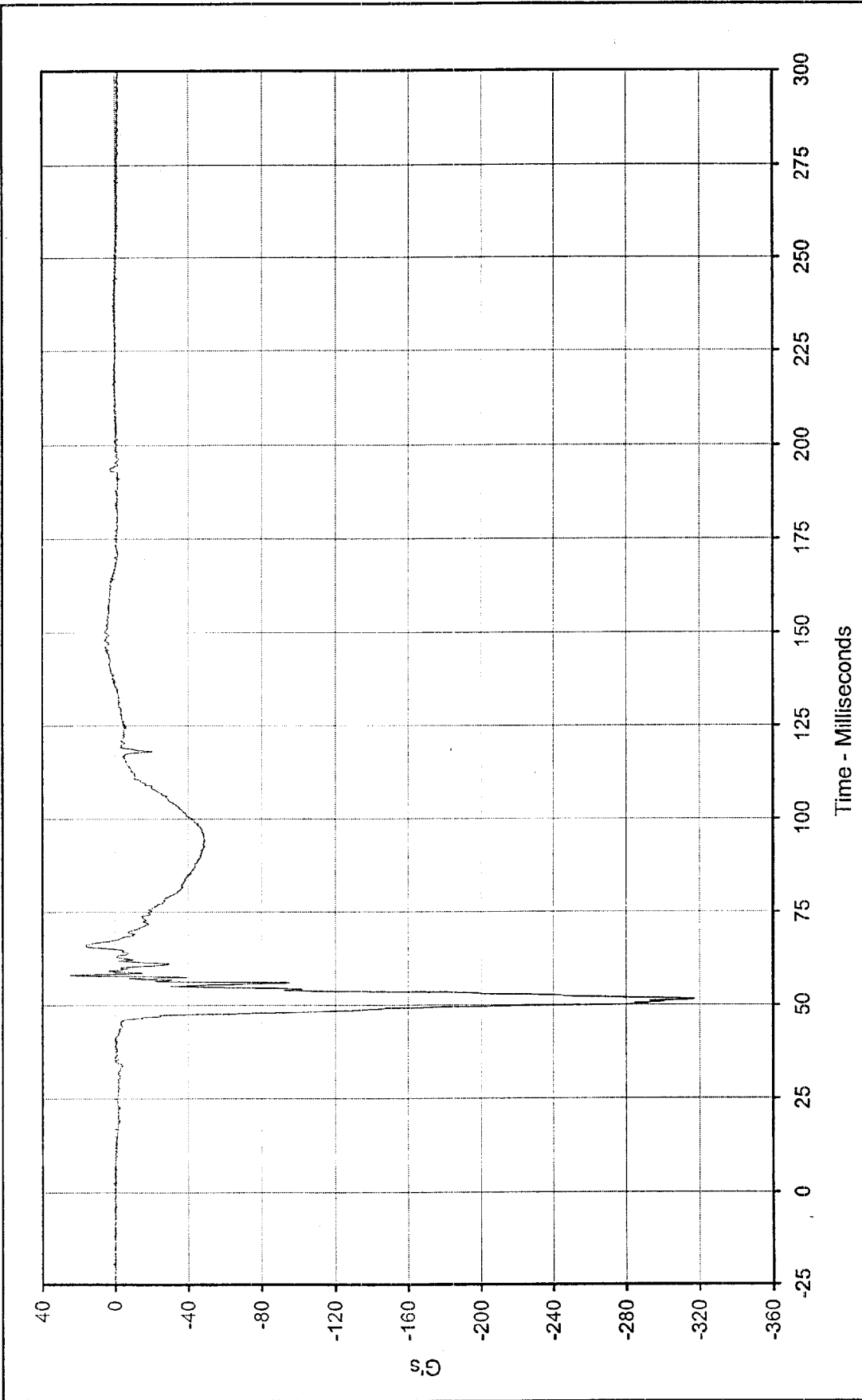
Minimum Value: -163.5 at 54.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 1/5/99

Curve Number: FIL-037

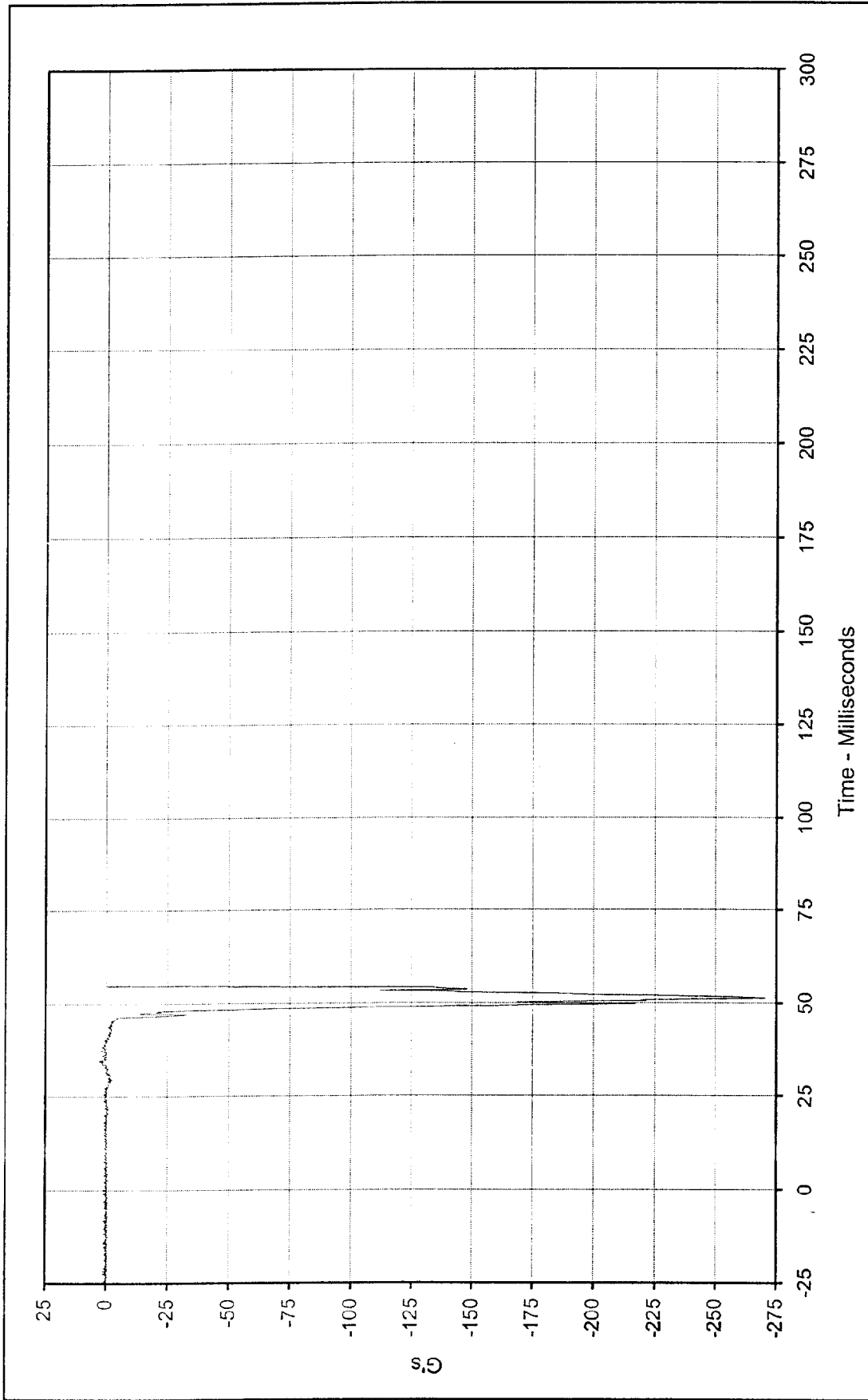




Curve Description: Driver Right Foot Aft X Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 24.6 at 58.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -317.4 at 51.5 Milliseconds



SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-038



Curve Description: Driver Right Foot Aft Z

Test Program: 1999 NHTSA 35 mph NCAP

Maximum Value: 2.9 at 34.5 Milliseconds

No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Minimum Value: -270.6 at 51.3 Milliseconds

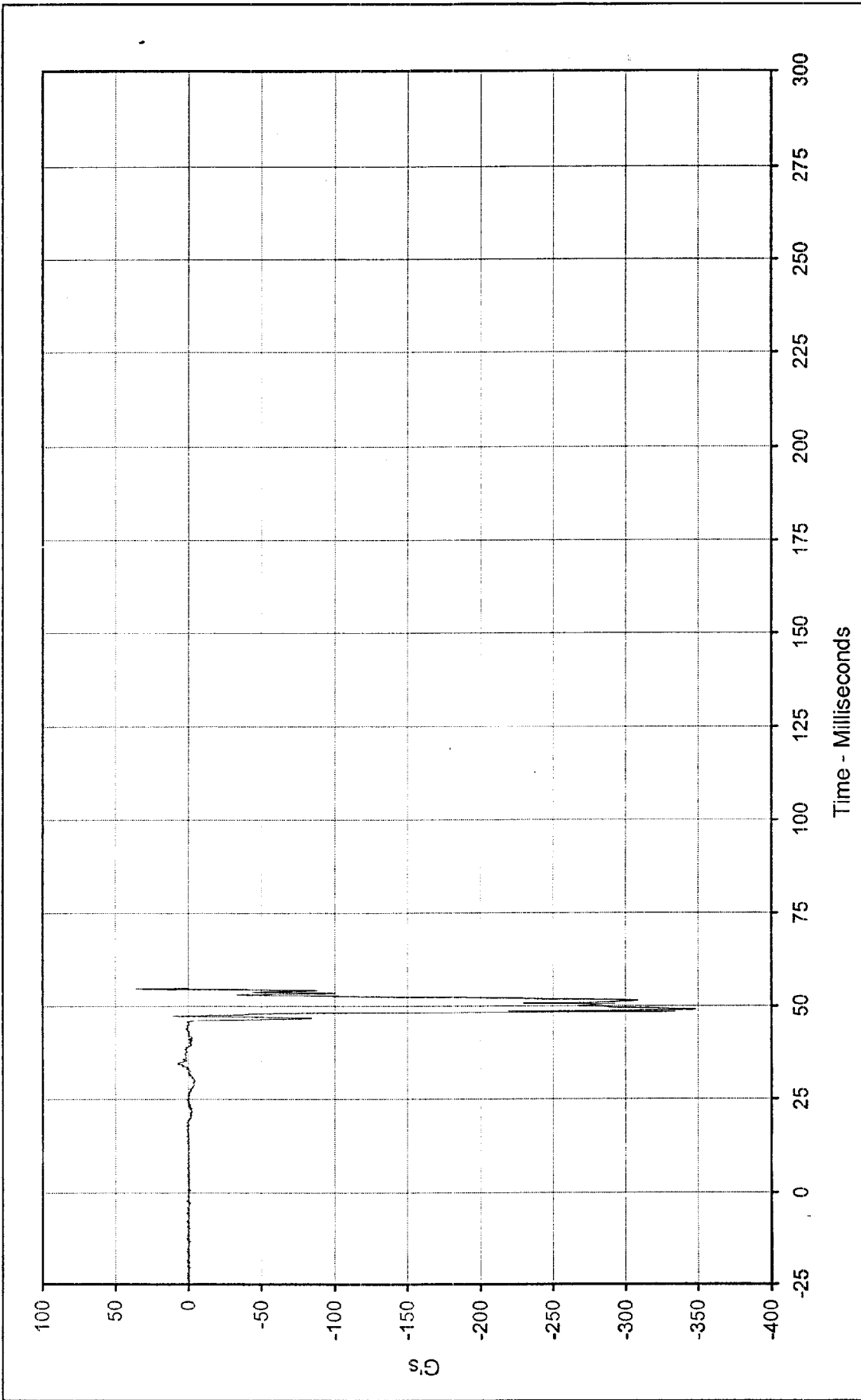


SAE Filter Class: 1000

Date of Test: 1/5/99

Curve Number: FIL-039

* Channel Failed at 54.7 Msec.

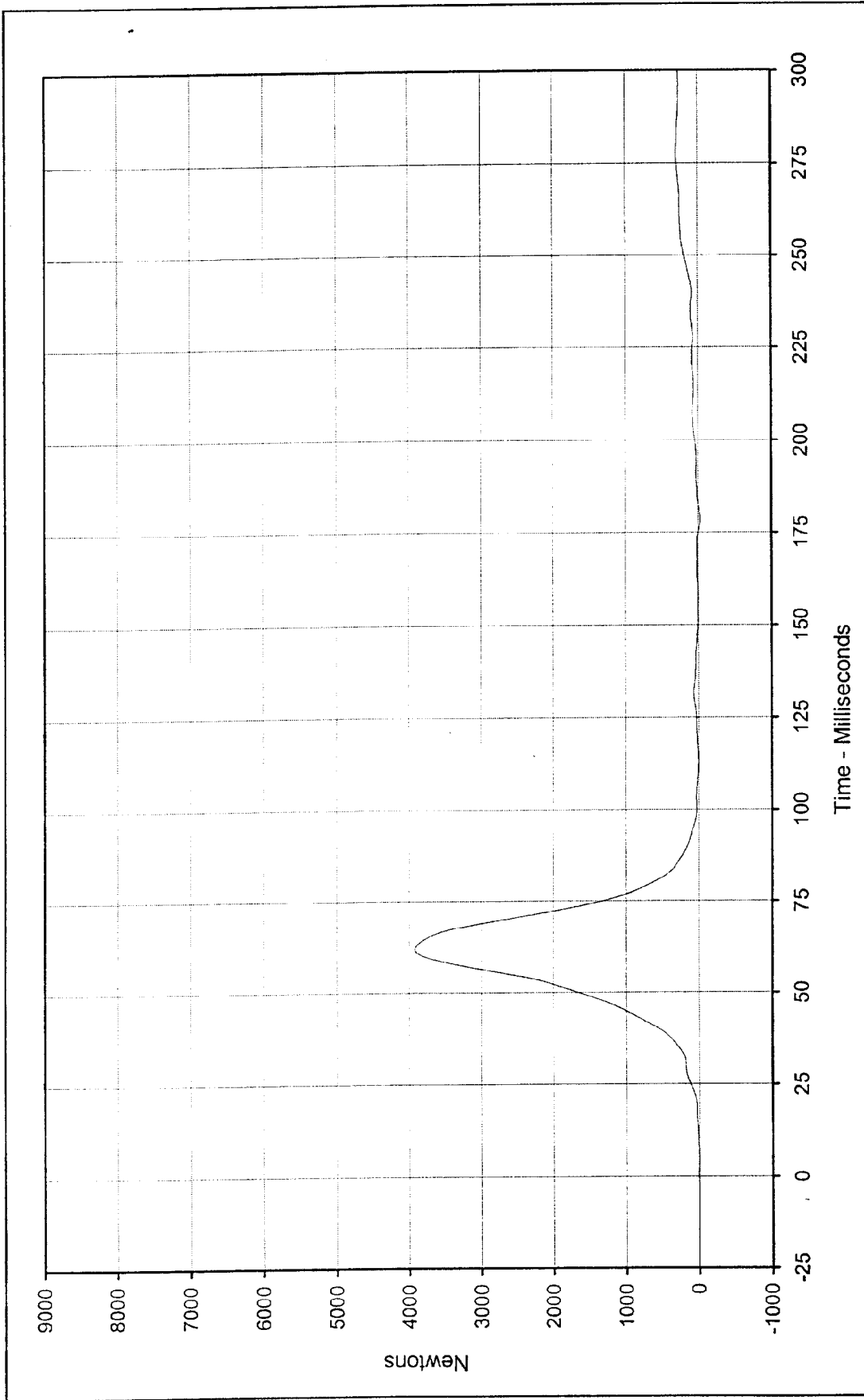


Curve Description: Driver Right Foot Fore Z *
 Maximum Value: 35.7 at 54.6 Milliseconds
 Minimum Value: -348.8 at 49.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-040

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

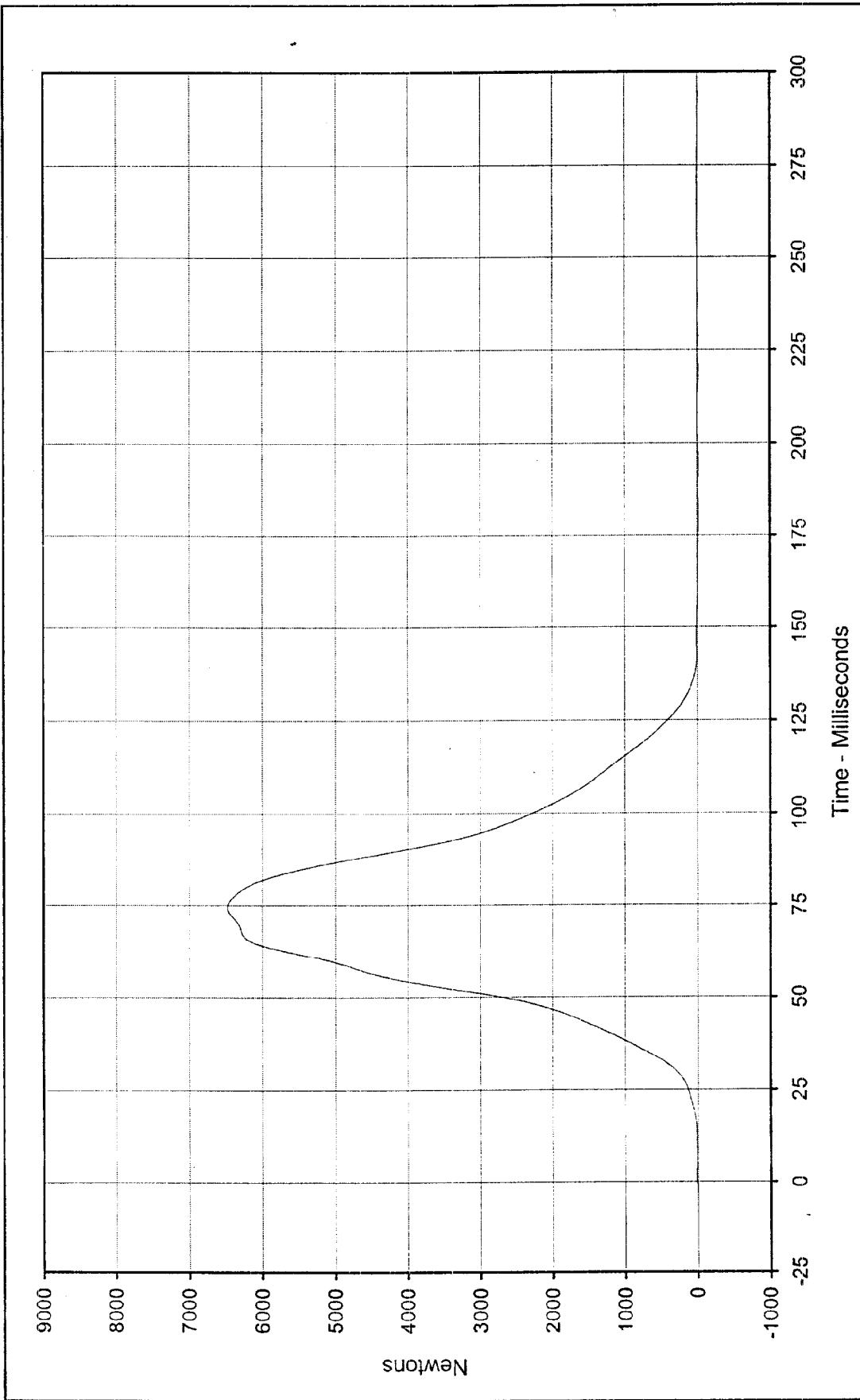
* Channel Failed at 54.7 Msec.





Curve Description: Driver Lap Belt Force Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 3916.3 at 61.9 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -27.2 at 178.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-041

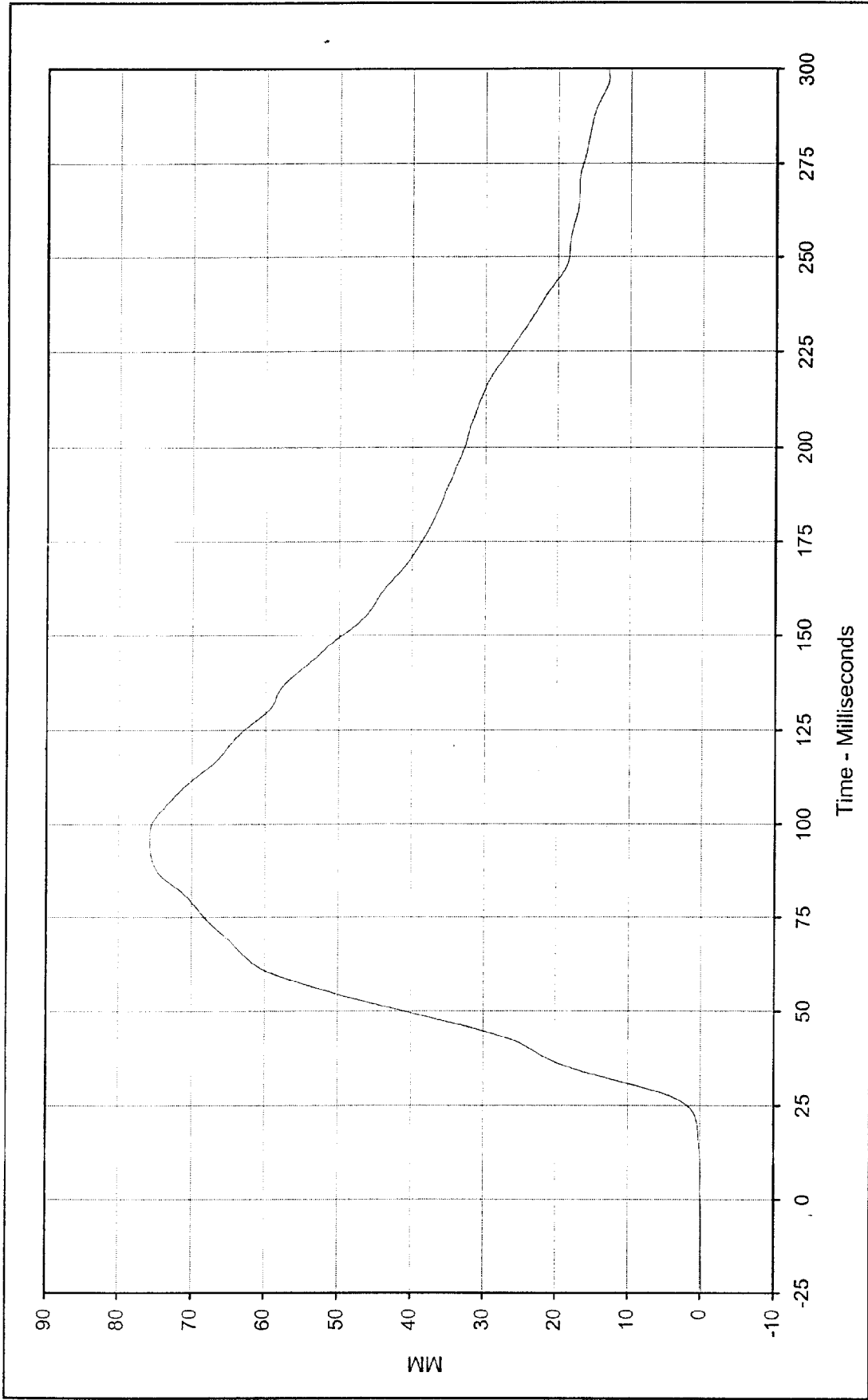




Curve Description: Driver Shoulder Belt Force
 Maximum Value: 6478.0 at 74.4 Milliseconds
 Minimum Value: -15.4 at 219.2 Milliseconds

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-042

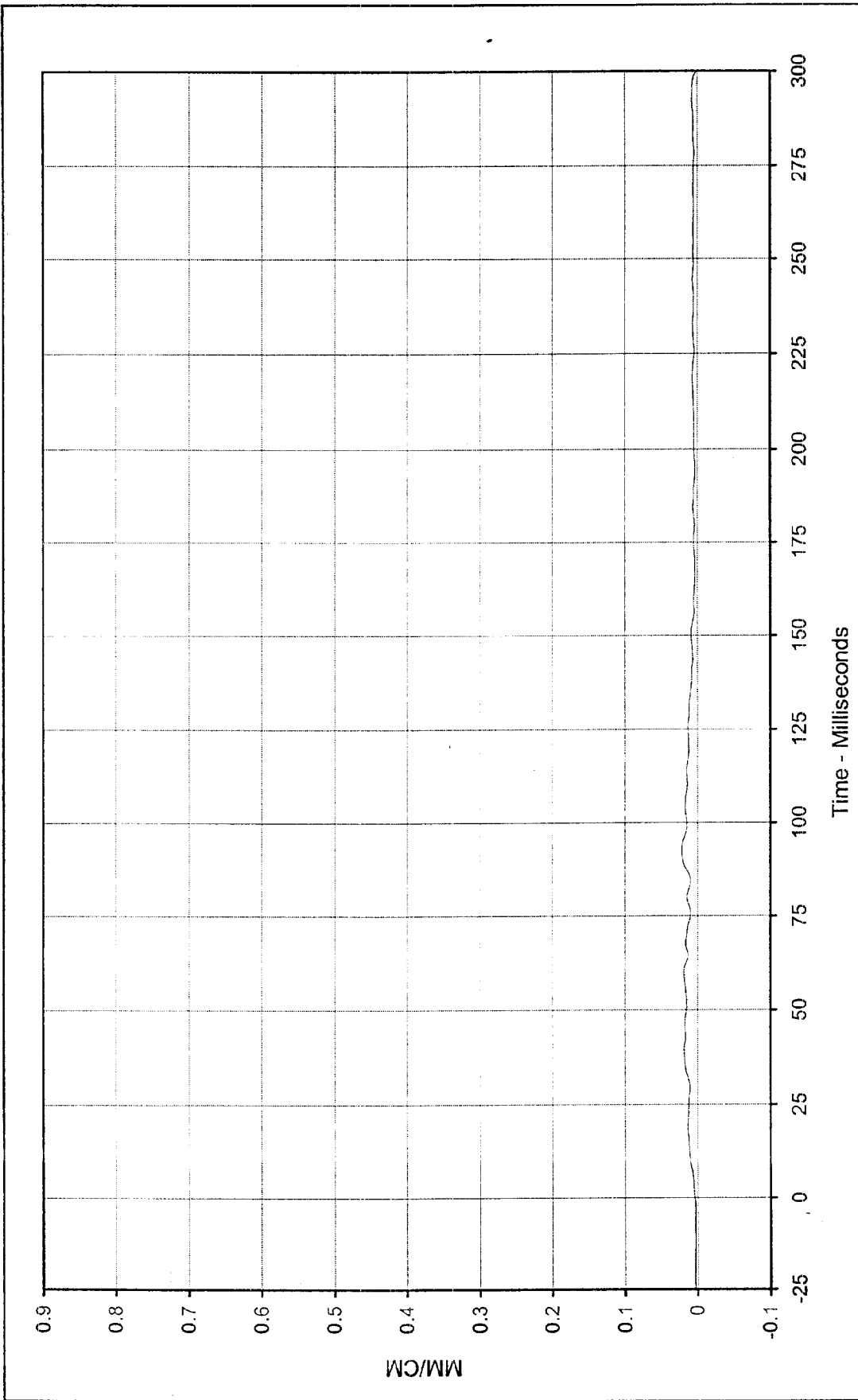




Curve Description: Driver Shoulder Belt Pullout
 Maximum Value: 75.7 at 97.0 Milliseconds
 Minimum Value: -0.1 at 0.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-043

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

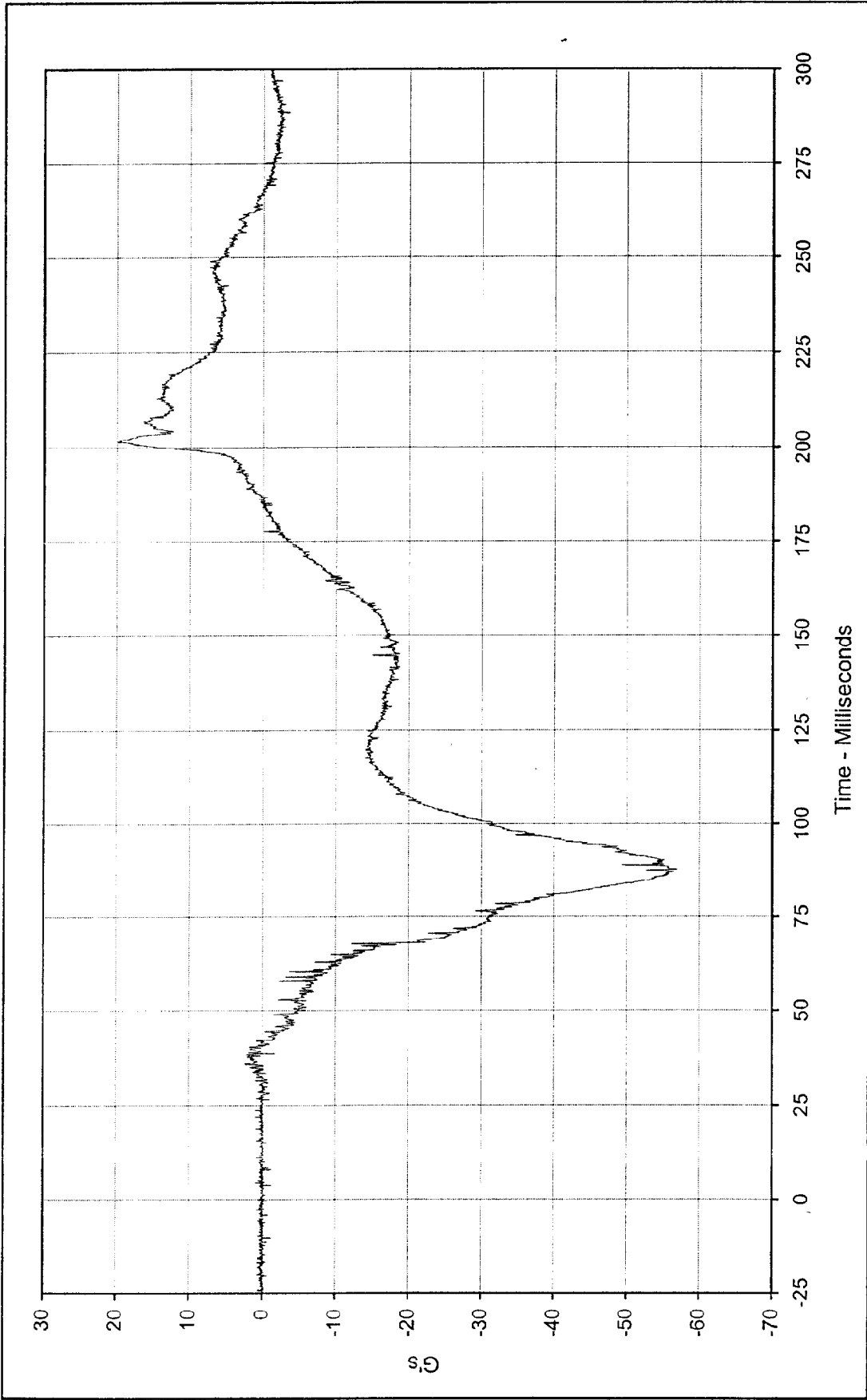




Curve Description: Driver Shoulder Belt Elongation * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 0.02 at 92.8 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.00 at 299.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-044



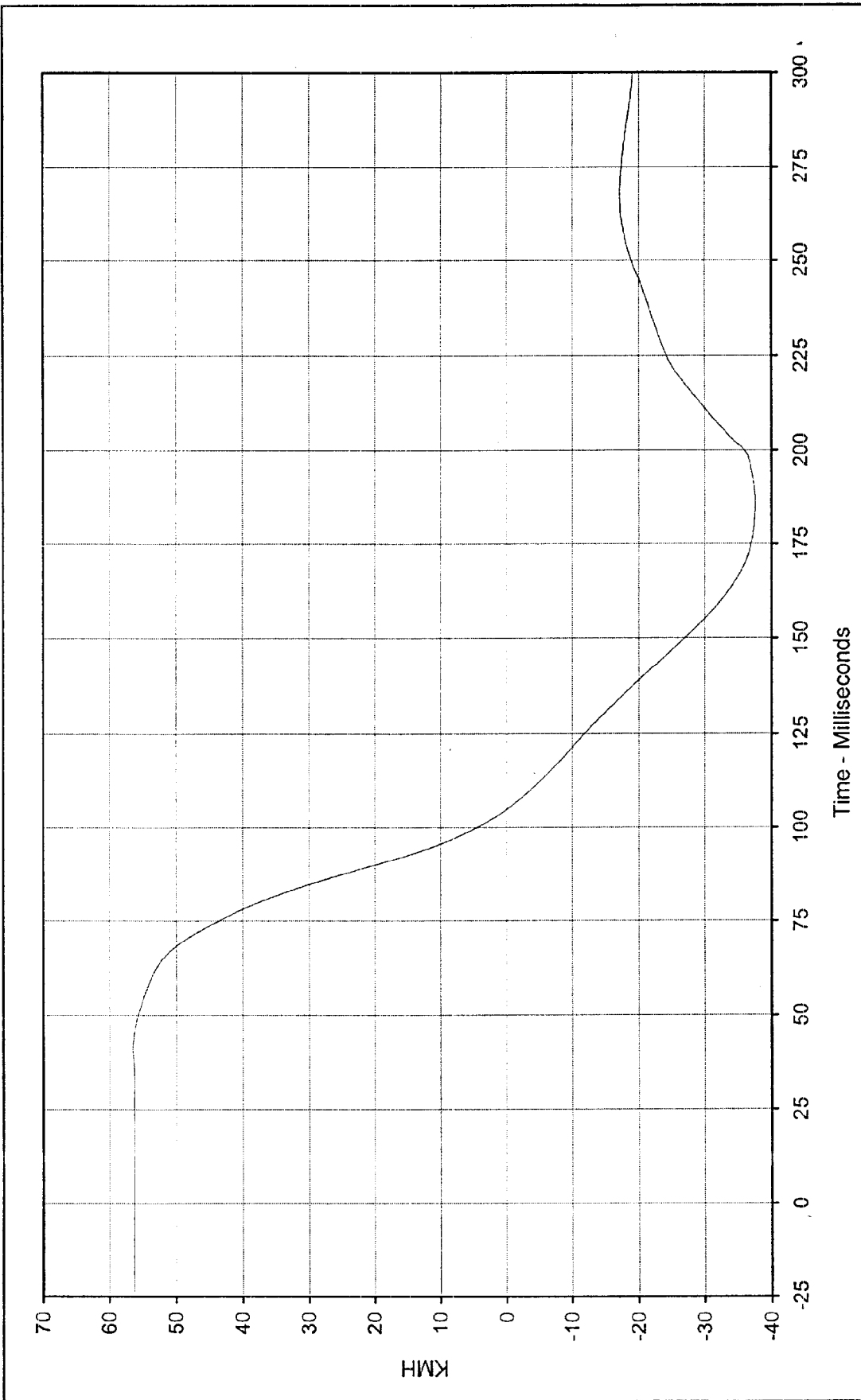
* Questionable Data



Curve Description: Passenger Head Primary X
 Maximum Value: 19.9 at 201.6 Milliseconds
 Minimum Value: -56.9 at 87.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-045

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

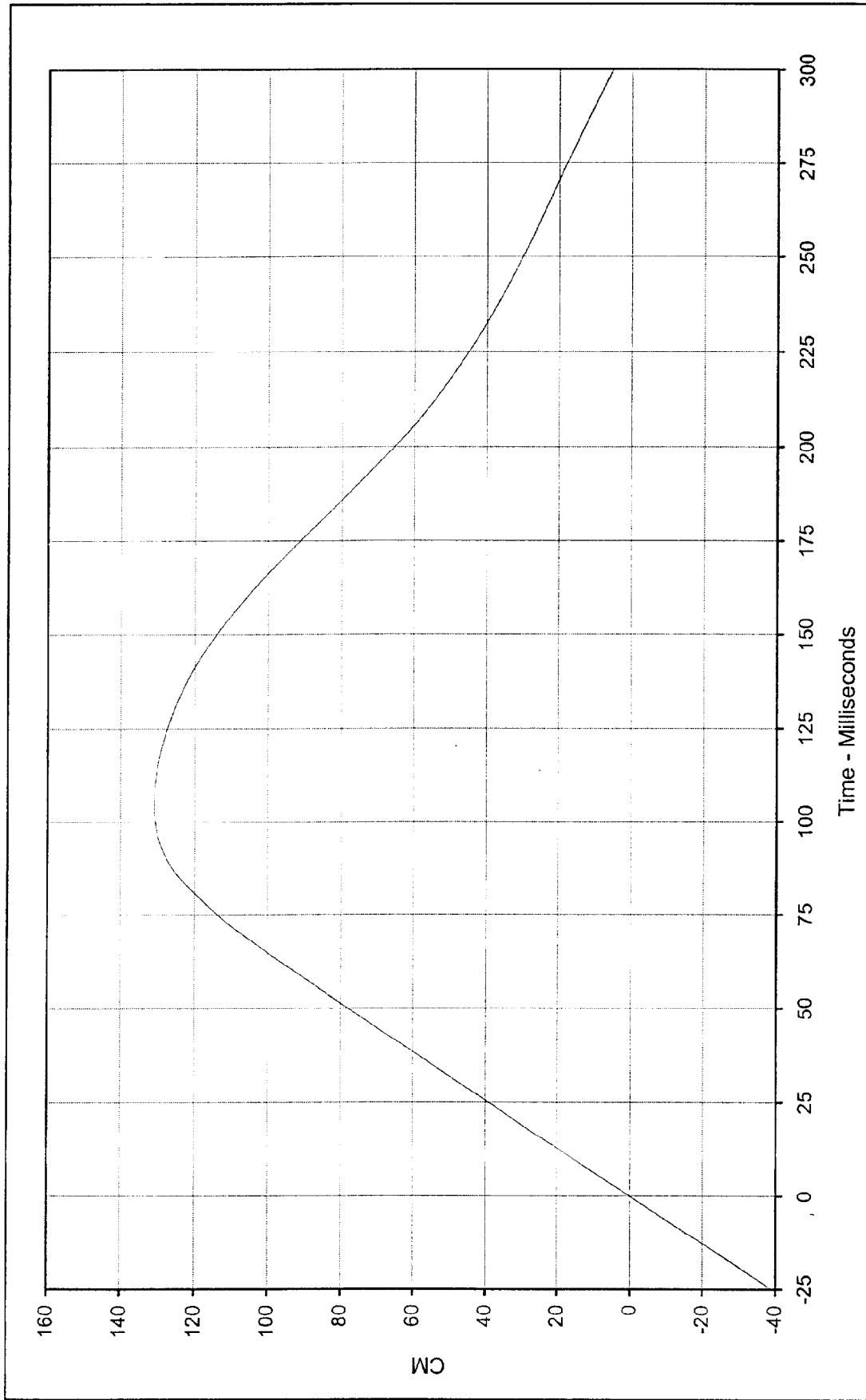




Curve Description: Passenger Head Primary X Velocity
 Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 56.5 at 41.2 Milliseconds
 Minimum Value: -37.6 at 185.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-045





Curve Description: Passenger Head Primary X Displ.

Maximum Value: 130.9 at 104.8 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

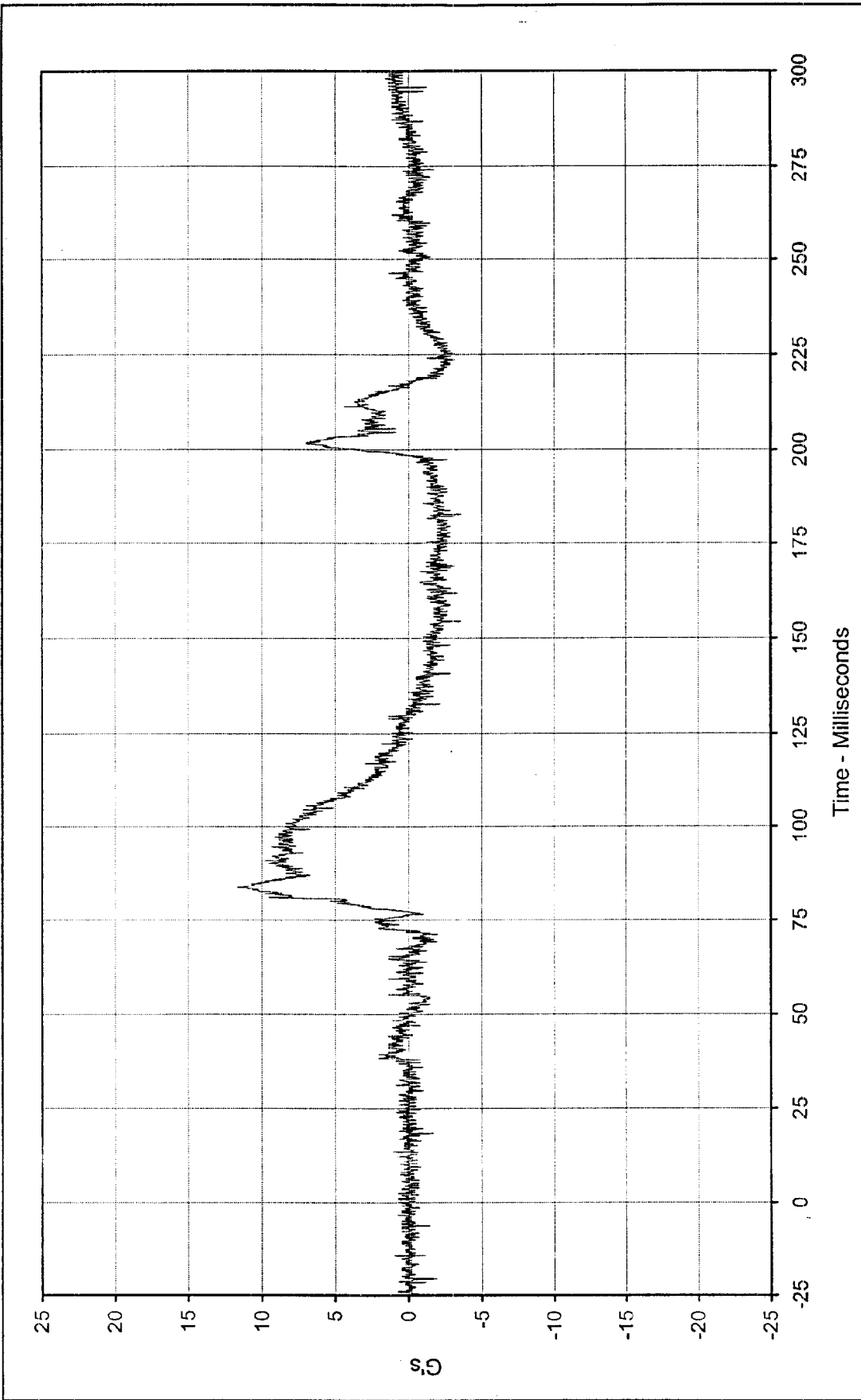
Date of Test: 1/5/99

Curve Number: IN2-045

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

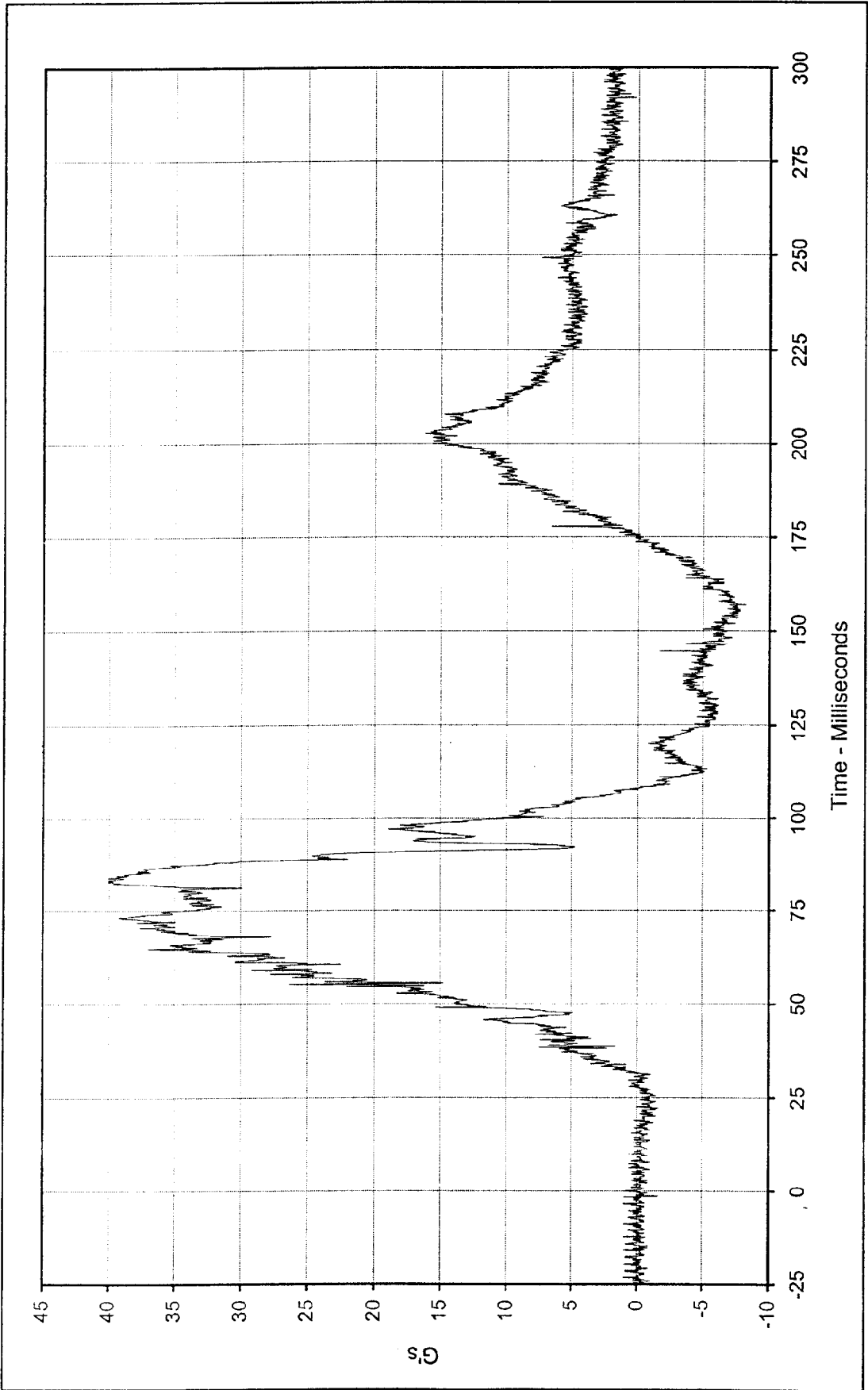




Curve Description: Passenger Head Primary Y
 Maximum Value: 11.7 at 83.6 Milliseconds
 Minimum Value: -3.6 at 154.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-046

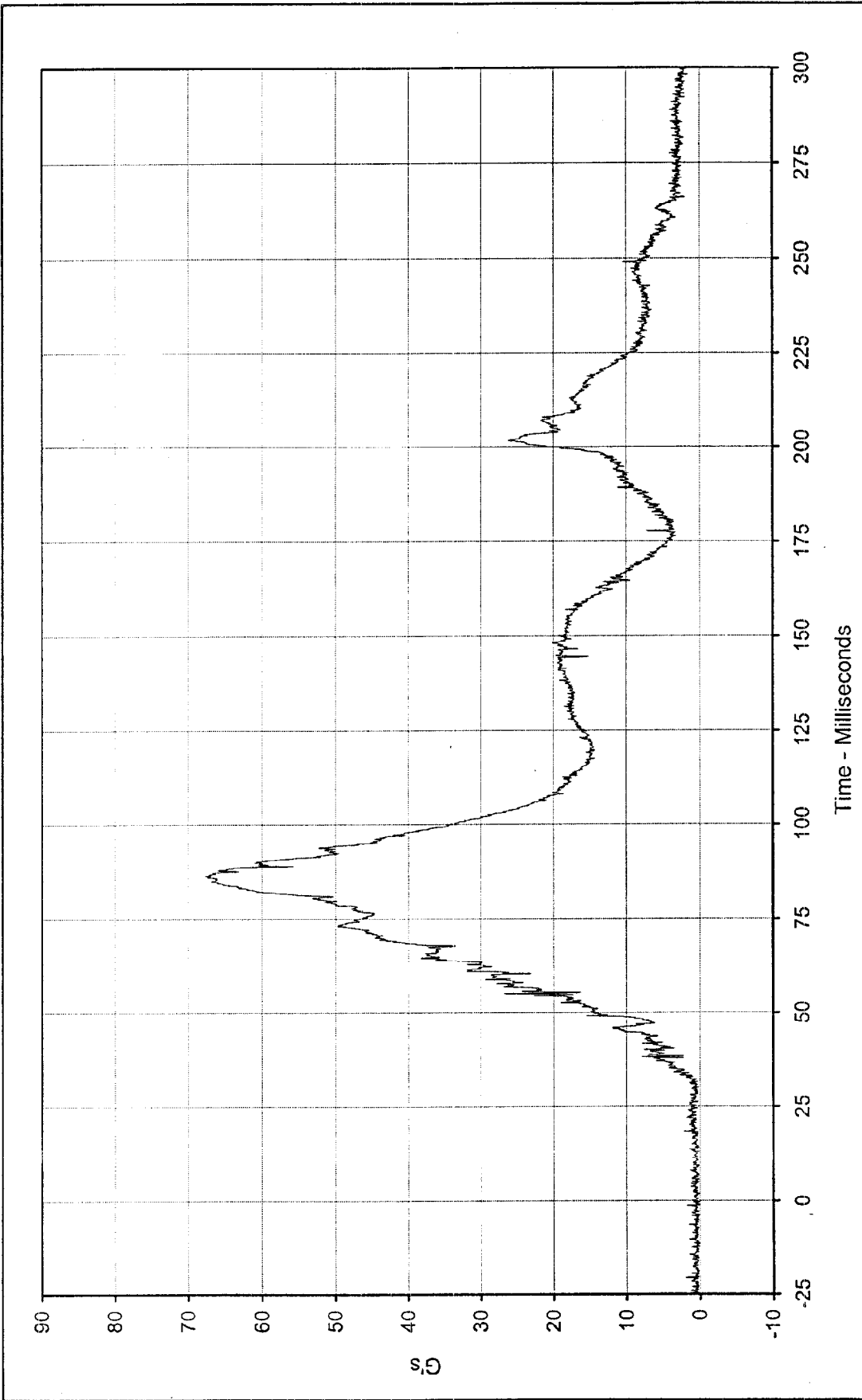
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Head Primary Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 40.1 at 82.6 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -8.2 at 157.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-047

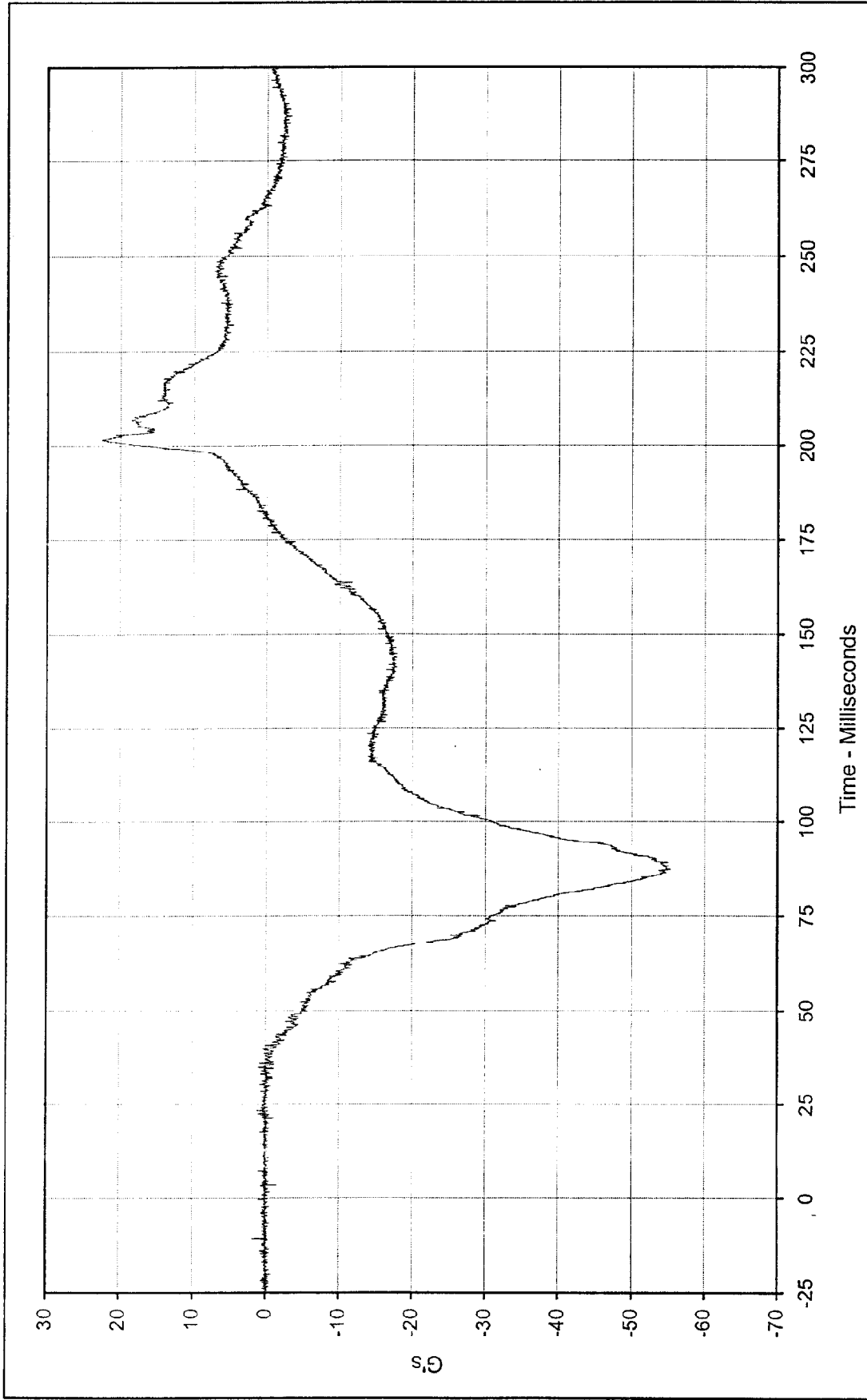




Curve Description: Passenger Head Resultant Primary Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 67.7 at 86.2 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 1.9 Milliseconds



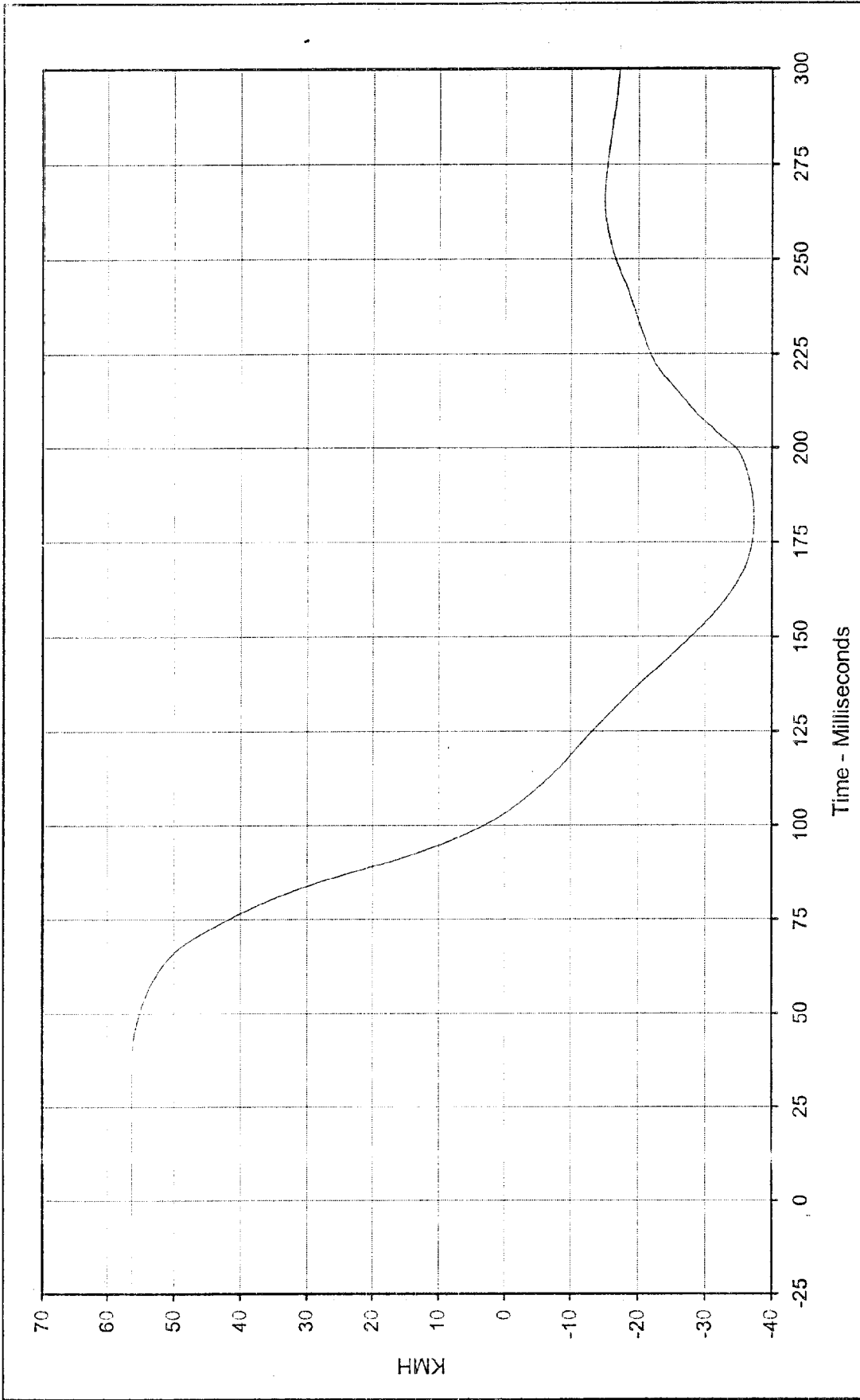
SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: RES-045



Curve Description: Passenger Head Redundant X Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 22.6 at 201.7 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -55.4 at 87.2 Milliseconds



SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-048



Curve Description: Passenger Head Redundant X Velocity

Maximum Value: 56.3 at 27.8 Milliseconds

Minimum Value: -37.3 at 181.1 Milliseconds

SAE Filter Class: 180

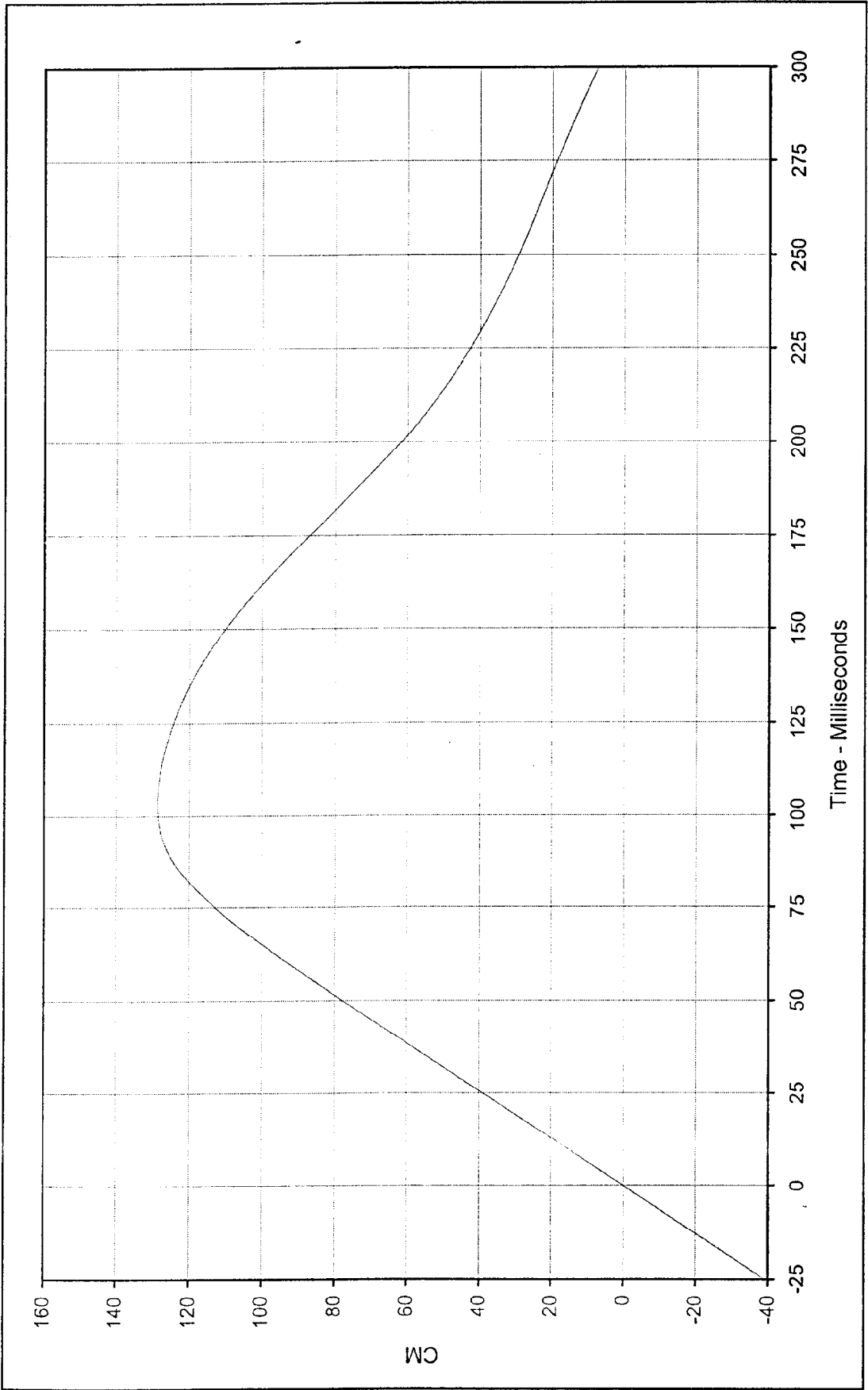
Date of Test: 1/5/99

Curve Number: IN1-048

Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

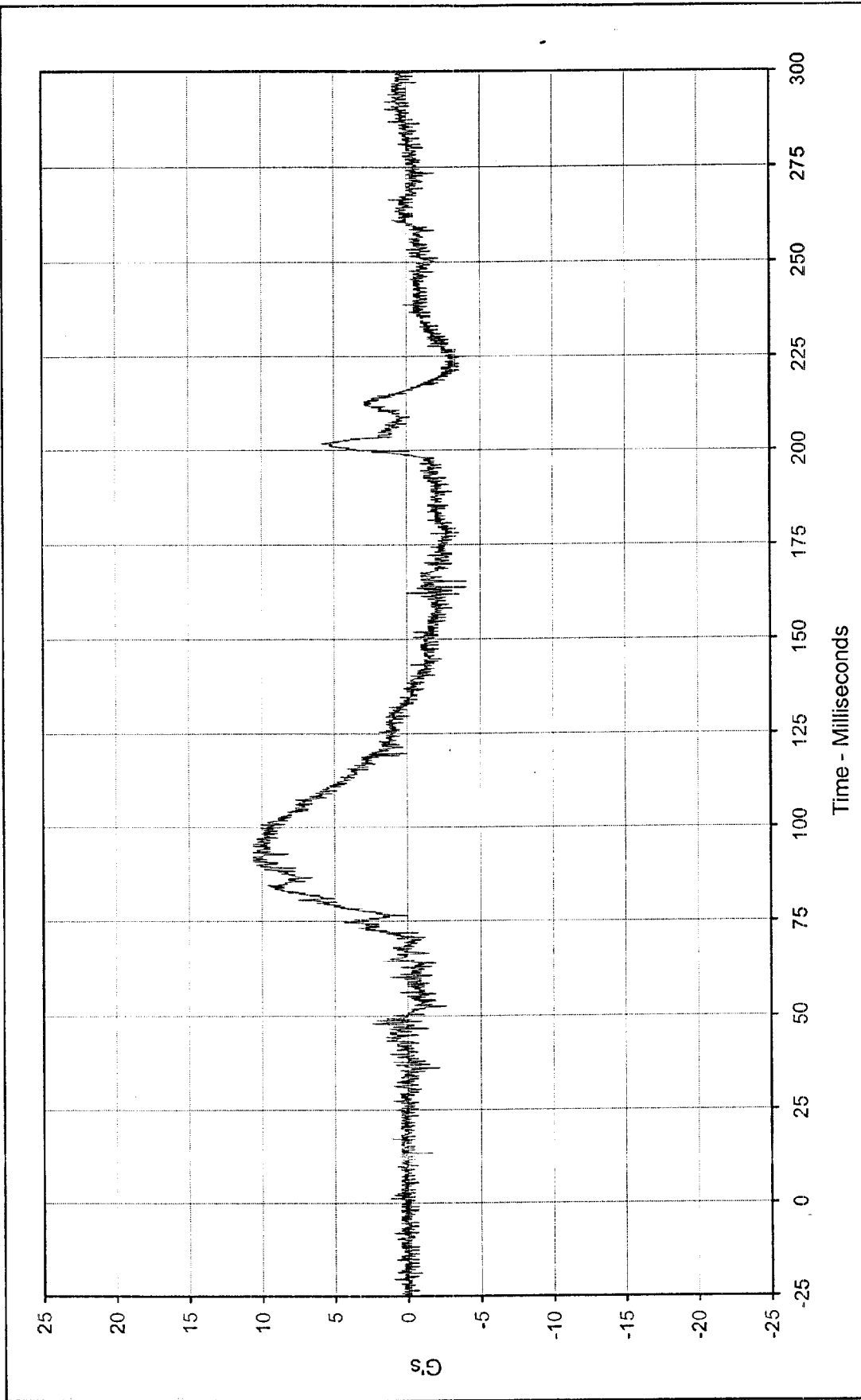




Curve Description: Passenger Head Redundant X Displ.
 Maximum Value: 128.7 at 103.2 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN2-048

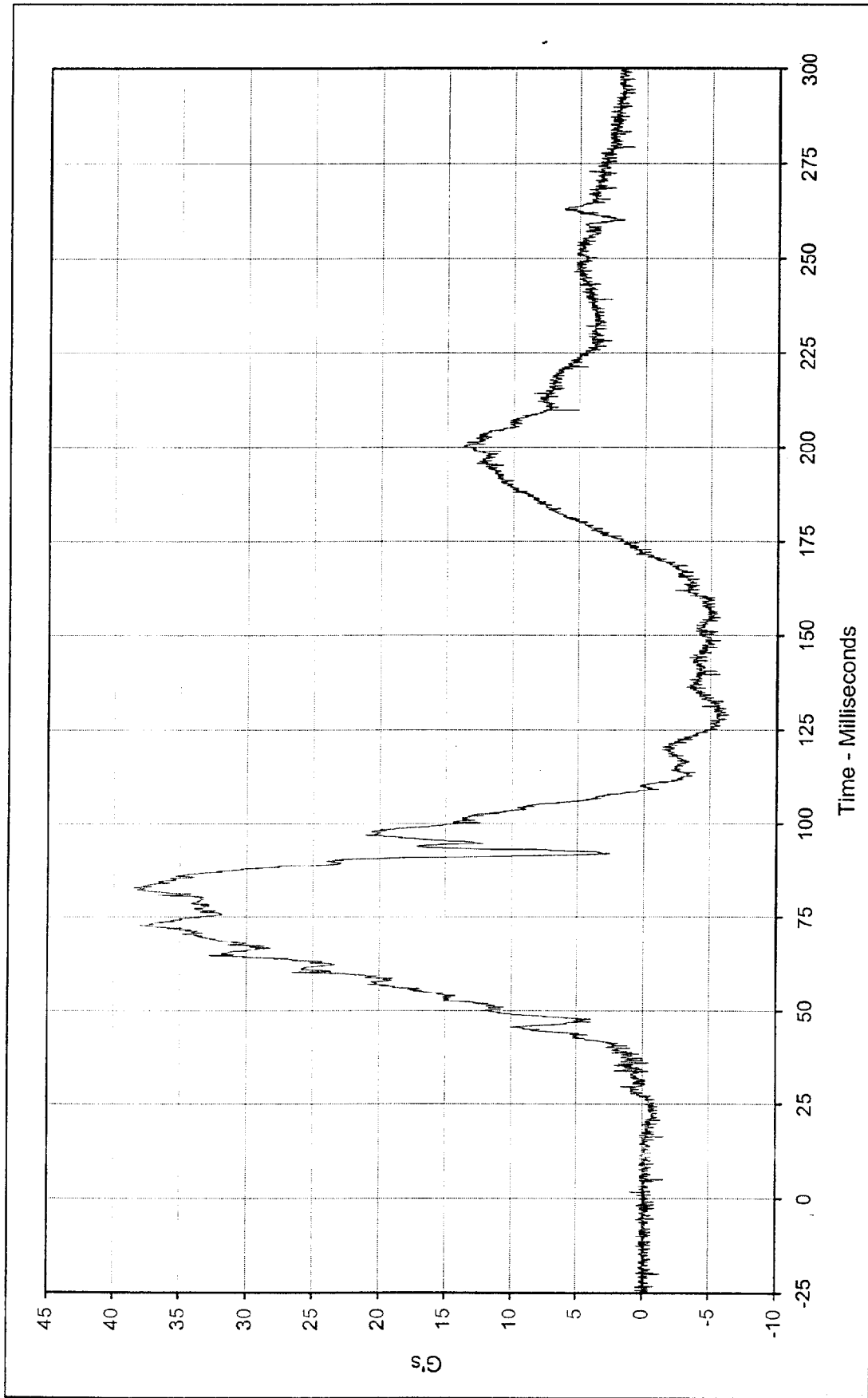
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





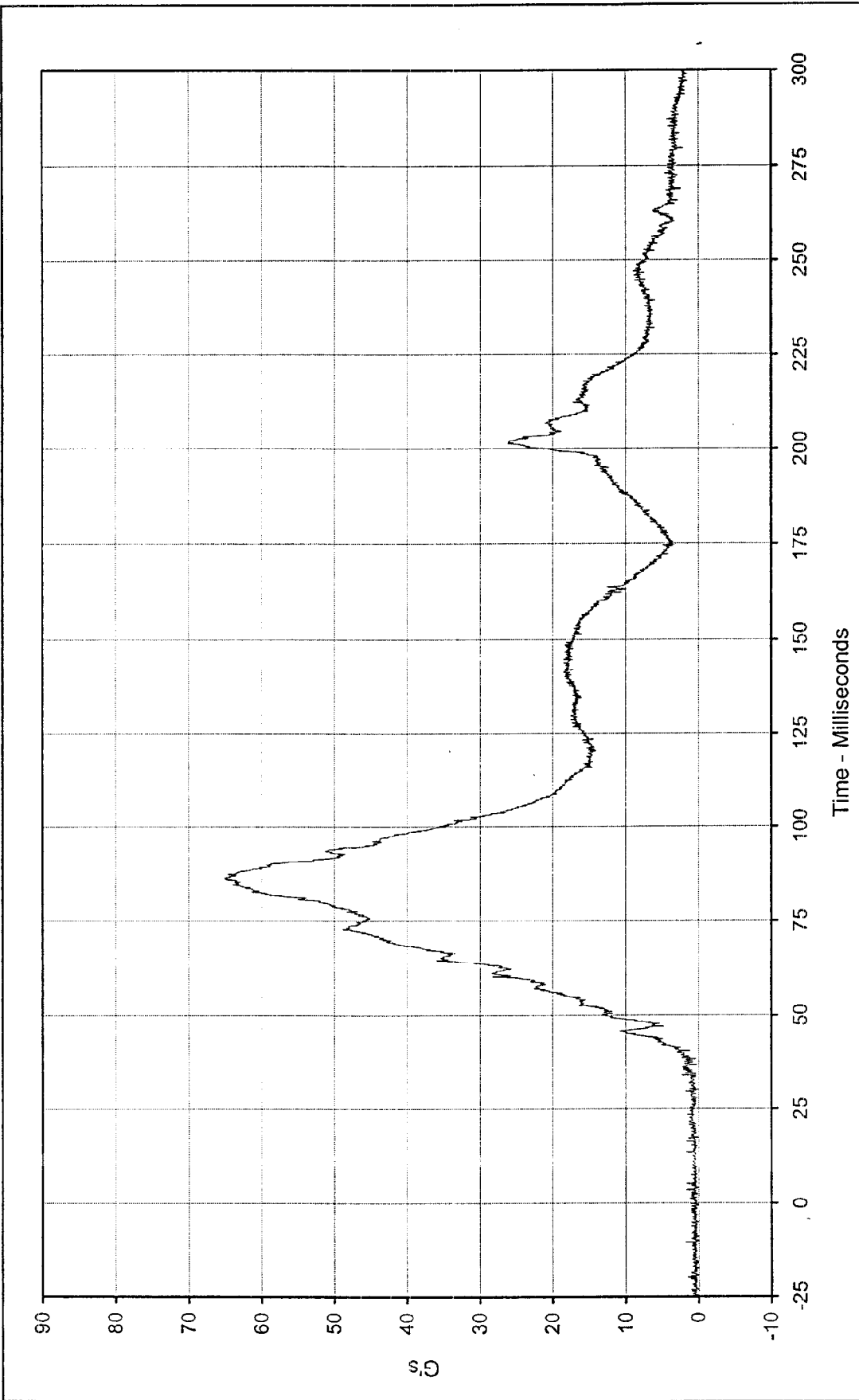
Curve Description: Passenger Head Redundant Y
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 10.6 at 90.8 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -4.1 at 163.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-049





Curve Description: Passenger Head Redundant Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 38.5 at 82.7 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -6.4 at 128.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-050

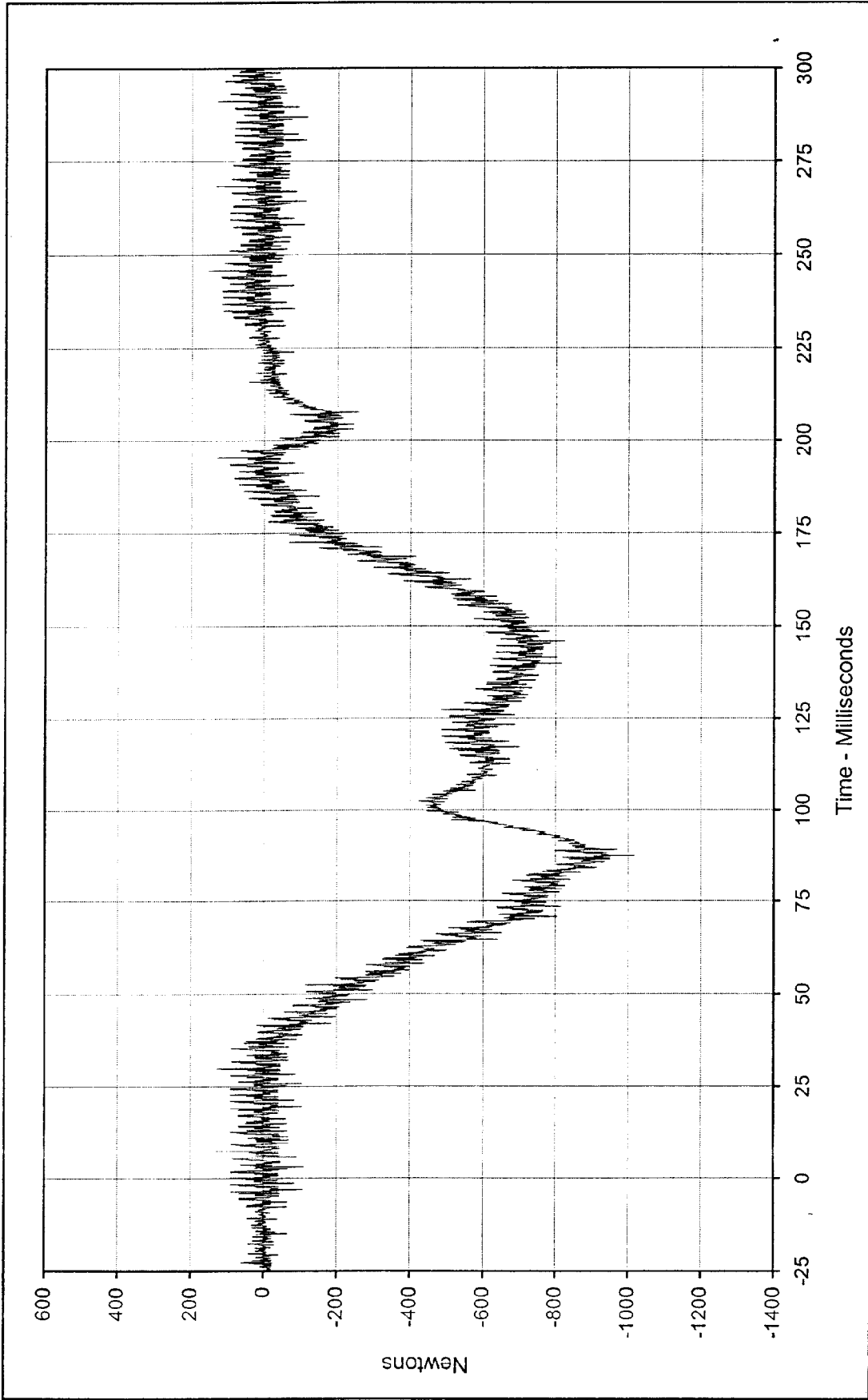




Curve Description: Passenger Head Resultant Redundant
 Maximum Value: 65.1 at 86.3 Milliseconds
 Minimum Value: 0.0 at 4.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: RES-048

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

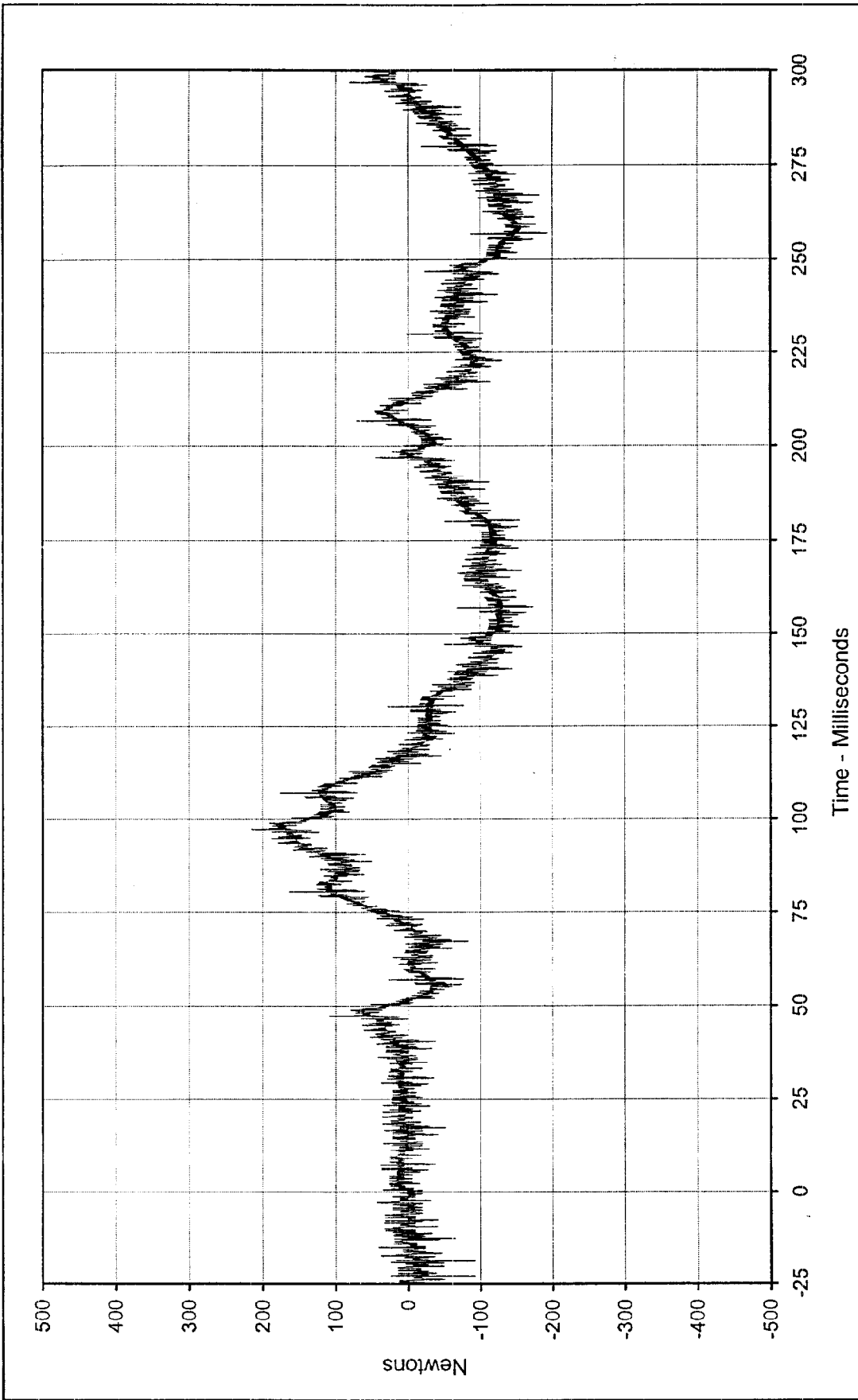




Curve Description: Passenger Neck Force X
 Maximum Value: 155.2 at 245.9 Milliseconds
 Minimum Value: -1015.6 at 87.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-051

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

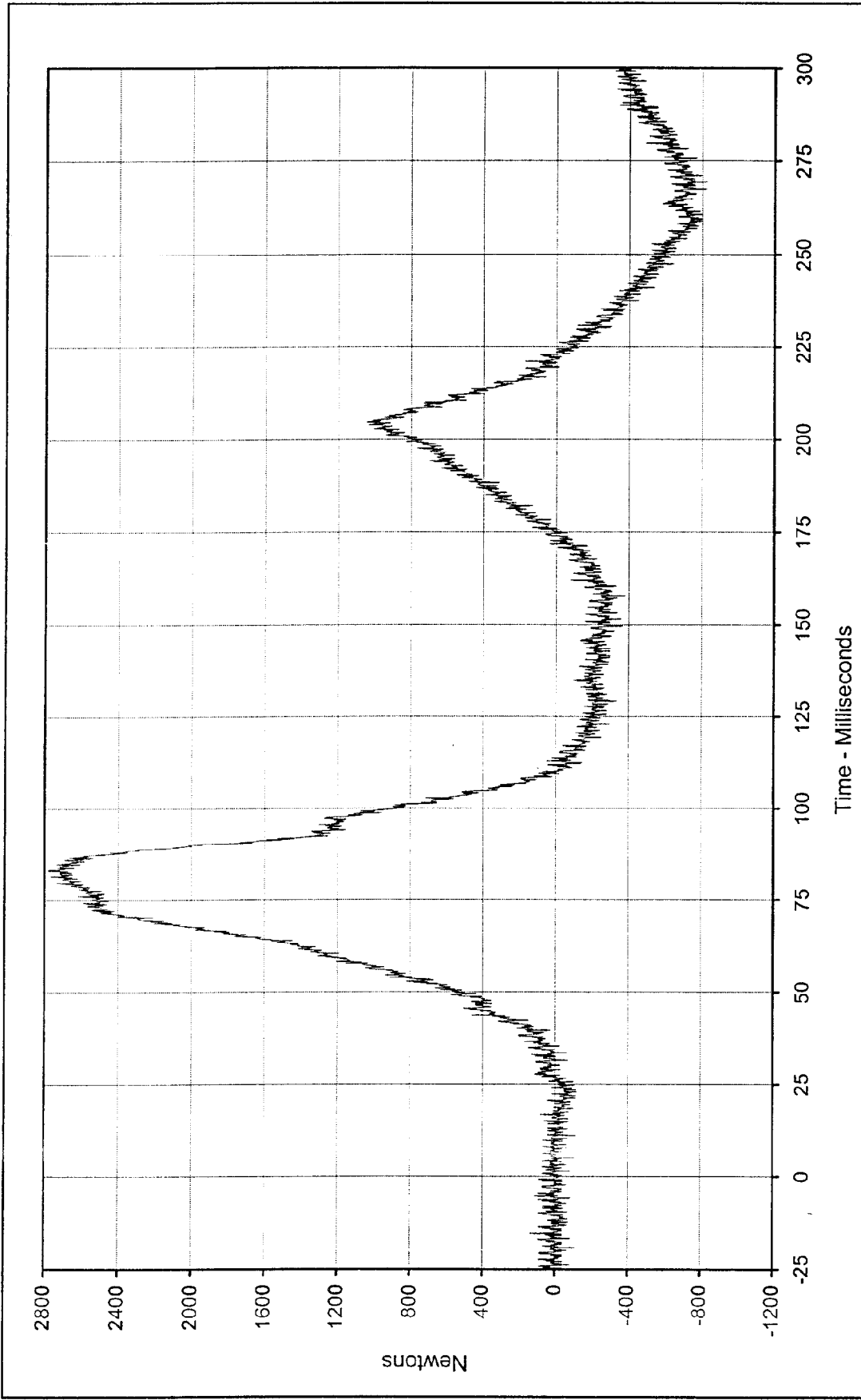




Curve Description: Passenger Neck Force Y
 Maximum Value: 214.4 at 97.3 Milliseconds
 Minimum Value: -193.5 at 256.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-052

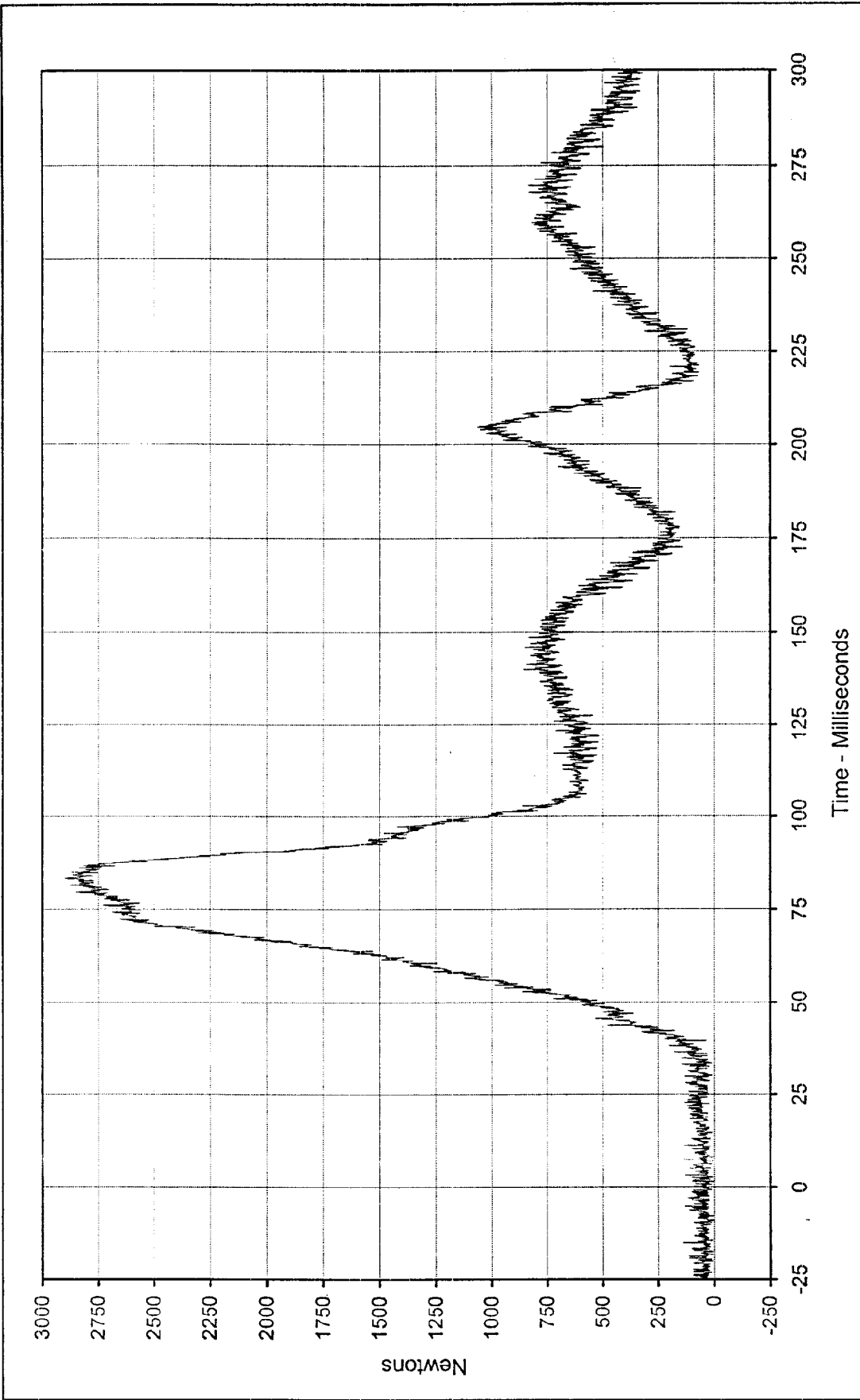
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Neck Force Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 2781.5 at 83.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -825.5 at 269.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-053

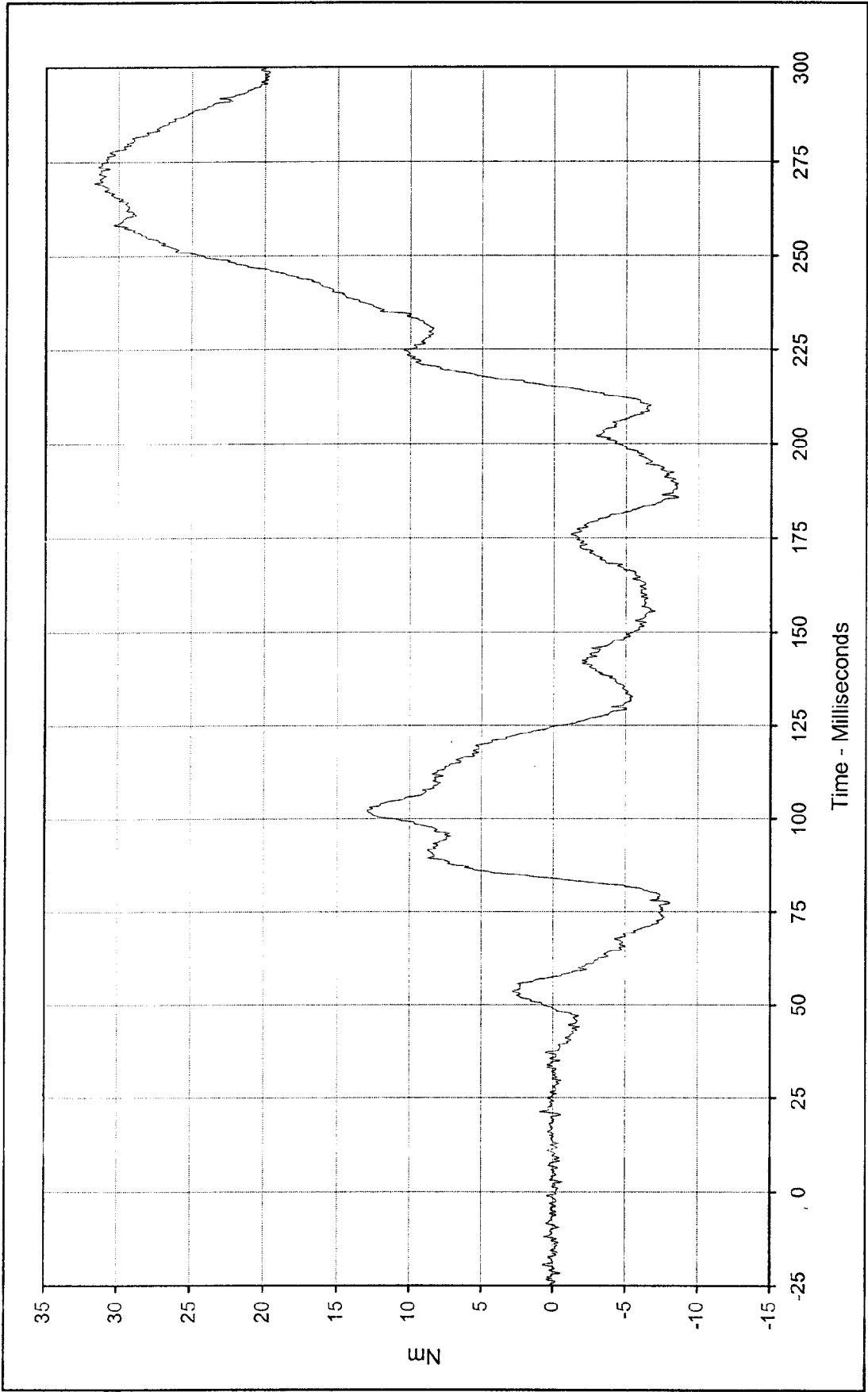




Curve Description: Passenger Neck Force Resultant
 Maximum Value: 2897.7 at 83.2 Milliseconds
 Minimum Value: 5.0 at 1.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: RES-051

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

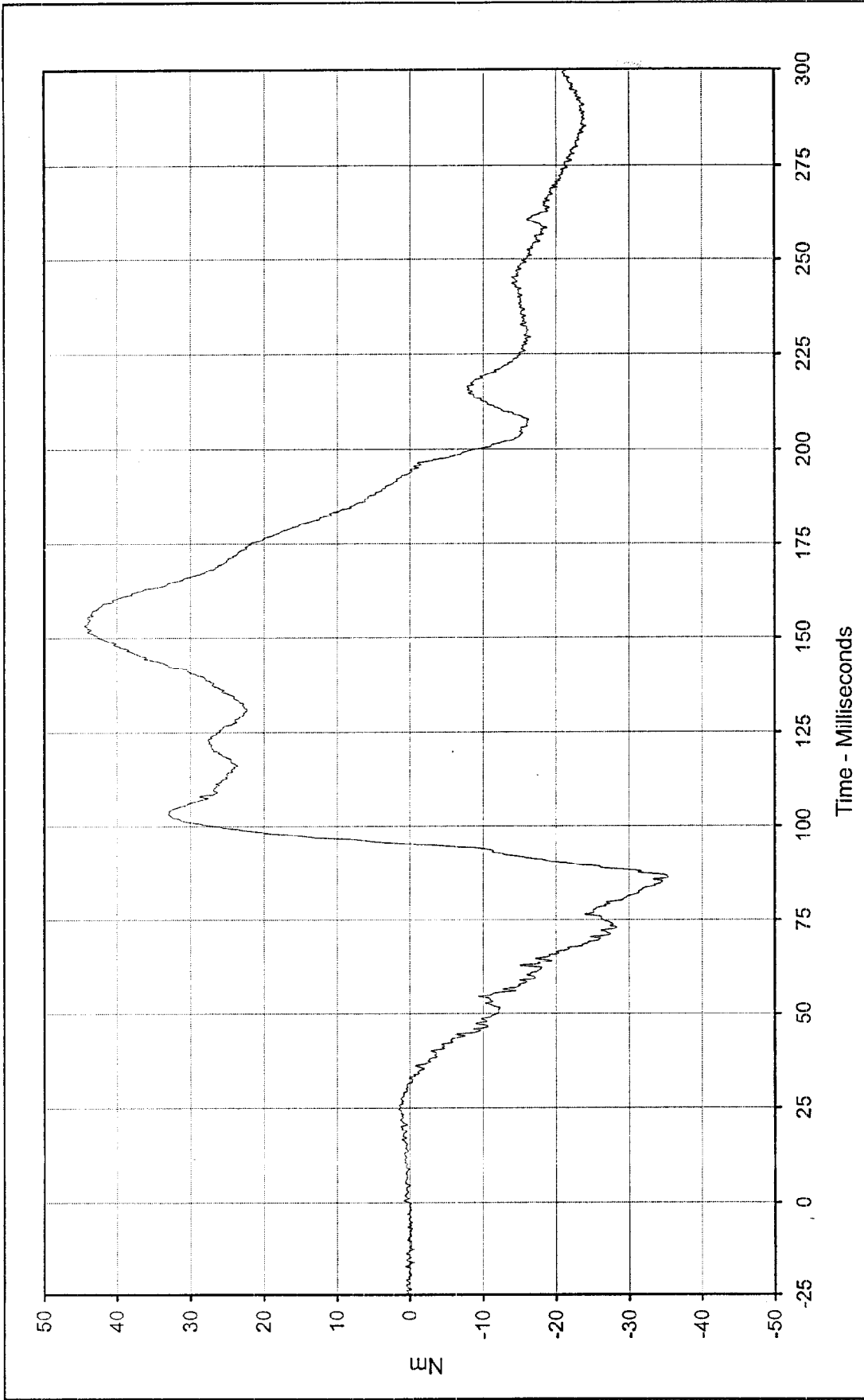




Curve Description: Passenger Neck Moment X
 Maximum Value: 31.7 at 269.6 Milliseconds
 Minimum Value: -8.6 at 185.7 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-054

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

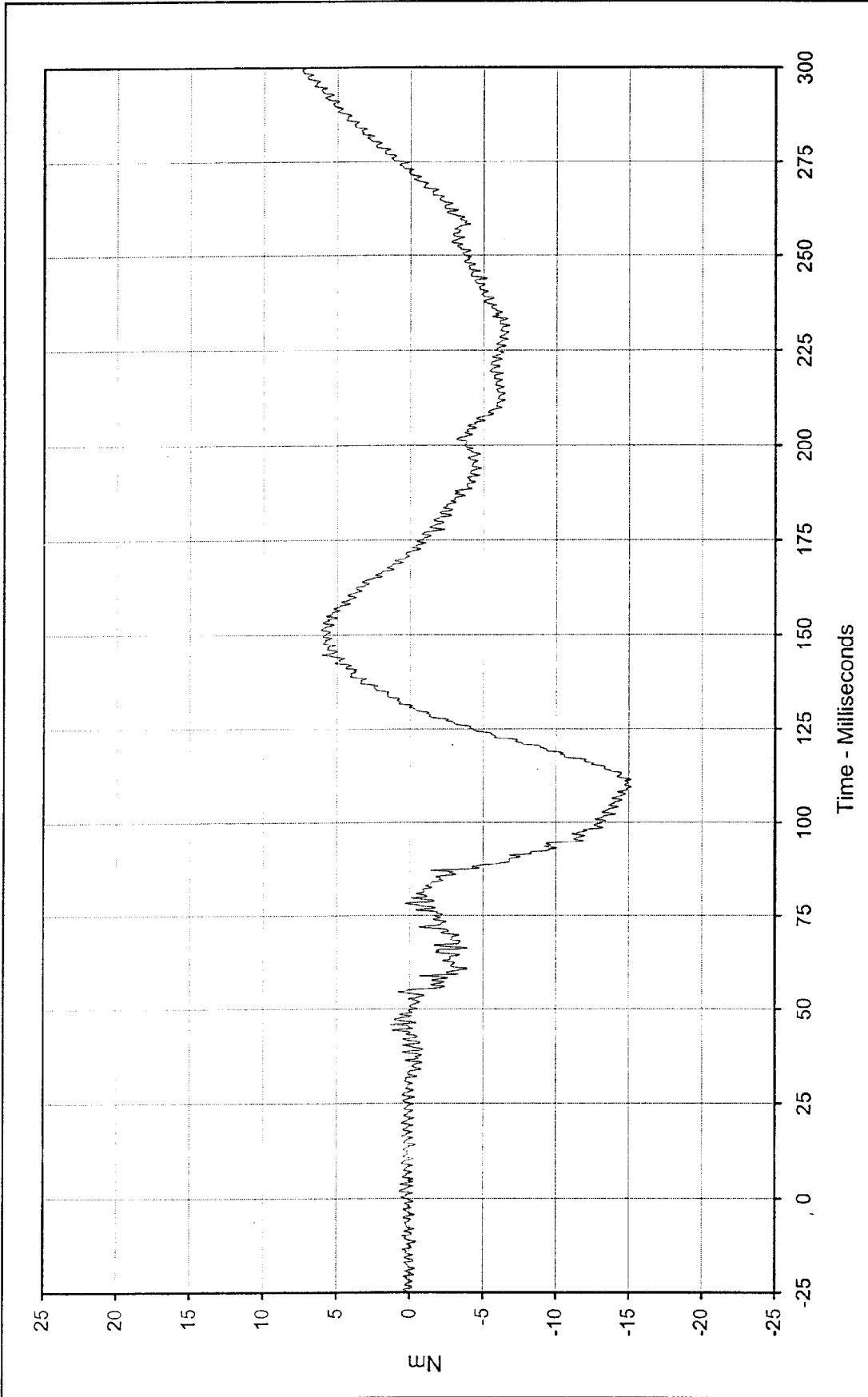




Curve Description: Passenger Neck Moment Y
 Maximum Value: 44.5 at 153.2 Milliseconds
 Minimum Value: -35.3 at 85.9 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-055

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

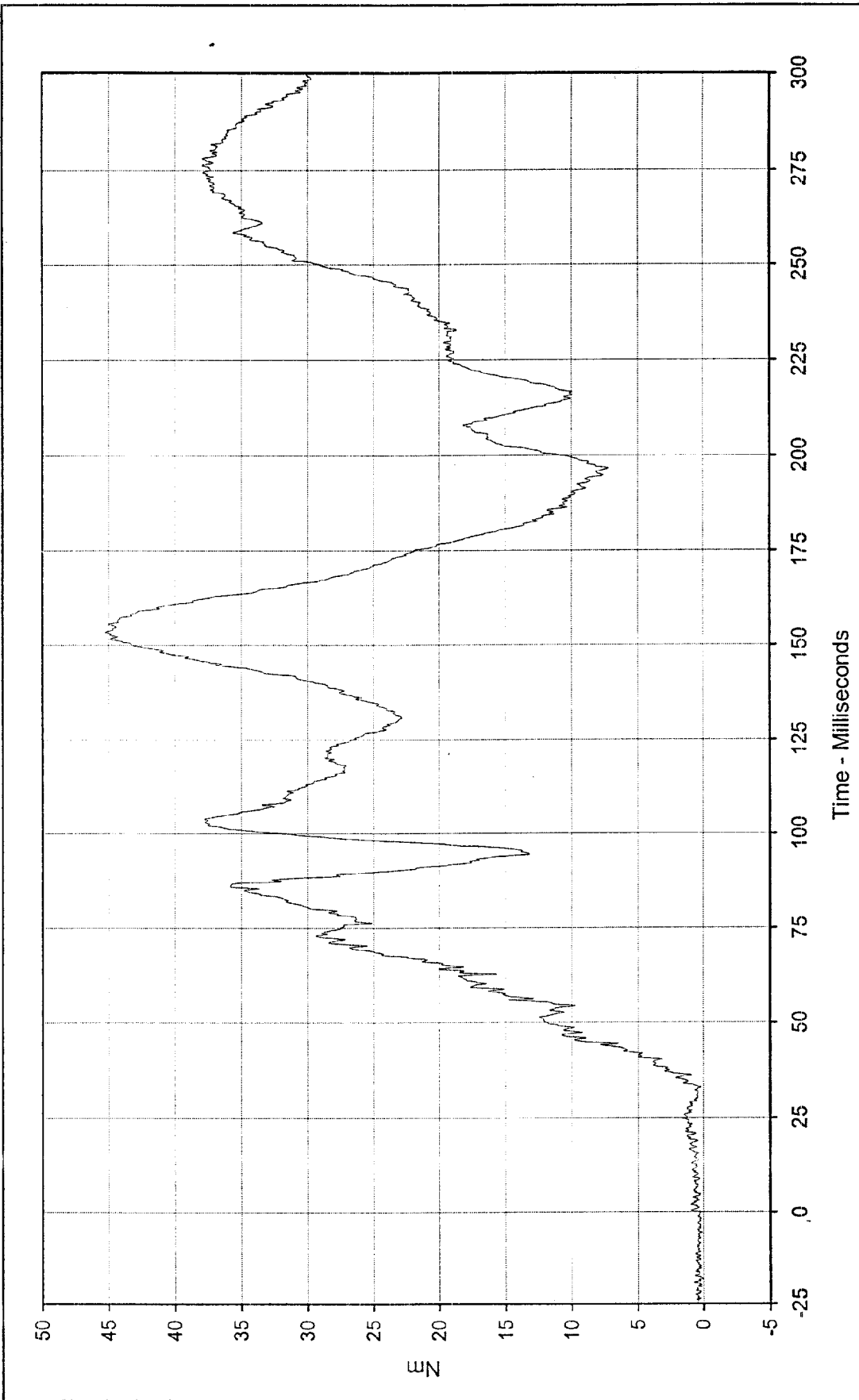




Curve Description: Passenger Neck Moment Z
 Maximum Value: 7.4 at 299.3 Milliseconds
 Minimum Value: -15.2 at 111.3 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-056

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

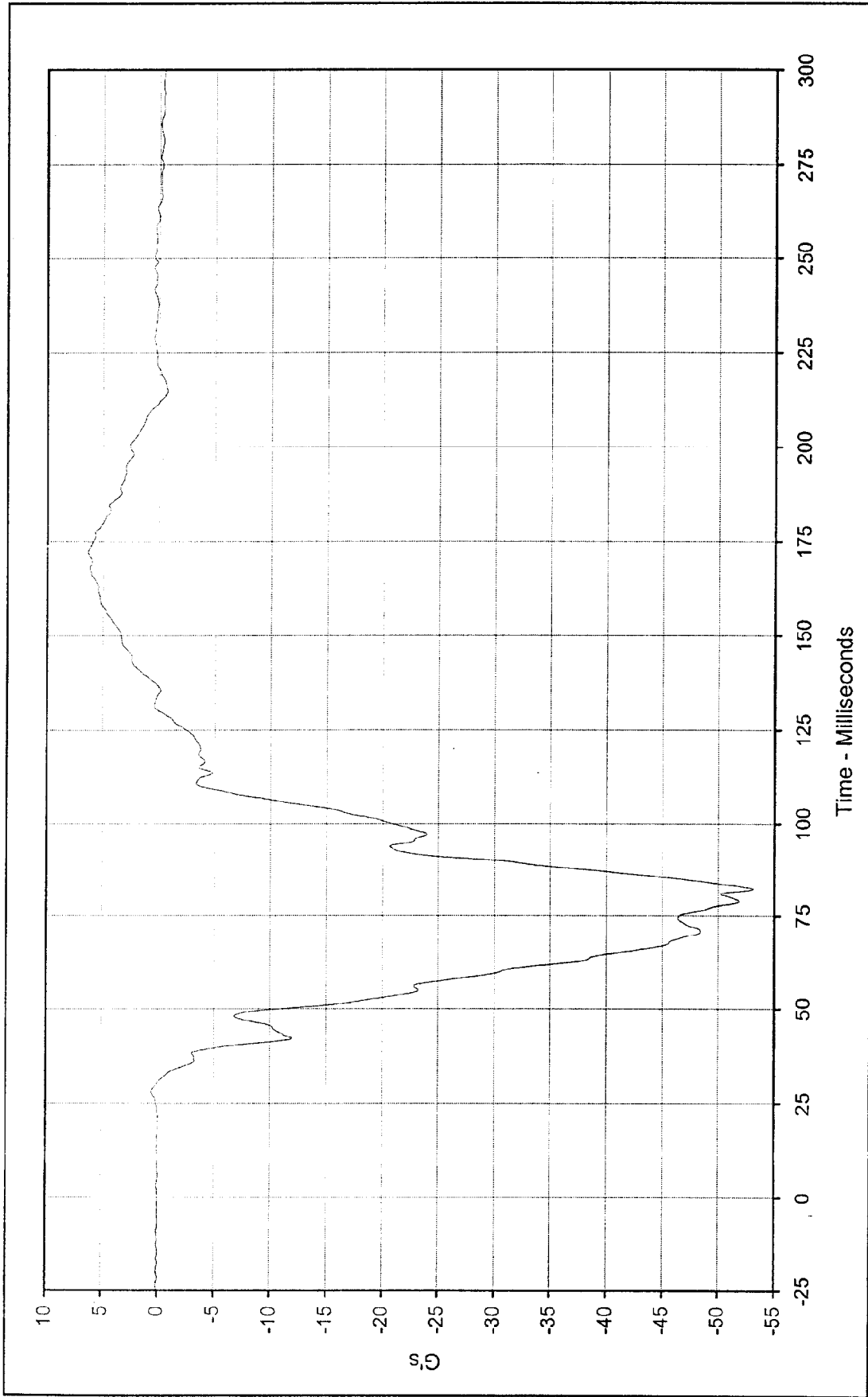




Curve Description: Passenger Neck Moment Resultant
 Maximum Value: 45.2 at 153.2 Milliseconds
 Minimum Value: 0.2 at 13.7 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: RES-054

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

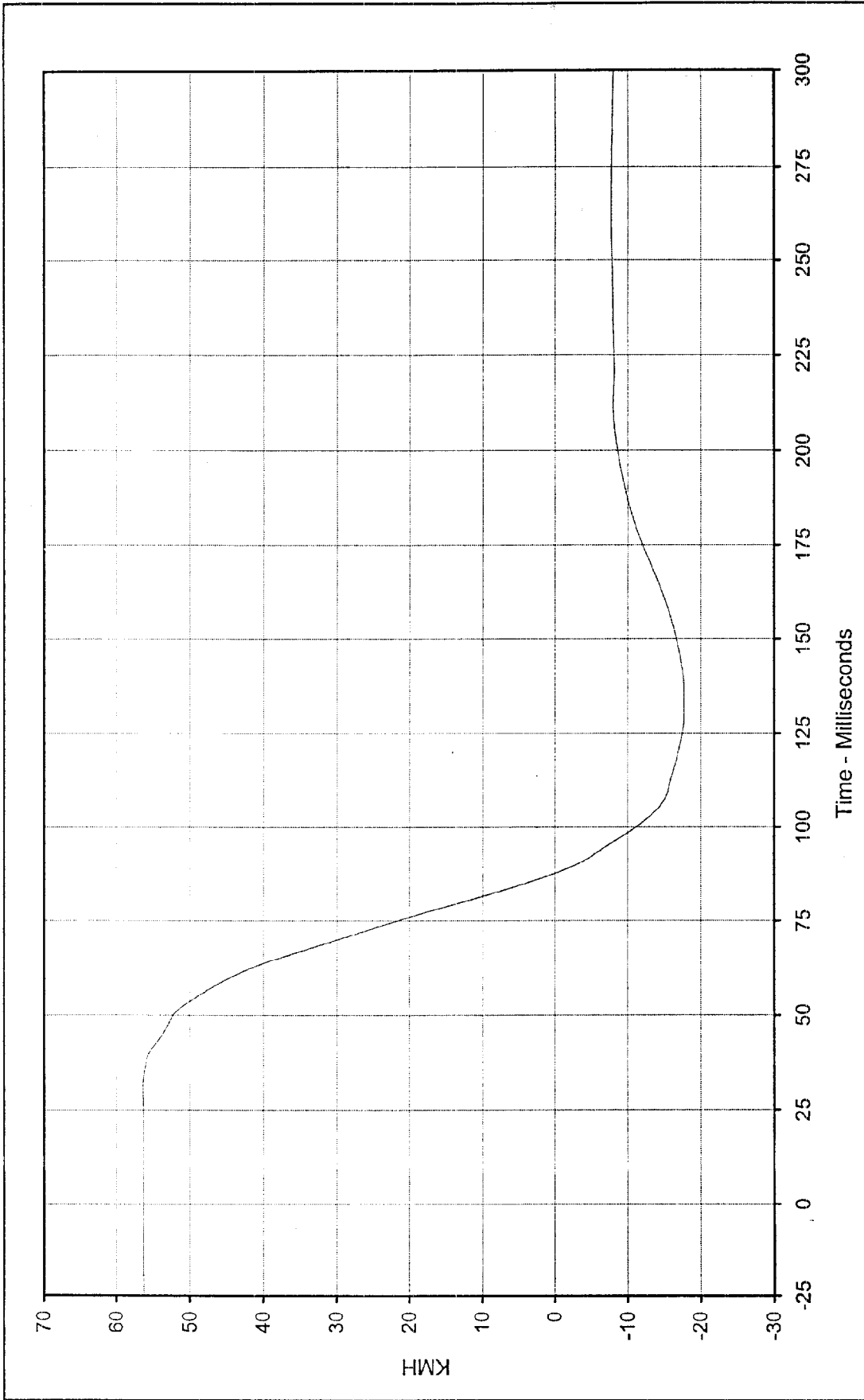




Curve Description: Passenger Chest Primary X
 Maximum Value: 6.4 at 172.2 Milliseconds
 Minimum Value: -53.1 at 82.1 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-057

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

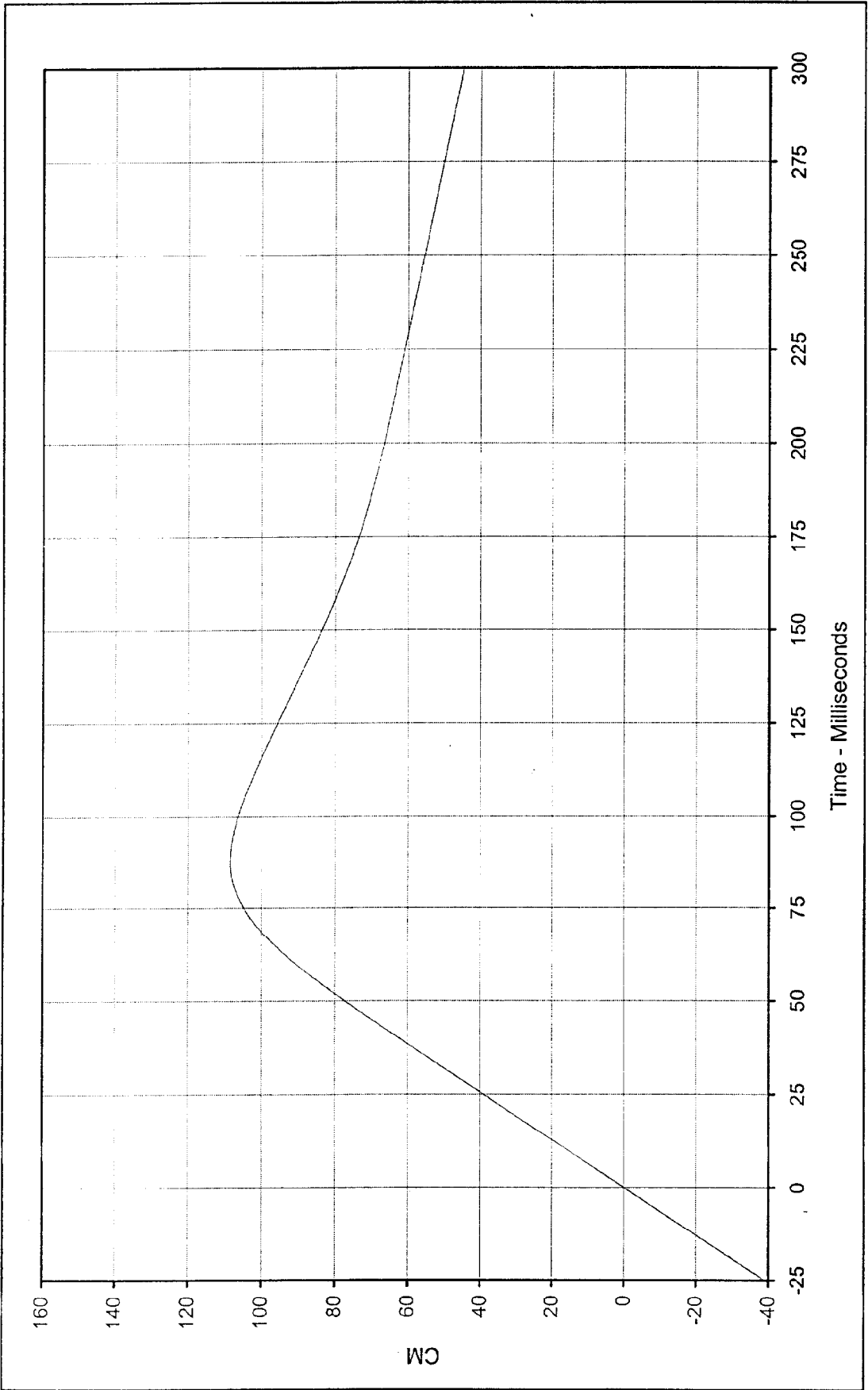




Curve Description: Passenger Chest Primary X Velocity
 Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 56.4 at 30.4 Milliseconds
 Minimum Value: -17.7 at 130.1 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-057

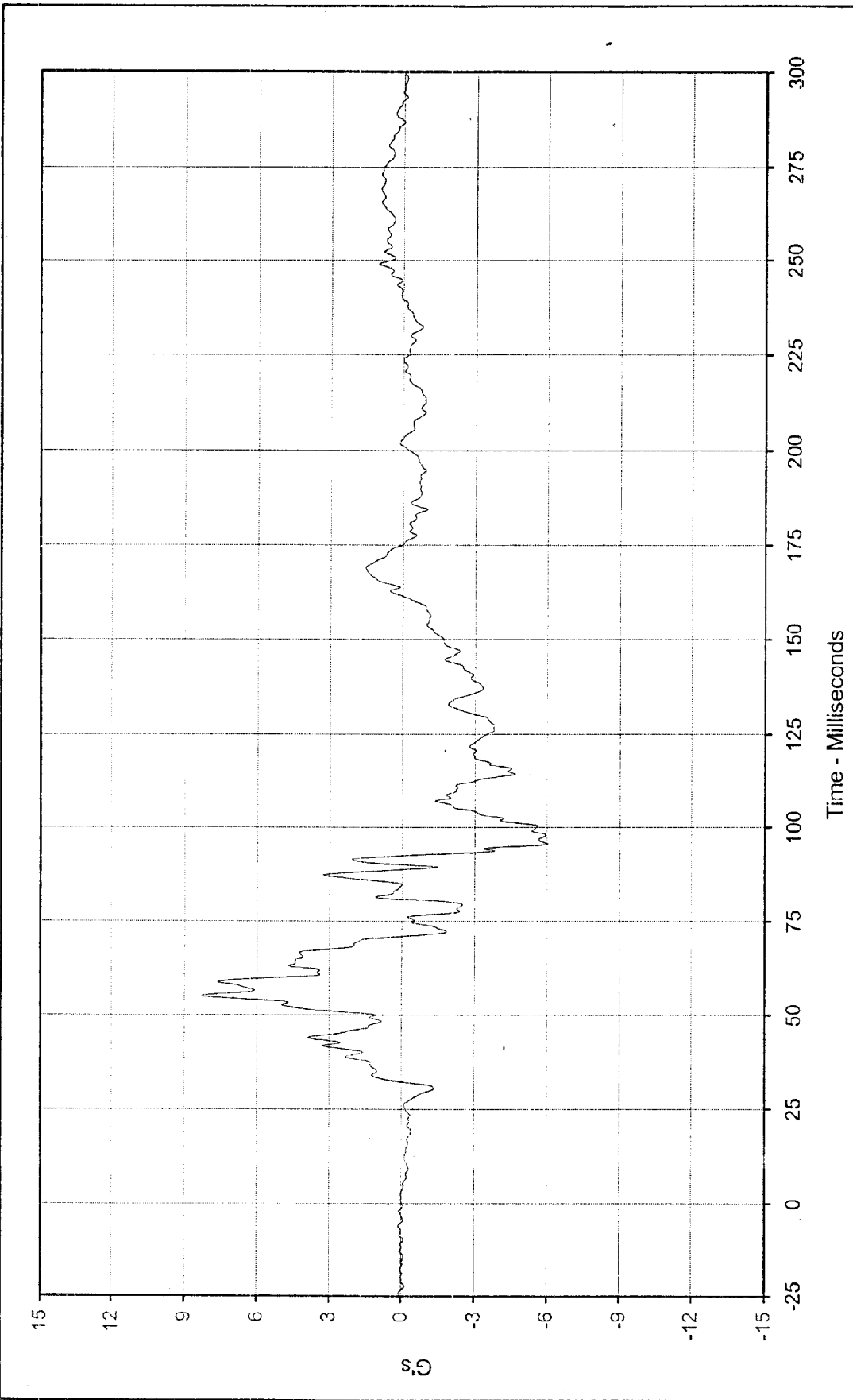




Curve Description: Passenger Chest Primary X Displ.
 Maximum Value: 108.5 at 87.5 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN2-057

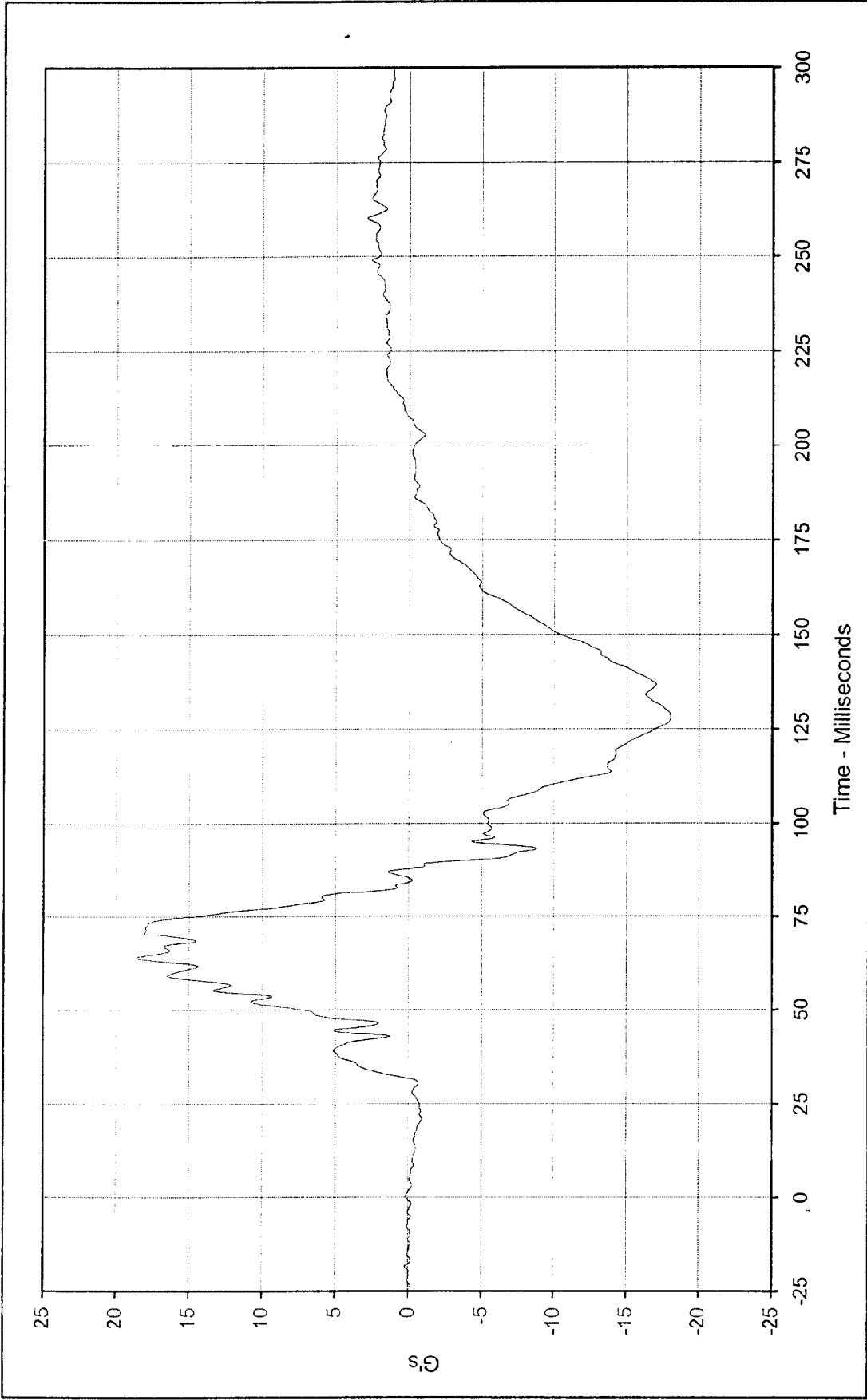
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Chest Primary Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 8.3 at 55.1 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -6.0 at 95.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-058





Curve Description: Passenger Chest Primary Z

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 18.6 at 63.8 Milliseconds

Minimum Value: -18.1 at 127.9 Milliseconds

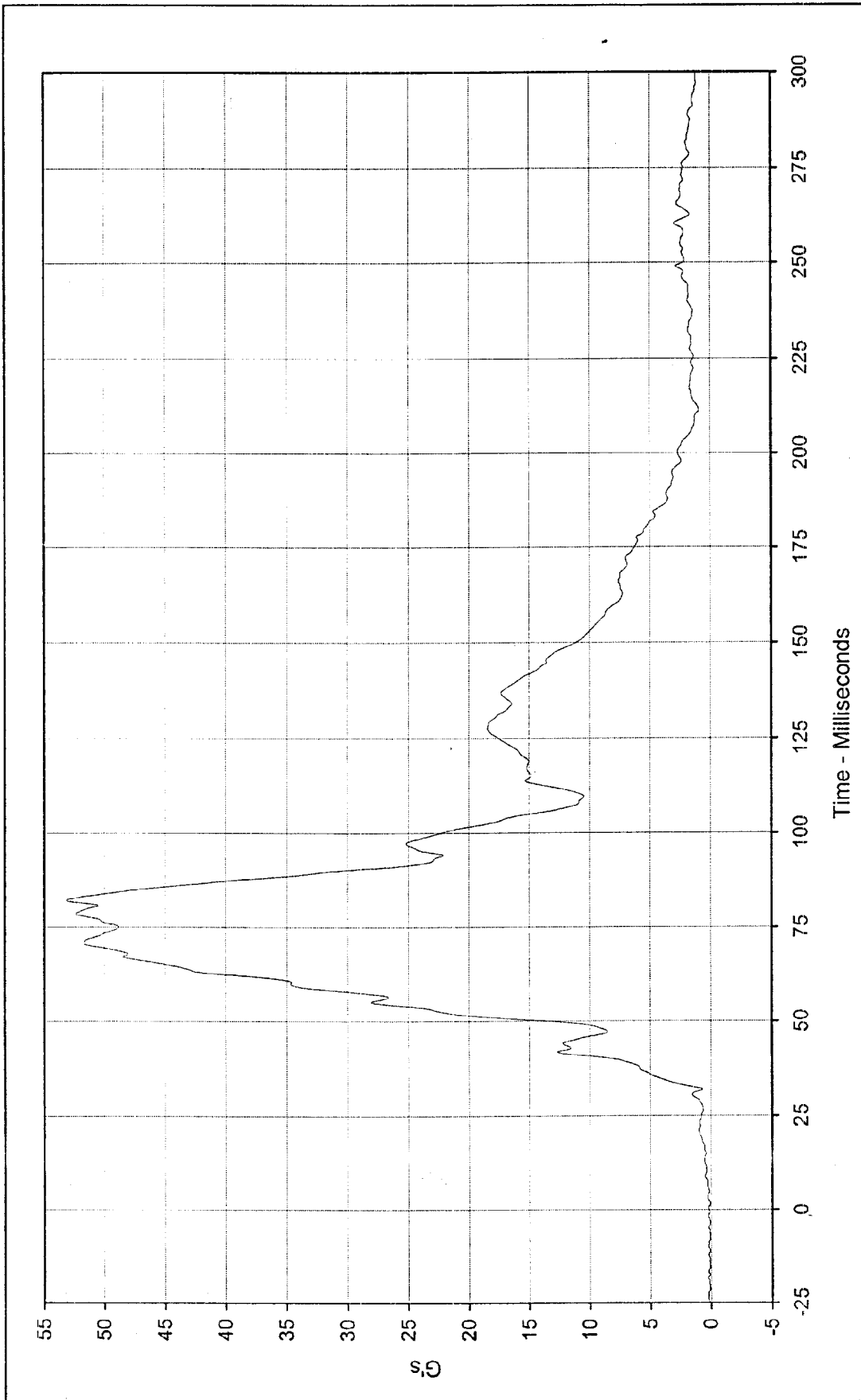
Test Vehicle: 1999 Chevrolet Tahoe LS SUV

SAE Filter Class: 180

Date of Test: 1/5/99

Curve Number: FIL-059

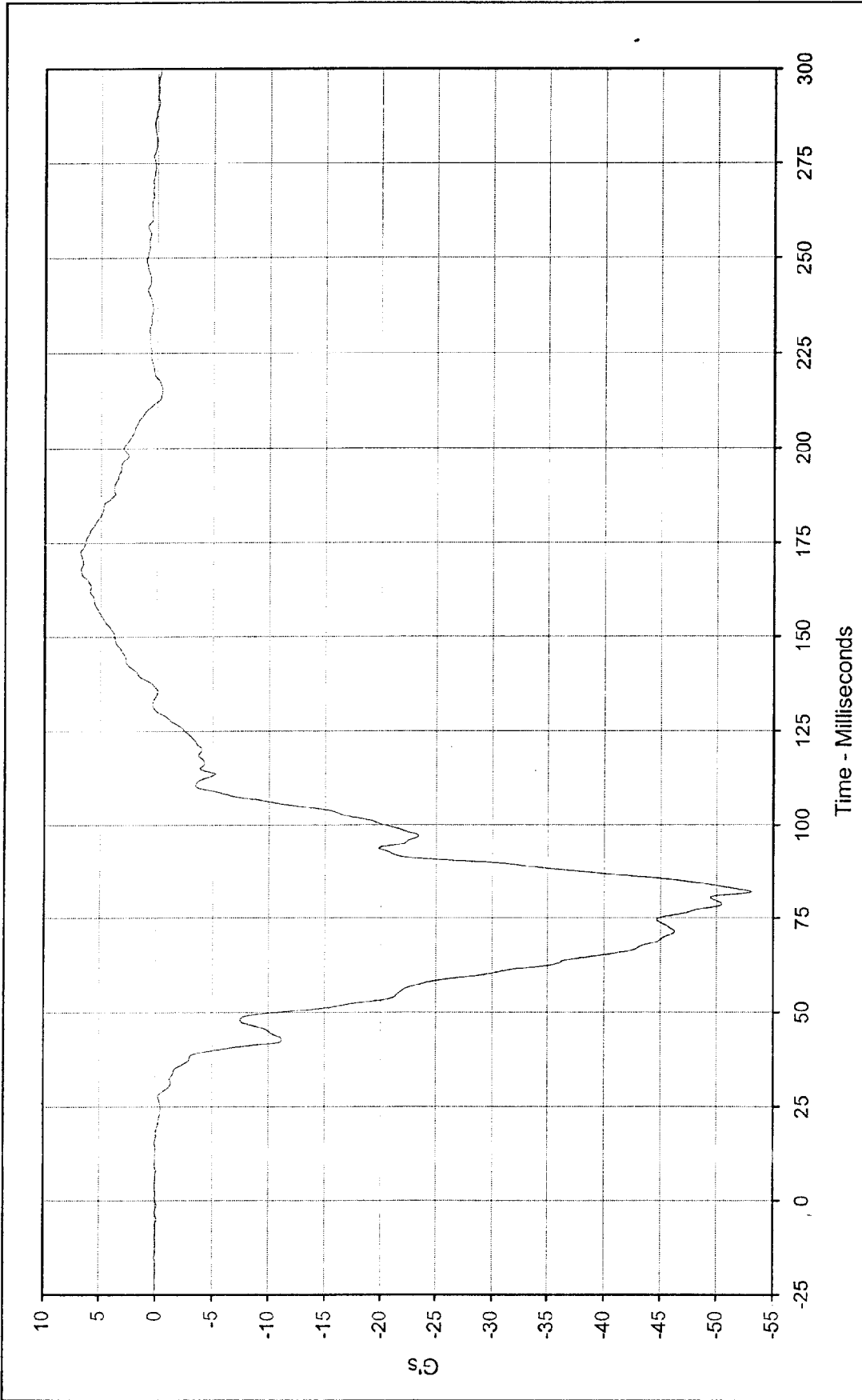




Curve Description: Passenger Chest Resultant Primary
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 53.1 at 82.1 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 1.6 Milliseconds



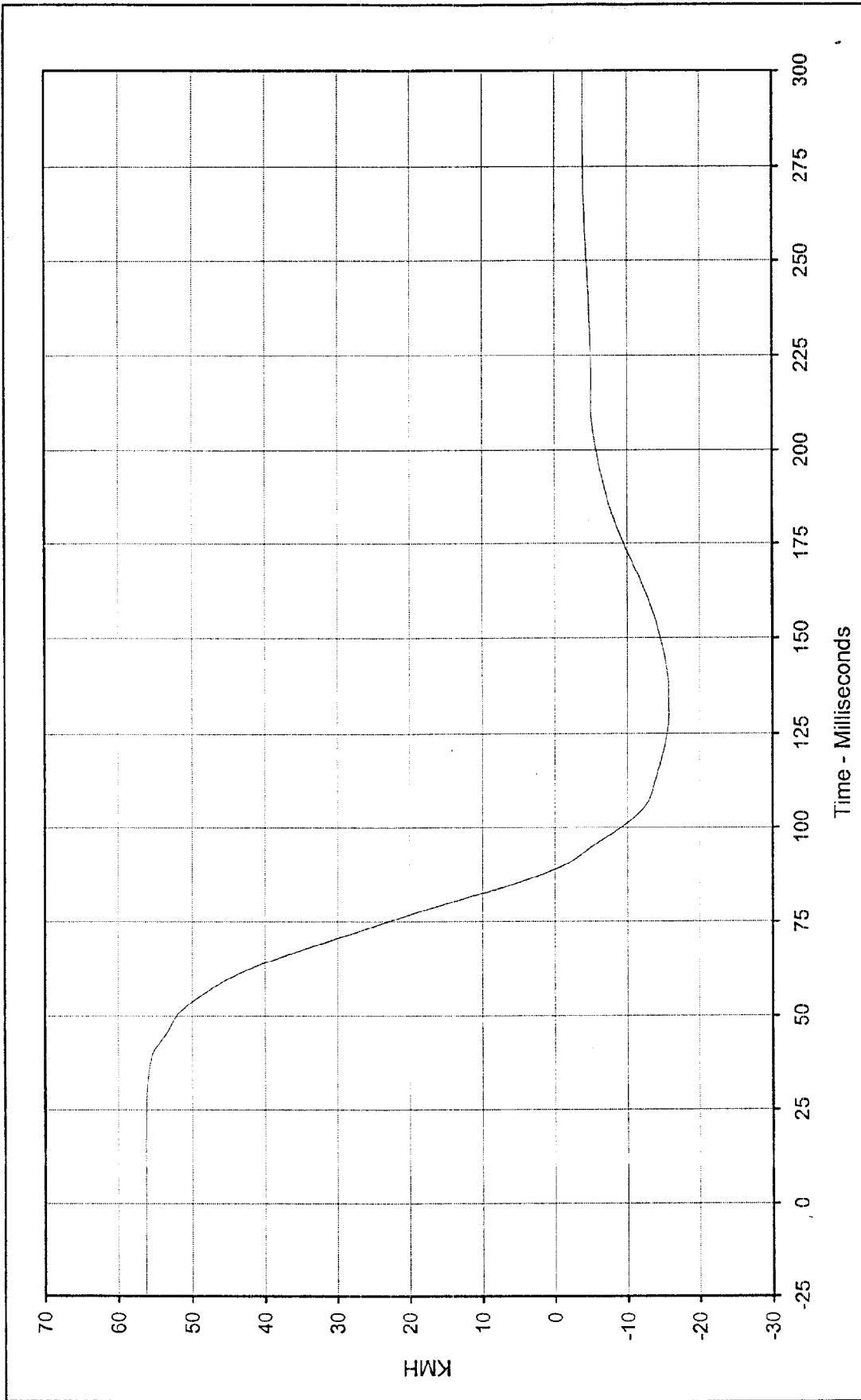
SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: RES-057



Curve Description: Passenger Chest Redundant X
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 6.8 at 172.3 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -53.1 at 82.0 Milliseconds



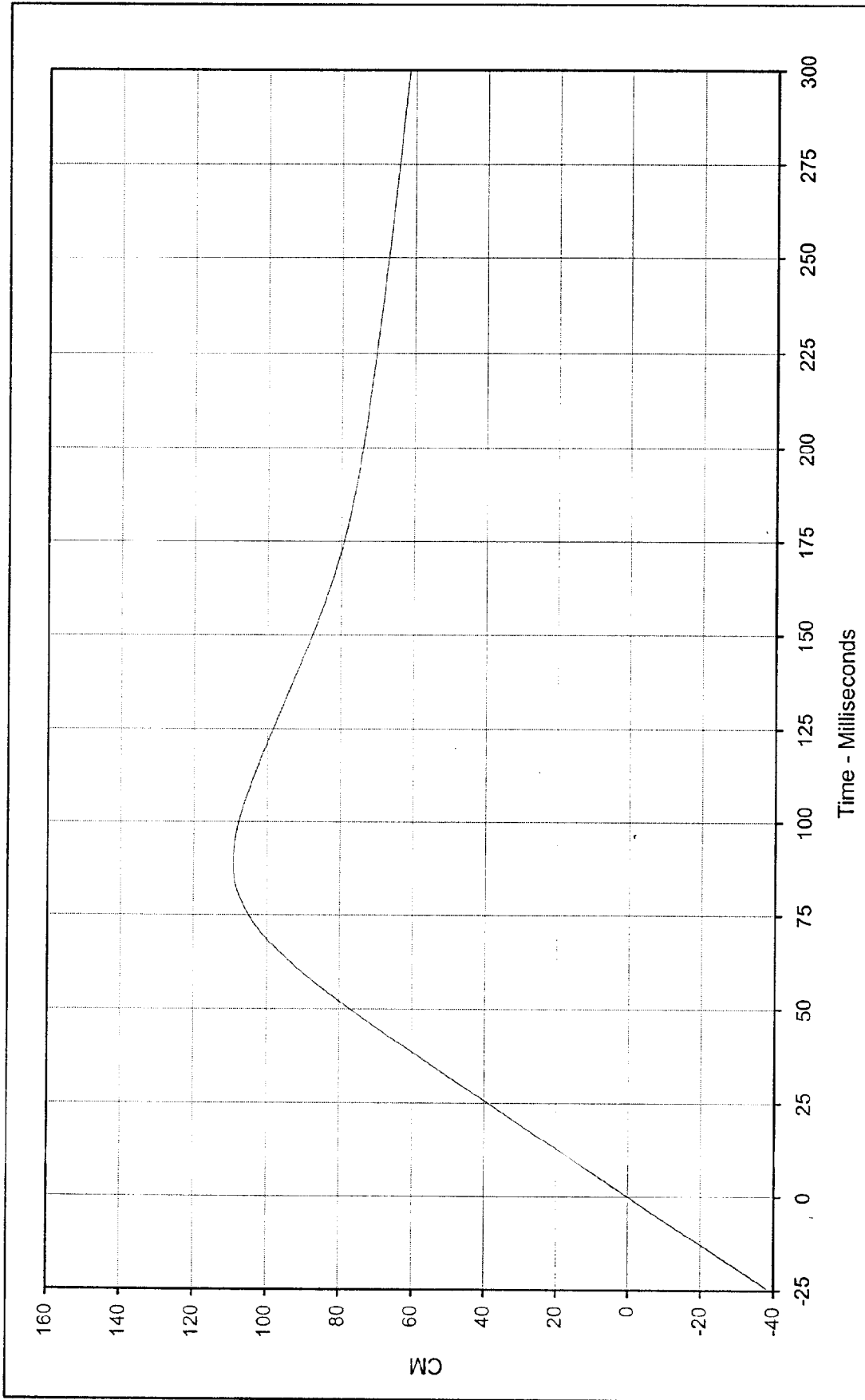
SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-060



Curve Description: Passenger Chest Redundant X Velocity
 Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 56.3 at 5.4 Milliseconds
 Minimum Value: -15.8 at 130.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-060

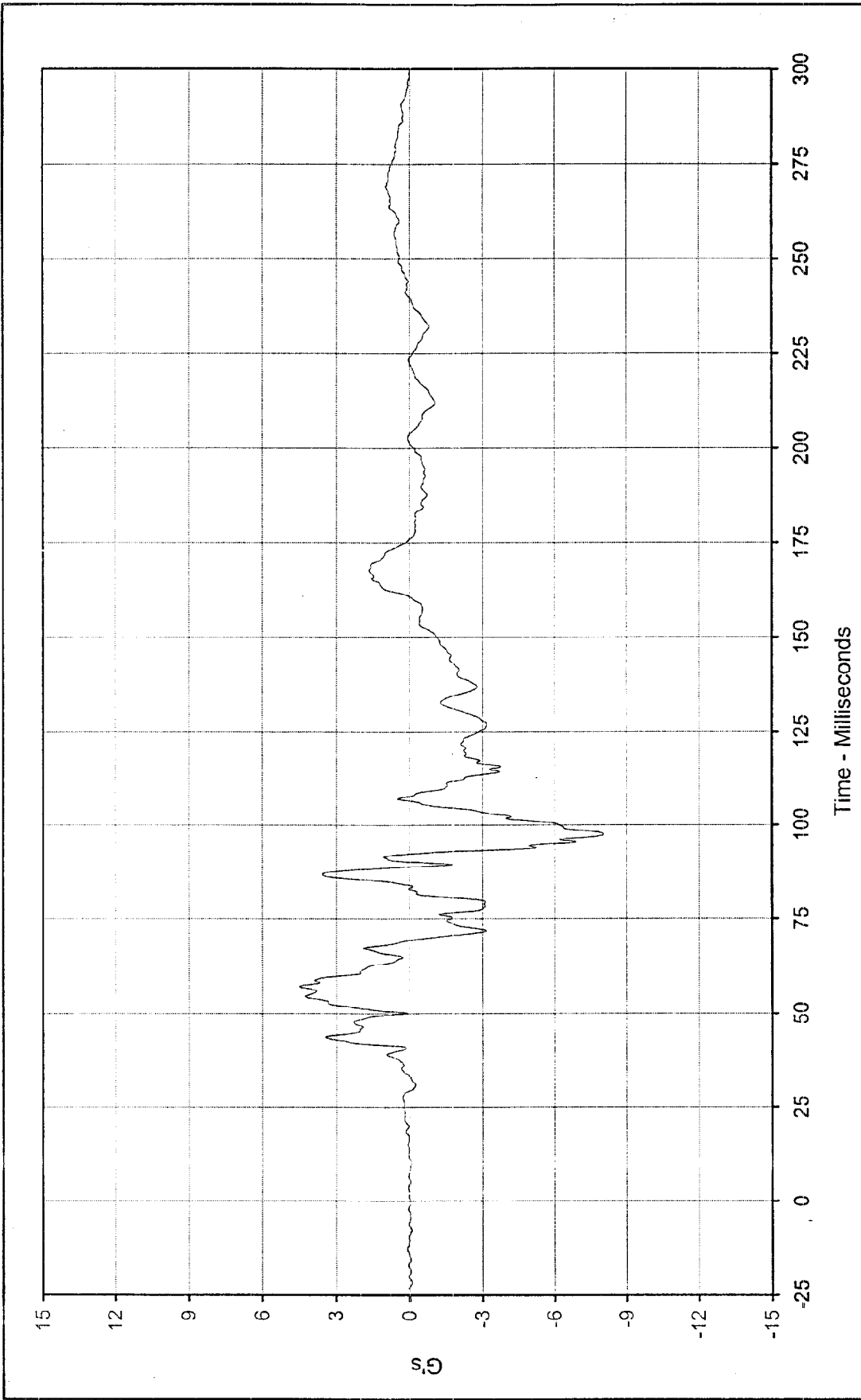




Curve Description: Passenger Chest Redundant X Displ.
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 109.2 at 88.9 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds



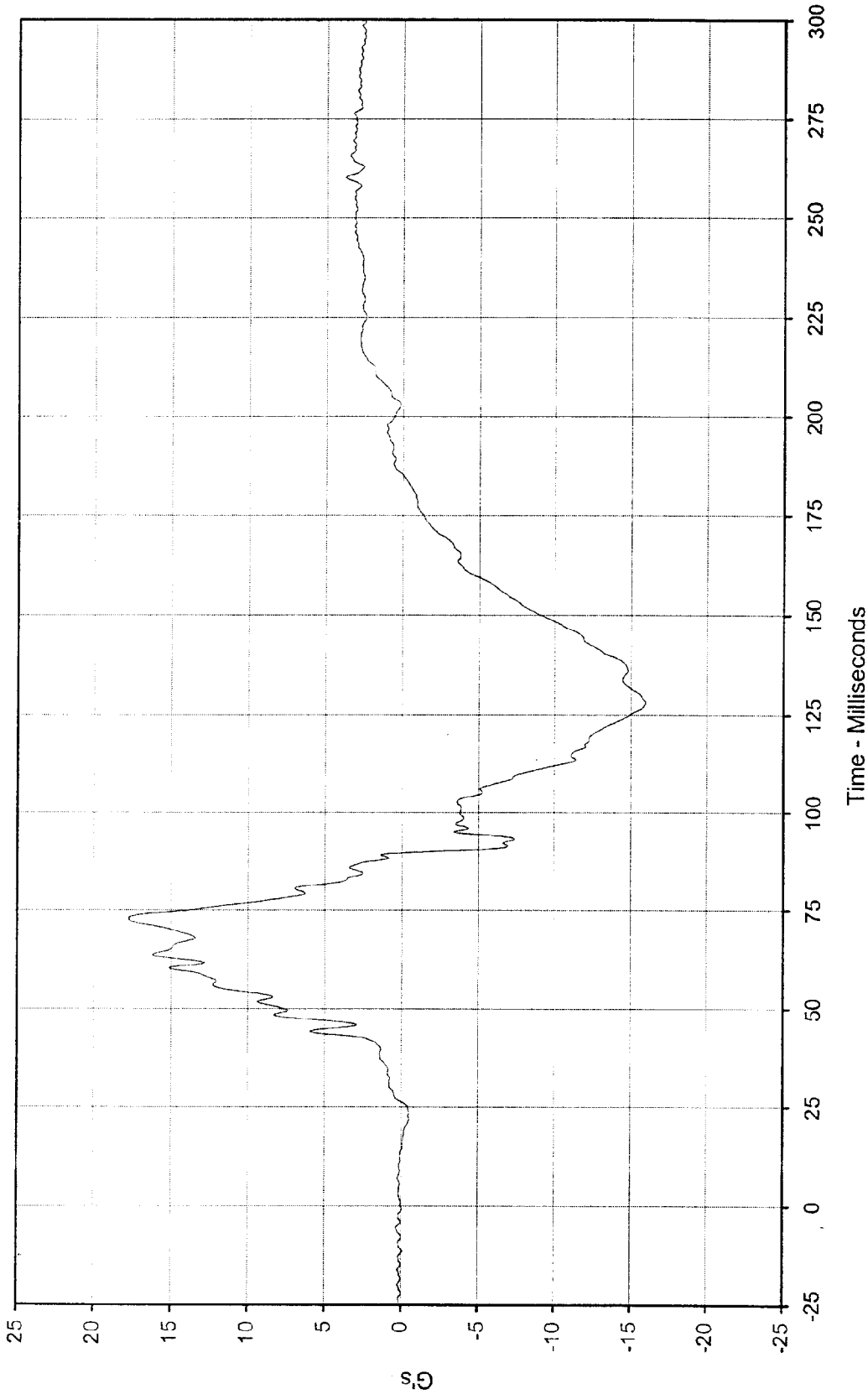
SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN2-060



Curve Description: Passenger Chest Redundant Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 4.5 at 57.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -8.0 at 97.5 Milliseconds



SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: FIL-061



Curve Description: Passenger Chest Redundant Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 17.7 at 72.9 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

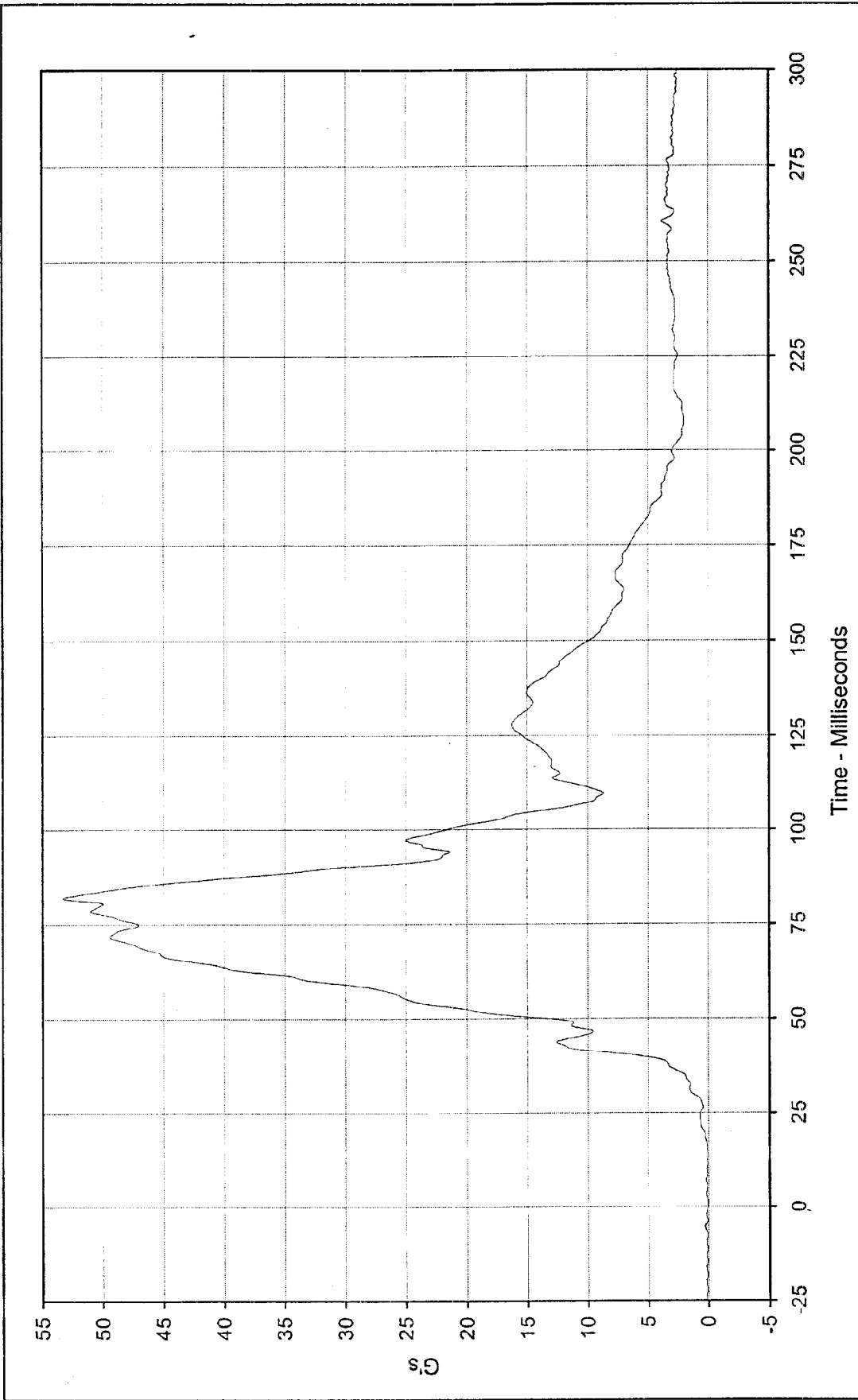
Minimum Value: -16.0 at 128.2 Milliseconds

SAE Filter Class: 180

Date of Test: 1/5/99

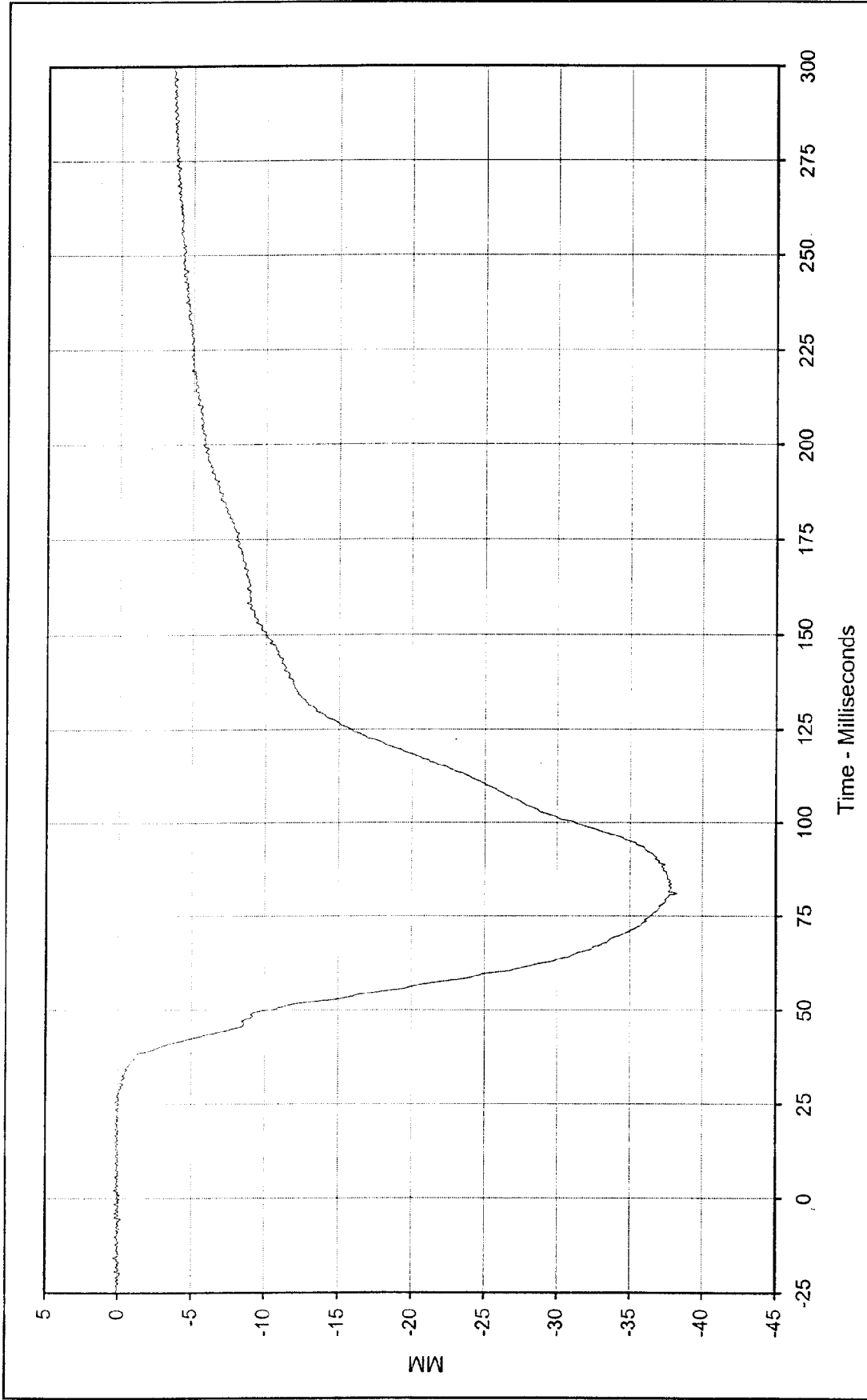
Curve Number: FIL-062





Curve Description: Passenger Chest Resultant Redundant Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 53.3 at 81.9 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 1.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: RES-060





Curve Description: Passenger Chest Displacement X

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 0.3 at 2.2 Milliseconds

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

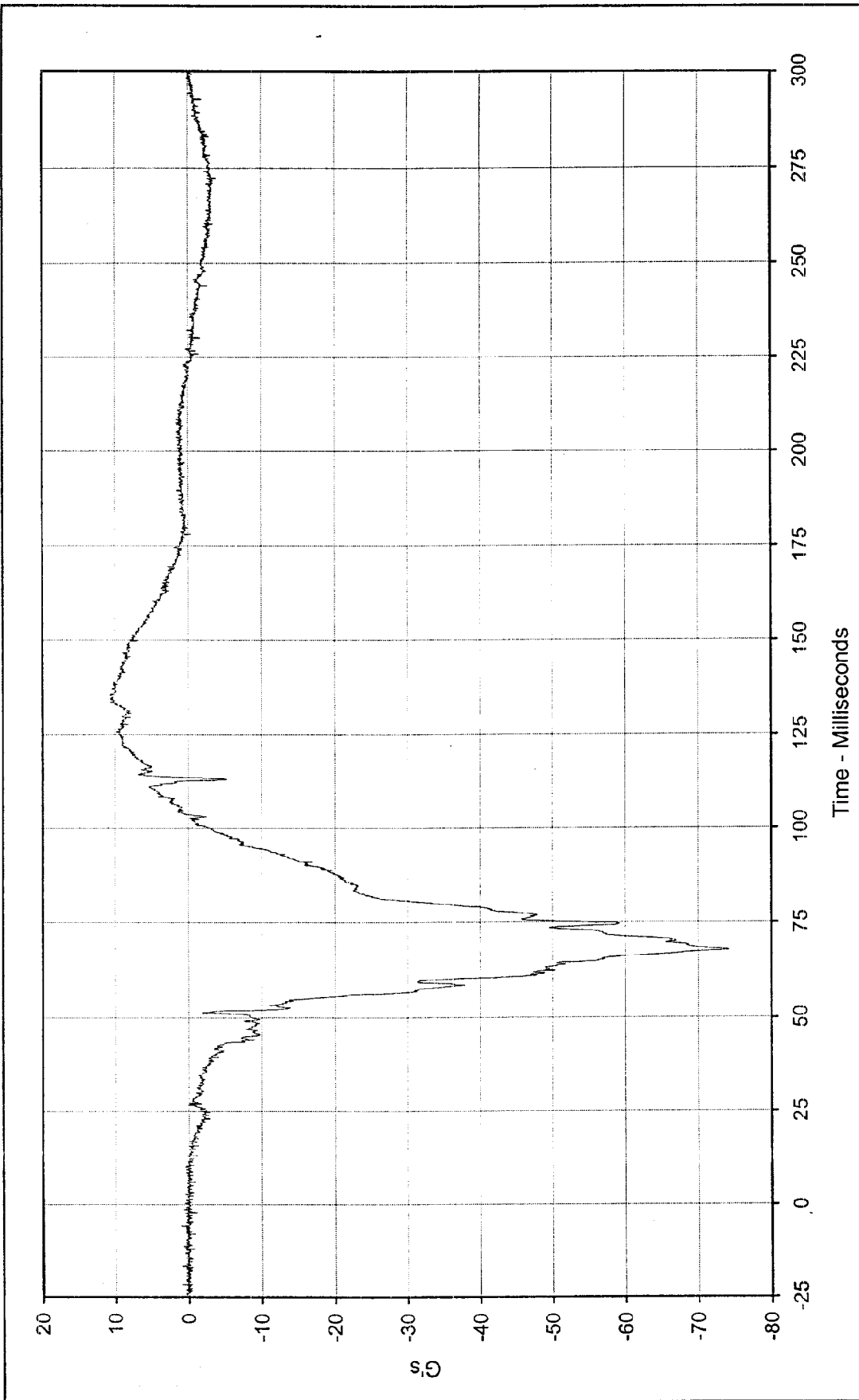
Minimum Value: -38.3 at 80.7 Milliseconds

SAE Filter Class: 600

Date of Test: 1/5/99

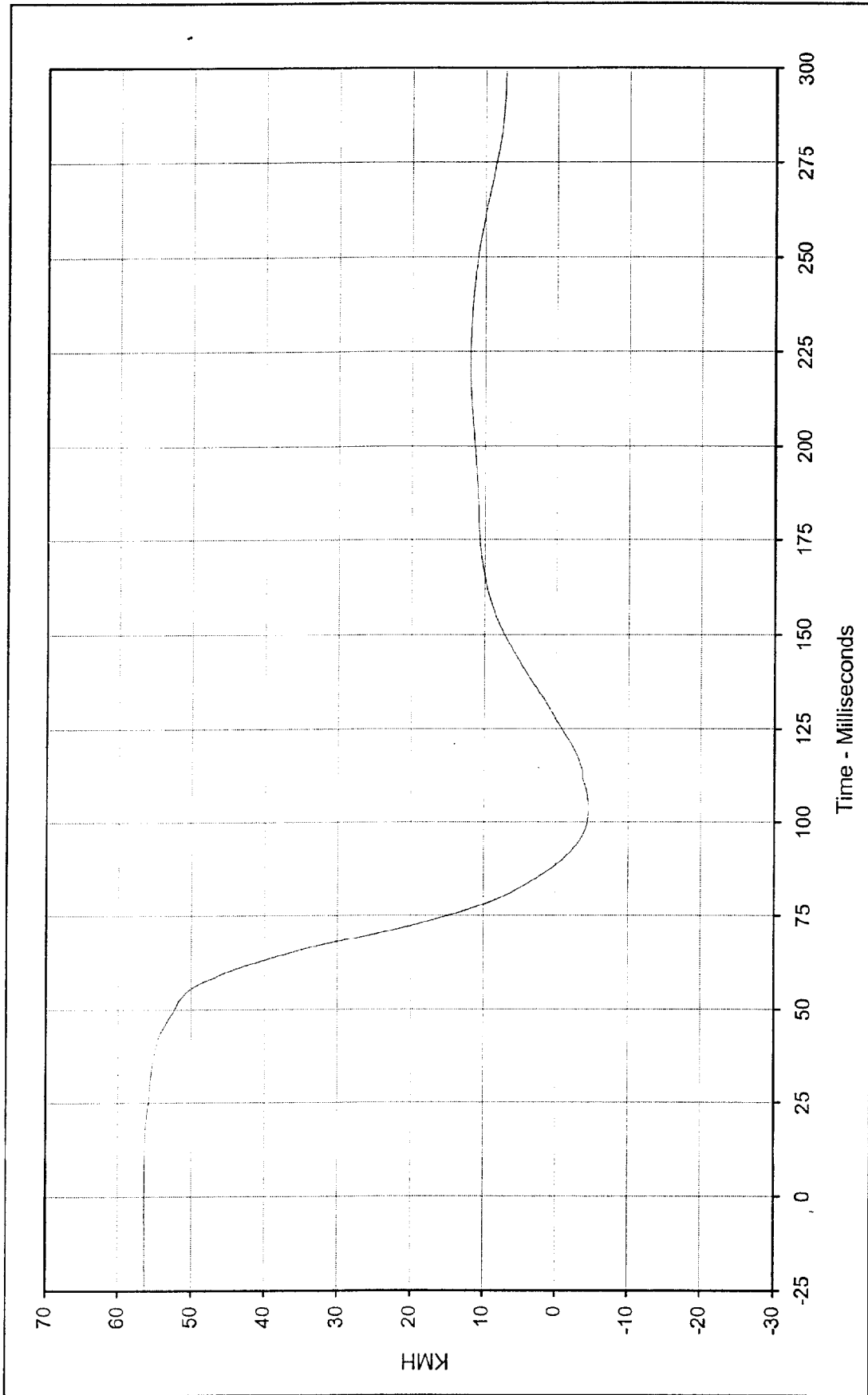
Curve Number: FIL-063





Curve Description:	Passenger Pelvis X	Test Program:	1999 NHTSA 35 mph NCAP	No.:	MX0106	
Maximum Value:	10.7	at	133.4	Milliseconds	Test Vehicle:	1999 Chevrolet Tahoe LS SUV
Minimum Value:	-74.2	at	67.8	Milliseconds		
SAE Filter Class:	1000					
Date of Test:	1/5/99					
Curve Number:	FIL-064					

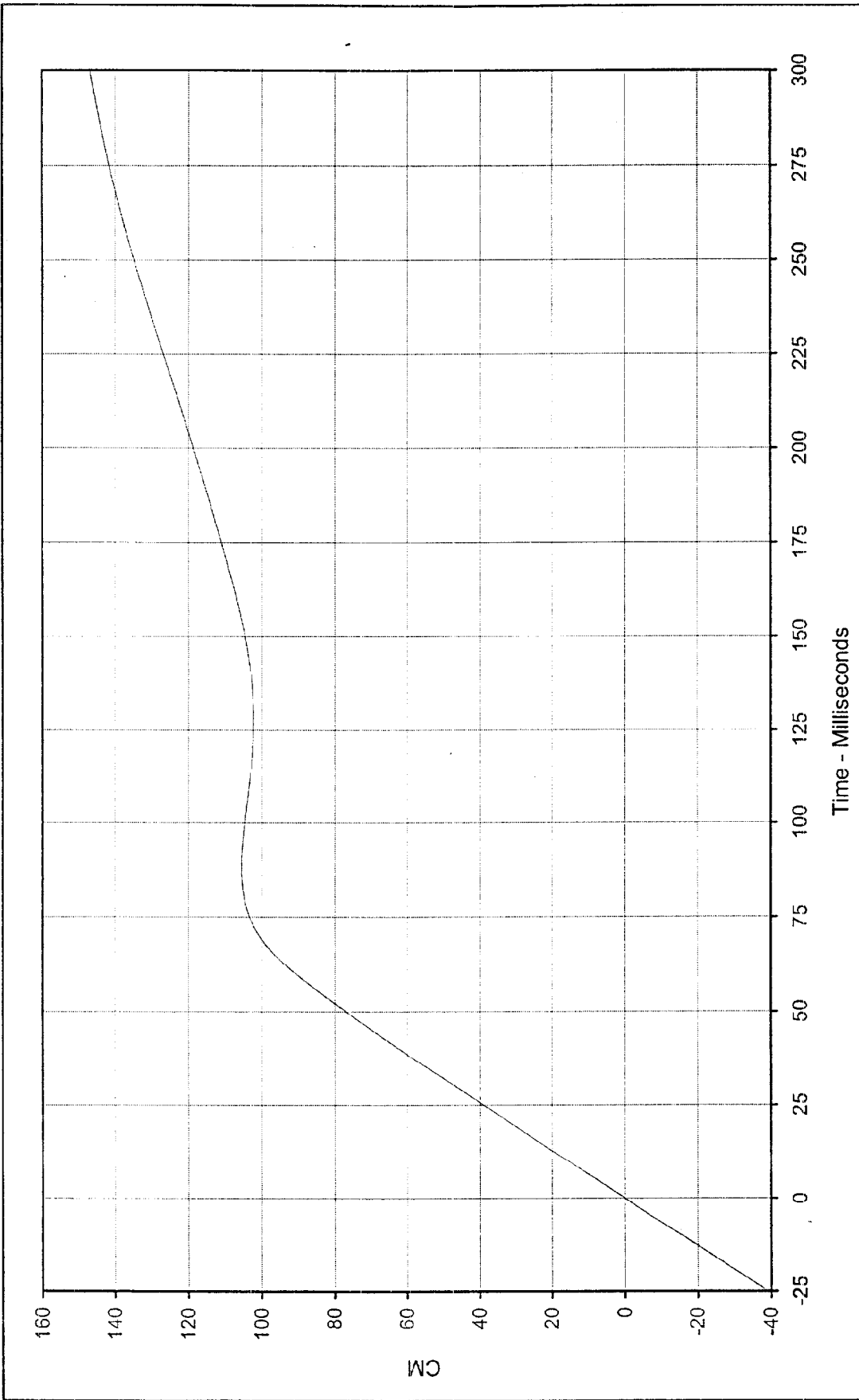




Curve Description: Passenger Pelvis X Velocity
 Maximum Value: 56.3 at 2.1 Milliseconds
 Minimum Value: -4.5 at 103.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-064

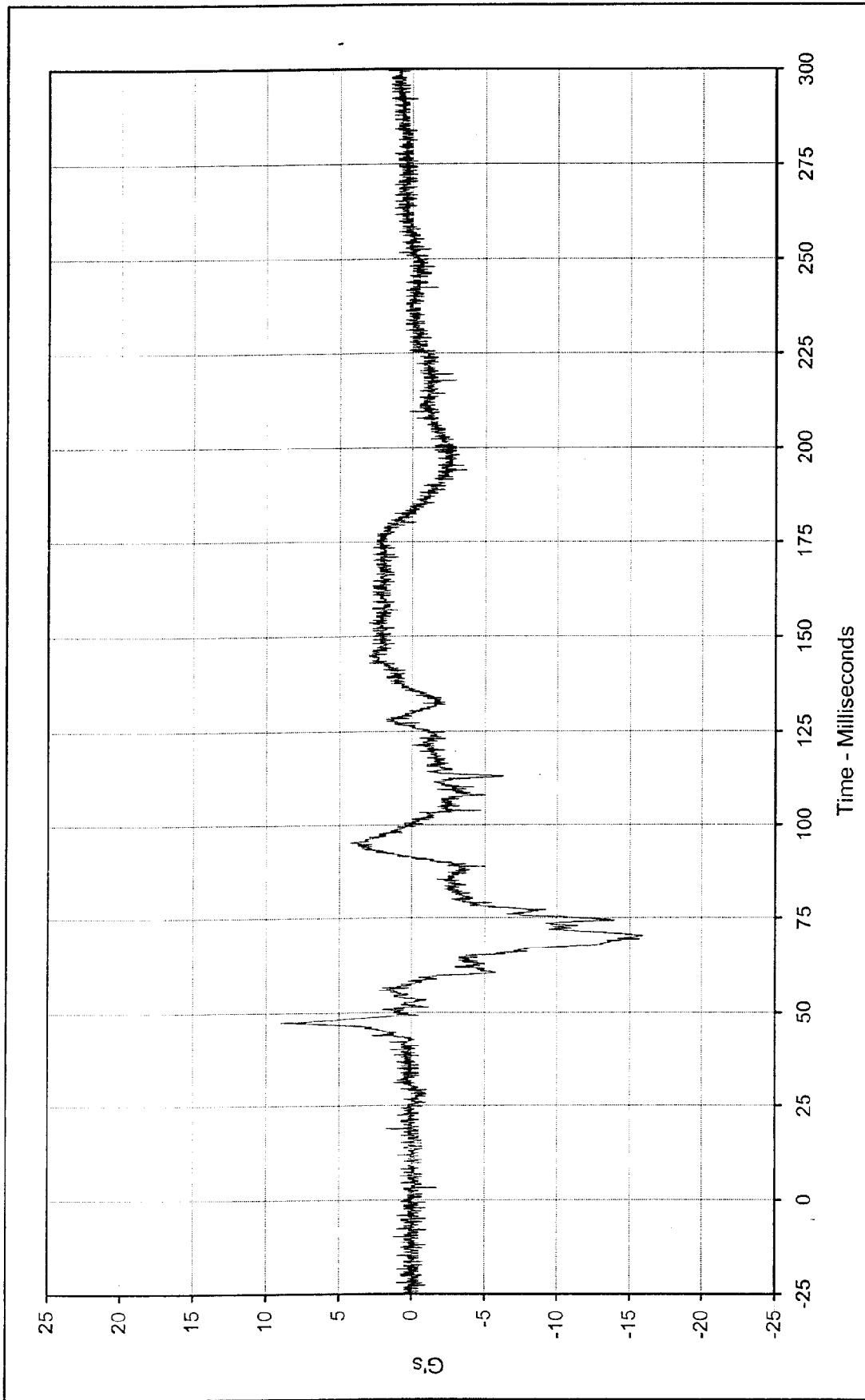
Testing Program 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Pelvis X Displ. Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 147.0 at 299.9 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN2-064

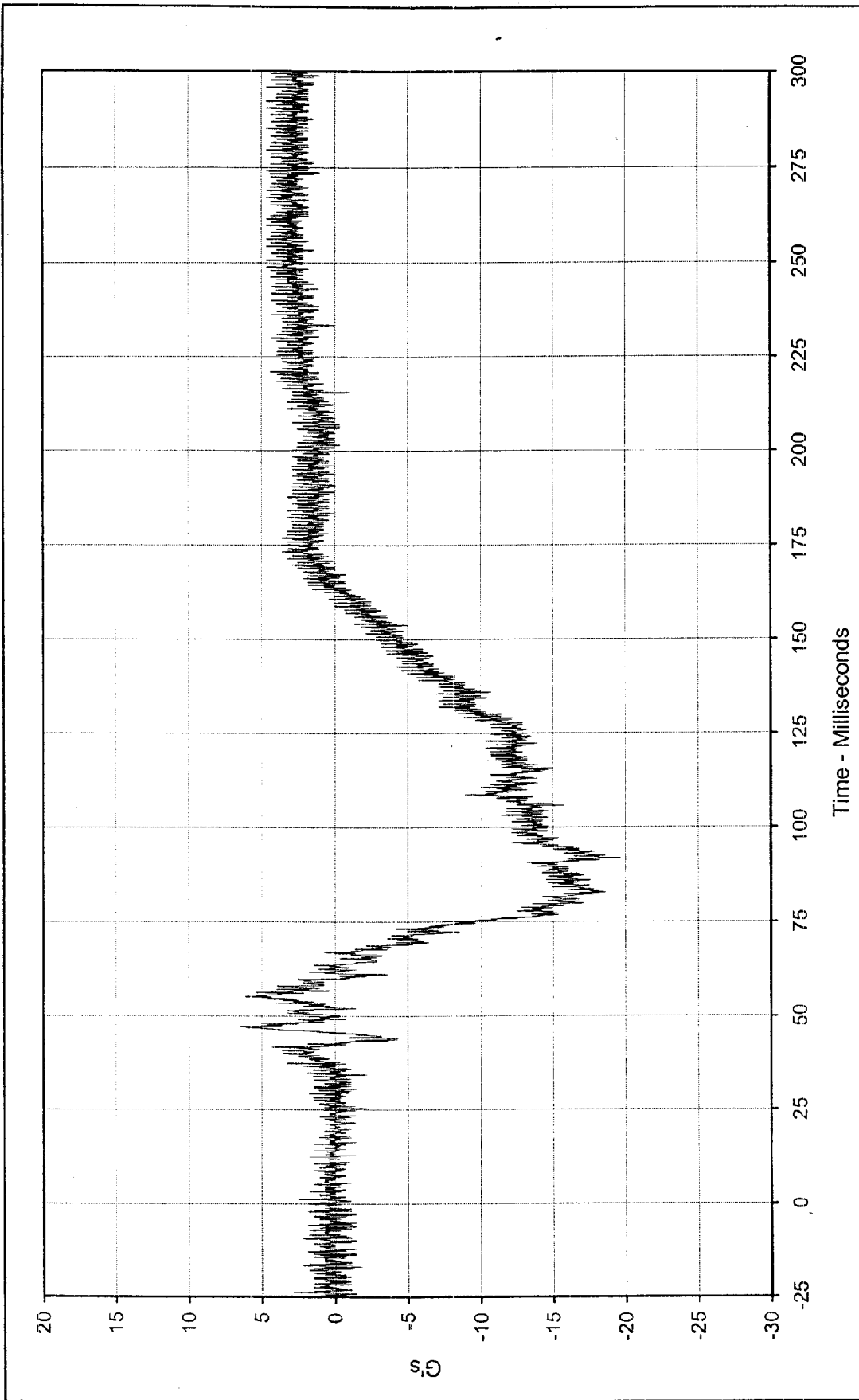




Curve Description: Passenger Pelvis Y
 Maximum Value: 9.0 at 47.5 Milliseconds
 Minimum Value: -15.9 at 70.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-065

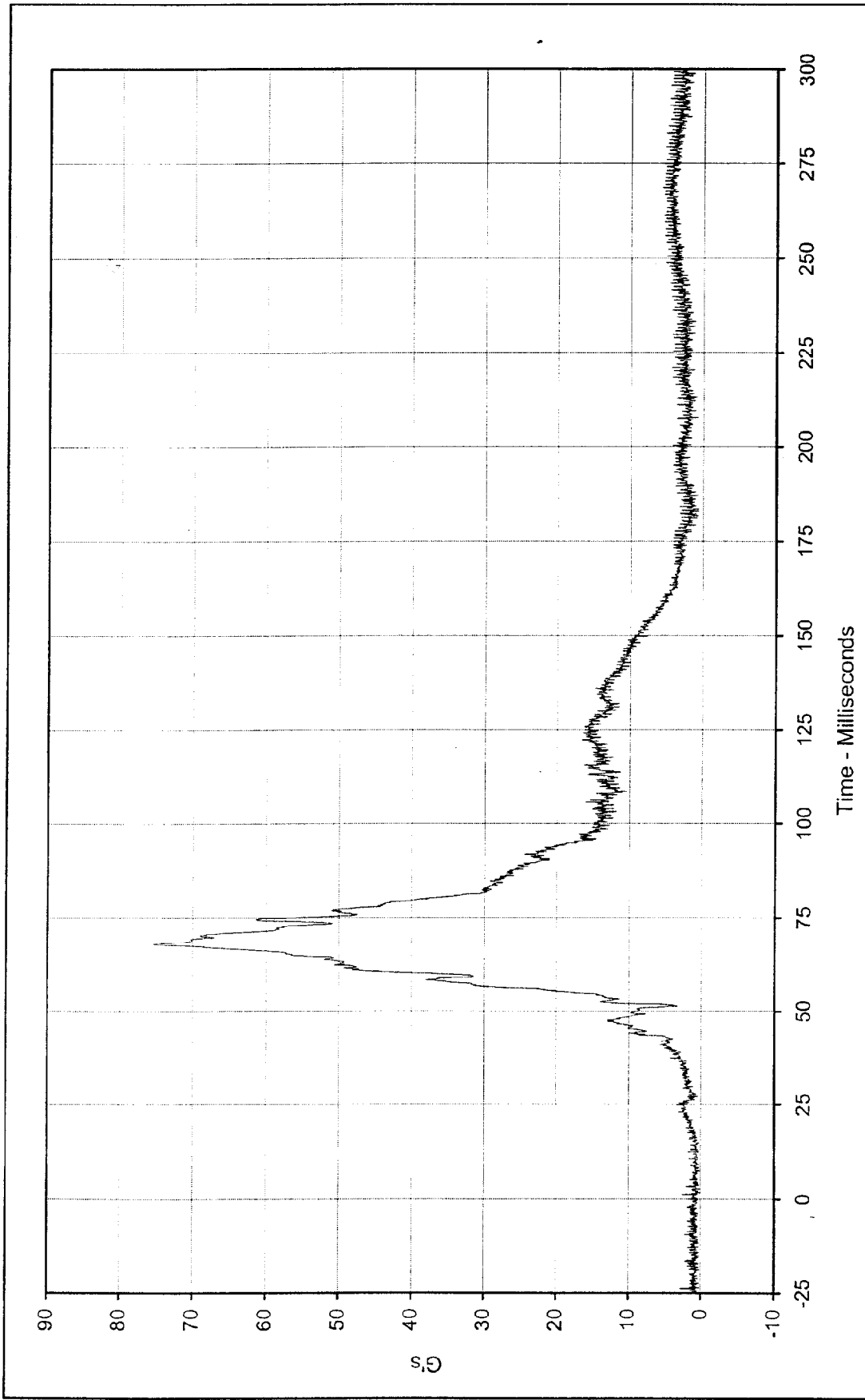
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Pelvis Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 6.4 at 47.3 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -19.6 at 91.7 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-066





Curve Description: Passenger Pelvis Resultant Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 75.4 at 67.8 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

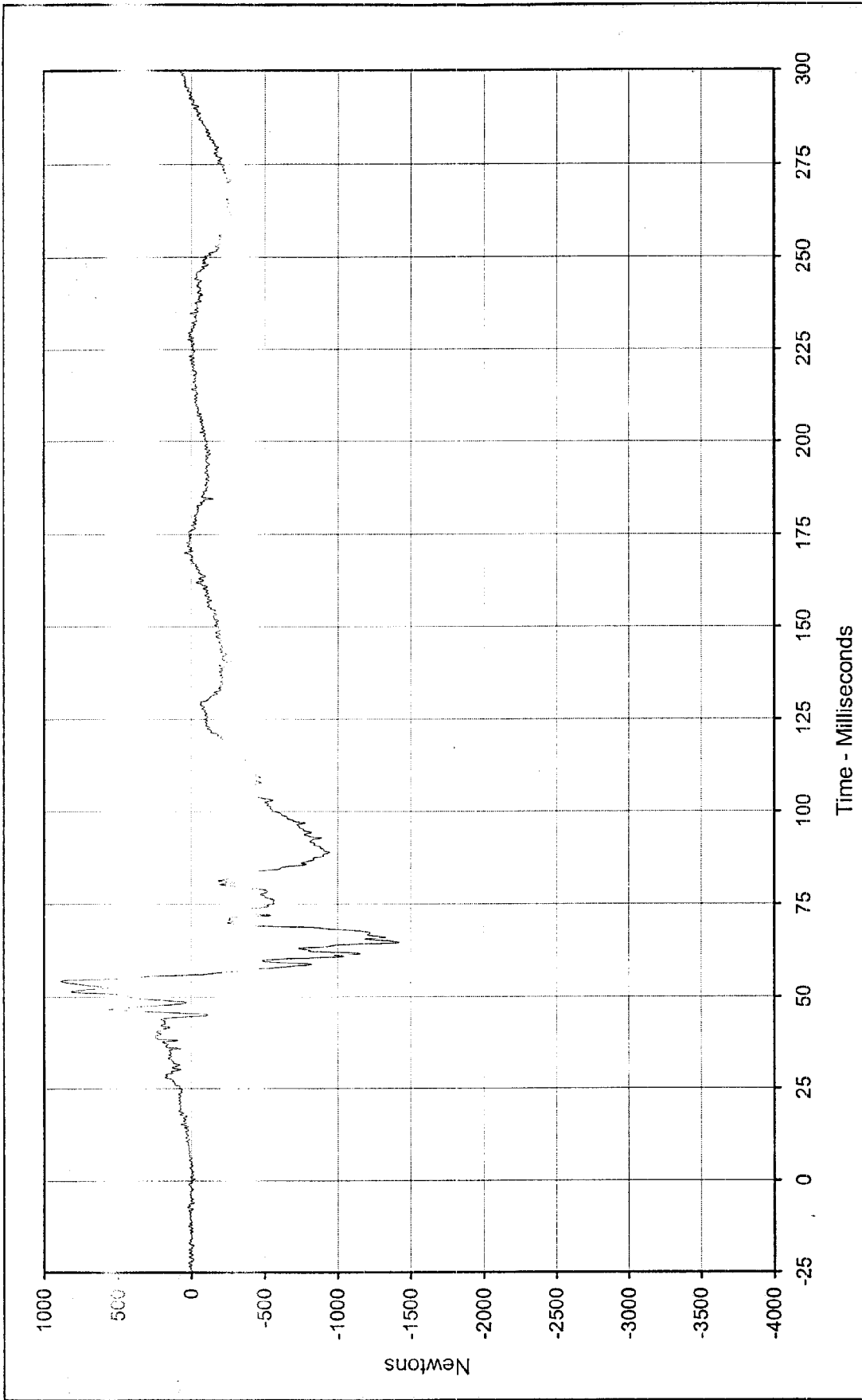
Minimum Value: 0.0 at 1.6 Milliseconds

SAE Filter Class: 1000

Date of Test: 1/5/99

Curve Number: RES-064

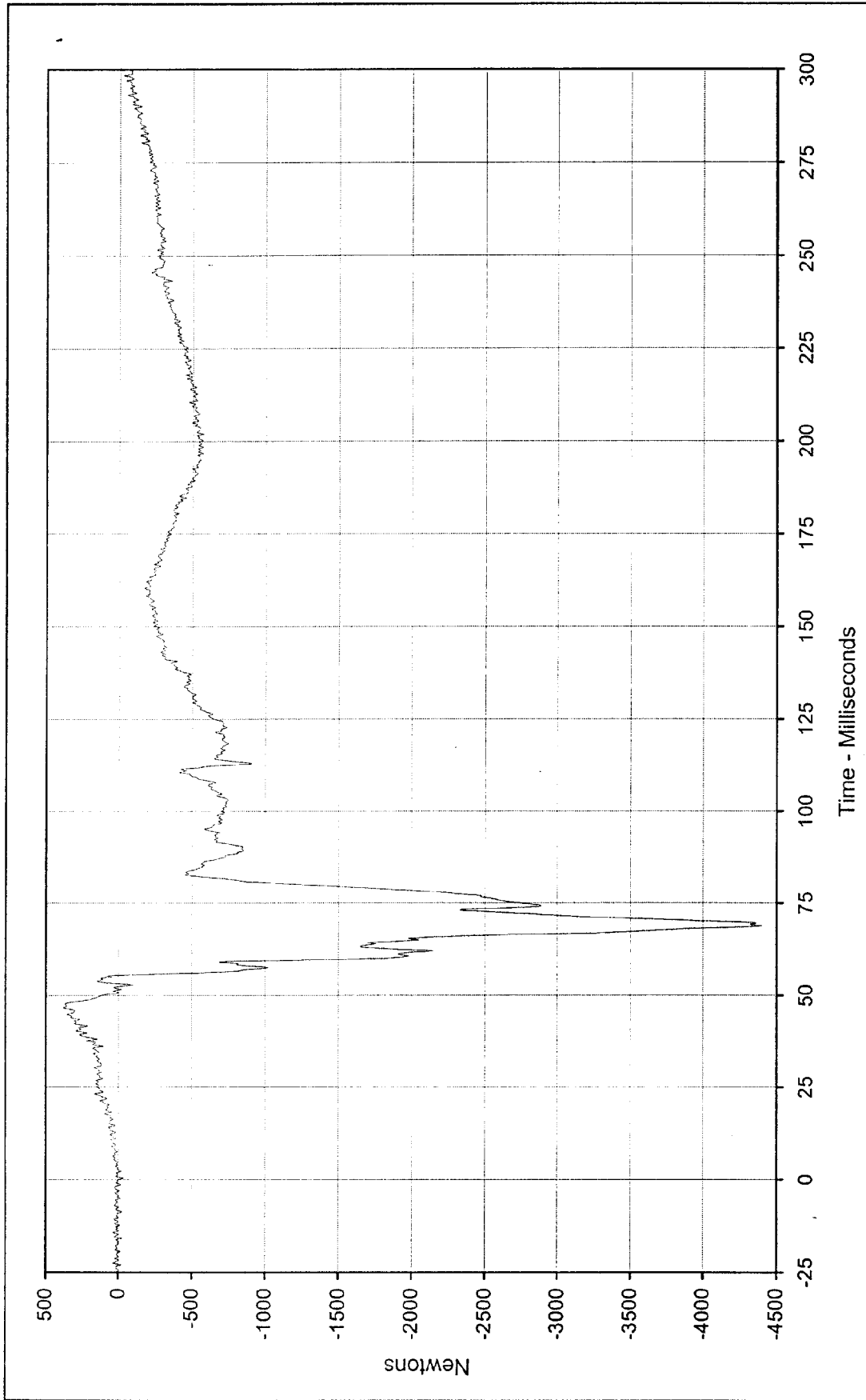




Curve Description: Passenger Left Femur Force Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 888.0 at 54.4 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -1423.9 at 64.8 Milliseconds



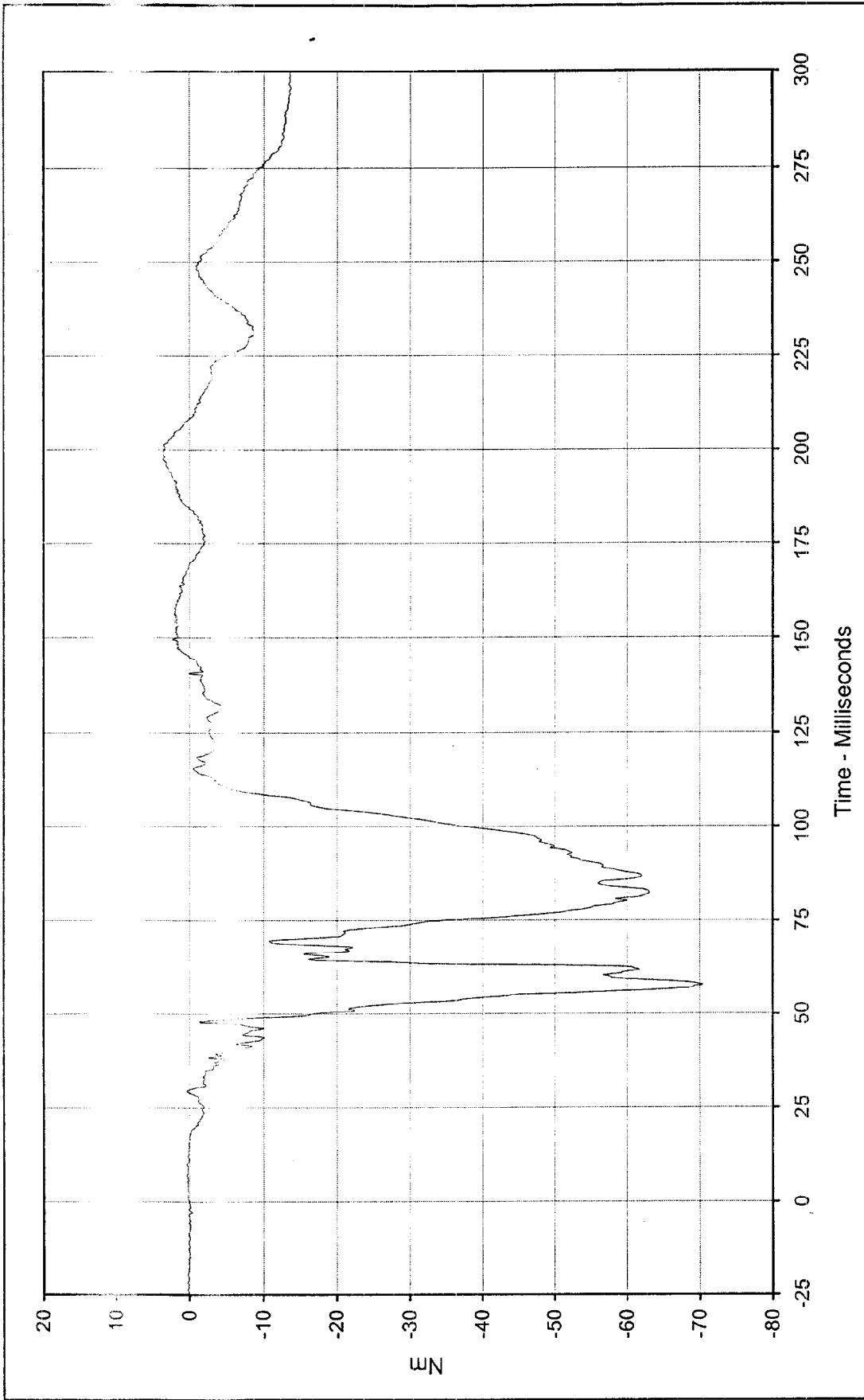
SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-067



Curve Description: Passenger Right Femur Force
 Maximum Value: 378.1 at 46.8 Milliseconds
 Minimum Value: -4403.8 at 69.0 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-068

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

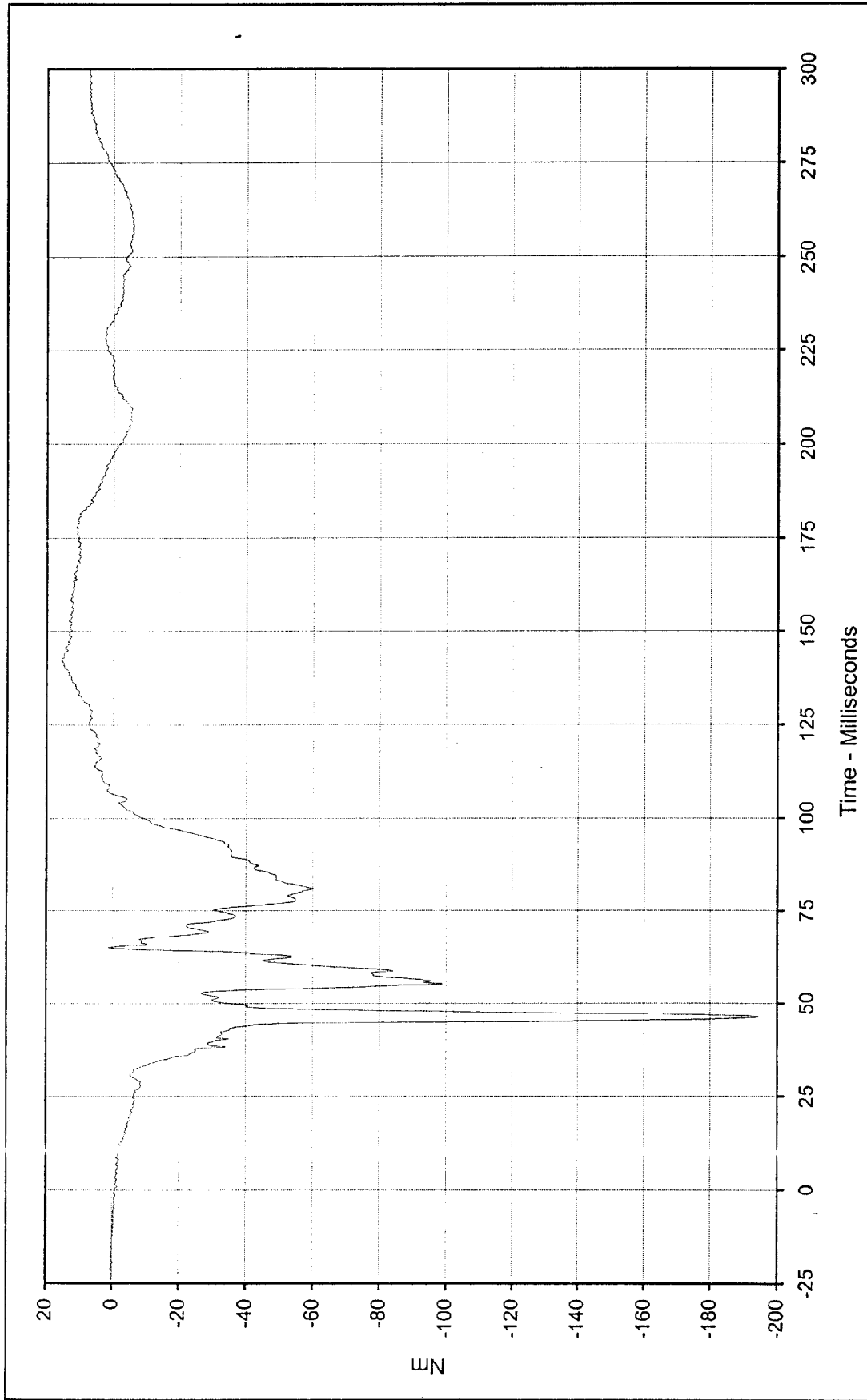




Curve Description: Passenger Left Upper Tibia Moment X
 Maximum Value: 4.0 at 197.7 Milliseconds
 Minimum Value: -70.5 at 57.6 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-069

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Left Upper Tibia Moment Y

Maximum Value: 15.5 at 141.8 Milliseconds

Minimum Value: -194.4 at 46.3 Milliseconds

SAE Filter Class: 600

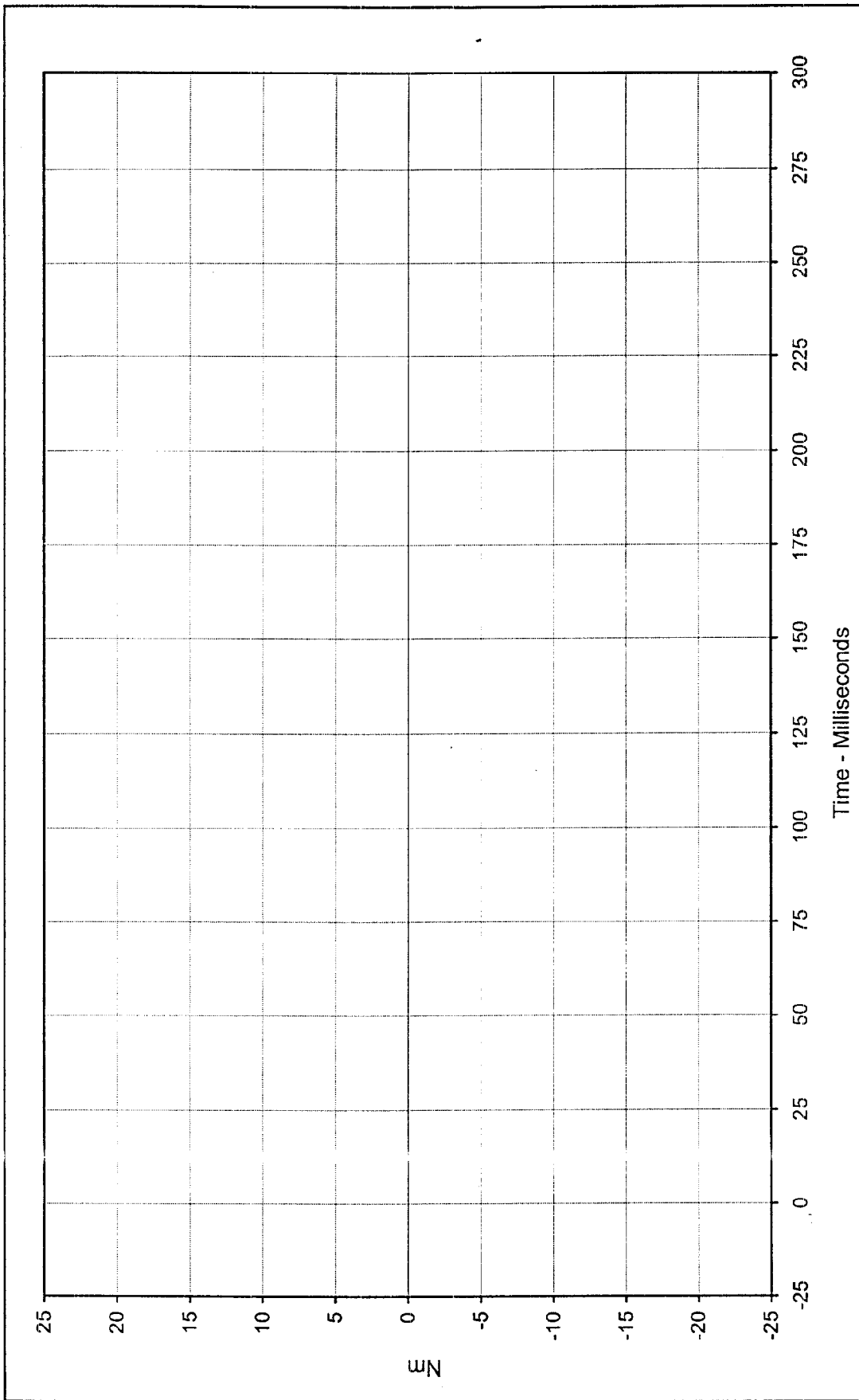
Date of Test: 1/5/99

Curve Number: FIL-070

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Right Upper Tibia Moment X * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Minimum Value: 0.0 at 0.0 Milliseconds

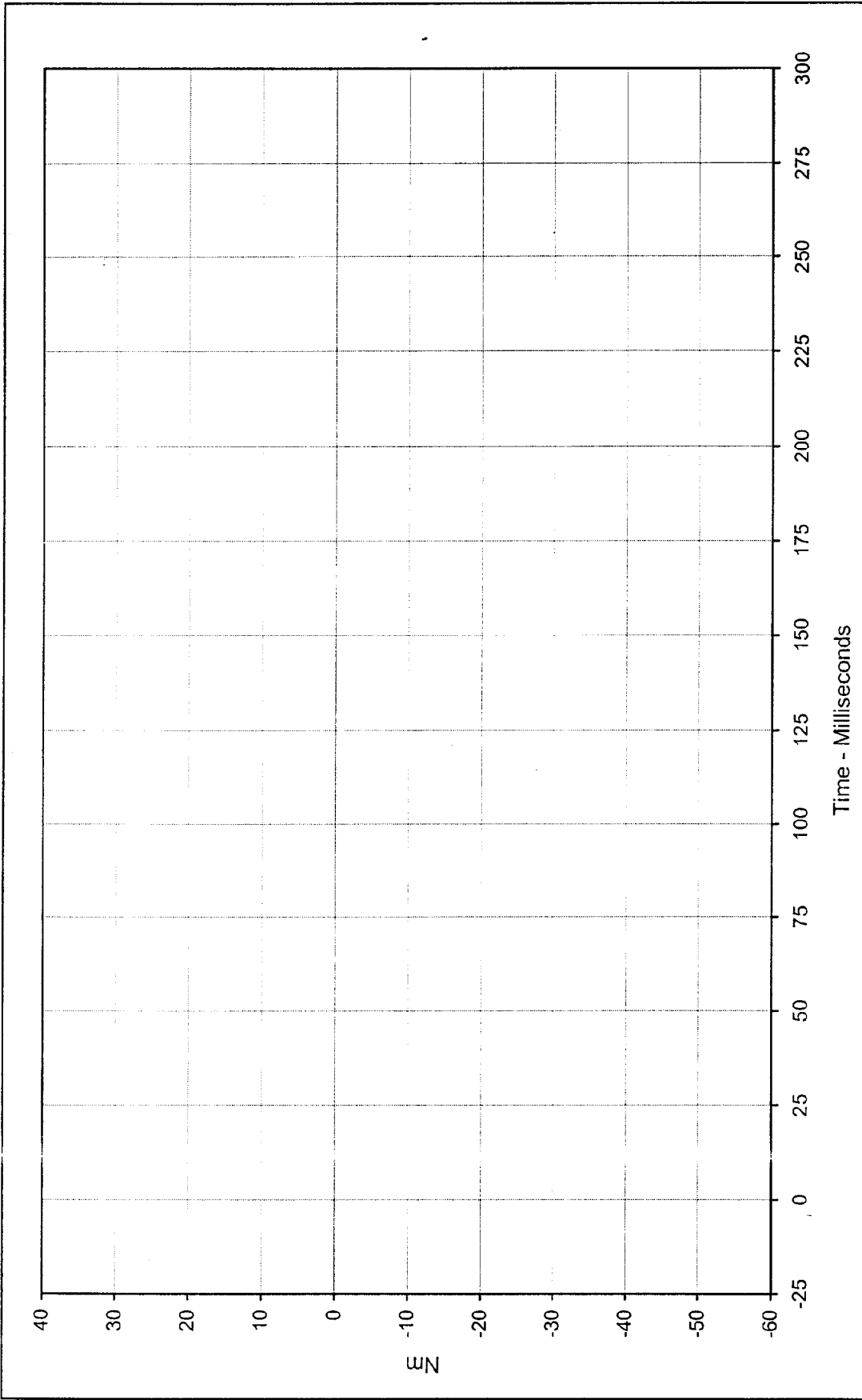
SAE Filter Class: 600

Date of Test: 1/5/99

Curve Number: FIL-071



* No Data Collected



Curve Description: Passenger Right Upper Tibia Moment Y * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Minimum Value: 0.0 at 0.0 Milliseconds

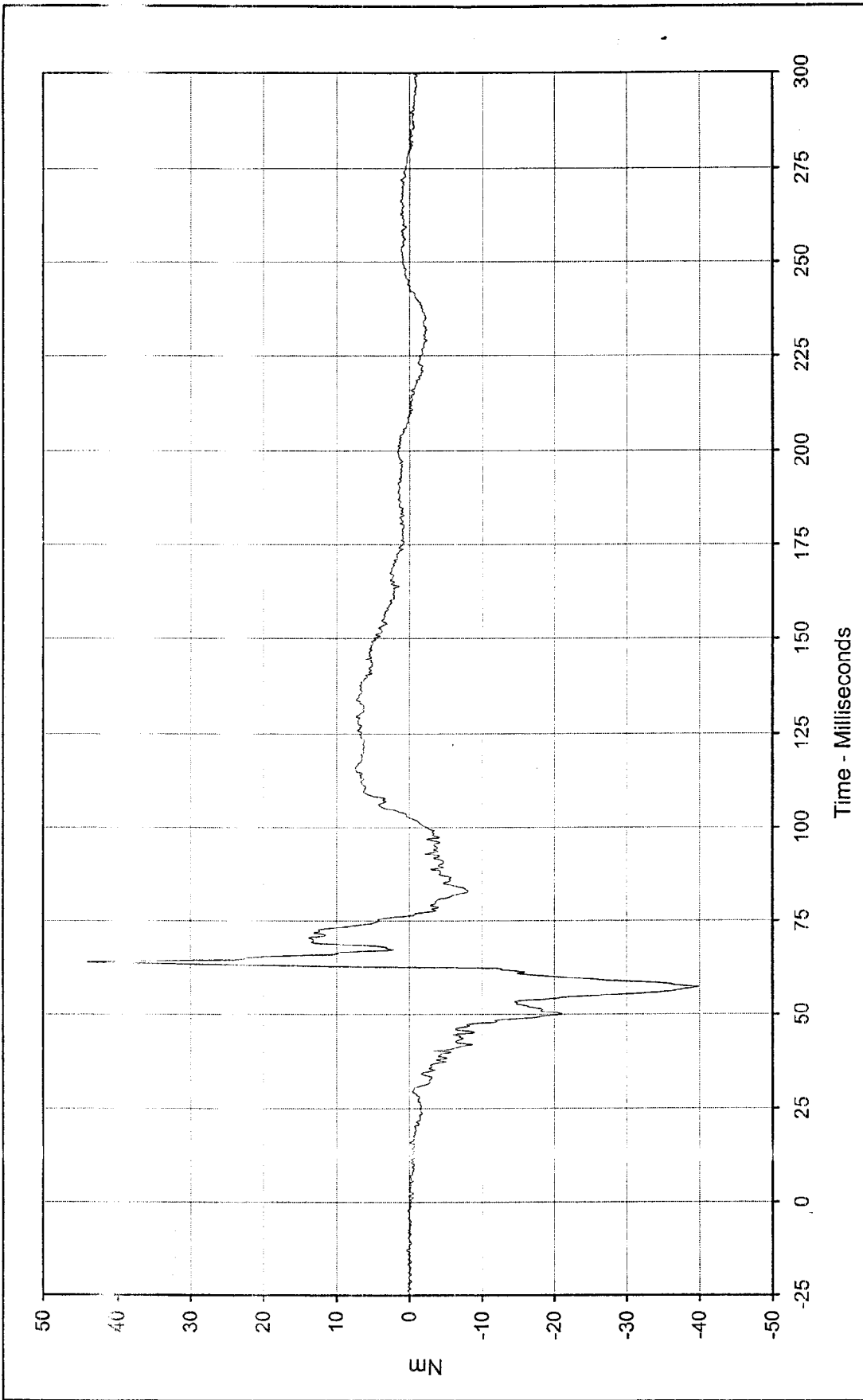
SAE Filter Class: 600

Date of Test: 1/5/99

Curve Number: FIL-C72

* No Data Collected





Curve Description: Passenger Left Lower Tibia Moment X

Maximum Value: 43.9 at 63.8 Milliseconds

Minimum Value: -39.9 at 57.3 Milliseconds

SAE Filter Class: 60C

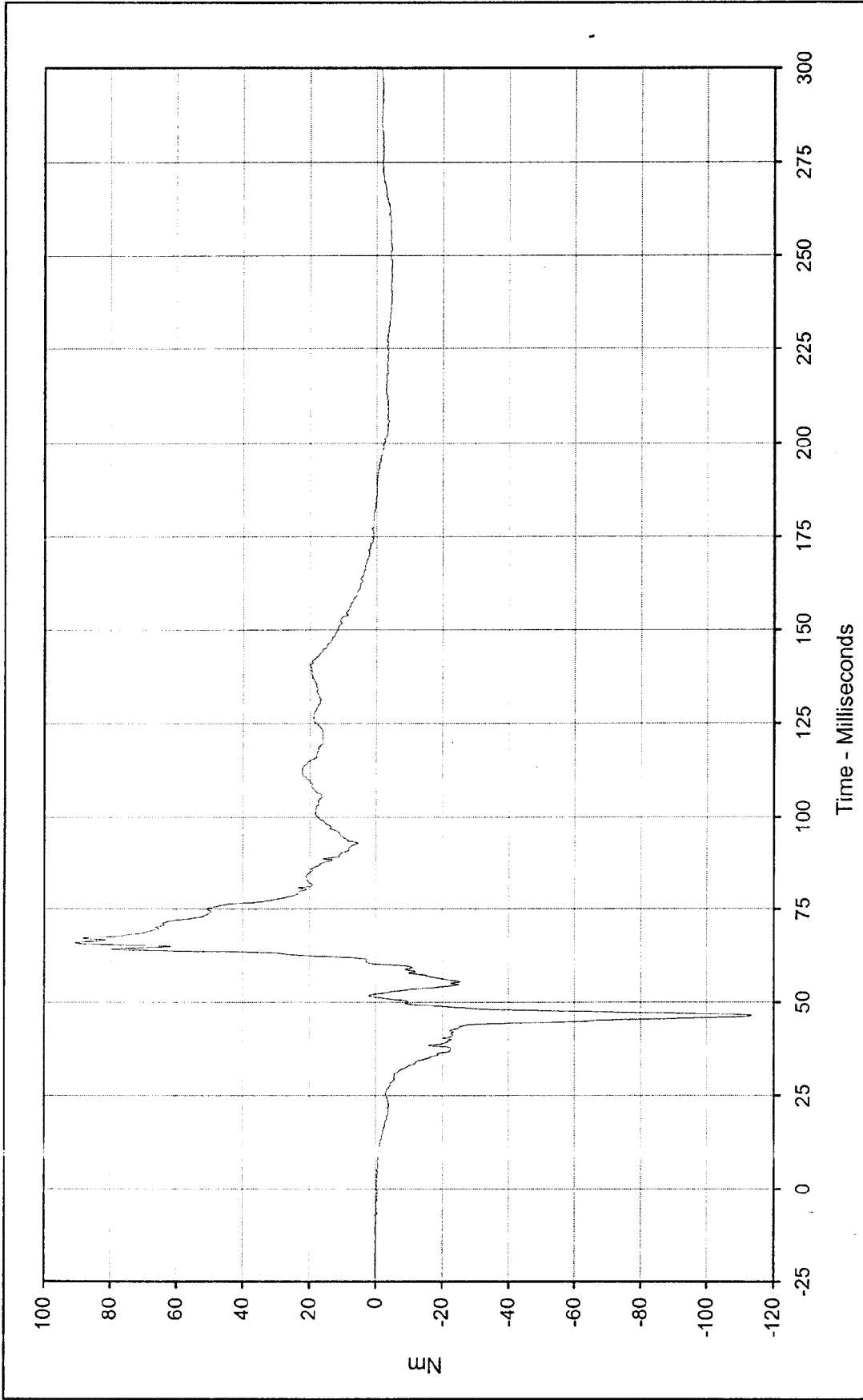
Date of Test: 1/5/99

Curve Number: FIL-073

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Left Lower Tibia Moment Y

Maximum Value: 90.6 at 65.9 Milliseconds

Minimum Value: -113.5 at 46.5 Milliseconds

SAE Filter Class: 600

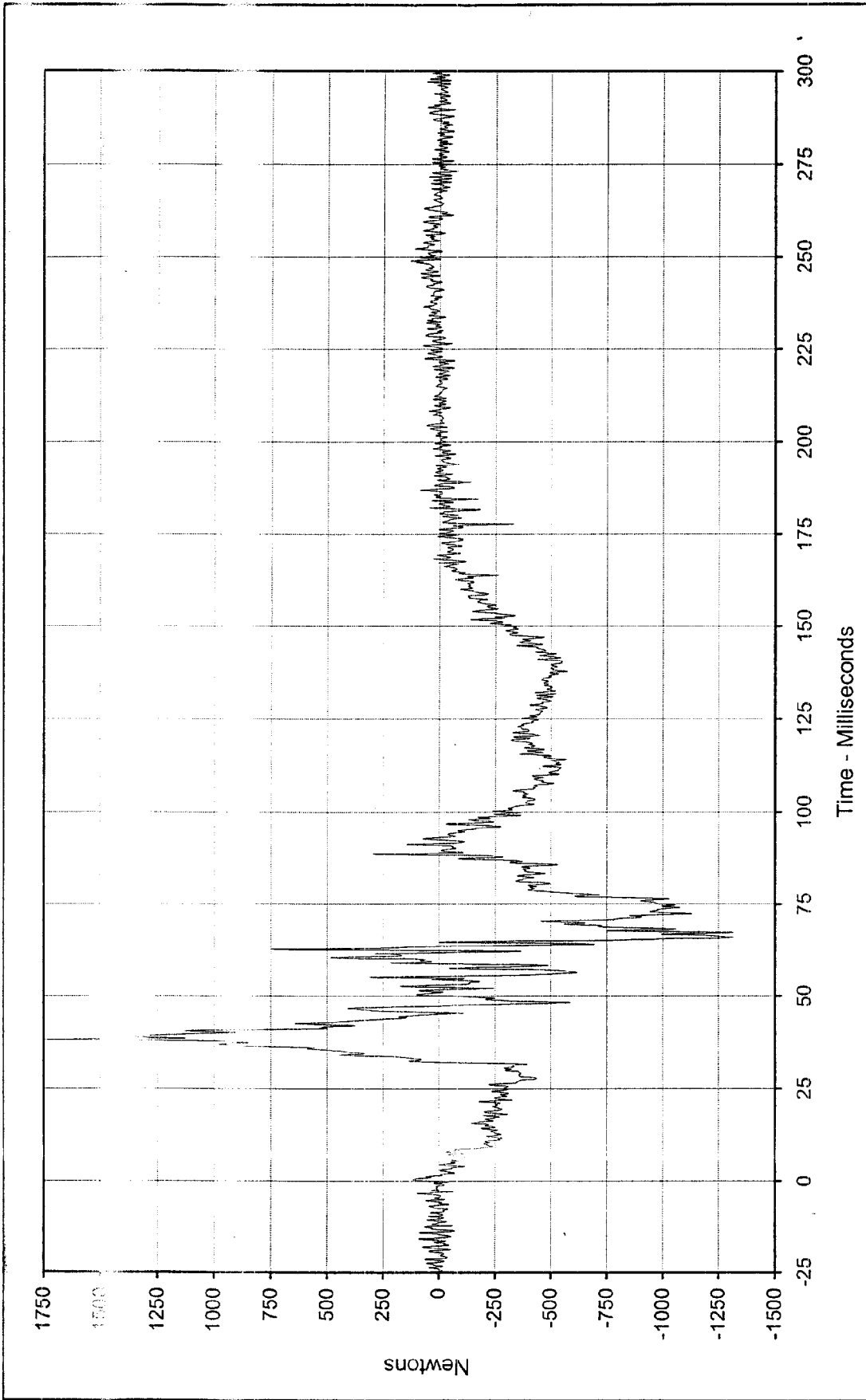
Date of Test: 1/5/99

Curve Number: FIL-C74

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Left Lower Tibia Force Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 1747.3 at 38.3 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

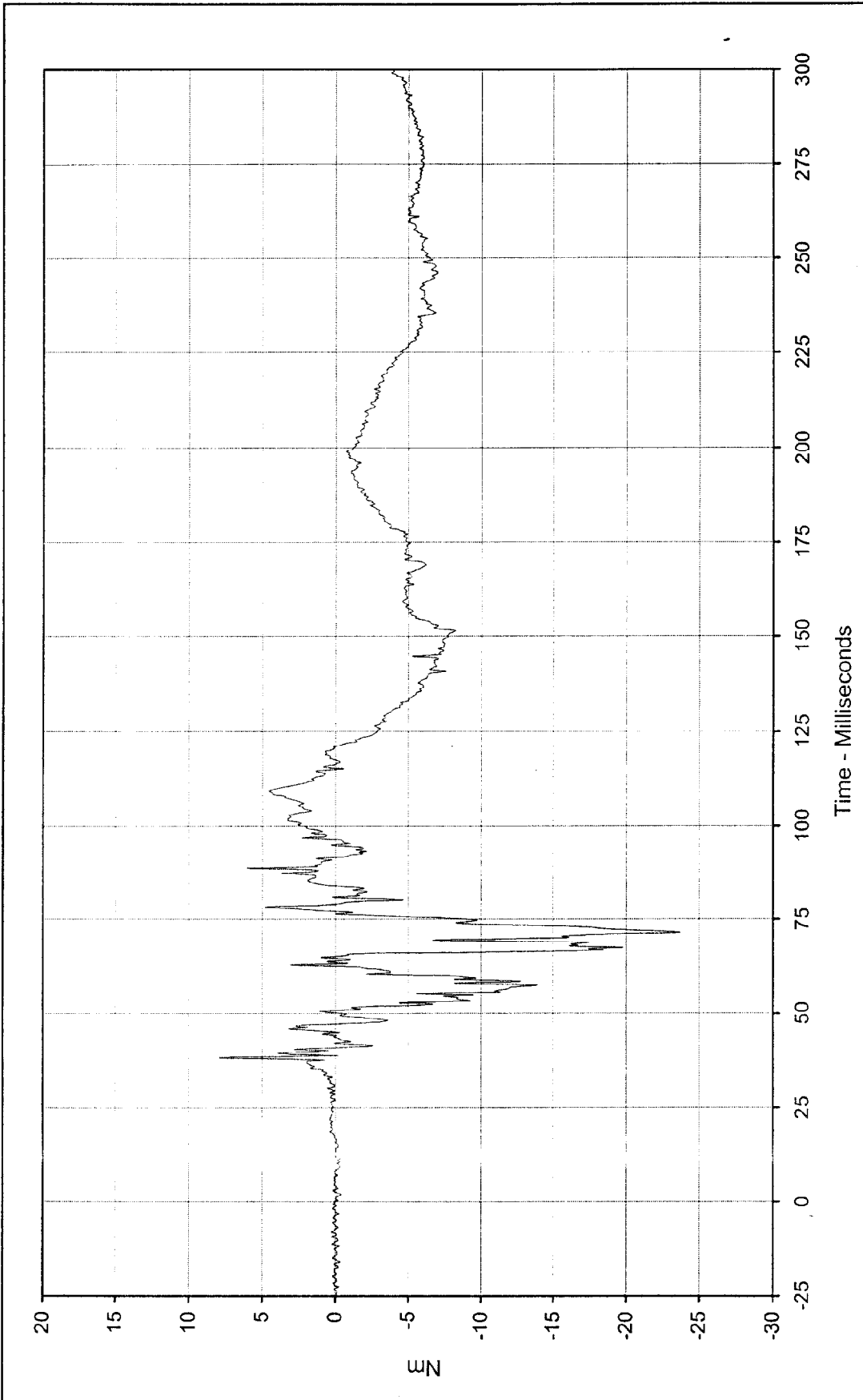
Minimum Value: -1315.9 at 67.2 Milliseconds

SAE Filter Class: 600

Date of Test: 1/5/99

Curve Number: FIL-075

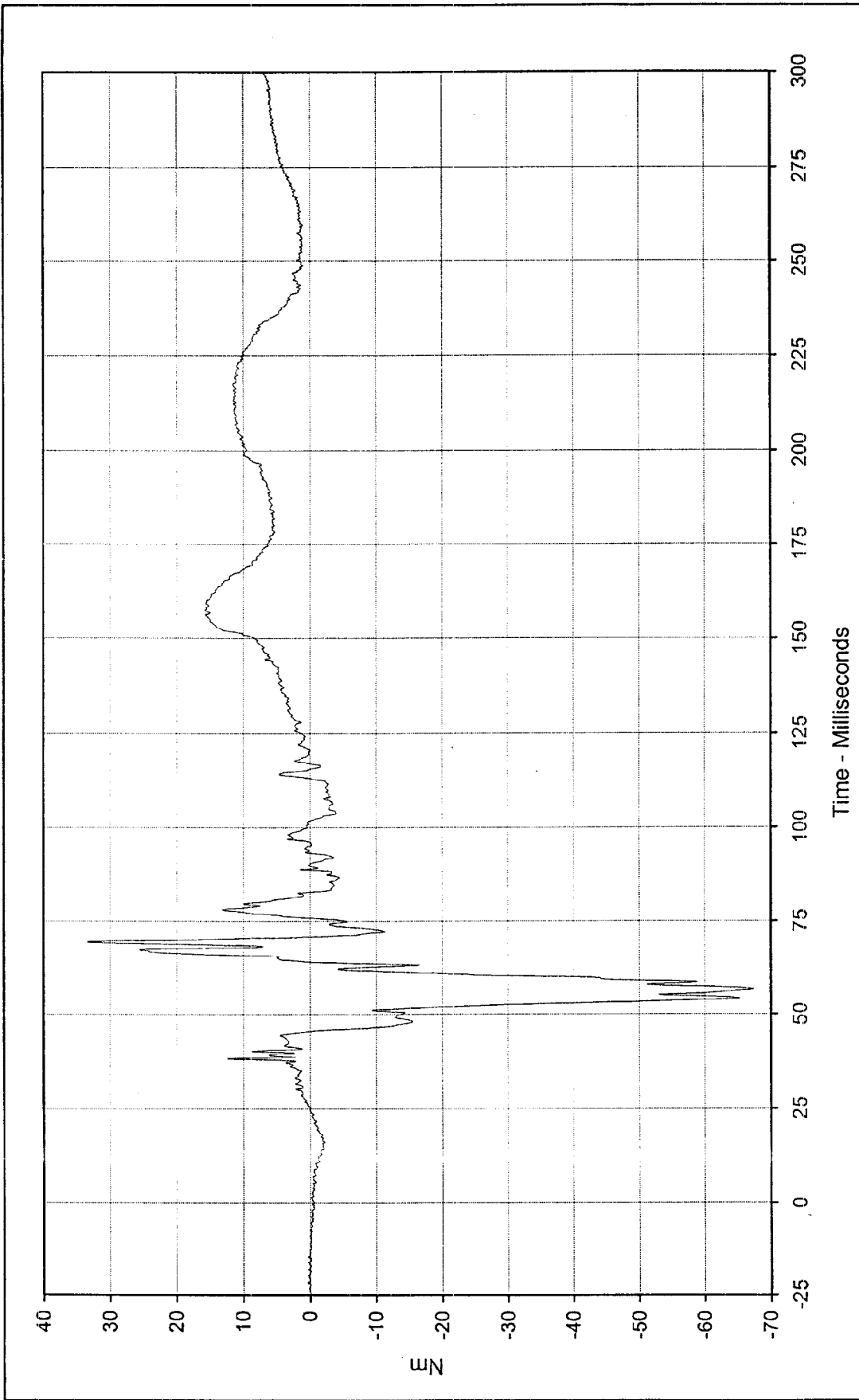




Curve Description: Passenger Right Lower Tibia Moment X
 Maximum Value: 7.9 at 38.2 Milliseconds
 Minimum Value: -23.7 at 71.5 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-076

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

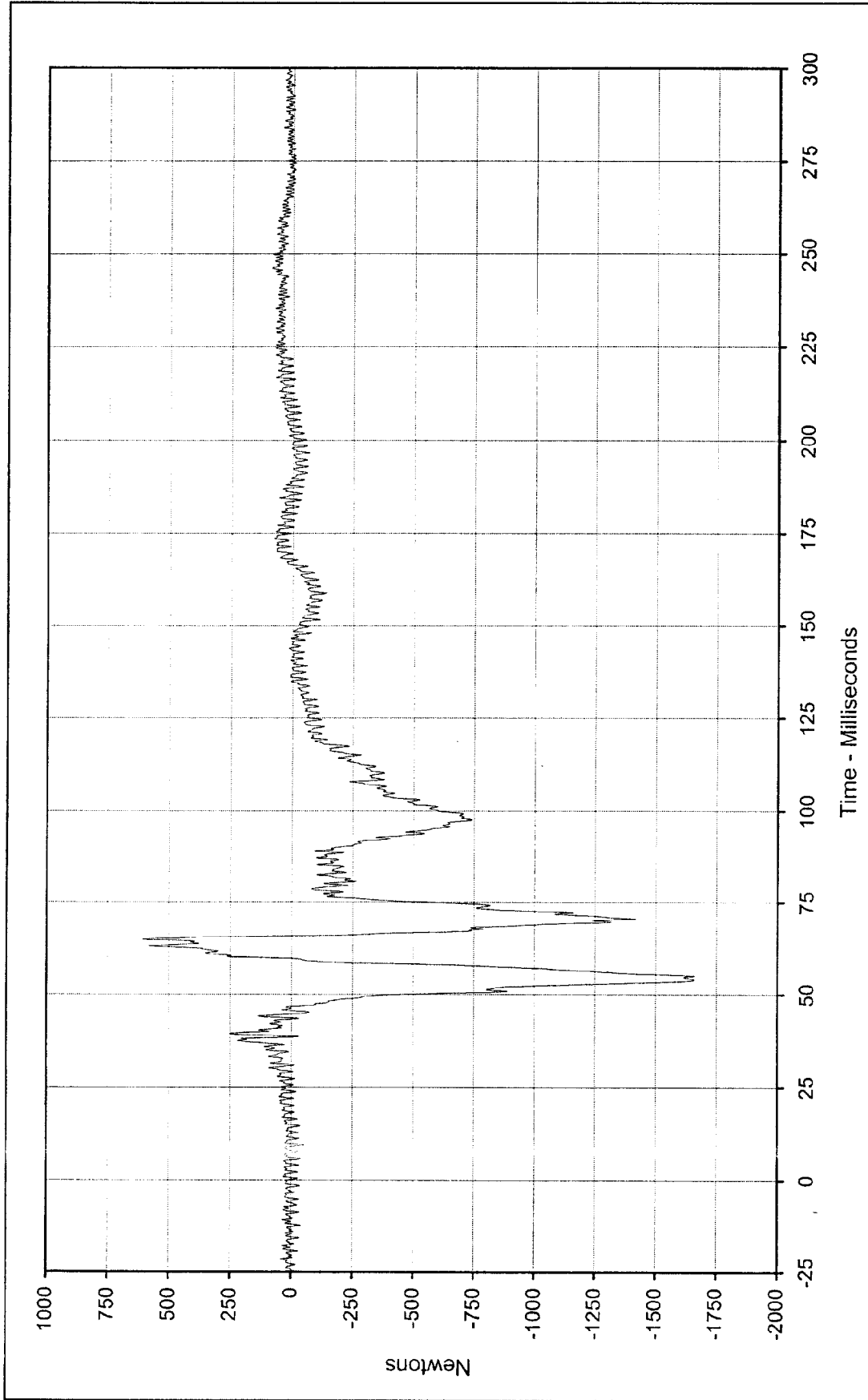




Curve Description: Passenger Right Lower Tibia Moment Y
 Maximum Value: 33.4 at 69.5 Milliseconds
 Minimum Value: -67.4 at 56.7 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-077

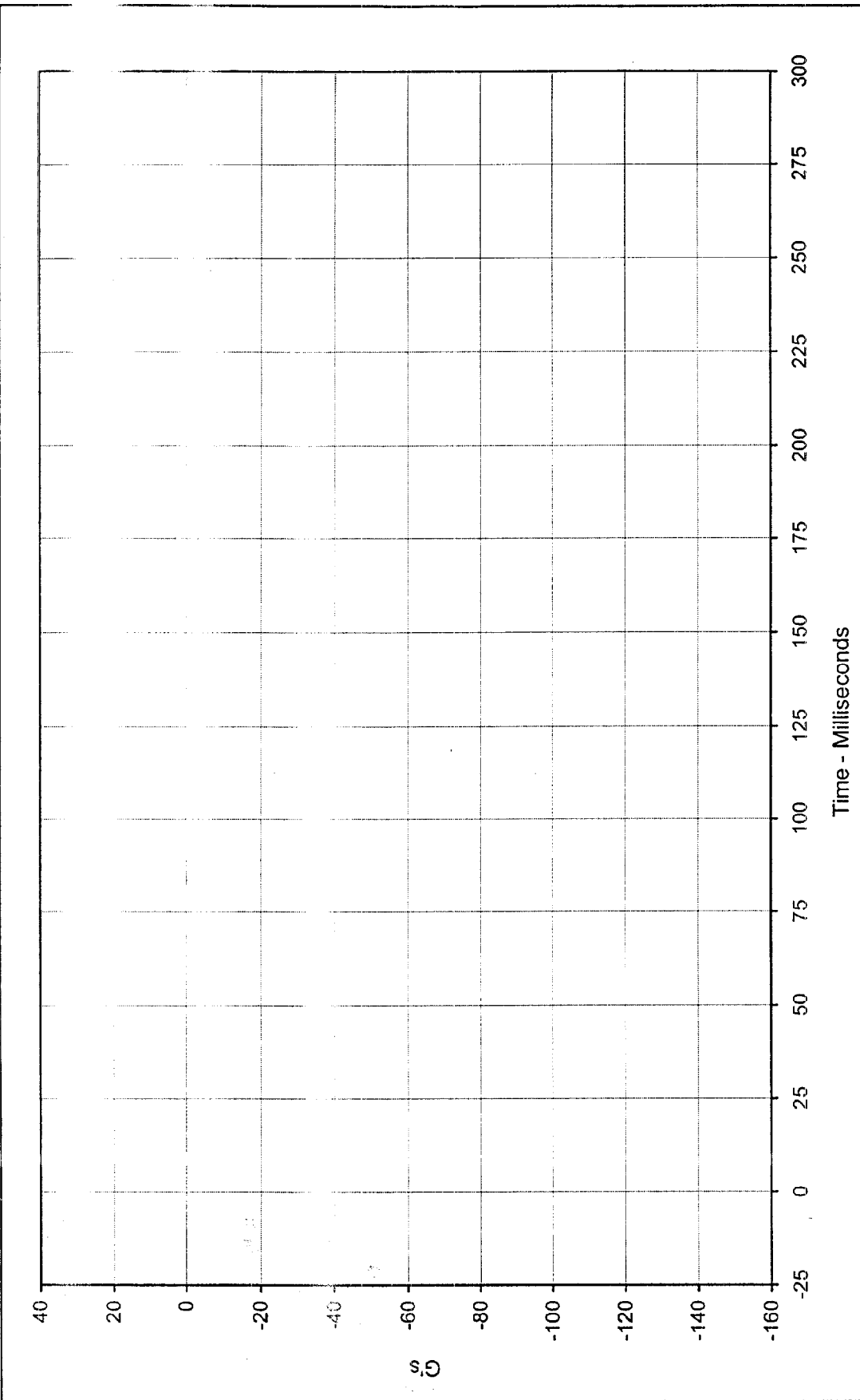
Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Passenger Right lower Tibia Force Z
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 606.0 at 64.7 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -1662.3 at 53.9 Milliseconds
 SAE Filter Class: 600
 Date of Test: 1/5/99
 Curve Number: FIL-078





Curve Description: Passenger Left Foot Aft X * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Minimum Value: 0.0 at 0.0 Milliseconds

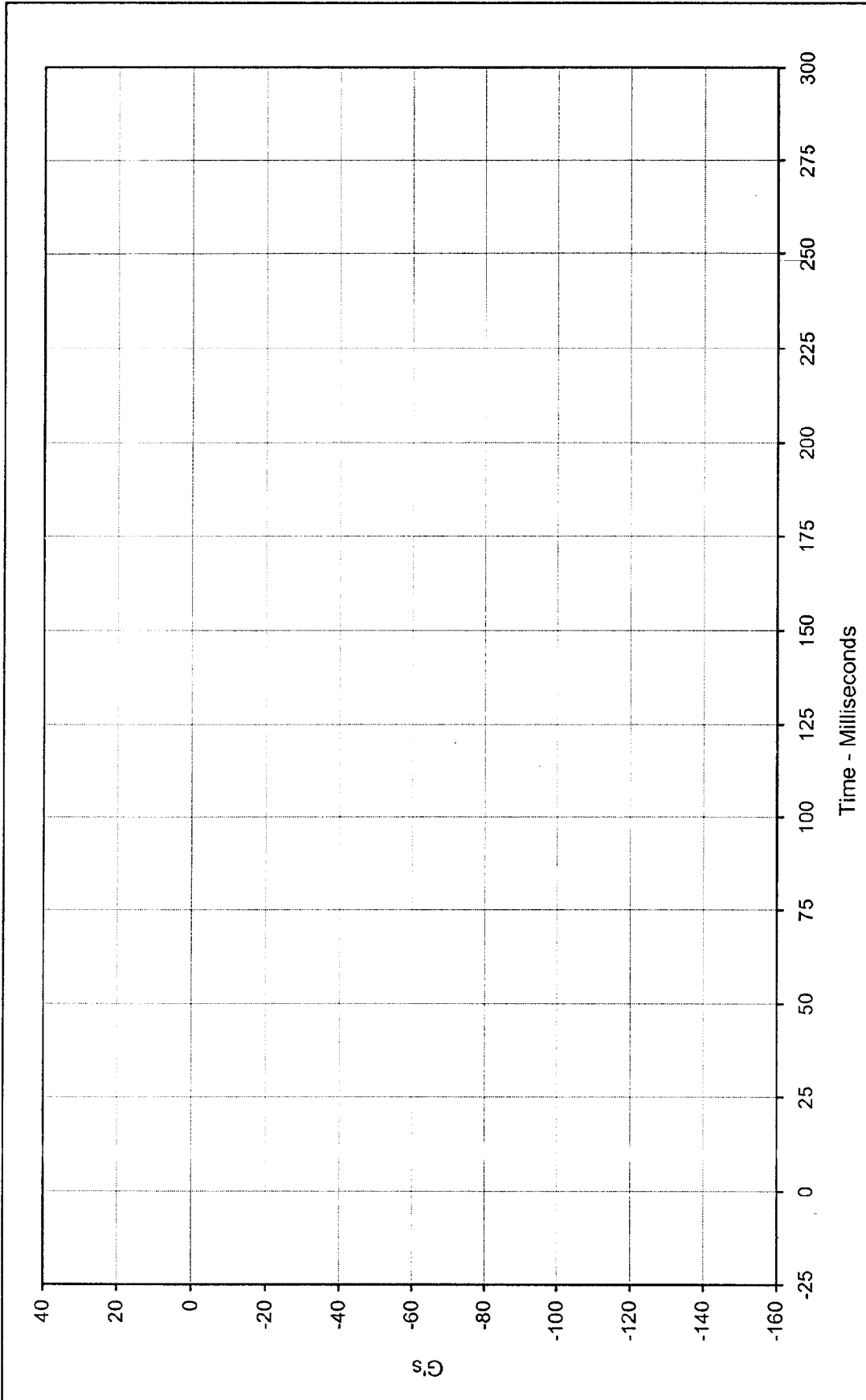
SAE Filter Class: 1000

Date of Test: 1/5/99

Curve Number: FIL-079



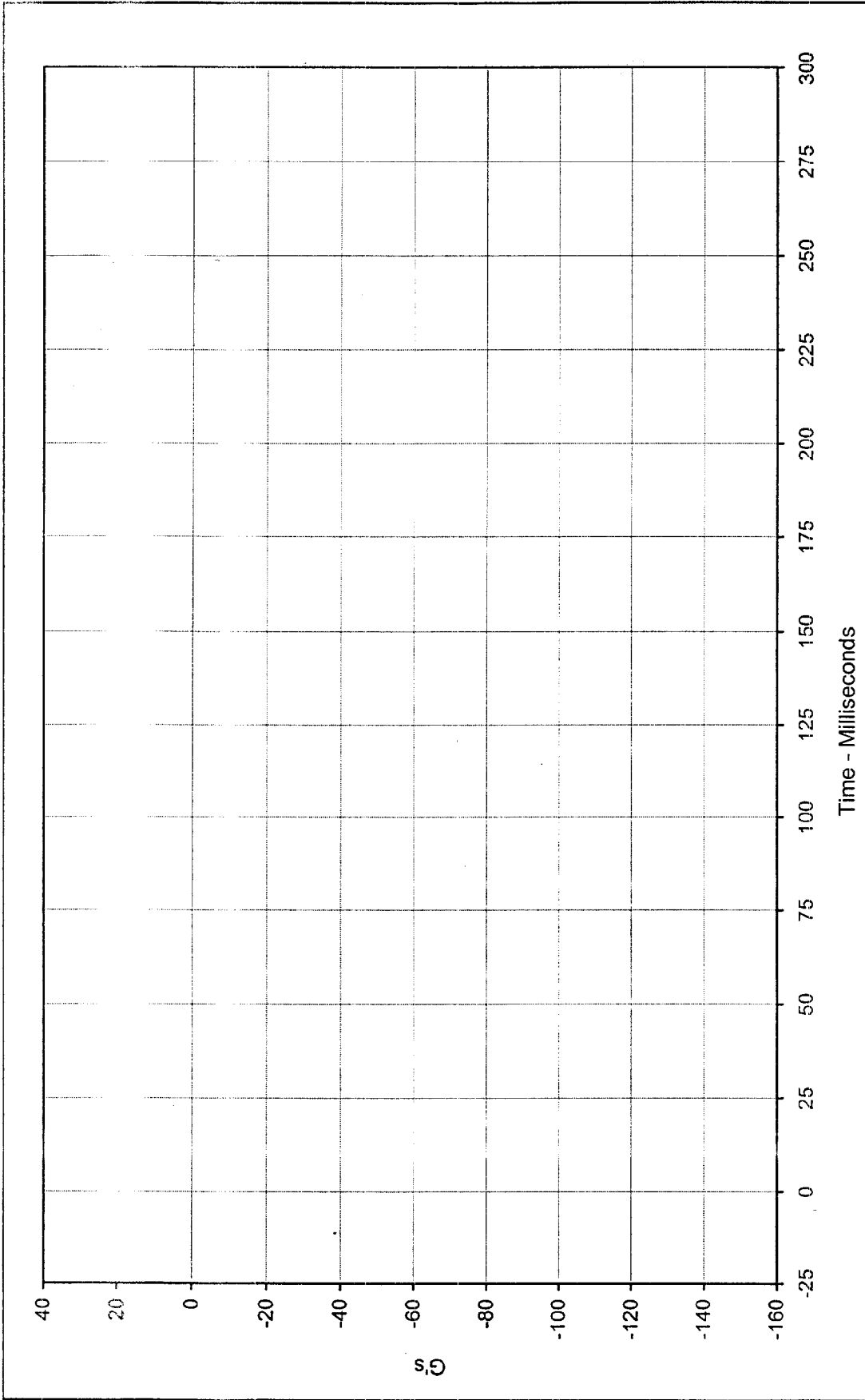
* No Data Collected



Curve Description: Passenger Left Foot Aft Z * 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 0.0 at 0.0 Milliseconds 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-080

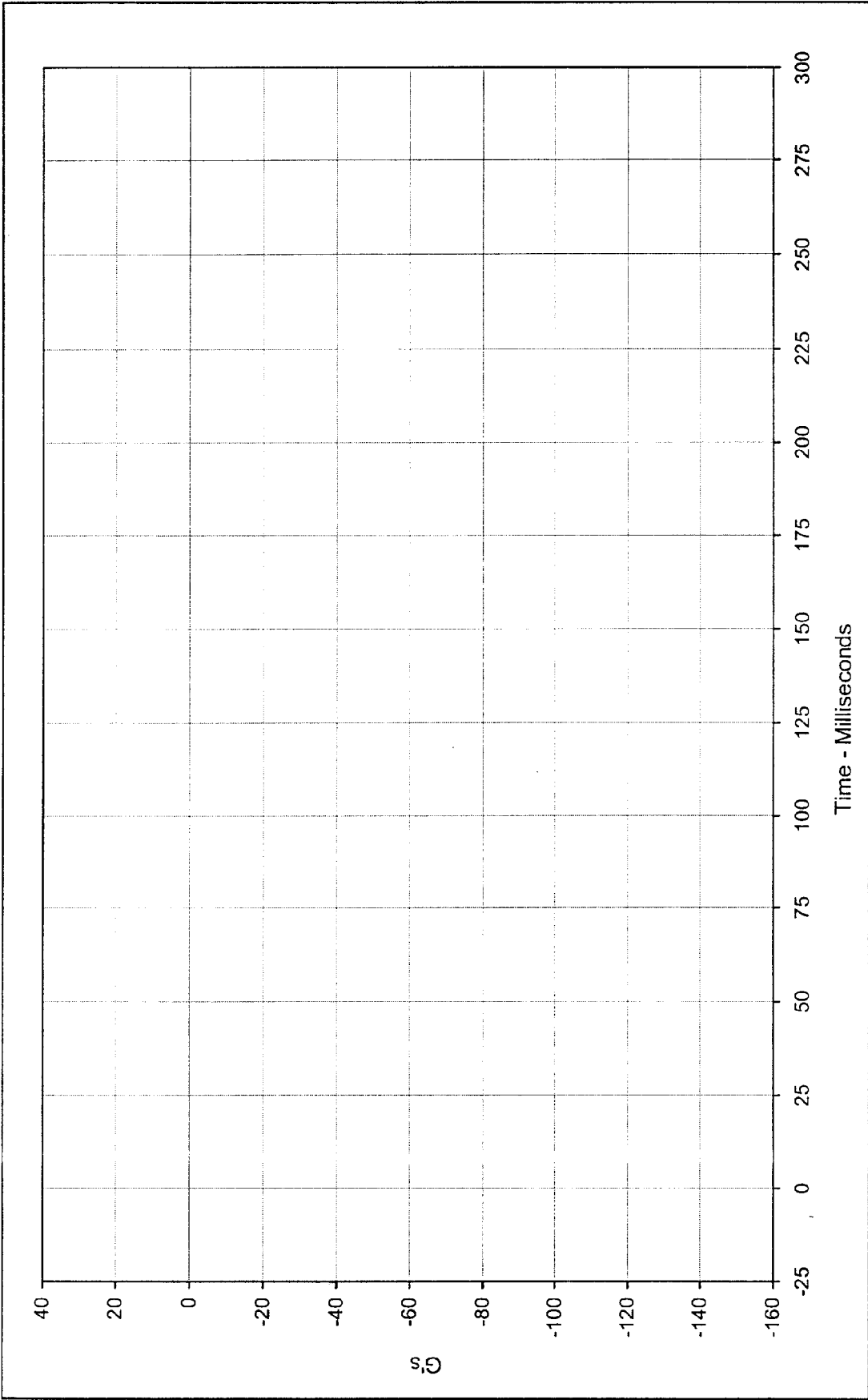


* No Data Collected



Curve Description: Passenger Left Foot Fore Z * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-081 * No Data Collected

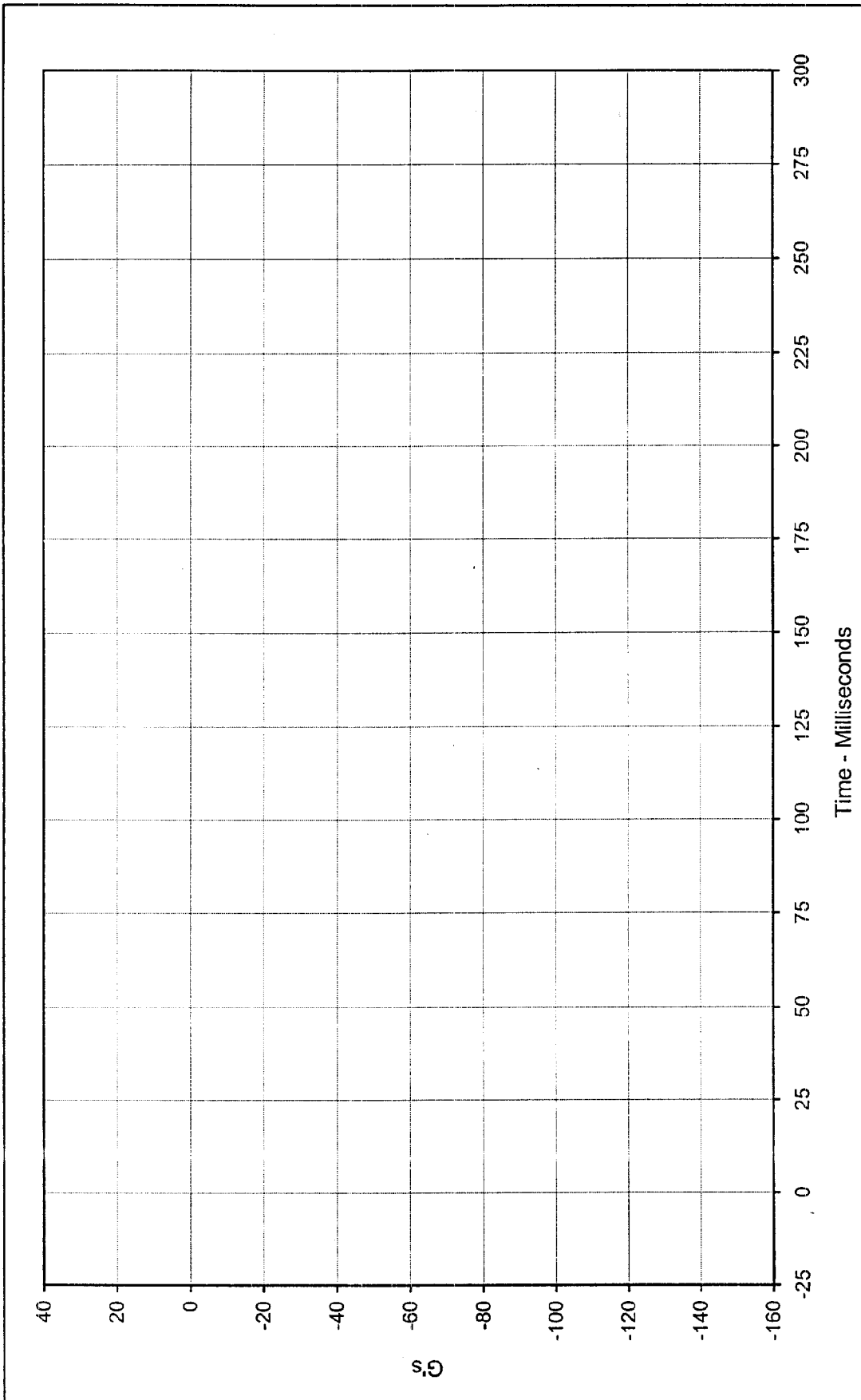




Curve Description: Passenger Right Foot Aft X * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-082

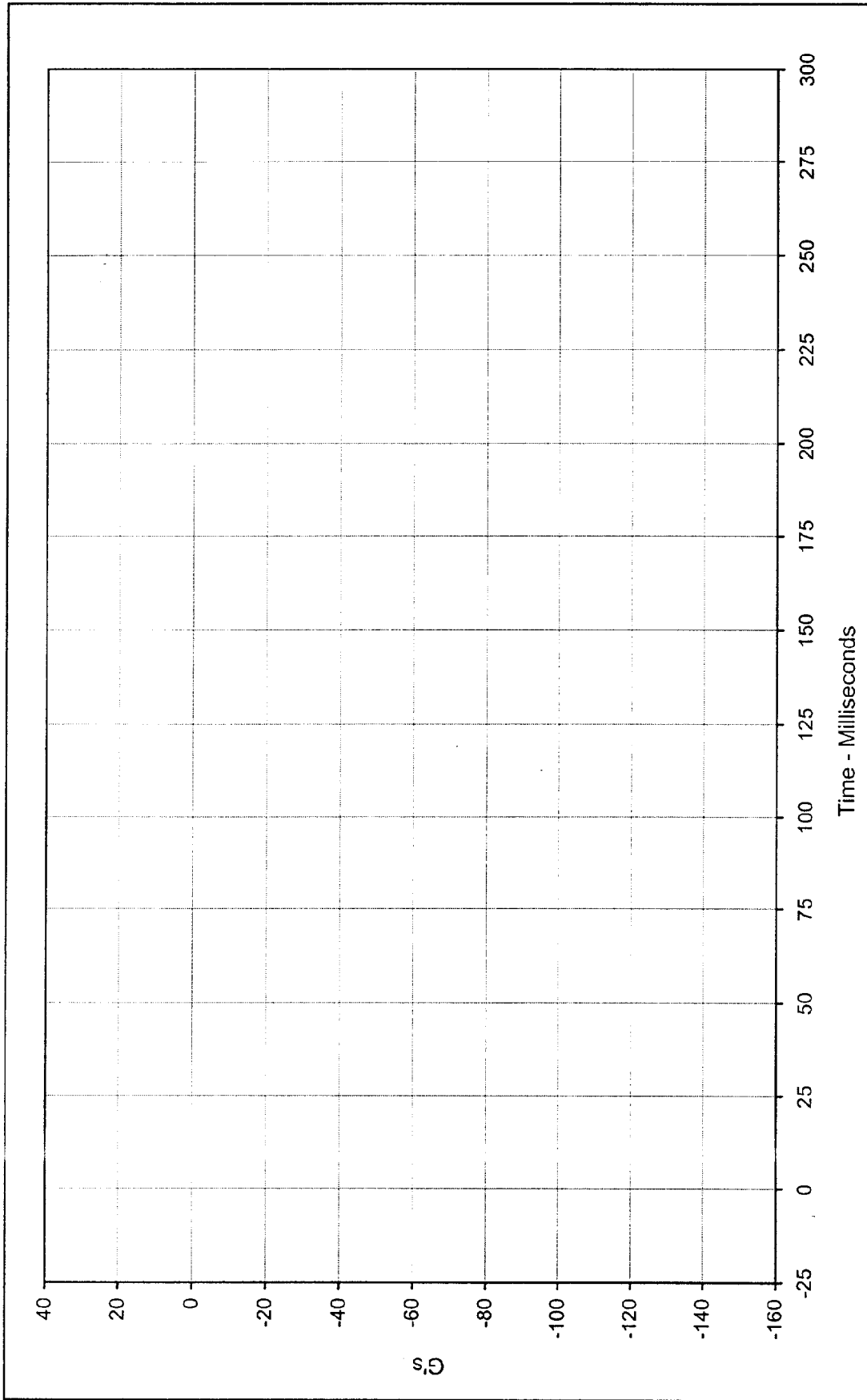


* No Data Collected



Curve Description: Passenger Right Foot Aft Z * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-083 * No Data Collected

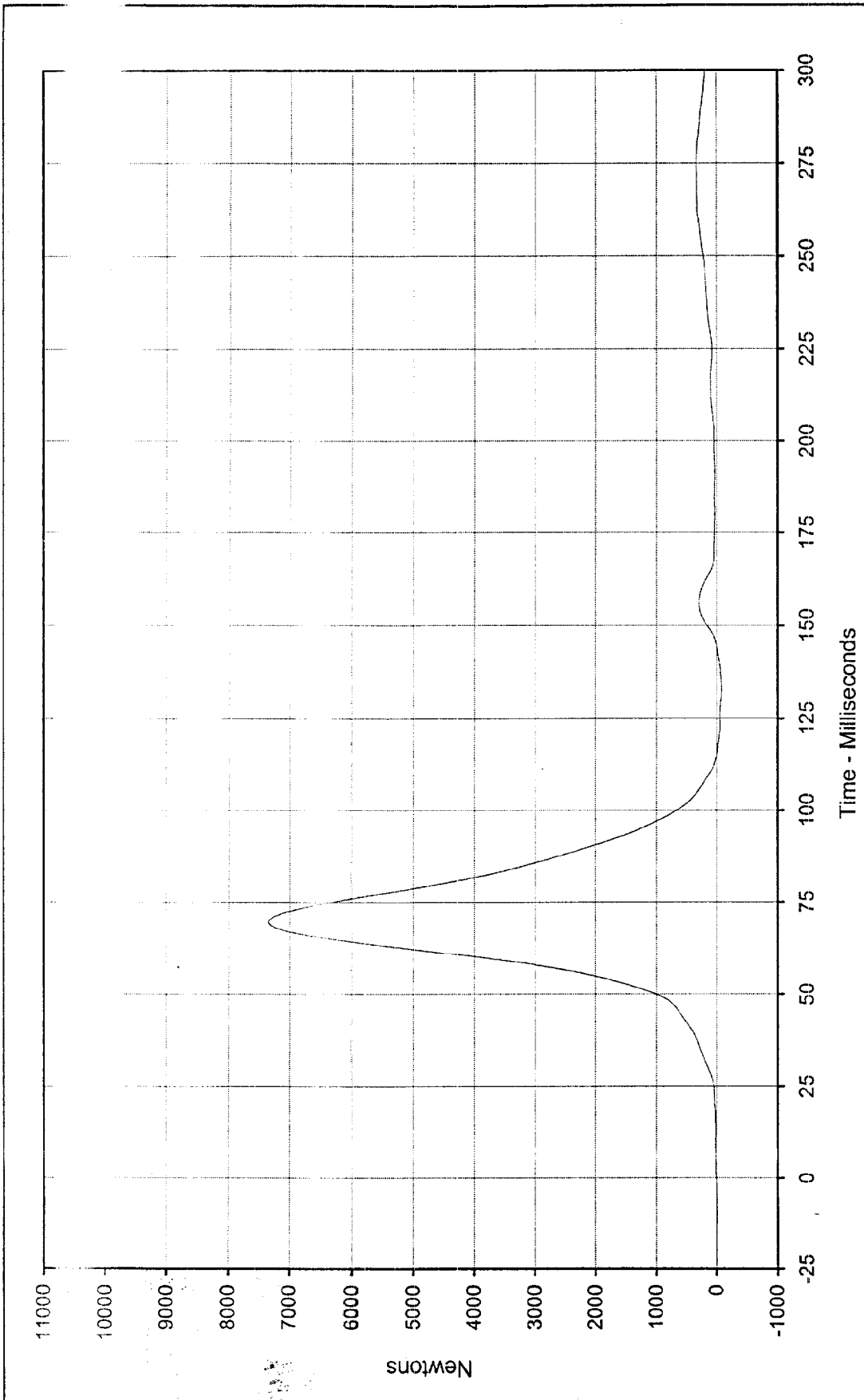




Curve Description: Passenger Right Foot Fore Z * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/5/99
 Curve Number: FIL-084



* No Data Collected



Curve Description: Passenger Lap Belt Force

Test Program: 1999 NHTSA 35 mph NCAP

No.: MX0106

Maximum Value: 7347.2 at 69.7 Milliseconds

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

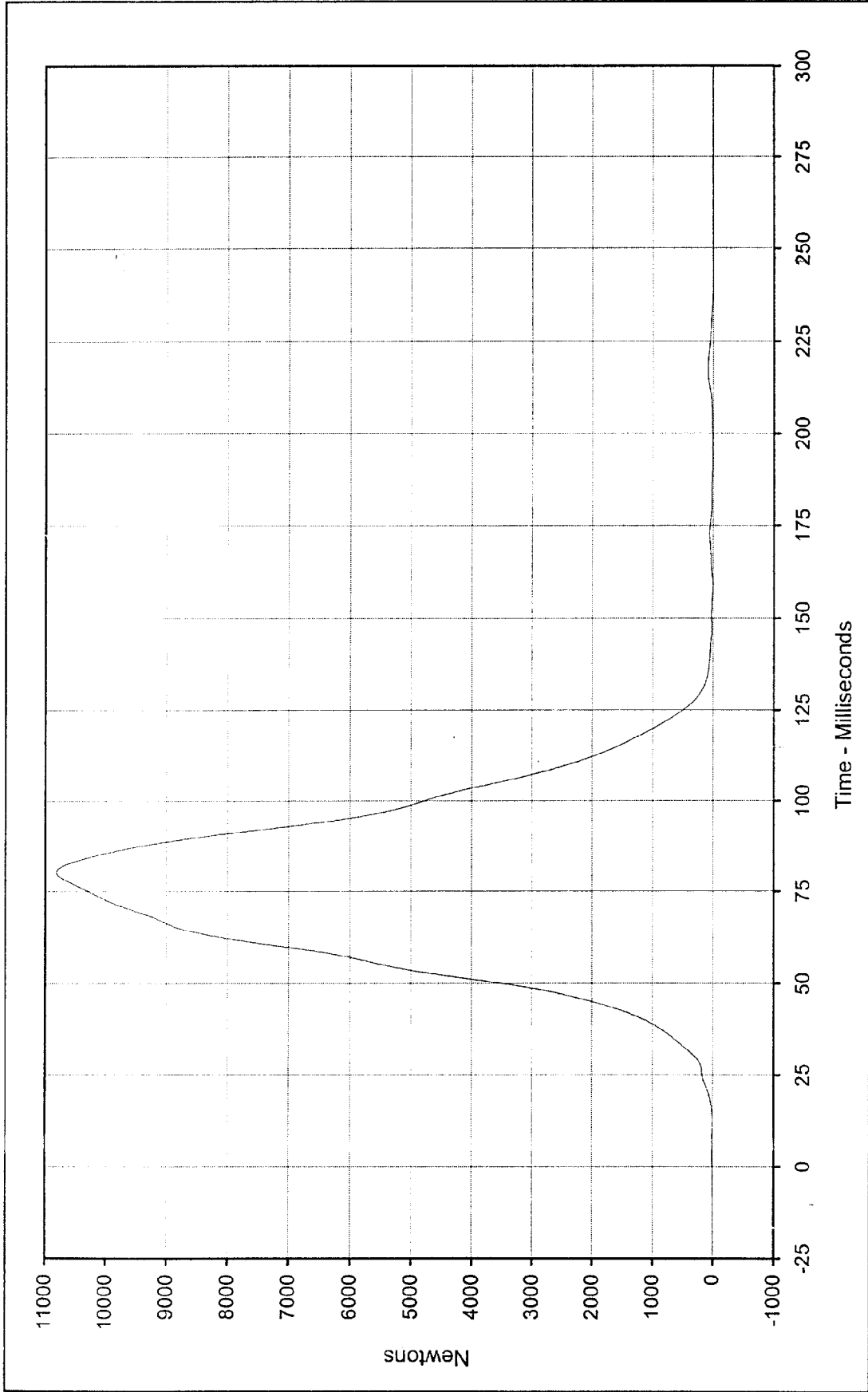
Minimum Value: -81.8 at 132.6 Milliseconds



SAE Filter Class: 60

Date of Test: 1/5/99

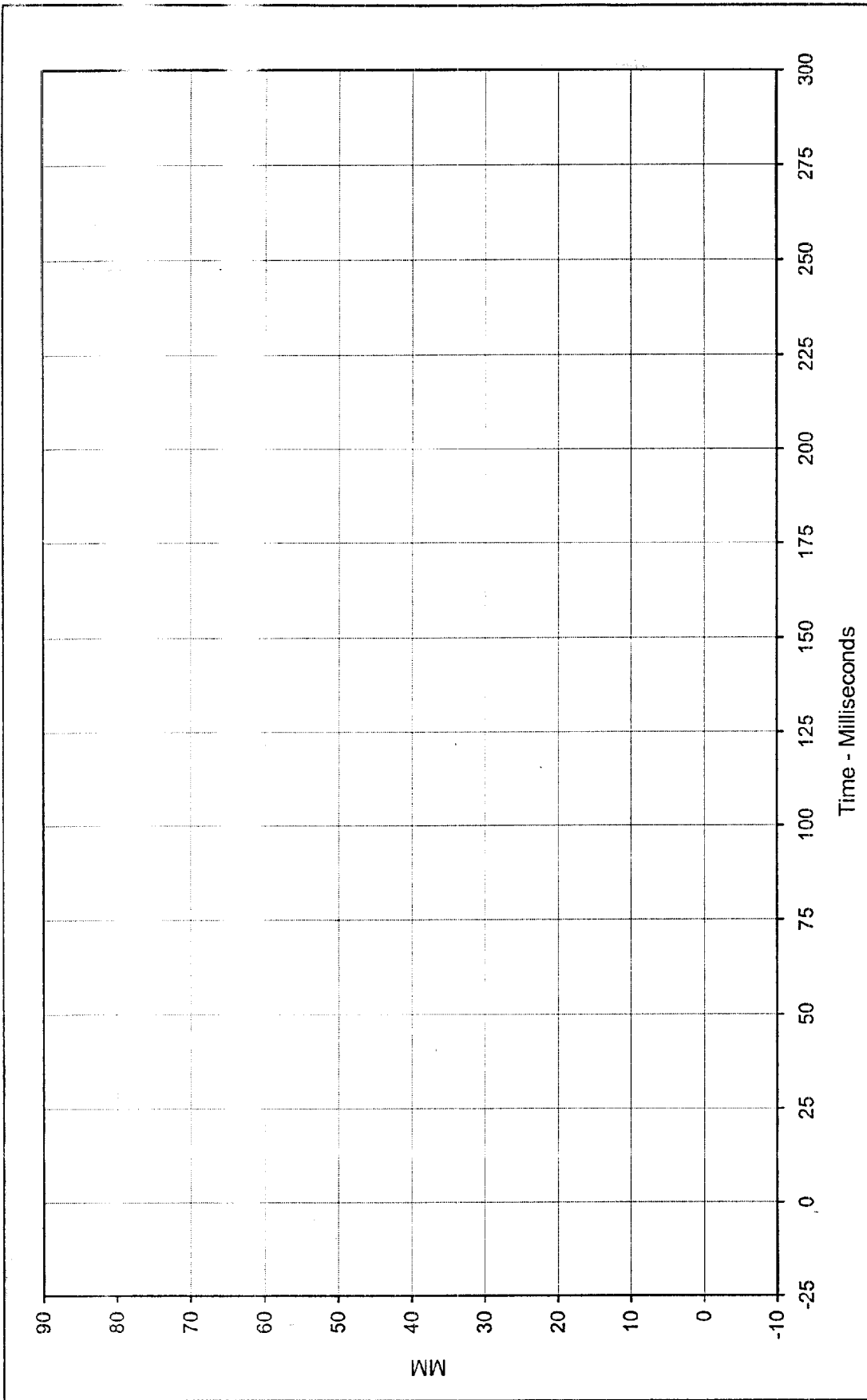
Curve Number: FIL-085



Curve Description: Passenger Shoulder Belt Force
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 10810.9 at 80.3 Milliseconds
 Minimum Value: -16.4 at 299.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-086

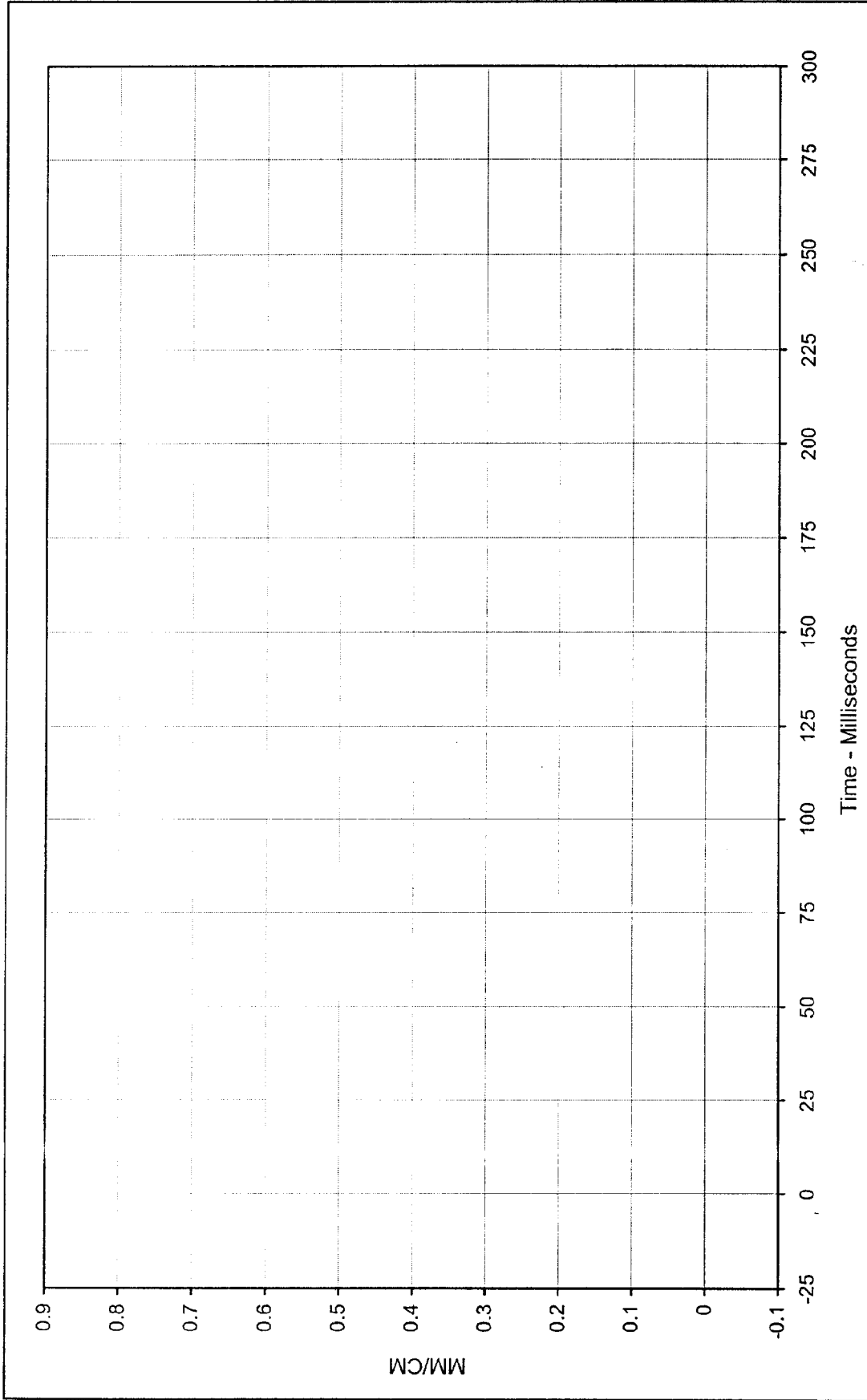




Curve Description: Passenger Shoulder Belt Pullout * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-087



* Channel failed, No Data



Curve Description: Passenger Shoulder Belt Elongation * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 0.00 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Minimum Value: 0.00 at 0.0 Milliseconds

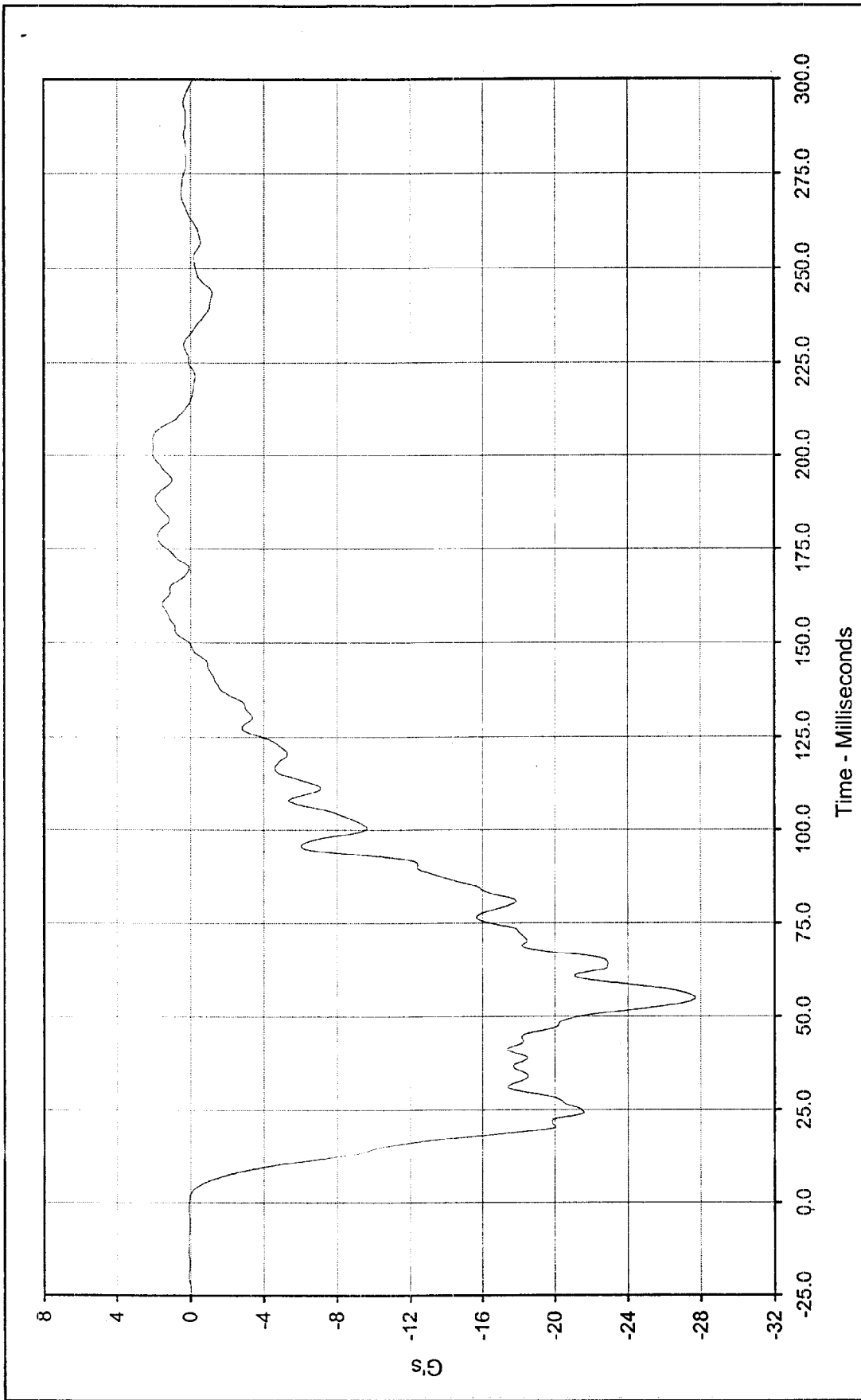
SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-C88



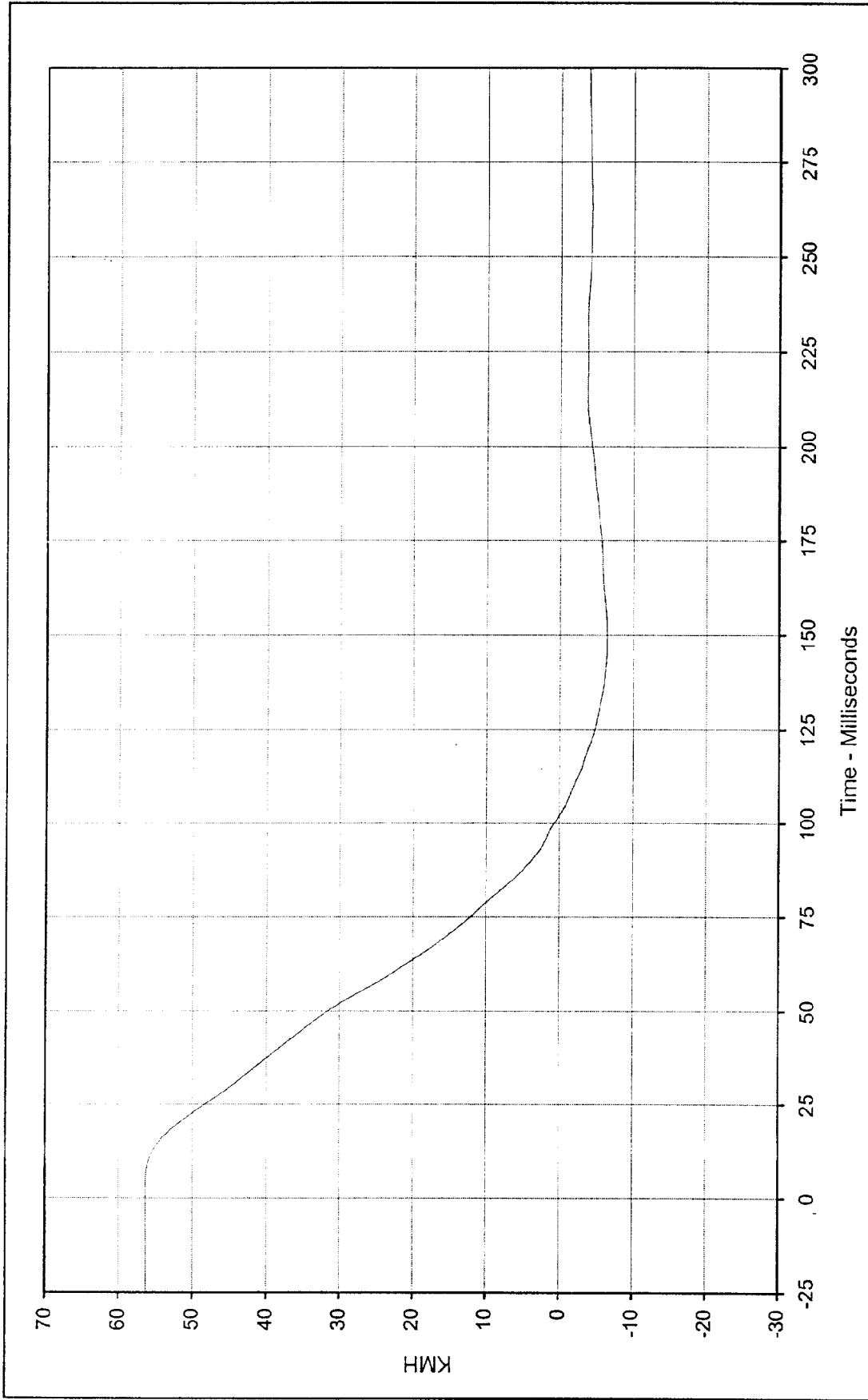
* Channel failed, No Data



Curve Description: Vehicle Left Rear Primary
 Maximum Value: 2.0 at 204.1 Milliseconds
 Minimum Value: -27.7 at 54.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-089

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

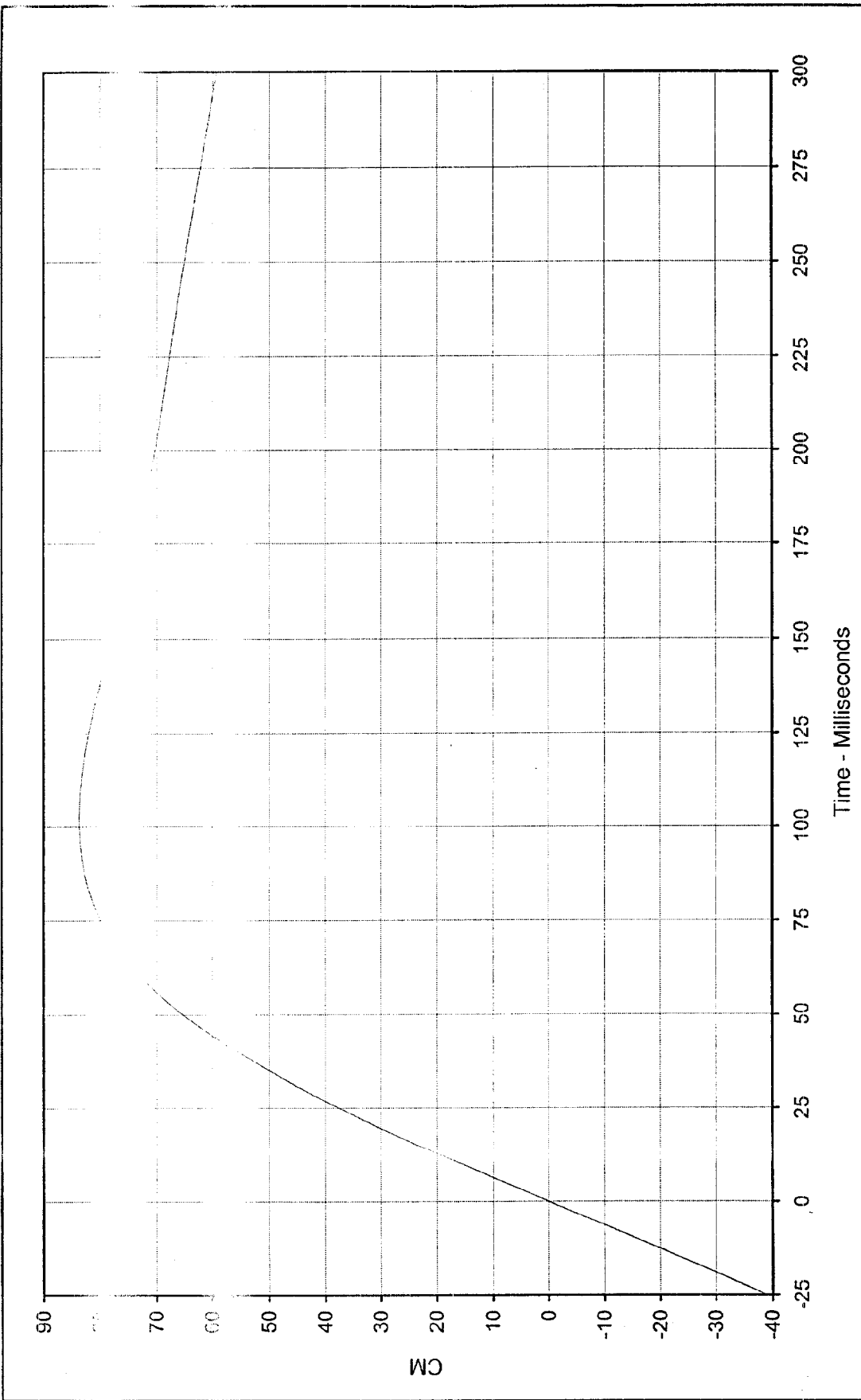




Curve Description: Vehicle Left Rear Primary Velocity
 Maximum Value: 56.3 at 2.3 Milliseconds
 Minimum Value: -6.4 at 149.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: IN1-089

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Vehicle Left Rear Primary Displ.

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 83.7 at 102.2 Milliseconds

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

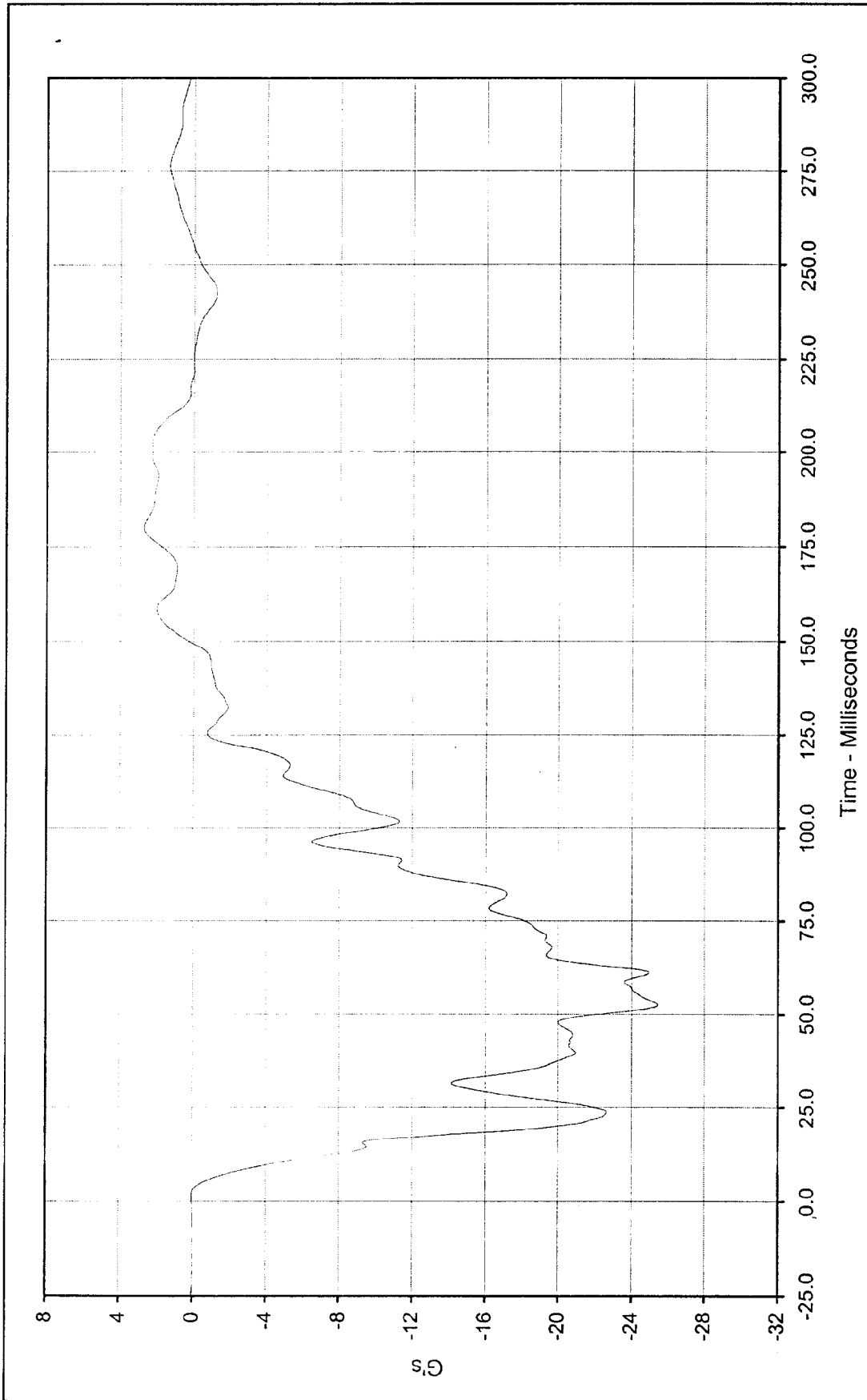
Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

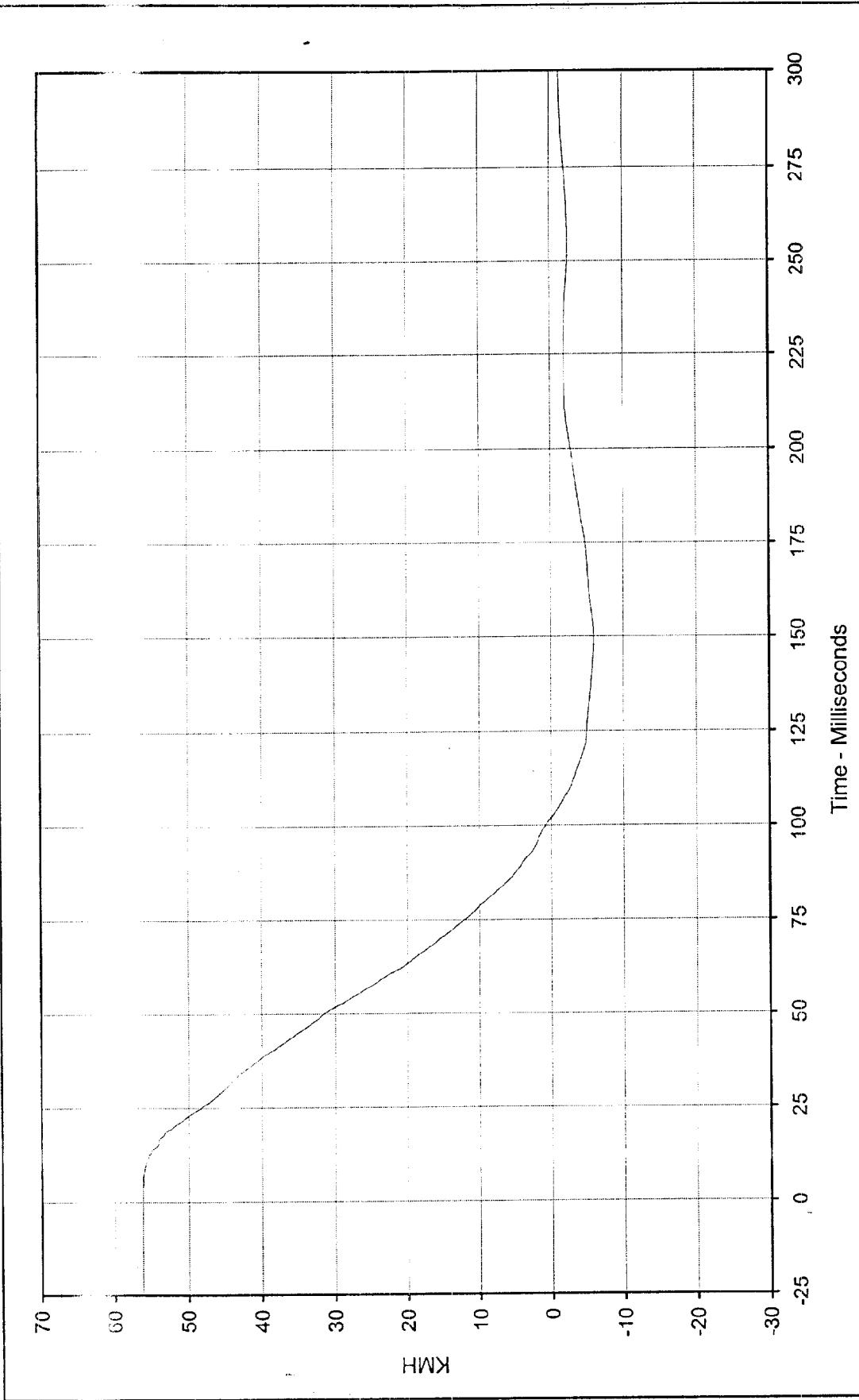
Curve Number: IN2-089





Curve Description: Vehicle Right Rear Primary Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 2.7 at 180.1 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -25.4 at 52.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-090





Curve Description: Vehicle Right Rear Primary Velocity Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 56.3 at 3.2 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

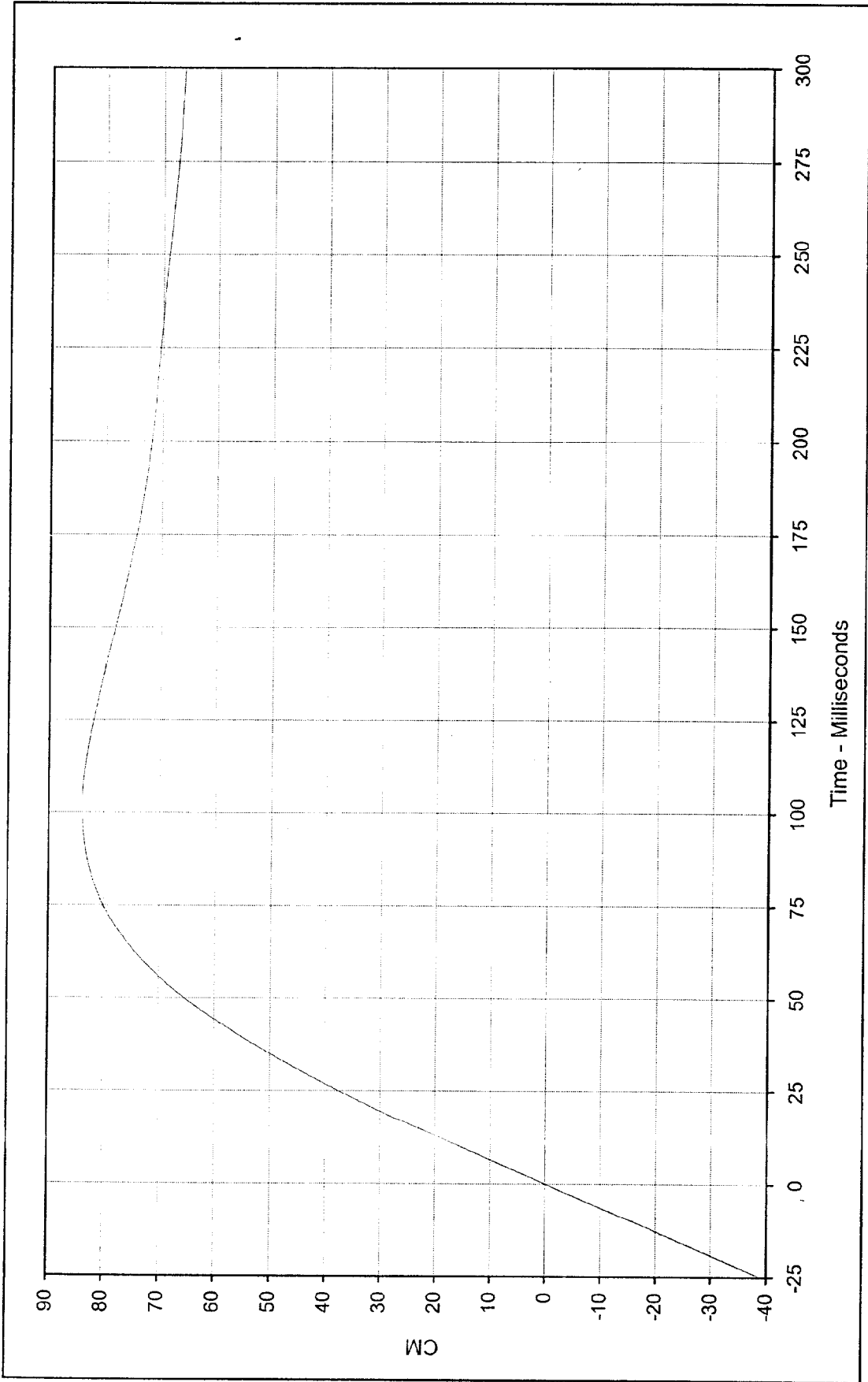
Minimum Value: -5.9 at 149.6 Milliseconds

SAE Filter Class: 180

Date of Test: 1/5/99

Curve Number: IN1-090

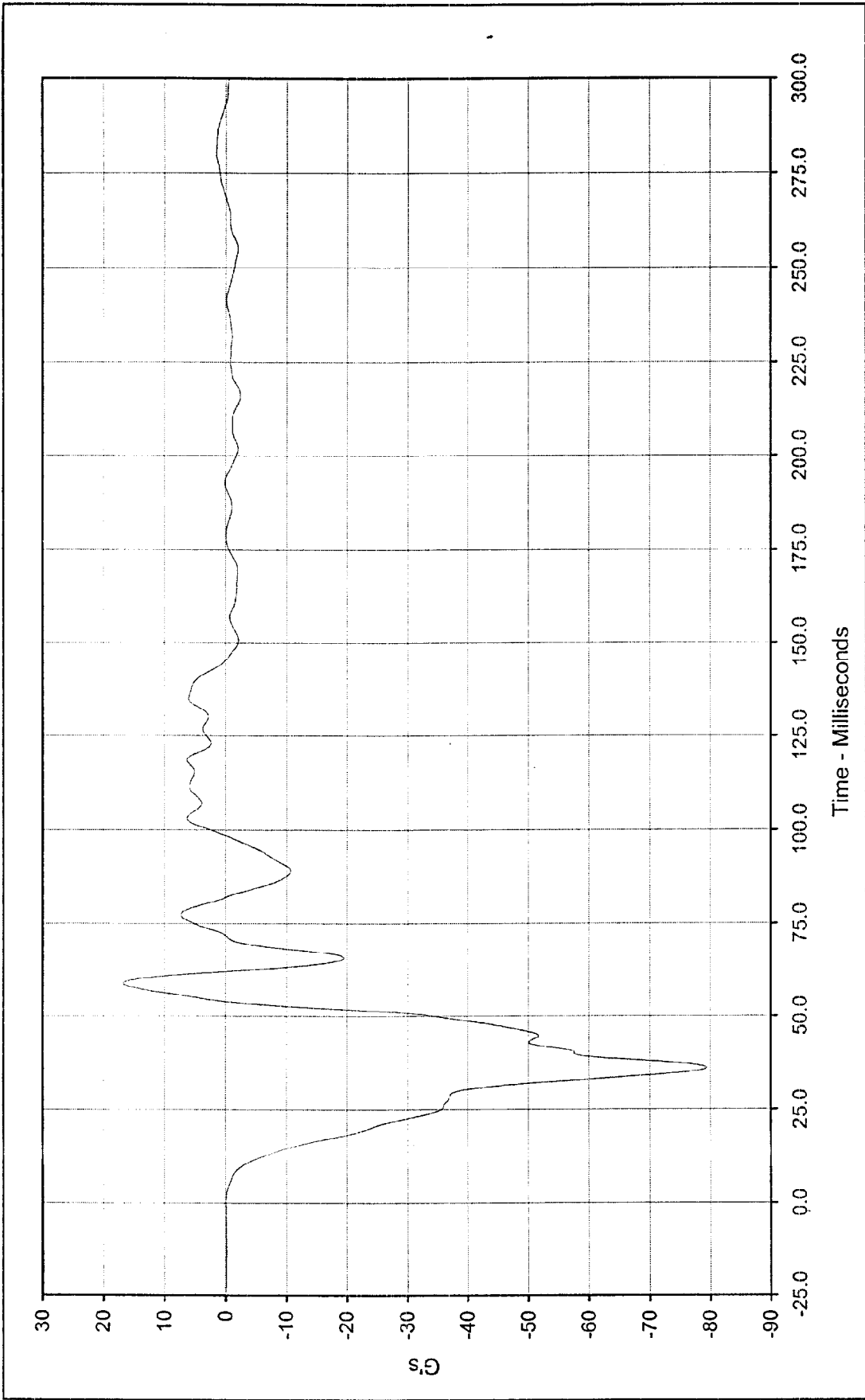




Curve Description: Vehicle Right Rear Primary Displ.
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 83.9 at 101.9 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 0.0 at 0.0 Milliseconds



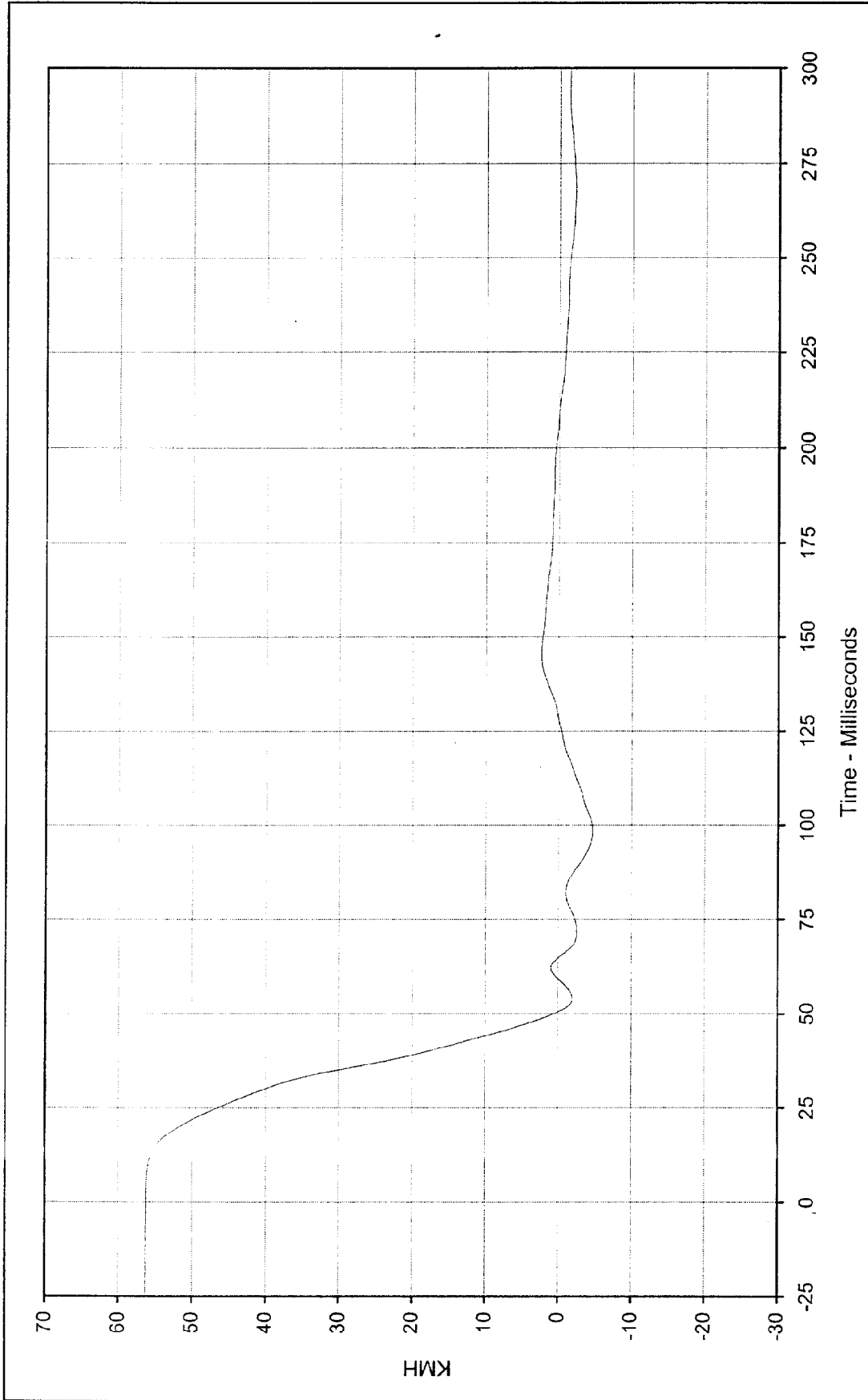
SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN2-090



Curve Description: Vehicle Engine Top
 Maximum Value: 16.8 at 58.7 Milliseconds
 Minimum Value: -79.5 at 36.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-091

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Vehicle Engine Top Velocity Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 56.2 at 0.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

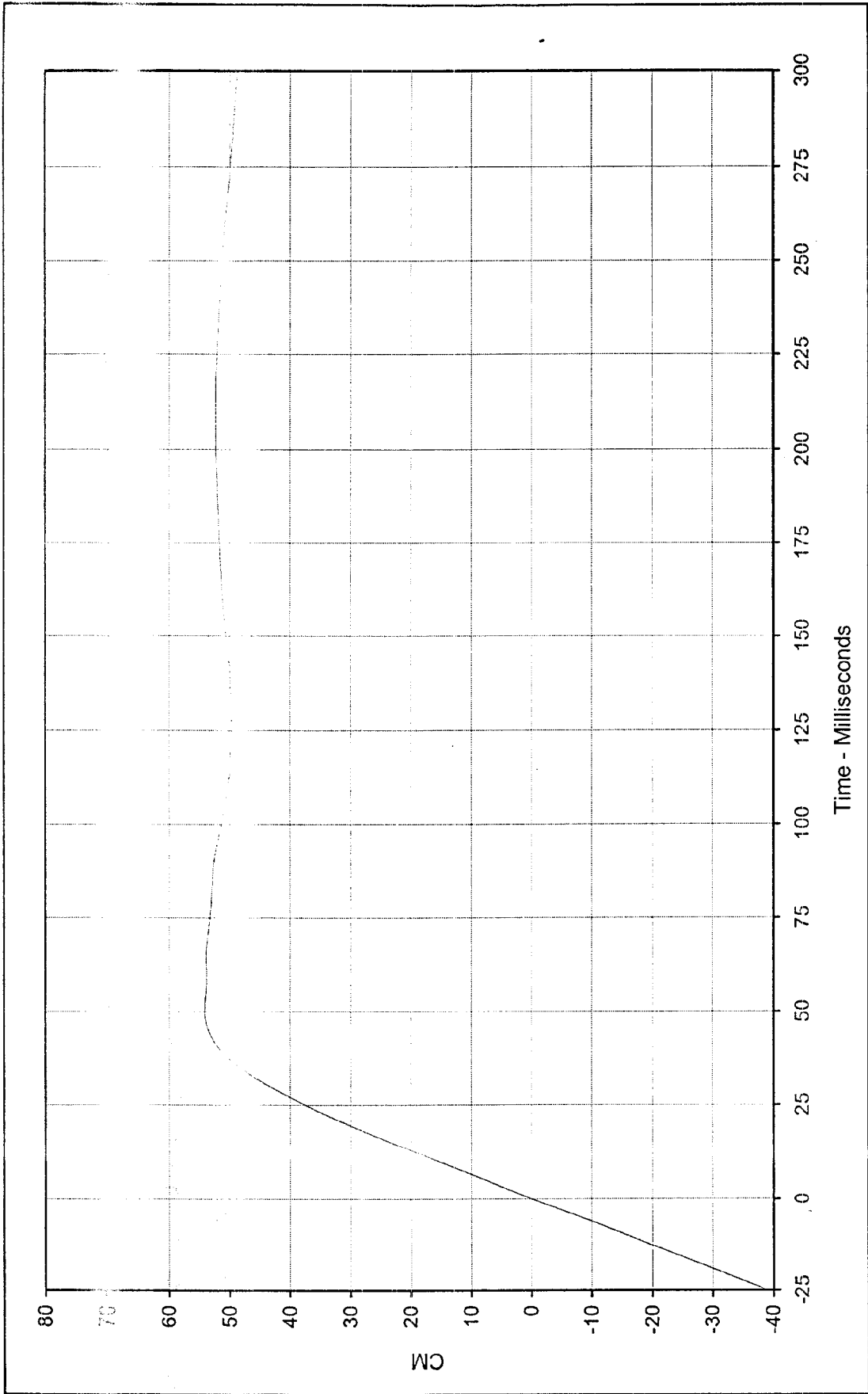
Minimum Value: -4.7 at 98.5 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: IN1-091

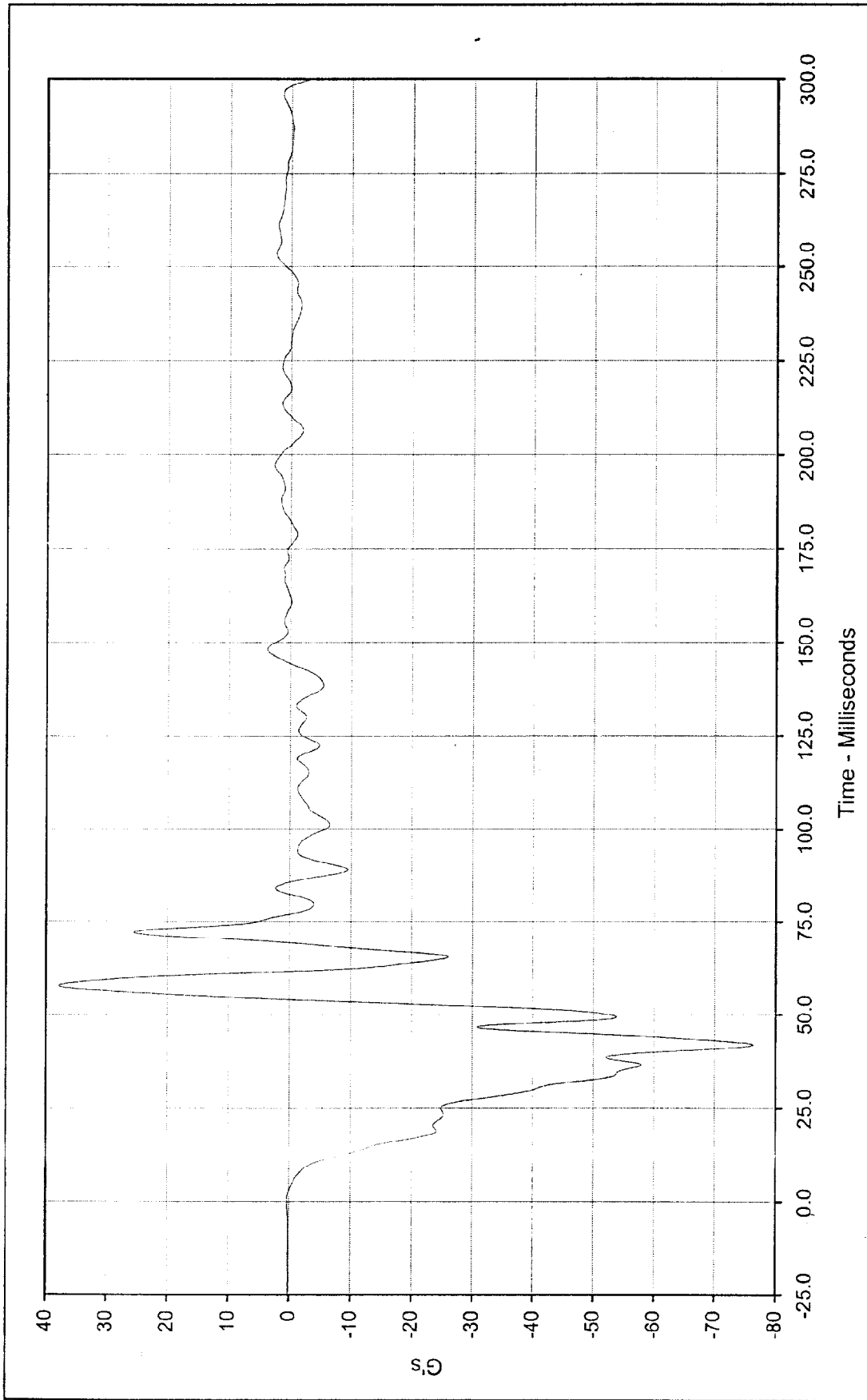




Curve Description: Vehicle Engine Top Displacement
 Maximum Value: 54.1 at 50.4 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: IN2-091





Curve Description: Vehicle Engine Bottom Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 37.9 at 57.6 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

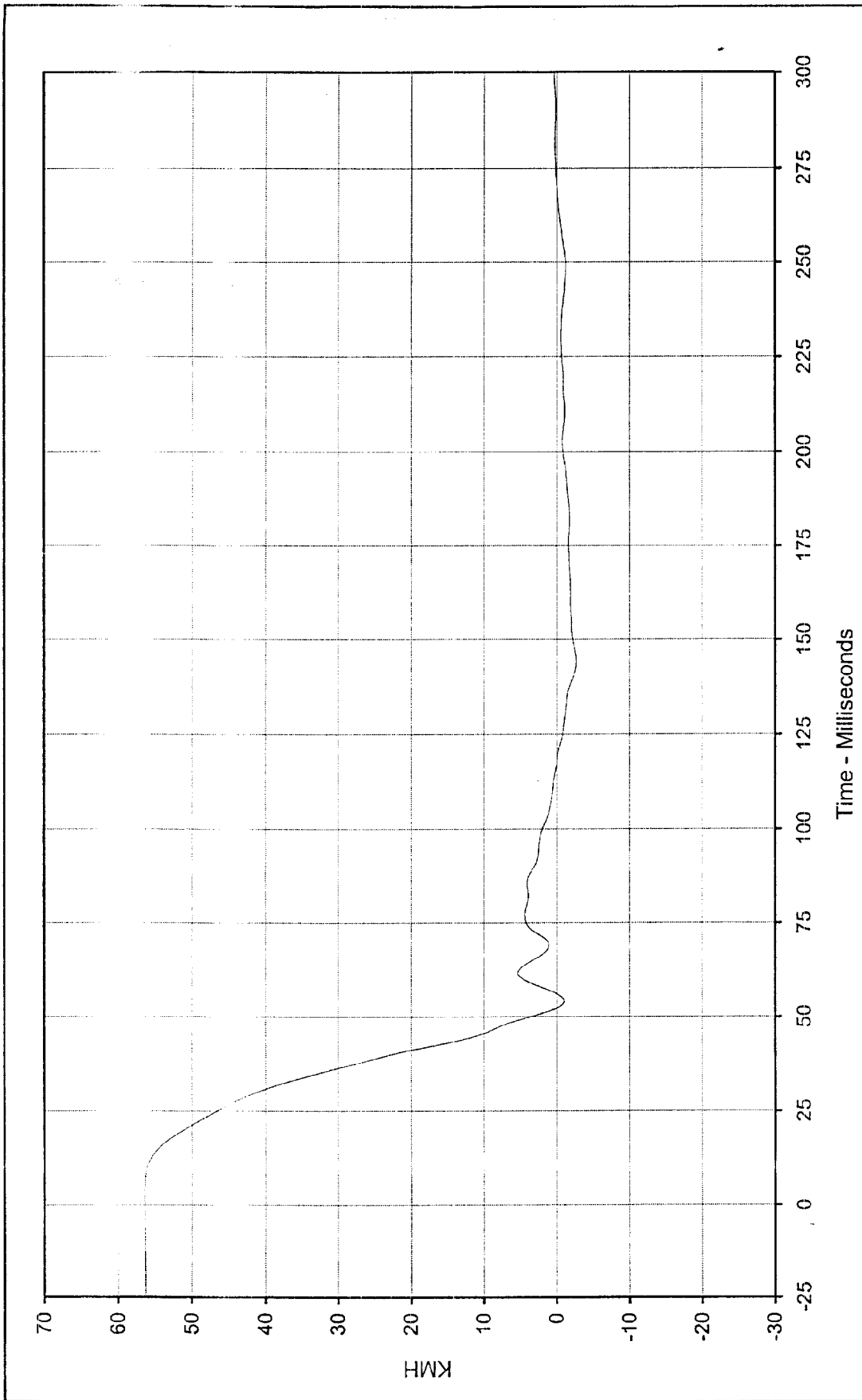
Minimum Value: -76.4 at 41.8 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-092

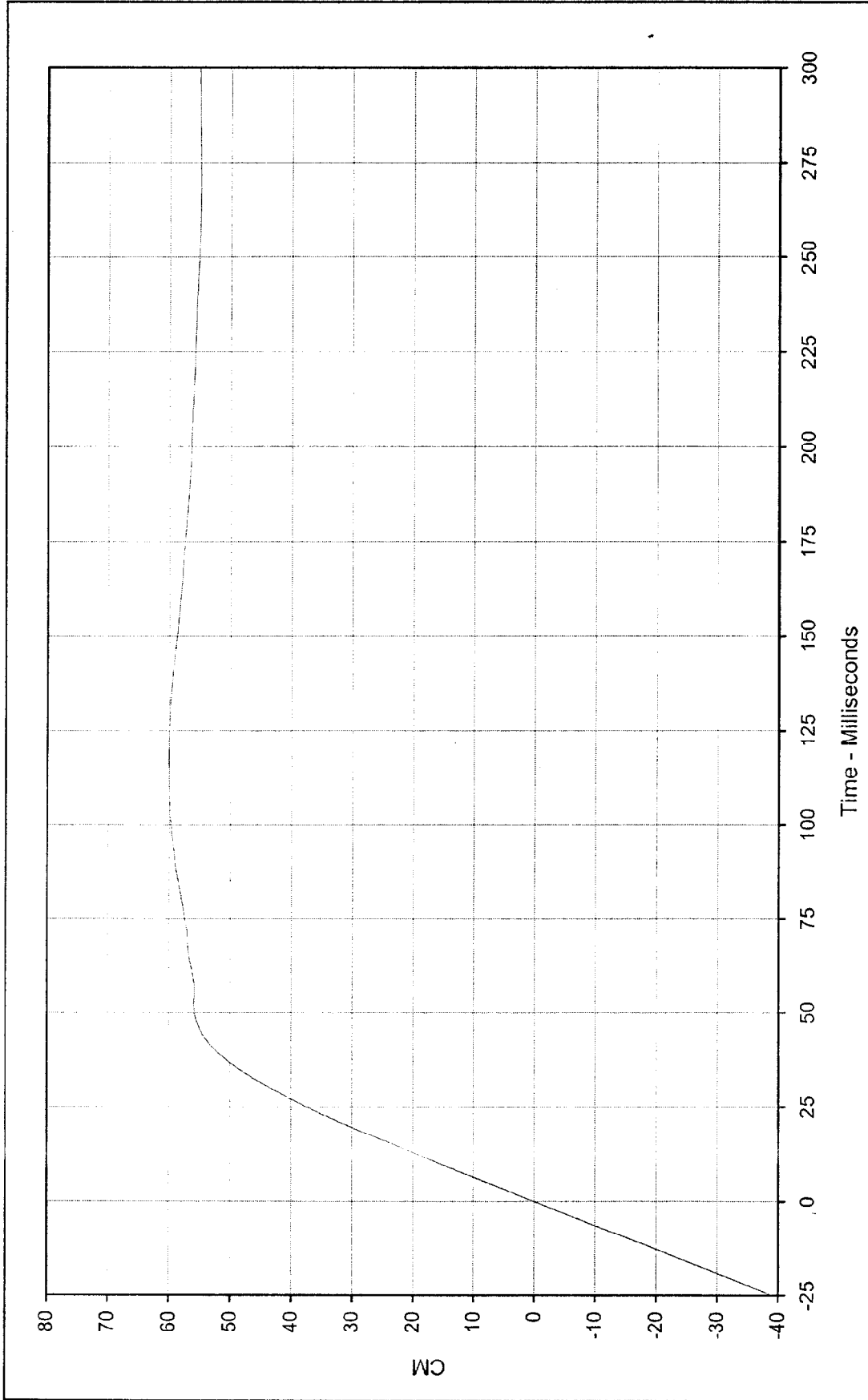




Curve Description: Vehicle Engine Bottom Velocity Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 56.5 at 3.1 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -2.7 at 144.2 Milliseconds



SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: IN1-092



Curve Description: Vehicle Engine Bottom Displacement

Maximum Value: 60.1 at 117.2 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 60

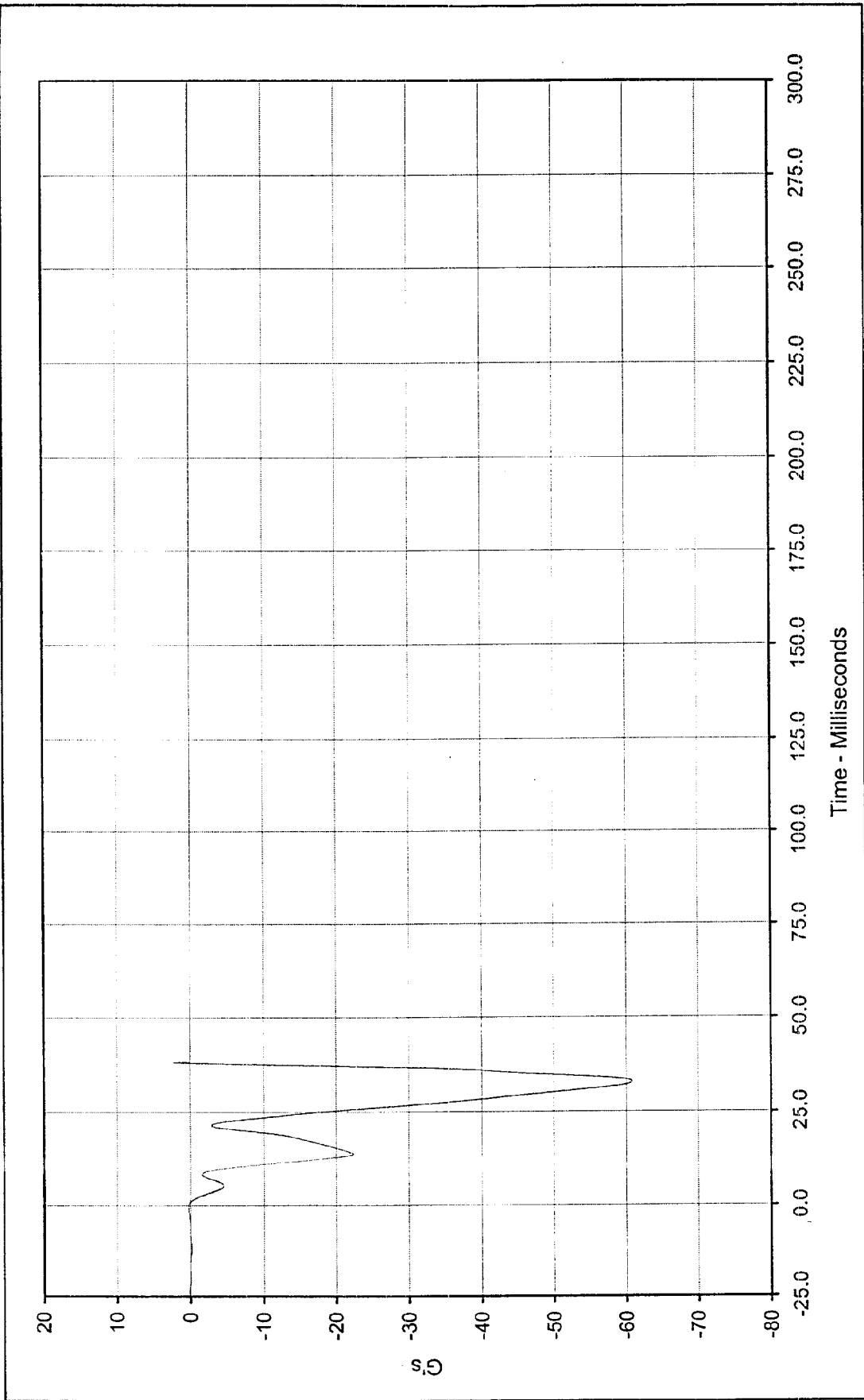
Date of Test: 1/5/99

Curve Number: IN2-092

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV



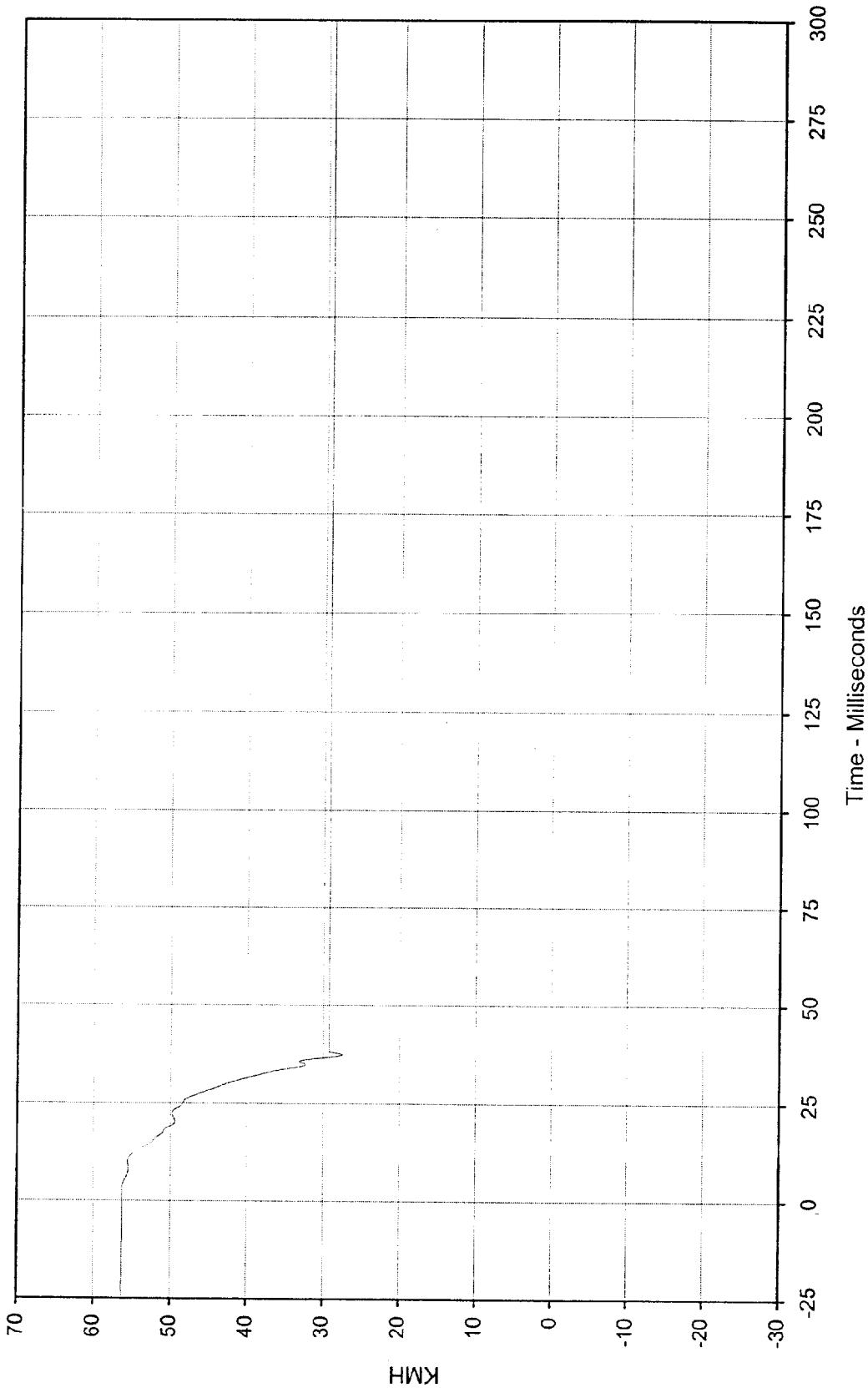


Curve Description: Vehicle Left Brake Caliper *
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 2.2 at 38.0 Milliseconds
 Minimum Value: -60.8 at 32.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-093



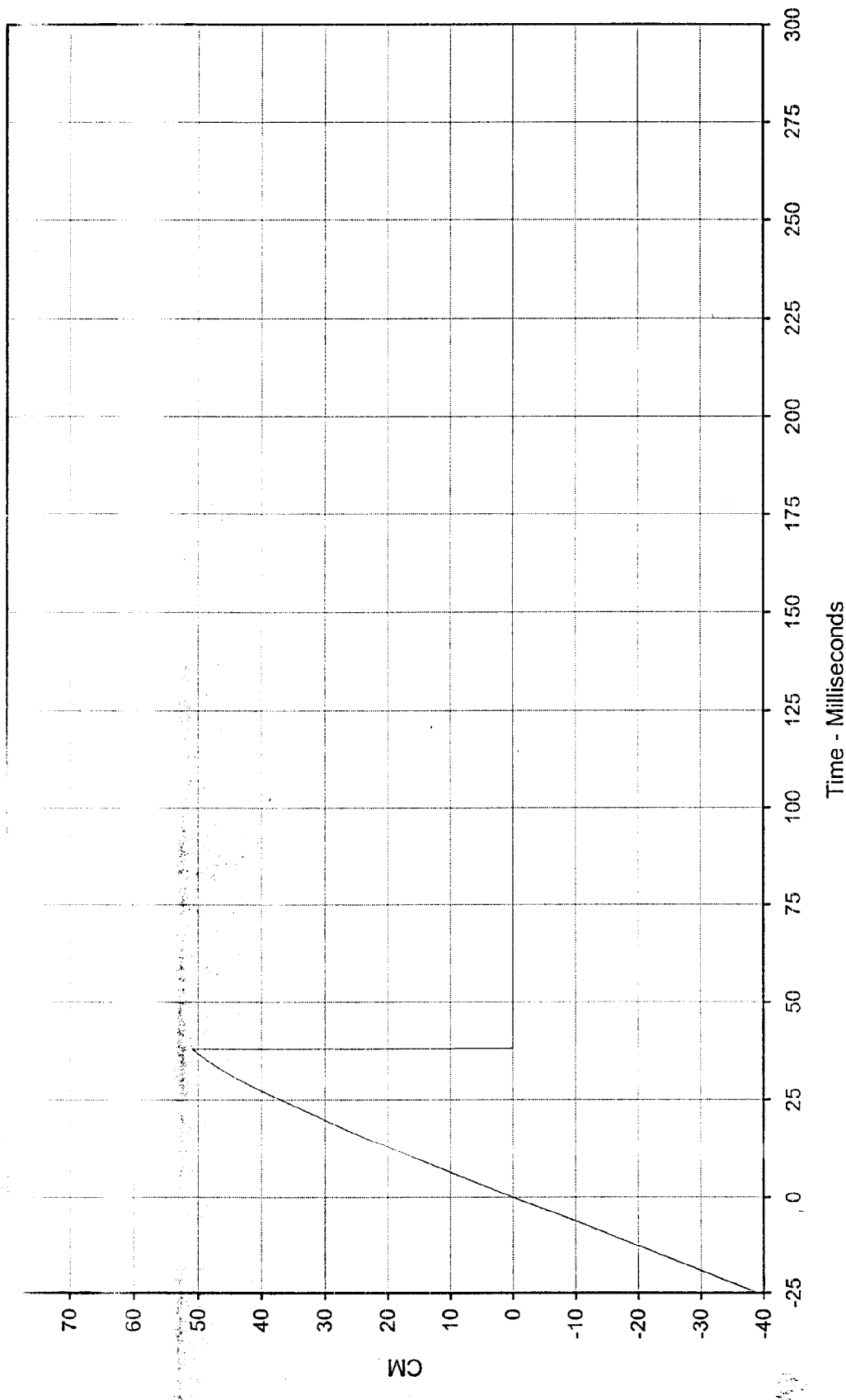
* Channel Failed at 38.1 Msec



Curve Description: Vehicle Left Brake Caliper Velocity * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 56.3 at 2.6 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 27.5 at 37.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-093



* Channel Failed at 38.1 Msec.



Curve Description: Vehicle Left Brake Caliper Displ. *

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 51.0 at 38.0 Milliseconds

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Minimum Value: 0.0 at 38.1 Milliseconds

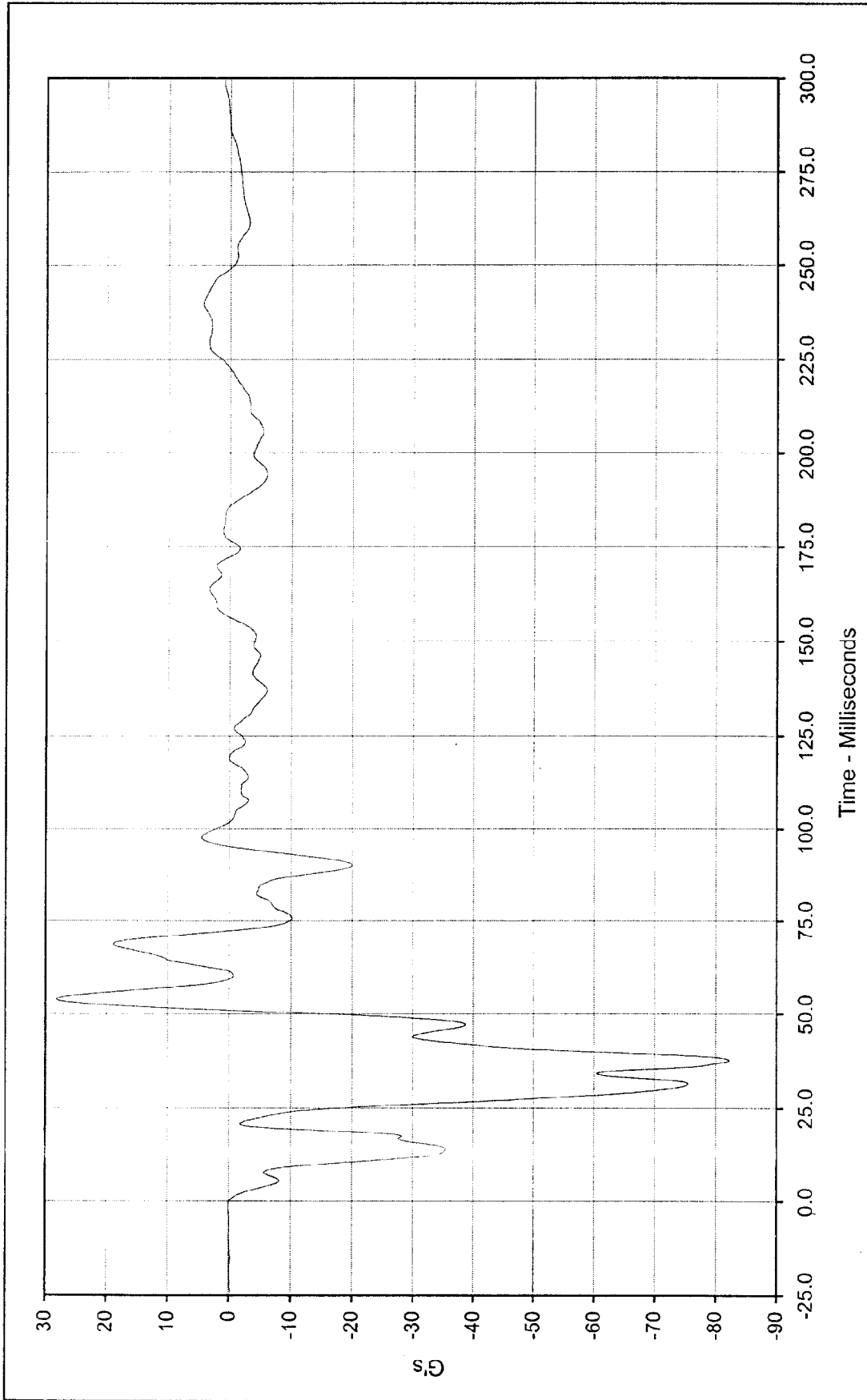
SAE Filter Class: 180

Date of Test: 1/5/99

Curve Number: IN2-093



* Channel Failed at 38.1 Msec. *



Curve Description: Vehicle Right Brake Caliper Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 28.2 at 54.0 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

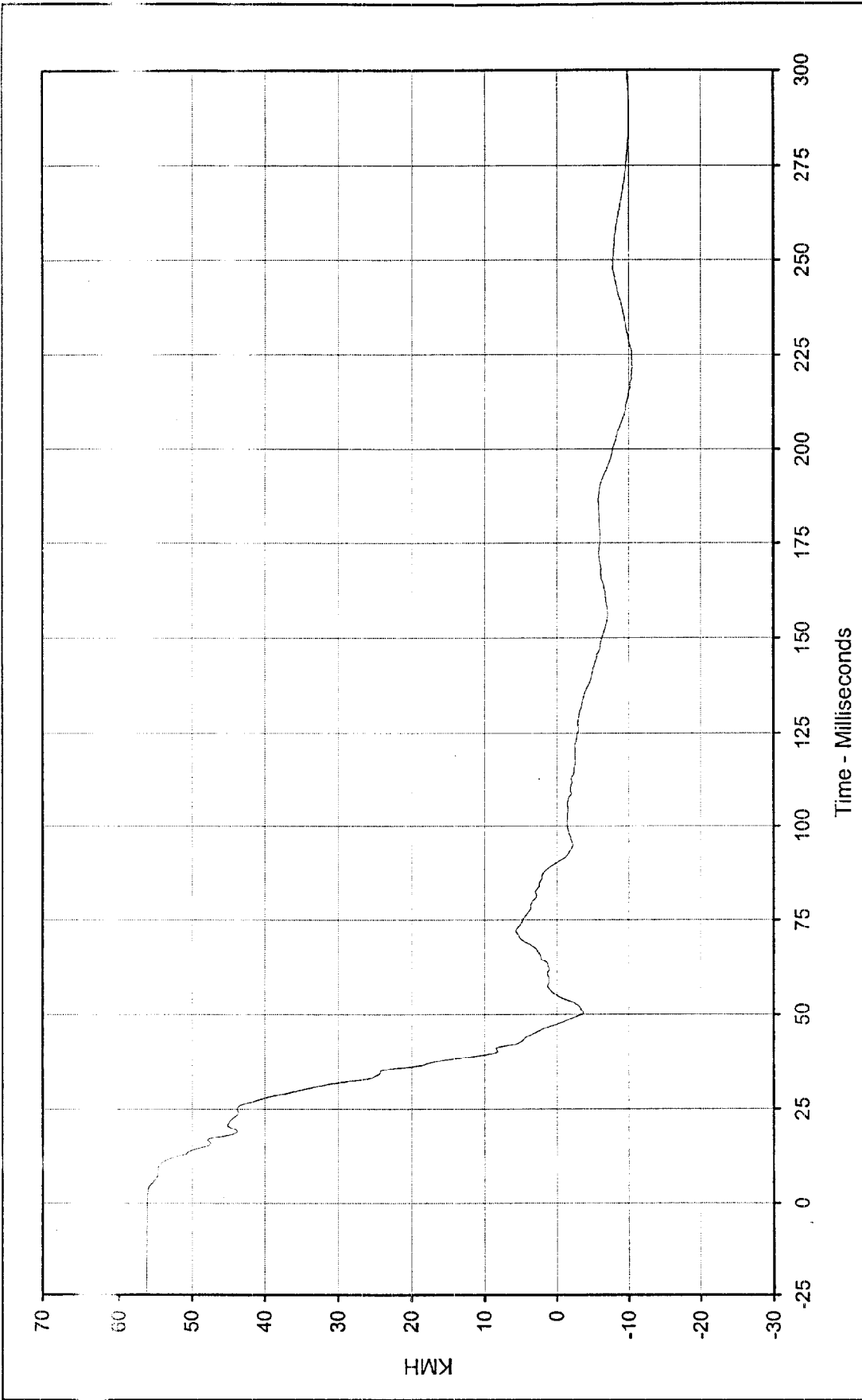
Minimum Value: -82.3 at 37.6 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-094

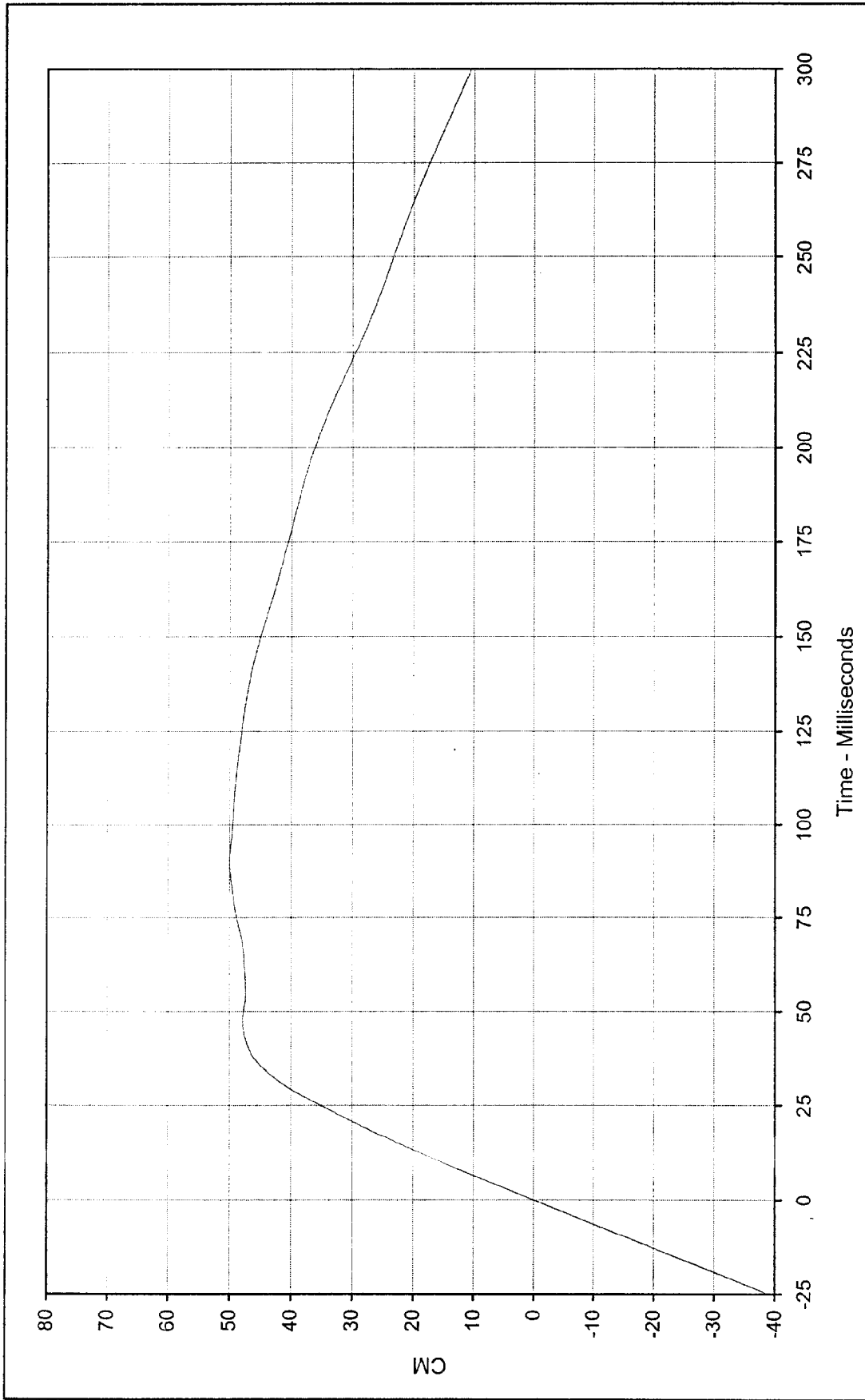




Curve Description: Vehicle Right Brake Caliper Velocity
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 56.2 at 0.0 Milliseconds
 Minimum Value: -10.5 at 221.8 Milliseconds
 SAE Filter Class: 180
 Date of Test: 1/5/99
 Curve Number: IN1-094





Curve Description: Vehicle Right Brake Calliper Displ. Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 50.0 at 90.1 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

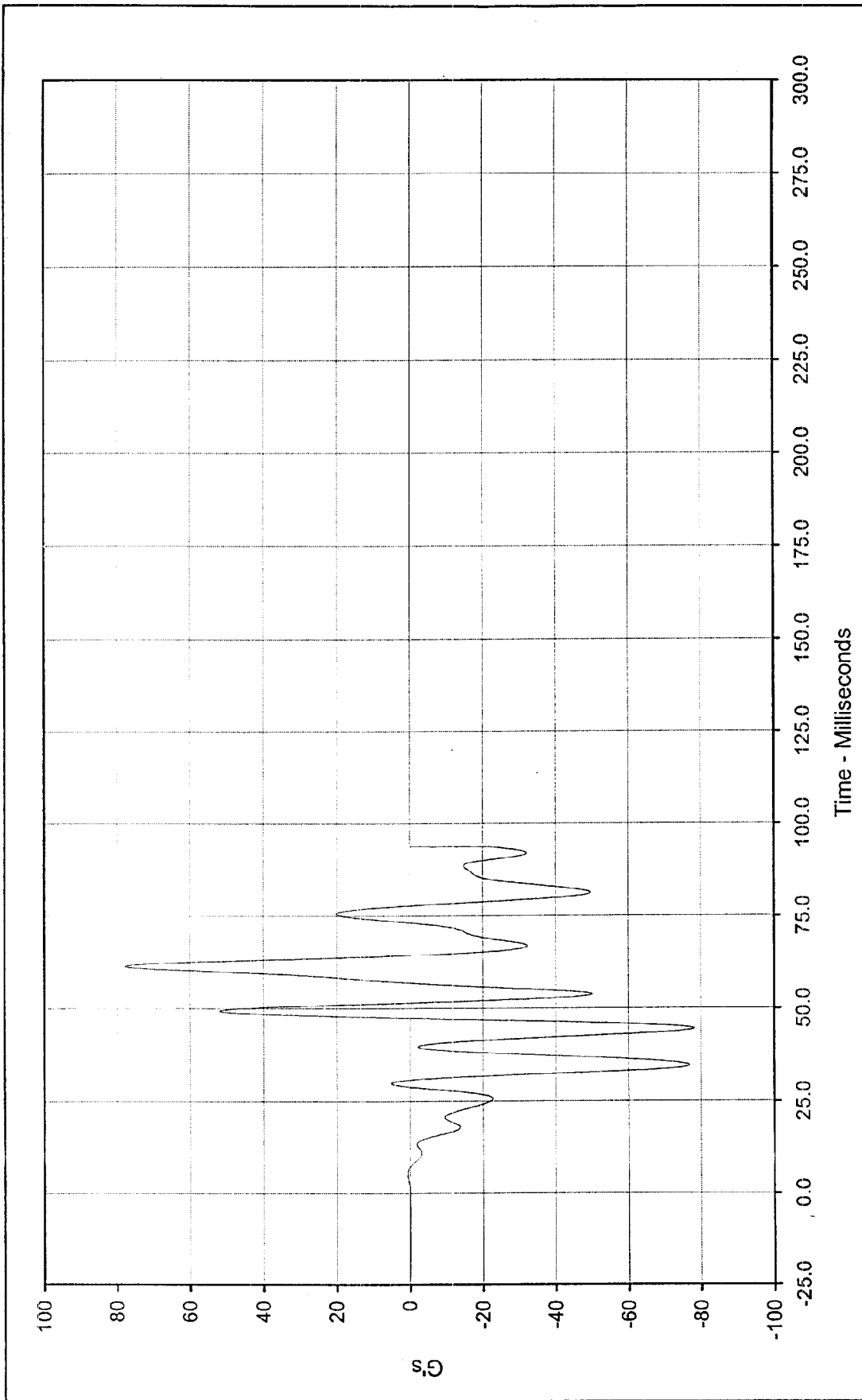
Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 1/5/99

Curve Number: IN2-094



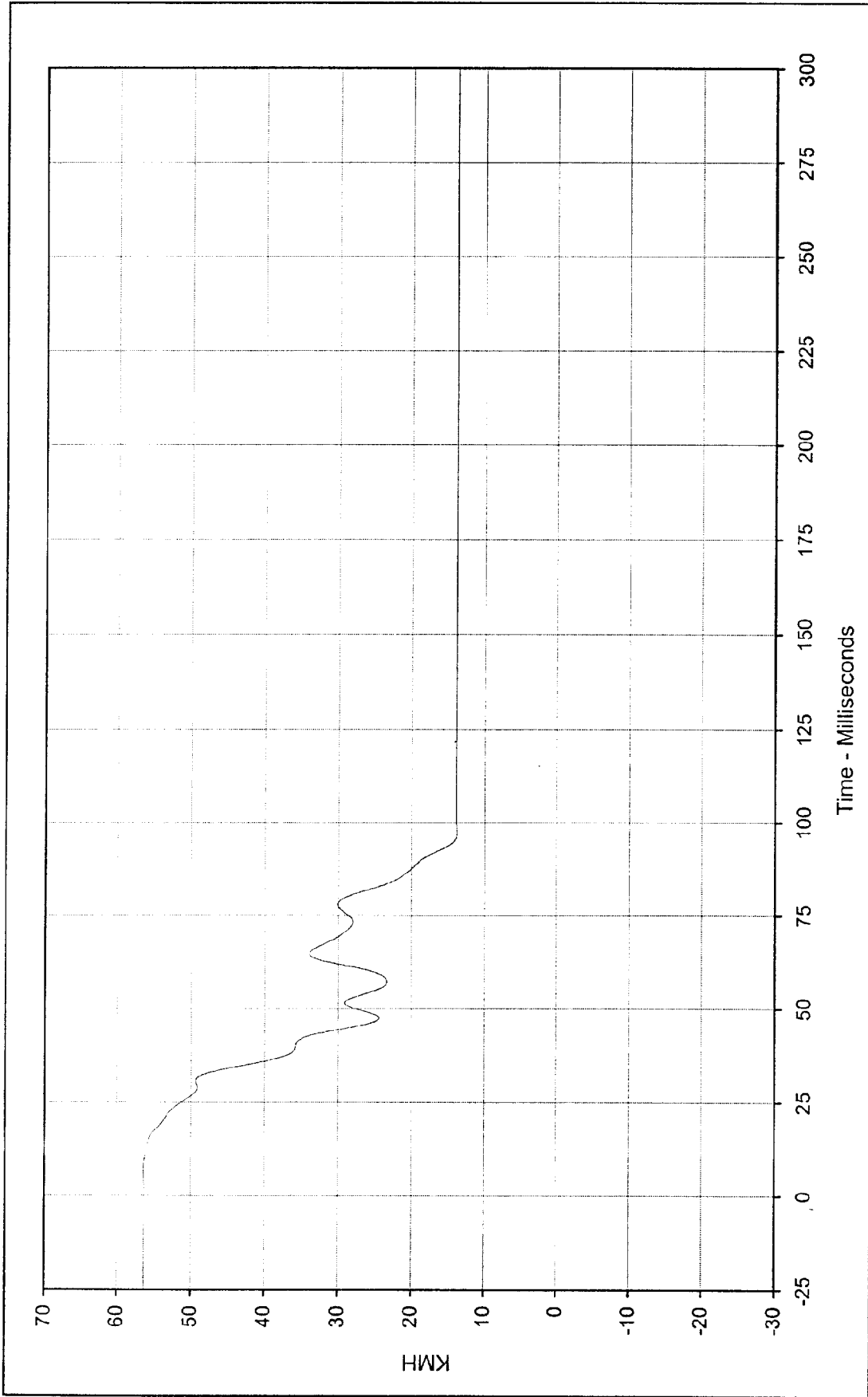


Curve Description: Vehicle Instrument Panel * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 77.9 at 61.4 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -78.2 at 44.6 Milliseconds



SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-095

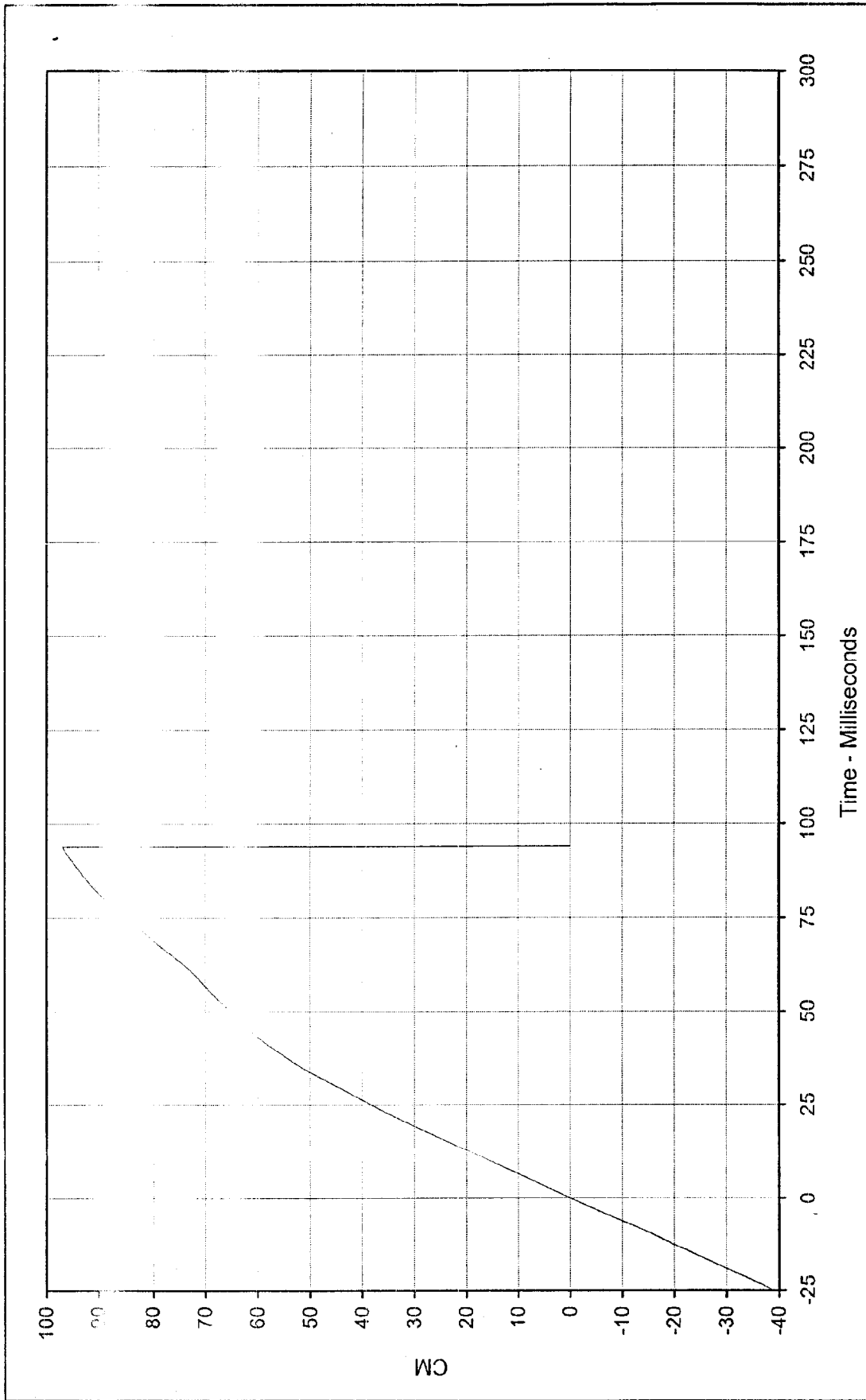
* Channel Failed at 94.0 Msec.



Curve Description: Vehicle Instrument Panel Velocity * Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 56.4 at 7.1 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: 13.7 at 97.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: IN1-095



* Channel Failed at 94.0 Msec. †



Curve Description: Vehicle Instrument Panel Displacement *

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 96.9 at 93.9 Milliseconds

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Minimum Value: 0.0 at 94.0 Milliseconds

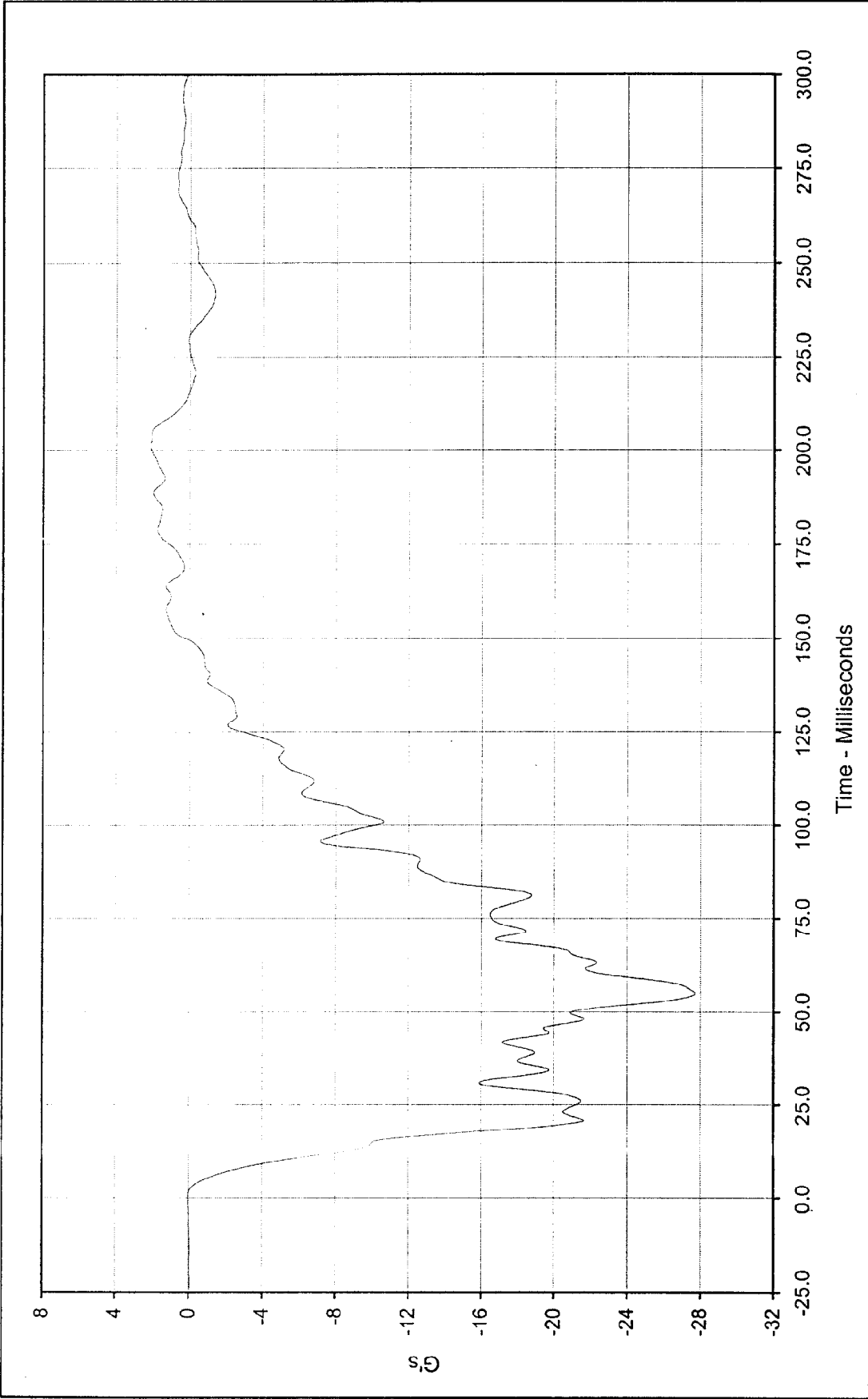
SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: IN2-095



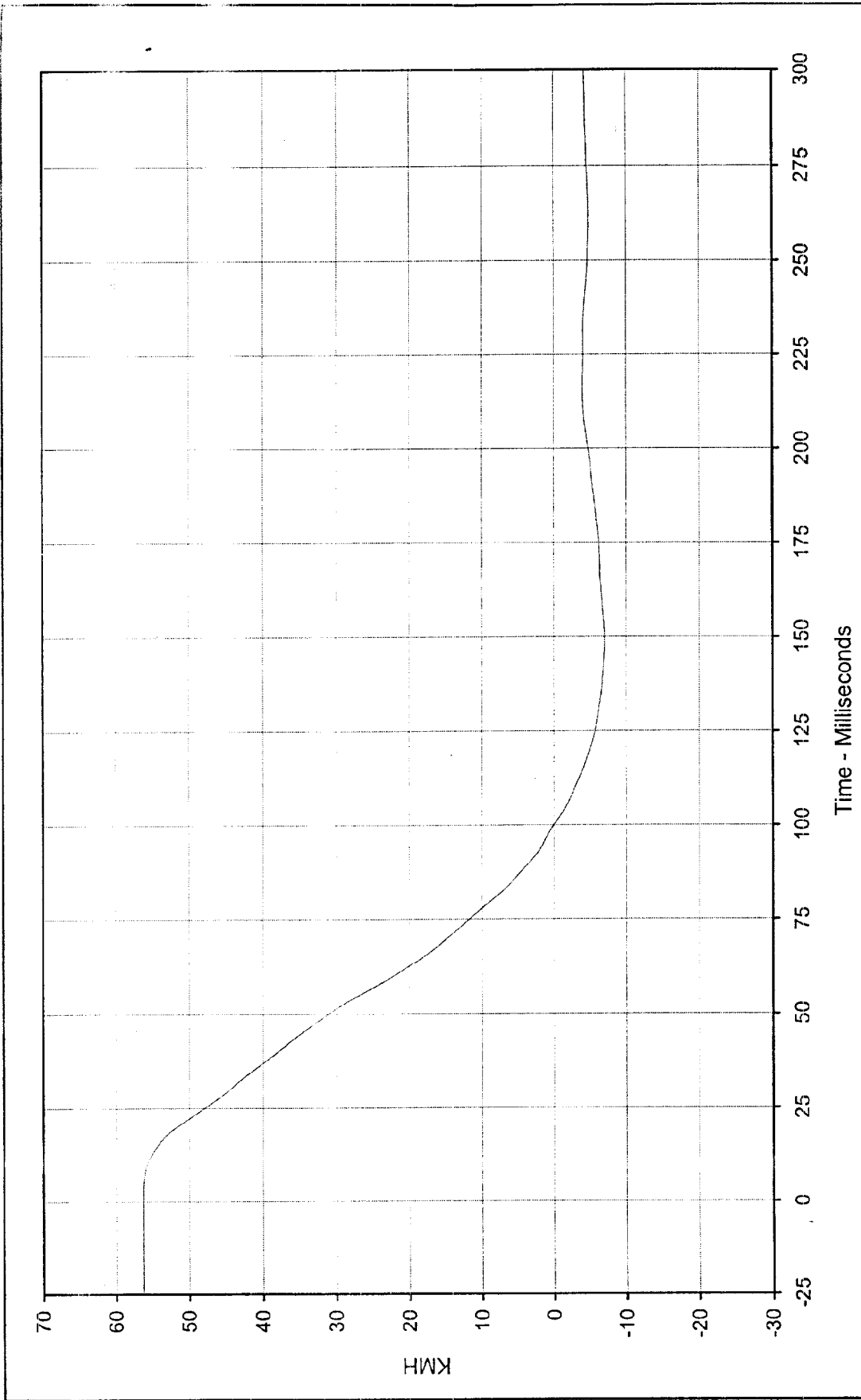
* Channel Failed at 94.0 Msec.



Curve Description: Vehicle Left Rear Redundant
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 2.1 at 201.1 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -27.7 at 55.0 Milliseconds



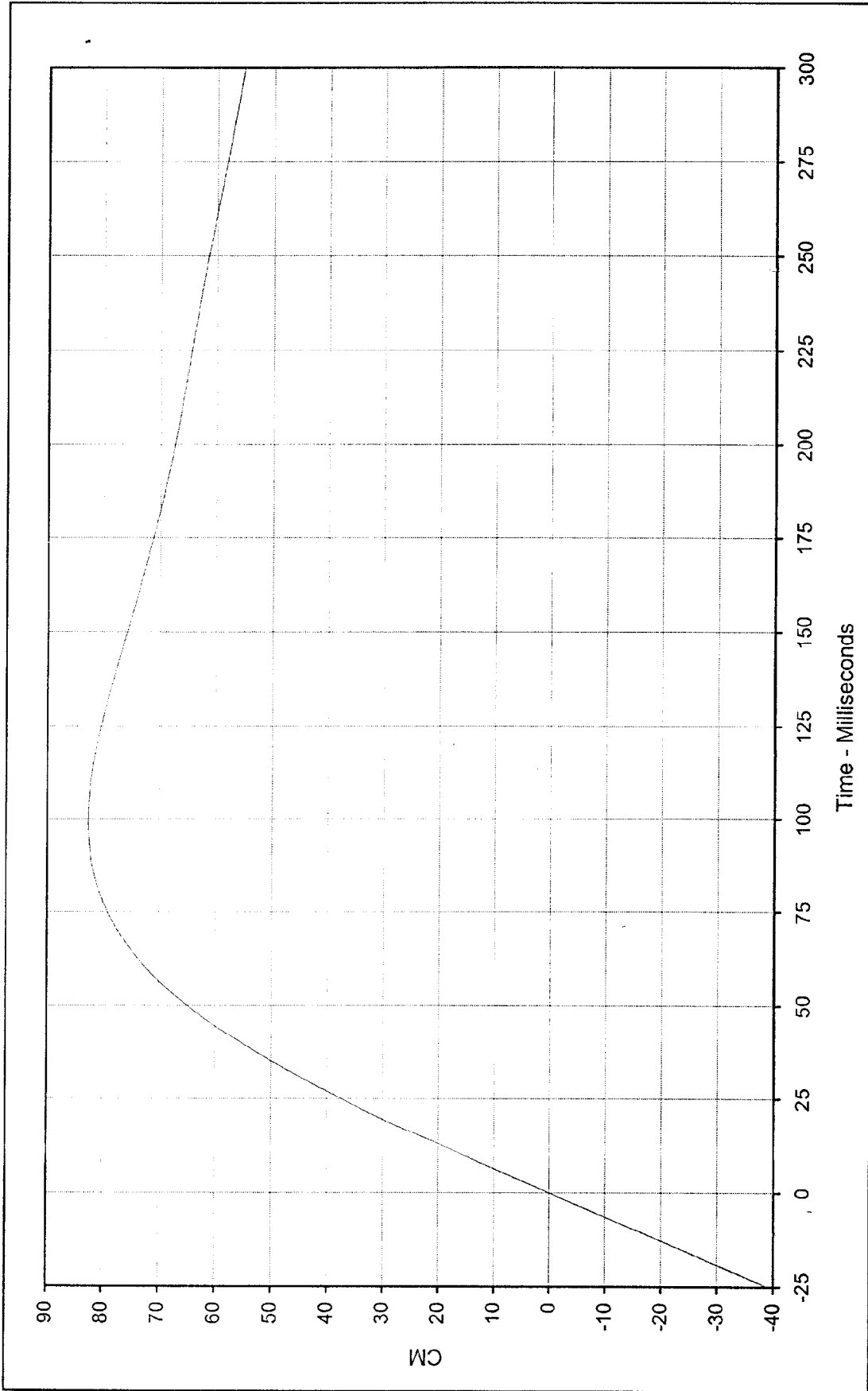
SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-096



Curve Description: Vehicle Left Rear Redundant Velocity Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 56.2 at 1.5 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -7.0 at 149.5 Milliseconds



SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: IN1-096



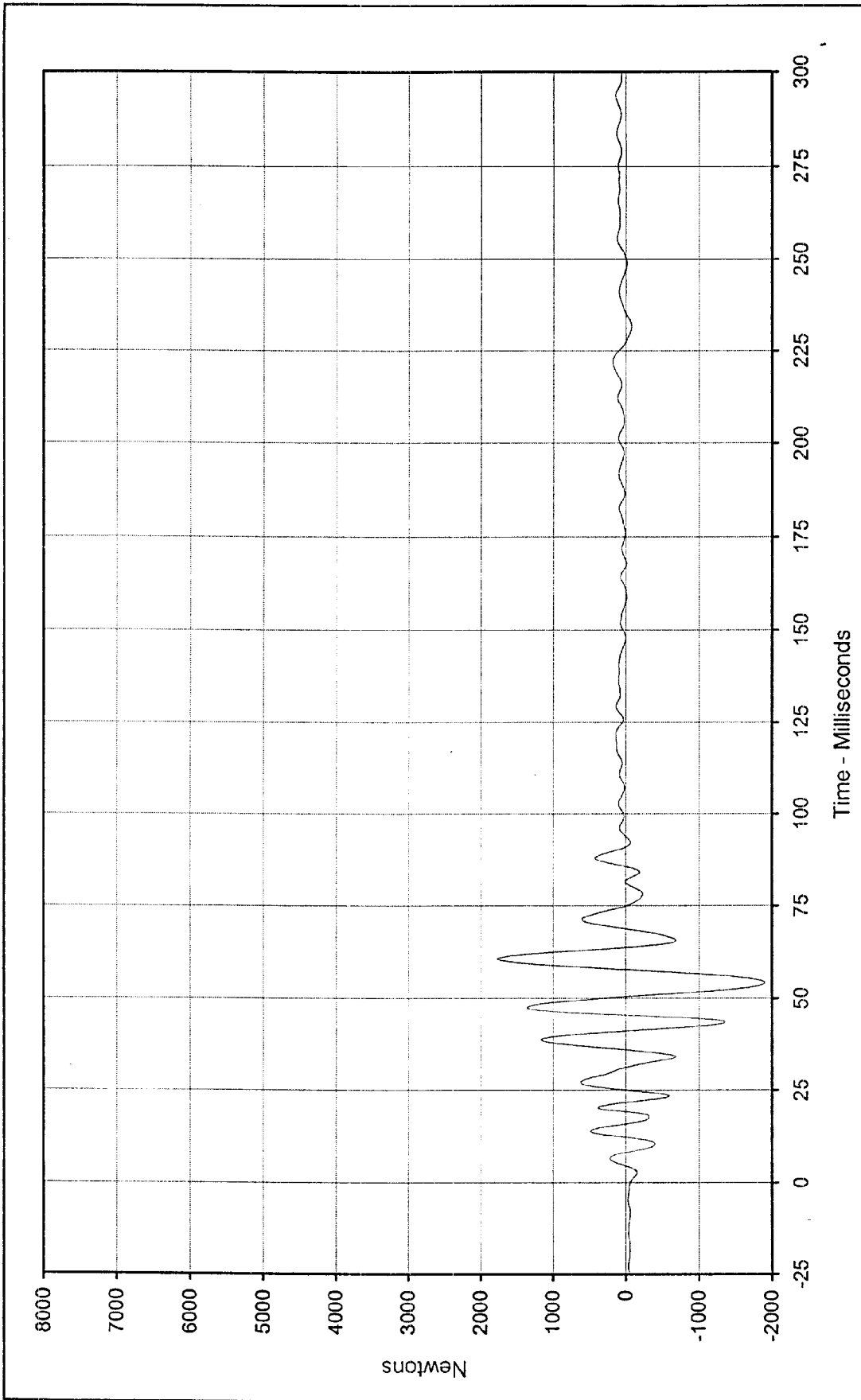
Curve Description: Vehicle Left Rear Redundant Displ.
 Maximum Value: 82.6 at 100.1 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: IN2-096

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV



APPENDIX C
LOAD CELL BARRIER INFORMATION

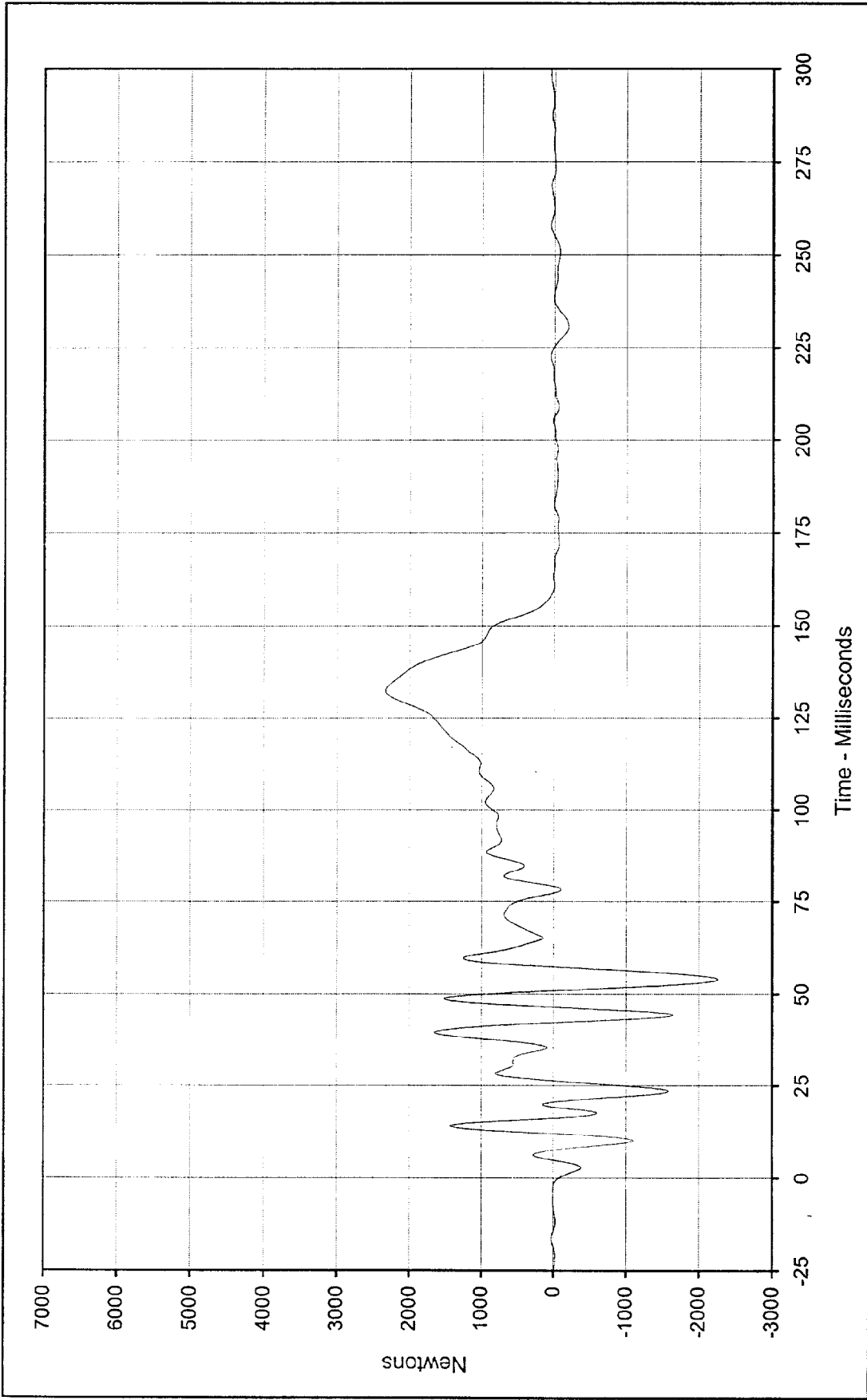
KAR99001-07



Curve Description: Barrier Force A2 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 1779.7 at 60.7 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -1901.8 at 54.2 Milliseconds



SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-099



Curve Description: Barrier Force A3

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 2332.4 at 132.5 Milliseconds

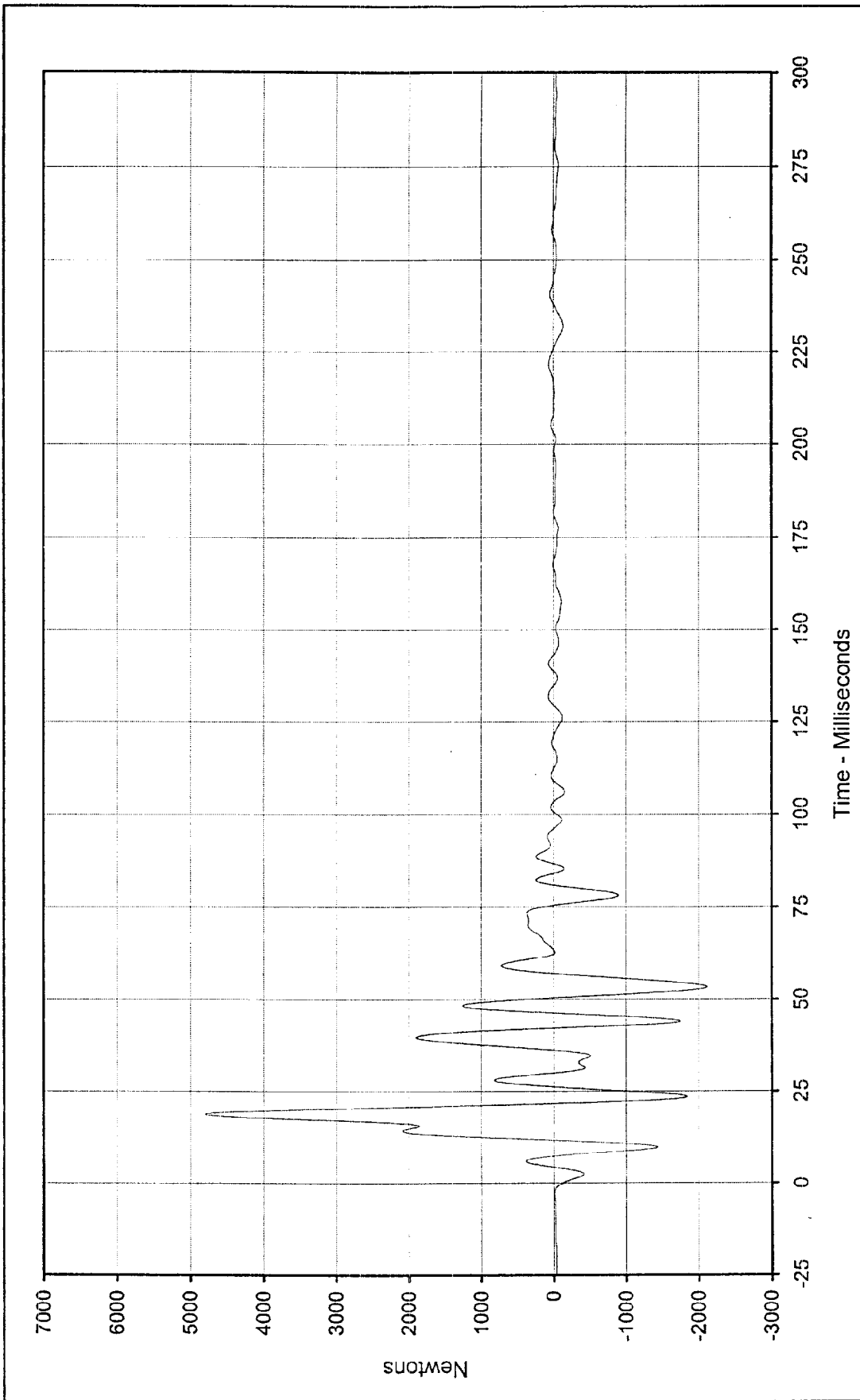
Minimum Value: -2260.9 at 53.9 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-100

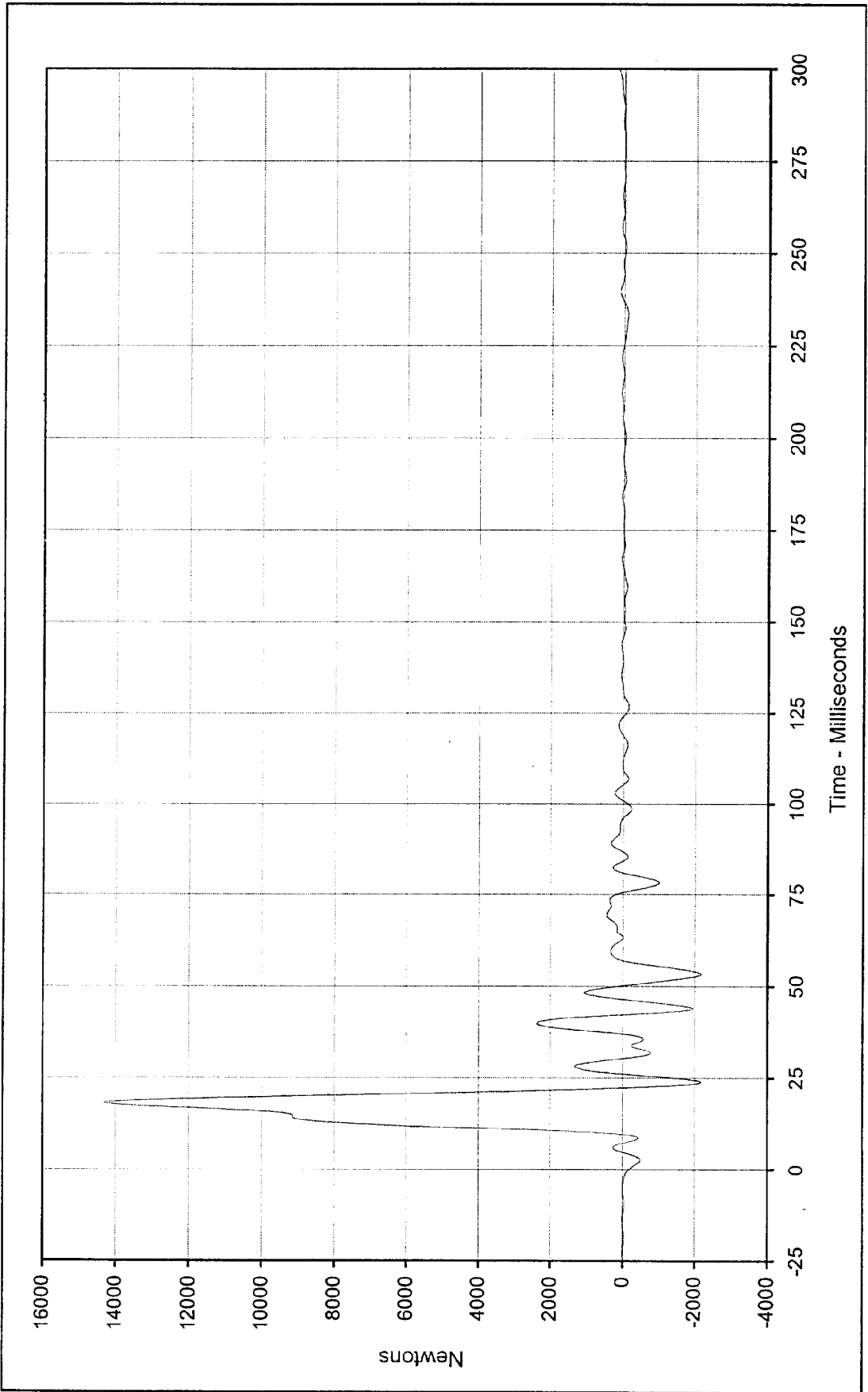




Curve Description: Barrier Force A4 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 4796.8 at 18.8 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -2117.3 at 53.3 Milliseconds



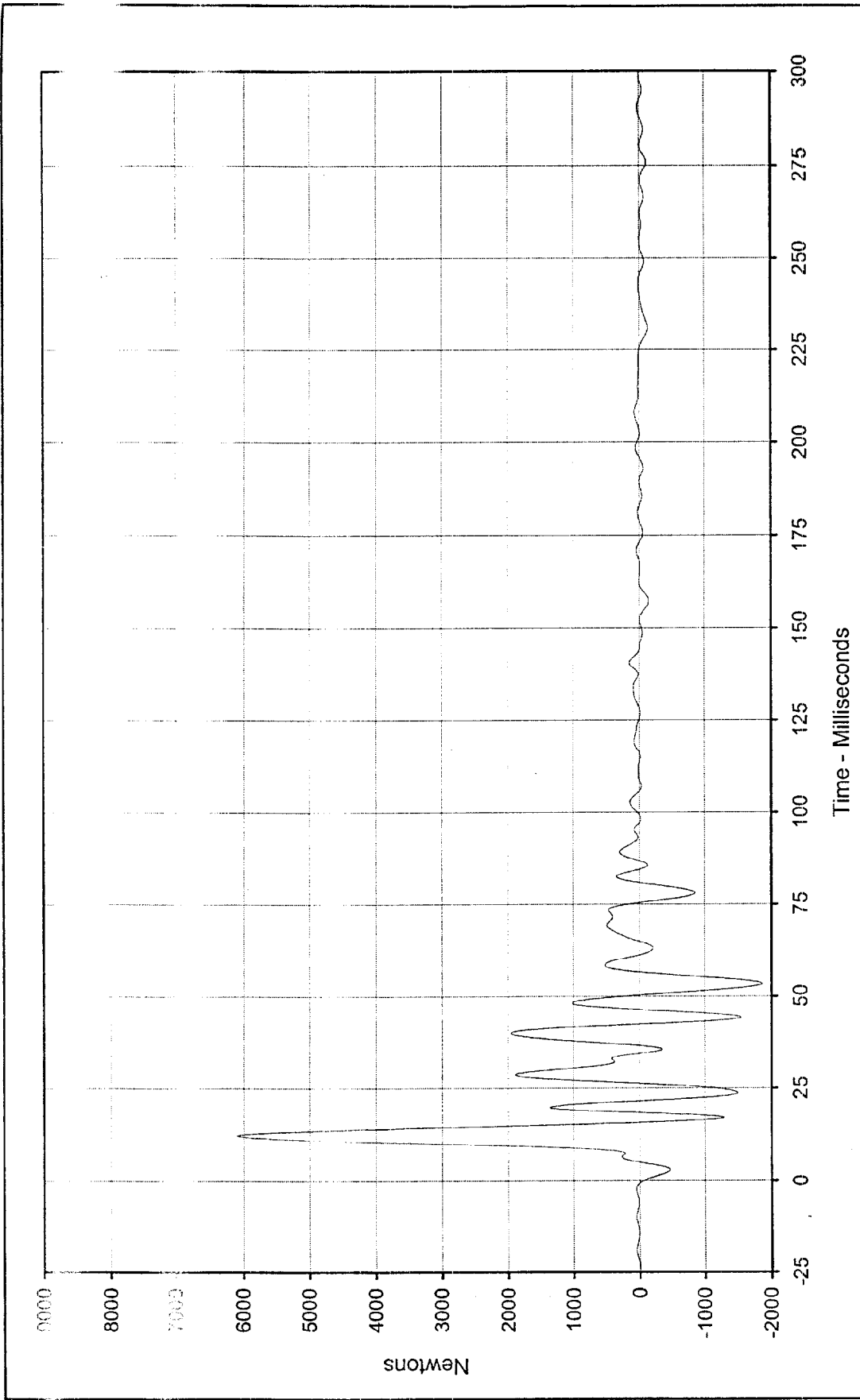
SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-101



Curve Description: Barrier Force A5
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 14313.7 at 18.1 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -2188.7 at 23.9 Milliseconds



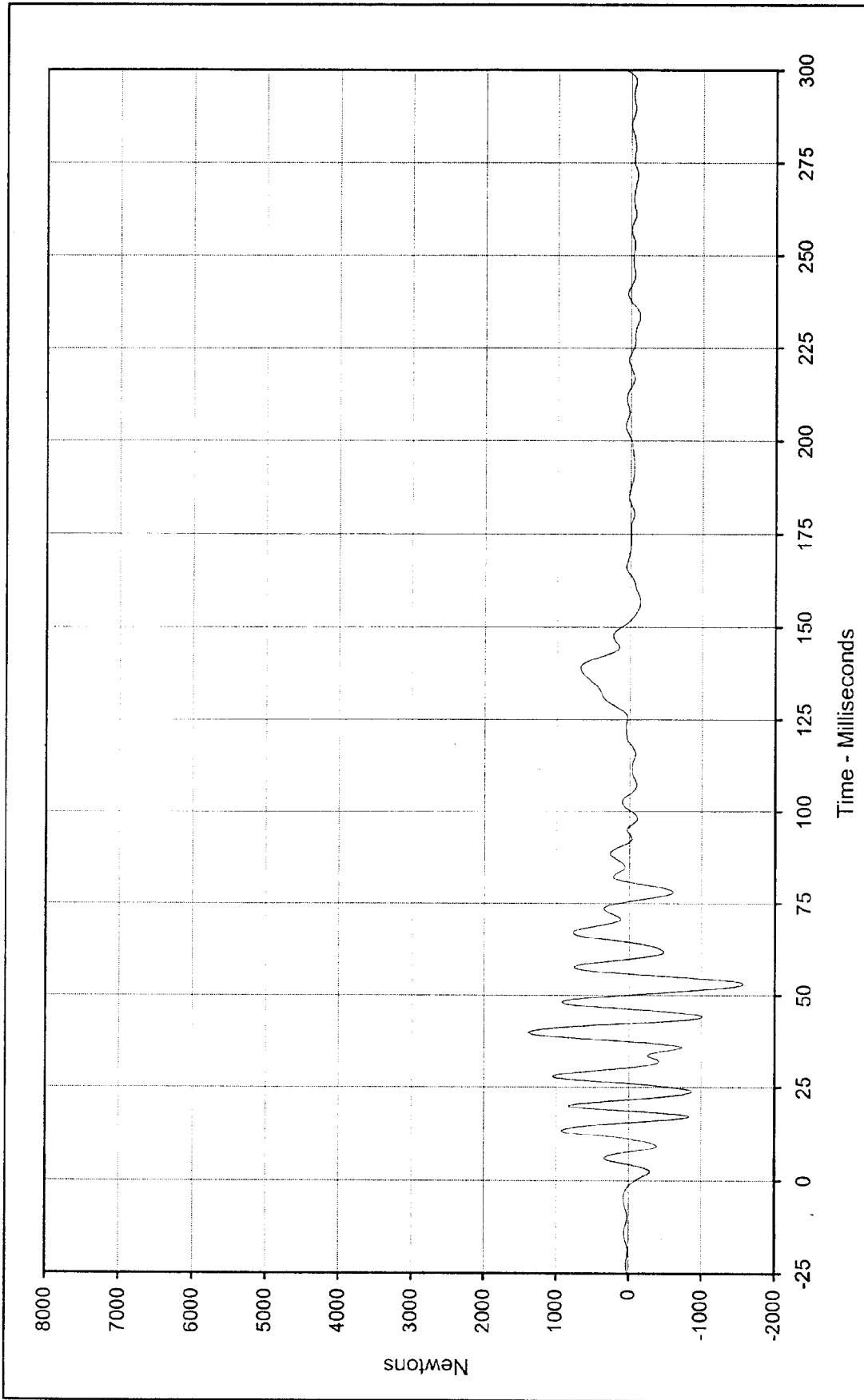
SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-102



Curve Description: Barrier Force A6
 Maximum Value: 6095.4 at 12.4 Milliseconds
 Minimum Value: -1864.0 at 53.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-103

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Barrier Force A7 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 1387.7 at 39.9 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

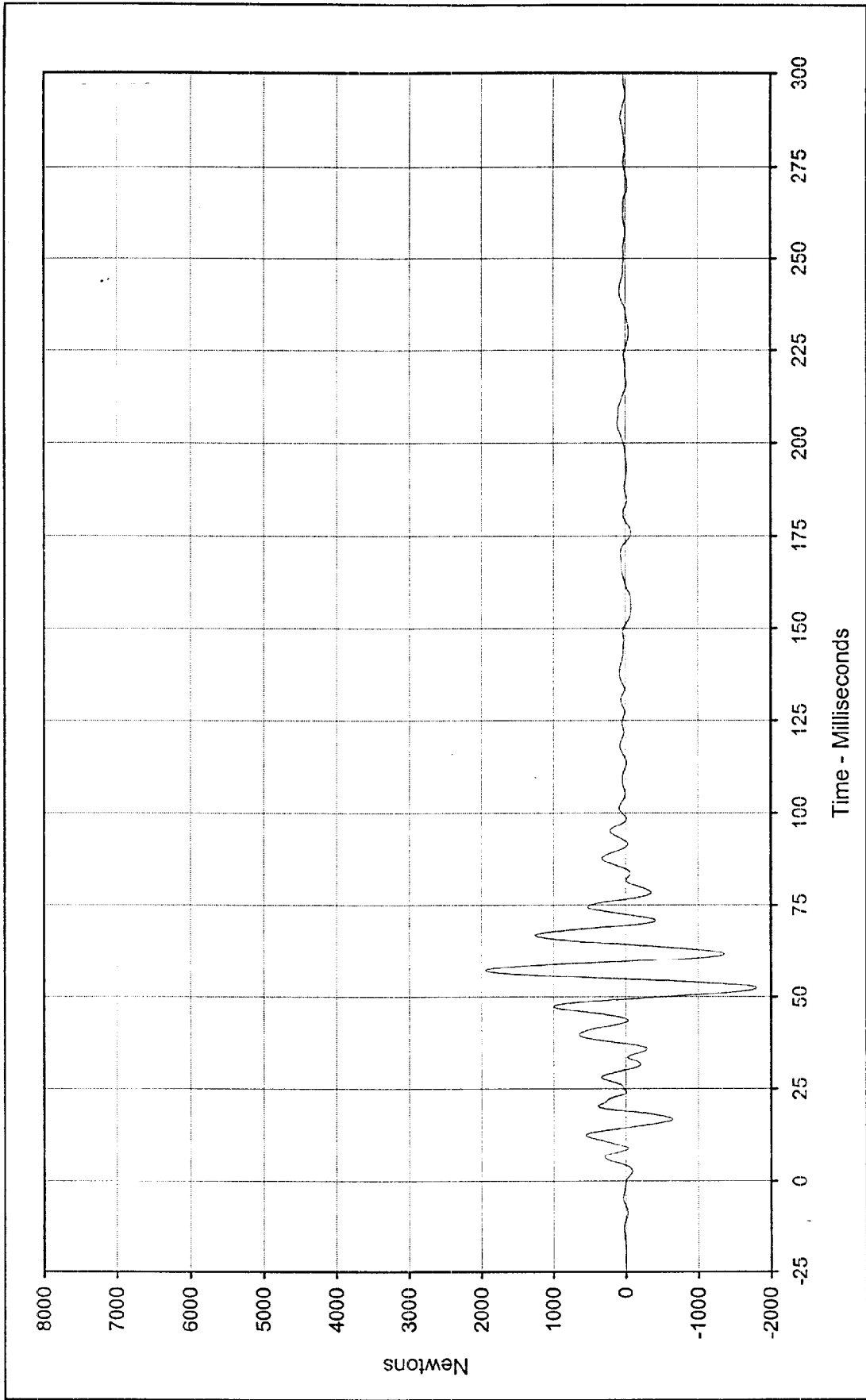
Minimum Value: -1574.1 at 53.0 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-104

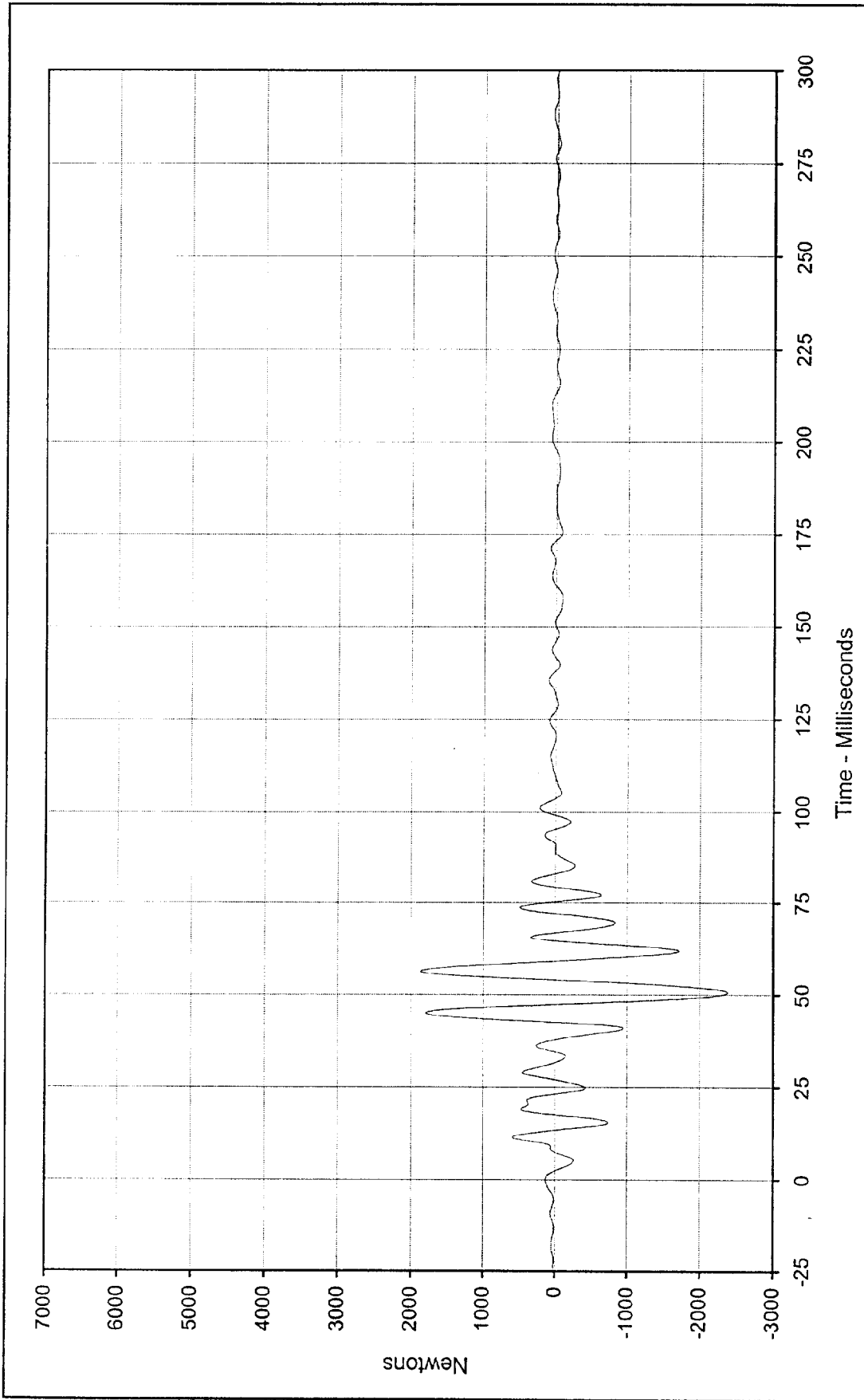




Curve Description: Barrier Force A8
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 1945.9 at 57.1 Milliseconds
 Minimum Value: -1805.1 at 52.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-105

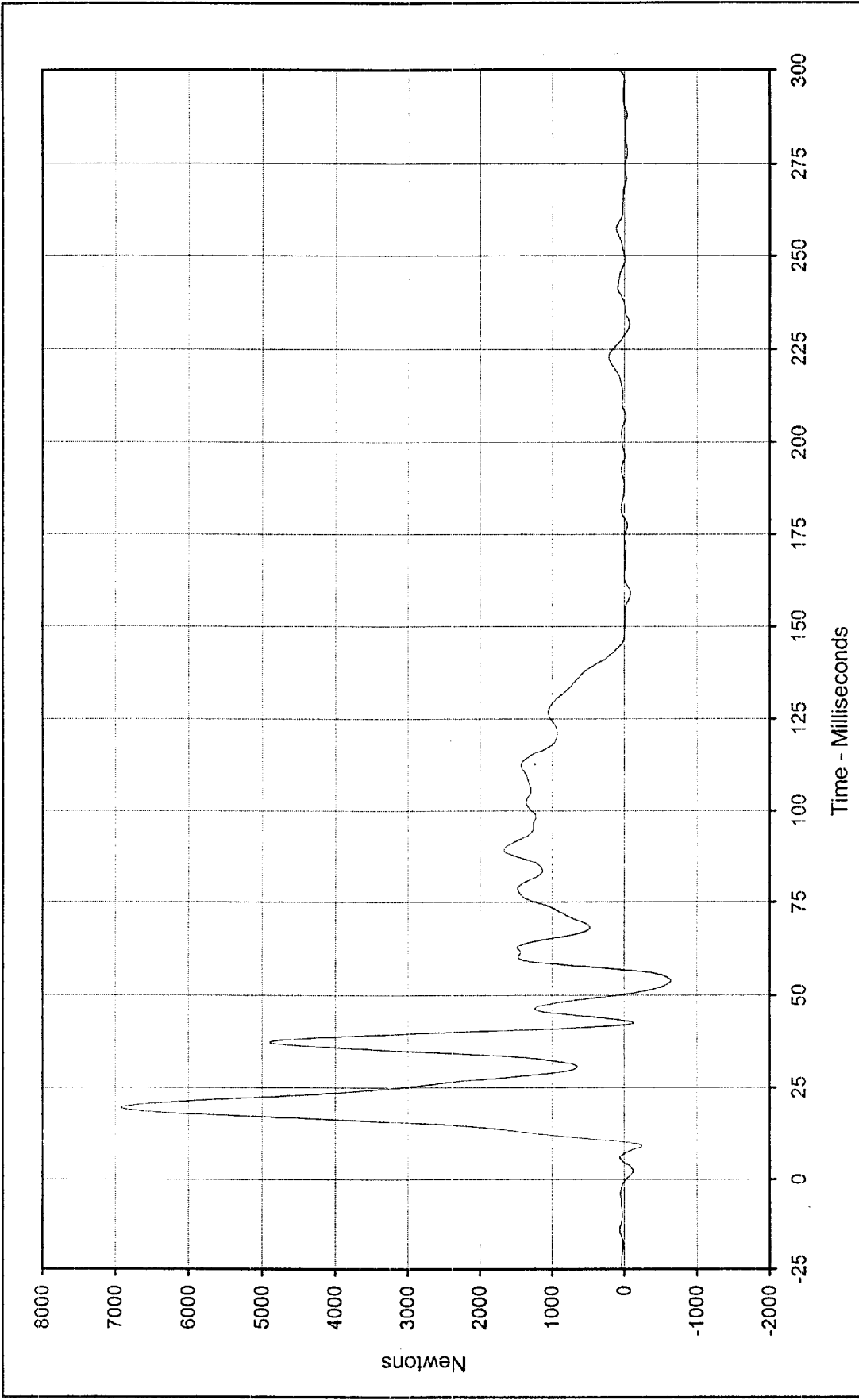




Curve Description: Barrier Force A9
 Maximum Value: 1863.7 at 56.4 Milliseconds
 Minimum Value: -2384.7 at 50.6 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-106

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

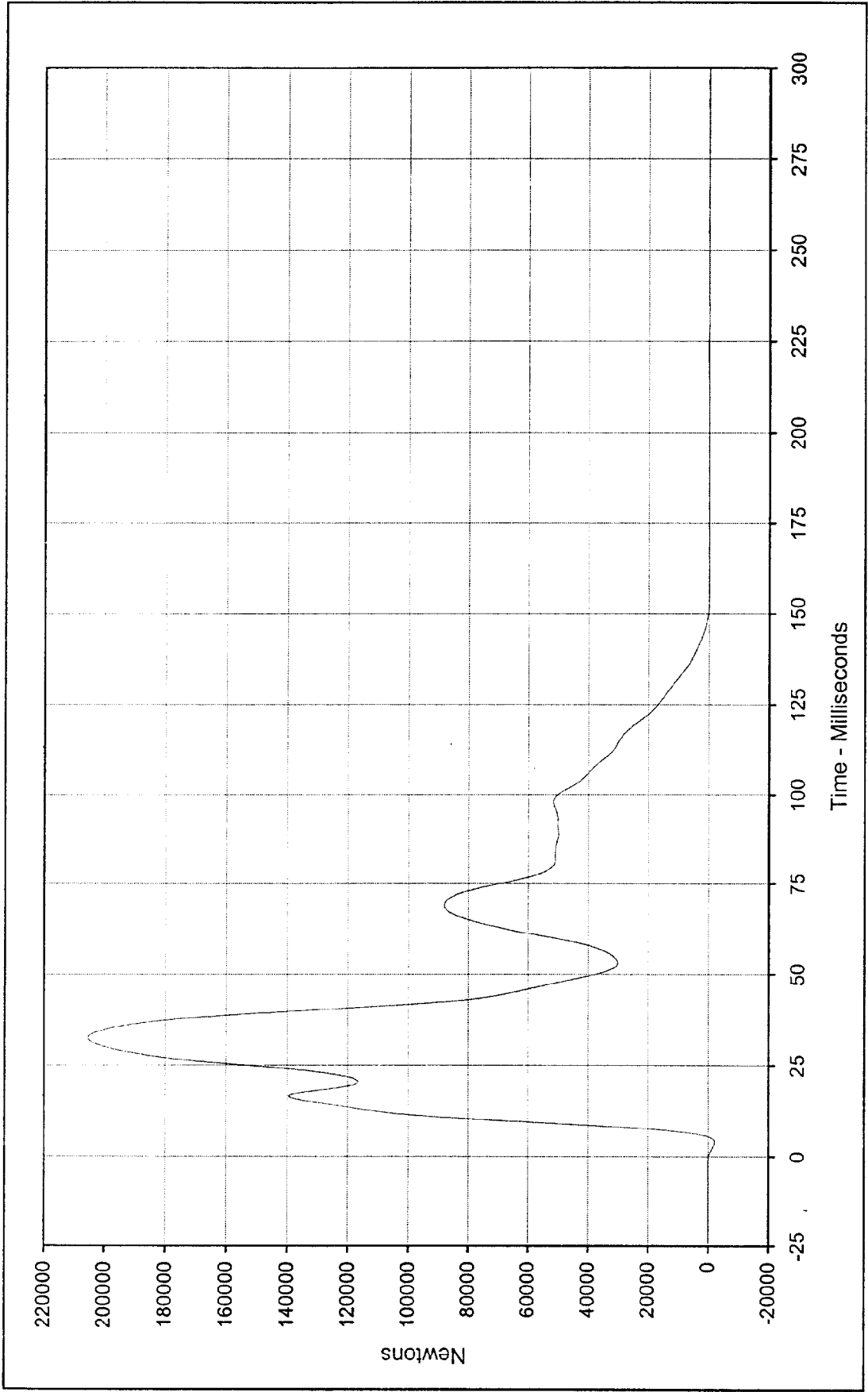




Curve Description: Barrier Force B2
 Maximum Value: 6922.4 at 19.6 Milliseconds
 Minimum Value: -639.6 at 53.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-108

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

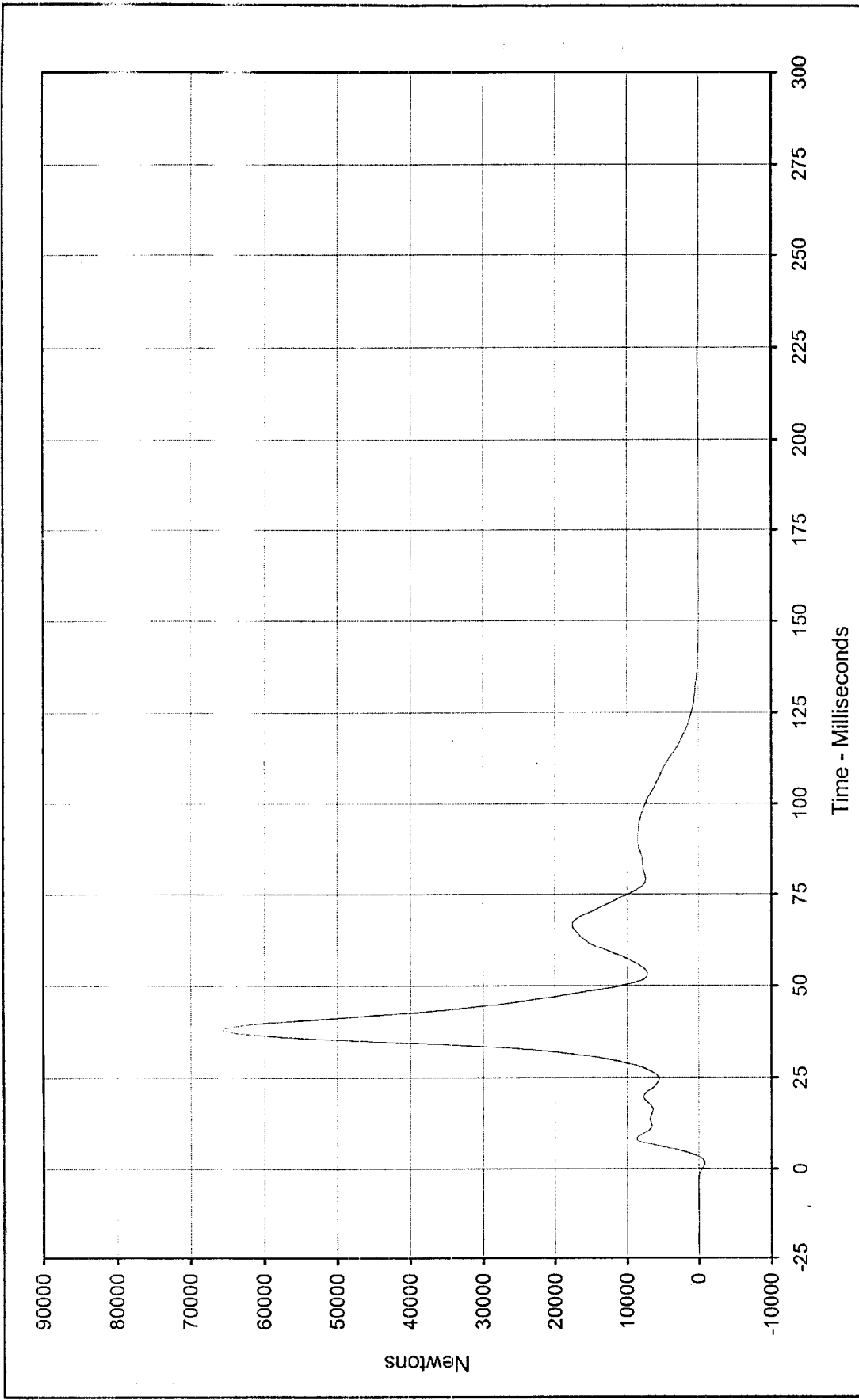




Curve Description: Barrier Force B3
 Maximum Value: 205375.8 at 32.5 Milliseconds
 Minimum Value: -2156.4 at 3.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-109

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV





Curve Description: Barrier Force B4 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 65605.2 at 38.2 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

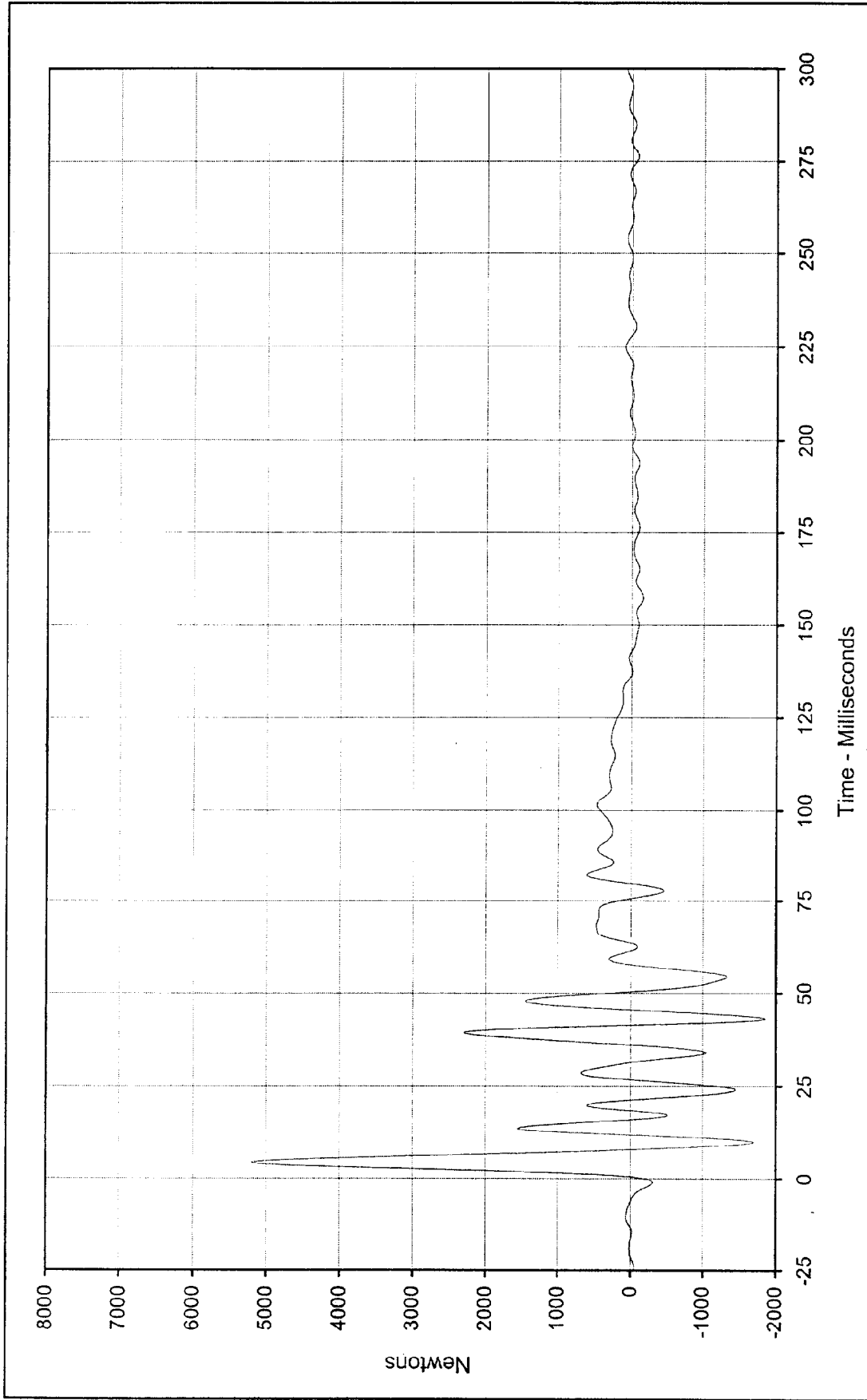
Minimum Value: -793.3 at 1.6 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-110





Curve Description: Barrier Force B5 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 5187.1 at 4.3 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

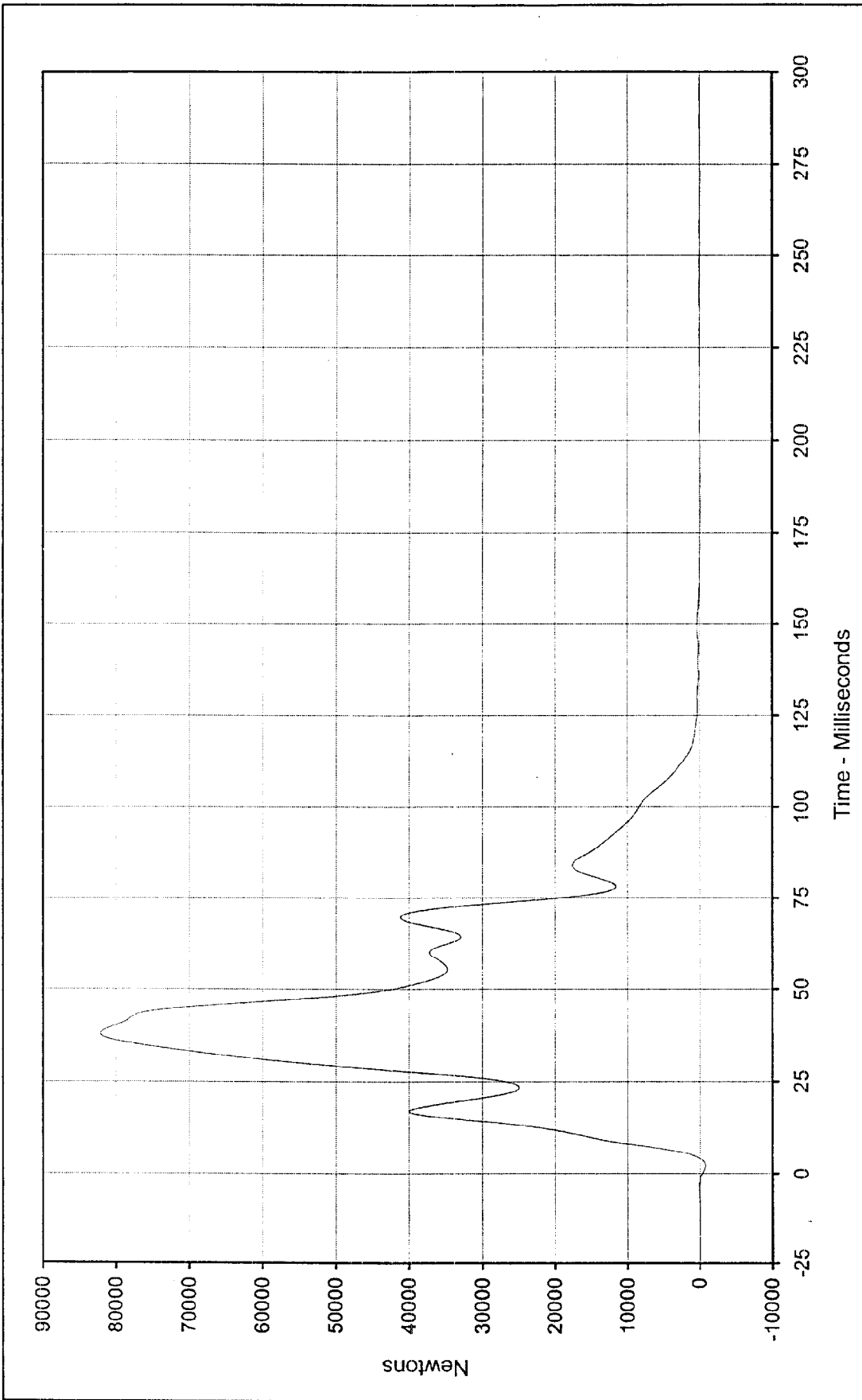
Minimum Value: -1861.2 at 43.2 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-111

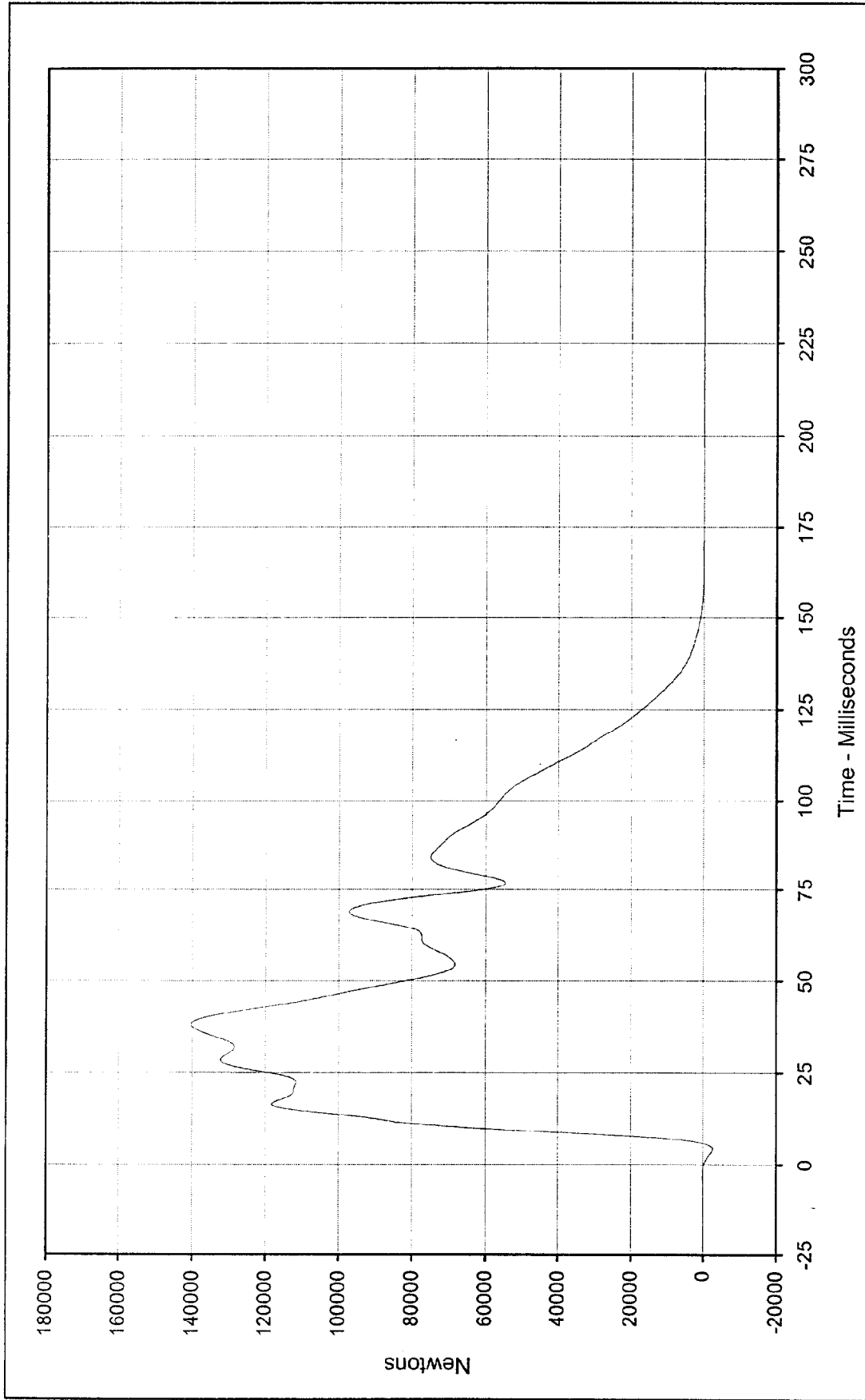




Curve Description: Barrier Force B6 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 82181.8 at 38.1 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -801.0 at 2.0 Milliseconds



SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-112



Curve Description: Barrier Force B7 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 140333.9 at 38.2 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

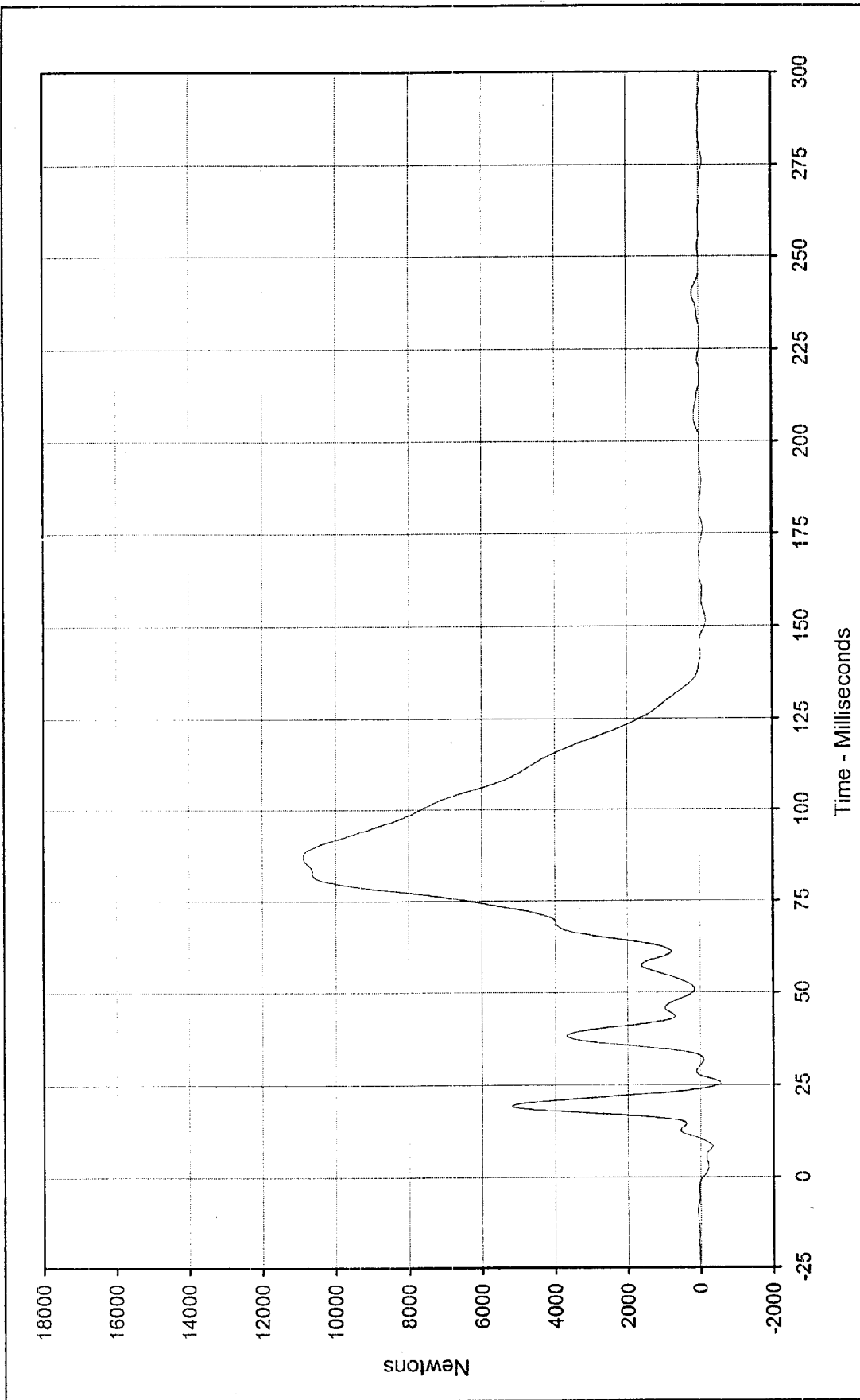
Minimum Value: -2671.1 at 4.2 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-113





Curve Description: Barrier Force B8 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 10878.8 at 86.9 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

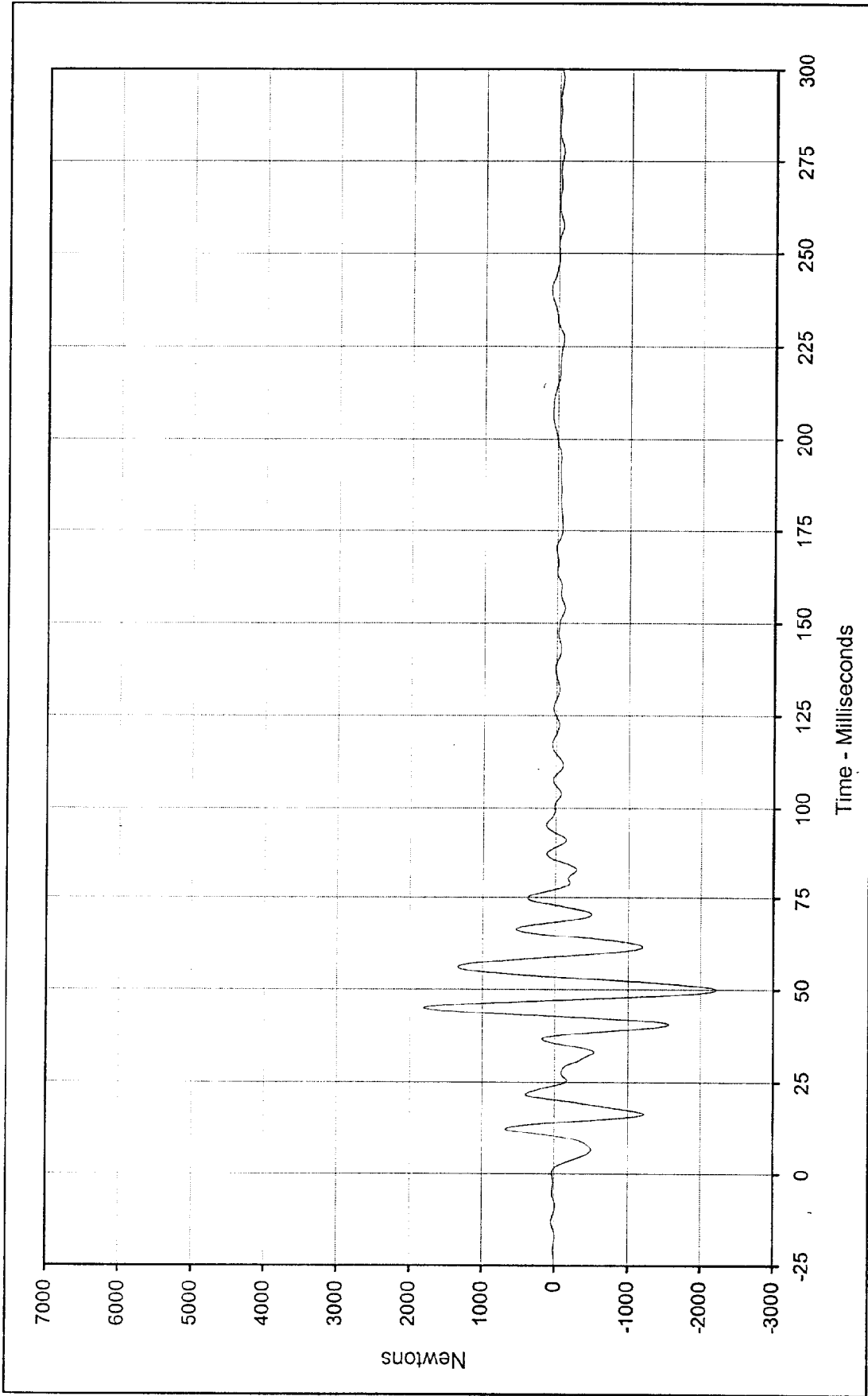
Minimum Value: -573.2 at 25.5 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-114

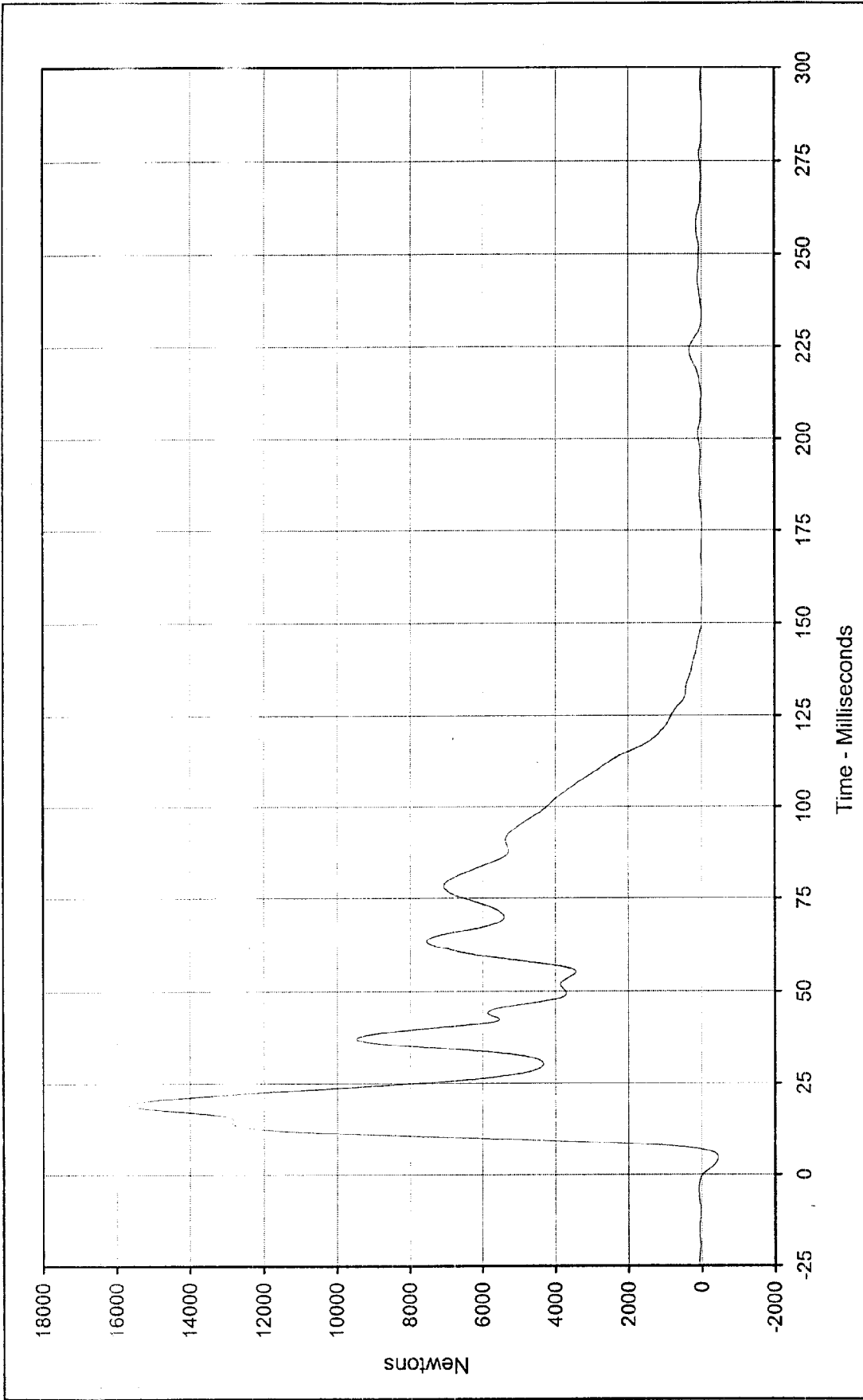




Curve Description: Barrier Force B9
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 1804.8 at 45.1 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -2222.8 at 49.9 Milliseconds



SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-115



Curve Description: Barrier Force C2

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 15671.7 at 19.1 Milliseconds

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

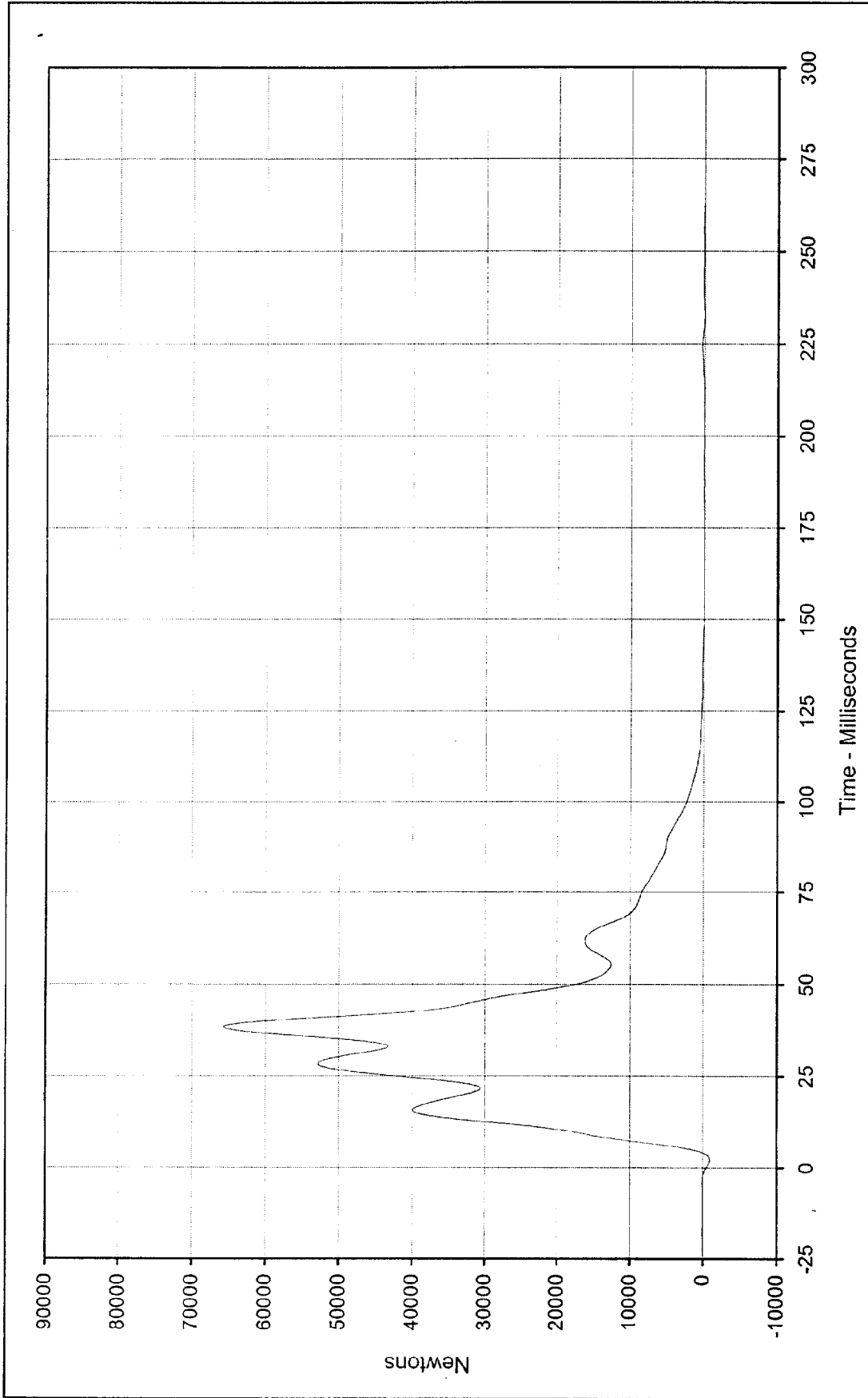
Minimum Value: -448.0 at 4.6 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-117





Curve Description: Barrier Force C3 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 65688.2 at 38.5 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV

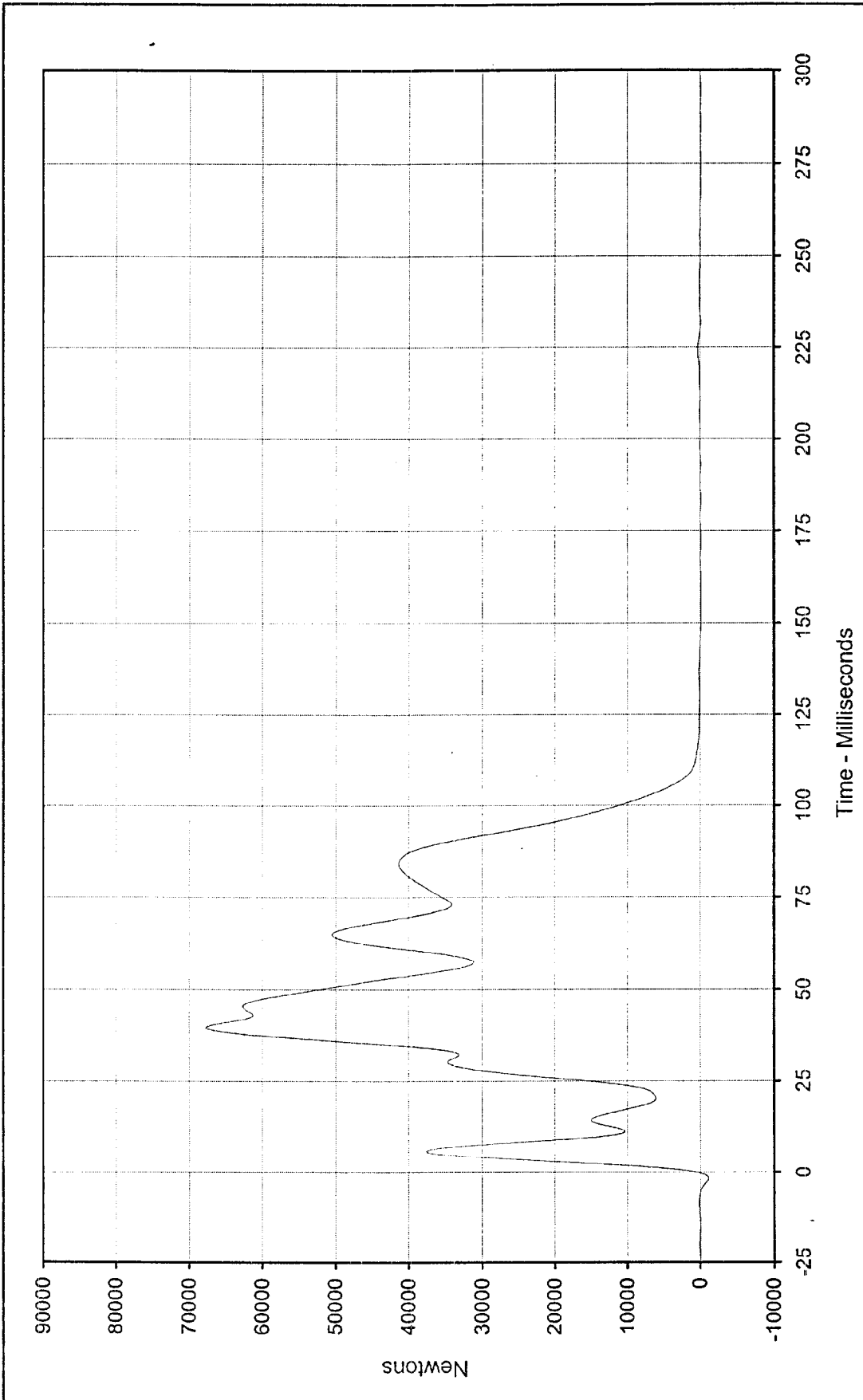
Minimum Value: -958.5 at 2.0 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

Curve Number: FIL-118

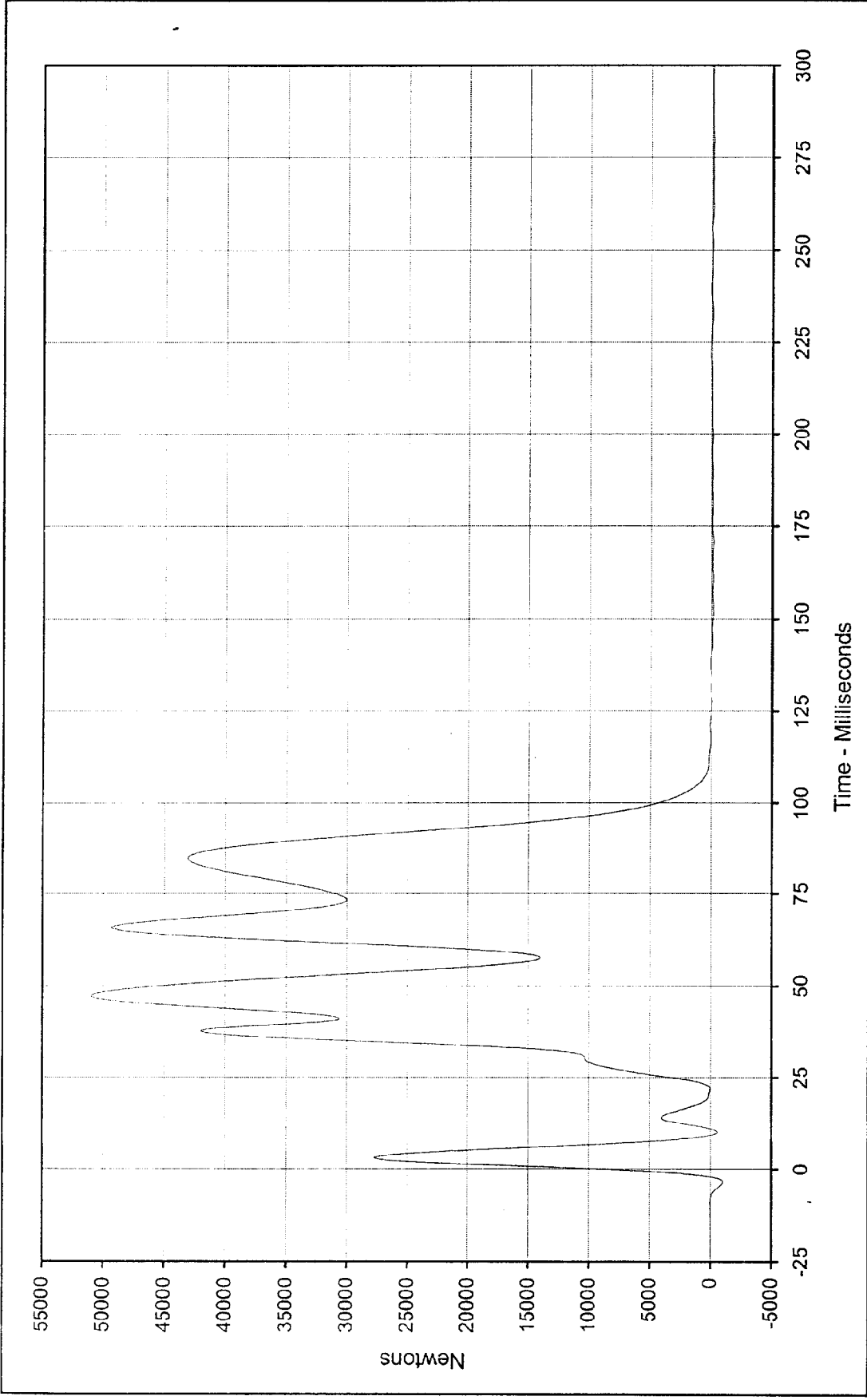




Curve Description: Barrier Force C4
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 67726.9 at 39.7 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -135.4 at 150.2 Milliseconds



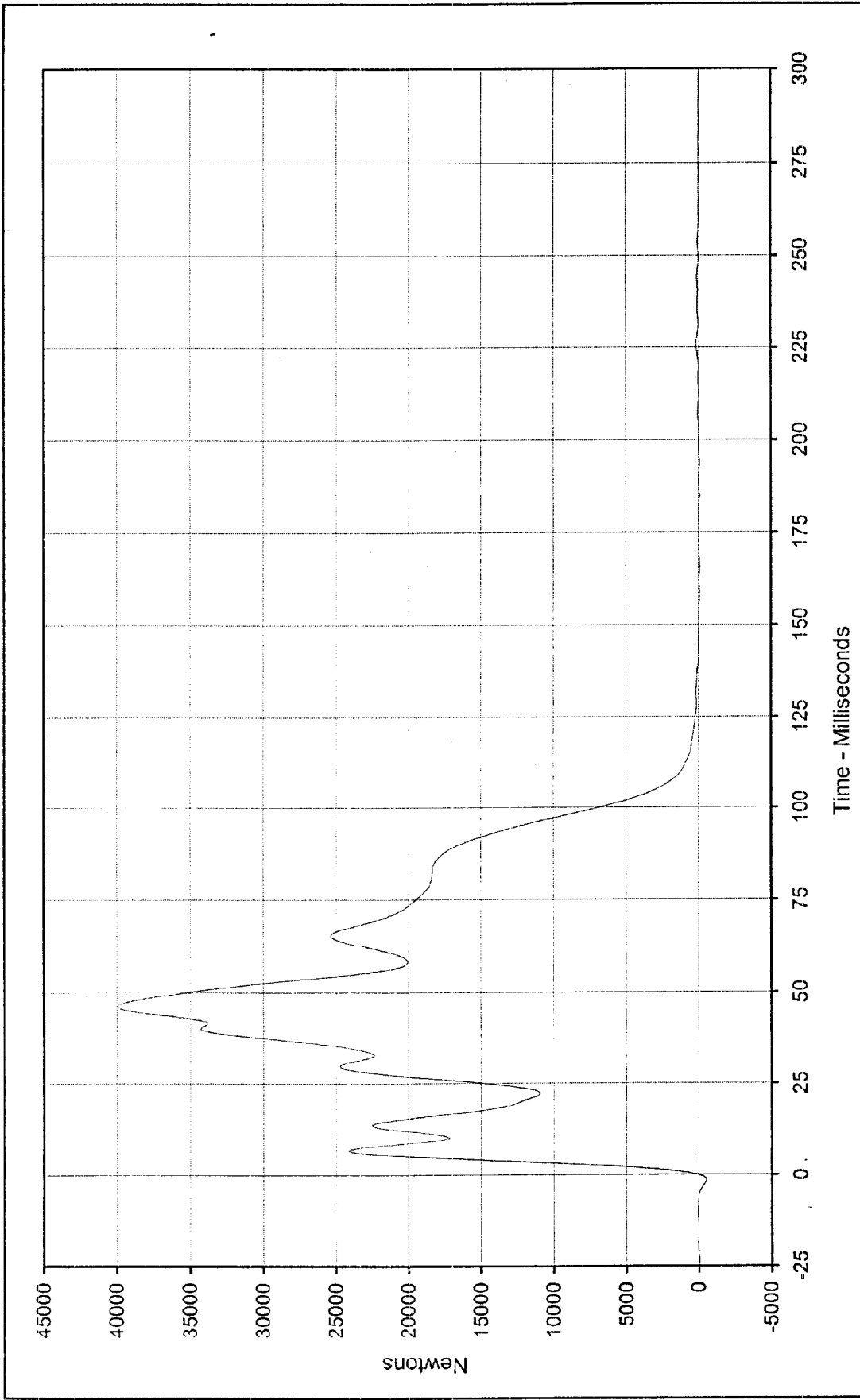
SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-119



Curve Description: Barrier Force C5
 Maximum Value: 51009.1 at 47.3 Milliseconds
 Minimum Value: -594.9 at 10.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-120

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

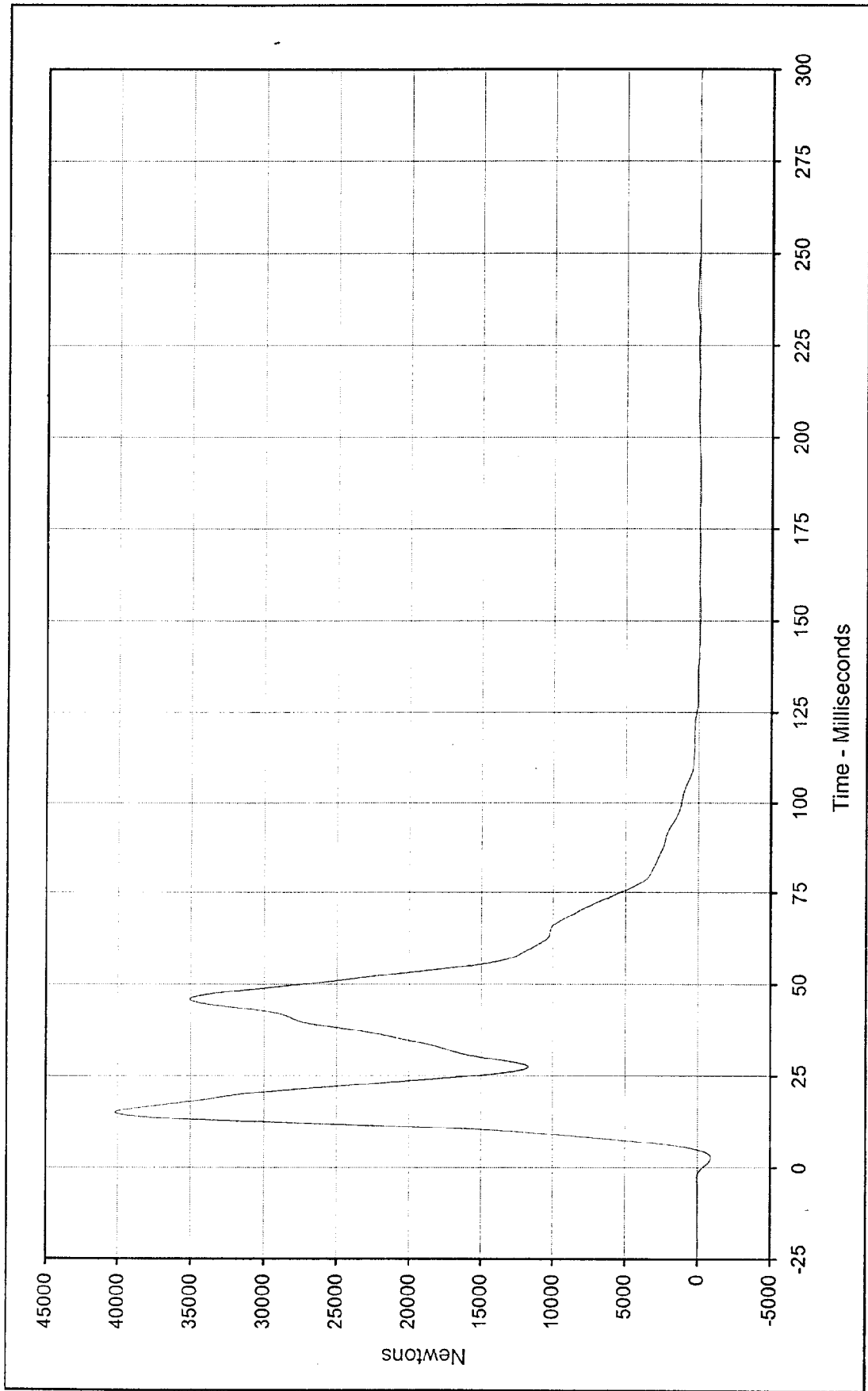




Curve Description: Barrier Force C6
 Maximum Value: 39960.3 at 46.4 Milliseconds
 Minimum Value: -132.5 at 132.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-121

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

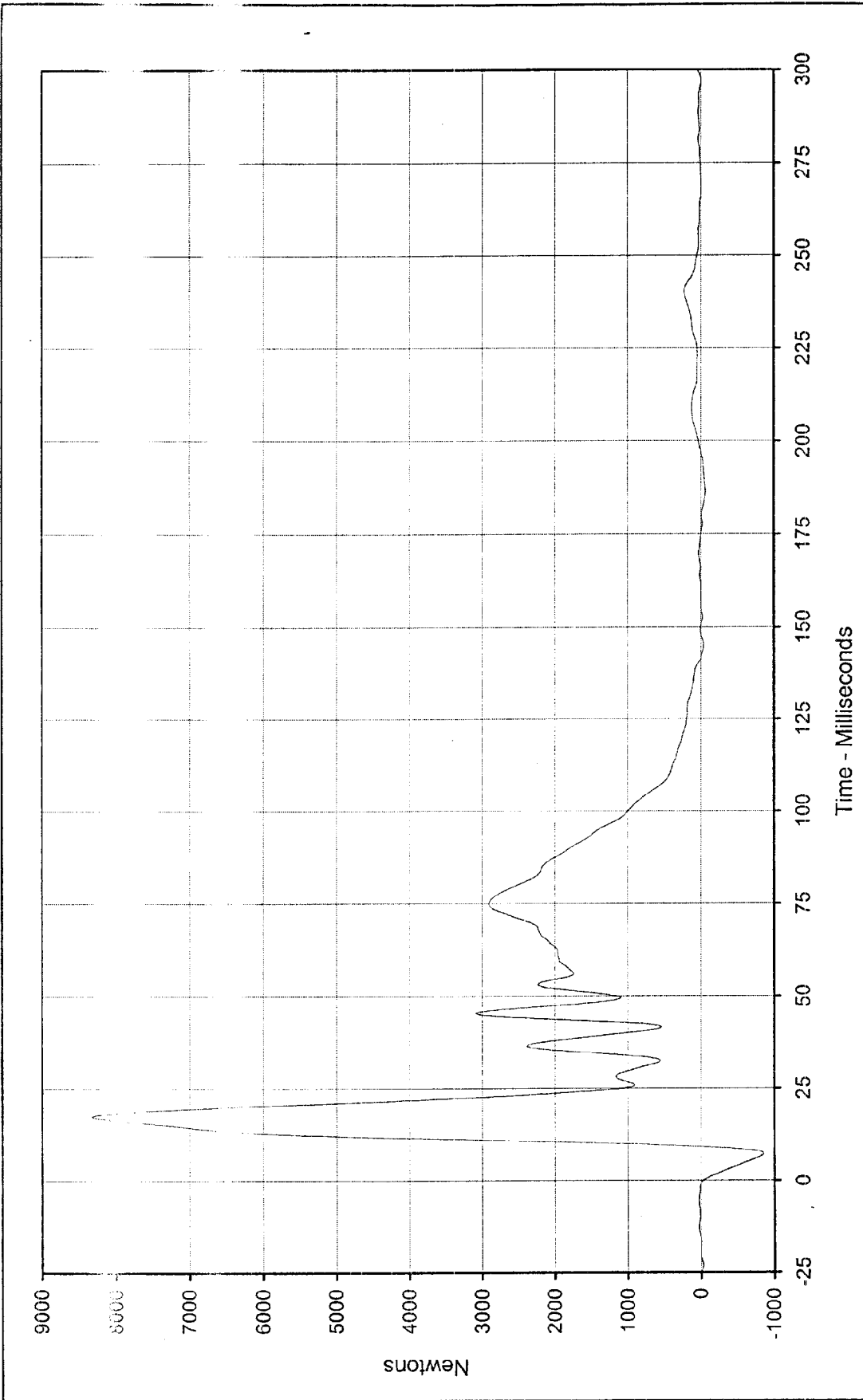




Curve Description: Barrier Force C7
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV

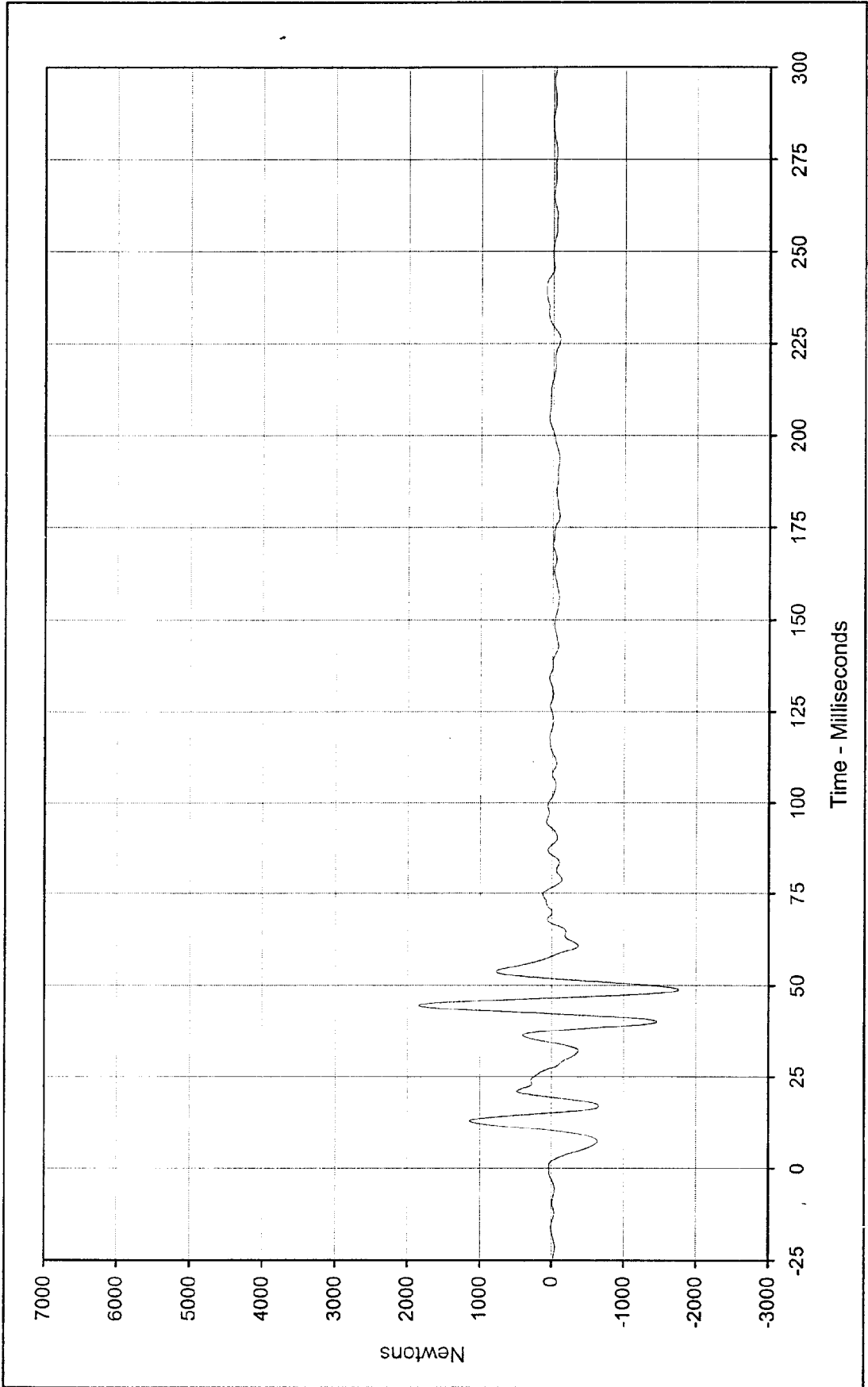
Maximum Value: 40170.3 at 15.0 Milliseconds
 Minimum Value: -900.8 at 2.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-122





Curve Description: Barrier Force C8 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 8319.9 at 17.4 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -857.1 at 7.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-123

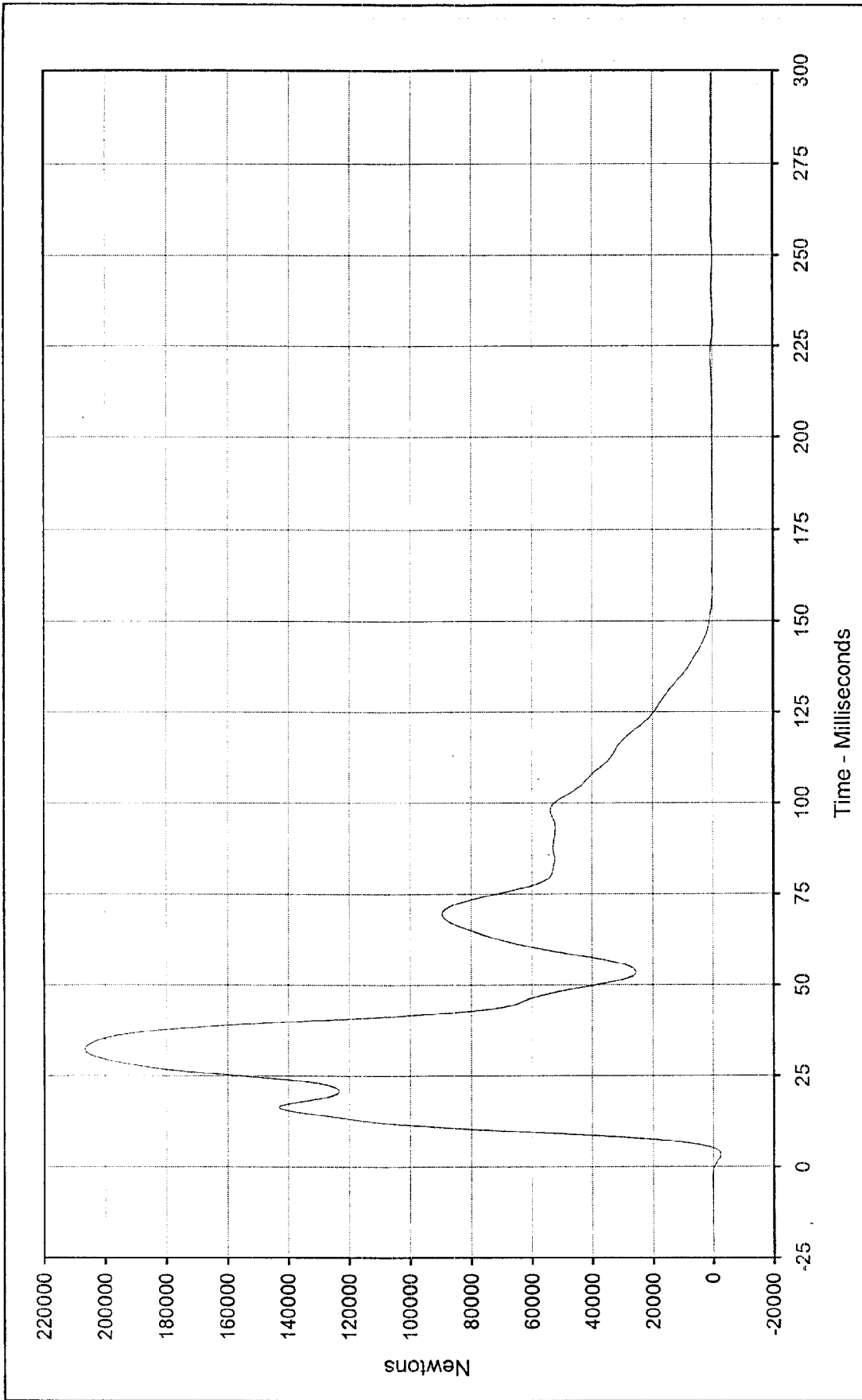




Curve Description: Barrier Force C9 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 1849.6 at 44.5 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -1763.9 at 48.8 Milliseconds



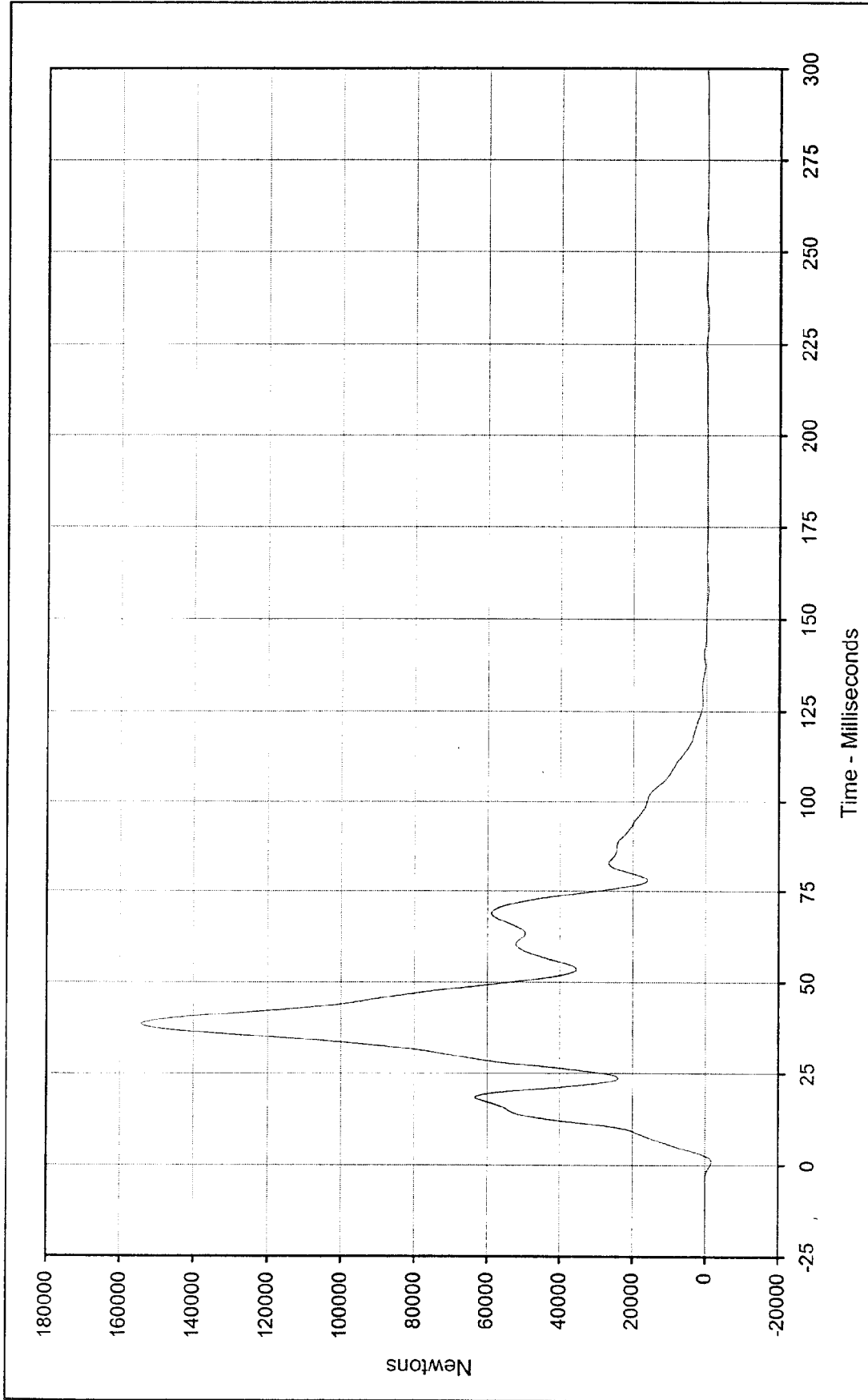
SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: FIL-124



Curve Description: Barrier Force Sum No.1 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 206695.3 at 32.6 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -2582.3 at 3.6 Milliseconds



SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: SUM-001



Curve Description: Barrier Force Sum No.2

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Maximum Value: 154300.9 at 38.7 Milliseconds

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

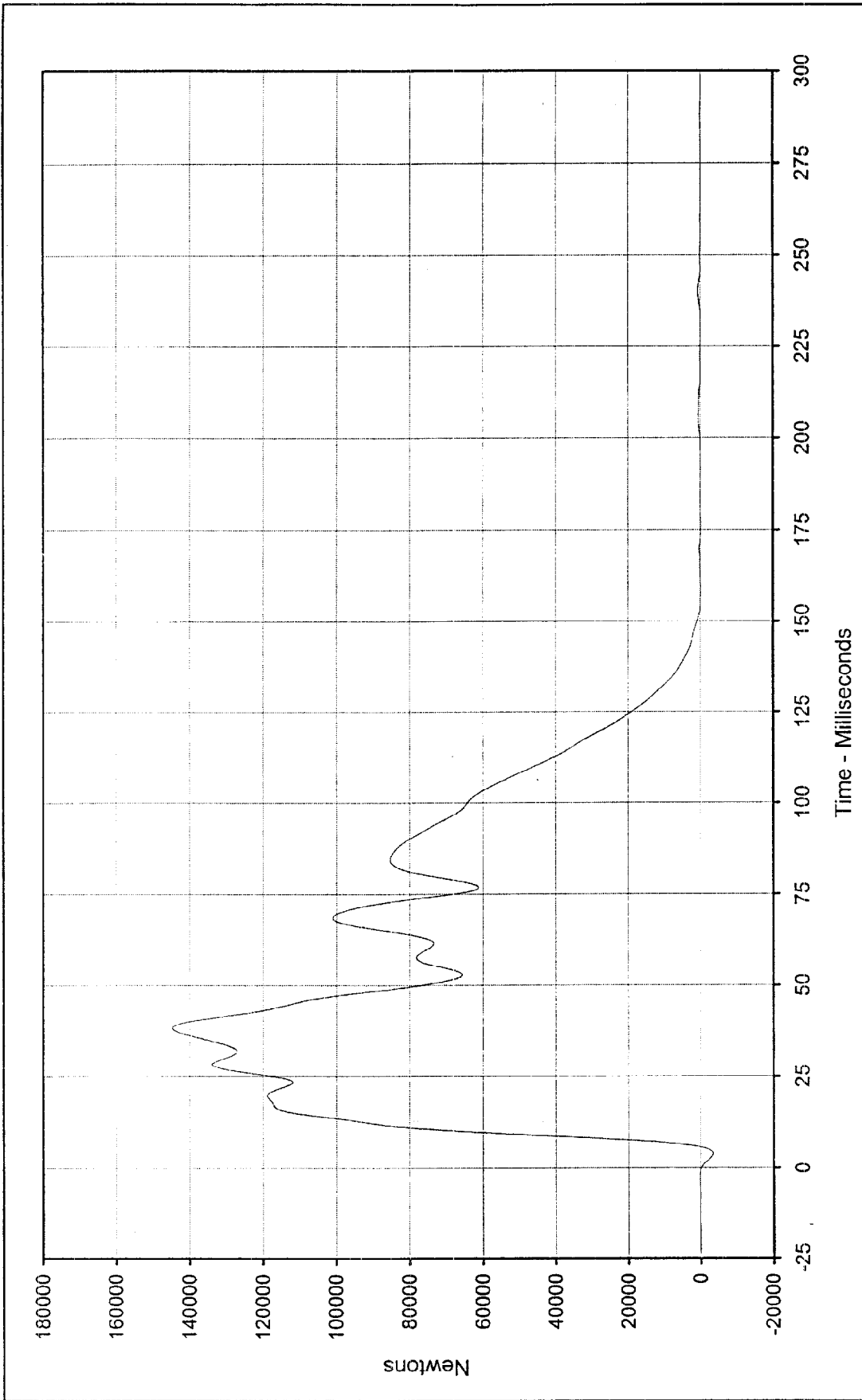
Minimum Value: -1738.7 at 1.0 Milliseconds

SAE Filler Class: 60

Date of Test: 1/5/99

Curve Number: SUM-002

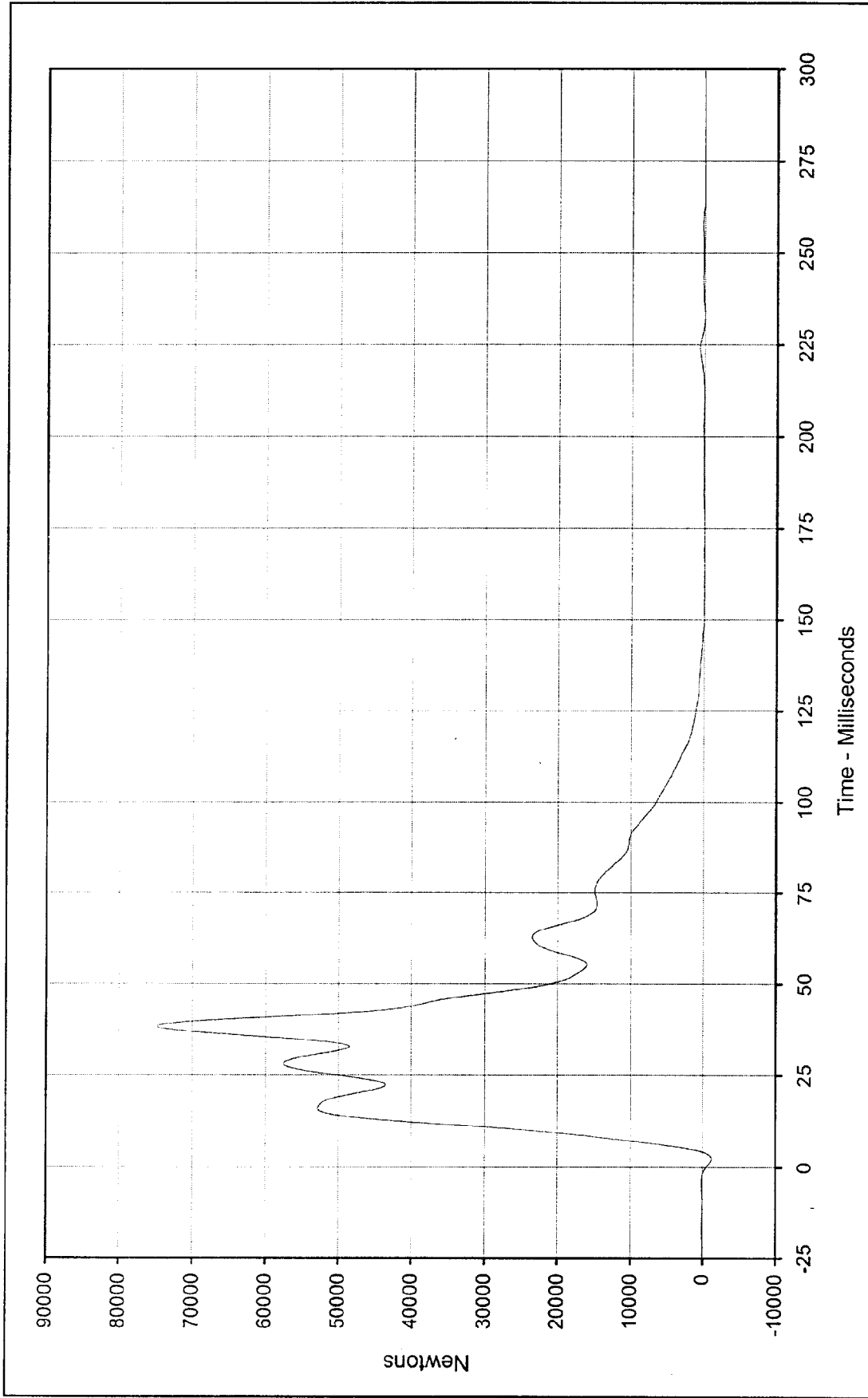




Curve Description: Barrier Force Sum No.3
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 144665.3 at 38.3 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -3417.7 at 4.1 Milliseconds



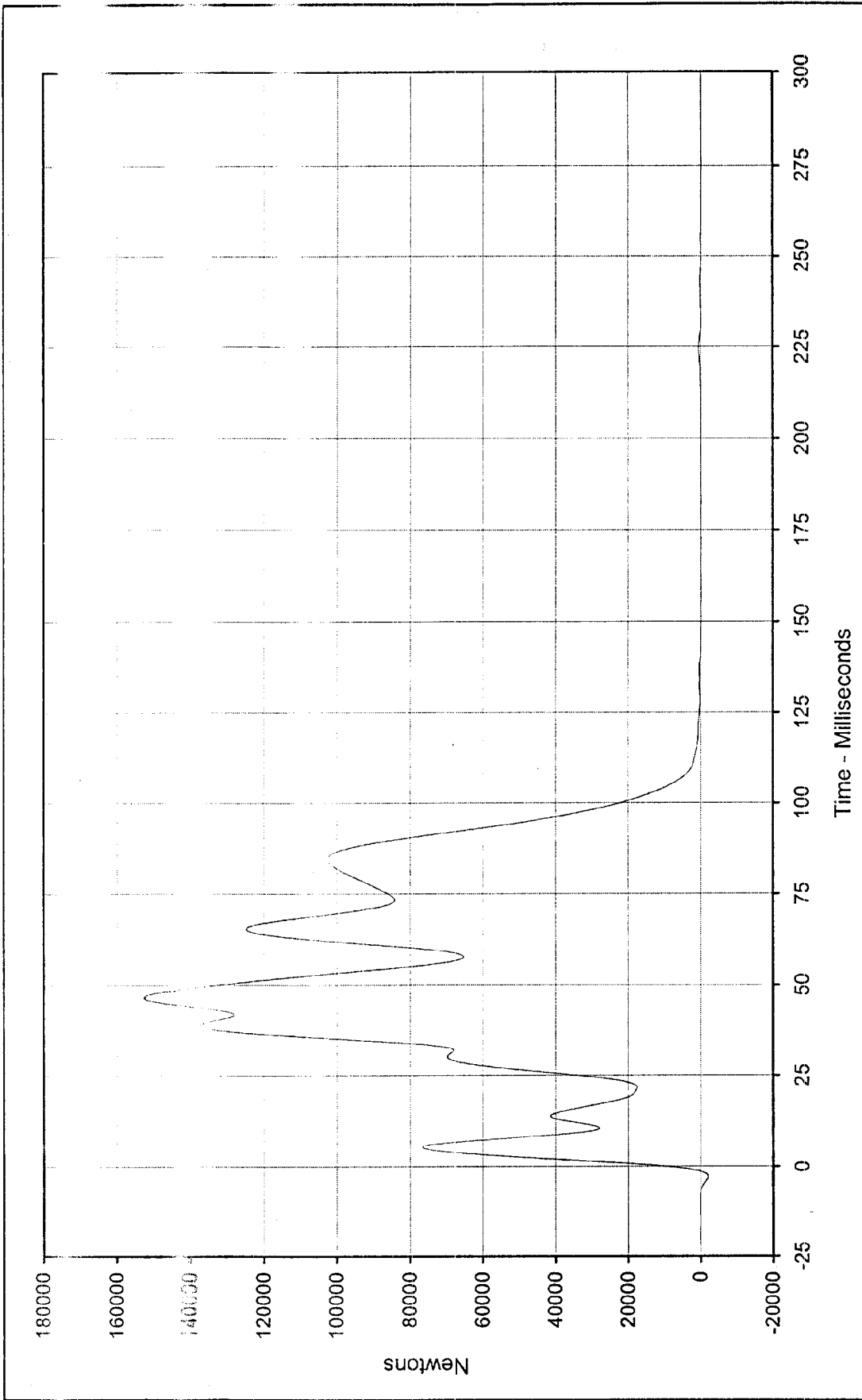
SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: SUM-003



Curve Description: Barrier Force Sum No.4 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 74769.5 at 38.4 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -1257.5 at 2.3 Milliseconds



SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: SUM-004



Curve Description: Barrier Force Sum No.5

Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106

Test Vehicle: 1999 Chevrolet Tahoe LS SUV

Maximum Value: 152200.0 at 46.5 Milliseconds

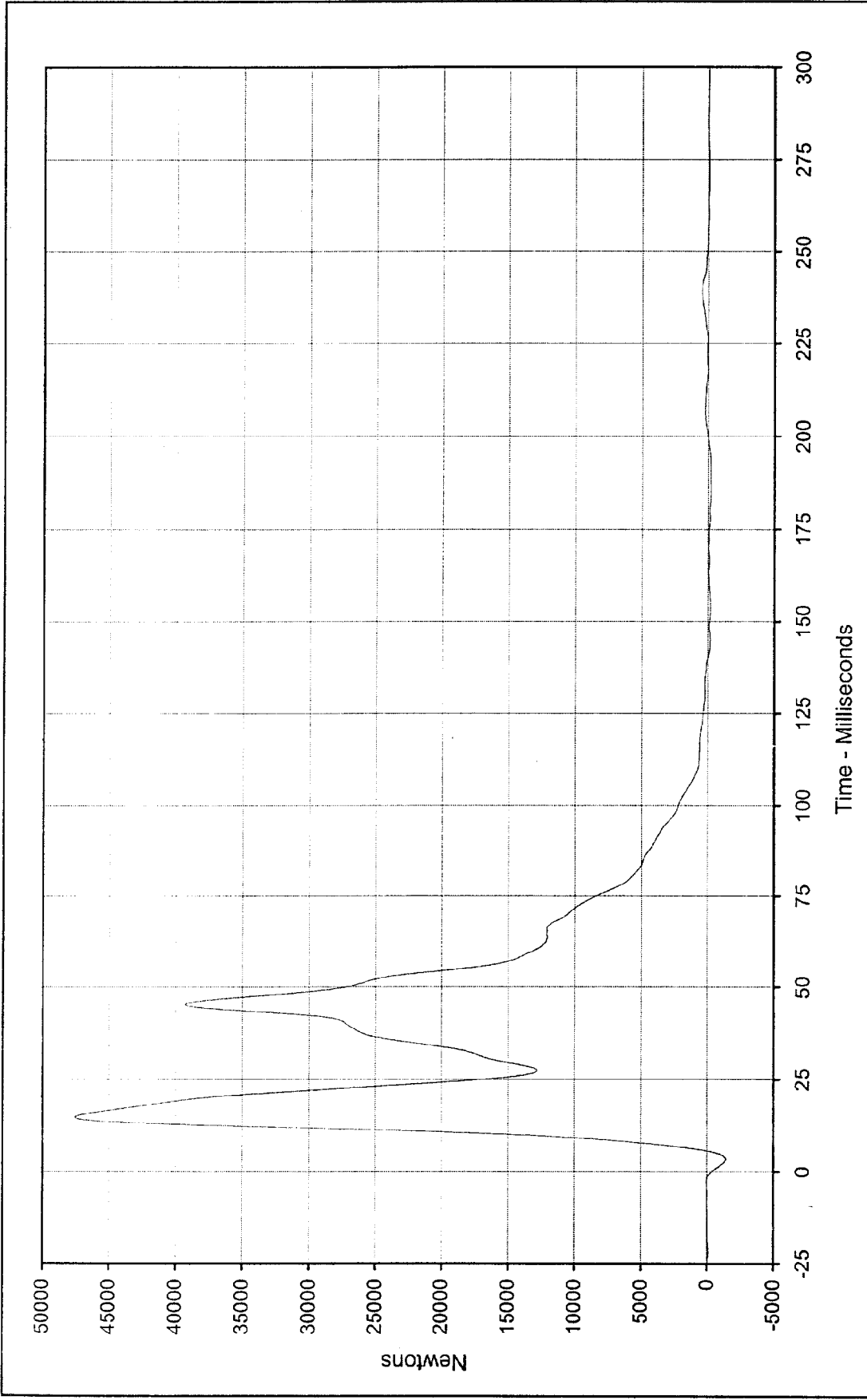
Minimum Value: -389.9 at 160.1 Milliseconds

SAE Filter Class: 60

Date of Test: 1/5/99

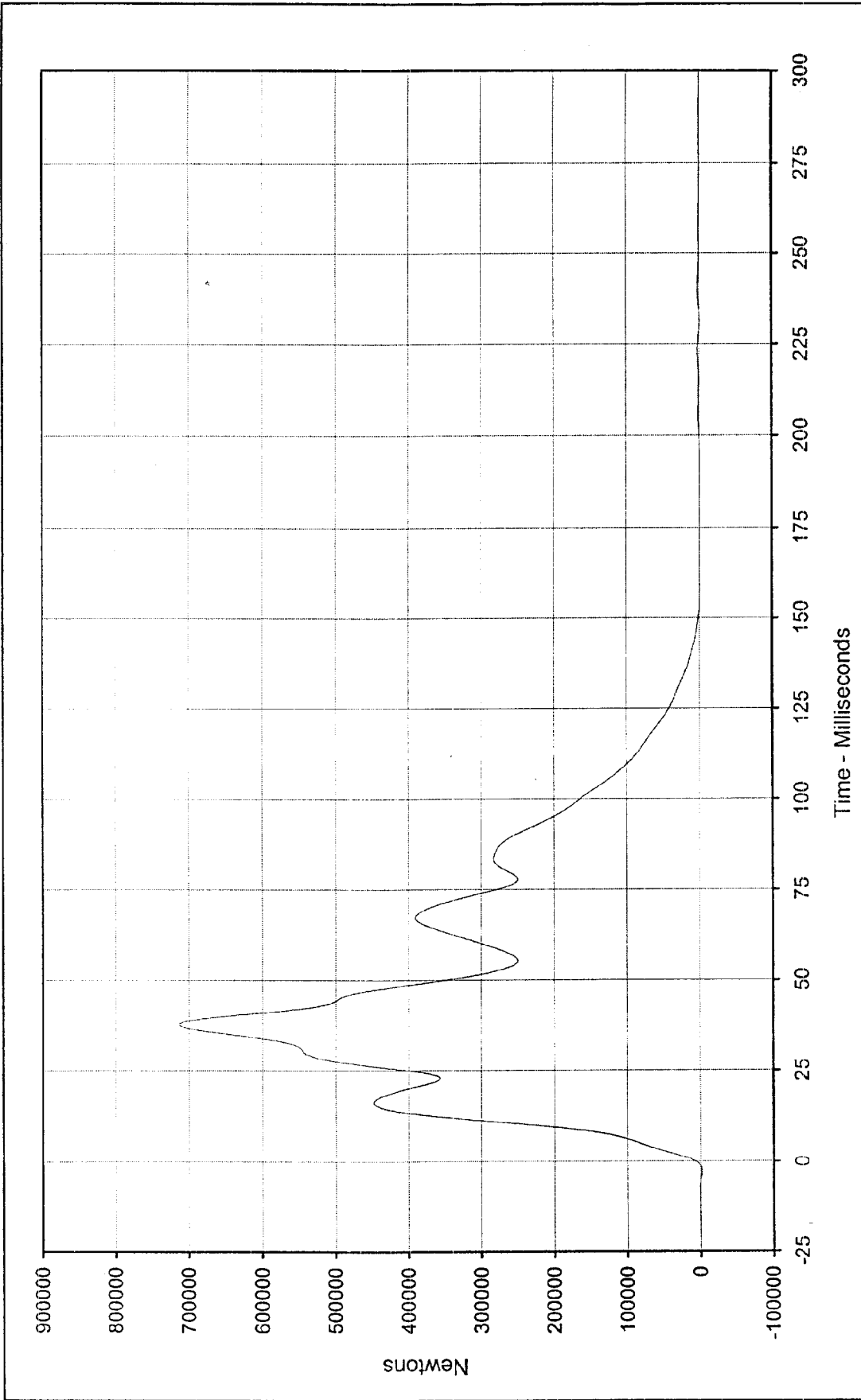
Curve Number: SUM-005





Curve Description: Barrier Force Sum No.6 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 47565.0 at 14.9 Milliseconds Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -1404.1 at 3.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: SUM-006

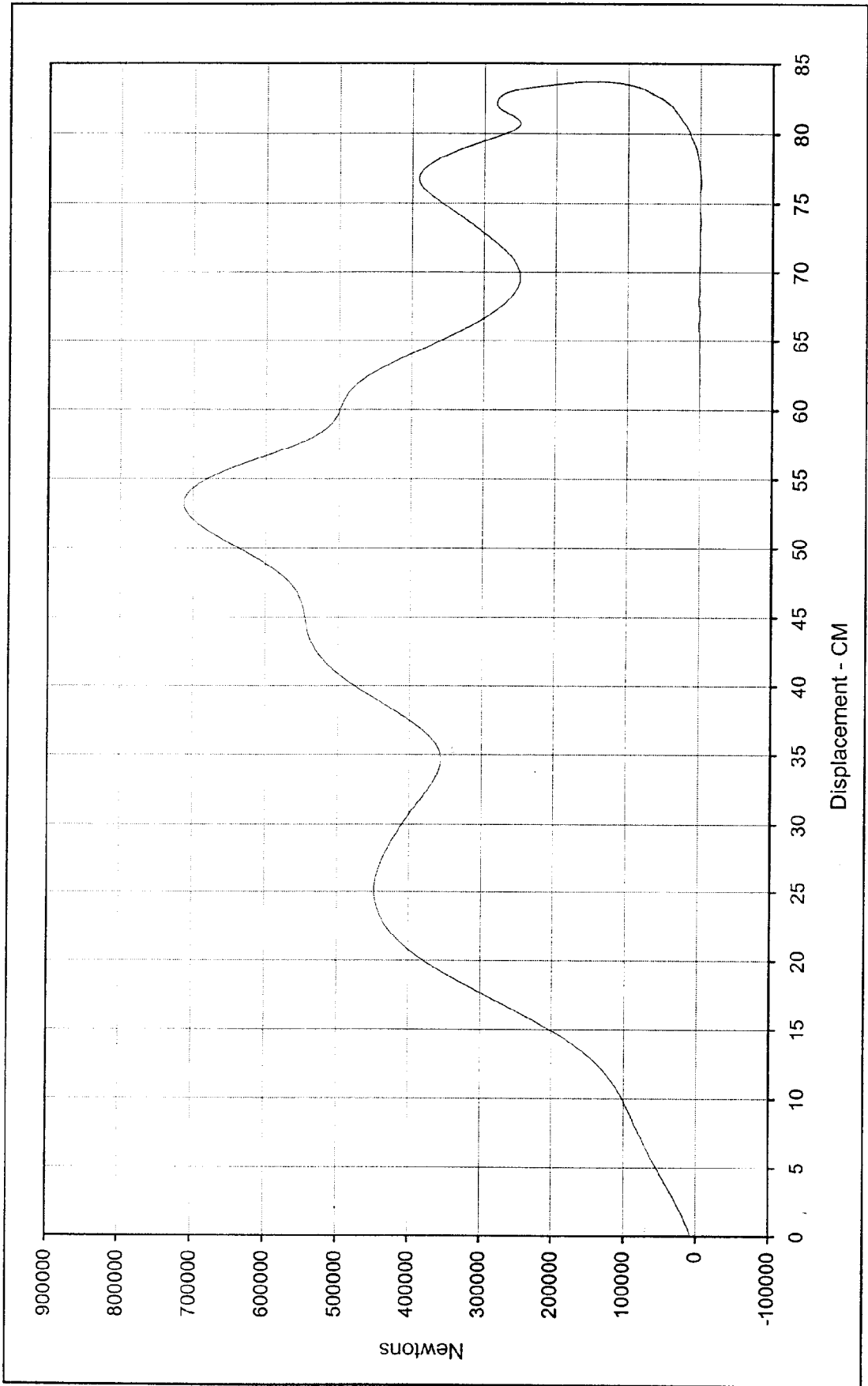




Curve Description: Barrier Force Sum Total
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Value: 712754.7 at 38.0 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Minimum Value: -1380.6 at 158.4 Milliseconds



SAE Filter Class: 60
 Date of Test: 1/5/99
 Curve Number: SUM-007



Curve Description: Sum Force Total vs. Dynamic Crush
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX0106
 Maximum Displ.: 83.7 at 102.2 Milliseconds
 Test Vehicle: 1999 Chevrolet Tahoe LS SUV
 Maximum Force: 712754.7 at 38.0 Milliseconds



SAE Filter Class: N/A
 Date of Test: 1/5/99
 Curve Number: XYY-001

BARRIER LOAD CELL SUMMARY DATA

TEST VEHICLE: 1999 CHEVROLET TAHOE LS SUV NHTSA No.: MX0106
 TEST PROGRAM: 1999 NHTSA 35 MPH NCAP TEST DATE: 1/5/99

BARRIER LOAD CELL PEAK FORCES

Location	Units	Max	Time	Min	Time
Barrier Force A2	Newtons	1779.7	60.7	-1901.8	54.2
Barrier Force A3	Newtons	2332.4	132.5	-2260.9	53.9
Barrier Force A4	Newtons	4796.8	18.8	-2117.3	53.3
Barrier Force A5	Newtons	14313.7	18.1	-2188.7	23.9
Barrier Force A6	Newtons	6095.4	12.4	-1864.0	53.3
Barrier Force A7	Newtons	1387.7	39.9	-1574.1	53.0
Barrier Force A8	Newtons	1945.9	57.1	-1805.1	52.4
Barrier Force A9	Newtons	1863.7	56.4	-2384.7	50.6
Barrier Force B2	Newtons	6922.4	19.6	-639.6	53.9
Barrier Force B3	Newtons	205375.8	32.5	-2156.4	3.9
Barrier Force B4	Newtons	65605.2	38.2	-793.3	1.6
Barrier Force B5	Newtons	5187.1	4.3	-1861.2	43.2
Barrier Force B6	Newtons	82181.8	38.1	-801.0	2.0
Barrier Force B7	Newtons	140333.9	38.2	-2671.1	4.2
Barrier Force B8	Newtons	10878.8	86.9	-573.2	25.5
Barrier Force B9	Newtons	1804.8	45.1	-2222.8	49.9
Barrier Force C2	Newtons	15671.7	19.1	-448.0	4.6
Barrier Force C3	Newtons	65688.2	38.5	-958.5	2.0
Barrier Force C4	Newtons	67726.9	39.7	-135.4	150.2
Barrier Force C5	Newtons	51009.1	47.3	-594.9	10.0
Barrier Force C6	Newtons	39960.3	46.4	-132.5	193.6
Barrier Force C7	Newtons	40170.3	15.0	-900.8	2.7
Barrier Force C8	Newtons	8319.9	17.4	-857.1	7.2
Barrier Force C9	Newtons	1849.6	44.5	-1763.9	48.8
Barrier Force Sum No.1	Newtons	206695.3	32.6	-2582.3	3.6
Barrier Force Sum No.2	Newtons	154300.9	38.7	-1738.7	1.0
Barrier Force Sum No.3	Newtons	144665.3	38.3	-3417.7	4.1
Barrier Force Sum No.4	Newtons	74769.5	38.4	-1257.5	2.3
Barrier Force Sum No.5	Newtons	152200.0	46.5	-389.9	160.1
Barrier Force Sum No.6	Newtons	47565.0	14.9	-1404.1	3.4
Barrier Force Sum Total	Newtons	712754.7	38.0	-1380.6	158.4

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

APPENDIX D
INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

KAR99001-07

1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 34
1/5/99
1999 Chevrolet Tahoe LS SUV

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	N.m
11	NECK MOMENT	Y	GPUN02MY	Load cell, six axis neck	R. A. Denton	1716A	N.m
12	NECK MOMENT	Z	GPUN02MZ	Load cell, six axis neck	R. A. Denton	1716A	N.m
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	KEFF002	Load cell, Femur	R.A. Denton	2121	N
24	RIGHT FEMUR FORCE	Z	KEFF003	Load cell, Femur	R.A. Denton	2121	N

1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 34
1/5/99
1999 Chevrolet Tahoe LS SUV

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
26	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
27	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
28	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
29	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	N.m
30	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	N.m
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	N.m
33	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	N.m
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

1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 35
1/15/99
1999 Chevrolet Tahoe LS SUV

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	GPAC028	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	GPUJ01FX	Load cell, six axis neck	R. A. Denton	1716A	N
52	NECK FORCE	Y	GPUJ01FY	Load cell, six axis neck	R. A. Denton	1716A	N
53	NECK FORCE	Z	GPUJ01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
54	NECK MOMENT	X	GPUJ01MX	Load cell, six axis neck	R. A. Denton	1716A	N.m
55	NECK MOMENT	Y	GPUJ01MY	Load cell, six axis neck	R. A. Denton	1716A	N.m
56	NECK MOMENT	Z	GPUJ01MZ	Load cell, six axis neck	R. A. Denton	1716A	N.m
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	KEFF001	Load cell, Femur	R.A. Denton	2121	N
68	RIGHT FEMUR FORCE	Z	GPLC001	Load cell, Femur	G.S.E.	2430	N

1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 35
1/5/99

1999 Chevrolet Tahoe LS SUV

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
70	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
71	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
72	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
73	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	N.m
74	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	N.m
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	N.m
77	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	N.m
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	Celesco	PTX101-0030	CM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers

1/5/99

1999 Chevrolet Tahoe LS SUV

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	Left Rear X-Member (Pri.)	X	KEVA005	Accel., Vehicle block	I.C. Sensor	3031-500	G
90	Right Rear X-Member (Pri.)	X	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
91	Engine Top	X	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	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	KEVA009	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	Instrument Panel	X	KEVA004	Accel., Vehicle block	I.C. Sensor	3031-500	G
96	Left Rear X-Member (Rednt.)	X	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-200	G

APPENDIX E
DUMMY CALIBRATION DATA

KAR99001-07



Hybrid III Calibration Data Sheet

50TH Percentile Male

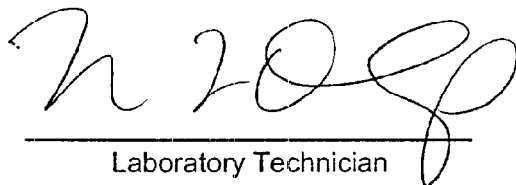
Left Knee Impact Test

ATD Serial No.: 34

Part Serial No.: n/a

Test I.D.: KI12F

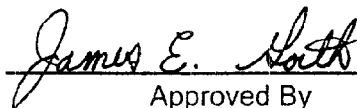
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.095	Pass
Peak Probe Force	Newtons	4715 to 5782	5322.1	Pass
Overall Test Results				Pass



Laboratory Technician

December 28, 1998

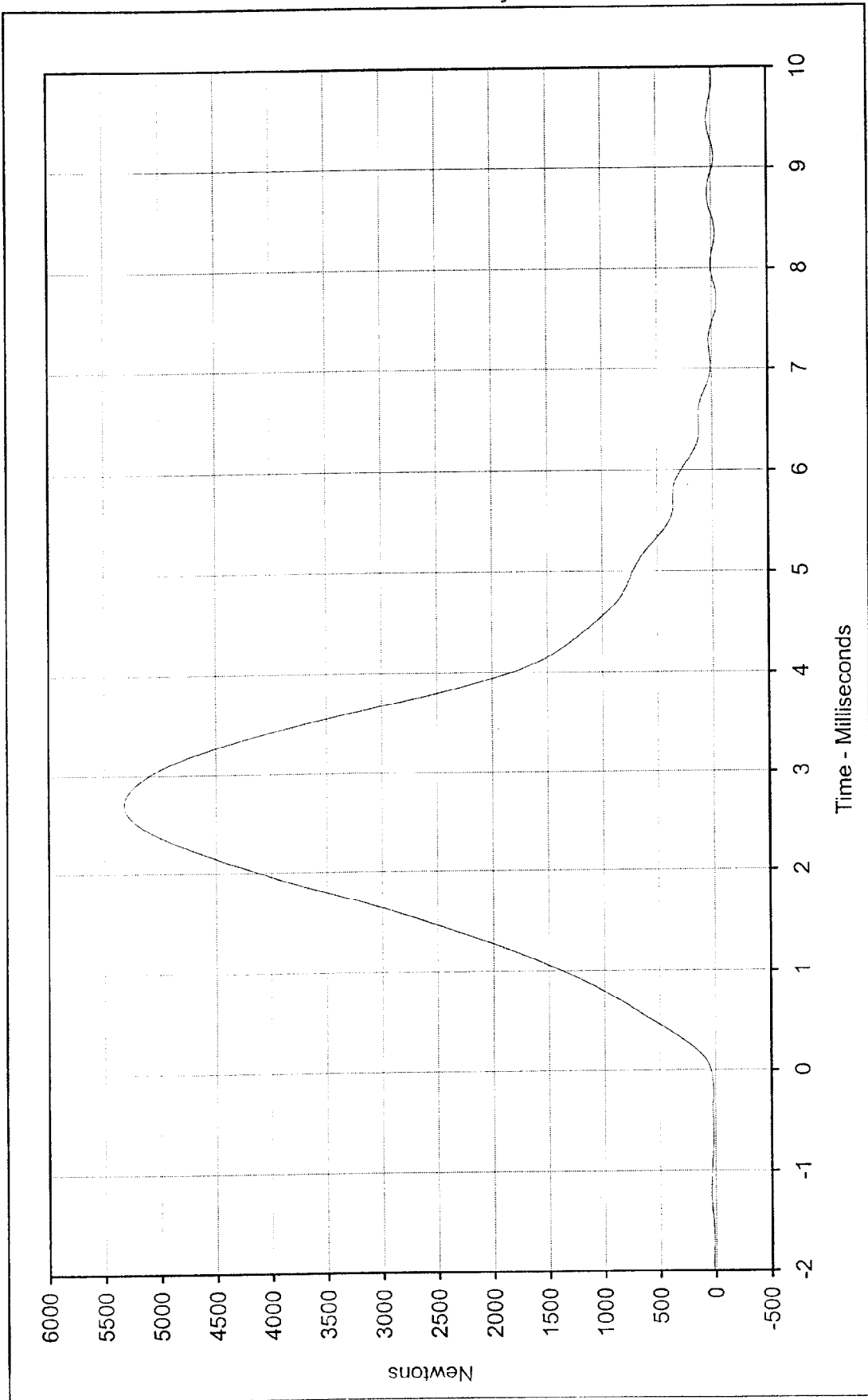
Test Date



Approved By

1/9/99

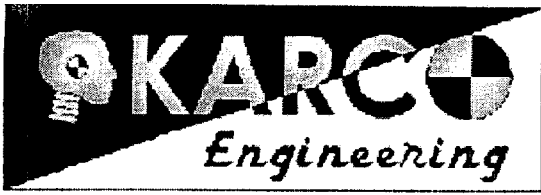
Date



Curve Description: Hybrid III Left Knee Impact Test
 Testing Program: Hybrid III Left Knee Impact Test
 Test Information: Part S/N: n/a Test I.D.: K112F

Probe Force
 Maximum Value: 5322.1 at 2.7 Milliseconds
 Minimum Value: -46.0 at 7.7 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/28/98
 ATD Serial No.: 34





Hybrid III Calibration Data Sheet

50TH Percentile Male

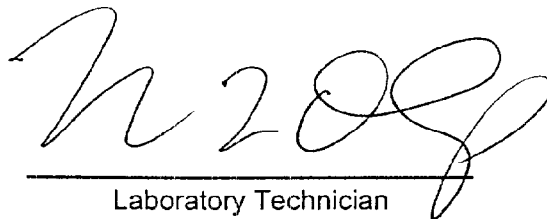
Right Knee Impact Test

ATD Serial No.: 34

Part Serial No.: n/a

Test I.D.: KI12E

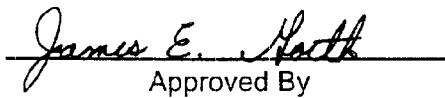
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.088	Pass
Peak Probe Force	Newtons	4715 to 5782	5417.2	Pass
Overall Test Results				Pass



Laboratory Technician

December 28, 1998

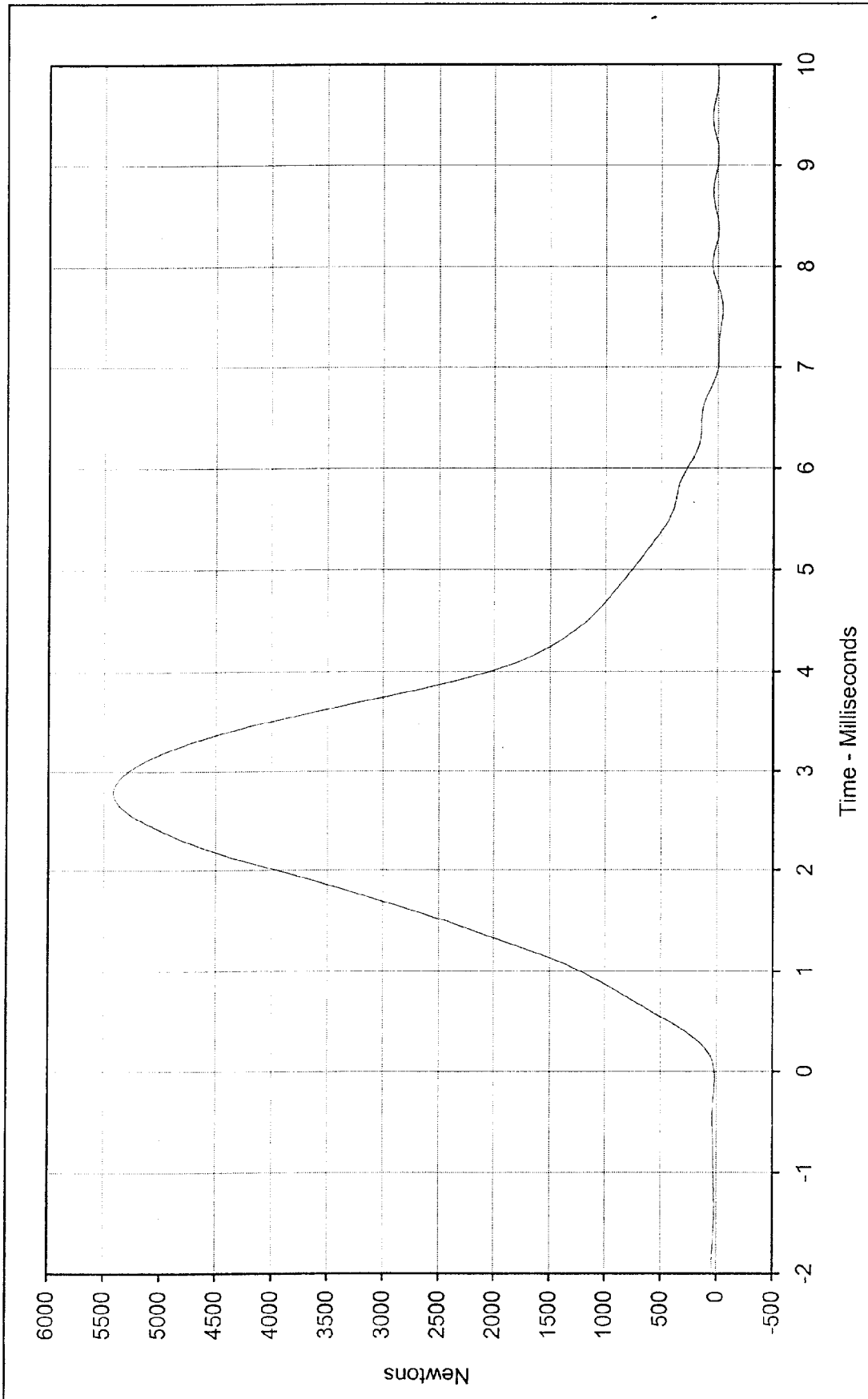
Test Date



Approved By

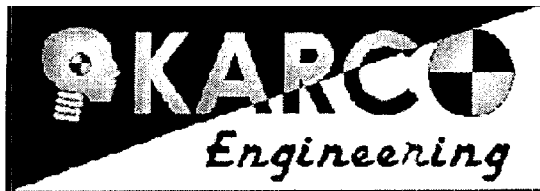
1/9/99

Date



Curve Description: Hybrid III Right Knee Impact Test
 Maximum Value: 5417.2 at 2.8 Milliseconds
 Minimum Value: -44.6 at 7.6 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/28/98
 ATD Serial No.: 34





Hybrid III Calibration Data Sheet

50TH Percéntile Male

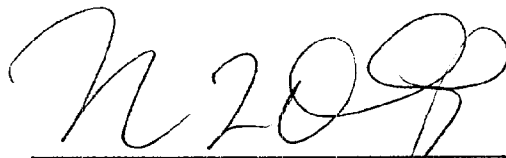
Head Drop Calibration

ATD Serial No.: 034

Part Serial No.: n/a

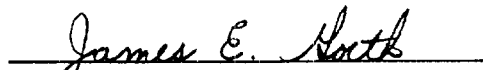
Test I.D.: HD12C

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	266.8	Pass
Peak Lateral Acceleration	G's	≤15.0	4.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



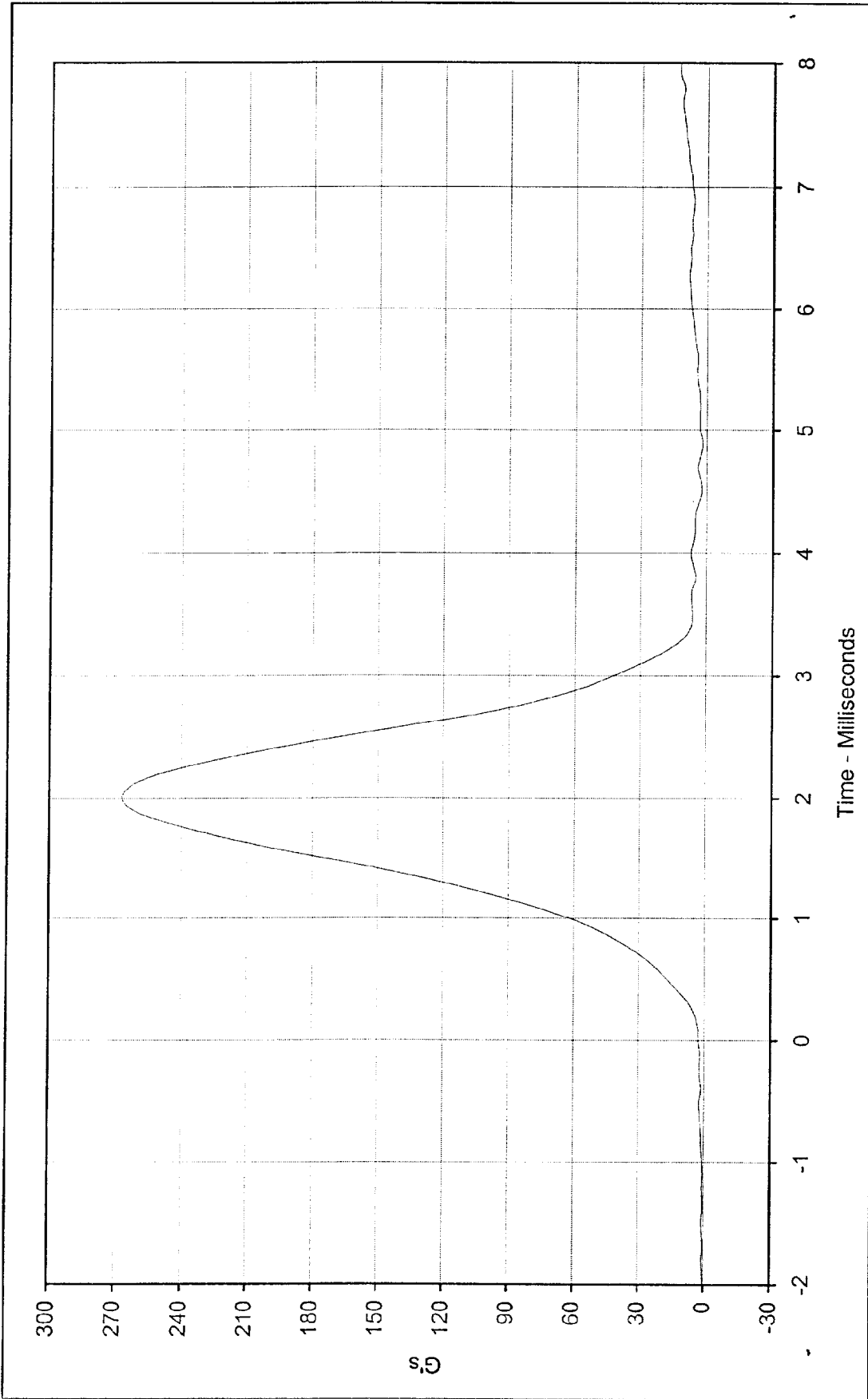
Laboratory Technician

December 28, 1998
Test Date



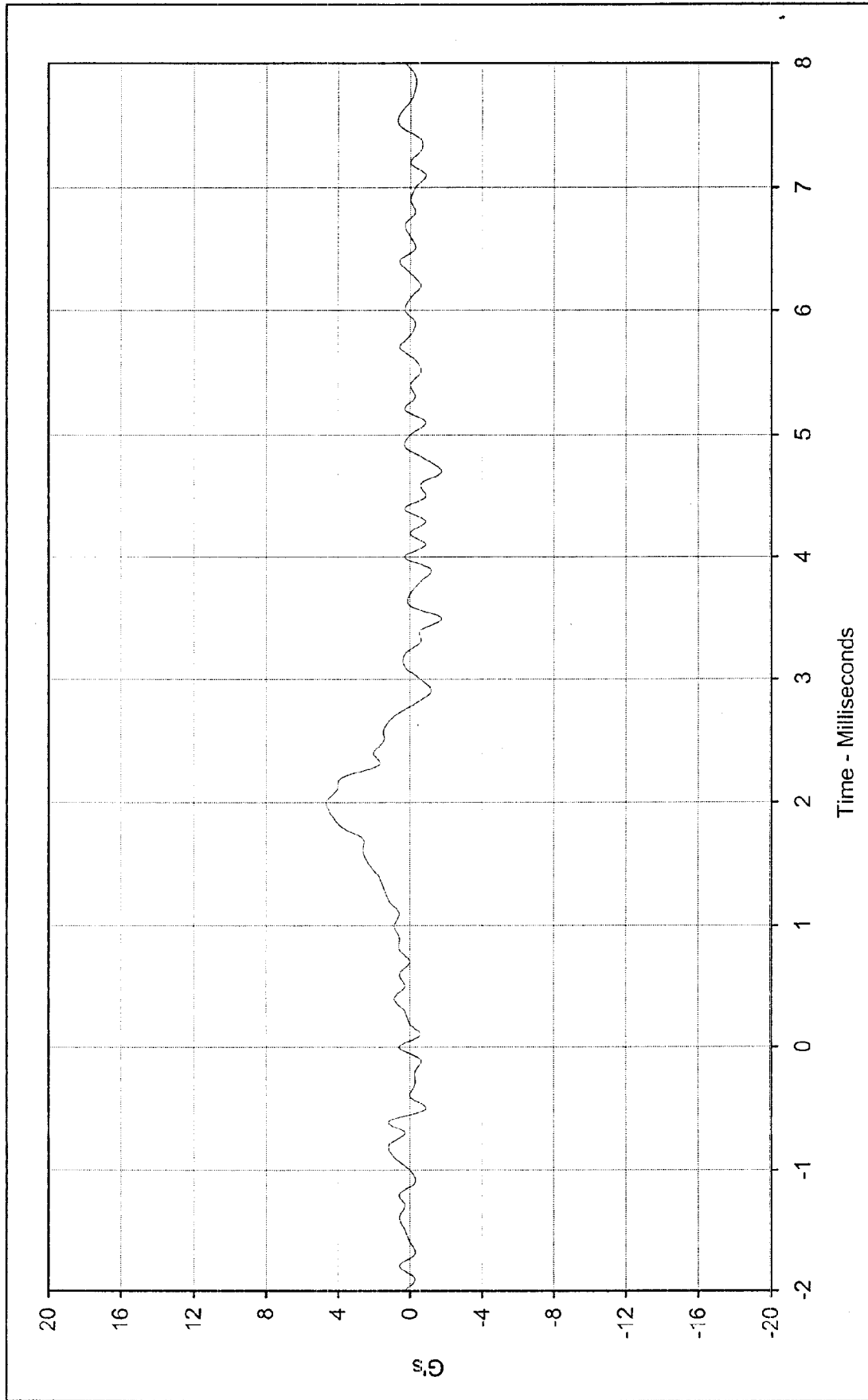
Approved By

1/9/99
Date



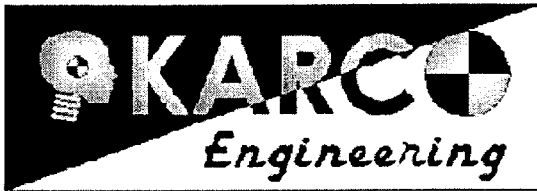
Curve Description:	Head Resultant Acceleration	Testing Program	Hybrid III Head Drop Calibration (Male)
Maximum Value:	266.8 at 2.0 Milliseconds	Test Information:	S/N of Part: n/a Test I.D.: HD12C
Minimum Value:	0.3 at -2.0 Milliseconds		
SAE Filter Class:	1000		
Date of Test:	12/28/98		
ATD Serial No.:	034		





Curve Description:	Head Acceleration Y Axis	Testing Program	Hybrid III Head Drop Calibration (Male)
Maximum Value:	4.6 at 2.0 Milliseconds	Test Information:	S/N of Part: n/a Test I.D.: HD12C
Minimum Value:	-1.7 at 3.5 Milliseconds		
SAE Filter Class:	1000		
Date of Test:	12/28/98		
ATD Serial No.:	034		





Hybrid III Calibration Data Sheet

50TH Percentile Male

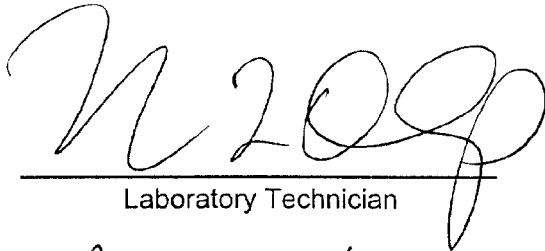
Thorax Impact Test

ATD Serial No.: 034

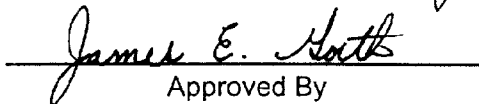
Part Serial No.: N/A

Test I.D.: CH12C

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	6.74	Pass
Peak Probe Force	Newtons	5159 to 5893	5430	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.46	Pass
Internal Hysteresis	%	69 to 85	74.8	Pass
Overall Test Results				Pass



Laboratory Technician



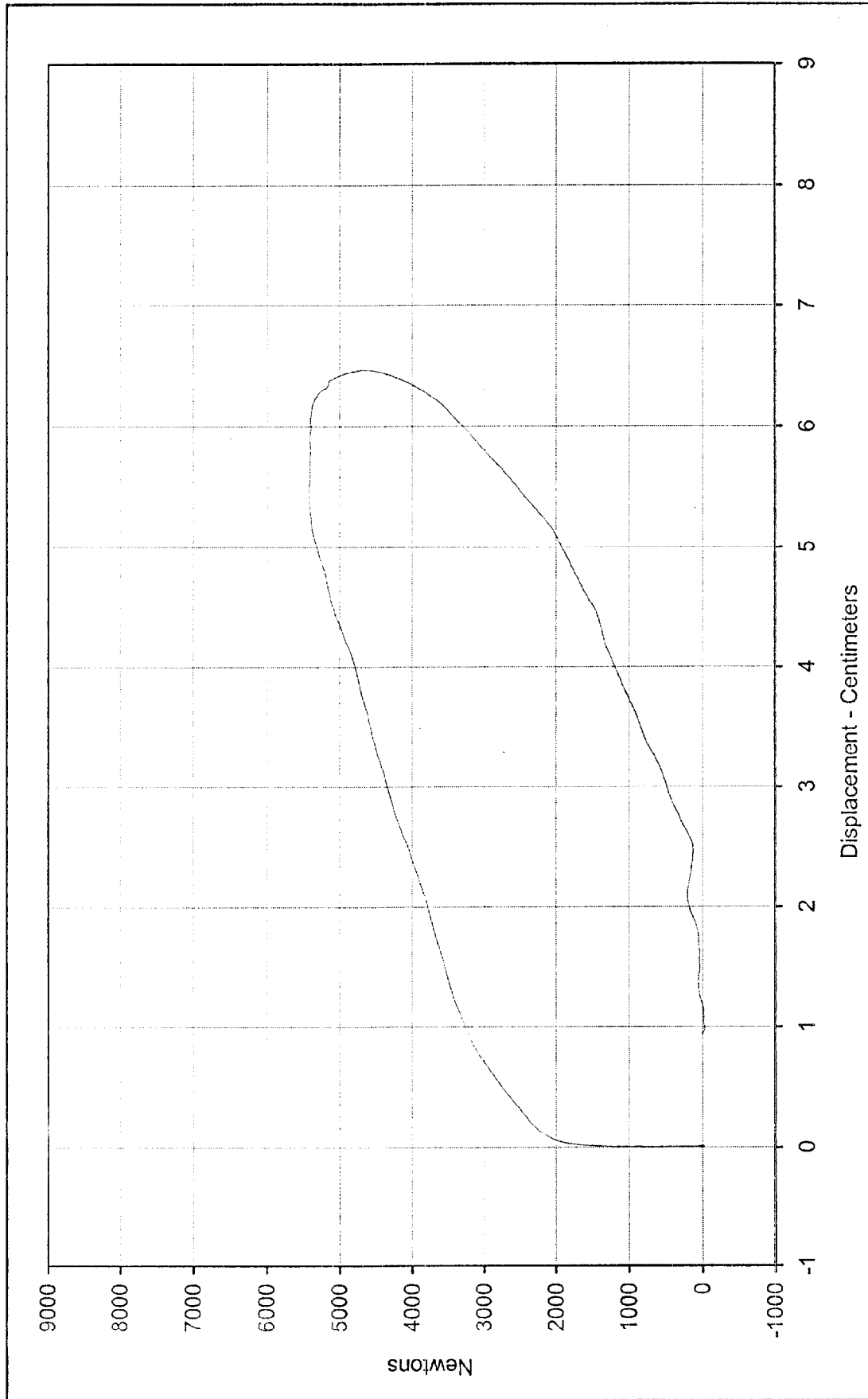
Approved By

December 29, 1998

Test Date

1/9/99

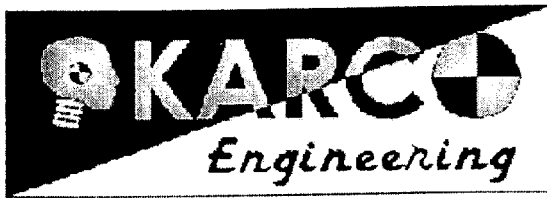
Date



Curve Description: Probe Force vs. Chest Displacement Testing Program: Hybrid III Thorax Impact Test
 Probe Force: 5429.9 Newtons Test Information: S/N of Part: N/A Test I.D.: CH12C

Chest Displ.: 6.46 Centimeters
 SAE Filter Class: 180
 Date of Test: 12/29/98
 ATD Serial No.: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male


Neck Flexion Test

ATD Serial No.: 034

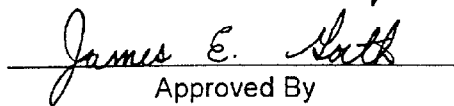
Part Serial No.: n/a

Test I.D.: NF12C

Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	39	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.00	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.3	Pass
	20 Msec.	G's	17.6 to 22.6	20.7	Pass
	30 Msec.	G's	12.5 to 18.5	18.2	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	18.2	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	37.2	Pass	
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	66.9	Pass
	Time	Msec.	57.0 to 64.0	60.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	113.2	Pass	
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	89.0	Pass
	Time	Msec.	47.0 to 58.0	49.1	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	97.8	Pass	
Overall Test Results				Pass	



Laboratory Technician



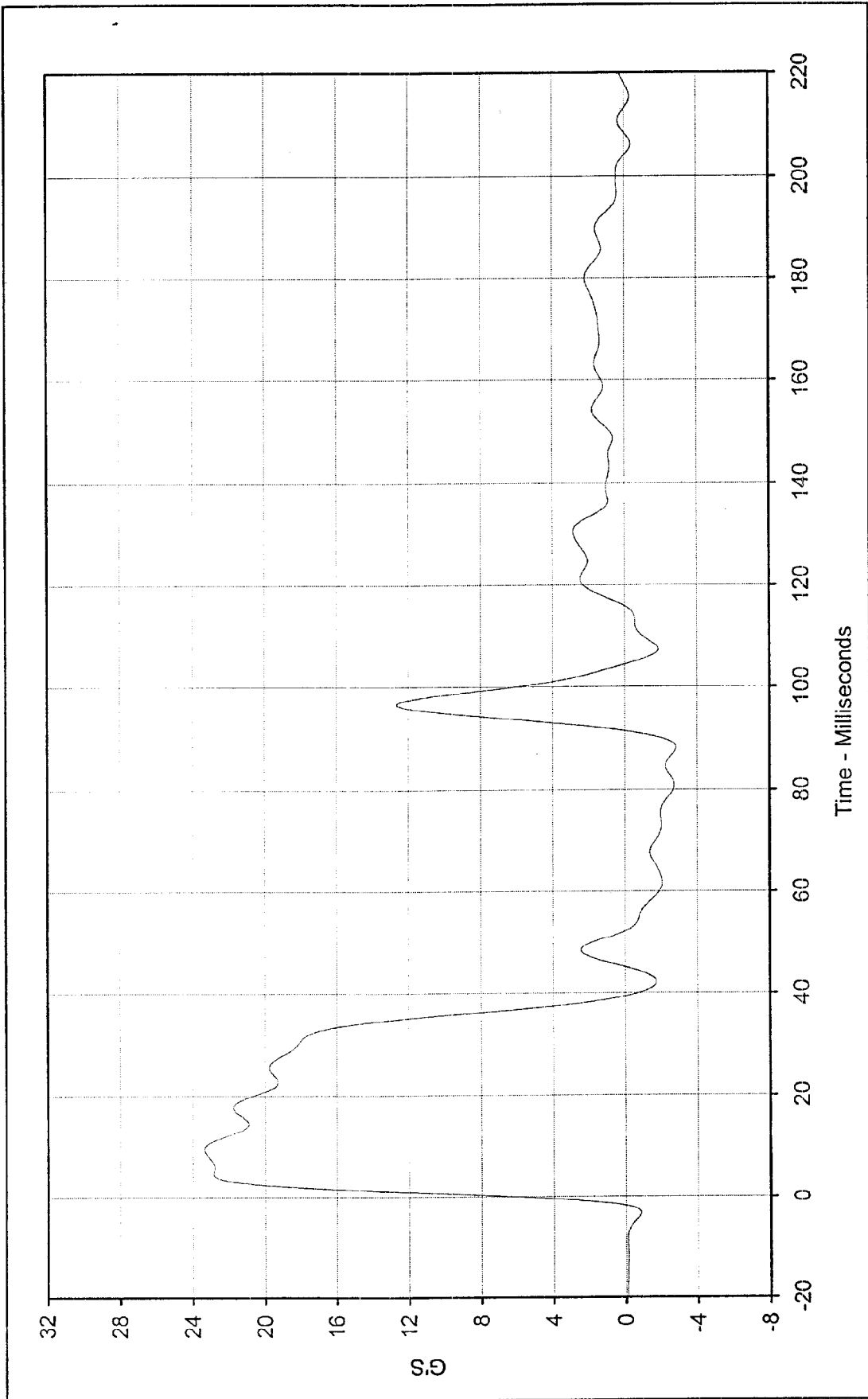
Approved By

December 29, 1998

Test Date



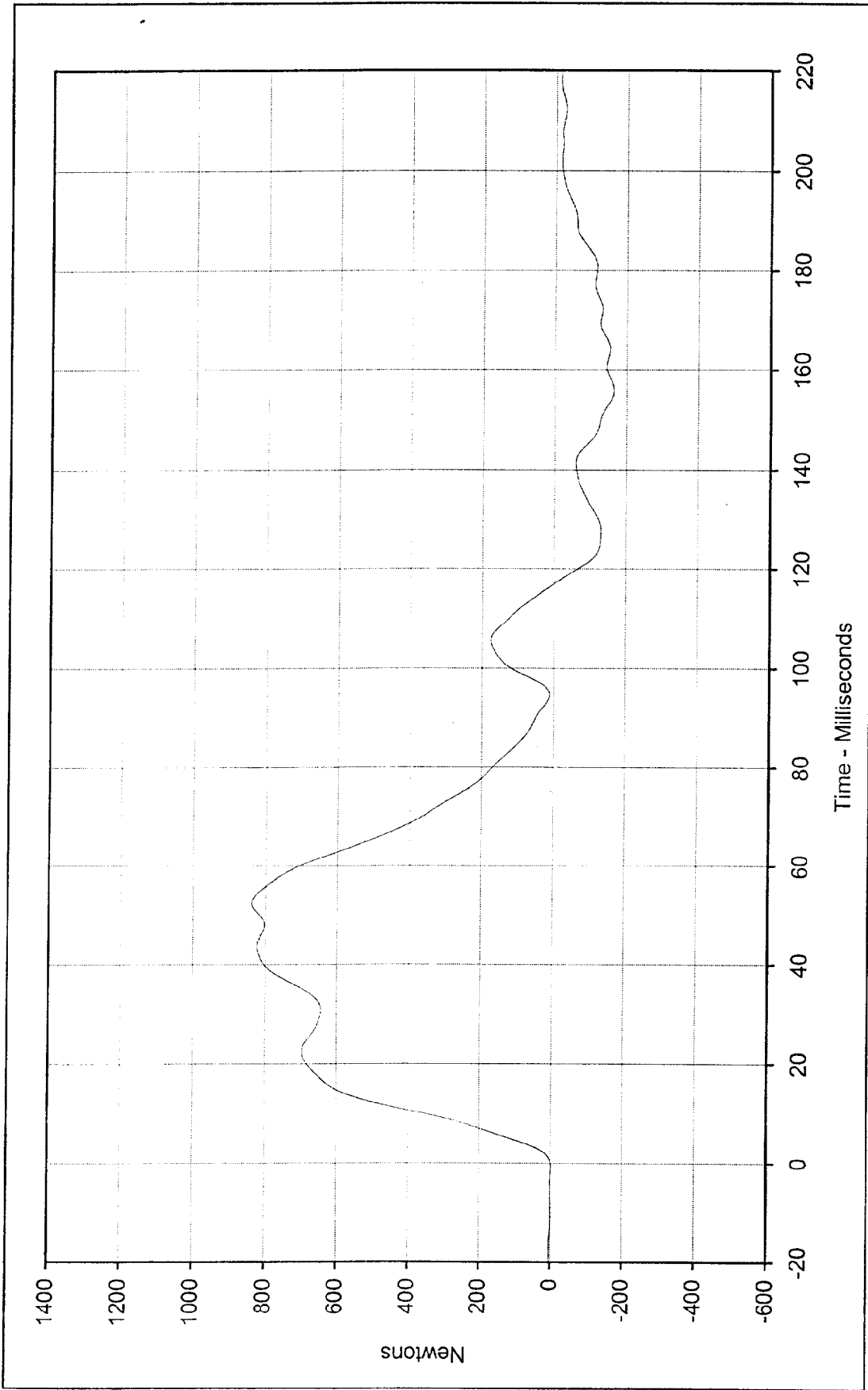
Date



Curve Description: Hybrid III Neck Flexion Test (Male)
 Testing Program: S/N of Part: n/a Test I.D.: NF12C

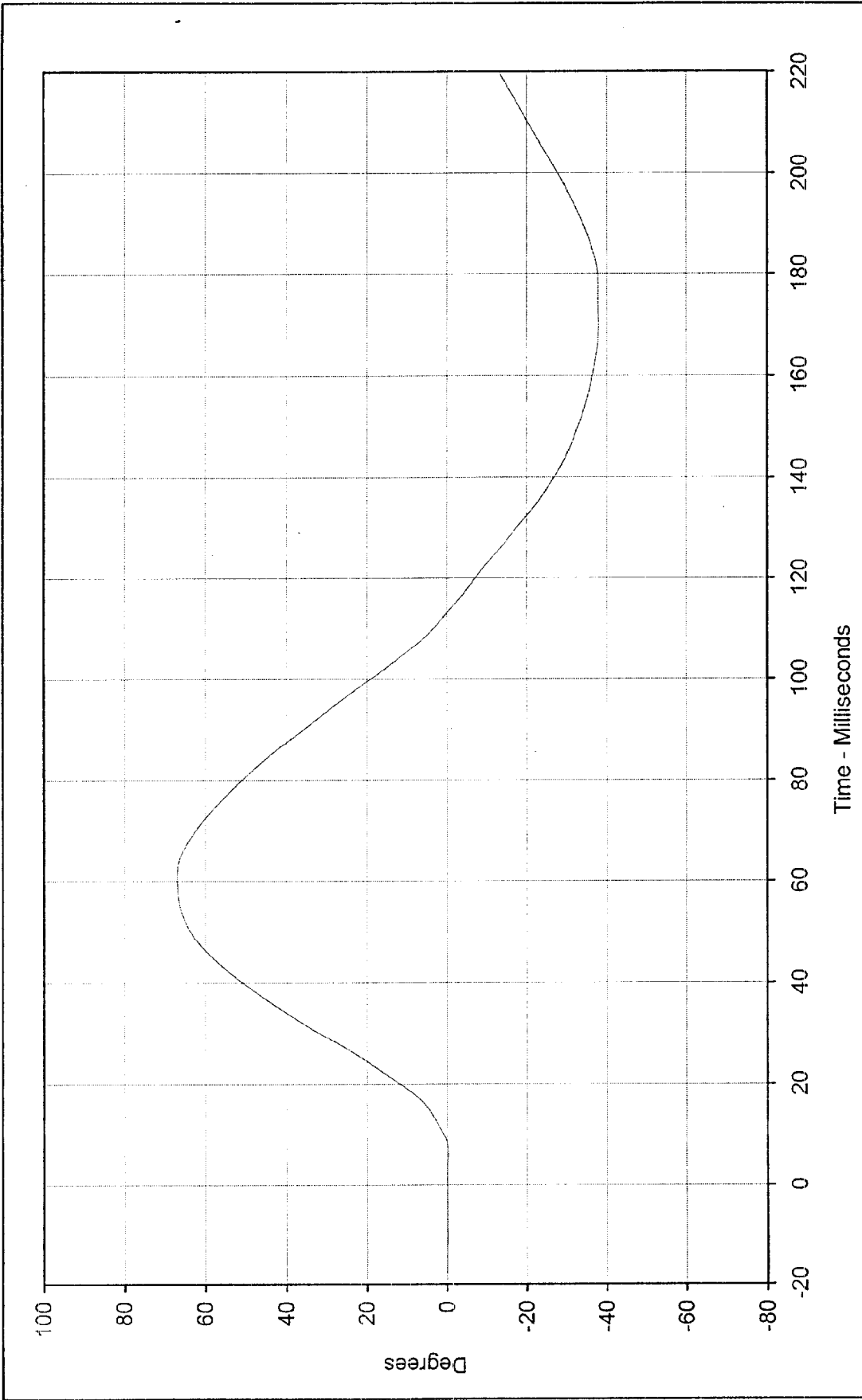
Pendulum Deceleration
 Maximum Value: 23.4 at 9.5 Milliseconds
 Minimum Value: -2.8 at 88.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 034





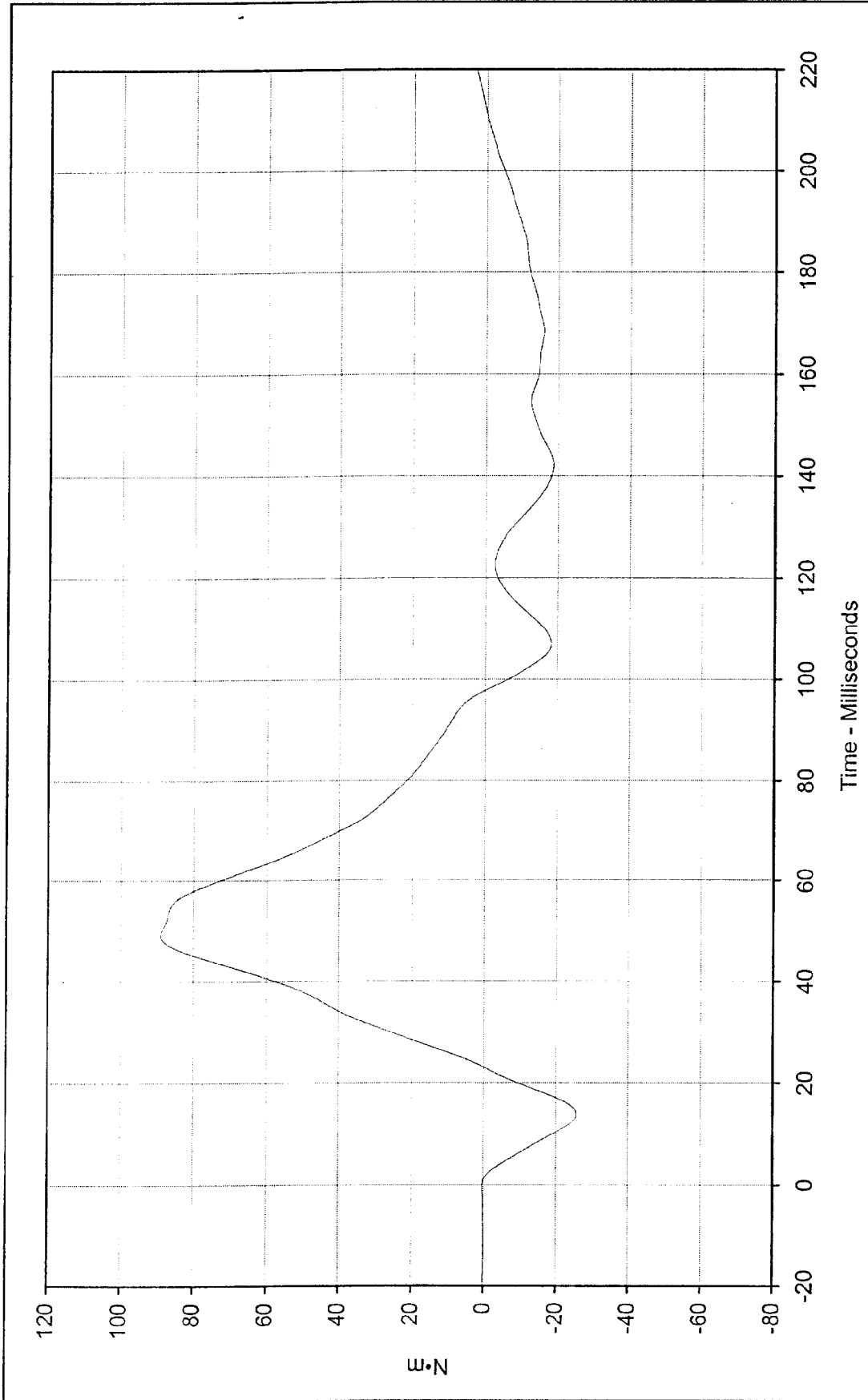
Curve Description:	Neck Force X	Testing Program	Hybrid III Neck Flexion Test (Male)
Maximum Value:	837.5 at 52.5 Milliseconds	Test Information:	S/N of Part: n/a Test I.D.: NF12C
Minimum Value:	-164.9 at 155.9 Milliseconds		
SAE Filter Class:	60		
Date of Test:	12/29/98		
ATD Serial No.:	034		





Curve Description: "D" Plane Rotation
 Testing Program: Hybrid III Neck Flexion Test (Male)
 Maximum Value: 66.9 at 60.9 Milliseconds
 Minimum Value: -37.9 at 170.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 034





Curve Description: Moment About Occipital Condyles
 Testing Program: Hybrid III Neck Flexion Test (Male)
 Maximum Value: 89.0 at 49.1 Milliseconds
 Test Information: S/N of Part: n/a Test I.D.: NF12C
 Minimum Value: -25.8 at 13.9 Milliseconds



SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 034



Hybrid III Calibration Data Sheet

50TH Percentile Male

Neck Extension Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: NE12D

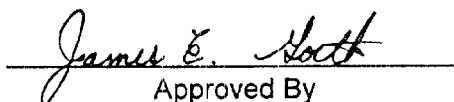
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	36	Pass	
Pendulum Velocity	m/s	5.95 to 6.19	6.16	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.3	Pass
	20 Msec.	G's	14.0 to 19.0	16.5	Pass
	30 Msec.	G's	11.0 to 16.0	15.1	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	15.1	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	38.5	Pass	
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	95.6	Pass
	Time	Msec.	72.0 to 82.0	79.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	155.2	Pass	
Moment About Occipital Condyle	Maximum	N • m	-52.9 to- 79.9	-65.4	Pass
	Time	Msec.	65.0 to 79.0	68.0	Pass
Negative Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	137.5	Pass	
Overall Test Results				Pass	



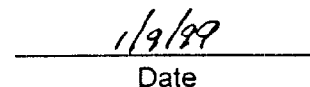
Laboratory Technician

December 29, 1998

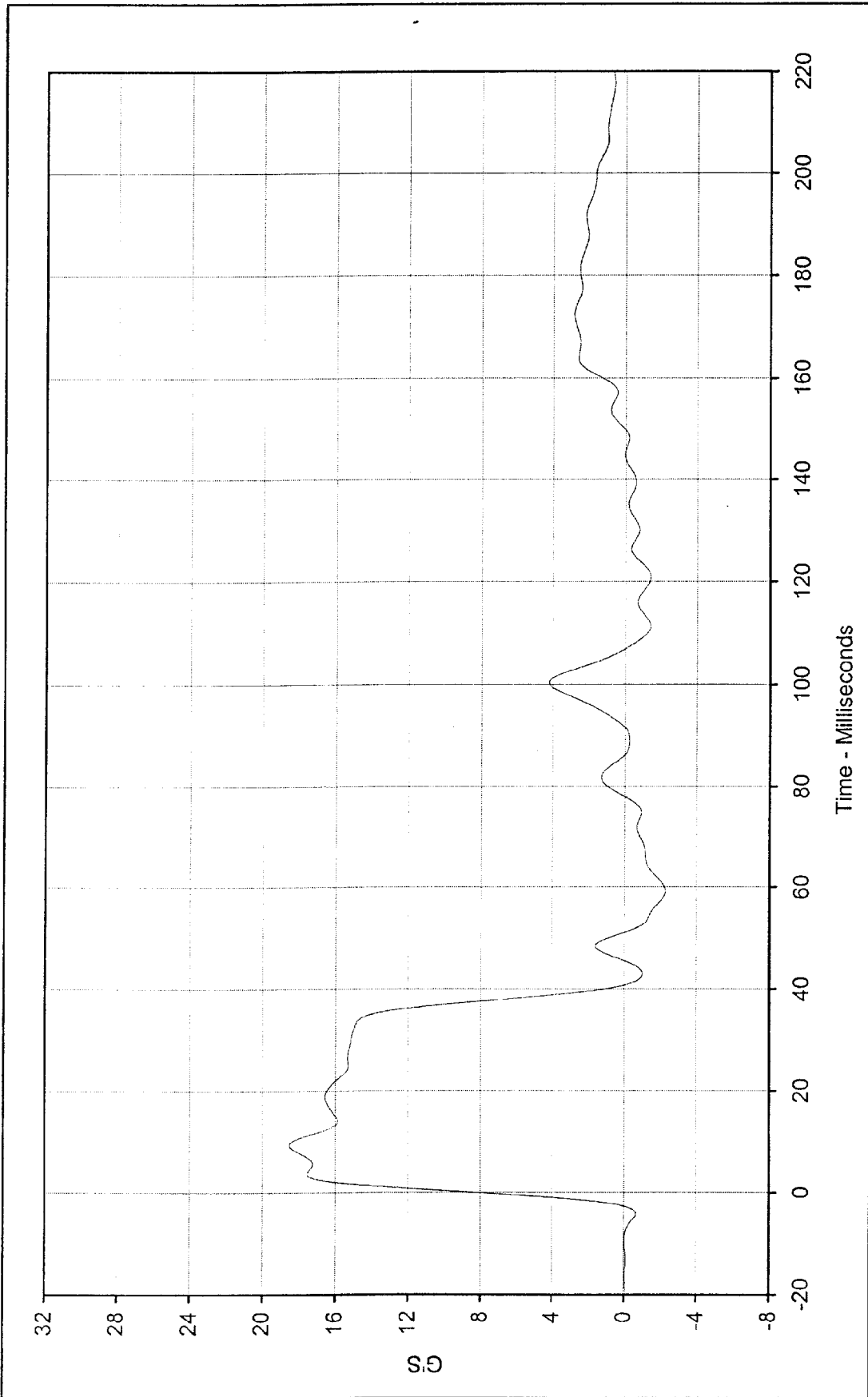
Test Date



Approved By



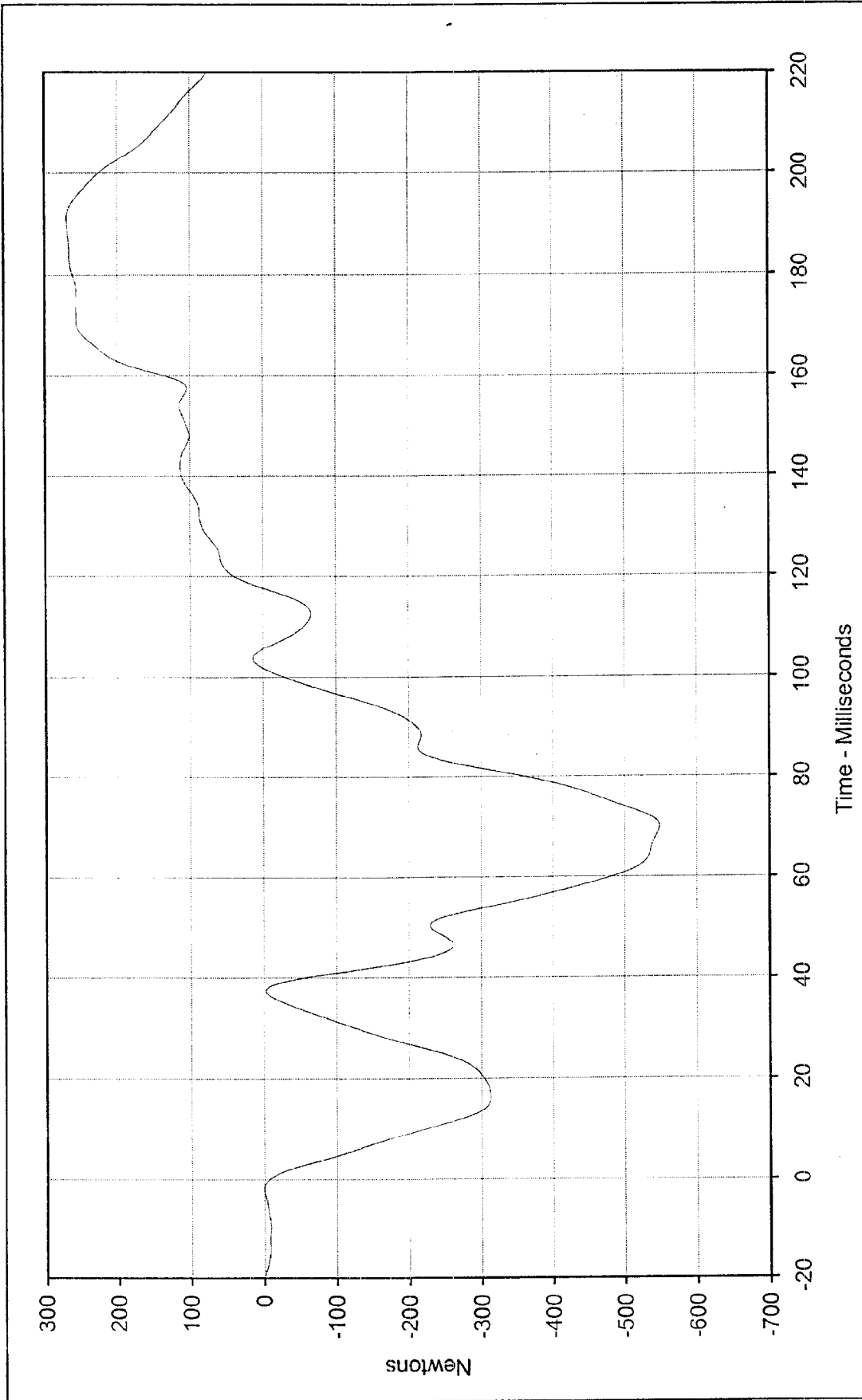
Date



Curve Description: Pendulum Deceleration
 Maximum Value: 18.5 at 9.3 Milliseconds
 Minimum Value: -2.3 at 59.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 034

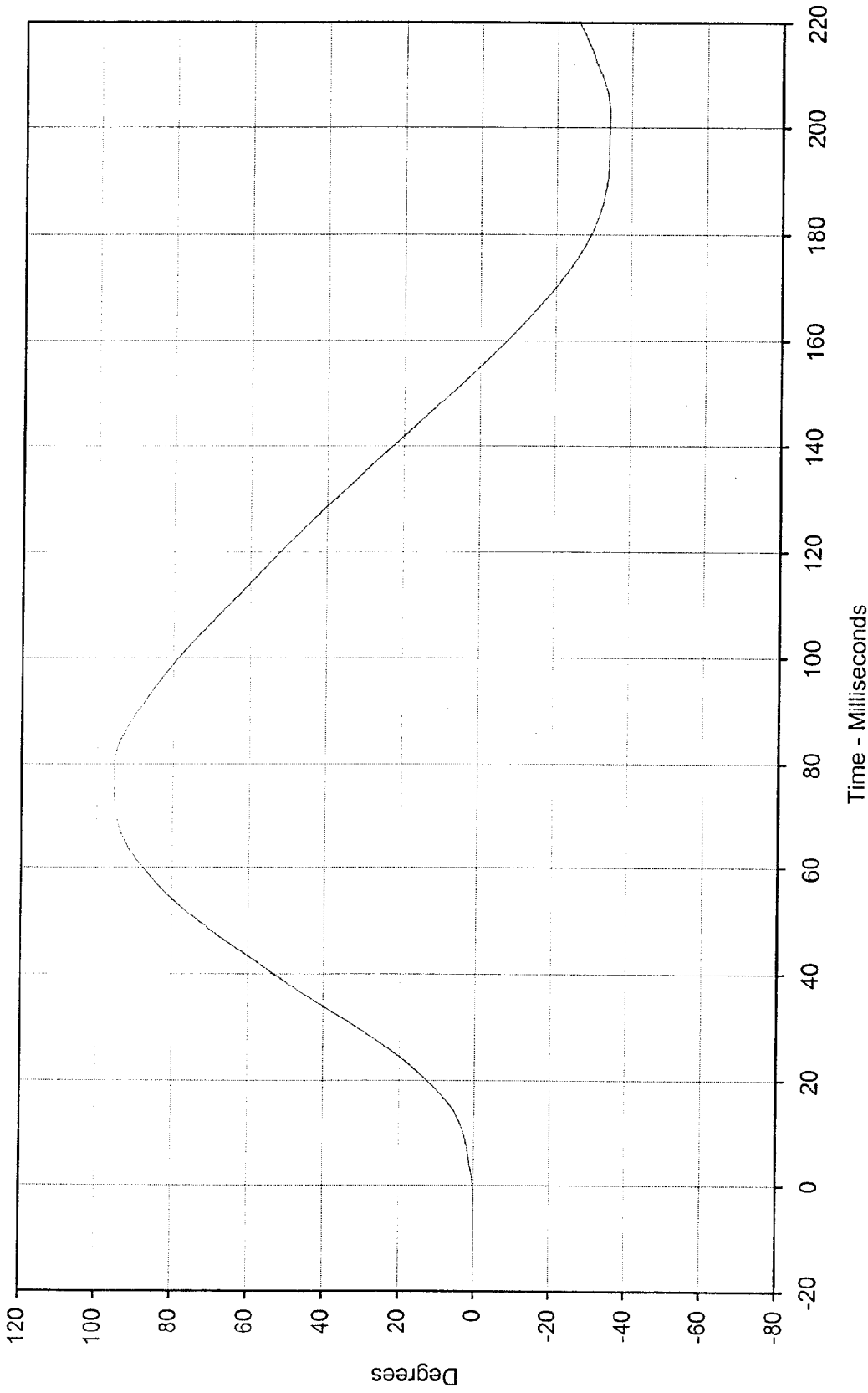
Testing Program: Hybrid III Neck Extension Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NE12D





Curve Description: Neck Force X
 Testing Program: Hybrid III Neck Extension Test (Male)
 Maximum Value: 270.0 at 191.2 Milliseconds
 Minimum Value: -548.6 at 70.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 034





Curve Description: "D" Plane Rotation

Maximum Value: 95.6 at 79.1 Milliseconds

Minimum Value: -34.0 at 201.8 Milliseconds

SAE Filter Class: 60

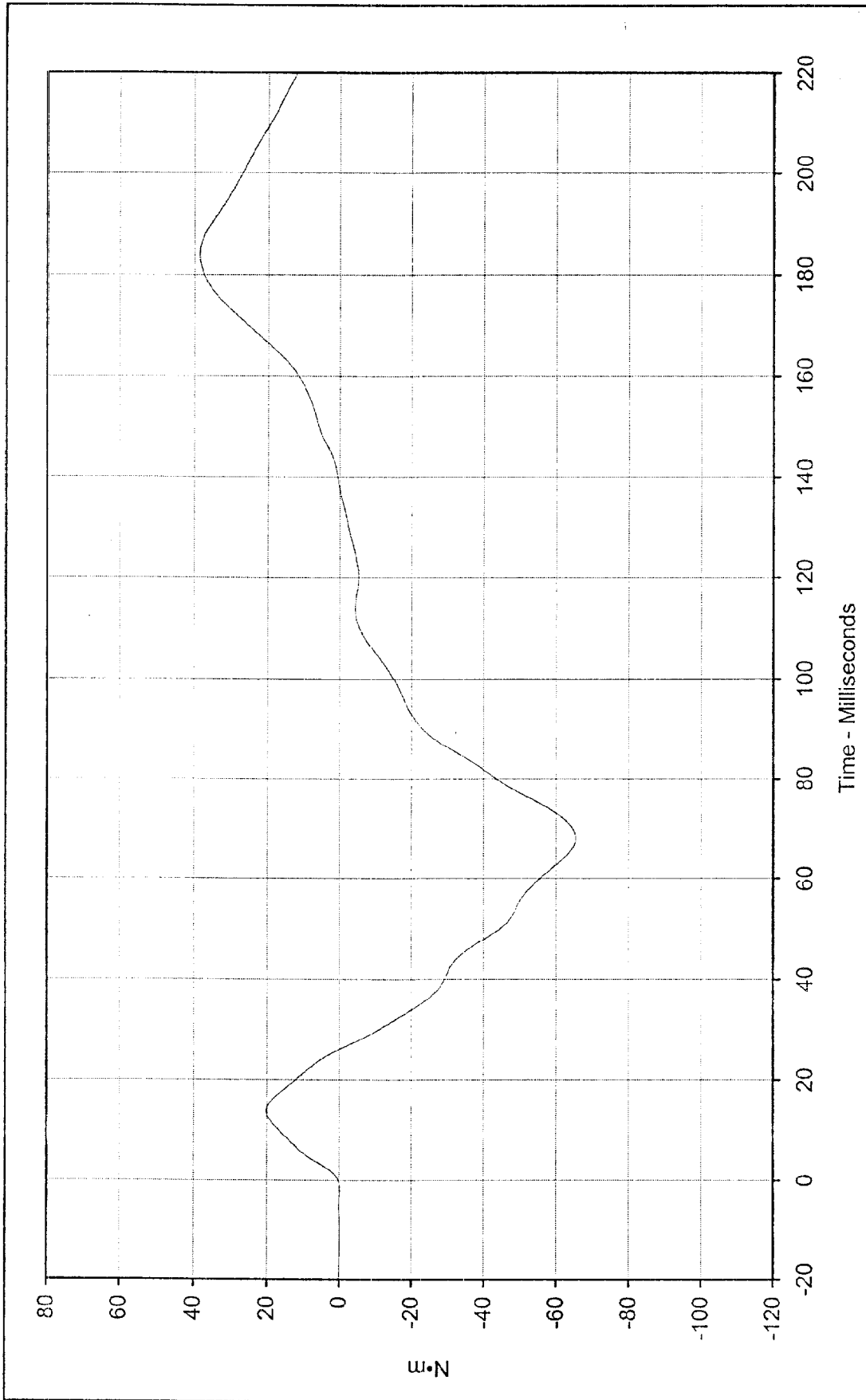
Date of Test: 12/29/98

ATD Serial No.: 034

Testing Program: Hybrid III Neck Extension Test (Male)

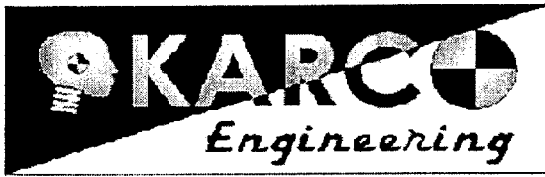
Test Information: S/N of Part: n/a Test I.D.: NE12D





Curve Description: Moment About Occipital Condyles Testing Program Hybrid III Neck Extension Test (Male)
 Maximum Value: 38.5 at 184.0 Milliseconds Test Information: S/N of Part: n/a Test I.D.: NE12D
 Minimum Value: -65.4 at 68.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male

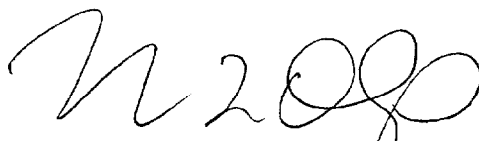
External Measurements

ATD Serial No.: 034

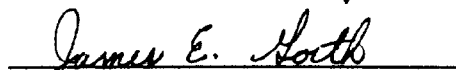
Part Serial No.: N/A

Test I.D.: N/A

External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.9	Pass
Laboratory relative humidity	%	10 to 70	44	Pass
A - Total sitting height	mm	878.8 to 889.0	888.5	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	506.0	Pass
C - "H" point height	mm	83.8 to 88.9	88.0	Pass
D - "H" point from seat back	mm	134.6 to 139.7	136.5	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	93.1	Pass
F - Thigh clearance	mm	139.7 to 154.9	152.4	Pass
G - Elbow back to wrist pivot	mm	289.6 to 304.8	304.0	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	343.0	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	603.0	Pass
L - Popliteal length	mm	429.3 to 454.7	445.0	Pass
M - Knee pivot height	mm	485.1 to 500.4	487.0	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	471.0	Pass
O - Chest depth	mm	213.4 to 228.6	223.0	Pass
P - Foot length	mm	251.5 to 266.7	260.0	Pass
V - Shoulder breadth	mm	421.6 to 436.9	435.0	Pass
W - Foot breadth	mm	91.4 to 106.7	92.0	Pass
Y - Chest circumference	mm	970.3 to 1000.8	980.0	Pass
Z - Waist circumference	mm	835.7 to 866.1	864.0	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



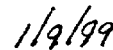
 Laboratory Technician



 Approved By

December 31, 1998

Test Date



Date



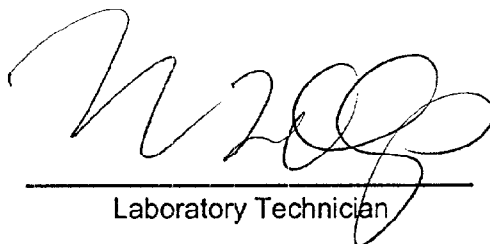
Hybrid III Calibration Data Sheet
50TH Percentile Male
Left Knee Impact Test

ATD Serial No.: 35

Part Serial No.: n/a

Test I.D.: KI12G

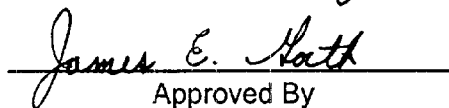
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.096	Pass
Peak Probe Force	Newtons	4715 to 5782	5361.6	Pass
Overall Test Results				Pass



Laboratory Technician

December 28, 1998

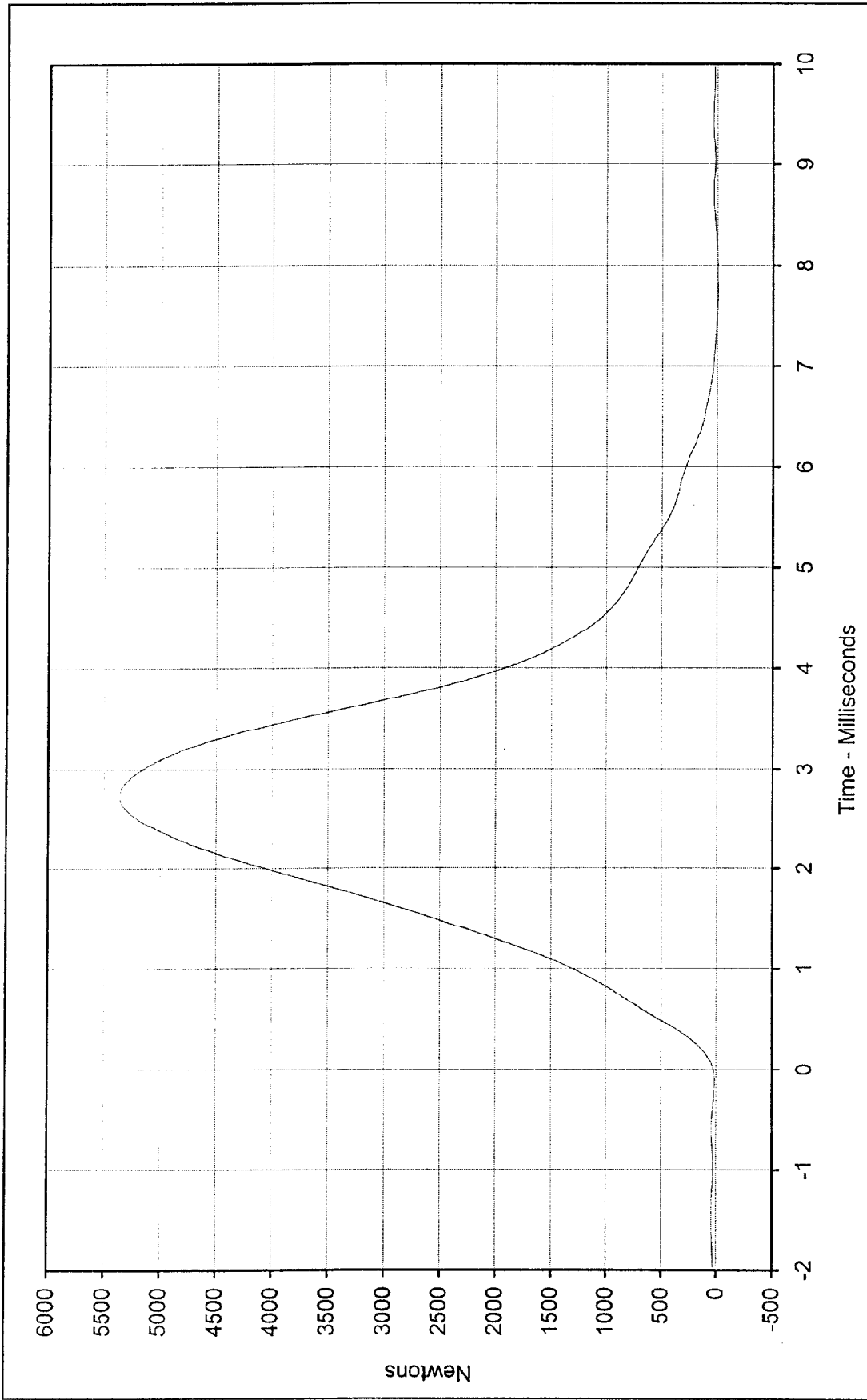
Test Date



Approved By

1/9/99

Date



Curve Description: Hybrid III Left Knee Impact Test
 Maximum Value: 5361.6 at 2.7 Milliseconds
 Minimum Value: -5.1 at 7.7 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/28/98
 ATD Serial No.: 35





Hybrid III Calibration Data Sheet
50TH Percentile Male
Right Knee Impact Test

ATD Serial No.: 35

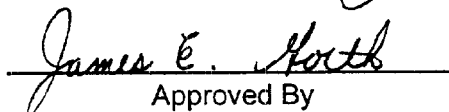
Part Serial No.: n/a

Test I.D.: KI12H

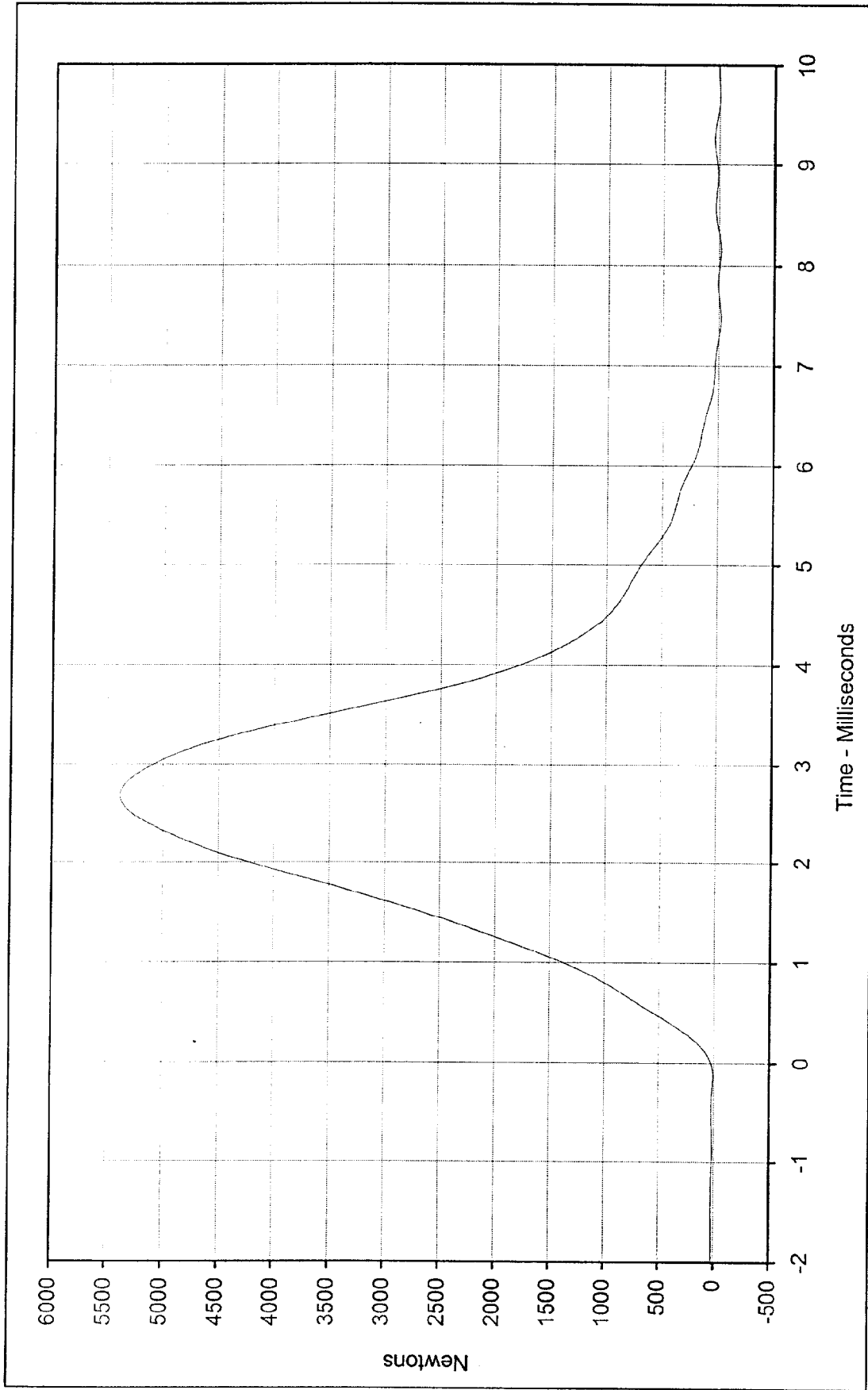
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.096	Pass
Peak Probe Force	Newtons	4715 to 5782	5384.9	Pass
Overall Test Results				Pass


 Laboratory Technician

December 28, 1998
 Test Date


 Approved By

1/9/99
 Date



Curve Description:	Probe Force	Testing Program	Hybrid III Right Knee Impact Test
Maximum Value:	5384.9 at 2.7 Milliseconds	Test Information:	Part S/N: n/a Test I.D.: K112H
Minimum Value:	-19.7 at 7.5 Milliseconds		
SAE Filter Class:	600		
Date of Test:	12/28/98		
ATD Serial No.:	35		





Hybrid III Calibration Data Sheet

50TH Percentile Male

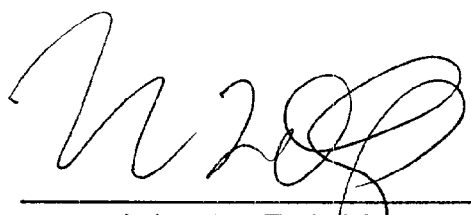
Head Drop Calibration

ATD Serial No.: 035

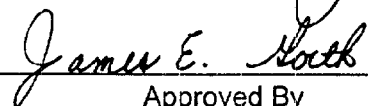
Part Serial No.: n/a

Test I.D.: HD12D

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	267.0	Pass
Peak Lateral Acceleration	G's	≤15.0	4.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Laboratory Technician



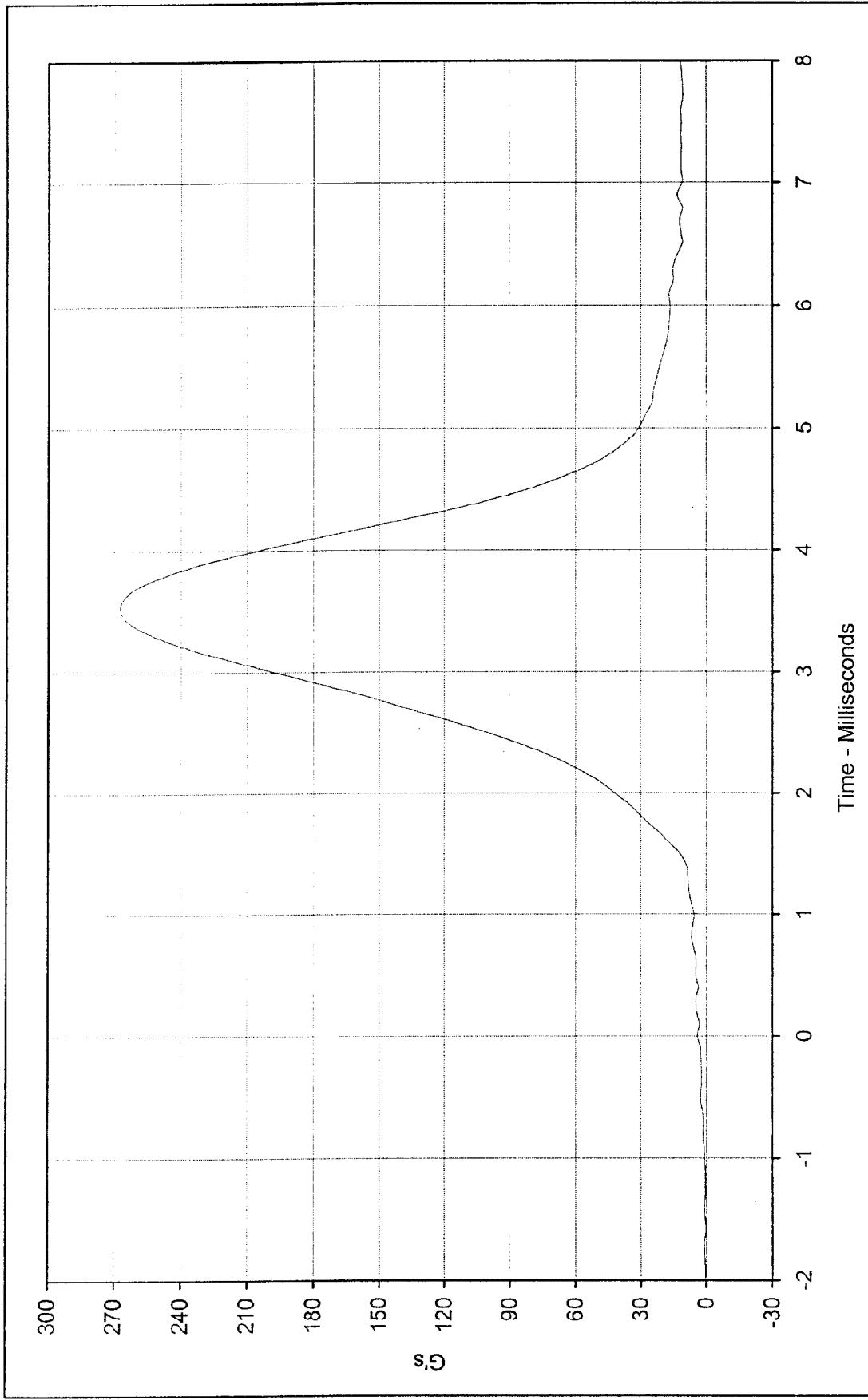
Approved By

December 28, 1998

Test Date

1/9/99

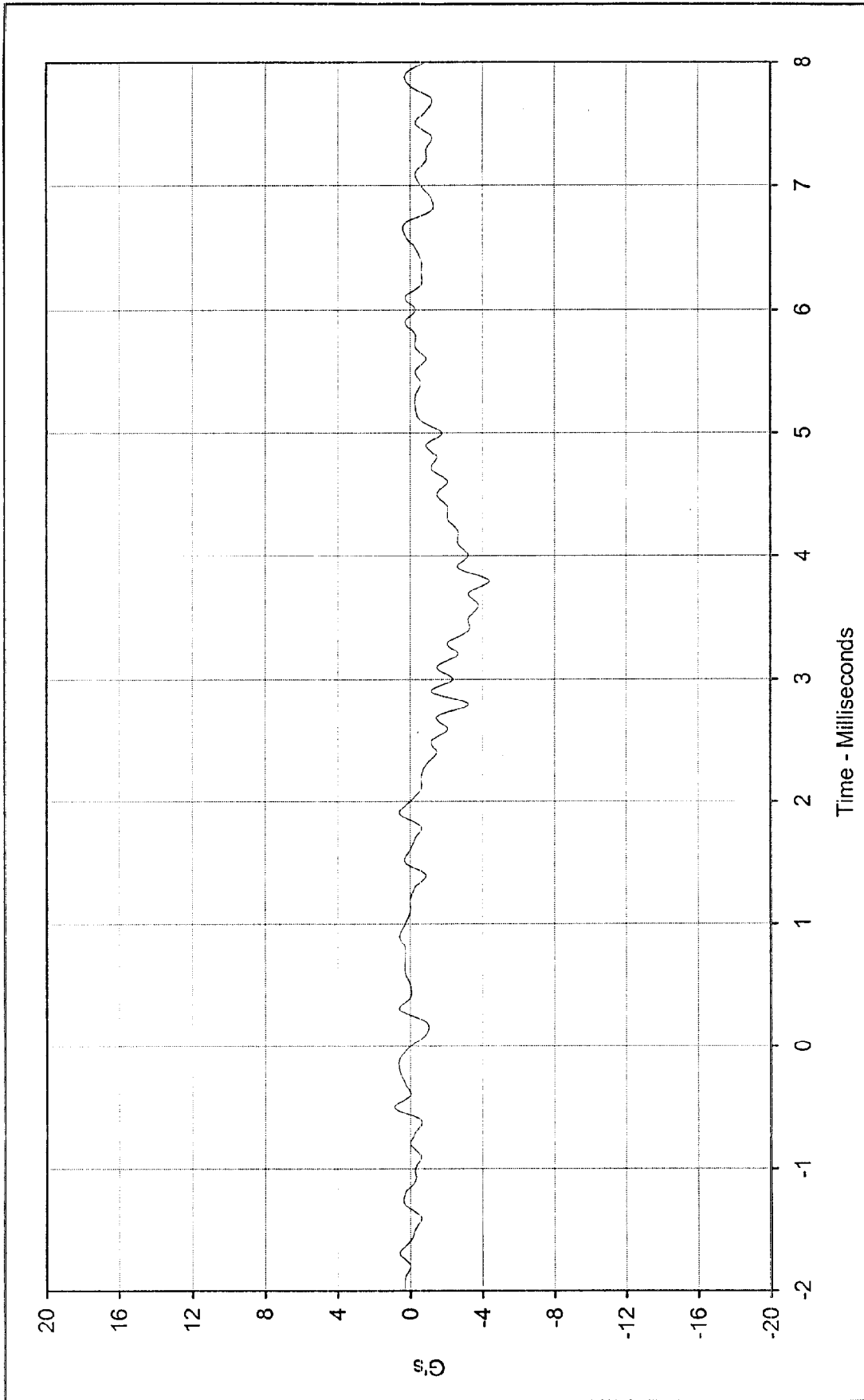
Date



Curve Description: Head Resultant Acceleration
 Maximum Value: 267.0 at 3.5 Milliseconds
 Minimum Value: 0.0 at -1.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/28/98
 ATD Serial No.: 035

Testing Program: Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: HD12D





Curve Description:	Head Acceleration Y Axis	Testing Program	Hybrid III Head Drop Calibration (Male)
Maximum Value:	0.9 at -0.5 Milliseconds	Test Information:	S/N of Part: n/a Test I.D.: HD12D
Minimum Value:	-4.4 at 3.8 Milliseconds		
SAE Filter Class:	1000		
Date of Test:	12/28/98		
ATD Serial No.:	035		





Hybrid III Calibration Data Sheet

50TH Percentile Male

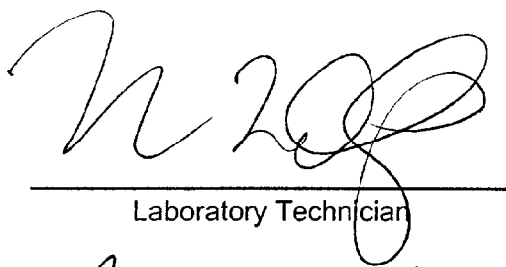
Thorax Impact Test

ATD Serial No.: 035

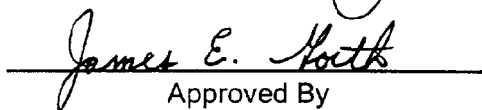
Part Serial No.: N/A

Test I.D.: CH12D

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	6.82	Pass
Peak Probe Force	Newtons	5159 to 5893	5677	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.50	Pass
Internal Hysteresis	%	69 to 85	74.4	Pass
Overall Test Results				Pass



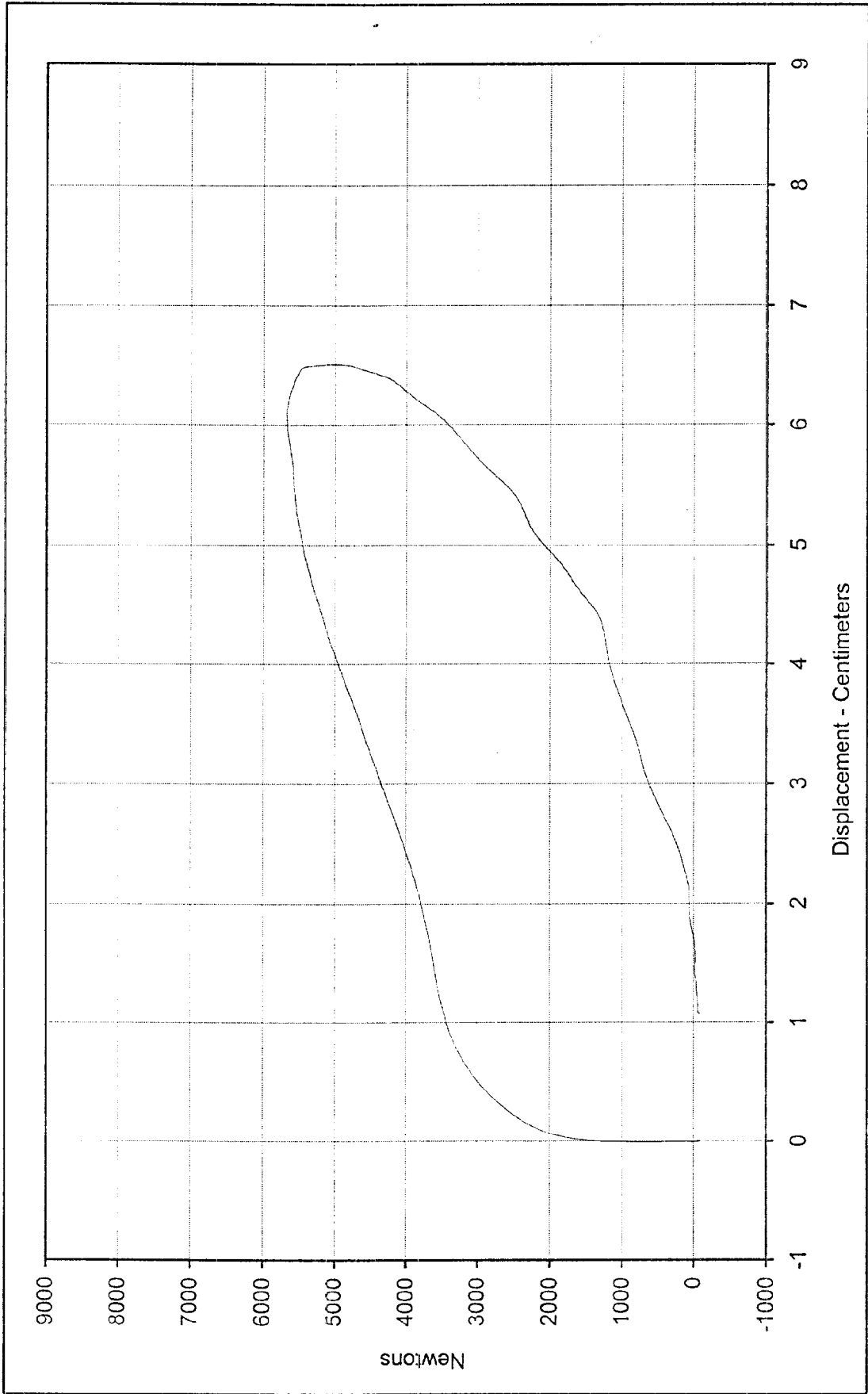
Laboratory Technician



Approved By

December 29, 1998
Test Date

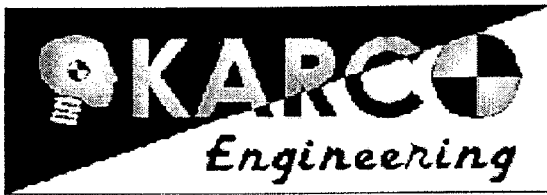
1/2/99
Date



Curve Description: Probe Force vs. Chest Displacement Testing Program: Hybrid III Thorax Impact Test
 Probe Force: 5677.4 Newtons Test Information: SN of Part: N/A Test I.D.: CH12D

Chest Displ.: 6.50 Centimeters
 SAE Filter Class: 180
 Date of Test: 12/29/98
 ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male

Neck Flexion Test

ATD Serial No.: 035


Part Serial No.: n/a

Test I.D.: NF12D

Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	39	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.00	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.0	Pass
	20 Msec.	G's	17.6 to 22.6	19.4	Pass
	30 Msec.	G's	12.5 to 18.5	18.2	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	18.2	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	37.0	Pass	
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	70.0	Pass
	Time	Msec.	57.0 to 64.0	62.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	118.4	Pass	
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	85.8	Pass
	Time	Msec.	47.0 to 58.0	54.5	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	100.2	Pass	
Overall Test Results				Pass	



 Laboratory Technician



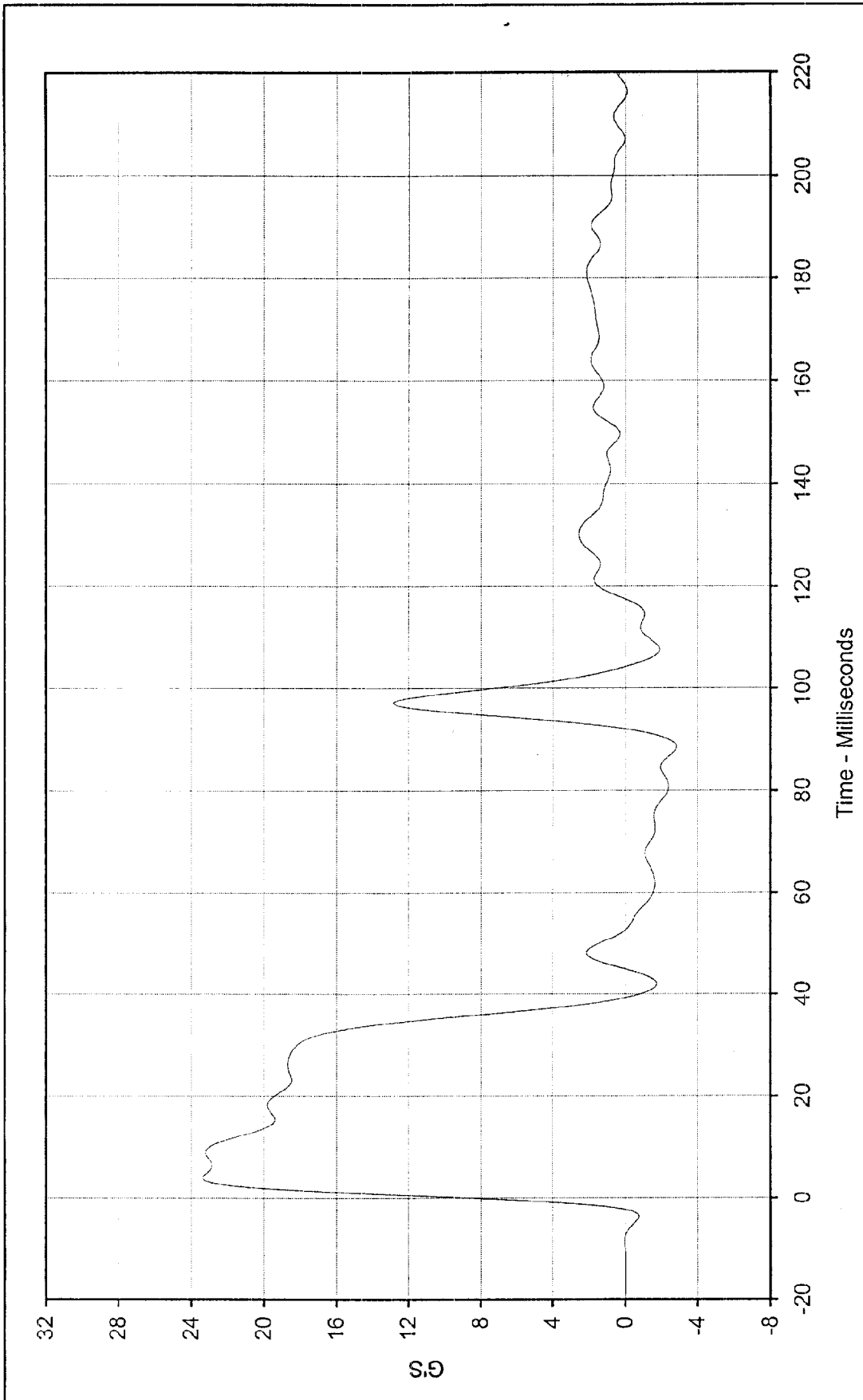
 Approved By

December 29, 1998

 Test Date

 1/9/99

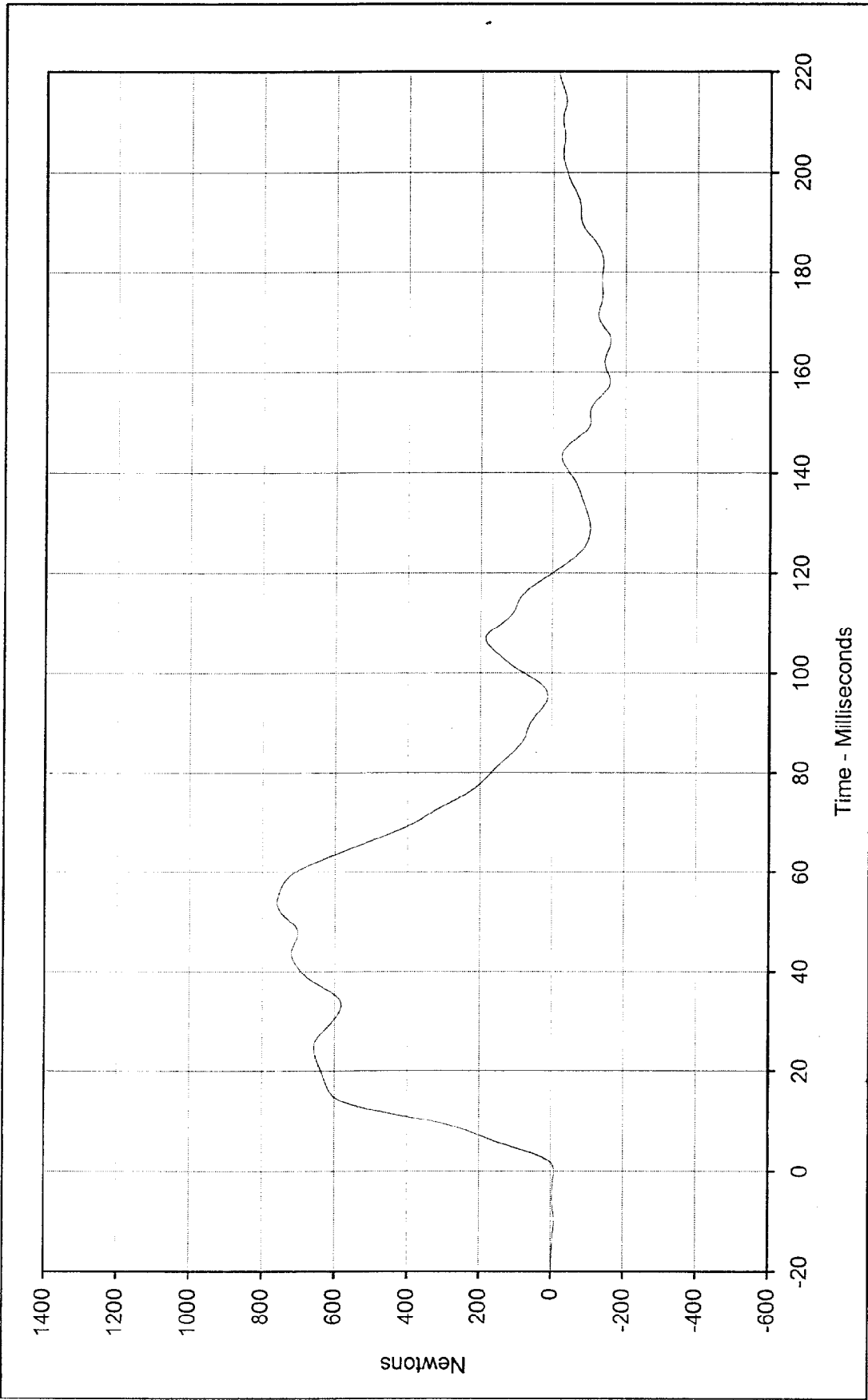
 Date



Curve Description: Pendulum Deceleration Testing Program Hybrid III Neck Flexion Test (Male)
 Maximum Value: 23.4 at 4.0 Milliseconds Test Information: S/N of Part: n/a Test I.D.: NF12D
 Minimum Value: -2.8 at 88.5 Milliseconds



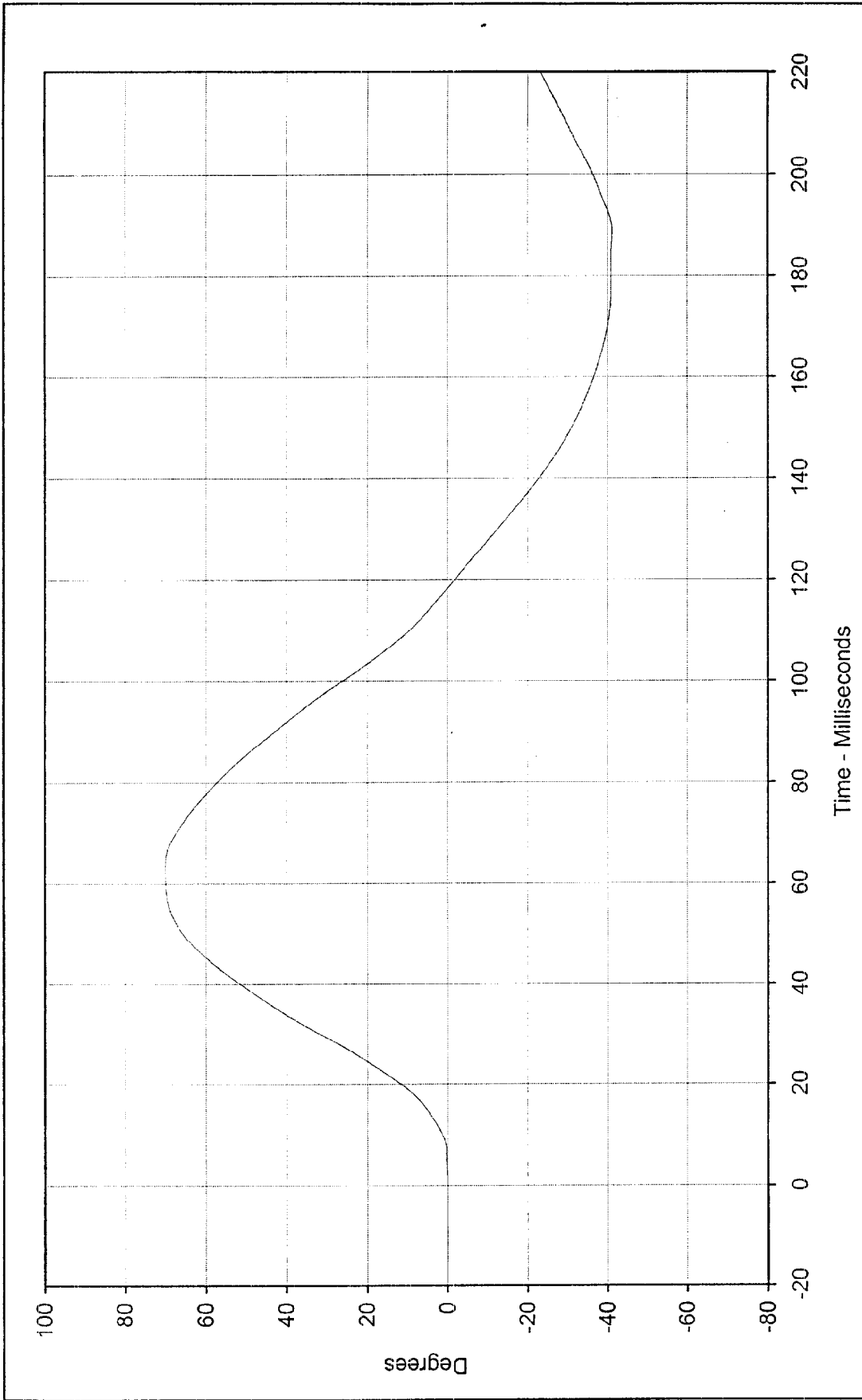
SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 035



Curve Description: Neck Force X
 Maximum Value: 759.0 at 54.1 Milliseconds
 Minimum Value: -158.5 at 166.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 035

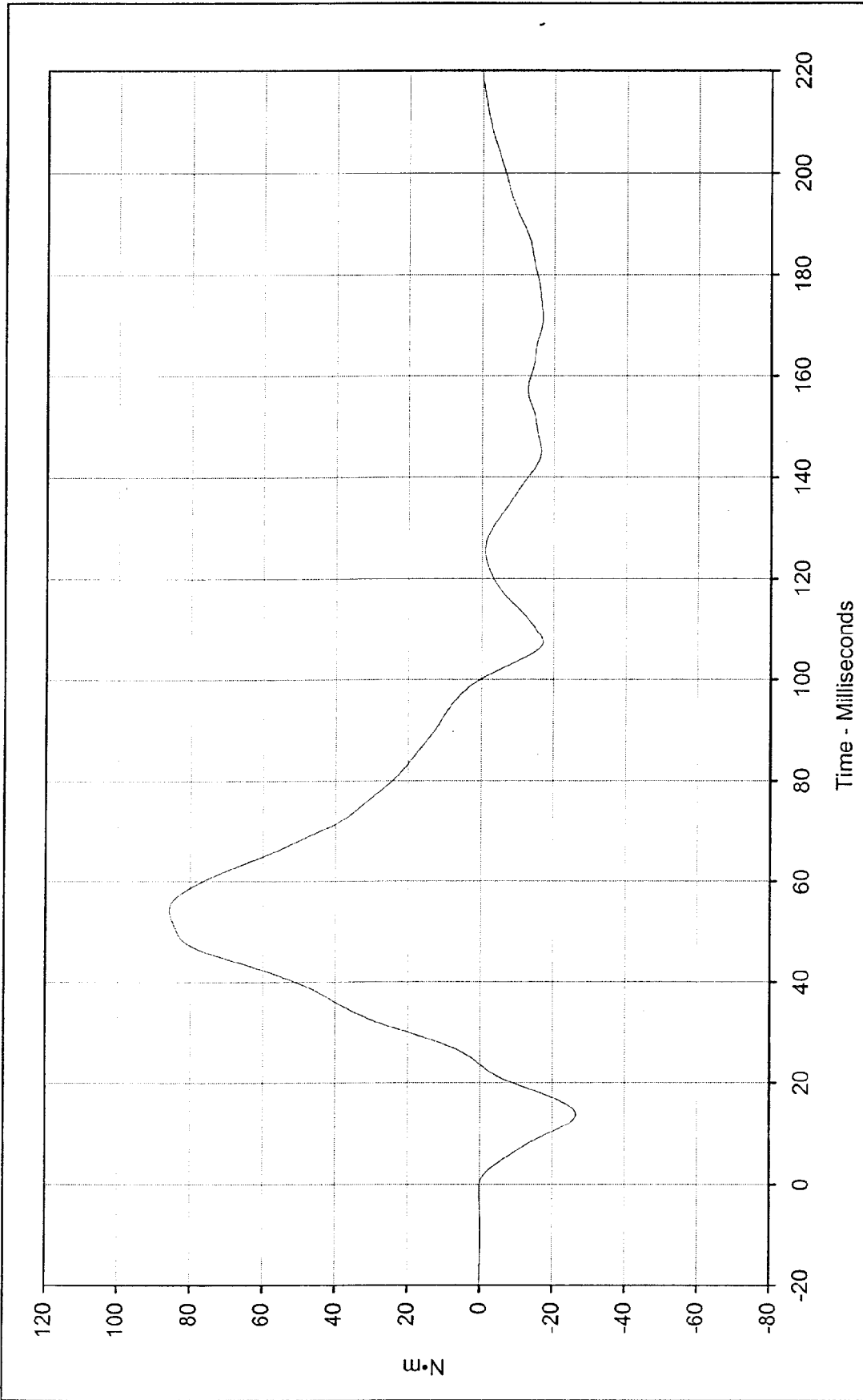
Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF12D





Curve Description: "D" Plane Rotation
 Testing Program: Hybrid III Neck Flexion Test (Male)
 Maximum Value: 70.0 at 62.7 Milliseconds
 Minimum Value: -41.2 at 189.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 035





Curve Description: Moment About Occipital Condyles Testing Program: Hybrid III Neck Flexion Test (Male)

Maximum Value: 85.8 at 54.5 Milliseconds Test Information: S/N of Part: n/a Test I.D.: NF12D

Minimum Value: -26.5 at 13.8 Milliseconds

SAE Filter Class: 60

Date of Test: 12/29/98

ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male

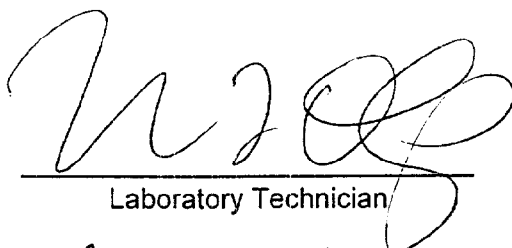
Neck Extension Test

ATD Serial No.: 035

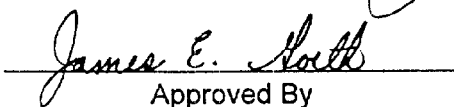
Part Serial No.: n/a

Test I.D.: NE12C

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	6.15	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.5	Pass
	20 Msec.	G's	14.0 to 19.0	17.1	Pass
	30 Msec.	G's	11.0 to 16.0	15.8	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	15.8	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	38.2	Pass	
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	94.4	Pass
	Time	Msec.	72.0 to 82.0	80.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	162.8	Pass	
Moment About Occipital Condyle	Maximum	N • m	-52.9 to- 79.9	-61.6	Pass
	Time	Msec.	65.0 to 79.0	73.1	Pass
Negative Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	141.1	Pass	
Overall Test Results				Pass	



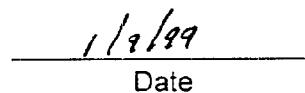
Laboratory Technician



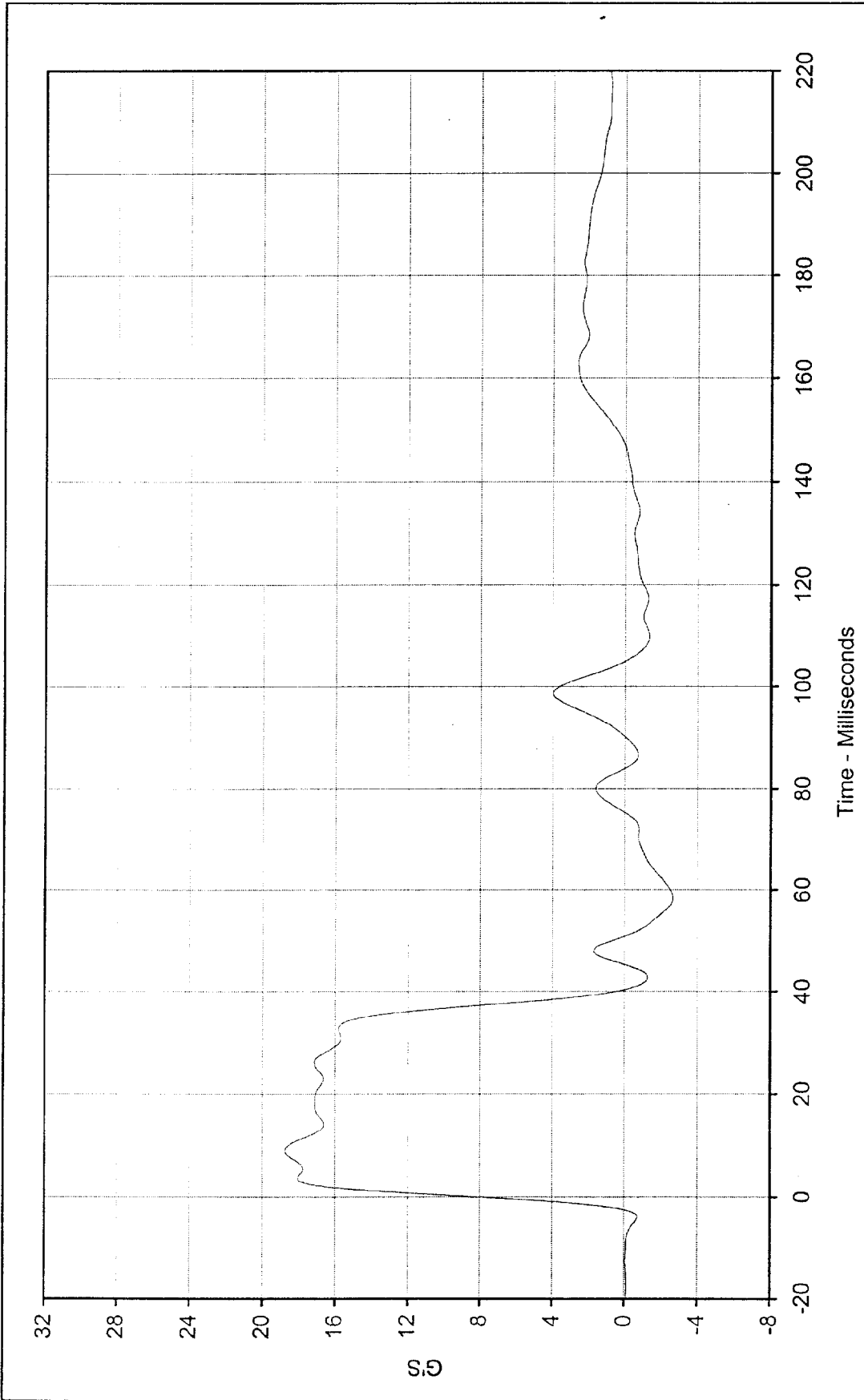
Approved By

December 29, 1998

Test Date



Date



Curve Description: Pendulum Deceleration Testing Program: Hybrid III Neck Extension Test (Male)

Maximum Value: 18.7 at 9.0 Milliseconds

Test Information: S/N of Part: n/a Test I.D.: NE12C

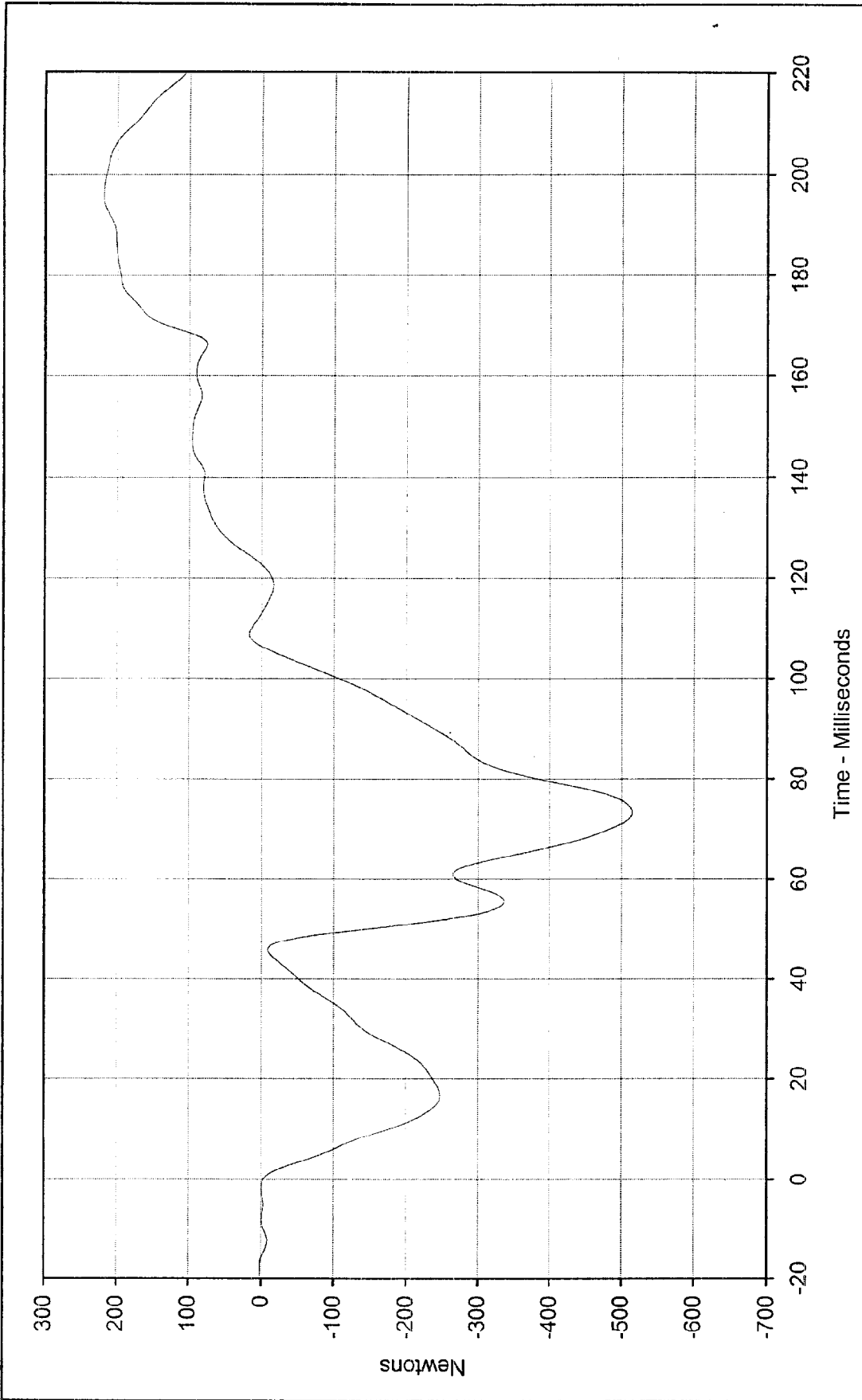
Minimum Value: -2.7 at 58.3 Milliseconds

SAE Filter Class: 60

Date of Test: 12/29/98

ATD Serial No.: 035

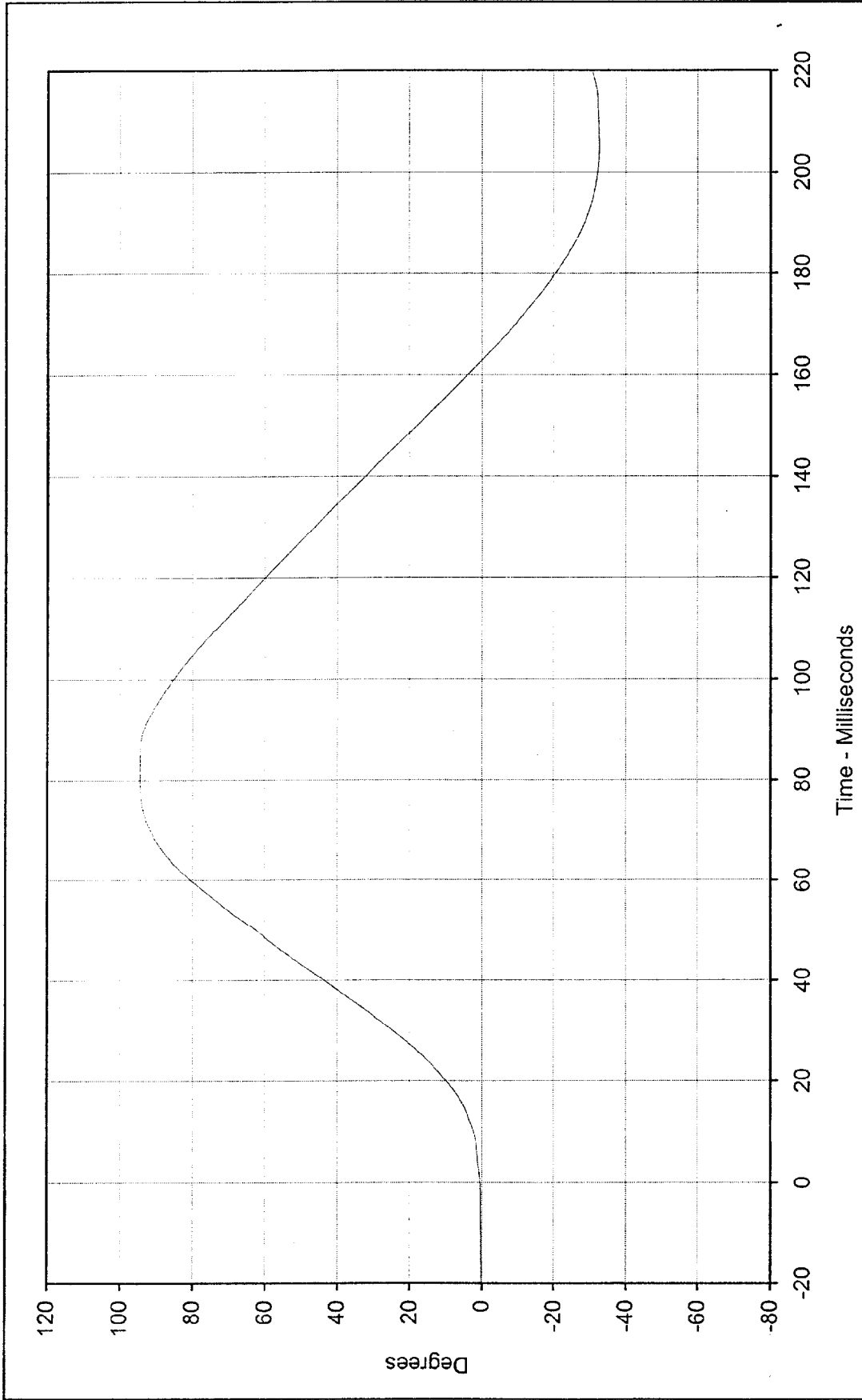




Curve Description: Neck Force X
 Maximum Value: 218.8 at 195.8 Milliseconds
 Minimum Value: -514.2 at 73.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 035

Testing Program: Hybrid III Neck Extension Test (Male)
 Test information: S/N of Part: n/a Test I.D.: NE12C





Curve Description: "D" Plane Rotation Testing Program: Hybrid III Neck Extension Test (Male)

Maximum Value: 94.4 at 80.7 Milliseconds Test Information: S/N of Part: n/a Test I.D.: NE12C

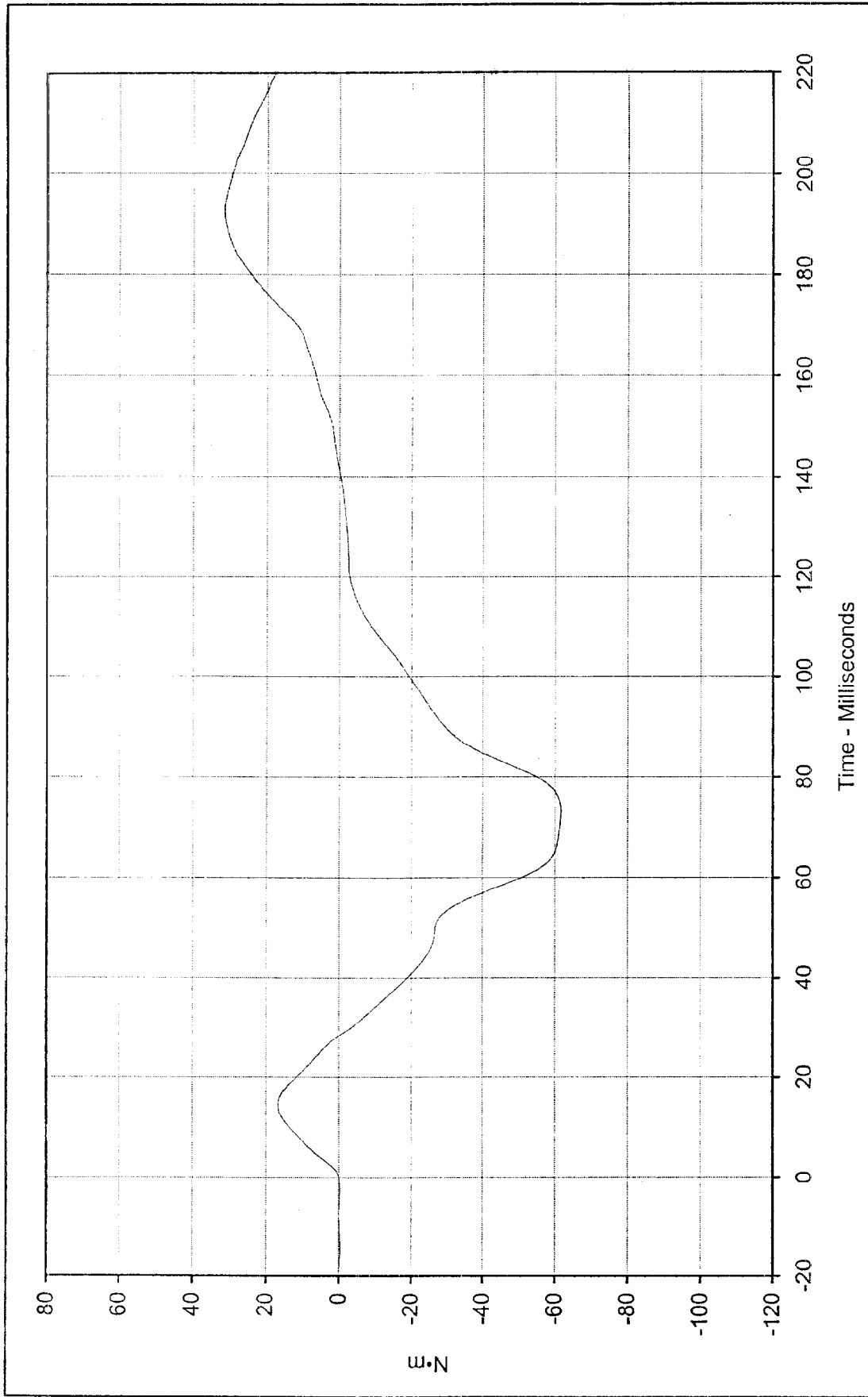
Minimum Value: -32.6 at 204.9 Milliseconds

SAE Filter Class: 60

Date of Test: 12/29/98

ATD Serial No.: 035





Curve Description: Moment About Occipital Condyles Testing Program Hybrid III Neck Extension Test (Male)
 Maximum Value: 31.6 at 192.8 Milliseconds Test Information: S/N of Part: n/a Test I.D.: NE12C
 Minimum Value: -61.6 at 73.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/29/98
 ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male


External Measurements

ATD Serial No.: 035

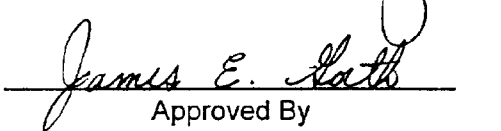
Part Serial No.: N/A

Test I.D.: N/A

External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.9	Pass
Laboratory relative humidity	%	10 to 70	44	Pass
A - Total sitting height	mm	878.8 to 889.0	886.0	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	506.0	Pass
C - "H" point height	mm	83.8 to 88.9	88.0	Pass
D - "H" point from seat back	mm	134.6 to 139.7	137.3	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	92.5	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	43.0	Pass
I - Shoulder to elbow length	mm	330.2 to 345.4	343.0	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	602.0	Pass
L - Popliteal length	mm	429.3 to 454.7	445.0	Pass
M - Knee pivot height	mm	485.1 to 500.4	487.0	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	475.0	Pass
O - Chest depth	mm	213.4 to 228.6	223.0	Pass
P - Foot length	mm	251.5 to 266.7	260.0	Pass
V - Shoulder breadth	mm	421.6 to 436.9	430.0	Pass
W - Foot breadth	mm	91.4 to 106.7	92.0	Pass
Y - Chest circumference	mm	970.3 to 1000.8	980.0	Pass
Z - Waist circumference	mm	835.7 to 866.1	864.0	Pass
AA - Location for chest circumference	mm	429.3 to 434.3	431.0	Pass
BB - Location for waist circumference	mm	226.1 to 231.1	229.0	Pass
Overall Test Results				Pass



 Laboratory Technician



 Approved By

December 31, 1998

 Test Date

 1/9/99

 Date

APPENDIX F
VEHICLE OWNER'S MANUAL
OCCUPANT RESTRAINT INSTRUCTIONS

KAR99001-07

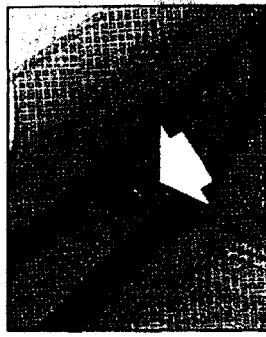
Seats and Seat Controls

This section tells you about the seats -- how to adjust them and fold them up and down. It also tells you about reclining front seatbacks and head restraints.

Manual Front Seat

CAUTION:

You can lose control of the vehicle if you try to adjust a manual driver's seat while the vehicle is moving. The sudden movement could startle and confuse you, or make you push a pedal when you don't want to. Adjust the driver's seat only when the vehicle is not moving.

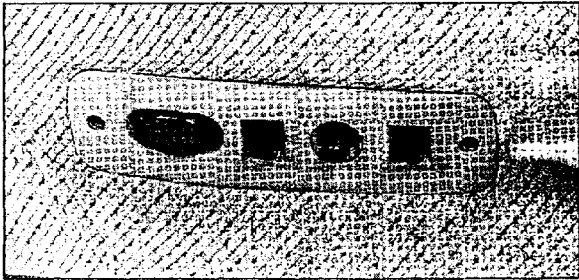


If your vehicle has a manual bucket, split bench or full bench seat, you can adjust it with this lever at the front of the seat.

Slide the lever at the front of the seat toward the passenger's side to unlock it. Using your body, slide the seat to where you want it. Then, release the lever and try to move the seat with your body to make sure the seat is locked into place.

1-2

Power Seat(s) (If Equipped)



If your vehicle has a power seat on the driver's or passenger's side, you can adjust it with these controls at the outside edge of the seat. The switch is located on the side of the seat, next to the door.

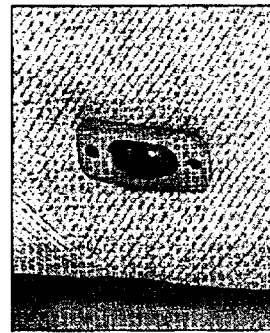
You can use the round center knob to move the seat to where you want it. To raise the seat, move the knob up. To lower the seat, move the knob down. To move the seat forward, move the knob toward the front of the vehicle. To move the seat rearward, move the knob toward the rear of the vehicle.

You can also raise and lower the front and rear of the seat. To raise the front of the seat, move the front lever up. To lower the front of the seat, move the front lever down. To

raise the rear of the seat, move the rear lever up. To lower the rear of the seat, move the rear lever down.

The switch located at the front of this control panel is for the power lumbar adjustment, which is explained next.

Power Lumbar Adjustment (If Equipped)



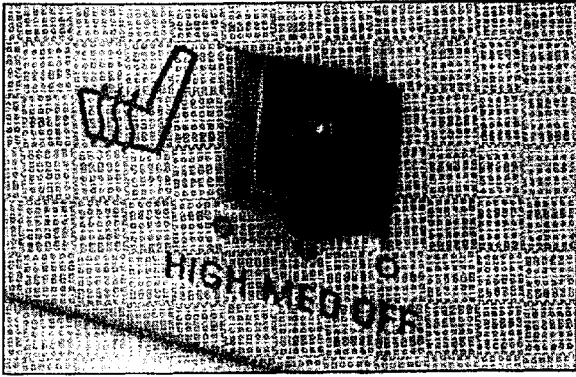
If you have power lumbar adjustment, you can increase or decrease lumbar support in an area of the lower seatback.

To increase support, press and hold the front of the rocker switch. Let go of the switch when the lower seatback reaches the desired level of support.

To decrease support, press and hold the rear of the rocker switch. Let go of the switch when the lower seatback reaches the desired level of support.

1-3

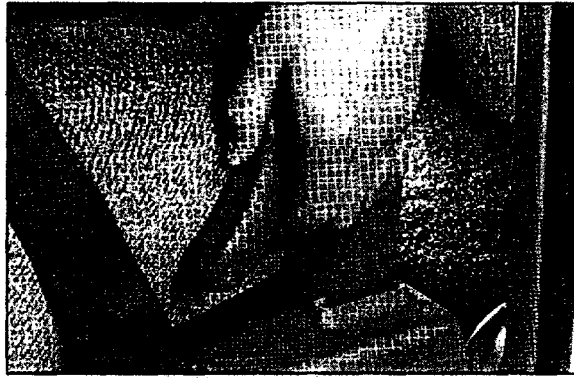
Heated Front Seats (If Equipped)



The control for the driver's side heated seat is located on the left side of the seat. The control for the right front passenger is located on the right side of the passenger's seat. Move the switch forward to MED or HIGH temperature to turn on the heating elements in the seat. The right front passenger's safety belt must be buckled before the heating elements in that seat will operate. To turn the heated seats off, move the switch rearward to OFF.

I-4

Reclining Front Seatbacks



To adjust the seatback, move the lever rearward.

Release the lever to lock the seatback where you want it. Move the lever again rearward and the seatback will go to an upright position.

Head Restraints

Slide the head restraint up or down so that the top of the restraint is closest to the top of your ears. This position reduces the chance of a neck injury in a crash.

Seatback Latches (2-Door Utility)

CAUTION:

If the seatback isn't locked, it could move forward in a sudden stop or crash. That could cause injury to the person sitting there. Always press rearward on the seatback to be sure it is locked.

The front seatback folds forward to let you access the rear of the vehicle.



To fold a seatback forward, pull this lever forward and tilt the seatback forward.

To return the seatback to the upright position, just push the seatback rearward until it latches.

After returning the seatback to its upright position, pull the seatback forward to make sure it is locked.

I-6

How to Wear Safety Belts Properly

Adults

This part is only for people of adult size.

Be aware that there are special things to know about safety belts and children. And there are different rules for smaller children and babies. If a child will be riding in your vehicle, see the part of this manual called "Children." Follow those rules for everyone's protection.

First, you'll want to know which restraint systems your vehicle has.

We'll start with the driver position.

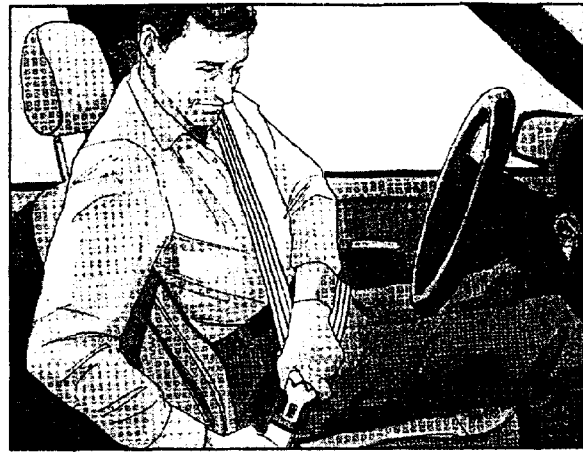
Driver Position

This part describes the driver's restraint system.

Lap-Shoulder Belt

The driver has a lap-shoulder belt. Here's how to wear it properly.

1. Close and lock the door.
2. Adjust the seat (to see how, see "Seats" in the Index) so you can sit up straight.



3. Pick up the latch plate and pull the belt across you. Don't let it get twisted.
4. Push the latch plate into the buckle until it clicks. Pull up on the latch plate to make sure it is secure.

If the belt isn't long enough, see "Safety Belt Extender" at the end of this section.

Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

I-20

Shoulder Belt Height Adjuster

Before you begin to drive, move the shoulder belt adjuster to the height that is right for you.



To move it down, push in at the word PRESS and move the height adjuster to the desired position. You can move the adjuster up just by pushing up on the shoulder belt guide. After you move the adjuster to where you want it, try to move it down without pushing in to make sure it has locked into position.

Adjust the height so that the shoulder portion of the belt is centered on your shoulder. The belt should be away from your face and neck, but not falling off your shoulder.

I-22

The best way to protect the fetus is to protect the mother. When a safety belt is worn properly, it's more likely that the fetus won't be hurt in a crash. For pregnant women, as for anyone, the key to making safety belts effective is wearing them properly.

Right Front Passenger Position

To learn how to wear the right front passenger's safety belt properly, see "Driver Position" earlier in this section.

The right front passenger's safety belt works the same way as the driver's safety belt -- except for one thing. If you ever pull the lap portion of the belt out all the way, you will engage the child restraint locking feature. If this happens, just let the belt go back all the way and start again.

Air Bag System

This part explains the air bag system.

Your vehicle has "Next Generation" frontal air bags -- one air bag for the driver and another air bag for the right front passenger.

Next Generation frontal air bags are designed to help reduce the risk of injury from the force of an inflating air bag. But even these air bags must inflate very quickly if they are to do their job and comply with federal regulations.

Here are the most important things to know about the air bag system:

CAUTION:

You can be severely injured or killed in a crash if you aren't wearing your safety belt -- even if you have air bags. Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it. Air bags are "supplemental restraints" to the safety belts. All air bags -- even Next Generation air bags -- are designed to work with safety belts, but don't replace them. Air bags are designed to work only in moderate to severe crashes where the front of your vehicle hits something. They aren't designed to inflate at all in rollover, rear, side or low-speed frontal crashes. And, for unrestrained occupants, Next Generation air bags may provide less protection in frontal crashes than more forceful air bags have provided in the past. Everyone in your vehicle should wear a safety belt properly -- whether or not there's an air bag for that person.

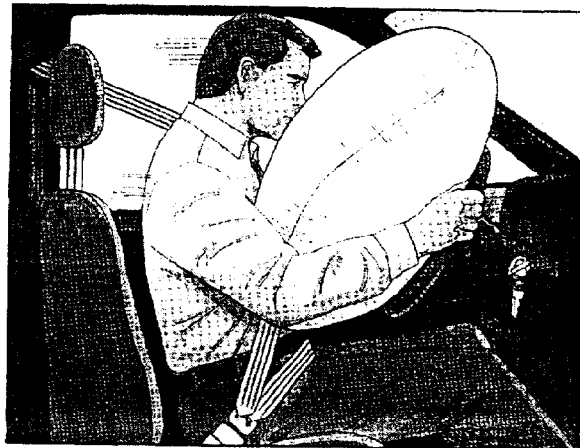
1-25

**AIR
BAG**

There is an air bag readiness light on the instrument panel, which shows AIR BAG.

The system checks the air bag electrical system for malfunctions. The light tells you if there is an electrical problem. See "Air Bag Readiness Light" in the Index for more information.

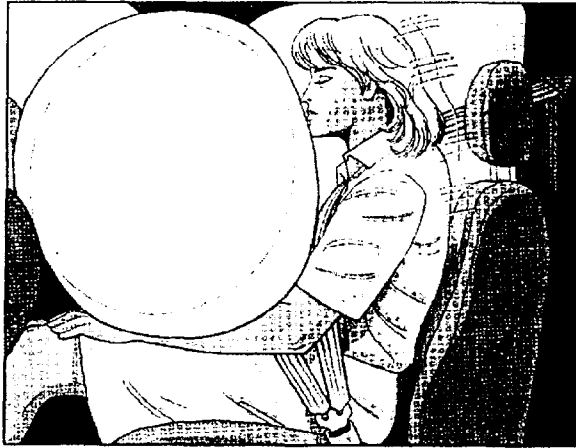
How the Air Bag System Works



Where are the air bags?

The driver's air bag is in the middle of the steering wheel.

1-31



The right front passenger's air bag is in the instrument panel on the passenger's side.

⚠ CAUTION:

If something is between an occupant and an air bag, the bag might not inflate properly or it might force the object into that person. The path of an inflating air bag must be kept clear. Don't put anything between an occupant and an air bag, and don't attach or put anything on the steering wheel hub or on or near any other air bag covering.

When should an air bag inflate?

An air bag is designed to inflate in a moderate to severe frontal or near-frontal crash. The air bag will inflate only if the impact speed is above the system's designed "threshold level." If your vehicle goes straight into a wall that doesn't move or deform, the threshold level is about 9 to 16 mph (14 to 26 km/h). The threshold level can vary, however, with specific vehicle design, so that it can be somewhat above or below this range. If your vehicle strikes something that will move or deform, such as a parked car, the threshold level will be higher. The air bag is not designed to inflate in rollovers, side impacts or rear impacts, because inflation would not help the occupant.