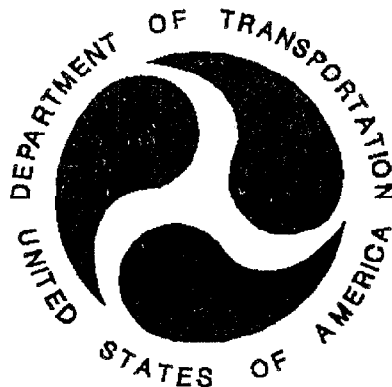


REPORT NO. KAR-98-9

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

CHRYSLER CORPORATION
1998 DODGE RAM 1500 SLT PICKUP
NHTSA NO. MW0306

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



FEBRUARY 23, 1998
FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY PERFORMANCE STANDARDS
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NPS-10
400 SEVENTH STREET, SW, ROOM 5313
WASHINGTON, D.C. 20590

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-97-D-02007.

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

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

Date: February 23, 1998

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

Date: February 23, 1998

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

Date: February 23, 1998

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

KAR-98-R98050-09

Technical Report Documentation Page

1. <i>Report No.</i> KAR-98-9	2. <i>Government Accession No.</i>	3. <i>Recipient's Catalog No.</i>																				
4. <i>Title and Subtitle</i> Final Report of New Car Assessment Program (NCAP) Frontal Barrier Impact Test Testing of a 1998 Dodge Ram 1500 SLT Pickup NHTSA No. MW0306		5. <i>Report Date</i> February 23, 1998																				
		6. <i>Performing Organization Code</i> KARCO																				
7. <i>Author(s)</i> Mr. James E. Gorth, Project Engineer, KARCO Mr. Frank D. Richardson, Program Manager, KARCO		8. <i>Performing Organization Report No.</i> KAR-98-R98050-09																				
9. <i>Performing Organization Name and Address</i> KARCO Engineering 9270 Holly Road Adelanto, California 92301		10. <i>Work unit No.</i>																				
		11. <i>Contract or Grant No.</i> DTNH22-97-D-02007																				
12. <i>Sponsoring Agency Name and Address</i> U.S. Department of Transportation National Highway Traffic Safety Administration Safety Performance Standards Office of Crashworthiness Standards Mail Code: NPS-10 400 Seventh Street, SW, Room 5313 Washington, D.C. 20590		13. <i>Type of report and Period Covered</i> Final Report-Option Year 1																				
		14. <i>Sponsoring Agency Code</i> DOT/NHTSA/NRM/OCS																				
15. <i>Supplementary Notes</i>																						
16. <i>Abstract</i> A 35 mph (56.3 km/h) frontal barrier impact test was conducted on a 1998 Dodge Ram 1500 SLT pickup at KARCO Engineering on February 4, 1998. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301 and footwell intrusion performance. The impact velocity was 57.02 km/h. The ambient temperature at the barrier face at the time of impact was 8.8°C. The vehicle's maximum post-test static crush was 675 mm, located at the centerline of the vehicle. 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>690.5</td><td>329.7</td></tr> <tr> <td>Chest Resultant Peak 3 msec clip</td><td>60 G's</td><td>47.2</td><td>49.4</td></tr> <tr> <td>Left Femur Force</td><td>10009 N</td><td>-3955.5</td><td>-4067.7</td></tr> <tr> <td>Right Femur Force</td><td>10009 N</td><td>-3315.0</td><td>-5258.9</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	690.5	329.7	Chest Resultant Peak 3 msec clip	60 G's	47.2	49.4	Left Femur Force	10009 N	-3955.5	-4067.7	Right Femur Force	10009 N	-3315.0	-5258.9
<u>Injury Criteria</u>	<u>Threshold Value</u>	<u>Driver Dummy</u>	<u>Passenger Dummy</u>																			
Head Injury Criteria (HIC)	1000	690.5	329.7																			
Chest Resultant Peak 3 msec clip	60 G's	47.2	49.4																			
Left Femur Force	10009 N	-3955.5	-4067.7																			
Right Femur Force	10009 N	-3315.0	-5258.9																			
17. <i>Key Words</i> 56.3 km/h NCAP Frontal Barrier Impact Test 1998 Dodge Ram 1500 SLT Pickup NHSTA No. MW0306		18. <i>Distribution Statement</i> Copies of this report are available from: Technical Reference Division National Highway Traffic Safety Admin. Room 5108, Nassif Building 400 7th St., SW Washington, DC 20590																				
19. <i>Security Classification (of this report)</i> UNCLASSIFIED	20. <i>Security Classification (of this page)</i> UNCLASSIFIED	21. <i>No. of Pages</i> 318																				
		22. <i>Price</i>																				

TABLE OF CONTENTS

Section	Page
1 Purpose, Test Procedures and Summary of Test MW0306	1
2 Occupant and Vehicle Information/Data Sheets	3
Appendix	
A Photographs	A
B Dummy, Vehicle, and Response Data Traces	B
C Load Cell Barrier Information (Not Applicable for this Test)	C
D Instrumentation and Data Channel Assignments	D
E Dummy Calibration	E
F Vehicle Owner's Manual Occupant Restraint Instructions	F
Data Sheet No.	
1 Crash Test Summary	4
2 General Test and Vehicle Parameter Data	5
3 Post Impact Data	7
4 Test Vehicle Information	8
5 Dummy Positioning in Vehicle	10
6 Seat Belt Positioning Data	12
7 Vehicle Accelerometer Location and Data Summary	13
8 Hybrid III ATD Injury Criteria and Sensor Data	15
9 Seat Belt Assessment Test Data	18
10 Summary of FMVSS 212 Data	19
11 Windshield Zone Intrusion FMVSS 219 (Partial) Data	20
12 FMVSS 301 Fuel System Integrity Post Impact Data	21
13 FMVSS 301 Static Rollover Data	22
14 Vehicle Measurements	23
15 Camera Locations	25
16 Reference Photograph Targets	26
17 Vehicle Intrusion Measurements	27
18 Barrier Orientation (Not Applicable to this Test)	30
19 Accident Investigation Division Data	31
20 Dummy/Vehicle Temperature Stabilization	32

SECTION 1

PURPOSE, TEST PROCEDURE AND SUMMARY OF TEST MW0306

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the FY' 98 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 and occupant restraint system performance data for frontal barrier impacts at a speed 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 February 4, 1998, at a speed of 57.02 km/h. The test vehicle was instrumented with eight (8) accelerometers to measure longitudinal axis accelerations. The driver and passenger's restraint systems were instrumented with four (4) seat belt load cells to measure lap and shoulder belt tension. The specified impact velocity range was 55.5 to 57.1 km/h. The frontal barrier impact event was documented by one (1) real-time panning motion picture camera and seventeen (17) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information is documented in the data sheets. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The test vehicle contained two (2) part 572E 50th percentile adult male anthropomorphic test devices (ATDs). Both ATDs were instrumented with head and chest primary and redundant tri-axial accelerometers, 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. Seat belt load cells were also placed on the driver and passenger shoulder and lap belts to measure torso and pelvic section loading. 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 used in two previous NCAP frontal impact tests since their last calibration. Injury criteria were not exceeded by either ATD during this NCAP frontal impact test.

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

An immovable barrier was impacted by a 1998 Dodge Ram 1500 SLT Pickup at a velocity of 57.02 km/h. The test weight, with two (2) 50th percentile male ATDs, was 2502 kg.

The driver's Head Injury Criteria (HIC) was 690.5, the maximum chest deceleration over three (3) milliseconds was 47.2 g and the left and right femur loads were -3955.5 and -3315.0 Newtons, respectively. Chest deflection for the driver ATD was -27.5 mm. The driver ATD head contacted the airbag and headrest, its chest and abdomen contacted the airbag, and both knees contacted the lower dash knee bolster.

The right front passenger's HIC was 329.7, maximum chest deceleration over three (3) milliseconds was 49.4 g and the left and right femur loads were -4067.7 and -5258.9 Newtons respectively. Chest deflection for the passenger ATD was -26.9 mm. The passenger ATD head contacted the airbag and headrest, the chest and abdomen contacted the airbag and both knees contacted the knee bolster.

Seat belt spoolout, was not measured for this vehicle due to the seating configuration. Shoulder belt stretch was 0 mm/cm for the driver ATD and 0 mm/cm for the passenger ATD. Note: Seats with integrated belt retractors do not allow sensor mounting without compromising seat belt system response.

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 675 mm at the vehicle centerline. Both the driver side and the passenger side doors required the aid of tools to open.

1.4 GENERAL COMMENTS

The 1998 Dodge Ram 1500 SLT Pickup passed the requirements of 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, vehicle and response data traces. Appendix C contains Load Cell Barrier information, which is not applicable to this test. 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 MODE: 56.3 km/h New Car Assessment Program (NCAP) Frontal Barrier Impact

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: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

TEST MODE: 56.3 km/h NCAP Frontal Barrier Impact

TEST DATE: February 4, 1998

TIME: 11:50 AM

TEMPERATURE: 8.8° C

TEST WEIGHT: 2502 kg

IMPACT VELOCITY: 57.02 km/h

VEHICLE REBOUND AT CENTER OF EACH WHEEL; REBOUND ANGLE = 0°

Measurements in mm	Left Side	Centerline	Right Side
Vehicle Rebound	628	465	550

VEHICLE STATIC CRUSH

Measurements in mm	Left	Center	Right
Pre-test Measurements	5405	5690	5405
Post-test Measurements	4852	5015	4930
Static Crush	-553	-675	-475

DOOR OPENING AND SEAT TRACK INFORMATION

	Driver	Passenger
Door Opening (Front)	JAMMED	JAMMED
Door Opening (Rear)	N/A	N/A
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	AIR BAG
Abdomen	AIR BAG	AIR BAG
Left Knee	KNEE BOLSTER	KNEE BOLSTER
Right Knee	KNEE BOLSTER	KNEE BOLSTER

DATA SHEET NO. 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

TEST VEHICLE INFORMATION			
Manufacturer	CHRYSLER MOTOR CORPORATION	VIN	3B7HC12Y4WM216278
Manufacturing Date	9/97	Delivery Date	1/20/98
Dealer	ONTARIO DODGE/SUZUKI	NHTSA NO.	MW0306
Odometer Reading	000144 MI.	Fuel Type	UNLEADED
Engine Displacement	5.2 Liter	Cylinders	8
Transmission	AUTOMATIC	Final Drive	REAR
Engine Placement	LONGITUDINAL	Color	RED
Tire Press./Max. Cap. Front	287 kPa	Cold Tire Press. Front	287 kPa
Tire Press./Max. Cap. Rear	287 kPa	Cold Tire Press. Rear	287 kPa
Recommend Tire Size	P225/75R16 XL	Type of Spare	CONVENTIONAL P245/75R16
Tire Size on Vehicle	P245/75R16	Manufacturer	GOODYEAR
GVWR	2903kg	Cargo Capacity	136kg
GAWR Front	1656kg	GAWR Rear	1726kg
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	NO
Driver Airbag	YES	Passenger Airbag	YES

VEHICLE CAPACITY DATA:

TYPE OF FRONT SEATS Split Bench

TOTAL NUMBER OF OCCUPANTS 5 OCCUPANTS x 68 kg. 340 kg

WEIGHT OF VEHICLE AS RECEIVED AT KARCO (with maximum fluids): 2220 kg

Data Sheet No. 2... (Continued)

VEHICLE CAPACITY WEIGHT (kg):

Vehicle Capacity Weight 682 kg
 Occupant Weight 340 kg
 Rated Cargo/Luggage Weight (RCLW) 342 kg*

	FRONT	REAR	TOTAL
Right	630	474	1104
Left	640	476	1116
Total	1270	950	2220
Percent of Total	57.2	42.8	100%

*NOTE: Actual is 342 kg, 137 kg maximum used for pickups.

CALCULATION OF TEST

TARGET WEIGHT (kg):

Total Delivered Weight 2220 kg
 RCLW 136 kg*
 Weight of 2 P572 ATDs 152 kg
TARGET TEST WEIGHT 2508 kg

TEST WEIGHT OF VEHICLE WITH 2 ATDs AND BALLAST

	FRONT	REAR	TOTAL
Right	667	573	1240
Left	690	572	1262
Total	1357	1145	2502
Percent of Total	54.2	45.8	100%

Weight of Ballast secured in cargo area: 53 kg

Includes cameras, instrumentation, brake abort and bags containing lead shot secured in the cargo area.

Vehicle Components Removed For Weight Reduction:

Side mirrors, jack, tools, spare tire and paneling.

TEST VEHICLE ATTITUDE (mm)

ATTITUDE	LF	RF	LR	RR
As Delivered	870	864	921	921
As Tested	830	832	920	915

Vehicle Wheelbase: 3531 mm

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 98.4 liters

Usable Capacity Figure Furnished by COTR = 98.4 liters

Test Volume Range (92 to 94% of Usable Capacity) = 90.5 to 92.5 liters

ACTUAL TEST VOLUME = 92.3 liters (With entire fuel system filled)

Test Fluid Type = Stoddard Solvent

Specific Gravity = 0.764

Kinematic Viscosity = as per ASTM Standard D484-71

Color = Red

Type of Fuel Pump = Electric X Mechanical

Does electric pump operate with ignition switch "ON" & engine "OFF"? Yes X No

DETAILS OF FUEL SYSTEM: With ignition on and adequate oil pressure.

DATA SHEET NO. 3

POST IMPACT DATA

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

TEST MODE: 56.3 km/h New Car Assessment Program (NCAP) Frontal Barrier Impact

TEST DATE: February 4, 1998

TIME: 11:50 AM

TEMPERATURE: 8.8 °C

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 = 57.02 km/h

Trap No. 2 = 57.04 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)	5405	5690	5405
Post-test Measurements (mm)	4852	5015	4930
Static Crush (mm)	-553	-675	-475
Average	-567		

VEHICLE REBOUND: (from rigid barrier with rotational movement)

VEHICLE REBOUND AT CENTER OF EACH WHEEL: REBOUND ANGLE = 0°			
Measurements in mm	Left Side	Centerline	Right Side
Vehicle Rebound	628	465	550

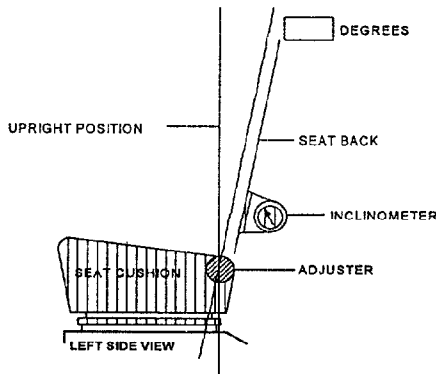
DATA SHEET NO. 4

TEST VEHICLE INFORMATION

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

1. NOMINAL DESIGN RIDING POSITION -



FRONT SEAT ASSEMBLY

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"?).

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°

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°

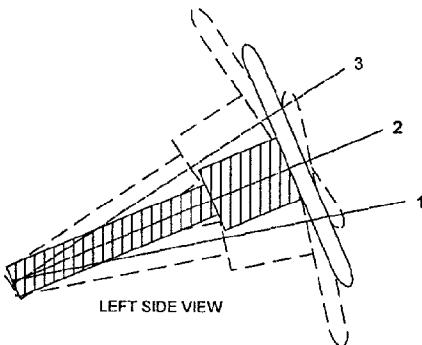
2. SEAT FORE & AFT POSITIONS -

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: 23 seating positions, set to 12th position from front, per manufacturers specifications.

Positioning of the passenger's seat (if applicable): 23 seating positions, set to the 12th position from front, per manufacturers specifications.

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 17°

Position No. 2 is at 25°

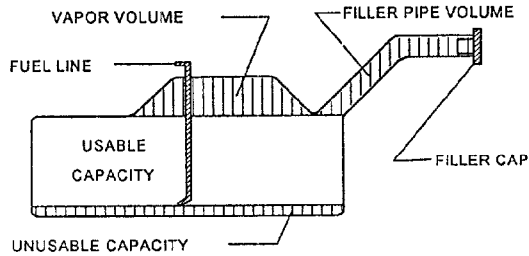
Position No. 3 is at 38°

4. SEAT BELT UPPER ANCHORAGE:

Set to mid-position

DATA SHEET NO. 4 (continued)

5. FUEL TANK CAPACITY DATA



- 5.1 A. "Usable Capacity" of standard equipment fuel tank = 98.4 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 = 90.5 to 92.5 liters.

VEHICLE FUEL TANK ASSEMBLY

Operational Instructions:

5.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 92.3 liters

5.3 Is vehicle equipped with electric fuel pump?

Yes X No

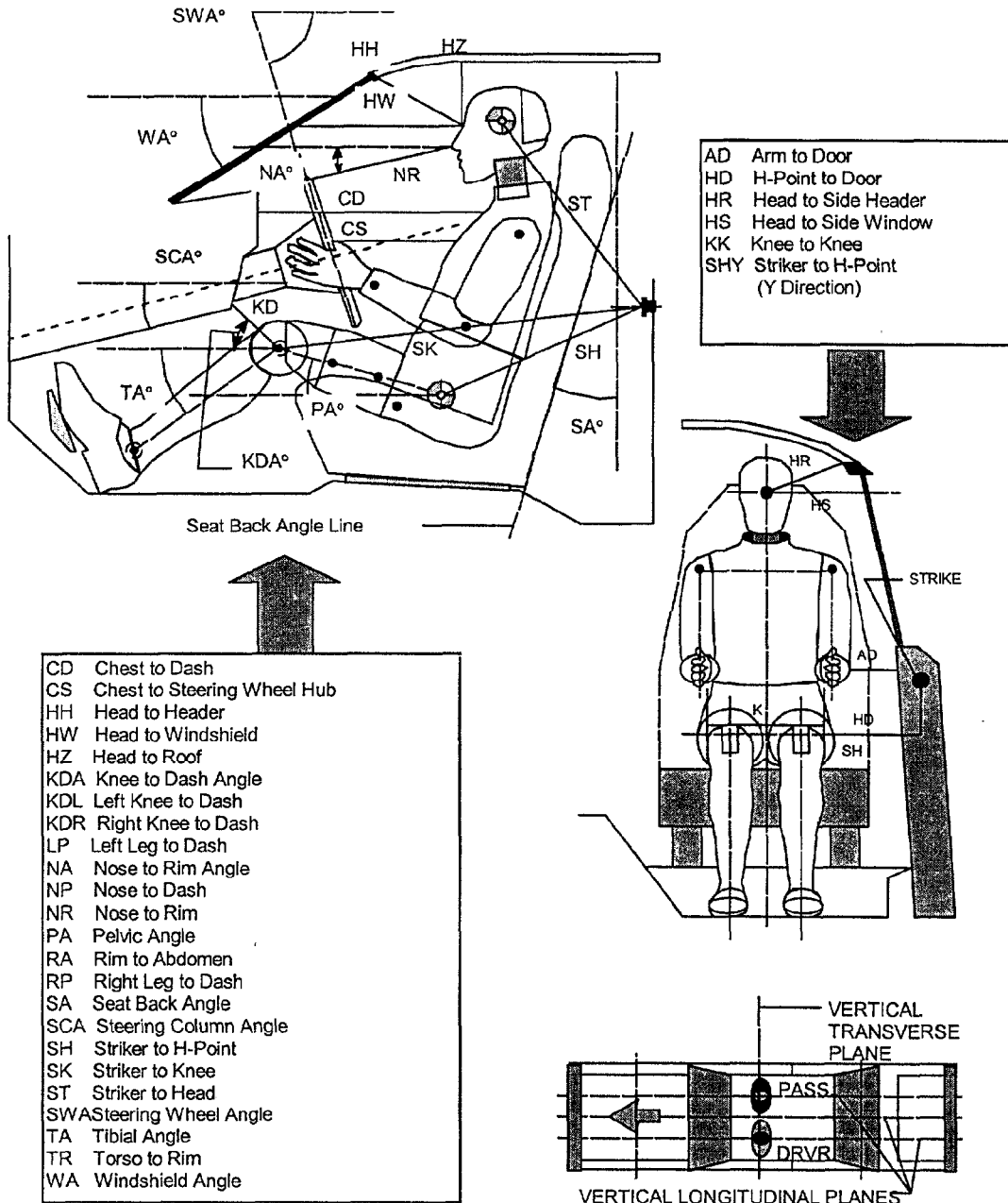
If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

With ignition on and adequate oil pressure.

DATA SHEET NO. 5

DUMMY POSITIONING IN VEHICLE

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



DATA SHEET NO. 5...(continued)

DUMMY POSITIONING IN VEHICLE

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

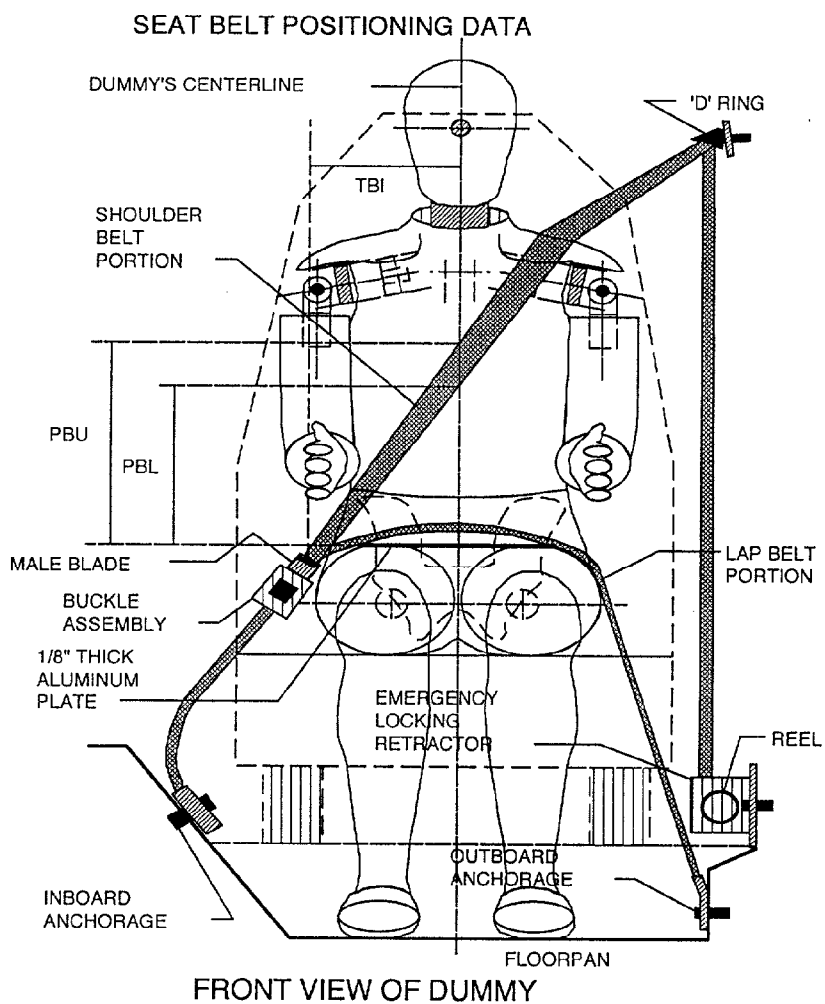
FRONT SEAT MEASUREMENT TABLE

	DRIVER (Serial No. <u>34</u>)		PASS. (Serial No. <u>35</u>)	
	DISTANCE (mm)	ANGLE (°)	DISTANCE (mm)	ANGLE (°)
WA°		38		
SWA°		65		
SCA°		30		
SA°		24		24
HZ	250	90	230	90
HH	415	0	380	0
HW	622	0	570	0
HR	243		220	
NR	375	14		
CD	515		460	
CS	280	0		
RA	170	0		
KDL	170	24	80	
KDR	160		95	30
PA°		25		25
TA°		52		54
KK	215		203	
ST	690	24	722	25
SH	270	0	360	5
SHY	250		245	
HS	320		205	
HD	220		180	
AD	72		40	

DATA SHEET NO. 6

SEAT BELT POSITIONING DATA

SEATING POSITION	DRIVER	PASSENGER
TCI -- Dummy centerline to shoulder bolt	240	240
PBU--Top surface of aluminum plate to belt upper edge	340	320
PBL--Top surface of aluminum plate to belt lower edge	260	240
Lap Belt tension	10 Newtons	10 Newtons
Shoulder Belt tension	Retractor	Retractor



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

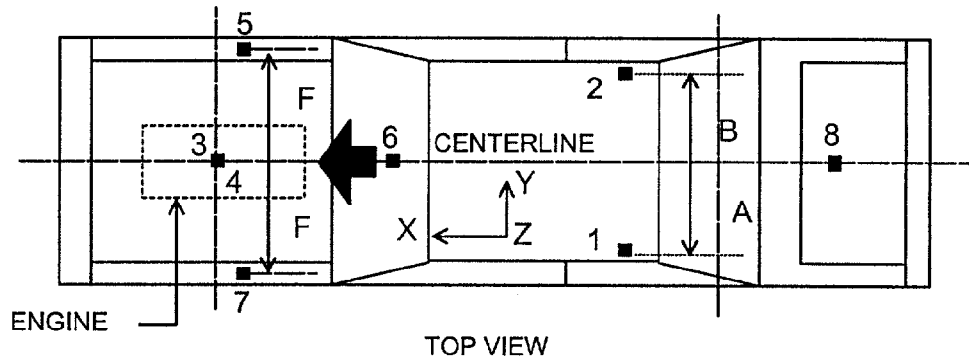
TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP NHTSA No.: MW0306
 TEST PROGRAM: 1998 NHTSA 35 MPH NCAP TEST DATE: 2/4/98

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

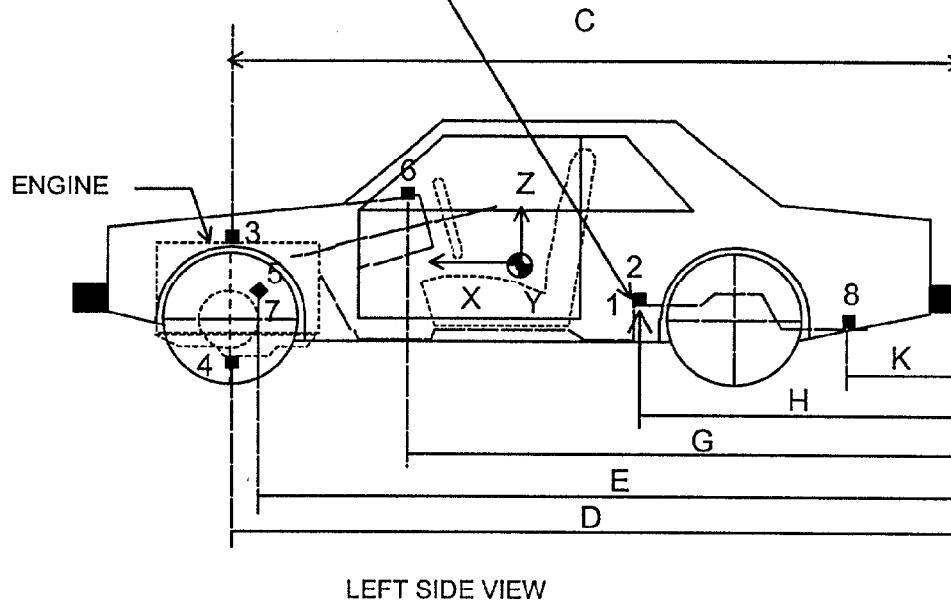
No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member (Pri.)	2923	-714	572	G's	3.7	150.3	-37.1	65.3
2	Right Rear X-Member (Pri.)	2923	706	566	G's	3.3	150.8	-39.5	63.9
3	Engine Top	4635	236	928	G's	32.4	58.1	-108.4	45.8
4	Engine Bottom	4448	40	285	G's	0.0	0.0	0.0	0.0
5	Left Brake Caliper	4630	-684	412	G's	46.1	21.2	-136.0	50.5
6	Right Brake Caliper	4630	688	410	G's	68.6	64.5	-97.4	43.4
7	Instrument Panel	3884	0	1344	G's	18.0	36.5	-72.7	69.1
8	Left Rear X-Member (Rednt.)	2735	-714	570	G's	3.6	150.0	-35.6	65.2

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

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: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA No.: MW0306

TEST PROGRAM: 1998 NHTSA 35 MPH NCAP

TEST DATE: 2/4/98

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	14.0	155.6	-70.6	81.4	5.2	254.0	-48.9	87.7
Head CG	Y	G's	11.7	94.8	-11.2	191.8	12.3	81.1	-15.4	147.6
Head CG	Z	G's	22.3	62.9	-14.3	98.7	18.3	64.5	-11.0	147.8
Head CG Resultant	N/A	G's	71.0	81.4			50.1	87.9		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	13.1	157.7	-51.4	89.3	9.1	172.1	-45.4	78.7
Chest CG	Y	G's	6.6	58.2	-7.3	94.7	4.6	148.7	-9.7	71.5
Chest CG	Z	G's	11.3	146.5	-16.8	81.0	16.1	147.6	-23.6	86.3
Chest CG Resultant	N/A	G's	53.5	89.3			50.2	86.3		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	916.1	145.4	-3955.5	57.3	72.3	210.9	-4067.7	50.2
Right Femur	Z	Newtons	1199.7	137.6	-3315.0	54.8	155.4	254.5	-5258.9	82.9

SEAT BELT PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt	N/A	Newtons	10729.2	59.3	-29.4	137.2	4555.4	69.1	-39.1	164.3
Shoulder Belt	N/A	Newtons	7850.5	89.1	-92.8	149.6	6982.6	89.3	-80.2	235.3

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	690.5	51.2	63.7	99.6	329.7	37.9	61.0	96.9

CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	47.2	76.8	79.8	49.4	85.2	88.2

DATA SHEET NO. 8...(continued)

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA No.: MW0306

TEST PROGRAM: 1998 NHTSA 35 MPH NCAP

TEST DATE: 2/4/98

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	8.1	134.8	-79.0	56.9	9.3	153.6	-63.9	45.6
Pelvis	Y	G's	12.3	56.9	-3.8	48.0	7.1	164.6	-8.3	45.4
Pelvis	Z	G's	5.5	191.8	-11.7	122.1	9.6	82.3	-10.5	45.6

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	515.8	63.0	-415.8	89.8	1508.0	72.4	-188.3	267.2
Neck Force	Y	Newtons	201.3	57.9	-427.7	197.5	615.6	150.3	-115.5	235.0
Neck Force	Z	Newtons	2528.1	81.6	-755.9	204.9	2608.3	72.4	-525.2	161.6
Neck Moment	X	Joules	14.5	112.7	-23.3	203.3	21.4	86.6	-35.6	157.4
Neck Moment	Y	Joules	8.3	89.3	-35.7	203.4	36.3	164.5	-95.9	65.8
Neck Moment	Z	Joules	15.7	128.9	-0.4	15.5	22.1	166.2	-17.9	119.2

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	58.9	74.6	-17.8	99.5	2.2	194.7	-47.3	38.1
Left Foot Aft	Z	G's	7.0	239.5	-25.7	59.3	19.2	32.3	-30.1	39.5
Left Foot Fore	Z	G's	13.1	67.5	-33.9	56.9	29.6	32.3	-38.3	56.8
Right Foot Aft	X	G's	25.5	68.3	-271.1	54.8	58.7	33.9	-5.4	103.2
Right Foot Aft	Z	G's	251.1	54.7	-27.0	62.9	18.3	31.9	-28.6	34.2
Right Foot Fore	Z	G's	236.4	54.6	-64.0	65.6	20.4	44.6	-49.3	33.2

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Lower Force	X	Newtons	102.6	185.0	-740.0	73.1	104.1	134.7	-725.0	57.4
Left Lower Force	Z	Newtons	184.8	210.1	-1208.6	75.7	147.6	219.5	-1948.7	53.4
Left Lower Moment	Y	Joules	47.8	62.5	-15.2	99.8	45.0	57.0	-9.2	137.2
Left Upper Moment	X	Joules	14.2	64.6	-22.3	96.8	20.6	177.0	-38.9	40.4
Left Upper Moment	Y	Joules	112.3	55.0	-23.7	175.0	129.6	53.8	-17.8	137.0
Right Lower Force	X	Newtons	110.1	154.7	-2793.7	56.4	119.5	94.4	-589.8	32.3
Right Lower Force	Z	Newtons	210.1	210.1	-7568.4	56.2	137.3	191.4	-1856.0	31.8
Right Lower Moment	Y	Joules	88.9	56.5	-161.1	72.3	32.3	32.4	-17.4	95.7
Right Upper Moment	X	Joules	68.9	54.5	-68.5	55.5	36.0	94.7	-18.2	41.3
Right Upper Moment	Y	Joules	348.5	56.0	-18.2	166.1	113.0	44.9	-49.0	91.7

DATA SHEET NO. 8...(continued)

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA No.: MW0306

TEST PROGRAM: 1998 NHTSA 35 MPH NCAP

TEST DATE: 2/4/98

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.1	17.3	-27.5	79.5	0.2	2.6	-26.9	87.2

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	13.5	152.7	-71.0	82.3	6.1	257.8	-49.9	87.2
Head CG	Y	G's	10.7	94.8	-14.6	159.6	11.5	81.6	-12.7	149.0
Head CG	Z	G's	22.3	61.7	-12.7	98.7	14.0	42.1	-8.2	160.4
Head CG Resultant	N/A	G's	71.7	82.3			51.1	87.2		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	13.5	157.7	-51.0	89.4	9.1	172.2	-43.9	78.7
Chest CG	Y	G's	4.5	58.4	-7.1	94.6	4.9	87.6	-7.8	71.8
Chest CG	Z	G's	10.4	146.5	-17.1	81.0	14.4	147.7	-23.4	86.3
Chest CG Resultant	N/A	G's	53.1	89.4			49.7	86.3		

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	669.9	50.4	63.8	99.7	341.0	38.2	60.9	96.8

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	46.6	77.2	80.2	49.1	84.3	87.3

DATA SHEET NO. 9

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

BELT LENGTH DATA (mm)	DRIVER	PASSENGER
Total belt length for continuous webbing systems.	2140	2143
Retractor reel to 'D' ring	20	20
Shoulder belt length as measured on Part 572 Dummy	710	718
Lap belt length as measured on Part 572 Dummy	810	805
Remainder of belt on reel	600	600

SHOULDER BELT SPOOL-OFF DATA (mm)	DRIVER	PASSENGER
As determined mechanically	63	50
As determined electronically	SEE NOTE	SEE NOTE

NOTE: Seats with integrated belt retractors do not allow sensor mounting without compromising seat belt system response.

BELT STRETCH DATA (mm/cm)	DRIVER	PASSENGER
Measured electronically between shoulder belt load cell and the "D" ring	SEE NOTE	SEE NOTE
Measured mechanically	.5	.5

DATA SHEET NO. 10

SUMMARY OF FMVSS 212 DATA

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

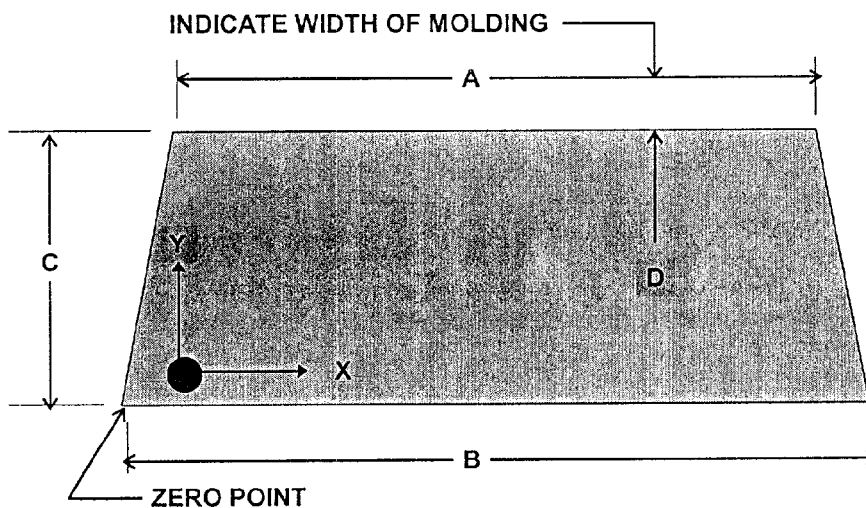
Details of windshield mounting (method of retention, type of trim, etc.):

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 (mm)			
	PRETEST	POST TEST	PERCENT RETENTION
Right Side	2315	2315	100%
Left Side	2315	2315	100%
Total	4630	4630	100%

Indicate area of retention failure.



FRONT VIEW OF WINDSHIELD

Width of molding = Top 20 mm , Sides 40 mm, Bottom 50 mm.

Temperature of windshield molding during test = 21.1 °C

DATA SHEET NO. 11

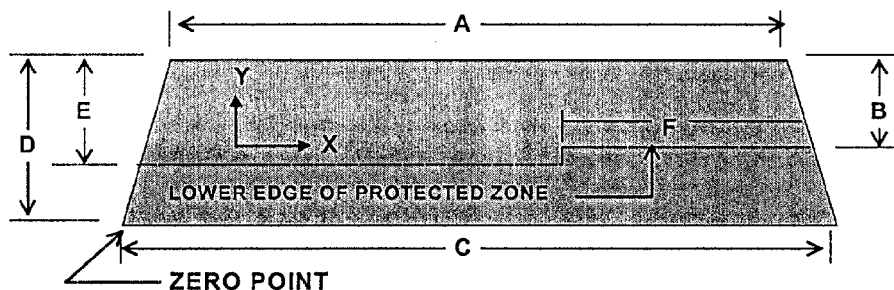
WINDSHIELD ZONE INTRUSION FMVSS 219 (PARTIAL) DATA

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

SKETCH OF FRONT VIEW OF WINDSHIELD:

Provide all dimensions necessary to reproduce the protected area.



	DIMENSION mm
A	1470
B	330
C	1720
D	720
E	520
F	1010

FRONT VIEW OF WINDSHIELD

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: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

TEST MODE: 56.3 km/h New Car Assessment Program (NCAP) Frontal Barrier Impact

TEST DATE: February 4, 1998 TIME: 11:50 AM TEMPERATURE 8.8 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 solvent spillage occurred

DATA SHEET NO. 13

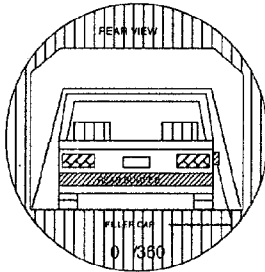
FMVSS 301 STATIC ROLLOVER DATA SHEET

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

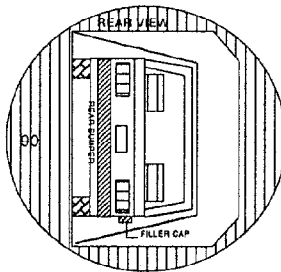
NHTSA NO. MW0306

TEST MODE: 56.3 km/h New Car Assessment Program (NCAP) Frontal Barrier Impact

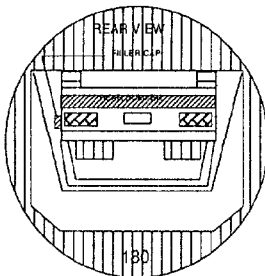
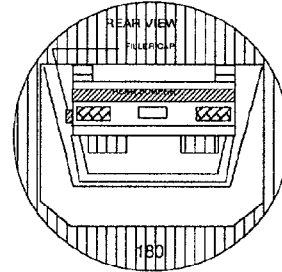
TEST DATE: February 4, 1998 TIME: 11:50 AM TEMPERATURE: 8.8C



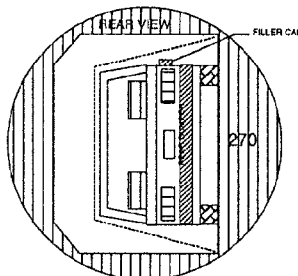
0° TO 90°



90° TO 180°



180° TO 270°



270° TO 0°

1. The specified fixture rollover rate for each 90° of rotation = 1 to 3 minutes.
2. The position hold time at each position = 5 minutes (minimum)

TEST PHASE	ROTATION TIME (sec.)	POSITION HOLD TIME (sec)	STODDARD SPILLAGE (oz.)
0° TO 90°	81	300	0
90° TO 180°	82	301	0
180° TO 270°	82	301	0
270° TO 360°	82	301	0

3. Provide Details of Stoddard Solvent Spillage Locations--

No solvent leakage occurred during rollover tests.

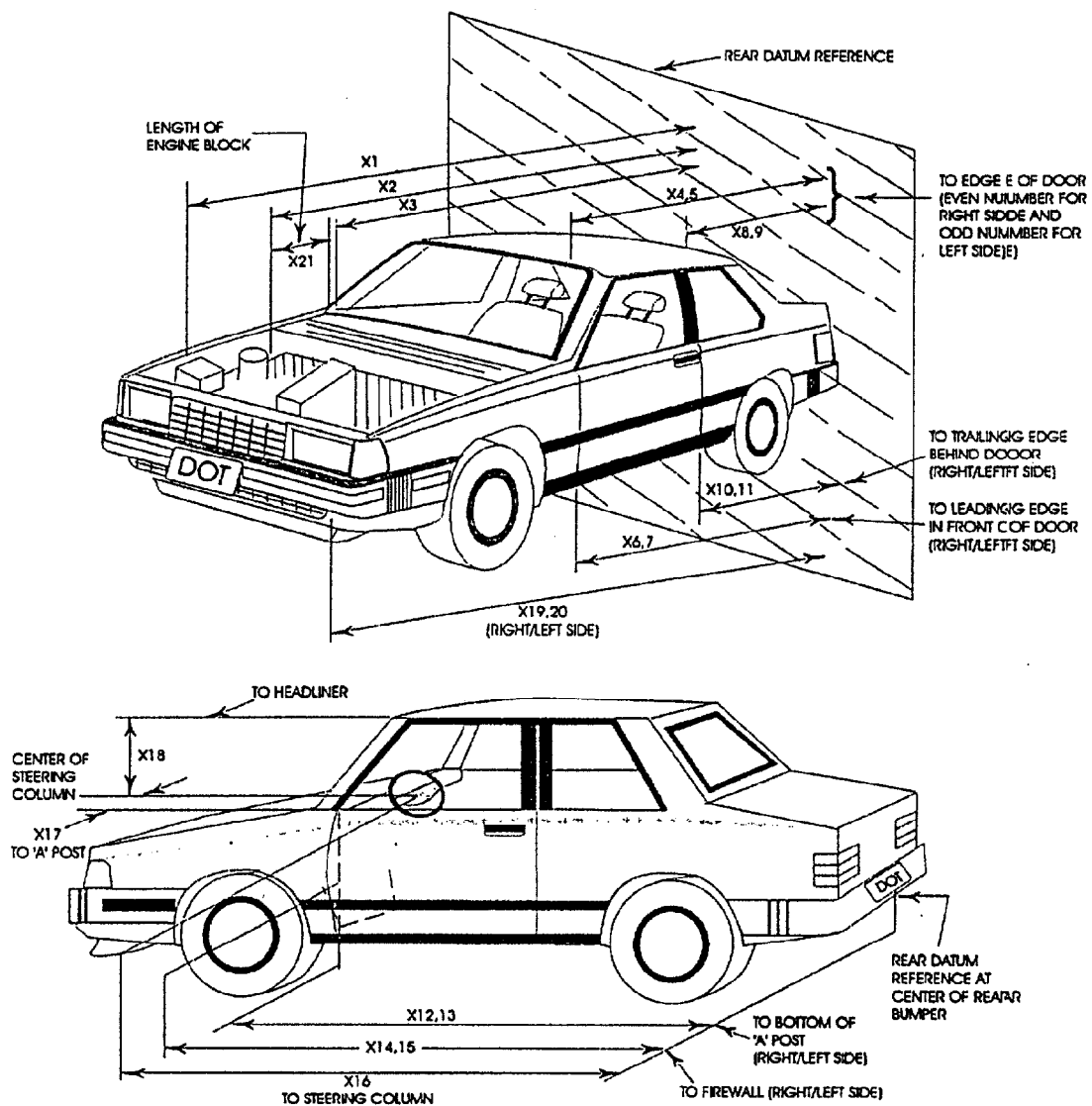
DATA SHEET NO. 14

VEHICLE MEASUREMENTS

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

NO.	MEASUREMENT DESCRIPTION	DIMENSIONS IN MM		
		PRE-TEST	POST-TEST	DIFFERENCE
1	Total length of vehicle at centerline	5690	5015	-675
2	Rear surface of vehicle (RSOV) to front of engine	5000	4840	-160
3	RSOV to firewall centerline	4358	4440	+82
4	RSOV to leading edge of right door	4191	4210	+19
5	RSOV to leading edge of left door	4152	4130	-22
6	RSOV to lower leading edge of right door	416	4160	-6
7	RSOV to lower leading edge of left door	4147	4130	-17
8	RSOV to upper trailing edge of right door	2900	2920	+20
9	RSOV to upper trailing edge of left door	2900	2890	-10
10	RSOV to lower trailing edge of right door	2939	2929	-10
11	RSOV to lower trailing edge of left door	2937	2890	-47
12	RSOV to bottom of right 'A' pillar	4245	4120	-125
13	RSOV to bottom of left 'A' pillar	4250	4010	-240
14	RSOV to firewall on right side	4528	4410	-118
15	RSOV to firewall of left side	4500	4310	-190
16	RSOV to steering column	3562	3620	+58
17	Center of steering column to left 'A' pillar	391	630	+239
18	Center of steering column to headlining	455	500	+45
19	RSOV to right side of front bumper	5405	4930	-475
20	RSOV to left side of front bumper	5405	4852	-553
21	Length of engine block	515	515	0
22	RSOV to right side of dash panel	3940	3980	+40
23	RSOV to center of dash panel	3872	3980	+108
24	RSOV to left side of dash panel	3883	3910	+27



DATA SHEET NO. 15

CAMERA LOCATIONS

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			ANGLE (Deg.)	FILM PLANE TO HEAD TARGET (mm)	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Right Side View-Real Time	2083	8331	914	0	1651	Zoom	24
2A	Left Side View No. 1	1321	-8382	864	0	7976	13	170
2B	Left Side View No. 2	1499	-9855	1270	0	7976	25	960
3	Left Side View No. 3	991	-10,566	1486	0	10,008	50	1040
4	Left Side View No. 4	3353	3277	2032	17	1120	19	1010
5	Left Side View No. 5	1905	-8306	2515	19	8052	25	1000
6	Left Side View No. 6	1880	-8382	1092	10	7976	25	1030
7	Right Side View No. 1	1295	10,160	1168	4	7798	13	1080
8	Right Side View No. 2	1219	10,770	1346	2	9931	50	1190
9	Right Side View No. 3	6832	11,633	1321	5	10,058	80	870
10	Right Side View No. 4	3251	11,633	1346	0	12,141	50	1170
11	Overhead Windshield	CAMERA	SHREDD ED	FILM	AT	STARTUP		
12	Front View No. 1 Driver	-356	356	2540	40	3454	19	1050
13	Front View No. 2 Passenger	-356	508	2540	35	3454	19	990
14	Pit Camera Engine View	610	0	-660	90	N/A	13	870
15	Pit Camera Fuel Tank View	1524	0	432	50	N/A	19	920
16	Driver Side Onboard	3759	305	1524	70	1524	13	490
17	Passenger Side Onboard	3759	305	1524	12	1549	13	560

* X - film plane to barrier face Y - film plane to monorail centerline Z - film plane to ground

DATA SHEET NO. 16

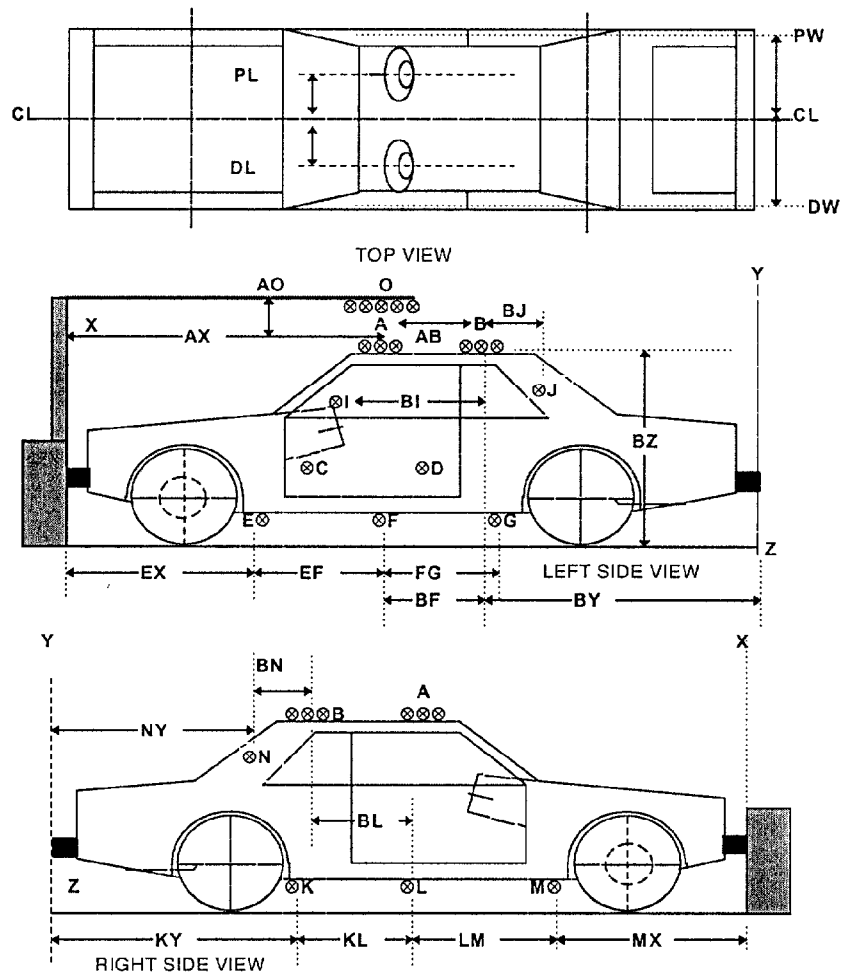
REFERENCE PHOTOGRAPH TARGETS

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

ITEM	DESCRIPTION	VALUE	ITEM	DESCRIPTION	VALUE
AX	TARGET A TO BARRIER	2490	NY	TARGET N TO REAR BUMPER	2320
AB	TARGET A TO TARGET B	610	BN	TARGET B TO TARGET N	300
AO	VERTICAL DISTANCE A TO O	150	KY	TARGET K TO REAR BUMPER	1800
BJ	TARGET B TO TARGET J	300	KL	TARGET K TO TARGET L	1140
BI	TARGET B TO STEERING COLUMN	600	BL	TARGET B TO TARGET L	350
BZ	TARGET B TO GROUND LEVEL	1872	LM	TARGET L TO TARGET M	1140
EX	TARGET E TO BARRIER	1580	MX	TARGET M TO BARRIER	1600
EF	TARGET E TO TARGET F	1140	CL/PL	VEHICLE CENTERLINE TO PASSENGER	485
FG	TARGET F TO TARGET G	1140	CL/PW	VEHICLE CENTERLINE TO RIGHT SILL	900
BF	TARGET B TO TARGET F	350	CL/DL	VEHICLE CENTERLINE TO DRIVER	485
BY	TARGET B TO REAR BUMPER	2620	CL/DW	VEHICLE CENTERLINE TO LEFT SILL	900

Distances in mm



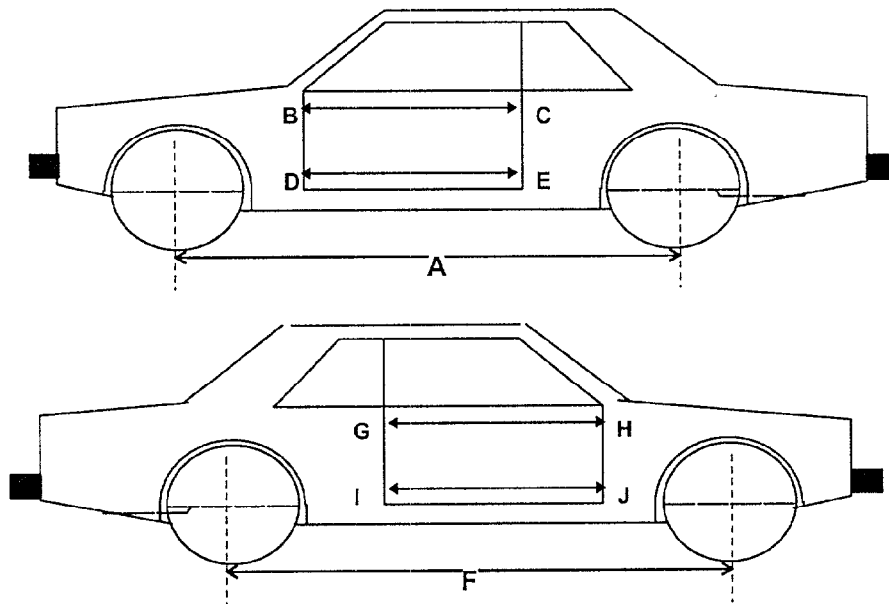
DATA SHEET NO. 17

VEHICLE INTRUSION MEASUREMENTS

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

DOOR OPENING WIDTH



UNITS (mm)	LEFT SIDE		RIGHT SIDE	
MEASUREMENT	BC	DE	GH	IJ
PRE-TEST	1252	1210	1291	1227
POST-TEST	1240	1240	1290	1231
DIFFERENCE	-12	+30	-1	+4

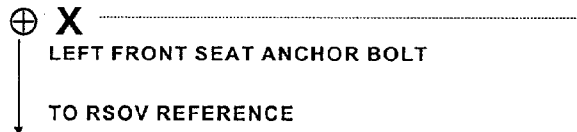
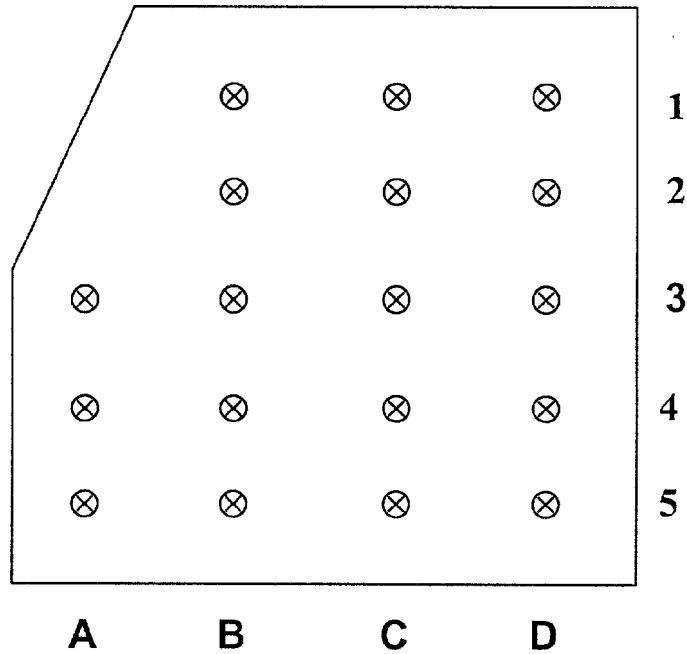
VEHICLE WHEELBASE CHANGE

UNITS (mm)	A = LEFT SIDE WHEELBASE	F = RIGHT SIDE WHEELBASE
PRE-TEST	3531	3531
POST-TEST	3522	3522
DIFFERENCE	-9	-9

Data Sheet No. 17(Continued)

FLOOR PAN INTRUSION (Distances in mm)

TARGET COLUMN	A		B		C		D	
TARGET ROW	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
1	N/A	N/A	800	790	800	775	800	700
2	N/A	N/A	640	640	640	625	640	612
3	N/A	N/A	480	480	480	480	480	480
4	320	320	320	320	320	317	320	319
5	160	160	160	160	160	160	160	160
REF. POINT	RSOV TO ANCHOR BOLT (PRE-TEST)		3540		RSOV TO ANCHOR BOLT (POST-TEST)		3540	



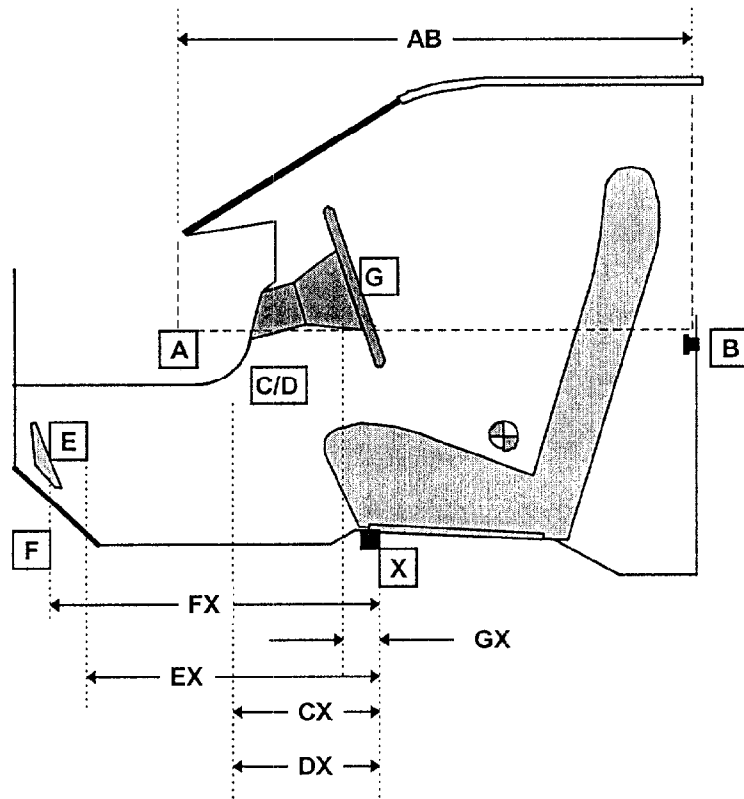
DRIVER SIDE FLOOR PLAN

(Data Sheet No. 17Continued)

DRIVER COMPARTMENT INTRUSION (Distances in mm)

REF.	DESCRIPTION	PRE-TEST	POST-TEST
AB	DOOR OPENING (INSIDE WINDOW JAM)	1190	1025
CX	LOWER LEFT KNEE BOLSTER TO X	346	400
DX	LOWER RIGHT KNEE BOLSTER TO X	385	420
EX	BRAKE PEDAL TO X	491	510
FX	FOOT REST TO X	667	667
GX	STEERING COLUMN HUB (CENTER) TO X	0	105

X = LEFT FRONT SEAT ANCHOR BOLT



DRIVER COMPARTMENT

DATA SHEET NO. 18

OFFSET BARRIER ORIENTATION

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

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 %

(NO OFFSET REQUIRED FOR THIS TEST)

DATA SHEET NO. 19

ACCIDENT INVESTIGATION DIVISION DATA

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

VIN: 3B7HC12Y4WM21678

TEST DATE: 2/4/98

WHEELBASE: 3531 mm

TEST WEIGHT: 2502 kg

VEHICLE SIZE CATEGORY: TOYOTA LEXUS ES300 4-DOOR SEDAN

ACCELEROMETER DATA:

LOCATION: Left and right rear floor pans

CALIBRATION PROCEDURE: 6 months/ drop test

LINEARITY: Good

INTEGRATION ALGORITHM: NHTSA Standard

VEHICLE IMPACT SPEED: 57.02 km/h

TIME OF SEPARATION: 68.6 msec

VELOCITY CHANGE: 78.50 km/h

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

IMPACT MODE: Full Frontal

CRUSH DEPTH DIMENSIONS:

C1 = 565 mm

C2 = 652 mm

C3 = 651 mm

C4 = 641 mm

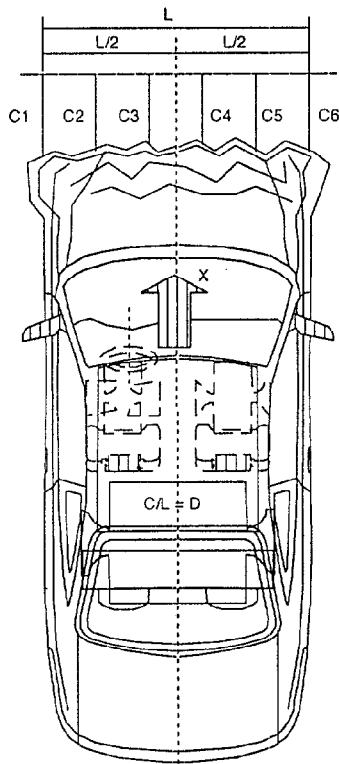
C5 = 605 mm

C6 = 395 mm

MIDPOINT OF DAMAGE: D = vehicle centerline 930 MM

LENGTH OF DAMAGE REGION:

L = 1860 mm



DATA SHEET NO. 20

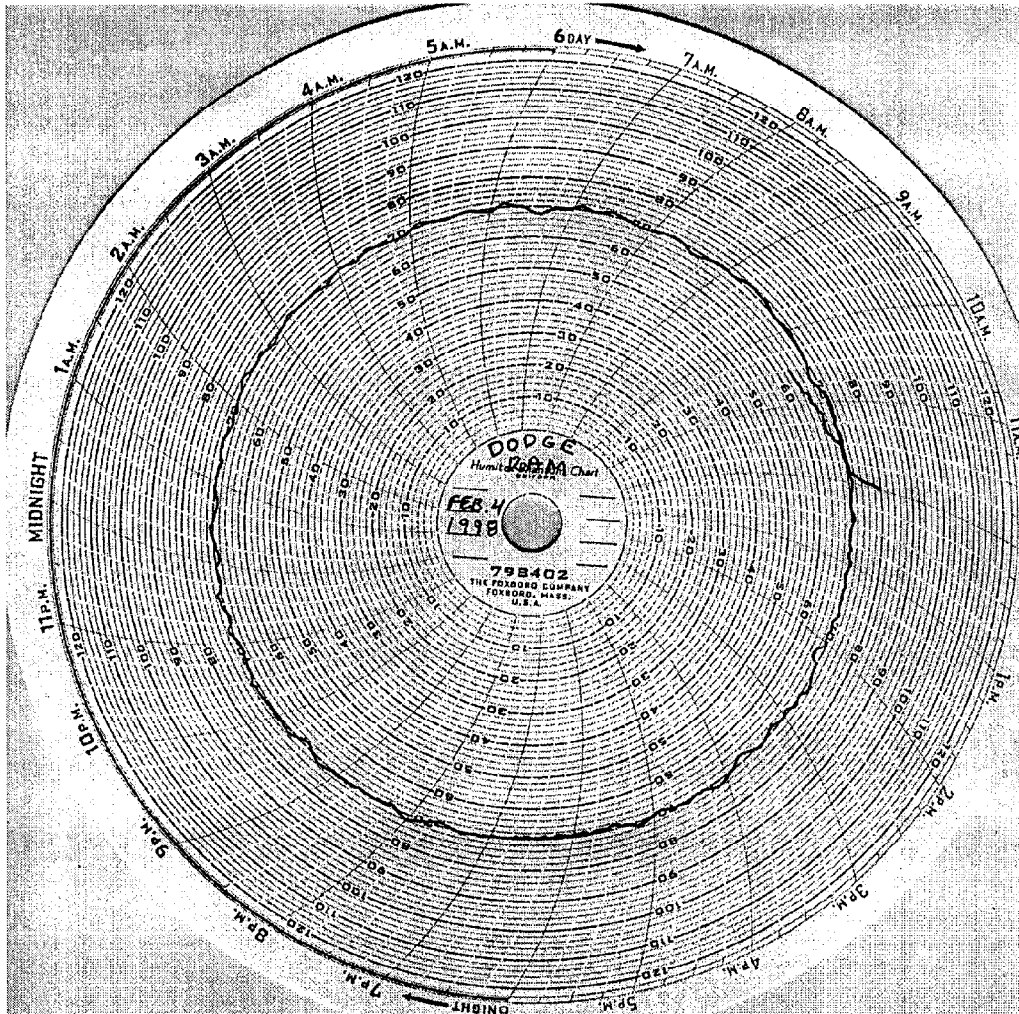
DUMMY/VEHICLE TEMPERATURE STABILIZATION

TEST VEHICLE: 1998 DODGE RAM 1500 SLT PICKUP

NHTSA NO. MW0306

VIN: 3B7HC12Y4WM21678

TEST DATE: 2/4/98



APPENDIX A
PHOTOGRAPHS

LIST OF PHOTOGRAPHS

Figure		Page
A-1	Right Front As Received	A-1
A-2	Left Rear As Received	A-2
A-3	Vehicle Certification Label	A-3
A-4	Vehicle Tire Placard	A-4
A-5	Pre-test Front View	A-5
A-6	Post-test Front View	A-6
A-7	Pre-test Left Side View	A-7
A-8	Post-test Left Side View	A-8
A-9	Pre-test Right Side View	A-9
A-10	Post-test Right Side View	A-10
A-11	Pre-test Right Front View	A-11
A-12	Post-test Right Front View	A-12
A-13	Pre-test Left Rear View	A-13
A-14	Post-test Left Rear View	A-14
A-15	Pre-test Windshield	A-15
A-16	Post-test Windshield	A-16
A-17	Pre-test Engine Compartment	A-17
A-18	Post-test Engine Compartment	A-18
A-19	Pre-test Fuel Cap	A-19
A-20	Post-test Fuel Cap	A-20
A-21	Pre-test Front Underside	A-21
A-22	Post-test Front Underside	A-22
A-23	Pre-test Rear Underside	A-23
A-24	Post-test Rear Underside	A-24
A-25	Pre-test Driver Floorpan	A-25
A-26	Post-test Driver Floorpan	A-26
A-27	Pre-test Driver Dummy (Front View)	A-27
A-28	Post-test Driver Dummy (Front View)	A-28
A-29	Pre-test Driver Dummy (Thru Window)	A-29
A-30	Post-test Driver Dummy (Thru Window)	A-30
A-31	Pre-test Driver Dummy (Door Open)	A-31
A-32	Post-test Driver Dummy (Door Open)	A-32

LIST OF PHOTOGRAPHS...(Continued)

Figure		Page
A-33	Pre-test Driver Dummy (90° to Vehicle)	A-33
A-34	Post-test Driver Dummy (90° to Vehicle)	A-34
A-35	Post-test Driver Dummy Head	A-35
A-36	Post-test Driver Dummy Contact Point	A-36
A-37	Post-test Driver Dummy Contact Point	A-37
A-38	Pre-test Driver Side Knee Bolster	A-38
A-39	Post-test Driver Side Knee Bolster	A-39
A-40	Pre-test Passenger Dummy (Front View)	A-40
A-41	Post-test Passenger Dummy (Front View)	A-41
A-42	Pre-test Passenger Dummy (Thru Window)	A-42
A-43	Post-test Passenger Dummy (Thru Window)	A-43
A-44	Pre-test Passenger Dummy (Door Open)	A-44
A-45	Post-test Passenger Dummy (Door Open)	A-45
A-46	Pre-test Passenger Dummy (90° to Vehicle)	A-46
A-47	Post-test Passenger Dummy (90° to Vehicle)	A-47
A-48	Post-test Passenger Dummy Head	A-48
A-49	Post-test Passenger Dummy Contact Point	A-49
A-50	Post-test Passenger Dummy Contact Point	A-50
A-51	Pre-test Passenger Side Knee Bolster	A-51
A-52	Post-test Passenger Side Knee Bolster	A-52
A-53	Vehicle on Rollover Device	A-53
A-54	Vehicle During Impact	A-54



FIGURE A-1. RIGHT FRONT AS RECEIVED



FIGURE A-2. LEFT REAR AS RECEIVED

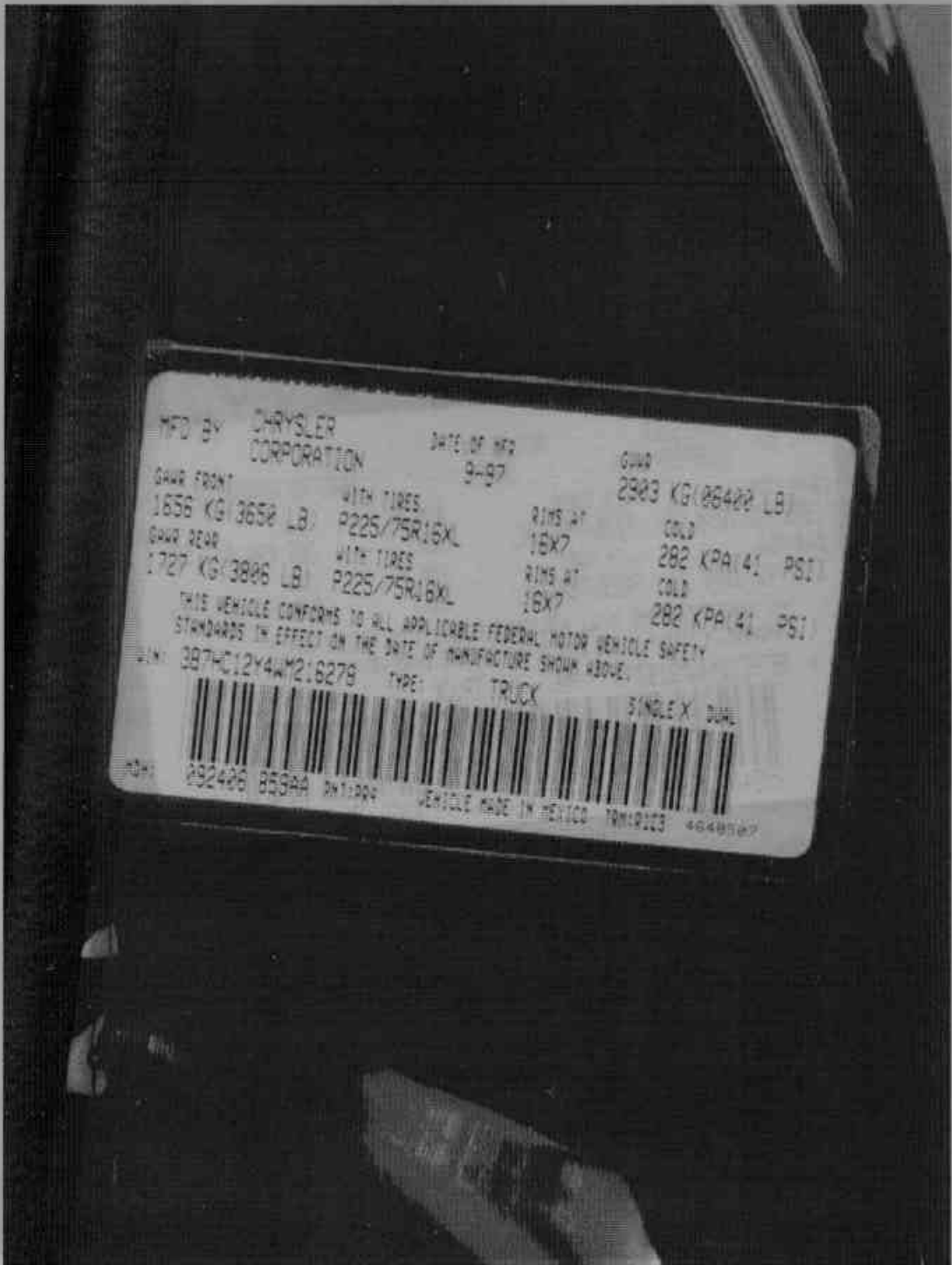


FIGURE A-3. VEHICLE CERTIFICATION LABEL

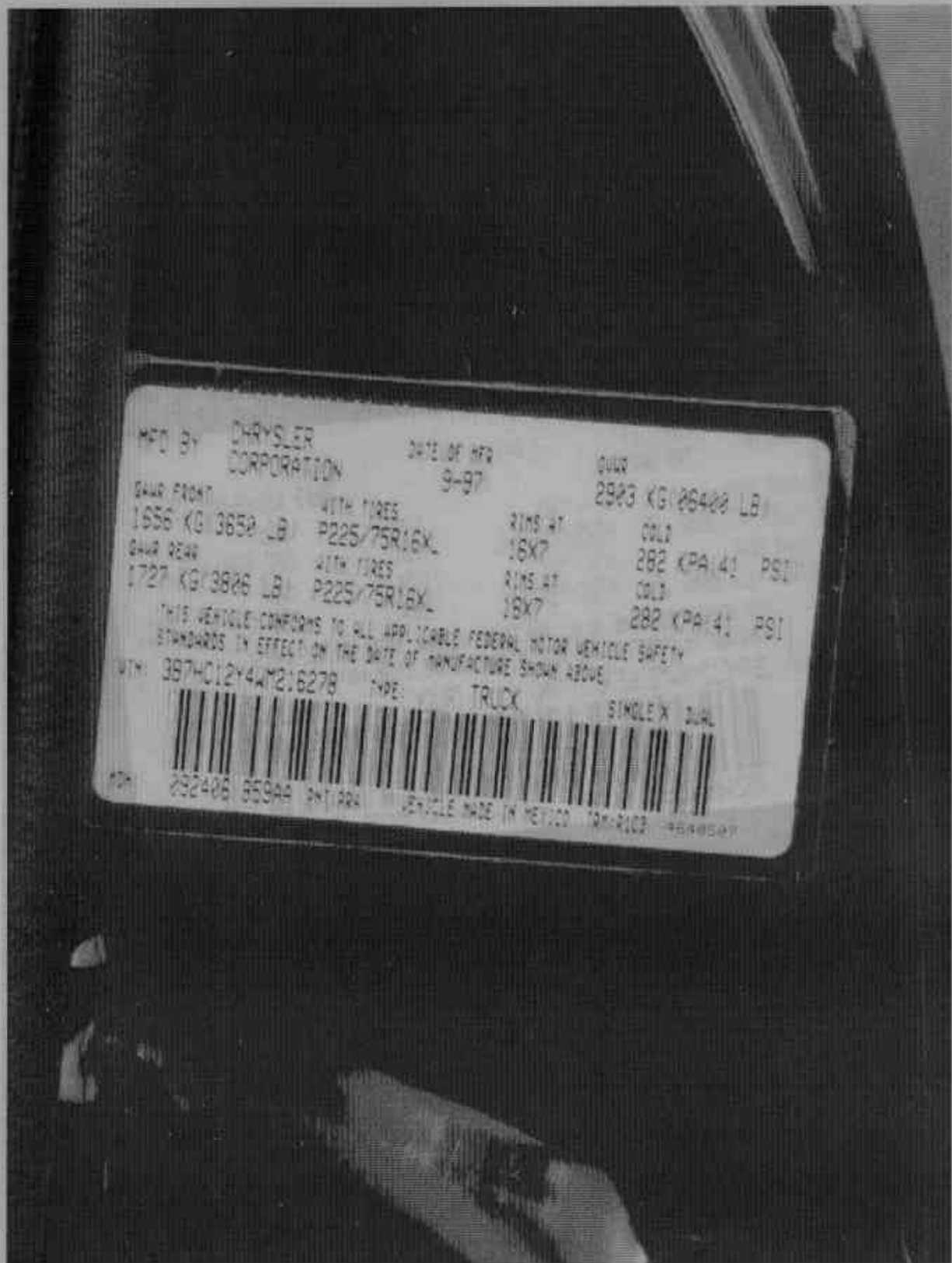


FIGURE A-4. VEHICLE TIRE PLACARD



FIGURE A-5. PRETEST FRONT VIEW

KAR-98-R98050-09

A-5

KAR-98-R98050-09

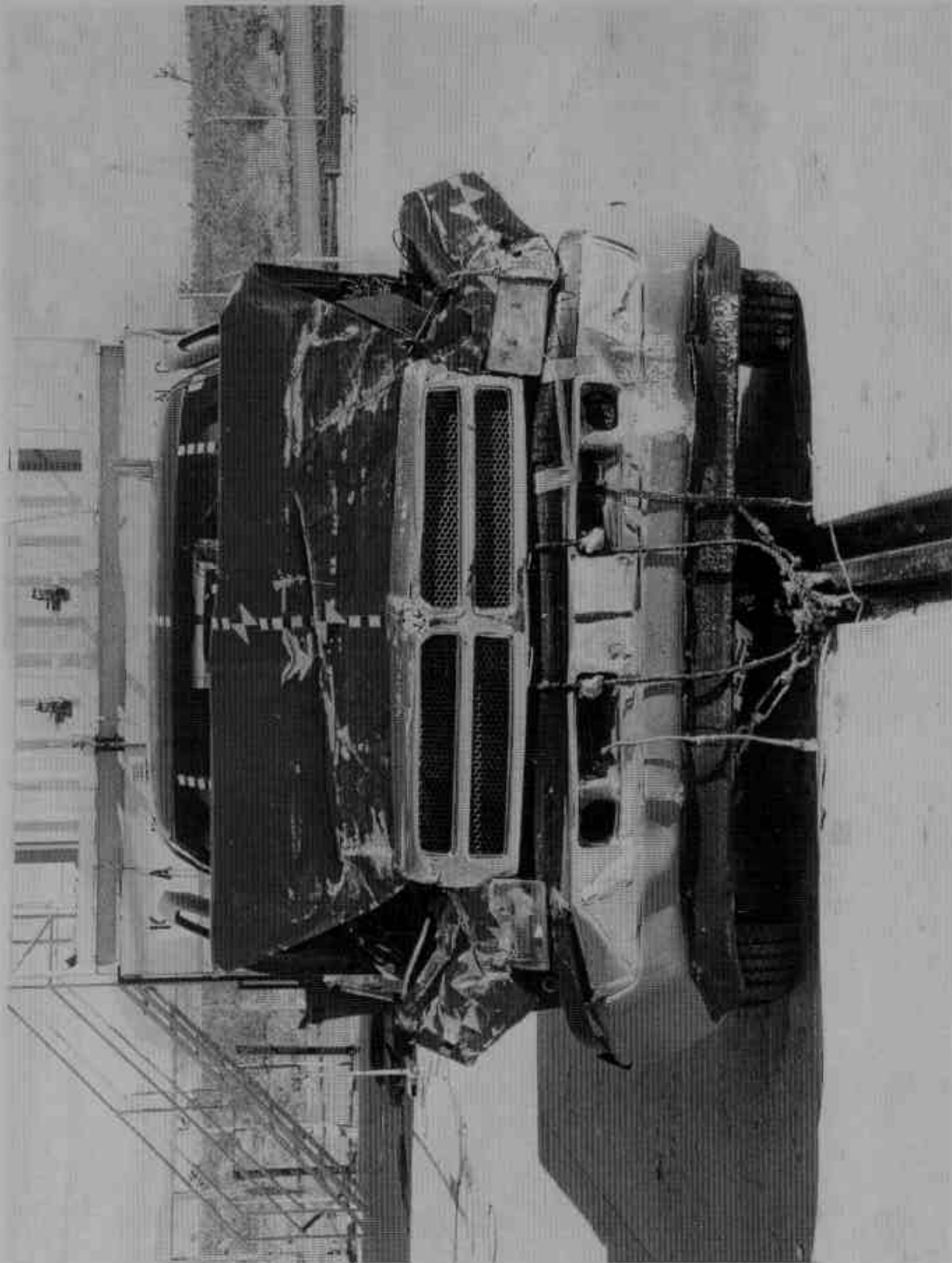


FIGURE A-6. POST TEST FRONT VIEW

A-6

KAR-98-R98050-09



FIGURE A-7. PRETEST LEFT SIDE VIEW

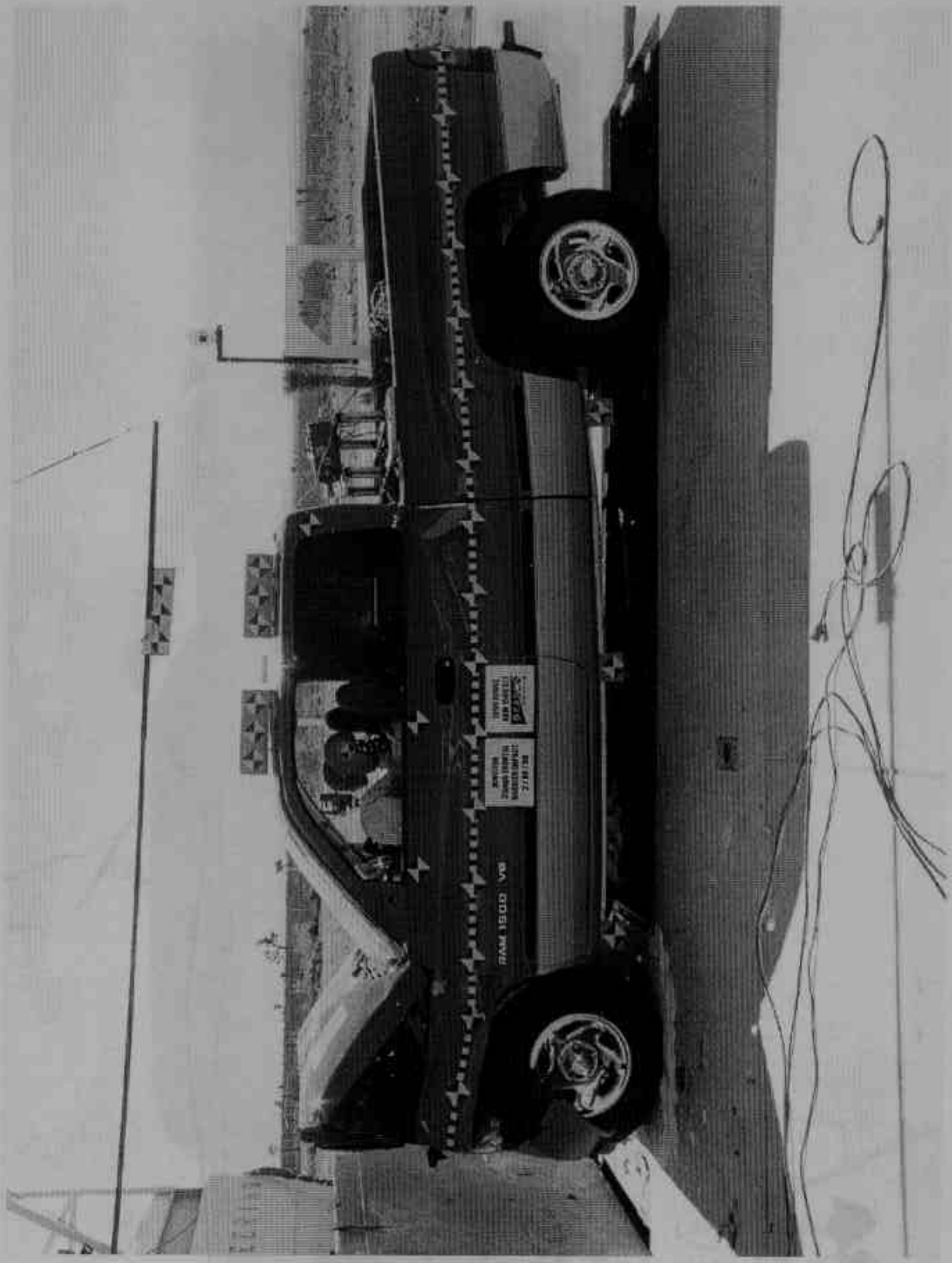


FIGURE A-8. POST TEST LEFT SIDE VIEW

KAR-98-R98050-09

A-8

KAR-98-R98050-09



FIGURE A-9. PRETEST RIGHT SIDE VIEW



FIGURE A-10. POST TEST RIGHT SIDE VIEW

A-10

KAR-98-R98050-09



FIGURE A-11. PRETEST RIGHT FRONT VIEW



FIGURE A-12. POST TEST RIGHT FRONT VIEW

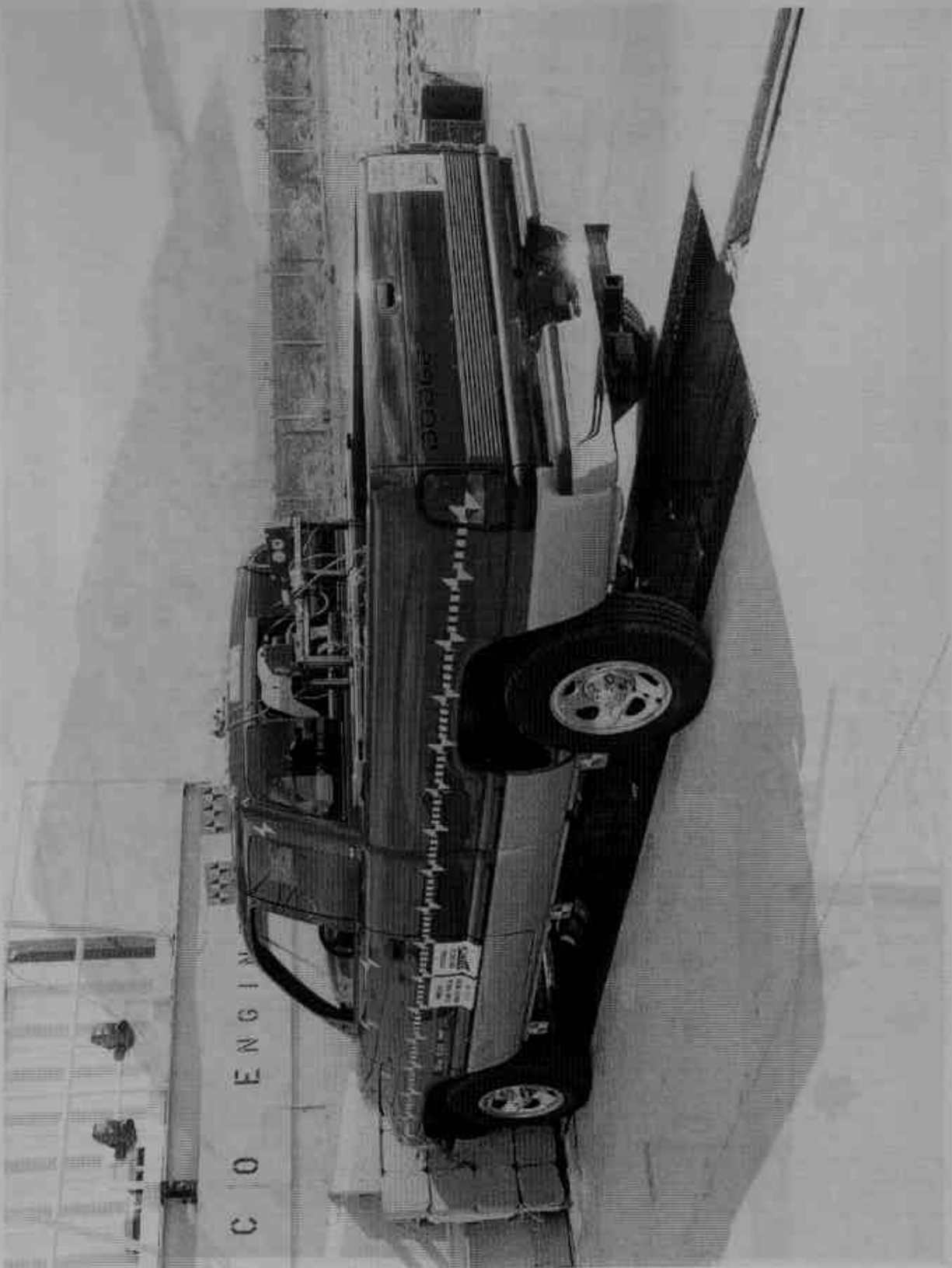


FIGURE A-13. PRETEST LEFT REAR VIEW

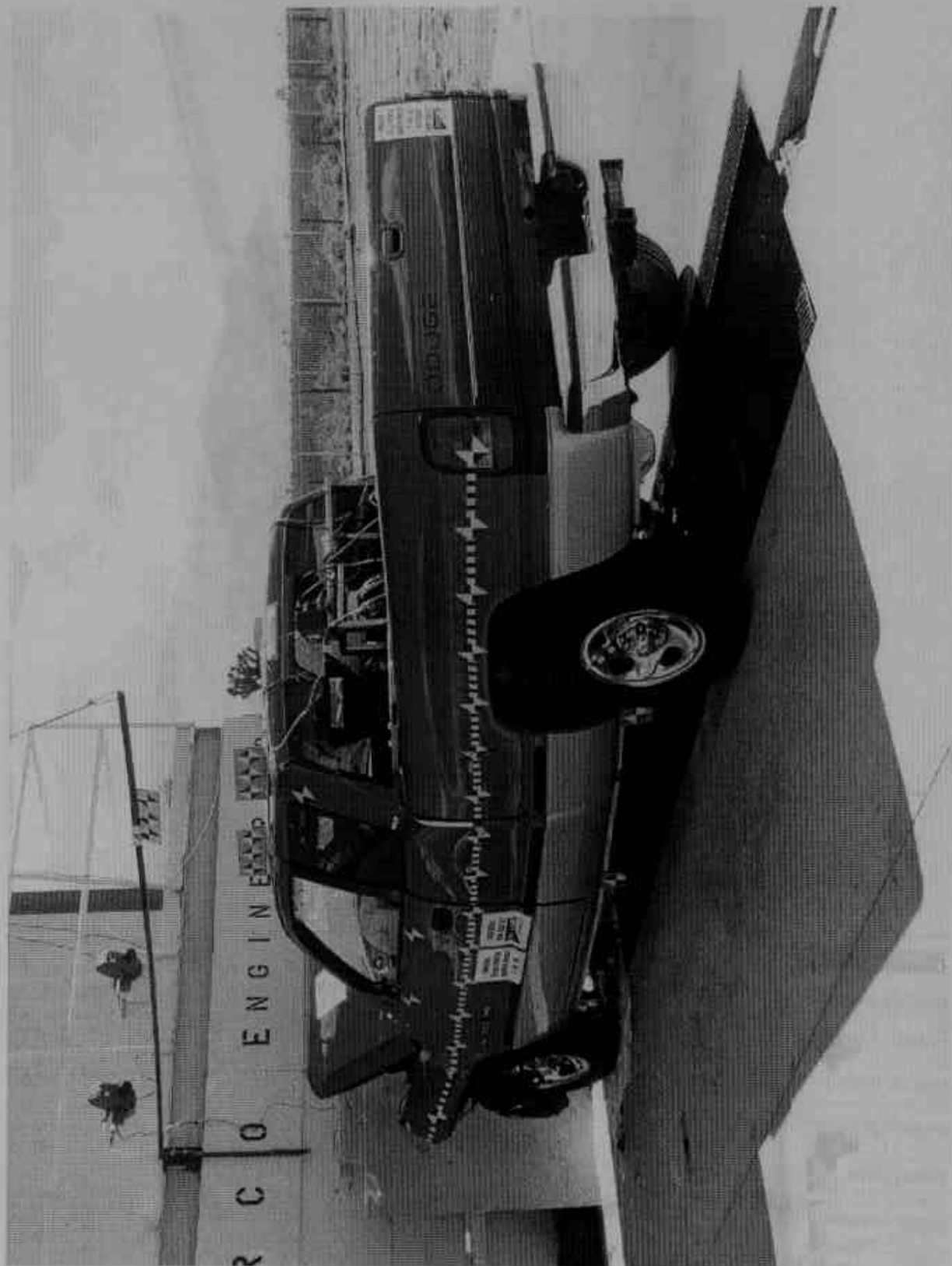


FIGURE A-14. POST TEST LEFT REAR VIEW

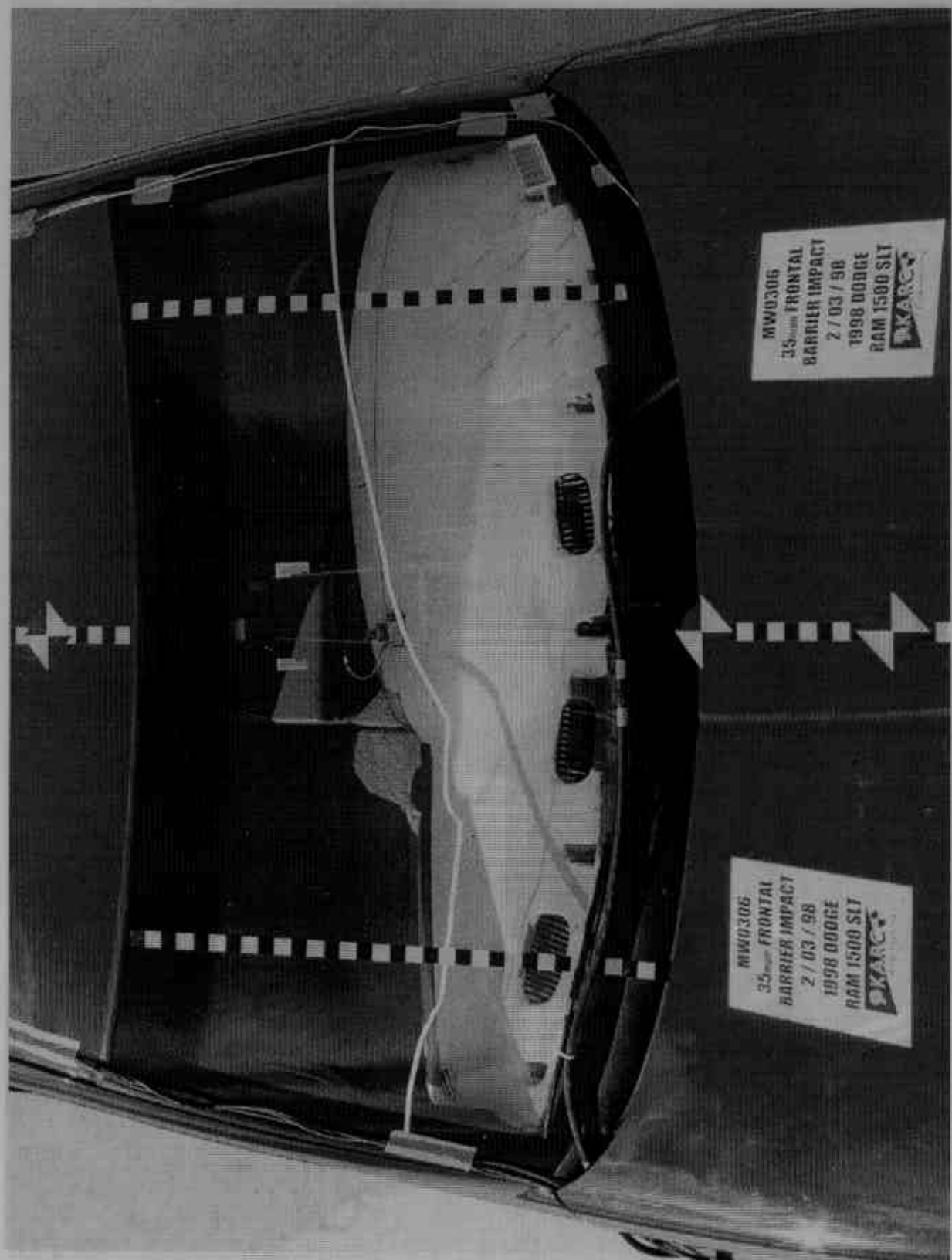


FIGURE A-15. PRETEST WINDSHIELD

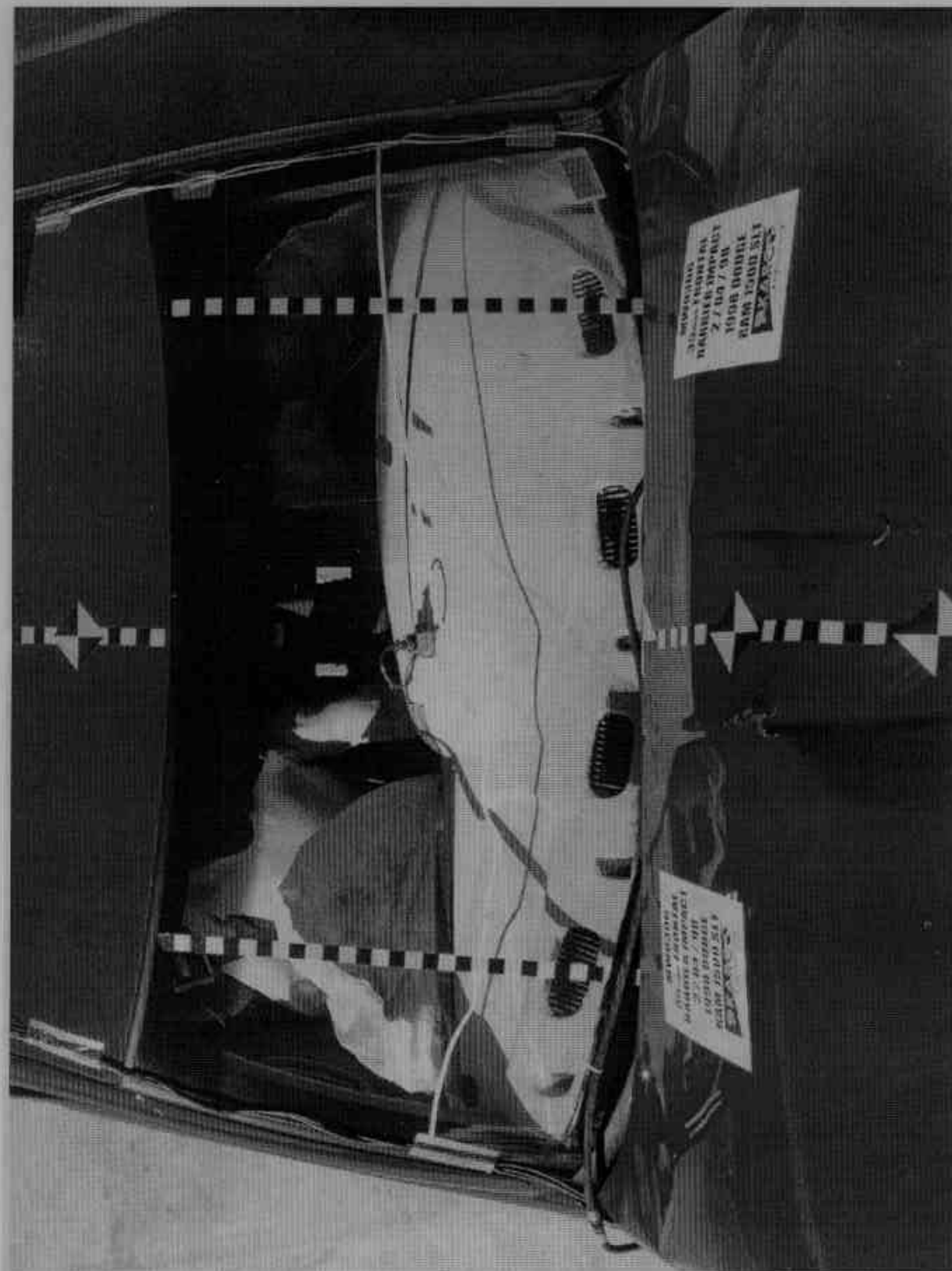


FIGURE A-16. POST TEST WINDSHIELD

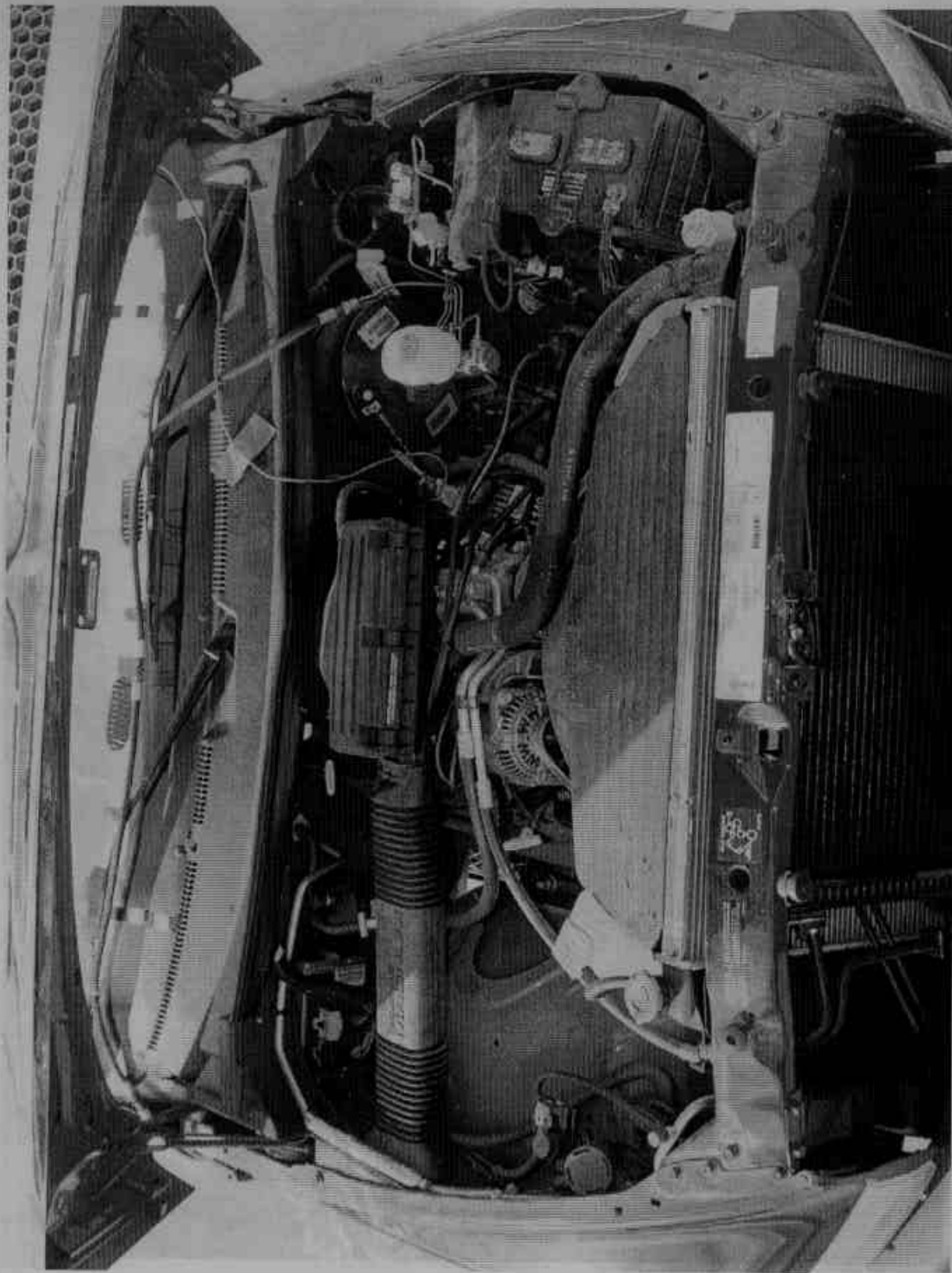


FIGURE A-17. PRETEST ENGINE COMPARTMENT

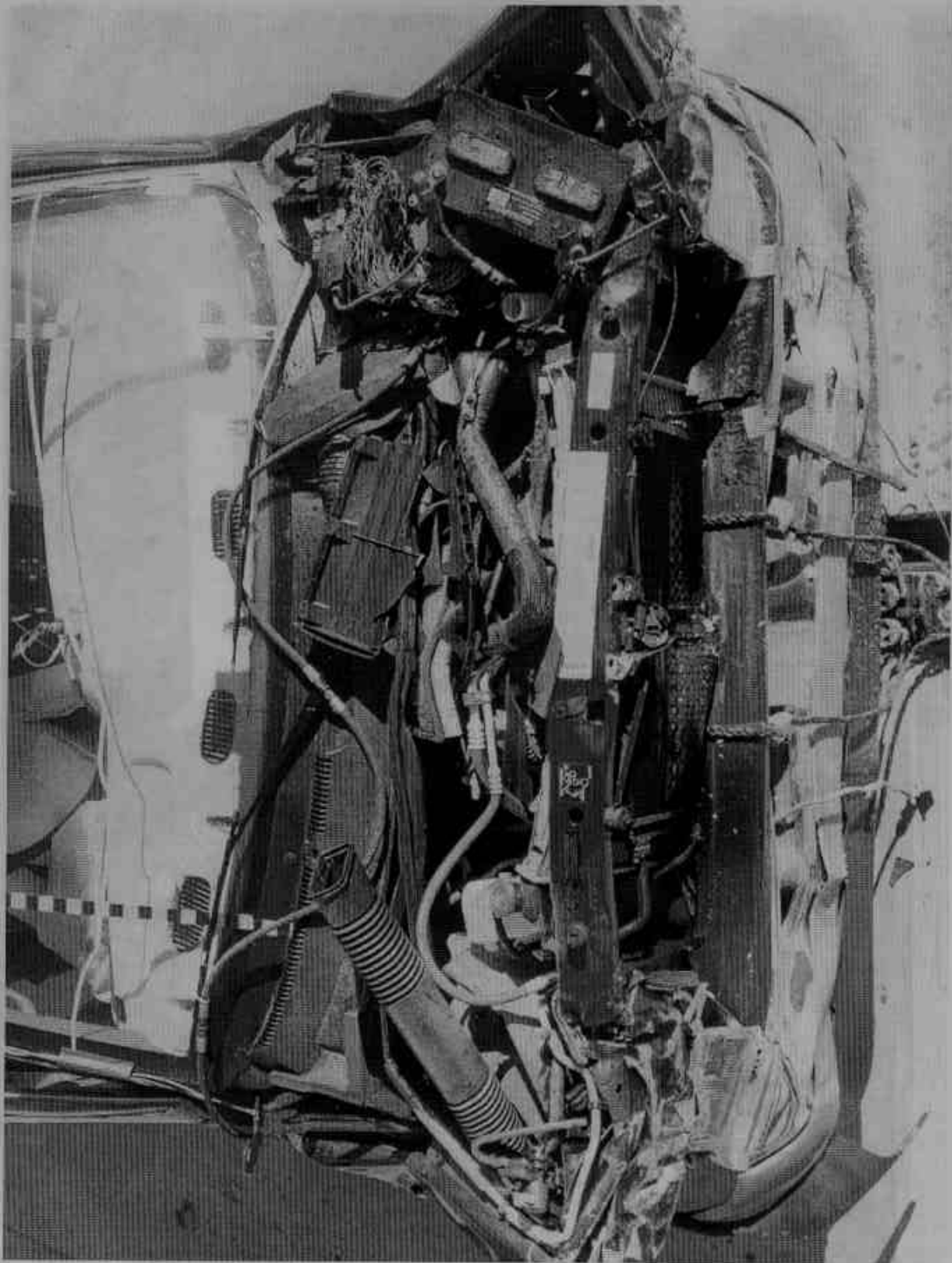


FIGURE A-18. POST TEST ENGINE COMPARTMENT

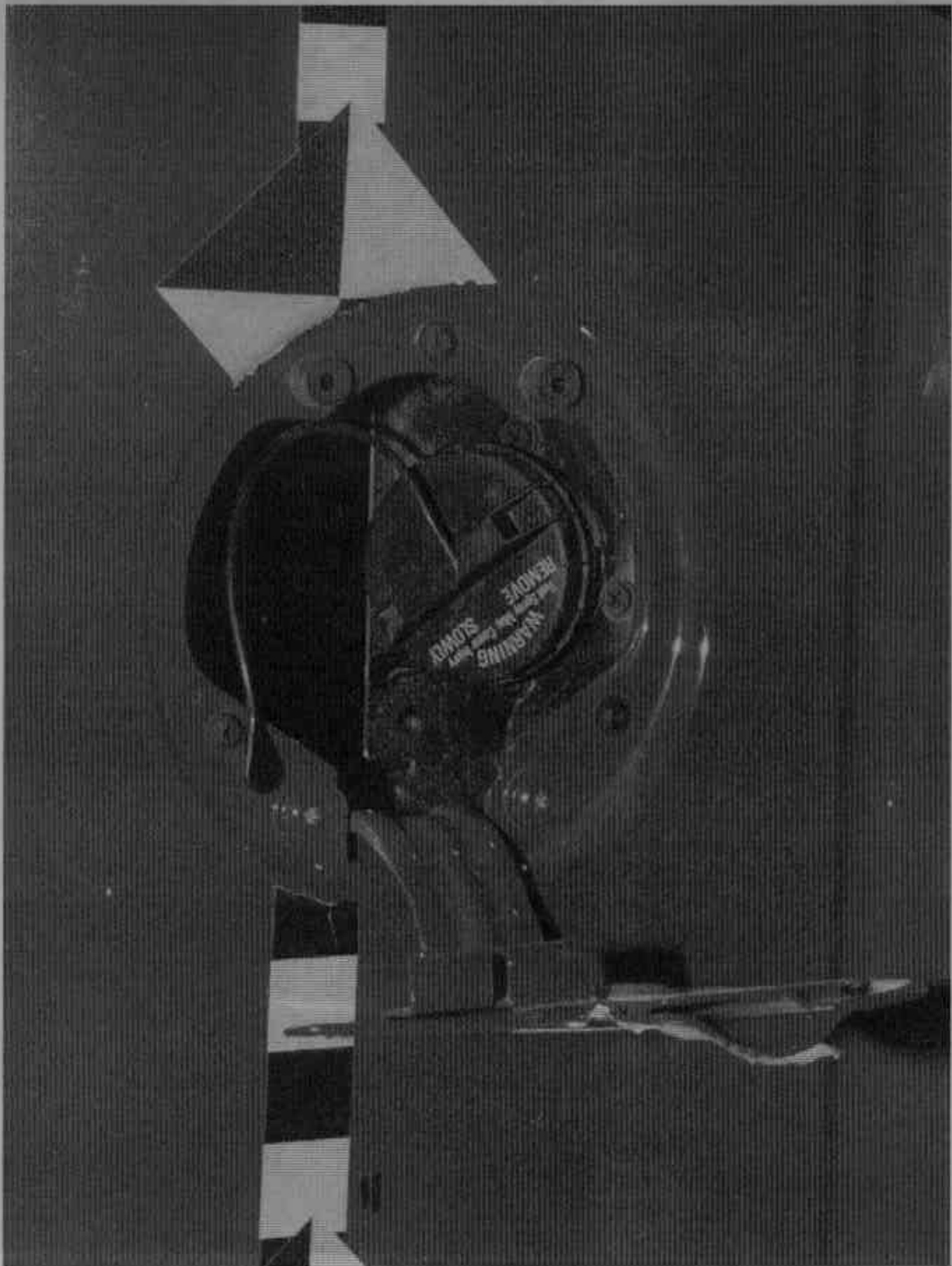


FIGURE A-19. PRETEST FUEL CAP

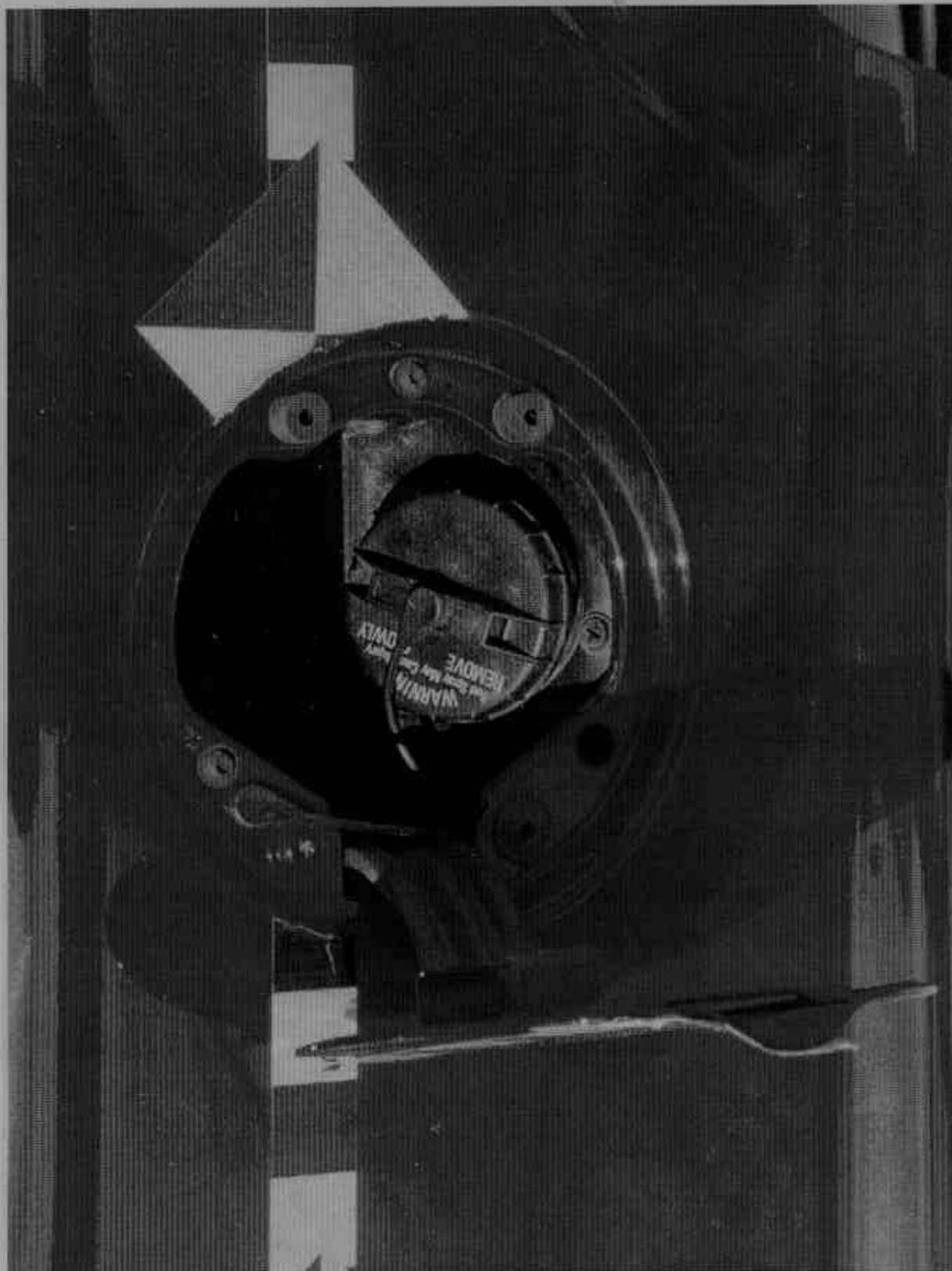


FIGURE A-20. POST TEST FUEL CAP

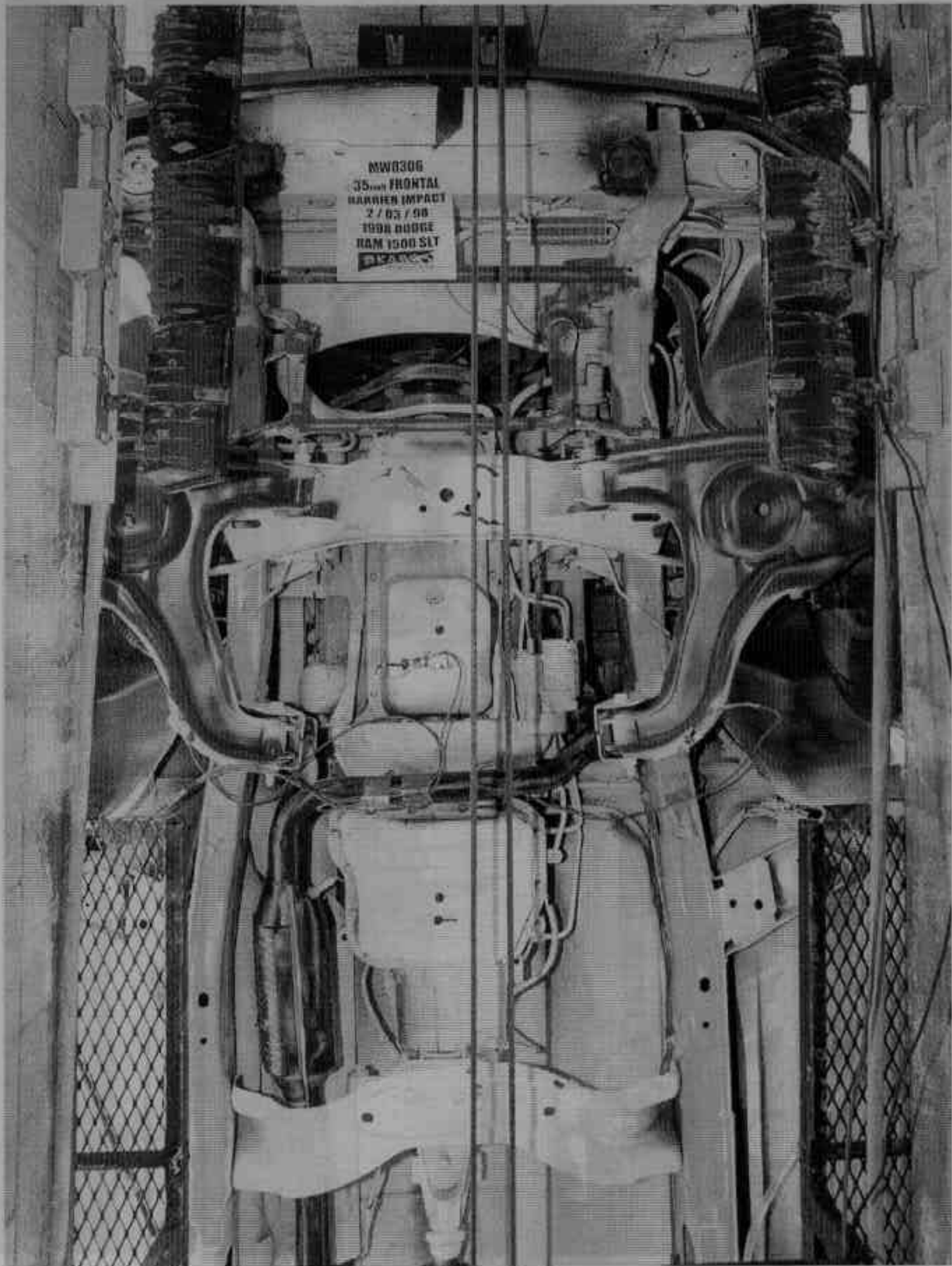


FIGURE A-21. PRETEST FRONT UNDERSIDE

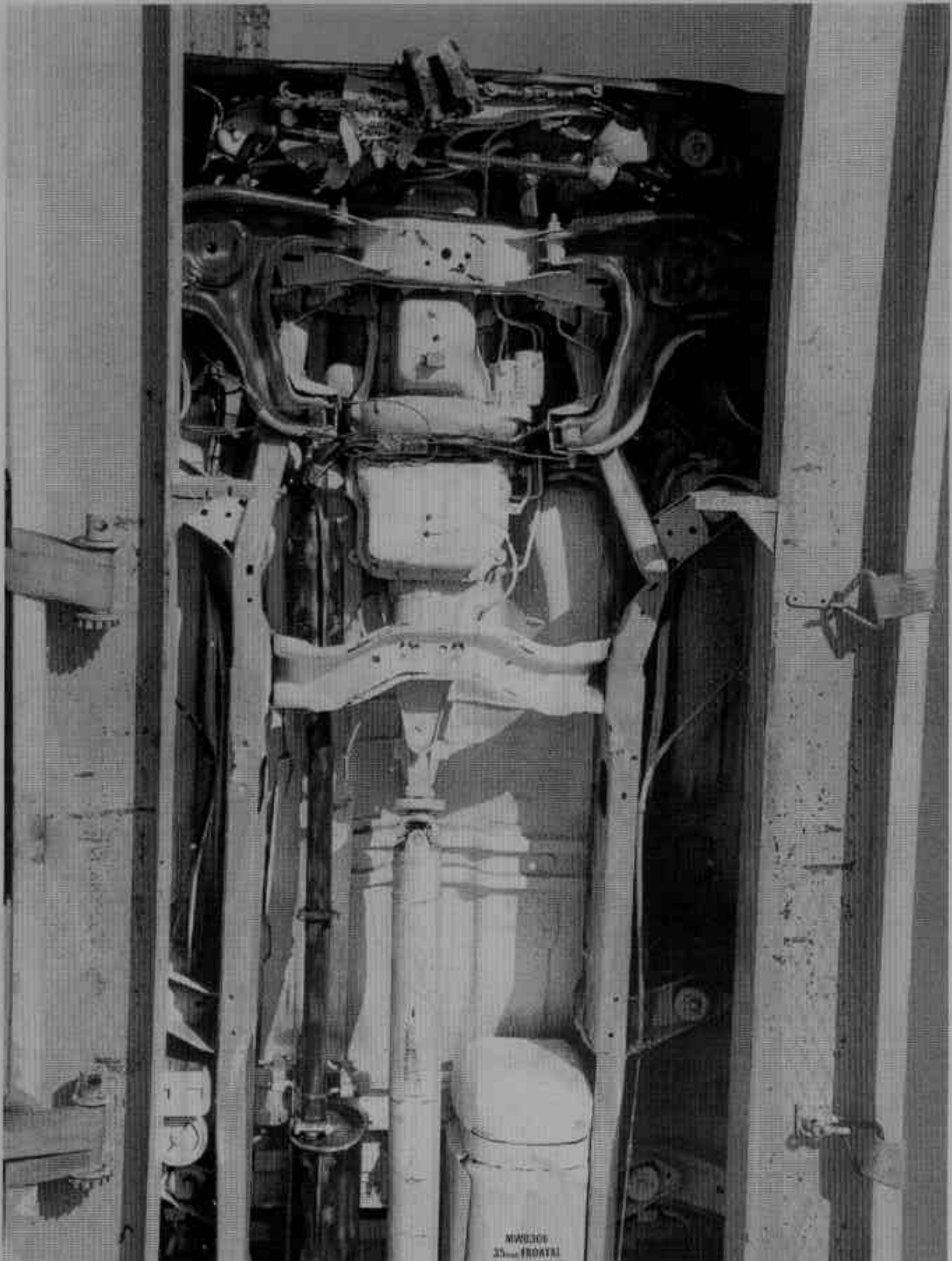


FIGURE A-22. POST TEST FRONT UNDERSIDE

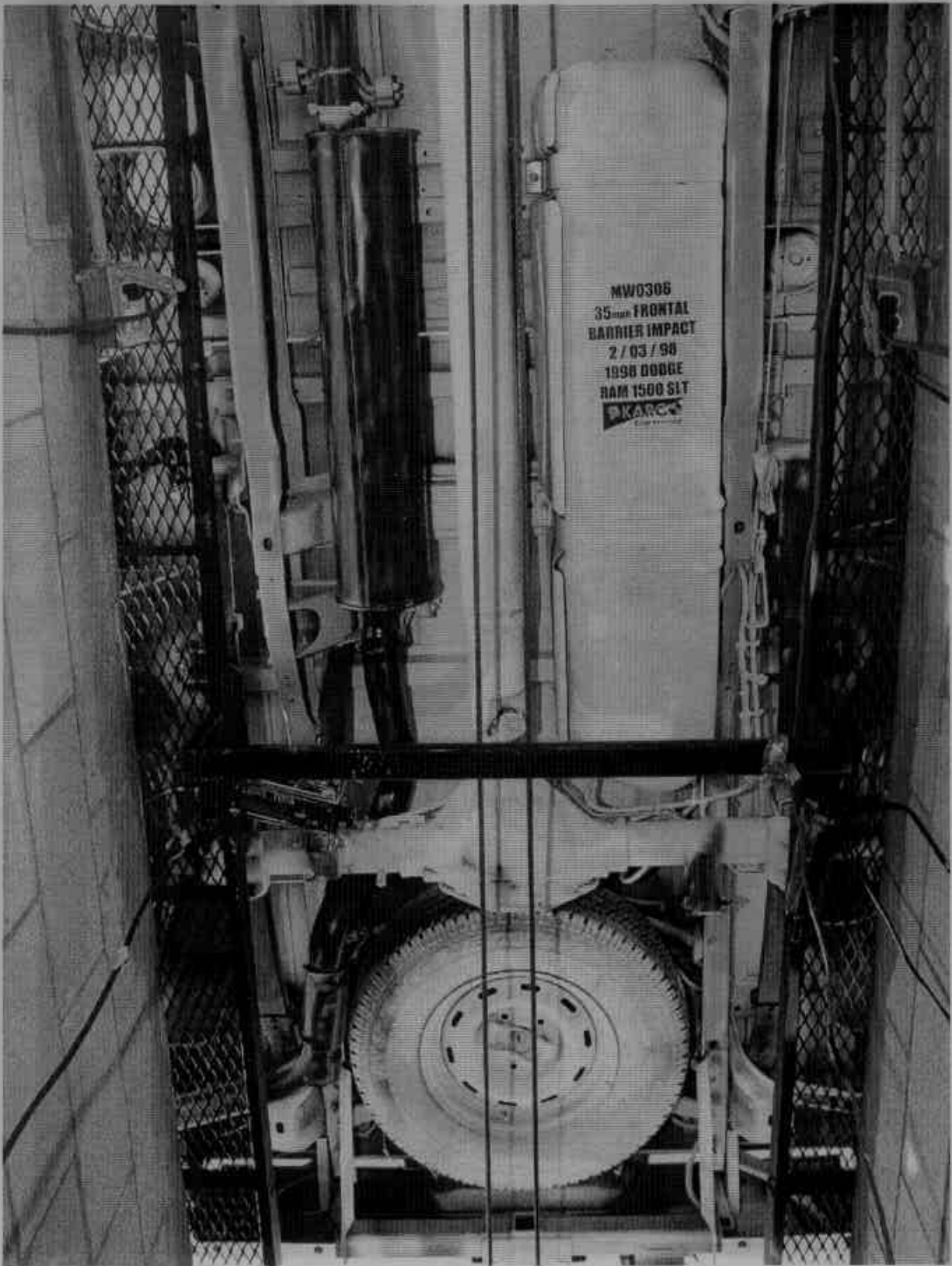


FIGURE A-23. PRETEST REAR UNDERSIDE

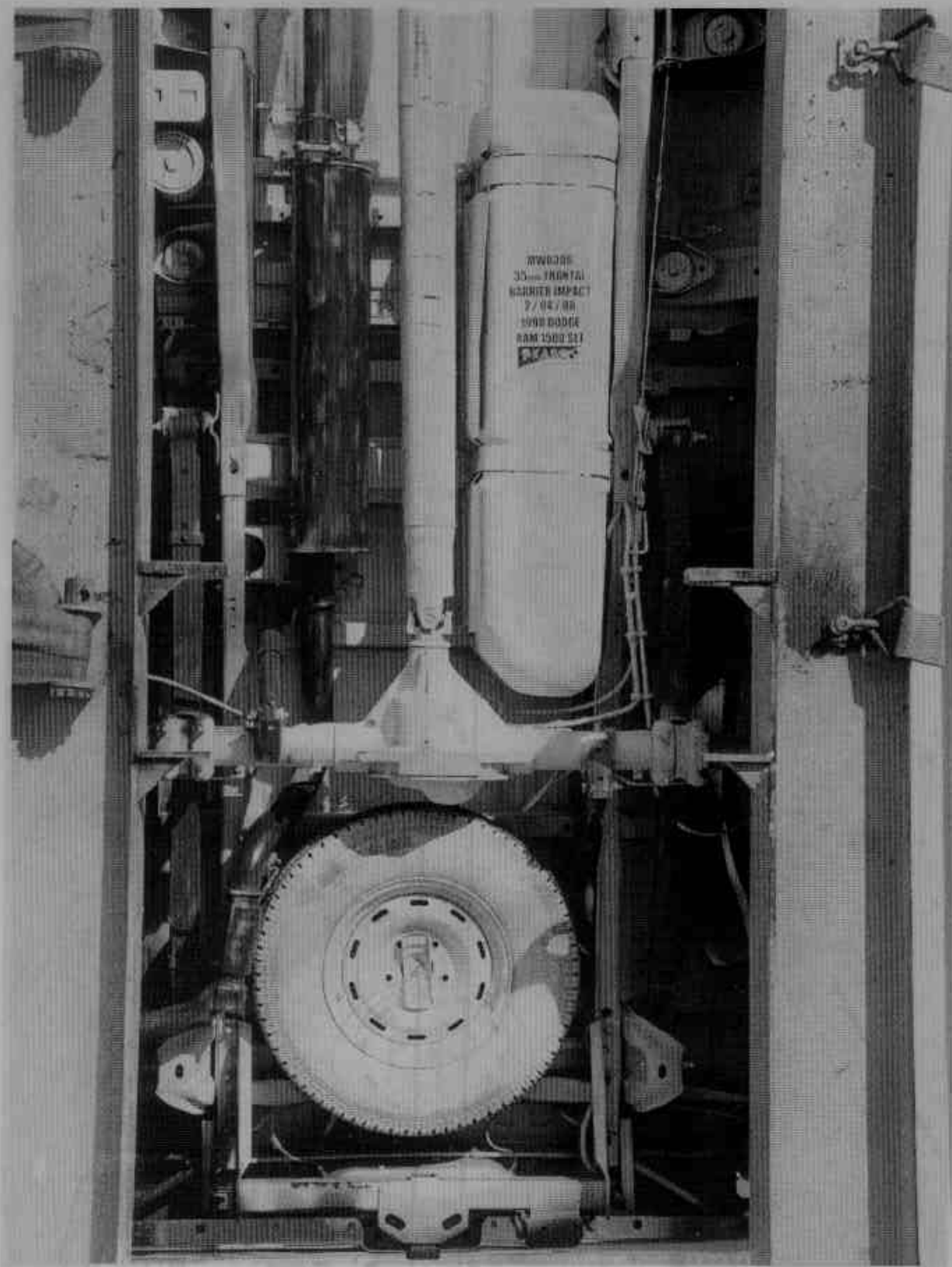


FIGURE A-24. POST TEST REAR UNDERSIDE



FIGURE A-25. PRETEST DRIVER FLOOR PAN

KAR-98-R98050-09

A-25

KAR-98-R98050-09



FIGURE A-26. POST TEST DRIVER FLOOR PAN



FIGURE A-27. PRETEST DRIVER DUMMY (FRONT VIEW)

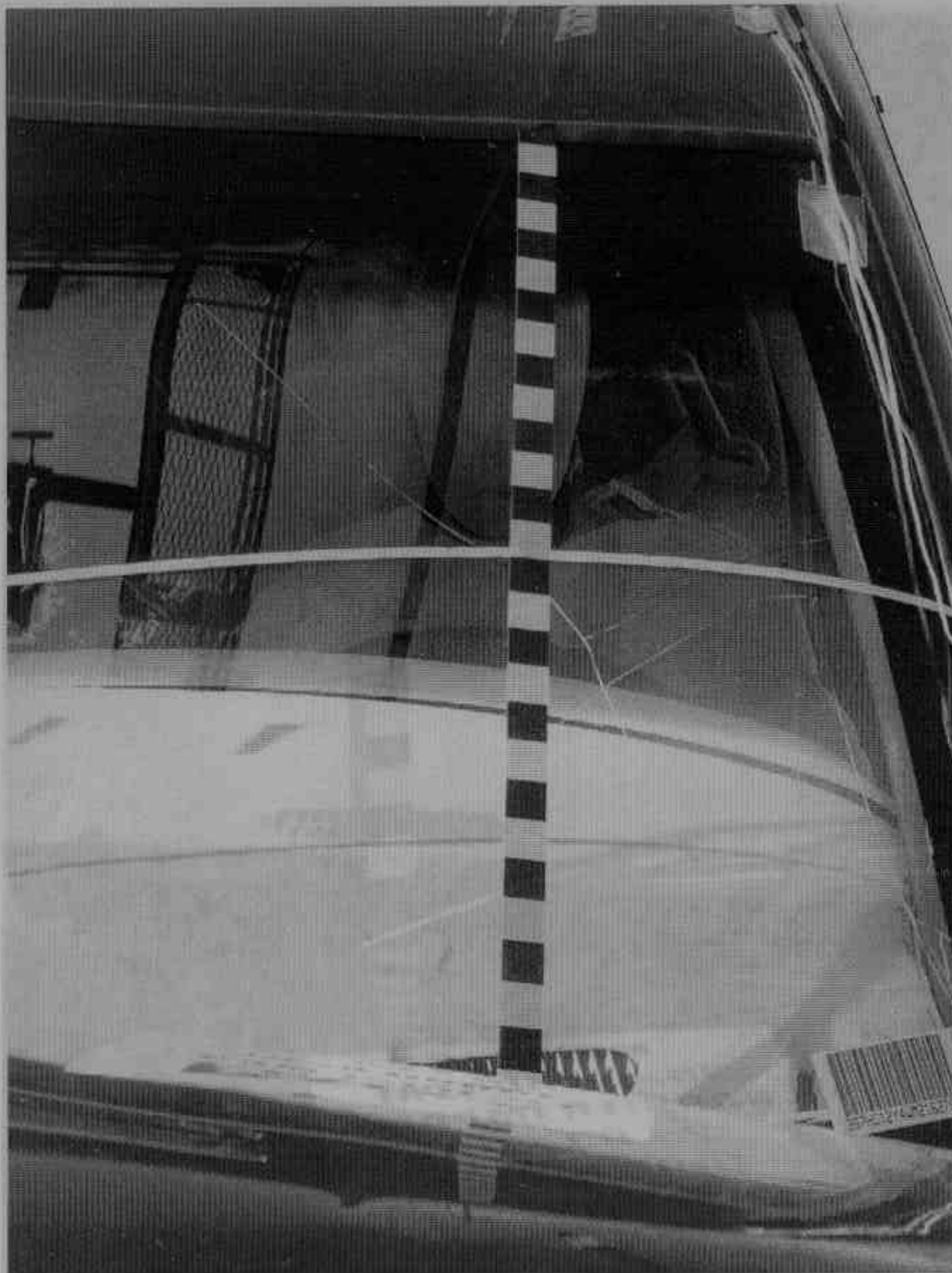


FIGURE A-28. POST TEST DRIVER DUMMY (FRONT VIEW)

KAR-98-R98050-09

A-28

KAR-98-R98050-09

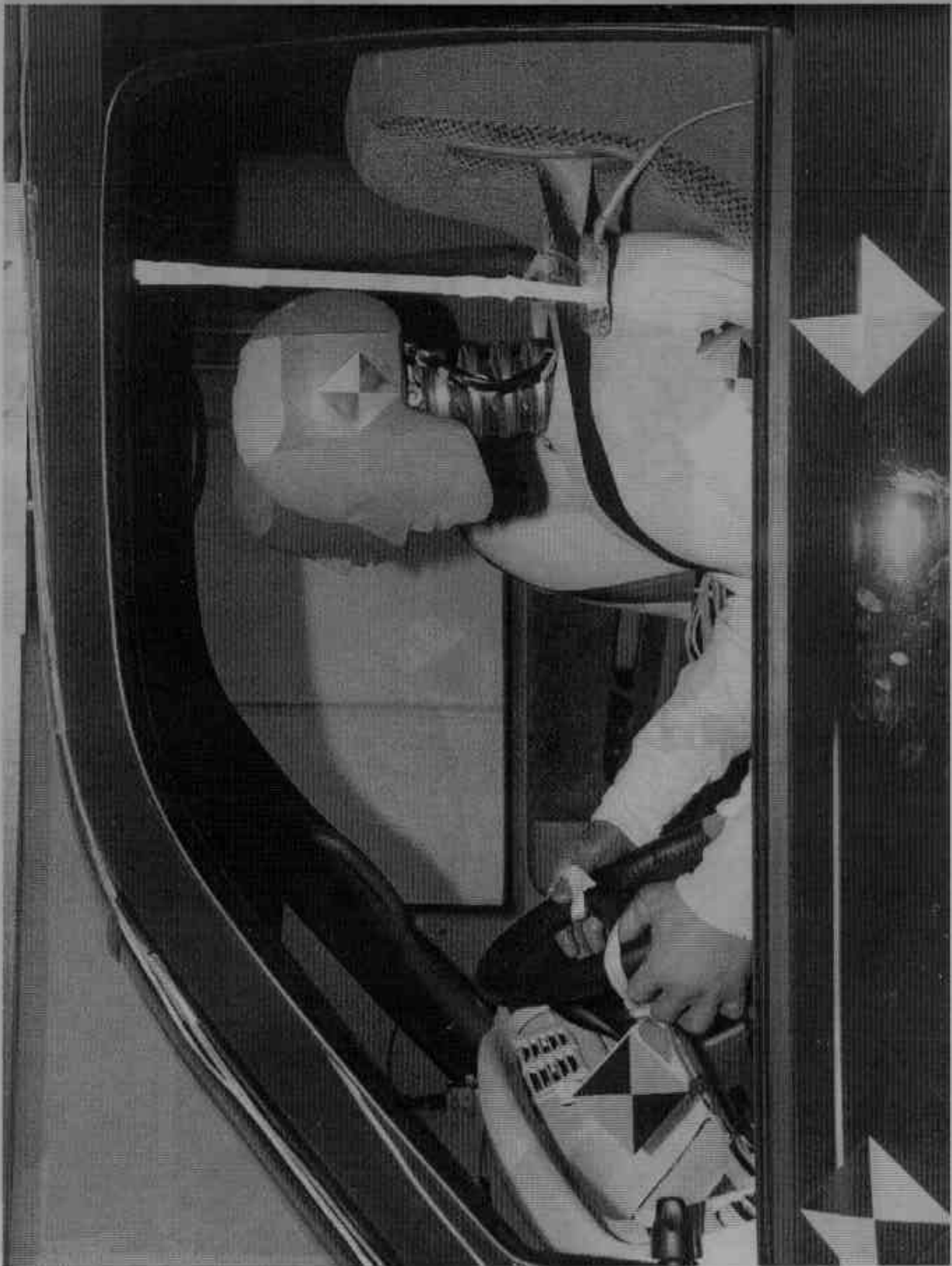


FIGURE A-29. PRETEST DRIVER DUMMY (THRU WINDOW)



FIGURE A-30. POST TEST DRIVER DUMMY (THRU WINDOW)



FIGURE A-31. PRETEST DRIVER DUMMY (DOOR OPEN)

KAR-98-R98050-09

A-31

KAR-98-R98050-09



FIGURE A-32. POST TEST DRIVER DUMMY (DOOR OPEN)



FIGURE A-33. PRETEST DRIVER DUMMY (90° TO VEHICLE)



FIGURE A-34. POST TEST DRIVER DUMMY (90° TO VEHICLE)

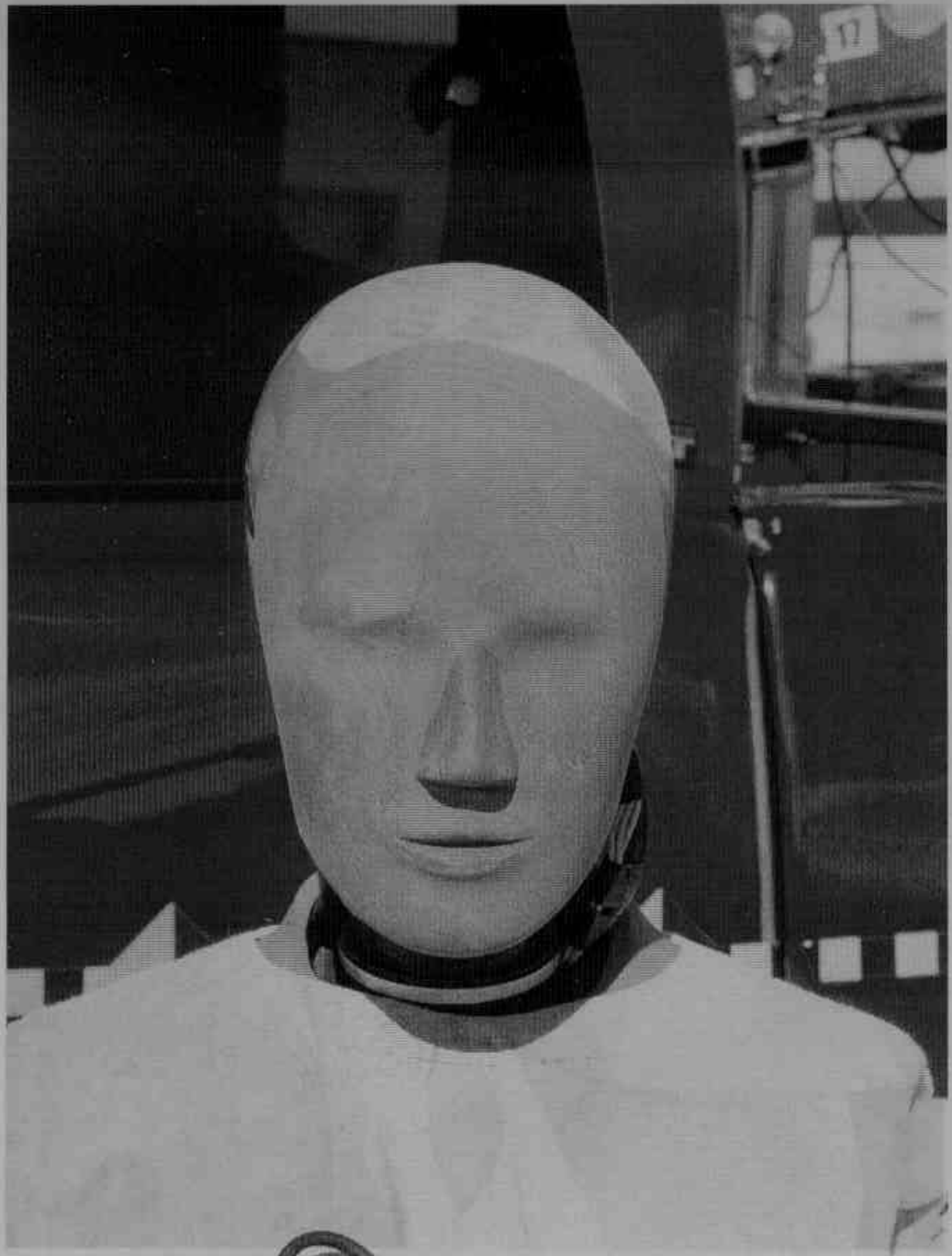


FIGURE A-35. POST TEST DRIVER DUMMY HEAD

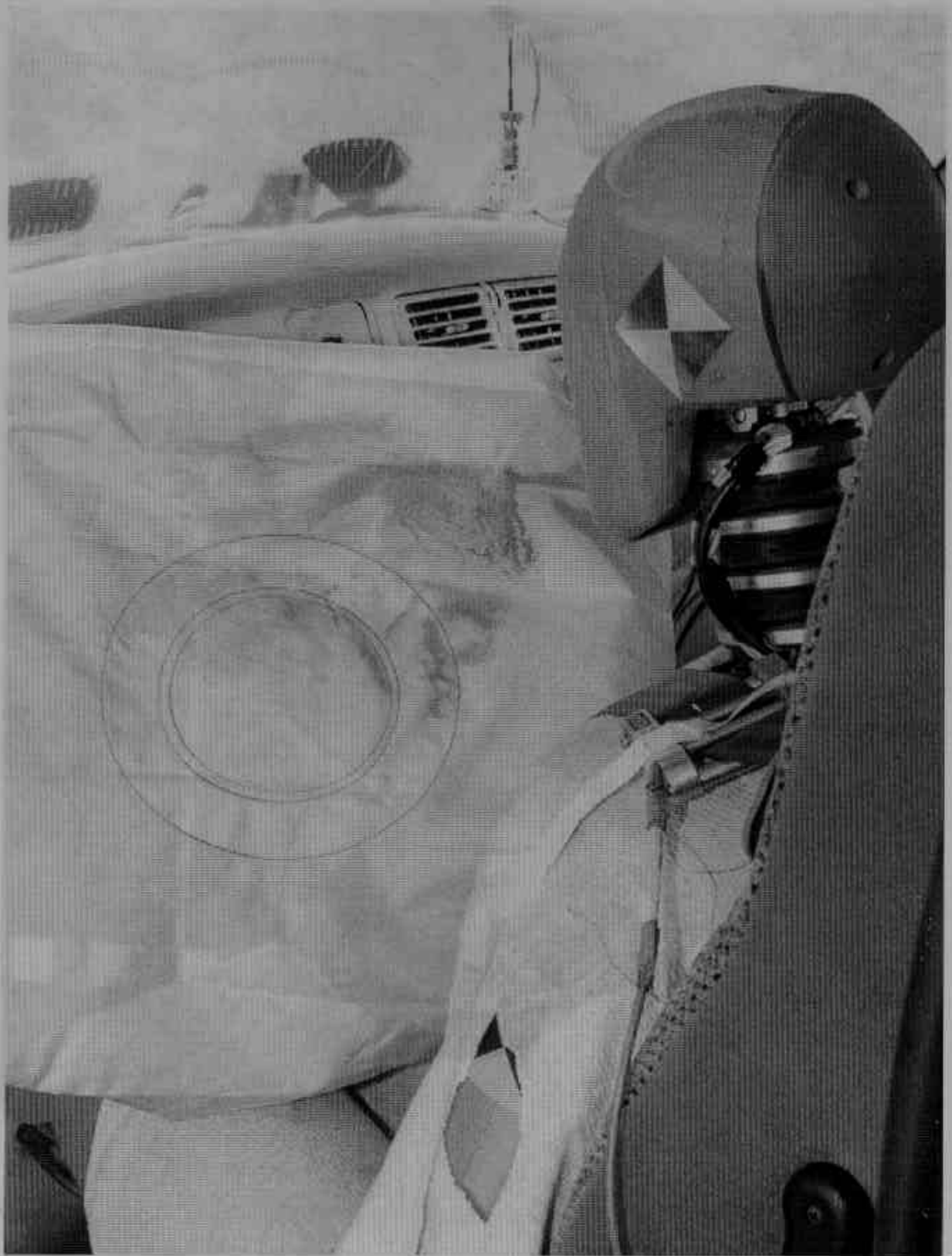


FIGURE A-36. POST TEST DRIVER DUMMY CONTACT POINT



FIGURE A-37. POST TEST DRIVER DUMMY CONTACT POINT

KAR-98-R98050-09

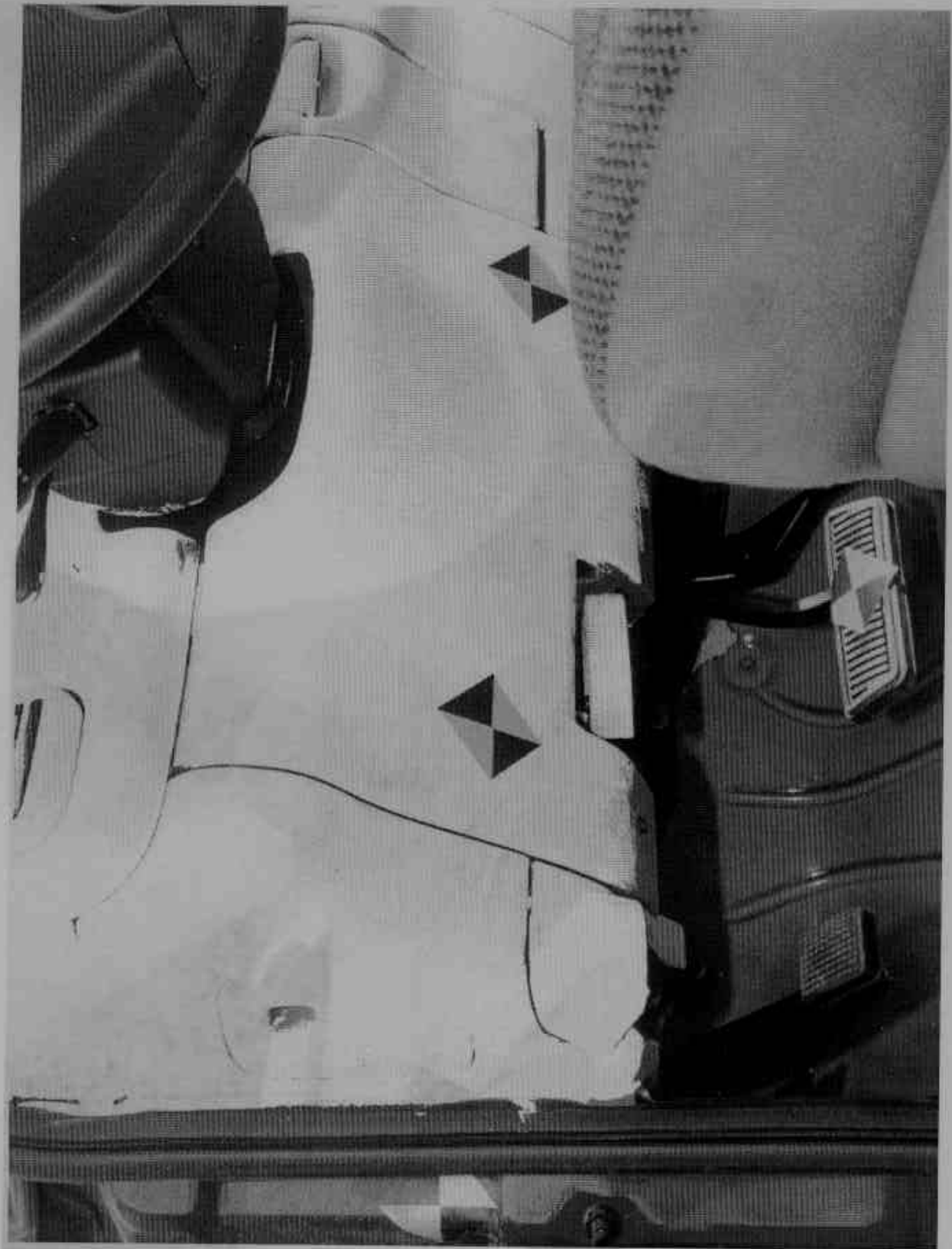


FIGURE A-38. PRETEST DRIVER SIDE KNEE BOLSTER



FIGURE A-39. POST TEST DRIVER KNEE BOLSTER

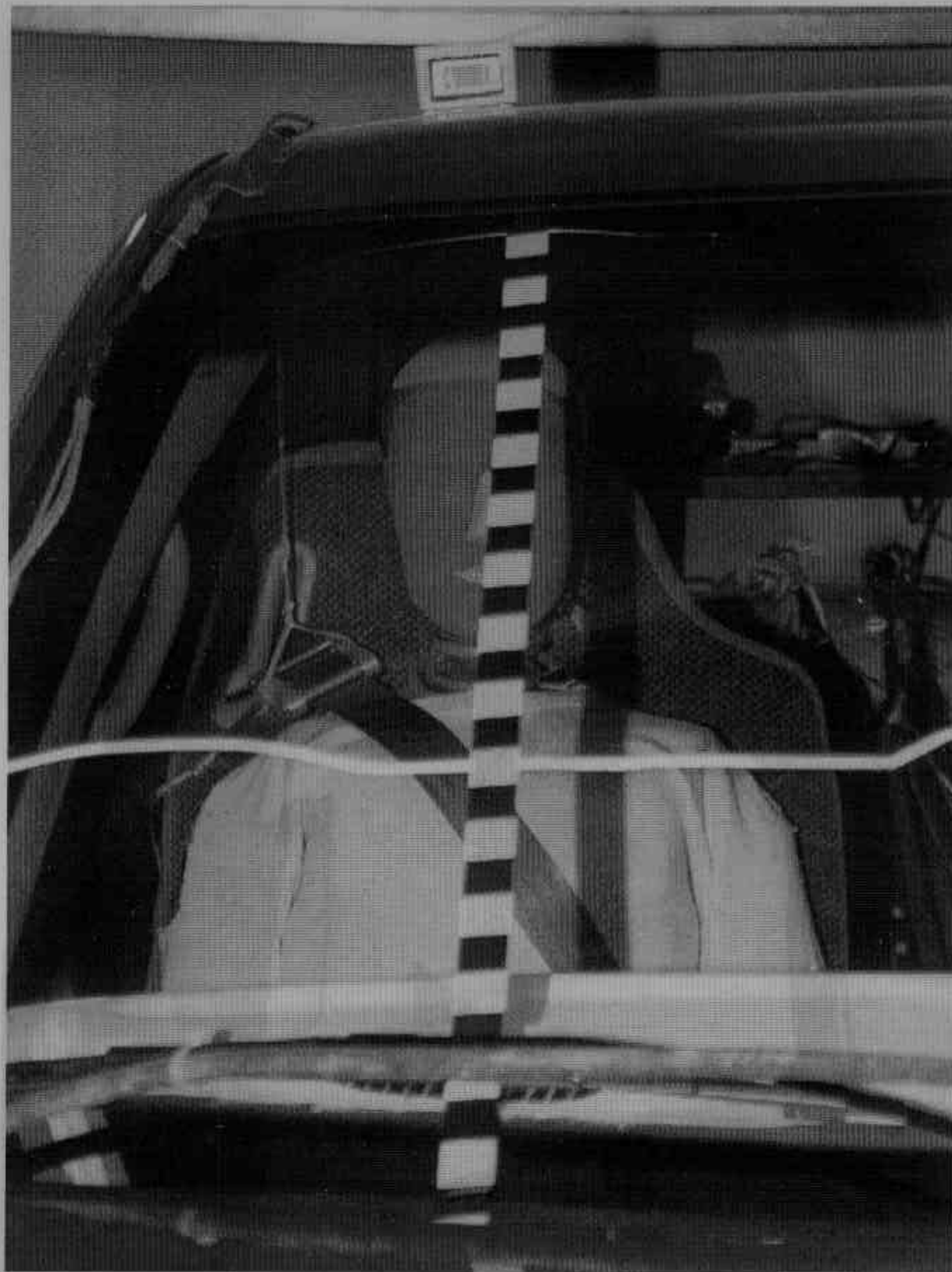


FIGURE A-40. PRETEST PASSENGER DUMMY (FRONT VIEW)



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

00-08-0001-00-RAN

A-41

KAR-98-R98050-09

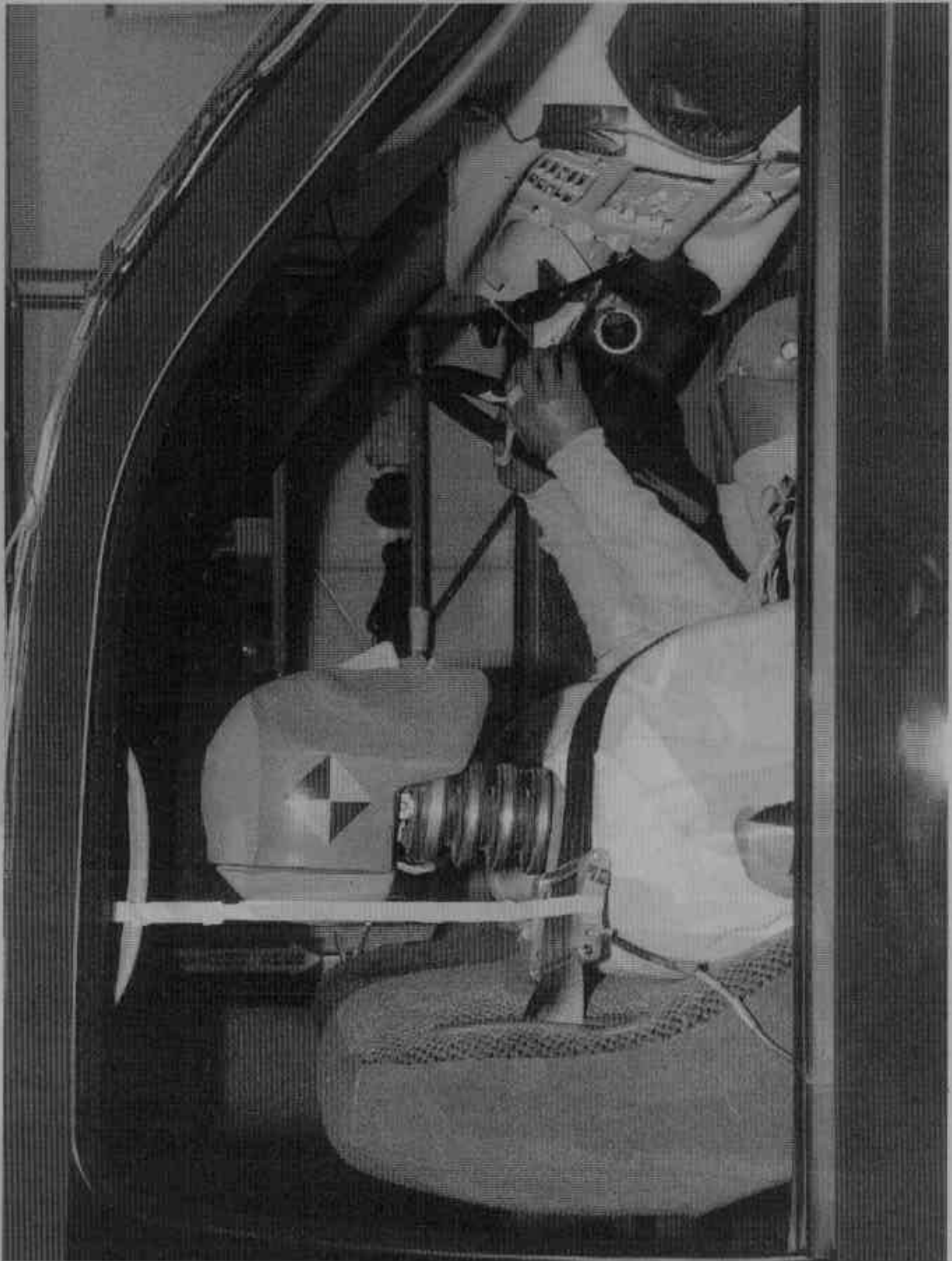


FIGURE A-42. PRETEST PASSENGER DUMMY (THRU WINDOW)

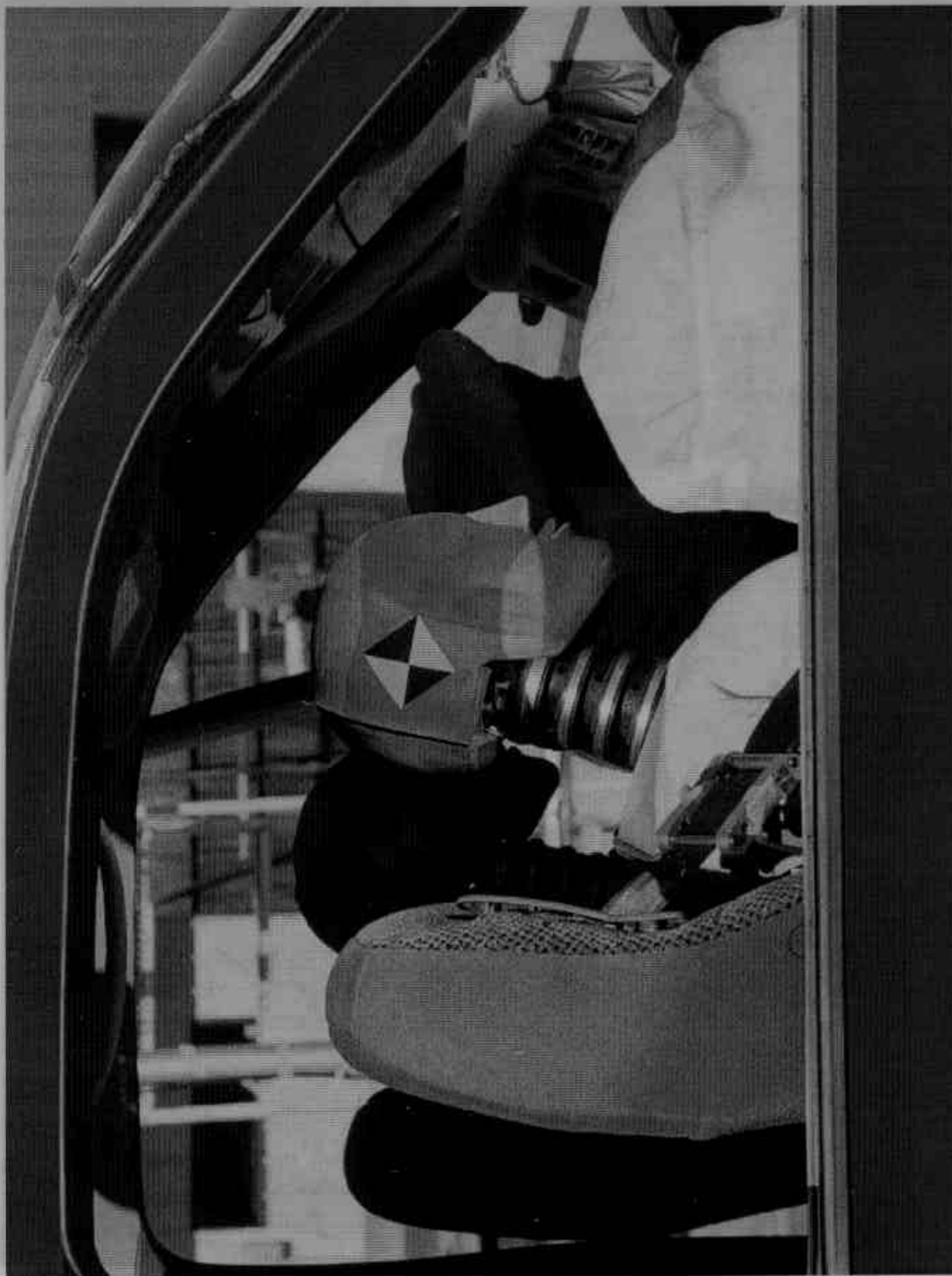


FIGURE A-43. POST TEST PASSENGER DUMMY (THRU WINDOW)



FIGURE A-44. PRETEST PASSENGER DUMMY (DOOR OPEN)

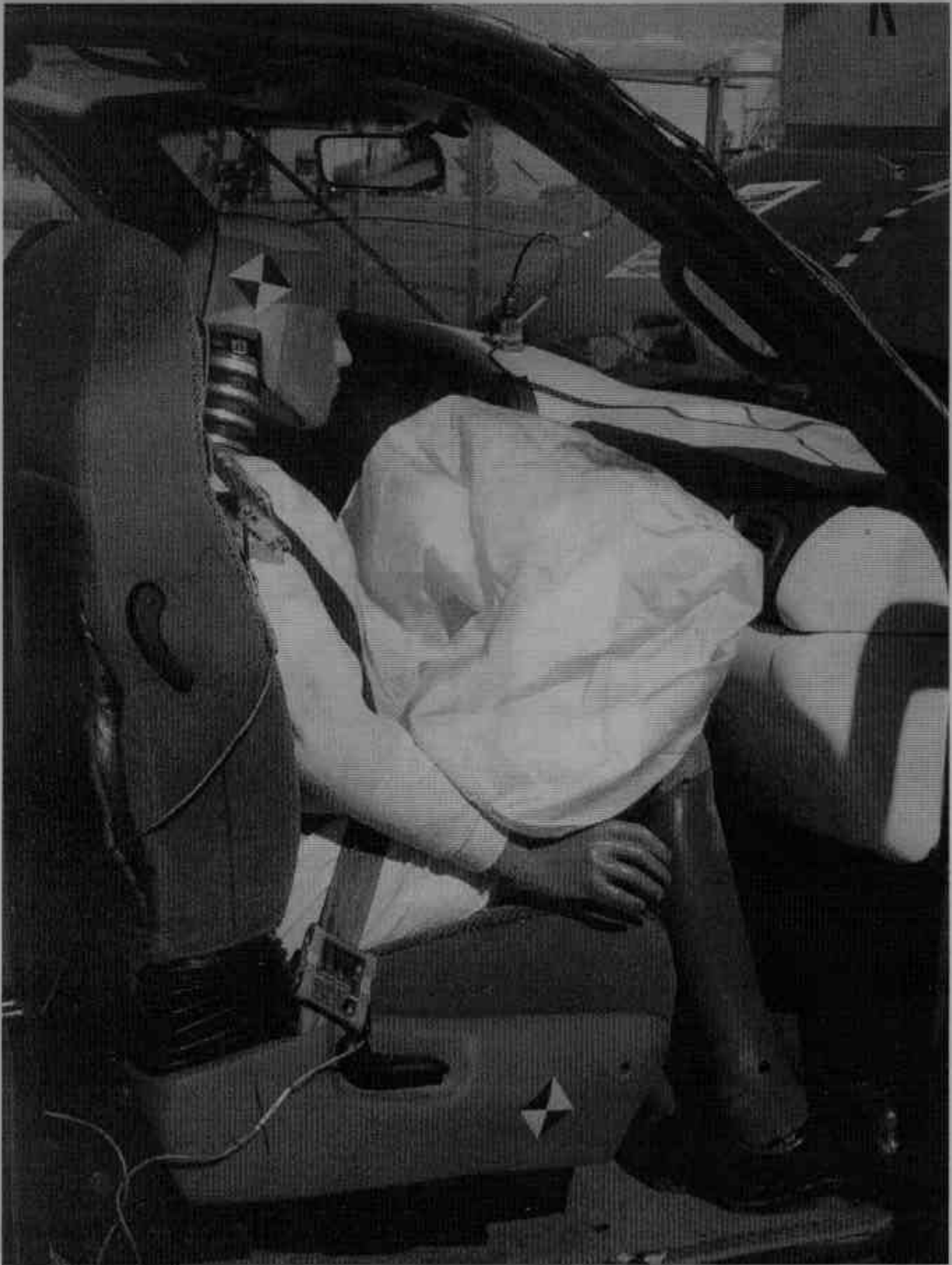


FIGURE A-45. POST TEST PASSENGER DUMMY (DOOR OPEN)

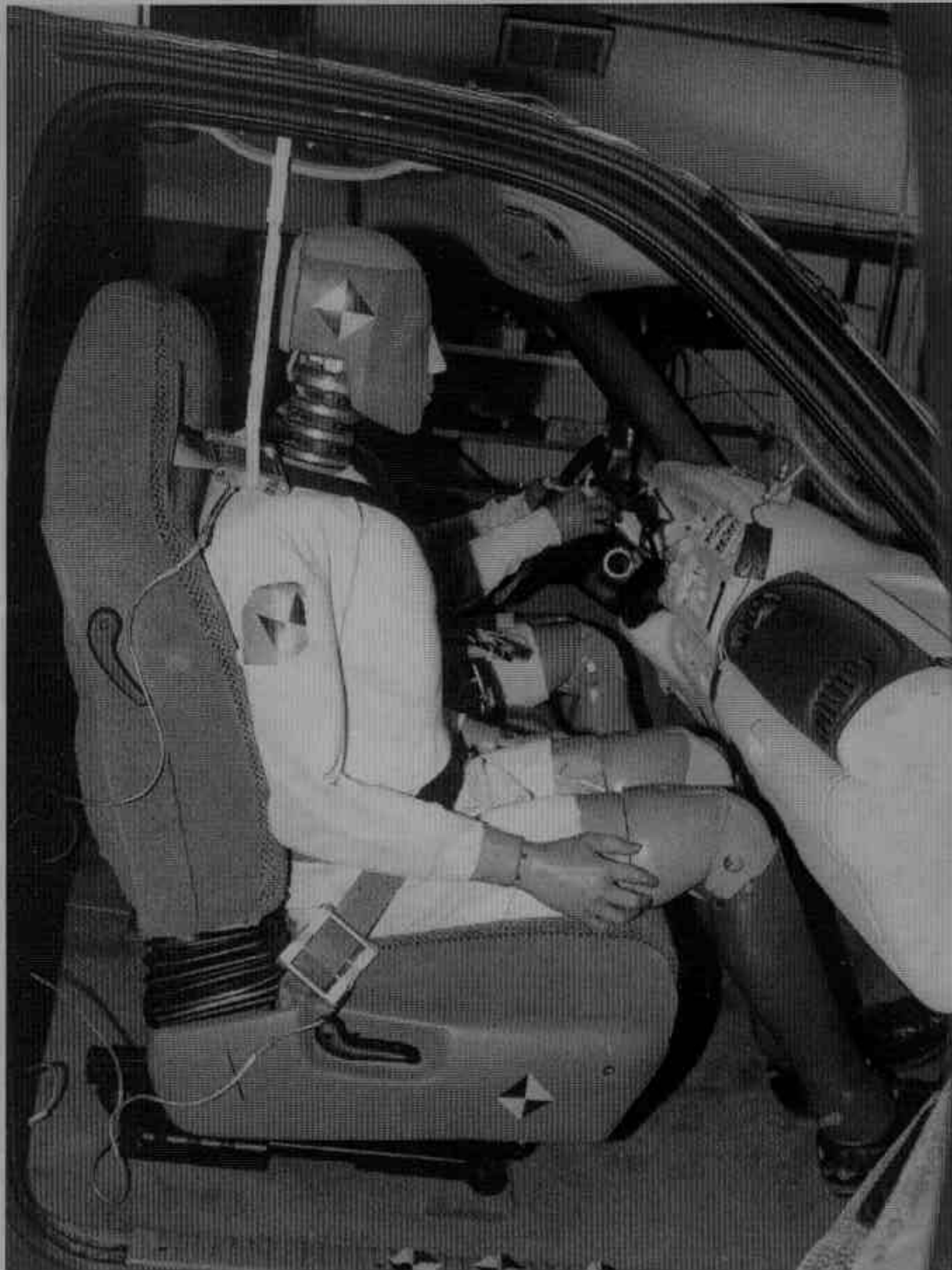


FIGURE A-46. PRETEST PASSENGER DUMMY (90° TO VEHICLE)



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



FIGURE A-48. POST TEST PASSENGER DUMMY HEAD



FIGURE A-49. POST TEST PASSENGER DUMMY CONTACT POINT

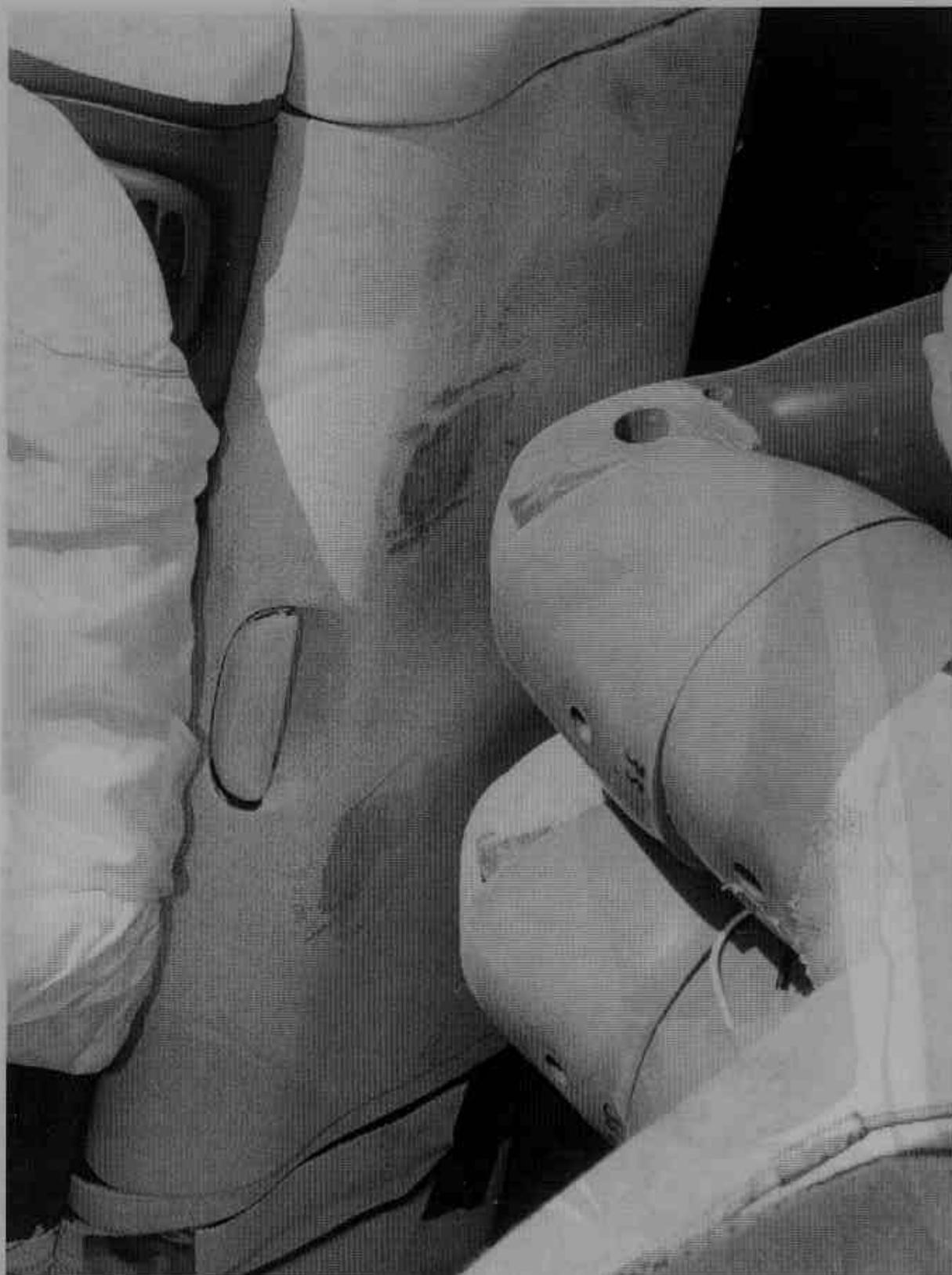


FIGURE A-50. POST TEST PASSENGER DUMMY CONTACT POINT

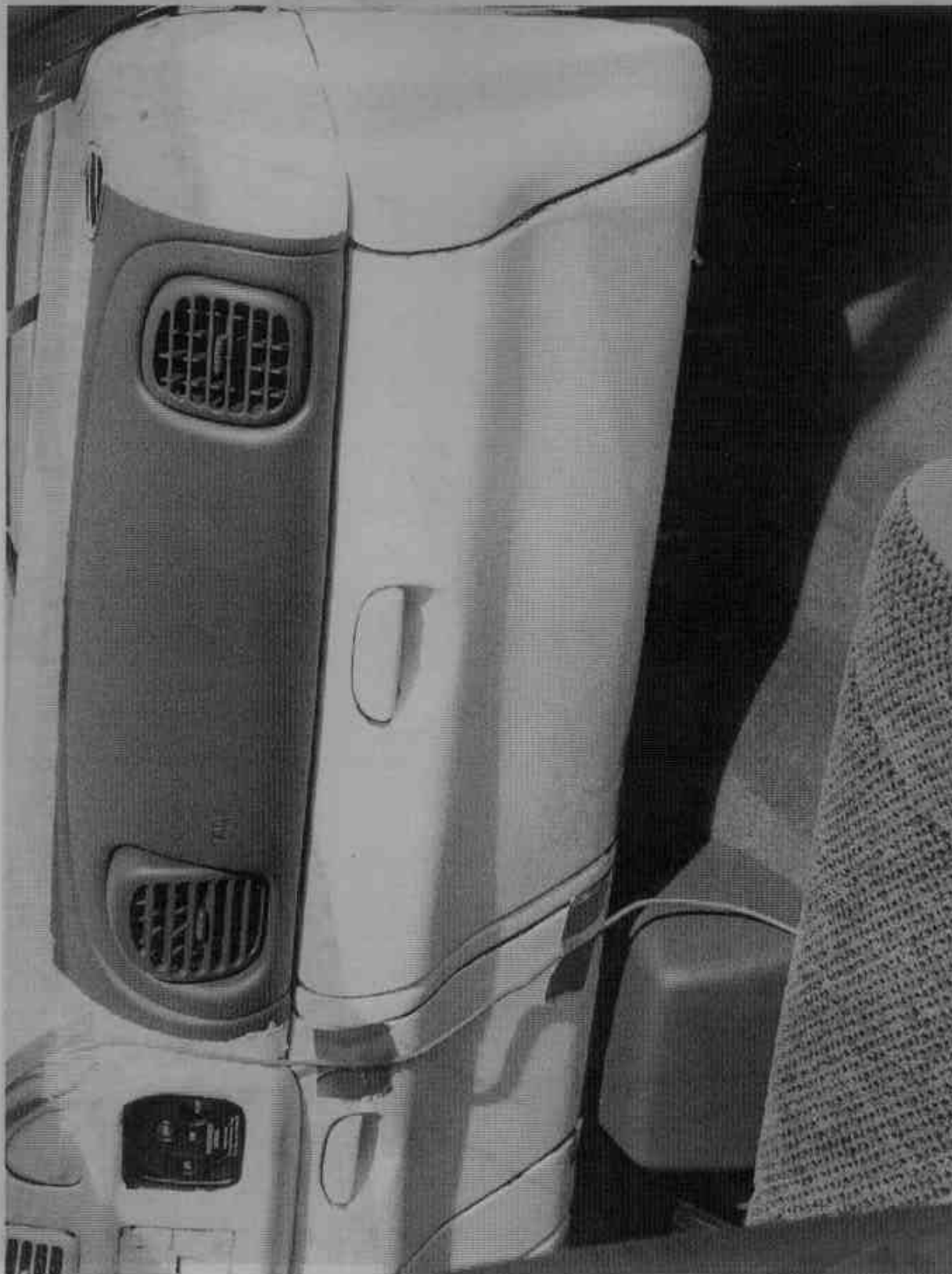


FIGURE A-51. PRETEST PASSENGER SIDE KNEE BOLSTER

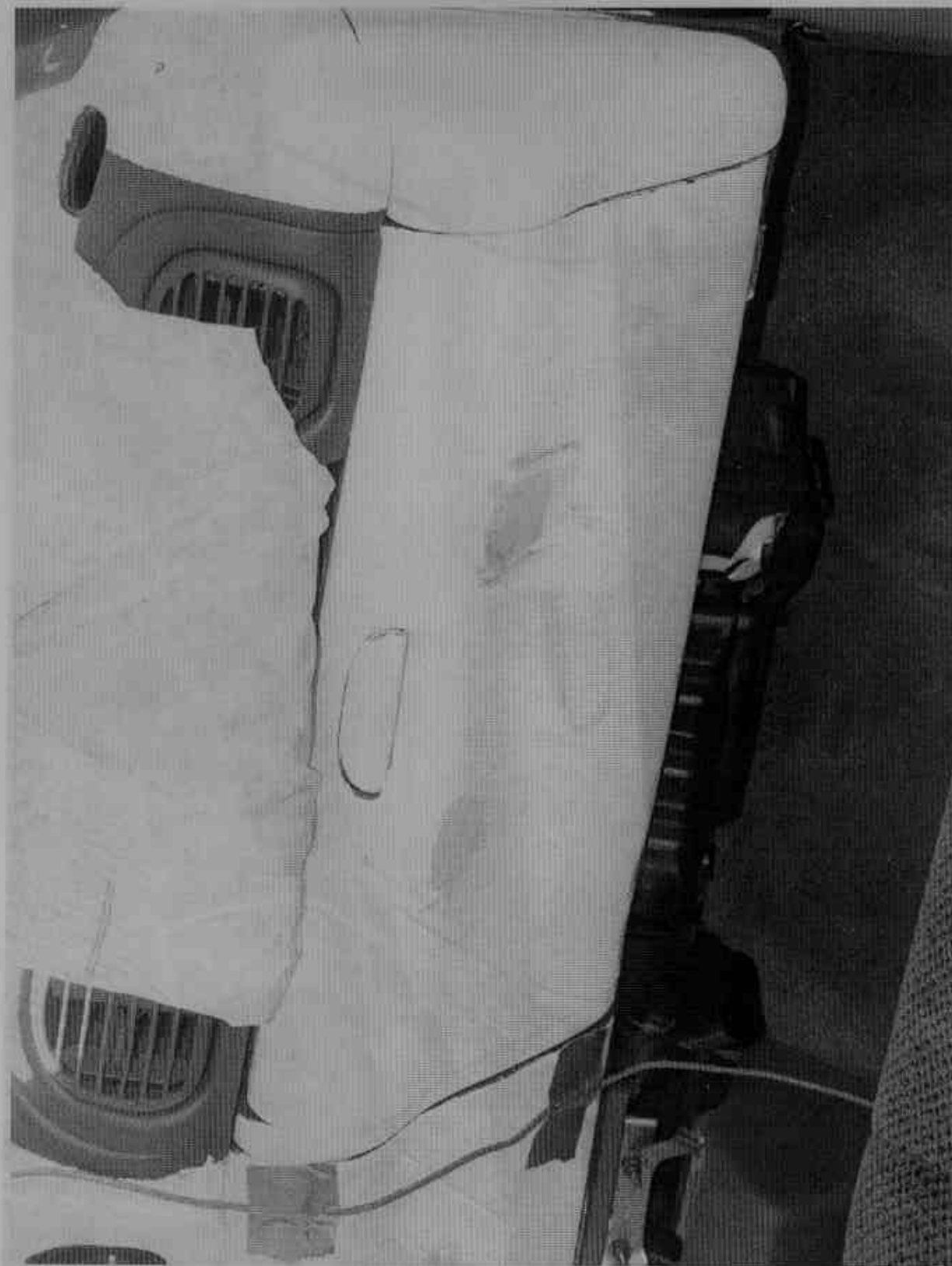


FIGURE A-52. POST TEST PASSENGER SIDE KNEE BOLSTER

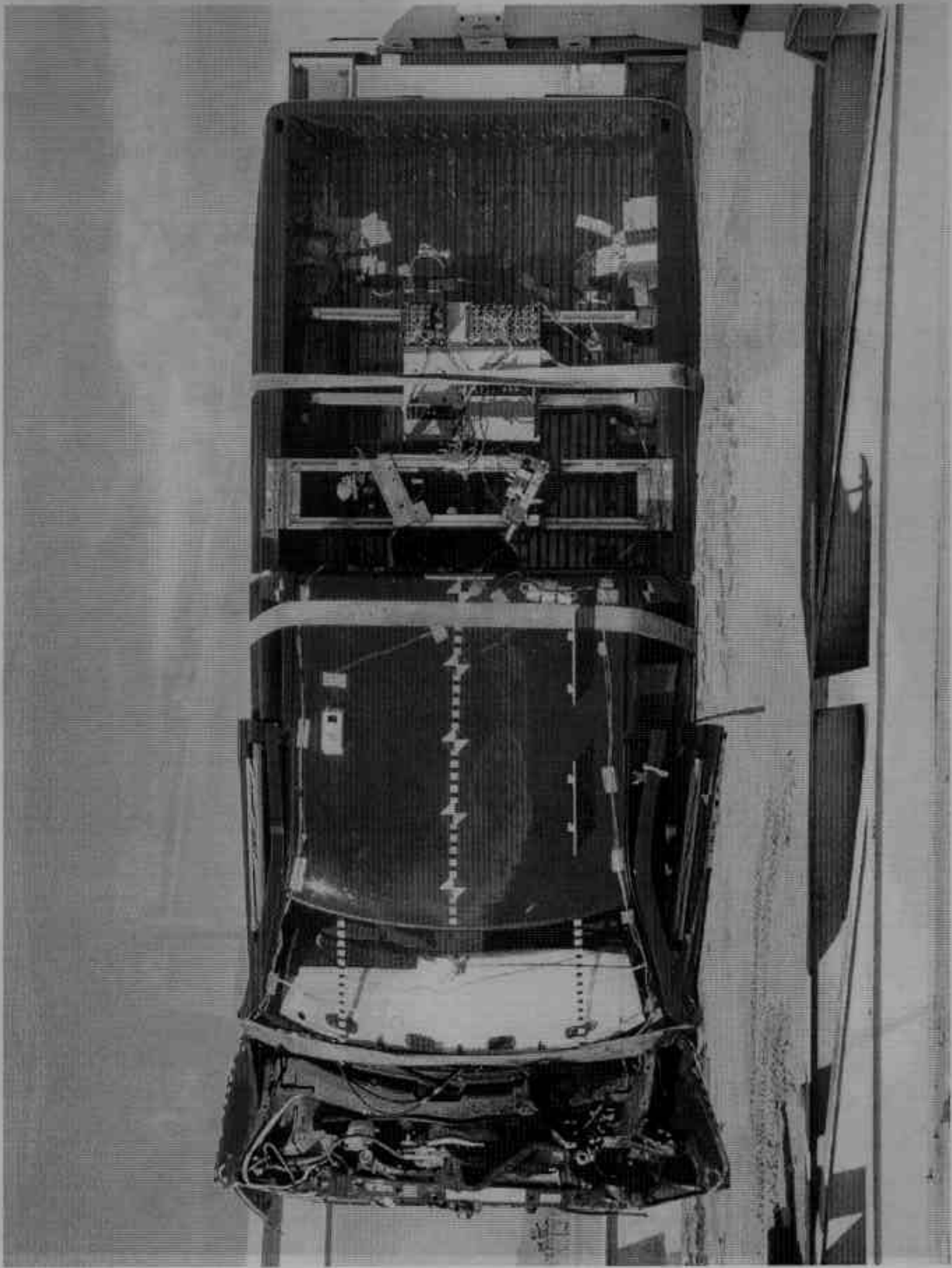


FIGURE A-53. VEHICLE ON ROLLOVER

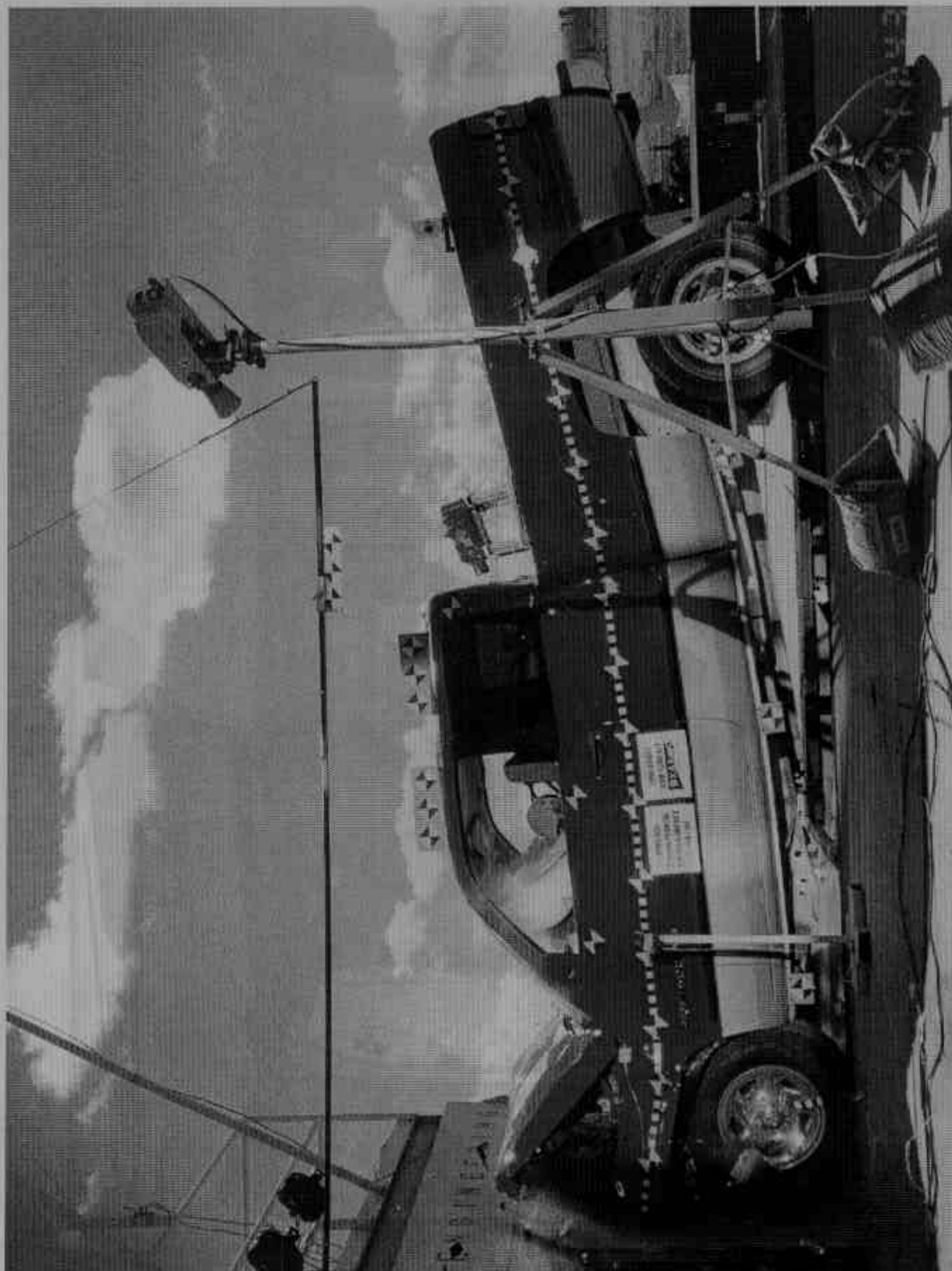


FIGURE A-54. VEHICLE DURING IMPACT

80-070004-50-51A-X

A-54

KAR-98-R98050-09

APPENDIX B
DUMMY, VEHICLE AND RESPONSE DATA TRACES

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
B-16	Driver Neck Force Resultant	B-16
B-17	Driver Neck Moment X	B-17
B-18	Driver Neck Moment Y	B-18
B-19	Driver Neck Moment Z	B-19
B-20	Driver Neck Moment Resultant	B-20
B-21	Driver Chest Primary X	B-21
B-22	Driver Chest Primary X Velocity	B-22
B-23	Driver Chest Primary X Displacement	B-23
B-24	Driver Chest Primary Y	B-24
B-25	Driver Chest Primary Z	B-25
B-26	Driver Chest Primary Resultant	B-26
B-27	Driver Chest Redundant X	B-27
B-28	Driver Chest Redundant X Velocity	B-28
B-29	Driver Chest Redundant X Displacement	B-29
B-30	Driver Chest Redundant Y	B-30
B-31	Driver Chest Redundant Z	B-31
B-32	Driver Chest Redundant Resultant	B-32
B-33	Driver Chest Displacement X	B-33
B-34	Driver Pelvis X	B-34
B-35	Driver Pelvis X Velocity	B-35

LIST OF DATA PLOTS...(Continued)

Data Plot		Page
B-36	Driver Pelvis X Displacement	B-36
B-37	Driver Pelvis Y	B-37
B-38	Driver Pelvis Z	B-38
B-39	Driver Pelvis Resultant	B-39
B-40	Driver Left Femur Force	B-40
B-41	Driver Right Femur Force	B-41
B-42	Driver Left Upper Tibia Moment X	B-42
B-43	Driver Left Upper Tibia Moment Y	B-43
B-44	Driver Right Upper Tibia Moment X	B-44
B-45	Driver Right Upper Tibia Moment Y	B-45
B-46	Driver Left Lower Tibia Force X	B-46
B-47	Driver Left Lower Tibia Force Z	B-47
B-48	Driver Left Lower Tibia Moment Y	B-48
B-49	Driver Right Lower Tibia Force X	B-49
B-50	Driver Right Lower Tibia Force Z	B-50
B-51	Driver Right Lower Tibia Moment Y	B-51
B-52	Driver Left Foot Aft X	B-52
B-53	Driver Left Foot Aft Z	B-53
B-54	Driver Left Foot Fore Z	B-54
B-55	Driver Right Foot Aft X	B-55
B-56	Driver Right Foot Aft Z	B-56
B-57	Driver Right Foot Fore Z	B-57
B-58	Driver Lap Belt Force	B-58
B-59	Driver Shoulder Belt Force	B-59
B-60	Driver Shoulder Belt Pullout	B-60
B-61	Driver Shoulder Belt Elongation	B-61
B-62	Passenger Head Primary X	B-62
B-63	Passenger Head Primary X Velocity	B-63
B-64	Passenger Head Primary X Displacement	B-64
B-65	Passenger Head Primary Y	B-65
B-66	Passenger Head Primary Z	B-66
B-67	Passenger Head Resultant Primary	B-67
B-68	Passenger Head Redundant X	B-68
B-69	Passenger Head Redundant X Velocity	B-69
B-70	Passenger Head Redundant X Displacement	B-70

LIST OF DATA PLOTS...(Continued)

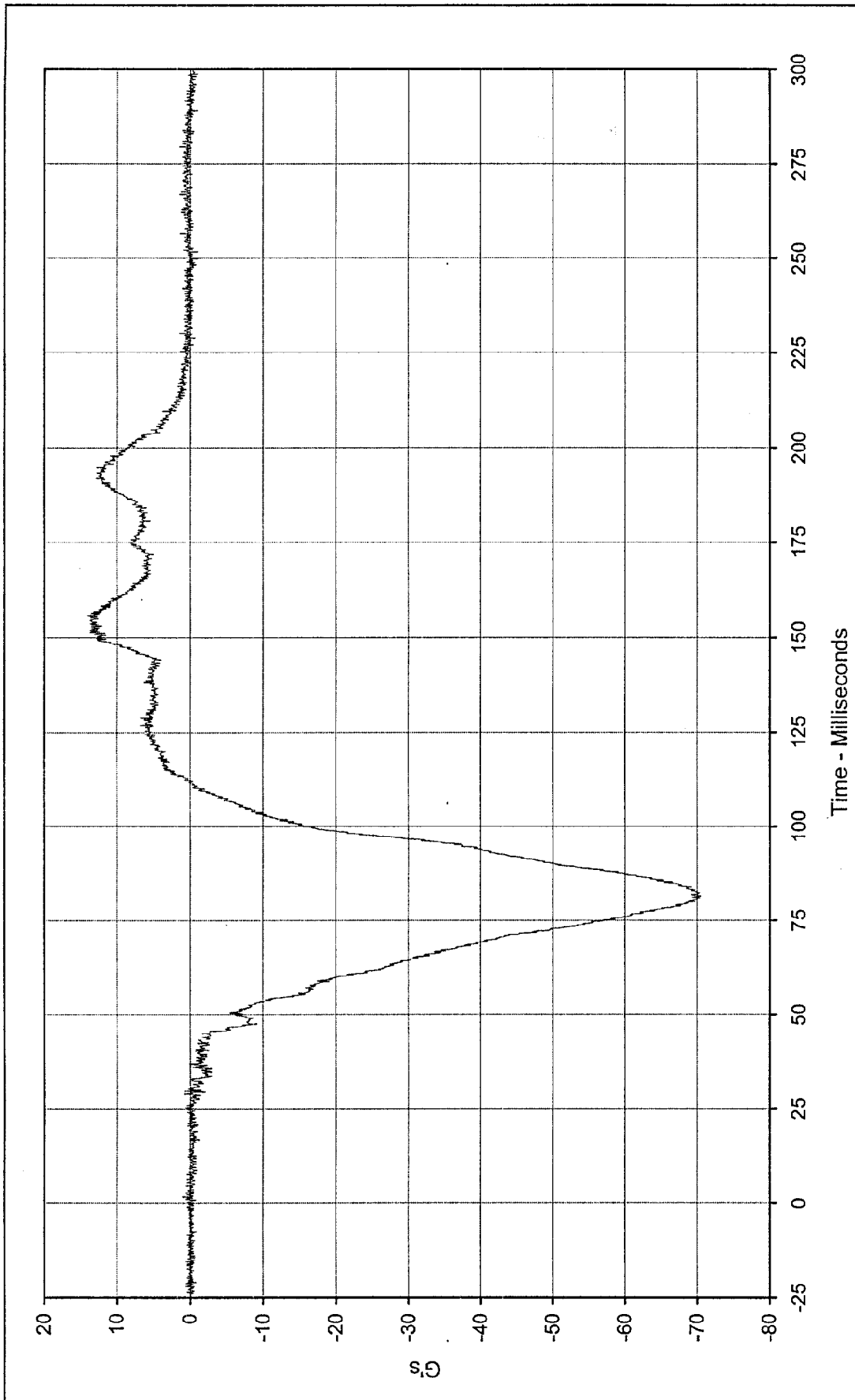
Data Plot		Page
B-71	Passenger Head Redundant Y	B-71
B-72	Passenger Head Redundant Z	B-72
B-73	Passenger Head Resultant Redundant	B-73
B-74	Passenger Neck Force X	B-74
B-75	Passenger Neck Force Y	B-75
B-76	Passenger Neck Force Z	B-76
B-77	Passenger Neck Force Resultant	B-77
B-78	Passenger Neck Moment X	B-78
B-79	Passenger Neck Moment Y	B-79
B-80	Passenger Neck Moment Z	B-80
B-81	Passenger Neck Moment Resultant	B-81
B-82	Passenger Chest Primary X	B-82
B-83	Passenger Chest Primary X Velocity	B-83
B-84	Passenger Chest Primary X Displacement	B-84
B-85	Passenger Chest Primary Y	B-85
B-86	Passenger Chest Primary Z	B-86
B-87	Passenger Chest Primary Resultant	B-87
B-88	Passenger Chest Redundant X	B-88
B-89	Passenger Chest Redundant X Velocity	B-89
B-90	Passenger Chest Redundant X Displacement	B-90
B-91	Passenger Chest Redundant Y	B-91
B-92	Passenger Chest Redundant Z	B-92
B-93	Passenger Chest Redundant Resultant	B-93
B-94	Passenger Chest Displacement X	B-94
B-95	Passenger Pelvis X	B-95
B-96	Passenger Pelvis X Velocity	B-96
B-97	Passenger Pelvis X Displacement	B-97
B-98	Passenger Pelvis Y	B-98
9-99	Passenger Pelvis Z	9-99
B-100	Passenger Pelvis Resultant	B-100
B-101	Passenger Left Femur Force	B-101
B-102	Passenger Right Femur Force	B-102
B-103	Passenger Left Upper Tibia Moment X	B-103
B-104	Passenger Left Upper Tibia Moment Y	B-104
B-105	Passenger Right Upper Tibia Moment X	B-105

LIST OF DATA PLOTS...(Continued)

Data Plot		Page
B-106	Passenger Right Upper Tibia Moment Y	B-106
B-107	Passenger Left Lower Tibia Force X	B-107
B-108	Passenger Left Lower Tibia Force Z	B-108
B-109	Passenger Left Lower Tibia Moment Y	B-109
B-110	Passenger Right Lower Tibia Force X	B-110
B-111	Passenger Right Lower Tibia Force Z	B-111
B-112	Passenger Right Lower Tibia Moment Y	B-112
B-113	Passenger Left Foot Aft X	B-113
B-114	Passenger Left Foot Aft Z	B-114
B-115	Passenger Left Foot Fore Z	B-115
B-116	Passenger Right Foot Aft X	B-116
B-117	Passenger Right Foot Aft Z	B-117
B-118	Passenger Right Foot Fore Z	B-118
B-119	Passenger Lap Belt Force	B-119
B-120	Passenger Shoulder Belt Force	B-120
B-121	Passenger Shoulder Belt Pullout	B-121
B-122	Passenger Shoulder Belt Elongation	B-122
B-123	Vehicle Left Rear Primary X	B-123
B-124	Vehicle Left Rear Primary Velocity X	B-124
B-125	Vehicle Left Rear Primary Displacement	B-125
B-126	Vehicle Right Rear Primary X	B-126
B-127	Vehicle Right Rear Primary Velocity X	B-127
B-128	Vehicle Right Rear Primary Displacement	B-128
B-129	Vehicle Engine Top X	B-129
B-130	Vehicle Engine Top Velocity X	B-130
B-131	Vehicle Engine Top Displacement	B-131
B-132	Vehicle Engine Bottom X	B-132
B-133	Vehicle Engine Bottom Velocity X	B-133
B-134	Vehicle Engine Bottom Displacement	B-134
B-135	Vehicle Left Brake Caliper X	B-135
B-136	Vehicle Left Brake Caliper Velocity X	B-136
B-137	Vehicle Left Brake Caliper Displacement	B-137
B-138	Vehicle Right Brake Caliper X	B-138
B-139	Vehicle Right Brake Caliper Velocity X	B-139
B-140	Vehicle Right Brake Caliper Displacement	B-140

LIST OF DATA PLOTS...(Continued)

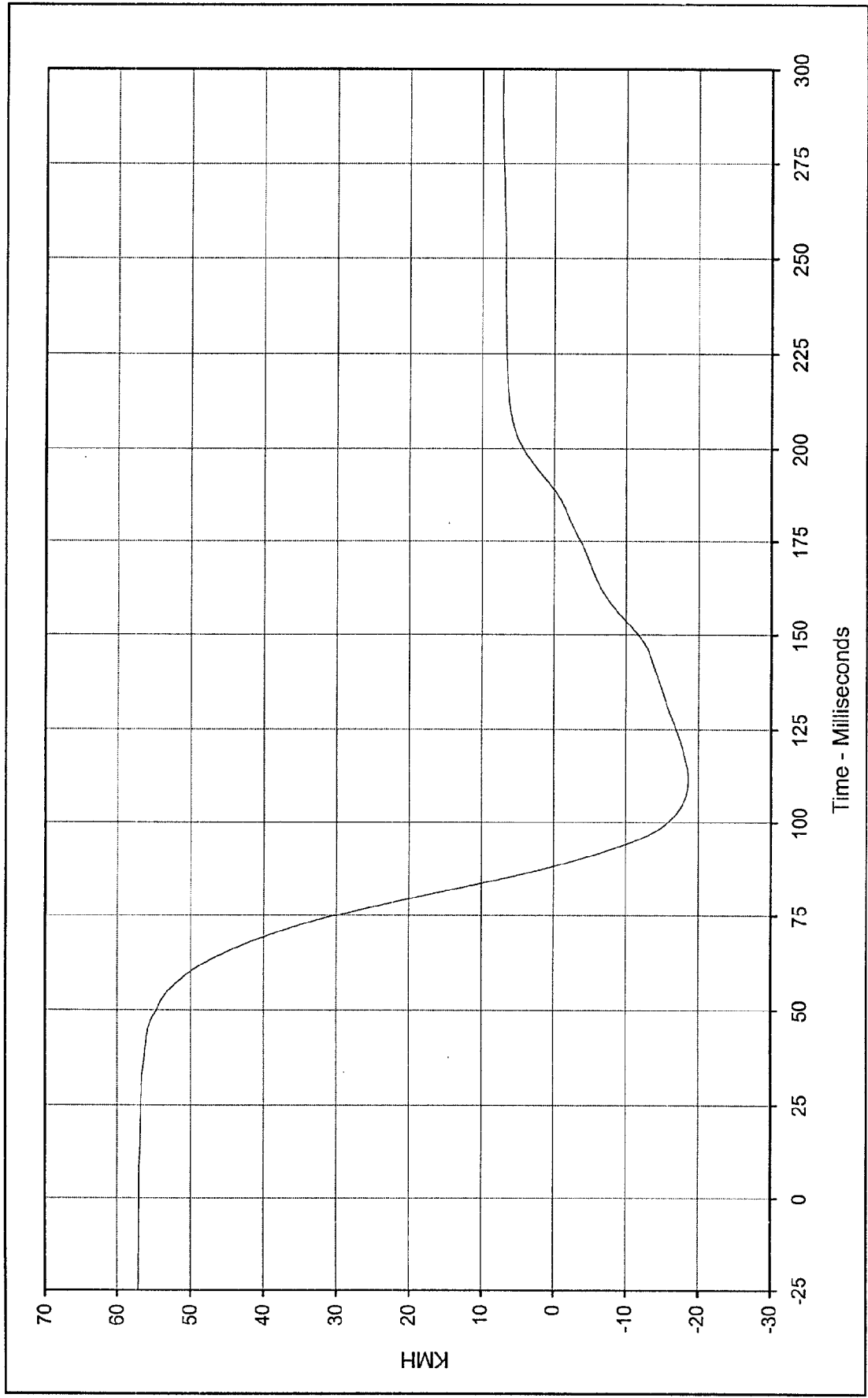
Data Plot		Page
B-141	Vehicle Instrument Panel X	B-141
B-142	Vehicle Instrument Panel Velocity X	B-142
B-143	Vehicle Instrument Panel Displacement	B-143
B-144	Vehicle Left Rear Redundant X	B-144
B-145	Vehicle Left Rear Redundant Velocity X	B-145
B-146	Vehicle Left Rear Redundant Displacement	B-146



Curve Description: Driver Head Primary X
 Maximum Value: 14.0 at 155.6 Milliseconds
 Minimum Value: -70.6 at 81.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-001

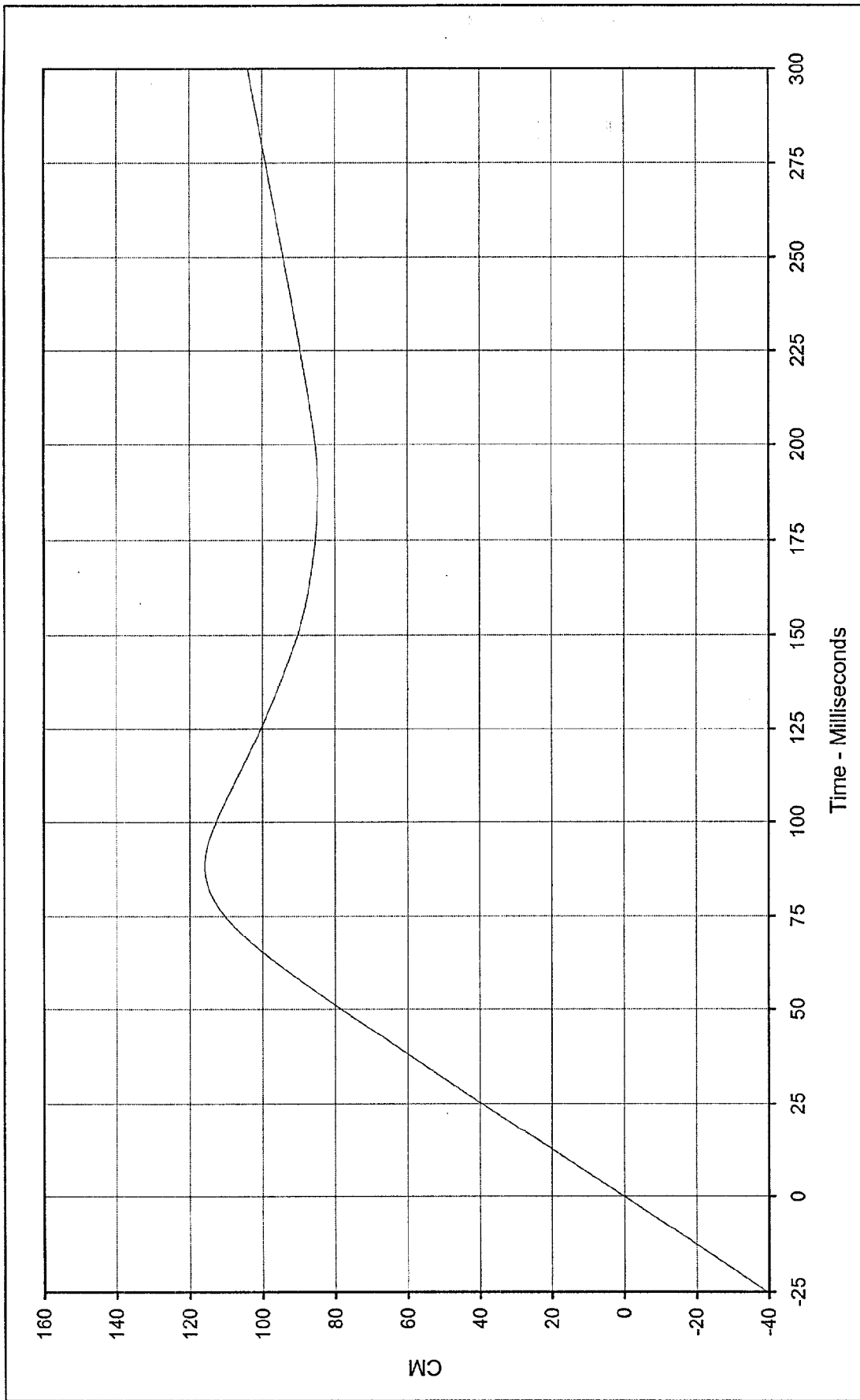
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Driver Head Primary X Velocity	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	57.0	at	0.0	Milliseconds
Minimum Value:	-18.6	at	111.9	Milliseconds
SAE Filter Class:	180	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Date of Test:	2/4/98			
Curve Number:	IN1-001			

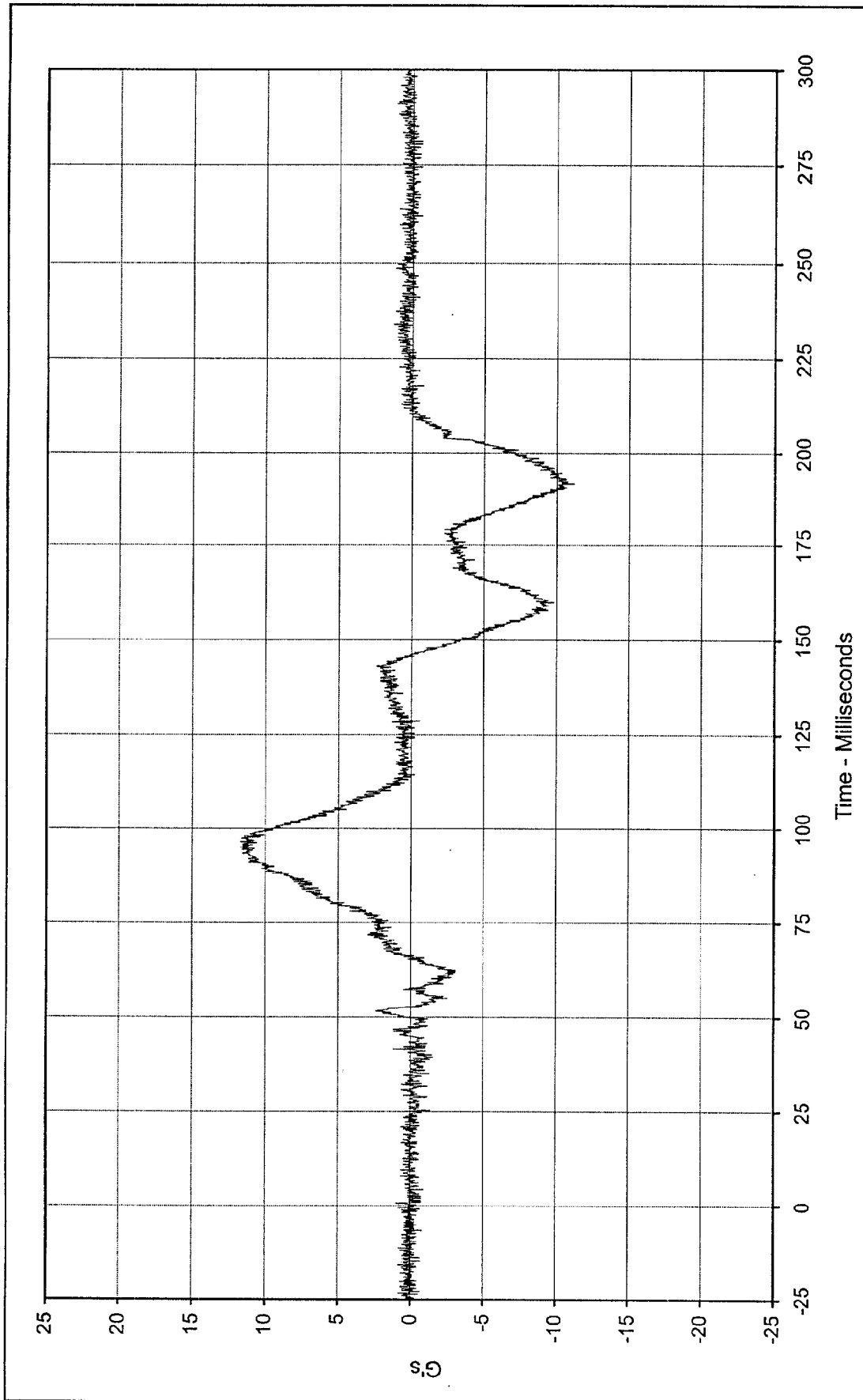




Curve Description: Driver Head Primary X Displ.
 Maximum Value: 115.8 at 88.1 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-001

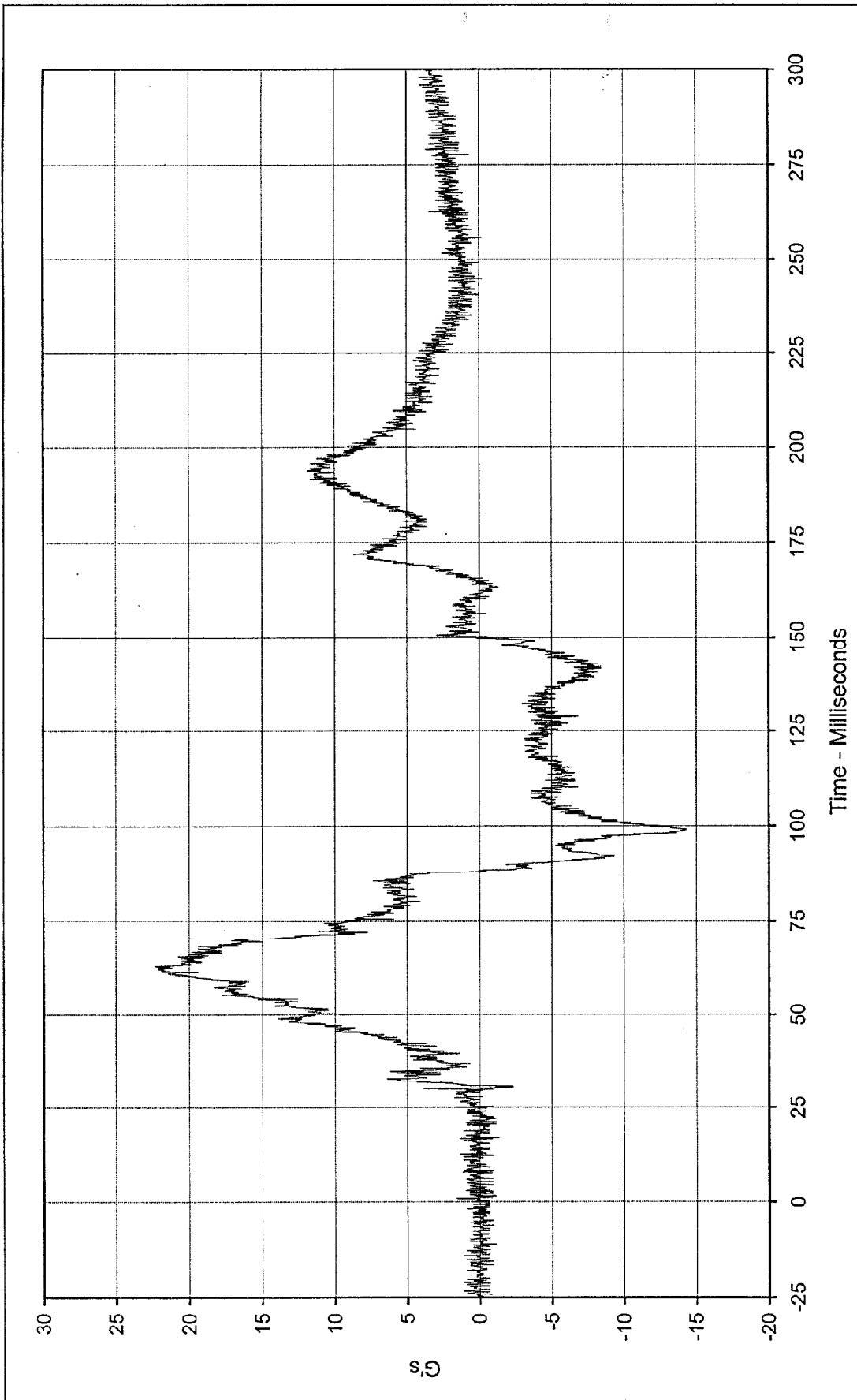
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





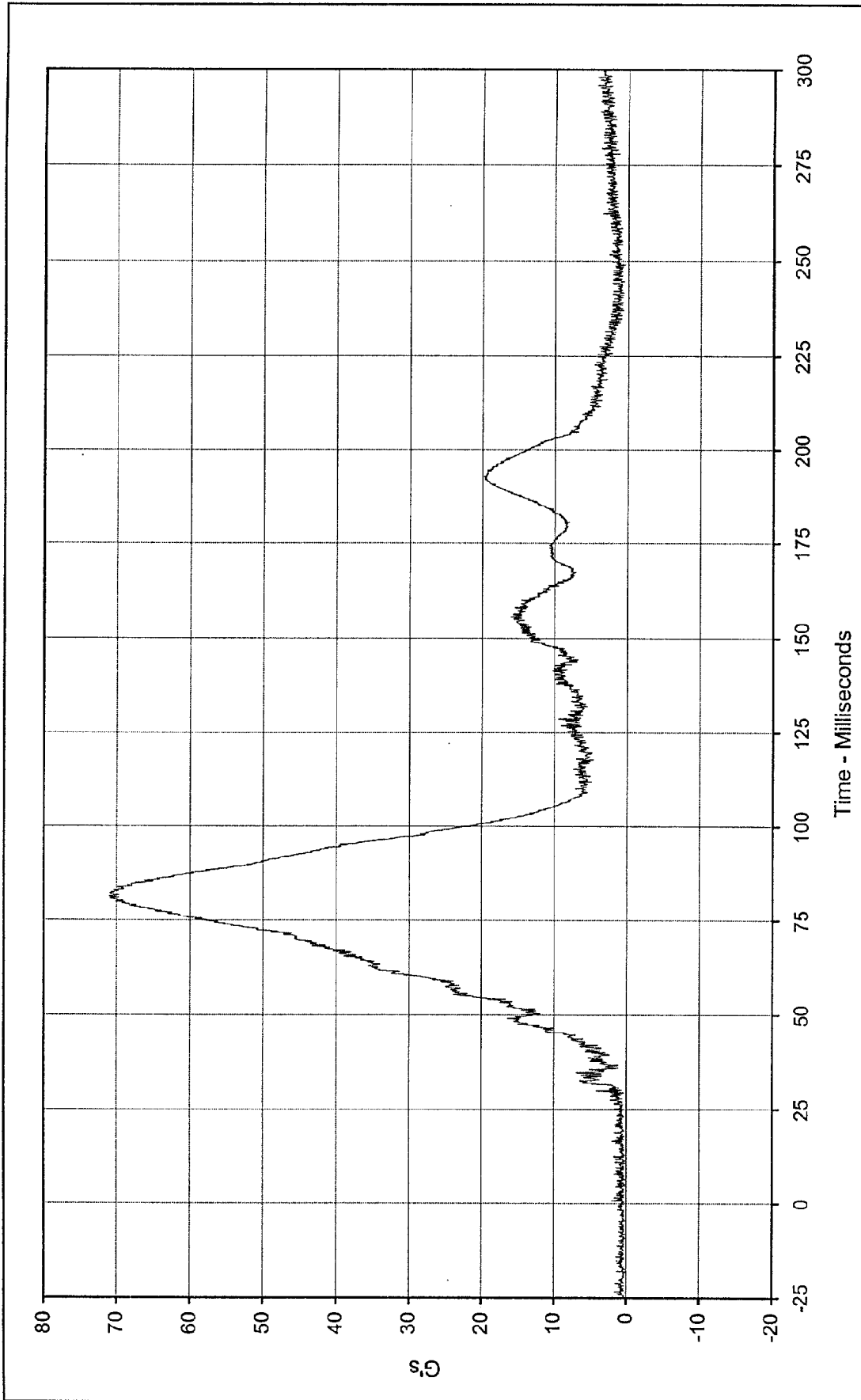
Curve Description:	Driver Head Primary Y	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	11.7	at	94.8	Milliseconds
Minimum Value:	-11.2	at	191.8	Milliseconds
SAE Filter Class:	1000			
Date of Test:	2/4/98	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Curve Number:	FIL-002			





Curve Description:	Driver Head Primary Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	22.3 at 62.9 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-14.3 at 98.7 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/4/98			
Curve Number:	FIL-003			

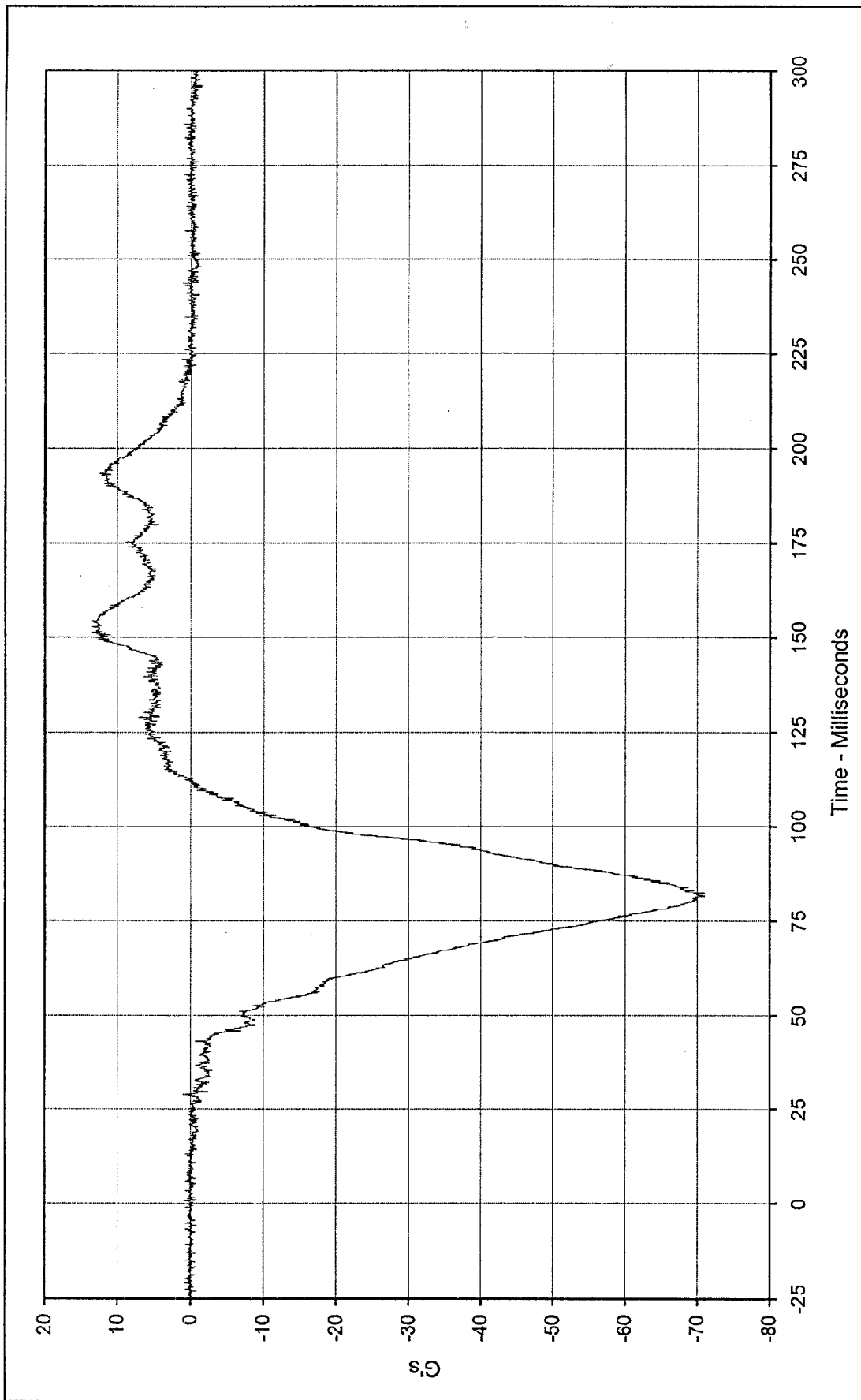




Curve Description:		Driver Head Resultant Primary		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	71.0	at	81.4	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	0.1	at	12.9			
SAE Filter Class:	1000					
Date of Test:	2/4/98					
Curve Number:	RES-001					



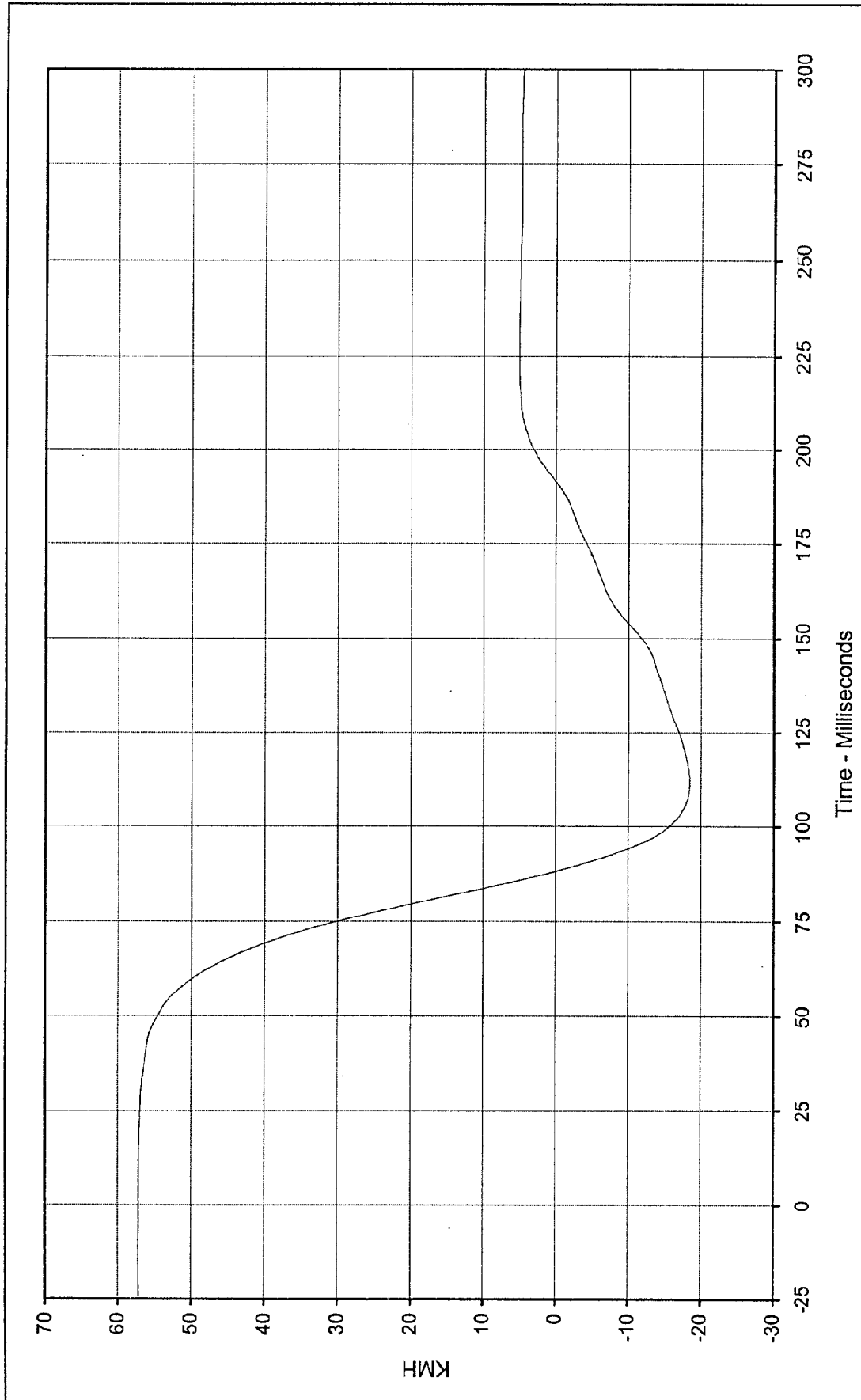




Curve Description:	Driver Head Redundant X		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	13.5	at 152.7	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-71.0	at 82.3			
SAE Filter Class:	1000				
Date of Test:	2/4/98				
Curve Number:	FIL-004				

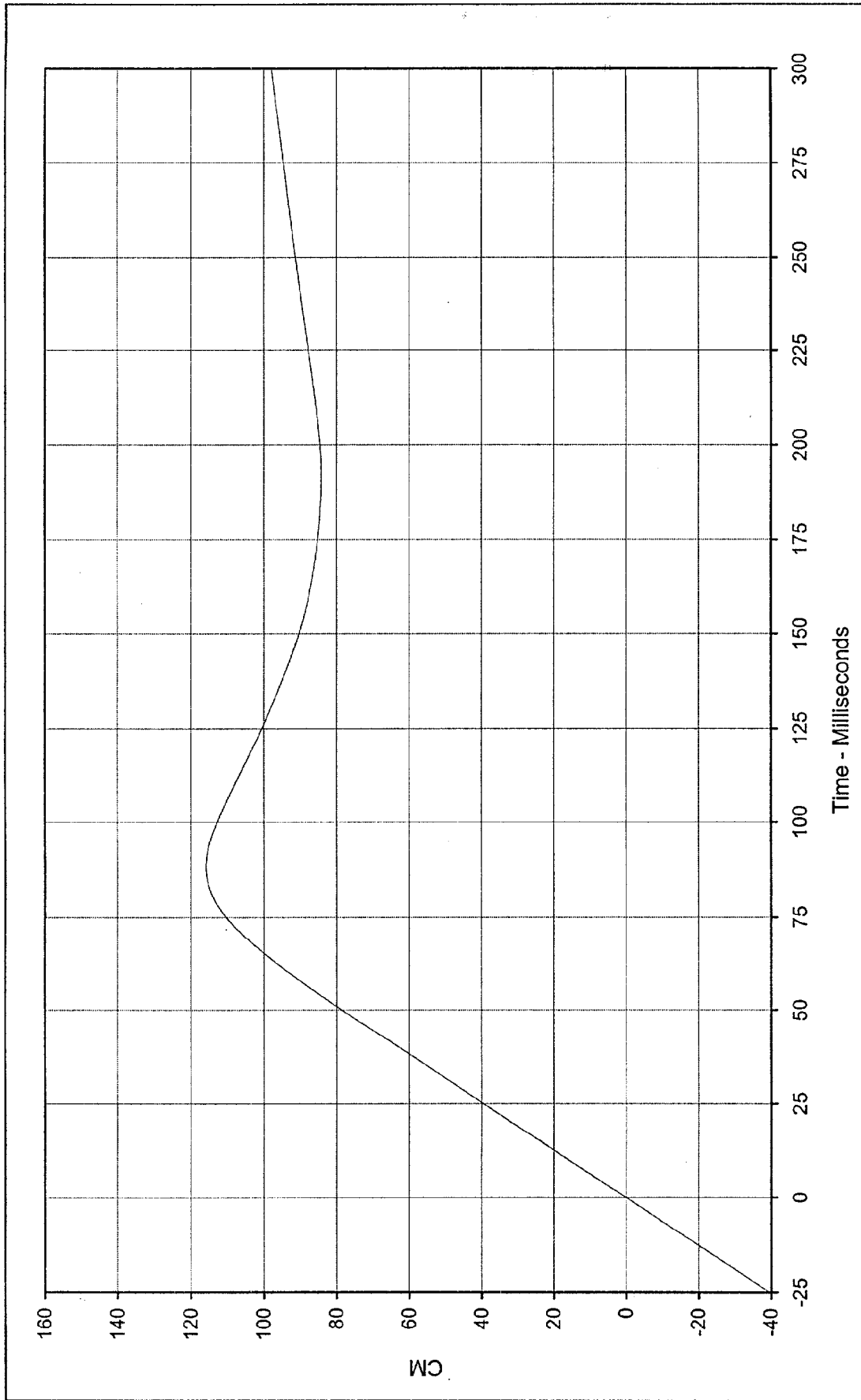






Curve Description: <u>Driver Head Redundant X Velocity</u>		Testing Program <u>1998 NHTSA 35 mph NCAP</u>	No.: <u>MW0306</u>
Maximum Value: <u>57.2</u>	at <u>0.8</u> Milliseconds	Test Vehicle: <u>1998 Dodge Ram 1500 SLT Pickup</u>	
Minimum Value: <u>-18.5</u>	at <u>112.1</u> Milliseconds		
SAE Filter Class: <u>180</u>			
Date of Test: <u>2/4/98</u>			
Curve Number: <u>IN1-004</u>			

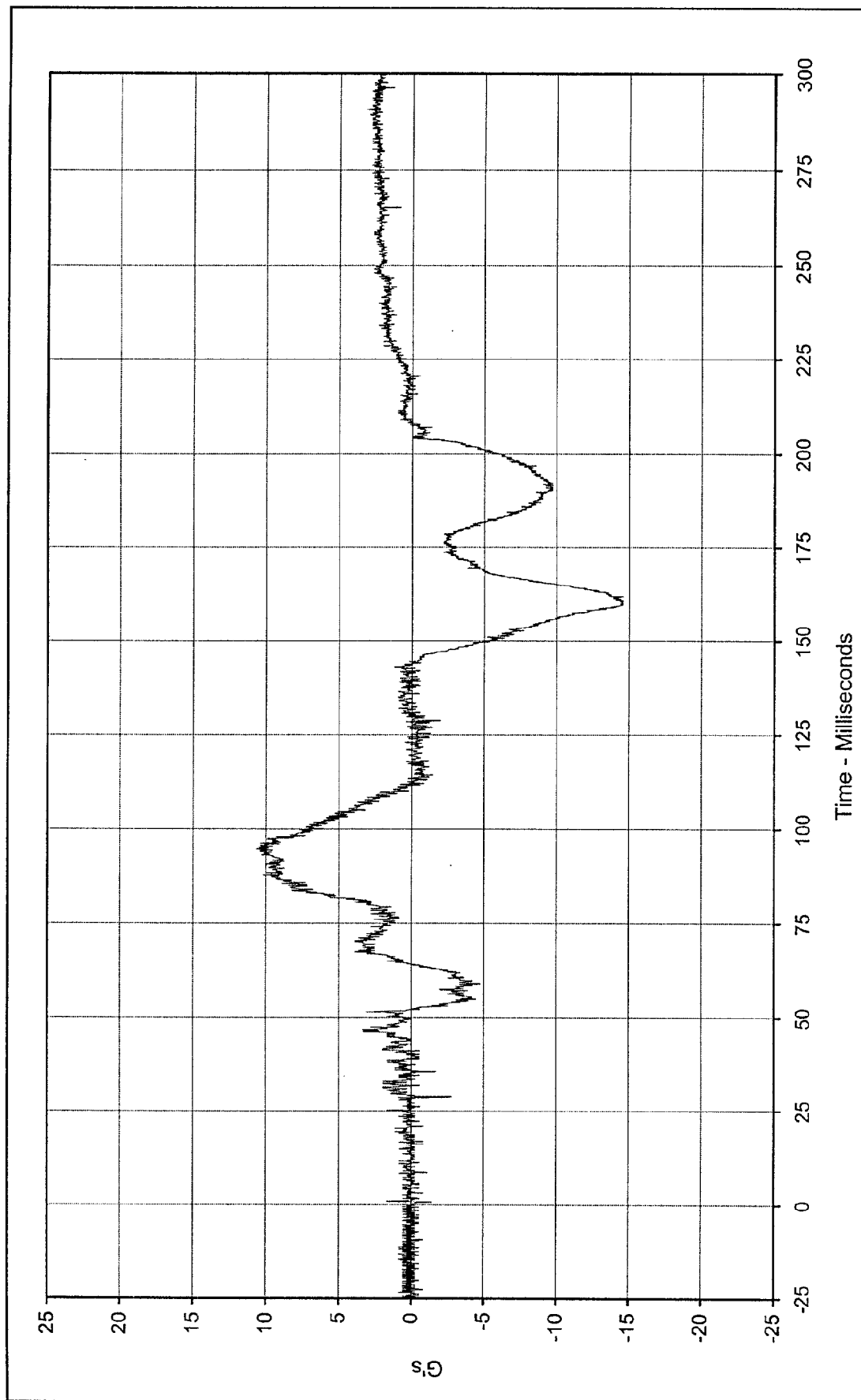




Curve Description: Driver Head Redundant X Displ.
 Maximum Value: 115.8 at 88.2 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-004

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

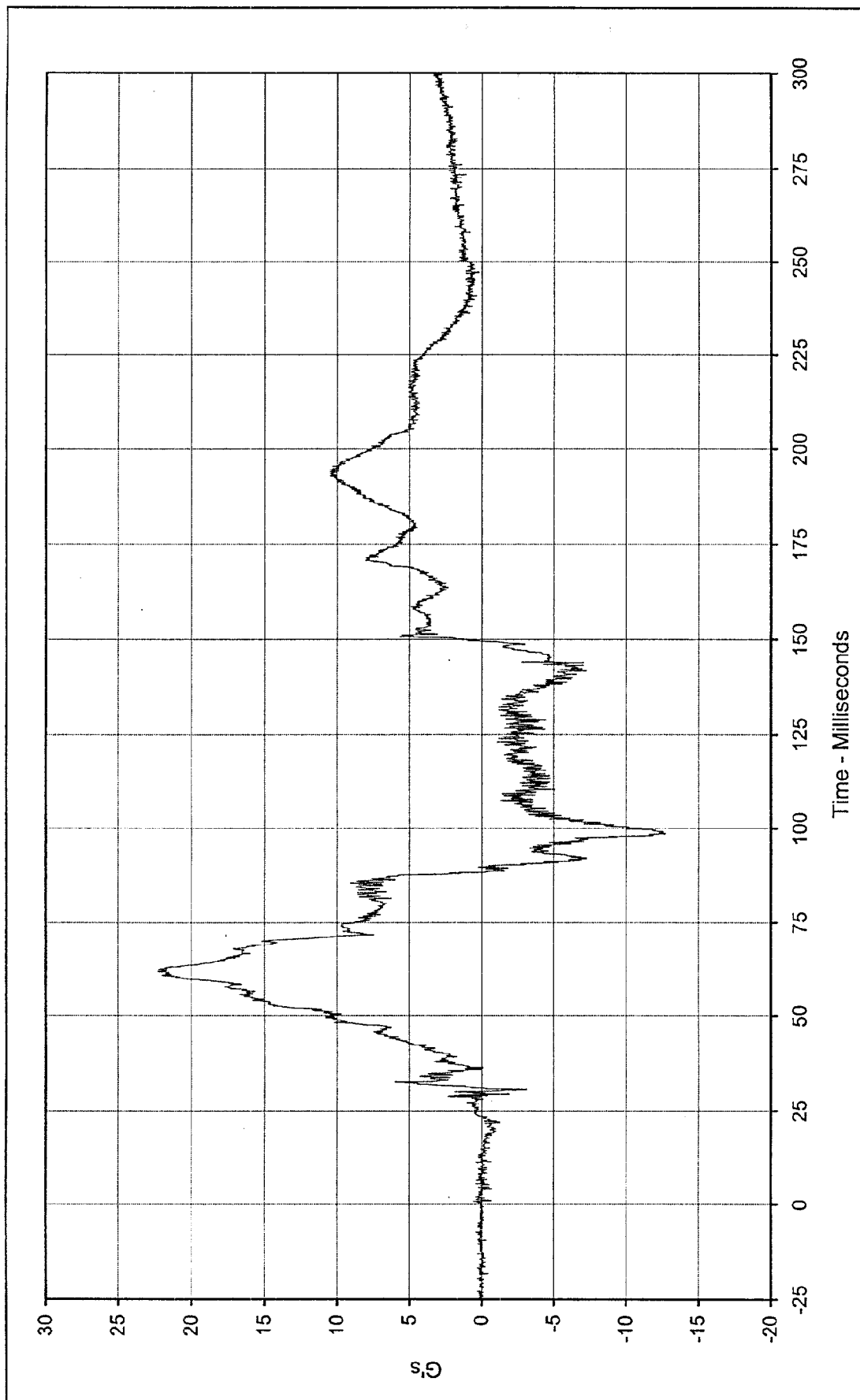




Curve Description:		Driver Head Redundant Y		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:		10.7	at 94.8	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:		-14.6	at 159.6			
SAE Filter Class:		1000				
Date of Test:		2/4/98				
Curve Number:		FIL-005				

**OKARCO**
Engineering

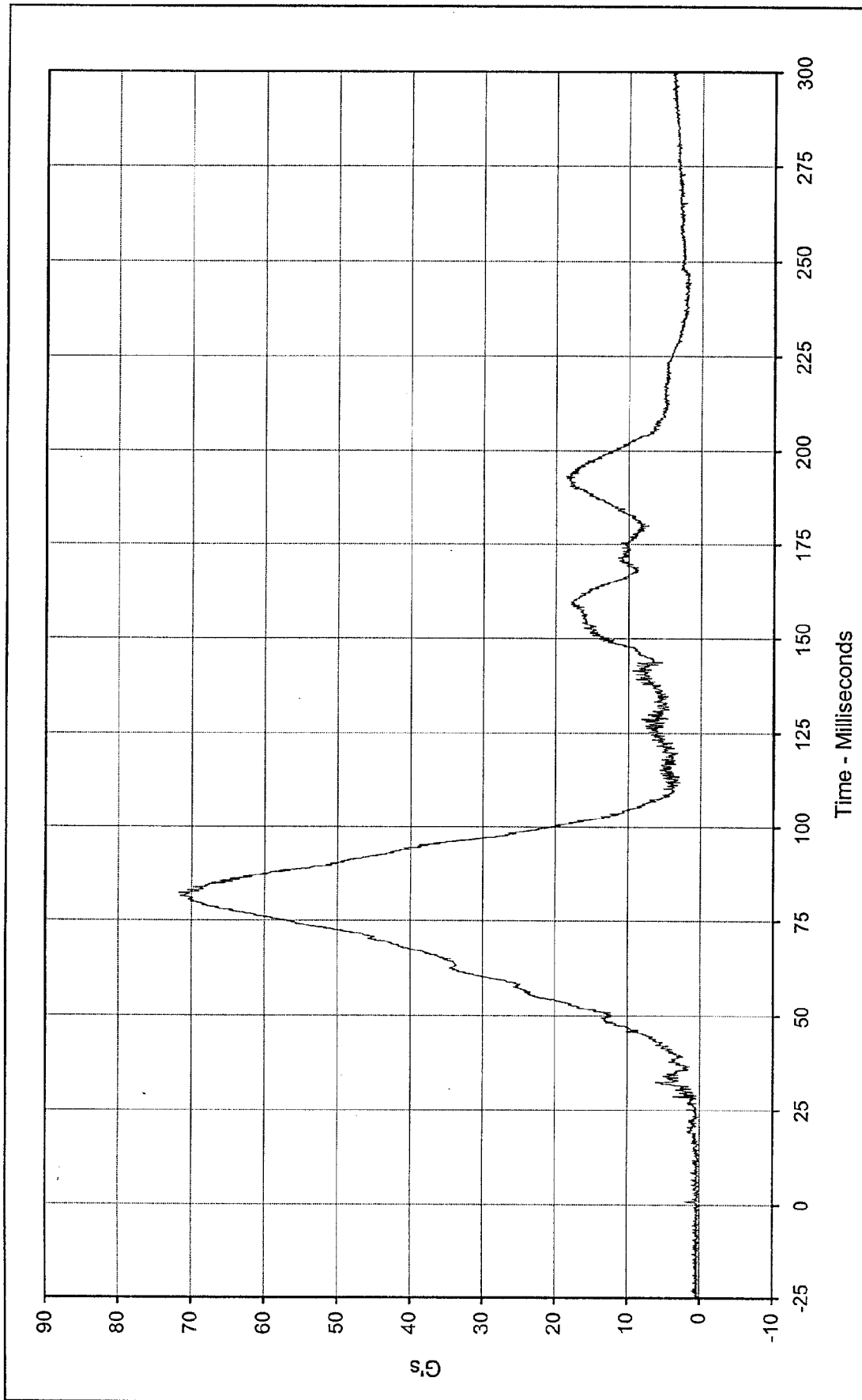




Curve Description: Driver Head Redundant Z
 Maximum Value: 22.3 at 61.7 Milliseconds
 Minimum Value: -12.7 at 98.7 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-006

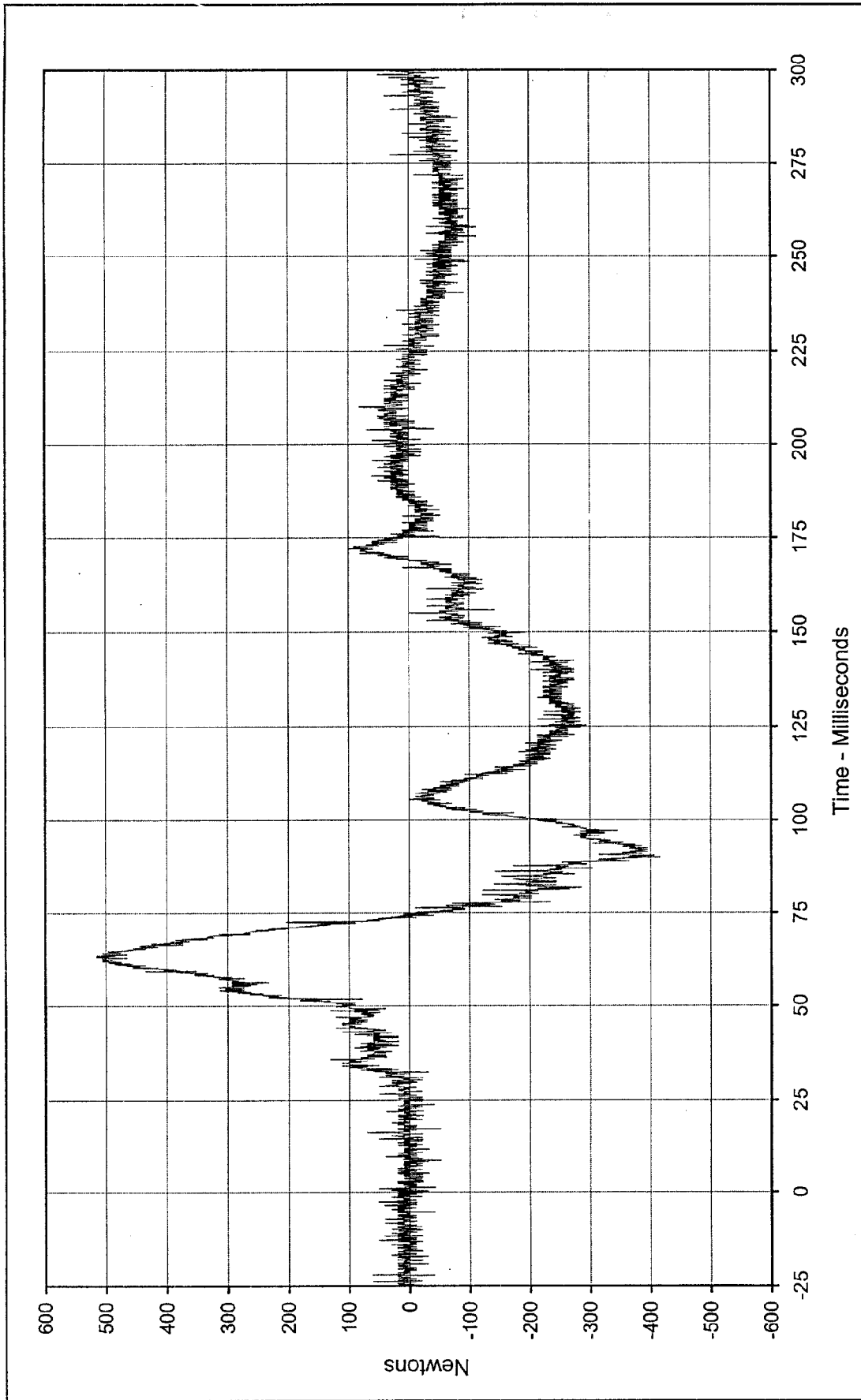
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





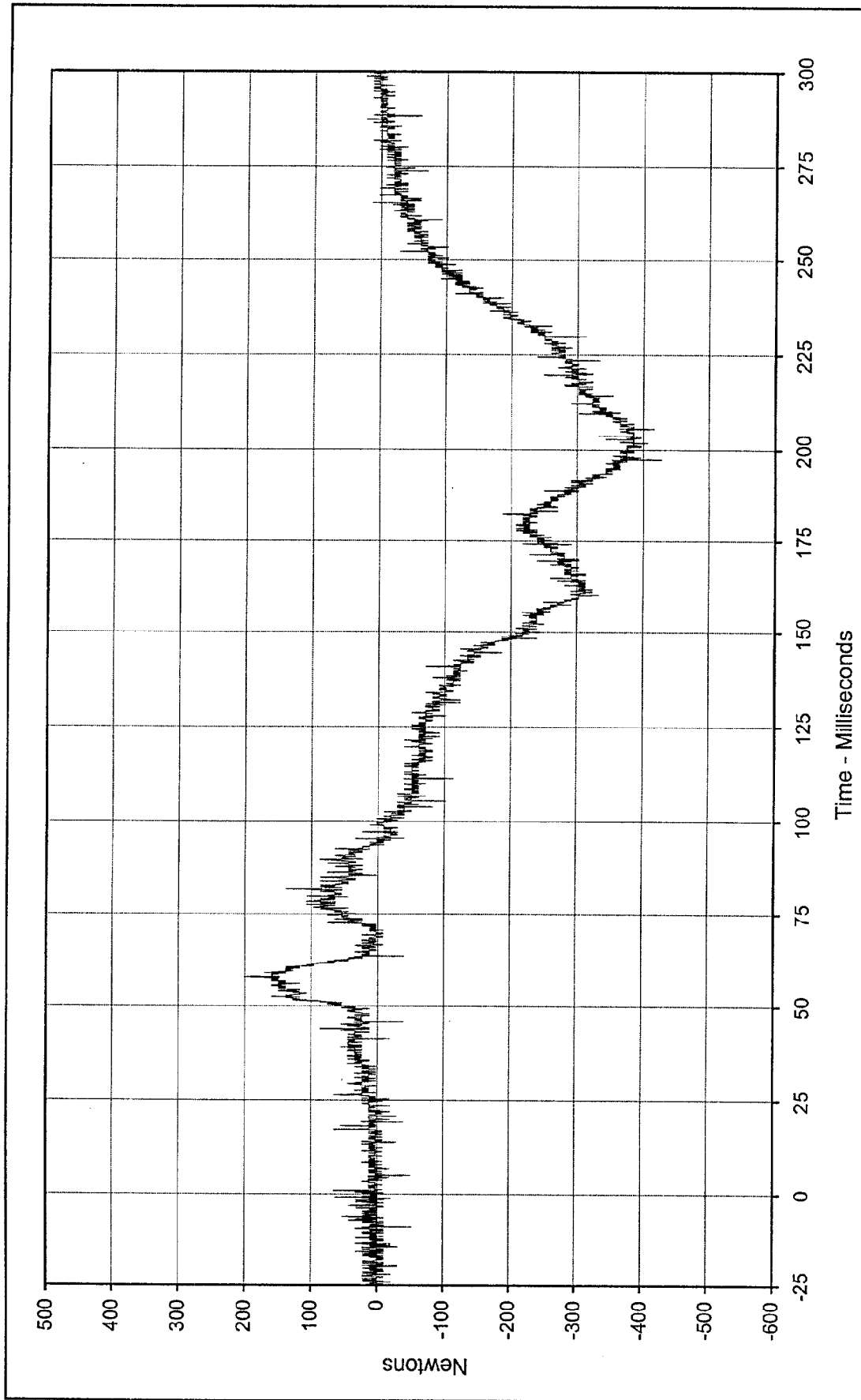
Curve Description:	Driver Head Resultant Redundant	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	71.7 at 82.3 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	0.1 at 0.0 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/4/98			
Curve Number:	RES-004			





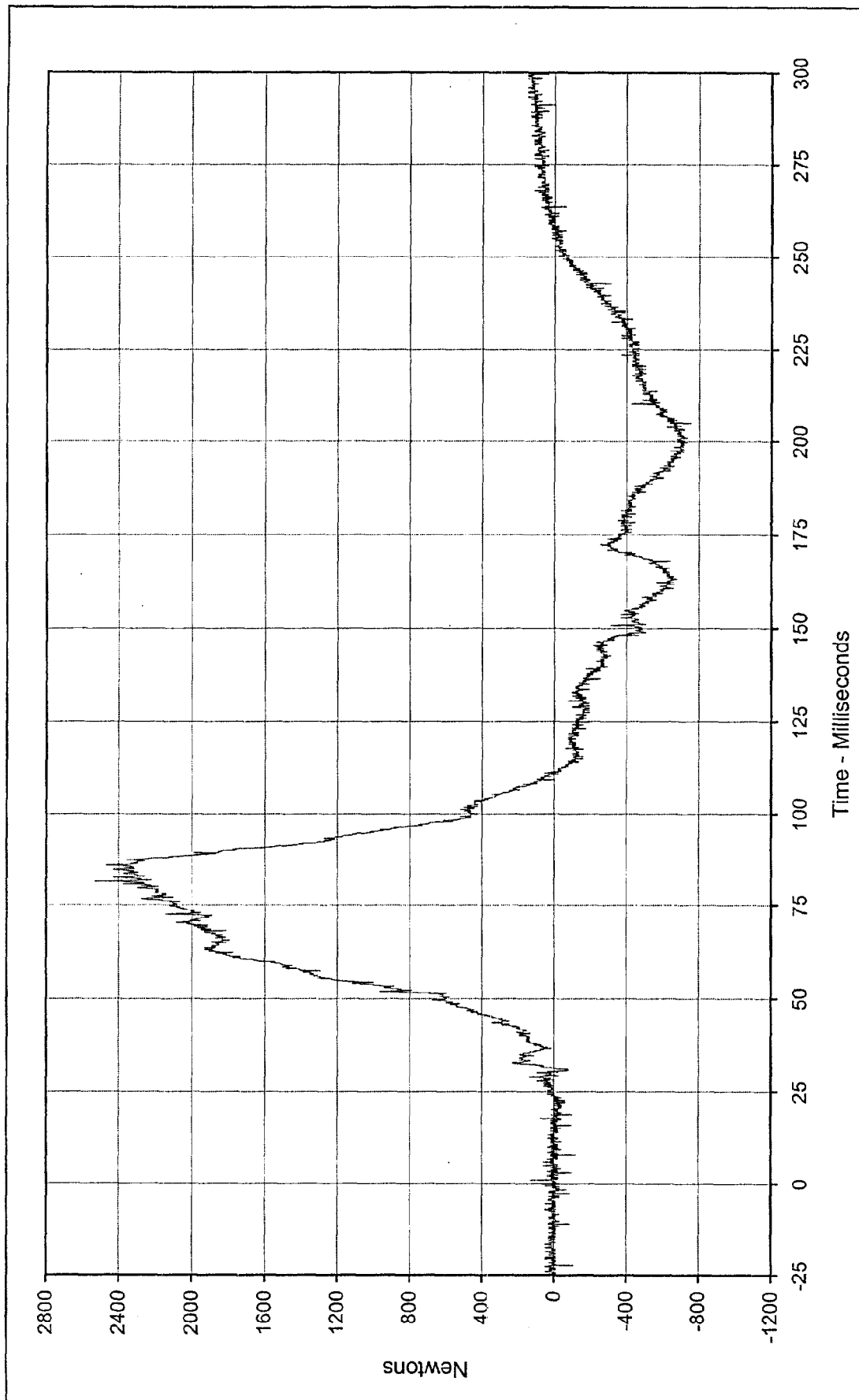
Curve Description:	Driver Neck Force X		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	515.8	at 63.0 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-415.8	at 89.8 Milliseconds			
SAE Filter Class:	1000				
Date of Test:	2/4/98				
Curve Number:	FIL-007				





Curve Description:	Driver Neck Force Y	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	201.3 at 57.9 milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-427.7 at 197.5 milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/4/98			
Curve Number:	FIL-008			

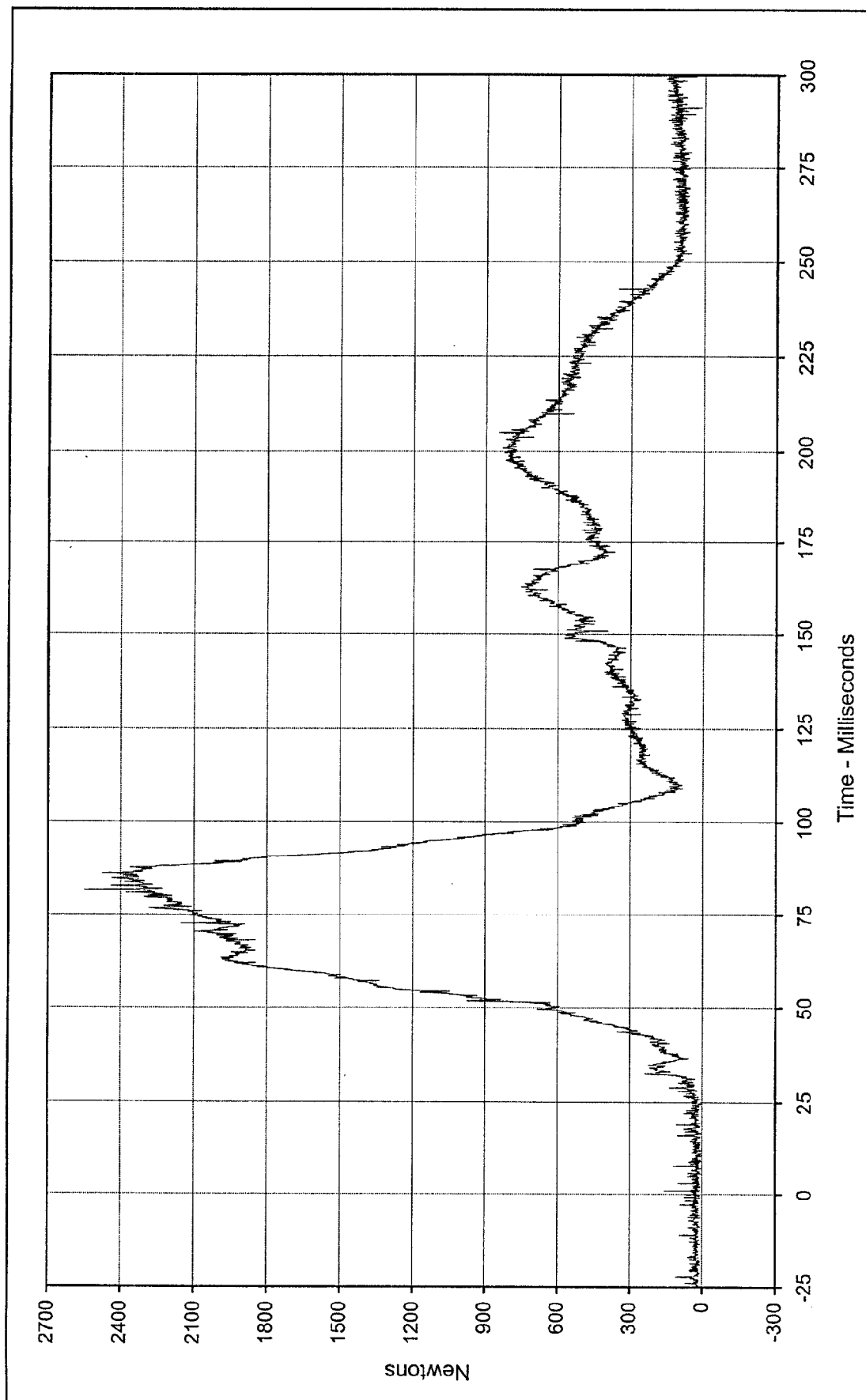




Curve Description: 1998 NHTSA 35 mph NCAP No.: MW0306
 Testing Program: 1998 Dodge Ram 1500 SLT Pickup
 Test Vehicle:

Maximum Value: 2528.1 at 81.6 Milliseconds
 Minimum Value: -755.9 at 204.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-009

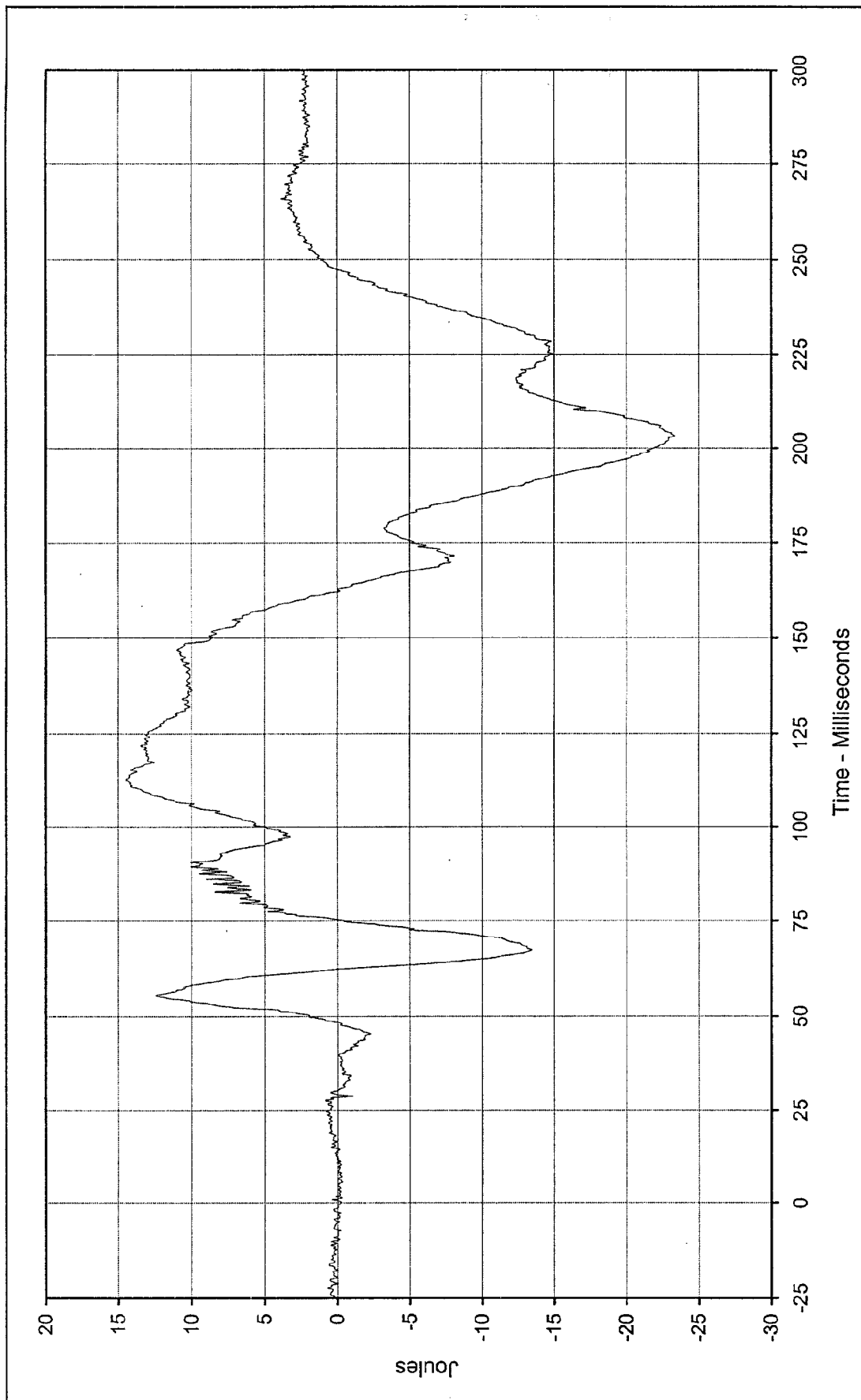




Curve Description: 1998 NHTSA 35 mph NCAP No.: MW0306
 Testing Program
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

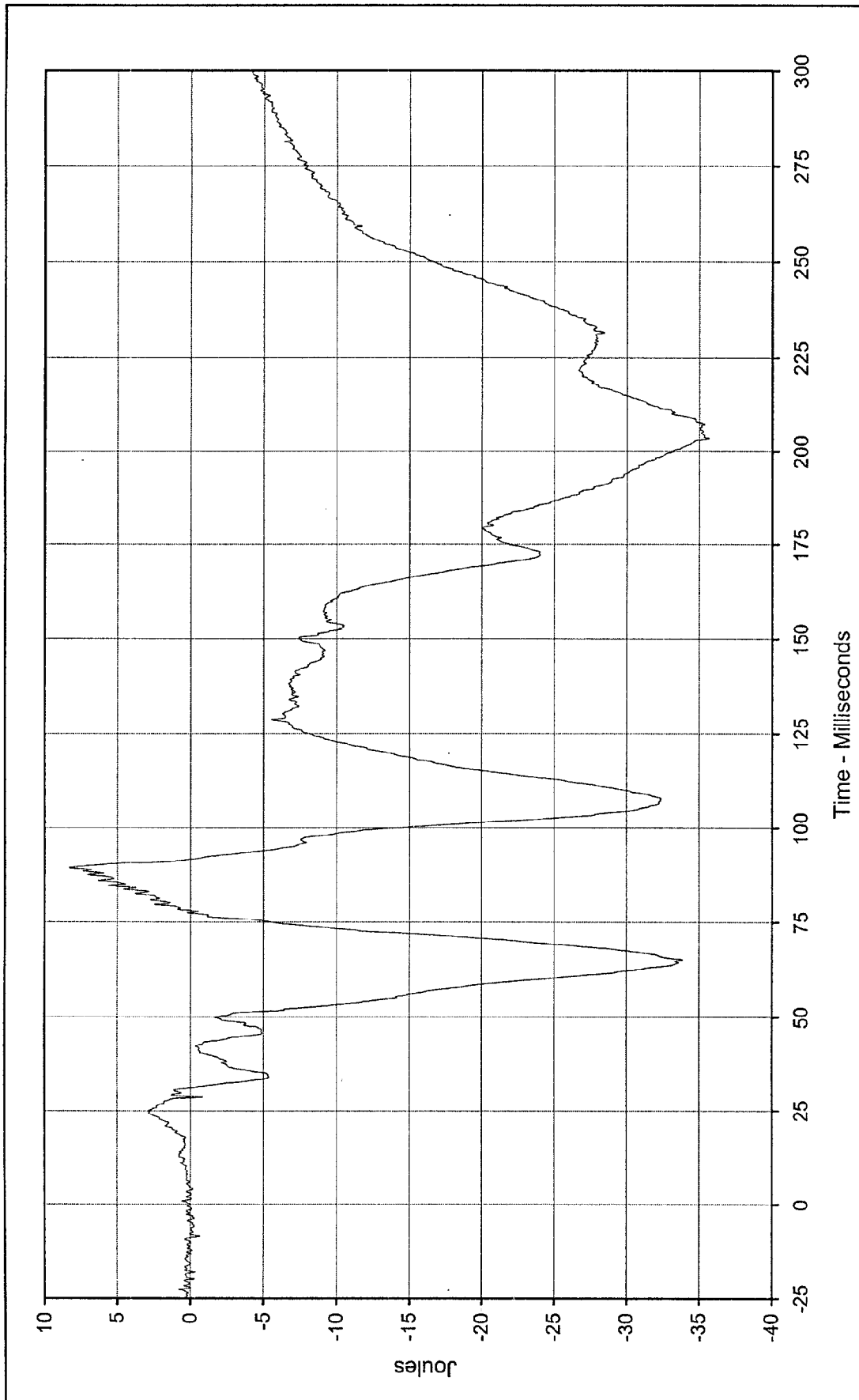
Driver Neck Force Resultant
 Maximum Value: 2547.8 at 81.6 Milliseconds
 Minimum Value: 3.3 at 5.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: RES-007





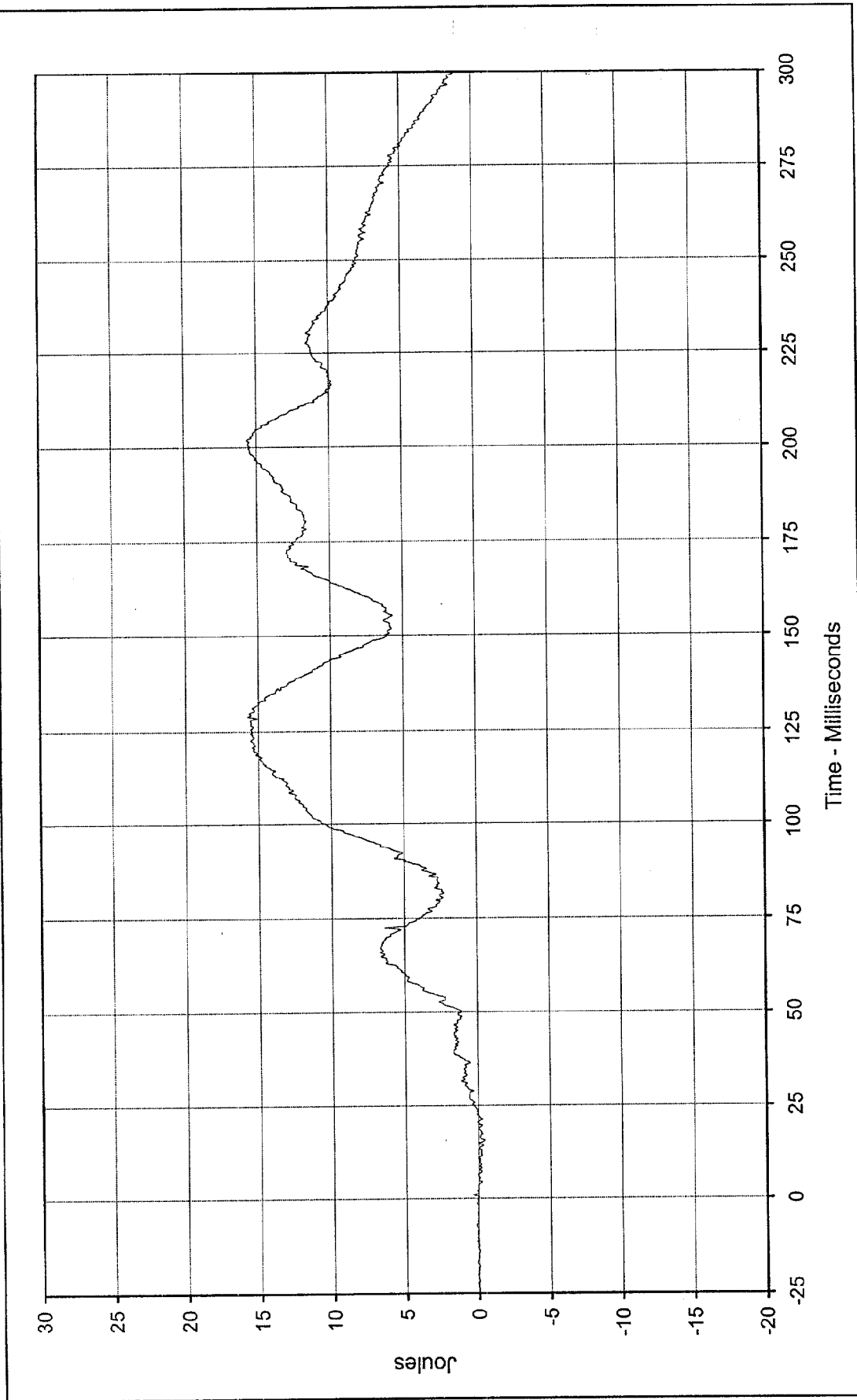
Curve Description:	Driver Neck Moment X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	14.5 at 112.7 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-23.3 at 203.3 Milliseconds			
SAE Filter Class:	600			
Date of Test:	2/4/98			
Curve Number:	FIL-010			





Curve Description:	Driver Neck Moment Y	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	8.3 at 89.3 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-35.7 at 203.4 Milliseconds			
SAE Filter Class:	600			
Date of Test:	2/4/98			
Curve Number:	FIL-011			

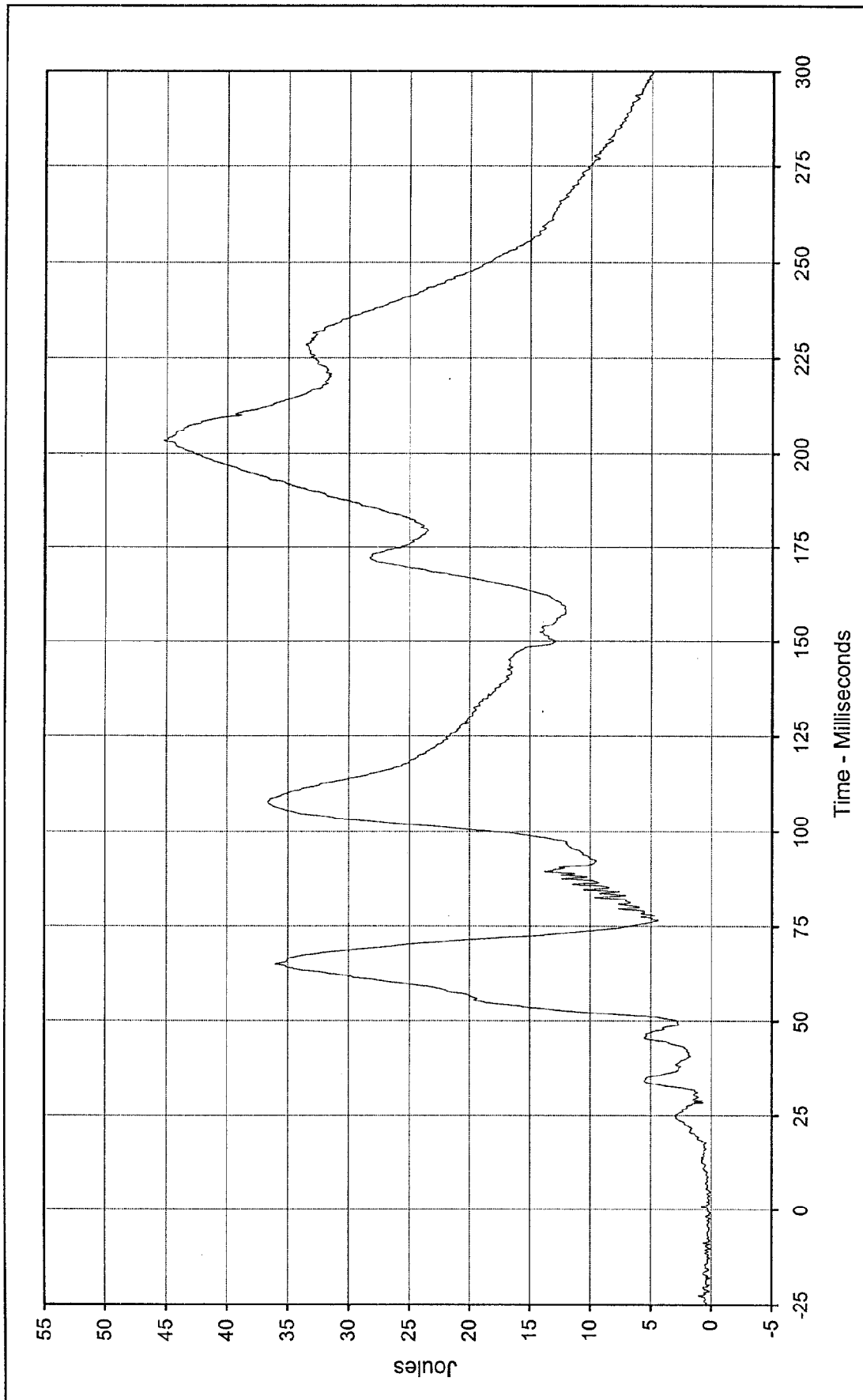




Curve Description: Driver Neck Moment Z
 Maximum Value: 15.7 at 128.9 Milliseconds
 Minimum Value: -0.4 at 15.5 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-012

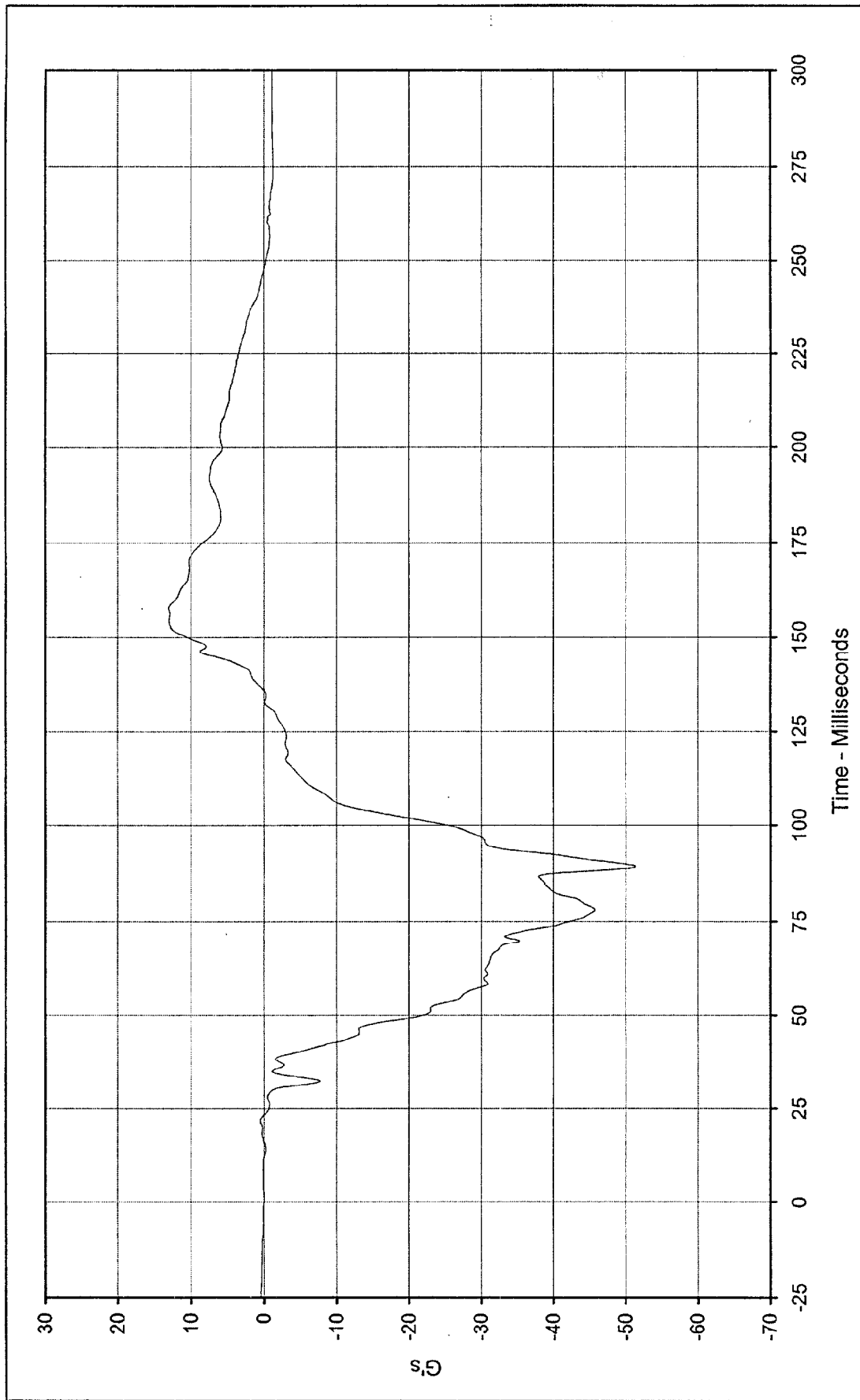
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Driver Neck Moment Resultant	Testing Program	1998 NHTSA 35 mph NCAP	No.:	MW0306
Maximum Value:	45.2	at	203.4	Milliseconds	
Minimum Value:	0.0	at	4.8	Milliseconds	
SAE Filter Class:	600				
Date of Test:	2/4/98	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup		
Curve Number:	RES-010				

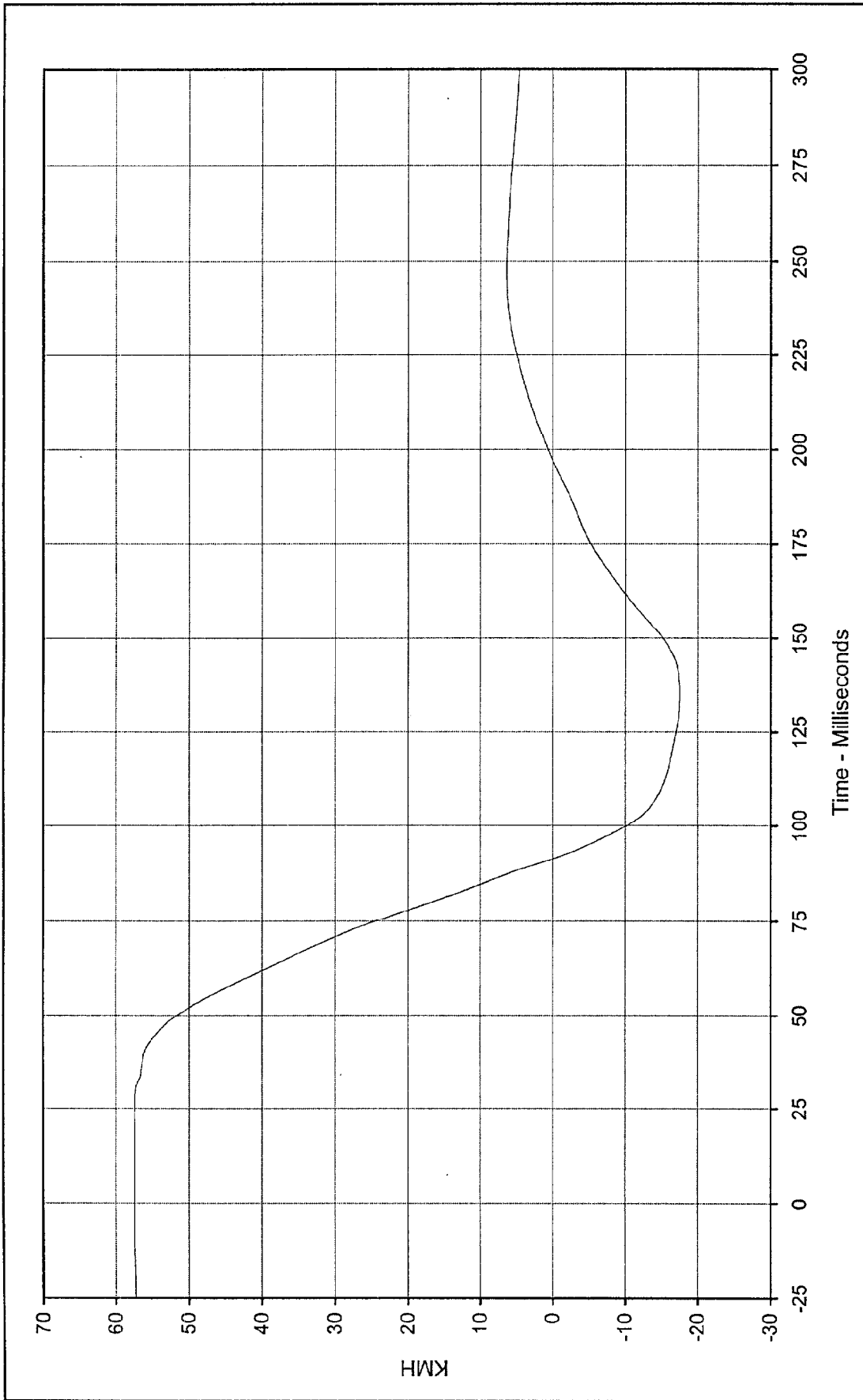




Curve Description: Driver Chest Primary X
 Maximum Value: 13.1 at 157.7 Milliseconds
 Minimum Value: -51.4 at 89.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: FIL-013

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

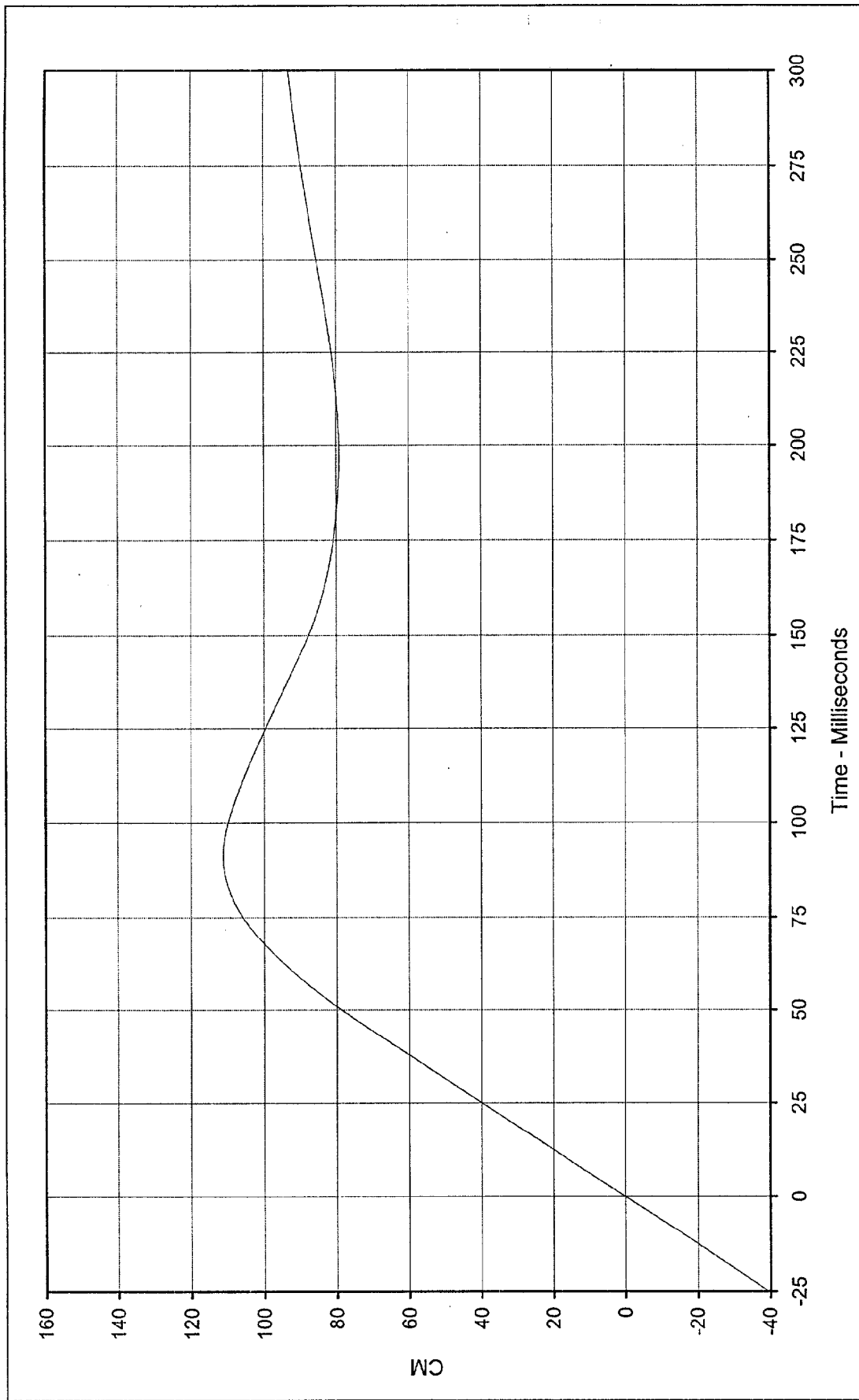




Curve Description: Driver Chest Primary X Velocity Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
Maximum Value: 57.5 at 23.3 Milliseconds Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup
Minimum Value: -17.5 at 135.8 Milliseconds



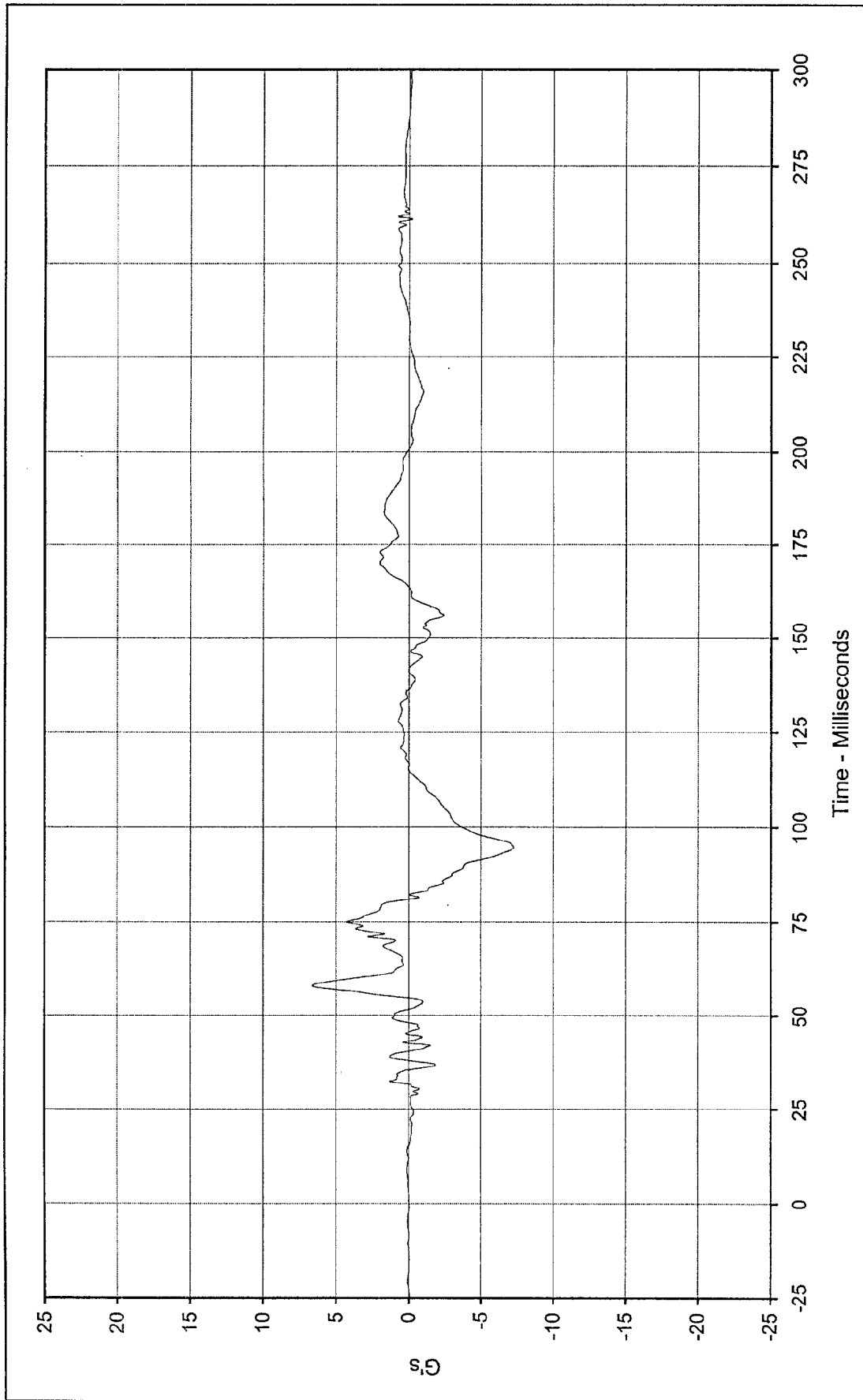
SAE Filter Class: 180
Date of Test: 2/4/98
Curve Number: IN1-013



Curve Description: Driver Chest Primary X Displ. Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 111.2 at 91.1 Milliseconds Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup
 Minimum Value: 0.2 at 0.0 Milliseconds



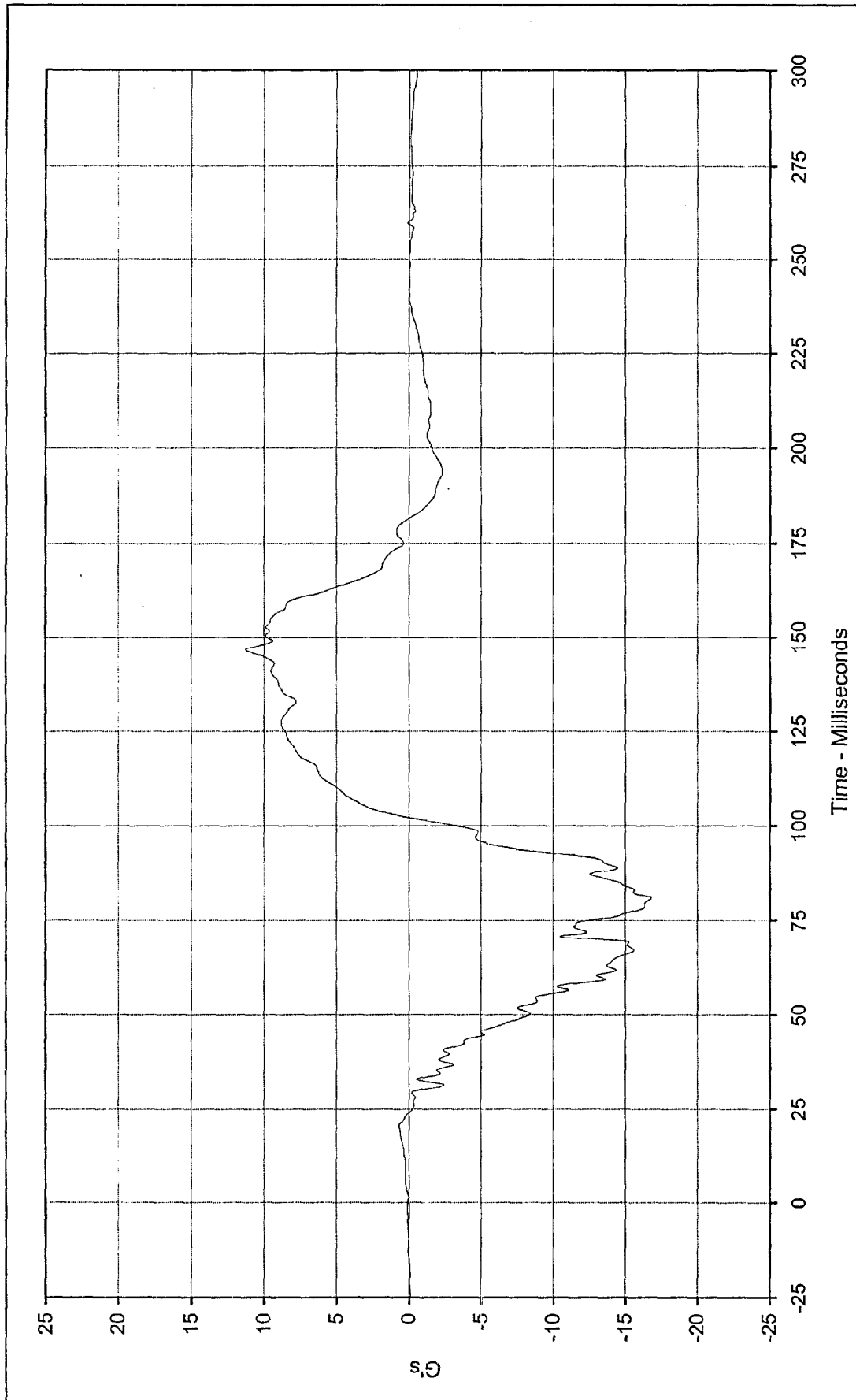
SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-013



Curve Description: Driver Chest Primary Y
 Maximum Value: 6.6 at 58.2 Milliseconds
 Minimum Value: -7.3 at 94.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: FIL-014

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

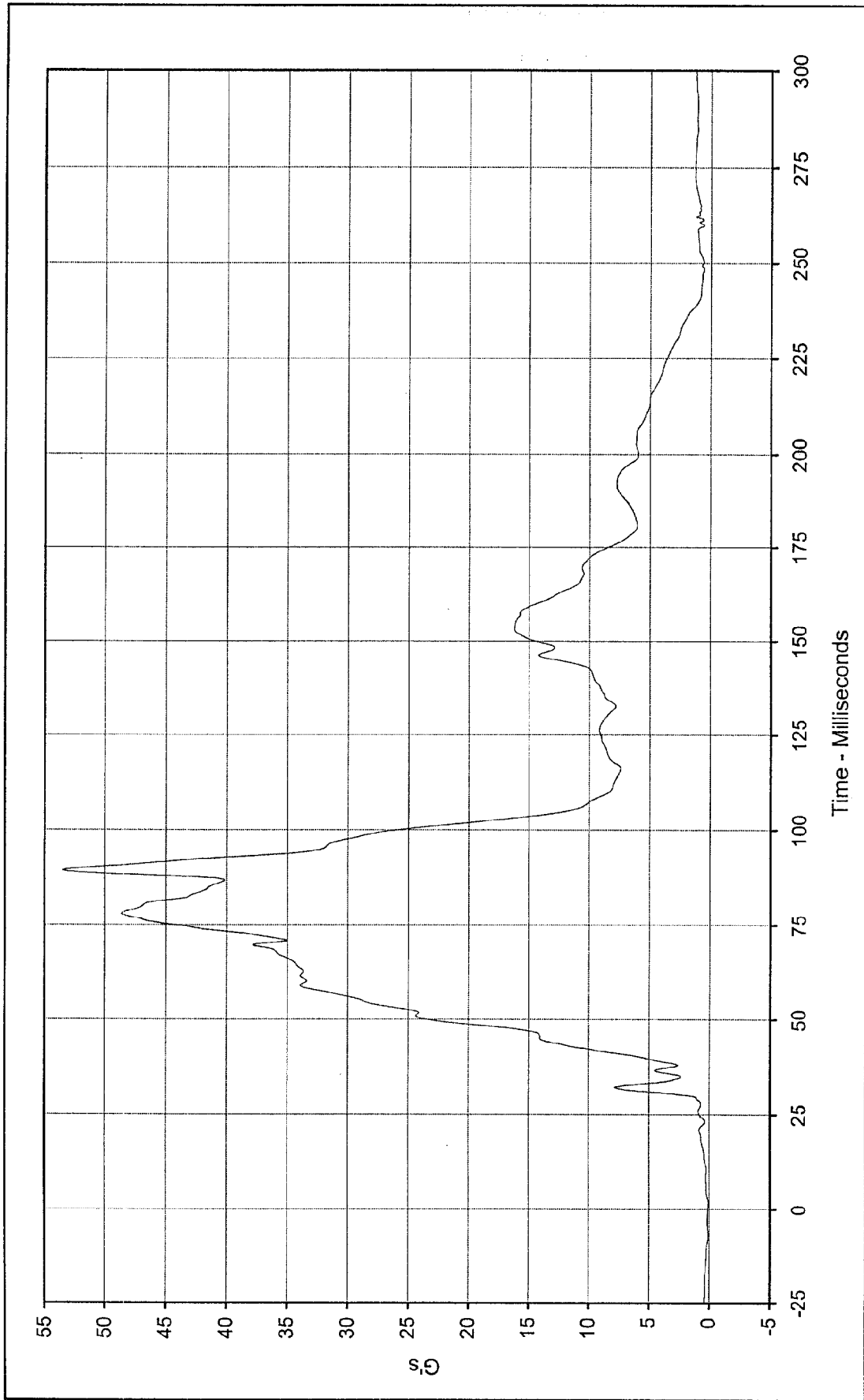




Curve Description: Driver Chest Primary Z
 Maximum Value: 11.3 at 146.5 Milliseconds
 Minimum Value: -16.8 at 81.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: FIL-015

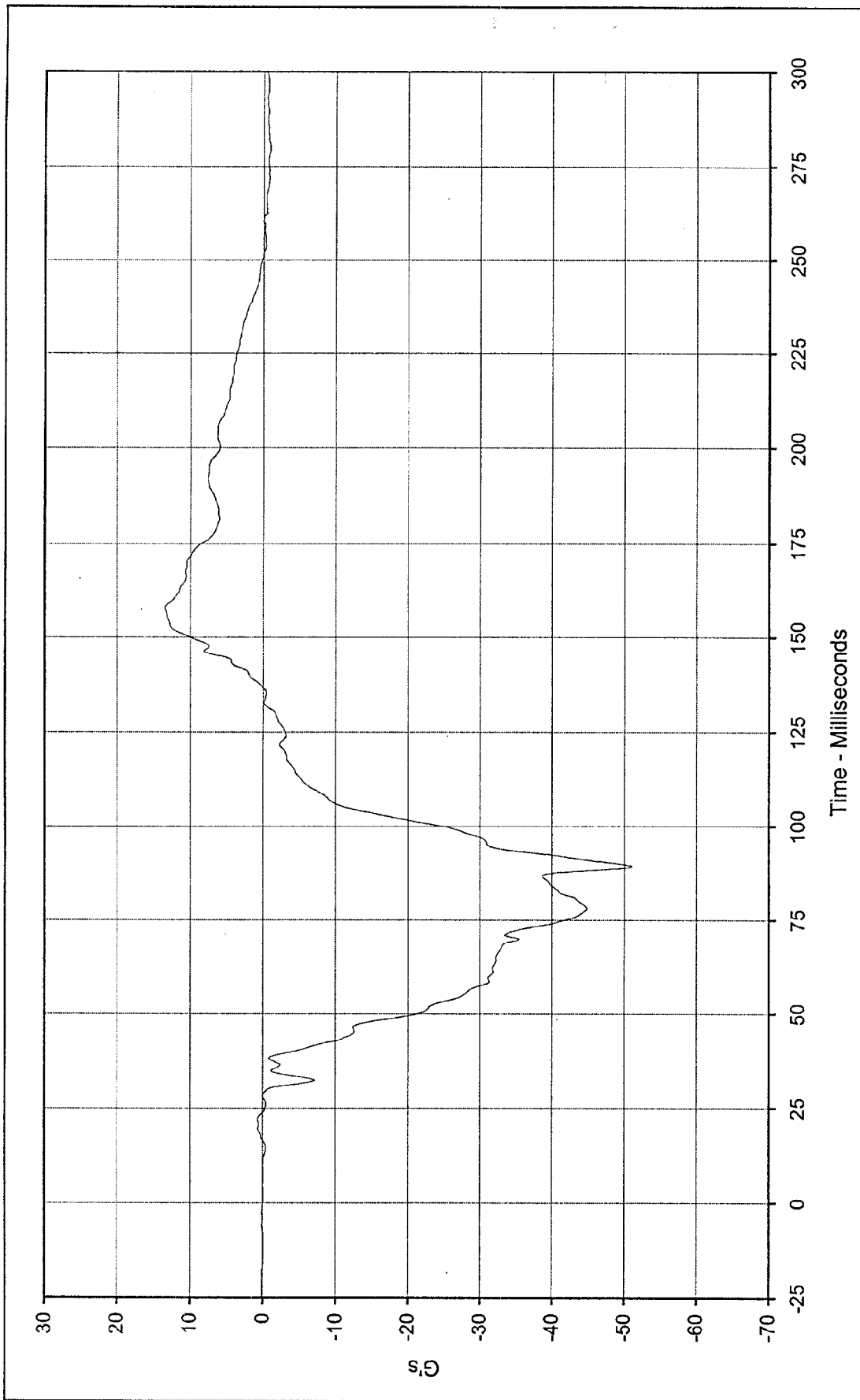
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Driver Chest Resultant Primary Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
Maximum Value: 53.5 at 89.3 Milliseconds Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup
Minimum Value: 0.1 at 2.0 Milliseconds
SAE Filter Class: 180
Date of Test: 2/4/98
Curve Number: RES-013

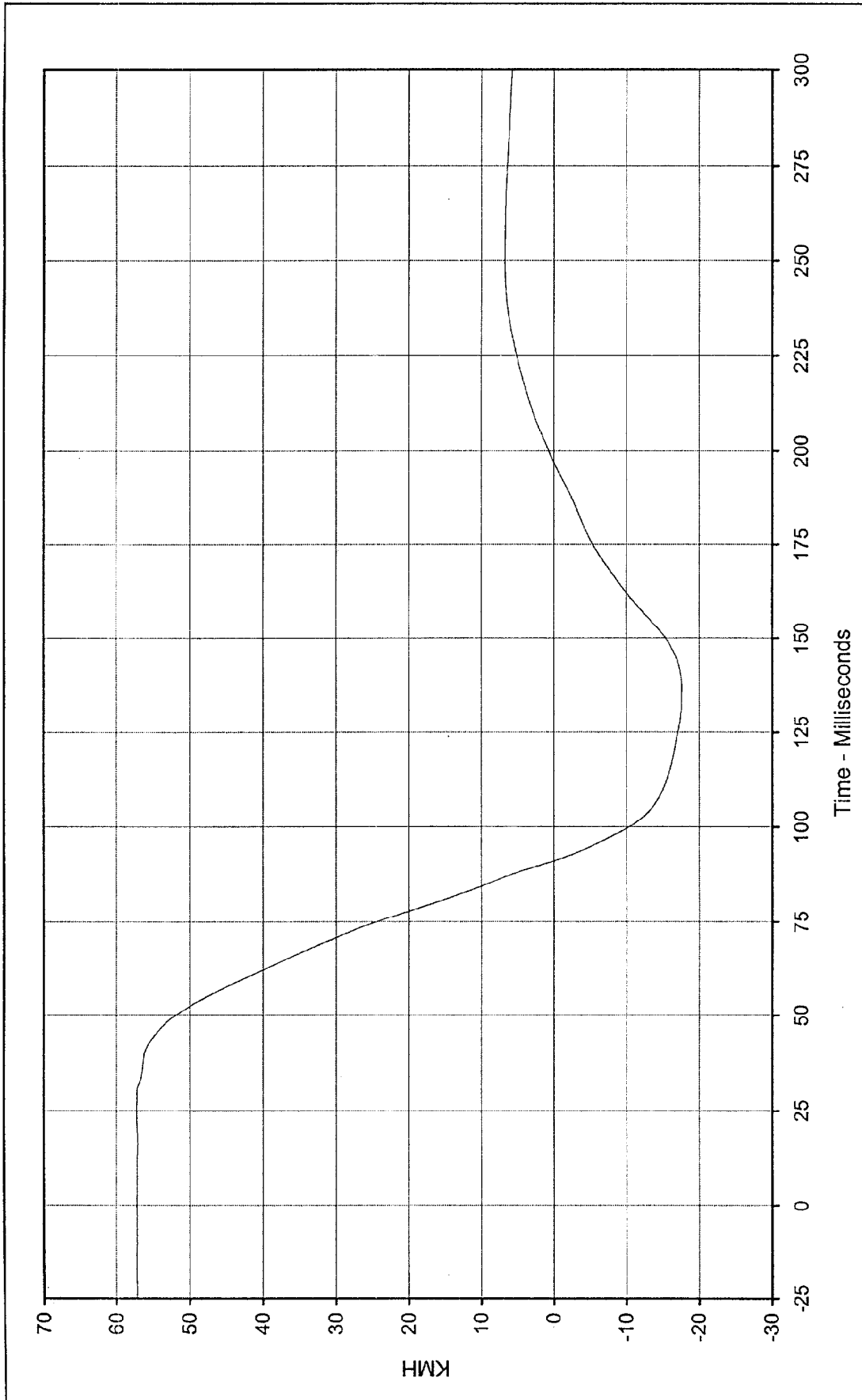




Curve Description: Driver Chest Redundant X
 Maximum Value: 13.5 at 157.7 Milliseconds
 Minimum Value: -51.0 at 89.4 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: FIL-016

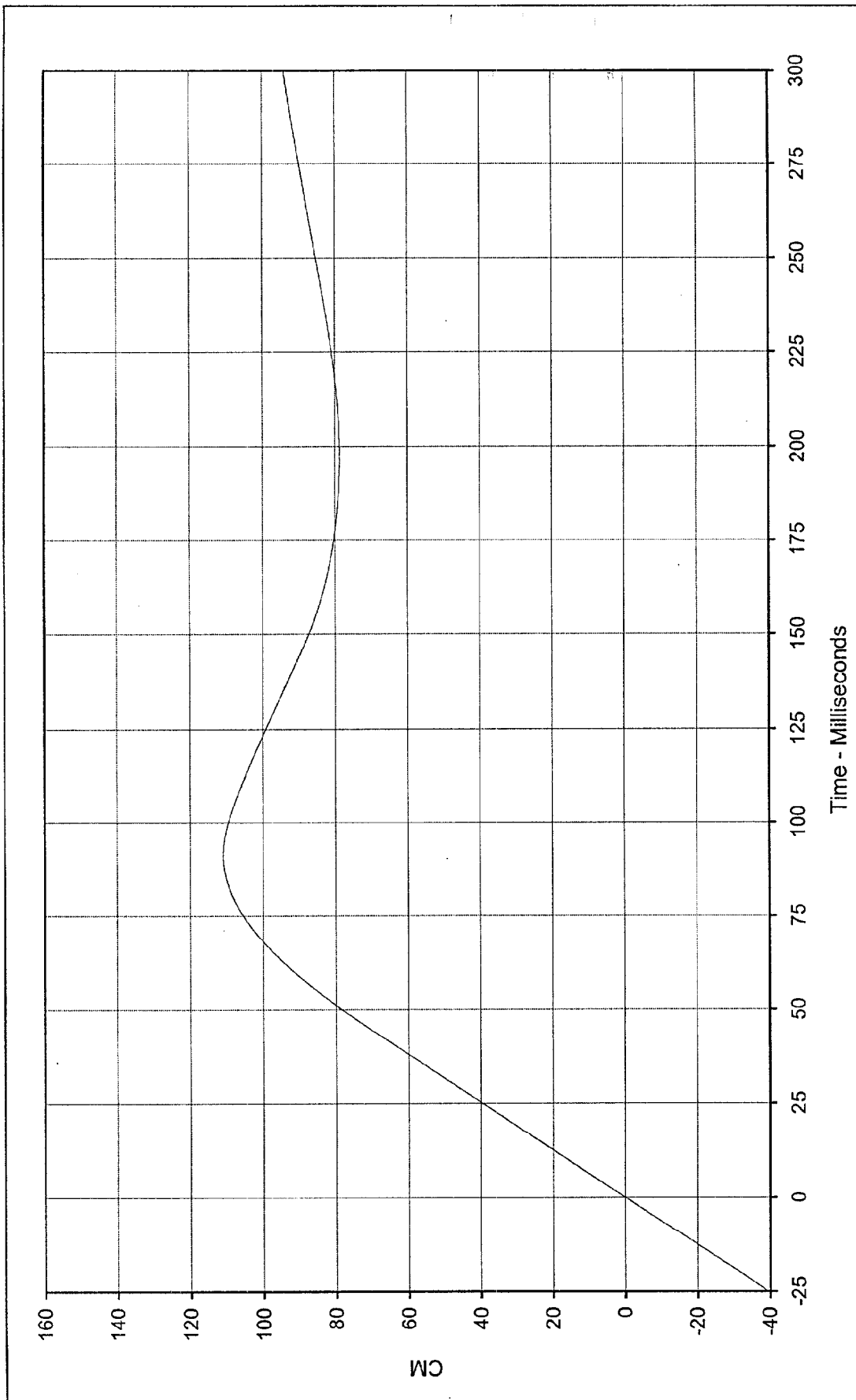
Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Driver Chest Redundant X Velocity	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	57.3	at	23.9	Milliseconds
Minimum Value:	-17.6	at	136.6	Milliseconds
SAE Filter Class:	180			
Date of Test:	2/4/98			
Curve Number:	IN1-016			
Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup			





Curve Description: Driver Chest Redundant X Displ.

Maximum Value: 110.9 at 91.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

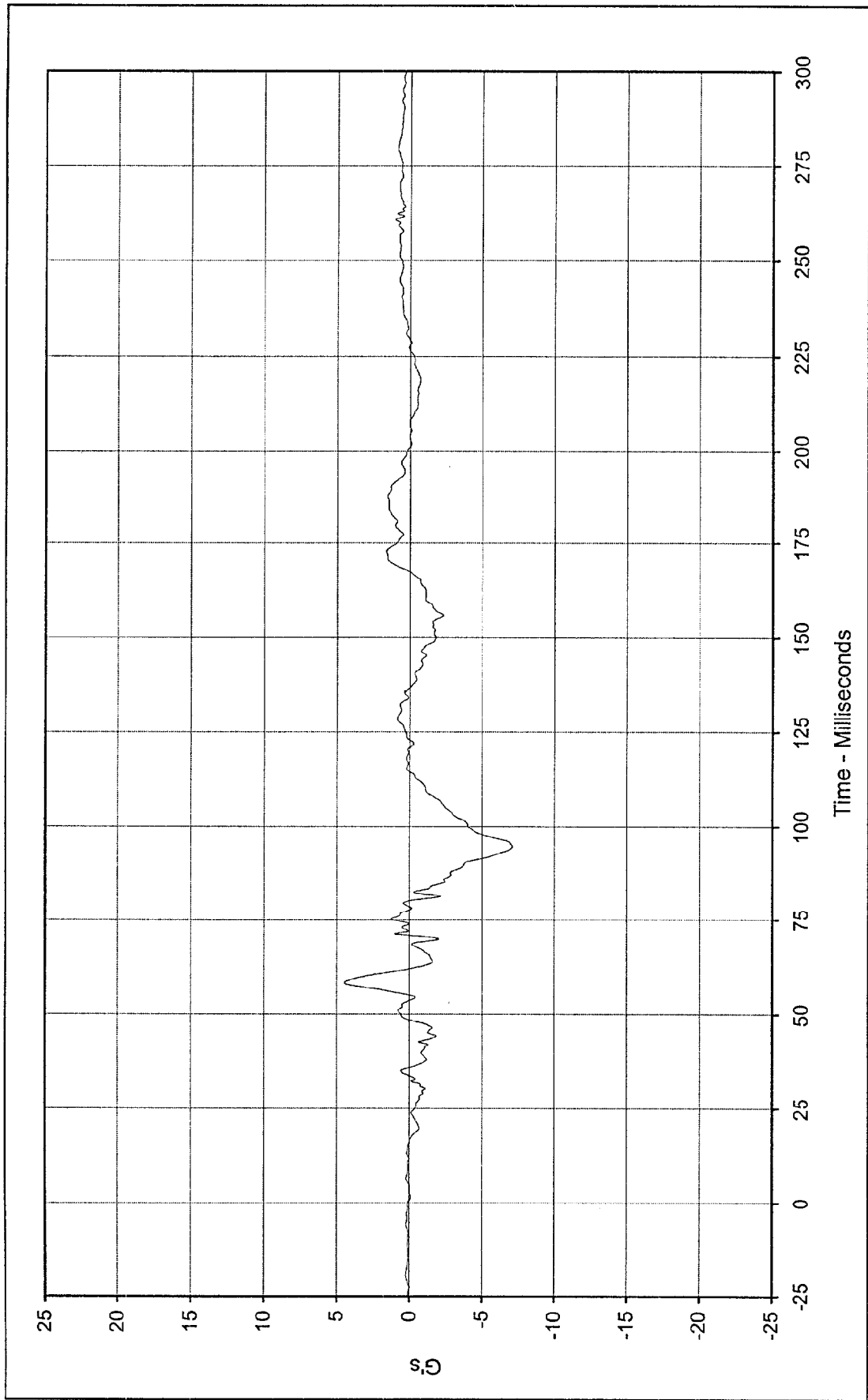
Date of Test: 2/4/98

Curve Number: IN2-016

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

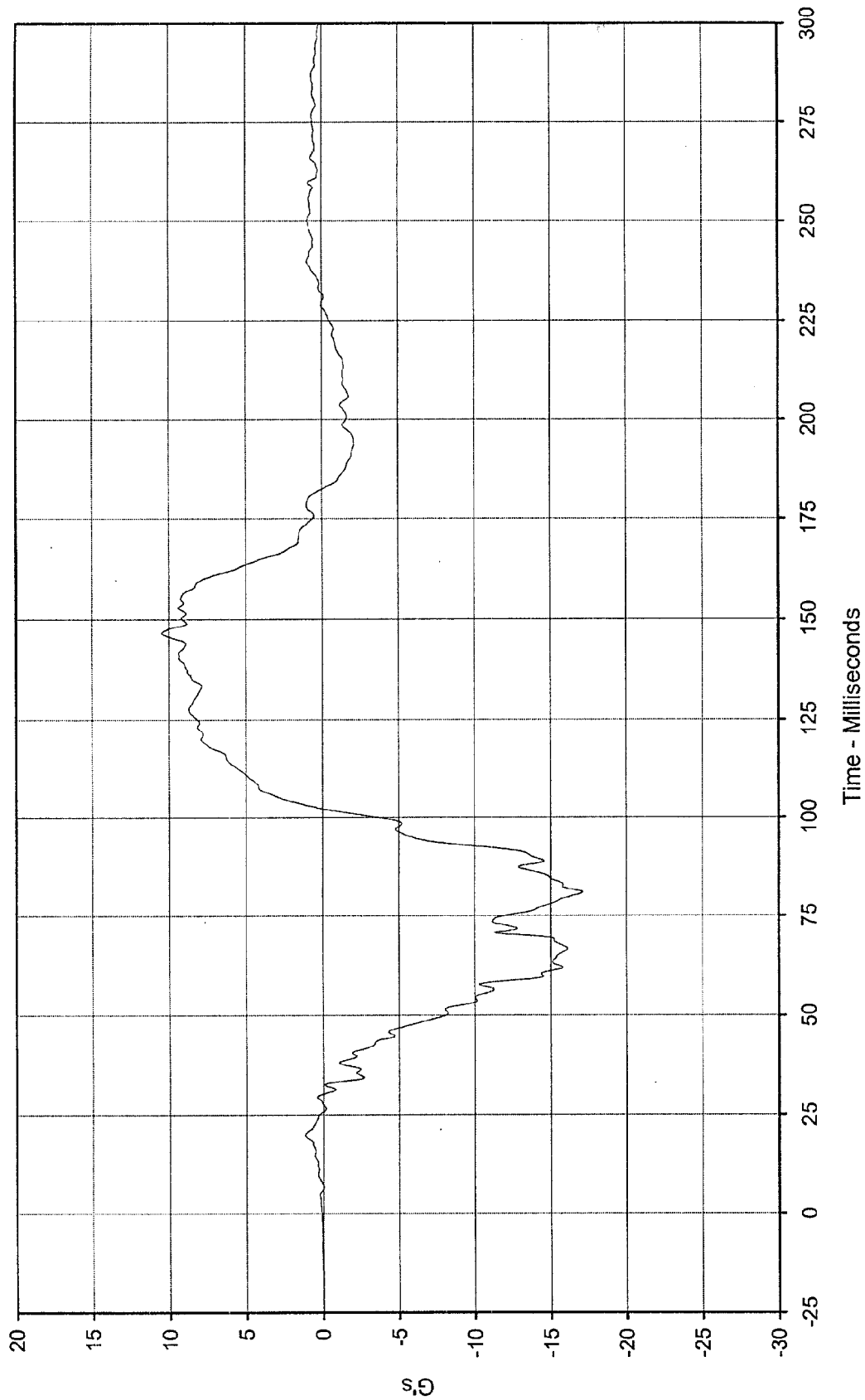




Curve Description: Driver Chest Redundant Y
 Maximum Value: 4.5 at 58.4 Milliseconds
 Minimum Value: -7.1 at 94.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: FIL-017

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Driver Chest Redundant Z

Maximum Value: 10.4 at 146.5 Milliseconds

Minimum Value: -17.1 at 81.0 Milliseconds

SAE Filter Class: 180

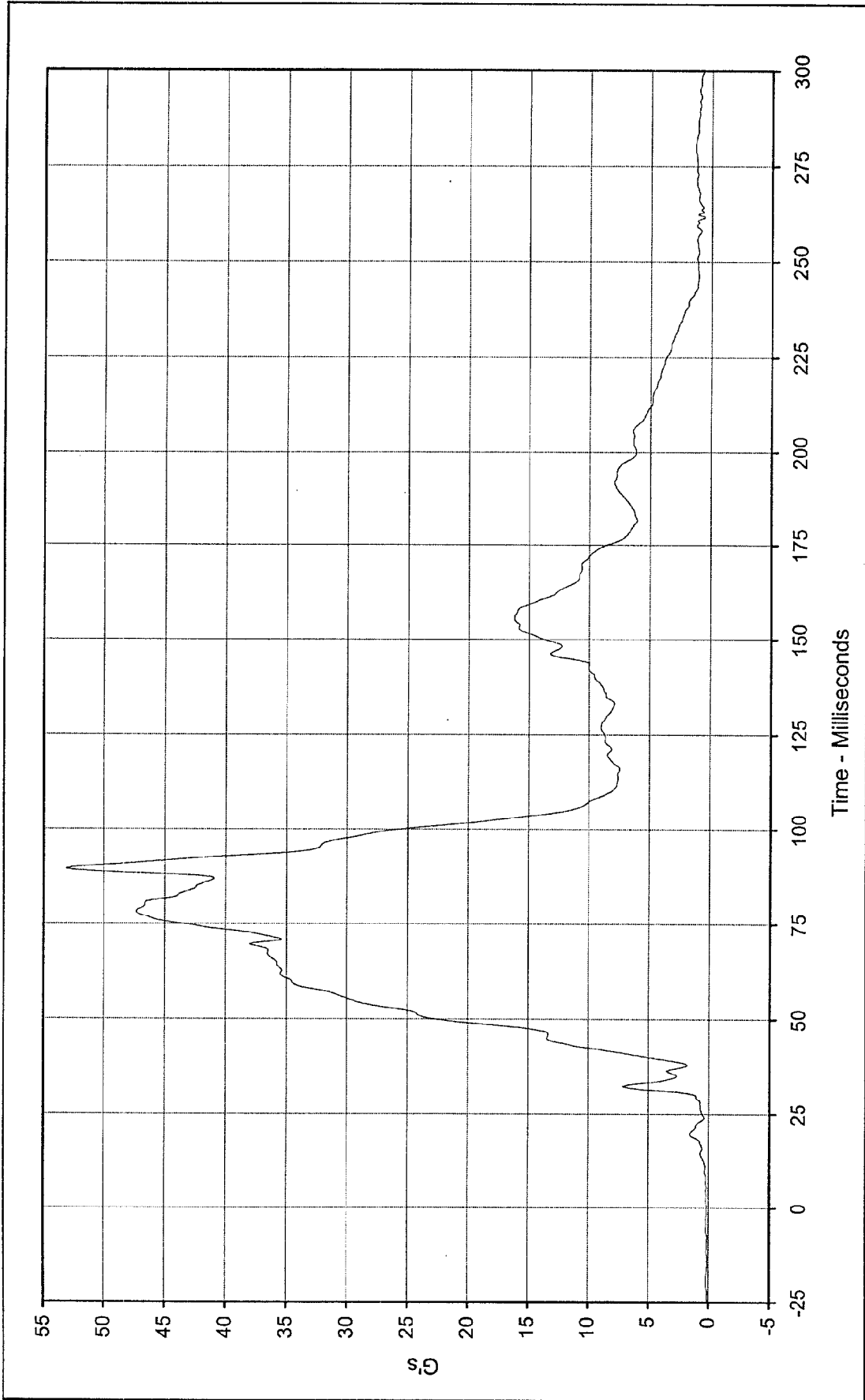
Date of Test: 2/4/98

Curve Number: FIL-018

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

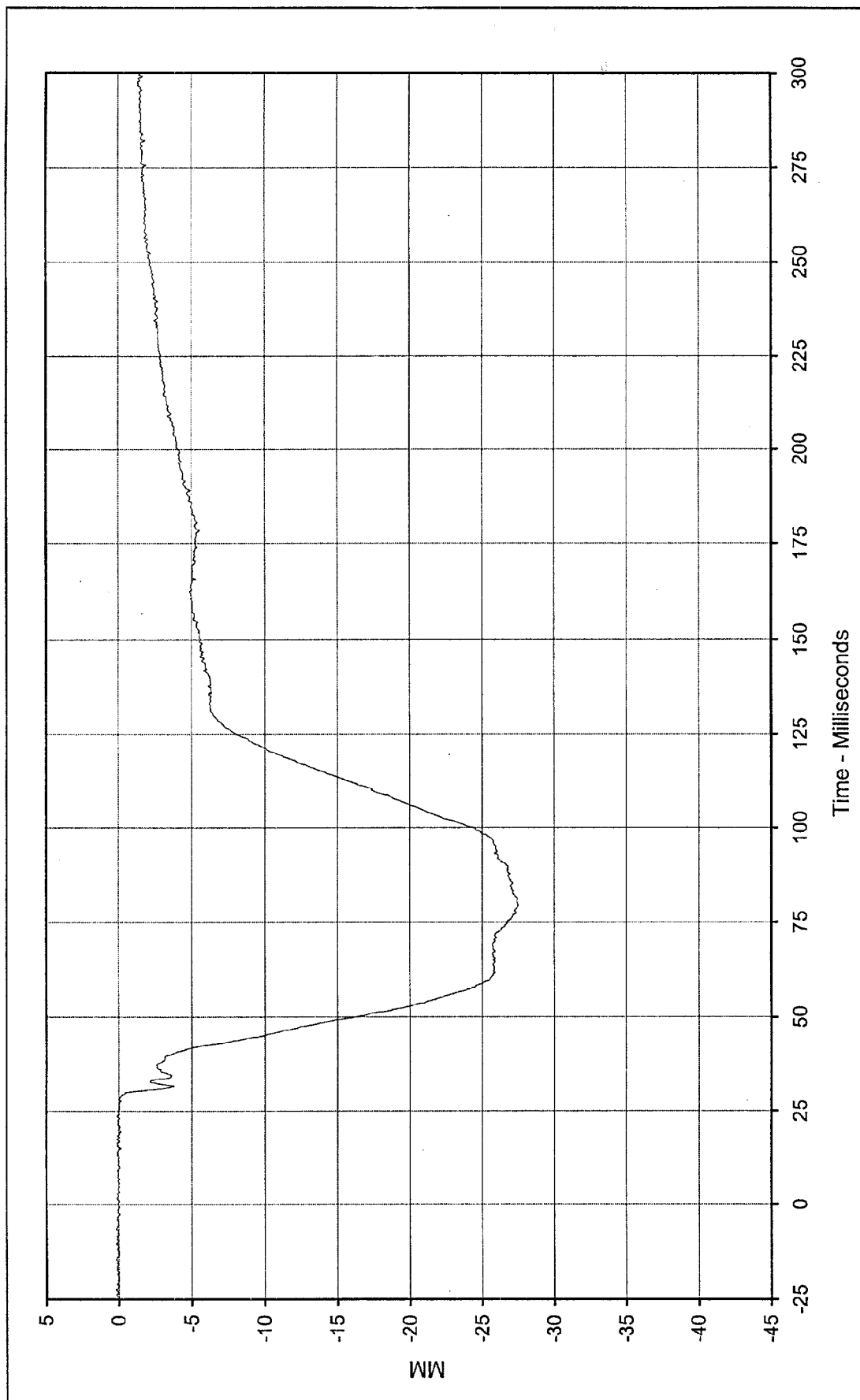




Curve Description: Driver Chest Resultant Redundant
 Maximum Value: 53.1 at 53.1 Milliseconds
 Minimum Value: 0.1 at 0.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: RES-016

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

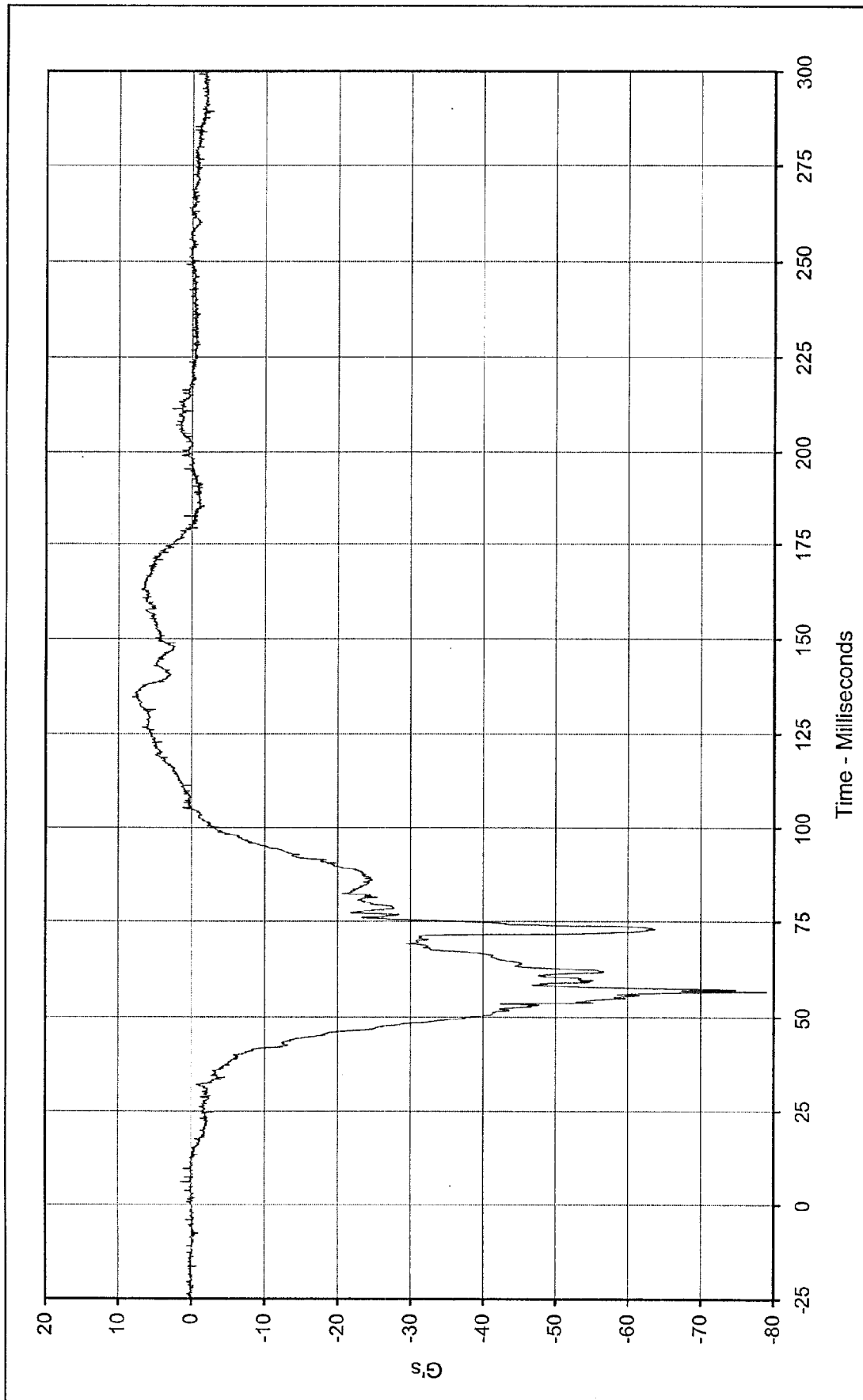




Curve Description: Driver Chest Displacement X
 Maximum Value: 0.1 at 17.3 Milliseconds
 Minimum Value: -27.5 at 79.5 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-019

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

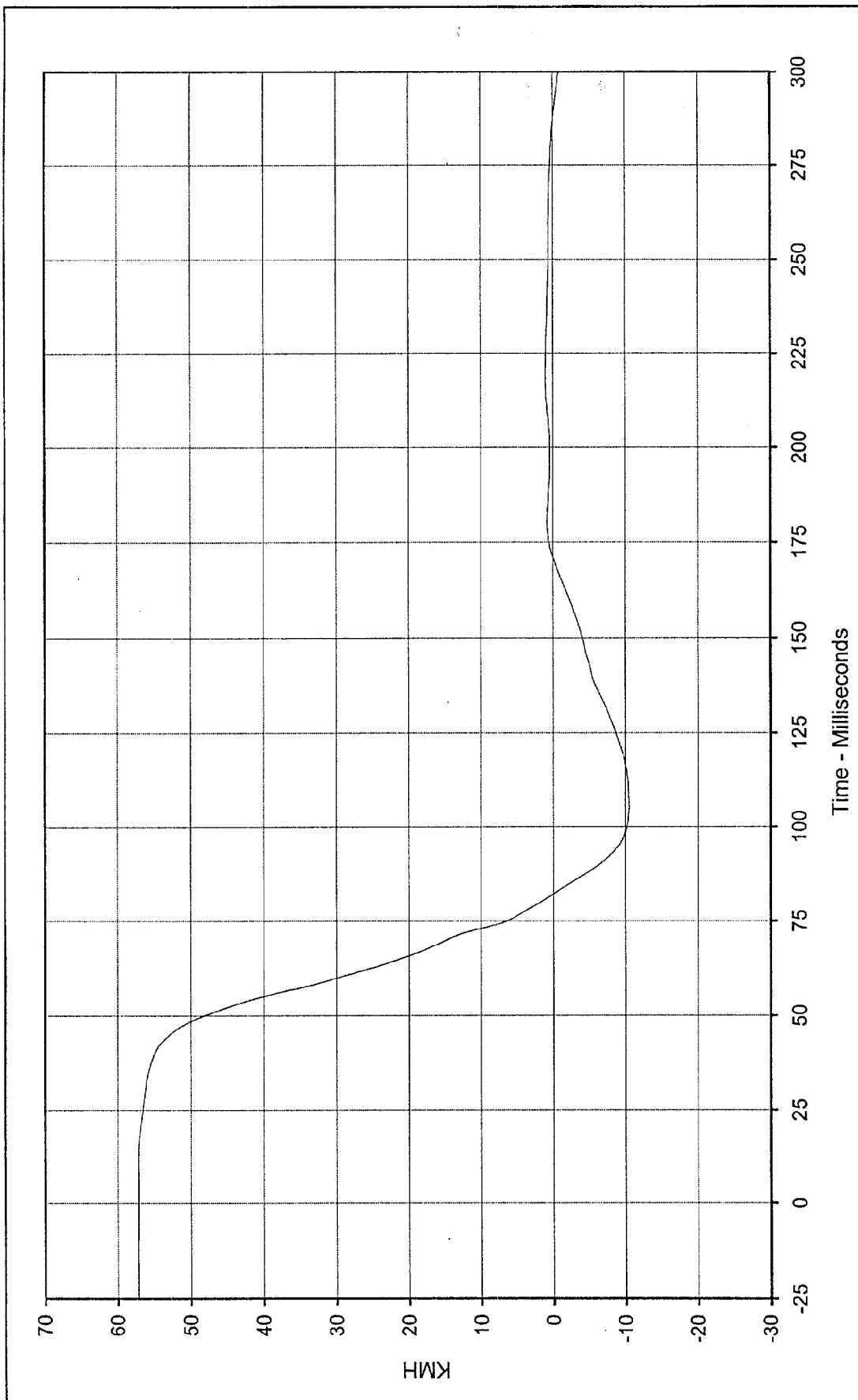




Curve Description: Driver Pelvis X
 Maximum Value: 8.1 at 134.8 Milliseconds
 Minimum Value: -79.0 at 56.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/96
 Curve Number: FIL-020

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

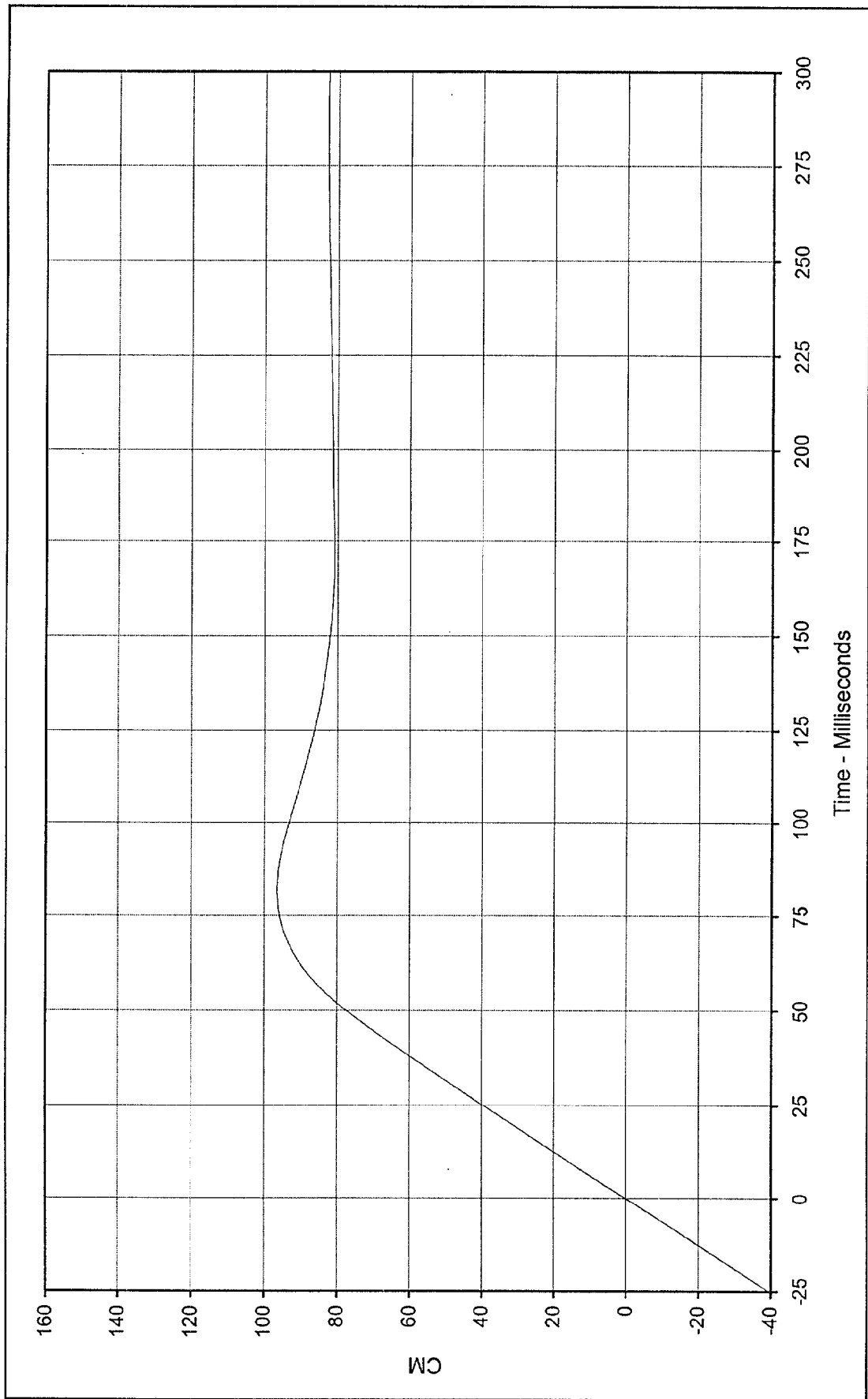




Curve Description: Driver Pelvis X Velocity
 Maximum Value: 57.2 at 10.7 Milliseconds
 Minimum Value: -10.5 at 105.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-020

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

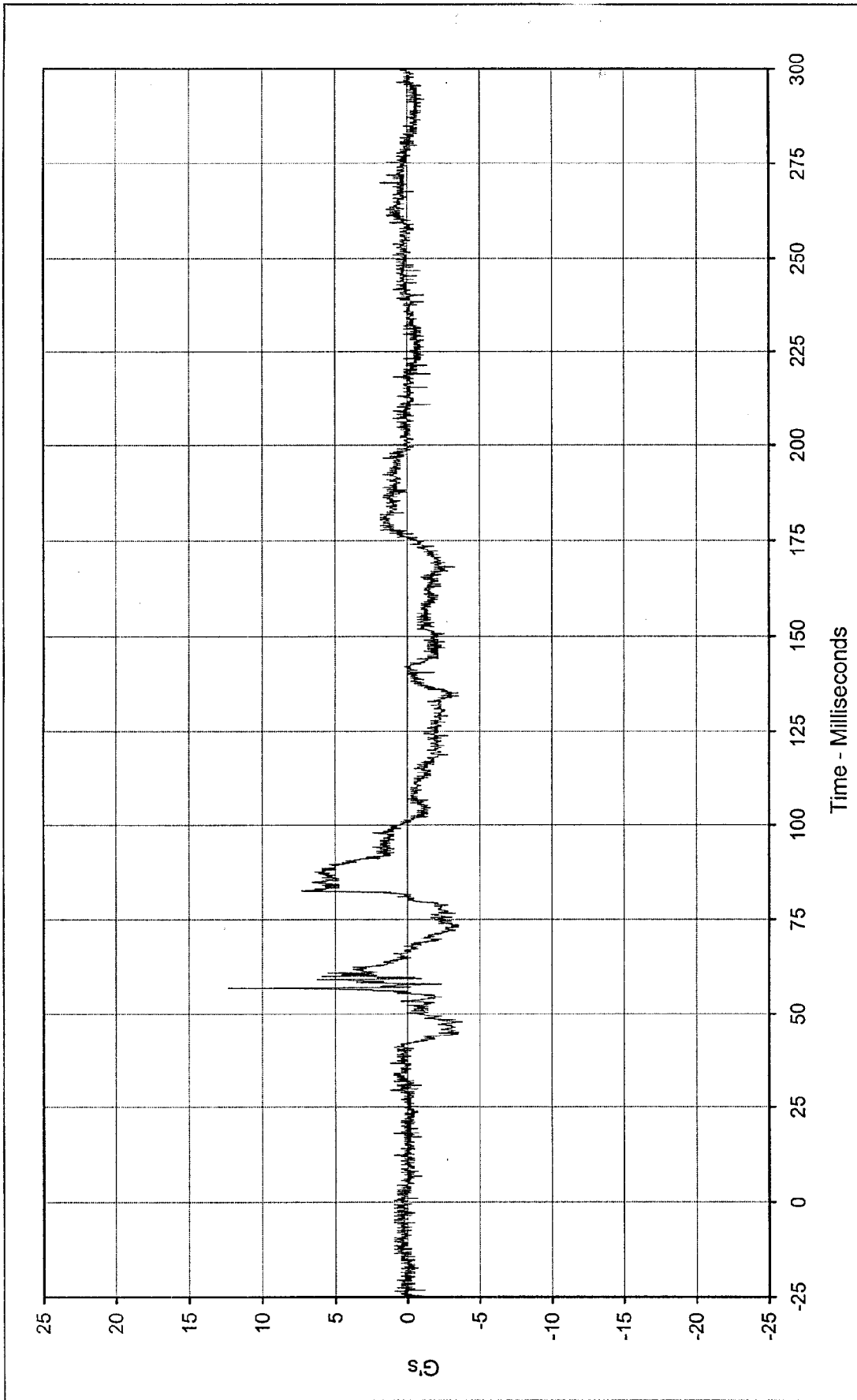




Curve Description: Driver Pelvis X Displ.
 Maximum Value: 96.4 at 82.0 Milliseconds
 Minimum Value: 0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-020

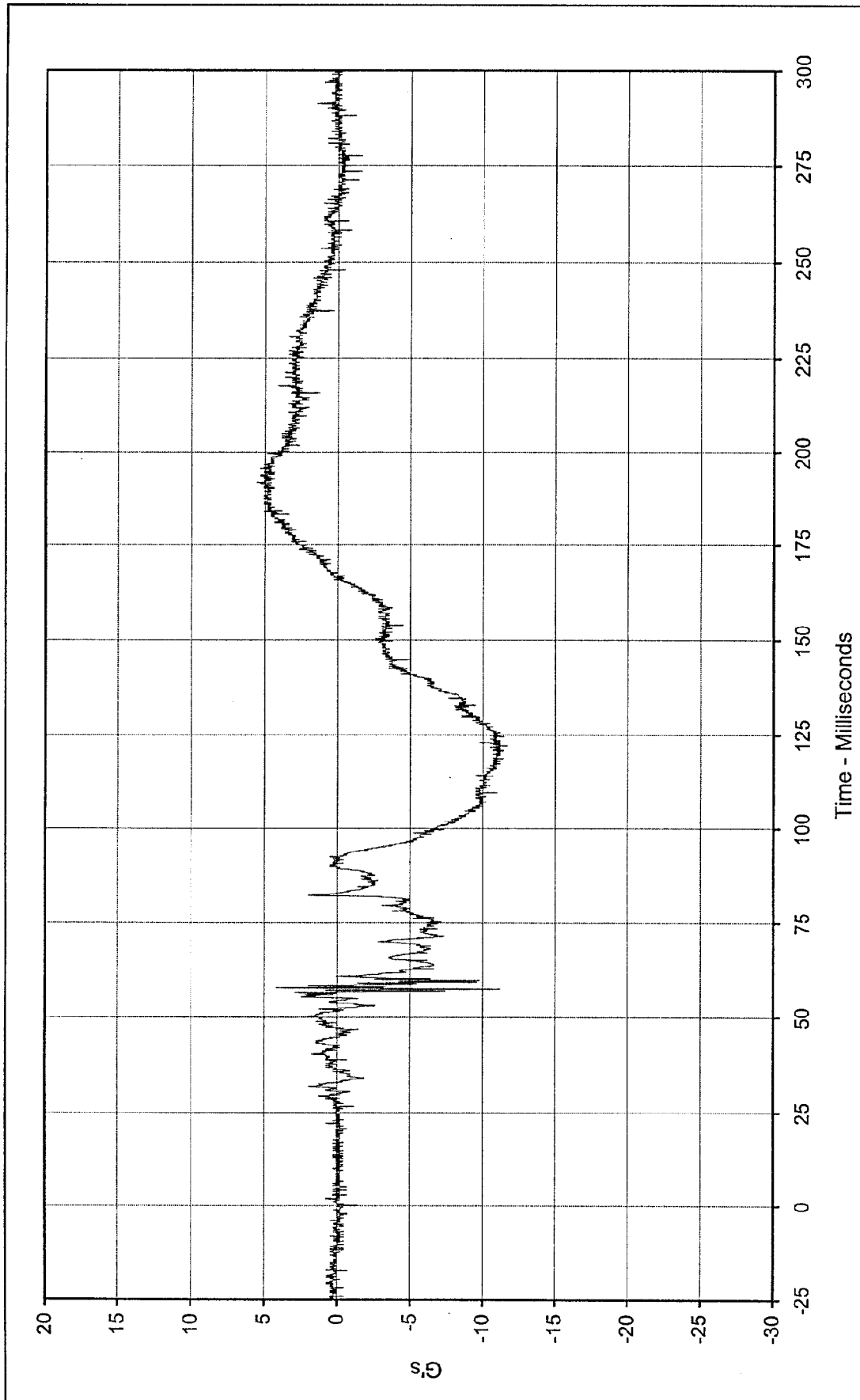
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 12.3 at 56.9 Milliseconds
 Minimum Value: -3.8 at 48.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-021

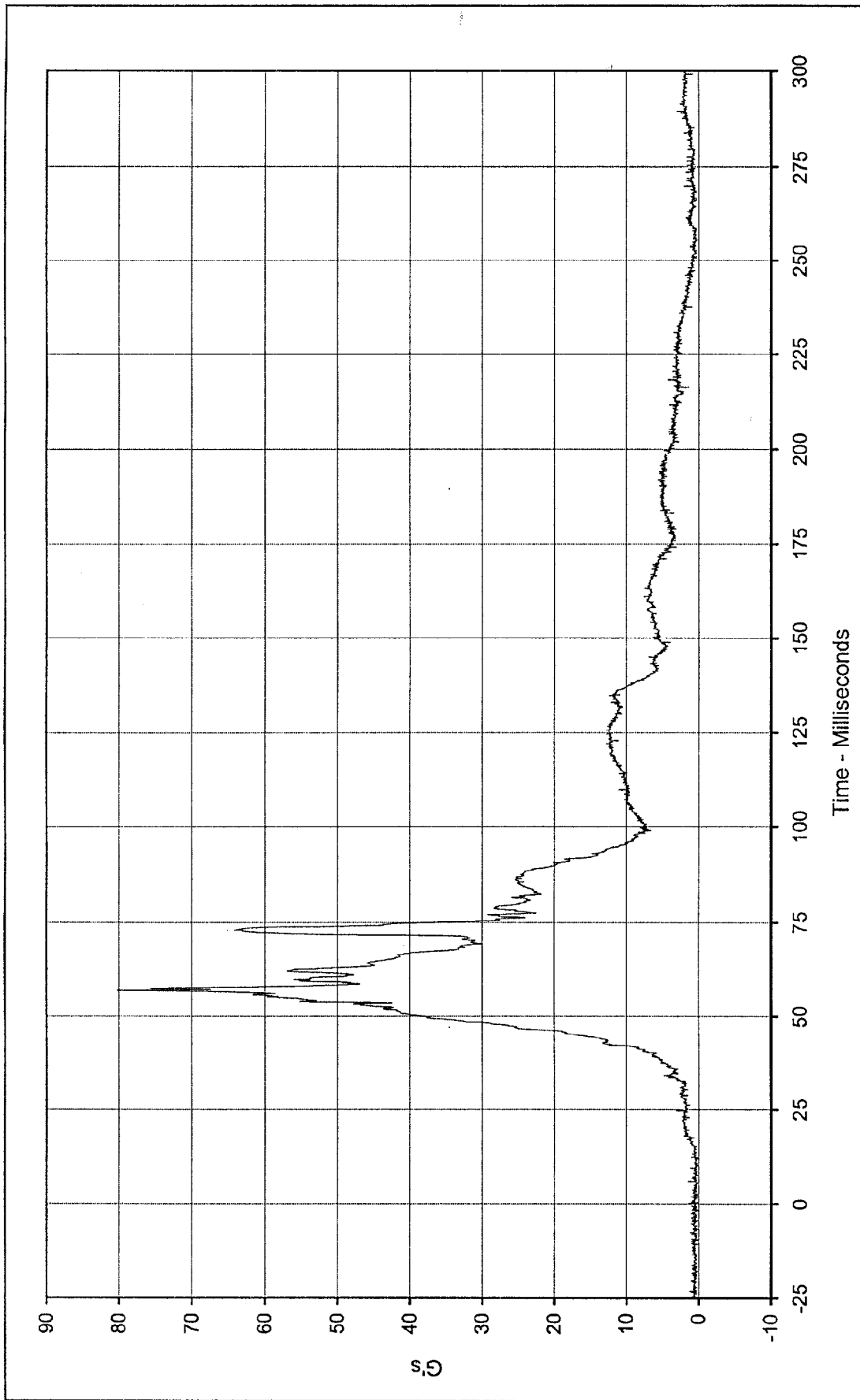




Curve Description: Driver Pelvis Z
 Maximum Value: 5.5 at 191.8 Milliseconds
 Minimum Value: -11.7 at 122.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-022

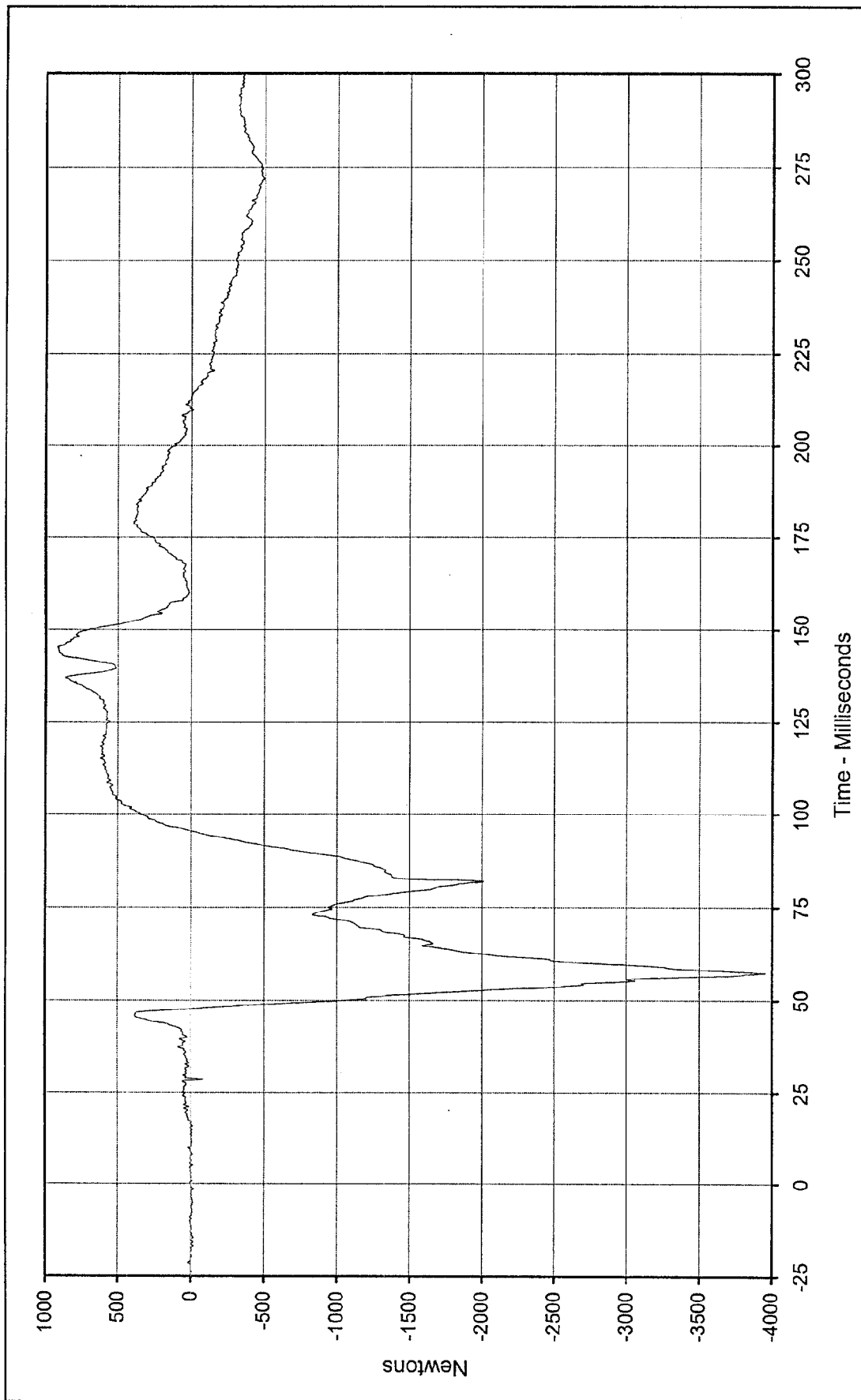
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Driver Pelvis Resultant	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	80.1 at 56.9 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	0.0 at 0.3 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/4/98			
Curve Number:	RES-020			

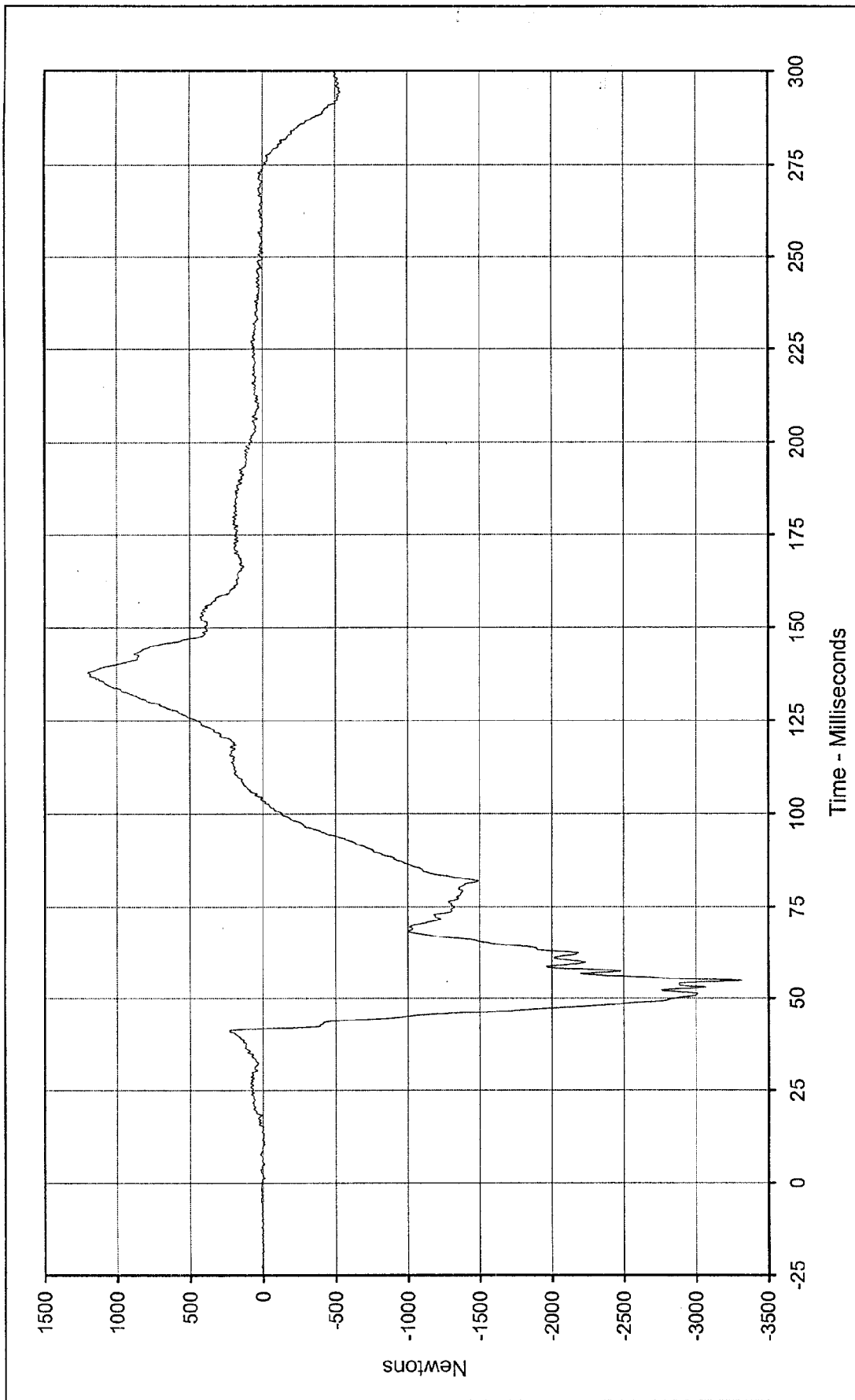




Curve Description: 1998 NHTSA 35 mph NCAP No.: MW0306
 Testing Program: 1998 Dodge Ram 1500 SLT Pickup
 Test Vehicle:

Driver Left Femur Force
 Maximum Value: 916.1 at 145.4 Milliseconds
 Minimum Value: -3955.5 at 57.3 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-023

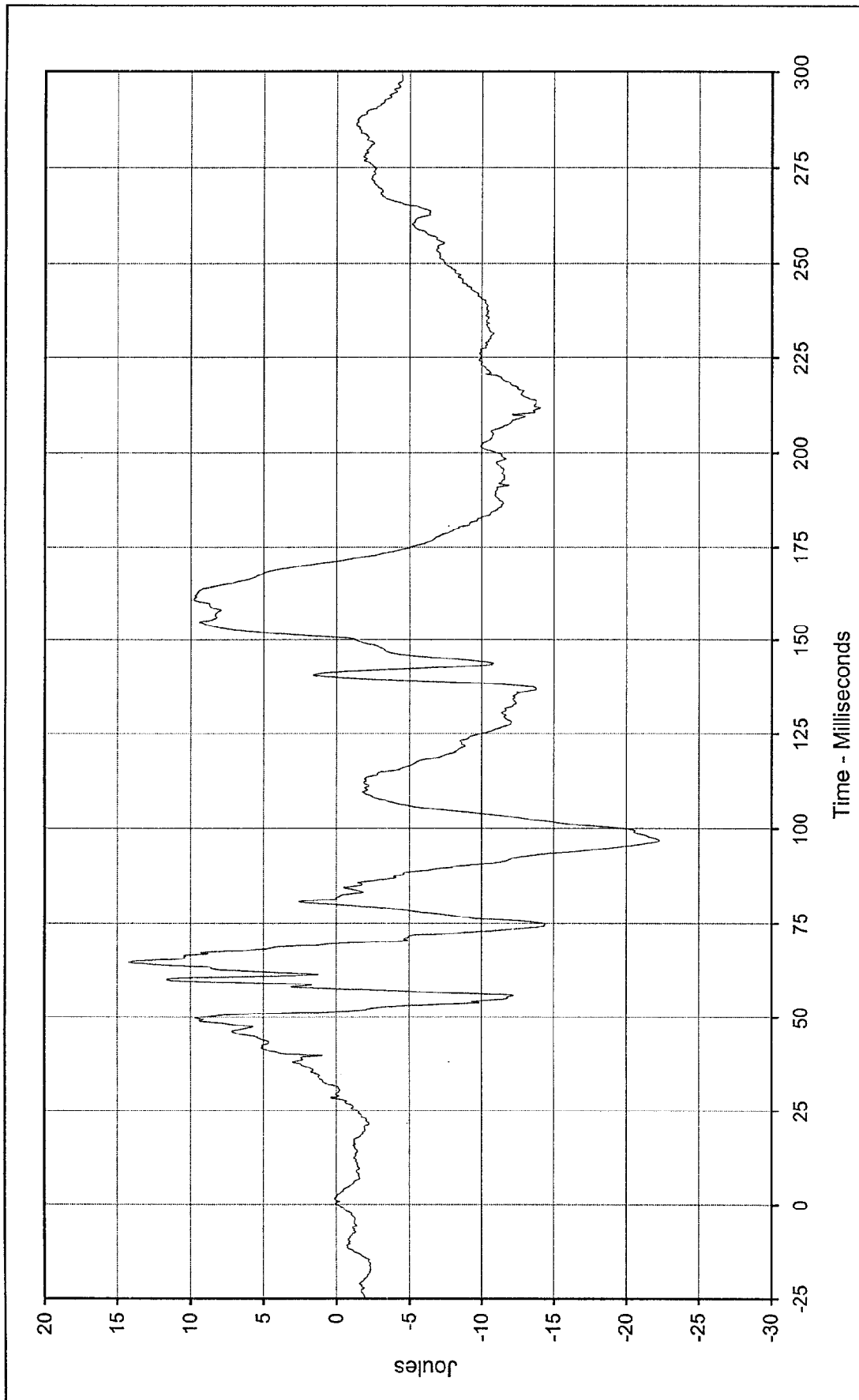




Curve Description:		Driver Right Femur Force		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	1199.7	at	137.6	Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup
Minimum Value:	-3315.0	at	54.8	Milliseconds		
SAE Filter Class:	600					
Date of Test:	2/4/98					
Curve Number:	FIL-024					



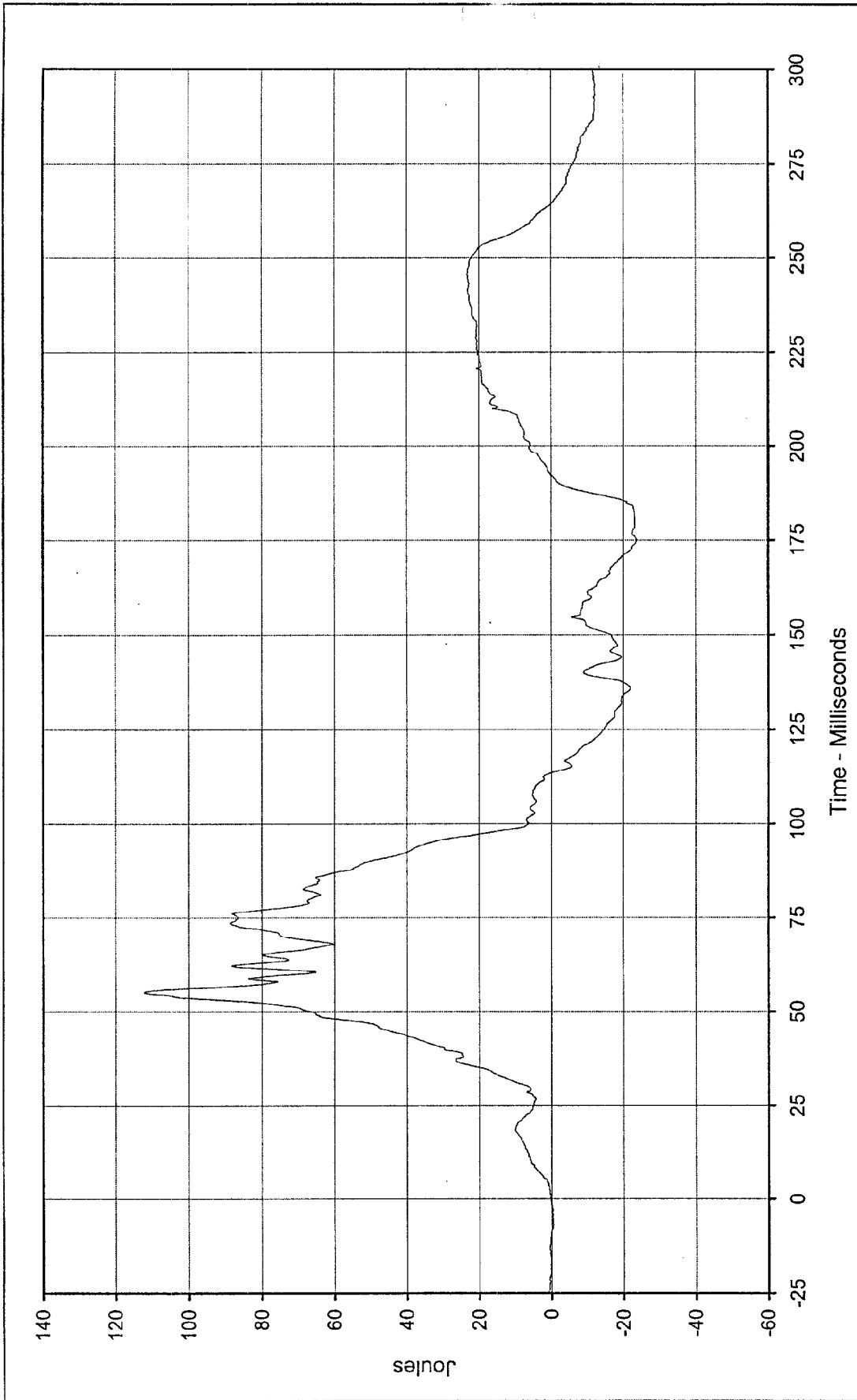




Curve Description: Driver Left Upper Tibia Moment X
 Maximum Value: 14.2 at 64.6 Milliseconds
 Minimum Value: -22.3 at 96.8 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-025

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

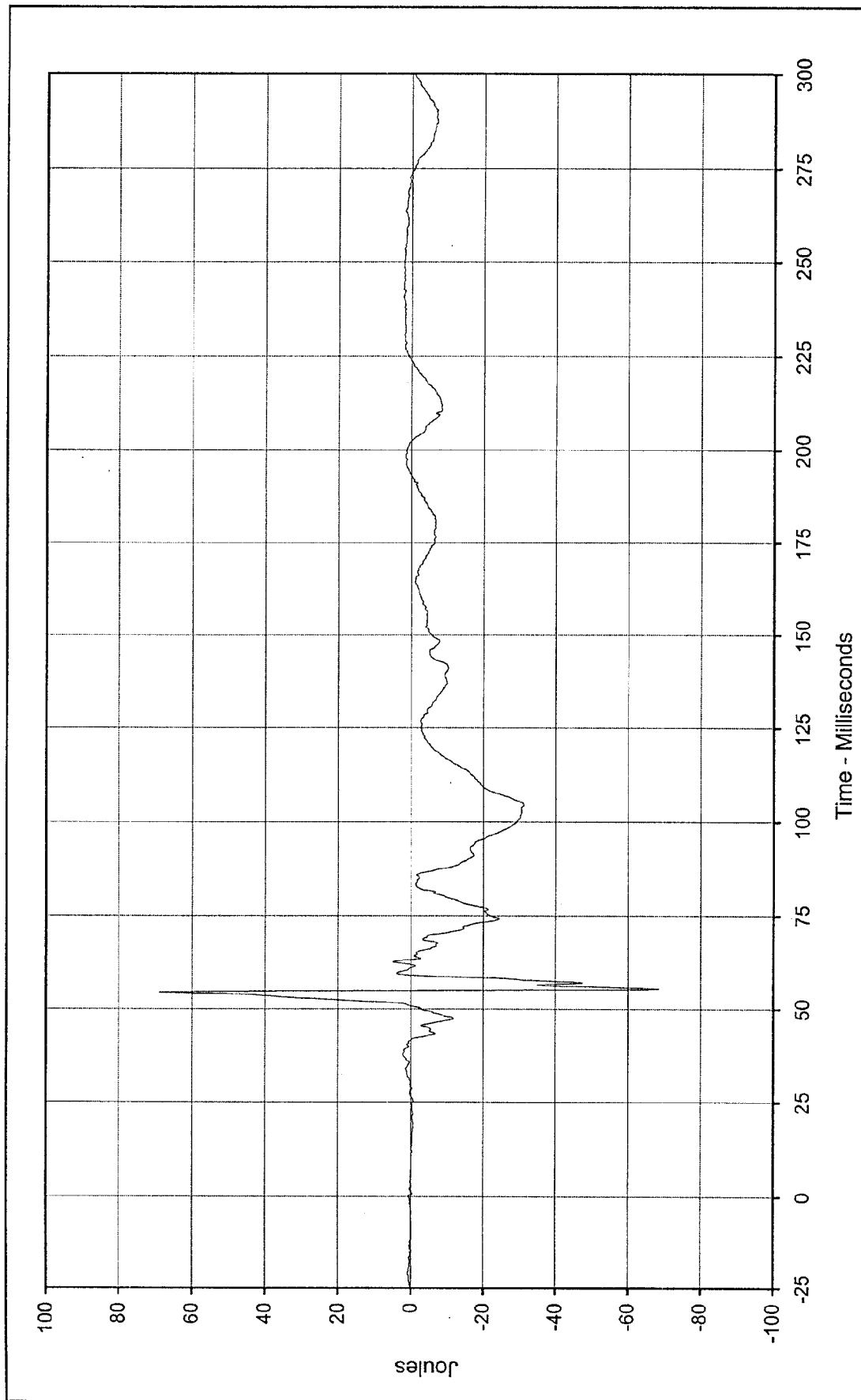




Curve Description: Driver Left Upper Tibia Moment Y
 Maximum Value: 112.3 at 55.0 Milliseconds
 Minimum Value: -23.7 at 175.0 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-026

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

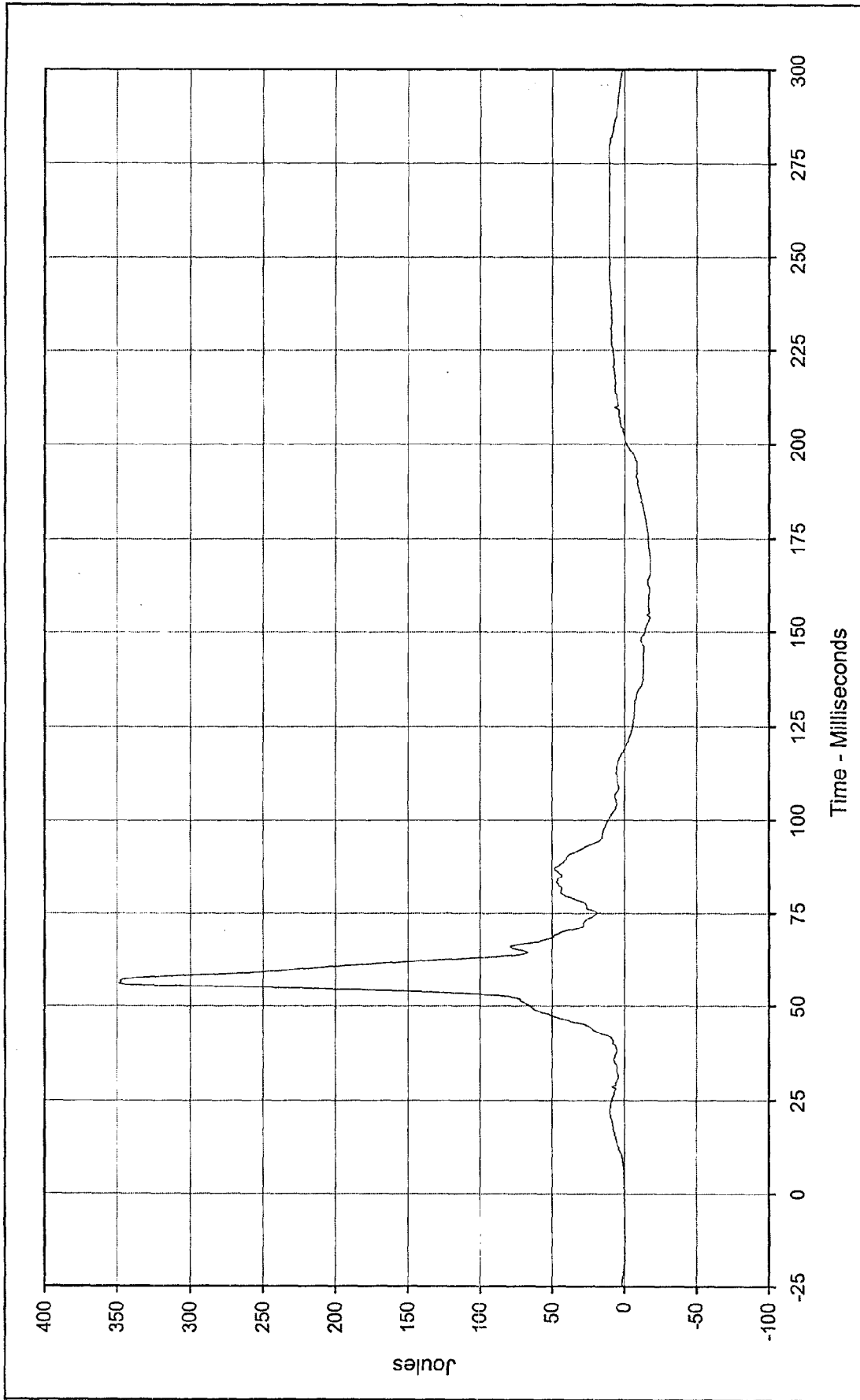




Curve Description: Driver Right Upper Tibia Moment X
 Maximum Value: 68.9 at 54.5 Milliseconds
 Minimum Value: -68.5 at 55.5 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-027

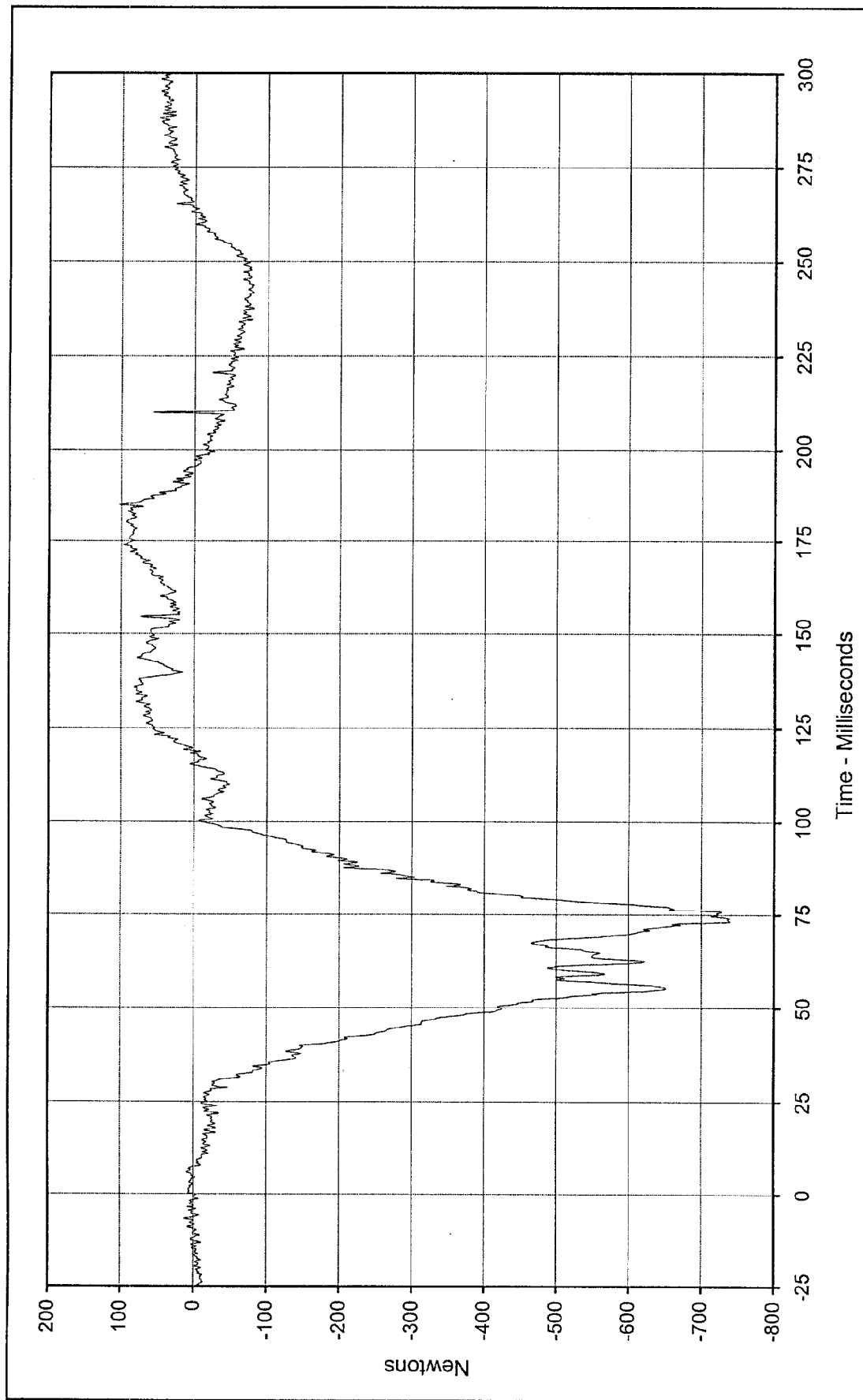
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Driver Right Upper Tibia Moment Y	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	348.5	at	56.0	Milliseconds
Minimum Value:	-18.2	at	166.1	Milliseconds
SAE Filter Class:	600			
Date of Test:	2/4/98	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Curve Number:	FIL-028			

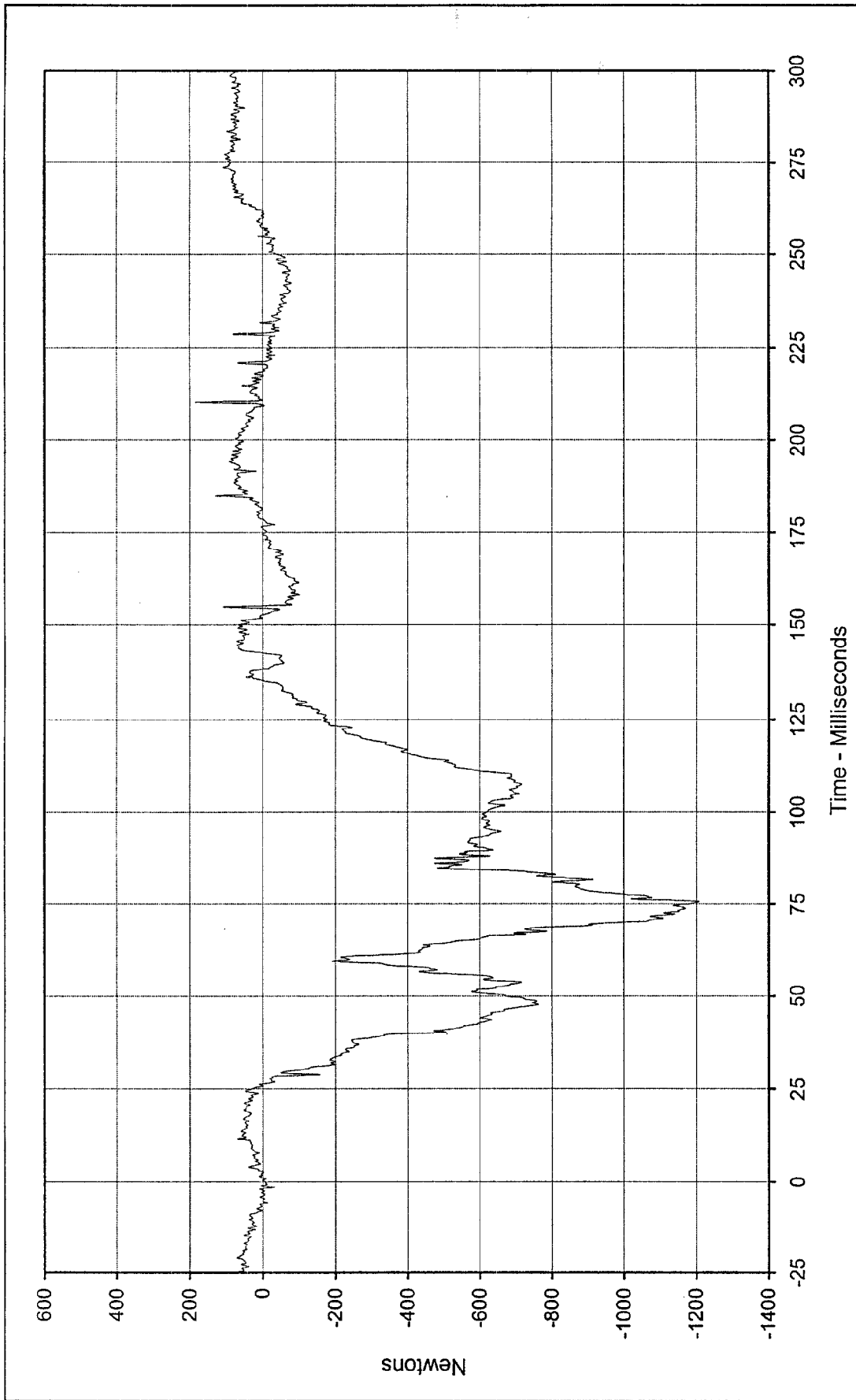




Curve Description: Driver Left Lower Tibia Force X
 Maximum Value: 102.6 at 185.0 Milliseconds
 Minimum Value: -740.0 at 73.1 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-029

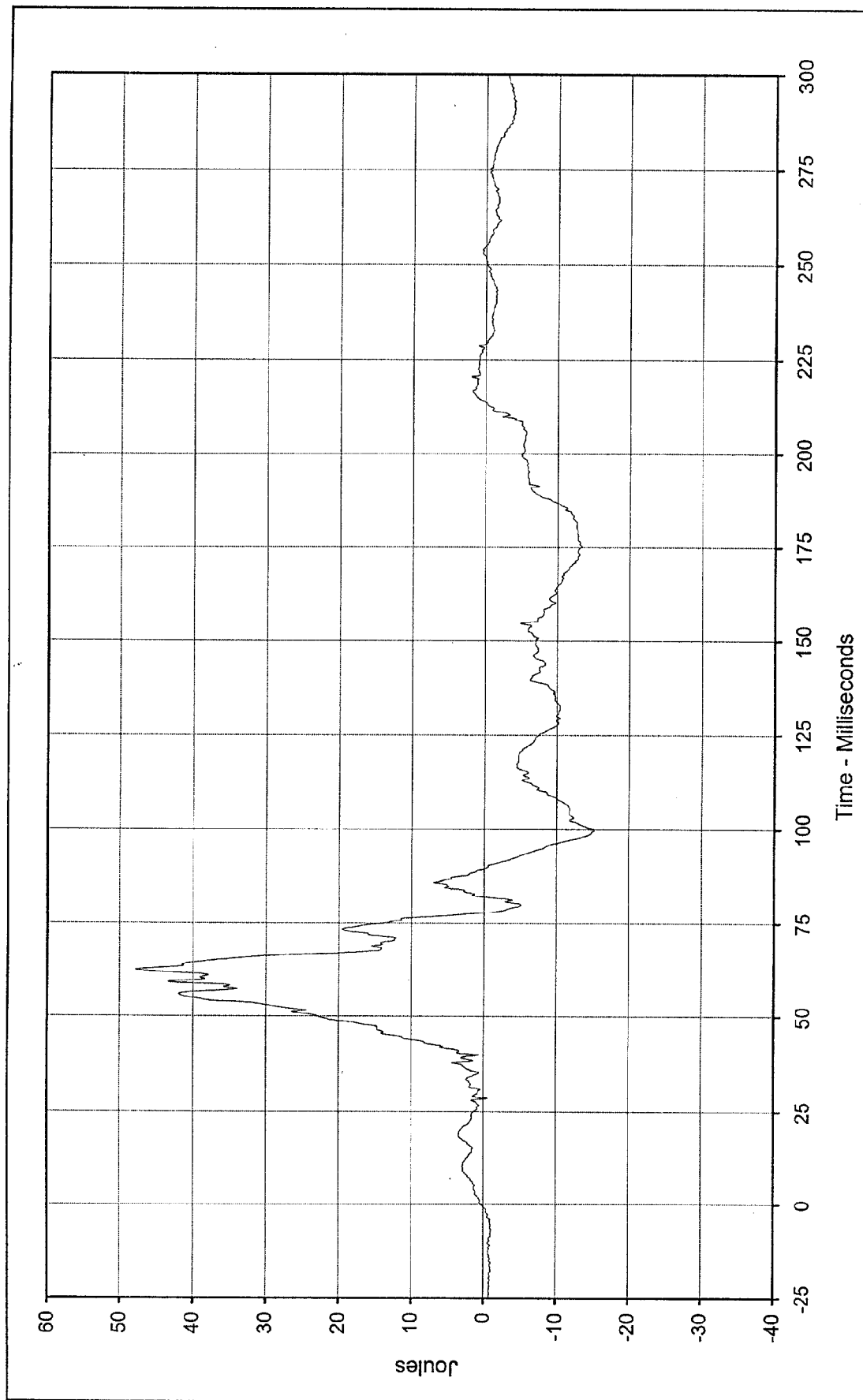
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Driver Left Lower Tibia Force Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	184.8 at 210.1 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-1208.6 at 75.7 Milliseconds			
SAE Filter Class:	600			
Date of Test:	2/4/98			
Curve Number:	FIL-030			

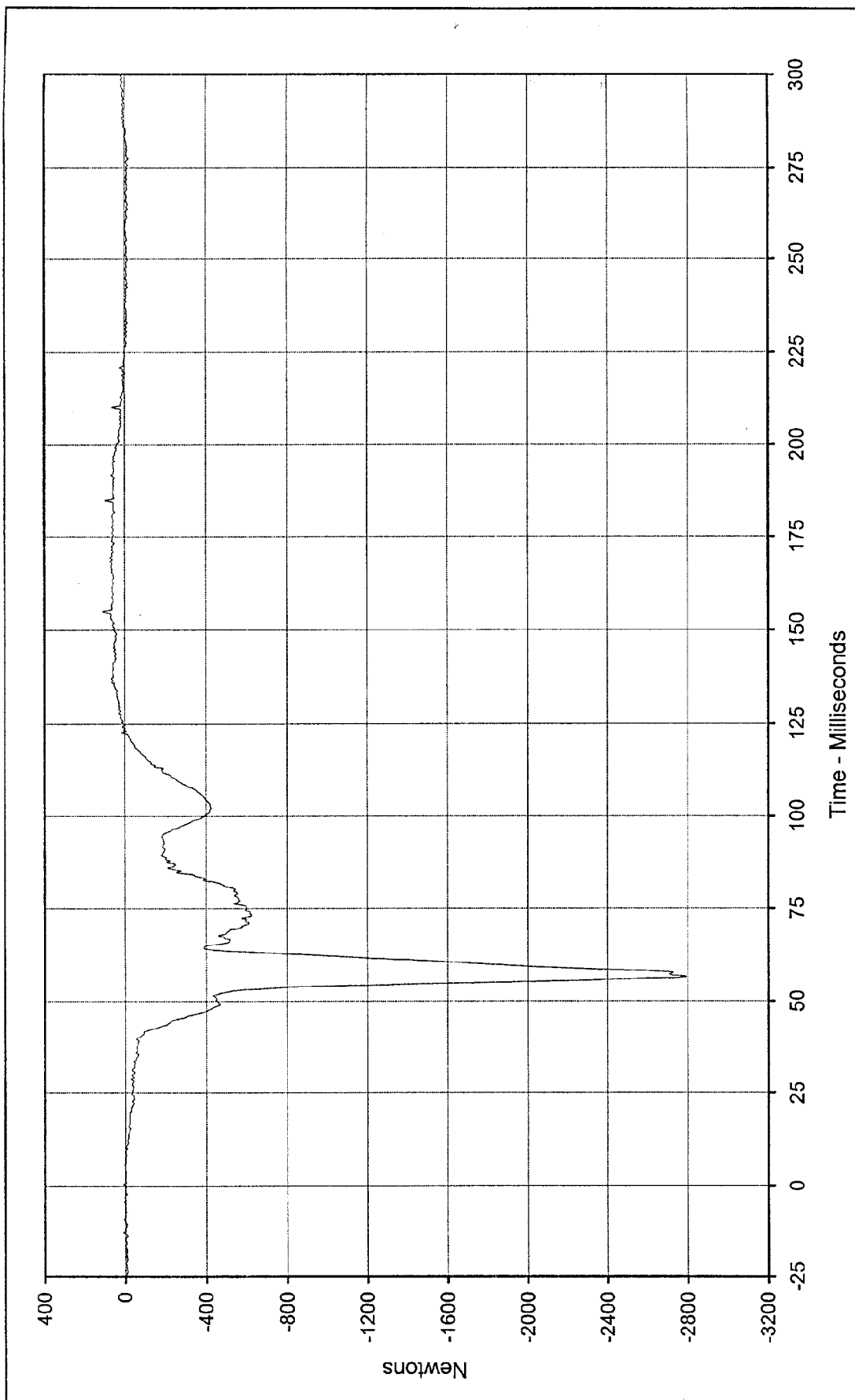




Curve Description: Driver Left Lower Tibia Moment Y
 Maximum Value: 47.8 at 62.5 Milliseconds
 Minimum Value: -15.2 at 99.8 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-031

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

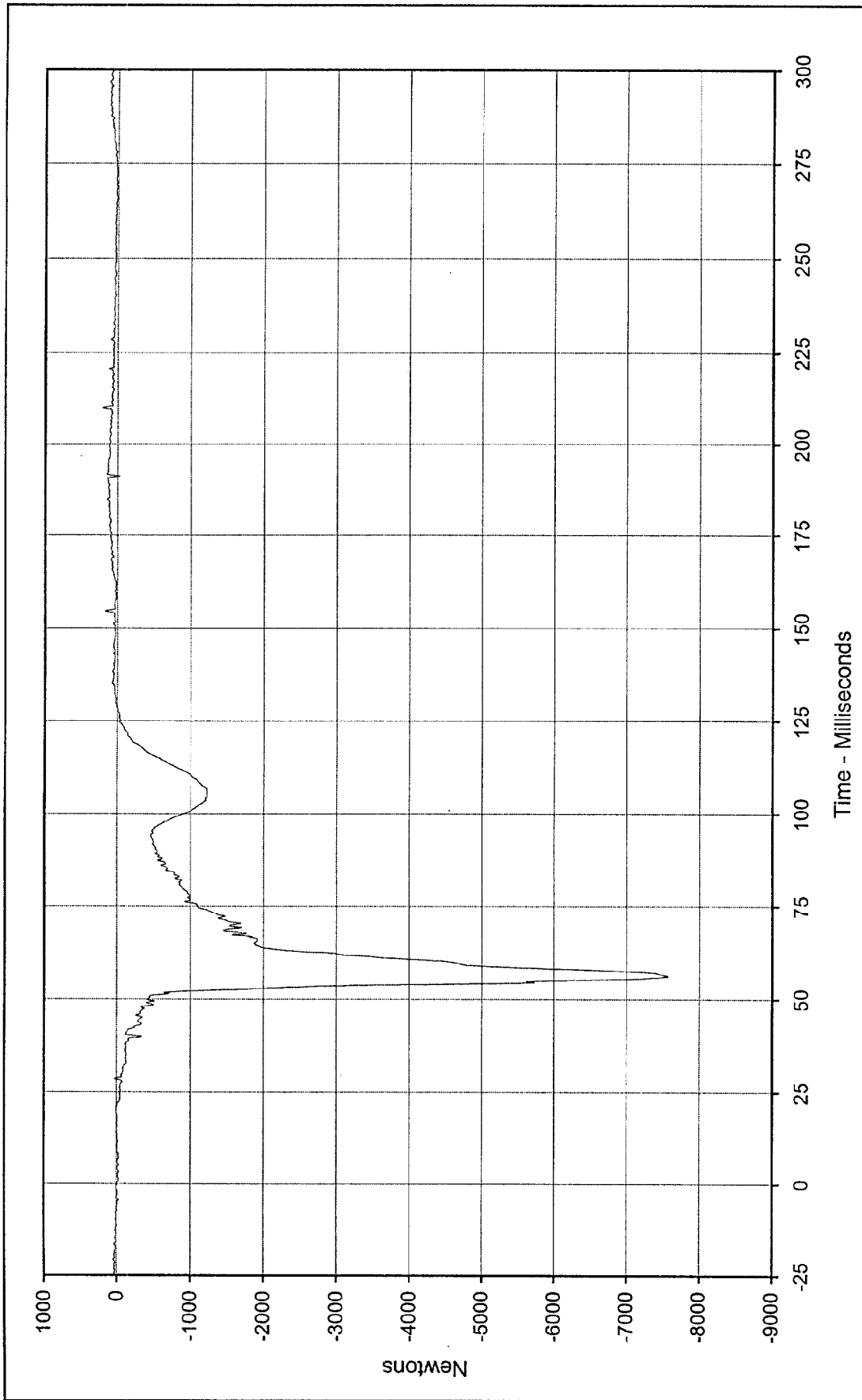




Curve Description: Driver Right Lower Tibia Force X
 Maximum Value: 110.1 at 154.7 Milliseconds
 Minimum Value: -2793.7 at 56.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-032

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

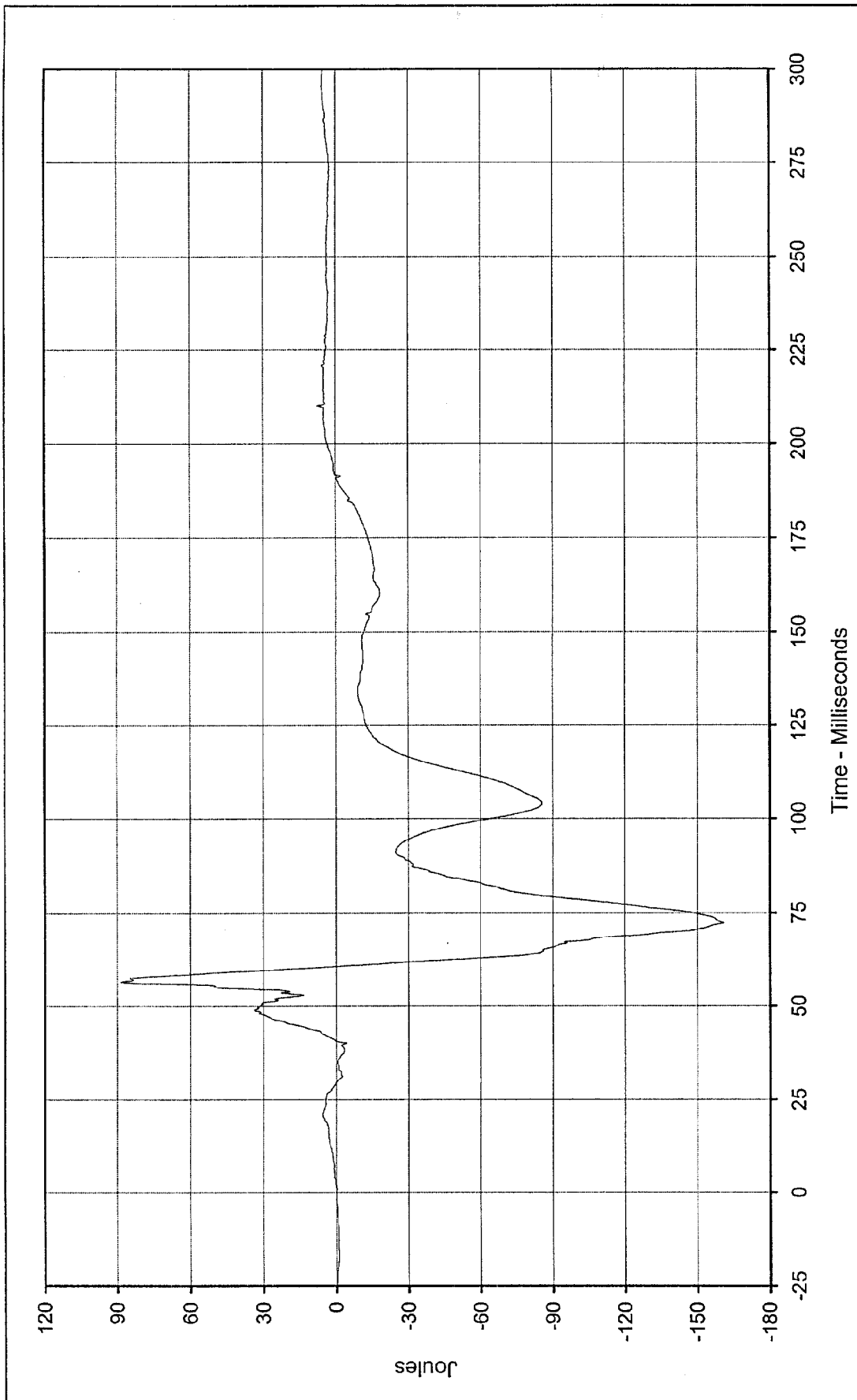




Curve Description: Driver Right Lower Tibia Force Z
 Maximum Value: 210.1 at 210.1 Milliseconds
 Minimum Value: -7568.4 at 56.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-033

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

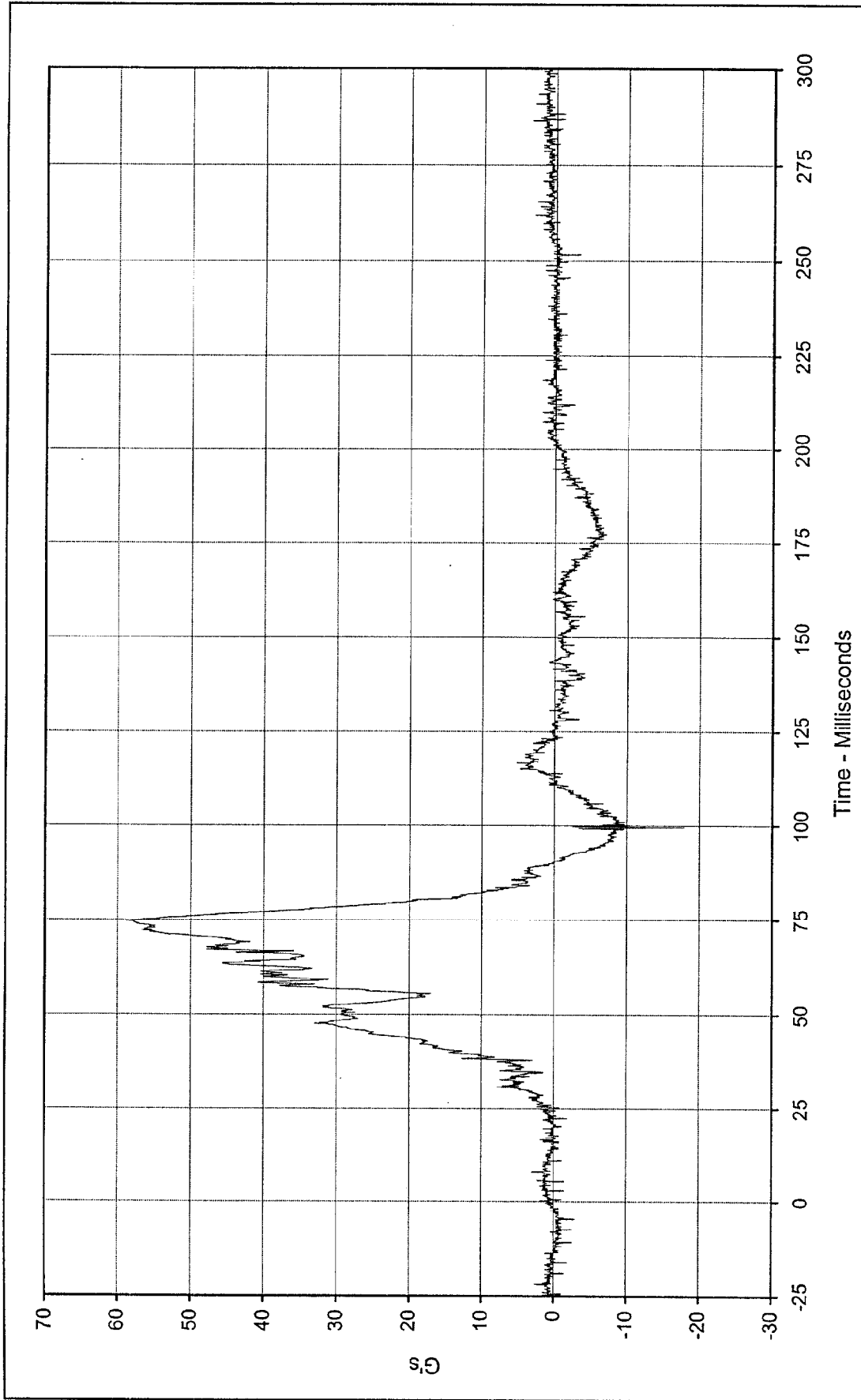




Curve Description: Driver Right Lower Tibia Moment Y
 Maximum Value: 88.9 at 56.5 Milliseconds
 Minimum Value: -161.1 at 72.3 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-034

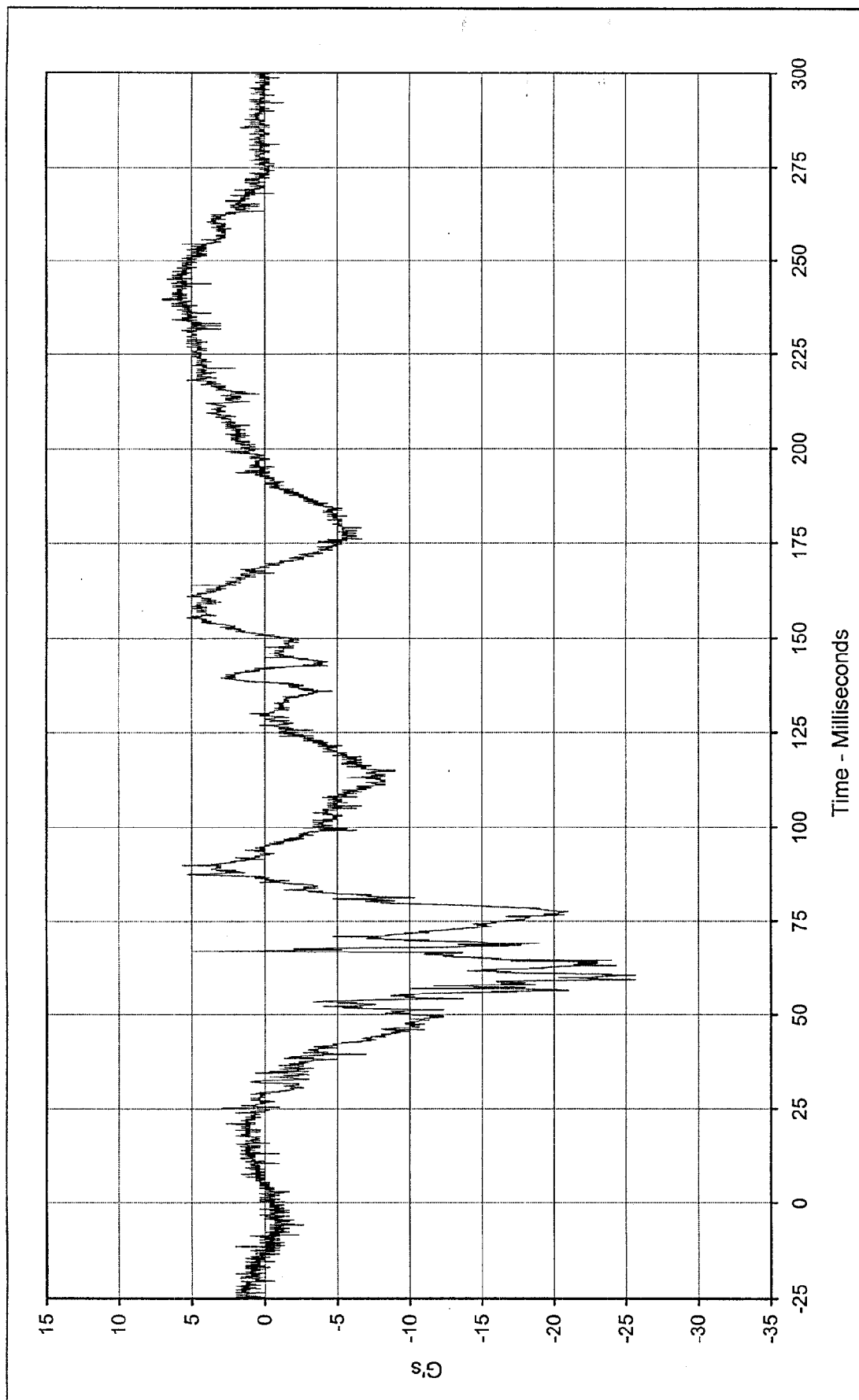
Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Driver Left Foot Aft X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	58.9 at 74.6 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-17.8 at 99.5 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/4/98			
Curve Number:	FIL-035			

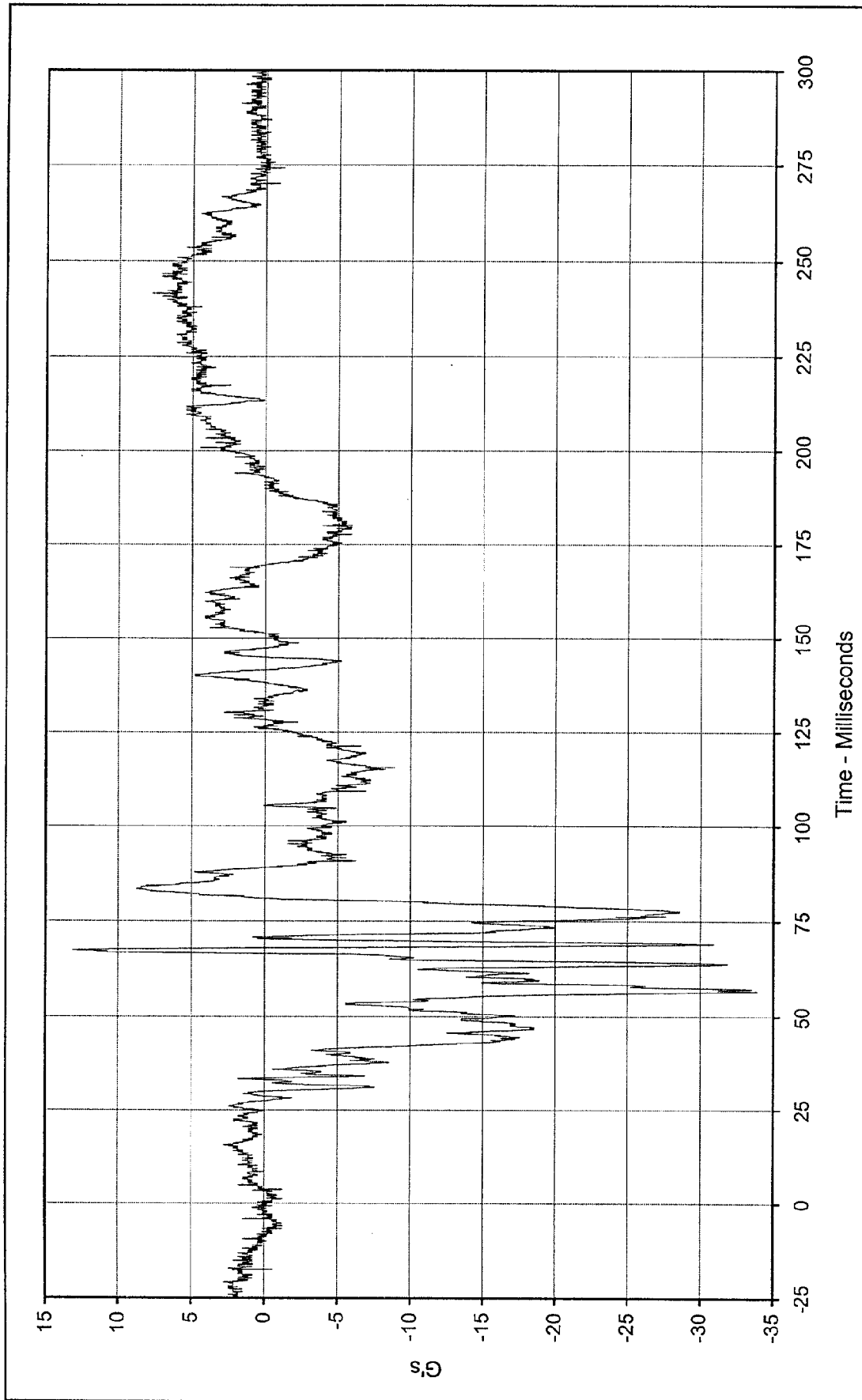




Curve Description: Driver Left Foot Aft Z
 Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

Maximum Value: 7.0 at 239.5 Milliseconds
 Minimum Value: -25.7 at 59.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-036





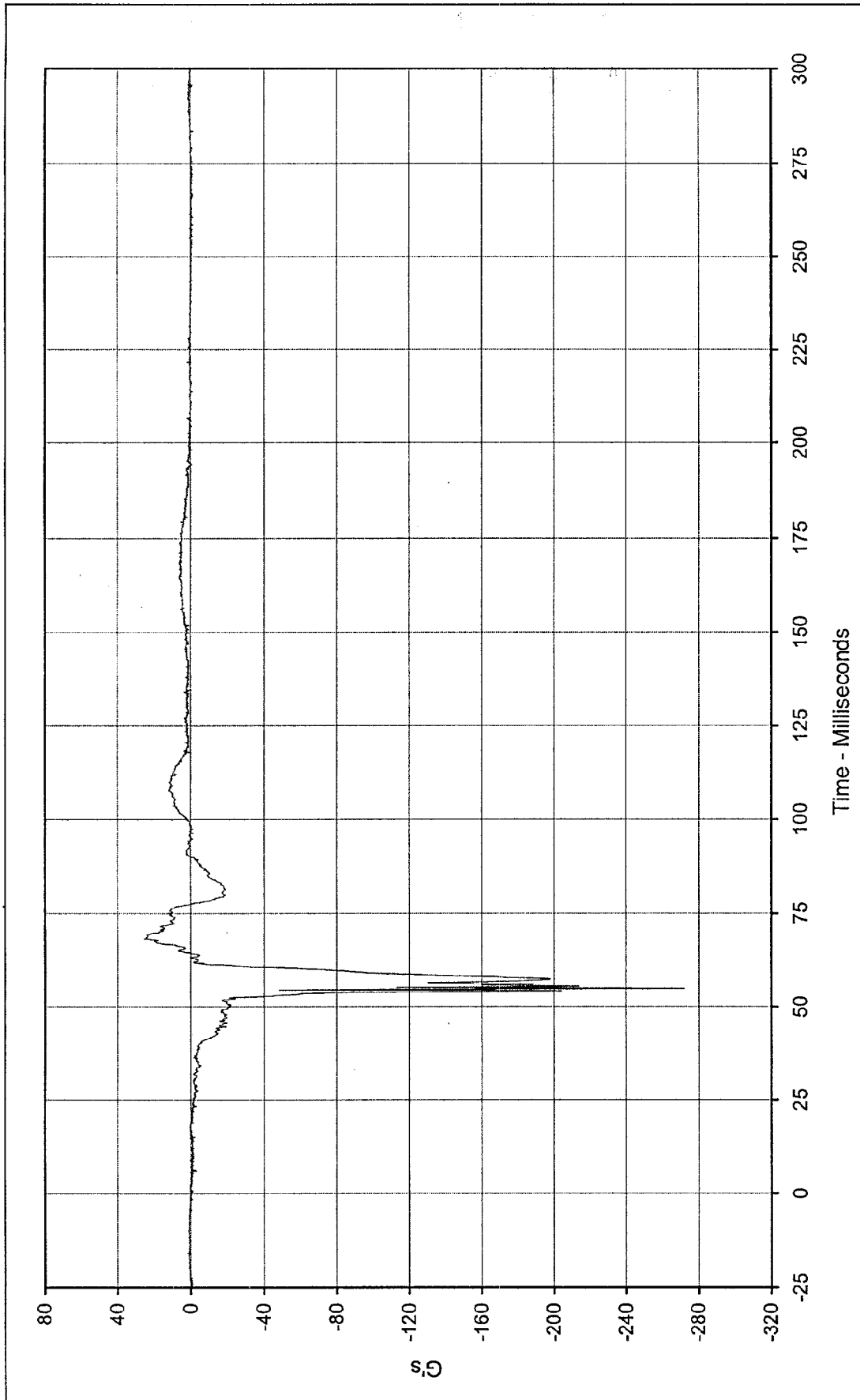
Curve Description: Driver Left Foot Fore Z

Maximum Value:	13.1	at	67.5	Milliseconds
Minimum Value:	-33.9	at	56.9	Milliseconds
SAE Filter Class:	1000			
Date of Test:	2/4/96			
Curve Number:	FIL-037			

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

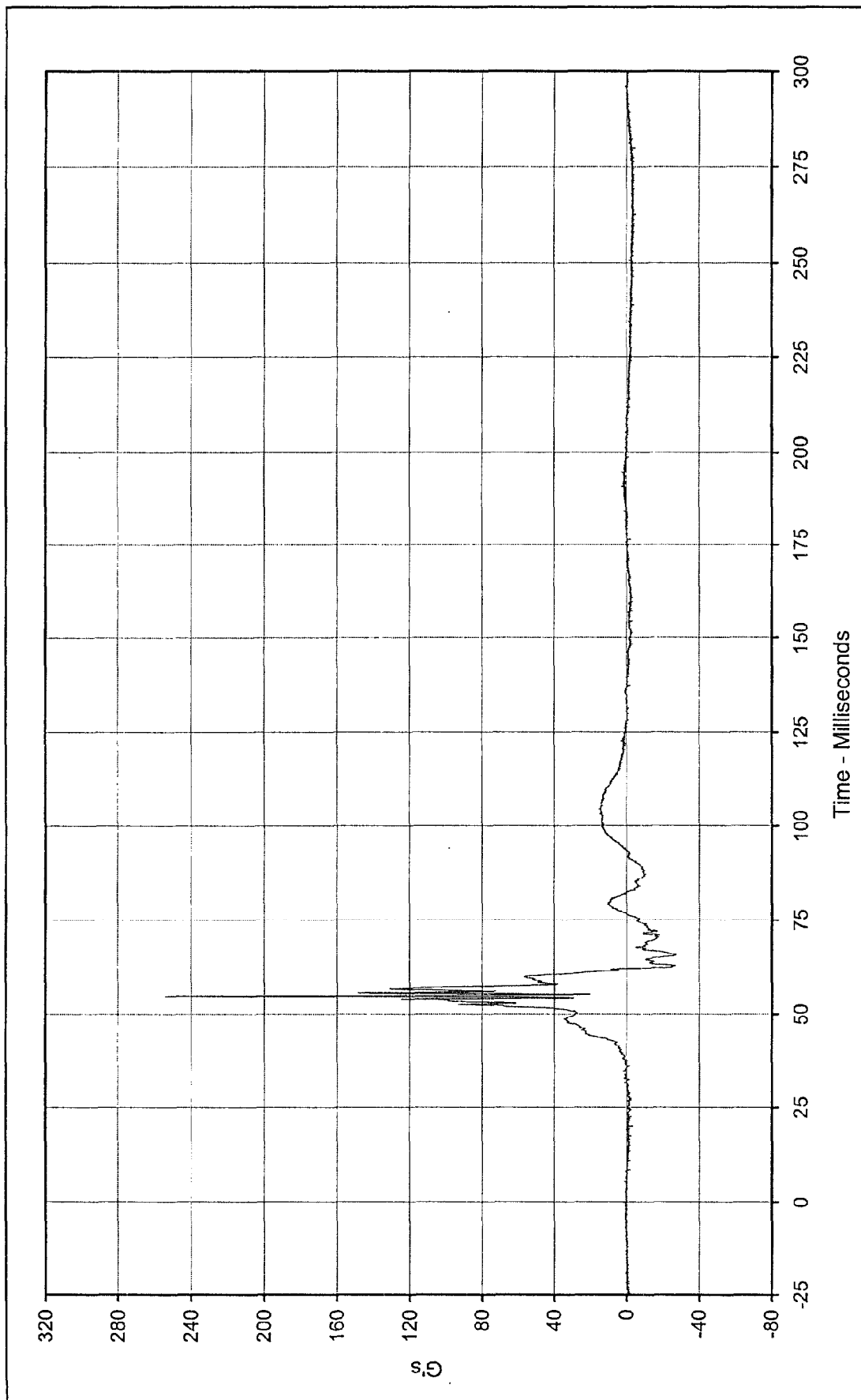




Curve Description: Driver Right Foot Aft X
 Maximum Value: 25.5 at 68.3 Milliseconds
 Minimum Value: -271.1 at 54.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-038

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Driver Right Foot Aft Z

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Maximum Value: 251.1 at 54.7 Milliseconds

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

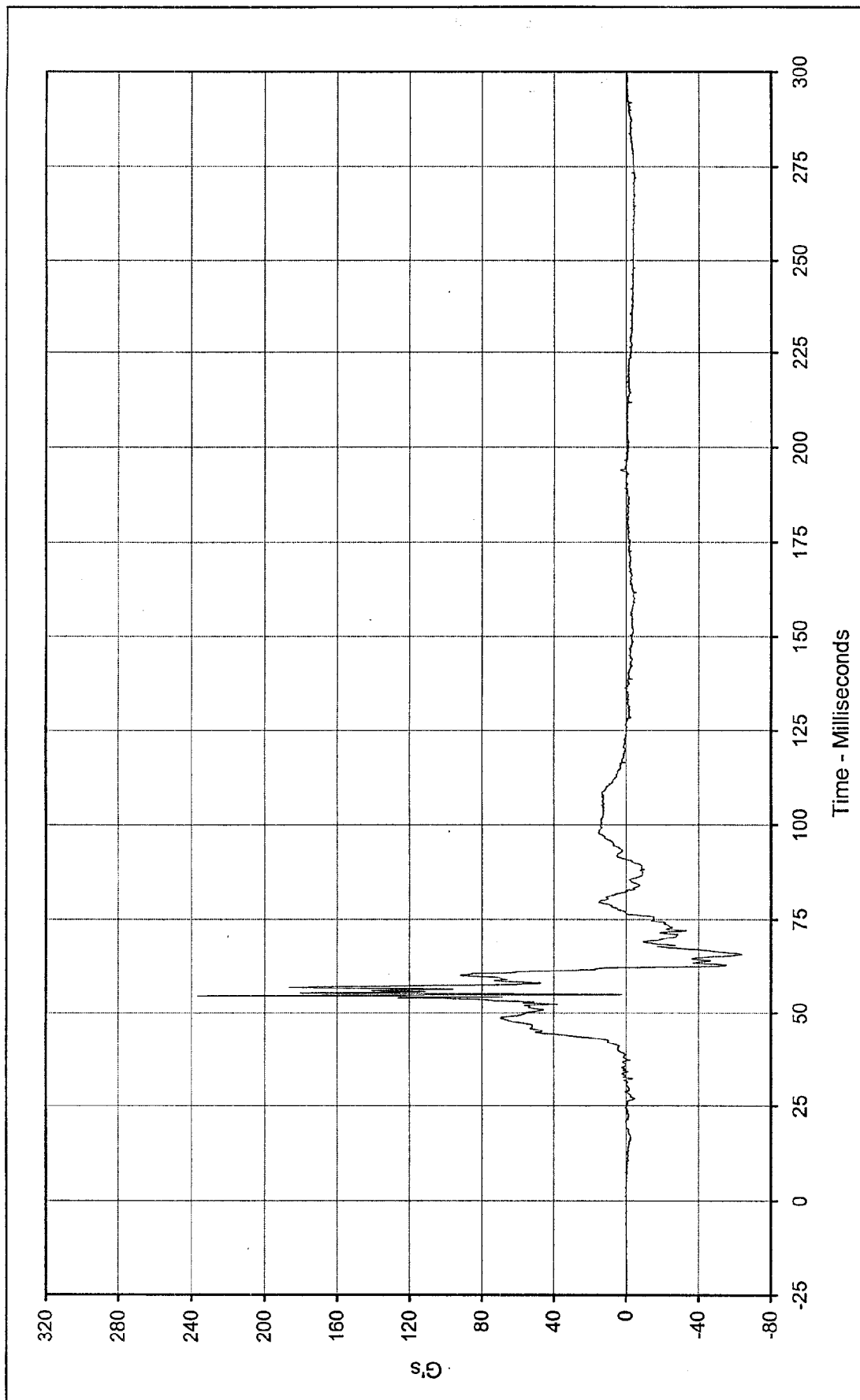
Minimum Value: -27.0 at 62.9 Milliseconds

SAE Filter Class: 1000

Date of Test: 2/4/98

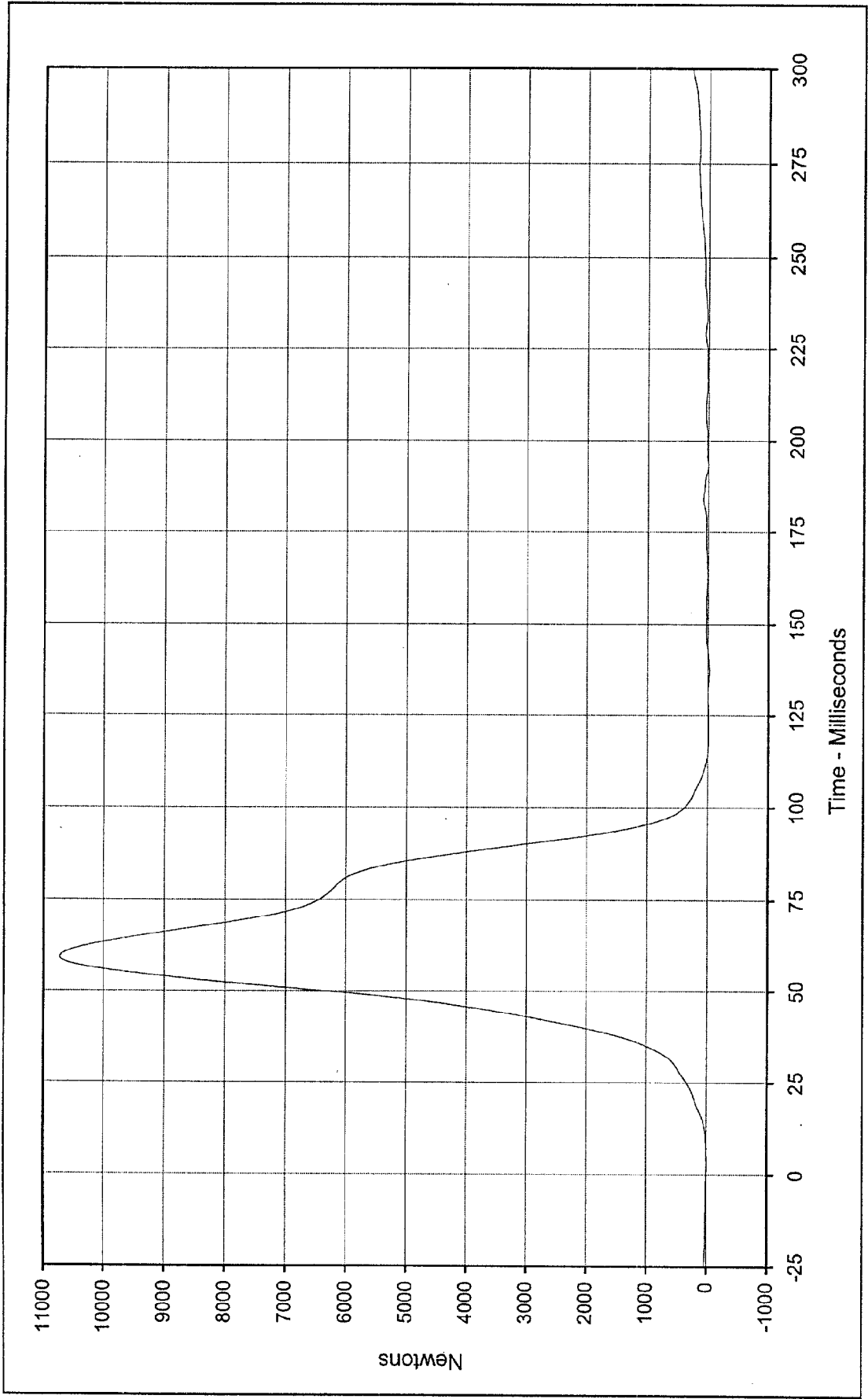
Curve Number: FIL-039





Curve Description:	Driver Right Foot Fore Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	236.4	at	54.6	Milliseconds
Minimum Value:	-64.0	at	65.6	Milliseconds
SAE Filter Class:	1000			
Date of Test:	2/4/98	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Curve Number:	FIL-040			

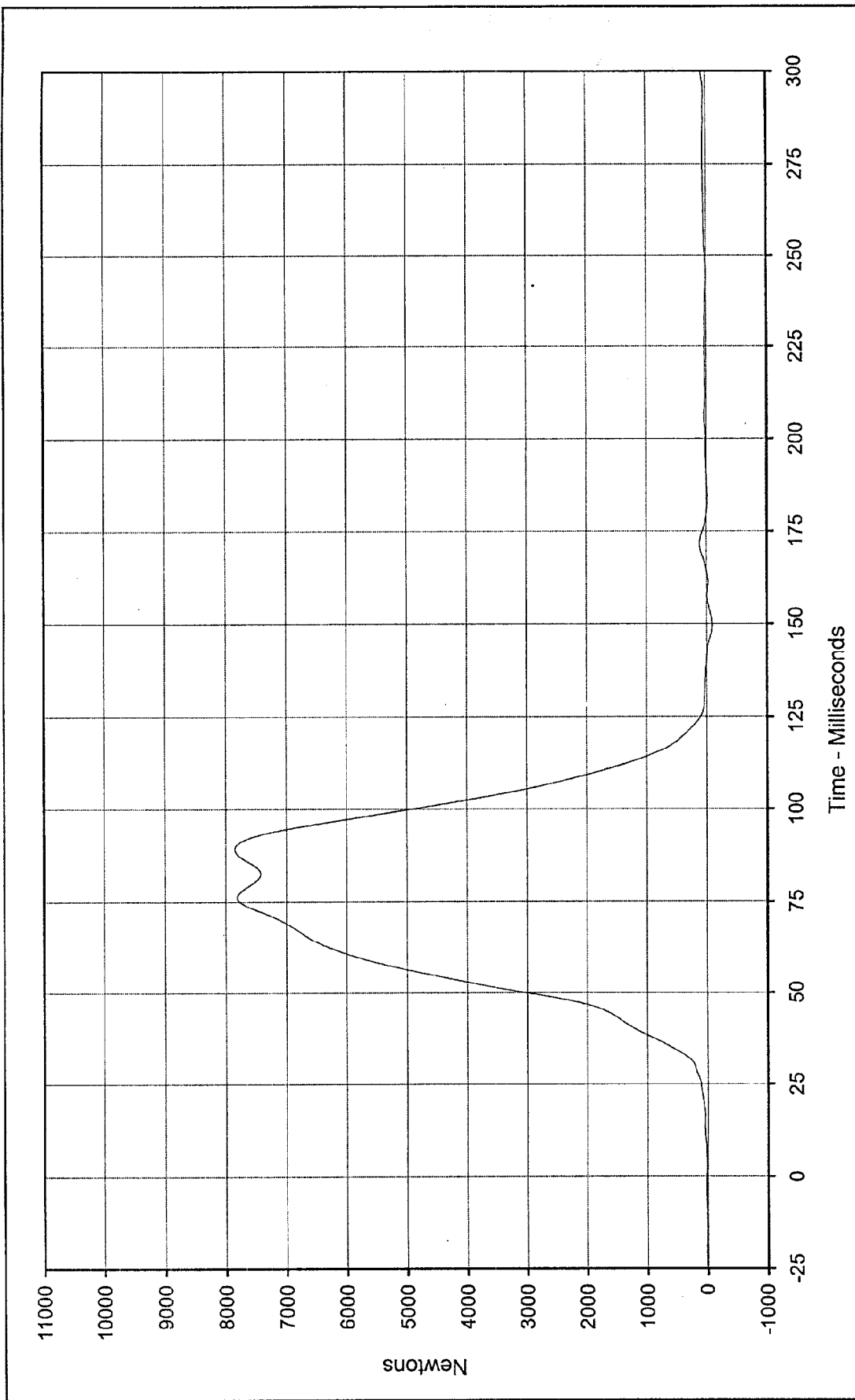




Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

Driver Lap Belt Force
Maximum Value: 10729.2 at 59.3 Milliseconds
Minimum Value: -29.4 at 137.2 Milliseconds
SAE Filter Class: 60
Date of Test: 2/4/98
Curve Number: FIL-041

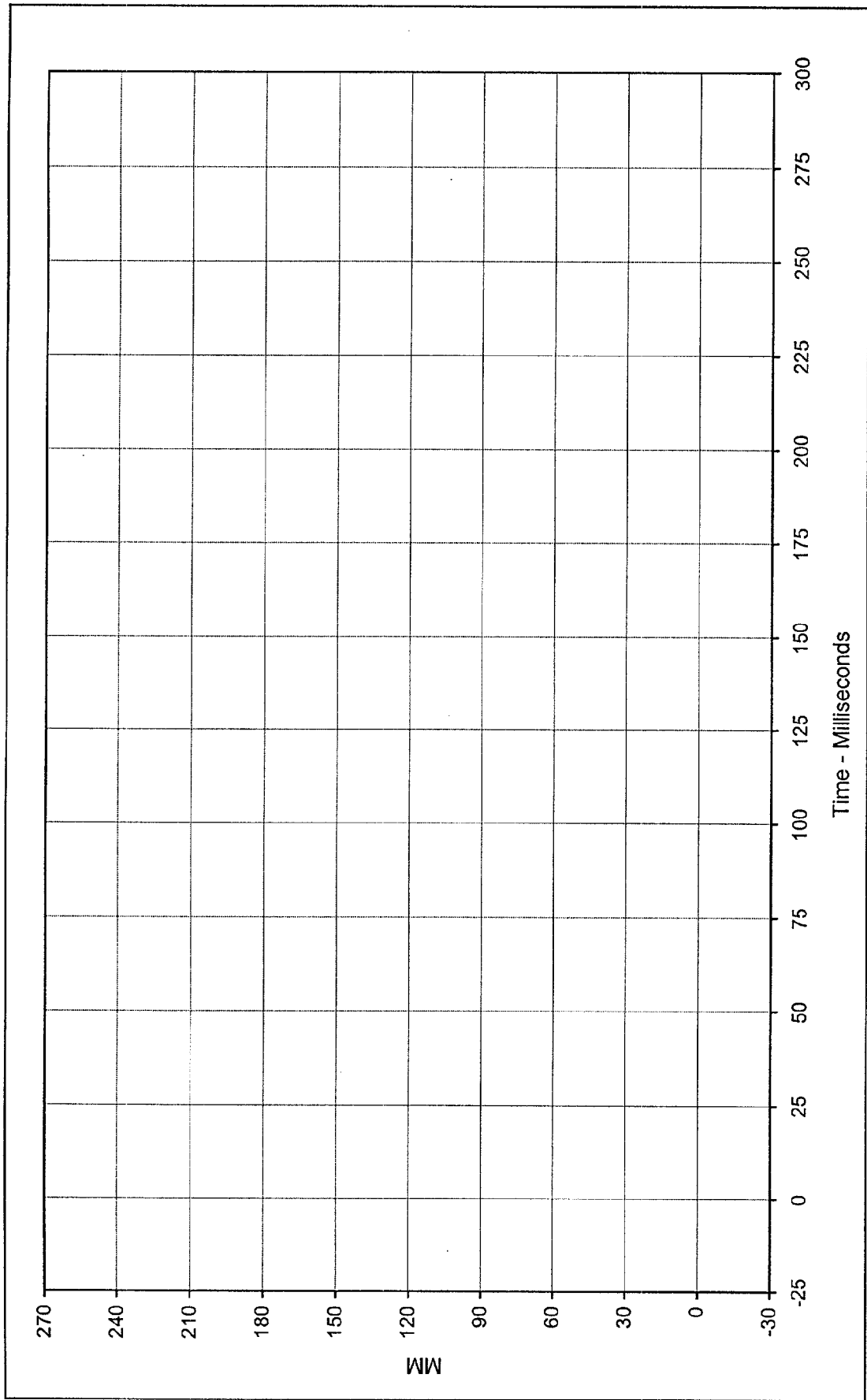




Curve Description: 1998 NHTSA 35 mph NCAP No.: MW0306
 Testing Program: 1998 Dodge Ram 1500 SLT Pickup
 Test Vehicle:

Driver Shoulder Belt Force
 Maximum Value: 7850.5 at 89.1 Milliseconds
 Minimum Value: -92.8 at 149.6 Milliseconds
 SAE Filler Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-042



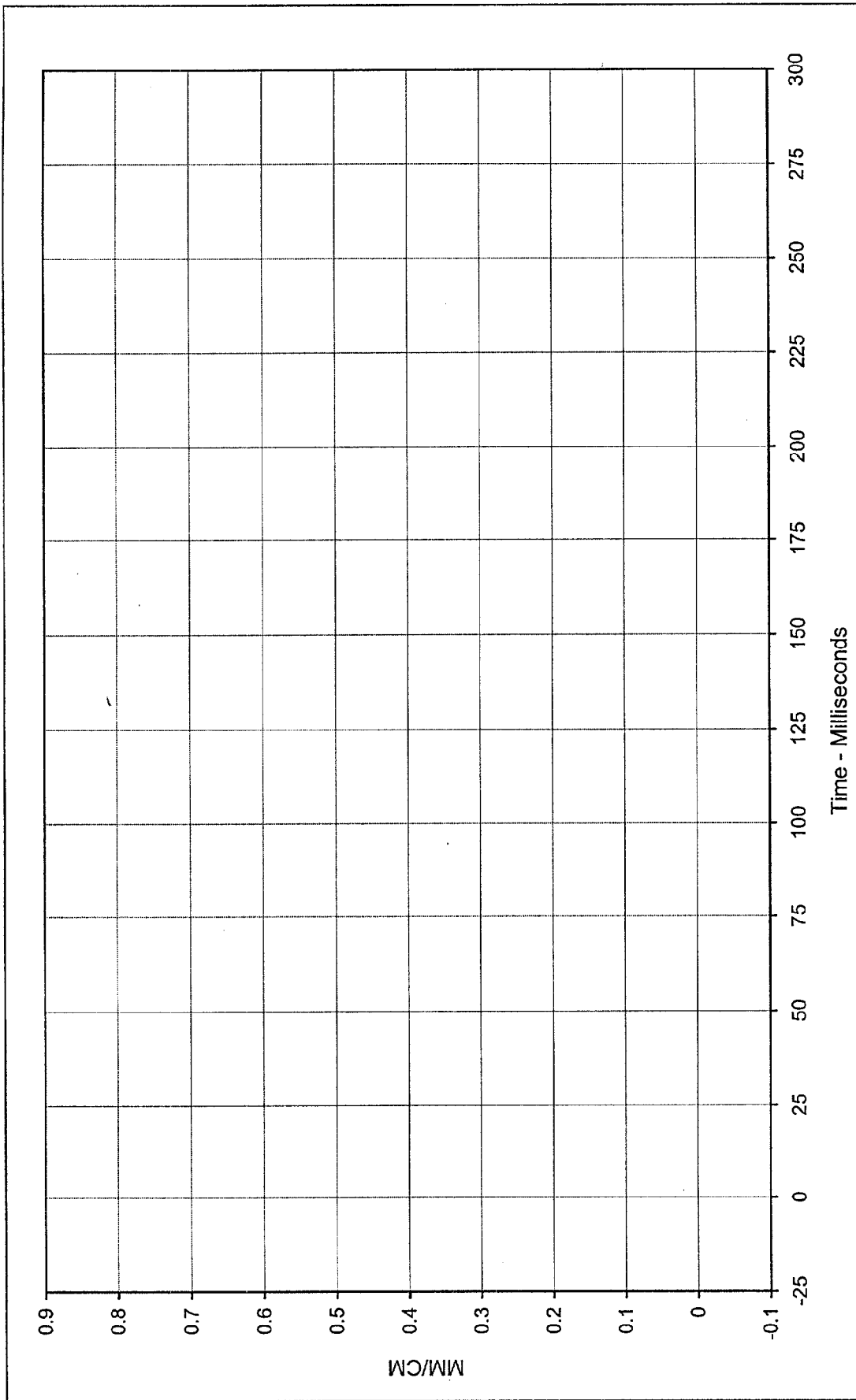


Curve Description: Driver Shoulder Belt Pullout * Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup
 Minimum Value: 0.0 at 0.0 Milliseconds



SAE Filter Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-043

* Sensor Not Installed

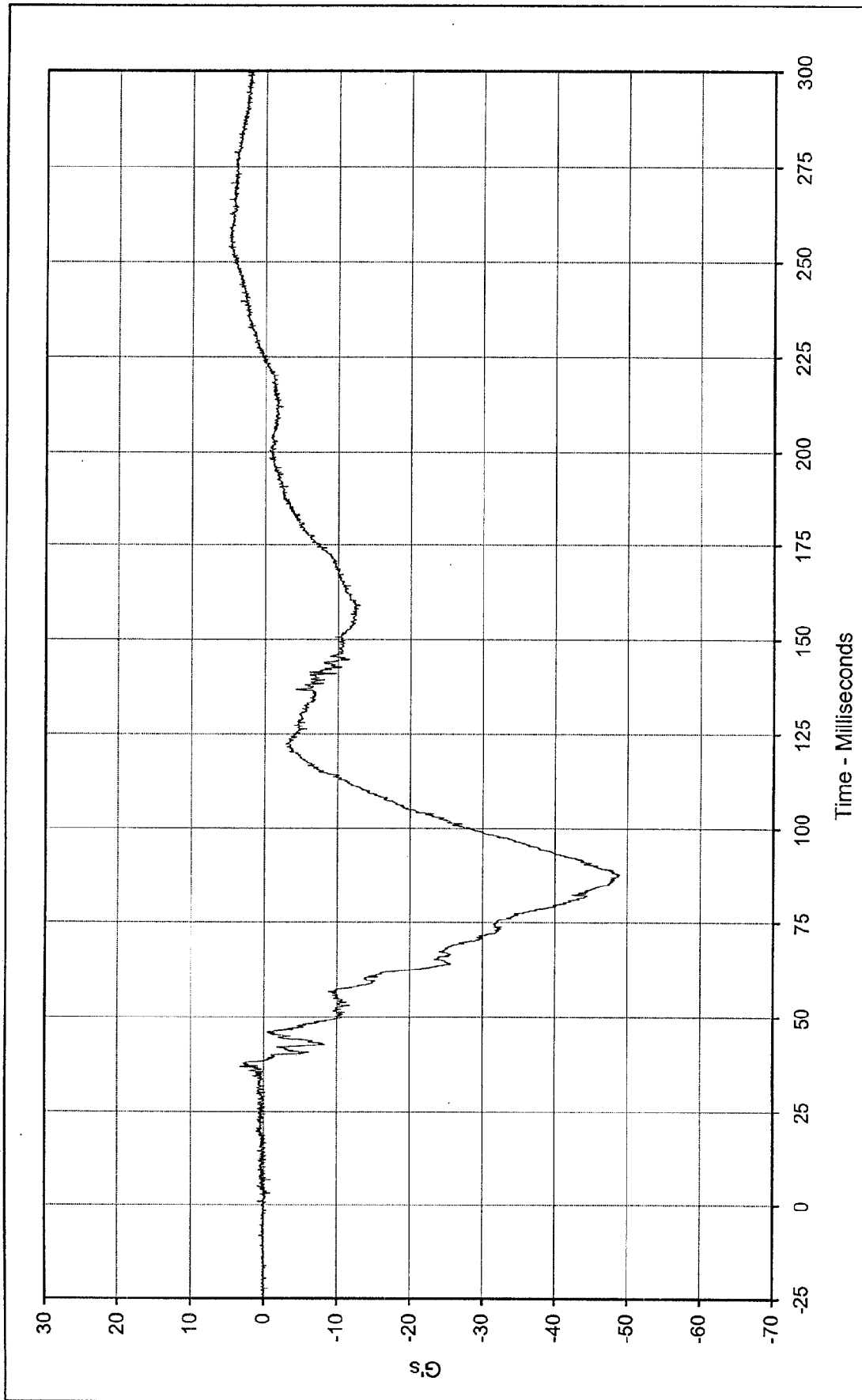


Curve Description: Driver Shoulder Belt Elongation * Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 0.00 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup
 Minimum Value: 0.00 at 0.0 Milliseconds

SAE Filter Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-044



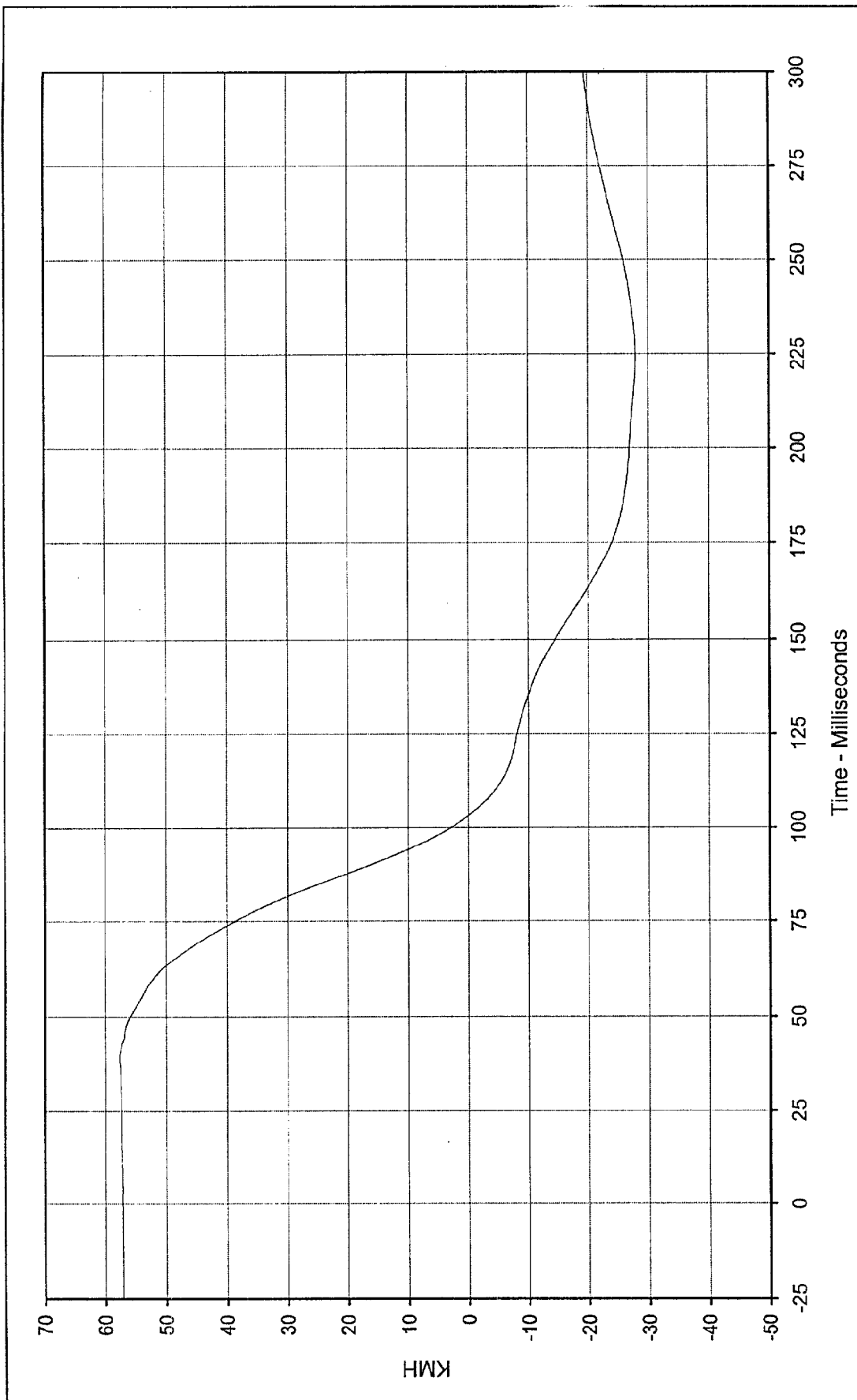
* Sensor Not Installed



Curve Description: Passenger Head Primary X
 Maximum Value: 5.2 at 254.0 Milliseconds
 Minimum Value: -48.9 at 87.7 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-045

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

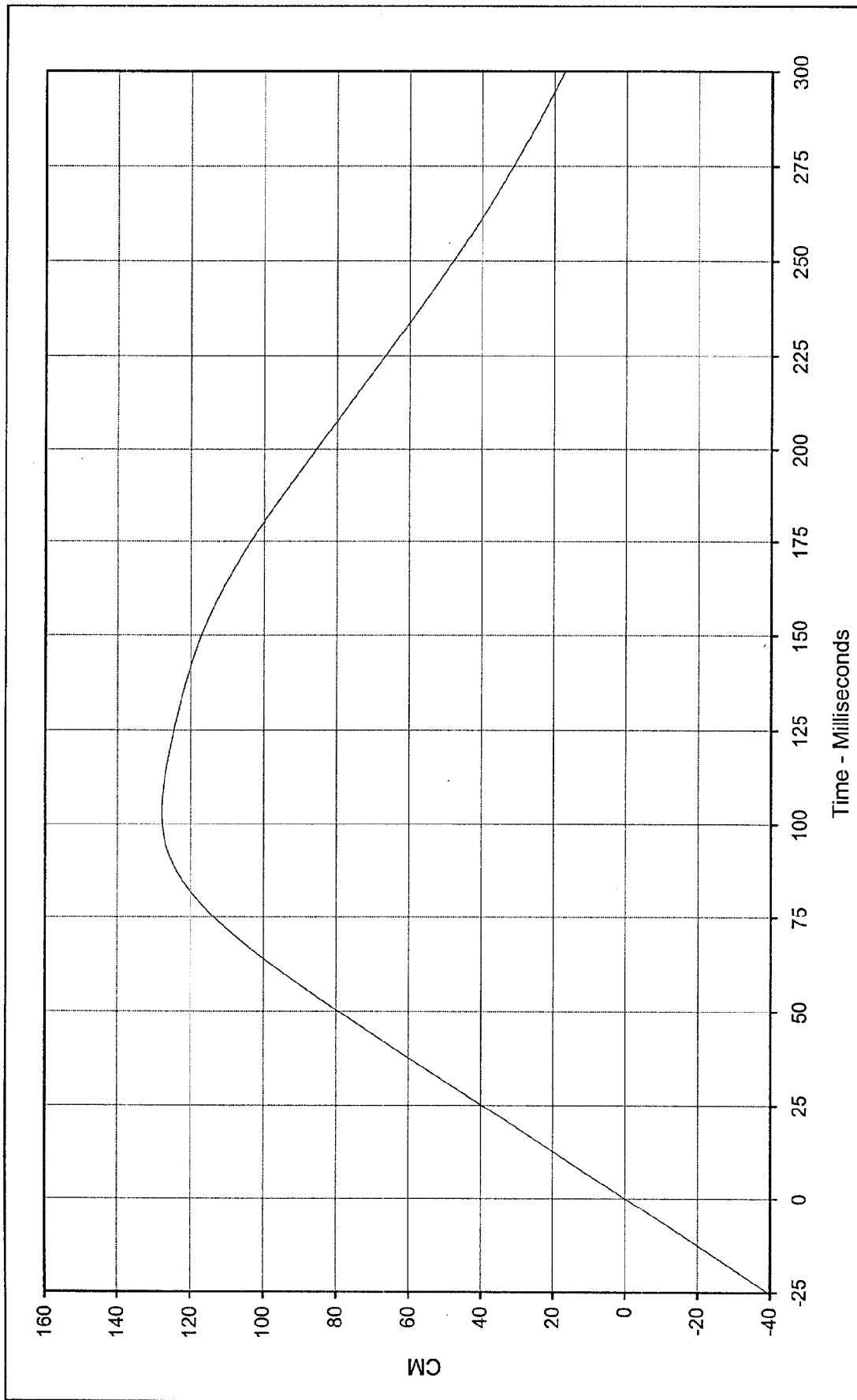




Curve Description: Passenger Head Primary X Velocity
 Maximum Value: 57.7 at 38.8 Milliseconds
 Minimum Value: -27.9 at 224.1 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-045

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

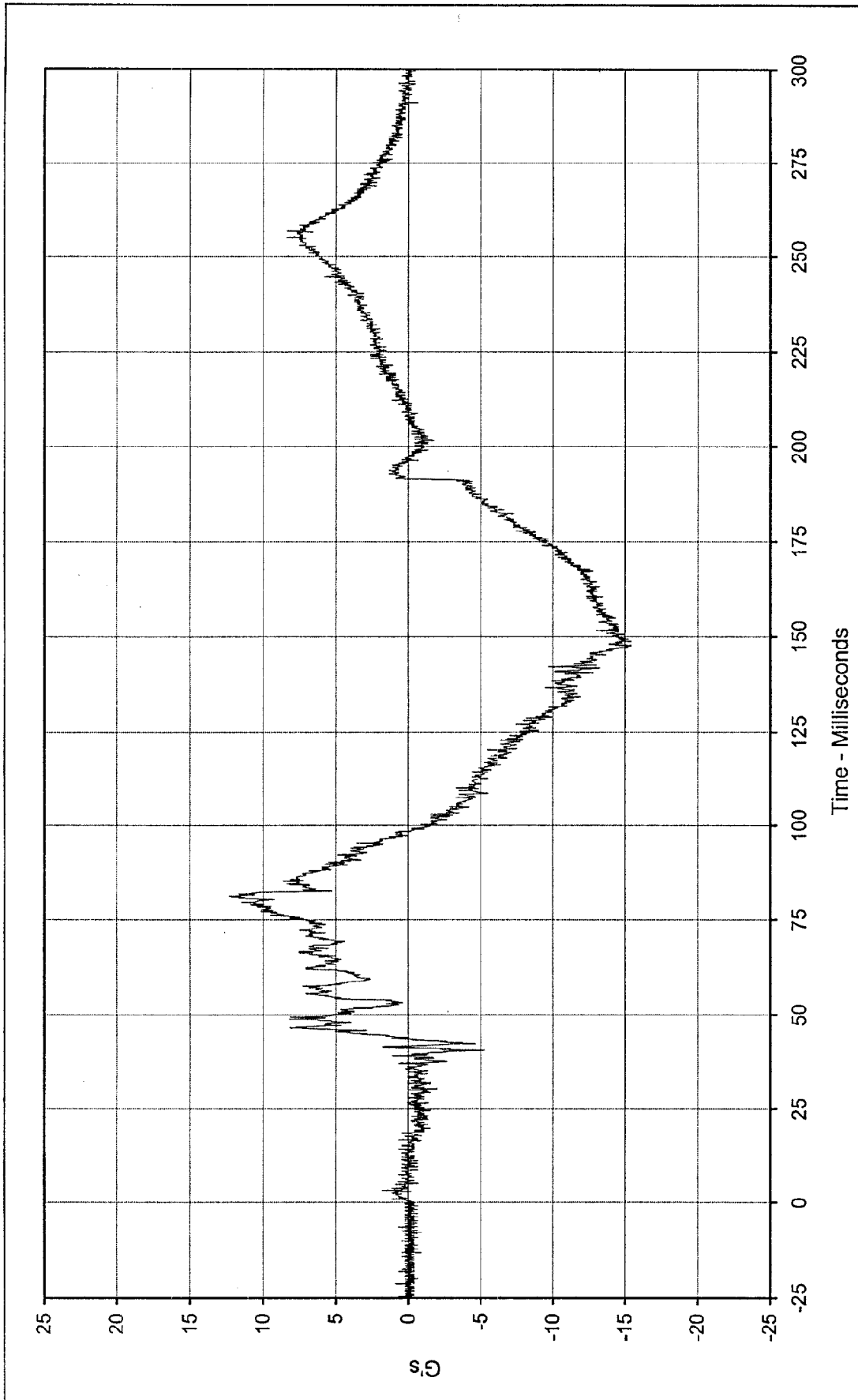




Curve Description: Passenger Head Primary X Displ.
 Maximum Value: 127.8 at 103.2 Milliseconds
 Minimum Value: 0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-045

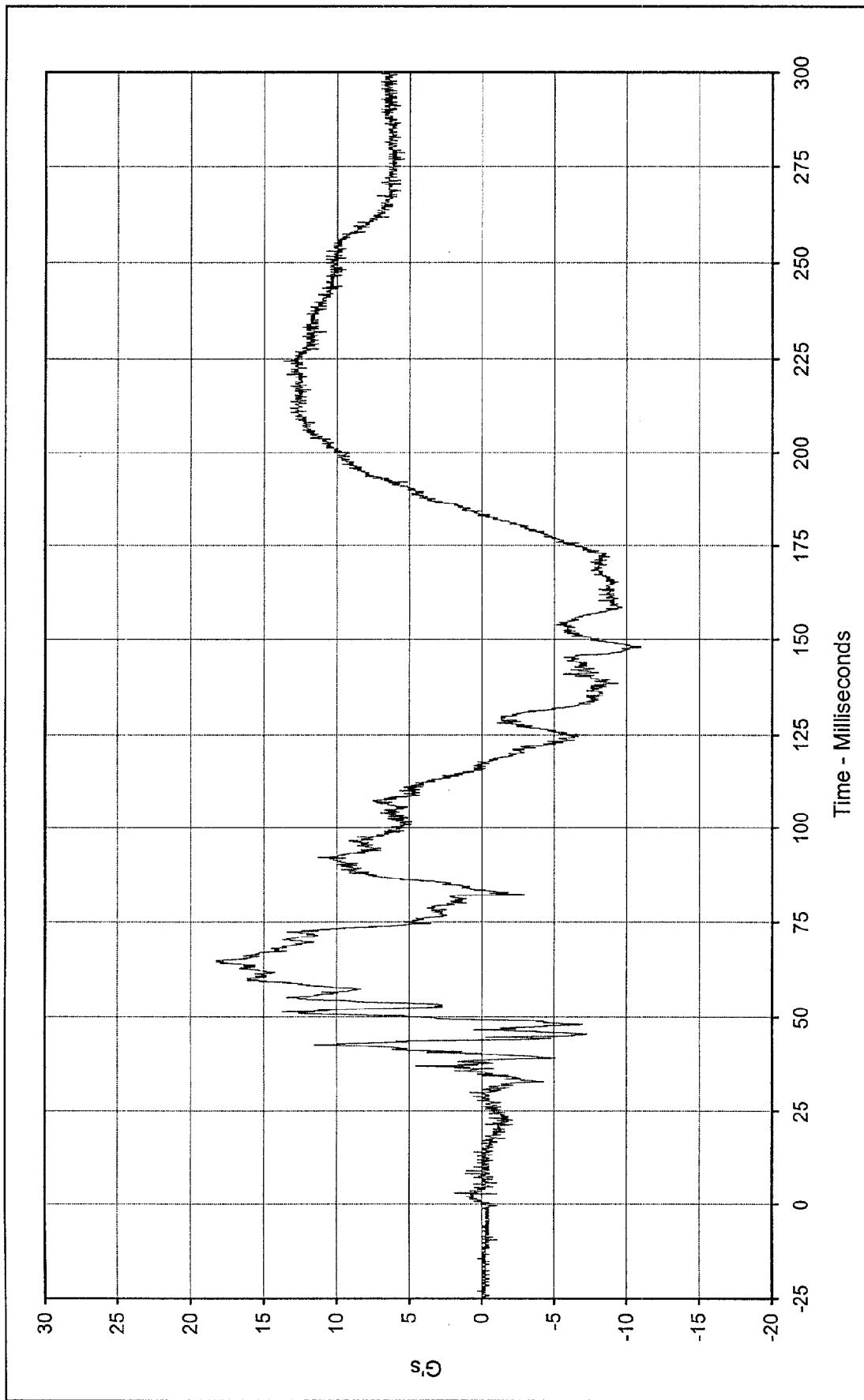
Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Passenger Head Primary Y	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	12.3 at 81.1 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-15.4 at 147.6 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/4/98			
Curve Number:	FIL-046			

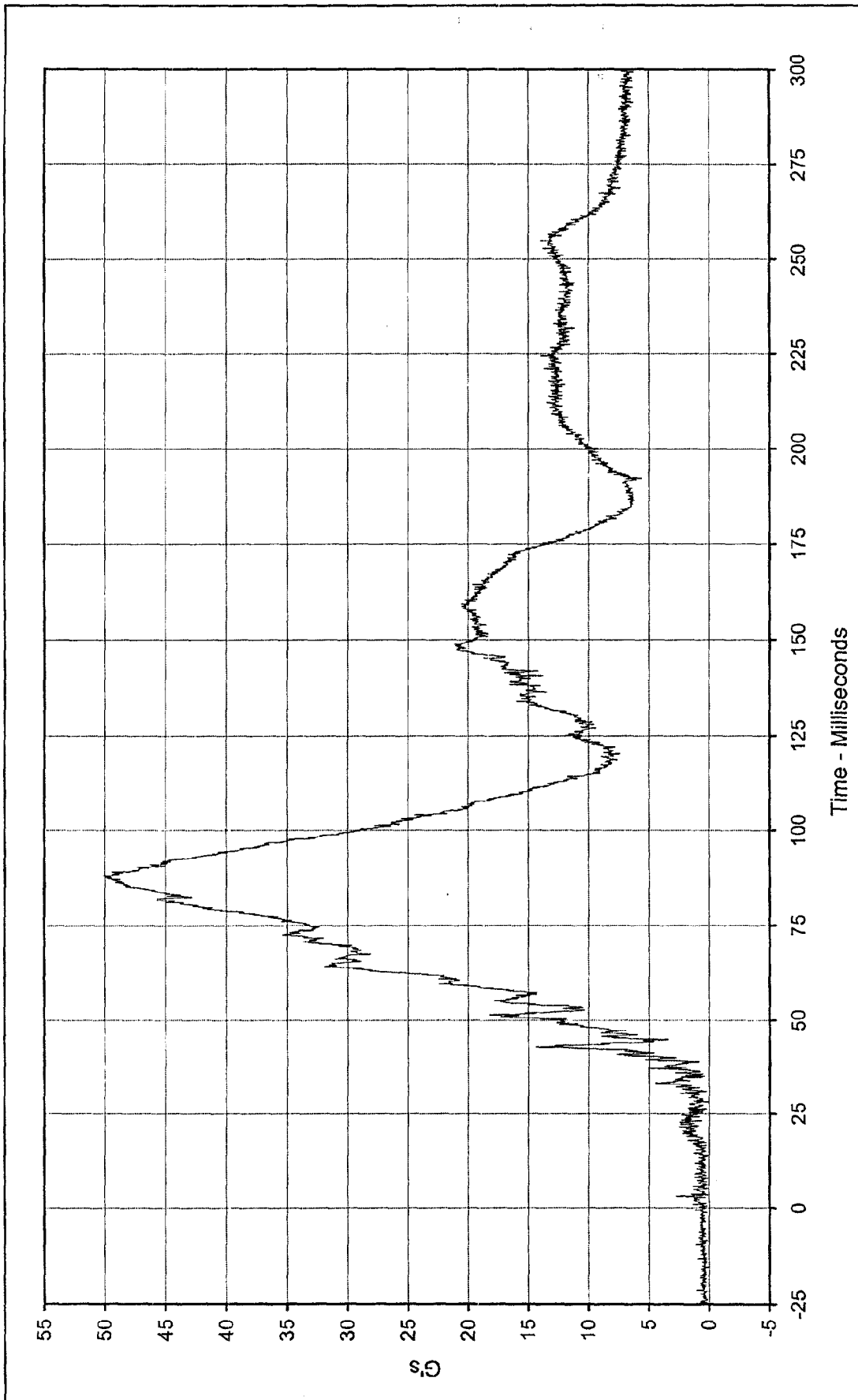




Curve Description: Passenger Head Primary Z
 Maximum Value: 18.3 at 64.5 Milliseconds
 Minimum Value: -11.0 at 147.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-047

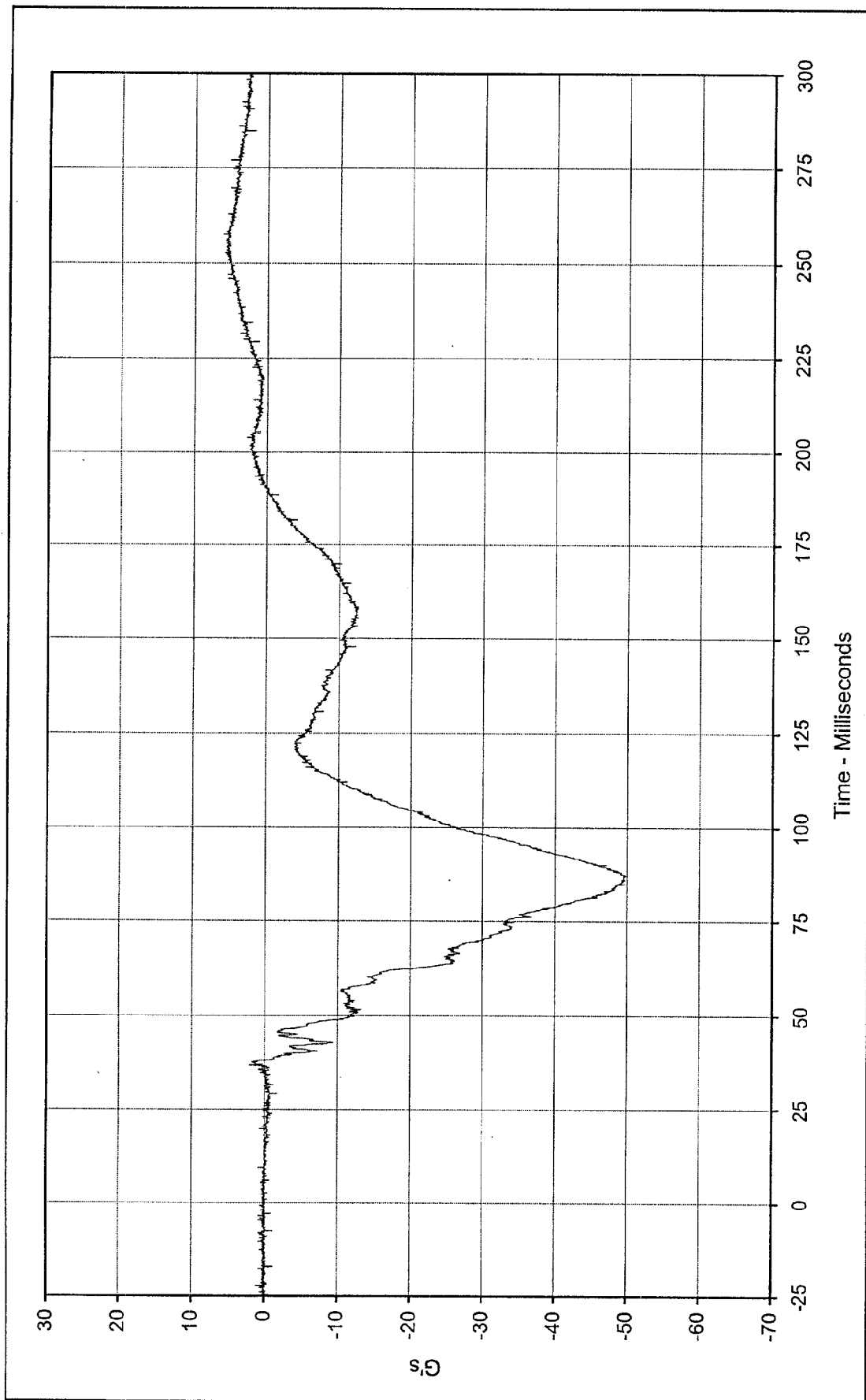
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Passenger Head Resultant Primary	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	50.1 at 87.9 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	0.0 at 5.2 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/4/98			
Curve Number:	RES-045			

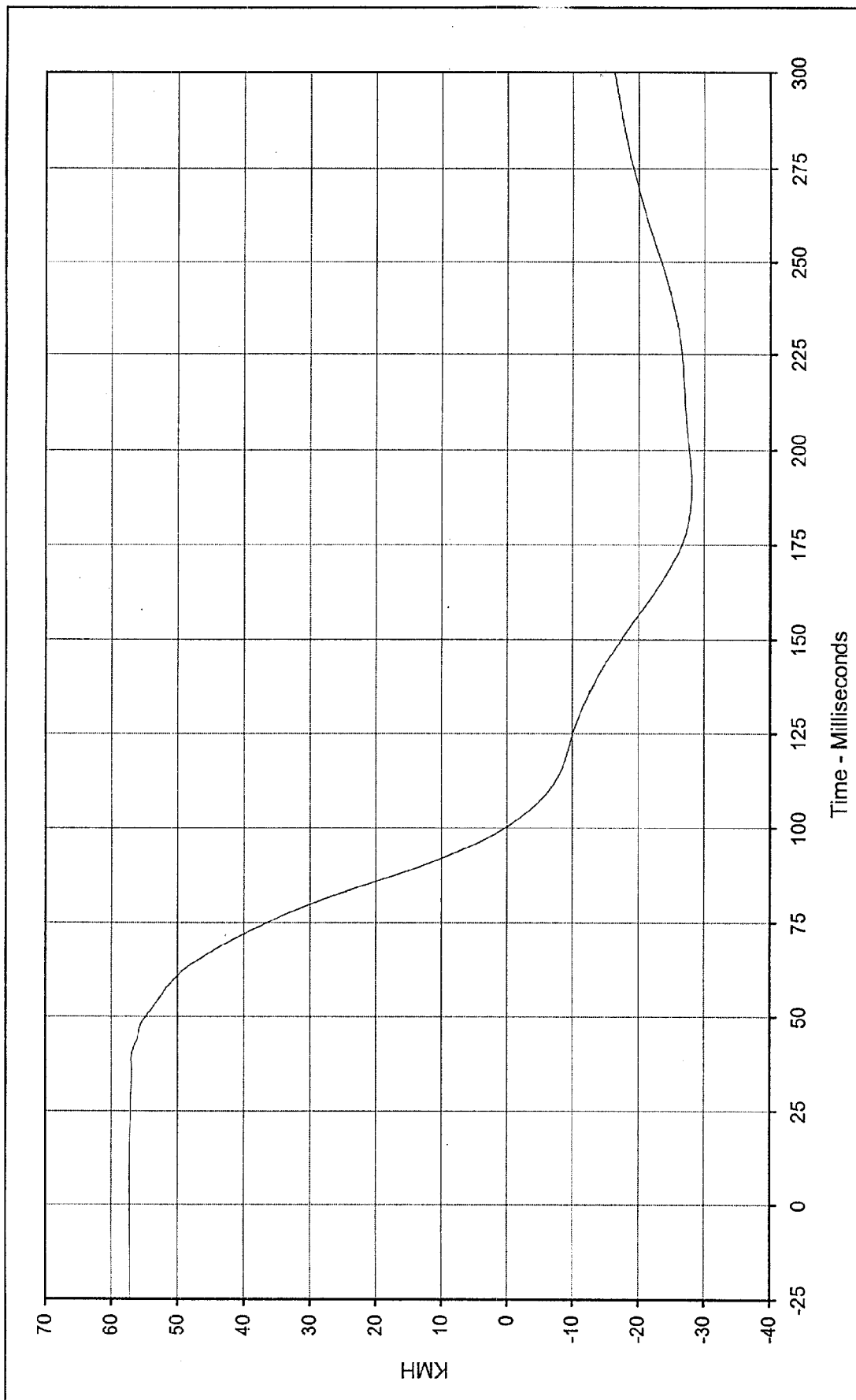




Curve Description: Passenger Head Redundant X
 Maximum Value: 6.1 at 257.8 Milliseconds
 Minimum Value: -49.9 at 87.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-048

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

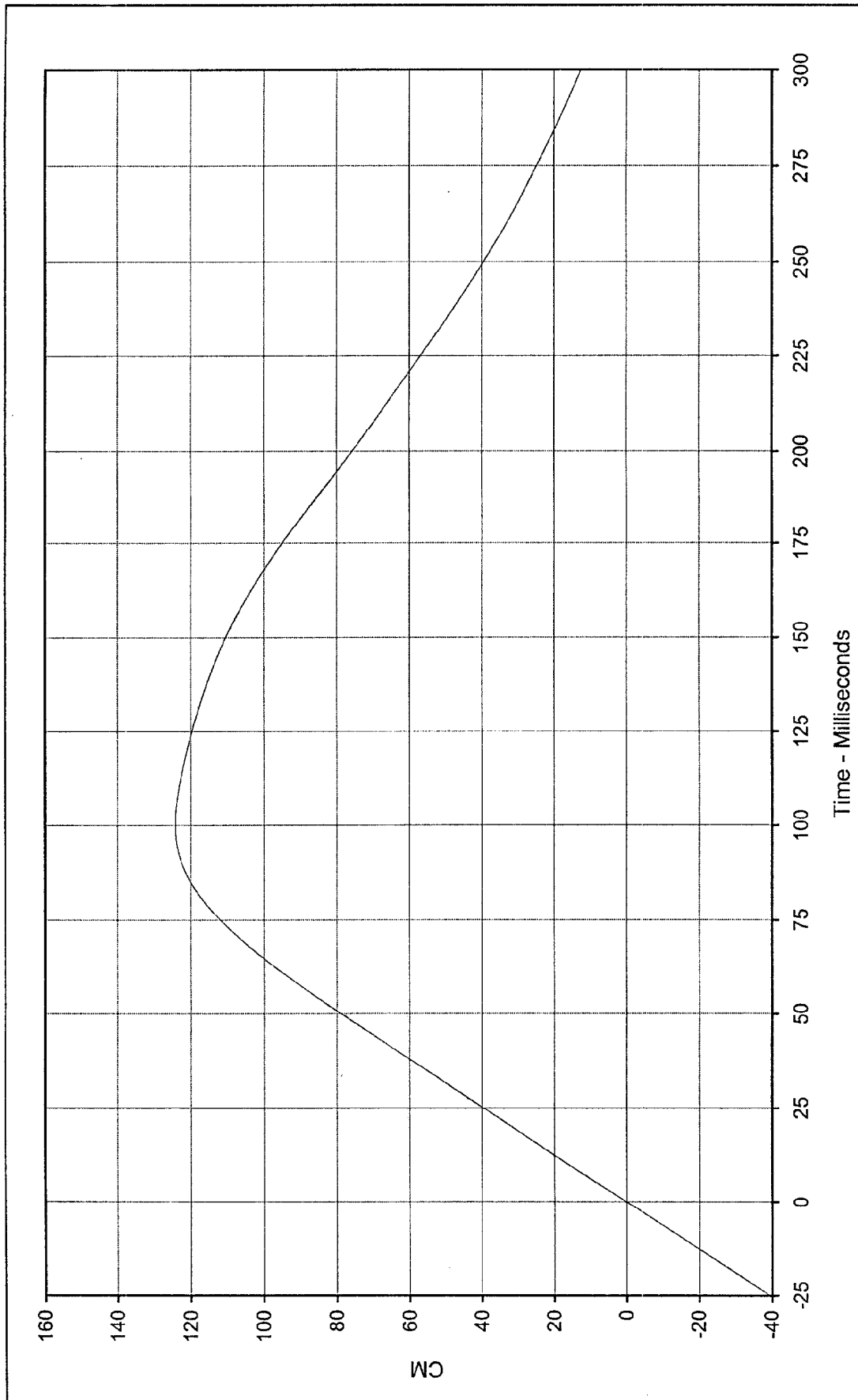




Curve Description: Passenger Head Redundant X Velocity
 Maximum Value: 57.2 at 5.8 Milliseconds
 Minimum Value: -28.1 at 190.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-048

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

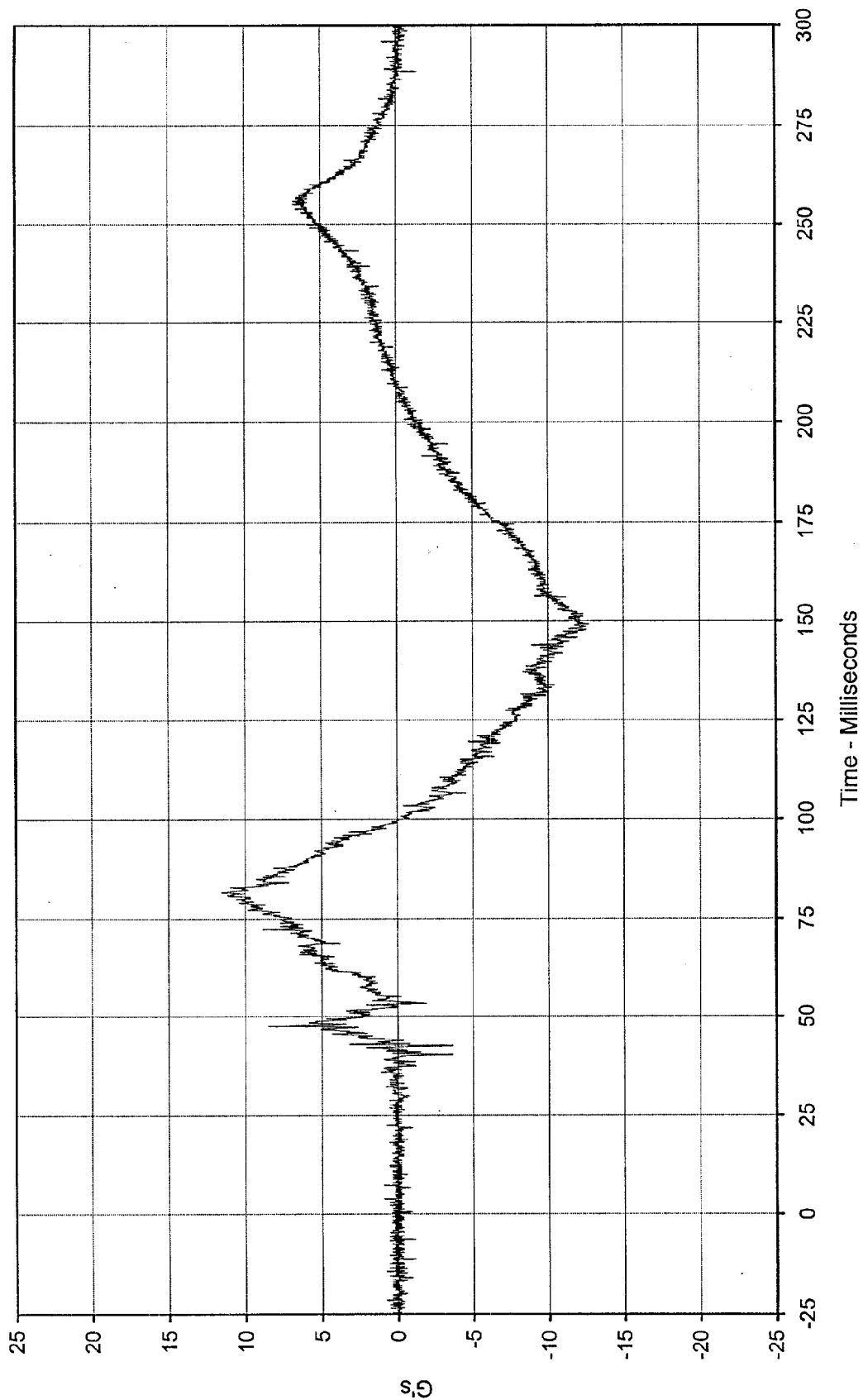




Curve Description: Passenger Head Redundant X Displ.
 Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

Maximum Value: 124.2 at 100.4 Milliseconds
 Minimum Value: 0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-048





Curve Description: Passenger Head Redundant Y Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Maximum Value: 11.5 at 81.6 Milliseconds Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

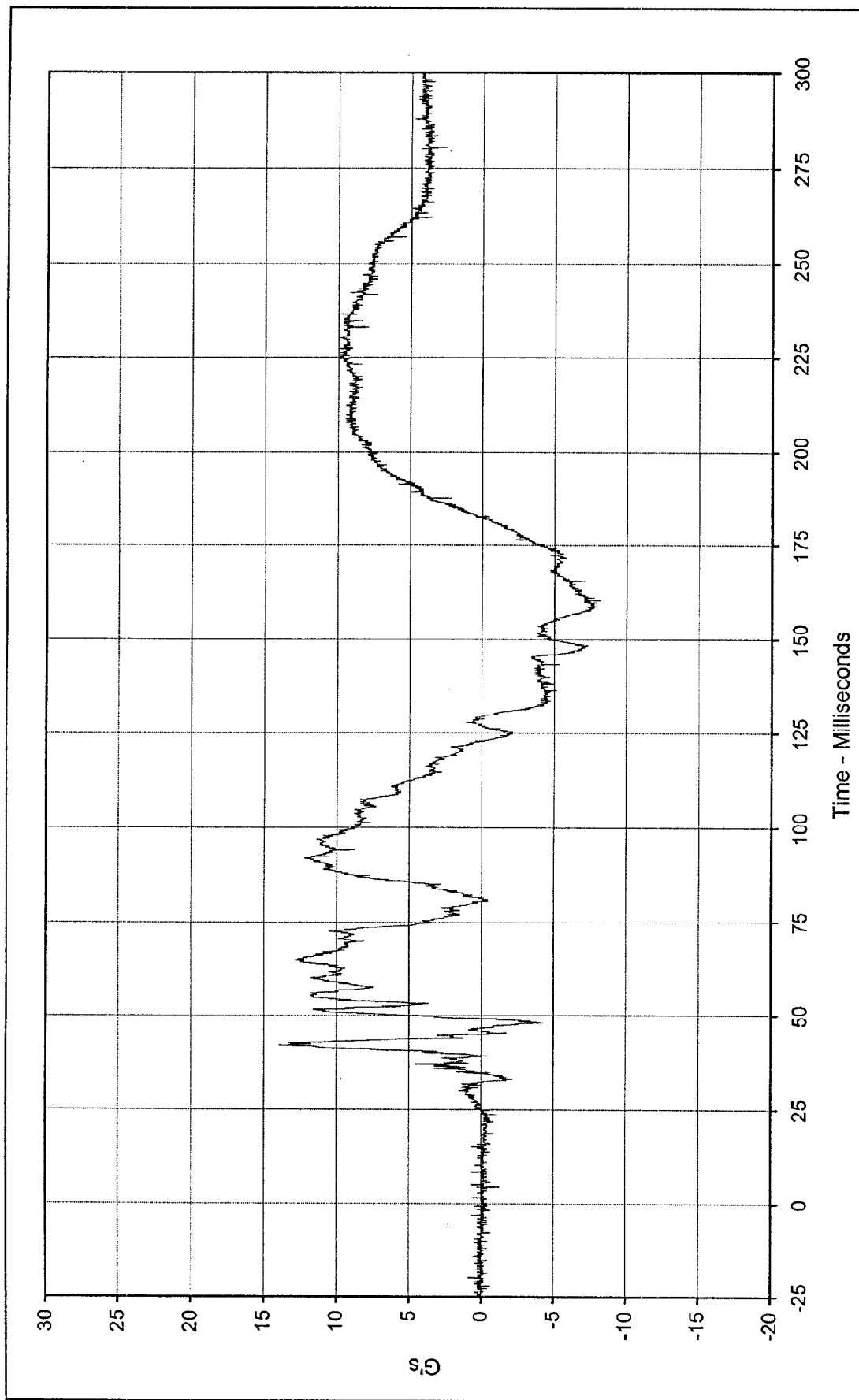
Minimum Value: -12.7 at 149.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 2/4/98

Curve Number: FIL-049





Curve Description: Passenger Head Redundant Z

Maximum Value: 14.0 at 42.1 Milliseconds

Minimum Value: -8.2 at 160.4 Milliseconds

SAE Filter Class: 1000

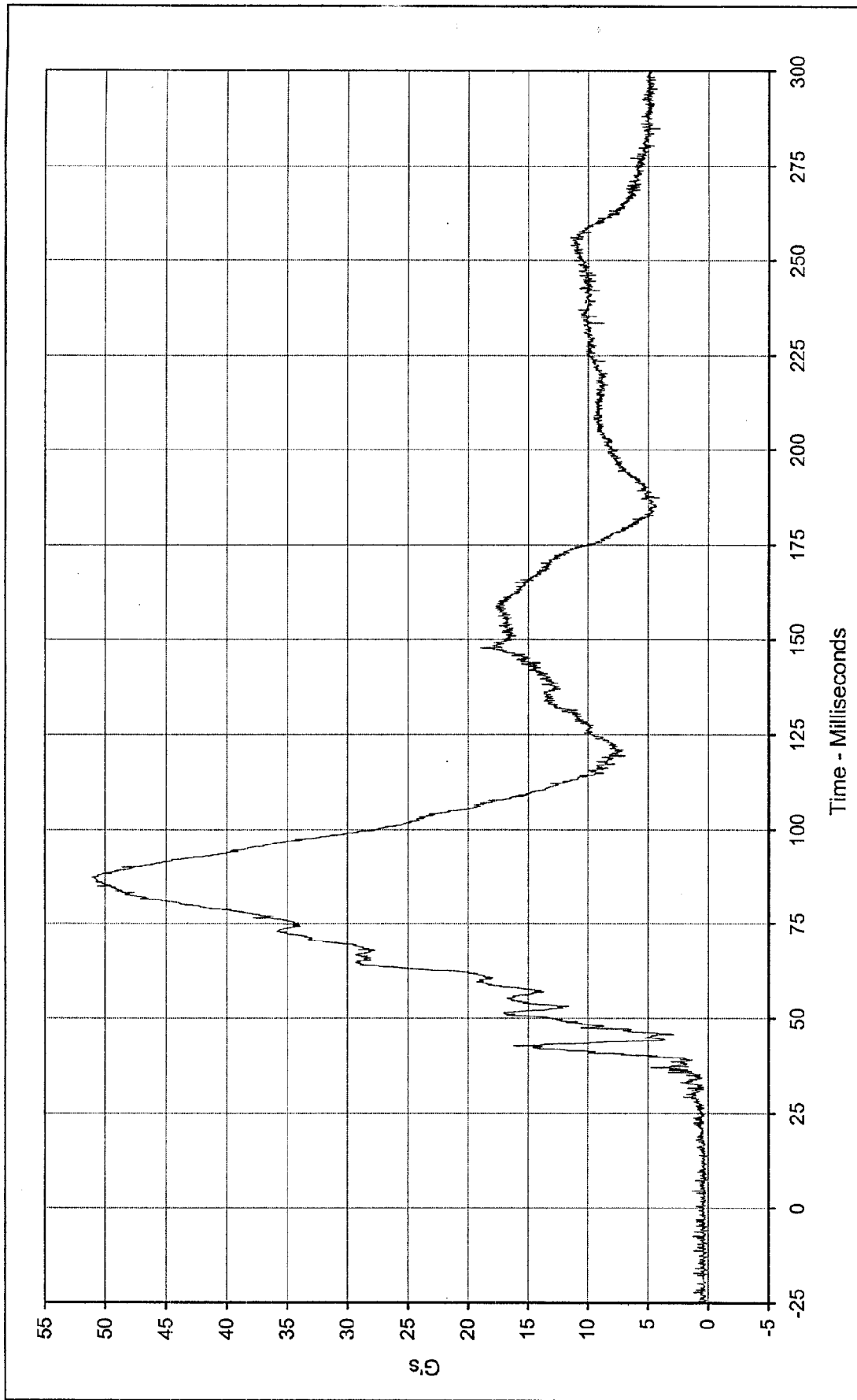
Date of Test: 2/4/98

Curve Number: FIL-050

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

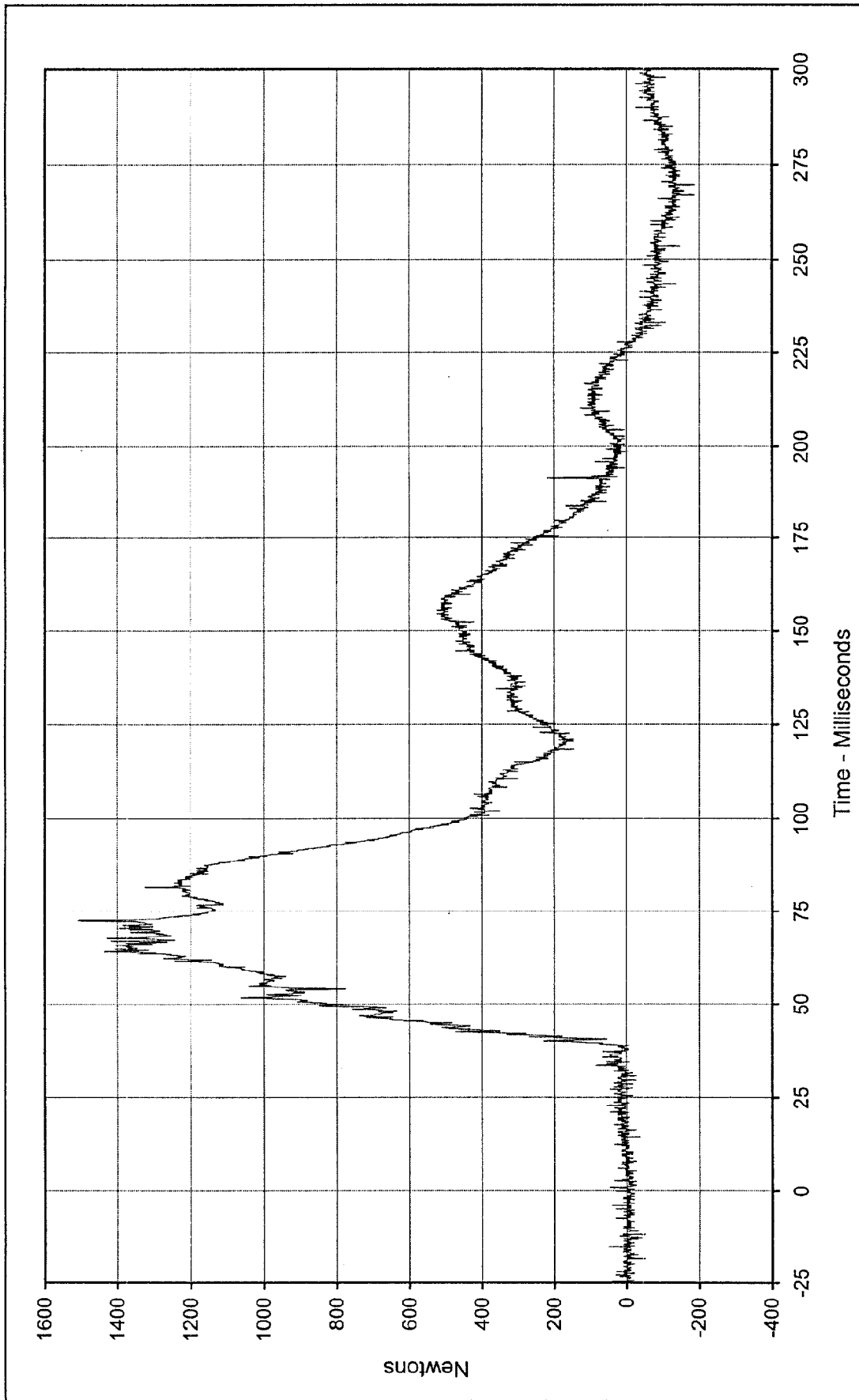




Curve Description: Passenger Head Resultant Redundant
 Maximum Value: 51.1 at 87.2 Milliseconds
 Minimum Value: 0.1 at 7.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: RES-048

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

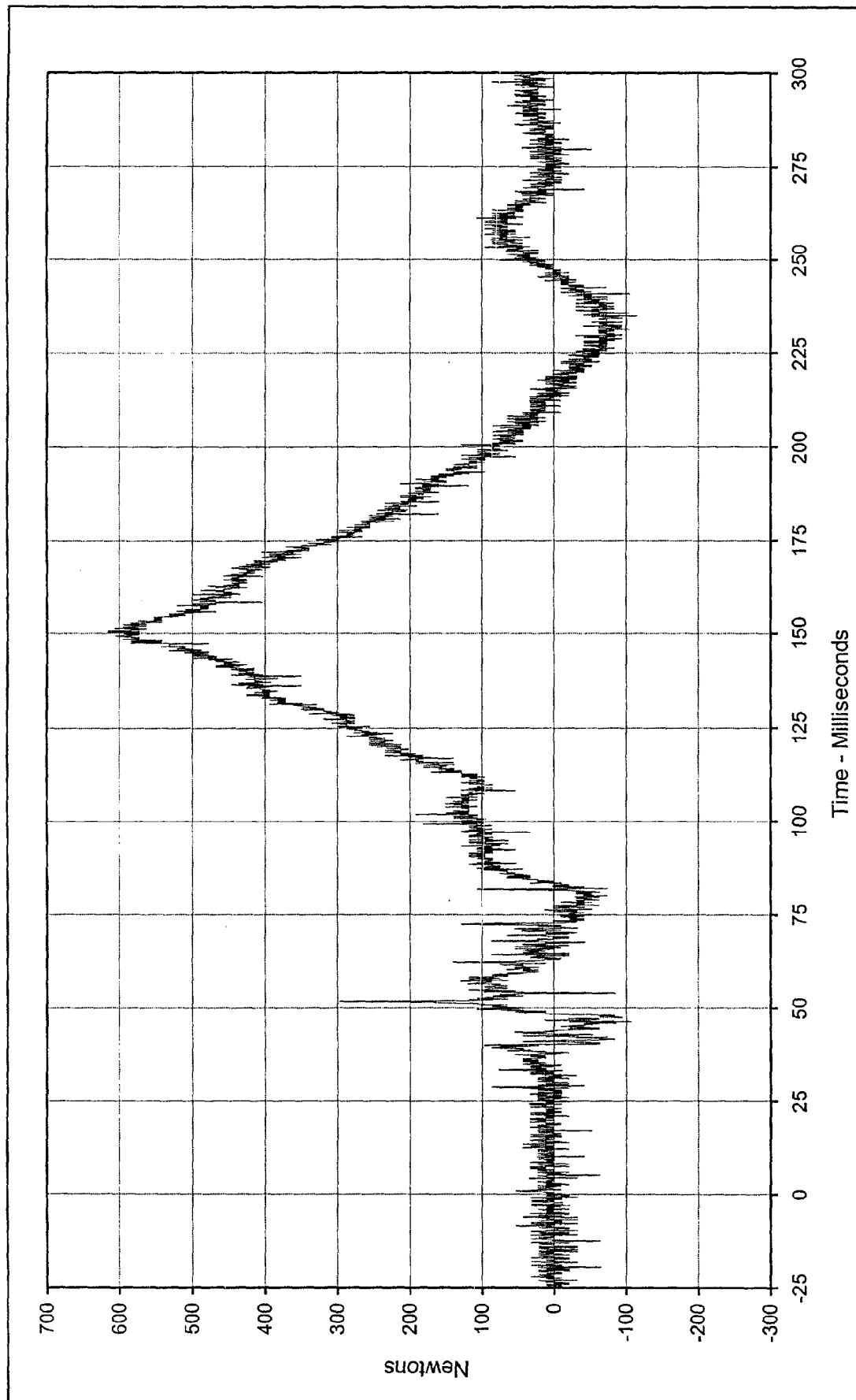




Curve Description: Passenger Neck Force X
 Maximum Value: 1508.0 at 72.4 Milliseconds
 Minimum Value: -188.3 at 267.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-051

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

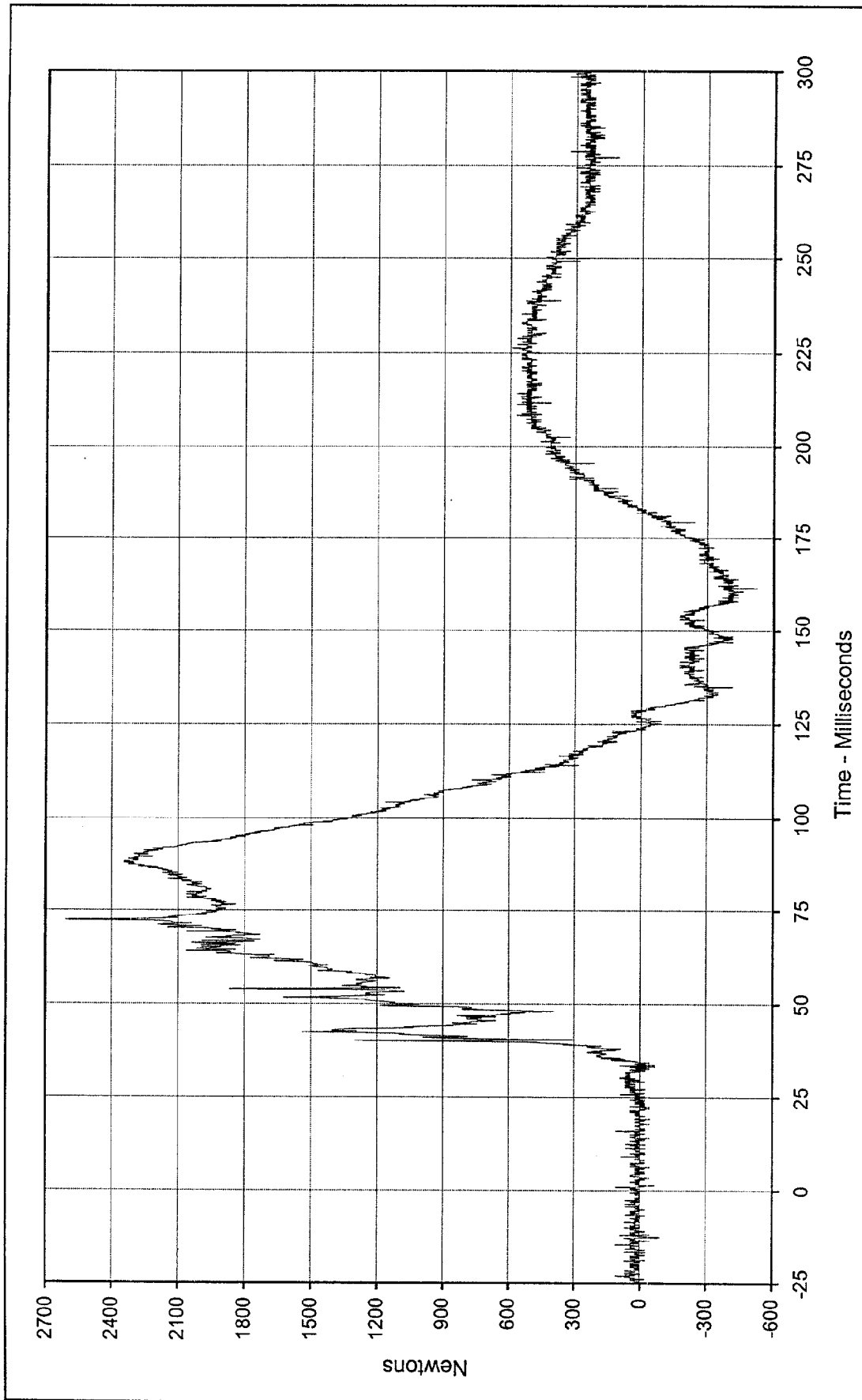




Curve Description:	Passenger Neck Force Y	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	615.6 at 150.3 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-115.5 at 235.0 Milliseconds			



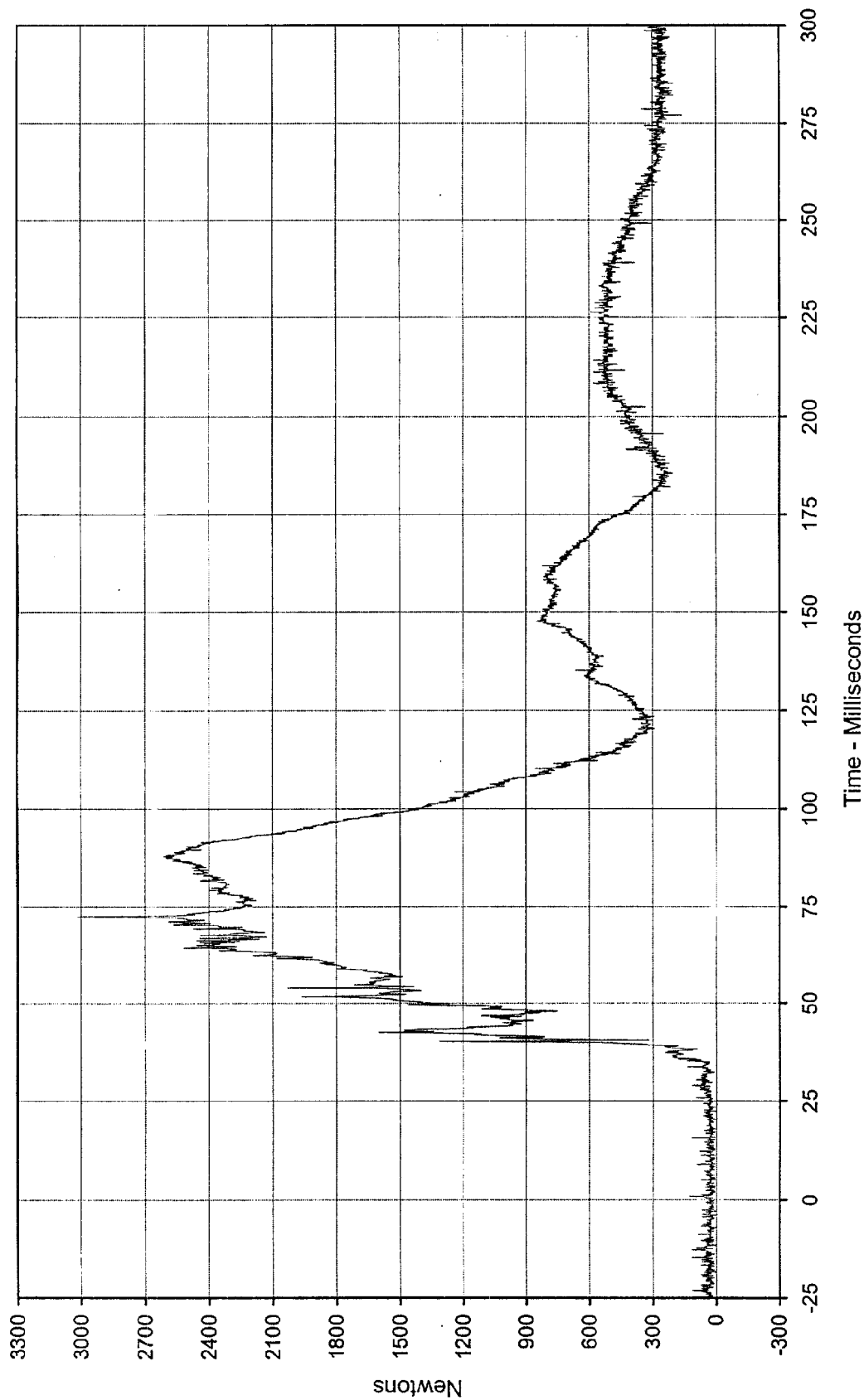
SAE Filter Class:	1000
Date of Test:	2/4/98
Curve Number:	FIL-052



Curve Description: Passenger Neck Force Z
 Maximum Value: 2608.3 at 72.4 Milliseconds
 Minimum Value: -525.2 at 161.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-053

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Neck Force Resultant

Maximum Value: 3015.6 at 72.4 Milliseconds

Minimum Value: 4.8 at 3.1 Milliseconds

SAE Filter Class: 1000

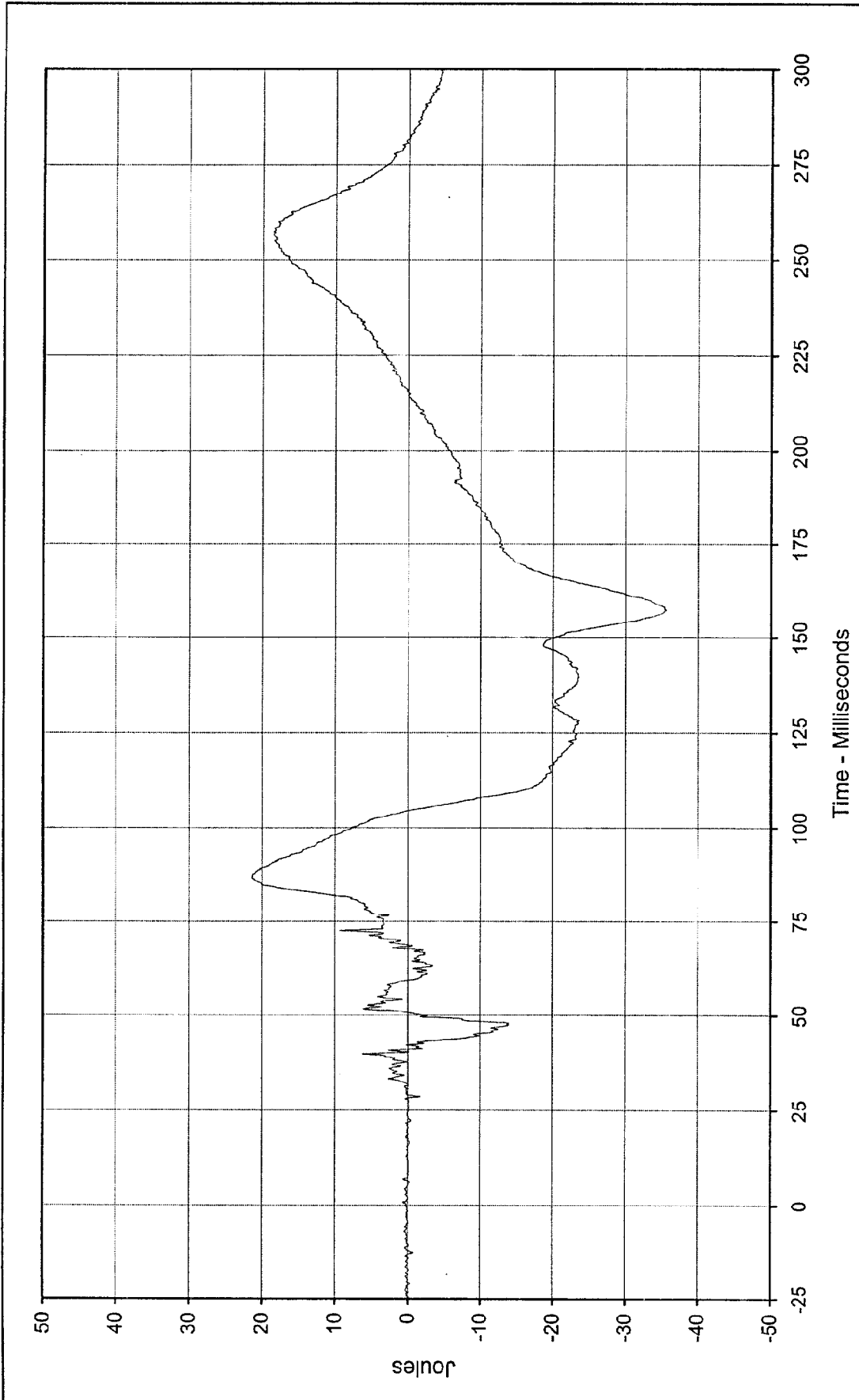
Date of Test: 2/4/98

Curve Number: RES-051

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

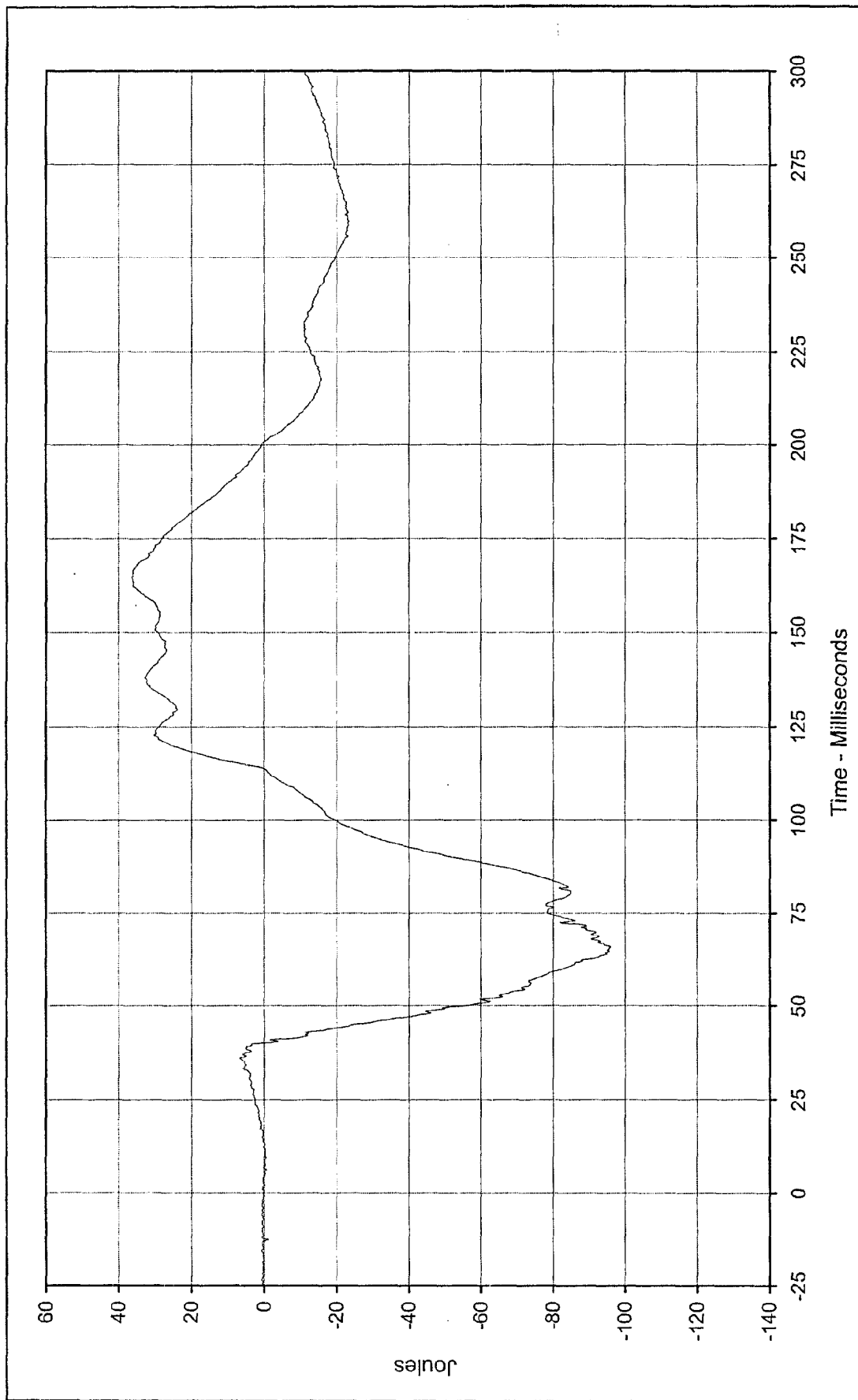




Curve Description: Passenger Neck Moment X
Maximum Value: 21.4 at 86.6 Milliseconds
Minimum Value: -35.6 at 157.4 Milliseconds
SAE Filter Class: 600
Date of Test: 2/4/98
Curve Number: FIL-054

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: 1998 NHTSA 35 mph NCAP No.: MW0306

Maximum Value: 36.3 at 164.5 Milliseconds

Minimum Value: -95.9 at 65.8 Milliseconds

SAE Filter Class: 600

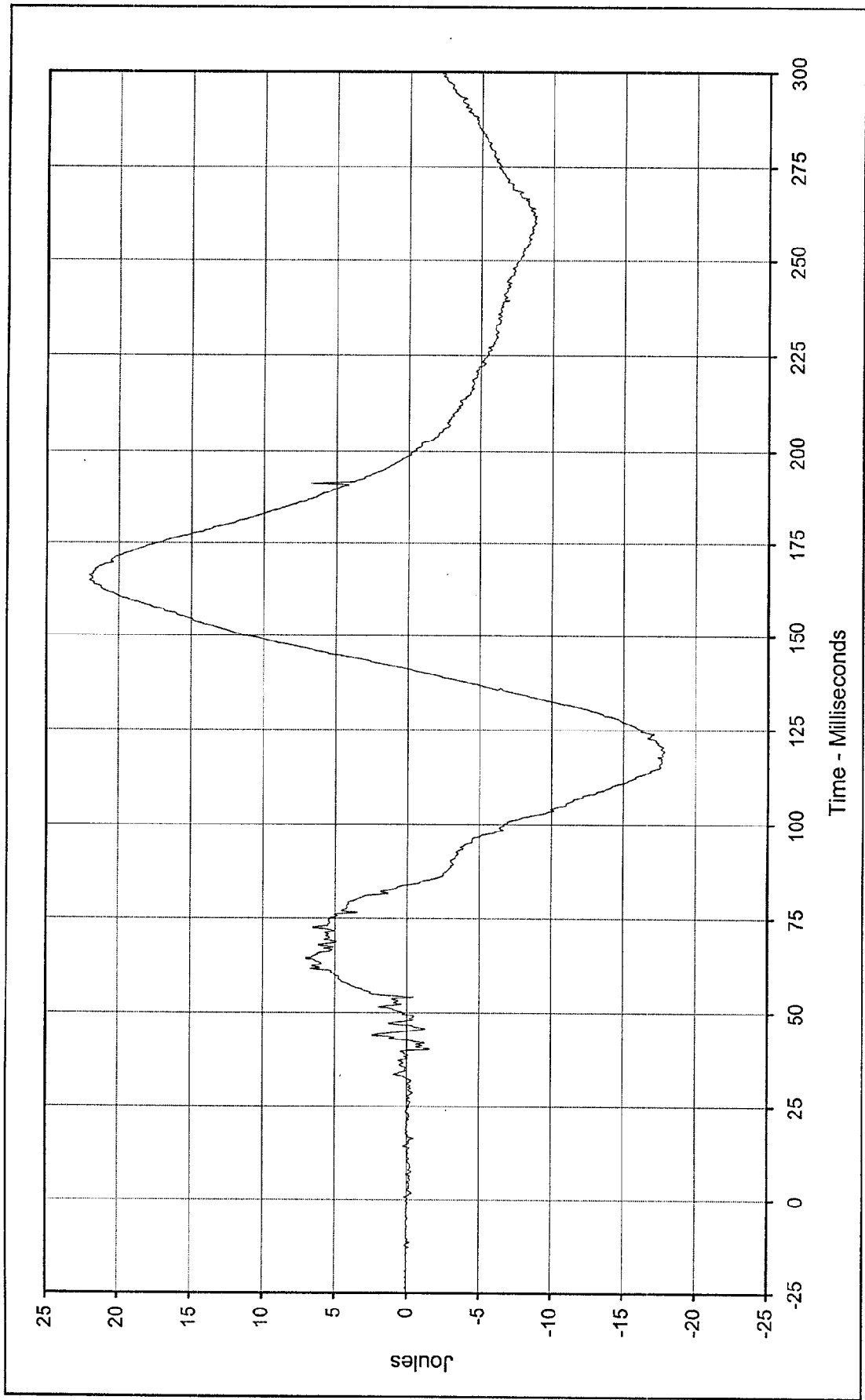
Date of Test: 2/4/98

Curve Number: FIL-055

Testing Program 1998 Dodge Ram 1500 SLT Pickup

Test Vehicle:

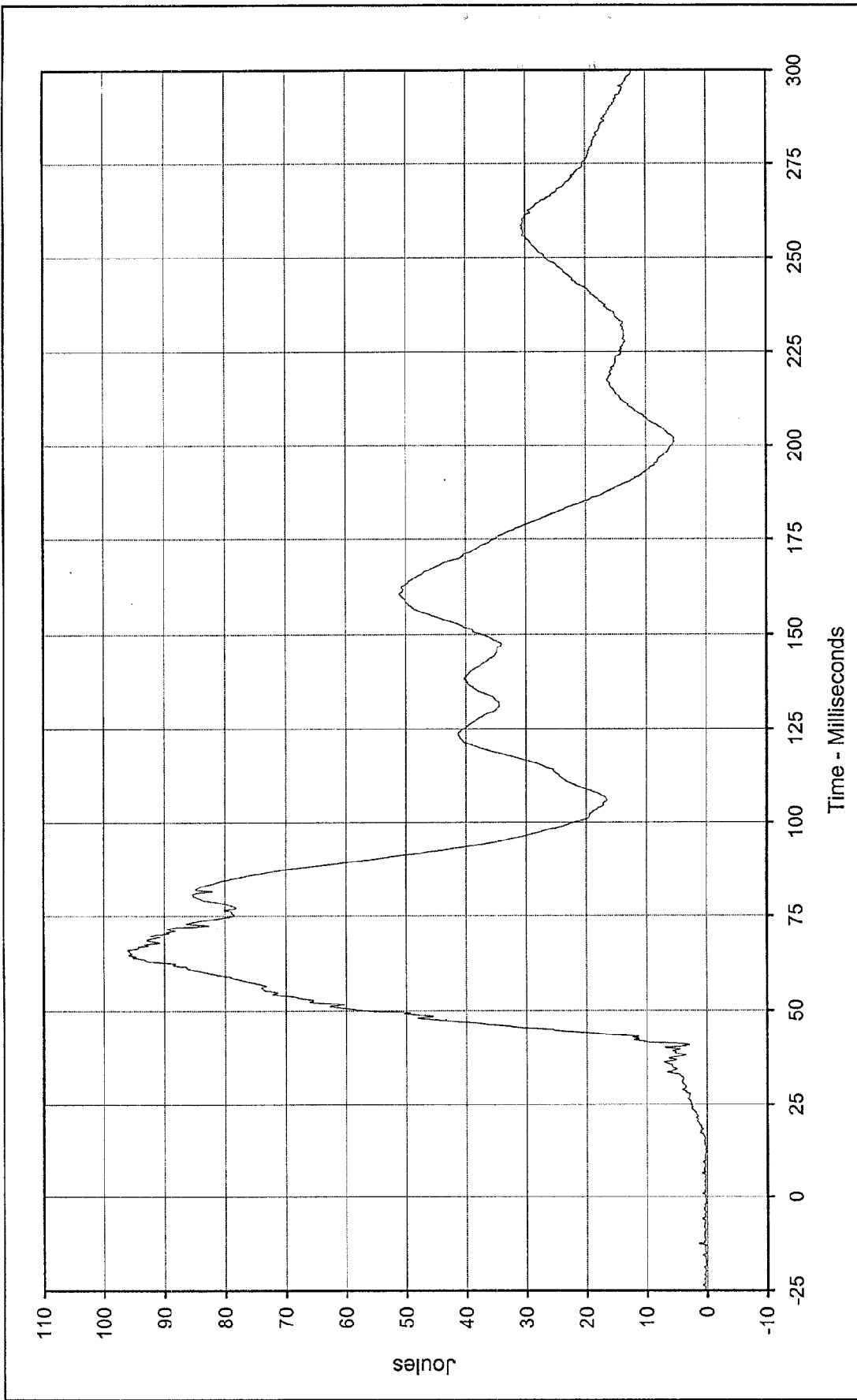




Curve Description: Passenger Neck Moment Z
Maximum Value: 22.1 at 166.2 Milliseconds
Minimum Value: -17.9 at 119.2 Milliseconds
SAE Filter Class: 600
Date of Test: 2/4/98
Curve Number: FIL-056

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Neck Moment Resultant

Maximum Value: 96.1 at 65.8 Milliseconds

Minimum Value: 0.1 at 12.0 Milliseconds

SAE Filter Class: 600

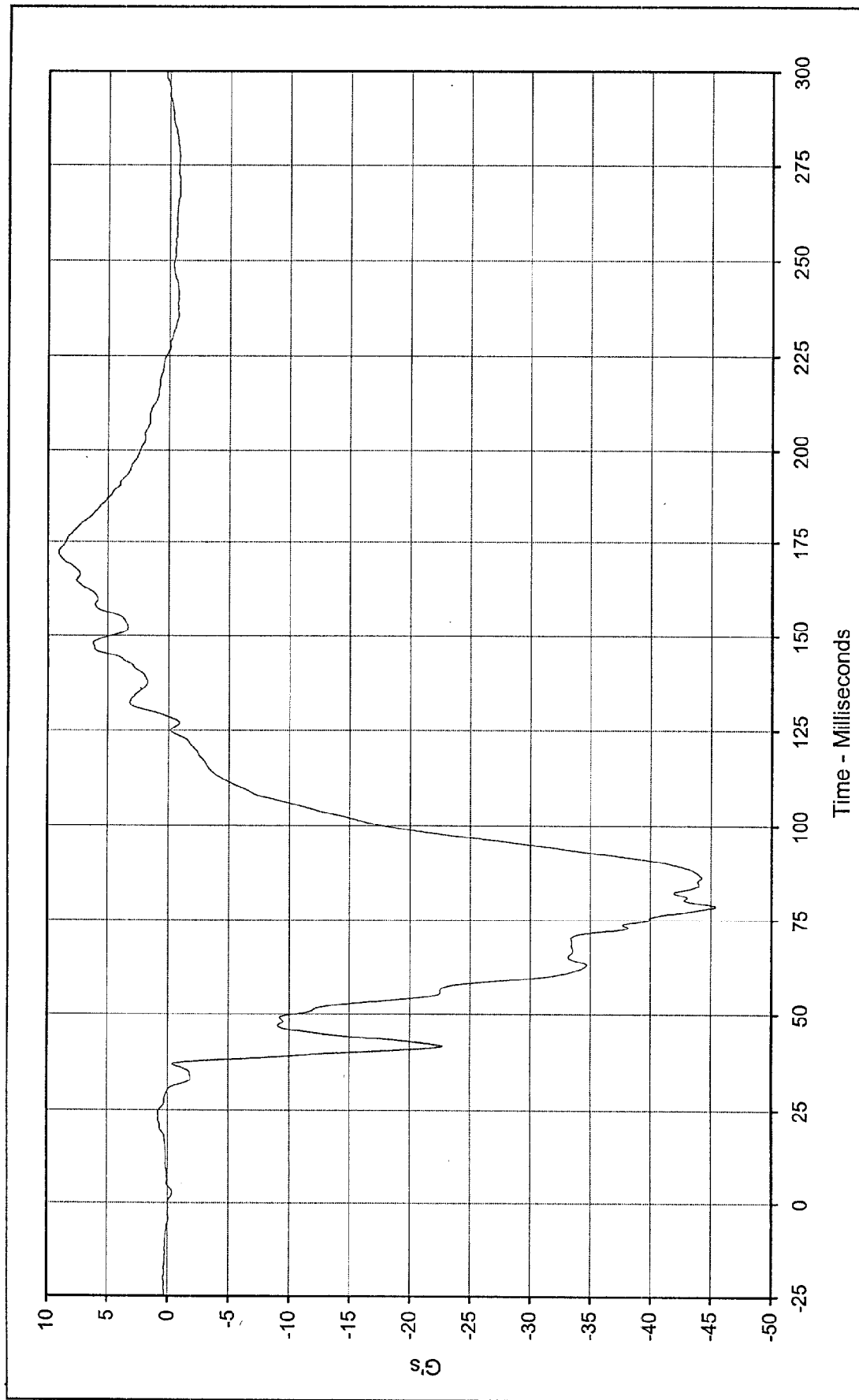
Date of Test: 2/4/98

Curve Number: RES-054

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Chest Primary X

Maximum Value: 9.1 at 172.1 Milliseconds

Minimum Value: -45.4 at 78.7 Milliseconds

SAE Filter Class: 180

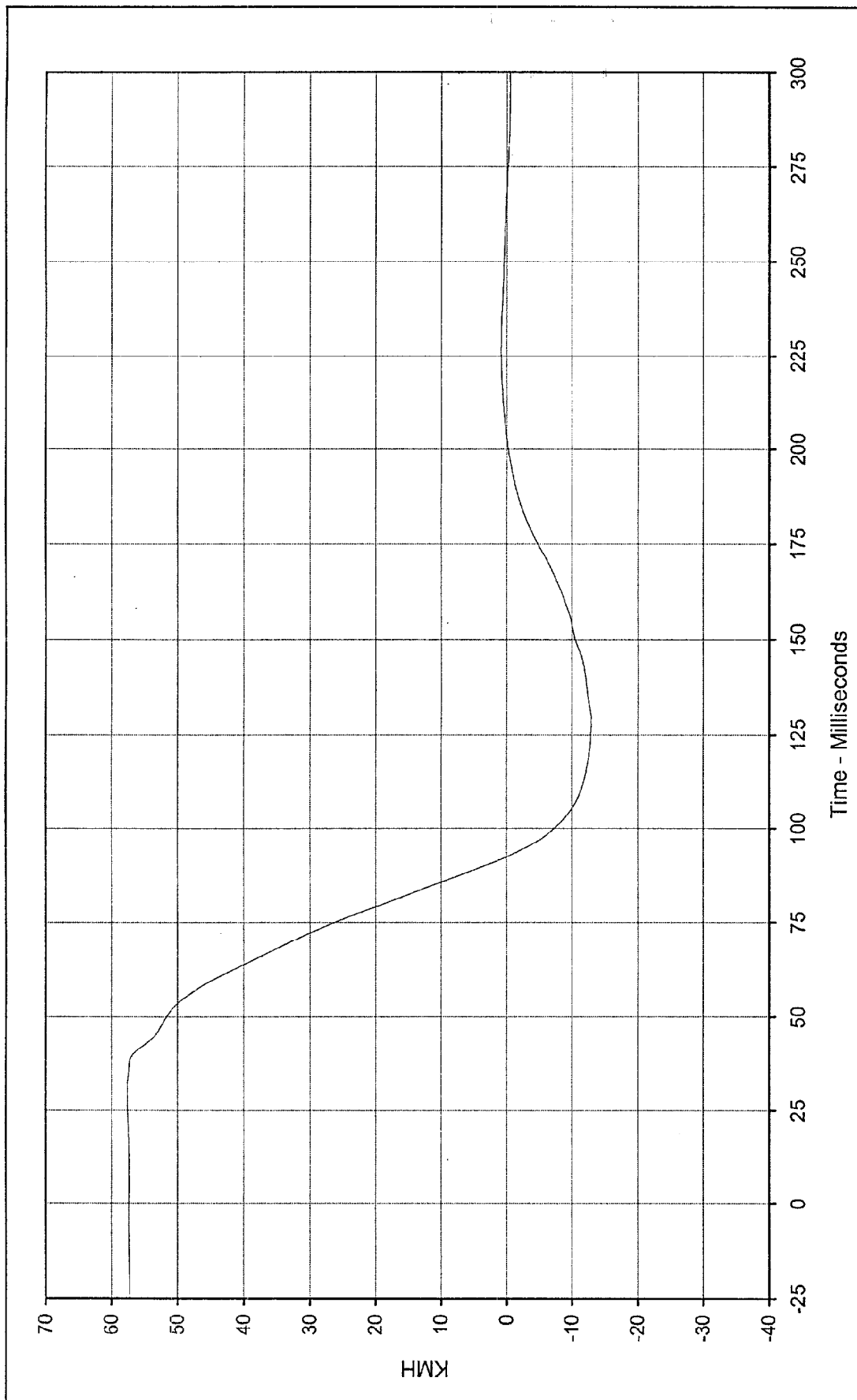
Date of Test: 2/4/98

Curve Number: FIL-057

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

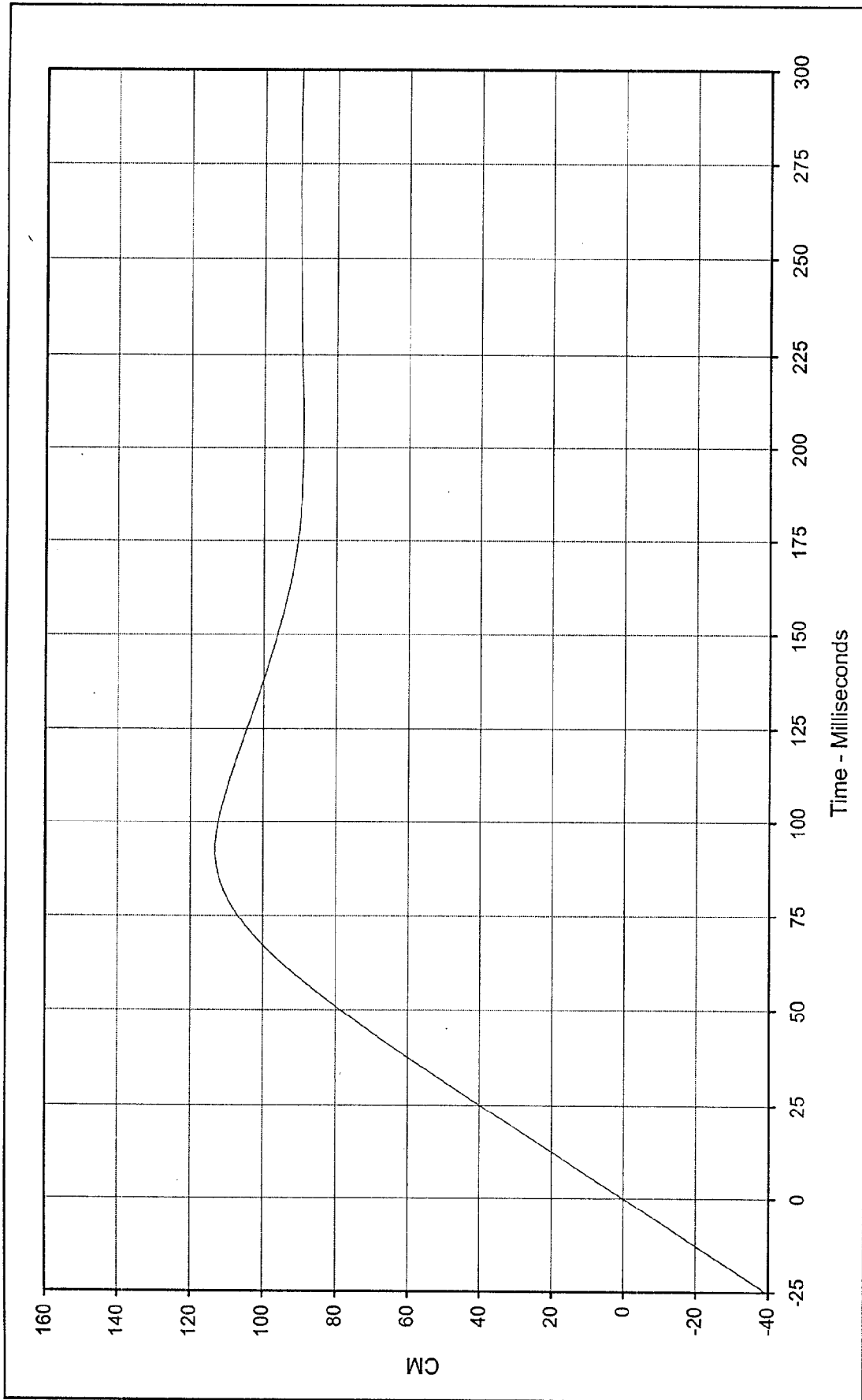




Curve Description: Passenger Chest Primary X Velocity
 Maximum Value: 57.6 at 30.3 Milliseconds
 Minimum Value: -12.9 at 128.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-057

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

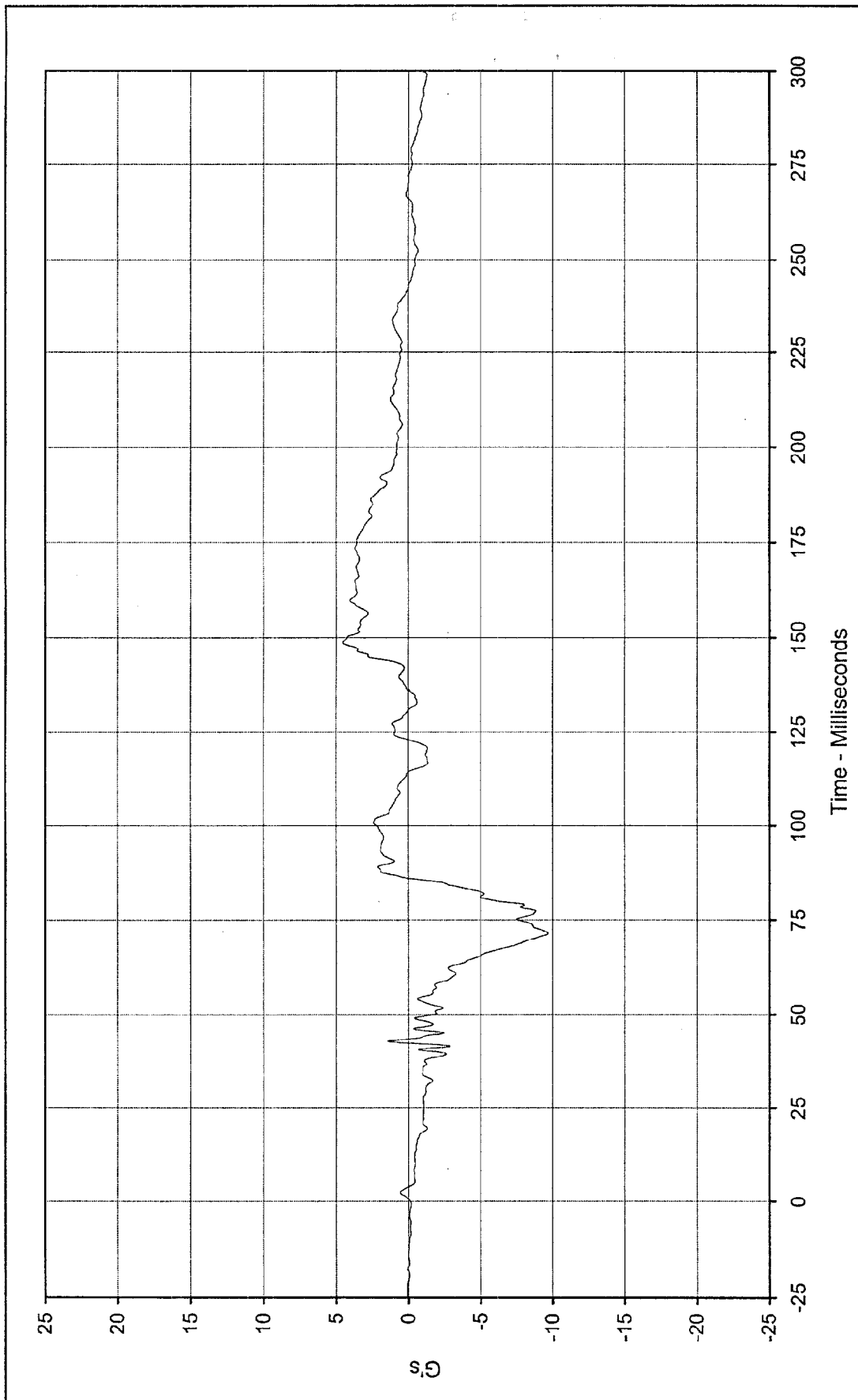




Curve Description: Passenger Chest Primary X Displ.
Maximum Value: 113.2 at 92.4 Milliseconds
Minimum Value: 0.2 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 2/4/98
Curve Number: IN2-057

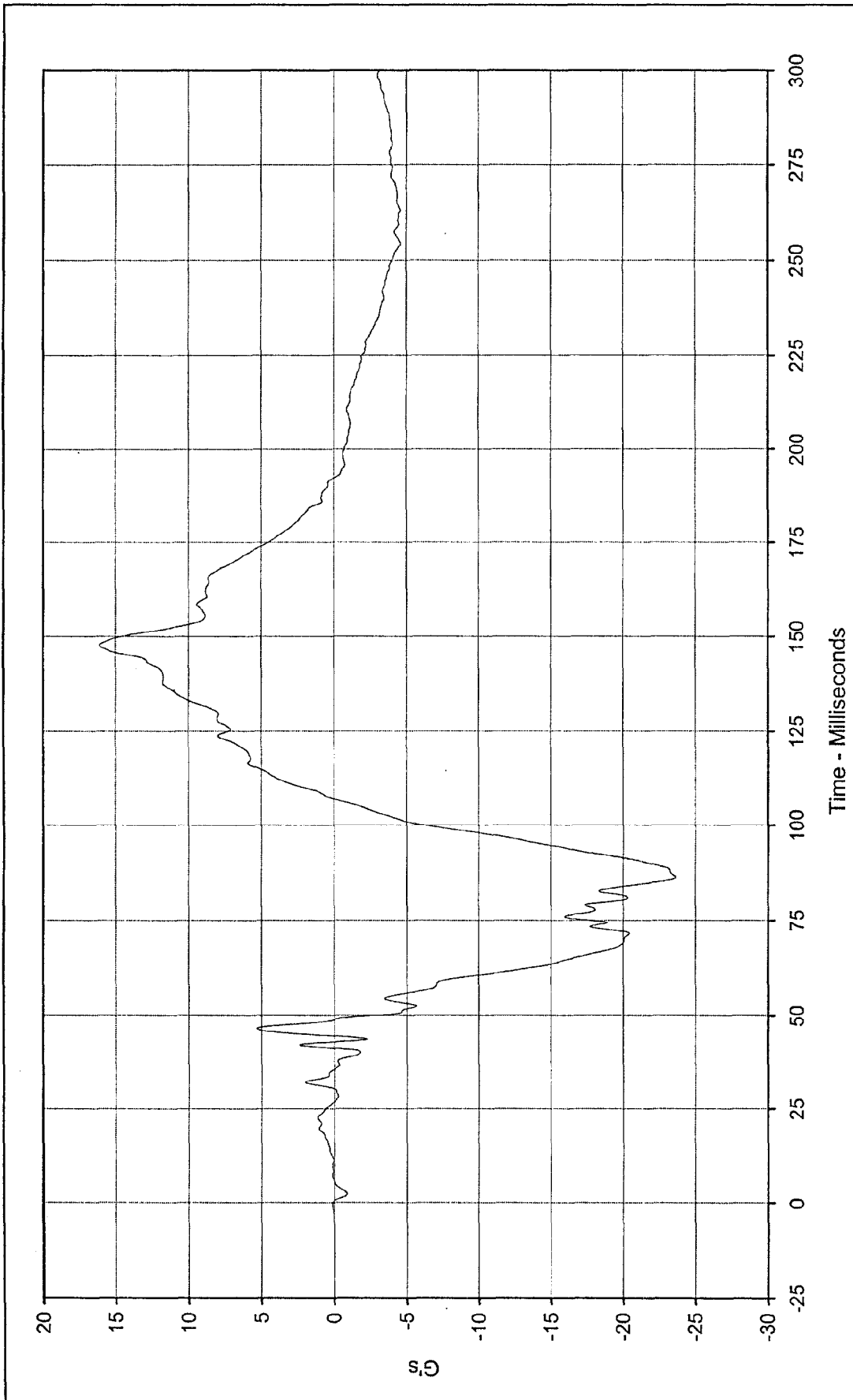
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Passenger Chest Primary Y	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	4.6 at 148.7 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-9.7 at 71.5 Milliseconds			
SAE Filter Class:	180			
Date of Test:	2/4/98			
Curve Number:	FIL-058			

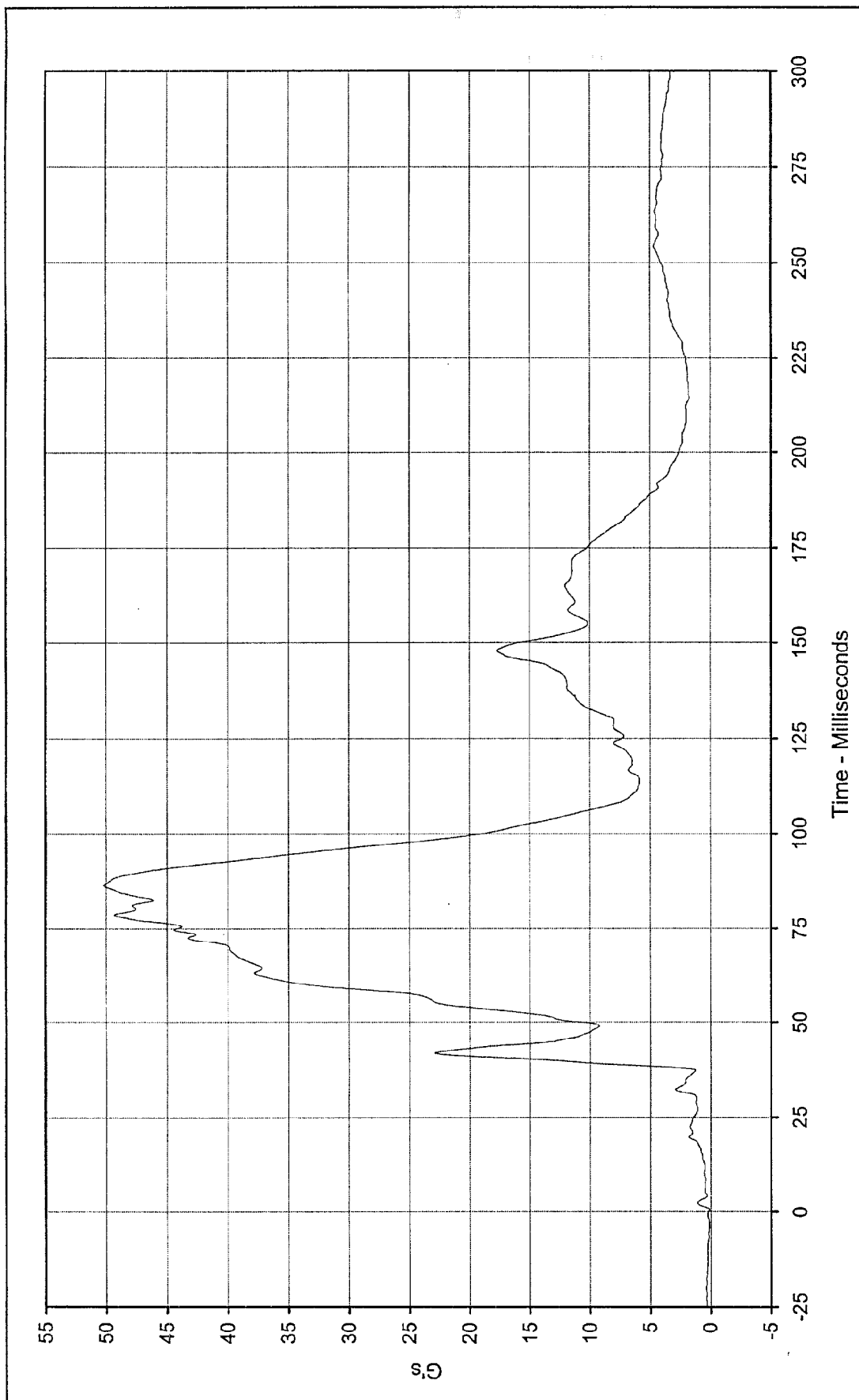




Curve Description: Passenger Chest Primary Z
 Maximum Value: 16.1 at 147.6 Milliseconds
 Minimum Value: -23.6 at 86.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: FIL-059

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

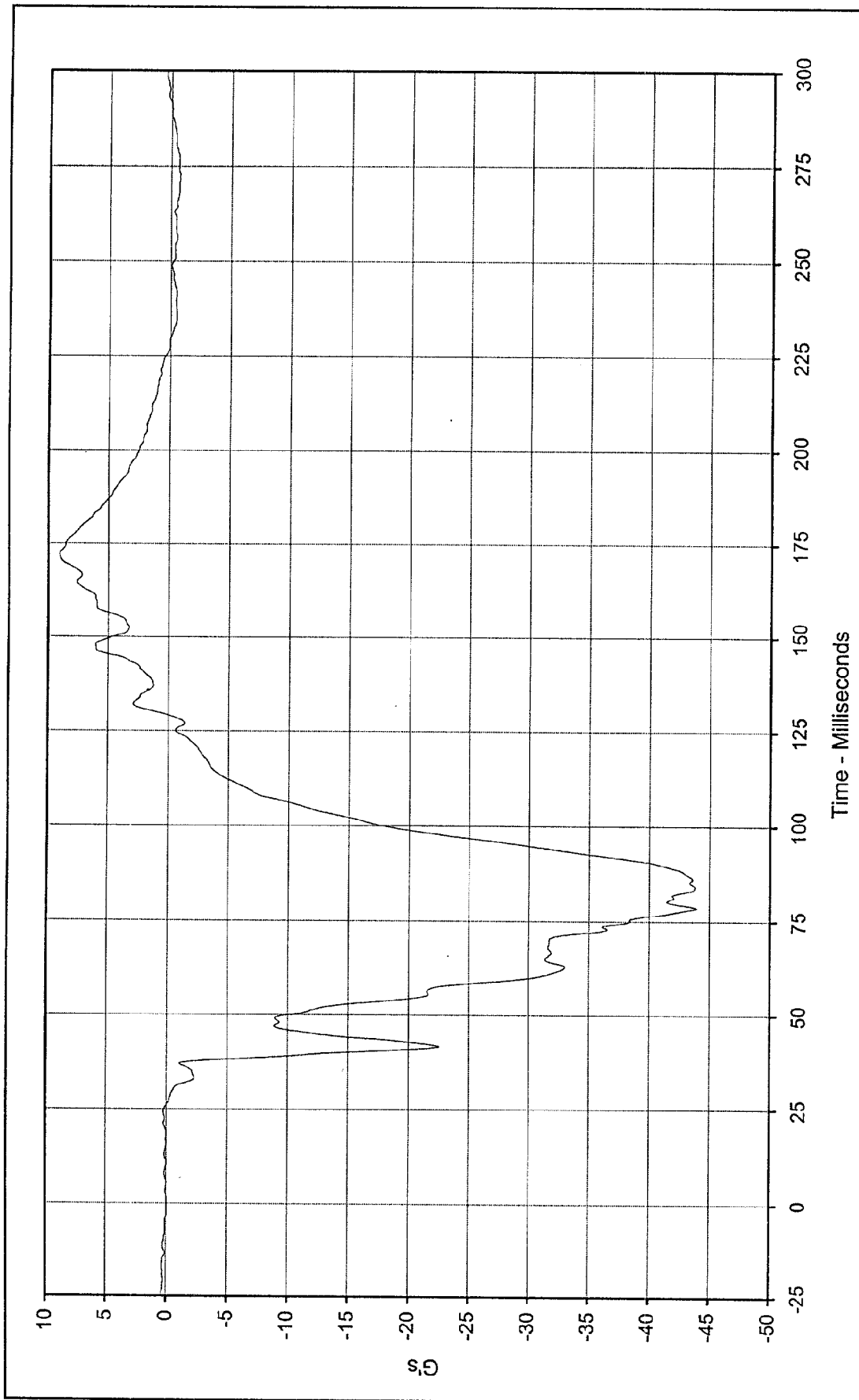




Curve Description: Passenger Chest Resultant Primary
 Maximum Value: 50.2 at 86.3 Milliseconds
 Minimum Value: 0.1 at 0.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: RES-057

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Chest Redundant X

Maximum Value: 9.1 at 172.2 Milliseconds

Minimum Value: -43.9 at 9.1 Milliseconds

SAE Filter Class: 180

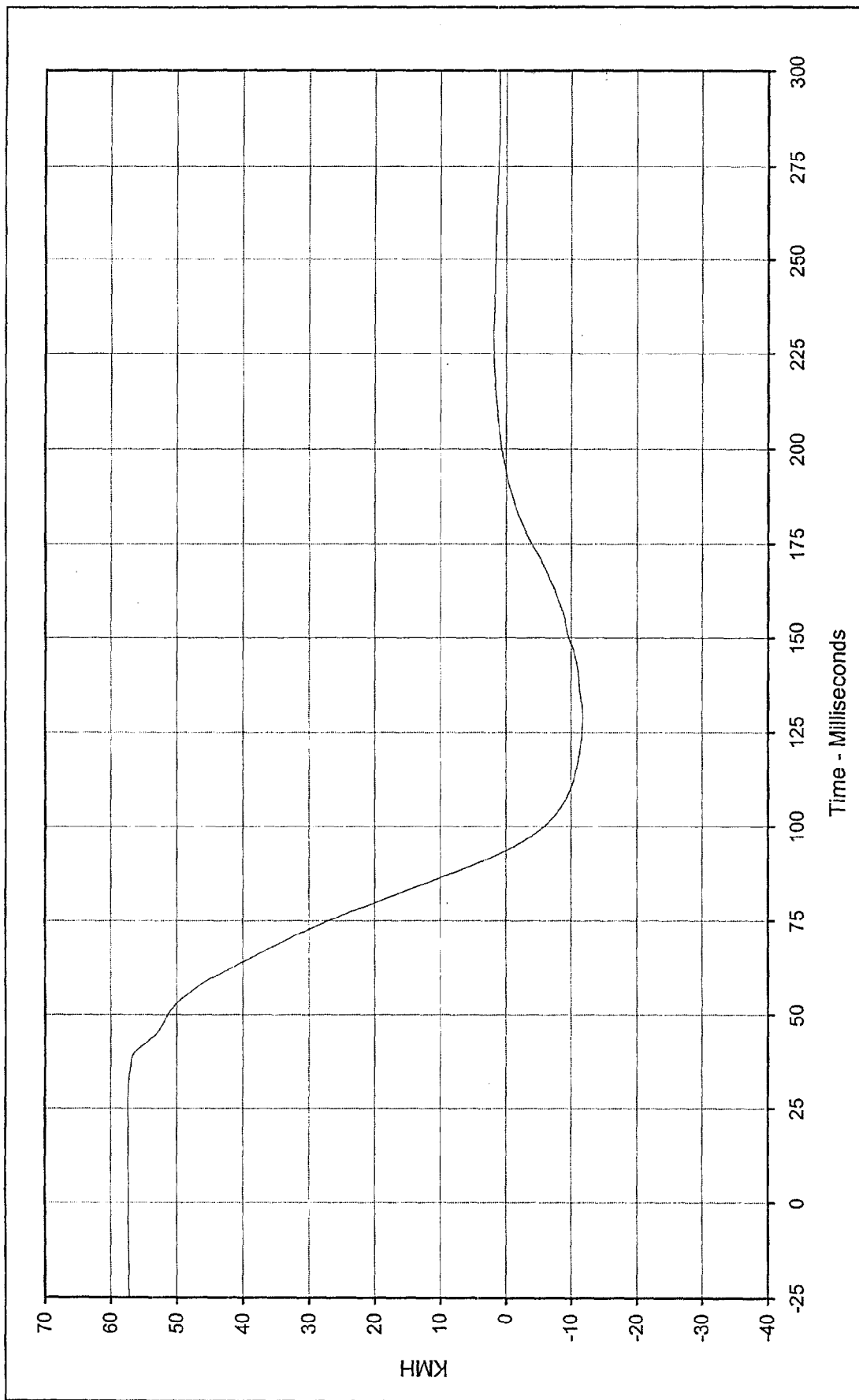
Date of Test: 2/4/98

Curve Number: FIL-060

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

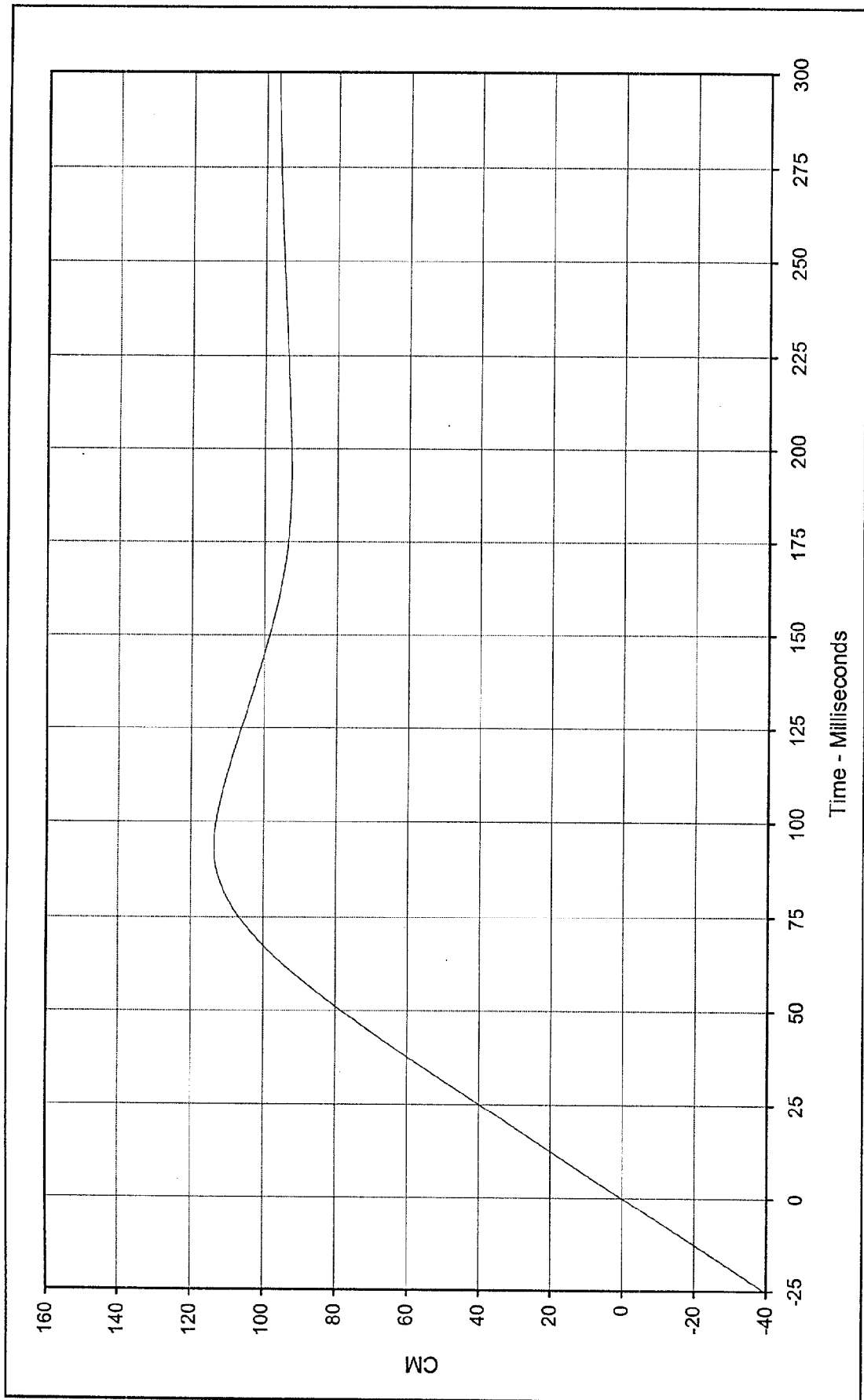




Curve Description: Passenger Chest Redundant X Velocity
 Maximum Value: 57.4 at 26.2 Milliseconds
 Minimum Value: -11.8 at 129.4 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-060

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Chest Redundant X Displ.

Maximum Value: 113.6 at 93.5 Milliseconds

Minimum Value: 0.1 at 0.0 Milliseconds

SAE Filter Class: 180

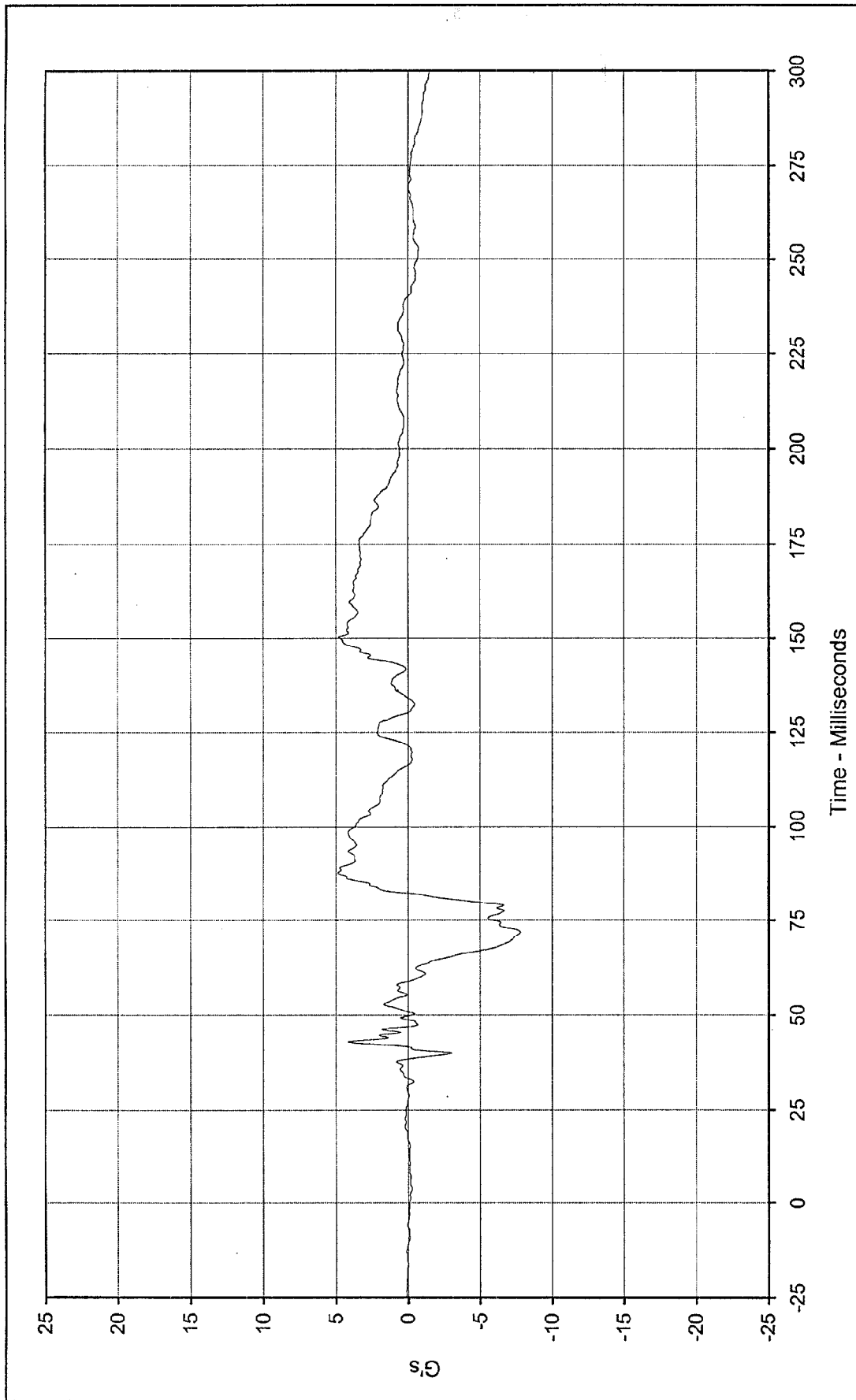
Date of Test: 2/4/98

Curve Number: IN2-060

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

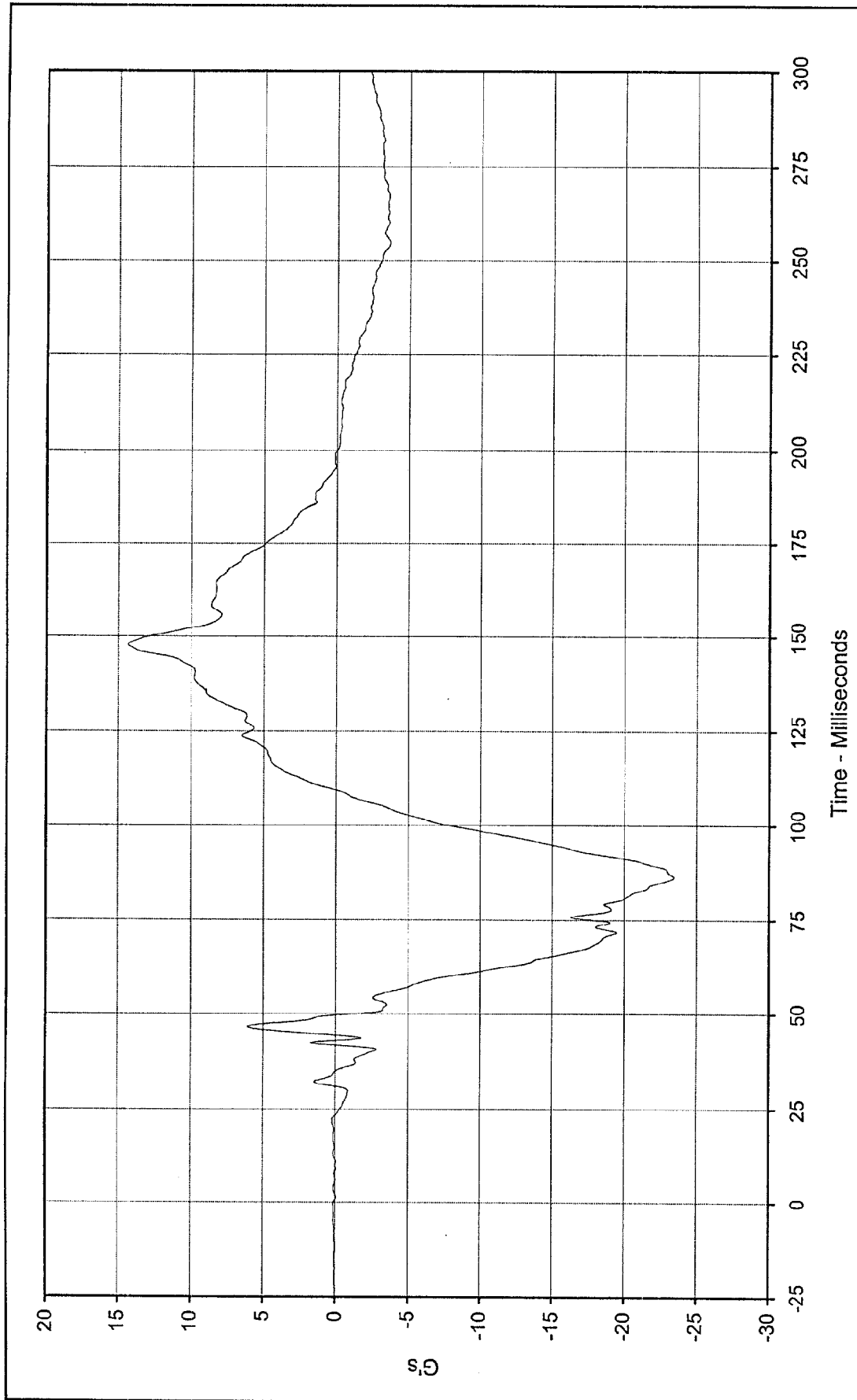
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Passenger Chest Redundant Y	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	4.9 at 87.6 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-7.8 at 71.8 Milliseconds			
SAE Filter Class:	180			
Date of Test:	2/4/98			
Curve Number:	FIL-061			

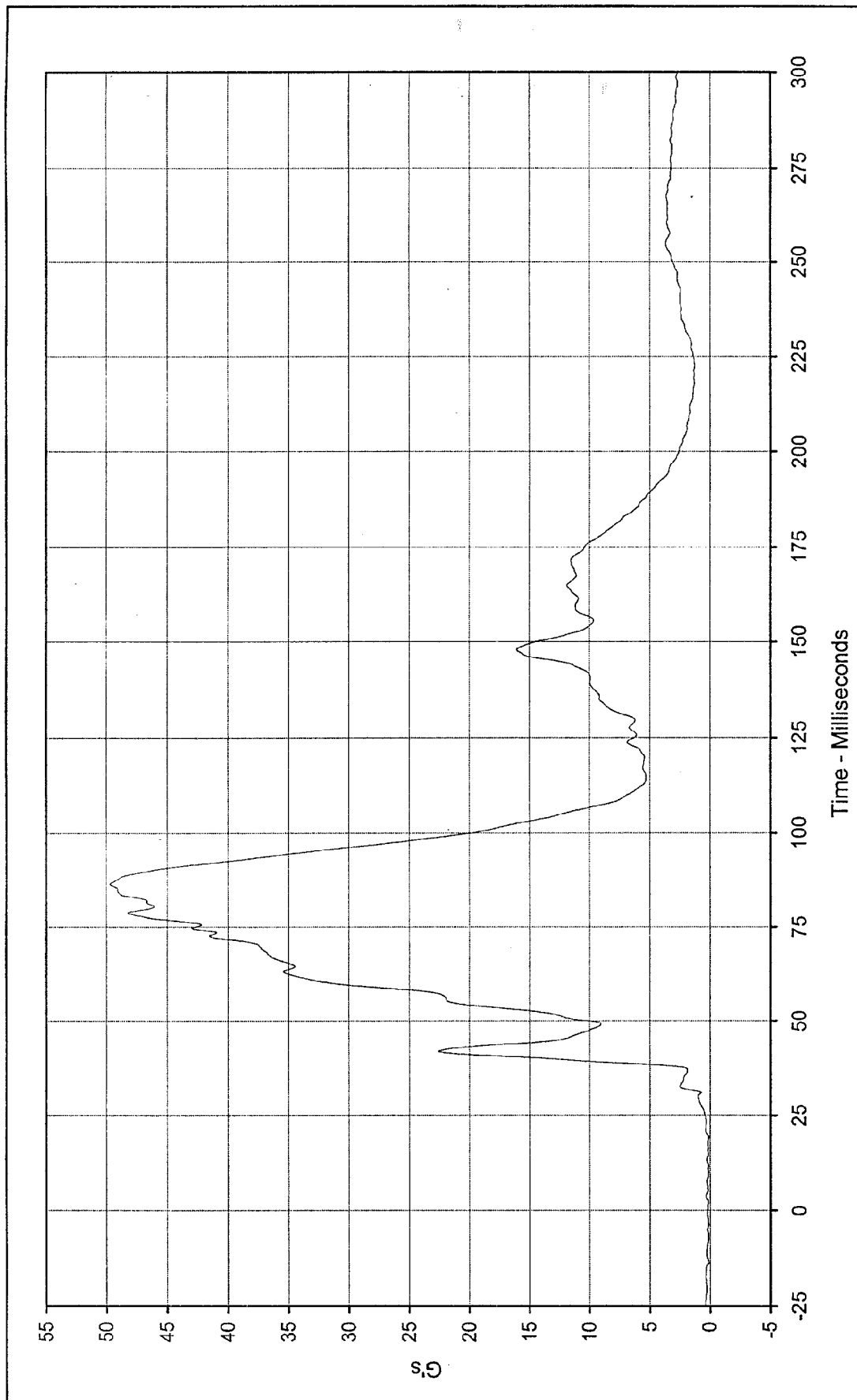




Curve Description: Passenger Chest Redundant Z
 Maximum Value: 14.4 at 147.7 Milliseconds
 Minimum Value: -23.4 at 86.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: FIL-062

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

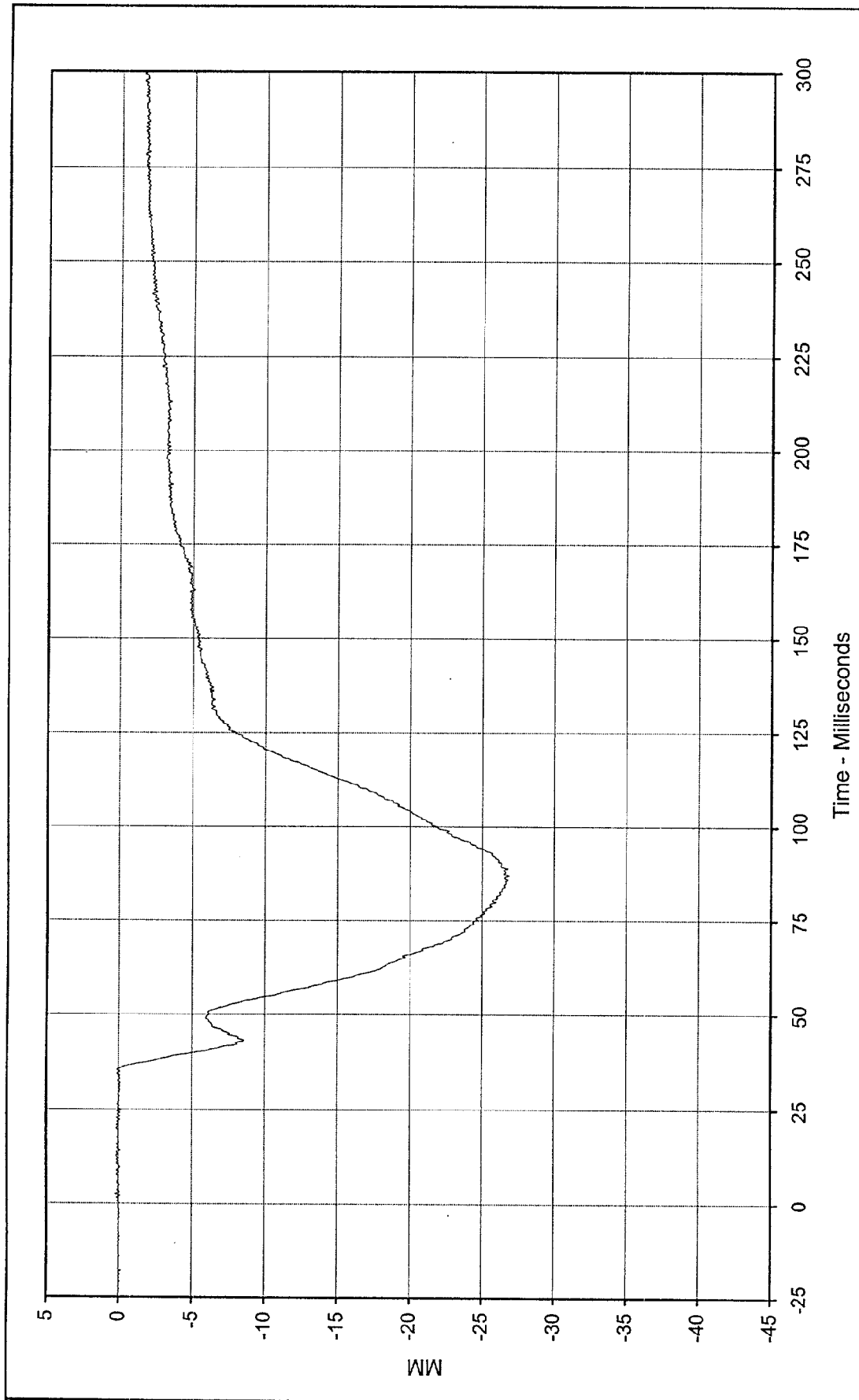




Curve Description: Passenger Chest Resultant Redundant
 Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

Maximum Value: 49.7 at 86.3 Milliseconds
 Minimum Value: 0.1 at 11.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: RES-060

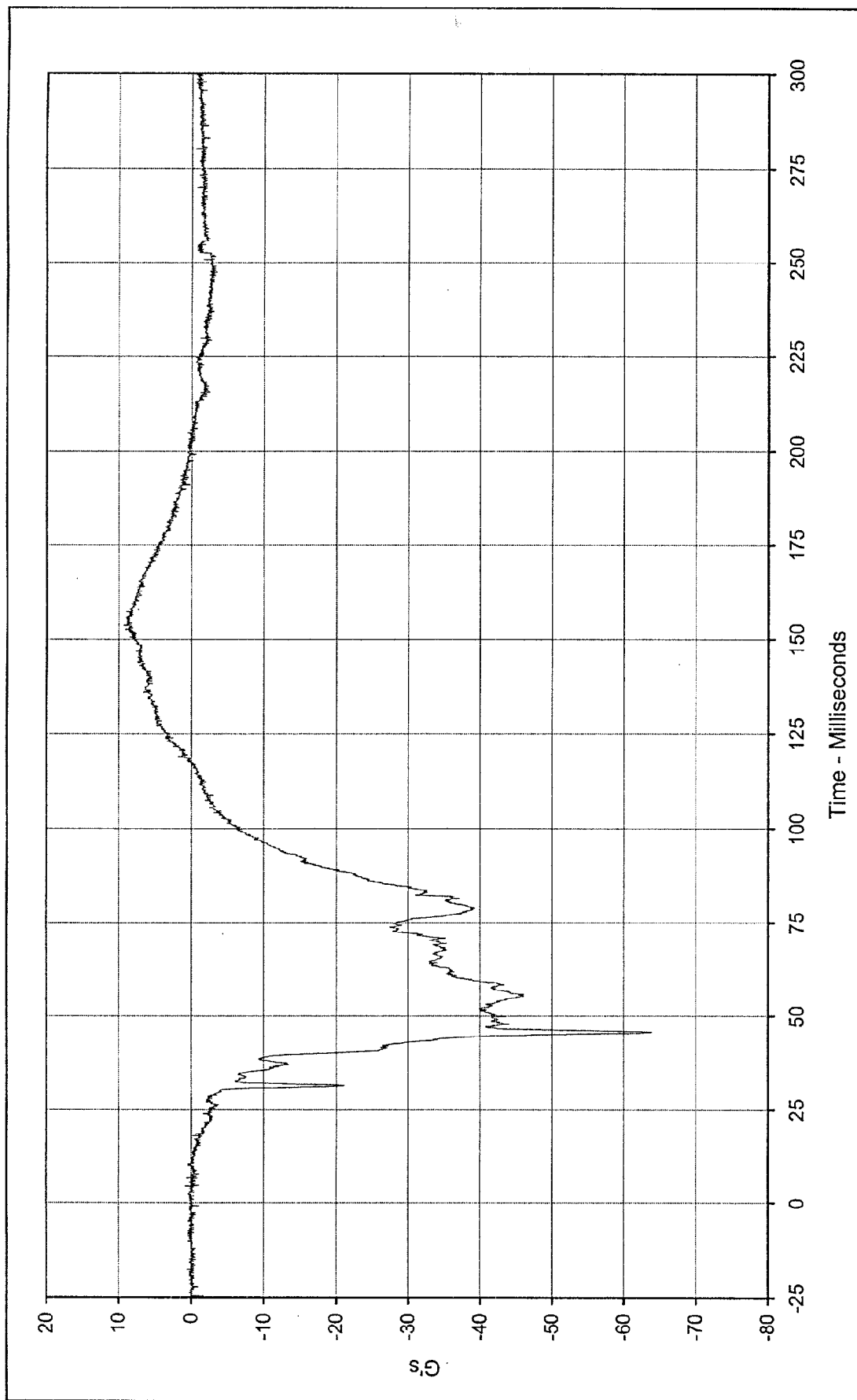




Curve Description: Passenger Chest Displacement X
 Maximum Value: 0.2 at 2.6 Milliseconds
 Minimum Value: -26.9 at 87.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-063

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Pelvis X

Maximum Value: 9.3 at 153.6 Milliseconds

Minimum Value: -63.9 at 45.6 Milliseconds

SAE Filter Class: 1000

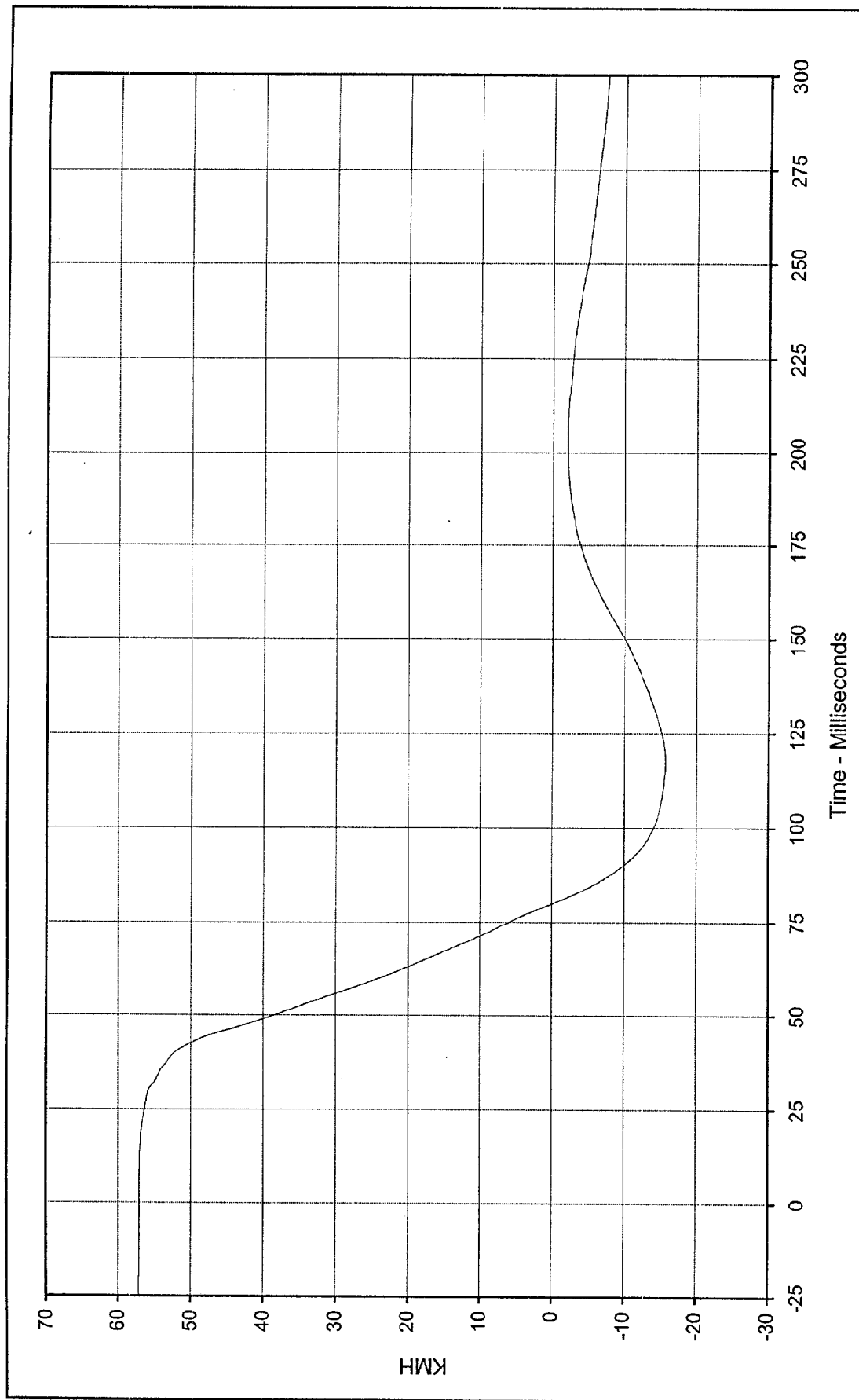
Date of Test: 2/4/98

Curve Number: FIL-064

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Pelvis X Velocity • Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Maximum Value: 57.1 at 3.0 Milliseconds

Minimum Value: -15.7 at 117.4 Milliseconds

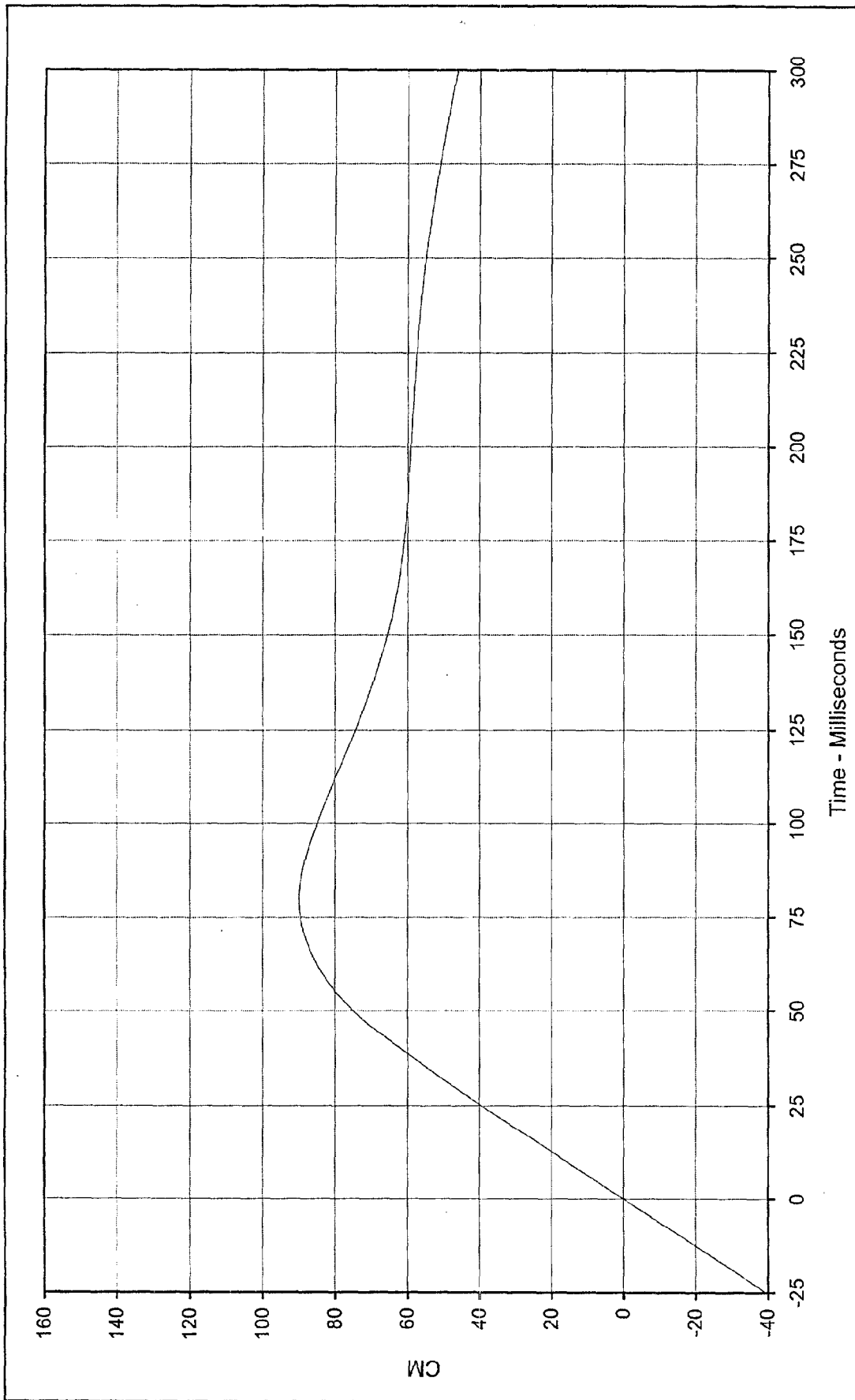
SAE Filter Class: 180

Date of Test: 2/4/98

Curve Number: IN1-064

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

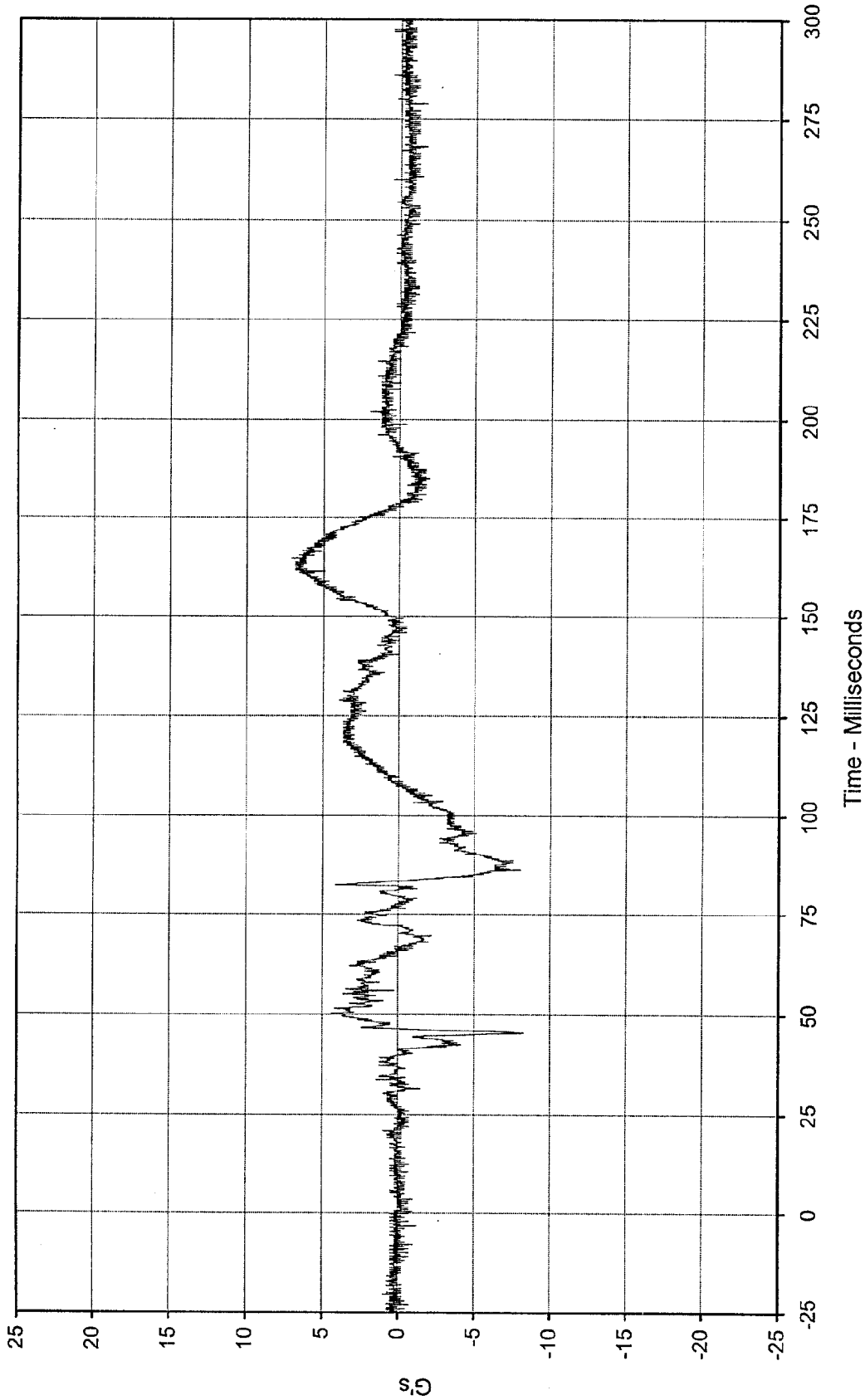




Curve Description: Passenger Pelvis X Displ.
 Maximum Value: 90.0 at 79.8 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-064

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Pelvis Y

Maximum Value: 7.1 at 164.6 Milliseconds

Minimum Value: -8.3 at 45.4 Milliseconds

SAE Filter Class: 1000

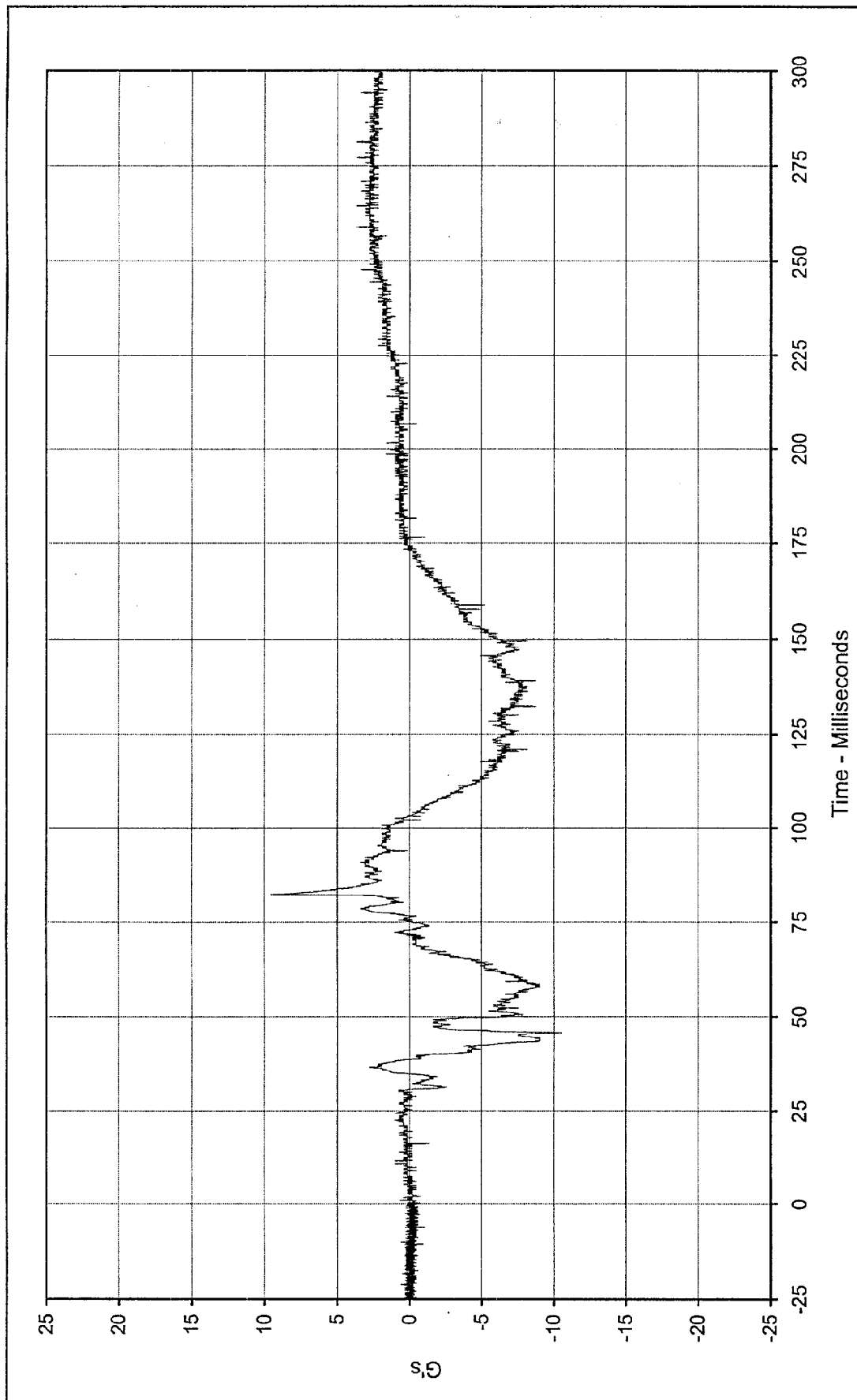
Date of Test: 2/4/98

Curve Number: FIL-065

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

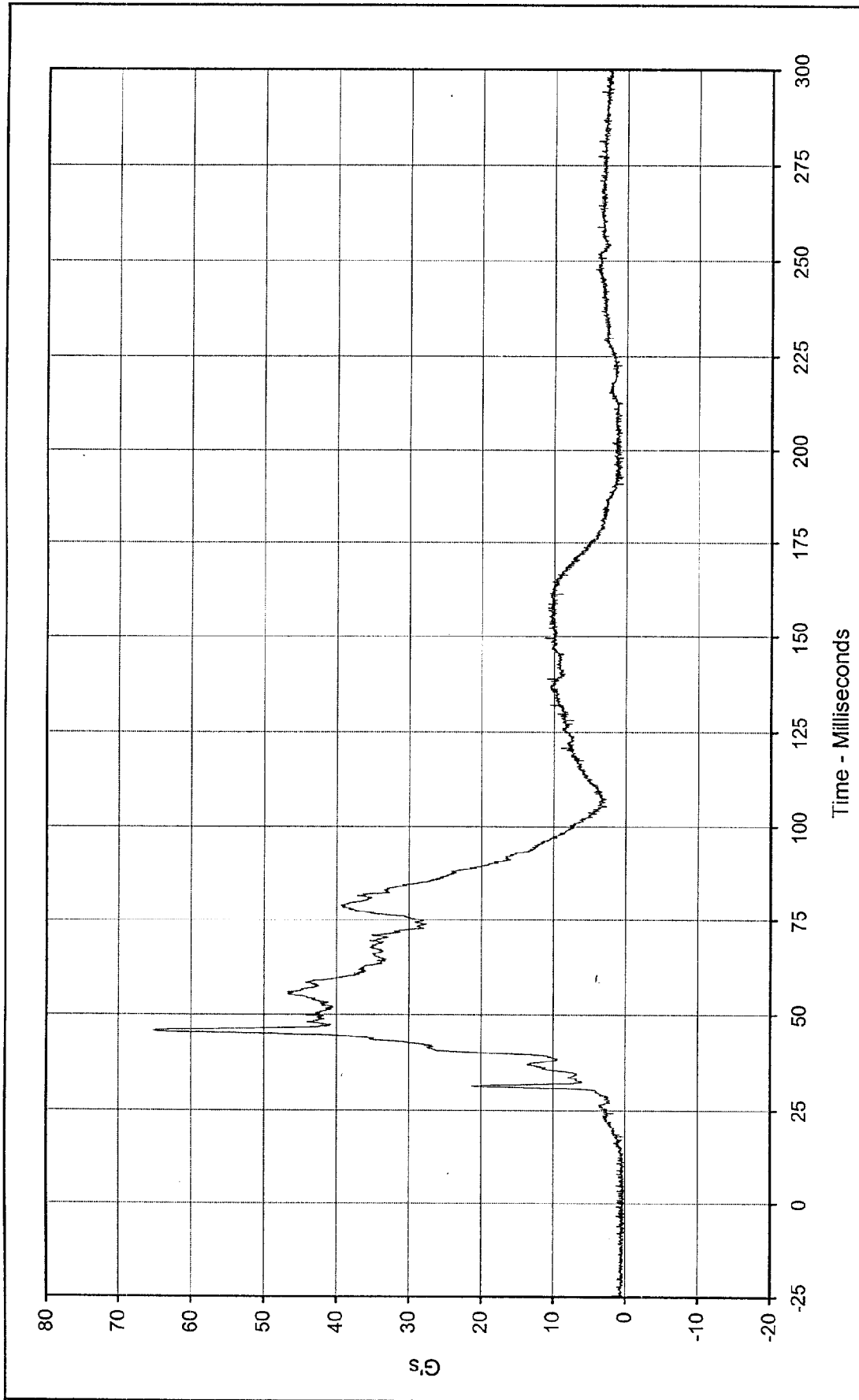




Curve Description: Passenger Pelvis Z
 Maximum Value: 9.6 at 82.3 Milliseconds
 Minimum Value: -10.5 at 45.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-066

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

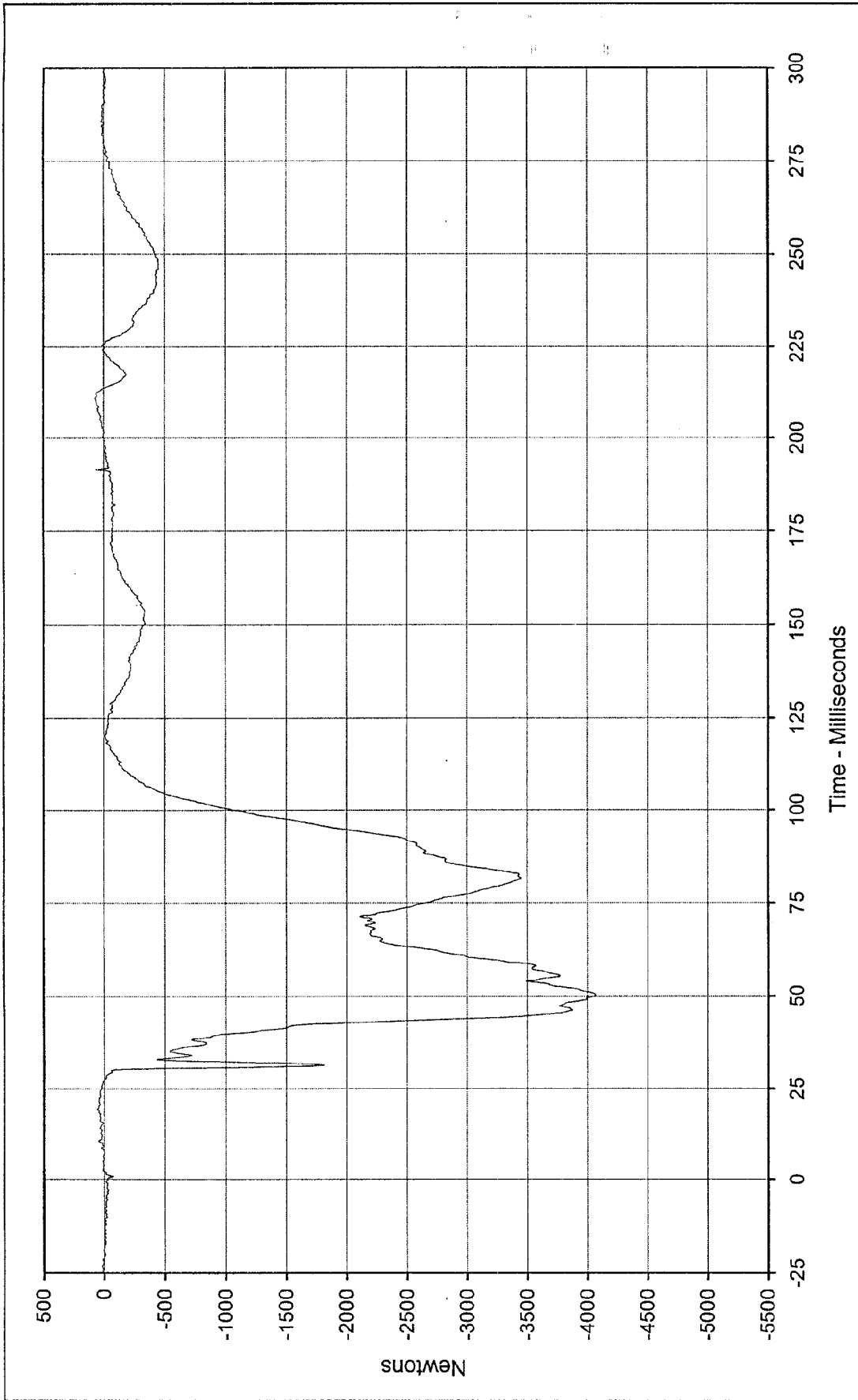




Curve Description: 1998 NHTSA 35 mph NCAP No.: MW0306
 Testing Program: 1998 Dodge Ram 1500 SLT Pickup
 Test Vehicle:

Passenger Pelvis Resultant
 Maximum Value: 65.2 at 45.6 Milliseconds
 Minimum Value: 0.1 at 1.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: RES-064

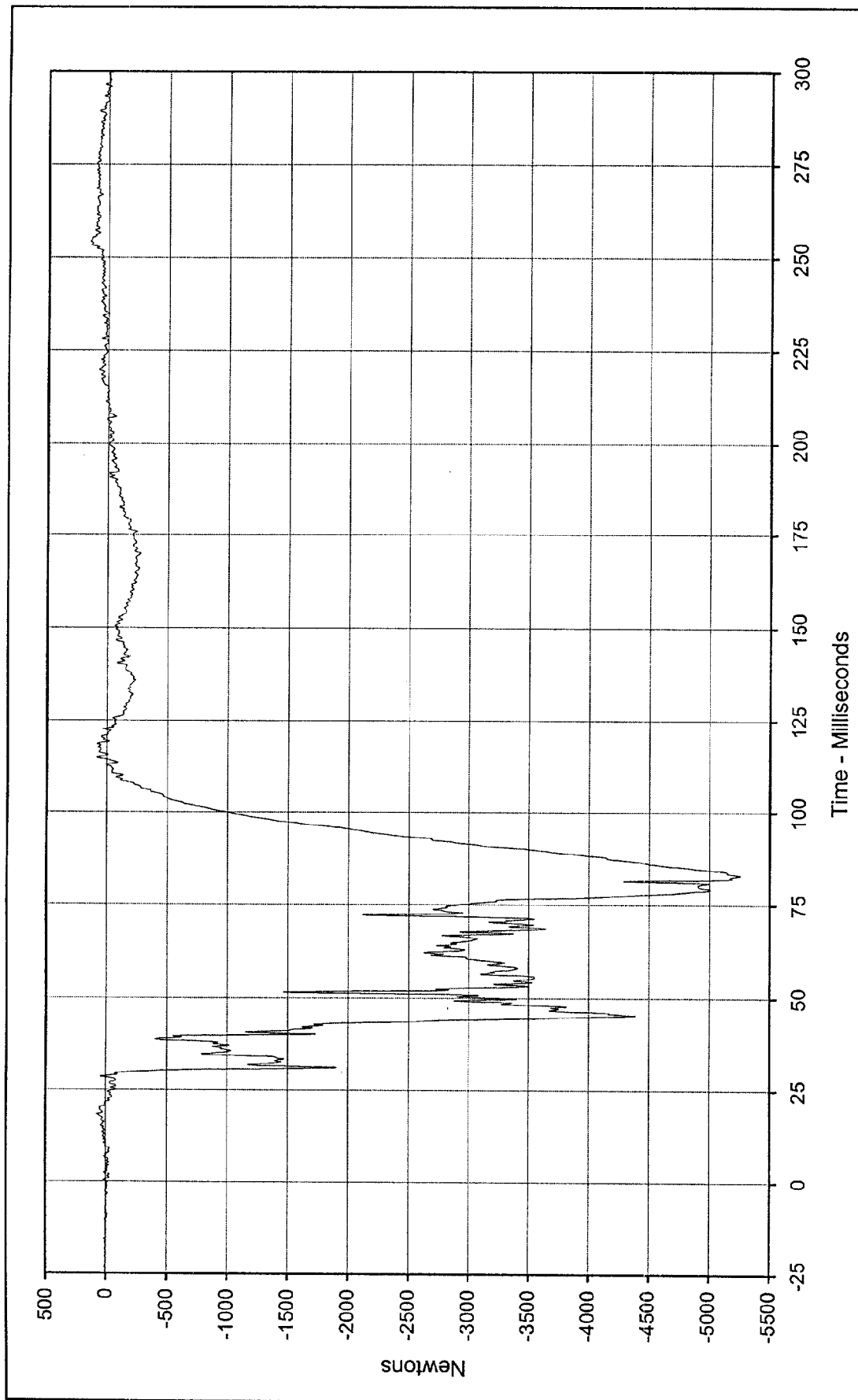




Curve Description: Passenger Left Femur Force
 Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

Maximum Value: 72.3 at 210.9 Milliseconds
 Minimum Value: -4067.7 at 50.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-067





Curve Description: Passenger Right Femur Force

Maximum Value: 155.4 at 254.5 Milliseconds

Minimum Value: -5258.9 at 82.9 Milliseconds

SAE Filter Class: 600

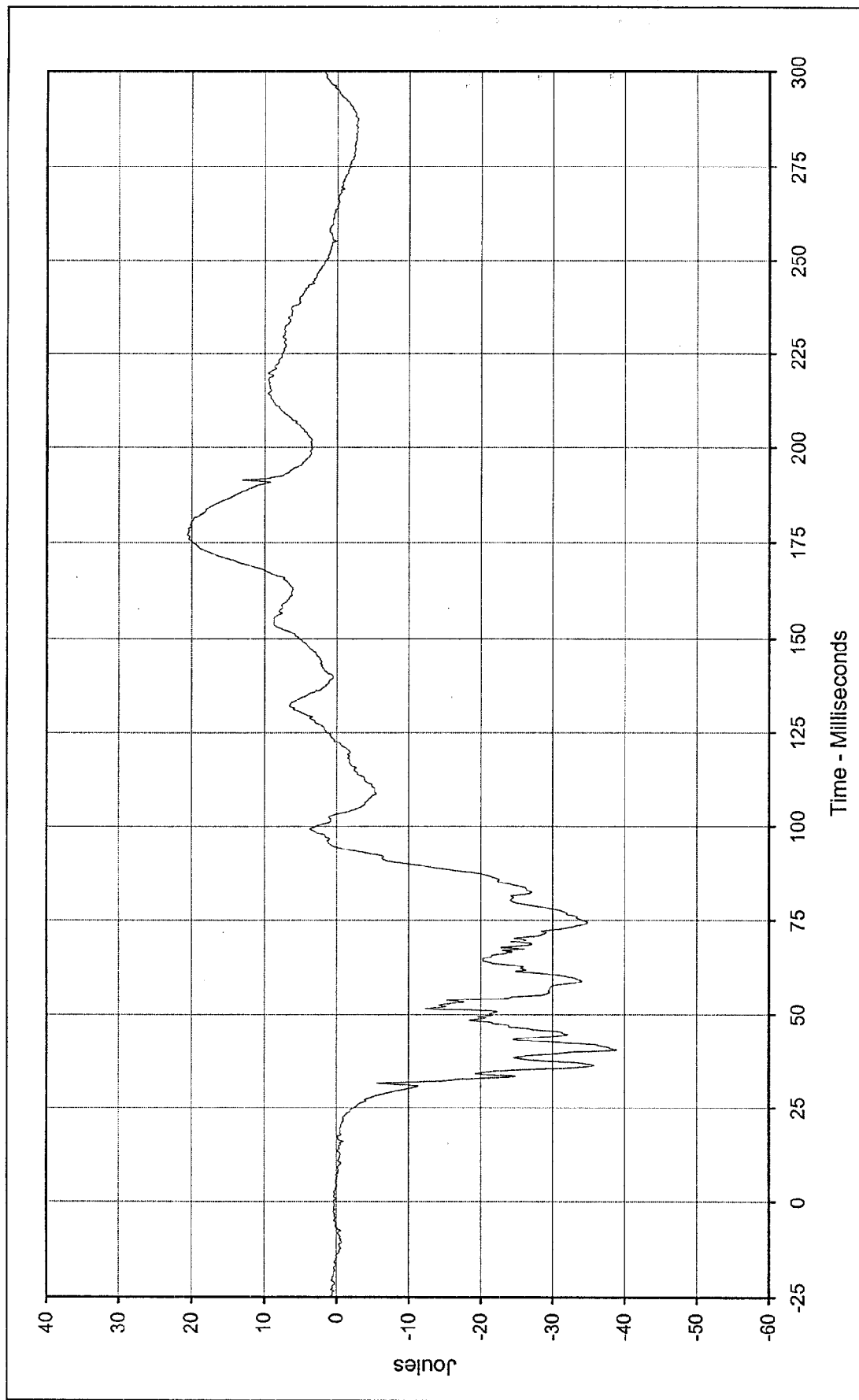
Date of Test: 2/4/98

Curve Number: FIL-068

Testing Program 1998 NHTSA 35 mph: NCAP No.: MW0306

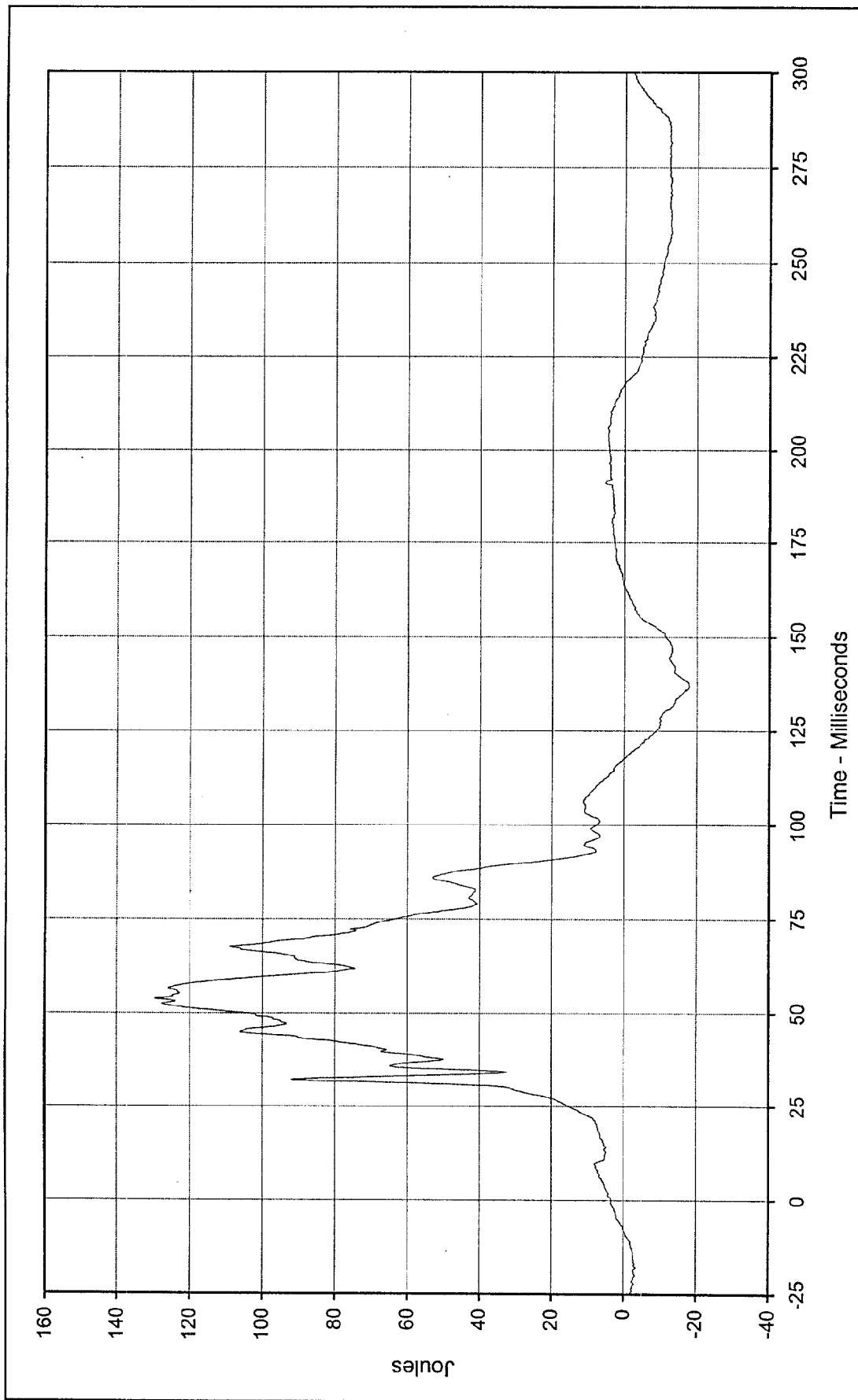
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Left Upper Tibia Moment X		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	20.6	at	177.0	Milliseconds
Minimum Value:	-38.9	at	40.4	Milliseconds
SAE Filter Class:	600			
Date of Test:	2/4/98			
Curve Number:	FIL-069			
Test Vehicle:		1998 Dodge Ram 1500 SLT Pickup		





Curve Description: Passenger Left Upper Tibia Moment Y

Maximum Value: 129.6 at 53.8 Milliseconds

Minimum Value: -17.8 at 137.0 Milliseconds

SAE Filter Class: 600

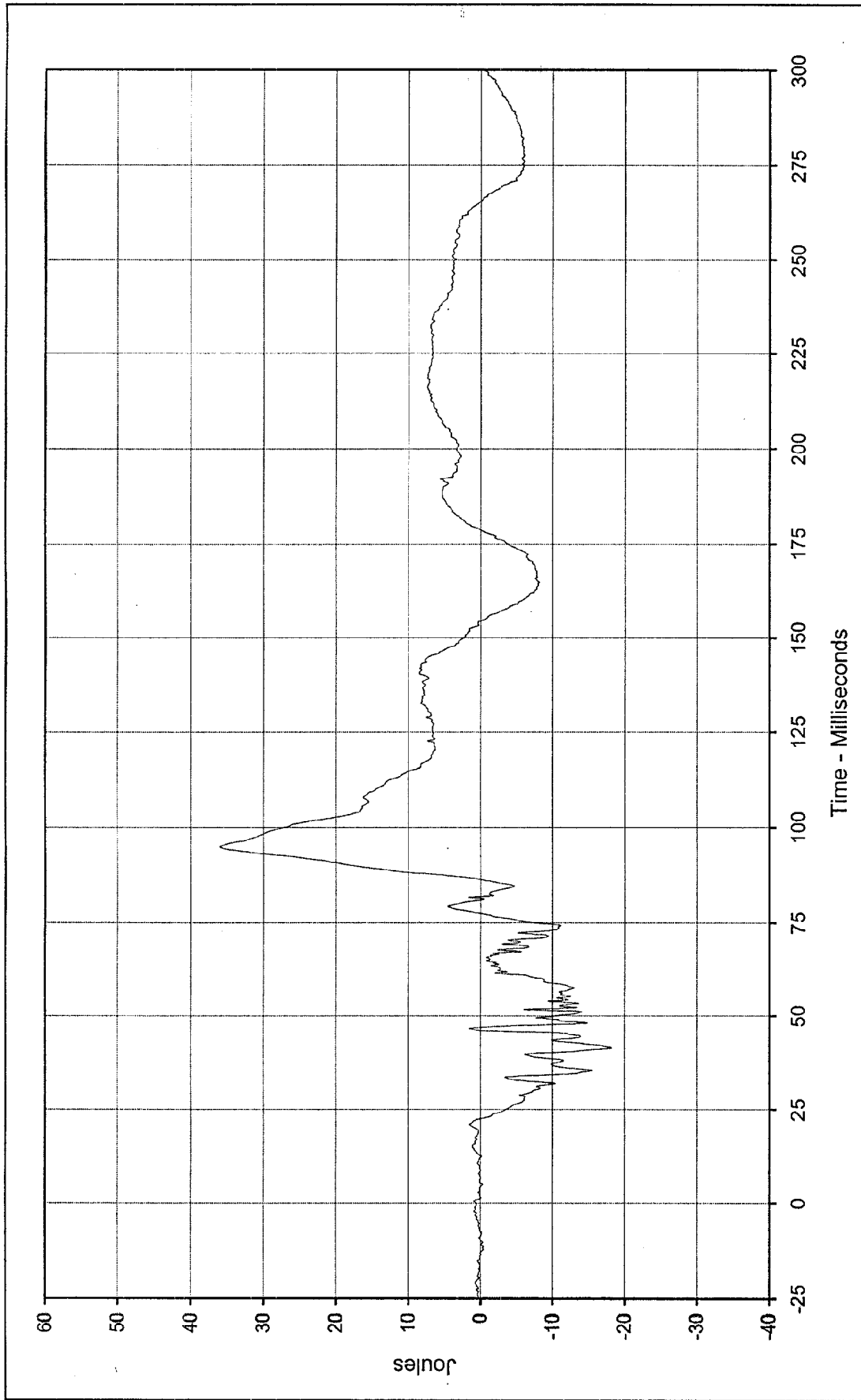
Date of Test: 2/4/98

Curve Number: FIL-070

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Right Upper Tibia Moment X

Maximum Value: 36.0 at 94.7 Milliseconds

Minimum Value: -18.2 at 41.3 Milliseconds

SAE Filter Class: 600

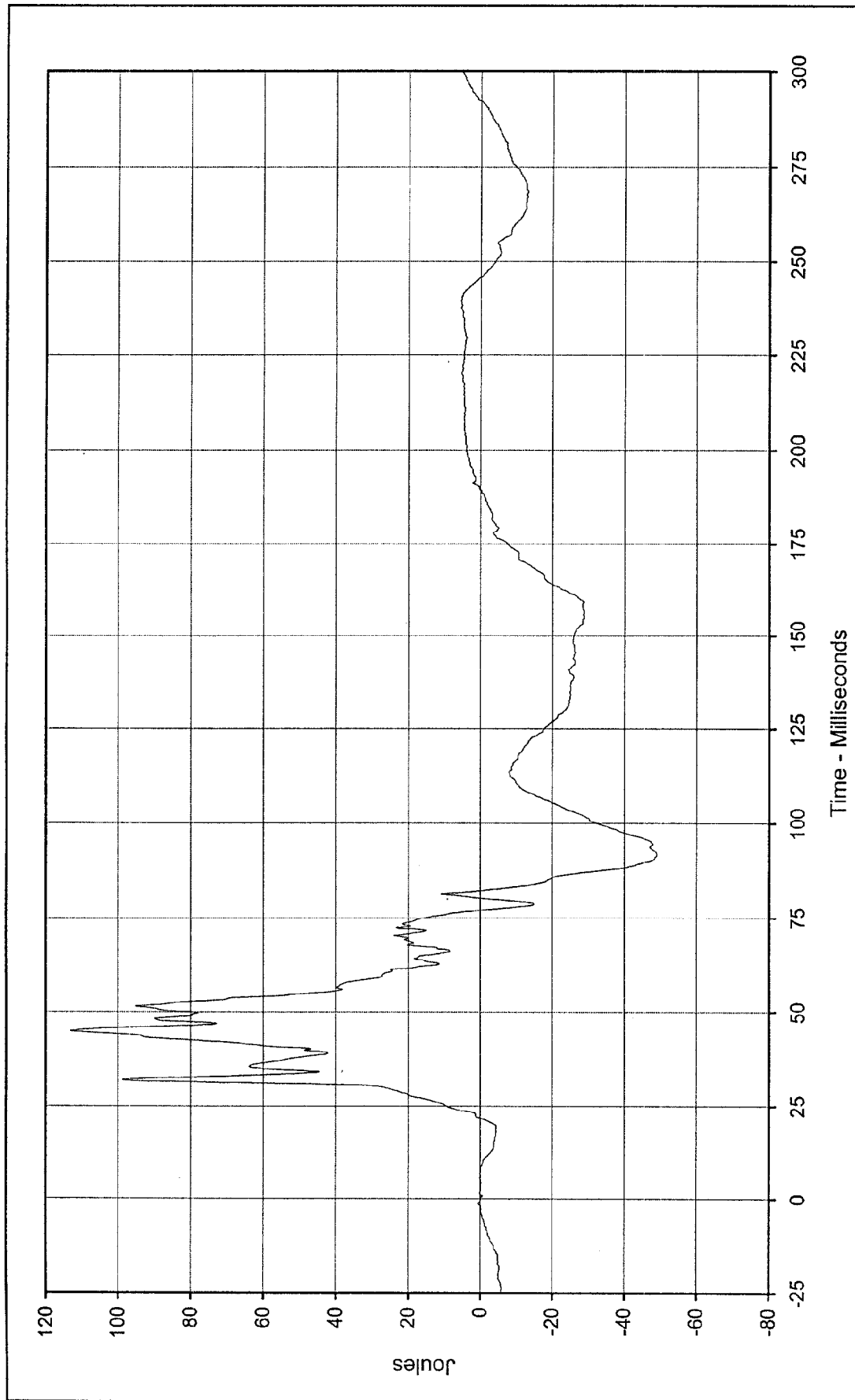
Date of Test: 2/4/98

Curve Number: FIL-071

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Right Upper Tibia Moment Y

Maximum Value: 113.0 at 44.9 Milliseconds

Minimum Value: -49.0 at 91.7 Milliseconds

SAE Filter Class: 600

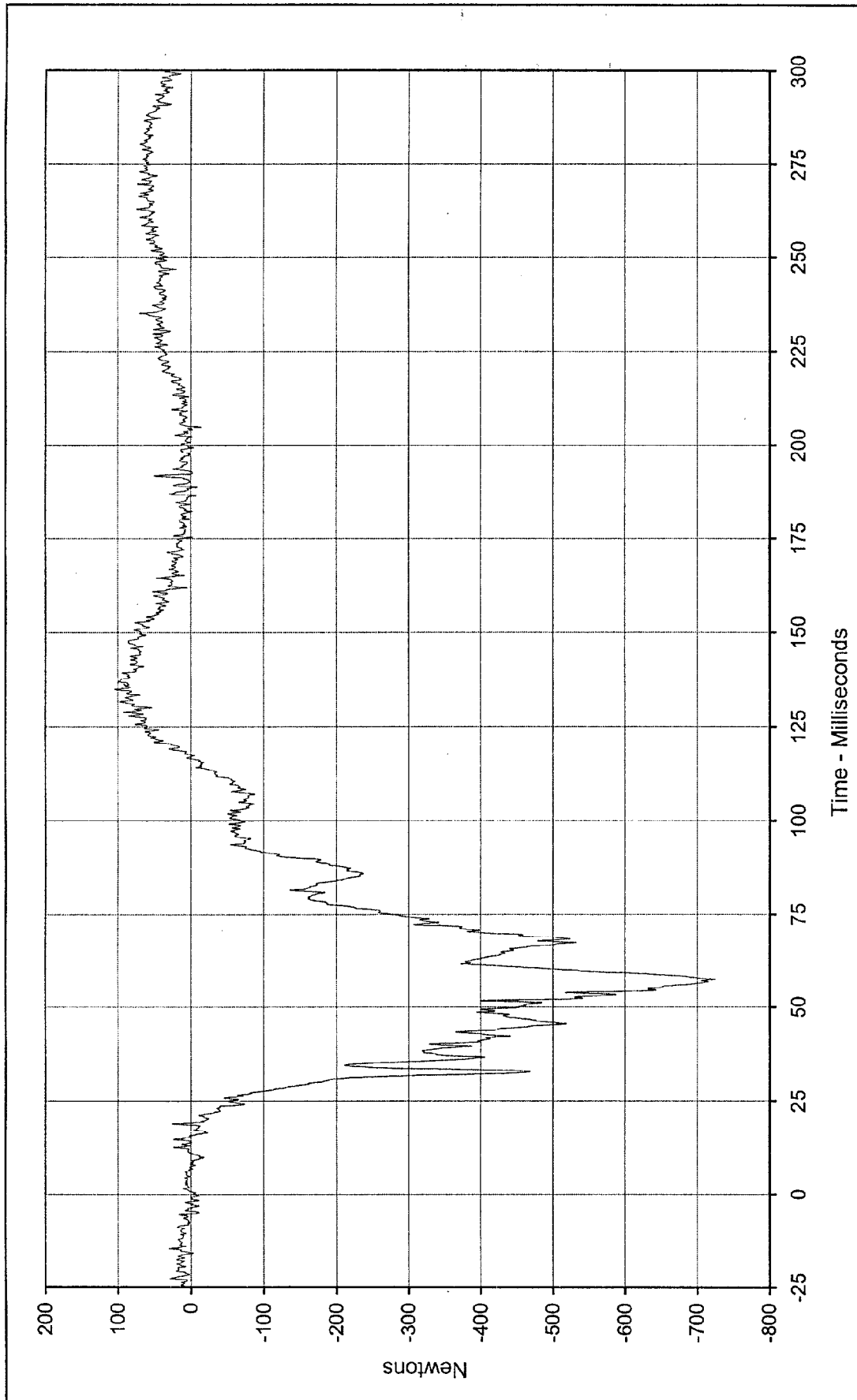
Date of Test: 2/4/98

Curve Number: FIL-072

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

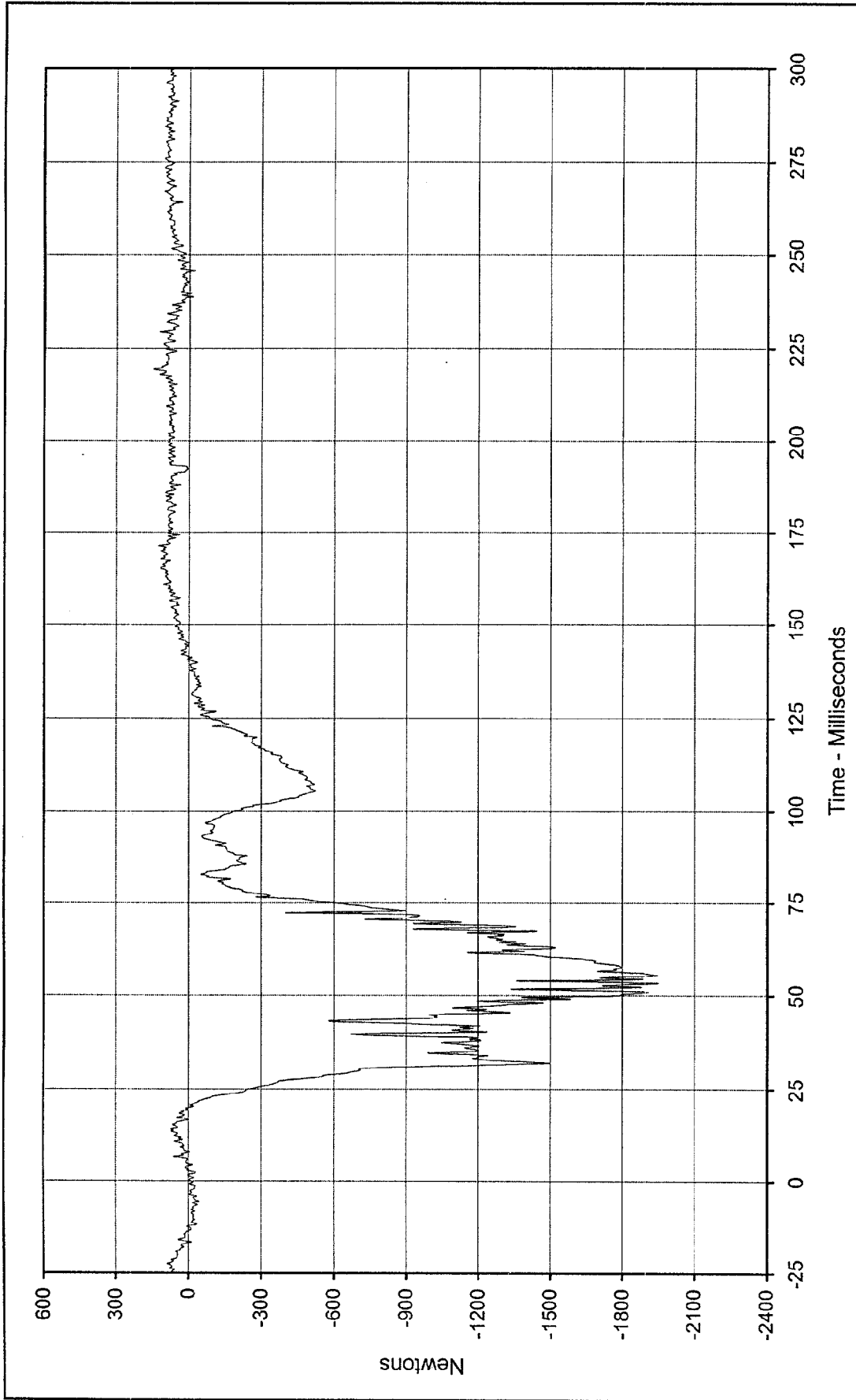
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Passenger Left Lower Tibia Force X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	104.1 at 134.7 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-725.0 at 57.4 Milliseconds			
SAE Filter Class:	600			
Date of Test:	2/4/98			
Curve Number:	FIL-073			





Curve Description: Passenger Left Lower Tibia Force Z

Maximum Value: 147.6 at 219.5 Milliseconds

Minimum Value: -1948.7 at 53.4 Milliseconds

SAE Filter Class: 600

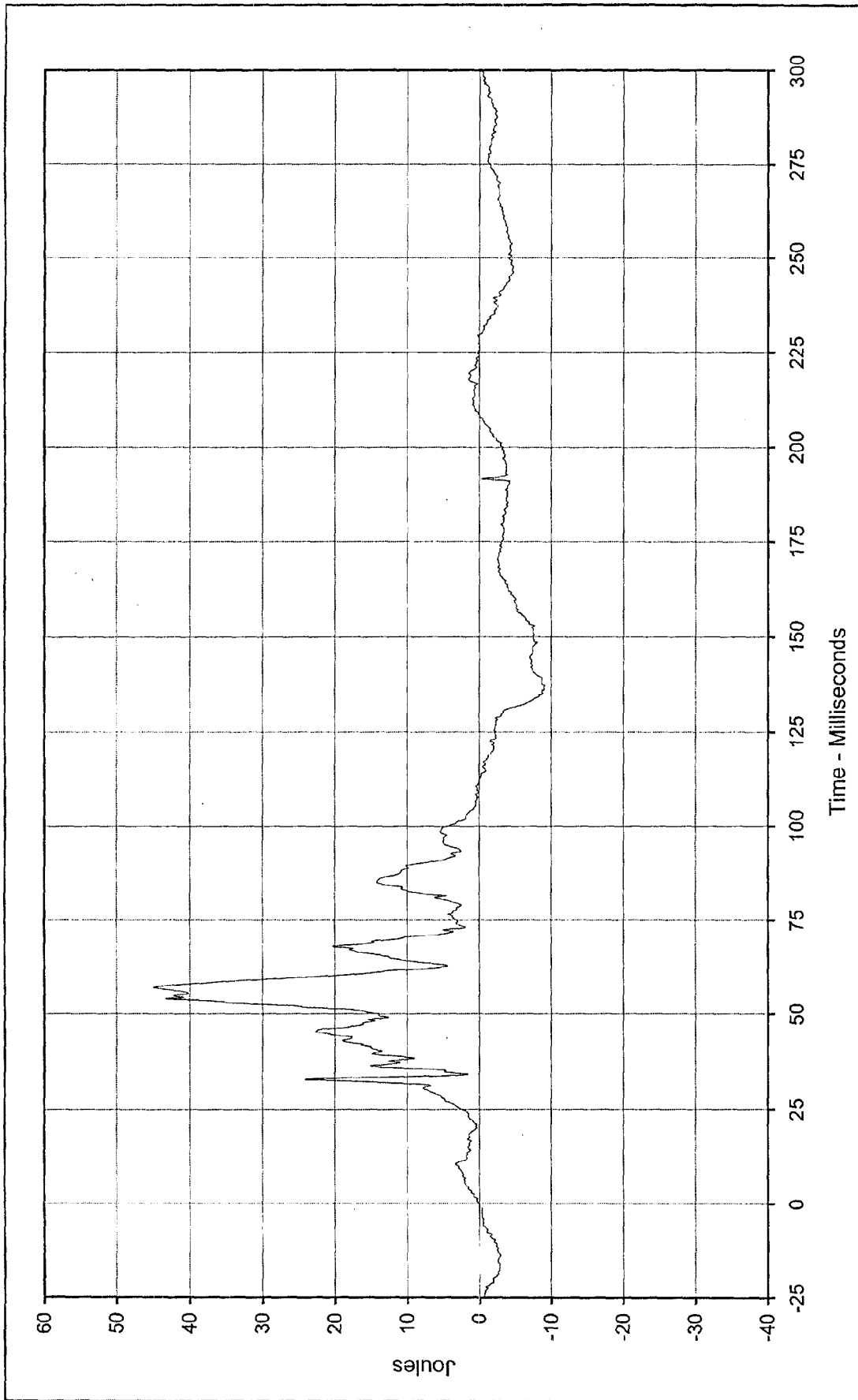
Date of Test: 2/4/98

Curve Number: FIL-074

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

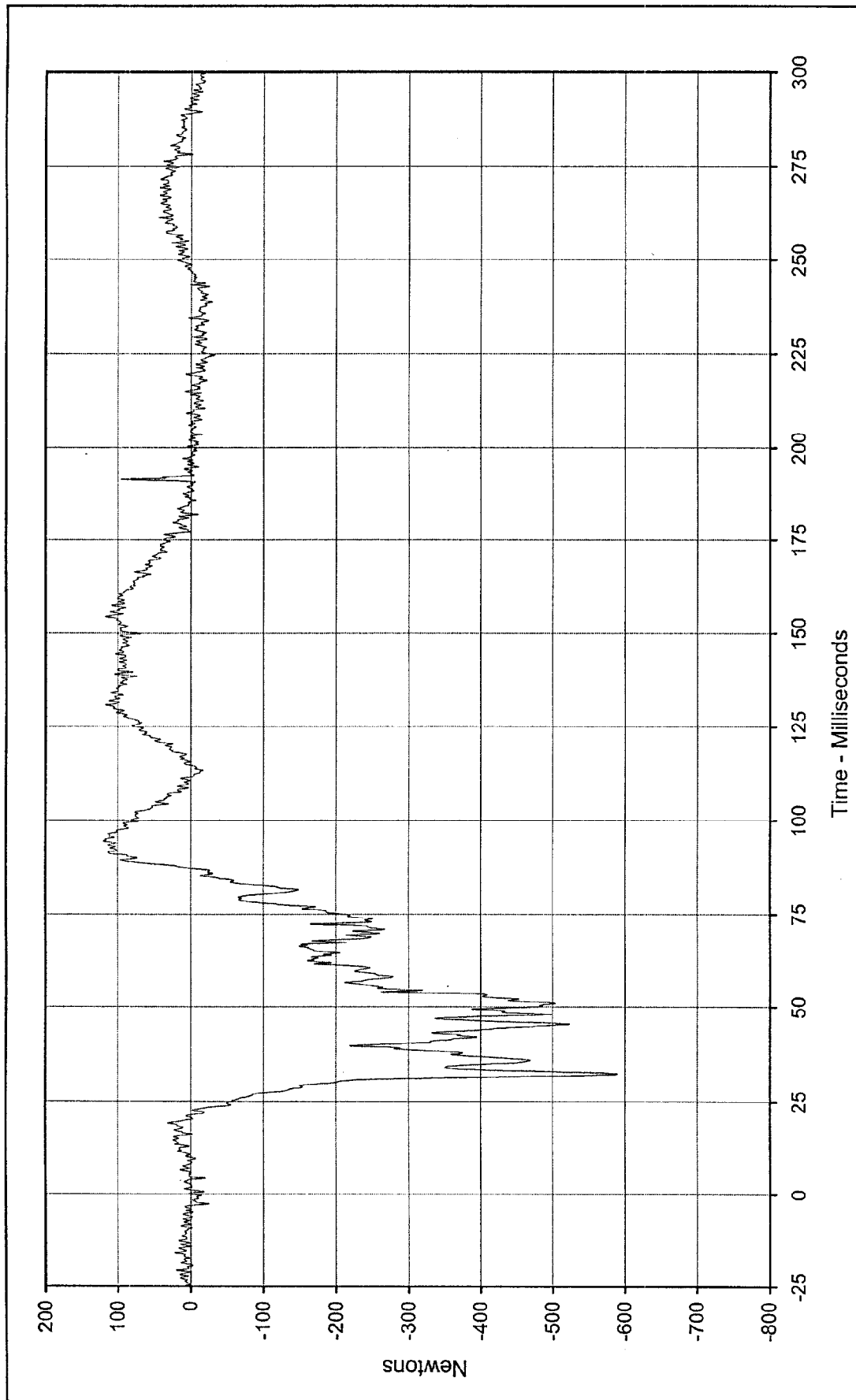




Curve Description: Passenger Left Lower Tibia Moment Y
Maximum Value: 45.0 at 57.0 Milliseconds
Minimum Value: -9.2 at 137.2 Milliseconds
SAE Filter Class: 600
Date of Test: 2/4/98
Curve Number: FIL-075

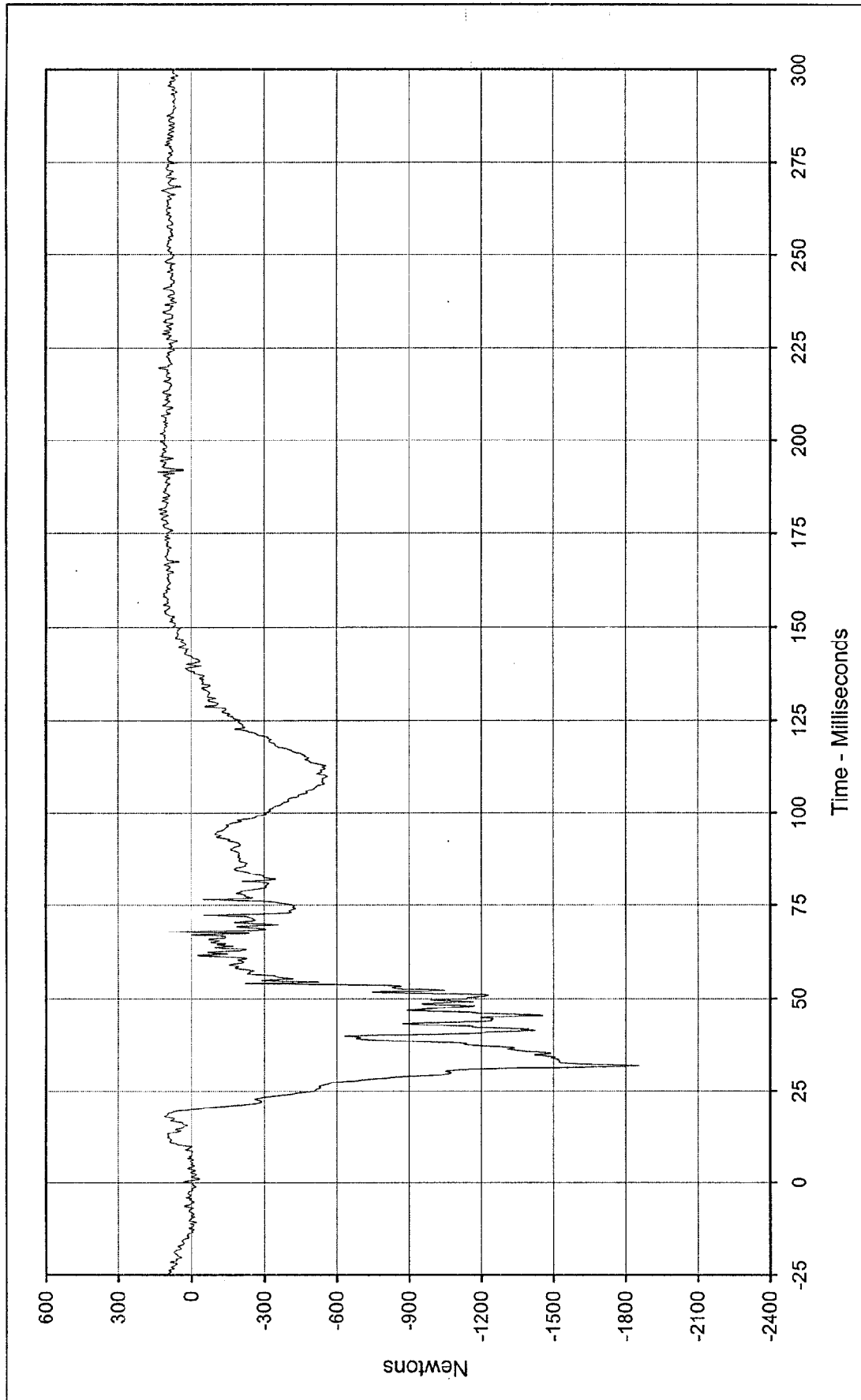
Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





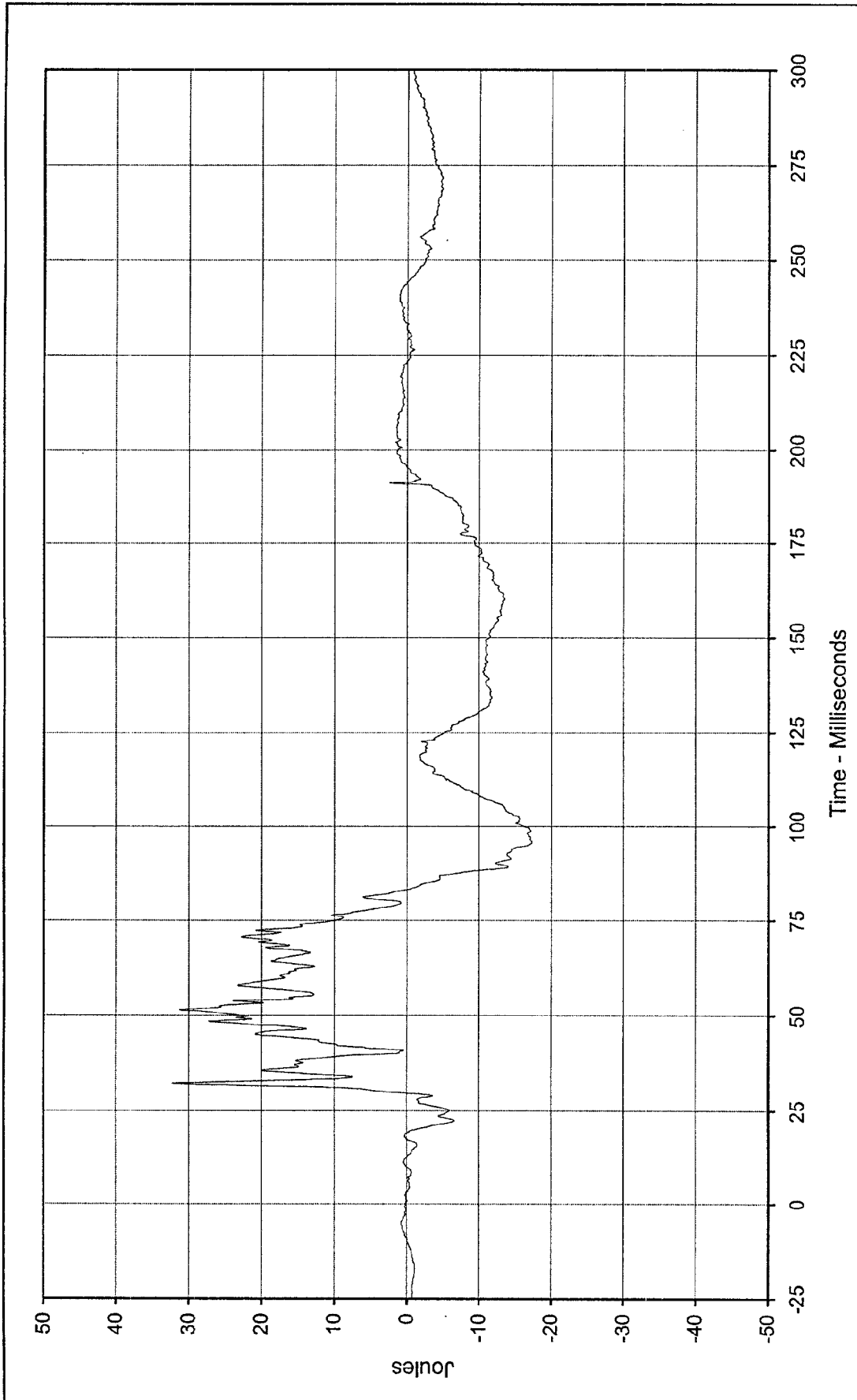
Curve Description: Passenger Right Lower Tibia Force X
 Maximum Value: 119.5 at 94.4 Milliseconds
 Minimum Value: -589.8 at 32.3 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 Curve Number: FIL-076





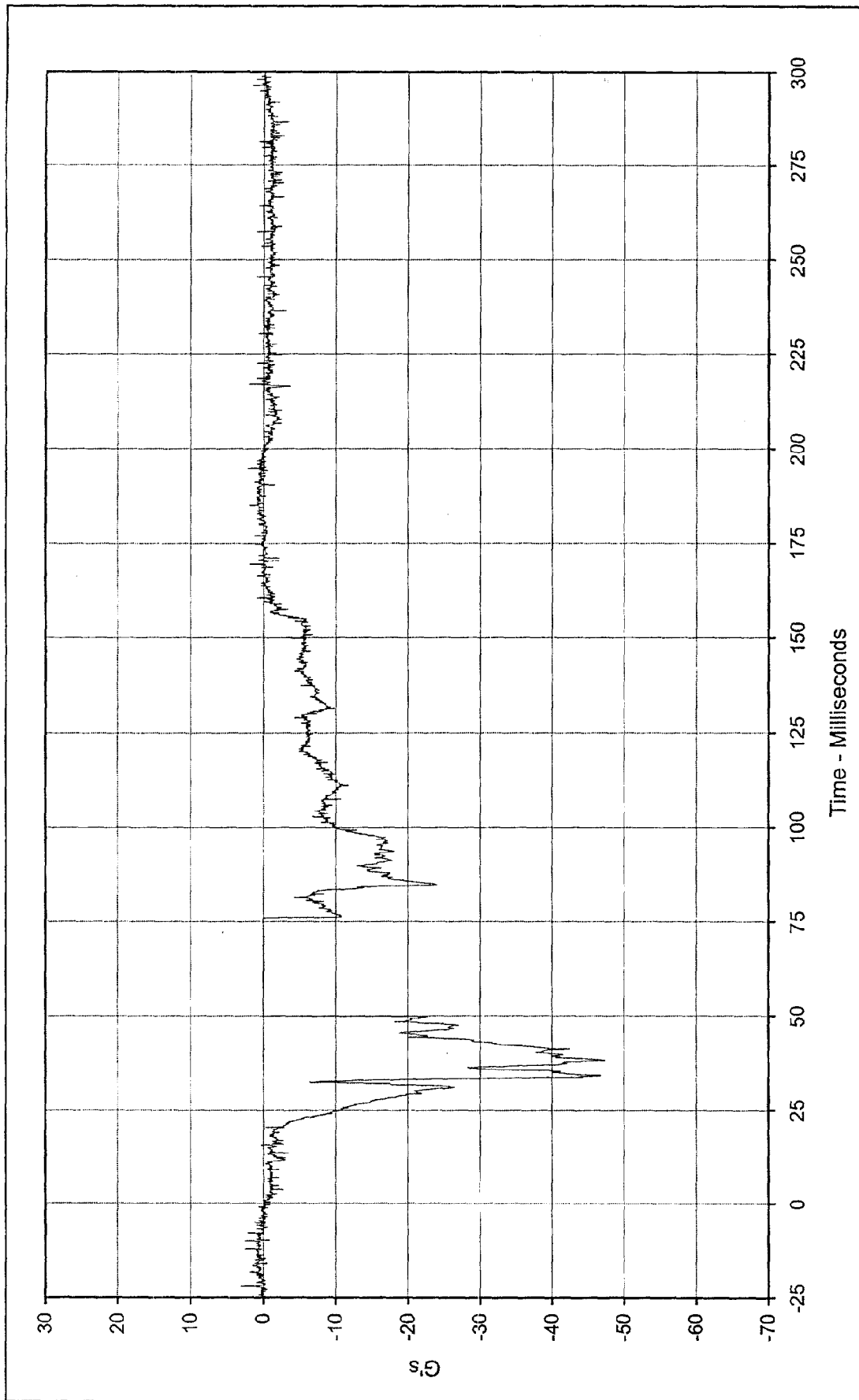
Curve Description:	Passenger Right Lower Tibia Force Z	Testing Program	1998 NHTSA 35 mph NCAP	No.:	MW0306
Maximum Value:	137.3	at	191.4	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup
Minimum Value:	-1856.0	at	31.8		
SAE Filter Class:	600				
Date of Test:	2/4/98				
Curve Number:	FIL-077				





Curve Description: Passenger Right lower Tibia Moment Y		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	32.3	at	32.4	Milliseconds
Minimum Value:	-17.4	at	95.7	Milliseconds
SAE Filter Class:	600			
Date of Test:	2/4/98			
Curve Number:	FIL-078			
		Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	

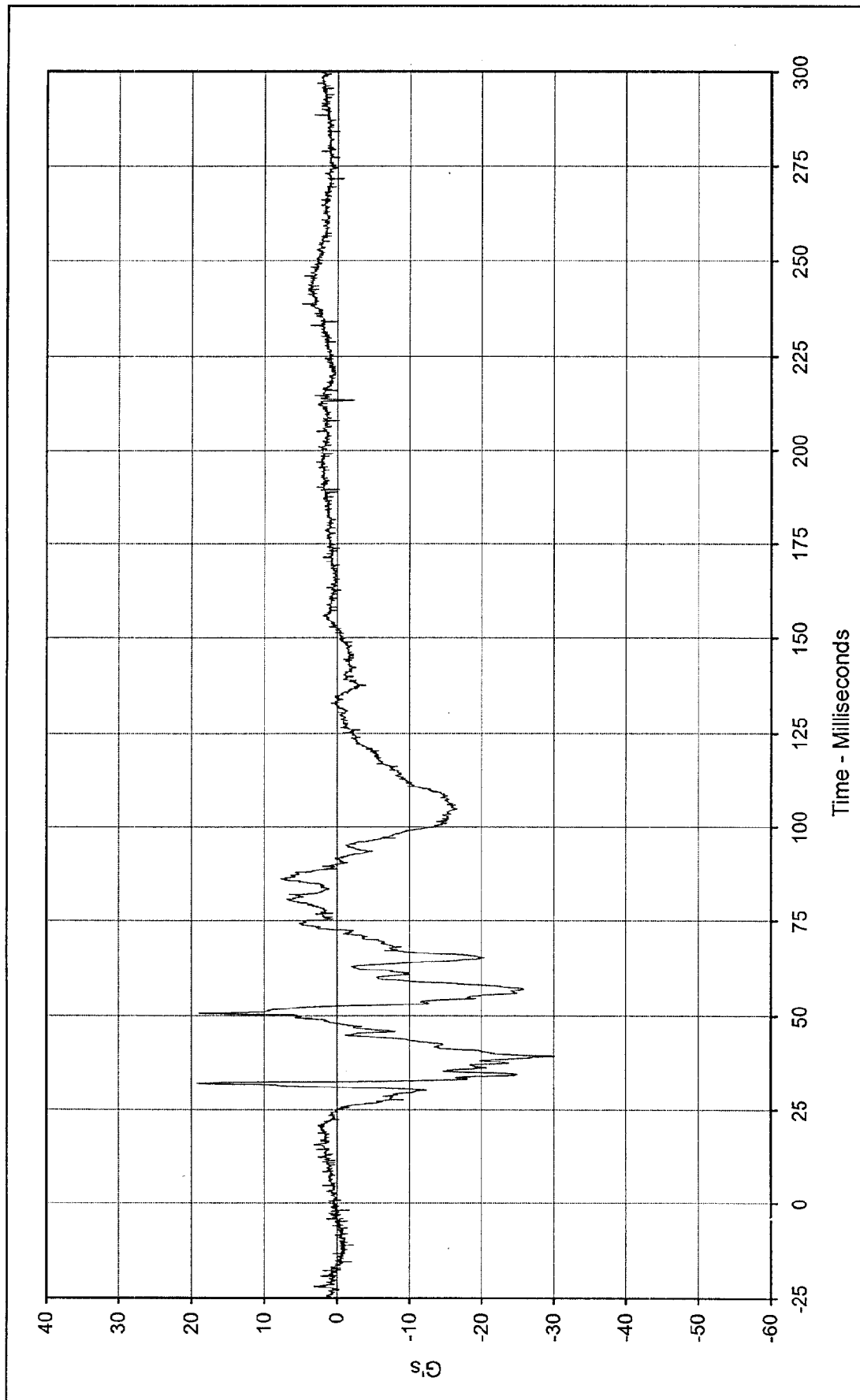




Curve Description:	Passenger Left Foot Aft X	*	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	2.2	at 194.7	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-47.3	at 38.1			
SAE Filter Class:	1000				
Date of Test:	2/4/98				
Curve Number:	FIL-079				

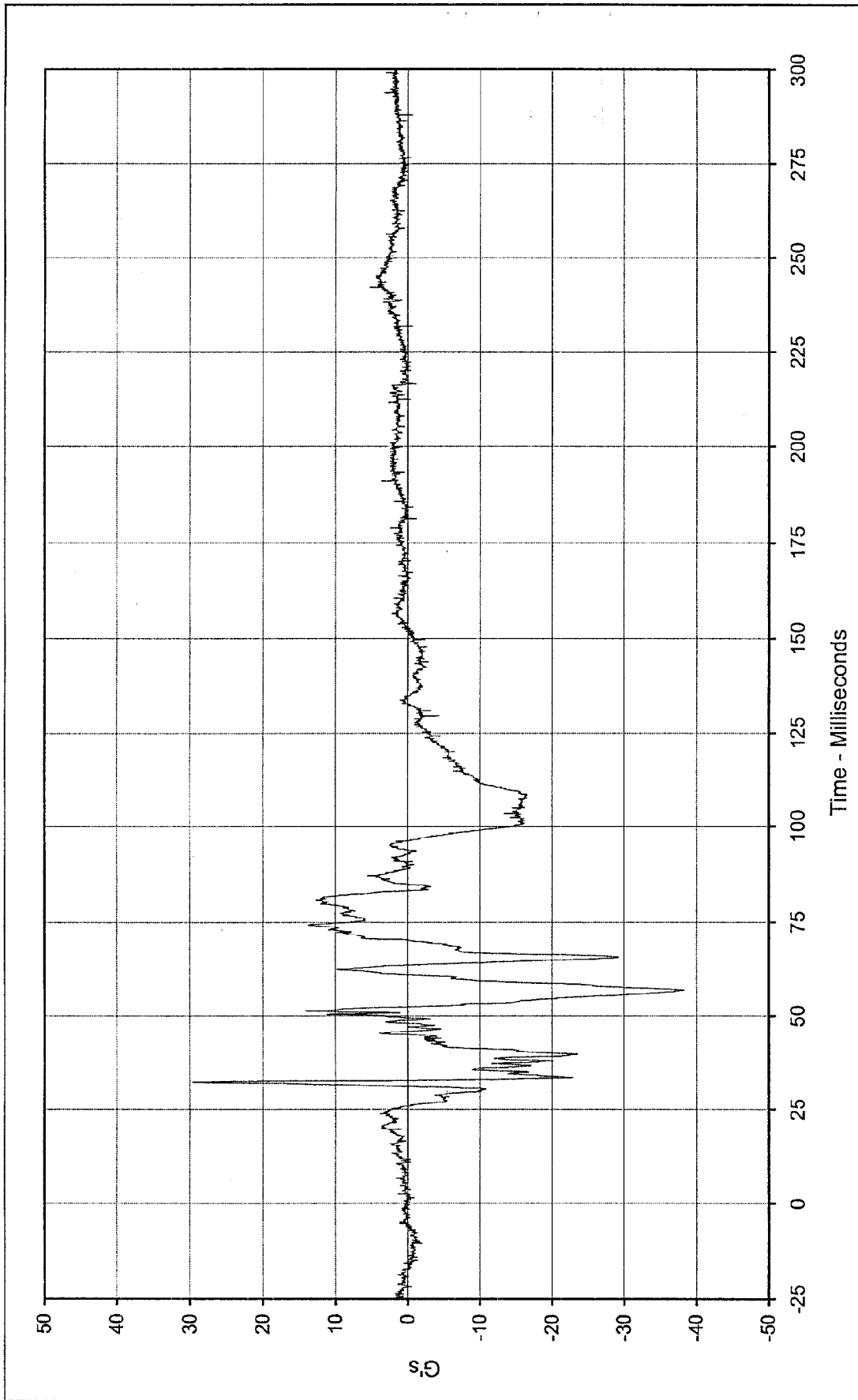


* Channel Failed, 50.0 to 76.0 Msec.



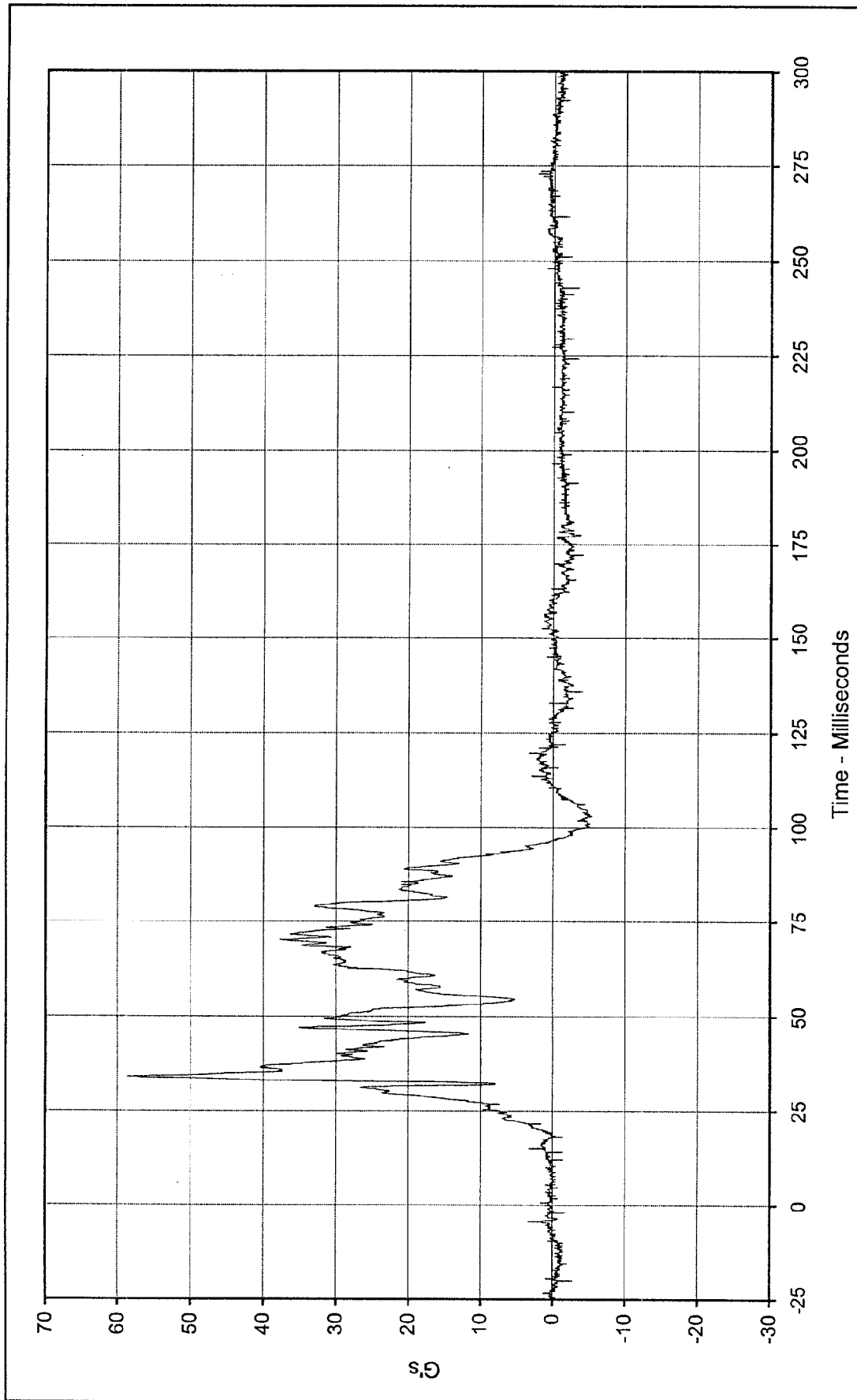
Curve Description:	Passenger Left Foot Aft Z				Testing Program	1998 NHTSA 35 mph NCAP		No.: MW0306
Maximum Value:	19.2	at	32.3	Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup		
Minimum Value:	-30.1	at	39.5	Milliseconds				
SAE Filter Class:	1000							
Date of Test:	2/4/98							
Curve Number:	FIL-080							





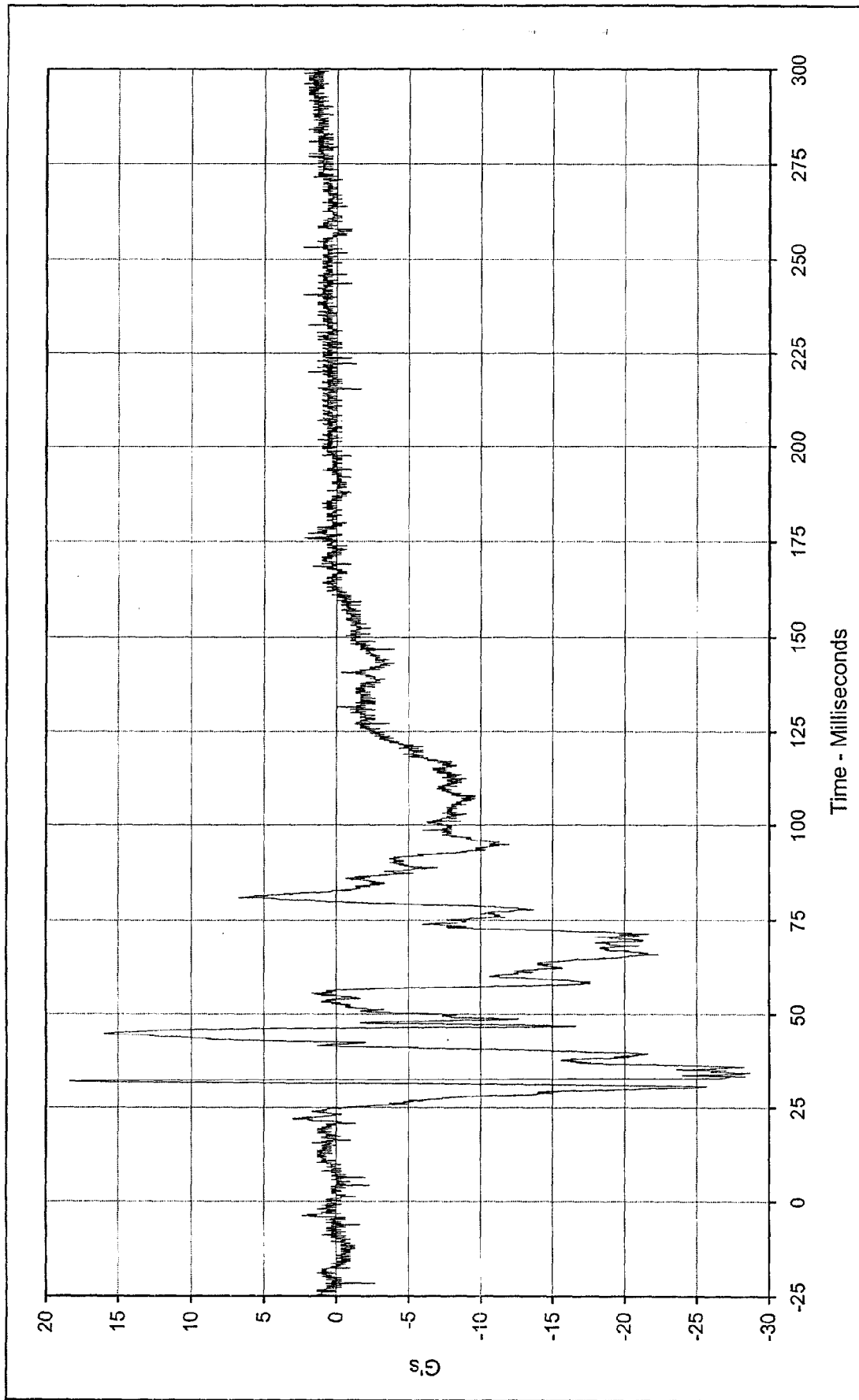
Curve Description:	Passenger Left Foot Fore Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	29.6 at 32.3 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-38.3 at 56.8 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/4/98			
Curve Number:	FIL-081			





Curve Description:	Passenger Right Foot Aft X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	58.7 at 33.9 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-5.4 at 103.2 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/4/96			
Curve Number:	FIL-082			

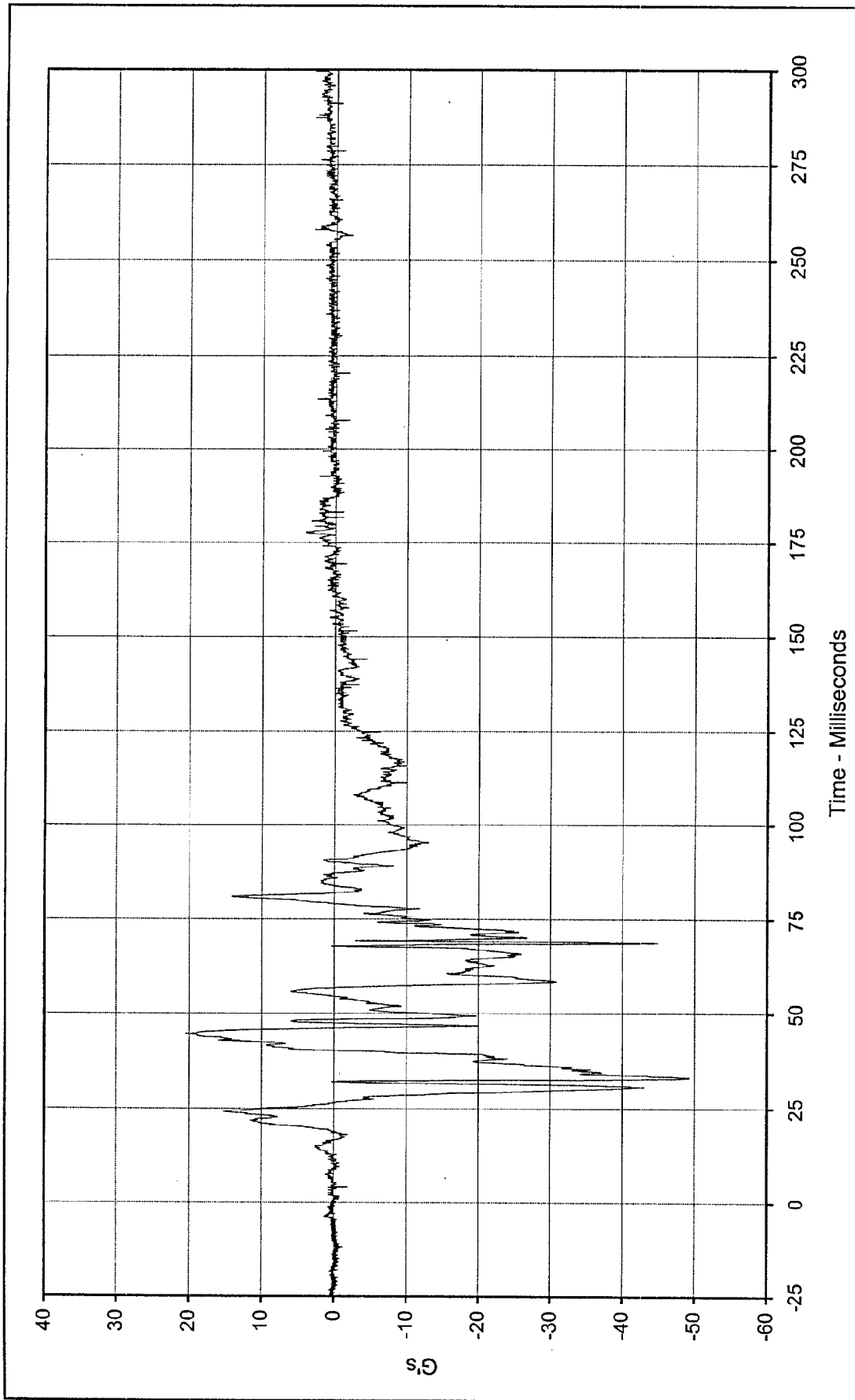




Curve Description: Passenger Right Foot Aft Z
 Maximum Value: 18.3 at 31.9 Milliseconds
 Minimum Value: -28.6 at 34.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 Curve Number: FIL-083

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Right Foot Fore Z

Maximum Value: 20.4 at 44.6 Milliseconds

Minimum Value: -49.3 at 33.2 Milliseconds

SAE Filter Class: 1000

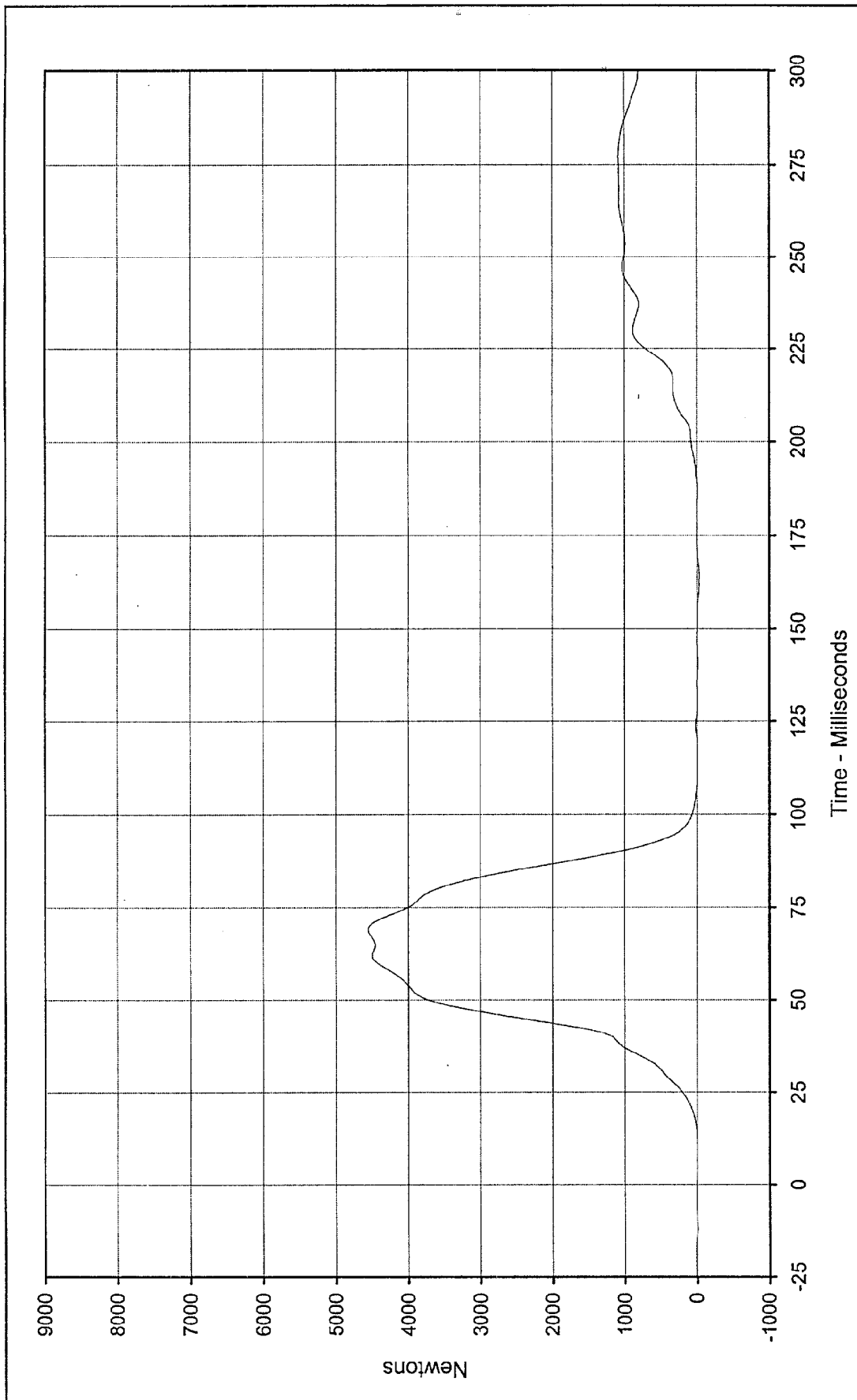
Date of Test: 2/4/98

Curve Number: FIL-084

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

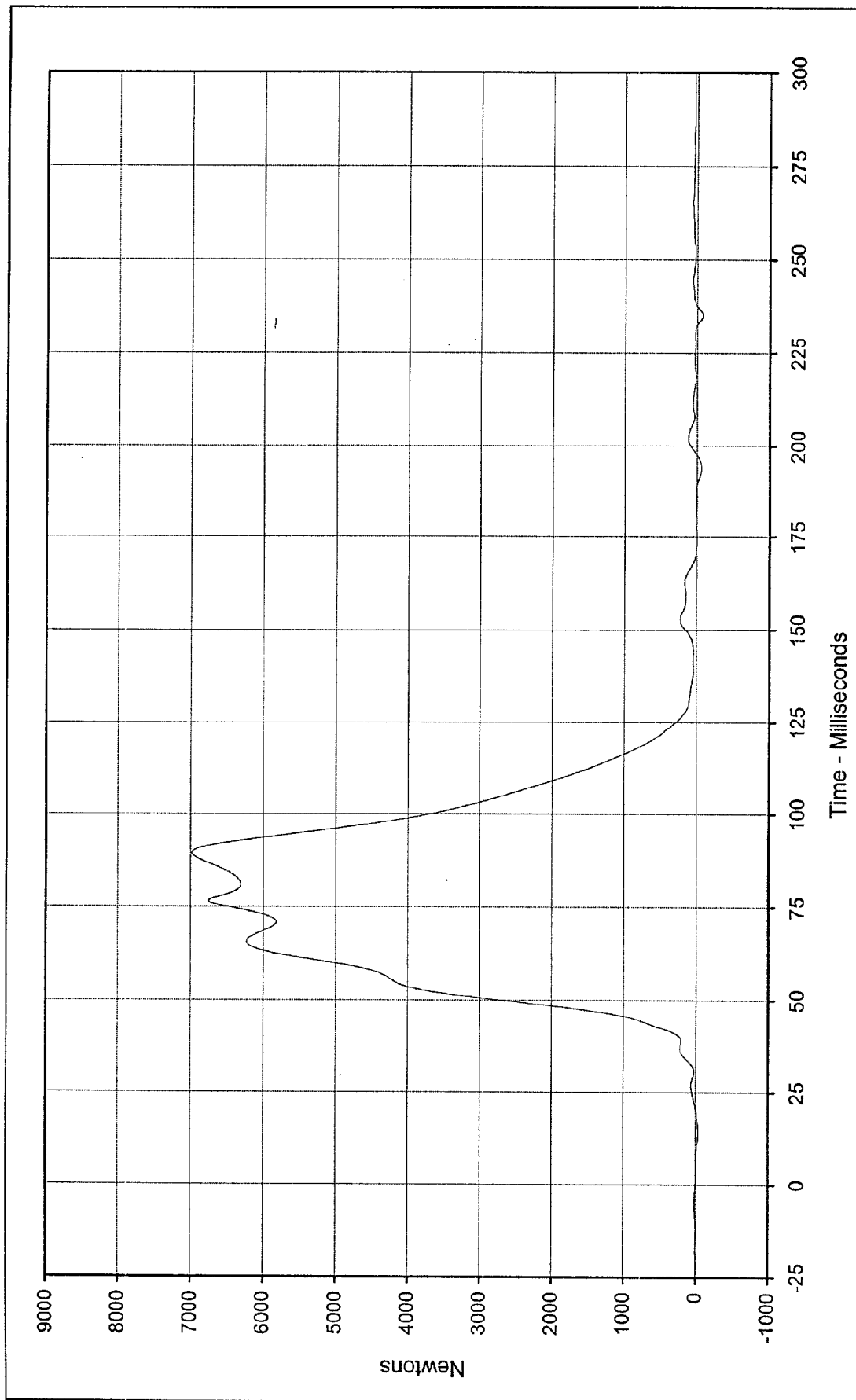




Curve Description: Passenger Lap Belt Force
 Maximum Value: 4555.4 at 69.1 Milliseconds
 Minimum Value: -39.1 at 164.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-085

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Passenger Shoulder Belt Force

Maximum Value: 6982.6 at 89.3 Milliseconds

Minimum Value: -80.2 at 235.3 Milliseconds

SAE Filter Class: 60

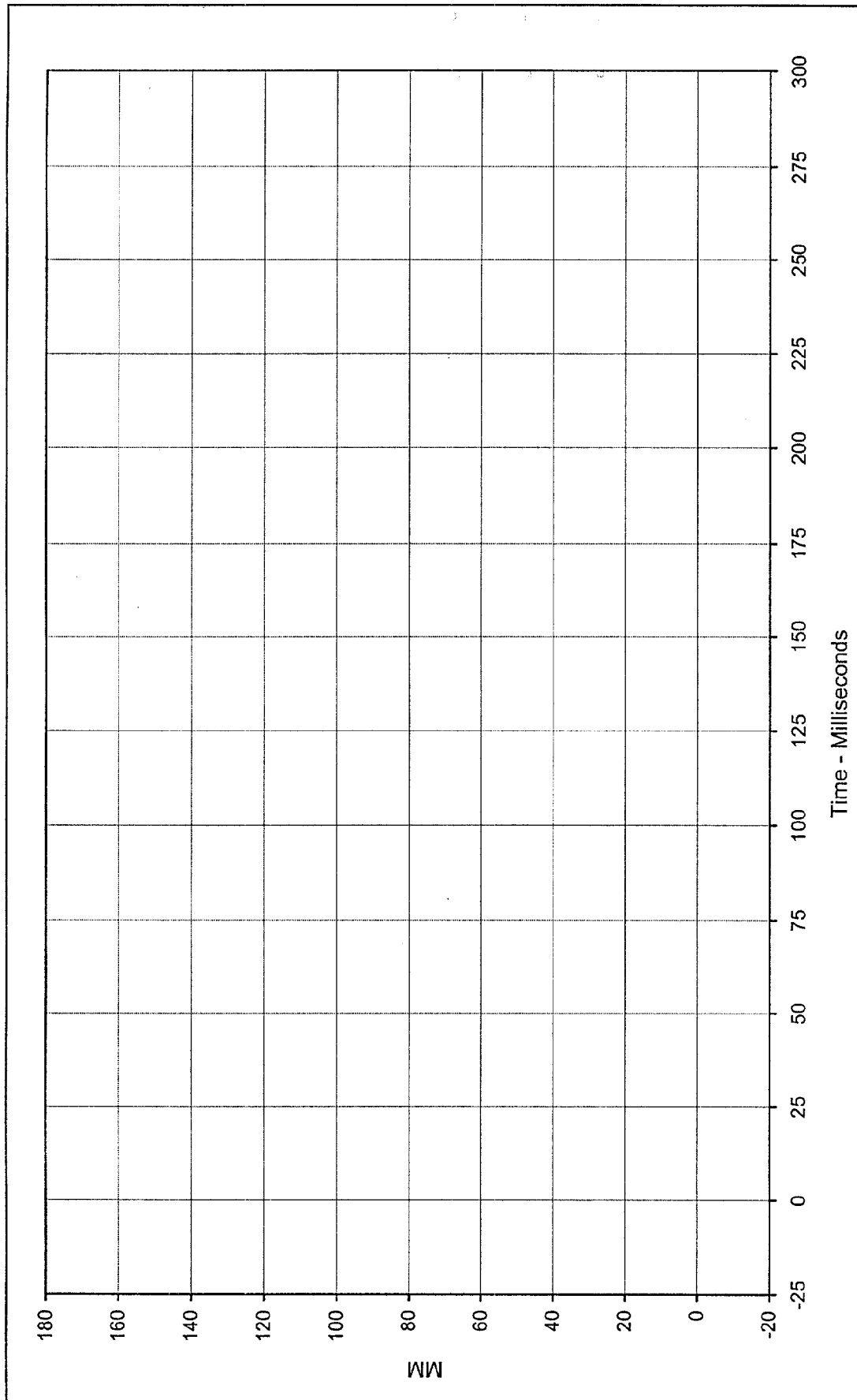
Date of Test: 2/4/98

Curve Number: FIL-086

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup



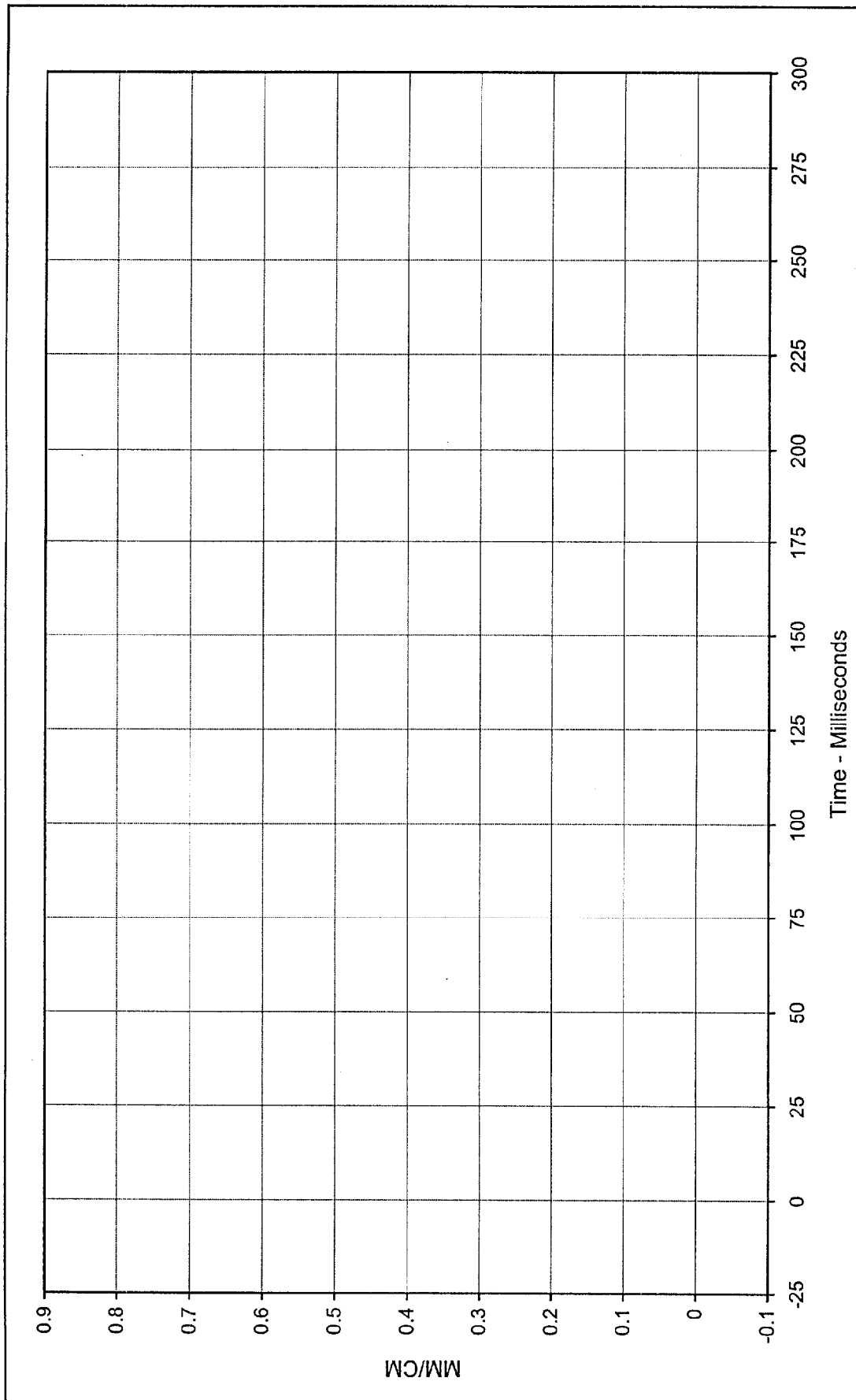


Curve Description: Passenger Shoulder Belt Pullout * Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup
 Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-087



* Sensor Not Installed

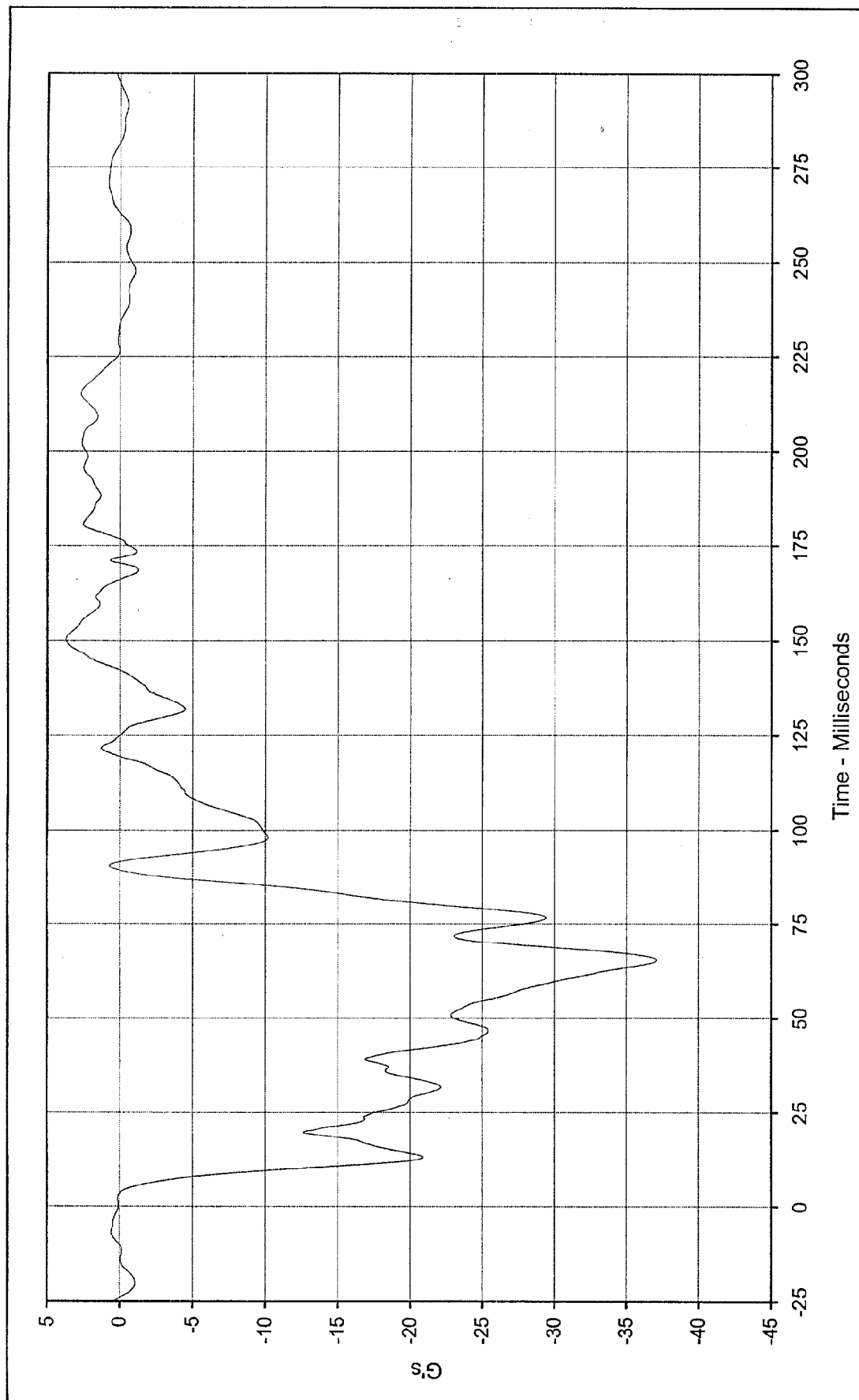


Curve Description: Passenger Shoulder Belt Elongation * Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 0.00 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup
 Minimum Value: 0.00 at 0.0 Milliseconds



SAE Filter Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-088

* Sensor Not Installed



Curve Description: Vehicle Left Rear Primary

Maximum Value: 3.7 at 150.3 Milliseconds

Minimum Value: -37.1 at 65.3 Milliseconds

SAE Filter Class: 60

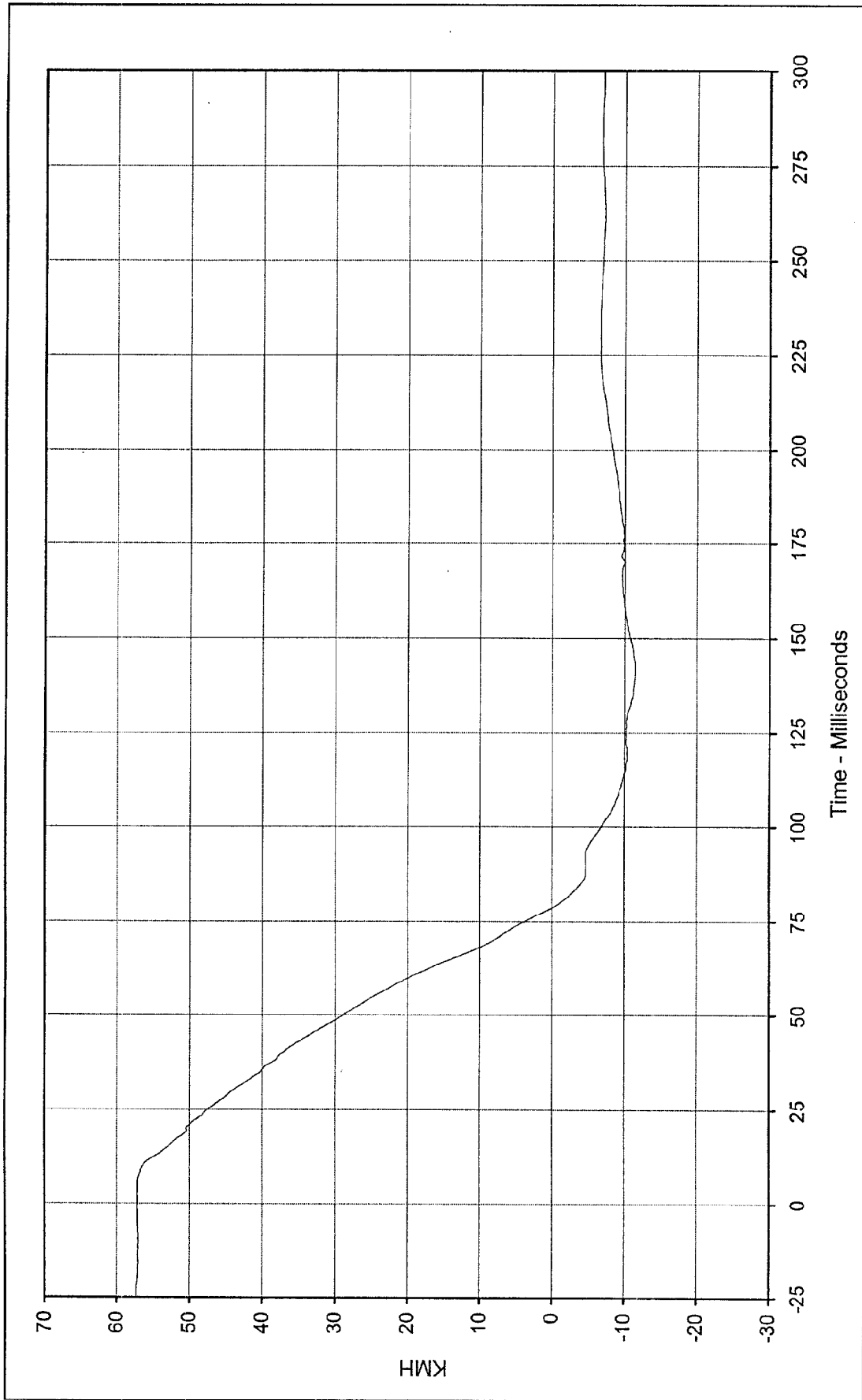
Date of Test: 2/4/98

Curve Number: FIL-089

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

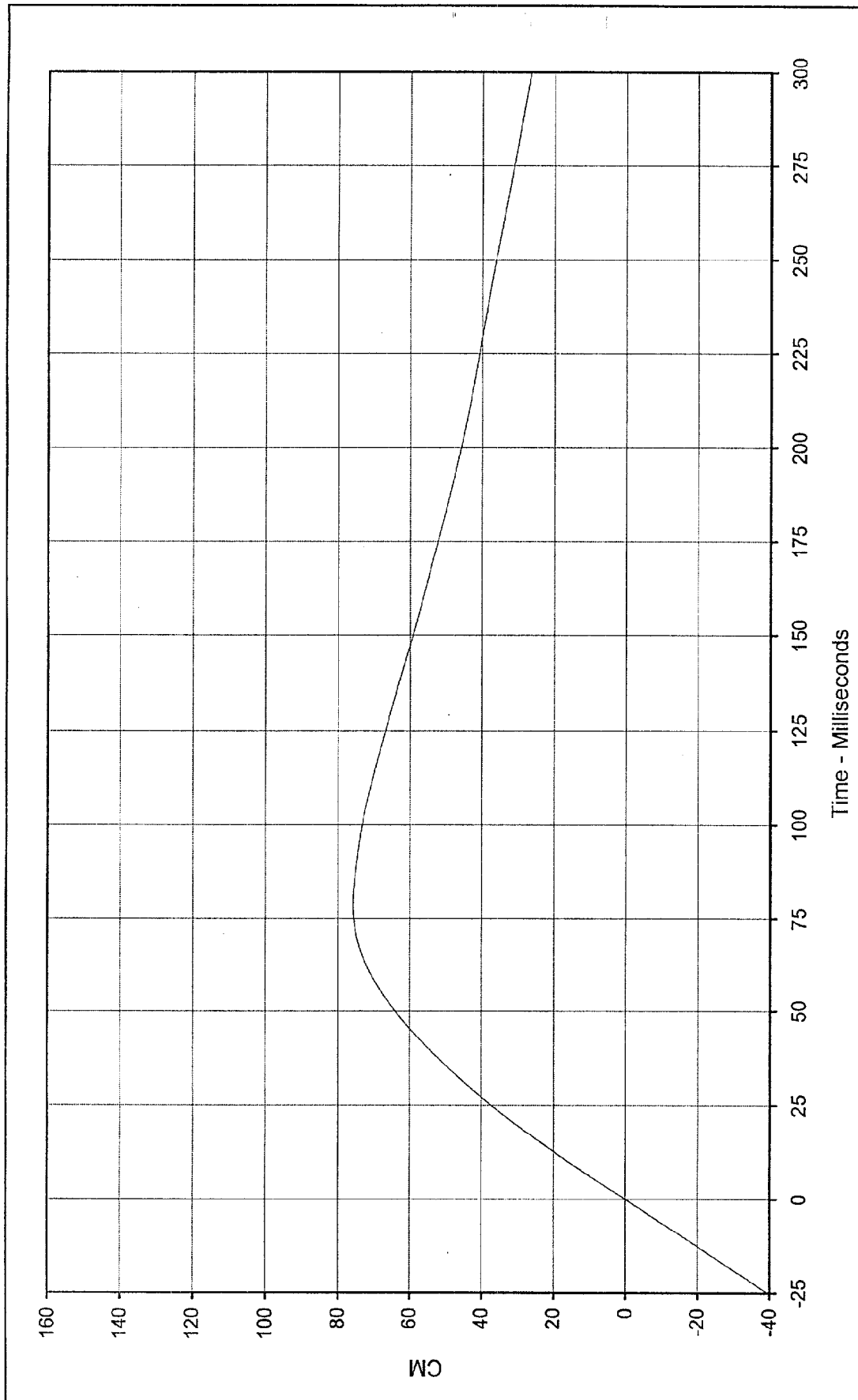




Curve Description: Vehicle Left Rear Primary Velocity
 Maximum Value: 57.2 at 0.0 Milliseconds
 Minimum Value: -11.4 at 141.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-089

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

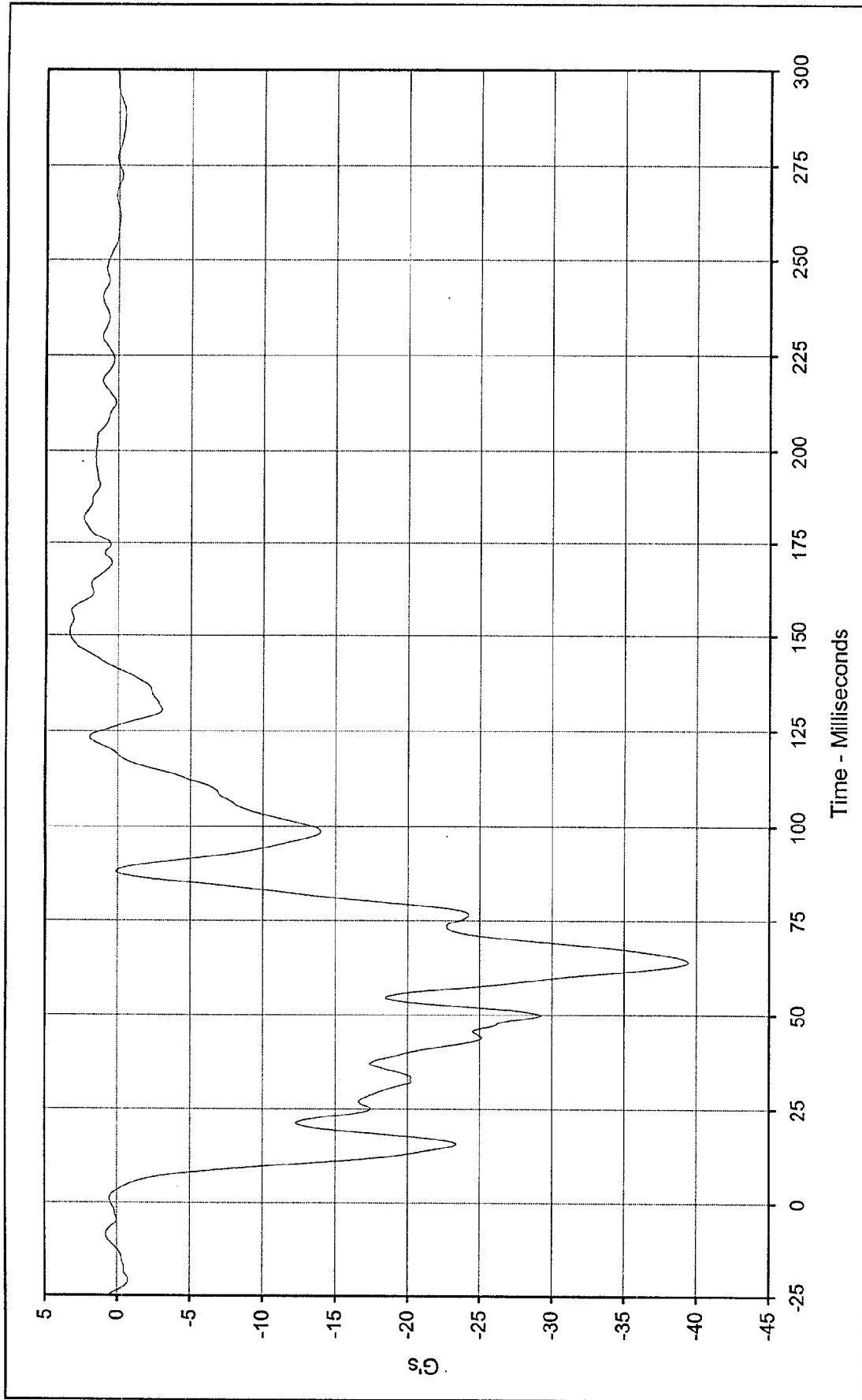




Curve Description: Vehicle Left Rear Primary Displ.
 Maximum Value: 75.8 at 78.6 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-089

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

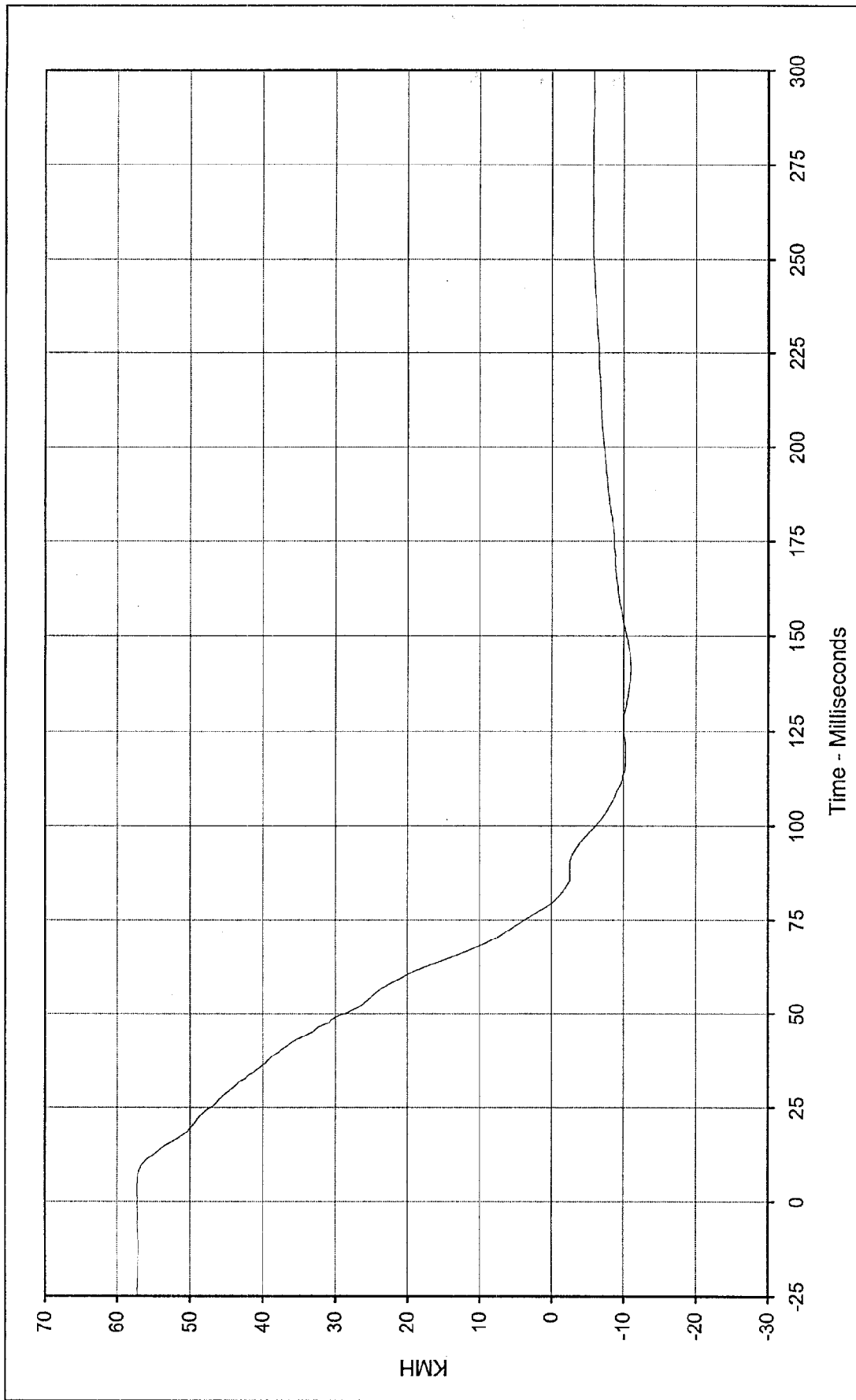




Curve Description: Vehicle Right Rear Primary
 Maximum Value: 3.3 at 150.8 Milliseconds
 Minimum Value: -39.5 at 63.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-090

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

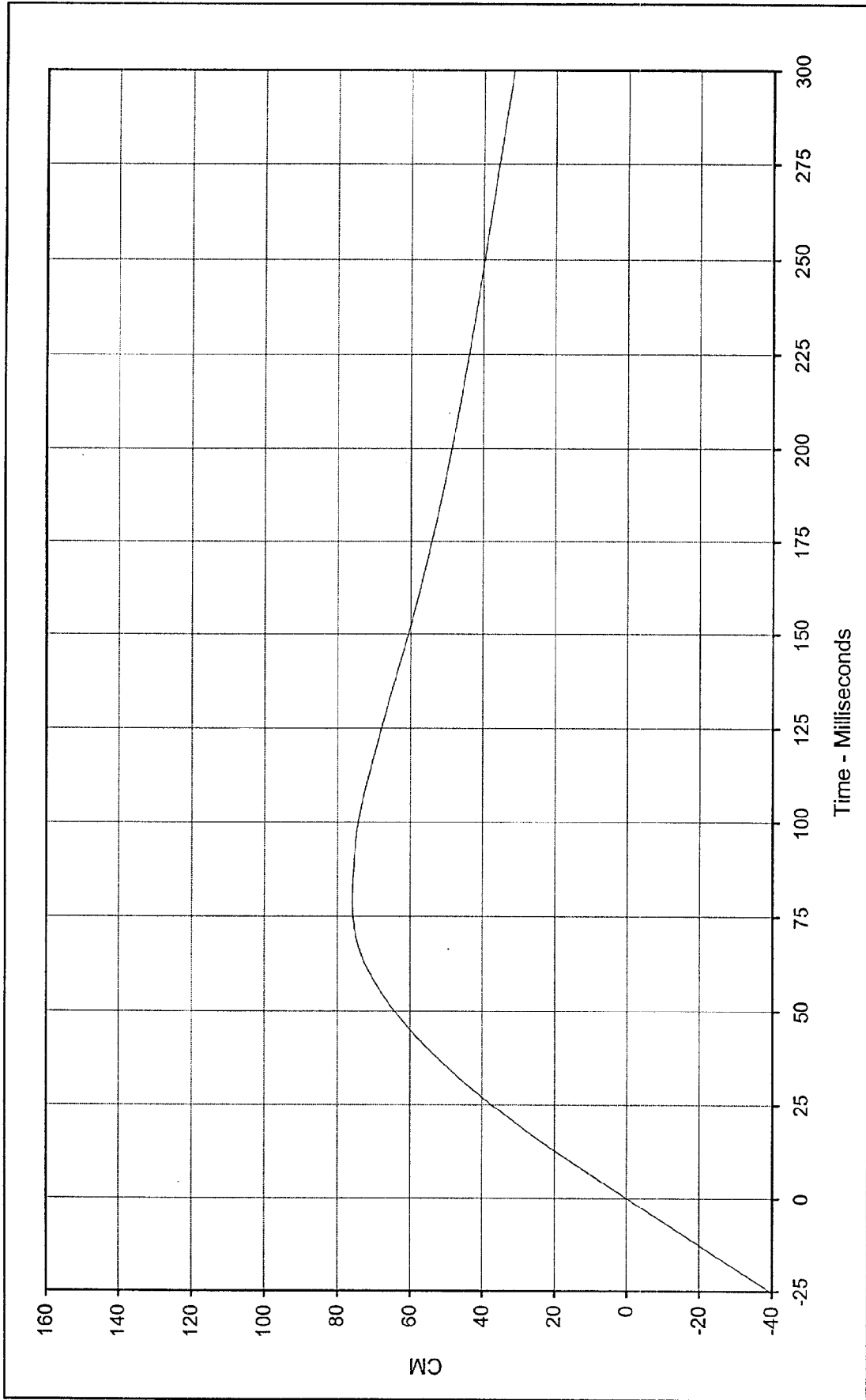




Curve Description: Vehicle Right Rear Primary Velocity
 Maximum Value: 57.3 at 2.6 Milliseconds
 Minimum Value: -11.0 at 141.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-090

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Vehicle Right Rear Primary Displ.

Maximum Value: 76.0 at 79.4 Milliseconds

Minimum Value: 0.1 at 0.0 Milliseconds

SAE Filter Class: 180

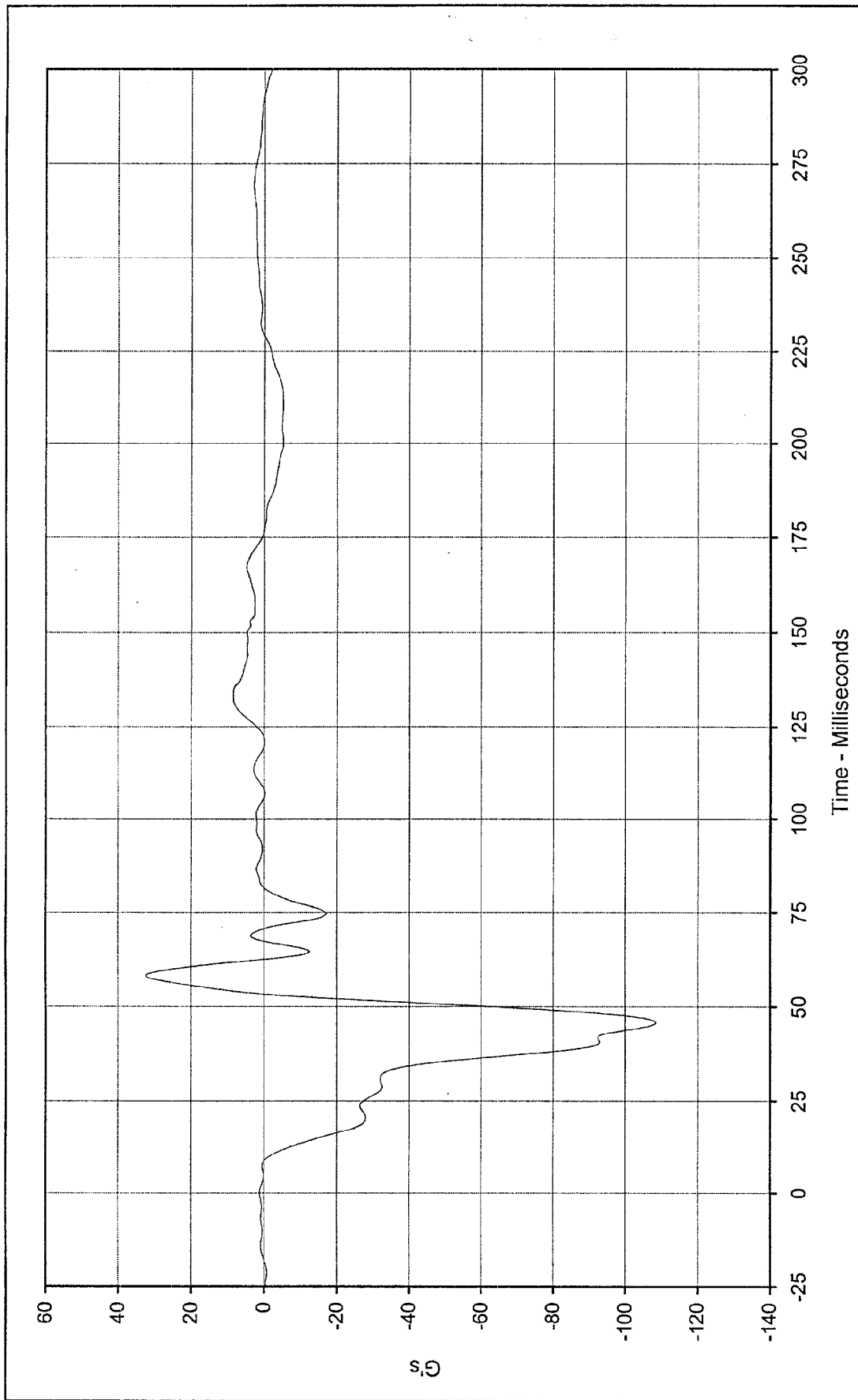
Date of Test: 2/4/98

Curve Number: IN2-090

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

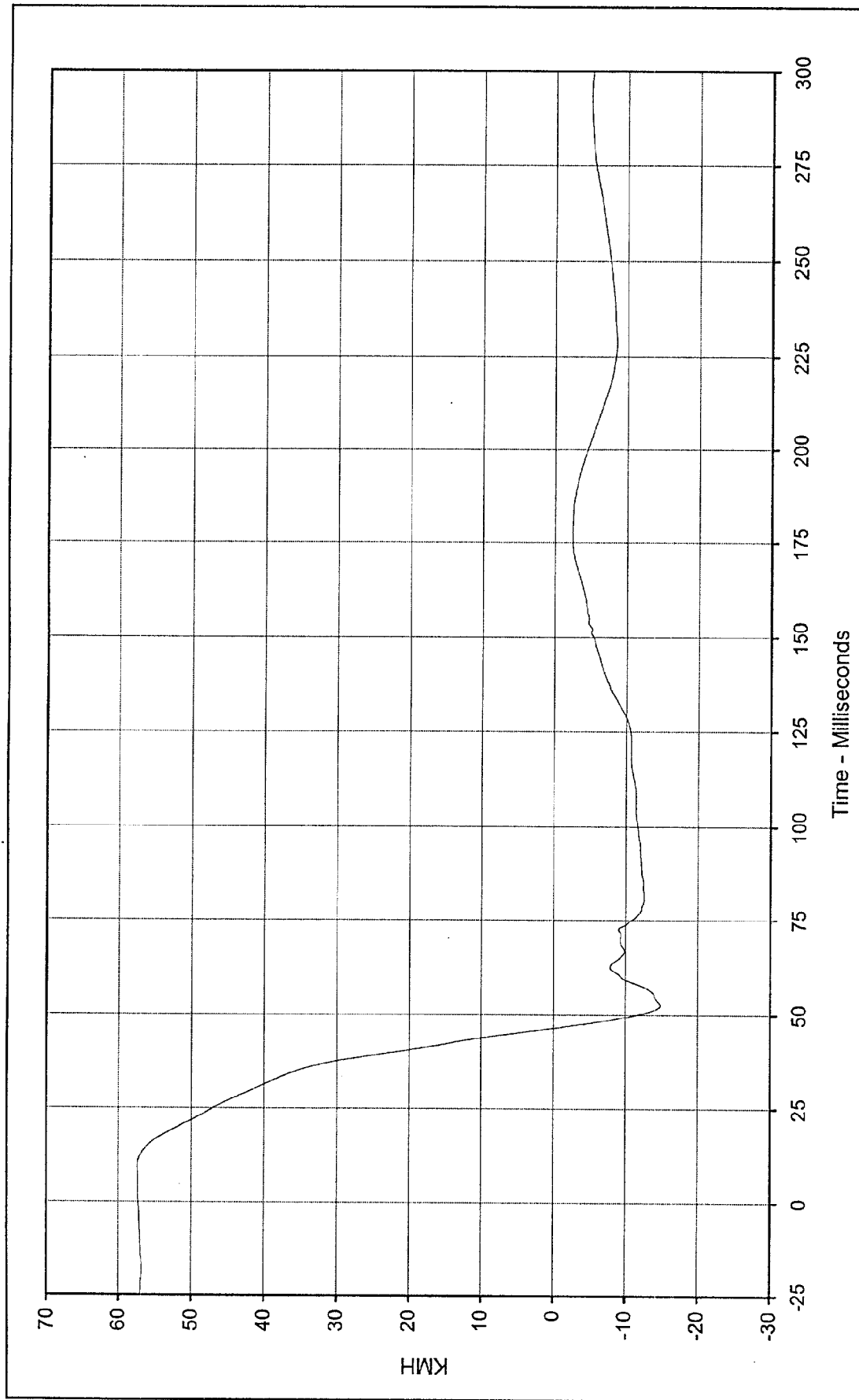
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: _____ Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 32.4 at 58.1 Milliseconds
 Minimum Value: -108.4 at 45.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-091





Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Maximum Value: 57.4 at 9.6 Milliseconds
Minimum Value: -14.8 at 52.6 Milliseconds

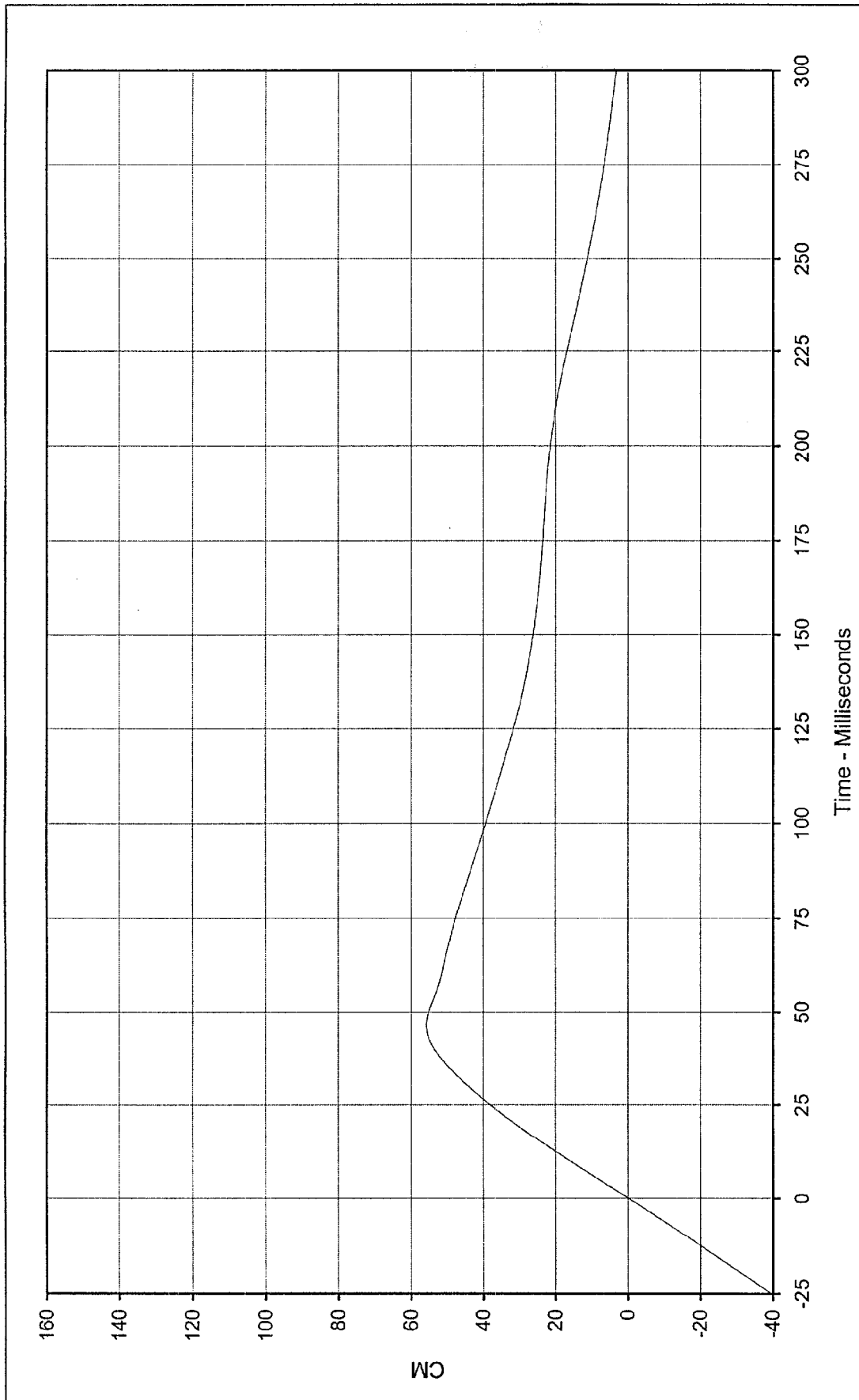
SAE Filter Class: 180

Date of Test: 2/4/98

Curve Number: IN1-091

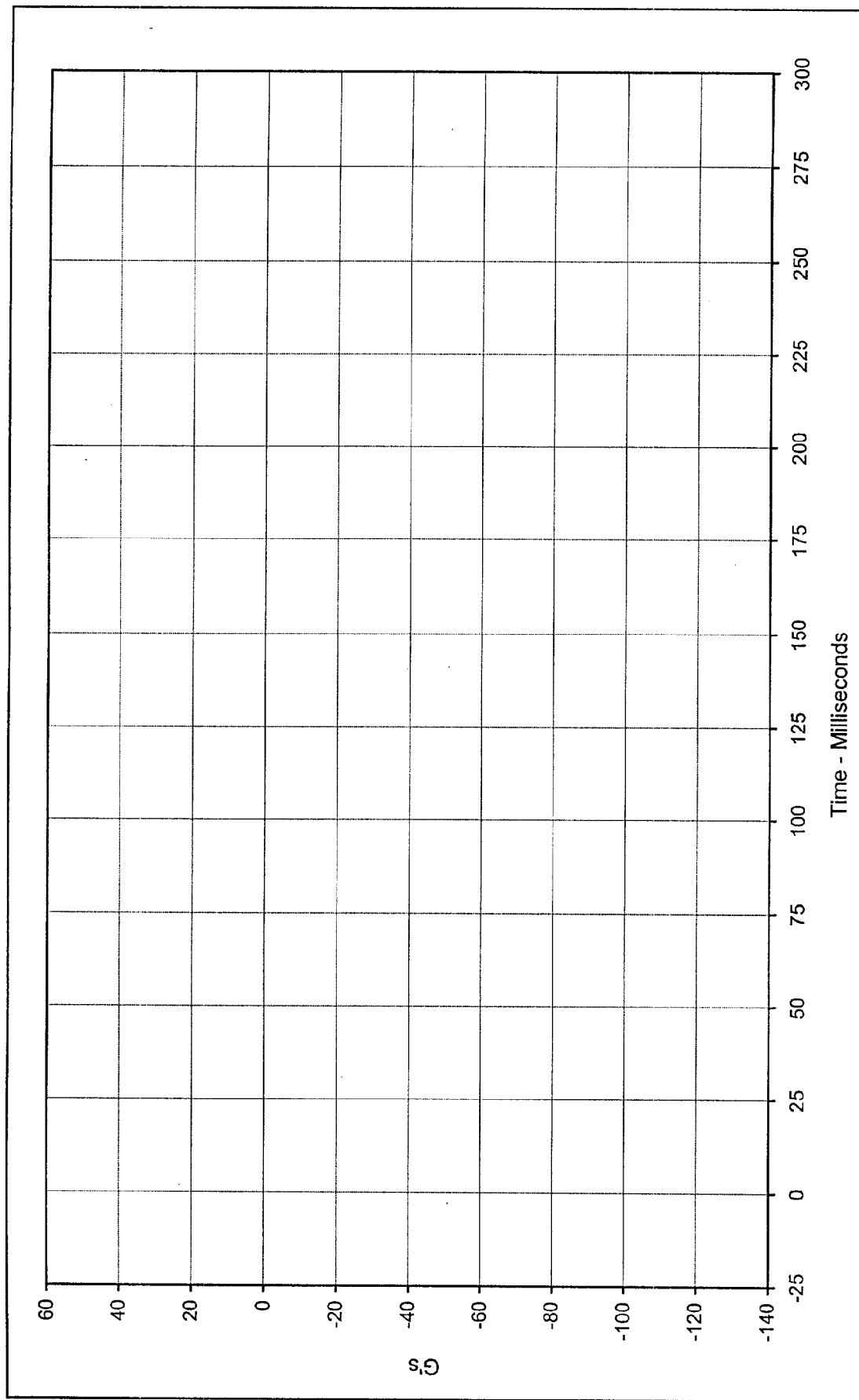
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: _____ Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 55.8 at 46.5 Milliseconds
 Minimum Value: -0.1 at 0.0 Milliseconds
 SAE Filler Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-091

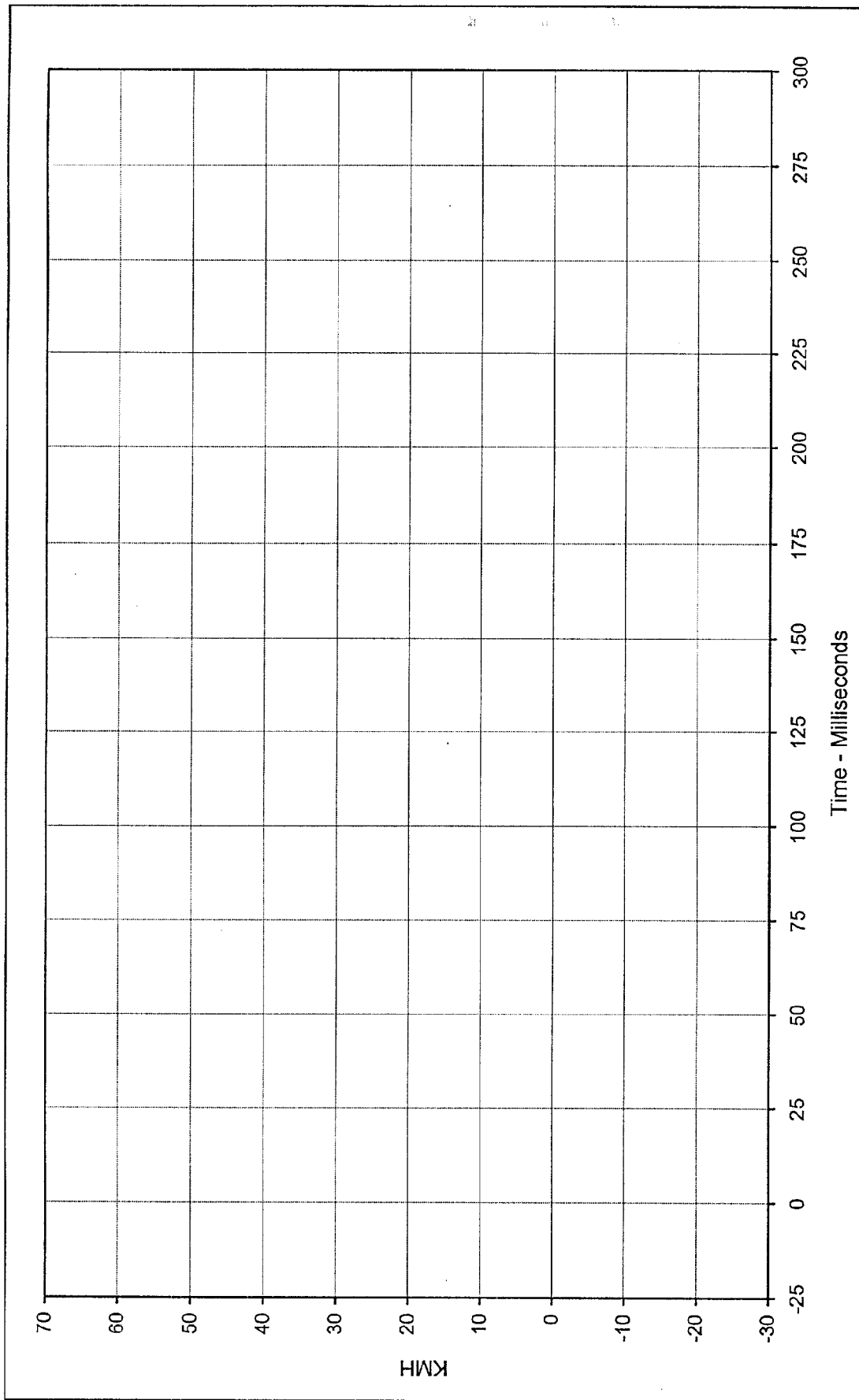




Curve Description: _____ Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 0.0 at 0.0 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-092



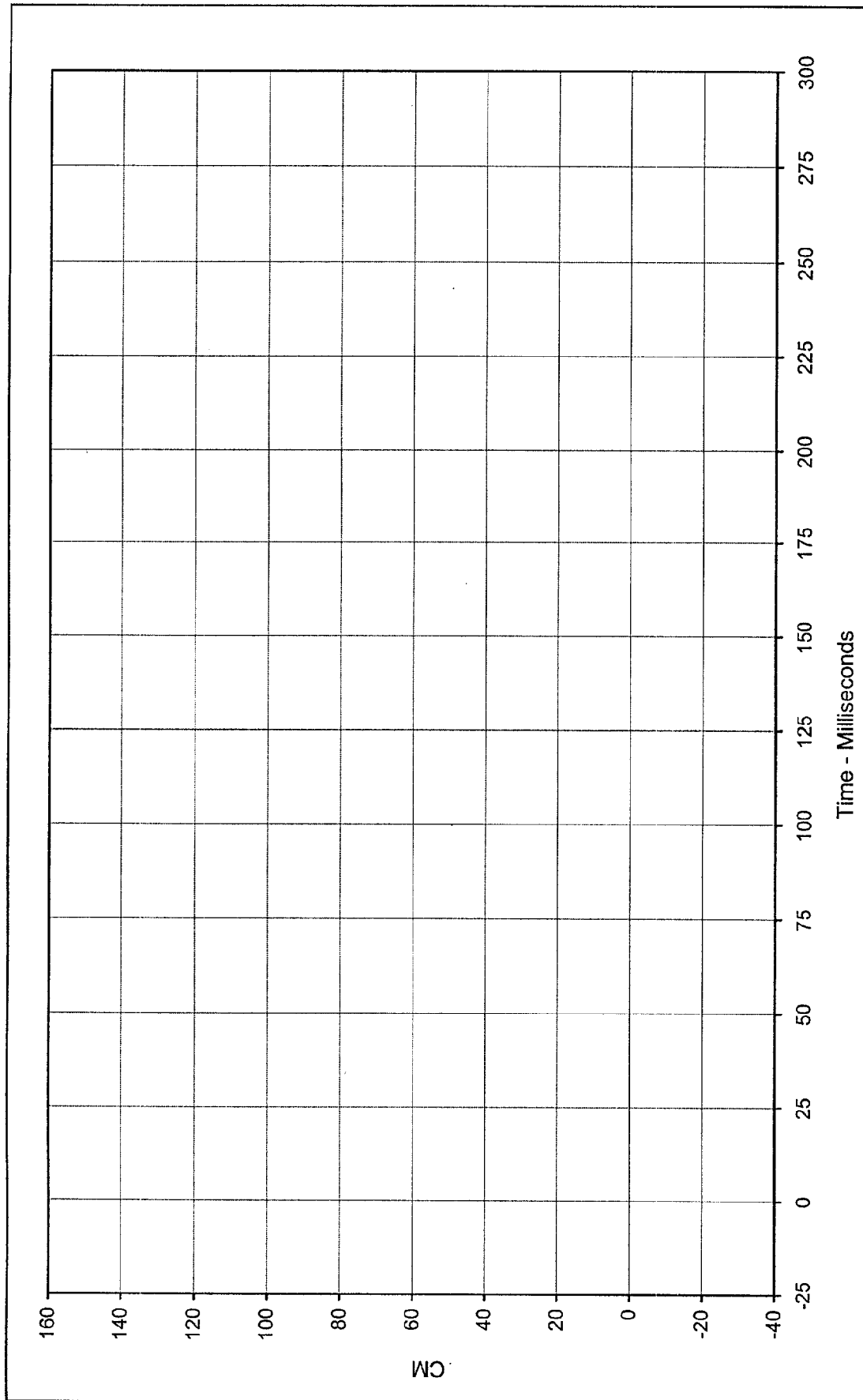
* Channel Failed, No Data



Curve Description: _____ Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 0.0 at 0.0 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-092



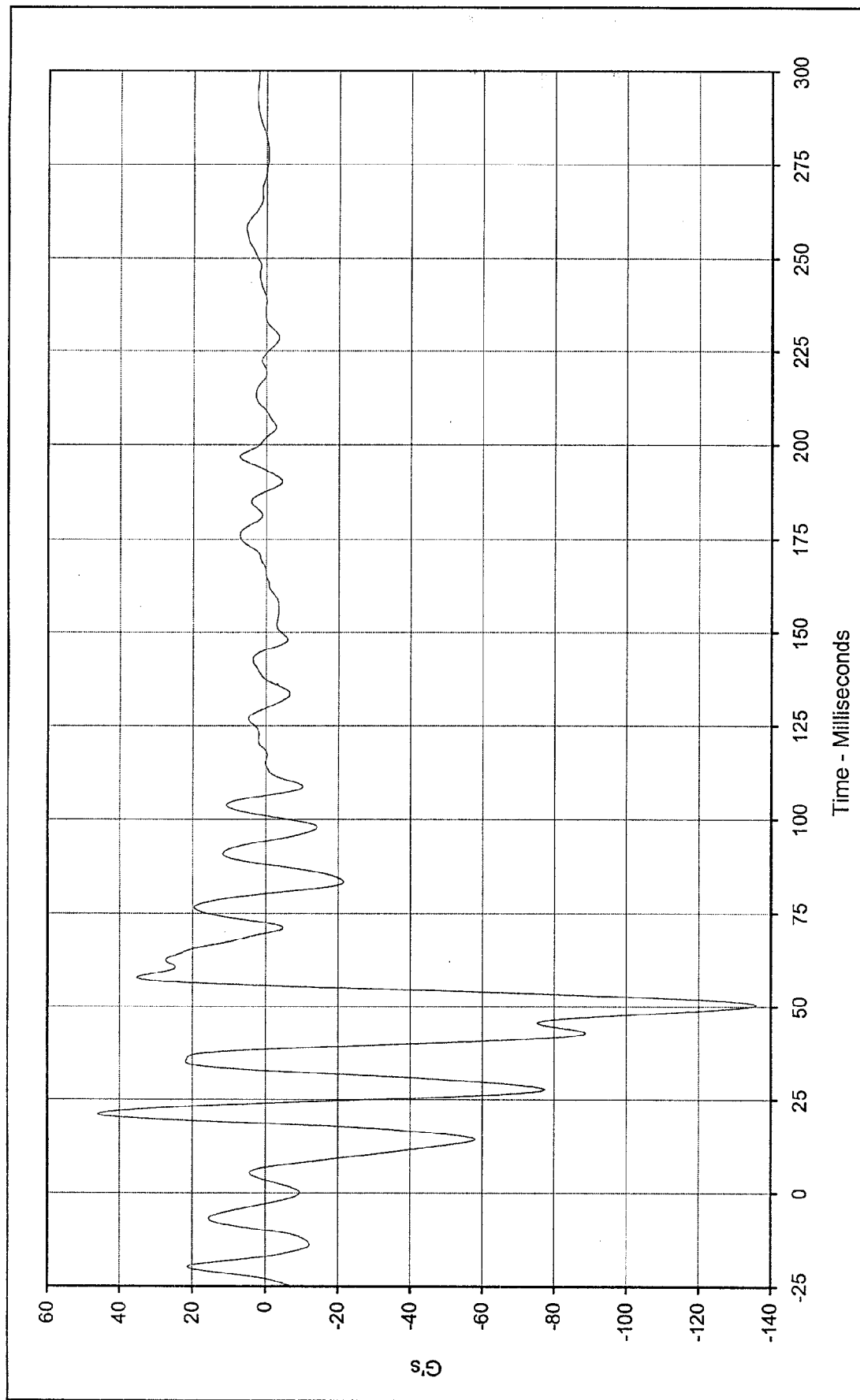
* Channel Failed, No Data



Curve Description:	Vehicle Engine Bottom Displ.	*	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	0.0	at 0.0	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	0.0	at 0.0			
SAE Filter Class:	180				
Date of Test:	2/4/98				
Curve Number:	IN2-092				

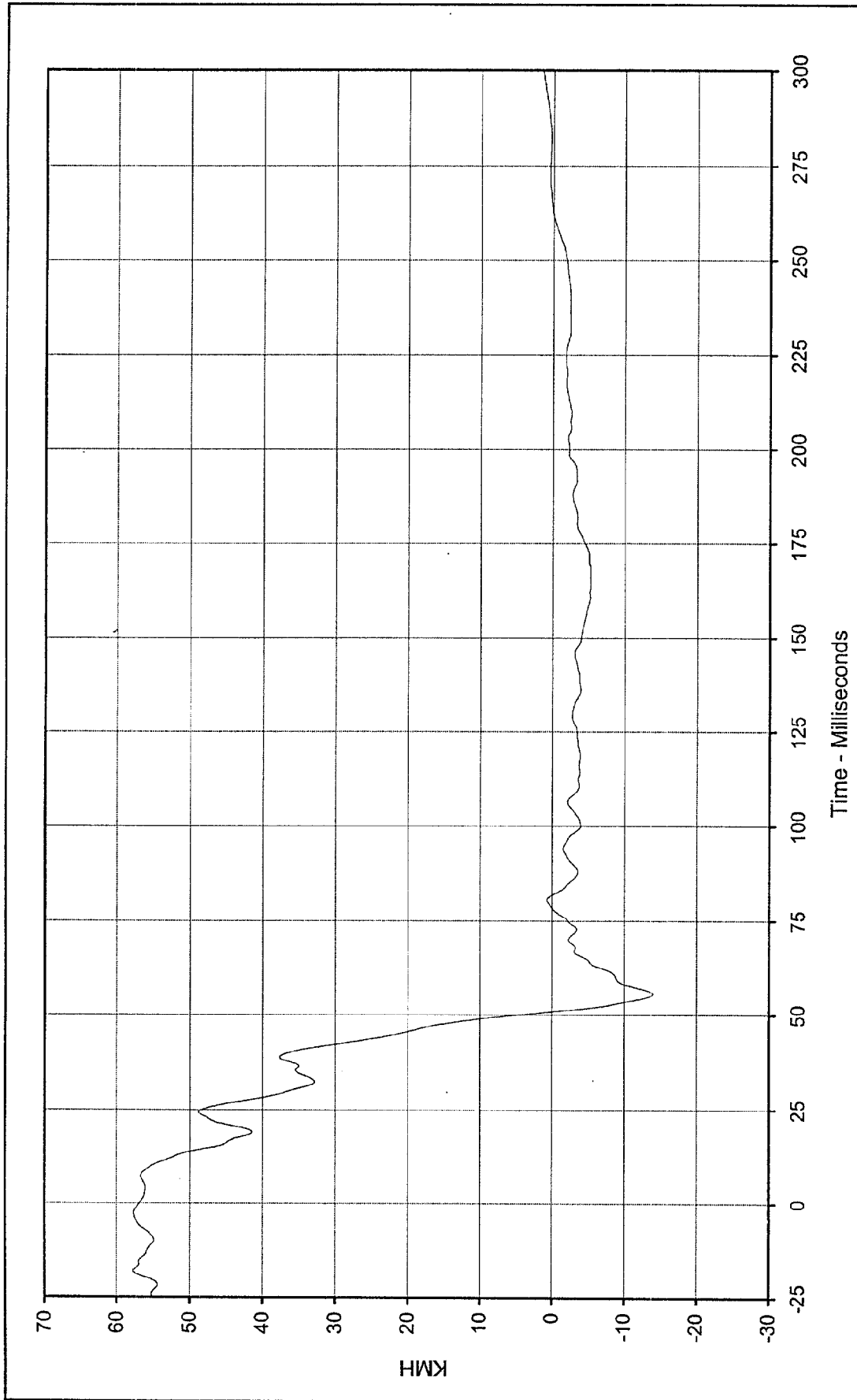


* Channel Failed, No Data



Curve Description:	Vehicle Left Brake Caliper	Testing Program	1998 NHTSA 35 mph NCAP	No.:	MW0306
Maximum Value:	46.1	at	21.2	Milliseconds	
Minimum Value:	-136.0	at	50.5	Milliseconds	
SAE Filter Class:	60				
Date of Test:	2/4/98				
Curve Number:	FIL-093	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup		

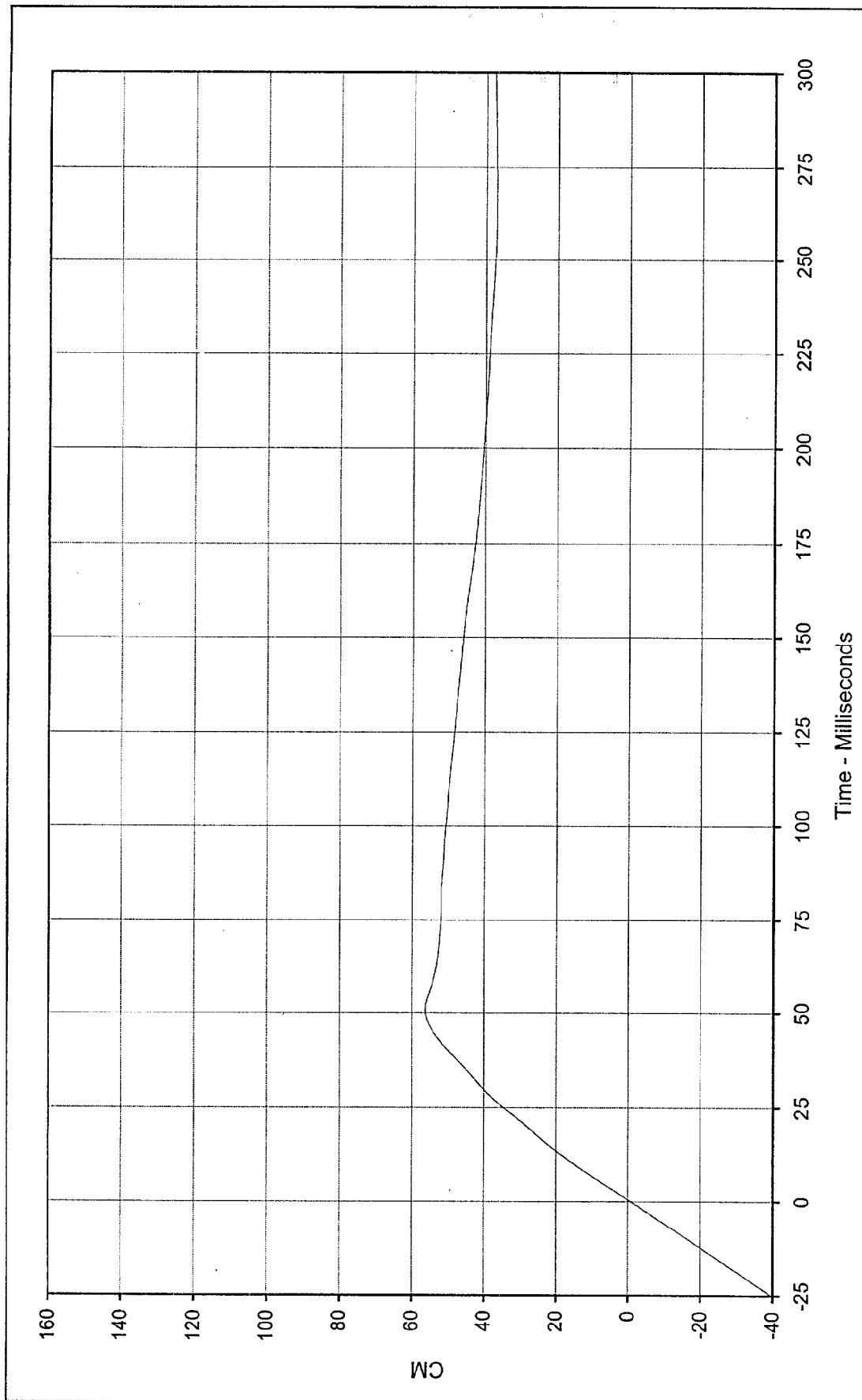




Curve Description: Vehicle Left Brake Caliper Velocity
 Maximum Value: 56.9 at 0.0 Milliseconds
 Minimum Value: -14.0 at 55.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-093

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description: Vehicle Left Brake Caliper Displ.

Maximum Value: 56.2 at 50.9 Milliseconds

Minimum Value: -0.7 at 0.0 Milliseconds

SAE Filter Class: 180

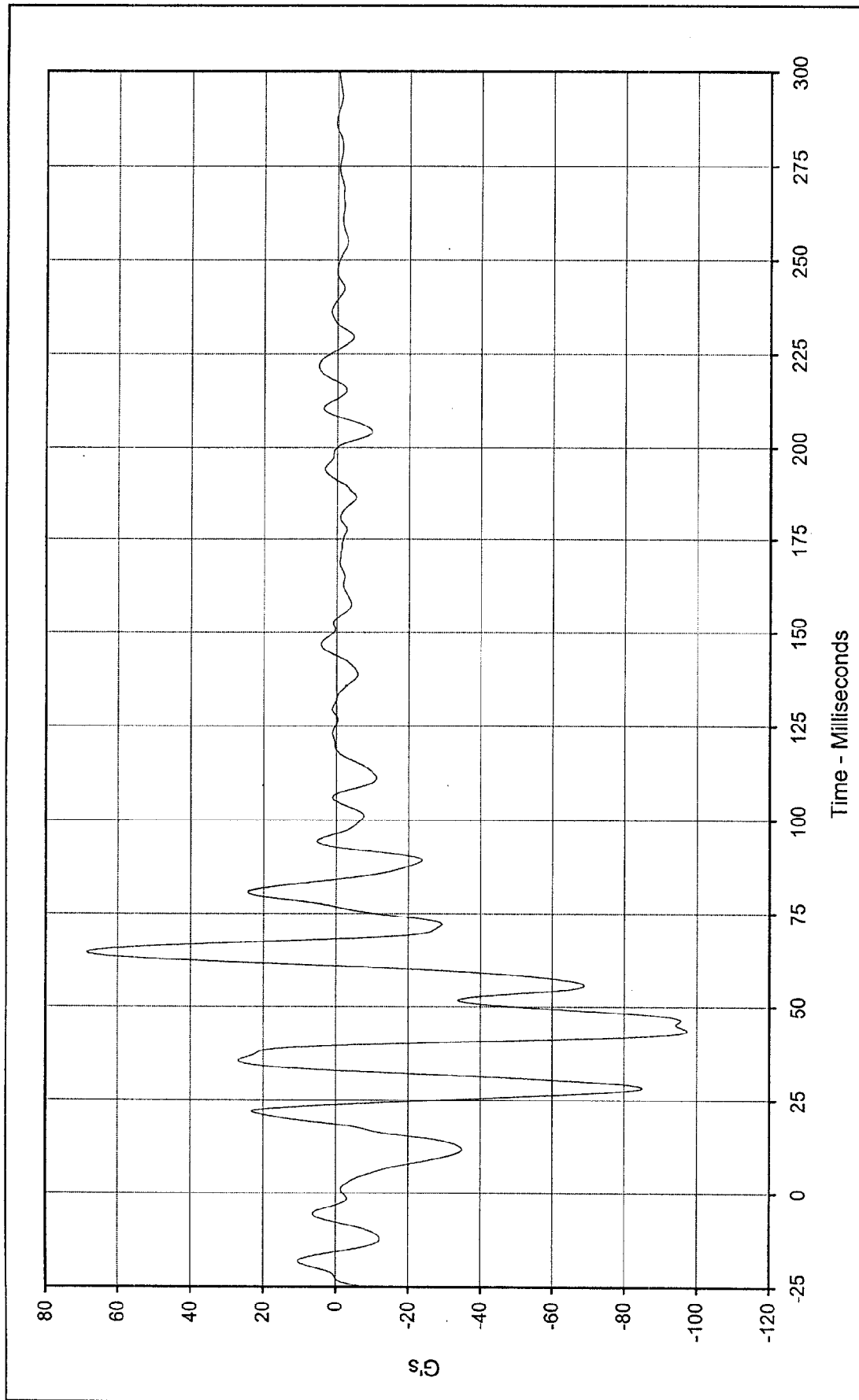
Date of Test: 2/4/98

Curve Number: IN2-093

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

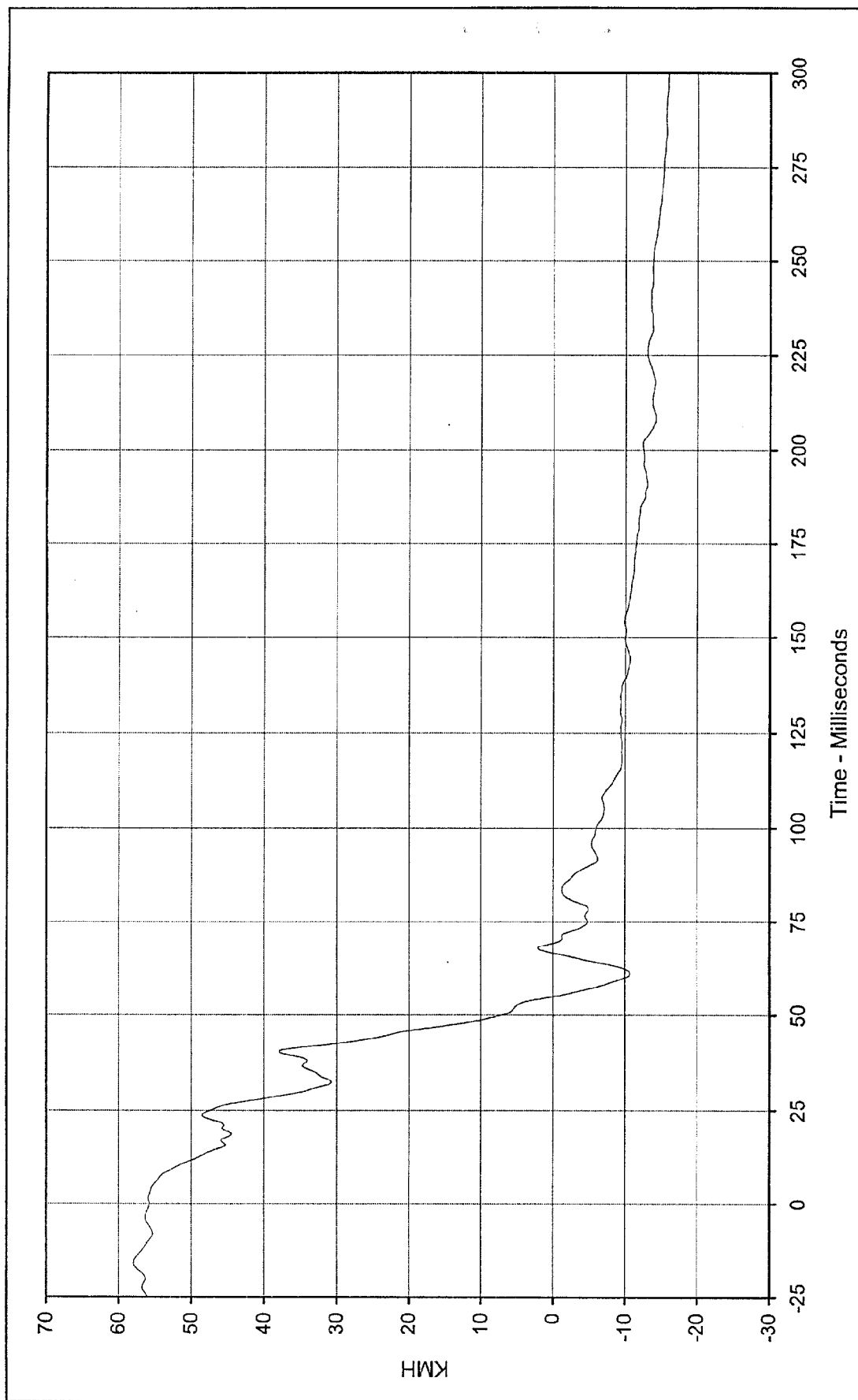
Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup





Curve Description:	Vehicle Right Brake Caliper		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	68.6	at 64.5 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-97.4	at 43.4 Milliseconds			
SAE Filter Class:	60				
Date of Test:	2/4/98				
Curve Number:	FIL-094				

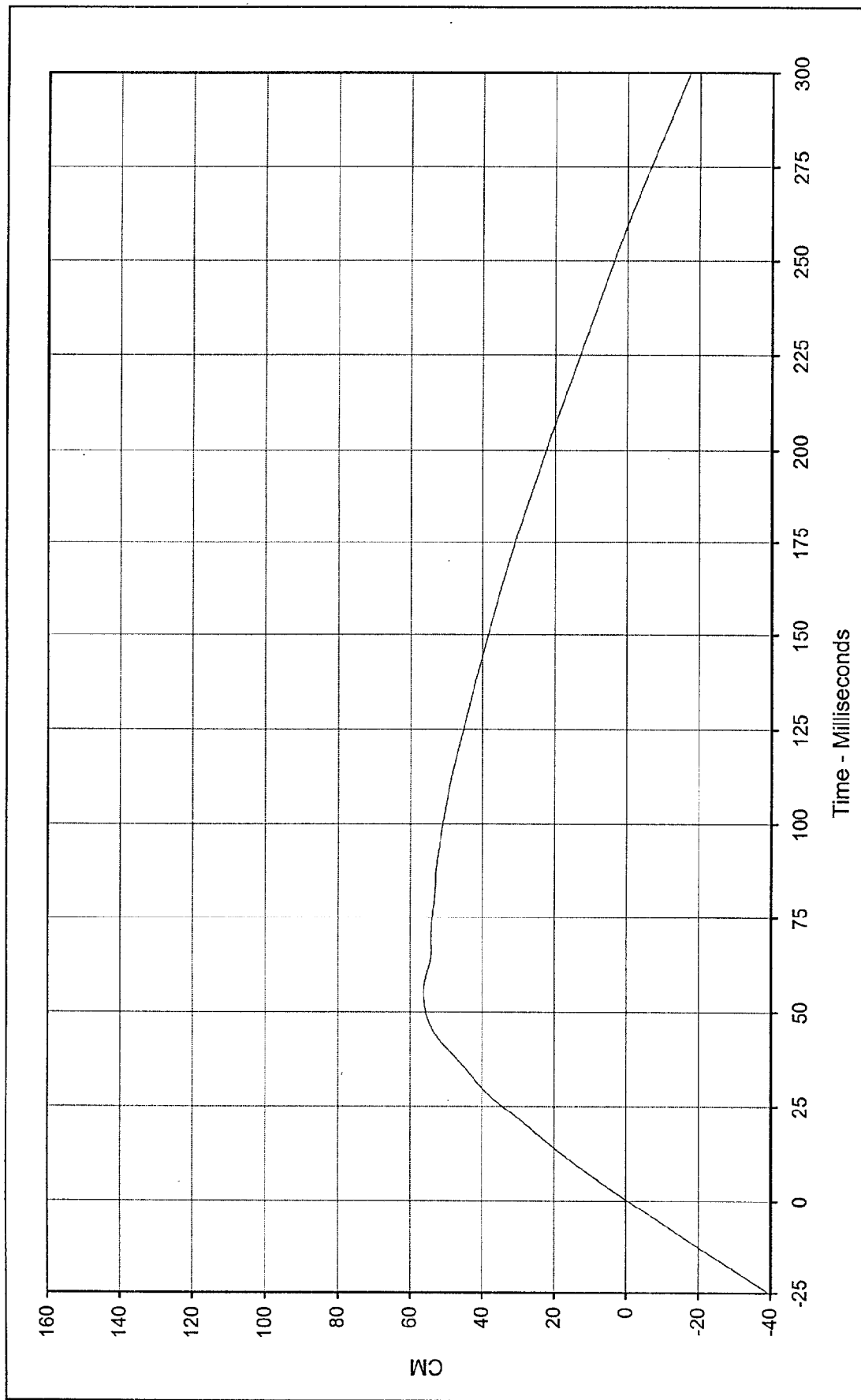




Curve Description: Vehicle Right Brake Caliper Velocity
 Maximum Value: 55.9 at 1.6 Milliseconds
 Minimum Value: -16.0 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN1-094

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

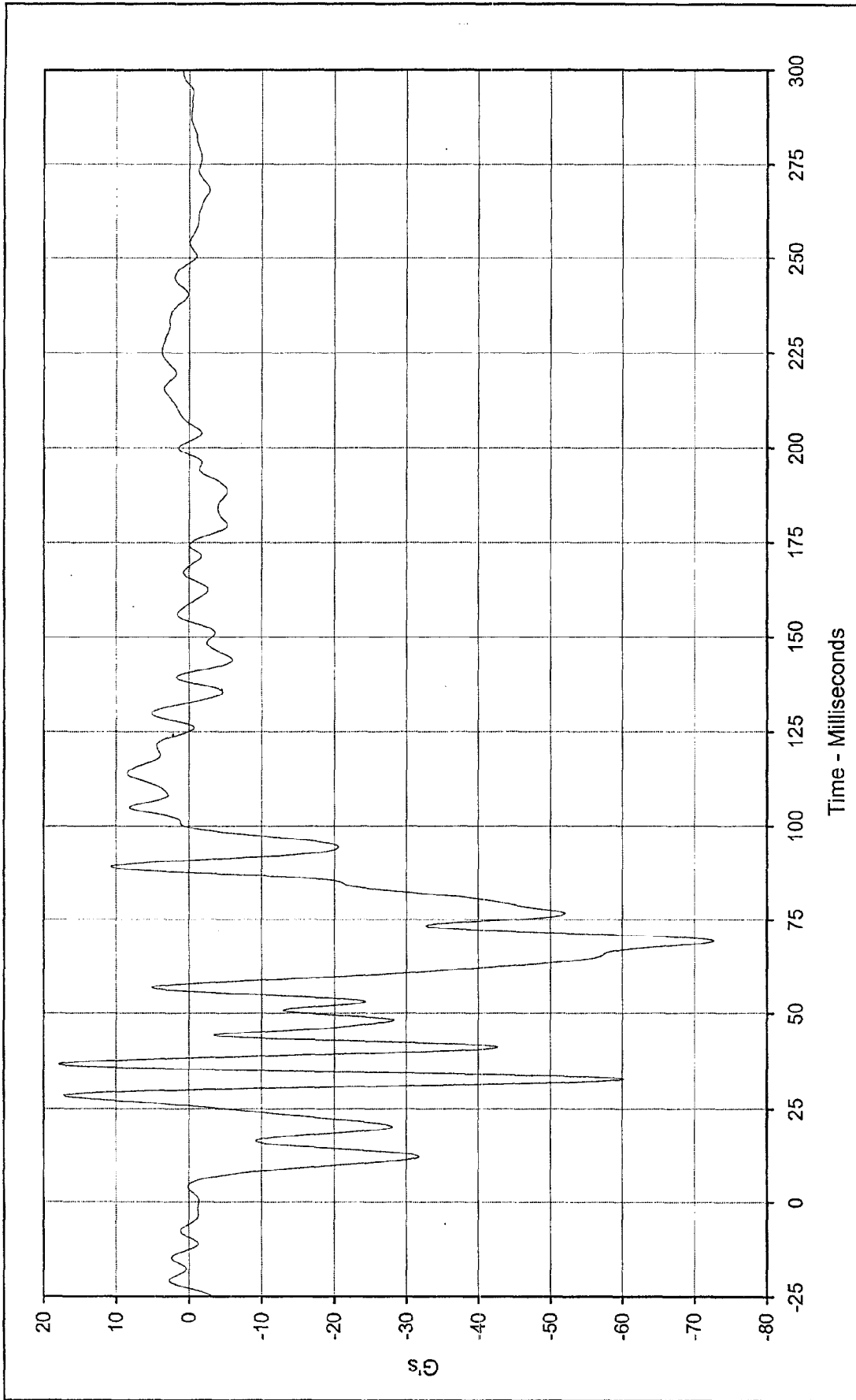




Curve Description: Vehicle Right Brake Caliper Displ.
 Maximum Value: 56.2 at 54.8 Milliseconds
 Minimum Value: -17.3 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-094

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup

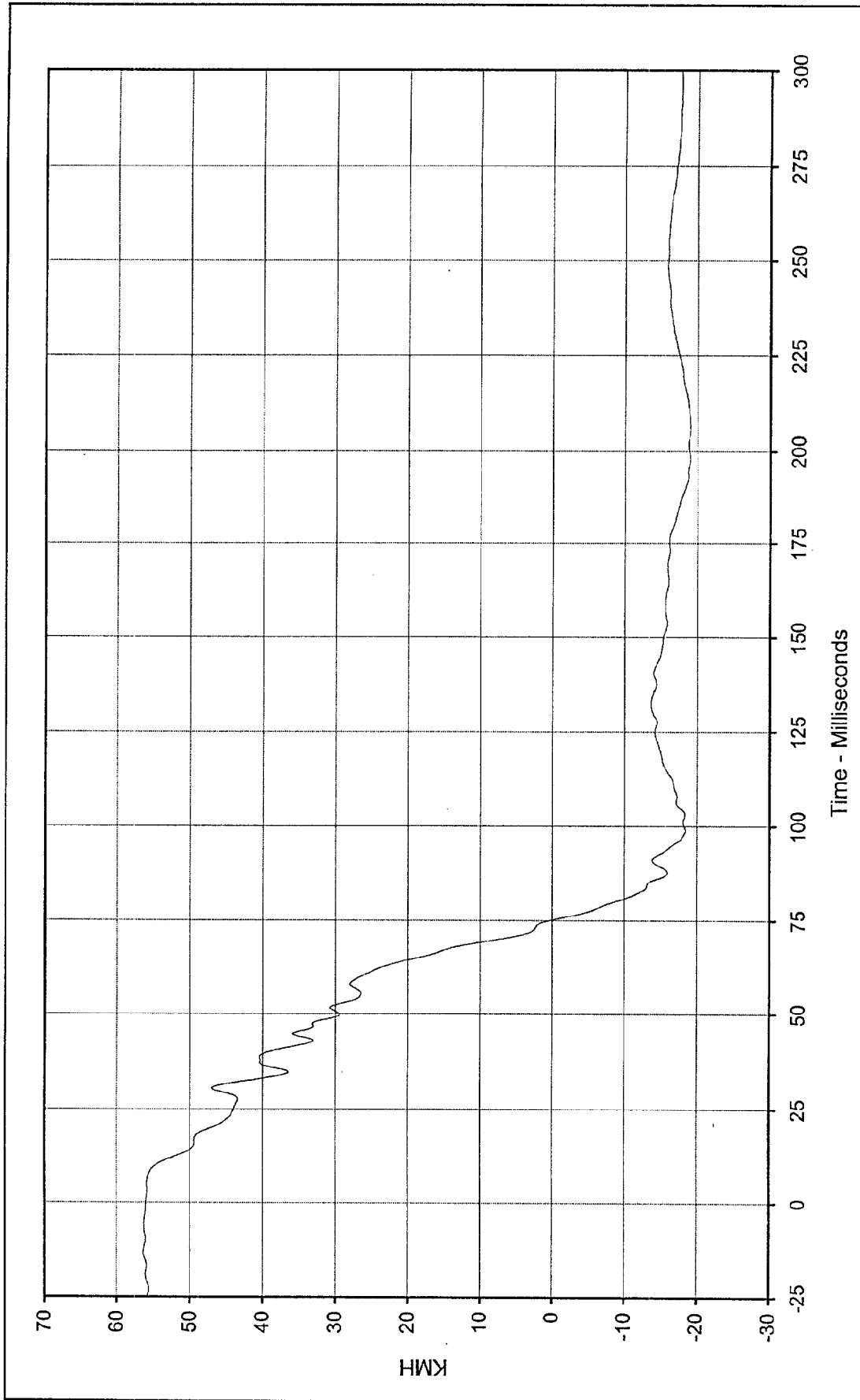




Curve Description: 1998 NHTSA 35 mph NCAP No.: MW0306
 Testing Program: 1998 Dodge Ram 1500 SLT Pickup
 Test Vehicle:

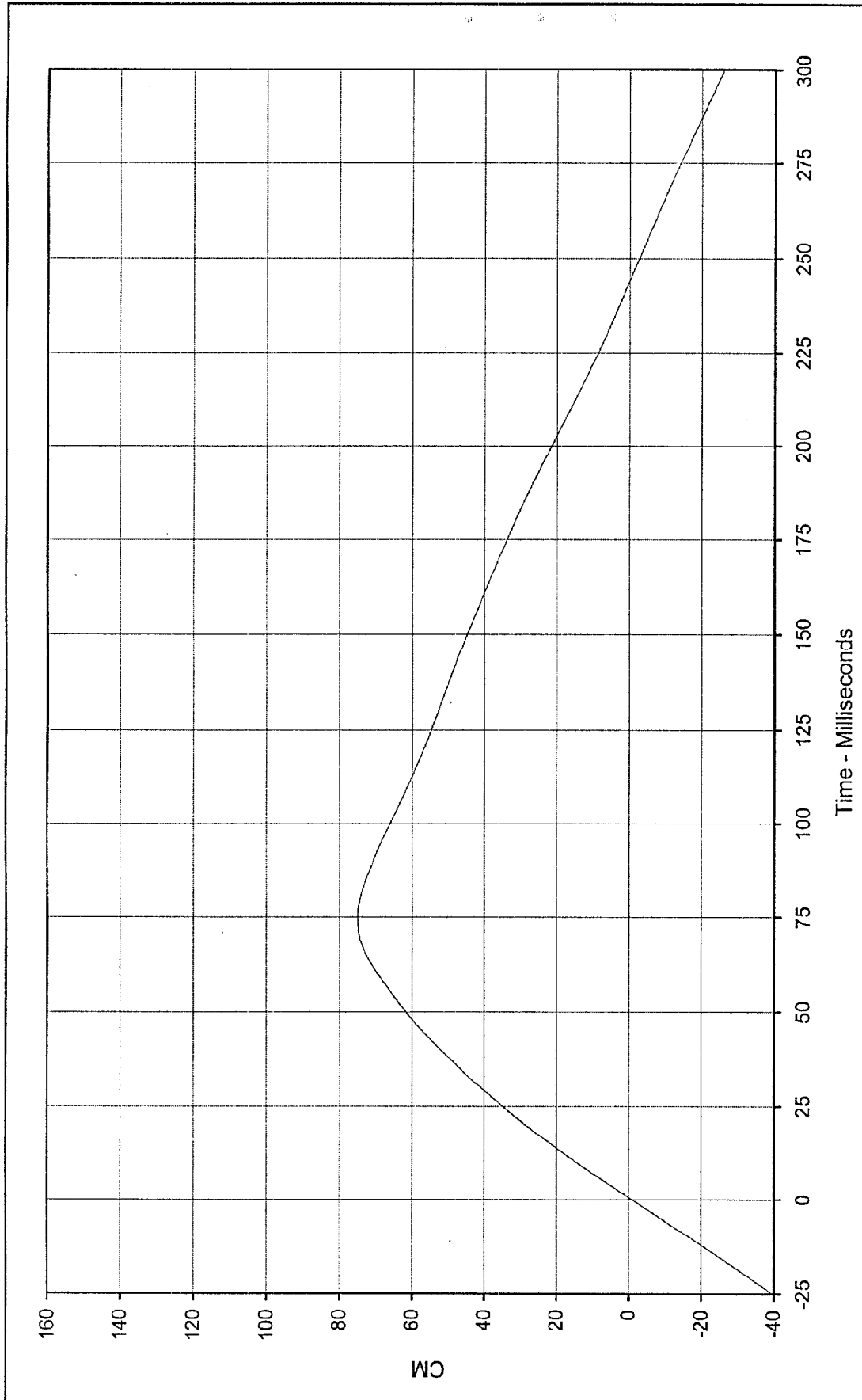
Vehicle Instrument Panel
 Maximum Value: 18.0 at 36.5 milliseconds
 Minimum Value: -72.7 at 69.1 milliseconds
 SAE Filter Class: 60
 Date of Test: 2/4/98
 Curve Number: FIL-095





Curve Description:		Vehicle Instrument Panel Velocity		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	56.0	at	0.0	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-19.0	at	205.8			
SAE Filter Class:	180					
Date of Test:	2/4/98					
Curve Number:	IN1-095					

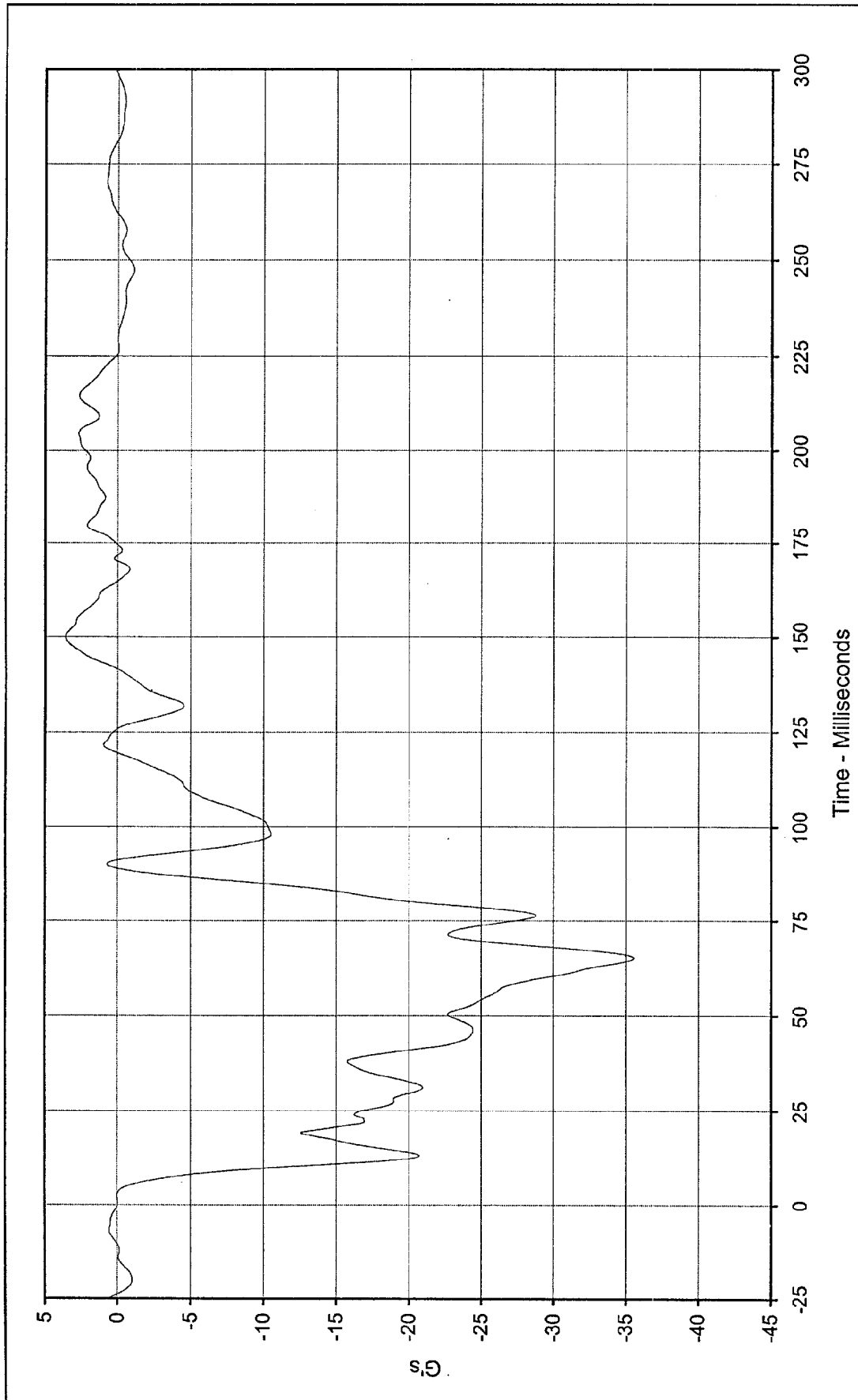




Curve Description: Vehicle Instrument Panel Displ. Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306
 Maximum Value: 75.0 at 75.2 Milliseconds Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup
 Minimum Value: -26.1 at 299.9 Milliseconds

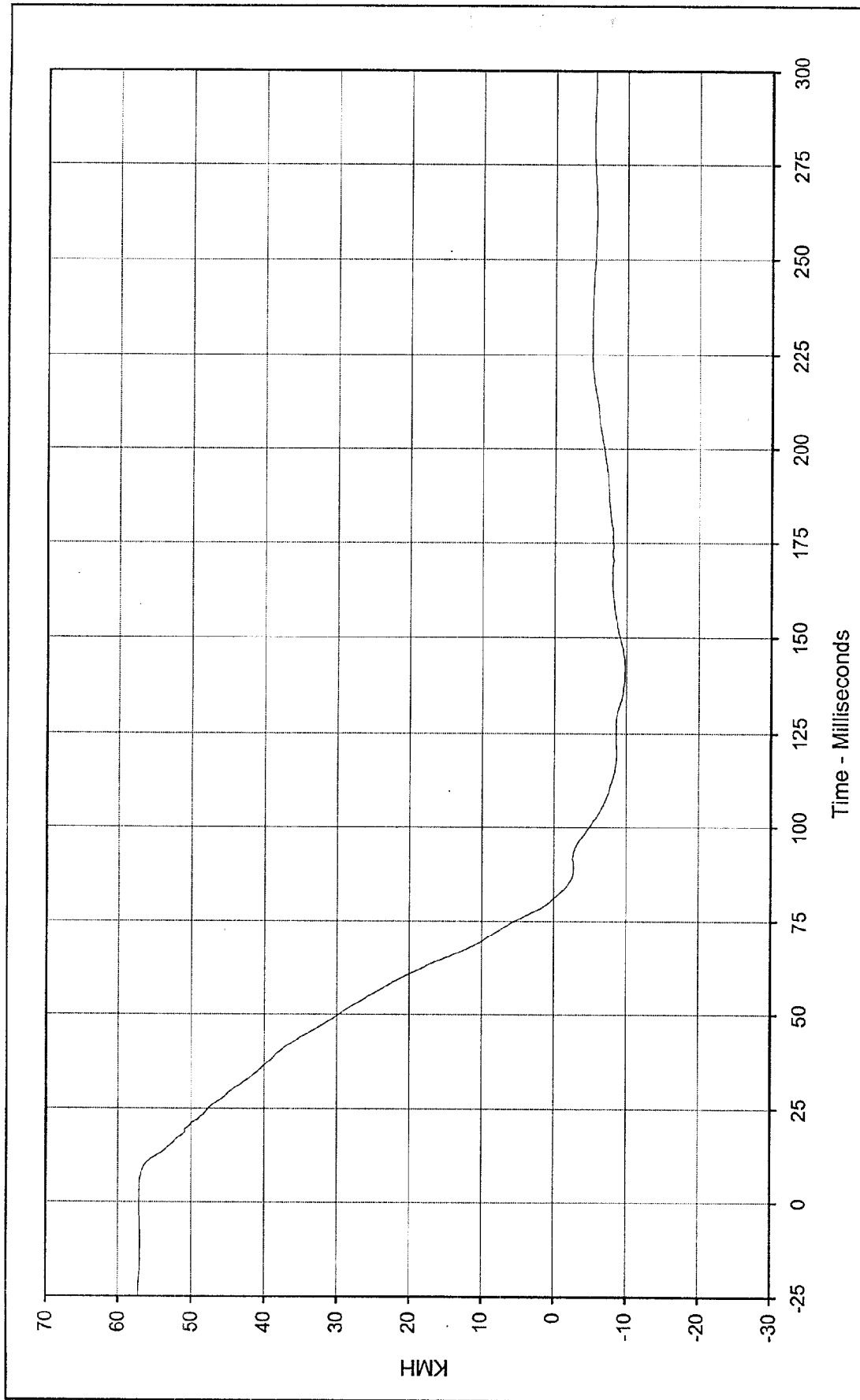


SAE Filter Class: 180
 Date of Test: 2/4/98
 Curve Number: IN2-095



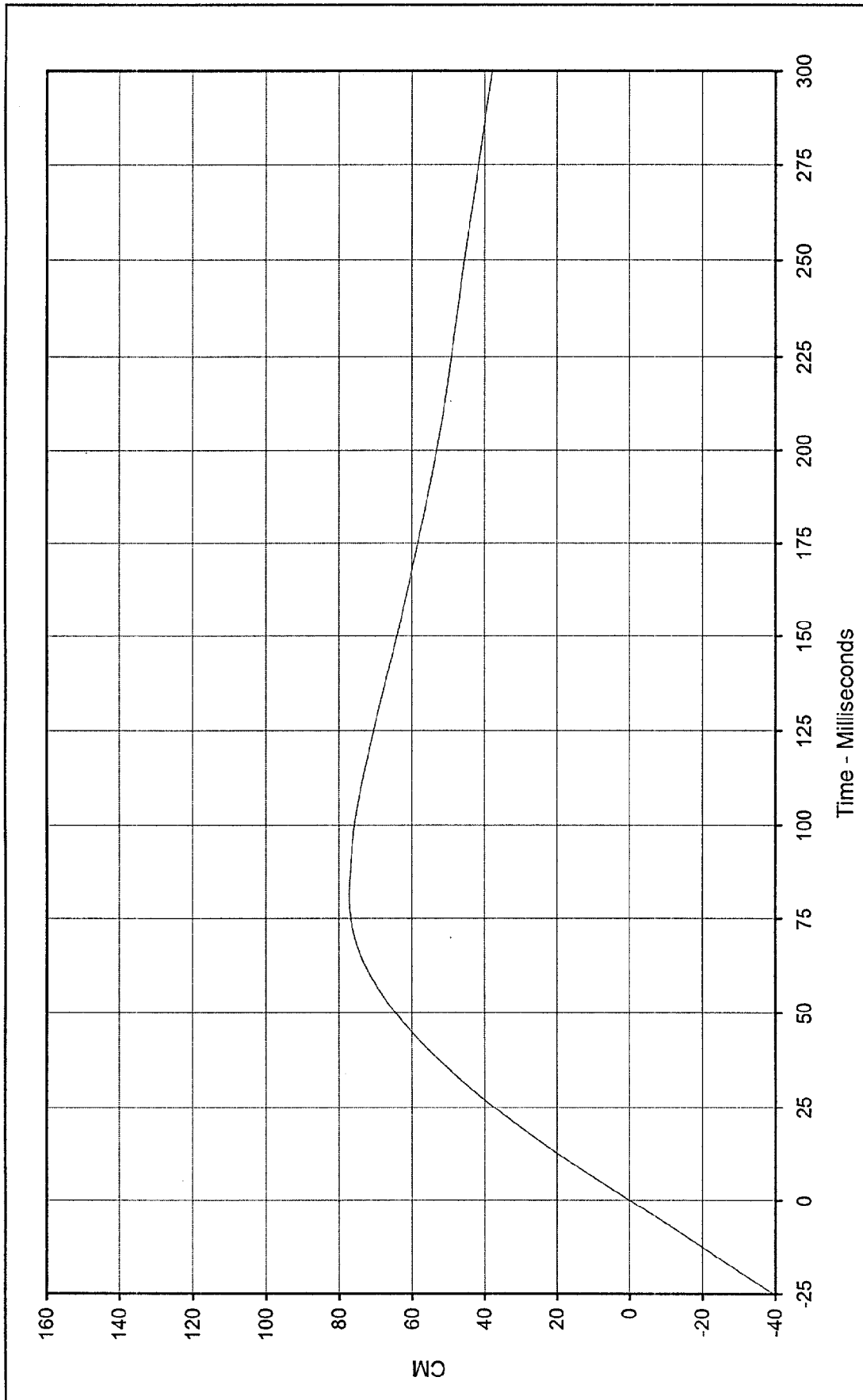
Curve Description:	Vehicle Left Rear Redundant	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	3.6 at 150.0 Milliseconds	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Minimum Value:	-35.6 at 65.2 Milliseconds			
SAE Filter Class:	60			
Date of Test:	2/4/98			
Curve Number:	FIL-096			





Curve Description:	Vehicle Left Rear Redundant Velocity	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW0306
Maximum Value:	57.1	at	1.0	Milliseconds
Minimum Value:	-9.7	at	141.8	Milliseconds
SAE Filter Class:	180			
Date of Test:	2/4/98	Test Vehicle:	1998 Dodge Ram 1500 SLT Pickup	
Curve Number:	IN1-096			





Curve Description: Vehicle Left Rear Redundant Displ.

Maximum Value: 77.2 at 81.1 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 2/4/98

Curve Number: IN2-096

Testing Program 1998 NHTSA 35 mph NCAP No.: MW0306

Test Vehicle: 1998 Dodge Ram 1500 SLT Pickup



APPENDIX C

LOAD CELL BARRIER INFORMATION (NOT APPLICABLE FOR THIS TEST)

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

**Ncap Test With Hybrid III Male 50th Percentile ATD
Instrumentation Data Channel Assignments**

Driver A.T.D Serial Number 34

Test Date: 2/3/98

Vehicle: 1998 Dodge Ram

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	GPRP002	Potentiometer, Rotary	Servo	14CBI	MM
20	PELVIS, PRIMARY	X	GPAC009	Accel., 1/2 bridge	Endevco	7264-2000	G
21	PELVIS, PRIMARY	Y	GPAC017	Accel., 1/2 bridge	Endevco	7264-2000	G
22	PELVIS, PRIMARY	Z	GPAC018	Accel., 1/2 bridge	Endevco	7264-2000	G
23	LEFT FEMUR FORCE	Z	KEFF003	Load cell, Femur	R.A. Denton	2121	N
24	RIGHT FEMUR FORCE	Z	KEFF002	Load cell, Femur	R.A. Denton	2121	N

Ncap Test With Hybrid III Male 50th Percentile ATD

Instrumentation Data Channel Assignments

Driver A.T.D Serial Number 34

Test Date: 2/3/98

Vehicle: 1998 Dodge Ram

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPUT03MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
26	UP. TIBIA LEFT MOM.	Y	GPUT03MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
27	UP. TIBIA RIGHT MOM.	X	GPUT04MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
28	UP. TIBIA RIGHT MOM.	Y	GPUT04MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
29	LWR. TIBIA LEFT FORCE	Y	GPLT03FY	3 ch., lower tibia gage	R. A. Denton	1584	N
30	LWR. TIBIA LEFT FORCE	Z	GPLT03FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
31	LWR. TIBIA LEFT MOM.	X	GPLT03MX	3 ch., lower tibia gage	R. A. Denton	1584	N.m
32	LWR. TIBIA RIGHT FORCE	Y	GPLT04FY	3 ch., lower tibia gage	R. A. Denton	1584	N
33	LWR. TIBIA RIGHT FORCE	Z	GPLT04FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
34	LWR. TIBIA RIGHT MOM.	X	GPLT04MX	3 ch., lower tibia gage	R. A. Denton	1584	N.m
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	KELC003	Load cell, Seat belt	Lebow	3371	N
42	SHOULDER BELT FORCE	X	KELC004	Load cell, Seat belt	Lebow	3371	N
43	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celeco	PTX101-0030	MM
44	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

Ncap Test With Hybrid III Male 50th Percentile ATD

Instrumentation Data Channel Assignments

Passenger A.T.D Serial Number 35

Test Date: 2/3/98

Vehicle: 1998 Dodge Ram

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
45	HEAD, PRIMARY	X	GPAC027	Accel., 1/2 bridge	Endevco	7264-2000	G
46	HEAD, PRIMARY	Y	GPAC002	Accel., 1/2 bridge	Endevco	7264-2000	G
47	HEAD, PRIMARY	Z	GPAC003	Accel., 1/2 bridge	Endevco	7264-2000	G
48	HEAD, REDUNDANT	X	GPAC032	Accel., 1/2 bridge	Endevco	7264-2000	G
49	HEAD, REDUNDANT	Y	GPAC021	Accel., 1/2 bridge	Endevco	7264-2000	G
50	HEAD, REDUNDANT	Z	GPAC026	Accel., 1/2 bridge	Endevco	7264-2000	G
51	NECK FORCE	X	GPUN01FX	Load cell, six axis neck	R. A. Denton	1716A	N
52	NECK FORCE	Y	GPUN01FY	Load cell, six axis neck	R. A. Denton	1716A	N
53	NECK FORCE	Z	GPUN01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
54	NECK MOMENT	X	GPUN01MX	Load cell, six axis neck	R. A. Denton	1716A	N.m
55	NECK MOMENT	Y	GPUN01MY	Load cell, six axis neck	R. A. Denton	1716A	N.m
56	NECK MOMENT	Z	GPUN01MZ	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	GPRP001	Potentiometer, Rotary	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

Ncap Test With Hybrid III Male 50th Percentile ATD
Instrumentation Data Channel Assignments
Passenger A.T.D Serial Number 35
Test Date: 2/3/98
Vehicle: 1998 Dodge Ram

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPUT01MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
70	UP. TIBIA LEFT MOM.	Y	GPUT01MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
71	UP. TIBIA RIGHT MOM.	X	GPUT02MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
72	UP. TIBIA RIGHT MOM.	Y	GPUT02MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
73	LWR. TIBIA LEFT FORCE	Y	GPLT01FY	3 ch., lower tibia gage	R. A. Denton	1584	N
74	LWR. TIBIA LEFT FORCE	Z	GPLT01FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
75	LWR. TIBIA LEFT MOM.	X	GPLT01MX	3 ch., lower tibia gage	R. A. Denton	1584	N.m
76	LWR. TIBIA RIGHT FORCE	Y	GPLT02FY	3 ch., lower tibia gage	R. A. Denton	1584	N
77	LWR. TIBIA RIGHT FORCE	Z	GPLT02FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
78	LWR. TIBIA RIGHT MOM.	X	GPLT02MX	3 ch., lower tibia gage	R. A. Denton	1584	N.m
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	KELC001	Load cell, Seat belt	Lebow	3371	N
86	SHOULDER BELT FORCE	X	KELC002	Load cell, Seat belt	Lebow	3371	N
87	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

**Ncap Test With Hybrid III Male 50th Percentile ATD
Instrumentation Data Channel Assignments**

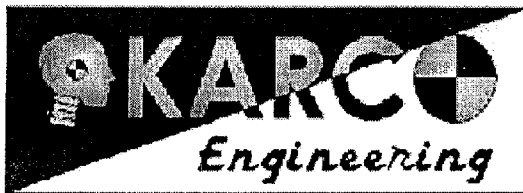
Vehicle Accelerometers

Test Date: 2/3/98

Vehicle: 1998 Dodge Ram

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	LEFT REAR PRIMARY	X	KEVA005	Accel., Vehicle block	I.C. Sensor	3031-500	G
90	RIGHT REAR PRIMARY	X	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
91	ENGINE TOP	X	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G
92	ENGINE BOTTOM	X	KEVA009	Accel., Vehicle block	I.C. Sensor	3031-500	G
93	LEFT BRAKE CALIPER	X	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-500	G
94	RIGHT BRAKE CALIPER	X	KEVA004	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	INSTUMENT PANEL	X	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-200	G
96	LEFT REAR REDUNDANT	X	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	G

APPENDIX E
DUMMY CALIBRATION DATA



Hybrid III Calibration Data Sheet

50TH Percentile Male

Left Knee Impact Test

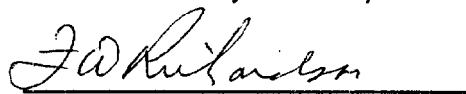
ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: MK001

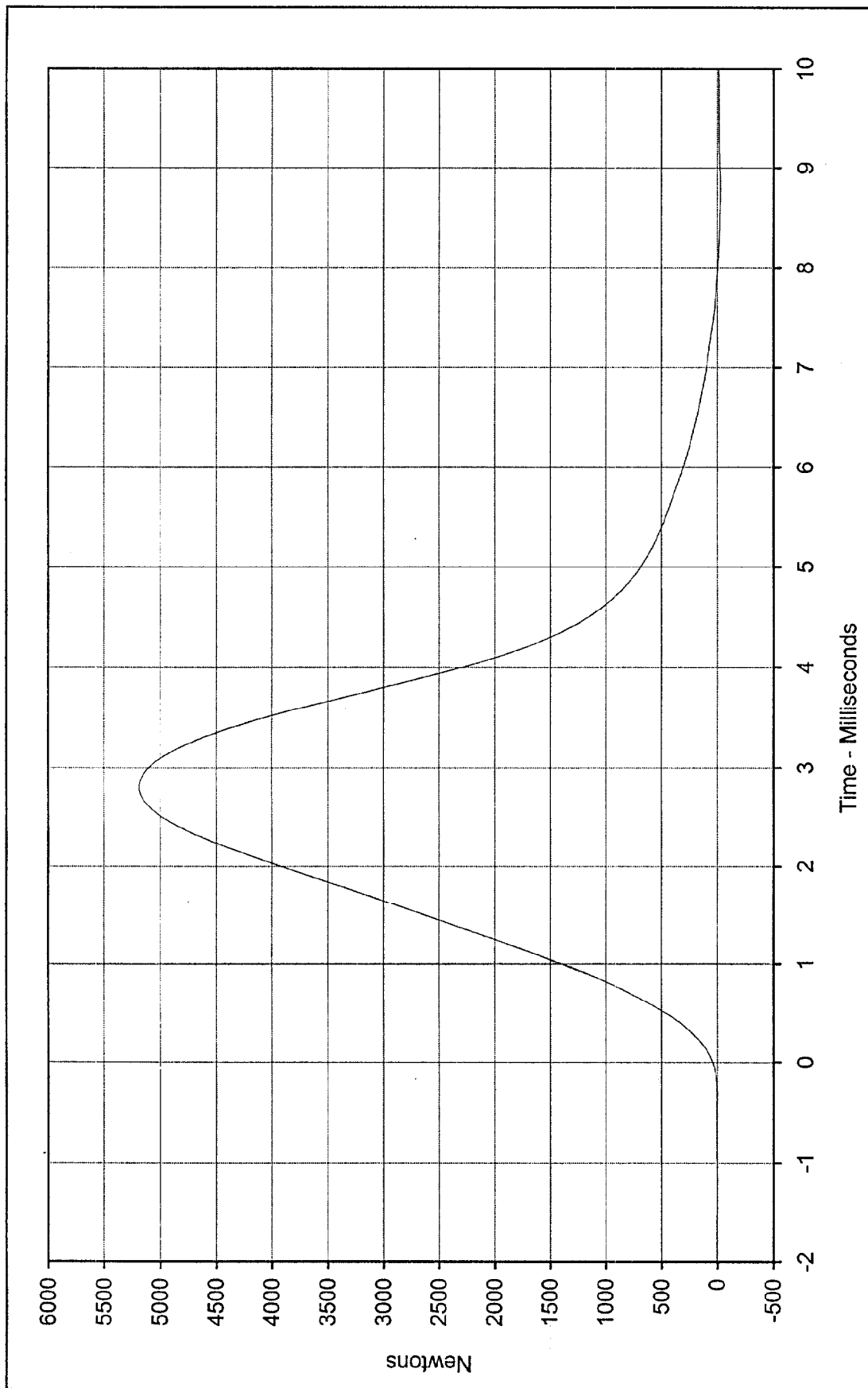
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Probe Velocity	m/s	2.073 to 2.134	2.119	Pass
Peak Probe Force	Newtons	4715 to 5782	5185.0	Pass
Overall Test Results				Pass


Laboratory Technician


Approved By

January 16, 1998
Test Date

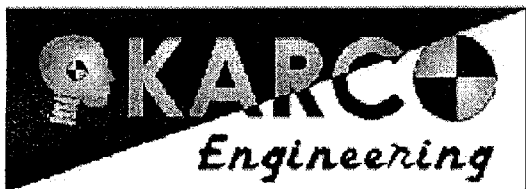
1/16/98
Date



Curve Description:	Testing Program	Hybrid III Left Knee Impact Test
Maximum Value:	Part S/N:	n/a
Minimum Value:	Test I.D.:	MK001



Probe Force	5185.0	at	2.8	Milliseconds
SAE Filter Class:	-3.8	at	8.0	Milliseconds
Date of Test:	1/16/98			
ATD Serial No.:	034			



Hybrid III Calibration Data Sheet

50TH Percentile Male

Right Knee Impact Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: MK002

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.119	Pass
Peak Probe Force	Newtons	4715 to 5782	5434.3	Pass
Overall Test Results				Pass

Laboratory Technician

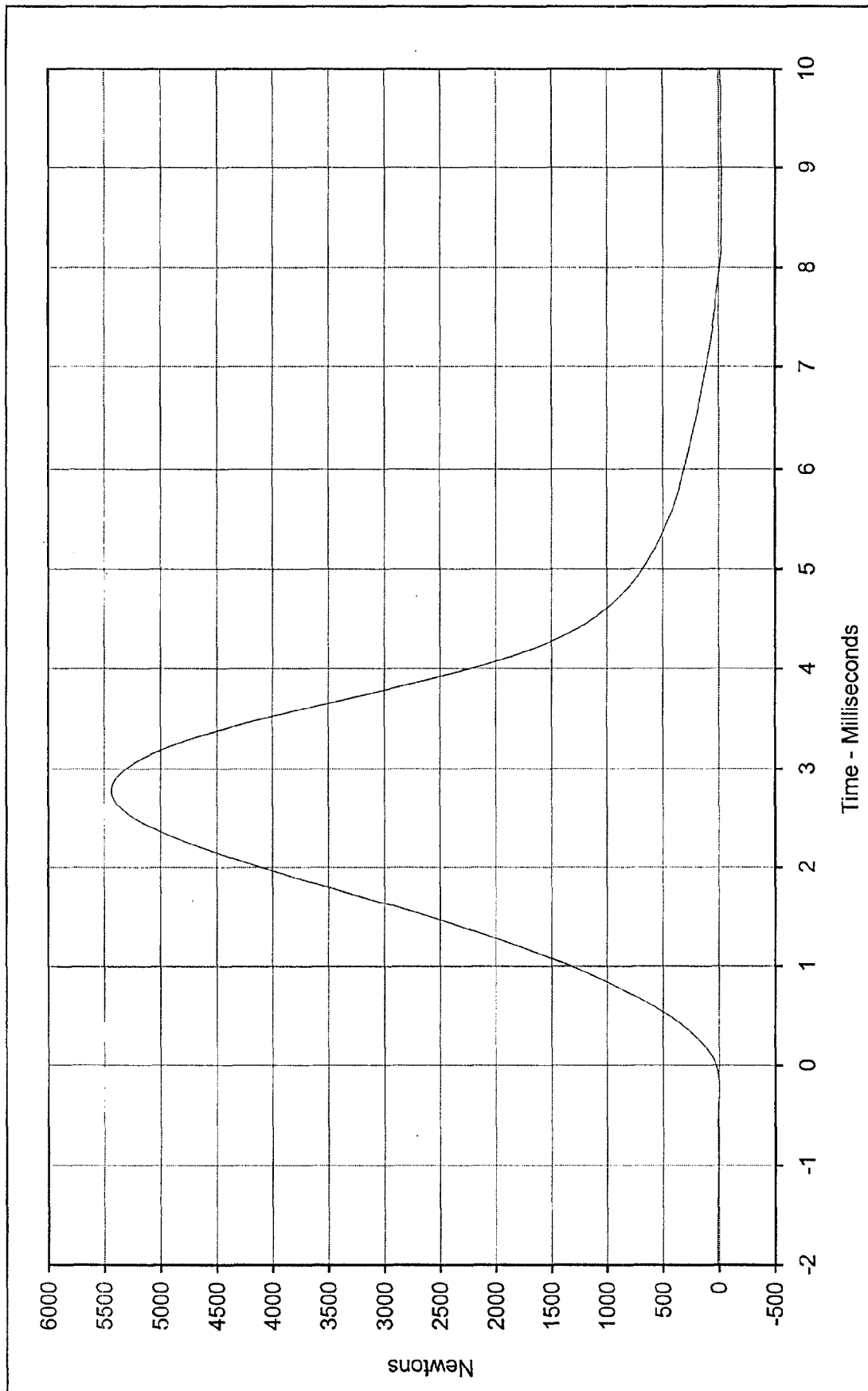
January 16, 1998

Test Date

Approved By

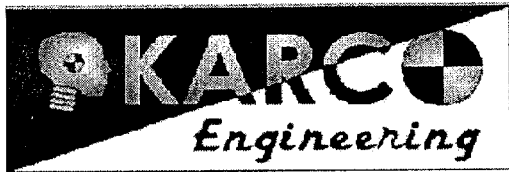
1/16/98

Date



Curve Description:	Testing Program	Hybrid III Right Knee Impact Test
Maximum Value: 5434.3	Test Information:	Part S/N: n/a Test I.D.: MK002
Minimum Value: -7.6		
SAE Filter Class: 600		
Date of Test: 1/16/98		
ATD Serial No.: 034		





Hybrid III Calibration Data Sheet

50TH Percentile Male

Head Drop Calibration

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: HD050

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	236.2	Pass
Peak Lateral Acceleration	G's	≤15.0	6.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

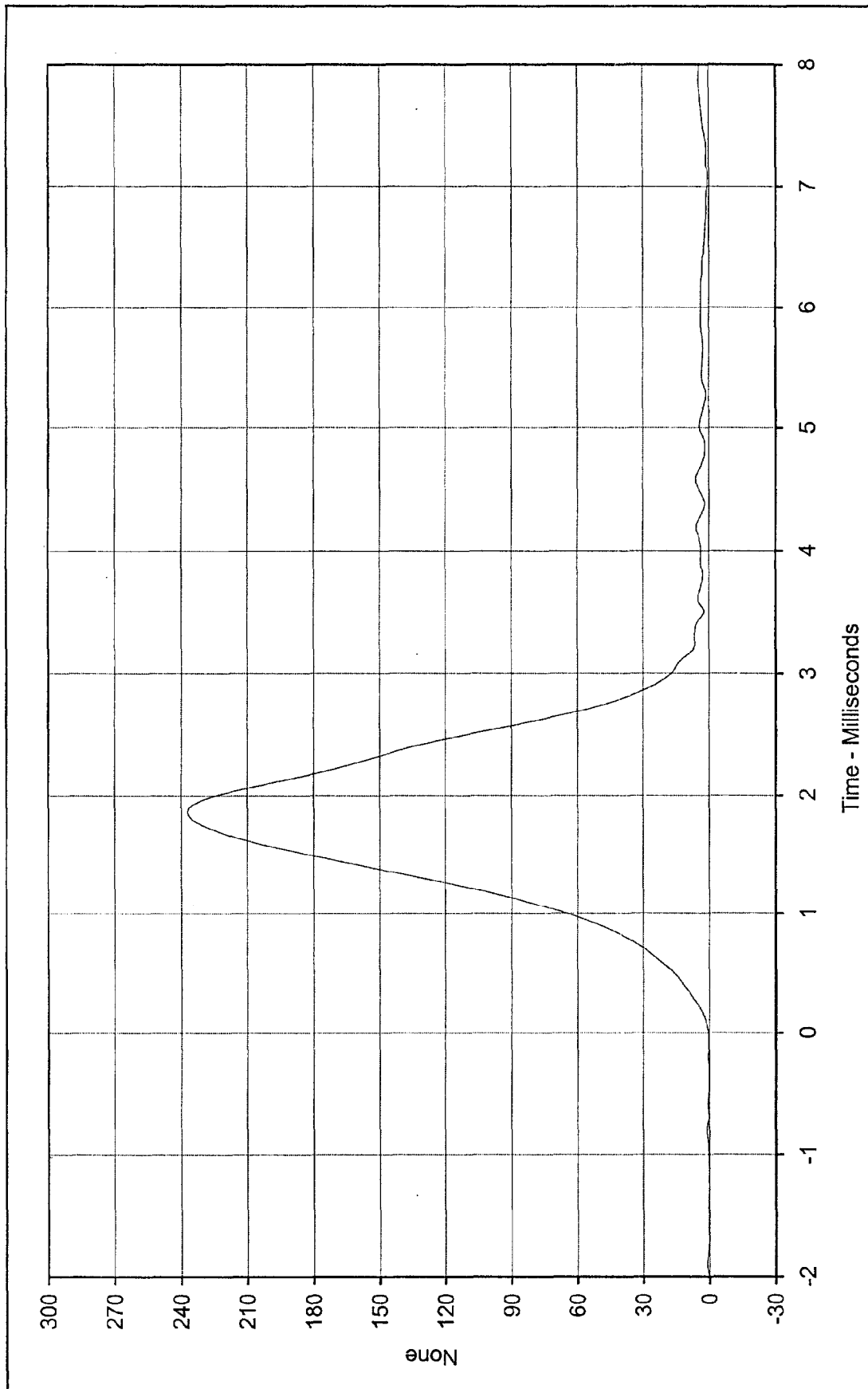
Laboratory Technician

Approved By

January 16, 1998

Test Date

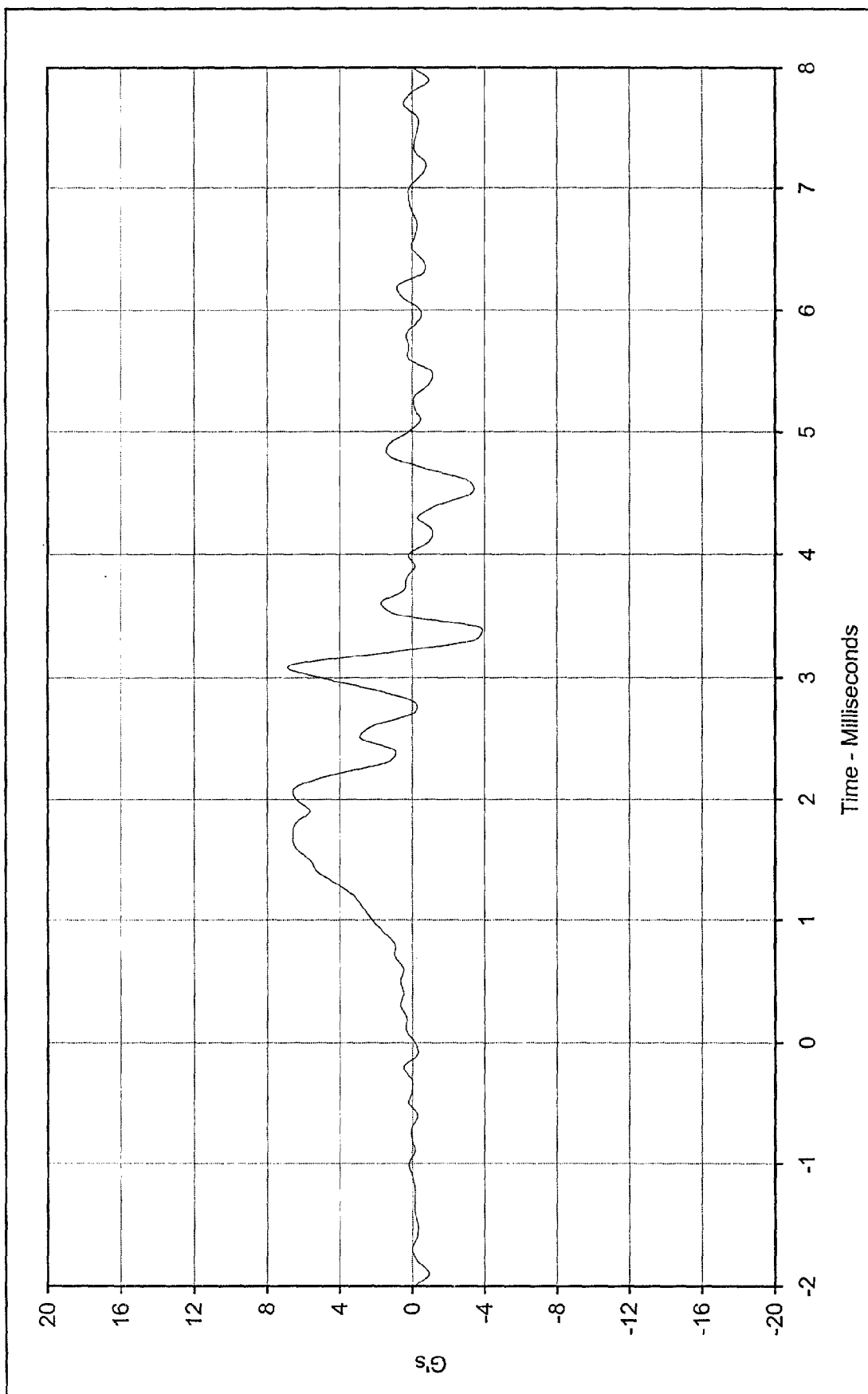
Date



Curve Description: Head Resultant Acceleration
 Maximum Value: 236.2 at 1.9 Milliseconds
 Minimum Value: 0.1 at -0.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/16/98
 ATD Serial No.: 034

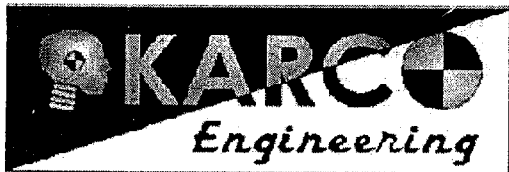
Testing Program Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: HD050





Curve Description: Hybrid III Head Drop Calibration (Male)
 Maximum Value: 6.7 at 3.1 Milliseconds
 Minimum Value: -3.7 at 3.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 1/16/98
 ATD Serial No.: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male

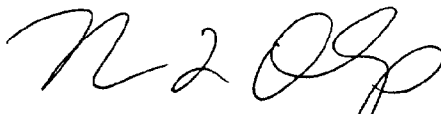
Thorax Impact Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: C5000

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	6.68	Pass
Peak Probe Force	Newtons	5159 to 5893	5436	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.54	Pass
Internal Hysteresis	%	69 to 85	75.0	Pass
Overall Test Results				Pass

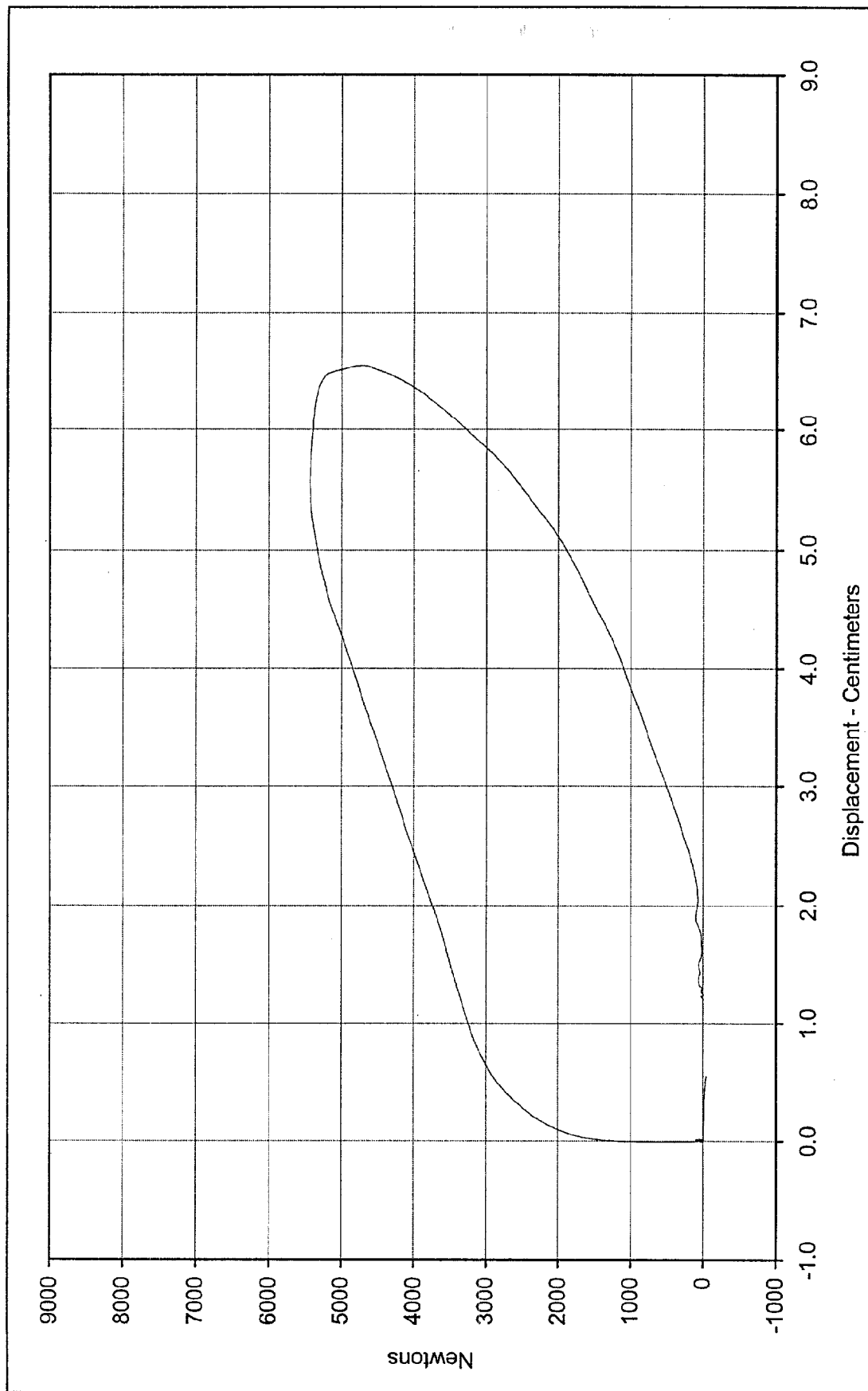

Laboratory Technician


Approved By

January 19, 1998

Test Date

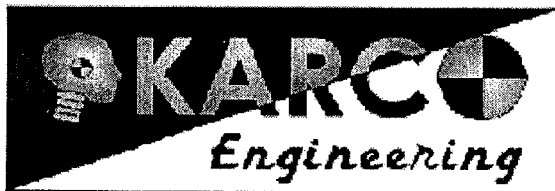
1/19/98
Date



Curve Description: Probe Force vs. Chest Displacement Testing Program: Hybrid III Thorax Impact Test
 Probe Force: 5436.3 Newtons Test Information: S/N of Part: n/a Test I.D.: C5000
 Chest Displ.: 6.54 Centimeters



SAE Filter Class: 180
 Date of Test: 1/19/98
 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.: NK100

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	6.89 to 7.13	6.94	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.0	Pass
	20 Msec.	G's	17.6 to 22.6	20.8	Pass
	30 Msec.	G's	12.5 to 18.5	17.5	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.5	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	38.1	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	74.8	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	121.3	Pass
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	86.4	Pass
	Time	Msec.	47.0 to 58.0	53.3	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	102.8	Pass
Overall Test Results					Pass

N2 QGP

Laboratory Technician

J W Robinson

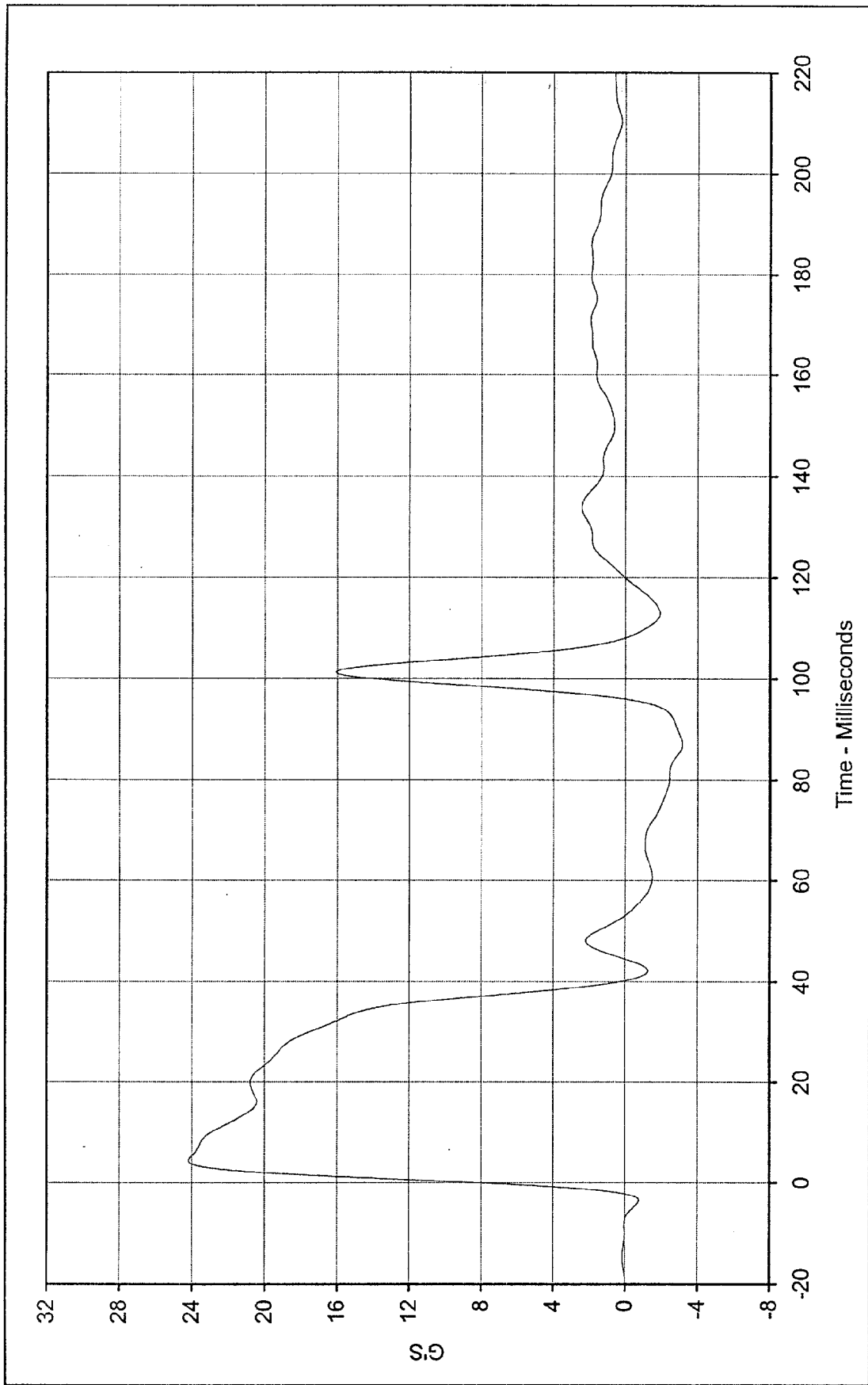
Approved By

January 17, 1998

Test Date

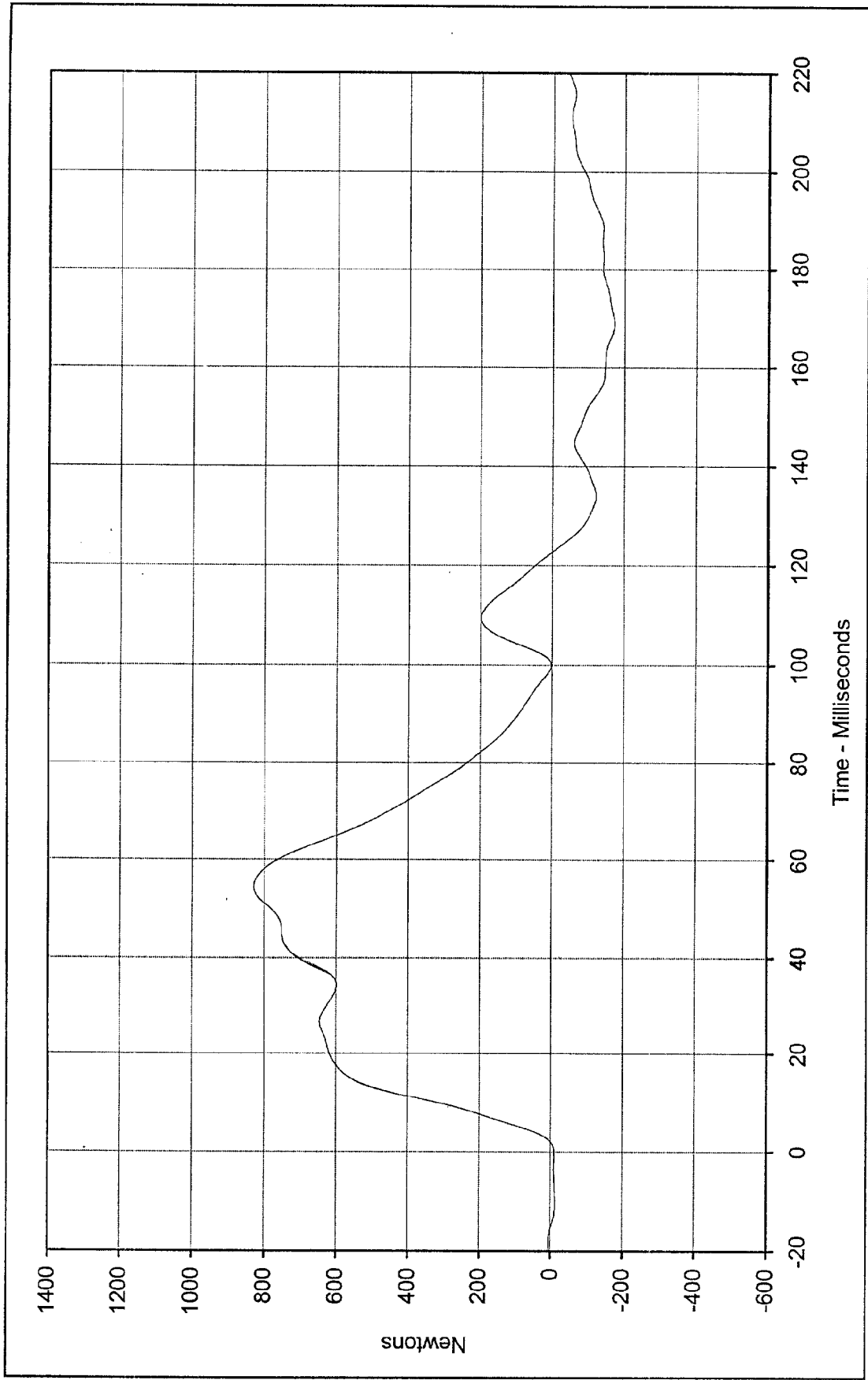
1/17/98

Date



Curve Description: Hybrid III Neck Flexion Test (Male)
 Maximum Value: 24.2 at 4.4 Milliseconds
 Minimum Value: -3.2 at 87.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/17/98
 ATD Serial No.: 034

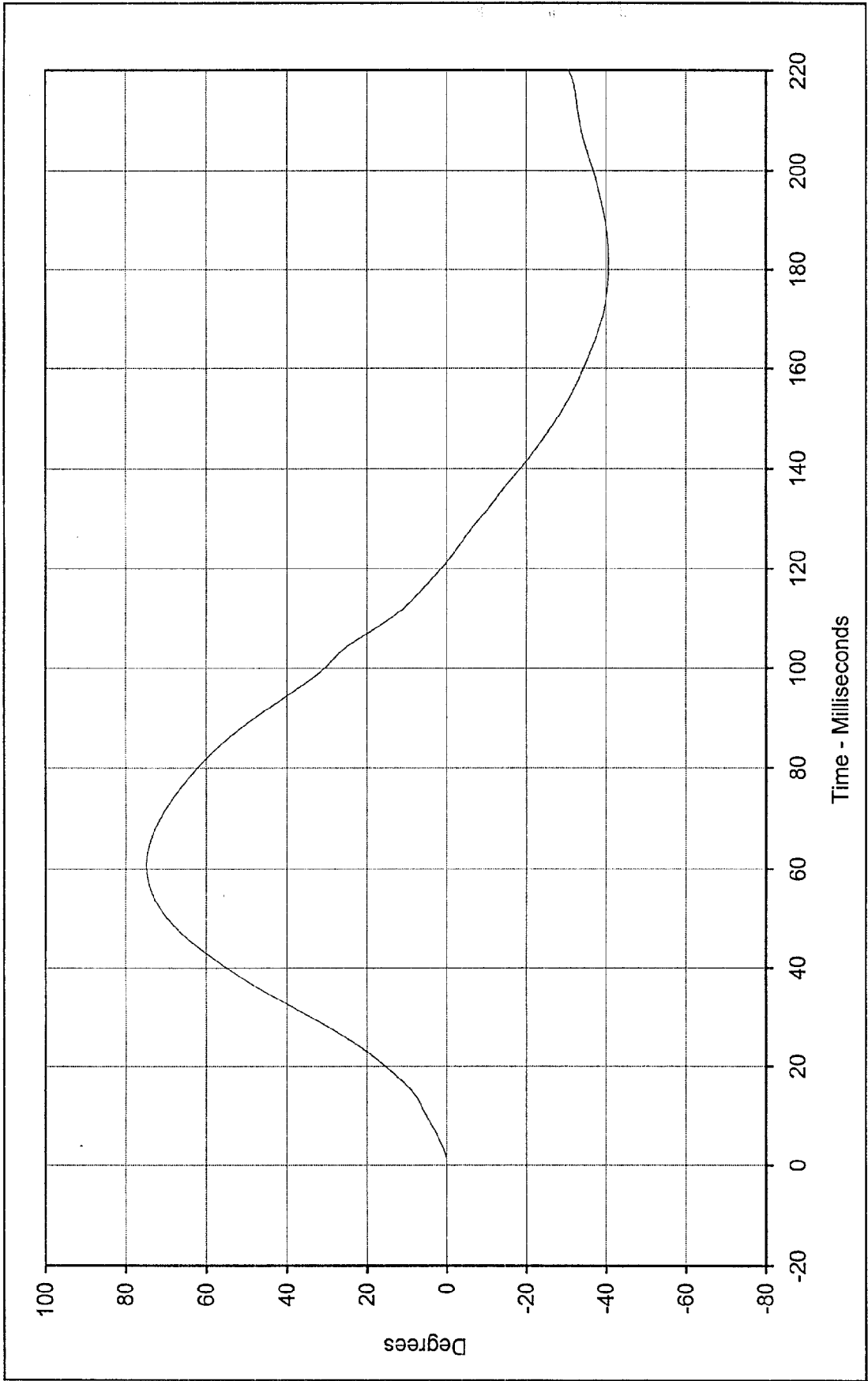




Curve Description: Neck Force X
Maximum Value: 829.4 at 54.6 Milliseconds
Minimum Value: -171.5 at 168.8 Milliseconds
SAE Filter Class: 60
Date of Test: 1/17/98
ATD Serial No.: 034

Testing Program: Hybrid III Neck Flexion Test (Male)
Test Information: S/N of Part: n/a Test I.D.: NK100

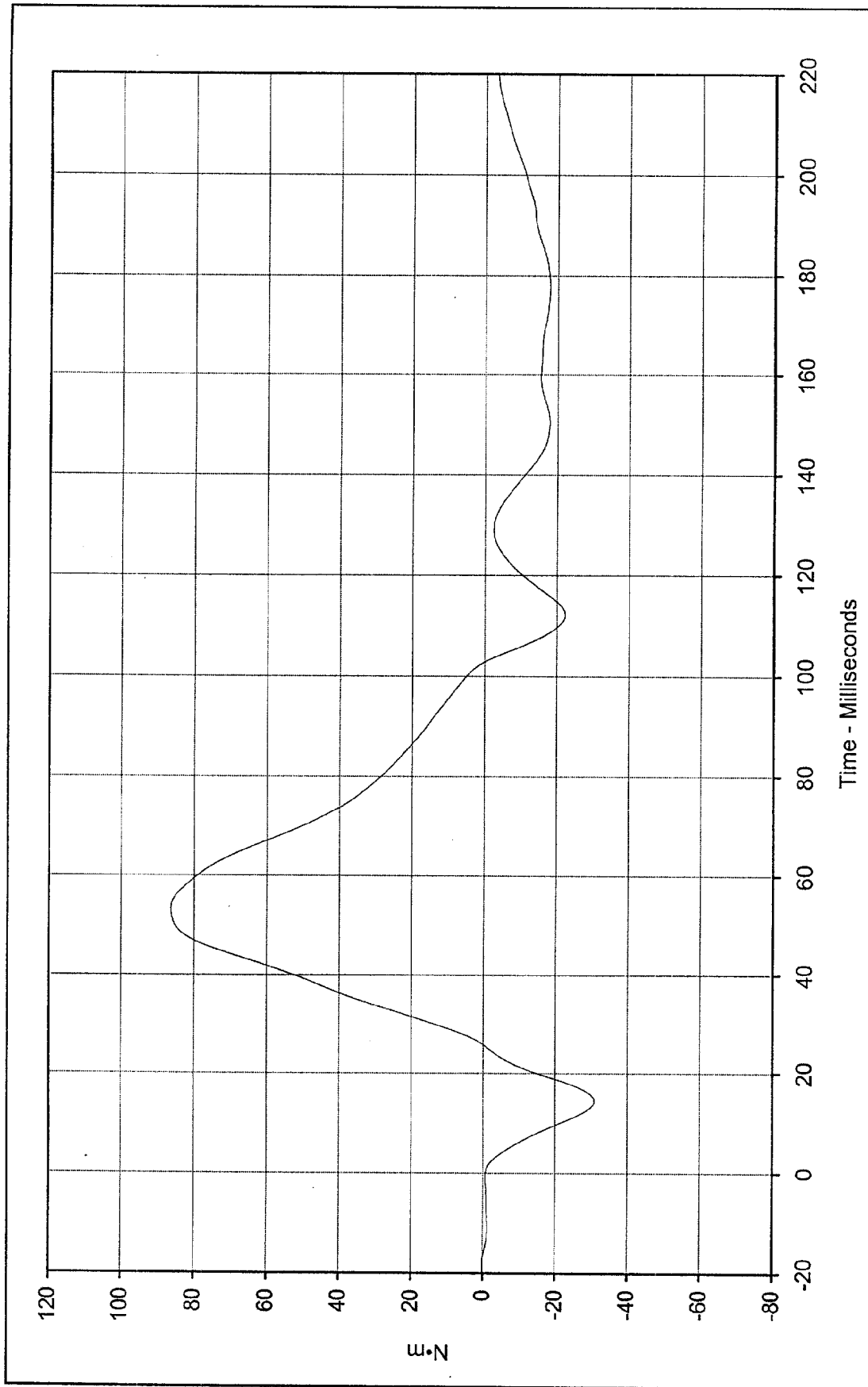




Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NK100

Curve Description: "D" Plane Rotation
 Maximum Value: 74.8 at 60.9 Milliseconds
 Minimum Value: -40.6 at 181.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/17/98
 ATD Serial No.: 034





E-14

Curve Description: Moment About Occipital Condyles
 Maximum Value: 86.4 at 53.3 Milliseconds
 Minimum Value: -30.9 at 14.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/17/98
 ATD Serial No.: 034

Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NK100



KAR-98-R98030-09



Hybrid III Calibration Data Sheet

50TH Percentile Male

Neck Extension Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: NE600

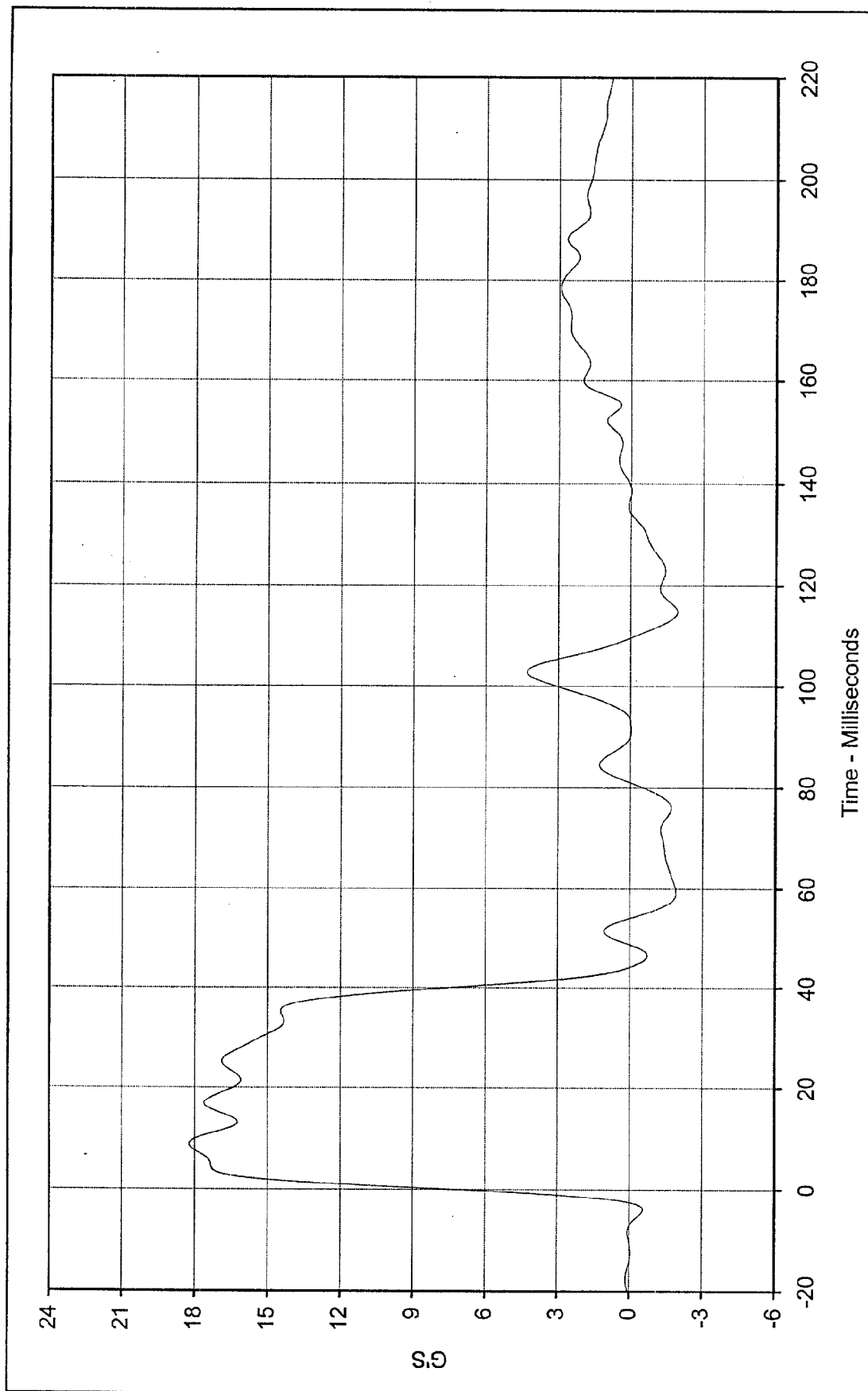
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.11	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.9	Pass
	20 Msec.	G's	14.0 to 19.0	16.4	Pass
	30 Msec.	G's	11.0 to 16.0	15.3	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.3	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	40.9	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	101.5	Pass
	Time	Msec.	72.0 to 82.0	80.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	158.7	Pass
Moment About Occipital Condyle	Maximum	N • m	-52.9 to- 79.9	-79.1	Pass
	Time	Msec.	65.0 to 79.0	66.8	Pass
Negative Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	145.1	Pass
Overall Test Results					Pass

N209p
Laboratory Technician

January 17, 1998
Test Date

J. A. Rubenstein
Approved By

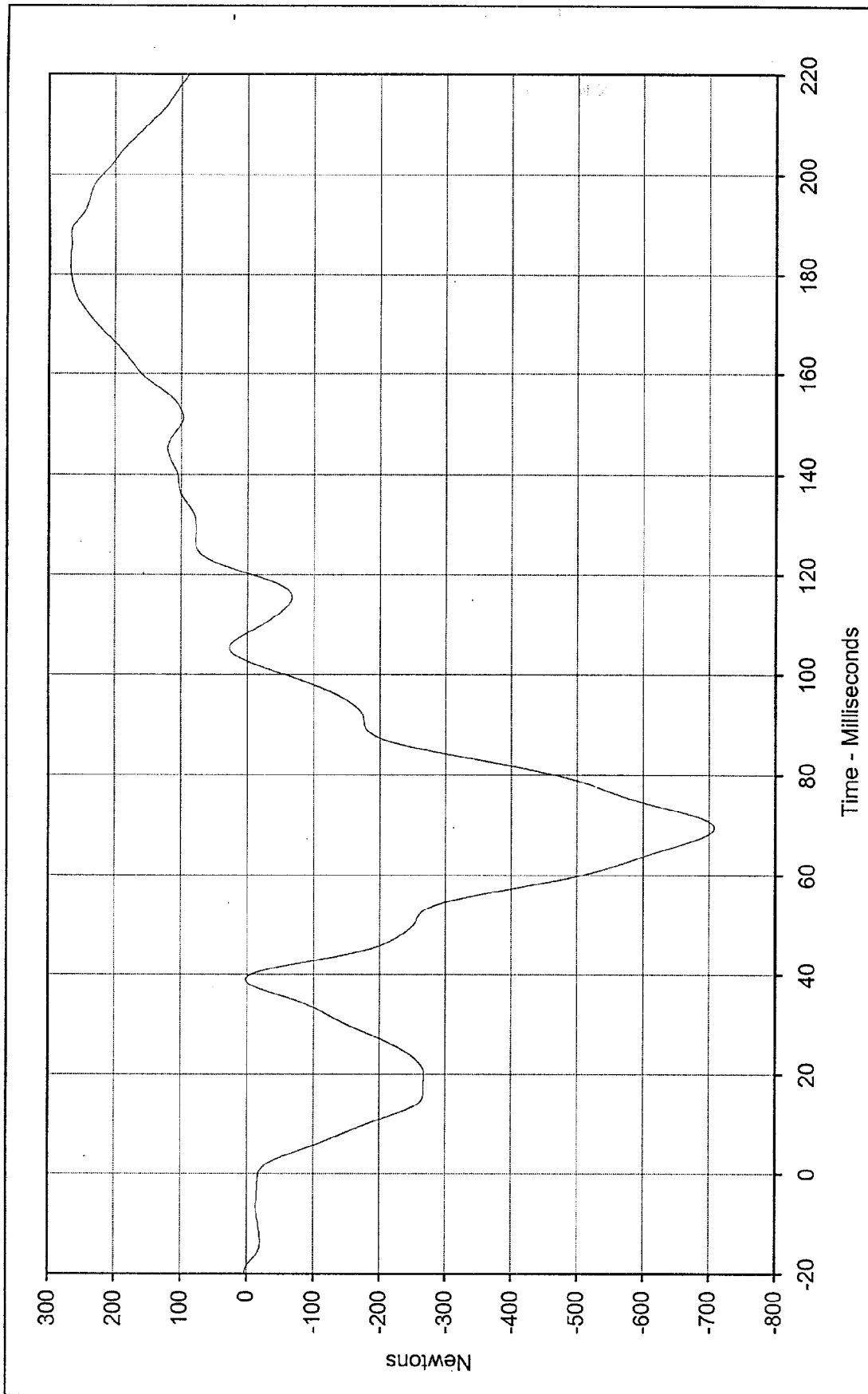
1/17/98
Date



Testing Program: Hybrid III Neck Extension Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NE600

Curve Description: Pendulum Deceleration
 Maximum Value: 18.2 at 8.7 Milliseconds
 Minimum Value: -1.9 at 114.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/17/98
 ATD Serial No.: 034





Curve Description: Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: n/a Test I.D.: NE600

Curve Description: Neck Force X

Maximum Value: 267.4 at 182.9 Milliseconds

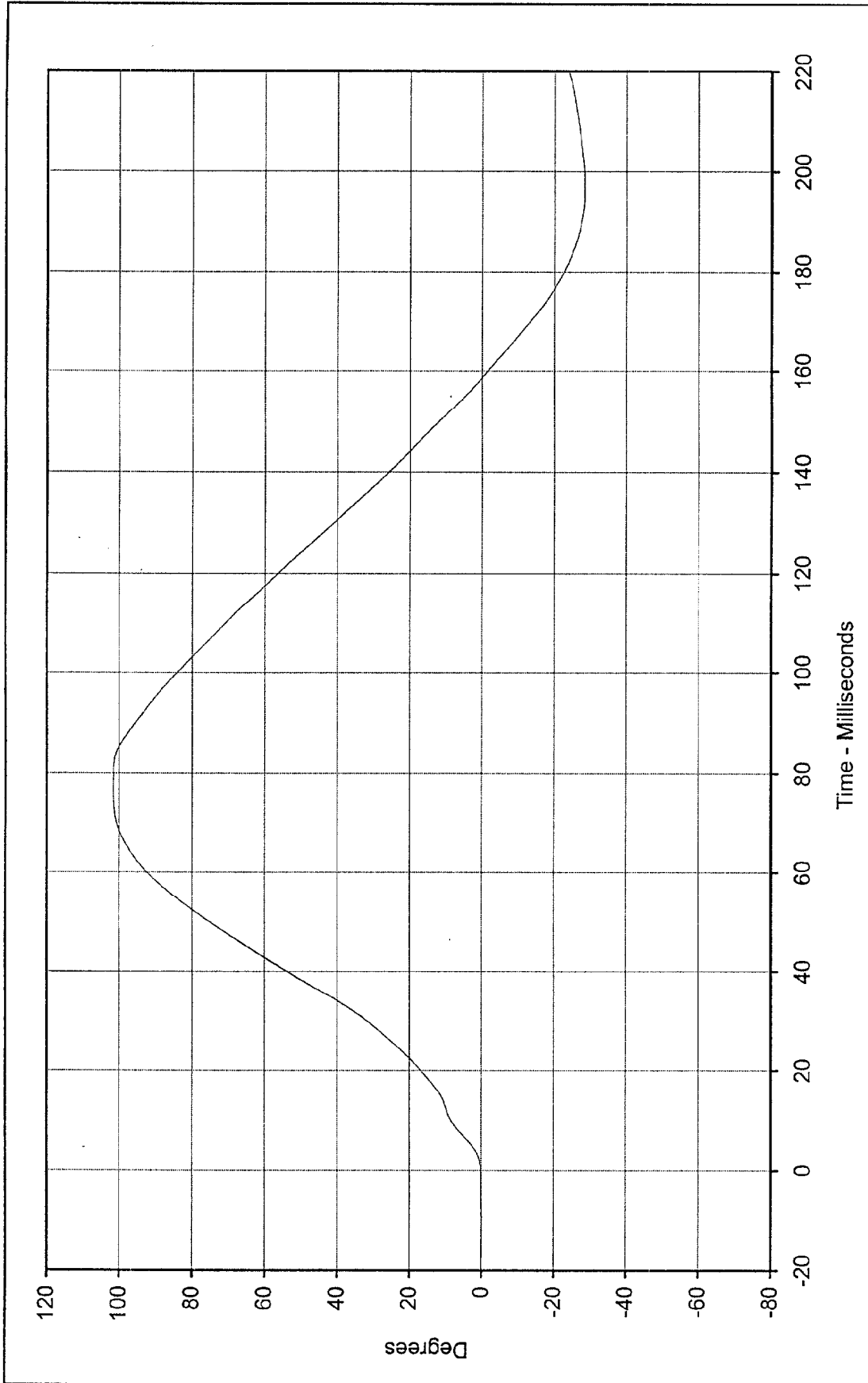
Minimum Value: -708.4 at 69.6 Milliseconds

SAE Filter Class: 60

Date of Test: 1/17/98

ATD Serial No.: 034

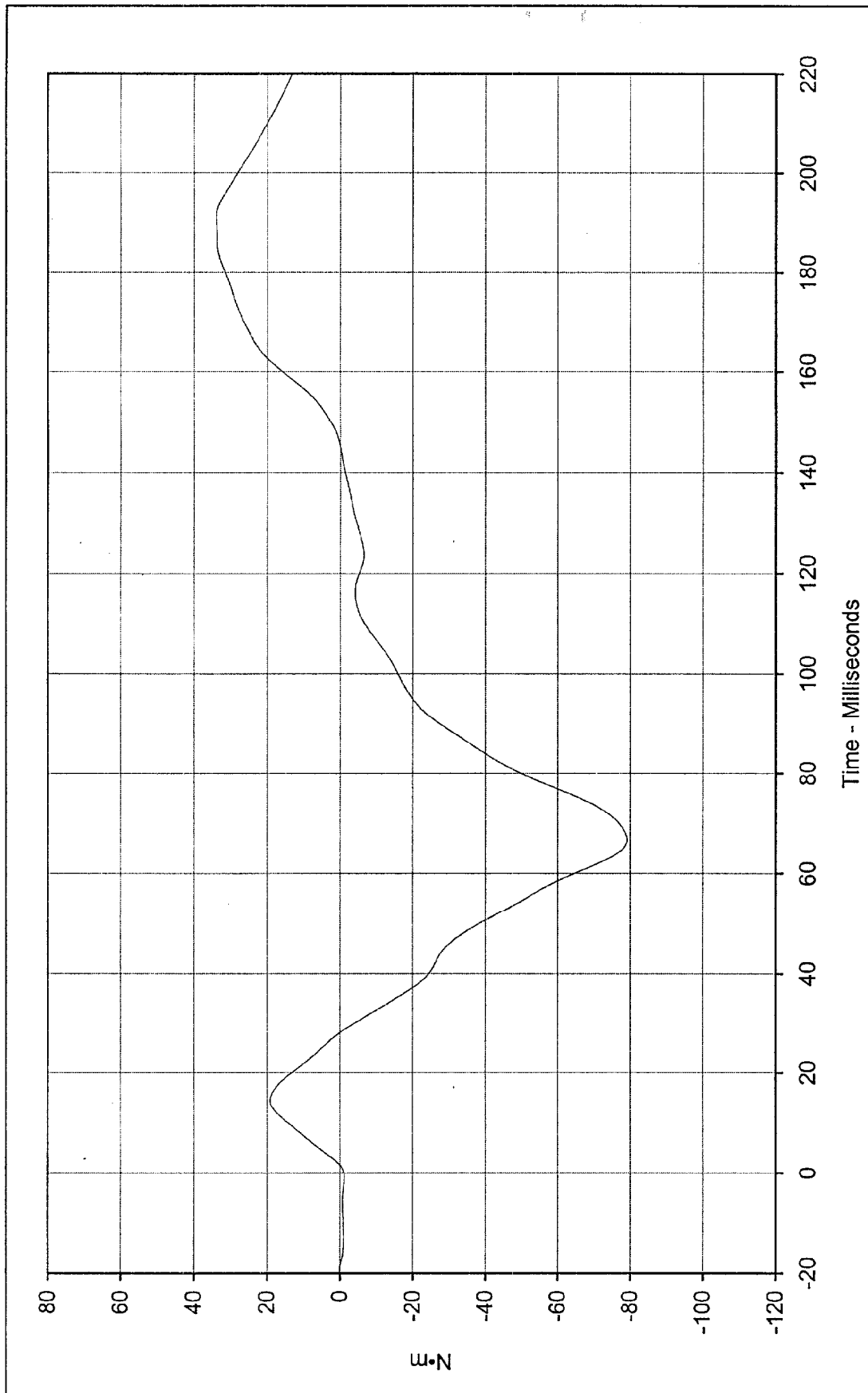




Testing Program Hybrid III Neck Extension Test (Male)
Test Information: S/N of Part: n/a Test I.D.: NE600

Curve Description: - "D" Plane Rotation
Maximum Value: 101.5 at 80.1 Milliseconds
Minimum Value: -28.4 at 197.2 Milliseconds
SAE Filter Class: 60
Date of Test: 1/17/98
ATD Serial No.: 034





E-19

Curve Description: Moment About Occipital Condyles

Maximum Value: 34.0 at 191.1 Milliseconds

Minimum Value: -79.1 at 66.8 Milliseconds

SAE Filter Class: 60

Date of Test: 1/17/98

ATD Serial No.: 034

Testing Program Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: n/a Test I.D.: NE600



KAR-98-R98050-09



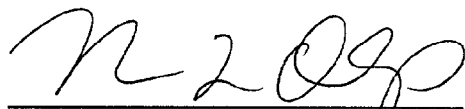
Hybrid III Calibration Data Sheet

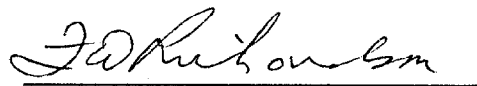
50TH Percentile Male

External Measurements

ATD Serial No.: 034Part Serial No.: N/ATest I.D.: N/A

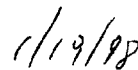
External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	20.9	Pass
Laboratory relative humidity	%	10 to 70	43.0	Pass
A - Total sitting height	mm	878.8 to 889.0	883.0	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	516.0	Pass
C - "H" point height	mm	83.8 to 88.9	87.0	Pass
D - "H" point from seat back	mm	134.6 to 139.7	137.0	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	86.0	Pass
F - Thigh clearance	mm	139.7 to 154.9	151.0	Pass
G - Elbow back to wrist pivot	mm	289.6 to 304.8	301.0	Pass
H - Skull cap to back line	mm	40.6 to 45.7	45.0	Pass
I - Shoulder to elbow length	mm	330.2 to 345.4	344.0	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	591.0	Pass
L - Popliteal length	mm	429.3 to 454.7	441.0	Pass
M - Knee pivot height	mm	485.1 to 500.4	495.0	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	470.0	Pass
O - Chest depth	mm	213.4 to 228.6	220.0	Pass
P - Foot length	mm	251.5 to 266.7	261.0	Pass
V - Shoulder breadth	mm	421.6 to 436.9	435.0	Pass
W - Foot breadth	mm	91.4 to 106.7	100.0	Pass
Y - Chest circumference	mm	970.3 to 1000.8	1000.0	Pass
Z - Waist circumference	mm	835.7 to 866.1	865.0	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	230.0	Pass
Overall Test Results				Pass


Laboratory Technician

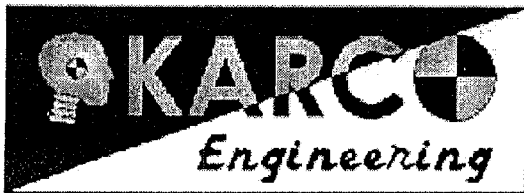

Approved By

January 19, 1998

Test Date



Date



Hybrid III Calibration Data Sheet

50TH Percentile Male

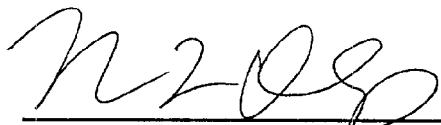
Left Knee Impact Test

ATD Serial No.: 035

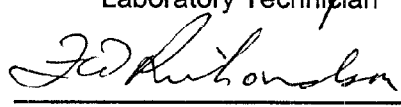
Part Serial No.: n/a

Test I.D.: H3K01

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Probe Velocity	m/s	2.073 to 2.134	2.118	Pass
Peak Probe Force	Newtons	4715 to 5782	5733.8	Pass
Overall Test Results				Pass



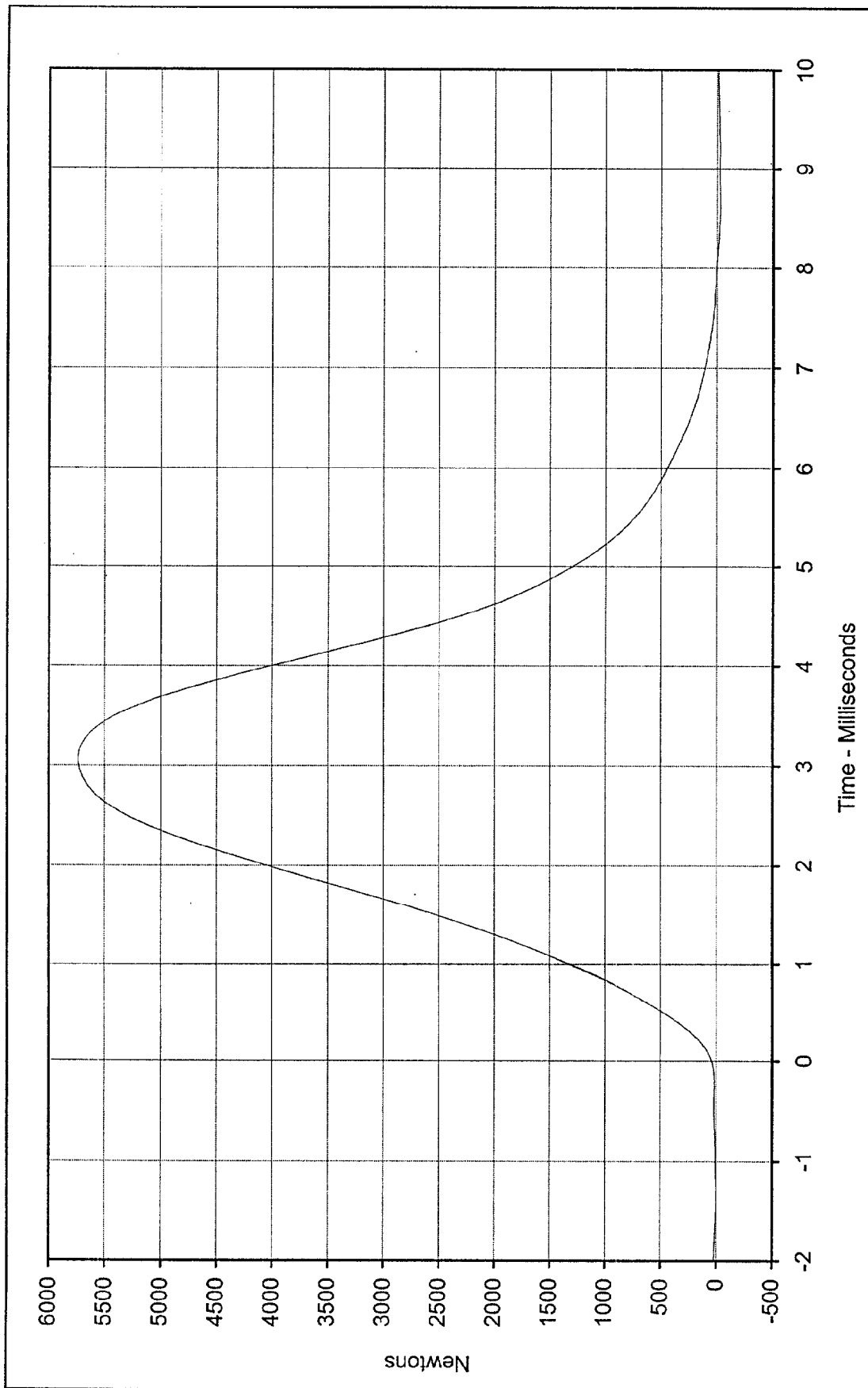
Laboratory Technician



Approved By

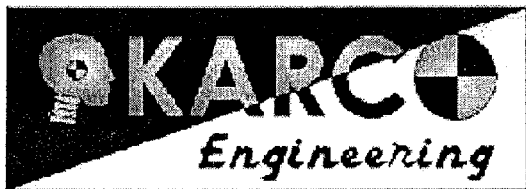
January 16, 1998
Test Date

1/16/98
Date



Curve Description:		Testing Program	Hybrid III Left Knee Impact Test
Maximum Value:	5733.8 at 3.1 Milliseconds	Test Information:	Part S/N: n/a Test I.D.: H3K01
Minimum Value:	-1.3 at -1.4 Milliseconds		
SAE Filter Class:	600		
Date of Test:	1/16/98		
ATD Serial No.:	035		





Hybrid III Calibration Data Sheet

50TH Percentile Male

Right Knee Impact Test

ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: H3K02

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.132	Pass
Peak Probe Force	Newtons	4715 to 5782	5683.4	Pass
Overall Test Results				Pass

A handwritten signature in black ink, appearing to read 'N209', is written over a horizontal line.

Laboratory Technician

A handwritten signature in black ink, appearing to read 'J. Robinson', is written over a horizontal line.

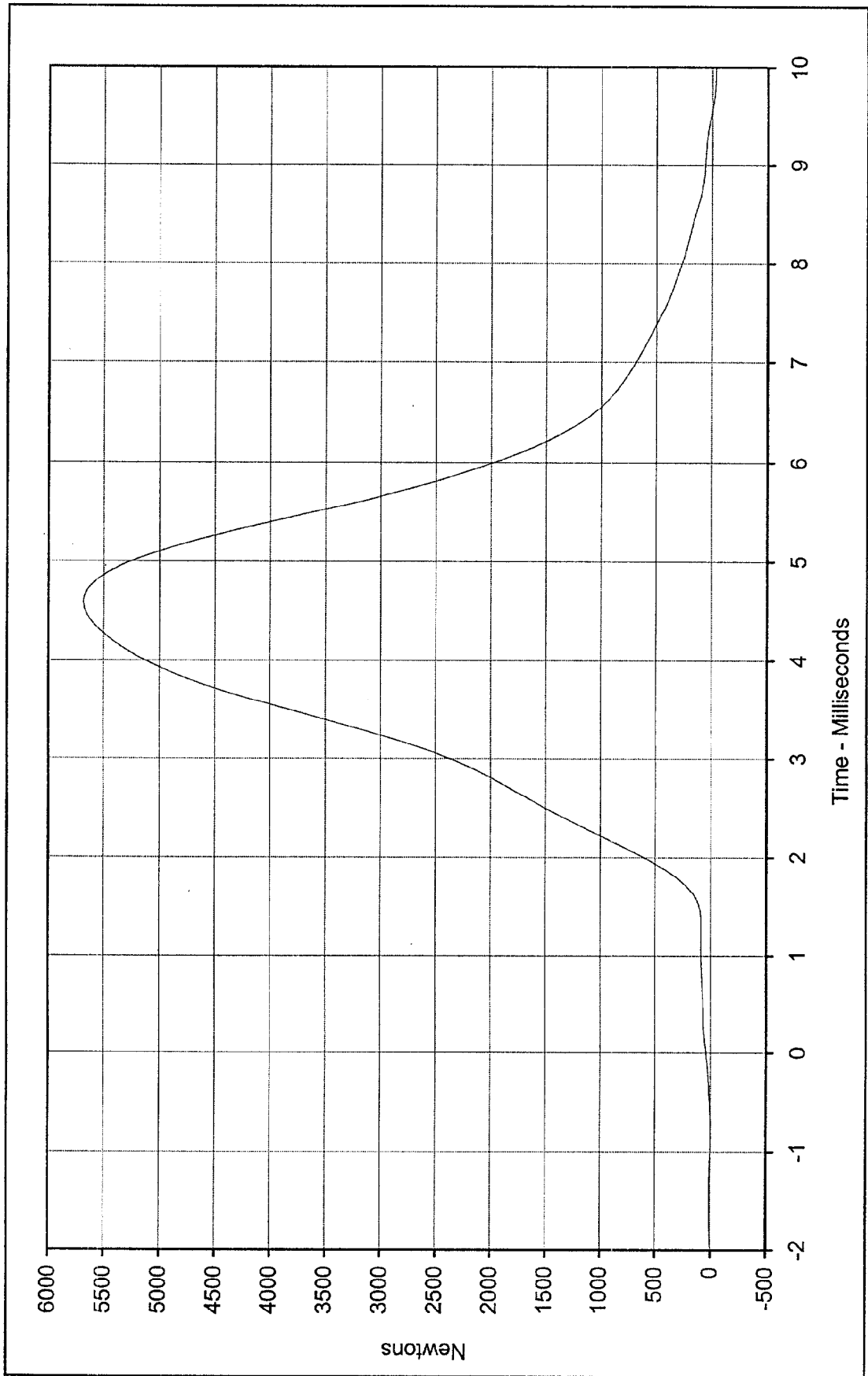
Approved By

January 16, 1998

Test Date

The date '1/16/98' is handwritten in black ink over a horizontal line.

Date



Curve Description:	Testing Program	Hybrid III Right Knee Impact Test
Maximum Value:	Part S/N:	n/a
Minimum Value:	Test I.D.:	H3K02
SAE Filter Class:		
Date of Test:		
ATD Serial No.:		





Hybrid III Calibration Data Sheet

50TH Percentile Male

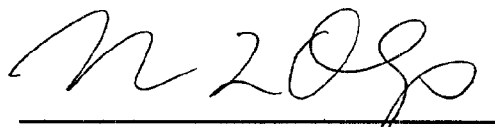
Head Drop Calibration

ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: HD051

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	246.1	Pass
Peak Lateral Acceleration	G's	≤15.0	5.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Laboratory Technician



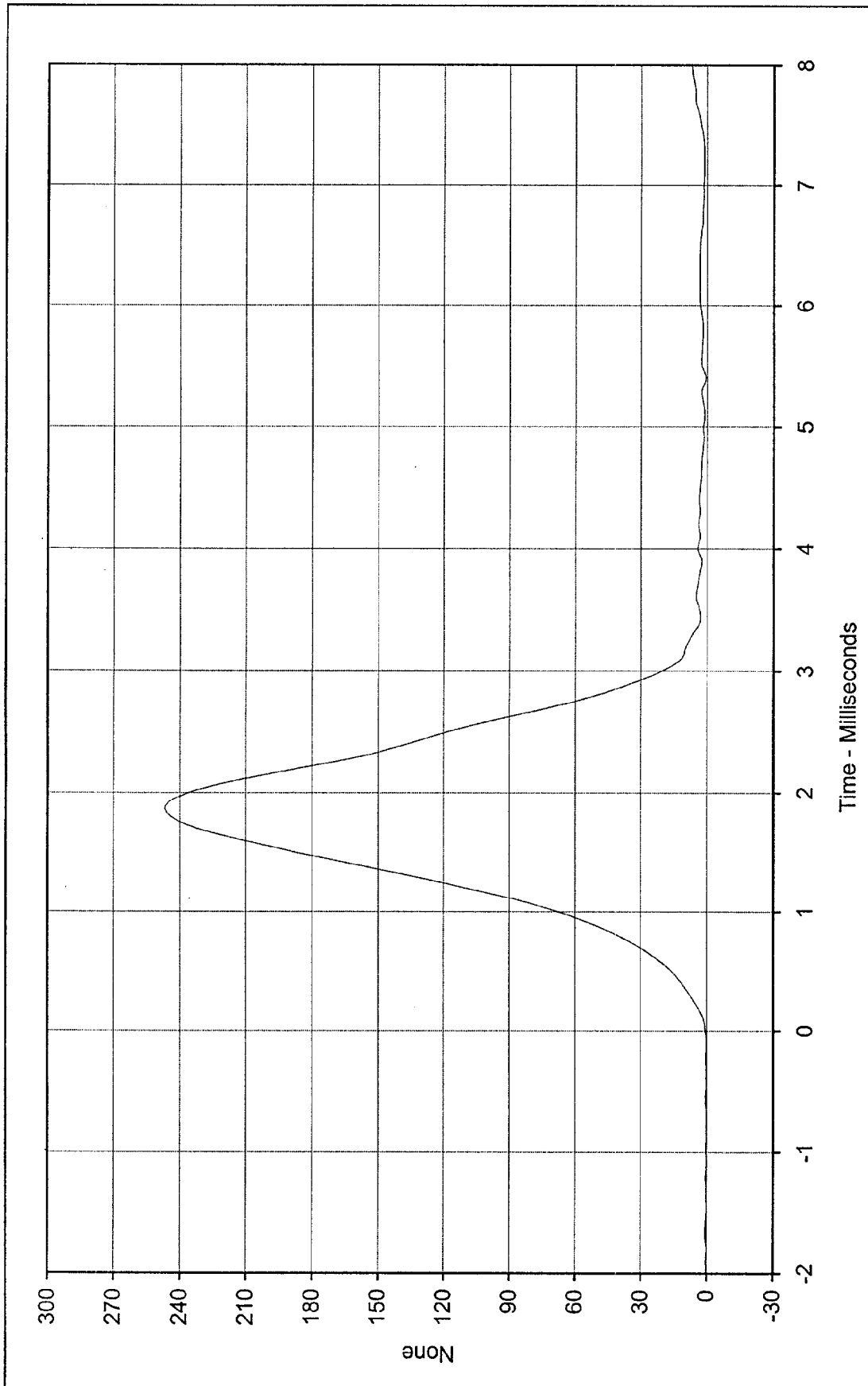
Approved By

January 16, 1998

Test Date

1/16/98

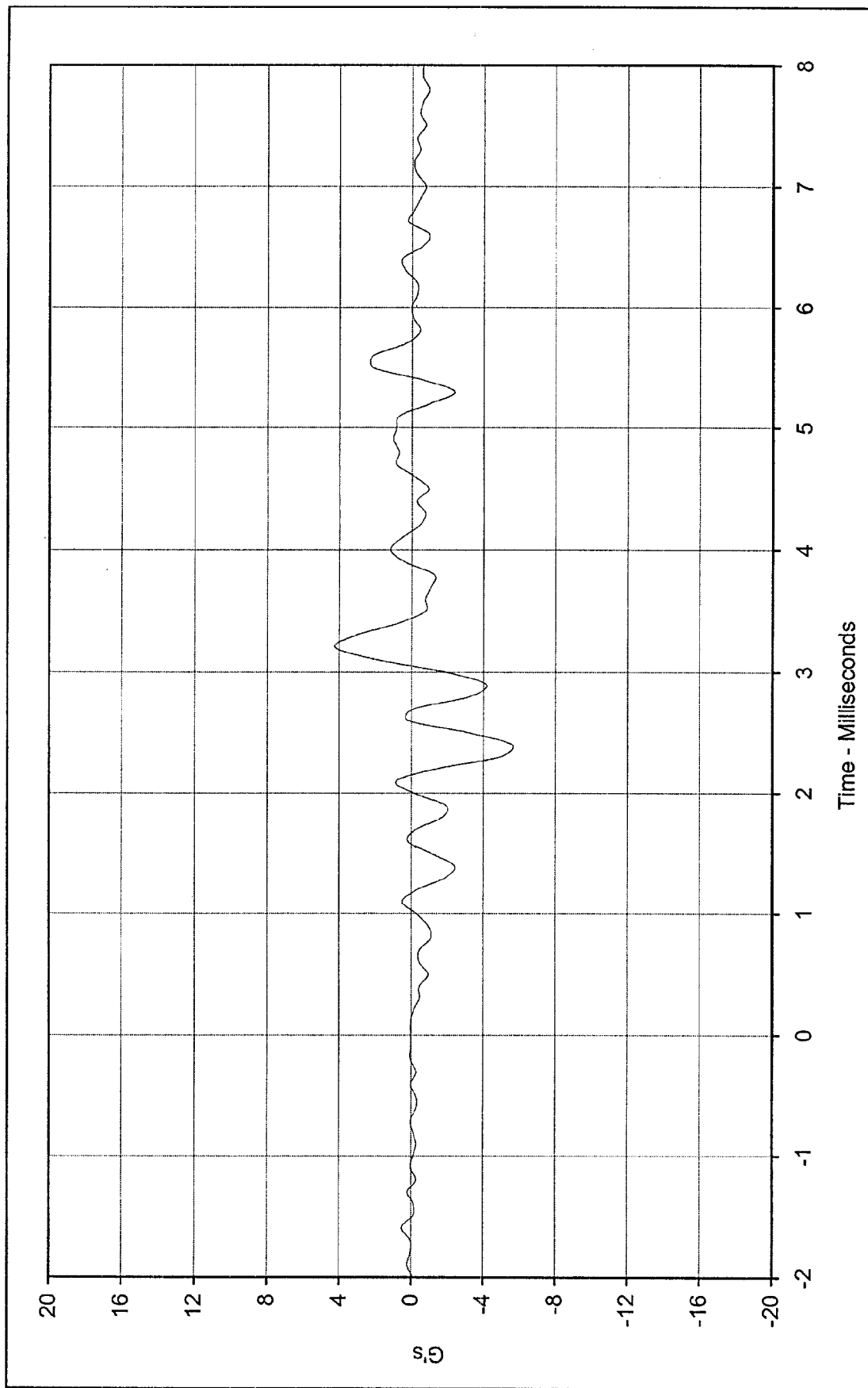
Date



Curve Description: Head Resultant Acceleration Testing Program Hybrid III Head Drop Calibration (Male)
Maximum Value: 246.1 at 1.9 Milliseconds Test Information: S/N of Part: n/a Test I.D.: HD051
Minimum Value: 0.1 at -1.8 Milliseconds



SAE Filter Class: 1000
Date of Test: 1/16/98
ATD Serial No.: 035



Curve Description:	Head Acceleration Y Axis	Testing Program	Hybrid III Head Drop Calibration (Male)
Maximum Value:	4.2 at 3.2 Milliseconds	Test Information:	S/N of Part: n/a Test I.D.: HD051
Minimum Value:	-5.6 at 2.4 Milliseconds		
SAE Filter Class:	1000		
Date of Test:	1/16/98		
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.: C6000

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	6.68	Pass
Peak Probe Force	Newtons	5159 to 5893	5427	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	7.15	Pass
Internal Hysteresis	%	69 to 85	73.4	Pass
Overall Test Results				Pass

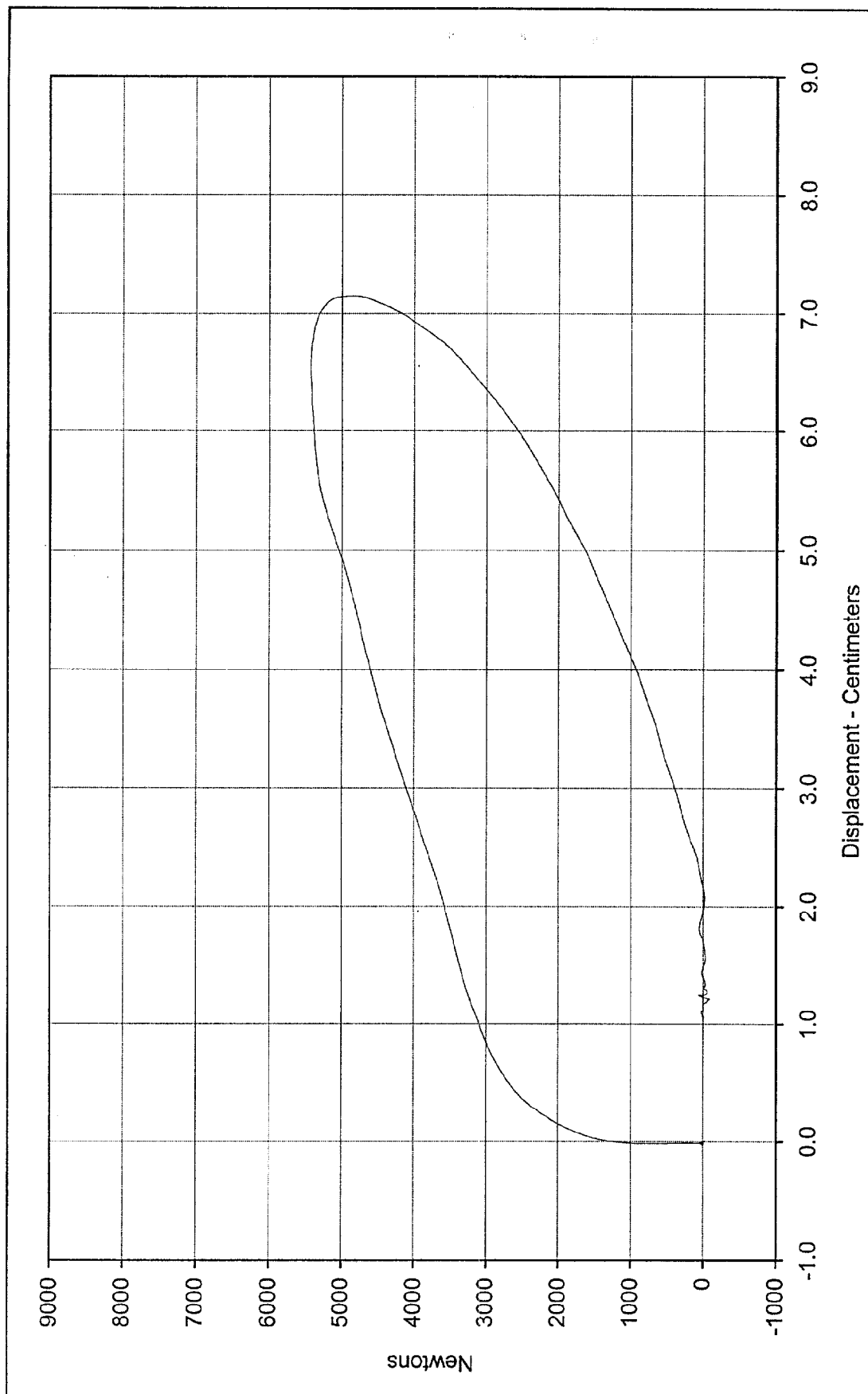
Laboratory Technician

Approved By

January 19, 1998

Test Date

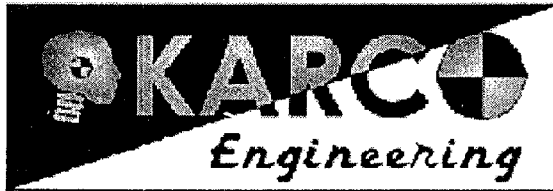
Date



Curve Description: Probe Force vs. Chest Displacement Testing Program: Hybrid III Thorax Impact Test
 Probe Force: 5426.9 Newtons Test Information: S/N of Part: n/a Test I.D.: C6000
 Chest Displ.: 7.15 Centimeters



SAE Filter Class: 180
 Date of Test: 1/19/98
 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.: NF500

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	6.89 to 7.13	6.93	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.2	Pass
	20 Msec.	G's	17.6 to 22.6	20.4	Pass
	30 Msec.	G's	12.5 to 18.5	18.3	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	18.3	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	35.5	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	74.3	Pass
	Time	Msec.	57.0 to 64.0	60.3	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	120.5	Pass
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	87.2	Pass
	Time	Msec.	47.0 to 58.0	48.4	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	101.2	Pass
Overall Test Results					Pass

N208P

Laboratory Technician

J. A. Ruben

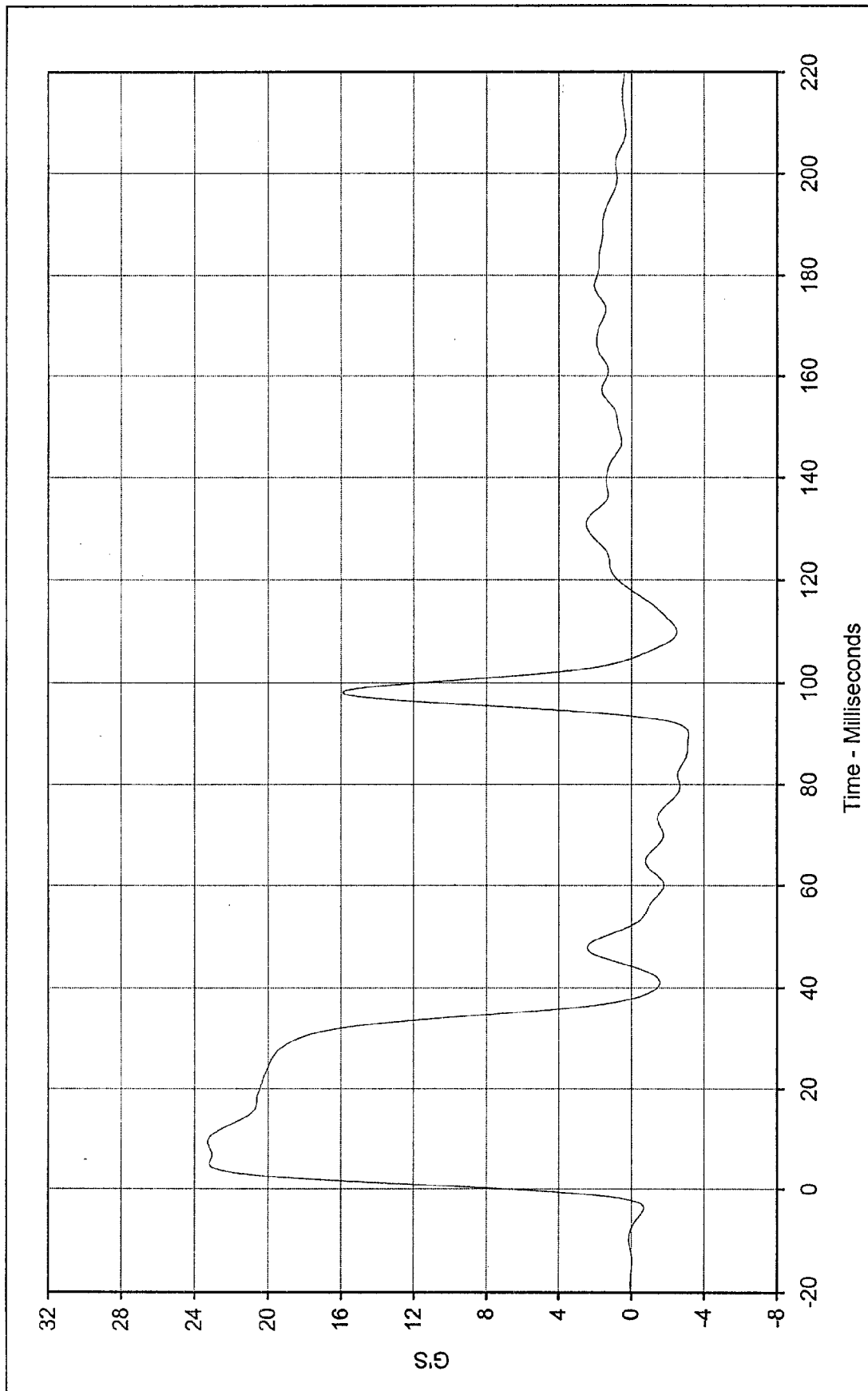
Approved By

January 17, 1998

Test Date

1/17/98

Date



Curve Description: Hybrid III Neck Flexion Test (Male)

Maximum Value: 23.3 at 9.2 Milliseconds

Minimum Value: -3.2 at 89.8 Milliseconds

SAE Filter Class: 60

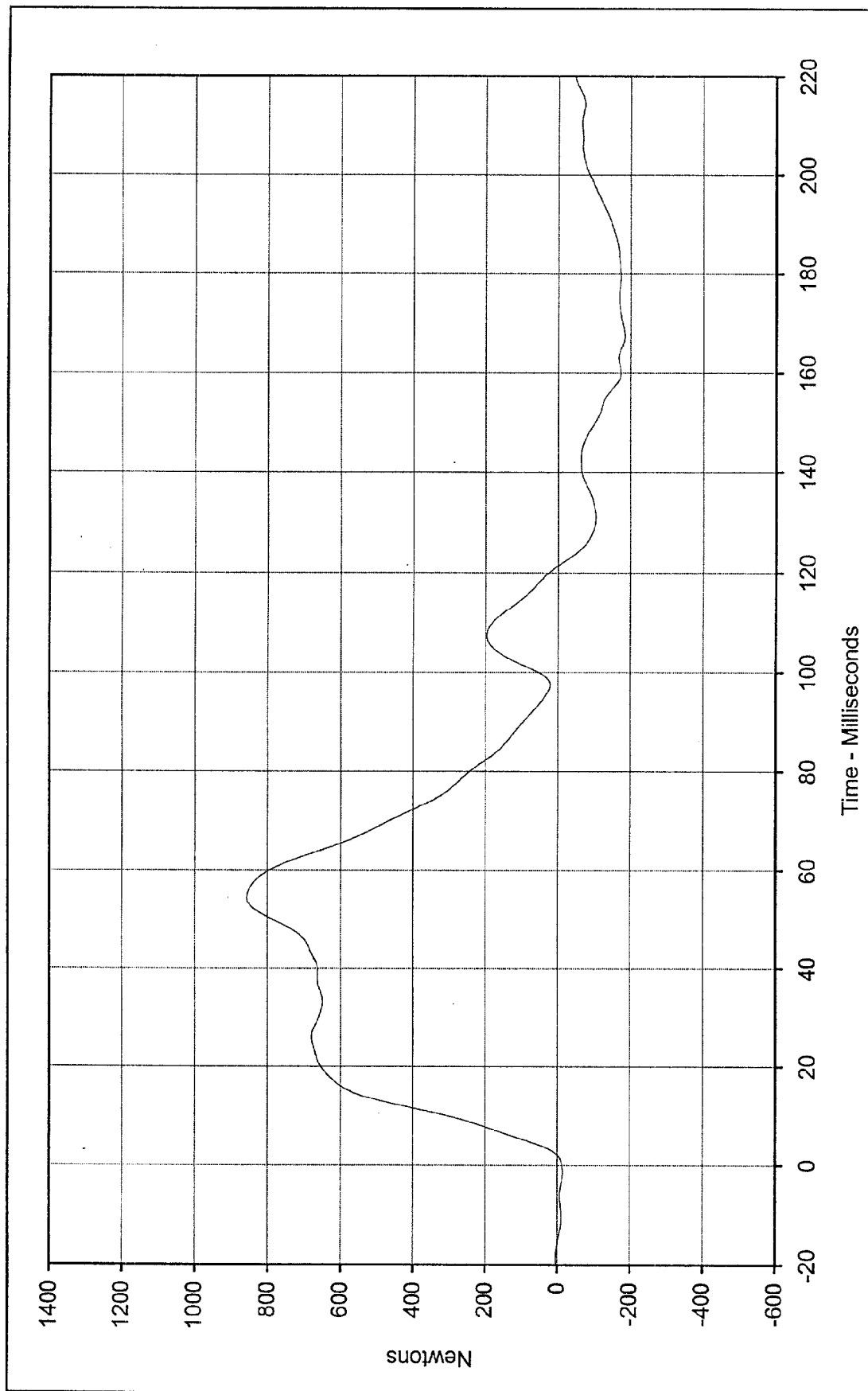
Date of Test: 1/17/98

ATD Serial No.: 035

Testing Program

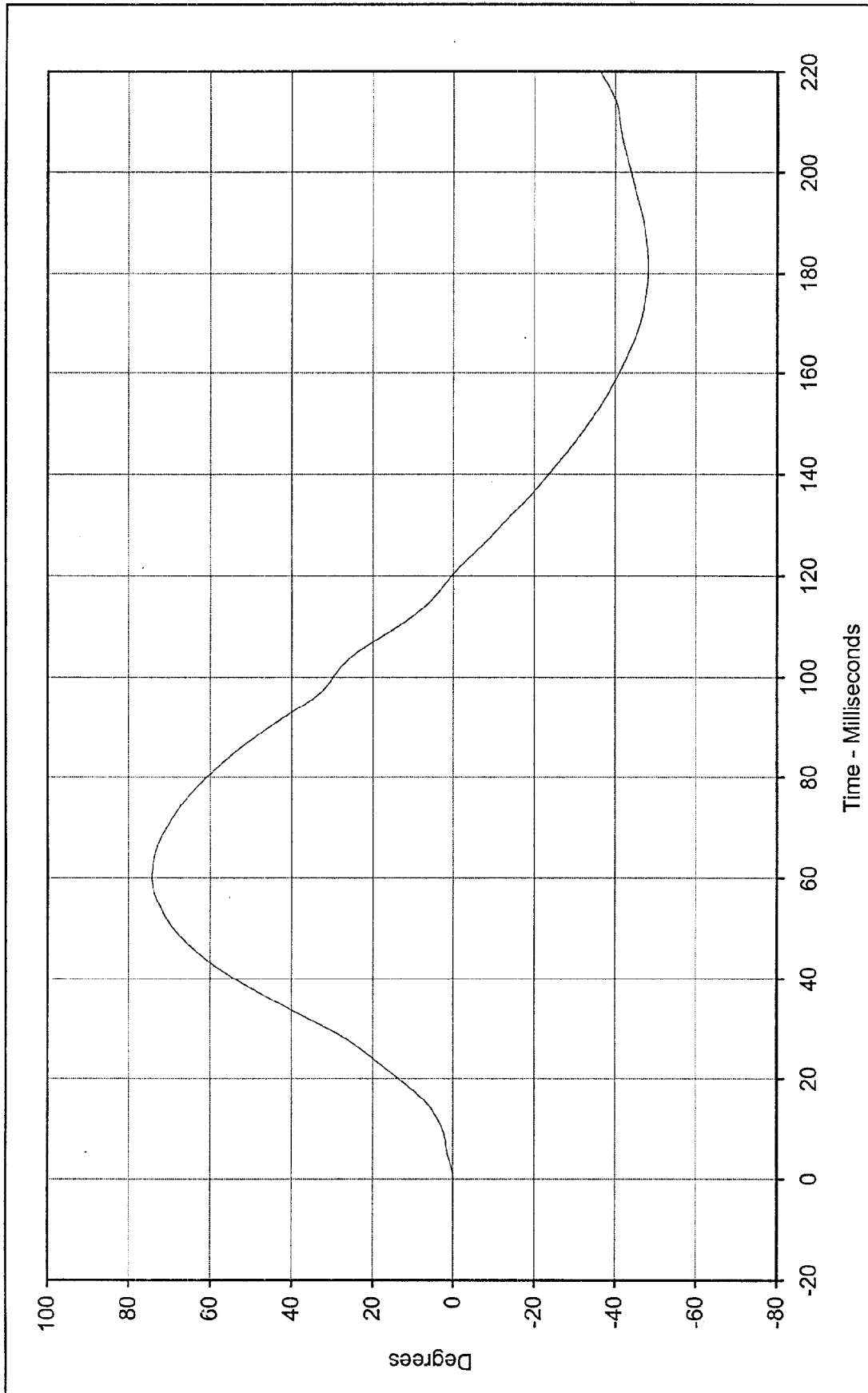
Test Information: S/N of Part: n/a Test I.D.: NF500





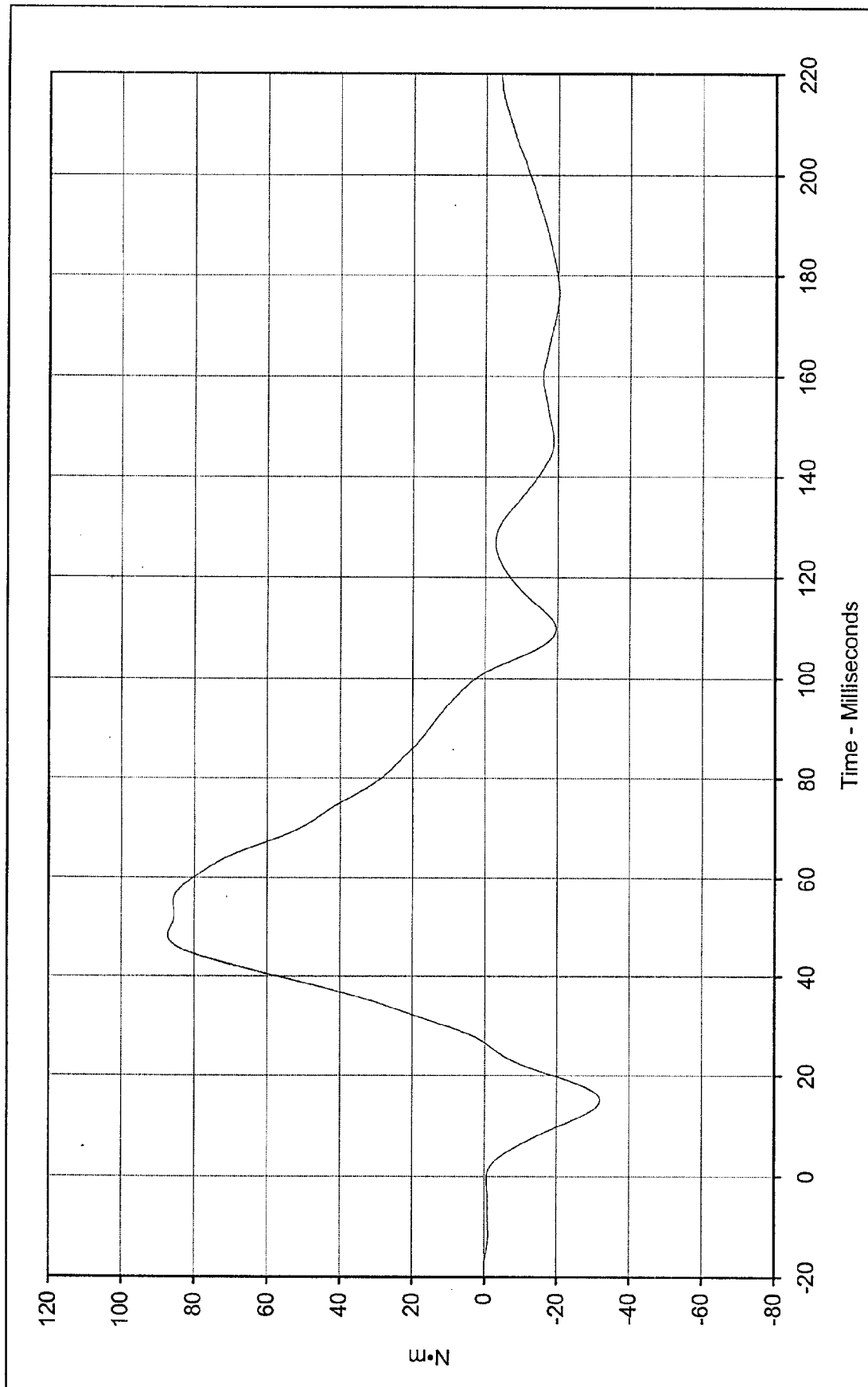
Curve Description:	Neck Force X	Testing Program	Hybrid III Neck Flexion Test (Male)
Maximum Value:	857.7 at 54.6 Milliseconds	Test Information:	S/N of Part: n/a Test I.D.: NF500
Minimum Value:	-183.5 at 167.4 Milliseconds		
SAE Filter Class:	60		
Date of Test:	1/17/98		
ATD Serial No.:	035		





Curve Description: _____ Testing Program Hybrid III Neck Flexion Test (Male)
 Maximum Value: 74.3 at 60.3 Milliseconds
 Minimum Value: -48.2 at 181.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/17/98
 ATD Serial No.: 035





Curve Description: Moment About Occipital Condyles

Maximum Value: 87.2 at 48.4 Milliseconds

Minimum Value: -31.9 at 15.0 Milliseconds

SAE Filter Class: 60

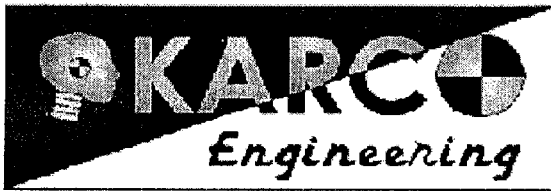
Date of Test: 1/17/98

ATD Serial No.: 035

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: S/N of Part: n/a Test I.D.: NF500





Hybrid III Calibration Data Sheet

50TH Percentile Male

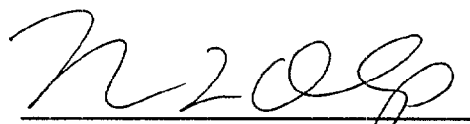
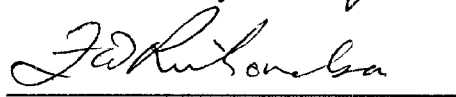
Neck Extension Test

ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: NE700

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	17.5	Pass
	20 Msec.	G's	14.0 to 19.0	16.8	Pass
	30 Msec.	G's	11.0 to 16.0	15.4	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.4	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	42.0	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	97.1	Pass
	Time	Msec.	72.0 to 82.0	77.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	158.4	Pass
Moment About Occipital Condyle	Maximum	N • m	-52.9 to- 79.9	-72.4	Pass
	Time	Msec.	65.0 to 79.0	66.5	Pass
Negative Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	145.6	Pass
Overall Test Results					Pass

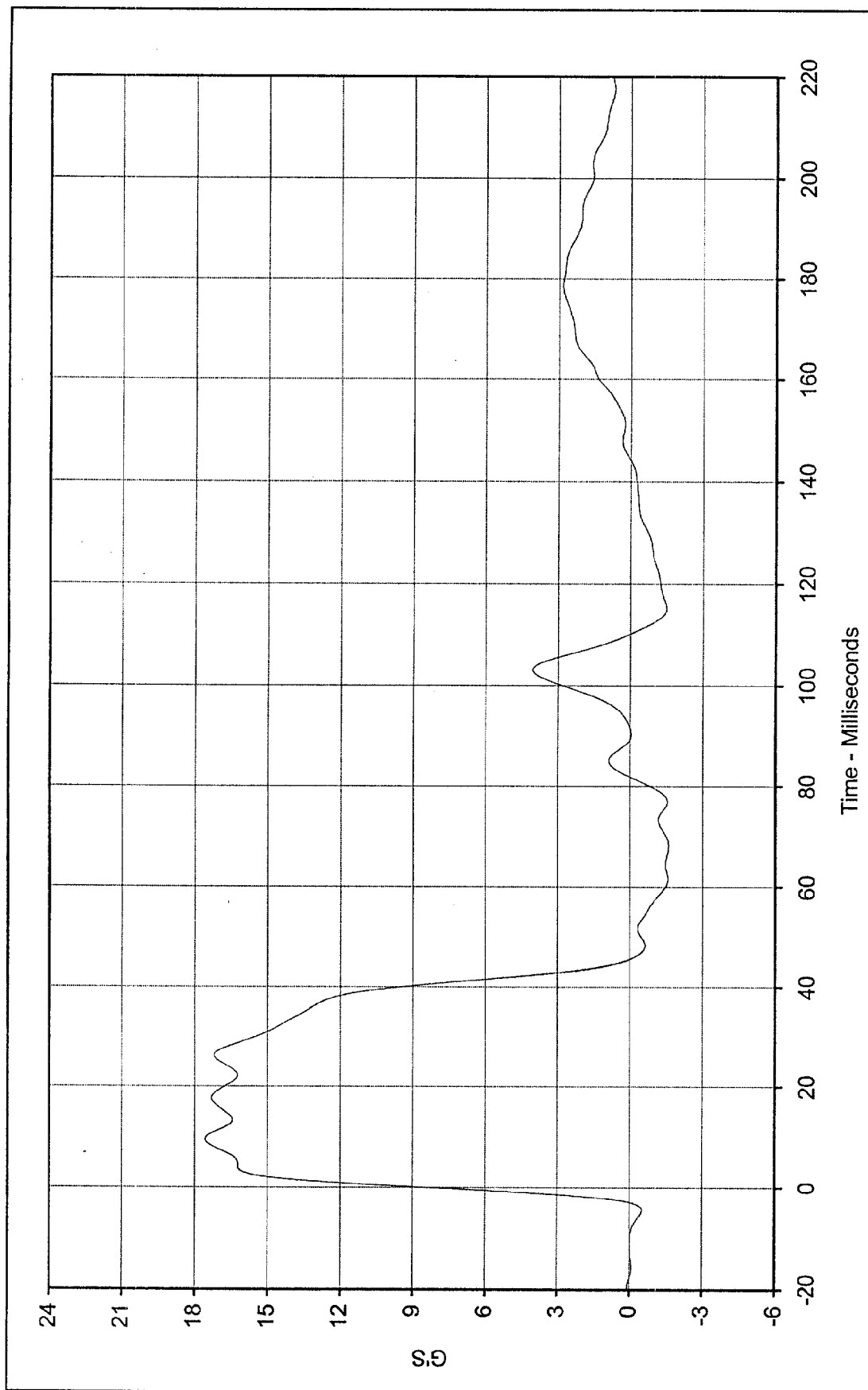

Laboratory Technician

Approved By

January 17, 1998

Test Date

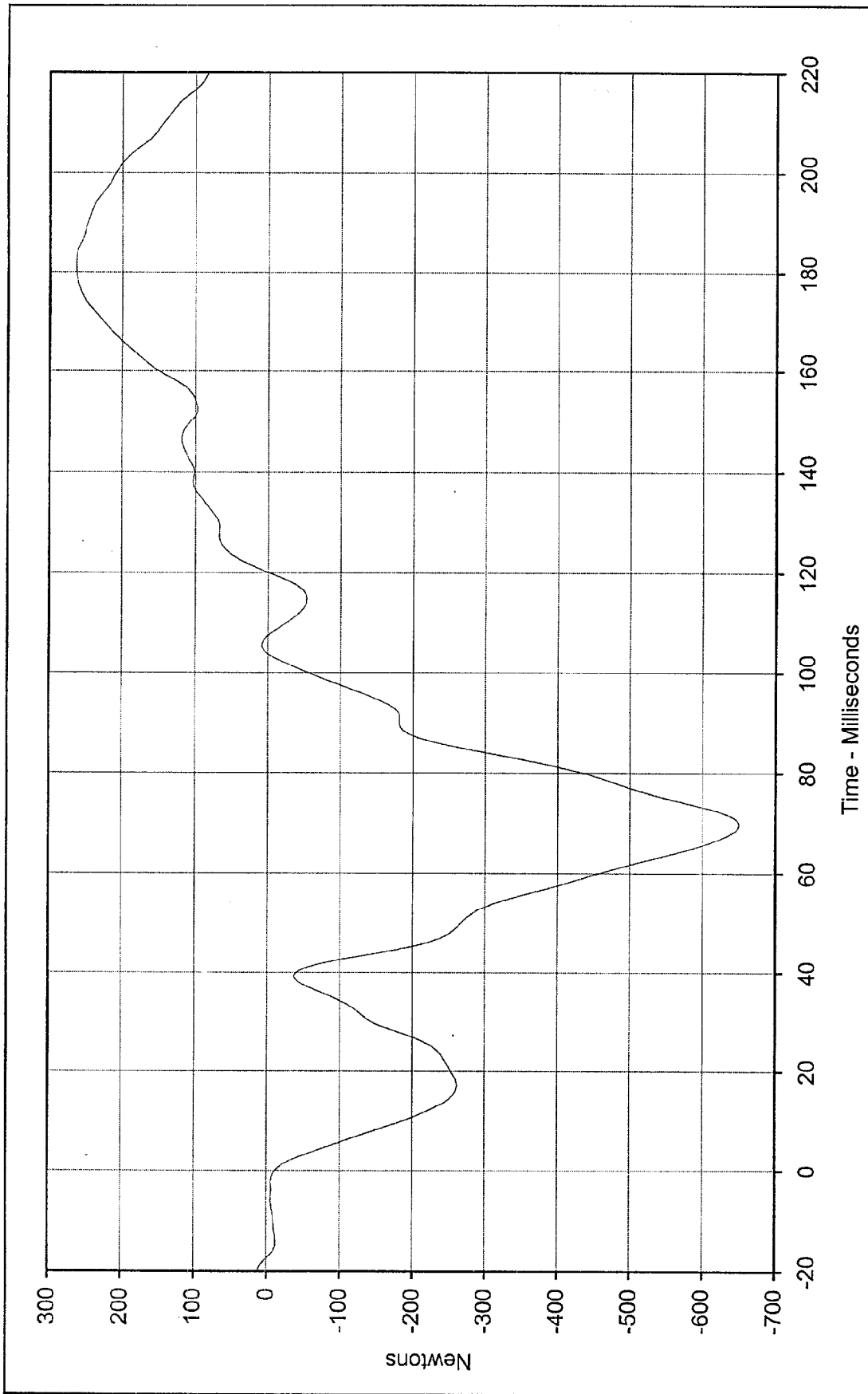
1/17/98

Date



Curve Description:	Pendulum Deceleration	Testing Program	Hybrid III Neck Extension Test (Male)
Maximum Value:	17.6 at 9.3 Milliseconds	Test Information:	S/N of Part: n/a Test I.D.: NE700
Minimum Value:	-1.6 at 68.0 Milliseconds		
SAE Filter Class:	60		
Date of Test:	1/17/98		
ATD Serial No.:	035		



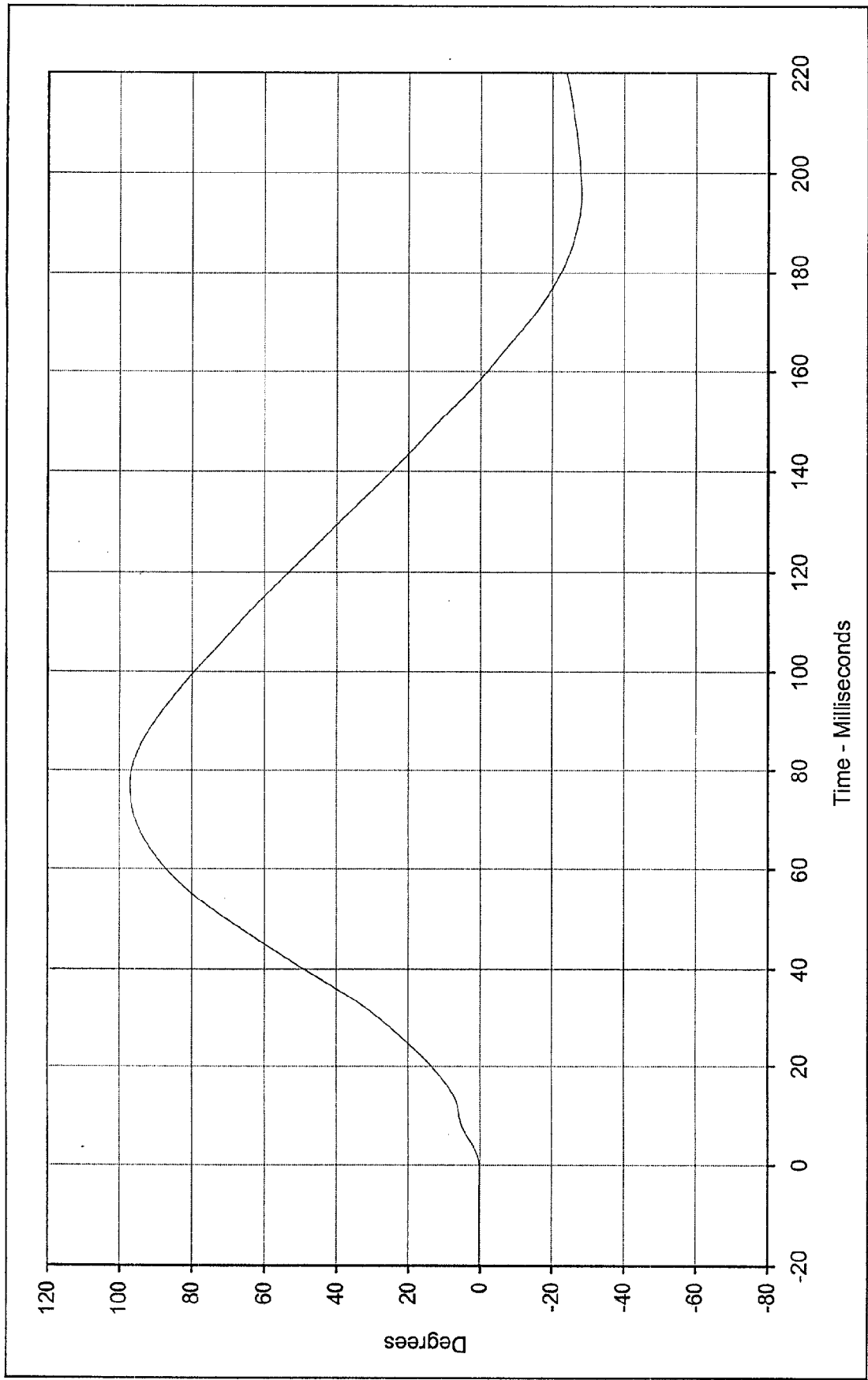


Curve Description: Neck Force X
 Maximum Value: 263.3 at 181.1 Milliseconds
 Minimum Value: -650.4 at 69.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/17/98
 ATD Serial No.: 035

Testing Program: Hybrid III Neck Extension Test (Male)

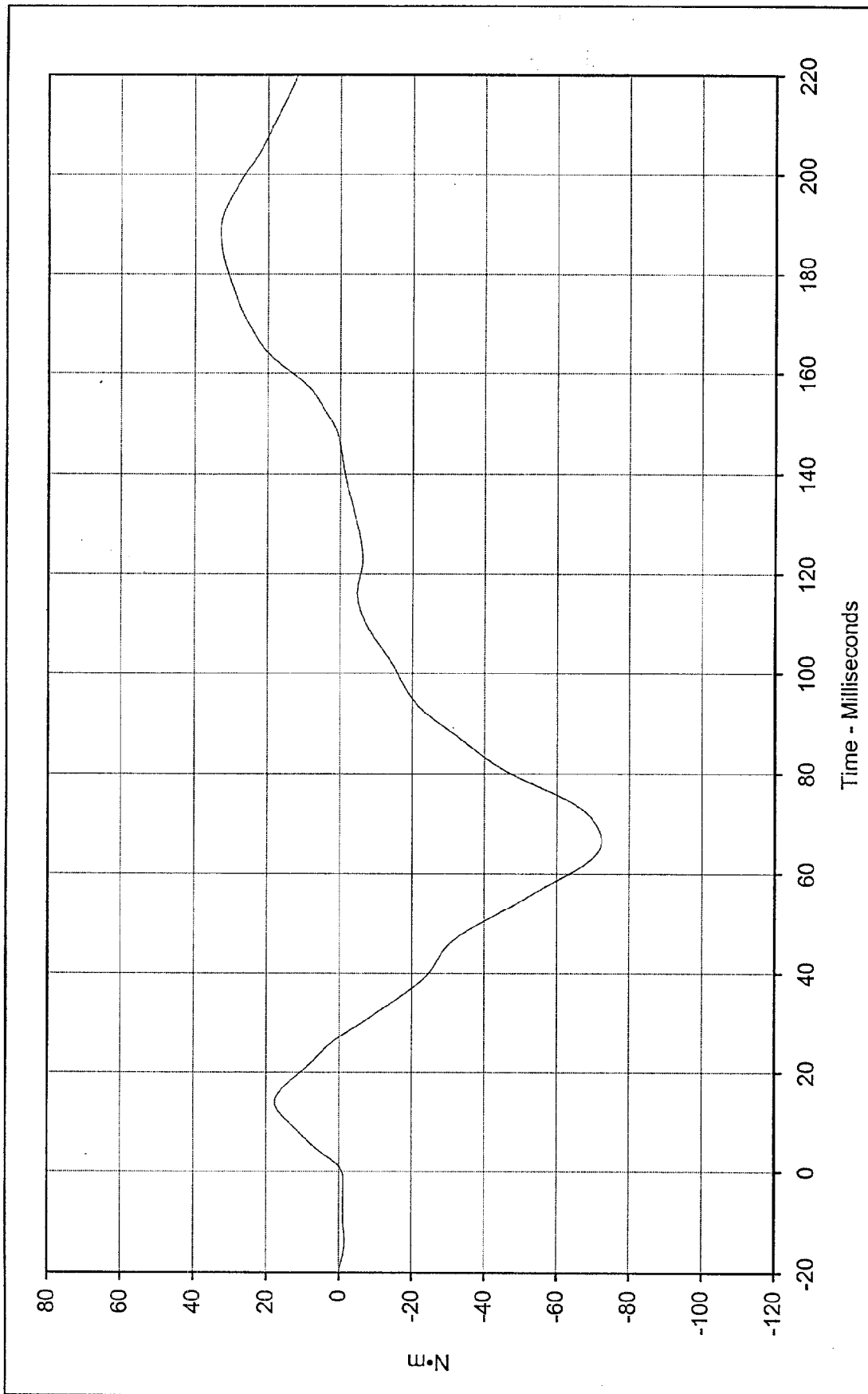
Test Information: S/N of Part: n/a Test I.D.: NE700





Curve Description: _____ Testing Program Hybrid III Neck Extension Test (Male)
Maximum Value: 97.1 at 77.2 Milliseconds
Minimum Value: -28.0 at 195.7 Milliseconds
SAE Filter Class: 60
Date of Test: 1/17/98
ATD Serial No.: 035





Curve Description: Testing Program Hybrid III Neck Extension Test (Male)
 Maximum Value: 32.9 at 188.7 Milliseconds
 Minimum Value: -72.4 at 66.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 1/17/98
 ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male

External Measurements

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

External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	20.9	Pass
Laboratory relative humidity	%	10 to 70	43.0	Pass
A - Total sitting height	mm	878.8 to 889.0	884.0	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	516.0	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	138.0	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	86.0	Pass
F - Thigh clearance	mm	139.7 to 154.9	151.0	Pass
G - Elbow back to wrist pivot	mm	289.6 to 304.8	302.0	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	330.0	Pass
J - Elbow rest height	mm	190.5 to 210.8	209.0	Pass
K - Buttock to knee length	mm	579.1 to 604.5	600.0	Pass
L - Popliteal length	mm	429.3 to 454.7	450.0	Pass
M - Knee pivot height	mm	485.1 to 500.4	486.0	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	475.0	Pass
O - Chest depth	mm	213.4 to 228.6	225.0	Pass
P - Foot length	mm	251.5 to 266.7	265.0	Pass
V - Shoulder breadth	mm	421.6 to 436.9	434.0	Pass
W - Foot breadth	mm	91.4 to 106.7	105.0	Pass
Y - Chest circumference	mm	970.3 to 1000.8	980.0	Pass
Z - Waist circumference	mm	835.7 to 866.1	860.0	Pass
AA - Location for chest circumference	mm	429.3 to 434.3	433.0	Pass
BB - Location for waist circumference	mm	226.1 to 231.1	229.0	Pass
Overall Test Results				Pass

Laboratory Technician

Approved By

January 19, 1998

Test Date

Date

APPENDIX F
VEHICLE OWNER'S MANUAL
OCCUPANT RESTRAINT INSTRUCTIONS

12 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

the power door locks are inadvertently locked while the driver door is open with the key in the ignition or the headlights are on.

General Information

NOTE: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

If your remote control fails to operate from a normal distance, check for these two conditions.

1. Weak batteries in transmitter. The expected life of batteries is from one to two years.

2. Closeness to a radio transmitter, and some mobile or CB radios.

Battery Replacement

The recommended replacement battery is Duracel DL 2016 or equivalent.

1. With the transmitter buttons facing down, use a flat blade to pry the two halves of the transmitter apart. Make sure not to damage the rubber gasket during removal.

2. Remove and replace the batteries. Avoid touching the new batteries with your fingers. Skin oils may cause battery deterioration. If you touch a battery, clean it with rubbing alcohol.

3. To assemble the transmitter case snap the two halves together.

OCCUPANT RESTRAINTS

One of the most important safety features in your vehicle is the restraint system. This system includes the front and rear seat belts. Your seat belts can also be used to hold infant and child restraint systems if you will be carrying children too small for adult-size belts.

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

THINGS TO KNOW BEFORE STARTING YOUR VEHICLE 1

WARNING!

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

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

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

Unibelts

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

2

WARNING!

It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a collision, people riding in these areas are more likely to be seriously injured or killed.

Do not allow people to ride in any area of your vehicle that is not equipped with seats and seat belts.

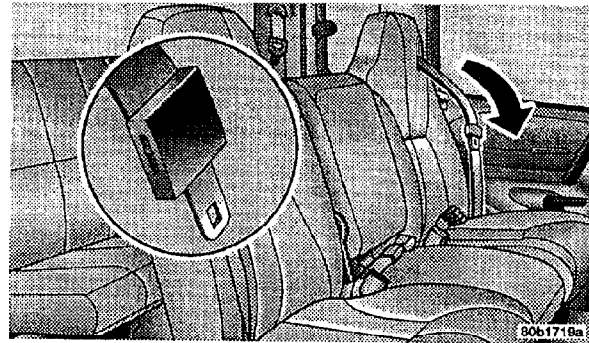
Be sure everyone in your vehicle is in a seat and using a seat belt properly.

WARNING!

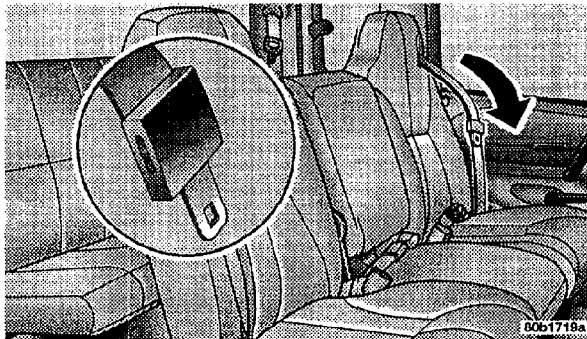
Wearing a seat belt incorrectly is dangerous. Seat belts are designed to go around the large bones of your body. These are the strongest parts of your body and can take the forces of a collision the best. Wearing your belt in the wrong place could make your injuries in a collision much worse. You might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

Unibelt Operating Instructions

1. Enter the vehicle and close the door. Sit back and adjust the seat.
2. The latch plate of the belt is above the back of your seat. Grasp the latch plate and pull out the belt. Slide the latch plate up the webbing as far as necessary to make the belt go around your lap.



3. When the belt is long enough to fit, insert the latch plate into the buckle until you hear a "click".

**WARNING!**

- A belt buckled into the wrong buckle will not protect you properly. The lap portion could ride too high on your body, possibly causing internal injuries. Always buckle your belt into the buckle nearest you.
- A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your seat belt snugly.
- A shoulder belt worn under your arm is very dangerous. Your body could fall into the inside surfaces of the vehicle in a collision, increasing head and neck injury. And a belt worn under the arm can cause internal injuries. Ribs aren't as strong as shoulder bones. Wear the belt over your shoulder so that your strongest bones will take the force in a collision.

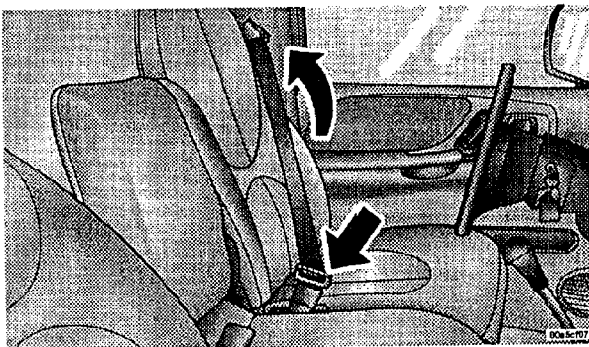
2

4. Position the lap belt across your thigh, below your abdomen. If you need the lap portion tighter, pull up a bit

on the shoulder part, as shown. A snug belt reduces the risk of sliding under the belt in a collision.

WARNING!

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



WARNING!

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

- To release the belt, push the red button marked "Press" on the buckle. The belt will automatically retract to its stowed position.

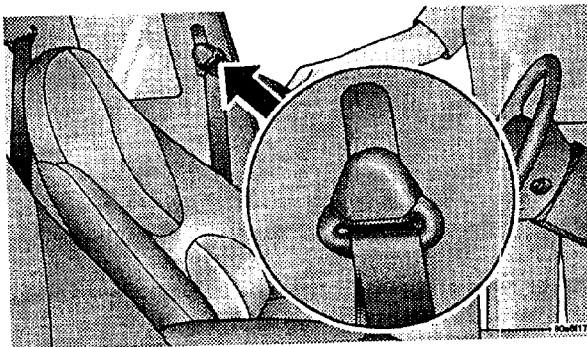
If necessary slide the latch plate down the webbing to allow the belt to retract fully.

WARNING!

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

Adjustable Upper Shoulder Belt Anchorage

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



2

As a guide, if you are shorter than average, you will prefer a lower position, and if you are taller than average, you'll prefer a higher position. When you release the anchorage, try to move it up or down to make sure that it is locked in position.

Front Center Lap Belts

The center seating positions have a lap belt only.

To fasten the lap belt, slip the latch plate into the buckle.

To lengthen the lap belt, tilt the latch plate and pull. To shorten the belt, pull the loose end of the webbing.

Wear the lap belt snug against the hips. Sit back and erect in the seat, then adjust the belt as tightly as is comfortable.

WARNING!

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

WARNING!

Belting two people into one seat belt can lead to greater injury. People belted together can crash into one another in an accident, hurting one another badly. Never use a belt for more than one person, no matter what their size.

Seat Belts and Pregnant Women

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

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

Seat Belt Extender

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

WARNING!

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

Child Restraint

When we say that everyone in your vehicle needs to be buckled up all the time, we mean babies and children too.

WARNING!

In a collision, an unrestrained child, even a tiny baby, can become a missile inside the vehicle. The force required to hold even an infant on your lap can become so great that you could not hold the child, no matter how strong you are. The child and others could be badly injured. Any child riding in your vehicle should be in a proper restraint for the child's size.

Every state in the United States and all Canadian provinces require small children to ride in proper restraint systems. This is the law, and you can be prosecuted for ignoring it.

Infants and Small Children

There are different sizes and types of restraints for children from newborn size to the bigger child almost large enough for an adult safety belt. Use the restraint that is correct for your child.

Two different child restraint systems are generally available.

- The infant carrier for babies weighing up to 20 lbs. (9 kg.)
- The child seat for small children over 20 lbs.

In addition, some manufacturers make systems that can be used first as an infant carrier, and then converted to a child seat as the child grows.

Here are some tips on getting the most out of your child restraint:

- Before buying any restraint system, make sure that it has a label certifying that it meets Motor Vehicle Safety Standard 213. We also recommend that before you buy a child restraint, you try it in the vehicle in the seats where you will use it.
- The restraint must be appropriate for your child's weight and height. Check the label on the restraint for this, too.
- If possible, install the restraint in the rear seat. According to accident statistics, children are safer when properly restrained in the rear seats rather than in the front.

- Carefully follow the instructions that come with the restraint. If you install the restraint improperly it may not work when you need it.

WARNING!

- **Improper installation can lead to failure of an infant or child restraint. It could come loose in a collision. The child could be badly injured or killed. Follow the manufacturer's directions exactly when installing an infant or child restraint.**

- Infant and child restraints are secured in vehicle seats by the lap belt or the lap part of the lap/shoulder belt.

In the rear seat, you may have trouble tightening the belt on the child restraint because the buckle or latch plate interferes with the belt path opening on the restraint. Disconnect the latch plate from the buckle and twist the buckle several turns to shorten it. Reassemble the latch plate to the buckle with the release button turned so that it is facing out.

In the front center seat, if the belt still can't be tightened or if pulling and pushing on the restraint loosens that belt, you may need to do something more. Disconnect the latch plate from the buckle, turn it over, and reconnect it to the buckle. If you still can't make the child restraint secure, try a different seating position.

- Buckle the child into the seat exactly as the seat manufacturer's directions tell you. The cinching latch plate will keep the belt tight.
- When your infant carrier or child seat is not in use, secure it with the seat belt or remove it from the vehicle. Don't leave it loose in the vehicle. In a sudden stop or collision it could strike occupants and injure them.

Children Too Large for Child Seats

Children who are too large for child seats and who can sit upright by themselves should use the available lap/shoulder belts for best protection.

- Make sure that the child is seated upright in the seat.
- The lap belt should be fastened low on the hips and as snug as possible.

- Check belt fit periodically. A child's squirming or slouching can move the belt out of position.

If the shoulder belt contacts the face or neck, move the child closer to the middle of the vehicle. If this doesn't solve the problem, move the child to the front center seat and use the lap belt.

Booster seats that may help overcome this problem are also available for use with lap/shoulder belts. Before buying a booster seat, make sure it has a label certifying that it meets applicable Motor Vehicle Safety Standards. Make sure it is satisfactory for use in this vehicle.

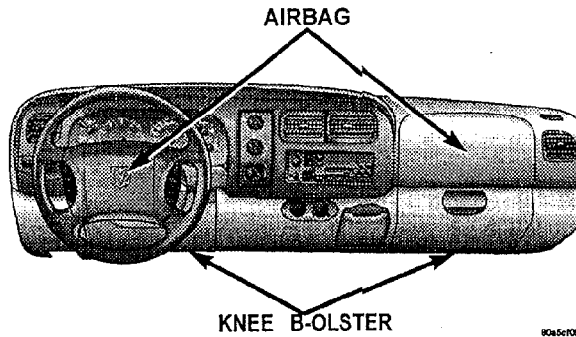
Driver And Right Front Passenger Supplemental Restraint System-Airbag

This airbag is certified to the new Federal regulations that allow less forceful airbags.

This vehicle has air bags for the driver and the right front passenger as a supplement to the seat belt restraint system. The driver's air bag is mounted in the steering wheel. The passenger side air bag is mounted in the instrument panel, above the glove compartment. These air bags inflate in higher speed impacts. They work with

22 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

the instrument panel knee bolsters and the seat belts to provide improved protection for the driver and right front passenger.



WARNING!

- Relying on the air bags alone could lead to more severe injuries. Wear your seat belt even though you have an air bag.
- Ignoring the AIR BAG light in your instrument panel could mean you won't have the air bags to protect you in a collision. If the light does not come on, stays on more than 6 to 8 seconds after you start the vehicle, or if it comes on as you drive, have the air bag system checked right away.
- The seat belt is designed to protect you in many types of collisions. The air bags deploy only in frontal collisions. And will not deploy in collisions at slow speed. But even in collisions where the air bags do work, you need the seat belt to keep you in the right position for the air bags to protect you properly.

Here are four simple steps you can take to minimize the risk of harm from a deploying airbag.

THINGS TO KNOW BEFORE STARTING YOUR VEHICLE 2

1. Infants in rear facing child safety seats designed for children up to one year or 20 pounds (9 kg) should **NEVER** ride in the front seat of a vehicle with a passenger side airbag unless the airbag is turned OFF. See "Passenger Side Airbag Shut-Off Switch". An airbag deployment can cause severe injury or death to infants in this position.

Children up to 60 pounds (27 kg) should be secured in child safety seats or booster seats.

Older children who do not use child safety seats or booster seats should ride properly buckled.

Never allow children to slide the shoulder belt behind them or under the arm.

If your vehicle does not have a rear seat:

Infants up to 1 year or 20 pounds (9 kg) should never ride in the vehicle, because the rear facing child seat places them too close to the passenger air bag in the event of a crash.

Children from 1 to 12 years old: Move the passenger seat as far back as possible. Children from 20 to 60 pounds (9

kg to 27 kg) should be secured in the appropriate child safety seat or booster seat. If the booster seat does not have a front shield, the child should be seated outboard to take advantage of the added safety of the lap and shoulder belt. If too large for a booster seat, the child should wear the lap/ shoulder belt properly. **Children should never be allowed to lean forward toward the instrument panel(dashboard) as a passenger air bag deployment could cause severe injury or death to a child in this position.**

All occupants should wear their lap and shoulder belts properly.

The driver and front passenger seats should be moved back as far as practical to allow the airbags room to inflate.

You should read the instructions provided with your child safety or booster seat to make sure that you are using it properly.

Airbag System Components

The air bag system consists of the following:

24 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

- Crash Sensor Control Module
- AIR BAG Light
- Air bag/ Inflator Units
- Unique Steering Wheel and Column
- Interconnecting Wiring
- Knee Impact Bolsters
- Passenger Side Air bag Shut-Off Switch

How The Air bag System Works

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

- The Air bag/Inflator Unit is in the center of the steering wheel and in the instrument panel. When the Control Module detects an impact requiring the air bag, they signal the inflator unit. A large quantity of non-toxic nitrogen gas is generated to inflate the air bag. The steering wheel hub trim cover separates and folds out of the way as the bag inflates to its full size. The bag fully inflates in about 50 milliseconds. This is about half of the time it takes to blink your eyes. It then quickly deflates by venting the nitrogen gas through holes in the air bag toward the instrument panel. In this way the bag does not interfere with your control of the vehicle.

Passenger Side Air Bag Shut-Off Switch

The shut-off switch is to be used only when a rear-facing infant restraint is used in the right front passenger position. If the airbag is turned off when there is any other occupant at that position, the supplement restraint provided by the air bag will not be available.

To turn OFF the passenger side AIR BAG use the shut-off switch located on the instrument panel.

THINGS TO KNOW BEFORE STARTING YOUR VEHICLE 2

Turn the key actuator of the shut-off switch from the horizontal position to a slanted position (pointing to the airbag "OFF" indicator light).

Remove the key completely from the switch. Make sure that the switch actuator hole stays in the new position (45° clockwise from horizontal).

When the IGNITION switch is ON, the above procedure will illuminate the airbag "OFF" light indicator located to the near left side of the key actuated switch. To turn on the Passenger side Air bag, reverse the procedures above so that the key switch actuator is in a horizontal position. If the key switch actuator is rotated to the horizontal position while the IGNITION switch is ON, the Airbag "OFF" light indicator will also turn OFF.

WARNING!

Air bag may malfunction and serious injury could result if key is left in the switch. Always remove the key.

If A Deployment Occurs

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

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

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

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

The abrasions are similar to friction rope burns or those you might get sliding along a carpet or gymnasium floor. They are not caused by contact with chemicals. They are not permanent and normally heal quickly. However, if you haven't healed significantly within a few days, or if you have any blistering, see your doctor immediately.

26 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

- As the air bags deflate you may see some smoke-like particles. The particles are a normal by-product of the process that generates the non-toxic nitrogen gas used for air bag inflation. These airborne particles may irritate the skin, eyes, nose, or throat. If you have skin or eye irritation, rinse the area with cool water. For nose or throat irritation, move to fresh air. If the irritation continues, see your doctor.

If these particles settle on your clothing, follow the garment manufacturer's instructions for cleaning.

- Your vehicle may be safely drivable after the air bags deploy. If so, you can tuck the deployed air bags inside the opening in the steering wheel hub trim cover to make driving somewhat easier. You may tuck the passenger side air bag under the trim cover in the right side of the instrument panel.

WARNING!

- **Do not put anything on or around the air bag covers or attempt to manually open them.** You may damage the air bags and you could be injured because the air bags are not there to protect you. The protective covers for the air bag cushions are designed to open only when the air bags are inflating.
- **Being too close to the steering wheel or instrument panel during air bag deployment could cause serious injury.** Air bags need room to inflate. Sit back, comfortably extending your arms to reach the steering wheel or instrument panel.
- **A deployed air bag can't protect you in another collision.** Have the air bags replaced by an authorized dealer as soon as possible.

Enhanced Accident Response System

If the air bags deploy after an impact and the electrical system remains functional, vehicles equipped with power door locks will unlock automatically. In addition after the vehicle has stopped moving for approximately

10 seconds, the interior lights will illuminate until the ignition switch is turned off.

Maintaining Your Air bag System

WARNING!

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

THINGS TO KNOW BEFORE STARTING YOUR VEHICLE 21

Air bag Light

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

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

NOTE: If the Speedometer, Tachometer and Engine Gauges are not working the Air bag Module may also be disabled. The air bag may not be ready to inflate for your protection. Promptly check fuse numbers **18** and **19** in the fuse block. See your dealer if the fuse is good.