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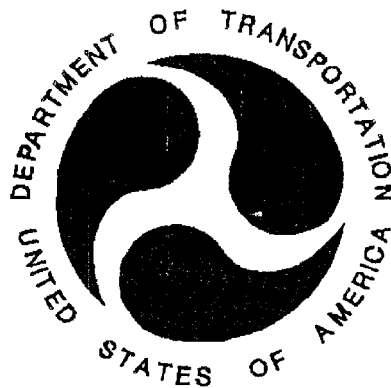
2091

REPORT NO. KAR-98-10

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

TOYOTA MOTOR CORPORATION
1998 TOYOTA LEXUS ES300 4-DOOR SEDAN
NHTSA NO. MW5103

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



MARCH 18, 1998
FINAL REPORT

PREPARED FOR:
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16. <i>Abstract</i> A 35 mph (56.3 km/h) frontal barrier impact test was conducted on a 1998 Toyota Lexus ES300 4-Door Sedan at KARCO Engineering on February 12, 1998. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301 and footwell intrusion performance. The impact velocity was 56.6 km/h. The ambient temperature at the barrier face at the time of impact was 12.8°C. The vehicle's maximum post-test static crush was 561 mm, located at the centerline of the vehicle. The test vehicle was equipped with a 3-point continuous belt system and second generation supplemental airbags at both frontal outboard-seating positions. With respect to FMVSS 208 "Occupant Crash Protection – Injury Criteria" the occupant injury response data summary is as follows: <table border="1"> <thead> <tr> <th><u>Injury Criteria</u></th> <th><u>Threshold Value</u></th> <th><u>Driver Dummy</u></th> <th><u>Passenger Dummy</u></th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC)</td> <td>1000</td> <td>512.0</td> <td>478.5</td> </tr> <tr> <td>Chest Resultant Peak 3 msec clip</td> <td>60 G's</td> <td>49.6</td> <td>48.3</td> </tr> <tr> <td>Left Femur Force</td> <td>10009 N</td> <td>-4155.2</td> <td>-1202.4</td> </tr> <tr> <td>Right Femur Force</td> <td>10009 N</td> <td>-4612.2</td> <td>-1434.6</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	512.0	478.5	Chest Resultant Peak 3 msec clip	60 G's	49.6	48.3	Left Femur Force	10009 N	-4155.2	-1202.4	Right Femur Force	10009 N	-4612.2	-1434.6
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SECTION 1

PURPOSE, TEST PROCEDURE AND SUMMARY OF TEST MW5103

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the FY' 98 New Car Assessment Program (NCAP) frontal barrier crash worthiness evaluation program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract Number DTNH22-97-D-02007. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for frontal barrier impacts at a speed in excess of the current 30 mph (48 km/h) FMVSS 208/212/219/301 requirements.

1.2 TEST PROCEDURE

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

The test was conducted at KARCO Engineering on February 12, 1998, at a speed of 56.6 km/h. The test vehicle was instrumented with eight (8) accelerometers to measure longitudinal axis accelerations. The driver and passenger's restraint systems were instrumented with four (4) seat belt load cells to measure lap and shoulder belt tension. The specified impact velocity range was 55.5 to 57.1 km/h. The frontal barrier impact event was documented by one (1) real-time panning motion picture camera and seventeen (17) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information is documented in the data sheets. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

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

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

An immovable barrier was impacted by a 1998 Toyota Lexus ES300 4-Door Sedan at a velocity of 56.6 km/h. The test weight, with two (2) 50th percentile male ATDs, was 1732 kg.

The driver's Head Injury Criteria (HIC) was 512.0, the maximum chest deceleration over three (3) milliseconds was 49.6 g and the left and right femur loads were -4155.2 and -4612.2 Newtons, respectively. Chest deflection for the driver ATD was -24.3 mm. The driver ATD head contacted the airbag and headrest, its chest and abdomen contacted the airbag, and both knees contacted the lower dash knee bolster and the steering column.

The right front passenger's HIC was 478.5, maximum chest deceleration over three (3) milliseconds was 48.3 g and the left and right femur loads were -1202.4 and -1434.6 Newtons respectively. Chest deflection for the passenger ATD was -25.3 mm. The passenger ATD head contacted the airbag and headrest, the chest and abdomen contacted the airbag and both knees contacted the knee bolster.

Seat belt spoolout, measured by on-board pullout potentiometers was 48.1 mm for the driver ATD and 0 mm for the passenger ATD. Shoulder belt stretch was 0 mm/cm for the driver ATD and 0 mm/cm for the passenger ATD.

Note: Driver spoolout is ok, passenger spoolout is not usable.

Driver and passenger elongation was not usable.

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

1.4 GENERAL COMMENTS

The 1998 Toyota Lexus ES300 4-Door Sedan passed the requirements of FMVSS 212, FMVSS 219 and FMVSS 301-75. Data pertaining to these standards are presented in the data sheets.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. Appendix B contains the dummy, vehicle and response data traces. Appendix C contains Load Cell Barrier information, which is not applicable to this test. Appendix D contains the instrumentation data channel assignments. Appendix E contains the dummy calibration data and Appendix F contains the owner's manual instructions for the occupant restraint systems.

SECTION 2.

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

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

CONVERSION FACTORS USED IN THIS REPORT:

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

DATA SHEET NO. 1

CRASH TEST SUMMARY

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

TEST MODE: 56.3 km/h NCAP Frontal Barrier Impact

TEST DATE: February 12, 1998

TIME: 1:05 PM

TEMPERATURE: 12.8° C

TEST WEIGHT: 1732 kg

IMPACT VELOCITY: 56.6 km/h

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

Measurements in mm	Left Side	Centerline	Right Side
Vehicle Rebound	1000	910	972

VEHICLE STATIC CRUSH

Measurements in mm	Left	Center	Right
Pre-test Measurements	4536	4820	4536
Post-test Measurements	4197	4259	4169
Static Crush	-339	-561	-367

DOOR OPENING AND SEAT TRACK INFORMATION

	Driver	Passenger
Door Opening (Front)	OPENED	OPENED
Door Opening (Rear)	OPENED	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 35)	50% Male Hybrid III (S/N 34)
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
Right Knee	STEERING COLUMN/KNEE BOLSTER	GLOVE BOX

DATA SHEET NO. 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

TEST VEHICLE INFORMATION			
Manufacturer	TOYOTA MOTOR CORPORATION	VIN	JT8BF28G2W0106042
Manufacturing Date	1/98	Delivery Date	2/6/98
Dealer	CROWN LEXUS	NHTSA NO.	MW5103
Odometer Reading	000071 MI.	Fuel Type	UNLEADED
Engine Displacement	3.0 Liter	Cylinders	6
Transmission	AUTOMATIC	Final Drive	FRONT
Engine Placement	TRANSVERSE	Color	BLACK
Tire Press./Max. Cap. Front	224 kPa	Cold Tire Press. Front	224 kpa
Tire Press./Max. Cap. Rear	224 kPa	Cold Tire Press. Rear	224 kPa
Recommend Tire Size	205/65/15-92V	Type of Spare	FULL SIZE 205/65/15-92V
Tire Size on Vehicle	205/65/15-92V	Manufacturer	GOODYEAR
GVWR	1971kg	Cargo Capacity	68kg
GAWR Front	1209kg	GAWR Rear	1209kg
Air Conditioning	YES	Power Steering	YES
Power Brakes	YES	AM/FM/Cassette	YES
Disc Brakes (Front)	YES	Disc Brakes (Rear)	YES
Power Windows	YES	Tilt Steering	YES
Anti-lock Brakes (ABS)	YES	Power Seats	YES
Driver Airbag	YES	Passenger Airbag	YES

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): 1517 kg

Data Sheet No. 2... (Continued)

VEHICLE CAPACITY WEIGHT (kg):

Vehicle Capacity Weight 408 kg
 Occupant Weight 340 kg
 Rated Cargo/Luggage Weight (RCLW) 68 kg

	FRONT	REAR	TOTAL
Right	474	284	758
Left	475	284	759
Total	949	568	1517
Percent of Total	62.6	37.4	100%

CALCULATION OF TEST TARGET WEIGHT (kg):

Total Delivered Weight 1517 kg
 RCLW 68 kg
 Weight of 2 P572 ATDs 152 kg
TARGET TEST WEIGHT 1737 kg

TEST WEIGHT OF VEHICLE WITH 2 ATDs AND BALLAST

	FRONT	REAR	TOTAL
Right	493	367	860
Left	505	367	872
Total	998	734	1732
Percent of Total	57.6	42.4	100%

Weight of Ballast secured in cargo area: 31.7 kg

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

Vehicle Components Removed For Weight Reduction:

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

TEST VEHICLE ATTITUDE (mm)

ATTITUDE	LF	RF	LR	RR
As Delivered	692	692	689	689
As Tested	660	670	640	640

Vehicle Wheelbase: 2667 mm

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 70.3 liters

Usable Capacity Figure Furnished by COTR = 70.3 liters

Test Volume Range (92 to 94% of Usable Capacity) = 64.6 to 66.0 liters

ACTUAL TEST VOLUME = 65.1 liters (With entire fuel system filled)

Test Fluid Type = Stoddard Solvent

Specific Gravity = 0.764

Kinematic Viscosity = as per ASTM Standard D484-71

Color = Red

Type of Fuel Pump = Electric X Mechanical

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

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

DATA SHEET NO. 3

POST IMPACT DATA

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

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

TEST DATE: February 12, 1998

TIME: 1:05 PM

TEMPERATURE: 12.8 ° C

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

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

Trap No. 1 = 56.64 km/h

Trap No. 2 = 56.63 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)	4536	4820	4536
Post-test Measurements (mm)	4197	4259	4169
Static Crush (mm)	-339	-561	-367
Average	-42		

VEHICLE REBOUND: (from rigid barrier with rotational movement)

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

Measurements in mm	Left Side	Centerline	Right Side
Vehicle Rebound	1000	910	972

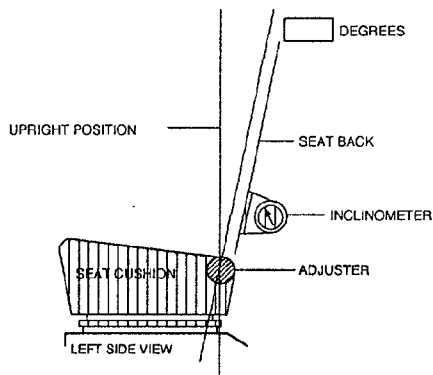
DATA SHEET NO. 4

TEST VEHICLE INFORMATION

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN
MW5103

NHTSA NO. _____

1. NOMINAL DESIGN RIDING POSITION -



FRONT SEAT ASSEMBLY

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

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

Seat back angle for driver's seat = 24°

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

Seat back angle for passenger's seat = 24°

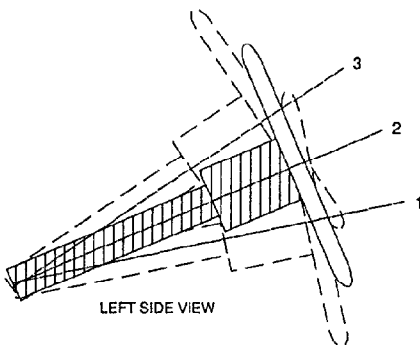
2. SEAT FORE & AFT POSITIONS -

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

Positioning of the driver's seat: Electric seats 4.4 inches (112.5mm) rearward from the foremost position, per manufacturers specifications.

Positioning of the passenger's seat (if applicable): Electric seats 4.4 inches (112.5mm) rearward from the foremost position, per manufacturers specifications.

3. STEERING COLUMN ADJUSTMENTS:



STEERING COLUMN ASSEMBLY

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

Operational Instructions:

Position No. 1 is at 17°

Position No. 2 is at 24°

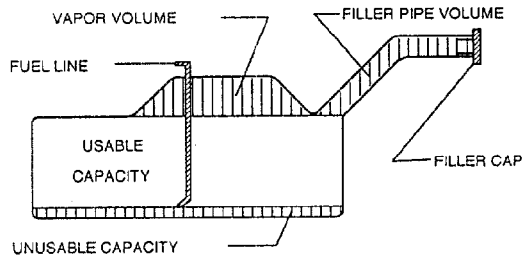
Position No. 3 is at 34°

4. SEAT BELT UPPER ANCHORAGE:

Second position from the most upper position.

DATA SHEET NO. 4 (continued)

5. FUEL TANK CAPACITY DATA



- 5.1 A. "Usable Capacity" of standard equipment fuel tank = 70.3 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 = 64.6 to 66.0 liters.

VEHICLE FUEL TANK ASSEMBLY

Operational Instructions:

5.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 65.1 liters

5.3 Is vehicle equipped with electric fuel pump?

Yes X No

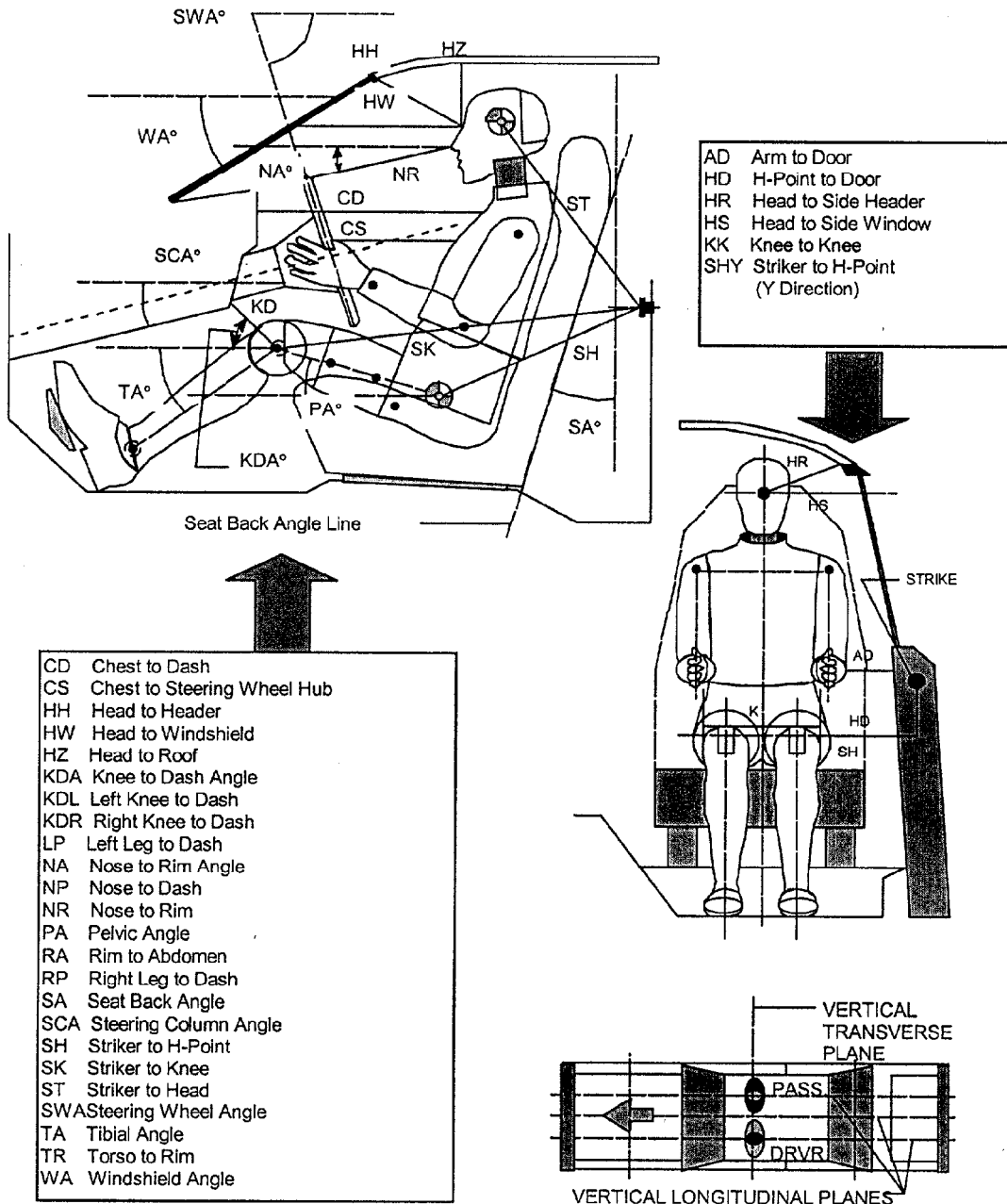
If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

With ignition on and adequate oil pressure.

DATA SHEET NO. 5

DUMMY POSITIONING IN VEHICLE

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



DATA SHEET NO. 5...(continued)

DUMMY POSITIONING IN VEHICLE

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

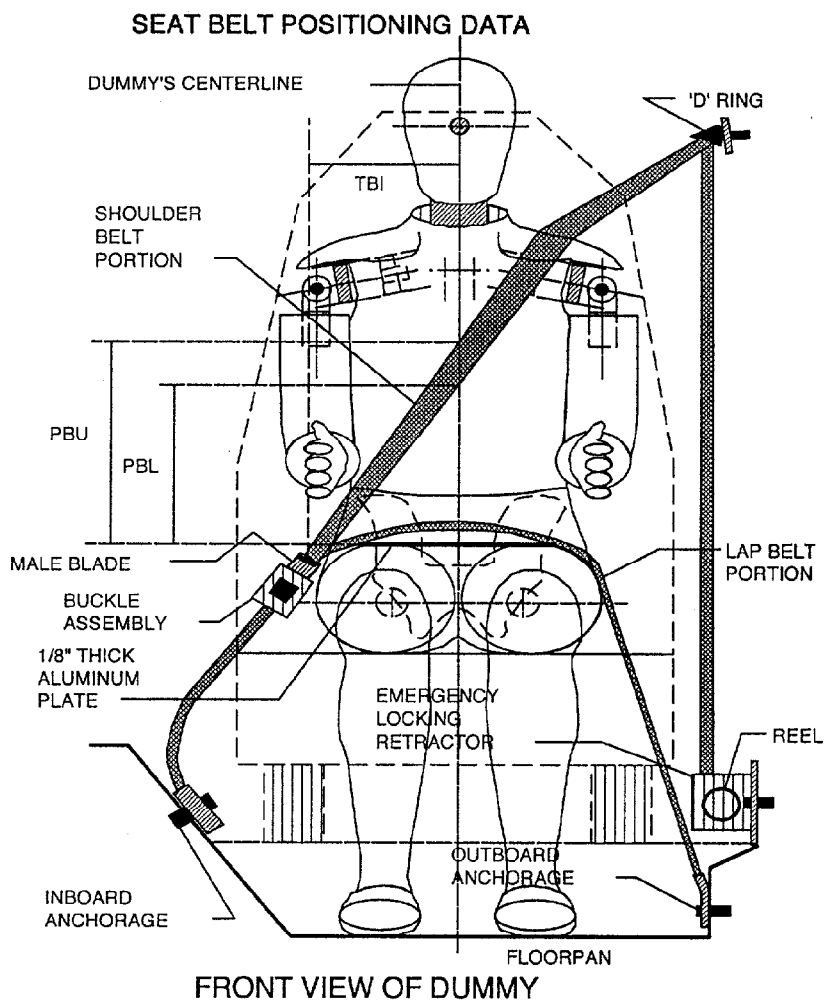
FRONT SEAT MEASUREMENT TABLE

	DRIVER (Serial No. <u>35</u>)		PASS. (Serial No. <u>34</u>)	
	DISTANCE (mm)	ANGLE (°)	DISTANCE (mm)	ANGLE (°)
WA°		28		
SWA°		67		
SCA°		25		
SA°		24		24
HZ	165	90	160	90
HH	310	0	310	0
HW	610	0	590	0
HR	180		230	
NR	360	8		
CD	520		510	
CS	280	0		
RA	185	0		
KDL	170	41	154	
KDR	145		148	30
PA°		25		25
TA°		41		32
KK	220		210	
ST	480	10	480	15
SH	190	55	200	40
SHY	285		278	
HS	310		280	
HD	157		115	
AD	90		16	

DATA SHEET NO. 6

SEAT BELT POSITIONING DATA

SEATING POSITION	DRIVER	PASSENGER
TCI -- Dummy centerline to shoulder bolt	220	220
PBU--Top surface of aluminum plate to belt upper edge	280	290
PBL--Top surface of aluminum plate to belt lower edge	200	215
Lap Belt tension	10 Newtons	10 Newtons
Shoulder Belt tension	Retractor	Retractor



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

TEST VEHICLE: 1998 LEXUS ES300 4 DOOR SEDAN

NHTSA No.: MW5103

TEST PROGRAM: 1998 NHTSA 35 MPH NCAP

TEST DATE: 2/12/98

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

No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member (Pri.)	1588	-654	381	G's	0.0	0.0	0.0	0.0
2	Right Rear X-Member (Pri.)	1588	660	381	G's	1.7	127.0	-35.7	38.3
3	Engine Top	4111	-145	777	G's	37.1	48.4	-156.7	32.0
4	Engine Bottom	3997	206	131	G's	11.3	74.9	-89.4	22.7
5	Left Brake Caliper	3900	-701	314	G's	37.3	73.8	-96.4	44.0
6	Right Brake Caliper	3900	701	314	G's	39.0	67.3	-101.6	47.2
7	Instrument Panel	3172	0	984	G's	15.1	25.6	-61.9	68.4
8	Left Rear X-Member (Rednt.)	1531	556	381	G's	1.6	136.2	-35.4	39.3

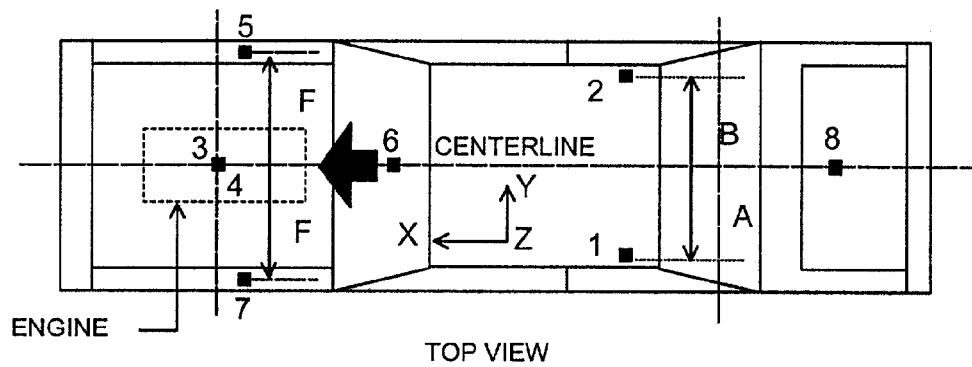
Reference Points

X - From Rear Surface of Vehicle

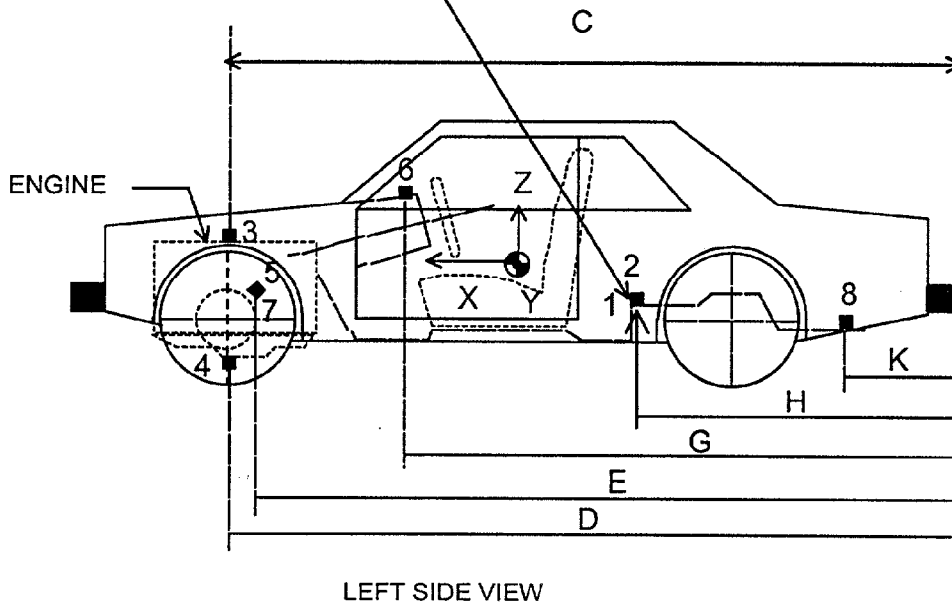
Y - Vehicle Centerline

Z - Ground Plane

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



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

TEST VEHICLE: 1998 LEXUS ES300 4 DOOR SEDAN

NHTSA No.: MW5103

TEST PROGRAM: 1998 NHTSA 35 MPH NCAP

TEST DATE: 2/12/98

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	9.3	175.7	-52.0	75.5	11.0	206.3	-53.0	71.6
Head CG	Y	G's	15.7	80.9	-1.3	99.7	20.6	79.8	-3.6	33.8
Head CG	Z	G's	20.5	57.7	-0.4	20.8	15.0	51.8	-10.6	105.1
Head CG Resultant	N/A	G's	55.2	75.5			56.4	71.6		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.7	173.0	-49.8	70.4	6.0	169.1	-49.6	73.6
Chest CG	Y	G's	10.4	86.2	-1.1	55.1	4.1	45.4	-8.1	87.4
Chest CG	Z	G's	5.3	77.7	-4.8	27.2	8.3	86.7	-4.6	51.1
Chest CG Resultant	N/A	G's	50.1	70.4			50.0	73.6		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	321.1	44.8	-4155.2	60.2	1224.6	152.2	-1202.4	31.6
Right Femur	Z	Newtons	622.9	76.8	-4612.2	59.5	1731.8	152.2	-1434.6	32.6

SEAT BELT PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt	N/A	Newtons	10202.0	59.8	21.6	0.0	10634.2	60.7	-10.1	2.2
Shoulder Belt	N/A	Newtons	8564.4	57.8	-28.0	195.0	7690.6	71.1	-5.0	141.7

HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg G's	T ¹	T ²	HIC	Avg G's	T ¹	T ²
Head CG Primary	512.0	47.1	55.0	87.5	478.5	44.2	52.7	88.6

CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	49.6	68.9	71.9	48.3	72.5	75.5

DATA SHEET NO. 8...(continued)

TEST VEHICLE: 1998 LEXUS ES300 4 DOOR SEDAN

NHTSA No.: MW5103

TEST PROGRAM: 1998 NHTSA 35 MPH NCAP

TEST DATE: 2/12/98

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	2.3	135.2	-83.6	58.7	7.0	100.5	-53.7	60.3
Pelvis	Y	G's	8.3	99.8	-12.7	59.4	12.3	45.0	-4.4	62.3
Pelvis	Z	G's	3.5	100.3	-27.5	61.2	3.6	100.4	-28.8	76.2

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	313.8	49.7	-697.1	67.9	121.4	29.1	-528.7	69.1
Neck Force	Y	Newtons	320.3	54.3	-72.4	38.4	292.9	73.0	-148.8	170.2
Neck Force	Z	Newtons	1435.2	57.8	-85.6	0.8	1028.6	57.3	-420.2	105.1
Neck Moment	X	Joules	21.1	54.3	-4.7	153.3	15.7	68.1	-17.8	80.3
Neck Moment	Y	Joules	57.8	66.5	-11.5	50.1	28.8	65.7	-15.7	237.7
Neck Moment	Z	Joules	17.2	90.5	-8.1	133.6	28.9	91.4	-9.9	168.2

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	94.6	60.3	-26.8	81.7	116.7	51.0	-26.7	75.6
Left Foot Aft	Z	G's	10.6	68.3	-59.6	56.5	19.7	75.6	-54.0	32.9
Left Foot Fore	Z	G's	17.5	67.3	-80.6	56.4	42.9	78.6	-78.5	51.3
Right Foot Aft	X	G's	83.5	43.4	-27.4	34.9	129.3	54.3	-31.7	72.5
Right Foot Aft	Z	G's	17.1	79.6	-80.6	36.1	15.4	73.1	-84.8	53.5
Right Foot Fore	Z	G's	34.1	82.0	-125.4	36.3	36.9	60.9	-187.1	53.0

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Lower Force	X	Newtons	57.0	166.4	-1095.5	62.2	91.1	176.9	-1154.2	51.5
Left Lower Force	Z	Newtons	64.6	140.4	-2709.7	62.6	178.0	176.8	-3678.2	31.9
Left Lower Moment	Y	Joules	51.0	55.7	-35.3	83.5	53.3	51.8	-84.3	77.2
Left Upper Moment	X	Joules	44.4	65.2	-28.8	28.8	25.7	71.5	-37.6	32.8
Left Upper Moment	Y	Joules	162.6	62.1	-10.9	149.0	159.0	56.1	-11.7	140.0
Right Lower Force	X	Newtons	44.2	179.5	-1070.6	62.1	82.6	148.5	-1489.7	54.9
Right Lower Force	Z	Newtons	97.0	132.7	-4006.4	41.1	110.7	148.4	-4064.0	33.0
Right Lower Moment	Y	Joules	45.7	44.4	-46.5	85.8	81.6	53.9	-76.6	75.2
Right Upper Moment	X	Joules	51.9	55.2	-19.4	68.8	14.4	33.6	-59.7	56.2
Right Upper Moment	Y	Joules	188.0	61.7	-10.1	177.4	194.2	54.8	-13.0	117.2

DATA SHEET NO. 8...(continued)

TEST VEHICLE: 1998 LEXUS ES300 4 DOOR SEDAN

NHTSA No.: MW5103

TEST PROGRAM: 1998 NHTSA 35 MPH NCAP

TEST DATE: 2/12/98

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.1	8.7	-24.3	78.7	0.2	0.0	-25.3	79.6

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	12.2	173.9	-51.7	74.6	11.2	207.5	-53.8	71.6
Head CG	Y	G's	14.5	78.2	-1.8	151.3	22.3	79.5	-3.0	39.3
Head CG	Z	G's	19.7	62.0	-1.2	0.9	14.5	51.8	-12.0	105.1
Head CG Resultant	N/A	G's	54.1	75.3			56.6	71.6		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	4.6	172.8	-51.1	70.5	6.2	160.1	-49.6	73.5
Chest CG	Y	G's	7.8	84.9	-2.0	49.9	3.0	45.4	-7.2	87.4
Chest CG	Z	G's	2.6	26.8	-6.7	66.3	6.7	86.7	-5.0	51.3
Chest CG Resultant	N/A	G's	51.5	70.5			49.9	73.6		

REDUNDANT HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg G's	T ¹	T ²	HIC	Avg G's	T ¹	T ²
Head CG Redundant	483.7	46.2	55.4	87.5	488.9	44.5	52.7	88.6

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	50.9	68.9	71.9	47.9	72.4	75.4

DATA SHEET NO. 9

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

BELT LENGTH DATA (mm)	DRIVER	PASSENGER
Total belt length for continuous webbing systems.	3060	3060
Retractor reel to 'D' ring	580	580
Shoulder belt length as measured on Part 572 Dummy	840	850
Lap belt length as measured on Part 572 Dummy	730	720
Remainder of belt on reel	910	910

SHOULDER BELT SPOOL-OFF DATA (mm)	DRIVER	PASSENGER
As determined mechanically	60	20
As determined electronically	48.1*	0.0*

* Driver spoolout is ok, but passenger spoolout is not usable.

** Driver and passenger elongation is not usable.

BELT STRETCH DATA (mm/cm)	DRIVER	PASSENGER
Measured electronically between shoulder belt load cell and the "D" ring	0.0**	0.0**
Measured mechanically	.0	BROKE

DATA SHEET NO. 10

SUMMARY OF FMVSS 212 DATA

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

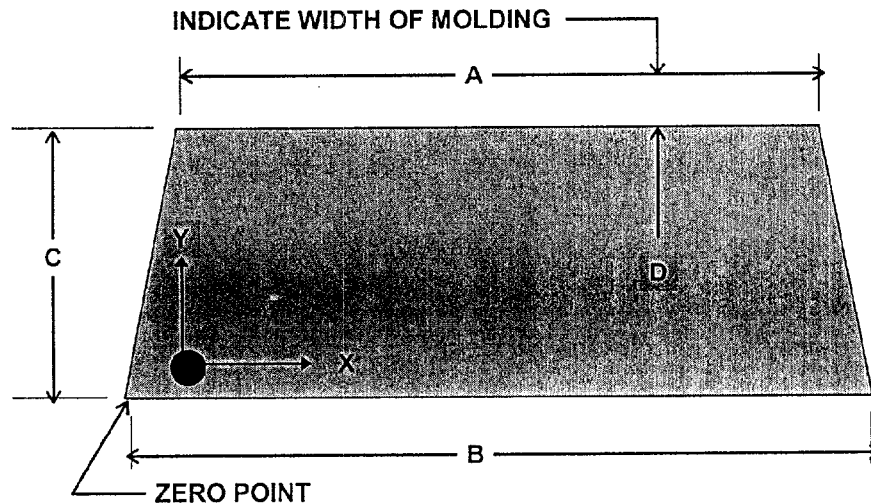
Details of windshield mounting (method of retention, type of trim, etc.):

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

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

WINDSHIELD PERIPHERY MEASUREMENTS (mm)			
	PRETEST	POST TEST	PERCENT RETENTION
Right Side	2069	2069	100%
Left Side	2069	2069	100%
Total	4138	4138	100%

Indicate area of retention failure.



FRONT VIEW OF WINDSHIELD

Width of molding = Top 10 mm , Sides 10 mm, Bottom 17 mm.

Temperature of windshield molding during test = 21.1 °C

DATA SHEET NO. 11

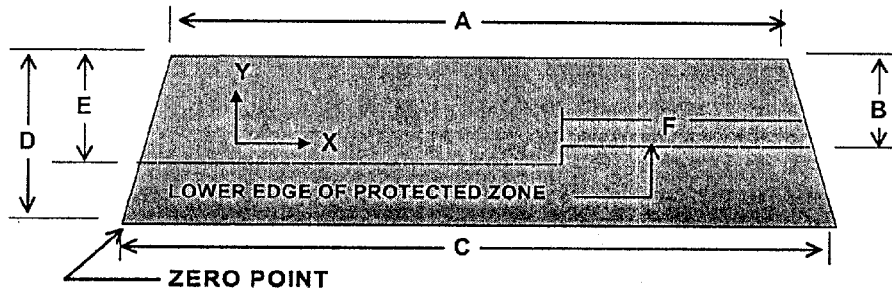
WINDSHIELD ZONE INTRUSION FMVSS 219 (PARTIAL) DATA

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

SKETCH OF FRONT VIEW OF WINDSHIELD:

Provide all dimensions necessary to reproduce the protected area.



	DIMENSION mm
A	1106
B	311
C	1502
D	765
E	467
F	589

FRONT VIEW OF WINDSHIELD

AREA OF PROTECTED ZONE FAILURES:

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

X	Y
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

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

X	Y
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

DATA SHEET NO. 12

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

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

TEST DATE: February 12, 1998 TIME: 1:05 PM TEMPERATURE 12.8 C

STODDARD SOLVENT SPILLAGE MEASUREMENT:

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

DATA SHEET NO. 13

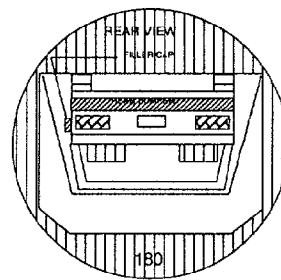
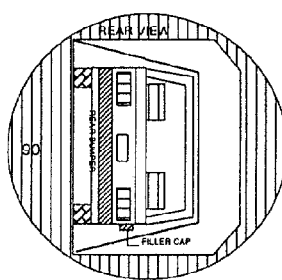
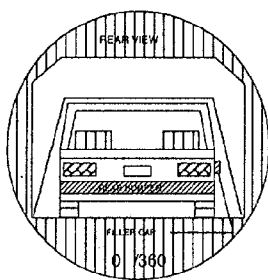
FMVSS 301 STATIC ROLLOVER DATA SHEET

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

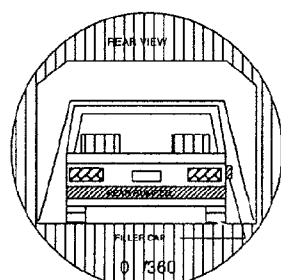
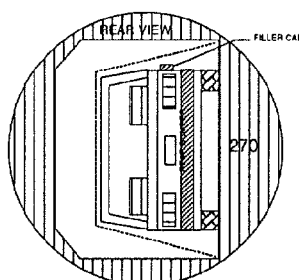
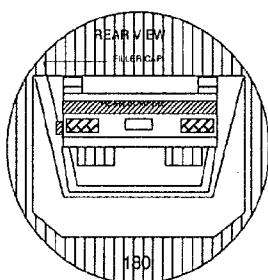
TEST MODE: 56.3 km/h New Car Assessment Program (NCAP) Frontal Barrier Impact

TEST DATE: February 12, 1998 TIME: 1:05 PM TEMPERATURE: 12.8C



0° TO 90°

90° TO 180°



180° TO 270°

270° TO 0°

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

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

3. Provide Details of Stoddard Solvent Spillage Locations--

No solvent leakage occurred during rollover tests.

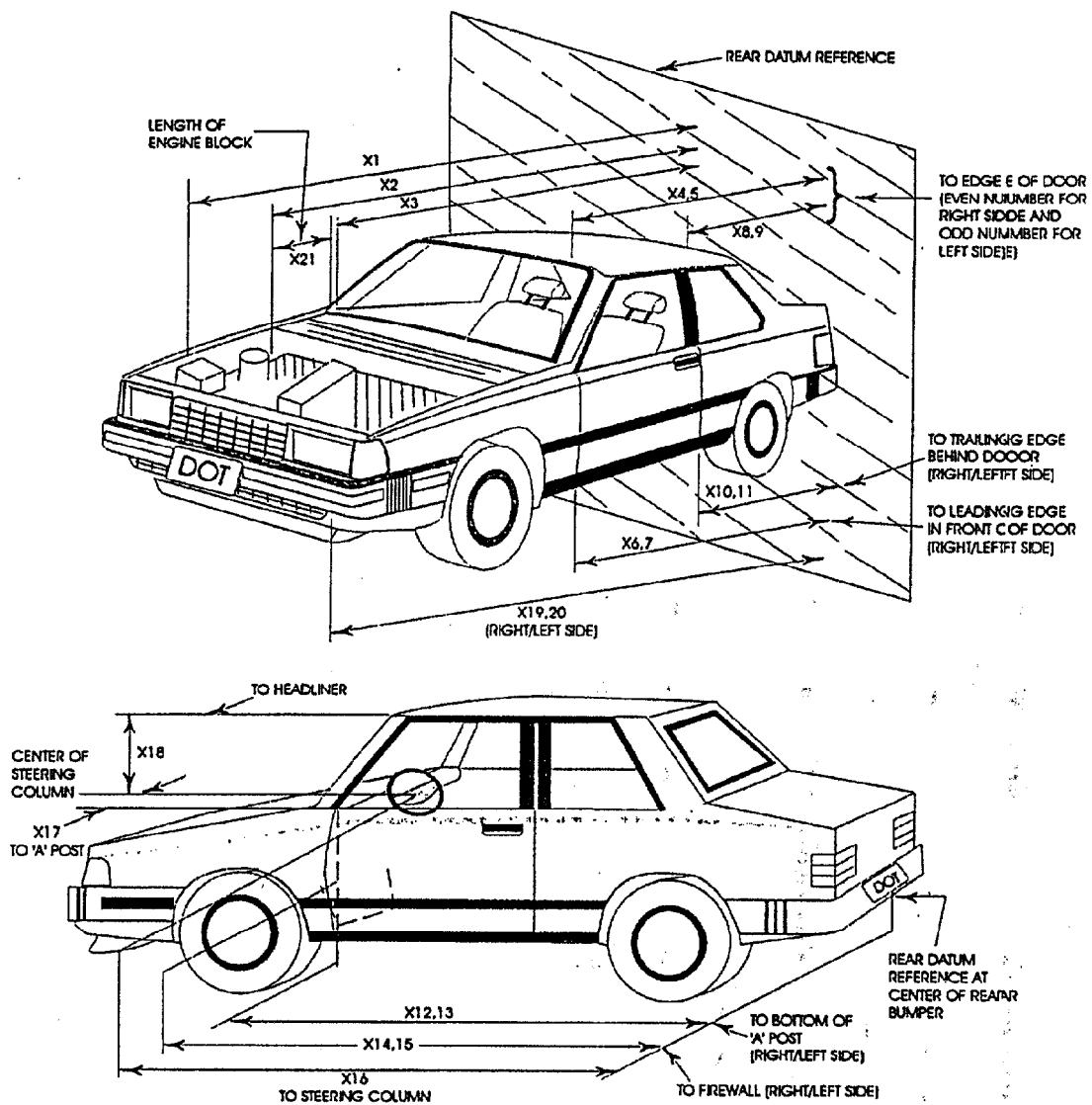
DATA SHEET NO. 14

VEHICLE MEASUREMENTS

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

NO.	MEASUREMENT DESCRIPTION	DIMENSIONS IN MM		
		PRE-TEST	POST-TEST	DIFFERENCE
1	Total length of vehicle at centerline	4820	4259	-561
2	Rear surface of vehicle (RSOV) to front of engine	4300	4110	-190
3	RSOV to firewall centerline	3637	3450	-187
4	RSOV to leading edge of right door	3275	3270	-5
5	RSOV to leading edge of left door	3284	3300	+16
6	RSOV to lower leading edge of right door	3265	3310	+45
7	RSOV to lower leading edge of left door	3264	3290	+26
8	RSOV to upper trailing edge of right door	2223	2220	-3
9	RSOV to upper trailing edge of left door	2230	2250	+20
10	RSOV to lower trailing edge of right door	2213	2218	+5
11	RSOV to lower trailing edge of left door	2220	2240	+20
12	RSOV to bottom of right 'A' pillar	3325	3300	-25
13	RSOV to bottom of left 'A' pillar	3333	3340	+7
14	RSOV to firewall on right side	3590	3420	-170
15	RSOV to firewall of left side	3590	3460	-130
16	RSOV to steering column	2800	2800	0
17	Center of steering column to left 'A' pillar	357	300	-57
18	Center of steering column to headlining	412	378	-34
19	RSOV to right side of front bumper	4536	4169	-367
20	RSOV to left side of front bumper	4536	4197	-339
21	Length of engine block	496	496	0
22	RSOV to right side of dash panel	3044	3060	+16
23	RSOV to center of dash panel	3100	3060	-40
24	RSOV to left side of dash panel	3066	3060	-6



DATA SHEET NO. 15

CAMERA LOCATIONS

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			ANGLE (Deg.)	FILM PLANE TO HEAD TARGET (mm)	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Right Side View-Real Time	2083	8331	914	0	1651	Zoom	24
2A	Left Side View No. 1	1321	-8382	864	2	7696	13	200
2B	Left Side View No. 2	1499	-9855	1270	0	7569	25	900
3	Left Side View No. 3	991	-10,566	1486	1	9830	50	1000
4	Left Side View No. 4	3251	3302	2007	20	2794	19	1000
5	Left Side View No. 5	1905	-8306	2515	15	7925	25	1000
6	Left Side View No. 6	1880	-8382	1092	10	7798	25	1010
7	Right Side View No. 1	1295	10,160	1168	4	7671	13	1100
8	Right Side View No. 2	1473	10,236	1245	0	9652	50	1100
9	Right Side View No. 3	6832	11,633	1321	12	11,862	80	900
10	Right Side View No. 4	2997	10,363	1549	0	9754	50	1200
11	Overhead Windshield	914	0	5715	90	N/A	13	1200
12	Front View No. 1 Driver	-356	356	2540	40	2845	19	1000
13	Front View No. 2 Passenger	-356	508	2540	40	2845	19	950
14	Pit Camera Engine View	610	0	-660	90	N/A	13	970
15	Pit Camera Fuel Tank View	5029	0	406	41	N/A	19	1070
16	Driver Side Onboard	3556	330	1092	9	1143	13	500
17	Passenger Side Onboard	3556	330	1092	5	1168	13	440

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

DATA SHEET NO. 16

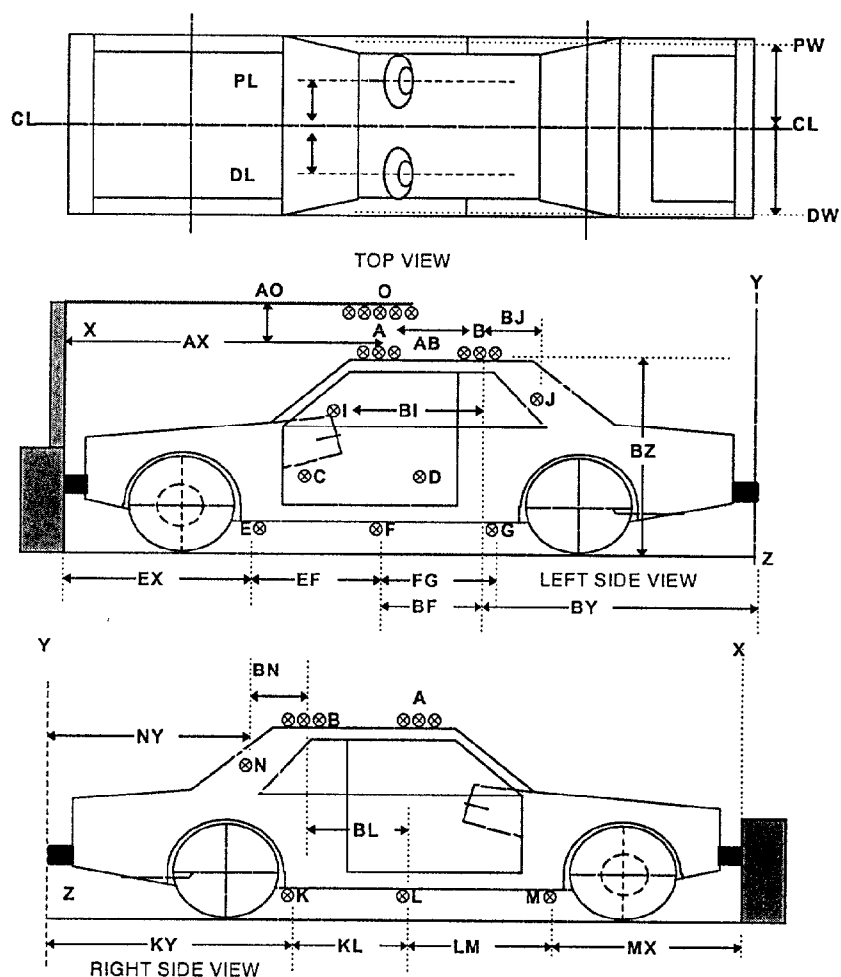
REFERENCE PHOTOGRAPH TARGETS

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

ITEM	DESCRIPTION	VALUE	ITEM	DESCRIPTION	VALUE
AX	TARGET A TO BARRIER	2470	NY	TARGET N TO REAR BUMPER	1386
AB	TARGET A TO TARGET B	608	BN	TARGET B TO TARGET N	190
AO	VERTICAL DISTANCE A TO O	160	KY	TARGET K TO REAR BUMPER	1645
BJ	TARGET B TO TARGET J	306	KL	TARGET K TO TARGET L	853
BI	TARGET B TO STEERING COLUMN	475	BL	TARGET B TO TARGET L	1567
BZ	TARGET B TO GROUND LEVEL	1452	LM	TARGET L TO TARGET M	813
EX	TARGET E TO BARRIER	1530	MX	TARGET M TO BARRIER	1463
EF	TARGET E TO TARGET F	835	CL/PL	VEHICLE CENTERLINE TO PASSENGER	311
FG	TARGET F TO TARGET G	840	CL/PW	VEHICLE CENTERLINE TO RIGHT SILL	731
BF	TARGET B TO TARGET F	756	CL/DL	VEHICLE CENTERLINE TO DRIVER	350
BY	TARGET B TO REAR BUMPER	1720	CL/DW	VEHICLE CENTERLINE TO LEFT SILL	800

Distances in mm



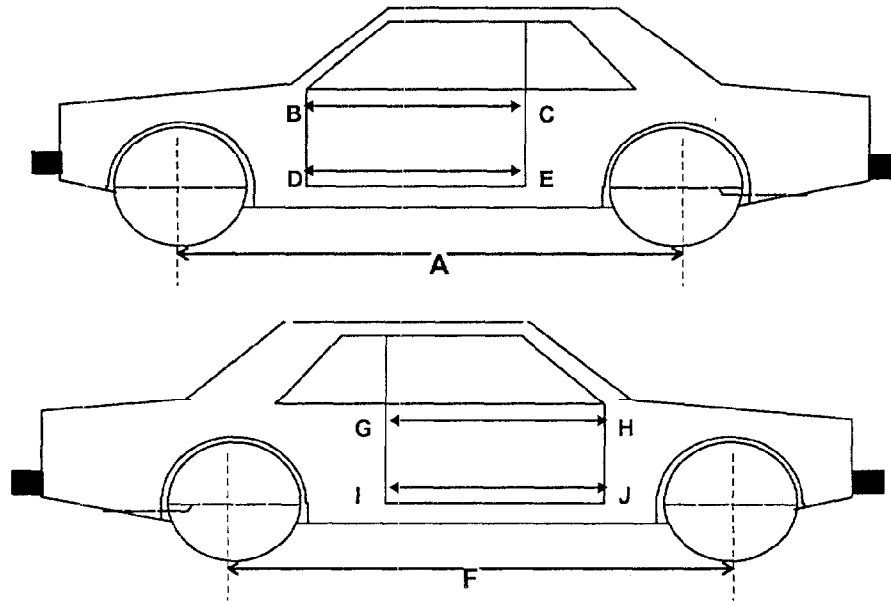
DATA SHEET NO. 17

VEHICLE INTRUSION MEASUREMENTS

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

DOOR OPENING WIDTH



UNITS (mm)	LEFT SIDE		RIGHT SIDE	
MEASUREMENT	BC	DE	GH	IJ
PRE-TEST	1045	1044	1052	1052
POST-TEST	1020	1050	1050	1010
DIFFERENCE	-25	+6	-2	-42

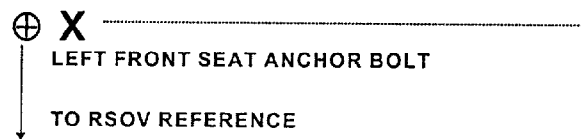
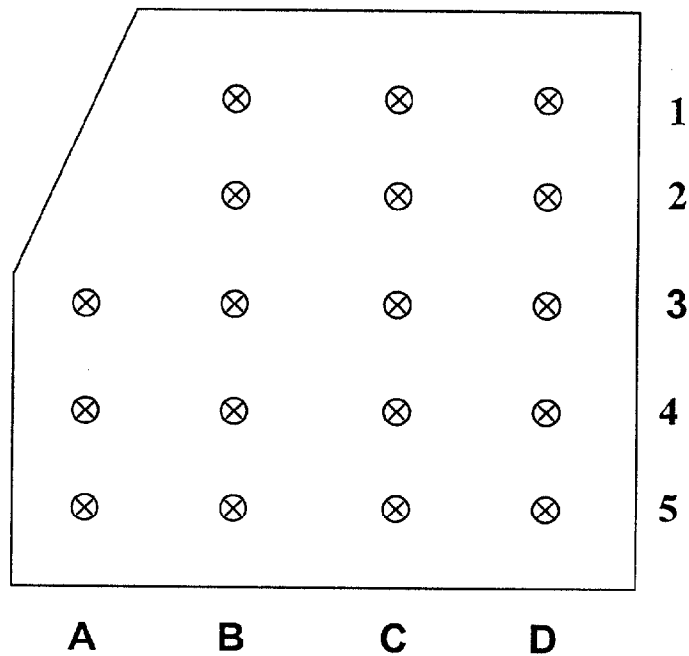
VEHICLE WHEELBASE CHANGE

UNITS (mm)	A = LEFT SIDE WHEELBASE	F = RIGHT SIDE WHEELBASE
PRE-TEST	2667	2667
POST-TEST	2667	2667
DIFFERENCE	0	0

Data Sheet No. 17(Continued)

FLOOR PAN INTRUSION (Distances in mm)

TARGET COLUMN	A		B		C		D	
TARGET ROW	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
1	N/A	N/A	750	667	750	655	750	640
2	N/A	N/A	600	540	600	537	600	544
3	450	460	450	474	450	474	450	470
4	300	300	300	300	300	300	300	300
5	150	150	150	150	150	150	150	150
REF. POINT	RSOV TO ANCHOR BOLT (PRE-TEST)		2720		RSOV TO ANCHOR BOLT (POST-TEST)		2780	



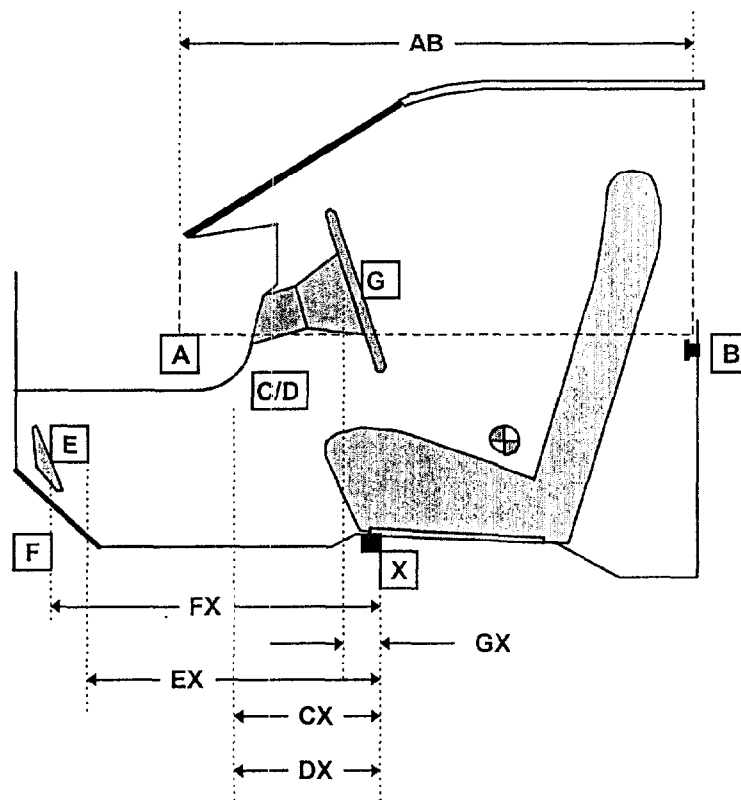
DRIVER SIDE FLOOR PLAN

(Data Sheet No. 17Continued)

DRIVER COMPARTMENT INTRUSION (Distances in mm)

REF.	DESCRIPTION	PRE-TEST	POST-TEST
AB	DOOR OPENING (INSIDE WINDOW JAM)	972	968
CX	LOWER LEFT KNEE BOLSTER TO X	370	350
DX	LOWER RIGHT KNEE BOLSTER TO X	390	400
EX	BRAKE PEDAL TO X	575	589
FX	FOOT REST TO X	607	630
GX	STEERING COLUMN HUB (CENTER) TO X	35	93

X = LEFT FRONT SEAT ANCHOR BOLT



DRIVER COMPARTMENT

DATA SHEET NO. 18

OFFSET BARRIER ORIENTATION

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN NHTSA NO. MW5103

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

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

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

(NO OFFSET REQUIRED FOR THIS TEST)

DATA SHEET NO. 19

ACCIDENT INVESTIGATION DIVISION DATA

TEST VEHICLE: 1998 TOYOTA LEXUS ES300 4-DOOR SEDAN

NHTSA NO. MW5103

VIN: JT8BF28G2W0106042

TEST DATE: 2/12/98

WHEELBASE: 2667 mm

TEST WEIGHT: 1732 kg

VEHICLE SIZE CATEGORY: TOYOTA LEXUS ES300 4-DOOR SEDAN

ACCELEROMETER DATA:

LOCATION: Left and right rear floor pans

CALIBRATION PROCEDURE: 6 months/ drop test

LINEARITY: Good

INTEGRATION ALGORITHM: NHTSA Standard

VEHICLE IMPACT SPEED: 56.6 km/h

TIME OF SEPARATION: 69.08 msec

VELOCITY CHANGE: 76.90 km/h

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

IMPACT MODE: Full Frontal

CRUSH DEPTH DIMENSIONS:

C1 = 326 mm

C2 = 435 mm

C3 = 495 mm

C4 = 500 mm

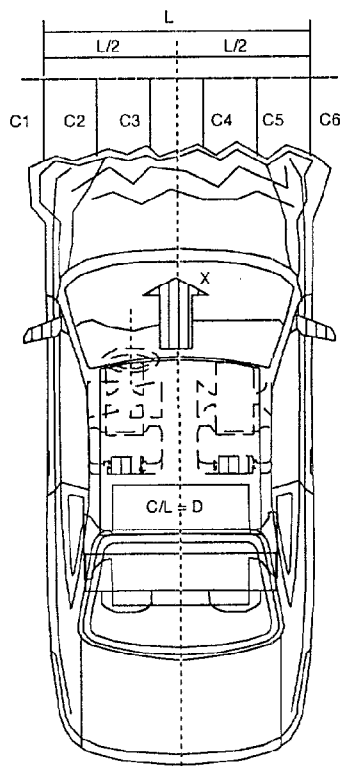
C5 = 440 mm

C6 = 336 mm

MIDPOINT OF DAMAGE: D = vehicle centerline 785 MM

LENGTH OF DAMAGE REGION:

L = 1570 mm



APPENDIX A
PHOTOGRAPHS

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FIGURE A-1. RIGHT FRONT AS RECEIVED



FIGURE A-2. LEFT REAR AS RECEIVED

KAR-98-R98050-10

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KAR-98-R98050-10

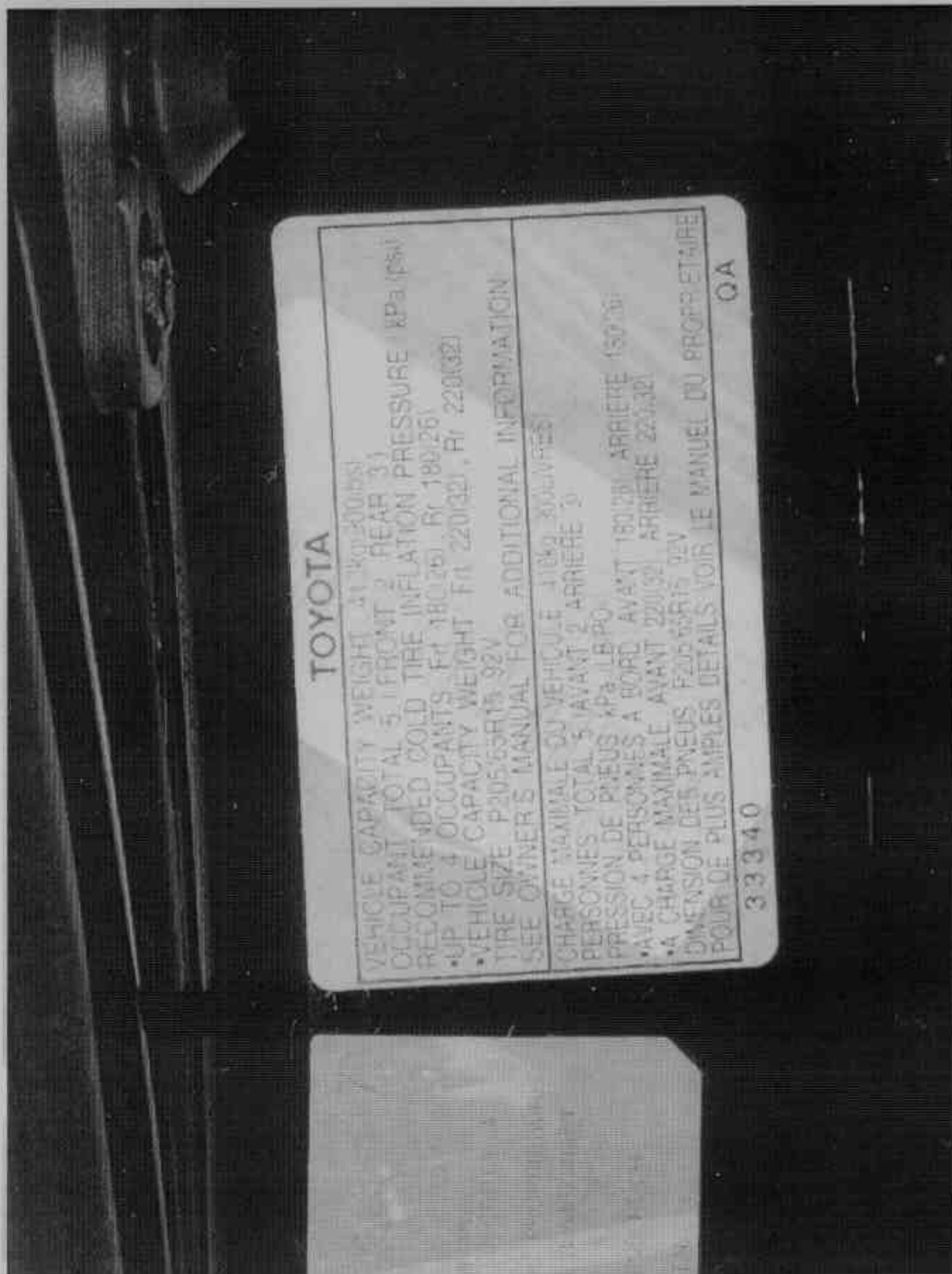


FIGURE A-4. VEHICLE TIRE PLACARD



FIGURE A-5. PRETEST FRONT VIEW

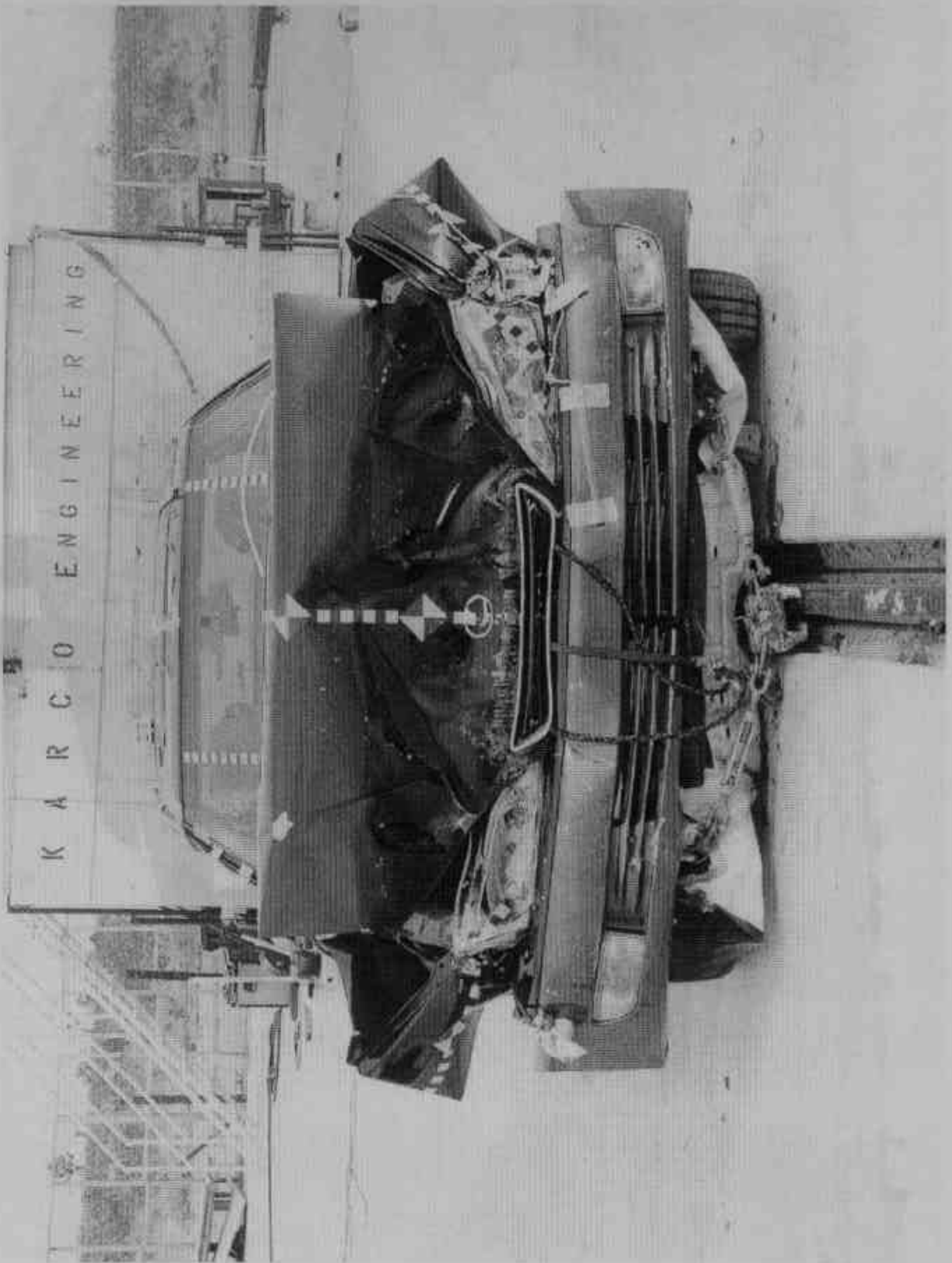


FIGURE A-6. POST TEST FRONT VIEW

KAR-98-R98050-10

A-6

KAR-98-R98050-10

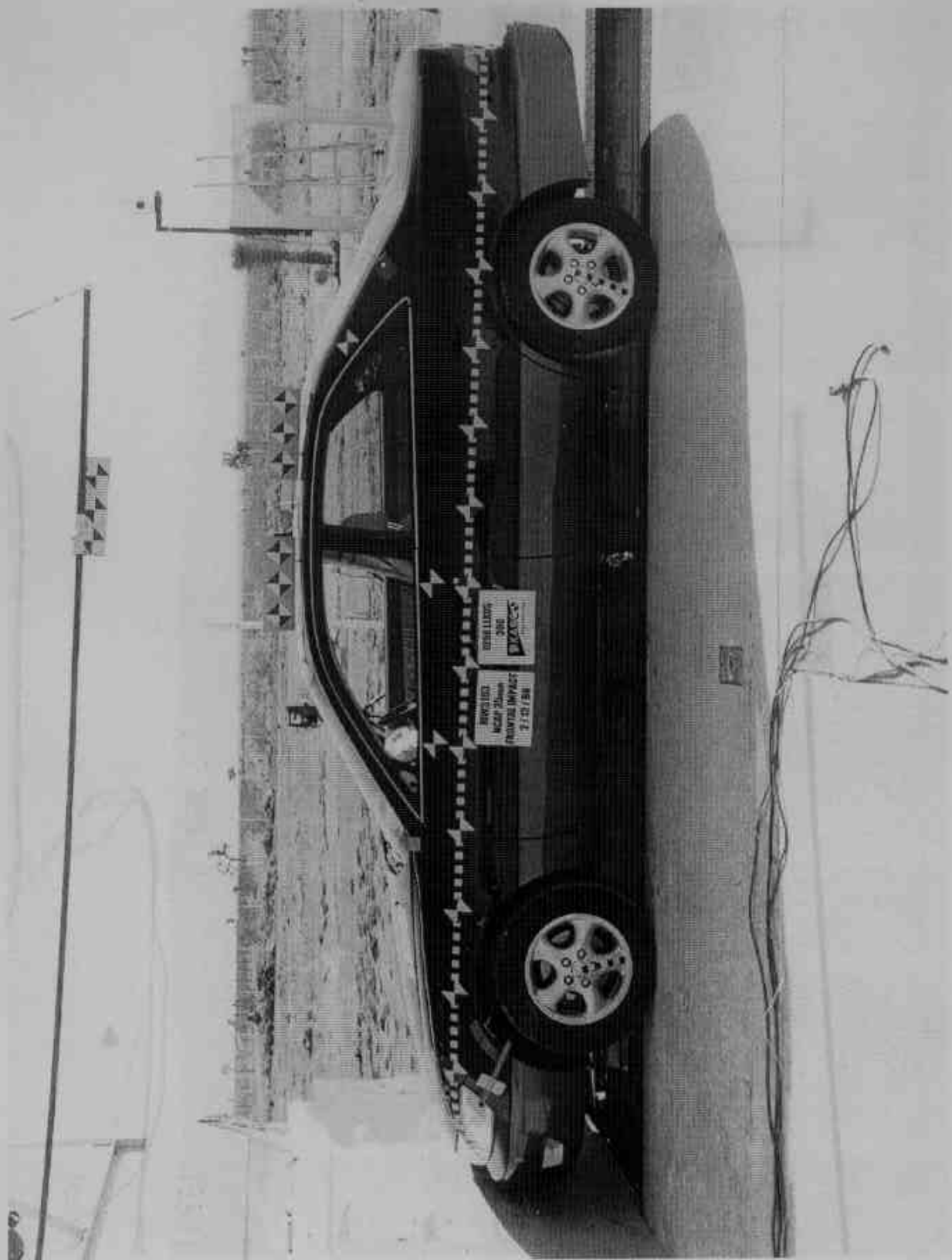


FIGURE A-7. PRETEST LEFT SIDE VIEW

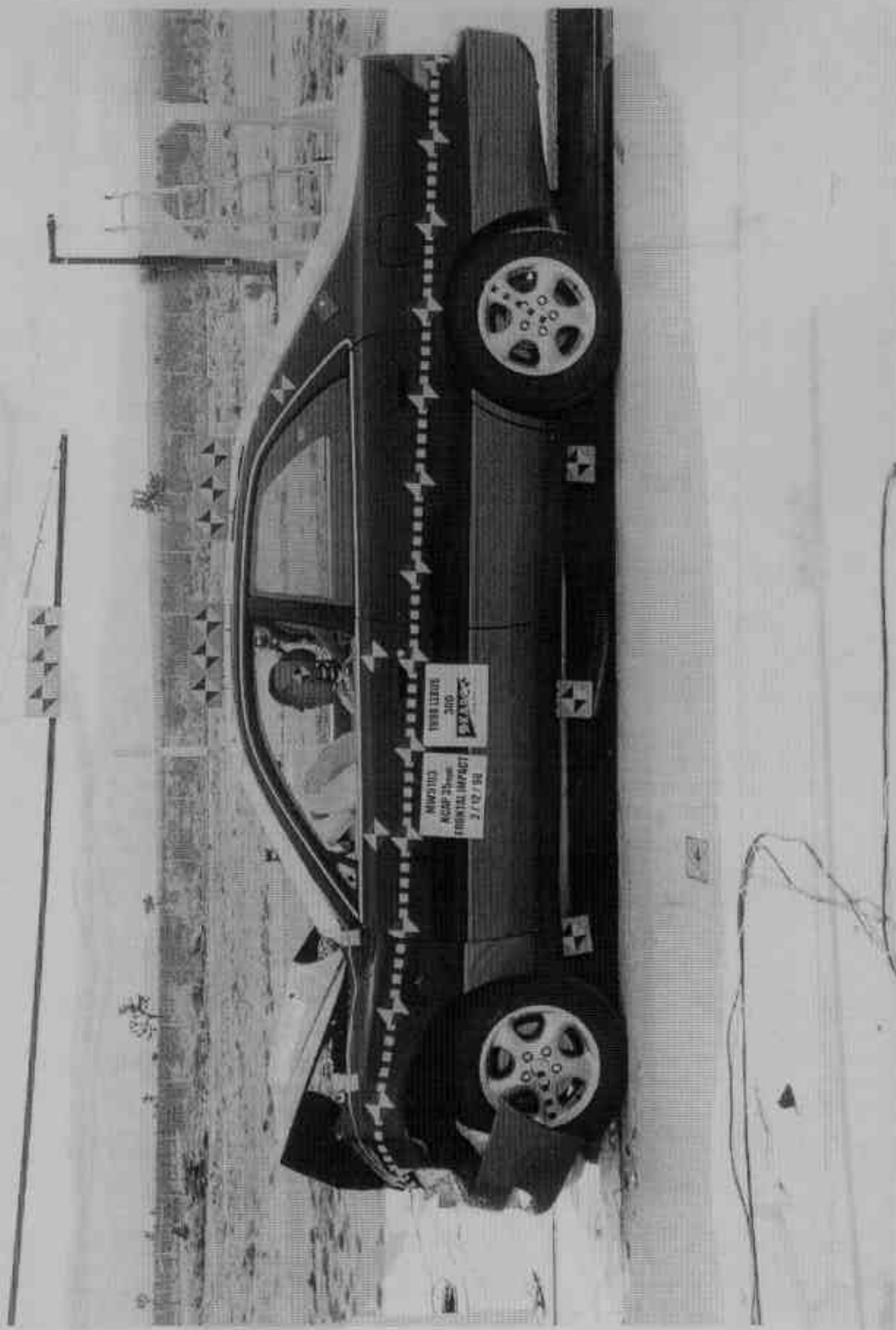


FIGURE A-8. POST TEST LEFT SIDE VIEW

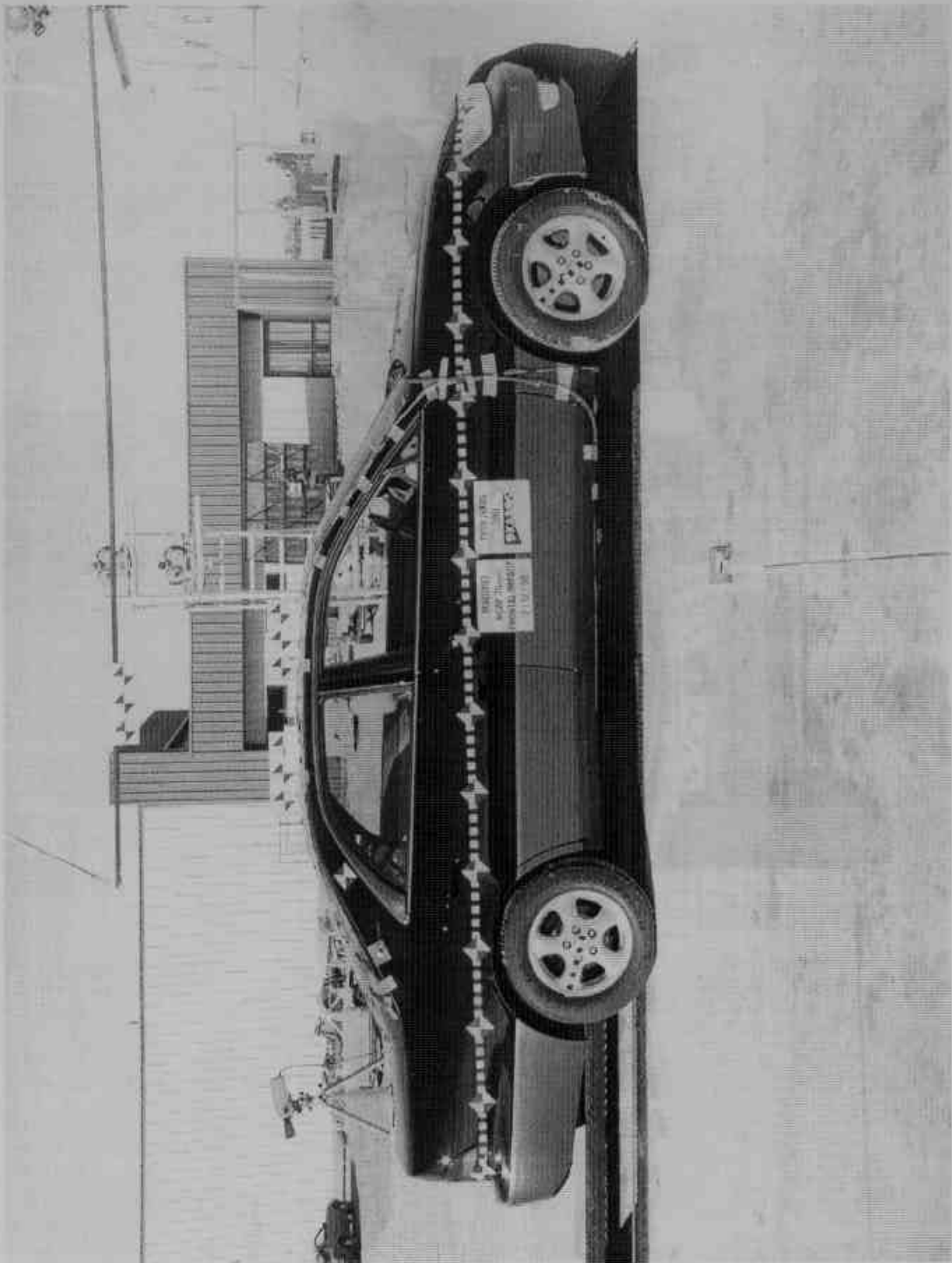


FIGURE A-9. PRETEST RIGHT SIDE VIEW

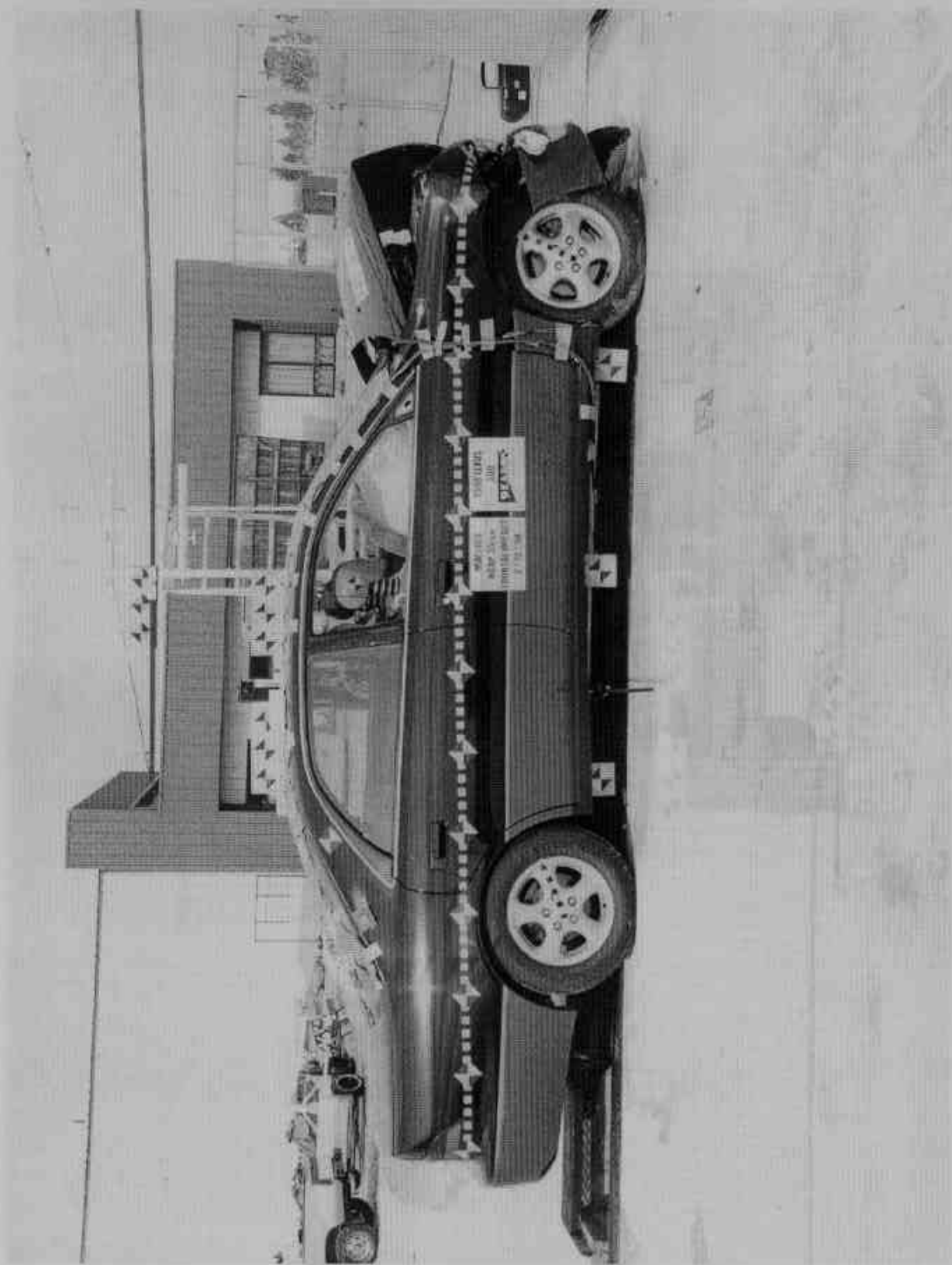


FIGURE A-10. POST TEST RIGHT SIDE VIEW

KAR-98-R98050-10

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KAR-98-R98050-10



FIGURE A-11. PRETEST RIGHT FRONT VIEW

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FIGURE A-12. POST TEST RIGHT FRONT VIEW

KAR-98-R98050-10

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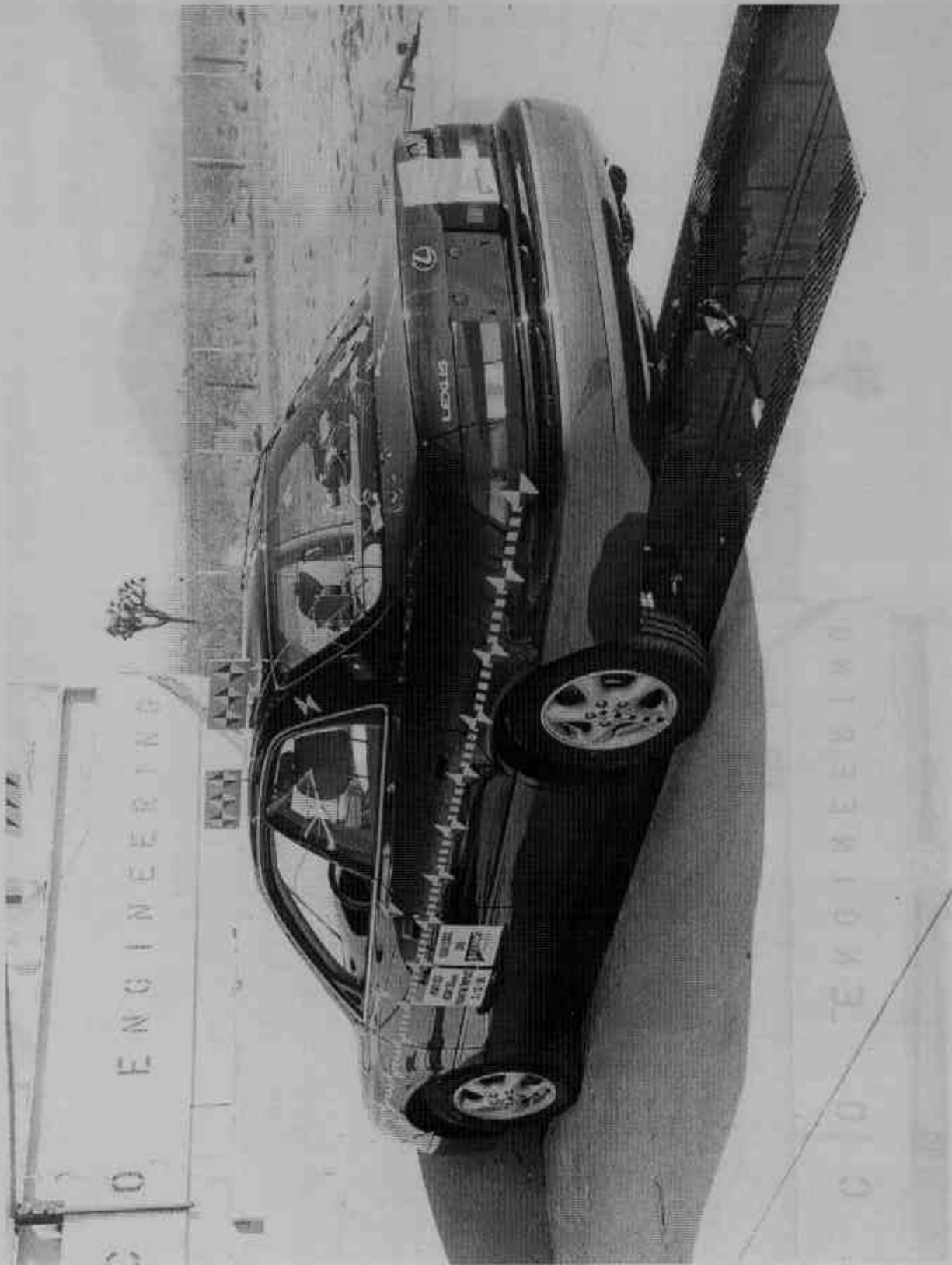


FIGURE A-13. PRETEST LEFT REAR VIEW



FIGURE A-14. POST TEST LEFT REAR VIEW

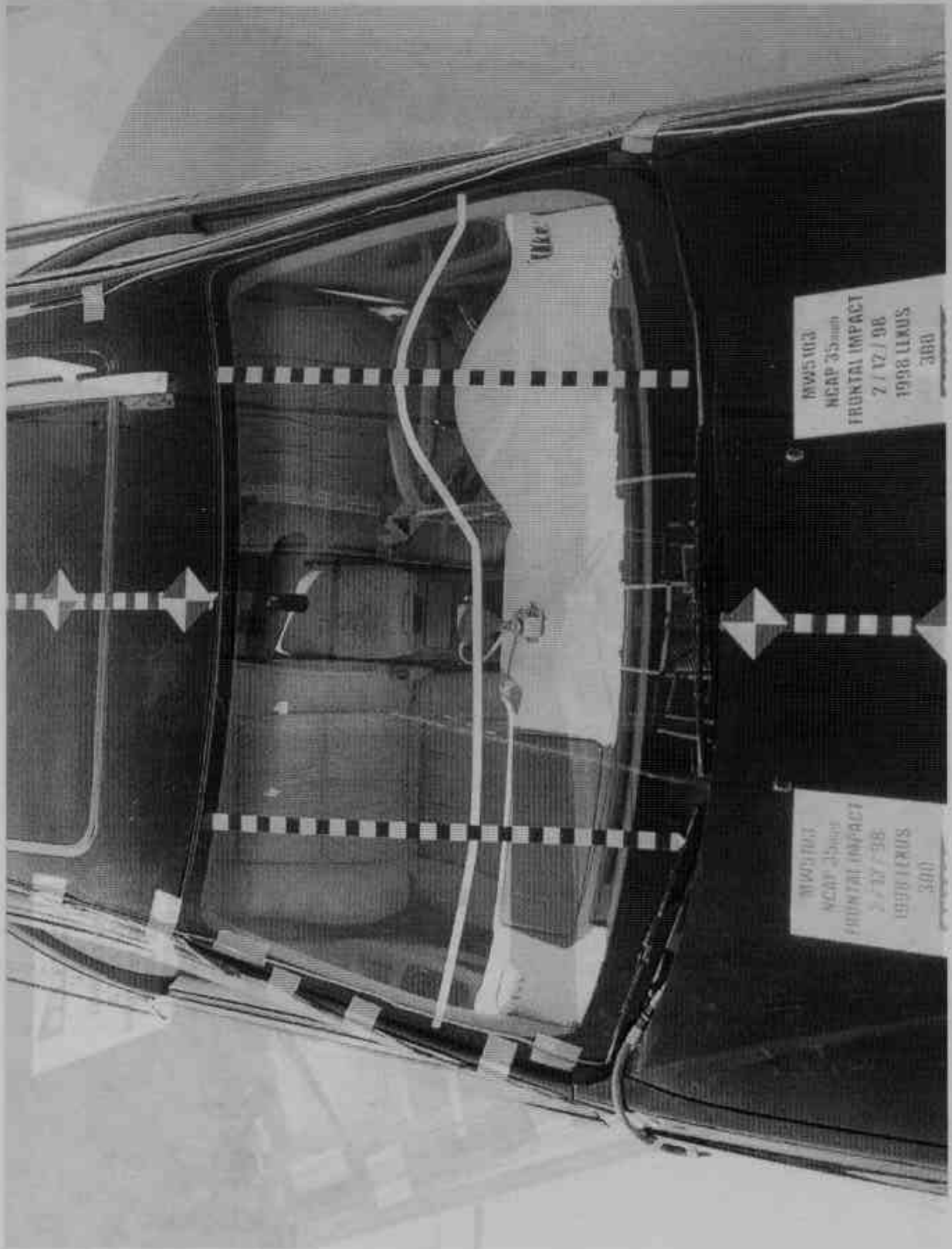


FIGURE A-15. PRETEST WINDSHIELD

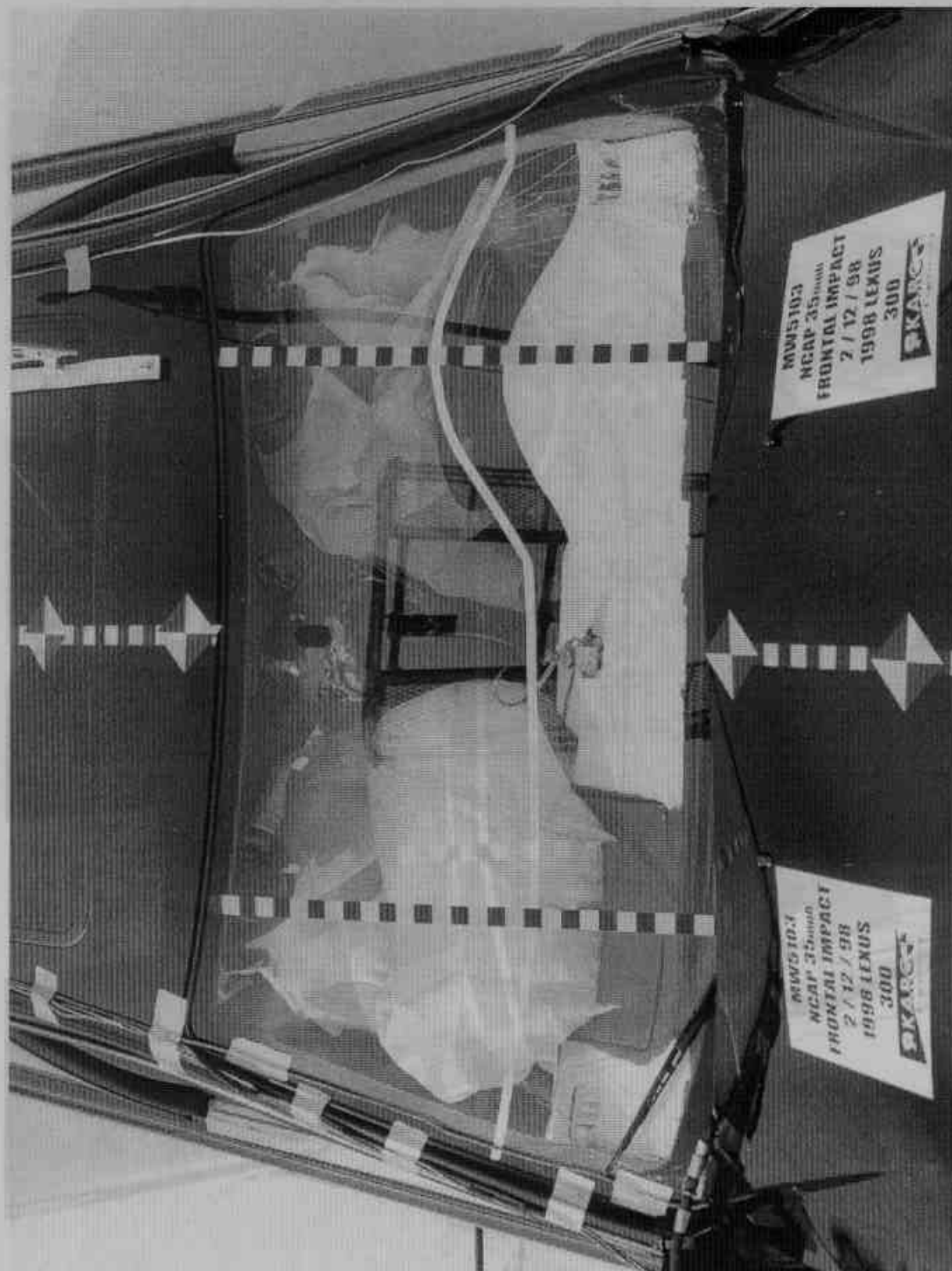


FIGURE A-16. POST TEST WINDSHIELD

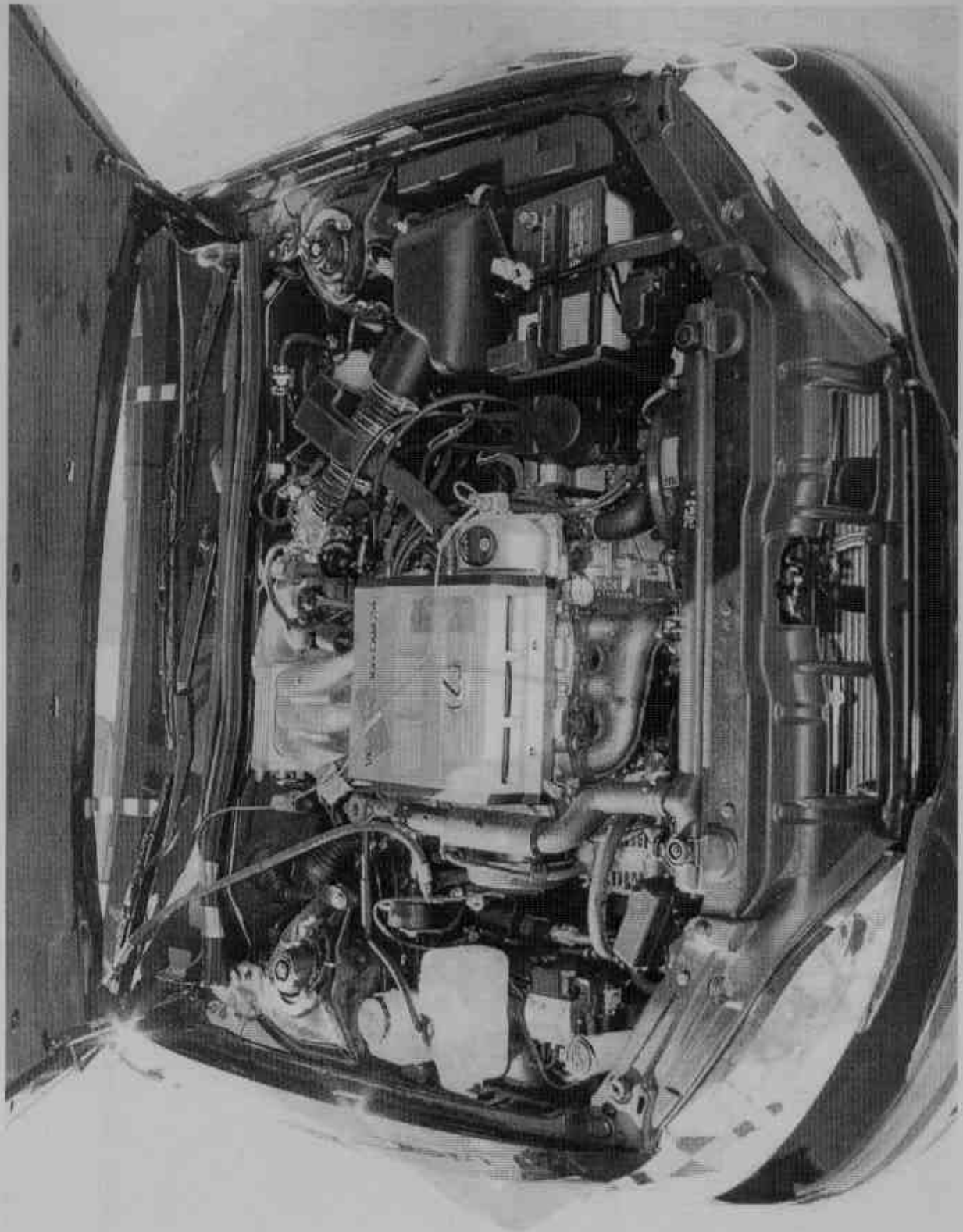


FIGURE A-17. PRETEST ENGINE COMPARTMENT

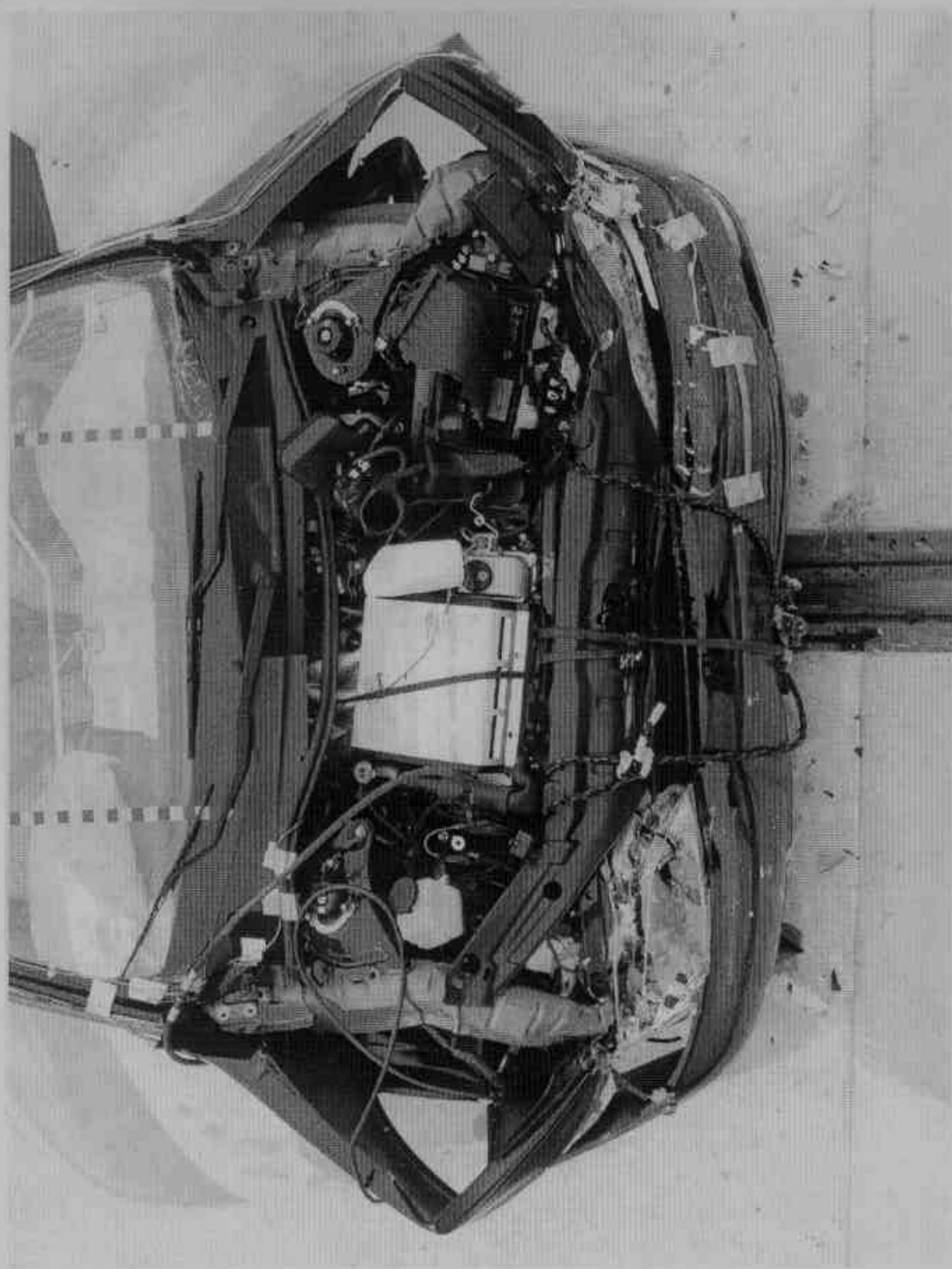


FIGURE A-18. POST TEST ENGINE COMPARTMENT

KAR-98-R98050-10

A-18

KAR-98-R98050-10

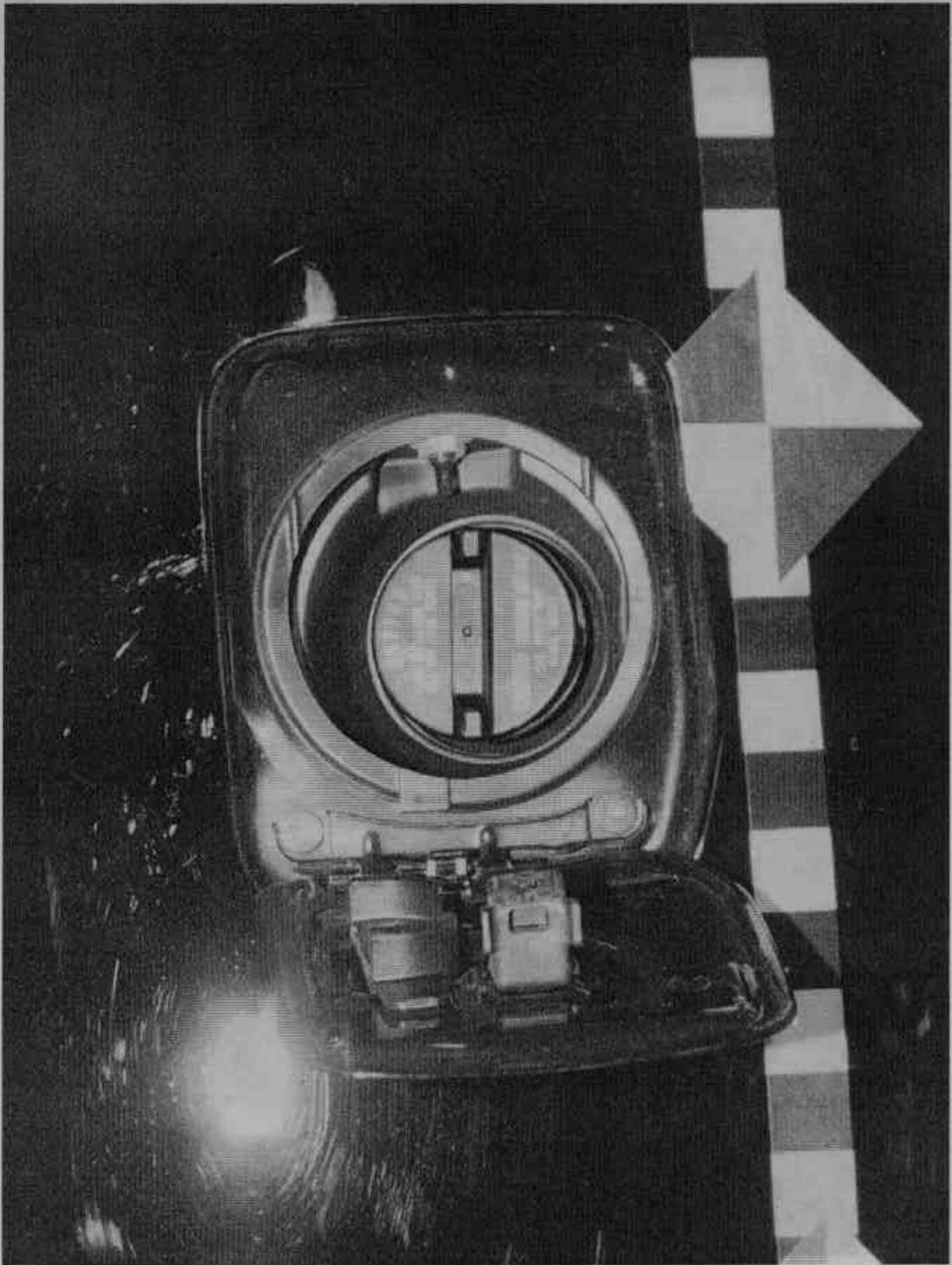


FIGURE A-19. PRETEST FUEL CAP

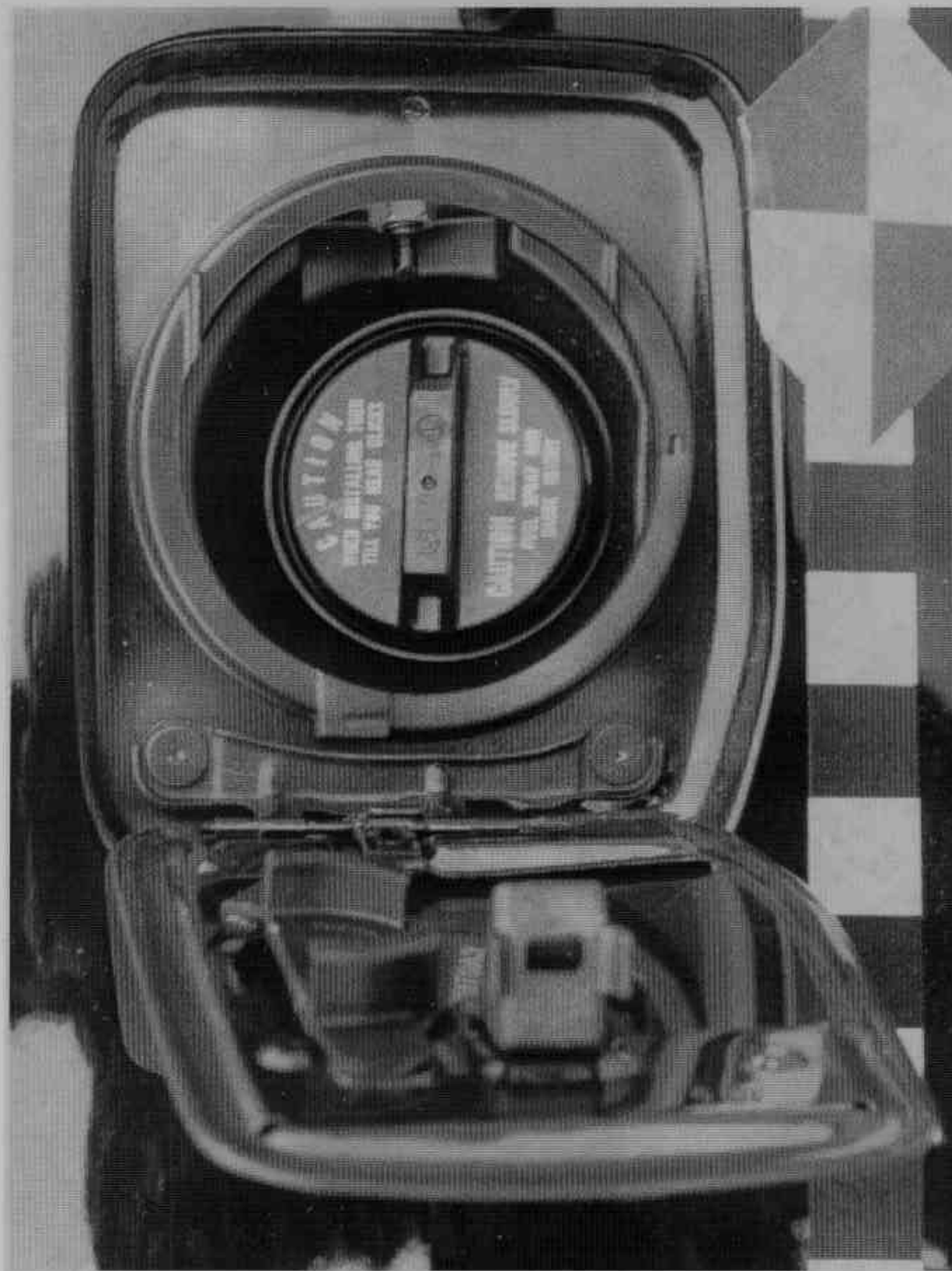


FIGURE A-20. POST TEST FUEL CAP

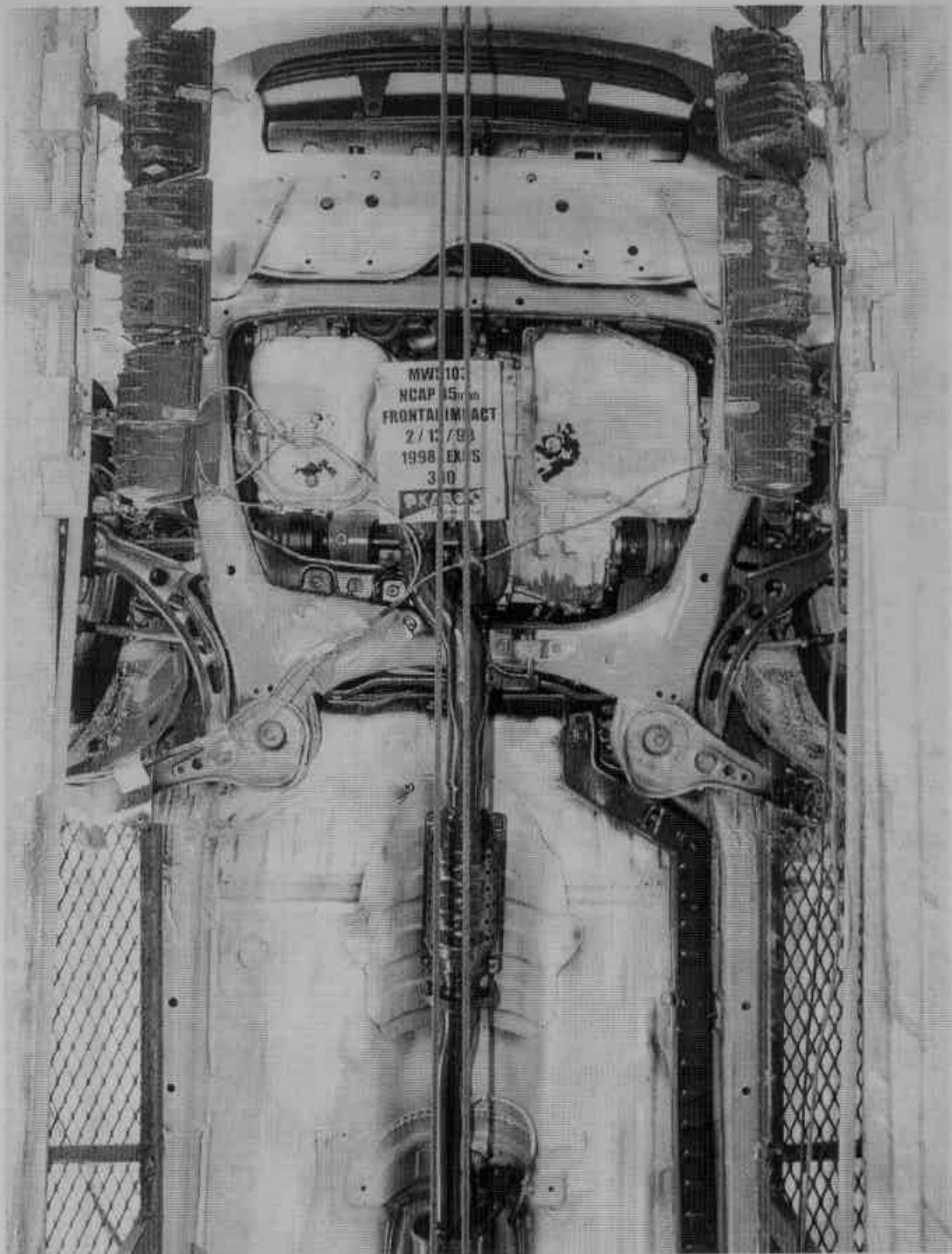


FIGURE A-21. PRETEST FRONT UNDERSIDE

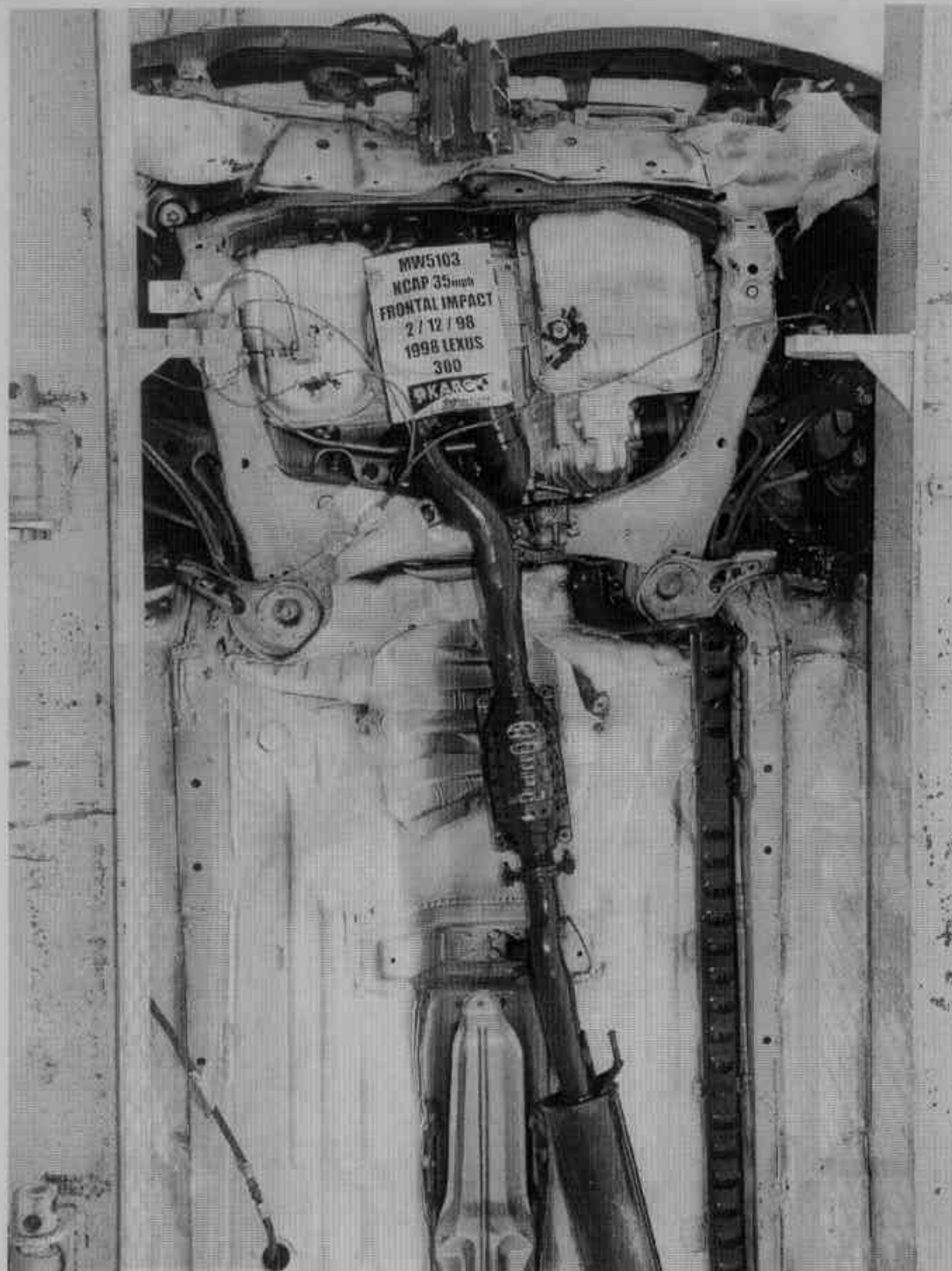


FIGURE A-22. POST TEST FRONT UNDERSIDE

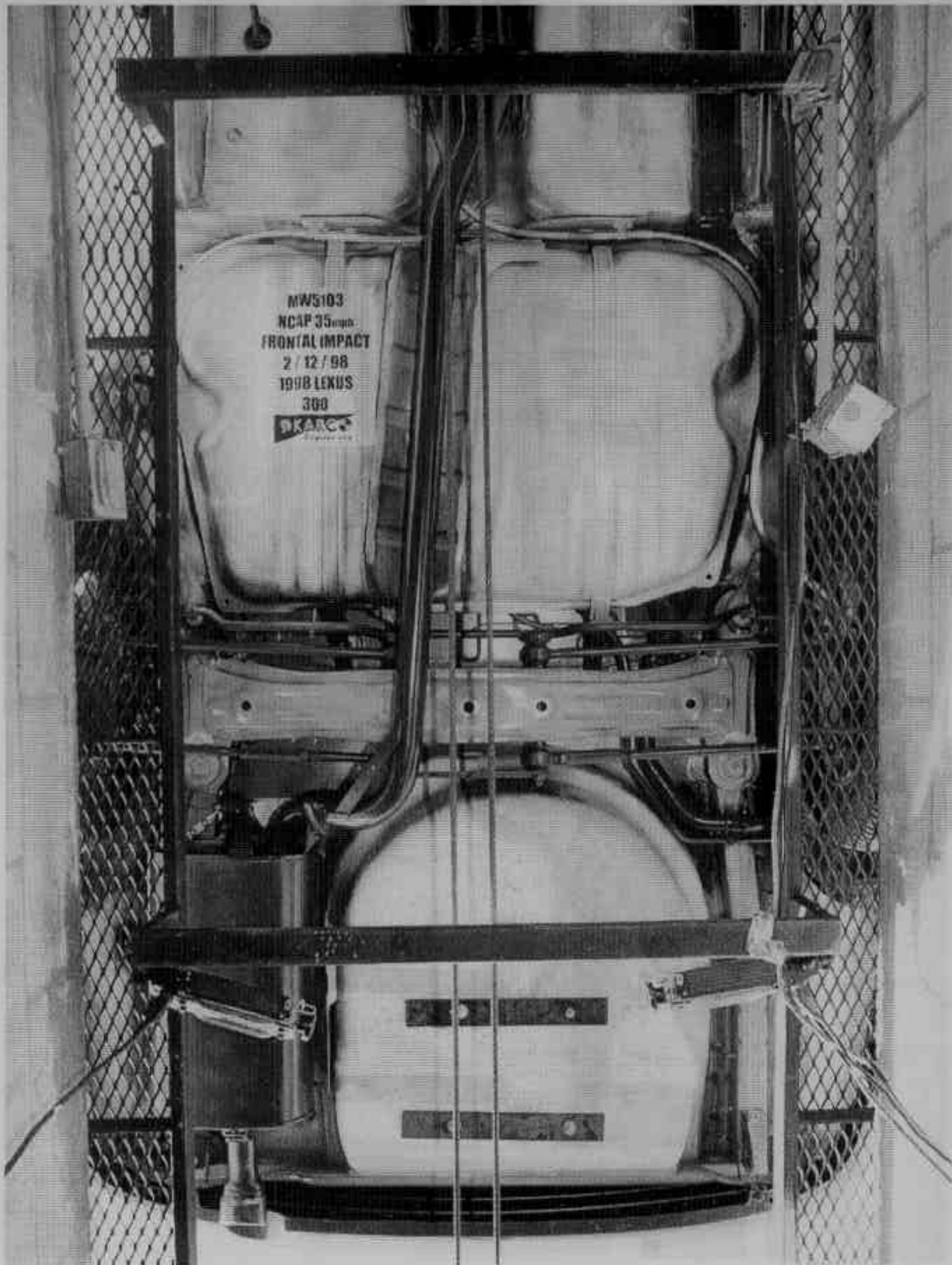


FIGURE A-23. PRETEST REAR UNDERSIDE

KAR-98-R98050-10

A-23

KAR-98-R98050-10

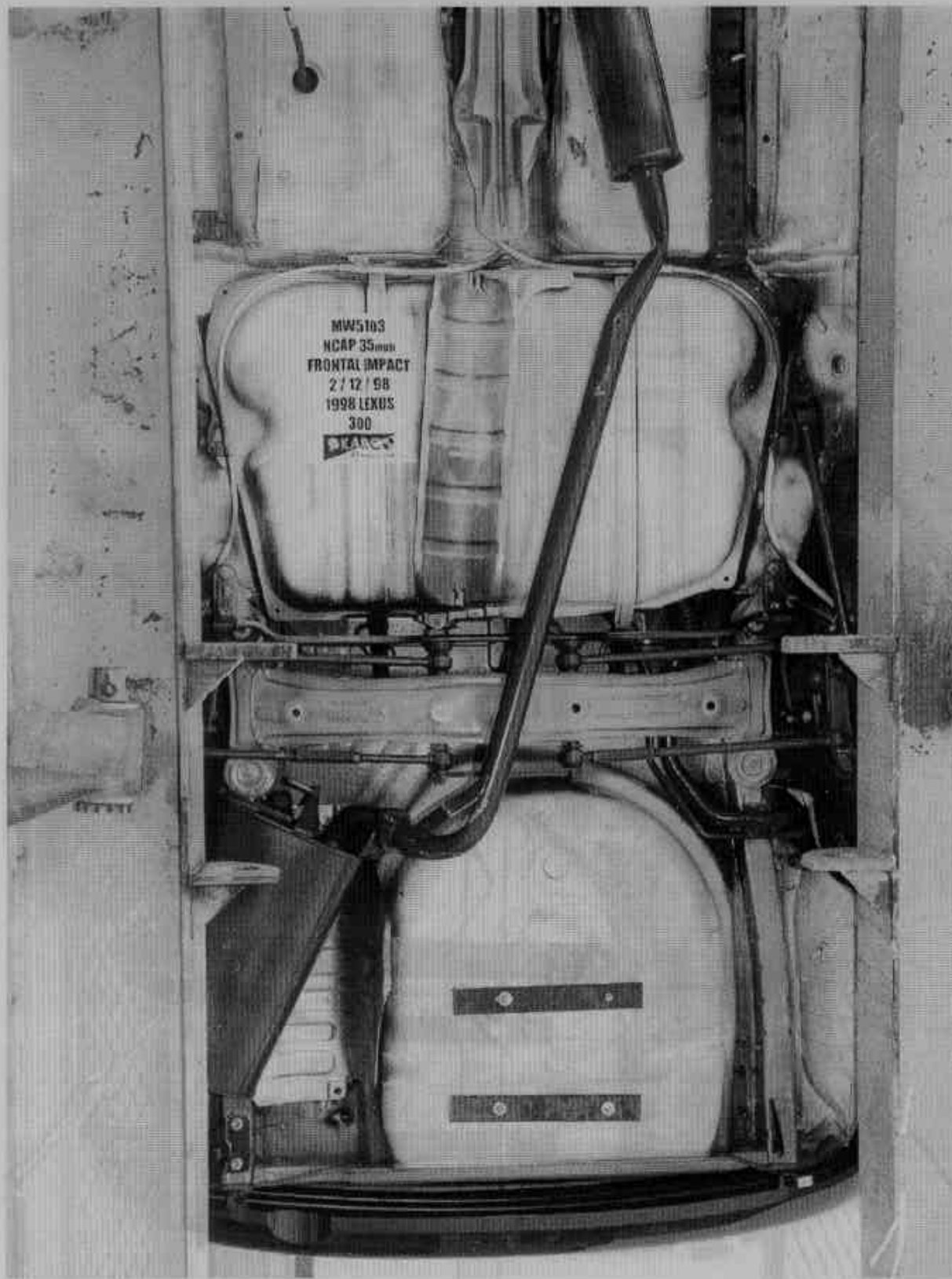


FIGURE A-24. POST TEST REAR UNDERSIDE

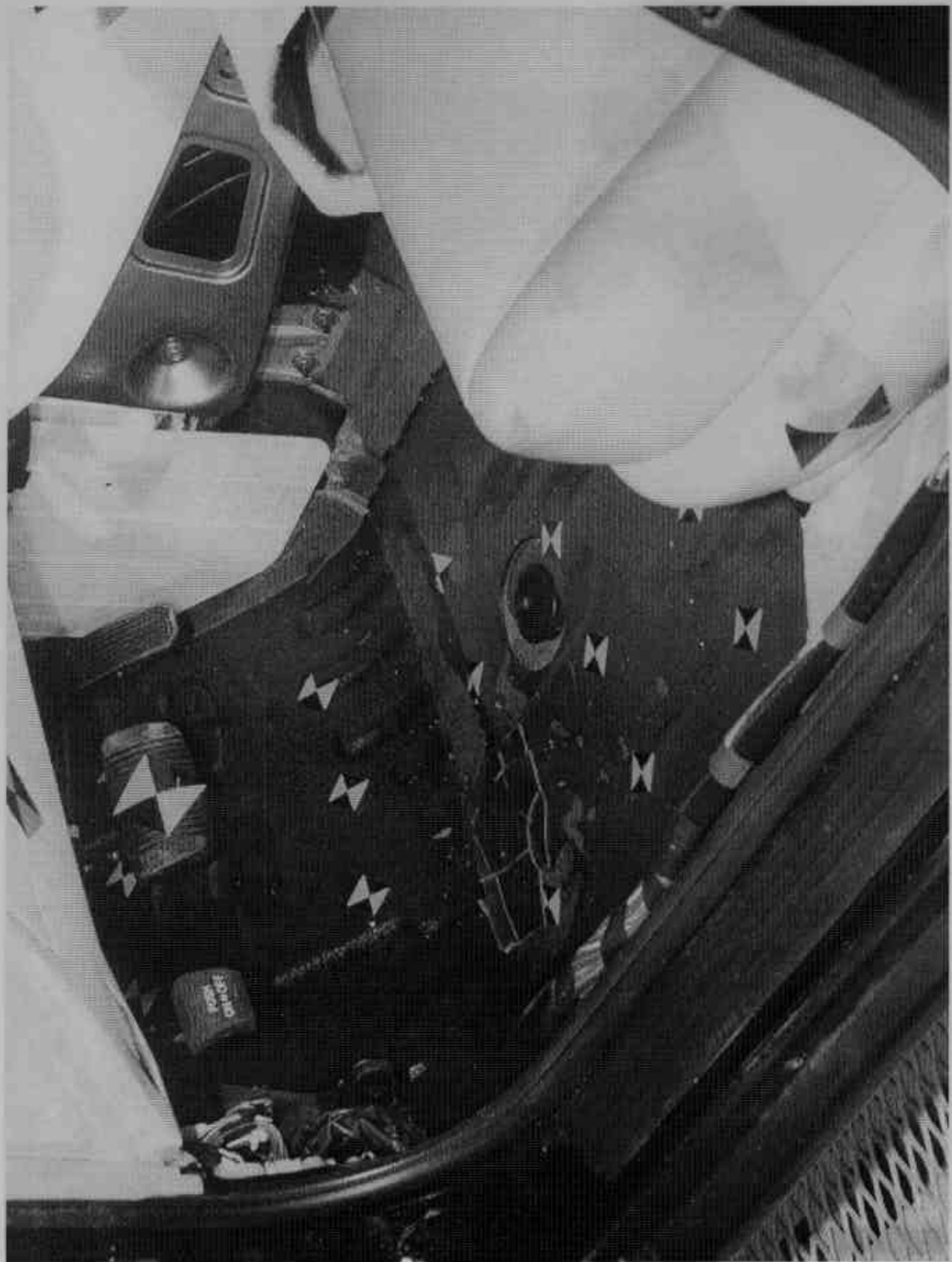


FIGURE A-25. PRETEST DRIVER FLOOR PAN



FIGURE A-26. POST TEST DRIVER FLOOR PAN

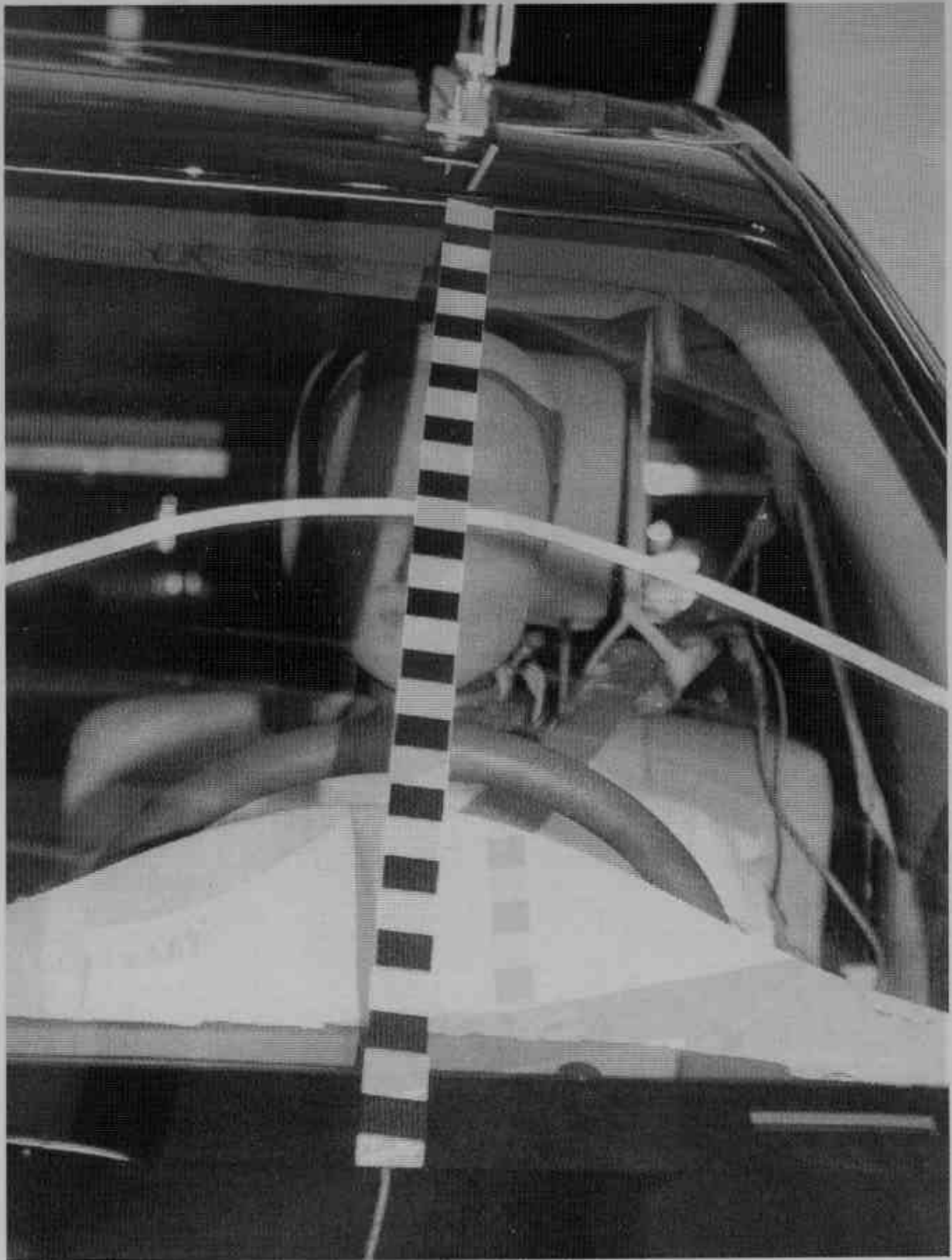


FIGURE A-27. PRETEST DRIVER DUMMY (FRONT VIEW)



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



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

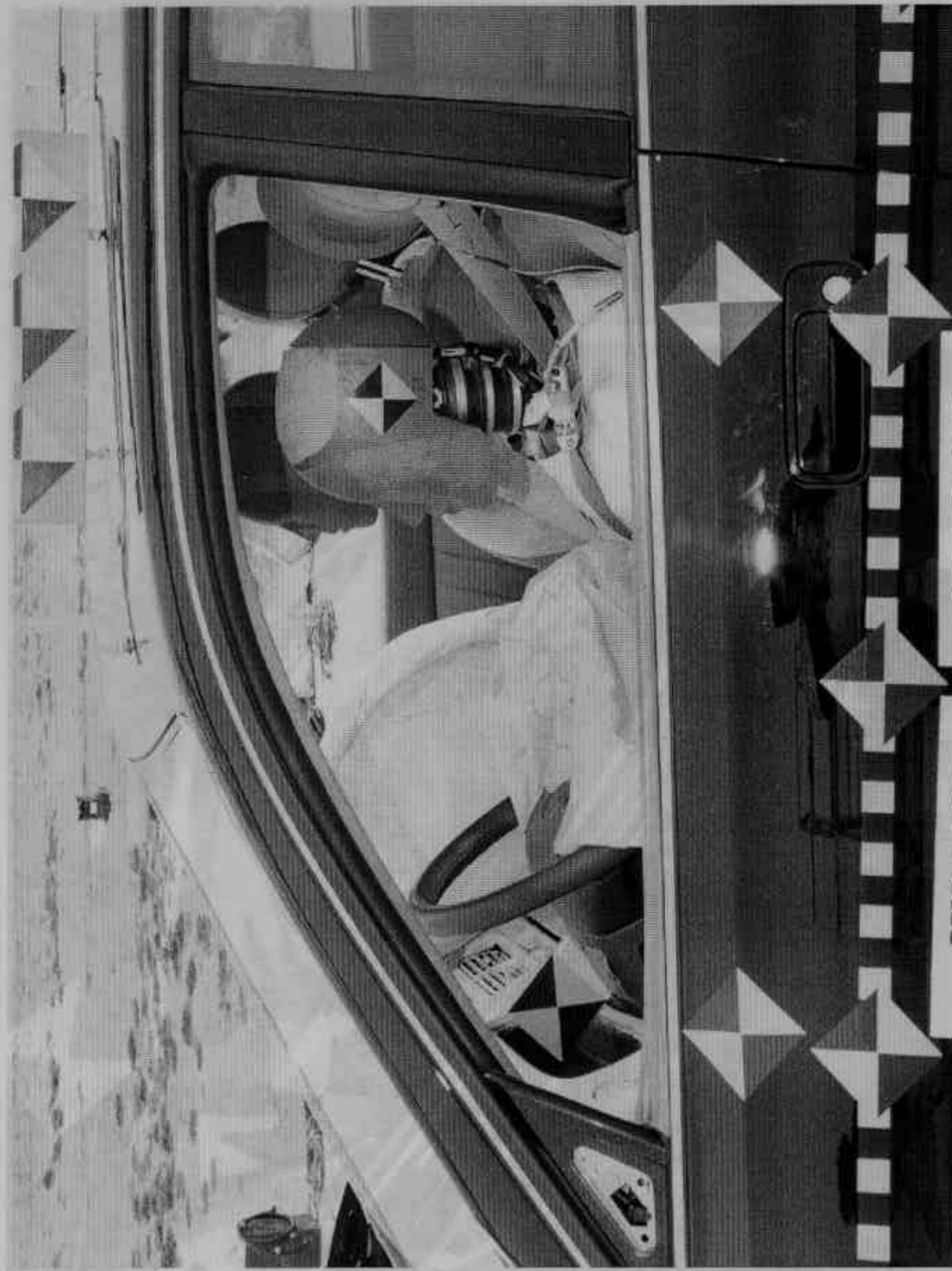


FIGURE A-30. POST TEST DRIVER DUMMY (THRU WINDOW)



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



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



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

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



FIGURE A-35. POST TEST DRIVER DUMMY HEAD

A-35

KAR-98-R98050-10



FIGURE A-36. POST TEST DRIVER DUMMY CONTACT POINT

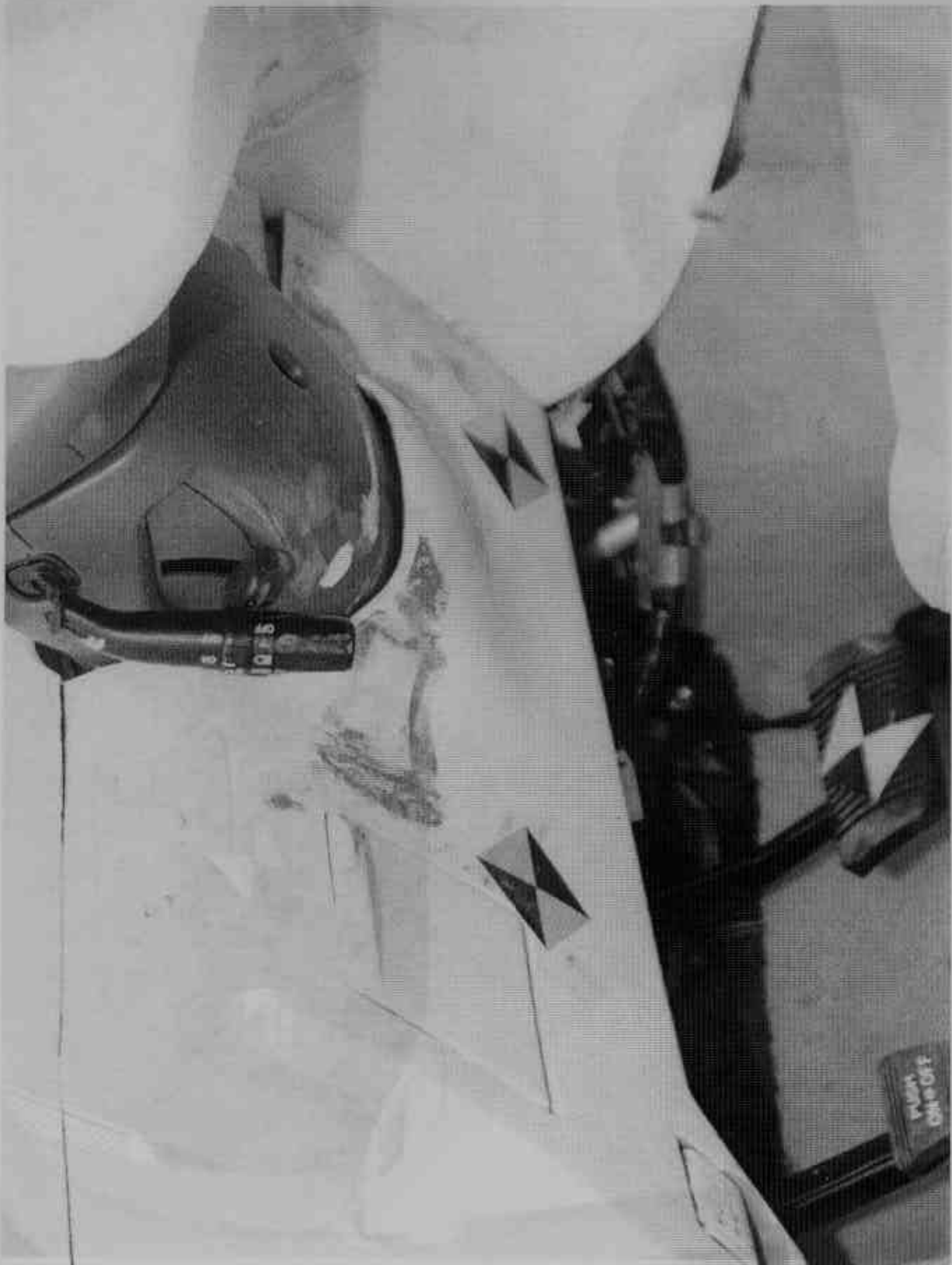


FIGURE A-37. POST TEST DRIVER DUMMY CONTACT POINT

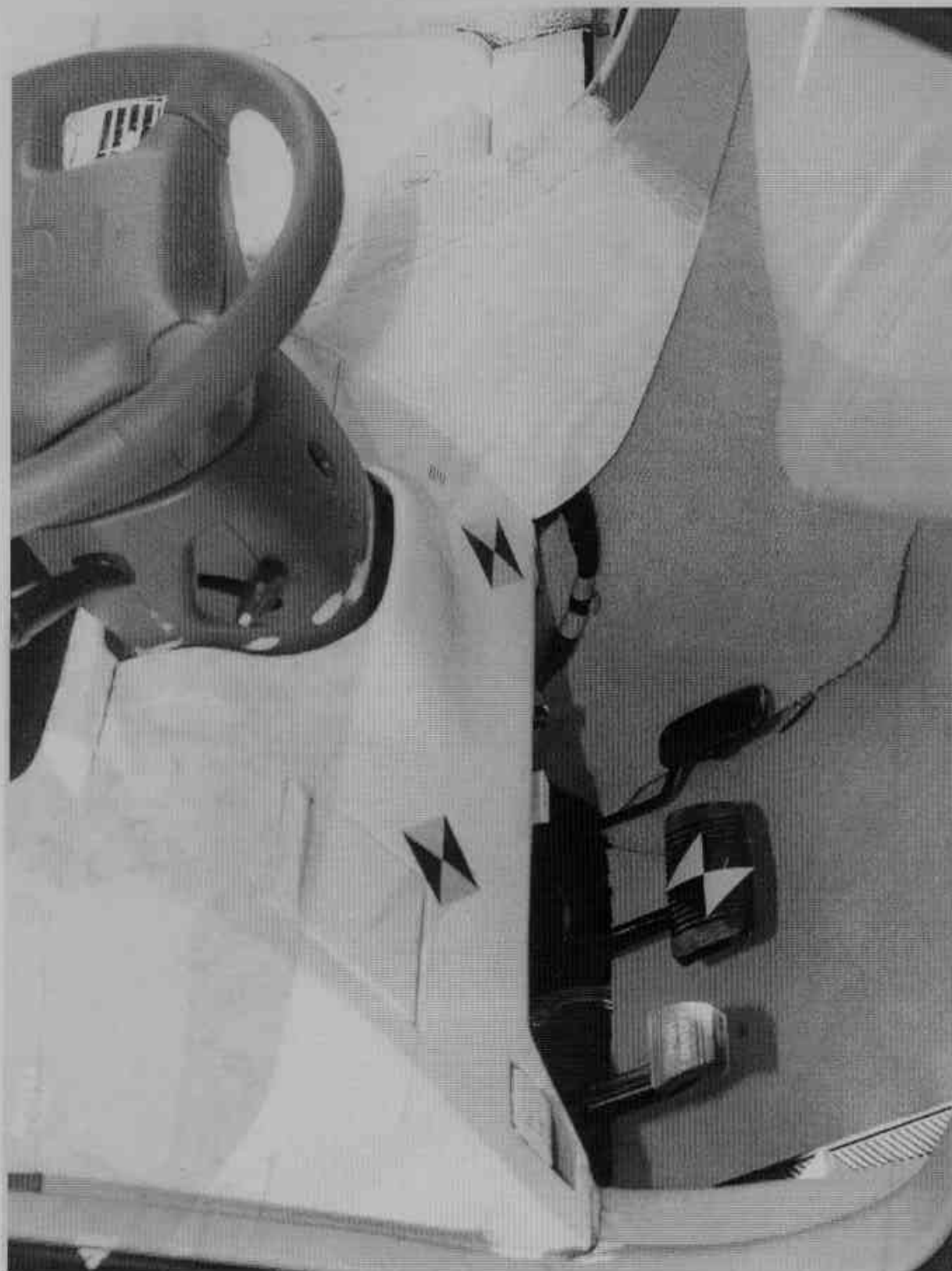


FIGURE A-38. PRETEST DRIVER SIDE KNEE BOLSTER

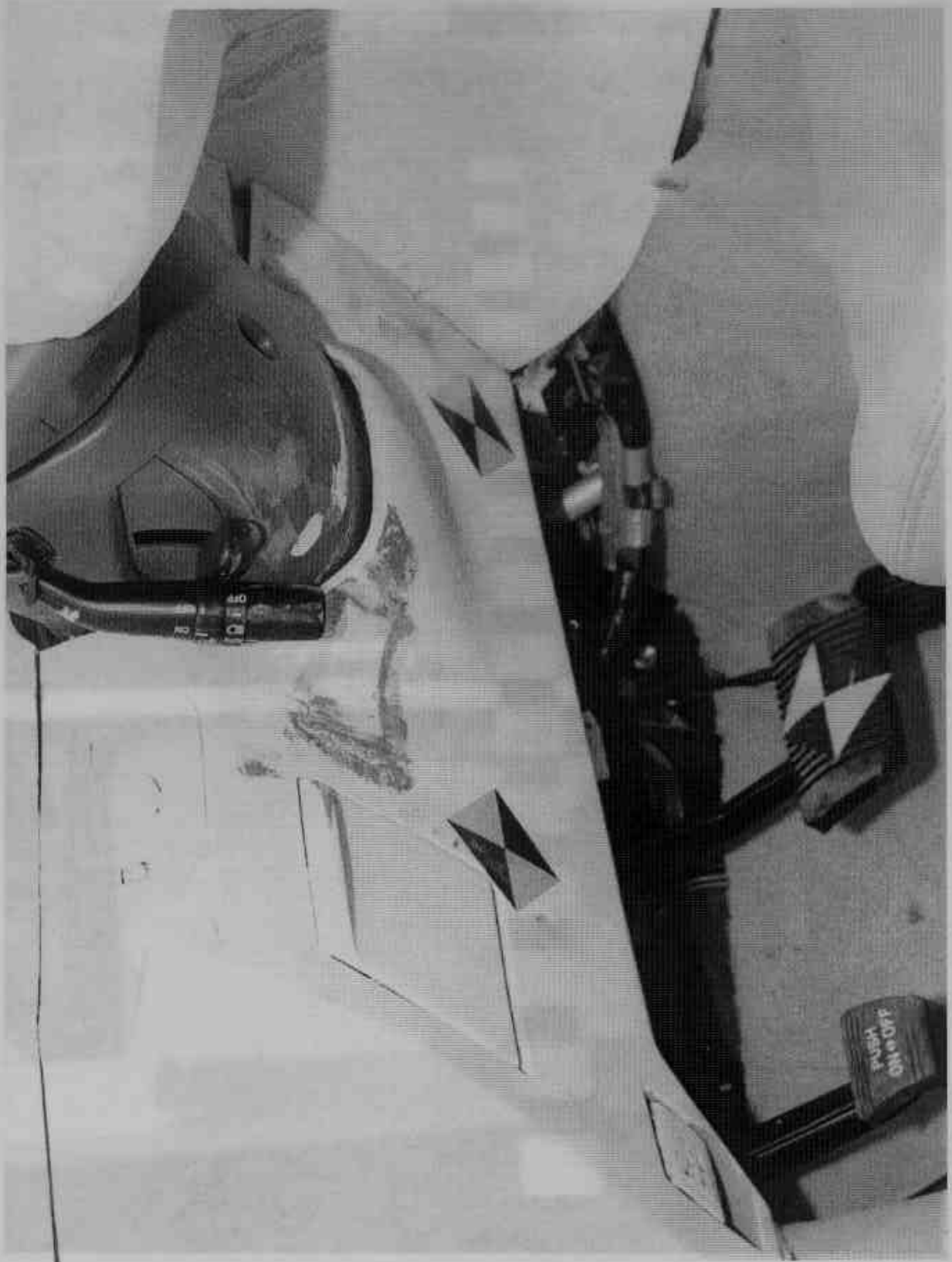


FIGURE A-39. POST TEST DRIVER KNEE BOLSTER

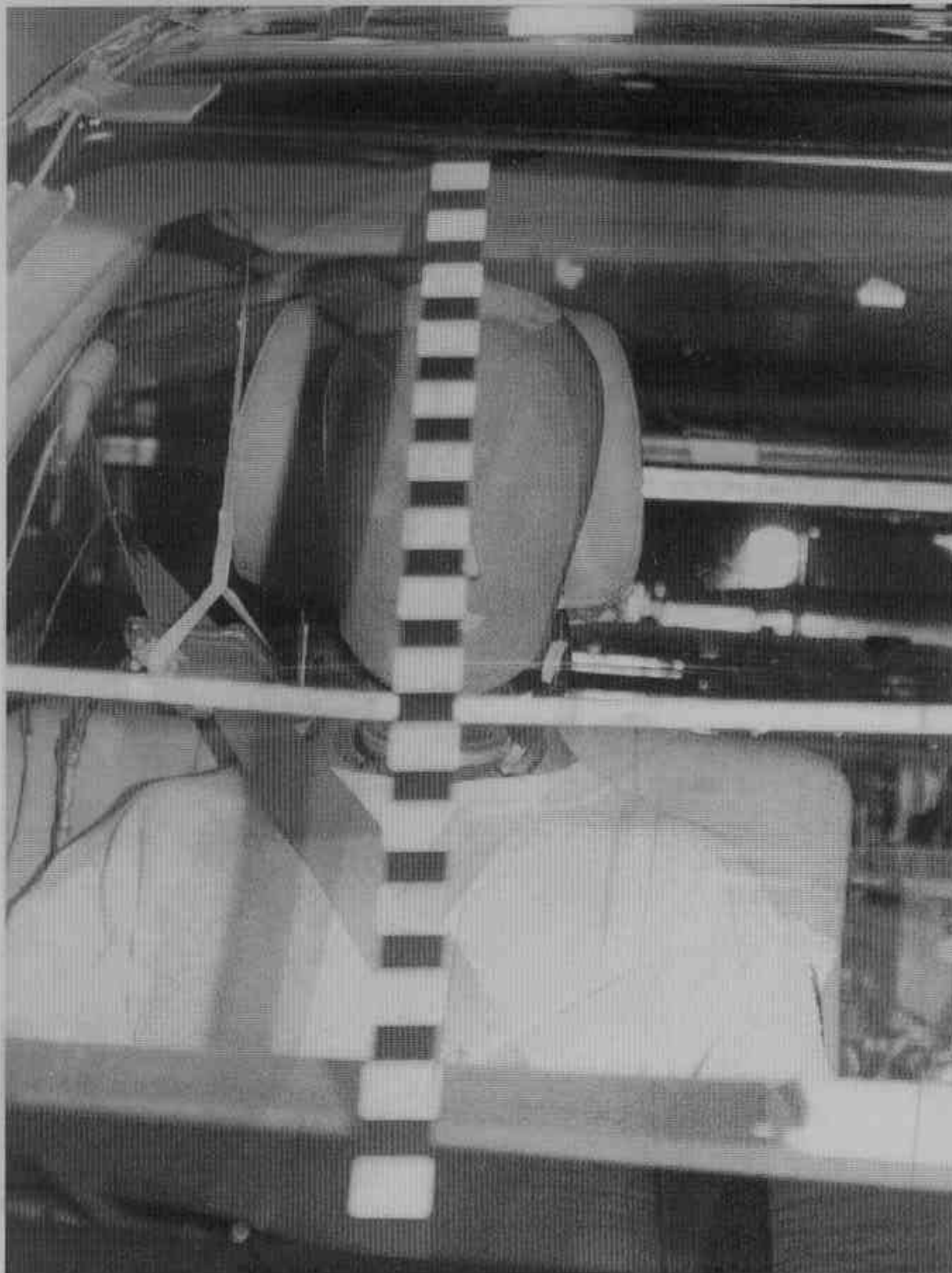


FIGURE A-40. PRETEST PASSENGER DUMMY (FRONT VIEW)



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



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



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

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



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



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



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

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A-47

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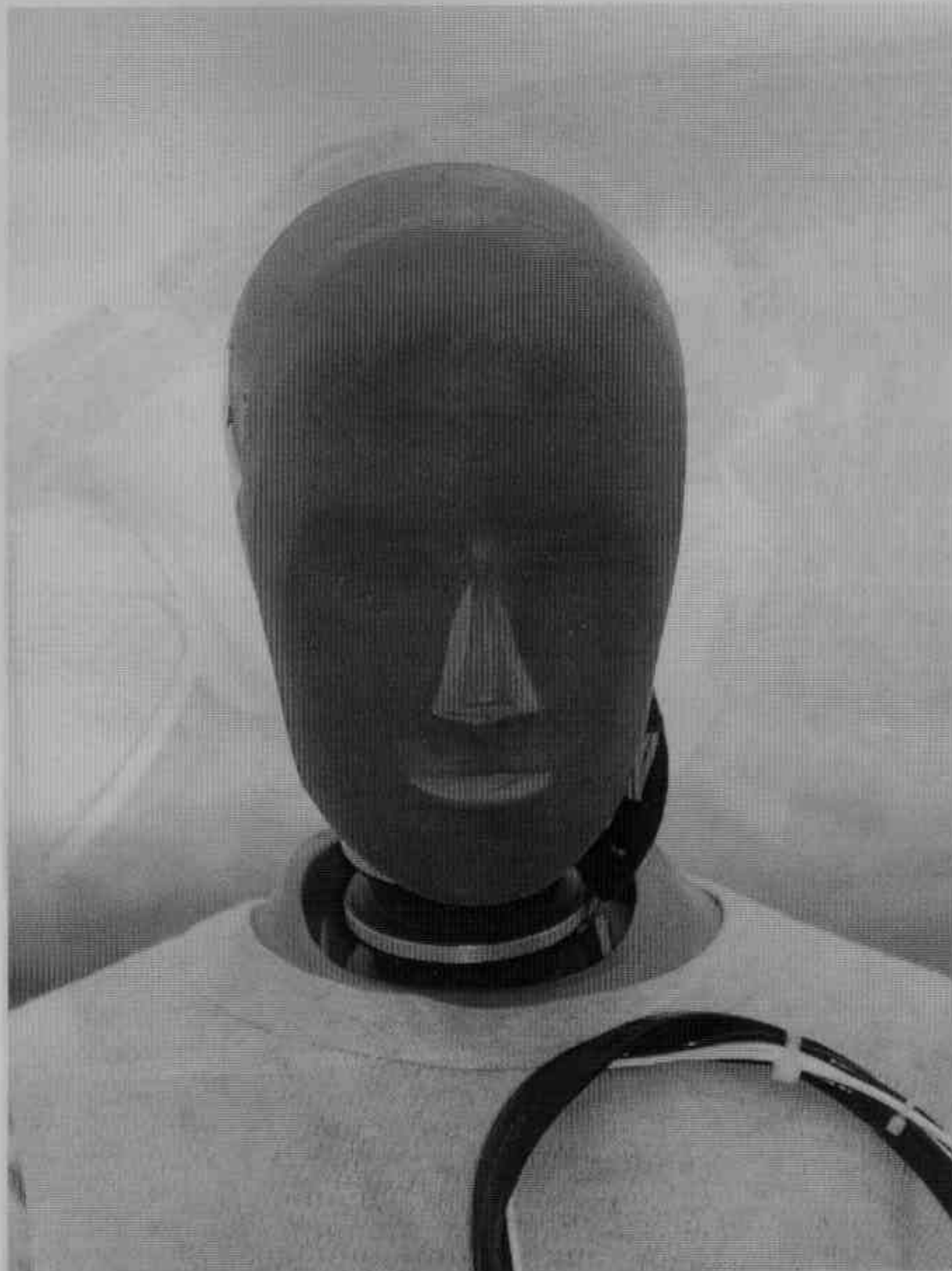


FIGURE A-48. POST TEST PASSENGER DUMMY HEAD



FIGURE A-49. POST TEST PASSENGER DUMMY CONTACT POINT

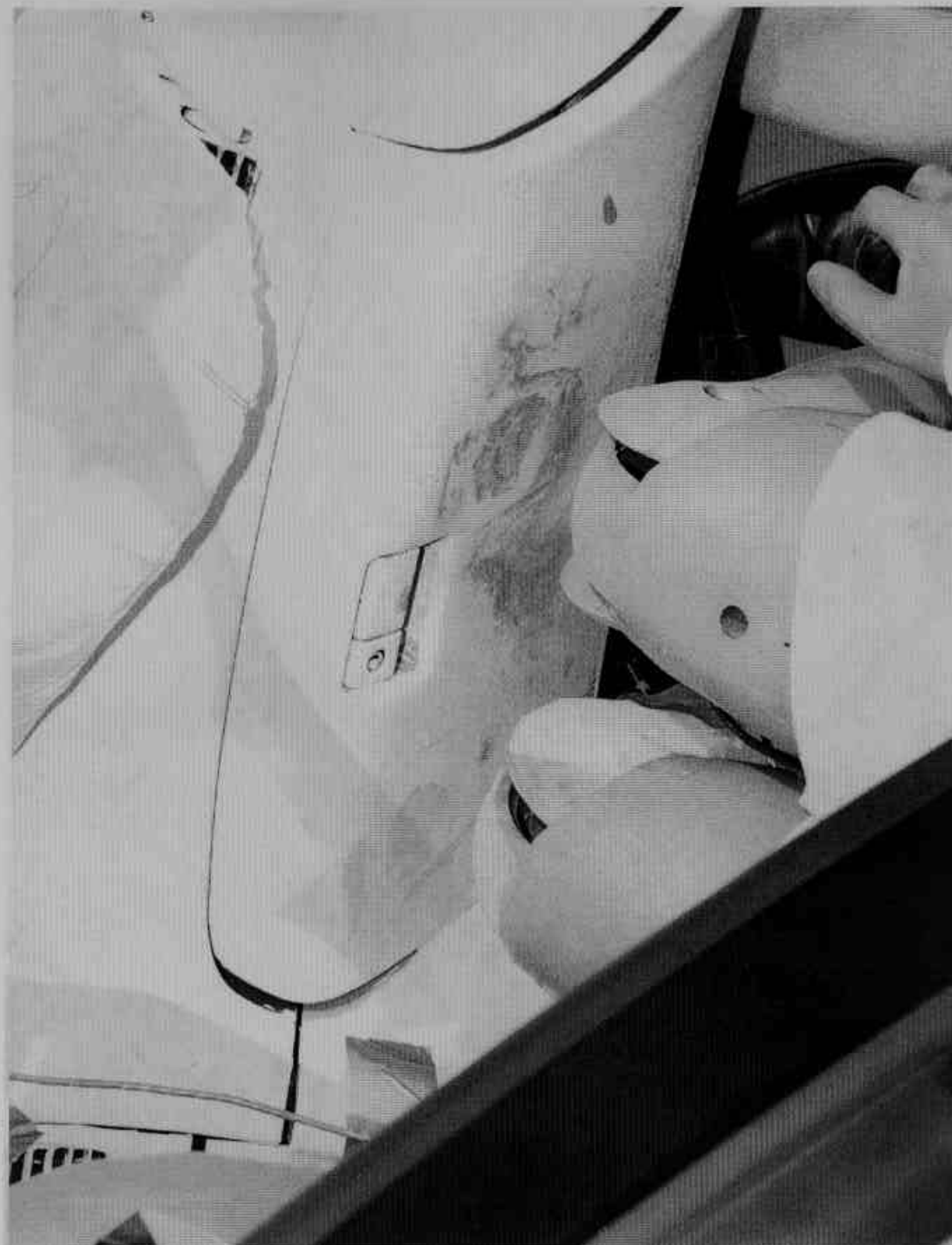


FIGURE A-50. POST TEST PASSENGER DUMMY CONTACT POINT

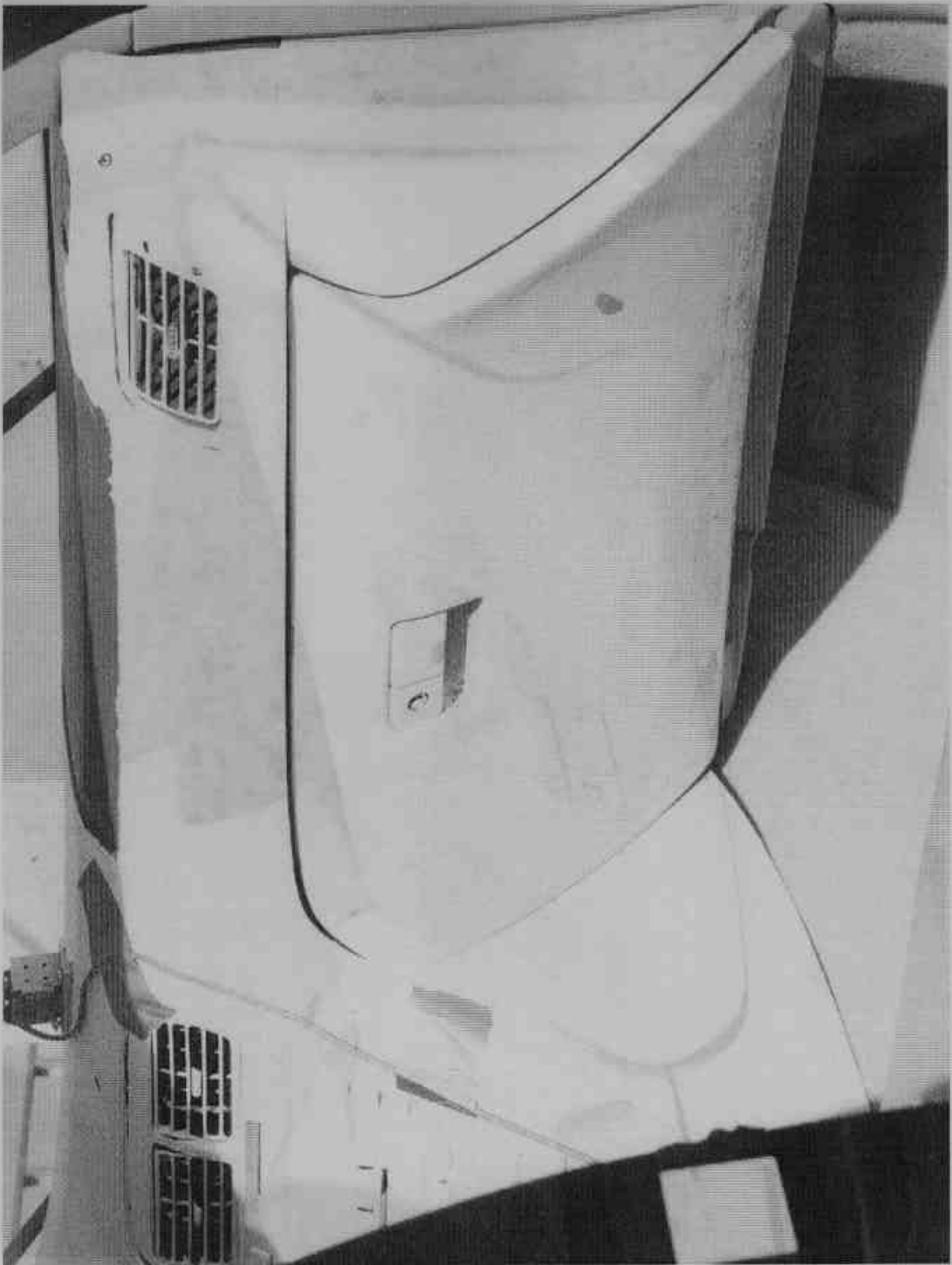


FIGURE A-51. PRETEST PASSENGER SIDE KNEE BOLSTER

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FIGURE A-52. POST TEST PASSENGER SIDE KNEE BOLSTER

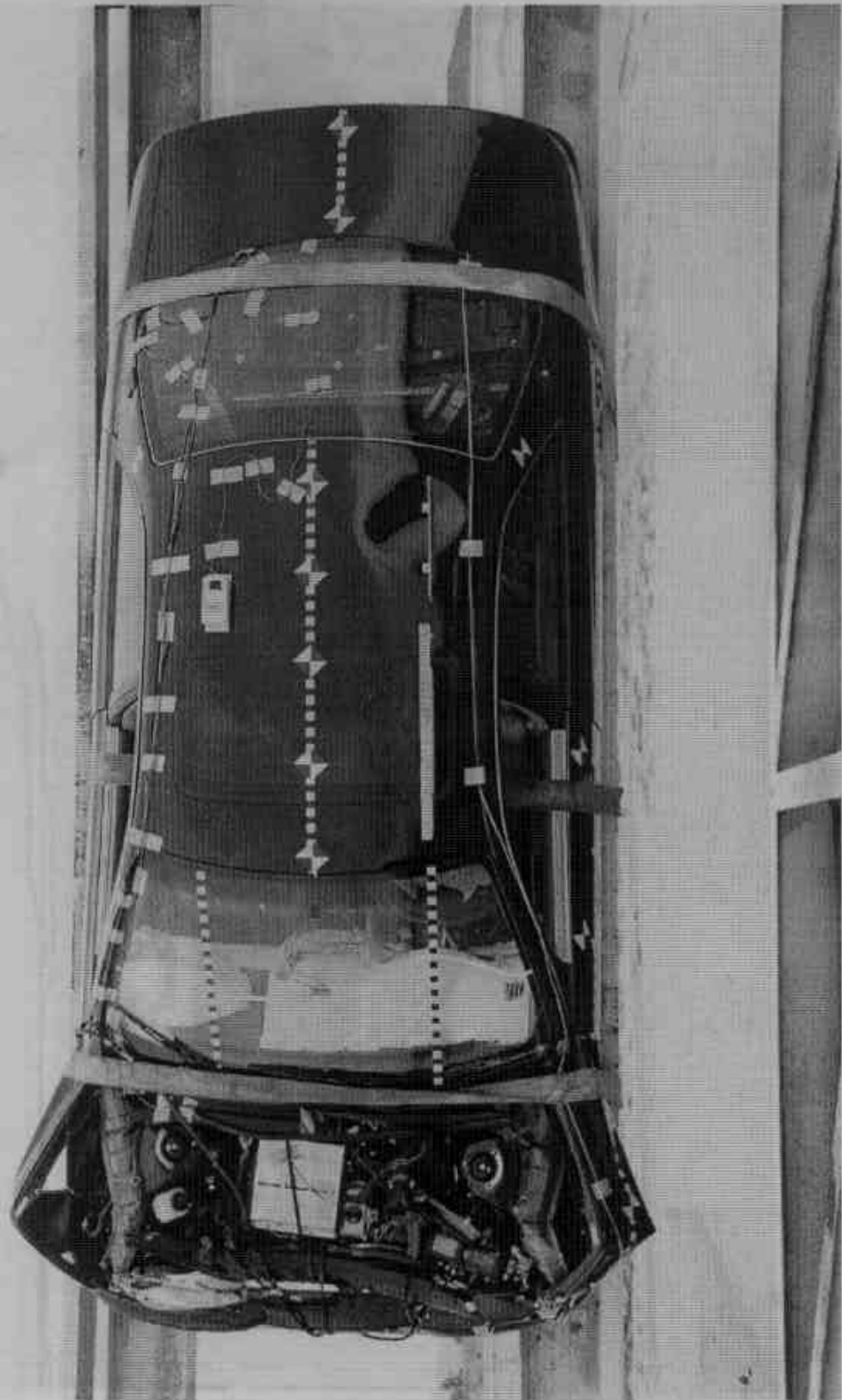


FIGURE A-53. VEHICLE ON ROLLOVER

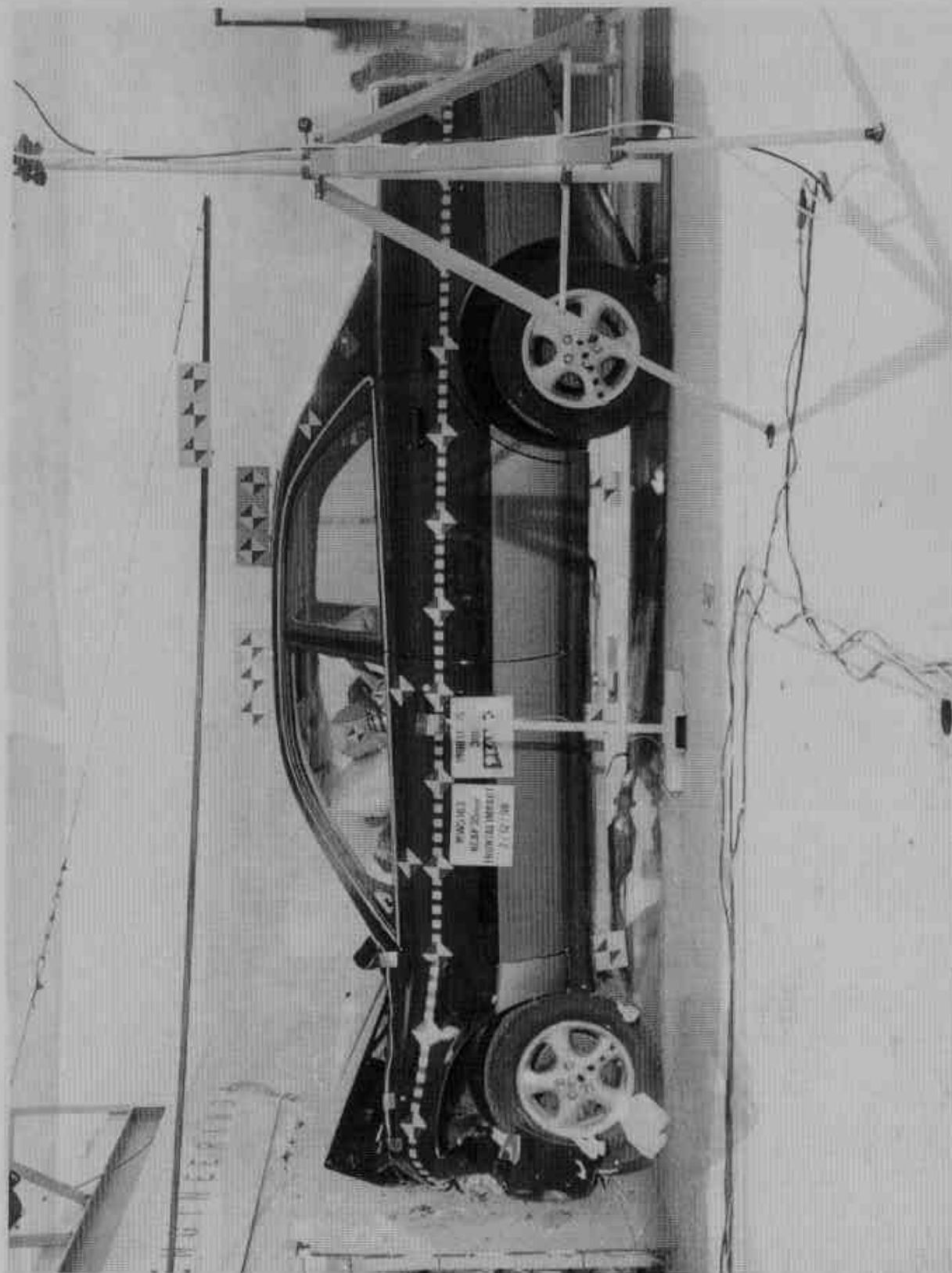


FIGURE A-54. VEHICLE DURING IMPACT

KAR-98-R98050-10

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APPENDIX B

DUMMY, VEHICLE AND RESPONSE DATA TRACES

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B-6	Driver Head Resultant Primary	B-6
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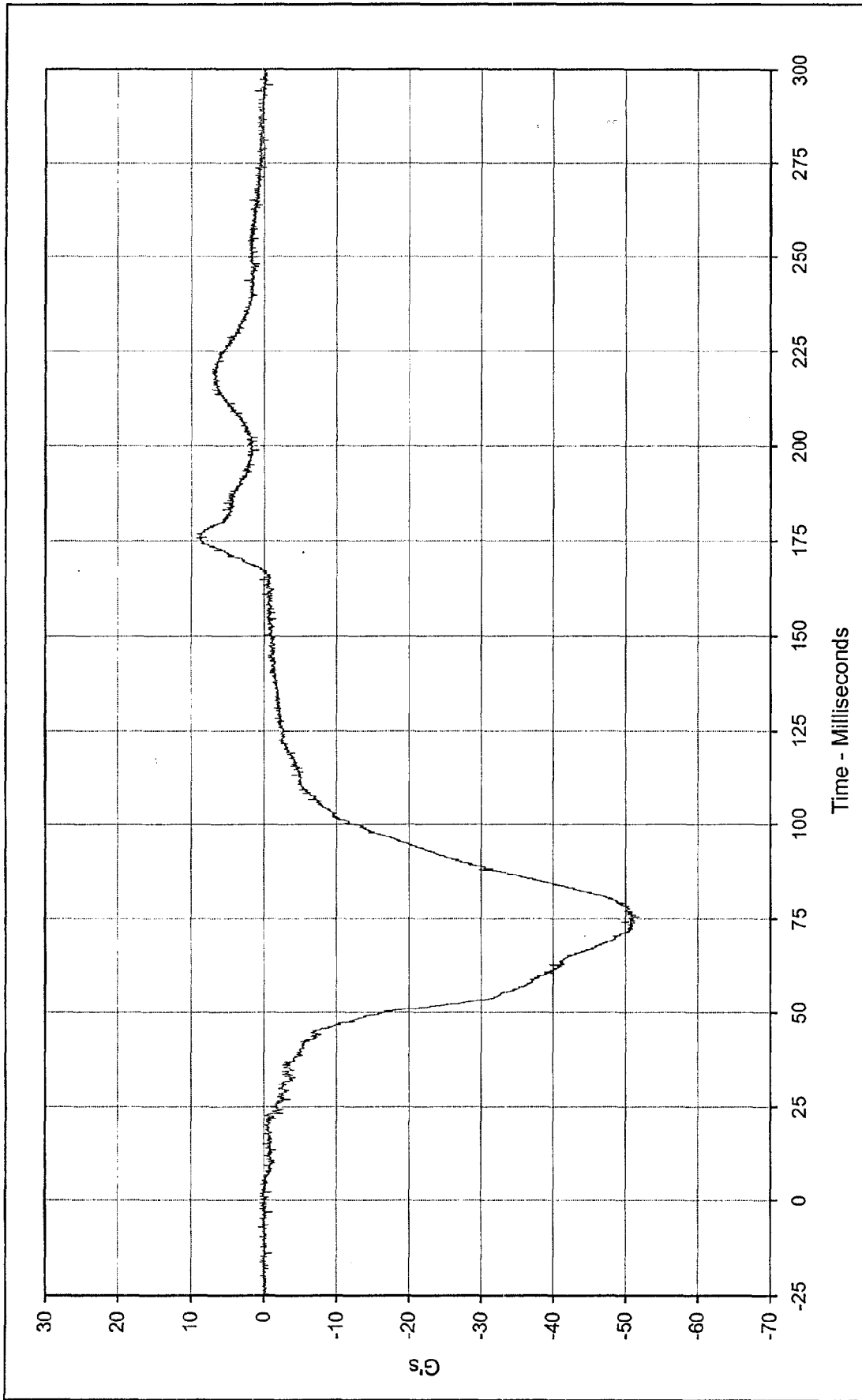
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B-81	Passenger Neck Moment Resultant	B-81
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B-128	Vehicle Right Rear Primary Displacement	B-128
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B-139	Vehicle Right Brake Caliper Velocity X	B-139
B-140	Vehicle Right Brake Callper Displacement	B-140

LIST OF DATA PLOTS...(Continued)

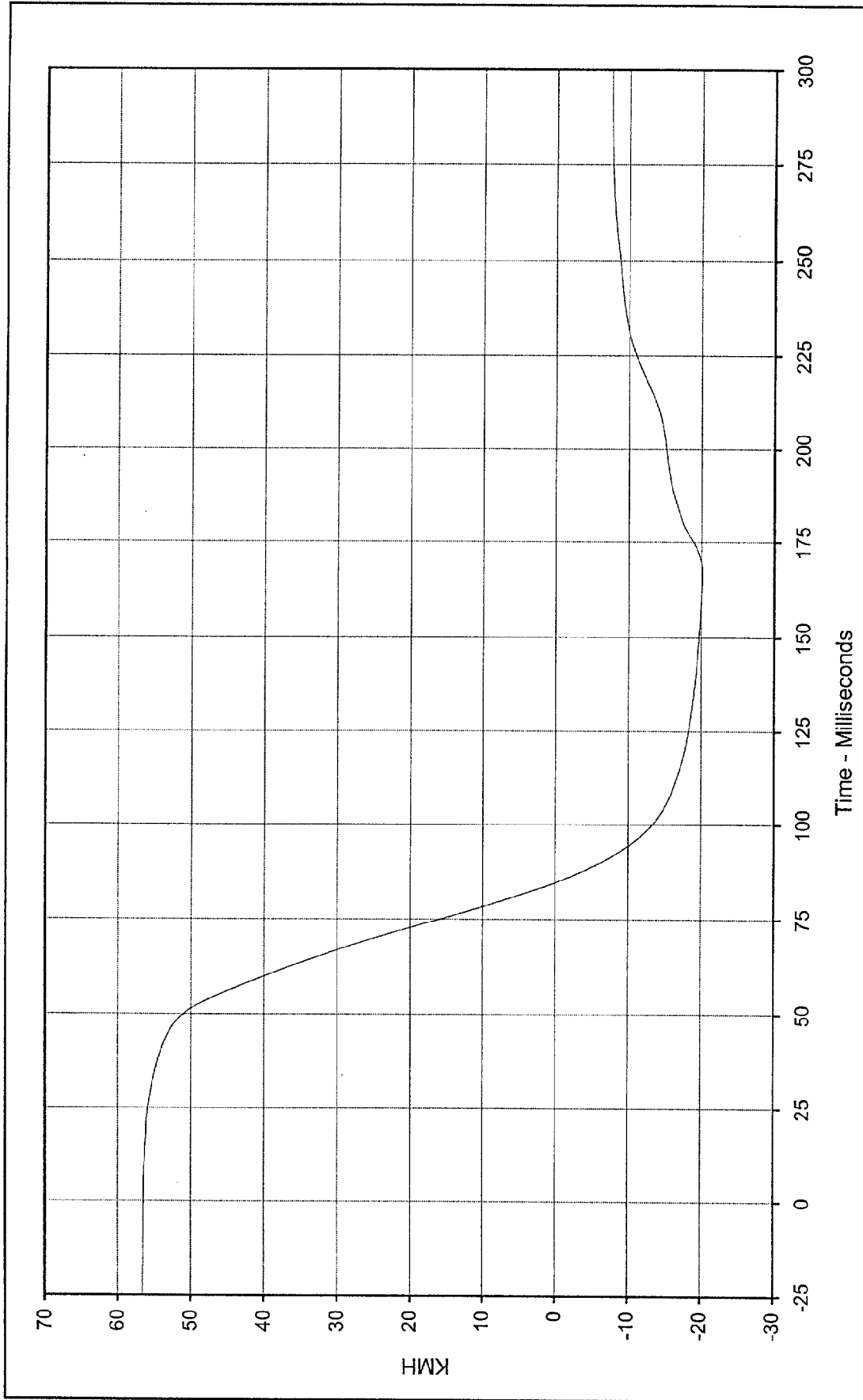
Data Plot		Page
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B-145	Vehicle Left Rear Redundant Velocity X	B-145
B-146	Vehicle Left Rear Redundant Displacement	B-146



Curve Description: Driver Head Primary X
 Maximum Value: 9.3 at 175.7 Milliseconds
 Minimum Value: -52.0 at 75.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-001

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

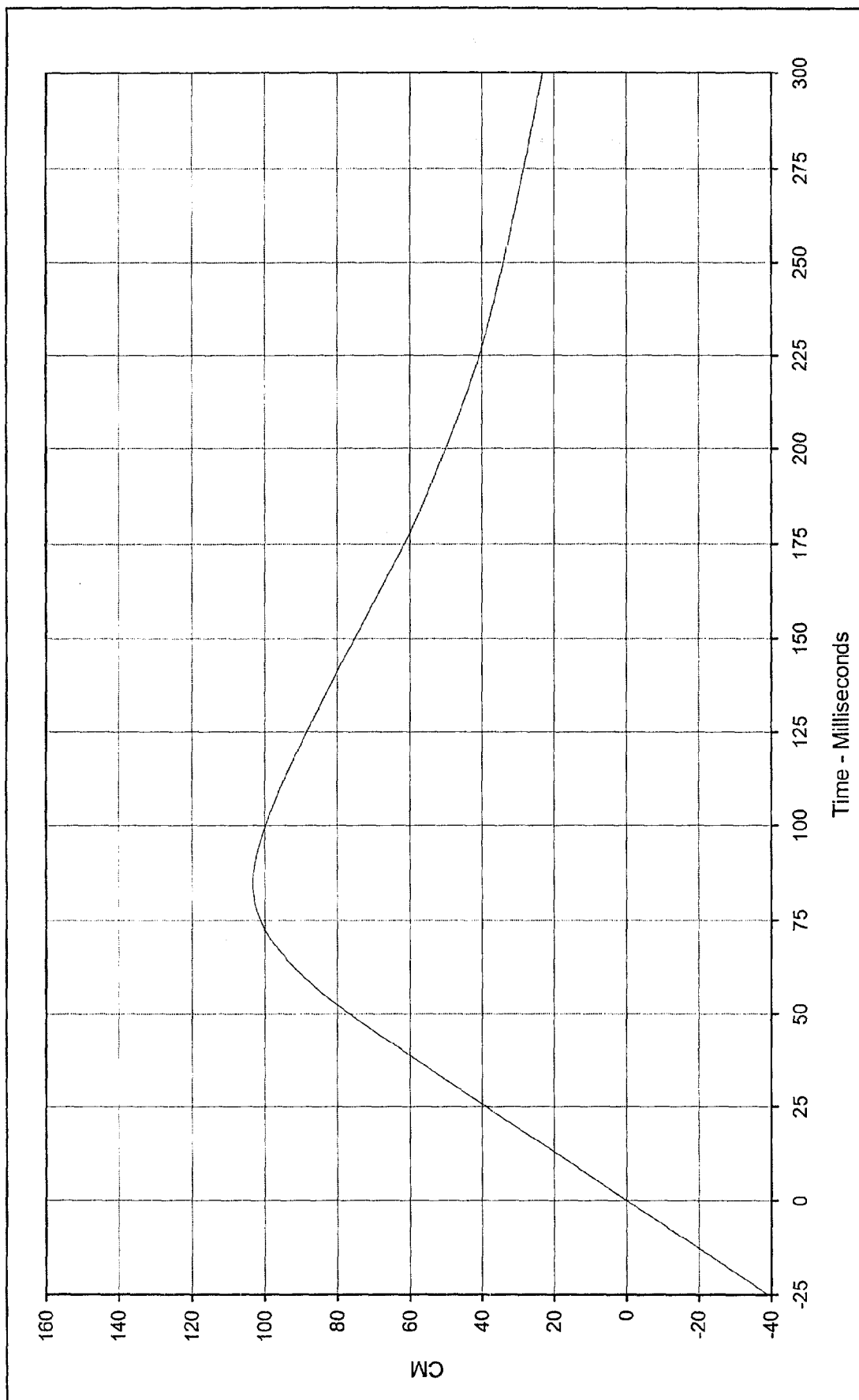




Curve Description: Driver Head Primary X Velocity
 Maximum Value: 56.5 at 0.0 Milliseconds
 Minimum Value: -20.2 at 166.8 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-001

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

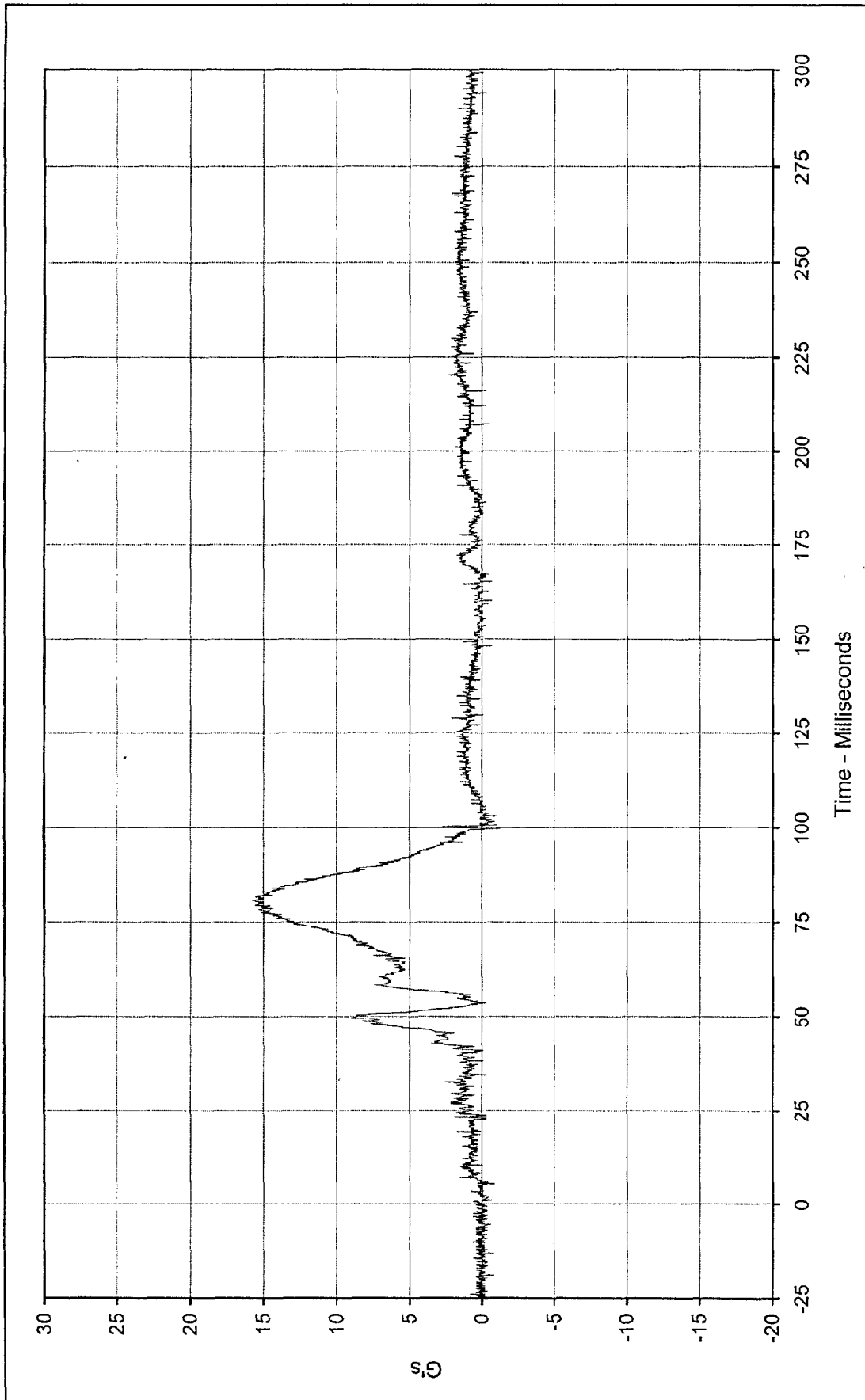




Curve Description: Driver Head Primary X Displ.
 Maximum Value: 103.2 at 84.5 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-001

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

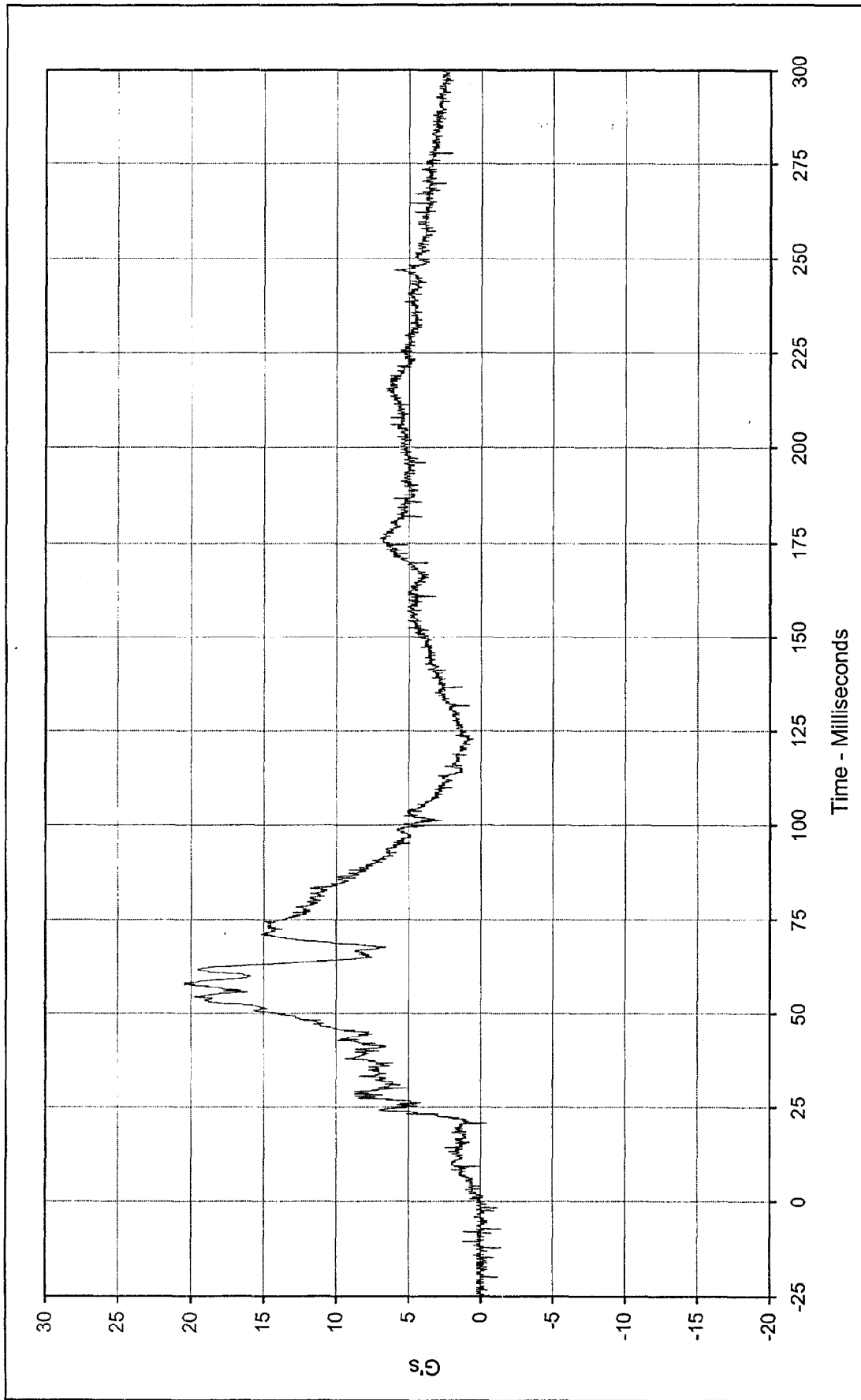




Curve Description: Driver Head Primary Y
 Maximum Value: 15.7 at 80.9 Milliseconds
 Minimum Value: -1.3 at 99.7 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-002

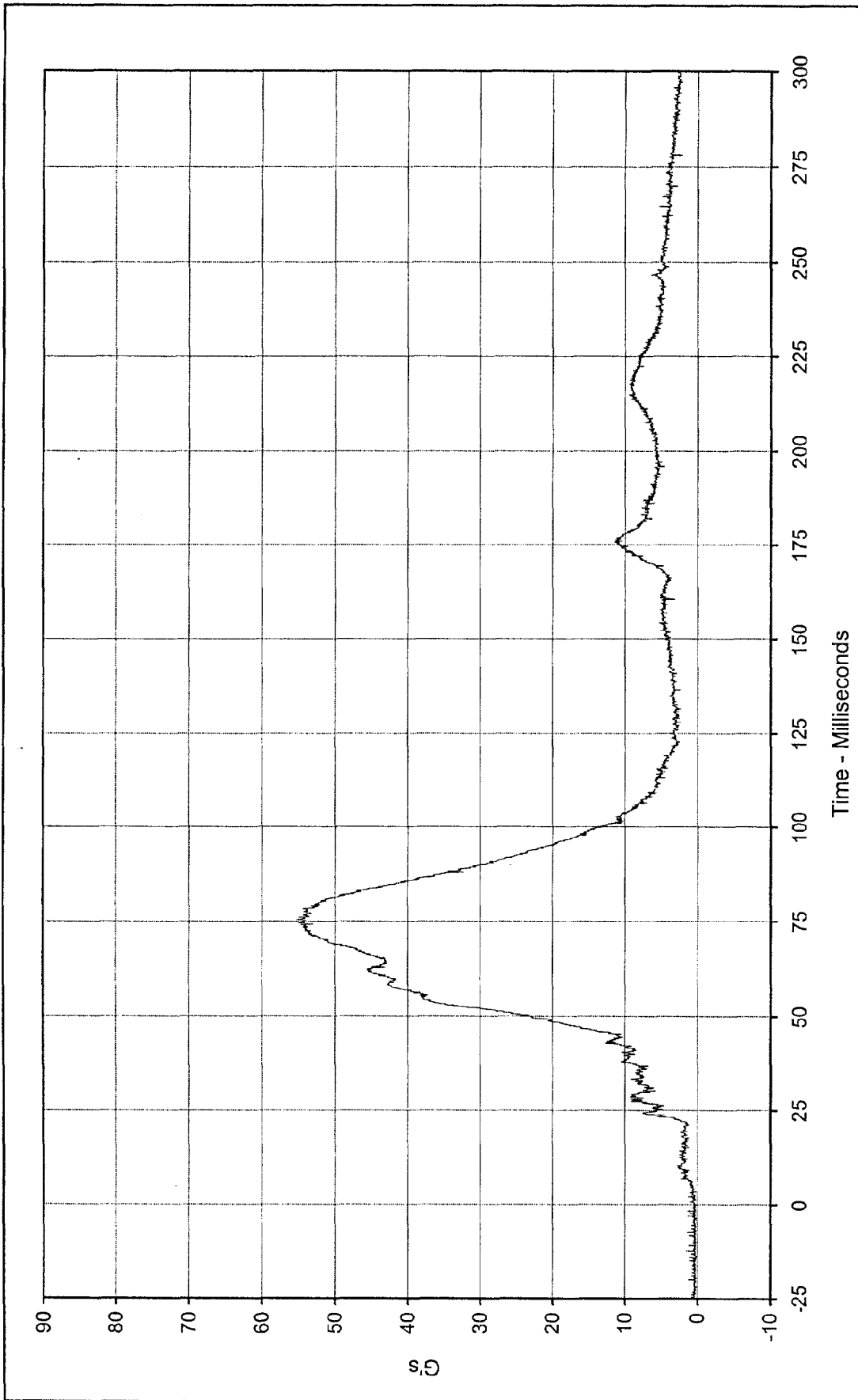
Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Driver Head Primary Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	20.5	at	57.7	Milliseconds
Minimum Value:	-0.4	at	20.8	Milliseconds
SAE Filter Class:	1000	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Date of Test:	2/12/98			
Curve Number:	FIL-003			

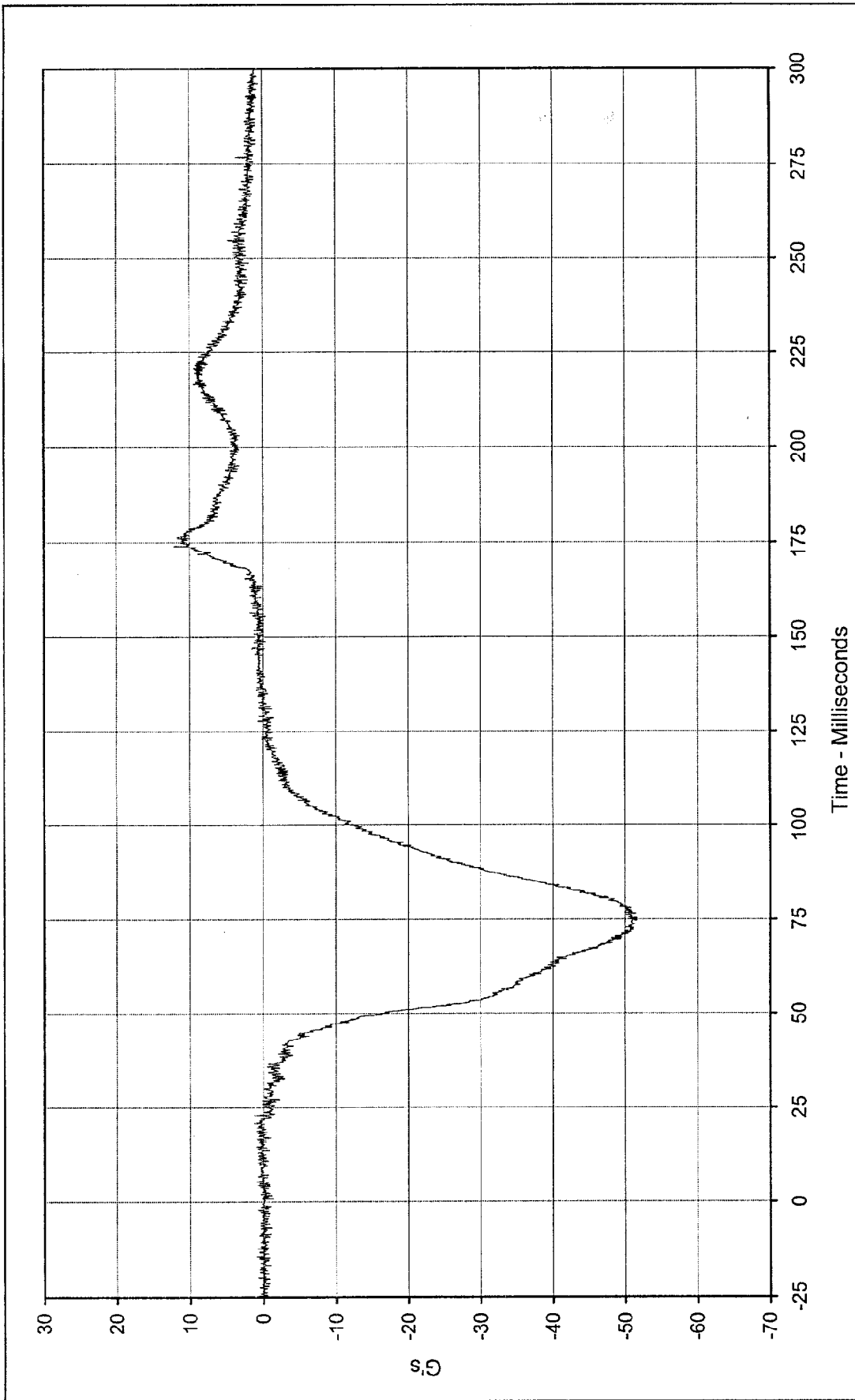




Curve Description: Driver Head Resultant Primary
 Maximum Value: 55.2 at 75.5 Milliseconds
 Minimum Value: 0.1 at 3.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: RES-001

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

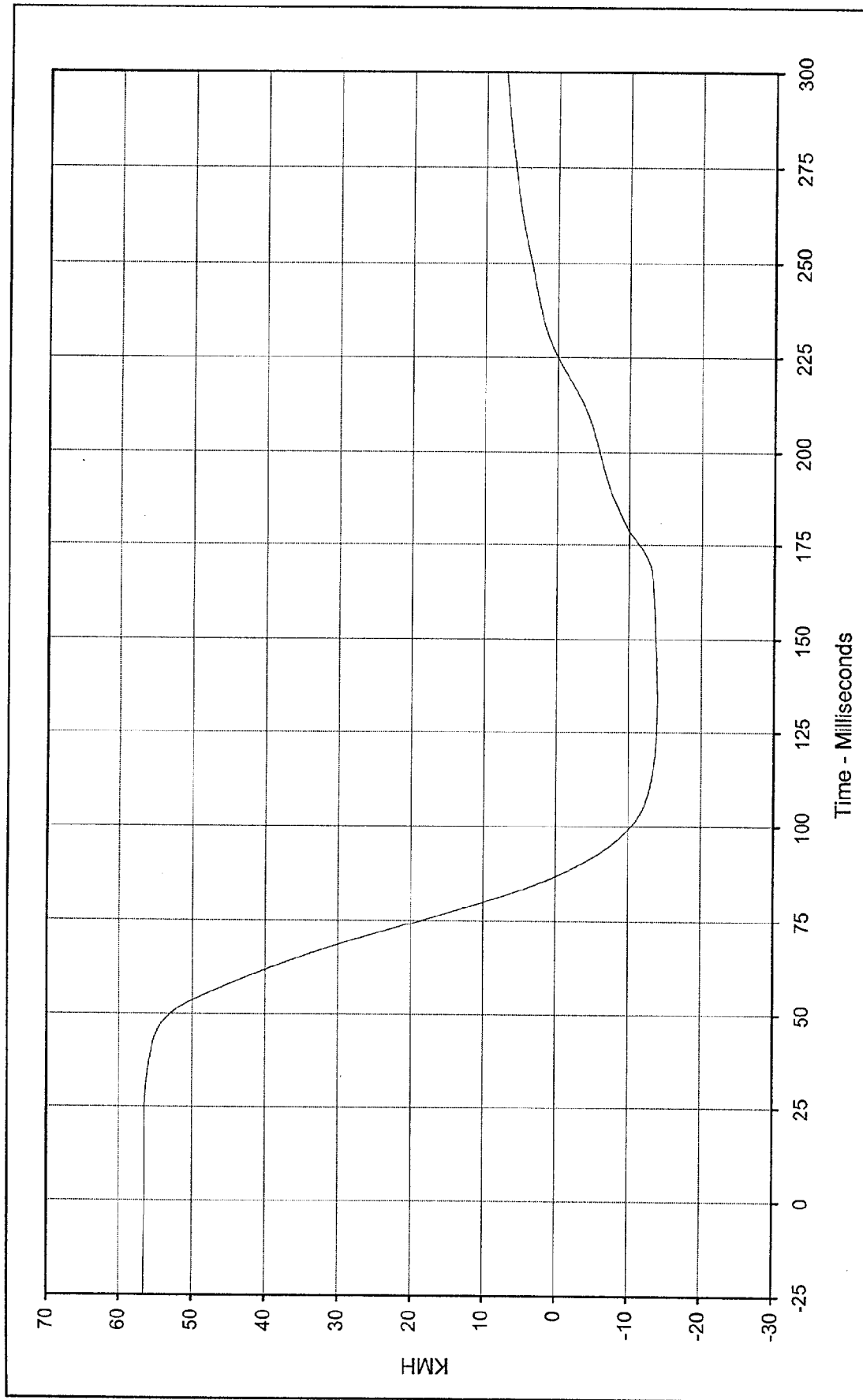




Curve Description: Driver Head Redundant X
 Maximum Value: 12.2 at 173.9 Milliseconds
 Minimum Value: -51.7 at 74.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-004

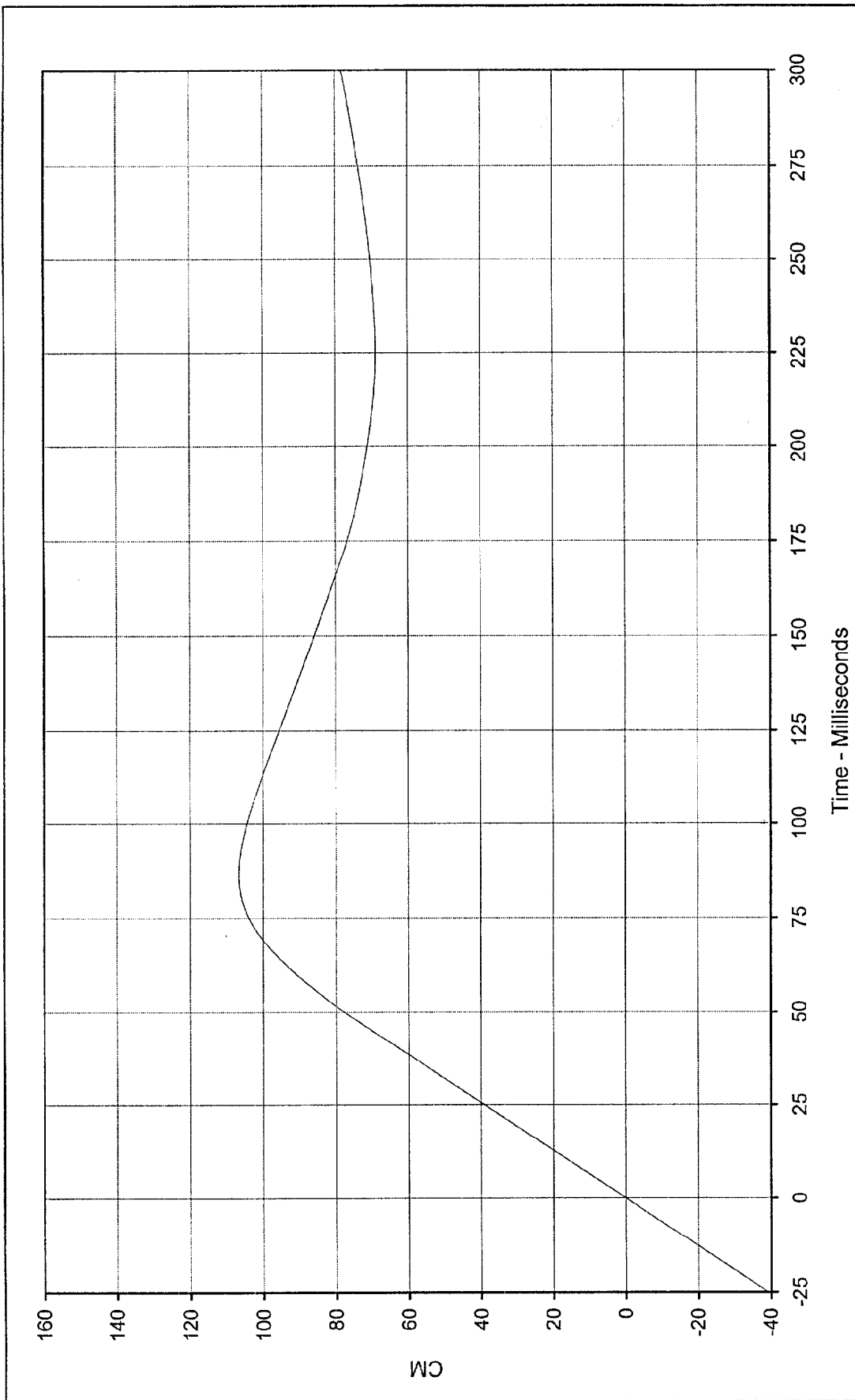
Testing Program: 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Driver Head Redundant X Velocity	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103	
Maximum Value:	56.5	at	22.0	Milliseconds	
Minimum Value:	-14.0	at	133.8	Milliseconds	
SAE Filter Class:	180				
Date of Test:	2/12/98				
Curve Number:	IN1-004				
Test Vehicle:	1998 Lexus ES300 4 Door Sedan				

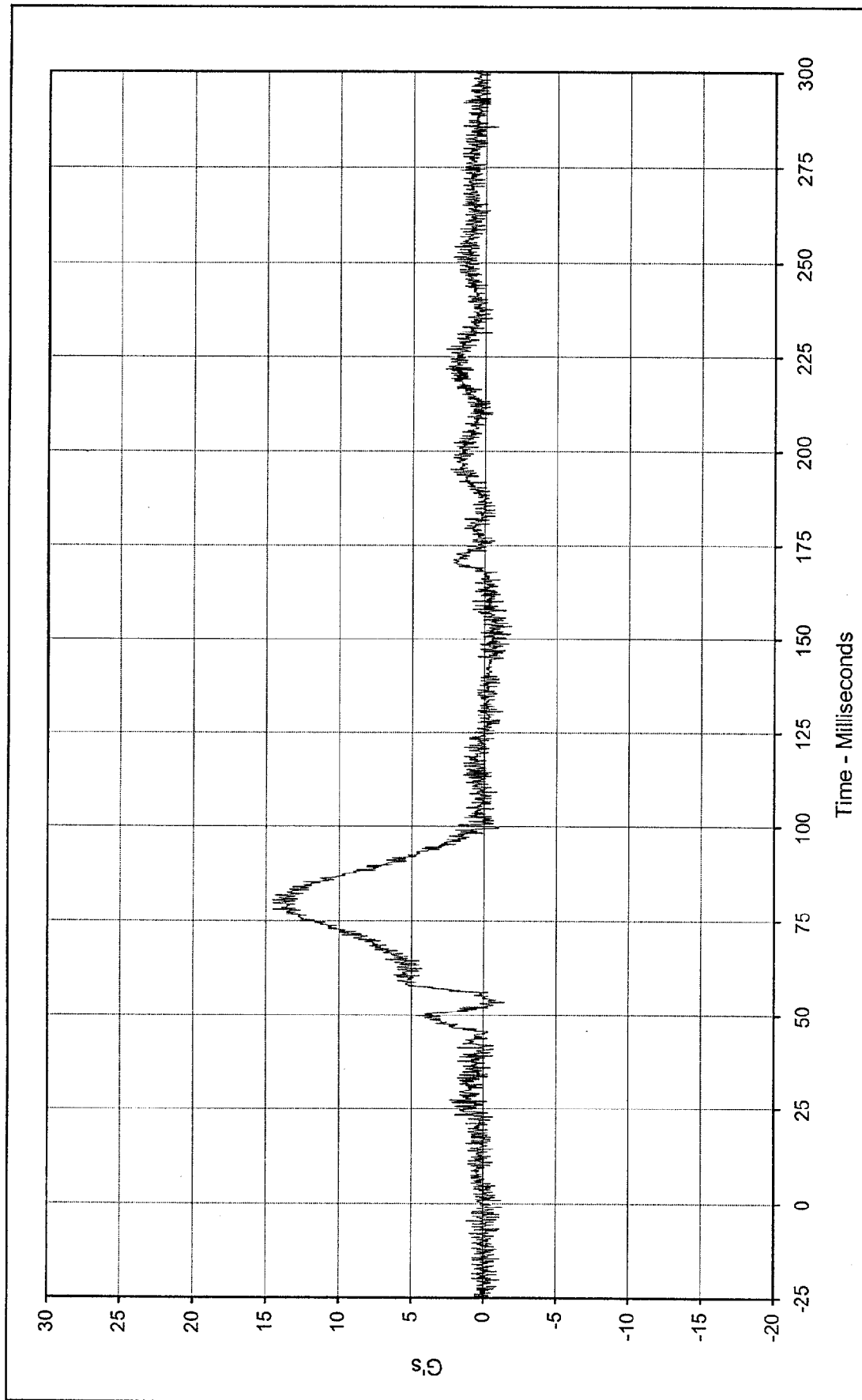




Curve Description: Driver Head Redundant X Displ.
 Maximum Value: 106.7 at 86.6 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-004

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

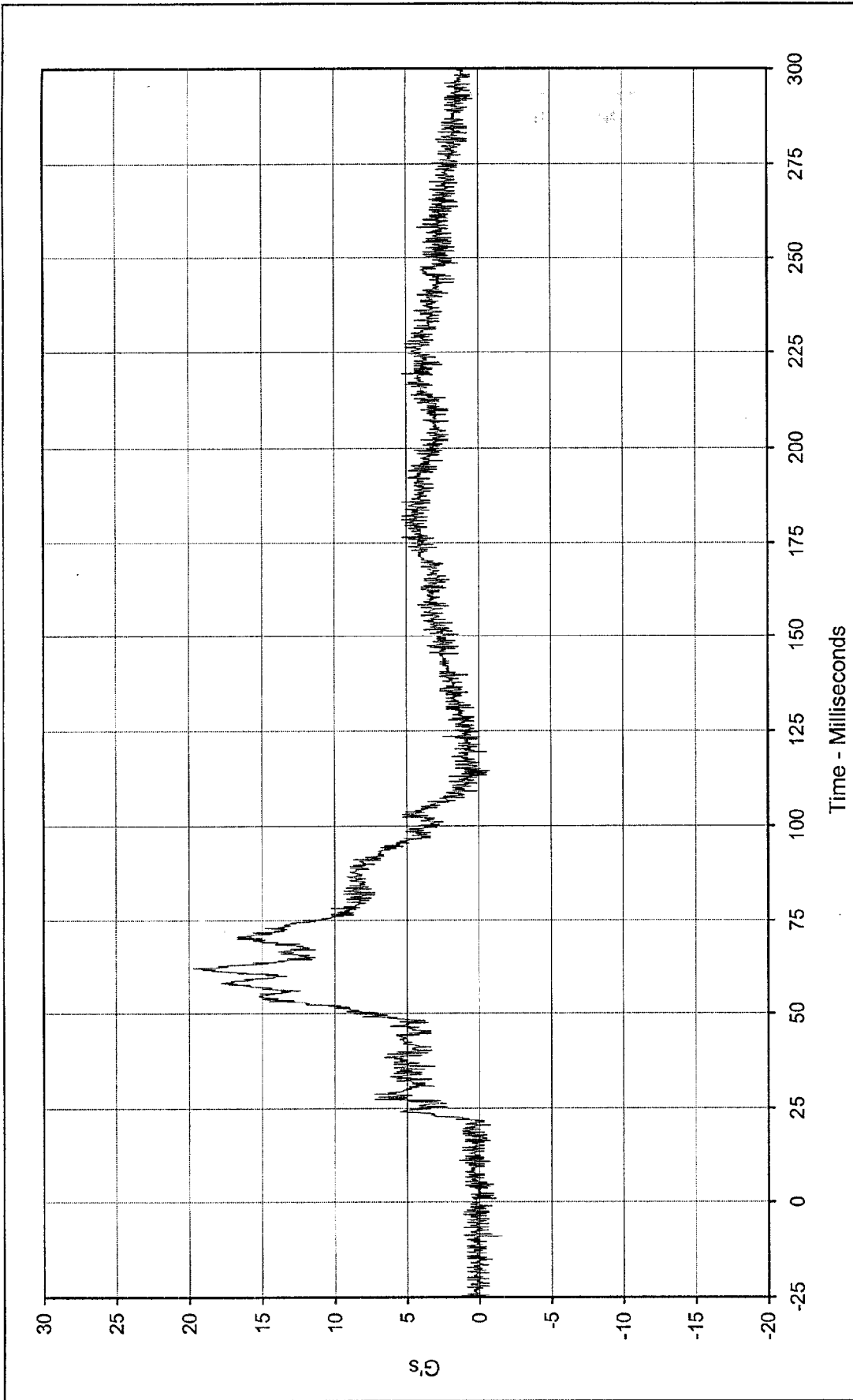




Curve Description:		Driver Head Redundant Y		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	14.5	at	78.2	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-1.8	at	151.3			
SAE Filter Class:	1000					
Date of Test:	2/12/98					
Curve Number:	FIL-005					



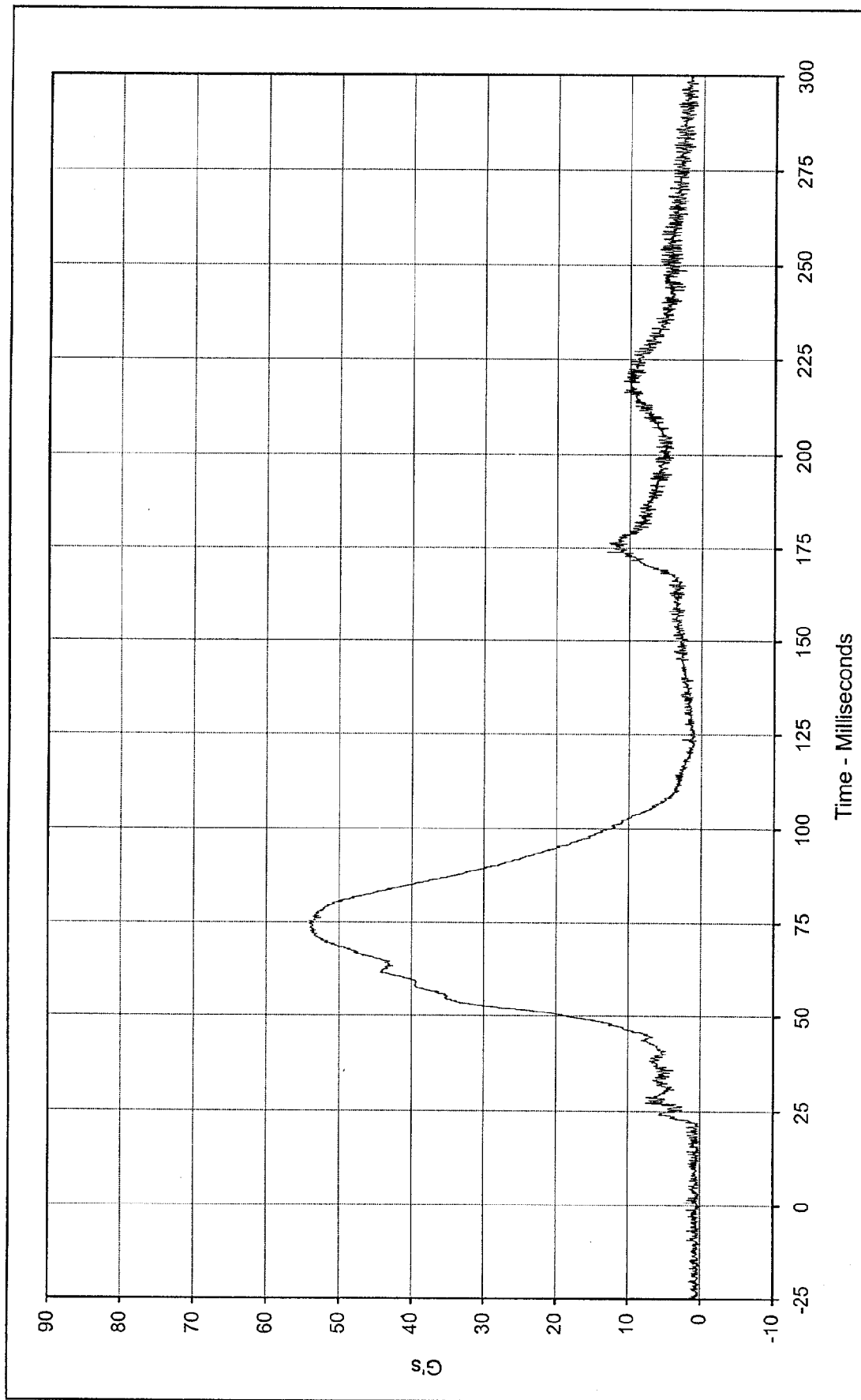




Curve Description: Driver Head Redundant Z
 Maximum Value: 19.7 at 62.0 Milliseconds
 Minimum Value: -1.2 at 0.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-006

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan



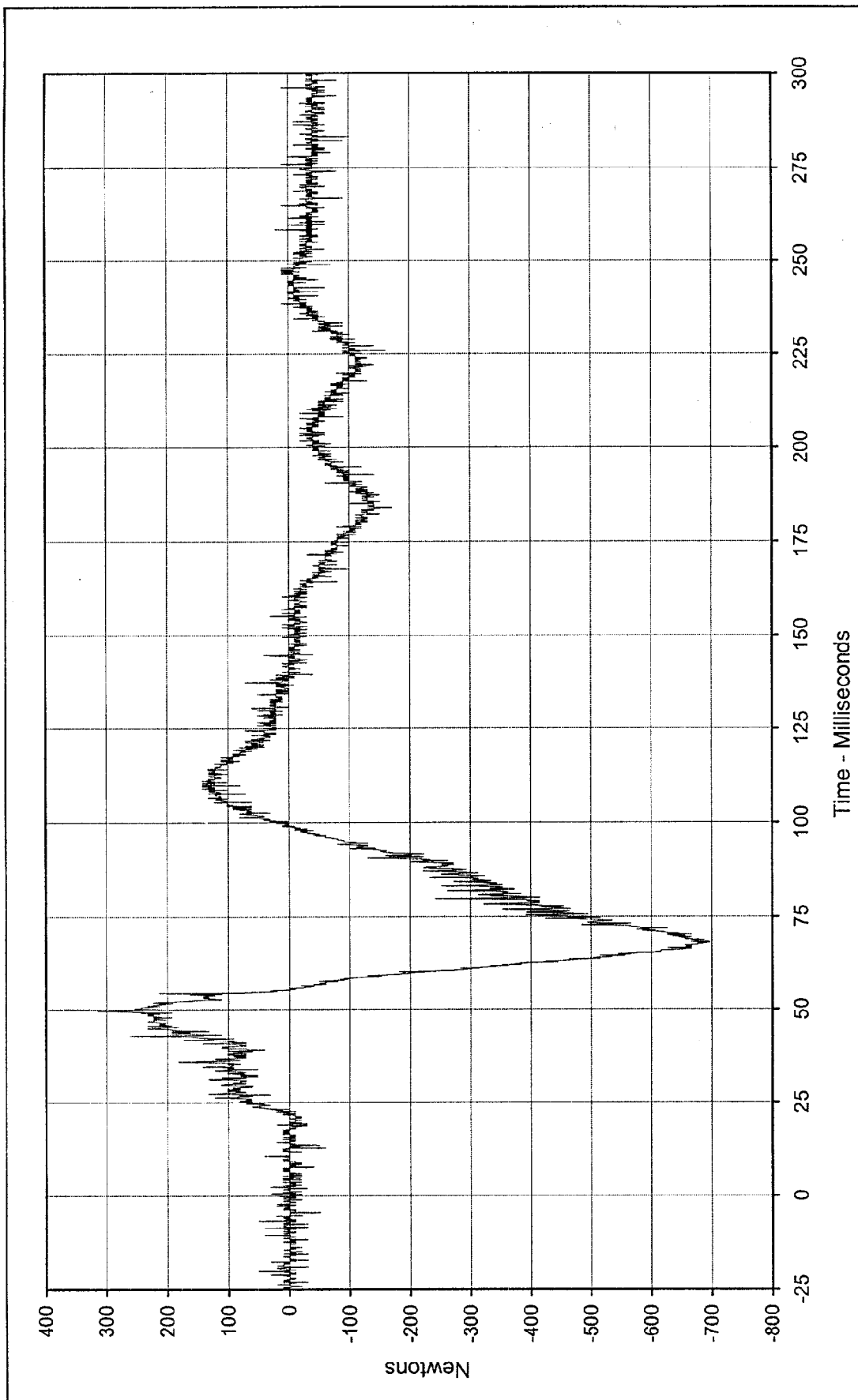


Curve Description: Driver Head Resultant Redundant
 Maximum Value: 54.1 at 75.3 Milliseconds
 Minimum Value: 0.1 at 3.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: RES-004

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

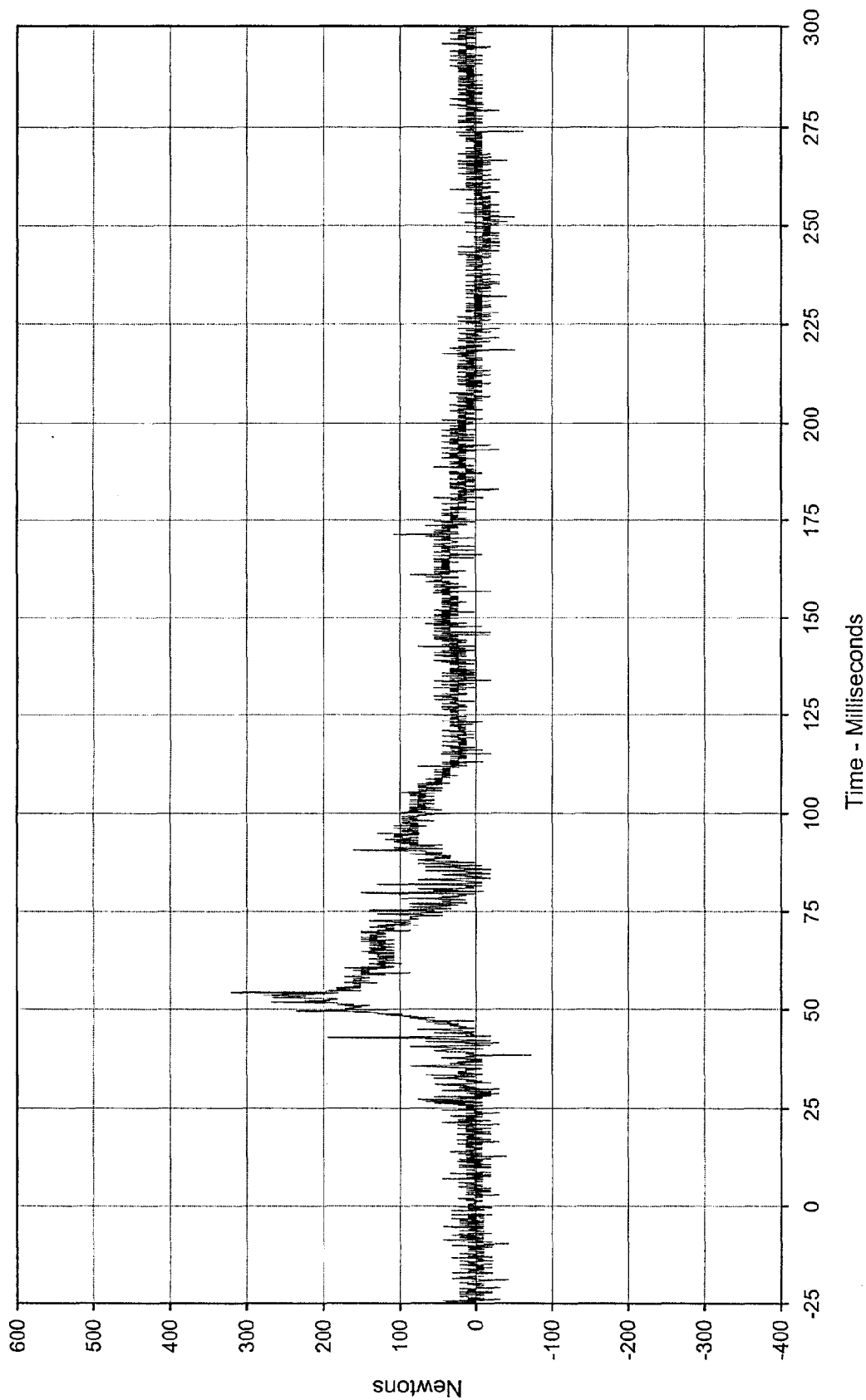
Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Maximum Value: 313.8 at 49.7 Milliseconds
 Minimum Value: -697.1 at 67.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-007





Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 320.3 at 54.3 Milliseconds

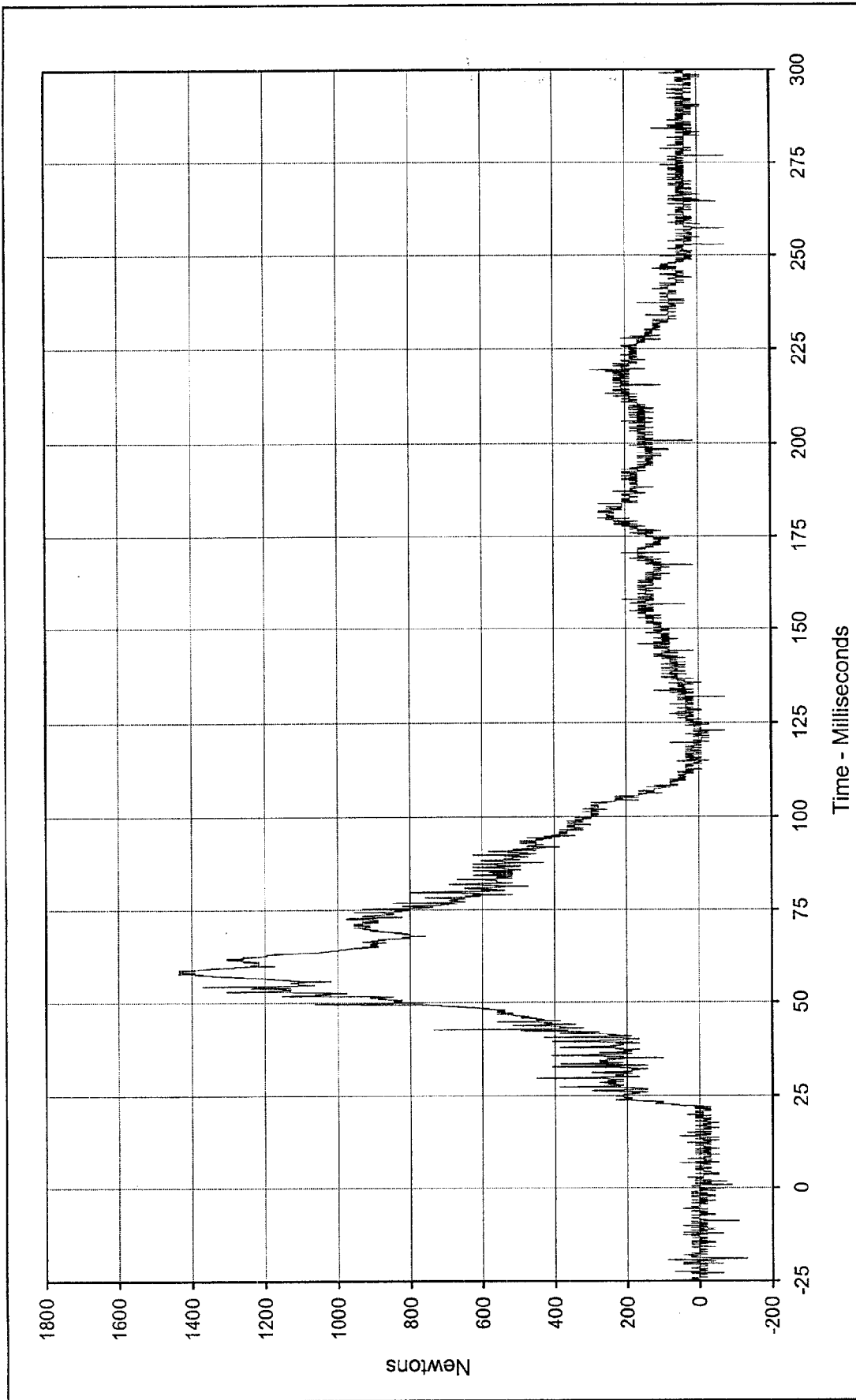
Minimum Value: -72.4 at 38.4 Milliseconds

SAE Filter Class: 1000

Date of Test: 2/12/98

Curve Number: FIL-008





Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 1435.2 at 57.8 Milliseconds

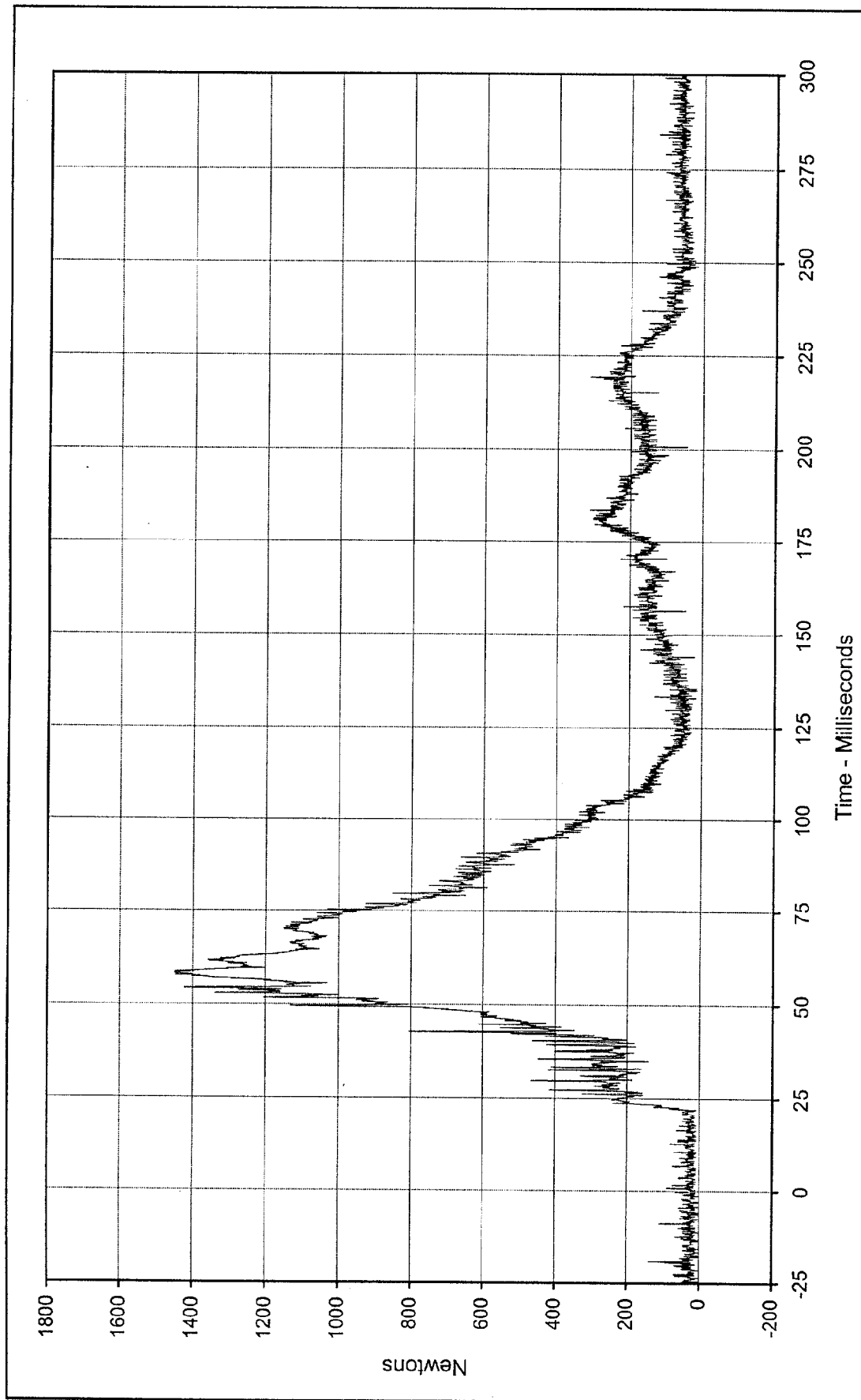
Minimum Value: -85.6 at 0.8 Milliseconds

SAE Filter Class: 1000

Date of Test: 2/12/98

Curve Number: FIL-009





Curve Description: Driver Neck Force Resultant

Maximum Value: 1449.7 at 58.3 Milliseconds

Minimum Value: 9.0 at 2.0 Milliseconds

SAE Filter Class: 1000

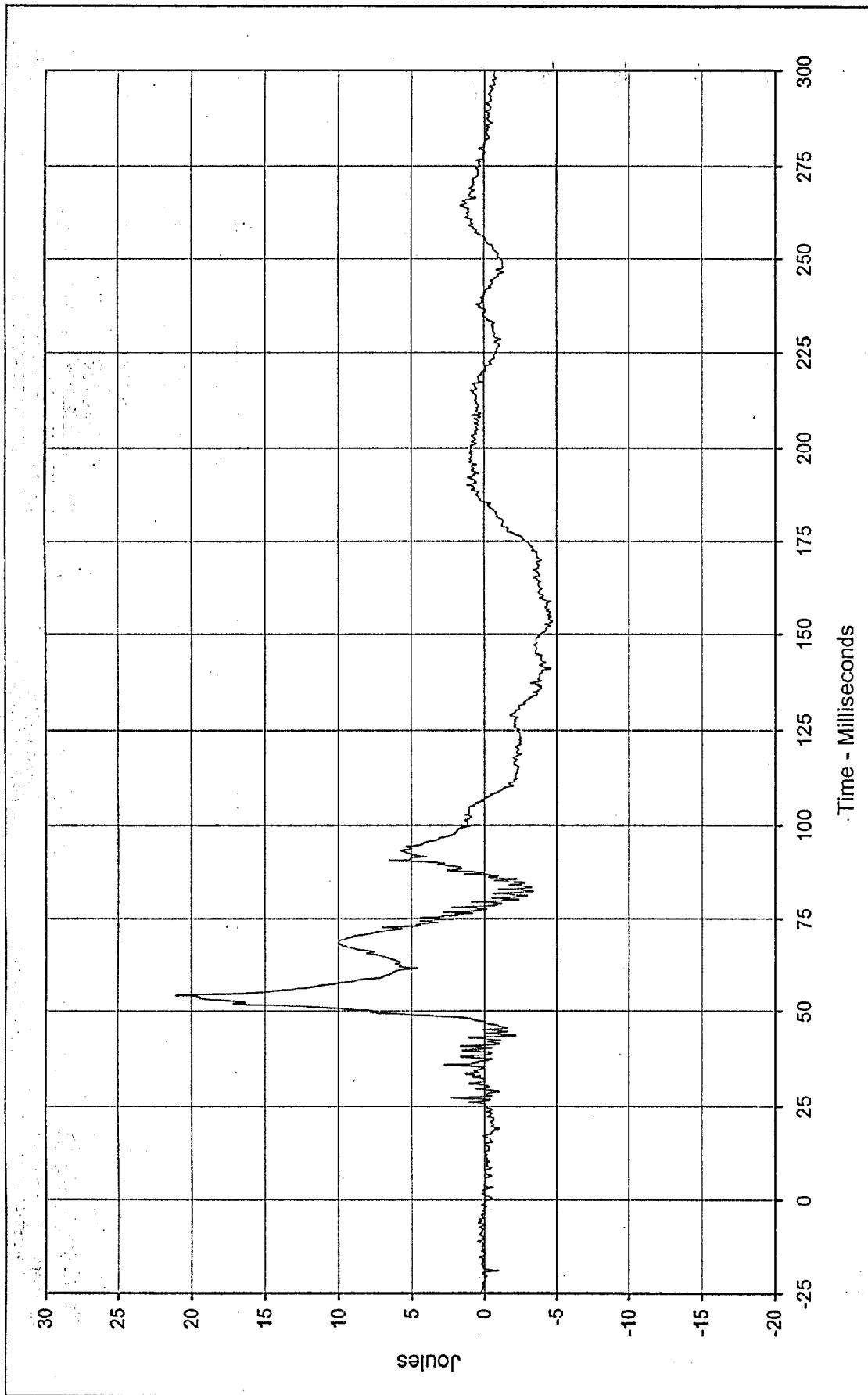
Date of Test: 2/12/98

Curve Number: RES-007

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

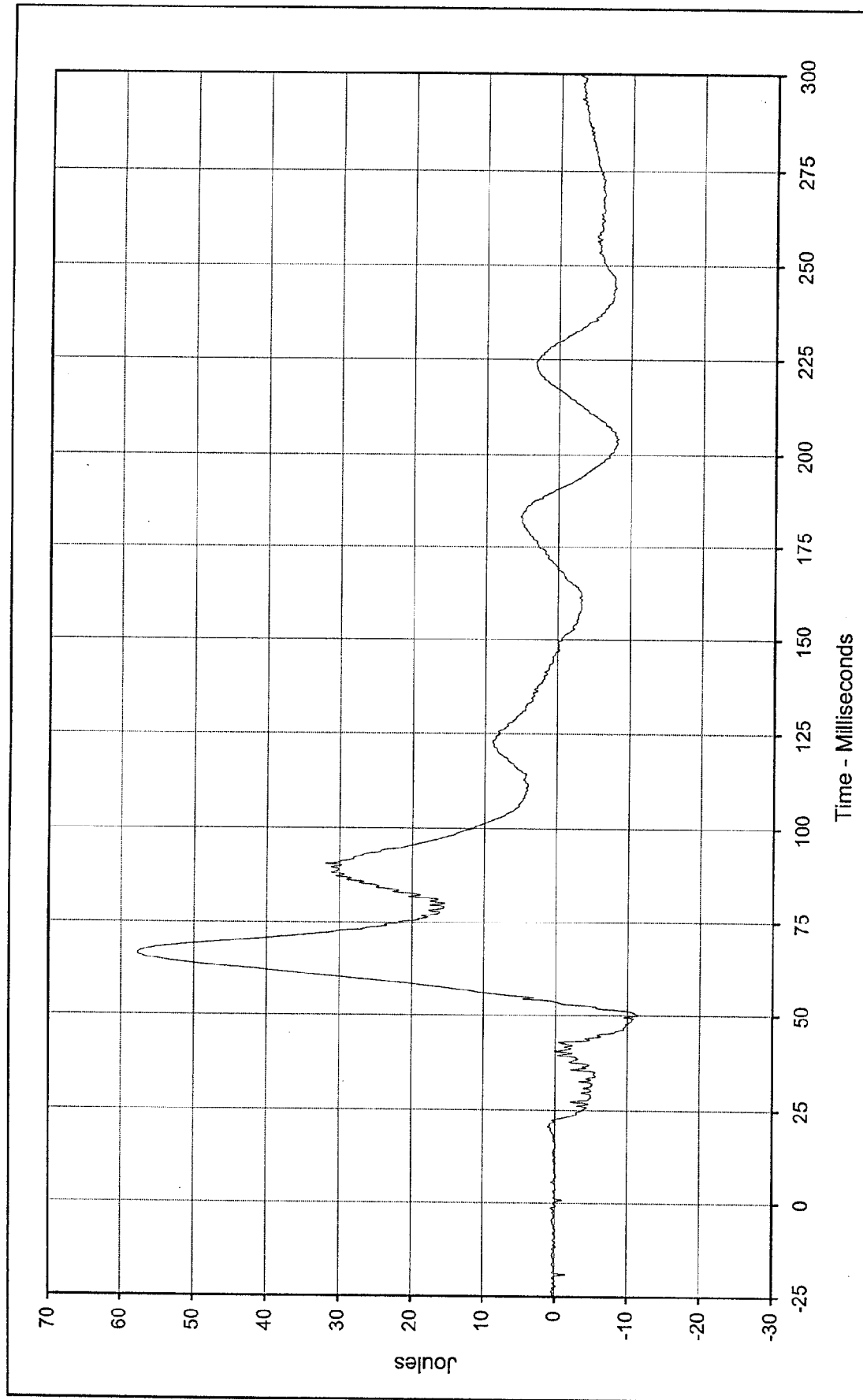




Curve Description: Driver Neck Moment X
 Maximum Value: 21.1 at 54.3 Milliseconds
 Minimum Value: -4.7 at 153.3 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-010

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

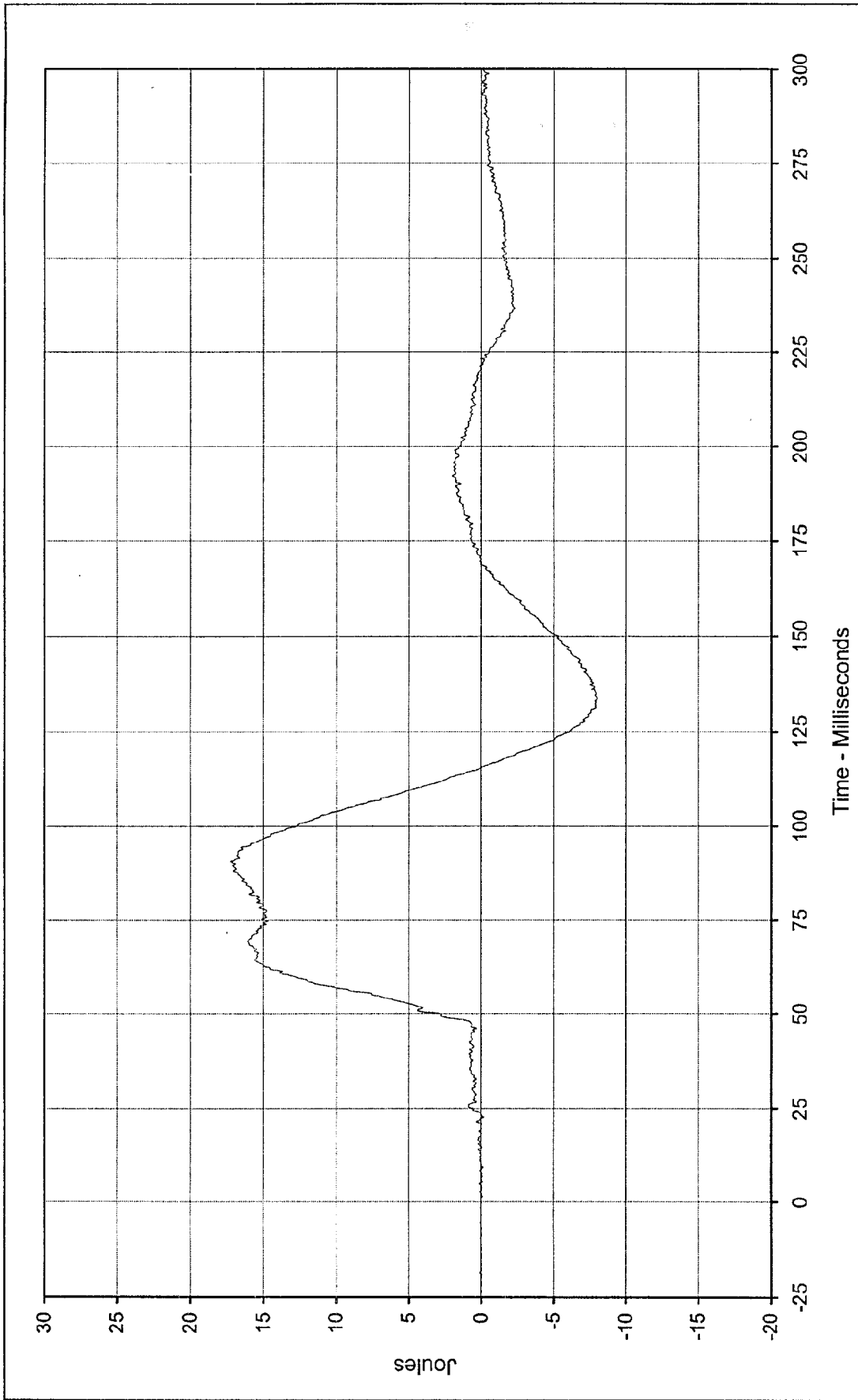




Curve Description: Driver Neck Moment Y
 Maximum Value: 57.8 at 66.5 Milliseconds
 Minimum Value: -11.5 at 50.1 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-011

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

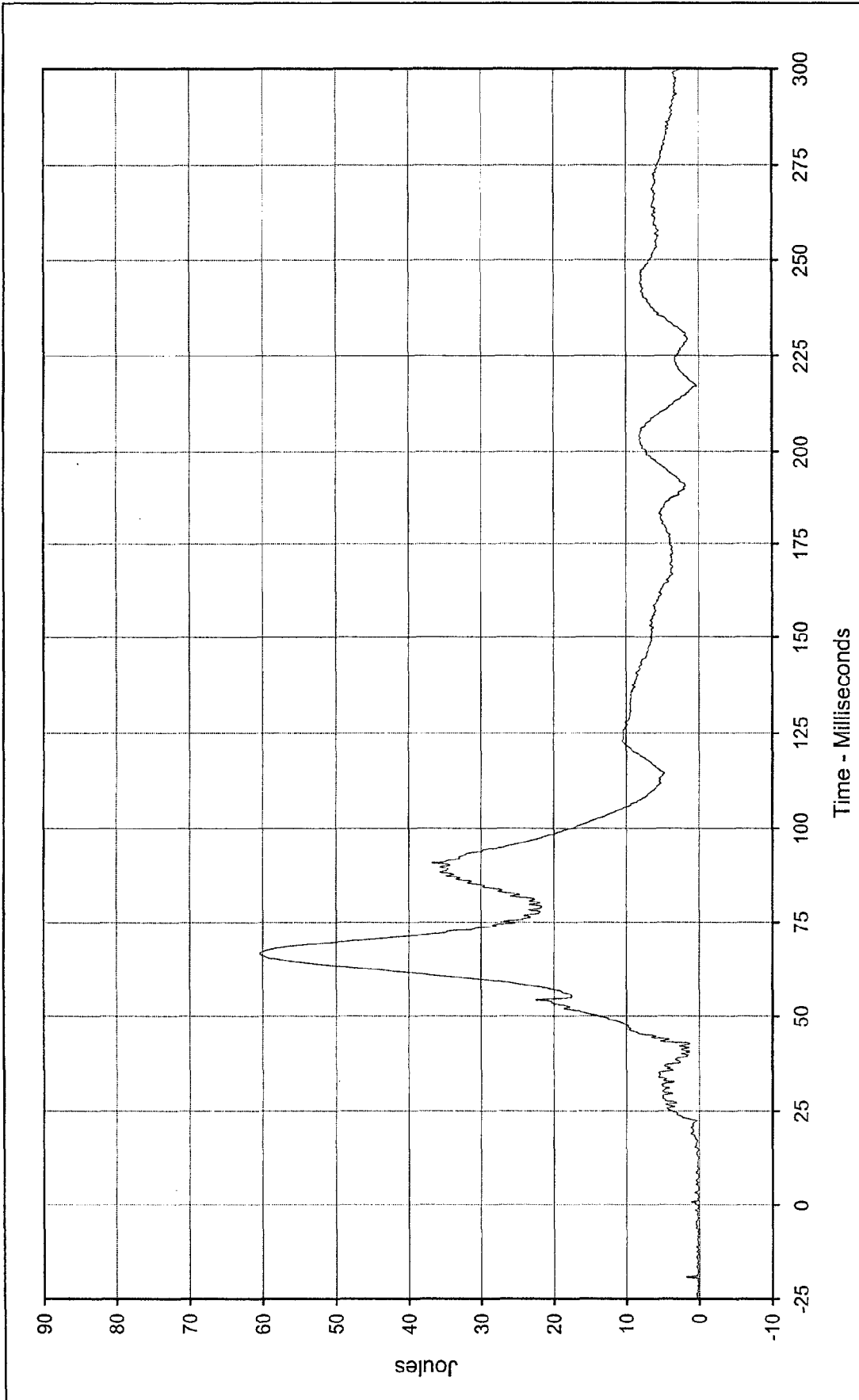




Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

Driver Neck Moment Z
 Maximum Value: 17.2 at 90.5 Milliseconds
 Minimum Value: -8.1 at 133.6 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-012

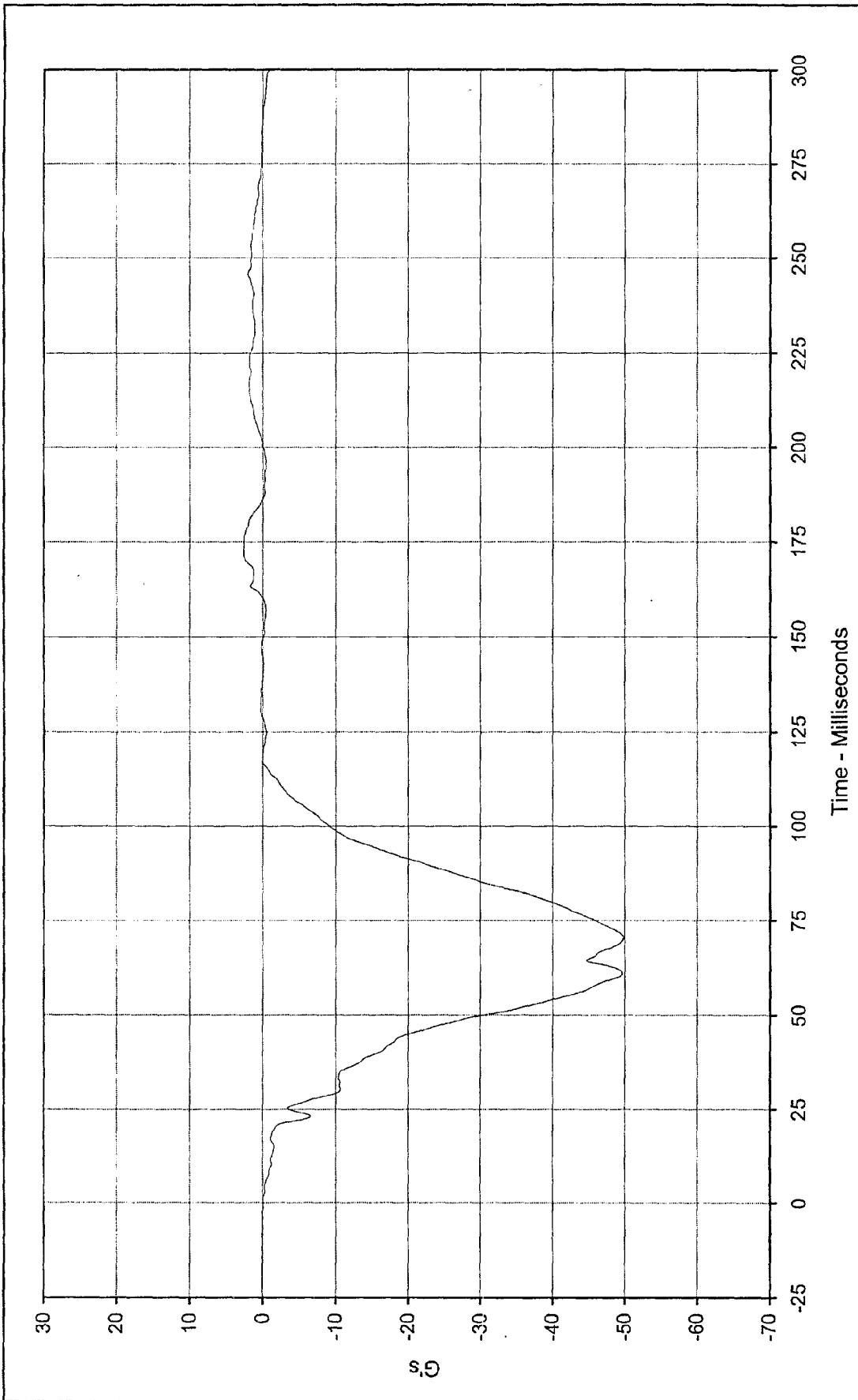




Curve Description: Driver Neck Moment Resultant
 Maximum Value: 60.4 at 66.5 Milliseconds
 Minimum Value: 0.0 at 4.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: RES-010

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

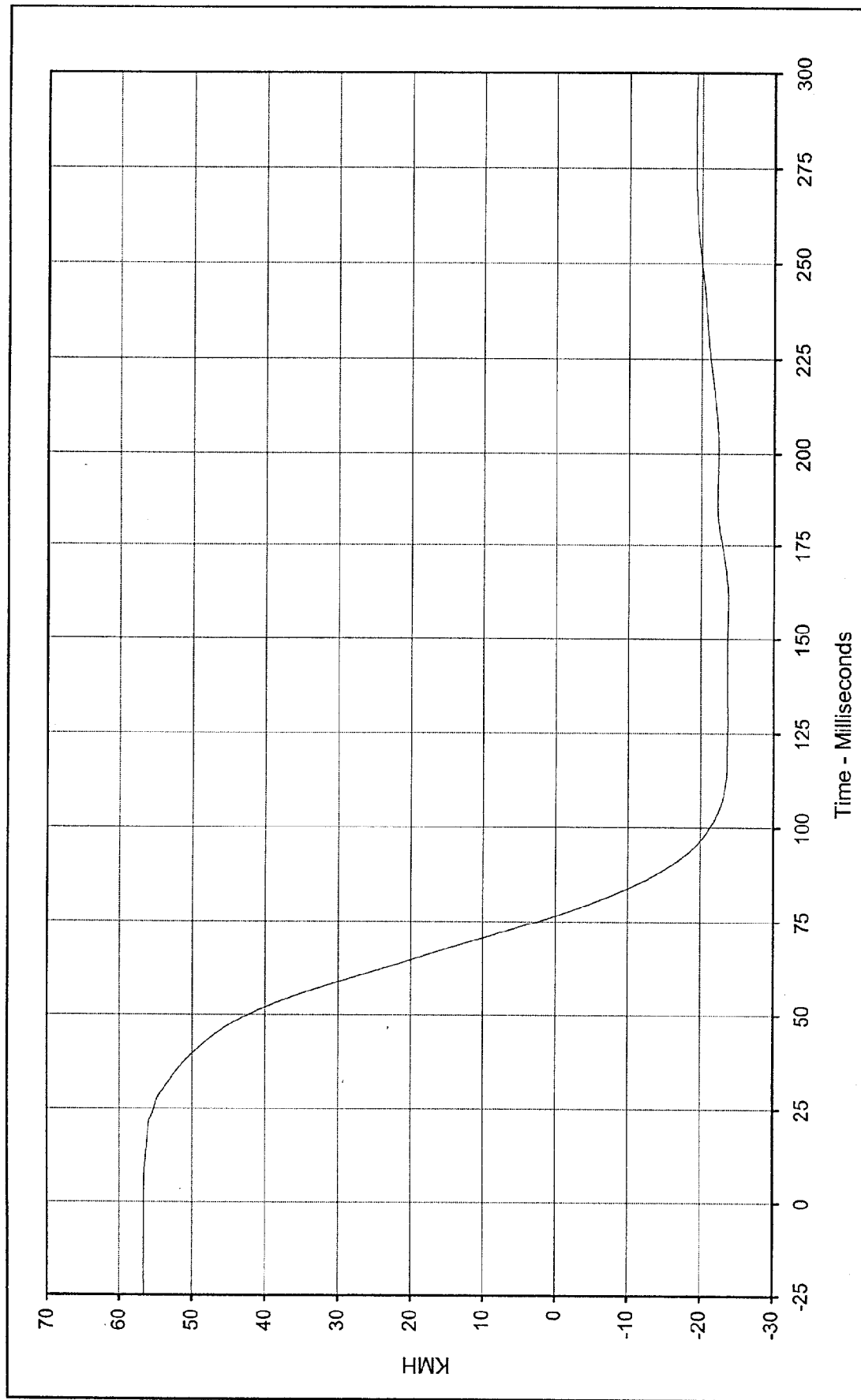




Curve Description: Driver Chest Primary X
 Maximum Value: 2.7 at 173.0 Milliseconds
 Minimum Value: -49.8 at 70.4 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: FIL-013

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Driver Chest Primary X Velocity Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 56.7 at 0.0 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan

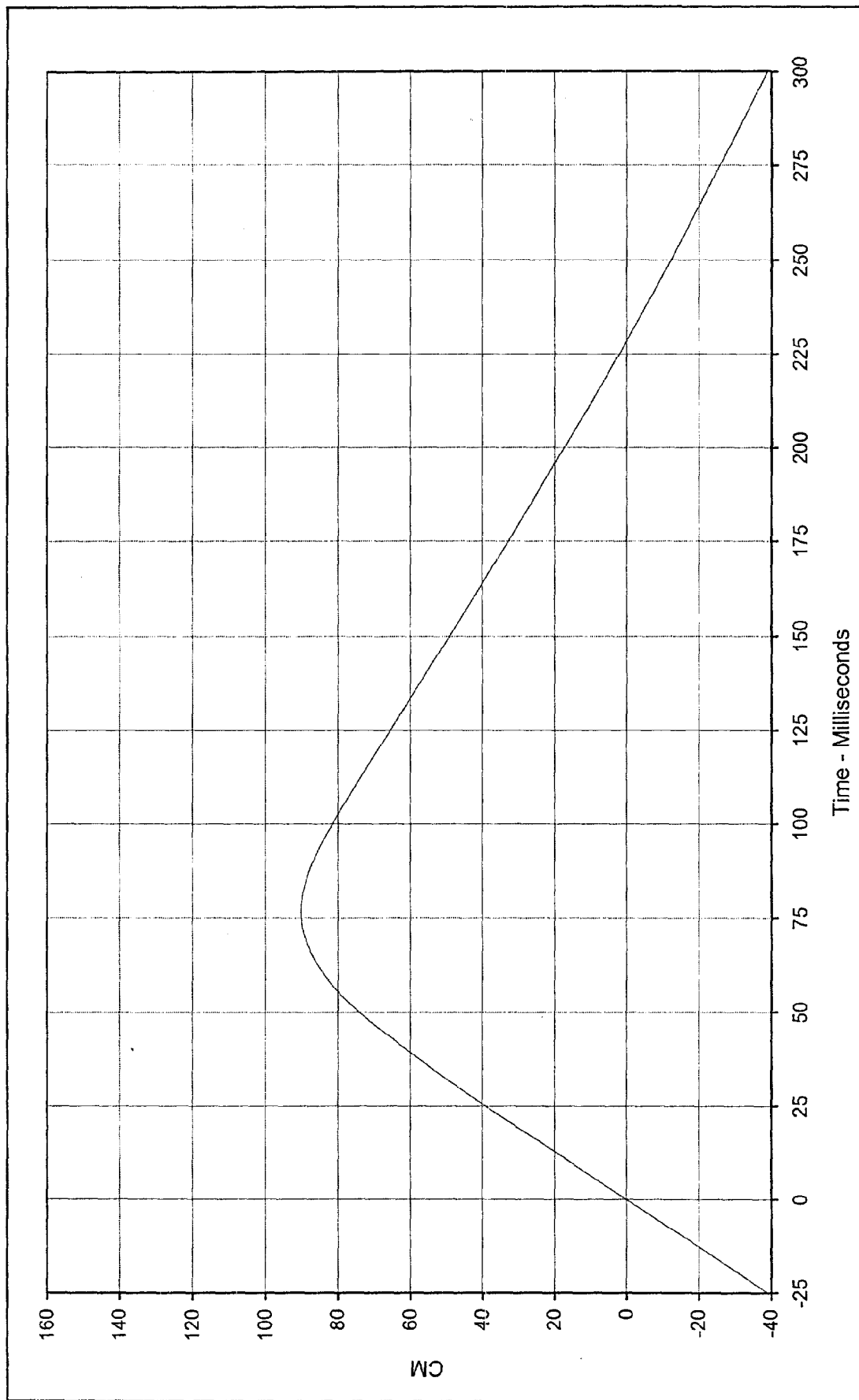
Minimum Value: -23.8 at 160.0 Milliseconds

SAE Filter Class: 180

Date of Test: 2/12/98

Curve Number: IN1-013

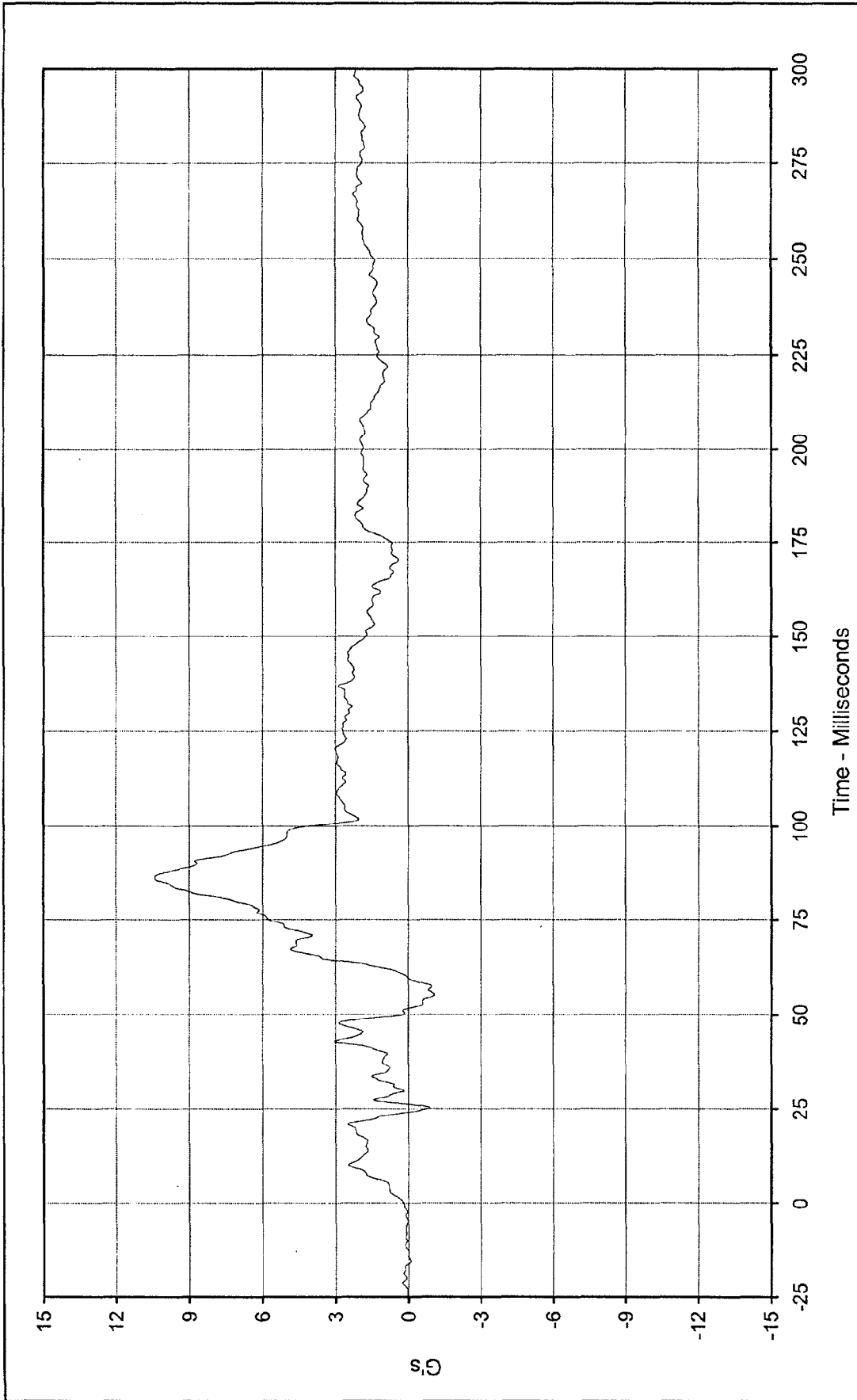




Curve Description: Driver Chest Primary X Displ.
 Maximum Value: 90.2 at 76.5 Milliseconds
 Minimum Value: -39.0 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-013

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Driver Chest Primary Y Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 10.4 at 86.2 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan

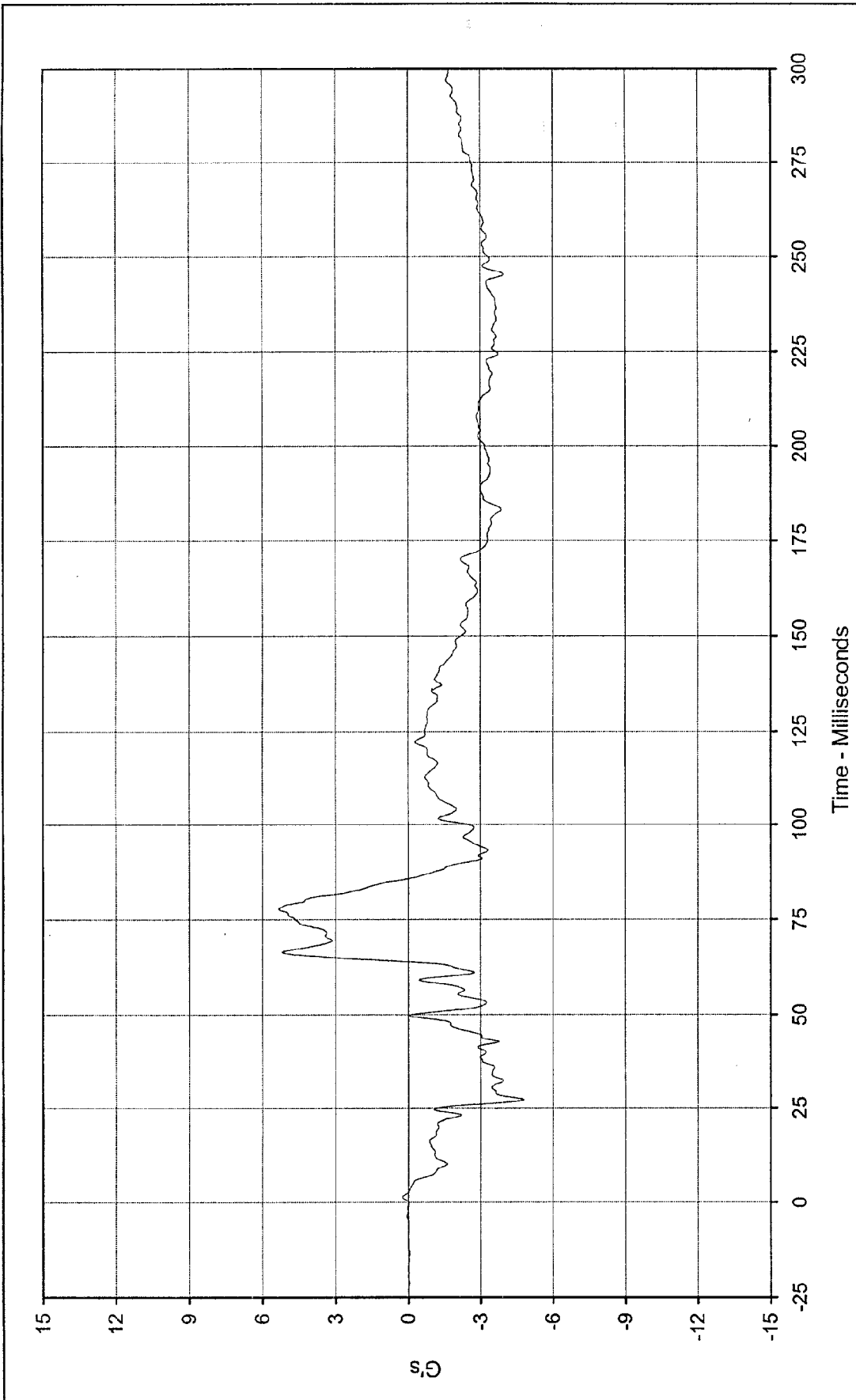
Minimum Value: -1.1 at 55.1 Milliseconds

SAE Filter Class: 180

Date of Test: 2/12/98

Curve Number: FIL-014

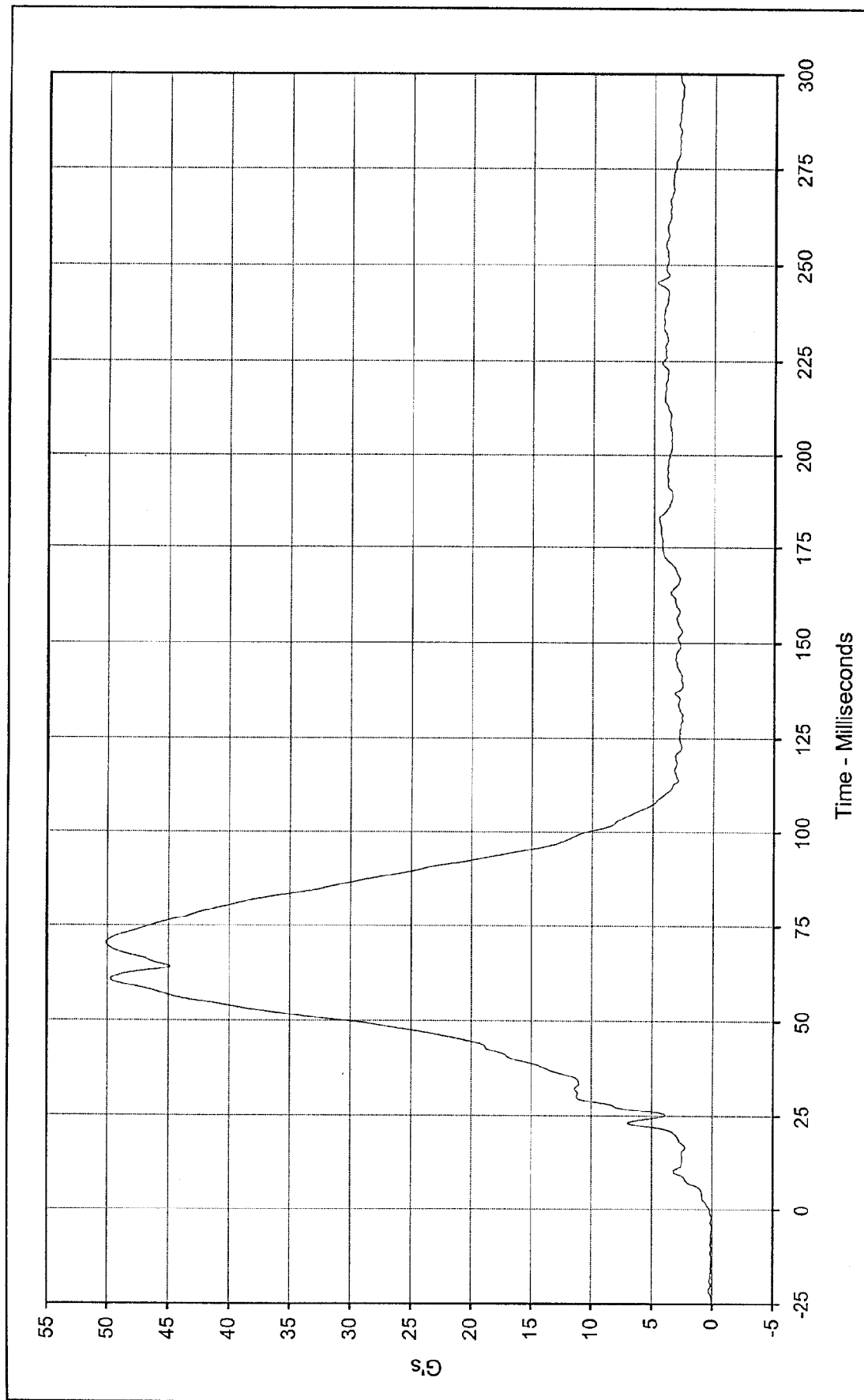




Curve Description: Driver Chest Primary Z
 Maximum Value: 5.3 at 77.7 Milliseconds
 Minimum Value: -4.8 at 27.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: FIL-015

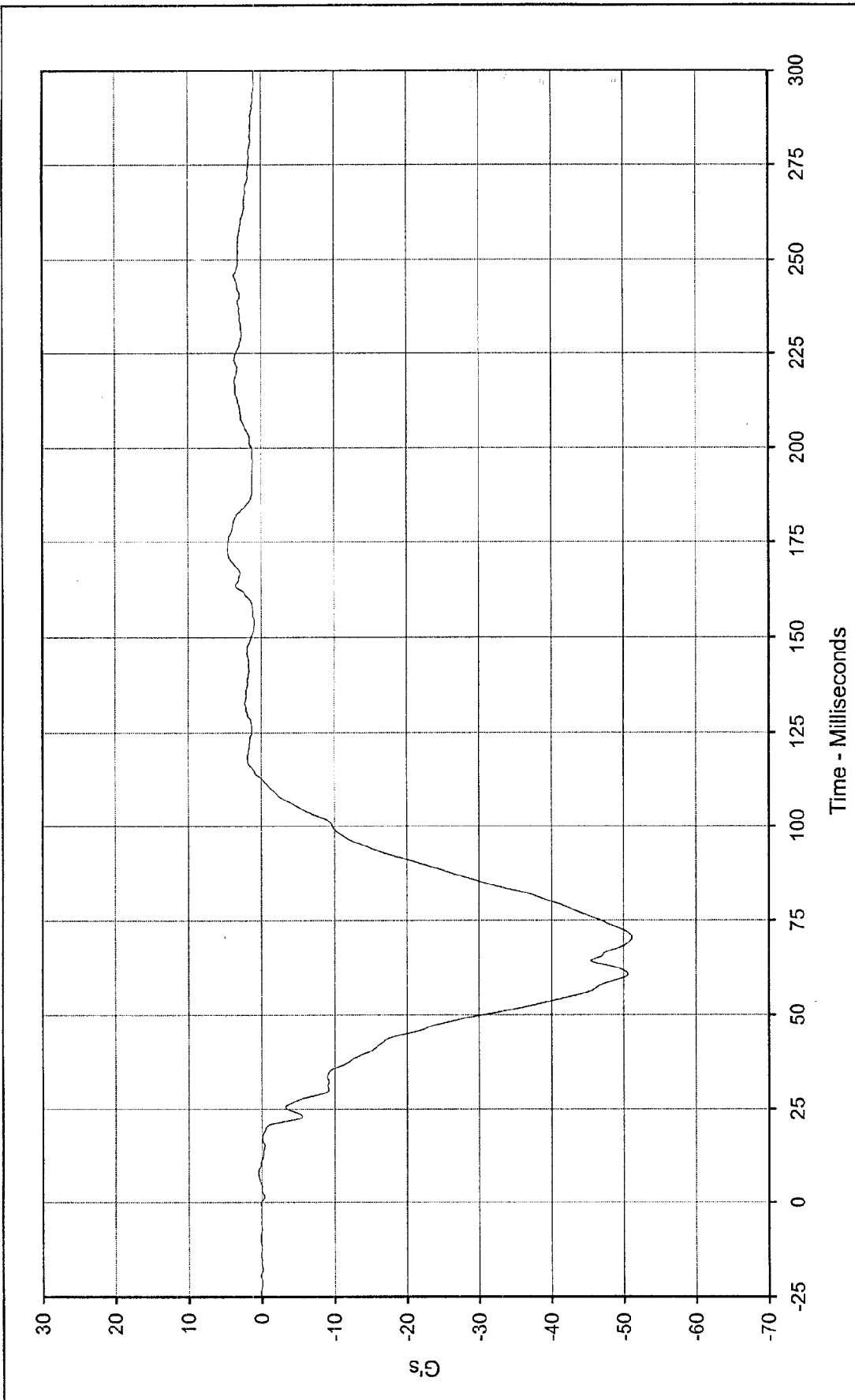
Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:		Driver Chest Resultant Primary		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	50.1	at	70.4	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	0.2	at	0.0			
SAE Filter Class:	180					
Date of Test:	2/12/98					
Curve Number:	RES-013					



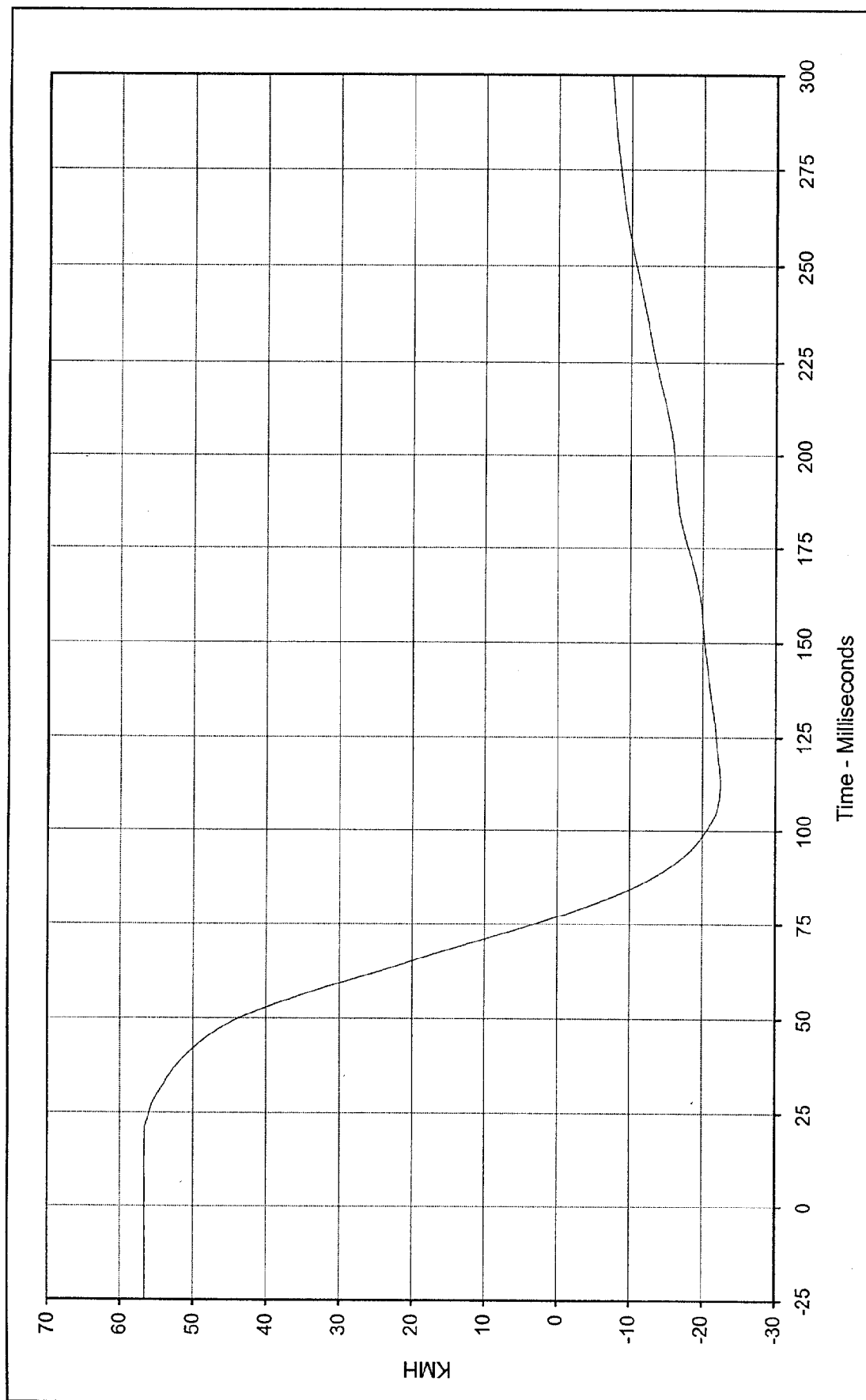


Curve Description: Driver Chest Redundant X
 Maximum Value: 4.6 at 172.8 Milliseconds
 Minimum Value: -51.1 at 70.5 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: FIL-016

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

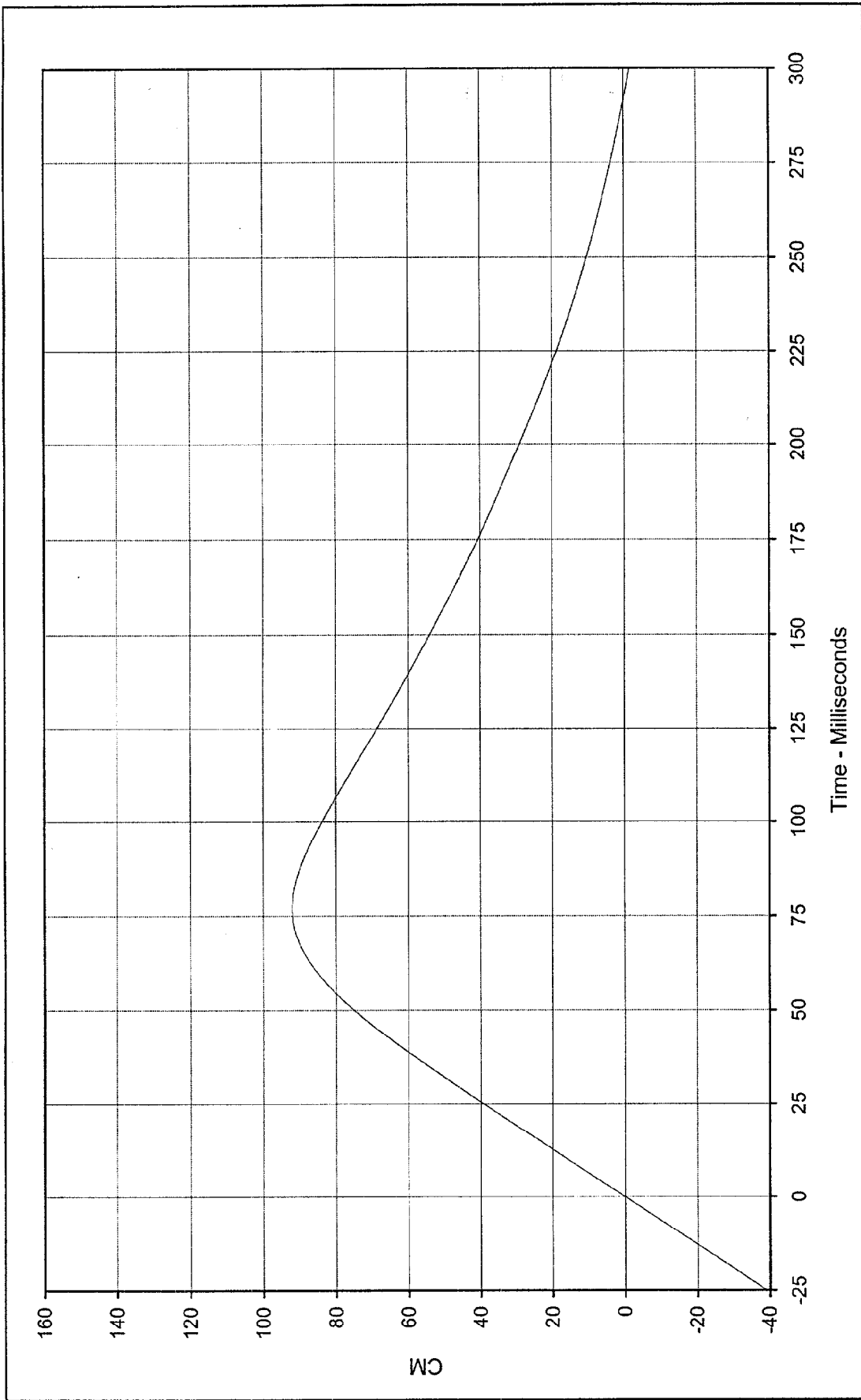
Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Driver Chest Redundant X Velocity	
Maximum Value:	56.7	at 11.2 Milliseconds
Minimum Value:	-22.5	at 112.8 Milliseconds
SAE Filter Class:	180	
Date of Test:	2/12/98	
Curve Number:	IN1-016	

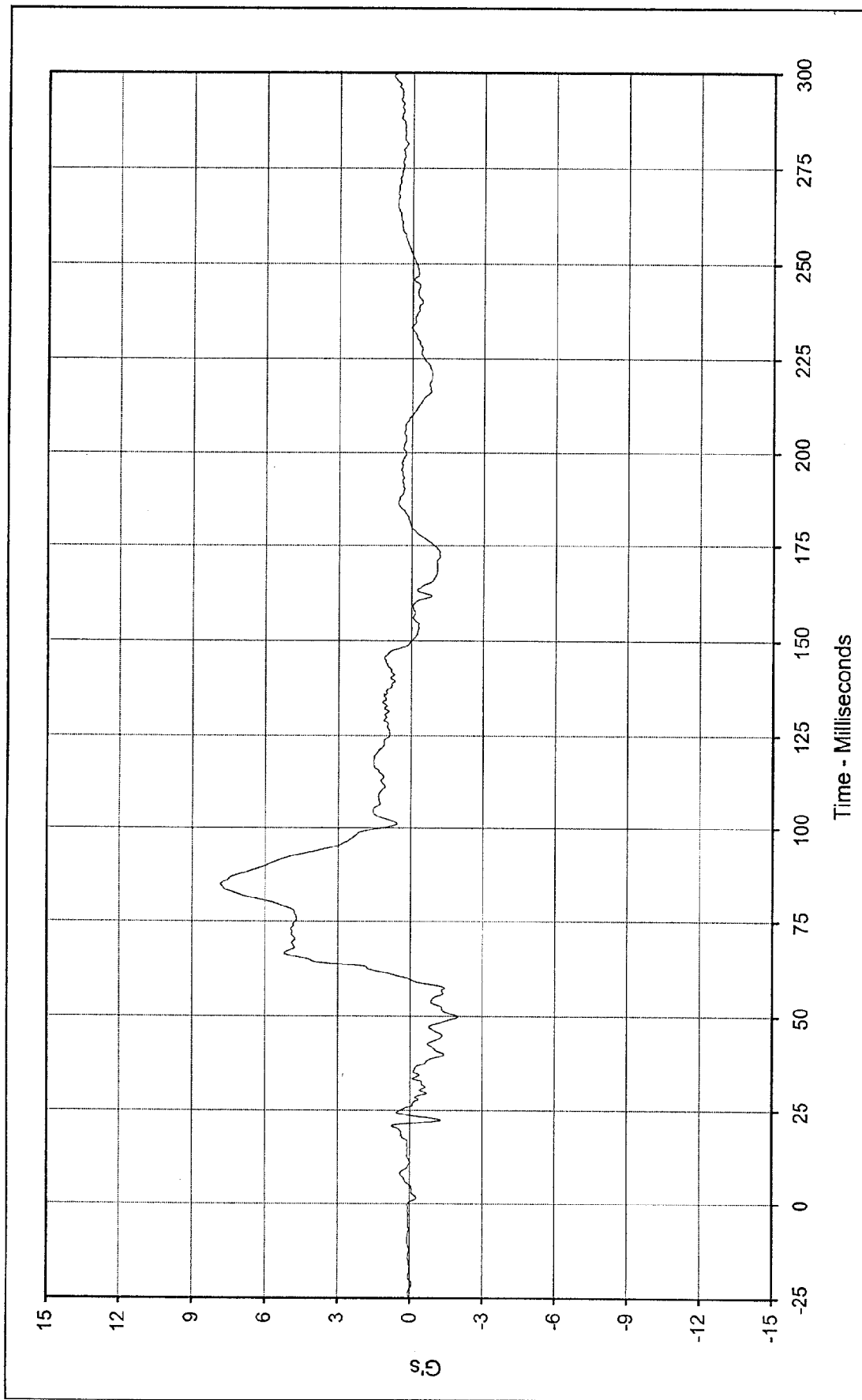




Curve Description: Driver Chest Redundant X Displ.
Maximum Value: 92.0 at 77.0 Milliseconds
Minimum Value: -1.8 at 299.9 Milliseconds
SAE Filter Class: 180
Date of Test: 2/12/98
Curve Number: IN2-016

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Test Vehicle: 1998 Lexus ES300 4 Door Sedan



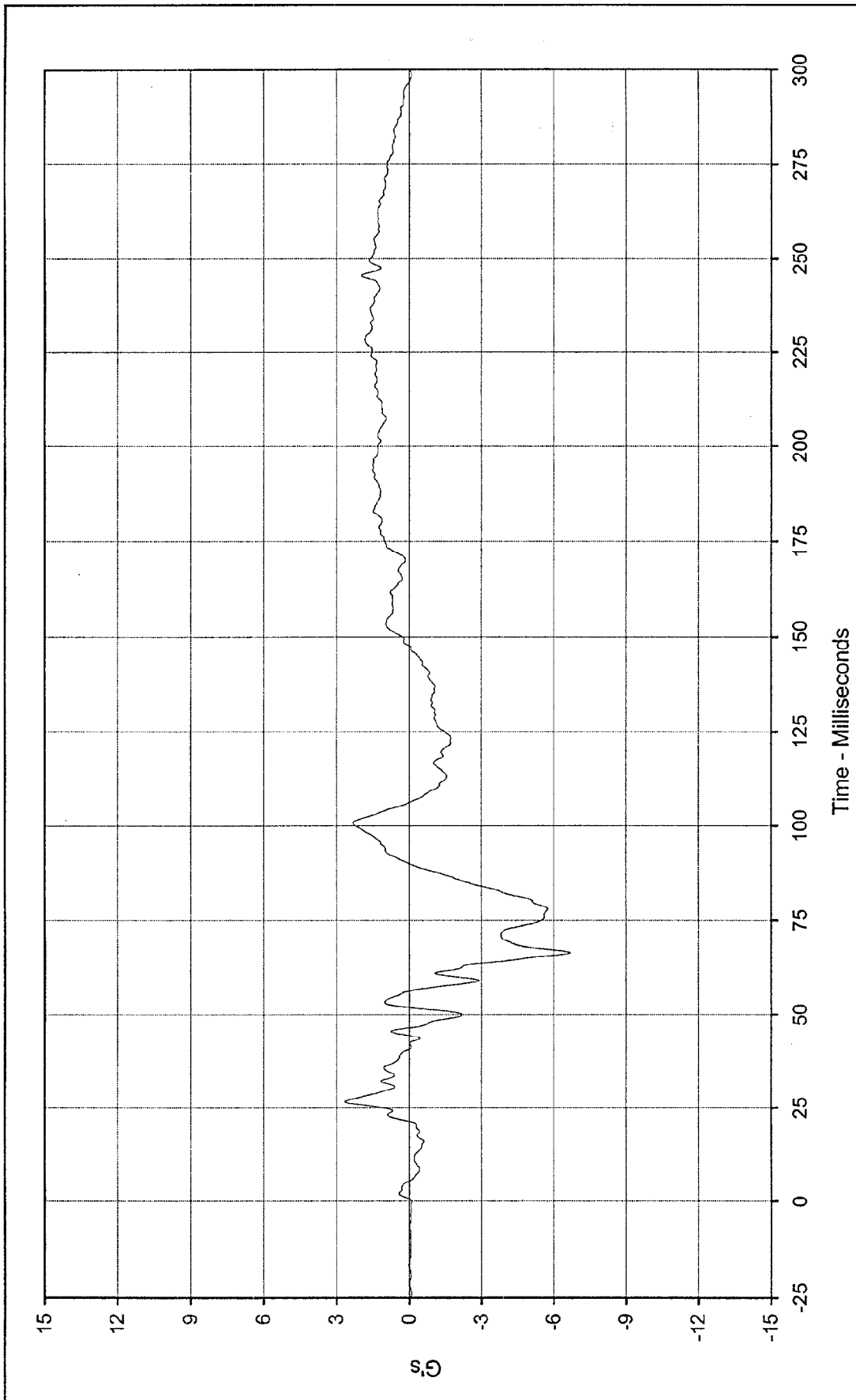


Curve Description:	Driver Chest Redundant Y		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	7.8	at 84.9	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-2.0	at 49.9			
SAE Filter Class:	180				
Date of Test:	2/12/98				
Curve Number:	FIL-017				



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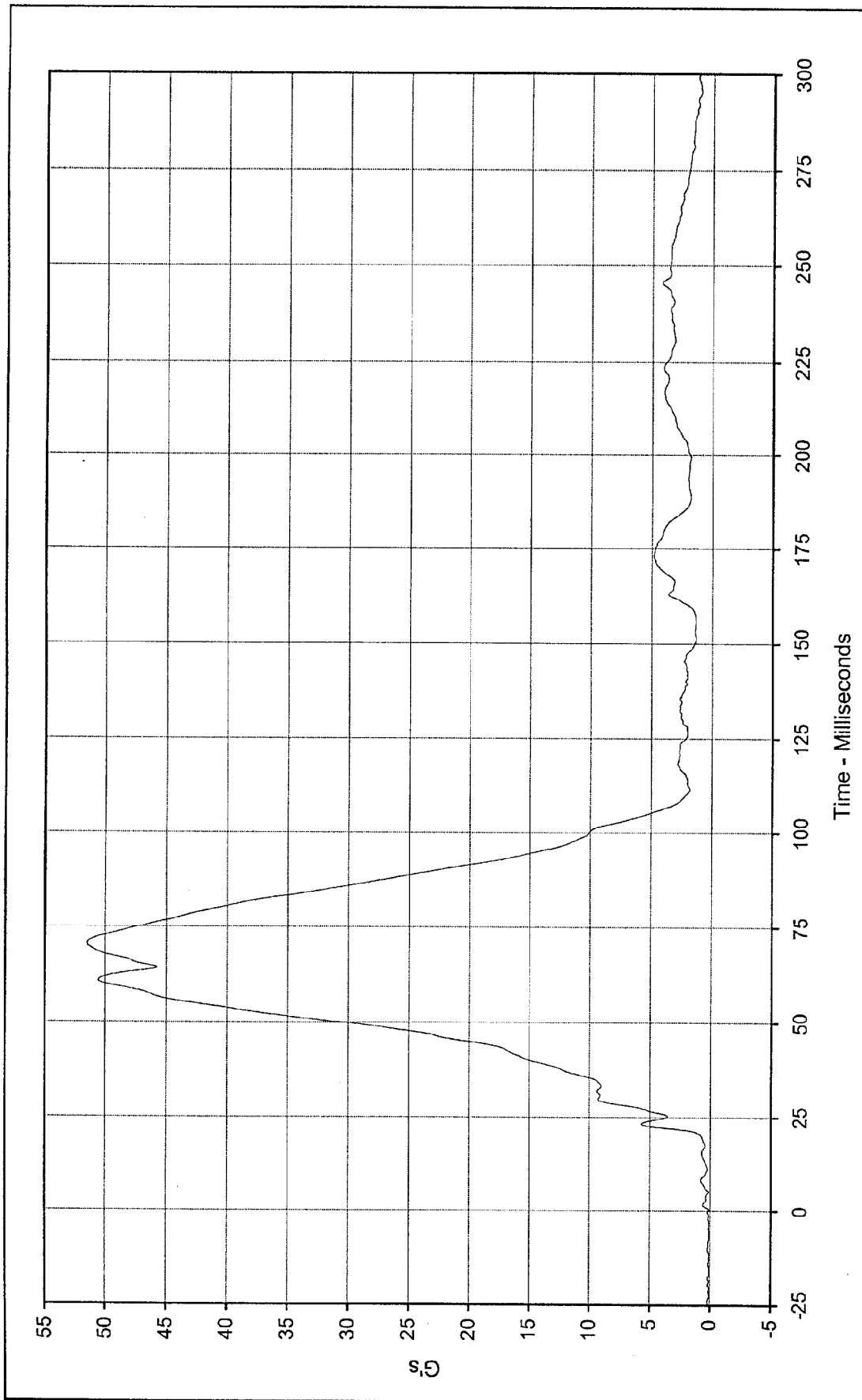




Curve Description: Driver Chest Redundant Z
 Maximum Value: 2.6 at 26.8 Milliseconds
 Minimum Value: -6.7 at 66.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: FIL-018

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Driver Chest Resultant Redundant Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 51.5 at 70.5 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan

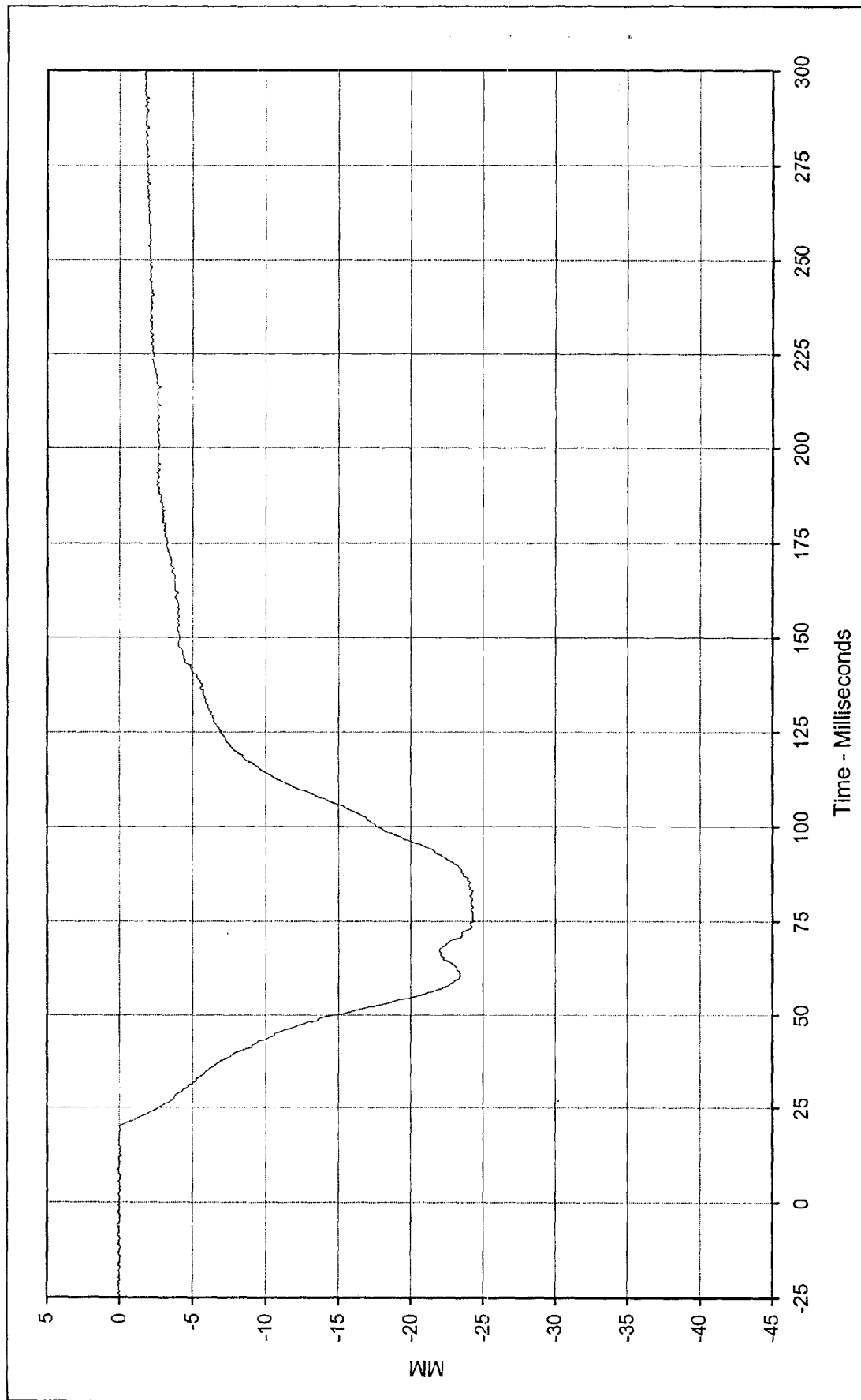
Minimum Value: 0.1 at 0.4 Milliseconds

SAE Filter Class: 180

Date of Test: 2/12/98

Curve Number: RES-016





Curve Description: Driver Chest Displacement X

Maximum Value: 0.1 at 8.7 Milliseconds

Minimum Value: -24.3 at 78.7 Milliseconds

SAE Filter Class: 600

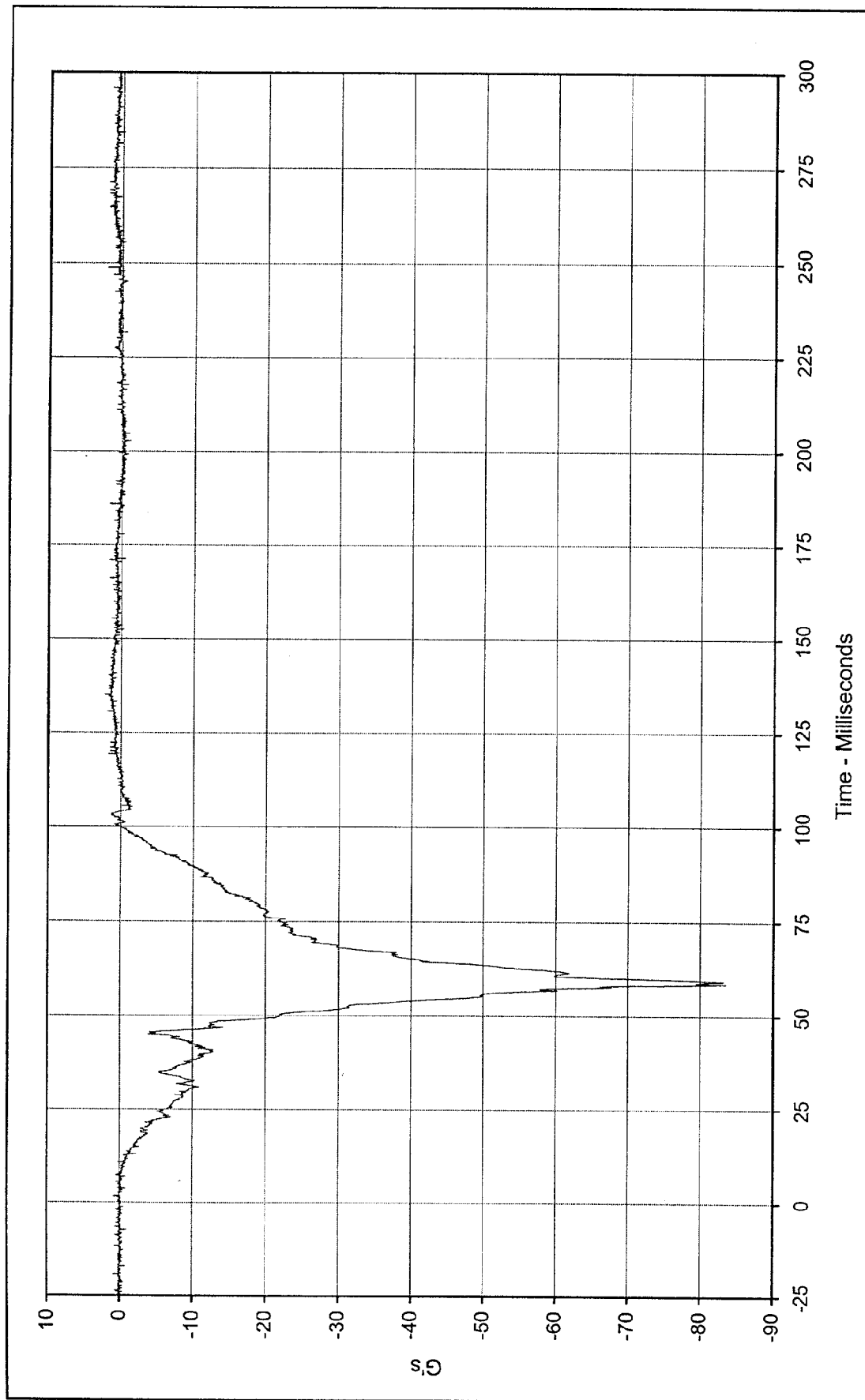
Date of Test: 2/12/98

Curve Number: FIL-019

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

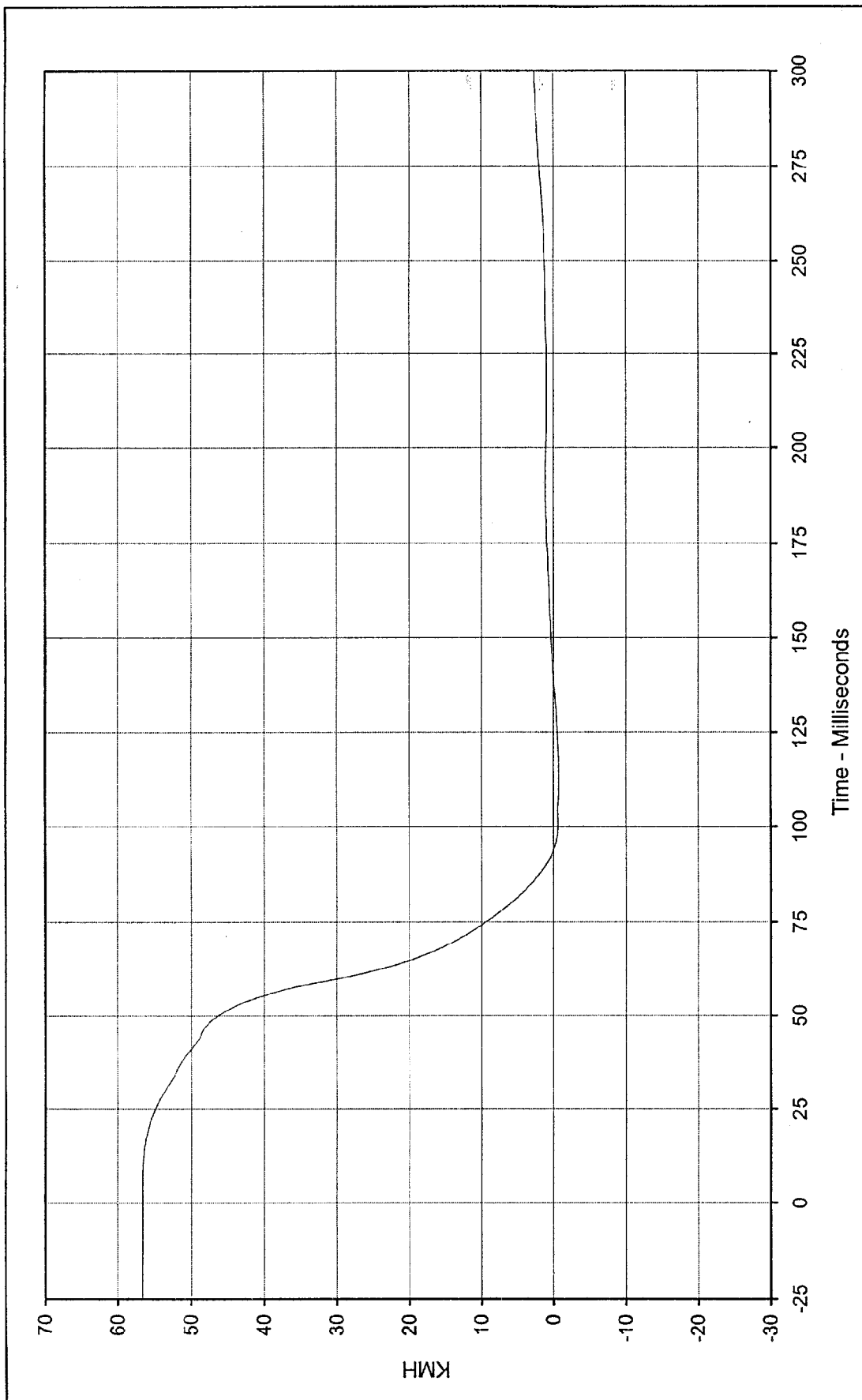
Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:		Driver Pelvis X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	2.3	at 135.2	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-83.6	at 58.7			
SAE Filter Class:	1000				
Date of Test:	2/12/98				
Curve Number:	FIL-020				

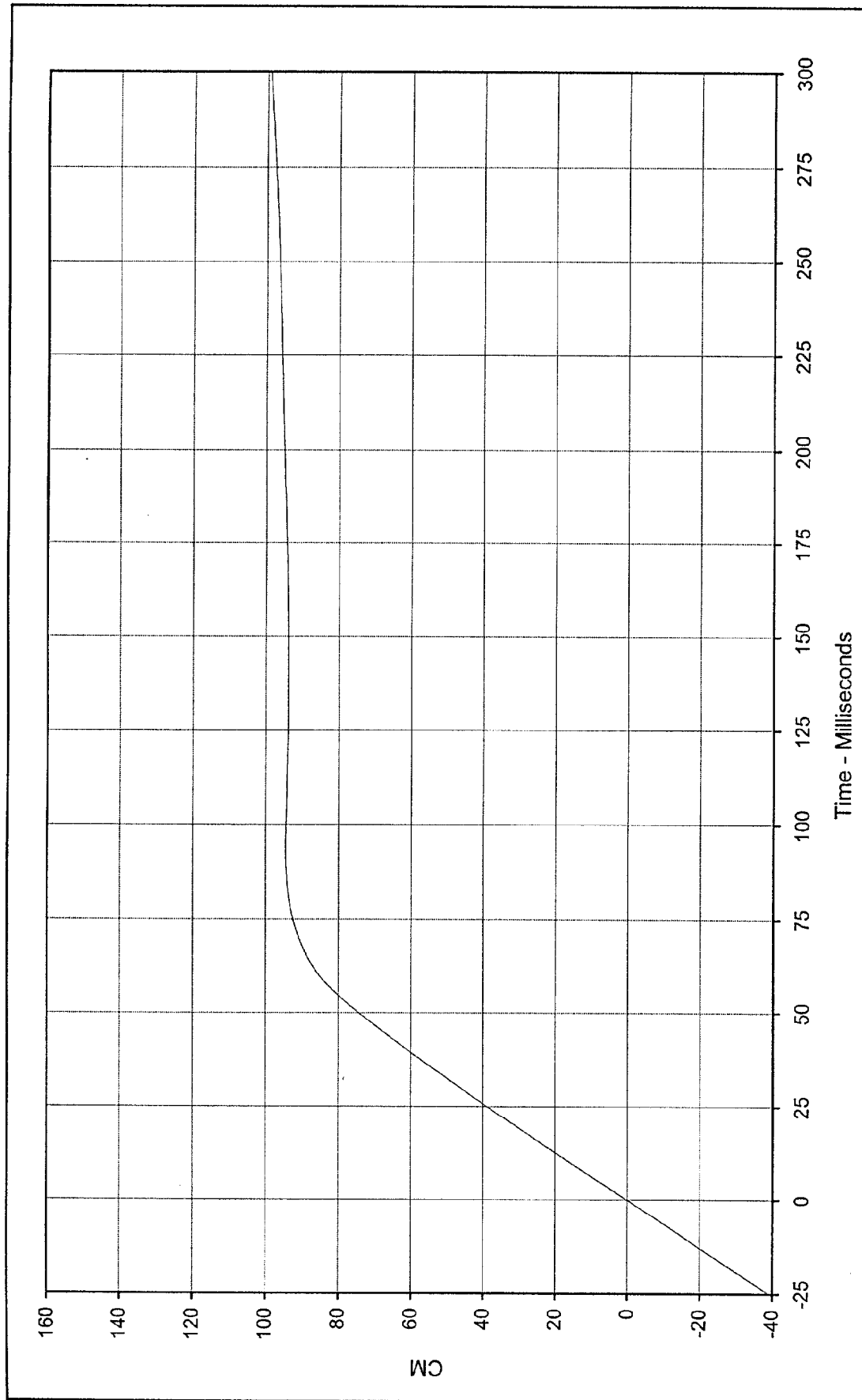




Curve Description: Driver Pelvis X Velocity
 Maximum Value: 56.6 at 2.5 Milliseconds
 Minimum Value: -0.7 at 114.8 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-020

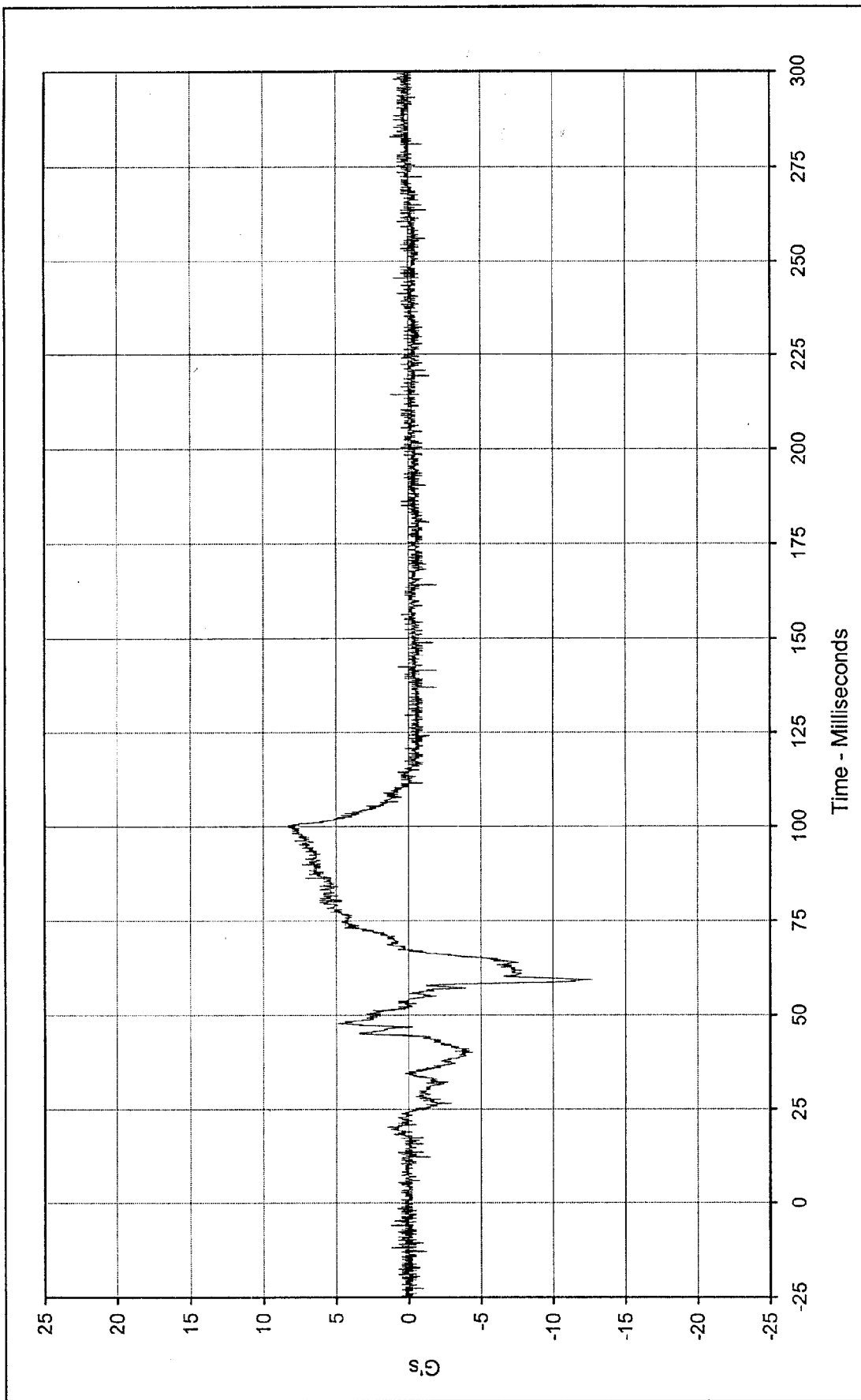
Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Driver Pelvis X Displ.	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	99.2	at	299.9	Milliseconds
Minimum Value:	0.0	at	0.0	Milliseconds
SAE Filter Class:	180			
Date of Test:	2/12/98	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Curve Number:	IN2-020			

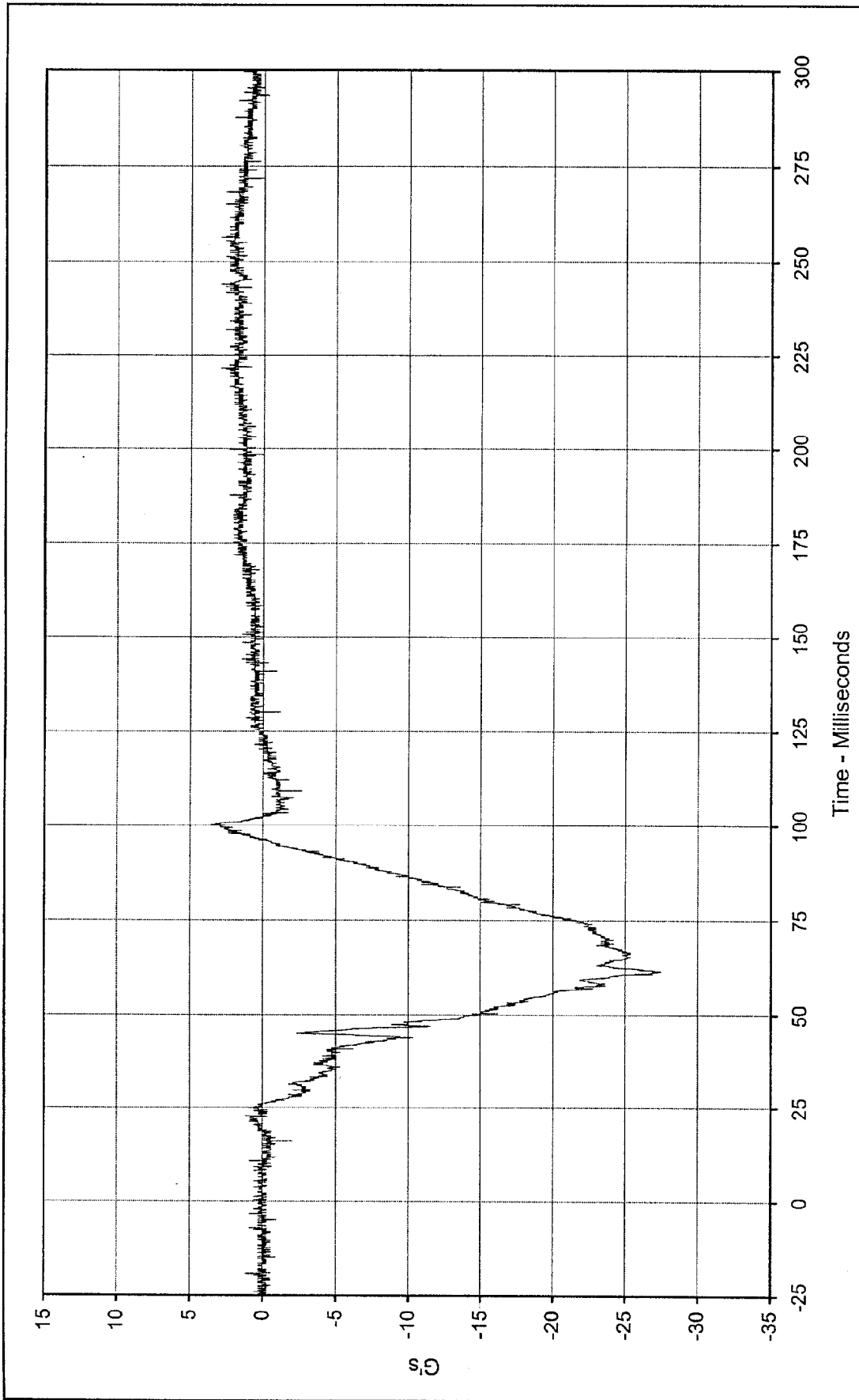




Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

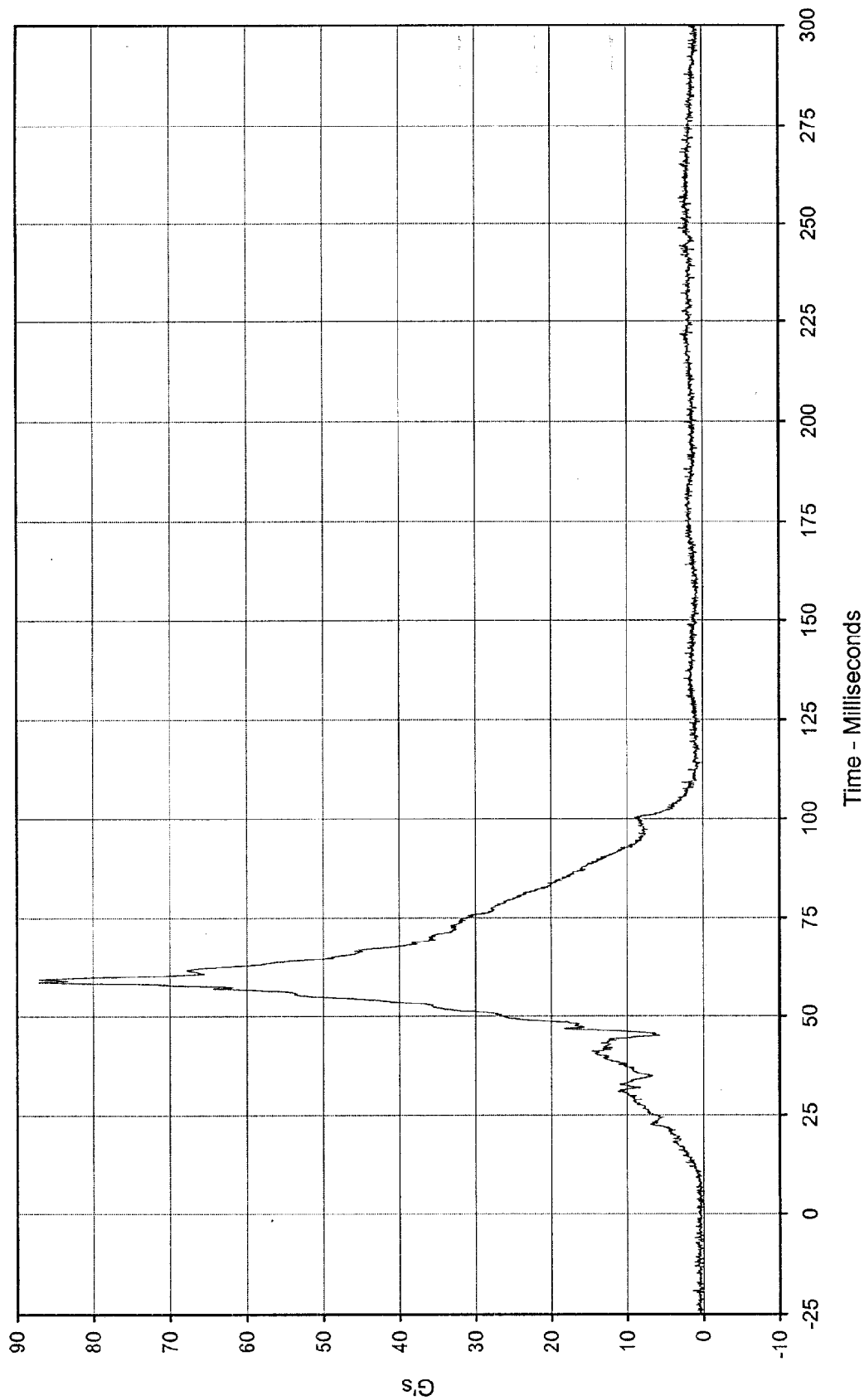
Driver Pelvis Y
 Maximum Value: 8.3 at 99.8 Milliseconds
 Minimum Value: -12.7 at 59.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-021





Curve Description:	Driver Pelvis Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	3.5	at	100.3	Milliseconds
Minimum Value:	-27.5	at	61.2	Milliseconds
SAE Filter Class:	1000			
Date of Test:	2/12/98	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Curve Number:	FIL-022			





Curve Description: Driver Pelvis Resultant

Maximum Value: 87.1 at 58.7 Milliseconds

Minimum Value: 0.0 at 1.6 Milliseconds

SAE Filter Class: 1000

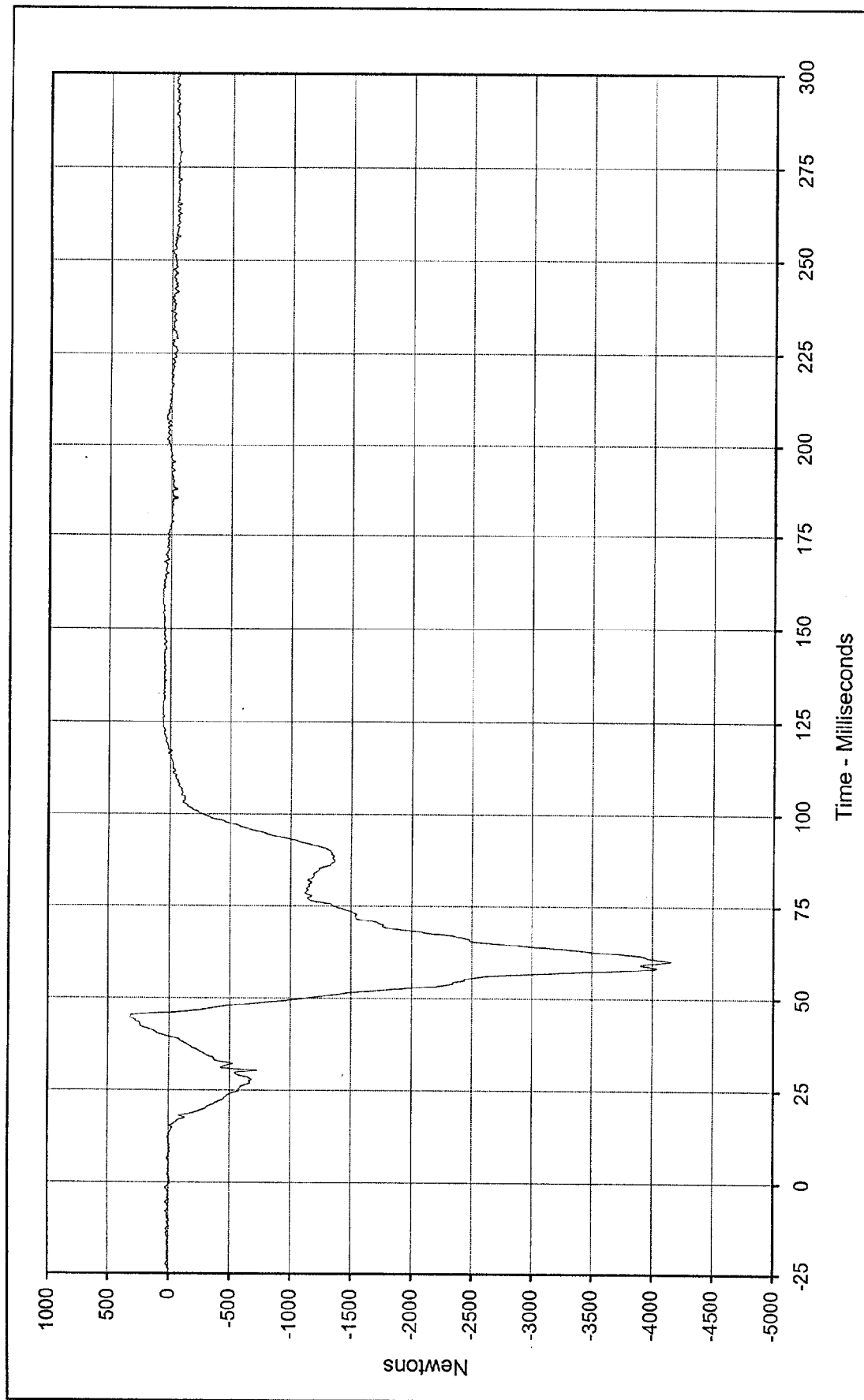
Date of Test: 2/12/98

Curve Number: RES-020

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan



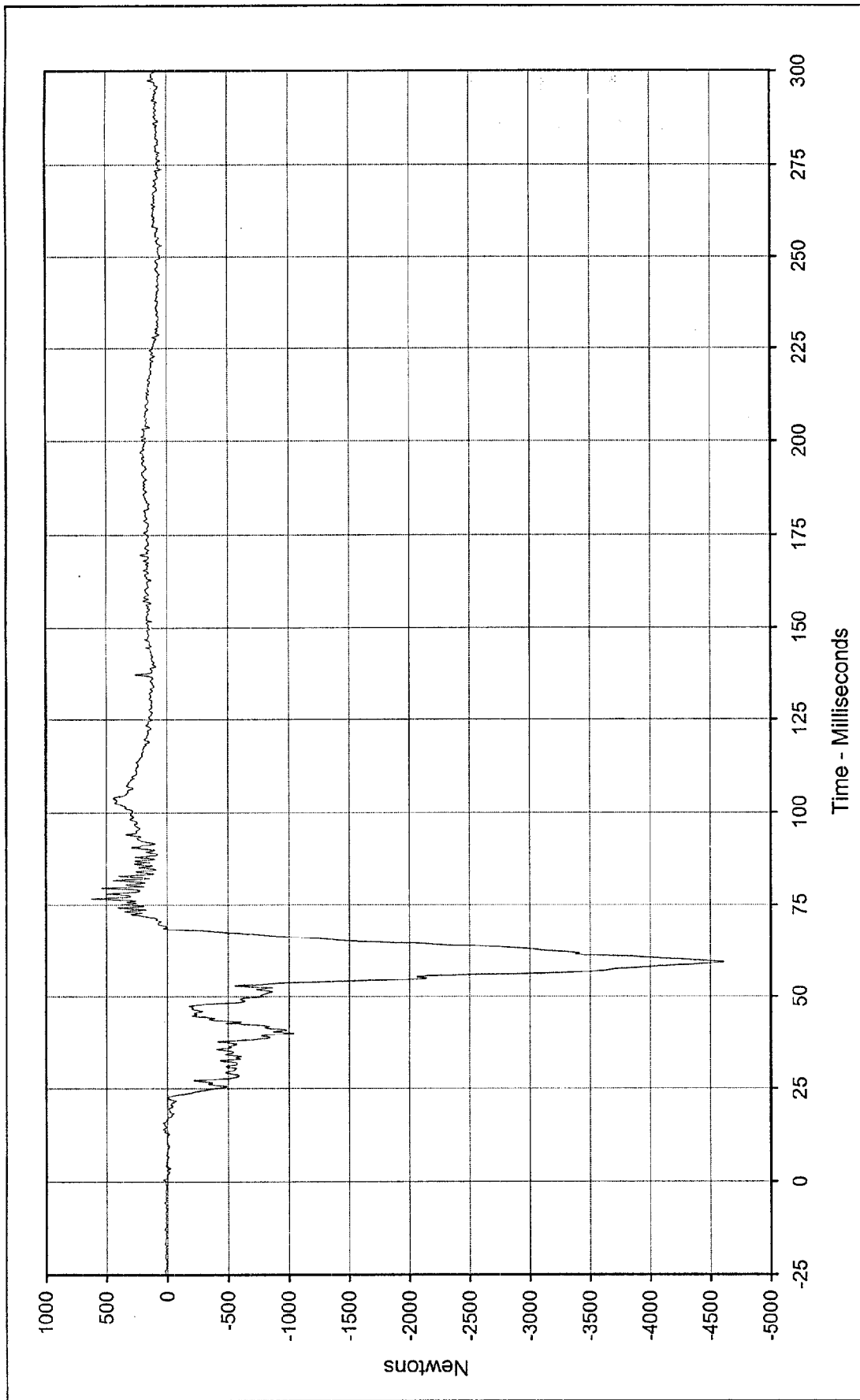


Curve Description:	Driver Left Femur Force		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	321.1	at 44.8	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-4155.2	at 60.2			
SAE Filter Class:	600				
Date of Test:	2/12/98				
Curve Number:	FIL-023				



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Curve Description: Driver Right Femur Force

Maximum Value: 622.9 at 76.8 Milliseconds

Minimum Value: -4612.2 at 59.5 Milliseconds

SAE Filter Class: 600

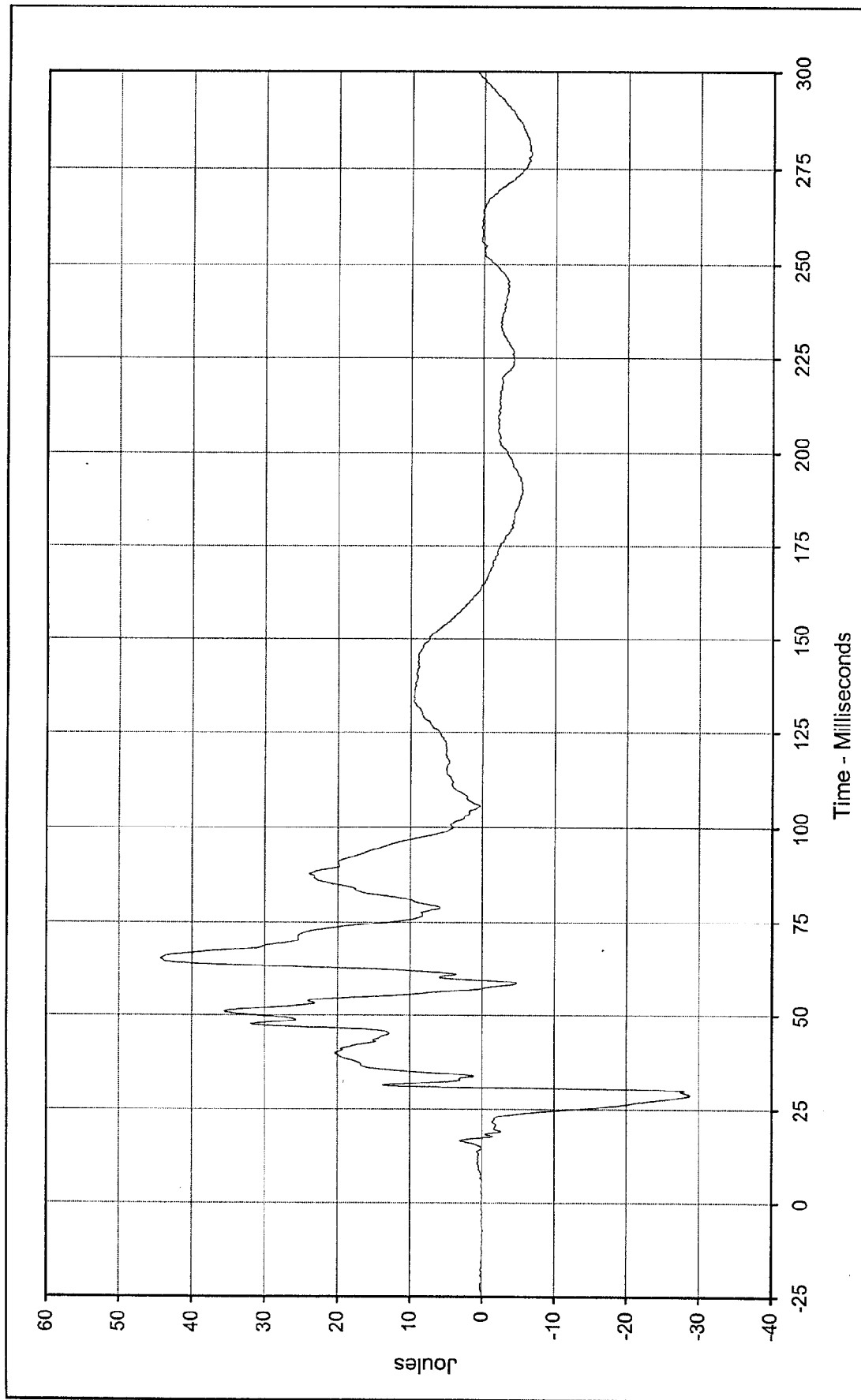
Date of Test: 2/12/98

Curve Number: FIL-024

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

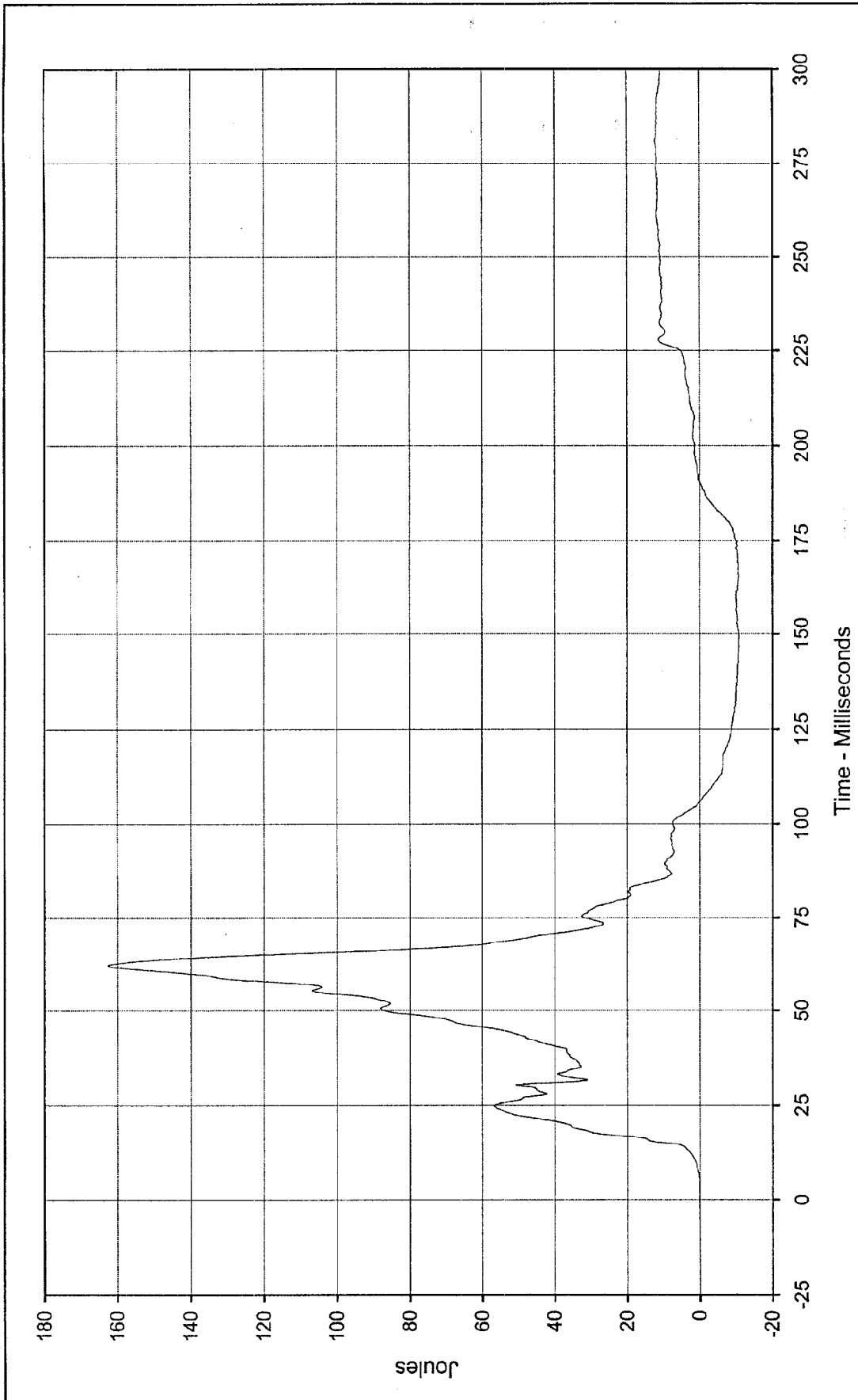
Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Driver Left Upper Tibia Moment X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	44.4	at	65.2	Milliseconds
Minimum Value:	-28.8	at	28.8	Milliseconds
SAE Filter Class:	600	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Date of Test:	2/12/98			
Curve Number:	FIL-025			

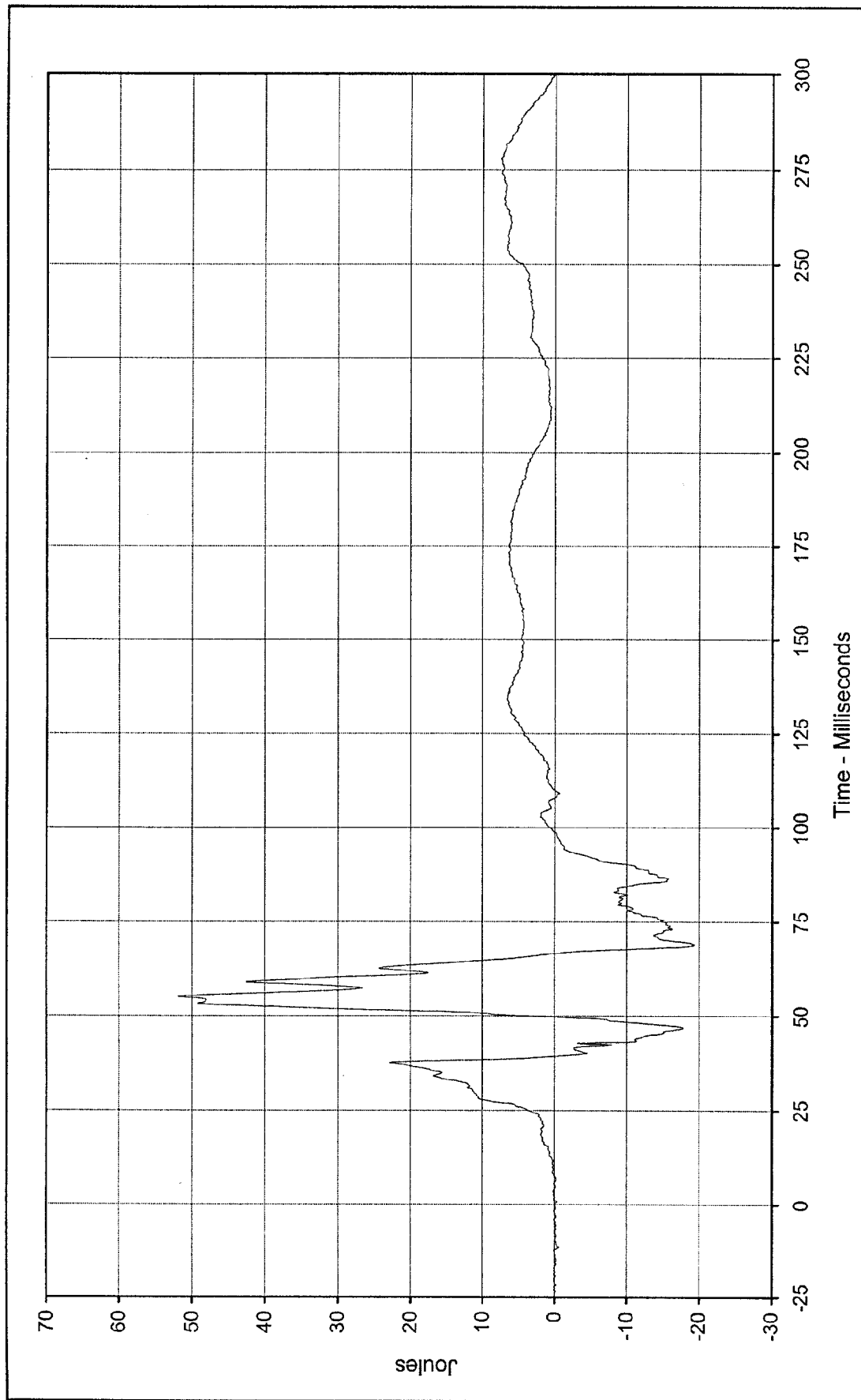




Curve Description: Driver Left Upper Tibia Moment Y
 Maximum Value: 162.6 at 62.1 Milliseconds
 Minimum Value: -10.9 at 149.0 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-026

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

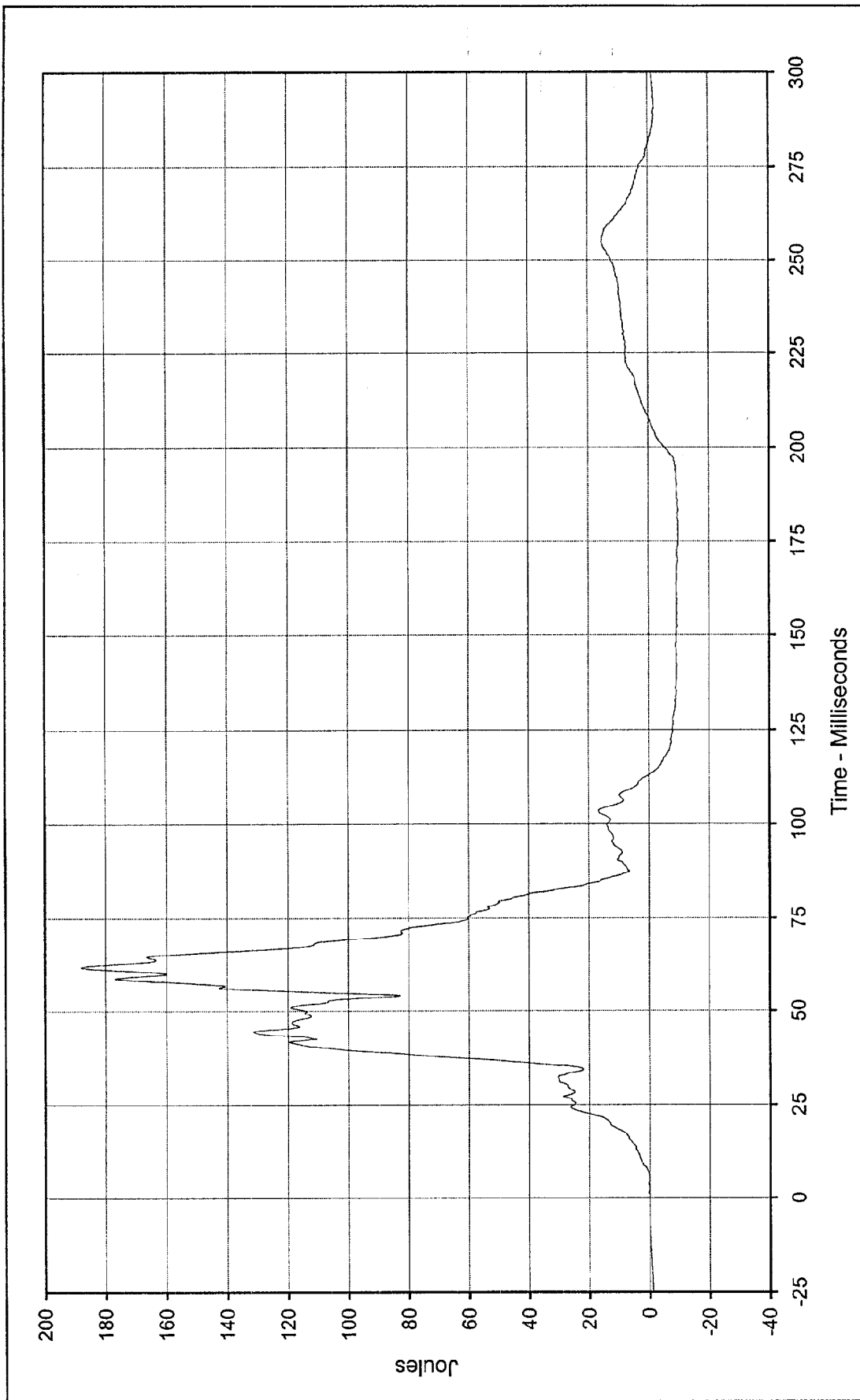




Curve Description:	Driver Right Upper Tibia Moment X		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	51.9	at 55.2	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-19.4	at 68.8			
SAE Filter Class:	600				
Date of Test:	2/12/98				
Curve Number:	FIL-027				



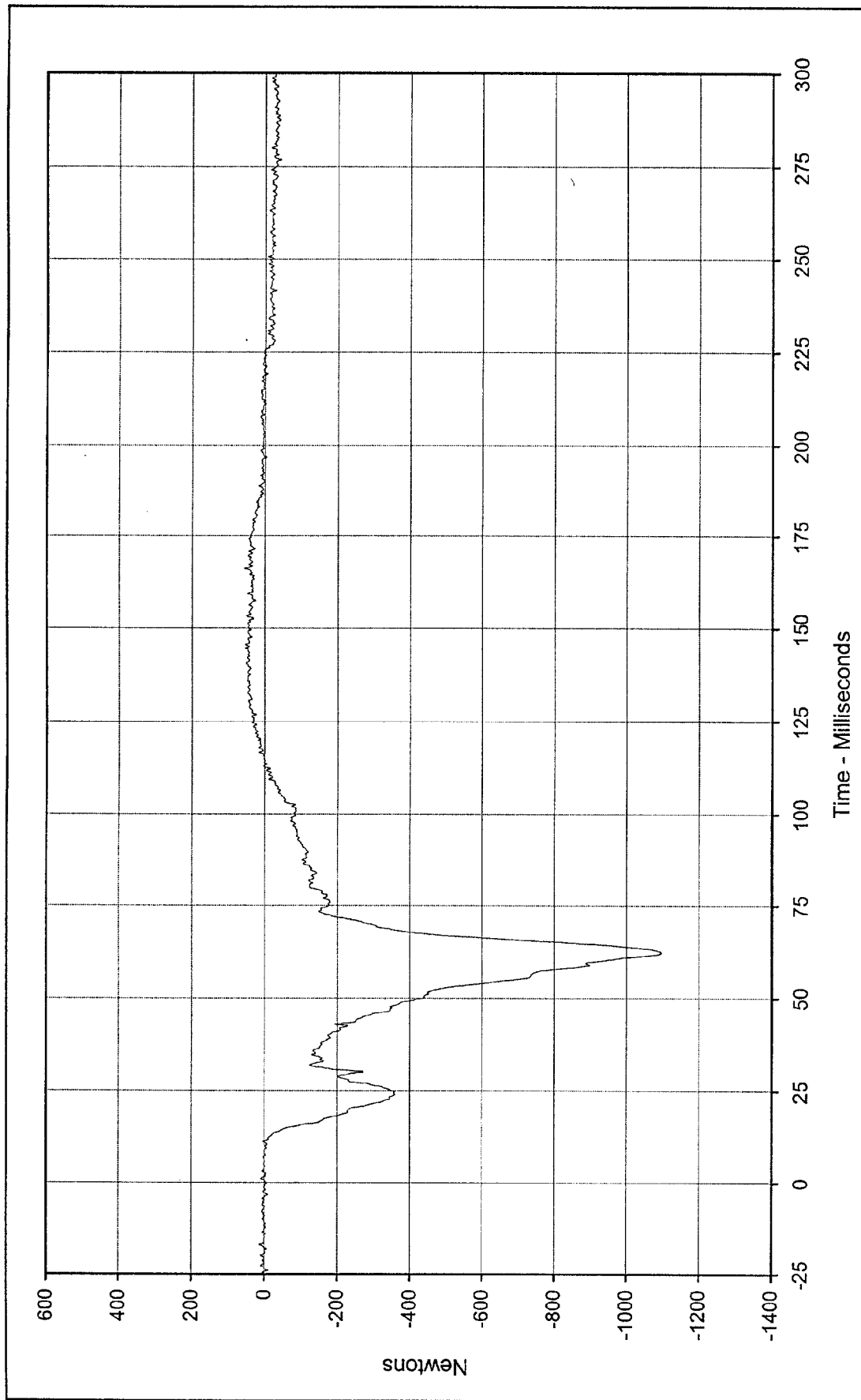




Curve Description: Driver Right Upper Tibia Moment Y
 Maximum Value: 188.0 at 61.7 Milliseconds
 Minimum Value: -10.1 at 177.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-028

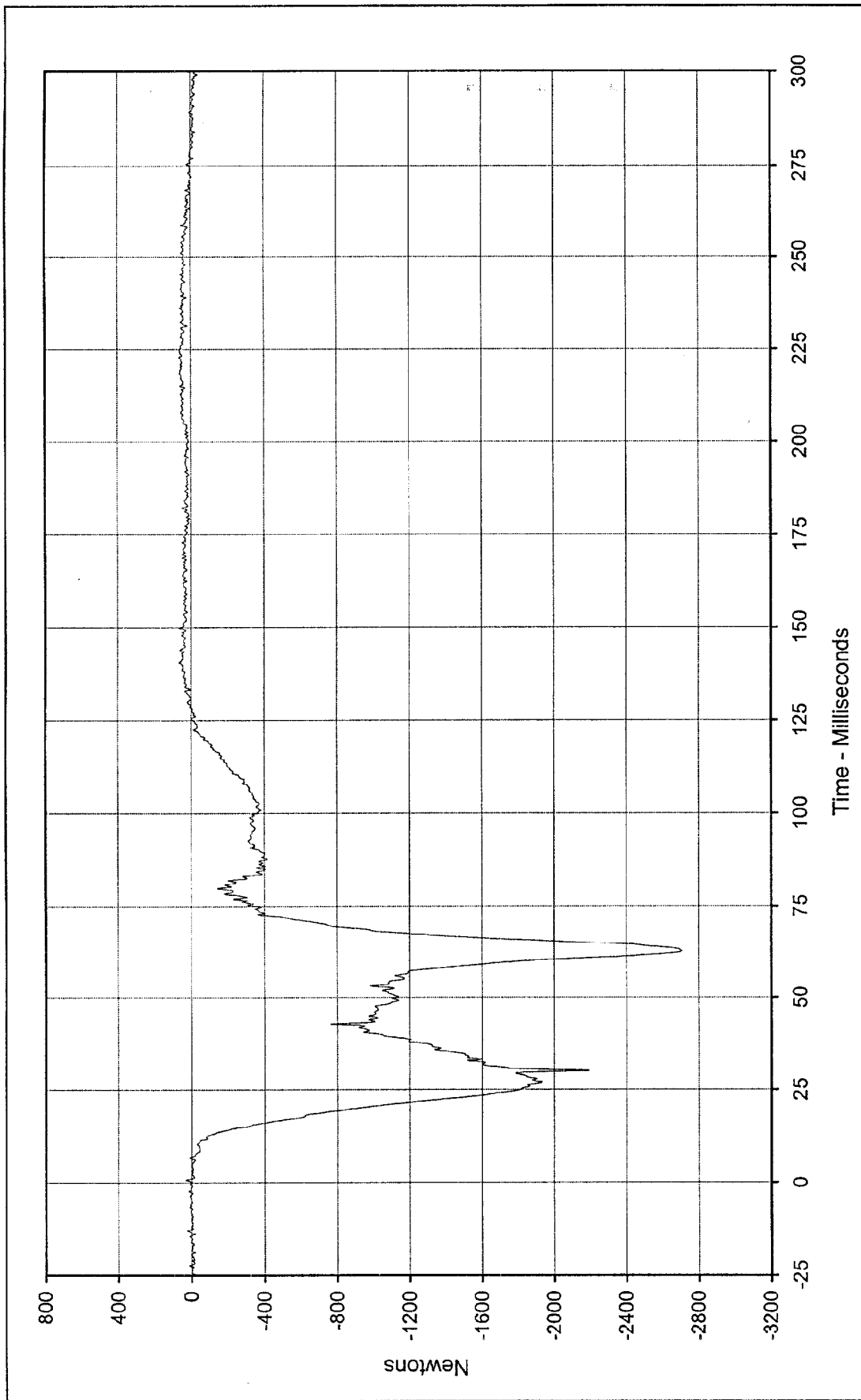
Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Driver Left Lower Tibia Force X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW/5103
Maximum Value:	57.0 at 166.4 Milliseconds	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-1095.5 at 62.2 Milliseconds			
SAE Filter Class:	600			
Date of Test:	2/12/98			
Curve Number:	FIL-029			

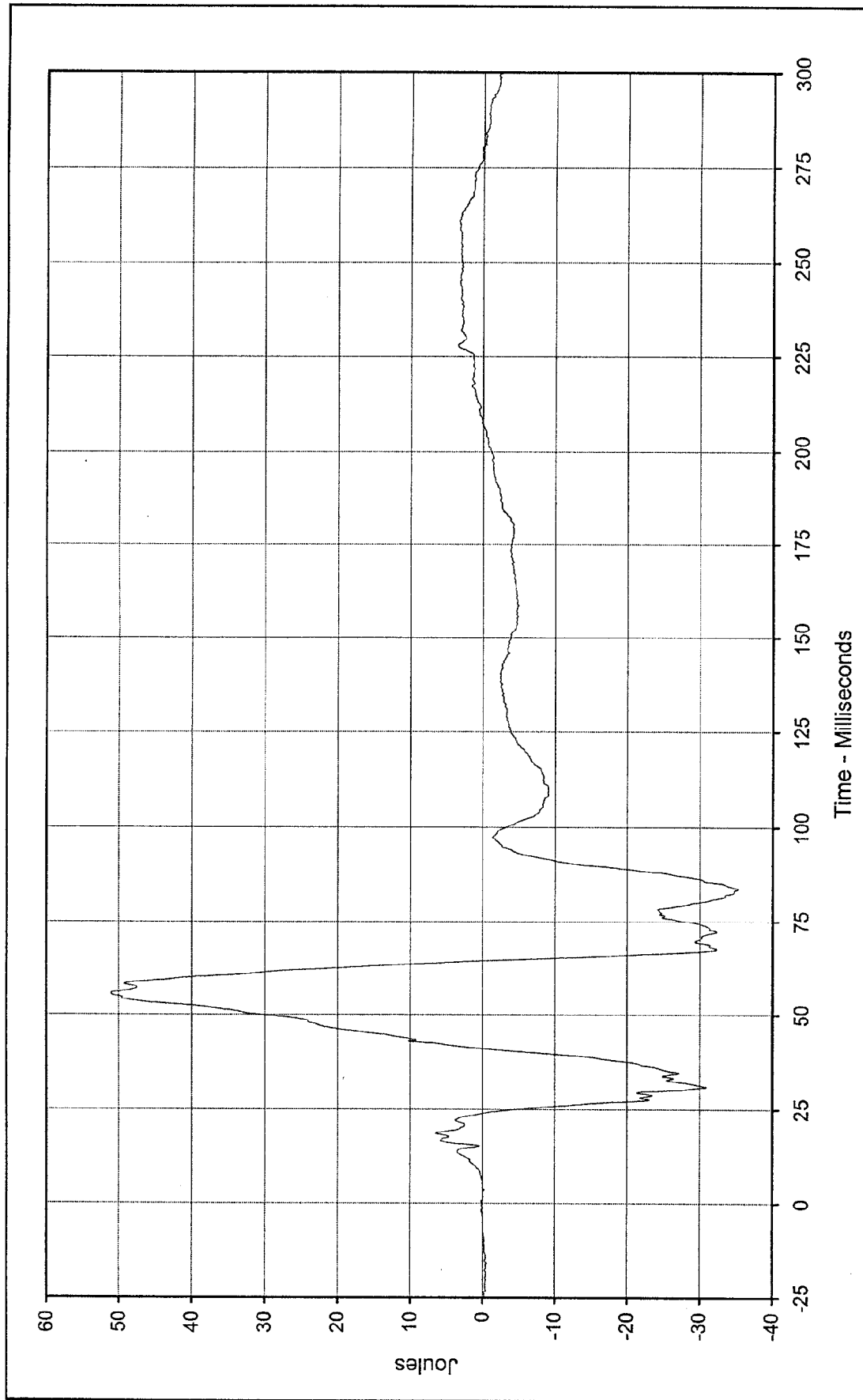




Curve Description: Driver Left Lower Tibia Force Z
 Testing Program: 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

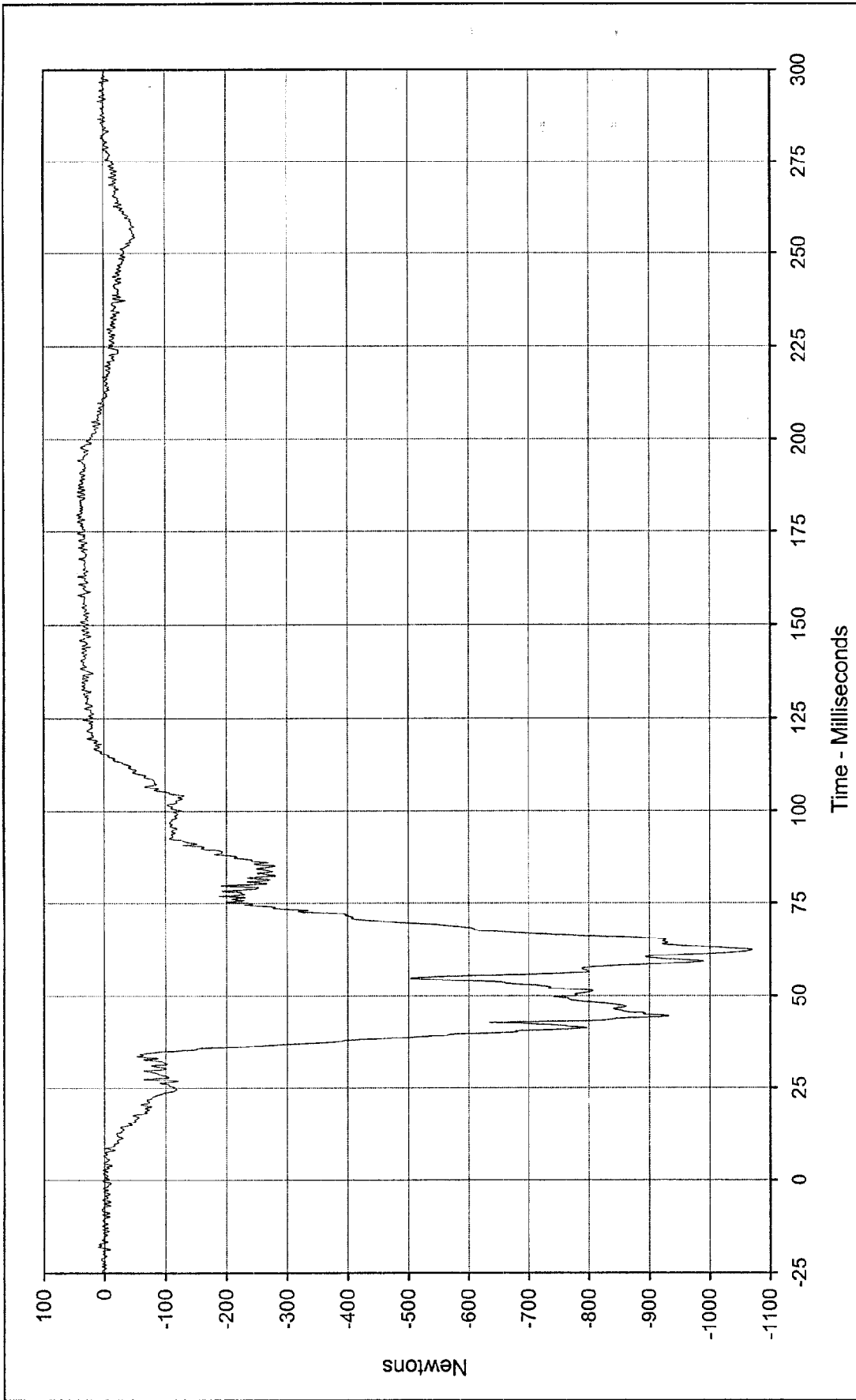
Maximum Value: 64.6 at 140.4 Milliseconds
 Minimum Value: -2709.7 at 62.6 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-030





Curve Description:	Driver Left Lower Tibia Moment Y		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	51.0	at	55.7	Milliseconds	
Minimum Value:	-35.3	at	83.5	Milliseconds	
SAE Filter Class:	600		Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Date of Test:	2/12/98				
Curve Number:	FIL-031				





Curve Description: Driver Right Lower Tibia Force X

Maximum Value: 44.2 at 179.5 Milliseconds

Minimum Value: -1070.6 at 62.1 Milliseconds

SAE Filter Class: 600

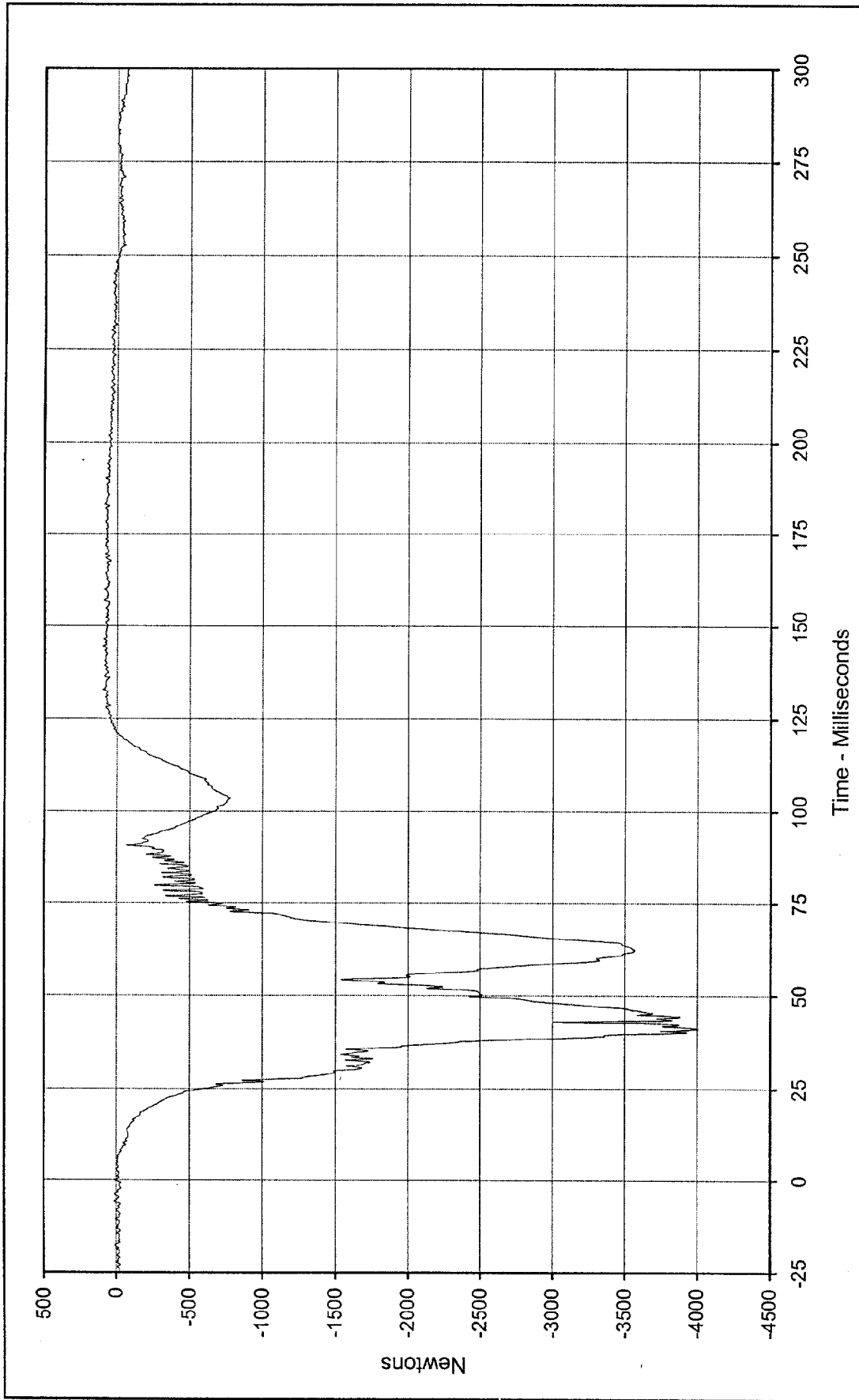
Date of Test: 2/12/98

Curve Number: FIL-032

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Driver Right Lower Tibia Force Z

Maximum Value: 97.0 at 132.7 Milliseconds

Minimum Value: -4006.4 at 41.1 Milliseconds

SAE Filter Class: 600

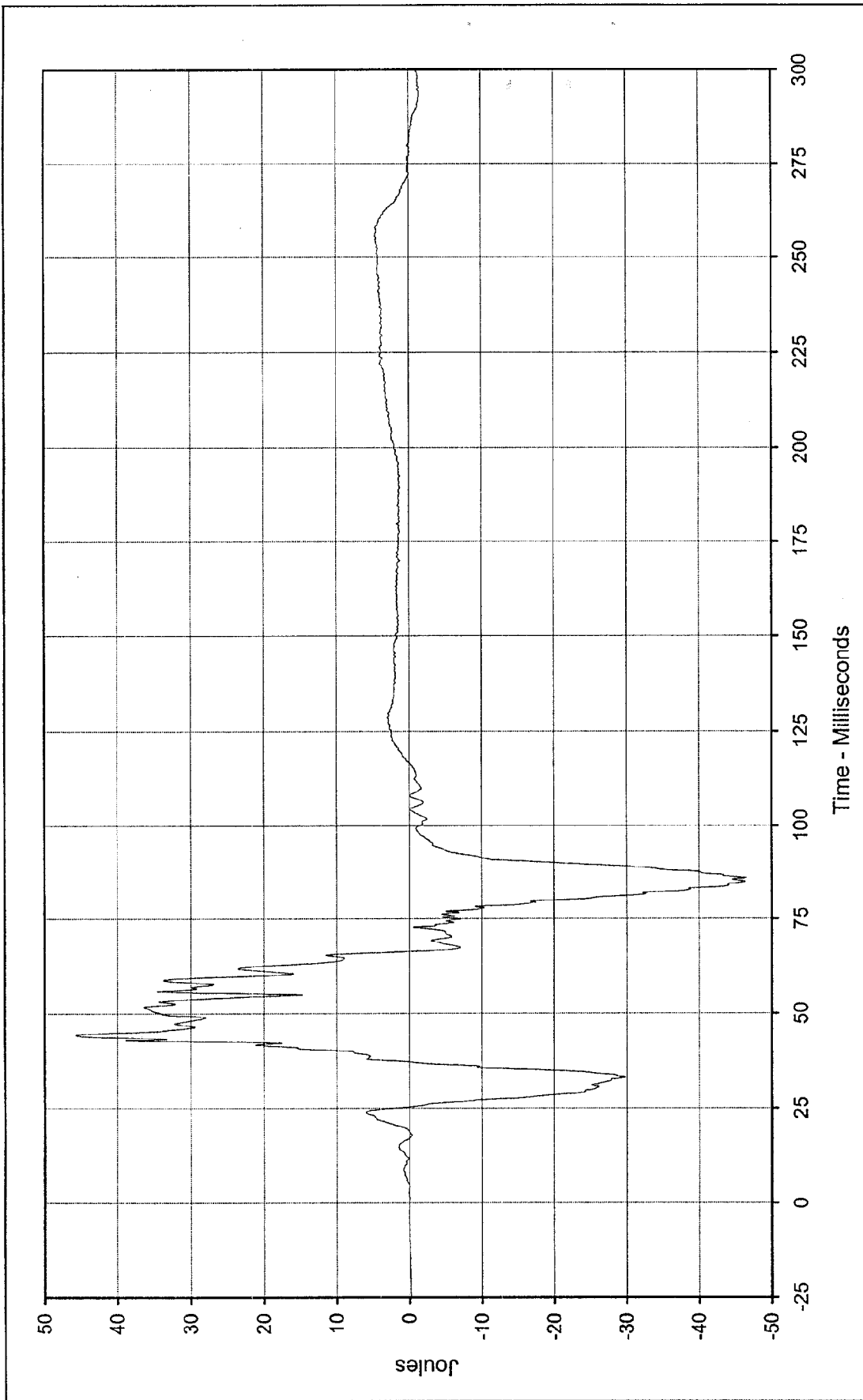
Date of Test: 2/12/98

Curve Number: FIL-033

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

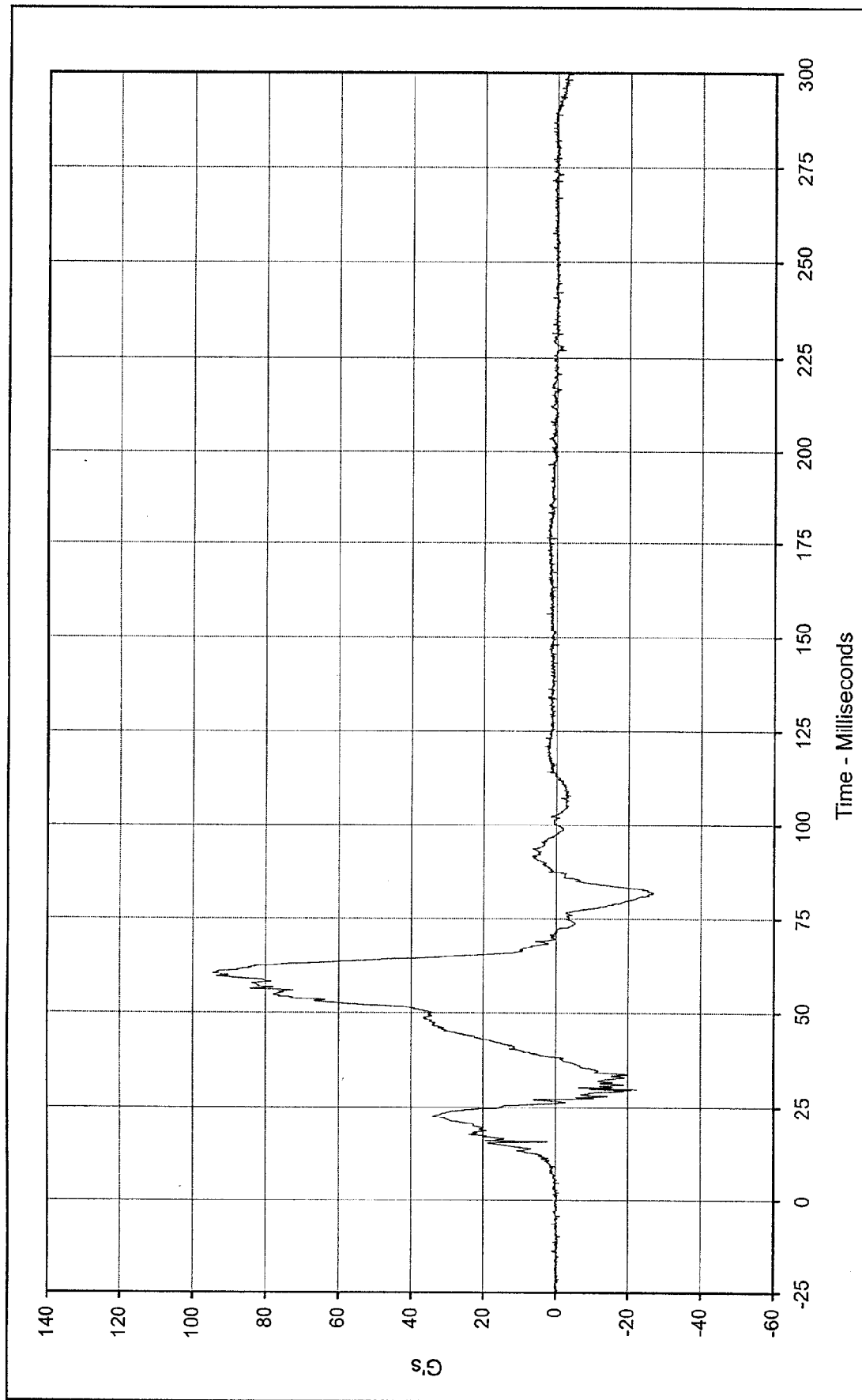




Curve Description: Driver Right Lower Tibia Moment Y
 Maximum Value: 45.7 at 44.4 Milliseconds
 Minimum Value: -46.5 at 85.8 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-034

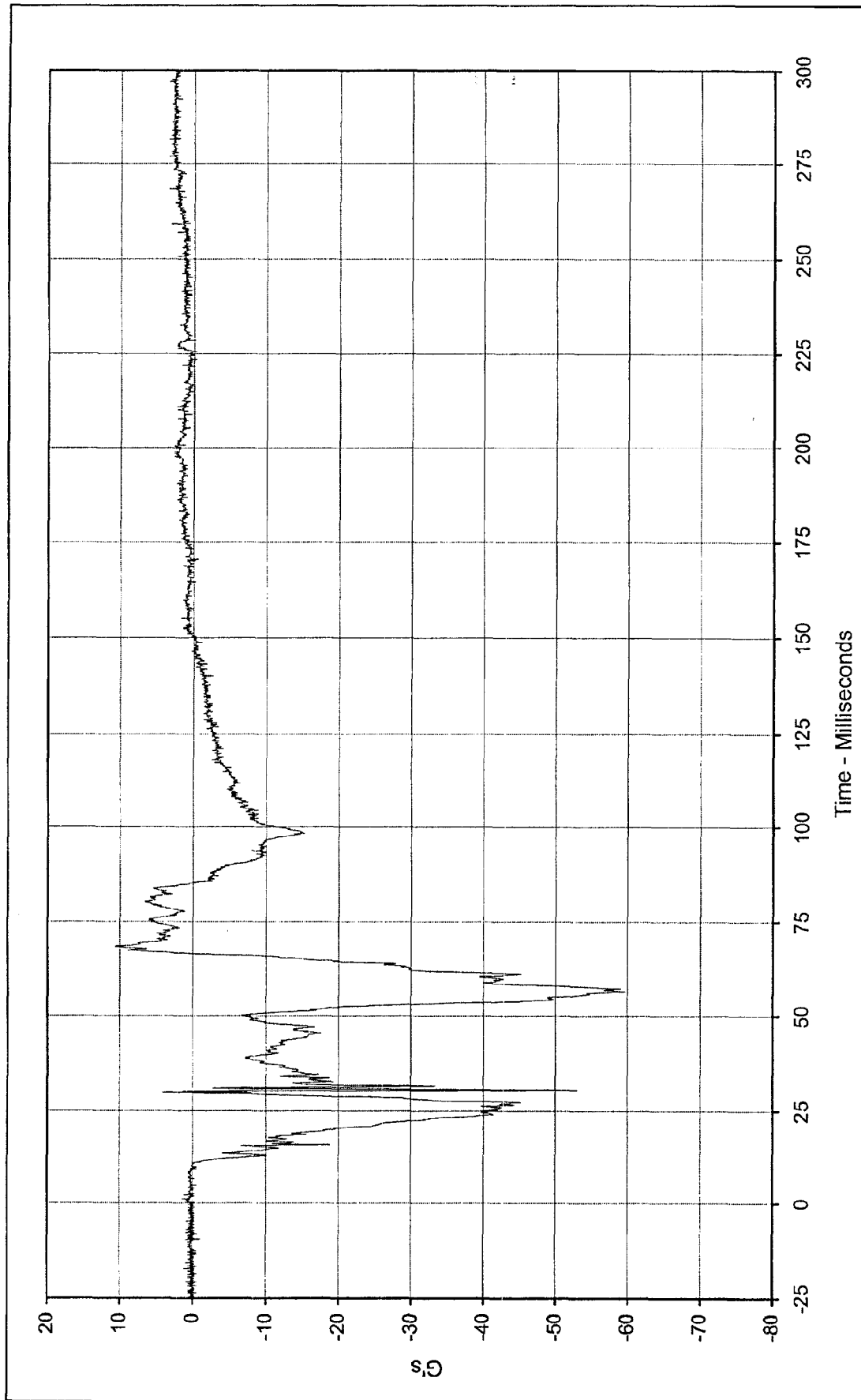
Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Driver Left Foot Aft X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	94.6	at	60.3	Milliseconds
Minimum Value:	-26.8	at	81.7	Milliseconds
SAE Filter Class:	1000	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Date of Test:	2/12/98			
Curve Number:	FIL-035			

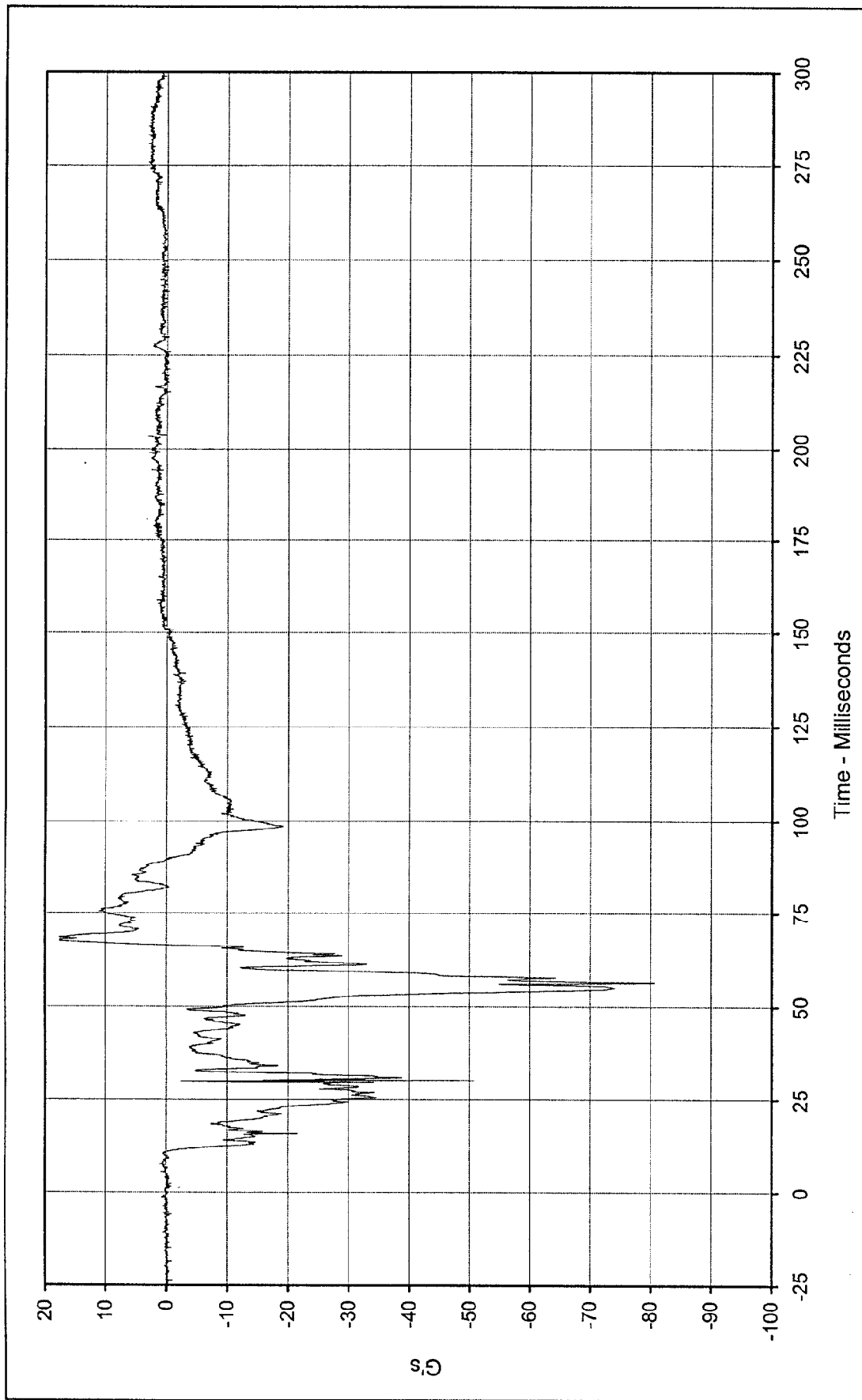




Curve Description: Driver Left Foot Aft Z
 Maximum Value: 10.6 at 68.3 Milliseconds
 Minimum Value: -59.6 at 56.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-036

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Driver Left Foot Fore Z

Maximum Value: 17.5 at 67.3 milliseconds

Minimum Value: -80.6 at 56.4 milliseconds

SAE Filter Class: 1000

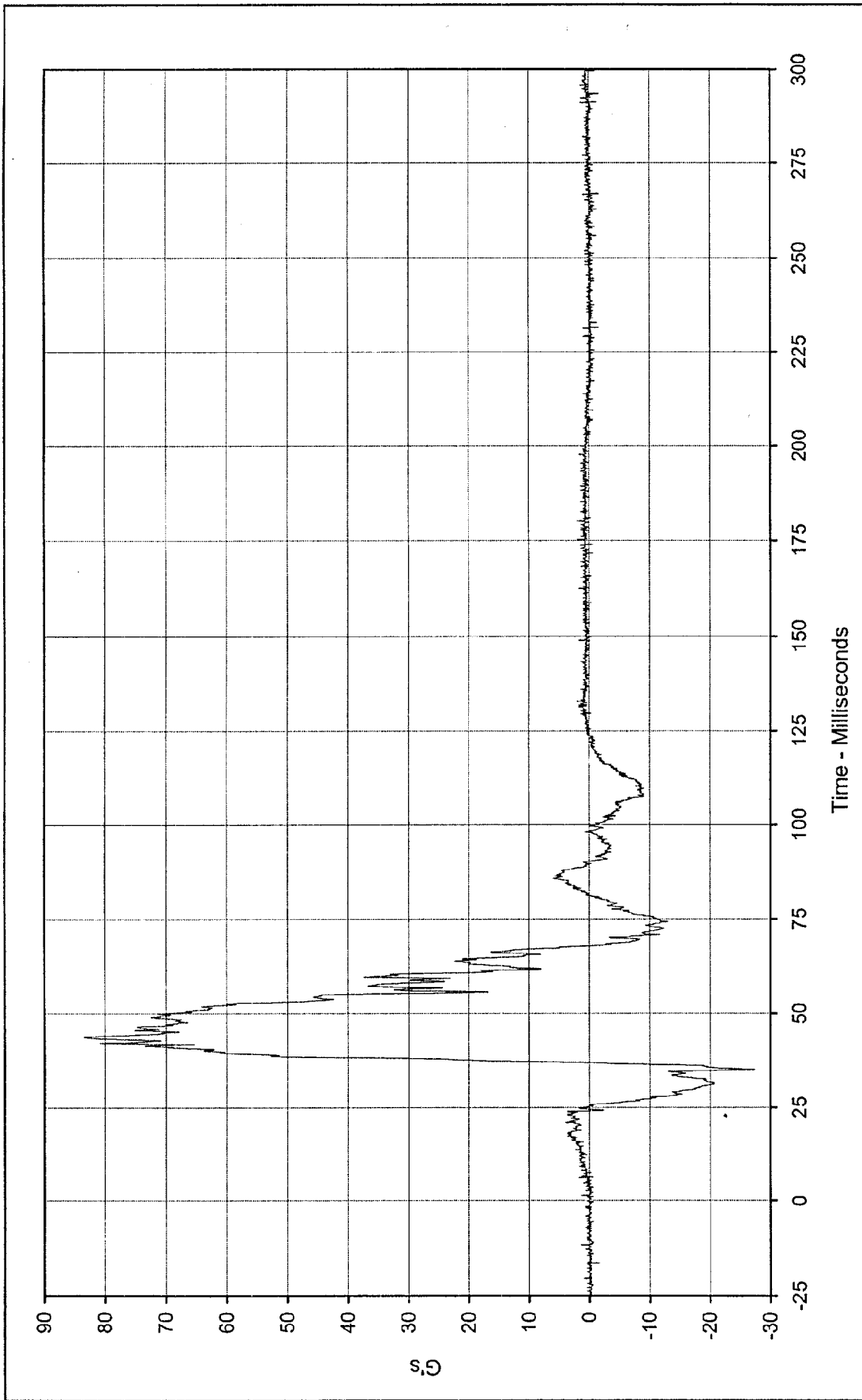
Date of Test: 2/12/98

Curve Number: FIL-037

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

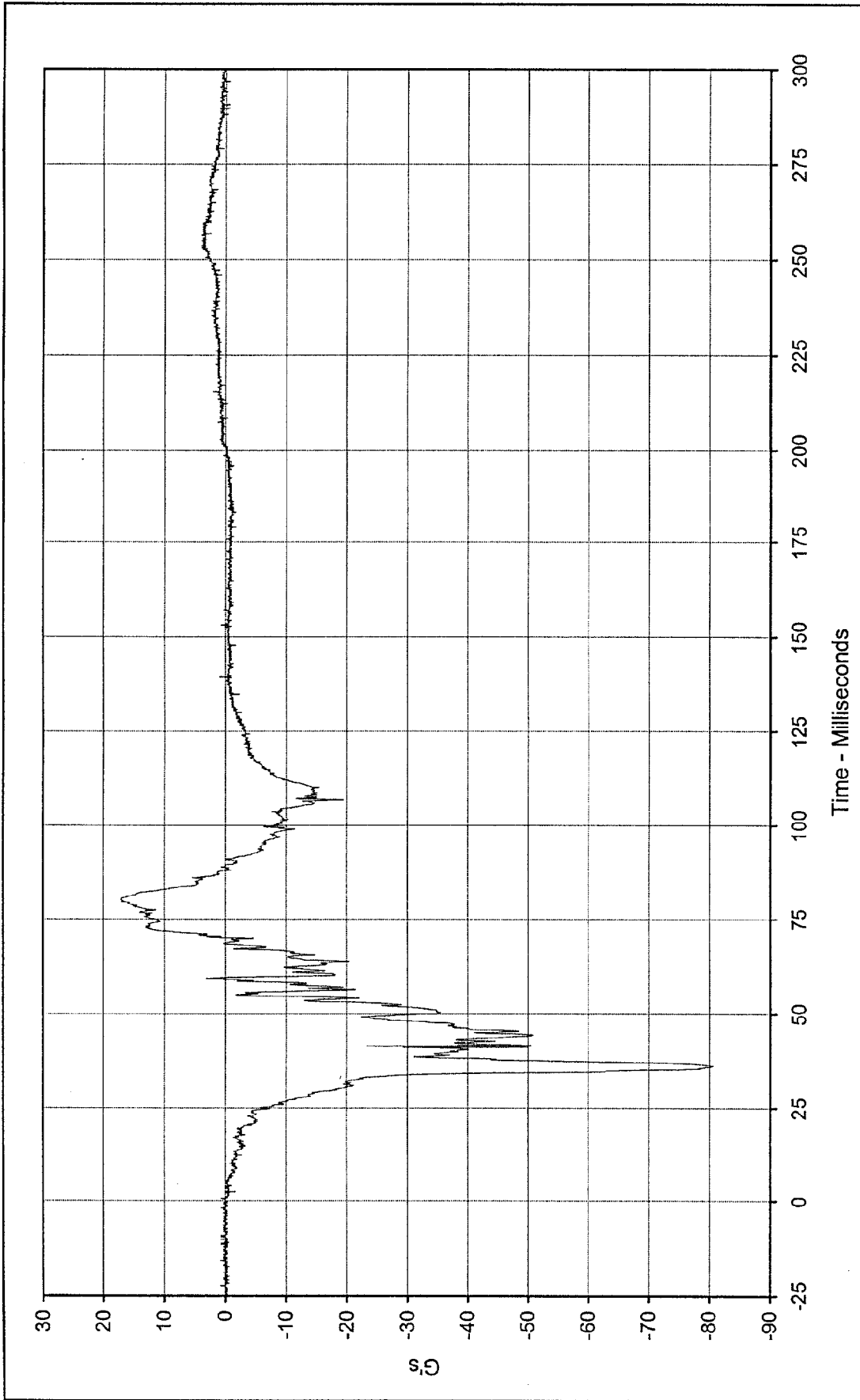




Curve Description: Driver Right Foot Aft X
 Maximum Value: 83.5 at 43.4 Milliseconds
 Minimum Value: -27.4 at 34.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-038

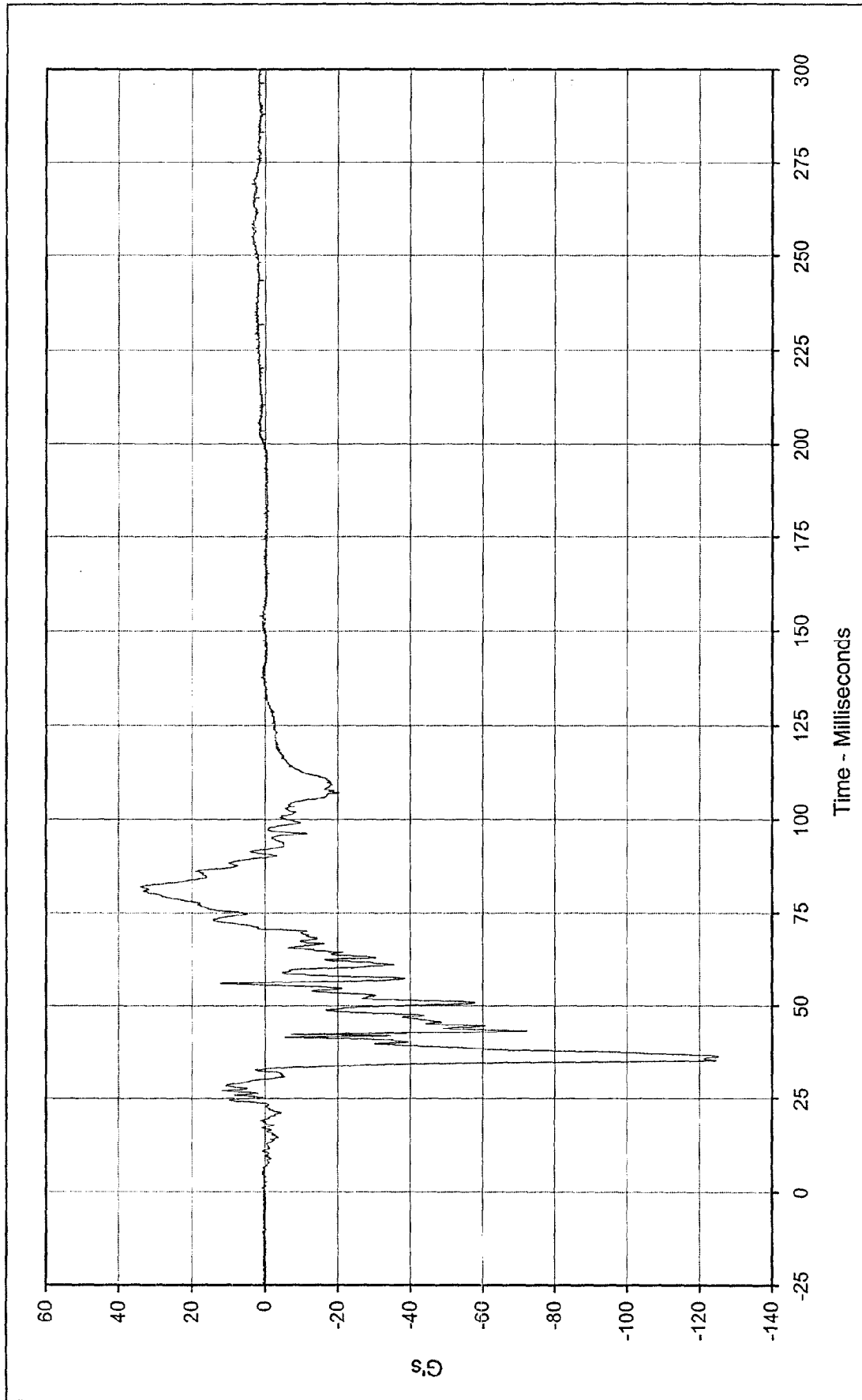
Testing Program: 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





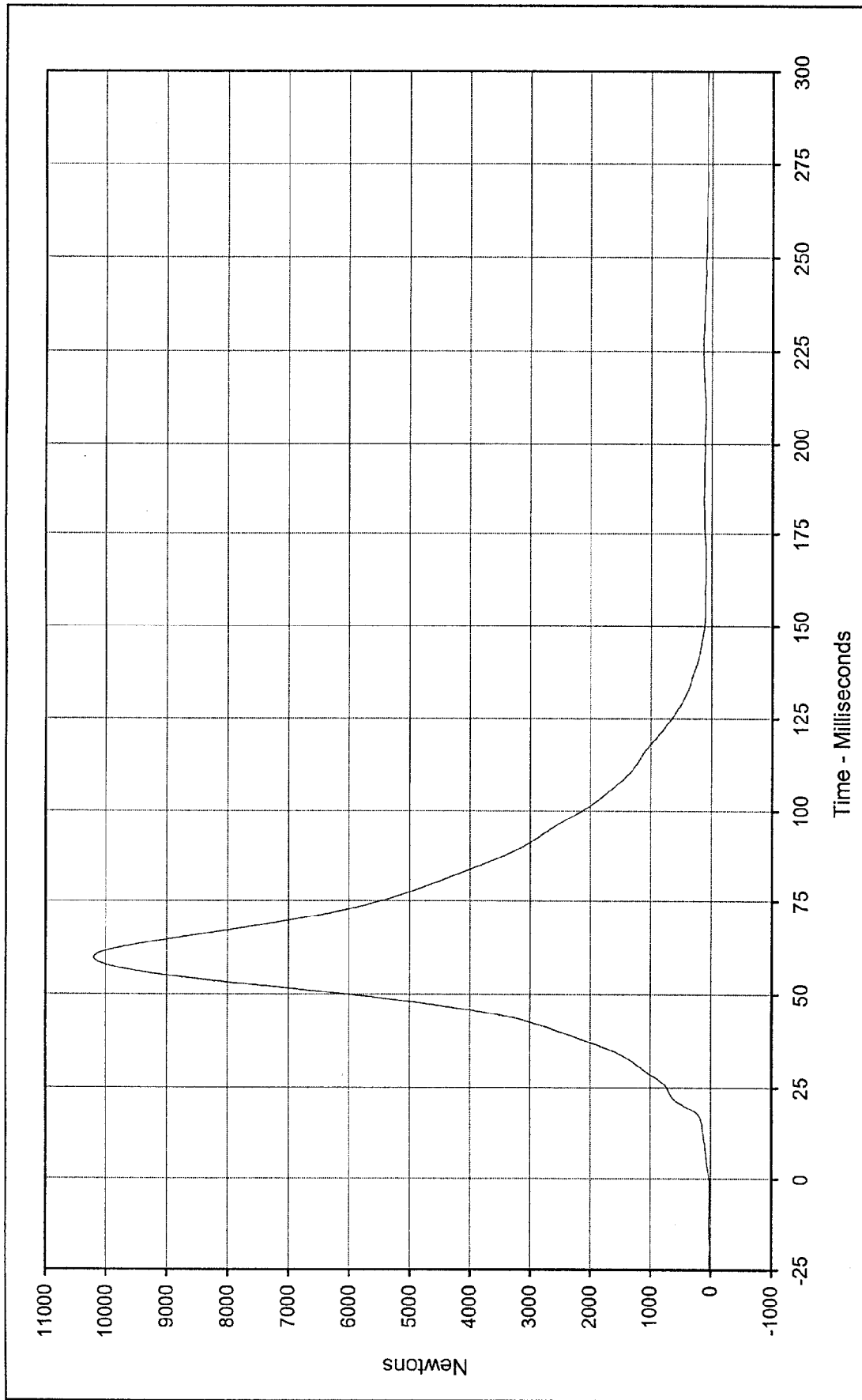
Curve Description:	Driver Right Foot Aft Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	17.1 at 79.6 Milliseconds	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-80.6 at 36.1 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/12/98			
Curve Number:	FIL-039			





Curve Description:	Driver Right Foot Fore Z			Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	34.1	at	82.0	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-125.4	at	36.3			
SAE Filter Class:	1000					
Date of Test:	2/12/98					
Curve Number:	FIL-040					

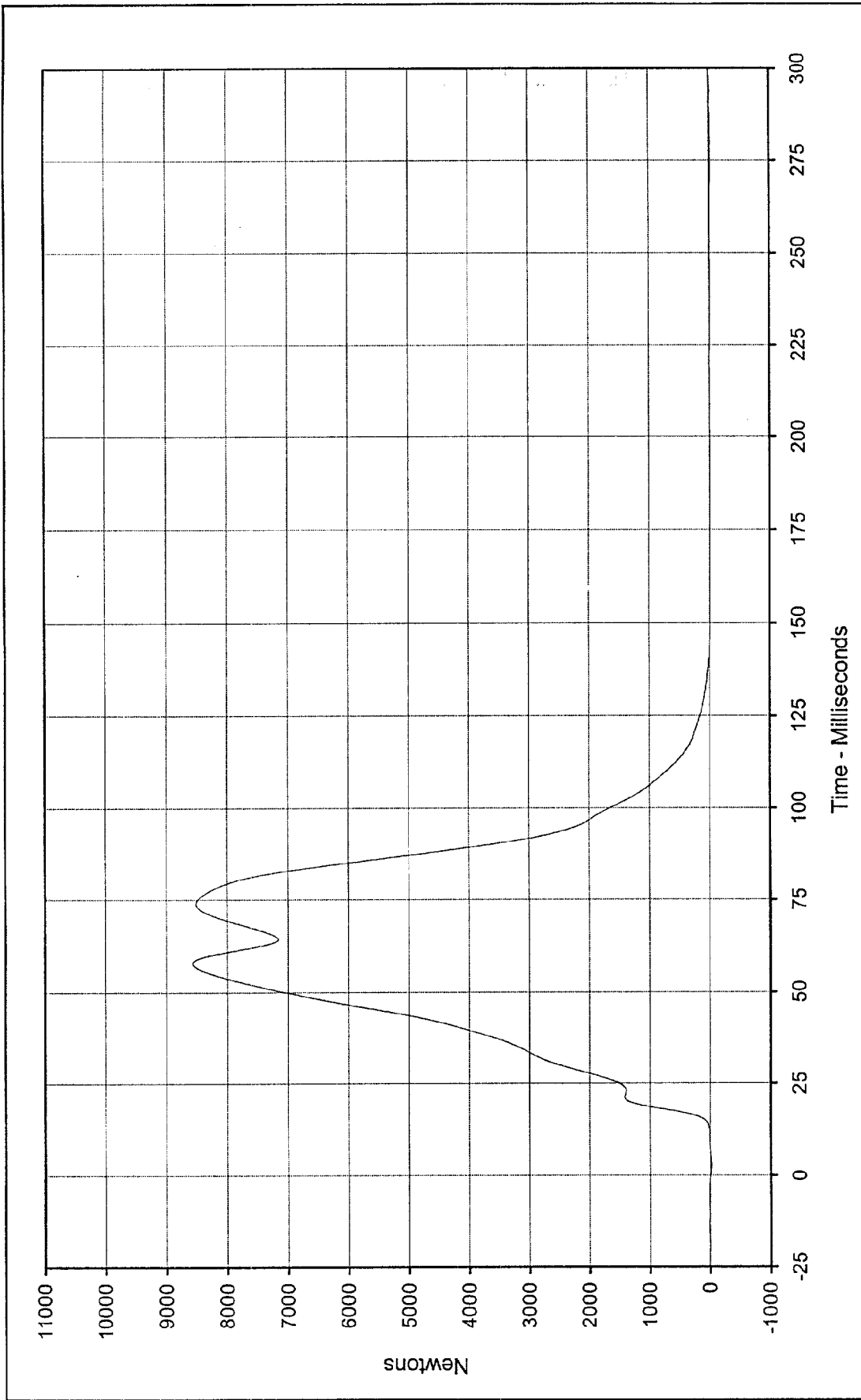




Curve Description:		Driver Lap Belt Force	
Maximum Value:	10202.0	at	59.8
Minimum Value:	21.6	at	0.0
SAE Filter Class:	60		
Date of Test:	2/12/98		
Curve Number:	FIL-041		

Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Test Vehicle:	1998 Lexus ES300 4 Door Sedan	

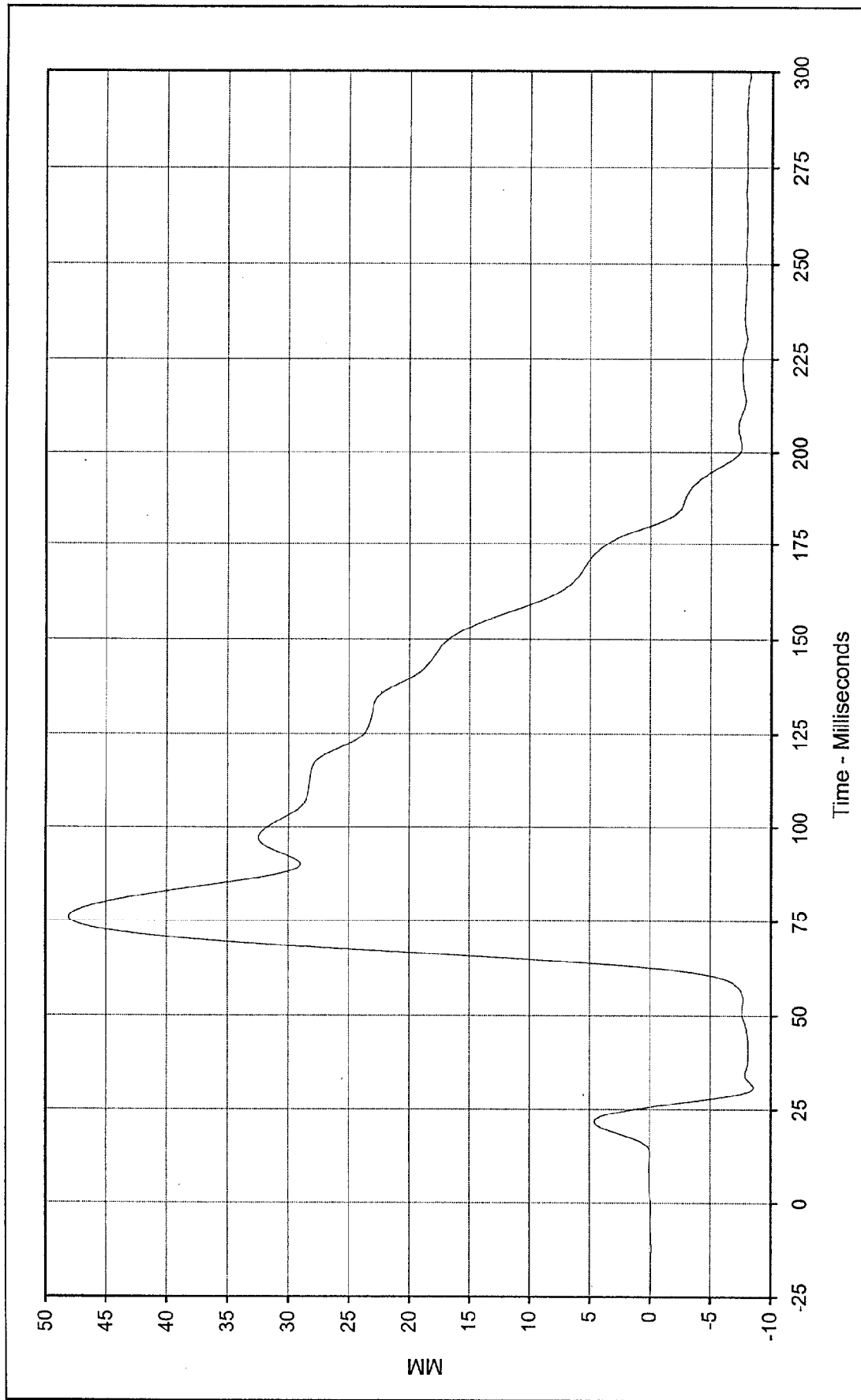




Curve Description: Driver Shoulder Belt Force
 Maximum Value: 8564.4 at 57.8 Milliseconds
 Minimum Value: -28.0 at 195.0 Milliseconds
 SAE Filler Class: 60
 Date of Test: 2/12/98
 Curve Number: FIL-042

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Driver Shoulder Belt Pullout * Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 48.1 at 75.9 Milliseconds

Minimum Value: -8.6 at 30.9 Milliseconds

SAE Filter Class: 60

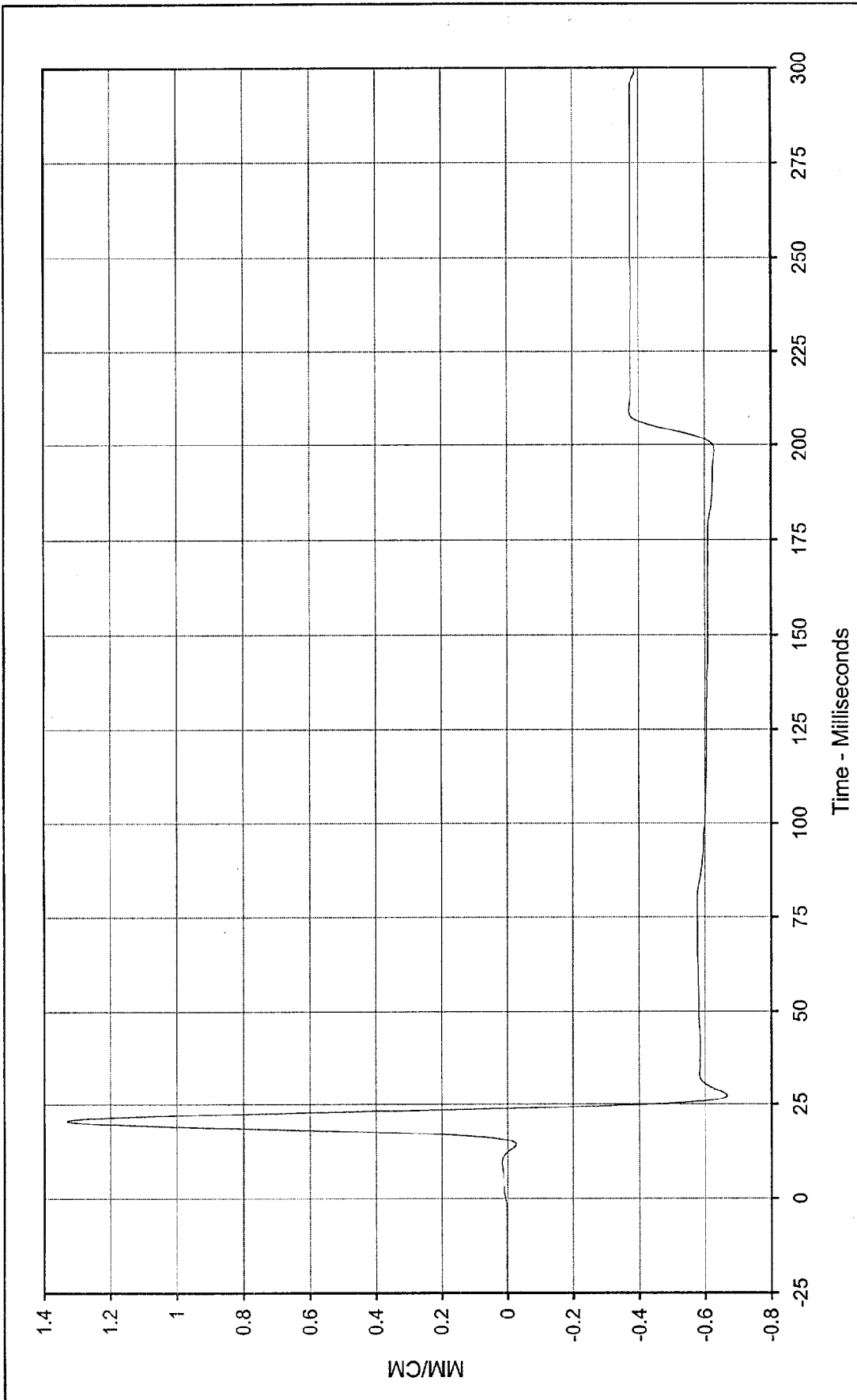
Date of Test: 2/12/98

Curve Number: FIL-043

Test Vehicle: 1998 Lexus ES300 4 Door Sedan



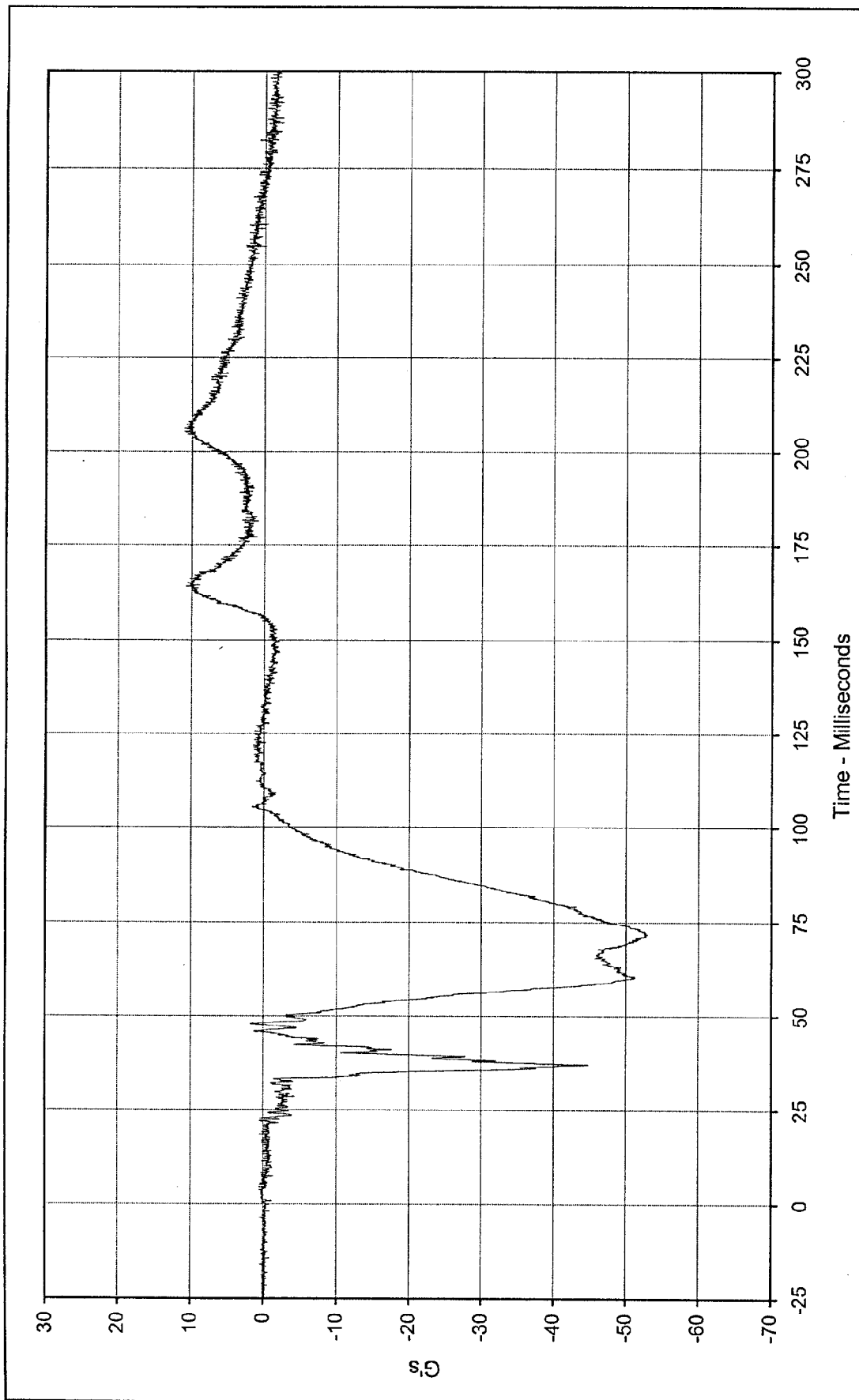
* Questionable, Belt Pre-Tensioner Interaction



Curve Description:	Driver Shoulder Belt Elongation	*	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	1.33	at 20.6	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-0.67	at 27.2			
SAE Filter Class:	60				
Date of Test:	2/12/98				
Curve Number:	FIL-044				



* Questionable, Belt Pre-Tensioner Interaction



Curve Description: Passenger Head Primary X

Maximum Value: 11.0 at 206.3 Milliseconds

Minimum Value: -53.0 at 71.6 Milliseconds

SAE Filter Class: 1000

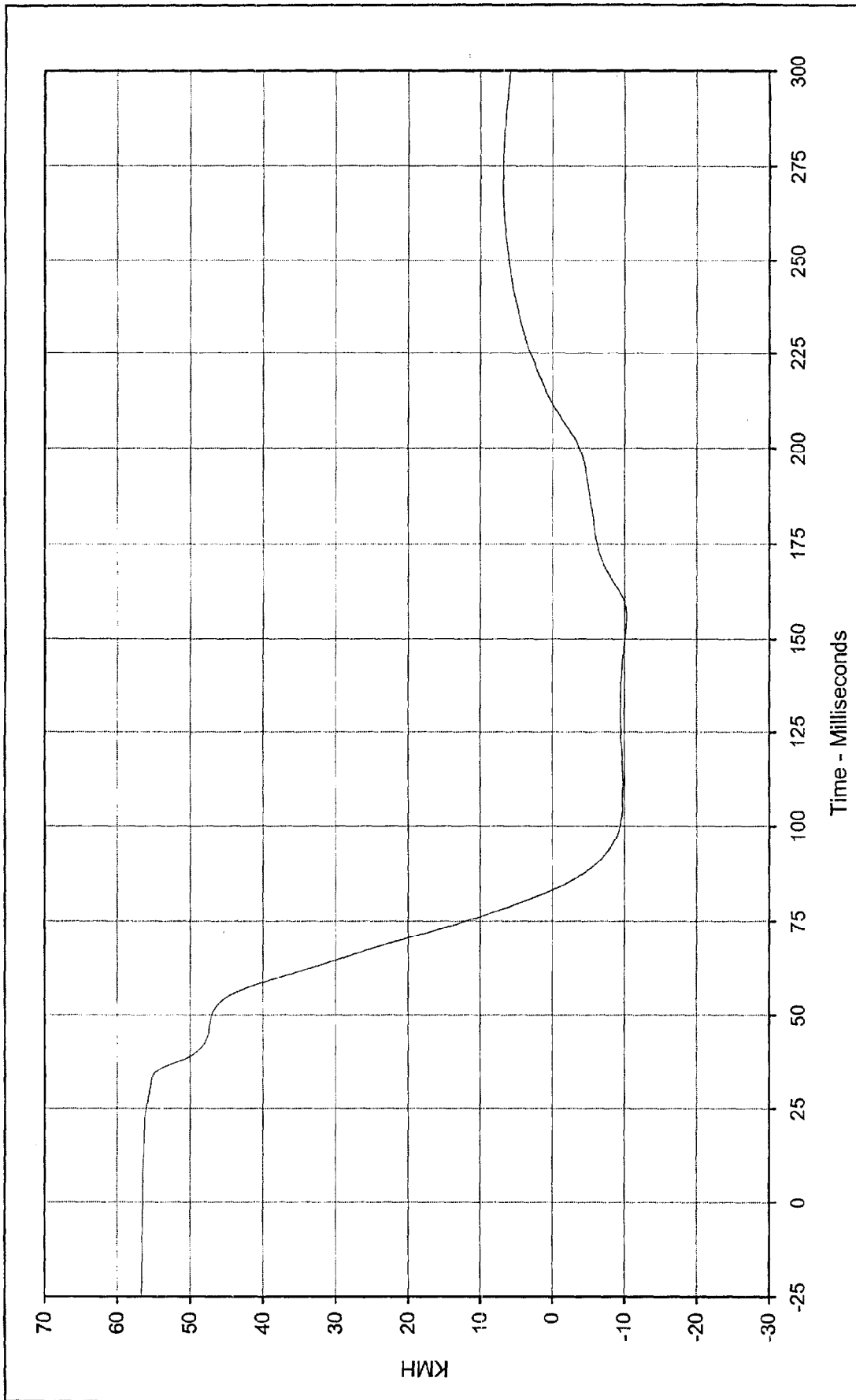
Date of Test: 2/12/98

Curve Number: FIL-045

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

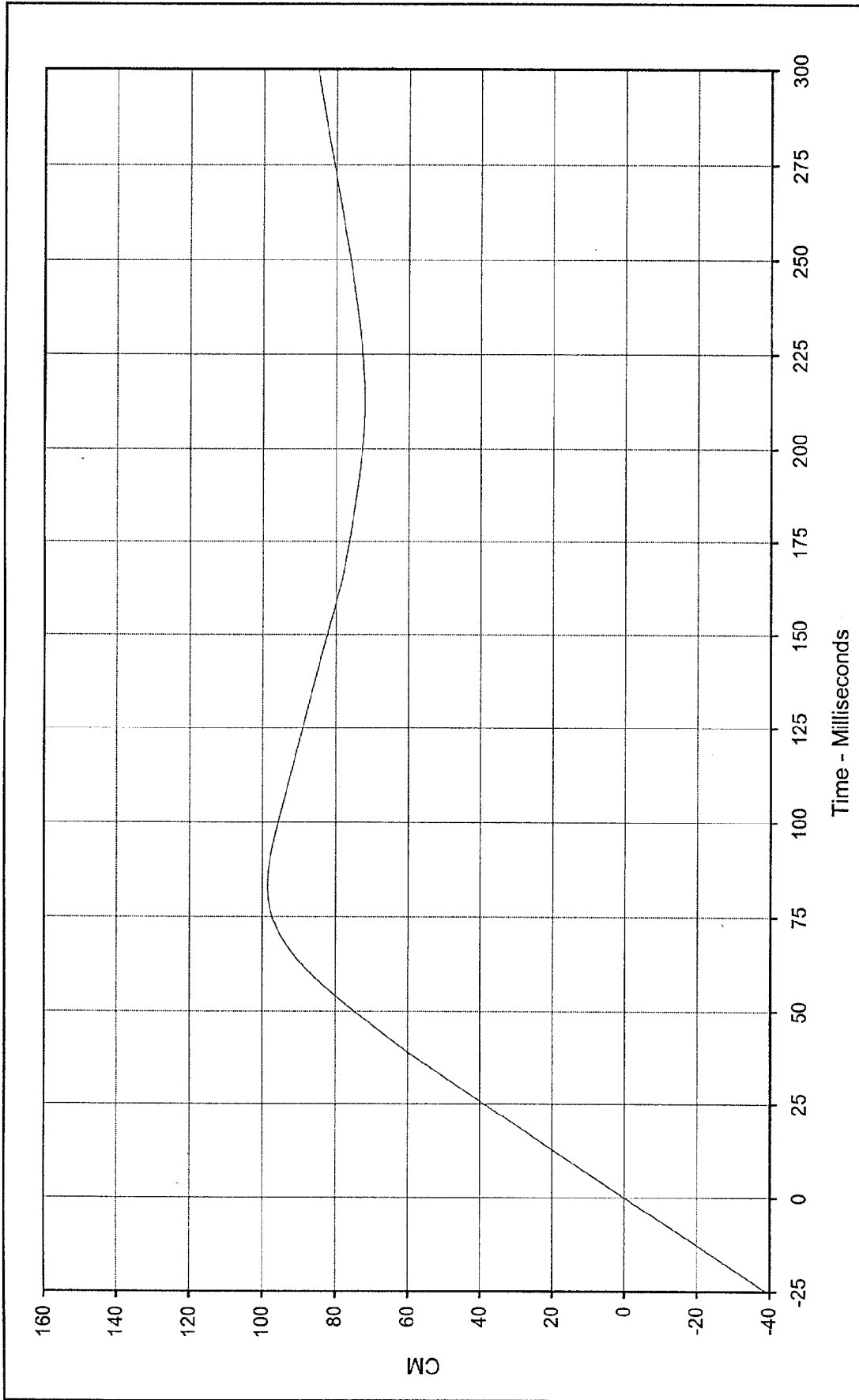




Curve Description: Passenger Head Primary X Velocity
 Maximum Value: 56.5 at 4.3 Milliseconds
 Minimum Value: -10.3 at 156.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-045

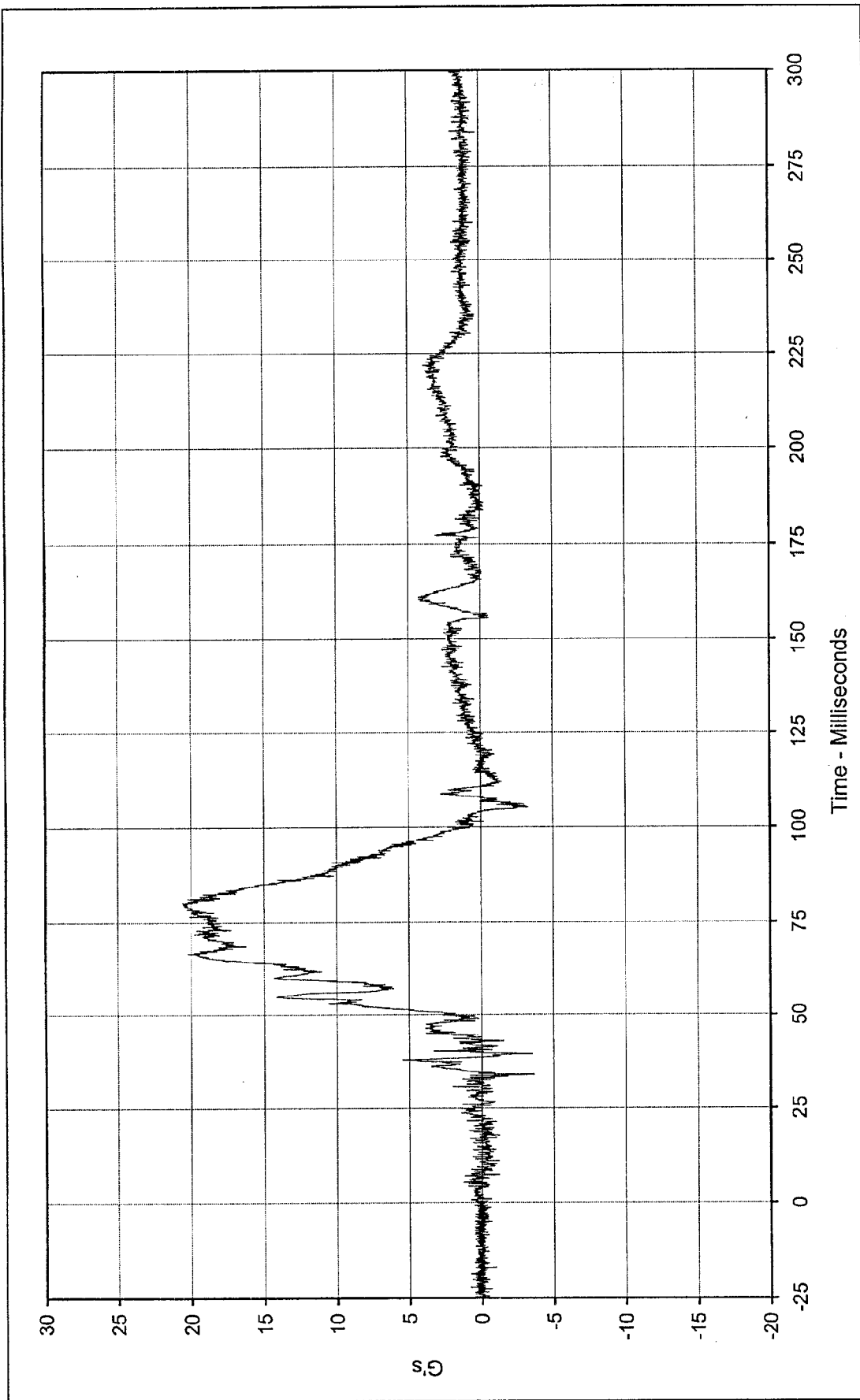
Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Passenger Head Primary X Displ.	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	98.6	at	83.2	Milliseconds
Minimum Value:	0.0	at	0.0	Milliseconds
SAE Filter Class:	180	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Date of Test:	2/12/98			
Curve Number:	IN2-045			

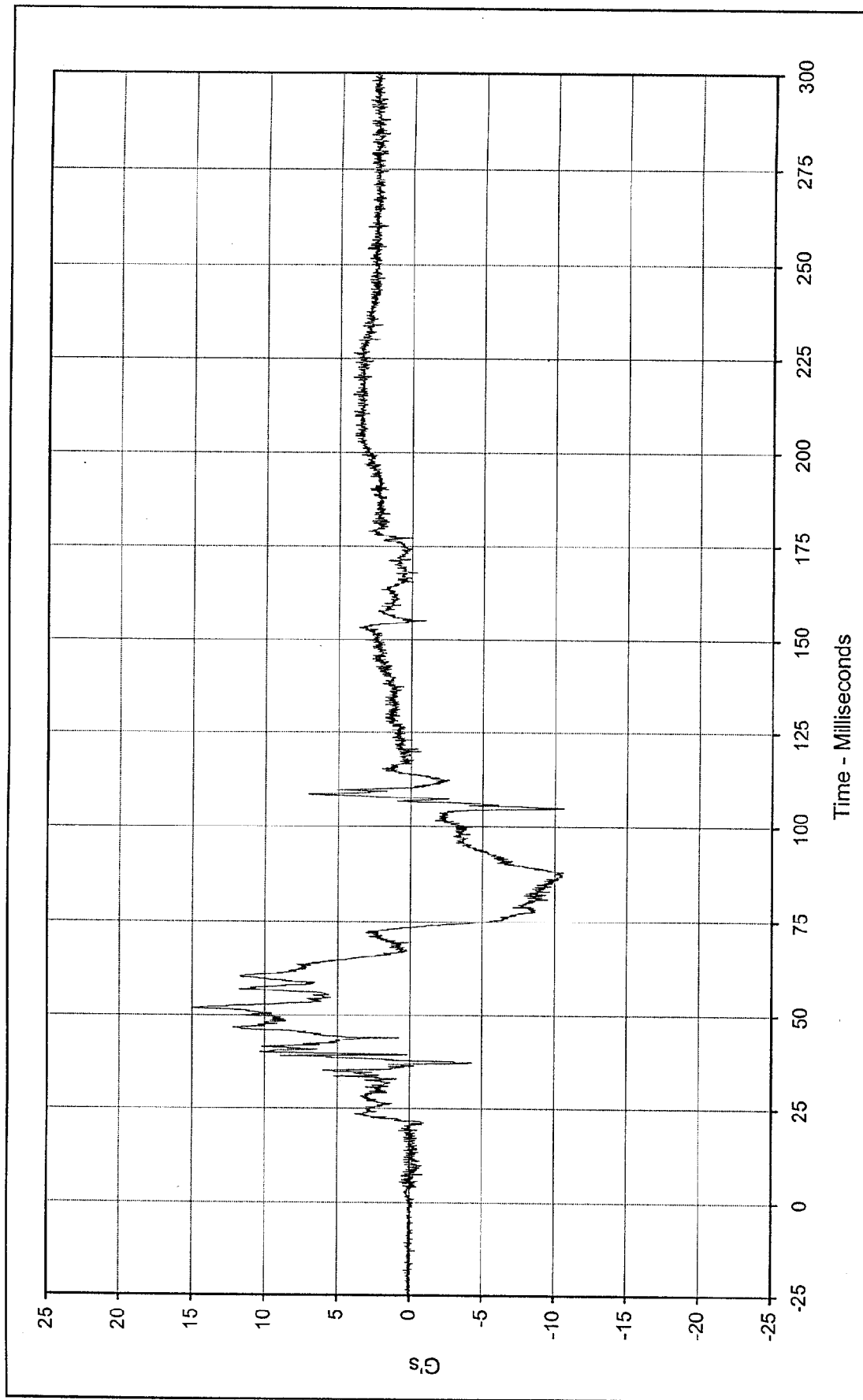




Curve Description: Passenger Head Primary Y Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Maximum Value: 20.6 at 79.8 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan
Minimum Value: -3.6 at 33.8 Milliseconds

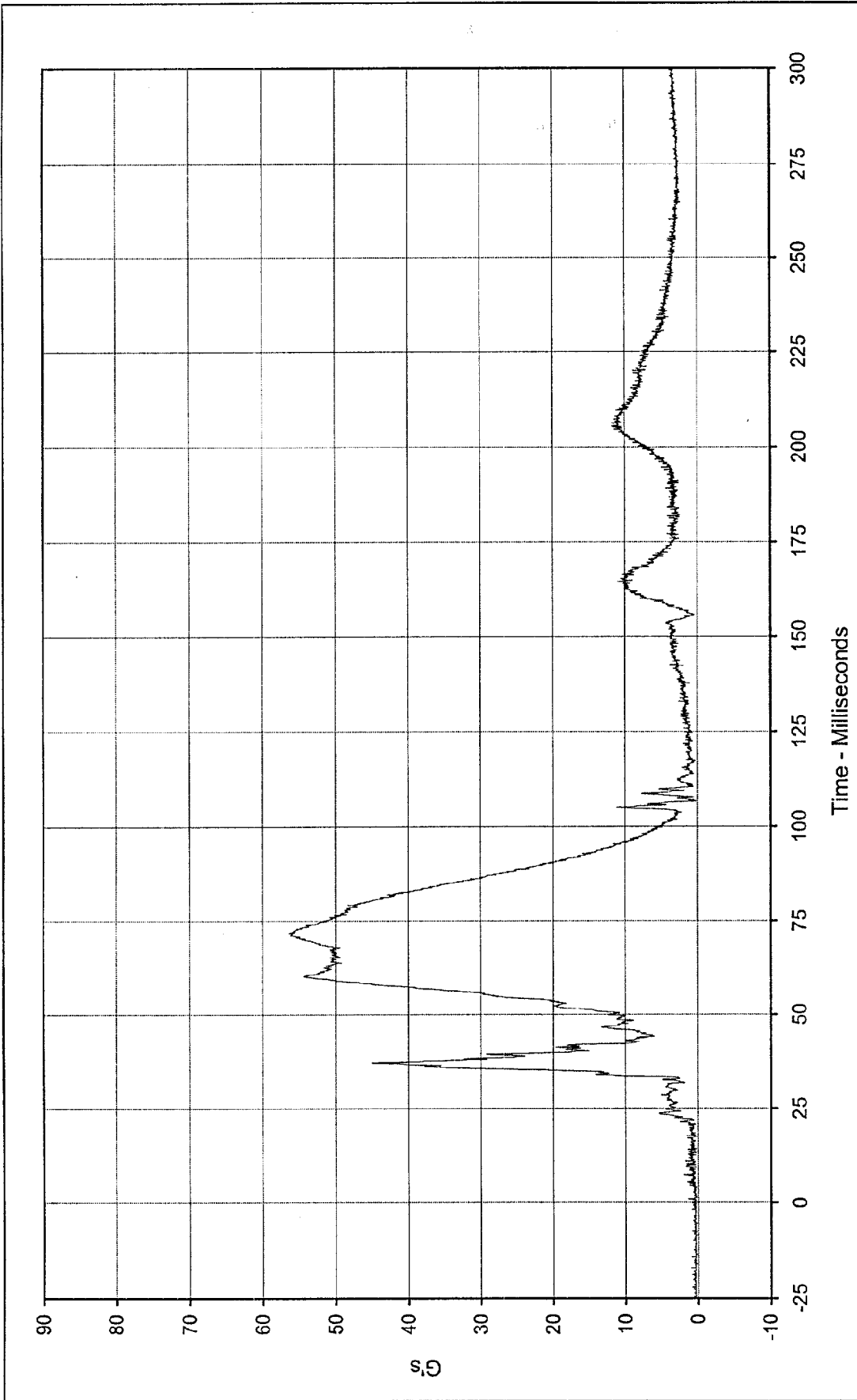
SAE Filter Class: 1000
Date of Test: 2/12/98
Curve Number: FIL-046





Curve Description:	Passenger Head Primary Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	15.0	at	51.8	Milliseconds
Minimum Value:	-10.6	at	105.1	Milliseconds
SAE Filter Class:	1000			
Date of Test:	2/12/98	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Curve Number:	FIL-047			

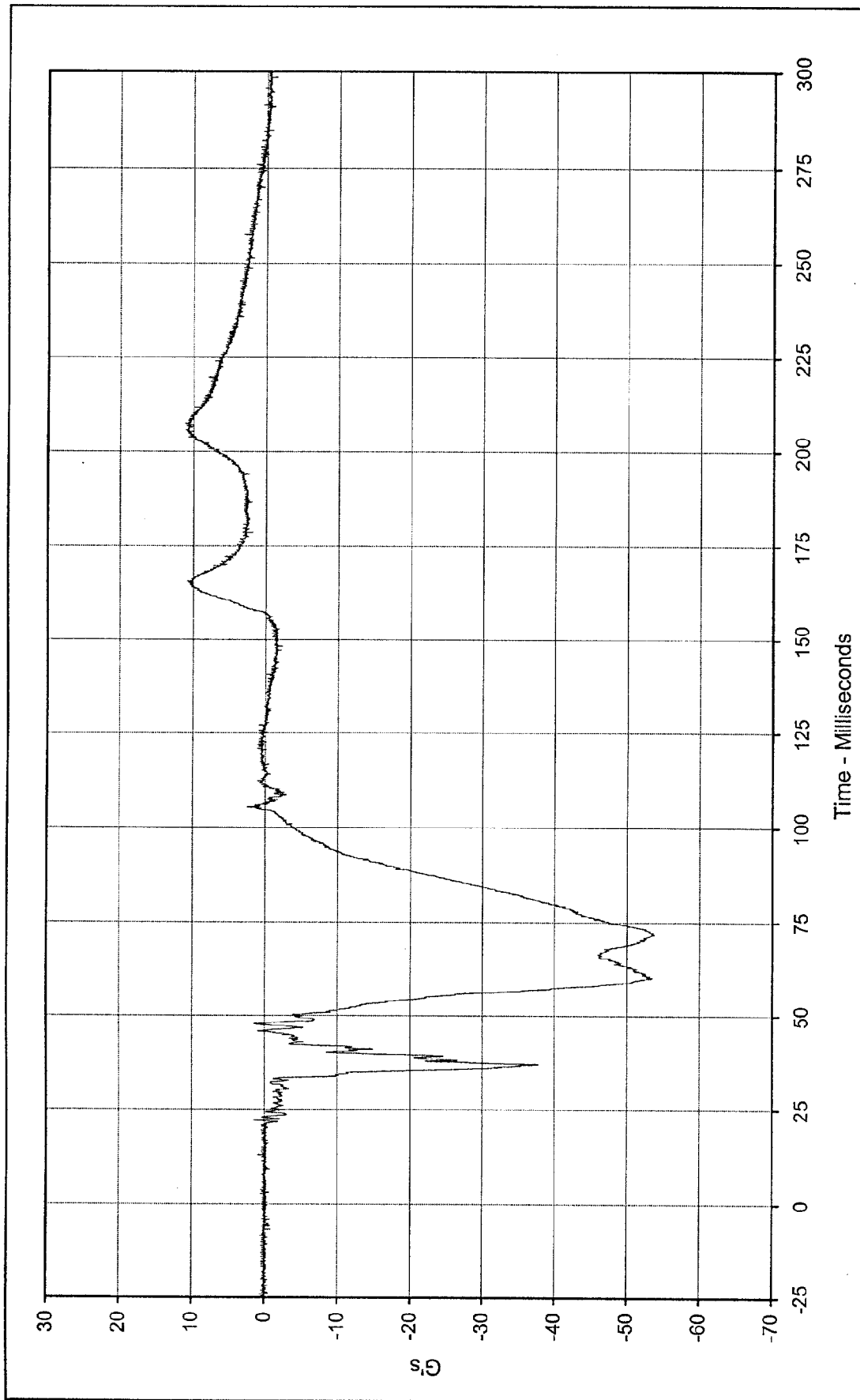




Curve Description: Passenger Head Resultant Primary
 Maximum Value: 56.4 at 71.6 Milliseconds
 Minimum Value: 0.1 at 14.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: RES-045

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Head Redundant X

Maximum Value: 11.2 at 207.5 Milliseconds

Minimum Value: -53.8 at 71.6 Milliseconds

SAE Filter Class: 1000

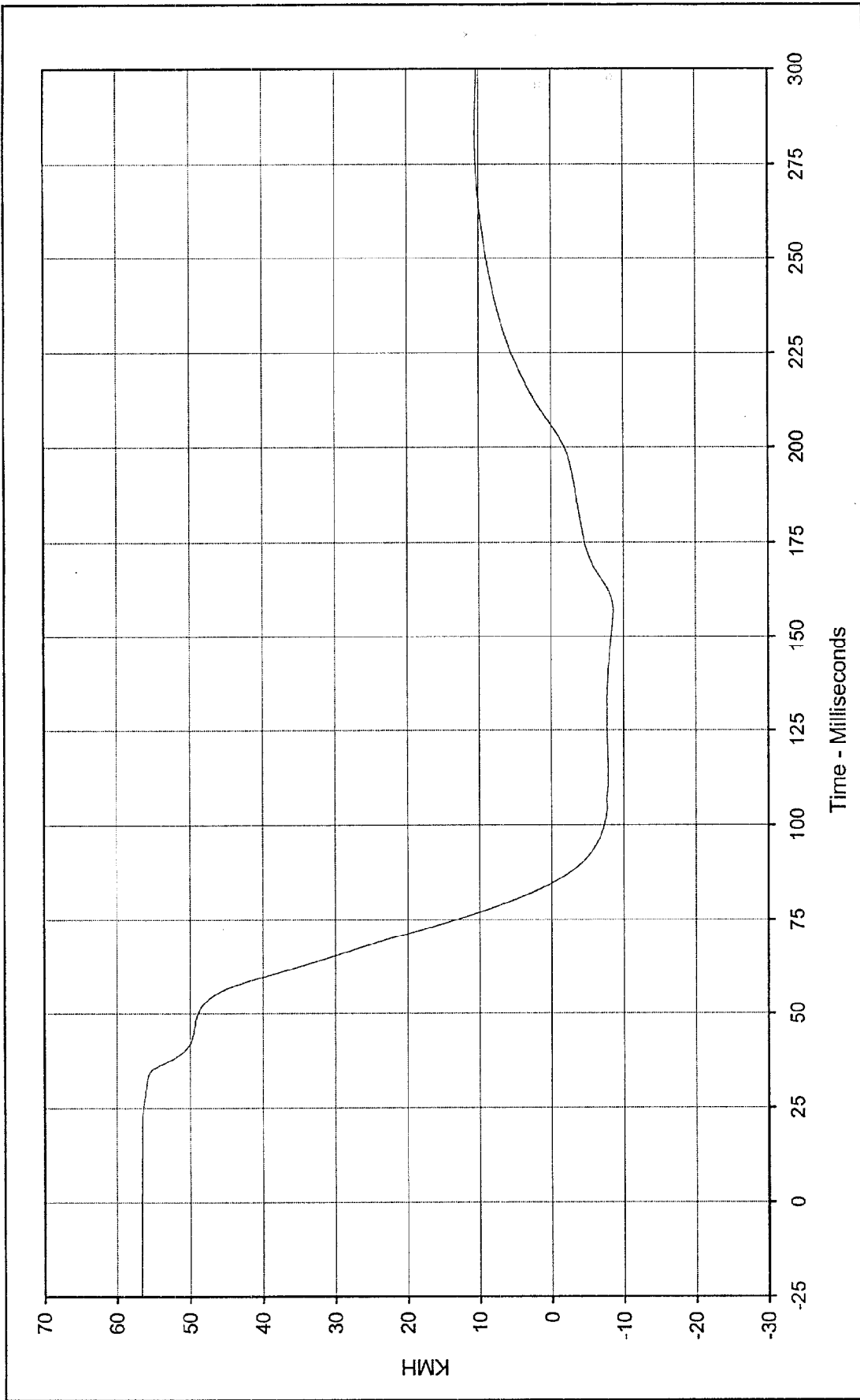
Date of Test: 2/12/98

Curve Number: FIL-048

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

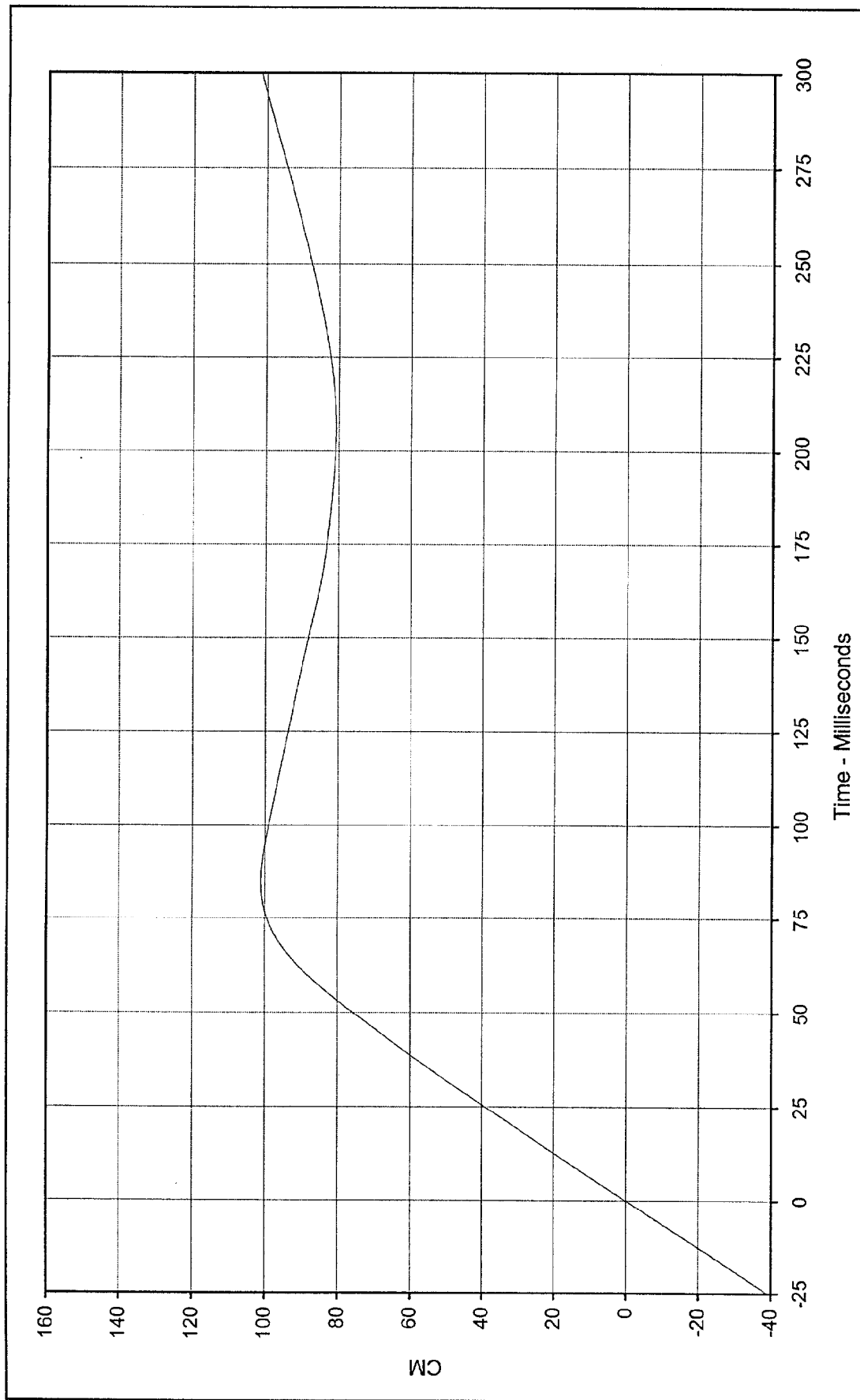




Curve Description: Passenger Head Redundant X Velocity
 Maximum Value: 56.6 at 0.0 Milliseconds
 Minimum Value: -8.6 at 157.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-048

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

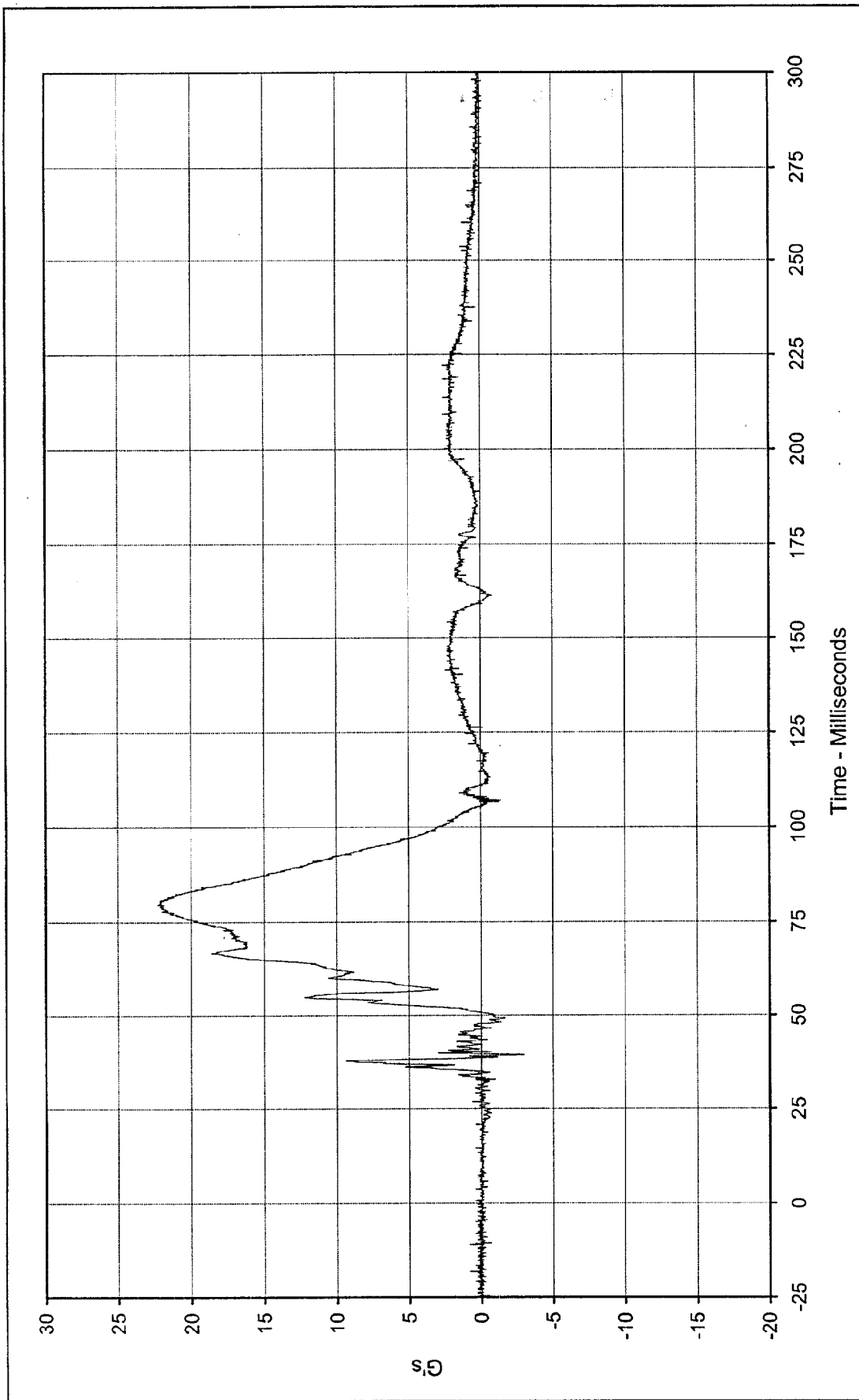




Curve Description: Passenger Head Redundant X Displ.
 Maximum Value: 101.5 at 299.9 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-048

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

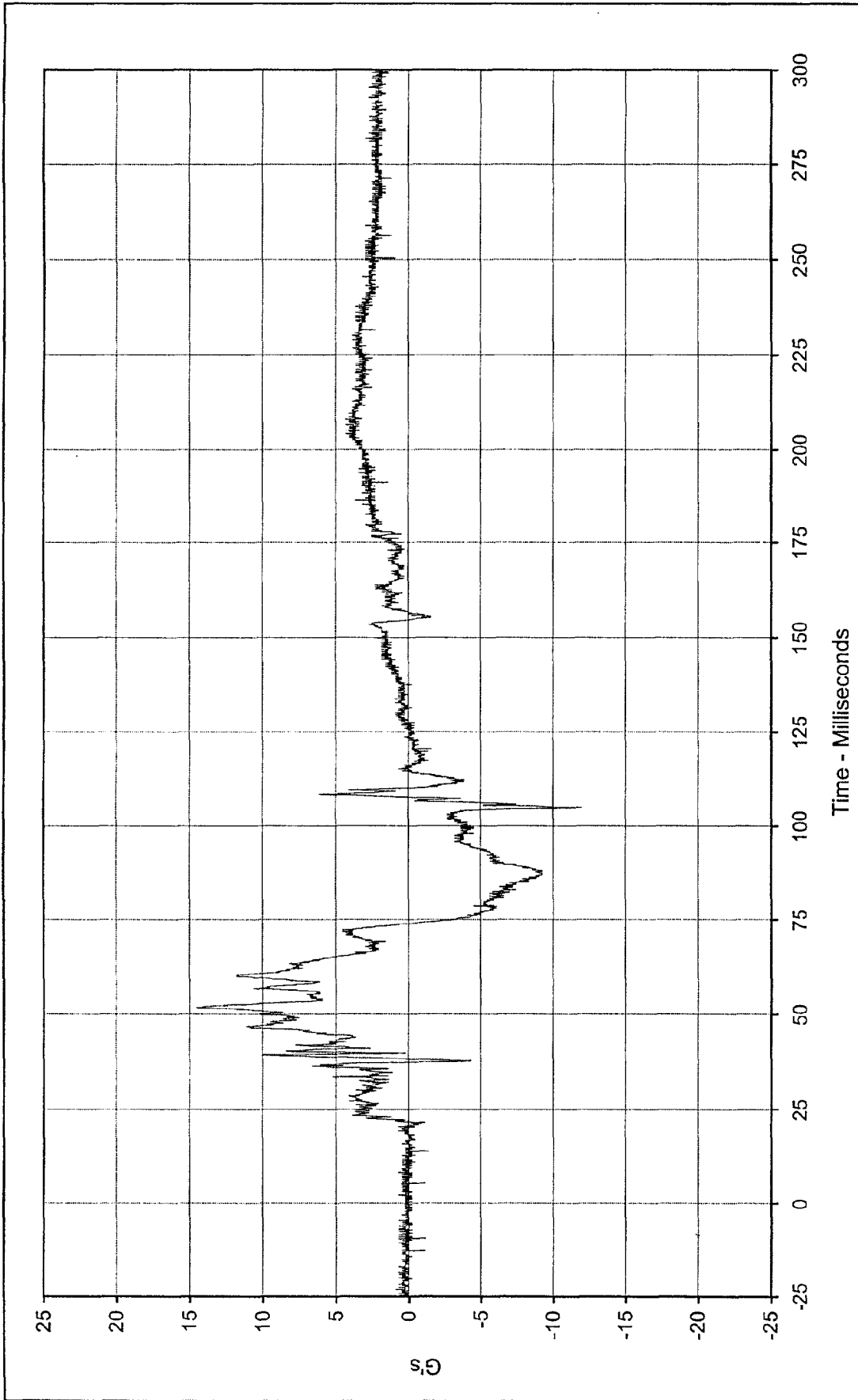




Curve Description: Passenger Head Redundant Y
 Maximum Value: 22.3 at 79.5 Milliseconds
 Minimum Value: -3.0 at 39.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-049

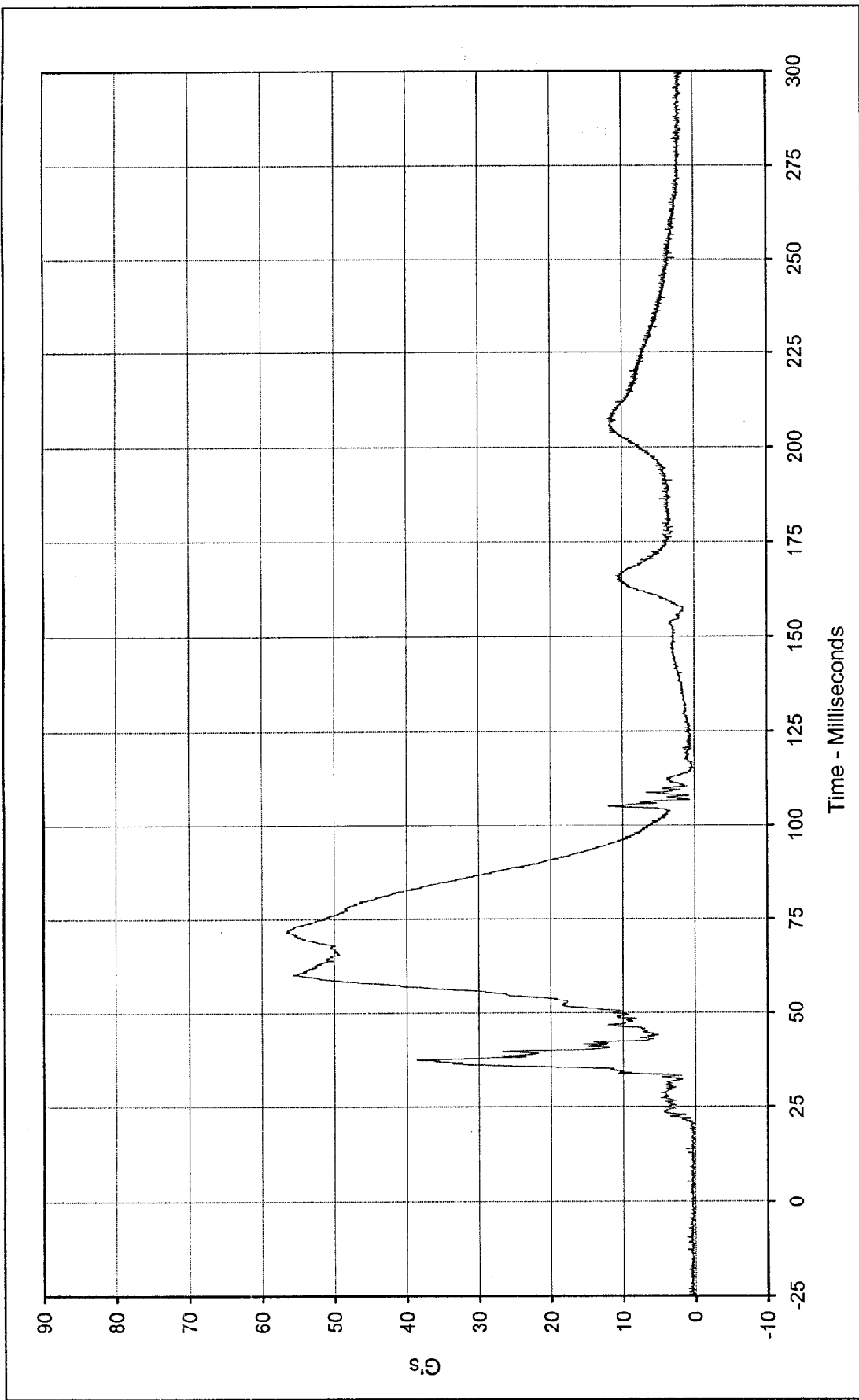
Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





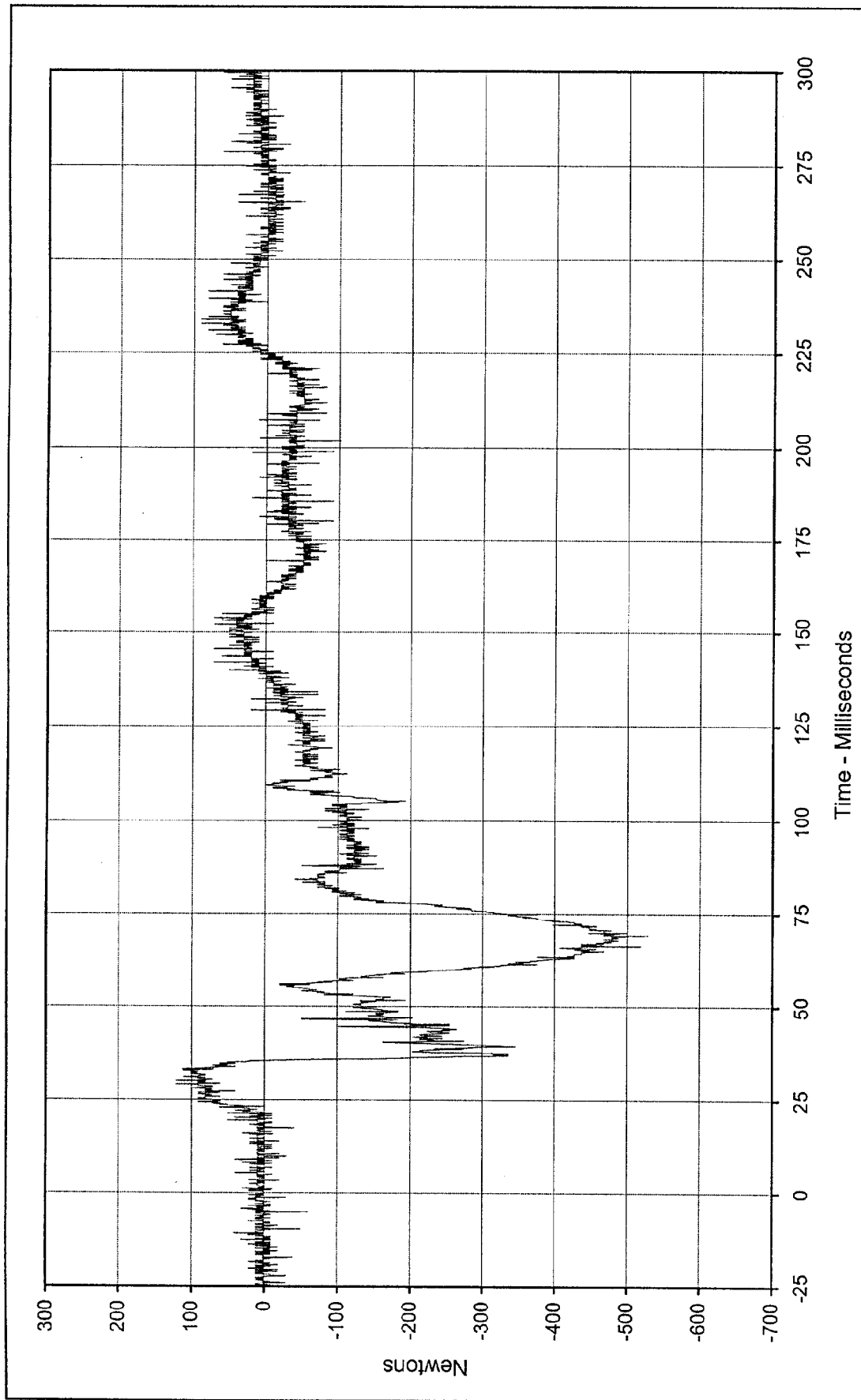
Curve Description:		Passenger Head Redundant Z		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	14.5	at	51.8	Milliseconds	Test Vehicle:	1998 Lexus ES300 4 Door Sedan
Minimum Value:	-12.0	at	105.1	Milliseconds		
SAE Filter Class:	1000					
Date of Test:	2/12/98					
Curve Number:	FIL-050					





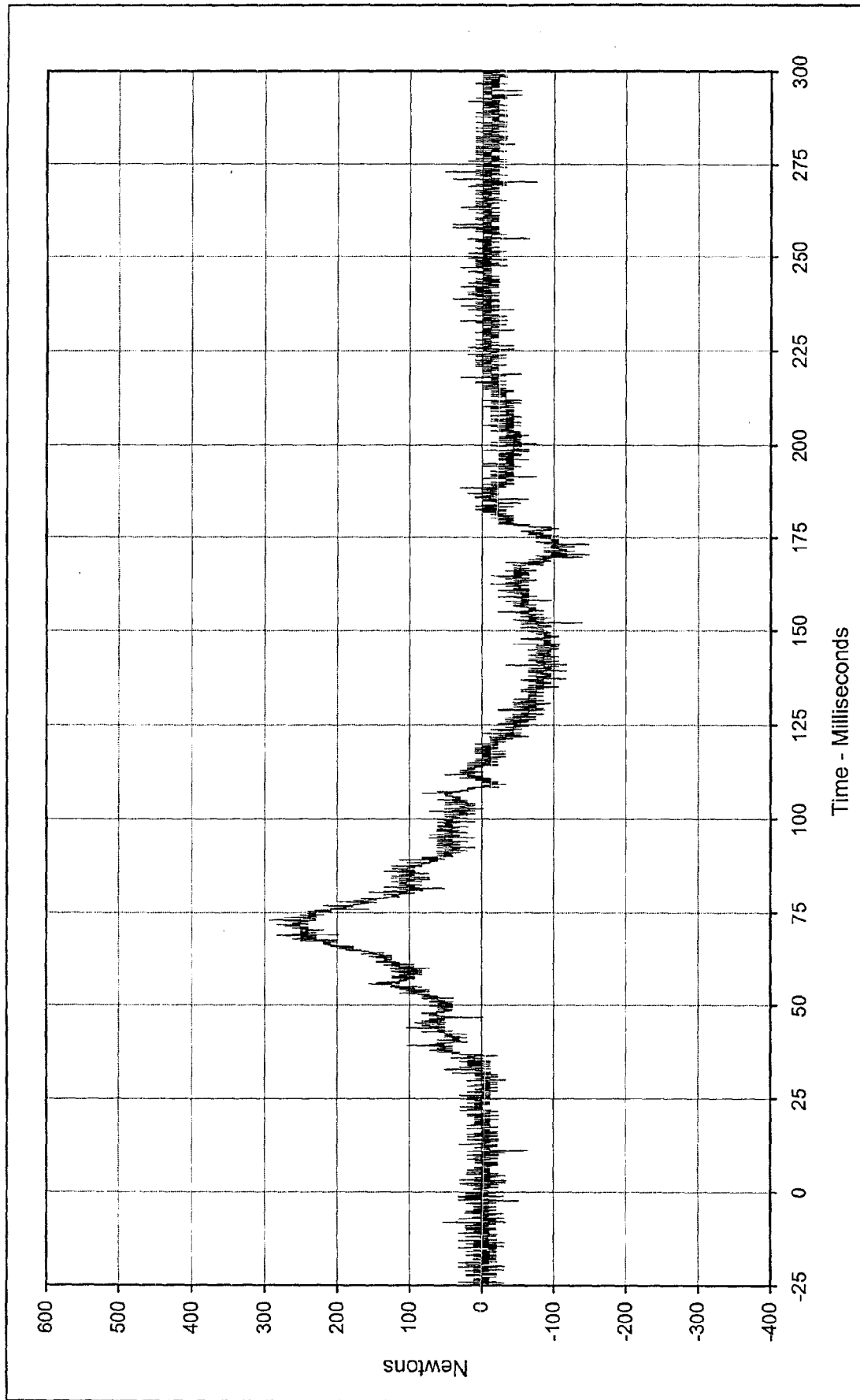
Curve Description: Passenger Head Resultant Redundant		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	56.6	at	71.6	Milliseconds
Minimum Value:	0.0	at	1.0	Milliseconds
SAE Filter Class:	1000			
Date of Test:	2/12/98			
Curve Number:	RES-048			
Test Vehicle:		1998 Lexus ES300 4 Door Sedan		





Curve Description:	Passenger Neck Force X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	121.4 at 29.1 Milliseconds	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-528.7 at 69.1 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	2/12/98			
Curve Number:	FIL-051			

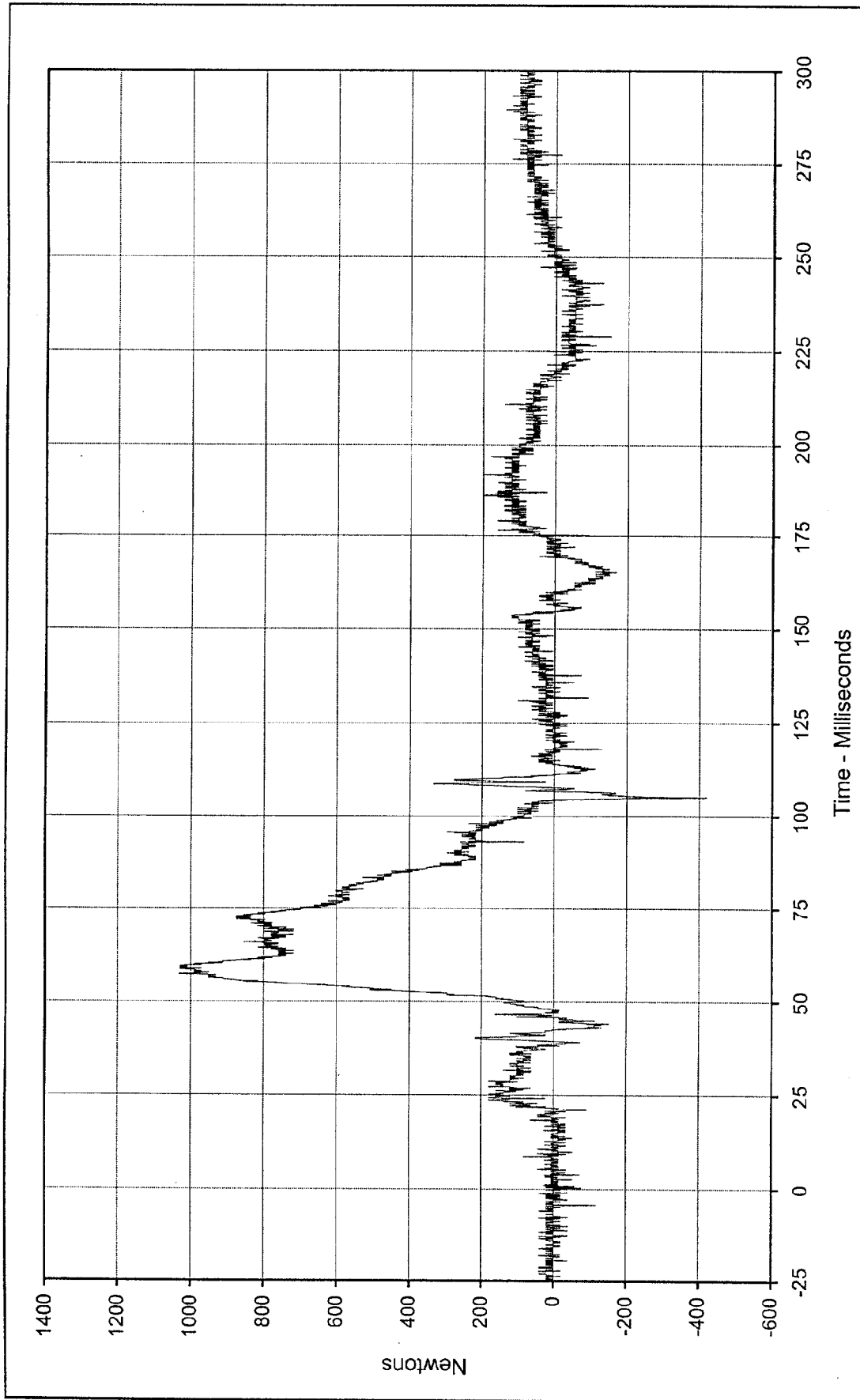




Curve Description:	Passenger Neck Force Y		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	292.9	at 73.0	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-148.8	at 170.2			
SAE Filter Class:	1000				
Date of Test:	2/12/98				
Curve Number:	FIL-052				

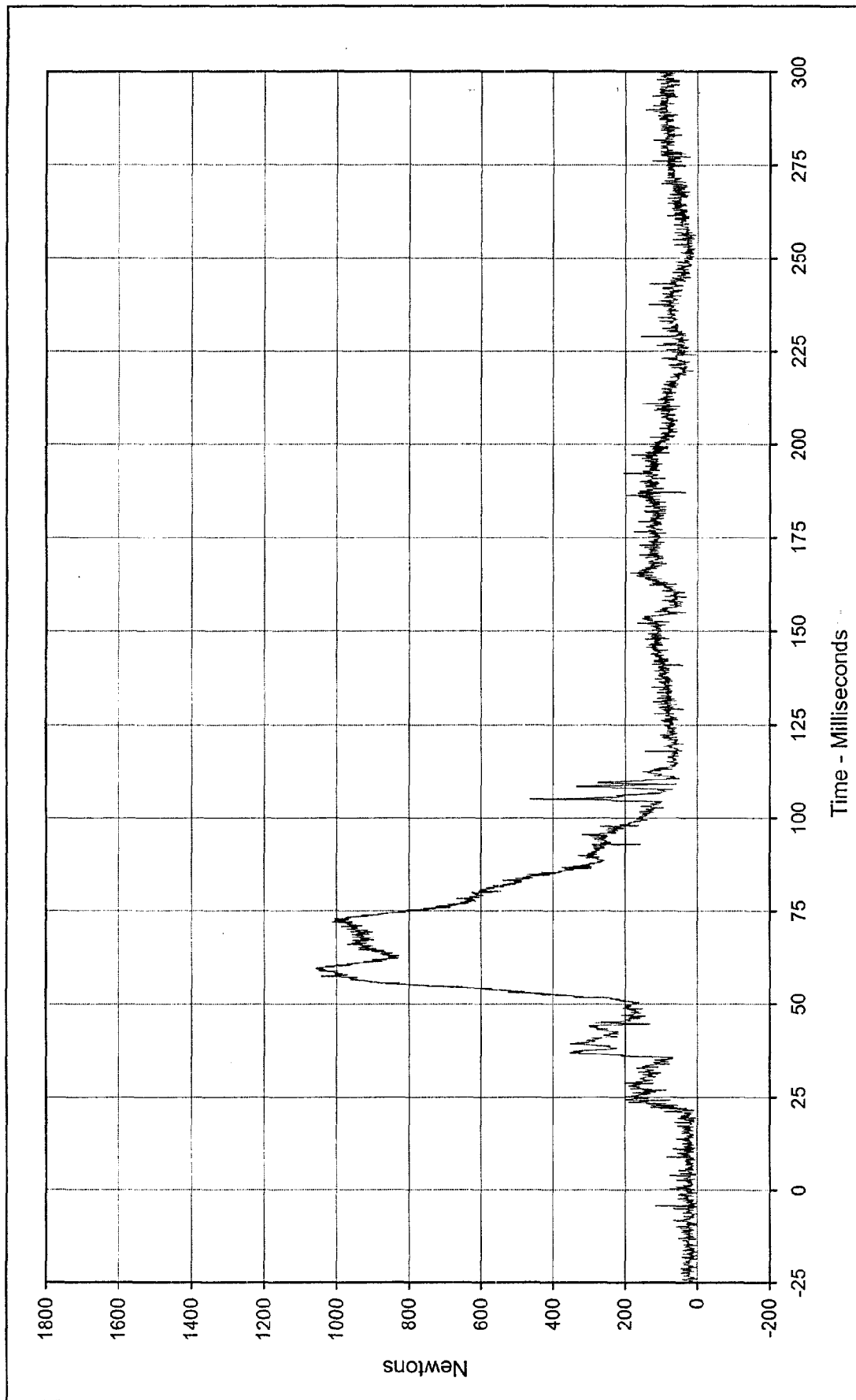
The logo for KARCO Engineering. It features the word "KARCO" in a large, bold, sans-serif font. To the left of the "K" is a stylized graphic of a lightbulb with a gear-like base. To the right of "KARCO" is the word "Engineering" in a smaller, italicized, sans-serif font. The entire logo is set against a dark background with a diagonal line.





Curve Description:		Passenger Neck Force Z		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	1028.6	at	57.3	Milliseconds	Test Vehicle:	1998 Lexus ES300 4 Door Sedan
Minimum Value:	-420.2	at	105.1	Milliseconds		
SAE Filter Class:	1000					
Date of Test:	2/12/98					
Curve Number:	FIL-053					





Curve Description: Passenger Neck Force Resultant

Maximum Value: 1056.8 at 59.5 Milliseconds

Minimum Value: 5.0 at 2.9 Milliseconds

SAE Filter Class: 1000

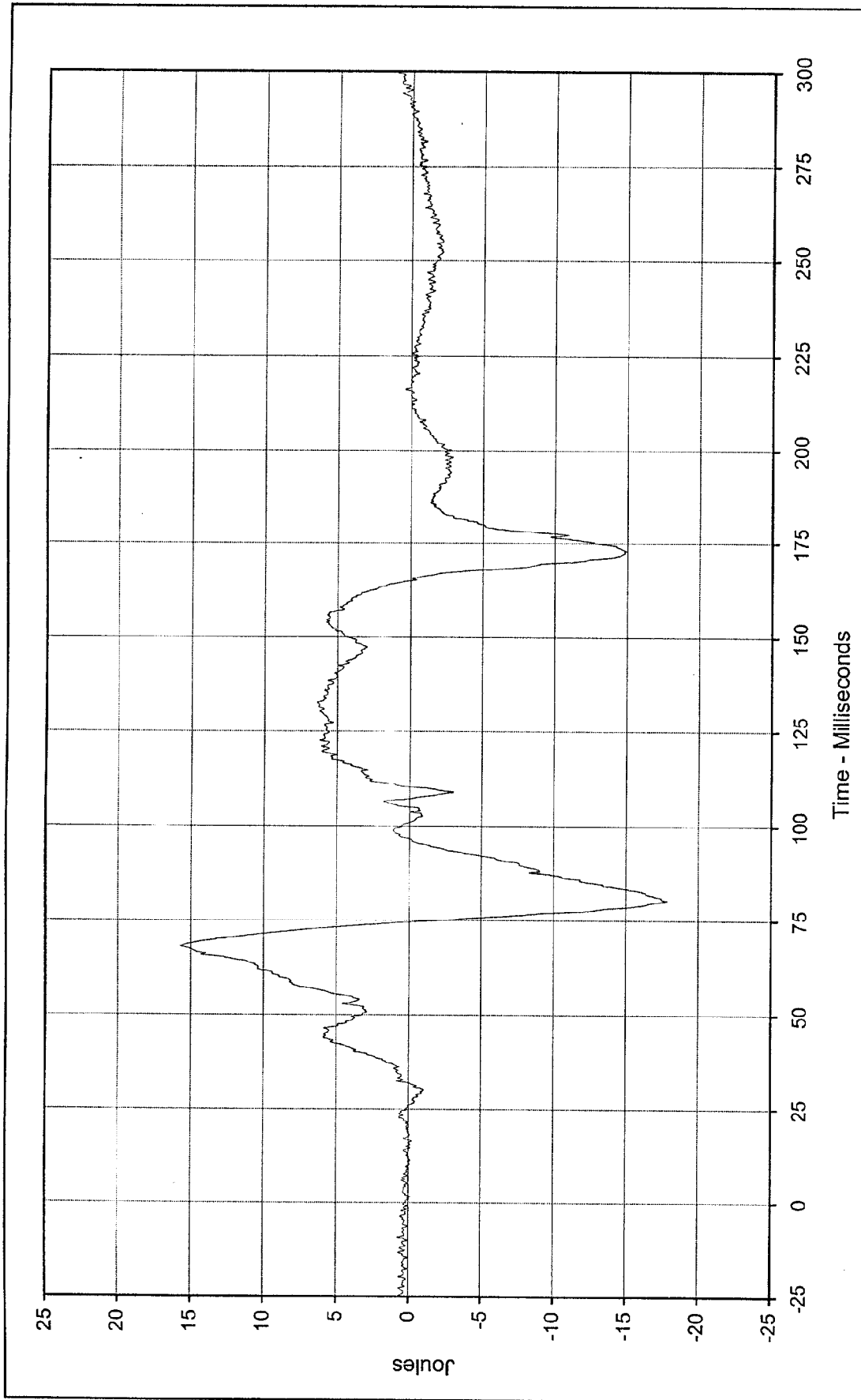
Date of Test: 2/12/98

Curve Number: RES-051

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

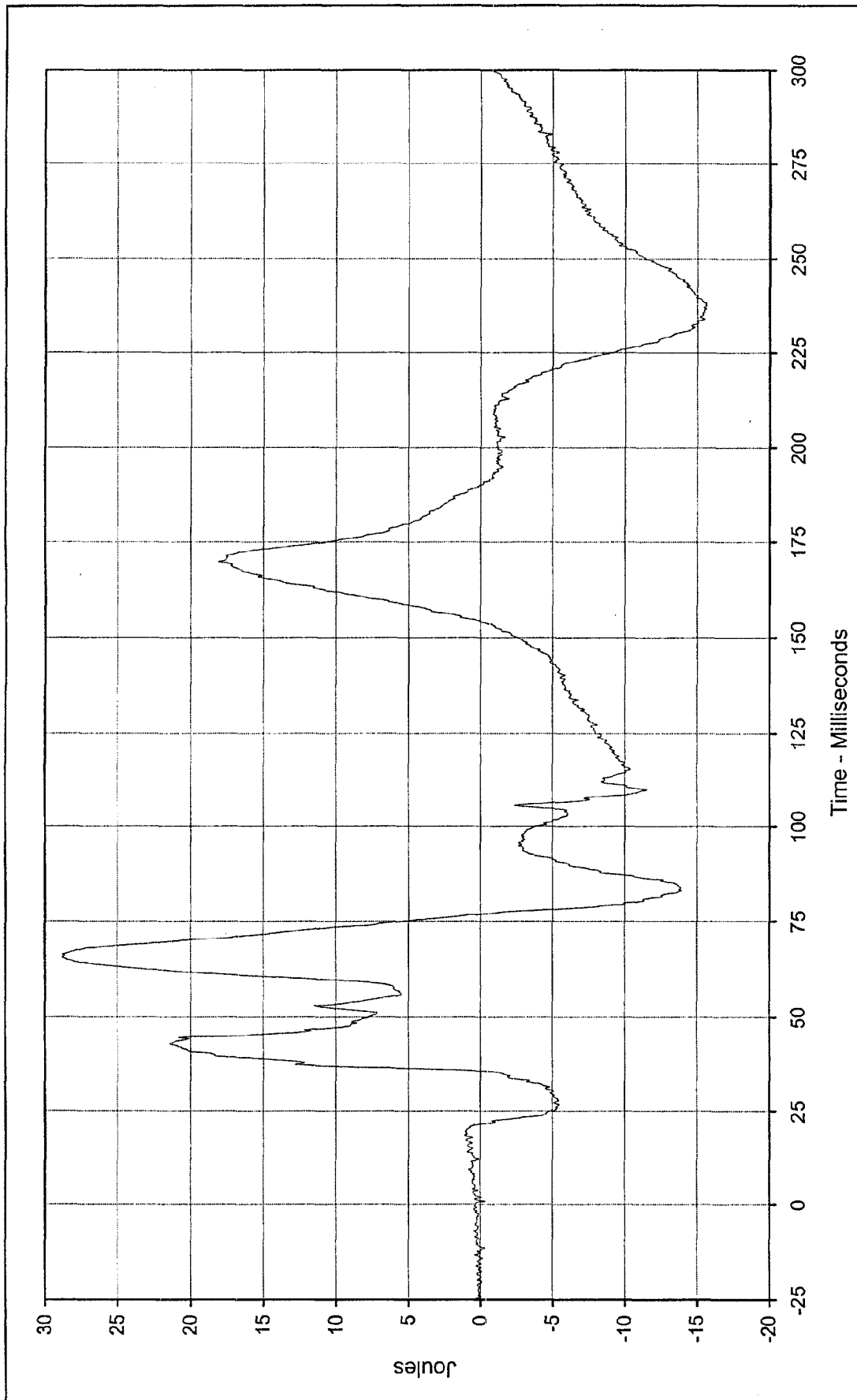
Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Passenger Neck Moment X	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	15.7 at 68.1 Milliseconds	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-17.8 at 80.3 Milliseconds			
SAE Filter Class:	600			
Date of Test:	2/12/98			
Curve Number:	FIL-054			





Curve Description: Passenger Neck Moment Y

Maximum Value: 28.8 at 65.7 Milliseconds

Minimum Value: -15.7 at 237.7 Milliseconds

SAE Filter Class: 600

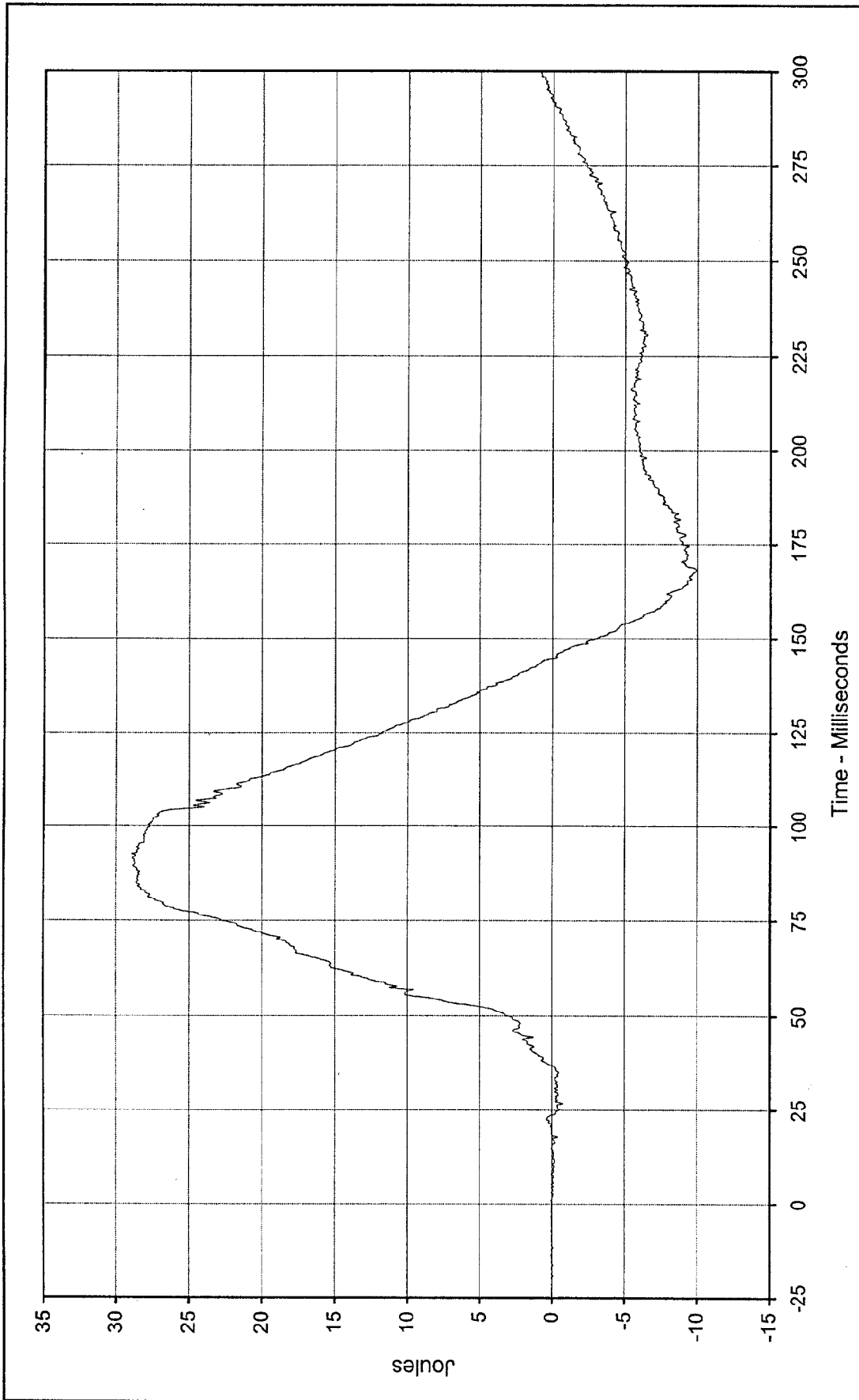
Date of Test: 2/12/98

Curve Number: FIL-055

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

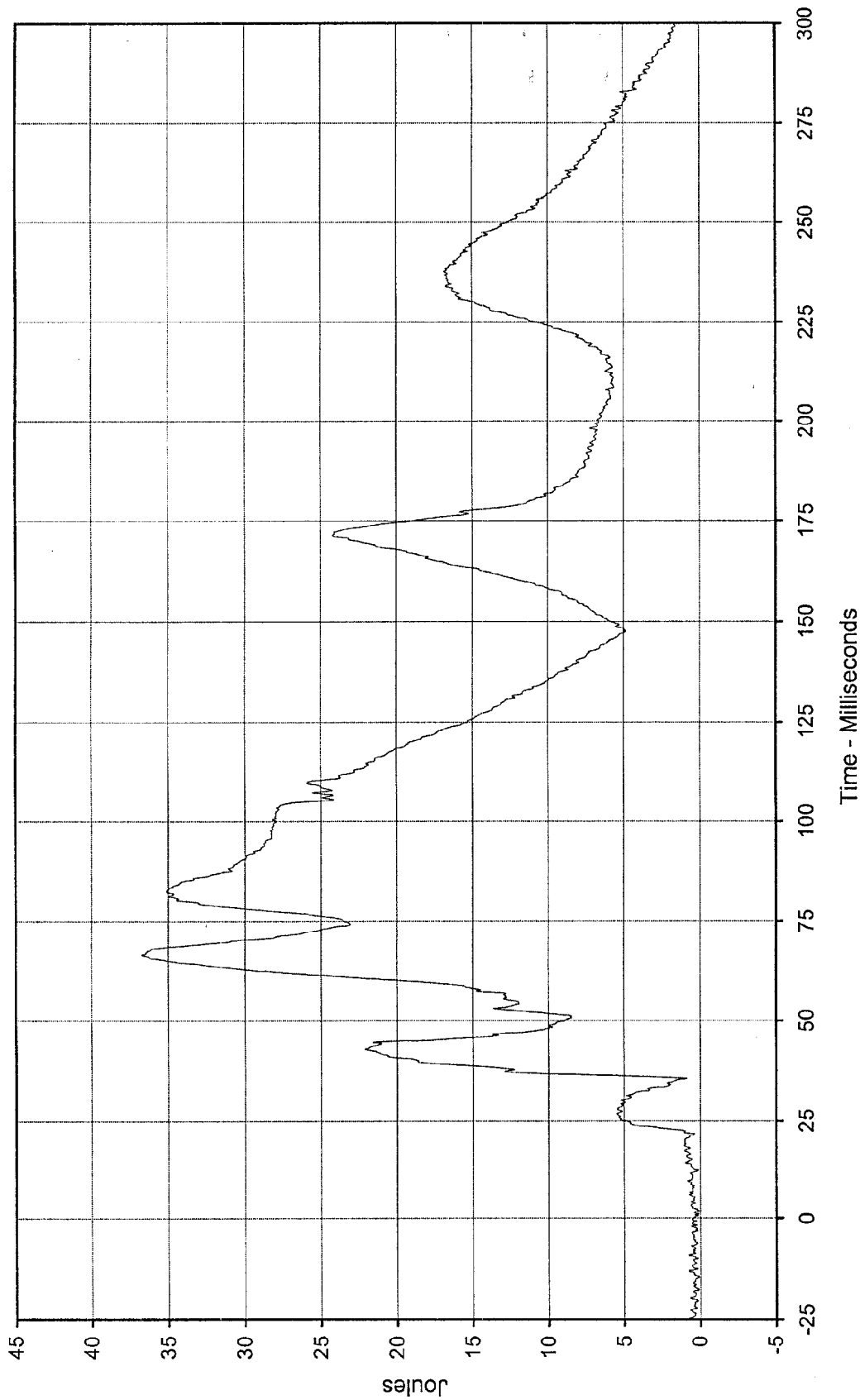
Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description:	Passenger Neck Moment Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	28.9	at	91.4	Milliseconds
Minimum Value:	-9.9	at	168.2	Milliseconds
SAE Filter Class:	600			
Date of Test:	2/12/98	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Curve Number:	FIL-056			

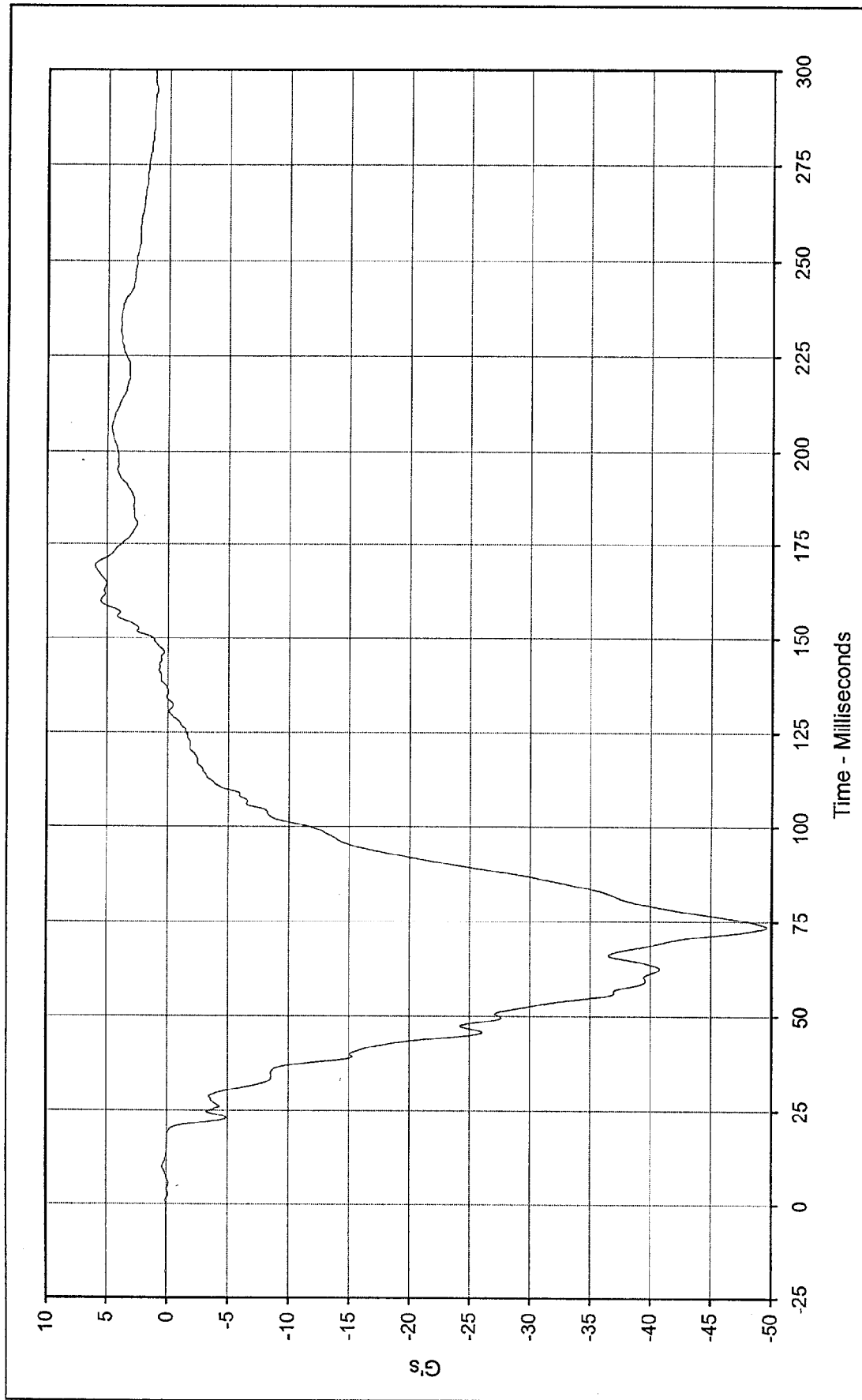




Curve Description: Passenger Neck Moment Resultant
Maximum Value: 36.7 at 66.6 Milliseconds
Minimum Value: 0.1 at 1.7 Milliseconds
SAE Filter Class: 600
Date of Test: 2/12/98
Curve Number: RES-054

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Chest Primary X Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 6.0 at 169.1 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan

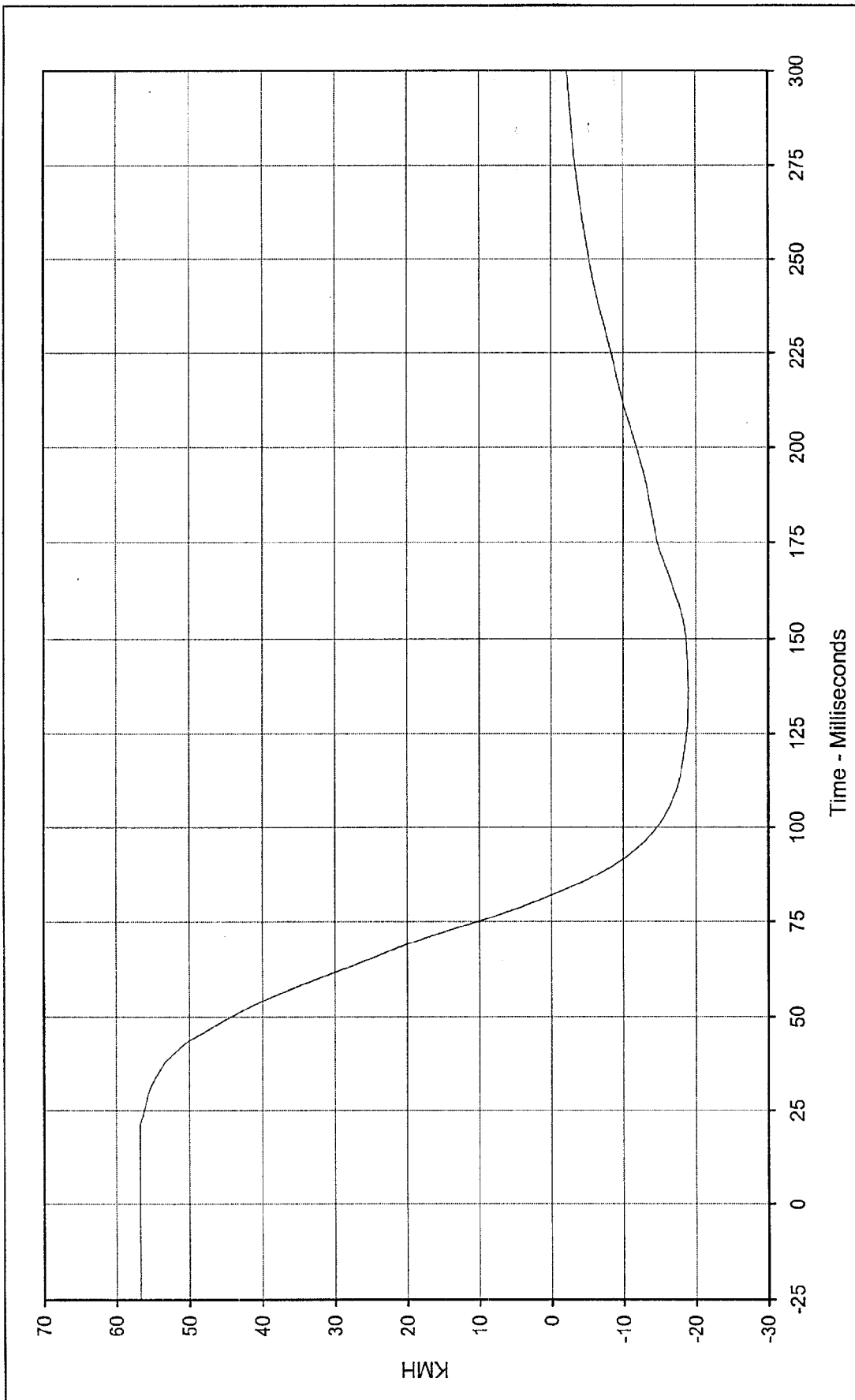
Minimum Value: -49.6 at 73.6 Milliseconds

SAE Filter Class: 180

Date of Test: 2/12/98

Curve Number: FIL-057



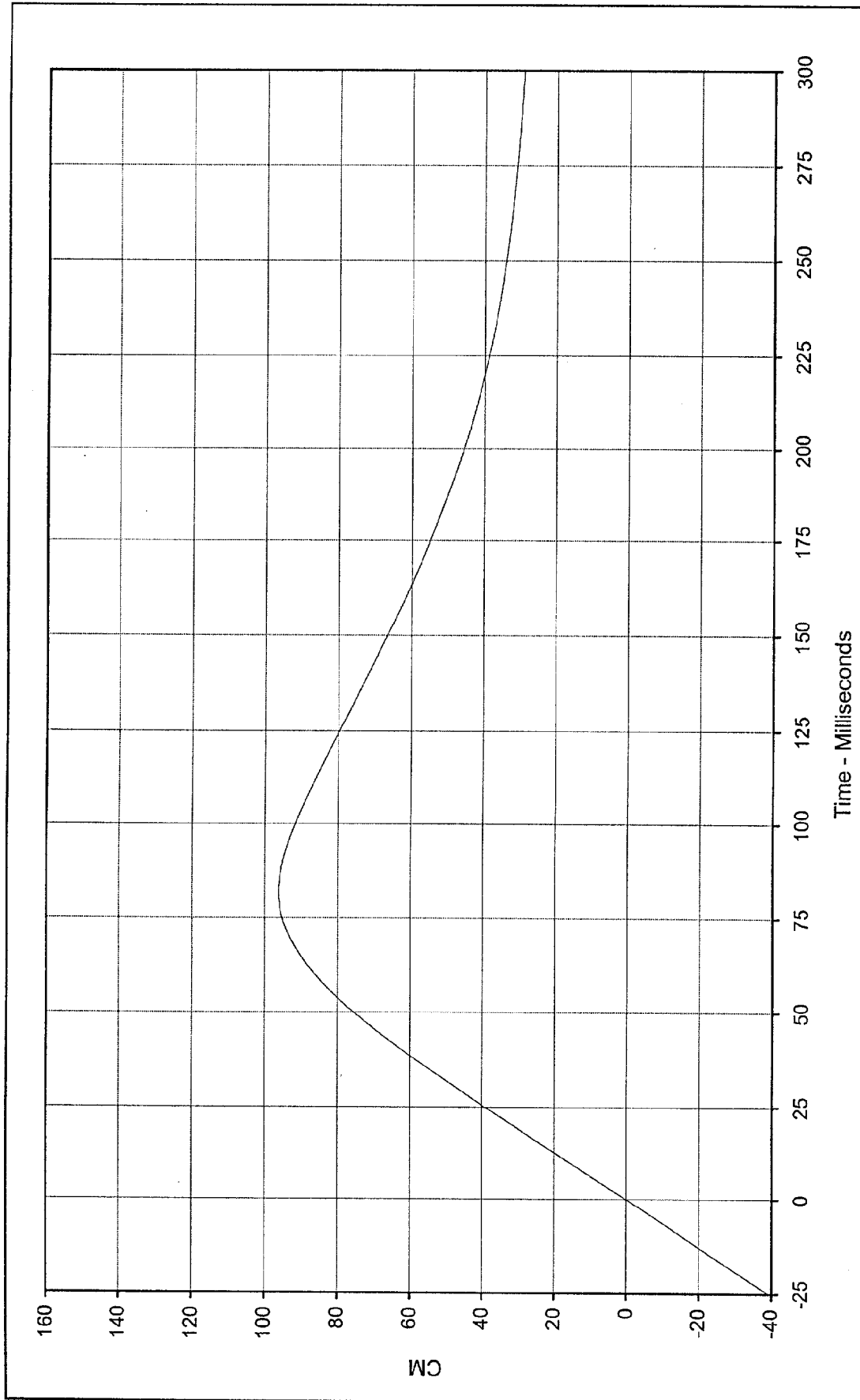


Curve Description: Passenger Chest Primary X Velocity
 Maximum Value: 56.8 at 14.3 Milliseconds
 Minimum Value: -19.0 at 133.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-057

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

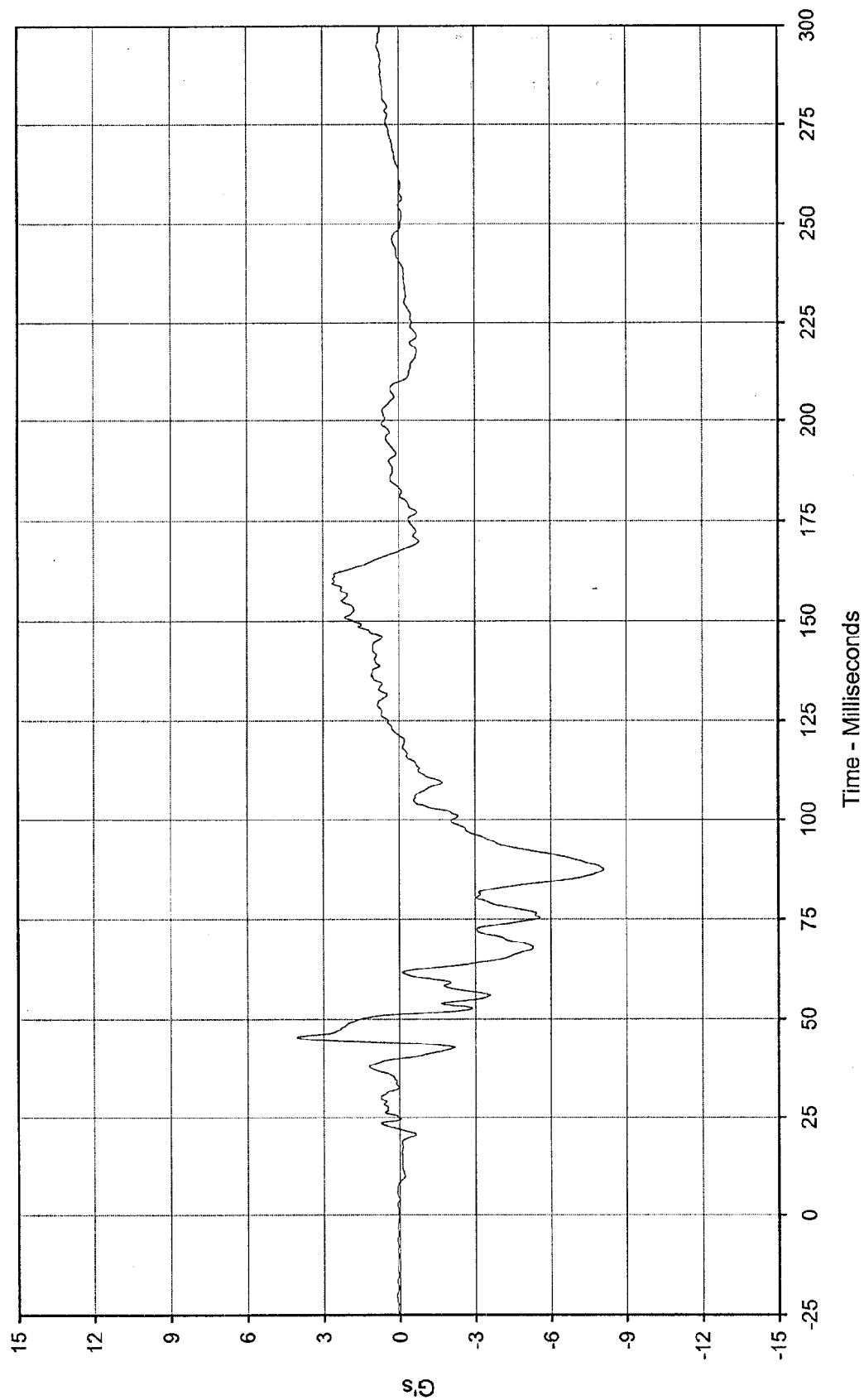




Curve Description: Passenger Chest Primary X Displ.
 Maximum Value: 96.1 at 81.9 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-057

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

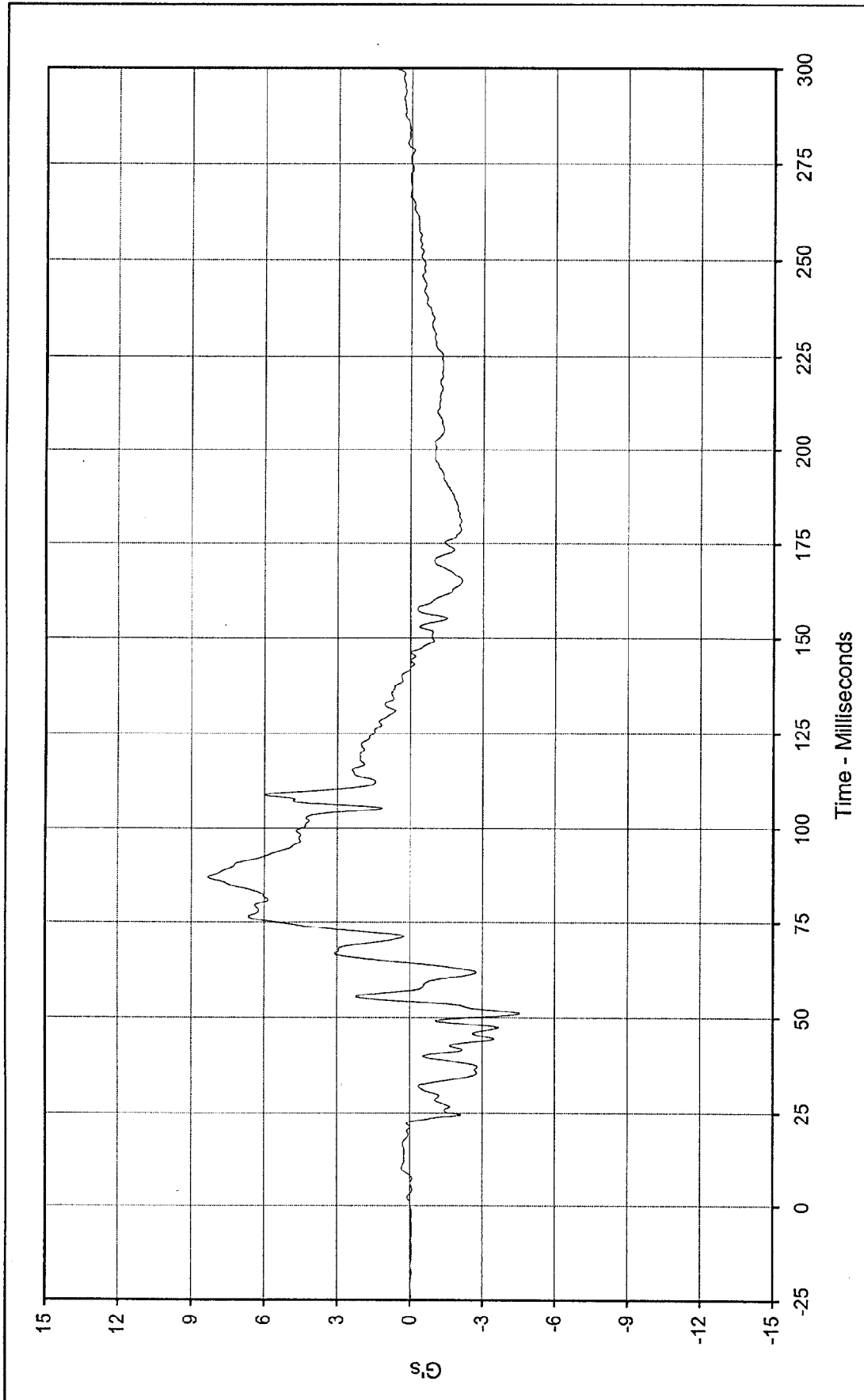




Curve Description: Passenger Chest Primary Y
 Maximum Value: 4.1 at 45.4 Milliseconds
 Minimum Value: -8.1 at 87.4 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: FIL-058

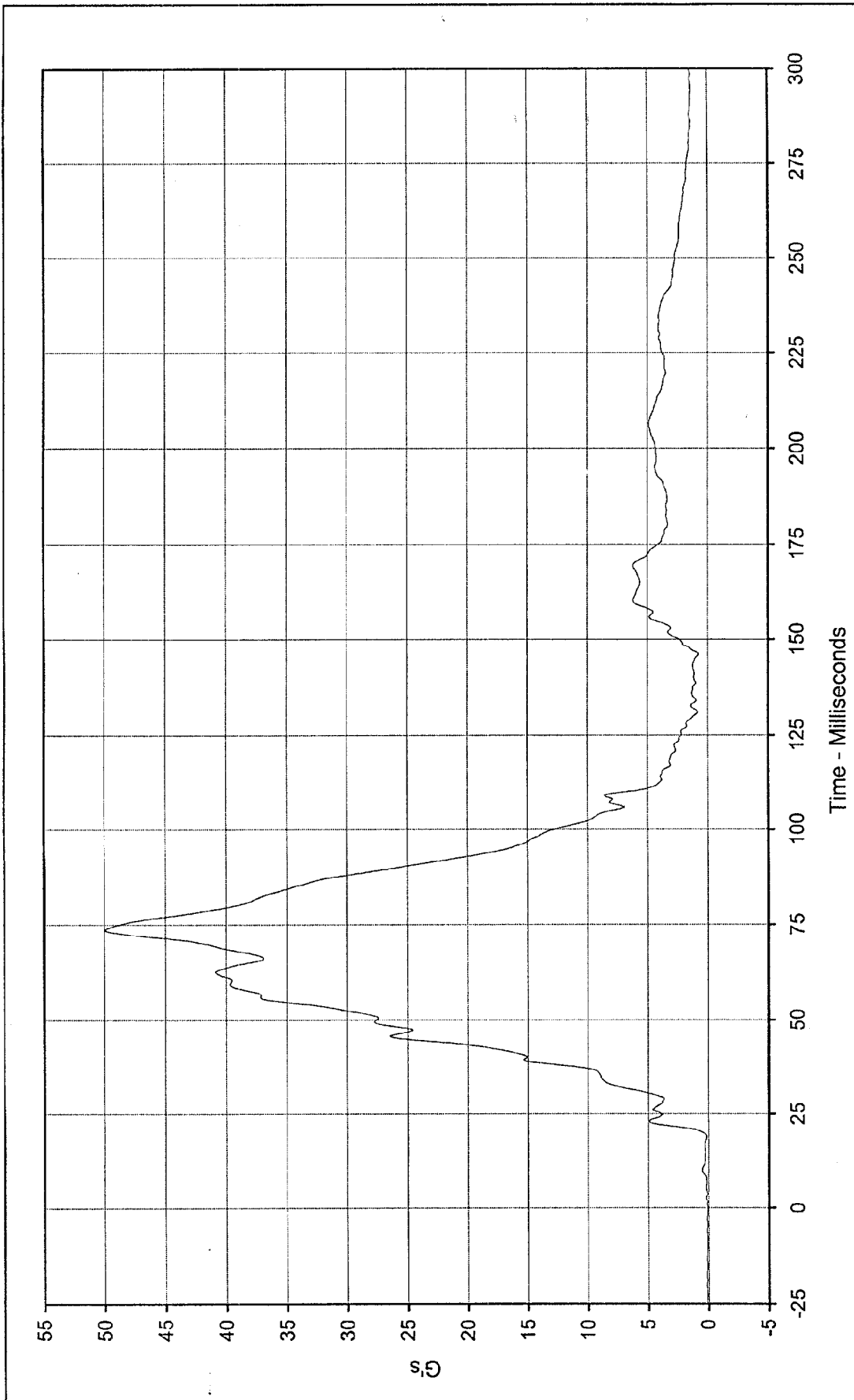
Testing Program: 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





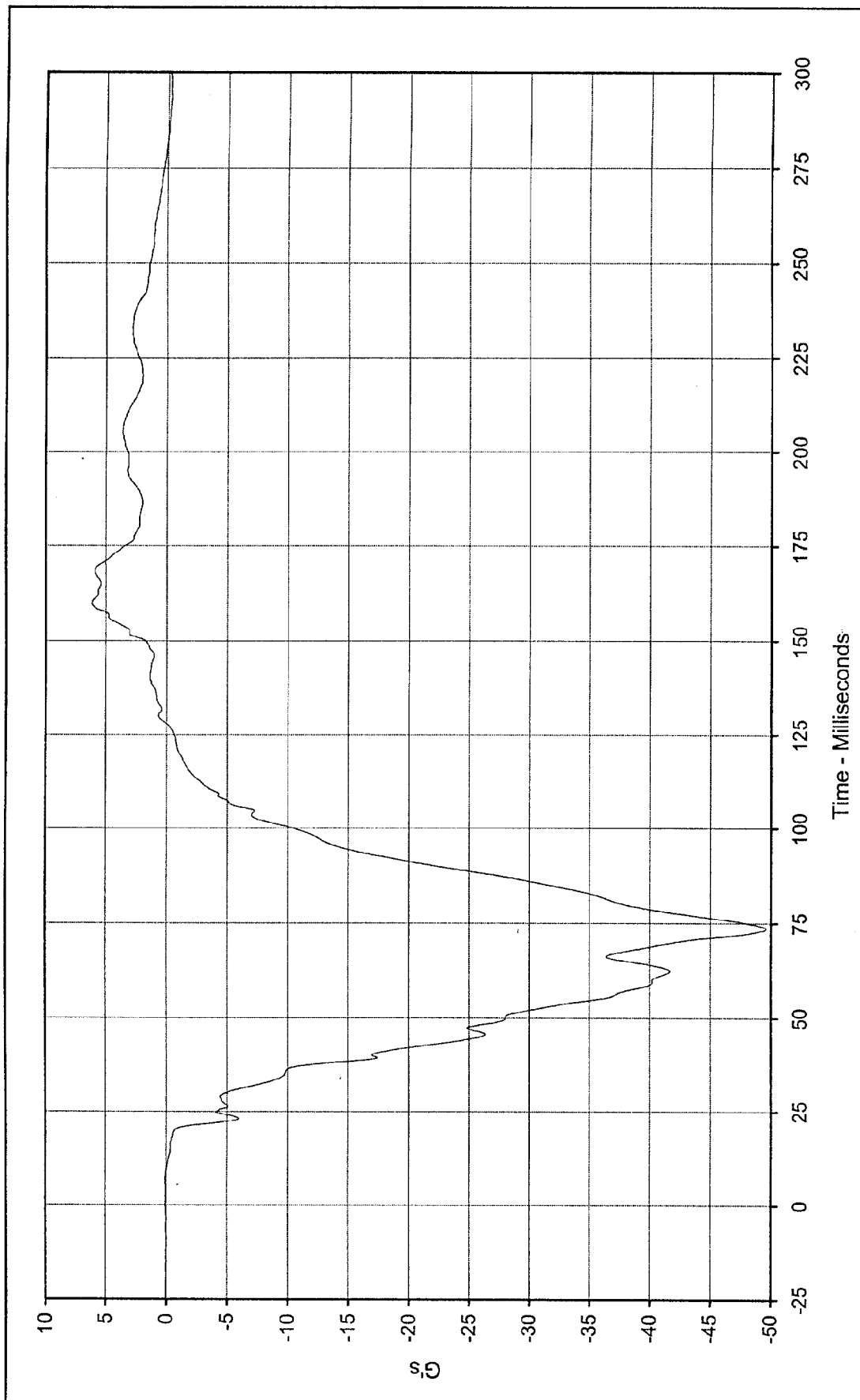
Curve Description:	Passenger Chest Primary Z	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	8.3 at 86.7 Milliseconds	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-4.6 at 51.1 Milliseconds			
SAE Filter Class:	180			
Date of Test:	2/12/98			
Curve Number:	FIL-059			





Curve Description:	Passenger Chest Resultant Primary	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	50.0	at	73.6	Milliseconds
Minimum Value:	0.0	at	0.0	Milliseconds
SAE Filter Class:	180			
Date of Test:	2/12/98	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Curve Number:	RES-057			

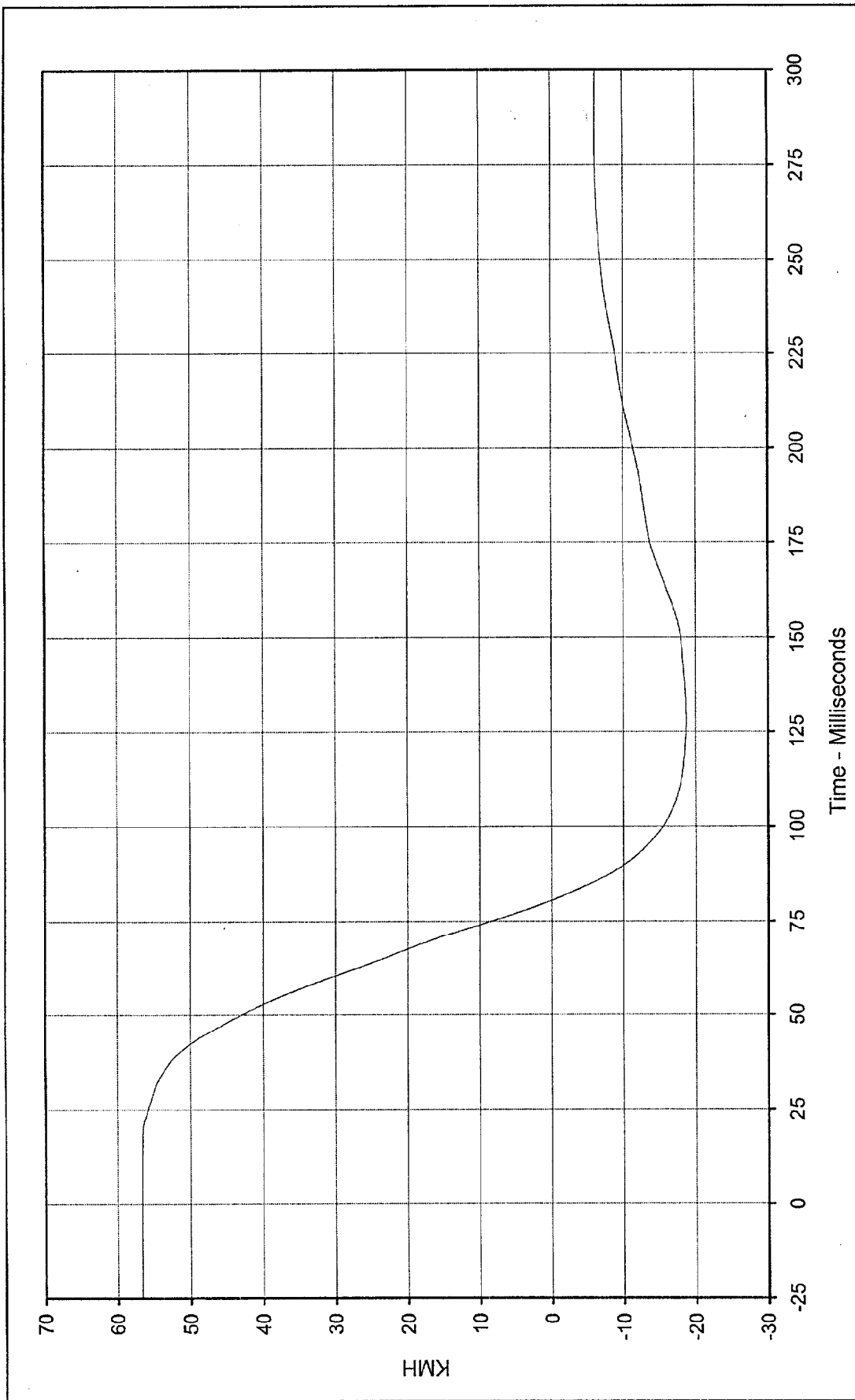




Curve Description: Passenger Chest Redundant X Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Maximum Value: 6.2 at 160.1 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan
Minimum Value: -49.6 at 73.5 Milliseconds



SAE Filter Class: 180
Date of Test: 2/12/98
Curve Number: FIL-060



Curve Description: Passenger Chest Redundant X Velocity

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 56.7 at 8.9 Milliseconds

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

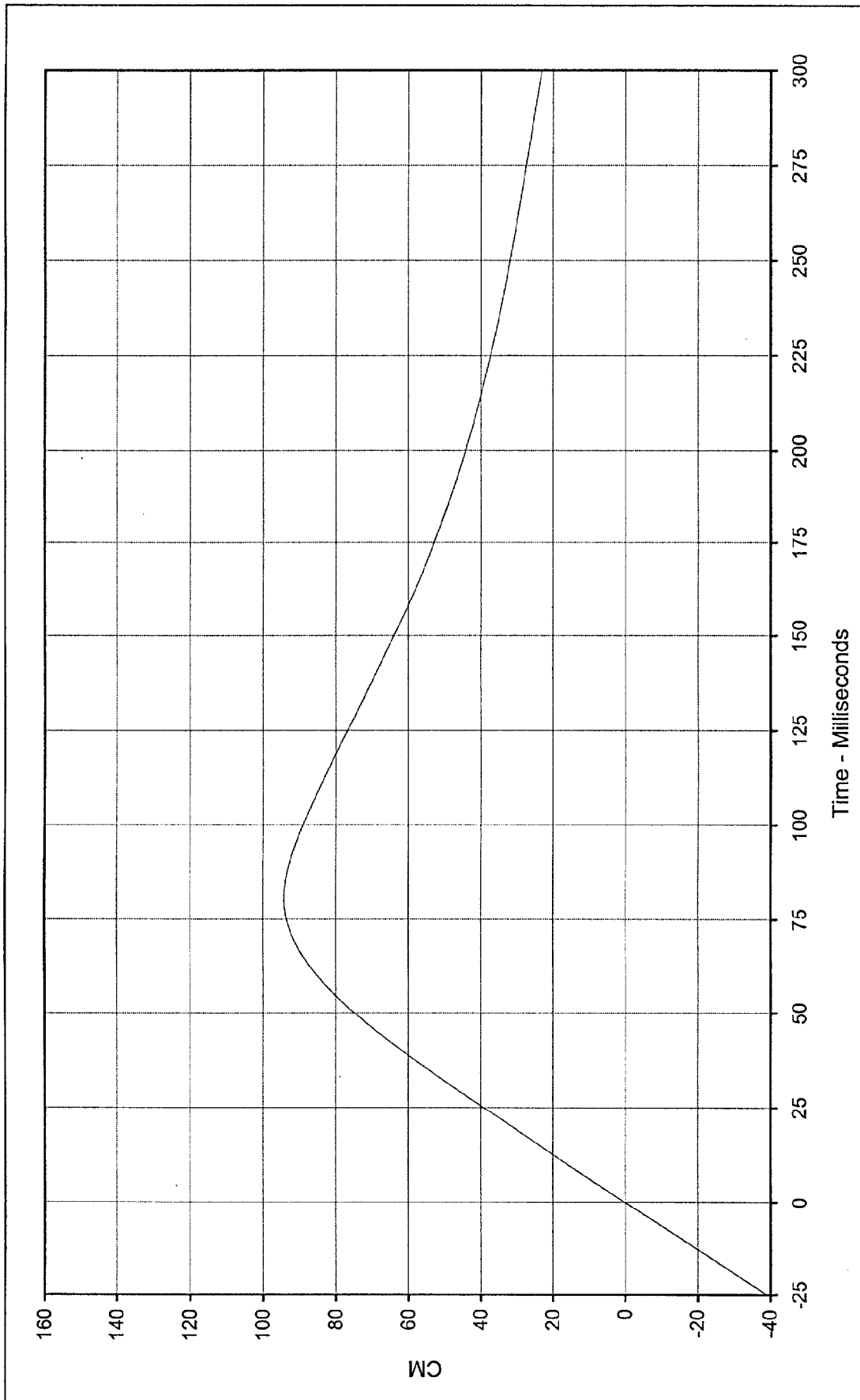
Minimum Value: -18.7 at 128.1 Milliseconds

SAE Filter Class: 180

Date of Test: 2/12/98

Curve Number: IN1-060





Curve Description: Passenger Chest Redundant X Displ.

Maximum Value: 94.1 at 80.6 Milliseconds

Minimum Value: 0.1 at 0.0 Milliseconds

SAE Filter Class: 180

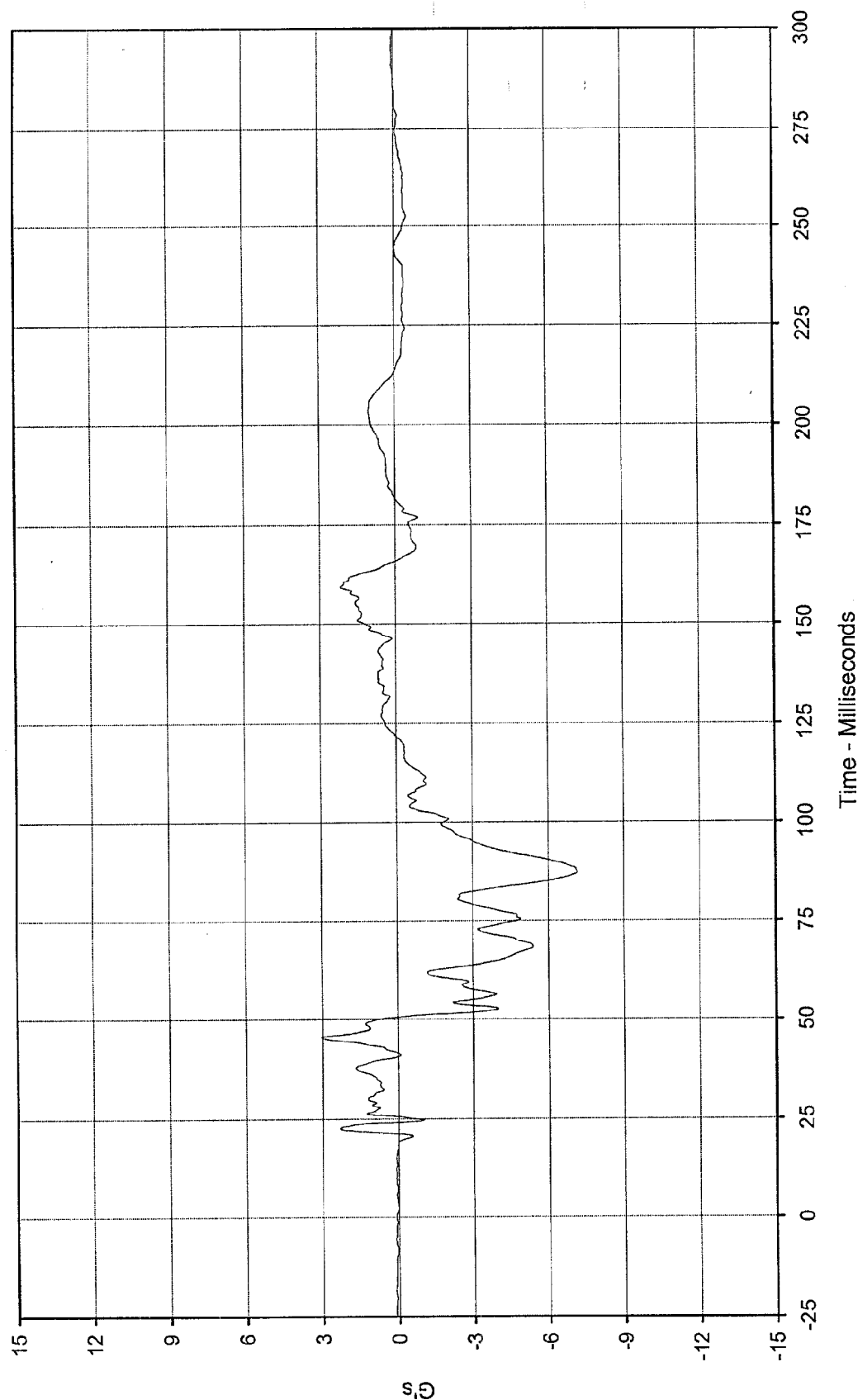
Date of Test: 2/12/98

Curve Number: IN2-060

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

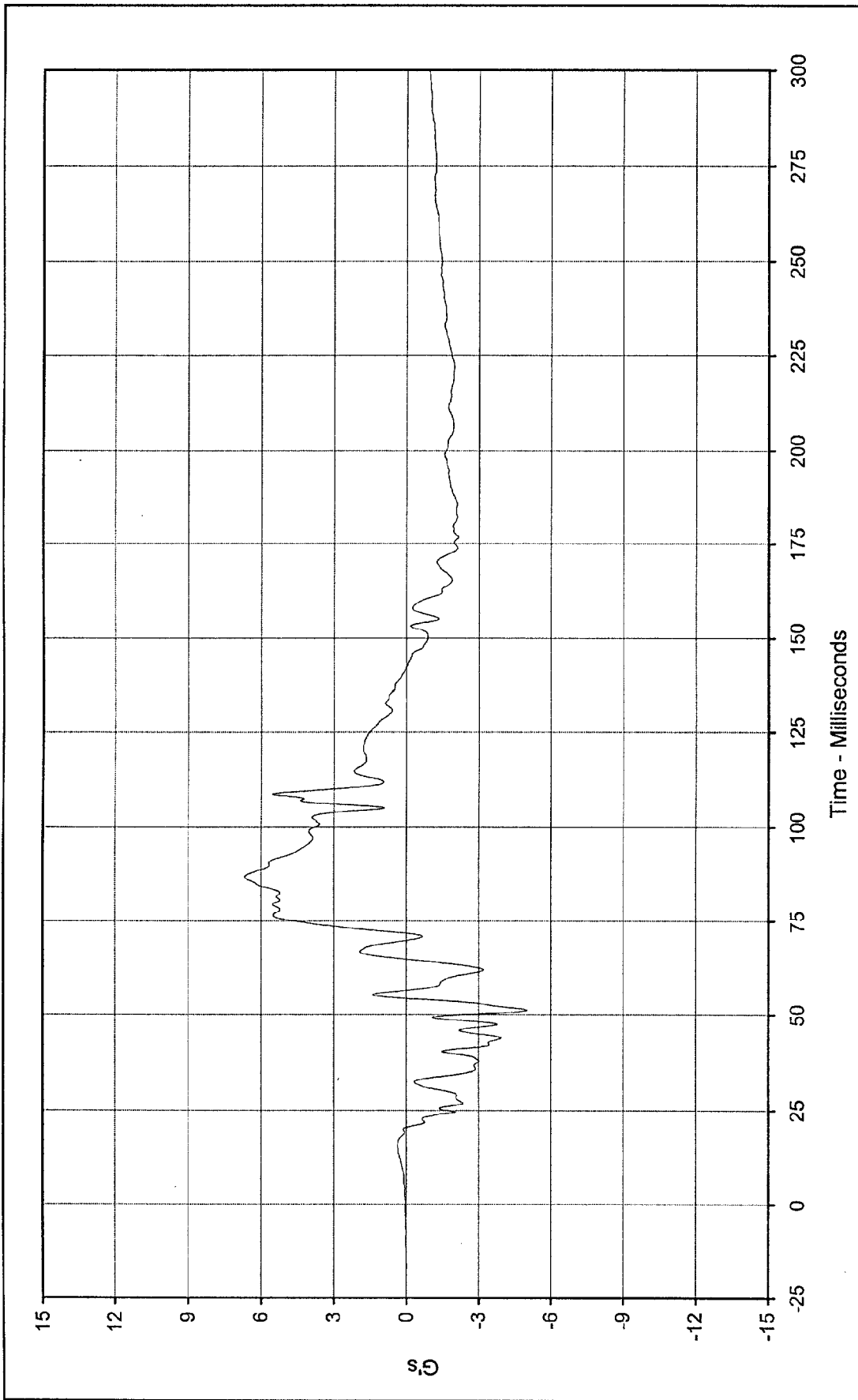




Curve Description: Passenger Chest Redundant Y
 Maximum Value: 3.0 at 45.4 Milliseconds
 Minimum Value: -7.2 at 87.4 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: FIL-061

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Chest Redundant Z

Maximum Value: 6.7 at 86.7 Milliseconds

Minimum Value: -5.0 at 51.3 Milliseconds

SAE Filter Class: 180

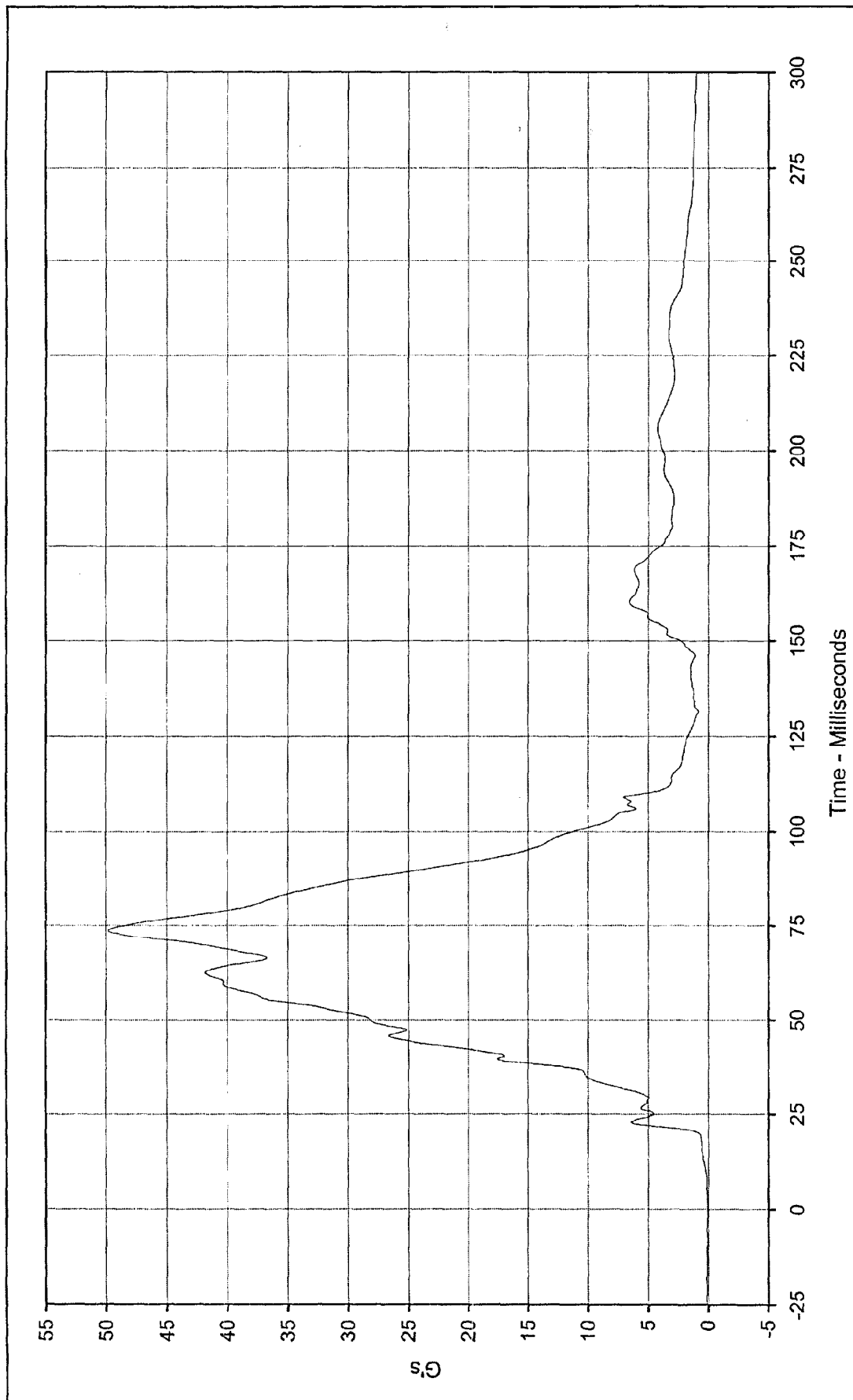
Date of Test: 2/12/98

Curve Number: FIL-062

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

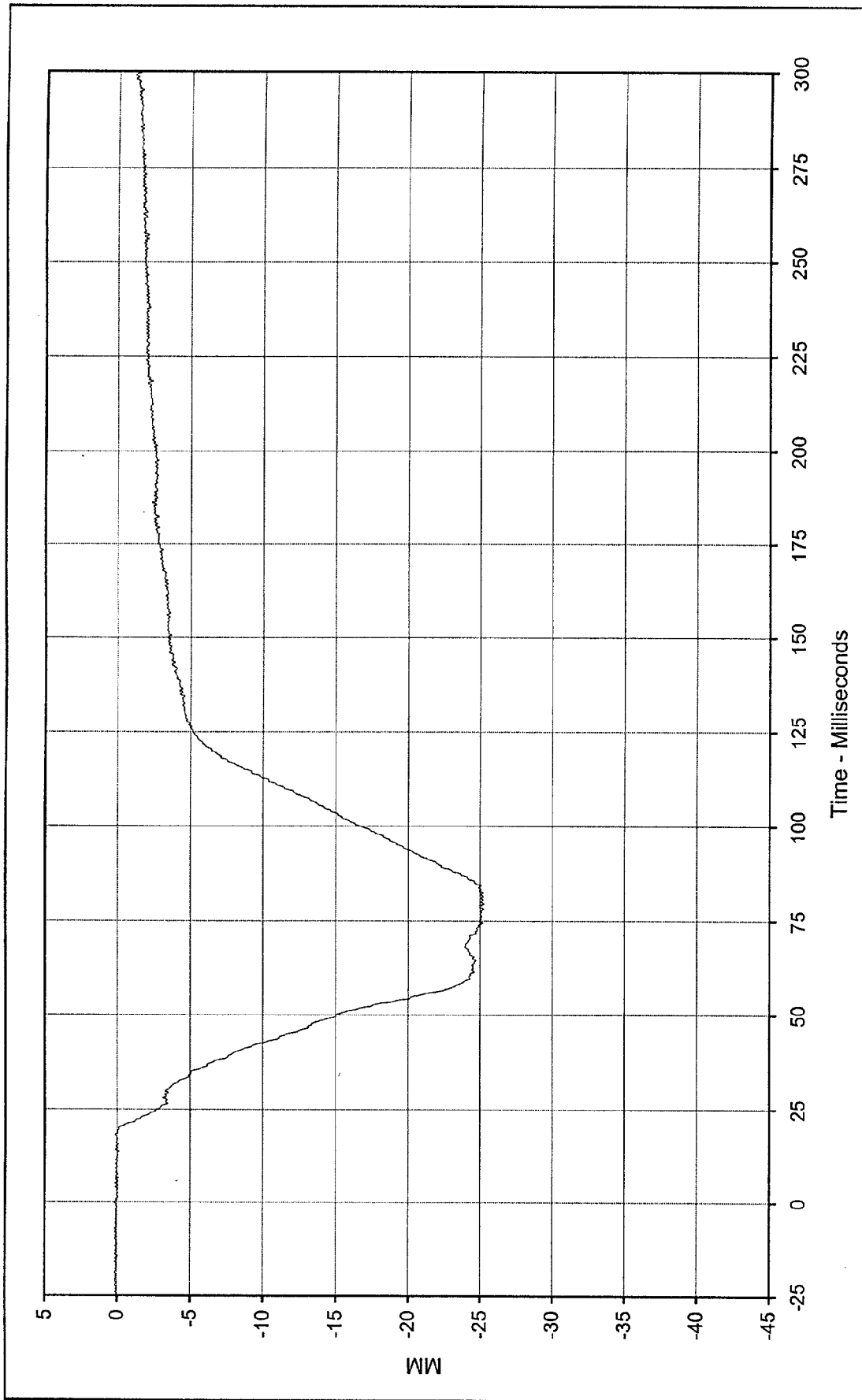




Curve Description: Passenger Chest Resultant Redundant
 Maximum Value: 49.9 at 73.6 Milliseconds
 Minimum Value: 0.1 at 1.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: RES-060

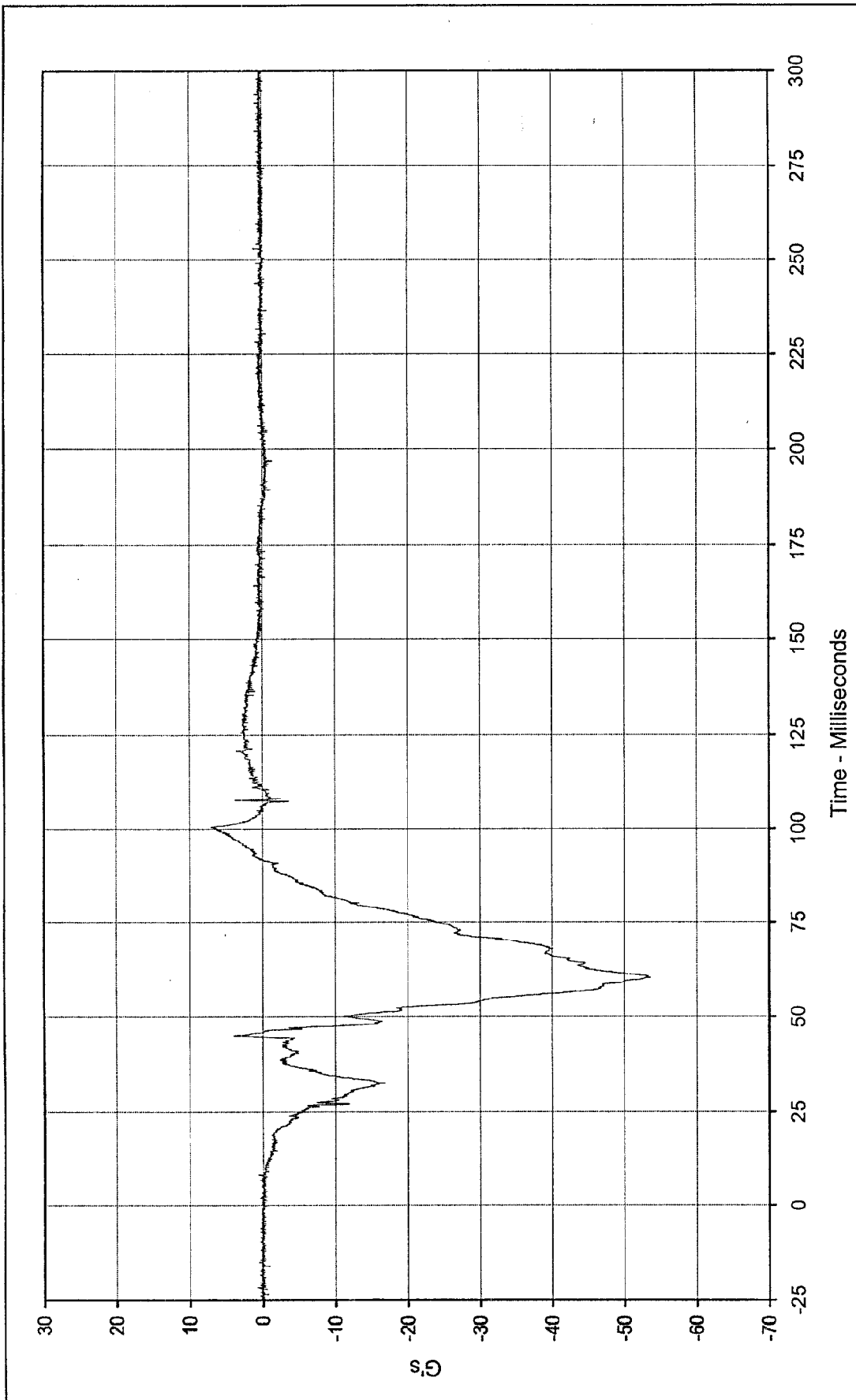
Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Chest Displacement X Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Maximum Value: 0.2 at 0.0 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan
Minimum Value: -25.3 at 79.6 Milliseconds
SAE Filter Class: 600
Date of Test: 2/12/98
Curve Number: FIL-063

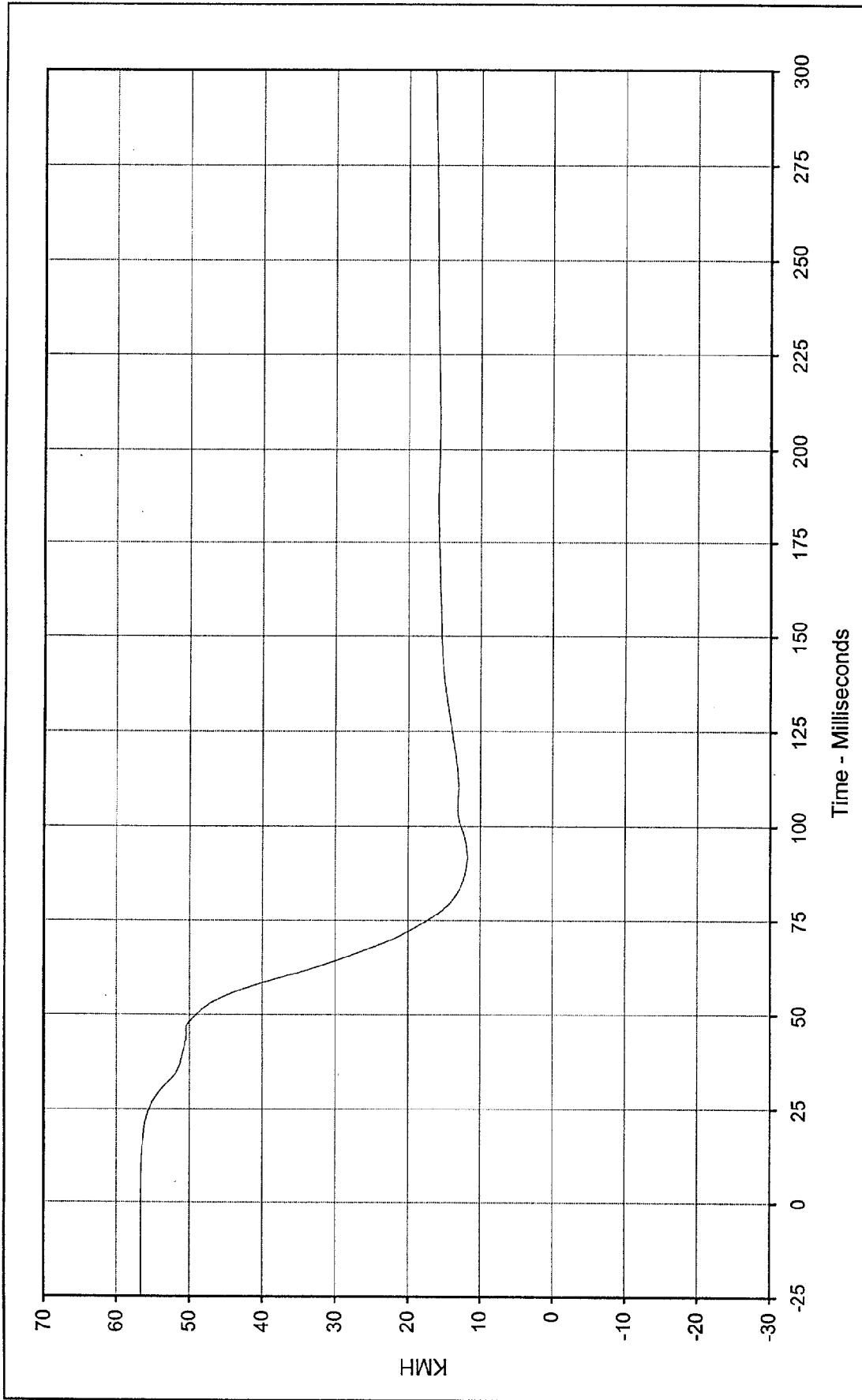




Curve Description: Passenger Pelvis X
 Maximum Value: 7.0 at 100.5 Milliseconds
 Minimum Value: -53.7 at 60.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-064

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

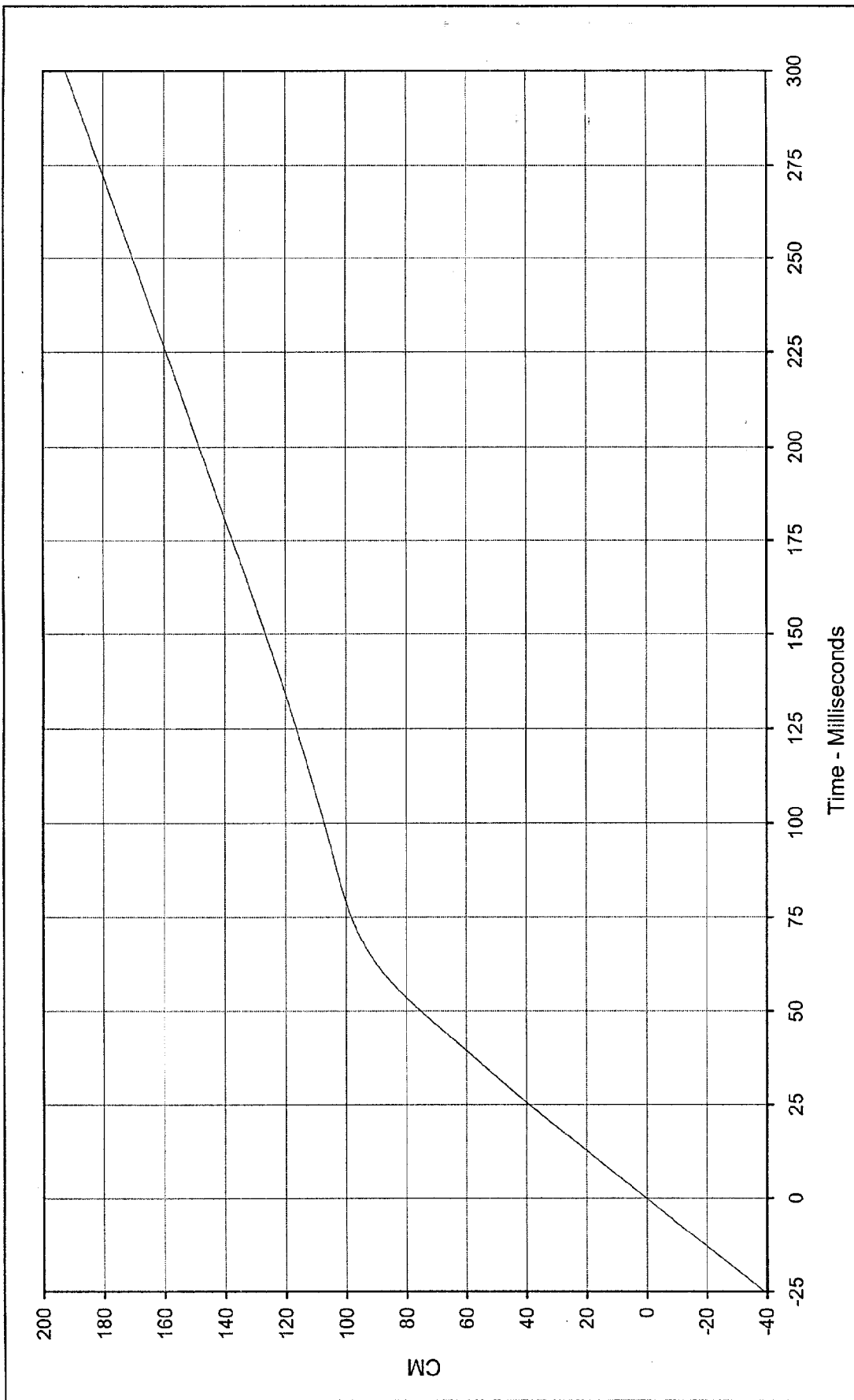




Curve Description: Passenger Pelvis X Velocity
 Maximum Value: 56.7 at 0.0 Milliseconds
 Minimum Value: 11.8 at 91.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-064

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

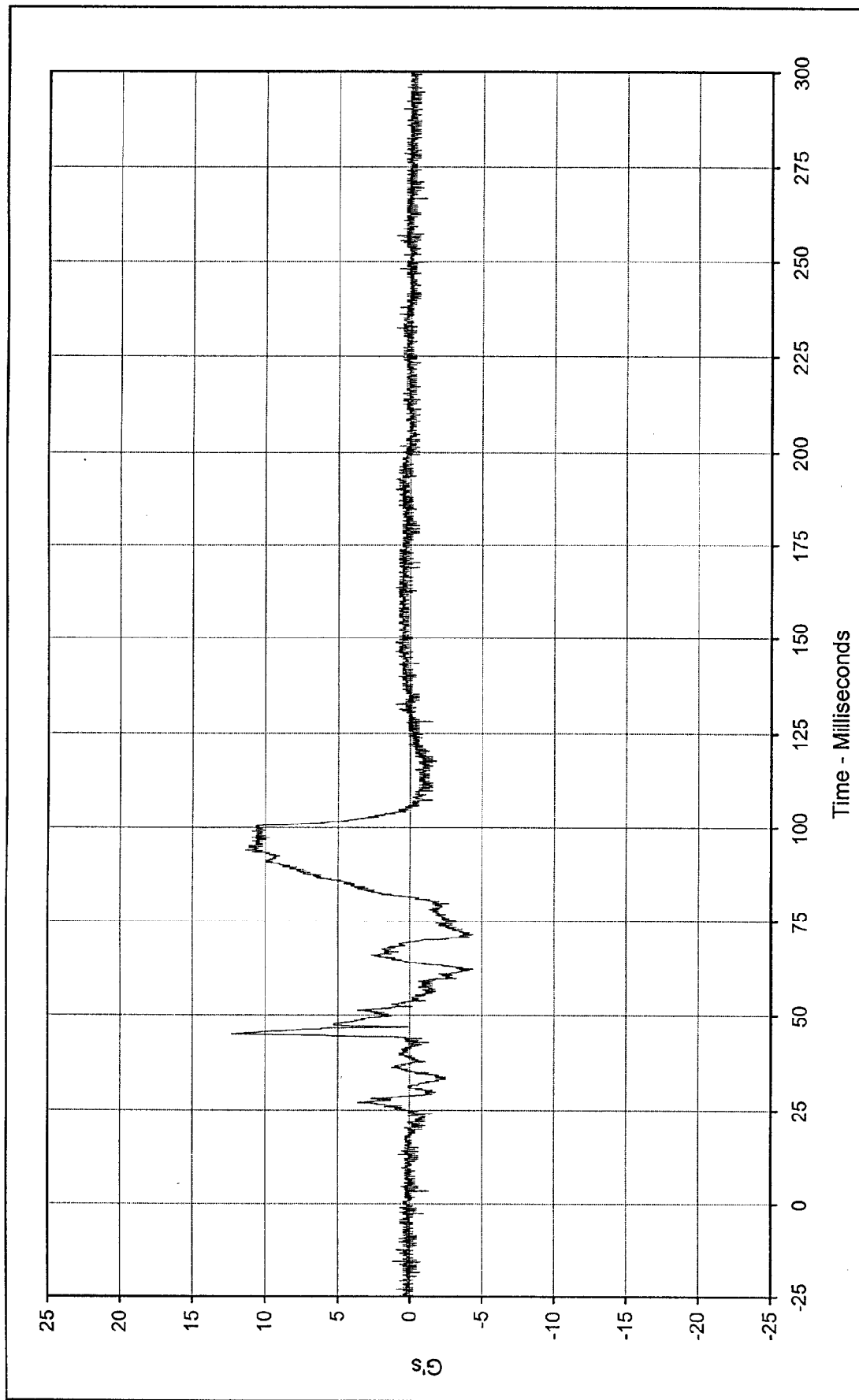




Curve Description: Passenger Pelvis X Displ.
 Maximum Value: 192.5 at 299.9 Milliseconds
 Minimum Value: 0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-064

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

Passenger Pelvis Y

Maximum Value: 12.3 at 45.0 Milliseconds

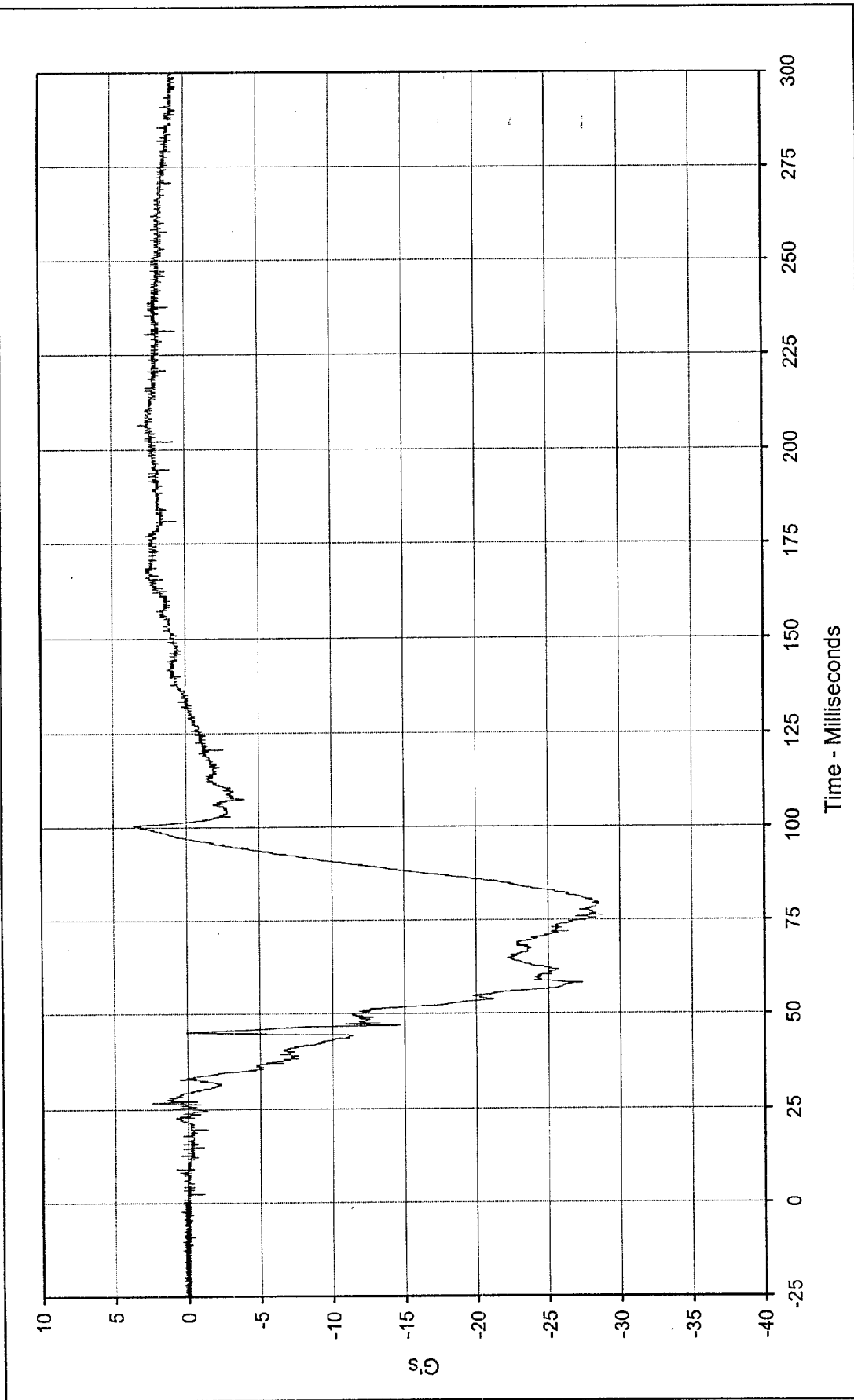
Minimum Value: -4.4 at 62.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 2/12/98

Curve Number: FIL-065

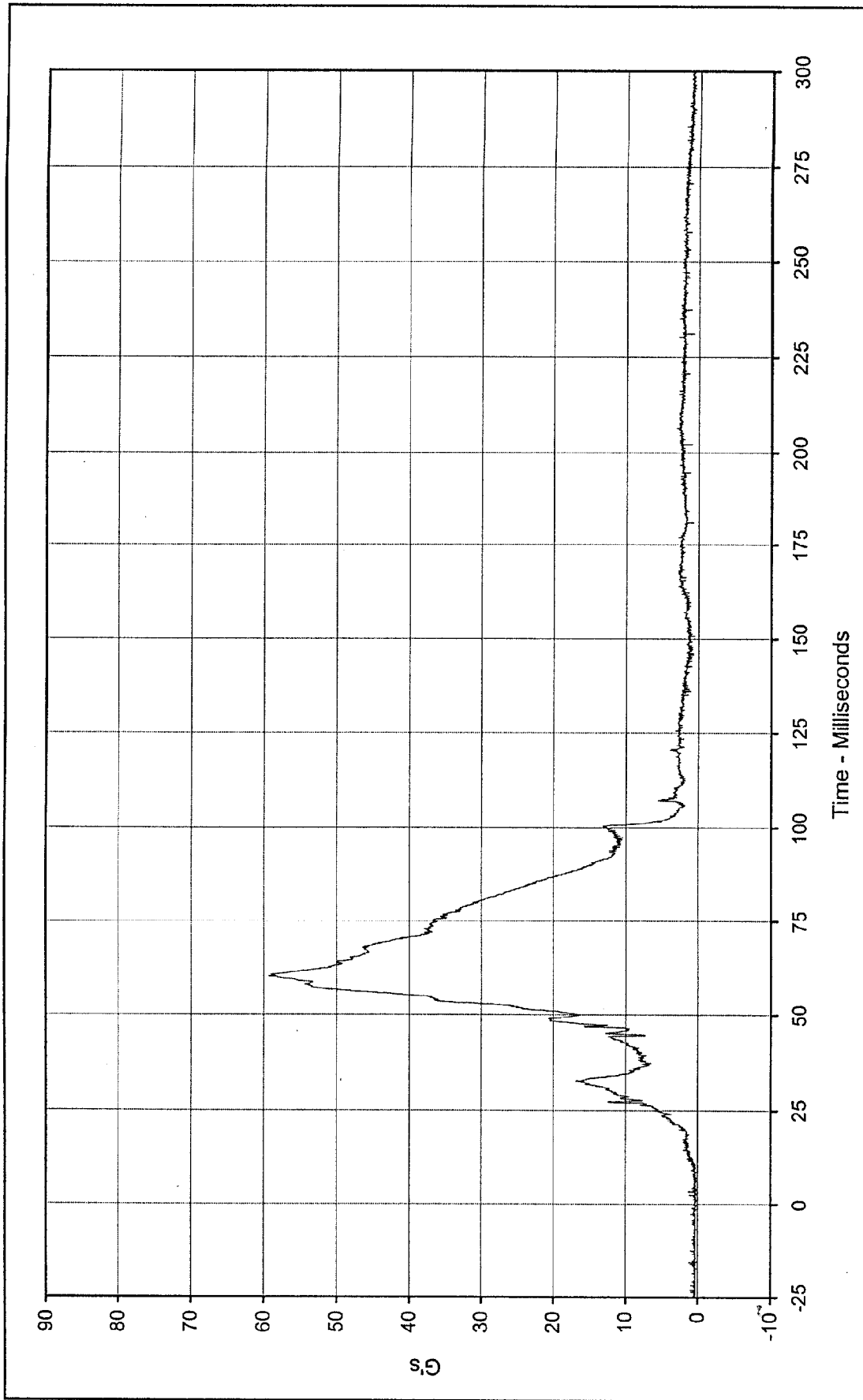




Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

Curve Description: Passenger Pelvis Z
 Maximum Value: 3.6 at 100.4 Milliseconds
 Minimum Value: -28.8 at 76.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-066

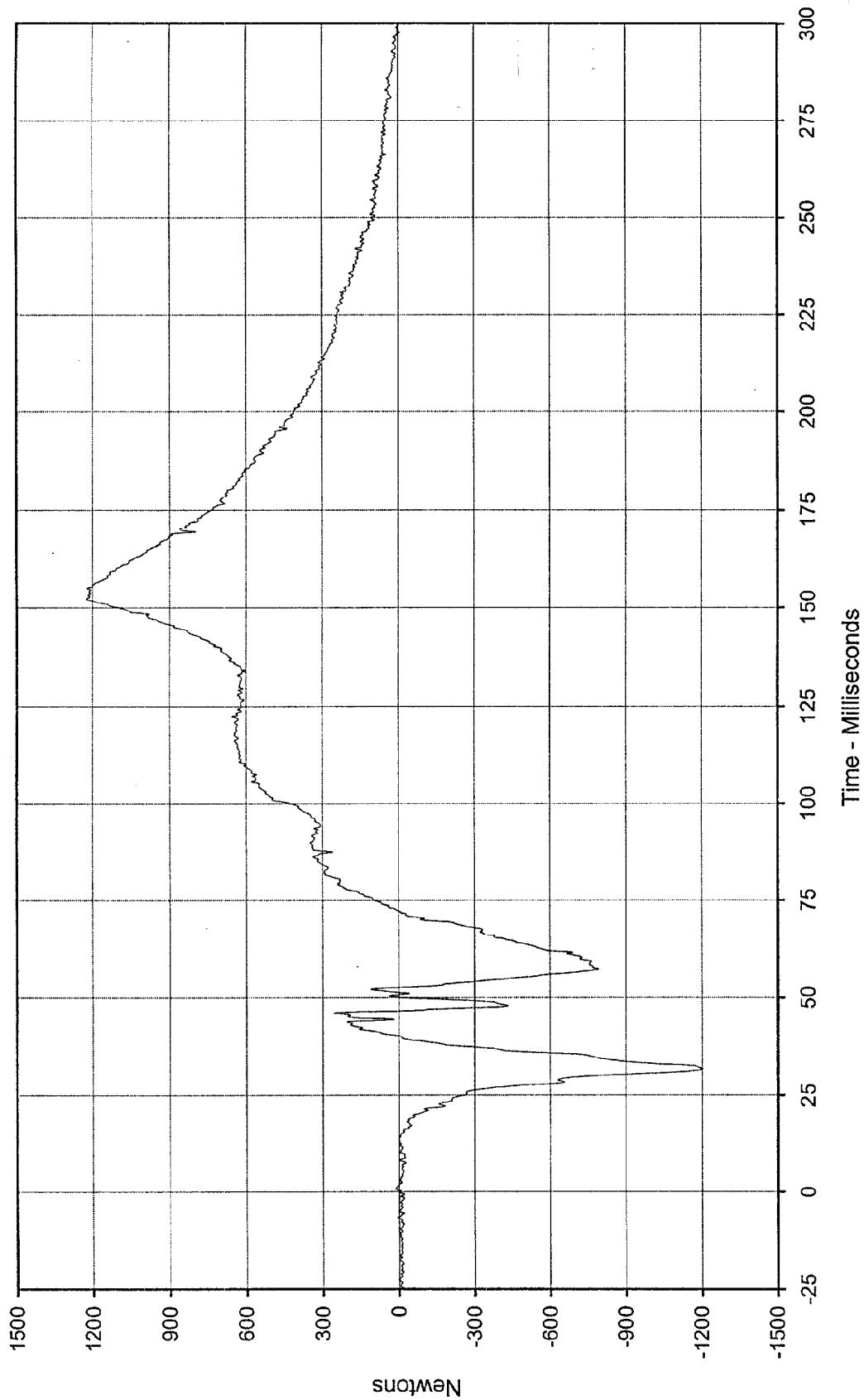




Curve Description: Passenger Pelvis Resultant
 Maximum Value: 59.4 at 60.3 Milliseconds
 Minimum Value: 0.1 at 1.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: RES-064

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Left Femur Force

Maximum Value: 1224.6 at 152.2 Milliseconds

Minimum Value: -1202.4 at 31.6 Milliseconds

SAE Filter Class: 600

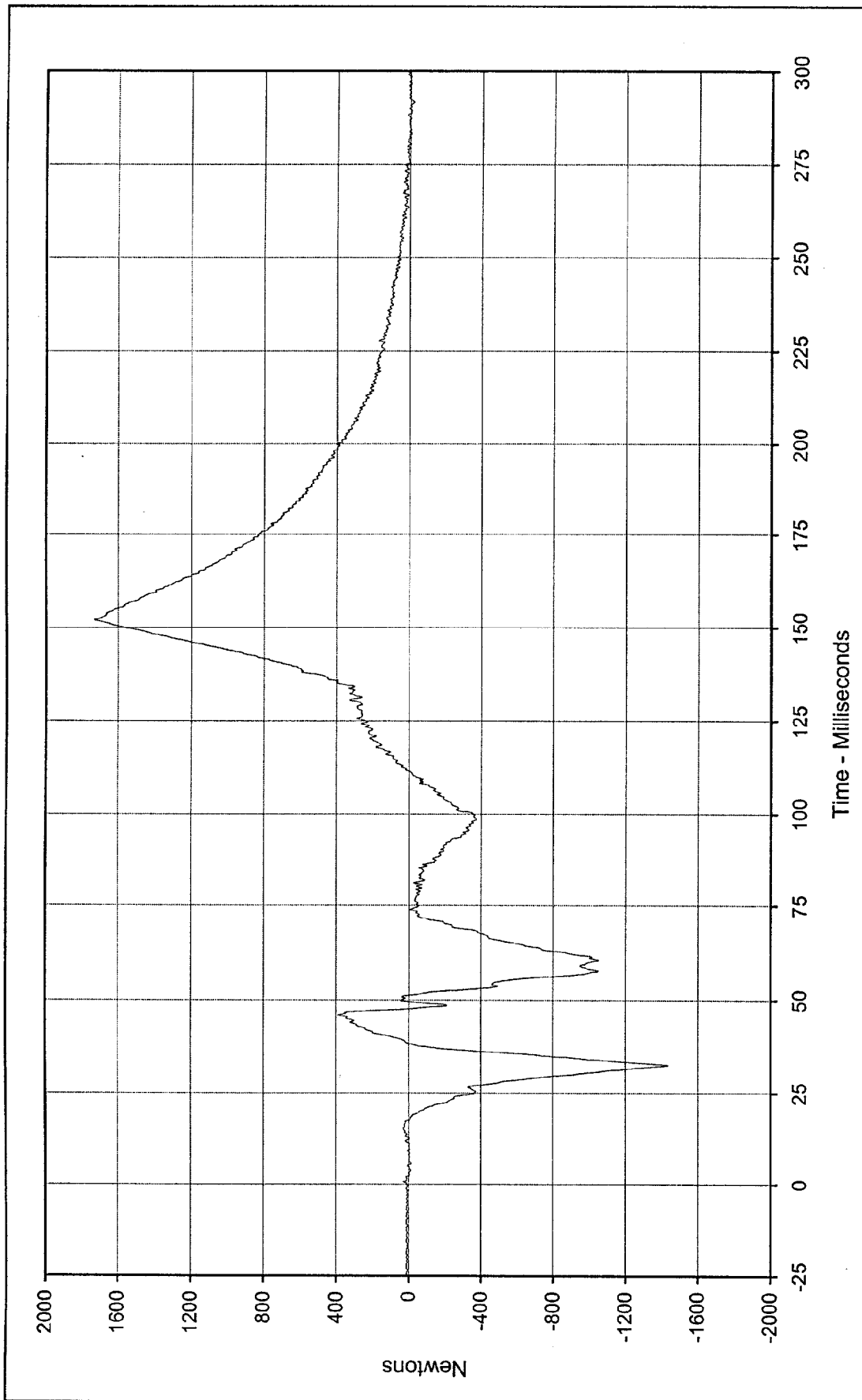
Date of Test: 2/12/98

Curve Number: FIL-067

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

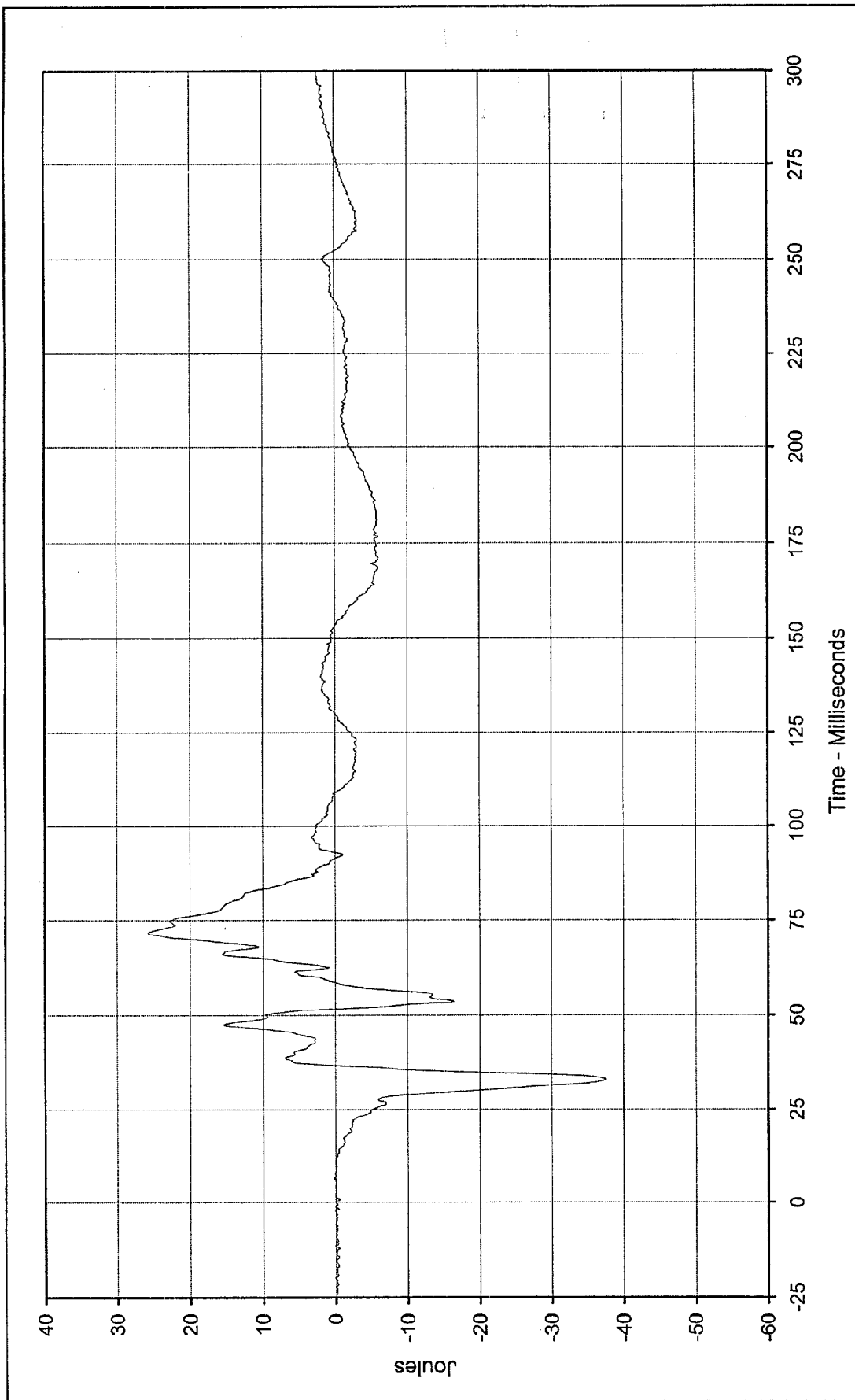




Curve Description:			Passenger Right Femur Force		Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	1731.8	at	152.2	Milliseconds	Test Vehicle:	1998 Lexus ES300 4 Door Sedan	
Minimum Value:	-1434.6	at	32.6	Milliseconds			
SAE Filter Class:	600						
Date of Test:	2/12/98						
Curve Number:	FIL-068						







Curve Description: Passenger Left Upper Tibia Moment X

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 25.7 at 71.5 Milliseconds

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

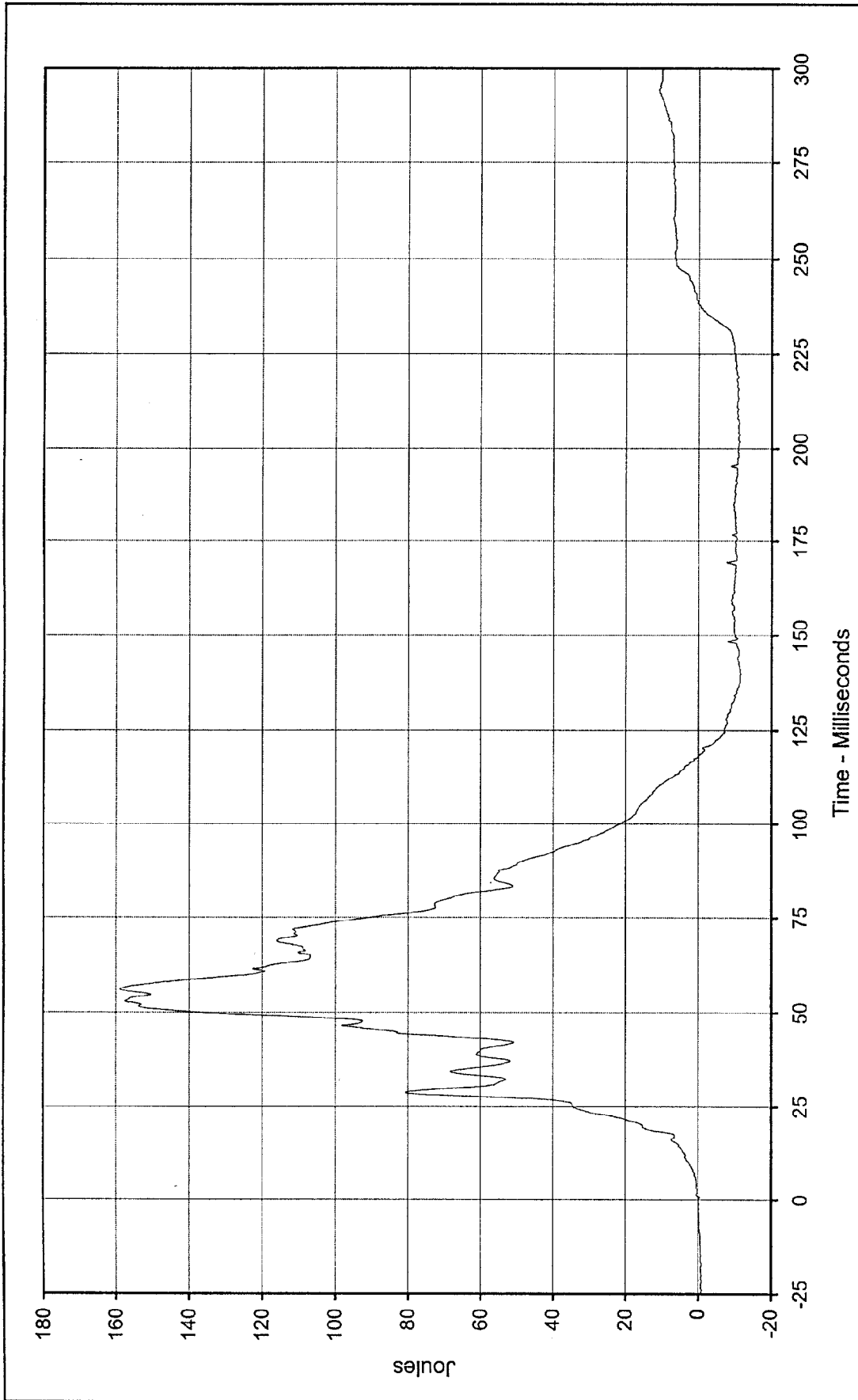
Minimum Value: -37.6 at 32.8 Milliseconds

SAE Filter Class: 600

Date of Test: 2/12/98

Curve Number: FIL-069





Curve Description: Passenger Left Upper Tibia Moment Y

Maximum Value: 159.0 at 56.1 Milliseconds

Minimum Value: -11.7 at 140.0 Milliseconds

SAE Filter Class: 600

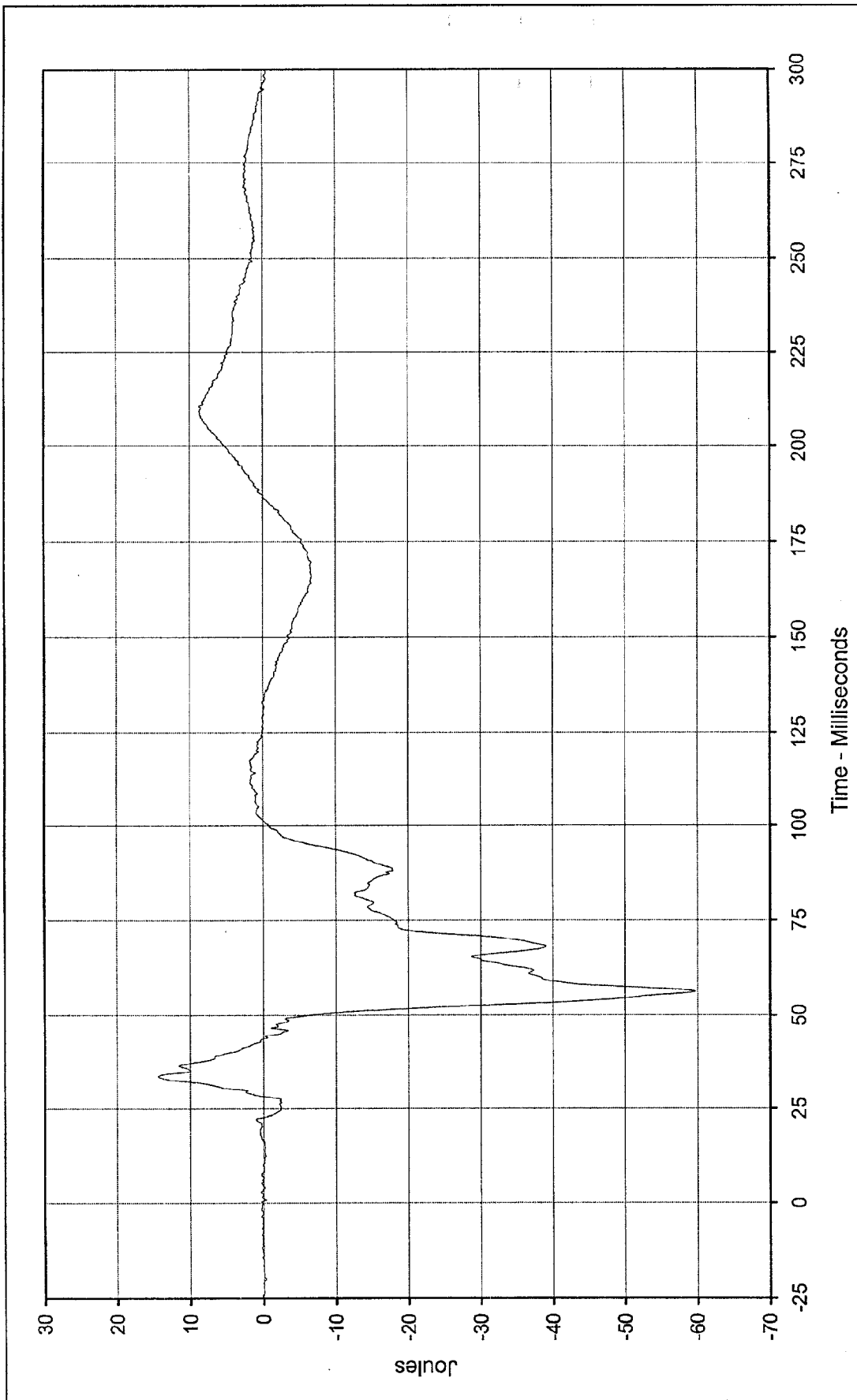
Date of Test: 2/12/98

Curve Number: FIL-070

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

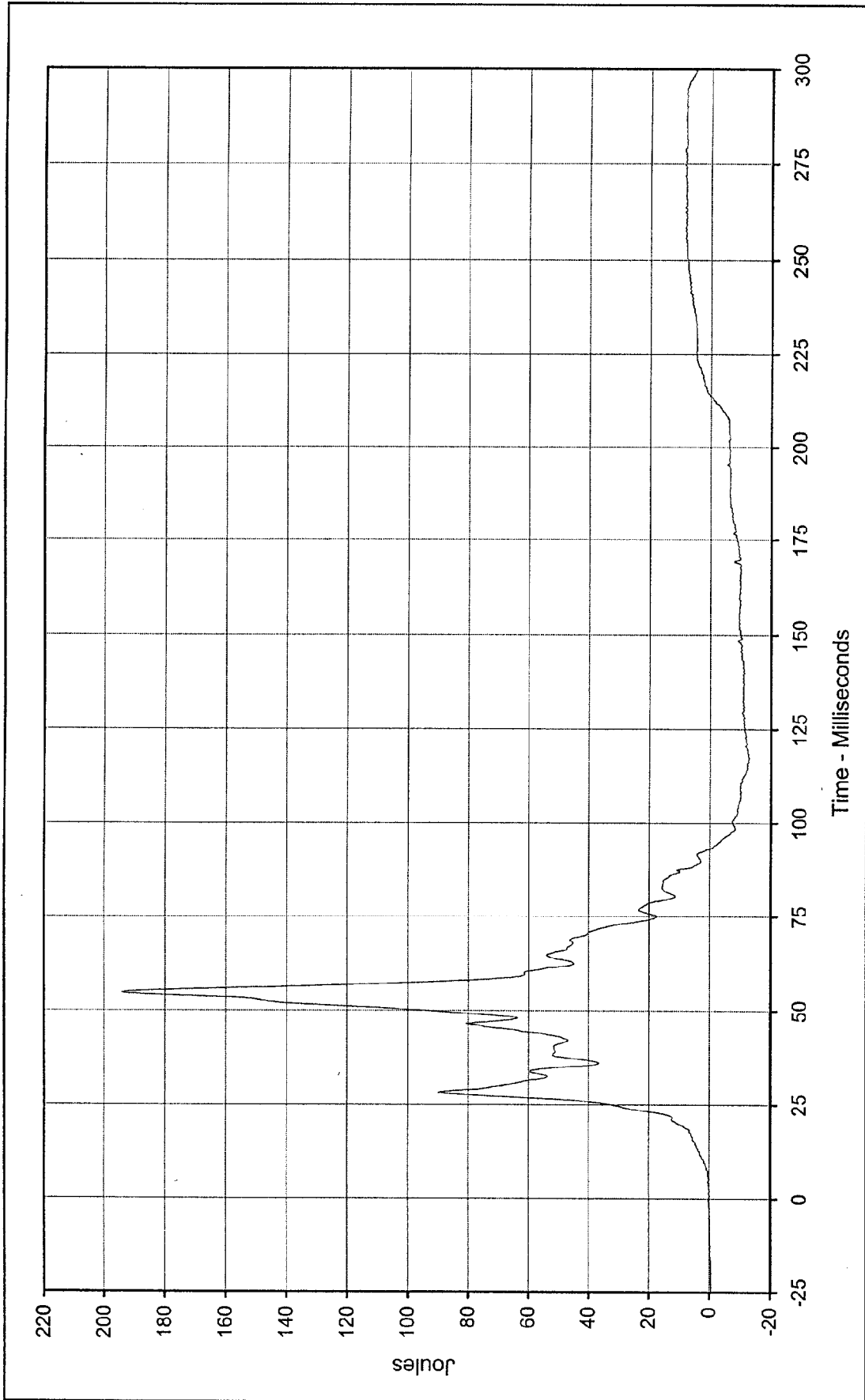




Curve Description: Passenger Right Upper Tibia Moment X
 Maximum Value: 14.4 at 33.6 Milliseconds
 Minimum Value: -59.7 at 56.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-071

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

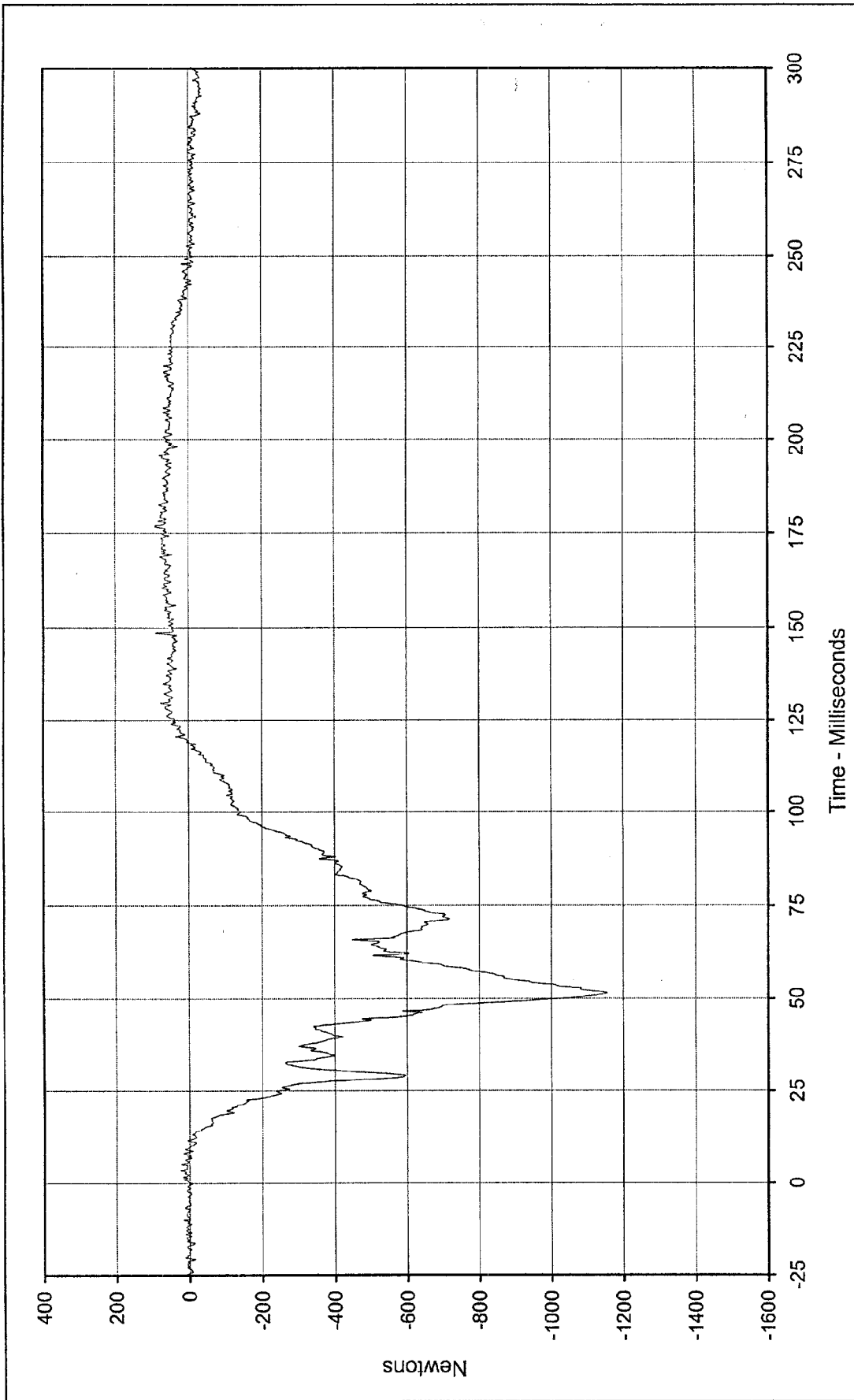




Curve Description: Passenger Right Upper Tibia Moment Y
 Maximum Value: 194.2 at 54.8 Milliseconds
 Minimum Value: -13.0 at 117.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-072

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Left Lower Tibia Force X

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 91.1 at 176.9 Milliseconds

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

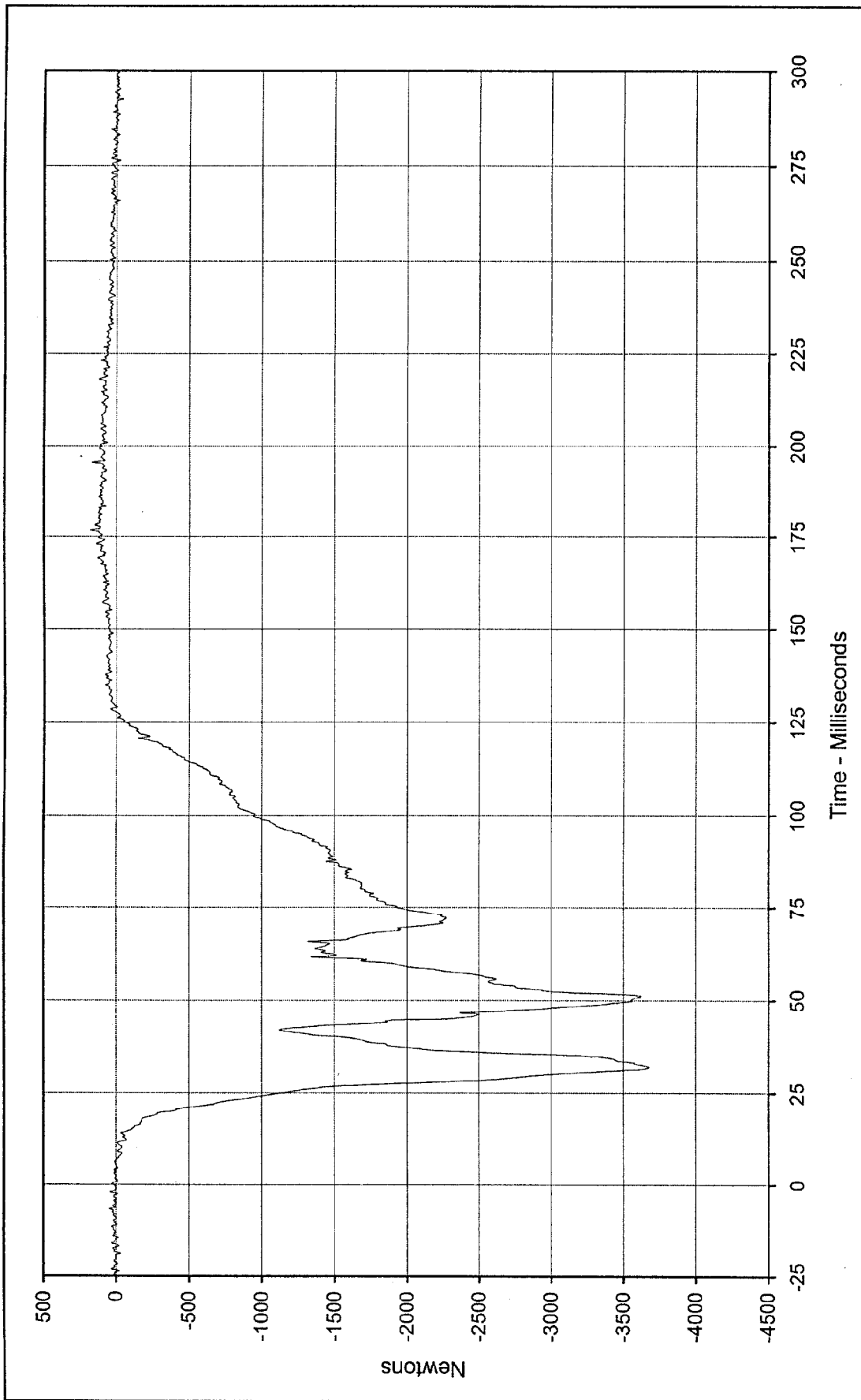
Minimum Value: -1154.2 at 51.5 Milliseconds

SAE Filter Class: 600

Date of Test: 2/12/98

Curve Number: FIL-073

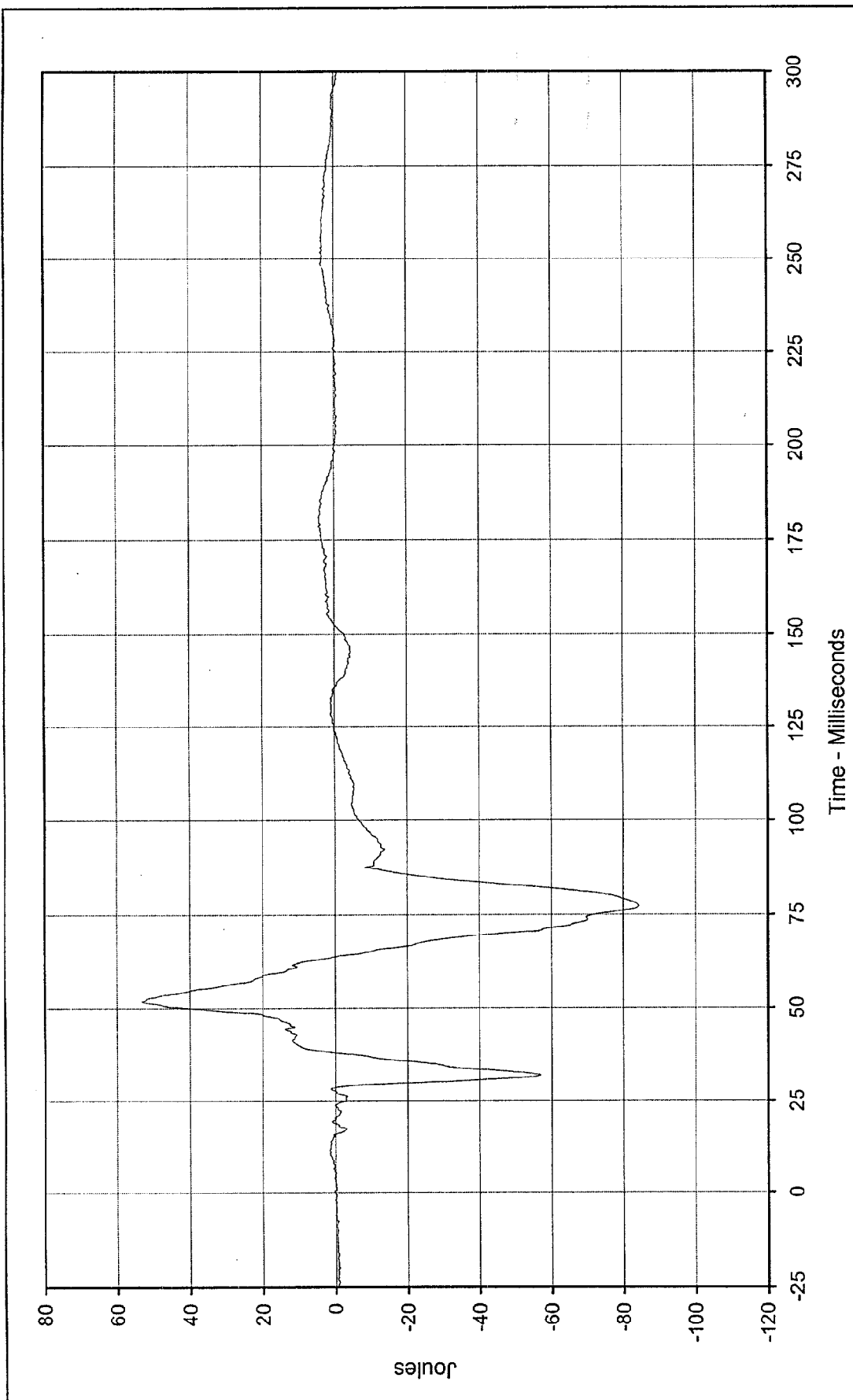




Curve Description: Passenger Left Lower Tibia Force Z
 Maximum Value: 178.0 at 176.8 Milliseconds
 Minimum Value: -3678.2 at 31.9 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-074

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Left Lower Tibia Moment Y

Maximum Value: 53.3 at 51.8 Milliseconds

Minimum Value: -84.3 at 77.2 Milliseconds

SAE Filter Class: 600

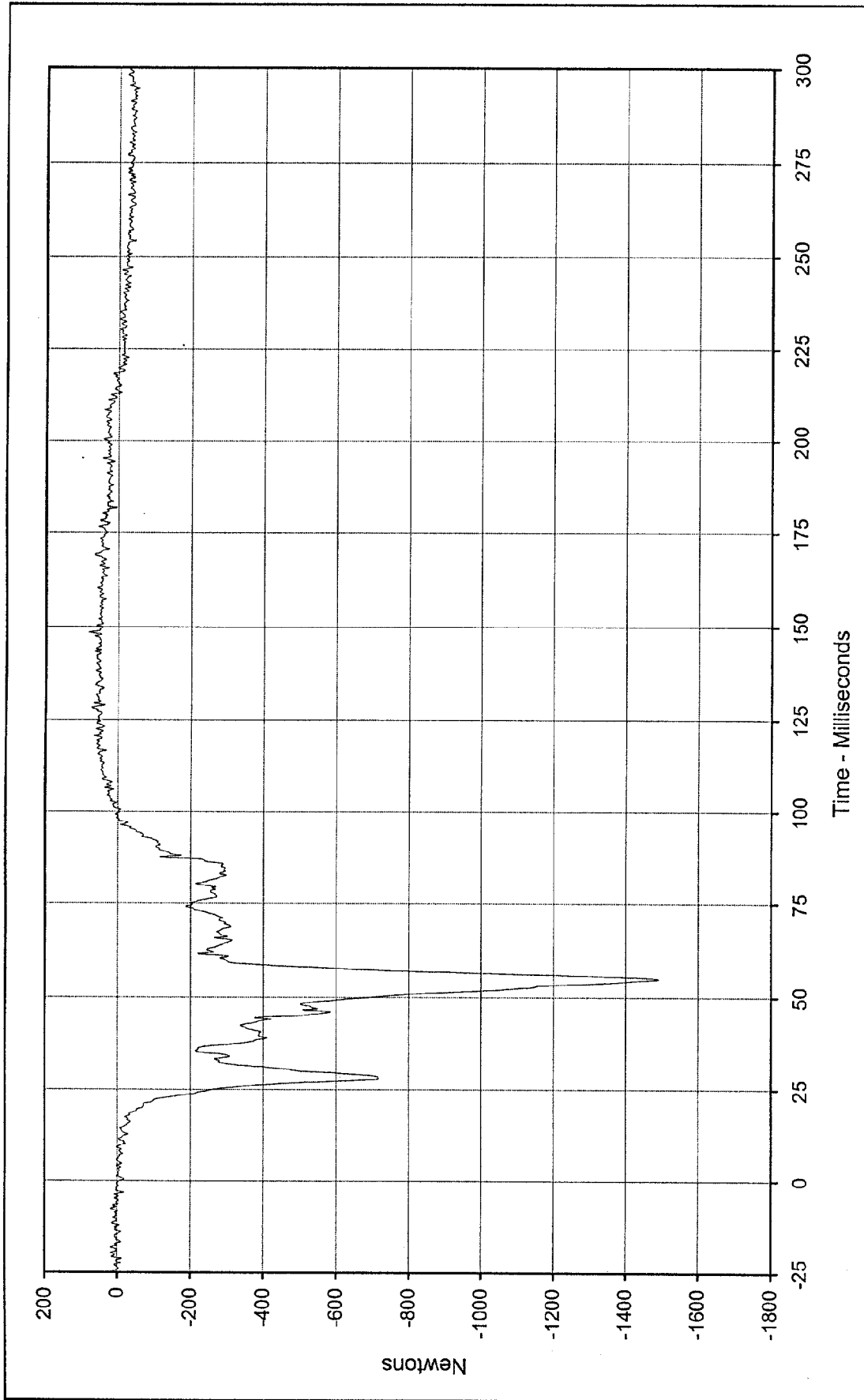
Date of Test: 2/12/98

Curve Number: FIL-075

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

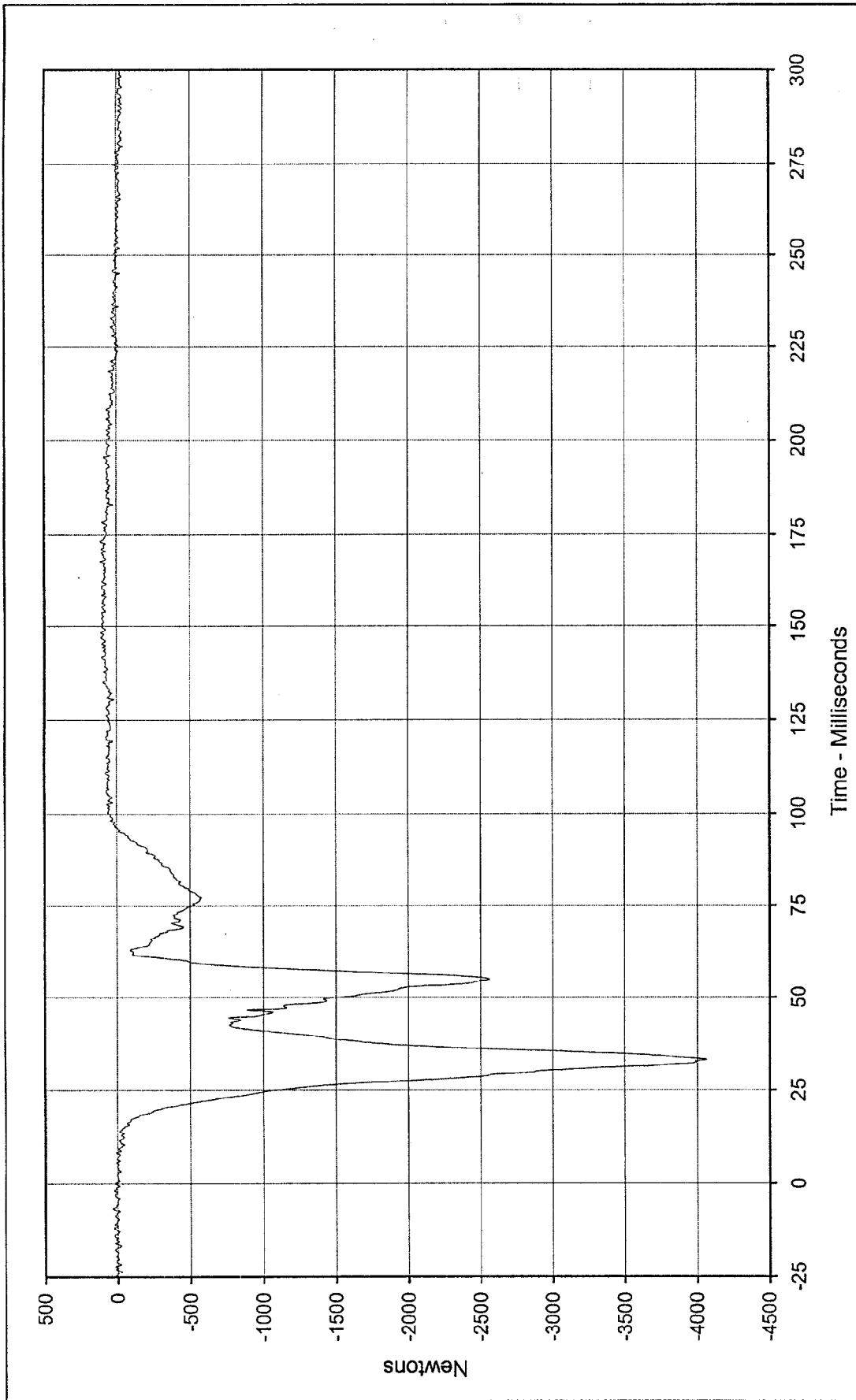




Curve Description: Passenger Right Lower Tibia Force X
 Maximum Value: 82.6 at 148.5 Milliseconds
 Minimum Value: -1489.7 at 54.9 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-076

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

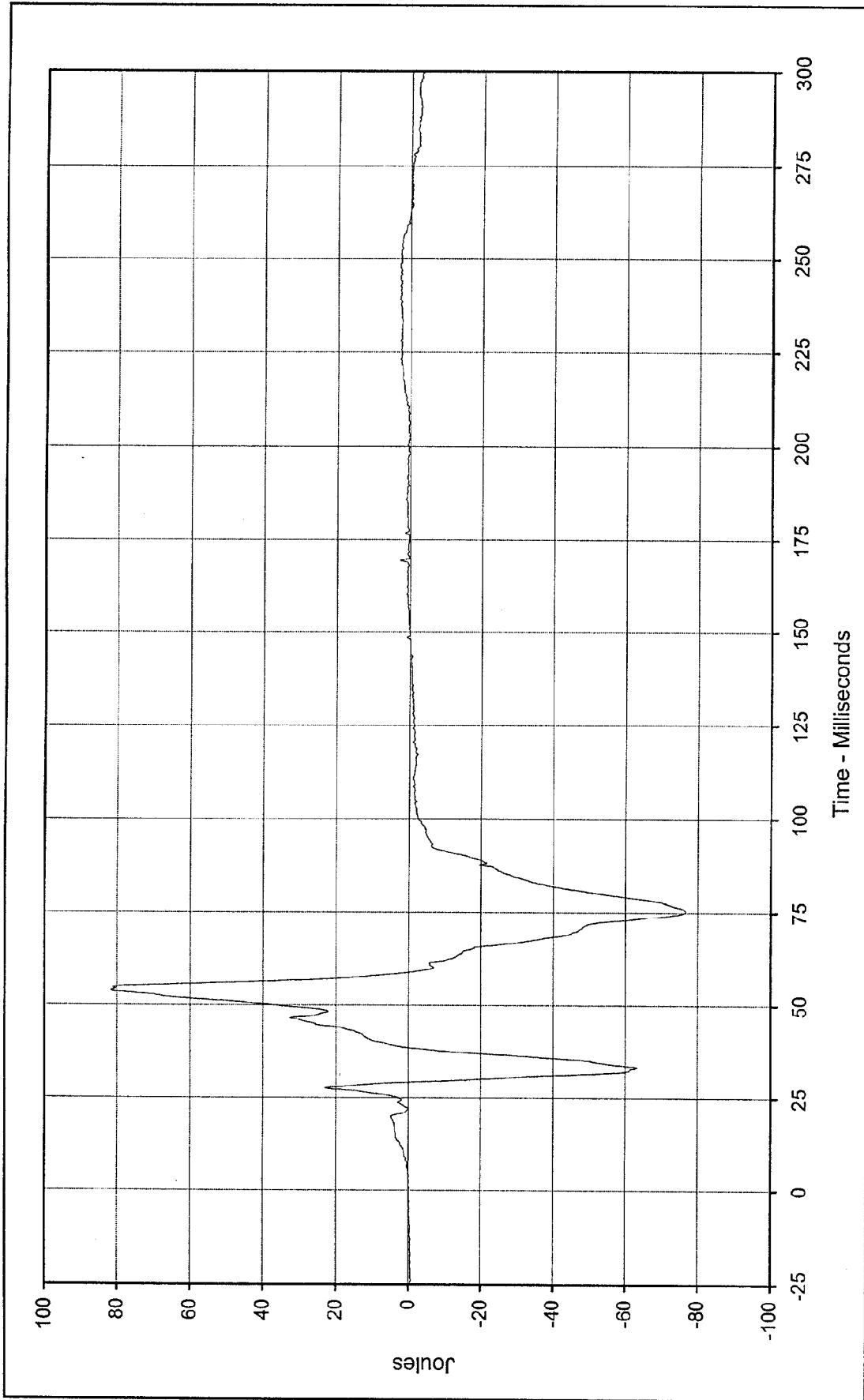




Curve Description: Passenger Right Lower Tibia Force Z
 Maximum Value: 110.7 at 148.4 Milliseconds
 Minimum Value: -4064.0 at 33.0 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-077

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

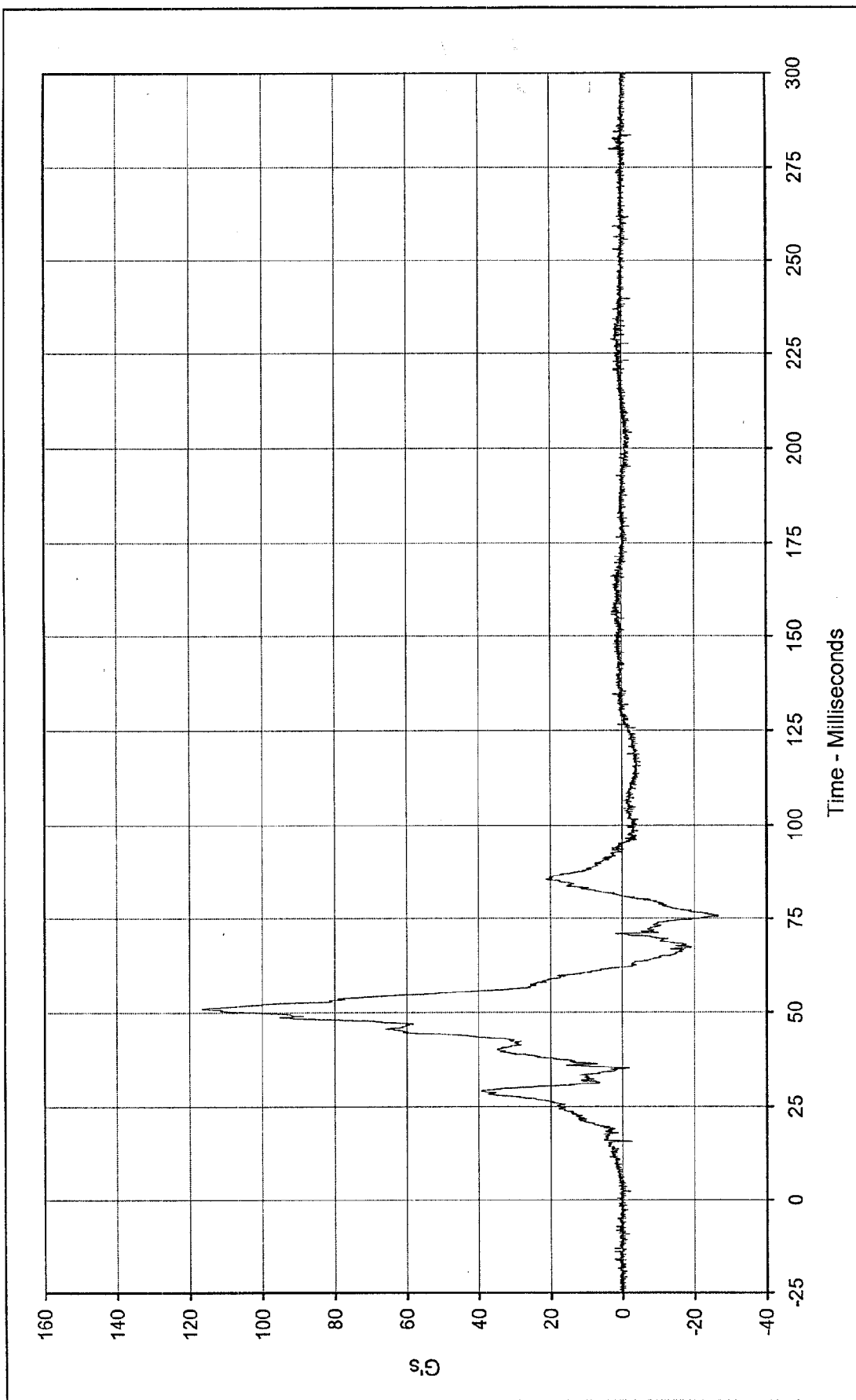




Curve Description: Passenger Right lower Tibia Moment Y
 Maximum Value: 81.6 at 53.9 Milliseconds
 Minimum Value: -76.6 at 75.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/12/98
 Curve Number: FIL-078

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Left Foot Aft X

Maximum Value: 116.7 at 51.0 Milliseconds

Minimum Value: -26.7 at 75.6 Milliseconds

SAE Filter Class: 1000

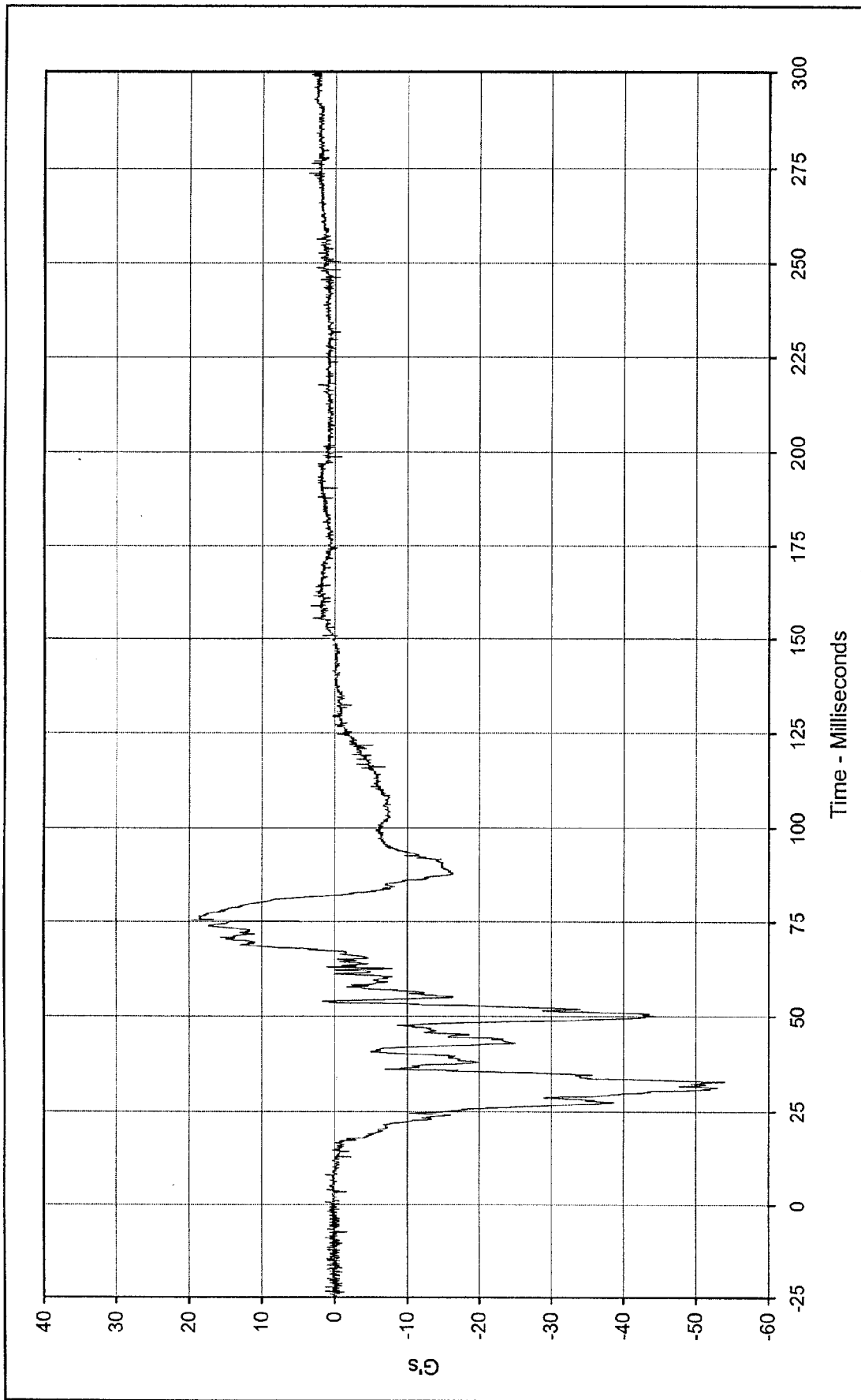
Date of Test: 2/12/98

Curve Number: FIL-079

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

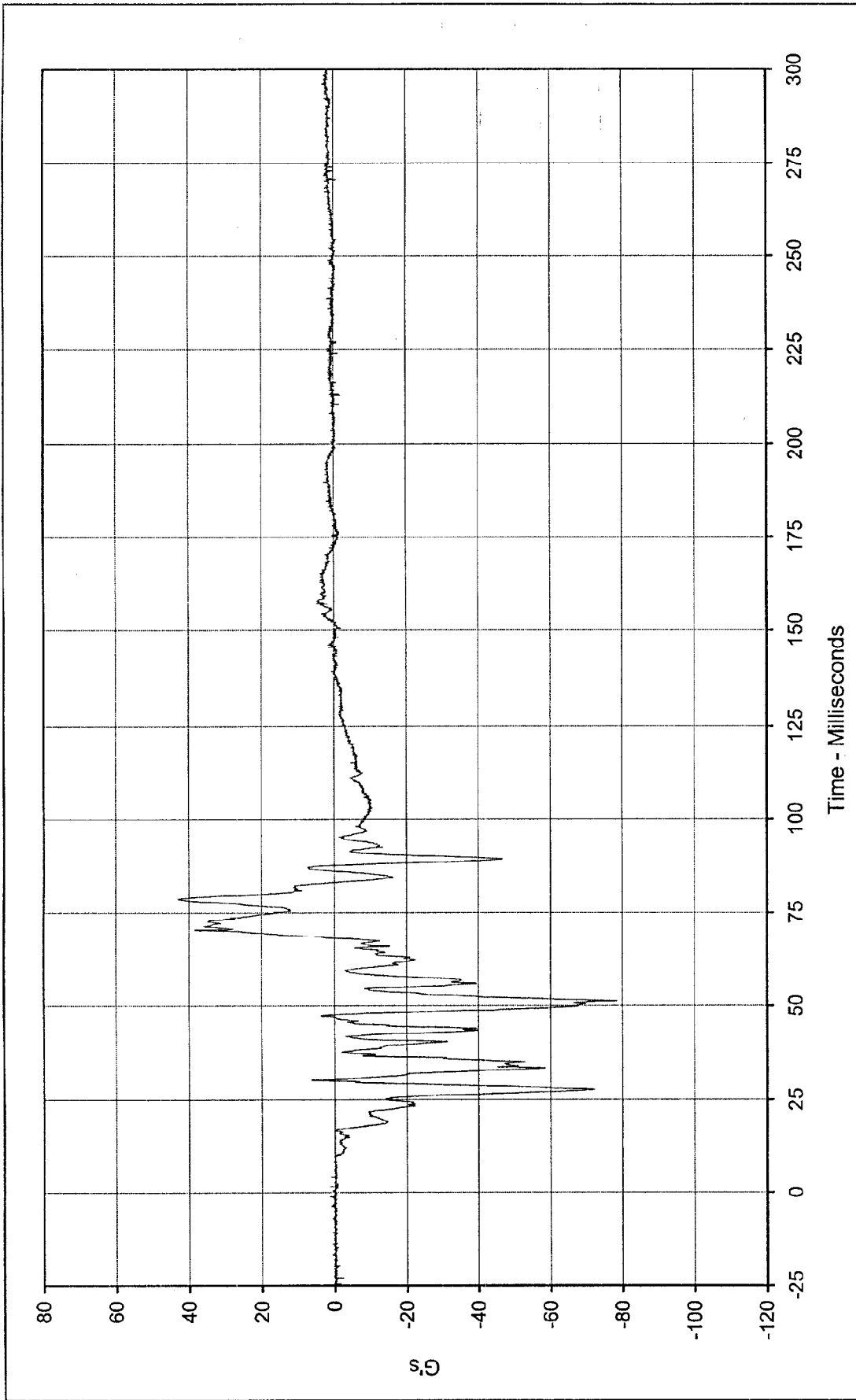
Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Left Foot Air Z Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Maximum Value: 19.7 at 75.6 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan
Minimum Value: -54.0 at 32.9 Milliseconds
SAE Filter Class: 1000
Date of Test: 2/12/98
Curve Number: FIL-080

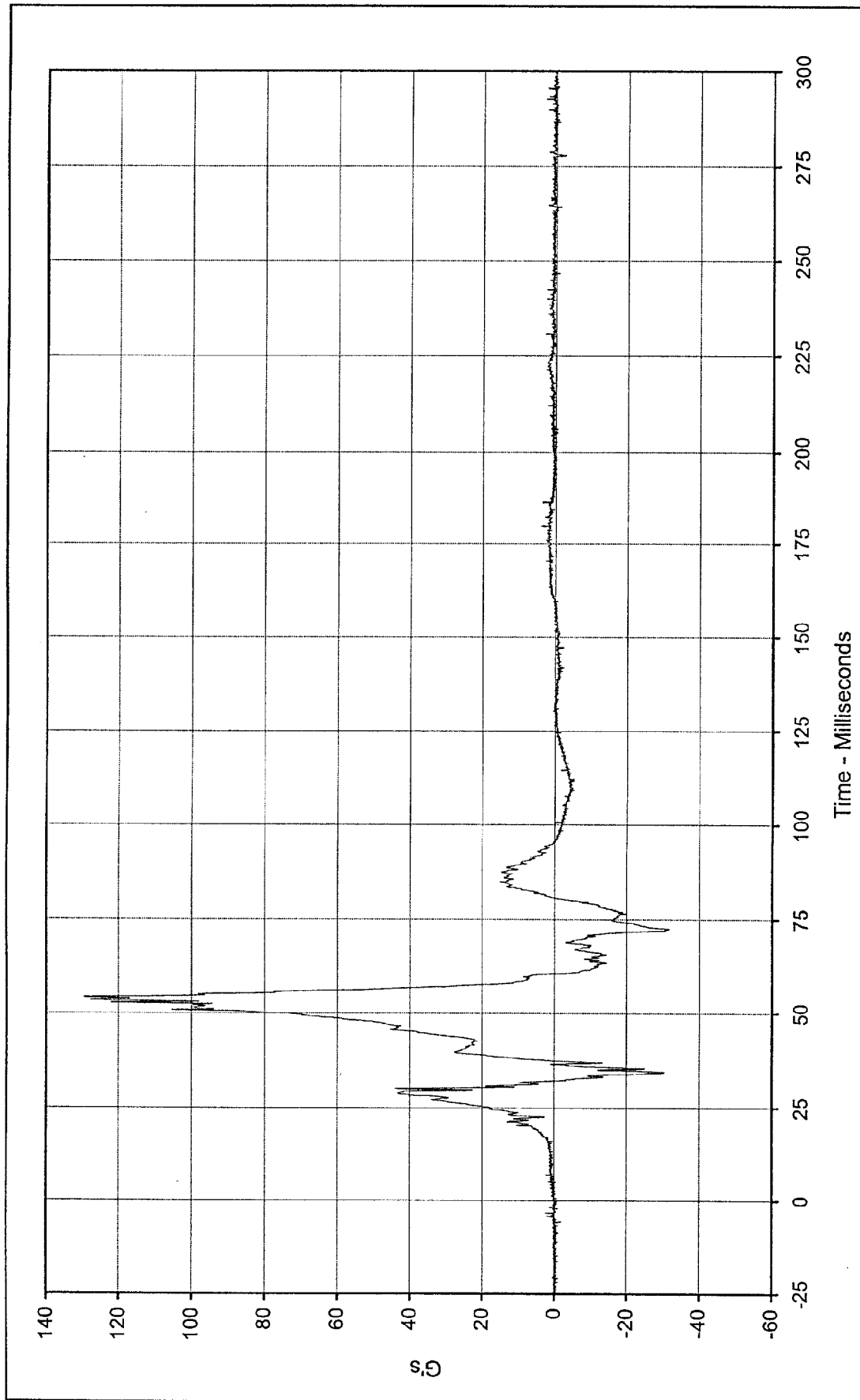




Curve Description: Passenger Left Foot Fore Z
 Maximum Value: 42.9 at 78.6 Milliseconds
 Minimum Value: -78.5 at 51.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-081

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

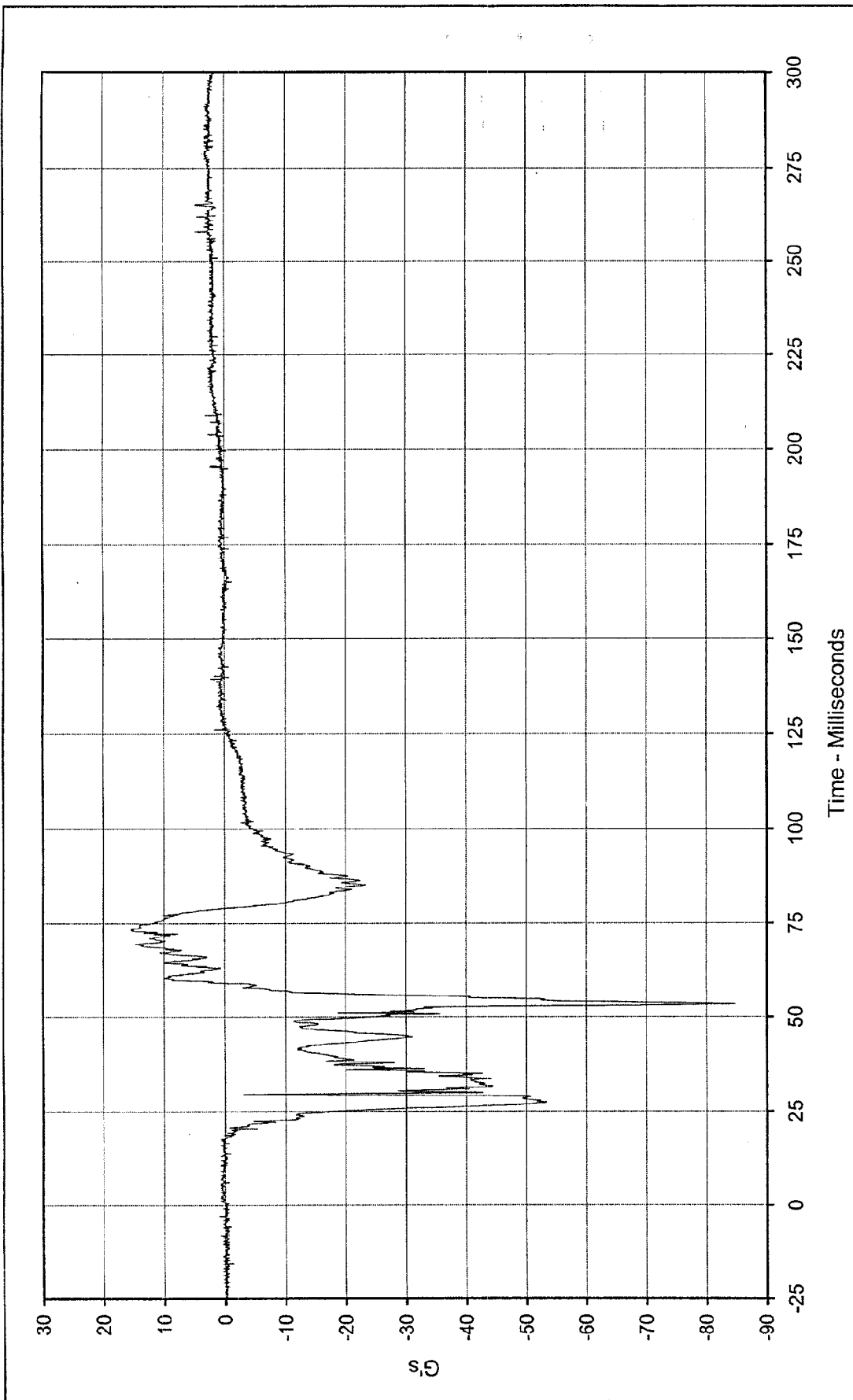




Curve Description: Passenger Right Foot Lift X
 Maximum Value: 129.3 at 54.3 Milliseconds
 Minimum Value: -31.7 at 72.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-082

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

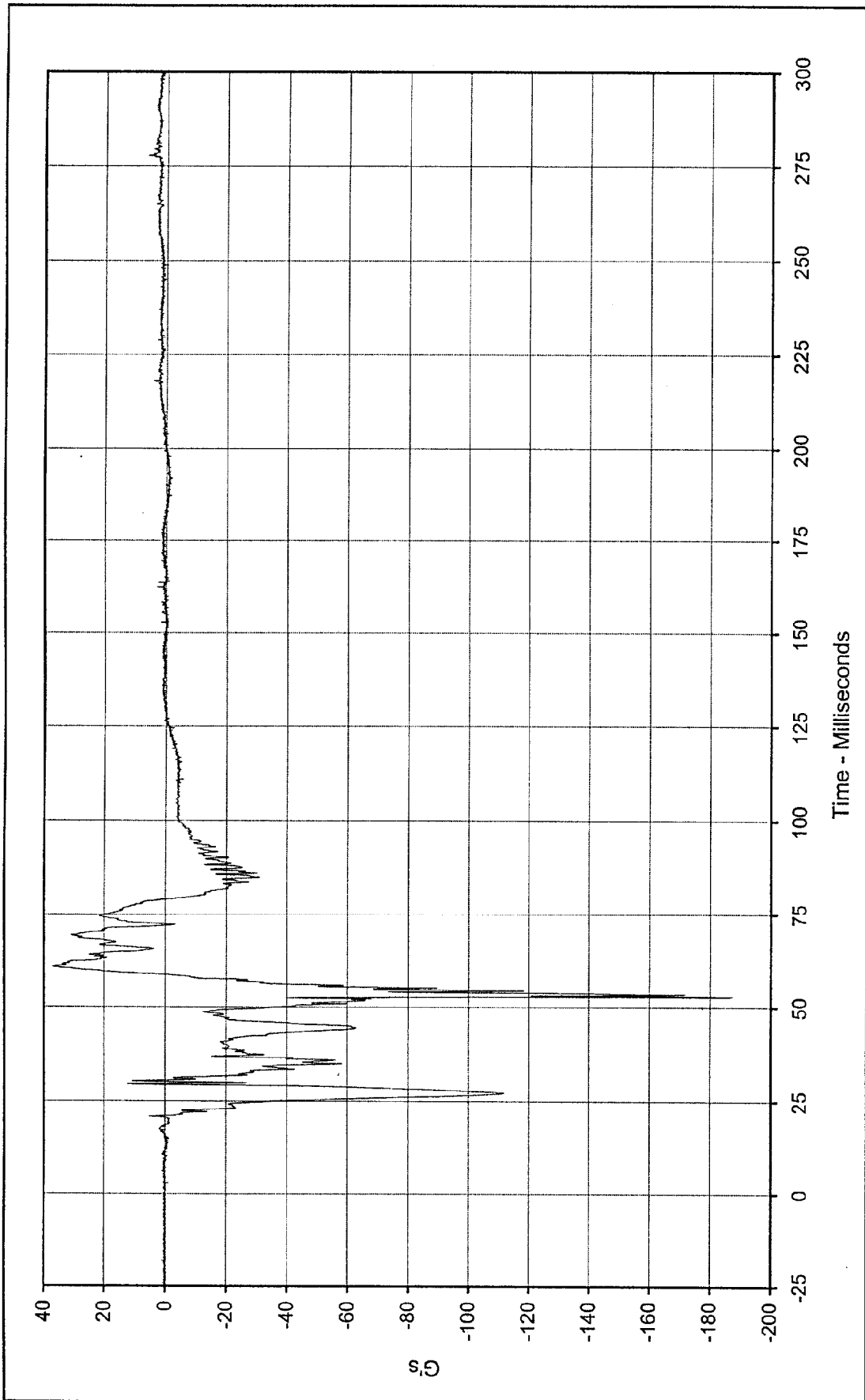




Curve Description: Passenger Right Foot Aft Z
 Maximum Value: 15.4 at 73.1 Milliseconds
 Minimum Value: -84.8 at 53.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-083

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

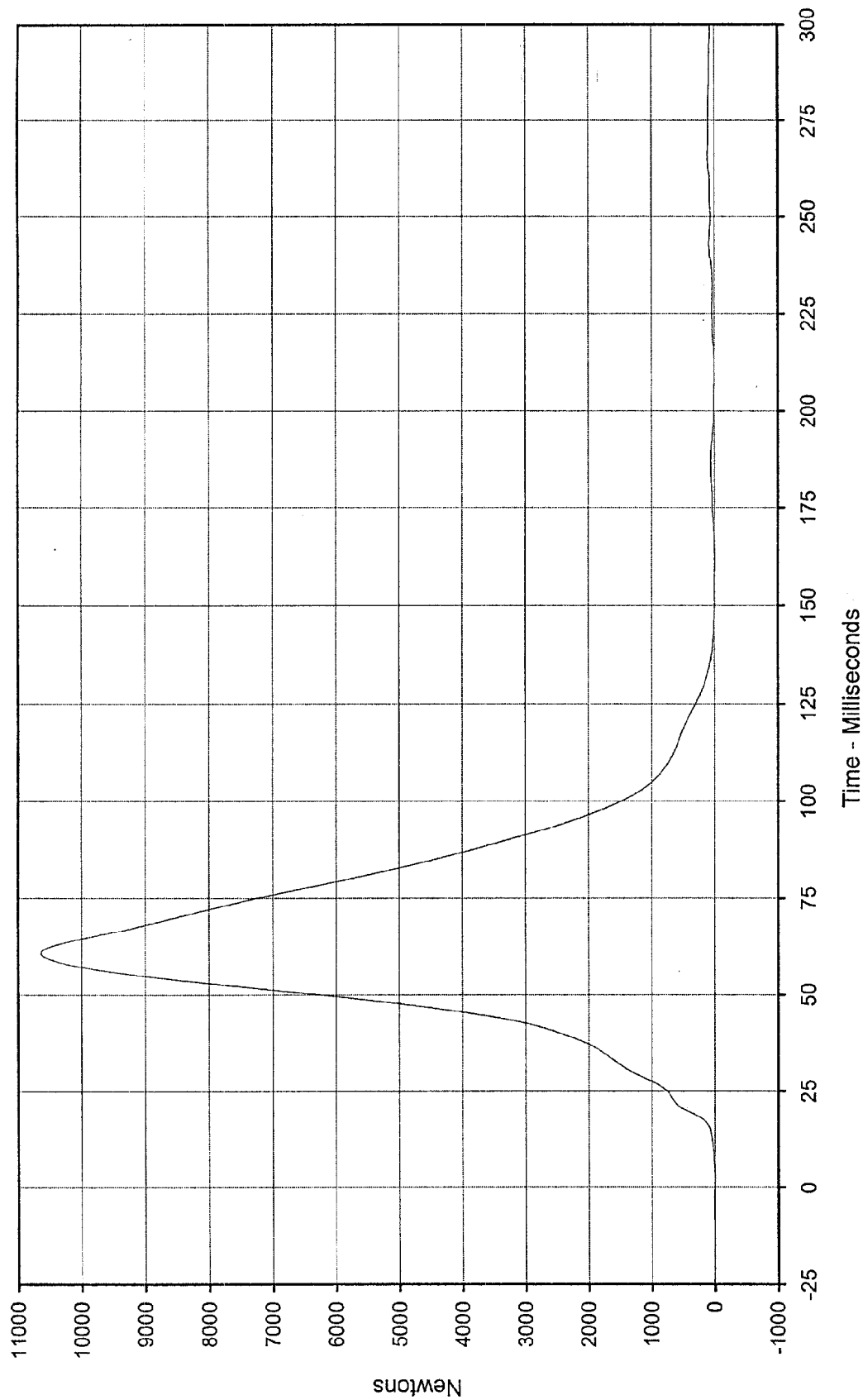




Curve Description: Passenger Right Foot Fore Z
 Maximum Value: 36.9 at 60.9 Milliseconds
 Minimum Value: -187.1 at 53.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/12/98
 Curve Number: FIL-084

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Passenger Lap Belt Force

Maximum Value: 10634.2 at 60.7 Milliseconds

Minimum Value: -10.1 at 2.2 Milliseconds

SAE Filter Class: 60

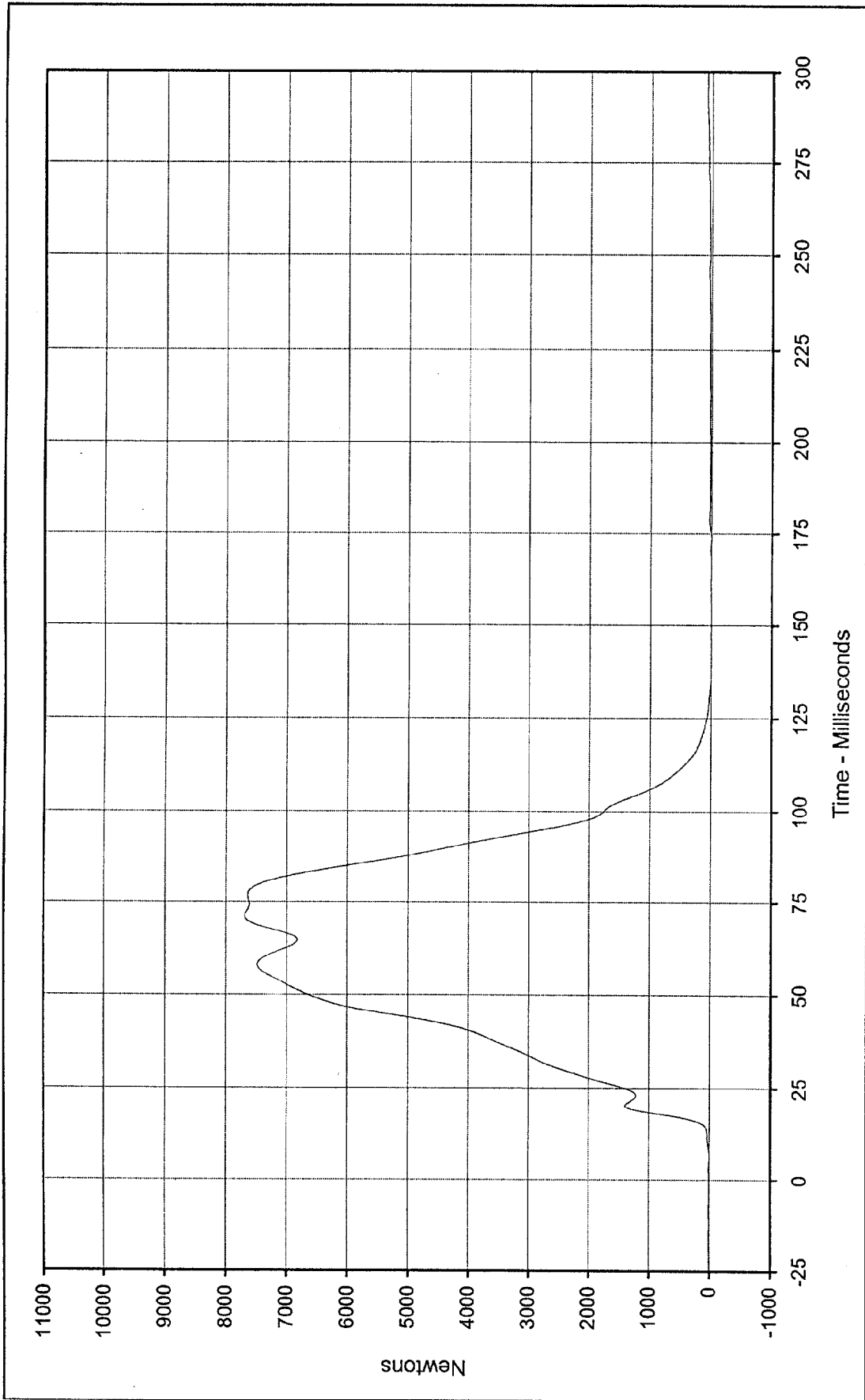
Date of Test: 2/12/98

Curve Number: FIL-085

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

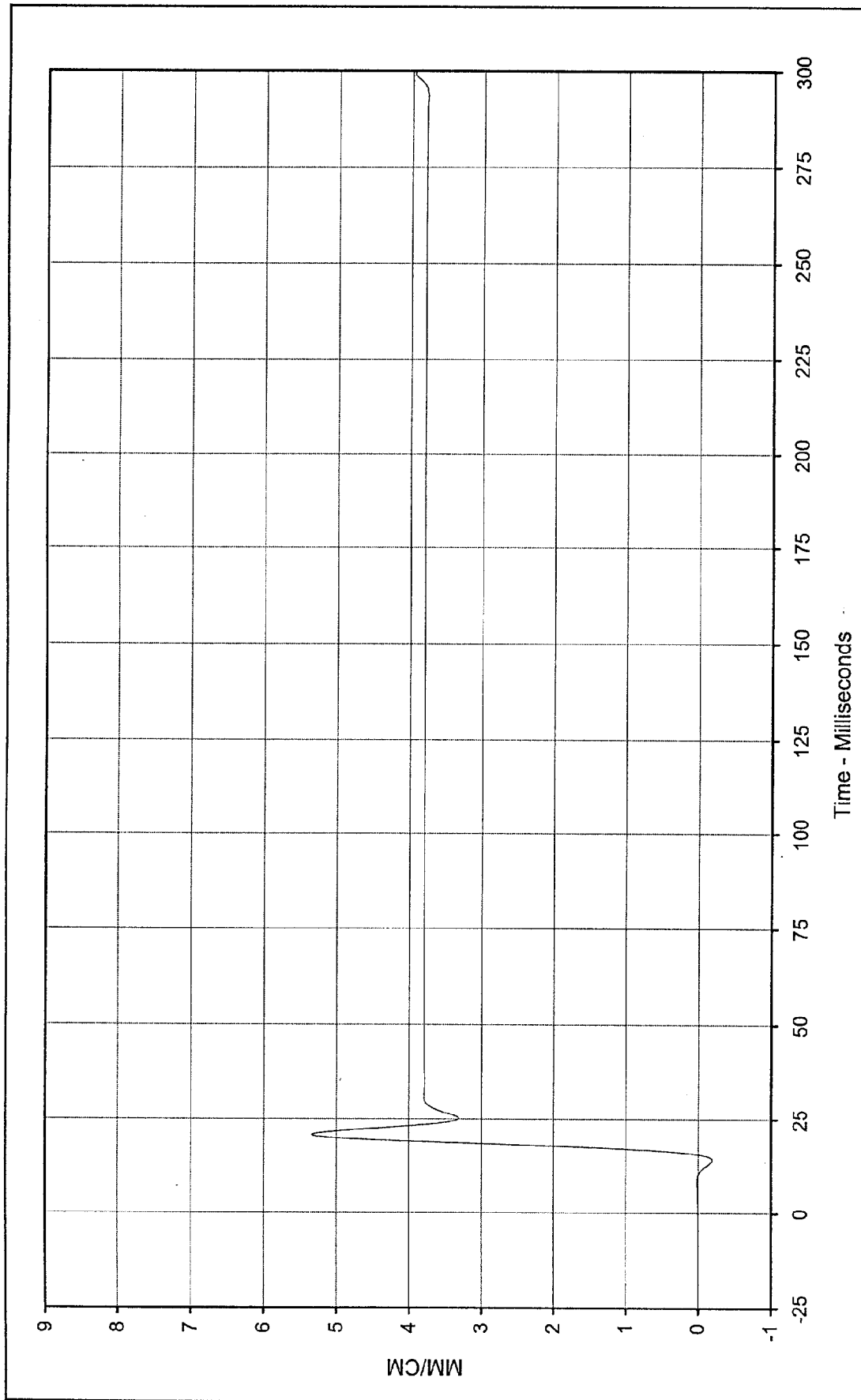




Curve Description: Passenger Shoulder Belt Force
 Maximum Value: 7690.6 at 71.1 Milliseconds
 Minimum Value: -5.0 at 141.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/12/98
 Curve Number: FIL-086

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

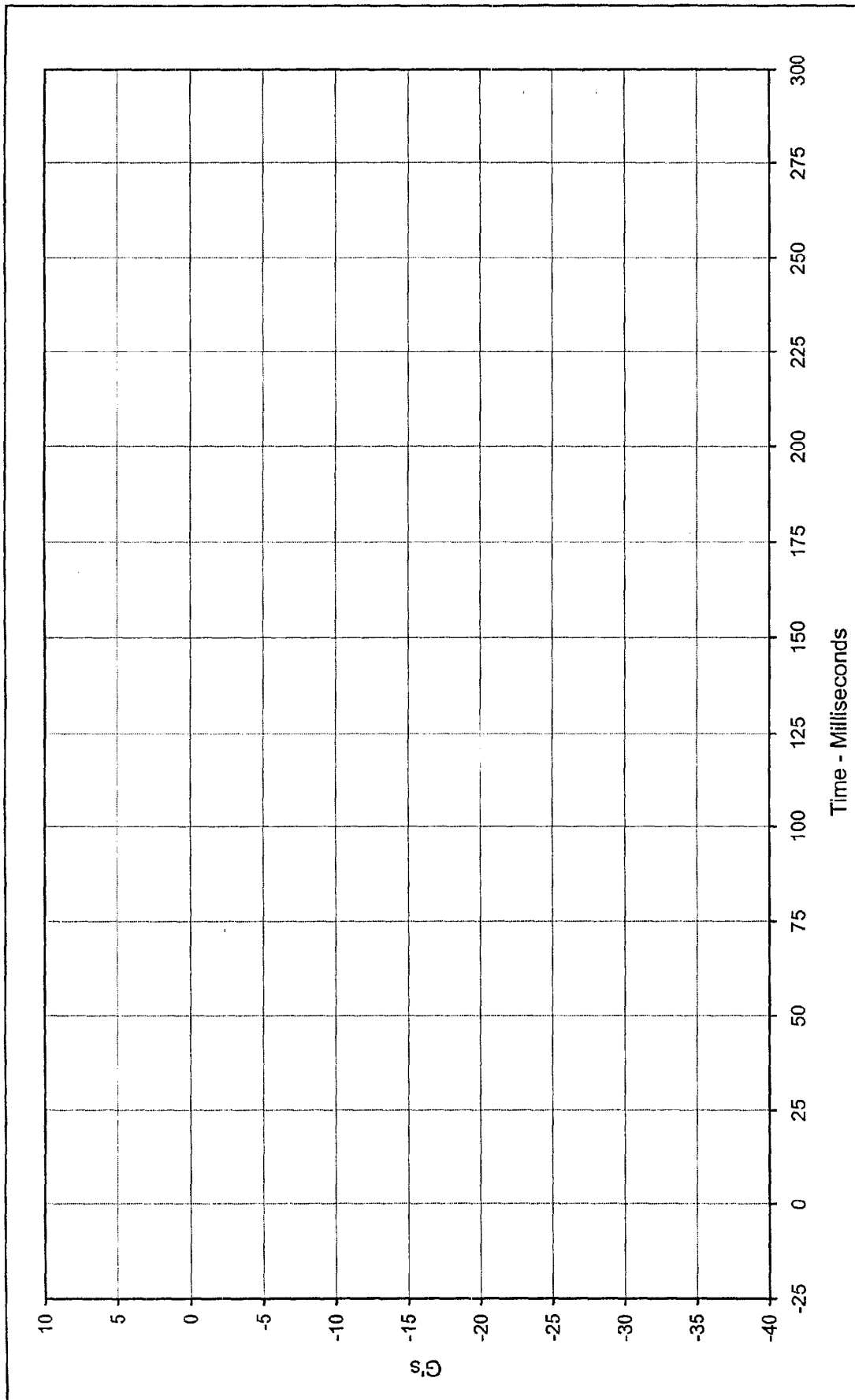




Curve Description: Passenger Shoulder Belt Elongation *
 Maximum Value: 5.34 at 20.8 Milliseconds
 Minimum Value: -0.20 at 14.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/12/98
 Curve Number: FIL-088



* Questionable, Belt Pre-Tensioner Interaction

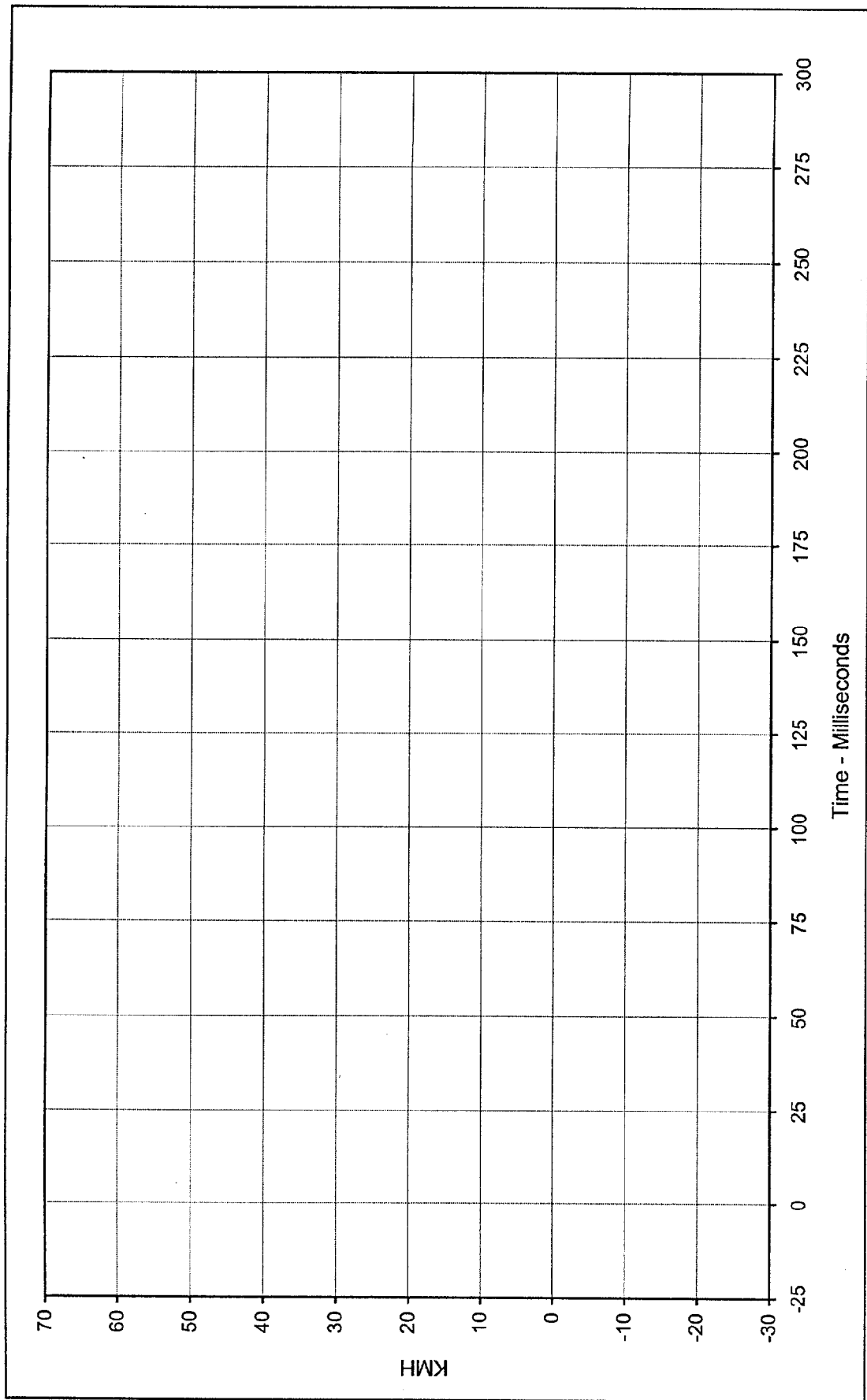


Curve Description: _____ Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Maximum Value: 0.0 at 0.0 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan
 Minimum Value: 0.0 at 0.0 Milliseconds



SAE Filter Class: 60
 Date of Test: 2/12/98
 Curve Number: FIL-089

* Channel Failed, No Data



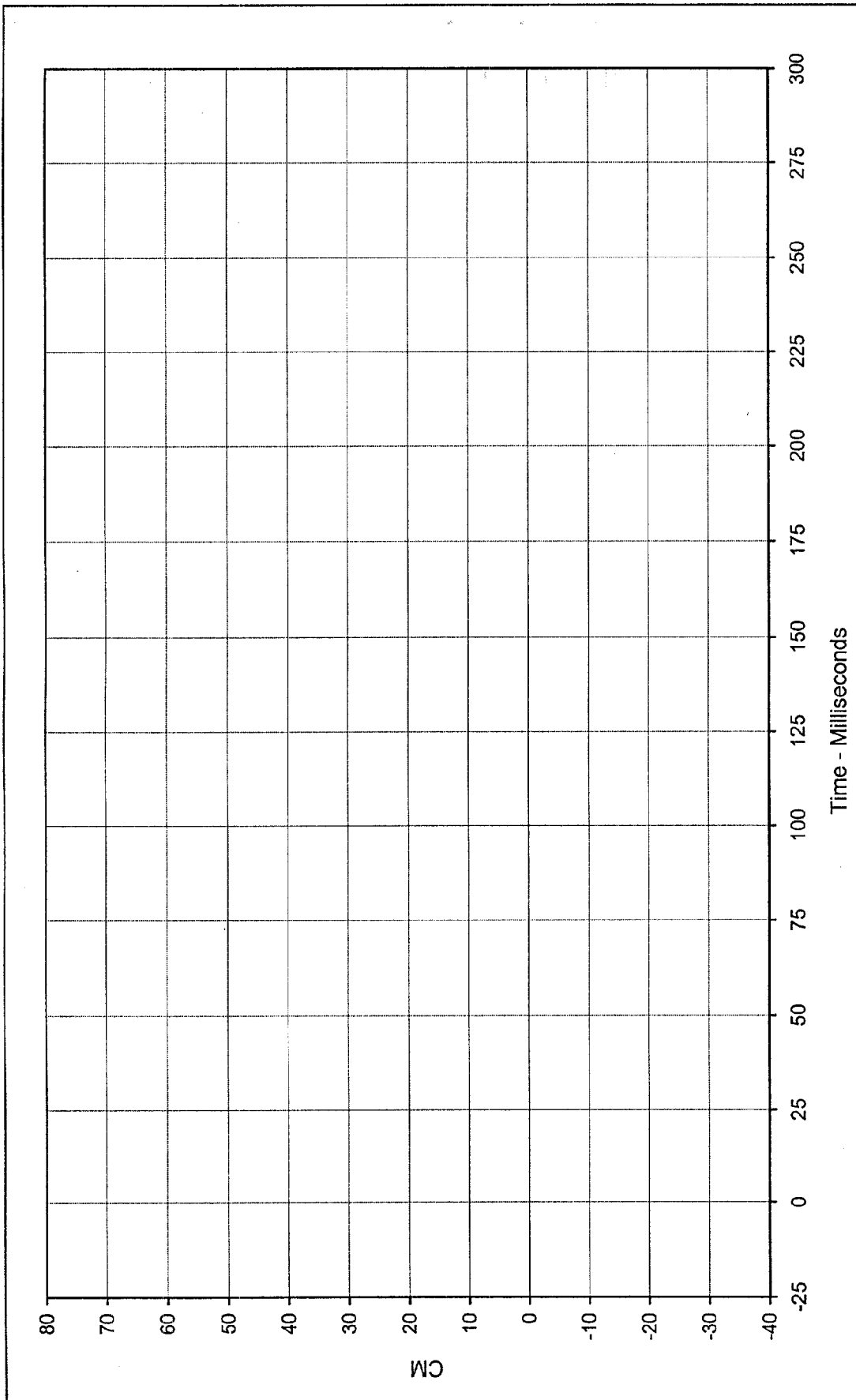
Curve Description: Vehicle Left Rear Primary Velocity *
 Maximum Value: 0.0 at 0.0 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-089

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan



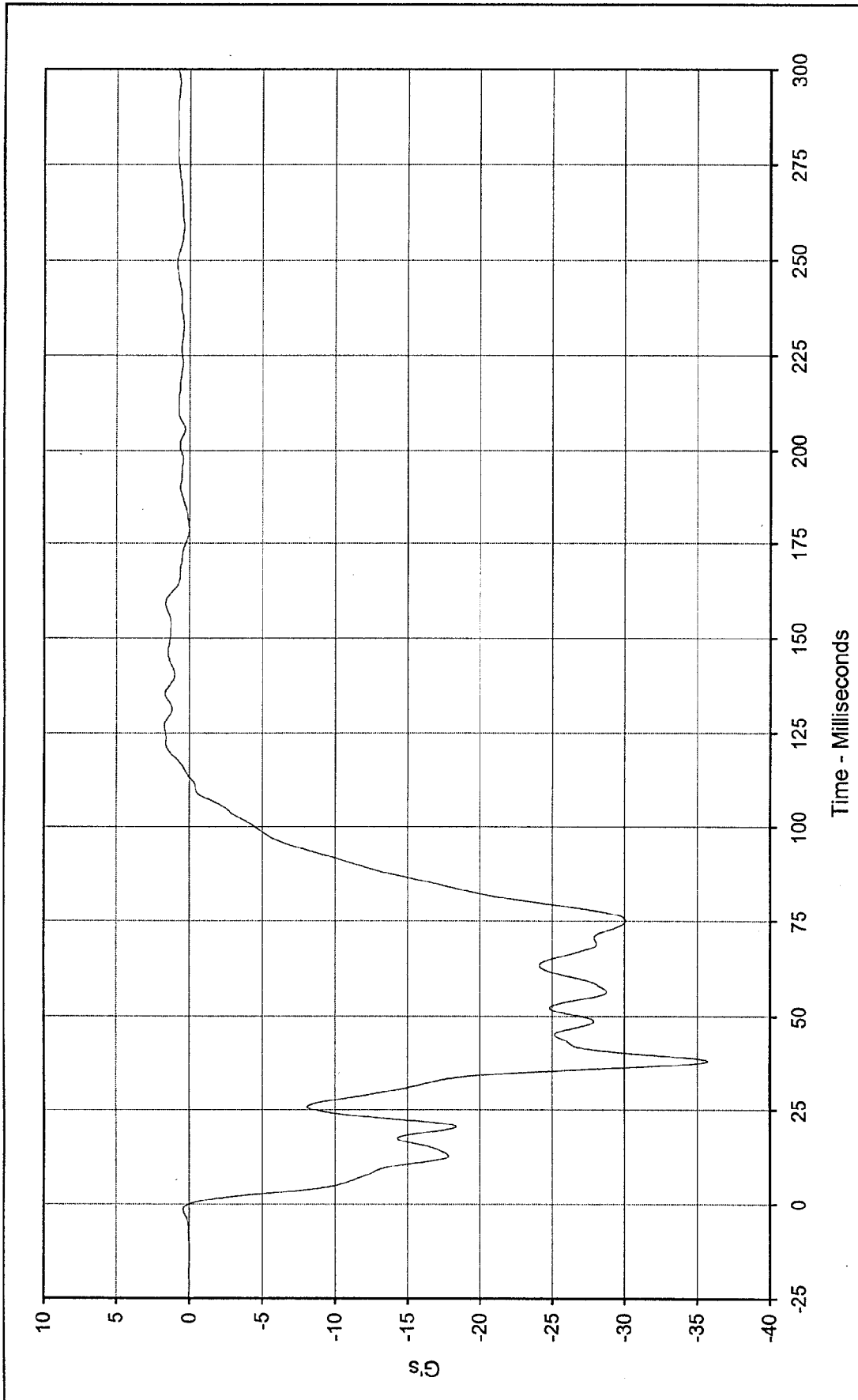
* Channel Failed, No Data



Curve Description:	Vehicle Left Rear Primary Displ.	*	Testing Program	1998 NHTSA 35 mph NCAP	No.: MW5103
Maximum Value:	0.0	at 0.0	Milliseconds	Test Vehicle:	1998 Lexus ES300 4 Door Sedan
Minimum Value:	0.0	at 0.0	Milliseconds		
SAE Filter Class:	180				
Date of Test:	2/12/98				
Curve Number:	IN2-089				



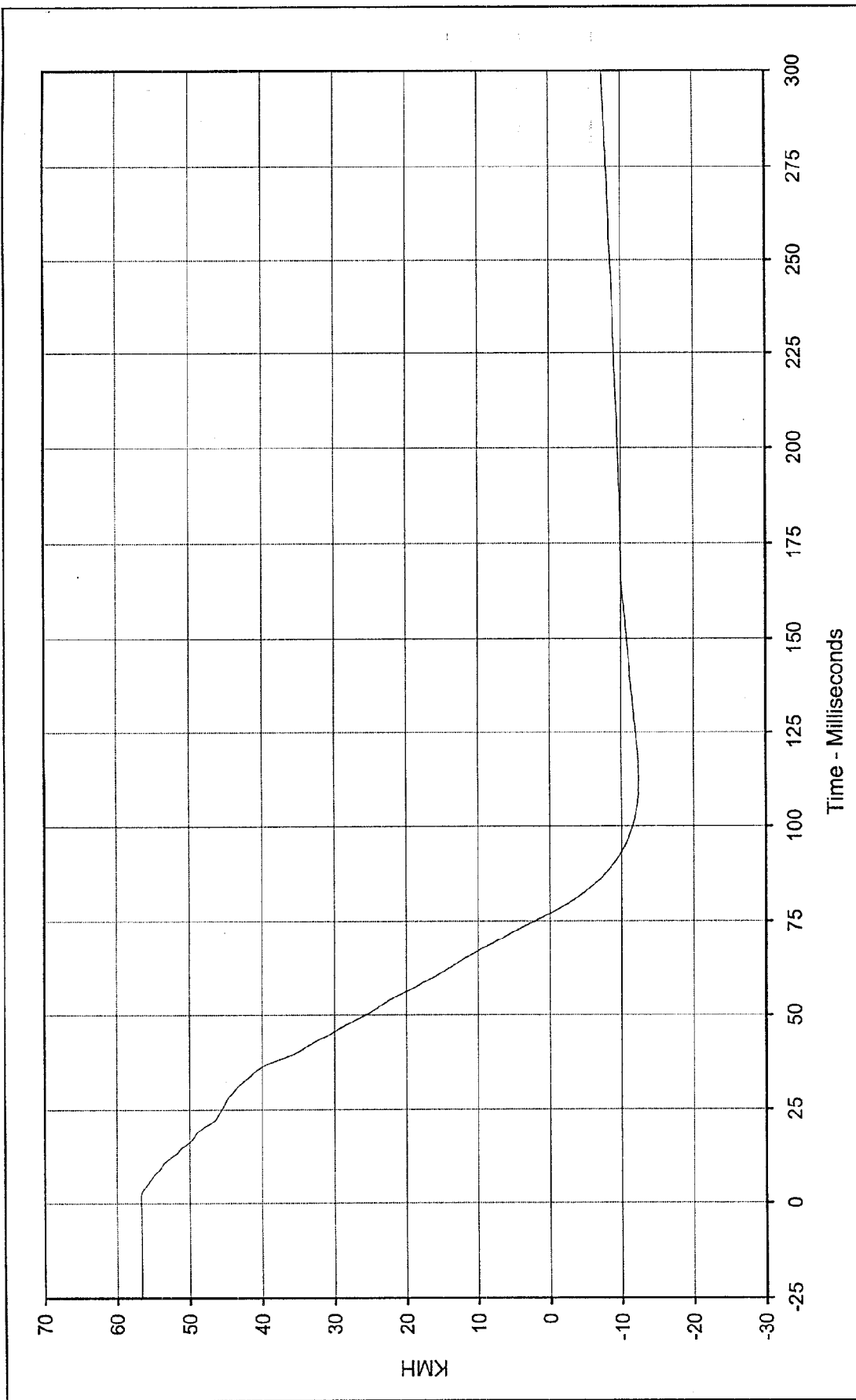
* Channel Failed, No Data



Curve Description: Vehicle Right Rear Primary
 Maximum Value: 1.7 at 127.0 Milliseconds
 Minimum Value: -35.7 at 38.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/12/98
 Curve Number: FIL-090

Testing Program: 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

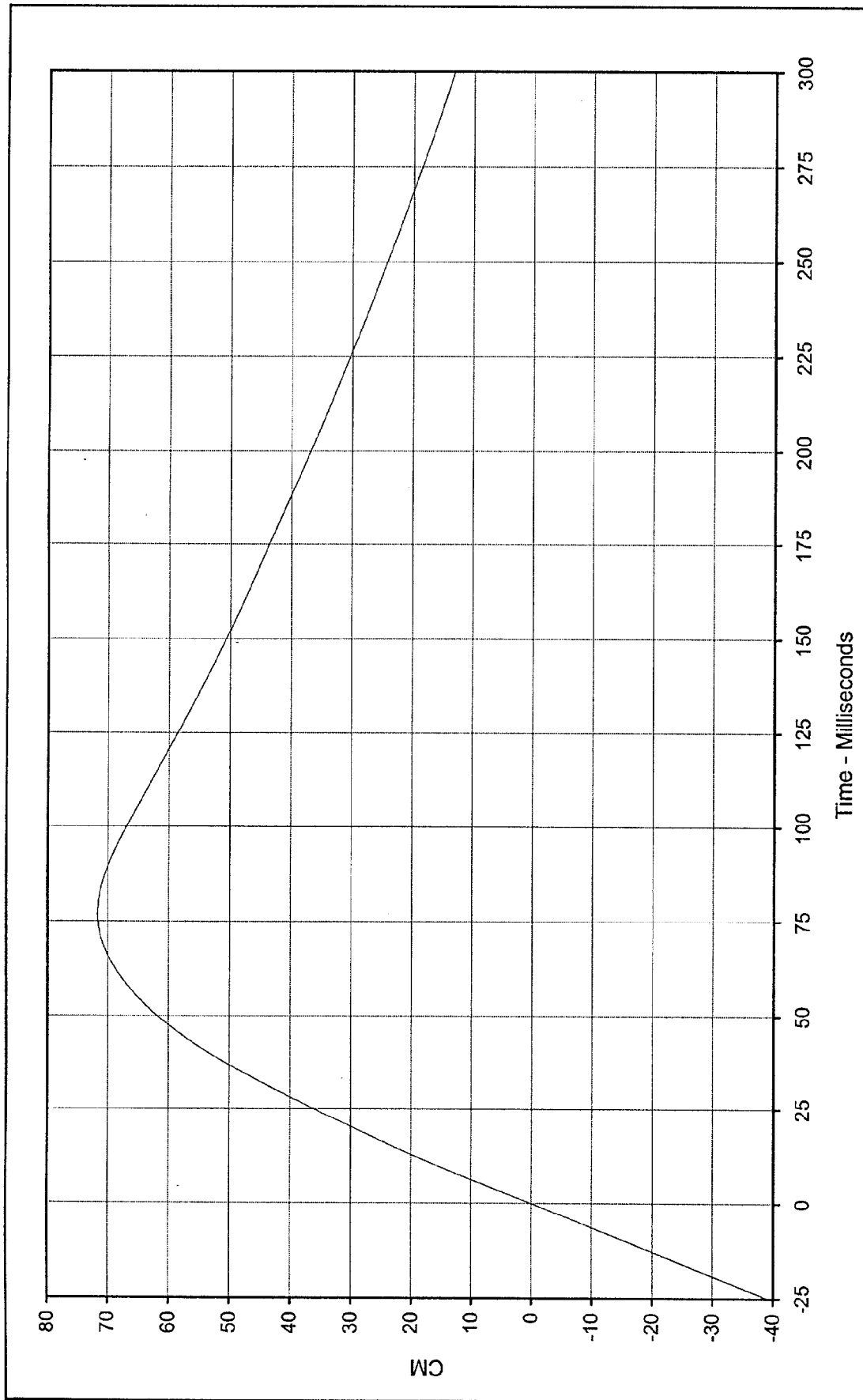




Curve Description: Vehicle Right Rear Primary Velocity
 Maximum Value: 56.7 at 1.8 Milliseconds
 Minimum Value: -12.4 at 112.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-090

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

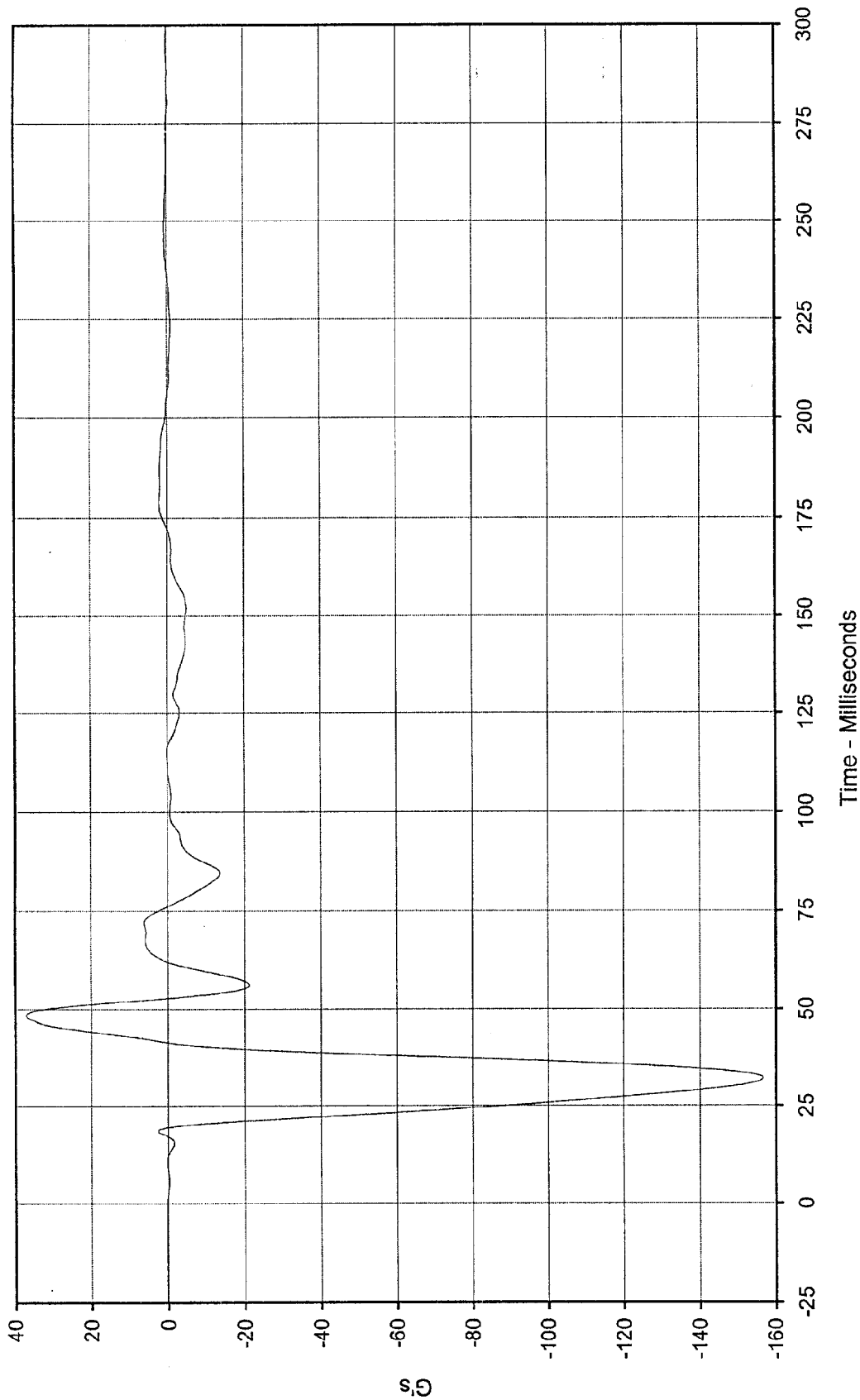




Curve Description: Vehicle Right Rear Primary Displ.
 Maximum Value: 71.7 at 76.9 Milliseconds
 Minimum Value: 0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-090

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 37.1 at 48.4 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan

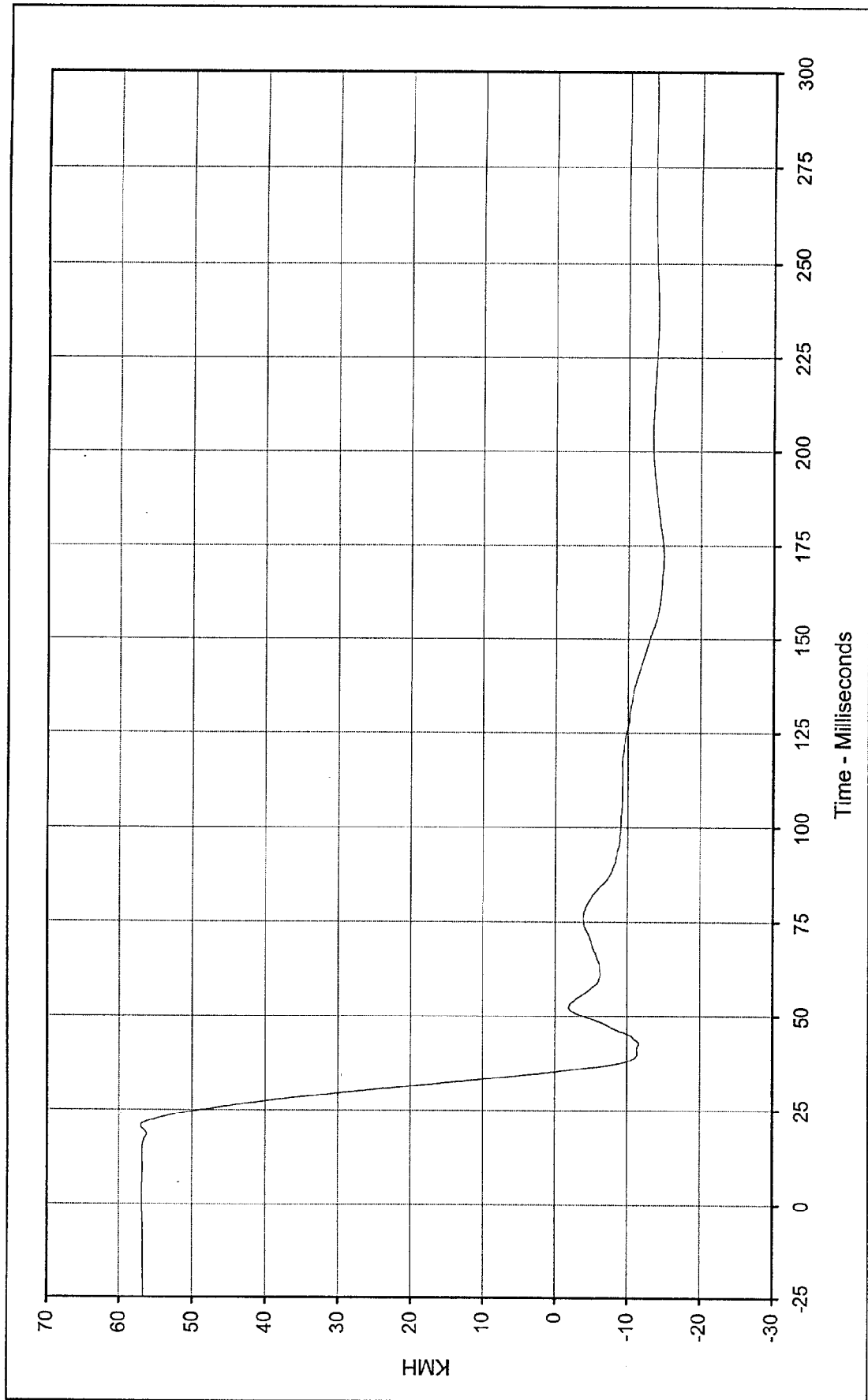
Minimum Value: -156.7 at 32.0 Milliseconds

SAE Filter Class: 60

Date of Test: 2/12/98

Curve Number: FIL-091

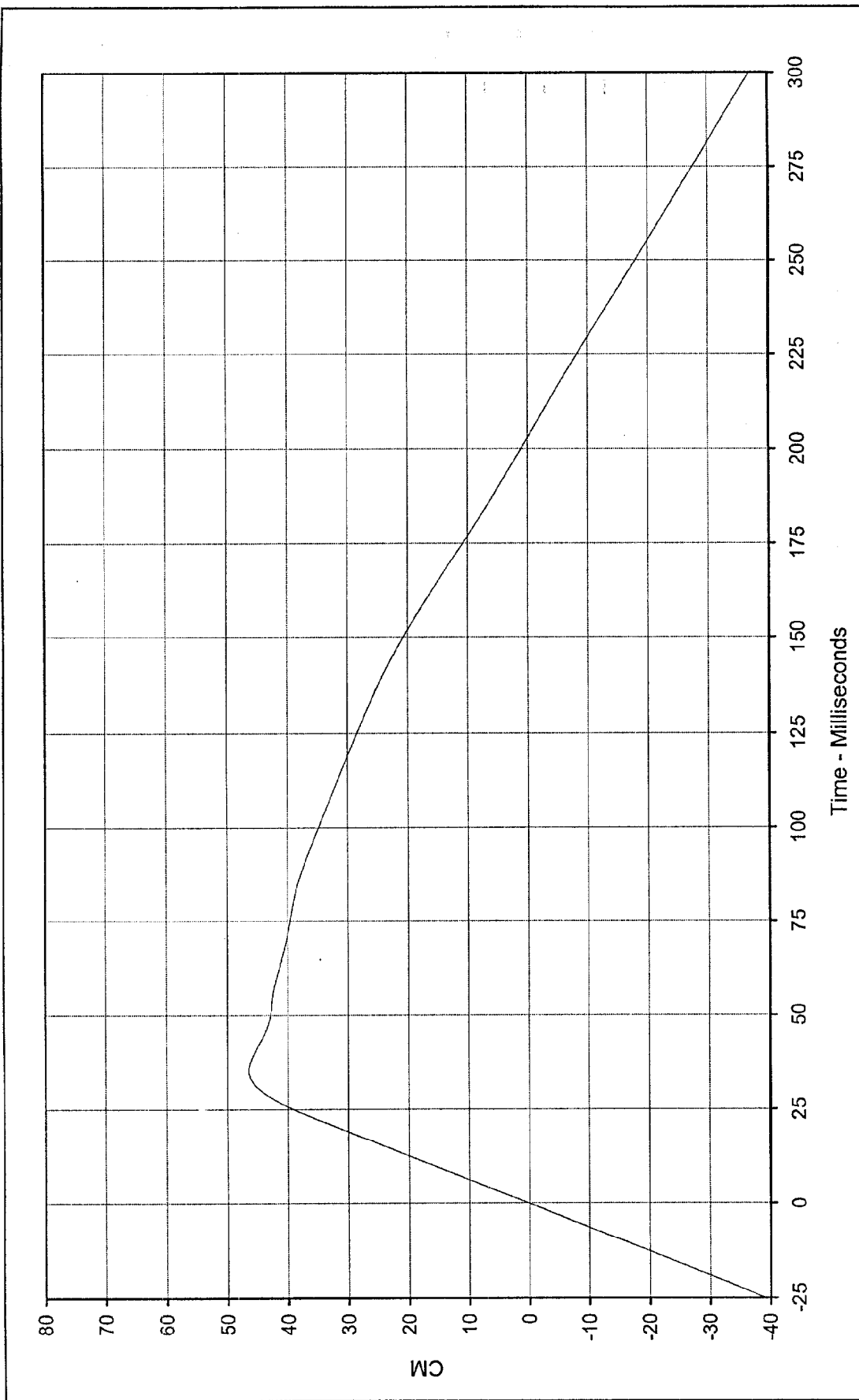




Curve Description: Vehicle Engine Top Velocity Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Maximum Value: 57.0 at 20.7 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan
Minimum Value: -14.8 at 172.1 Milliseconds

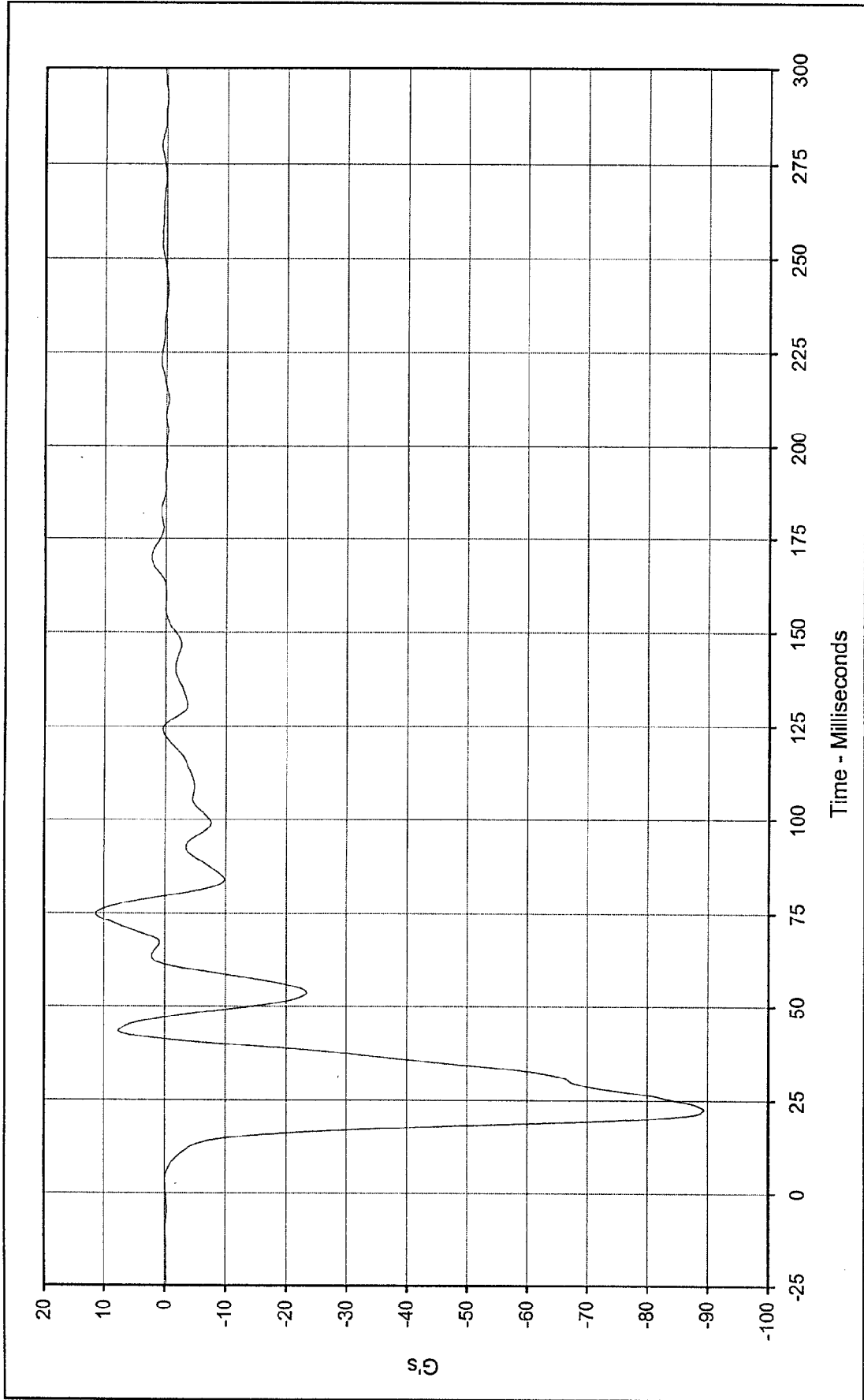


SAE Filter Class: 180
Date of Test: 2/12/98
Curve Number: IN1-091



Curve Description: _____ Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Maximum Value: 46.5 at 35.2 Milliseconds
 Minimum Value: -37.0 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-091

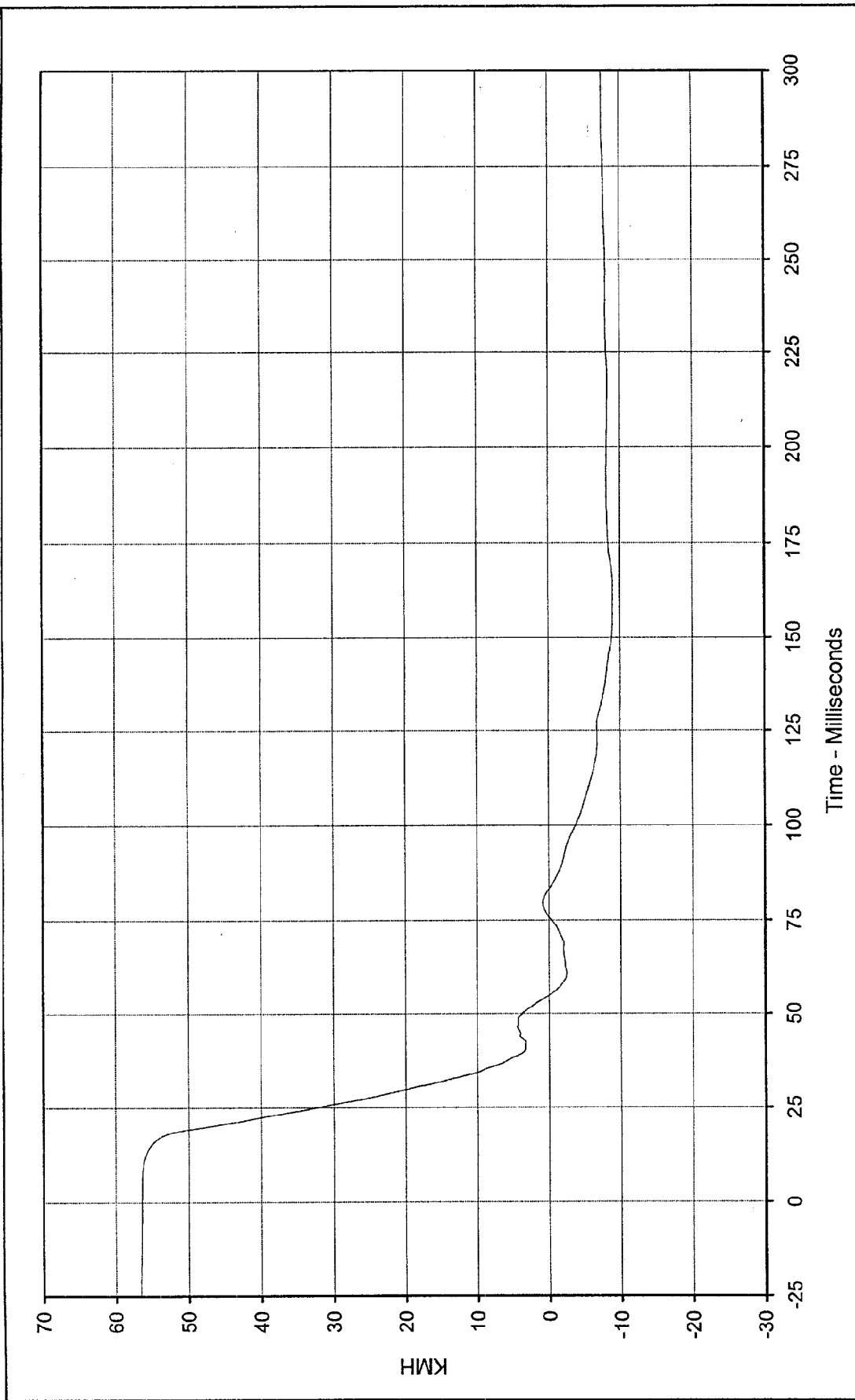




Curve Description: Vehicle Engine Bottom Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Maximum Value: 11.3 at 74.9 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan
Minimum Value: -89.4 at 22.7 Milliseconds



SAE Filter Class: 60
Date of Test: 2/12/98
Curve Number: FIL-092



Curve Description: Vehicle Engine Bottom Velocity Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Maximum Value: 56.4 at 0.0 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan

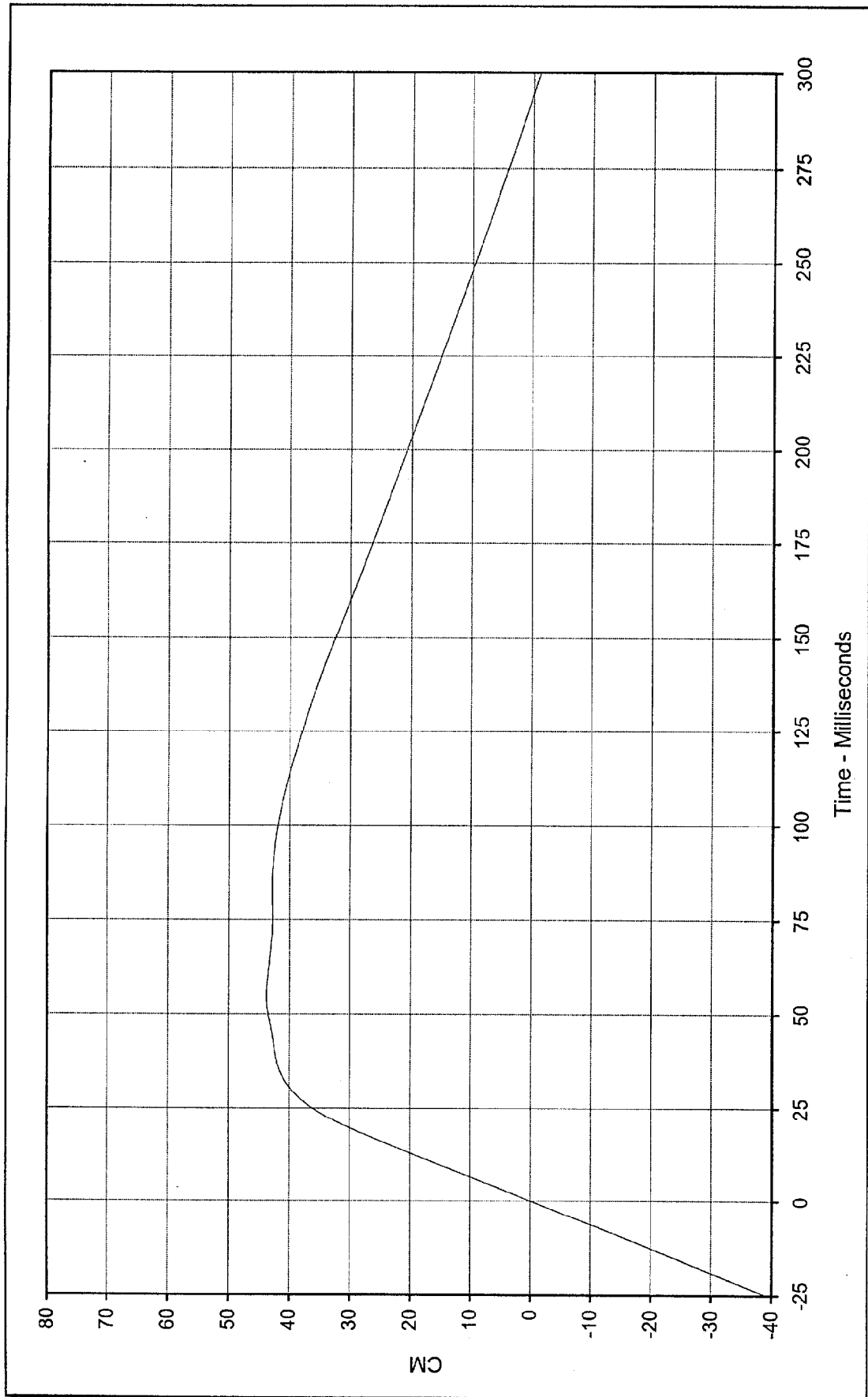
Minimum Value: -9.0 at 162.0 Milliseconds

SAE Filter Class: 180

Date of Test: 2/12/98

Curve Number: IN1-092

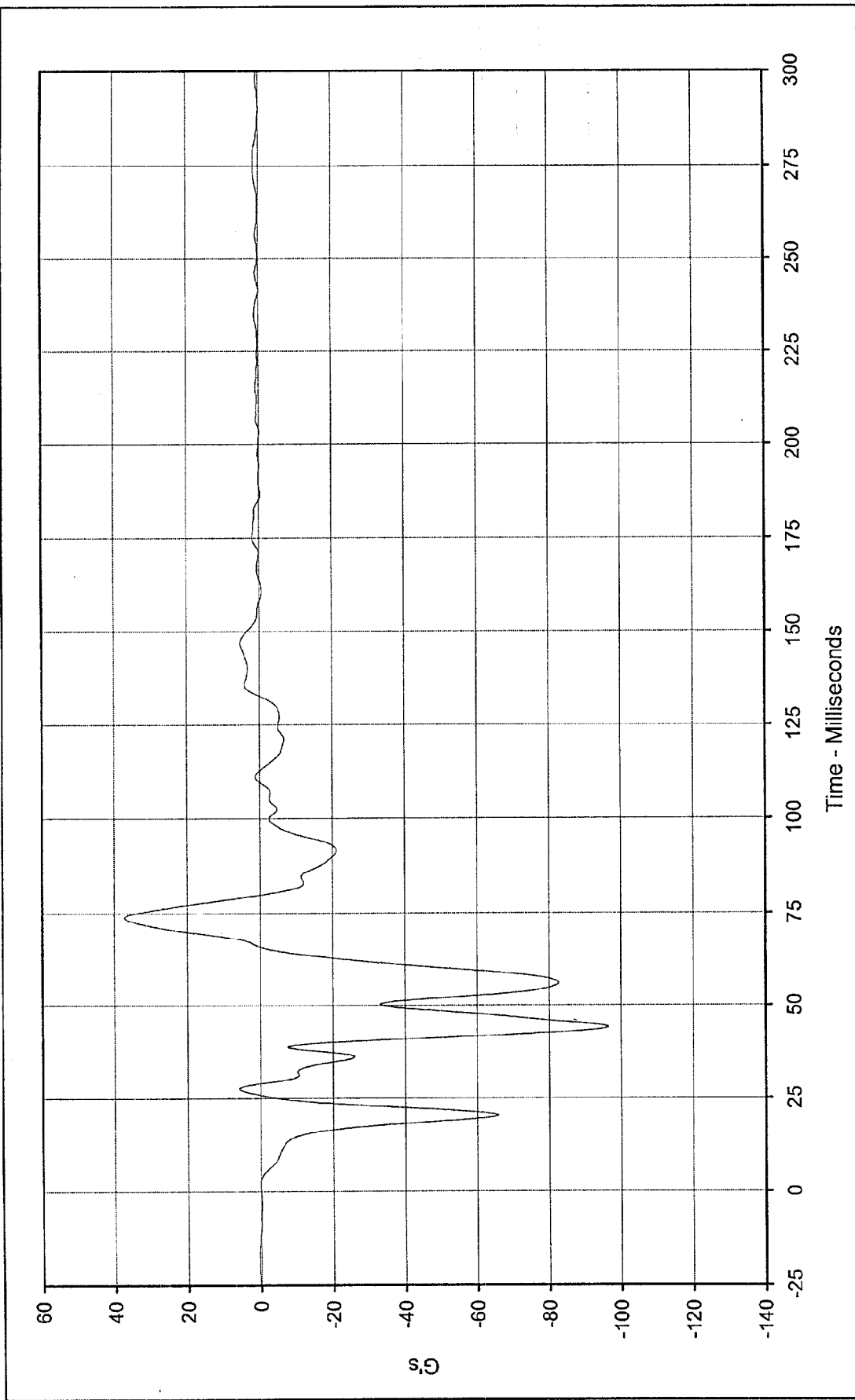




Curve Description: Vehicle Engine Bottom Displ.
 Maximum Value: 43.7 at 54.9 Milliseconds
 Minimum Value: -1.1 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-092

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

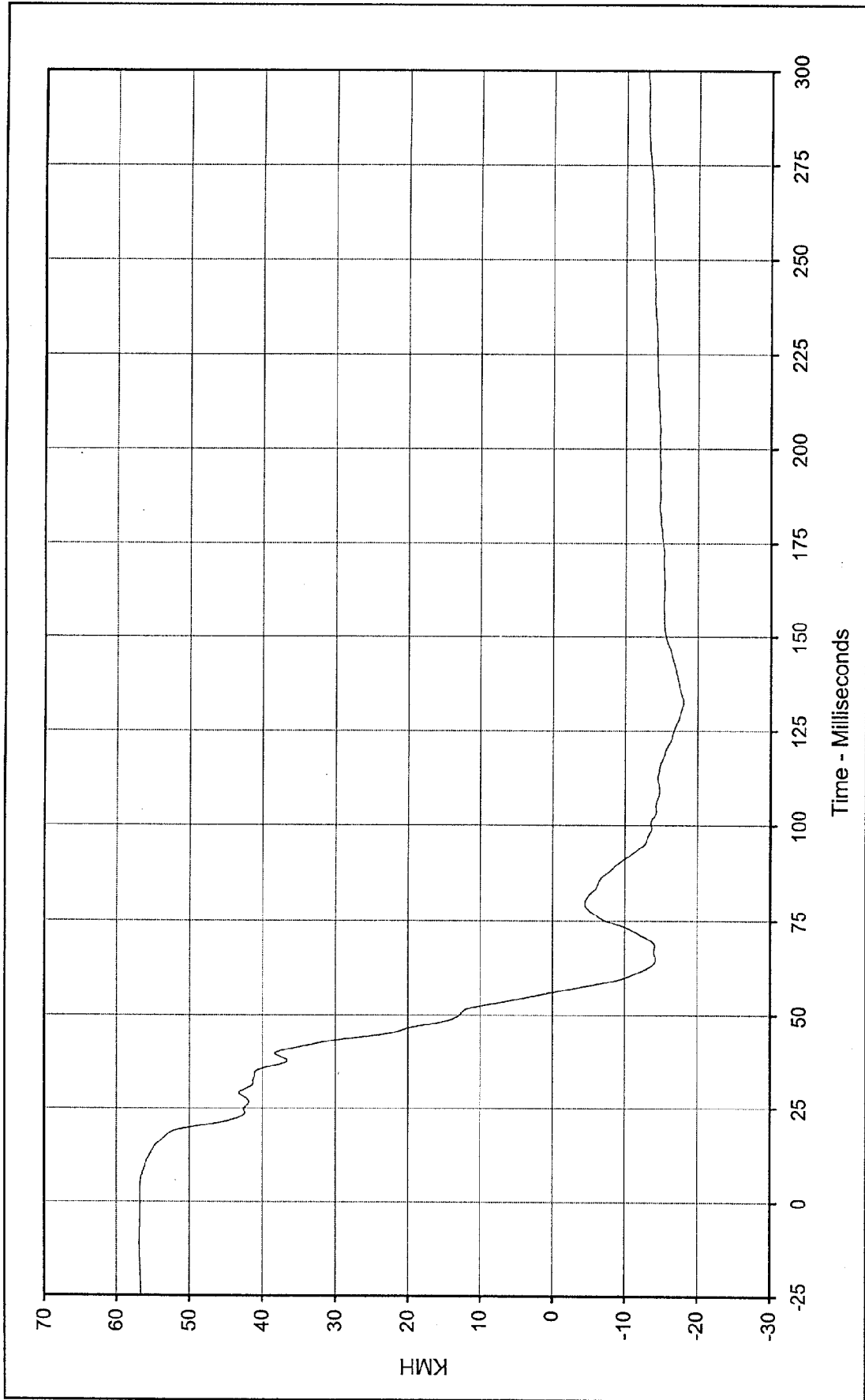




Curve Description: Vehicle Left Brake Caliper
 Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

Maximum Value: 37.3 at 73.8 Milliseconds
 Minimum Value: -96.4 at 44.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/12/98
 Curve Number: FIL-093

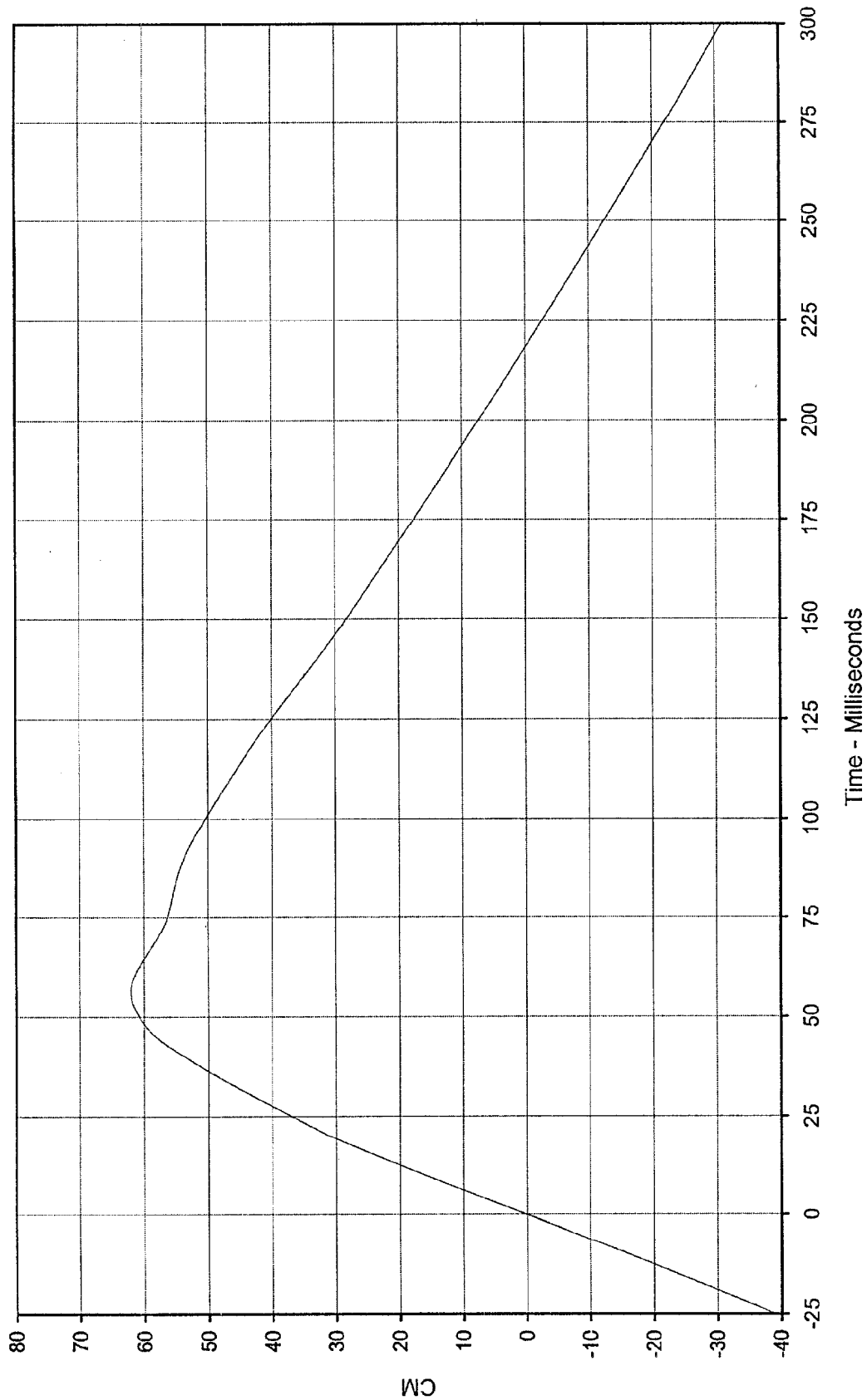




Curve Description: Vehicle Left Brake Caliper Velocity
 Maximum Value: 56.7 at 2.2 Milliseconds
 Minimum Value: -18.0 at 132.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-093

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

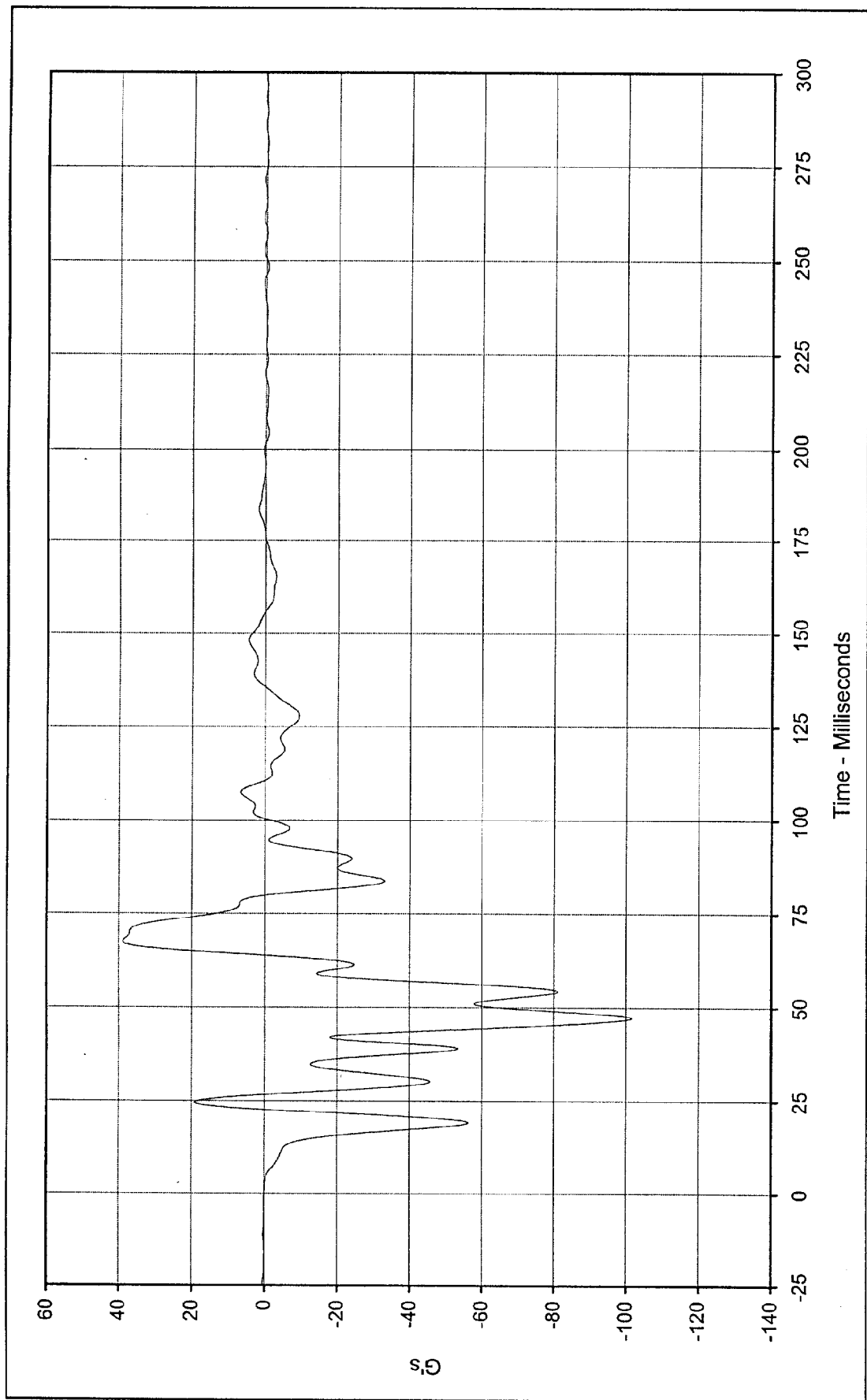




Curve Description: Vehicle Left Brake Caliper Displ.
 Maximum Value: 62.1 at 56.1 Milliseconds
 Minimum Value: -31.0 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-093

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan



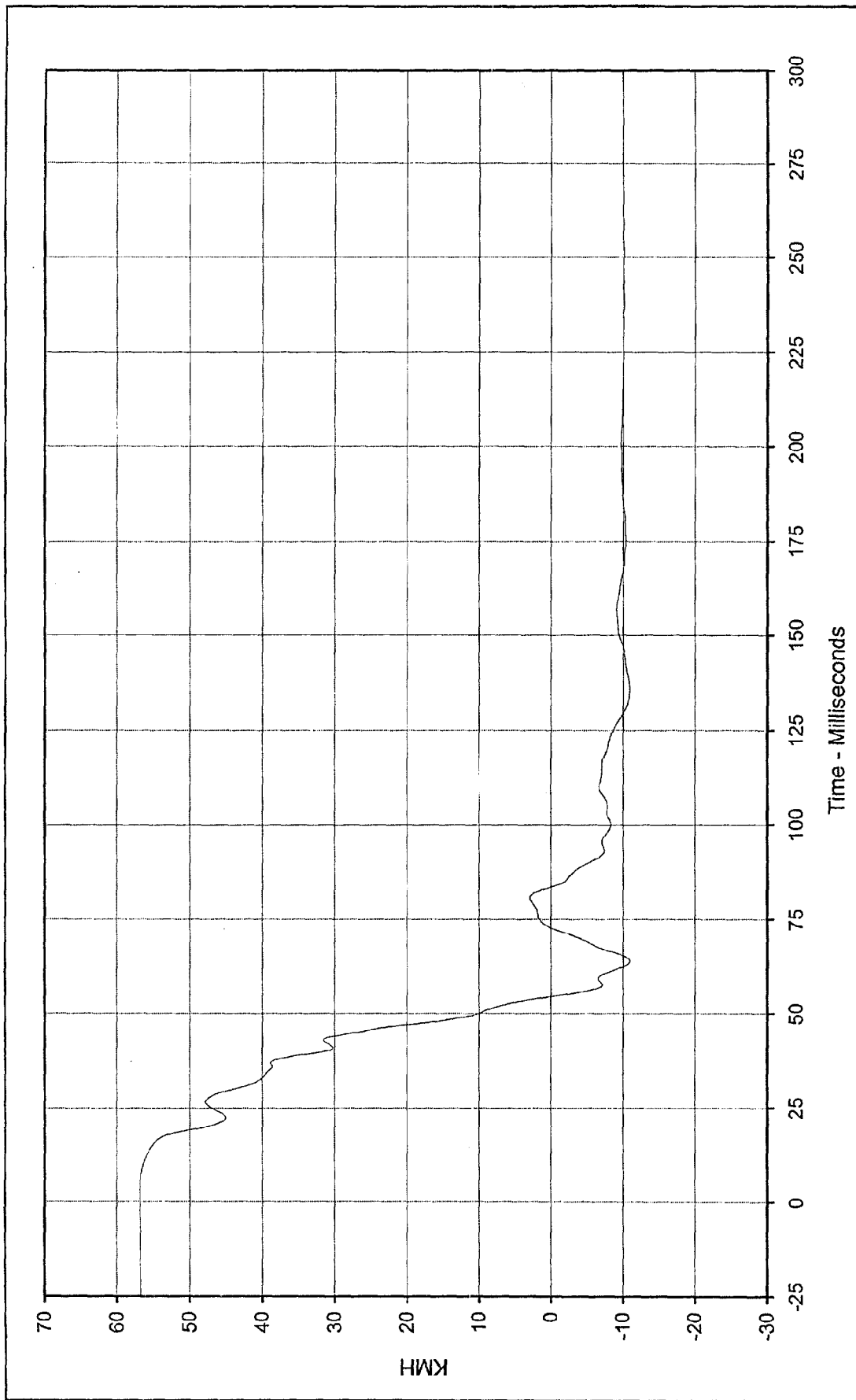


Curve Description: Vehicle Right Brake Caliper
 Maximum Value: 39.0 at 67.3 Milliseconds
 Minimum Value: -101.6 at 47.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/12/98
 Curve Number: FIL-094

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

Test Vehicle: 1998 Lexus ES300 4 Door Sedan

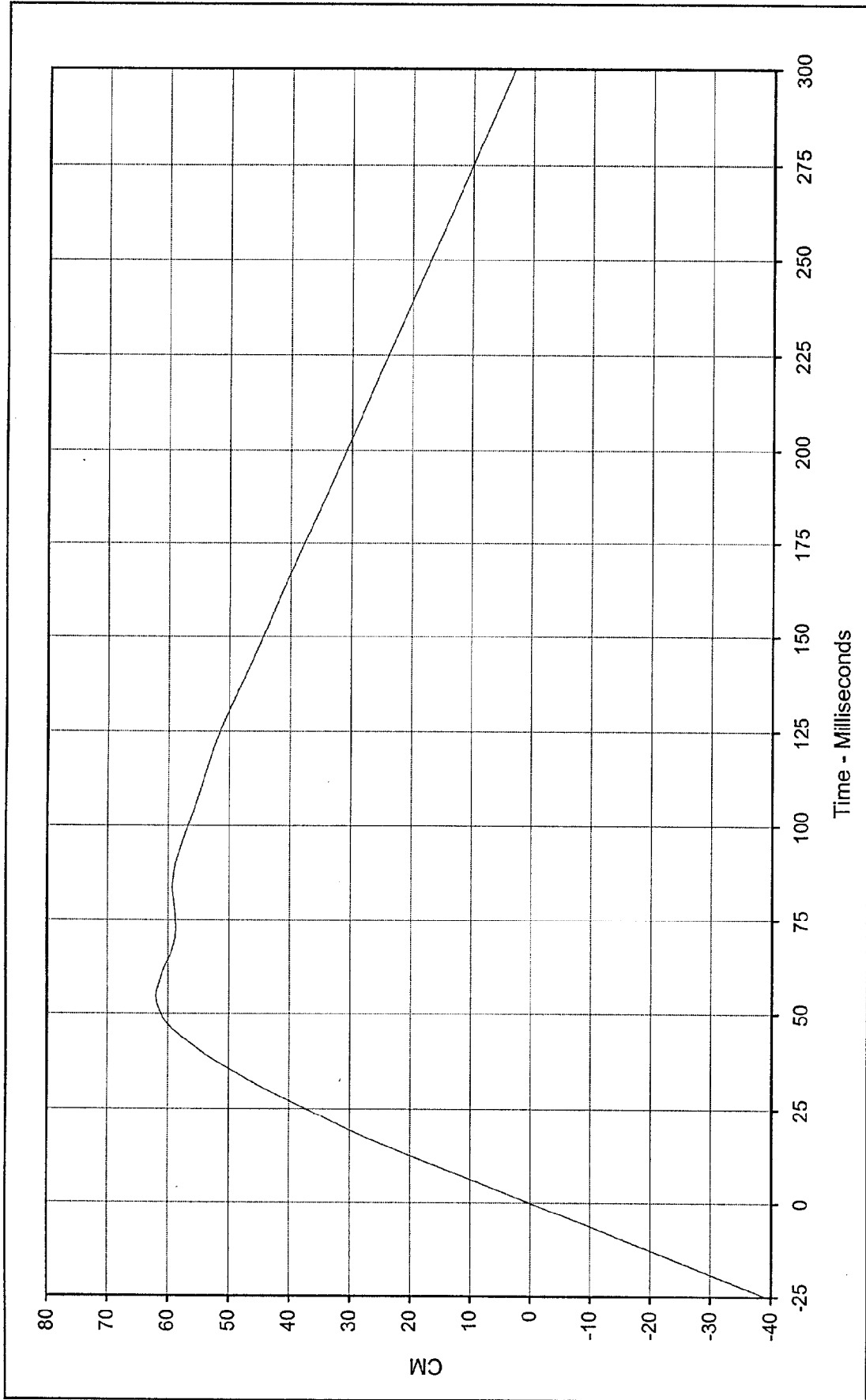




Curve Description: Vehicle Right Brake Caliper Velocity
 Maximum Value: 56.8 at 0.1 Milliseconds
 Minimum Value: -11.0 at 135.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-094

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Vehicle Right Brake Caliper Displ.

Maximum Value: 62.0 at 54.6 Milliseconds

Minimum Value: 0.2 at 0.0 Milliseconds

SAE Filter Class: 180

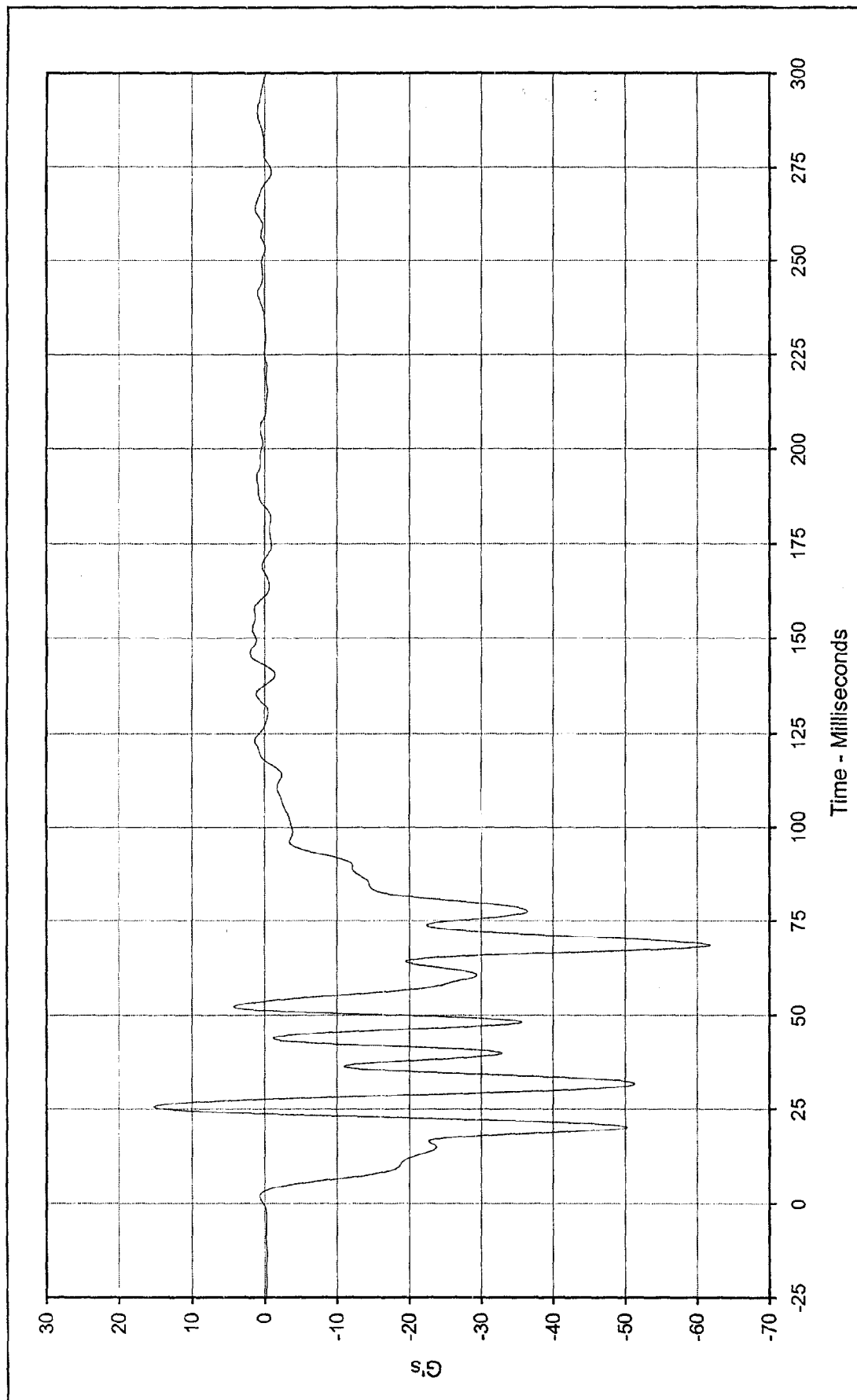
Date of Test: 2/12/98

Curve Number: IN2-094

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103

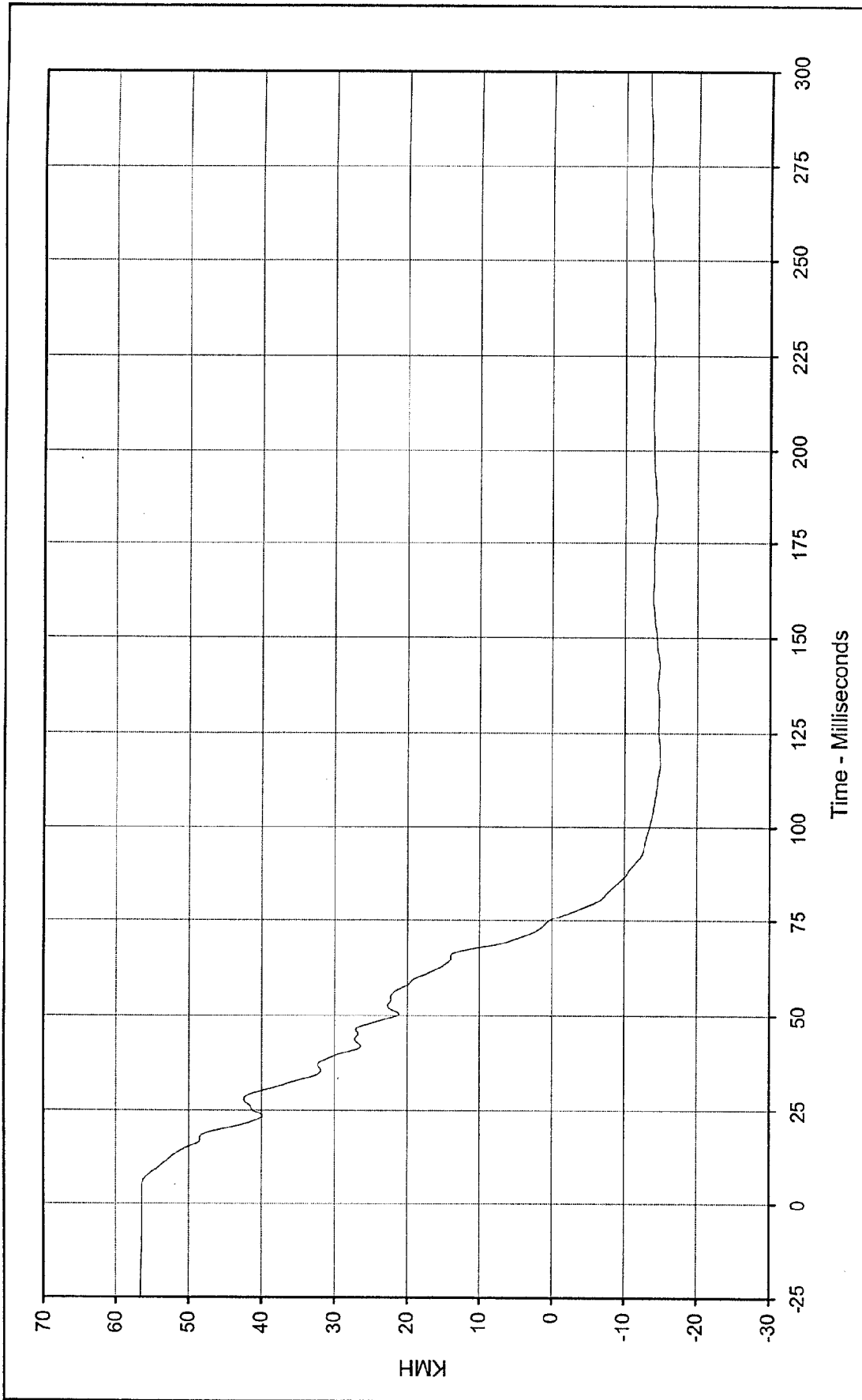
Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Maximum Value: 15.1 at 25.6 Milliseconds
 Minimum Value: -61.9 at 68.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/12/98
 Curve Number: FIL-095

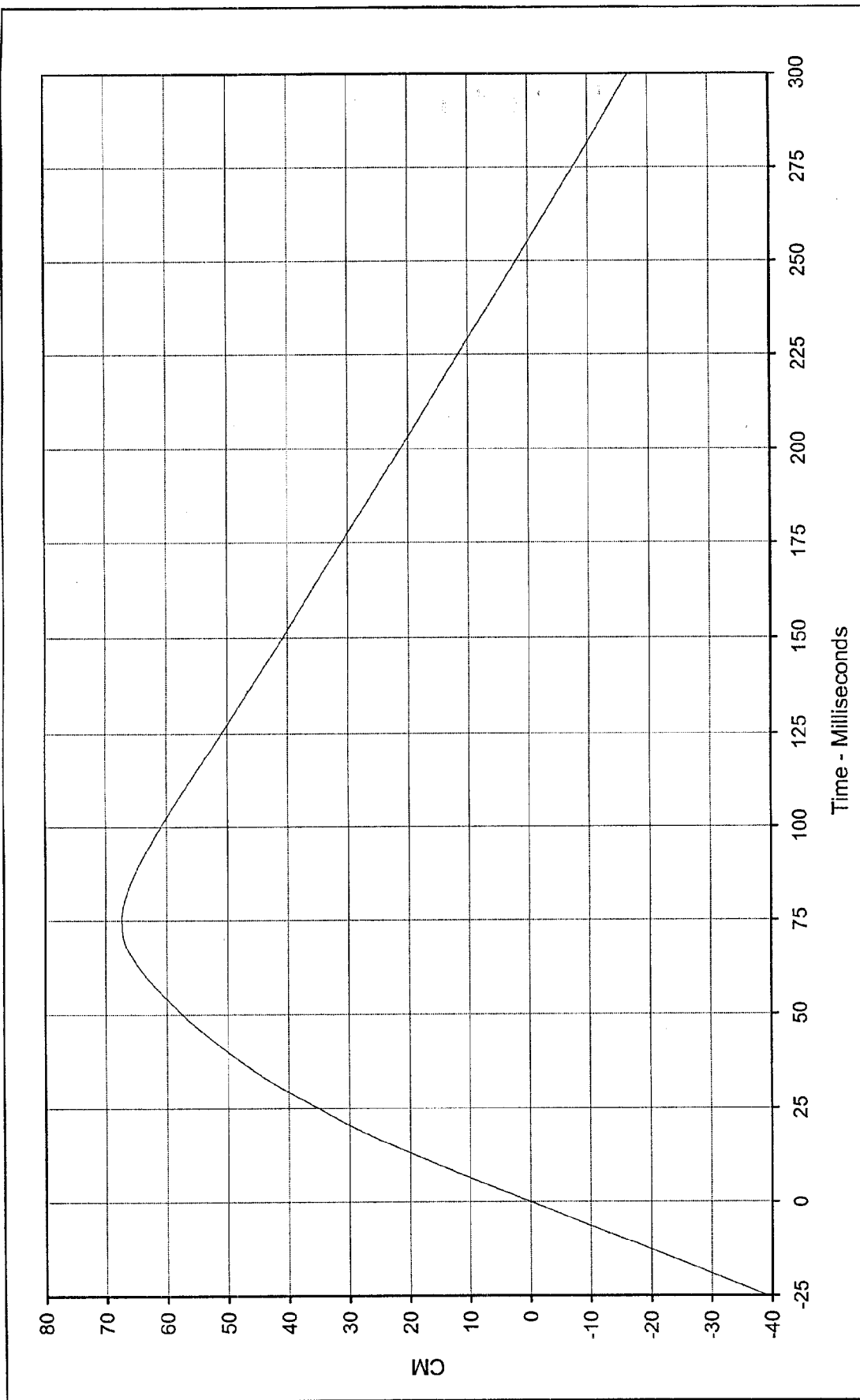




Curve Description: Vehicle Instrument Panel Velocity Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Maximum Value: 56.4 at 4.3 Milliseconds Test Vehicle: 1998 Lexus ES300 4 Door Sedan
Minimum Value: -14.9 at 117.1 Milliseconds



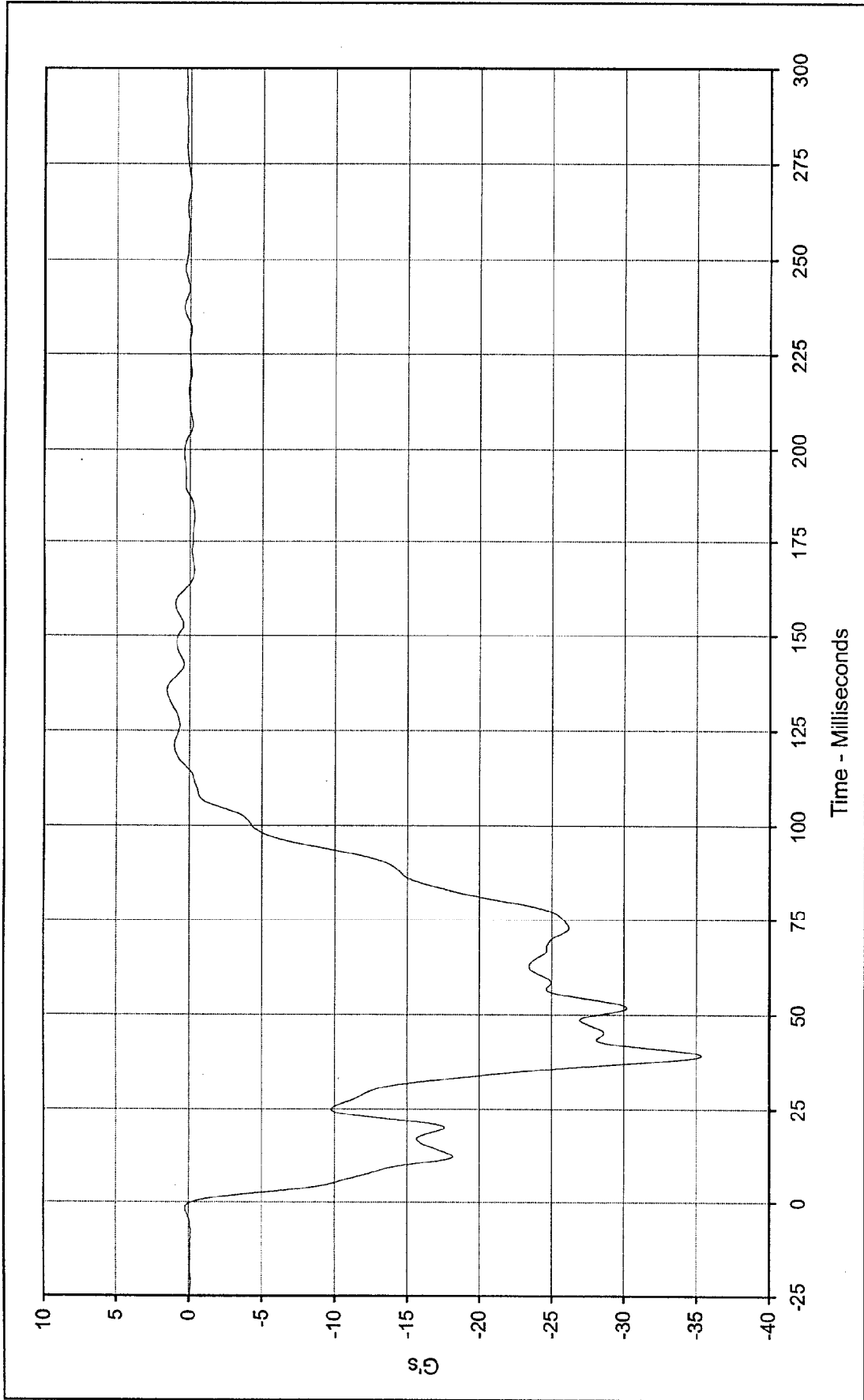
SAE Filter Class: 180
Date of Test: 2/12/98
Curve Number: IN1-095



Curve Description: Vehicle Instrument Panel Displ.
 Maximum Value: 67.3 at 75.4 Milliseconds
 Minimum Value: -16.8 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN2-095

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

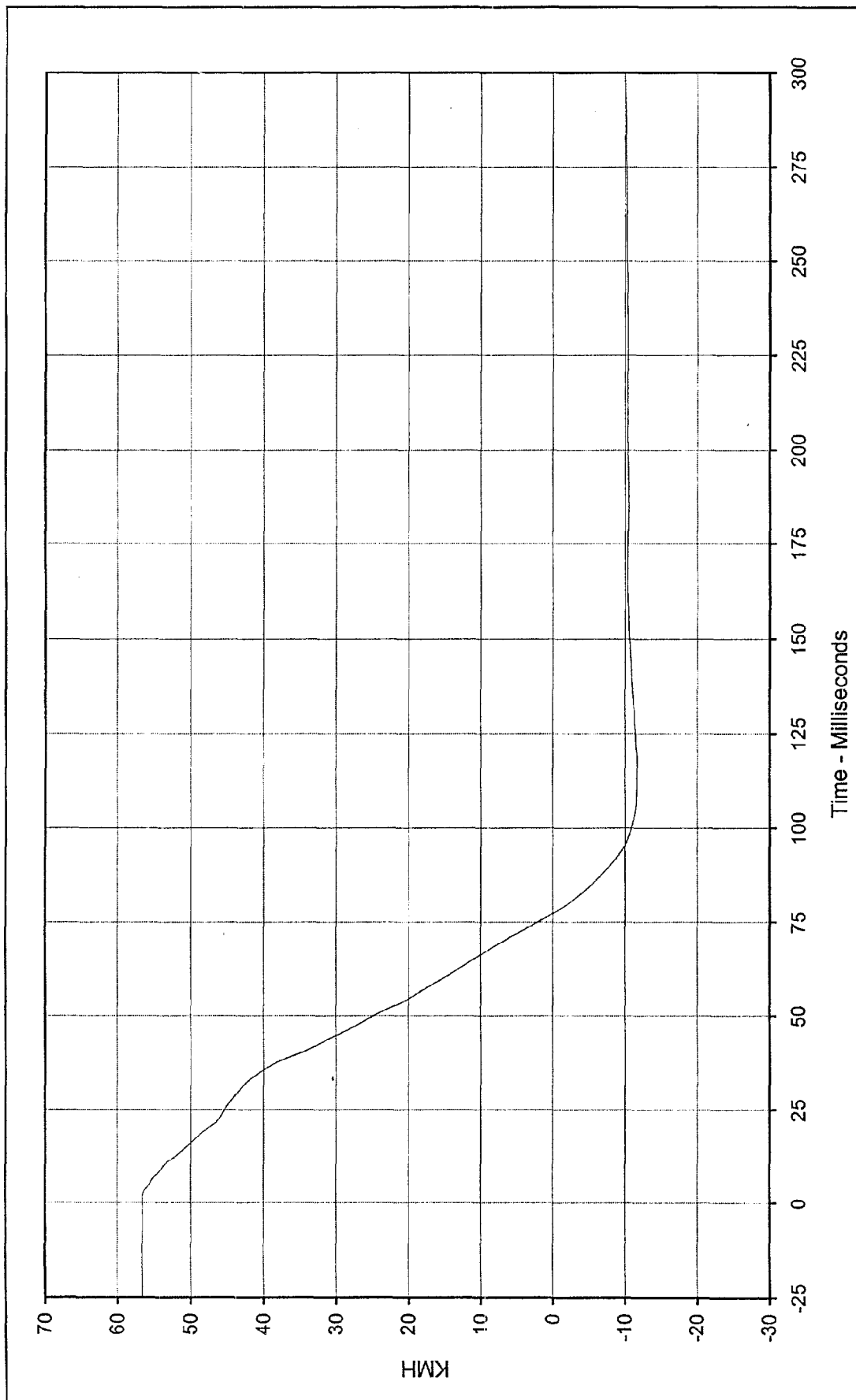




Curve Description: Vehicle Left Rear Redundant
 Maximum Value: 1.6 at 136.2 Milliseconds
 Minimum Value: -35.4 at 39.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/12/98
 Curve Number: FIL-096

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan

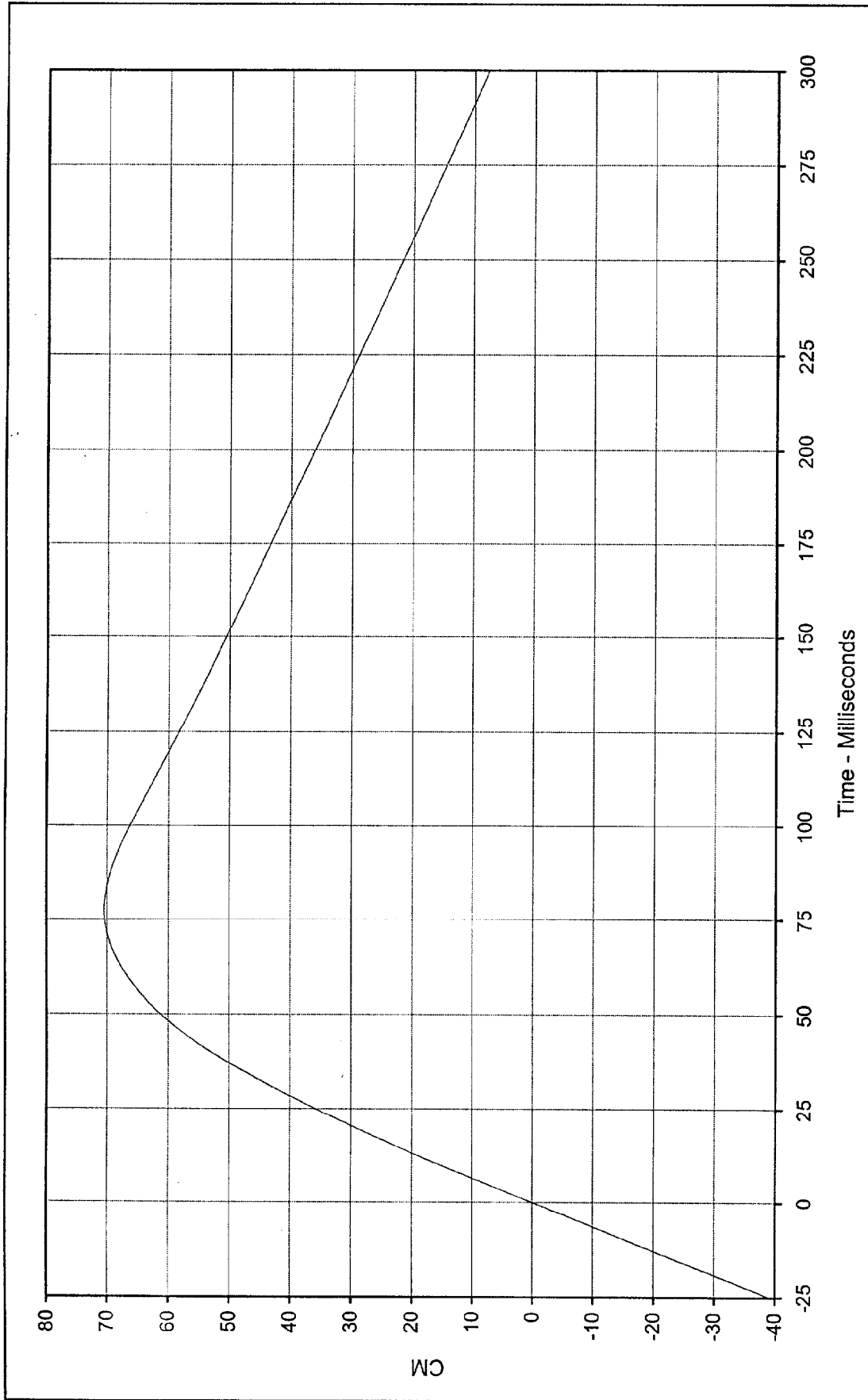




Curve Description: Vehicle Left Rear Redundant Velocity
 Maximum Value: 56.5 at 0.9 Milliseconds
 Minimum Value: -11.7 at 115.1 Milliseconds
 SAE Filter Class: 180
 Date of Test: 2/12/98
 Curve Number: IN1-096

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
 Test Vehicle: 1998 Lexus ES300 4 Door Sedan





Curve Description: Vehicle Left Rear Redundant Displ.
Maximum Value: 70.5 at 77.4 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 2/12/98
Curve Number: IN2-096

Testing Program 1998 NHTSA 35 mph NCAP No.: MW5103
Test Vehicle: 1998 Lexus ES300 4 Door Sedan



APPENDIX C

LOAD CELL BARRIER INFORMATION (NOT APPLICABLE FOR THIS TEST)

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

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

Driver A.T.D Serial Number 35

Test Date: 2/12/98

Vehicle: 1998 Lexus 300 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	HEAD, PRIMARY	X	GPAC027	Accel., 1/2 bridge	Endevco	7264-2000	G
2	HEAD, PRIMARY	Y	GPAC002	Accel., 1/2 bridge	Endevco	7264-2000	G
3	HEAD, PRIMARY	Z	GPAC003	Accel., 1/2 bridge	Endevco	7264-2000	G
4	HEAD, REDUNDANT	X	GPAC032	Accel., 1/2 bridge	Endevco	7264-2000	G
5	HEAD, REDUNDANT	Y	GPAC021	Accel., 1/2 bridge	Endevco	7264-2000	G
6	HEAD, REDUNDANT	Z	GPAC026	Accel., 1/2 bridge	Endevco	7264-2000	G
7	NECK FORCE	X	GPUN01FX	Load cell, six axis neck	R. A. Denton	1716A	N
8	NECK FORCE	Y	GPUN01FY	Load cell, six axis neck	R. A. Denton	1716A	N
9	NECK FORCE	Z	GPUN01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
10	NECK MOMENT	X	GPUN01MX	Load cell, six axis neck	R. A. Denton	1716A	N.m
11	NECK MOMENT	Y	GPUN01MY	Load cell, six axis neck	R. A. Denton	1716A	N.m
12	NECK MOMENT	Z	GPUN01MZ	Load cell, six axis neck	R. A. Denton	1716A	N.m
13	CHEST, PRIMARY	X	GPAC005	Accel., 1/2 bridge	Endevco	7264-2000	G
14	CHEST, PRIMARY	Y	GPAC011	Accel., 1/2 bridge	Endevco	7264-2000	G
15	CHEST, PRIMARY	Z	GPAC010	Accel., 1/2 bridge	Endevco	7264-2000	G
16	CHEST, REDUNDANT	X	GPAC034	Accel., 1/2 bridge	Endevco	7264-2000	G
17	CHEST, REDUNDANT	Y	GPAC023	Accel., 1/2 bridge	Endevco	7264-2000	G
18	CHEST, REDUNDANT	Z	GPAC020	Accel., 1/2 bridge	Endevco	7264-2000	G
19	CHEST DISPLACEMENT	X	GPRP001	Potentiometer, Rotary	Servo	14CBI	MM
20	PELVIS, PRIMARY	X	GPAC025	Accel., 1/2 bridge	Endevco	7264-2000	G
21	PELVIS, PRIMARY	Y	GPAC022	Accel., 1/2 bridge	Endevco	7264-2000	G
22	PELVIS, PRIMARY	Z	GPAC019	Accel., 1/2 bridge	Endevco	7264-2000	G
23	LEFT FEMUR FORCE	Z	KEFF001	Load cell, Femur	R.A. Denton	2121	N
24	RIGHT FEMUR FORCE	Z	GPLC001	Load cell, Femur	G.S.E.	2430	N

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

Driver A.T.D Serial Number 35

Test Date: 2/12/98

Vehicle: 1998 Lexus 300 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPU01MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
26	UP. TIBIA LEFT MOM.	Y	GPU01MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
27	UP. TIBIA RIGHT MOM.	X	GPU02MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
28	UP. TIBIA RIGHT MOM.	Y	GPU02MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
29	LWR. TIBIA LEFT FORCE	Y	GPT01FY	3 ch., lower tibia gage	R. A. Denton	1584	N
30	LWR. TIBIA LEFT FORCE	Z	GPT01FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
31	LWR. TIBIA LEFT MOM.	X	GPT01MX	3 ch., lower tibia gage	R. A. Denton	1584	N.m
32	LWR. TIBIA RIGHT FORCE	Y	GPT02FY	3 ch., lower tibia gage	R. A. Denton	1584	N
33	LWR. TIBIA RIGHT FORCE	Z	GPT02FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
34	LWR. TIBIA RIGHT MOM.	X	GPT02MX	3 ch., lower tibia gage	R. A. Denton	1584	N.m
35	FOOT LEFT	X	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
36	FOOT LEFT	Y	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
37	FOOT LEFT	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
38	FOOT RIGHT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
39	FOOT RIGHT	Y	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
40	FOOT RIGHT	Z	KEIC001Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
41	LAP BELT FORCE	X	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	Ceasco	PTX101-0030	MM
44	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

Ncap Test With Hybrid III Male 50th Percentile ATD

Instrumentation Data Channel Assignments

Passenger A.T.D Serial Number 34

Test Date: 2/12/98

Vehicle: 1998 Lexus 300 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
45	HEAD, PRIMARY	X	KEAC039	Accel., 1/2 bridge	Endevco	7264-2000	G
46	HEAD, PRIMARY	Y	KEAC038	Accel., 1/2 bridge	Endevco	7264-2000	G
47	HEAD, PRIMARY	Z	KEAC027	Accel., 1/2 bridge	Endevco	7264-2000	G
48	HEAD, REDUNDANT	X	KEAC031	Accel., 1/2 bridge	Endevco	7264-2000	G
49	HEAD, REDUNDANT	Y	KEAC032	Accel., 1/2 bridge	Endevco	7264-2000	G
50	HEAD, REDUNDANT	Z	KEAC026	Accel., 1/2 bridge	Endevco	7264-2000	G
51	NECK FORCE	X	GPUN02FX	Load cell, six axis neck	R. A. Denton	1716A	N
52	NECK FORCE	Y	GPUN02FY	Load cell, six axis neck	R. A. Denton	1716A	N
53	NECK FORCE	Z	GPUN02FZ	Load cell, six axis neck	R. A. Denton	1716A	N
54	NECK MOMENT	X	GPUN02MX	Load cell, six axis neck	R. A. Denton	1716A	N.m.
55	NECK MOMENT	Y	GPUN02MY	Load cell, six axis neck	R. A. Denton	1716A	N.m.
56	NECK MOMENT	Z	GPUN02MZ	Load cell, six axis neck	R. A. Denton	1716A	N.m.
57	CHEST , PRIMARY	X	GPAC031	Accel., 1/2 bridge	Endevco	7264-2000	G
58	CHEST , PRIMARY	Y	GPAC024	Accel., 1/2 bridge	Endevco	7264-2000	G
59	CHEST , PRIMARY	Z	GPAC029	Accel., 1/2 bridge	Endevco	7264-2000	G
60	CHEST , REDUNDANT	X	KEAC023	Accel., 1/2 bridge	Endevco	7264-200	G
61	CHEST , REDUNDANT	Y	KEAC022	Accel., 1/2 bridge	Endevco	7264-200	G
62	CHEST , REDUNDANT	Z	KEAC024	Accel., 1/2 bridge	Endevco	7264-200	G
63	CHEST DISPLACEMENT	X	GPRP002	Potentiometer, Rotary	Servo	14CBI	MM
64	PELVIS, PRIMARY	X	GPAC009	Accel., 1/2 bridge	Endevco	7264-2000	G
65	PELVIS, PRIMARY	Y	GPAC017	Accel., 1/2 bridge	Endevco	7264-2000	G
66	PELVIS, PRIMARY	Z	GPAC018	Accel., 1/2 bridge	Endevco	7264-2000	G
67	LEFT FEMUR FORCE	Z	KEFF003	Load cell, Femur	R.A. Denton	2121	N
68	RIGHT FEMUR FORCE	Z	KEFF002	Load cell, Femur	R.A. Denton	2121	N

Ncap Test With Hybrid III Male 50th Percentile ATD

Instrumentation Data Channel Assignments

Passenger A.T.D Serial Number 34

Test Date: 2/12/98

Vehicle: 1998 Lexus 300 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPU03MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
70	UP. TIBIA LEFT MOM.	Y	GPU03MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
71	UP. TIBIA RIGHT MOM.	X	GPU04MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
72	UP. TIBIA RIGHT MOM.	Y	GPU04MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
73	LWR. TIBIA LEFT FORCE	Y	GPT03FY	3 ch., lower tibia gage	R. A. Denton	1584	N
74	LWR. TIBIA LEFT FORCE	Z	GPT03FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
75	LWR. TIBIA LEFT MOM.	X	GPT03MX	3 ch., lower tibia gage	R. A. Denton	1584	N.m
76	LWR. TIBIA RIGHT FORCE	Y	GPT04FY	3 ch., lower tibia gage	R. A. Denton	1584	N
77	LWR. TIBIA RIGHT FORCE	Z	GPT04FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
78	LWR. TIBIA RIGHT MOM.	X	GPT04MX	3 ch., lower tibia gage	R. A. Denton	1584	N.m
79	FOOT LEFT	X	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT	Y	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT	Y	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT	Z	KEIC004Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	X	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	MM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

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

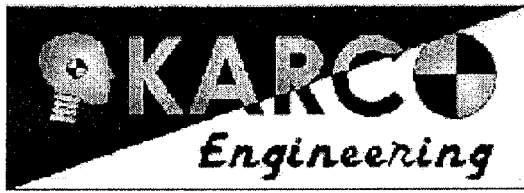
Vehicle Accelerometers

Test Date: 2/12/98

Vehicle: 1998 Lexus 300 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	LEFT REAR PRIMARY	X	KEVA005	Accel., Vehicle block	I.C. Sensor	3031-500	G
90	RIGHT REAR PRIMARY	X	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
91	ENGINE TOP	X	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G
92	ENGINE BOTTOM	X	KEVA002	Accel., Vehicle block	I.C. Sensor	3031-500	G
93	LEFT BRAKE CALIPER	X	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-500	G
94	RIGHT BRAKE CALIPER	X	KEVA004	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	INSTUMENT PANEL	X	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-200	G
96	LEFT REAR REDUNDANT	X	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	G

APPENDIX E
DUMMY CALIBRATION DATA



Hybrid III Calibration Data Sheet

50TH Percentile Male

Left Knee Impact Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: K1000

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.132	Pass
Peak Probe Force	Newtons	4715 to 5782	5045.8	Pass
Overall Test Results				Pass

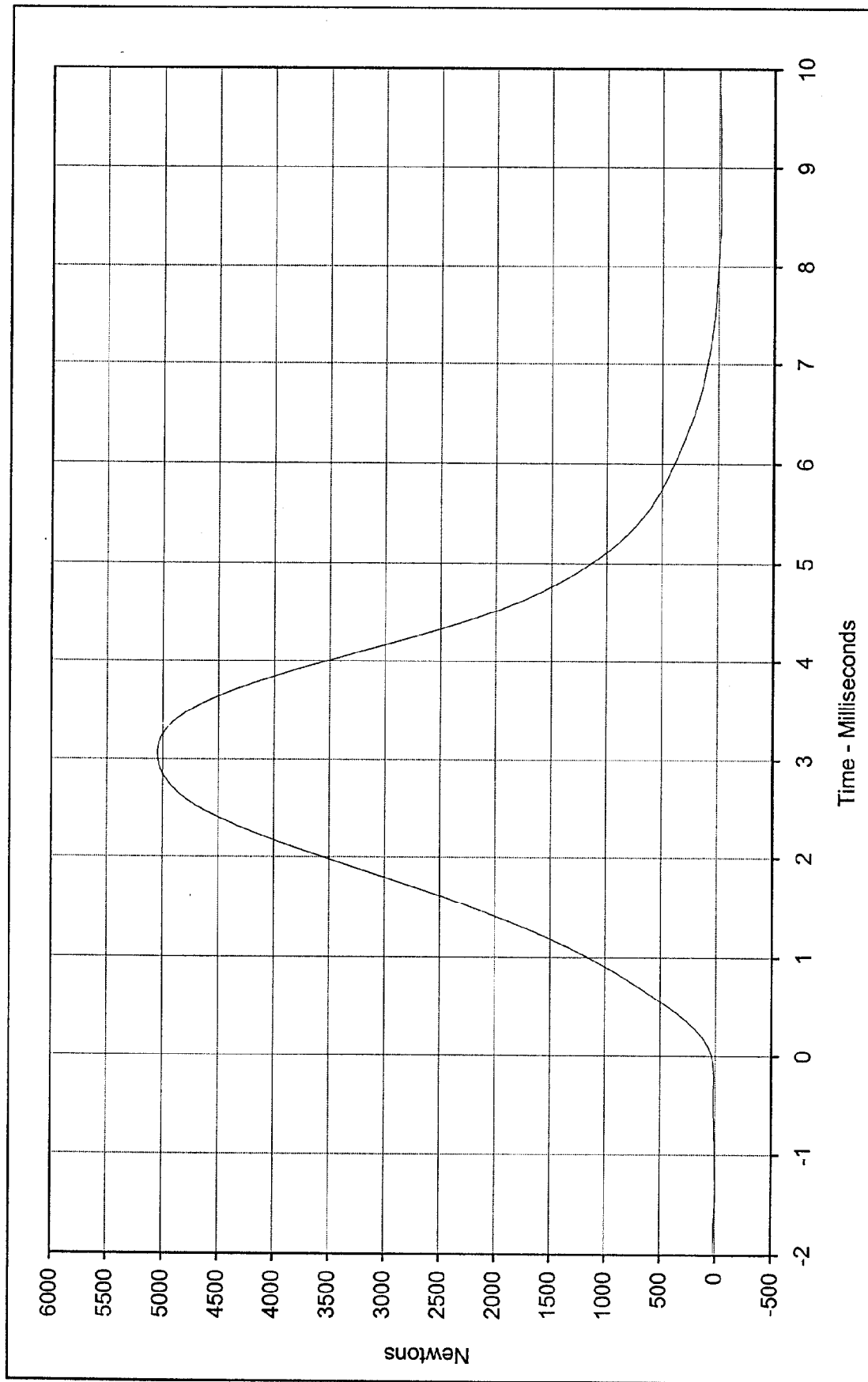
Laboratory Technician

Approved By

February 4, 1998

Test Date

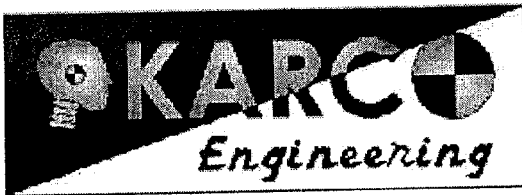
Date



Testing Program: Hybrid III Left Knee Impact Test
 Test Information: Part S/N: n/a Test I.D.: K1000

Curve Description: Probe Force
 Maximum Value: 5045.8 at 3.1 Milliseconds
 Minimum Value: -1.1 at -1.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 ATD Serial No.: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male

Right Knee Impact Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: K2000

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.120	Pass
Peak Probe Force	Newtons	4715 to 5782	5686.6	Pass
Overall Test Results				Pass

N2000
Laboratory Technician

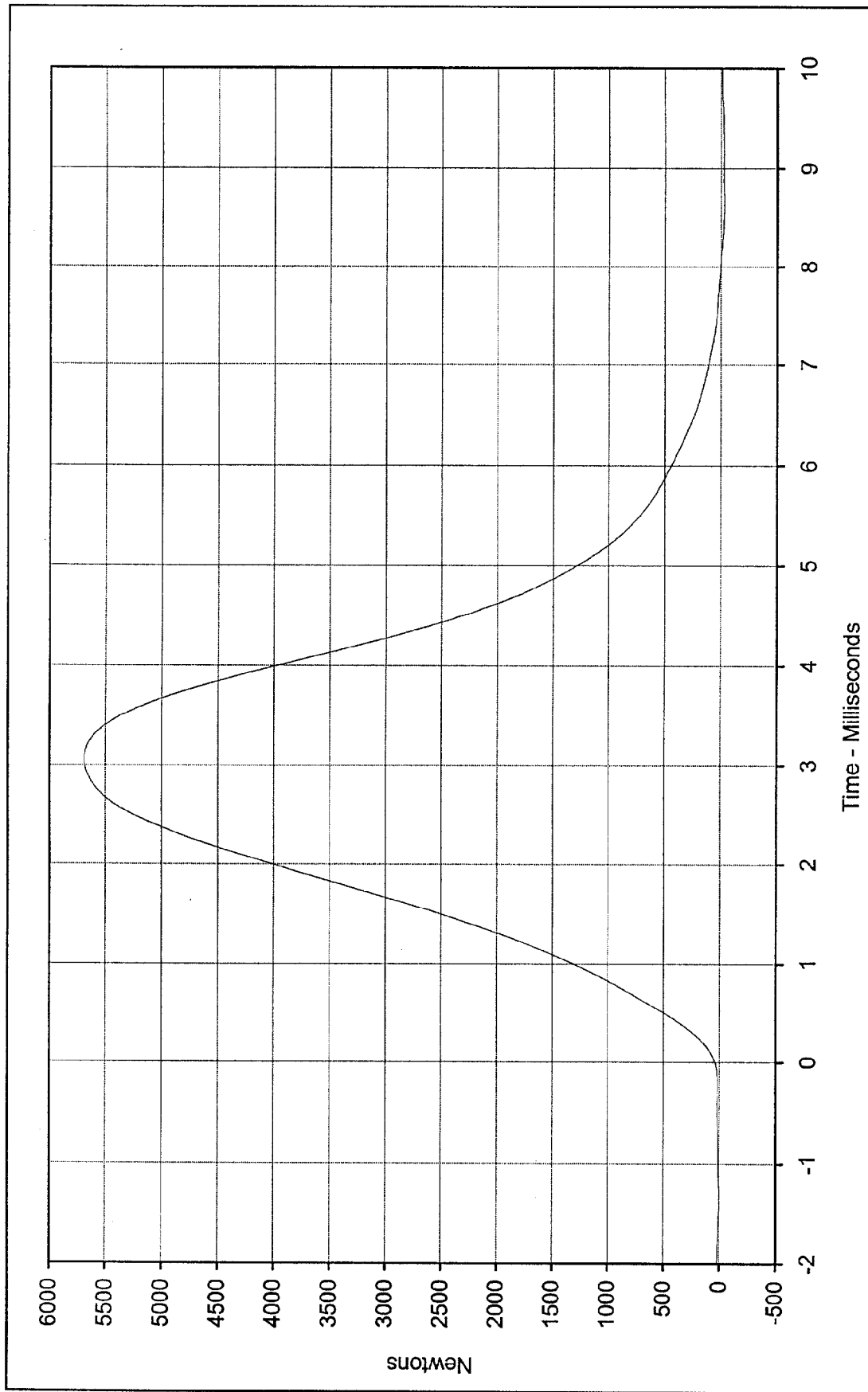
20 Richardson
Approved By

February 4, 1998

Test Date

2/4/98

Date



Testing Program: Hybrid III Right Knee Impact Test
 Test Information: Part S/N: n/a Test I.D.: K2000

Curve Description: Probe Force
 Maximum Value: 5686.6 at 3.1 Milliseconds
 Minimum Value: -1.3 at -1.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/4/98
 ATD Serial No.: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male

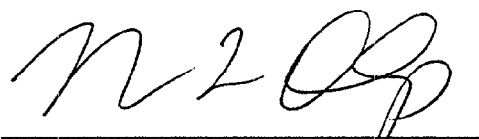
Head Drop Calibration

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: H5000

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	272.9	Pass
Peak Lateral Acceleration	G's	≤15.0	14.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

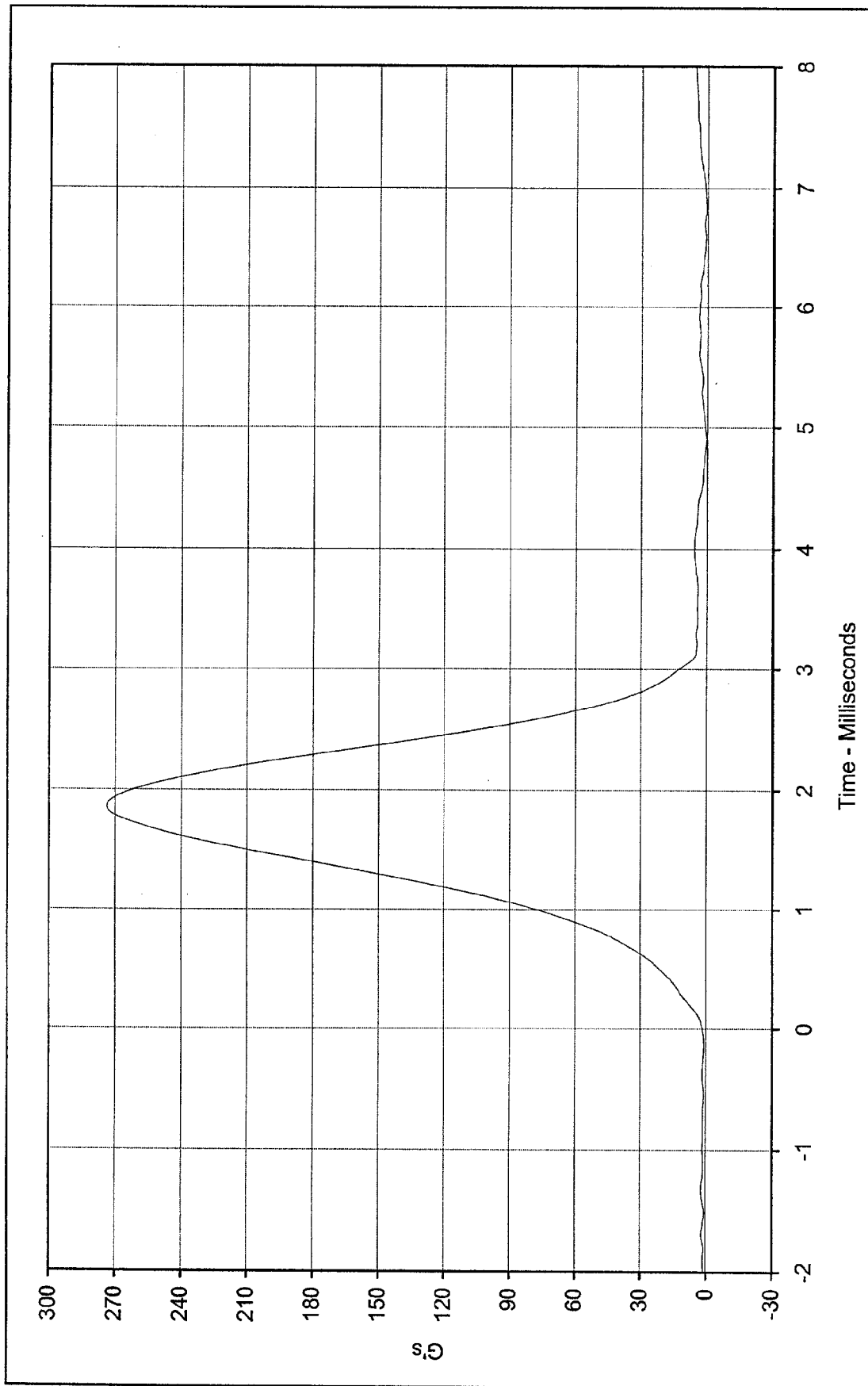

Approved By

February 4, 1998

Test Date

2/4/98

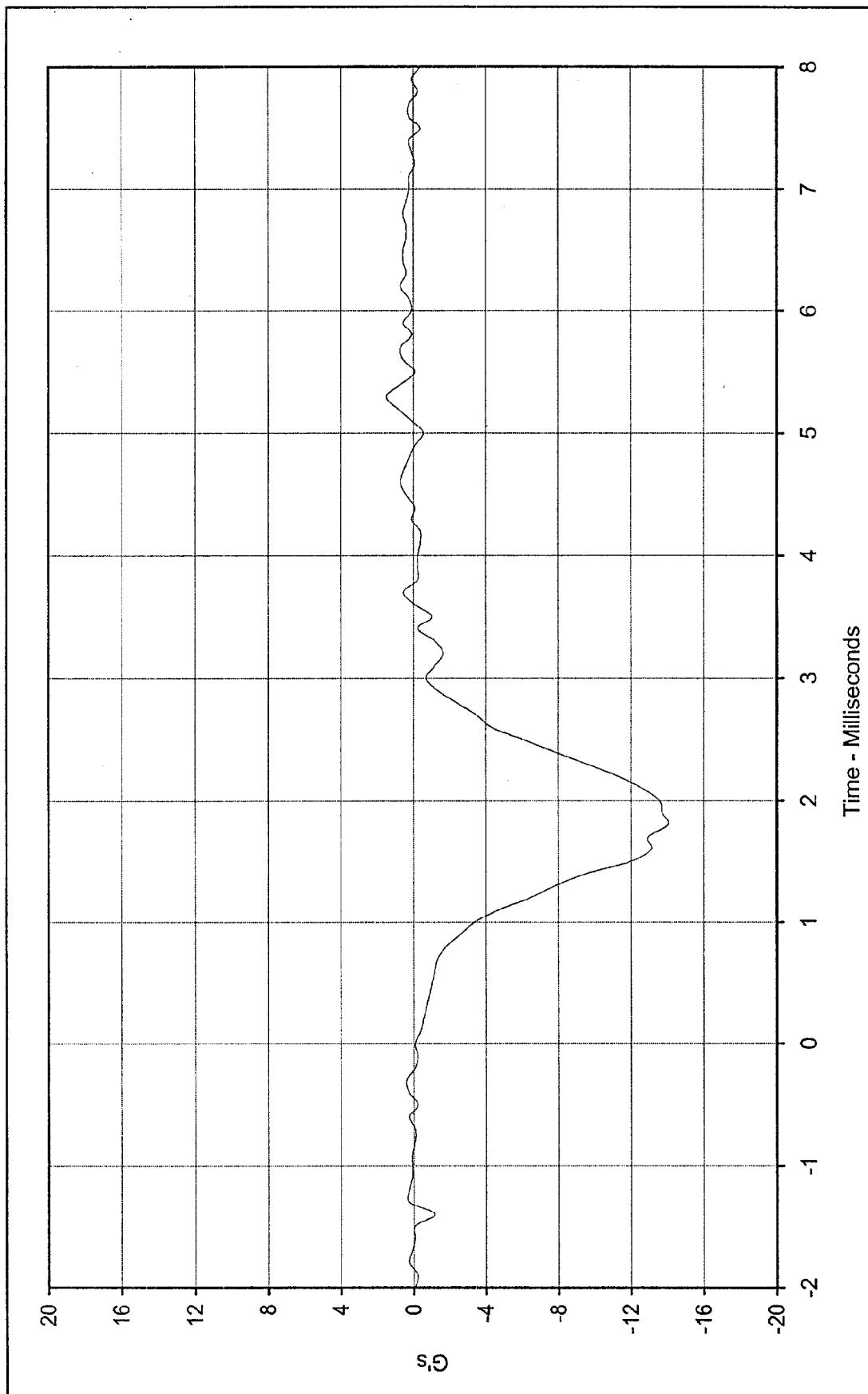
Date



Curve Description: Hybrid III Head Drop Calibration (Male)
 Testing Program: Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: H5000

Head Resultant Acceleration
 Maximum Value: 272.9 at 1.9 Milliseconds
 Minimum Value: 0.4 at 4.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 ATD Serial No: 034

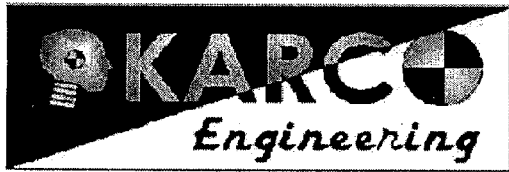




Curve Description: Head Acceleration Y Axis
 Maximum Value: 1.5 at 5.3 Milliseconds
 Minimum Value: -14.0 at 1.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 ATD Serial No.: 034

Testing Program Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: H5000





Hybrid III Calibration Data Sheet

50TH Percentile Male

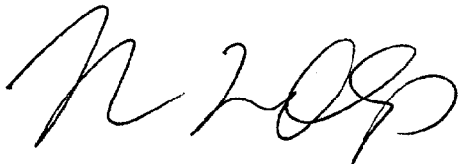
Thorax Impact Test

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: CHST1

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Probe Velocity	m/s	6.58 to 6.82	6.68	Pass
Peak Probe Force	Newtons	5159 to 5893	5327	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.58	Pass
Internal Hysteresis	%	69 to 85	73.0	Pass
Overall Test Results				Pass



Laboratory Technician



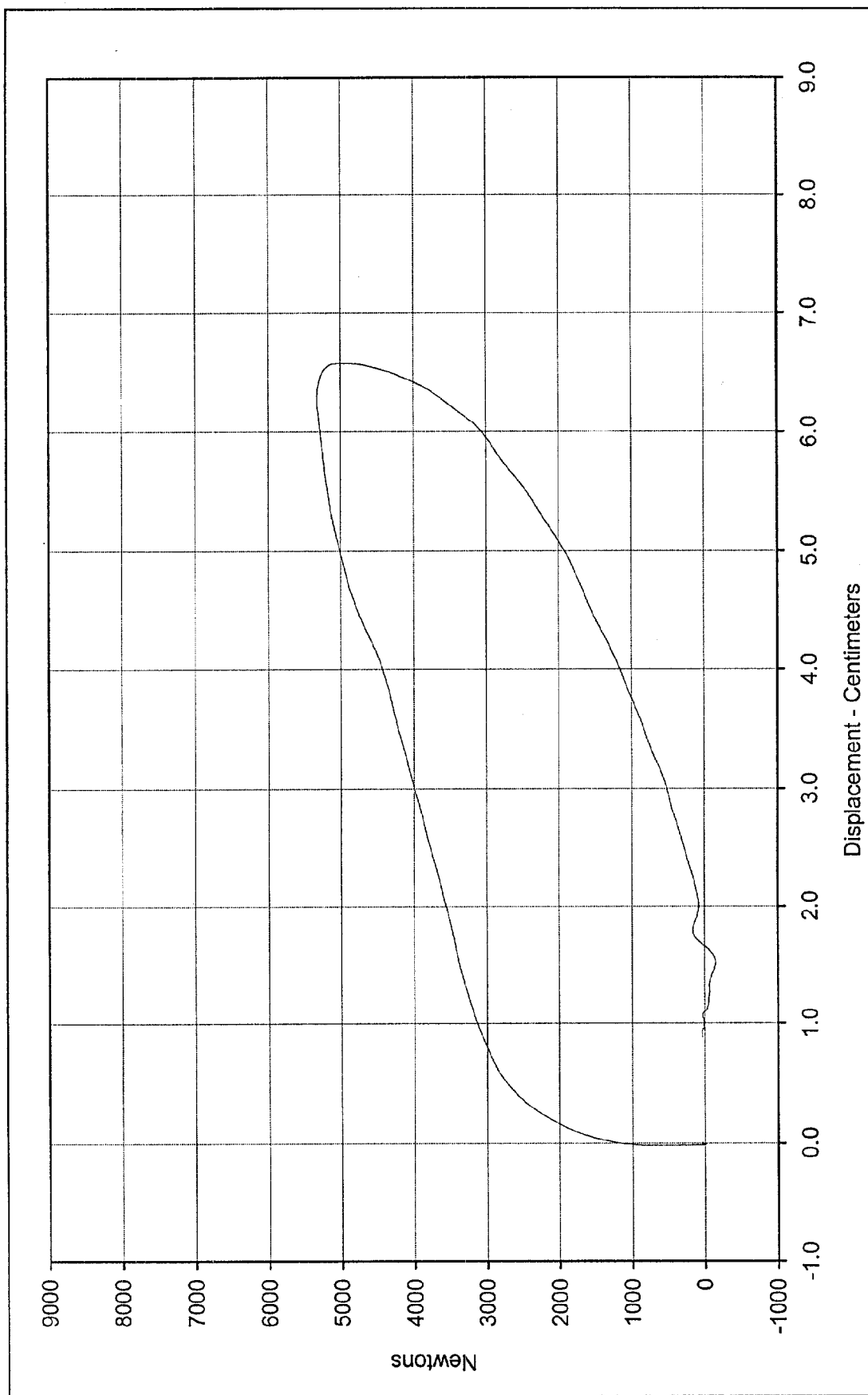
Approved By

February 4, 1998

Test Date

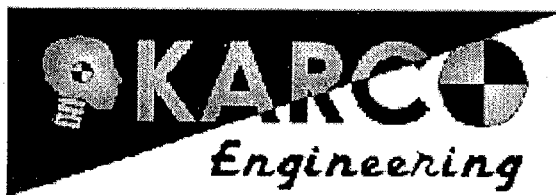
2/4/98

Date



Curve Description:	Probe Force vs. Chest Displacement	Testing Program	Hybrid III Thorax Impact Test
Probe Force:	5327.2 Newtons	Test Information:	S/N of Part: N/A Test I.D.: CHST1
Chest Displ.:	6.58 Centimeters		
SAE Filter Class:	180		
Date of Test:	2/4/98		
ATD Serial No.:	034		





Hybrid III Calibration Data Sheet

50TH Percentile Male

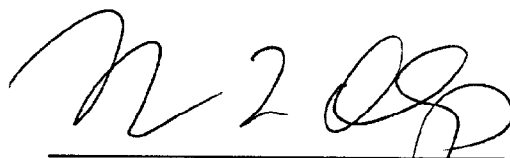
Neck Flexion Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: NF700

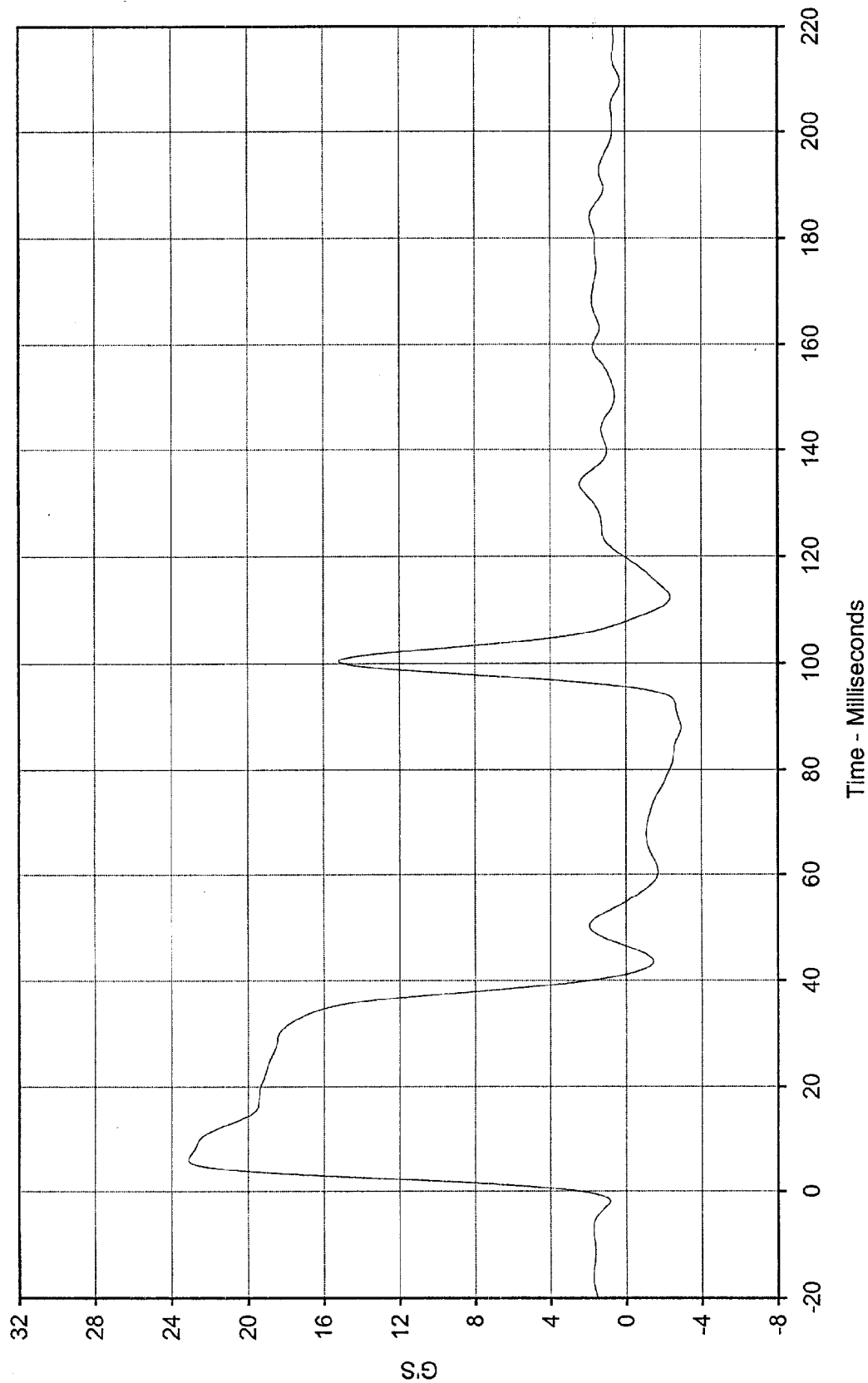
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.94	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	22.5	Pass
	20 Msec.	G's	17.6 to 22.6	19.3	Pass
	30 Msec.	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	38.9	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	76.7	Pass
	Time	Msec.	57.0 to 64.0	62.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	122.1	Pass
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	90.6	Pass
	Time	Msec.	47.0 to 58.0	52.5	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	103.0	Pass
Overall Test Results					Pass


 Laboratory Technician


 Approved By

February 5, 1998
 Test Date

2/5/98
 Date



Curve Description: _____ Testing Program: Hybrid III Neck Flexion Test (Male)

Maximum Value: 23.1 at 6.1 Milliseconds Test Information: S/N of Part: n/a Test I.D.: NF700

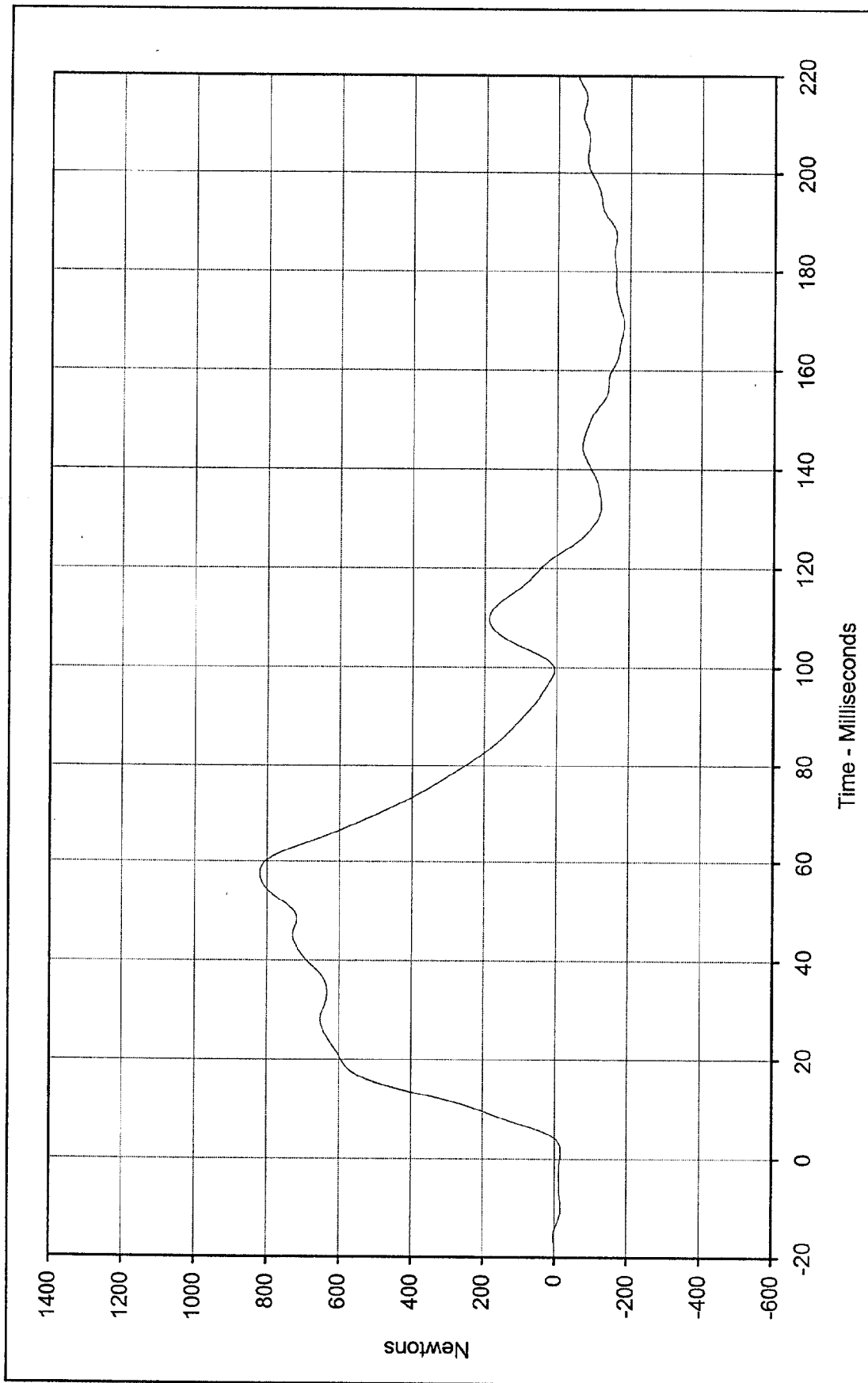
Minimum Value: -2.9 at 87.9 Milliseconds

SAE Filter Class: 60

Date of Test: 2/5/98

ATD Serial No.: 034





Curve Description: _____ Testing Program: Hybrid III Neck Flexion Test (Male)

Maximum Value: 819.8 at 57.5 Milliseconds

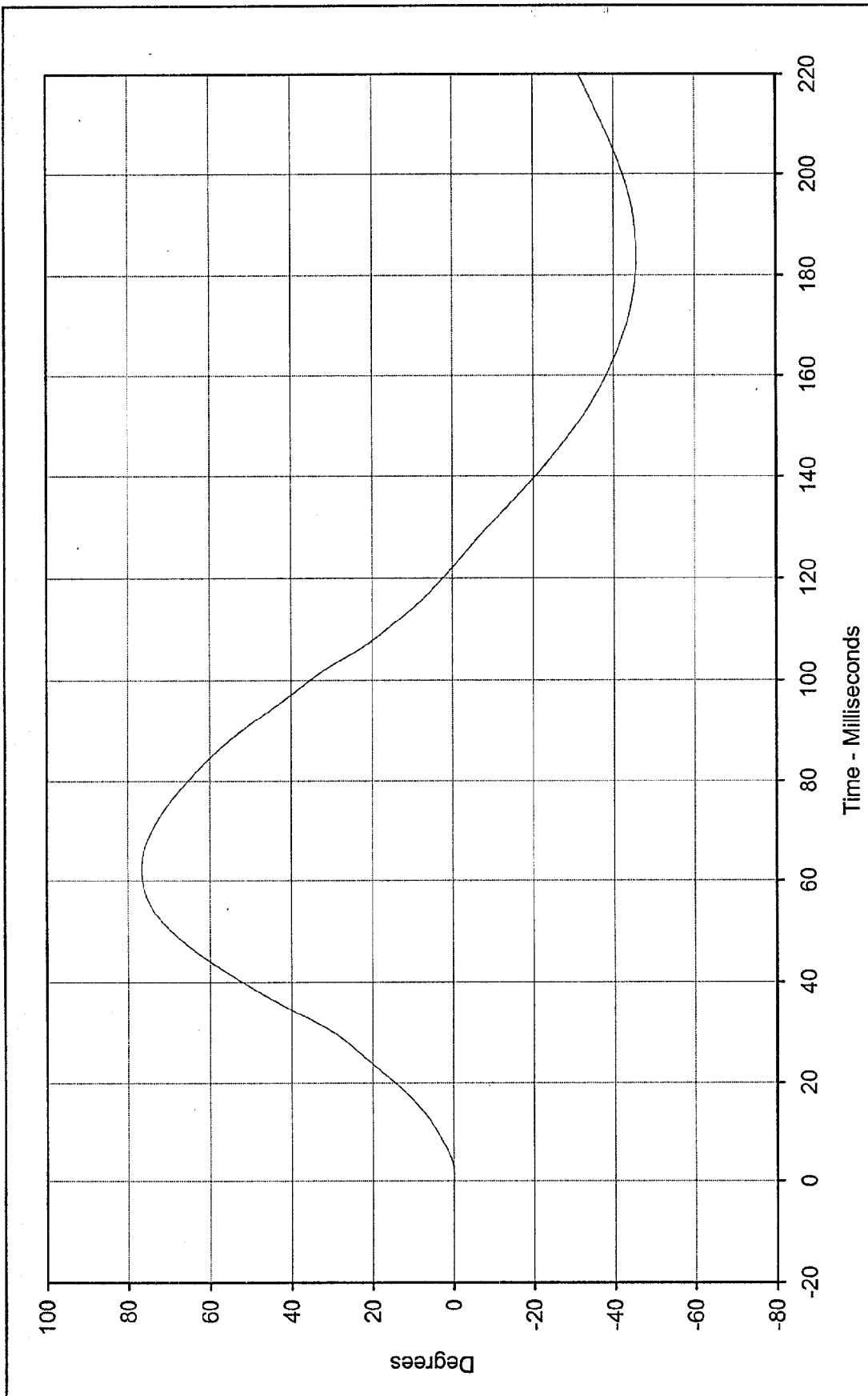
Minimum Value: -183.3 at 169.2 Milliseconds

SAE Filter Class: 60

Date of Test: 2/5/98

ATD Serial No.: 034

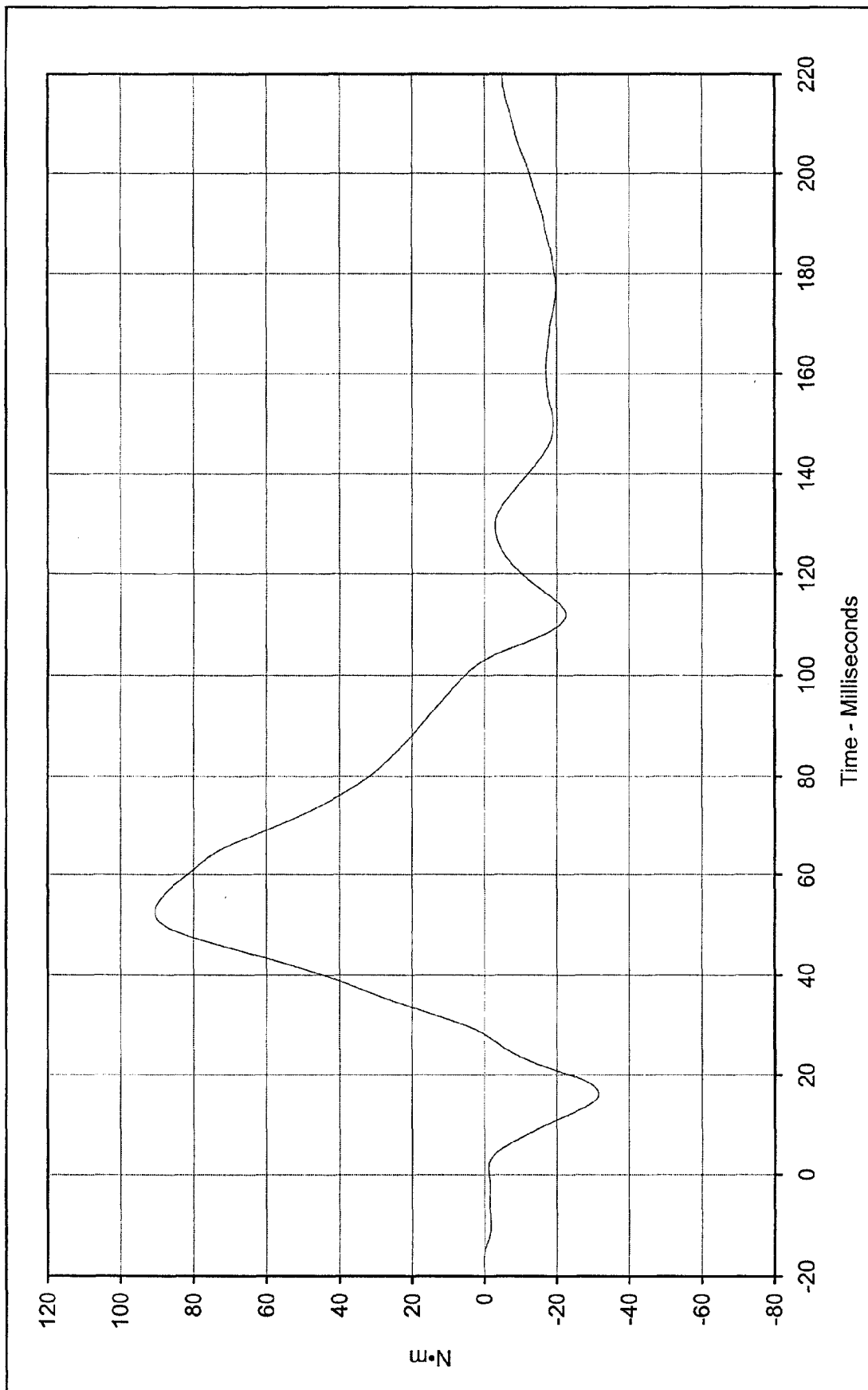




Curve Description: _____
 Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF700

"D" Plane Rotation
 Maximum Value: 76.7 at 62.2 Milliseconds
 Minimum Value: -45.6 at 183.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 034

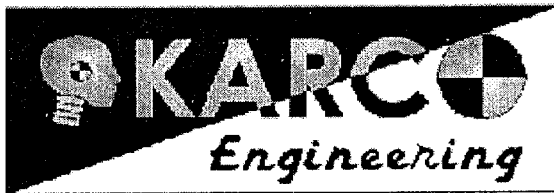




Curve Description: Moment About Occipital Condyles
 Maximum Value: 90.6 at 52.5 Milliseconds
 Minimum Value: -31.6 at 16.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 034

Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF700





Hybrid III Calibration Data Sheet

50TH Percentile Male

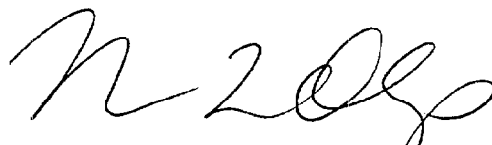
Neck Extension Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: NE200

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.11	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.5	Pass
	20 Msec.	G's	14.0 to 19.0	17.6	Pass
	30 Msec.	G's	11.0 to 16.0	15.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	38.9	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	96.7	Pass
	Time	Msec.	72.0 to 82.0	73.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	154.6	Pass
Moment About Occipital Condyle	Maximum	N • m	-52.9 to - 79.9	-78.8	Pass
	Time	Msec.	65.0 to 79.0	66.2	Pass
Negative Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	143.8	Pass
Overall Test Results					Pass


 Laboratory Technician

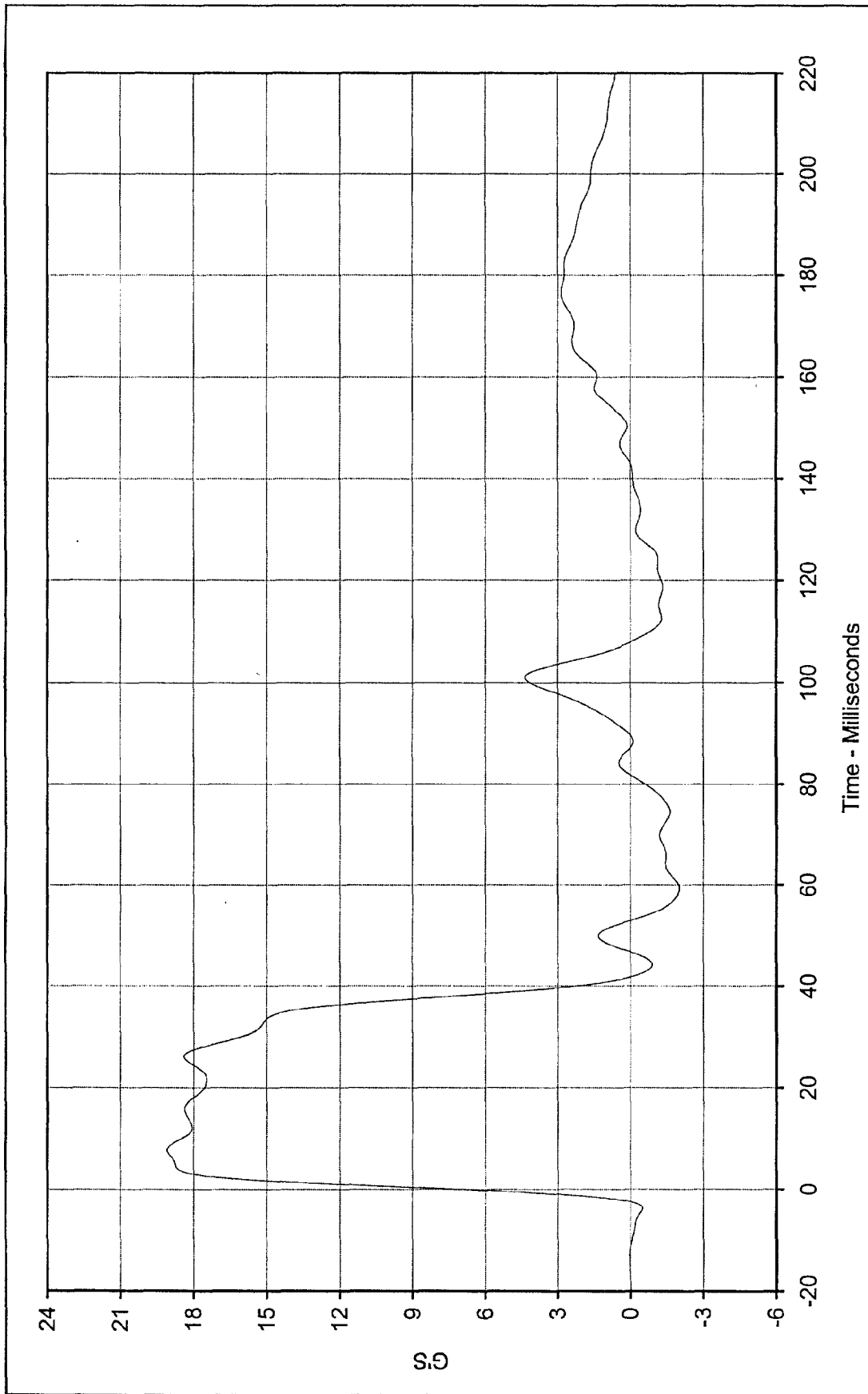

 Approved By

February 5, 1998

Test Date

2/5/98

Date

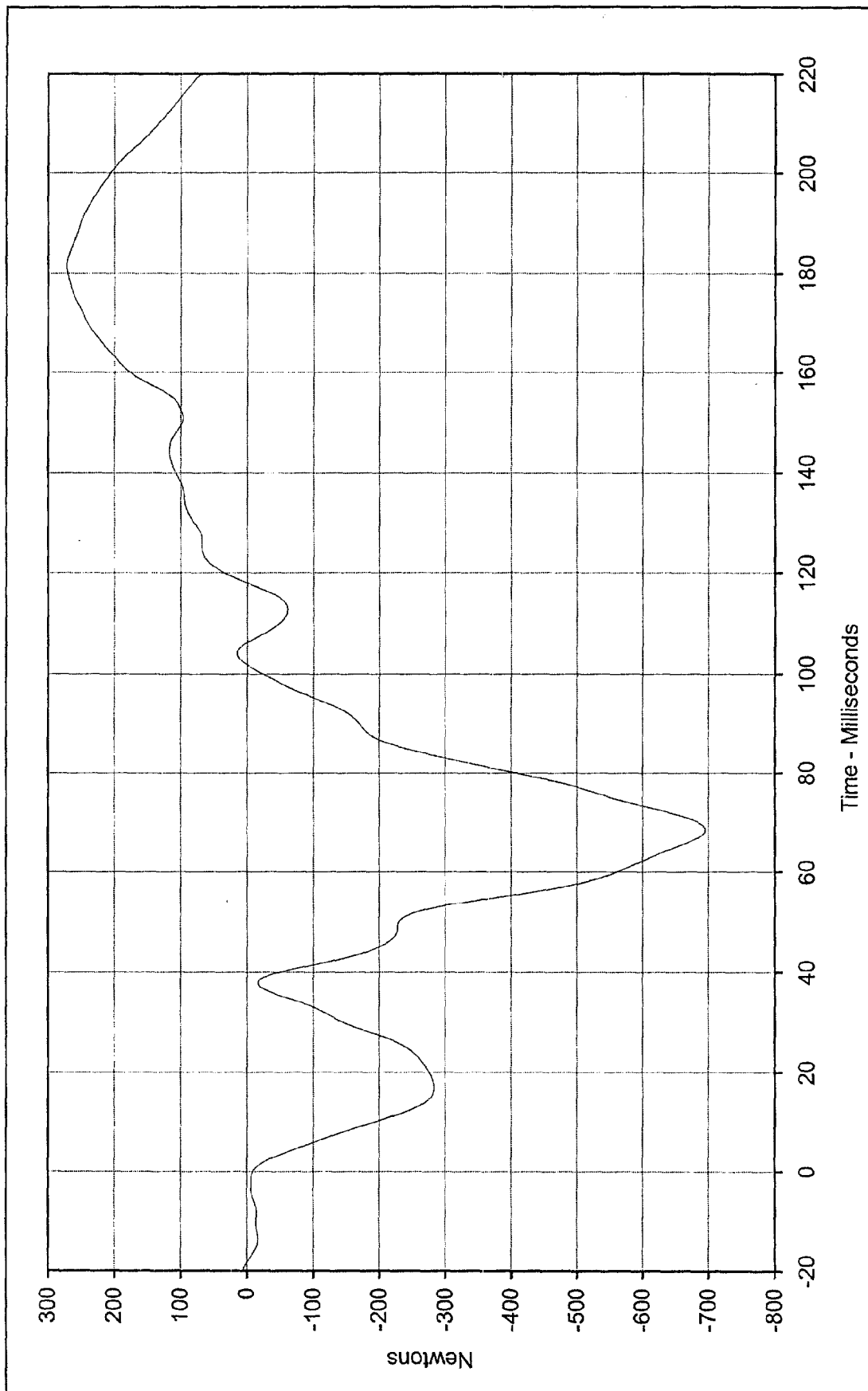


Curve Description: Pendulum Deceleration
 Maximum Value: 19.1 at 7.7 Milliseconds
 Minimum Value: -2.0 at 59.2 Milliseconds

SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 034

Testing Program: Hybrid III Neck Extension Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NE200

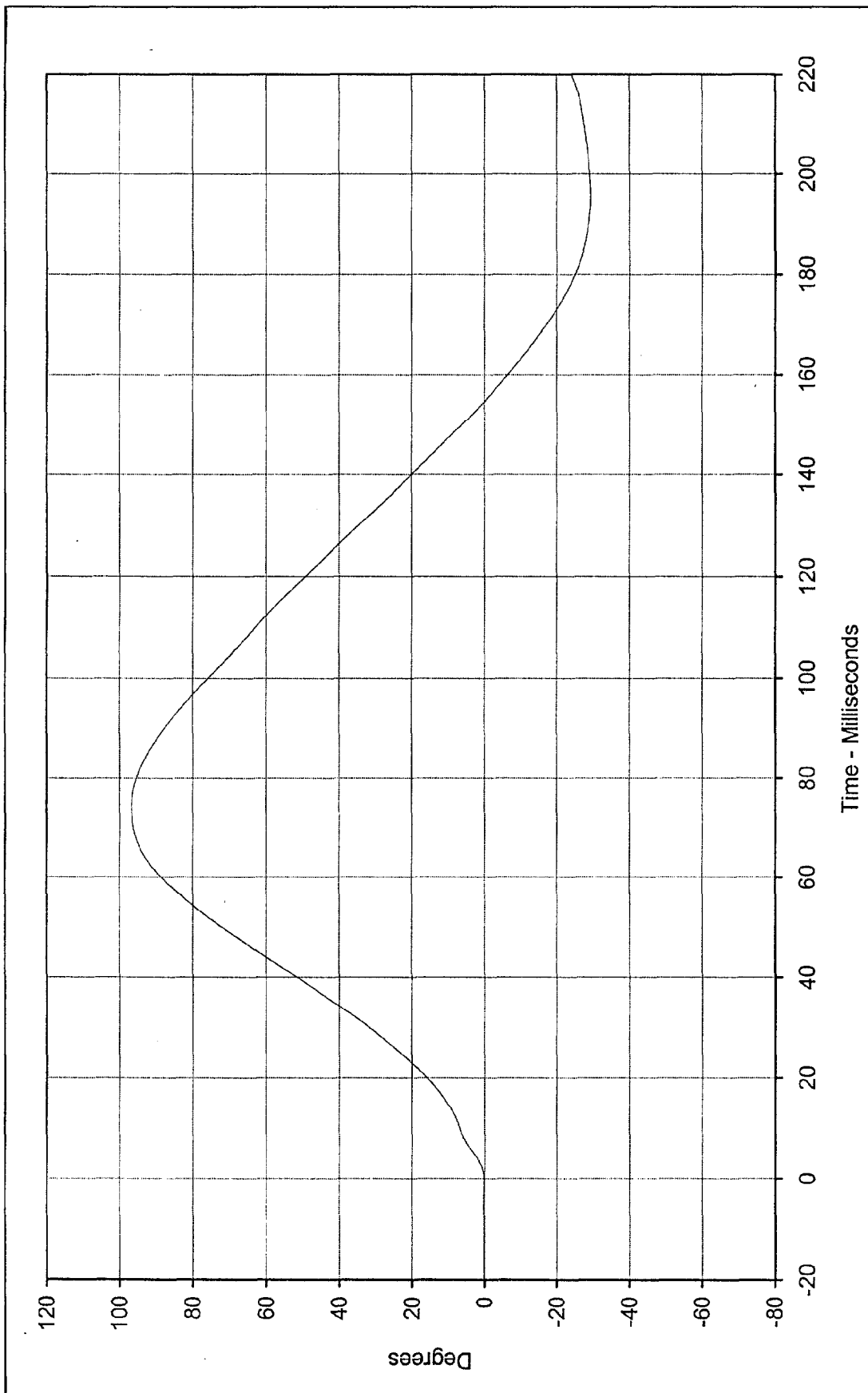




Curve Description: Neck Force X Testing Program Hybrid III Neck Extension Test (Male)
Maximum Value: 271.6 at 181.5 Milliseconds Test Information: S/N of Part: n/a Test I.D.: NE200
Minimum Value: -695.4 at 68.3 Milliseconds

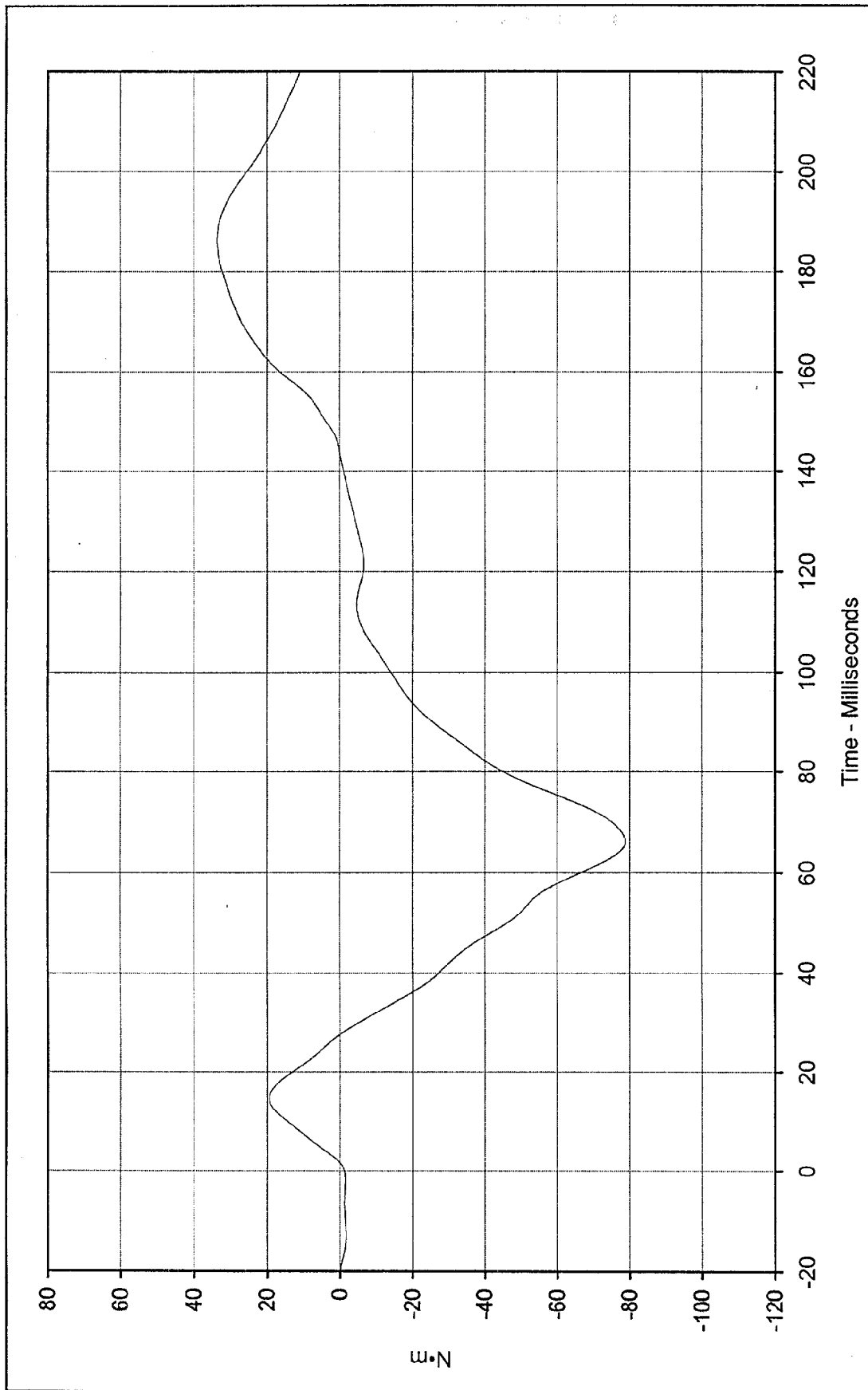


SAE Filter Class: 60
Date of Test: 2/5/98
ATD Serial No.: 034



Curve Description: _____ Testing Program Hybrid III Neck Extension Test (Male)
 Maximum Value: 96.7 at 73.9 Milliseconds
 Minimum Value: -29.3 at 195.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 034





Curve Description: Moment About Occipital Condyles
 Maximum Value: 33.6 at 186.3 Milliseconds
 Minimum Value: -78.8 at 66.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 034

Testing Program Hybrid III Neck Extension Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NE200





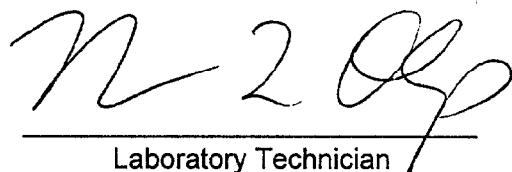
Hybrid III Calibration Data Sheet

50TH Percentile Male

External Measurements

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

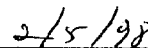
External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	20.9	Pass
Laboratory relative humidity	%	10 to 70	43.0	Pass
A - Total sitting height	mm	878.8 to 889.0	884.0	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	516.0	Pass
C - "H" point height	mm	83.8 to 88.9	88.0	Pass
D - "H" point from seat back	mm	134.6 to 139.7	138.0	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	86.0	Pass
F - Thigh clearance	mm	139.7 to 154.9	151.0	Pass
G - Elbow back to wrist pivot	mm	289.6 to 304.8	302.0	Pass
H - Skull cap to back line	mm	40.6 to 45.7	44.0	Pass
I - Shoulder to elbow length	mm	330.2 to 345.4	330.0	Pass
J - Elbow rest height	mm	190.5 to 210.8	209.0	Pass
K - Buttock to knee length	mm	579.1 to 604.5	600.0	Pass
L - Popliteal length	mm	429.3 to 454.7	450.0	Pass
M - Knee pivot height	mm	485.1 to 500.4	486.0	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	475.0	Pass
O - Chest depth	mm	213.4 to 228.6	225.0	Pass
P - Foot length	mm	251.5 to 266.7	265.0	Pass
V - Shoulder breadth	mm	421.6 to 436.9	434.0	Pass
W - Foot breadth	mm	91.4 to 106.7	105.0	Pass
Y - Chest circumference	mm	970.3 to 1000.8	980.0	Pass
Z - Waist circumference	mm	835.7 to 866.1	860.0	Pass
AA - Location for chest circumference	mm	429.3 to 434.3	433.0	Pass
BB - Location for waist circumference	mm	226.1 to 231.1	229.0	Pass
Overall Test Results				Pass

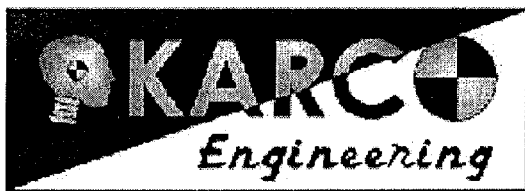

Laboratory Technician

February 5, 1998

Test Date


Approved By


Date



Hybrid III Calibration Data Sheet

50TH Percentile Male

Left Knee Impact Test

ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: K3000

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.127	Pass
Peak Probe Force	Newtons	4715 to 5782	5572.9	Pass
Overall Test Results				Pass

N 2 Q
Laboratory Technician

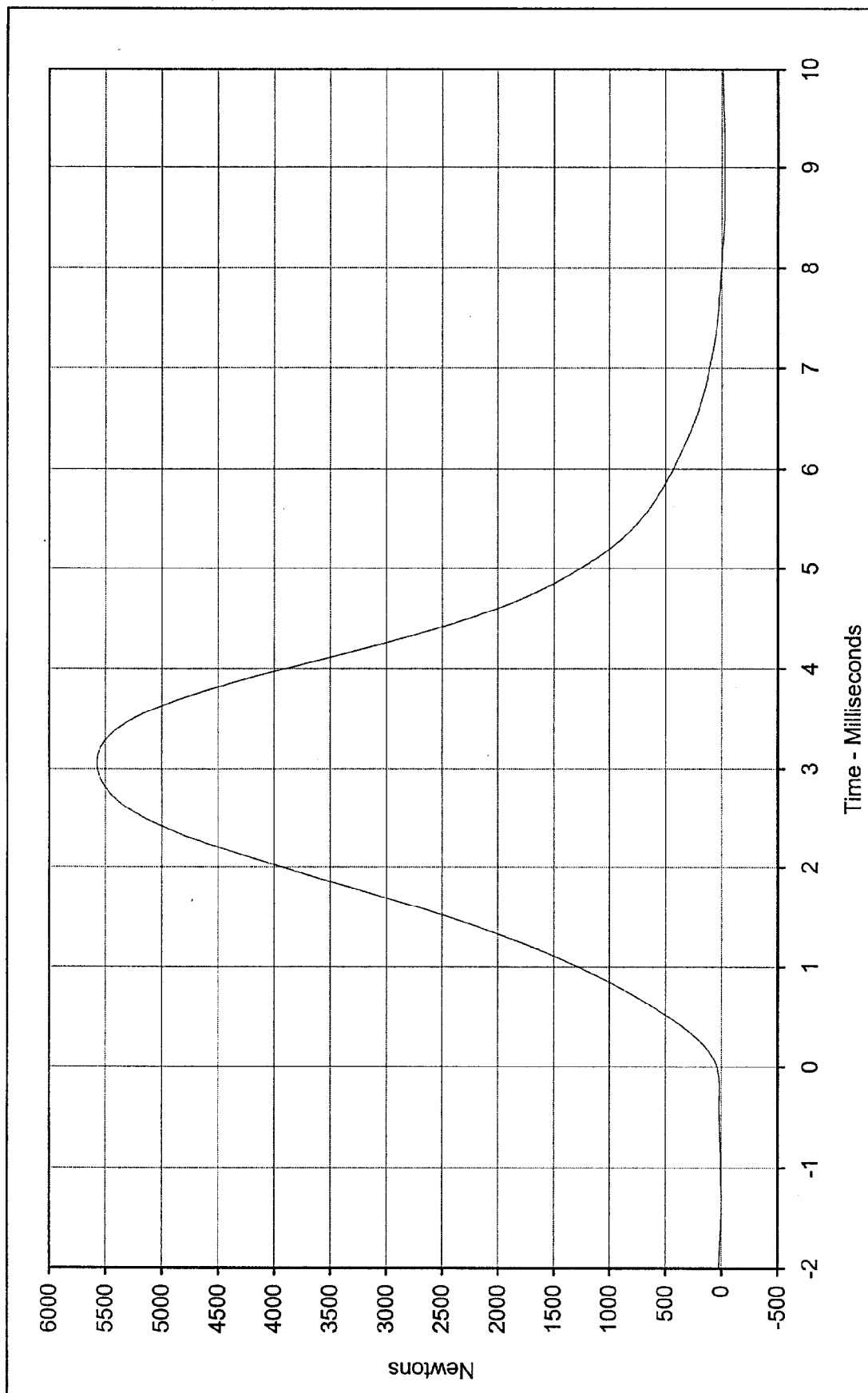
J. O. Hansen
Approved By

February 4, 1998

Test Date

2/4/98

Date



Curve Description:	Testing Program	Hybrid III Left Knee Impact Test
Maximum Value: 5572.9	Test Information:	Part S/N: n/a Test I.D.: K3000
Minimum Value: -1.3		
SAE Filter Class: 600		
Date of Test: 2/4/98		
ATD Serial No.: 035		





Hybrid III Calibration Data Sheet

50TH Percentile Male

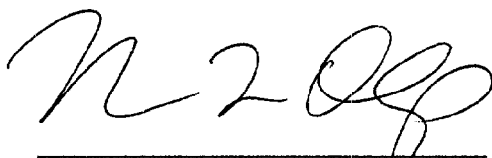
Right Knee Impact Test

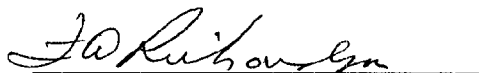
ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: K4000

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.118	Pass
Peak Probe Force	Newtons	4715 to 5782	5517.1	Pass
Overall Test Results				Pass


Laboratory Technician

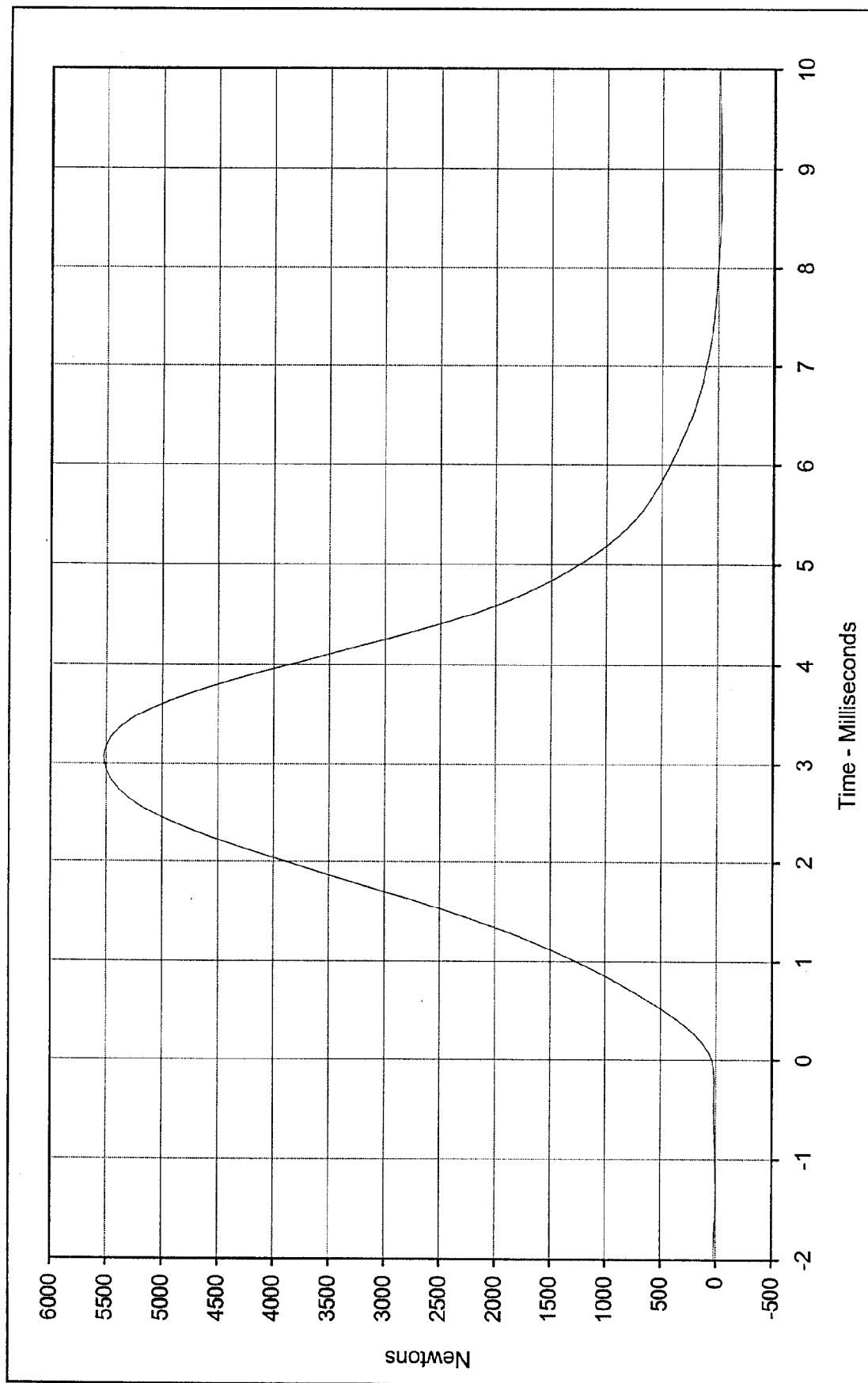

Approved By

February 5, 1998

Test Date

2/5/98

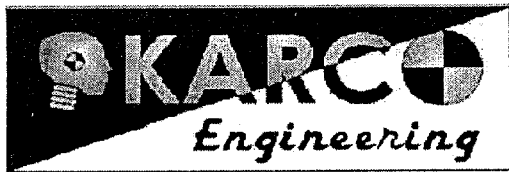
Date



Testing Program: Hybrid III Right Knee Impact Test
 Test Information: Part S/N: n/a Test I.D.: K4000

Curve Description: Probe Force
 Maximum Value: 5517.1 at 3.1 Milliseconds
 Minimum Value: -1.2 at -1.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 2/5/98
 ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male

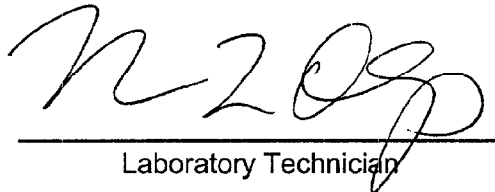
Head Drop Calibration

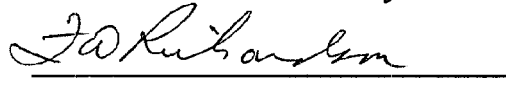
ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: H6000

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	253.5	Pass
Peak Lateral Acceleration	G's	≤15.0	2.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

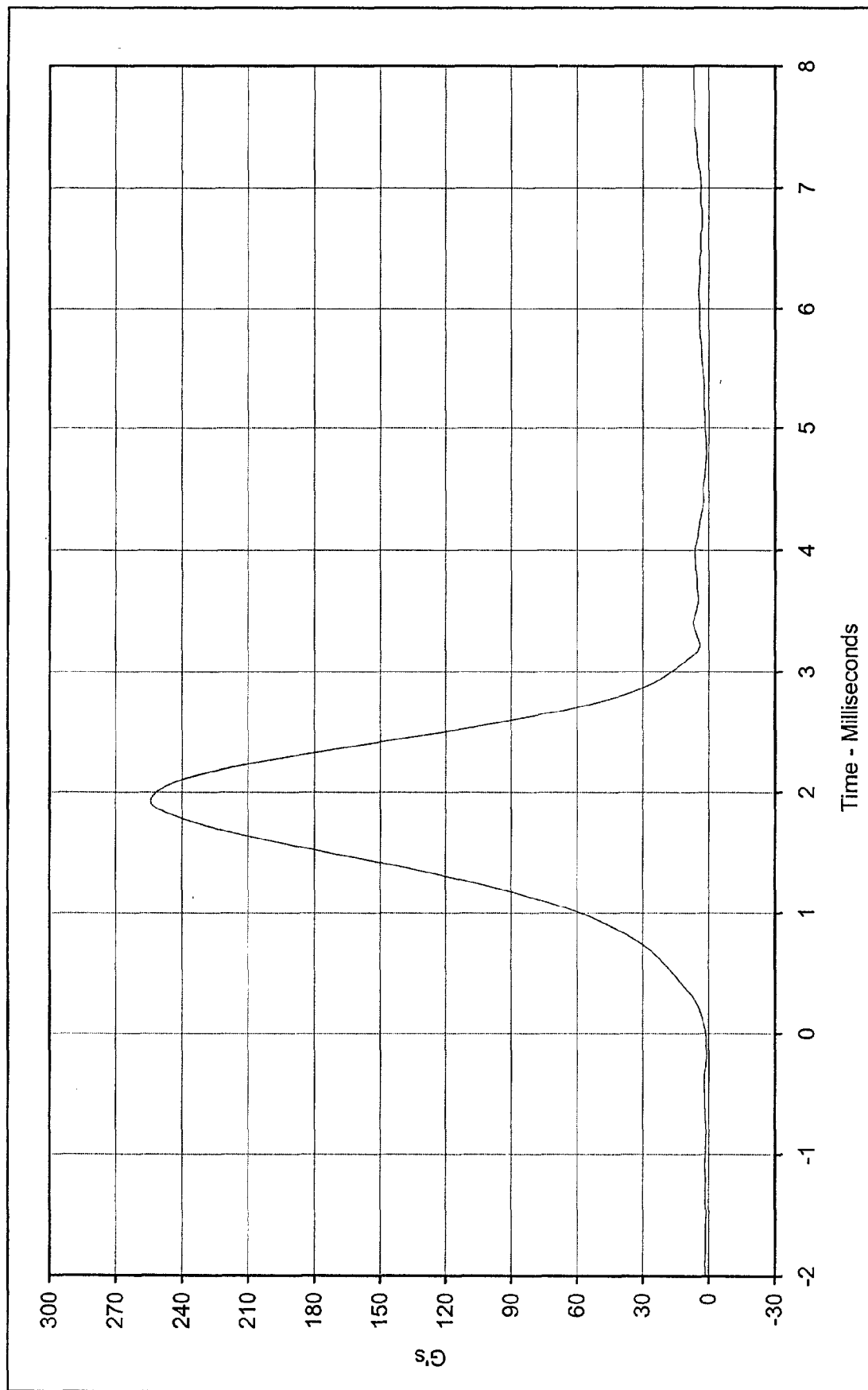

Approved By

February 4, 1998

Test Date

2/4/98

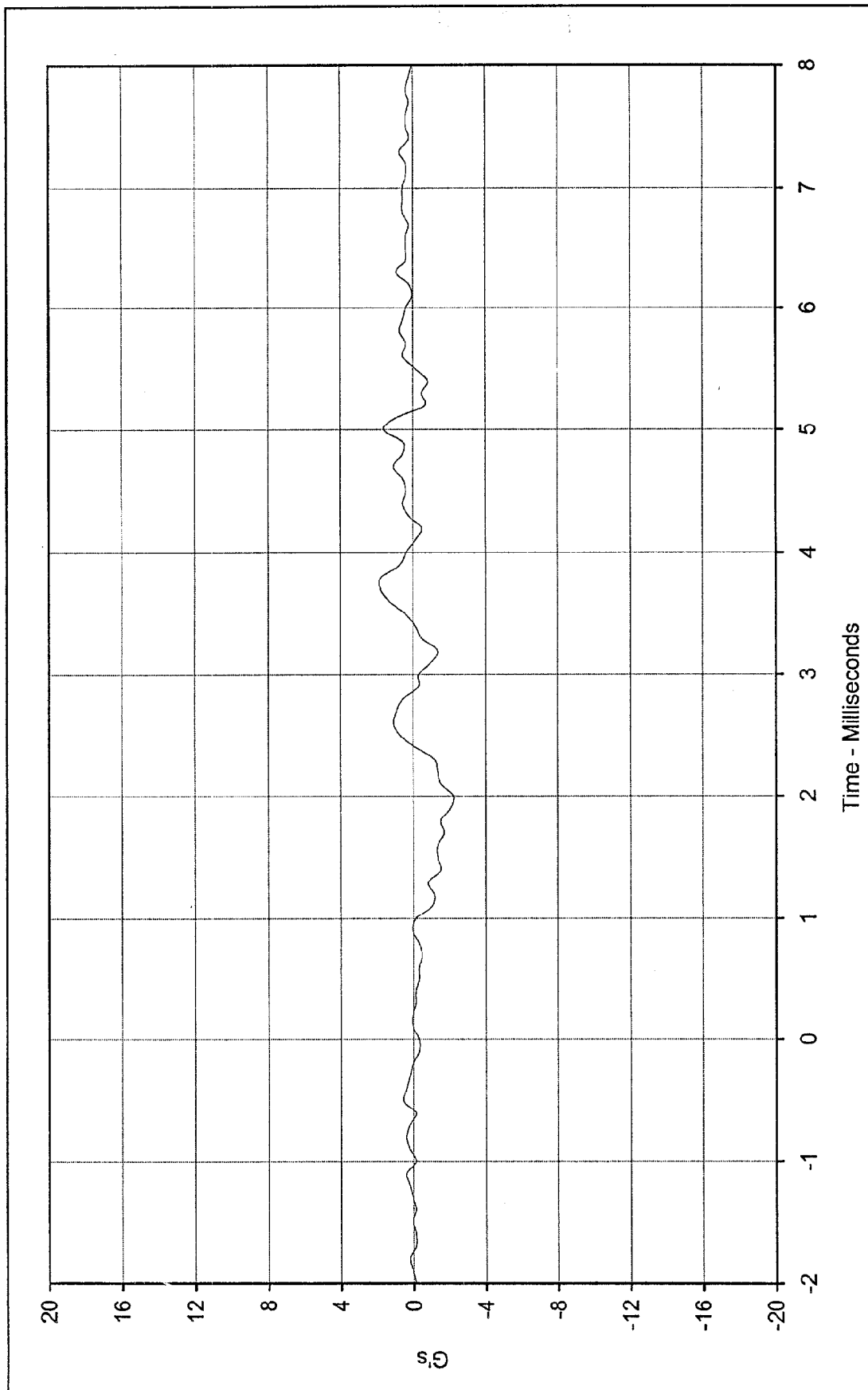
Date



Testing Program Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: H6000

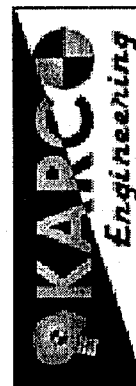
Curve Description: Head Resultant Acceleration
 Maximum Value: 253.5 at 1.9 Milliseconds
 Minimum Value: 0.9 at 4.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 ATD Serial No.: 035





Testing Program Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: H6000

Curve Description: Head Acceleration Y Axis
 Maximum Value: 1.8 at 3.7 Milliseconds
 Minimum Value: -2.2 at 2.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 2/4/98
 ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male

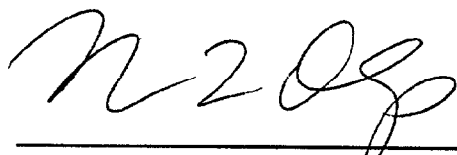
Thorax Impact Test

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: CHST2

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Probe Velocity	m/s	6.58 to 6.82	6.68	Pass
Peak Probe Force	Newtons	5159 to 5893	5797	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.90	Pass
Internal Hysteresis	%	69 to 85	77.9	Pass
Overall Test Results				Pass


Laboratory Technician

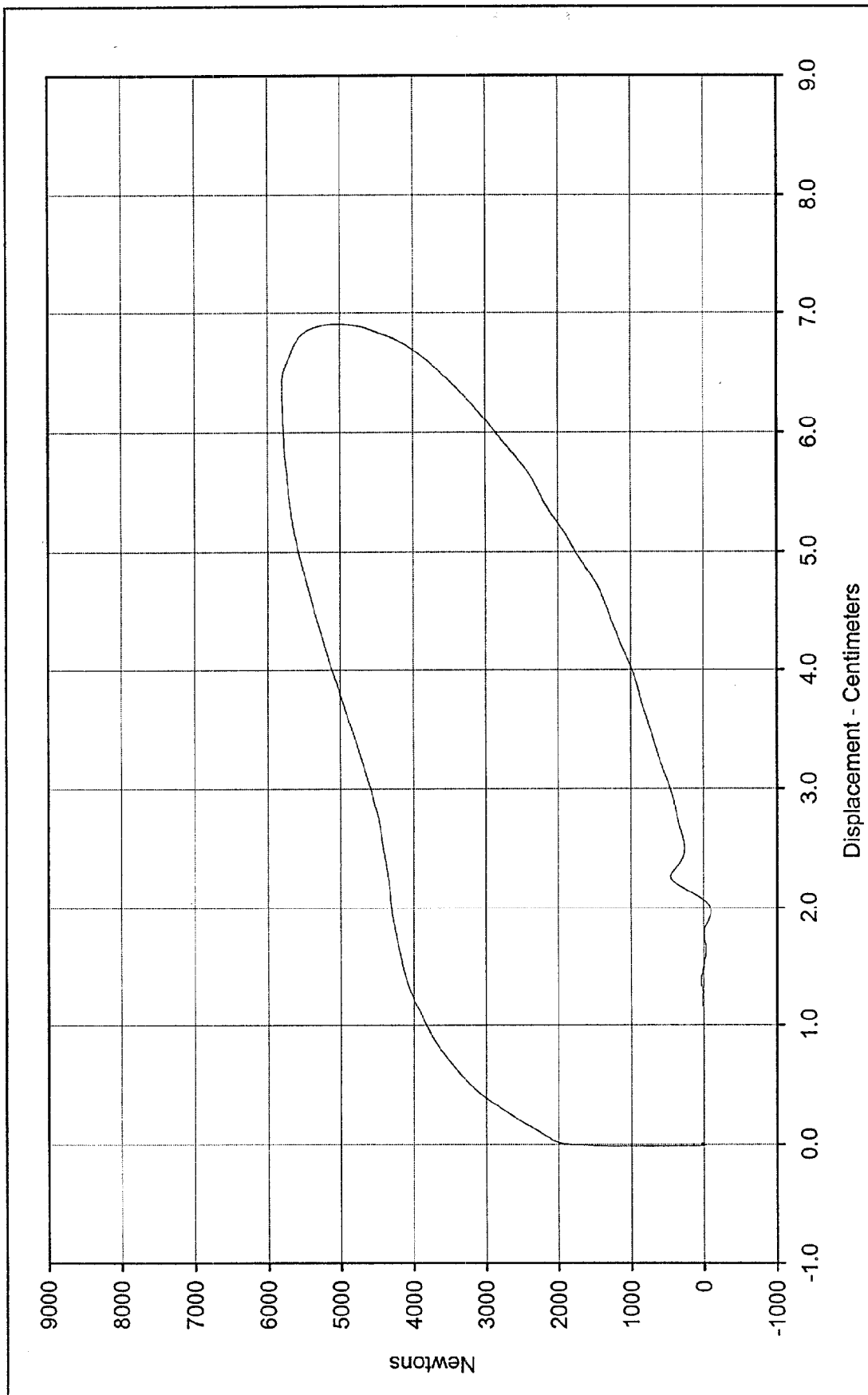

Approved By

February 4, 1998

Test Date

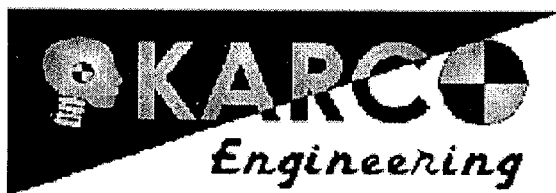
2/4/98

Date



Curve Description:	Probe Force vs. Chest Displacement	Testing Program	Hybrid III Thorax Impact Test
Probe Force:	5797.2 Newtons	Test Information:	S/N of Part: N/A Test I.D.: CHST2
Chest Displ.:	6.90 Centimeters		
SAE Filter Class:	180		
Date of Test:	2/4/98		
ATD Serial No.:	035		





Hybrid III Calibration Data Sheet

50TH Percentile Male

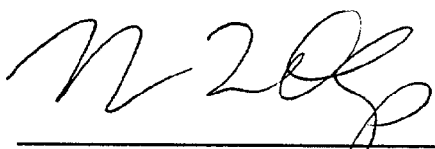
Neck Flexion Test

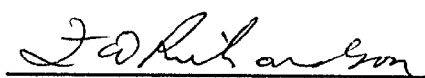
ATD Serial No.: 035

Part Serial No.: n/a

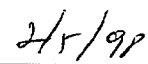
Test I.D.: NF900

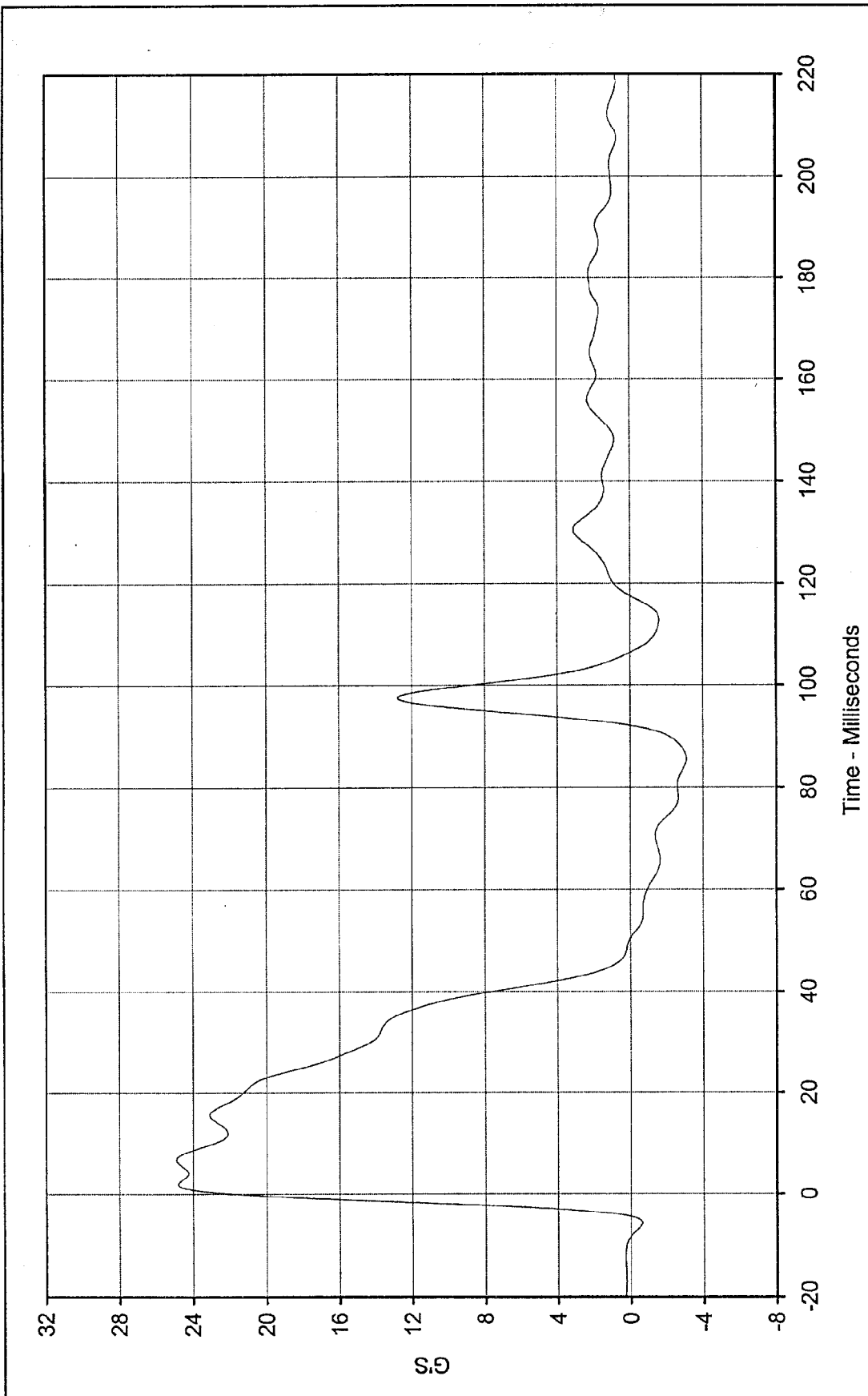
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.93	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	22.9	Pass
	20 Msec.	G's	17.6 to 22.6	21.3	Pass
	30 Msec.	G's	12.5 to 18.5	14.2	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	14.2	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	41.5	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	74.4	Pass
	Time	Msec.	57.0 to 64.0	60.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	119.4	Pass
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	88.7	Pass
	Time	Msec.	47.0 to 58.0	55.6	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	101.3	Pass
Overall Test Results					Pass


 Laboratory Technician


 Approved By

February 5, 1998
 Test Date

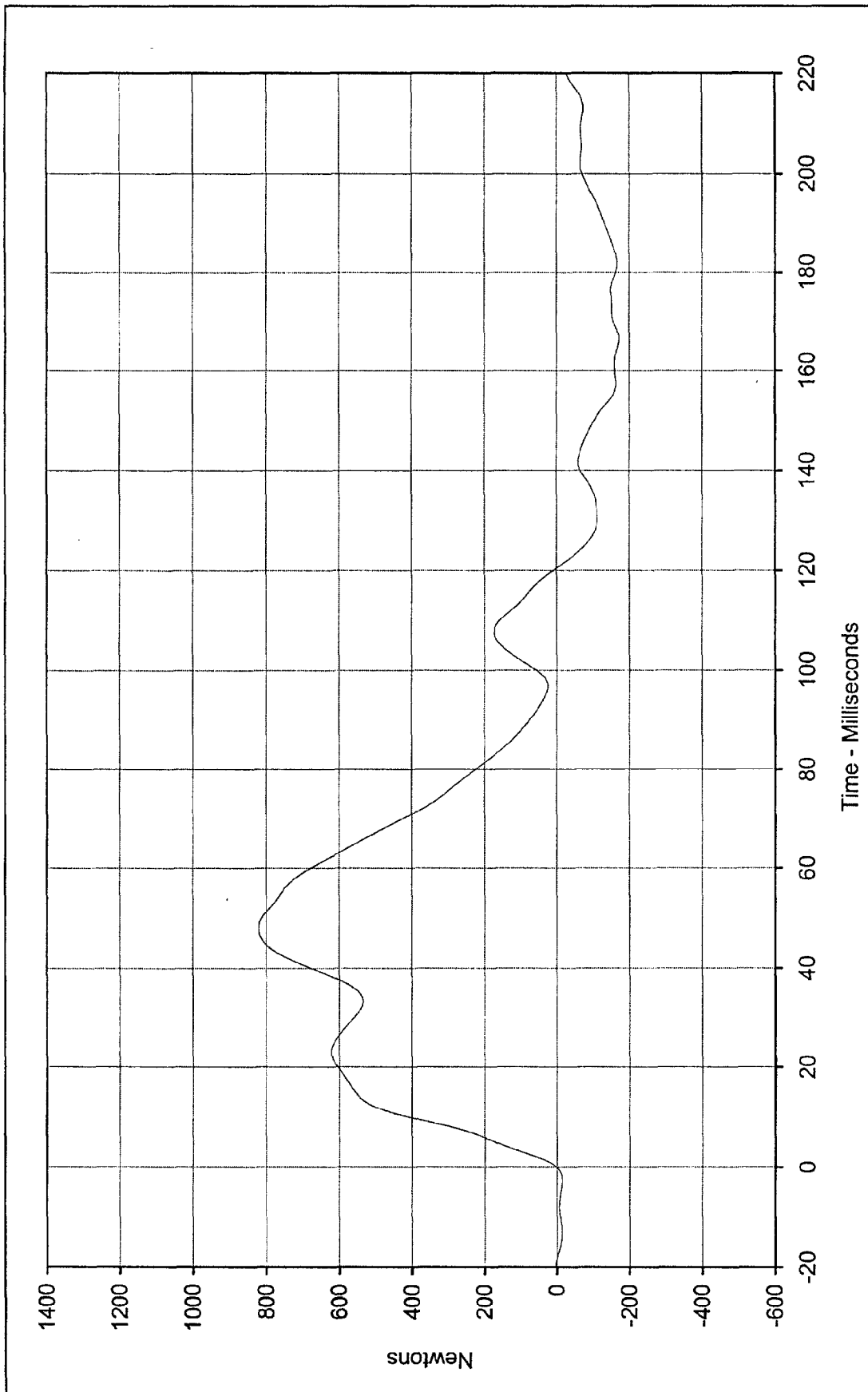

 Date



Curve Description: Hybrid III Neck Flexion Test (Male)
 Testing Program: S/N of Part: n/a Test I.D.: NF900

Pendulum Deceleration
 Maximum Value: 24.9 at 6.7 Milliseconds
 Minimum Value: -3.1 at 85.6 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 035

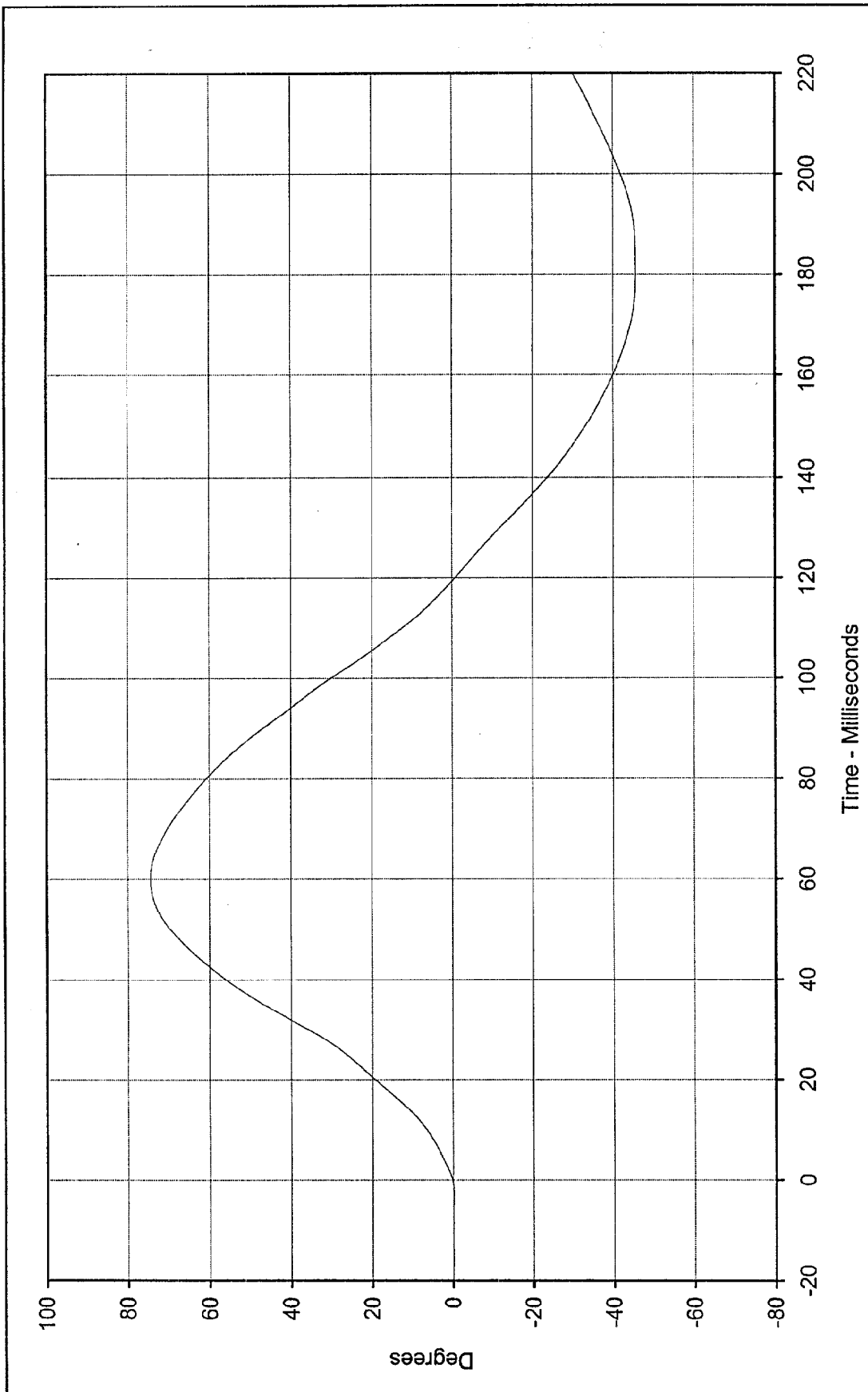




Testing Program Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF900



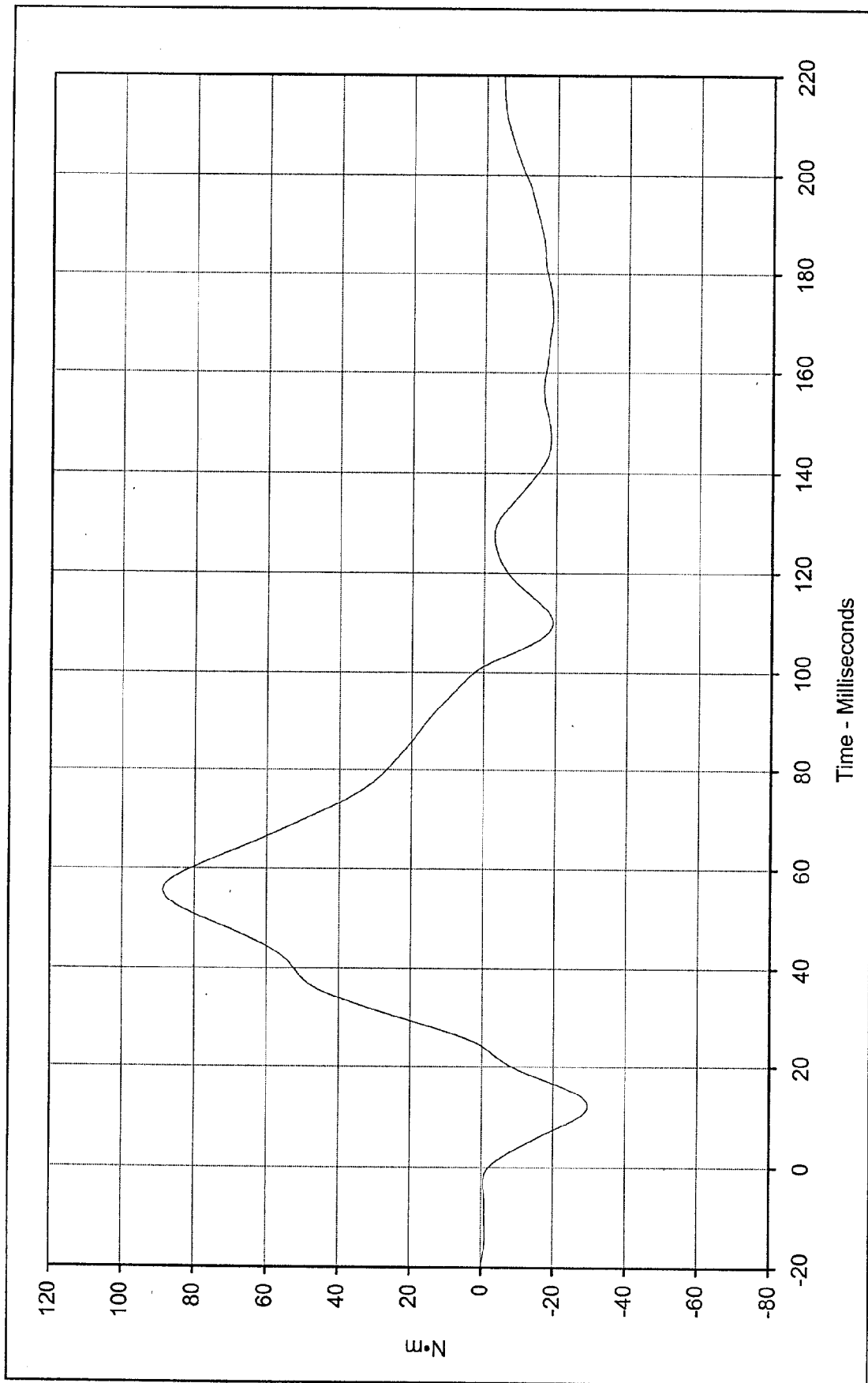
Curve Description: Neck Force X
 Maximum Value: 820.4 at 48.0 Milliseconds
 Minimum Value: -171.4 at 166.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 035



Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF900



Curve Description: "D" Plane Rotation
 Maximum Value: 74.4 at 60.1 Milliseconds
 Minimum Value: -45.7 at 180.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 035



Curve Description: Moment About Occipital Condyles
 Maximum Value: 88.7 at 55.6 Milliseconds
 Minimum Value: -29.6 at 12.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 035

Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NF900





Hybrid III Calibration Data Sheet

50TH Percentile Male

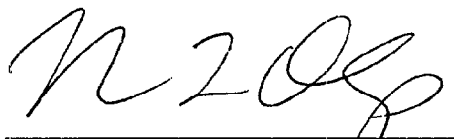
Neck Extension Test

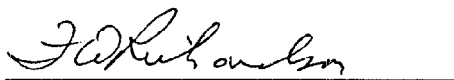
ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: NE300

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.15	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.6	Pass
	20 Msec.	G's	14.0 to 19.0	17.3	Pass
	30 Msec.	G's	11.0 to 16.0	15.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	40.0	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	93.6	Pass
	Time	Msec.	72.0 to 82.0	77.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	153.7	Pass
Moment About Occipital Condyle	Maximum	N • m	-52.9 to- 79.9	-77.1	Pass
	Time	Msec.	65.0 to 79.0	66.4	Pass
Negative Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	145.5	Pass
Overall Test Results					Pass


 Laboratory Technician

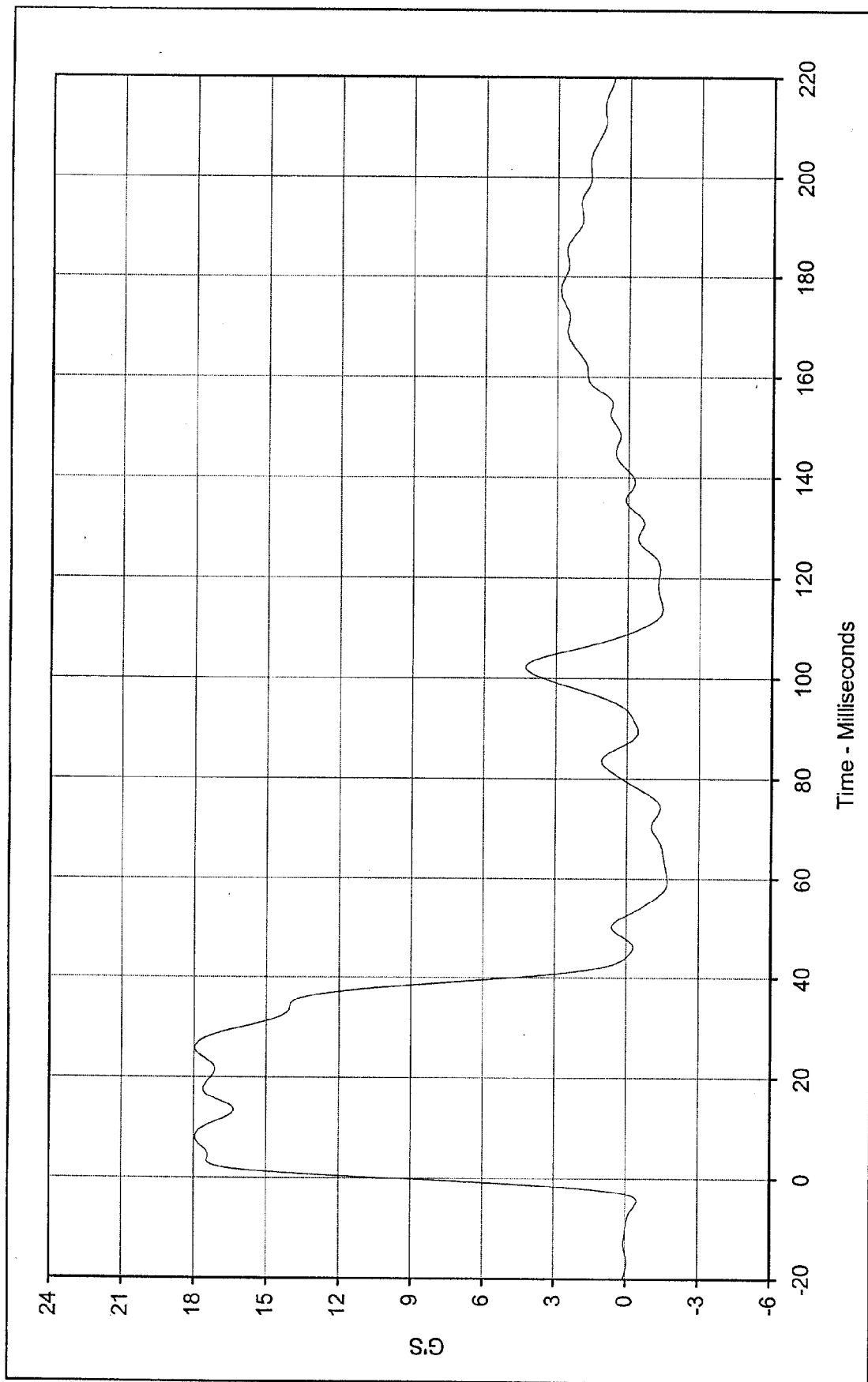

 Approved By

February 5, 1998

Test Date

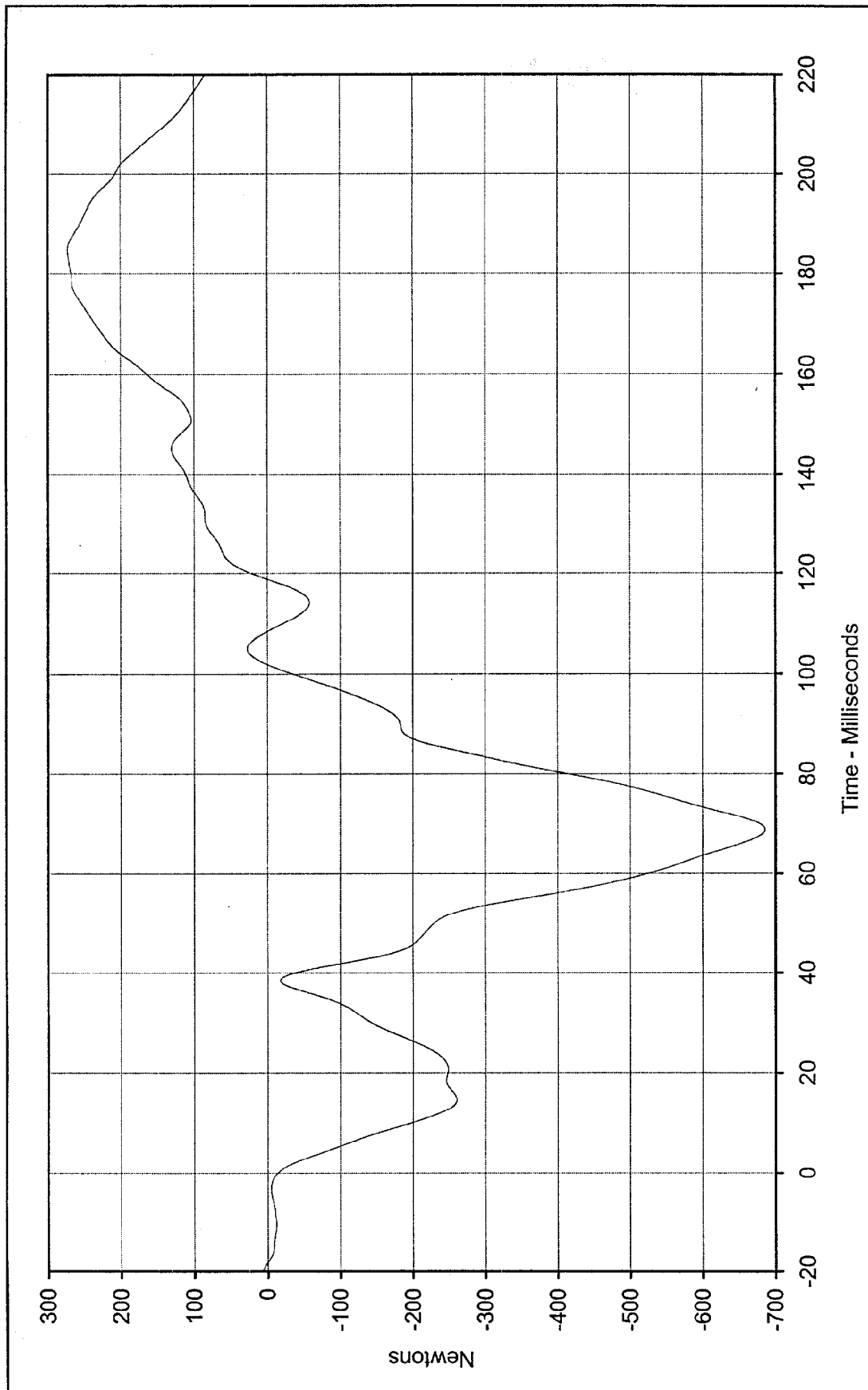
2/5/98

Date



Curve Description: _____ Testing Program Hybrid III Neck Extension Test (Male)
 Maximum Value: 18.0 at 25.6 Milliseconds
 Minimum Value: -1.7 at 59.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 035

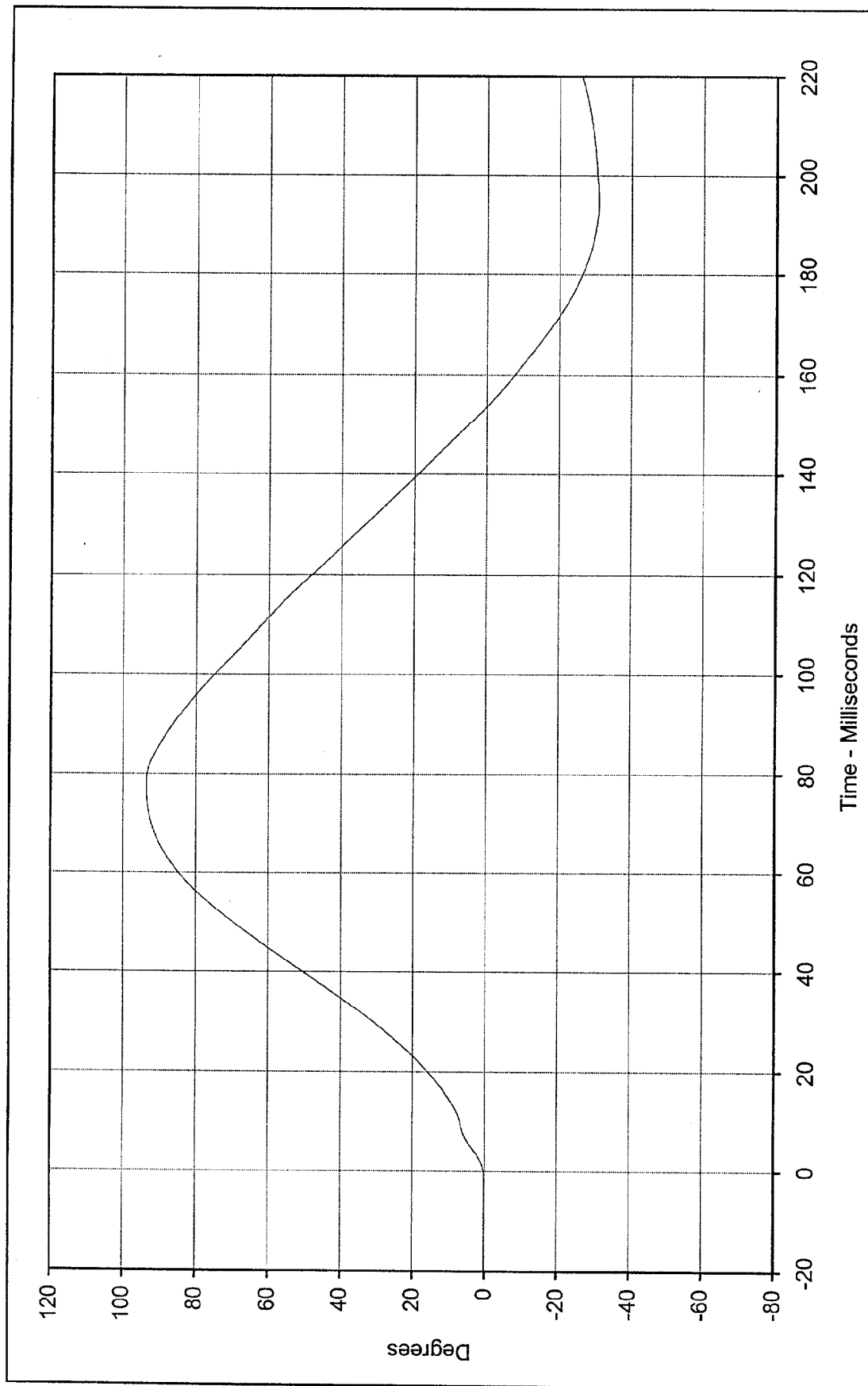




Testing Program: Hybrid III Neck Extension Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NE300

Curve Description: Neck Force X
 Maximum Value: 272.8 at 184.8 Milliseconds
 Minimum Value: -686.1 at 68.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 2/5/98
 ATD Serial No.: 035





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

Test Information: S/N of Part: n/a Test I.D.: NE300

"D" Plane Rotation

Maximum Value: 93.6 at 77.7 Milliseconds

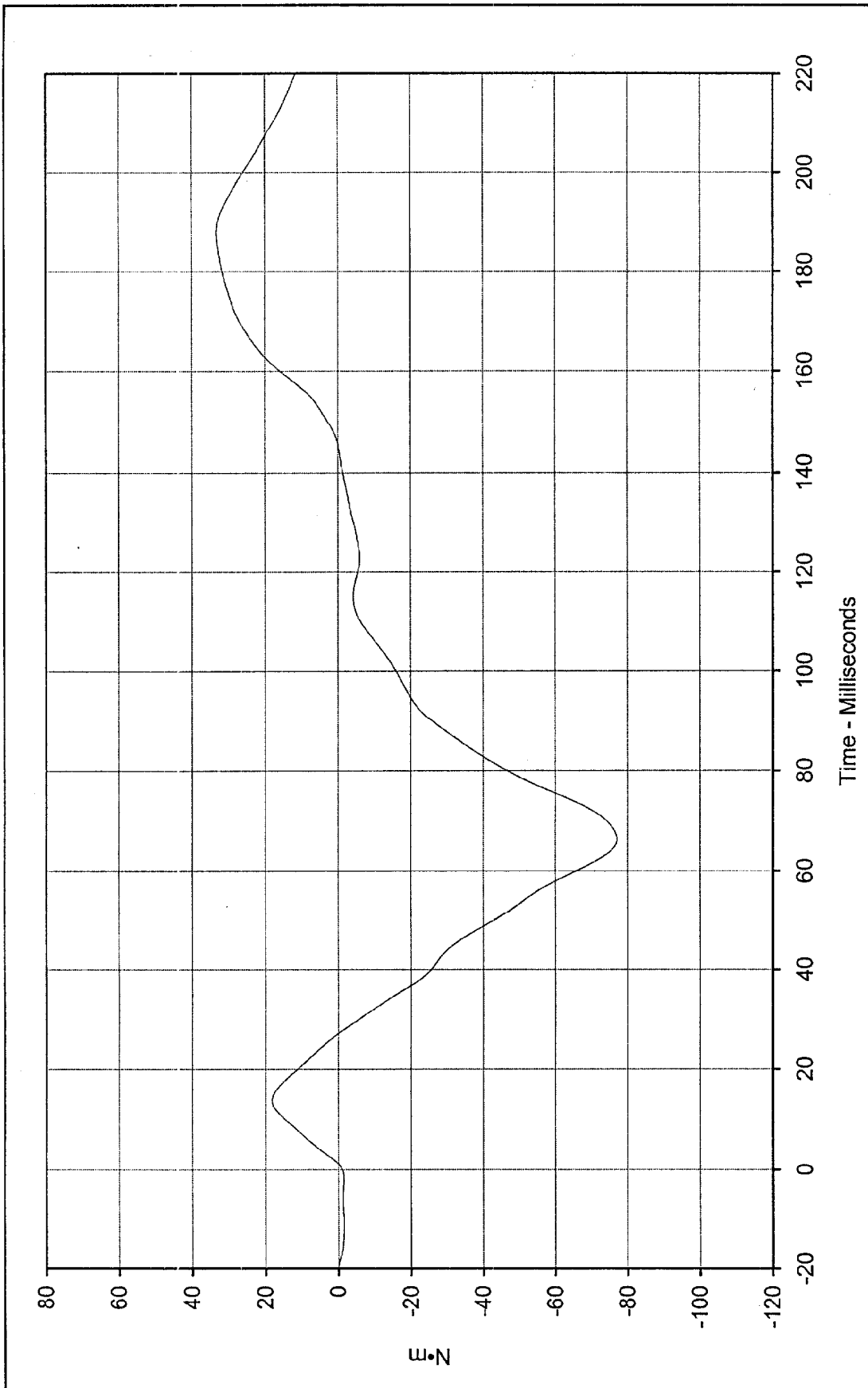
Minimum Value: -30.8 at 194.9 Milliseconds

SAE Filter Class: 60

Date of Test: 2/5/98

ATD Serial No.: 035





Testing Program Hybrid III Neck Extension Test (Male)

Test Information: S/N of Part: n/a Test I.D.: NE300

Curve Description: Moment About Occipital Condyles

Maximum Value: 33.2 at 187.6 Milliseconds

Minimum Value: -77.1 at 66.4 Milliseconds

SAE Filter Class: 60

Date of Test: 2/5/98

ATD Serial No.: 035





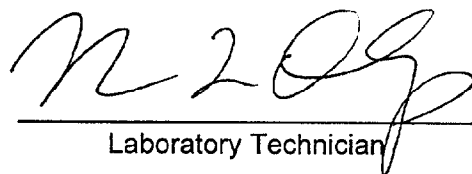
Hybrid III Calibration Data Sheet

50TH Percentile Male

External Measurements

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

External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	20.9	Pass
Laboratory relative humidity	%	10 to 70	43.0	Pass
A - Total sitting height	mm	878.8 to 889.0	885.0	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	520.0	Pass
C - "H" point height	mm	83.8 to 88.9	86.0	Pass
D - "H" point from seat back	mm	134.6 to 139.7	136.0	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	300.0	Pass
H - Skull cap to back line	mm	40.6 to 45.7	44.0	Pass
I - Shoulder to elbow length	mm	330.2 to 345.4	335.0	Pass
J - Elbow rest height	mm	190.5 to 210.8	200.0	Pass
K - Buttock to knee length	mm	579.1 to 604.5	600.0	Pass
L - Popliteal length	mm	429.3 to 454.7	450.0	Pass
M - Knee pivot height	mm	485.1 to 500.4	490.0	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	477.0	Pass
O - Chest depth	mm	213.4 to 228.6	226.0	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	100.0	Pass
Y - Chest circumference	mm	970.3 to 1000.8	1000.0	Pass
Z - Waist circumference	mm	835.7 to 866.1	860.0	Pass
AA - Location for chest circumference	mm	429.3 to 434.3	430.0	Pass
BB - Location for waist circumference	mm	226.1 to 231.1	230.0	Pass
Overall Test Results				Pass


Laboratory Technician

February 5, 1998

Test Date

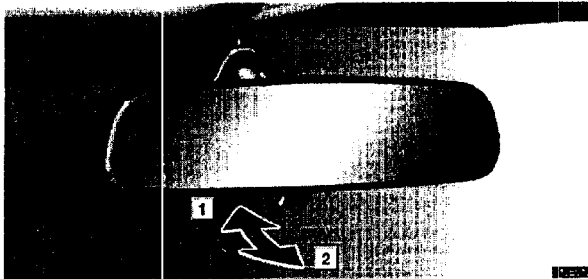

Approved By

2/5/98

Date

APPENDIX F
VEHICLE OWNER'S MANUAL
OCCUPANT RESTRAINT INSTRUCTIONS

INSIDE REAR VIEW MIRROR



► **1** Day **2** Night

Adjust the mirror so you can just see the rear of your vehicle in the mirror.

When driving at night, pull the lever toward you to reduce the glare from the headlights of vehicles behind you.

Before adjusting the mirror to the position with most clarity, push the day-night change lever forward (daylight driving position).

Remember that by reducing glare you also lose some rear view clarity.



CAUTION

Do not adjust the mirror while the vehicle is moving. It may cause the driver to mishandle the vehicle and an accident may occur resulting in personal injuries.

SEAT BELTS

Seat belt precautions

Lexus strongly urges that the driver and passengers in the vehicle be properly restrained at all times with the seat belts provided. Failure to do so could increase the chance of injury and/or the severity of injury in accidents.

Child. Use a child restraint system appropriate for the child until the child becomes large enough to properly wear the vehicle's seat belts. See "Child restraint" for details.

If a child is too large for a child restraint system, the child should sit in the rear seat and must be restrained using the vehicle's seat belt. According to accident statistics, the child is safer when properly restrained in the rear seat than in the front seat.

If a child must sit in the front seat, the seat belts should be worn properly. Do not let the child sit on your lap. It does not provide sufficient restraint. If an accident occurs and the seat belts are not worn properly, the force of the rapid inflation of the airbag may cause severe injury to the child.

Do not allow the child to stand up or kneel on either rear or front seats. An unrestrained child could suffer serious injury during emergency braking or a collision.

COMFORT ADJUSTMENT

Pregnant woman. Lexus recommends the use of a seat belt. Ask your doctor for specific recommendations. The lap belt should be worn securely and as low as possible over the hips and not on the waist.

Injured person. Lexus recommends the use of a seat belt. Depending on the injury, first check with your doctor for specific recommendations.

CAUTION

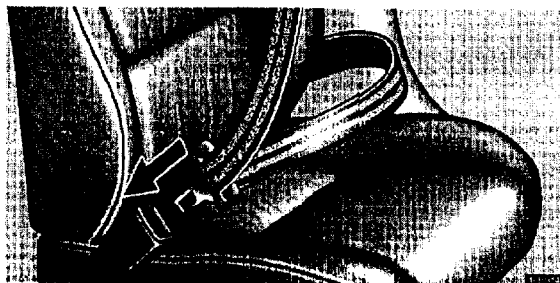
Persons should ride in their seats properly wearing their seat belts whenever the vehicle is moving. Otherwise, they are much more likely to suffer serious bodily injury in the event of sudden braking or a collision.

When using the seat belts, observe the following:

- Use the belt for only one person at a time. Do not use a single belt for two or more people – even children.
- Avoid reclining the seatbacks too much. The seat belts provide maximum protection when the seatbacks are in the upright position. (See “Adjusting seatback angle”).
- Be careful not to damage the belt webbing or hardware. Take care that they do not get caught or pinched in the seat or doors.
- Inspect the belt system periodically. Check for cuts, fraying, and loose parts. Damaged parts should be replaced. Do not disassemble or modify the system.

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

Fastening front and rear seat belts



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

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

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

COMFORT ADJUSTMENT

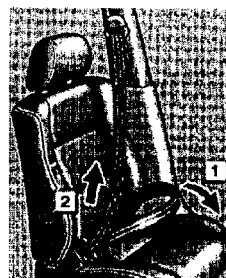
The retractor will lock the belt during a sudden stop or on impact. It also may lock if you lean forward too quickly. A slow, easy motion will allow the belt to extend, and you can move around freely.

When a passenger's shoulder belt is completely extended and is then retracted even slightly, the belt is locked in that position and cannot be extended. This feature is used to hold the child restraint system securely. (For details, see “Child restraint” on page 86.) To free the belt again, fully retract the belt and then pull the belt out once more.

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

CAUTION

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



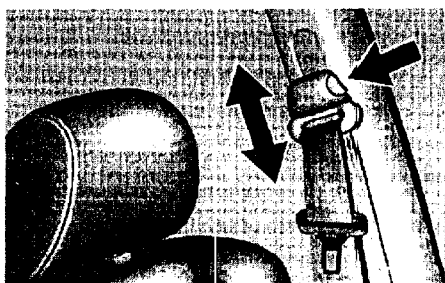
Adjust the position of the lap and shoulder belts.

- 1 Position the lap belt as low as possible on your hips – not on your waist.
- 2 Adjust it to a snug fit by pulling the shoulder portion upward through the latch plate.

CAUTION

- High-positioned lap belts and loose-fitting belts both could cause severe injuries due to sliding under the lap belt during a collision or other unintended result. Keep the lap belt positioned as low on hip as possible.
- For your safety, do not place the shoulder belt under your arm.

COMFORT ADJUSTMENT



►Front seat belts on/y

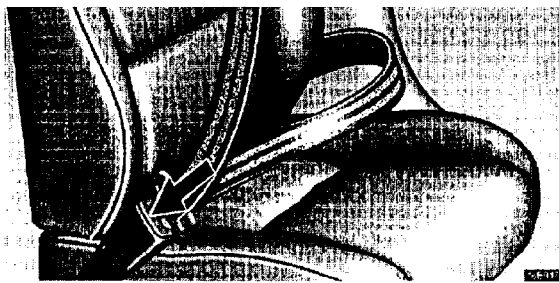
Adjust the shoulder anchor position to your size.

To raise the anchor position, push the anchor up. To lower the anchor position, support the anchor while you push the lock release button then slide the anchor down. After the adjustment, make sure the anchor is locked in position.



CAUTION

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



To release the belt, press the buckle release button and allow the belt to retract.

If the belt does not retract smoothly, pull it out and check for kinks or twists. Then make sure it remains untwisted as it retracts.

Seat belt extender

If the front or rear outside seat belts cannot be fastened securely because it is not long enough, a personalized seat belt extender is available from your Lexus dealer free of charge.

Please contact your local Lexus dealer so that the dealer can order the proper required length for the extender. Bring the heaviest coat you expect to wear for proper measurement and selection of length. Additional ordering information is available at your Lexus dealer.

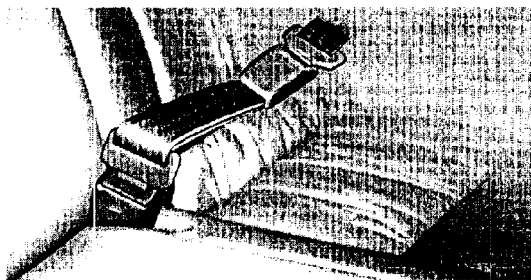
COMFORT ADJUSTMENT



CAUTION

When using the seat belt extender, observe the following. Failure to follow these instructions could result in less effectiveness of the seat belt restraint system in case of vehicle accident, increasing the chance of personal injury.

- Never use the seat belt extender if you can fasten the seat belt without it.
- Remember that the extender provided for you may not be safe when used on a different vehicle, or for another person or at a different seating position than the one originally intended for.



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

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

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

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



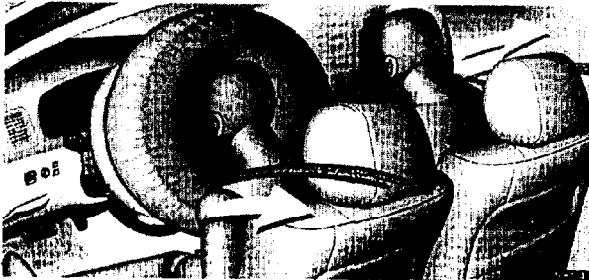
CAUTION

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

COMFORT ADJUSTMENT

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The Supplemental Restraint System (SRS) consists of driver and front passenger airbags, side airbags and seat belt pretensioners. The combination of these 3 systems is designed to provide further protection for the driver and front passenger when added to the primary protection provided by the seat belts.



► Driver and front passenger airbags, and seat belt pretensioners

Driver and front passenger airbags:

In response to a severe frontal impact, the driver and front passenger airbags work together with the seat belts to help preventing or reduce injury by inflating, in order to decrease the likelihood of the driver's or front passenger's heads or chests from directly hitting the steering wheel or dashboard.

Seat belt pretensioners:

In response to a severe frontal impact, the seat belts are quickly drawn back in by the retractors so that the belts snugly restrain the driver and front passenger.

The front passenger airbag is activated even with no passenger in the front seat.

The seat belt pretensioners are activated together with the driver and front passenger airbags, even with no passenger in the front seat.

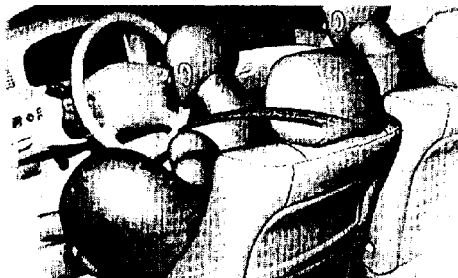
Be sure to wear your seat belt.

⚠ CAUTION

The driver or front passenger too close to the steering wheel or dashboard during airbag deployment can be killed or seriously injured, Lexus strongly recommends that:

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

COMFORT ADJUSTMENT



► Side airbags

Side airbags:

In response to a severe side impact, the side airbag for the driver or front passenger works together with the seat belt to help preventing or reducing injury by inflating, in order to decrease the impact mainly on the driver or front passenger's chest.

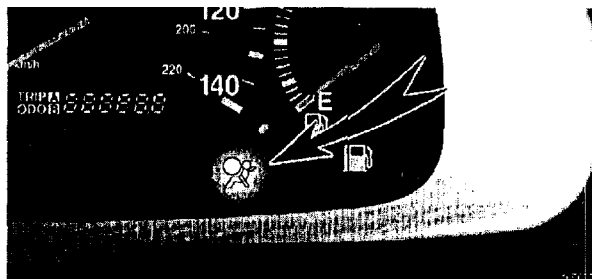
The side airbag on the passenger seat is activated even with no passenger in the front seat.

Be sure to wear your seat belt.

⚠ CAUTION

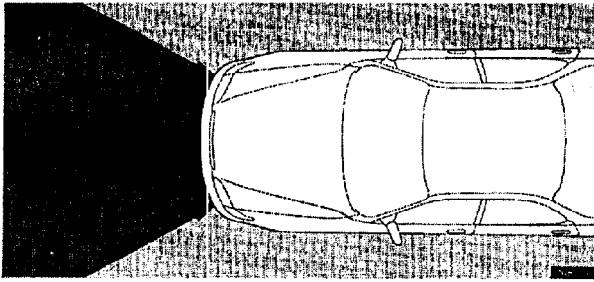
SRS side airbags inflate with considerable force. To avoid potential death or serious injury during inflation of a side airbag, Lexus strongly recommends that the driver and front passenger;

- Wear their seat belt.
- Remain properly seated with their back against the seat at all times,



The indicator comes on when the ignition key is turned to the "ACC" or "ON" position. It goes off after about 6 seconds. This means the SRS is operating properly.

The SRS warning light system monitors the airbag sensor assemblies, inflators, seat belt pretensioners, warning light, interconnecting wiring and power sources.



The driver and front passenger airbags and seat belt pretensioners are designed to activate in response to a severe frontal impact within the shaded area between the arrows in the illustration.

There may be the case that the driver and passenger airbags and seat belt pretensioners will not activate with such an impact in which the occupant wearing the seat belt correctly would not get serious injury.

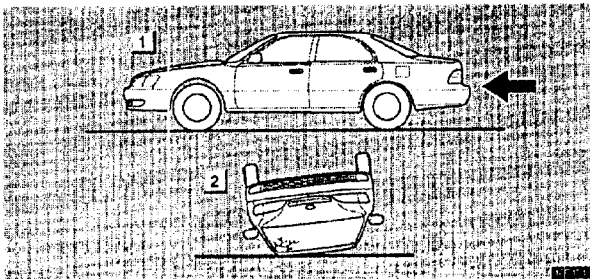
The driver and front passenger airbags and seat belt pretensioners will work if the severity of the impact is above the designed threshold level, comparable to an approximate 20 km/h (14 mph) collision when impacting straight into a fixed barrier that does not move or deform.

If the severity of the impact is below the above threshold level, the driver and front passenger airbags and seat belt pretensioners may not work.

However, this threshold velocity will be considerably higher if the vehicle strikes an object, such as a parked vehicle or sign pole, which can move or deform on impact, or if it is involved in an underride collision (e.g. a collision in which the nose of the vehicle "underrides", or goes under, the bed of a truck).

It is possible with collision severity at the marginal level of driver and passenger airbag sensor detection and activation that only one of your vehicle's driver and front passenger airbags and seat belt pretensioners will work.

For the safety of all occupants, be sure to always wear seat belts.

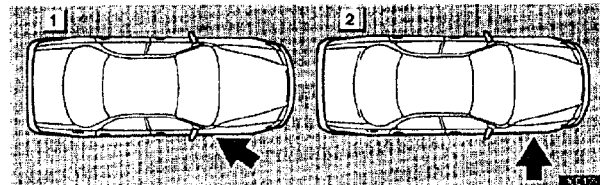


- 1 Collision from the rear
- 2 Vehicle roll-over

The driver and front passenger airbags and seat belt pretensioners are not designed to inflate if the vehicle is subjected to a rear impact, if it rolls over, or if it is involved in a low-speed frontal collision.

The side airbags are designed to inflate when the passenger compartment gets a severe impact from the side.

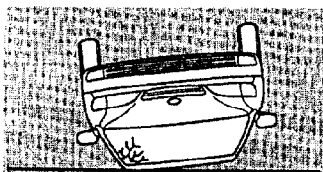
The side airbags may rather not to activate in the impact in which the occupant wearing the seat belt correctly would not get serious injury.



- 1 Collision from the side at an angle
- 2 Collision from the side to the vehicle body other than the passenger compartment

The side airbags may not inflate if the vehicle is subjected to a collision from the side at an angle, or a collision to the side of the vehicle body other than the passenger compartment, which impact is not severe enough for the passenger compartment.

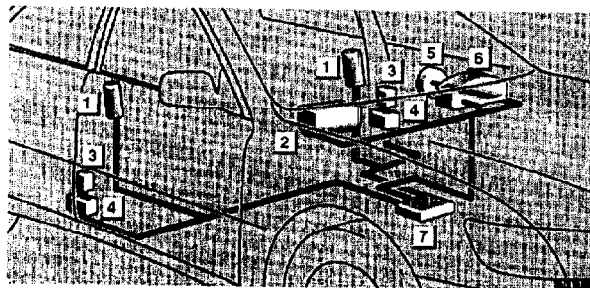
COMFORT ADJUSTMENT



► Vehicle roll-over

The side airbags are not designed to inflate if the vehicle is rolled over.

If the impact on the body of the passenger compartment is not strong as illustrated above, the relevant side airbag may not inflate.



- 1 Side airbag module (airbag and inflator)
- 2 Front passenger airbag module (airbag and inflator)
- 3 Side airbag sensor assembly
- 4 Seat belt pretensioner
- 5 Driver airbag module (airbag and inflator)
- 6 SRS warning light
- 7 Driver and front passenger airbag sensor assembly

The SRS airbag sensor assemblies consist of a safing sensor and driver and front passenger airbag sensor.

In a severe frontal impact, the driver and front passenger airbag sensor detects deceleration and the system triggers the front airbag inflators and seat belt pretensioners. In a severe side impact, the side airbag sensor triggers the side airbag inflator. Then a chemical reaction in the inflators momentarily fills the airbags with non-toxic gas to help restrain the forward or lateral motion of the occupants. Then the inflators fill the airbags and the seat belts are quickly drawn back in by the retractors to help restrain forward motion of the occupants.

COMFORT ADJUSTMENT

When the SRS operates, it produces a fairly loud noise and release some smoke along with non-toxic gas. This does not indicate a fire. Be sure to wash off any residue as soon as possible to prevent minor skin irritation.

Deployment of the airbags happen in a fraction of a second, so the airbags must inflate with considerable force. While the system is designed to reduce serious injuries, it may also cause minor burns or abrasions and swellings.

Parts of the airbag module (steering wheel hub, dashboard, front seats) may be hot for several minutes, but the airbags themselves will not be hot. The airbags are designed to inflate only once.

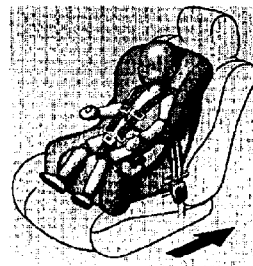
A crash severe enough to inflate the driver and front passenger airbags may break the windshield as the vehicle buckles. In vehicles with a front passenger airbag, the windshield may also be damaged by absorbing some of the force of the inflating airbag.

⚠ CAUTION

- The SRS is designed only as a supplement to the primary protection of the driver side and front passenger side seat belt systems. The front seat occupants can be killed or seriously injured by an inflating airbag if they do not wear the available seat belts. During sudden braking just before a collision, an unrestrained driver or front passenger can move forward into direct contact with or close proximity to the airbag which may then deploy during the collision. To obtain maximum protection in an accident, the driver and all passengers in the vehicle must wear their seat belts. Wearing a seat belt during an accident reduces the chances of death or serious injuries or being thrown out of the vehicle. For instructions and precautions concerning the seat belt system, see "Seat belts" on page 69.
- Improperly seated and/or restrained infants and children can be killed or seriously injured by a deploying airbag. An infant or child who is too small to use a seat belt should be properly secured using a child restraint system. Lexus strongly recommends that all infants and children be placed in the rear seat of the vehicle and properly restrained. The rear seat is the safest for infants and children. For instructions concerning the installation of a child restraint system, see "Child restraint" on page 86.



- Never put a rear-facing child restraint system on the front seat because the force of the rapid inflation of the front passenger airbag can cause death or serious injury to the child.

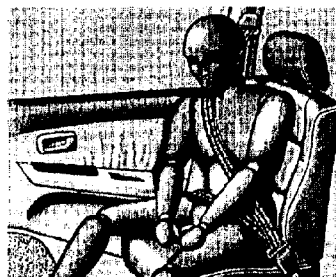


► Move seat fully back

- A forward-facing child restraint system should be allowed to put on the front seat only when it is unavoidable. Always move the seat as far back as possible, because the force of a deploying airbag could cause death or serious injury to the child. Do not allow the child to lean against the front door or around the front door even if the child is seated in a child restraint system. It is dangerous if the side airbag inflates, and the impact could cause death or serious injury to the child. For instructions concerning the installation of a child restraint system, see "Child restraint" on page 86.

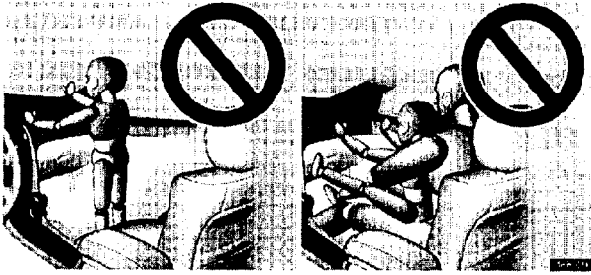


- Do not sit on the edge of the seat or lean over the dashboard when the vehicle is in use. The airbags inflate with considerable speed and force; you may be killed or seriously injured. Sit up straight and well back in the seat, and always use your seat belt.

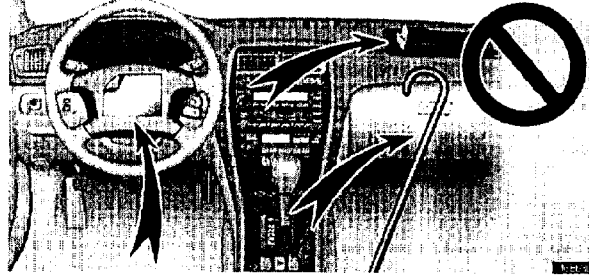


- Do not lean against the front door when the vehicle is in use. The side airbag inflates with considerable speed and force; you may be killed or seriously injured.
- Do not apply excessive weight to the outer side of the front seats on vehicles with side airbags.
- The child head should not be leaned against the vicinity of the part where the side airbag activates.

COMFORT ADJUSTMENT

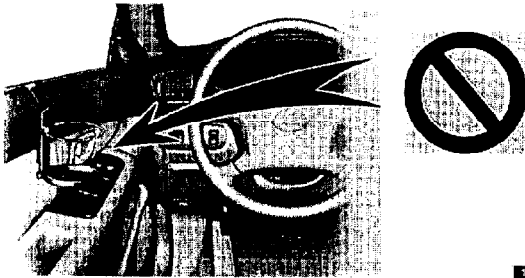


- Do not allow a child to stand up, or to kneel on the front passenger seat. The airbag inflates with considerable speed and force; the child may be killed or seriously injured.
- Do not hold a child on your lap or in your arms. Use a child restraint system in the rear seat. For instructions concerning the installation of a child restraint system, see "Child restraint" on page 86.



- Do not put objects or your pets on or in front of the dashboard or steering wheel pad that houses the driver and front passenger airbag system. They might restrict inflation or cause death or serious injury as they are projected rearward by the force of the deploying airbags. Likewise, the driver and front passenger should not hold things in their arms or on their knees.

COMFORT ADJUSTMENT



- Do not attach a cup holder or any other device on or around the door. When the side airbag inflates, the cup holder or any other device will be thrown with great force, or the side airbag may not activate correctly, resulting in death or serious injury. Likewise, the driver and front passenger should not hold things in their arms or on their knees.

- Do not use accessories for the seats which cover the parts where the side airbags should inflate. Such accessories may prevent the side airbags from activating correctly, causing death or serious injury.
- Do not modify or remove any wiring. Do not modify, remove, strike or open any components, such as the steering wheel column cover, front passenger airbag cover, front seats, airbag sensor assembly or seat belt assemblies. Doing any of these may cause sudden SRS operation or disable the system, which could result in death or serious injury.
- Do not modify or replace the seats or surface of the front seats with side airbags. Such changes may disable the system or cause the side airbags to inflate, resulting in death or serious injury. Consult your Lexus dealer.

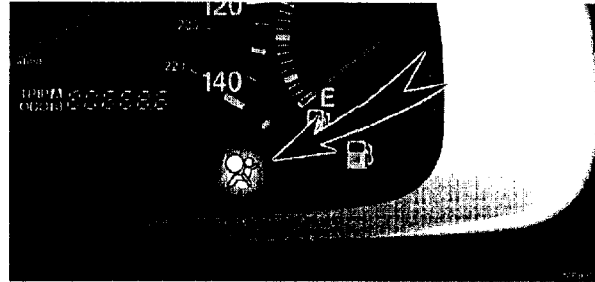
Failure to follow these instructions can result in death or serious injuries.

COMFORT ADJUSTMENT

NOTICE

Do not perform any of the following changes without consulting your Lexus dealer. Such changes can interfere with proper operation of the SRS in some cases.

- Installation of electronic items such as a mobile two-way radio, cassette tape player or compact disc player.
- Modification of the suspension system.
- Modification of the front end structure and side structure of the passenger compartment.
- Attachment of a grille guard (bull bar, kangaroo bar, etc.), snowplow, winches or any other equipment to the front end.
- Repairs made on or near the front fenders, front end structure, console, steering column, steering wheel, dashboard near the front passenger airbag, front seats or seat belt assembly.

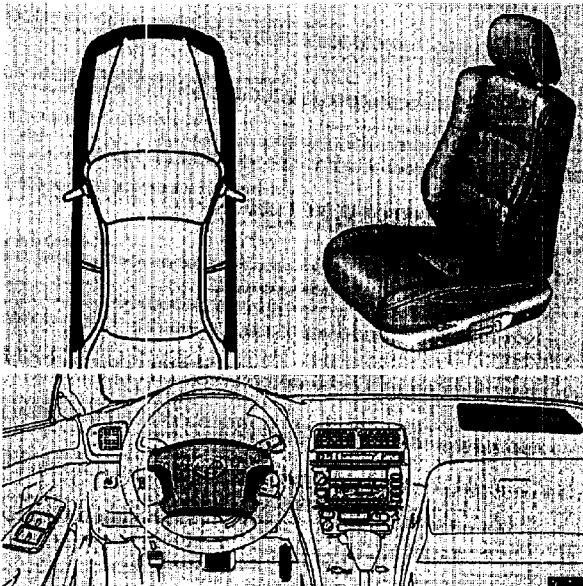


This SRS has an indicator to inform the driver of operating problems. If either of the following conditions occurs, this indicates a malfunction of the airbags and/or seat belt pretensioners. Even if the seat belt pretensioners should fail, the seat belts will operate conventionally. Contact your Lexus dealer as soon as possible to service the vehicle.

- The light does not come on as described above.
- The light stays on or flashes.
- The light comes on or starts flashing while driving.

If the light stays on, it indicates that the driver and front passenger airbags fail. If the light flashes, the side airbags and/or seat belt pretensioners fail.

COMFORT ADJUSTMENT



In the following cases, contact your Lexus dealer as soon as possible:

- Any of the SRS airbags have been inflated.
- If either front seat belt does not retract or cannot be pulled out due to a malfunction or activation of the pretensioner.

- The front seat belt retractor assembly or surrounding area has been damaged.
- The front part of the vehicle and portion of the doors (shaded in the illustration) were involved in an accident that did not cause the SRS to work.
- The surface of the seats with the side airbags or the pad section of the steering wheel or front passenger airbag cover (shaded in the illustration) is scratched, cracked, or otherwise damaged.