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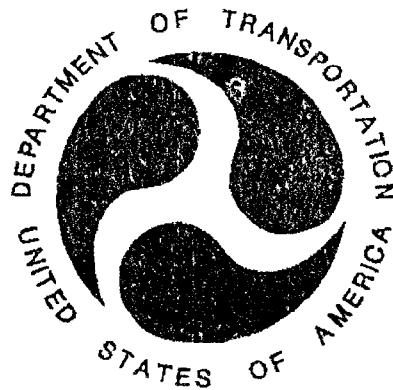
REPORT NO. KAR-98-16

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

FRONTAL BARRIER 40% OFFSET IMPACT TEST

CHRYSLER CORPORATION  
1998 DODGE NEON 4-DOOR  
NHTSA NO. MW0310

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



AUGUST 17, 1998  
FINAL REPORT

PREPARED FOR:  
U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
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OFFICE OF CRASHWORTHINESS STANDARDS  
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400 SEVENTH STREET, SW, ROOM 5313  
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Prepared by: James E Gorth Date: AUGUST 17, 1998

Mr. James E. Gorth, Project Engineer  
KARCO Engineering

Reviewed by: Jerry L Kratzke Date: AUGUST 17, 1998

Mr. Jerry L. Kratzke, Director of Operations  
KARCO Engineering

Approved by: Frank D Richardson Date: AUGUST 17, 1998

Mr. Frank D. Richardson, Program Manager  
KARCO Engineering

FINAL REPORT ACCEPTED BY:

\_\_\_\_\_  
Manager, New Car Assessment Program

\_\_\_\_\_  
Date of Acceptance

\_\_\_\_\_  
COTR, NCAP Frontal Impact Program

\_\_\_\_\_  
Date of Acceptance

Technical Report Documentation Page

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| 4. <i>Title and Subtitle</i><br>Final Report of Frontal Barrier 40% Offset Impact Test<br>Testing of a 1998 Dodge Neon 4-Door<br>NHTSA No. MW0310   |   | 5. <i>Report Date</i><br>AUGUST 17, 1998  | 6. <i>Performing Organization Code</i><br>KARCO       |                        |                        |                     |                        |                            |      |       |       |                                  |        |      |      |                  |         |         |         |                   |         |         |         |
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| 15. <i>Supplementary Notes</i>  |   |   |   |                        |                        |                     |                        |                            |      |       |       |                                  |        |      |      |                  |         |         |         |                   |         |         |         |
| 16. <i>Abstract</i><br><br>A 60.3 km/h (37.5 MPH) frontal barrier 40% offset impact test was conducted on a 1998 Dodge Neon 4-Door at KARCO Engineering on July 3, 1998. This test was conducted to obtain data indicant of FMVSS 212, 219 (partial), 301 and footwell intrusion performance. The impact velocity was 60.25 km/h. The ambient temperature at the barrier face at the time of impact was 31.6°C. The vehicle's maximum post-test static crush was 835 mm, located left side 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.<br><br>With respect to "Occupant Crash Protection – Injury Criteria" the occupant injury response data summary is as follows:<br><br><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>280.8</td> <td>307.2</td> </tr> <tr> <td>Chest Resultant Peak 3 msec clip</td> <td>60 G's</td> <td>37.4</td> <td>35.8</td> </tr> <tr> <td>Left Femur Force</td> <td>10009 N</td> <td>-7266.1</td> <td>-4074.0</td> </tr> <tr> <td>Right Femur Force</td> <td>10009 N</td> <td>-3946.3</td> <td>-1864.6</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 | 280.8 | 307.2 | Chest Resultant Peak 3 msec clip | 60 G's | 37.4 | 35.8 | Left Femur Force | 10009 N | -7266.1 | -4074.0 | Right Femur Force | 10009 N | -3946.3 | -1864.6 |
| <u>Injury Criteria</u>  | <u>Threshold Value</u>  | <u>Driver Dummy</u>   | <u>Passenger Dummy</u>                                |                        |                        |                     |                        |                            |      |       |       |                                  |        |      |      |                  |         |         |         |                   |         |         |         |
| Head Injury Criteria (HIC)  | 1000  | 280.8   | 307.2   |                        |                        |                     |                        |                            |      |       |       |                                  |        |      |      |                  |         |         |         |                   |         |         |         |
| Chest Resultant Peak 3 msec clip  | 60 G's  | 37.4  | 35.8  |                        |                        |                     |                        |                            |      |       |       |                                  |        |      |      |                  |         |         |         |                   |         |         |         |
| Left Femur Force  | 10009 N   | -7266.1   | -4074.0   |                        |                        |                     |                        |                            |      |       |       |                                  |        |      |      |                  |         |         |         |                   |         |         |         |
| Right Femur Force   | 10009 N   | -3946.3   | -1864.6   |                        |                        |                     |                        |                            |      |       |       |                                  |        |      |      |                  |         |         |         |                   |         |         |         |
| 17. <i>Key Words</i><br>60.3 km/h Frontal Barrier 40% Offset Impact Test<br>1998 Dodge Neon 4-Door NHSTA No. MW0310   |   | 18. <i>Distribution Statement</i><br>Copies of this report are available from:<br>Technical Reference Division<br>National Highway Traffic Safety Admin.<br>Room 5108, Nassif Building<br>400 7th St., SW<br>Washington, DC 20590 |   |                        |                        |                     |                        |                            |      |       |       |                                  |        |      |      |                  |         |         |         |                   |         |         |         |
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## SECTION 1

### PURPOSE, TEST PROCEDURE AND SUMMARY OF TEST MW0310

#### 1.1 PURPOSE

This 37.5 mph (60.3 km/h) frontal barrier impact test is part of the FY' 98 forty percent offset frontal barrier crash worthiness evaluation program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract Number DTNH22-97-D-02007. The purpose of this test was to obtain vehicle crashworthiness, occupant restraint system performance data and lower leg data for frontal barrier impacts with the vehicle impacting a deformable barrier with the vehicle centerline offset on the driver side. The velocity used in this test was in excess of the current 37.5 mph (60.3 km/h) FMVSS 212/219/301 requirements. The test program will be used to develop a standard for driver footwell intrusion data during frontal offset collisions.

#### 1.2 TEST PROCEDURE

This 60.3 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 "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 July 3, 1998, at a speed of 60.25 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 59.5 to 61.1 km/h. The frontal barrier impact event was documented by one (1) real-time panning motion picture camera and sixteen (16) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information is documented in the data sheets. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

The Driver ATD (serial No. 34) and the right-front passenger ATD (serial No. 35) were used in one prior test since their last calibration. Injury criteria were not exceeded by either ATD during this offset frontal barrier impact test.

### 1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

A deformable barrier was mounted to an immovable barrier to simulate the oncoming vehicle. The deformable barrier was impacted by a 1998 Dodge Neon at a velocity of 60.25 km/h. The test vehicle was equipped with a transverse mounted 2.0 liter, four cylinder engine and a three speed automatic transmission. The test weight, with (2) 50<sup>th</sup> percentile male ATDs, was 1356 kg.

The driver's Head Injury Criteria (HIC) was 280.8, the maximum chest deceleration over three (3) milliseconds was 37.4 g and the left and right femur loads were -7266.1 and -3946.3 Newtons, respectively. Chest deflection for the driver ATD was -30.7 mm. The driver ATD head contacted the airbag and headrest, its chest and abdomen contacted the airbag, the left knee contacted the dash knee bolster and steering column, with the right knee contacting the knee bolster.

The right front passenger's HIC was 307.2, maximum chest deceleration over three (3) milliseconds was 35.8 g and the left and right femur loads were -4074.0 and -1864.6 Newtons respectively. Chest deflection for the passenger ATD was -31.0 mm. The passenger ATD head contacted the airbag, headrest, the chest and abdomen contacted the airbag and both knees contacted the glove box.

Seat belt spoolout, measured by on-board pullout potentiometers was 96.0 mm for the driver ATD and 52.0 mm for the passenger ATD. Shoulder belt stretch was 2.0 mm/cm for the driver ATD and 0.0 mm/cm for the passenger ATD.

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 835 mm at the left side of the vehicle. Both the driver side and the passenger side doors opened without the aid of tools.

### 1.4 GENERAL COMMENTS

The 1998 Dodge Neon 4-Door 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 Deformable Barrier information. Appendix D contains the instrumentation data channel assignments. Appendix E contains the dummy calibration data and Appendix F contains the owner's manual instructions for the occupant restraint systems.

**SECTION 2.**

**OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS**

Test Vehicle: 1998 Dodge Neon 4-Door Sedan NHTSA No.: MW0310  
Test Program: 1998 37.5 MPH OFFSET W/50TH MALE Test Date: 7/3/98

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 Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

**VEHICLE REBOUND AND STATIC CRUSH; REBOUND ANGLE = 68°**

| Measurements in mm     | Left | Center | Right |
|------------------------|------|--------|-------|
| Pre-test Measurements  | 4196 | 4362   | 4185  |
| Post-test Measurements | 3554 | 3930   | 4173  |
| Static Crush           | -642 | -32    | -12   |
|                        |      |        |       |

**DOOR OPENING AND SEAT TRACK INFORMATION**

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

**DUMMY INFORMATION:**

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

**DATA SHEET NO. 2**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

|                             |                          |                        |                   |
|-----------------------------|--------------------------|------------------------|-------------------|
| TEST VEHICLE INFORMATION    |                          |                        |                   |
| Manufacturer                | CHRYSLER CORPORATION     | VIN                    | 1B3E547C6WD621284 |
| Manufacturing Date          | 1/98                     | Delivery Date          | 6/4/98            |
| Dealer                      | ONTARIO DODGE/ISUZU      | NHTSA NO.              | MW0310            |
| Odometer Reading            | 71.0 mi.                 | Fuel Type              | UNLEADED          |
| Engine Displacement         | 2.0 Liters               | Cylinders              | 4                 |
| Transmission                | AUTOMATIC                | Final Drive            | FRONT             |
| Engine Placement            | TRANSVERSE               | Color                  | BRIGHT WHITE      |
| Tire Press./Max. Cap. Front | 220 kPa                  | Cold Tire Press. Front | 220 kpa           |
| Tire Press./Max. Cap. Rear  | 220 kPa                  | Cold Tire Press. Rear  | 220 kPa           |
| Recommend Tire Size         | P175/70R14 or P185/65R14 | Type of Spare          | TEMPORARY         |
| Tire Size on Vehicle        | P185/65R14               | Manufacturer           | GOODYEAR          |
| GVWR                        | 1590 kg                  | Cargo Capacity         | 52 kg             |
| GAWR Front                  | 884 kg                   | GAWR Rear              | 728 kg            |
| Air Conditioning            | YES                      | Power Steering         | YES               |
| Power Brakes                | YES                      | AM/FM/Cassette         | AM/FM ONLY        |
| Disc Brakes (Front)         | YES                      | Disc Brakes (Rear)     | NO                |
| Power Windows               | NO                       | Tilt Steering          | NO                |
| Anti-lock Brakes (ABS)      | NO                       | Power Seats            | NO                |
| Driver Airbag               | YES                      | Passenger Airbag       | NO                |

VEHICLE CAPACITY DATA:

TYPE OF FRONT SEATS BUCKET SEATS

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

WEIGHT OF VEHICLE AS RECEIVED AT KARCO (with maximum fluids): 1160 kg

**Data Sheet No. 2... (Continued)**

**VEHICLE CAPACITY WEIGHT (kg):**  
 Vehicle Capacity Weight 392 kg  
 Occupant Weight 340 kg  
 Rated Cargo/Luggage Weight (RCLW) 52 kg

|                  | FRONT | REAR | TOTAL |
|------------------|-------|------|-------|
| Right            | 366   | 205  | 571   |
| Left             | 382   | 207  | 589   |
| Total            | 748   | 412  | 1160  |
| Percent of Total | 64.5  | 35.5 | 100%  |

**CALCULATION OF TEST TARGET WEIGHT (kg):**

Total Delivered Weight 1160 kg  
 RCLW 52 kg  
 Weight of 2 P572 ATDs 152 kg  
**TARGET TEST WEIGHT 1364 kg**

**TEST WEIGHT OF VEHICLE WITH 2 ATDs AND BALLAST**

|                  | FRONT | REAR | TOTAL |
|------------------|-------|------|-------|
| Right            | 404   | 268  | 672   |
| Left             | 418   | 266  | 684   |
| Total            | 822   | 534  | 1356  |
| Percent of Total | 60.6  | 39.4 | 100%  |

Weight of Ballast secured in cargo area: 13 kg Does not include cameras, instrumentation, and brake abort system.

**Vehicle Components Removed For Weight Reduction:** Side mirrors, jack, tools, spare tire and paneling.

**TEST VEHICLE ATTITUDE (mm)**

|              | LF  | RF  | LR  | RR  |
|--------------|-----|-----|-----|-----|
| As Delivered | 657 | 647 | 679 | 684 |
| As Tested    | 620 | 615 | 650 | 650 |

Vehicle Wheelbase: 2645 mm

**FUEL SYSTEM DATA:**

Fuel System Capacity From Owner's Manual = 47.32 liters

Usable Capacity Figure Furnished by COTR = 47.32 liters

Test Volume Range (92 to 94% of Usable Capacity) = 43.53 to 44.48 liters

ACTUAL TEST VOLUME = 43.91 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: Key operated w/automatic shutoff.

**DATA SHEET NO. 3**

**POST IMPACT DATA**

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

REQUIRED IMPACT VELOCITY RANGE: 59.5 km/h to 61.1 km/h

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

Trap No. 1 = 60.25 km/h      Trap No. 2 = 60.23 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)  | 4196 | 4362   | 4185  |
| Post-test Measurements (mm) | 3554 | 3930   | 4173  |
| Static Crush (mm)           | -642 | -332   | -12   |
| Average                     | -329 |        |       |

VEHICLE REBOUND: (from rigid barrier with rotational movement) = 68°

| Measurements in mm     | Left Front | Right Front | Left Rear | Right Rear |
|------------------------|------------|-------------|-----------|------------|
| Vehicle Rebound X axis | 2805       | 1245        | 4070      | 2700       |
| Vehicle Rebound Y axis | 1245       | 1784        | 3130      | 4090       |
| Average X axis         | 2705       |             |           |            |
| Average Y axis         | 2562       |             |           |            |

DATA SHEET NO. 4

TEST VEHICLE INFORMATION

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

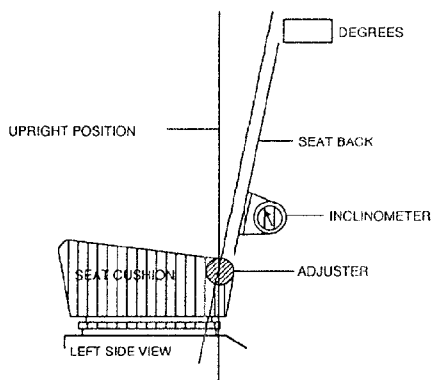
Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

1. NOMINAL DESIGN RIDING POSITION -

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

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 = 18°**



FRONT SEAT ASSEMBLY

Measurement Instructions: A special application tool with pointed probes was inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly approximately 13 inches above the pivot point of the seat back. The inclinometer was placed against the flat surface of the tool and the seat back angle was measured directly from the dial face. For reference purposes the first detent from the front of the seat was identified as number "1".  
**Seat back angle for passenger's seat = 18°**

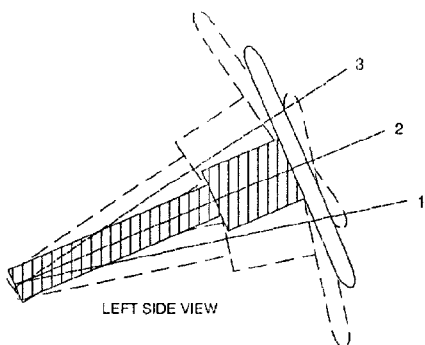
2. SEAT FORE & AFT POSITIONS:

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 12<sup>th</sup> detent from the front.

Positioning of the passenger's seat (if applicable): 23 seating positions, set to 12<sup>th</sup> detent from the front.

3. STEERING COLUMN ADJUSTMENTS:



STEERING COLUMN ASSEMBLY

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions:

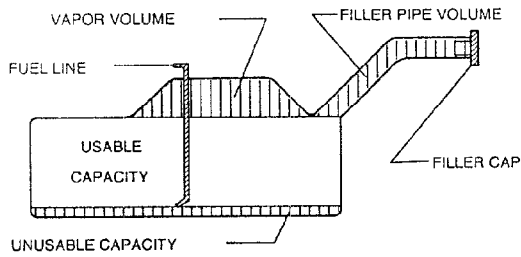
- Position No. 1 is at n/a°
- Position No. 2 is at 22°
- Position No. 3 is at n/a°

4. SEAT BELT UPPER ANCHORAGE:

Highest position, per manufacturers specifications.

DATA SHEET NO. 4 (continued)

5. FUEL TANK CAPACITY DATA



VEHICLE FUEL TANK ASSEMBLY

Operational Instructions:

5.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 43.91 liters

5.3 Is vehicle equipped with electric fuel pump?

Yes X No     

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

Key operated w/automatic shutoff.

5.1 A. "Usable Capacity" of standard equipment fuel tank = 47.32 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 = 43.53 to 44.48 liters.

# DATA SHEET NO. 5

## DUMMY POSITIONING IN VEHICLE

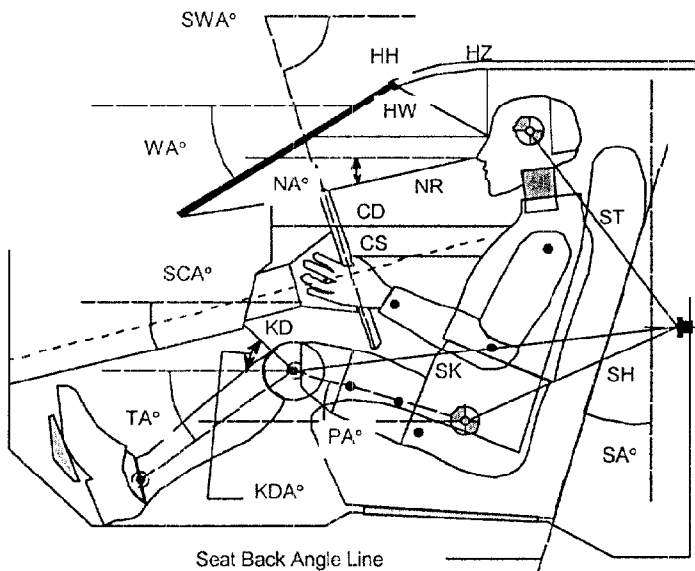
Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

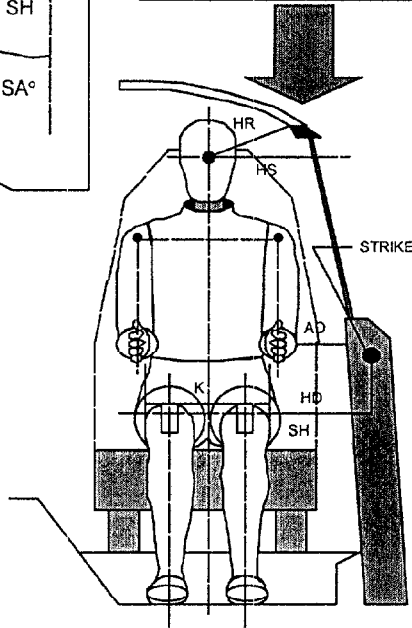
Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

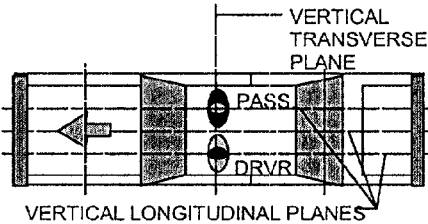
### DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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



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



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

FRONT SEAT MEASUREMENT TABLE

|      | DRIVER (Serial No. <u>34</u> ) |           | PASS. (Serial No. <u>35</u> ) |           |
|------|--------------------------------|-----------|-------------------------------|-----------|
|      | DISTANCE (mm)                  | ANGLE (°) | DISTANCE (mm)                 | ANGLE (°) |
| WA°  |                                | 27        |                               |           |
| SWA° |                                | 68        |                               |           |
| SCA° |                                | 2         |                               |           |
| SA°  |                                | 18        |                               | 18        |
| HZ   | 215                            | 90        | 200                           | 90        |
| HH   | 290                            | 0         | 285                           | 0         |
| HW   | 575                            | 0         | 568                           | 0         |
| HR   | 220                            |           | 211                           |           |
| NR   | 352                            | 0         |                               |           |
| CD   | 520                            |           | 433                           |           |
| CS   | 248                            | 0         |                               |           |
| RA   | 152                            | 0         |                               |           |
| KDL  | 140                            | 26        | 120                           |           |
| KDR  | 121                            |           | 120                           | 35        |
| PA°  |                                | 23        |                               | 24        |
| TA°  |                                | 36        |                               | 38        |
| KK   | 250                            |           | 230                           |           |
| ST   | 530                            | 10        | 560                           | 13        |
| SH   | 195                            | 0         | 205                           | 0         |
| SHY  | 212                            |           | 222                           |           |
| HS   | 285                            |           | 280                           |           |
| HD   | 180                            |           | 182                           |           |
| AD   | 65                             |           | 106                           |           |

**DATA SHEET NO. 6**

**SEAT BELT POSITIONING DATA**

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

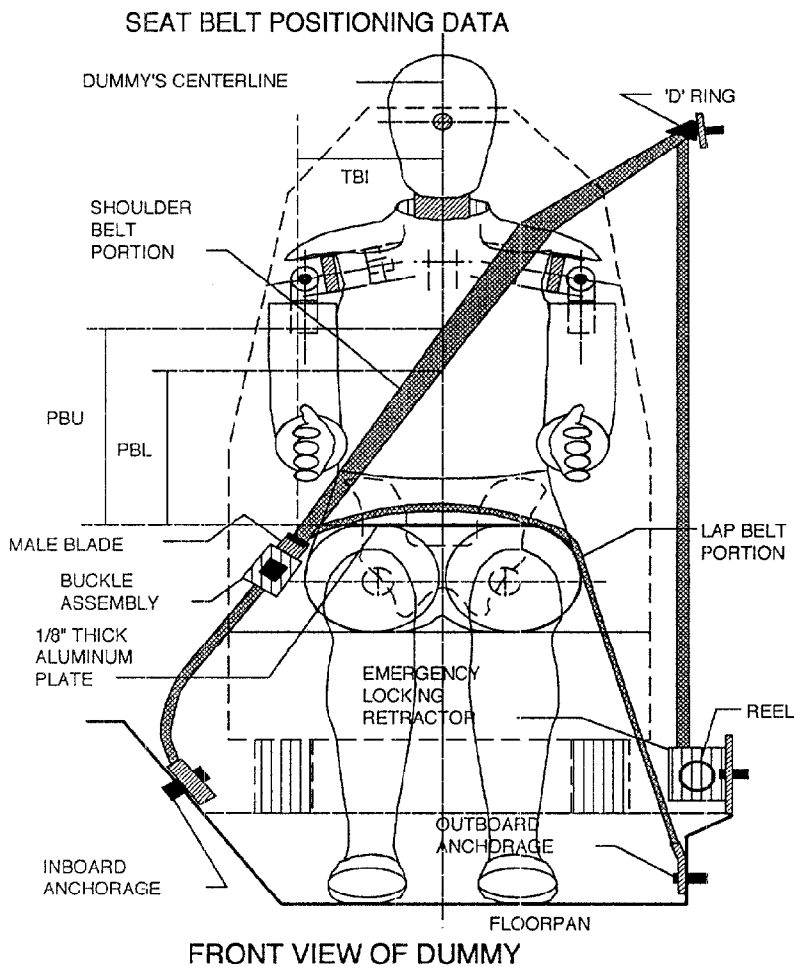
NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

**SEAT BELT PLACEMENT MEASUREMENTS**

| Measurement Description                           | Units   | Driver    | Passenger |
|---|---------|-----------|-----------|
| TCI - Dummy centerline to shoulder bolt           | mm      | 175       | 175       |
| PBU - Top surface of reference to belt upper edge | mm      | 260       | 260       |
| PBL - Top surface of reference to belt lower edge | mm      | 180       | 300       |
| Lap Belt tension                                  | Newtons | 10        | 10        |
| Shoulder Belt tension                             | N/A     | Retractor | Retractor |



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

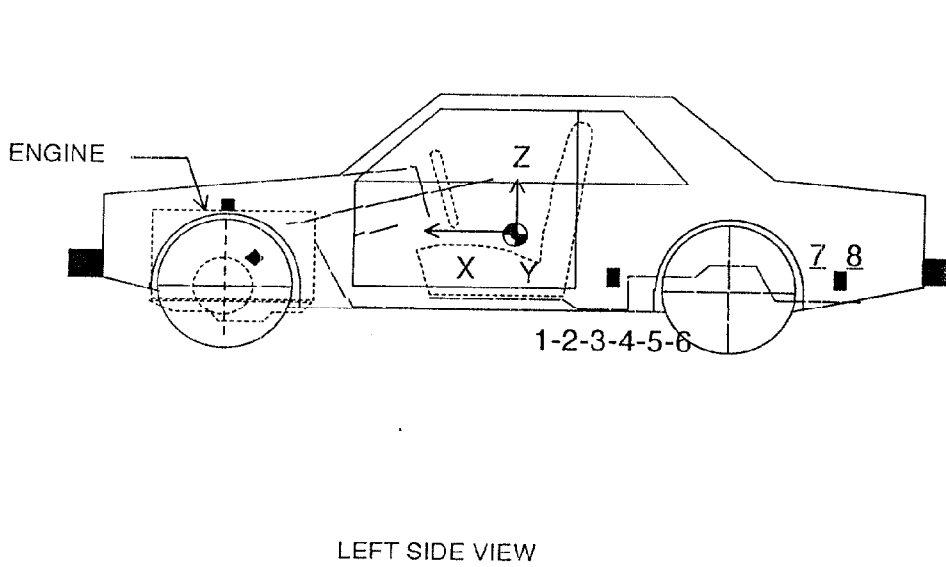
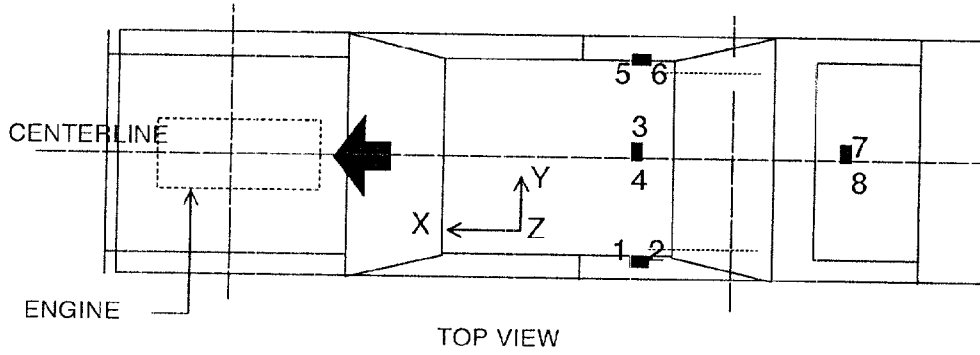
TEST VEHICLE: 1998 DODGE NEON 4 DOOR SEDAN NHTSA No.: MW0310  
 TEST PROGRAM: 1998 37.5MPH OFFSET W/50TH MALE TEST DATE: 7/3/98

**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 Sill X            | 1453              | -661 | 332 | G's         | 1.8 | 152.9 | -33.9 | 77.0 |
| 2   | Left Sill Y            | 1583              | -661 | 332 | G's         | 9.8 | 94.5  | -23.9 | 86.2 |
| 3   | Center Tunnel X        | 1776              | 0    | 248 | G's         | 2.4 | 173.7 | -30.7 | 86.9 |
| 4   | Center Tunnel Y        | 1820              | 0    | 248 | G's         | 7.5 | 114.1 | -15.6 | 86.5 |
| 5   | Right Sill X           | 1403              | 635  | 334 | G's         | 2.0 | 250.9 | -25.1 | 42.2 |
| 6   | Right Sill Y           | 1488              | 640  | 334 | G's         | 5.4 | 113.4 | -12.5 | 87.6 |
| 7   | Trunk X                | 351               | -45  | 405 | G's         | 2.5 | 223.6 | -31.8 | 93.5 |
| 8   | Trunk Y                | 351               | 40   | 405 | G's         | 7.9 | 88.8  | -13.5 | 83.7 |

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

# VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



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

TEST VEHICLE: 1998 DODGE NEON 4 DOOR SEDAN NHTSA No.: MW0310  
 TEST PROGRAM: 1998 37.5MPH OFFSET W/50TH MALE TEST DATE: 7/3/98

**HEAD PRIMARY PEAK ACCELERATIONS**

| Location          | Axis | Units | Driver |       |       |       | Passenger |      |       |       |
|-------------------|------|-------|--------|-------|-------|-------|-----------|------|-------|-------|
|                   |      |       | Max    | Time  | Min   | Time  | Max       | Time | Min   | Time  |
| Head CG           | X    | G's   | 9.3    | 145.3 | -36.7 | 89.7  | 4.5       | 57.4 | -44.0 | 96.0  |
| Head CG           | Y    | G's   | 19.9   | 105.0 | -4.2  | 274.9 | 11.7      | 96.4 | -5.4  | 78.1  |
| Head CG           | Z    | G's   | 29.0   | 65.4  | -15.5 | 124.9 | 24.4      | 87.3 | -3.7  | 176.7 |
| Head CG Resultant | N/A  | G's   | 47.0   | 92.4  |       |       | 49.8      | 96.0 |       |       |

**CHEST PRIMARY PEAK ACCELERATIONS**

| Location           | Axis | Units | Driver |       |       |       | Passenger |       |       |       |
|--------------------|------|-------|--------|-------|-------|-------|-----------|-------|-------|-------|
|                    |      |       | Max    | Time  | Min   | Time  | Max       | Time  | Min   | Time  |
| Chest CG           | X    | G's   | 0.8    | 5.2   | -34.7 | 70.2  | 0.5       | 216.4 | -35.2 | 85.2  |
| Chest CG           | Y    | G's   | 14.9   | 126.6 | -1.3  | 171.5 | 11.4      | 103.4 | -1.5  | 156.5 |
| Chest CG           | Z    | G's   | 18.3   | 136.7 | -22.6 | 98.7  | 4.6       | 175.7 | -9.8  | 90.8  |
| Chest CG Resultant | N/A  | G's   | 38.2   | 82.4  |       |       | 37.0      | 85.1  |       |       |

**FEMUR PEAK FORCES**

| Location    | Axis | Units   | Driver |       |         |      | Passenger |       |         |      |
|-------------|------|---------|--------|-------|---------|------|-----------|-------|---------|------|
|             |      |         | Max    | Time  | Min     | Time | Max       | Time  | Min     | Time |
| Left Femur  | Z    | Newtons | 133.0  | 27.4  | -7266.1 | 97.4 | 170.1     | 284.8 | -4074.0 | 92.1 |
| Right Femur | Z    | Newtons | 146.4  | 107.7 | -3946.3 | 66.8 | 235.6     | 51.1  | -1864.6 | 69.7 |

**SEAT BELT SENSOR PEAK VALUES**

| Location               | Axis | Units   | Driver |       |        |      | Passenger |      |       |      |
|------------------------|------|---------|--------|-------|--------|------|-----------|------|-------|------|
|                        |      |         | Max    | Time  | Min    | Time | Max       | Time | Min   | Time |
| Lap Belt Force         | N/A  | Newtons | 3309.4 | 58.0  | -142.7 | 63.7 | 4526.9    | 80.4 | 4.2   | 0.0  |
| Shoulder Belt Force    | N/A  | Newtons | 2767.2 | 85.4  | 3.3    | 3.1  | 6572.8    | 89.2 | 4.3   | 0.0  |
| Shoulder Belt Spoolout | N/A  | MM      | 72.7   | 104.6 | 0.1    | 0.0  | 102.9     | 99.6 | -0.1  | 0.0  |
| Shoulder Belt Stretch  | N/A  | MM/CM   | 0.000  | 0.0   | 0.000  | 0.0  | 0.000     | 0.0  | 0.000 | 0.0  |

**HEAD INJURY CRITERIA (HIC)**

| Location        | Driver |         |                |                | Passenger |         |                |                |
|-----------------|--------|---------|----------------|----------------|-----------|---------|----------------|----------------|
|                 | HIC    | Avg G's | T <sup>1</sup> | T <sup>2</sup> | HIC       | Avg G's | T <sup>1</sup> | T <sup>2</sup> |
| Head CG Primary | 280.8  | 36.1    | 70.7           | 106.6          | 307.2     | 37.4    | 77.6           | 113.5          |

**CHEST CLIP (3MSEC)**

| Location         | Driver |                |                | Passenger |                |                |
|------------------|--------|----------------|----------------|-----------|----------------|----------------|
|                  | CLIP   | T <sup>1</sup> | T <sup>2</sup> | CLIP      | T <sup>1</sup> | T <sup>2</sup> |
| Chest CG Primary | 37.4   | 81.4           | 84.4           | 35.8      | 84.5           | 87.5           |

**DATA SHEET NO. 8...(continued)**

TEST VEHICLE: 1998 DODGE NEON 4 DOOR SEDAN NHTSA No.: MW0310  
 TEST PROGRAM: 1998 37.5MPH OFFSET W/50TH MALE TEST DATE: 7/3/98

**PELVIC PEAK ACCELERATIONS**

| Location | Axis | Units | Driver |       |       |       | Passenger |       |       |       |
|----------|------|-------|--------|-------|-------|-------|-----------|-------|-------|-------|
|          |      |       | Max    | Time  | Min   | Time  | Max       | Time  | Min   | Time  |
| Pelvis   | X    | G's   | 4.5    | 132.5 | -49.4 | 64.6  | 3.8       | 166.4 | -34.0 | 70.5  |
| Pelvis   | Y    | G's   | 19.2   | 116.7 | -8.3  | 65.4  | 15.3      | 88.9  | -7.9  | 159.9 |
| Pelvis   | Z    | G's   | 4.4    | 97.0  | -18.0 | 134.2 | 3.9       | 273.2 | -15.7 | 83.9  |

**UPPER NECK PEAK FORCES AND MOMENTS**

| Location    | Axis | Units   | Driver |       |        |       | Passenger |       |        |       |
|-------------|------|---------|--------|-------|--------|-------|-----------|-------|--------|-------|
|             |      |         | Max    | Time  | Min    | Time  | Max       | Time  | Min    | Time  |
| Neck Force  | X    | Newtons | 192.4  | 195.7 | -739.1 | 74.4  | 335.7     | 171.9 | -600.2 | 95.6  |
| Neck Force  | Y    | Newtons | 472.5  | 183.2 | -262.5 | 120.3 | 296.2     | 173.3 | -95.2  | 261.0 |
| Neck Force  | Z    | Newtons | 1562.2 | 95.5  | -771.5 | 125.0 | 1572.7    | 91.1  | -174.7 | 189.7 |
| Neck Moment | X    | N·m     | 9.5    | 99.1  | -25.6  | 182.0 | 18.8      | 82.3  | -16.3  | 159.3 |
| Neck Moment | Y    | N·m     | 55.5   | 77.2  | -29.3  | 178.6 | 46.7      | 85.2  | -13.7  | 291.7 |
| Neck Moment | Z    | N·m     | 24.9   | 197.7 | -36.9  | 130.5 | 15.3      | 193.8 | -26.9  | 132.0 |

**FOOT PEAK ACCELERATIONS**

| Location        | Axis | Units | Driver |      |       |      | Passenger |       |       |       |
|-----------------|------|-------|--------|------|-------|------|-----------|-------|-------|-------|
|                 |      |       | Max    | Time | Min   | Time | Max       | Time  | Min   | Time  |
| Left Foot Aft   | X    | G's   | 24.5   | 73.3 | -92.4 | 48.5 | 4.0       | 156.6 | -37.6 | 84.1  |
| Left Foot Aft   | Z    | G's   | 30.5   | 53.5 | -78.6 | 47.0 | 20.3      | 110.6 | -27.8 | 76.7  |
| Left Foot Fore  | Z    | G's   | 46.3   | 77.5 | -87.2 | 63.6 | 12.1      | 64.4  | -34.1 | 112.7 |
| Right Foot Aft  | X    | G's   | 27.3   | 83.8 | -81.5 | 63.0 | 5.0       | 152.0 | -54.8 | 62.5  |
| Right Foot Aft  | Z    | G's   | 11.0   | 93.6 | -85.5 | 63.5 | 27.6      | 62.3  | -31.2 | 62.8  |
| Right Foot Fore | Z    | G's   | 57.8   | 72.4 | -97.0 | 64.7 | 5.6       | 67.0  | -29.6 | 88.4  |

**UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS**

| Location           | Axis | Units   | Driver |       |         |       | Passenger |       |         |       |
|--------------------|------|---------|--------|-------|---------|-------|-----------|-------|---------|-------|
|                    |      |         | Max    | Time  | Min     | Time  | Max       | Time  | Min     | Time  |
| Left Lower Moment  | X    | N·m     | 45.6   | 97.5  | -83.7   | 63.3  | 21.8      | 91.7  | -59.0   | 119.2 |
| Left Lower Moment  | Y    | N·m     | 413.2  | 78.4  | -12.1   | 43.8  | 10.5      | 108.8 | -22.6   | 87.0  |
| Left Lower Force   | Z    | Newtons | 51.8   | 19.6  | -4228.2 | 67.6  | 65.5      | 289.2 | -2333.5 | 75.8  |
| Left Upper Moment  | X    | N·m     | 85.7   | 125.7 | -41.3   | 49.6  | 52.0      | 120.4 | -34.0   | 96.0  |
| Left Upper Moment  | Y    | N·m     | 158.2  | 65.3  | -27.1   | 93.2  | 82.6      | 73.3  | -15.1   | 299.9 |
| Right Lower Moment | X    | N·m     | 65.6   | 66.0  | -85.3   | 81.9  | 50.2      | 70.7  | -12.1   | 143.5 |
| Right Lower Moment | Y    | N·m     | 179.4  | 81.7  | -38.3   | 65.1  | 17.4      | 102.9 | -24.2   | 85.3  |
| Right Lower Force  | Z    | Newtons | 69.0   | 269.2 | -3589.7 | 65.3  | 110.3     | 258.9 | -1703.9 | 100.0 |
| Right Upper Moment | X    | N·m     | 44.3   | 126.9 | -89.5   | 69.6  | 39.0      | 131.0 | -66.3   | 73.5  |
| Right Upper Moment | Y    | N·m     | 179.6  | 65.2  | -16.1   | 126.3 | 94.2      | 79.3  | -13.0   | 251.3 |

**DATA SHEET NO. 8...(continued)**

TEST VEHICLE: 1998 DODGE NEON 4 DOOR SEDAN

NHTSA No.: MW0310

TEST PROGRAM: 1998 37.5MPH OFFSET W/50TH MALE

TEST DATE: 7/3/98

**CHEST PEAK DISPLACEMENTS**

| Location | Axis | Units | Driver |      |       |      | Passenger |      |       |      |
|----------|------|-------|--------|------|-------|------|-----------|------|-------|------|
|          |      |       | Max    | Time | Min   | Time | Max       | Time | Min   | Time |
| Chest CG | X    | MM    | 1.0    | 33.3 | -30.7 | 85.9 | 0.2       | 37.2 | -31.0 | 95.4 |

**HEAD REDUNDANT PEAK ACCELERATIONS**

| Location          | Axis | Units | Driver |       |       |       | Passenger |       |       |       |
|-------------------|------|-------|--------|-------|-------|-------|-----------|-------|-------|-------|
|                   |      |       | Max    | Time  | Min   | Time  | Max       | Time  | Min   | Time  |
| Head CG           | X    | G's   | 11.2   | 119.6 | -34.2 | 89.3  | 4.3       | 57.5  | -43.5 | 95.9  |
| Head CG           | Y    | G's   | 22.0   | 106.4 | -3.7  | 282.0 | 11.1      | 158.2 | -3.9  | 78.3  |
| Head CG           | Z    | G's   | 31.8   | 99.4  | -17.2 | 124.7 | 23.9      | 90.9  | -2.1  | 176.7 |
| Head CG Resultant | N/A  | G's   | 46.3   | 92.8  |       |       | 47.9      | 95.9  |       |       |

**CHEST REDUNDANT PEAK ACCELERATIONS**

| Location           | Axis | Units | Driver |       |       |       | Passenger |       |       |       |
|--------------------|------|-------|--------|-------|-------|-------|-----------|-------|-------|-------|
|                    |      |       | Max    | Time  | Min   | Time  | Max       | Time  | Min   | Time  |
| Chest CG           | X    | G's   | 1.2    | 218.5 | -36.1 | 70.1  | 0.7       | 216.6 | -35.0 | 85.4  |
| Chest CG           | Y    | G's   | 19.3   | 126.6 | -3.1  | 167.1 | 12.8      | 103.1 | -1.2  | 155.0 |
| Chest CG           | Z    | G's   | 18.5   | 136.6 | -19.0 | 98.7  | 3.8       | 176.6 | -7.5  | 90.7  |
| Chest CG Resultant | N/A  | G's   | 38.1   | 83.4  |       |       | 36.4      | 85.3  |       |       |

**REDUNDANT HEAD INJURY CRITERIA (HIC)**

| Location          | Driver |         |                |                | Passenger |         |                |                |
|-------------------|--------|---------|----------------|----------------|-----------|---------|----------------|----------------|
|                   | HIC    | Avg G's | T <sup>1</sup> | T <sup>2</sup> | HIC       | Avg G's | T <sup>1</sup> | T <sup>2</sup> |
| Head CG Redundant | 296.2  | 36.9    | 70.1           | 106.0          | 291.7     | 36.7    | 77.8           | 113.4          |

**REDUNDANT CHEST CLIP (3MSEC)**

| Location           | Driver |                |                | Passenger |                |                |
|--------------------|--------|----------------|----------------|-----------|----------------|----------------|
|                    | CLIP   | T <sup>1</sup> | T <sup>2</sup> | CLIP      | T <sup>1</sup> | T <sup>2</sup> |
| Chest CG Redundant | 37.5   | 82.4           | 85.4           | 35.6      | 84.3           | 87.3           |

DATA SHEET NO. 9

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

BELT LENGTH DATA

| Measurement Description                          | Units | Driver | Passenger |
|--|-------|--------|-----------|
| Retractor reel to 'D' ring                       | mm    | 470    | 470       |
| Shoulder belt length as measured on ATD          | mm    | 830    | 820       |
| Lap belt length as measured on ATD               | mm    | 580    | 600       |
| Remainder of belt on reel                        | mm    | 900    | 890       |
| Total belt length for continuous webbing systems | mm    | 2780   | 2780      |

SHOULDER BELT SPOOL-OFF DATA

| Measurement Description      | Units | Driver | Passenger |
|------------------------------|-------|--------|-----------|
| As determined mechanically   | mm    | 96.0   | 52.0      |
| As determined electronically | mm    | 104.6  | 96.6      |

BELT STRETCH DATA

| Measurement Description                                  | Units | Driver | Passenger |
|--|-------|--------|-----------|
| Electronically from shoulder belt load cell and "D" ring | mm/cm | FAILED | FAILED    |
| Mechanically   | mm/cm | 2.00   | 0.00      |

Note: Channel failed on belt stretch , no data available.

DATA SHEET NO. 10

SUMMARY OF FMVSS 212 DATA

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

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

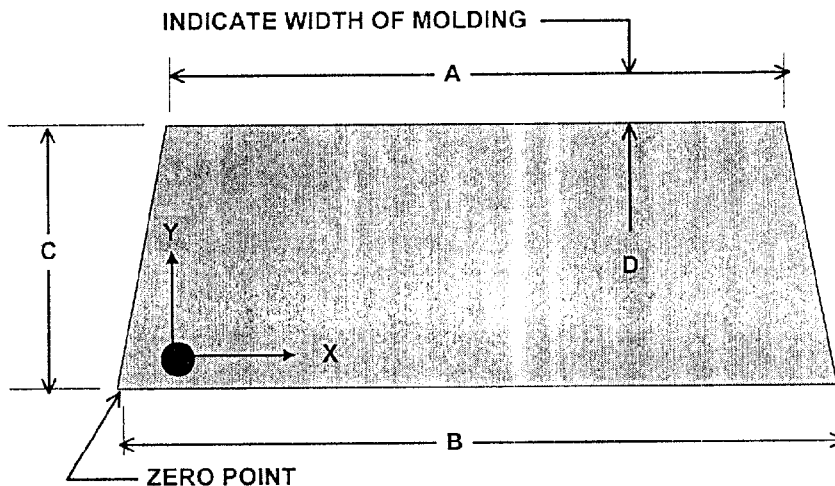
Windshield glass is secured to the vehicle frame with a rubber type adhesive, with rubber molding along the top and sides with rubber and plastic molding along the bottom.

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

WINDSHIELD PERIPHERY MEASUREMENTS

|                      | Units   | Left Side | Right Side | Total |
|----------------------|---------|-----------|------------|-------|
| Pre-Test             | mm      | 1967.5    | 1967.5     | 100%  |
| Post-Test            | mm      | 1967.5    | 1967.5     | 100%  |
| Percent of retention | Percent | 100%      | 100%       |       |

Indicate area of retention failure.



FRONT VIEW OF WINDSHIELD

Width of molding: Top: 15 mm, Sides: 15 mm, Bottom: 10 mm

Temperature of windshield molding during test: 21.1 °C

DATA SHEET NO. 11

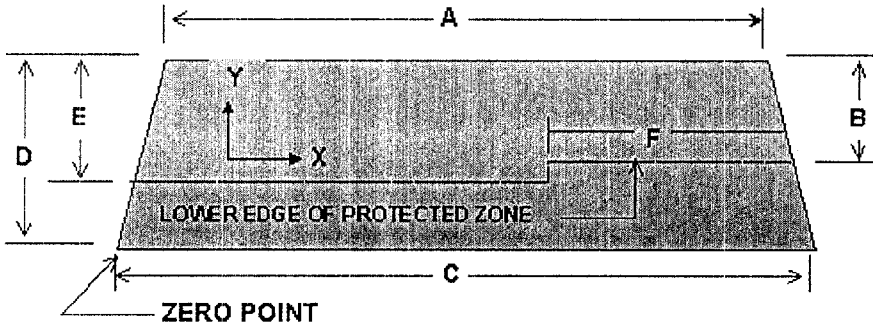
WINDSHIELD ZONE INTRUSION FMVSS 219 (PARTIAL) DATA

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98



FRONT VIEW OF WINDSHIELD

| Item | Units | Value |
|------|-------|-------|
| A    | mm    | 1051  |
| B    | mm    | 401   |
| C    | mm    | 1544  |
| D    | mm    | 670   |
| E    | mm    | 485   |
| F    | mm    | 553   |

Provide all dimensions necessary to reproduce the protected area.

AREA OF PROTECTED ZONE FAILURES

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

| X   | Y   |
|-----|-----|
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |

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

| X   | Y   |
|-----|-----|
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |

DATA SHEET NO. 12

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

Test Time: 2:35 P.M.      Temperature at Time of Impact: 26.1 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

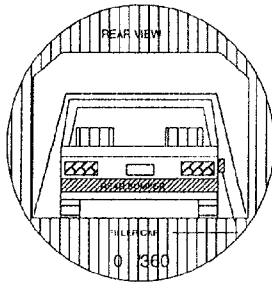
Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

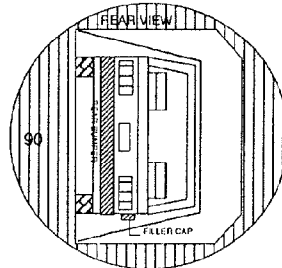
Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

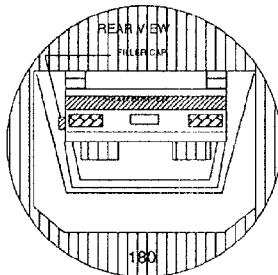
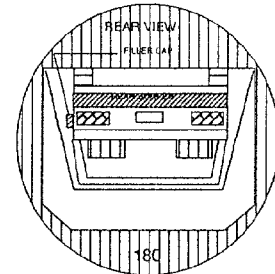
Time: 2:35 P.M. Temperature: 26.1 °C



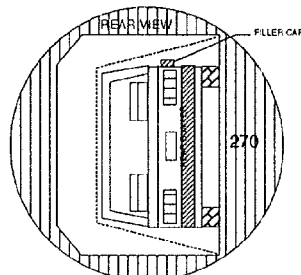
0° TO 90°



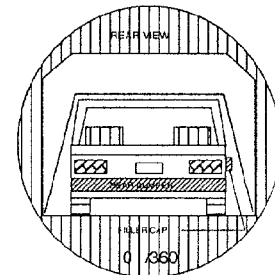
90° TO 180°



180° TO 270°



270° TO 360°



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

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

**DATA SHEET NO. 14**

**VEHICLE MEASUREMENTS**

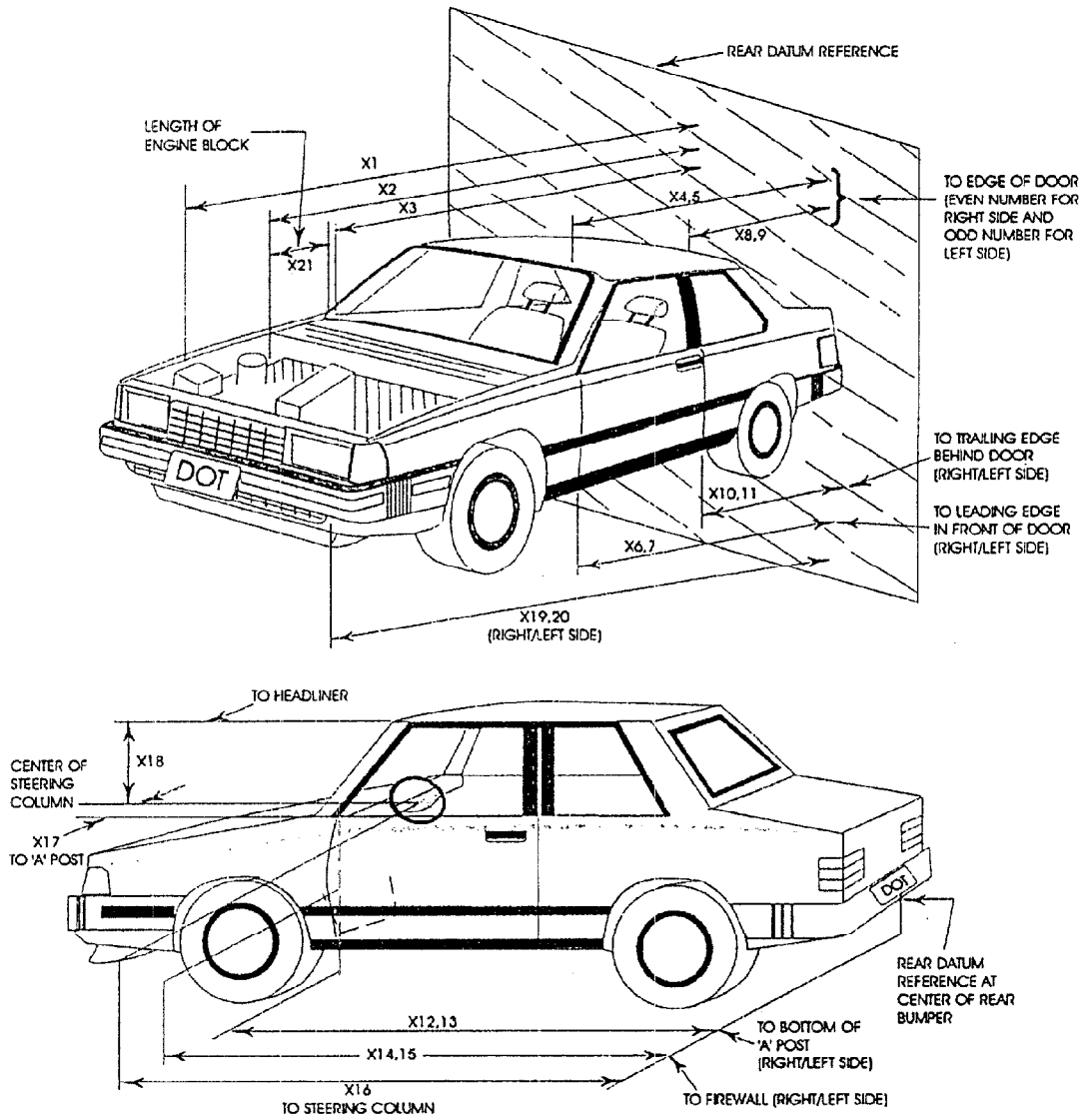
Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

| No. | Measurement Description                      | Units | Pre-Test | Post-Test | Difference |
|-----|--|-------|----------|-----------|------------|
| 1   | Total length of vehicle at centerline        | mm    | 4362     | 3930      | -432       |
| 2   | RSOV to front of engine                      | mm    | 3783     | 3685      | -98        |
| 3   | RSOV to firewall centerline                  | mm    | 3416     | 3214      | -202       |
| 4   | RSOV to leading edge of right door           | mm    | 2964     | 2970      | 6          |
| 5   | RSOV to leading edge of left door            | mm    | 2980     | 2948      | -32        |
| 6   | RSOV to lower leading edge of right door     | mm    | 3020     | 3020      | 0          |
| 7   | RSOV to lower leading edge of left door      | mm    | 3026     | 2893      | -133       |
| 8   | RSOV to upper trailing edge of right door    | mm    | 1959     | 1965      | 6          |
| 9   | RSOV to upper trailing edge of left door     | mm    | 1980     | 1961      | -19        |
| 10  | RSOV to lower trailing edge of right door    | mm    | 1949     | 1950      | 1          |
| 11  | RSOV to lower trailing edge of left door     | mm    | 1970     | 1873      | -97        |
| 12  | RSOV to bottom of right 'A' pillar           | mm    | 2990     | 3000      | 10         |
| 13  | RSOV to bottom of left 'A' pillar            | mm    | 2992     | 2763      | -229       |
| 14  | RSOV to firewall on right side               | mm    | 3312     | 3311      | -1         |
| 15  | RSOV to firewall of left side                | mm    | 3341     | 3049      | -292       |
| 16  | RSOV to steering column                      | mm    | 2552     | 2367      | -185       |
| 17  | Center of steering column to left 'A' pillar | mm    | 404      | 415       | 11         |
| 18  | Center of steering column to headlining      | mm    | 435      | 538       | 103        |
| 19  | RSOV to right side of front bumper           | mm    | 4185     | 4173      | -12        |
| 20  | RSOV to left side of front bumper            | mm    | 4196     | 3554      | -642       |
| 21  | Length of engine block                       | mm    | 221      | 220       | -1         |
| 22  | RSOV to right side of dash panel             | mm    | 2706     | 2693      | -13        |
| 23  | RSOV to center of dash panel                 | mm    | 2700     | 2626      | -74        |
| 24  | RSOV to left side of dash panel              | mm    | 2723     | 2490      | -233       |



DATA SHEET NO. 15

CAMERA LOCATIONS

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

| No. | Camera View           | Location (mm) |       |      | Angle (°) | Film Plane to Head | Lens (mm) | Speed (fps) |
|-----|-----------------------|---------------|-------|------|-----------|--------------------|-----------|-------------|
|     |                       | X             | Y     | Z    |           |                    |           |             |
| 1   | Right Side, Real Time | 3454          | 10973 | 1245 | 0         | 1651               | Zoom      | 24          |
| 2   | Left Side, No. 1      | 1372          | 8534  | 1016 | 3         | 7772               | 13        | 1450        |
| 3   | Left Side, No. 2      | 813           | 10058 | 1270 | 1         | 9525               | 50        | 1270        |
| 4   | Left Side, No. 3      | 3554          | 1320  | 2045 | 19        | 3150               | 13        | 1300        |
| 5   | Left Side, No. 4      | 1041          | 406   | 2642 | 40        | N/A                | 19        | 990         |
| 6   | Left Side, No. 5      | 1041          | 406   | 2642 | 40        | N/A                | 25        | 1040        |
| 7   | Left Side, No. 6      | 356           | 432   | 6340 | 86        | N/A                | 25        | 1100        |
| 8   | Right Side, No. 1     | 991           | 686   | 1245 | 4         | 7620               | 13        | 880         |
| 9   | Right Side, No. 2     | 8331          | 8763  | 2172 | 7         | 9627               | 25        | 960         |
| 10  | Right Side, No. 3     | 152           | 9271  | 1448 | 0         | 8839               | 40        | 960         |
| 11  | Right Side, No. 4     | -1473         | 4420  | 1829 | 12        | 4699               | 50        | 1050        |
| 12  | Overhead Overall      | 1905          | 8230  | 2540 | 9         | 7620               | 6         | 980         |
| 13  | Overhead Close-up     | 1905          | 8306  | 3023 | 11        | 7620               | 35        | 1350        |
| 14  | Front Driver          | 1753          | 8230  | 864  | 3         | 7620               | 13        | 1040        |
| 15  | Front Passwenger      | 0             | 127   | 5740 | 88        | N/A                | 13        | 1010        |
| 16  | Onboard, Driver       | 3200          | 138   | 1067 | 5         | 1016               | 13        | 540         |
| 17  | Onboard, Passenger    | 3200          | 138   | 1067 | 5         | 813                | 13        | 470         |
|     |                       |               |       |      |           |                    |           |             |

\* X - Barrier Face Y - Monorail Centerline Z - Ground

DATA SHEET NO. 16

REFERENCE PHOTOGRAPH TARGETS

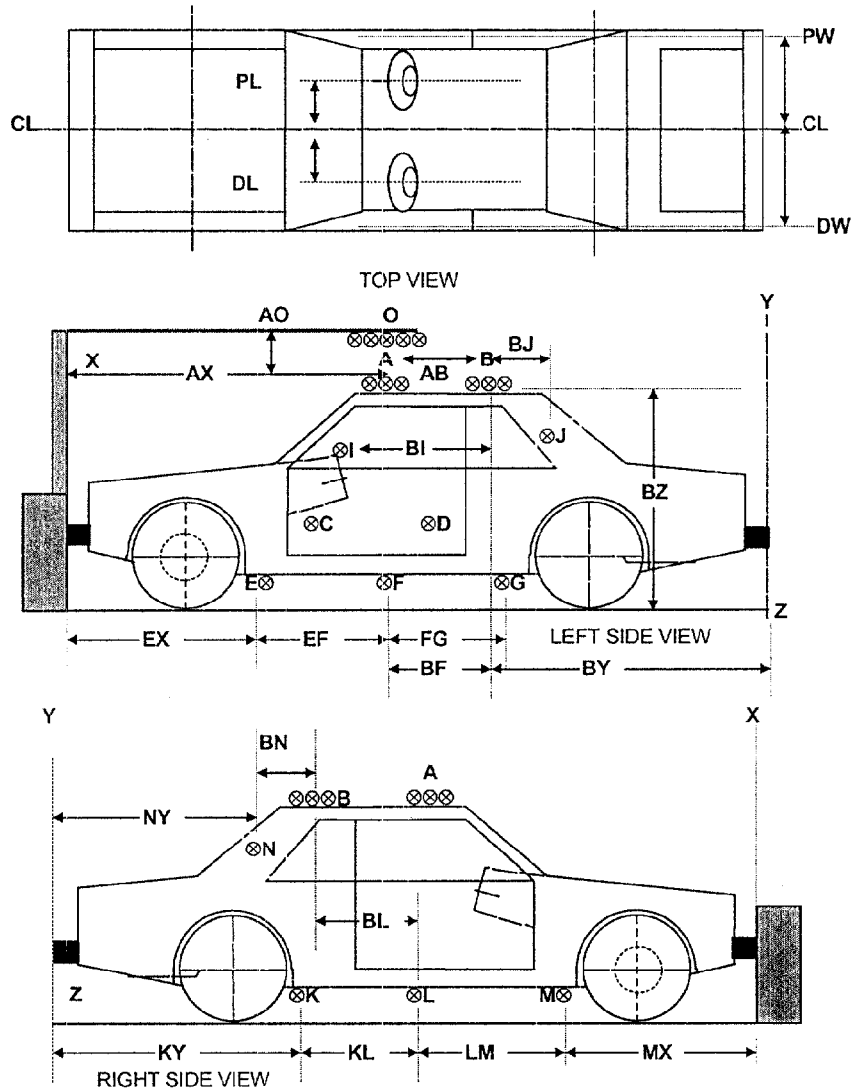
Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

| Item  | Value |
|-------|-------|
| AX    | 2213  |
| AB    | 608   |
| AO    | 153   |
| BJ    | 511   |
| BI    | 1241  |
| BZ    | 1469  |
| EX    | 1300  |
| EF    | 887   |
| FG    | 887   |
| BF    | 660   |
| BY    | 1550  |
| NY    | 1024  |
| BN    | 486   |
| KY    | 1285  |
| KL    | 887   |
| BL    | 668   |
| LM    | 887   |
| MX    | 1312  |
| CL/PL | 345   |
| CL/PW | 727   |
| CL/DL | 345   |
| CL/DW | 727   |



DATA SHEET NO. 17

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

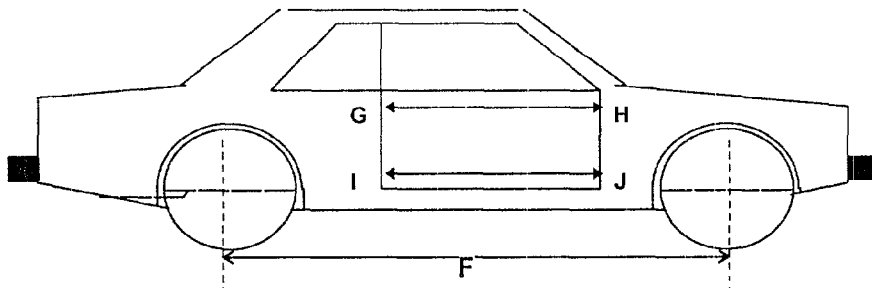
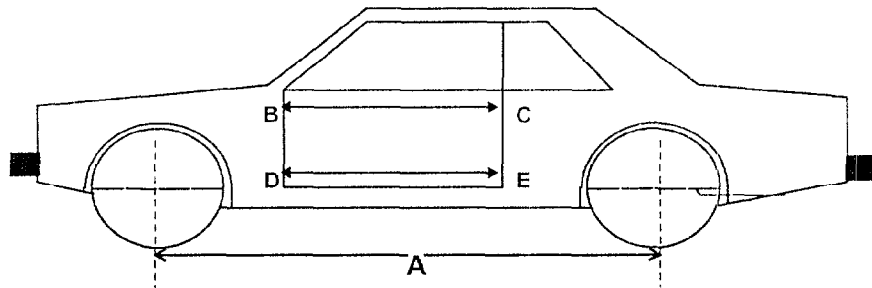
Test Date: 7/3/98

DOOR OPENING WIDTH

| UNITS (mm) | LEFT SIDE |      | RIGHT SIDE |     |
|------------|-----------|------|------------|-----|
|            | BC        | DE   | GH         | IJ  |
| PRE-TEST   | 965       | 912  | 976        | 912 |
| POST-TEST  | 750       | 764  | 972        | 912 |
| DIFFERENCE | -215      | -148 | -4         | 0   |

VEHICLE WHEELBASE CHANGE

| UNITS (mm) | A = LEFT SIDE WHEELBASE | F = RIGHT SIDE WHEELBASE |
|------------|-------------------------|--------------------------|
| PRE-TEST   | 2645                    | 2645                     |
| POST-TEST  | 2295                    | 2750                     |
| DIFFERENCE | -350                    | +105                     |



**Data Sheet No. 17 .....(Continued)**

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

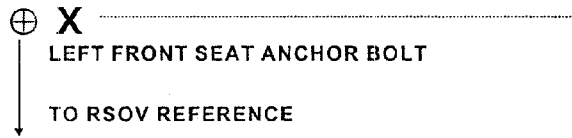
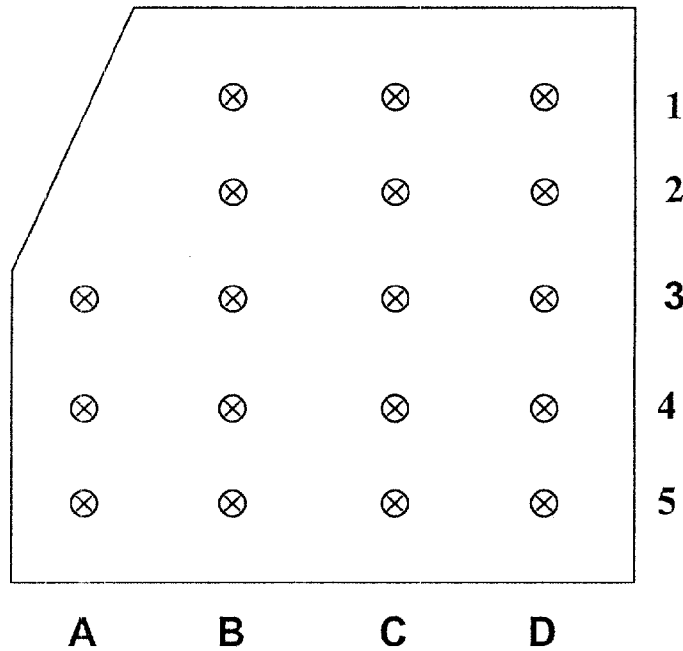
NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

**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       | 803      | 551       | 803                             | 554       | 803      | 620       |
| 2             | N/A                            | N/A       | 705      | 471       | 705                             | 479       | 705      | 619       |
| 3             | 591                            | 493       | 591      | 502       | 591                             | 504       | 591      | 542       |
| 4             | 485                            | 425       | 485      | 431       | 485                             | 445       | 485      | 450       |
| 5             | 384                            | 327       | 384      | 336       | 384                             | 340       | 384      | 344       |
| REF. POINT    | RSOV TO ANCHOR BOLT (PRE-TEST) |           | 2444     |           | RSOV TO ANCHOR BOLT (POST-TEST) |           | 2420     |           |



**DRIVER SIDE FLOOR PLAN**

(Data Sheet No. 17 .....Continued)

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

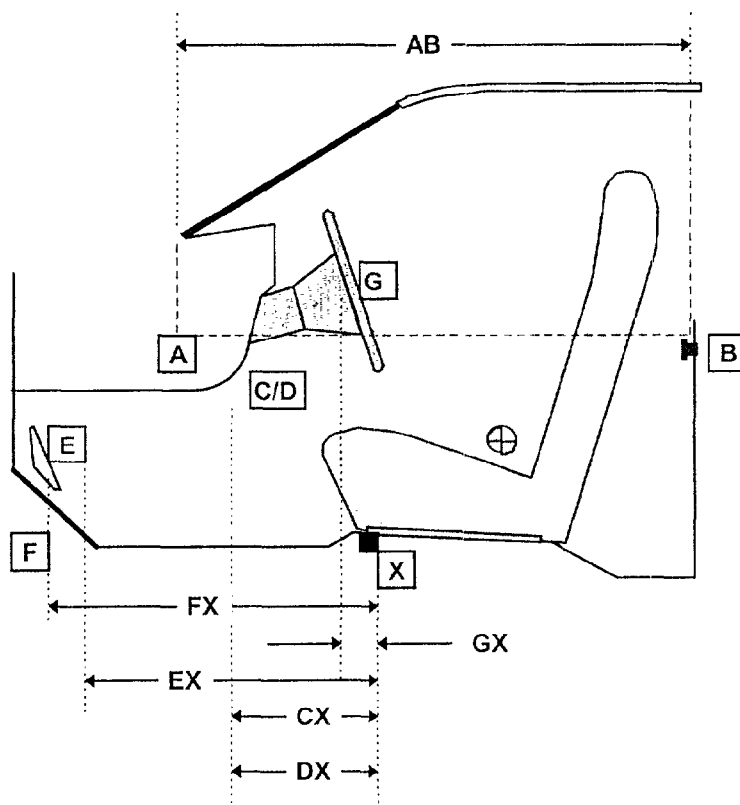
Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

**DRIVER COMPARTMENT INTRUSION (Distances in mm)**

| REF. | DESCRIPTION                       | PRE-TEST | POST-TEST |
|------|-----------------------------------|----------|-----------|
| AB   | DOOR OPENING (INSIDE WINDOW JAM)  | 965      | 750       |
| CX   | LOWER LEFT KNEE BOLSTER TO X      | 404      | 240       |
| DX   | LOWER RIGHT KNEE BOLSTER TO X     | 404      | 261       |
| EX   | BRAKE PEDAL TO X                  | 624      | 325       |
| FX   | FOOT REST TO X                    | 679      | 477       |
| GX   | STEERING COLUMN HUB (CENTER) TO X | 570      | -67       |

X = LEFT FRONT SEAT ANCHOR BOLT



**DRIVER COMPARTMENT**

DATA SHEET NO. 18

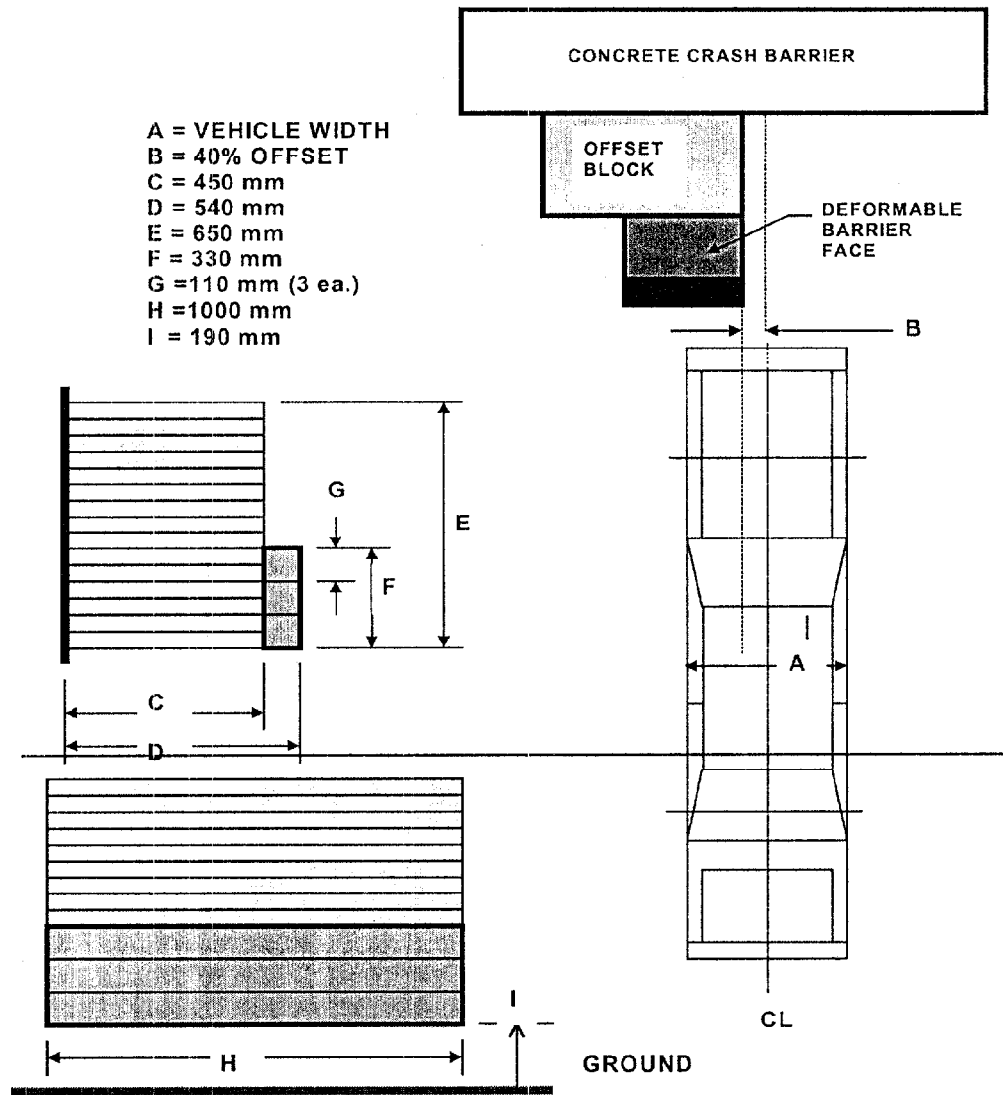
OFFSET BARRIER ORIENTATION

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98



A = VEHICLE WIDTH MEASURED AT WIDEST POINT 1778 mm  
 B = 40% OFFSET FROM LEFT EDGE OF VEHICLE 711 mm  
 ACTUAL OFFSET DURING TEST 709 mm = 39.88 %

DATA SHEET NO. 19

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98

VIN: 1B3E547C6WD621284 Wheelbase: 2645 mm Test Weight: 1356 kg

Vehicle Size Category: DODGE NEON 4-DOOR

ACCELEROMETER DATA:

LOCATION: Left and right rear floor pans

CALIBRATION PROCEDURE: 6 months/ drop test

LINEARITY: Good

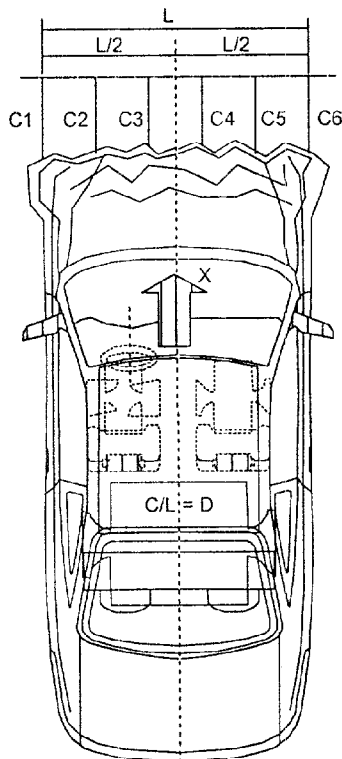
INTEGRATION ALGORITHM: NHTSA Standard

VEHICLE IMPACT SPEED: 60.25 km/h

TIME OF SEPARATION: 60.0 msec

VELOCITY CHANGE: 68.55 km/h

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



IMPACT MODE: 40 Percent Frontal Offset

CRUSH DEPTH DIMENSIONS:

C1 = 835 mm

C2 = 665 mm

C3 = 556 mm

C4 = 380 mm

C5 = 239 mm

C6 = 152 mm

MIDPOINT OF DAMAGE: Vehicle Centerline

LENGTH OF DAMAGE REGION: 1345 mm

DATA SHEET NO. 20

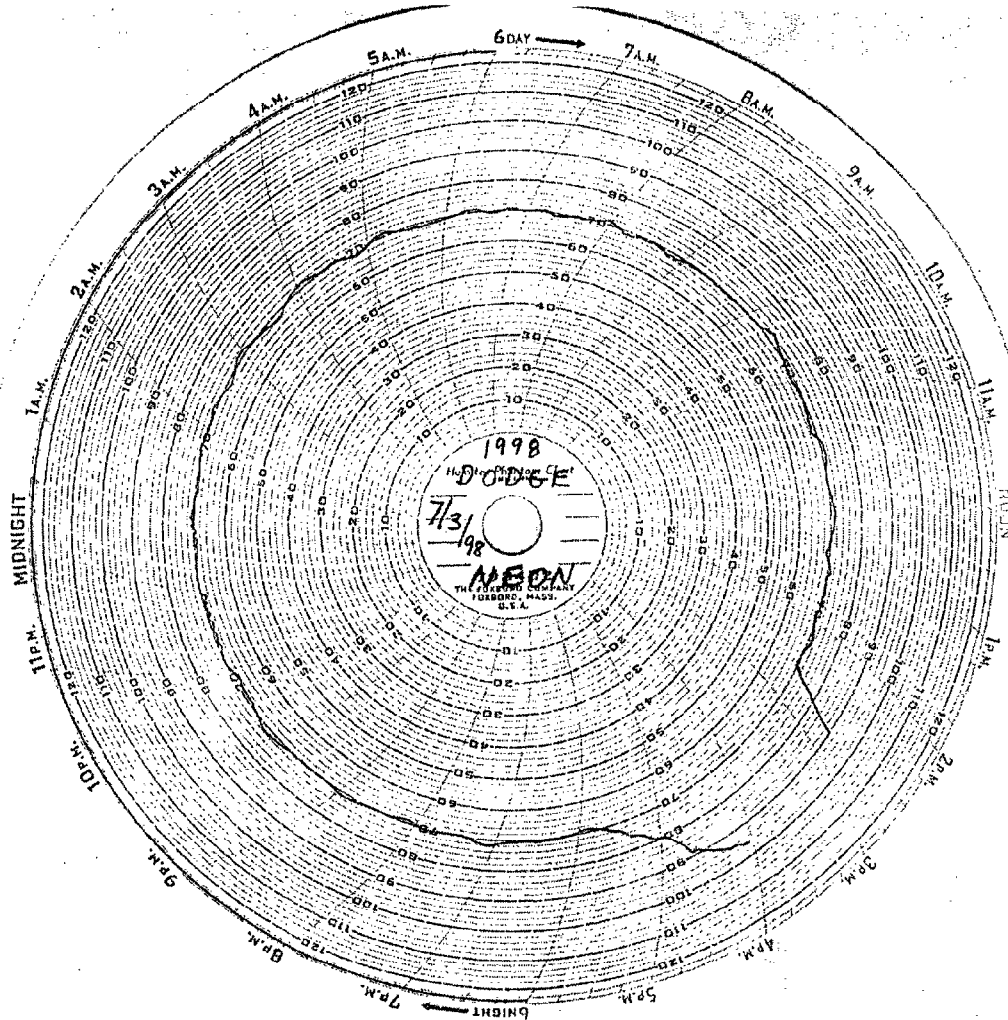
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 1998 Dodge Neon 4-Door Sedan

NHTSA No.: MW0310

Test Program: 1998 37.5 MPH OFFSET W/50TH MALE

Test Date: 7/3/98



**APPENDIX A**  
**PHOTOGRAPHS**

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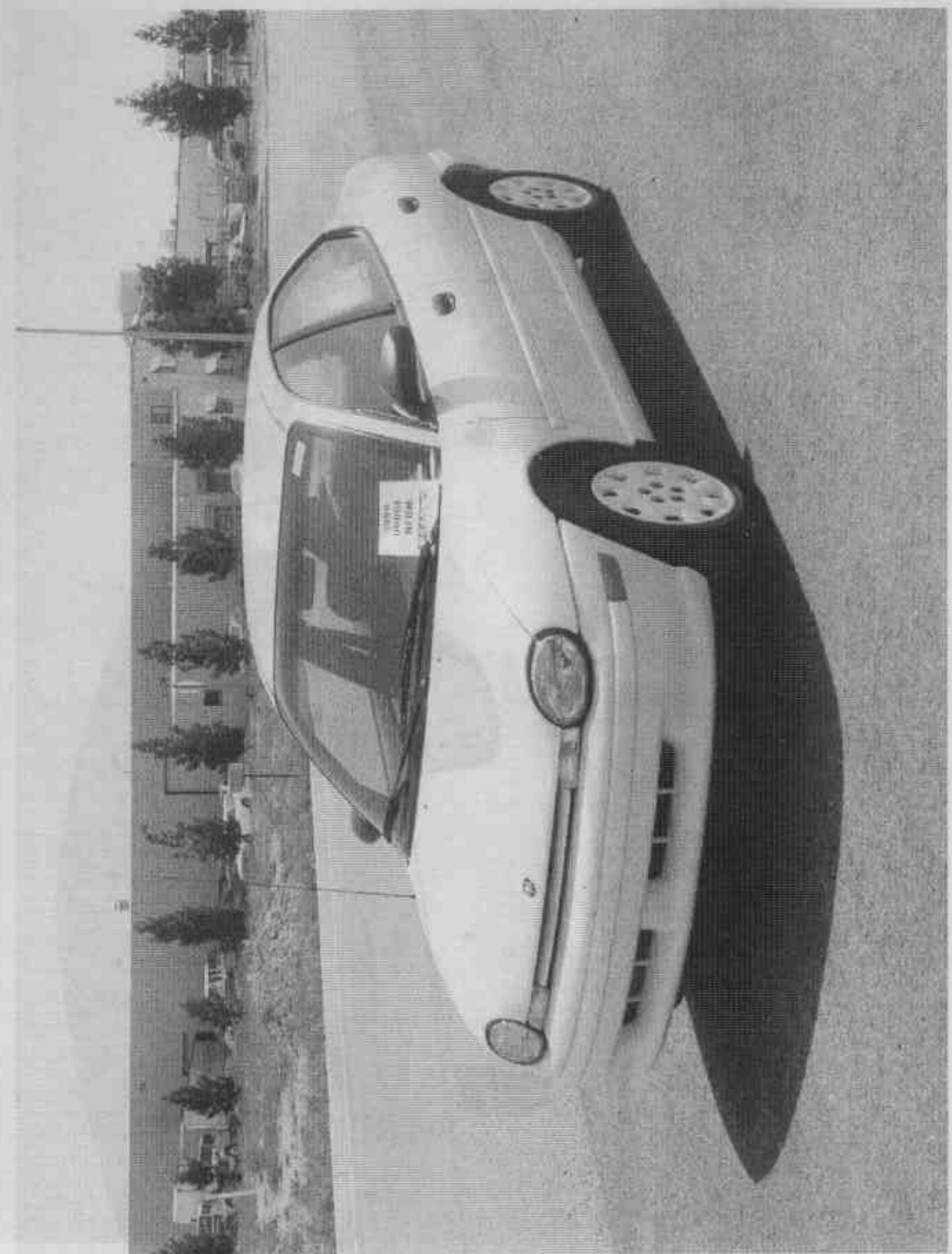


FIGURE A-1. LEFT FRONT AS RECEIVED

A-1

KAR98002-02



FIGURE A-2. RIGHT REAR AS RECEIVED

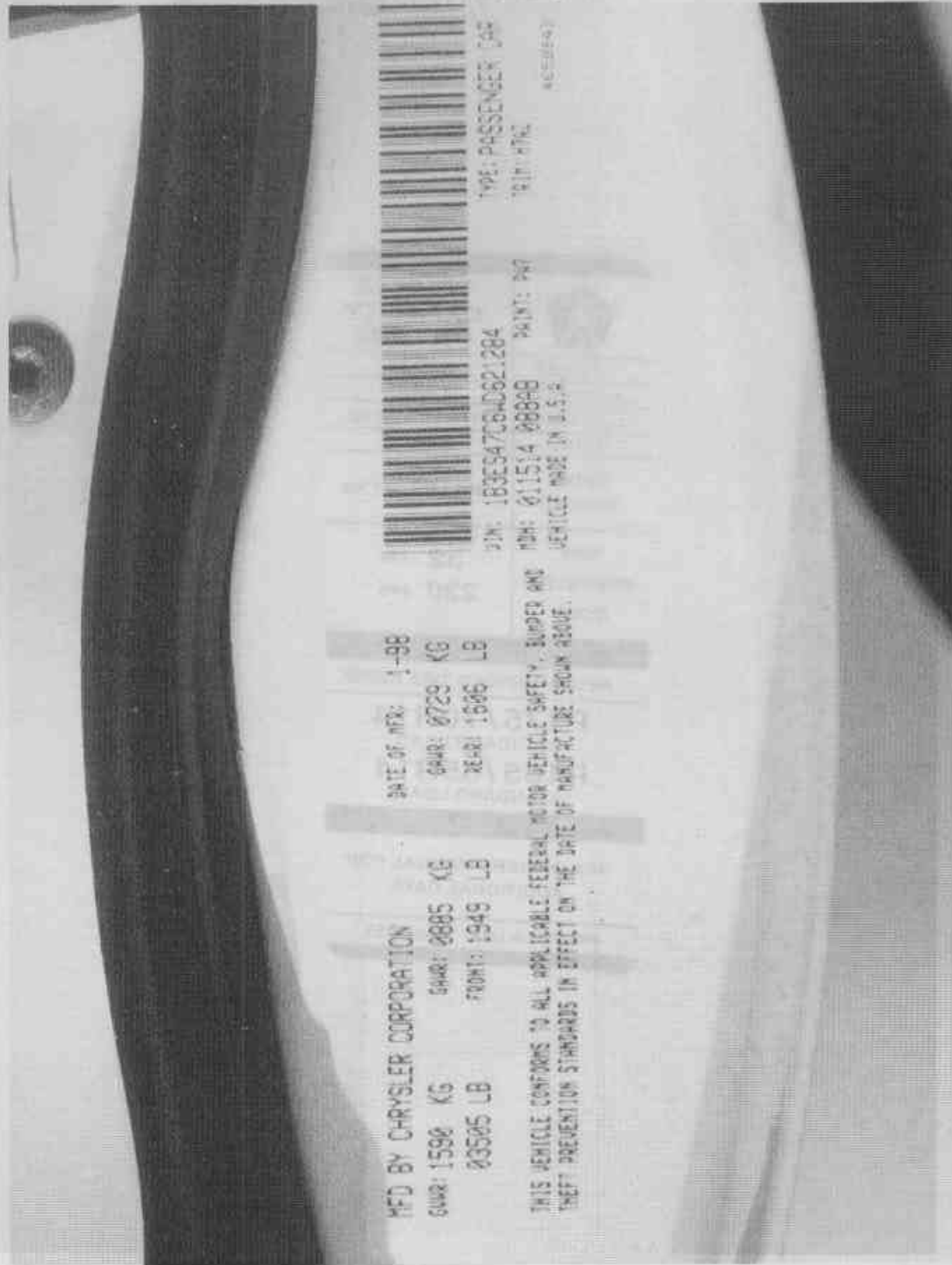


FIGURE A-3. VEHICLE CERTIFICATION LABEL

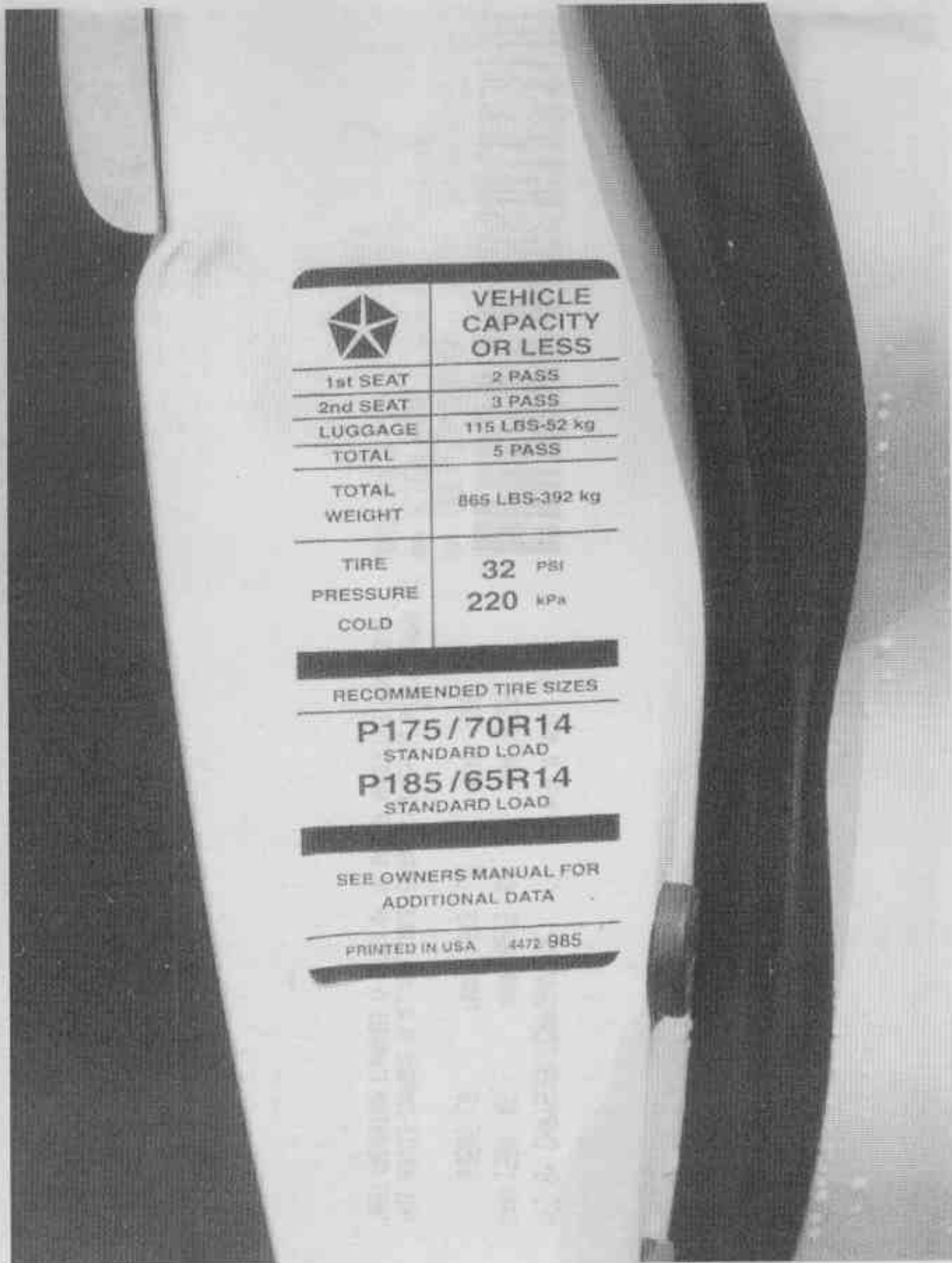


FIGURE A-4. VEHICLE TIRE PLACARD

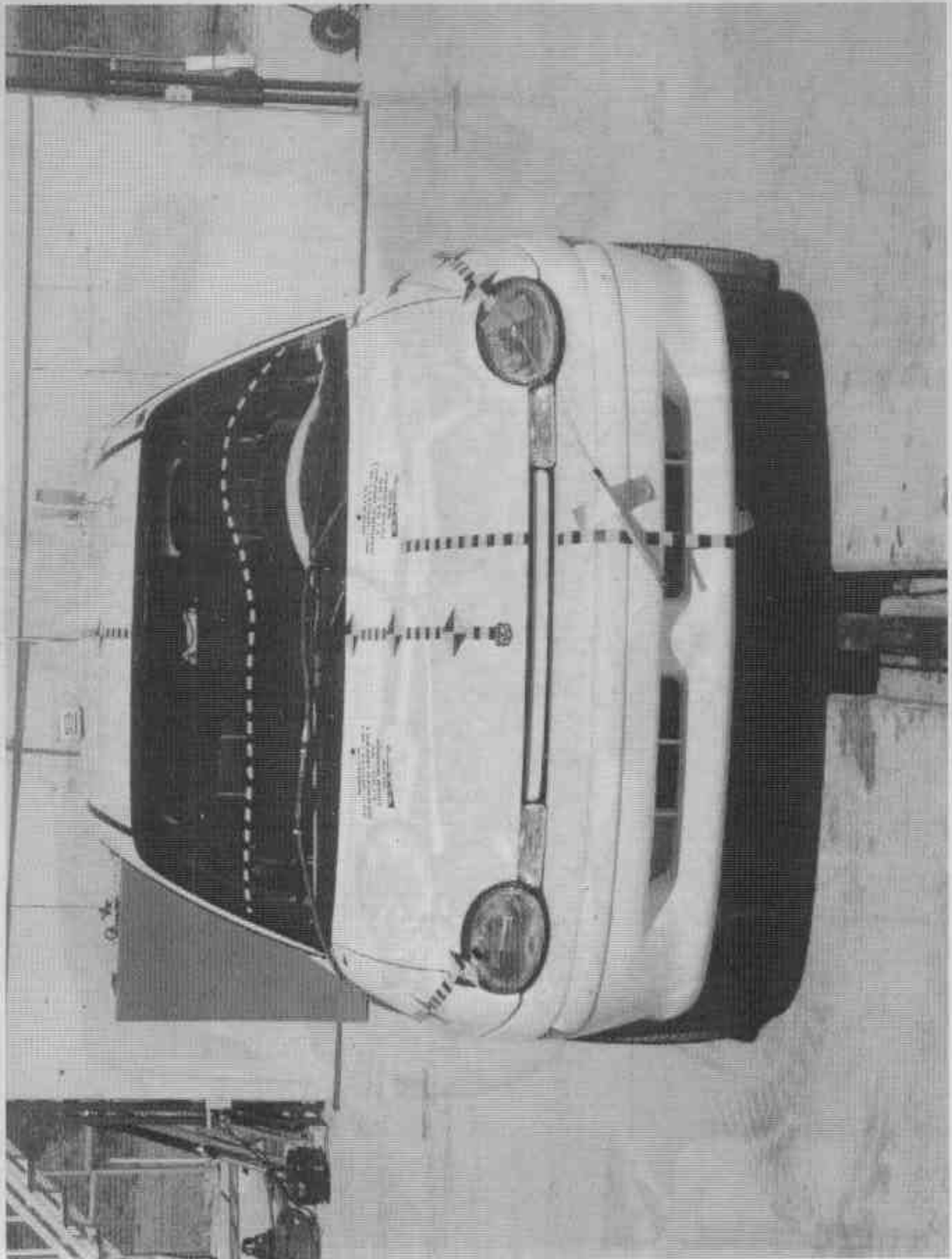


FIGURE A-5. PRE-TEST FRONT VIEW

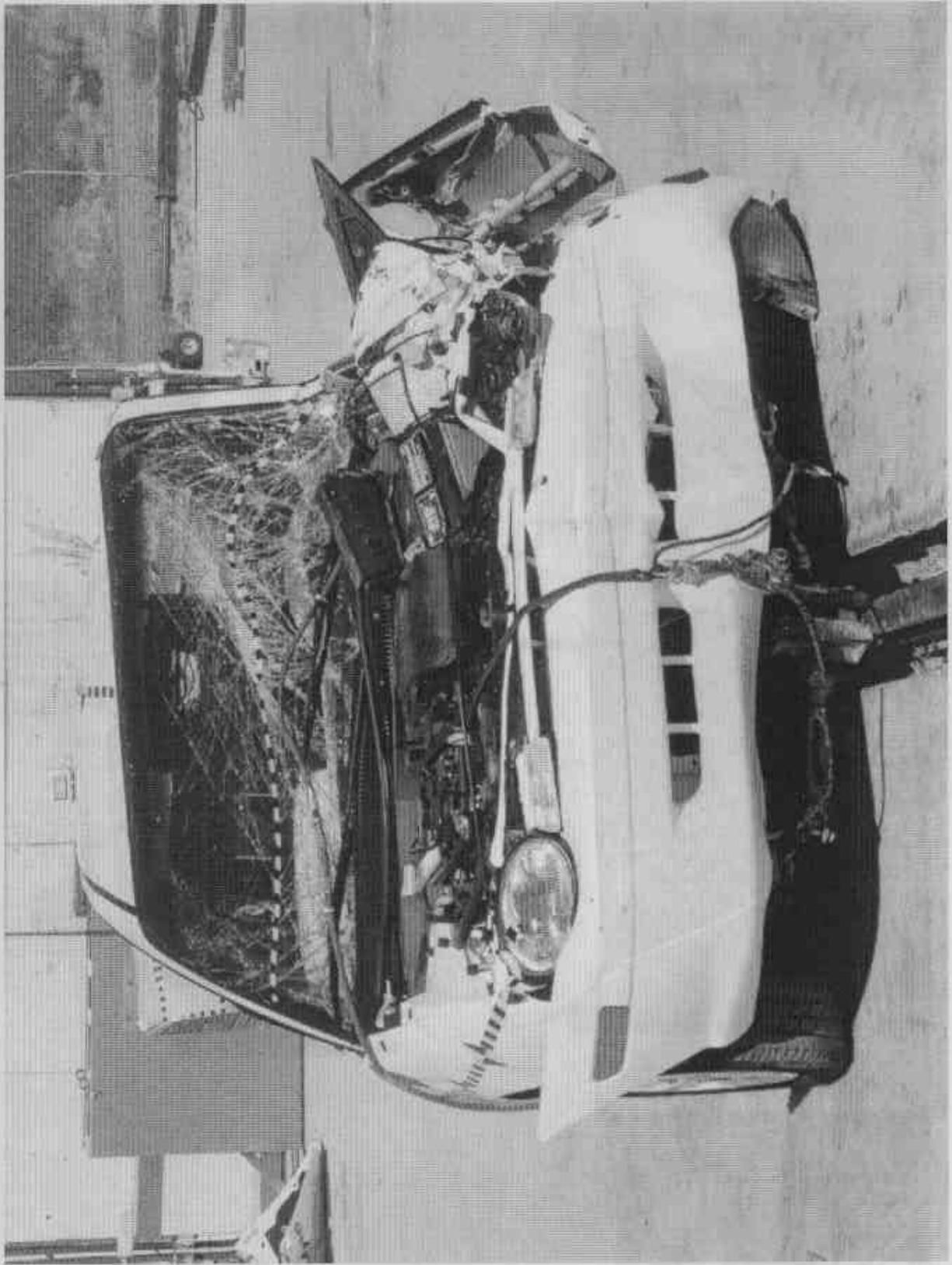


FIGURE A-6. POST-TEST FRONT VIEW

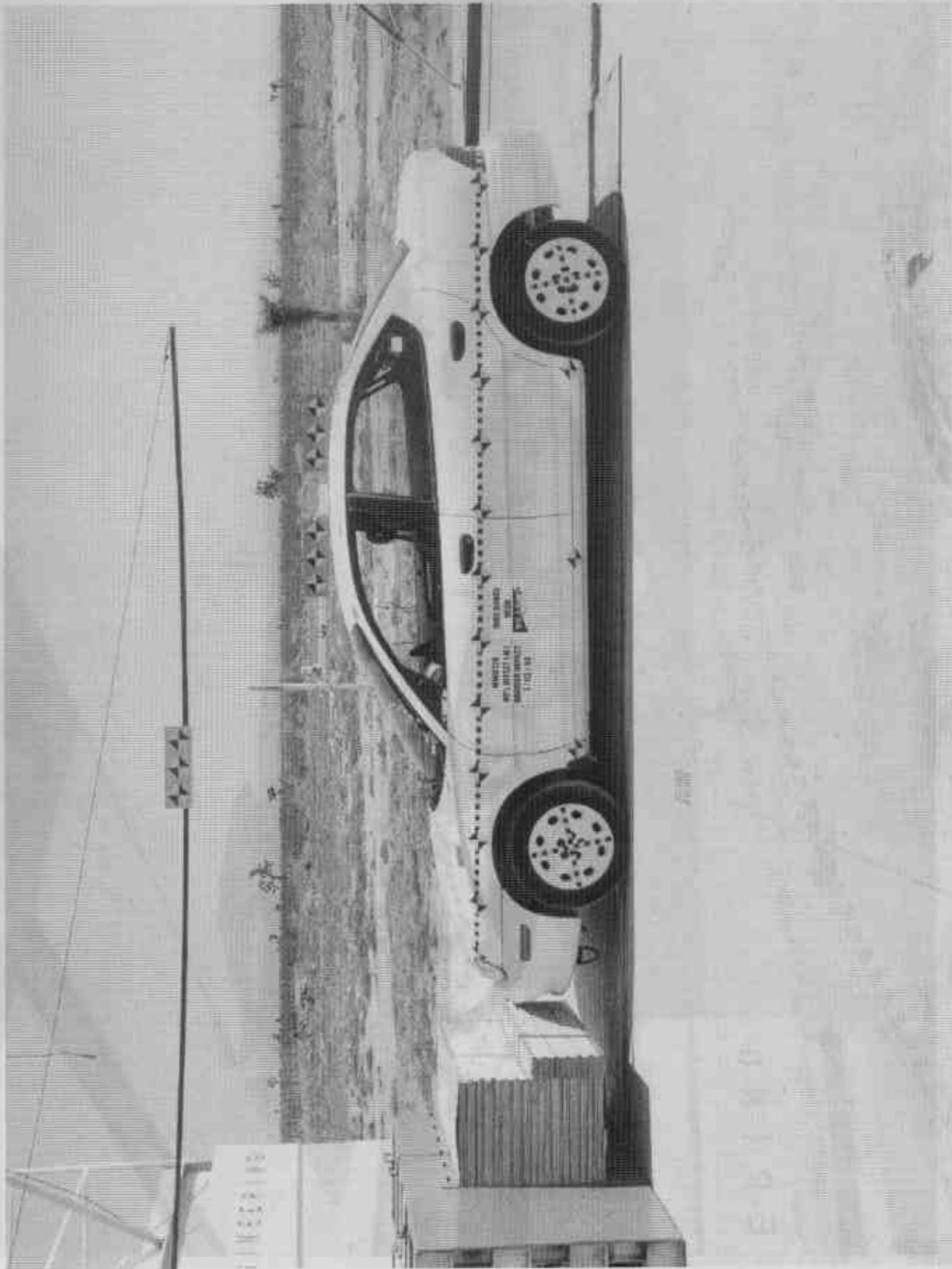


FIGURE A-7. PRE-TEST LEFT SIDE VIEW



FIGURE A-8. POST-TEST LEFT SIDE VIEW

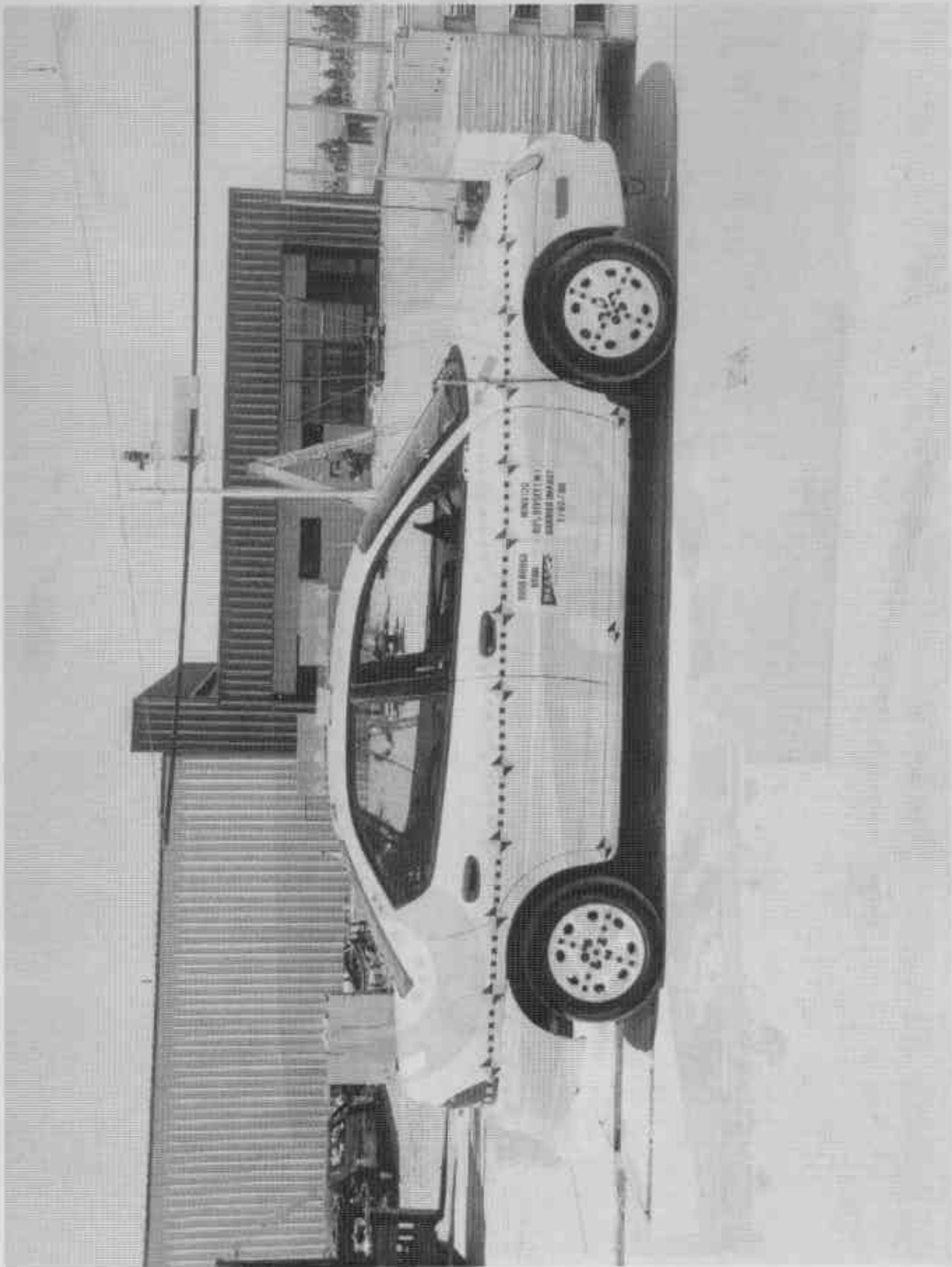


FIGURE A-9. PRE-TEST RIGHT SIDE VIEW

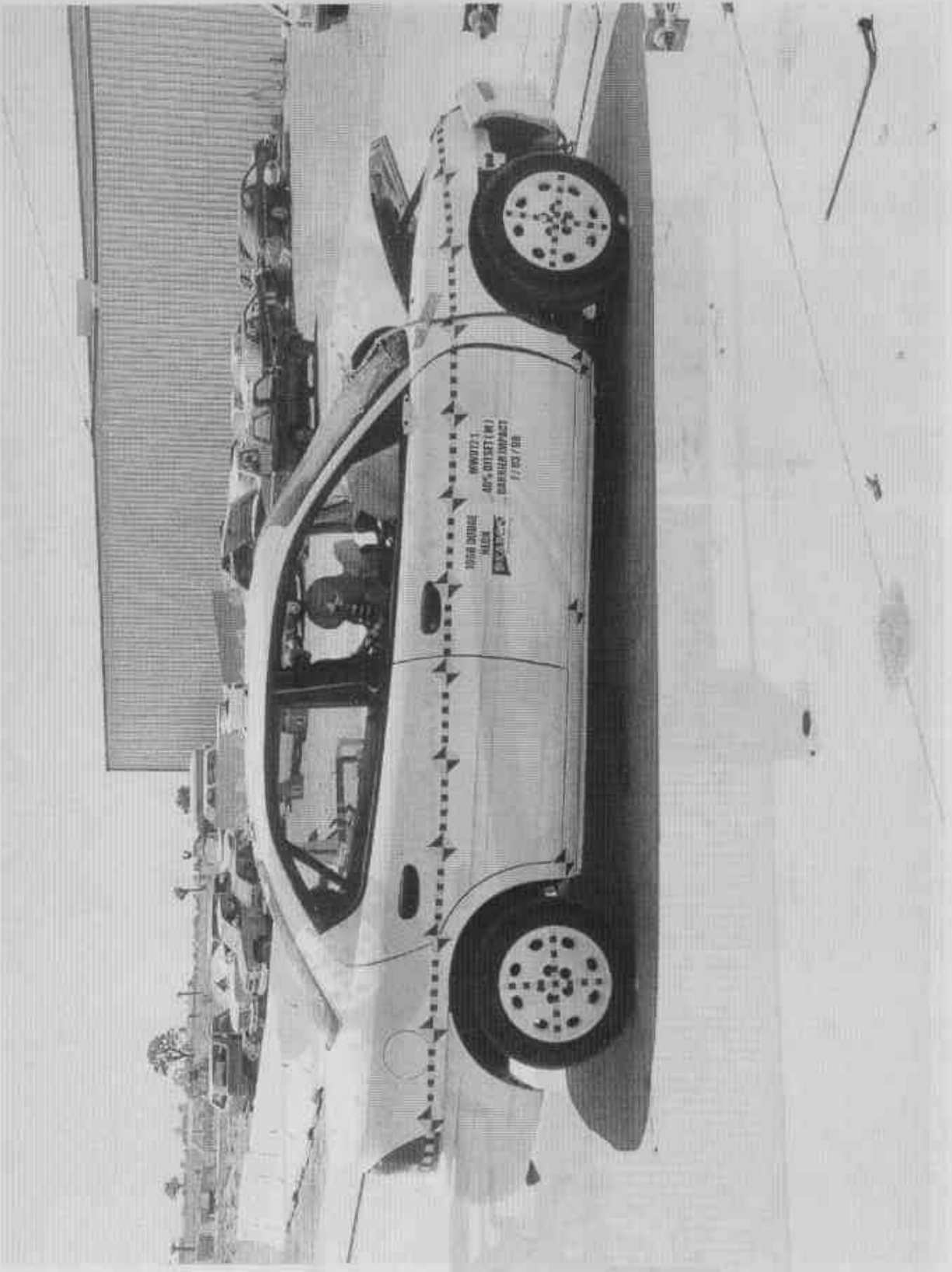


FIGURE A-10. POST-TEST RIGHT SIDE VIEW



FIGURE A-11. PRE-TEST LEFT FRONT VIEW

KAR98002-02

A-11

KAR98002-02

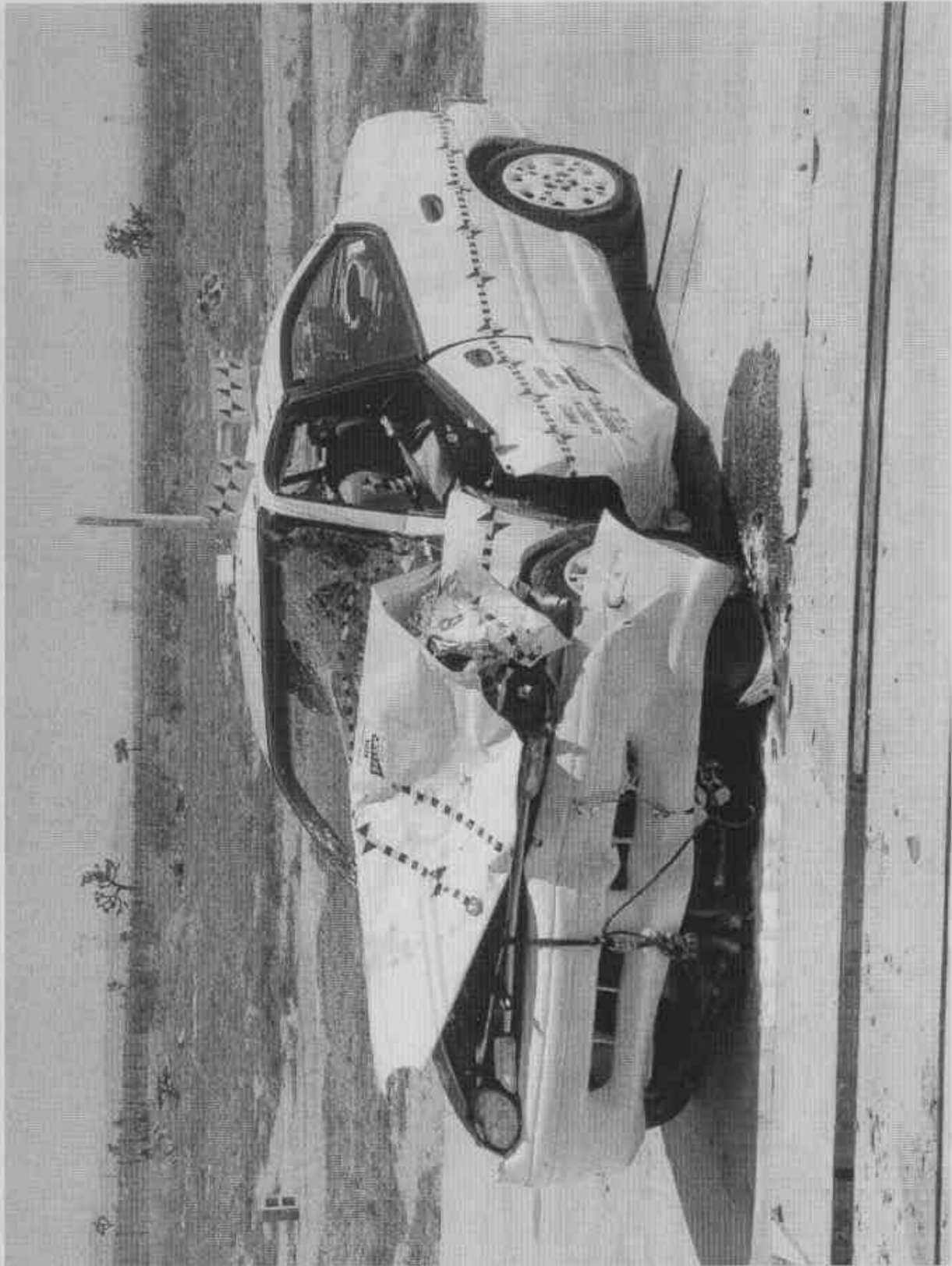


FIGURE A-12. POST-TEST LEFT FRONT VIEW



FIGURE A-13. PRE-TEST RIGHT REAR VIEW

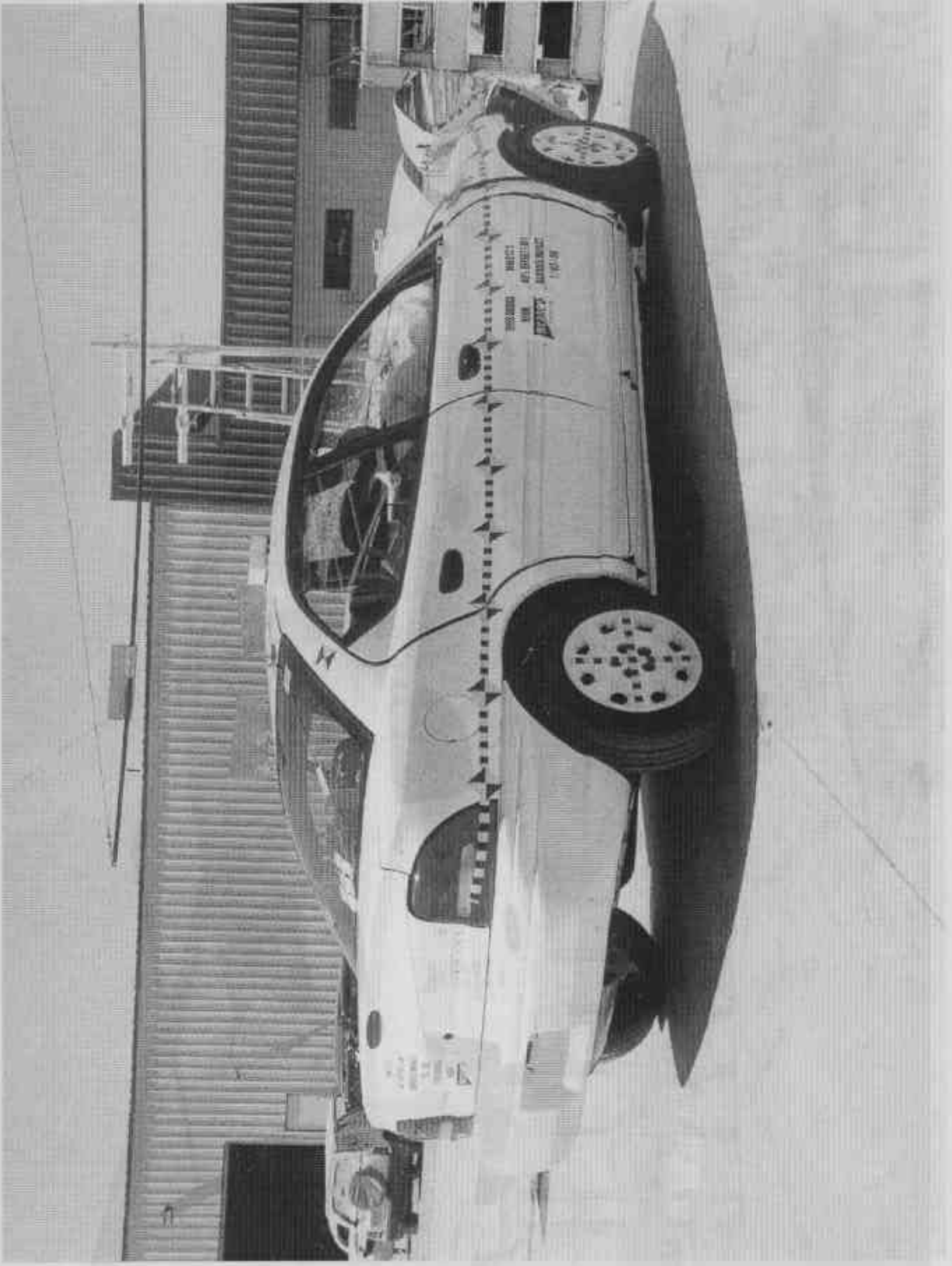


FIGURE A-14. POST-TEST RIGHT REAR VIEW

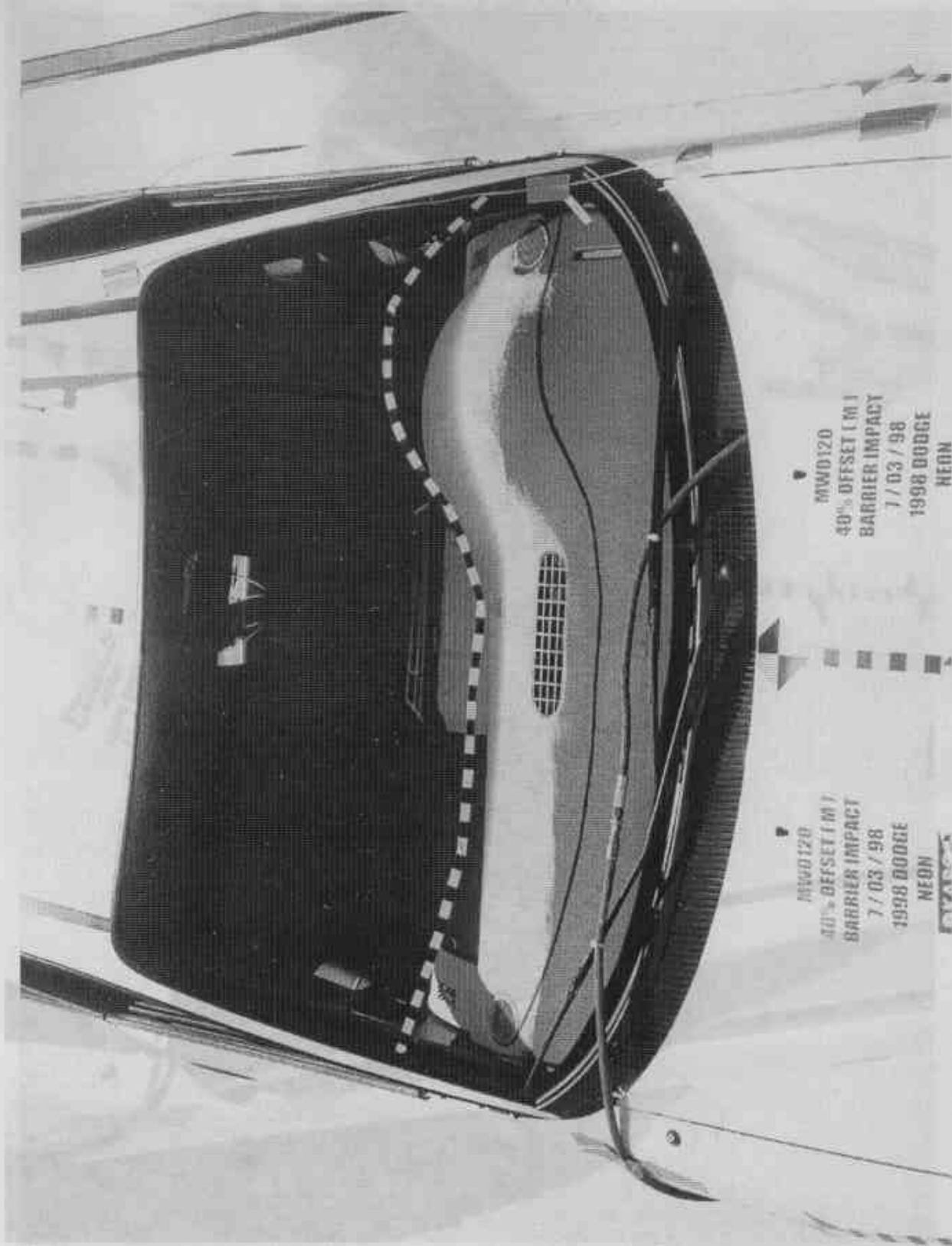


FIGURE A-15. PRE-TEST WINDSHIELD

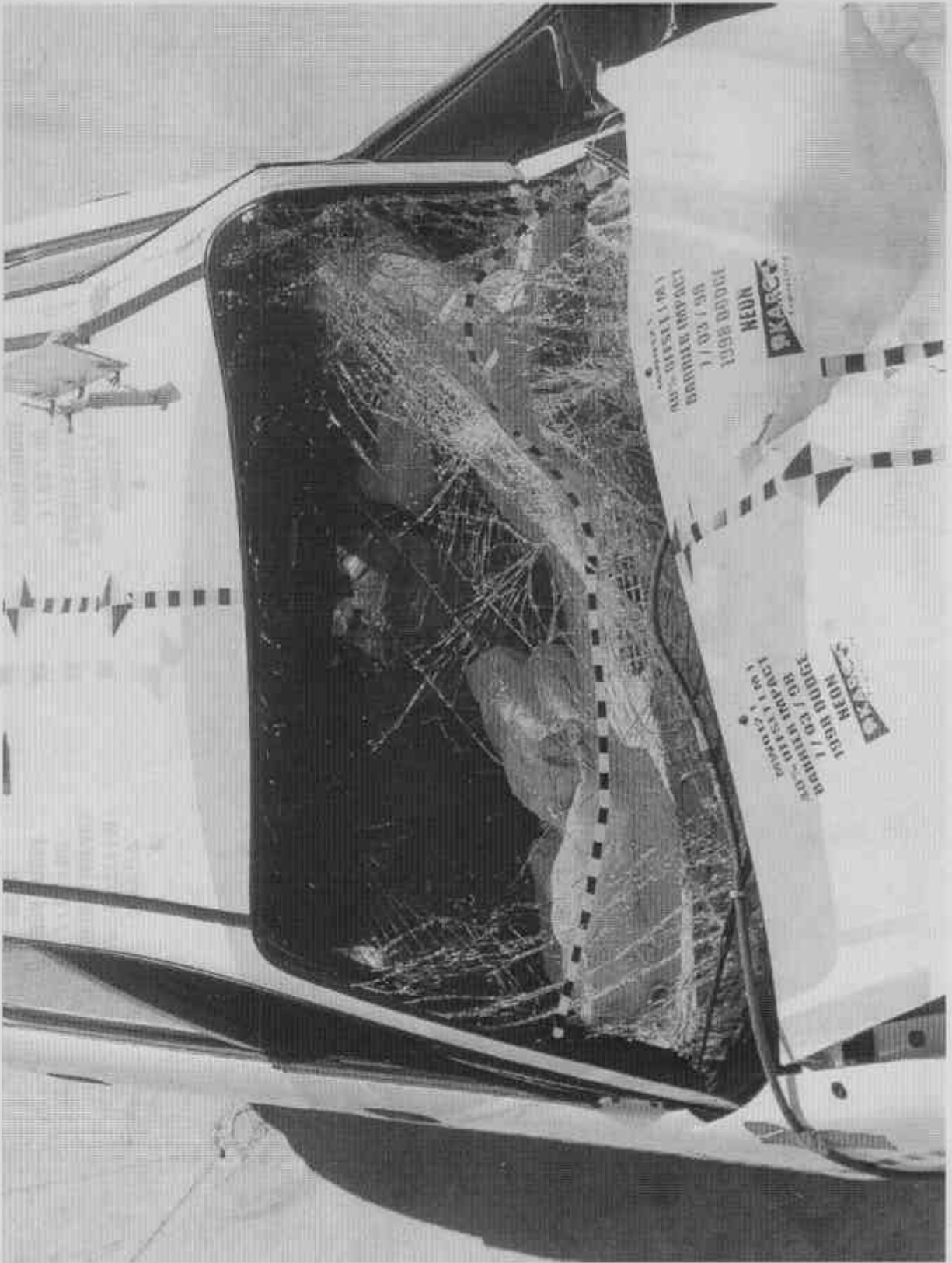


FIGURE A-16. POST-TEST WINDSHIELD

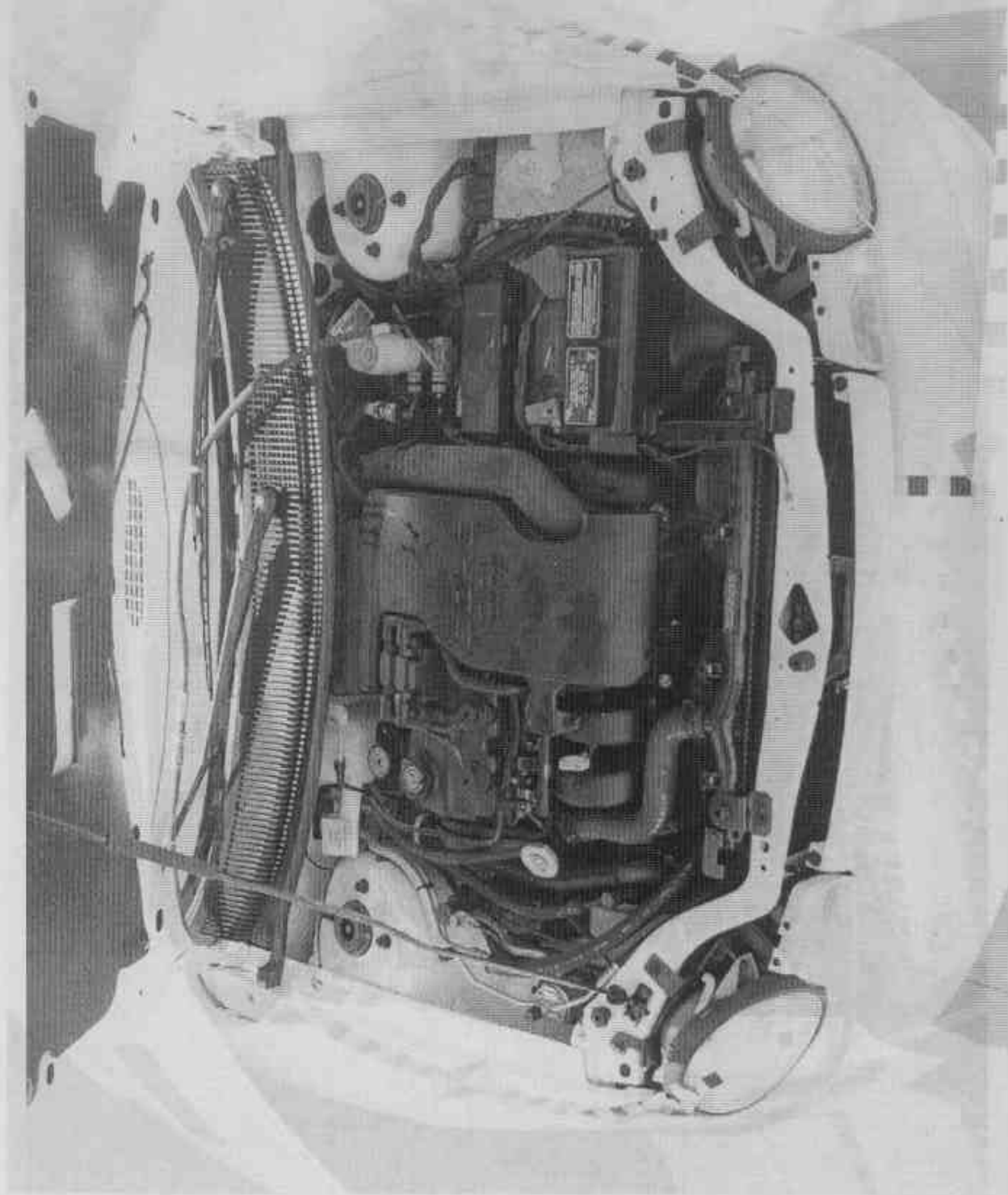


FIGURE A-17. PRE-TEST ENGINE COMPARTMENT

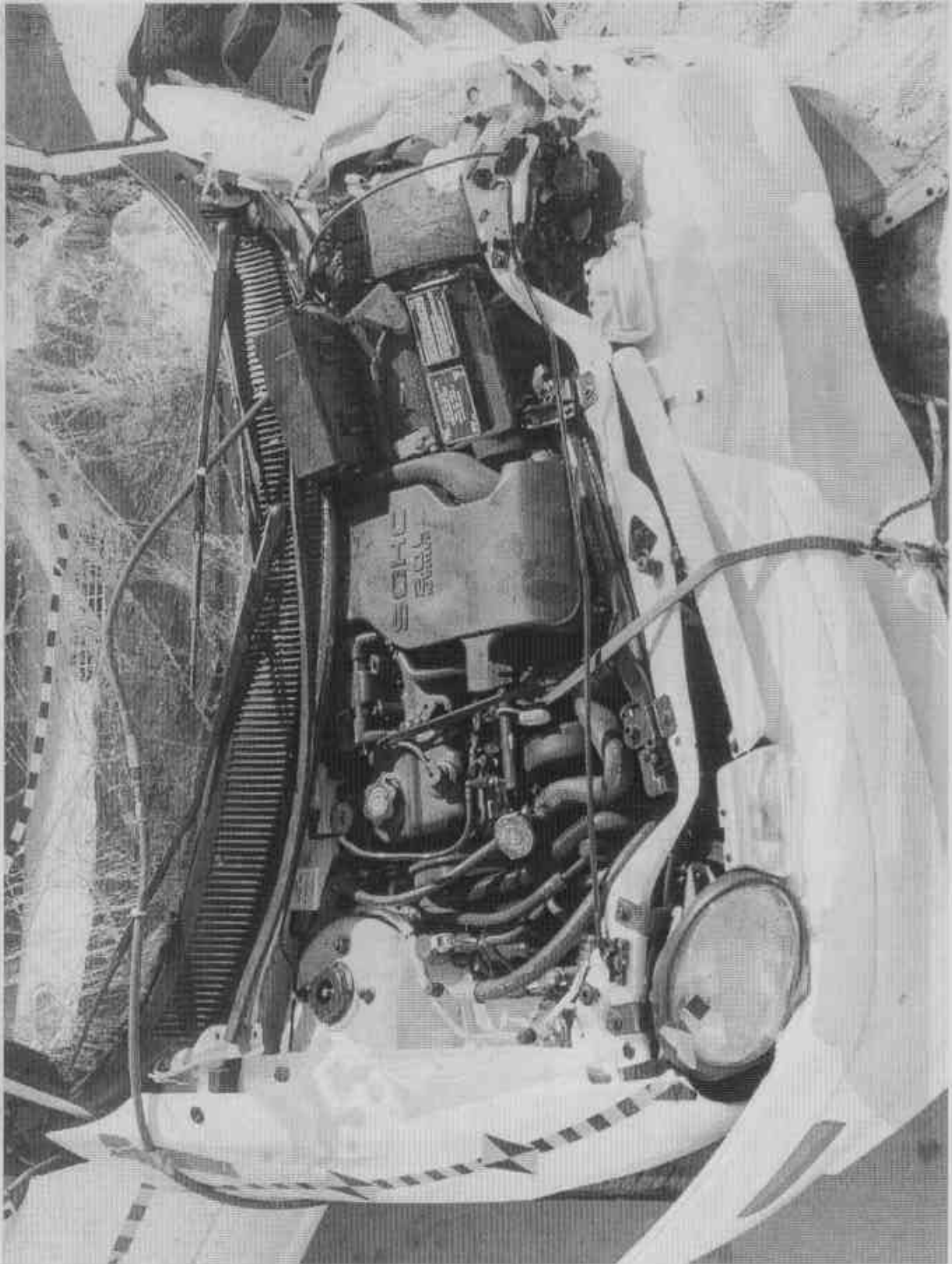


FIGURE A-18. POST-TEST ENGINE COMPARTMENT



FIGURE A-19. PRE-TEST FUEL CAP

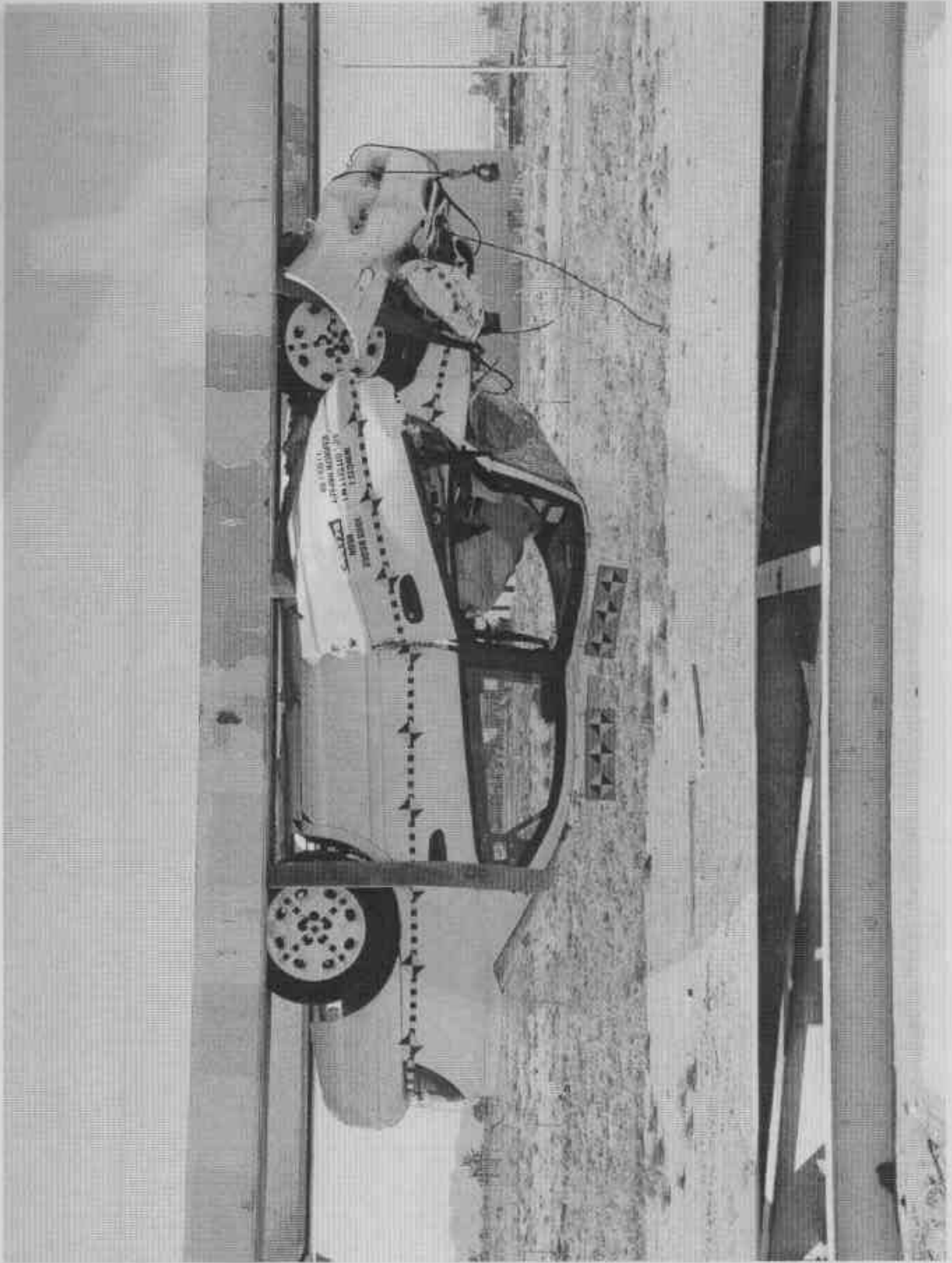


FIGURE A-20. VEHICLE ON ROLLOVER

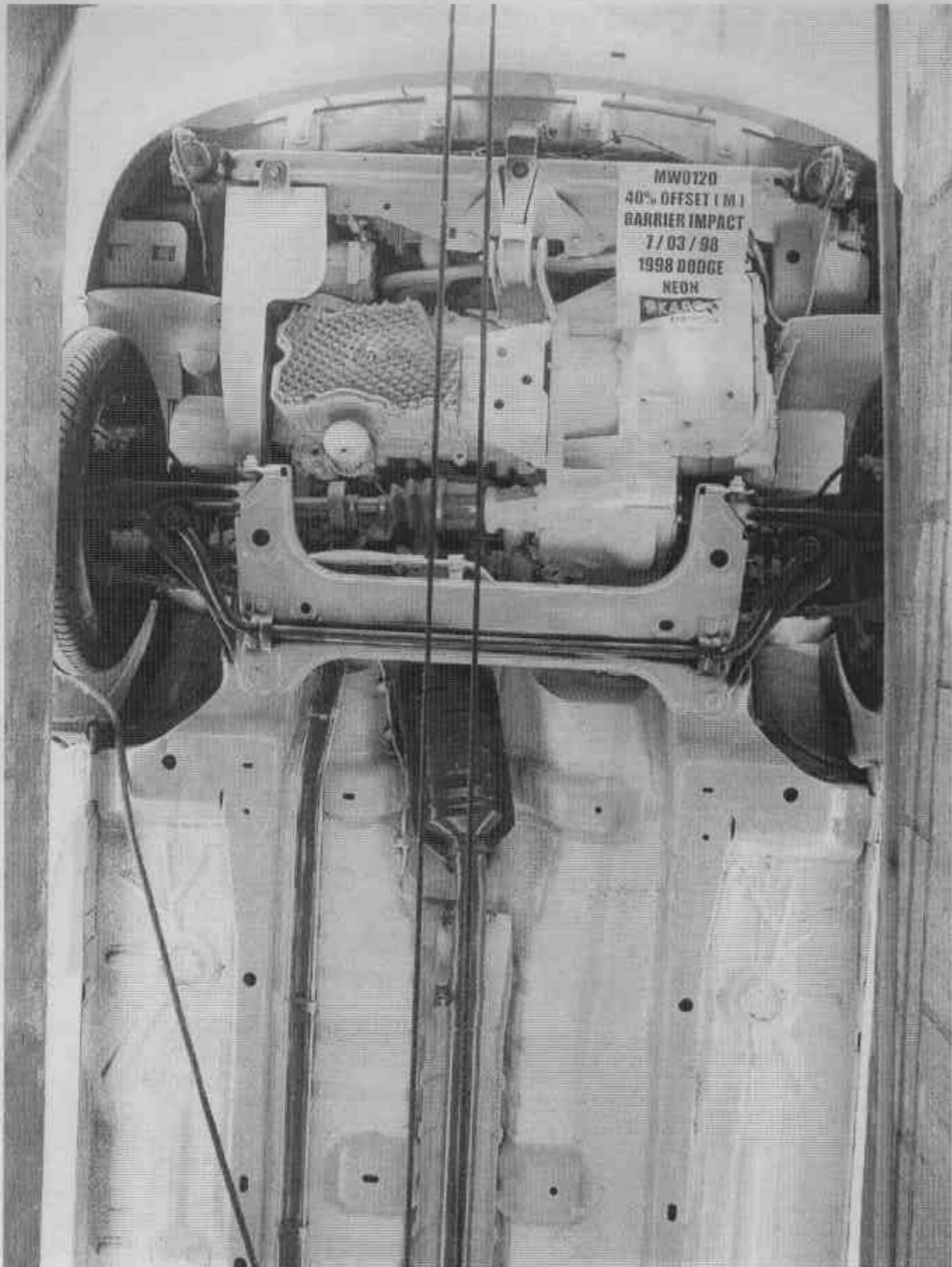


FIGURE A-21. PRE-TEST FRONT UNDERSIDE

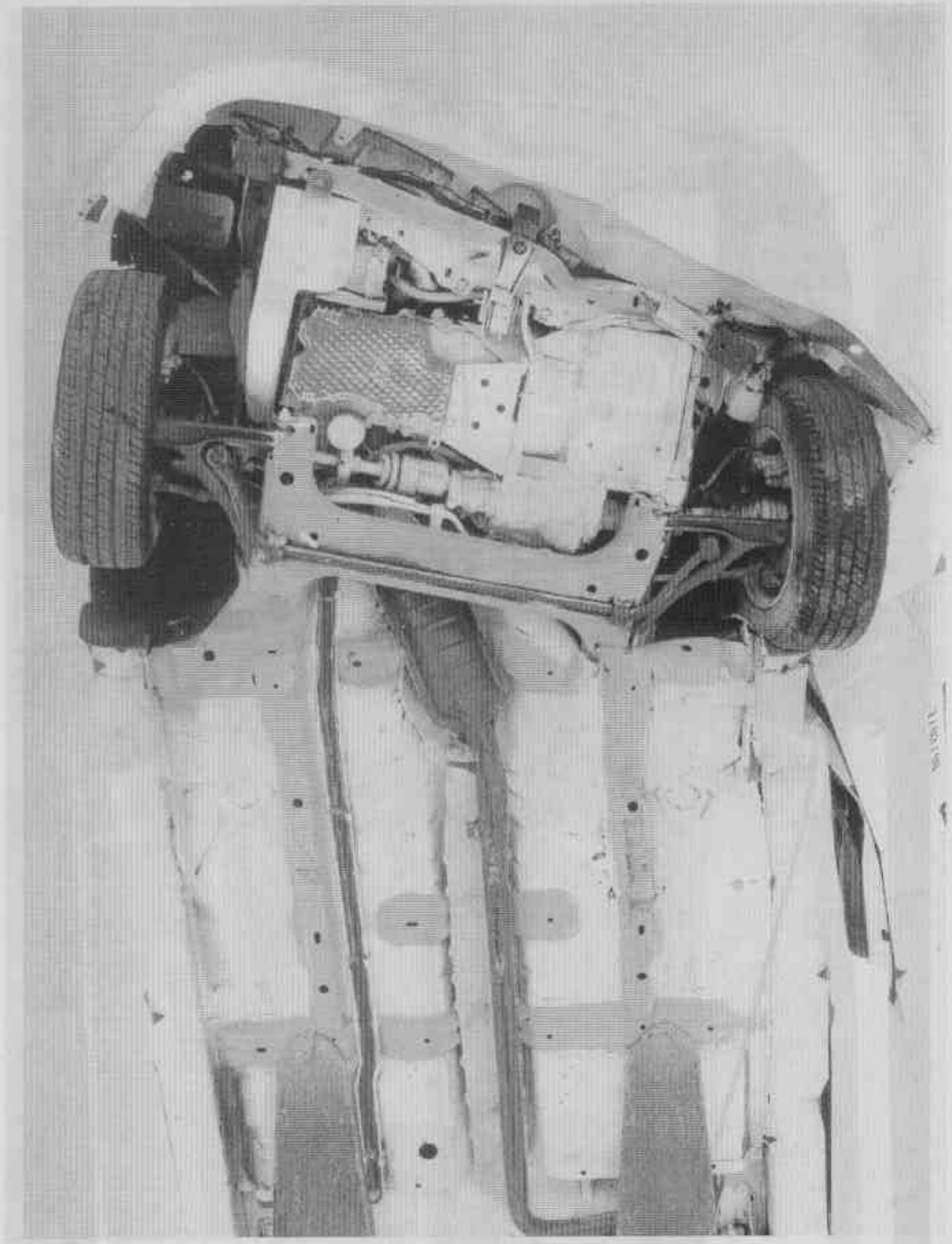


FIGURE A-22. POST-TEST FRONT UNDERSIDE

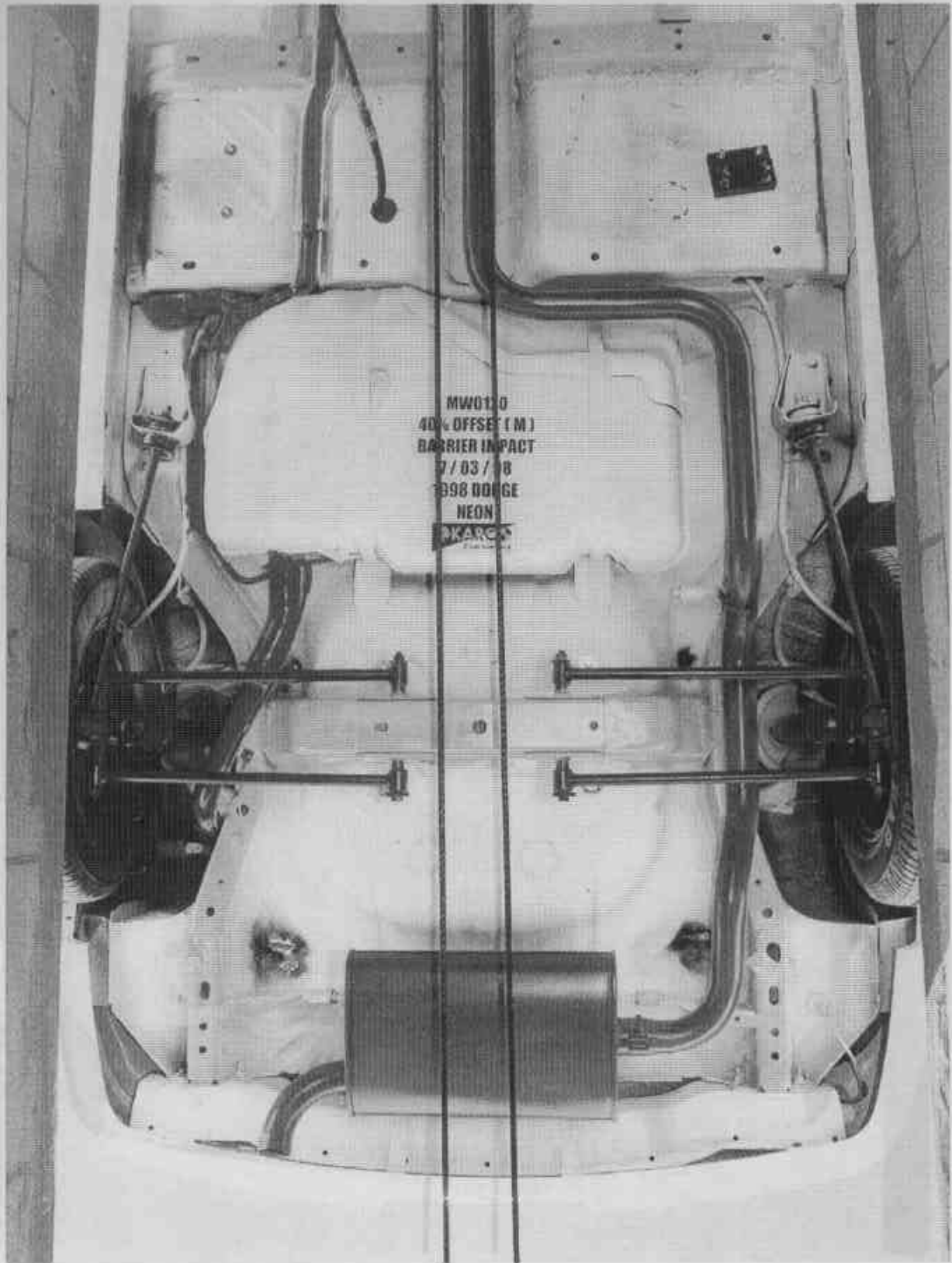


FIGURE A-23. PRE-TEST REAR UNDERSIDE

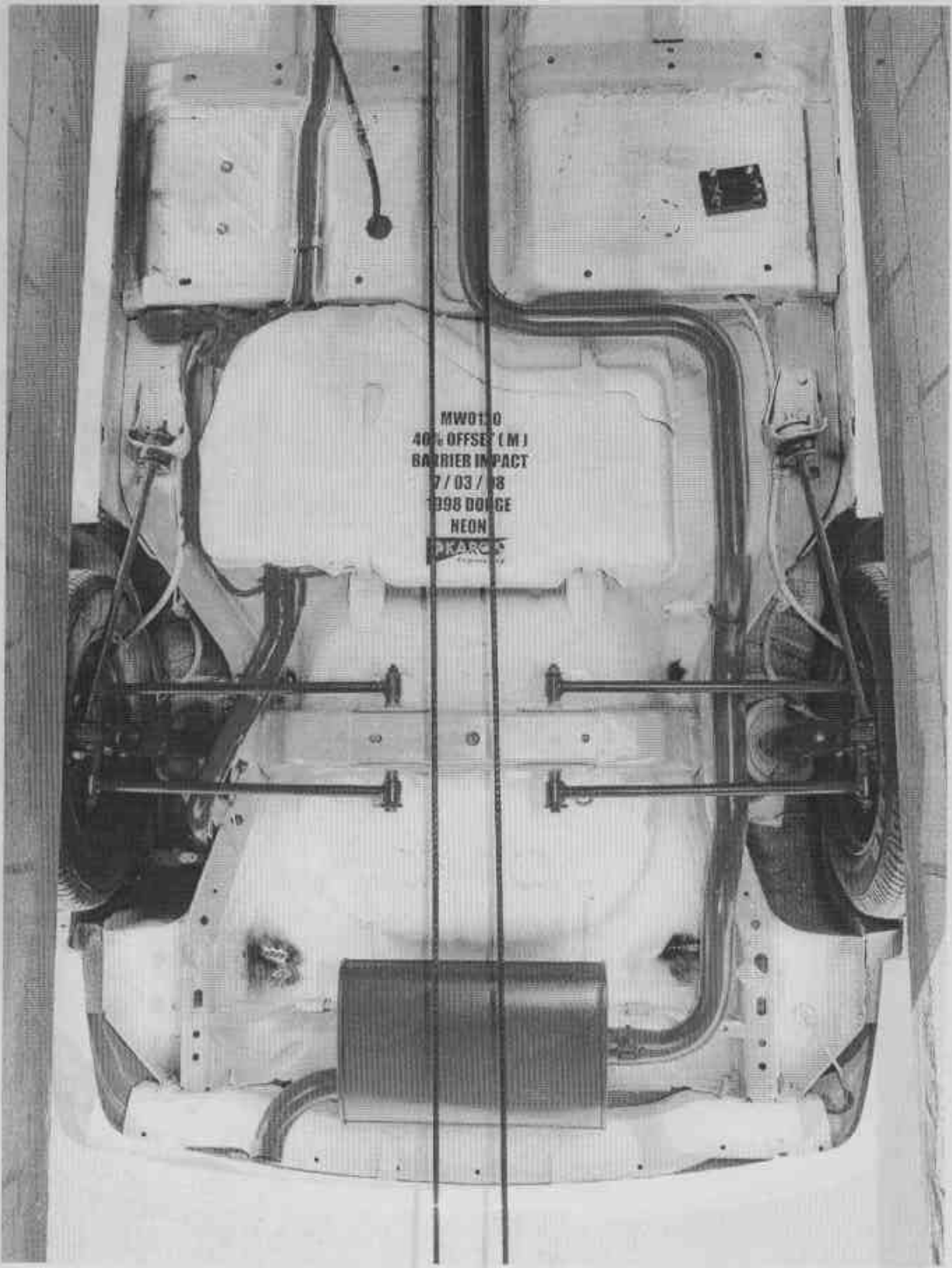


FIGURE A-24. POST-TEST REAR UNDERSIDE

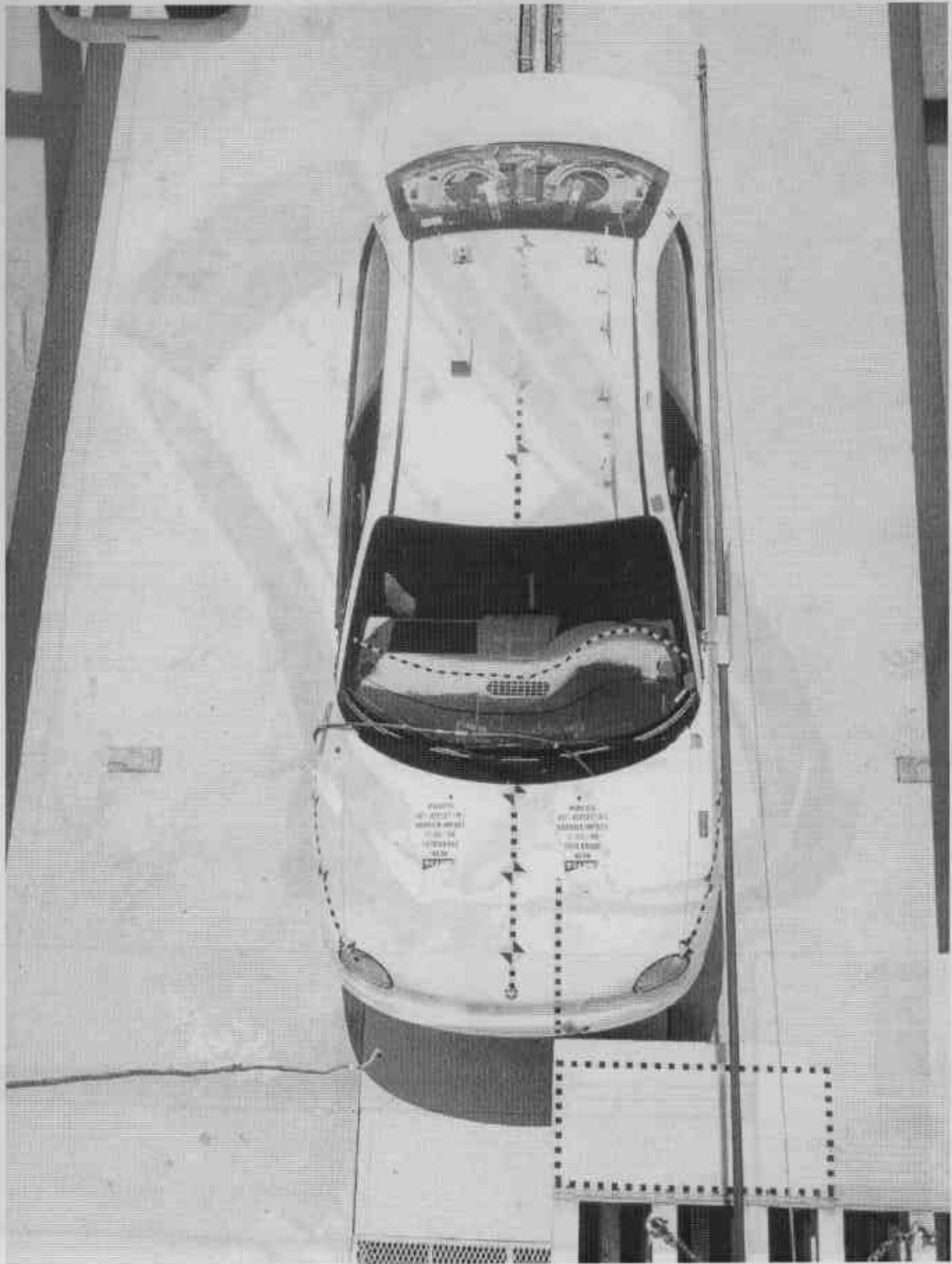


FIGURE A-25. PRE-TEST OVERHEAD OVERALL

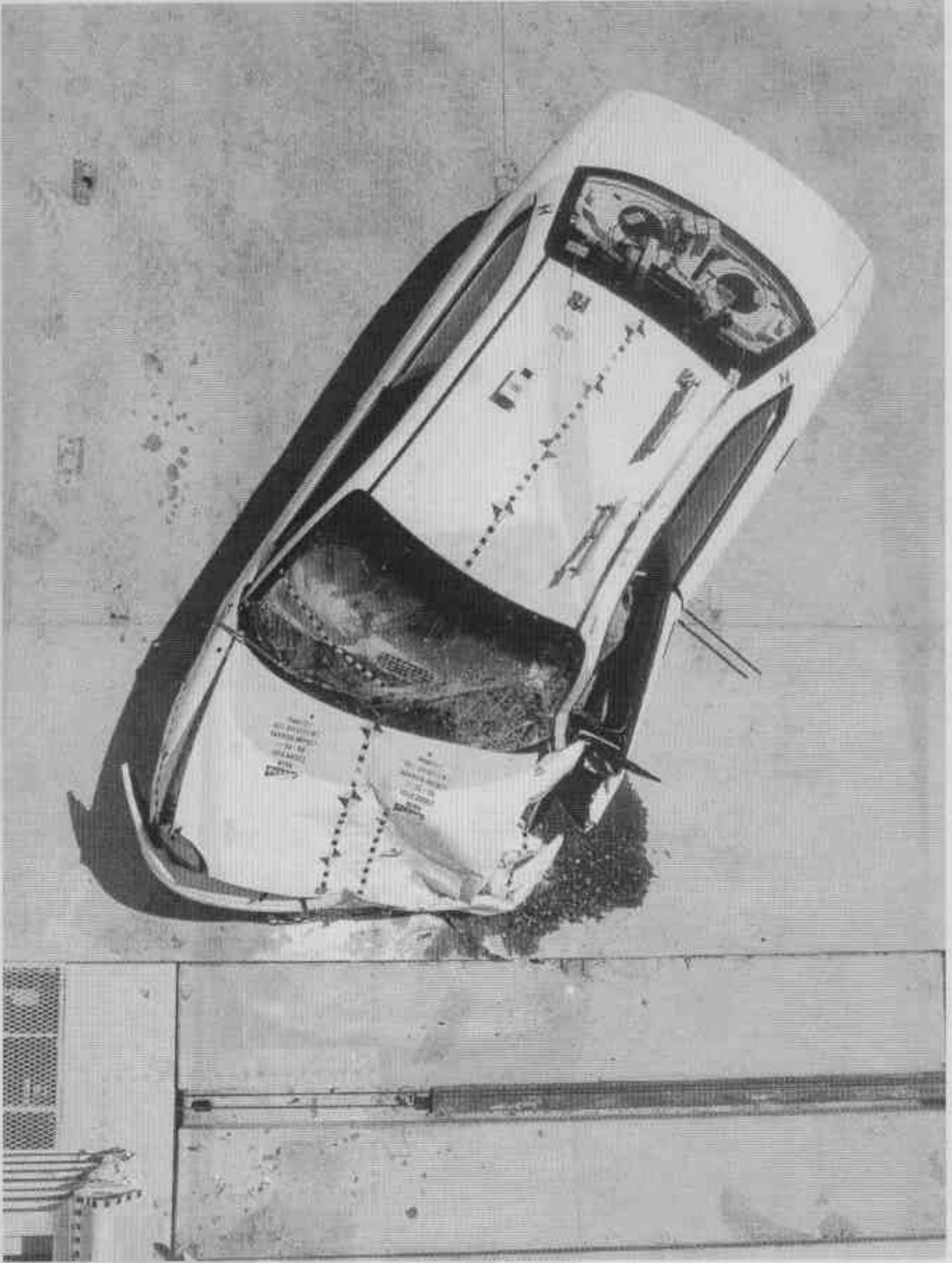


FIGURE A-26. POST-TEST OVERHEAD OVERALL

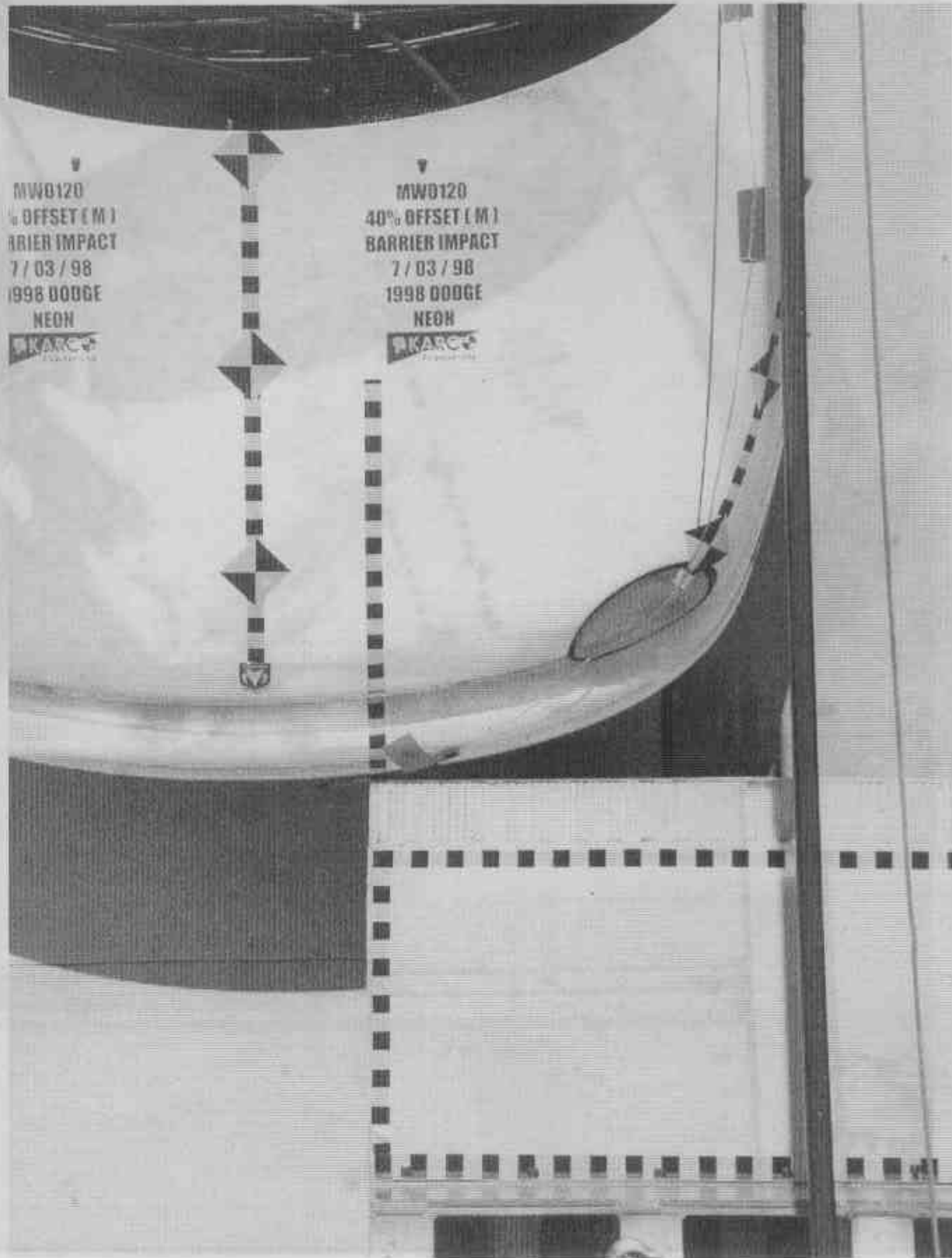


FIGURE A-27. PRE-TEST OVERHEAD CLOSE-UP

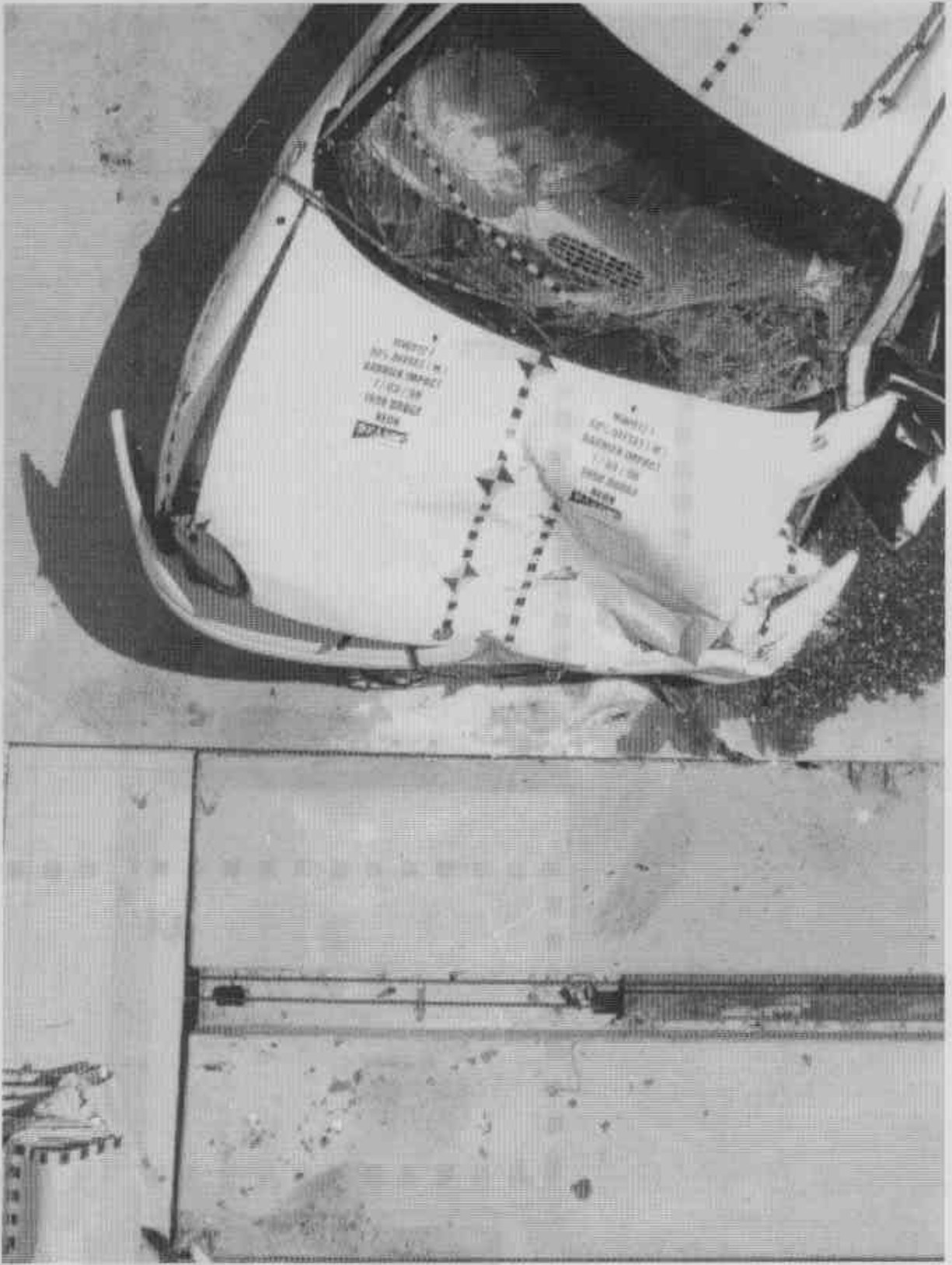


FIGURE A-28. POST-TEST OVERHEAD CLOSE-UP



FIGURE A-29. PRE-TEST DRIVER DUMMY (THROUGH WINDOW)



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



FIGURE A-31. PRE-TEST DRIVER DUMMY (DOOR OPEN)



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



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



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



FIGURE A-35. PRE-TEST DRIVER DUMMY FEET

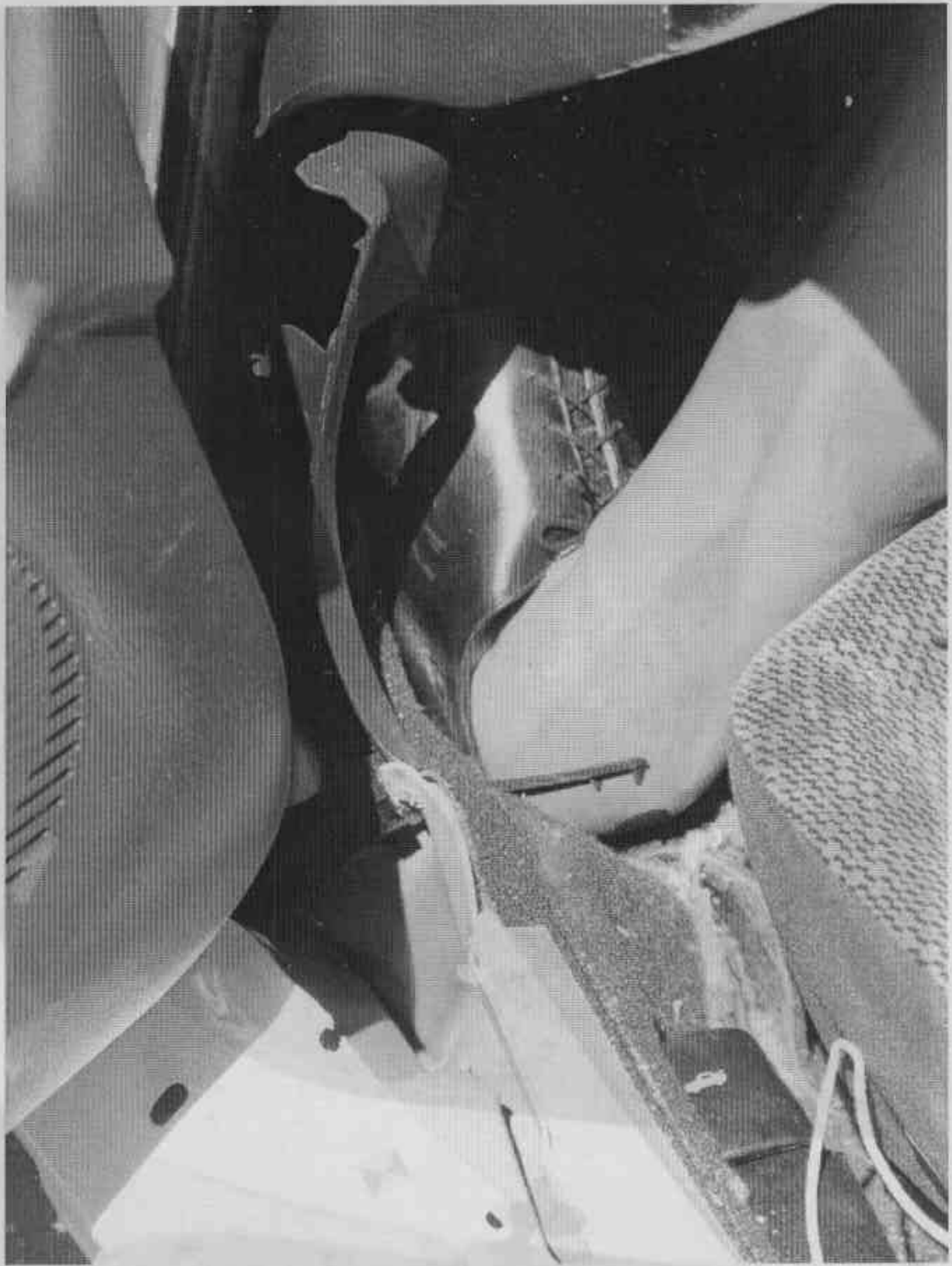


FIGURE A-36. POST-TEST DRIVER DUMMY FEET

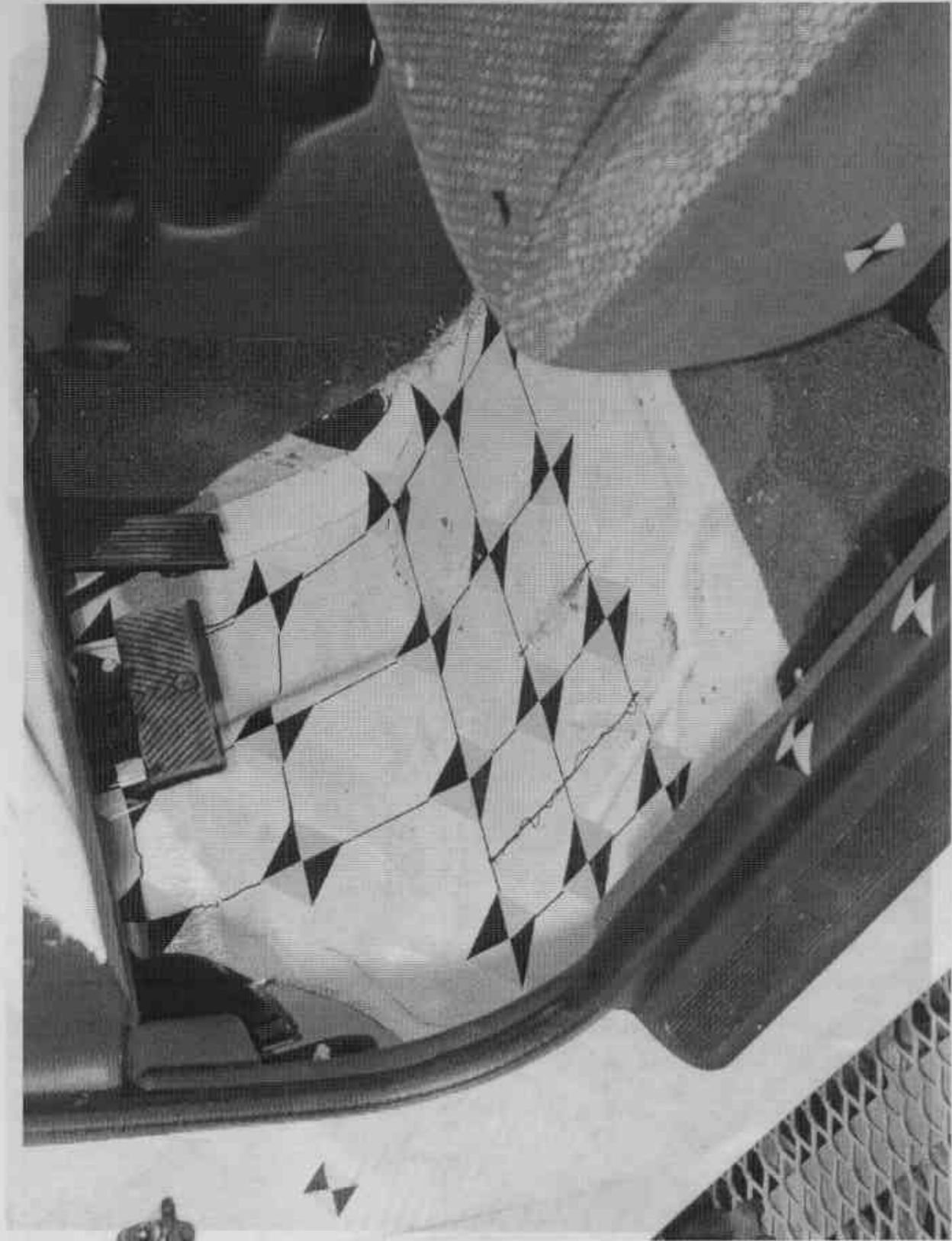


FIGURE A-37. PRE-TEST DRIVER SIDE FLOOR PAN

33-00000PAN

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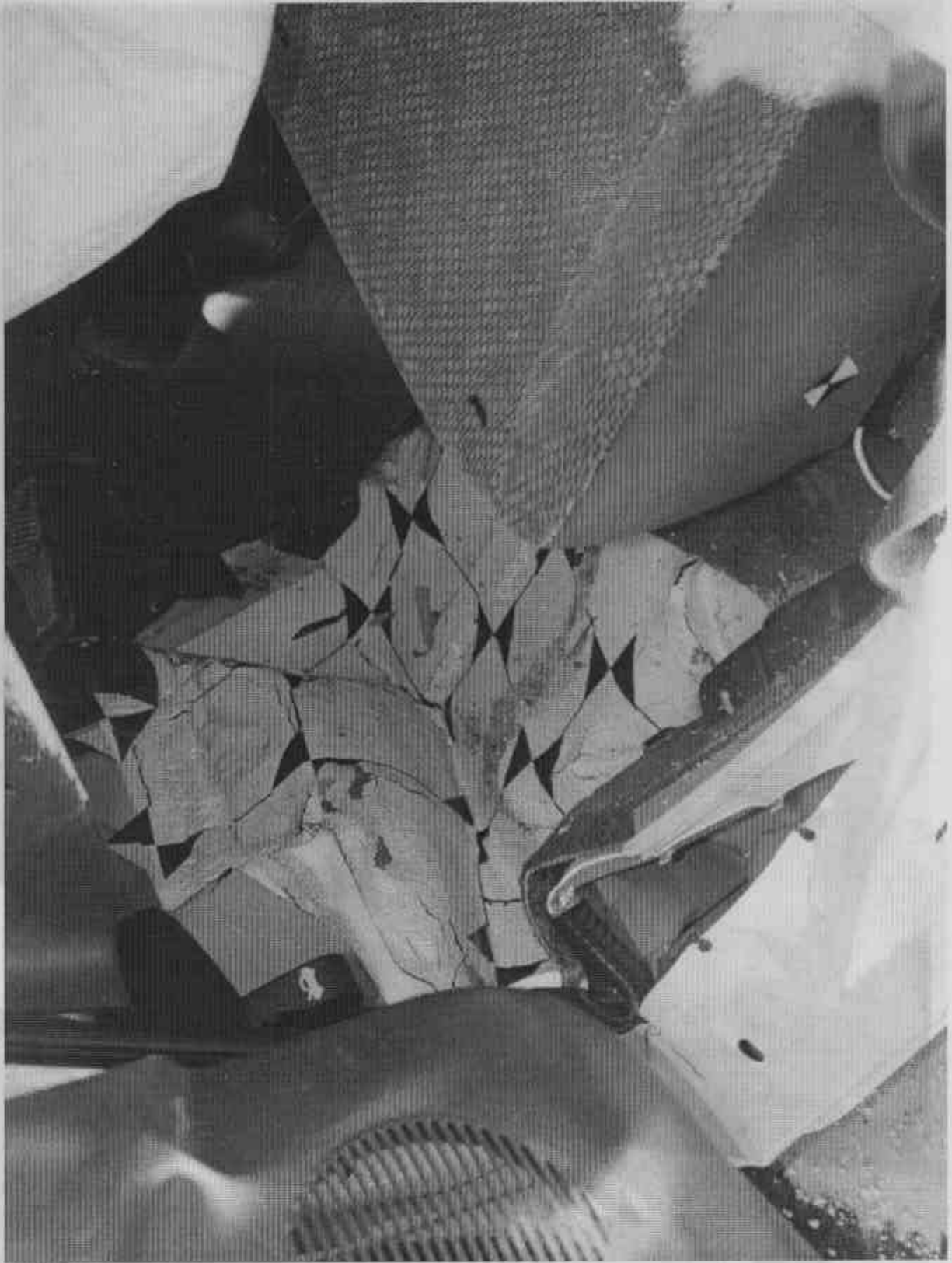


FIGURE A-38. POST-TEST DRIVER SIDE FLOOR PAN

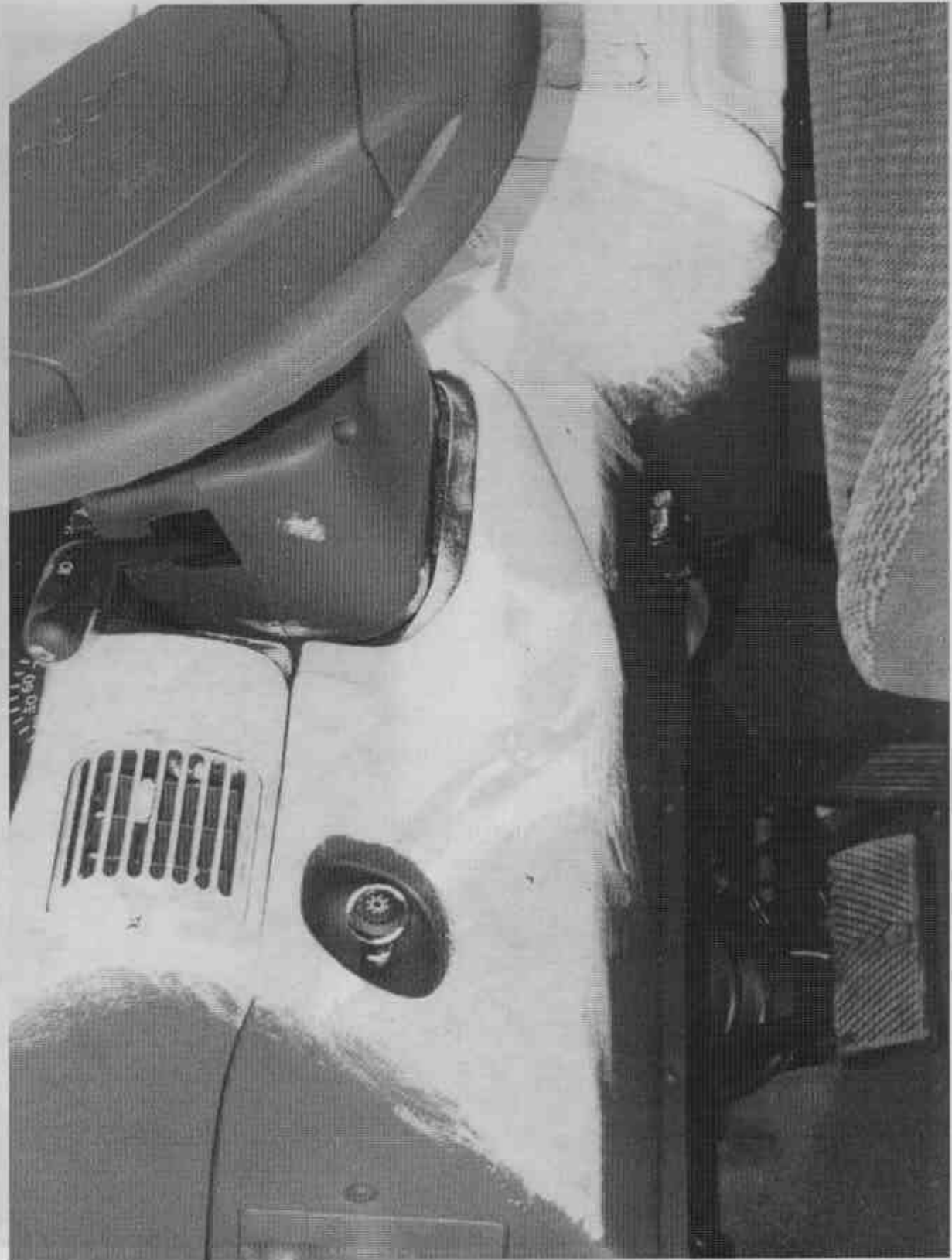


FIGURE A-39. PRE-TEST DRIVER SIDE KNEE BOLSTER

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FIGURE A-40. POST-TEST DRIVER KNEE BOLSTER AND DUMMY CONTACT



FIGURE A-41. POST-TEST DRIVER DUMMY HEAD



FIGURE A-42. POST-TEST DRIVER DUMMY CONTACT POINT



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



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



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



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



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



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

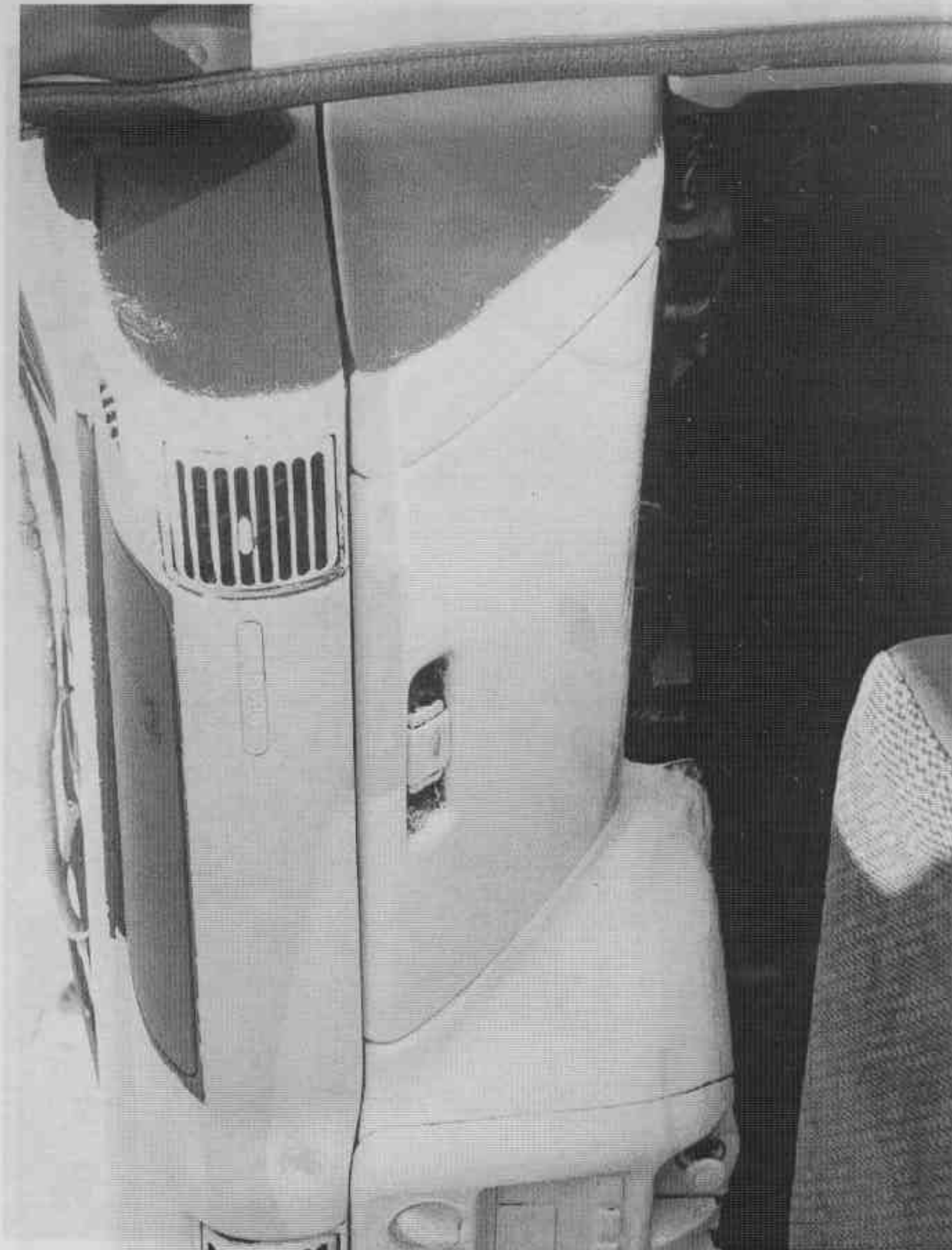


FIGURE A-49. PRE-TEST PASSENGER SIDE KNEE BOLSTER

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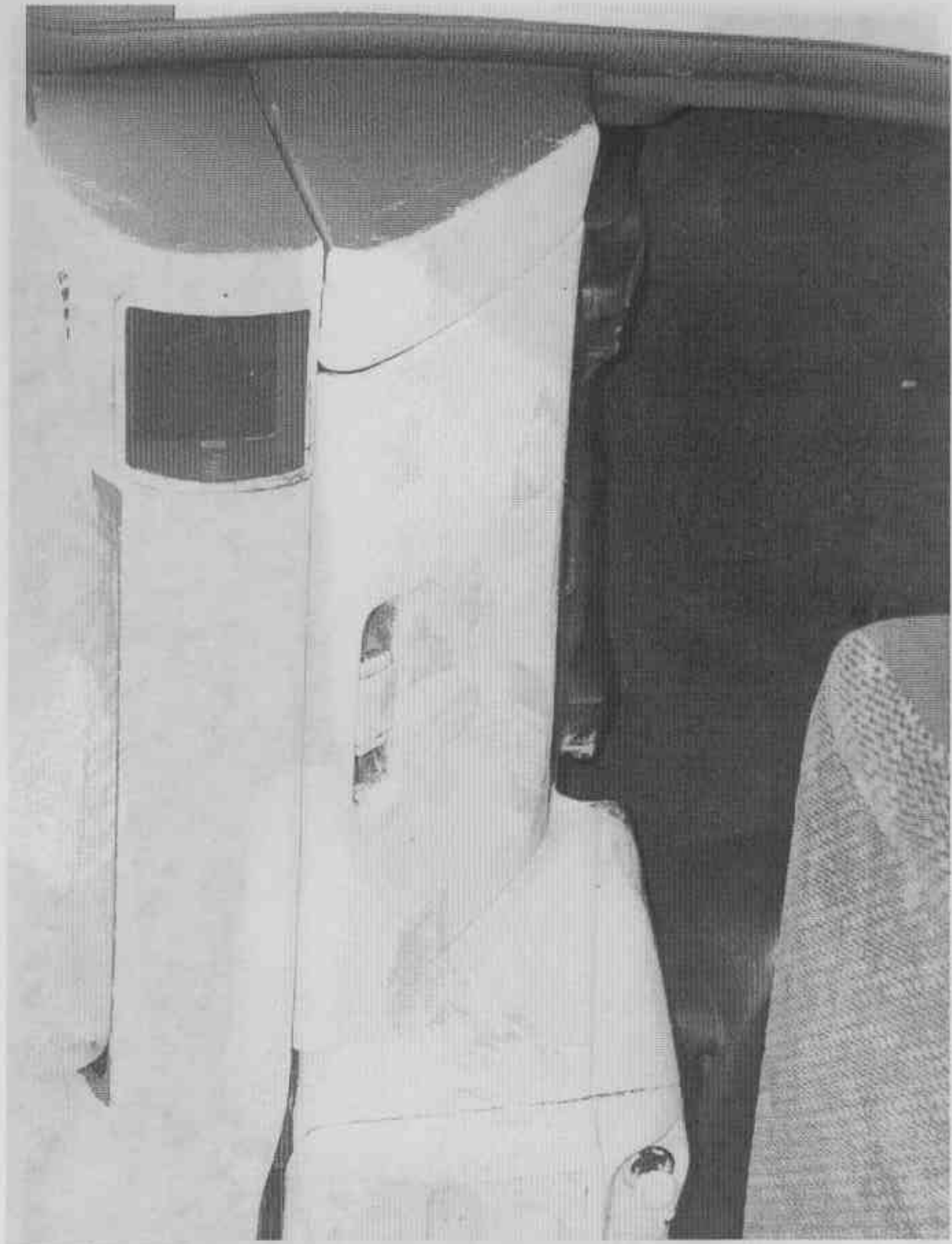


FIGURE A-50. POST-TEST PASSENGER KNEE BOLSTER AND DUMMY CONTACT



FIGURE A-51. POST-TEST PASSENGER DUMMY HEAD



FIGURE A-52. POST-TEST PASSENGER DUMMY CONTACT POINT

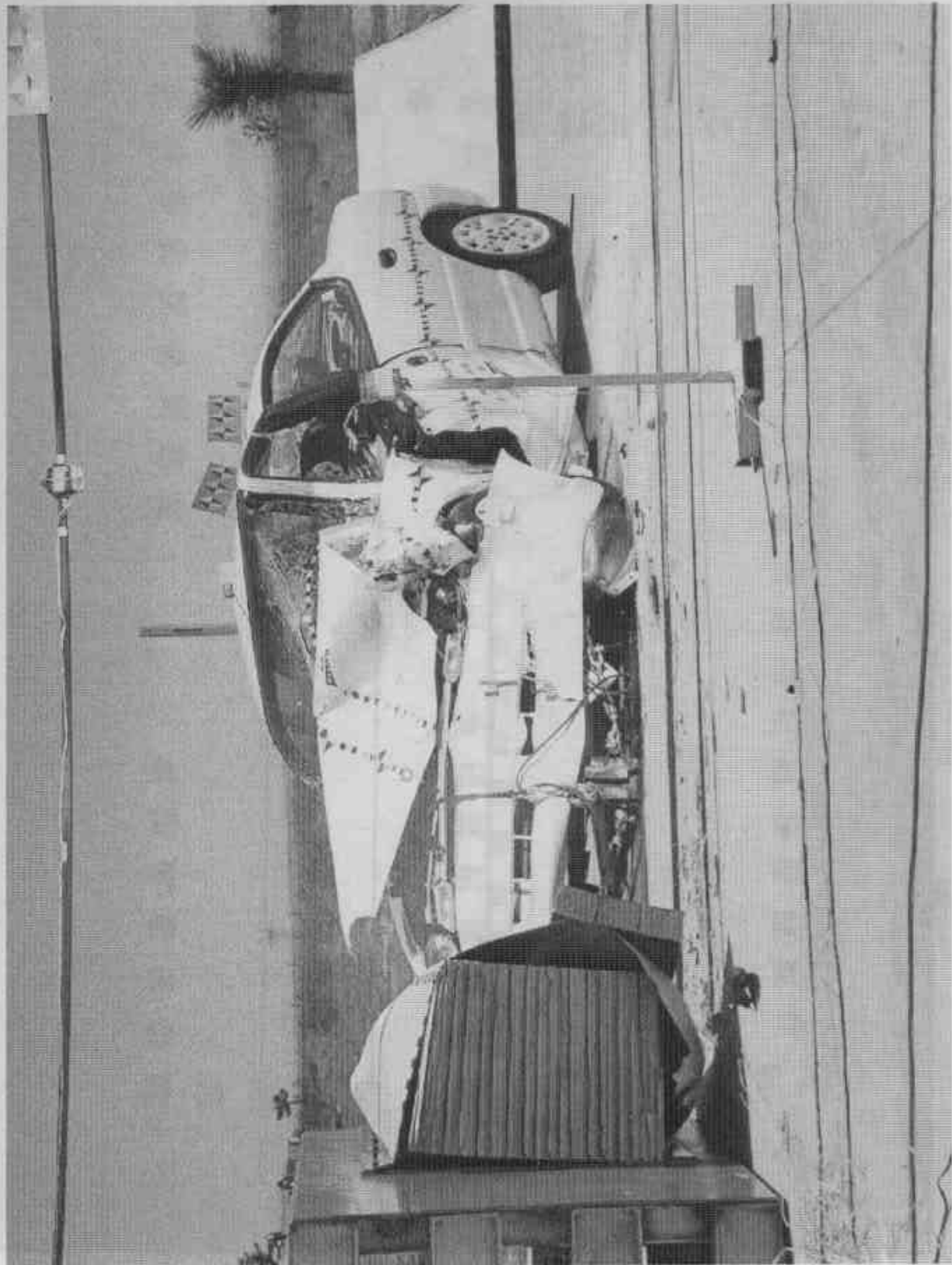


FIGURE A-53. VEHICLE DURING IMPACT

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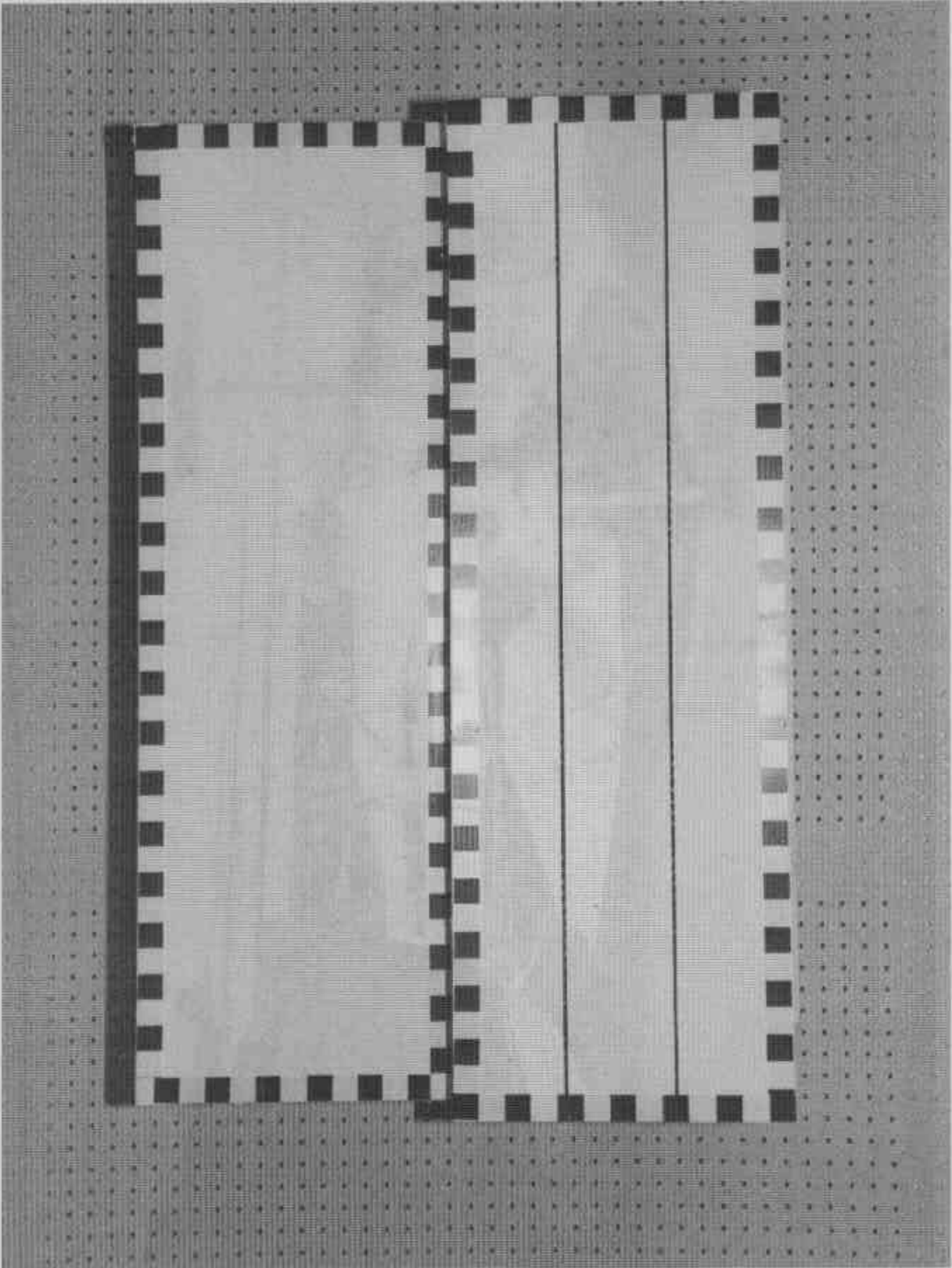


FIGURE A-54. PRE-TEST BARRIER FRONT VIEW

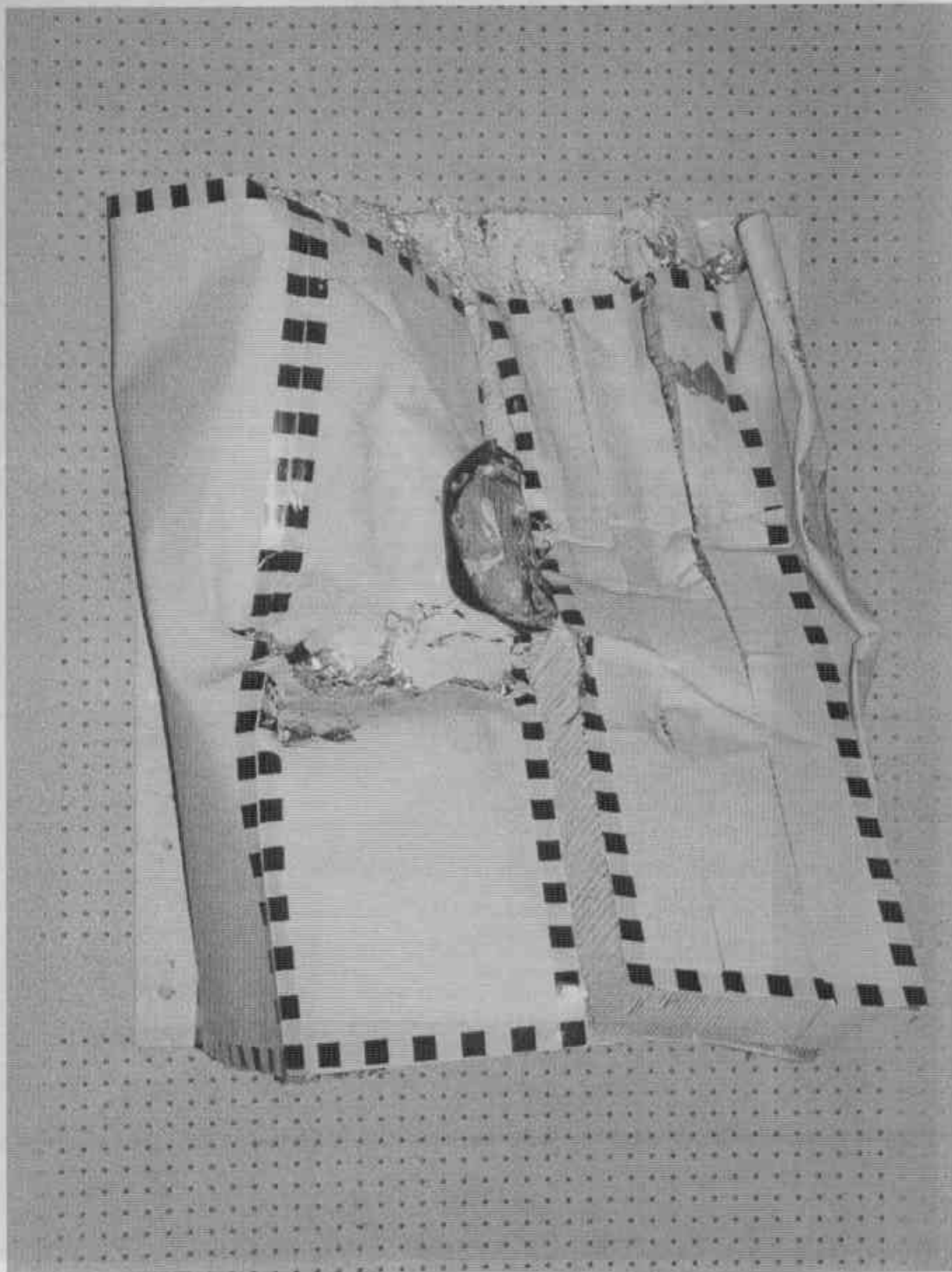


FIGURE A-55. POST-TEST BARRIER FRONT VIEW

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KAR98002-02

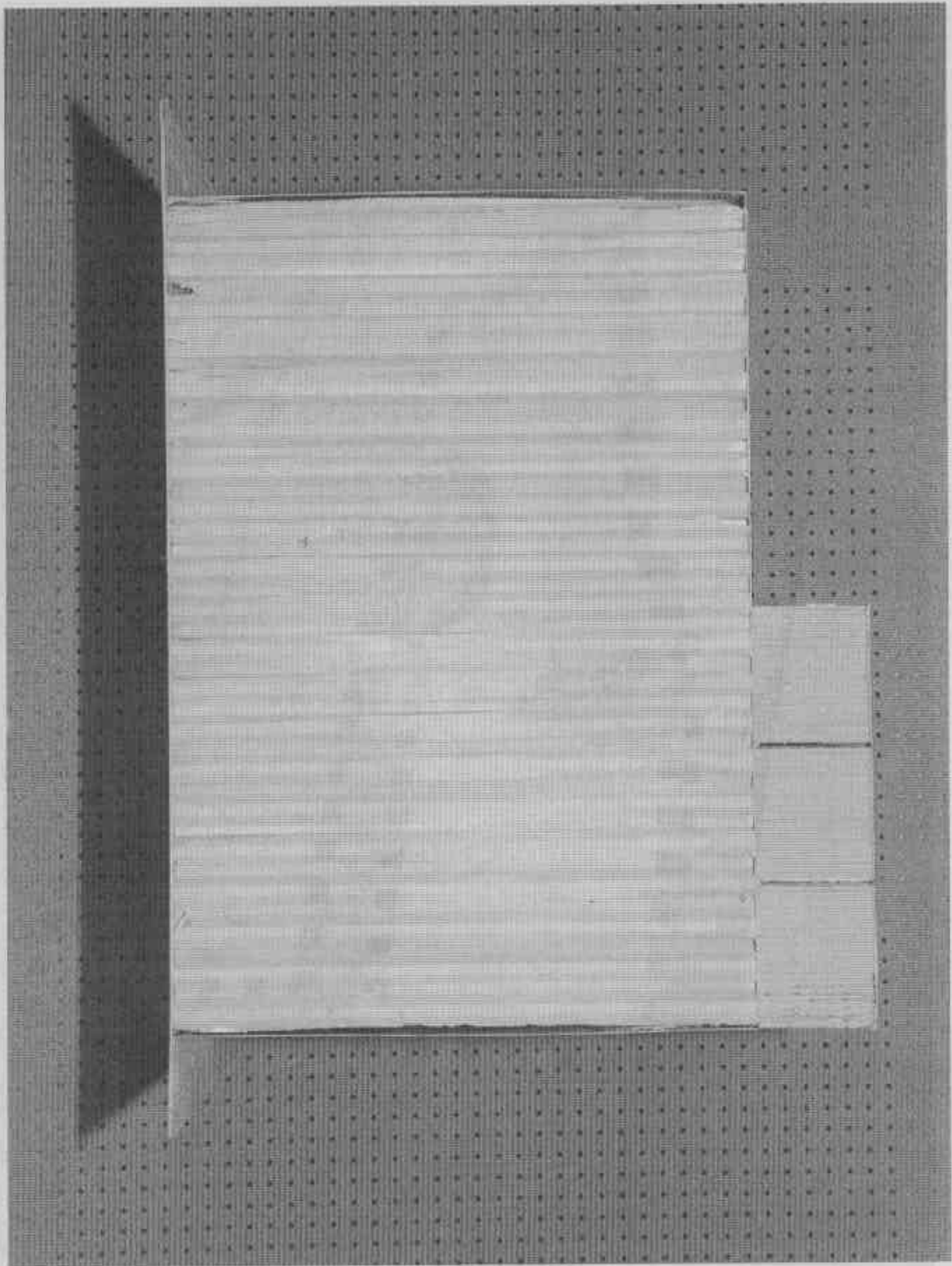


FIGURE A-56. PRE-TEST BARRIER LEFT SIDE VIEW

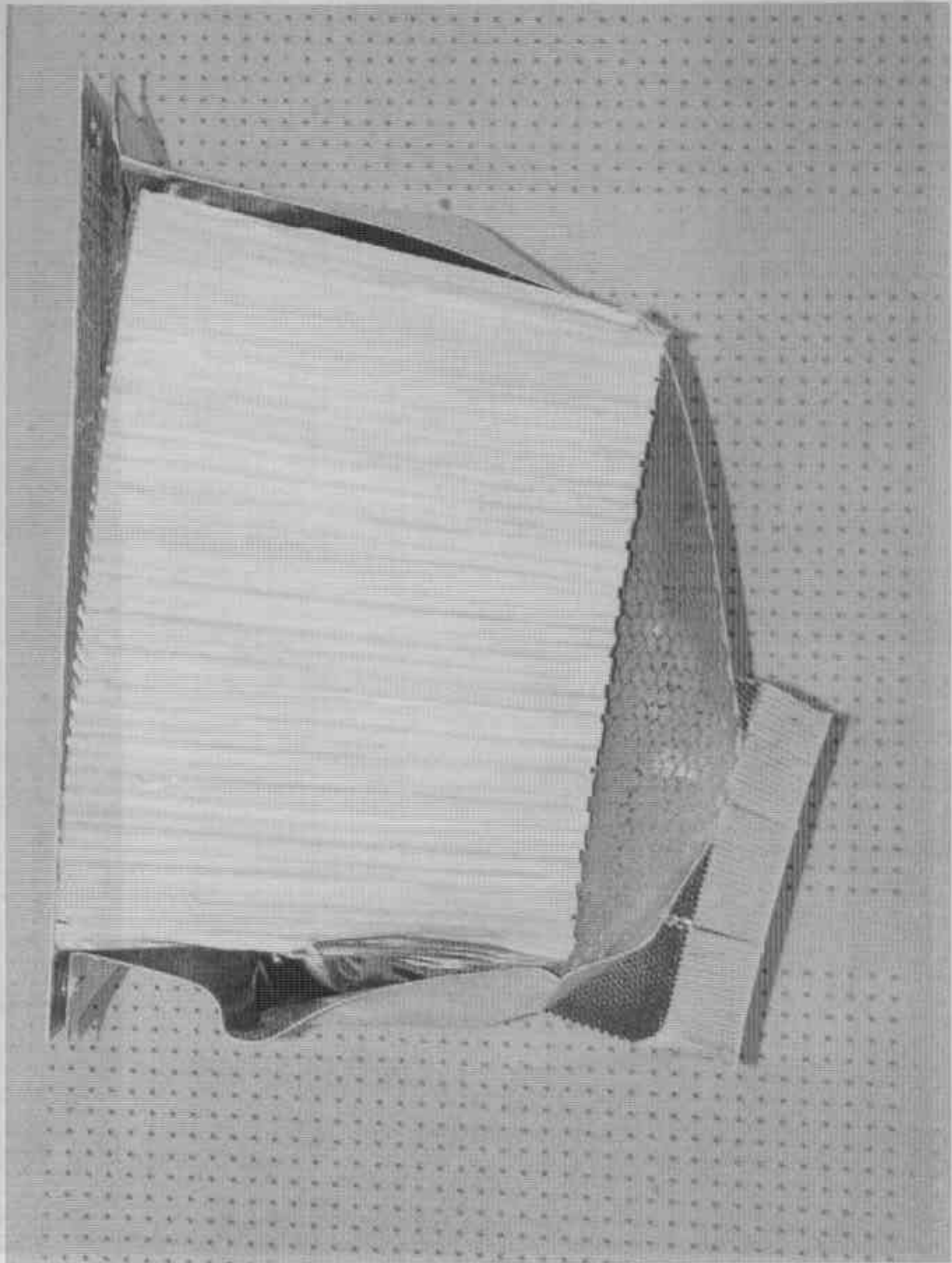


FIGURE A-57. POST-TEST BARRIER LEFT SIDE VIEW

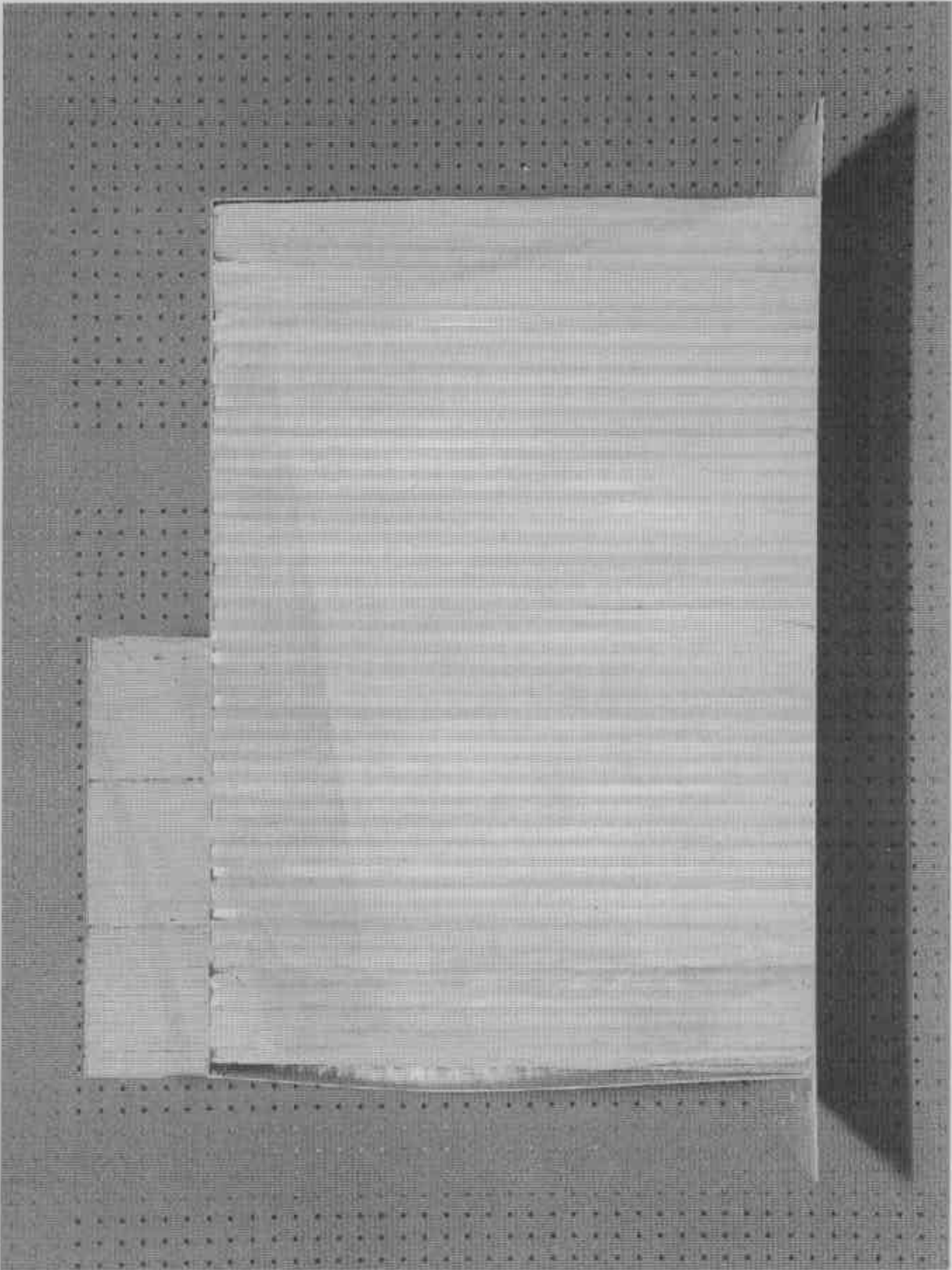


FIGURE A-58. PRE-TEST BARRIER RIGHT SIDE VIEW

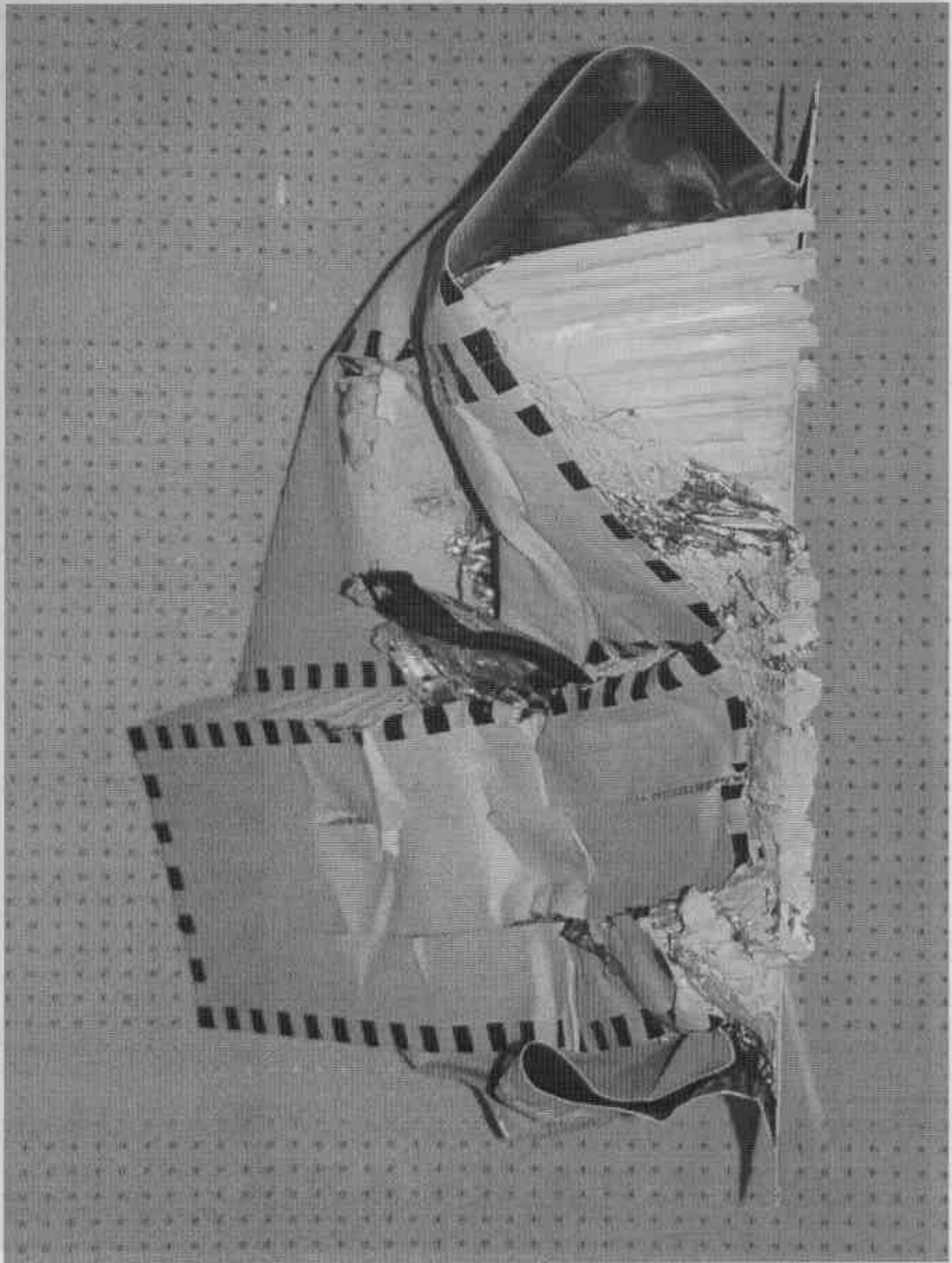


FIGURE A-59. POST-TEST BARRIER RIGHT SIDE VIEW

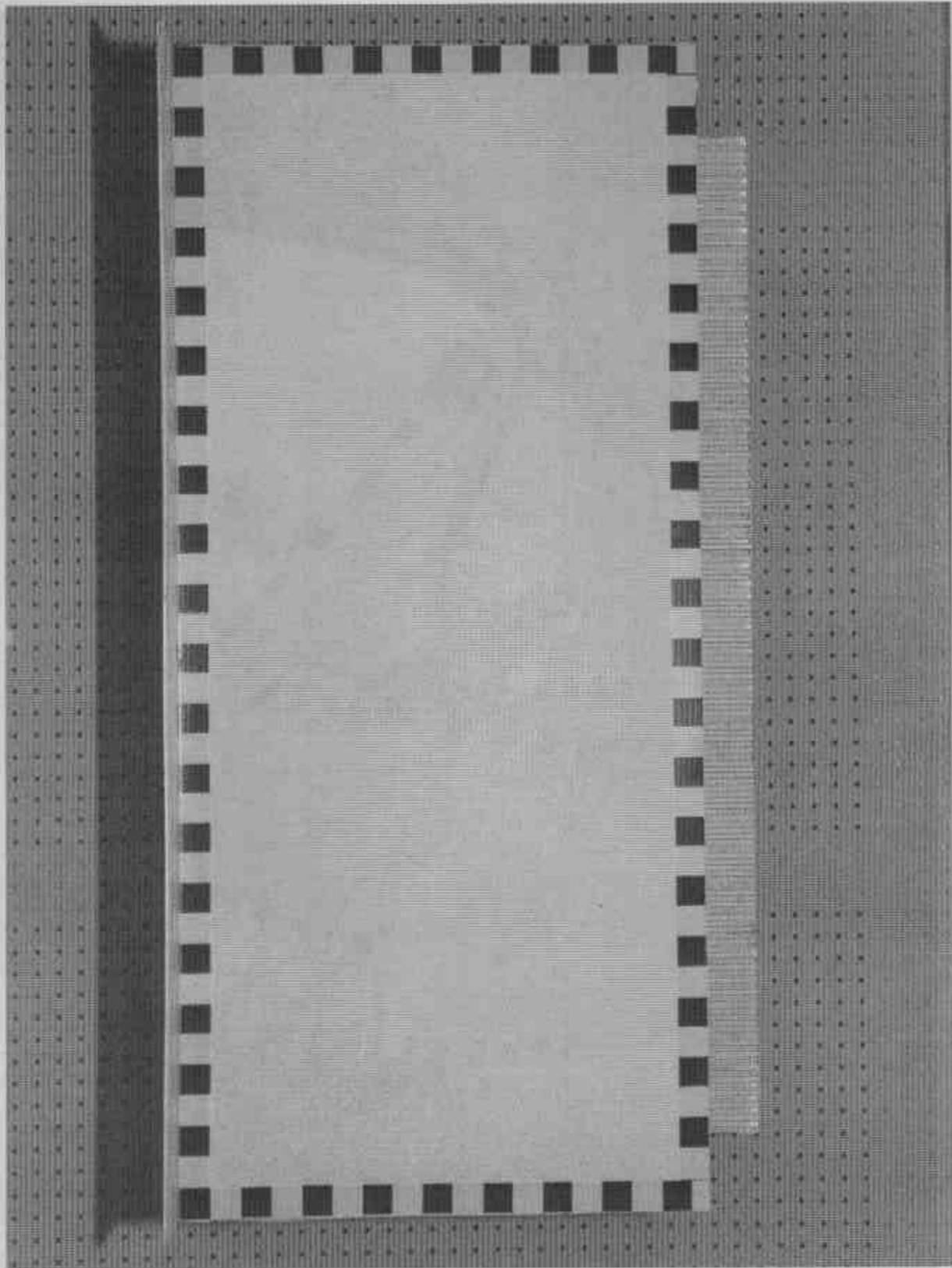


FIGURE A-60. PRE-TEST BARRIER TOP VIEW

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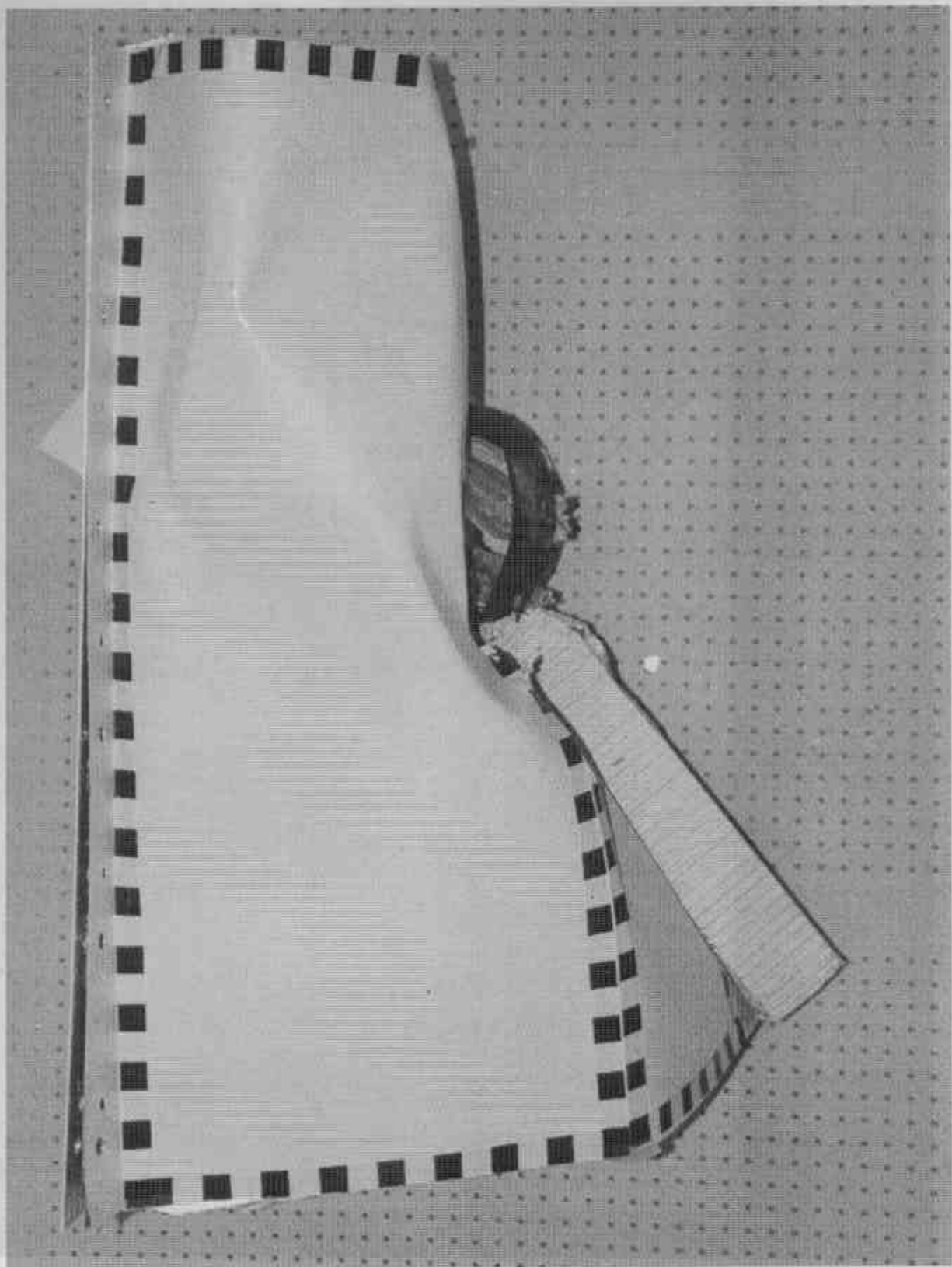


FIGURE A-61. POST-TEST BARRIER TOP VIEW

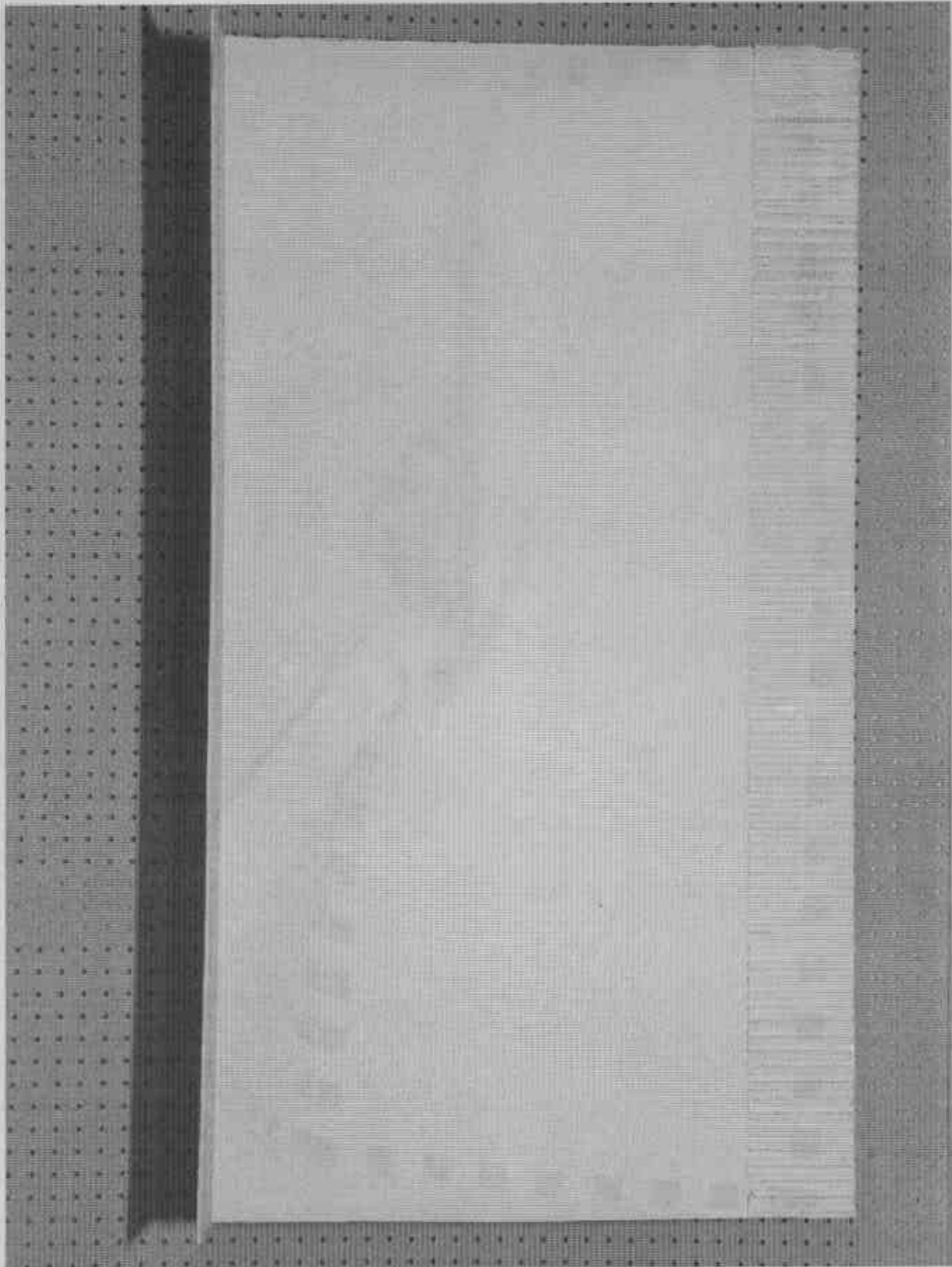


FIGURE A-62. PRE-TEST BARRIER BOTTOM VIEW

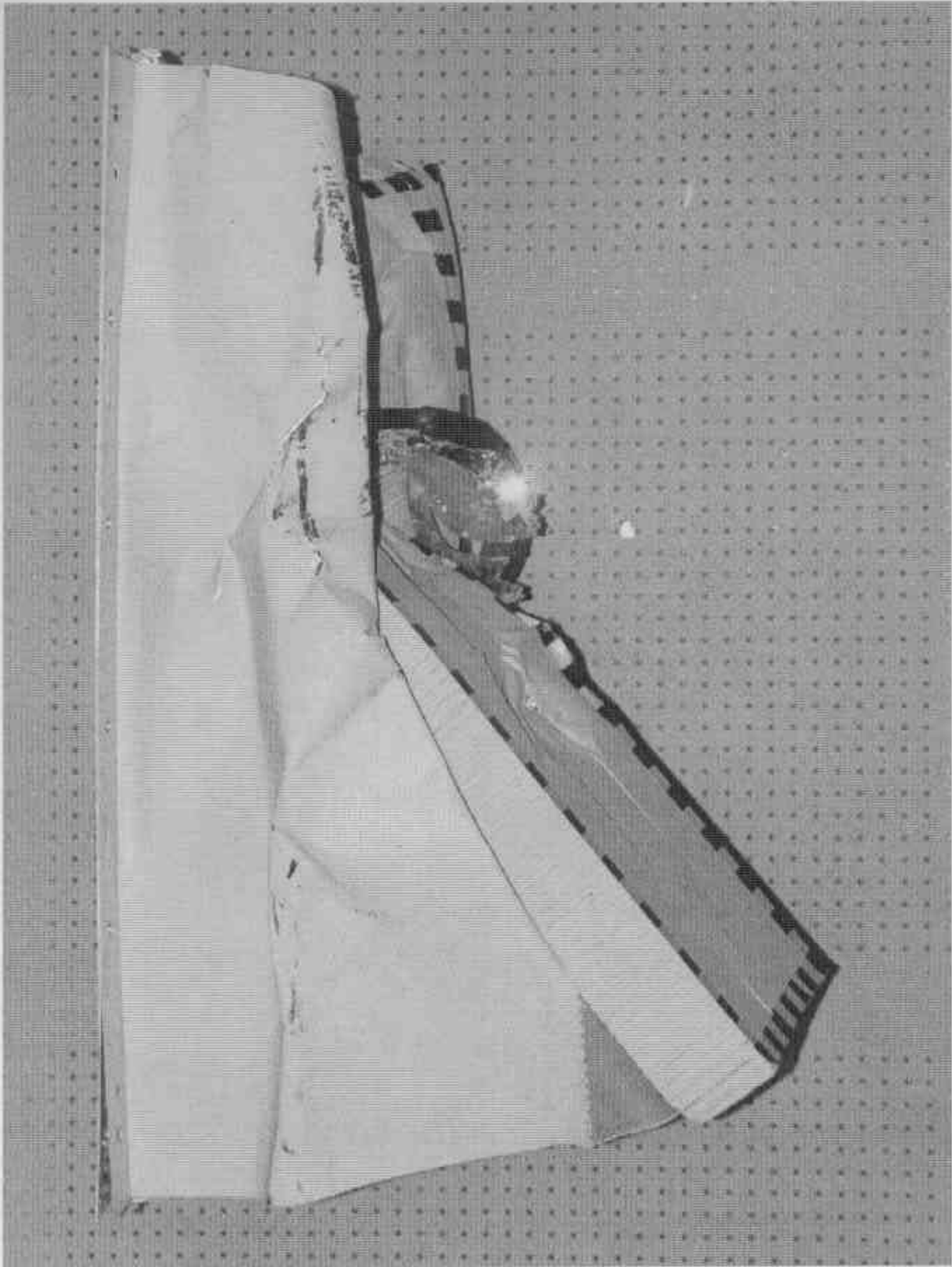


FIGURE A-63. PRE-TEST BARRIER BOTTOM VIEW

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KAR98002-02

**APPENDIX B**  
**DUMMY, VEHICLE AND RESPONSE DATA TRACES**

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## LIST OF DATA PLOTS...(Continued)

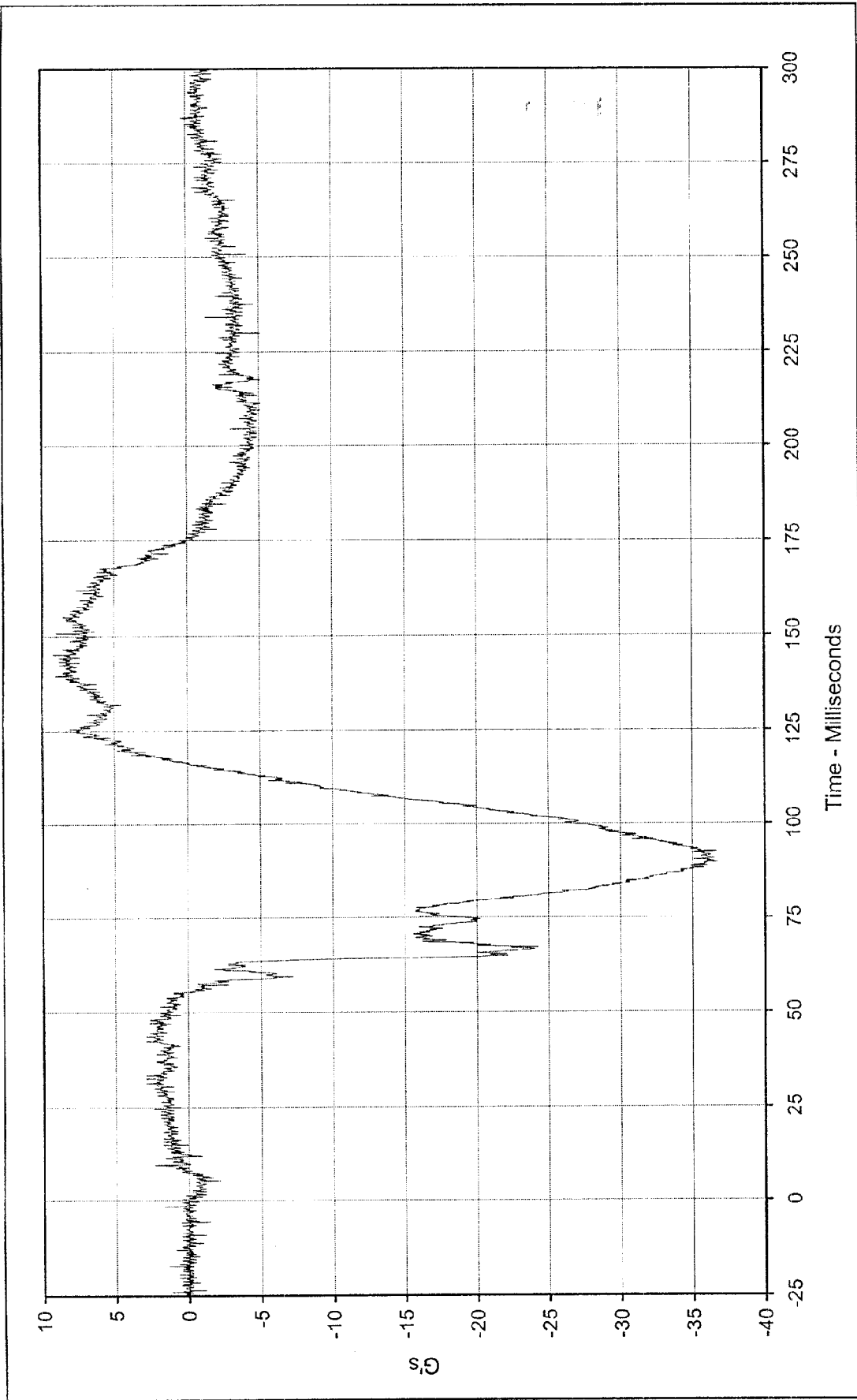
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LIST OF DATA PLOTS...(Continued)

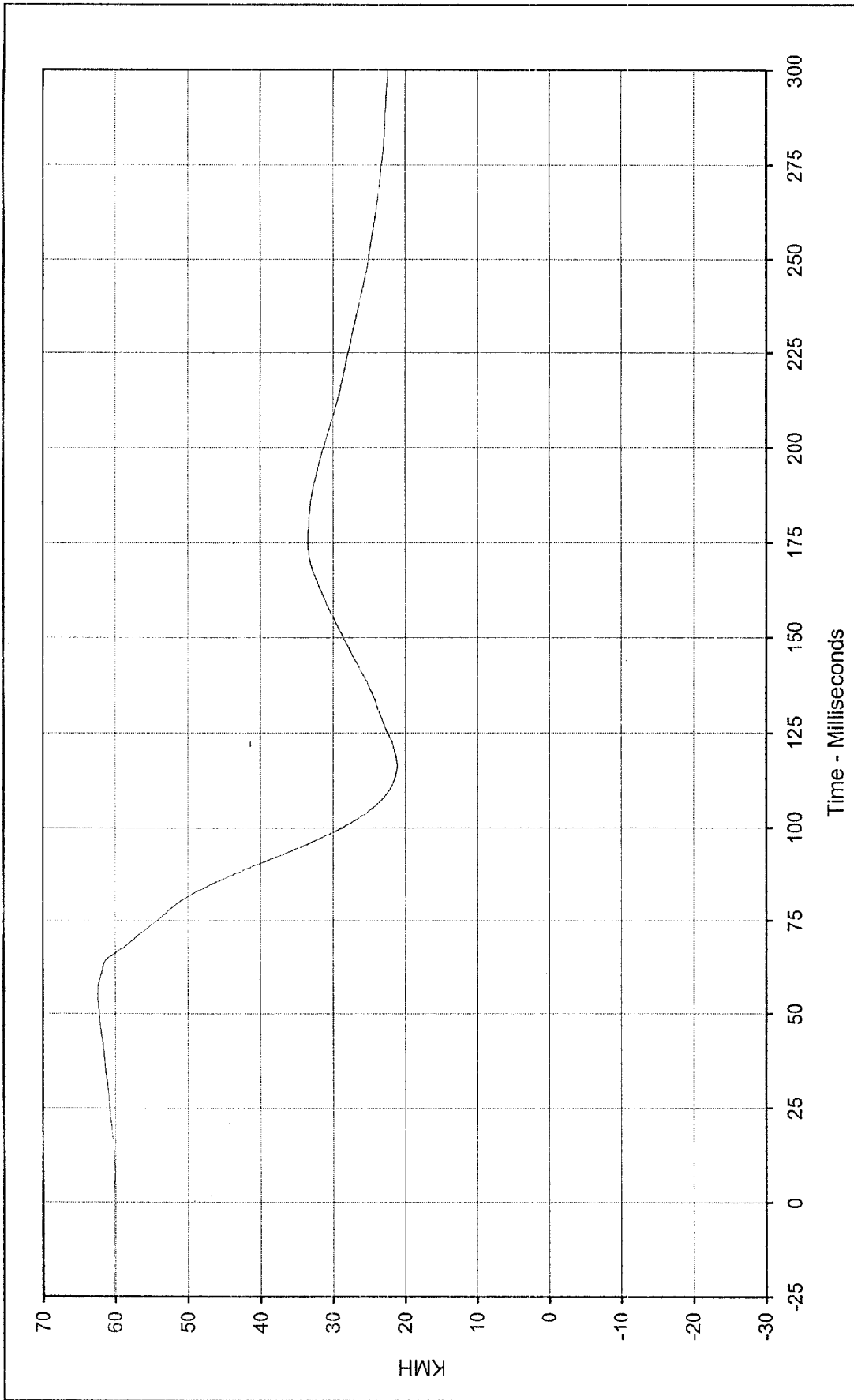
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Curve Description: Driver Head Primary X  
 Maximum Value: 9.3 at 145.3 Milliseconds  
 Minimum Value: -36.7 at 89.7 Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-001

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

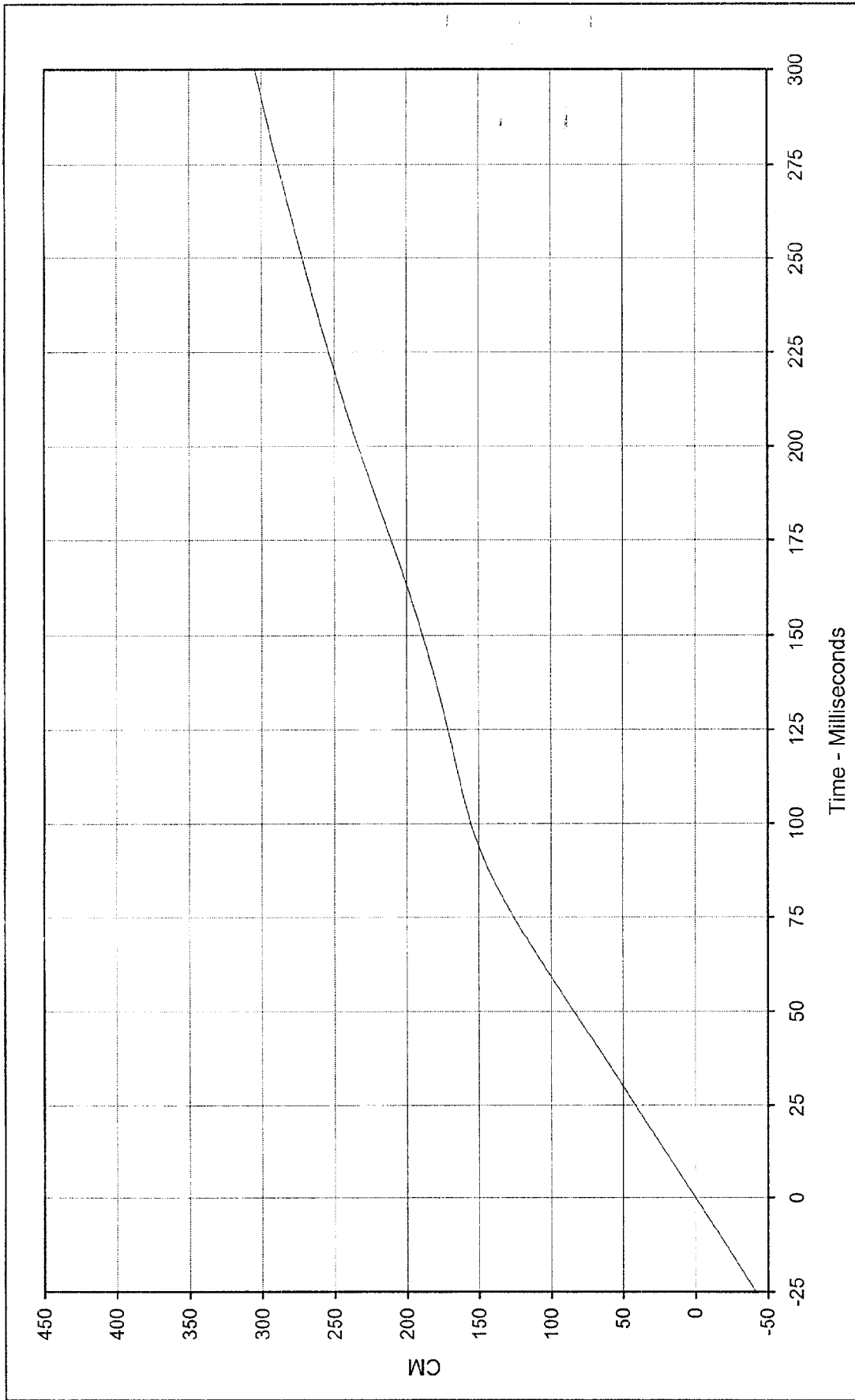




Curve Description: Driver Head Primary X Velocity  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 62.4 at 55.4 Milliseconds  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: 21.1 at 116.4 Milliseconds



SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN1-001



Curve Description: Driver Head Primary X Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 304.5 at 299.9 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

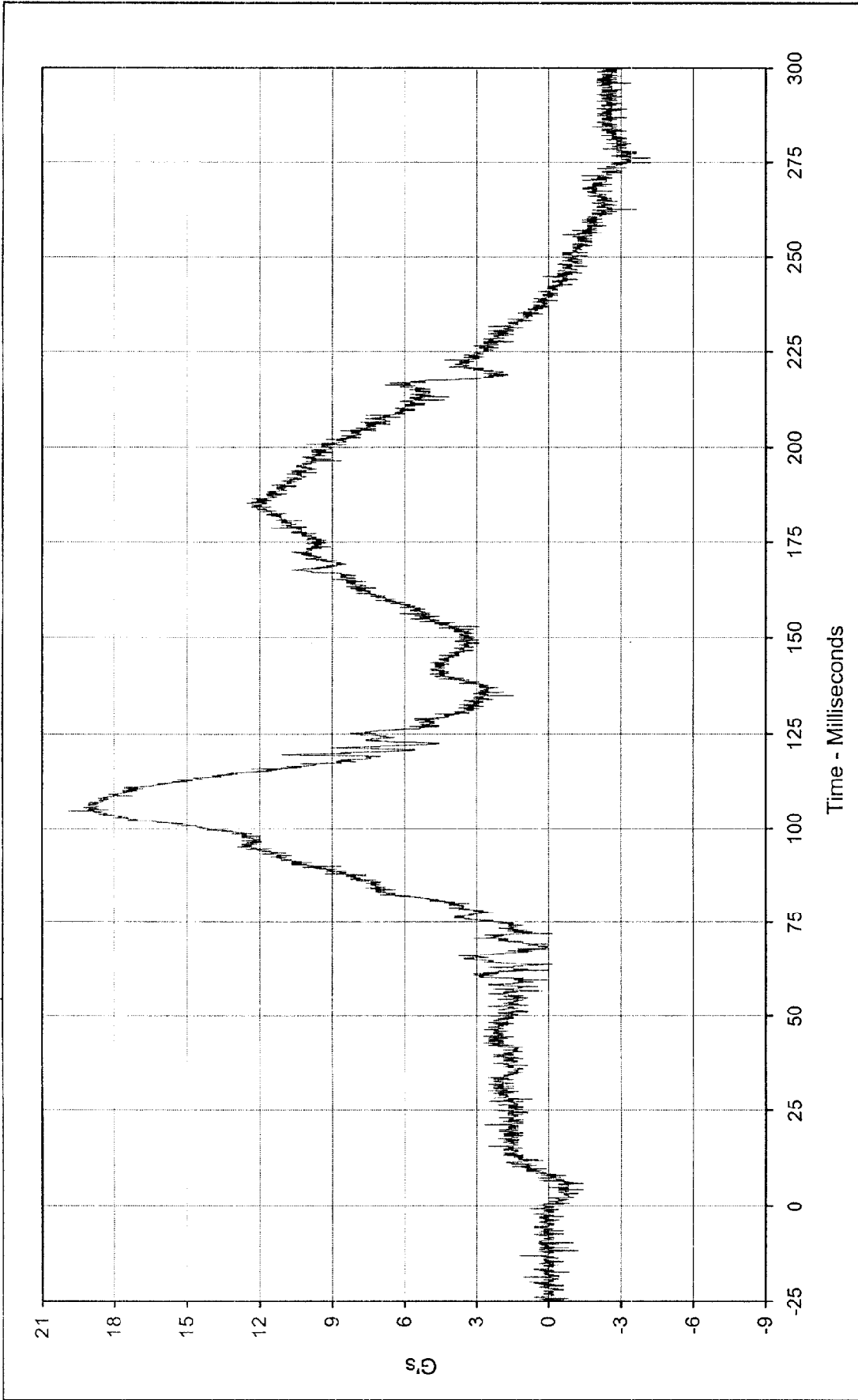
Minimum Value: -0.2 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

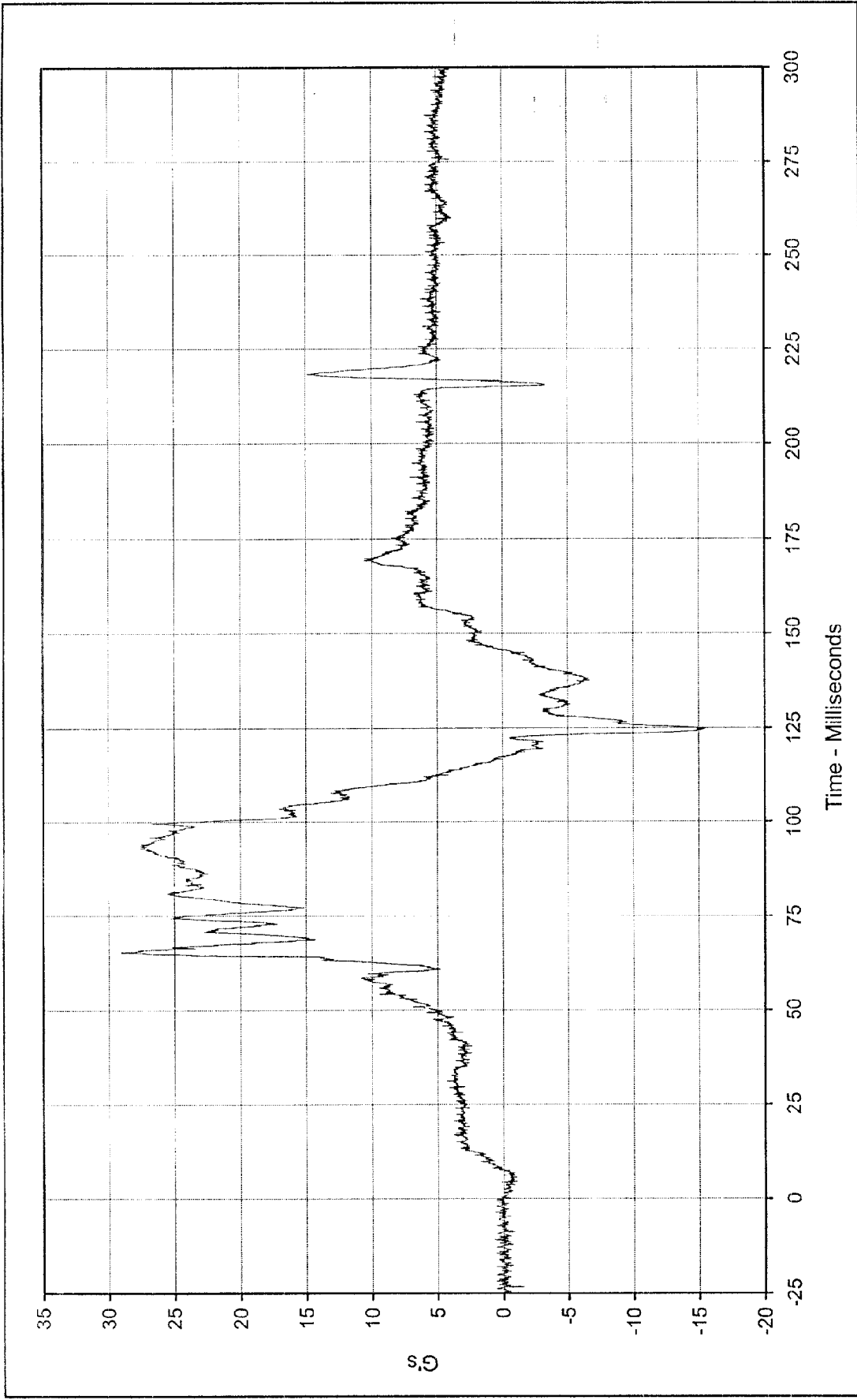
Curve Number: IN2-001





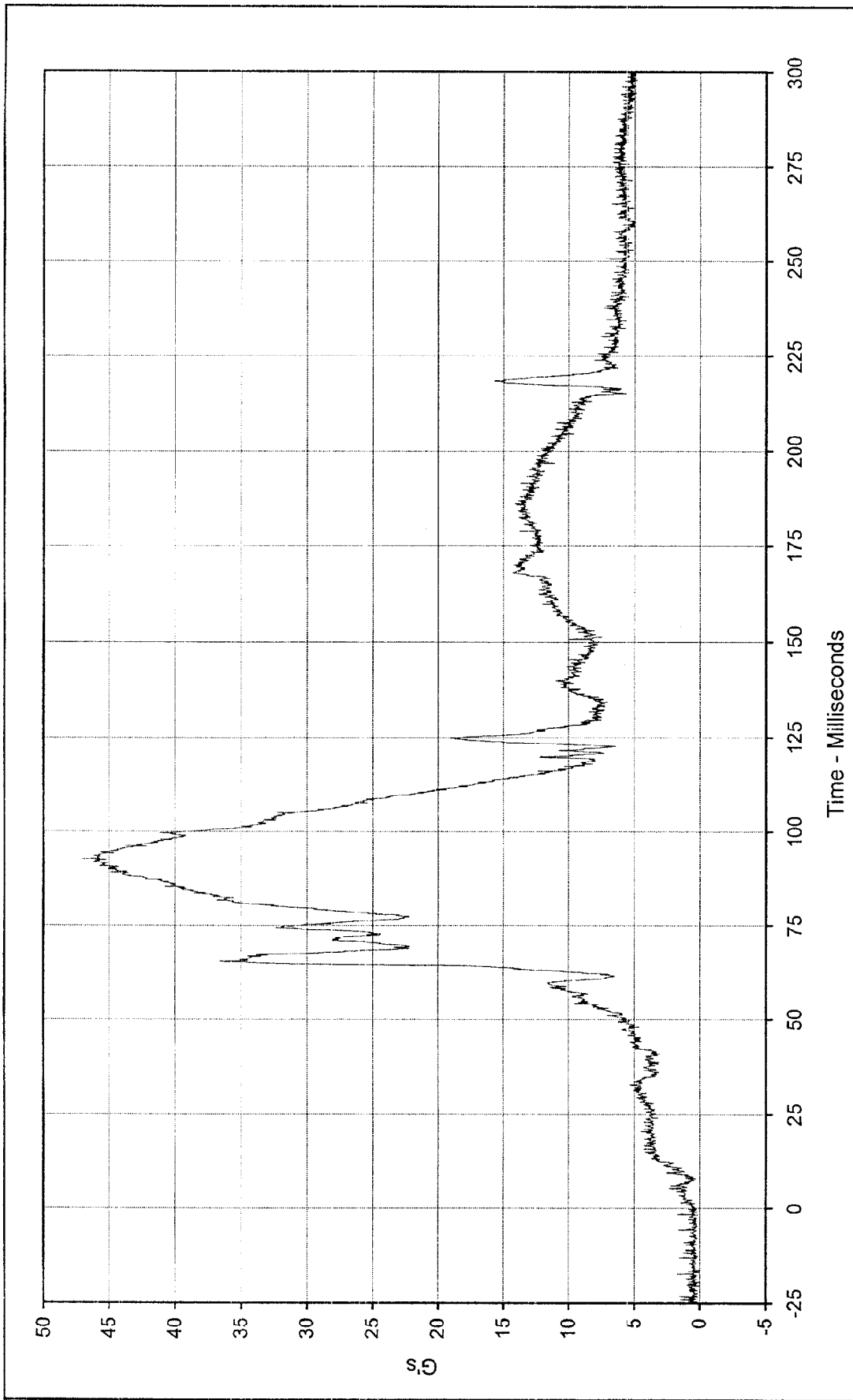
Curve Description: Driver Head Primary Y      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 19.9    at 105.0    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -4.2    at 274.9    Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-002





Curve Description: Driver Head Primary Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 29.0    at 65.4    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -15.5    at 124.9    Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-003





Curve Description: Driver Head Resultant Primary Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 47.0 at 92.4 Milliseconds

Test Vehicle: 1998 Dodge Neon 4 Door Sedan

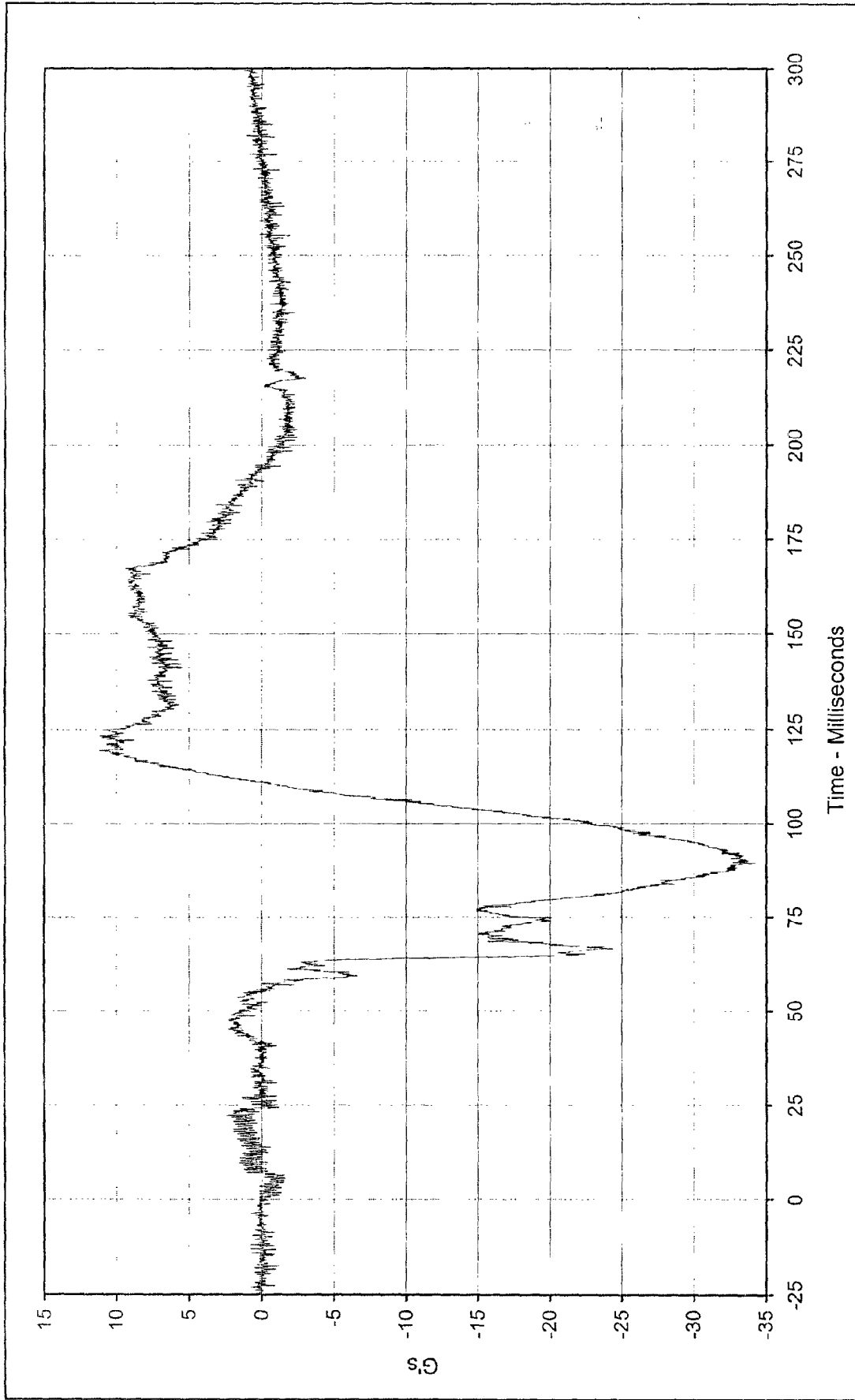
Minimum Value: 0.3 at 8.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: RES-001





Curve Description: Driver Head Redundant X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 11.2 at 119.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

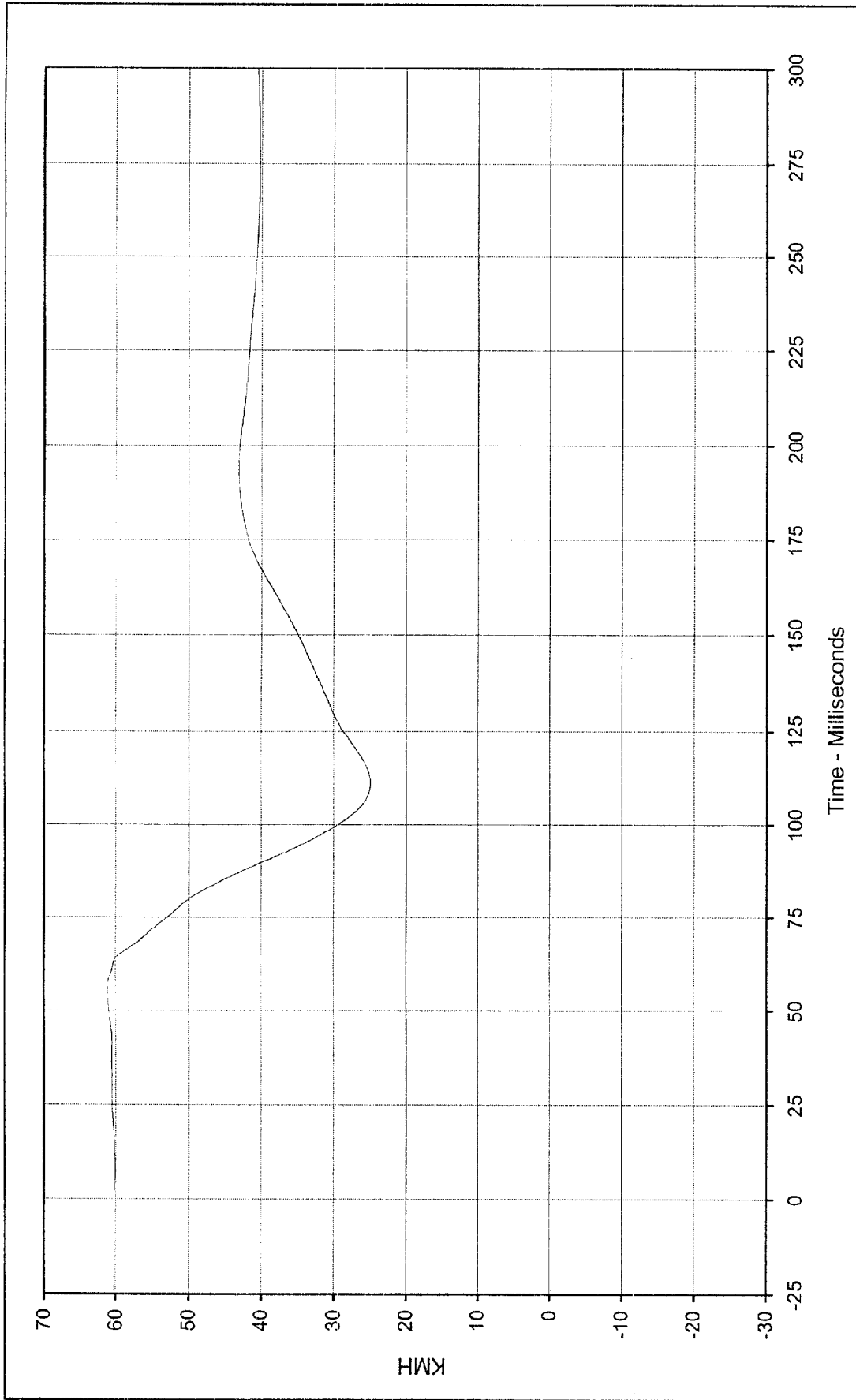
Minimum Value: -34.2 at 89.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-004





Curve Description: Driver Head Redundant X Velocity      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 61.1    at 55.5    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

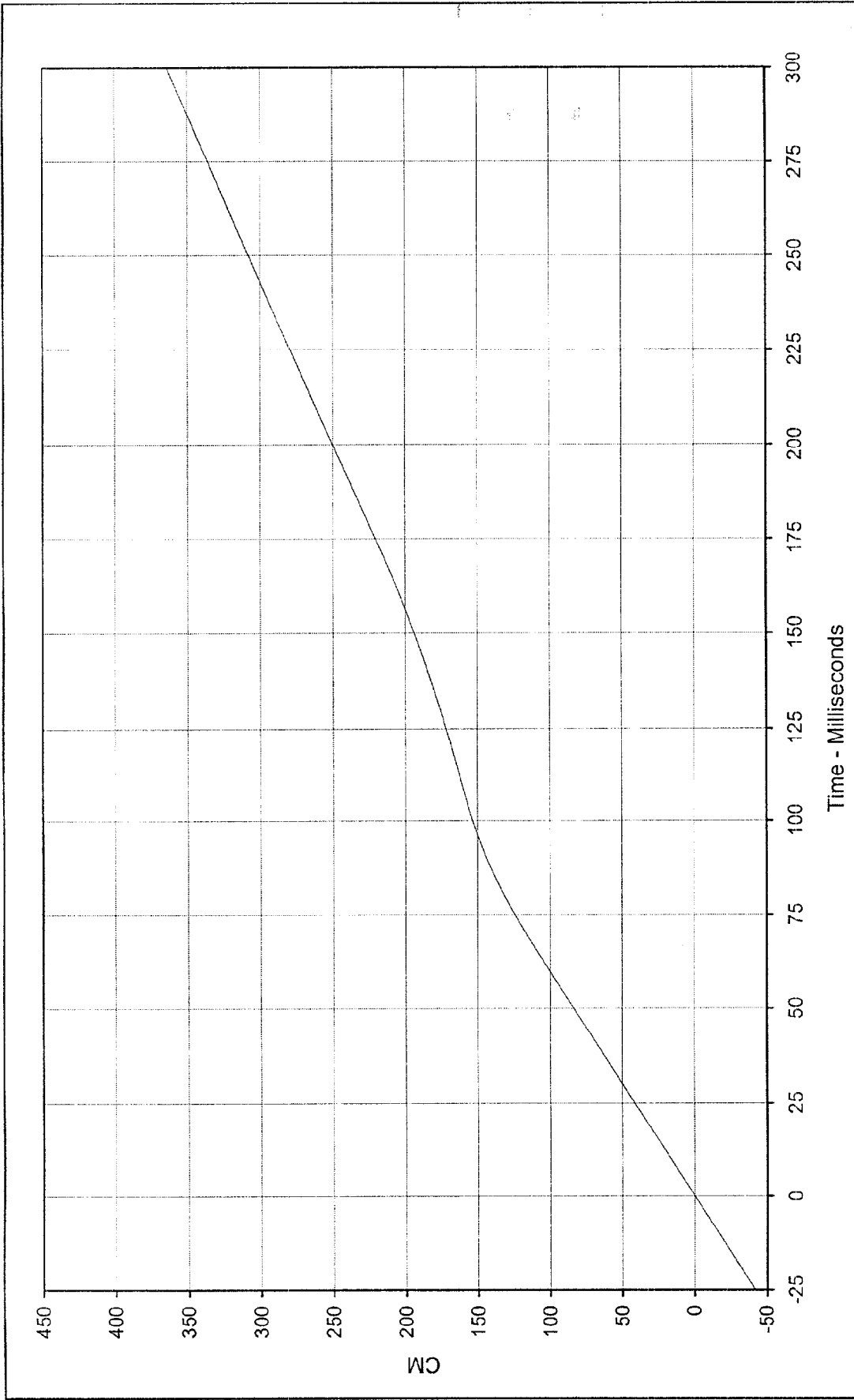
Minimum Value: 24.9    at 111.1    Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-004





Curve Description: Driver Head Redundant X Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 363.6 at 299.9 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

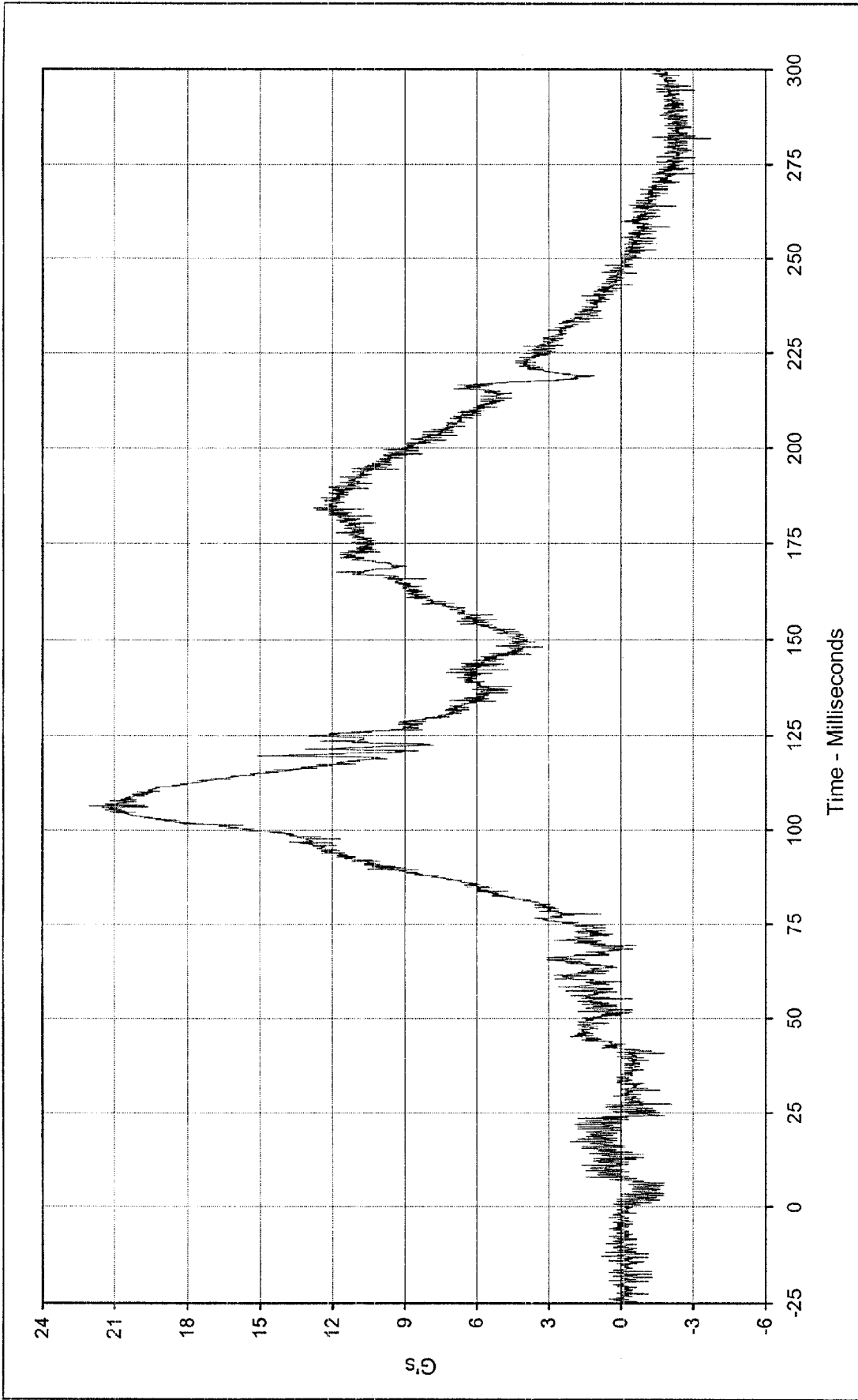
Minimum Value: -0.2 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

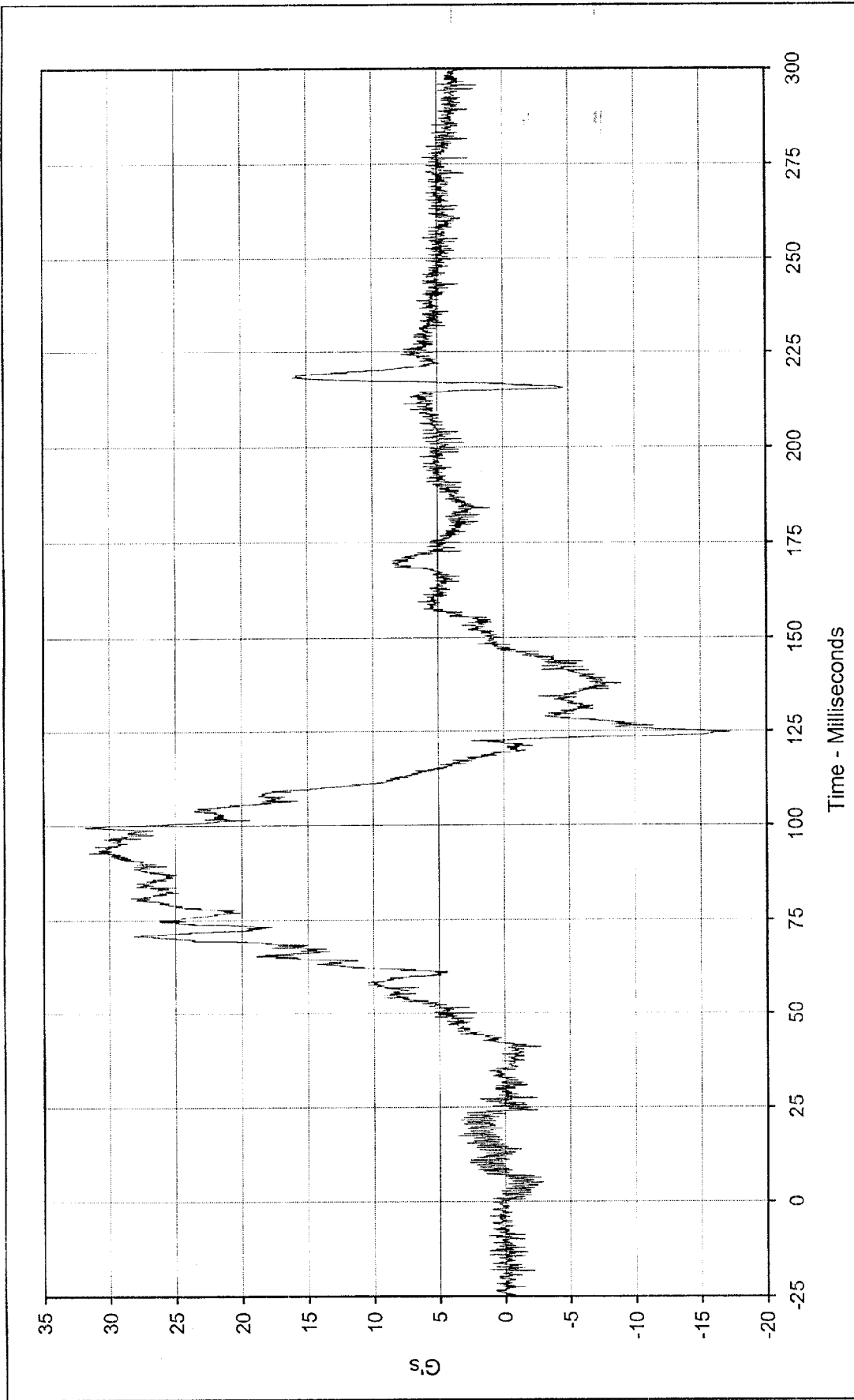
Curve Number: IN2-004





Curve Description: Driver Head Redundant Y      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 22.0    at 106.4    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -3.7    at 282.0    Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-005





Curve Description: Driver Head Redundant Z Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 31.8 at 99.4 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

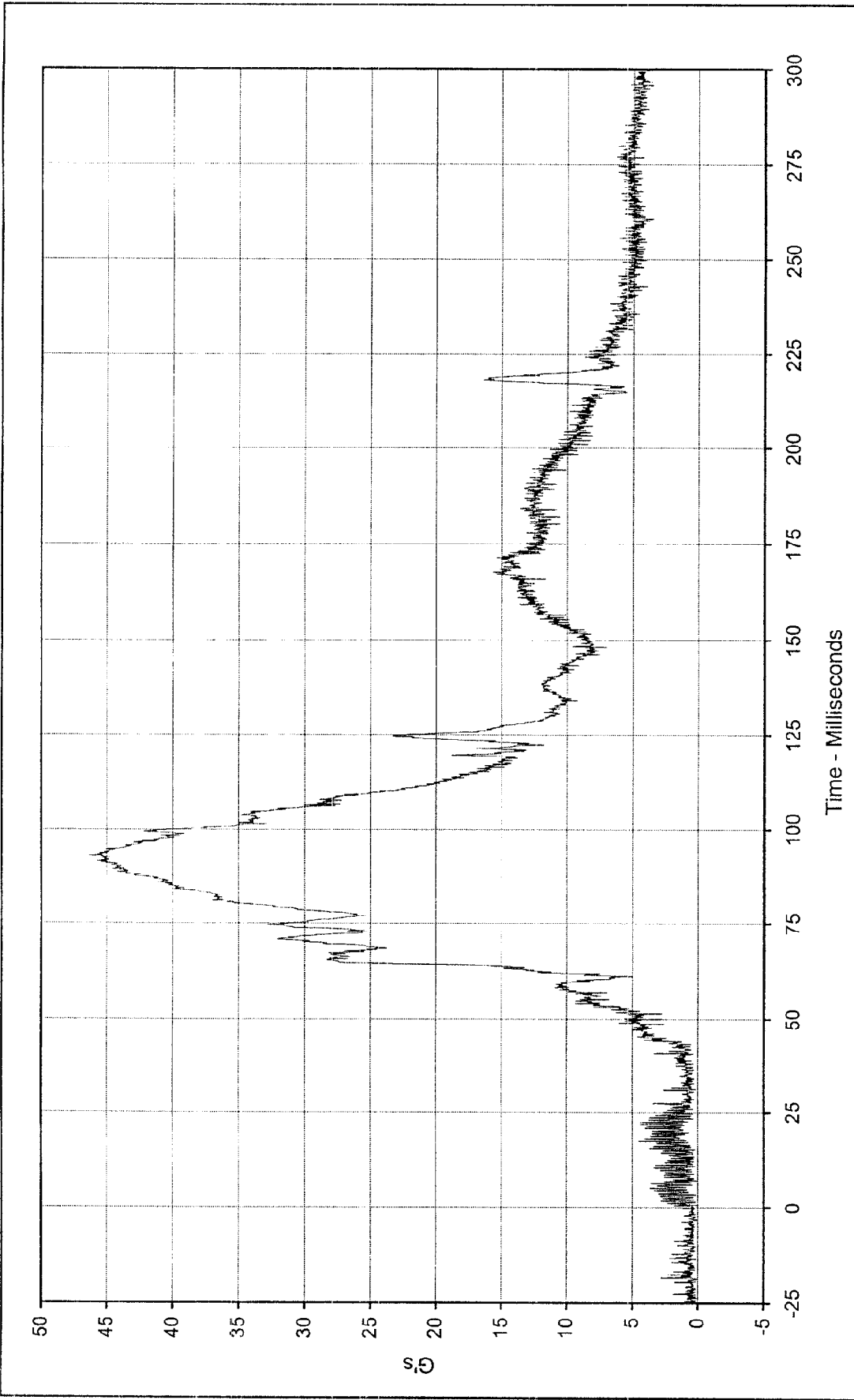
Minimum Value: -17.2 at 124.7 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-006

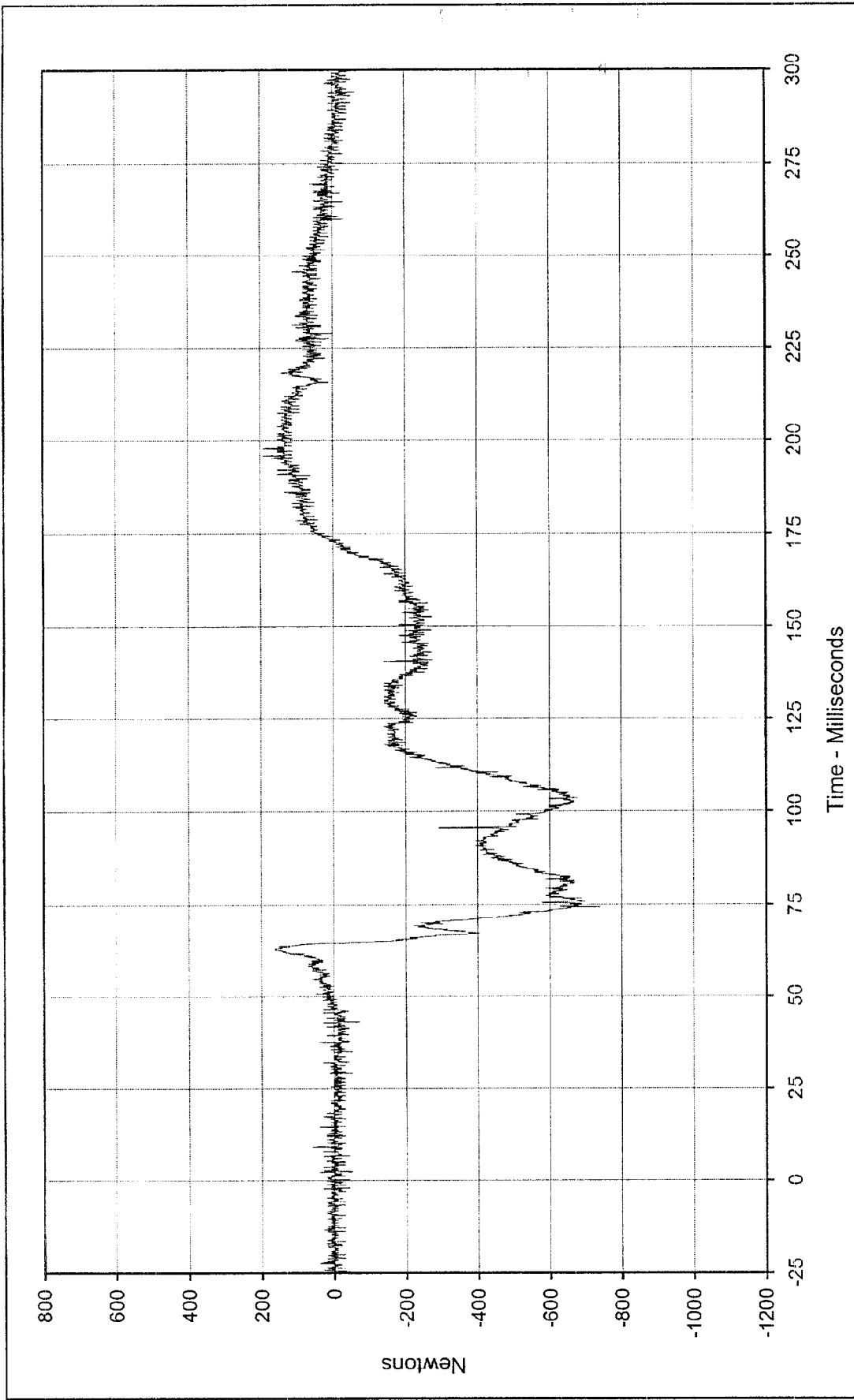




Curve Description: Driver Head Resultant Redundant  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 46.3 at 92.8 Milliseconds  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: 0.0 at 0.7 Milliseconds



SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: RES-004



Curve Description: Driver Neck Force X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 192.4 at 195.7 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

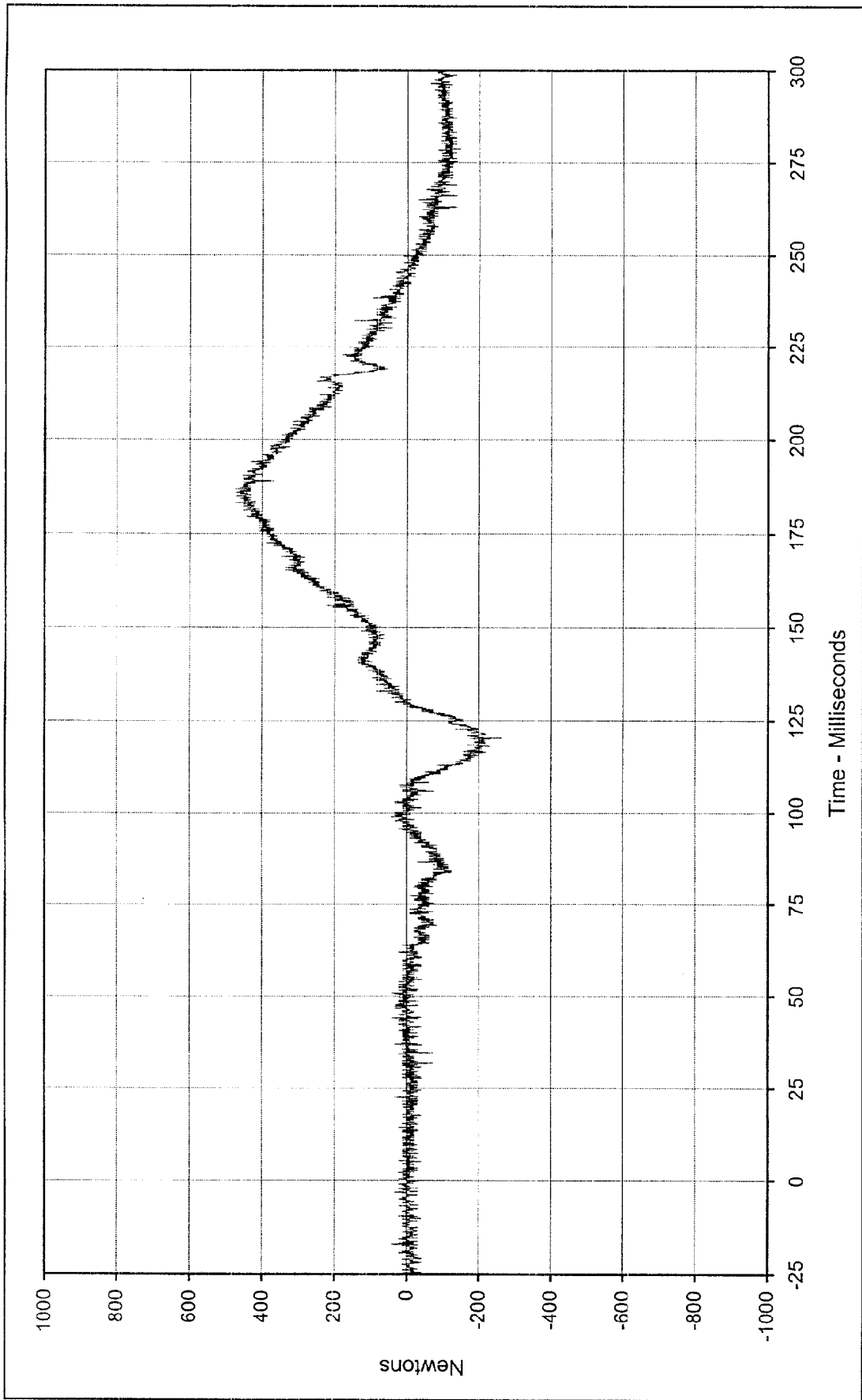
Minimum Value: -739.1 at 74.4 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-007



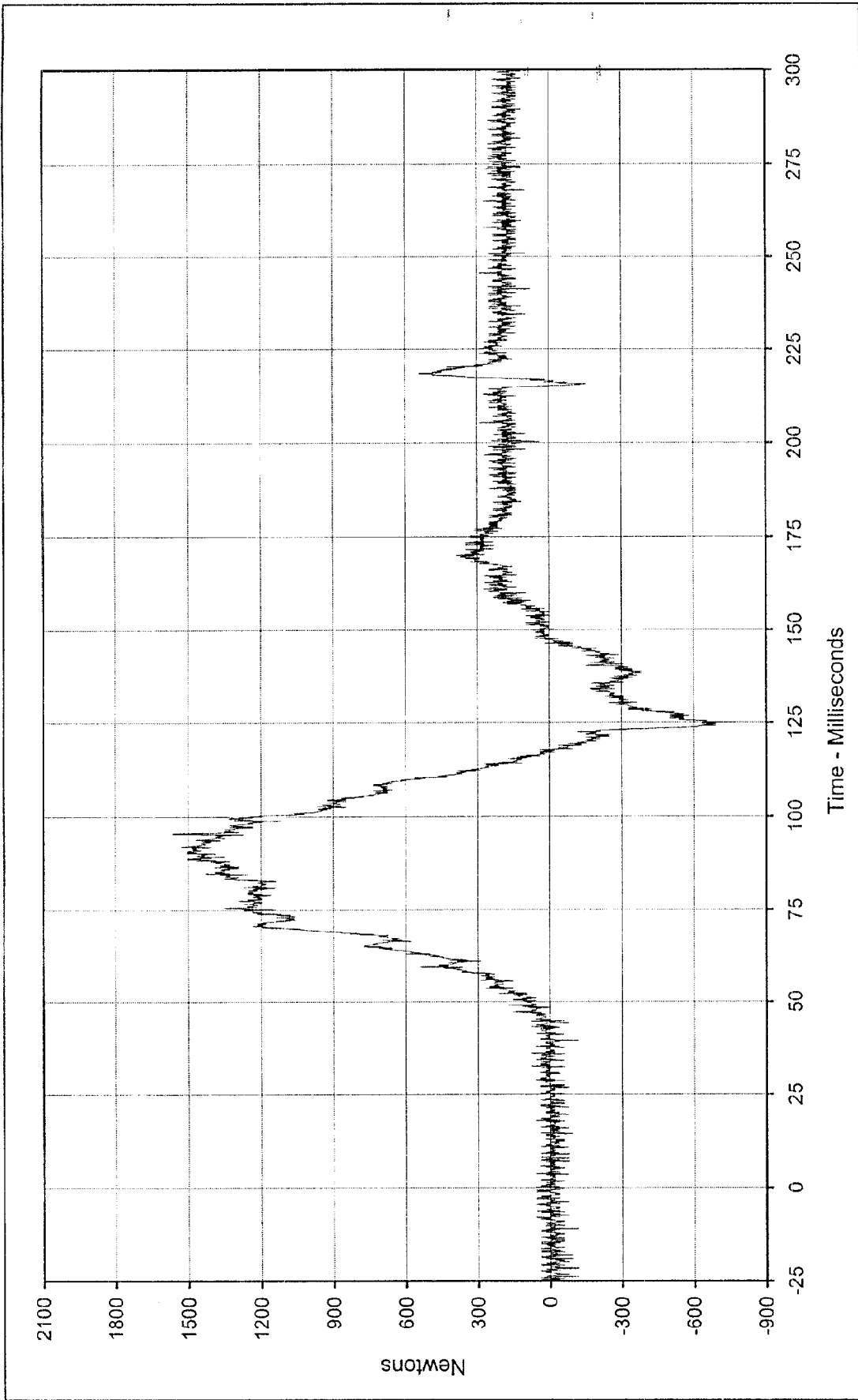


Curve Description: Driver Neck Force Y  
 Maximum Value: 472.5 at 183.2 Milliseconds  
 Minimum Value: -262.5 at 120.3 Milliseconds

SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-008

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Driver Neck Force Z Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 1562.2 at 95.5 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

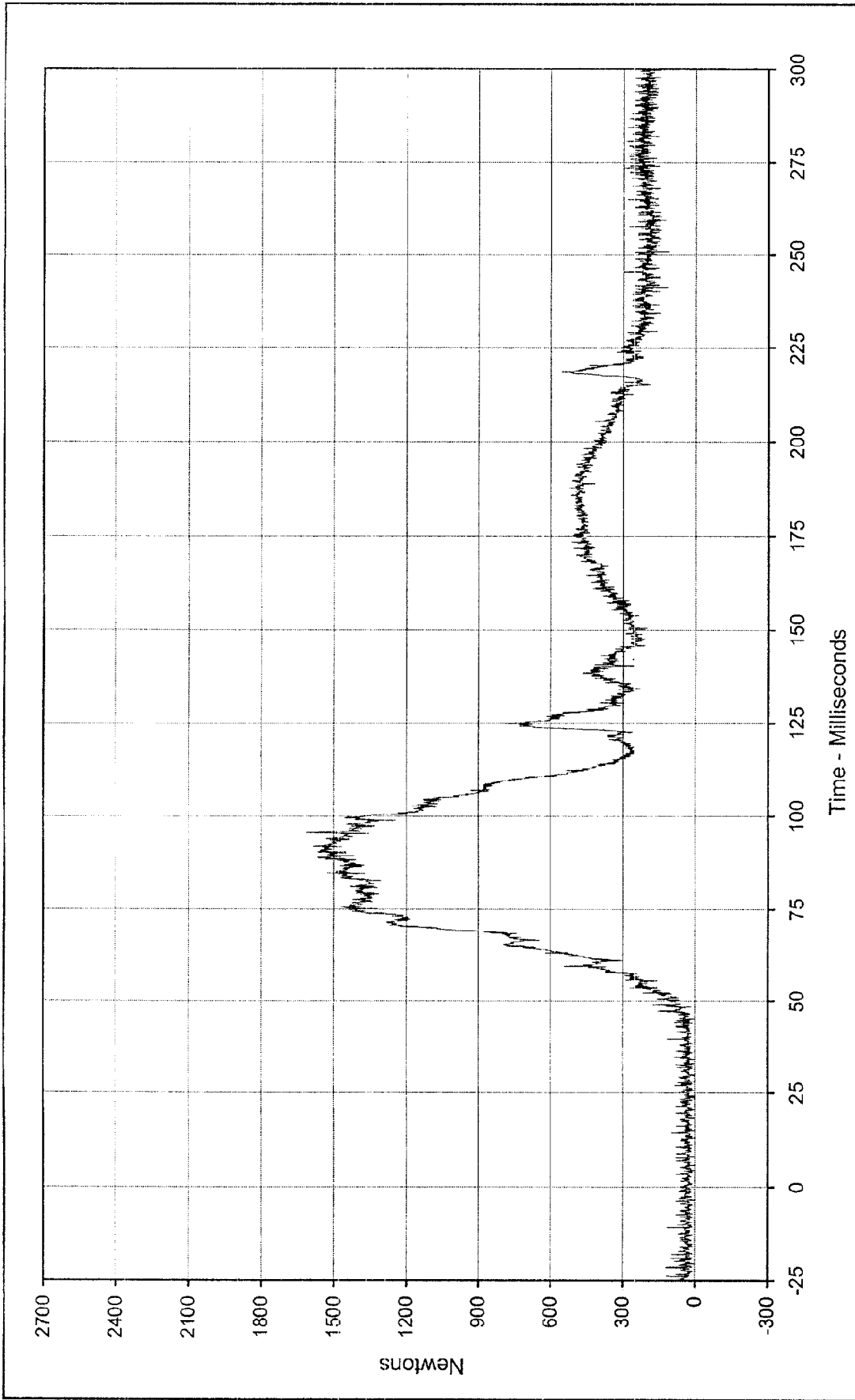
Minimum Value: -771.5 at 125.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-009





Curve Description: Driver Neck Force Resultant      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 1611.4    at 95.5    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

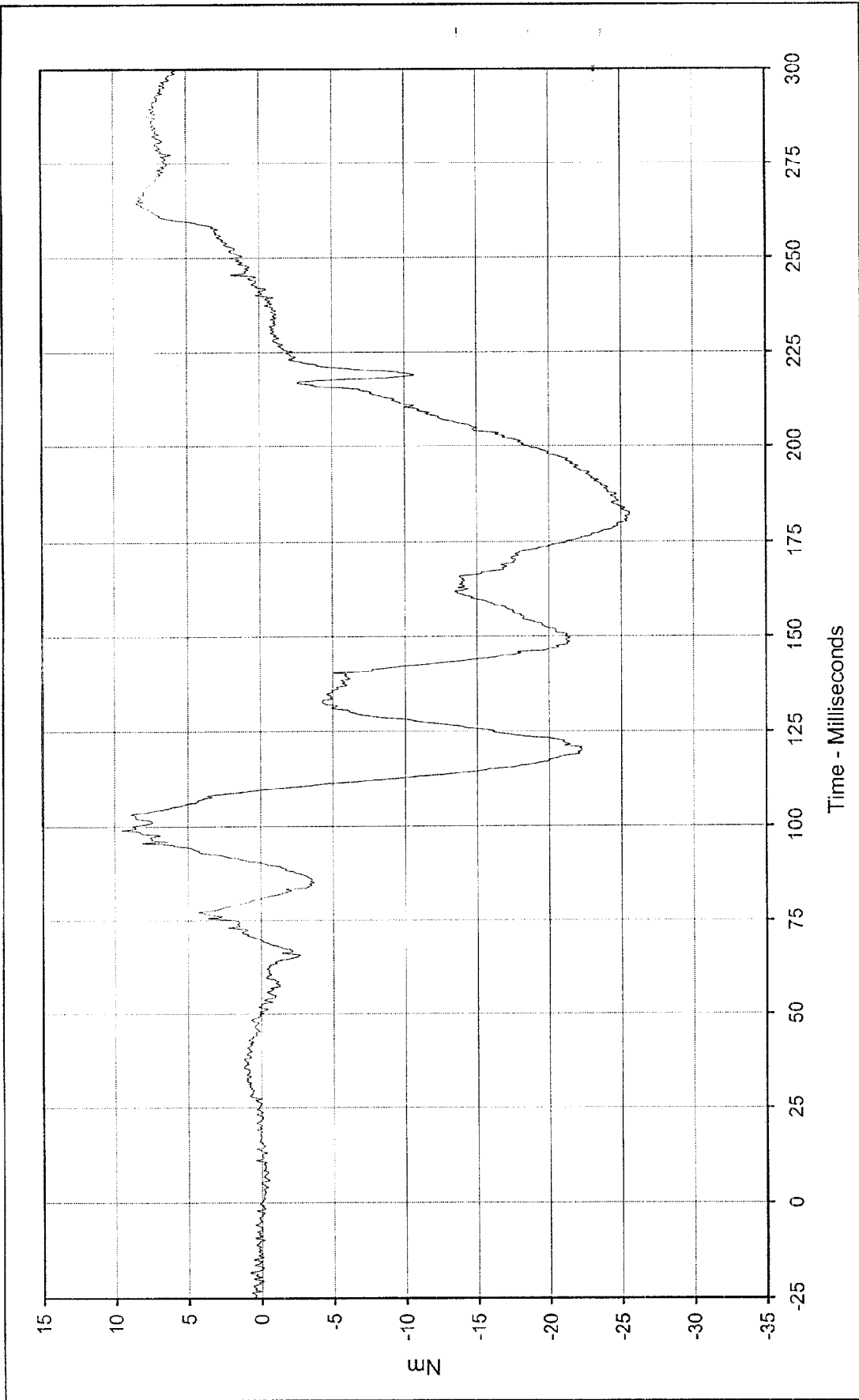
Minimum Value: 0.0    at 4.5    Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: RES-007





Curve Description: Driver Neck Moment X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 9.5 at 99.1 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

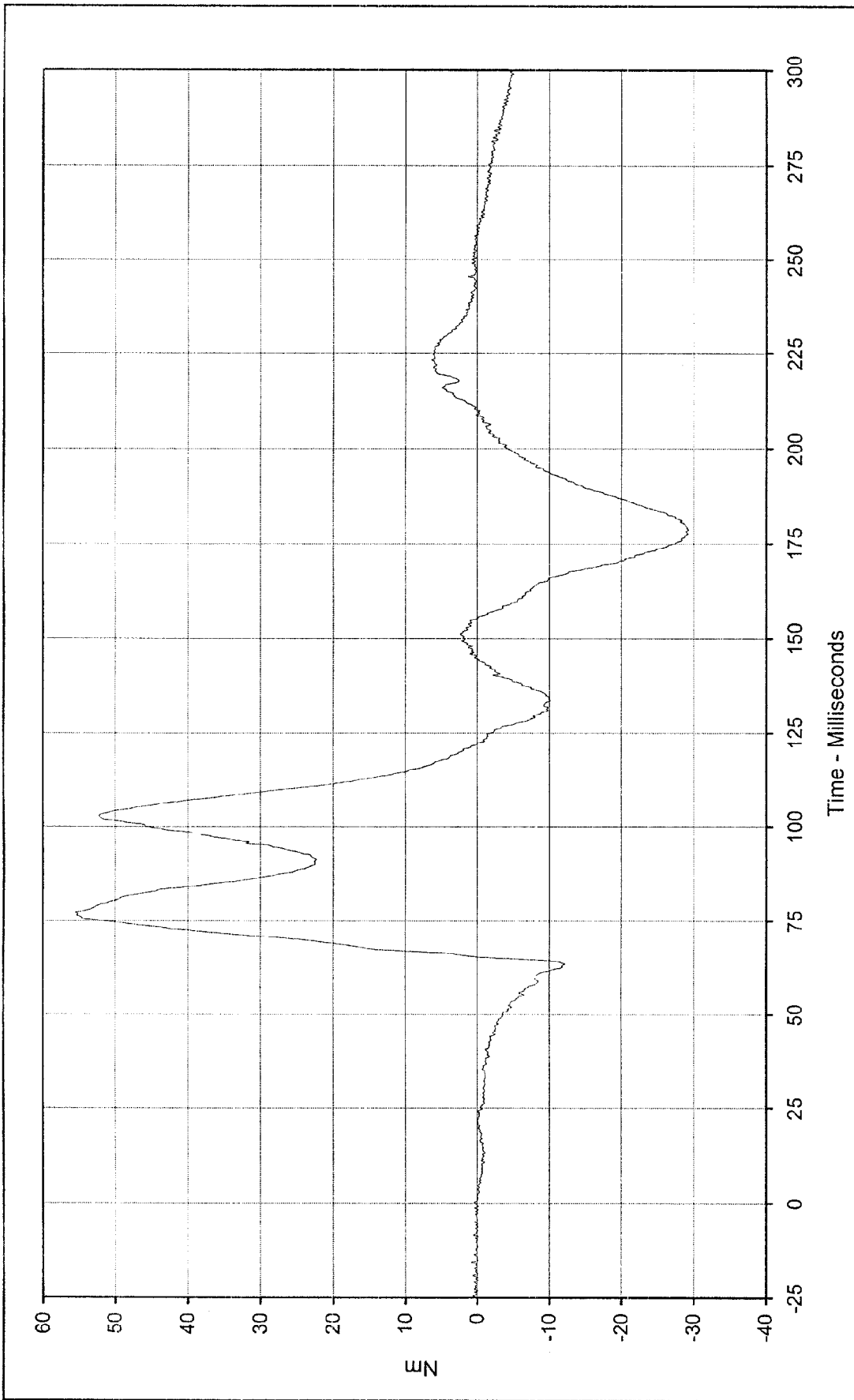
Minimum Value: -25.6 at 182.0 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-010





Curve Description: Driver Neck Moment Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 55.5 at 77.2 Milliseconds

Minimum Value: -29.3 at 178.6 Milliseconds

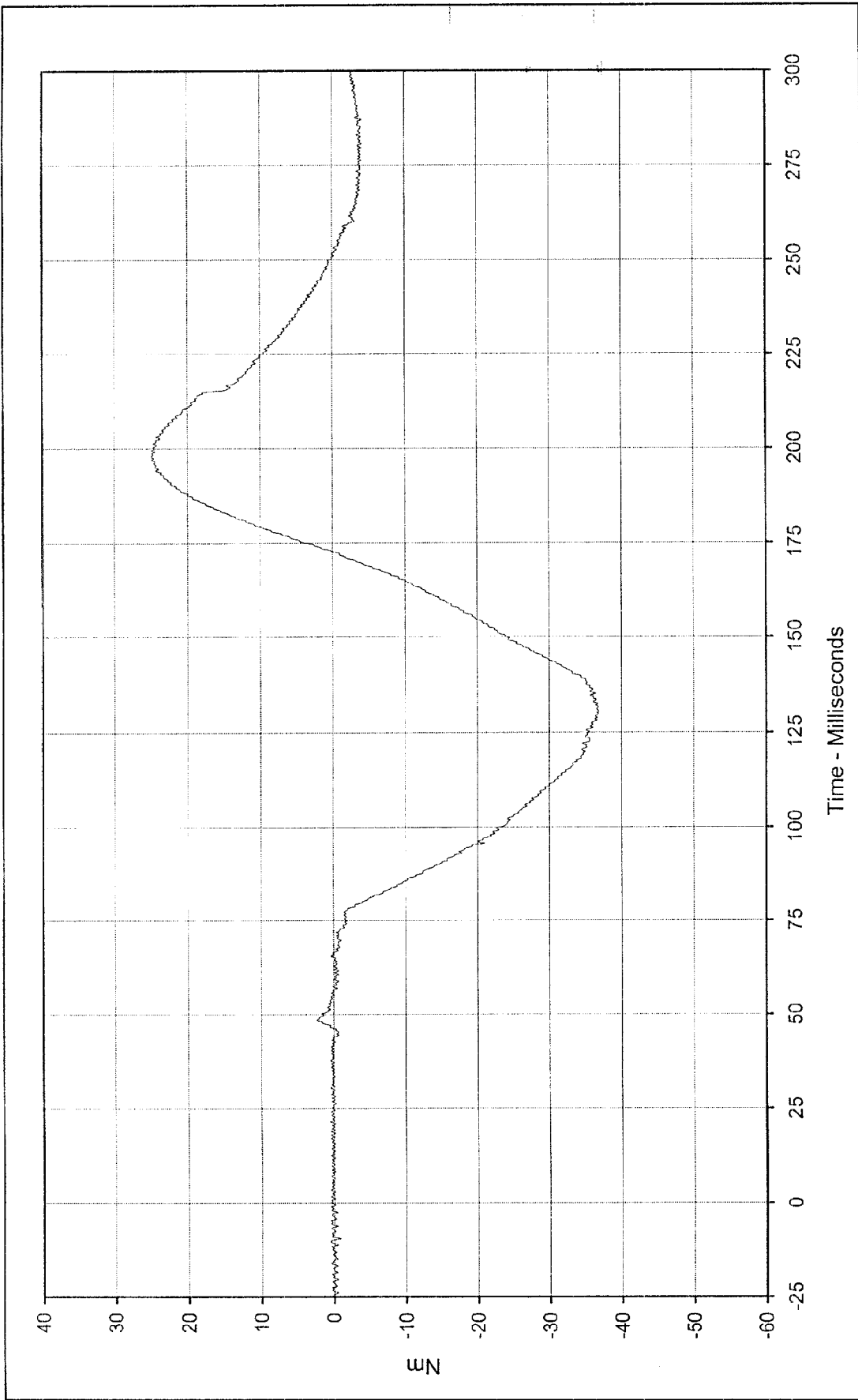
SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-011

Test Vehicle: 1998 Dodge Neon 4 Door Sedan

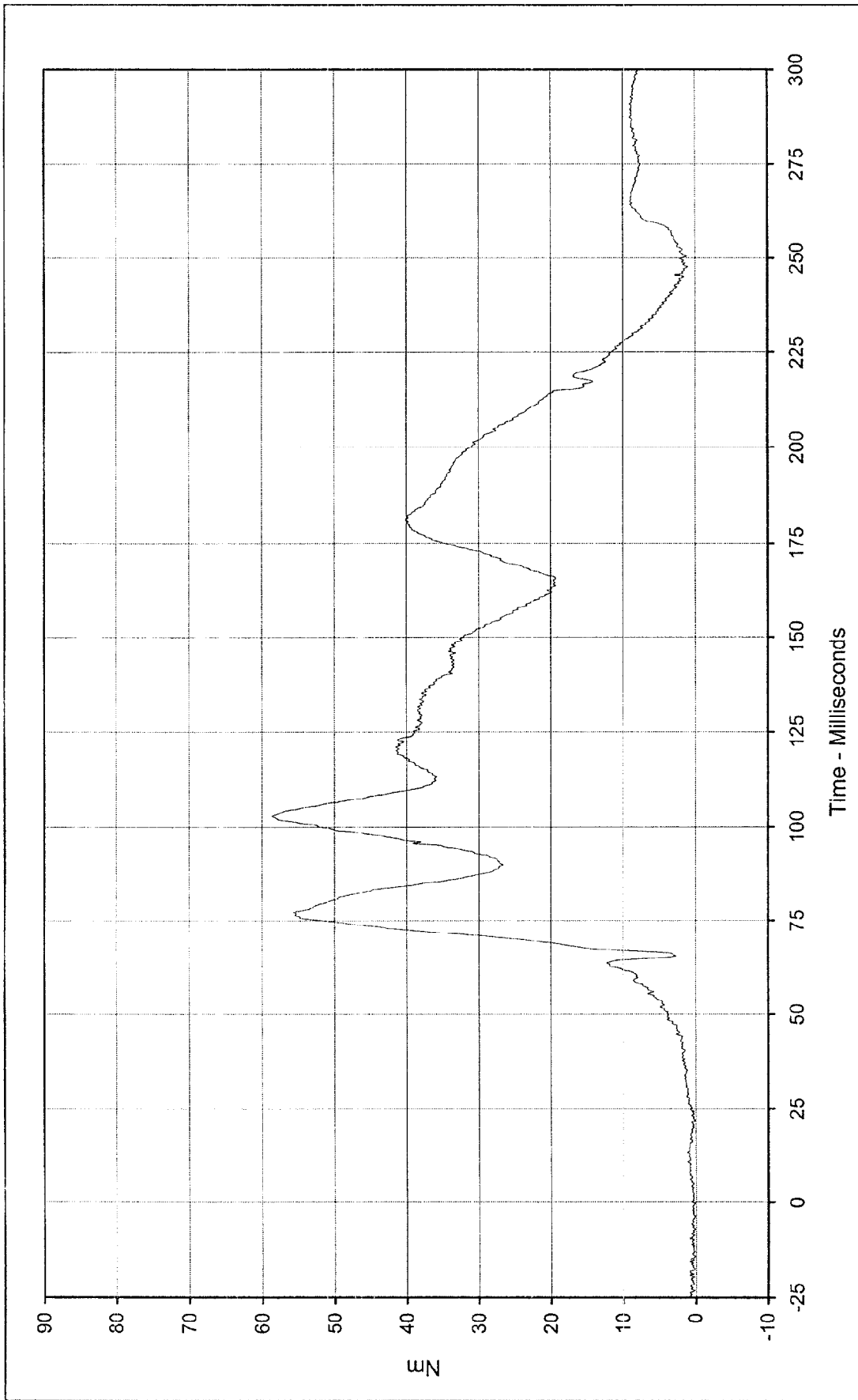




Curve Description: Driver Neck Moment Z  
 Maximum Value: 24.9 at 197.7 Milliseconds  
 Minimum Value: -36.9 at 130.5 Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 7/3/98  
 Curve Number: FIL-012

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Driver Neck Moment Resultant Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 58.6 at 102.9 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

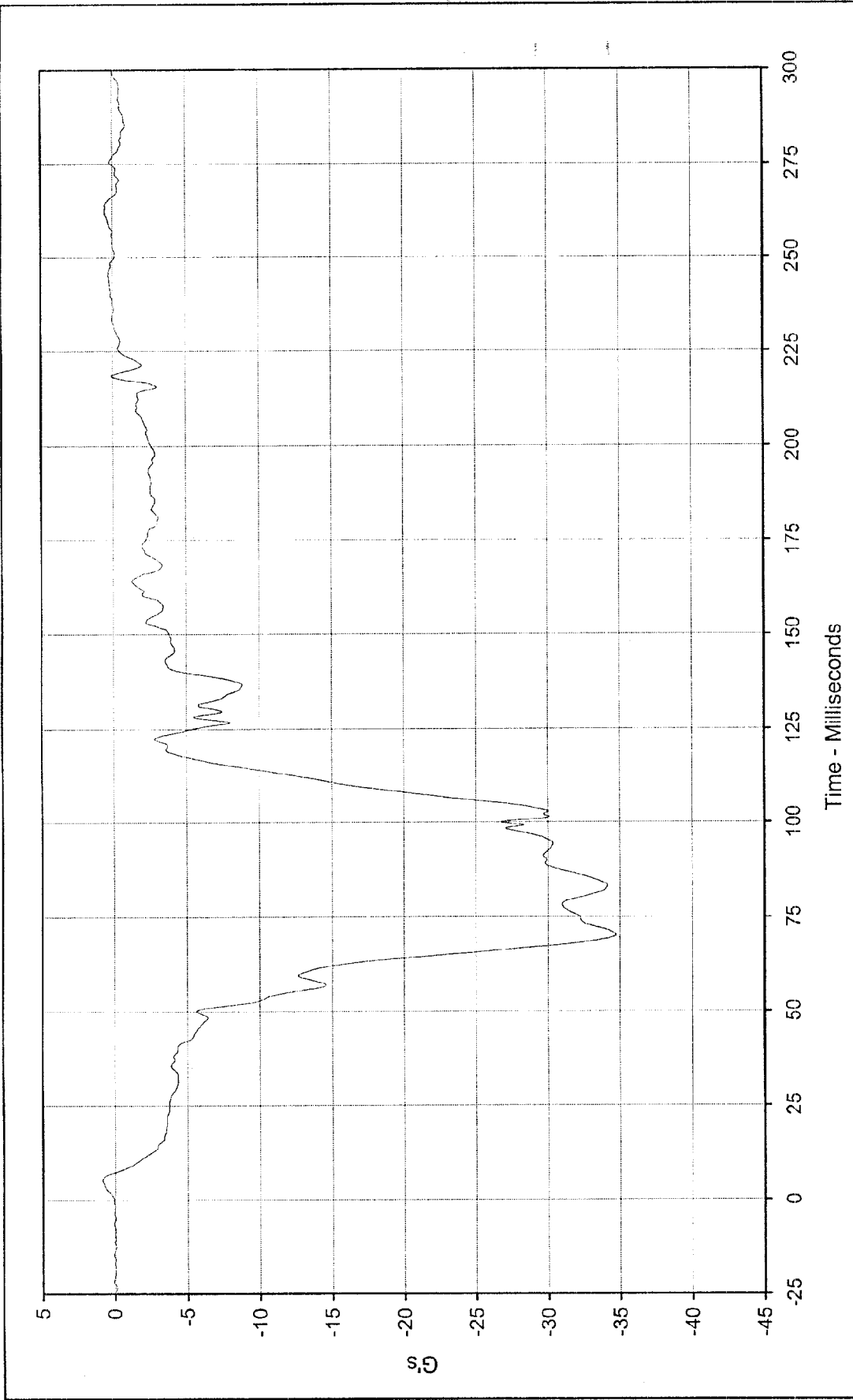
Minimum Value: 0.1 at 21.8 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: RES-010

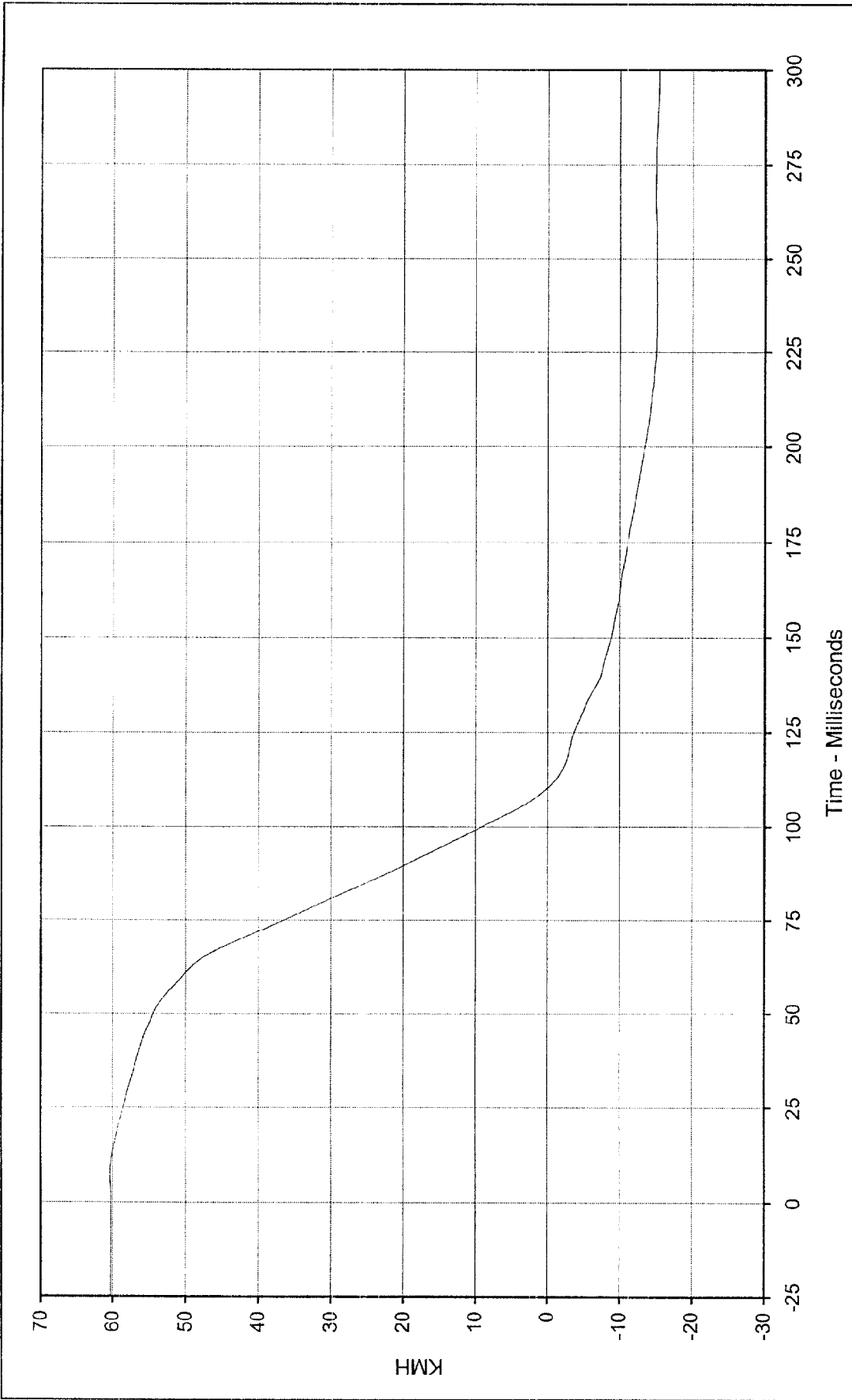




Curve Description: Driver Chest Primary X  
 Maximum Value: 0.8 at 5.2 Milliseconds  
 Minimum Value: -34.7 at 70.2 Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: FIL-013

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

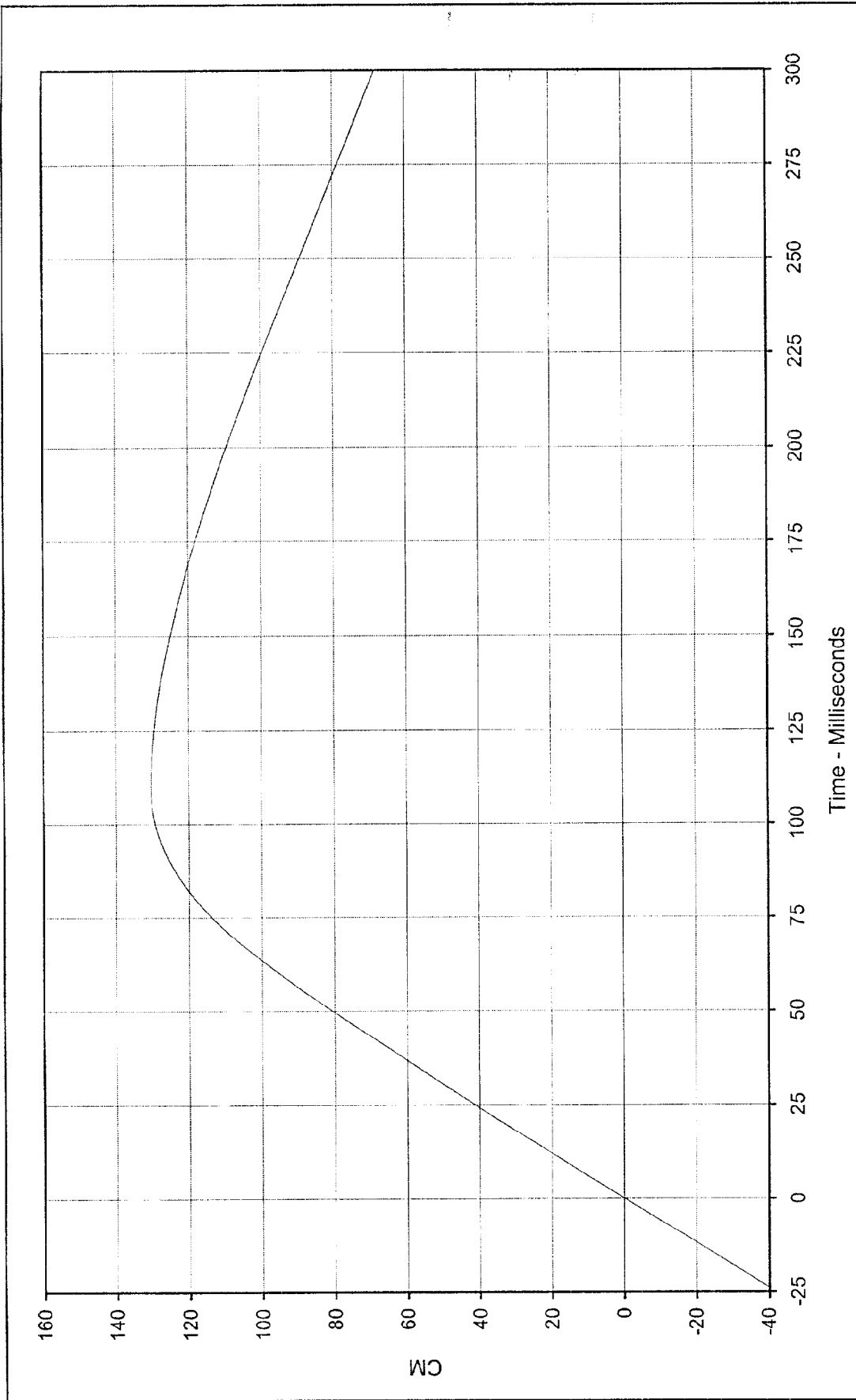




Curve Description: Driver Chest Primary X Velocity  
 Maximum Value: 60.4 at 7.3 Milliseconds  
 Minimum Value: -15.4 at 299.9 Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN1-013

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Driver Chest Primary X Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 130.4 at 110.3 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

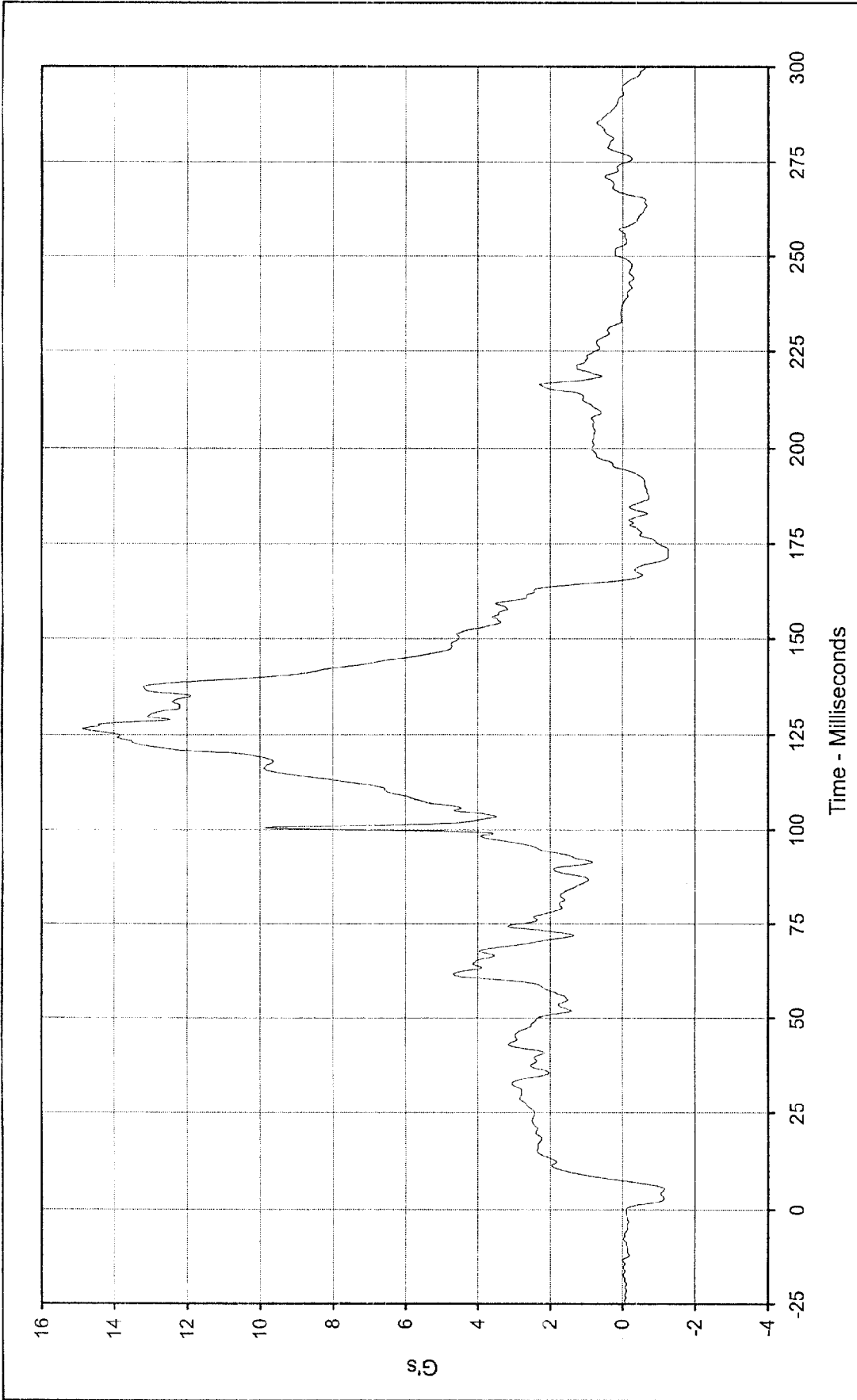
Minimum Value: -0.2 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-013





Curve Description: Driver Chest Primary Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 14.9 at 126.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

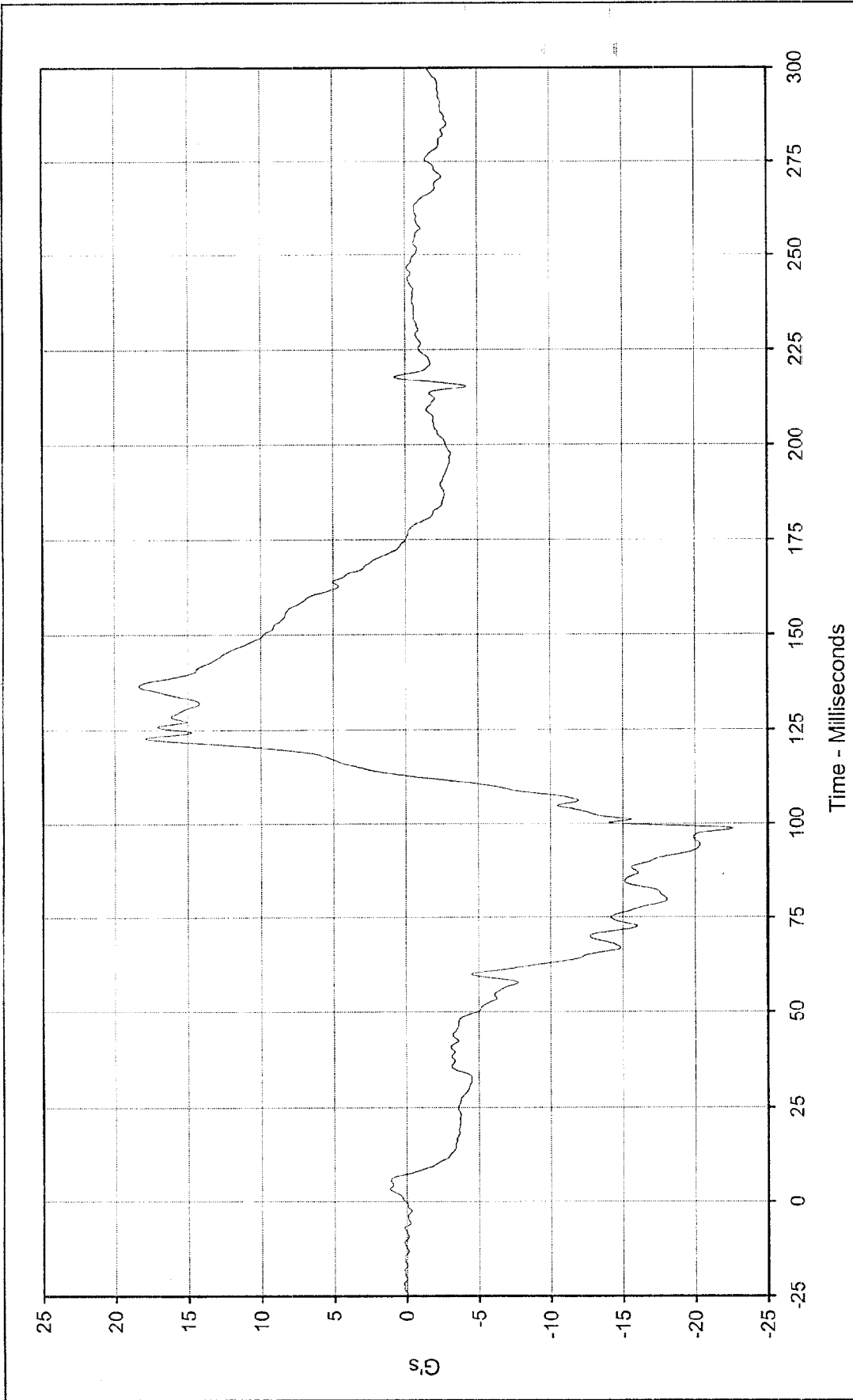
Minimum Value: -1.3 at 171.5 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: FIL-014





Curve Description: Driver Chest Primary Z Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 18.3 at 136.7 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

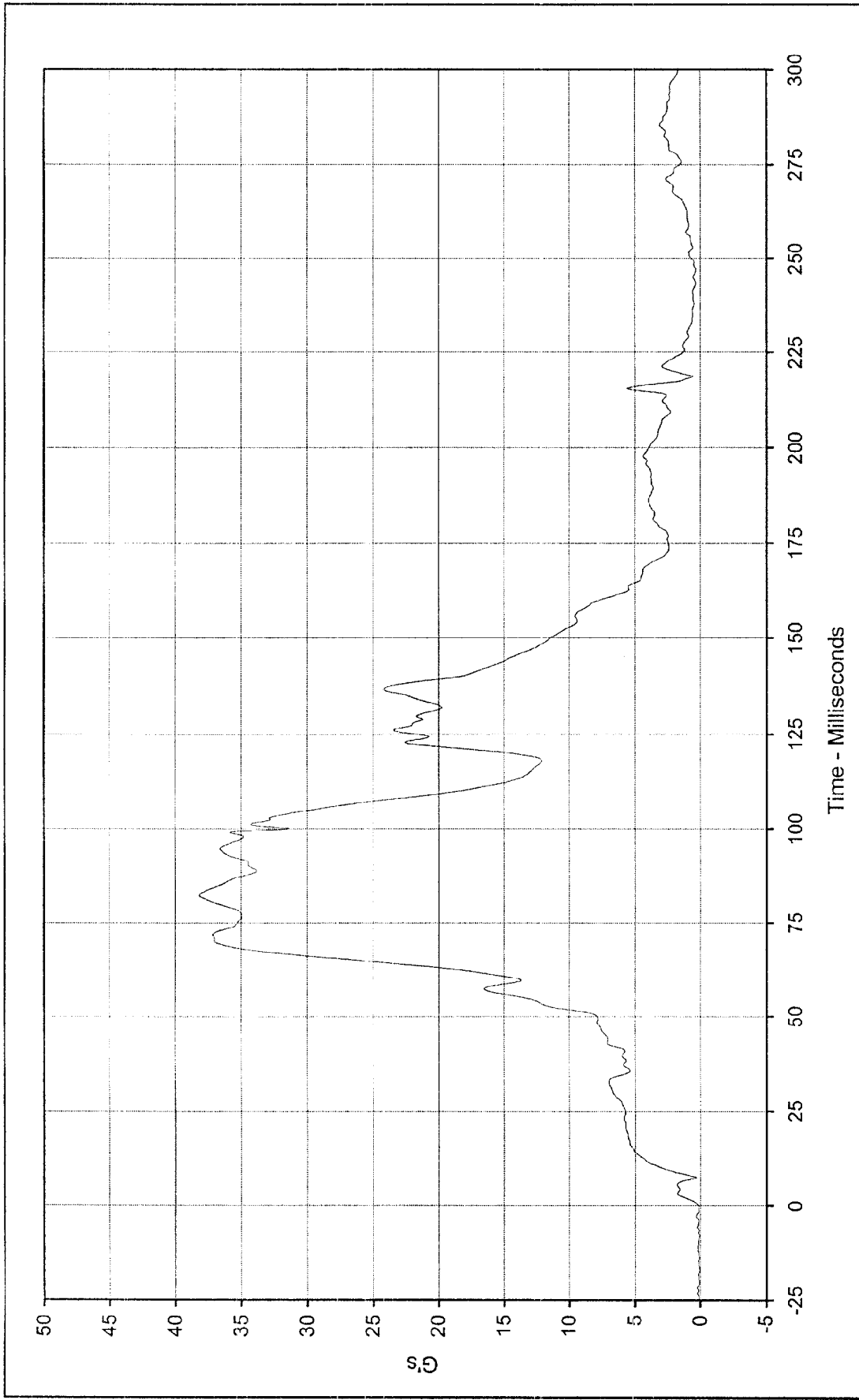
Minimum Value: -22.6 at 98.7 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: FIL-015





Curve Description: Driver Chest Resultant Primary Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 38.2 at 82.4 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

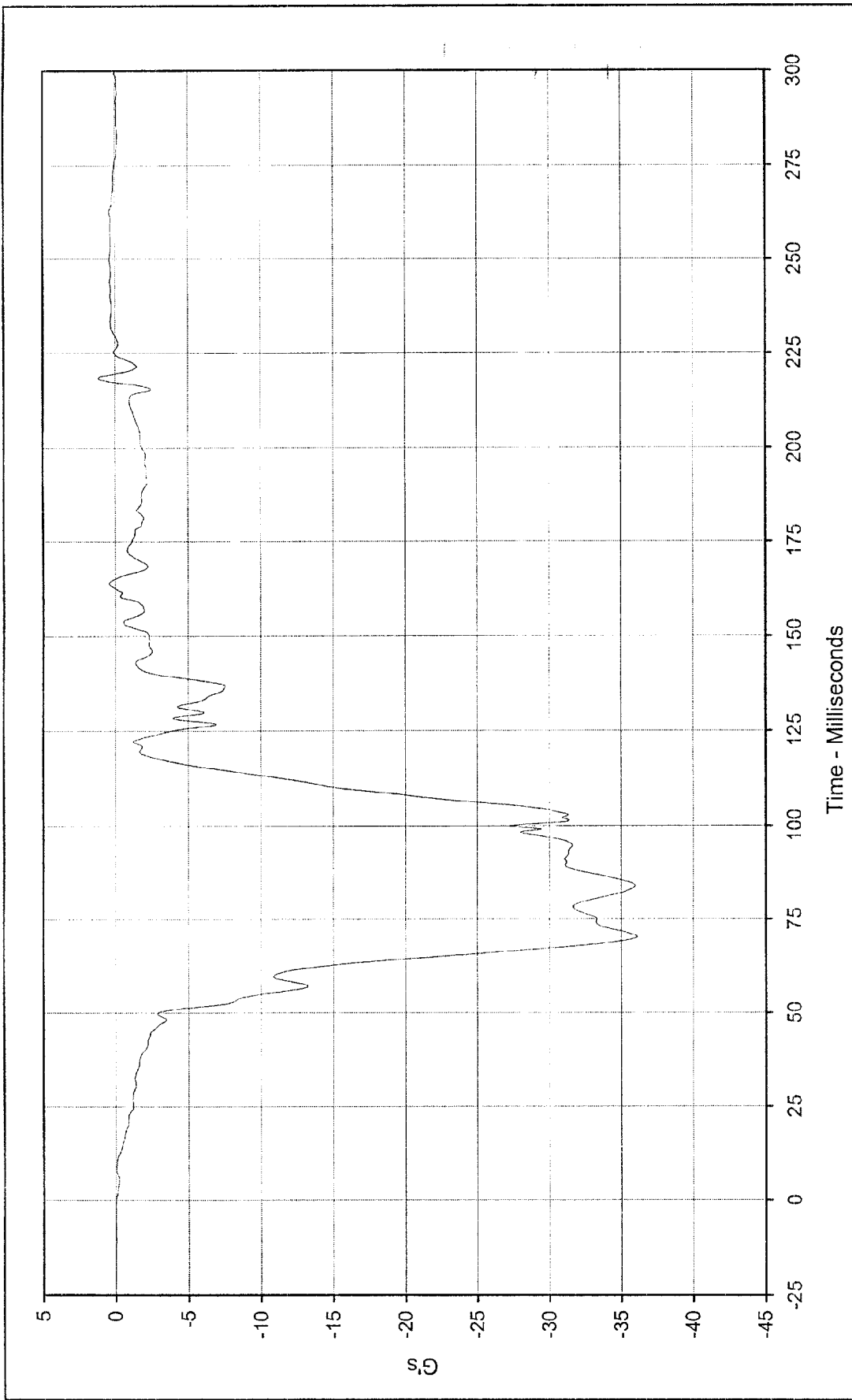
Minimum Value: 0.2 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: RES-013





Curve Description: Driver Chest Redundant X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 1.2 at 218.5 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

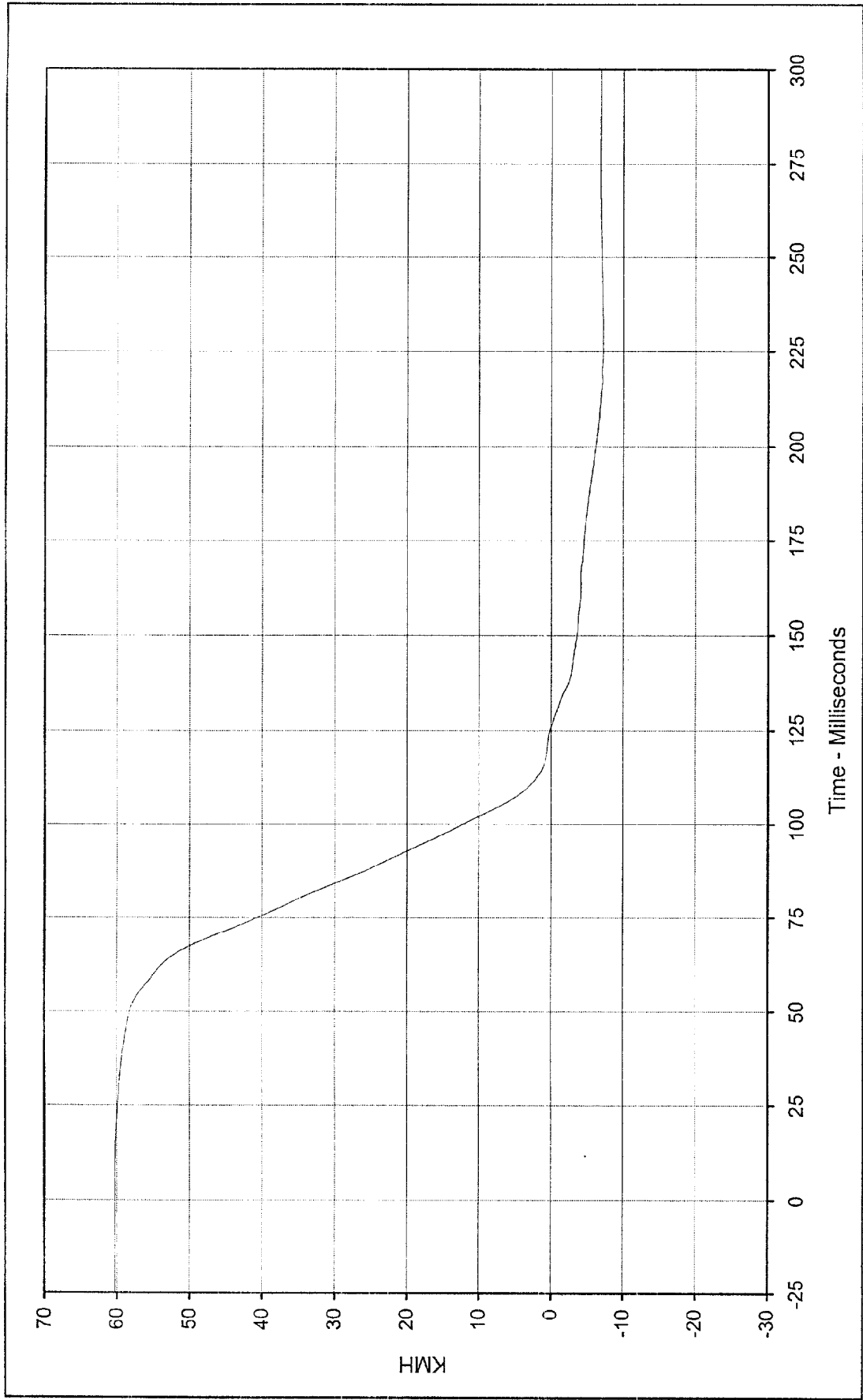
Minimum Value: -36.1 at 70.1 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: FIL-016





Curve Description: Driver Chest Redundant X Velocity Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 60.3 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

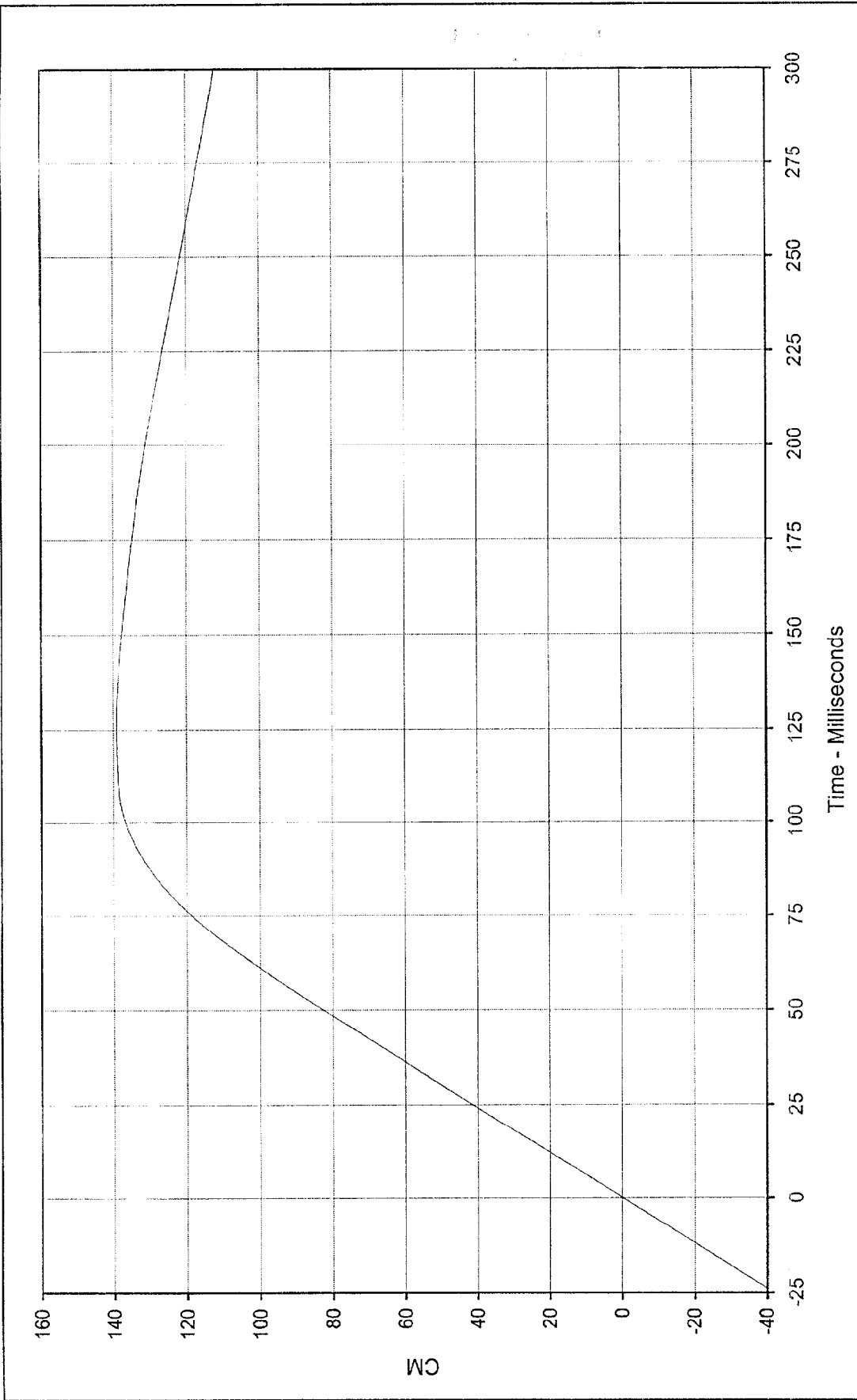
Minimum Value: -7.2 at 229.6 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

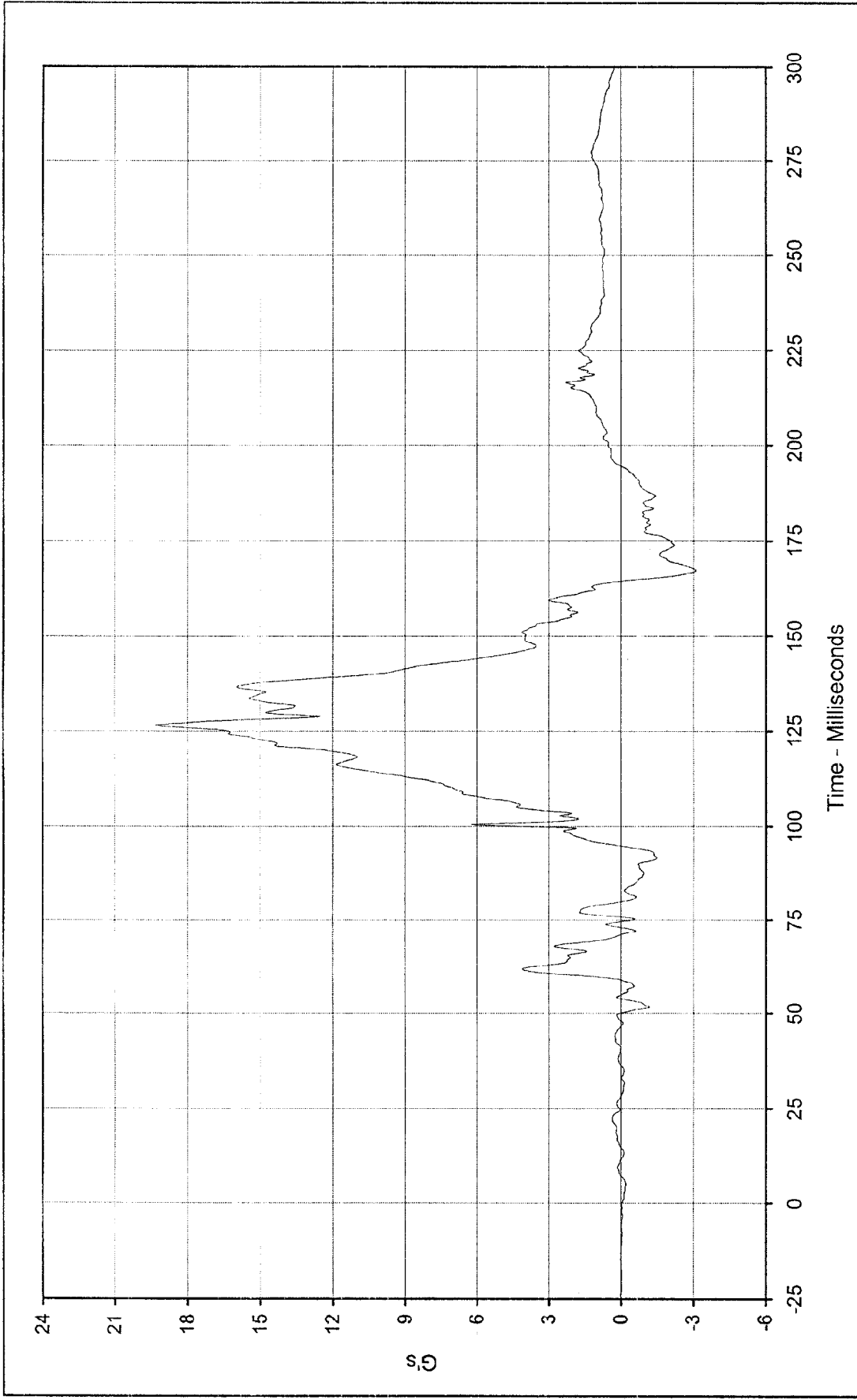
Curve Number: IN1-016





Curve Description: Driver Chest Redundant X Displ.      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 139.1    at 126.0    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -0.2    at 0.0    Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN2-016





Curve Description: Driver Chest Redundant Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 19.3 at 126.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

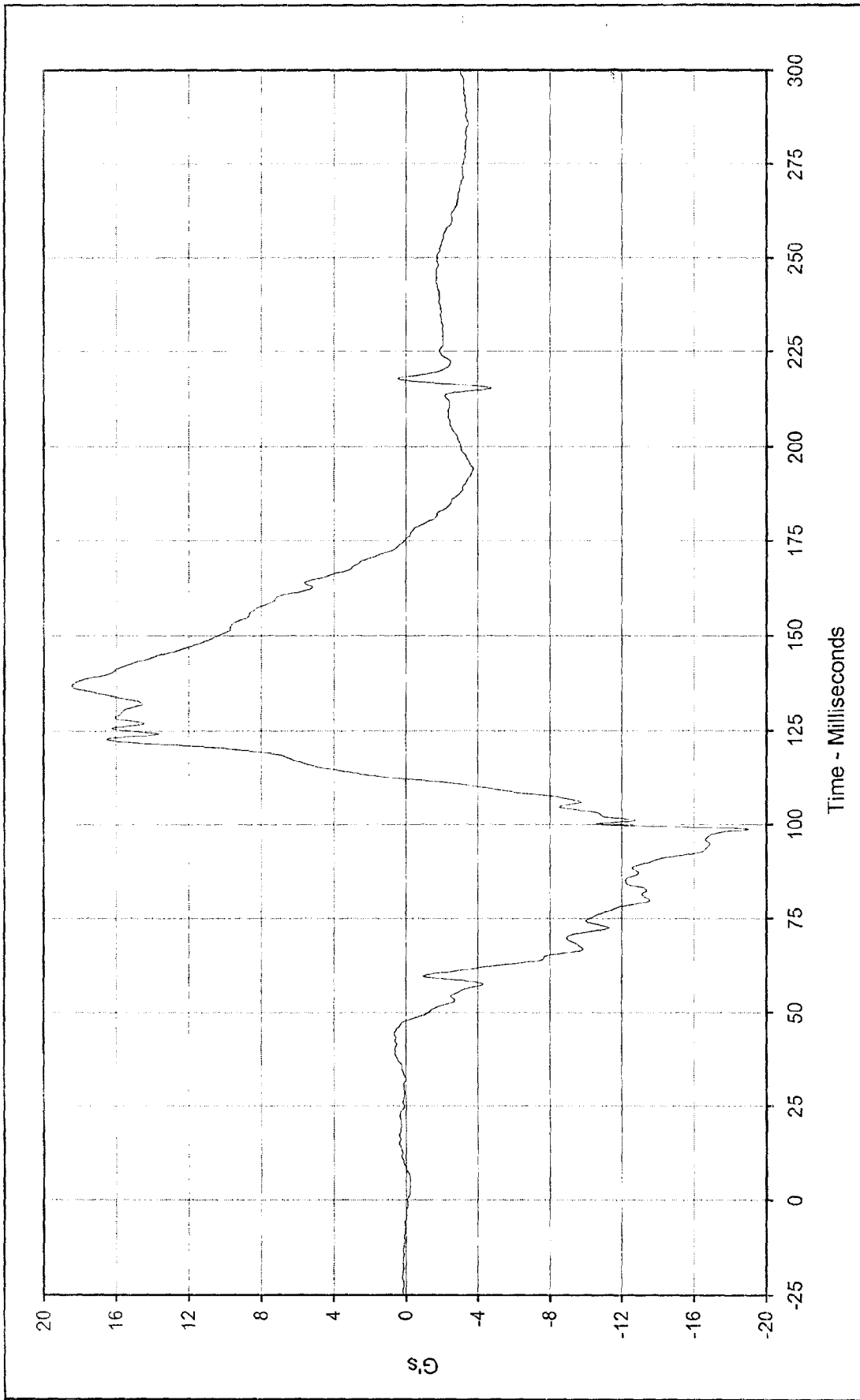
Minimum Value: -3.1 at 167.1 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

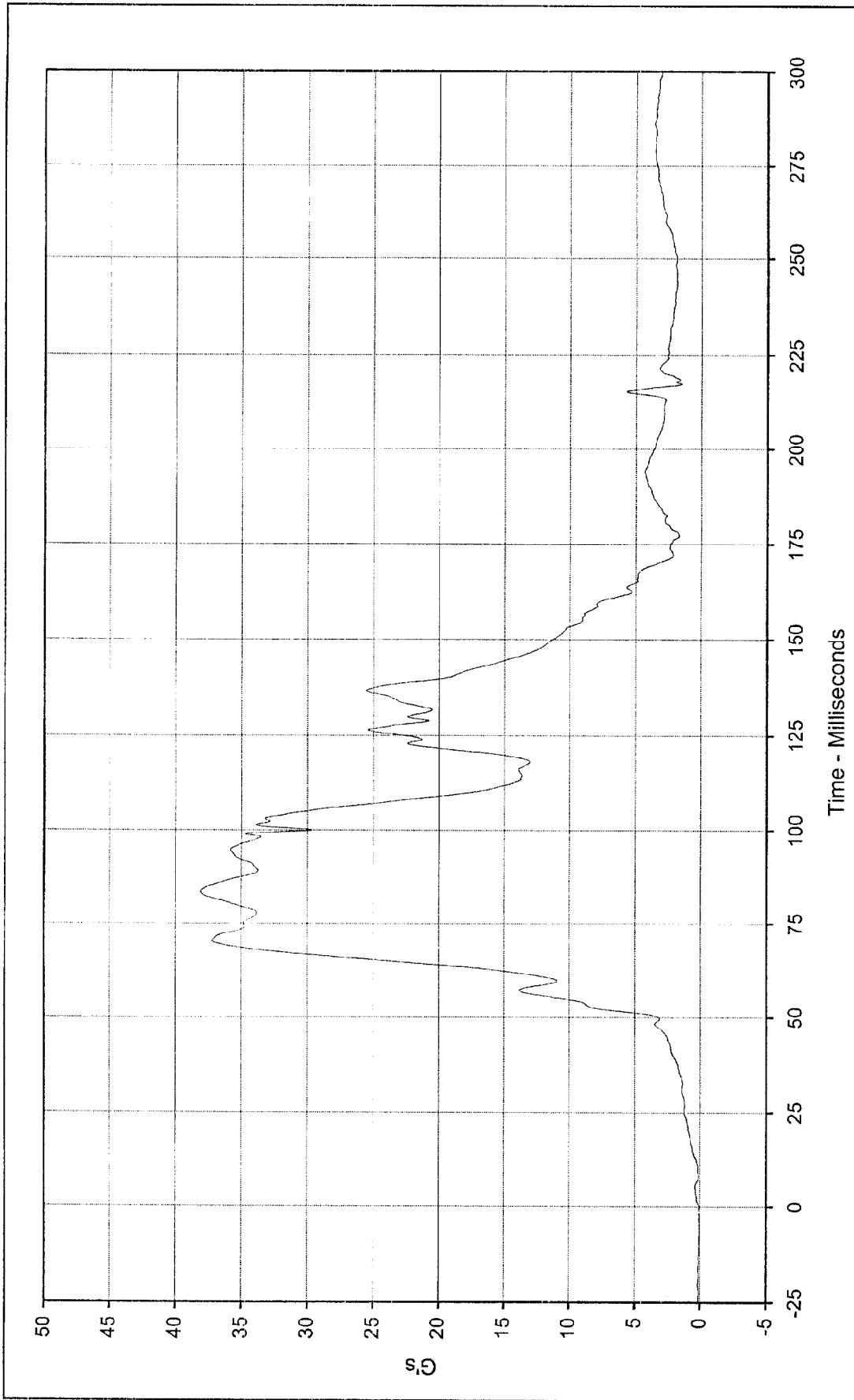
Curve Number: FIL-017





Curve Description: Driver Chest Redundant Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 18.5    at 136.6    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -19.0    at 98.7    Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: FIL-018





Curve Description: Driver Chest Resultant Redundant      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 38.1    at 83.4    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

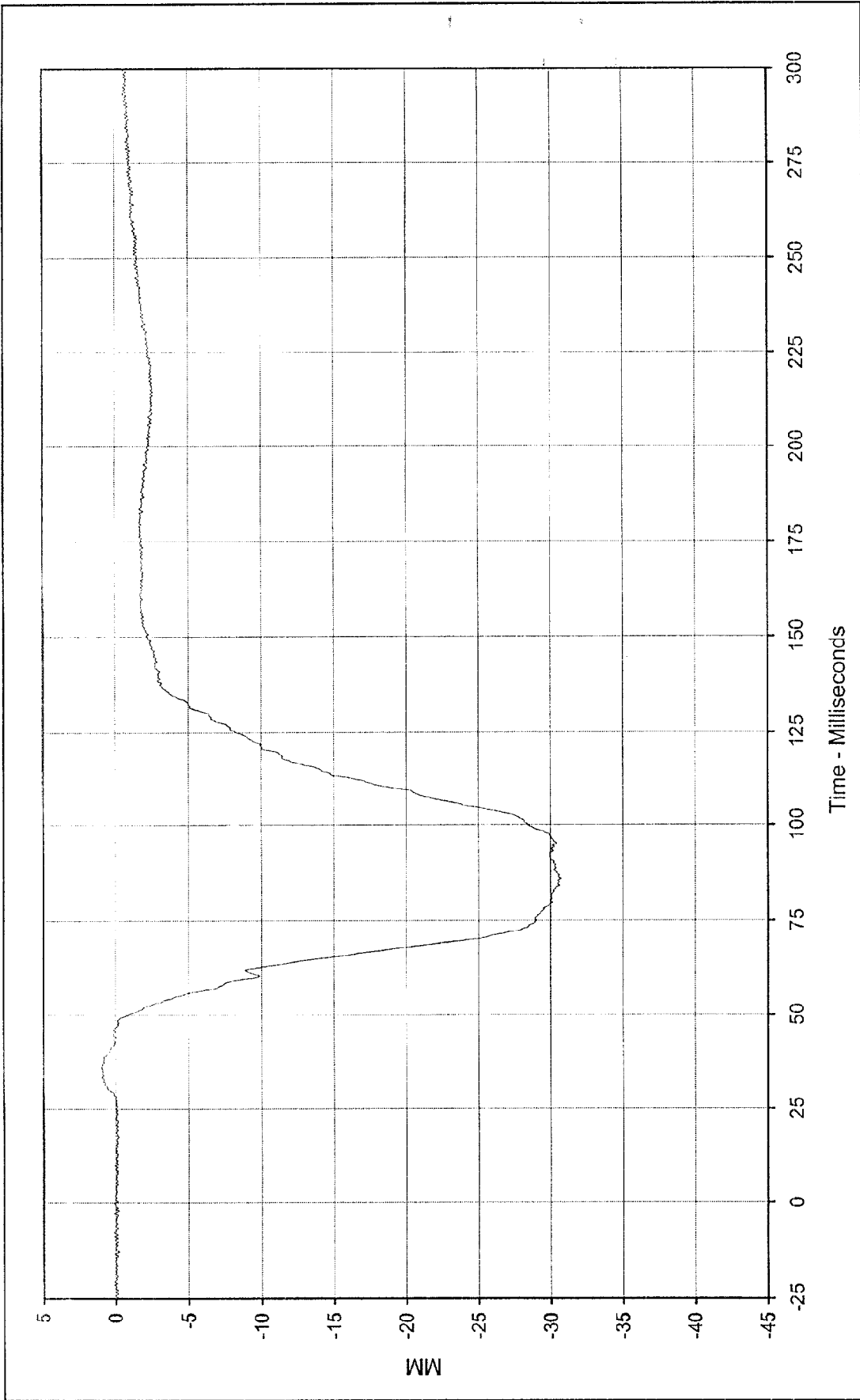
Minimum Value: 0.1    at 0.0    Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: RES-016





Curve Description: Driver Chest Displacement X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 1.0 at 33.3 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

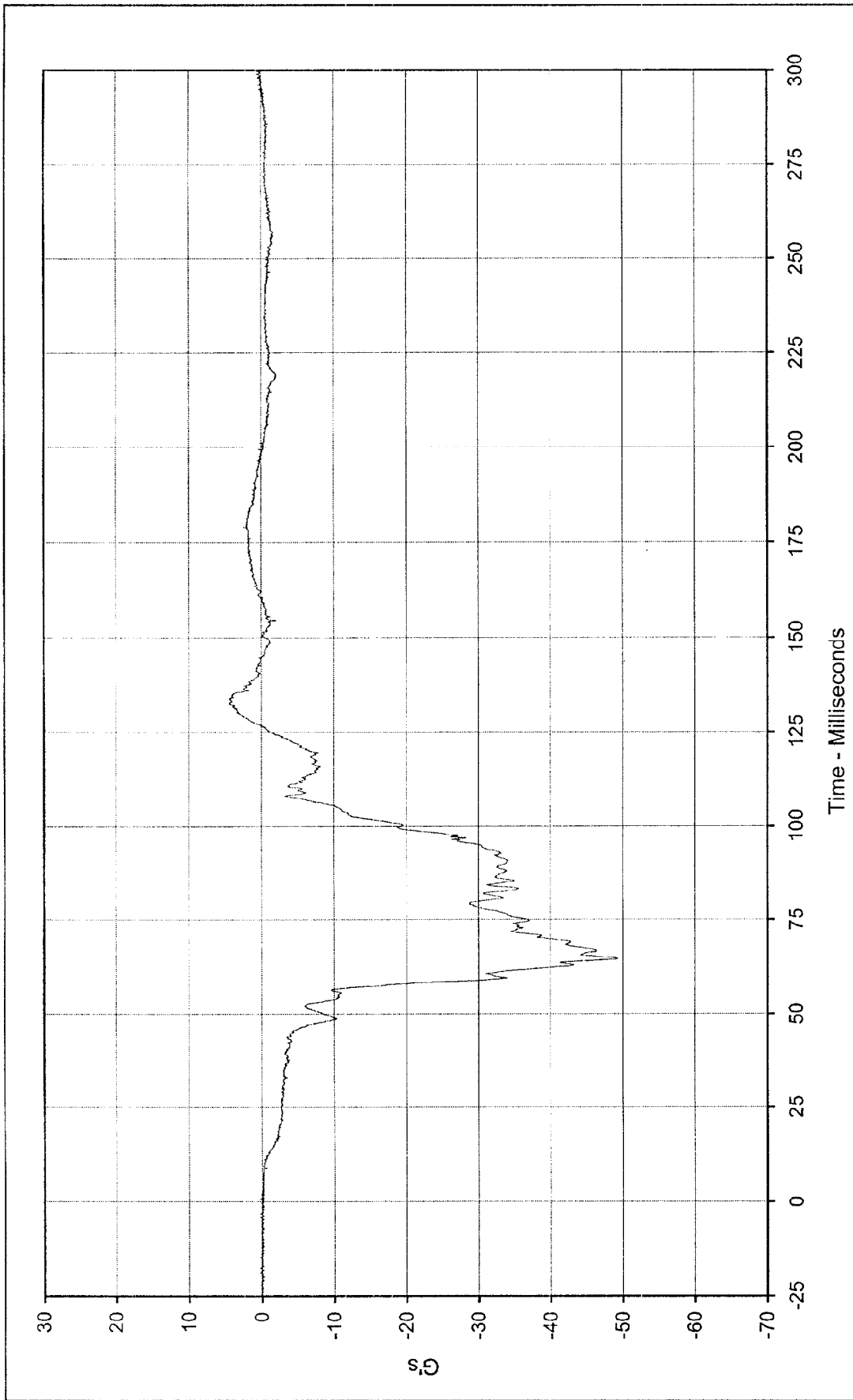
Minimum Value: -30.7 at 85.9 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-019





Curve Description: Driver Pelvis X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 4.5 at 132.5 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

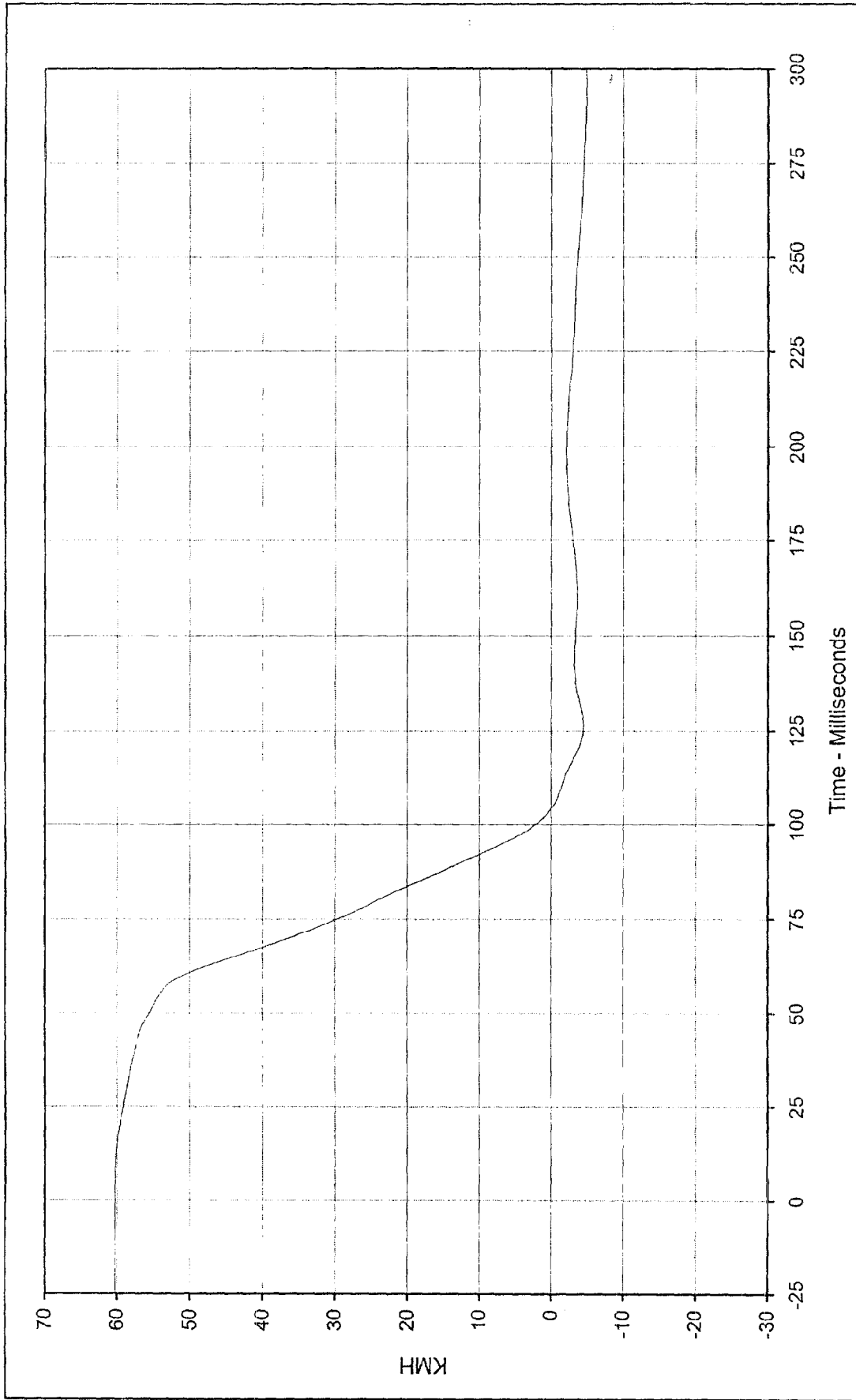
Minimum Value: -49.4 at 64.6 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-020





Curve Description: Driver Pelvis X Velocity Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 60.2 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

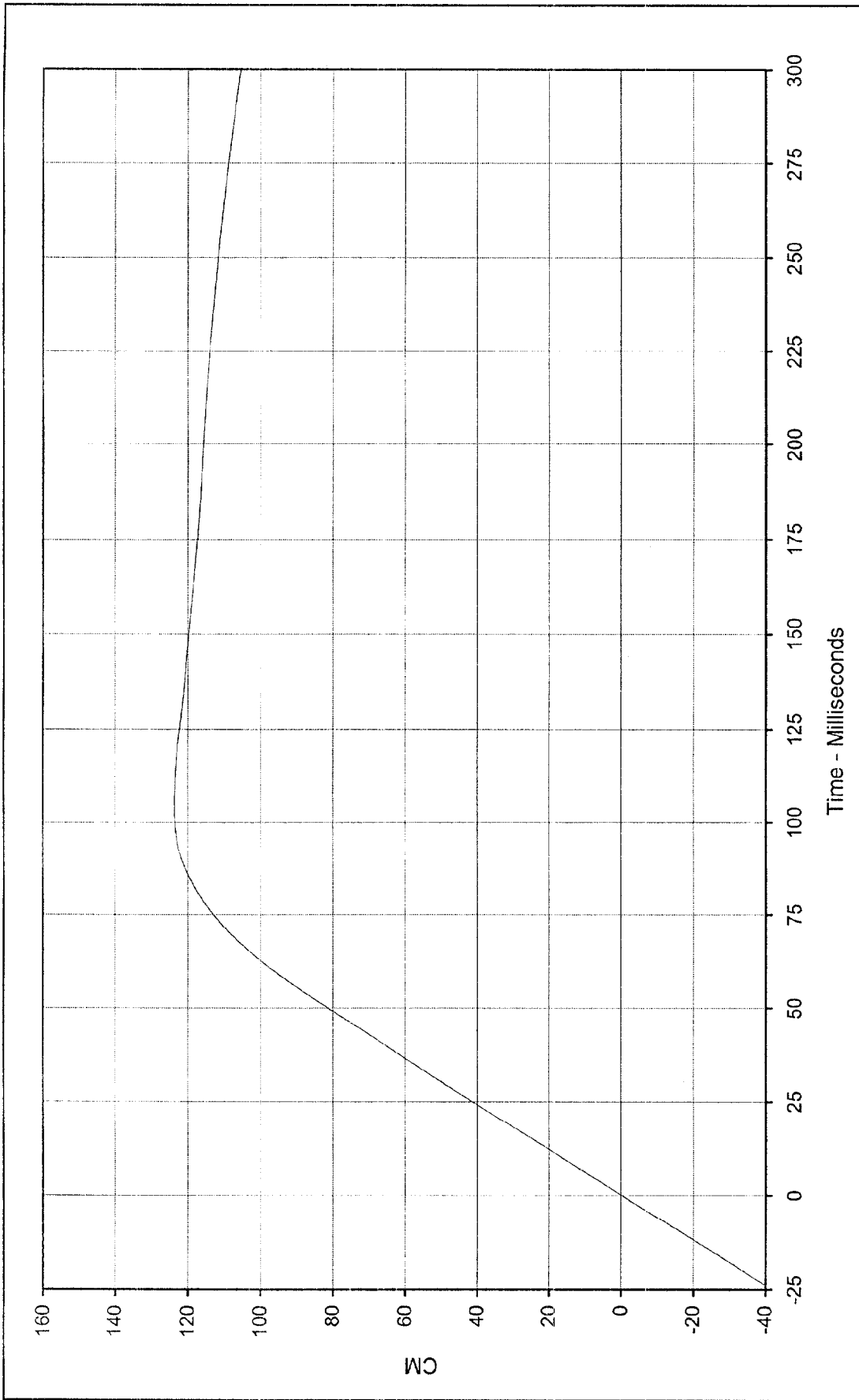
Minimum Value: -4.9 at 295.5 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-020





Curve Description: Driver Pelvis X Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 123.7 at 104.3 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

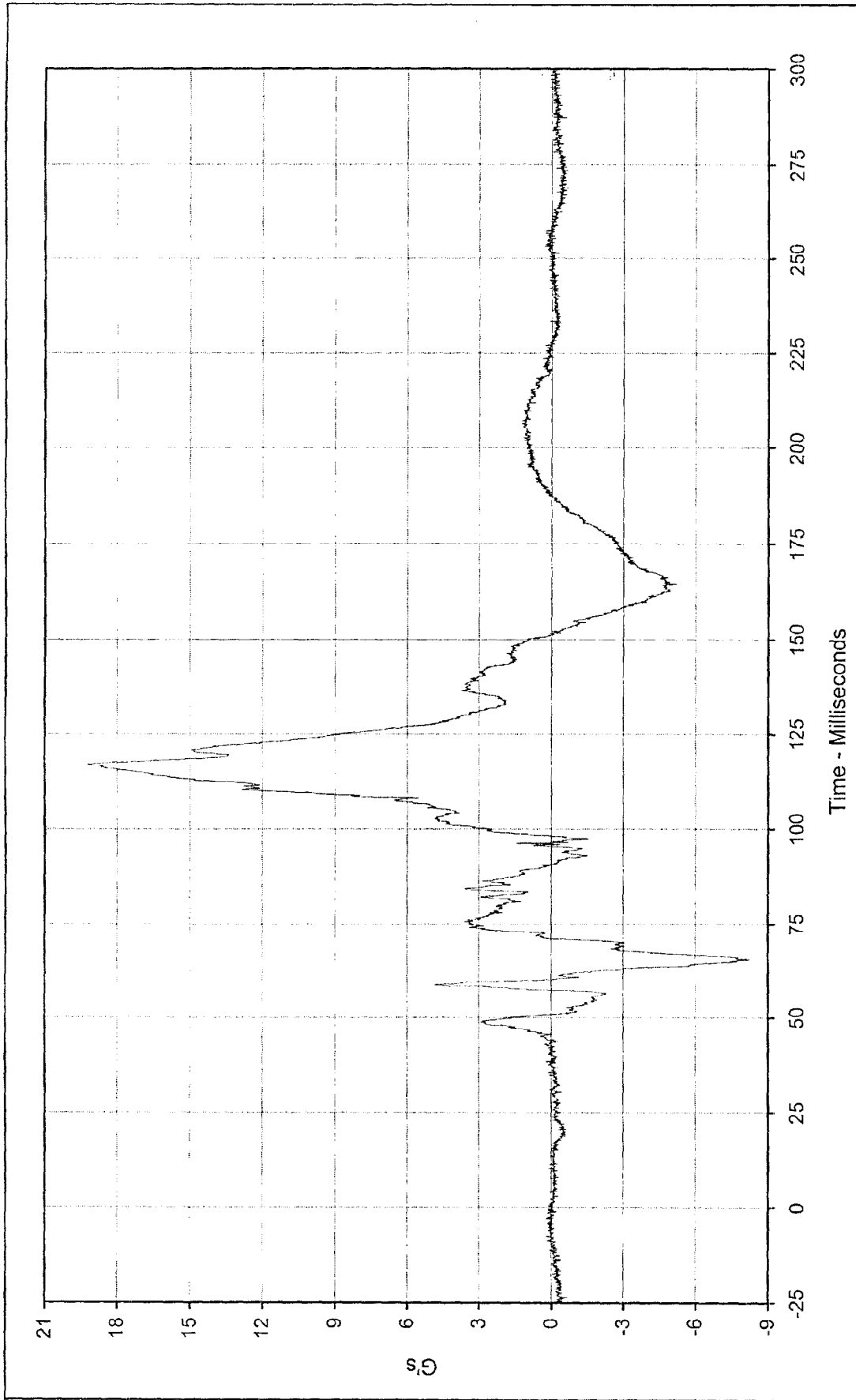
Minimum Value: -0.2 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-020

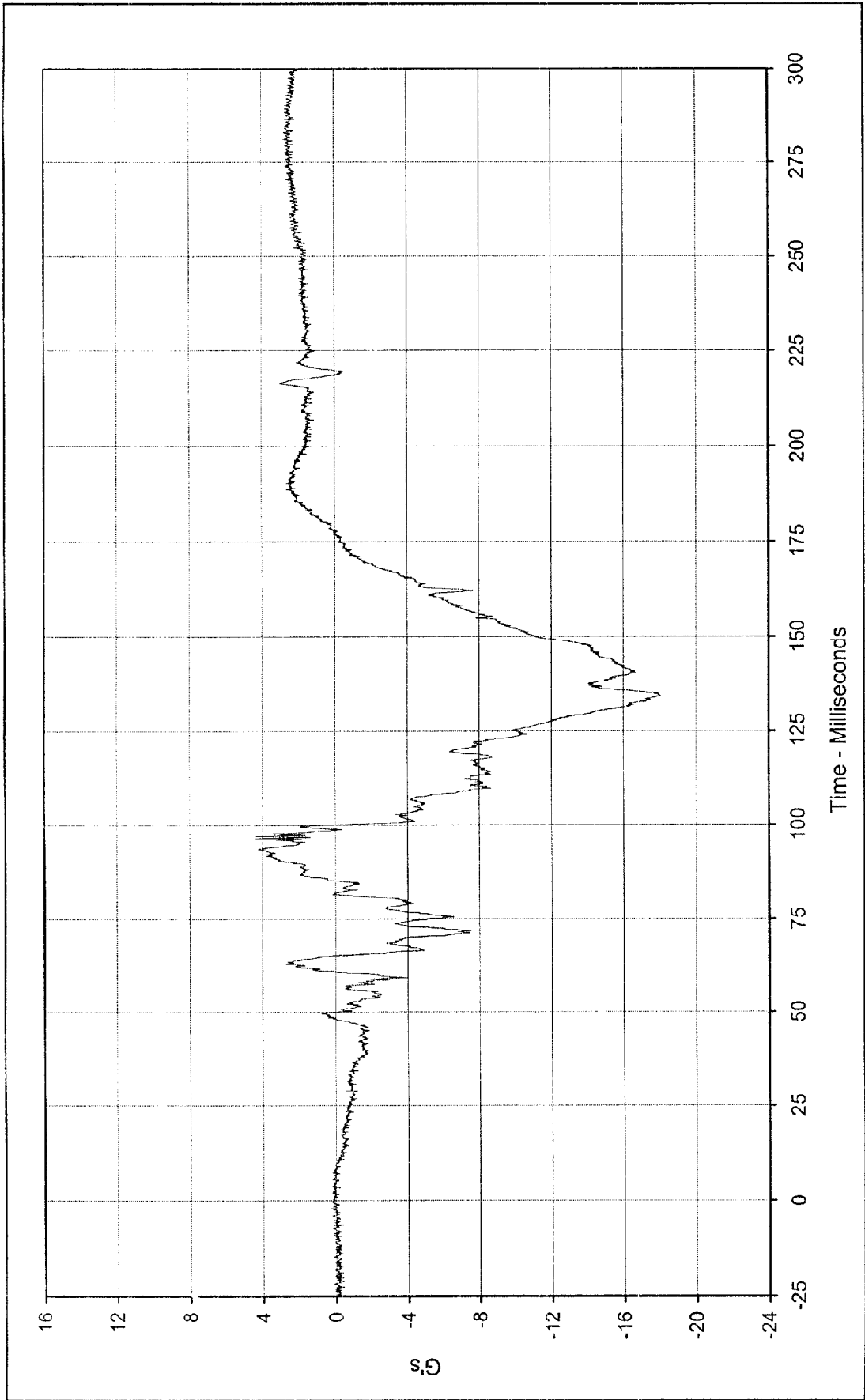




Curve Description: Driver Pelvis Y  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 19.2 at 116.7 Milliseconds  
 Minimum Value: -8.3 at 65.4 Milliseconds  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-021





Curve Description: Driver Pelvis Z Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 4.4 at 97.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

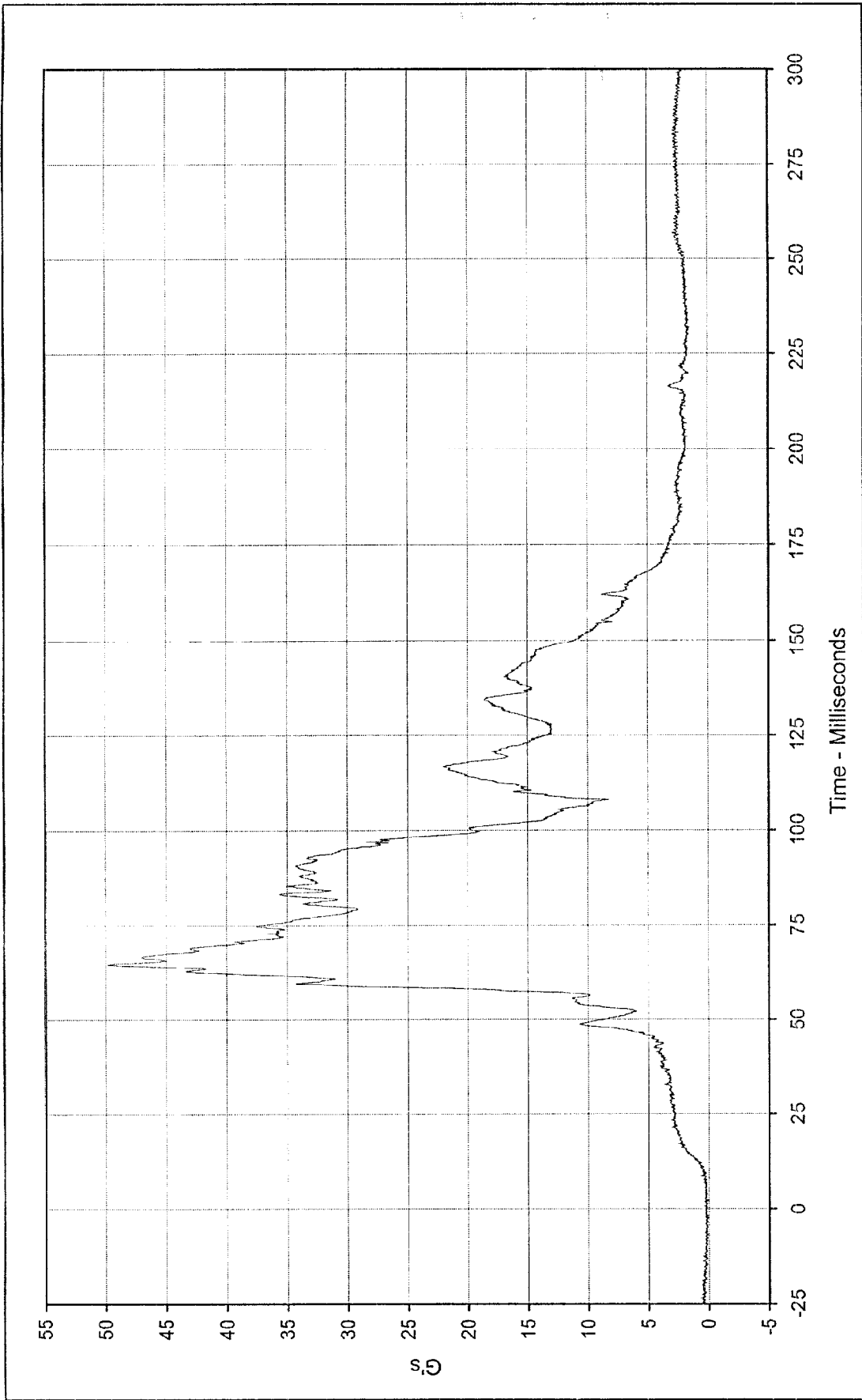
Minimum Value: -18.0 at 134.2 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-022





Curve Description: Driver Pelvis Resultant Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 49.8 at 64.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

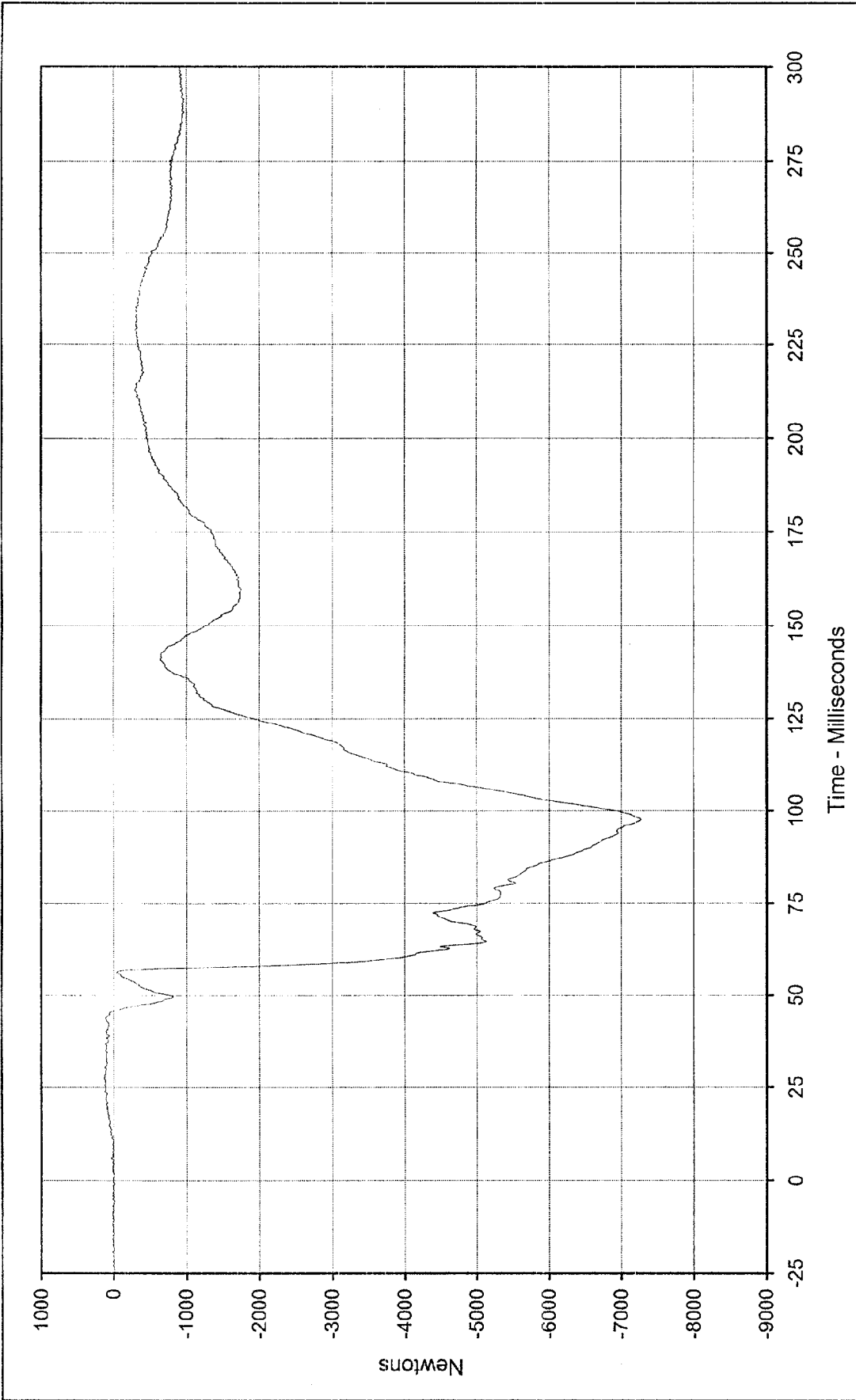
Minimum Value: 0.0 at 2.2 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: RES-020





Curve Description: Driver Left Femur Force      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 133.0    at 27.4    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

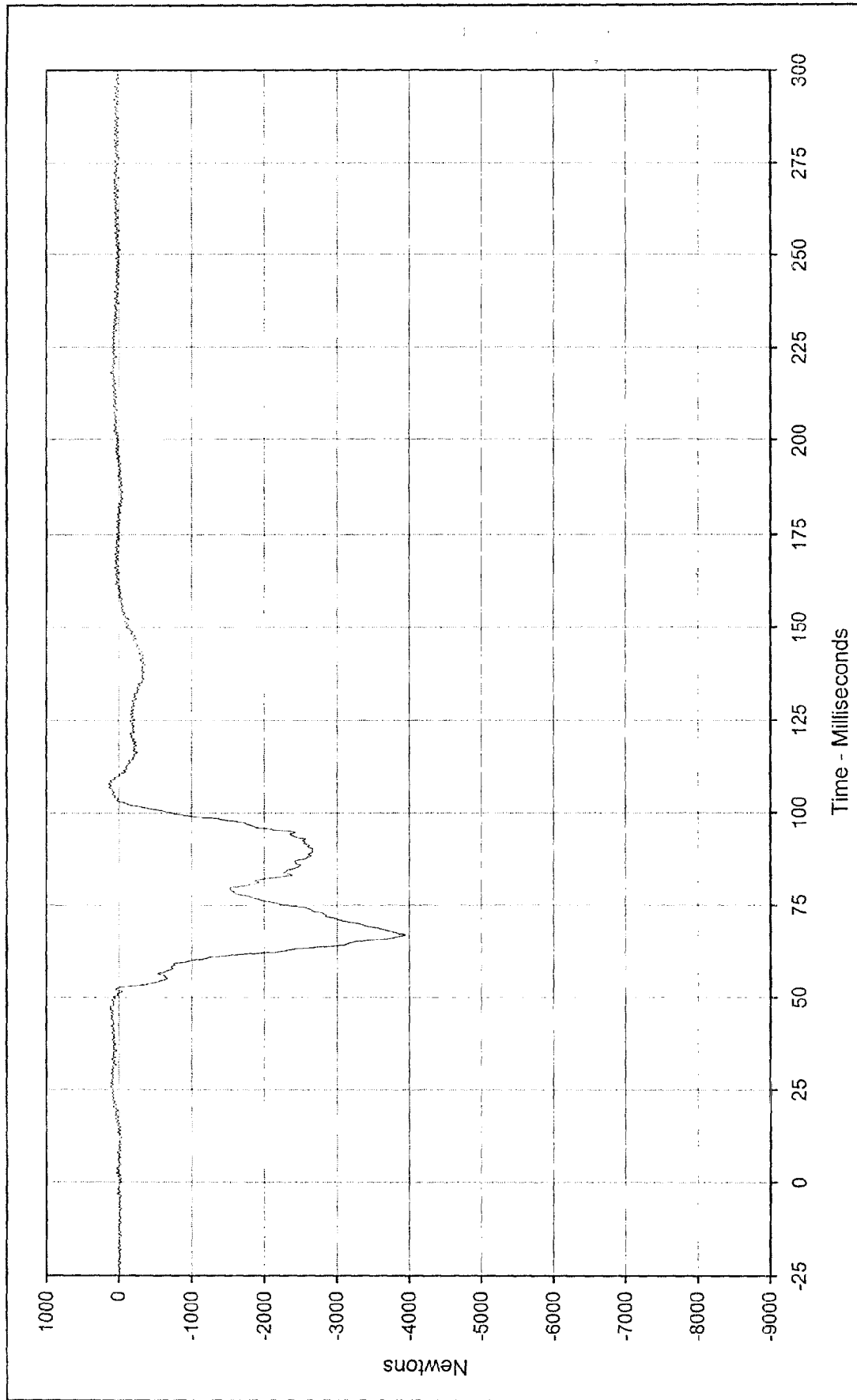
Minimum Value: -7266.1    at 97.4    Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-023





Curve Description: Driver Right Femur Force Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 146.4 at 107.7 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

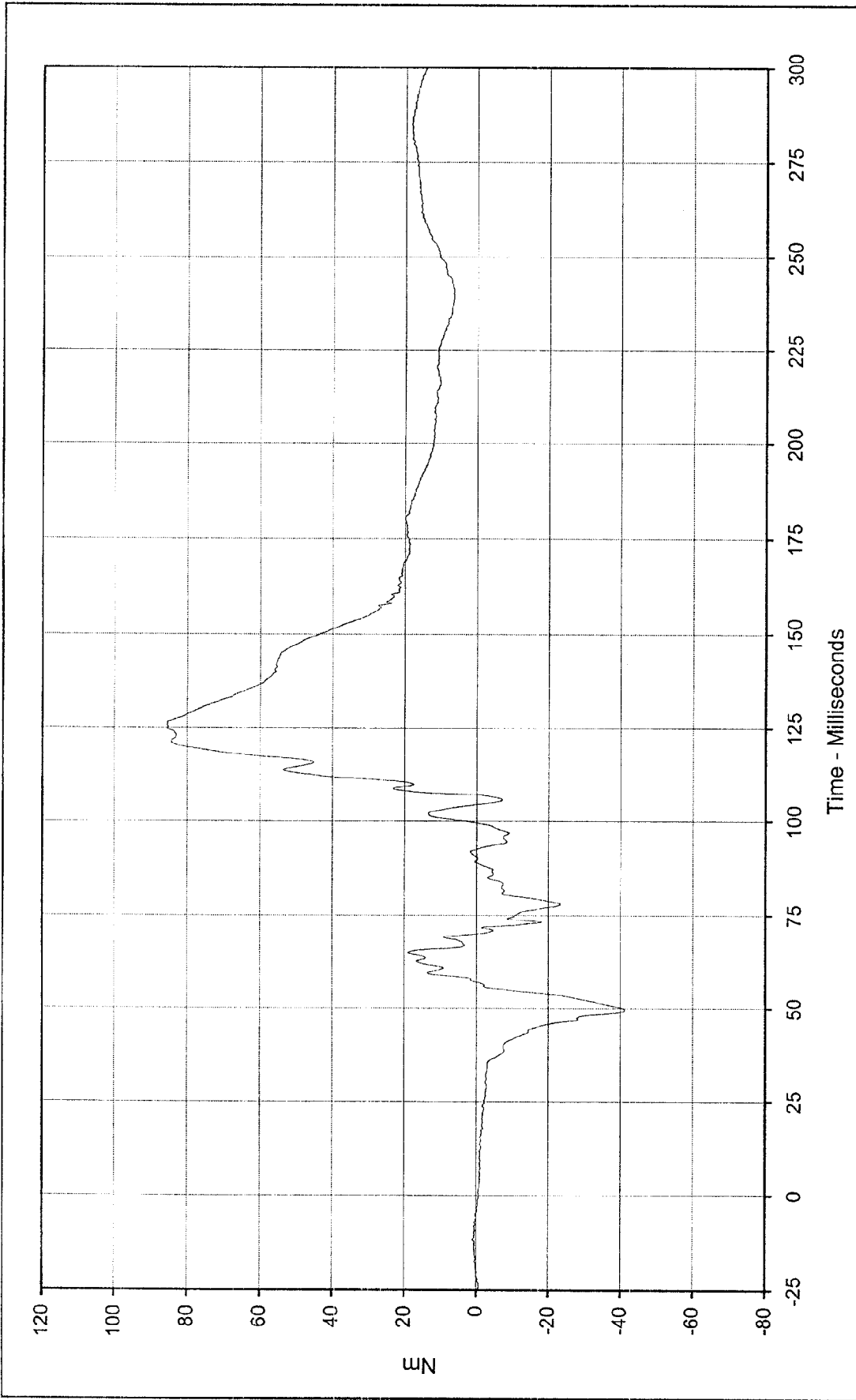
Minimum Value: -3946.3 at 66.8 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-024





Curve Description: Driver Left Upper Tibia Moment X

Maximum Value: 85.7 at 125.7 Milliseconds

Minimum Value: -41.3 at 49.6 Milliseconds

SAE Filter Class: 600

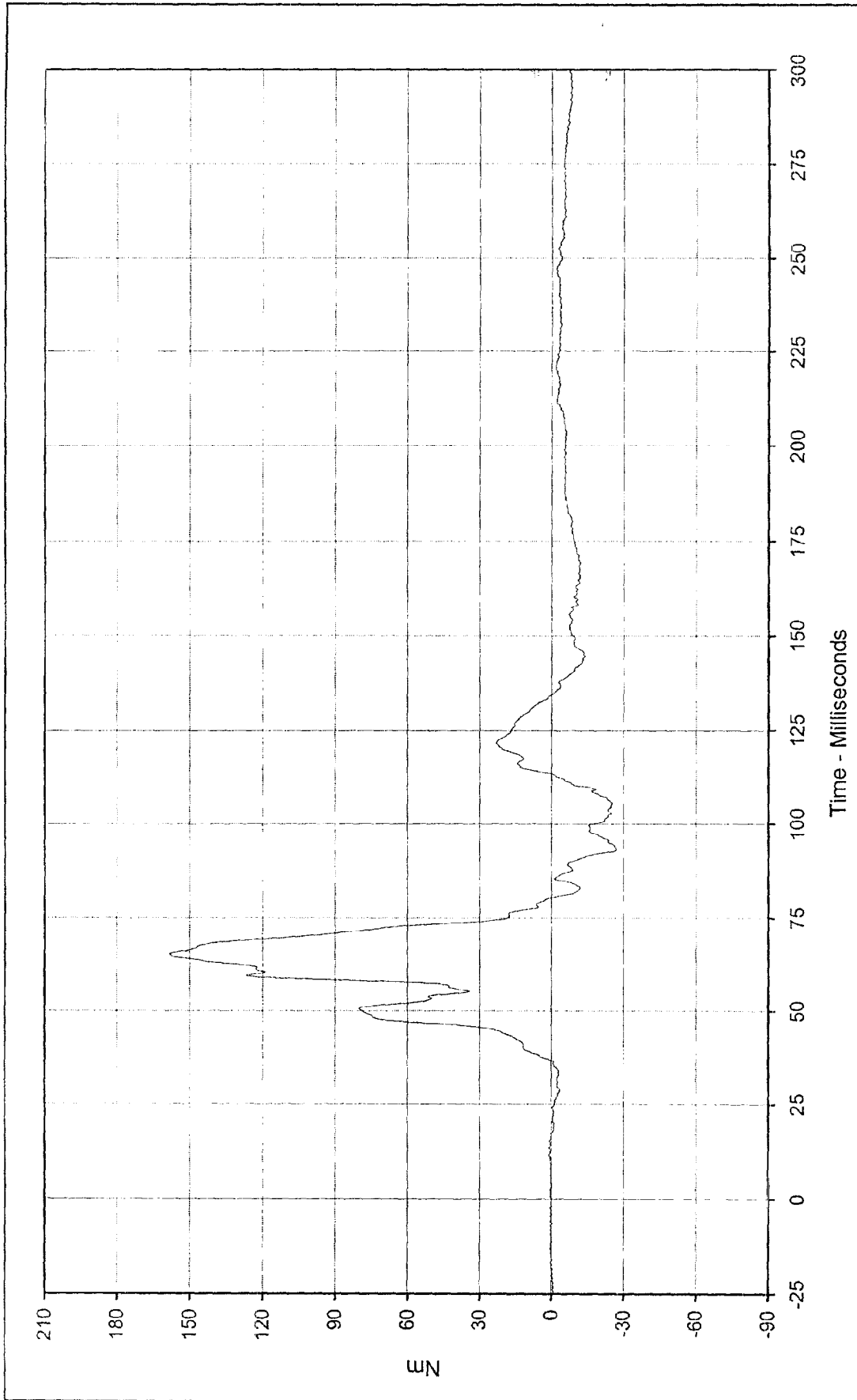
Date of Test: 7/3/98

Curve Number: FIL-025

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Test Vehicle: 1998 Dodge Neon 4 Door Sedan

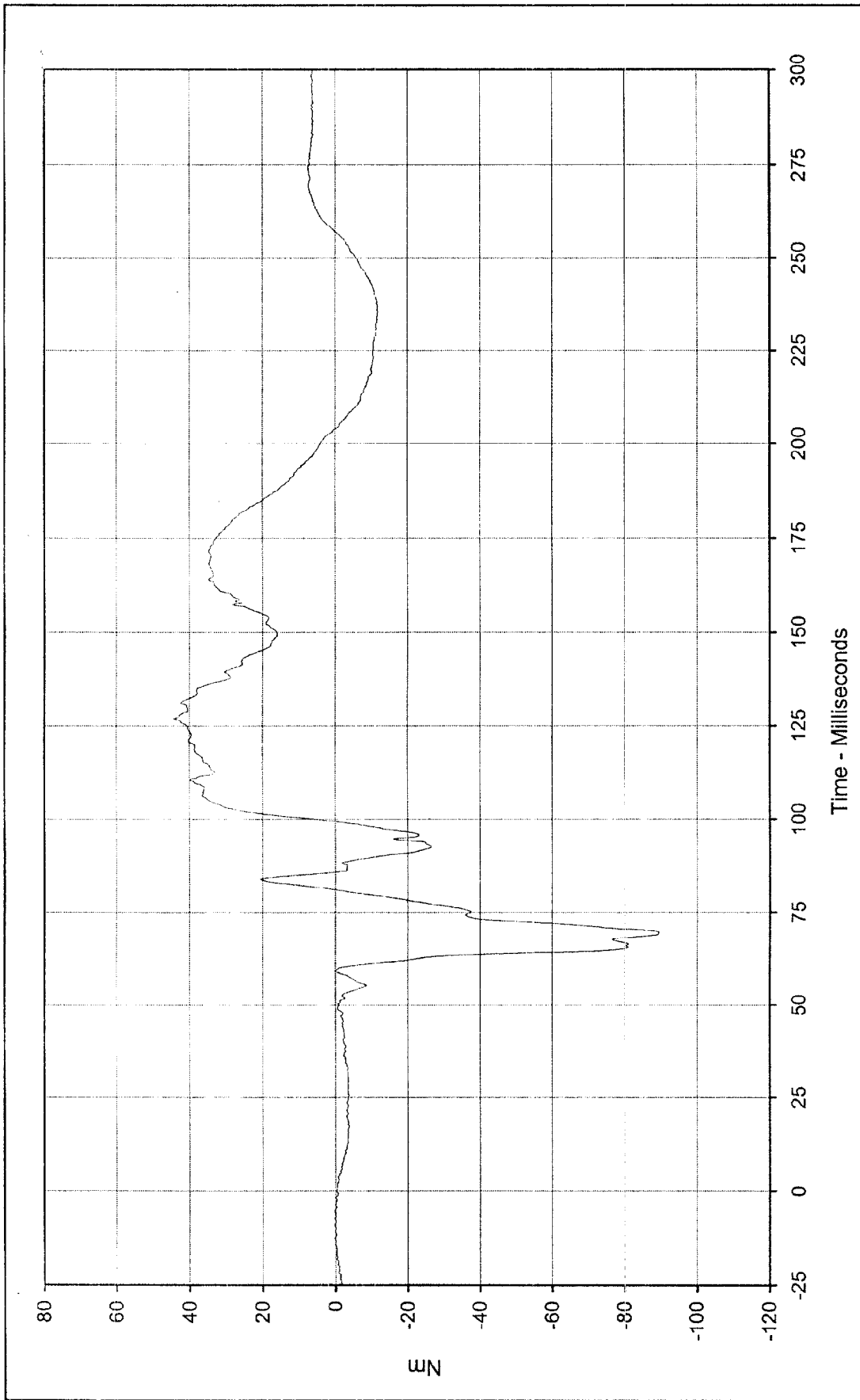




Curve Description: Driver Left Upper Tibia Moment Y  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 158.2 at 65.3 Milliseconds  
 Minimum Value: -27.1 at 93.2 Milliseconds  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan



SAE Filter Class: 600  
 Date of Test: 7/3/98  
 Curve Number: FIL-026



Curve Description: Driver Right Upper Tibia Moment X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 44.3 at 126.9 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

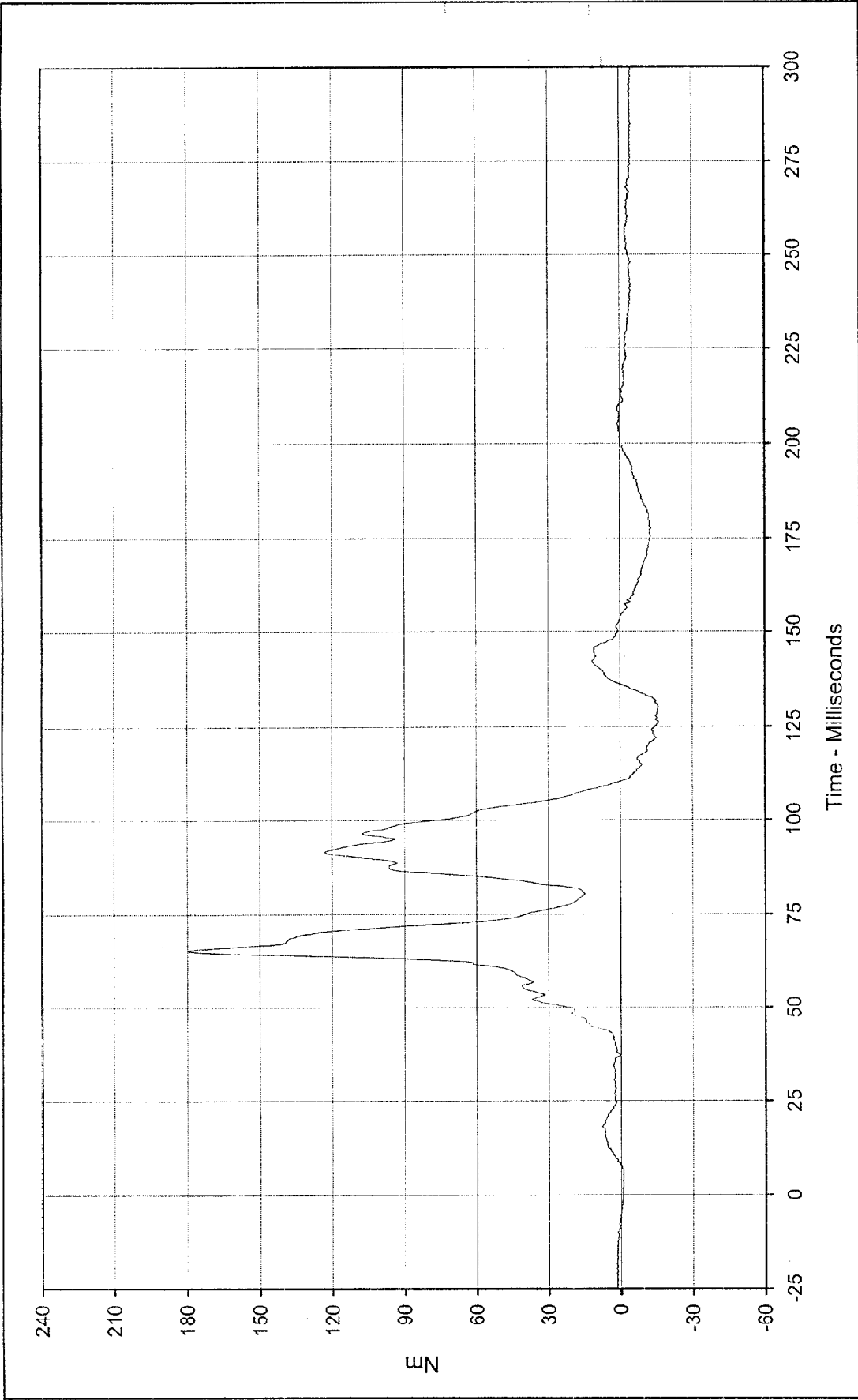
Minimum Value: -89.5 at 69.6 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-027





Curve Description: Driver Right Upper Tibia Moment Y      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 179.6    at 65.2    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

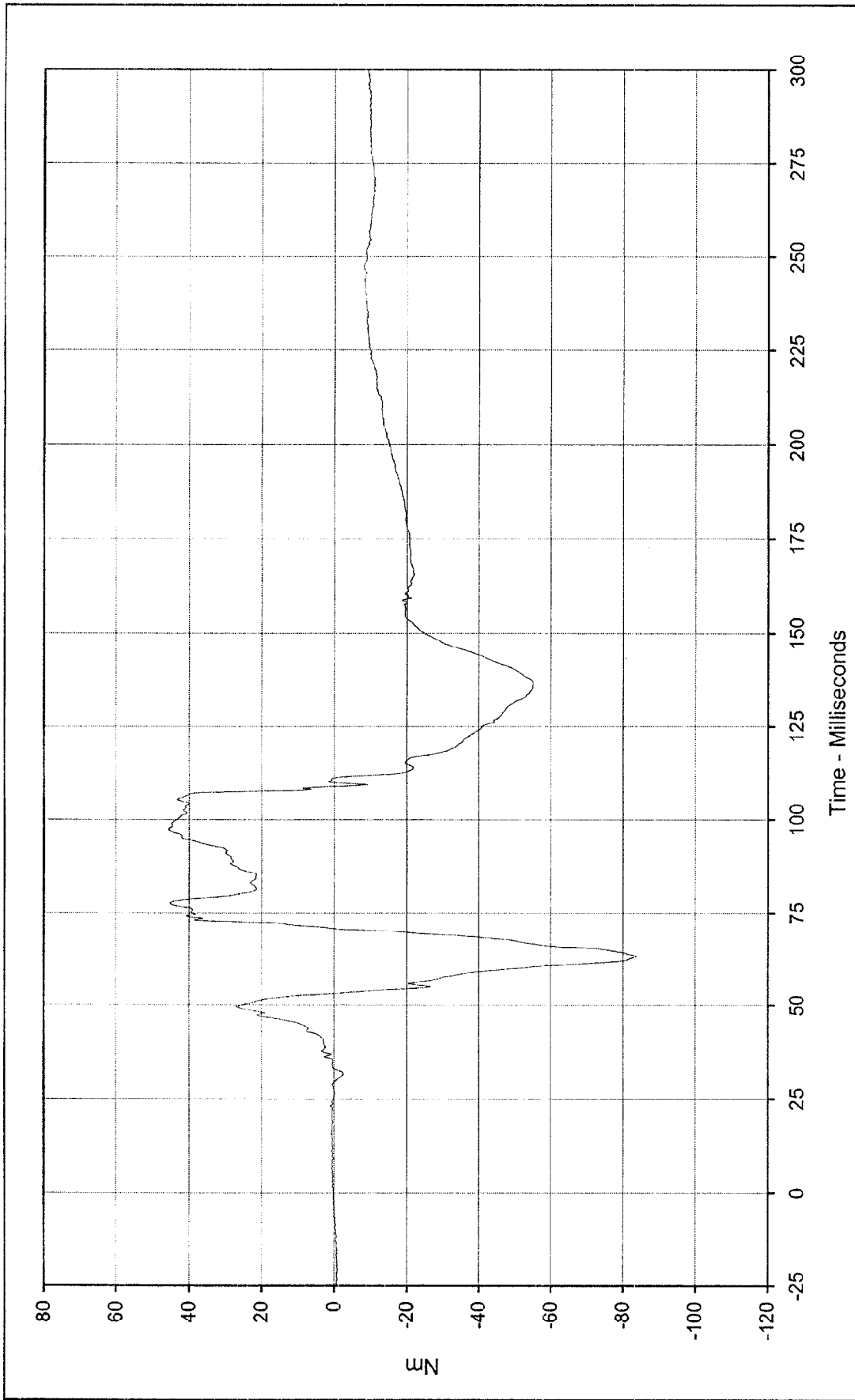
Minimum Value: -16.1    at 126.3    Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-028





Curve Description: Driver Left Lower Tibia Moment X

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 45.6 at 45.5 Milliseconds

Test Vehicle: 1998 Dodge Neon 4 Door Sedan

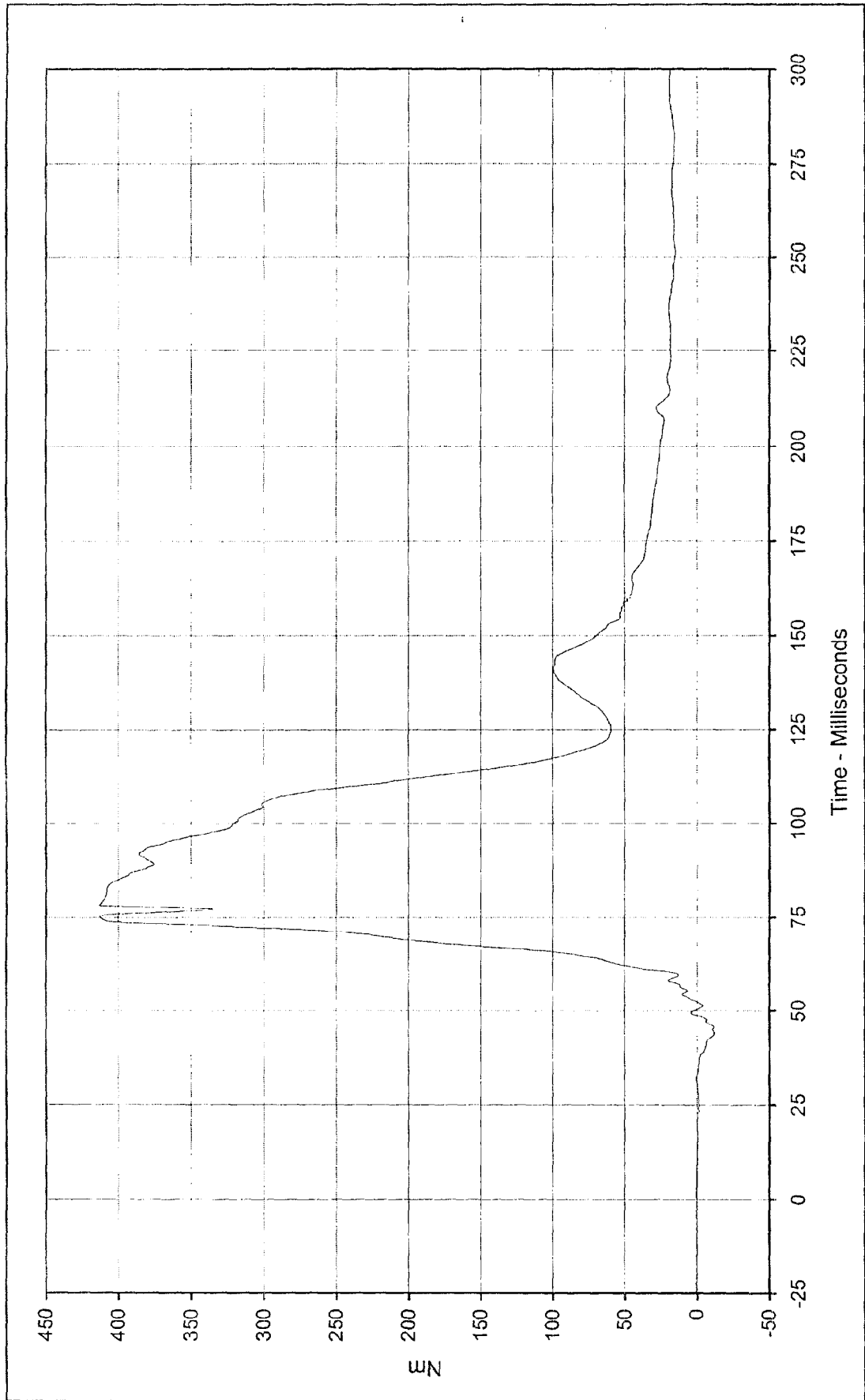
Minimum Value: -83.7 at 63.3 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-029





Curve Description: Driver Left Lower Tibia Moment Y      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 413.2    at 78.4    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

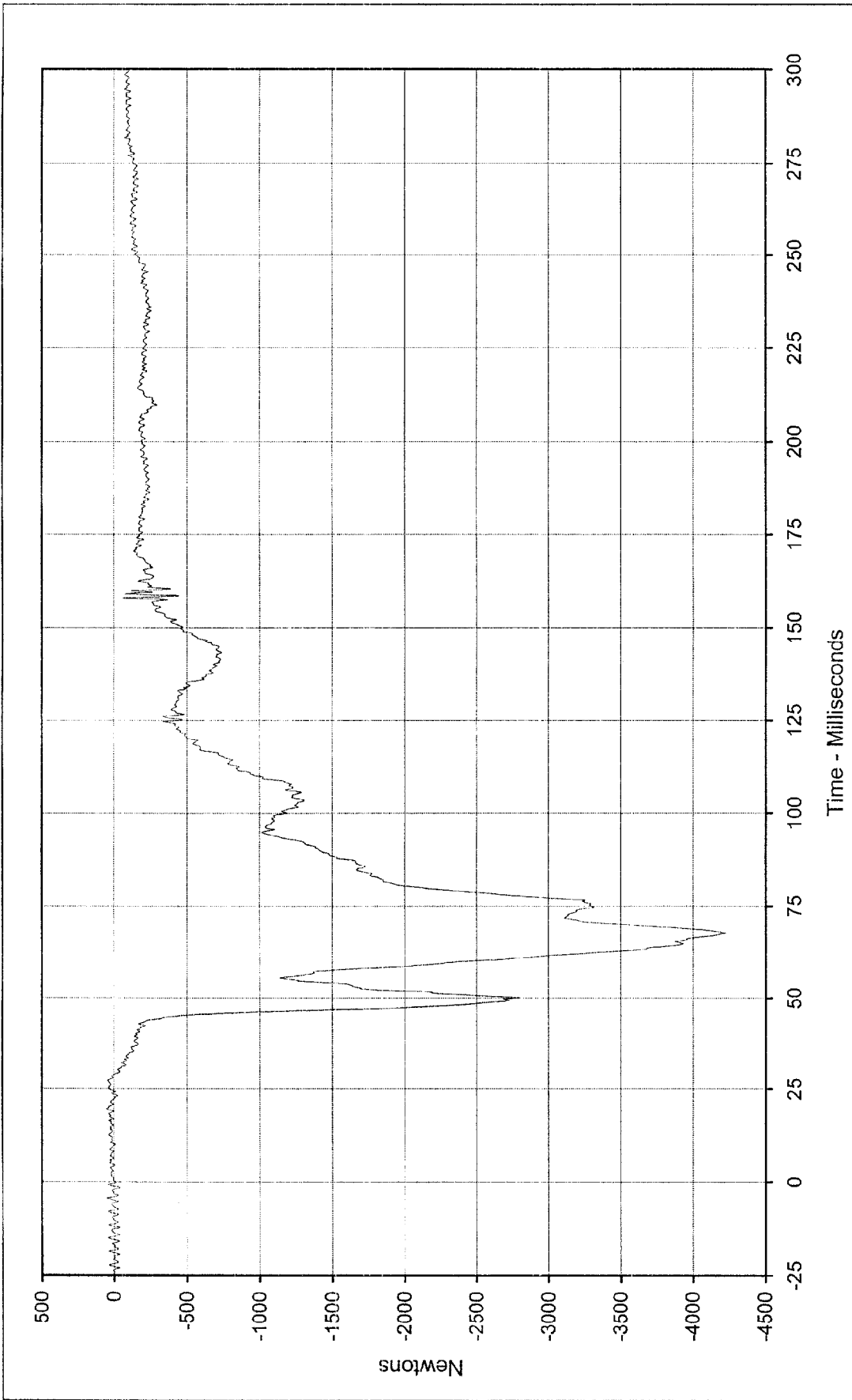
Minimum Value: -12.1    at 43.8    Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-030





Curve Description: Driver Left Lower Tibia Force Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 51.8 at 19.6 Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

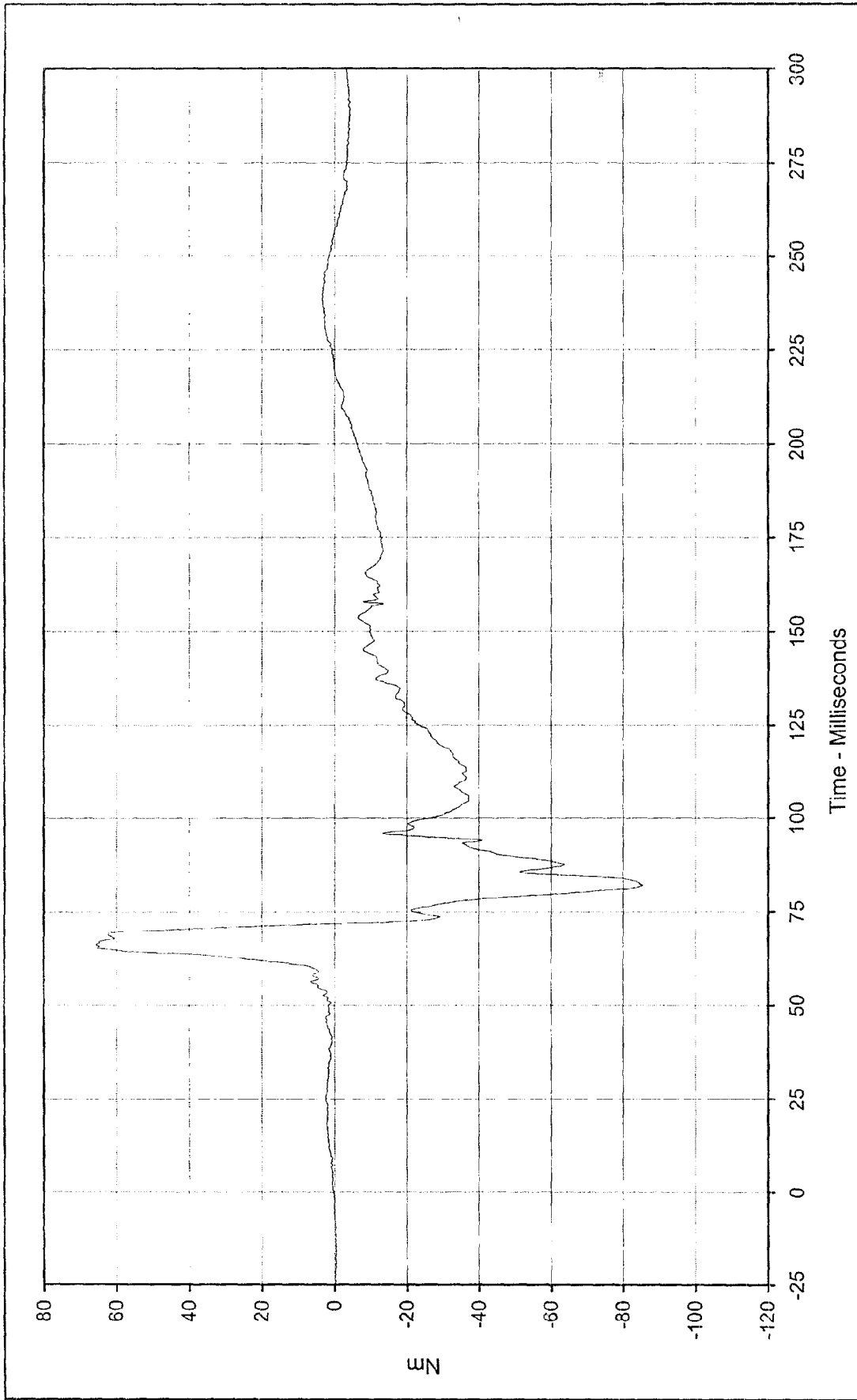
Minimum Value: -4228.2 at 67.6 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-031





Curve Description: Driver Right Lower Tibia Moment X      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 65.6      at 66.0      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

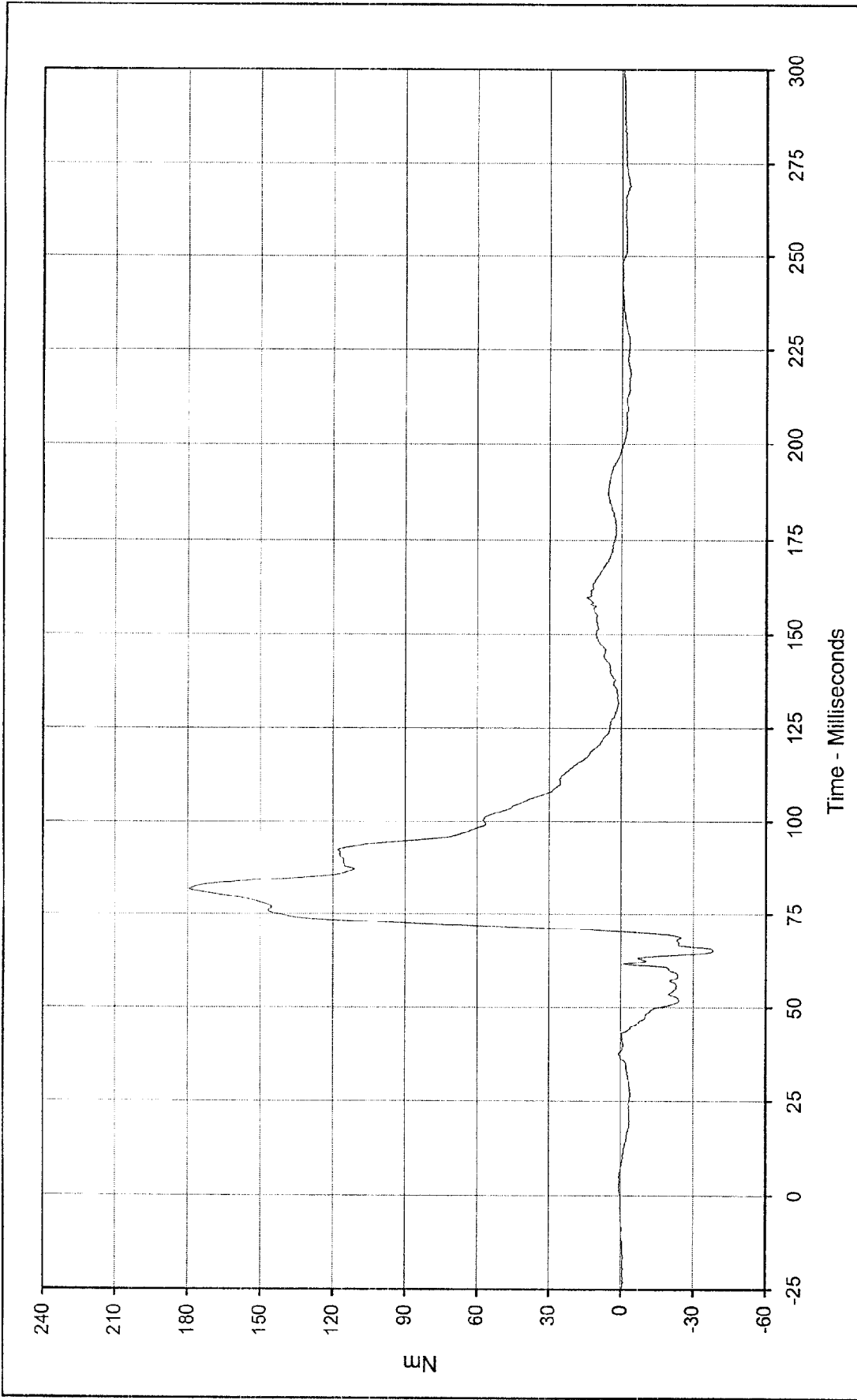
Minimum Value: -85.3      at 81.9      Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-032





Curve Description: Driver Right Lower Tibia Moment Y

Maximum Value: 179.4 at 81.7 Milliseconds

Minimum Value: -38.3 at 65.1 Milliseconds

SAE Filter Class: 600

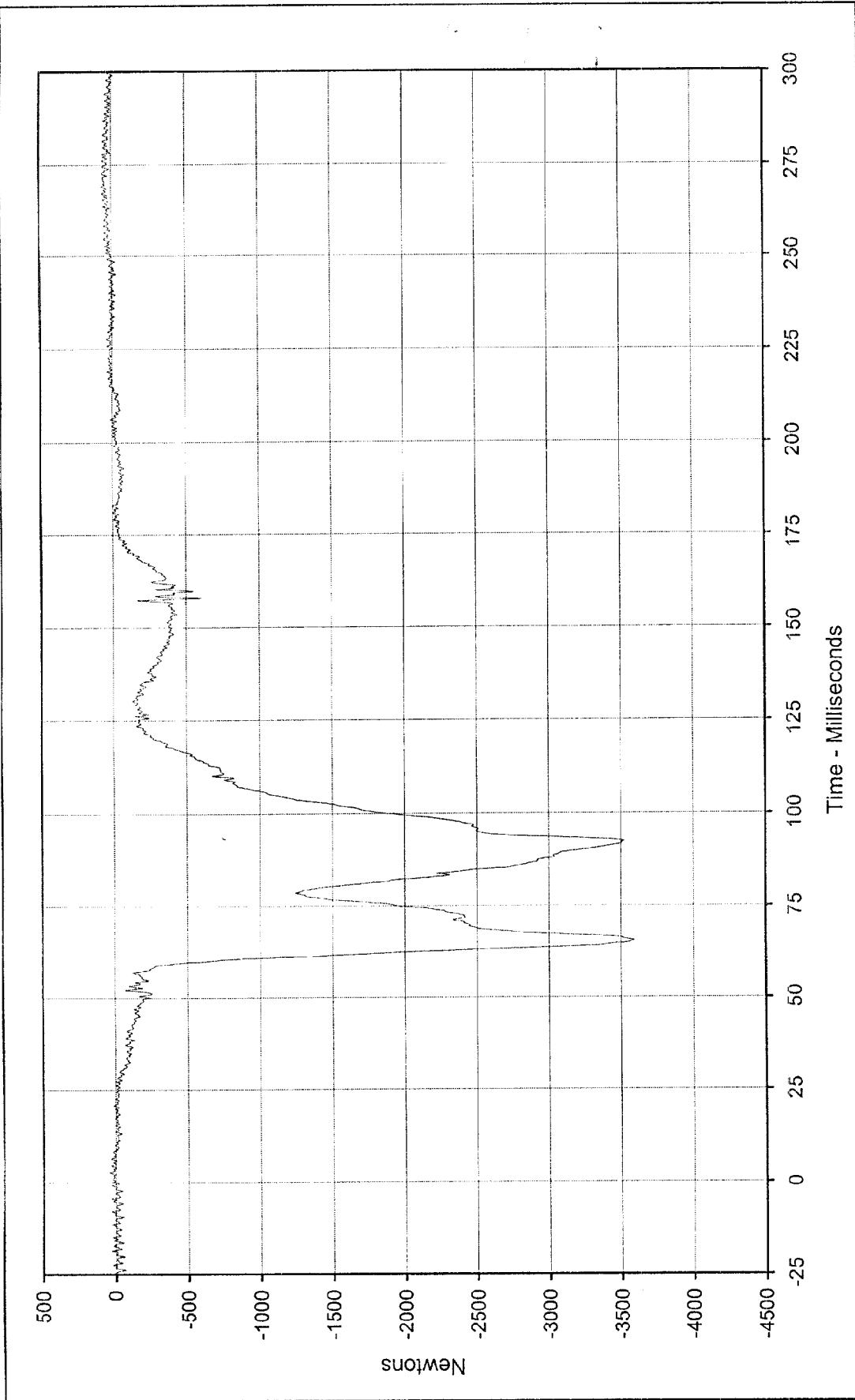
Date of Test: 7/3/98

Curve Number: FIL-033

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

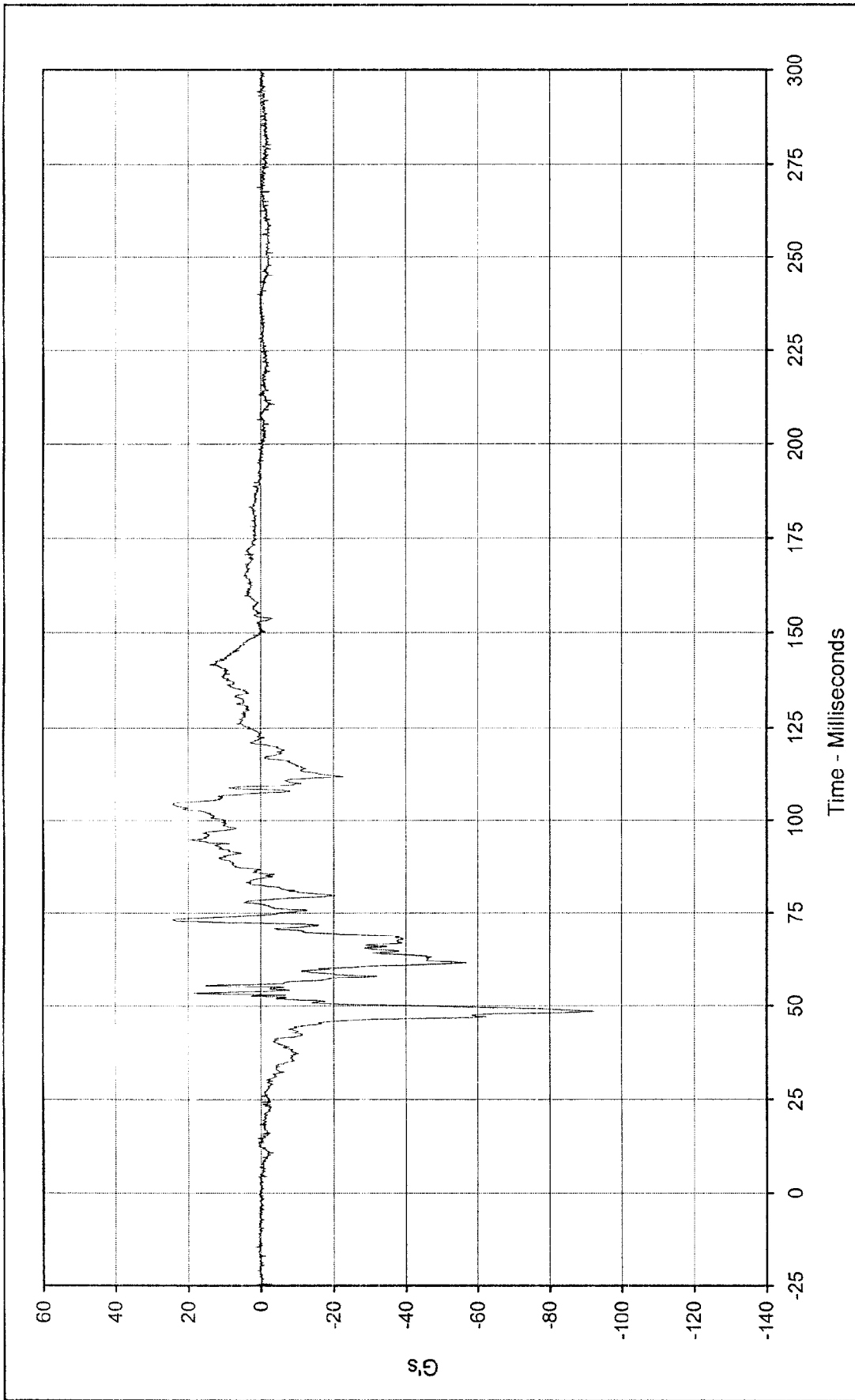
Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Driver Right Lower Tibia Force Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 69.0    at 269.2    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -3589.7    at 65.3    Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 7/3/98  
 Curve Number: FIL-034





Curve Description: Driver Left Foot Aft X      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 24.5      at 73.3      Milliseconds

Minimum Value: -92.4      at 48.5      Milliseconds

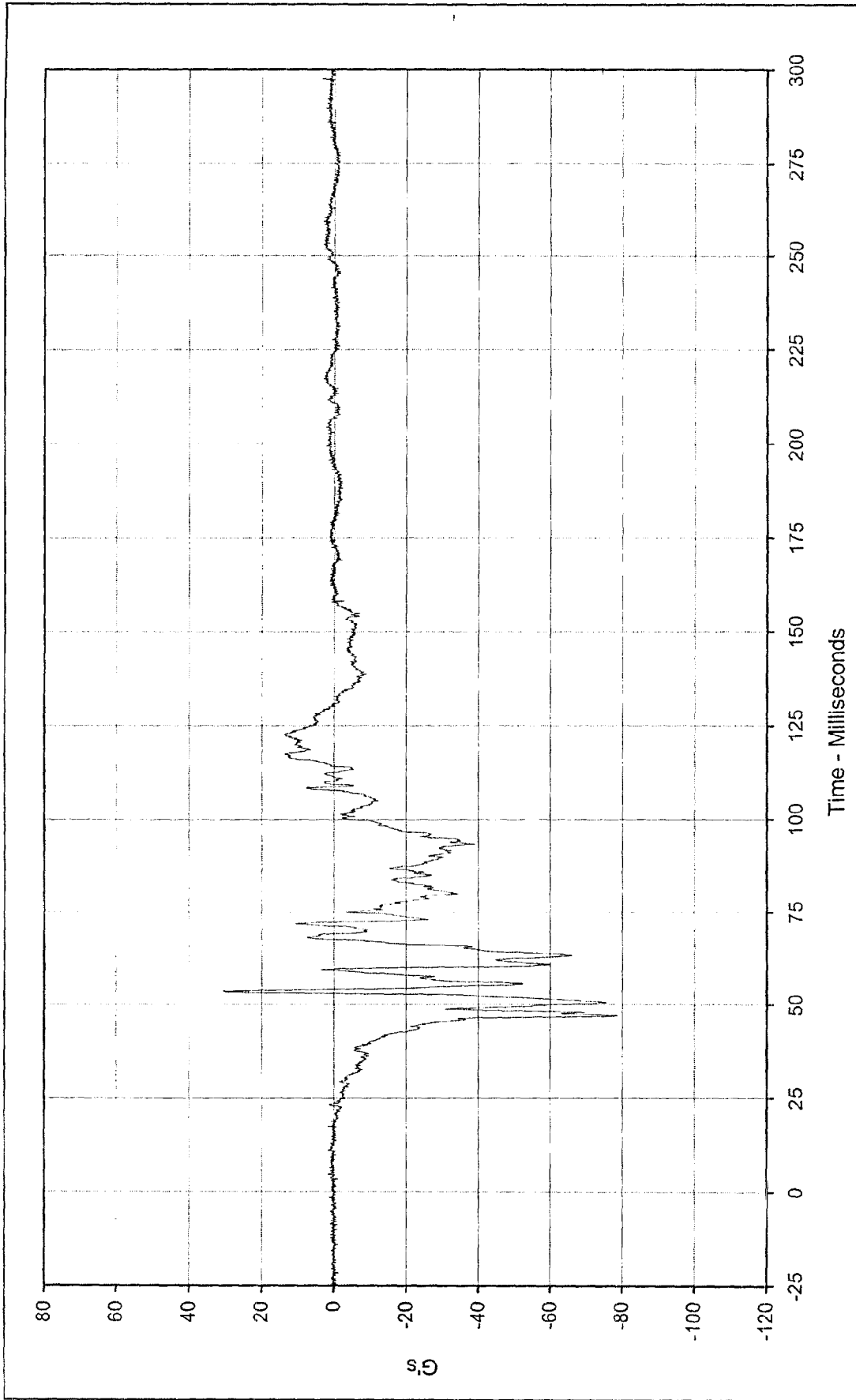
SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-035

Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Driver Left Foot Aft Z Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 30.5 at 53.5 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

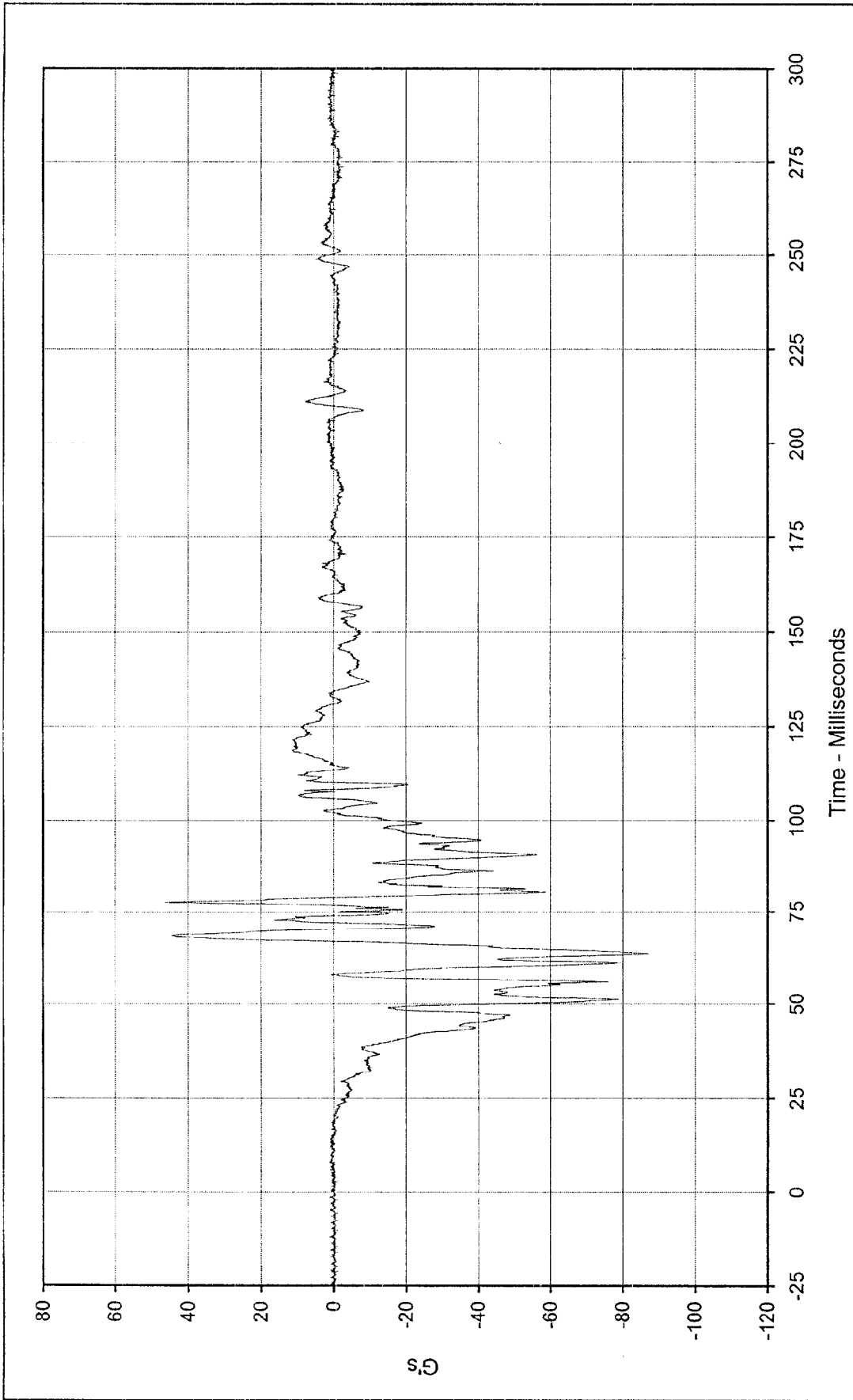
Minimum Value: -78.6 at 47.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-036





Curve Description: Driver Left Foot Fore Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 46.3    at 77.5    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

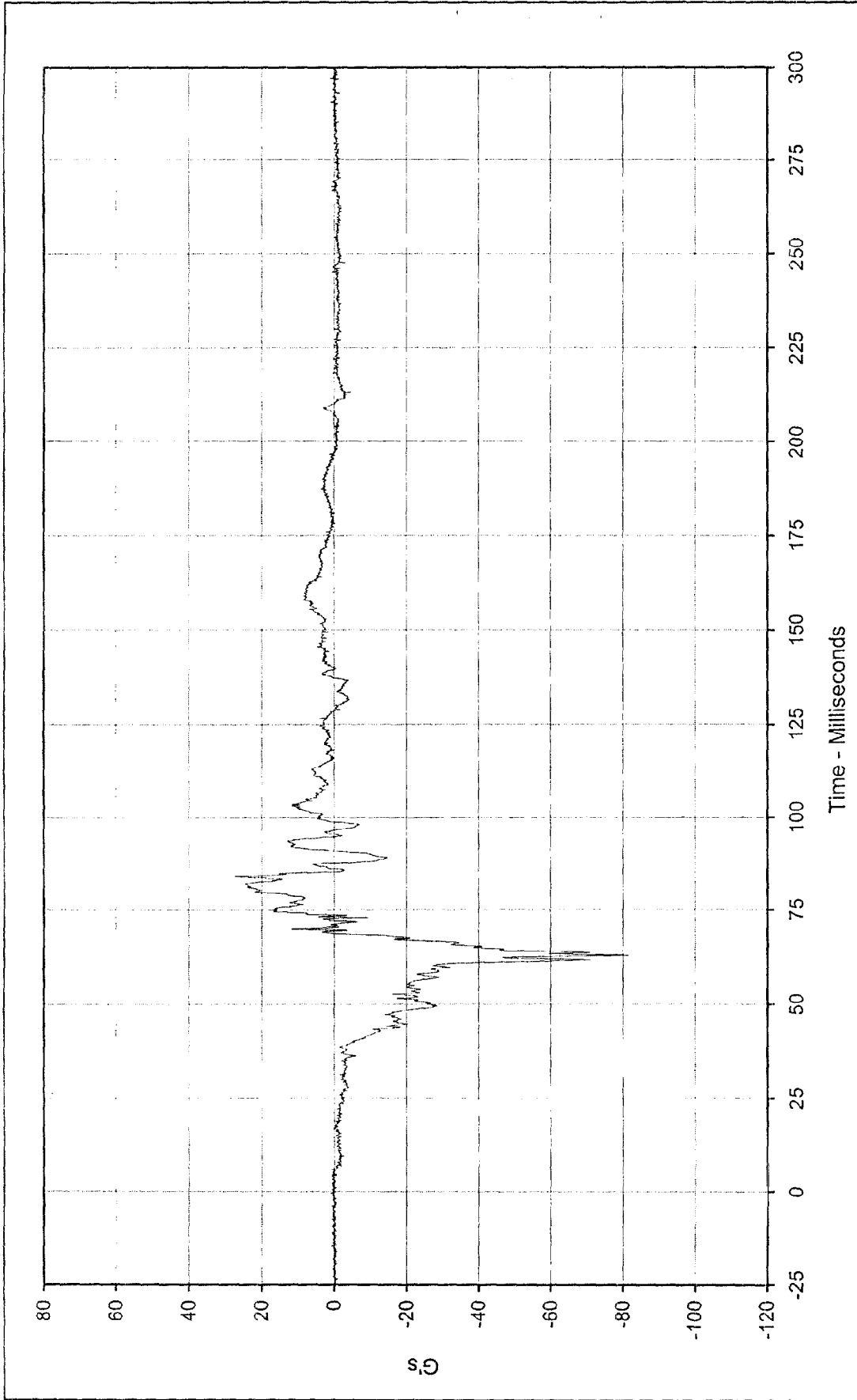
Minimum Value: -87.2    at 63.6    Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-037

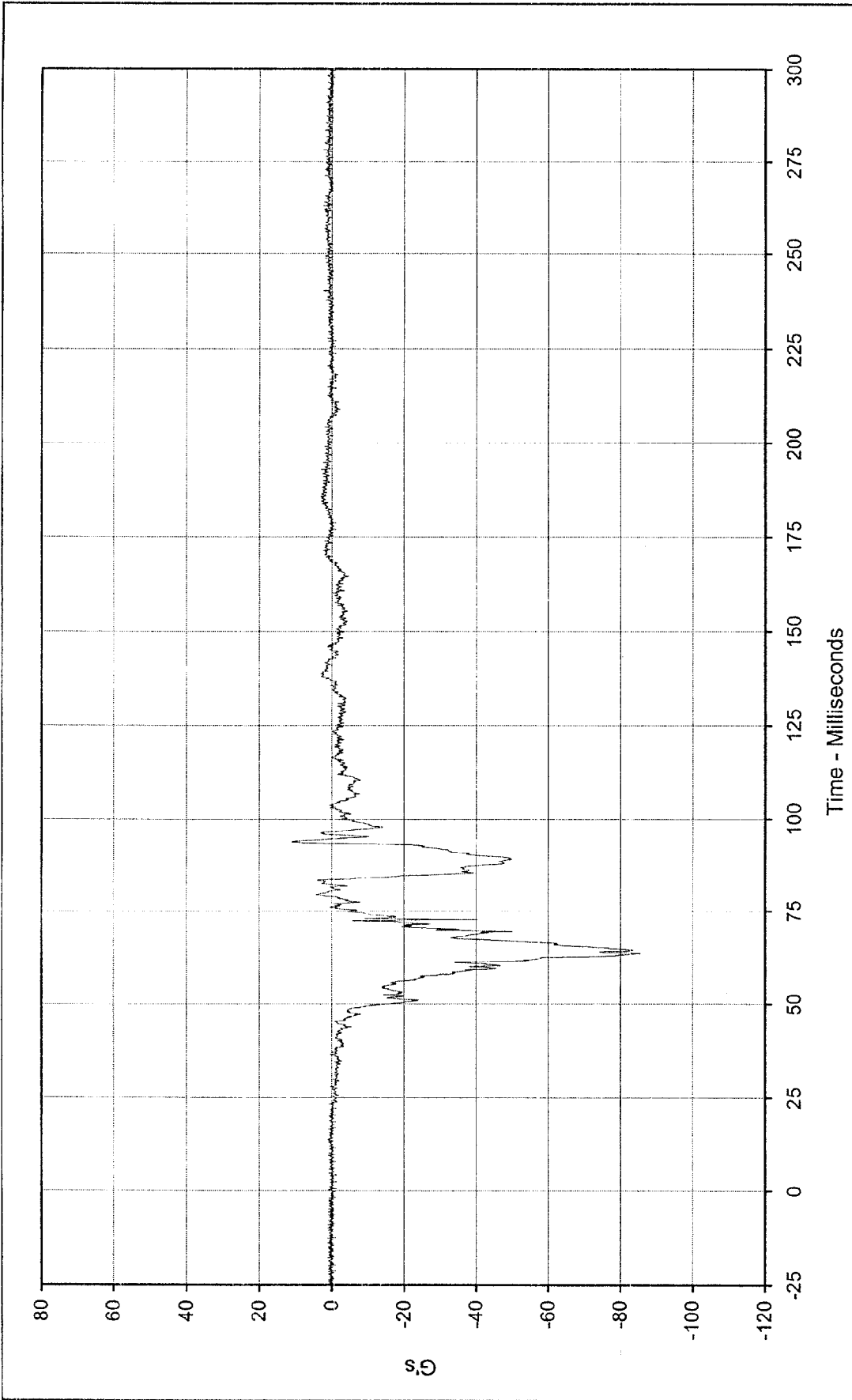




Curve Description: Driver Right Foot Aft X  
 Maximum Value: 27.3 at 83.8 Milliseconds  
 Minimum Value: -81.5 at 63.0 Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-038

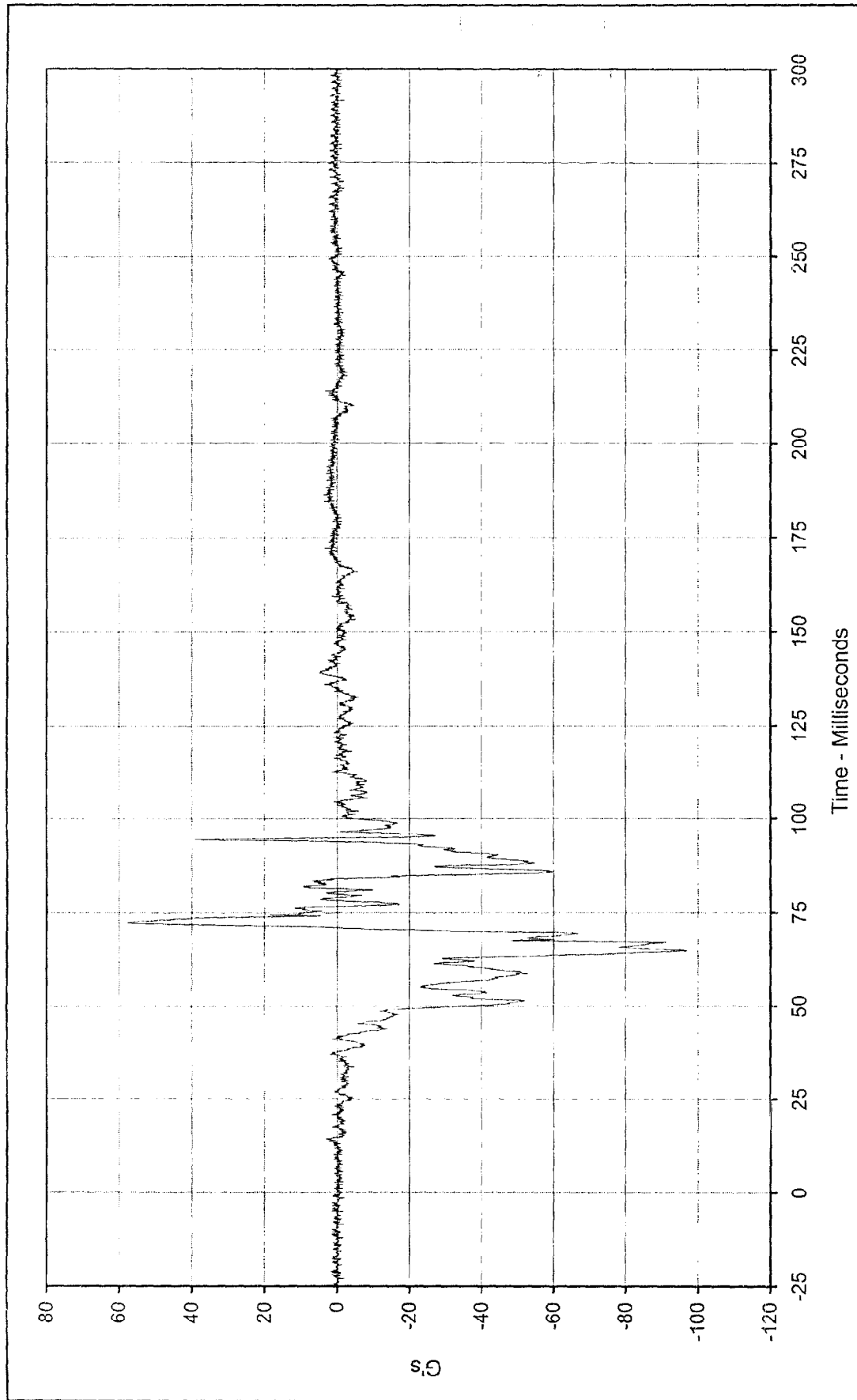
Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Driver Right Foot Aft Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 11.0    at 93.6    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -85.5    at 63.5    Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-039

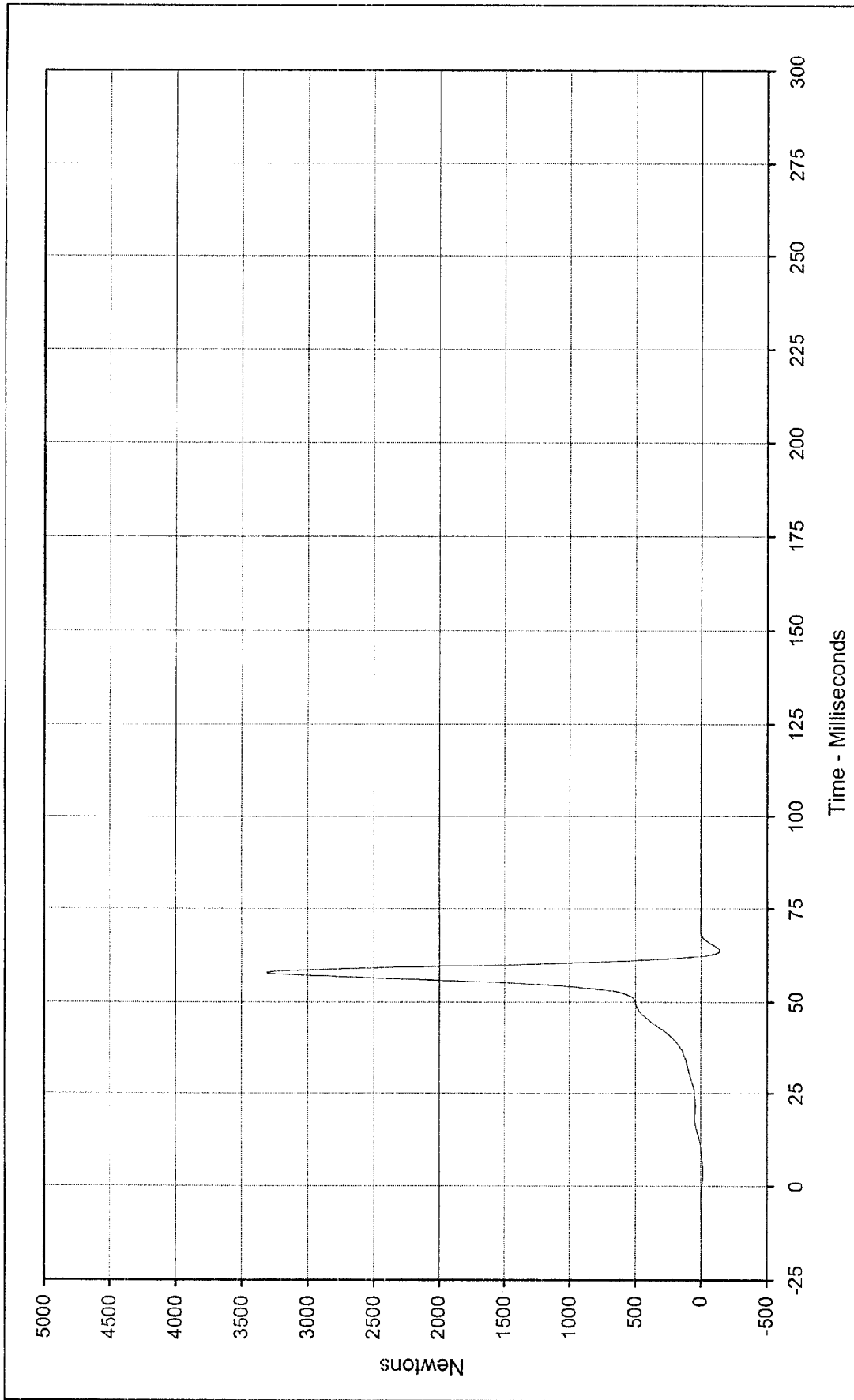




Curve Description: Driver Right Foot Fore Z  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 57.8 at 72.4 Milliseconds  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -97.0 at 64.7 Milliseconds



SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-040



Curve Description: Driver Lap Belt Force \* Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 3309.4 at 58.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

Minimum Value: -142.7 at 63.7 Milliseconds

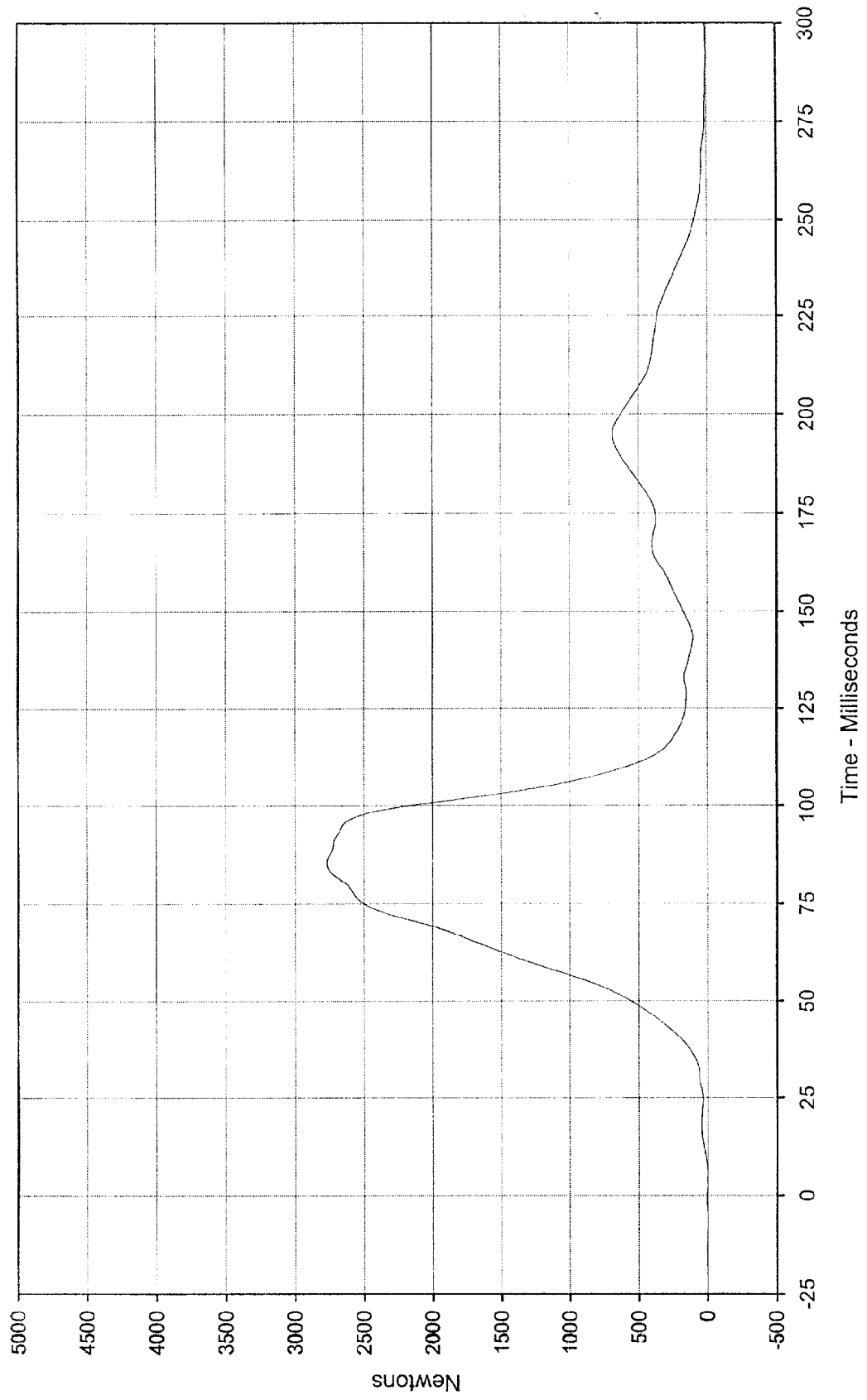
SAE Filter Class: 60

Date of Test: 7/3/98

Curve Number: FIL-041



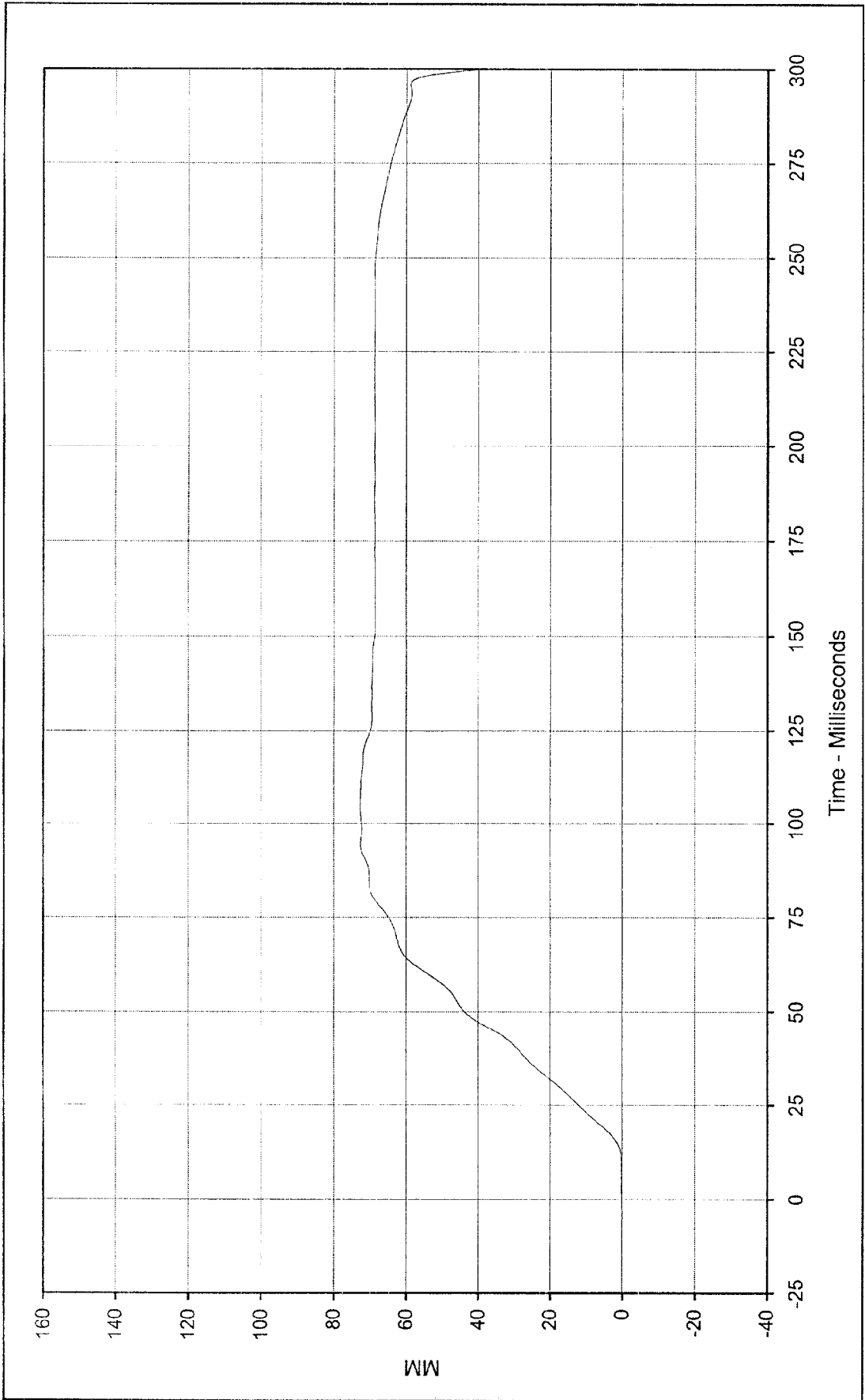
\*Channel Failed at 58.6 Msec.



Curve Description: Driver Shoulder Belt Force  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 2767.2 at 85.4 Milliseconds  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: 3.3 at 3.1 Milliseconds



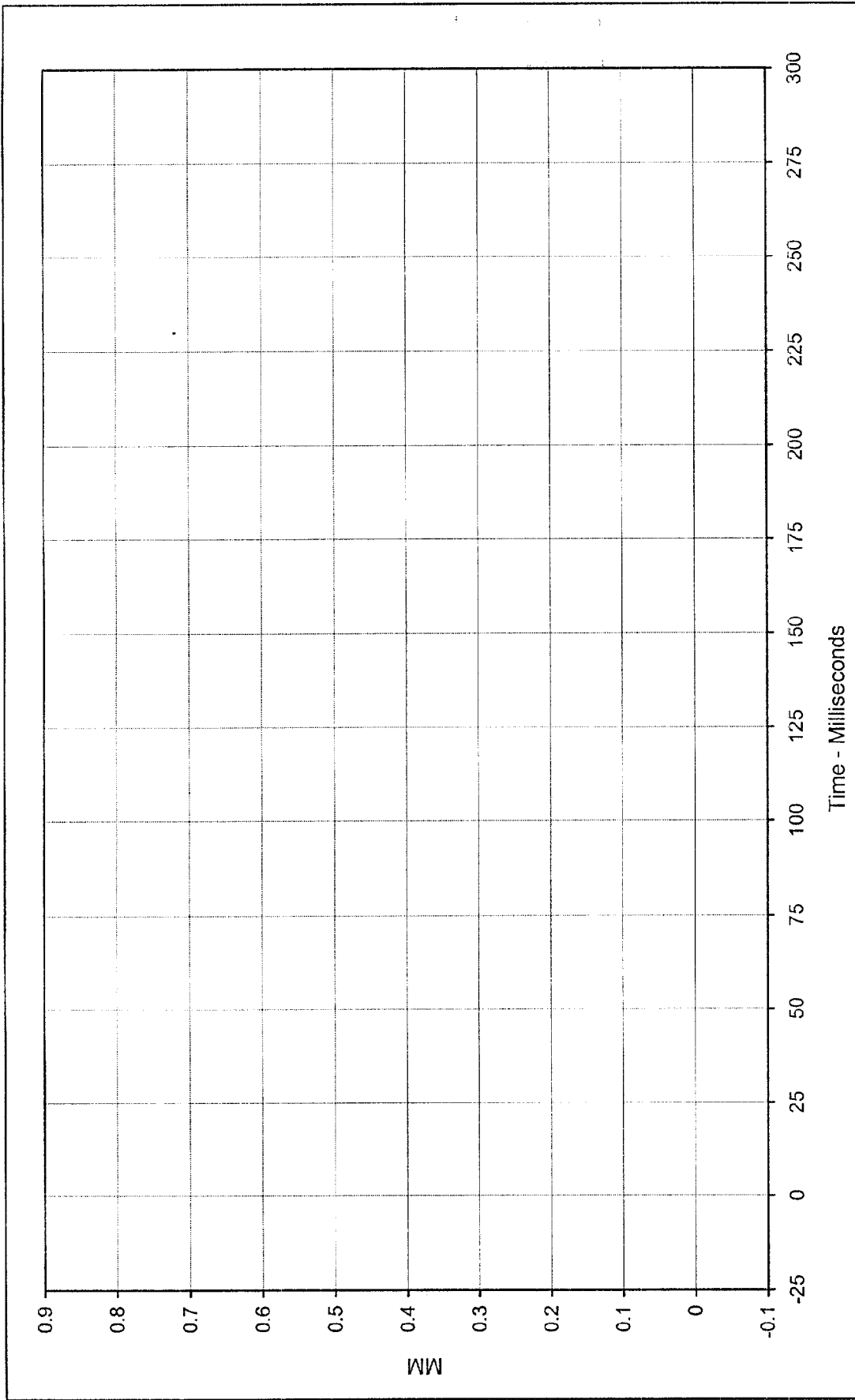
SAE Filter Class: 60  
 Date of Test: 7/3/98  
 Curve Number: FIL-042



Curve Description: Driver Shoulder Belt Pullout  
 Maximum Value: 72.7 at 104.6 Milliseconds  
 Minimum Value: 0.1 at 0.0 Milliseconds  
 SAE Filter Class: 60  
 Date of Test: 7/3/98  
 Curve Number: FIL-043

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Driver Shoulder Belt Elongation \* Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 0.00 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

Minimum Value: 0.00 at 0.0 Milliseconds

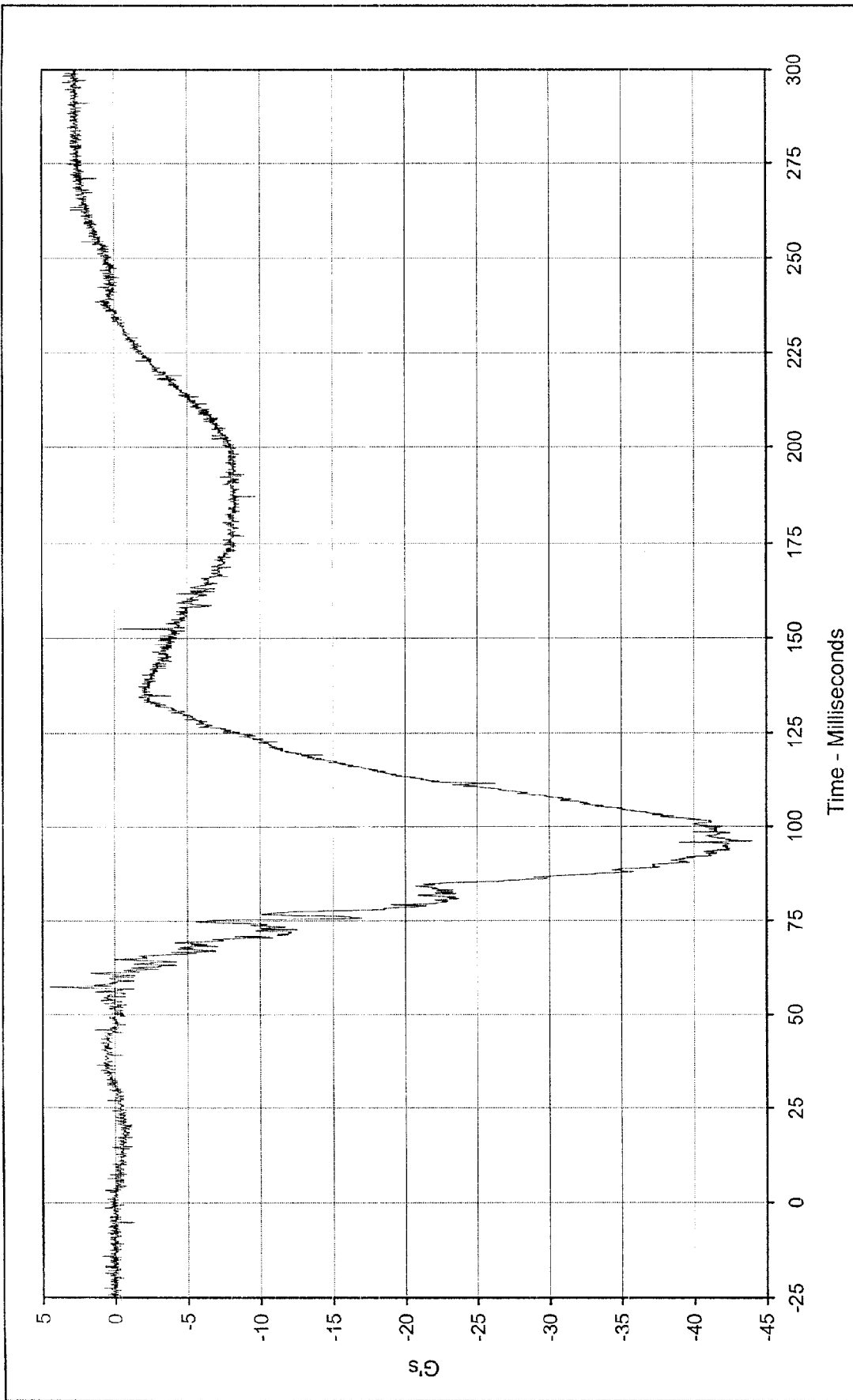
SAE Filter Class: 60

Date of Test: 7/3/98

Curve Number: FIL-044



\* Channel failed, No Data



Curve Description: Passenger Head Primary X      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 4.5    at 57.4    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

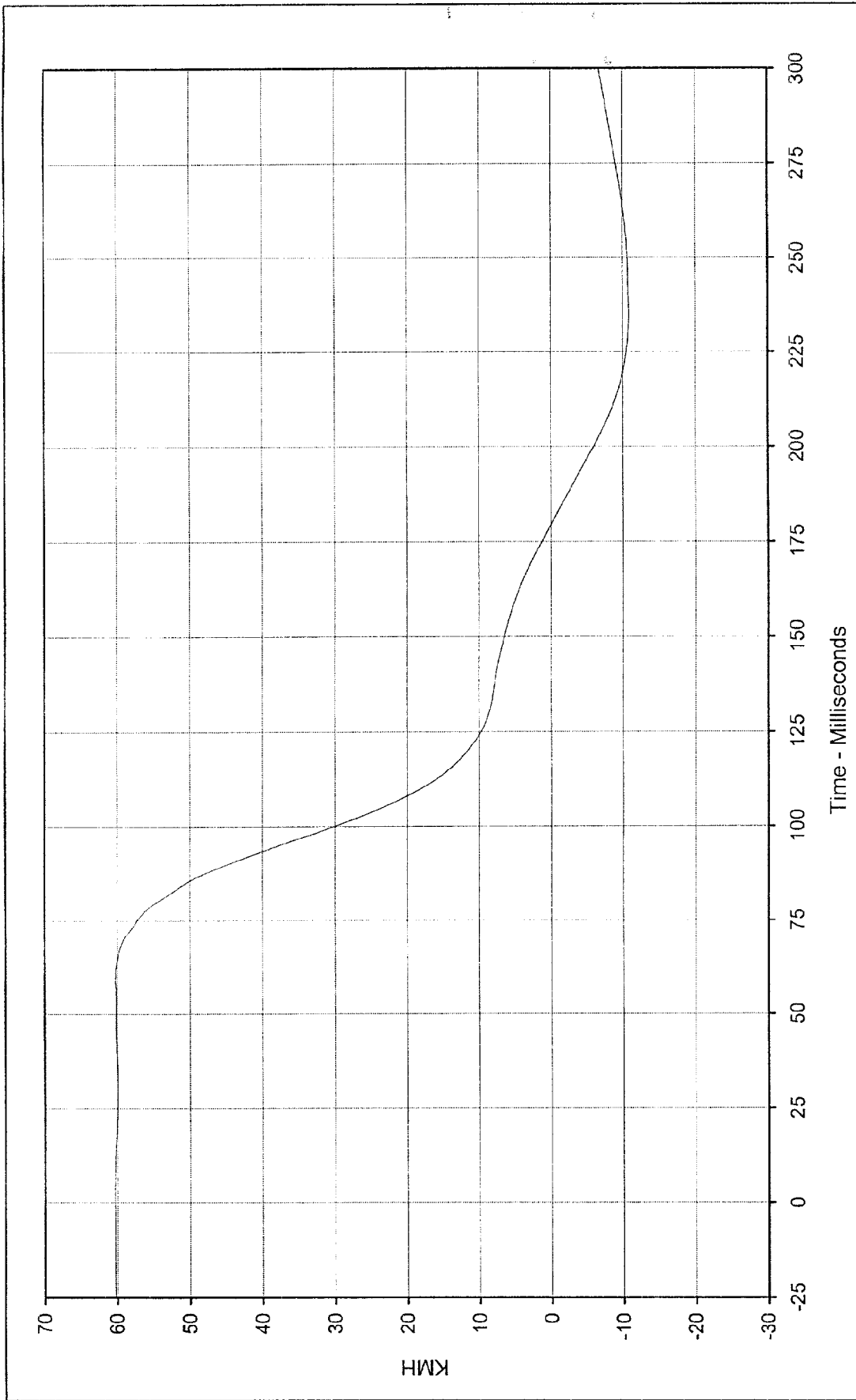
Minimum Value: -44.0    at 96.0    Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-045





Curve Description: Passenger Head Primary X Velocity

Maximum Value: 60.3 at 3.0 Milliseconds

Minimum Value: -10.8 at 235.5 Milliseconds

SAE Filter Class: 180

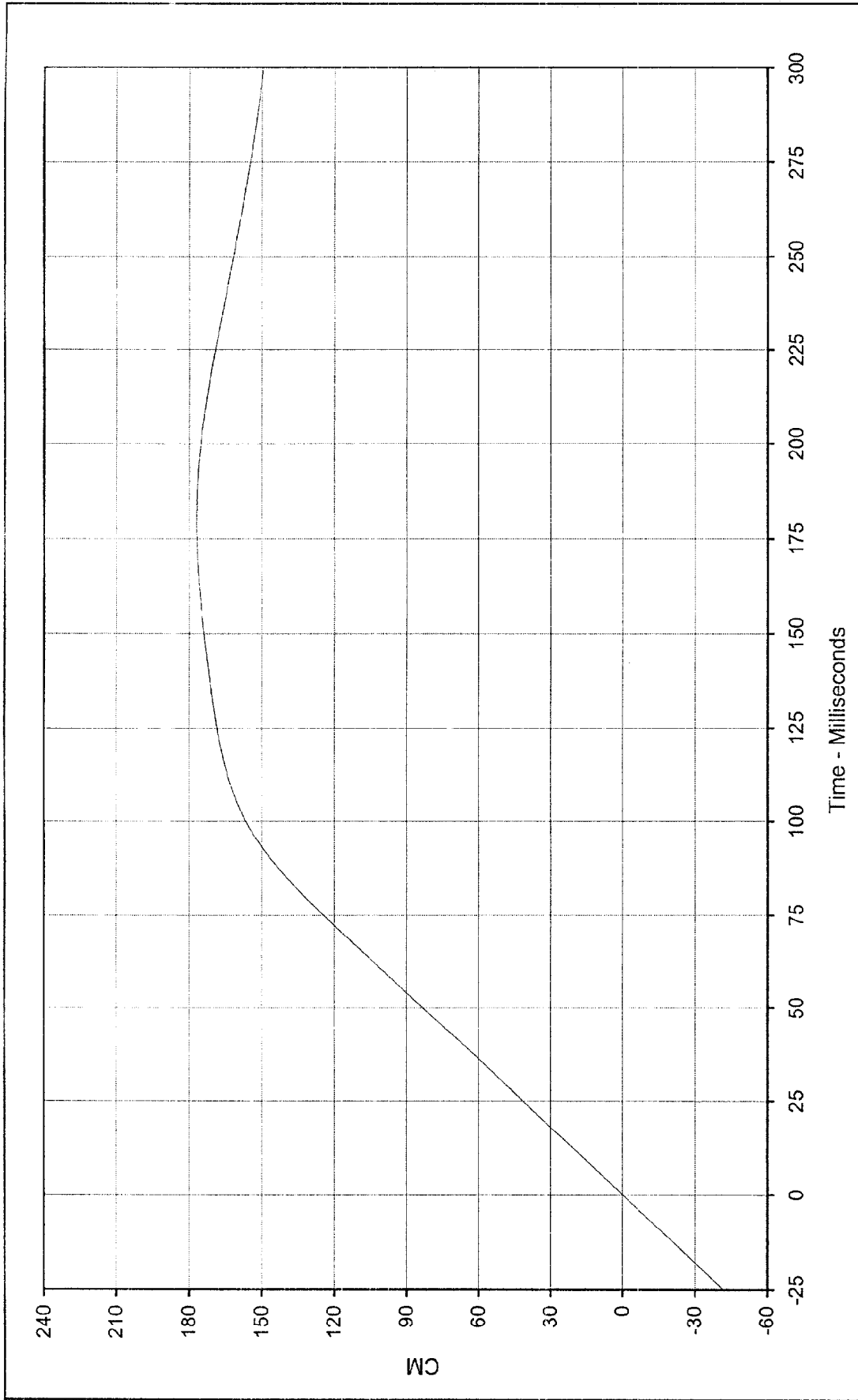
Date of Test: 7/3/98

Curve Number: IN1-045

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Passenger Head Primary X Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 176.9 at 179.3 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

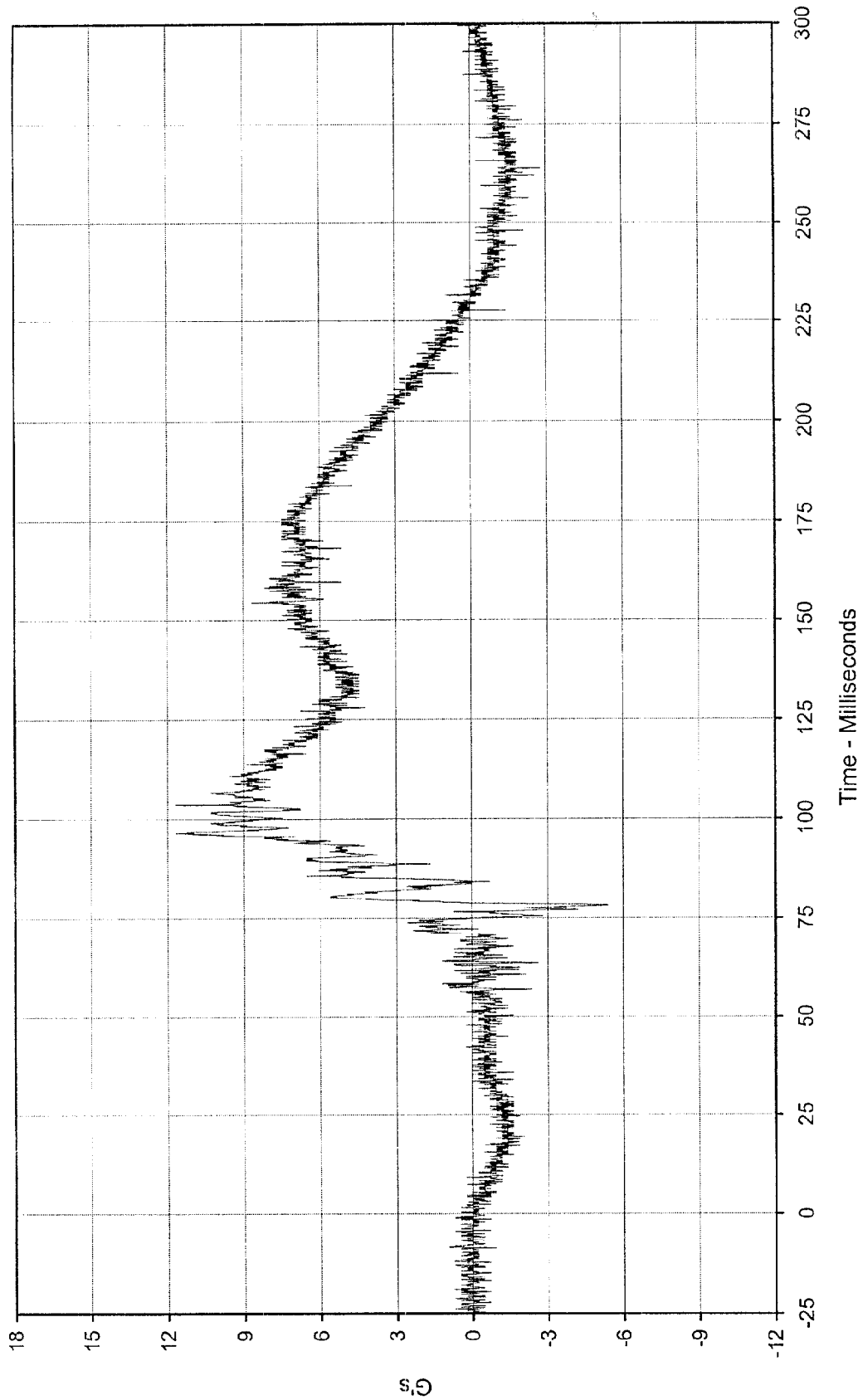
Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-045





Curve Description: Passenger Head Primary Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 11.7 at 96.4 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

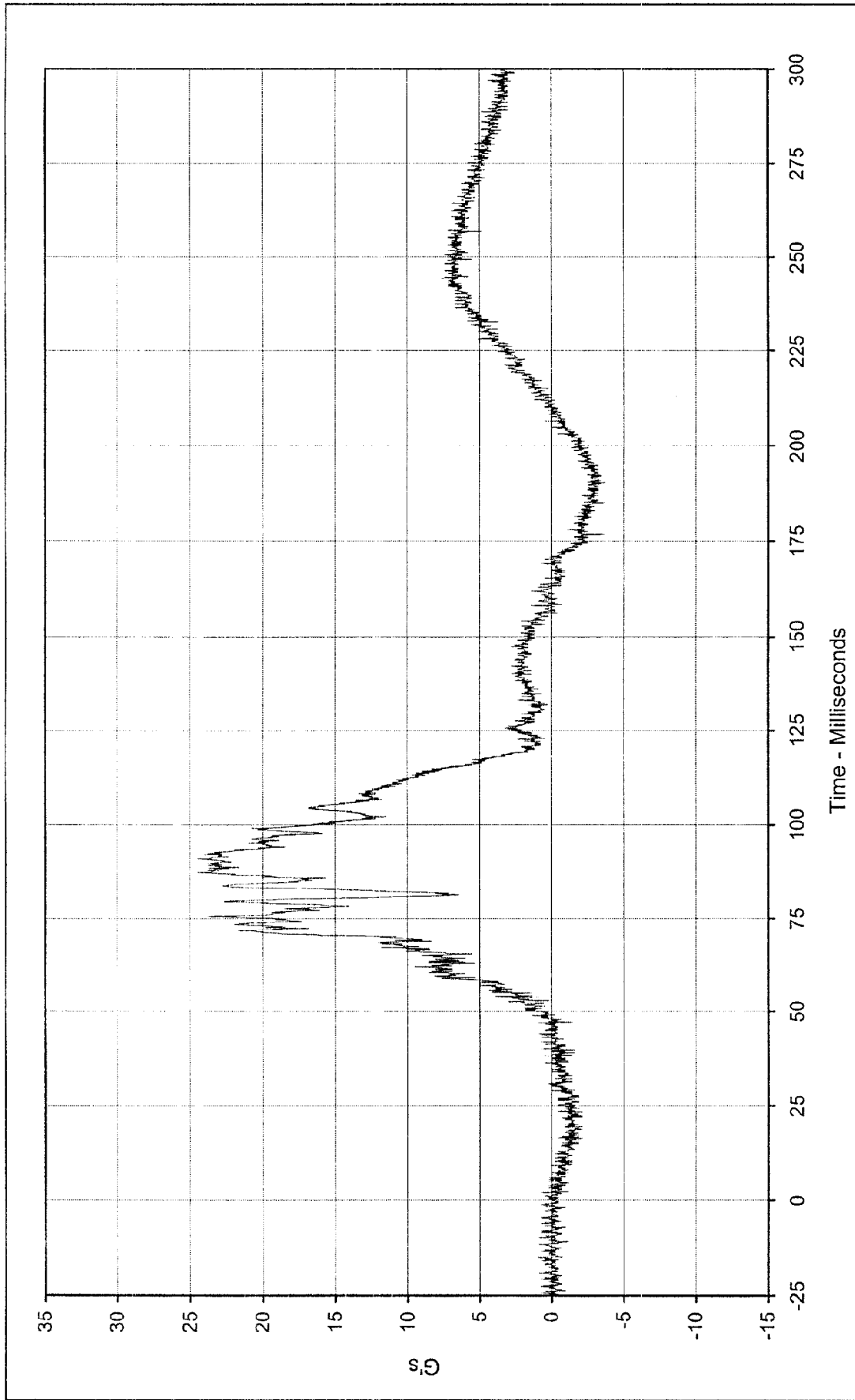
Minimum Value: -5.4 at 78.1 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-046





Curve Description: Passenger Head Primary Z      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 24.4      at 87.3      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

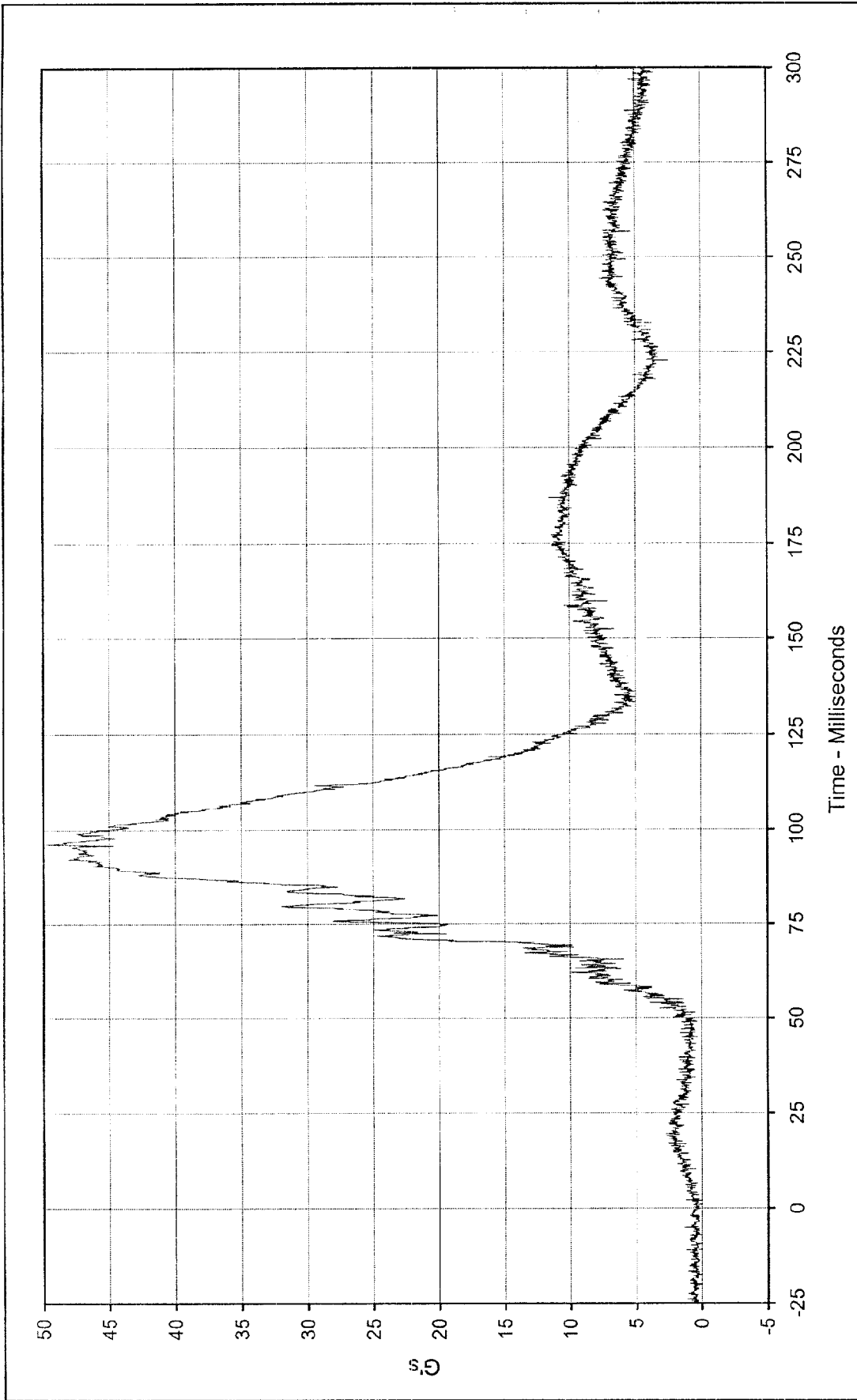
Minimum Value: -3.7      at 176.7      Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-047





Curve Description: Passenger Head Resultant Primary

Maximum Value: 49.8 at 96.0 Milliseconds

Minimum Value: 0.0 at 1.0 Milliseconds

SAE Filter Class: 1000

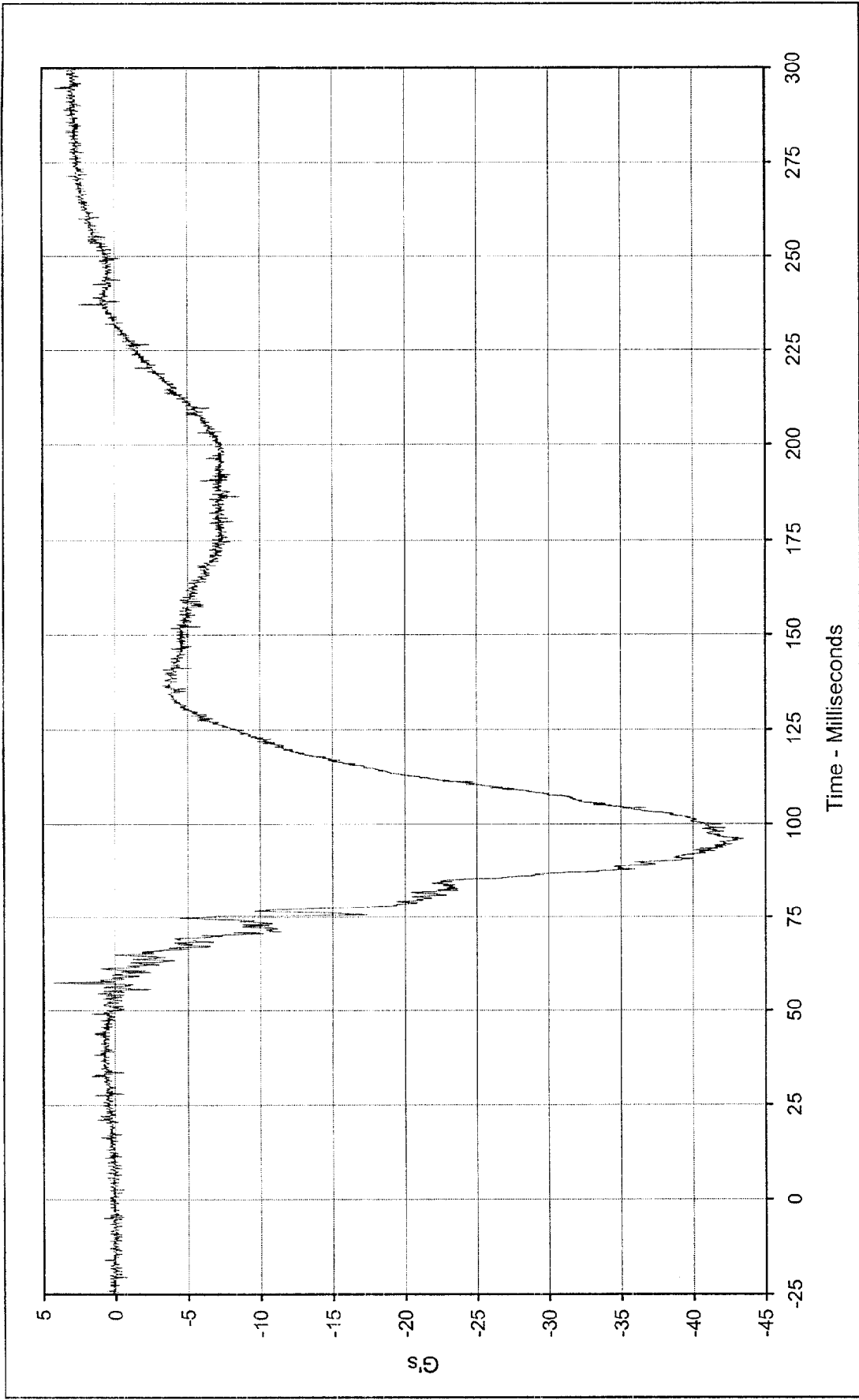
Date of Test: 7/3/98

Curve Number: RES-045

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

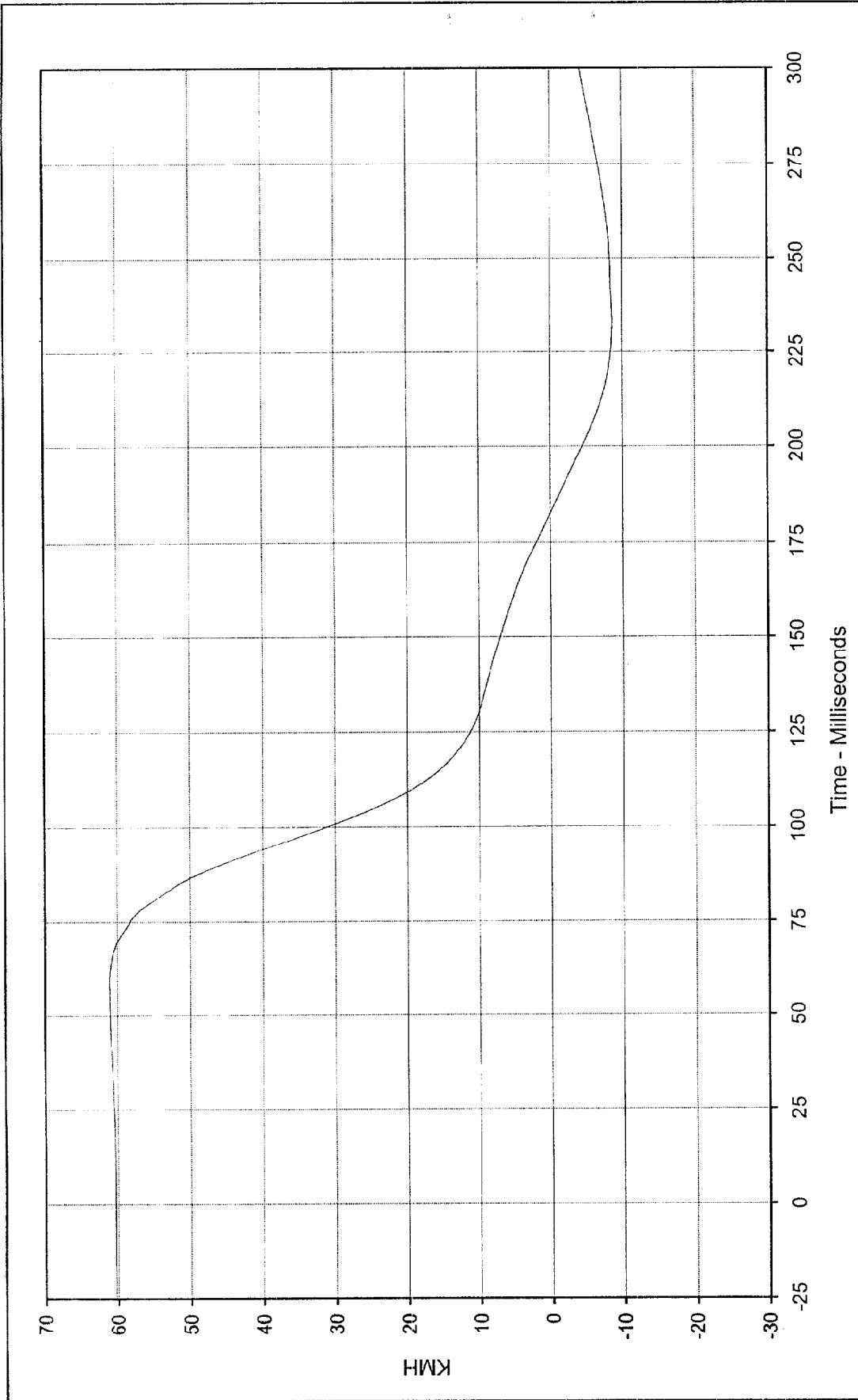
Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Passenger Head Redundant X      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 4.3 at 57.5 Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -43.5 at 95.9 Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-048





Curve Description: Passenger Head Redundant X Velocity Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 61.1 at 58.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

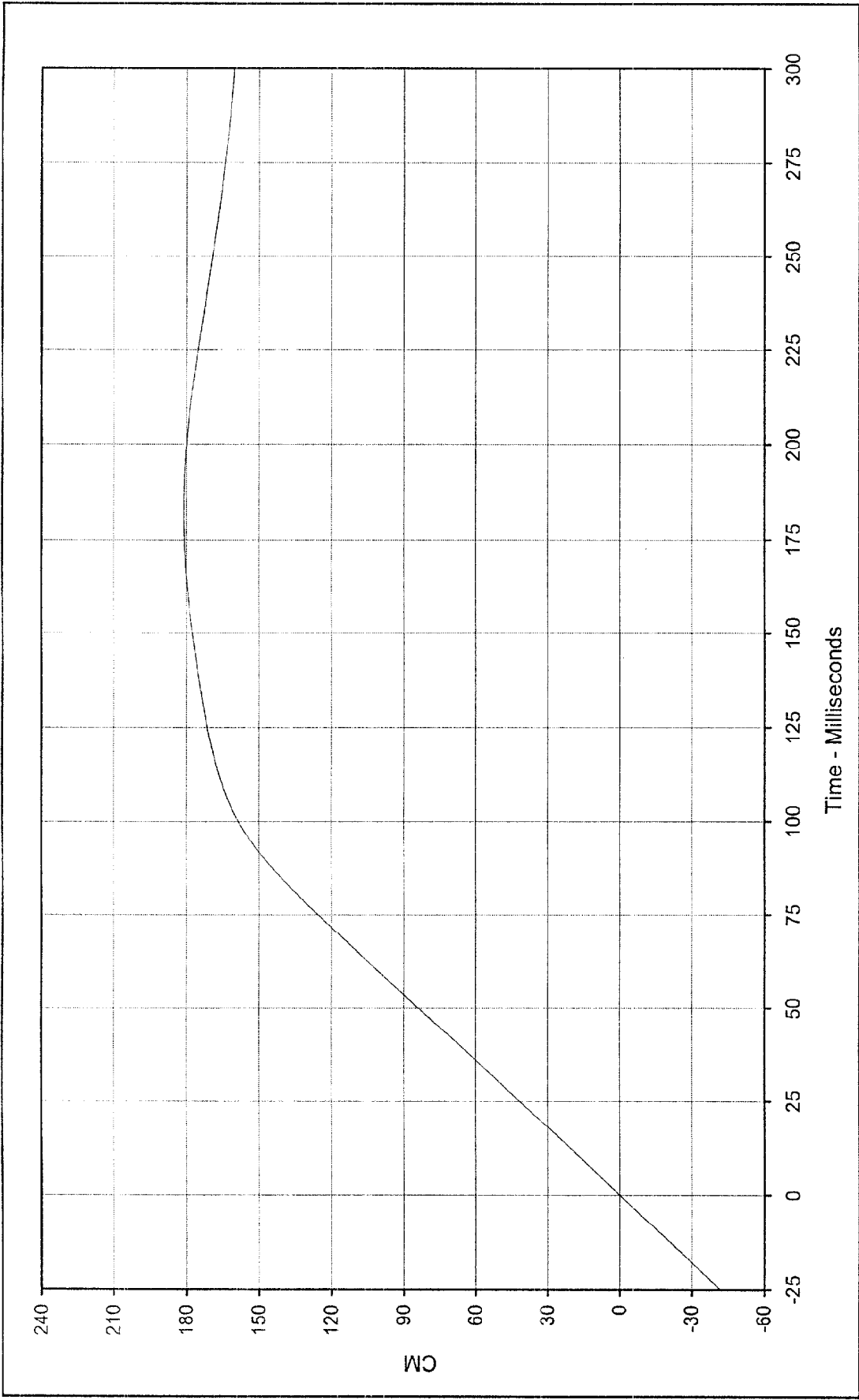
Minimum Value: -8.6 at 232.8 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-048





Curve Description: Passenger Head Redundant X Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 181.0 at 182.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

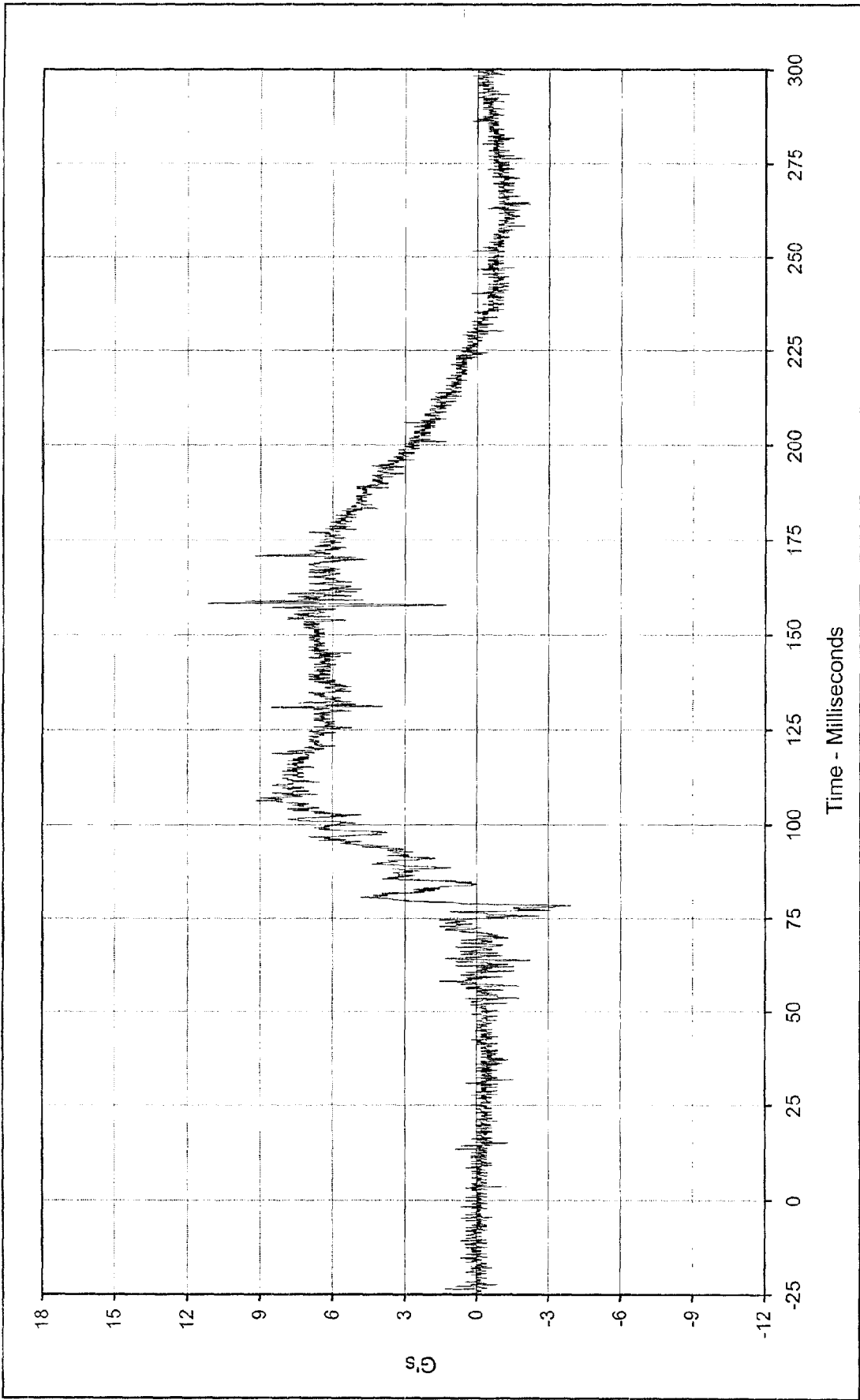
Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

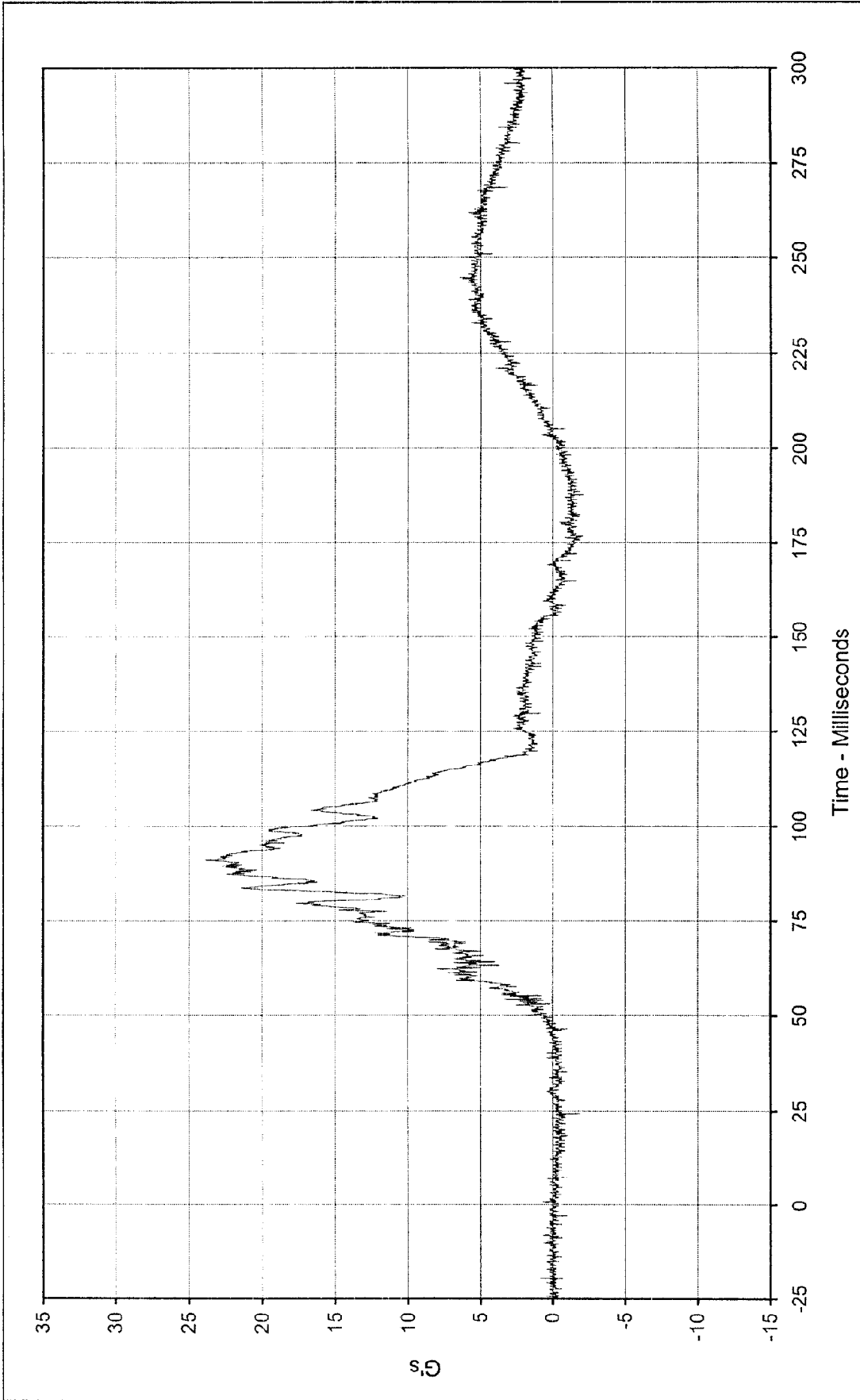
Curve Number: IN2-048





Curve Description: Passenger Head Redundant Y      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
Maximum Value: 11.1    at 158.2    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
Minimum Value: -3.9    at 78.3    Milliseconds  
SAE Filter Class: 1000  
Date of Test: 7/3/98  
Curve Number: FIL-049





Curve Description: Passenger Head Redundant Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 23.9    at 90.9    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

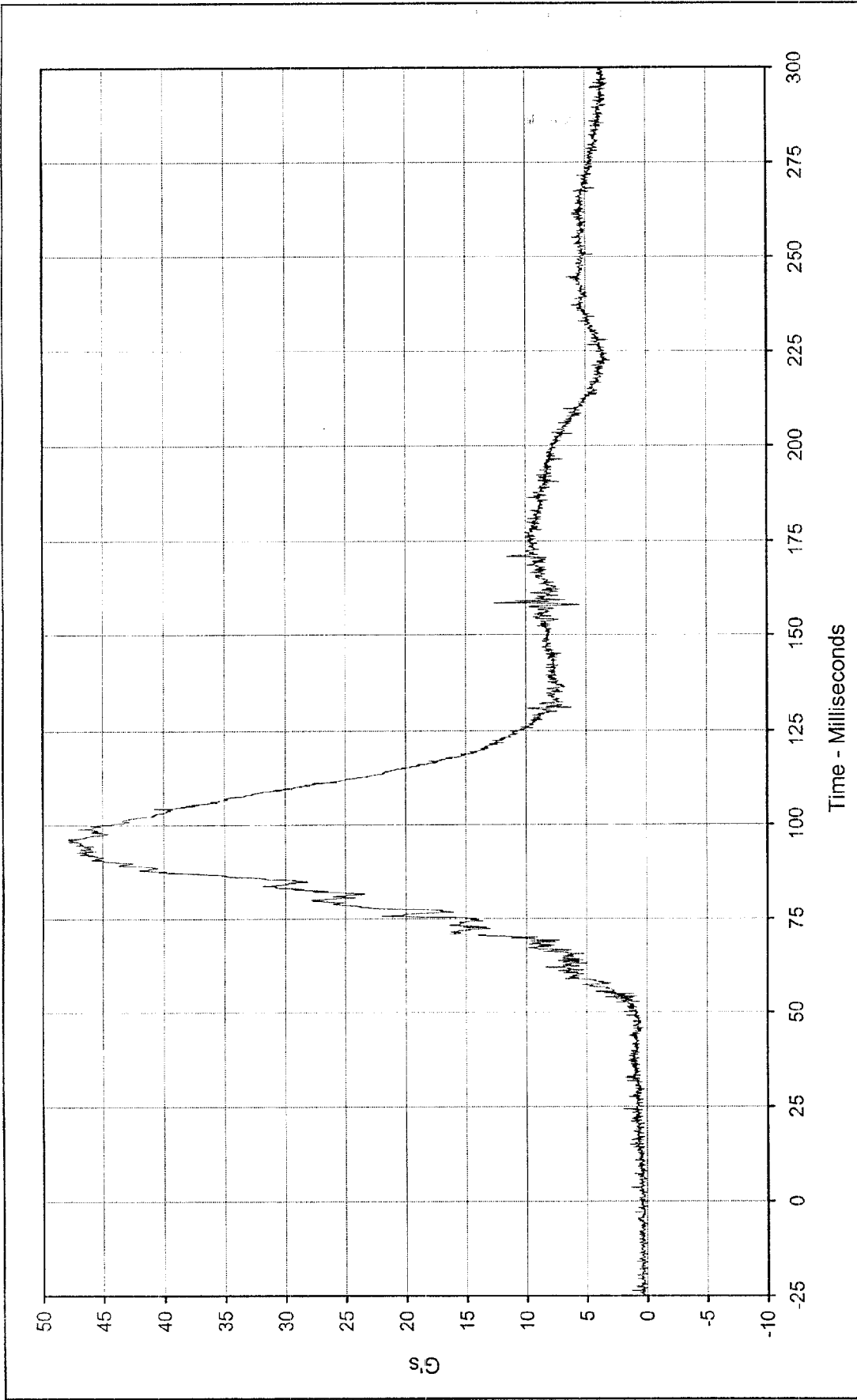
Minimum Value: -2.1    at 176.7    Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-050





Curve Description: Passenger Head Resultant Recundant

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 47.9 at 95.9 Milliseconds

Test Vehicle: 1998 Dodge Neon 4 Door Sedan

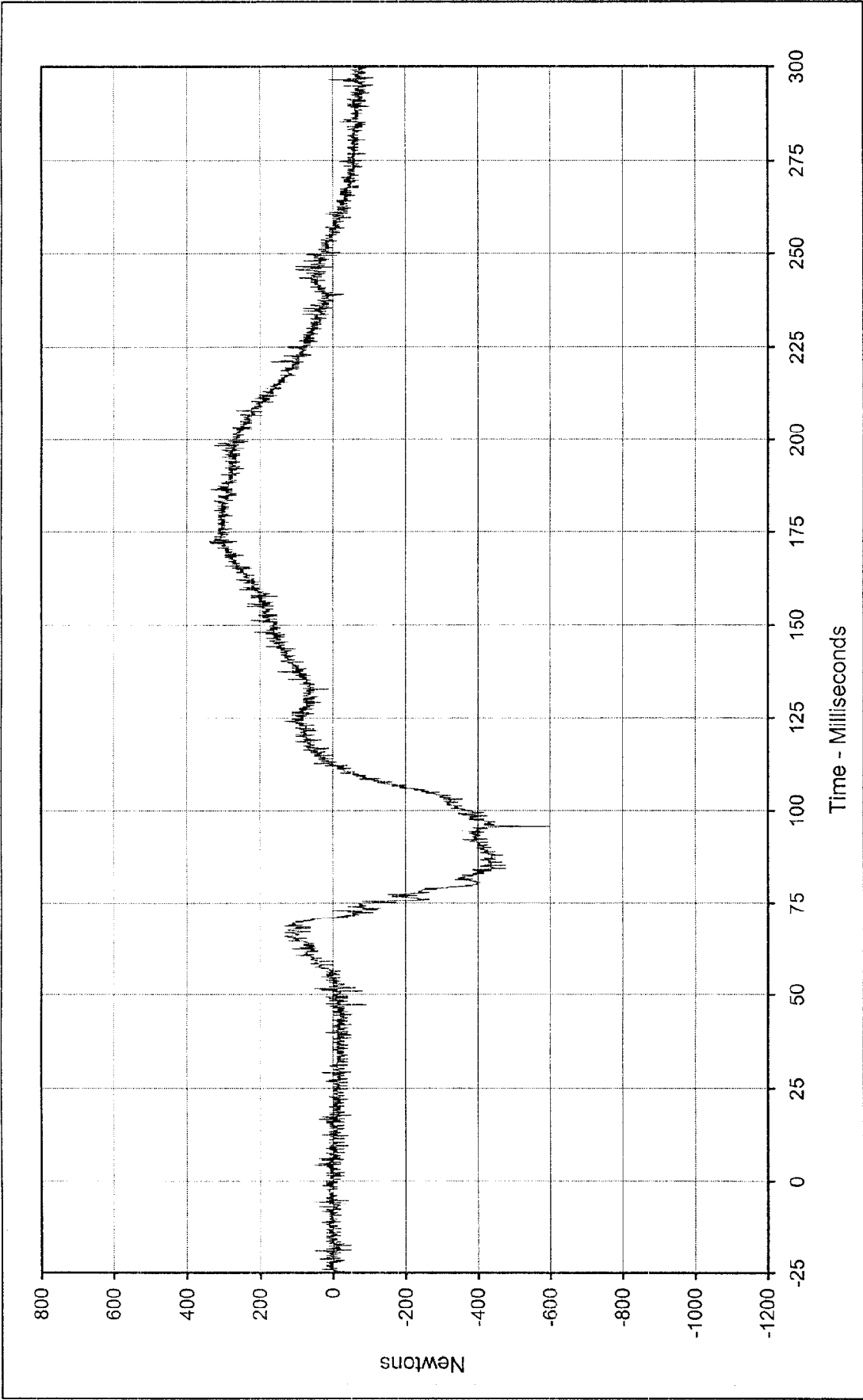
Minimum Value: 0.0 at 2.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: RES-048





Curve Description: Passenger Neck Force X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 335.7 at 171.9 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

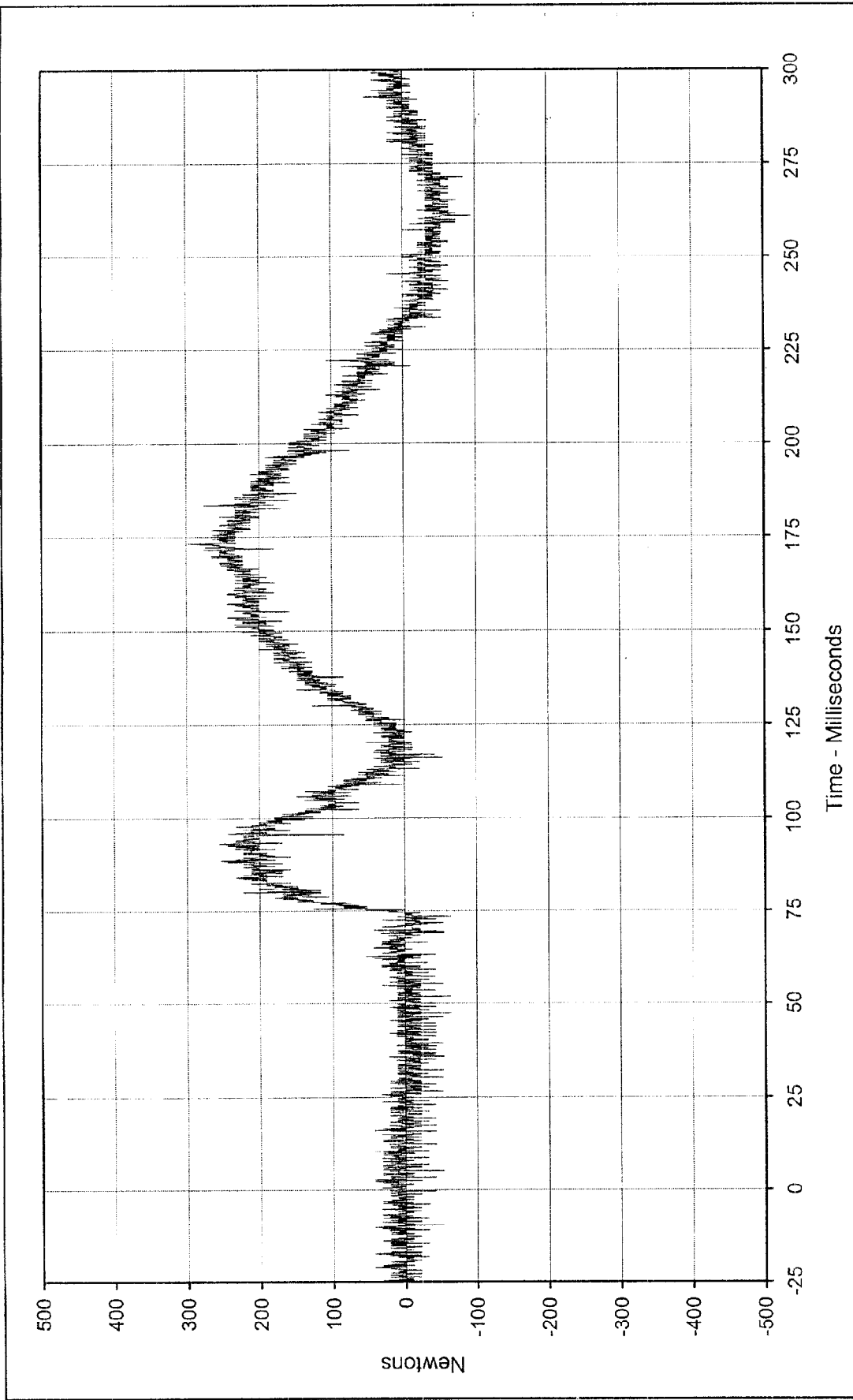
Minimum Value: -600.2 at 95.6 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-051





Curve Description: Passenger Neck Force Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 296.2 at 173.3 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

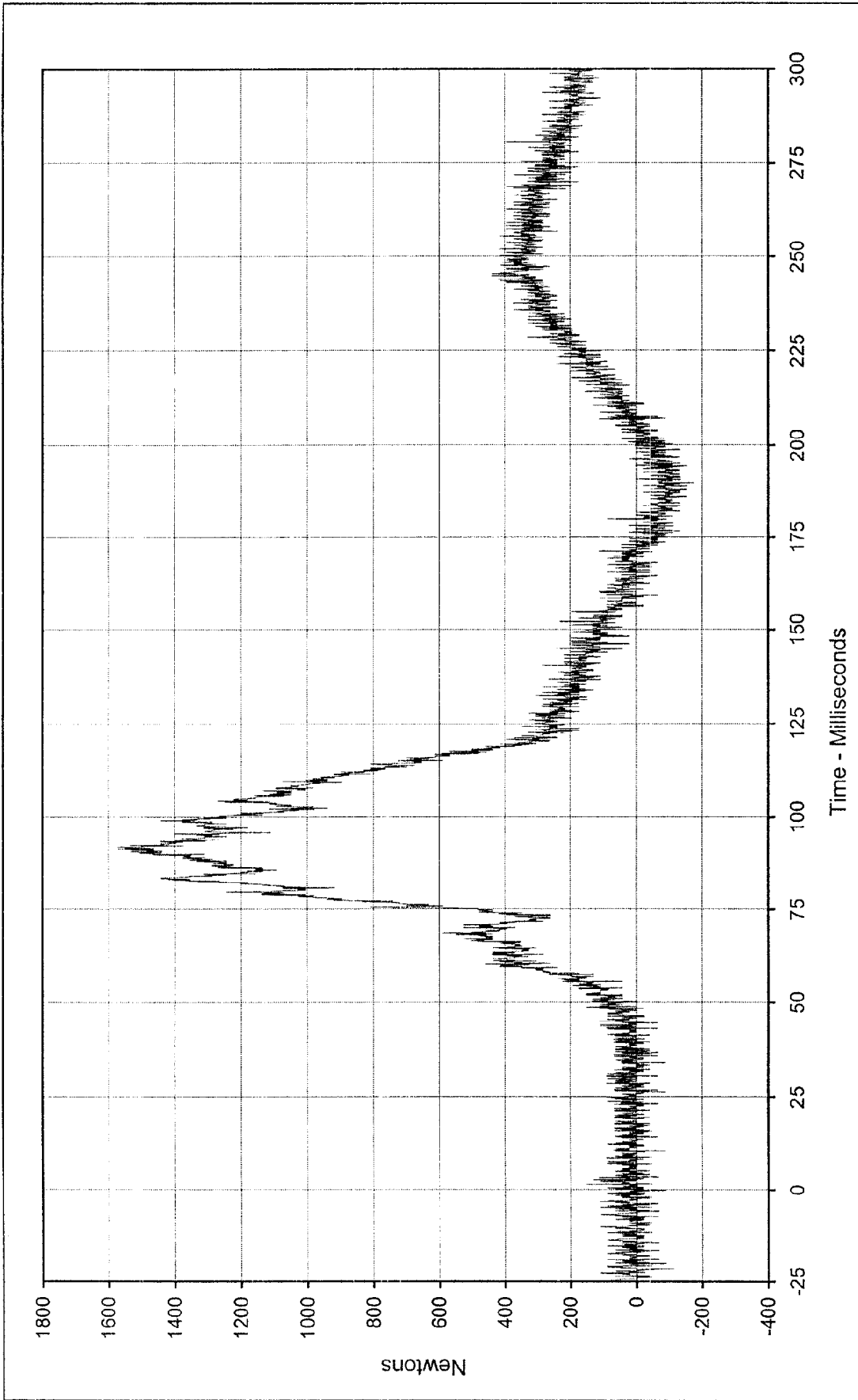
Minimum Value: -95.2 at 261.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-052





Curve Description: Passenger Neck Force Z Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 1572.7 at 91.1 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

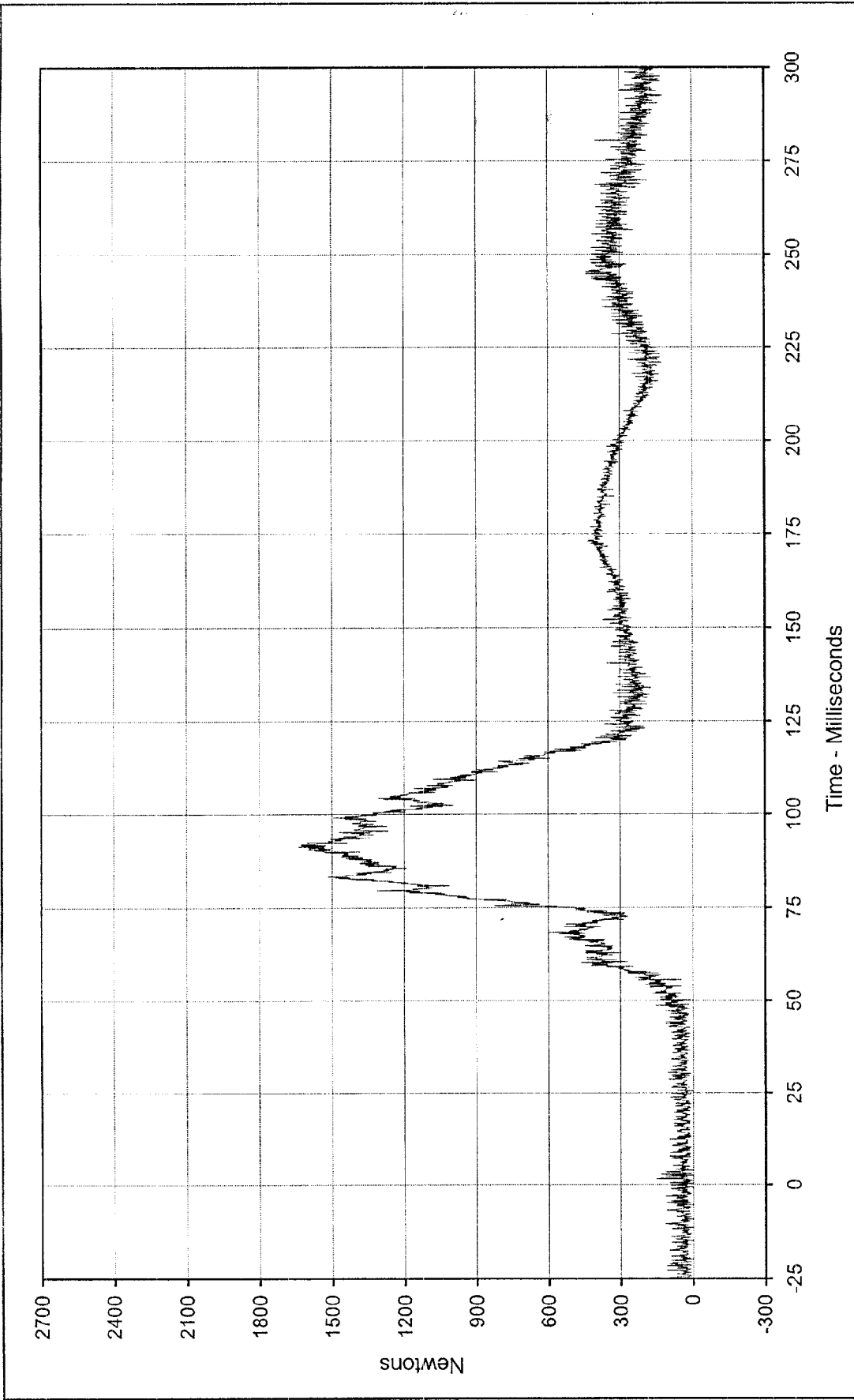
Minimum Value: -174.7 at 189.7 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-053





Curve Description: Passenger Neck Force Resultant

Maximum Value: 1638.2 at 91.1 Milliseconds

Minimum Value: 0.0 at 0.3 Milliseconds

SAE Filter Class: 1000

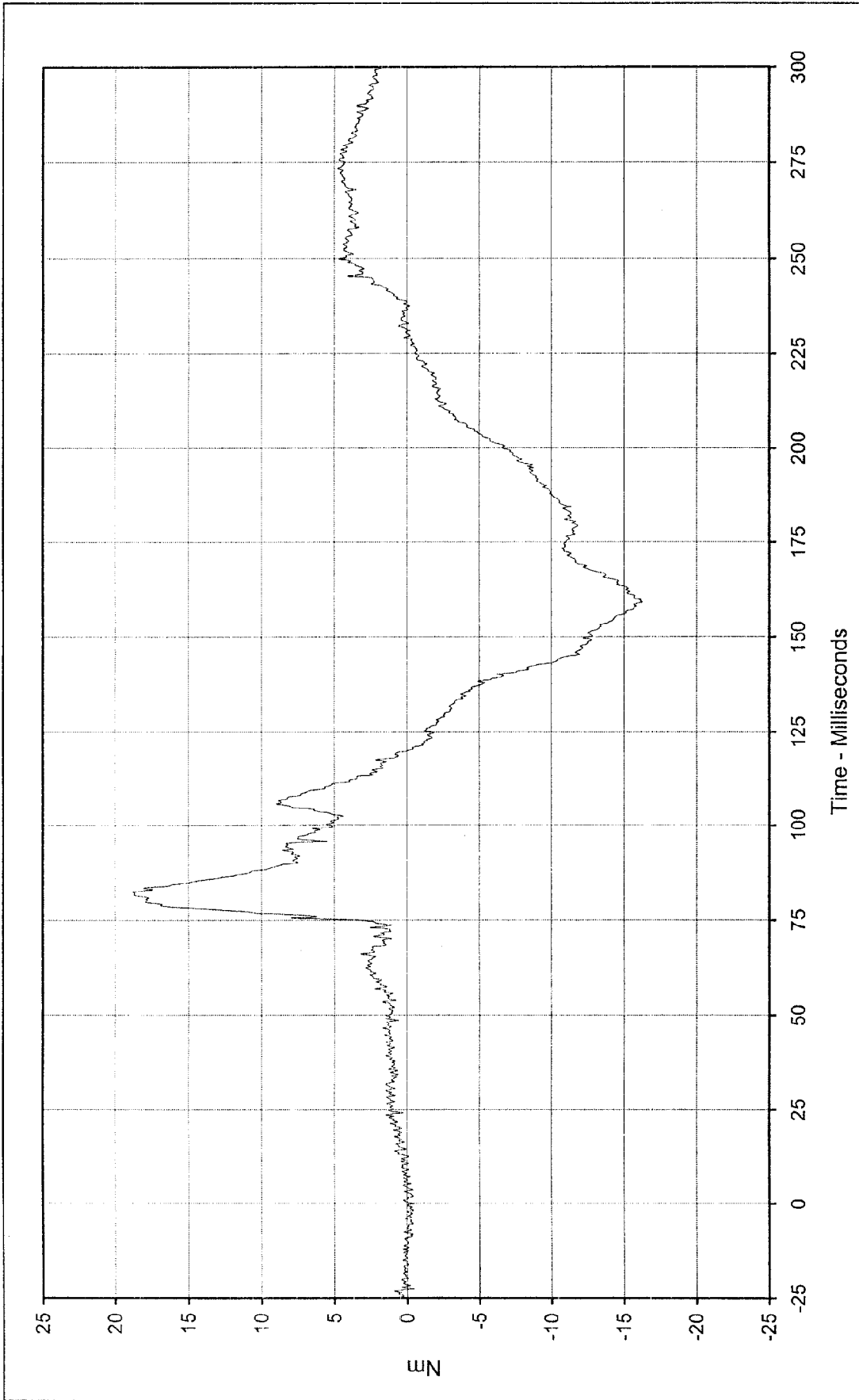
Date of Test: 7/3/98

Curve Number: RES-051

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Passenger Neck Moment X      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 18.8    at 82.3    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

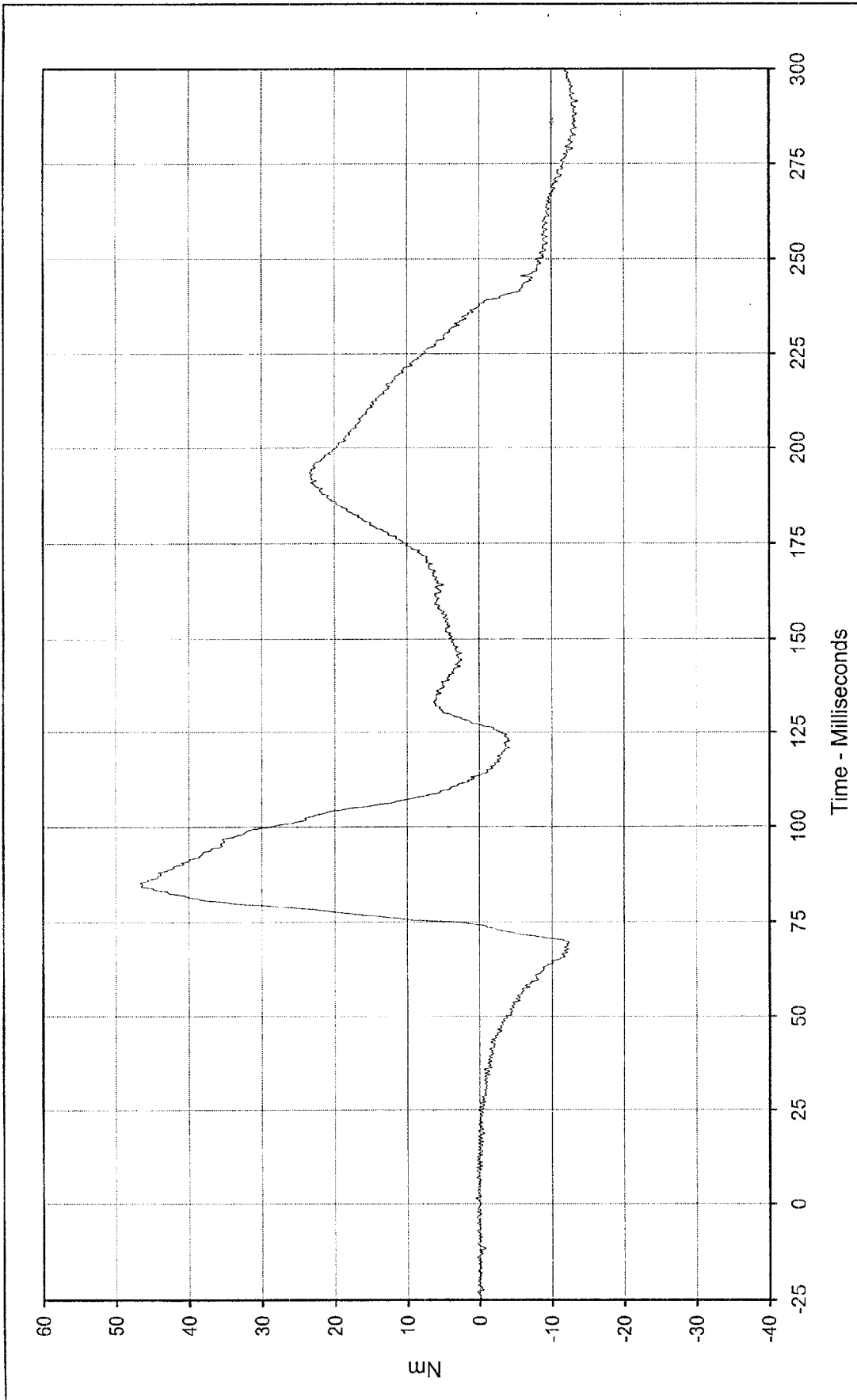
Minimum Value: -16.3    at 159.3    Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-054





Curve Description: Passenger Neck Moment Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 46.7 at 85.2 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

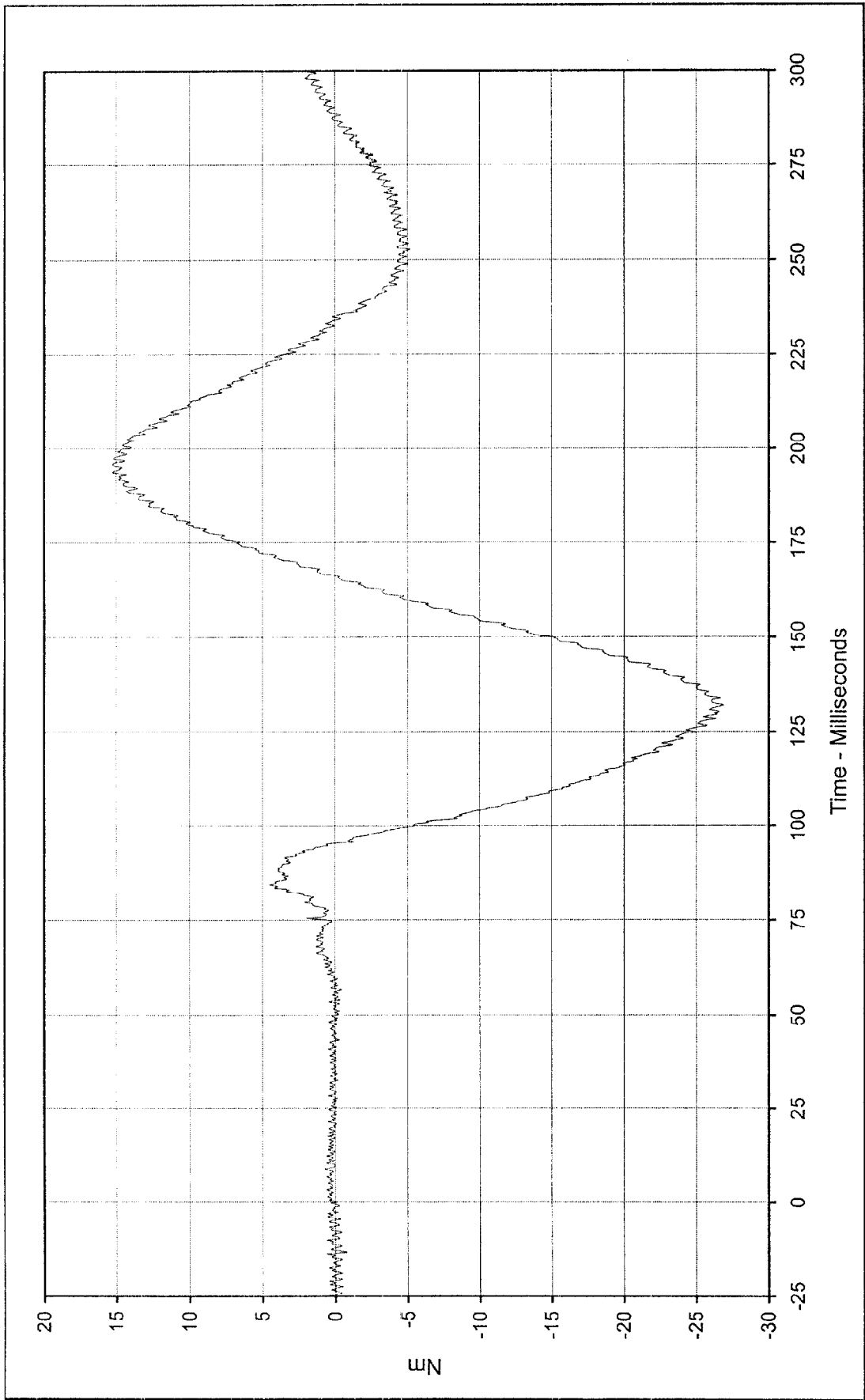
Minimum Value: -13.7 at 291.7 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

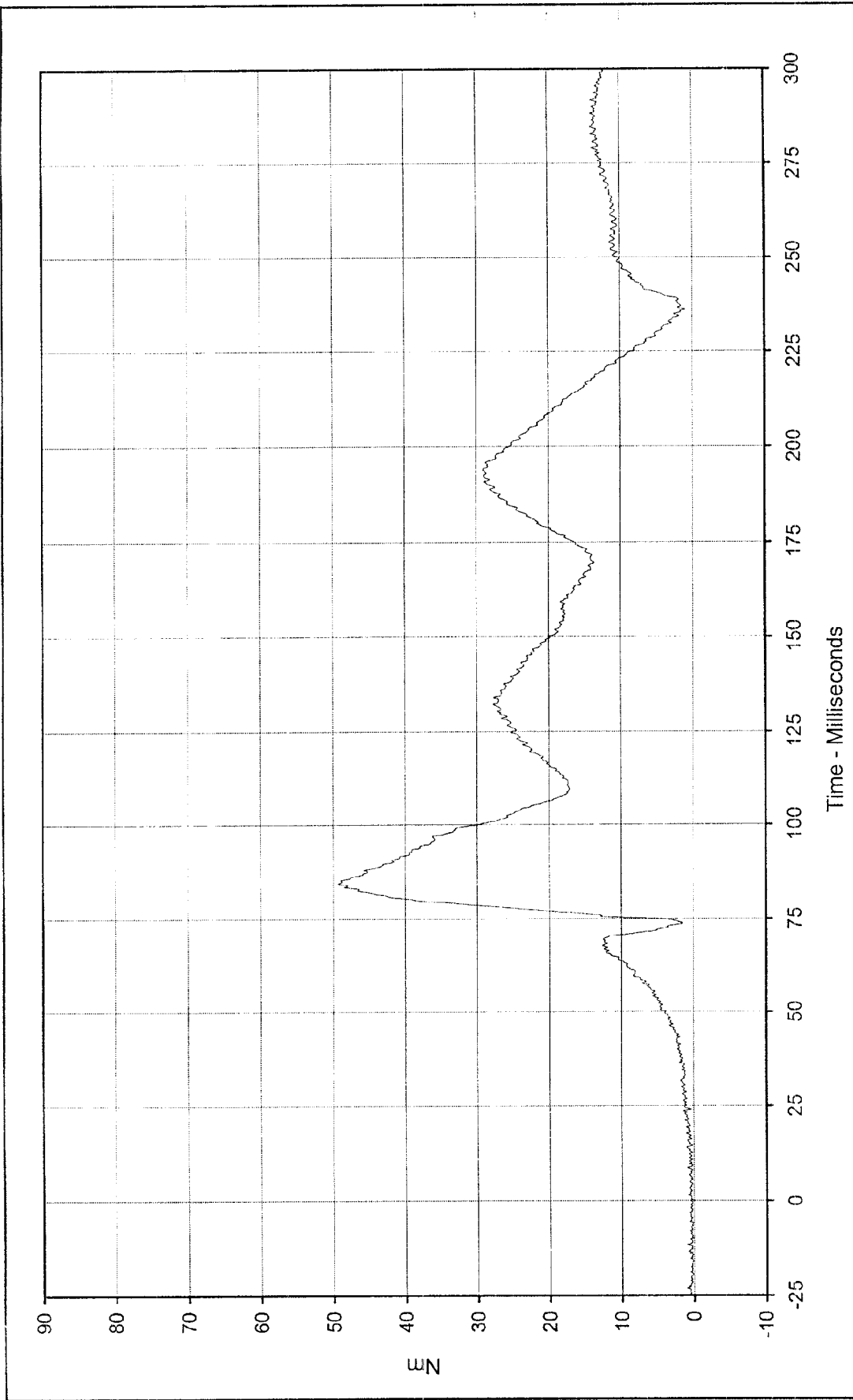
Curve Number: FIL-055





Curve Description: Passenger Neck Moment Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 15.3    at 193.8    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -26.9    at 132.0    Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 7/3/98  
 Curve Number: FIL-056





Curve Description: Passenger Neck Moment Resultant

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 49.3 at 84.3 Milliseconds

Test Vehicle: 1998 Dodge Neon 4 Door Sedan

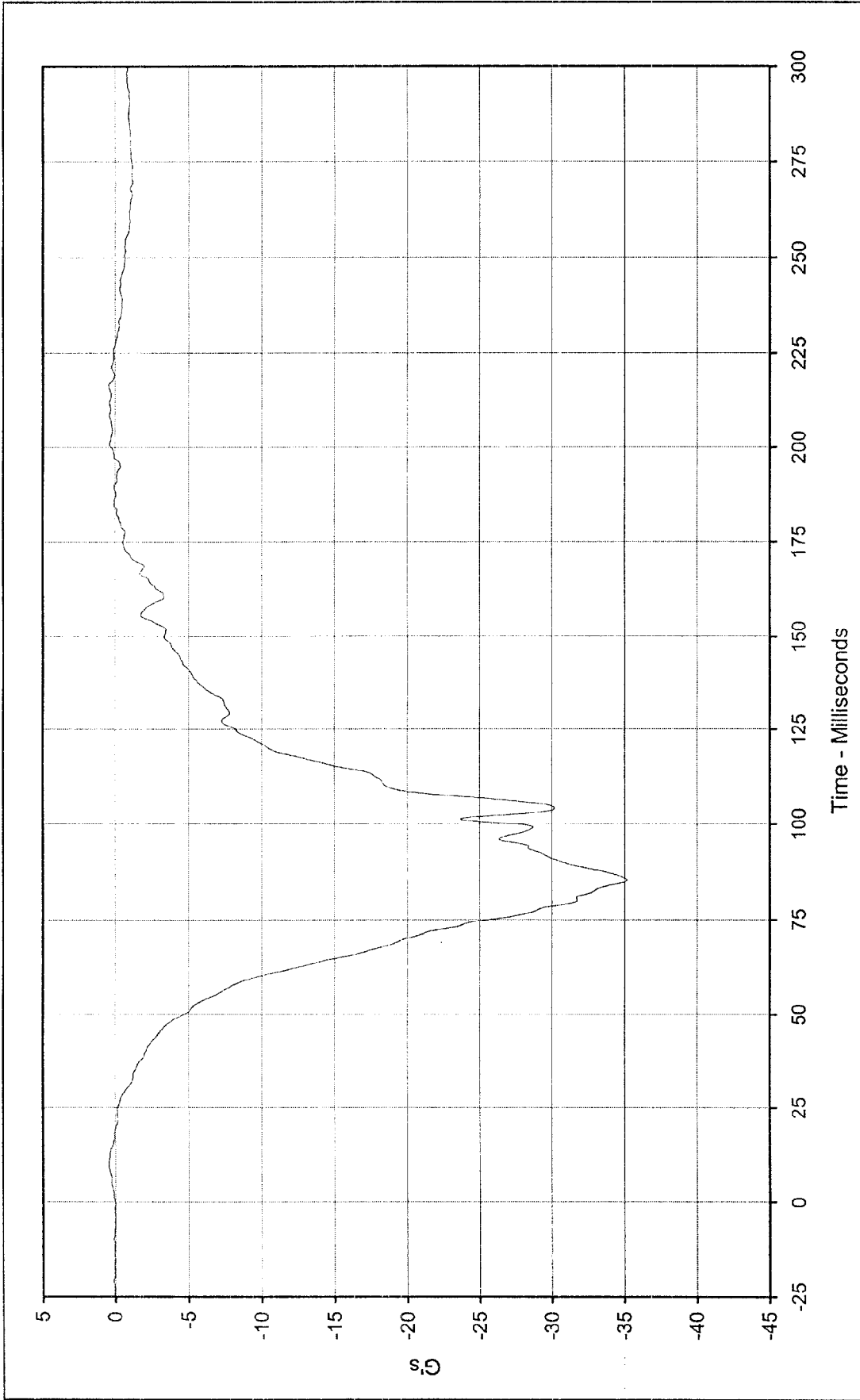
Minimum Value: 0.1 at 8.0 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

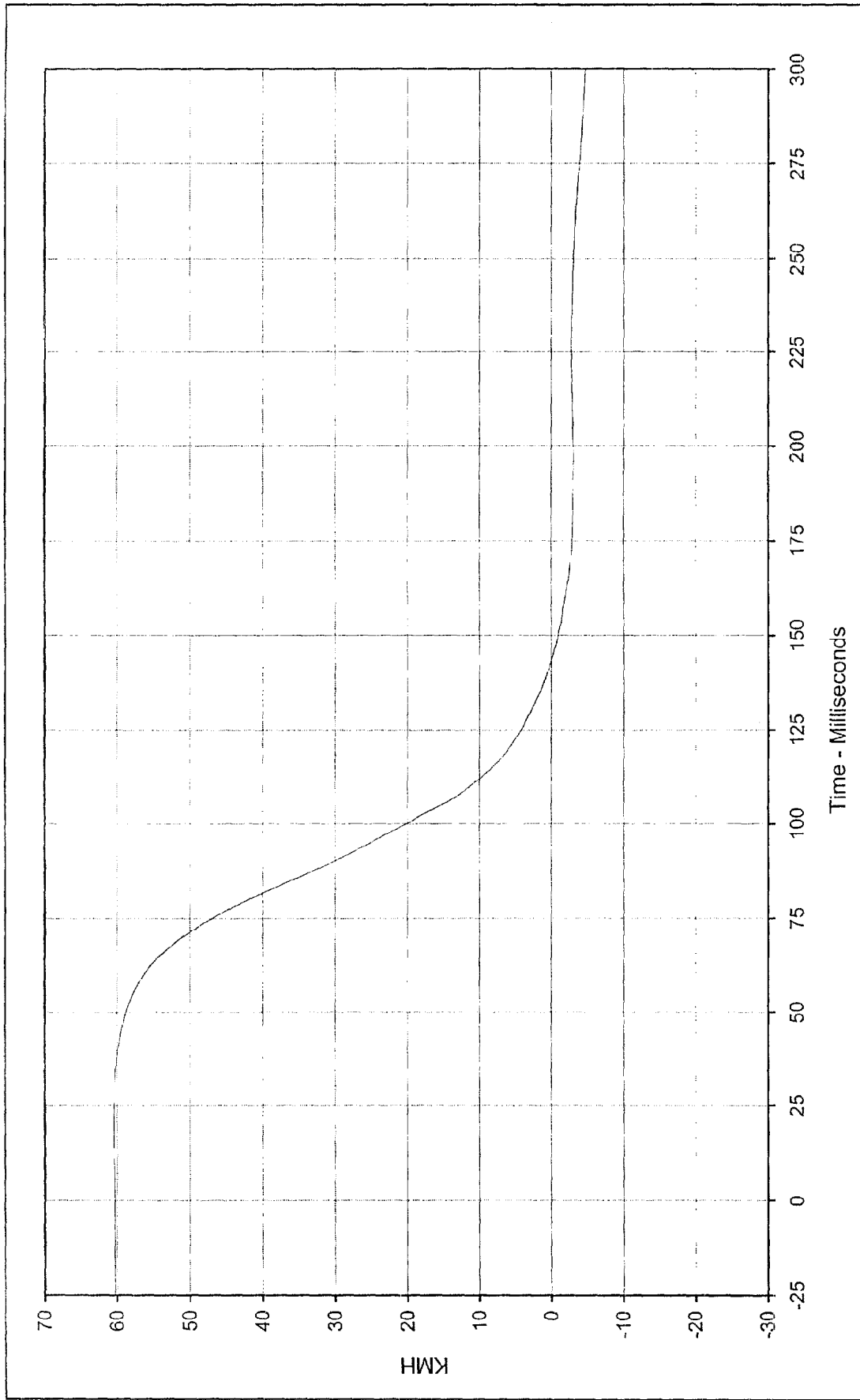
Curve Number: RES-054





Curve Description: Passenger Chest Primary X      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310  
 Maximum Value: 0.5    at 216.4    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -35.2    at 85.2    Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: FIL-057

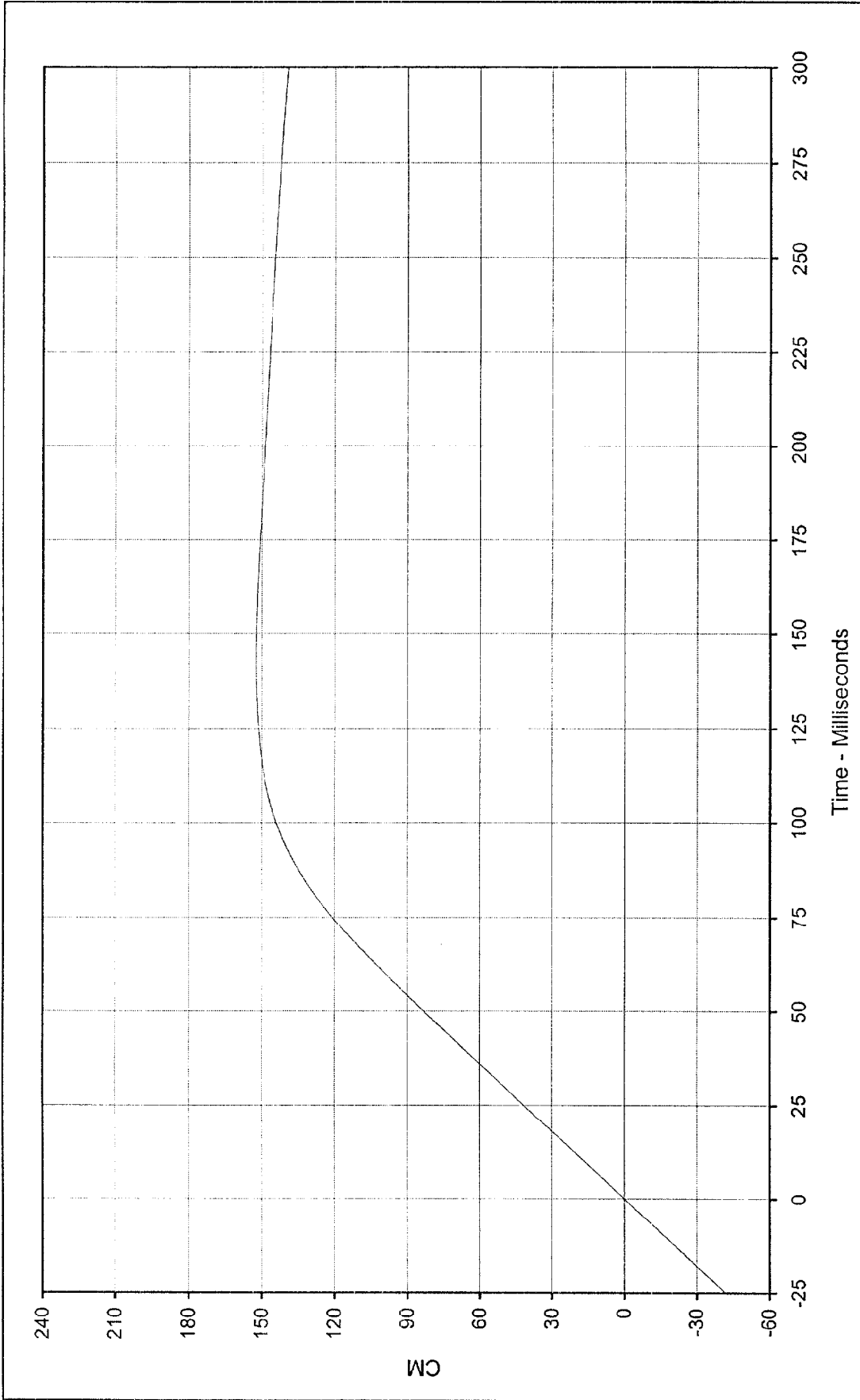




Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

Curve Description: Passenger Chest Primary X Velocity  
 Maximum Value: 60.5 at 19.6 Milliseconds  
 Minimum Value: -4.7 at 299.9 Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN1-057





Curve Description: Passenger Chest Primary X Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 152.2 at 143.3 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

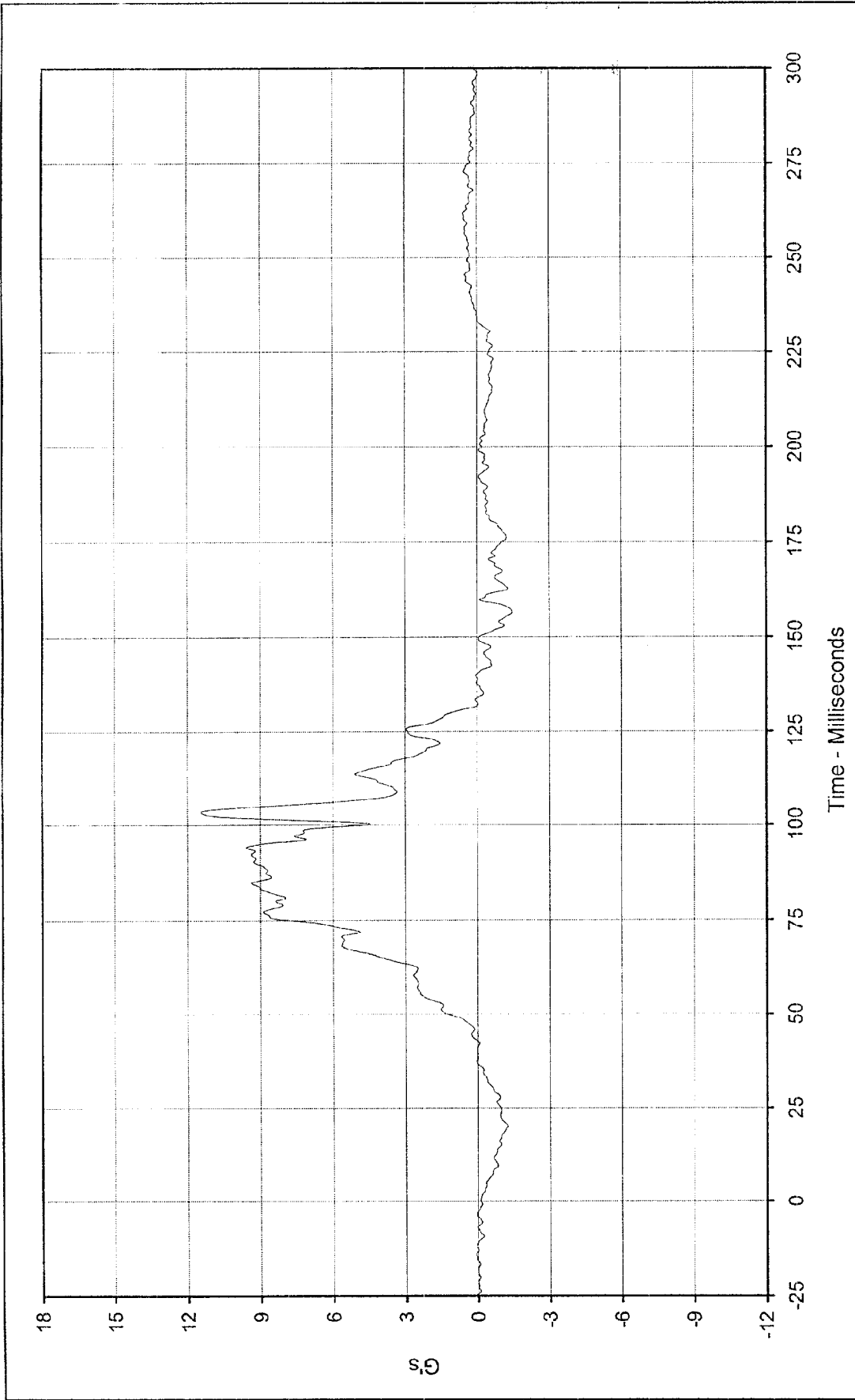
Minimum Value: -0.2 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-057





Curve Description: Passenger Chest Primary Y

Maximum Value: 11.4 at 103.4 Milliseconds

Minimum Value: -1.5 at 156.5 Milliseconds

SAE Filter Class: 180

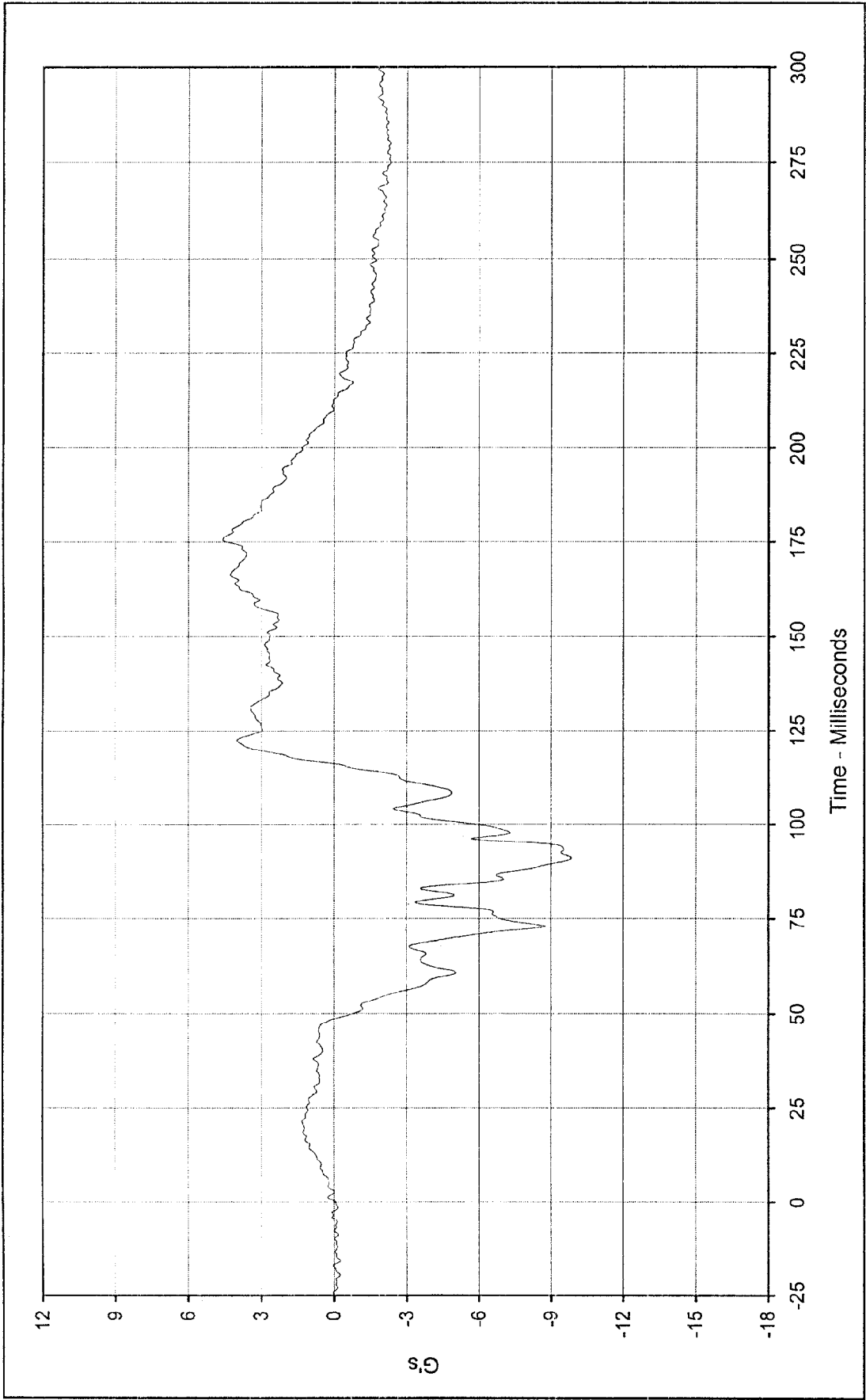
Date of Test: 7/3/98

Curve Number: FIL-058

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Passenger Chest Primary Z Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 4.6 at 175.7 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

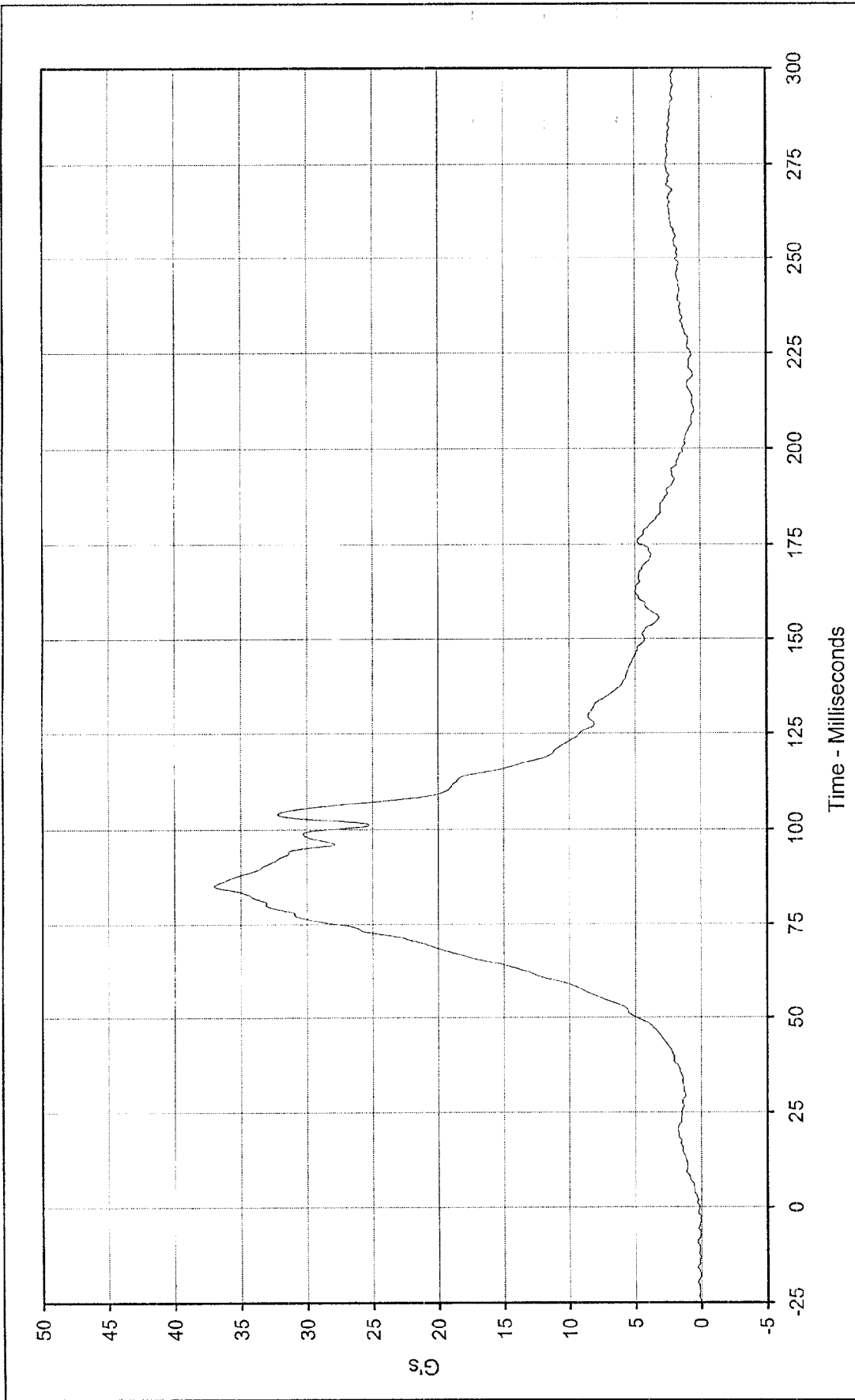
Minimum Value: -9.8 at 90.8 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: FIL-059





Curve Description: Passenger Chest Resultant Primary Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 37.0 at 85.1 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

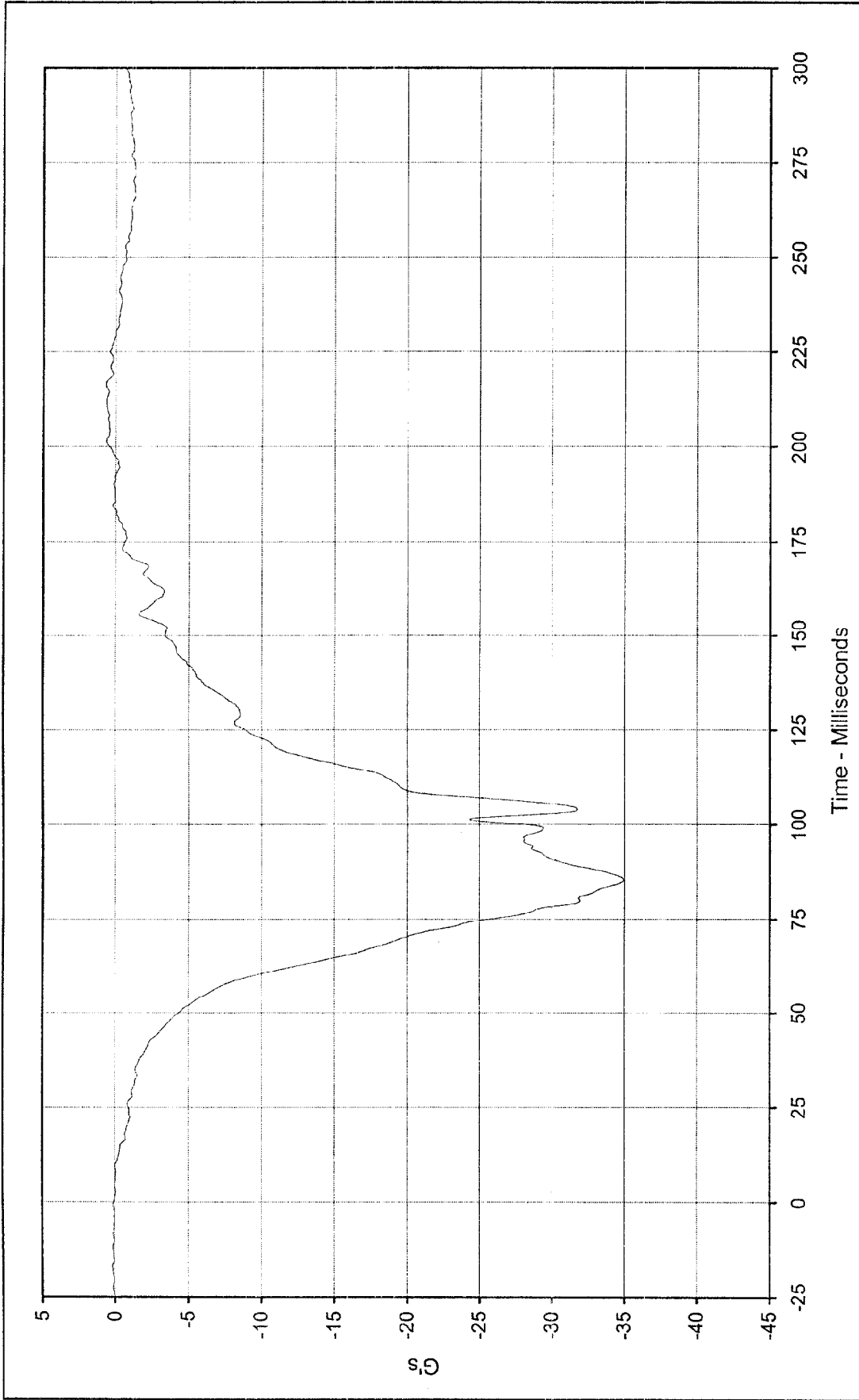
Minimum Value: 0.1 at 0.3 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: RES-057





Curve Description: Passenger Chest Redundant X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 0.7 at 216.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

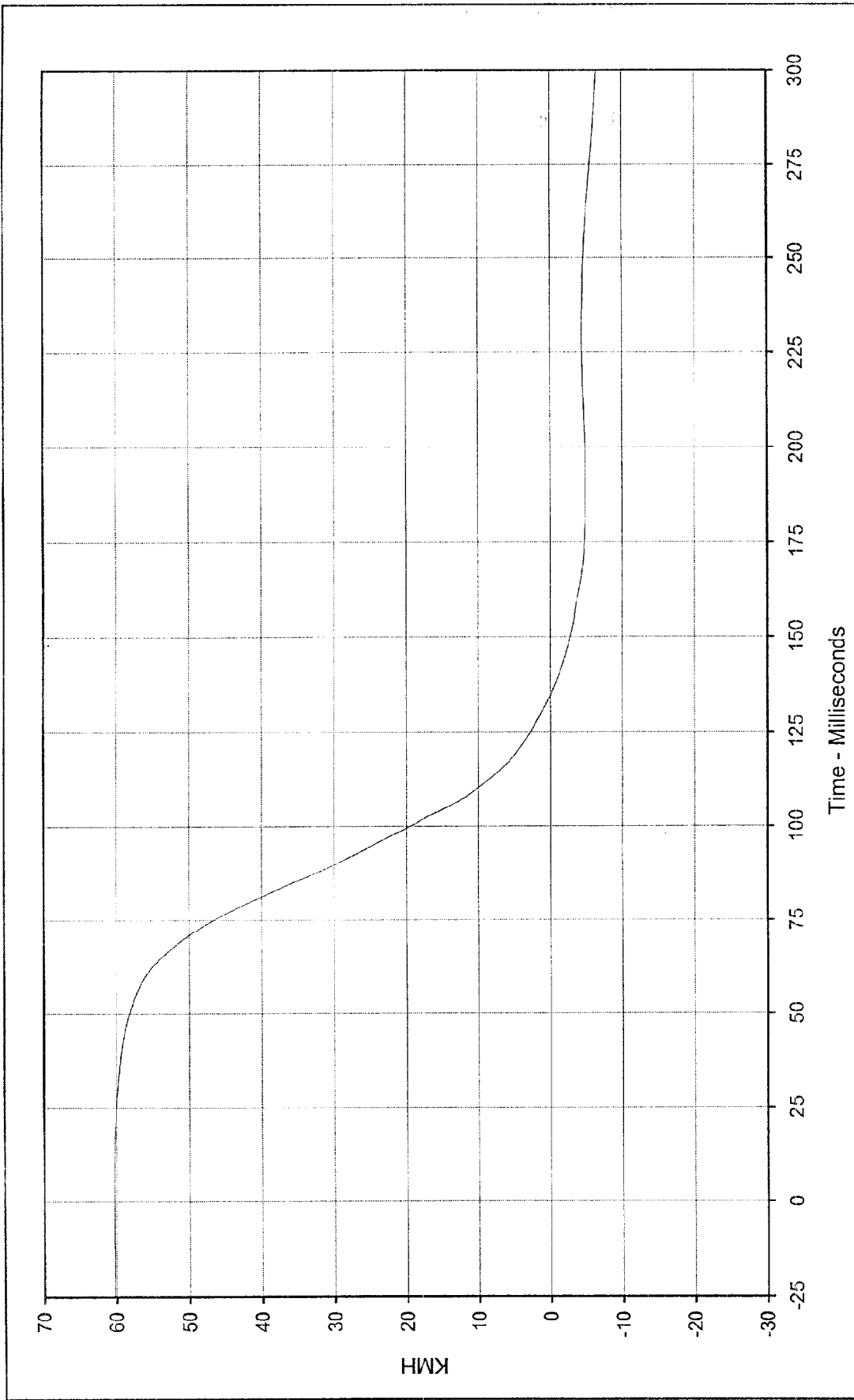
Minimum Value: -35.0 at 85.4 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: FIL-060





Curve Description: Passenger Chest Redundant X Velocity      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 60.3      at 1.1      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

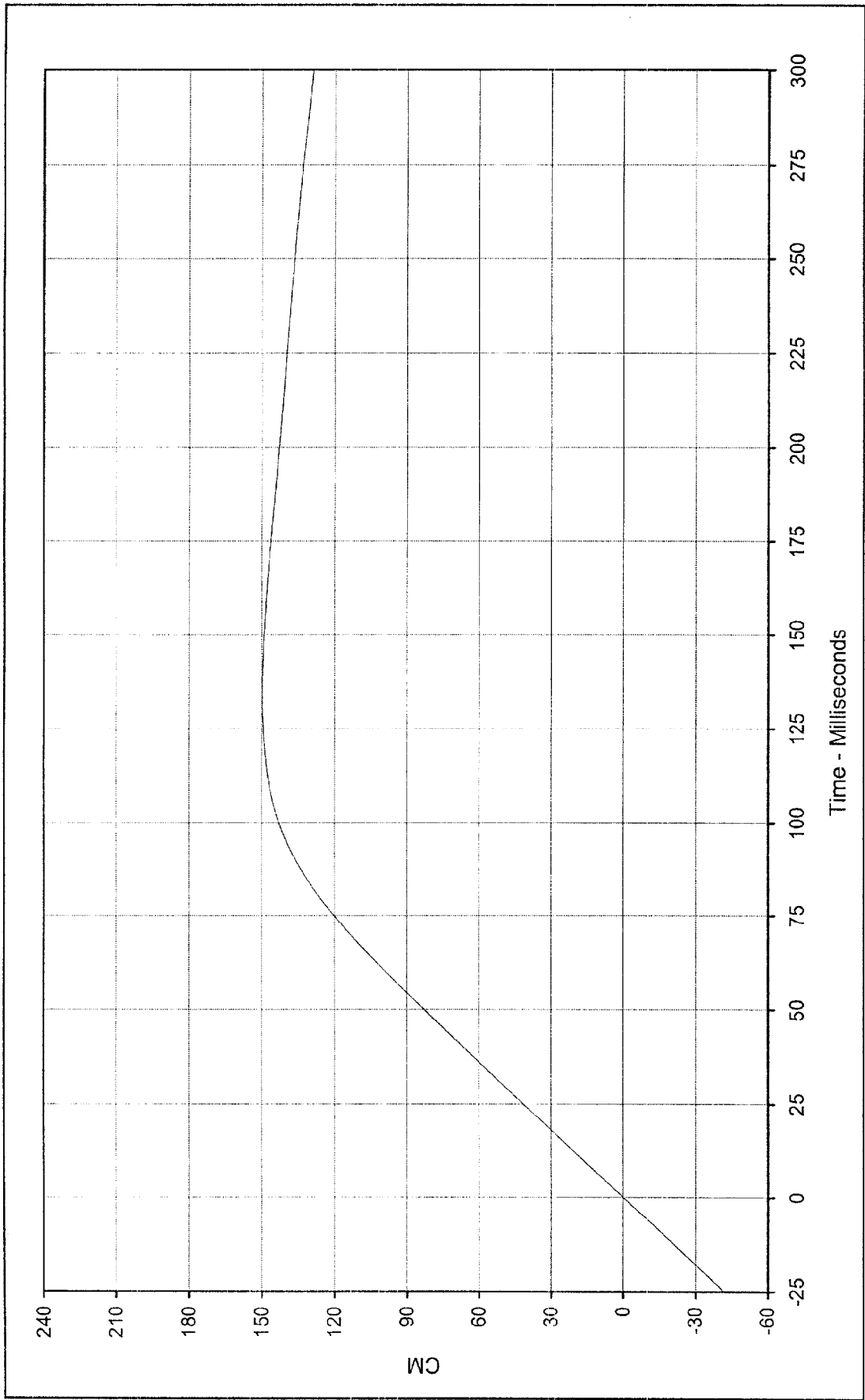
Minimum Value: -6.5      at 299.9      Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-060





Curve Description: Passenger Chest Redundant X Displ.      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 149.7 at 134.4 Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

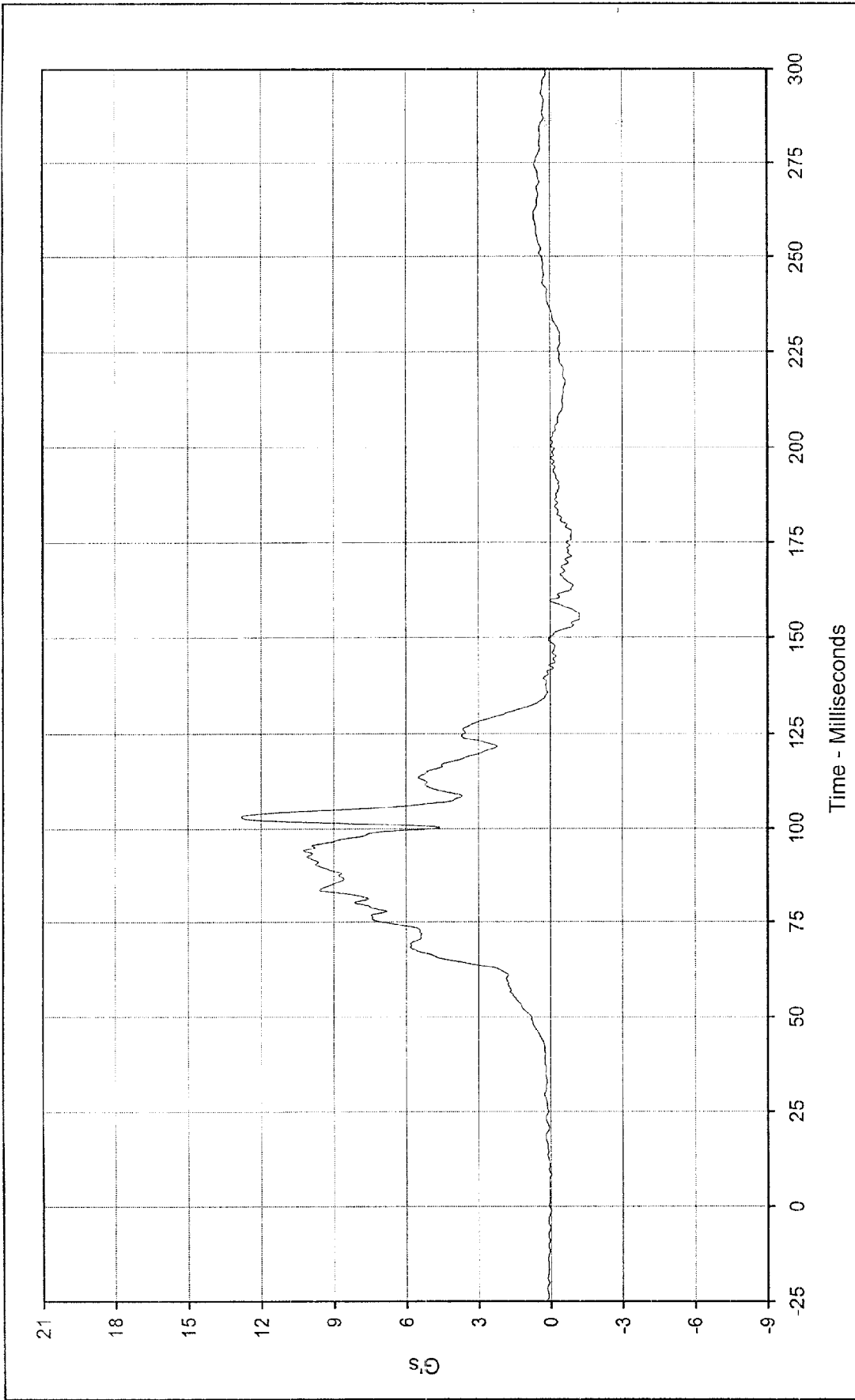
Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-060





Curve Description: Passenger Chest Redundant Y      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 12.8    at 103.1    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

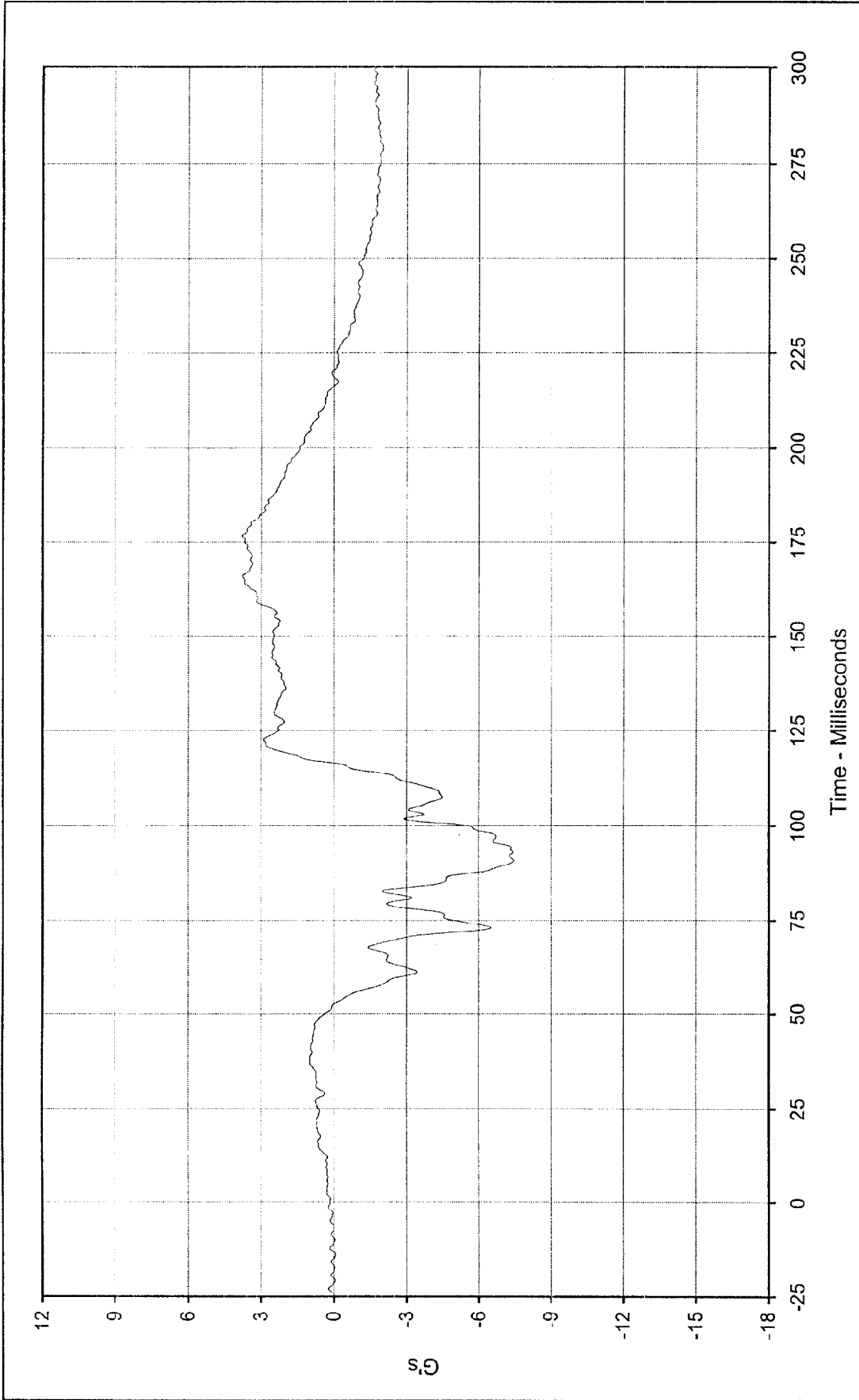
Minimum Value: -1.2    at 155.0    Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: FIL-061





Curve Description: Passenger Chest Redundant Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 3.8    at 176.6    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

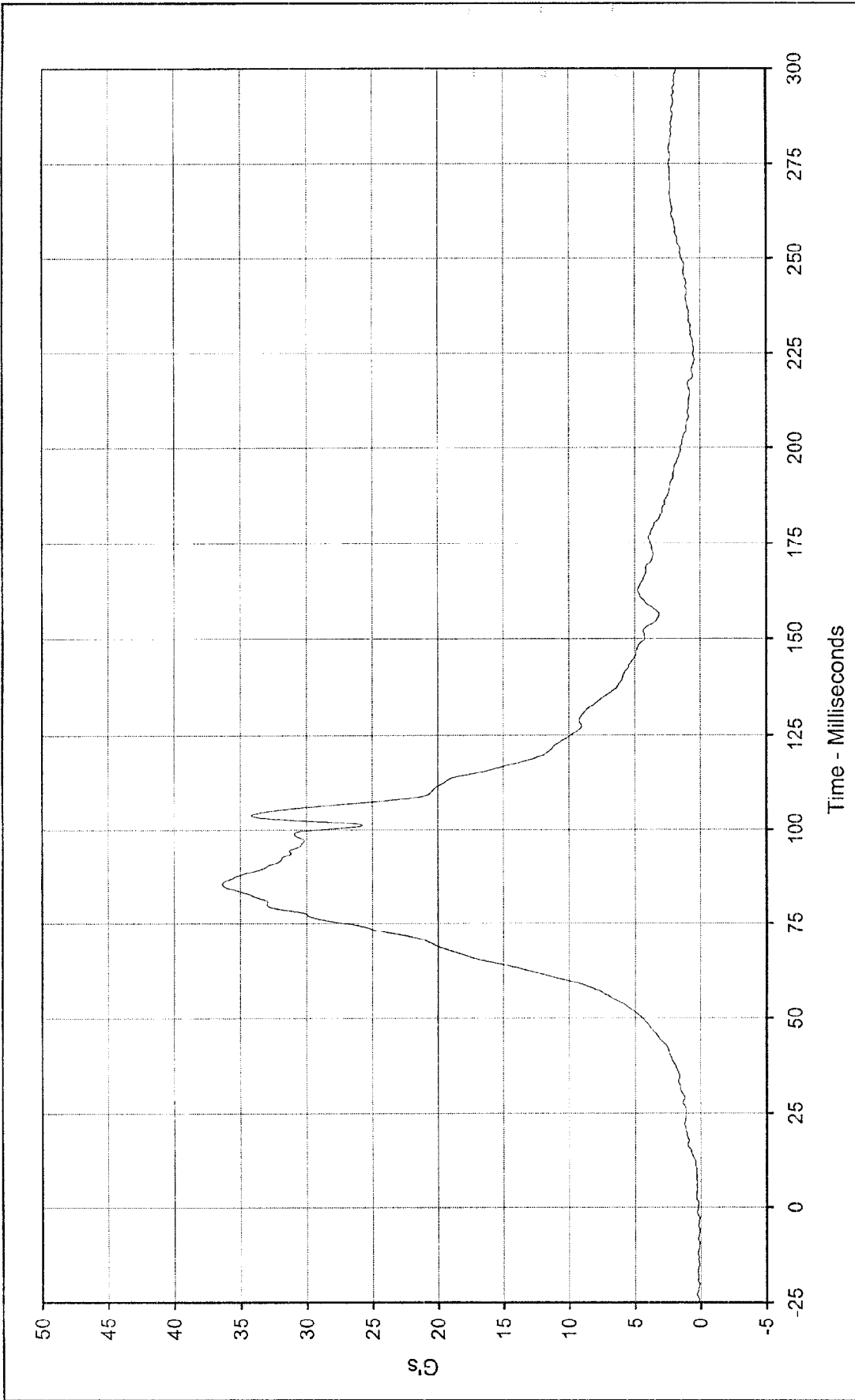
Minimum Value: -7.5    at 90.7    Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: FIL-062





Curve Description: Passenger Chest Resultant Redundant      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 36.4      at 85.3      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

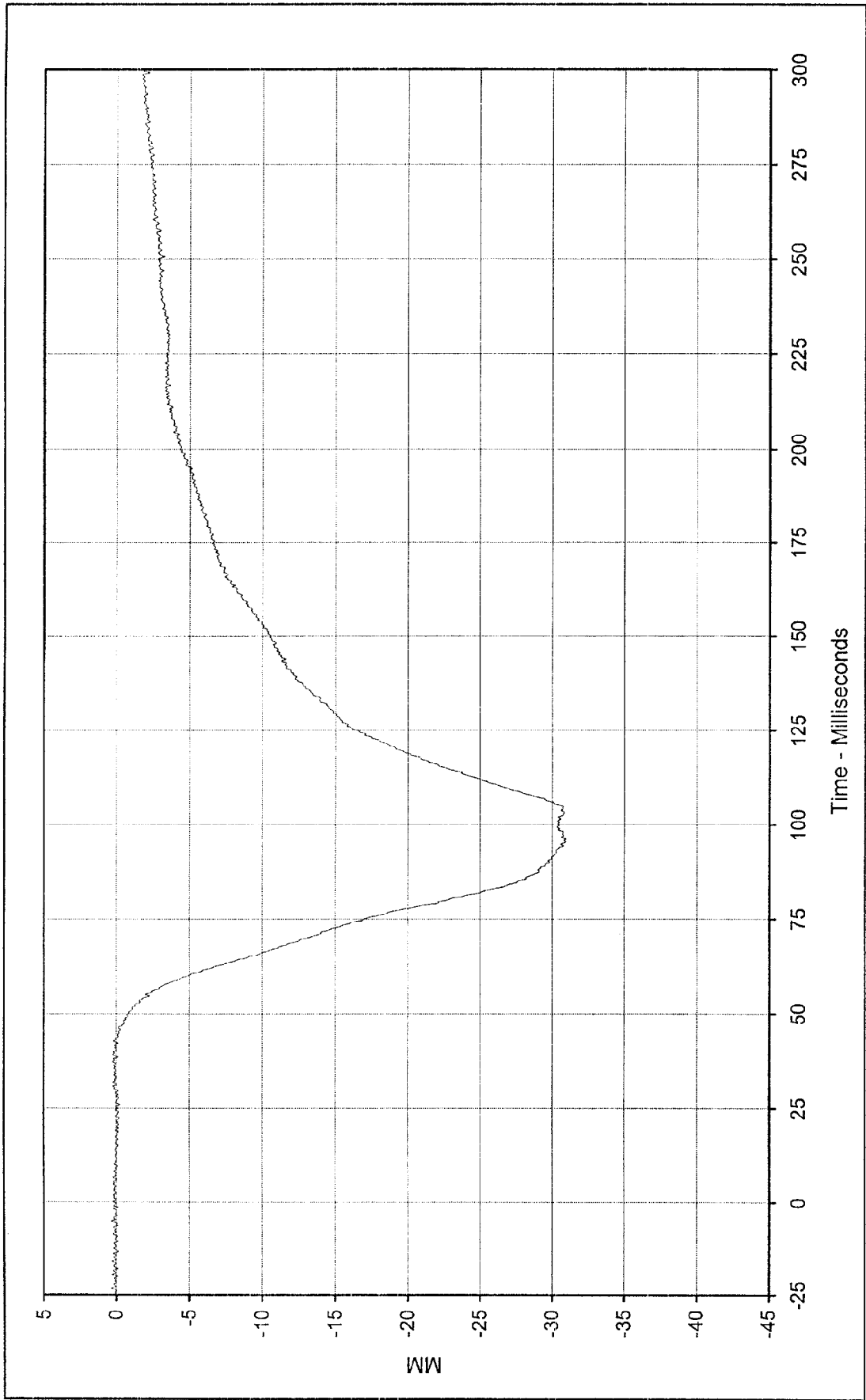
Minimum Value: 0.1      at 1.0      Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: RES-060





Curve Description: Passenger Chest Displacement X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 0.2 at 37.2 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

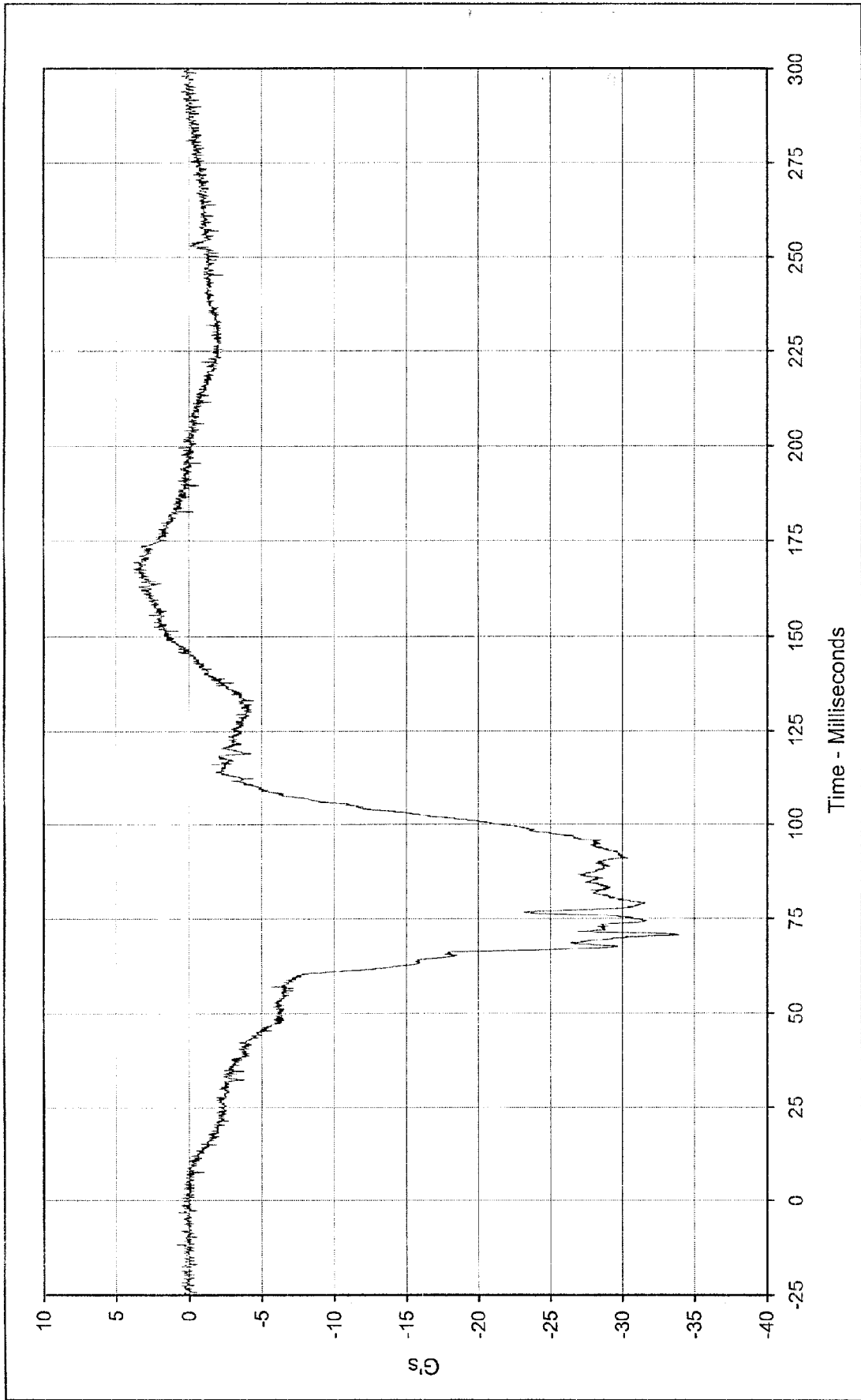
Minimum Value: -31.0 at 95.4 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

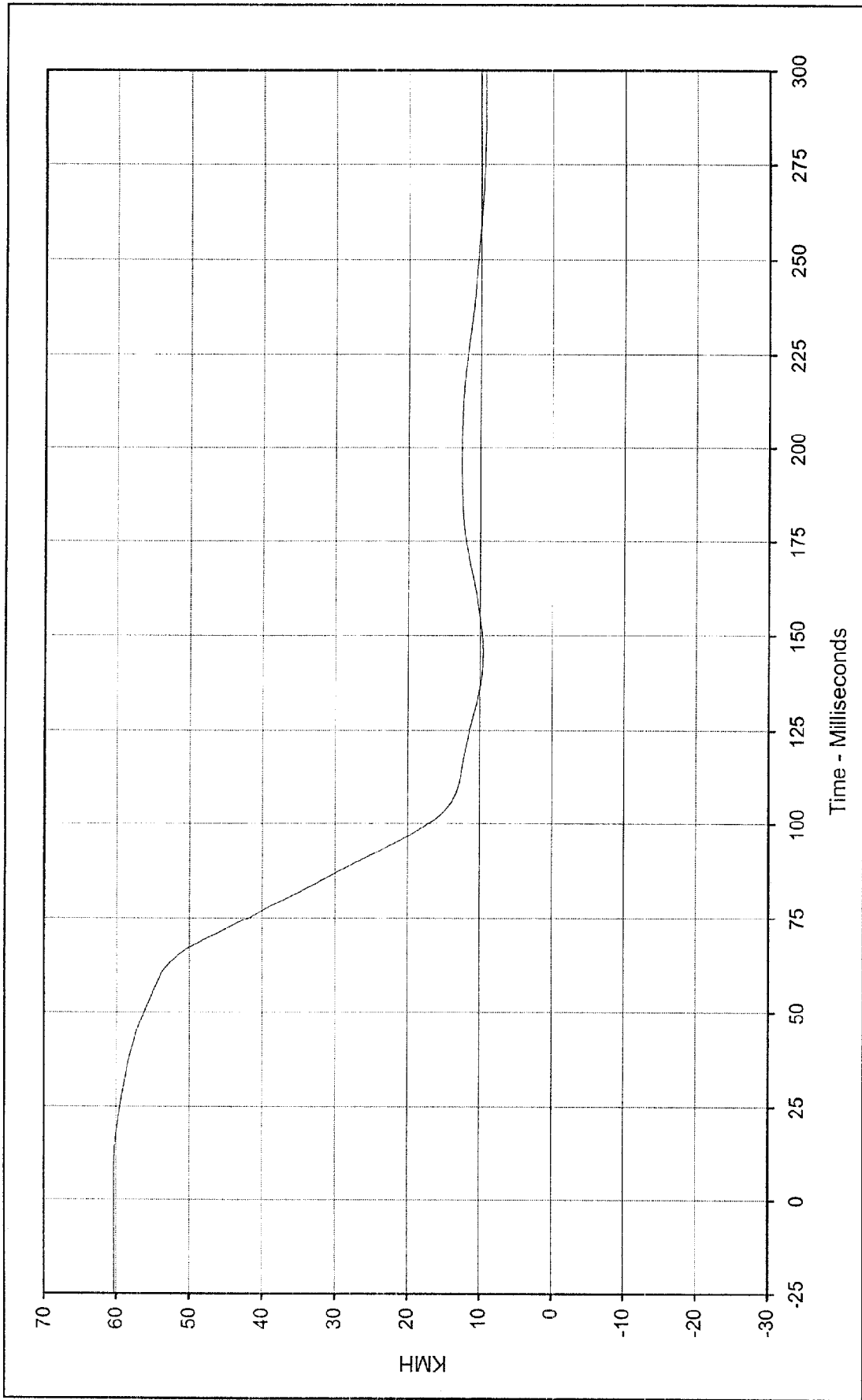
Curve Number: FIL-063





Curve Description: Passenger Pelvis X  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 3.8 at 166.4 Milliseconds  
 Minimum Value: -34.0 at 70.5 Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-064





Curve Description: Passenger Pelvis X Velocity      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 60.3      at 1.8      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

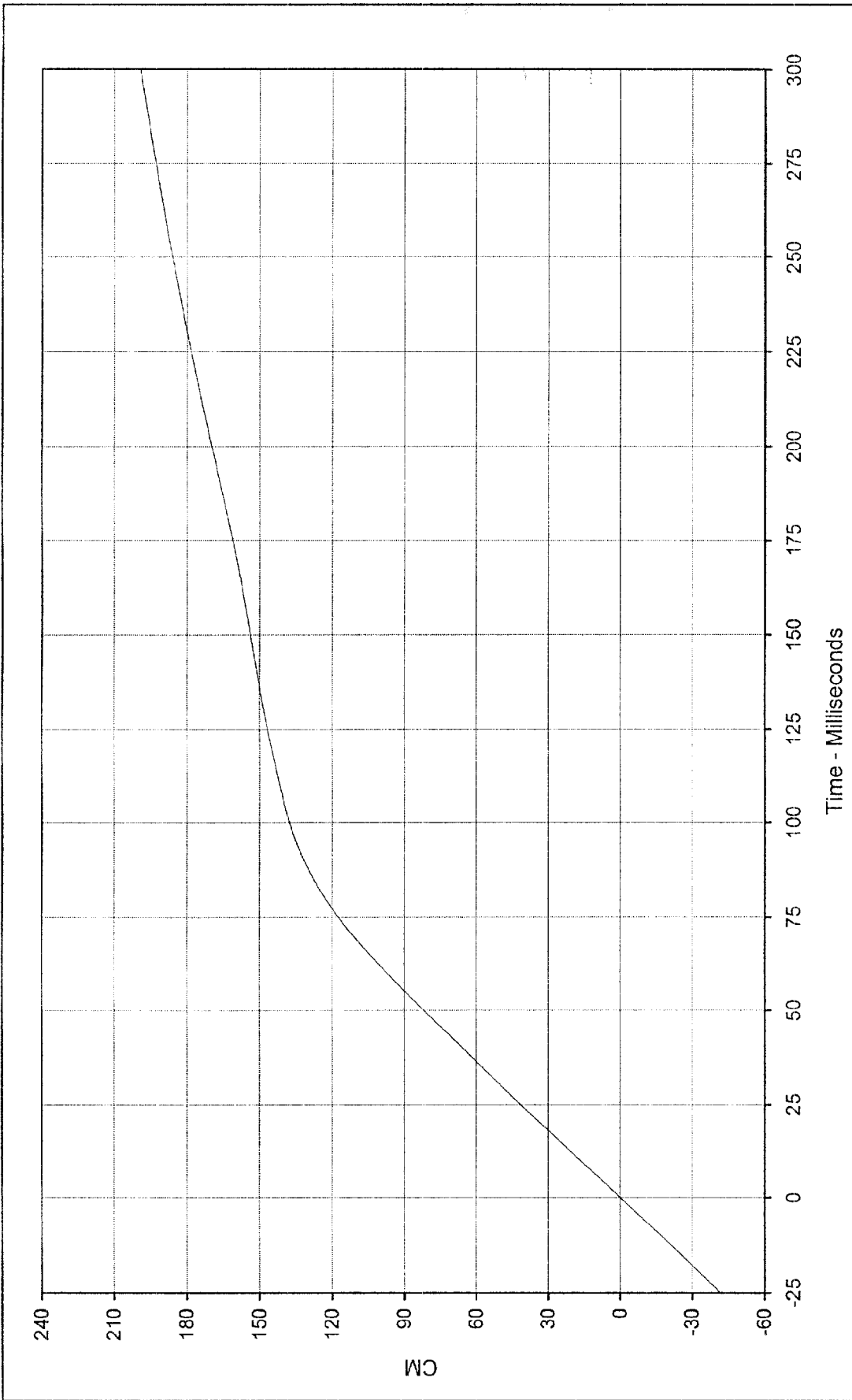
Minimum Value: 9.3      at 293.4      Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-064

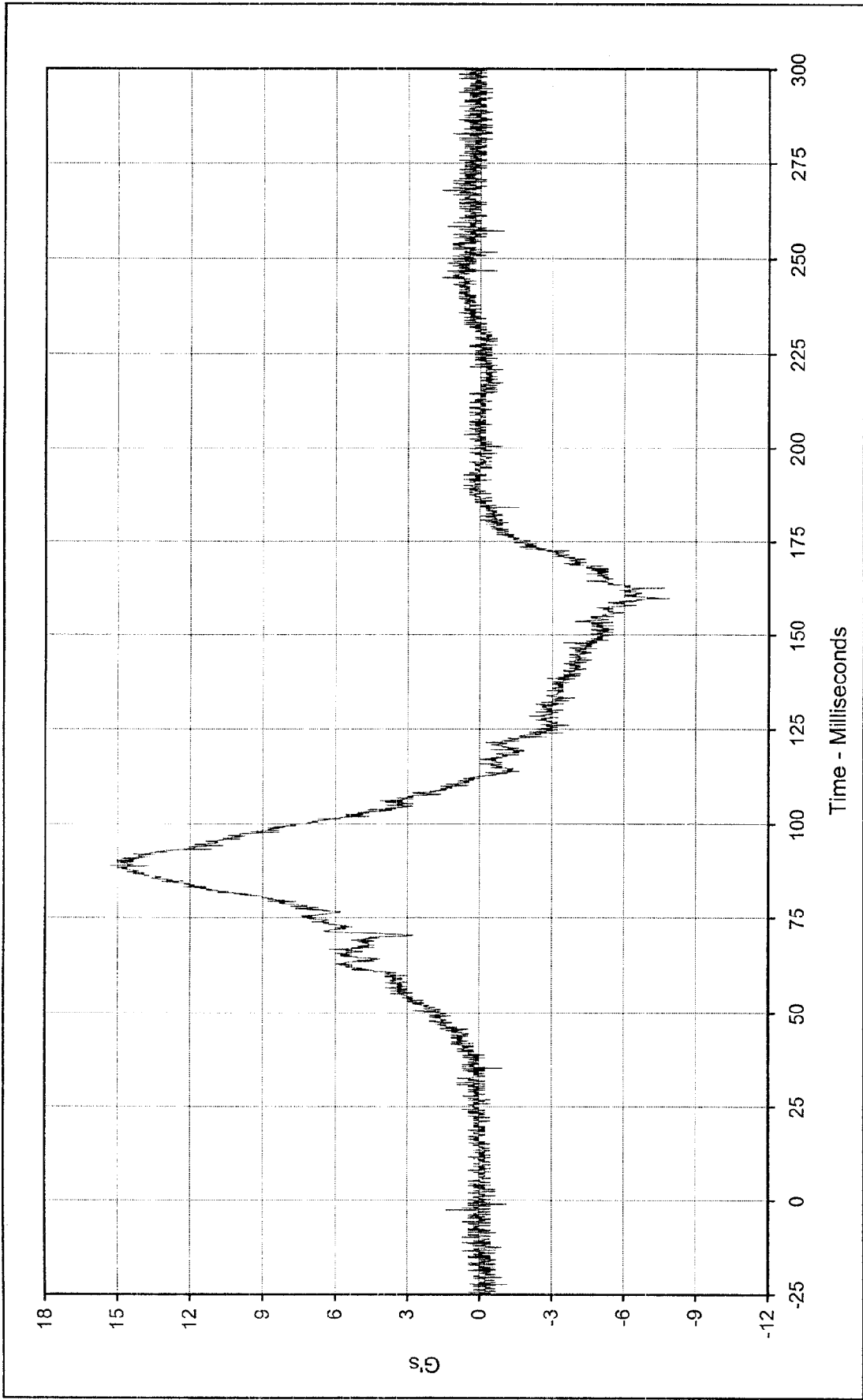




Curve Description: Passenger Pelvis X Displ.  
 Maximum Value: 199.2 at 299.9 Milliseconds  
 Minimum Value: -0.1 at 0.0 Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN2-064

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

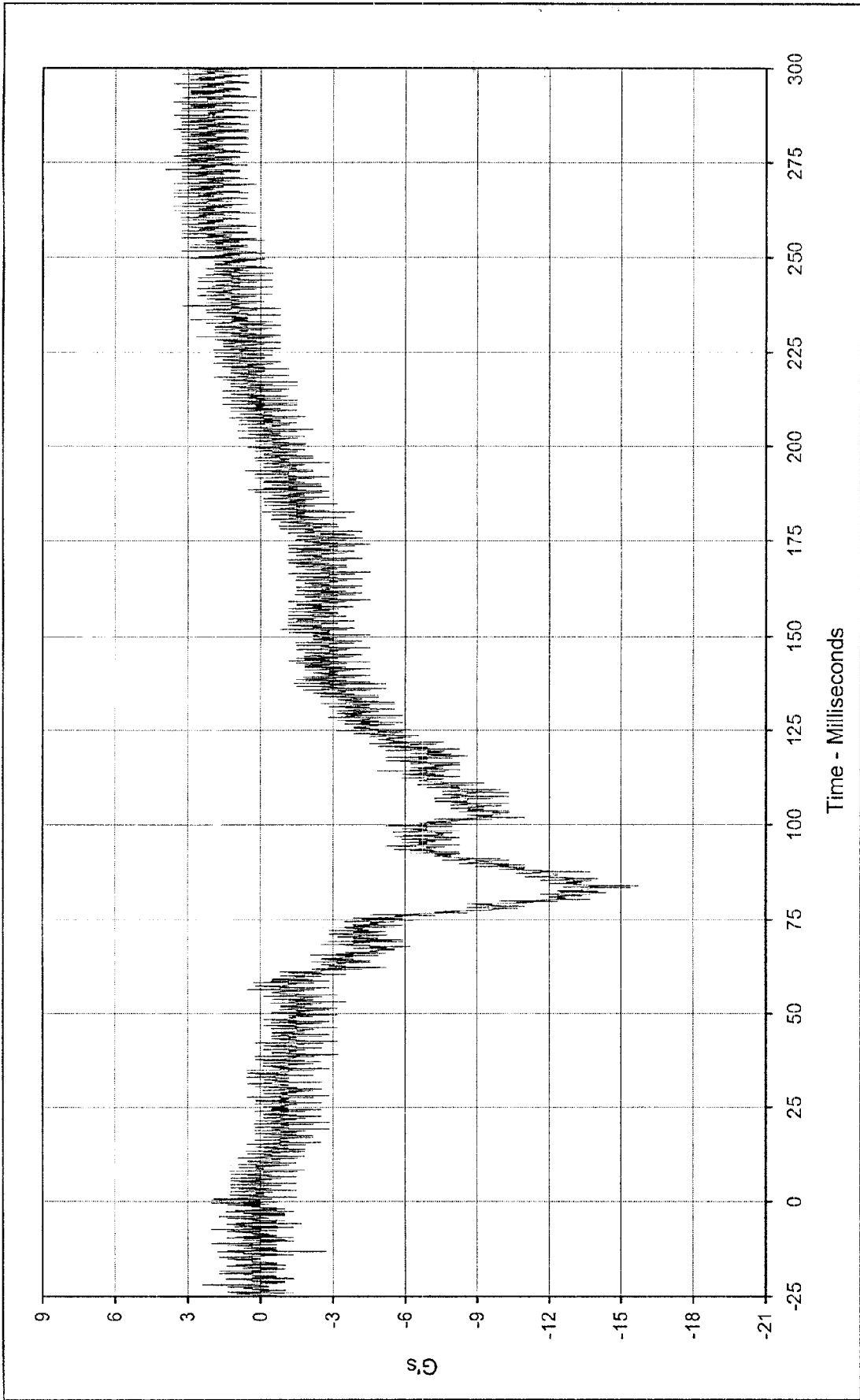




Curve Description: Passenger Pelvis Y  
 Maximum Value: 15.3 at 88.9 Milliseconds  
 Minimum Value: -7.9 at 159.9 Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-065

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan



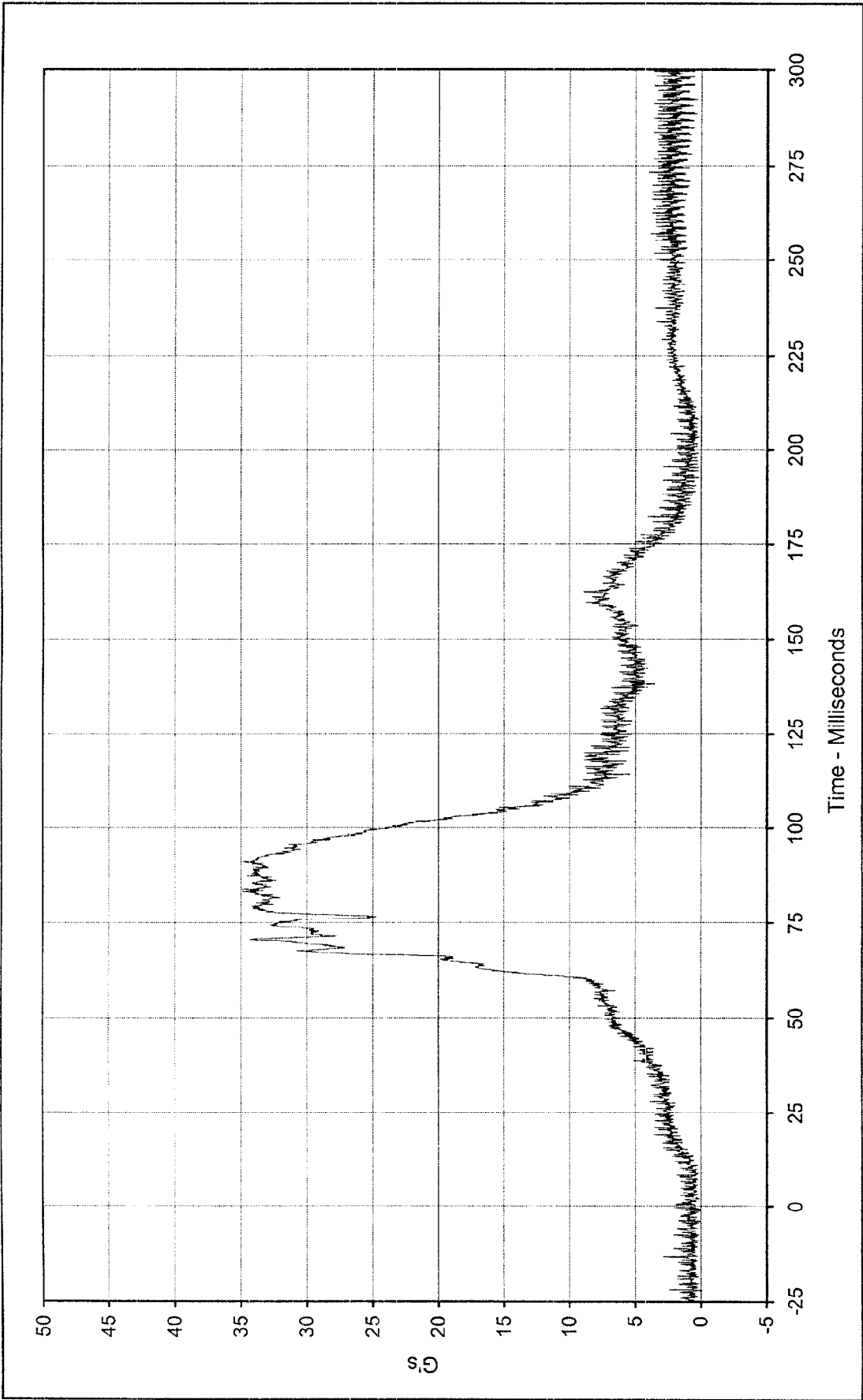


Curve Description: Passenger Pelvis Z  
 Maximum Value: 3.9 at 273.2 Milliseconds  
 Minimum Value: -15.7 at 83.9 Milliseconds

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-066





Curve Description: Passenger Pelvis Resultant Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 34.9 at 83.9 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

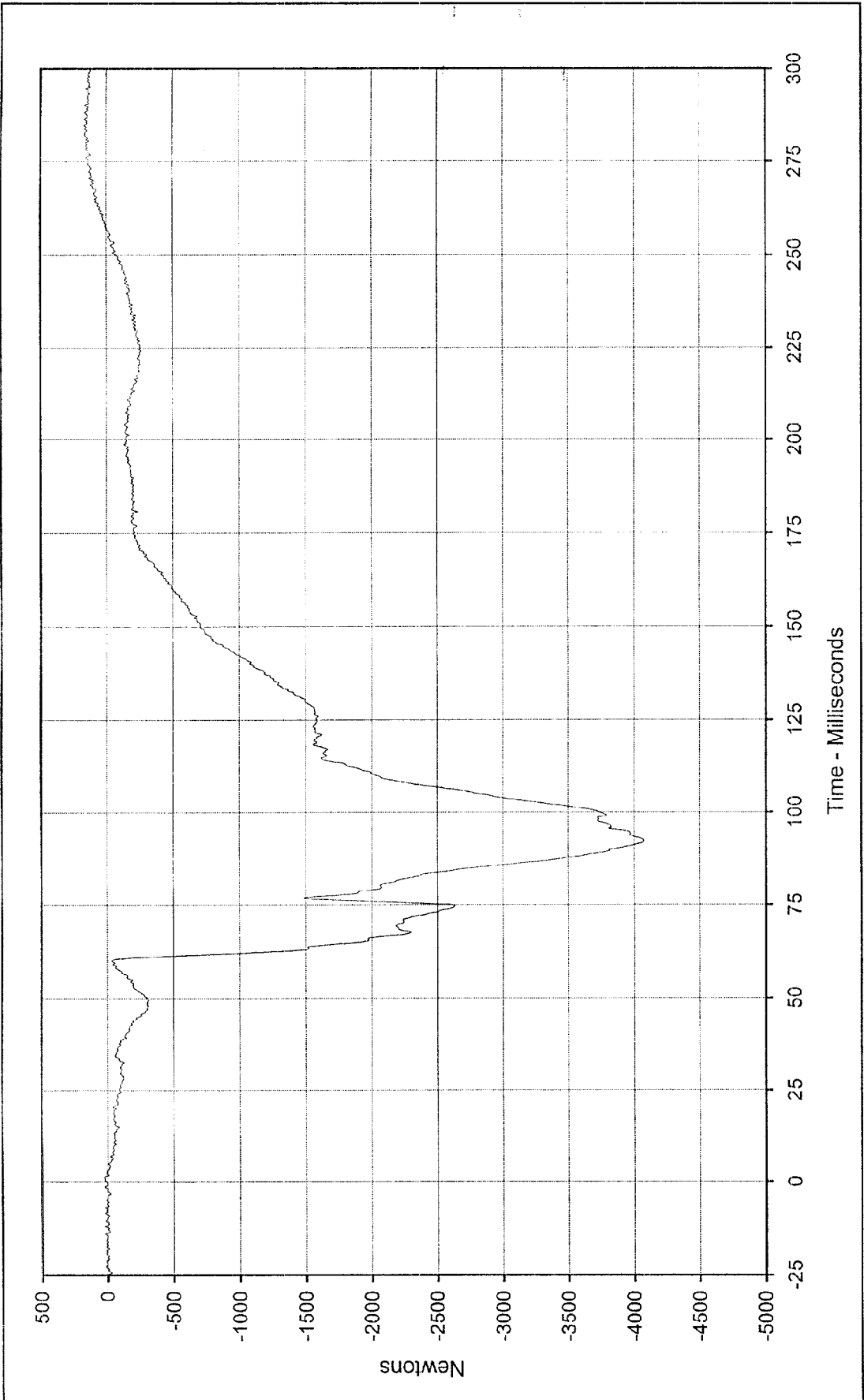
Minimum Value: 0.1 at 2.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: RES-064

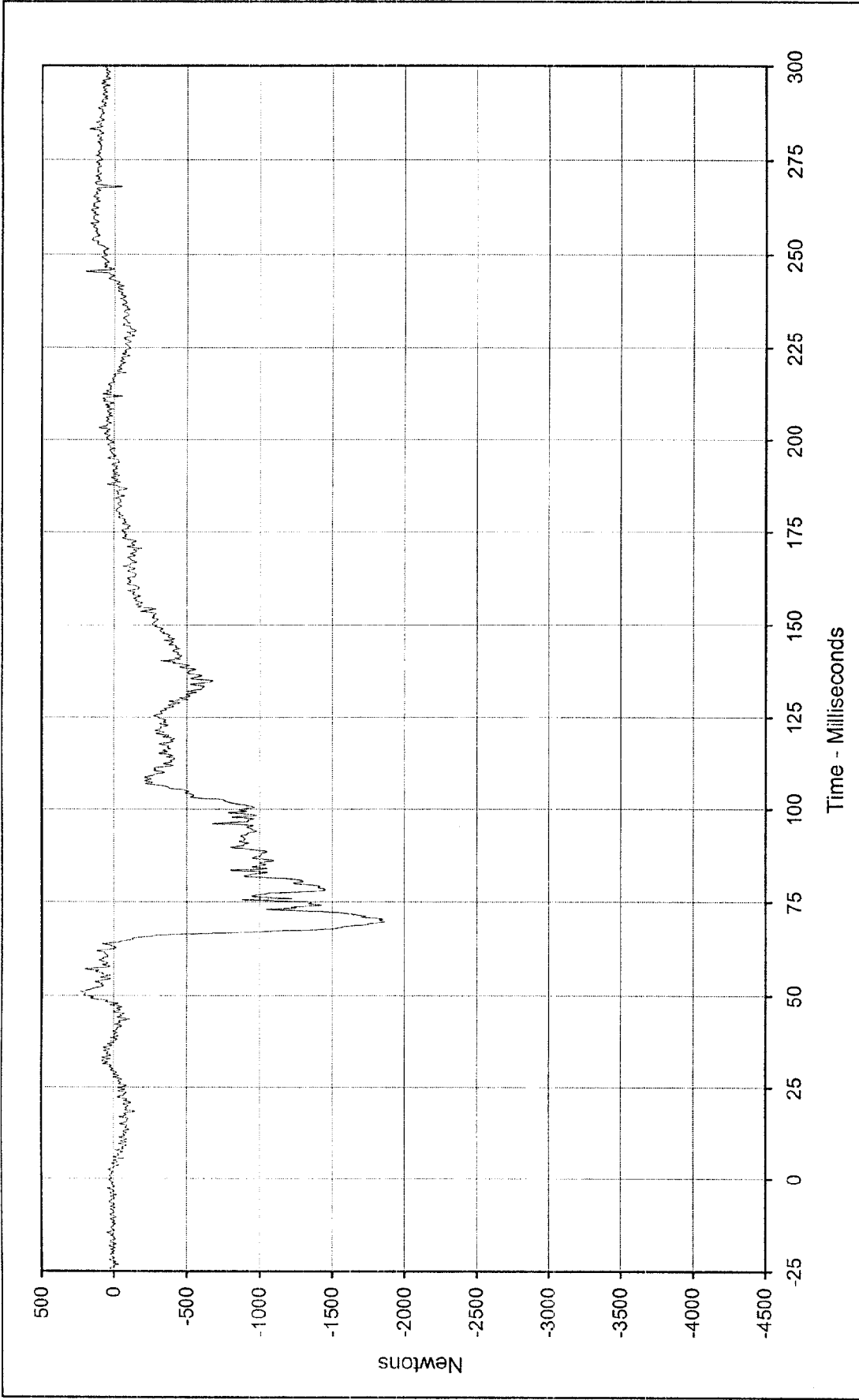




Curve Description: Passenger Left Femur Force  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

Maximum Value: 170.1 at 284.8 Milliseconds  
 Minimum Value: -4074.0 at 92.1 Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 7/3/98  
 Curve Number: FIL-067





Curve Description: Passenger Right Femur Force Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 235.6 at 51.1 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

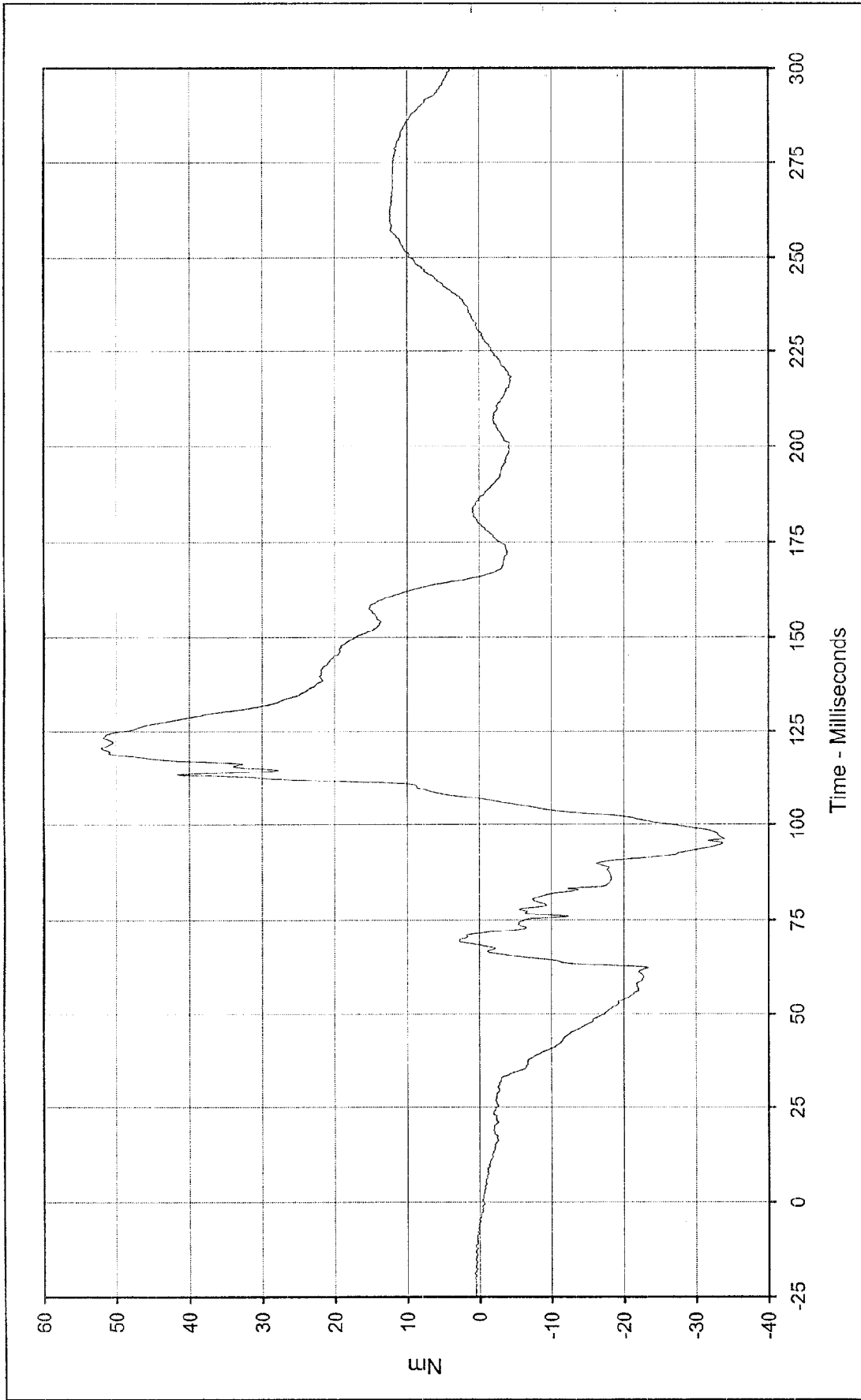
Minimum Value: -1864.6 at 69.7 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-068





Curve Description: Passenger Left Upper Tibia Moment X      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 52.0      at 120.4      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

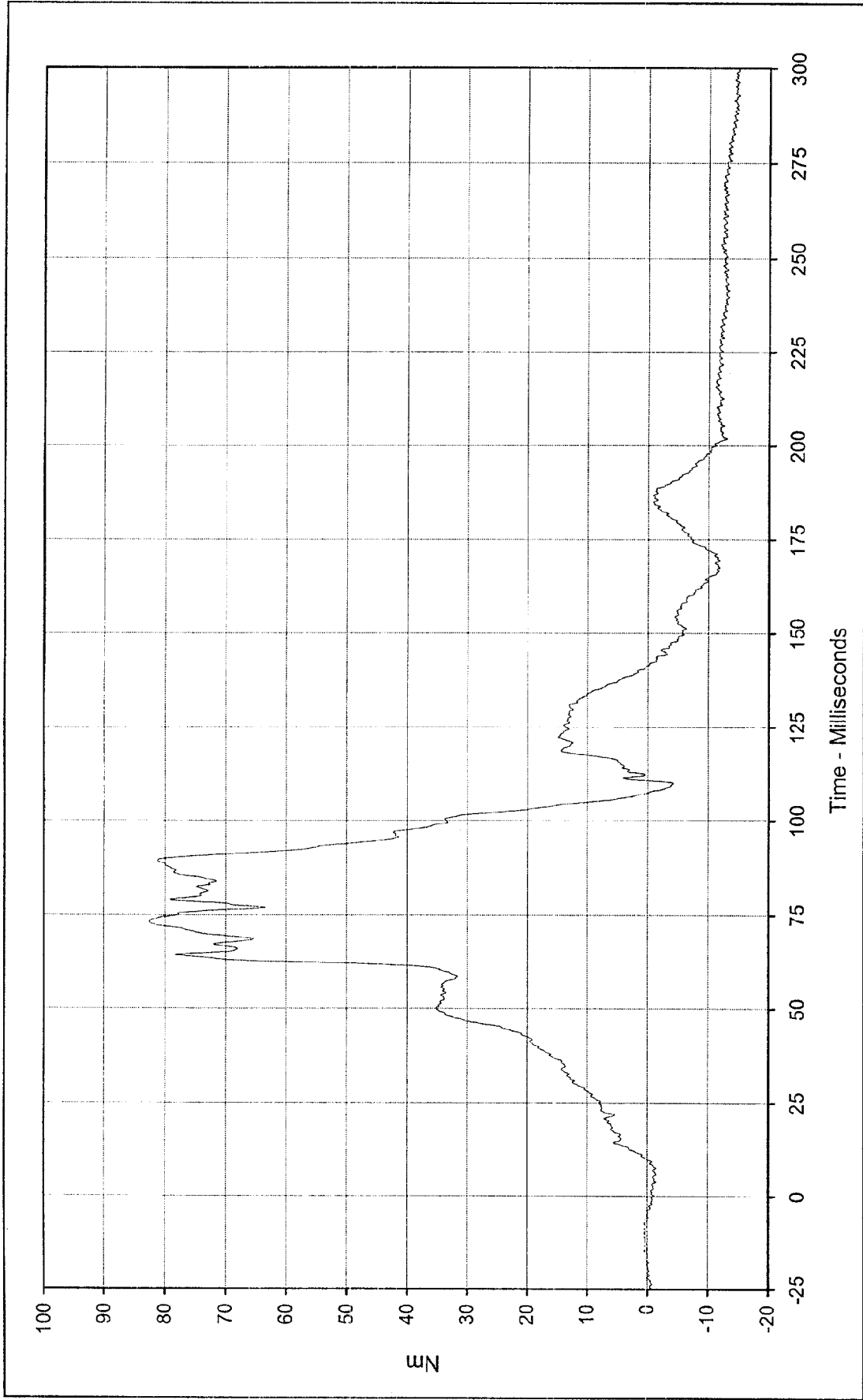
Minimum Value: -34.0      at 96.0      Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-069





Curve Description: Passenger Left Upper Tibia Moment Y

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 82.6 at 73.3 Milliseconds

Test Vehicle: 1998 Dodge Neon 4 Door Sedan

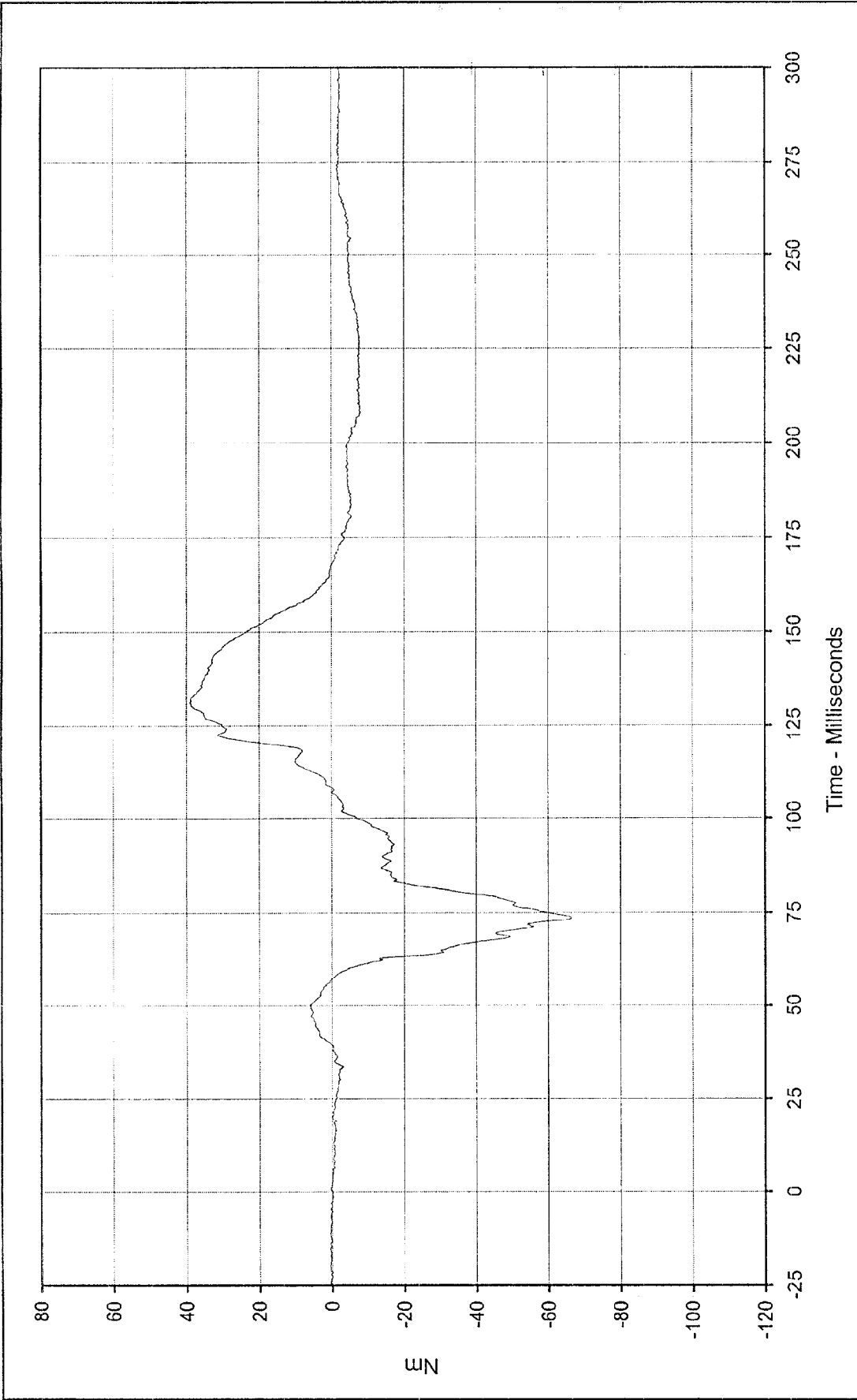
Minimum Value: -15.1 at 299.9 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-070





Curve Description: Passenger Right Upper Tibia Moment X      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 39.0      at 131.0      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

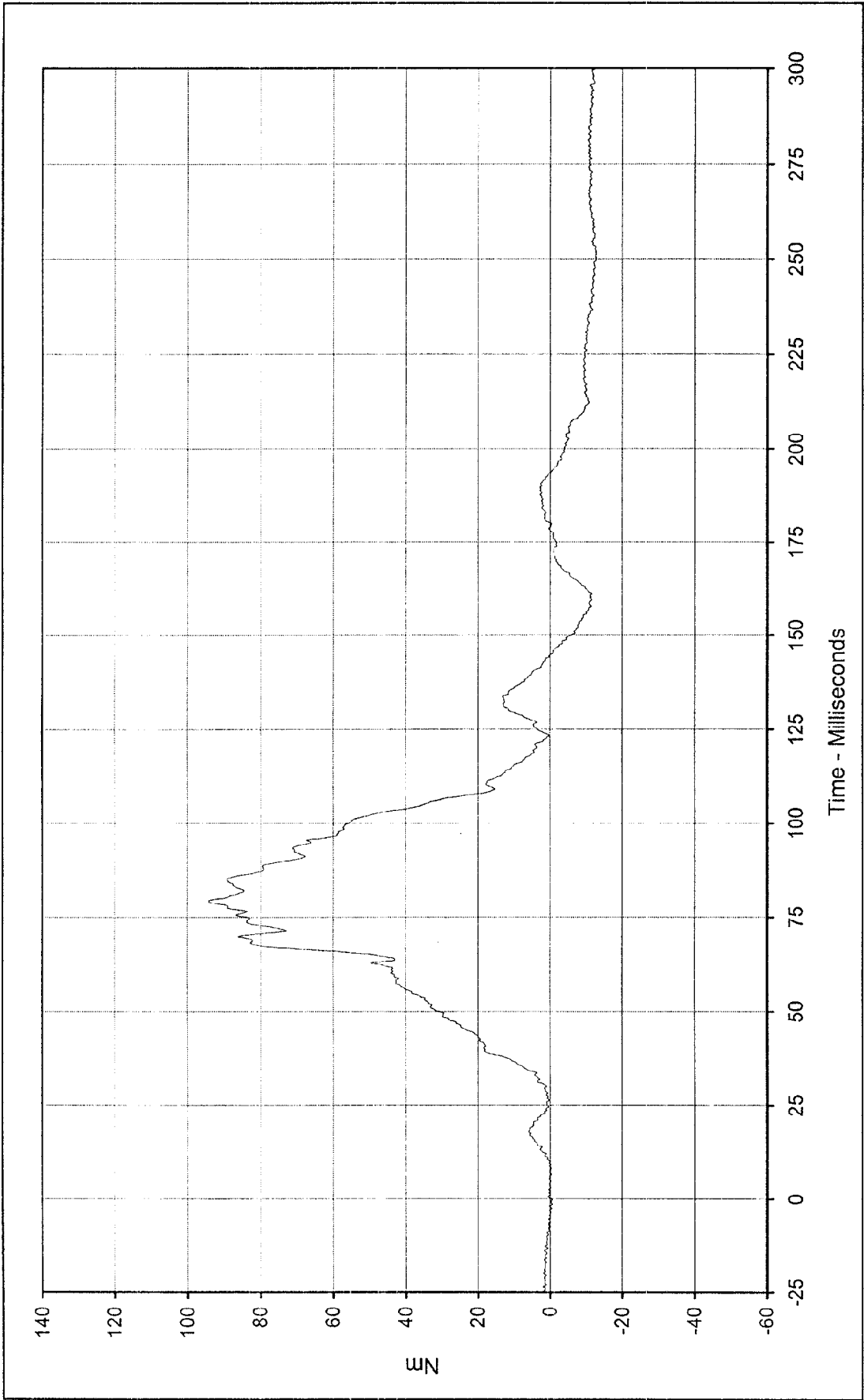
Minimum Value: -66.3      at 73.5      Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-071





Curve Description: Passenger Right Upper Tibia Moment Y      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 94.2      at 79.3      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

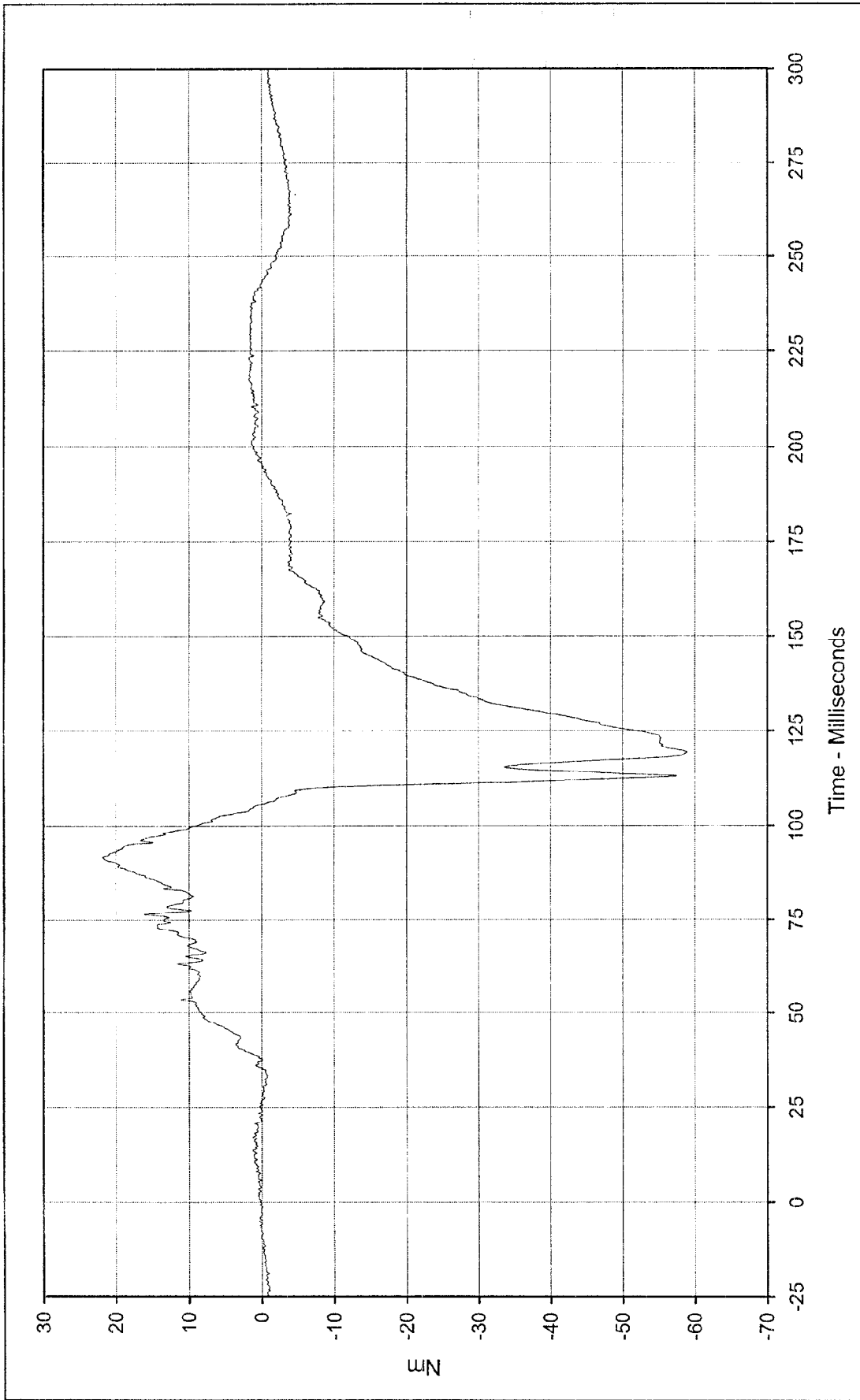
Minimum Value: -13.0      at 251.3      Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-072





Curve Description: Passenger Left Lower Tibia Moment X      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310

Maximum Value: 21.8      at 91.7      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

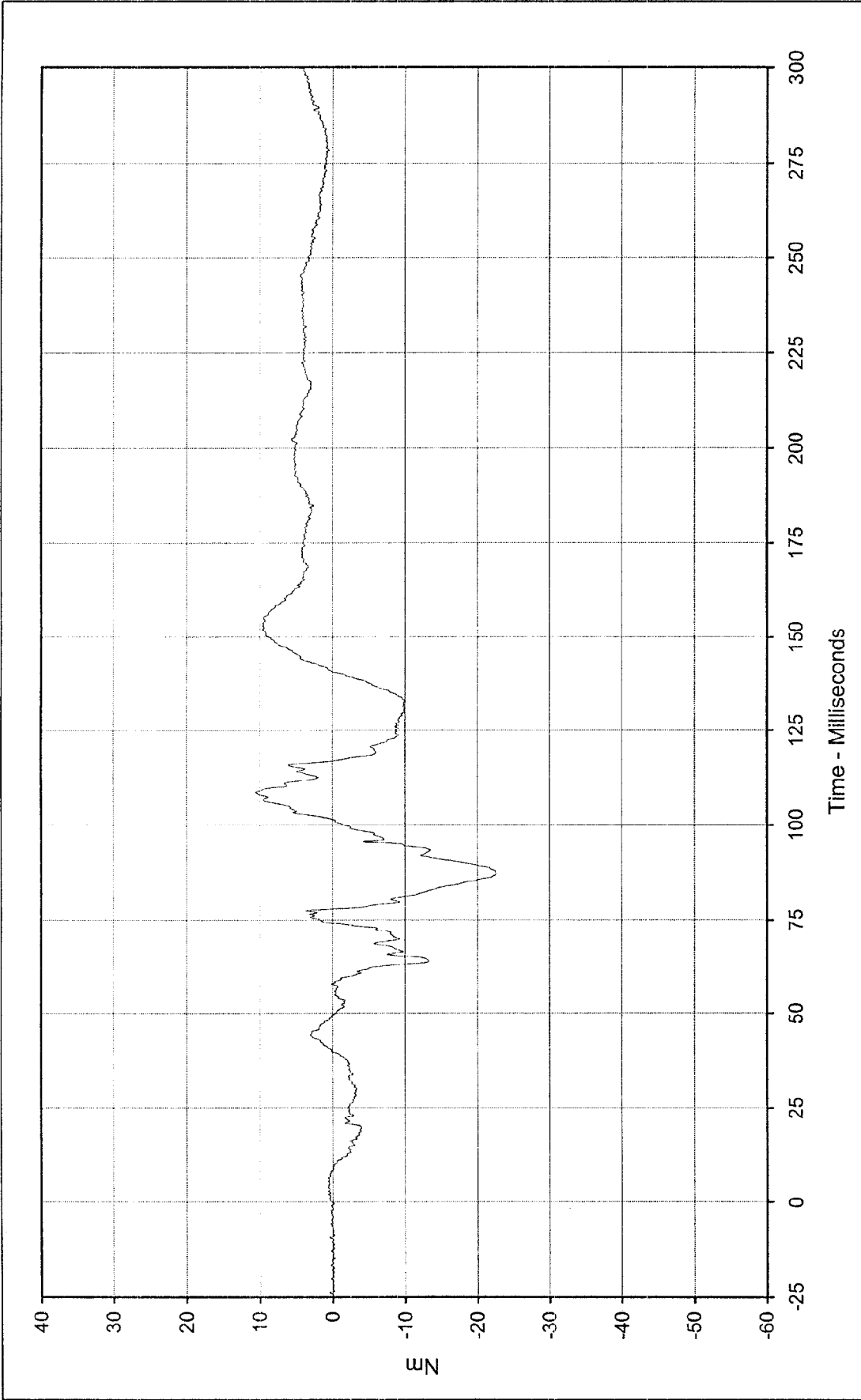
Minimum Value: -59.0      at 119.2      Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-073





Curve Description: Passenger Left Lower Tibia Moment Y      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 10.5 at 108.8 Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

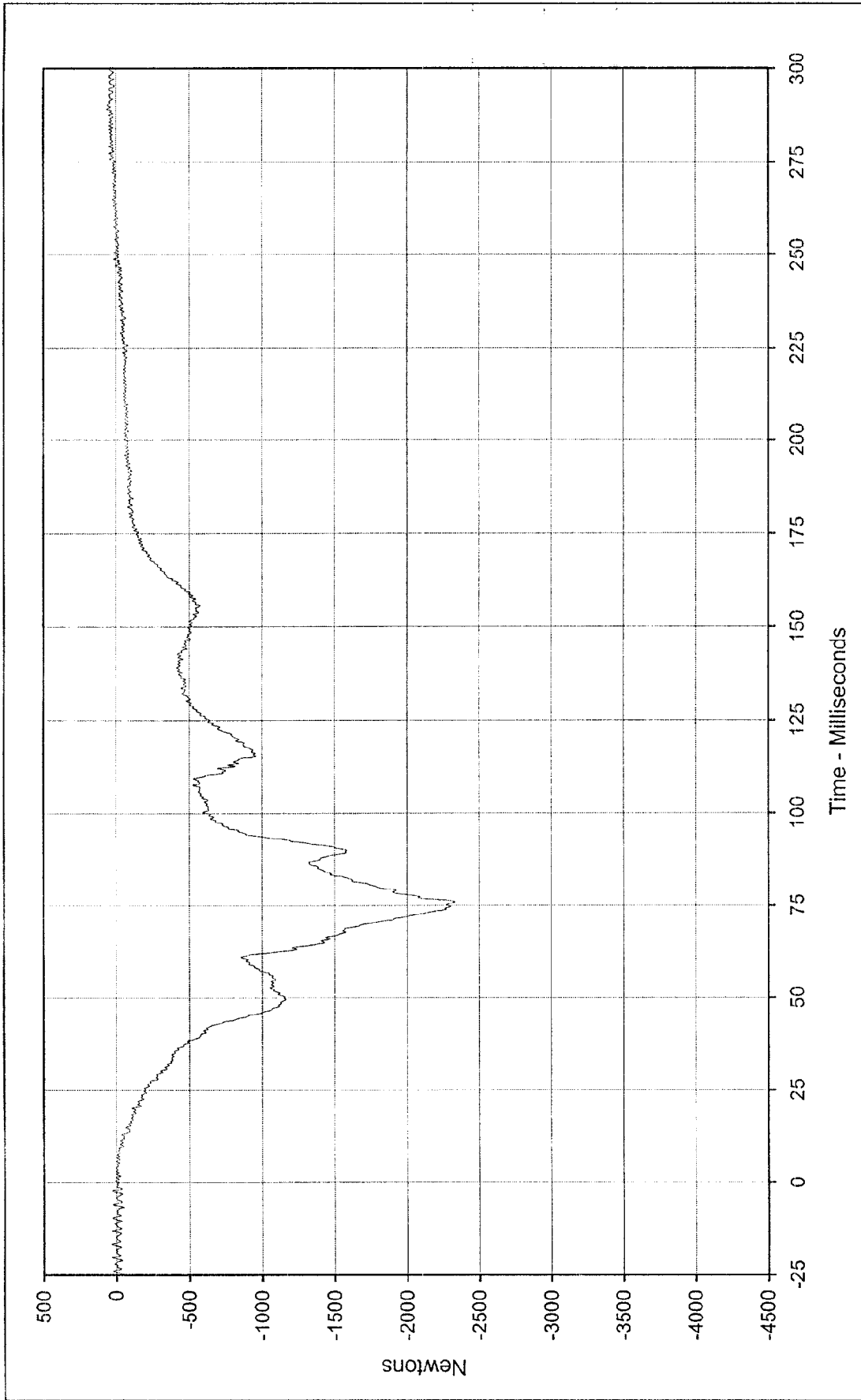
Minimum Value: -22.6 at 87.0 Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-074

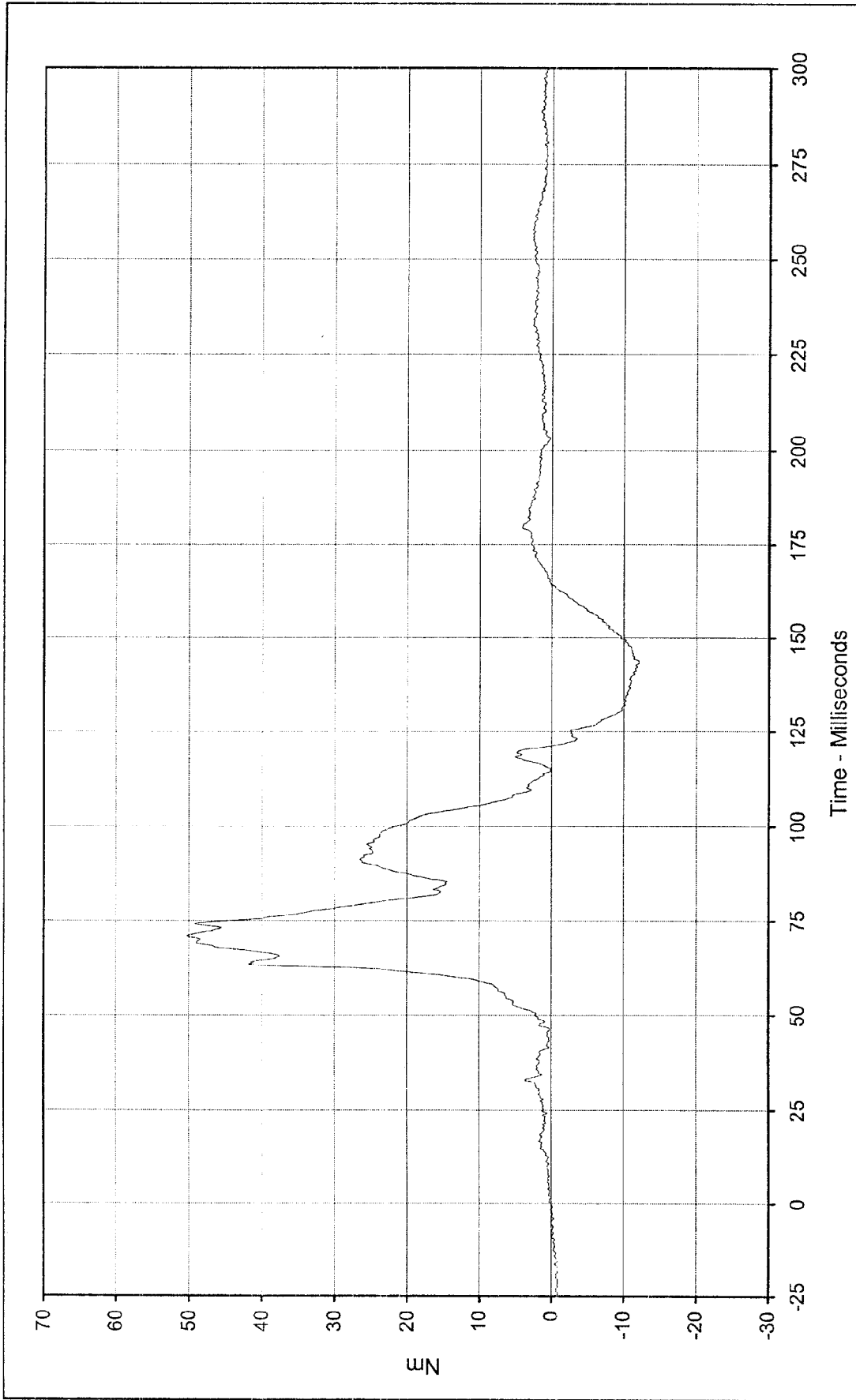




Curve Description: Passenger Left Lower Tibia Force Z  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

Maximum Value: 65.5 at 289.2 Milliseconds  
 Minimum Value: -2333.5 at 75.8 Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 7/3/98  
 Curve Number: FIL-075





Curve Description: Passenger Right Lower Tibia Moment X      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 50.2    at 70.7    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

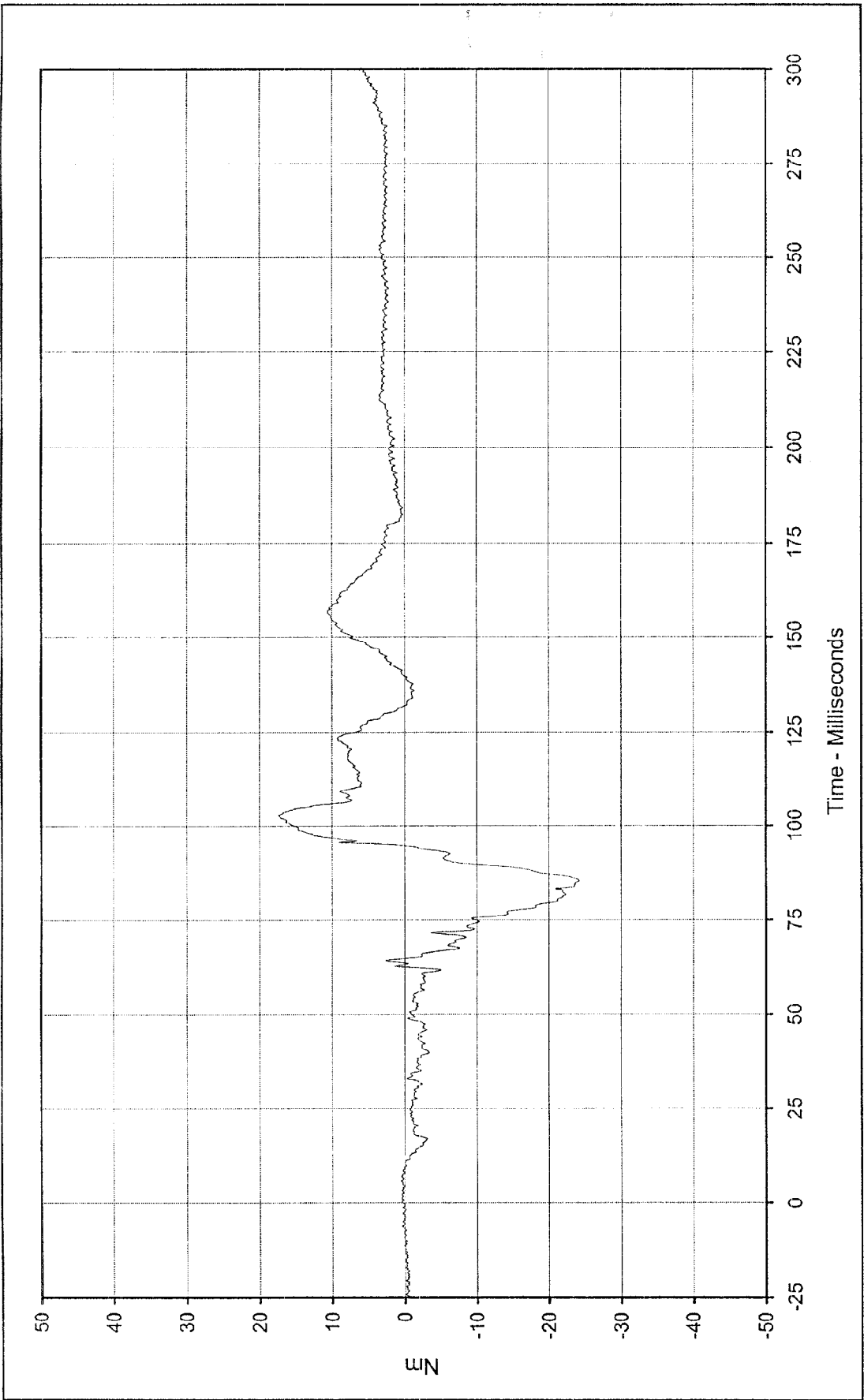
Minimum Value: -12.1    at 143.5    Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-076

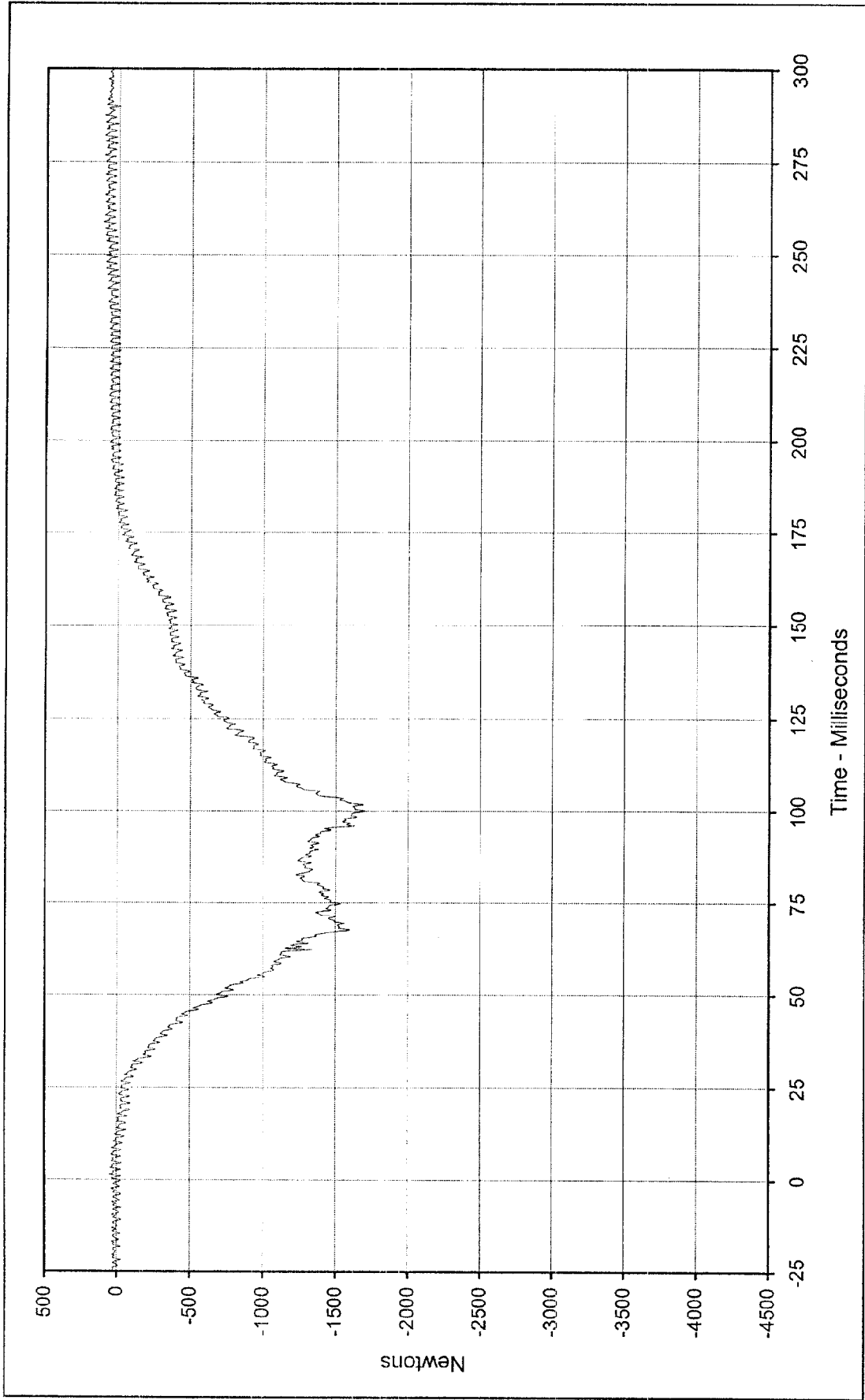




Curve Description: Passenger Right Lower Tibia Moment Y  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

Maximum Value: 17.4 at 102.9 Milliseconds  
 Minimum Value: -24.2 at 85.3 Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 7/3/98  
 Curve Number: FIL-077





Curve Description: Passenger Right lower Tibia Force Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 110.3    at 258.9    Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

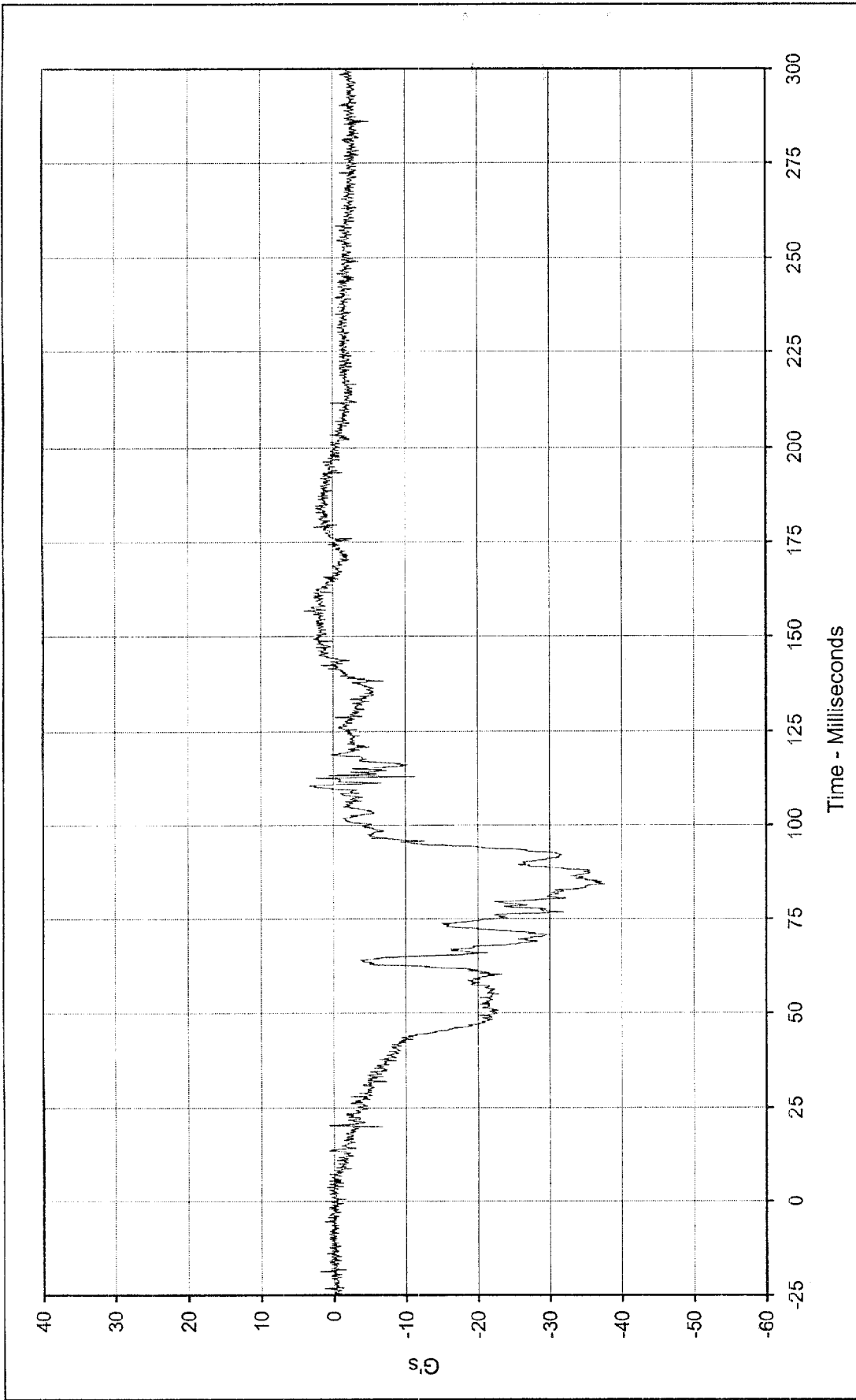
Minimum Value: -1703.9    at 100.0    Milliseconds

SAE Filter Class: 600

Date of Test: 7/3/98

Curve Number: FIL-078





Curve Description: Passenger Left Foot Aft X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 4.0 at 156.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

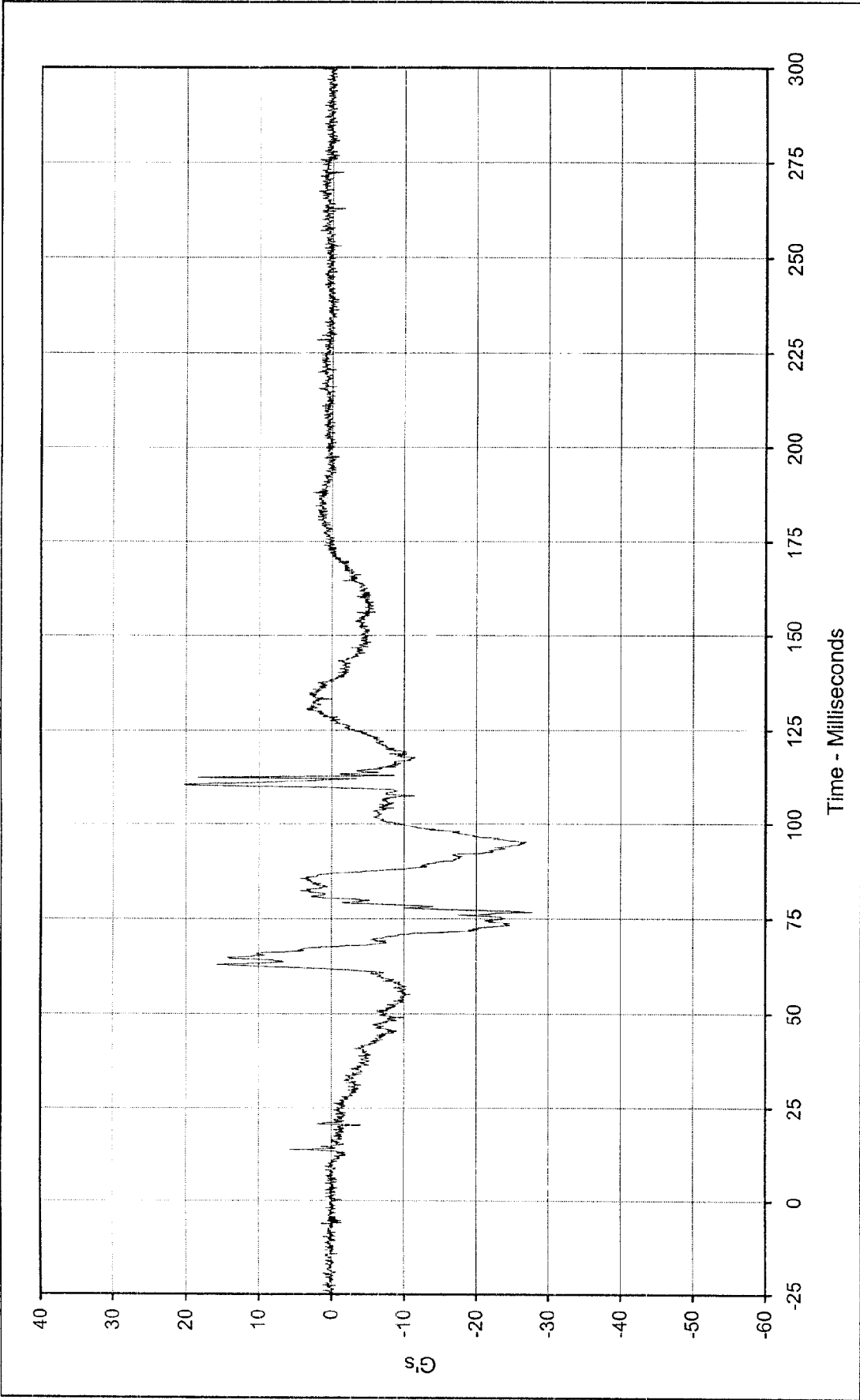
Minimum Value: -37.6 at 84.1 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-079





Curve Description: Passenger Left Foot Aft Z Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 20.3 at 110.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

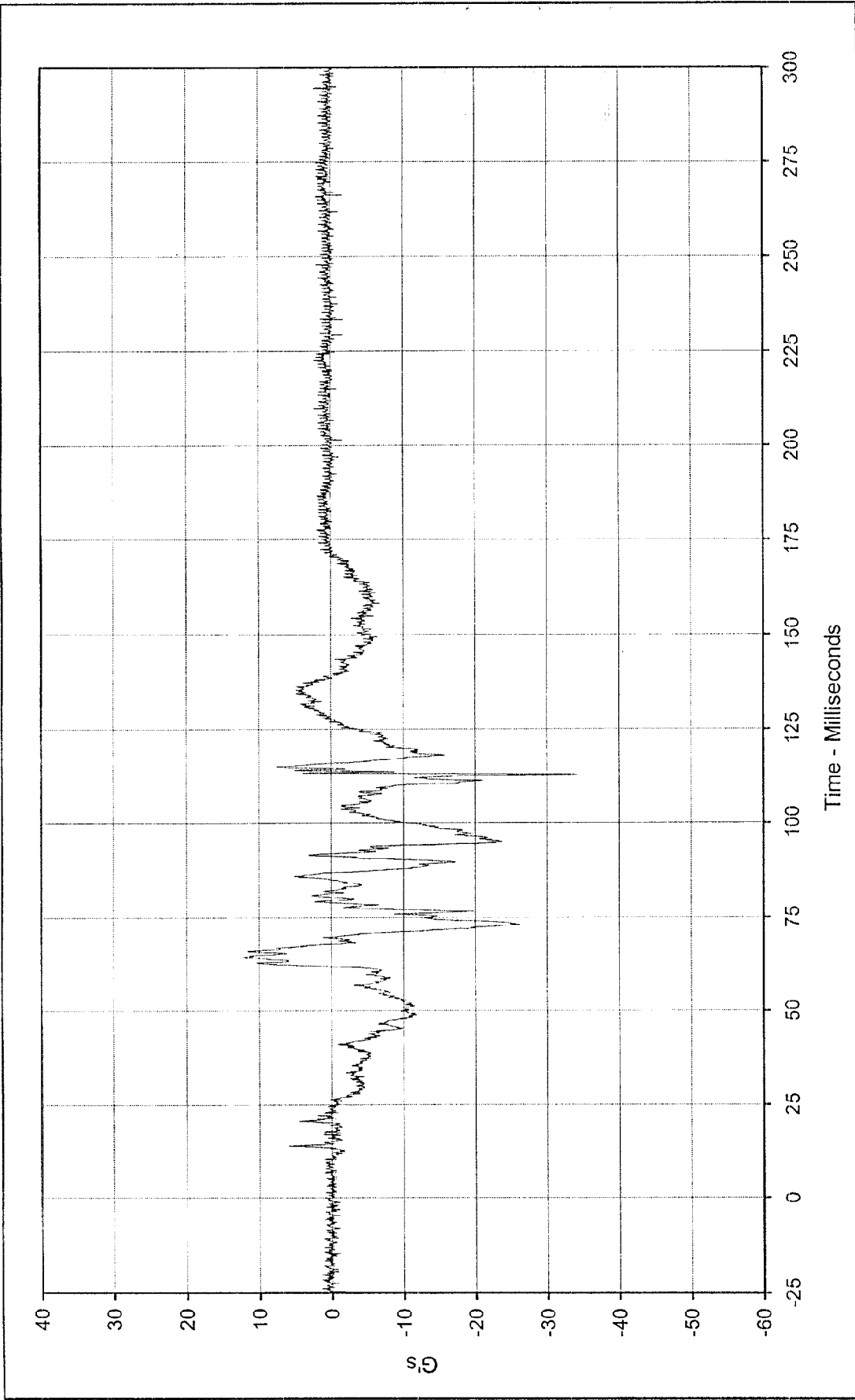
Minimum Value: -27.8 at 76.7 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-080

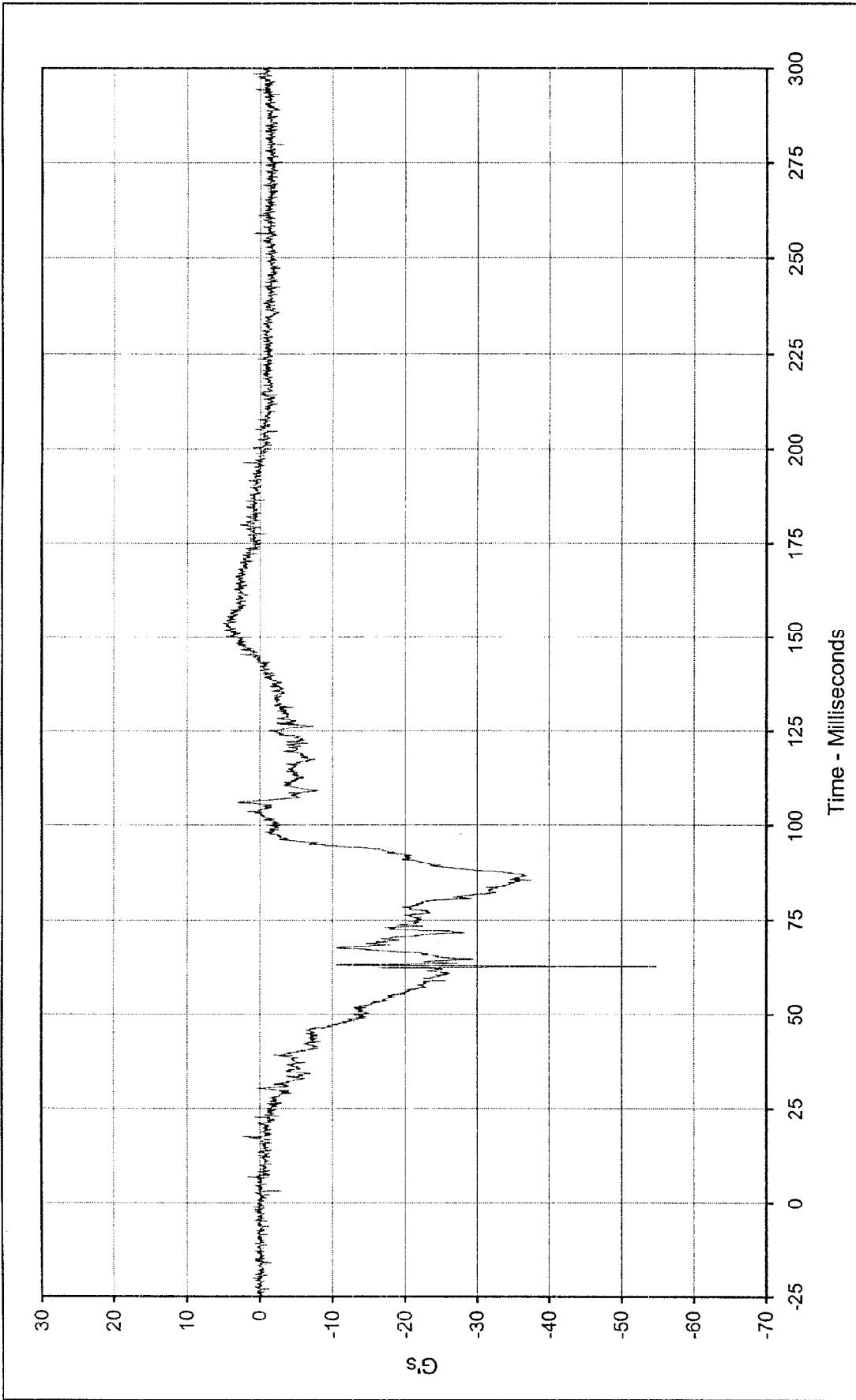




Curve Description: Passenger Left Foot Fore Z  
 Maximum Value: 12.1 at 64.4 Milliseconds  
 Minimum Value: -34.1 at 112.7 Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-081

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Passenger Right Foot Aft X Testing Program: 1998 37.5mph Cffset w/50th Male No.: MW0310

Maximum Value: 5.0 at 152.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

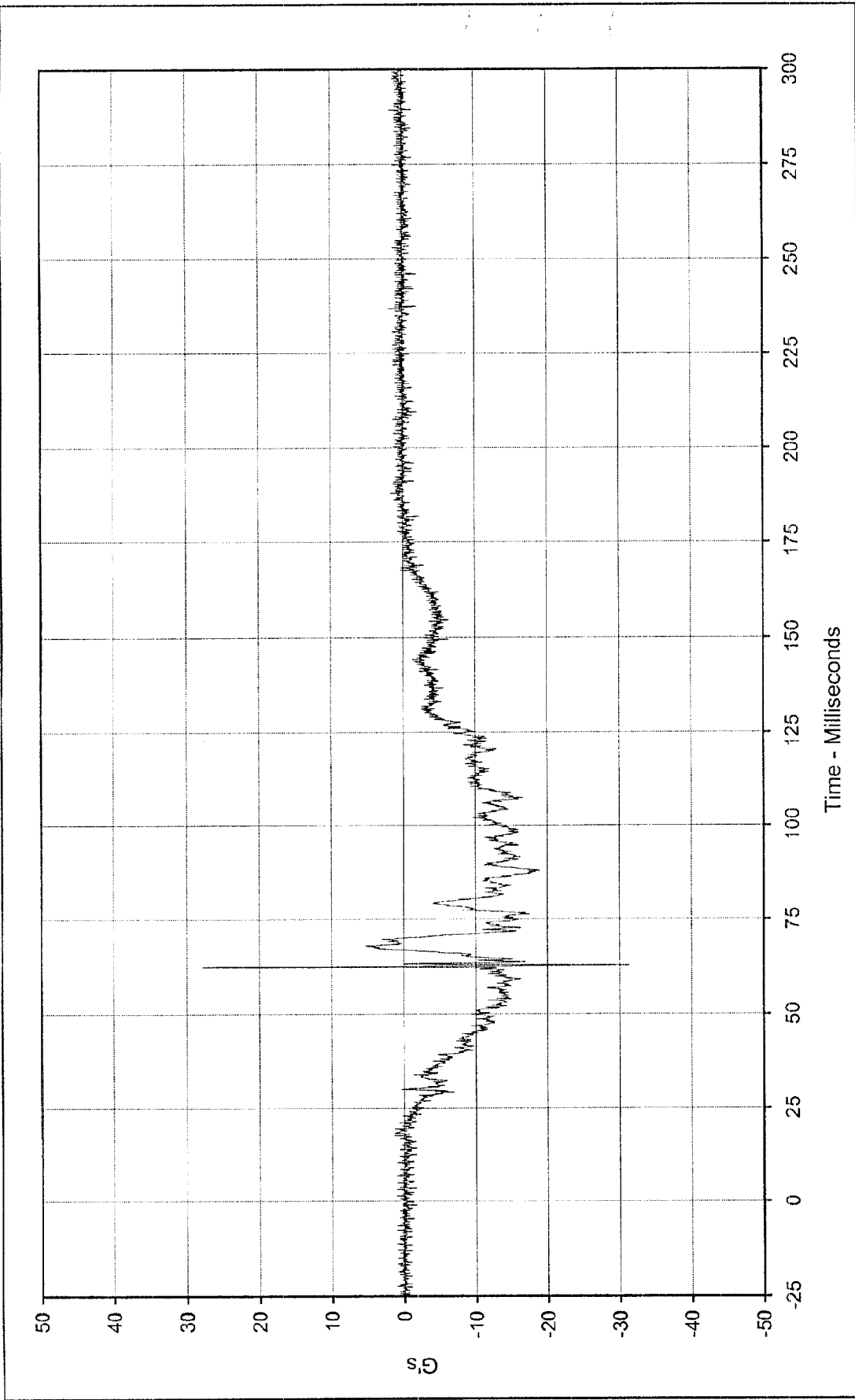
Minimum Value: -54.8 at 62.5 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

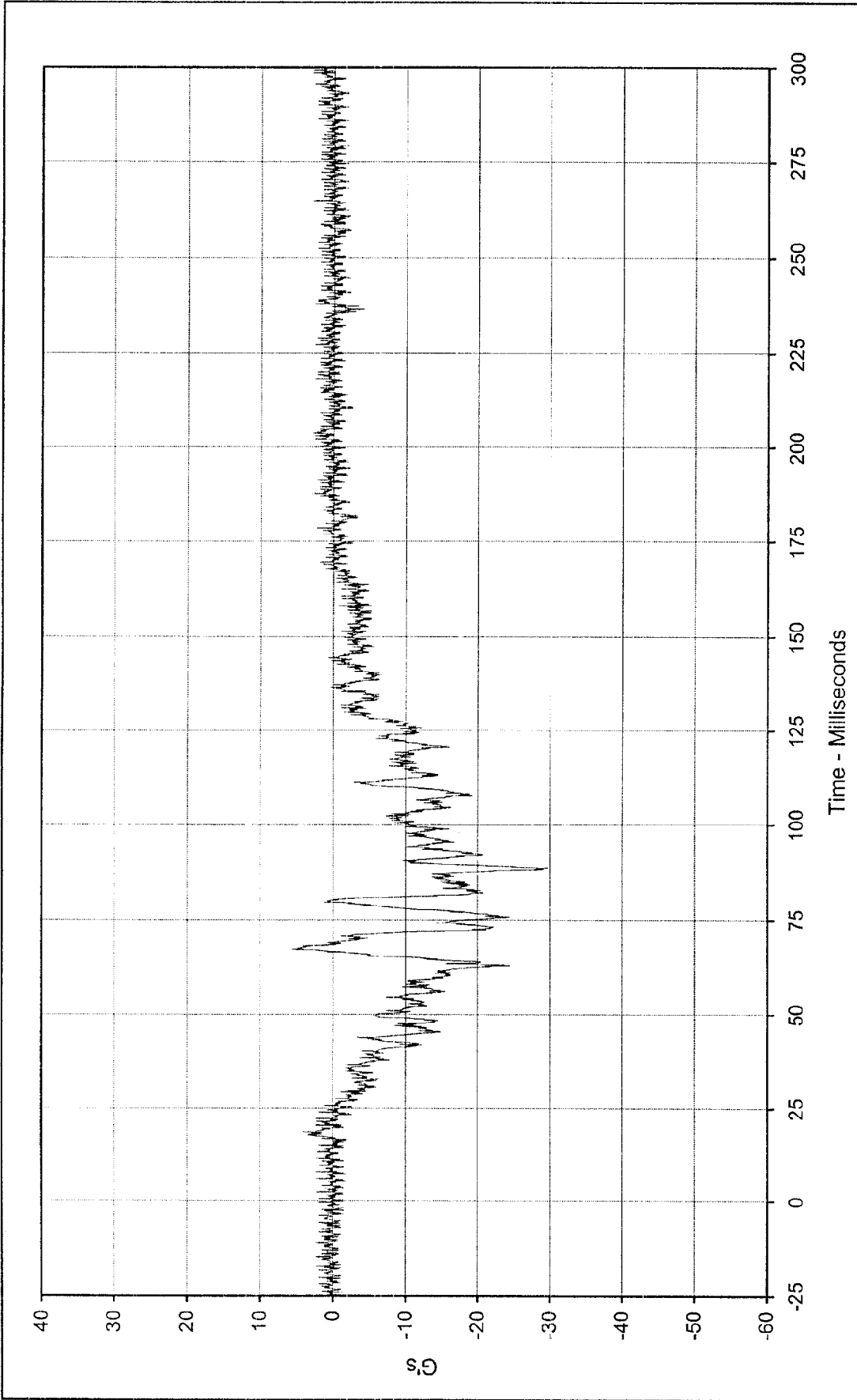
Curve Number: FIL-082





Curve Description: Passenger Right Foot Aft Z      Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 27.6 at 62.3 Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -31.2 at 62.8 Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 7/3/98  
 Curve Number: FIL-083





Curve Description: Passenger Right Foot Fore Z      Testing Program: 1998 37.5mph Offset w/50th Male    No.: MW0310

Maximum Value: 5.6 at 67.0 Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan

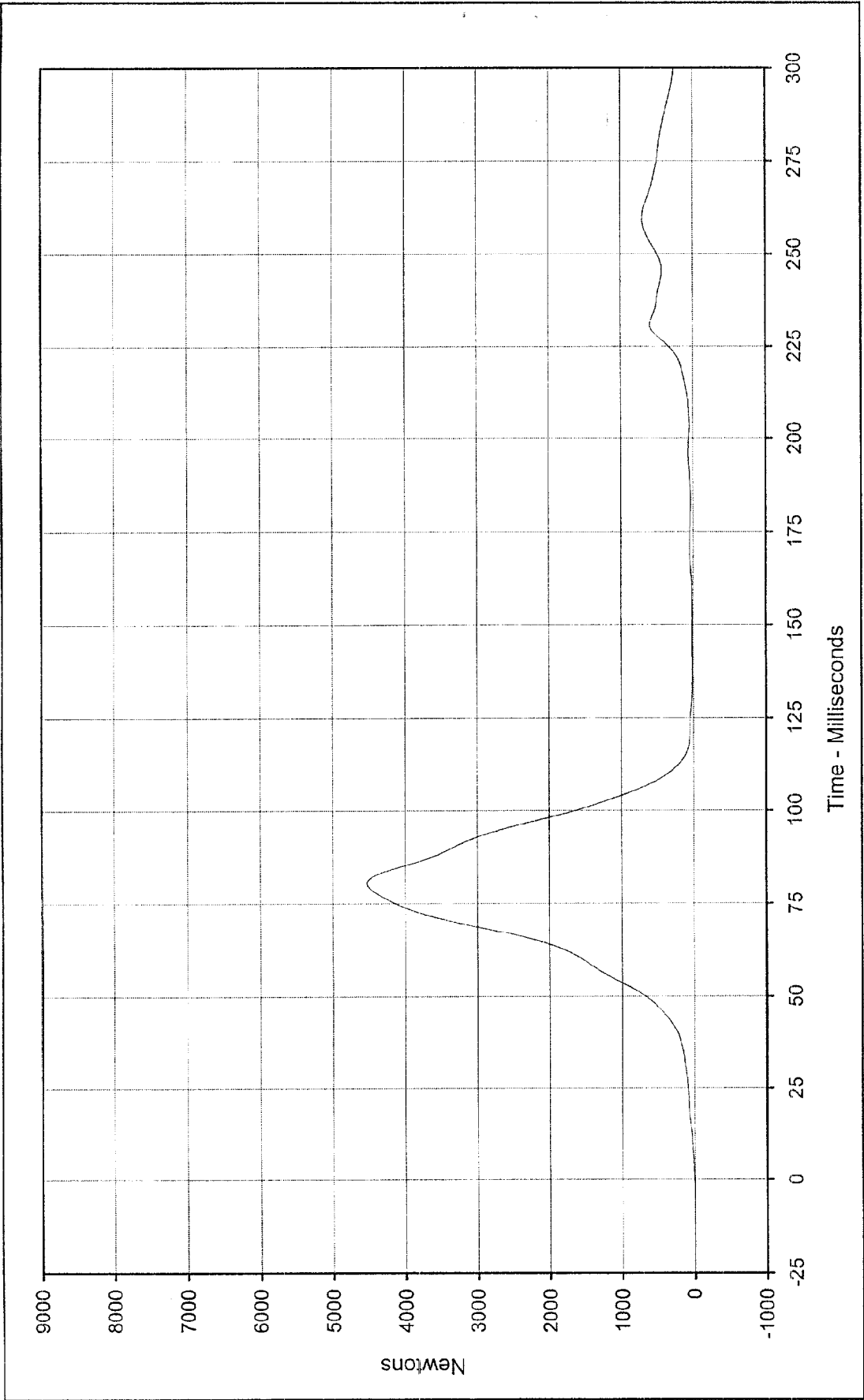
Minimum Value: -29.6 at 88.4 Milliseconds

SAE Filter Class: 1000

Date of Test: 7/3/98

Curve Number: FIL-084

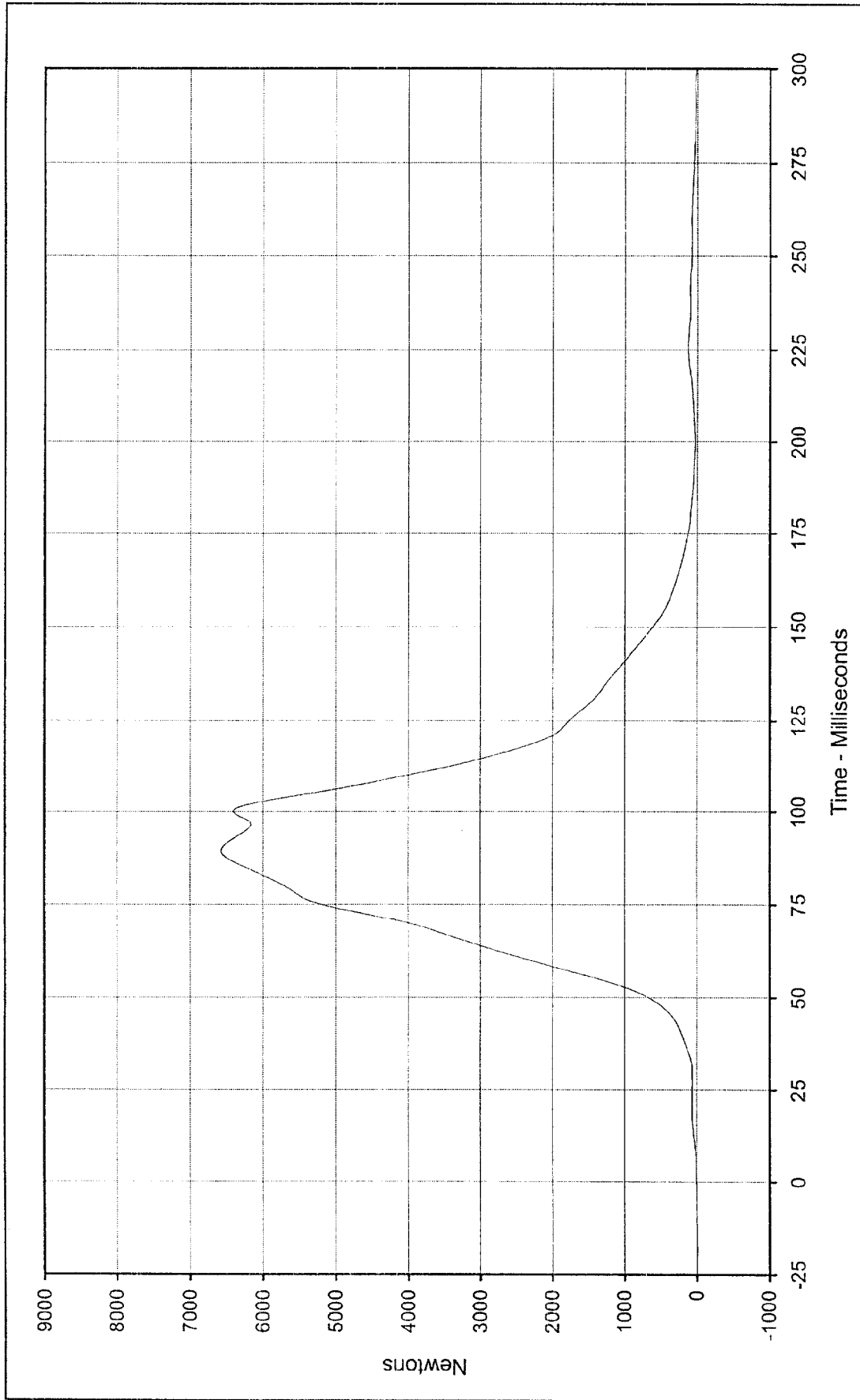




Curve Description: Passenger Lap Belt Force  
 Maximum Value: 4526.9 at 80.4 Milliseconds  
 Minimum Value: 4.2 at 0.0 Milliseconds  
 SAE Filter Class: 60  
 Date of Test: 7/3/98  
 Curve Number: FIL-085

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Passenger Shoulder Belt Force

Maximum Value: 6572.8 at 89.2 Milliseconds

Minimum Value: 4.3 at 0.0 Milliseconds

SAE Filter Class: 60

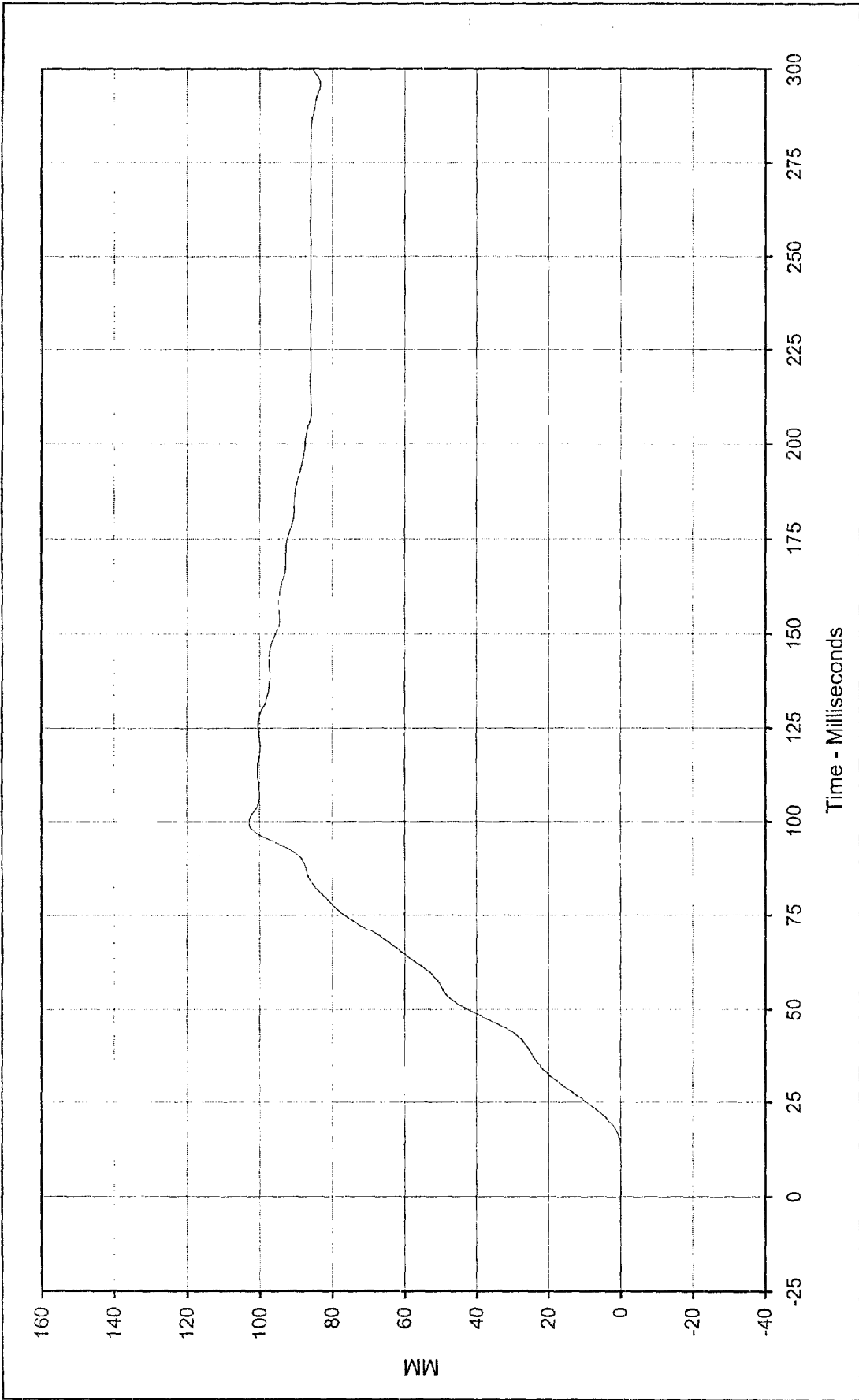
Date of Test: 7/3/98

Curve Number: FIL-086

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Test Vehicle: 1998 Dodge Neon 4 Door Sedan

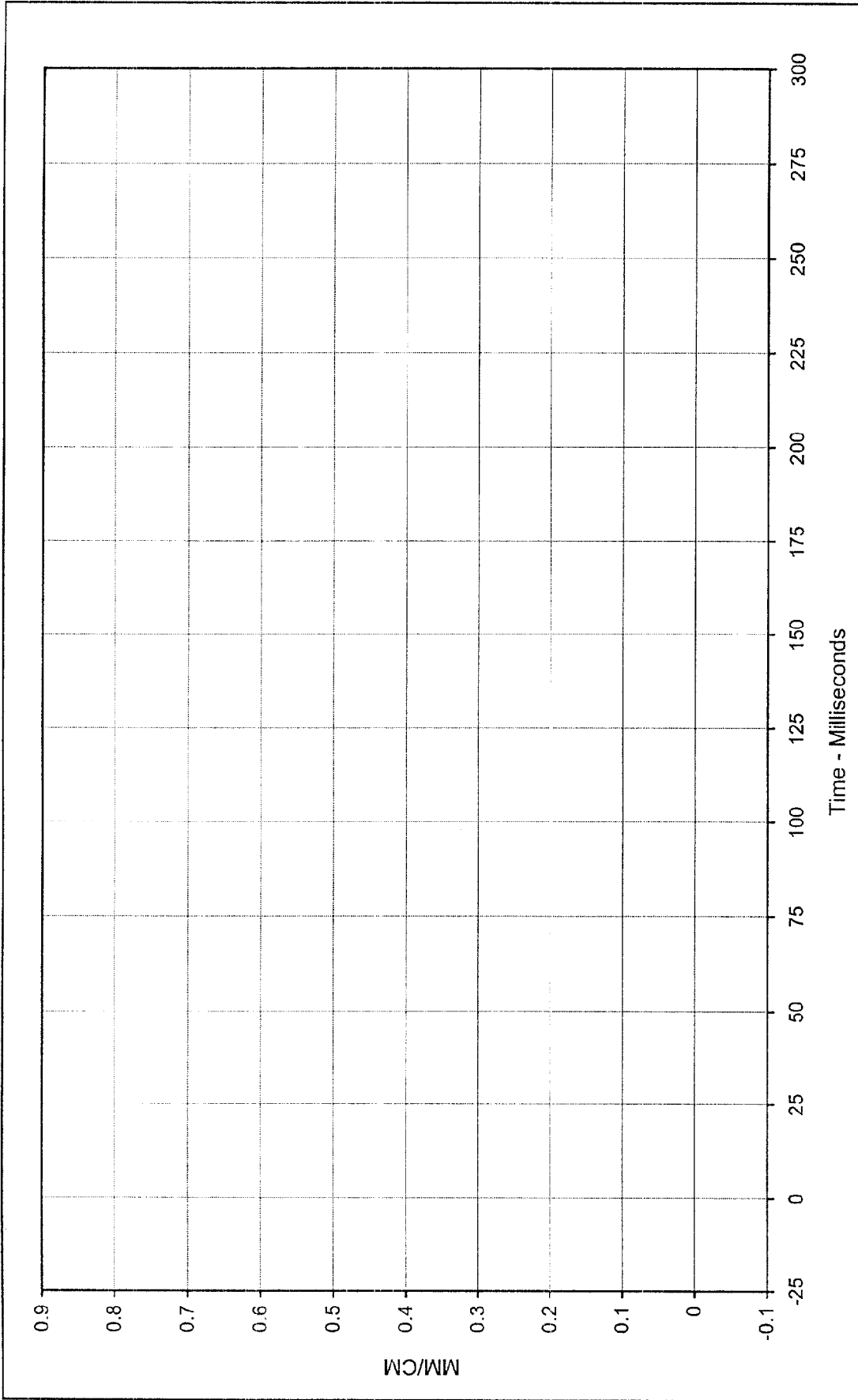




Curve Description: Passenger Shoulder Belt Pullout  
 Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 102.9 at 99.6 Milliseconds  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 60  
 Date of Test: 7/3/98  
 Curve Number: FIL-087





Curve Description: Passenger Shoulder Belt Elongation \* Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 0.00 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

Minimum Value: 0.00 at 0.0 Milliseconds

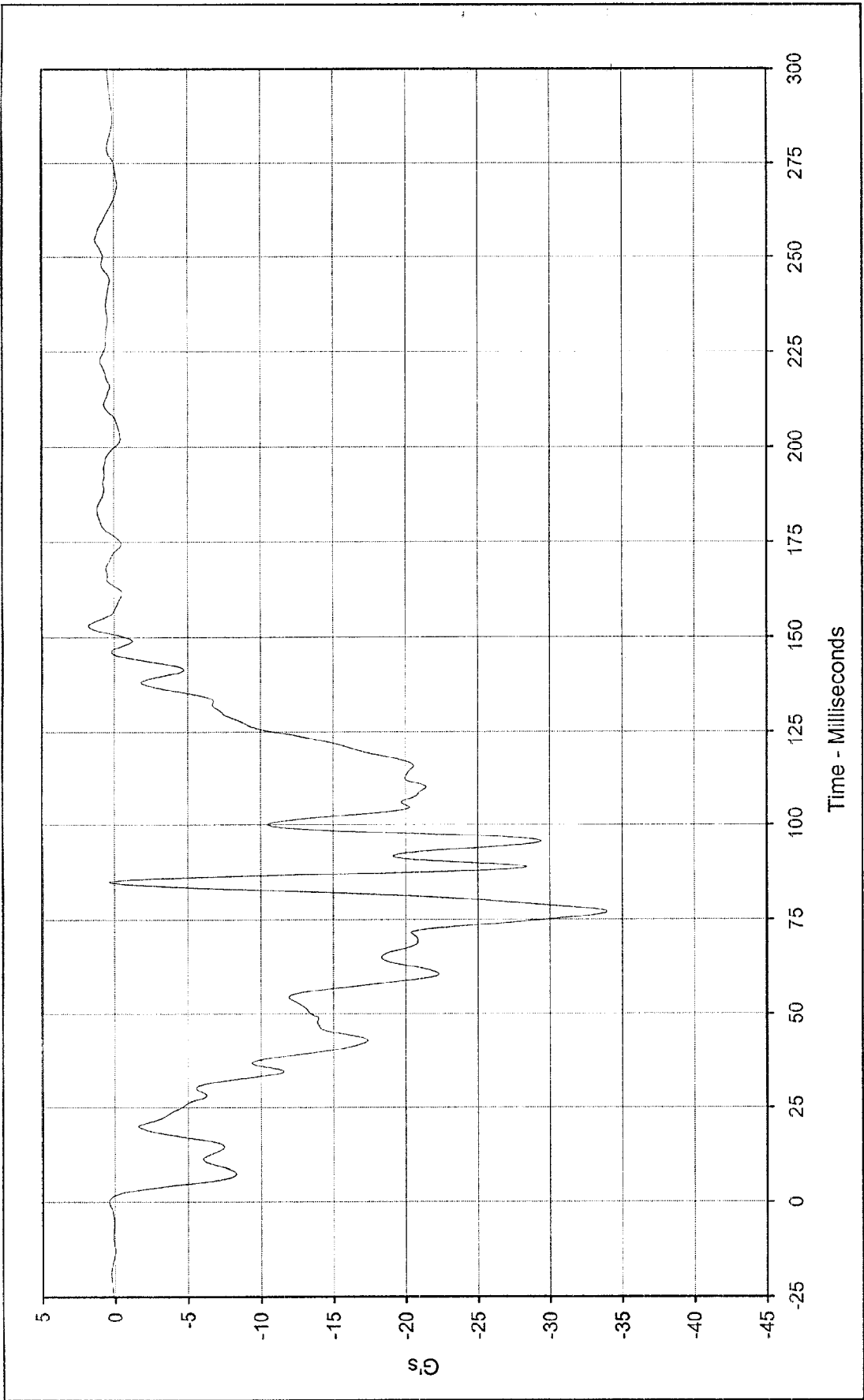
SAE Filter Class: 60

Date of Test: 7/3/98

Curve Number: FIL-088



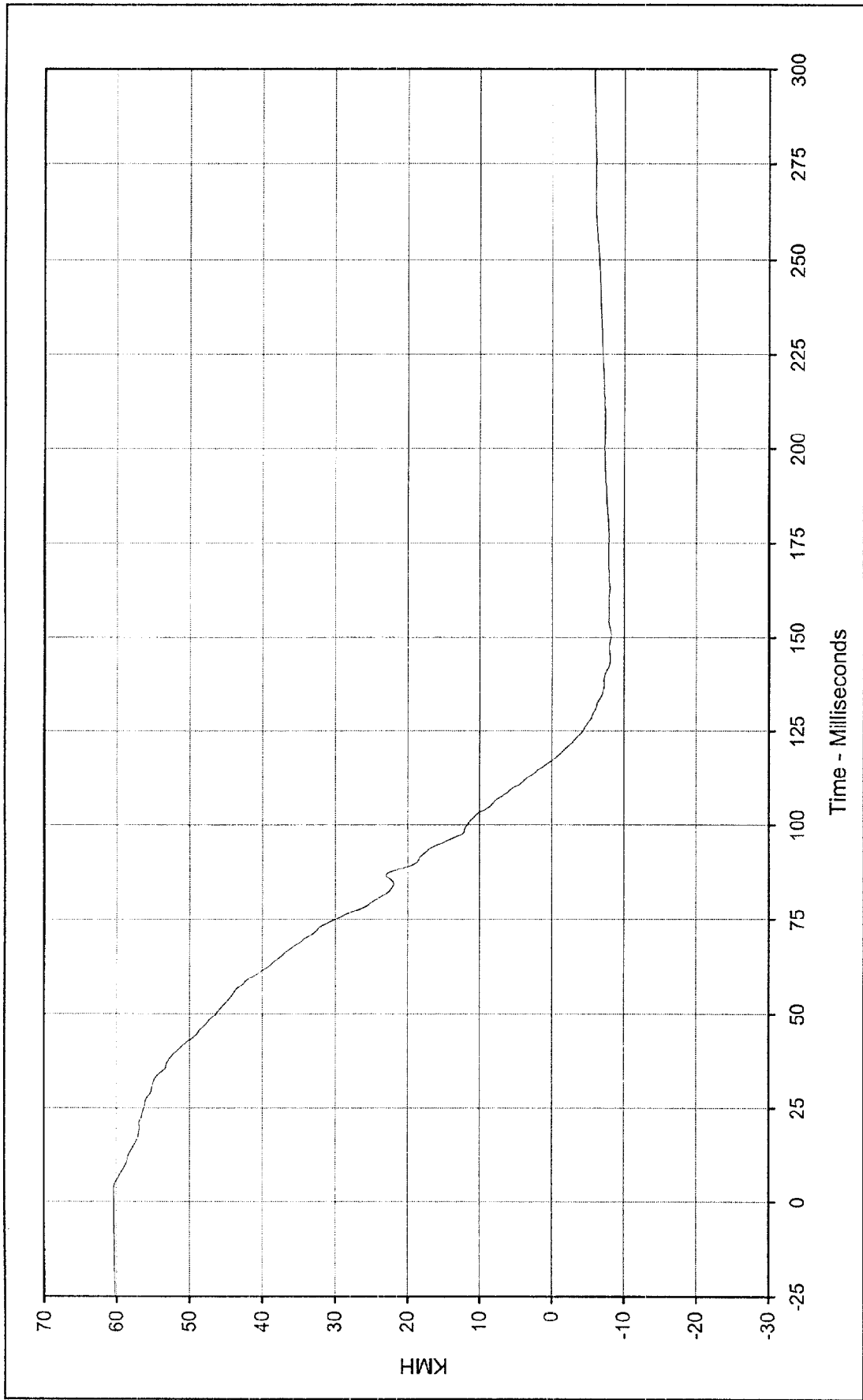
\*Channel Failed, No Data



Curve Description: Vehicle Left Sill X      Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 1.8 at 152.9 Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -33.9 at 77.0 Milliseconds

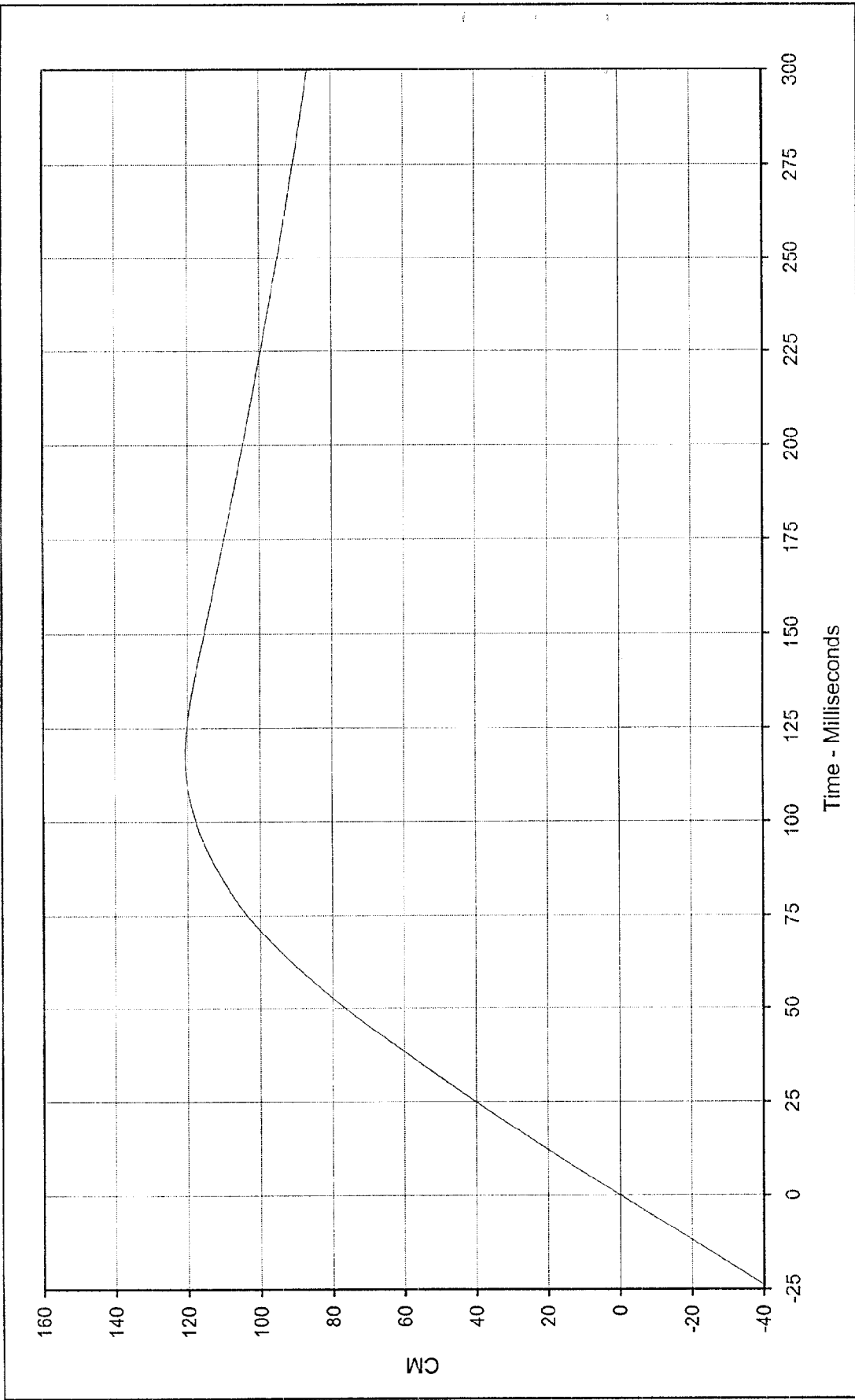


SAE Filter Class: 60  
 Date of Test: 7/3/98  
 Curve Number: FIL-089



Curve Description: Vehicle Left Sill X Velocity      Testing Program: 1998 37.5mph Offset w/50th Male      No.: MW0310  
 Maximum Value: 60.4      at 3.2      Milliseconds      Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -8.2      at 150.7      Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN1-089





Curve Description: Vehicle Left Sill X Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 120.6 at 117.2 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

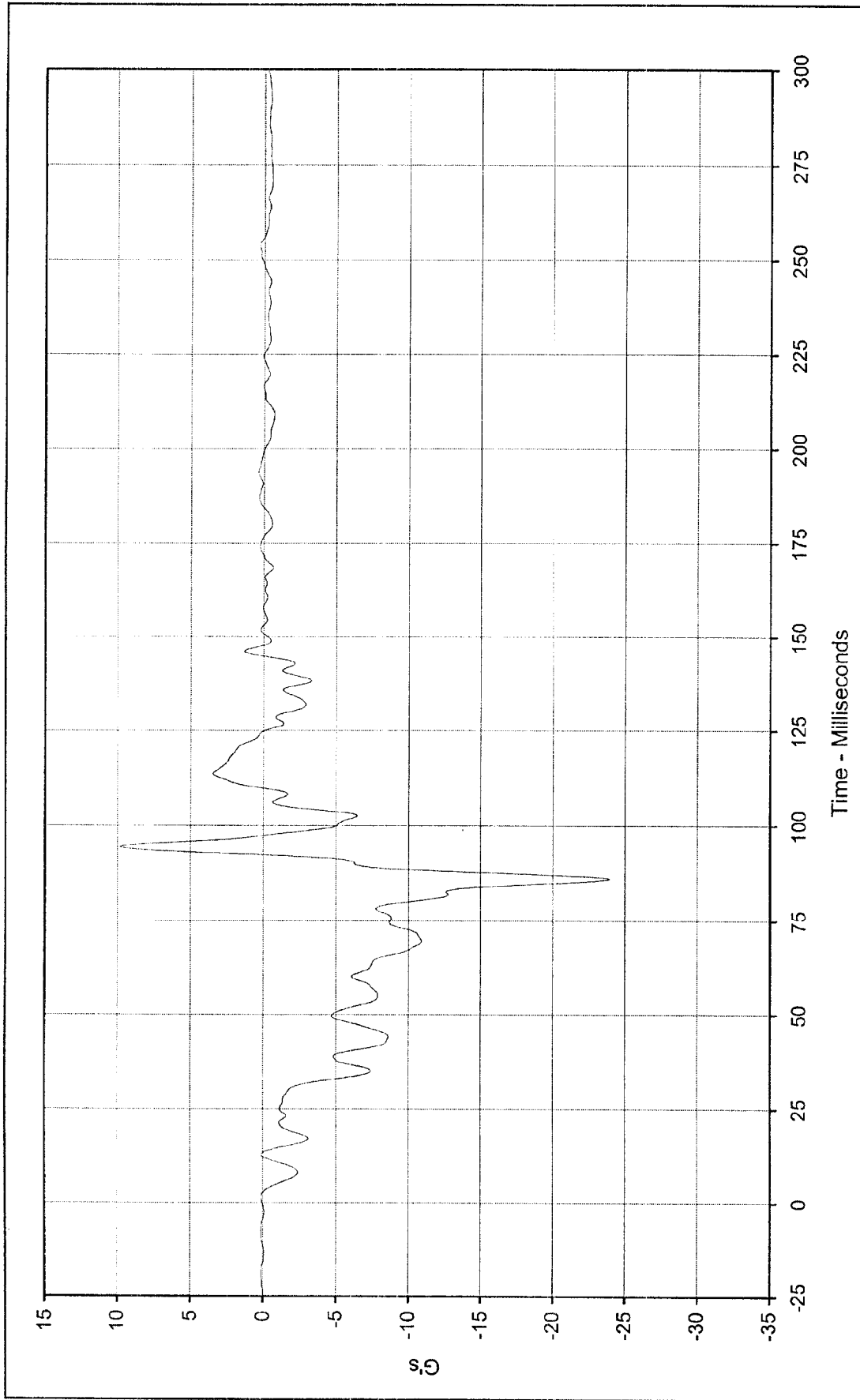
Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-089





Curve Description: Vehicle Left Sill Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 9.8 at 94.5 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

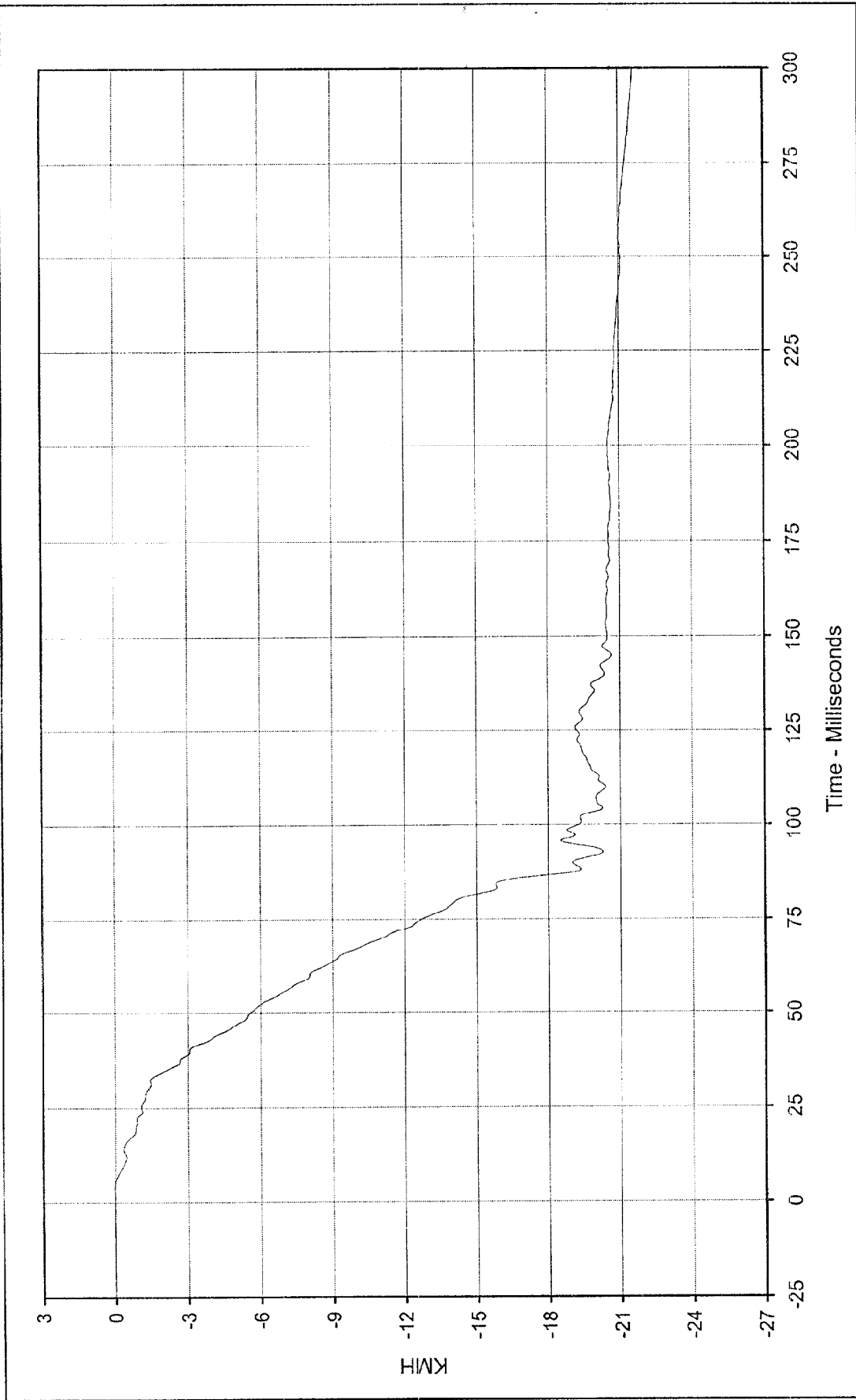
Minimum Value: -23.9 at 86.2 Milliseconds

SAE Filter Class: 60

Date of Test: 7/3/98

Curve Number: FIL-090





Curve Description: Vehicle Left Sill Y Velocity Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 0.0 at 3.8 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

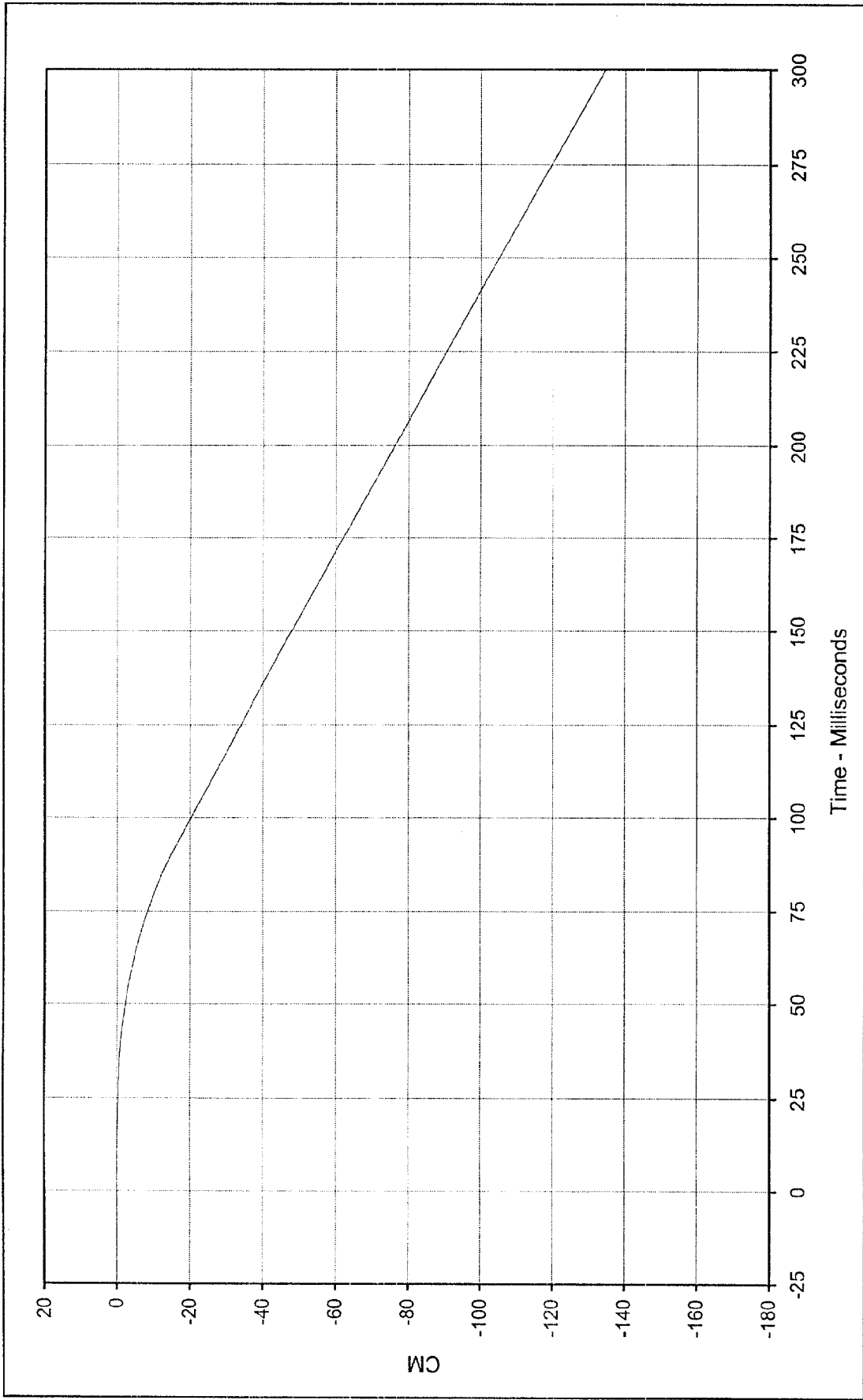
Minimum Value: -21.6 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-090





Curve Description: Vehicle Left Sill Y Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 0.0 at 5.7 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

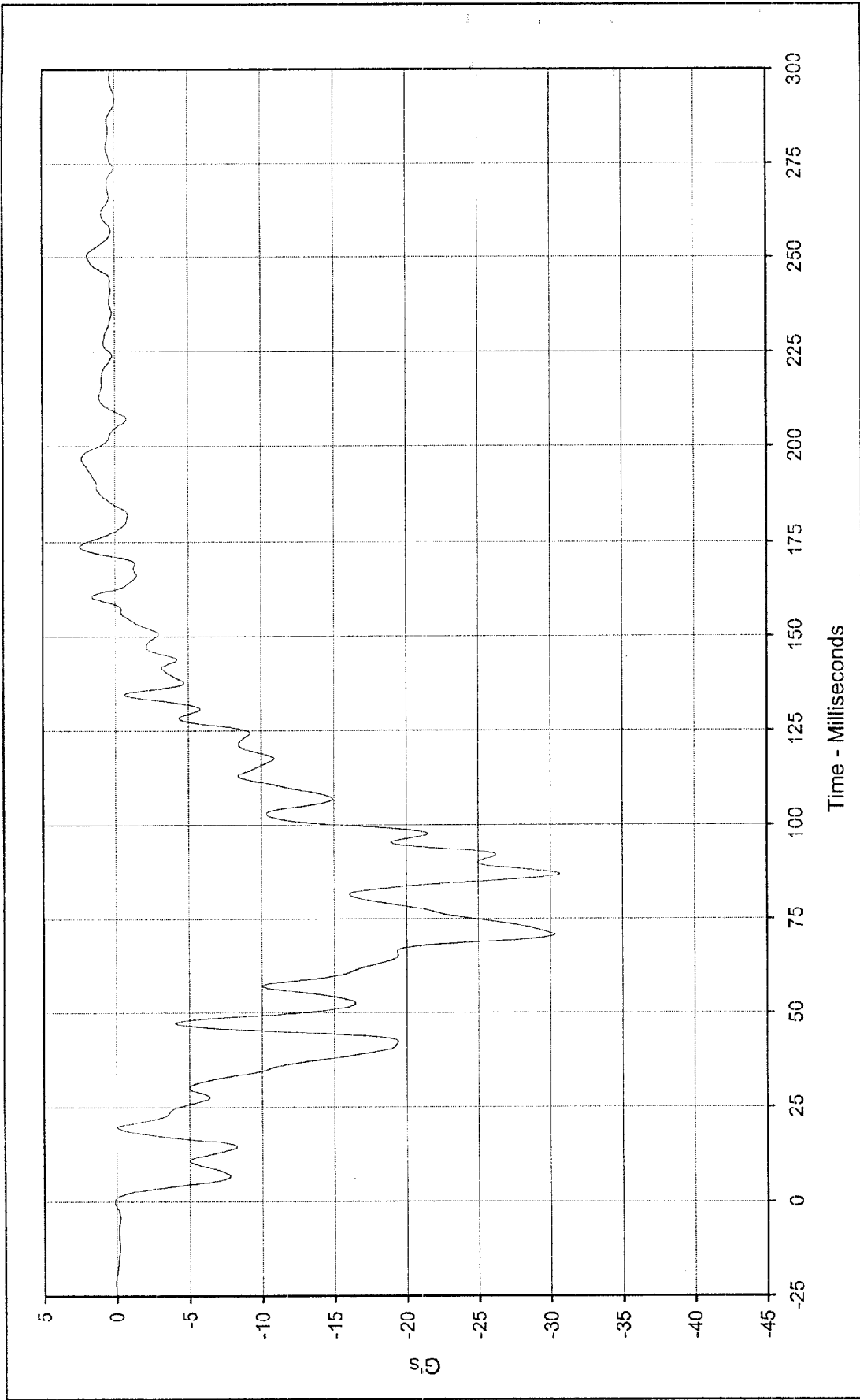
Minimum Value: -134.4 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-090





Curve Description: Vehicle Center Tunnel X Testing Program: 1998 37.5mph Offset w/50th Mile No.: MW0310

Maximum Value: 2.4 at 173.7 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

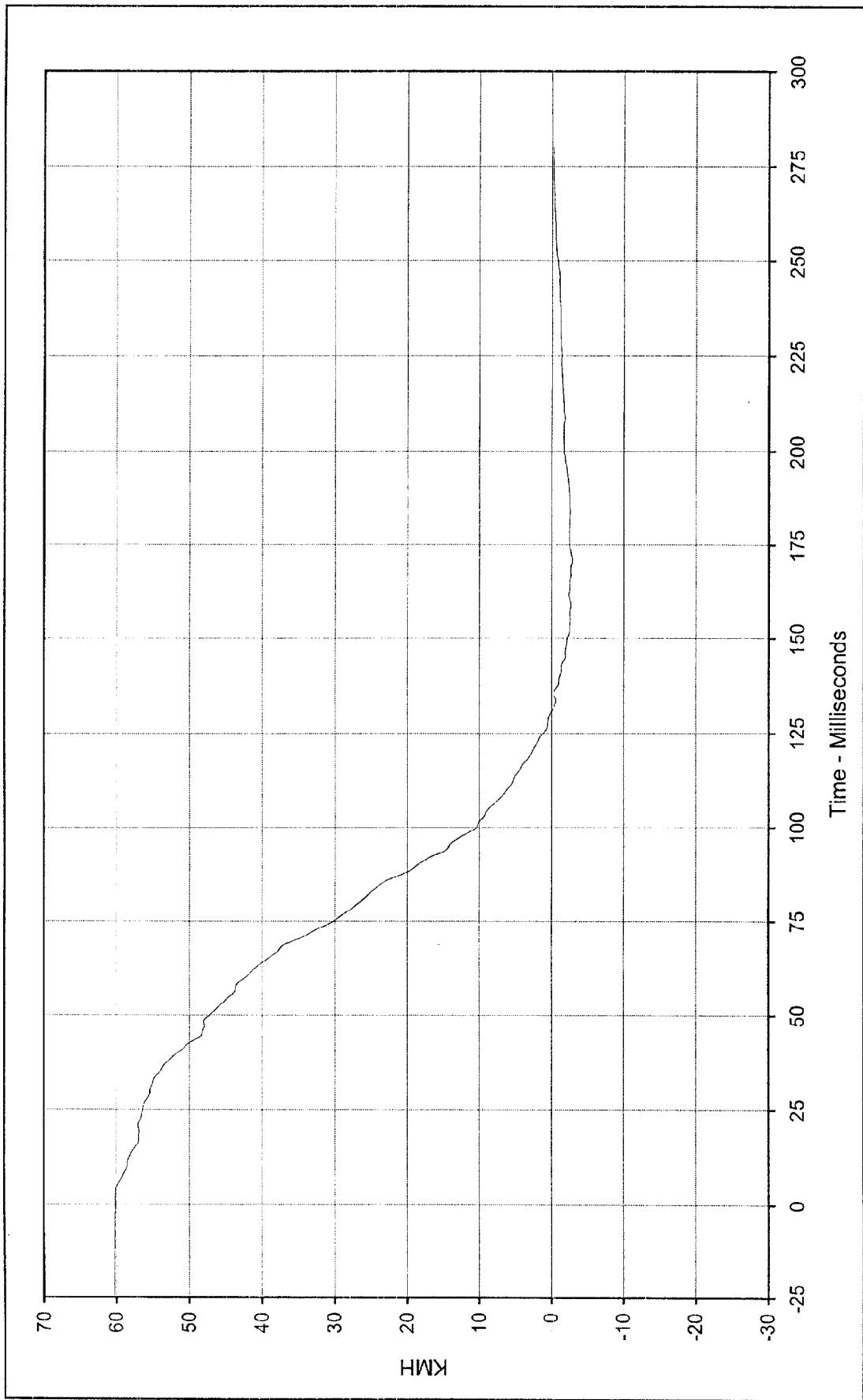
Minimum Value: -30.7 at 86.9 Milliseconds

SAE Filter Class: 60

Date of Test: 7/3/98

Curve Number: FIL-091





Curve Description: Vehicle Center Tunnel X Velocity Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 60.1 at 0.2 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

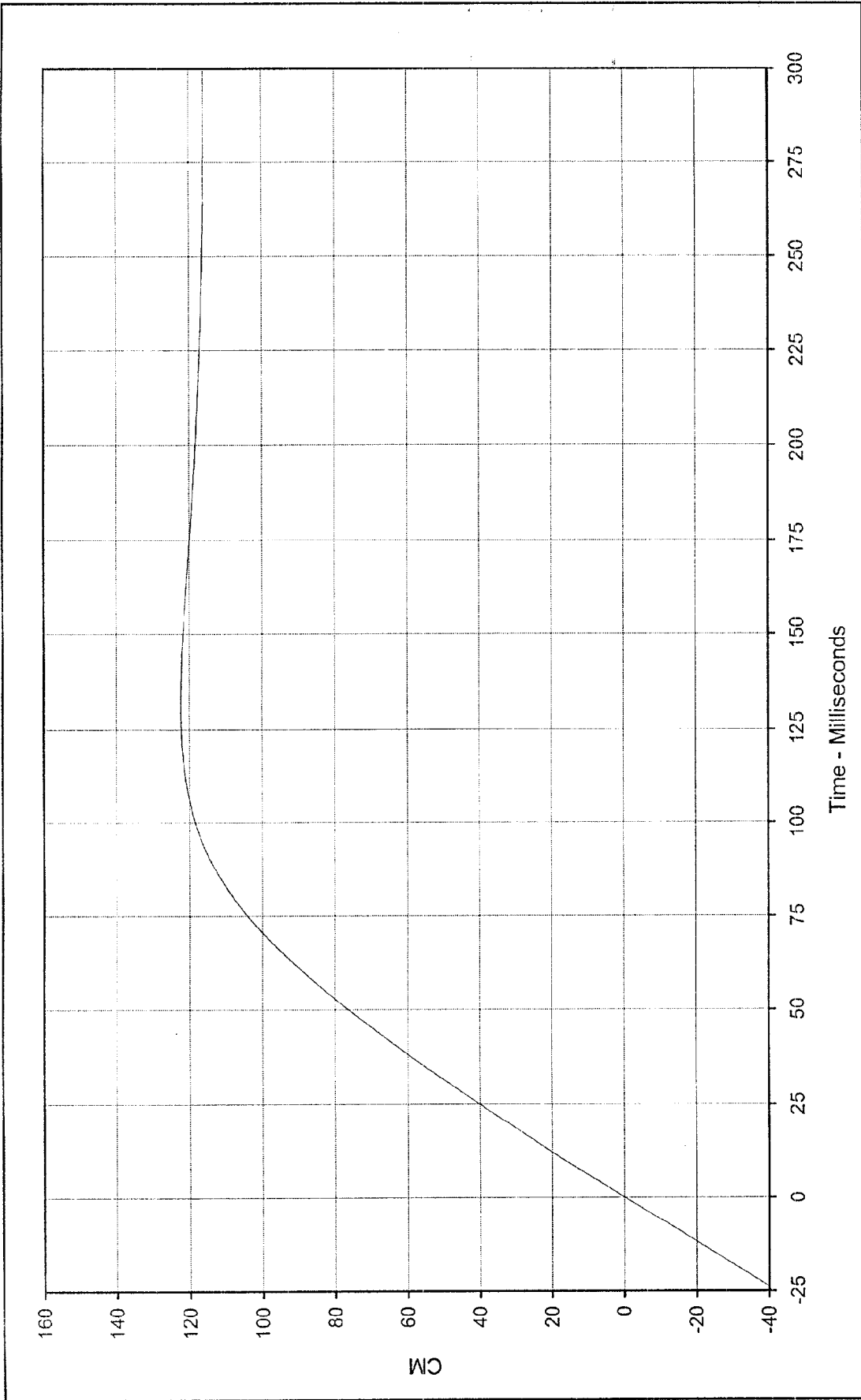
Minimum Value: -2.9 at 170.9 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-091

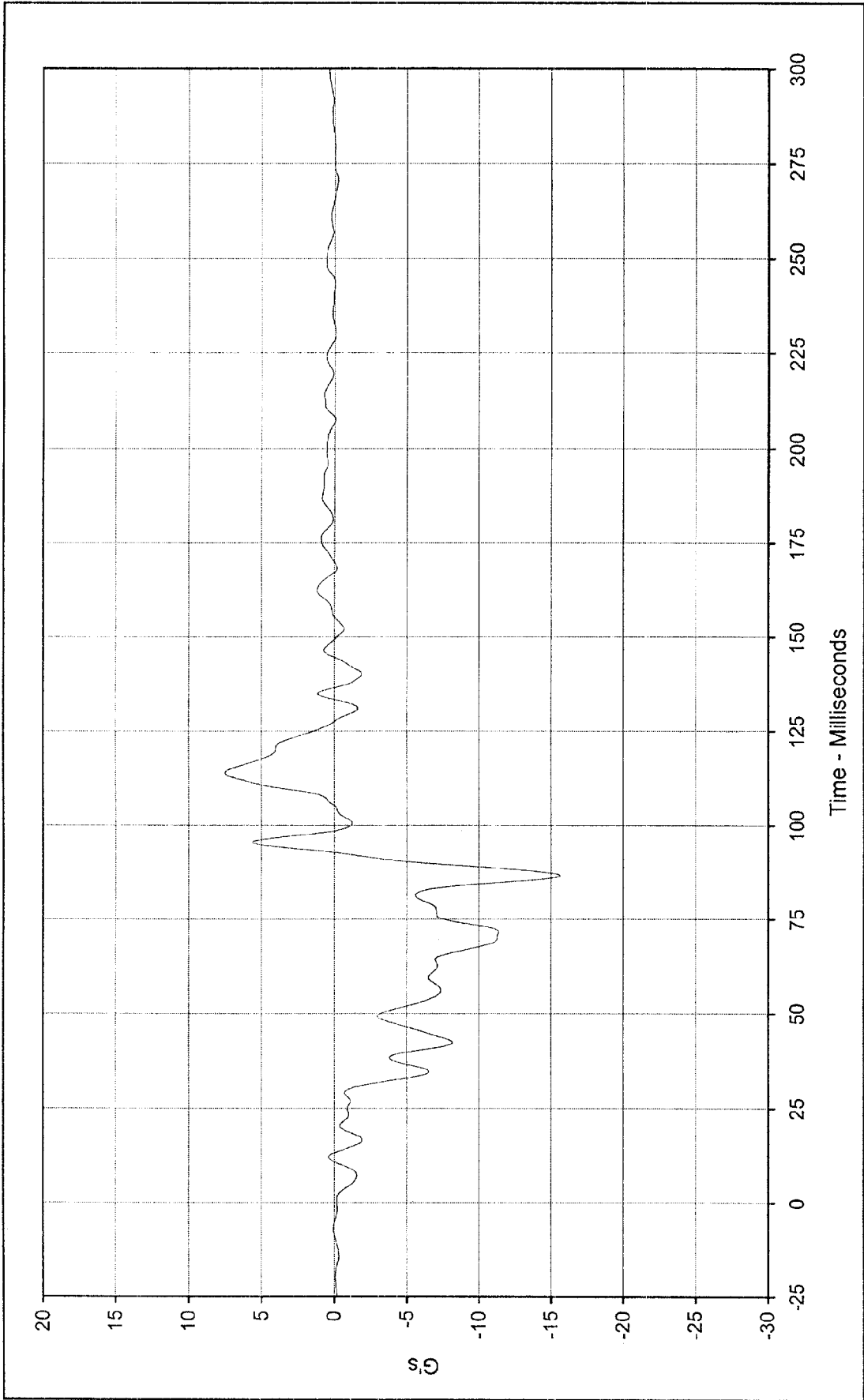




Curve Description: Vehicle Center Tunnel X Displ.  
 Maximum Value: 122.3 at 130.8 Milliseconds  
 Minimum Value: -0.2 at 0.0 Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN2-091

Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Vehicle Center Tunnel Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 7.5 at 114.1 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

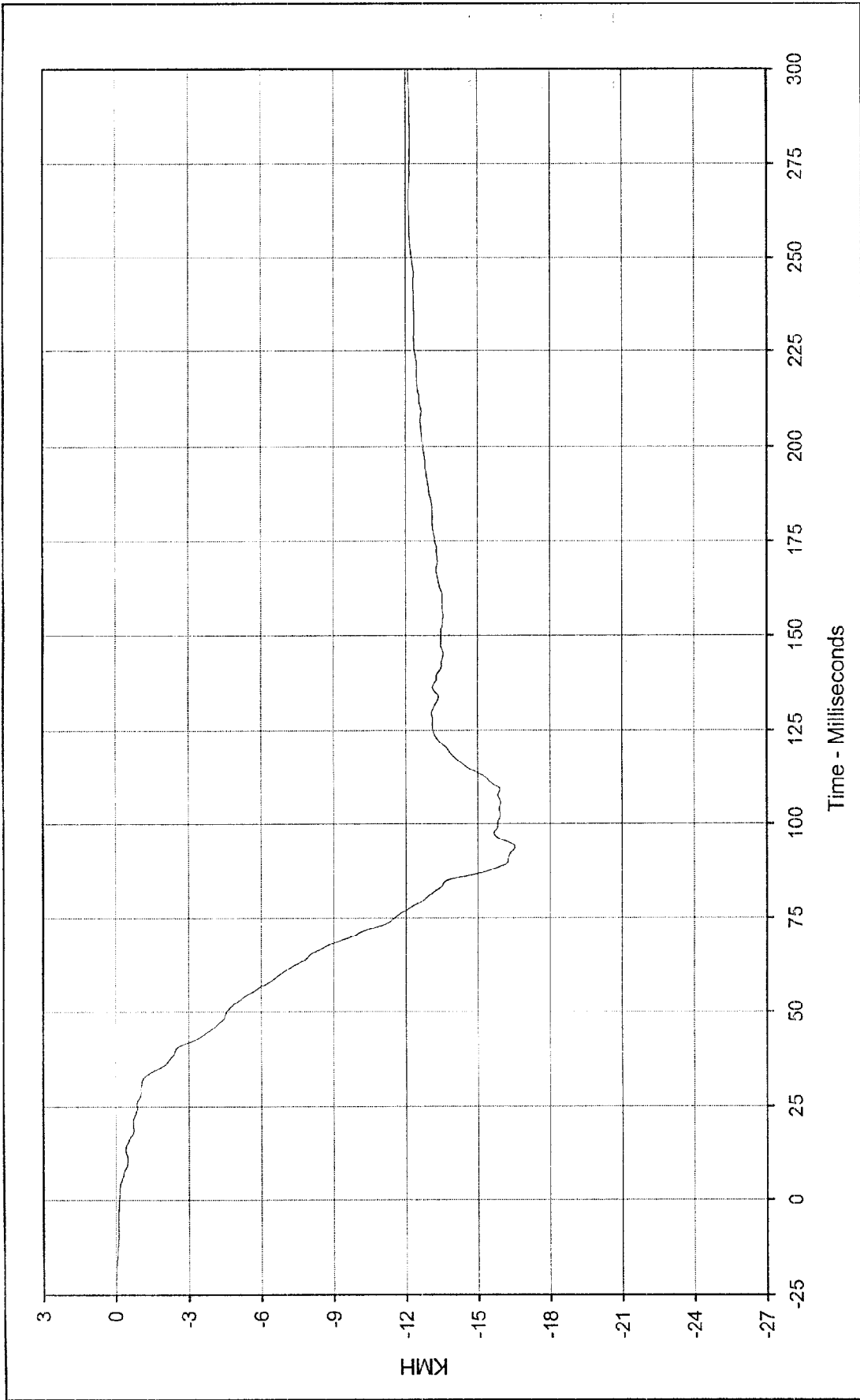
Minimum Value: -15.6 at 86.5 Milliseconds

SAE Filter Class: 60

Date of Test: 7/3/98

Curve Number: FIL-092





Curve Description: Vehicle Center Tunnel Y Velocity Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: -0.1 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

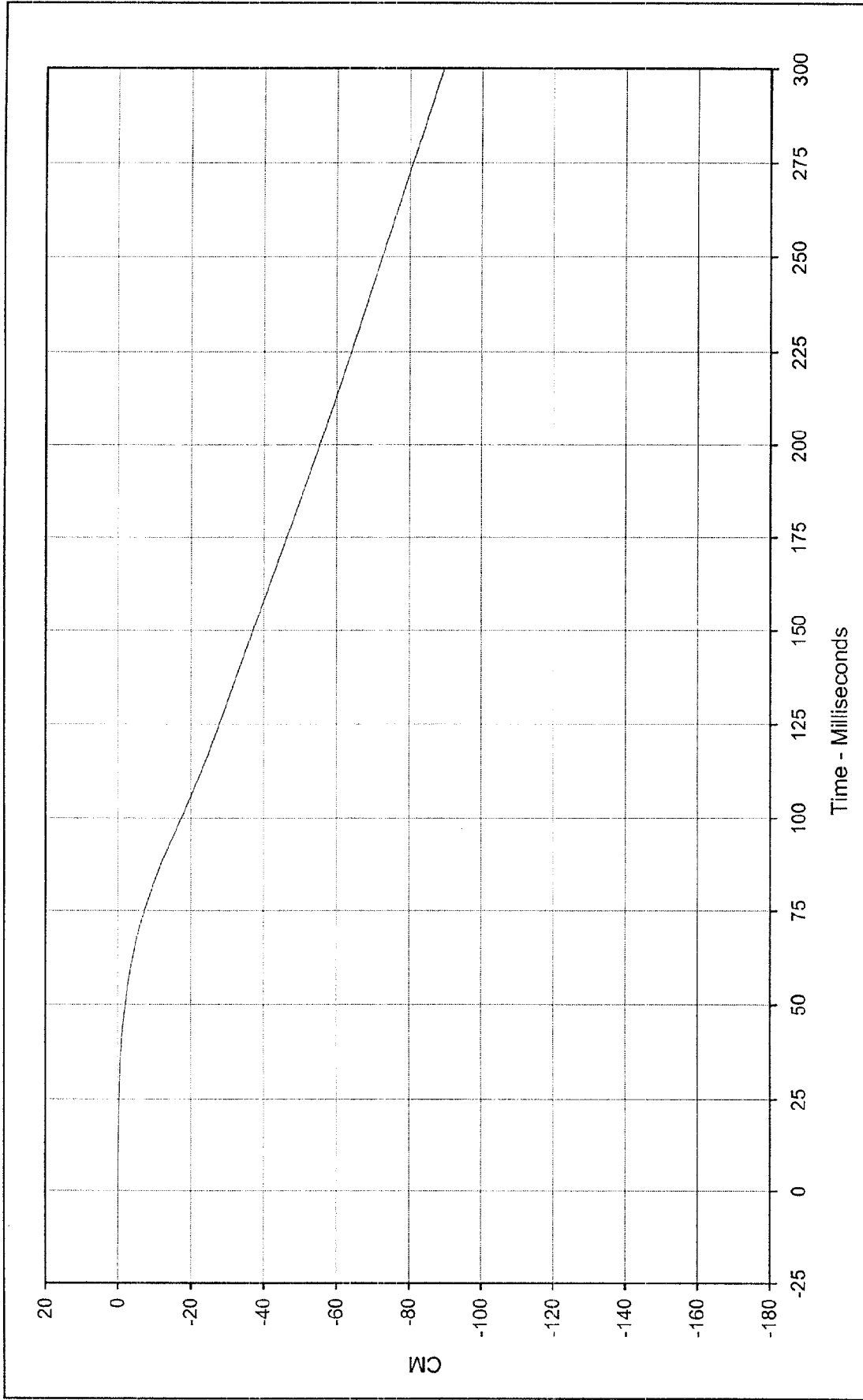
Minimum Value: -16.5 at 93.6 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-092





Curve Description: Vehicle Center Tunnel Y Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: -0.1 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

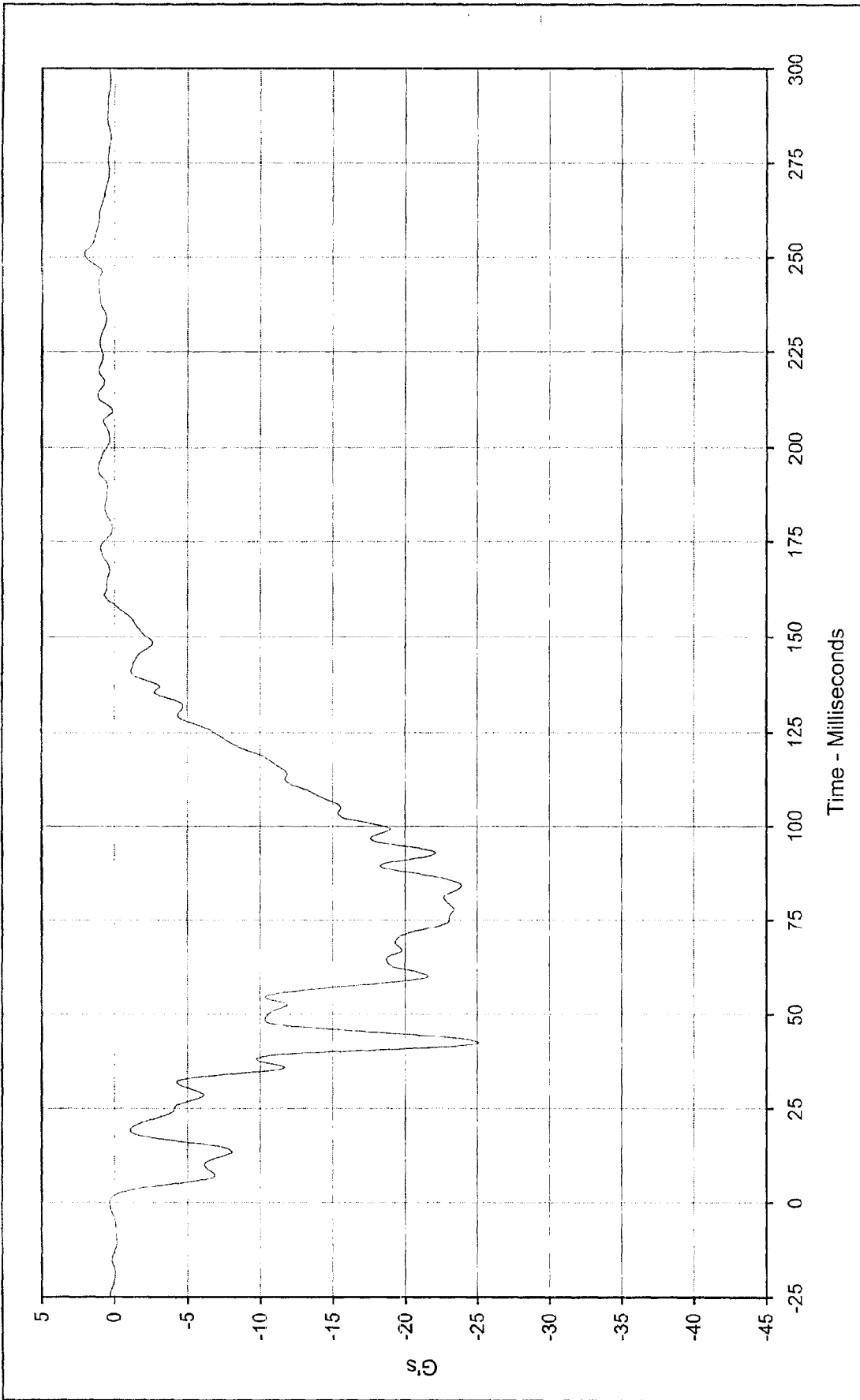
Minimum Value: -89.3 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-092





Curve Description: Vehicle Right Sill X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 2.0 at 250.9 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

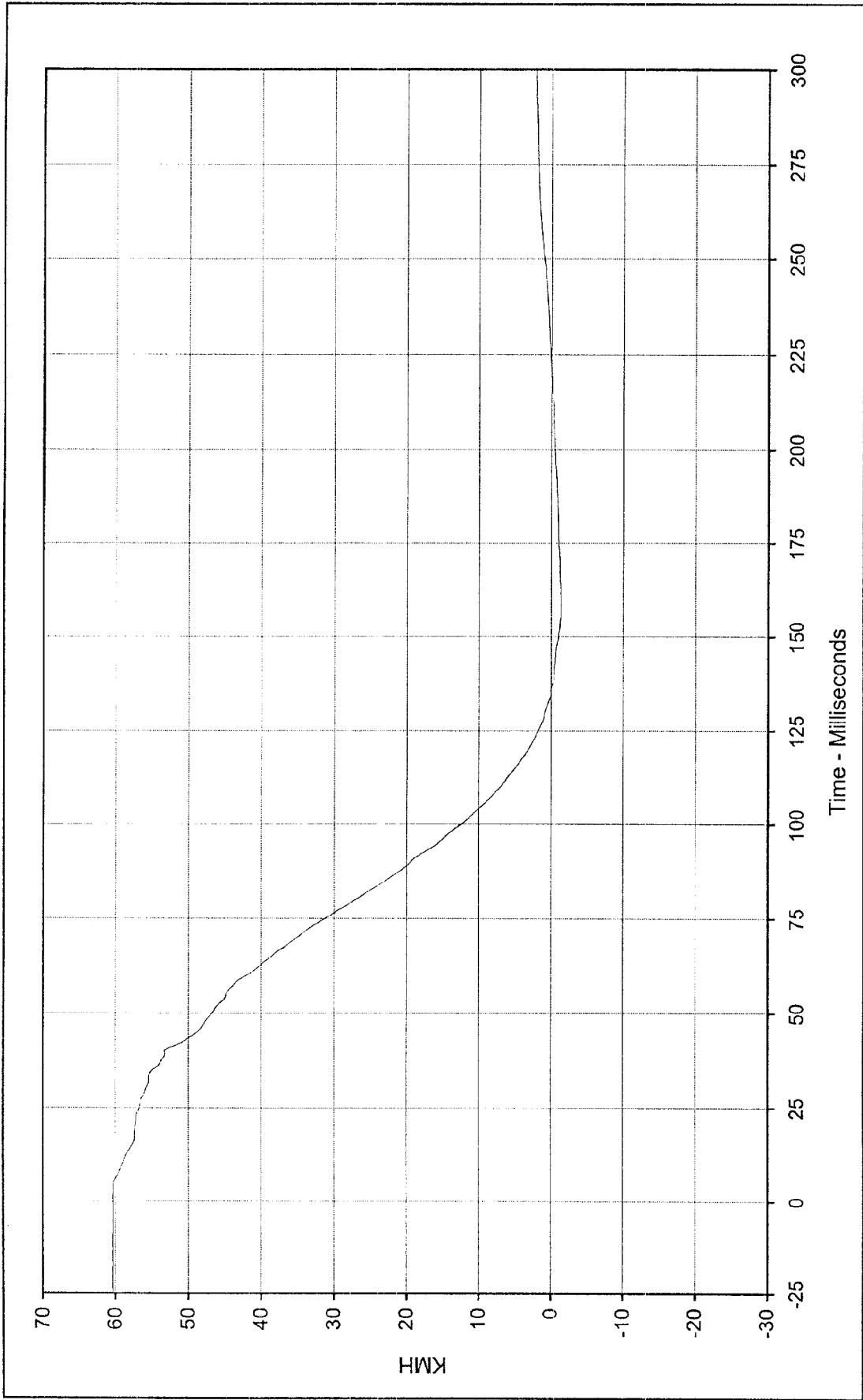
Minimum Value: -25.1 at 42.2 Milliseconds

SAE Filter Class: 60

Date of Test: 7/3/98

Curve Number: FIL-093





Curve Description: Vehicle Right Sill X Velocity Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 60.3 at 1.3 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

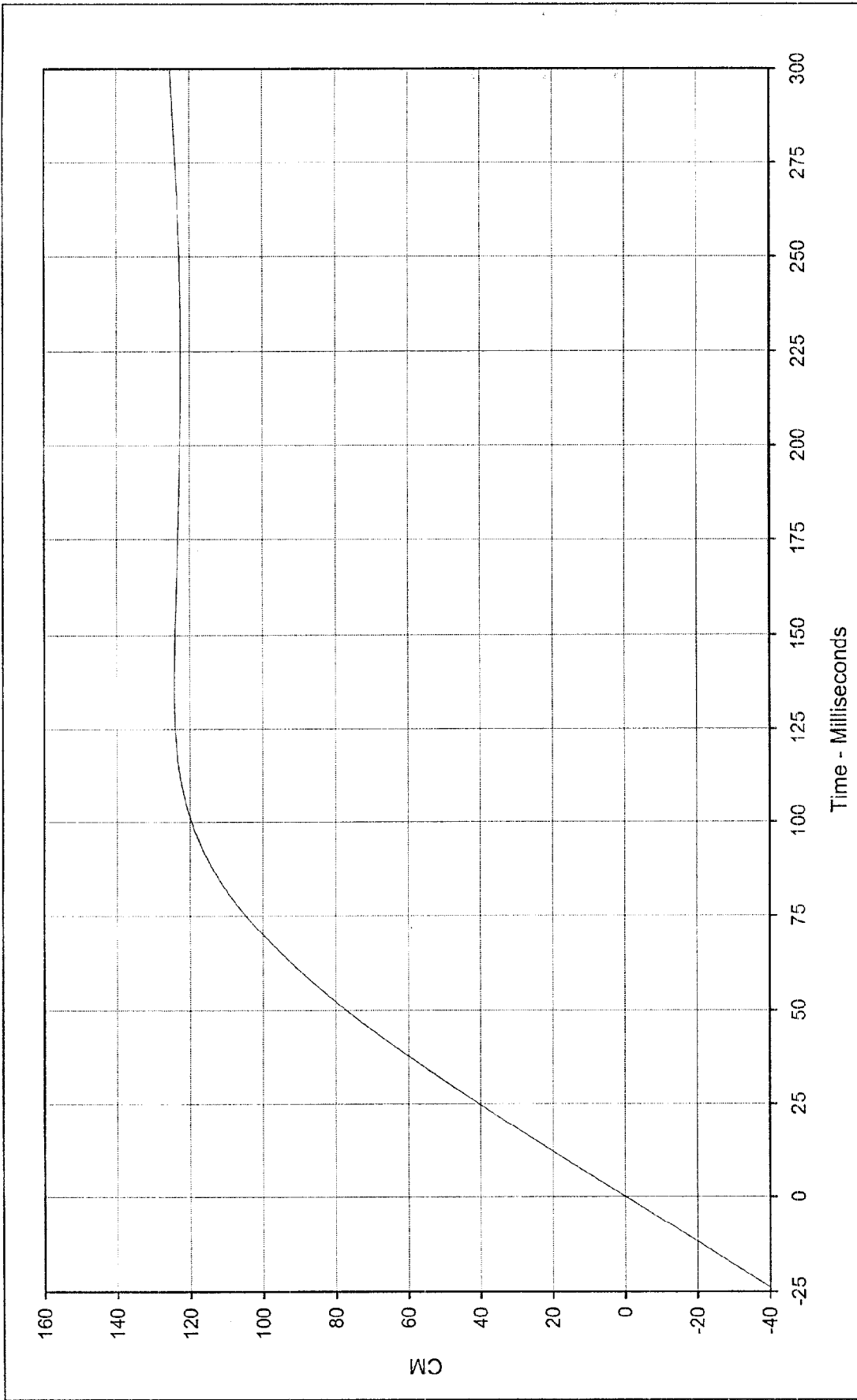
Minimum Value: -1.4 at 159.4 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-093



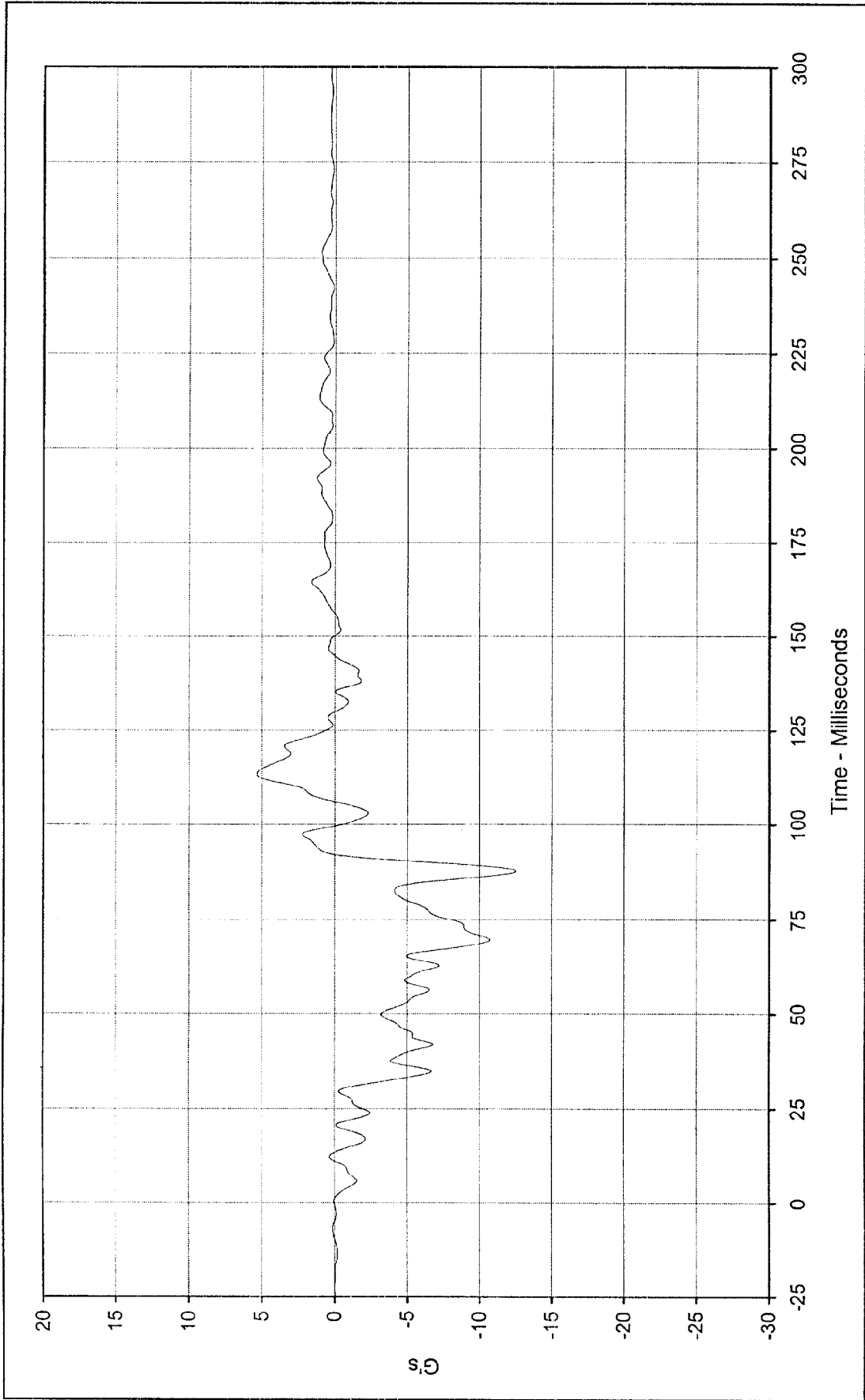


Curve Description: Vehicle Right Sill X Displ.  
 Maximum Value: 125.3 at 299.9 Milliseconds  
 Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN2-093

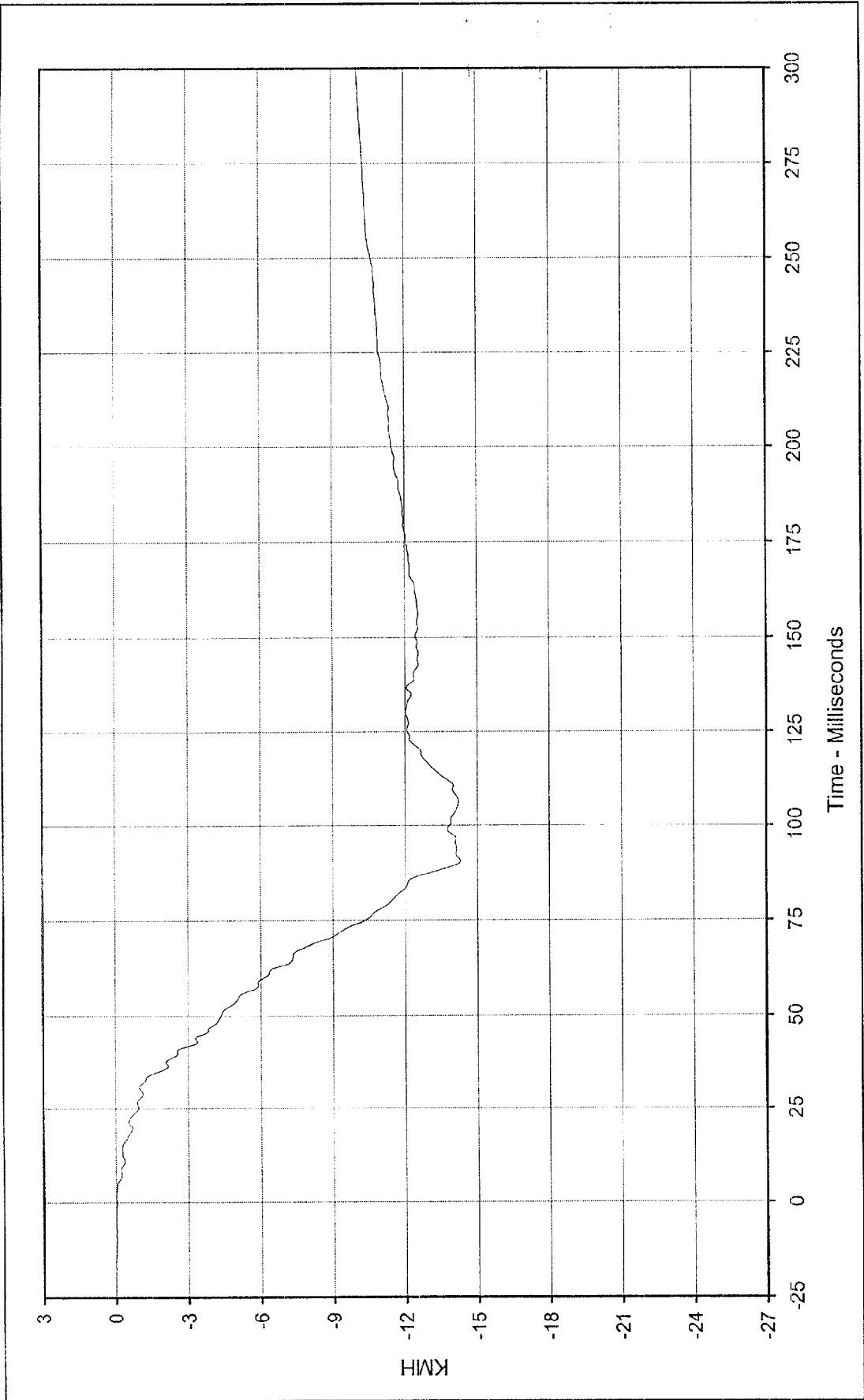
Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan





Curve Description: Vehicle Right Sill Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Maximum Value: 5.4 at 113.4 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan  
 Minimum Value: -12.5 at 87.6 Milliseconds  
 SAE Filter Class: 60  
 Date of Test: 7/3/98  
 Curve Number: FIL-094

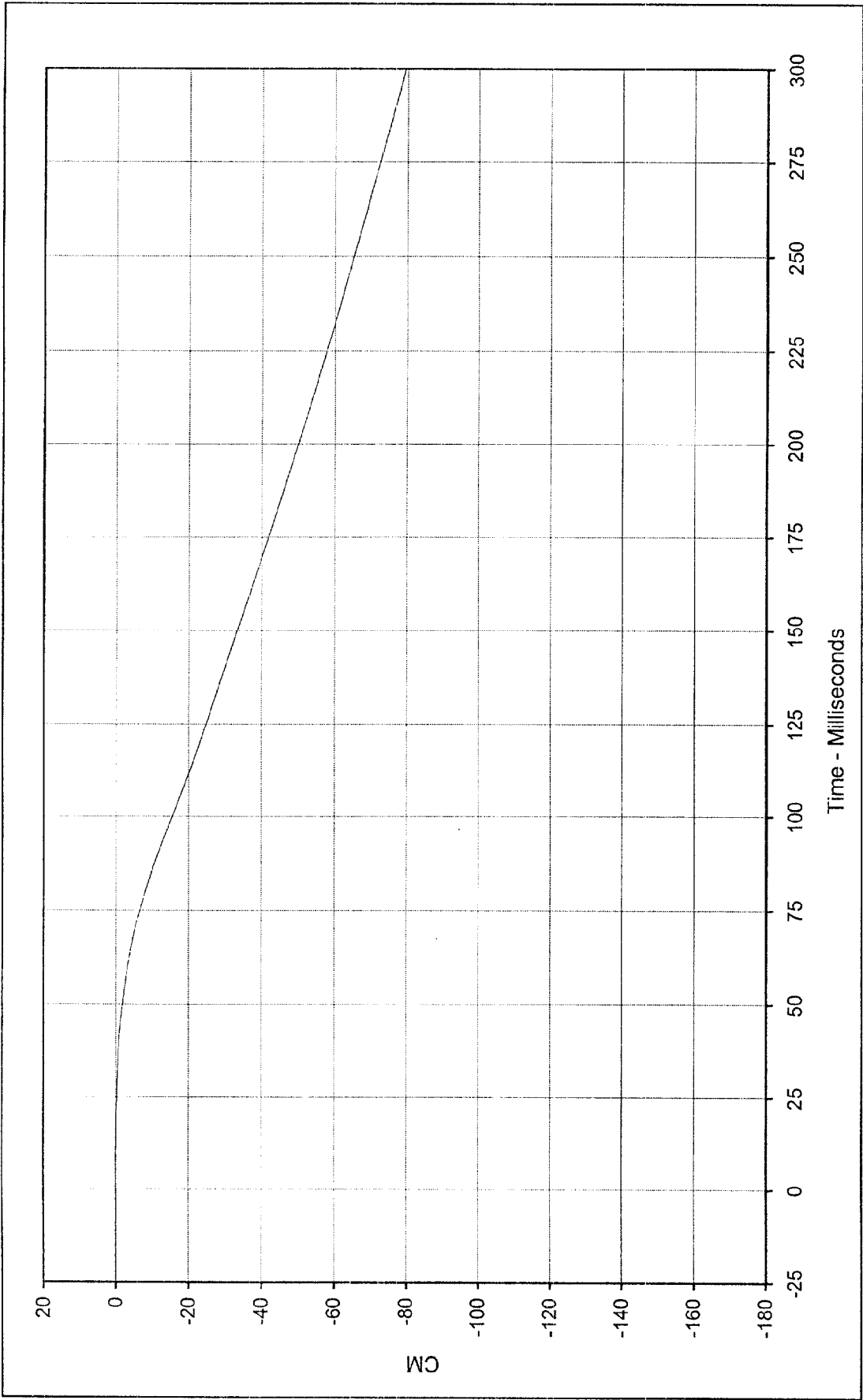




Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan



Curve Description: Vehicle Right Sill Y Velocity  
 Maximum Value: 0.0 at 1.5 Milliseconds  
 Minimum Value: -18.3 at 90.6 Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN1-094



Curve Description: Vehicle Right Sill Y Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

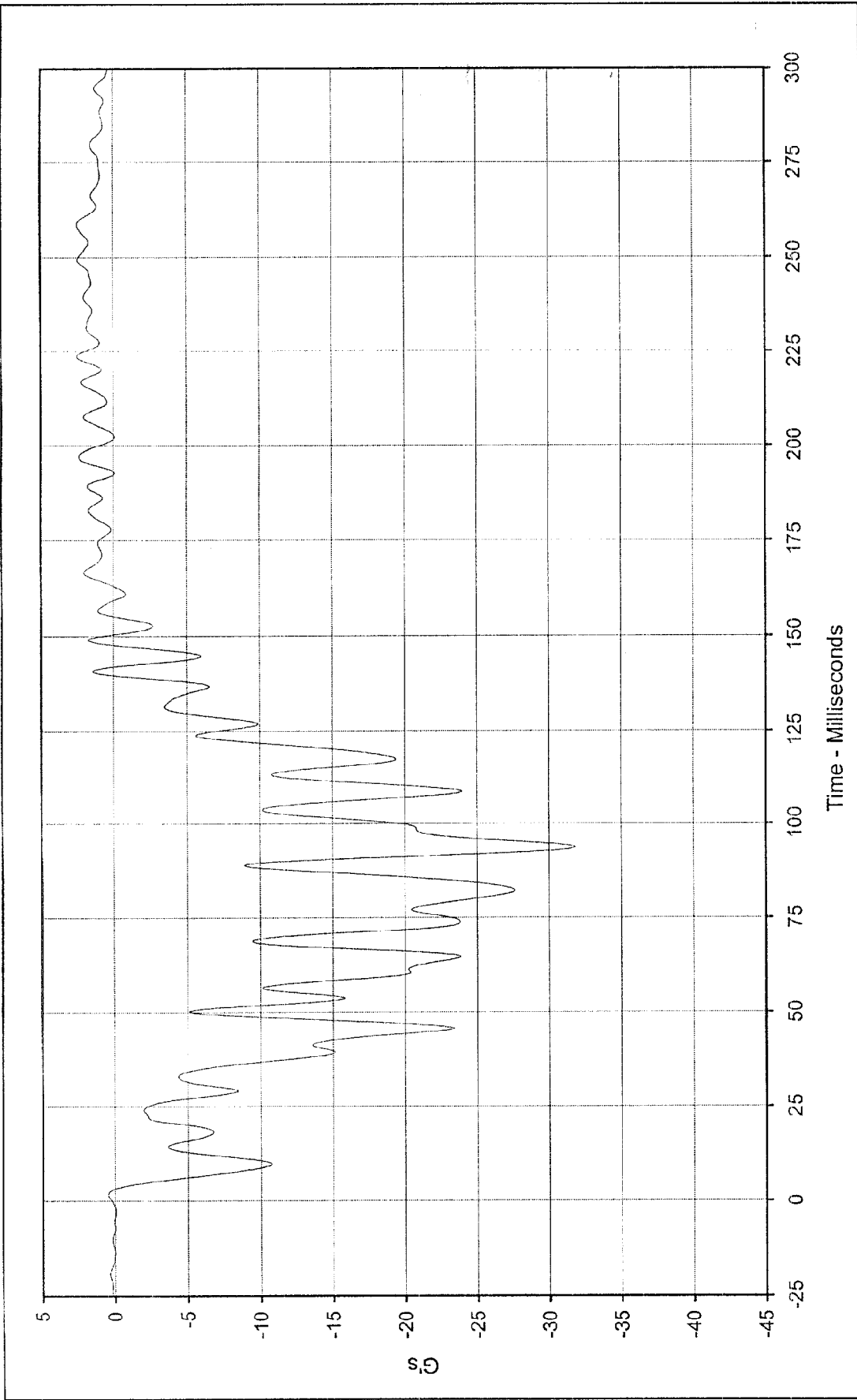
Minimum Value: -79.5 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-094





Curve Description: Vehicle Trunk X Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 2.5 at 223.6 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

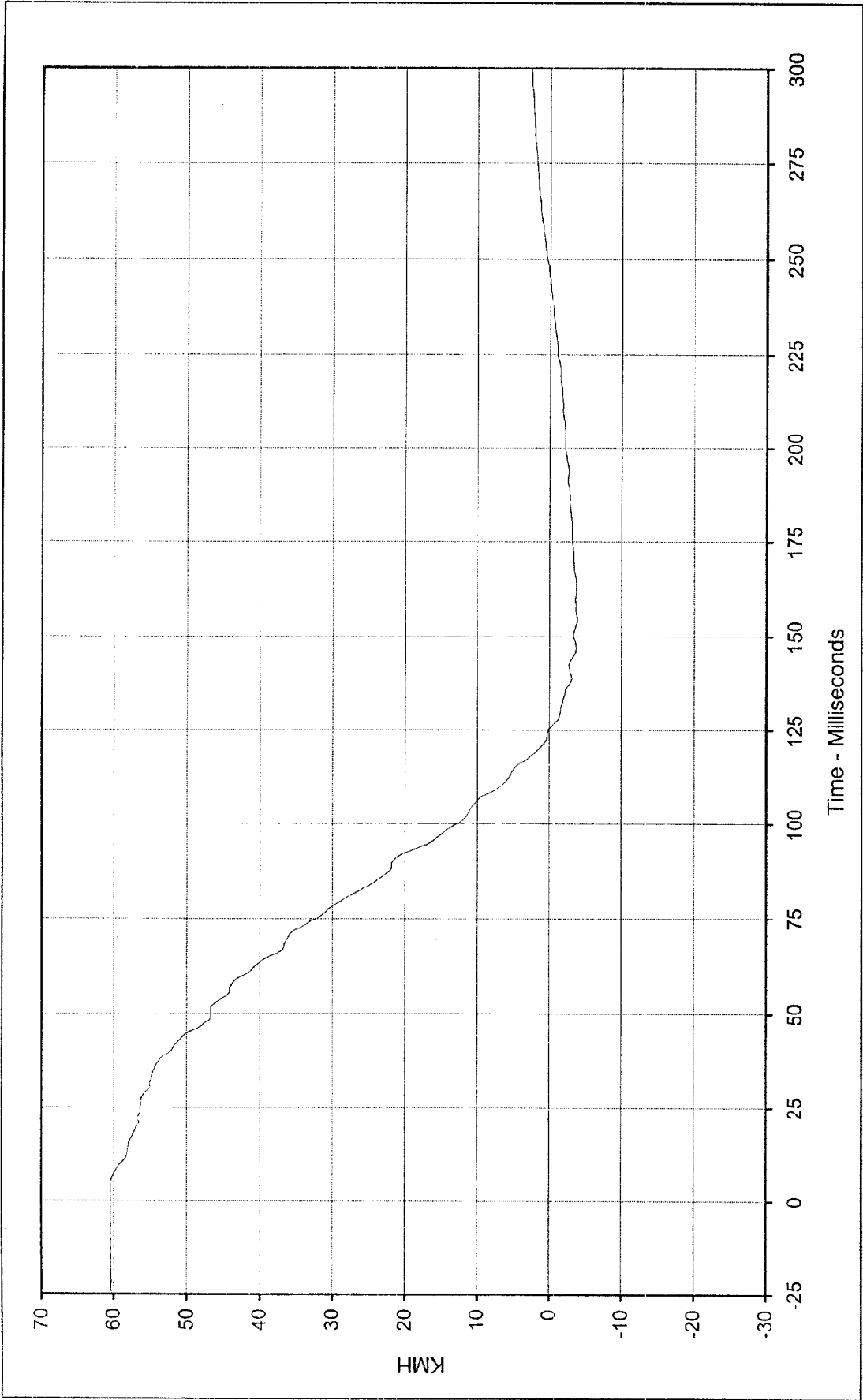
Minimum Value: -31.8 at 93.5 Milliseconds

SAE Filter Class: 60

Date of Test: 7/3/98

Curve Number: FIL-095





Curve Description: Vehicle Trunk X Velocity Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 60.4 at 4.1 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

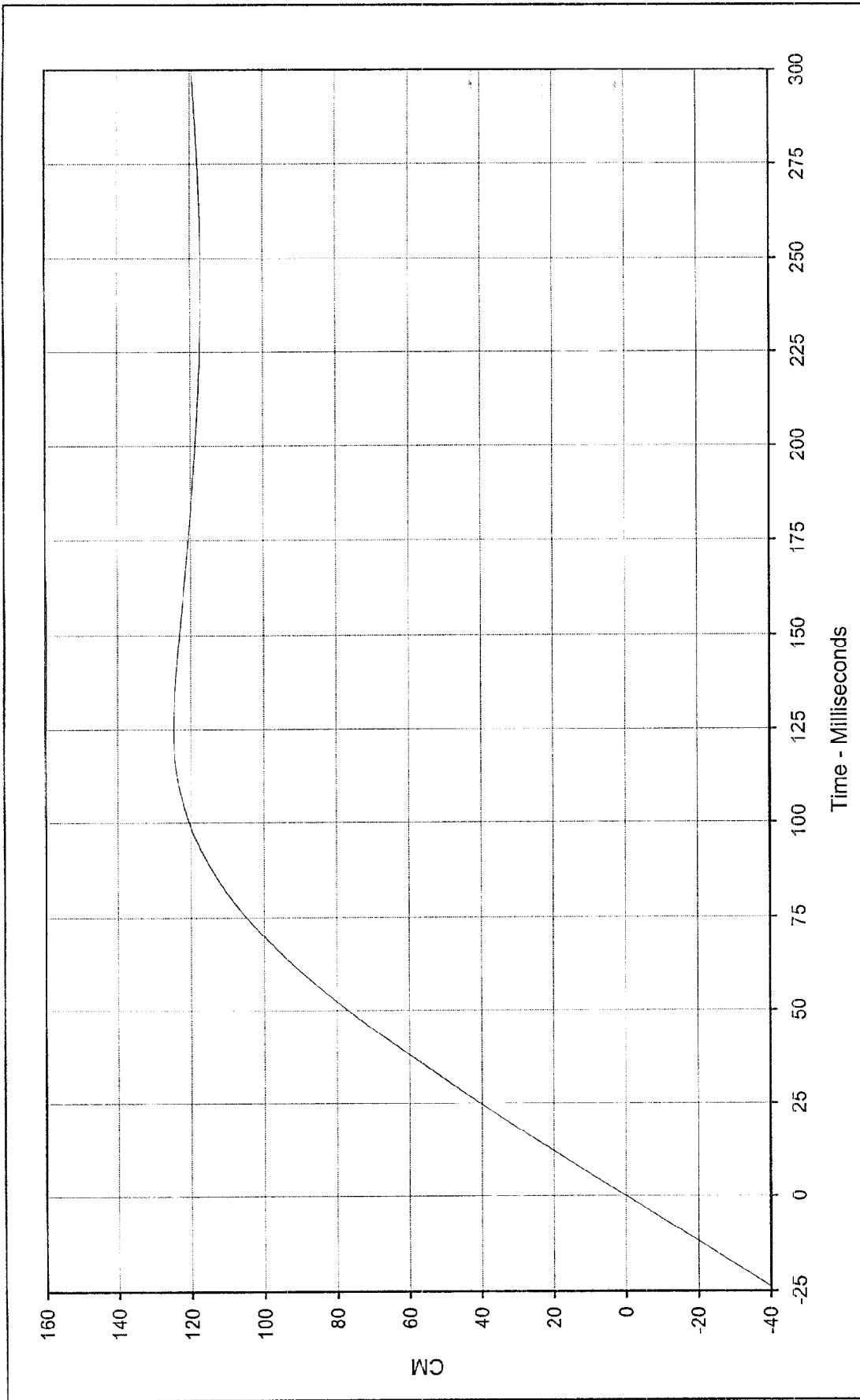
Minimum Value: -3.8 at 154.6 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN1-095





Curve Description: Vehicle Trunk X Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 124.7 at 125.5 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

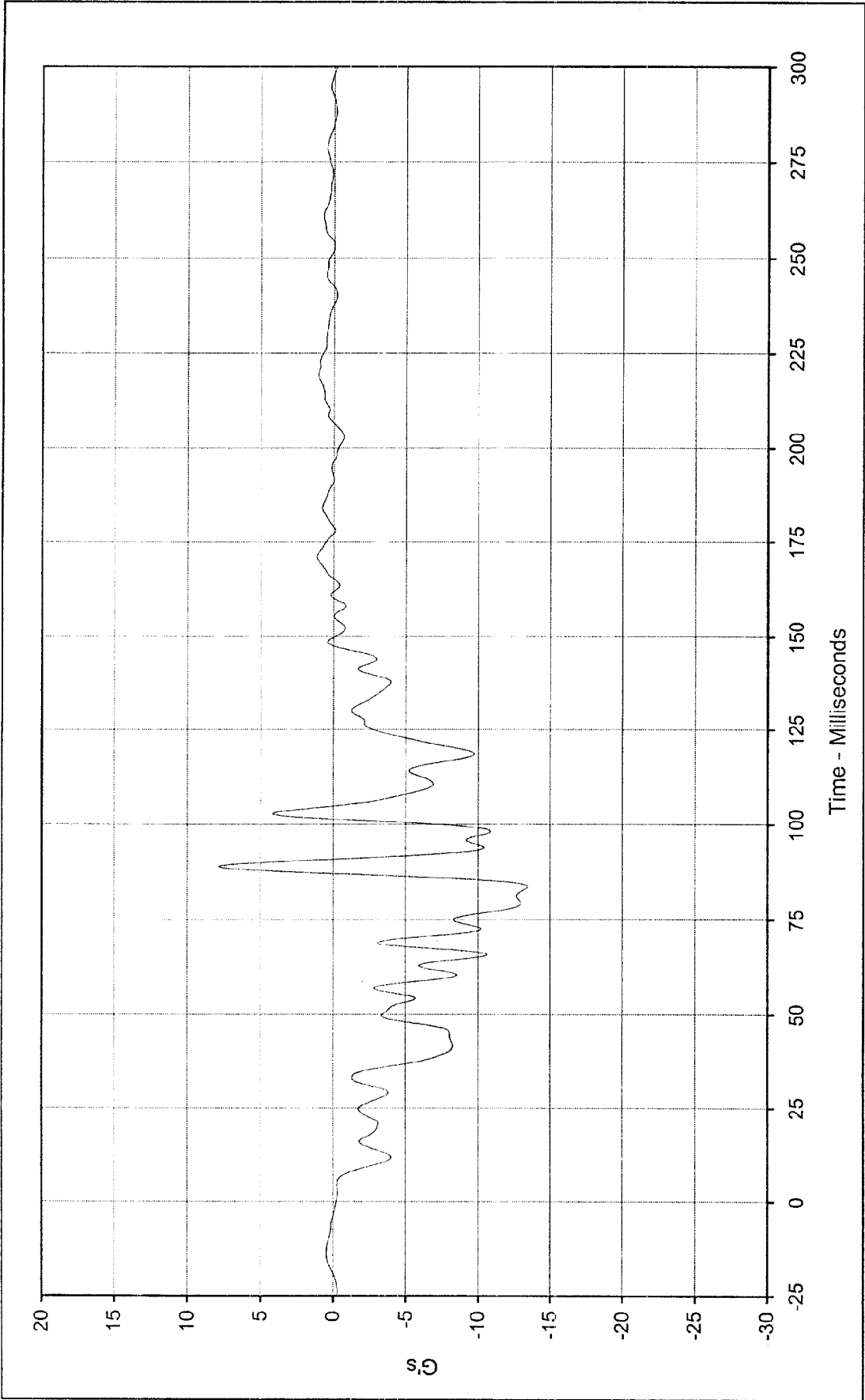
Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-095





Curve Description: Vehicle Trunk Y Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 7.9 at 88.8 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

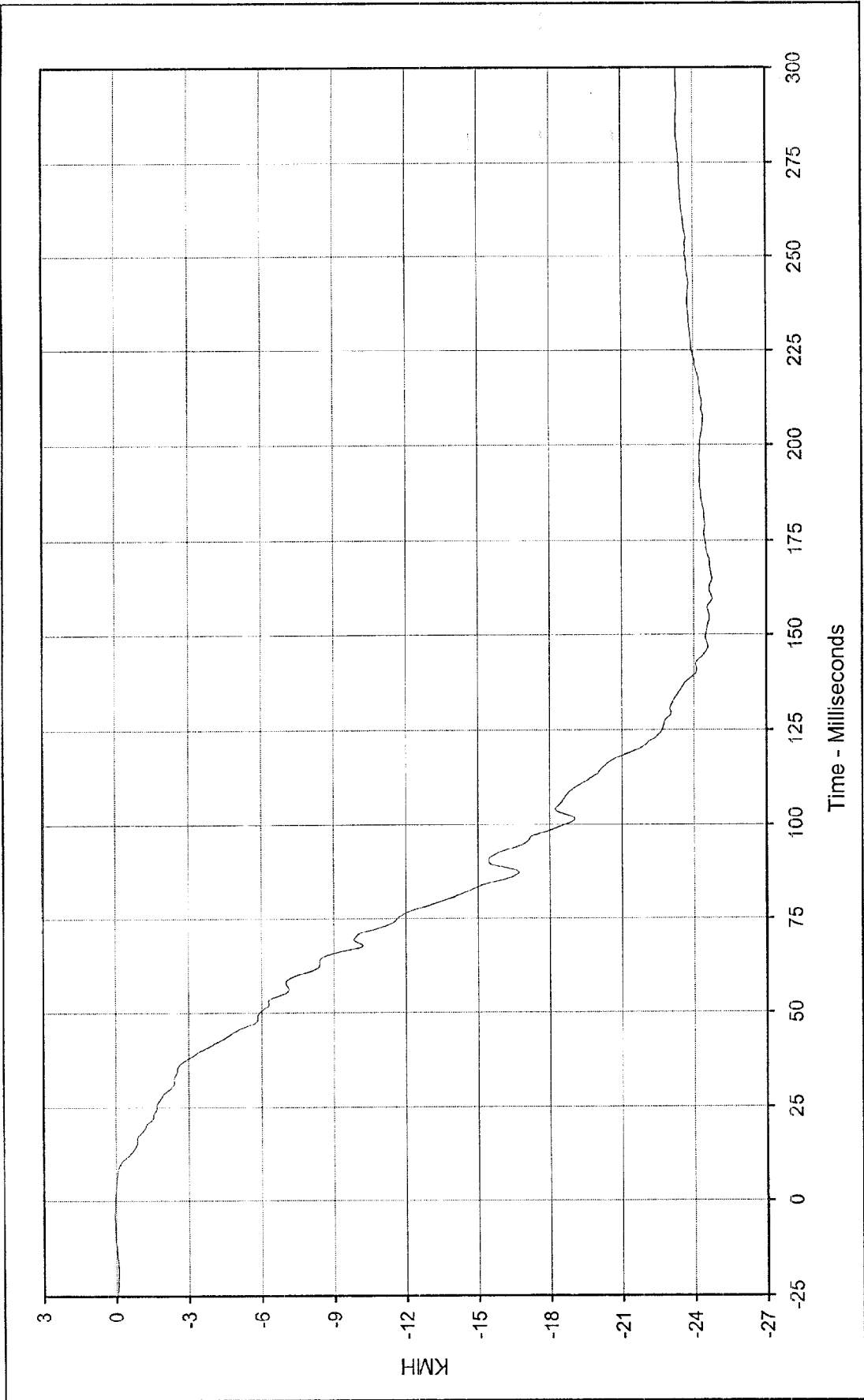
Minimum Value: -13.5 at 83.7 Milliseconds

SAE Filter Class: 60

Date of Test: 7/3/98

Curve Number: FIL-096

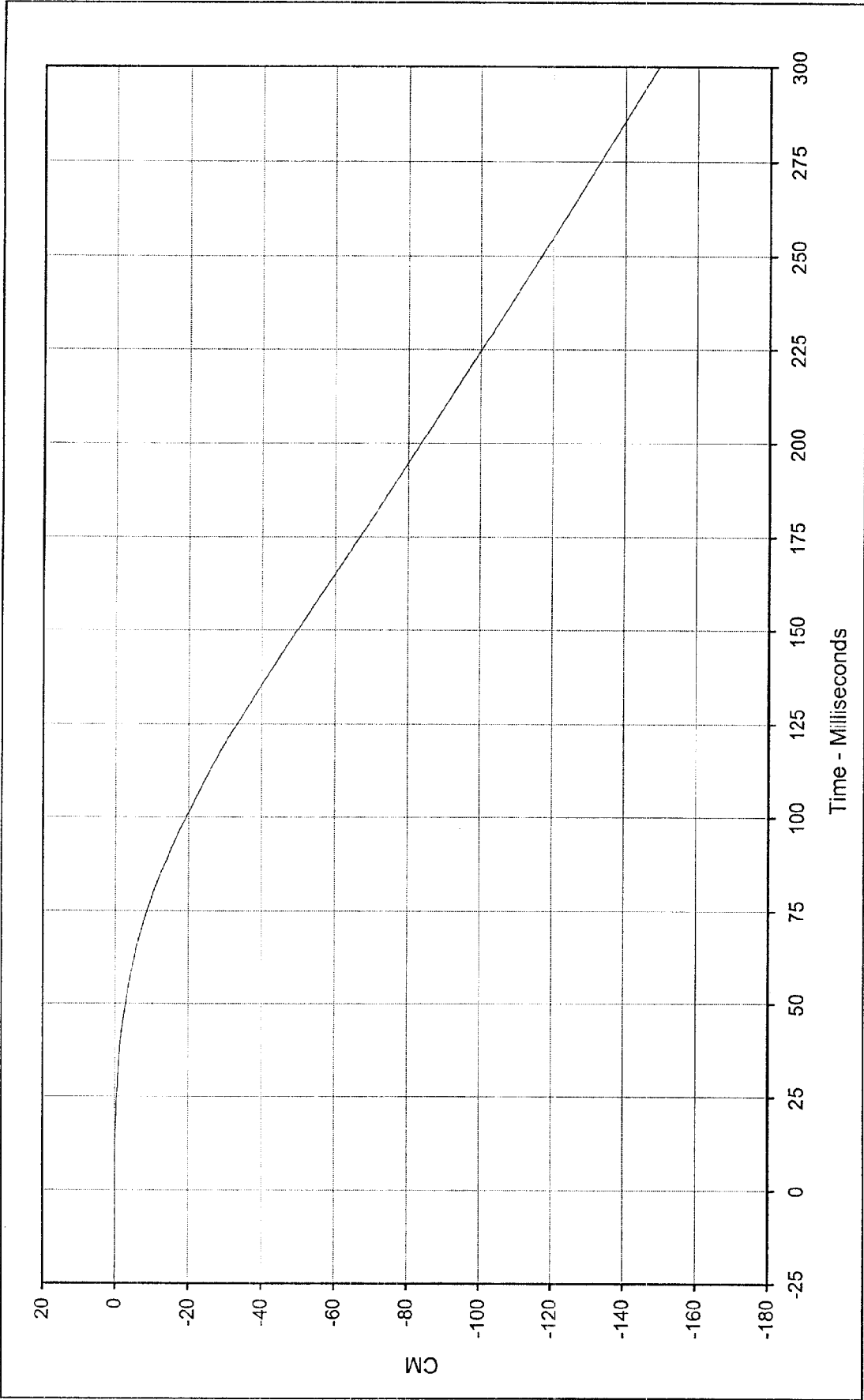




Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310  
 Test Vehicle: 1998 Dodge Neon 4 Door Sedan

Curve Description: Vehicle Trunk Y Velocity  
 Maximum Value: 0.0 at 0.0 Milliseconds  
 Minimum Value: -24.8 at 159.5 Milliseconds  
 SAE Filter Class: 180  
 Date of Test: 7/3/98  
 Curve Number: IN1-096





Curve Description: Vehicle Trunk Y Displ. Testing Program: 1998 37.5mph Offset w/50th Male No.: MW0310

Maximum Value: 0.0 at 3.1 Milliseconds Test Vehicle: 1998 Dodge Neon 4 Door Sedan

Minimum Value: -149.2 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 7/3/98

Curve Number: IN2-096



**APPENDIX C**  
**DEFORMABLE BARRIER INFORMATION**

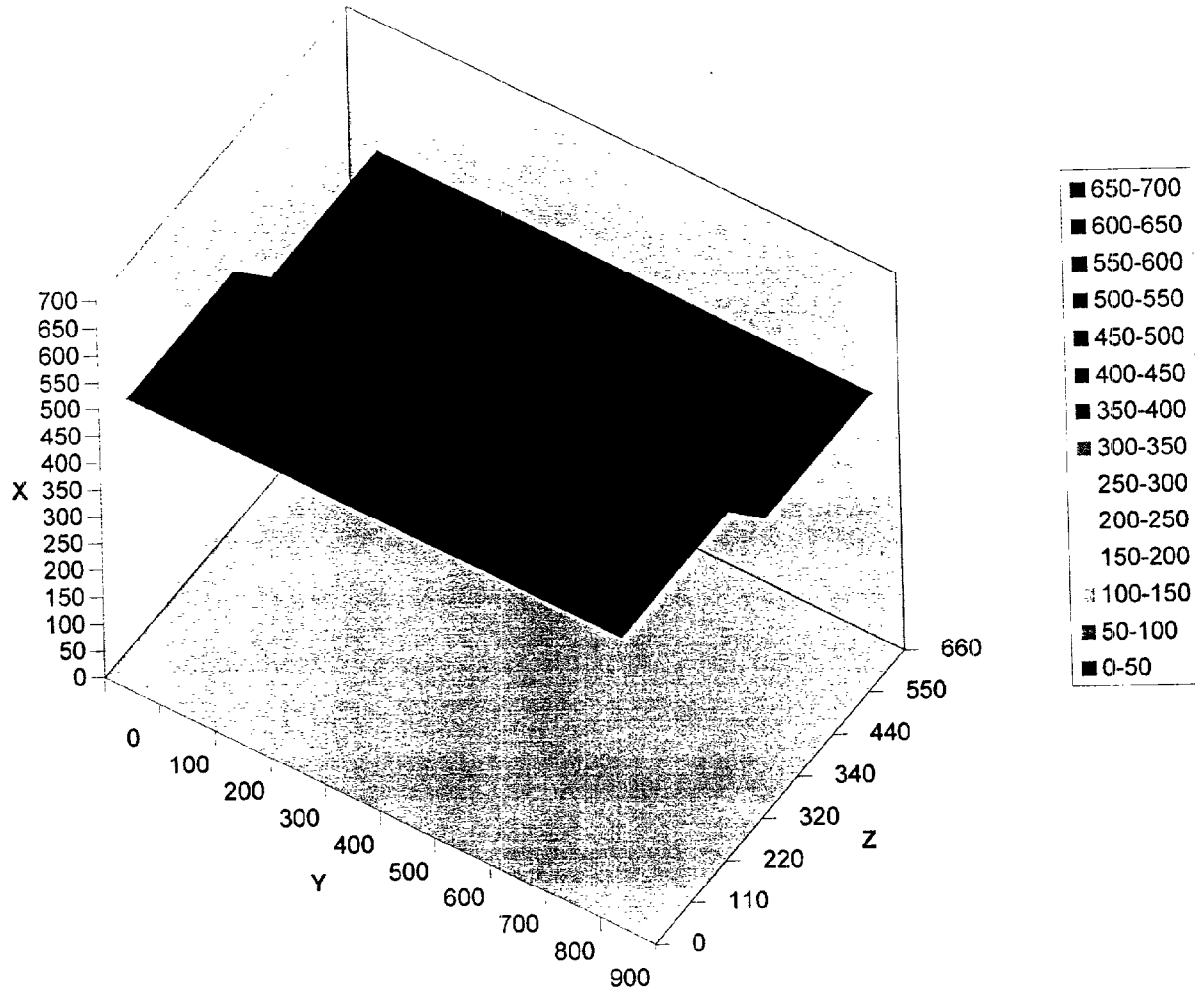
# DEFORMABLE BARRIER MEASUREMENTS, PRE-TEST

TEST VEHICLE: 1998 DODGE NEON 4 DOOR SEDAN

NHTSA No.: MW0310

TEST PROGRAM: 1998 37.5MPH OFFSET W/50TH MALE

TEST DATE: 7/3/98



All Measurements are in Millimeters

|         | Z Axis | A   | B   | C   | D   | E   | F   | G   | H   | I   | J   |
|---------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Y Axis  |        | 0   | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| Level 1 | 660    | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 |
| Level 2 | 550    | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 |
| Level 3 | 440    | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 |
| Level 4 | 340    | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 |
| Level 5 | 320    | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 |
| Level 6 | 220    | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 |
| Level 7 | 110    | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 |
| Level 8 | 0      | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 |

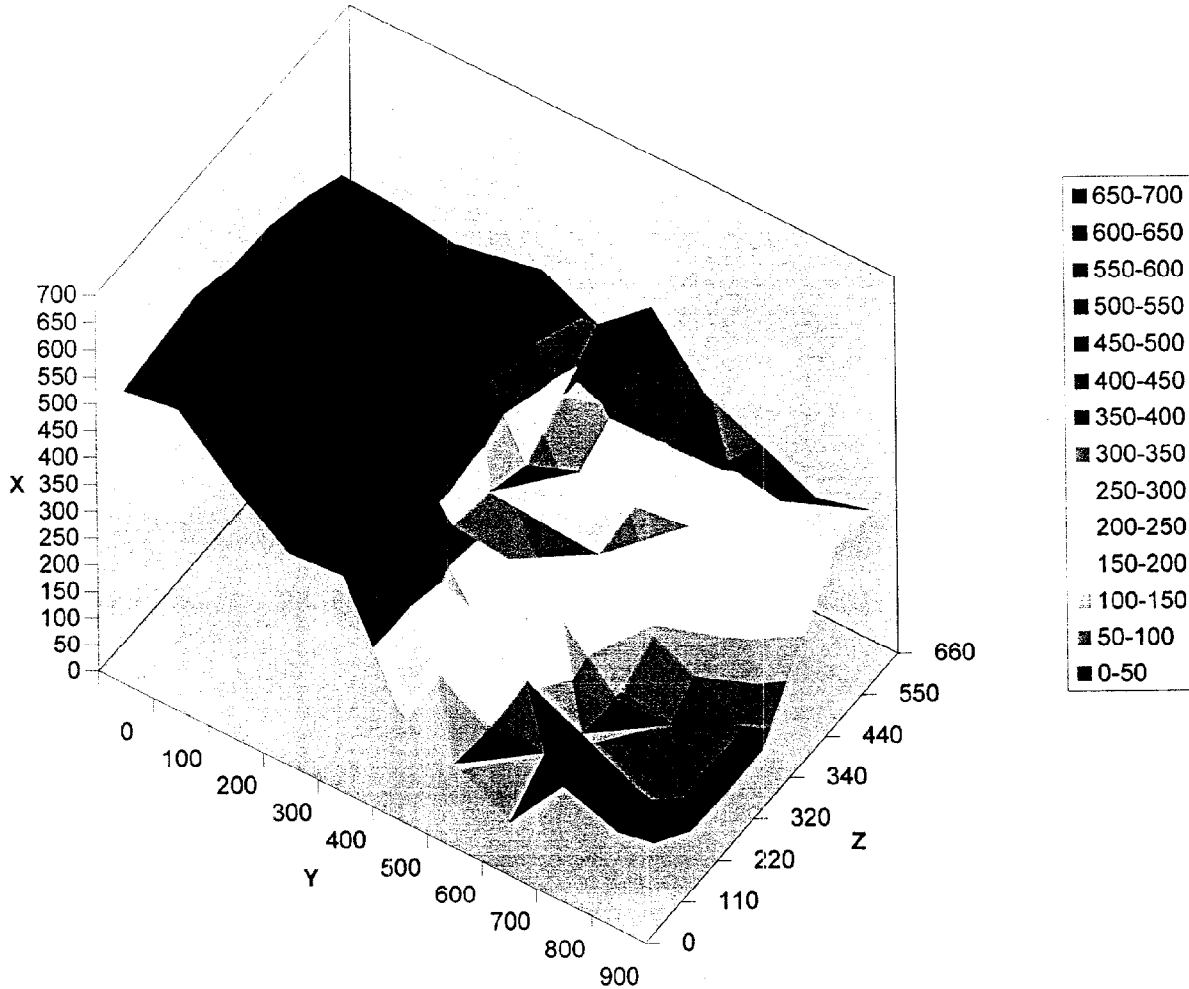
## DEFORMABLE BARRIER MEASUREMENTS, POST-TEST

TEST VEHICLE: 1998 DODGE NEON 4 DOOR SEDAN

NHTSA No.: MW0310

TEST PROGRAM: 1998 37.5MPH OFFSET W/50TH MALE

TEST DATE: 7/3/98



All Measurements are in Millimeters

|         | Z Axis | A   | B   | C   | D   | E   | F   | G   | H   | I   | J   |
|---------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Y Axis  |        | 0   | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| Level 1 | 660    | 329 | 320 | 338 | 382 | 332 | 415 | 304 | 263 | 215 | 242 |
| Level 2 | 550    | 482 | 477 | 459 | 428 | 276 | 308 | 306 | 304 | 286 | 247 |
| Level 3 | 440    | 518 | 502 | 462 | 414 | 226 | 265 | 252 | 264 | 220 | 132 |
| Level 4 | 340    | 543 | 521 | 472 | 411 | 254 | 245 | 238 | 139 | 88  | 26  |
| Level 5 | 320    | 547 | 523 | 469 | 402 | 267 | 256 | 197 | 95  | 99  | 22  |
| Level 6 | 220    | 570 | 646 | 556 | 472 | 386 | 242 | 158 | 109 | 59  | 28  |
| Level 7 | 110    | 560 | 602 | 521 | 415 | 416 | 205 | 148 | 150 | 124 | 84  |
| Level 8 | 0      | 549 | 563 | 472 | 397 | 407 | 206 | 156 | 97  | 216 | 181 |

**APPENDIX D**  
**INSTRUMENTATION DATA CHANNEL ASSIGNMENTS**

**1998 37.5mph Offset w/50th Male**  
**Instrumentation Data Channel Assignments**  
**Driver A.T.D Serial Number 34**  
**7/3/98**

**1998 Dodge Neon 4 Door Sedan**

| CH. | LOCATION           | AXIS | IDENT. NO. | DESCRIPTION              | MFR          | MODEL     | UNITS |
|-----|--------------------|------|------------|--------------------------|--------------|-----------|-------|
| 1   | HEAD, PRIMARY      | X    | KEAC039    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 2   | HEAD, PRIMARY      | Y    | KEAC038    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 3   | HEAD, PRIMARY      | Z    | KEAC027    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 4   | HEAD, REDUNDANT    | X    | KEAC031    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 5   | HEAD, REDUNDANT    | Y    | KEAC032    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 6   | HEAD, REDUNDANT    | Z    | KEAC026    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 7   | NECK FORCE         | X    | GPUN02FX   | Load cell, six axis neck | R. A. Denton | 1716A     | N     |
| 8   | NECK FORCE         | Y    | GPUN02FY   | Load cell, six axis neck | R. A. Denton | 1716A     | N     |
| 9   | NECK FORCE         | Z    | GPUN02FZ   | Load cell, six axis neck | R. A. Denton | 1716A     | N     |
| 10  | NECK MOMENT        | X    | GPUN02MX   | Load cell, six axis neck | R. A. Denton | 1716A     | N.m   |
| 11  | NECK MOMENT        | Y    | GPUN02MY   | Load cell, six axis neck | R. A. Denton | 1716A     | N.m   |
| 12  | NECK MOMENT        | Z    | GPUN02MZ   | Load cell, six axis neck | R. A. Denton | 1716A     | N.m   |
| 13  | CHEST, PRIMARY     | X    | GPAC031    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 14  | CHEST, PRIMARY     | Y    | GPAC024    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 15  | CHEST, PRIMARY     | Z    | GPAC029    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 16  | CHEST, REDUNDANT   | X    | KEAC023    | Accel., 1/2 bridge       | Endevco      | 7264-200  | G     |
| 17  | CHEST, REDUNDANT   | Y    | KEAC022    | Accel., 1/2 bridge       | Endevco      | 7264-200  | G     |
| 18  | CHEST, REDUNDANT   | Z    | KEAC024    | Accel., 1/2 bridge       | Endevco      | 7264-200  | G     |
| 19  | CHEST DISPLACEMENT | X    | GPCP001    | Rotary Pot Chest         | Servo        | 14CBI     | MM    |
| 20  | PELVIS, PRIMARY    | X    | KEAC019    | Accel., 1/2 bridge       | Endevco      | 7264-200  | G     |
| 21  | PELVIS, PRIMARY    | Y    | KEAC020    | Accel., 1/2 bridge       | Endevco      | 7264-200  | G     |
| 22  | PELVIS, PRIMARY    | Z    | KEAC021    | Accel., 1/2 bridge       | Endevco      | 7264-200  | G     |
| 23  | LEFT FEMUR FORCE   | Z    | KEFF002    | Load cell, Femur         | R.A. Denton  | 2121      | N     |
| 24  | RIGHT FEMUR FORCE  | Z    | KEFF003    | Load cell, Femur         | R.A. Denton  | 2121      | N     |

1998 37.5mph Offset w/50th Male  
Instrumentation Data Channel Assignments  
Driver A.T.D Serial Number 34  
7/3/98  
1998 Dodge Neon 4 Door Sedan

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

208 Test With Hybrid III Male 50th Percentile ATD  
 Instrumentation Data Channel Assignments  
 Passenger A.T.D Serial Number 35  
 7/3/98

1998 Dodge Neon 4 Door Sedan

| 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    | GPU01FX    | Load cell, six axis neck | R. A. Denton | 1716A     | N     |
| 52  | NECK FORCE         | Y    | GPU01FY    | Load cell, six axis neck | R. A. Denton | 1716A     | N     |
| 53  | NECK FORCE         | Z    | GPU01FZ    | Load cell, six axis neck | R. A. Denton | 1716A     | N     |
| 54  | NECK MOMENT        | X    | GPU01MX    | Load cell, six axis neck | R. A. Denton | 1716A     | N.m   |
| 55  | NECK MOMENT        | Y    | GPU01MY    | Load cell, six axis neck | R. A. Denton | 1716A     | N.m   |
| 56  | NECK MOMENT        | Z    | GPU01MZ    | Load cell, six axis neck | R. A. Denton | 1716A     | N.m   |
| 57  | CHEST, PRIMARY     | X    | GPAC005    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 58  | CHEST, PRIMARY     | Y    | GPAC011    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 59  | CHEST, PRIMARY     | Z    | GPAC010    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 60  | CHEST, REDUNDANT   | X    | GPAC034    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 61  | CHEST, REDUNDANT   | Y    | GPAC023    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 62  | CHEST, REDUNDANT   | Z    | GPAC020    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 63  | CHEST DISPLACEMENT | X    | GPCP002    | Rotary Pot Chest         | Servo        | 14CBI     | MM    |
| 64  | PELVIS, PRIMARY    | X    | GPAC025    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 65  | PELVIS, PRIMARY    | Y    | GPAC022    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 66  | PELVIS, PRIMARY    | Z    | GPAC019    | Accel., 1/2 bridge       | Endevco      | 7264-2000 | G     |
| 67  | LEFT FEMUR FORCE   | Z    | KEFF001    | Load cell, Femur         | R.A. Denton  | 2121      | N     |
| 68  | RIGHT FEMUR FORCE  | Z    | GPLC001    | Load cell, Femur         | G.S.E.       | 2430      | N     |

208 Test With Hybrid III Male 50th Percentile ATD

Instrumentation Data Channel Assignments

Passenger A.T.D Serial Number 35

7/3/98

1998 Dodge Neon 4 Door Sedan

| CH. | LOCATION               | AXIS | IDENT. NO. | DESCRIPTION               | MFR          | MODEL       | UNITS |
|-----|------------------------|------|------------|---------------------------|--------------|-------------|-------|
| 69  | UP. TIBIA LEFT MOM.    | X    | GPOT09MX   | 2 ch., Upper tibia gage   | R. A. Denton | 1583        | N.m   |
| 70  | UP. TIBIA LEFT MOM.    | Y    | GPOT09MY   | 2 ch., Upper tibia gage   | R. A. Denton | 1583        | N.m   |
| 71  | UP. TIBIA RIGHT MOM.   | X    | GPOT09MX   | 2 ch., Upper tibia gage   | R. A. Denton | 1583        | N.m   |
| 72  | UP. TIBIA RIGHT MOM.   | Y    | GPOT09MY   | 2 ch., Upper tibia gage   | R. A. Denton | 1583        | N.m   |
| 73  | LWR. TIBIA LEFT MOM.   | X    | GPLT09MX   | 3 ch., lower tibia gage   | R. A. Denton | 3093        | N.m   |
| 74  | LWR. TIBIA LEFT MOM.   | Y    | GPLT09MY   | 3 ch., lower tibia gage   | R. A. Denton | 3093        | N.m   |
| 75  | LWR. TIBIA LEFT FORCE  | Z    | GPLT09FZ   | 3 ch., lower tibia gage   | R. A. Denton | 3093        | N     |
| 76  | LWR. TIBIA RIGHT MOM.  | X    | GPLT09MX   | 3 ch., lower tibia gage   | R. A. Denton | 3093        | N.m   |
| 77  | LWR. TIBIA RIGHT MOM.  | Y    | GPLT09MY   | 3 ch., lower tibia gage   | R. A. Denton | 3093        | N.m   |
| 78  | LWR. TIBIA RIGHT FORCE | Z    | GPLT09FZ   | 3 ch., lower tibia gage   | R. A. Denton | 3093        | N     |
| 79  | FOOT LEFT              | X    | KEIC002X   | Accel., Foot Triax        | I.C. Sensor  | 3031-500    | G     |
| 80  | FOOT LEFT              | Y    | KEIC002Y   | Accel., Foot Triax        | I.C. Sensor  | 3031-500    | G     |
| 81  | FOOT LEFT              | Z    | KEIC002Z   | Accel., Foot Triax        | I.C. Sensor  | 3031-500    | G     |
| 82  | FOOT RIGHT             | X    | KEIC001X   | Accel., Foot Triax        | I.C. Sensor  | 3031-500    | G     |
| 83  | FOOT RIGHT             | Y    | KEIC001Y   | Accel., Foot Triax        | I.C. Sensor  | 3031-500    | G     |
| 84  | FOOT RIGHT             | Z    | KEIC001Z   | Accel., Foot Triax        | I.C. Sensor  | 3031-500    | G     |
| 85  | LAP BELT FORCE         | X    | KELC003    | Load cell, Seat belt      | Lebow        | 3371        | N     |
| 86  | SHOULDER BELT FORCE    | X    | KELC004    | Load cell, Seat belt      | Lebow        | 3371        | N     |
| 87  | SHOULDER BELT SPOOL    | X    | KEPP001    | Pullout pot               | Celesco      | PTX101-0030 | CM    |
| 88  | SHOULDER BELT ELONG.   | X    | KEEP001    | Linear pot., belt stretch | E.T.I.       | LCP8-10 10K | MM/CM |

208 Test With Hybrid III Male 50th Percentile ATD

Instrumentation Data Channel Assignments

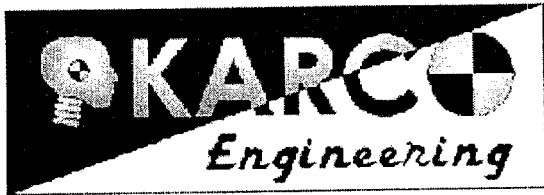
Vehicle Accelerometers Measurements

7/3/98

1998 Dodge Neon 4 Door Sedan

| CH. | LOCATION       | AXIS | IDENT. NO. | DESCRIPTION           | MFR         | MODEL    | UNITS |
|-----|----------------|------|------------|-----------------------|-------------|----------|-------|
| 89  | Left Rear Sill | X    | KEVA005    | Accel., Vehicle block | I.C. Sensor | 3031-500 | G     |
| 90  | Left Rear Sill | Y    | KEVA006    | Accel., Vehicle block | I.C. Sensor | 3031-200 | G     |
| 91  | Center Tunnel  | X    | KEVA009    | Accel., Vehicle block | I.C. Sensor | 3031-500 | G     |
| 92  | Center Tunnel  | Y    | KEVA008    | Accel., Vehicle block | I.C. Sensor | 3031-500 | G     |
| 93  | Right Sill     | X    | KEVA010    | Accel., Vehicle block | I.C. Sensor | 3031-500 | G     |
| 94  | Right Sill     | Y    | KEVA004    | Accel., Vehicle block | I.C. Sensor | 3031-500 | G     |
| 95  | Trunk          | X    | KEVA007    | Accel., Vehicle block | I.C. Sensor | 3031-200 | G     |
| 96  | Trunk          | Y    | KEVA011    | Accel., Vehicle block | I.C. Sensor | 3031-200 | G     |

**APPENDIX E**  
**DUMMY CALIBRATION DATA**



# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male


### Left Knee Impact Test

ATD Serial No.: 034

Part Serial No.: n/a

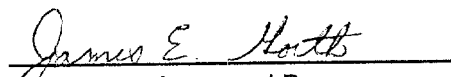
Test I.D.: KI003

| Tested Parameter             | Units   | Specification  | Result | Pass/Fail |
|------------------------------|---------|----------------|--------|-----------|
| Laboratory Temperature       | °C      | 18.9 to 25.5   | 21.7   | Pass      |
| Laboratory Relative Humidity | %       | 10 to 70       | 34     | Pass      |
| Probe Velocity               | m/s     | 2.073 to 2.134 | 2.082  | Pass      |
| Peak Probe Force             | Newtons | 4715 to 5782   | 5526.5 | Pass      |
| Overall Test Results         |         |                |        | Pass      |

  
\_\_\_\_\_  
Laboratory Technician

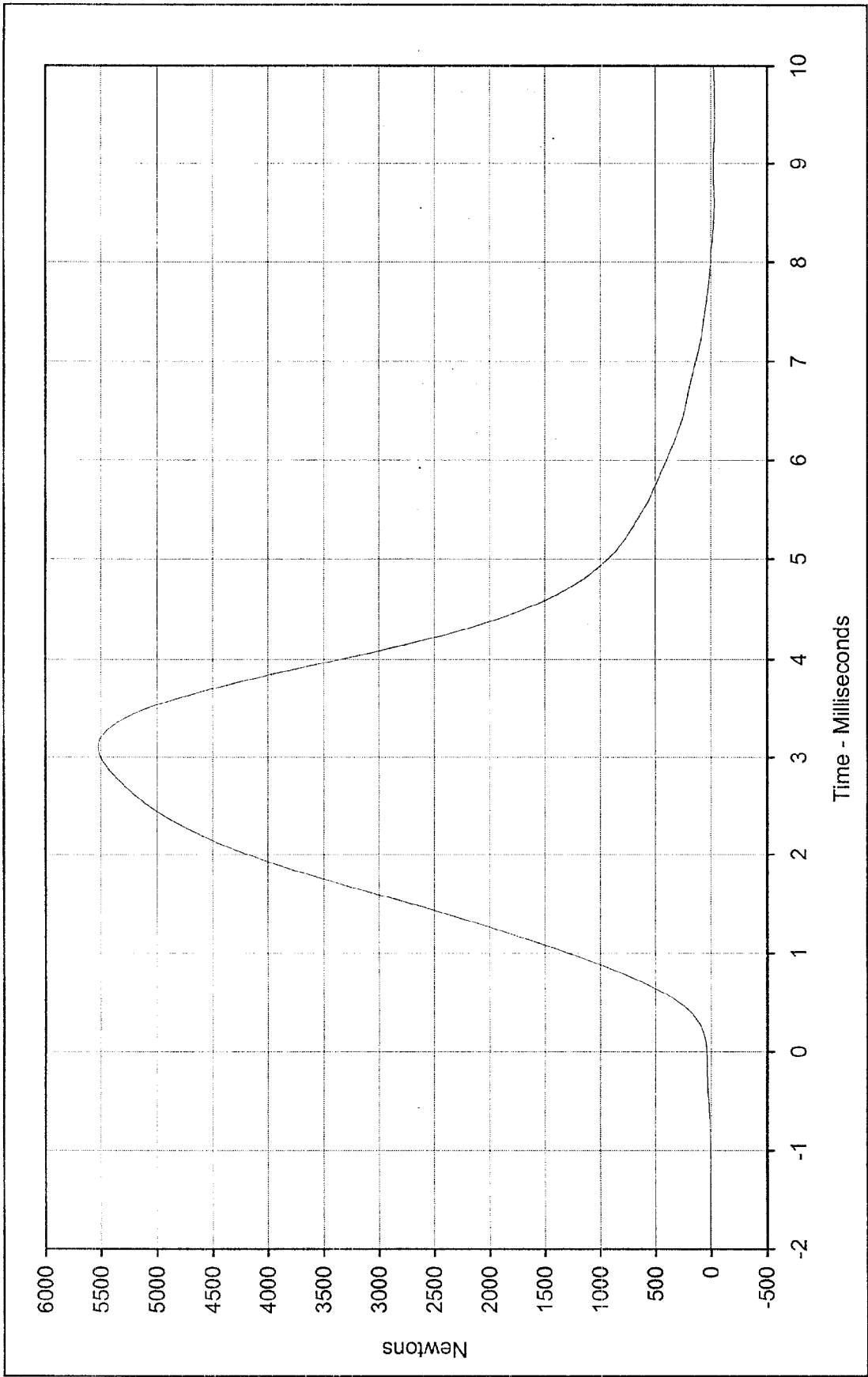
May 18, 1998

Test Date

  
\_\_\_\_\_  
Approved By

5/17/98

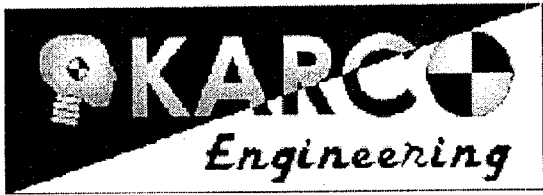
Date



Time - Milliseconds

Curve Description: Hybrid III Left Knee Impact Test      Testing Program: Hybrid III Left Knee Impact Test  
 Maximum Value: 5526.5 at 3.1 Milliseconds      Test Information: Part S/N: n/a Test I.D.: KI003  
 Minimum Value: 2.7 at -1.1 Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 5/18/98  
 ATD Serial No.: 034





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

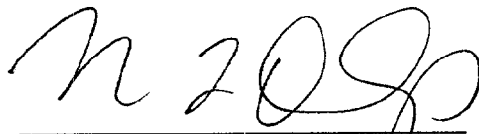
### Right Knee Impact Test

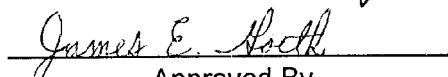
ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: KI002

| Tested Parameter             | Units   | Specification  | Result | Pass/Fail |
|------------------------------|---------|----------------|--------|-----------|
| Laboratory Temperature       | °C      | 18.9 to 25.5   | 21.7   | Pass      |
| Laboratory Relative Humidity | %       | 10 to 70       | 34     | Pass      |
| Probe Velocity               | m/s     | 2.073 to 2.134 | 2.082  | Pass      |
| Peak Probe Force             | Newtons | 4715 to 5782   | 5721.3 | Pass      |
| Overall Test Results         |         |                |        | Pass      |

  
\_\_\_\_\_  
Laboratory Technician

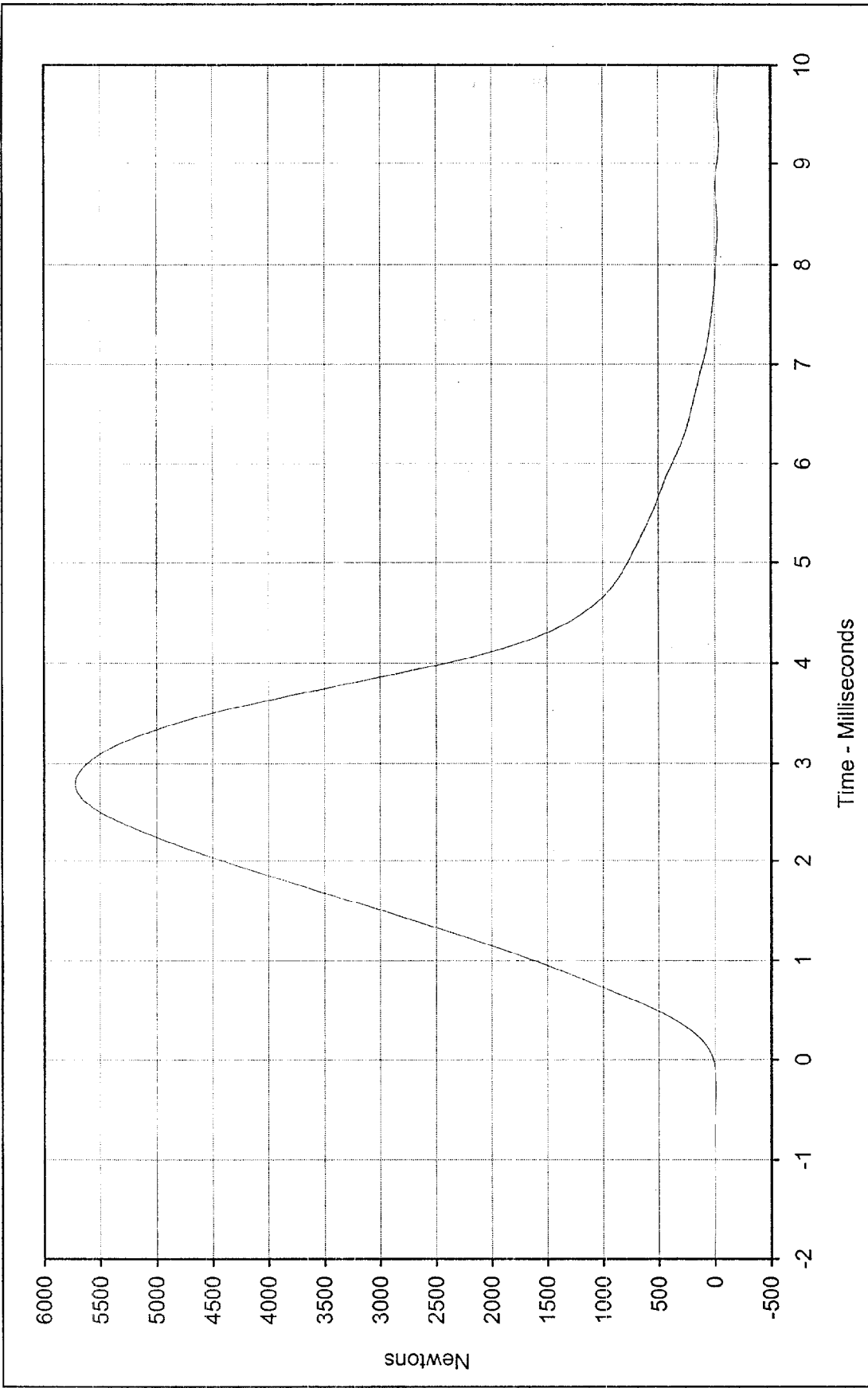
  
\_\_\_\_\_  
Approved By

May 18, 1998

Test Date

8/17/98

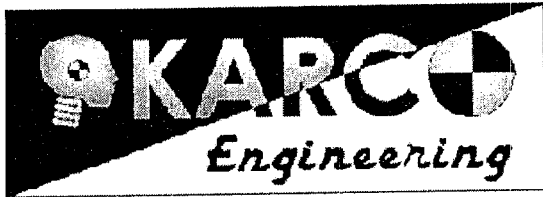
Date



Curve Description: Hybrid III Right Knee Impact Test  
 Testing Program: Hybrid III Right Knee Impact Test  
 Test Information: Part S/N: n/a Test I.D.: K1002

Probe Force  
 Maximum Value: 5721.3 at 2.8 Milliseconds  
 Minimum Value: -11.2 at 8.0 Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 5/18/98  
 ATD Serial No.: 034





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

### Head Drop Calibration

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: H0005

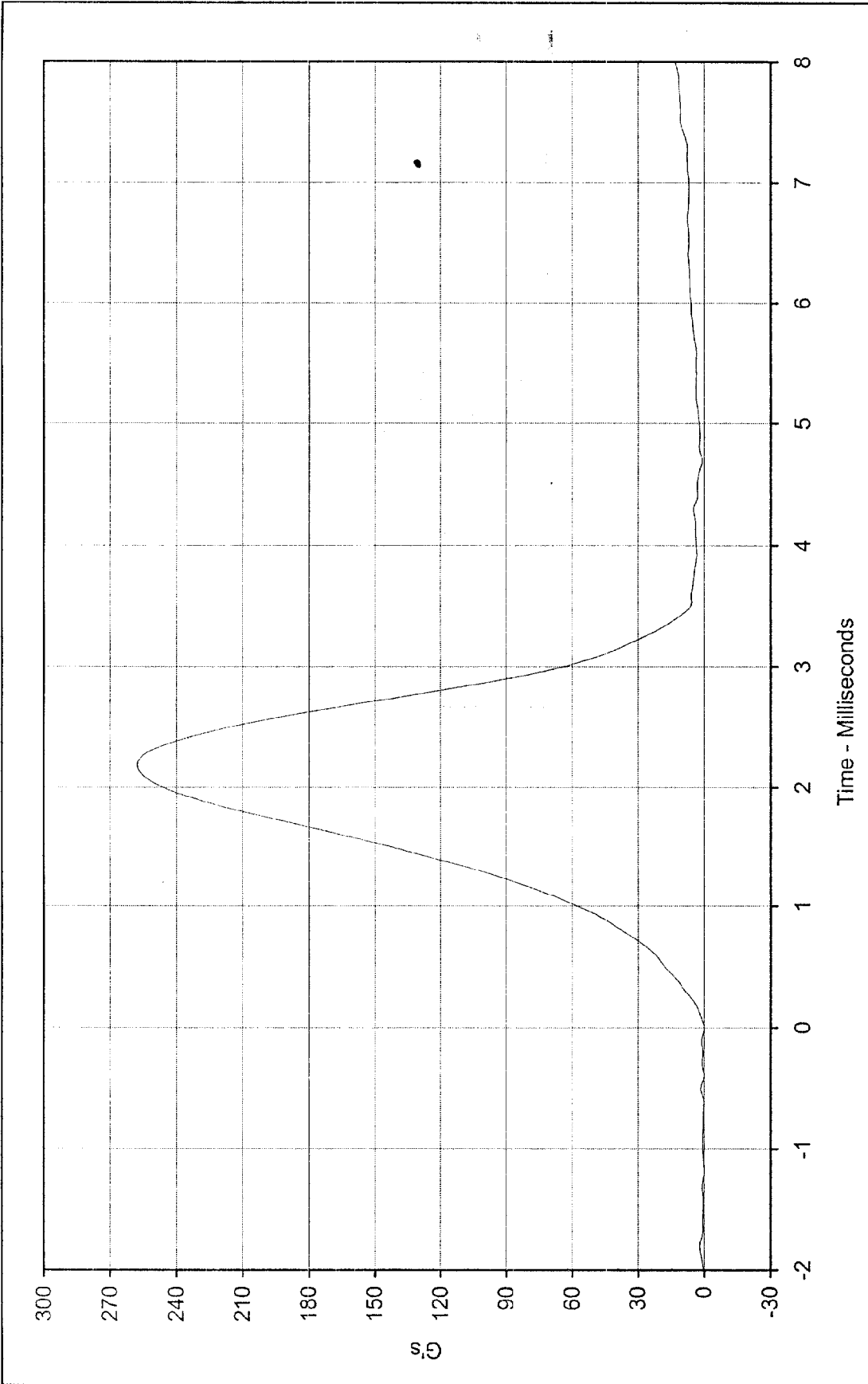
| Tested Parameter             | Units  | Specification  | Result | Pass/Fail |
|------------------------------|--------|----------------|--------|-----------|
| Laboratory Temperature       | °C     | 18.9 to 25.6   | 21.7   | Pass      |
| Laboratory Relative Humidity | %      | 10 to 70       | 41     | Pass      |
| Peak Resultant Acceleration  | G's    | 225.0 to 275.0 | 257.6  | Pass      |
| Peak Lateral Acceleration    | G's    | ≤15.0          | 2.6    | Pass      |
| Is Acceleration Unimodal?    | Yes/No | Yes            | Yes    | Pass      |
| Overall Test Results         |        |                |        | Pass      |

*N 200*  
 Laboratory Technician

*James E. Keith*  
 Approved By

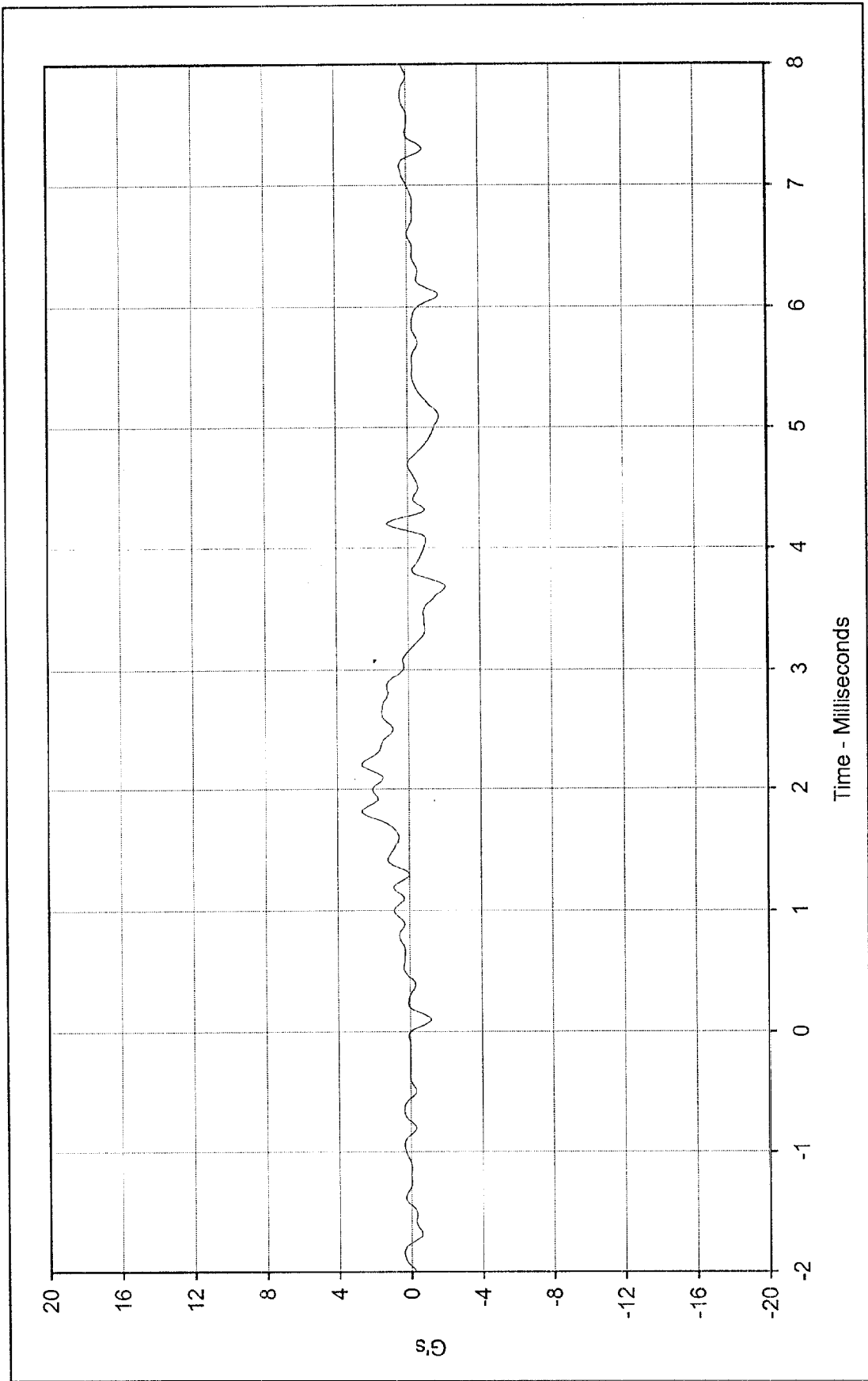
May 18, 1998  
 Test Date

8/17/98  
 Date



Curve Description: Head Resultant Acceleration      Testing Program: Hybrid III Head Drop Calibration (Male)  
 Maximum Value: 257.6 at 2.2 Milliseconds      Test Information: S/N of Part: n/a    Test I.D.: H0005  
 Minimum Value: 0.0 at -1.2 Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 5/18/98  
 ATD Serial No.: 034

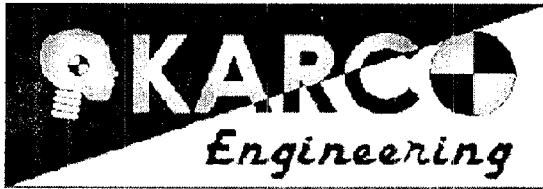




Curve Description: Head Acceleration Y Axis      Testing Program Hybrid III Head Drop Calibration (Male)  
 Maximum Value: 2.6 at 1.8 Milliseconds      Test Information: S/N of Part: n/a Test I.D.: H0005  
 Minimum Value: -2.0 at 3.7 Milliseconds

SAE Filter Class: 1000  
 Date of Test: 5/18/98  
 ATD Serial No.: 034





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

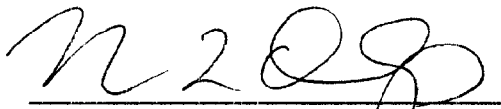
### Thorax Impact Test

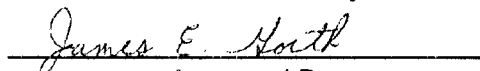
ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: 34CH1

| 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  | 6.77   | Pass      |
| Peak Probe Force             | Newtons | 5159 to 5893  | 5732   | Pass      |
| Peak Sternum Displacement    | CM      | 6.35 to 7.26  | 6.76   | Pass      |
| Internal Hysteresis          | %       | 69 to 85      | 75.8   | Pass      |
| Overall Test Results         |         |               |        | Pass      |

  
\_\_\_\_\_  
Laboratory Technician

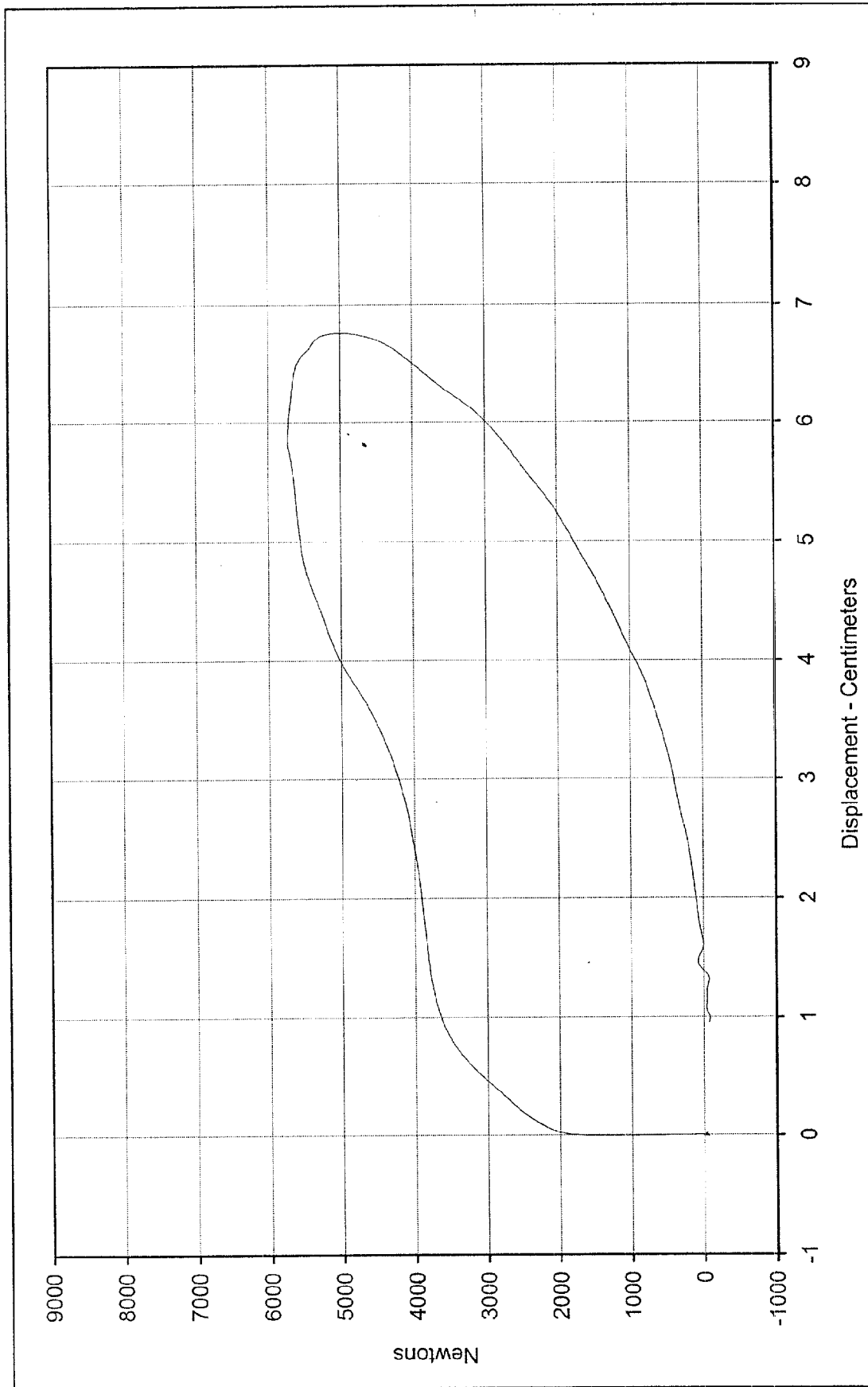
  
\_\_\_\_\_  
Approved By

May 28, 1998

Test Date

5/17/98

Date



Curve Description: Probe Force vs. Chest Displacement      Testing Program: Hybrid III Thorax Impact Test  
 Probe Force: 5731.6 Newtons      Test Information: S/N of Part: N/A    Test I.D.: 34CH1

Chest Displ.: 6.76 Centimeters  
 SAE Filter Class: 180  
 Date of Test: 5/28/98  
 ATD Serial No.: 034





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

### Neck Flexion Test

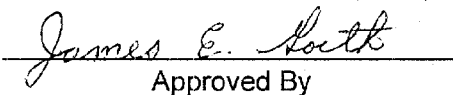
ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: N0011

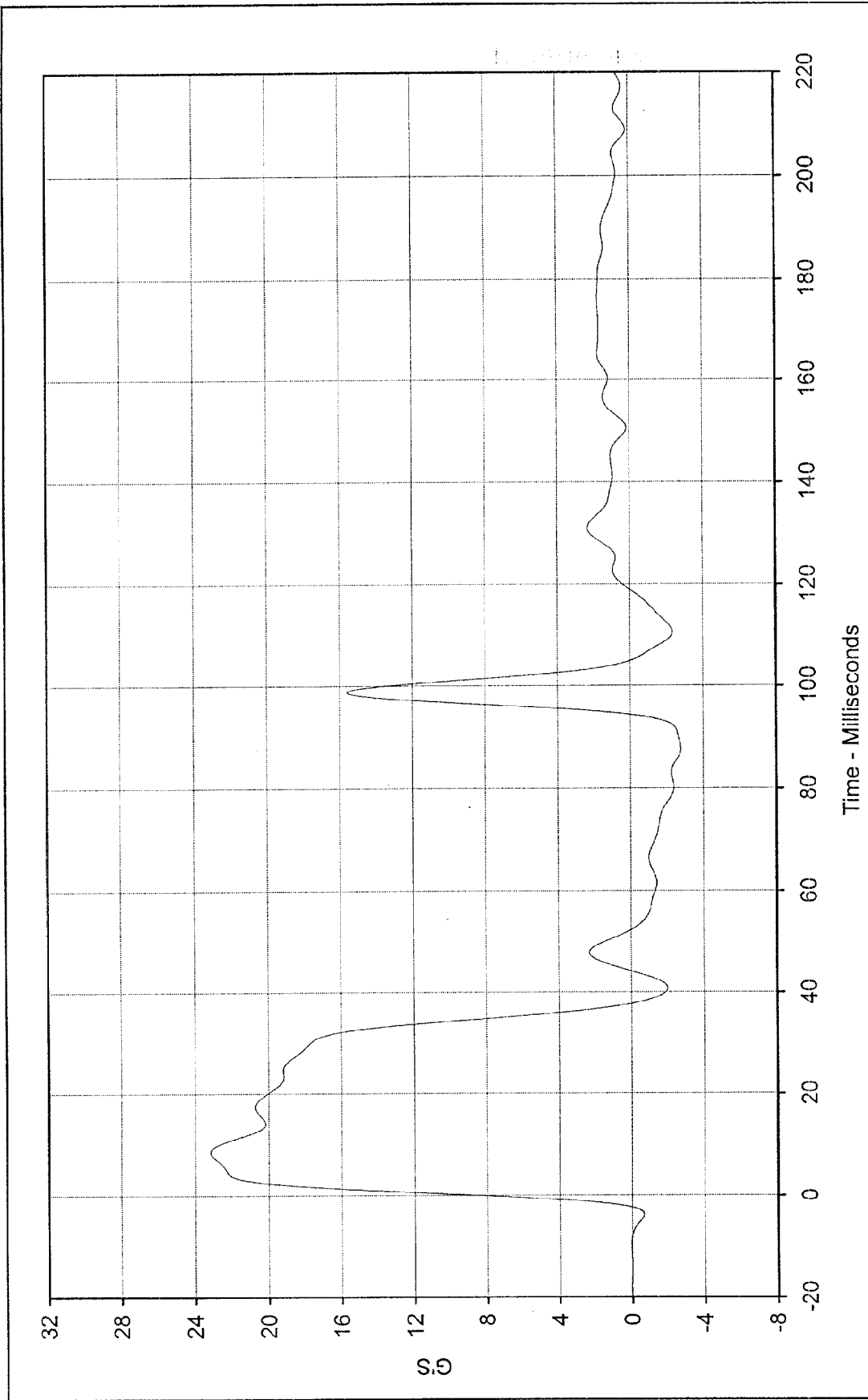
| Tested Parameter                                | Units    | Specification  | Result        | Pass/Fail |      |
|---|----------|----------------|---------------|-----------|------|
| Laboratory Temperature                          | °C       | 20.6 to 22.2   | 21.1          | Pass      |      |
| Laboratory Relative Humidity                    | %        | 10 to 70       | 40            | Pass      |      |
| Pendulum Velocity                               | m/s      | 6.89 to 7.13   | 7.13          | Pass      |      |
| Pendulum Deceleration                           | 10 Msec. | G's            | 22.5 to 27.5  | 22.7      | Pass |
|   | 20 Msec. | G's            | 17.6 to 22.6  | 20.1      | Pass |
|   | 30 Msec. | G's            | 12.5 to 18.5  | 17.7      | Pass |
| Peak Pendulum Decel. after 30 Msec.             | G's      | ≤ 29.0         | 17.7          | Pass      |      |
| Deceleration Decay, Time to Cross 5 G's         | Msec.    | 34.0 to 42.0   | 35.6          | Pass      |      |
| Maximum "D" Plane Rotation                      | Maximum  | Degrees        | 64.0 to 78.0  | 70.7      | Pass |
|   | Time     | Msec.          | 57.0 to 64.0  | 61.4      | Pass |
| "D" Plane Rotation Decay, Time To Zero Crossing | Msec.    | 113.0 to 128.0 | 124.1         | Pass      |      |
| Moment About Occipital Condyle                  | Maximum  | N • m          | 84.1 to 108.5 | 90.0      | Pass |
|   | Time     | Msec.          | 47.0 to 58.0  | 54.5      | Pass |
| Positive Moment Decay, Time To Zero Crossing    | Msec.    | 97.0 to 107.0  | 102.3         | Pass      |      |
| Overall Test Results                            |          |                |               | Pass      |      |

  
 Laboratory Technician

  
 Approved By

May 21, 1998  
 Test Date

8/17/98  
 Date



Curve Description: Hybrid III Neck Flexion Test (Male)

Testing Program: Hybrid III Neck Flexion Test (Male)

Maximum Value: 23.2 at 8.5 Milliseconds

Minimum Value: -2.8 at 87.6 Milliseconds

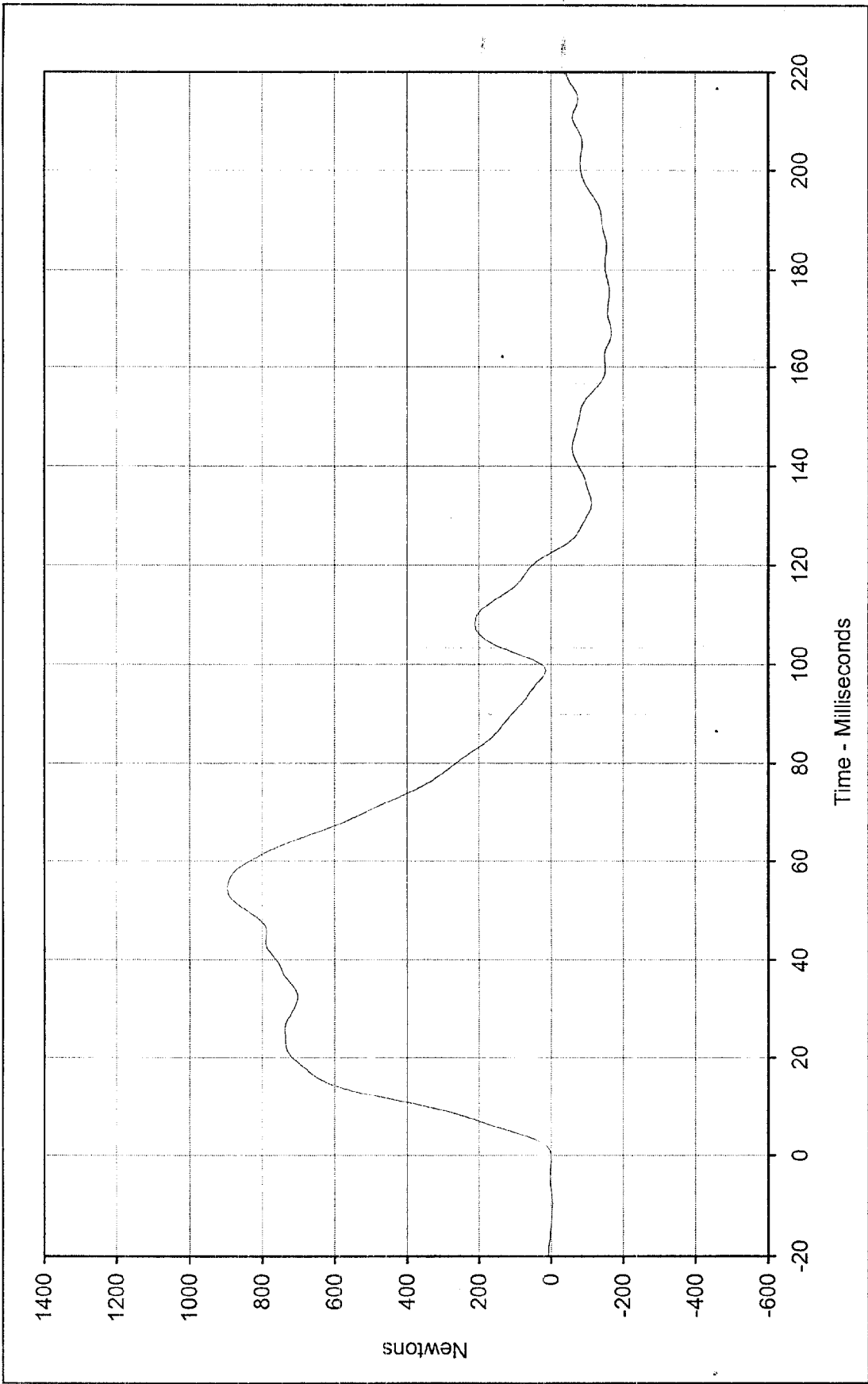
SAE Filter Class: 60

Date of Test: 5/21/98

ATD Serial No.: 034

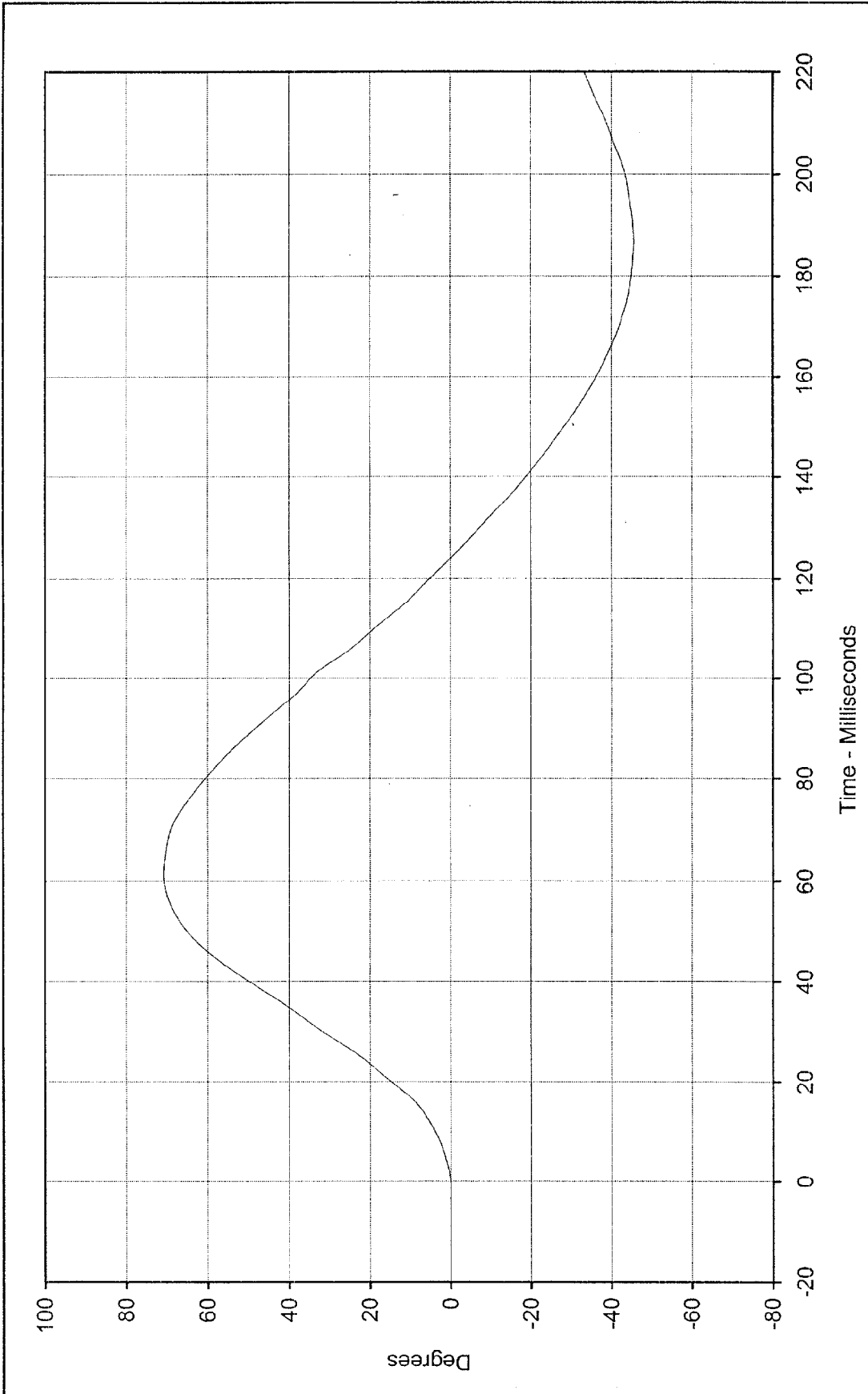
Test Information: S/N of Part: n/a Test I.D.: N0011





Curve Description: Neck Force X      Testing Program: Hybrid III Neck Flexion Test (Male)  
 Maximum Value: 895.0 at 54.4 Milliseconds      Test Information: S/N of Part: n/a    Test I.D.: N0011  
 Minimum Value: -167.2 at 166.9 Milliseconds  
 SAE Filter Class: 60  
 Date of Test: 5/21/98  
 ATD Serial No.: 034





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

Maximum Value: 70.7      at 61.4      Milliseconds      Test Information: S/N of Part: n/a      Test I.D.: N0011

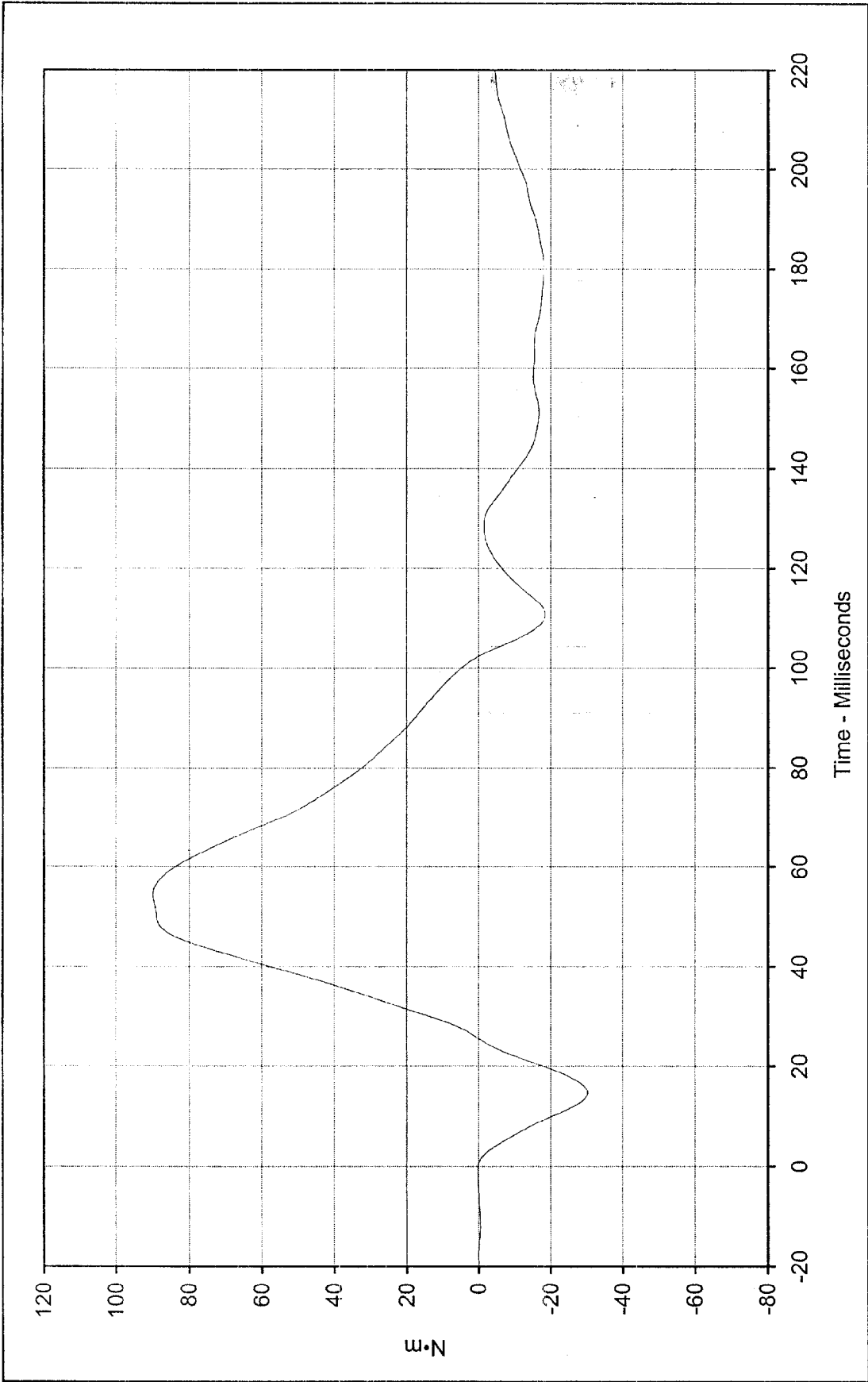
Minimum Value: -45.6      at 186.7      Milliseconds

SAE Filter Class: 60

Date of Test: 5/21/98

ATD Serial No.: 034





Curve Description: Moment About Occipital Condyles      Testing Program: Hybrid III Neck Flexion Test (Male)  
 Maximum Value: 90.0 at 54.5 Milliseconds      Test Information: S/N of Part: n/a    Test I.D.: N0011  
 Minimum Value: -30.3 at 14.6 Milliseconds



SAE Filter Class: 60  
 Date of Test: 5/21/98  
 ATD Serial No.: 034



# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

### Neck Extension Test

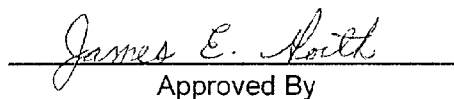
ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: N0010

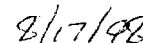
| Tested Parameter                                | Units    | Specification  | Result         | Pass/Fail |      |
|---|----------|----------------|----------------|-----------|------|
| Laboratory Temperature                          | °C       | 20.6 to 22.2   | 21.1           | Pass      |      |
| Laboratory Relative Humidity                    | %        | 10 to 70       | 40             | Pass      |      |
| Pendulum Velocity                               | m/s      | 5.95 to 6.19   | 6.17           | Pass      |      |
| Pendulum Deceleration                           | 10 Msec. | G's            | 17.2 to 21.2   | 17.4      | Pass |
|   | 20 Msec. | G's            | 14.0 to 19.0   | 15.6      | Pass |
|   | 30 Msec. | G's            | 11.0 to 16.0   | 13.5      | Pass |
| Peak Pendulum Decel. after 30 Msec.             | G's      | ≤ 22.0         | 13.5           | Pass      |      |
| Deceleration Decay, Time to Cross 5 G's         | Msec.    | 38.0 to 46.0   | 41.1           | Pass      |      |
| Maximum "D" Plane Rotation                      | Maximum  | Degrees        | 81.0 to 106.0  | 96.0      | Pass |
|   | Time     | Msec.          | 72.0 to 82.0   | 74.5      | Pass |
| "D" Plane Rotation Decay, Time To Zero Crossing | Msec.    | 147.0 to 174.0 | 155.8          | Pass      |      |
| Moment About Occipital Condyle                  | Maximum  | N • m          | -52.9 to- 79.9 | -73.1     | Pass |
|   | Time     | Msec.          | 65.0 to 79.0   | 66.0      | Pass |
| Negative Moment Decay, Time To Zero Crossing    | Msec.    | 120.0 to 148.0 | 142.2          | Pass      |      |
| Overall Test Results                            |          |                |                | Pass      |      |

  
 Laboratory Technician

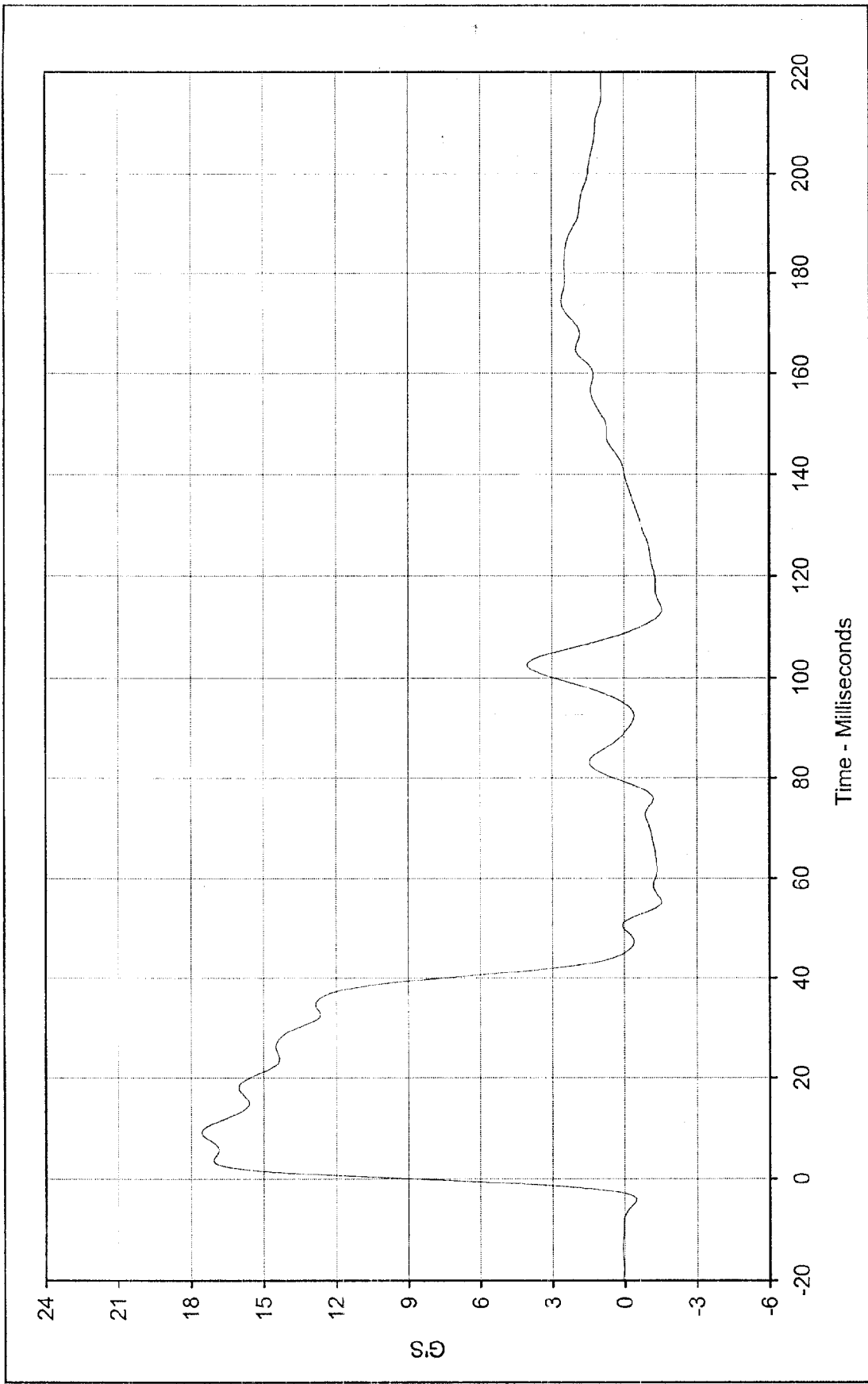
  
 Approved By

May 21, 1998

Test Date

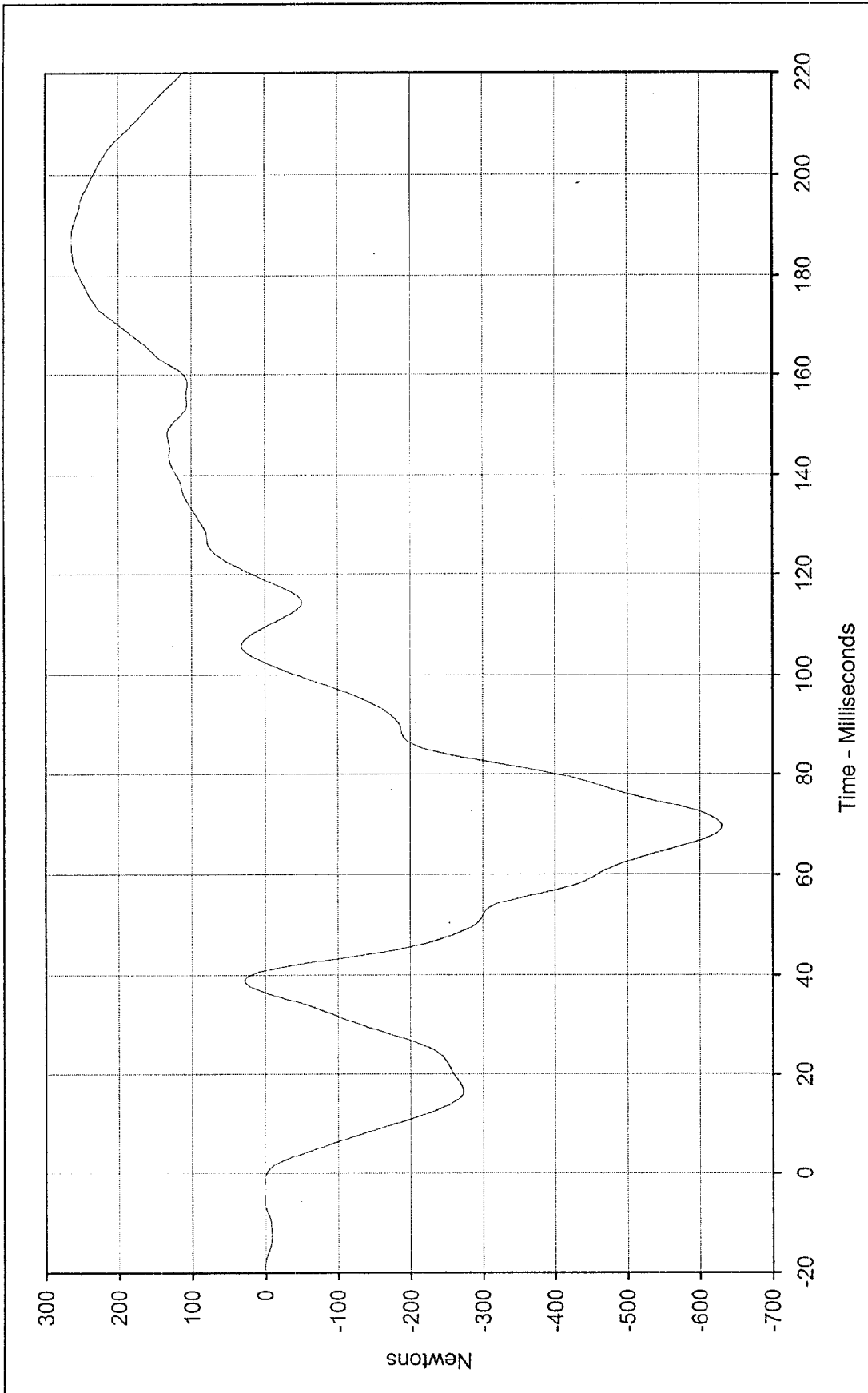


Date



Curve Description: Pendulum Deceleration      Testing Program: Hybrid III Neck Extension Test (Male)  
 Maximum Value: 17.6 at 9.2 Milliseconds      Test Information: S/N of Part: n/a    Test I.D.: N0010  
 Minimum Value: -1.6 at 113.4 Milliseconds  
 SAE Filter Class: 60  
 Date of Test: 5/21/98  
 ATD Serial No.: 034

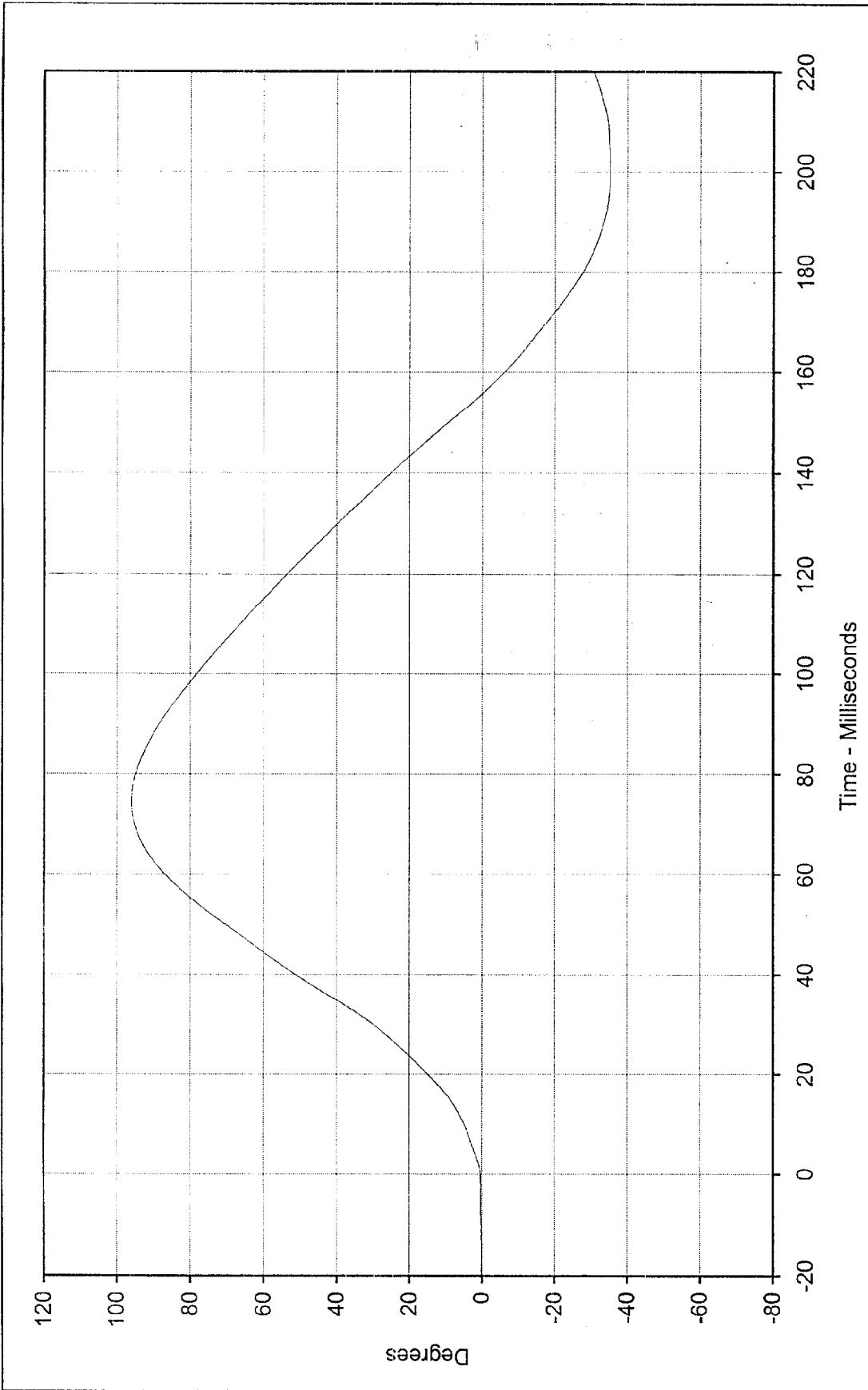




Curve Description: Neck Force X  
 Maximum Value: 264.5 at 187.0 Milliseconds  
 Minimum Value: -630.1 at 69.4 Milliseconds  
 SAE Filter Class: 60  
 Date of Test: 5/21/98  
 ATD Serial No.: 034

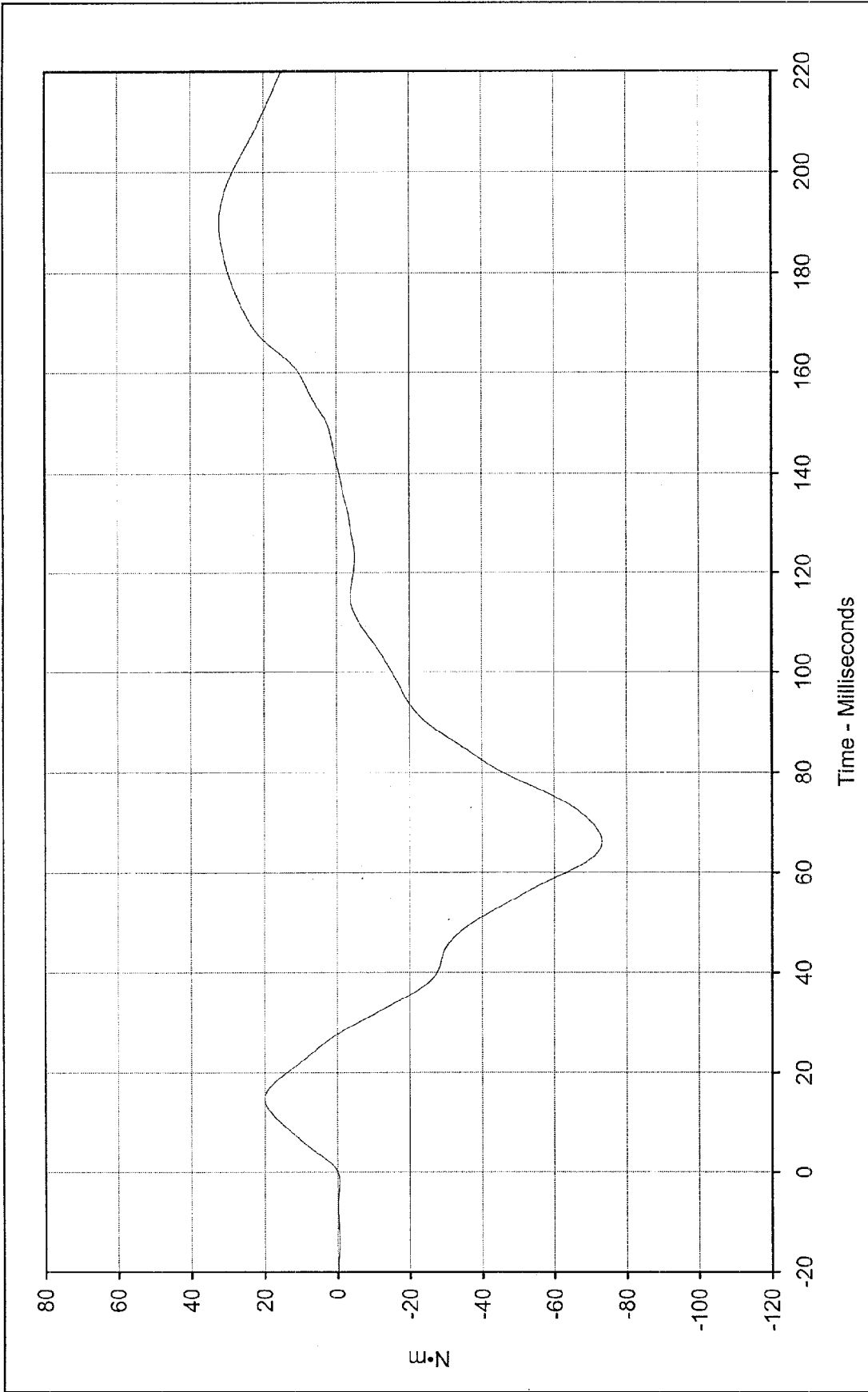
Testing Program: Hybrid III Neck Extension Test (Male)  
 Test Information: S/N of Part: n/a Test I.D.: N0010





Curve Description: "D" Plane Rotation      Testing Program Hybrid III Neck Extension Test (Male)  
 Maximum Value: 96.0 at 74.5 Milliseconds      Test Information: S/N of Part: n/a Test I.D.: N0010  
 Minimum Value: -35.2 at 200.5 Milliseconds  
 SAE Filter Class: 60  
 Date of Test: 5/21/98  
 ATD Serial No.: 034





|                    |                                 |                   |                                       |
|--------------------|---------------------------------|-------------------|---------------------------------------|
| Curve Description: | Moment About Occipital Condyles | Testing Program   | Hybrid III Neck Extension Test (Male) |
| Maximum Value:     | 32.1 at 189.9 Milliseconds      | Test Information: | S/N of Part: n/a Test I.D.: N0010     |
| Minimum Value:     | -73.1 at 66.0 Milliseconds      |                   |                                       |
| SAE Filter Class:  | 60                              |                   |                                       |
| Date of Test:      | 5/21/98                         |                   |                                       |
| ATD Serial No.:    | 034                             |                   |                                       |





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

### External Measurements

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: N/A

| External Measurement Data             |       |                 |        |           |
|---------------------------------------|-------|-----------------|--------|-----------|
| Tested Parameter                      | Units | Specification   | Result | Pass/Fail |
| Laboratory temperature                | °C    | 20.4 to 22.1    | 20.9   | Pass      |
| Laboratory relative humidity          | %     | 10 to 70        | 43     | Pass      |
| A - Total sitting height              | mm    | 878.8 to 889.0  | 888.1  | Pass      |
| B - Shoulder pivot height             | mm    | 505.5 to 520.7  | 506.0  | Pass      |
| C - "H" point height                  | mm    | 83.8 to 88.9    | 87.1   | Pass      |
| D - "H" point from seat back          | mm    | 134.6 to 139.7  | 137.0  | Pass      |
| E - Shoulder pivot from back          | mm    | 83.8 to 94.0    | 90.0   | Pass      |
| F - Thigh clearance                   | mm    | 139.7 to 154.9  | 153.0  | Pass      |
| G - Elbow back to wrist pivot         | mm    | 289.6 to 304.8  | 300.4  | Pass      |
| H - Skull cap to back line            | mm    | 40.6 to 45.7    | 44.0   | Pass      |
| I - Shoulder to elbow length          | mm    | 330.2 to 345.4  | 335.0  | Pass      |
| J - Elbow rest height                 | mm    | 190.5 to 210.8  | 207.0  | Pass      |
| K - Buttock to knee length            | mm    | 579.1 to 604.5  | 603.1  | Pass      |
| L - Popliteal length                  | mm    | 429.3 to 454.7  | 451.0  | Pass      |
| M - Knee pivot height                 | mm    | 485.1 to 500.4  | 500.0  | Pass      |
| N - Buttock popliteal length          | mm    | 452.1 to 477.5  | 476.0  | Pass      |
| O - Chest depth                       | mm    | 213.4 to 228.6  | 225.0  | Pass      |
| P - Foot length                       | mm    | 251.5 to 266.7  | 255.0  | Pass      |
| V - Shoulder breadth                  | mm    | 421.6 to 436.9  | 429.0  | Pass      |
| W - Foot breadth                      | mm    | 91.4 to 106.7   | 103.2  | Pass      |
| Y - Chest circumference               | mm    | 970.3 to 1000.8 | 980.3  | Pass      |
| Z - Waist circumference               | mm    | 835.7 to 866.1  | 865.0  | Pass      |
| AA - Location for chest circumference | mm    | 429.3 to 434.3  | 430.0  | Pass      |
| BB - Location for waist circumference | mm    | 226.1 to 231.1  | 229.0  | Pass      |
| Overall Test Results                  |       |                 |        | Pass      |

  
 Laboratory Technician

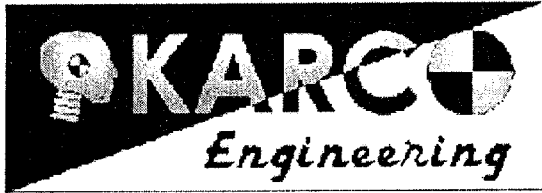
May 30, 1998

Test Date

  
 Approved By

5/17/98

Date



# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

### Left Knee Impact Test

ATD Serial No.: 035

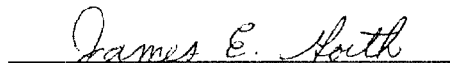
Part Serial No.: n/a

Test I.D.: KI005

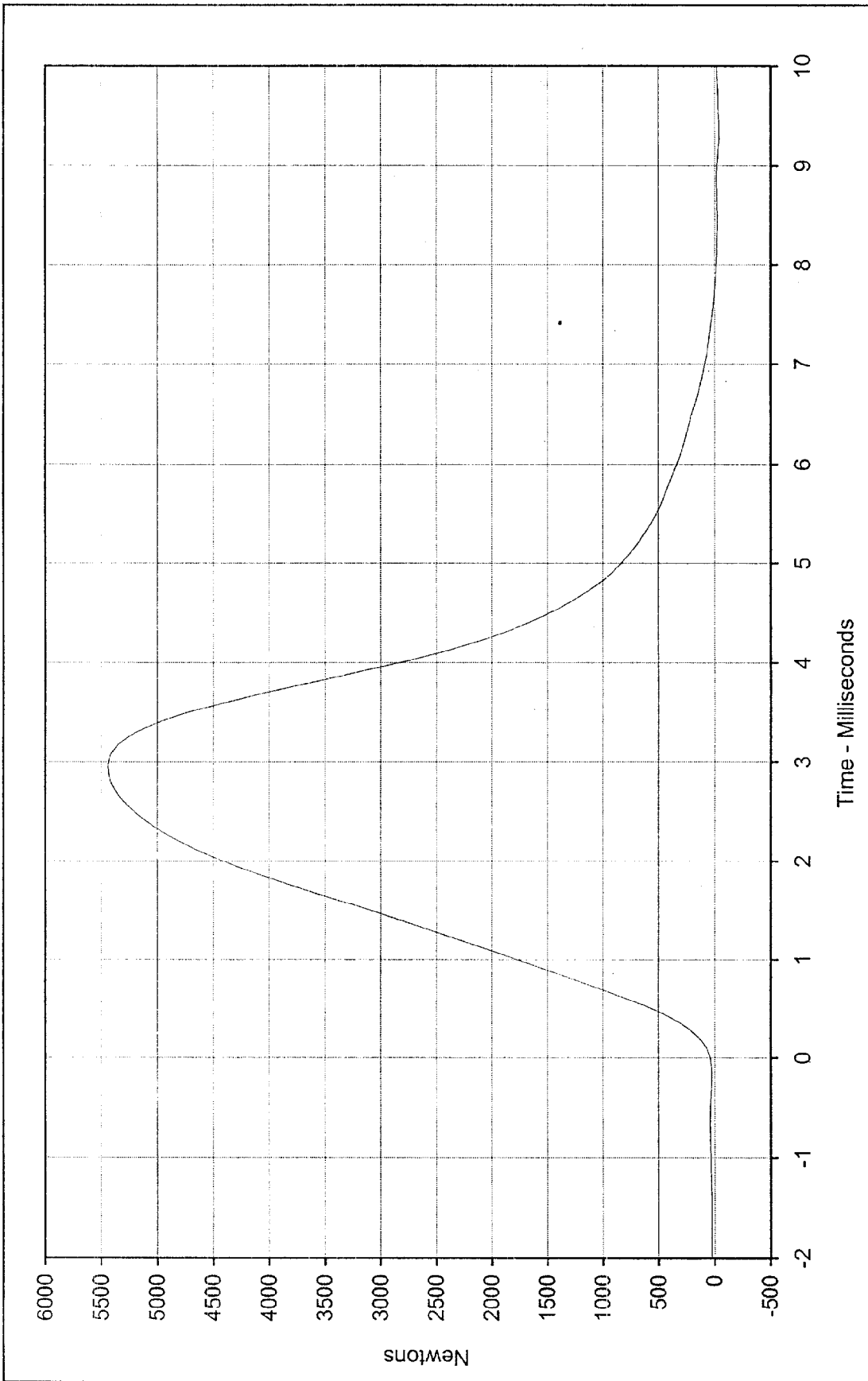
| Tested Parameter             | Units   | Specification  | Result | Pass/Fail |
|------------------------------|---------|----------------|--------|-----------|
| Laboratory Temperature       | °C      | 18.9 to 25.5   | 21.7   | Pass      |
| Laboratory Relative Humidity | %       | 10 to 70       | 34     | Pass      |
| Probe Velocity               | m/s     | 2.073 to 2.134 | 2.133  | Pass      |
| Peak Probe Force             | Newtons | 4715 to 5782   | 5436.7 | Pass      |
| Overall Test Results         |         |                |        | Pass      |

  
\_\_\_\_\_  
Laboratory Technician

May 18, 1998  
Test Date

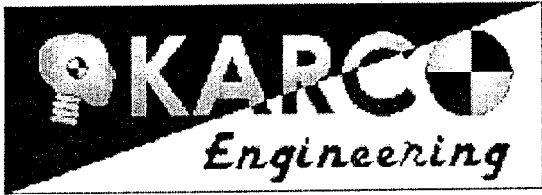
  
\_\_\_\_\_  
Approved By

5/17/98  
Date



Curve Description: Probe Force      Testing Program Hybrid III Left Knee Impact Test  
 Maximum Value: 5436.7 at 2.9 Milliseconds      Test Information: Part S/N: n/a Test I.D.: KI005  
 Minimum Value: -16.7 at 8.0 Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 5/18/98  
 ATD Serial No.: 035





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male


### Right Knee Impact Test

ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: KI007

| Tested Parameter             | Units   | Specification  | Result | Pass/Fail |
|------------------------------|---------|----------------|--------|-----------|
| Laboratory Temperature       | °C      | 18.9 to 25.5   | 21.7   | Pass      |
| Laboratory Relative Humidity | %       | 10 to 70       | 34     | Pass      |
| Probe Velocity               | m/s     | 2.073 to 2.134 | 2.101  | Pass      |
| Peak Probe Force             | Newtons | 4715 to 5782   | 5553.8 | Pass      |
| Overall Test Results         |         |                |        | Pass      |

  
\_\_\_\_\_  
Laboratory Technician

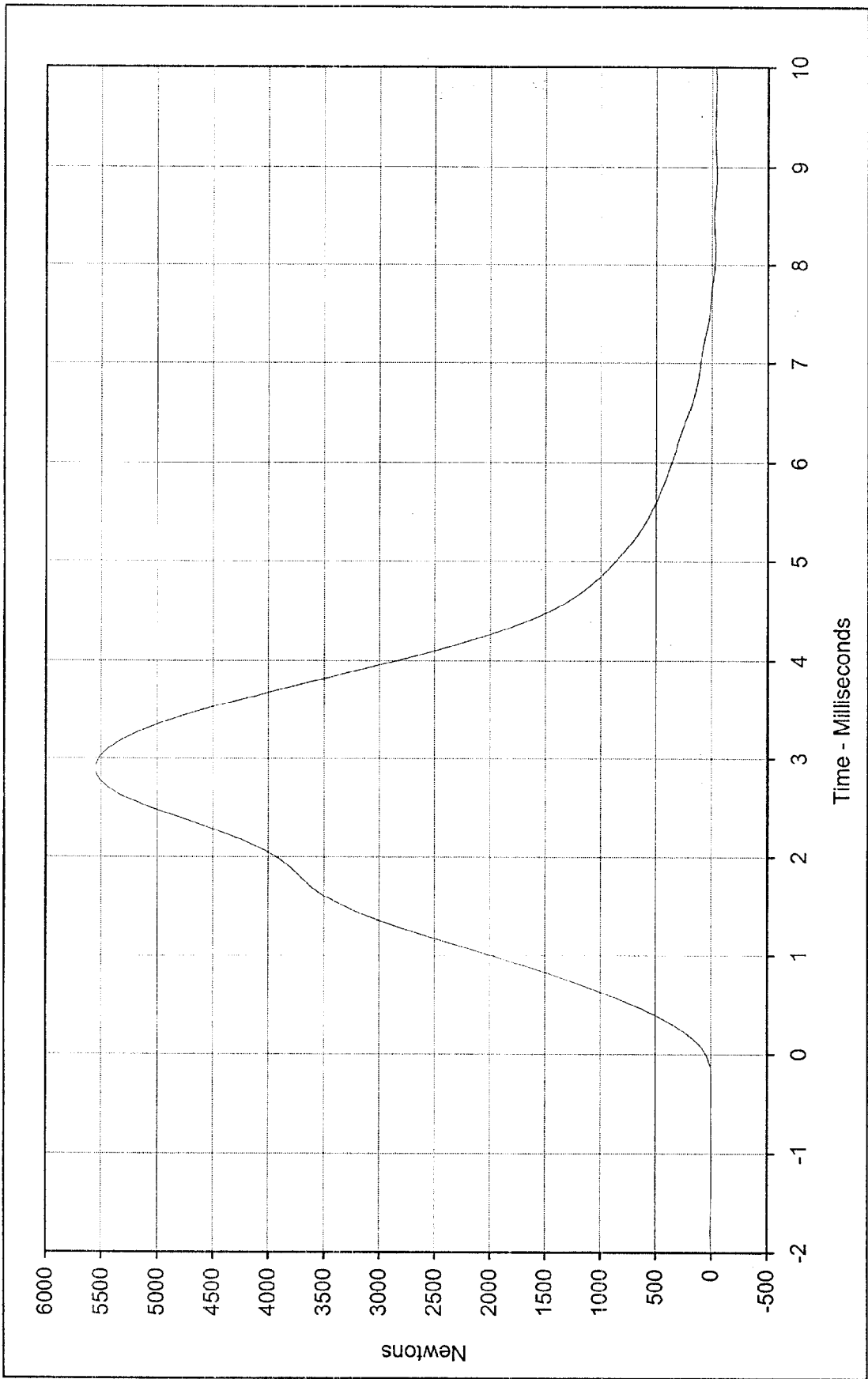
  
\_\_\_\_\_  
Approved By

May 18, 1998

Test Date

5/17/98

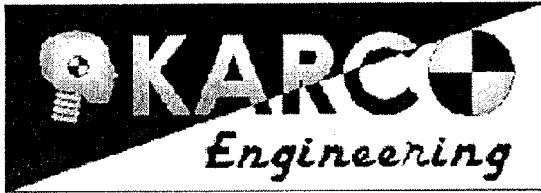
Date



Curve Description: Hybrid III Right Knee Impact Test  
 Testing Program: Hybrid III Right Knee Impact Test  
 Test Information: Part S/N: n/a Test I.D.: KI007

Maximum Value: 5553.8 at 2.9 Milliseconds  
 Minimum Value: -26.1 at 8.0 Milliseconds  
 SAE Filter Class: 600  
 Date of Test: 5/18/98  
 ATD Serial No.: 035





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

### Head Drop Calibration

ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: H0006

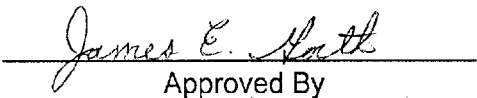
| Tested Parameter             | Units  | Specification  | Result | Pass/Fail |
|------------------------------|--------|----------------|--------|-----------|
| Laboratory Temperature       | °C     | 18.9 to 25.6   | 21.7   | Pass      |
| Laboratory Relative Humidity | %      | 10 to 70       | 41     | Pass      |
| Peak Resultant Acceleration  | G's    | 225.0 to 275.0 | 256.6  | Pass      |
| Peak Lateral Acceleration    | G's    | ≤15.0          | 2.3    | Pass      |
| Is Acceleration Unimodal?    | Yes/No | Yes            | Yes    | Pass      |
| Overall Test Results         |        |                |        | Pass      |



Laboratory Technician

May 18, 1998

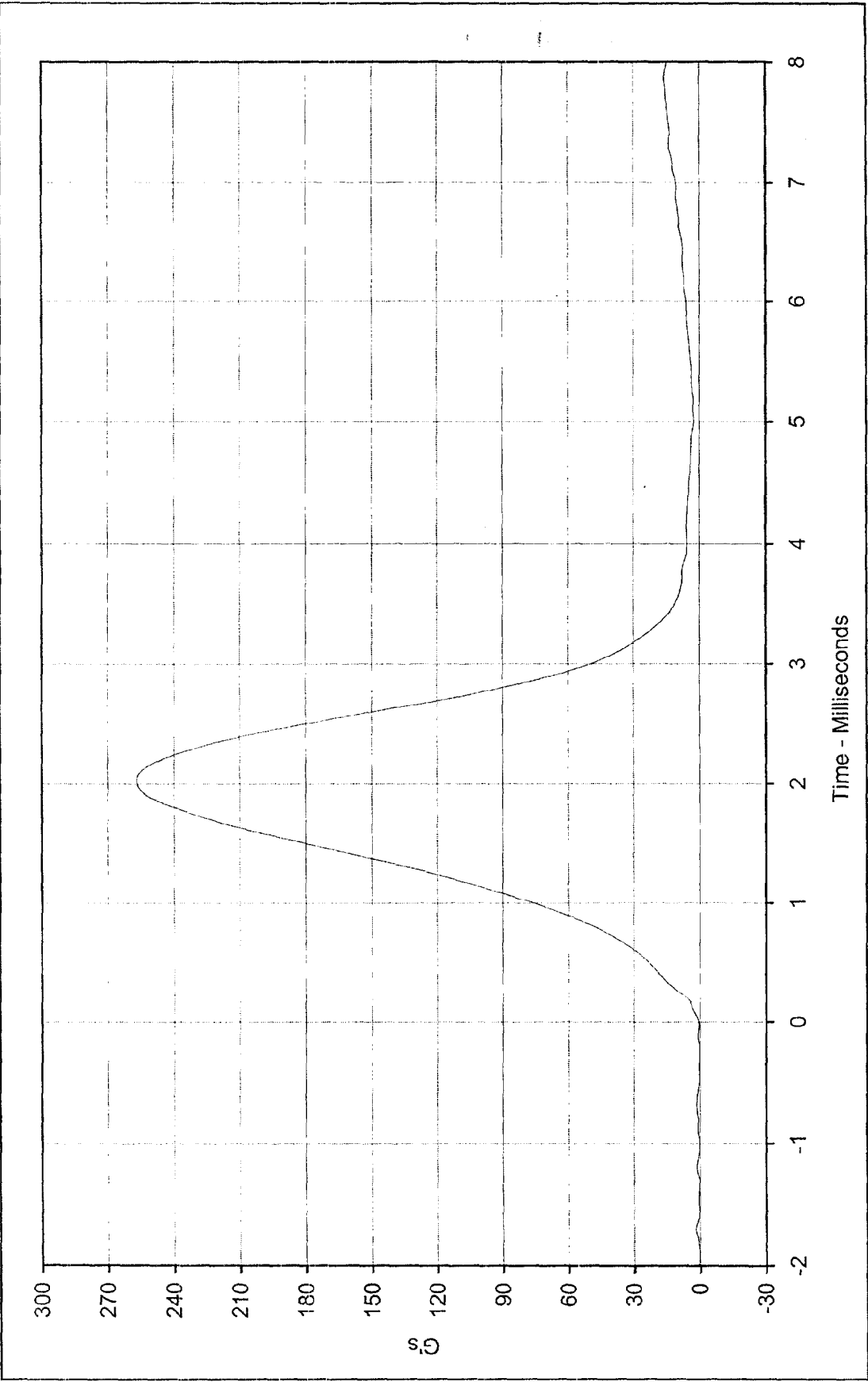
Test Date



Approved By

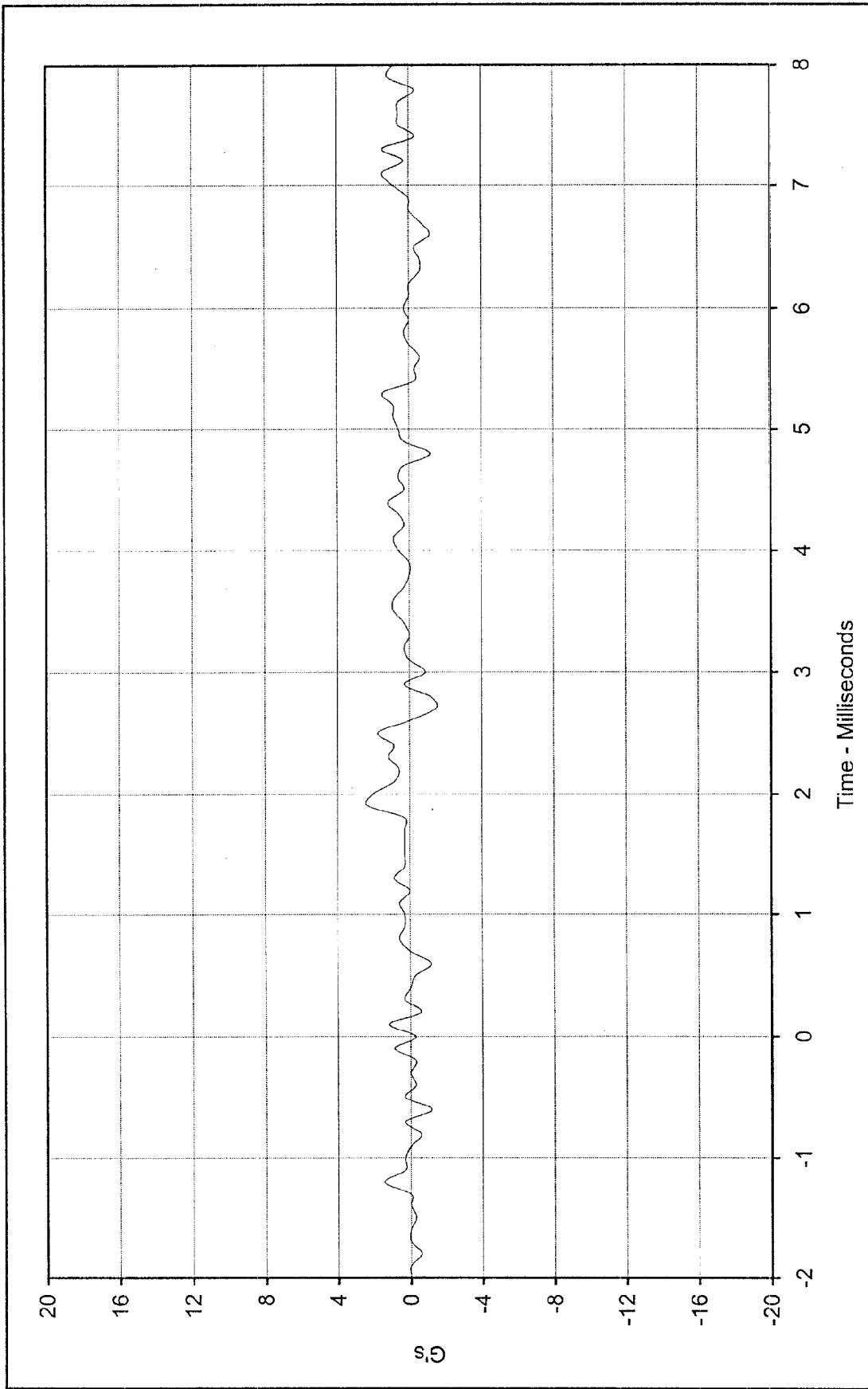
8/17/98

Date



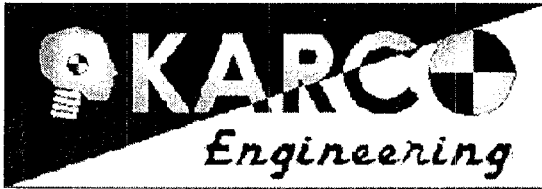
Curve Description: Head Resultant Acceleration      Testing Program Hybrid III Head Drop Calibration (Male)  
 Maximum Value: 256.6 at 2.0 Milliseconds      Test Information: S/N of Part: n/a    Test I.D.: H0006  
 Minimum Value: 0.3 at -1.9 Milliseconds  
 SAE Filter Class: 1000  
 Date of Test: 5/18/98  
 Test S. No.: 1





|                    |                          |                   |   |
|--------------------|--------------------------|-------------------|---|
| Curve Description: | Head Acceleration Y Axis | Testing Program   | Hybrid III Head Drop Calibration (Male) |
| Maximum Value:     | 2.3 at 1.9 Milliseconds  | Test Information: | S/N of Part: n/a Test I.D.: H0006       |
| Minimum Value:     | -1.5 at 2.7 Milliseconds |                   |   |
| SAE Filter Class:  | 1000                     |                   |   |
| Date of Test:      | 5/18/98                  |                   |   |
| ATD Serial No.:    | 035                      |                   |   |





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

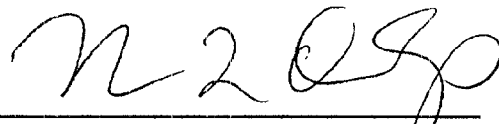
### Thorax Impact Test

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: 35CH1

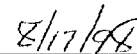
| Tested Parameter             | Units   | Specification | Result | Pass/Fail |
|------------------------------|---------|---------------|--------|-----------|
| Laboratory Temperature       | °C      | 20.6 to 22.2  | 21.2   | Pass      |
| Laboratory Relative Humidity | %       | 10 to 70      | 39     | Pass      |
| Probe Velocity               | m/s     | 6.58 to 6.82  | 6.72   | Pass      |
| Peak Probe Force             | Newtons | 5159 to 5893  | 5889   | Pass      |
| Peak Sternum Displacement    | CM      | 6.35 to 7.26  | 6.91   | Pass      |
| Internal Hysteresis          | %       | 69 to 85      | 71.7   | Pass      |
| Overall Test Results         |         |               |        | Pass      |

  
\_\_\_\_\_  
Laboratory Technician

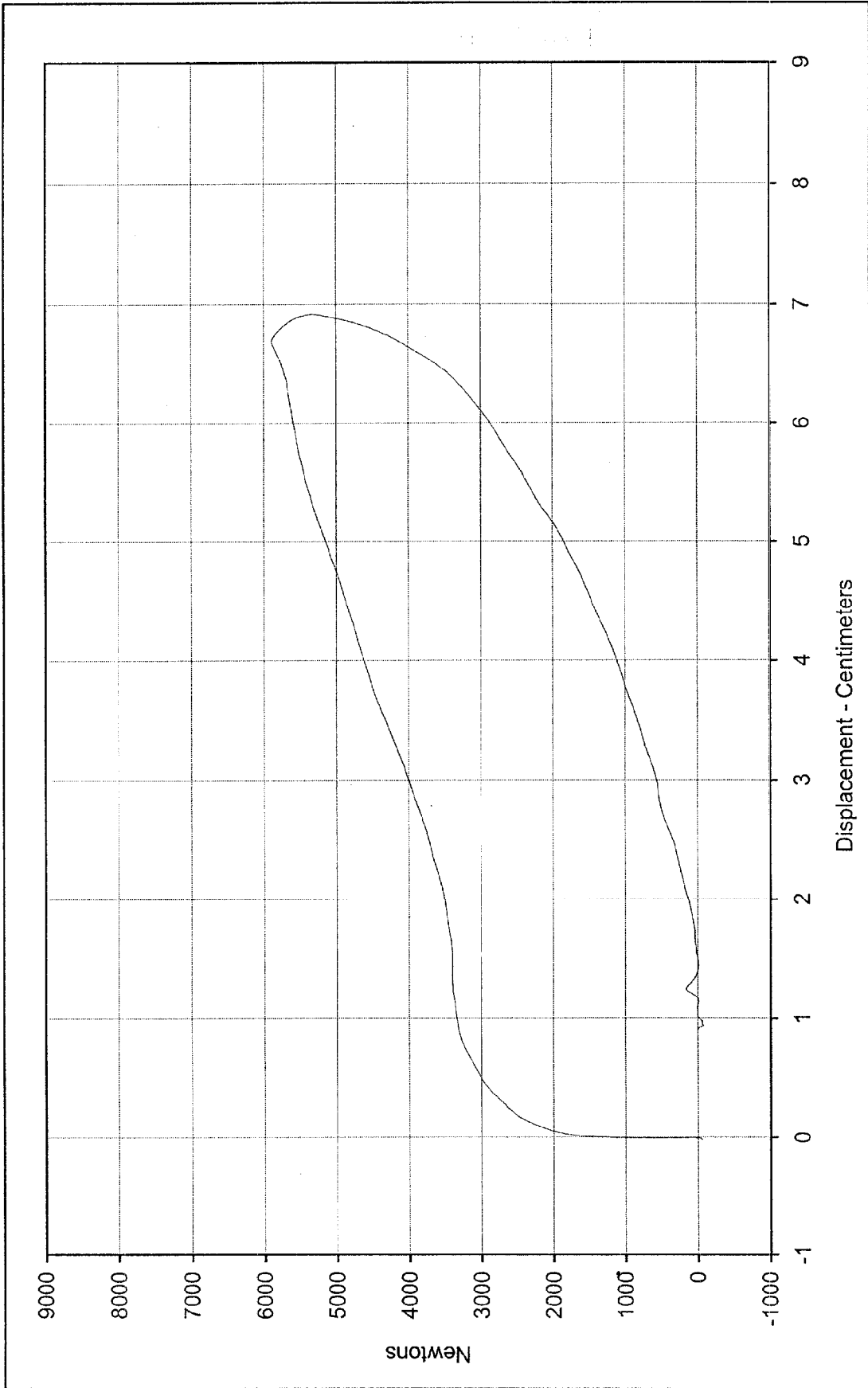
  
\_\_\_\_\_  
Approved By

May 28, 1998

\_\_\_\_\_  
Test Date



\_\_\_\_\_  
Date



Curve Description: Probe Force vs. Chest Displacement      Testing Program: Hybrid III Thorax Impact Test  
 Probe Force: 5889.0 Newtons      Test Information: S/N of Part: N/A    Test I.D.: 35CH1

Chest Displ.: 6.91 Centimeters  
 SAE Filter Class: 180  
 Date of Test: 5/28/98  
 ATD Serial No.: 035





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

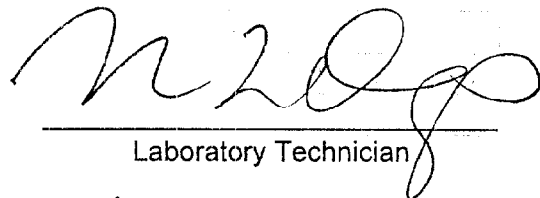
### Neck Flexion Test

ATD Serial No.: 035

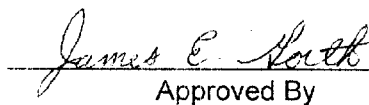
Part Serial No.: n/a

Test I.D.: N0012

| Tested Parameter                                | Units    | Specification  | Result        | Pass/Fail |      |
|---|----------|----------------|---------------|-----------|------|
| Laboratory Temperature                          | °C       | 20.6 to 22.2   | 21.1          | Pass      |      |
| Laboratory Relative Humidity                    | %        | 10 to 70       | 40            | Pass      |      |
| Pendulum Velocity                               | m/s      | 6.89 to 7.13   | 6.96          | Pass      |      |
| Pendulum Deceleration                           | 10 Msec. | G's            | 22.5 to 27.5  | 23.2      | Pass |
|   | 20 Msec. | G's            | 17.6 to 22.6  | 20.7      | 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   | 39.3          | Pass      |      |
| Maximum "D" Plane Rotation                      | Maximum  | Degrees        | 64.0 to 78.0  | 64.3      | Pass |
|   | Time     | Msec.          | 57.0 to 64.0  | 58.6      | Pass |
| "D" Plane Rotation Decay, Time To Zero Crossing | Msec.    | 113.0 to 128.0 | 113.5         | Pass      |      |
| Moment About Occipital Condyle                  | Maximum  | N • m          | 84.1 to 108.5 | 84.2      | Pass |
|   | Time     | Msec.          | 47.0 to 58.0  | 55.4      | Pass |
| Positive Moment Decay, Time To Zero Crossing    | Msec.    | 97.0 to 107.0  | 99.5          | Pass      |      |
| Overall Test Results                            |          |                |               | Pass      |      |



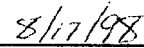
Laboratory Technician



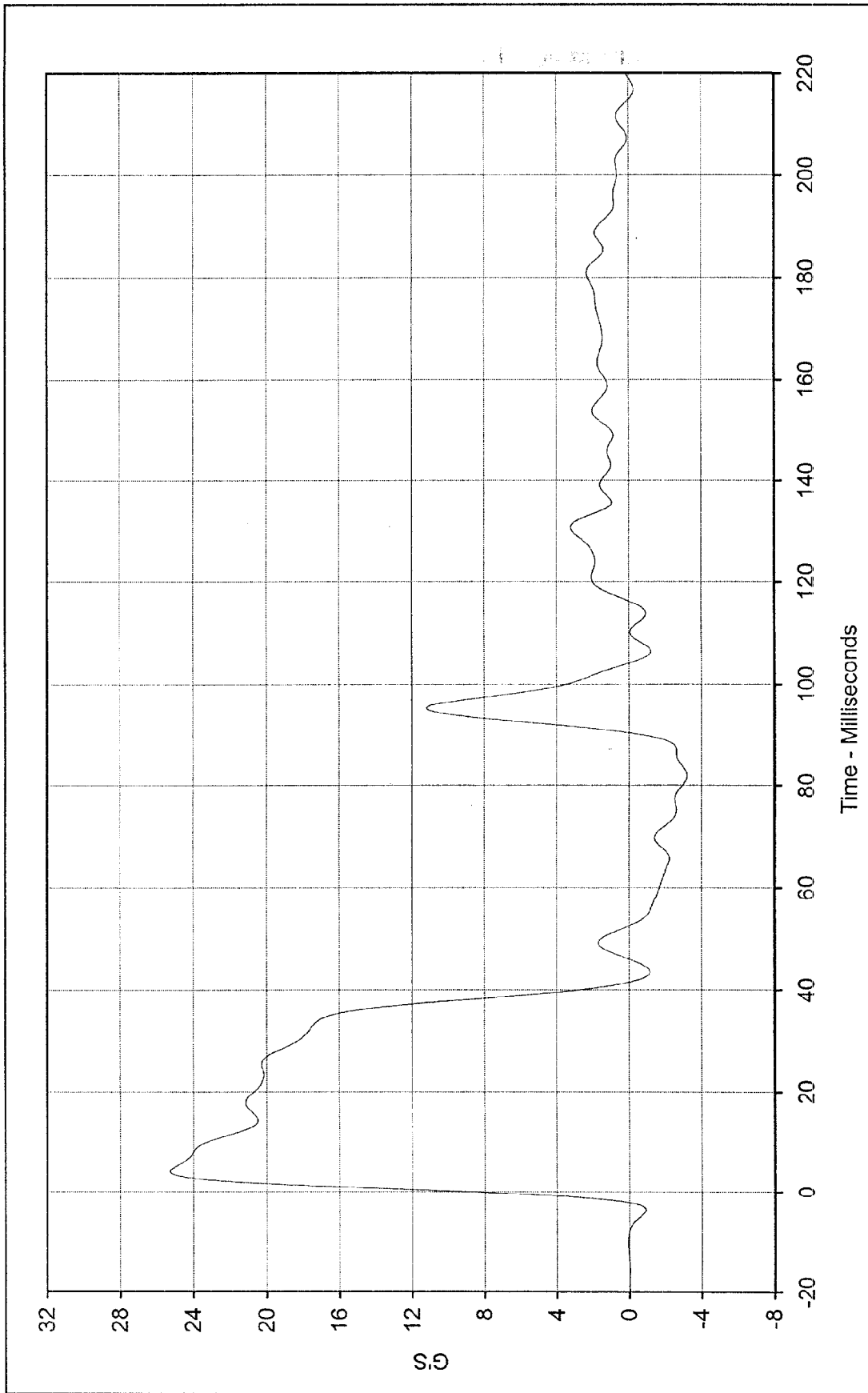
Approved By

May 21, 1998

Test Date



Date



Curve Description: Hybrid III Neck Flexion Test (Male)

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: S/N of Part: n/a Test I.D.: N0012

Pendulum Deceleration: 25.3 at 4.1 Milliseconds

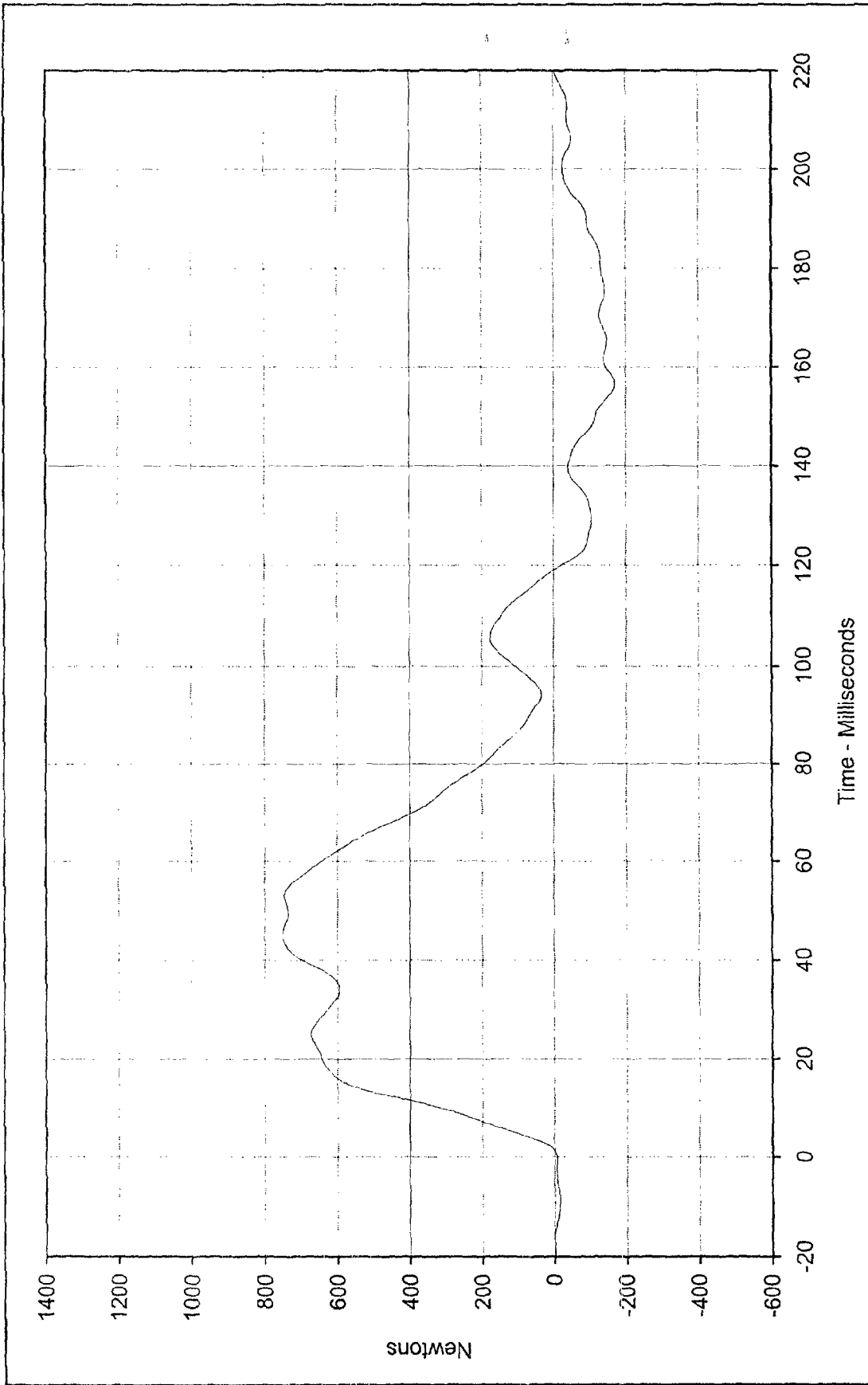
Minimum Value: -3.2 at 81.8 Milliseconds

SAE Filter Class: 60

Date of Test: 5/21/98

ATD Serial No.: 035





Curve Description: Neck Force X

Maximum Value: 749.1 at 45.0 Milliseconds

Minimum Value: -169.7 at 156.4 Milliseconds

SAE Filter Class: 60

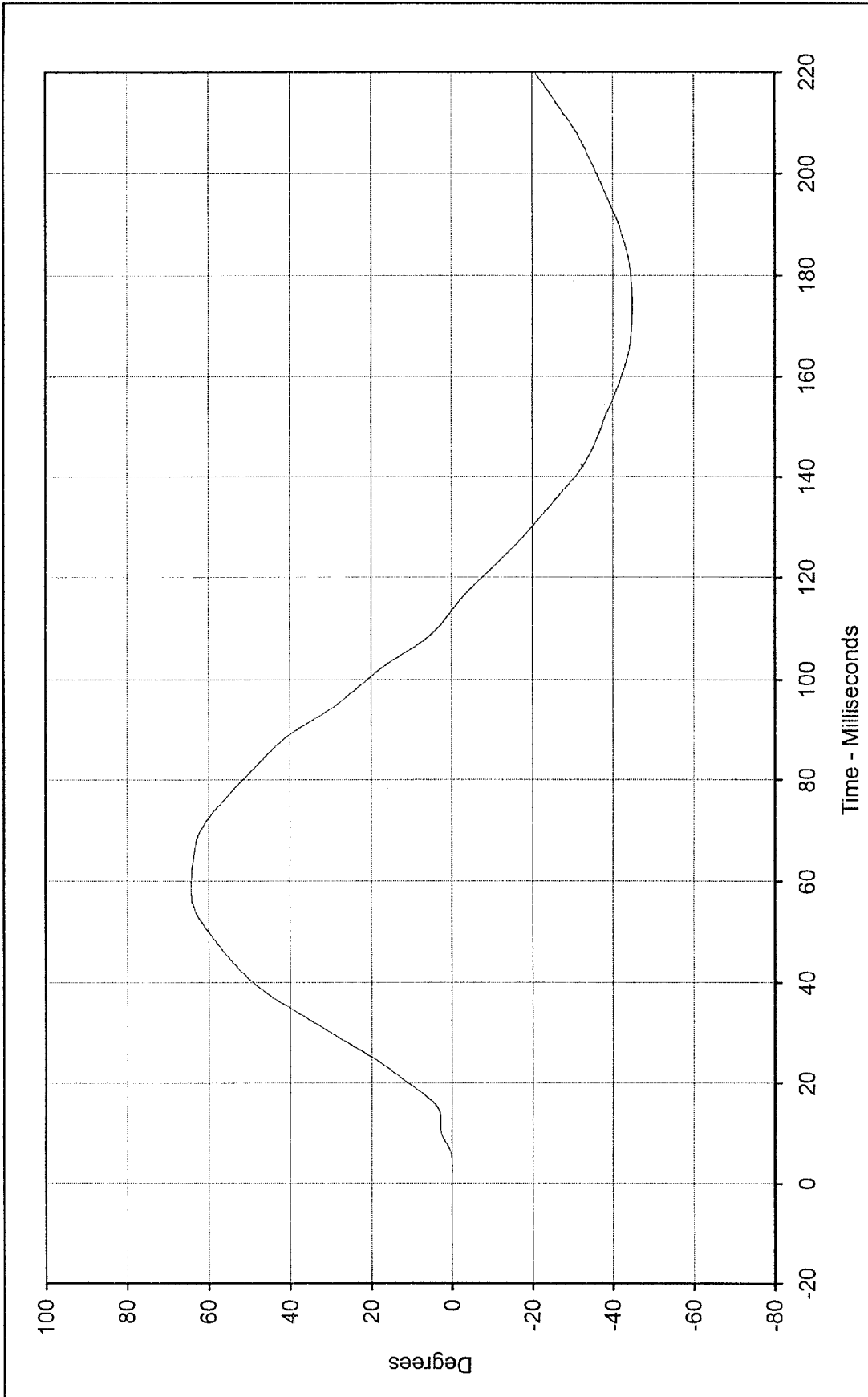
Date of Test: 5/21/98

ATD Serial No.: 035

Testing Program: Hybrid III Neck Flexion Test (Male)

Test Information: SN of Part: n/a Test I.D.: N0012





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

Maximum Value: 64.3 at 58.6 Milliseconds

Minimum Value: -44.8 at 174.1 Milliseconds

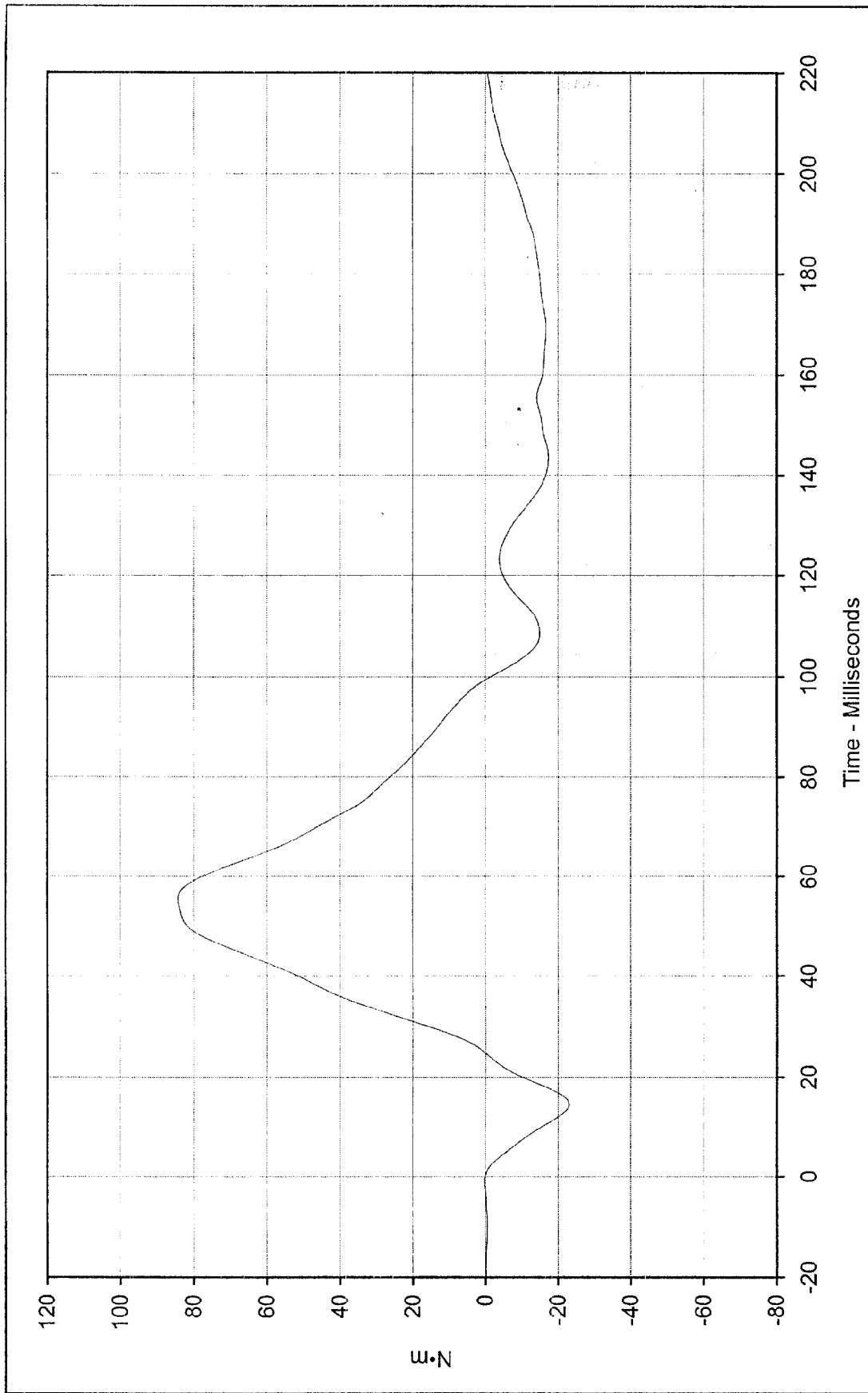
SAE Filter Class: 60

Date of Test: 5/21/98

ATD Serial No.: 035

Test Information: S/N of Part: n/a      Test I.D.: N0012





Curve Description: Moment About Occipital Condyles      Testing Program: Hybrid III Neck Flexion Test (Male)  
 Maximum Value: 84.2 at 55.4 Milliseconds      Test Information: S/N of Part: n/a    Test I.D.: N0012  
 Minimum Value: -23.1 at 14.6 Milliseconds



SAE Filter Class: 60  
 Date of Test: 5/21/98  
 ATD Serial No.: 035



# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male

### Neck Extension Test

ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: N0013


| Tested Parameter                                | Units    | Specification  | Result         | Pass/Fail |      |
|---|----------|----------------|----------------|-----------|------|
| Laboratory Temperature                          | °C       | 20.6 to 22.2   | 21.1           | Pass      |      |
| Laboratory Relative Humidity                    | %        | 10 to 70       | 40             | Pass      |      |
| Pendulum Velocity                               | m/s      | 5.95 to 6.19   | 6.03           | Pass      |      |
| Pendulum Deceleration                           | 10 Msec. | G's            | 17.2 to 21.2   | 17.5      | Pass |
|   | 20 Msec. | G's            | 14.0 to 19.0   | 16.9      | 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   | 45.1           | Pass      |      |
| Maximum "D" Plane Rotation                      | Maximum  | Degrees        | 81.0 to 106.0  | 91.7      | Pass |
|   | Time     | Msec.          | 72.0 to 82.0   | 76.5      | Pass |
| "D" Plane Rotation Decay, Time To Zero Crossing | Msec.    | 147.0 to 174.0 | 150.3          | Pass      |      |
| Moment About Occipital Condyle                  | Maximum  | N • m          | -52.9 to- 79.9 | -68.1     | Pass |
|   | Time     | Msec.          | 65.0 to 79.0   | 65.9      | Pass |
| Negative Moment Decay, Time To Zero Crossing    | Msec.    | 120.0 to 148.0 | 139.7          | Pass      |      |
| Overall Test Results                            |          |                |                | Pass      |      |



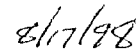
Laboratory Technician

May 21, 1998

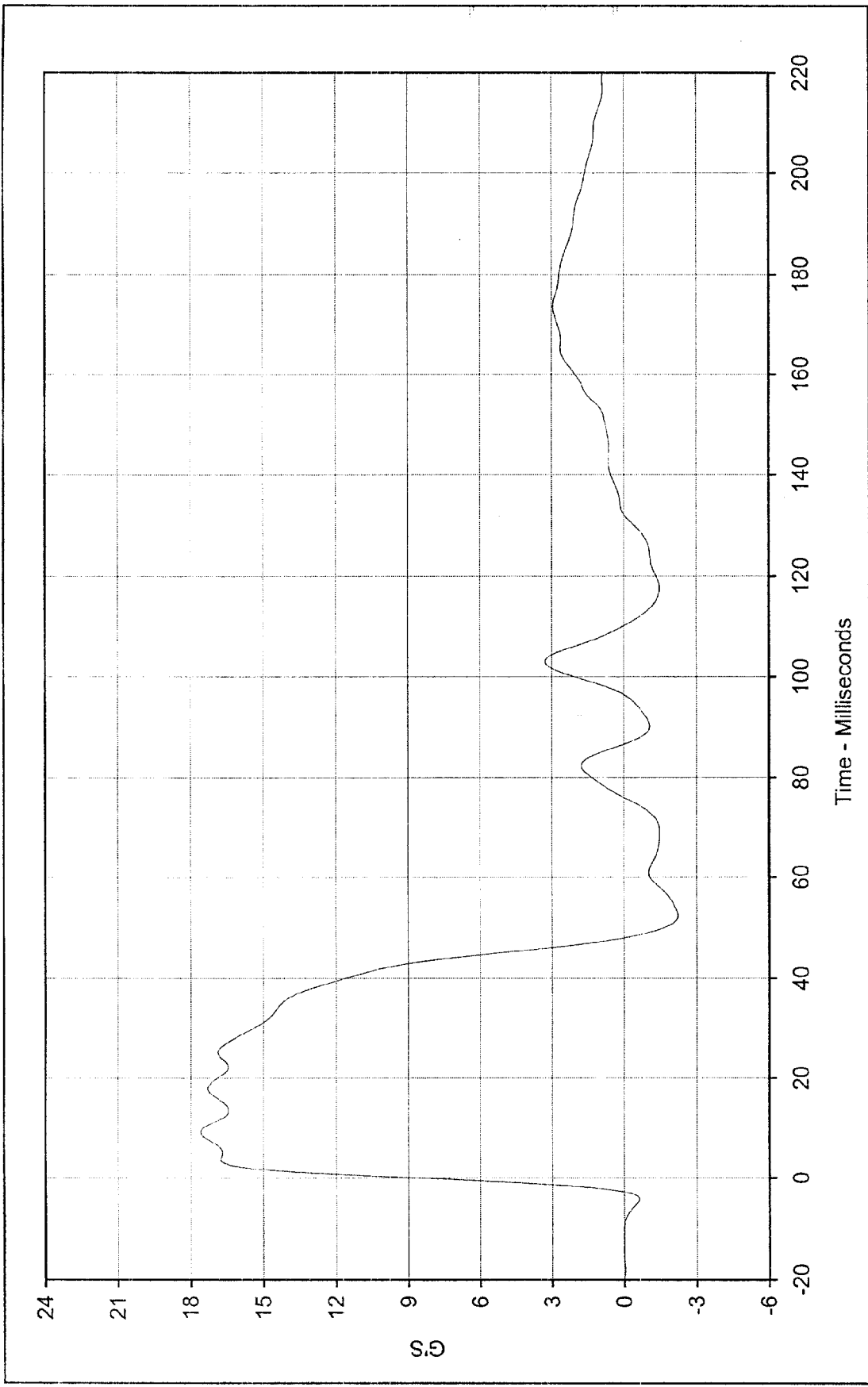
Test Date



Approved By

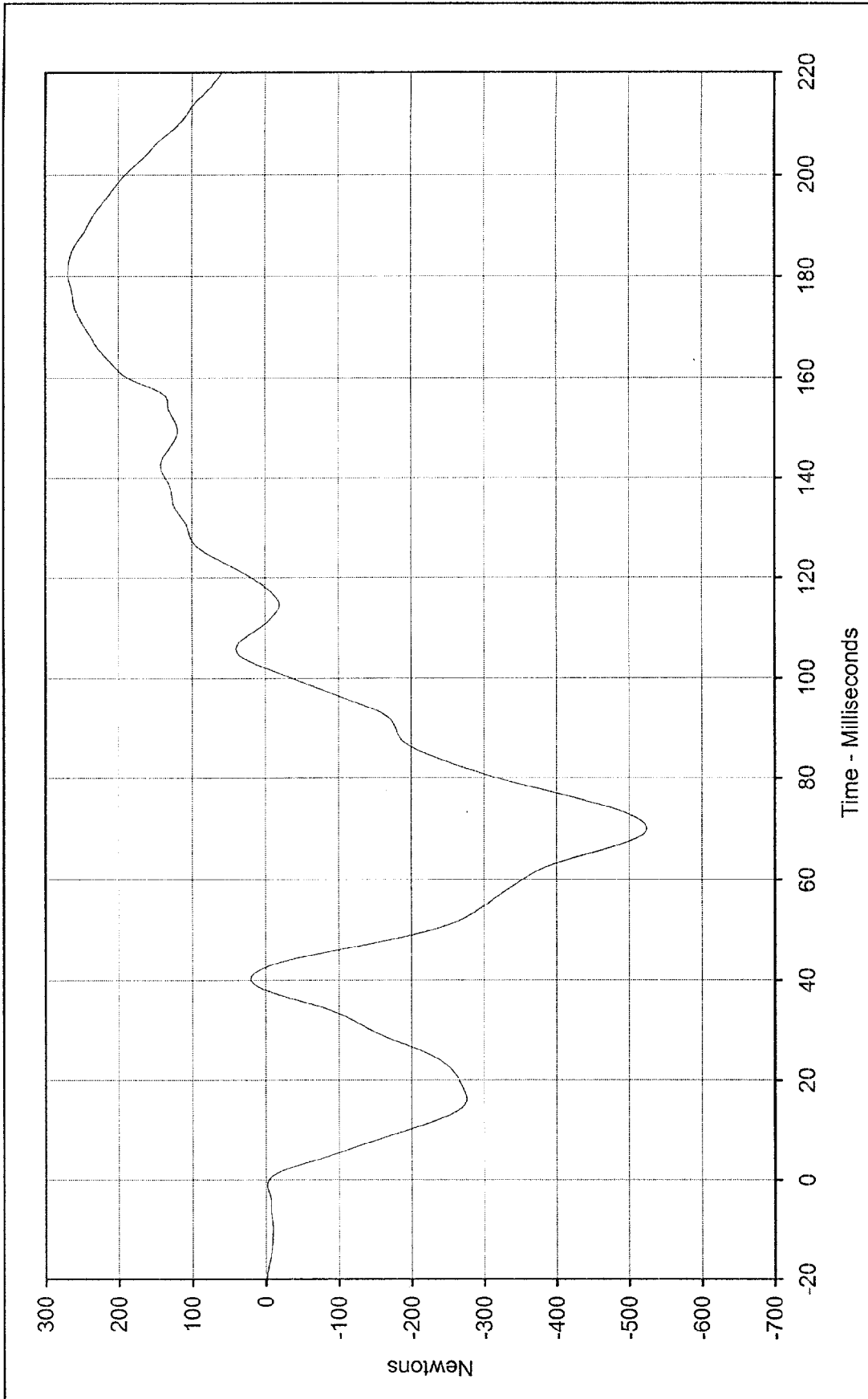


Date



Curve Description: Pendulum Deceleration      Testing Program: Hybrid III Neck Extension Test (Male)  
 Maximum Value: 17.6 at 9.2 Milliseconds      Test Information: S/N of Part: n/a    Test I.D.: N0013  
 Minimum Value: -2.2 at 52.3 Milliseconds  
 SAE Filter Class: 60  
 Date of Test: 5/21/98  
 ATD Serial No.: 035

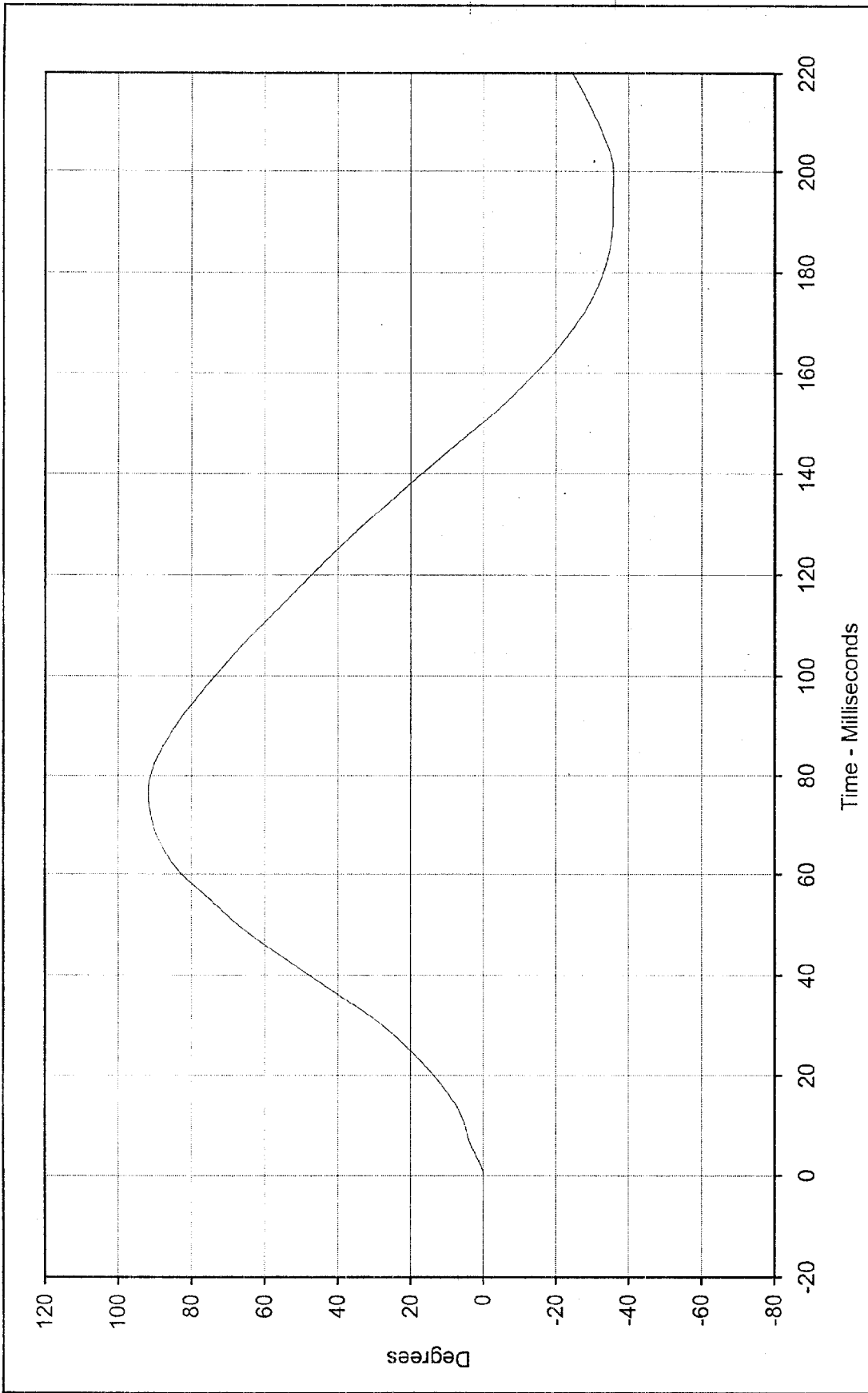




Curve Description: Neck Force X  
 Testing Program: Hybrid III Neck Extension Test (Male)  
 Maximum Value: 269.1 at 180.7 Milliseconds  
 Test Information: S/N of Part: n/a Test I.D.: N0013  
 Minimum Value: -523.9 at 69.9 Milliseconds

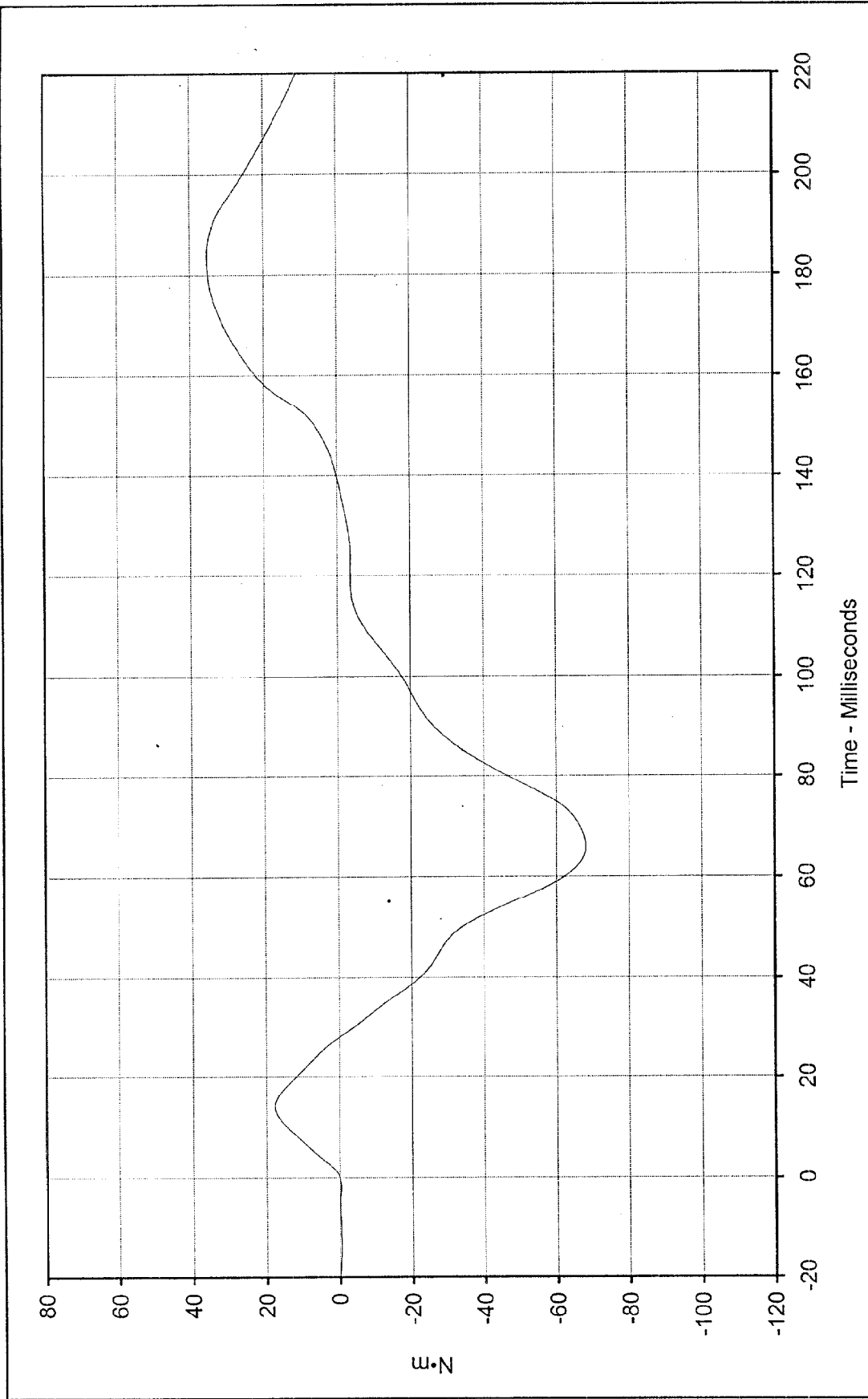
SAE Filter Class: 60  
 Date of Test: 5/21/98  
 ATD Serial No.: 035





Curve Description: "D" Plane Rotation      Testing Program Hybrid III Neck Extension Test (Male)  
Maximum Value: 91.7 at 76.5 Milliseconds      Test Information: S/N of Part: n/a Test I.D.: N0013  
Minimum Value: -35.8 at 199.3 Milliseconds  
SAE Filter Class: 60  
Date of Test: 5/21/98  
ATD Serial No.: 035





Curve Description: Moment About Occipital Condyles      Testing Program: Hybrid III Neck Extension Test (Male)  
 Maximum Value: 35.3 at 183.7 Milliseconds      Test Information: S/N of Part: n/a    Test I.D.: N0013  
 Minimum Value: -68.1 at 65.9 Milliseconds  
 SAE Filter Class: 60  
 Date of Test: 5/21/98  
 ATD Serial No.: 035





# Hybrid III Calibration Data Sheet

## 50<sup>TH</sup> Percentile Male


### External Measurements

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: N/A

| External Measurement Data             |       |                 |        |           |
|---------------------------------------|-------|-----------------|--------|-----------|
| Tested Parameter                      | Units | Specification   | Result | Pass/Fail |
| Laboratory temperature                | °C    | 20.4 to 22.1    | 20.9   | Pass      |
| Laboratory relative humidity          | %     | 10 to 70        | 43     | Pass      |
| A - Total sitting height              | mm    | 878.8 to 889.0  | 885.0  | Pass      |
| B - Shoulder pivot height             | mm    | 505.5 to 520.7  | 519.0  | 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    | 90.0   | Pass      |
| F - Thigh clearance                   | mm    | 139.7 to 154.9  | 152.0  | Pass      |
| G - Elbow back to wrist pivot         | mm    | 289.6 to 304.8  | 303.0  | 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  | 335.0  | Pass      |
| J - Elbow rest height                 | mm    | 190.5 to 210.8  | 208.0  | Pass      |
| K - Buttock to knee length            | mm    | 579.1 to 604.5  | 602.0  | Pass      |
| L - Popliteal length                  | mm    | 429.3 to 454.7  | 436.0  | Pass      |
| M - Knee pivot height                 | mm    | 485.1 to 500.4  | 490.0  | Pass      |
| N - Buttock popliteal length          | mm    | 452.1 to 477.5  | 470.0  | Pass      |
| O - Chest depth                       | mm    | 213.4 to 228.6  | 218.0  | Pass      |
| P - Foot length                       | mm    | 251.5 to 266.7  | 260.0  | Pass      |
| V - Shoulder breadth                  | mm    | 421.6 to 436.9  | 430.0  | Pass      |
| W - Foot breadth                      | mm    | 91.4 to 106.7   | 105.0  | Pass      |
| Y - Chest circumference               | mm    | 970.3 to 1000.8 | 990.0  | Pass      |
| Z - Waist circumference               | mm    | 835.7 to 866.1  | 860.0  | Pass      |
| AA - Location for chest circumference | mm    | 429.3 to 434.3  | 432.0  | Pass      |
| BB - Location for waist circumference | mm    | 226.1 to 231.1  | 228.0  | Pass      |
| Overall Test Results                  |       |                 |        | Pass      |

  
 Laboratory Technician

May 30, 1998

Test Date

  
 Approved By

8/17/98

Date

**APPENDIX F**  
**VEHICLE OWNER'S MANUAL**  
**OCCUPANT RESTRAINT INSTRUCTIONS**

KAR98002-02

**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, and airbags for the driver and right front passenger. Your seat belts also can be used to hold infant and child restraint systems if you will be carrying children too small for adult-size belts.

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

**WARNING!**

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

Buckle up even though you are an excellent driver. Even on short trips. Someone on the road may be a poor driver and cause a collision which includes you. And this can happen far away 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 from 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 seats next to the front and rear doors of your vehicle are equipped with Unibelts.

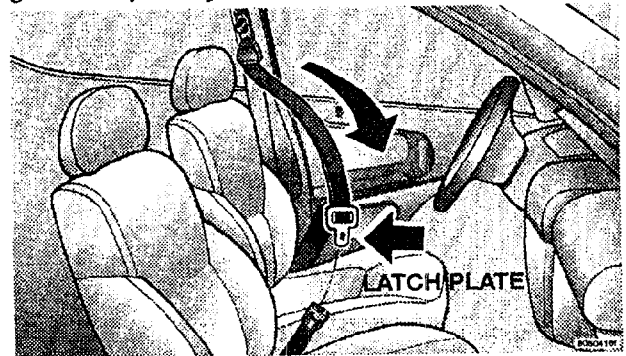
Each unibelt is a combined lap/shoulder belt system. The belt webbing retractor will lock only during very sudden stops or impacts. This feature allows the shoulder part of the belt to move freely with you under normal conditions. But in a collision, the belt will lock and reduce the risk of your striking the inside of the vehicle or being thrown out.

**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.
- 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 unibelt or a lap belt for more than one person, no matter what their size.
- 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.

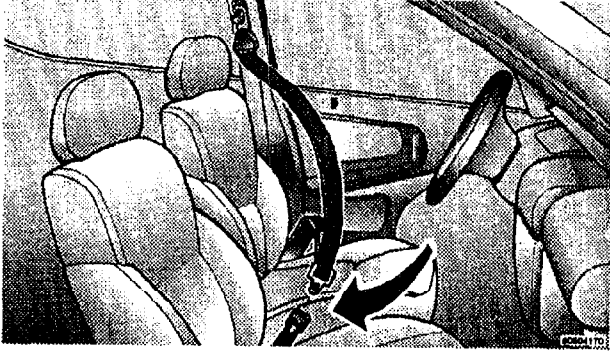
**Unibelt Operating Instructions**

1. Enter the vehicle and close the door. Sit back and adjust the seat.
2. The seat belt latch plate 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.



18 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

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

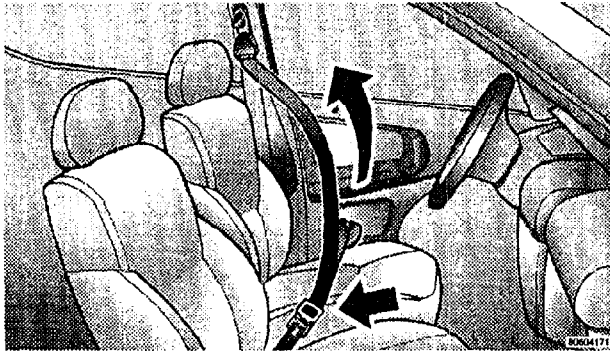


**WARNING!**

- A belt that is 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 belt that is 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.

THINGS TO KNOW BEFORE STARTING YOUR VEHICLE 19

4. Position the lap belt across your thighs, below your abdomen. To remove slack in the lap belt portion, pull up a bit on the shoulder belt, as shown. To loosen the lap belt if it is too tight, tilt the latch plate and pull on the lap belt. 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 belt as low as possible and keep it snug.
- A twisted belt can't do its job as well. In a collision it could even cut into you. Be sure the belt is straight. Use the Unibelt Untwisting Procedure. If you can't straighten a belt in your vehicle, take it to your dealer and have it fixed.

2

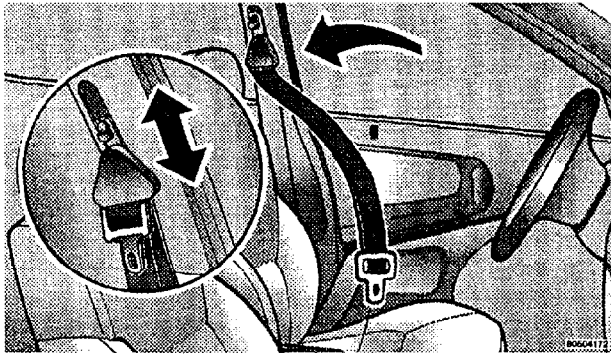
5. Position the shoulder belt on your chest so that it is comfortable and not resting on your neck. The retractor will withdraw any slack in the belt.

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

**Adjustable Upper Shoulder Belt Anchorage**

**4 Door Models**

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



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

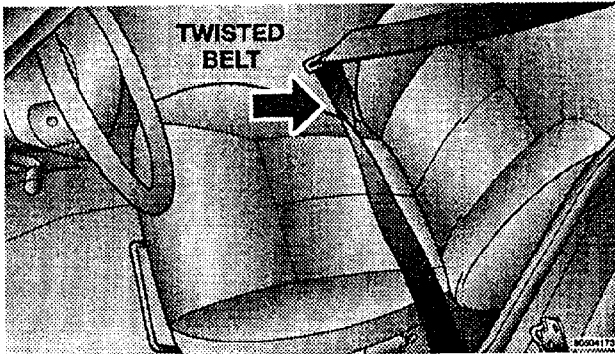
In the rear seat, move toward the center of the seat to position the belt away from your neck.

**2 Door Models**

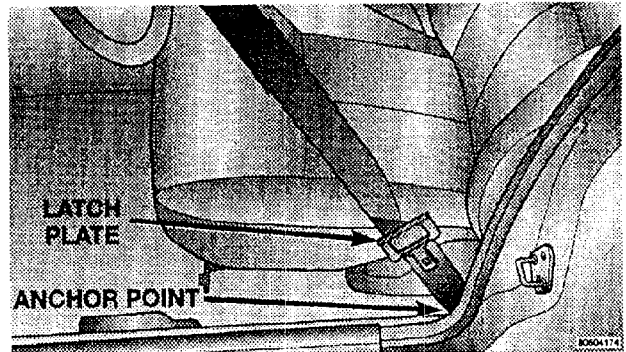
In the front seats, the shoulder belt upper anchorage adjusts automatically to your height as you position the shoulder belt on your chest. If the belt is not comfortable, pull the shoulder belt webbing forward from the retractor and guide it over the desired point on your shoulder belt as it retracts.

**Unibelt Untwisting Procedure**

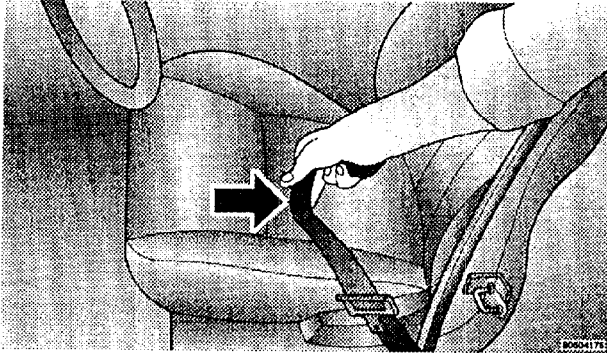
Use the following procedure to untwist a twisted unibelt.



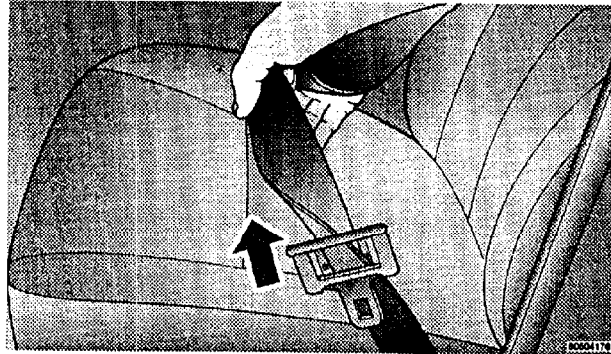
1. Position the latchplate as close as possible to the anchor point.



2. At about 6 to 12 inches above the latchplate, grasp and twist the belt webbing 180° to create a fold that begins immediately above the latchplate.



3. Slide the latchplate upward over the folded webbing. The folded webbing must enter the slot at the top of the latchplate.



4. Continue to slide the latchplate up until it clears the folded webbing.

### Seat Belts And Pregnant Women

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

Pregnant women should wear the lap part of the belt across the thighs and as snug across 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.

### Rear Center Lap Belts

The center rear seating position has a lap belt only. To fasten a lap belt, slip the latch plate into the buckle.

To lengthen a lap belt, tilt the latch plate and pull. To remove slack, pull the loose end of the webbing. Wear the 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 the lap belt low and snug.

2

#### 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.).

**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.

**WARNING!**

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

**Child Restraint**

Everyone in your vehicle needs to be buckled up all the time, 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 could 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. All states and Canadian provinces require small children to ride in proper restraint systems. This is the law, and you can be prosecuted for ignoring it.

Chrysler Integrated Child Seat Optional Operating Instructions for this seat are included with the seat. If the instructions are not with the seat or in the owner's manual package, replacement instructions can be obtained.

To obtain replacement instructions:

Use the order form at the rear of this manual and specify publication N-016-9470.

**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. (9kg.)
- The child seat for small children over 20 lbs.

In addition, some manufacturers make systems that can be first used 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. Chrysler also recommends that before you buy a child restraint, you try it in the vehicle 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.

2

**WARNING!**

- A rearward facing infant restraint should only be used in a rear seat. A rearward facing infant restraint in the front seat may be struck by a deploying passenger airbag which may cause severe or fatal injury to the infant.
- 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.

- If possible, install the restraint in the rear seat. According to accident statistics, children are safer when properly restrained in the rear seats 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.
- Infant and child restraints are secured in the vehicle seats by the lap belt or the lap part of the lap/shoulder belt.
- In the center rear seat if the belt still can't be tightened, or if pulling and pushing on the restraint loosens the 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.
- Some child seat manufacturers recommend the use of a top anchorage (tether) strap in addition to the lap belt. Your vehicle has tether strap anchorages behind the rear seating positions for use with these child seats. Your dealer can provide you with anchorage hardware and installation instructions.
- Buckle the child into the seat exactly as the seat manufacturer's directions tell you. The seat belt is equipped with a cinching latch plate which is designed to keep the belt tight around the child seat. Pull up on the shoulder portion to tighten the belt. 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 center rear seating position and use the lap belt.

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

#### Driver and Right Front Passenger Supplemental Restraint System (SRS) - Airbag

This vehicle has airbags for the driver and right front passenger as a supplement to the seat belt restraint systems. The driver's airbag is mounted in the steering wheel. The passenger side airbag is mounted in the instrument panel, above the glove compartment, under a cover marked SRS/AIRBAG. These airbags inflate in higher speed impacts. They work with the instrument panel knee bolsters and the seat belts to provide improved protection for the driver and right front passenger.

The seat belts are designed to protect you in many types of collisions. The airbags deploy only in frontal collisions and will not deploy in collisions at slow speed. But even in collisions where the airbags work, you need the seat belts to keep you in the right position for the airbags to protect you properly.

#### WARNING!

- Relying on the airbags alone could lead to more severe injuries in a collision. The airbags work with your seat belt to restrain you properly. In some collisions the airbags won't deploy at all. Wear your seat belts even though you have airbags.
- Being too close to the steering wheel or instrument panel during airbag deployment could cause serious injury. Airbags need room to inflate.

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

1. Children **12** years old and under should ride buckled up in a rear seat.

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. 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 the rear seat in child safety seats or booster seats. If the booster seat is not equipped with a front shield, the child should be seated in either rear outboard seat to take advantage of the added safety of the available lap and shoulder belt.

Older children who do not use child safety seats or booster seats should ride properly buckled up in the rear seat; in the outboard seat if possible.

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

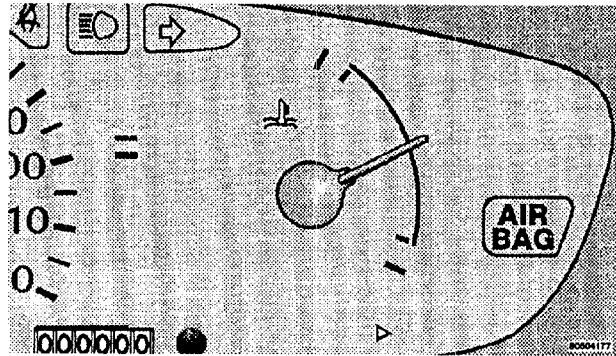
2. All occupants should wear their lap and shoulder belts properly.

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

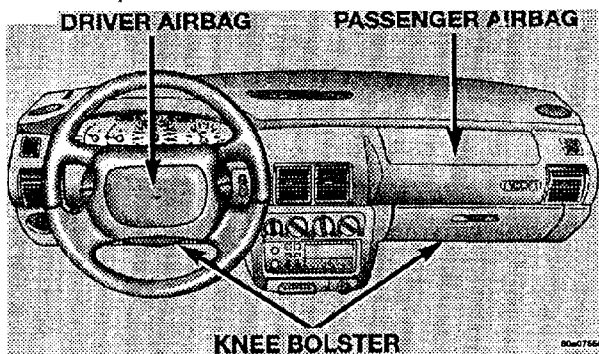
4. You should read the instructions provided with your child safety or booster seat to make sure that you are using it properly.

The airbag system consists of the following:

- Airbag Electronic Control Module (AECM)
- AIRBAG Readiness Light.



- Driver and Passenger Airbag/Inflator Units
- Unique Steering Wheel and Column
- Unique Instrument Panel
- Interconnecting Wiring
- Knee Impact Bolster.



How The Airbag System Works

- The Airbag Electronic Control Module (AECM) in the front of the vehicle and in the occupant compartment determines if a frontal impact is severe enough to

require the airbags. The AECM will not detect side, roll over, or rear impacts. The AECM is connected to the airbag/inflator units.

- The AECM monitors the readiness of the electronic parts of the system whenever the ignition switch is in the START or RUN positions. These include all of the items listed previously except the knee bolster, instrument panel, and steering column. The AECM also turns on the AIRBAG 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.

2

**WARNING!**

Ignoring the AIRBAG light in your instrument panel could mean you won't have the airbags to protect you in a collision. If the light does not come on, stays on after you start the vehicle, or if it comes on as you drive, have the airbag system checked right away.

- The **Airbag/Inflator Units** are in the center of the steering wheel and in the instrument panel. The words SRS/AIRBAG are embossed on the airbag covers.

**WARNING!**

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

- When the AECM detects an impact requiring the airbags, it signals the inflator units. A large quantity of non toxic nitrogen gas is generated to inflate the airbags. The airbag covers separate and fold out of the way as the airbags inflate to their full size. The airbags fully inflate in about 50 milliseconds. This is only about half of the time it takes you to blink your eyes. The airbags then quickly deflate while helping to restrain the driver and right front passenger. The airbag gas is vented through the airbag material

towards the instrument panel. In this way the airbags do not interfere with your control of the vehicle.

- The **Knee Impact Bolsters** help protect the knees and position you for the best interaction with the airbags.

**If A Deployment Occurs**

The airbag system is designed to deploy when the AECM detects a moderate-to-severe frontal collision, to help restrain the driver and right front passenger, and then to immediately deflate.

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

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

- The nylon airbag material may sometimes cause abrasions and/or skin reddening to the driver and right front passenger as the airbags deploy and unfold. The abrasions are similar to friction rope burns or those you might get sliding along a carpet or gymnasium floor. They are not caused by contact with chemicals.

They are not permanent and normally heal quickly. However, if you haven't healed significantly within a few days, or if you have any blistering, see your doctor immediately.

- As the airbags deflate you may see some smoke-like particles. The particles are a normal by-product of the process that generates the non toxic nitrogen gas used for airbag inflation. These airborne particles may irritate the skin, eyes, nose, or throat. If you have skin or eye irritation, rinse the area with cool water. For nose or throat irritation, move to fresh air. If the irritation continues, see your doctor. If these particles settle on your clothing, follow the garment manufacturer's instructions for cleaning.
- Your vehicle may be drivable after the airbags deploy. If so, you can tuck the deployed airbags inside the opening in the steering wheel hub and instrument panel trim covers to make driving somewhat easier.

**WARNING!**

Deployed airbags can't protect you in another collision. Have the airbags replaced by an authorized dealer as soon as possible.

2

**Transporting Pets**

Airbags deploying in the front seat could harm your pet. An unrestrained pet will be thrown about and possibly injured, or injure a passenger during panic braking or in a collision.

Pets should be restrained in the rear seat in pet harnesses or pet carriers that are secured by seat belts.

## Maintaining Your Airbag System

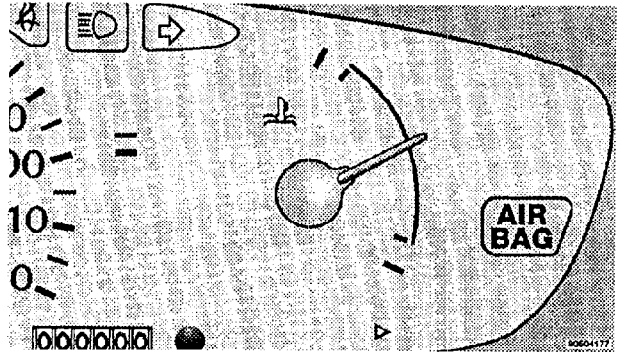
**WARNING!**

- Modifications to any part of the airbag system could cause it to fail when you need it. You could be injured because the airbag is not there to protect you. Do not modify the components or wiring, including adding any kind of badges or stickers to the airbag covers. Do not modify the front bumper or vehicle body structure.
- You need proper knee impact protection in a collision. Do not mount or locate any aftermarket equipment on or behind the knee bolsters.
- It is dangerous to try to repair any part of the airbag system yourself. Don't try to repair the airbag system. Be sure to tell anyone who works on your vehicle that it has airbags.

You will want to have the airbags ready for your protection in a collision. The airbag Supplemental Restraint System (SRS) is designed to be maintenance free.

If any of the following occurs, have an authorized dealer service the system immediately.

- The AIRBAG 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.

**ENGINE BREAK-IN RECOMMENDATIONS**

The engine in your new vehicle does not require a long break-in period.

Drive moderately during the first 300 miles (500 km). After the initial 60 miles (100 km), speeds up to 50 or 55 mph (80 or 90 km/h) are desirable.

While cruising, brief full-throttle acceleration, within the limits of local traffic laws, contributes to a good break-in.

Wide open throttle acceleration in low gear can be detrimental and should be avoided.

The crankcase oil installed in the engine at the factory is a high quality energy conserving type lubricant. Oil changes should be consistent with expected climate conditions under which vehicle operations will occur. The recommended viscosity and quality grades are in Section 7 of this manual.

Do not use non-detergent or straight mineral oils.

A new engine may consume some oil during its first few thousand miles of operation. This is a normal part of the break-in and not an indication of a problem.

**SAFETY TIPS****Exhaust Gas****WARNING!**

Exhaust gases can injure or kill. They contain carbon monoxide (CO) which is colorless and odorless. Breathing it can make you unconscious and can eventually poison you. To avoid breathing (CO) follow the safety tips below.

Do not run the engine in a closed garage or in confined areas any longer than needed to move your vehicle in or out of the area.

If it is necessary to sit in a parked vehicle with the engine running, adjust your heating or cooling controls to force outside air into the vehicle. Set the blower at high speed.

To avoid drawing exhaust gases into the vehicle, close the trunk while driving. However, if for some reason it must remain open, close all windows. Adjust the heating or cooling system to force outside air into the vehicle. Set the blower at high speed.

### Safety Checks You Should Make Inside The Vehicle

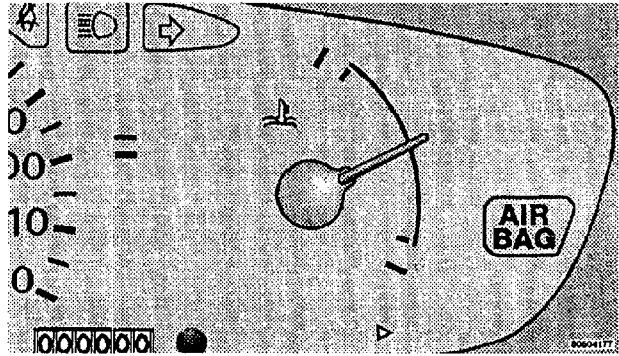
#### Seat Belts

Inspect the belt system periodically, checking for cuts, frays and loose parts. Damaged parts must be replaced immediately. Do not disassemble or modify the system.

Safety belt assemblies must be replaced after an accident if they have been damaged (bent retractor, torn webbing, etc.). If there is any question regarding belt or retractor condition, replace the belt.

#### Airbag Light

The light should come on and remain on for 6 to 8 seconds as a bulb check when the ignition switch is first turned ON. If the bulb is not lit during starting, have it replaced. If the light stays on or comes on while driving, have the system checked by an authorized dealer.



#### Defrosters

Check operation by selecting the defrost mode and place the blower control on high speed. You should be able to feel the air directed against the windshield.