

V2993

REPORT NO. KAR-99-05

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

HONDA MOTOR CORPORATION OF AMERICA
1999 HONDA CIVIC DX 2-DOOR
NHTSA NO. MX5301

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



DECEMBER 29, 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 1999 HONDA CIVIC DX 2-DOOR at KARCO Engineering on December 18, 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 22.7°C. The vehicle's maximum post-test static crush was 552 mm, located to the left of 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>428.0</td><td>695.1</td></tr> <tr> <td>Chest Resultant Peak 3 msec clip</td><td>60 G's</td><td>47.1</td><td>46.9</td></tr> <tr> <td>Left Femur Force</td><td>10009 N</td><td>-4787.5</td><td>-3484.5</td></tr> <tr> <td>Right Femur Force</td><td>10009 N</td><td>-4092.2</td><td>-4125.3</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	428.0	695.1	Chest Resultant Peak 3 msec clip	60 G's	47.1	46.9	Left Femur Force	10009 N	-4787.5	-3484.5	Right Femur Force	10009 N	-4092.2	-4125.3
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SECTION 1

PURPOSE, TEST PROCEDURE AND SUMMARY OF TEST MX5301

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the FY' 99 New Car Assessment Program (NCAP) frontal barrier crash worthiness evaluation program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract Number DTNH22-97-D-02007. The purpose of this test was to obtain vehicle crashworthiness, occupant restraint system performance data and lower leg data for frontal barrier impacts. The velocity used in this test was in excess of the current 30 mph (48 km/h) FMVSS 208/212/219/301 requirements.

1.2 TEST PROCEDURE

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

The test was conducted at KARCO Engineering on December 18, 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 sixteen (16) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information is documented in the data sheets. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

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

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

An immovable barrier was impacted by a 1999 HONDA CIVIC DX 2-DOOR at a velocity of 56.6 km/h. The test weight, with two (2) 50th percentile male ATDs, was 1259 kg. Twenty four (24) load cell barrier data channels were obtained in conducting the December 18, 1998 NCAP test. The test vehicle was equipped with a transverse mounted 1.6 liter, 4 cyl. engine and a five speed manual transmission.

The driver's Head Injury Criteria (HIC) was 428.0, the maximum chest deceleration over three (3) milliseconds was 47.1 g and the left and right femur loads were -4787.5 and -4092.2 Newtons, respectively. Chest deflection for the driver ATD was -34.5 mm. The driver ATD head contacted the airbag and headrest, its chest and abdomen contacted the airbag, the left and right knees contacted the knee bolster and the steering column.

The right front passenger's HIC was 695.1, maximum chest deceleration over three (3) milliseconds was 46.9 g and the left and right femur loads were -3484.5 and -4125.3 Newtons respectively. Chest deflection for the passenger ATD was -36.8 mm. The passenger ATD head contacted the airbag, the chest and abdomen contacted the airbag, with the left knee contacted the dashboard and glove box, the right knee contacted the glove box.

Seat belt spoolout, measured by on-board pullout potentiometers was 70.4 mm for the driver ATD and 75.4 mm for the passenger ATD. Shoulder belt stretch was 0.267 mm/cm for the driver ATD and 0.0 mm/cm for the passenger ATD. Channel failed for the passenger, no data available.

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

The test vehicle sustained a maximum static crush of 552 mm to the right of the vehicle centerline. Both the driver side doors and the passenger side doors opened without the aid of tools.

1.4 GENERAL COMMENTS

The 1999 HONDA CIVIC DX 2-DOOR passed the requirements of FMVSS 208, FMVSS 212, FMVSS 219 and FMVSS 301-75. Data pertaining to these standards are presented in the data sheets.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. Appendix B contains the dummy, vehicle and response data traces. Appendix C contains Load Cell Barrier information. Appendix D contains the instrumentation data channel assignments. Appendix E contains the dummy calibration data and Appendix F contains the owner's manual instructions for the occupant restraint systems.

SECTION 2.

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

CONVERSION FACTORS USED IN THIS REPORT:

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

DATA SHEET NO. 1

CRASH TEST SUMMARY

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

VEHICLE REBOUND

Measurements in mm	Left	Center	Right
Vehicle Rebound	720	633	714

VEHICLE REBOUND AND STATIC CRUSH; REBOUND ANGLE = 0°

Measurements in mm	Left	Center	Right
Pre-test Measurements	4116	4442	4120
Post-test Measurements	3805	3930	3777
Static Crush	-311	-512	-343
Average	-389		

DOOR OPENING AND SEAT TRACK INFORMATION

	Driver	Passenger
Door Opening (Front)	OPENED	OPENED
Door Opening (Rear)	N/A	N/A
Seat Track Shift (mm of shift)	0	0
Seat Back Failure	NONE	NONE

DUMMY INFORMATION

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

DATA SHEET NO. 2

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

TEST VEHICLE INFORMATION			
Manufacturer	HONDA MOTOR CORP OF AMERICA	VIN	1HGEJ6124XL005430
Manufacturing Date	10/98	Delivery Date	11/13/98
Dealer	VALLEY-HI HONDA	NHTSA NO.	MX5301
Odometer Reading	27 mi	Fuel Type	UNLEADED
Engine Displacement	1.6 Liters	Cylinders	4
Transmission	5-SPEED MANUAL	Final Drive	FRONT
Engine Placement	TRANSVERSE	Color	SILVER
Tire Press./Max. Cap. Front	210 kpa	Cold Tire Press. Front	203 kpa
Tire Press./Max. Cap. Rear	210 kpa	Cold Tire Press. Rear	203 kpa
Recommend Tire Size	P185/65/R14	Type of Spare	TEMP T105/80/13D
Tire Size on Vehicle	P185/65/R14	Manufacturer	DUNLAP
GVWR	1492 kg	Cargo Capacity	45 kg
GAWR Front	794 kg	GAWR Rear	726 kg
Air Conditioning	YES	Power Steering	YES
Power Brakes	YES	AM/FM/Cassette	YES
Disc Brakes (Front)	YES	Disc Brakes (Rear)	NO
Power Windows	NO	Hill Steering	YES
Anti-lock Brakes (ABS)	NO	Power Seats	NO
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): 1967 kg

Data Sheet No. 2... (Continued)

VEHICLE CAPACITY WEIGHT (kg):

Vehicle Capacity Weight 385 kg
 Occupant Weight 340 kg
 Rated Cargo/Luggage Weight (RCLW) 45 kg

	FRONT	REAR	TOTAL
Right	306	200	506
Left	343	218	561
Total	649	418	1067
Percent of Total	63.0	37.0	100%

CALCULATION OF TEST

TARGET WEIGHT (kg):

Total Delivered Weight 1067 kg
 RCLW 45 kg
 Weight of 2 P572 ATDs 152 kg
TARGET TEST WEIGHT 1264 kg

TEST WEIGHT OF VEHICLE WITH 2 ATDs AND BALLAST

	FRONT	REAR	TOTAL
Right	281	365	646
Left	268	345	613
Total	549	710	1259
Percent of Total	43.6	56.4	100%

Weight of Ballast secured in cargo area: 0 kg Does not include cameras, instrumentation, and brake abort system.

Vehicle Components Removed For Weight Reduction:

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

TEST VEHICLE ATTITUDE (mm)

	LF	RF	LR	RR
As Delivered	645	652	673	683
As Tested	620	624	624	631

Vehicle Wheelbase: 2624 mm

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 45.00 liters

Usable Capacity Figure Furnished by COTR = 45.0 liters

Test Volume Range (92 to 94% of Usable Capacity) = 41.4 to 42.3 liters

ACTUAL TEST VOLUME = 41.6 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: Approximately 2 seconds until operation after key is turned on.

DATA SHEET NO. 3

POST IMPACT DATA

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

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 = 56.6 km/h Trap No. 2 = 56.5 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)	4116	4442	4120
Post-test Measurements (mm)	3805	3930	3777
Static Crush (mm)	-311	-512	-343

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

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

DATA SHEET NO. 4

TEST VEHICLE INFORMATION

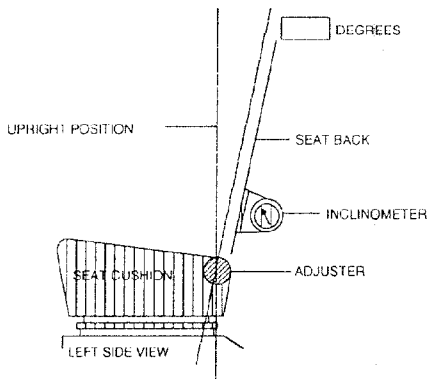
Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

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 = 25° w/seated dummy taken at seat back cushion.

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

Seat back angle for passenger's seat = 25° w/seated dummy, taken at seat back cushion.

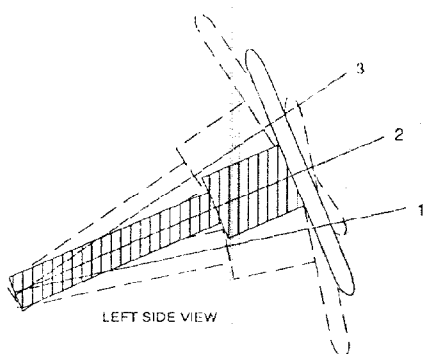
2. SEAT FORE & AFT POSITIONS:

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

Positioning of the driver's seat: 25 seating positions, set to 13th detent from the front.

Positioning of the passenger's seat (if applicable): 25 seating positions, set to 13th detent from the front.

3. STEERING COLUMN ADJUSTMENTS:



STEERING COLUMN ASSEMBLY

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

Operational Instructions:

Position No. 1 is at 22°

Position No. 2 is at 24.5°

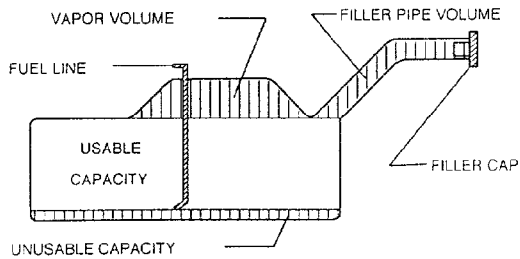
Position No. 3 is at 27°

4. SEAT BELT UPPER ANCHORAGE:

Set to mid position, per manufacturers specifications.

DATA SHEET NO. 4 (continued)

5. FUEL TANK CAPACITY DATA



5.1 A. "Usable Capacity" of standard equipment fuel tank = 45.0 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 = 41.4 to 42.3 liters.

VEHICLE FUEL TANK ASSEMBLY

Operational Instructions:

5.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 41.6 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.

Approximately 2 seconds until operation after key is turned on.

DATA SHEET NO. 5

DUMMY POSITIONING IN VEHICLE

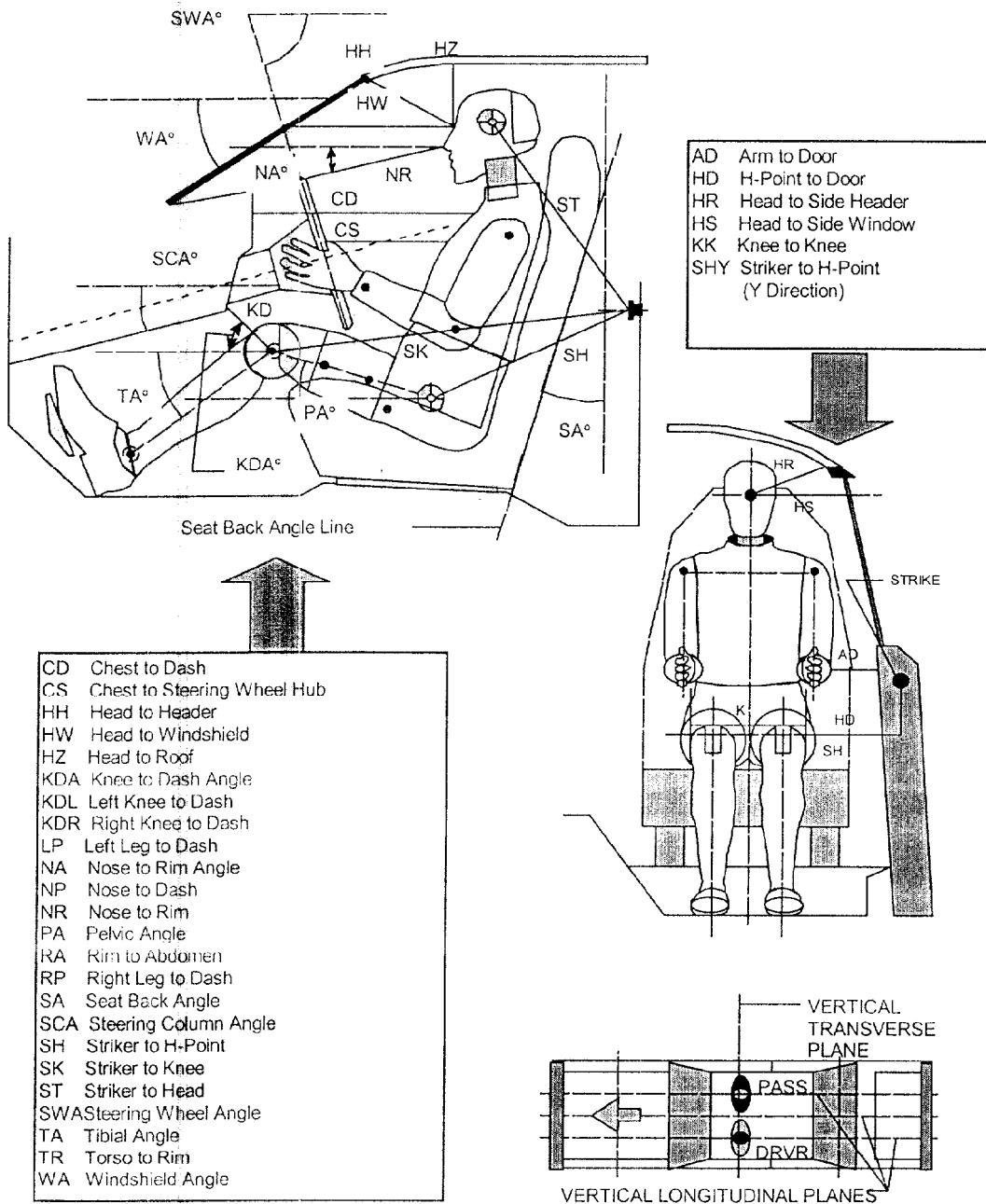
Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



DATA SHEET NO. 5...(continued)

DUMMY POSITIONING IN VEHICLE

FRONT SEAT MEASUREMENT TABLE

	DRIVER (Serial No. <u>34</u>)		PASS. (Serial No. <u>35</u>)	
	DISTANCE (mm)	ANGLE (°)	DISTANCE (mm)	ANGLE (°)
WA°		30		
SWA°		67		
SCA°		23		
SA°		21		21
HZ	200	90	150	90
HH	237	0	318	0
HW	580	0	535	0
HR	229		208	
NR	450	11		
CD	565		535	
CS	300	0		
RA	200	0		
KDL	170	26	180	
KDR	155		180	26
PA°		24		23
TA°		37		32
KK	225		265	
ST	525	60	530	30
SH	455	26	450	25
SHY	230		225	
HS	330		285	
HD	120		100	
AD	116		40	

DATA SHEET NO. 6

SEAT BELT POSITIONING DATA

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

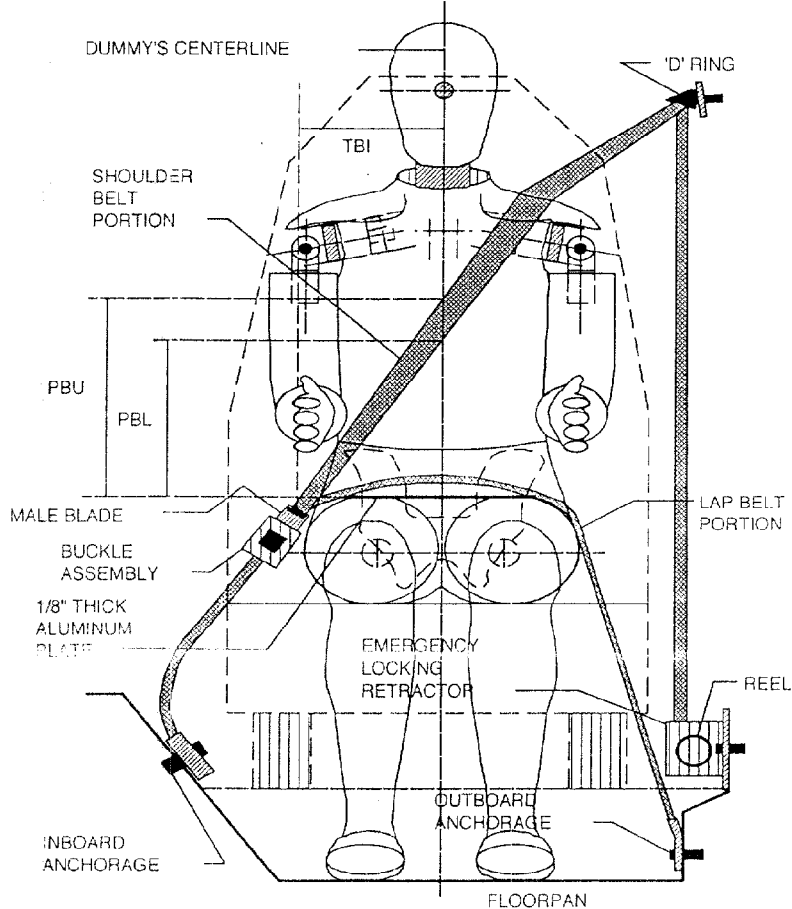
Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

SEAT BELT PLACEMENT MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TCI - Dummy centerline to shoulder bolt	mm	200	200
PBU - Top surface of reference to belt upper edge	mm	310	315
PBL - Top surface of reference to belt lower edge	mm	235	235
Lap Belt tension	Newtons	10	10
Shoulder Belt tension	N/A	Retractor	Retractor

SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

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

TEST VEHICLE: 1999 HONDA CIVIC DX 2 DOOR COUPE NHTSA No.: MX5301
 TEST PROGRAM: 1999 NHTSA 35 MPH NCAP TEST DATE: 12/18/98

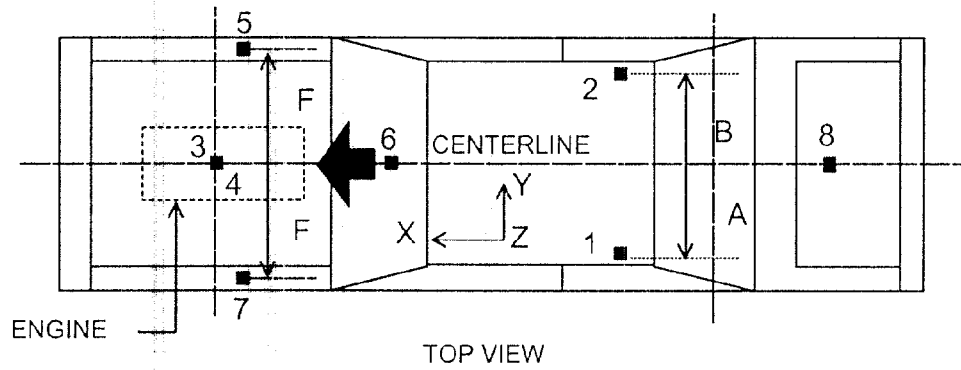
VEHICLE X-AXIS ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member (Pri.)	1571	-491	438	G's	2.7	110.9	-33.6	57.9
2	Right Rear X-Member (Pri.)	1593	507	440	G's	4.1	111.0	-30.7	62.8
3	Engine Top	3839	30	762	G's	49.6	38.9	-132.5	29.9
4	Engine Bottom	3725	-192	180	G's	53.3	36.1	-159.7	27.8
5	Left Brake Caliper	3685	-655	274	G's	73.1	57.0	-110.2	41.8
6	Right Brake Caliper	3689	655	278	G's	78.3	60.8	-102.5	38.2
7	Instrument Panel	2843	0	888	G's	62.2	45.5	-76.5	33.0*
8	Left Rear X-Member (Rednt.)	1351	-588	480	G's	3.1	110.8	-43.5	57.0

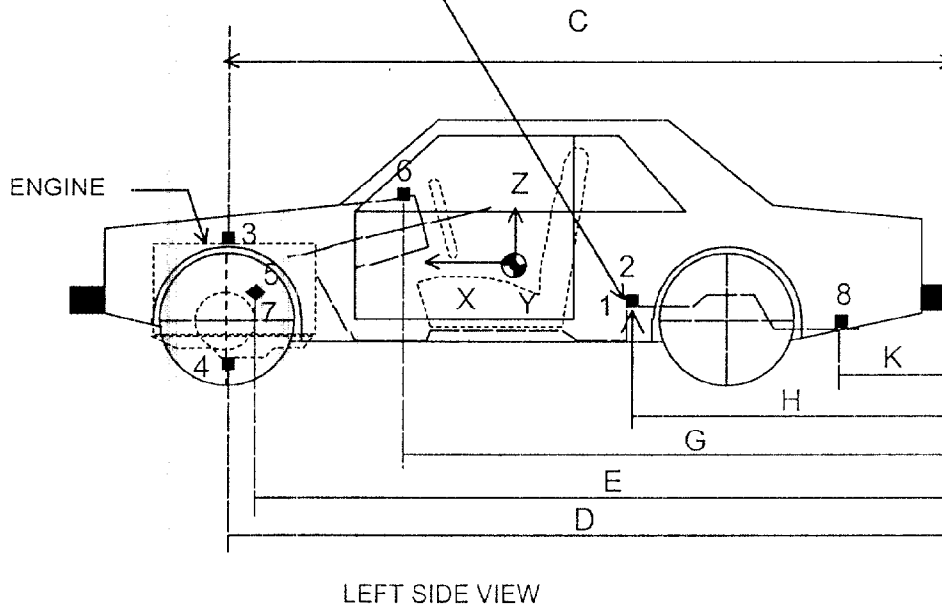
Reference Points X - From Rear Surface of Vehicle Y - Vehicle Centerline Z - Ground Plane

* Channel failed, see plot for time of failure

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



DATA SHEET NO. 3 - HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

TEST VEHICLE: 1999 HONDA CIVIC DX 2 DOOR COUPE

NHTSA No.: MX5301

TEST PROGRAM: 1999 NHTSA 35 MPH NCAP

TEST DATE: 12/18/98

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	9.0	238.1	-49.1	72.4	11.7	214.9	-61.4	82.0
Head CG	Y	G's	3.3	30.0	-16.6	82.2	9.5	80.0	-3.4	145.0
Head CG	Z	G's	24.0	62.0	-9.2	25.2	40.1	73.2	-4.8	97.4
Head CG Resultant	N/A	G's	53.6	76.0			68.1	84.0		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.9	122.2	-47.5	73.0	3.7	138.9	-49.7	72.5
Chest CG	Y	G's	4.6	99.8	-6.7	70.6	8.5	61.7	-5.5	107.7
Chest CG	Z	G's	11.9	46.7	-12.3	103.1	16.5	42.8	-11.8	105.4
Chest CG Resultant	N/A	G's	48.0	73.0			50.2	72.6		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	303.1	45.7	-4787.5	54.3	640.9	44.5	-3484.5	39.1
Right Femur	Z	Newtons	344.4	27.5	-4092.2	53.1	692.2	45.5	-4125.3	40.0

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt Force	N/A	Newtons	5499.6	58.1	4.2	0.0	4840.4	58.2	0.3	0.0
Shoulder Belt Force	N/A	Newtons	6824.9	69.7	1.8	0.0	10529.5	72.4	-3.4	141.4
Shoulder Belt Spoolout	N/A	MM	70.4	79.2	0.0	9.2	75.4	81.0	-0.3	9.8
Shoulder Belt Stretch	N/A	MM/CM	0.267	277.8	-0.074	209.7	0.000	0.0	0.000	0.0 *

* No data collected on passenger belt stretch

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	428.0	42.7	53.7	89.6	695.1	51.8	58.9	94.8

CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	47.1	69.1	72.1	46.9	71.4	74.4

DATA SHEET NO. 8...(continued)

TEST VEHICLE: 1999 HONDA CIVIC DX 2 DOOR COUPE

NHTSA No.: MX5301

TEST PROGRAM: 1999 NHTSA 35 MPH NCAP

TEST DATE: 12/18/98

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	7.1	99.2	-59.4	53.2	7.9	113.4	-64.9	39.5
Pelvis	Y	G's	10.7	63.8	-8.0	40.5	7.5	50.9	-9.2	97.5
Pelvis	Z	G's	2.4	279.3	-25.8	74.8	19.6	39.9	-29.3	80.2

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	164.2	237.0	-478.5	125.6	216.7	217.1	-1042.1	79.4
Neck Force	Y	Newtons	184.0	53.7	-278.0	102.3	130.5	67.6	-176.3	254.5
Neck Force	Z	Newtons	1627.8	65.5	-193.8	121.0	2218.0	72.9	-359.5	253.3
Neck Moment	X	N•m	6.6	155.4	-17.0	115.8	20.0	90.0	-8.1	157.4
Neck Moment	Y	N•m	38.9	129.2	-17.4	227.8	47.1	96.7	-34.7	56.6
Neck Moment	Z	N•m	15.5	90.3	-7.7	142.1	5.3	115.3	-3.7	82.2

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	121.4	51.8	-51.9	33.4	181.0	54.2	-241.4	38.3
Left Foot Aft	Z	G's	85.7	53.8	-105.7	45.8	55.0	56.3	-163.4	39.1
Left Foot Fore	Z	G's	100.9	53.6	-108.4	45.7	193.3	58.3	-223.7	37.1
Right Foot Aft	X	G's	108.4	56.6	-129.7	44.5	114.3	55.4	-216.5	40.7
Right Foot Aft	Z	G's	89.4	52.3	-137.1	43.7	70.4	57.8	-131.4	39.2
Right Foot Fore	Z	G's	133.4	52.8	-144.5	43.3	179.7	57.9	-271.7	54.0

* Passenger Side Failed at 63.3 msec.

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Lower Moment	X	N•m	144.6	47.0	-23.8	36.8	132.4	41.6	-71.5	38.9
Left Lower Moment	Y	N•m	280.7	55.9	-9.6	16.3	144.3	60.2	-41.7	44.0
Left Lower Force	Z	Newtons	193.6	152.3	-2757.2	41.1	169.0	262.9	-9360.3	38.9
Left Upper Moment	X	N•m	61.9	49.0	-45.0	37.6	51.0	42.1	-99.1	39.4
Left Upper Moment	Y	N•m	113.8	55.7	-92.9	45.0	161.2	68.9	-253.7	38.8
Right Lower Moment	X	N•m	193.3	53.0	-50.1	46.4	30.2	55.8	-57.2	41.9
Right Lower Moment	Y	N•m	259.3	58.2	-58.6	46.0	133.0	57.0	-49.7	42.5
Right Lower Force	Z	Newtons	143.5	131.0	-4297.1	41.4	470.3	53.6	-9595.8	40.3
Right Upper Moment	X	N•m	80.7	53.1	-100.4	46.8	4.4	60.9	-73.9	42.0
Right Upper Moment	Y	N•m	15.2	131.0	-195.8	45.9	155.8	56.6	-255.5	41.4

DATA SHEET NO. 8...(continued)

TEST VEHICLE: 1999 HONDA CIVIC DX 2 DOOR COUPE NHTSA No.: MX5301
 TEST PROGRAM: 1999 NHTSA 35 MPH NCAP TEST DATE: 12/18/98

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.1	0.7	-34.5	76.2	0.2	14.3	-36.8	80.4

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	7.6	238.4	-48.5	72.8	12.1	209.3	-60.0	84.7
Head CG	Y	G's	3.4	173.1	-16.1	82.9	12.5	78.6	-3.4	148.2
Head CG	Z	G's	24.0	60.5	-9.2	25.1	40.3	73.3	-3.0	120.2
Head CG Resultant	N/A	G's	53.3	72.9			70.2	84.7		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.9	131.2	-47.2	72.9	3.3	137.8	-49.6	72.6
Chest CG	Y	G's	4.0	99.9	-7.3	68.8	10.1	61.8	-5.8	107.7
Chest CG	Z	G's	11.9	46.7	-11.9	103.1	17.5	42.7	-10.4	106.7
Chest CG Resultant	N/A	G's	47.4	72.9			50.1	72.6		

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	420.5	42.4	53.4	89.3	697.0	51.9	59.4	95.3

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	46.5	69.1	72.1	46.6	71.4	74.4

DATA SHEET NO. 9**SEAT BELT PERFORMANCE ASSESSMENT TEST DATA**Test Vehicle: 1999 HONDA CIVIC DX 2-DOORNHTSA No.: MX5301Test Program: 1999 35 MPH FRONTAL IMPACTTest Date: 12/18/98**BELT LENGTH DATA**

Measurement Description	Units	Driver	Passenger
Retractor reel to 'D' ring	mm	500	500
Shoulder belt length as measured on ATD	mm	970	1032
Lap belt length as measured on ATD	mm	760	835
Remainder of belt on reel	mm	782	645
Total belt length for continuous webbing systems	mm	3012	3012

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	38.0	35.0
As determined electronically	mm	70.4	75.4

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
Electronically from shoulder belt load cell and "D" ring	mm/cm	0.27	no data
Mechanically	mm/cm	BROKE	BROKE

DATA SHEET NO. 10

SUMMARY OF FMVSS 212 DATA

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

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

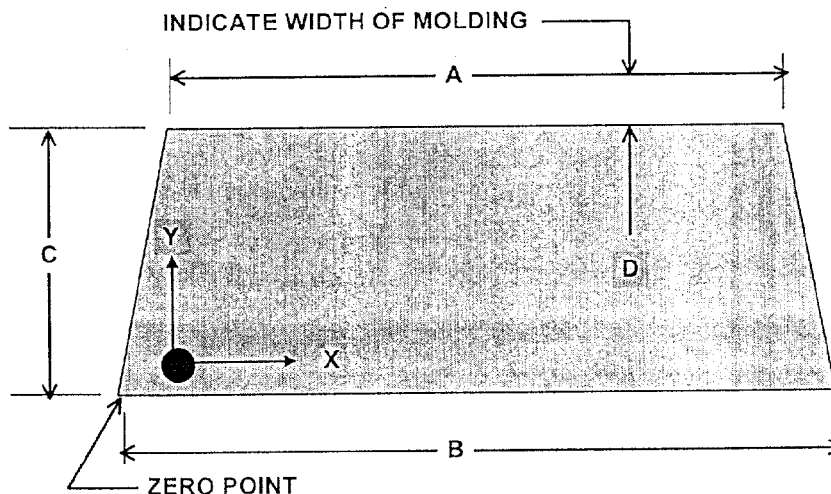
Windshield glass is secured to the vehicle frame with a rubber type adhesive, with rubber molding along the top and sides with rubber and plastic molding along the bottom.

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

WINDSHIELD PERIPHERY MEASUREMENTS

	Units	Left Side	Right Side	Total
Pre-Test	mm	2271.5	2271.5	100%
Post-Test	mm	2271.5	2271.5	100%
Percent of retention	Percent	100%	100%	

Indicate area of retention failure.



FRONT VIEW OF WINDSHIELD

Width of molding: Top: 22 mm, Sides: 25 mm, Bottom: 0 mm

Temperature of windshield molding during test: 21.1 °C

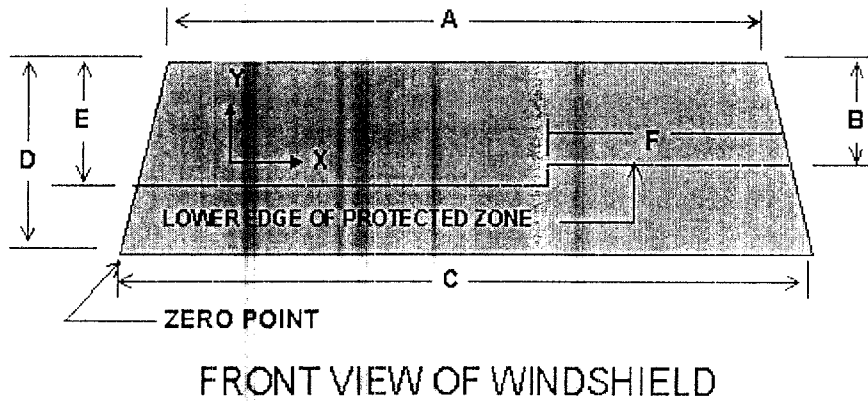
DATA SHEET NO. 11
WINDSHIELD ZONE INTRUSION FMVSS 219 (PARTIAL) DATA

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98



Item	Units	Value
A	mm	1052
B	mm	472
C	mm	1447
D	mm	786
E	mm	492
F	mm	566

Provide all dimensions necessary to reproduce the protected area.

AREA OF PROTECTED ZONE FAILURES

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

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

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

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

DATA SHEET NO. 12

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

Test Time: 12:32 PM Temperature at Time of Impact: 22.7° 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

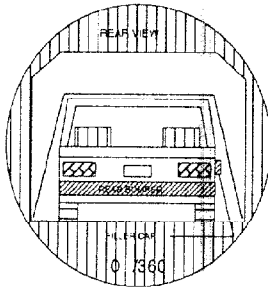
Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

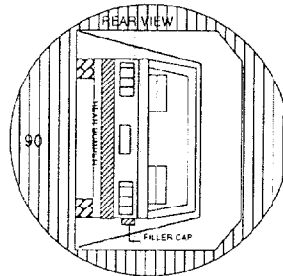
Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

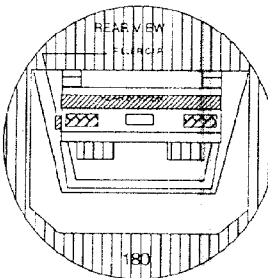
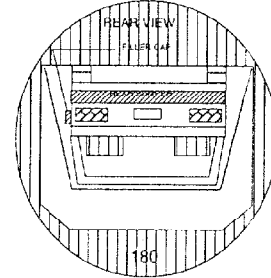
Time: 12:30 PM Temperature: 22.7 °C



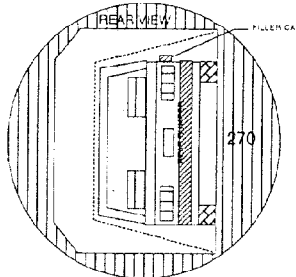
0° TO 90°



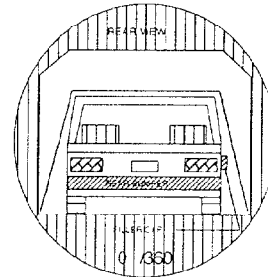
90° TO 180°



180° TO 270°



270° TO 360°



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

TEST PHASE	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° TO 90°	82	300	0.0
90° TO 180°	85	300	0.0
180° TO 270°	82	300	0.0
270° TO 360°	80	300	0.0

DATA SHEET NO. 14

VEHICLE MEASUREMENTS

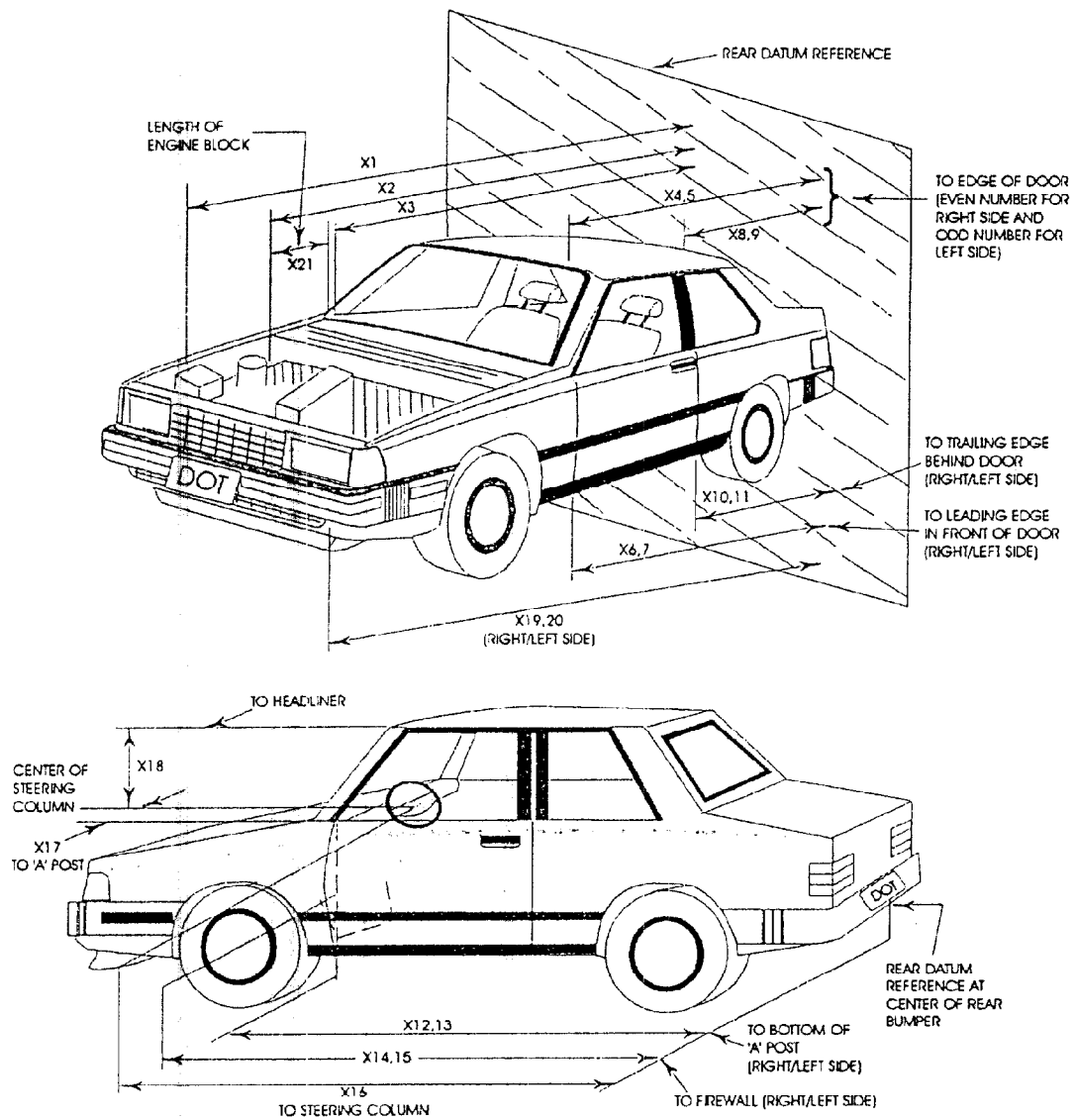
Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	4442	3930	-512
2	RSOV to front of engine	mm	3906	3590	-316
3	RSOV to firewall centerline	mm	3376	3220	-156
4	RSOV to leading edge of right door	mm	3031	3030	-1
5	RSOV to leading edge of left door	mm	3026	3028	2
6	RSOV to lower leading edge of right door	mm	3020	3006	-14
7	RSOV to lower leading edge of left door	mm	3019	3008	-11
8	RSOV to upper trailing edge of right door	mm	1810	1815	5
9	RSOV to upper trailing edge of left door	mm	1809	1814	5
10	RSOV to lower trailing edge of right door	mm	1817	1807	-10
11	RSOV to lower trailing edge of left door	mm	1815	1805	-10
12	RSOV to bottom of right 'A' pillar	mm	3011	3010	-1
13	RSOV to bottom of left 'A' pillar	mm	3012	3003	-9
14	RSOV to firewall on right side	mm	3281	3182	-99
15	RSOV to firewall of left side	mm	3283	3232	-51
16	RSOV to steering column	mm	2590	2771	181
17	Center of steering column to left 'A' pillar	mm	407	415	8
18	Center of steering column to headlining	mm	455	434	-21
19	RSOV to right side of front bumper	mm	4120	3777	-343
20	RSOV to left side of front bumper	mm	4116	3805	-311
21	Length of engine block	mm	185	185	0
RD	RSOV to right side of dash panel	mm	2748	2745	-3
CD	RSOV to center of dash panel	mm	2808	2747	-61
LD	RSOV to left side of dash panel	mm	2752	2752	0



DATA SHEET NO. 15

CAMERA LOCATIONS

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

No.	Camera View	Location (mm)			Angle (°)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Right Side, Real Time	3454	10973	1245	0	1651	Zoom	24
2	Left Side, No. 1	1956	8306	1130	0	7518	13	1050
3	Left Side, No. 2	3150	6350	1486	3	5918	25	1070
4	Left Side, No. 3	3150	3200	1867	16	2921	19	970
5	Left Side, No. 4	2057	8306	3073	14	7899	19	1000
6	Left Side, No. 5	2057	8306	2565	12	7798	19	1000
7	Right Side, No. 1	2946	10744	1803	10	10109	19	990
8	Right Side, No. 2	1676	8331	1524	2	7849	40	970
9	Right Side, No. 3	3835	3429	2057	15	3302	19	990
10	Right Side, No. 4	1981	8458	851	1	7747	35	1100
11	Overhead Overall	965	0	5486	90	N/A	13	930
12	Front View Driver	254	279	2476	50	N/A	13	1030
13	Front View, Passenger	254	495	2476	50	N/A	LATE	START
14	Pit Camera, Engine	838	0	2692	90	N/A	10	1000
15	Pit Camera, Fuel Tank	4597	0	2692	43	N/A	12	1000
16	Onboard, Driver	3302	229	1067	1	1067	13	590
17	Onboard, Passenger	3302	229	1092	1	1041	13	420

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

DATA SHEET NO. 16
REFERENCE PHOTOGRAPH TARGETS

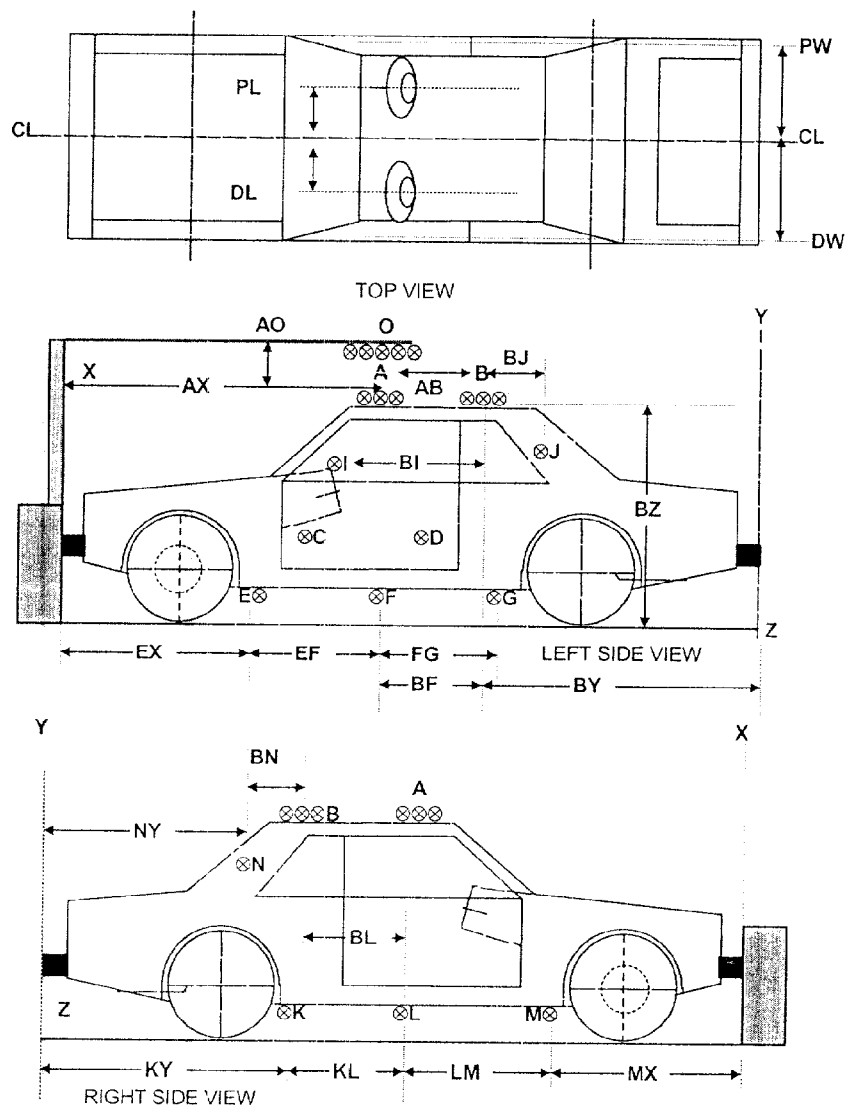
Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

Item	Value
AX	2380
AB	605
AO	274
BJ	397
BI	1265
BZ	1456
EX	1273
EF	899
FG	897
BF	793
BY	1469
NY	1059
BN	391
KY	1363
KL	888
BL	794
LM	887
MX	1280
CL/PL	340
CL/PW	743
CL/DL	340
CL/DW	743



VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

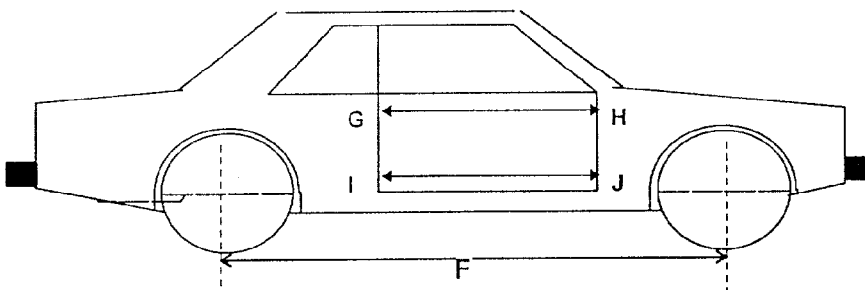
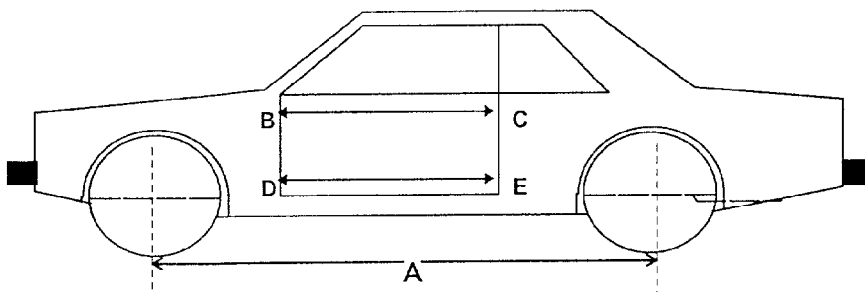
Test Date: 12/18/98

DOOR OPENING WIDTH

UNITS (mm)	LEFT SIDE		RIGHT SIDE	
MEASUREMENT	BC	DE	GH	IJ
PRE-TEST	1186	1165	1186	1162
POST-TEST	1179	1160	1184	1153
DIFFERENCE	-7	-5	-2	-9

VEHICLE WHEELBASE CHANGE

UNITS (mm)	A = LEFT SIDE WHEELBASE	F = RIGHT SIDE WHEELBASE
PRE-TEST	2624	2624
POST-TEST	2506	2517
DIFFERENCE	-118	-110



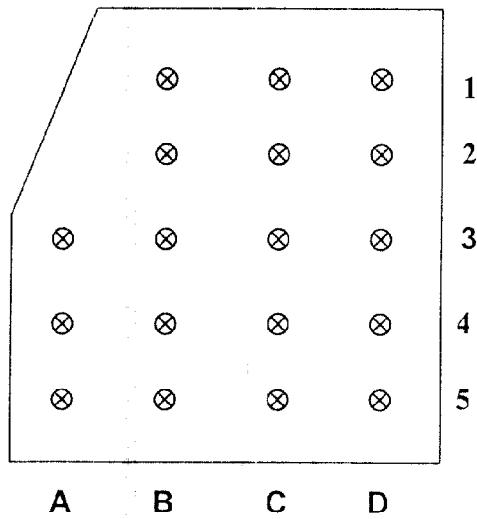
Data Sheet No. 17(Continued)

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

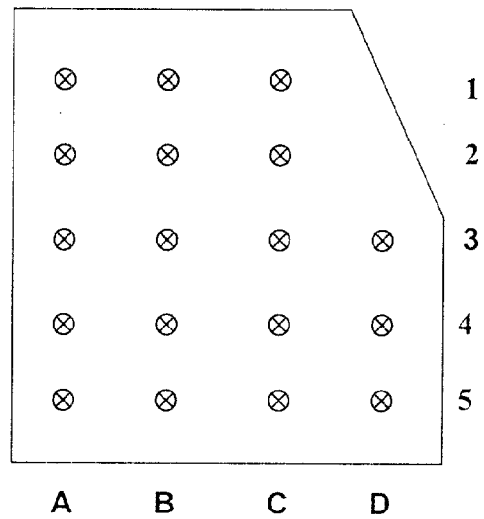
Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98



⊕ X
LEFT FRONT SEAT ANCHOR BOLT
↓
TO RSOV REFERENCE

DRIVER SIDE FLOOR PLAN



⊕ X
RIGHT FRONT SEAT ANCHOR BOLT
↓
TO RSOV REFERENCE

PASSENGER SIDE FLOORPAN

(Data Sheet No. 17Continued)

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

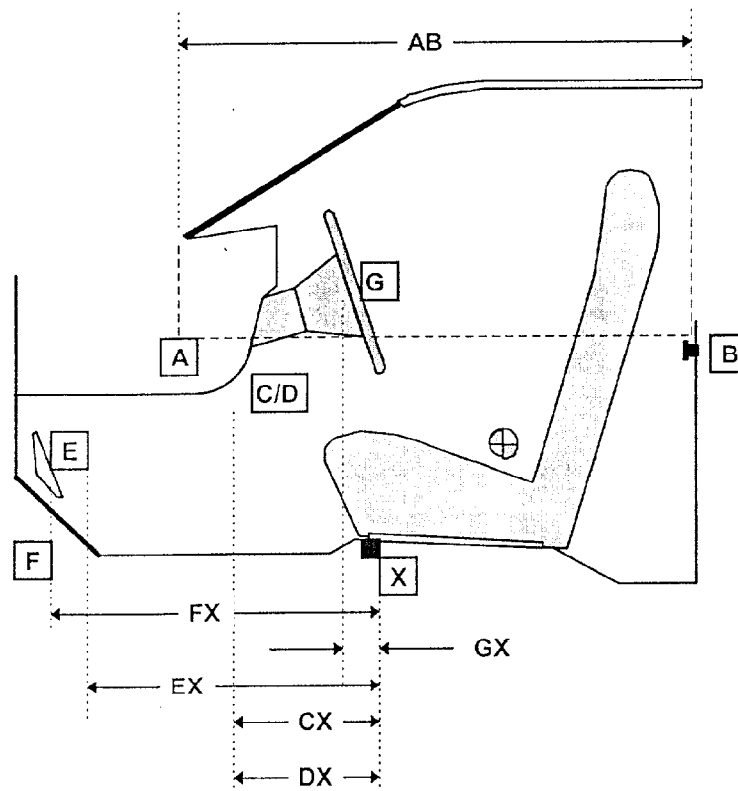
Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

DRIVER COMPARTMENT INTRUSION (Distances in mm)

REF.	DESCRIPTION	PRE-TEST	POST-TEST
AB	DOOR OPENING (INSIDE WINDOW JAM)	1186	1179
CX	LOWER LEFT KNEE BOLSTER TO X	295	289
DX	LOWER RIGHT KNEE BOLSTER TO X	275	270
EX	BRAKE PEDAL TO X	610	453
FX	FOOT REST TO X	659	550
GX	STEERING COLUMN HUB (CENTER) TO X	75	56

X = LEFT FRONT SEAT ANCHOR BOLT



DRIVER COMPARTMENT

(Data Sheet No. 17Continued)

DRIVER SIDE "X"

	A			B			C			D		
	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.
1				750	611	-139	749	613	-136	751	605	-146
2				653	550	-103	649	542	-107	647	548	-99
3	550	541	-9	548	517	-31	547	520	-27	546	518	-28
4	451	448	-3	448	448	0	447	448	1	446	448	2
5	350	356	6	348	357	9	347	350	3	346	355	9

DRIVER SIDE "Z"

	A			B			C			D		
	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.
1				56	60	4	65	44	-21	80	57	-23
2				-33	-46	-13	-5	-52	-47	-6	-48	-42
3	-70	-89	-19	-72	-98	-26	-63	-116	-53	-63	-110	-47
4	-65	-43	22	-62	-41	21	-62	-47	15	-65	-63	2
5	-64	-54	10	-64	-42	22	-57	-47	10	-63	-53	10

PASSENGER SIDE "X"

	A			B			C			D		
	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.
1	765	613	-152	774	609	-165	776	646	-130			
2	663	548	-115	674	549	-125	674	557	-117			
3	572	532	-40	573	528	-45	573	535	-38	574	5411	4837
4	472	450	-22	473	469	-4	474	470	-4	475	470	-5
5	373	368	-5	373	369	-4	374	371	-3	375	370	-5

PASSENGER SIDE "Z"

	A			B			C			D		
	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.	PRE-TEST	POST-TEST	DIFF.
1	77	67	-10	80	71	-9	76	75	-1			
2	5	-25	-30	-4	-27	-23	-2	-14	-12			
3	-63	-80	-17	-63	-128	-65	-63	-120	-57	-62	-105	-43
4	-62	-51	11	-60	-69	-9	-62	-60	2	-56	-58	-2
5	-60	-68	-8	-64	-66	-2	-59	-54	5	-55	-60	-5

DRIVER

PRE	POST	DIFF.
2490	2470	-20
270	270	0

PASSENGER

PRE	POST	DIFF.
2490	2470	-20
270	270	0

RSOV to anchor bolt
Ground level to anchor bolt

DATA SHEET NO. 18

OFFSET BARRIER ORIENTATION

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

NOT APPLICABLE TO THIS TEST

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

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

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

DATA SHEET NO. 19

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98

VIN: 1HGEJ6124XL005430 Wheelbase: 2624 mm Test Weight: 1259 kg

Vehicle Size Category: HONDA CIVIC DX 2-DOOR SEDAN

ACCELEROMETER DATA:

LOCATION: Left and right rear floor pans

CALIBRATION PROCEDURE: 6 months/ drop test

LINEARITY: Good

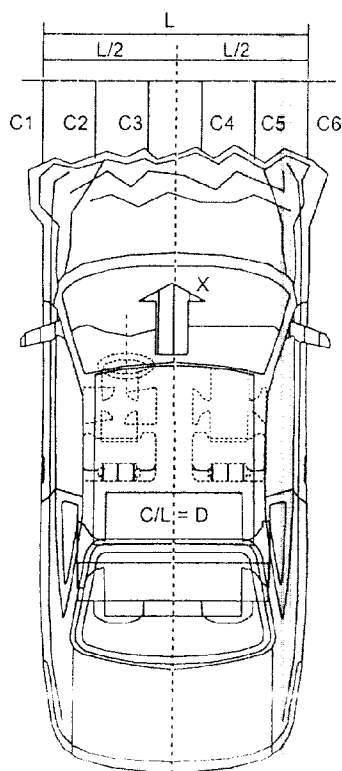
INTEGRATION ALGORITHM: NHTSA Standard

VEHICLE IMPACT SPEED: 56.6 km/h

TIME OF SEPARATION: 76.4 msec

VELOCITY CHANGE: 65.32 km/h

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



IMPACT MODE: Full Frontal

CRUSH DEPTH DIMENSIONS:

C1 = 315 mm

C2 = 441 mm

C3 = 516 mm

C4 = 552 mm

C5 = 513 mm

C6 = 343 mm

MIDPOINT OF DAMAGE: Vehicle Centerline

LENGTH OF DAMAGE REGION: 1577 mm

DATA SHEET NO. 20

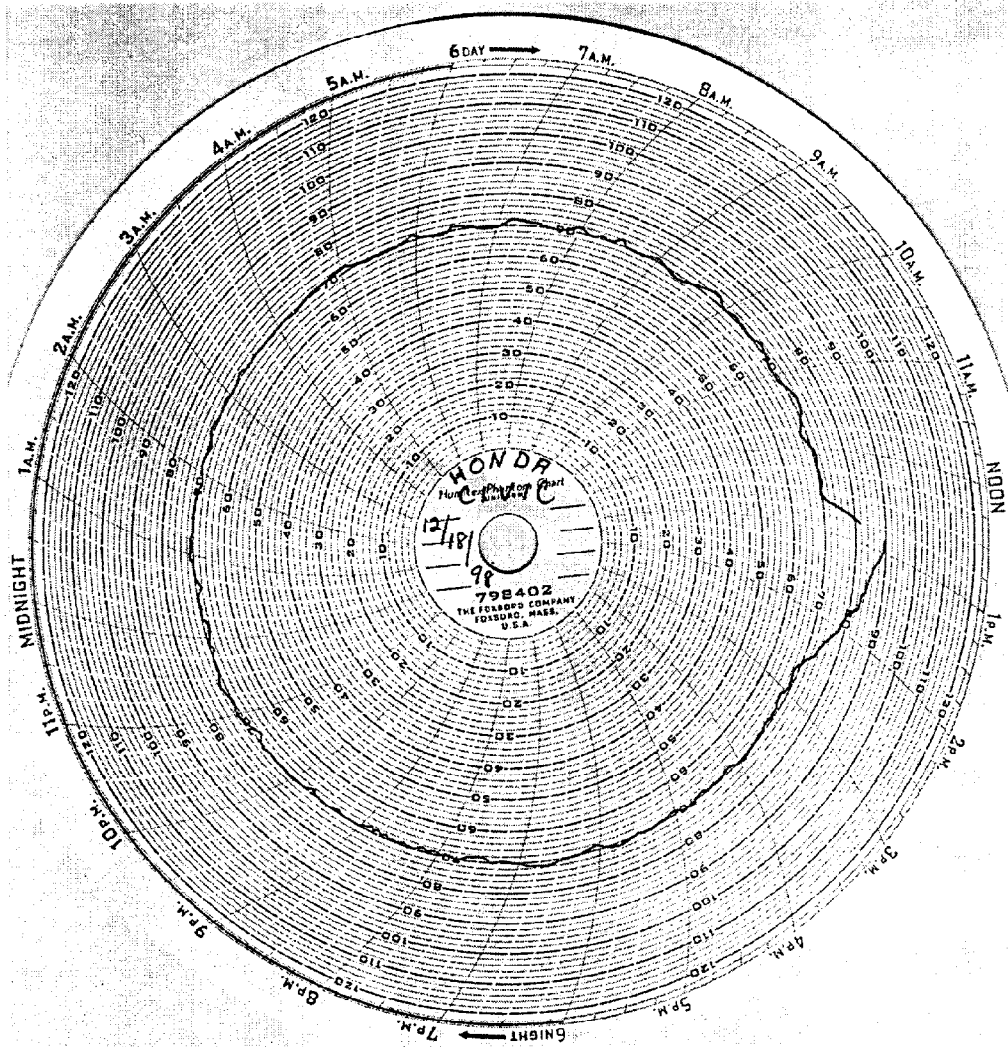
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 1999 HONDA CIVIC DX 2-DOOR

NHTSA No.: MX5301

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 12/18/98



APPENDIX A
PHOTOGRAPHS

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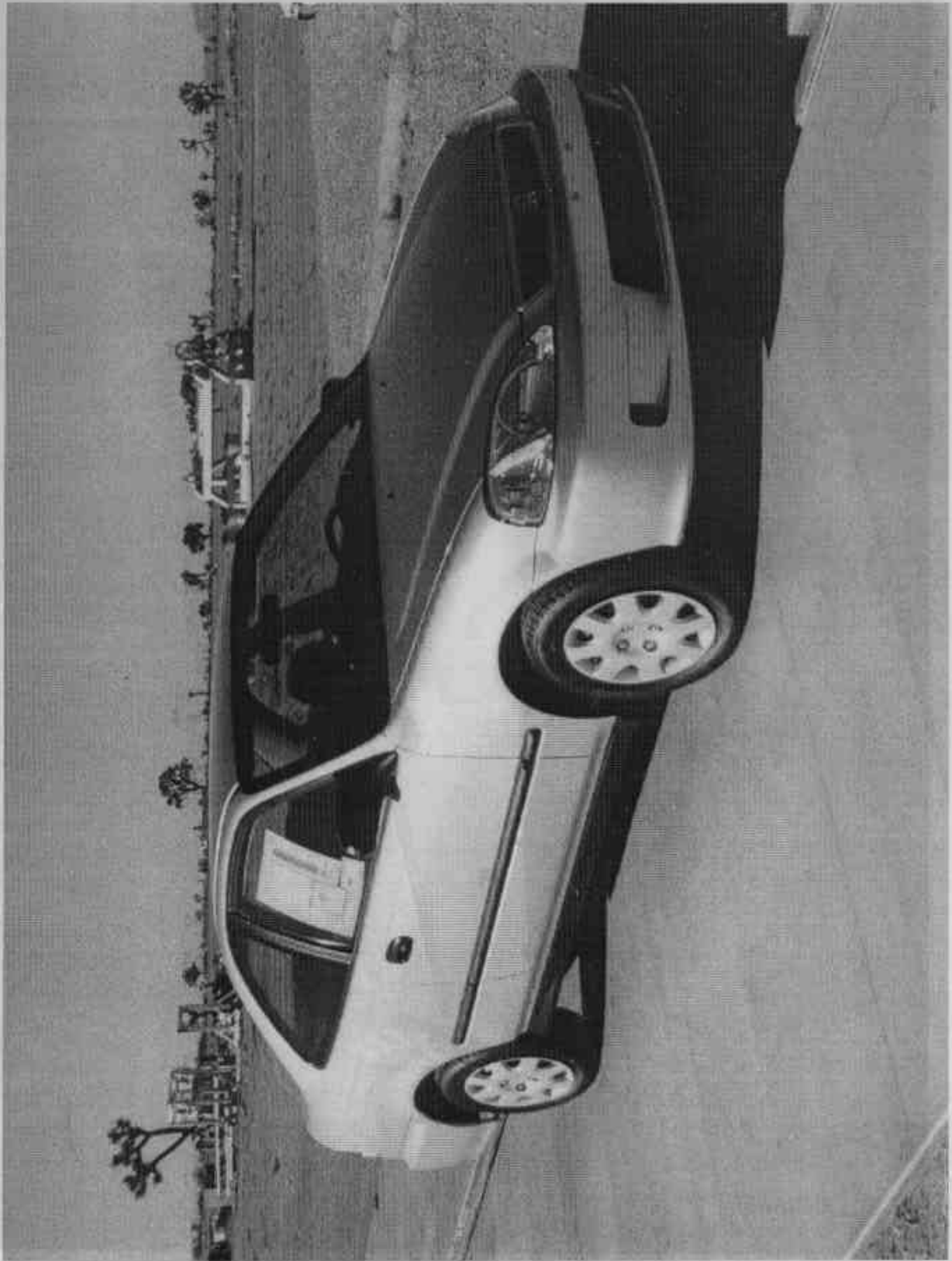


FIGURE A-1. RIGHT FRONT AS RECEIVED

KAR99001-05

A-1

KAR99001-05

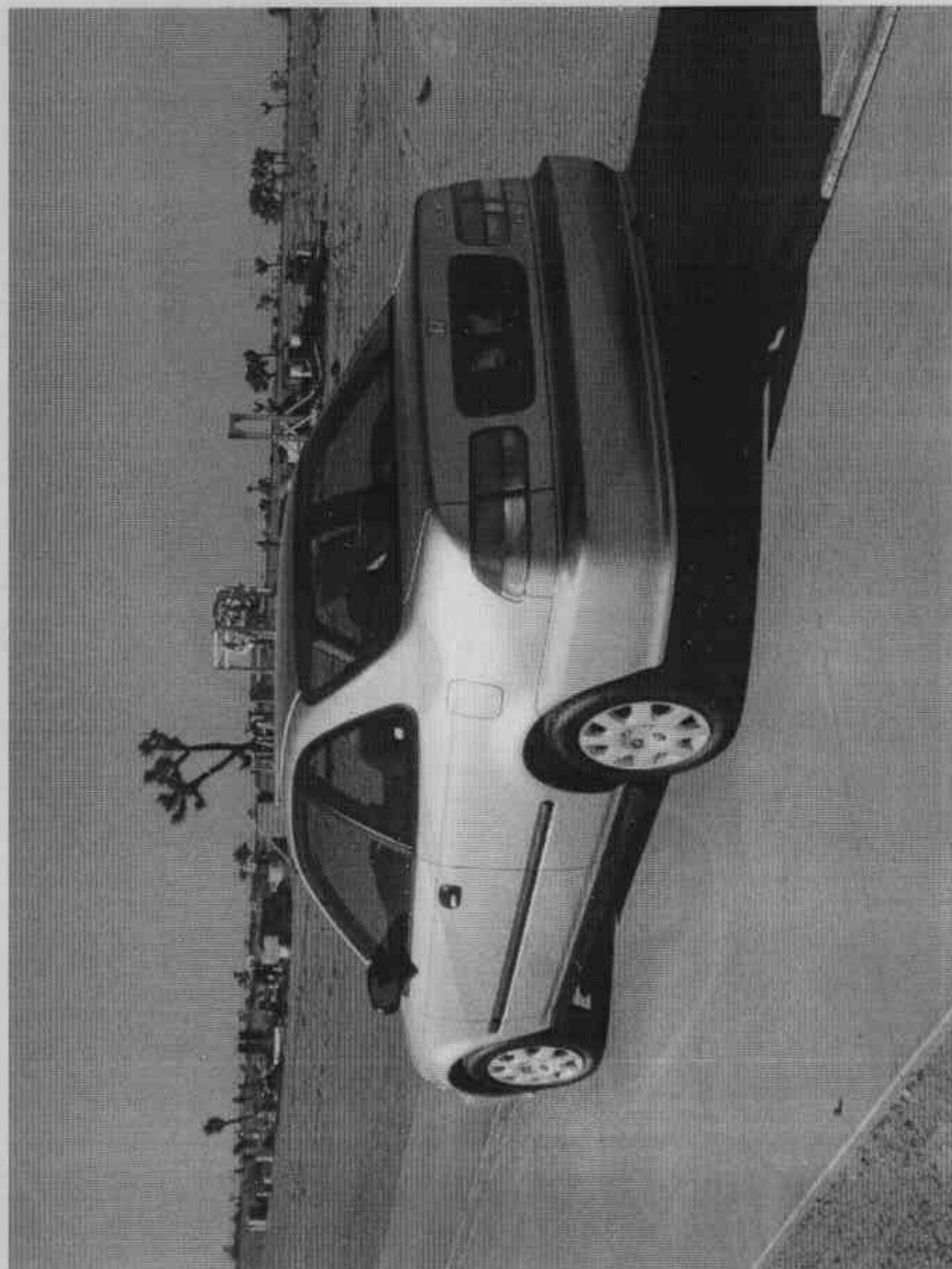


FIGURE A-2. LEFT REAR AS RECEIVED

KAR99001-05

A-2

KAR99001-05



FIGURE A-3. VEHICLE CERTIFICATION LABEL



FIGURE A-4. VEHICLE TIRE PLACARD



FIGURE A-5. PRETEST FRONT VIEW

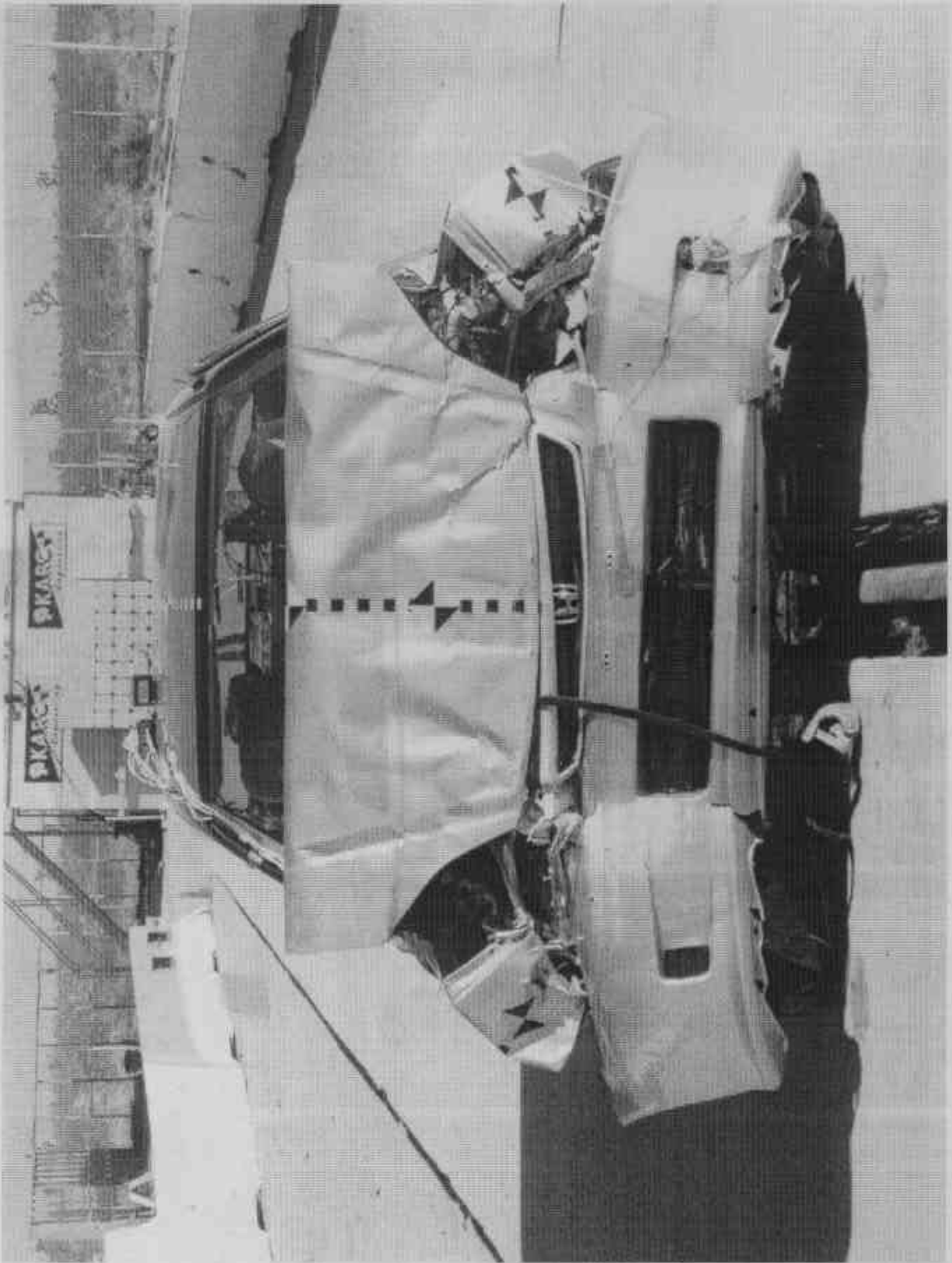


FIGURE A-6. POST TEST FRONT VIEW

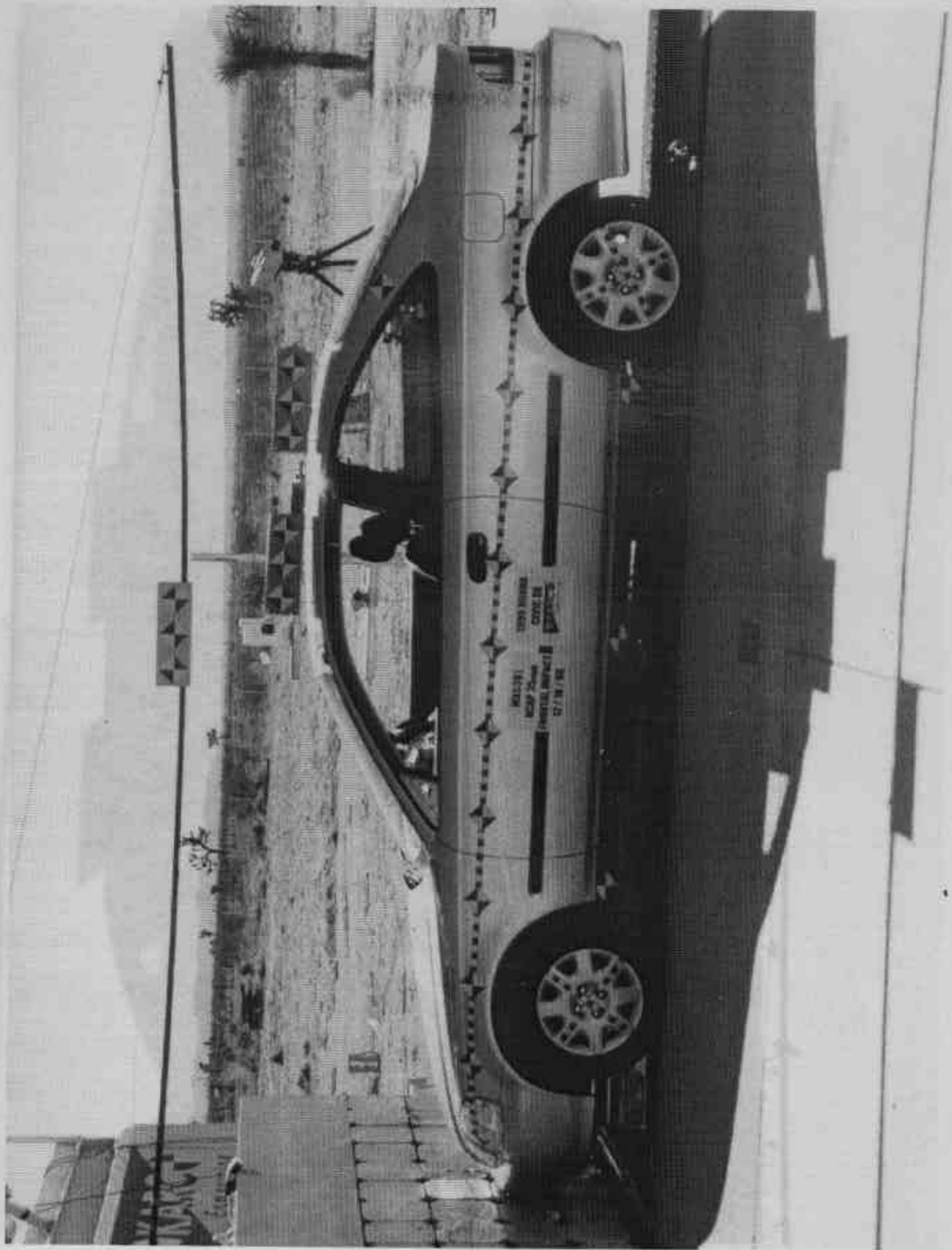


FIGURE A-7. PRETEST LEFT SIDE VIEW

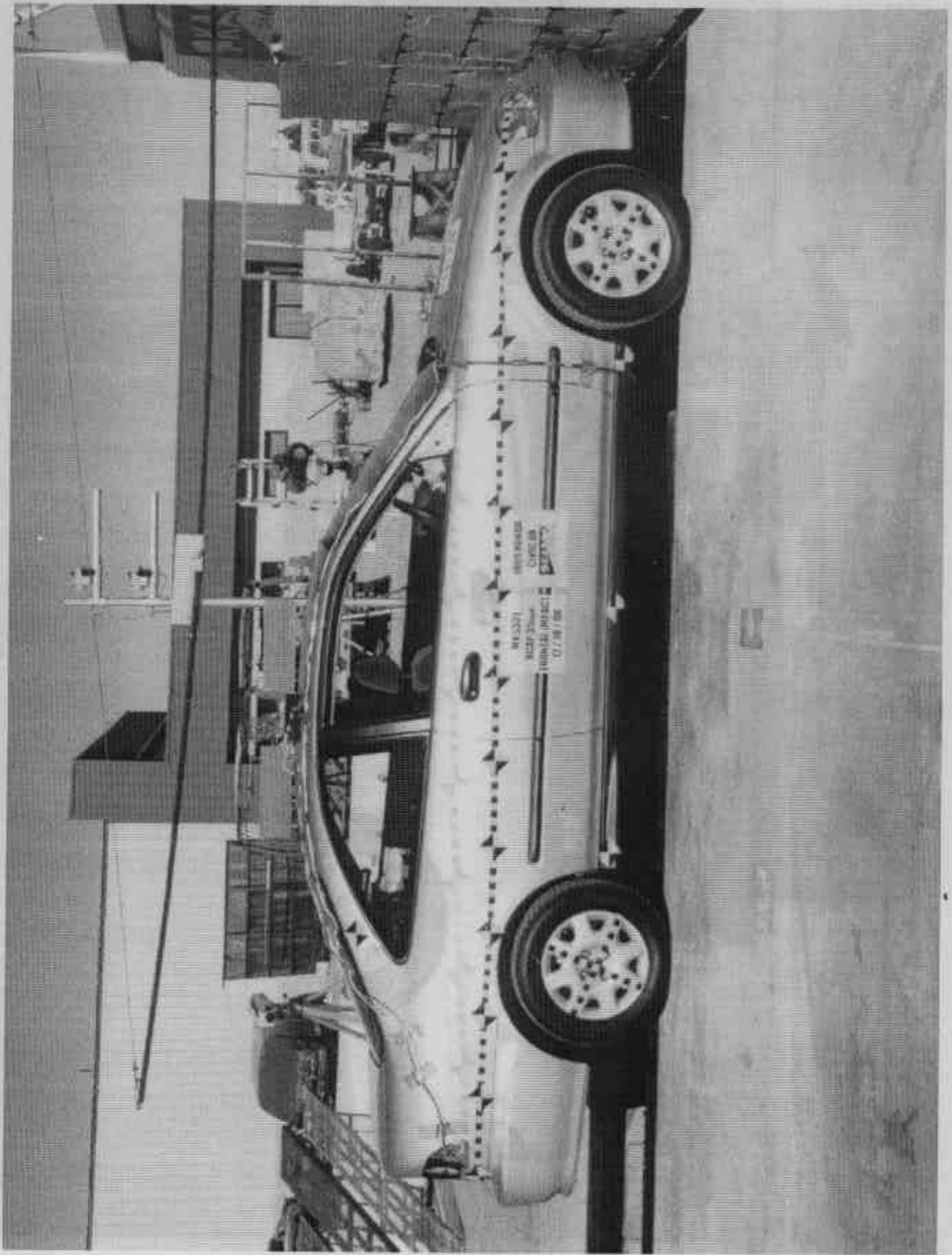


FIGURE A-9. PRETEST RIGHT SIDE VIEW

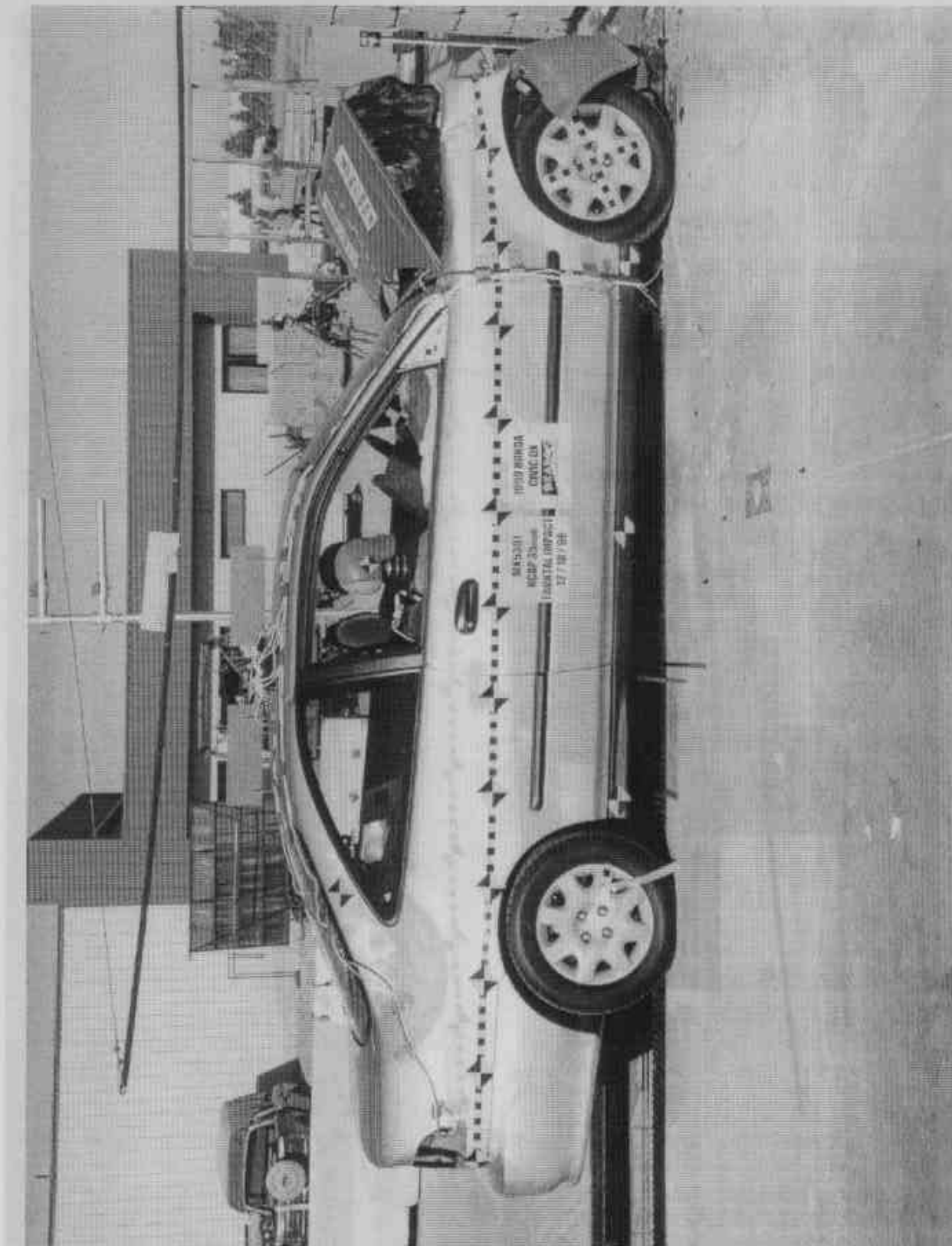


FIGURE A-10. POST TEST RIGHT SIDE VIEW

50-100005A01

A-10

KAR99001-05

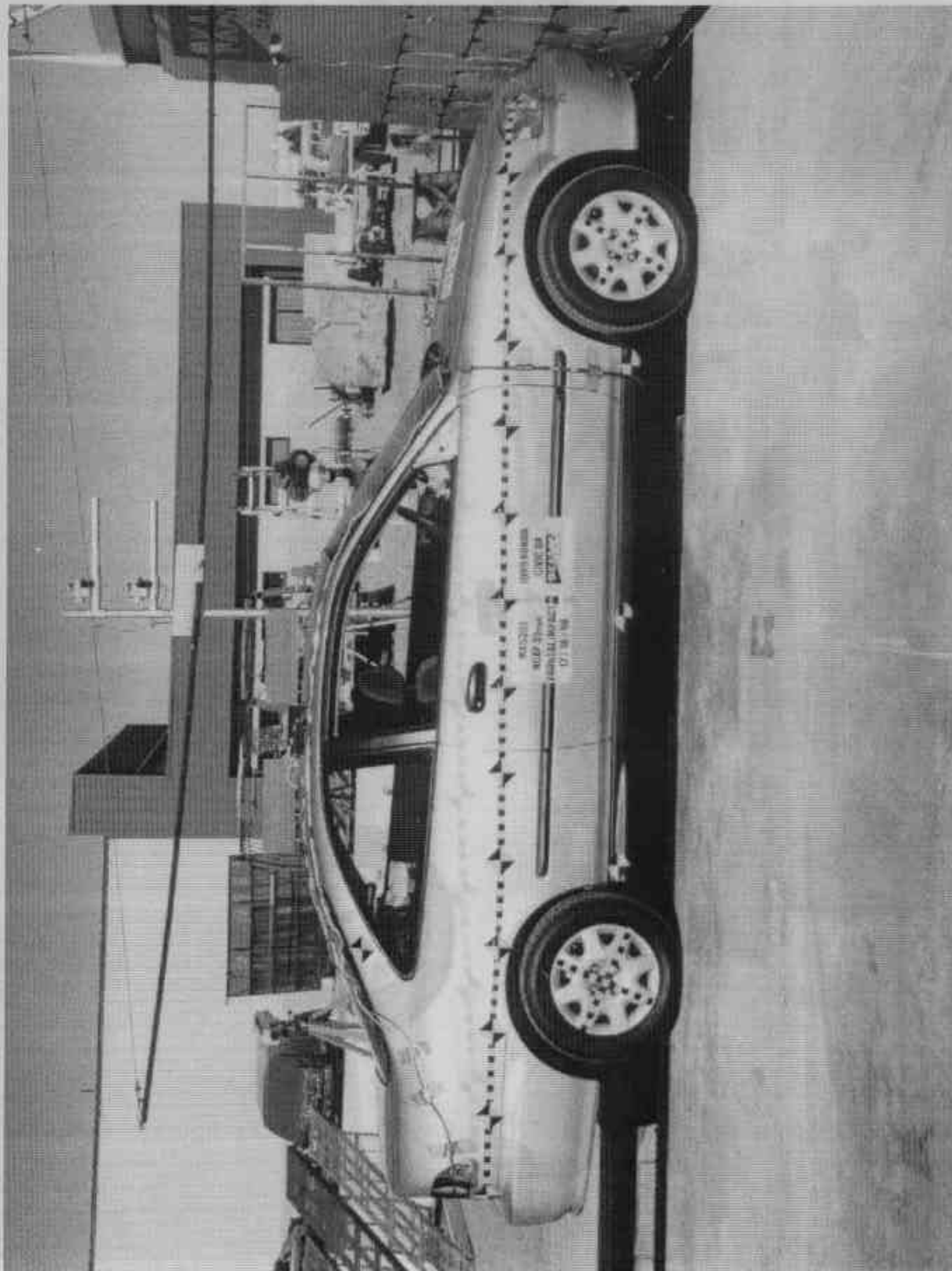


FIGURE A-9. PRETEST RIGHT SIDE VIEW

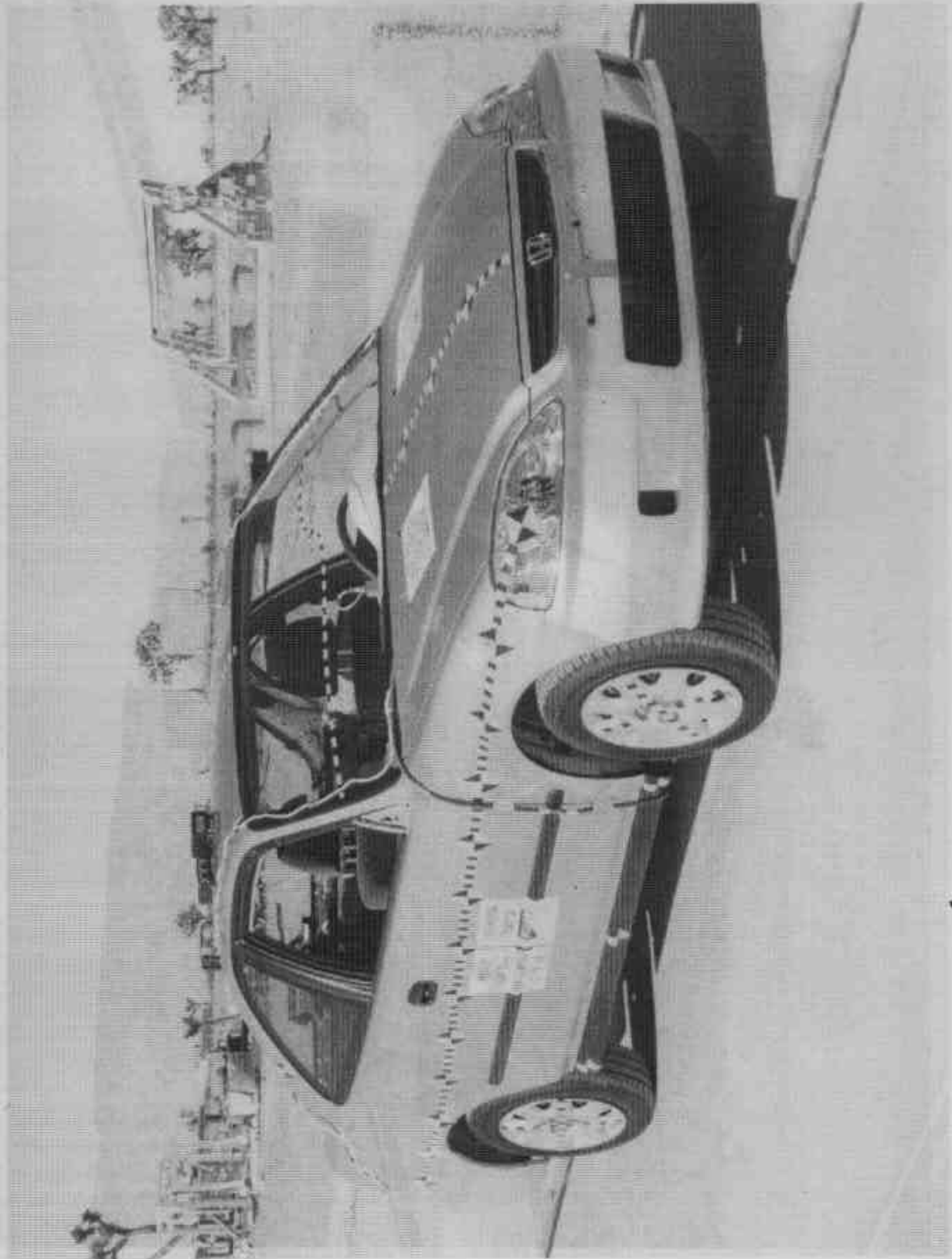


FIGURE A-11. PRETEST RIGHT FRONT VIEW

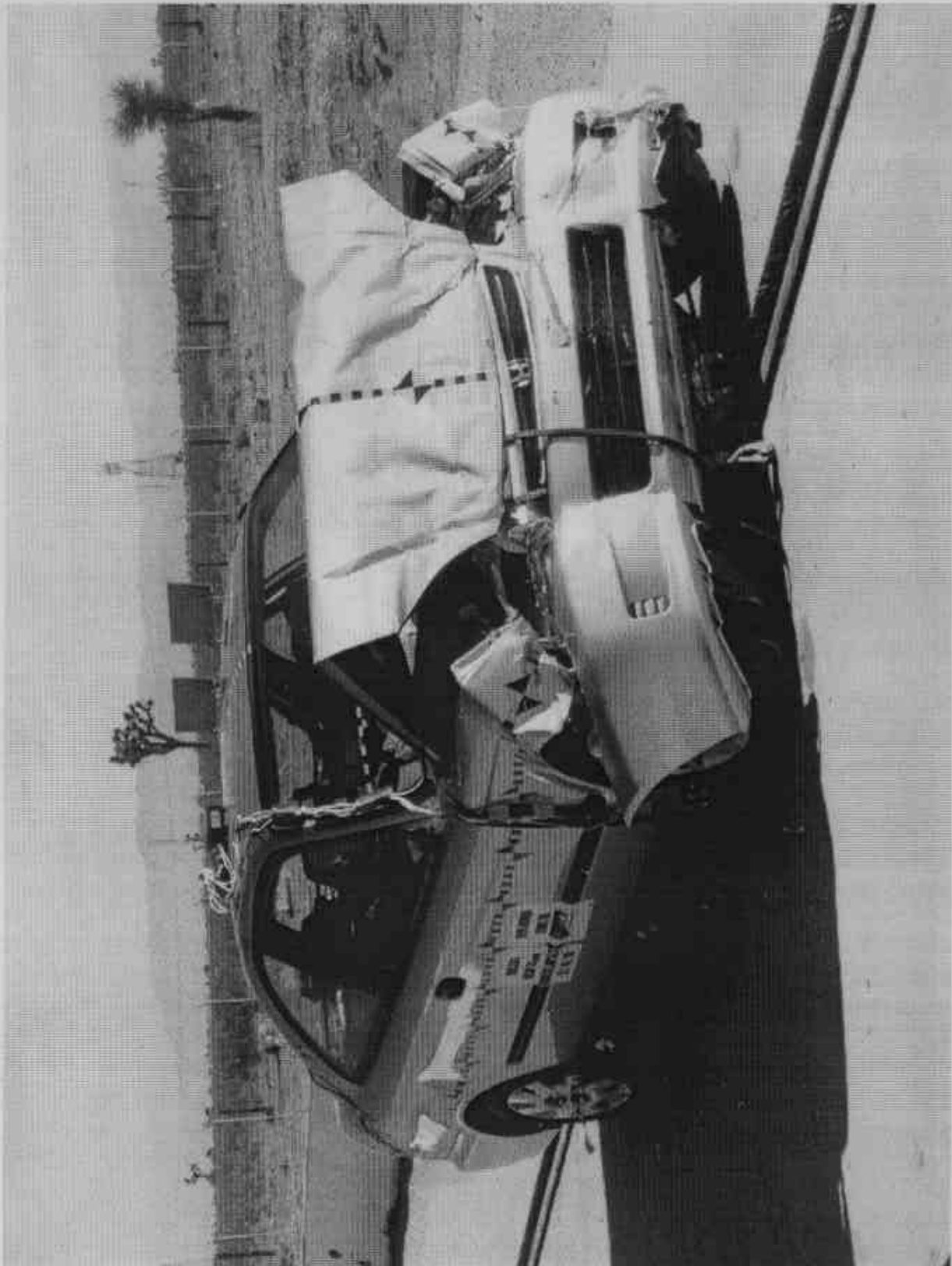


FIGURE A-12. POST TEST RIGHT FRONT VIEW



FIGURE A-13. PRETEST LEFT REAR VIEW



FIGURE A-14. POST TEST LEFT REAR VIEW



FIGURE A-15. PRETEST WINDSHIELD

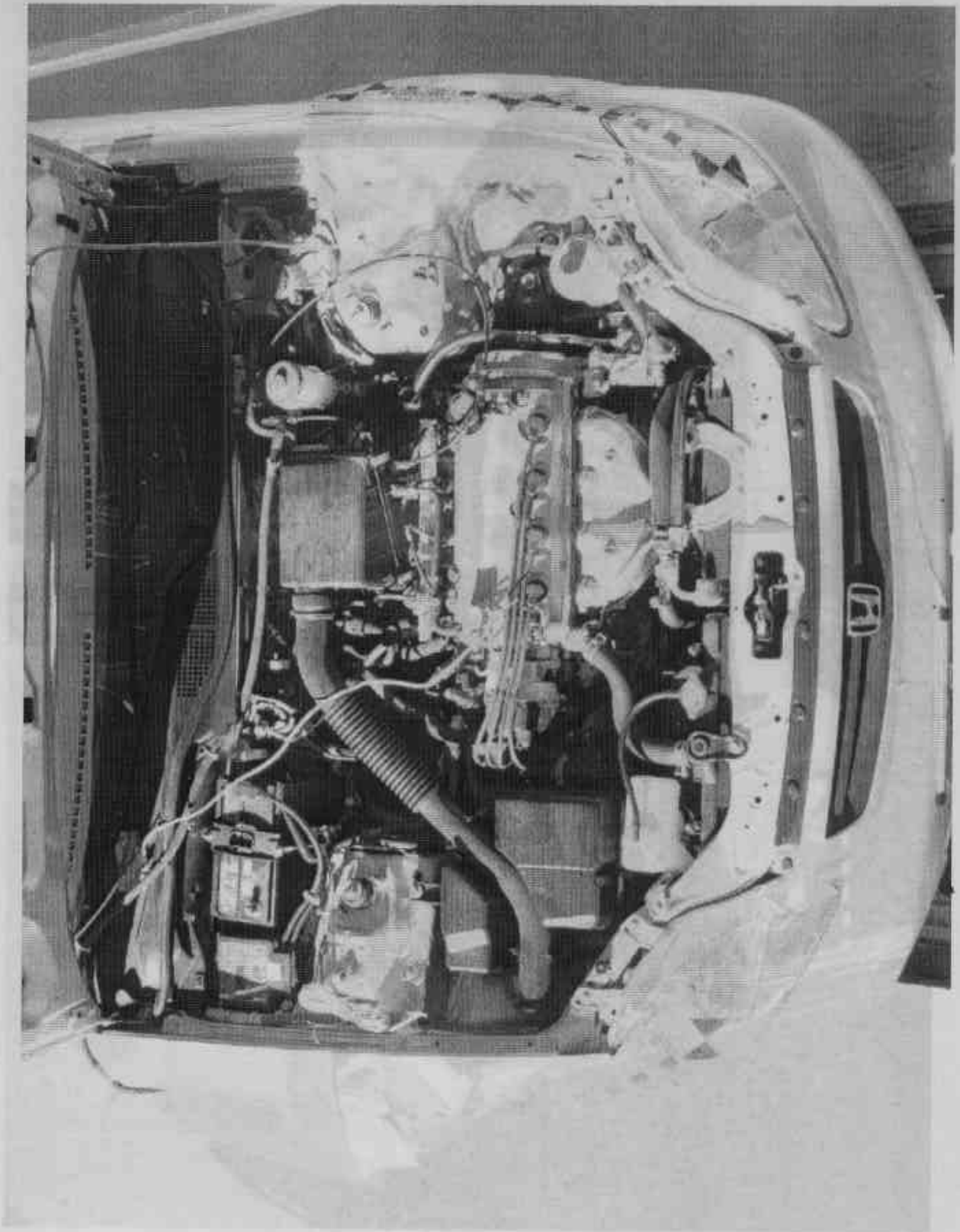


FIGURE A-17. PRETEST ENGINE COMPARTMENT

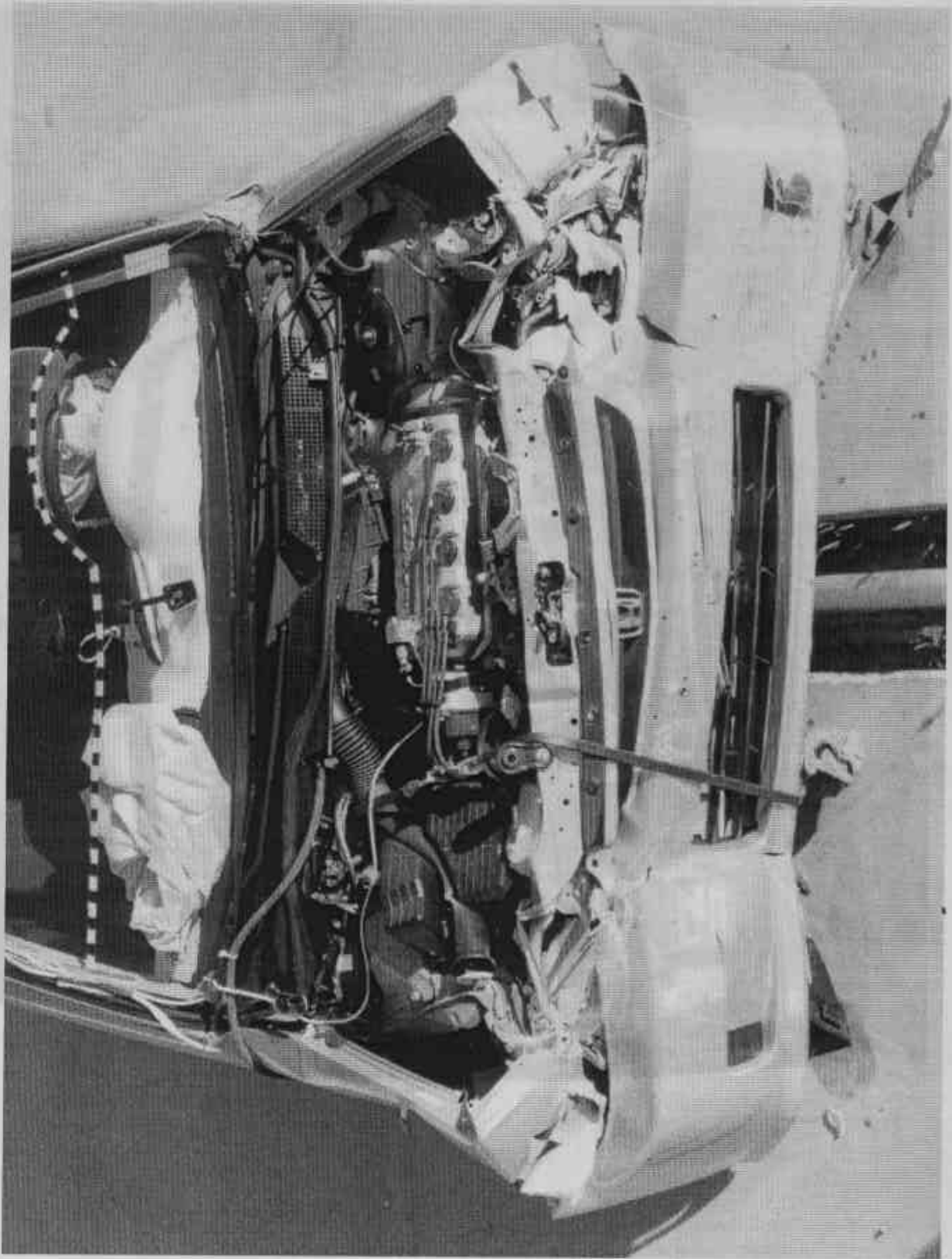


FIGURE A-18. POST TEST ENGINE COMPARTMENT

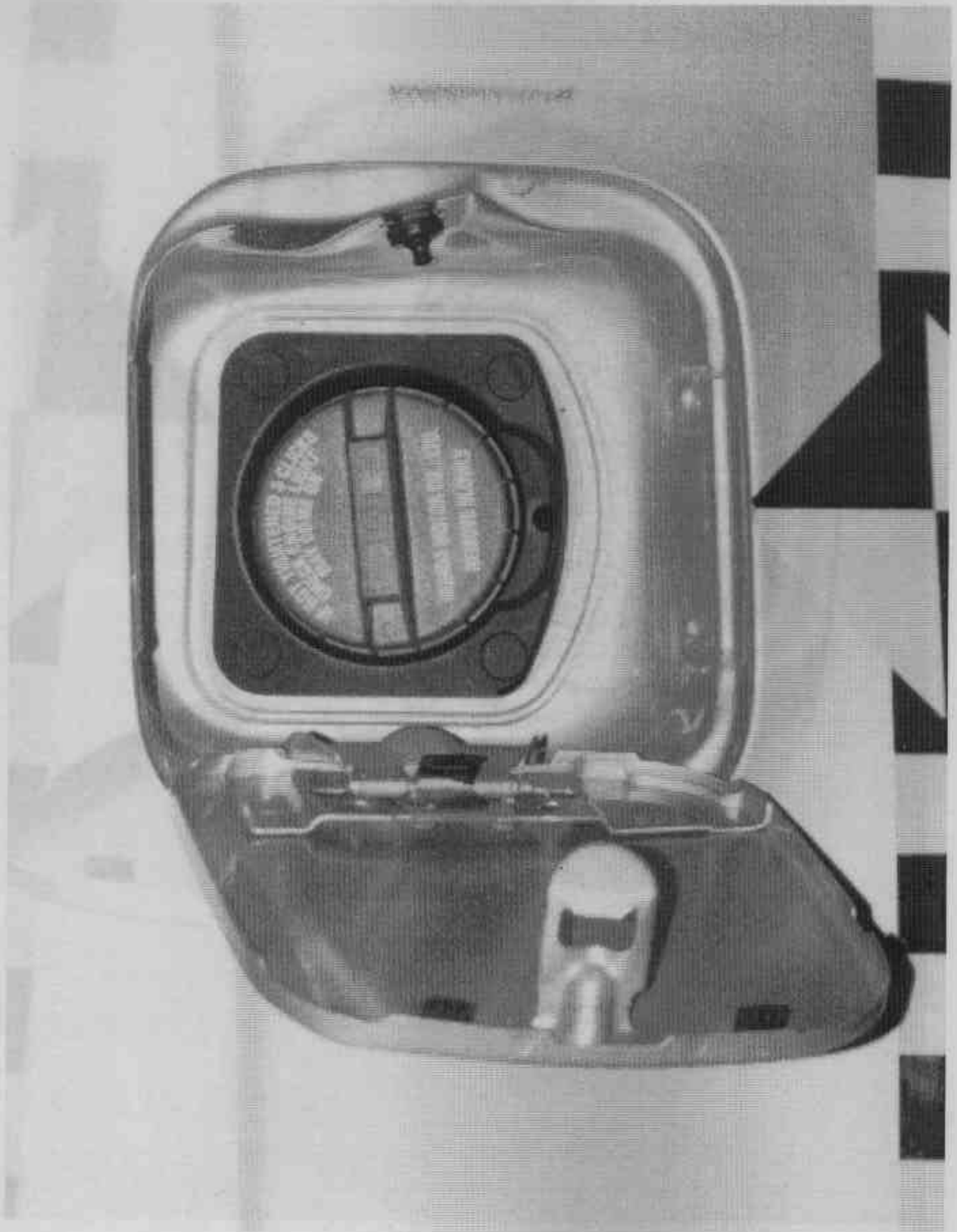
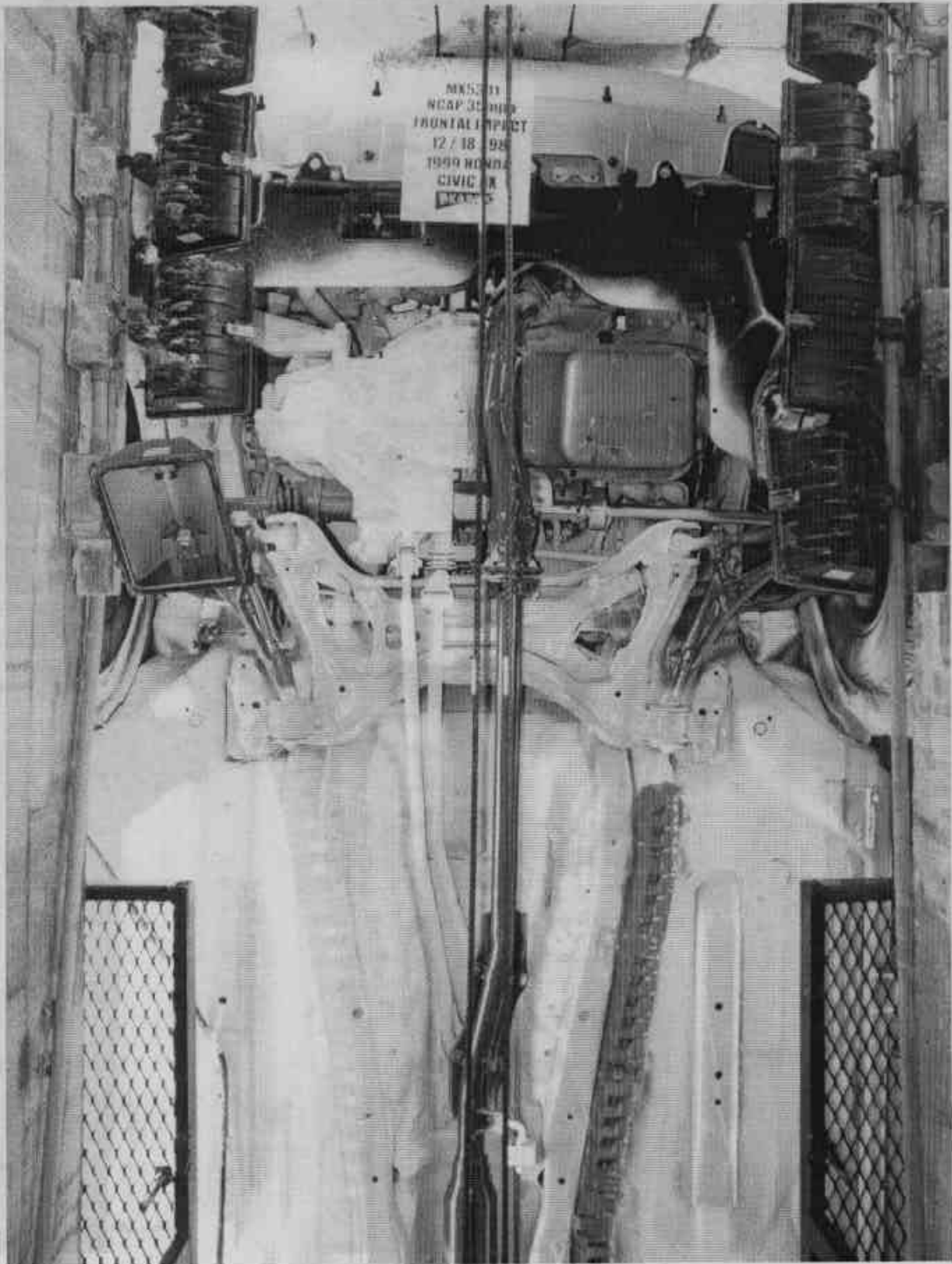


FIGURE A-19. PRETEST FUEL CAP



FIGURE A-20. POST TEST FUEL CAP



NK5211
NCAP 30 MPH
FRONTAL IMPACT
12 / 18 / 98
1999 HONDA
CIVIC R
EX-15

FIGURE A-21. PRETEST FRONT UNDERSIDE

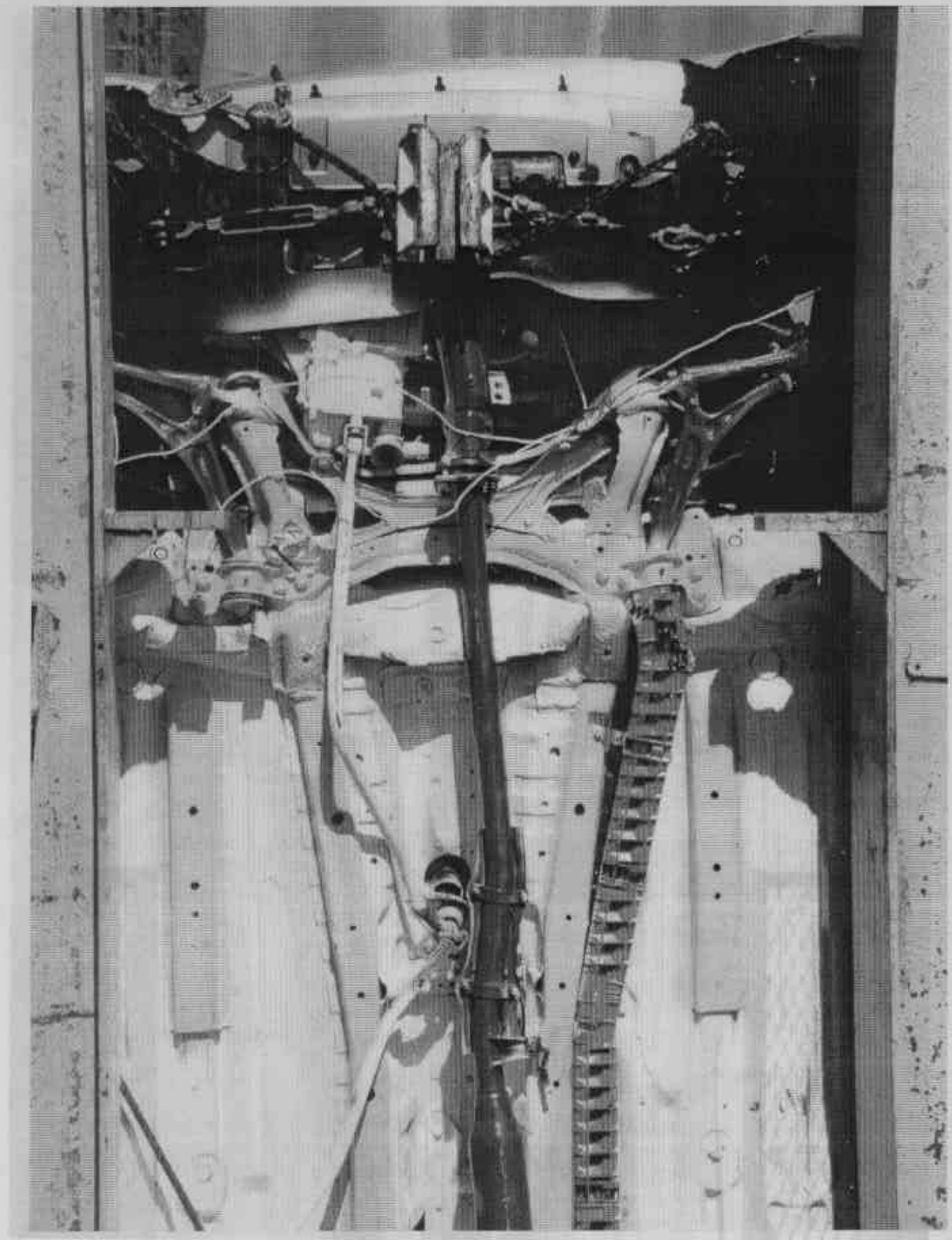


FIGURE A-22. POST TEST FRONT UNDERSIDE

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A-22

KAR99001-05

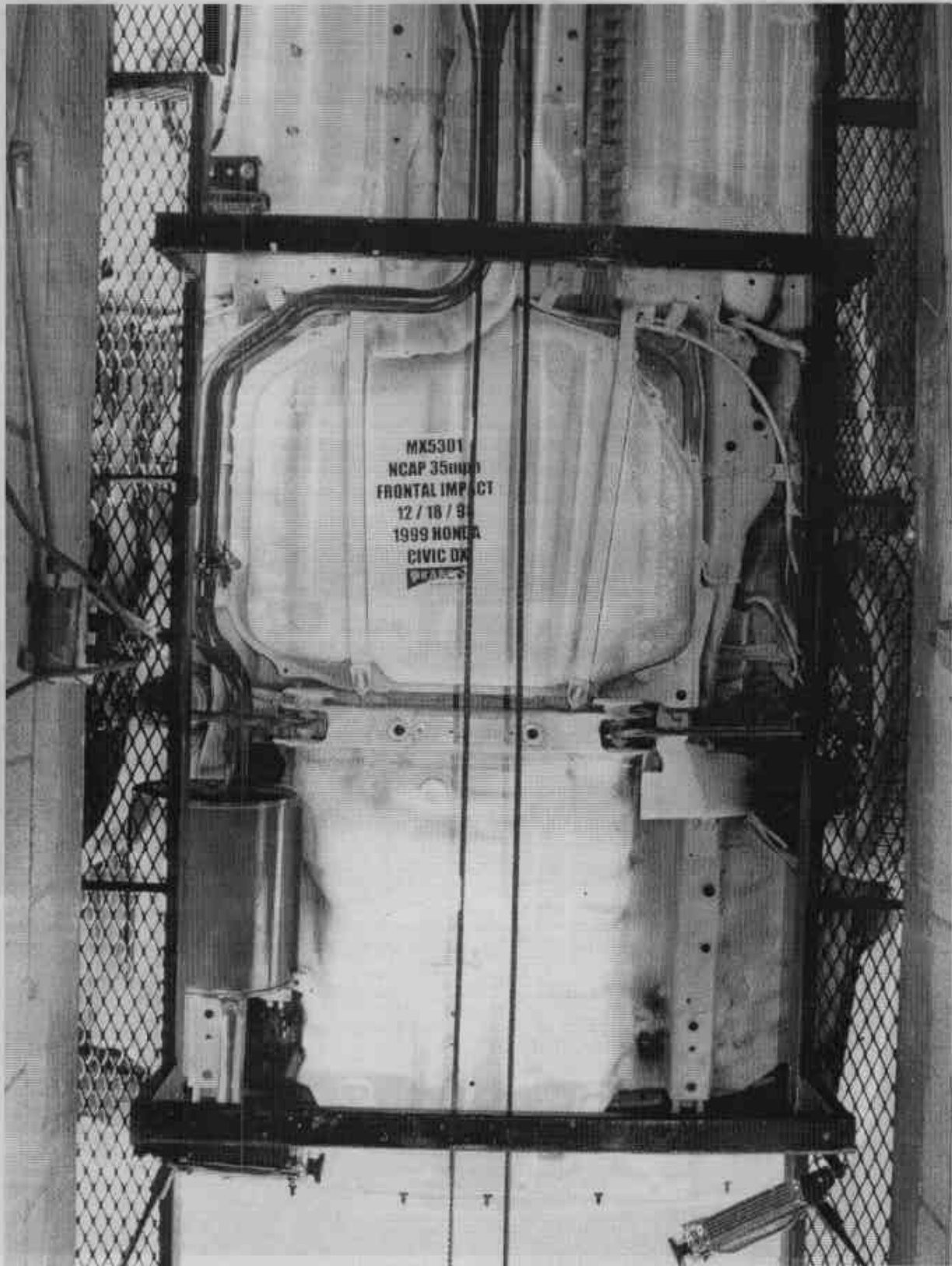


FIGURE A-23. PRETEST REAR UNDERSIDE

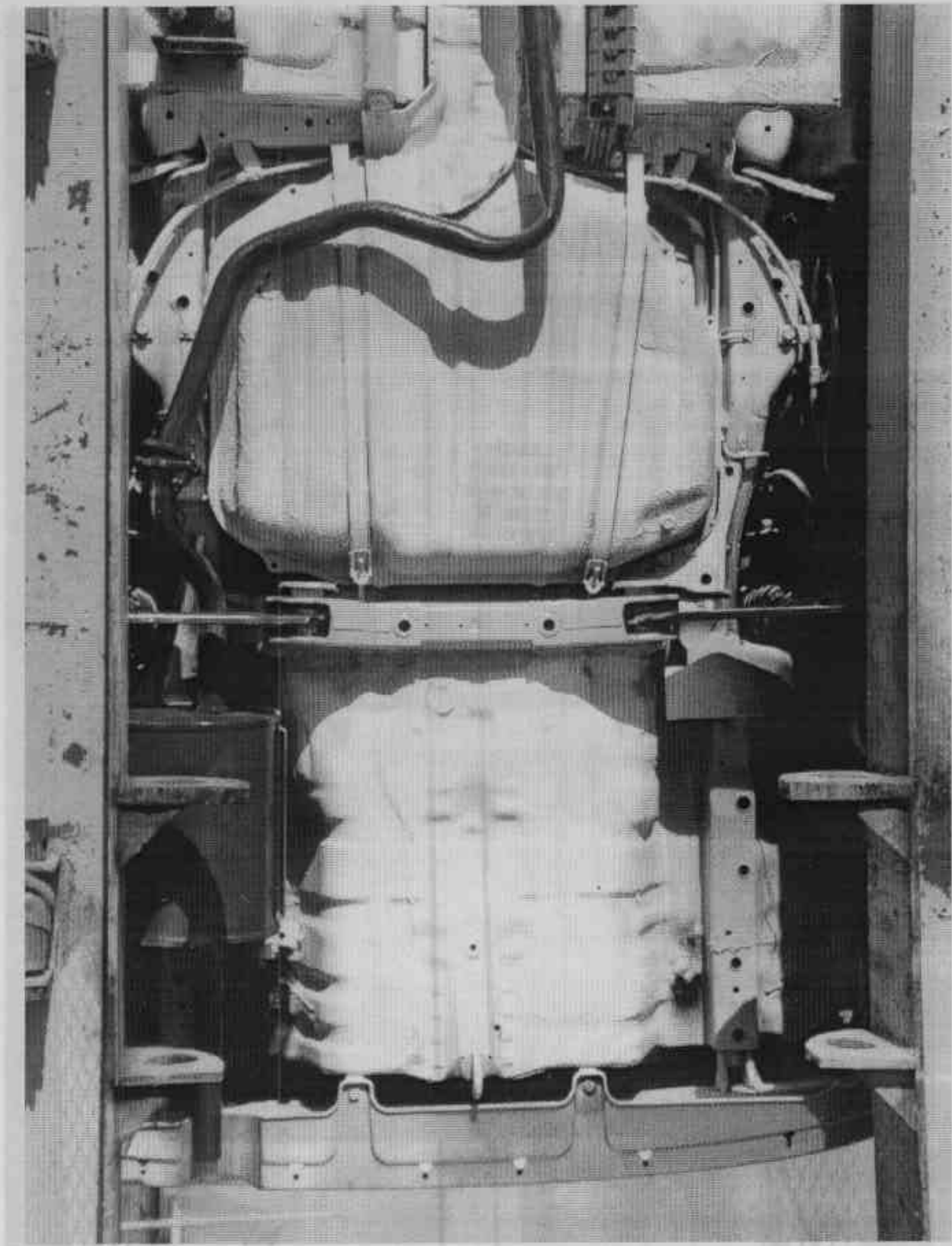


FIGURE A-24. POST TEST REAR UNDERSIDE



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



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

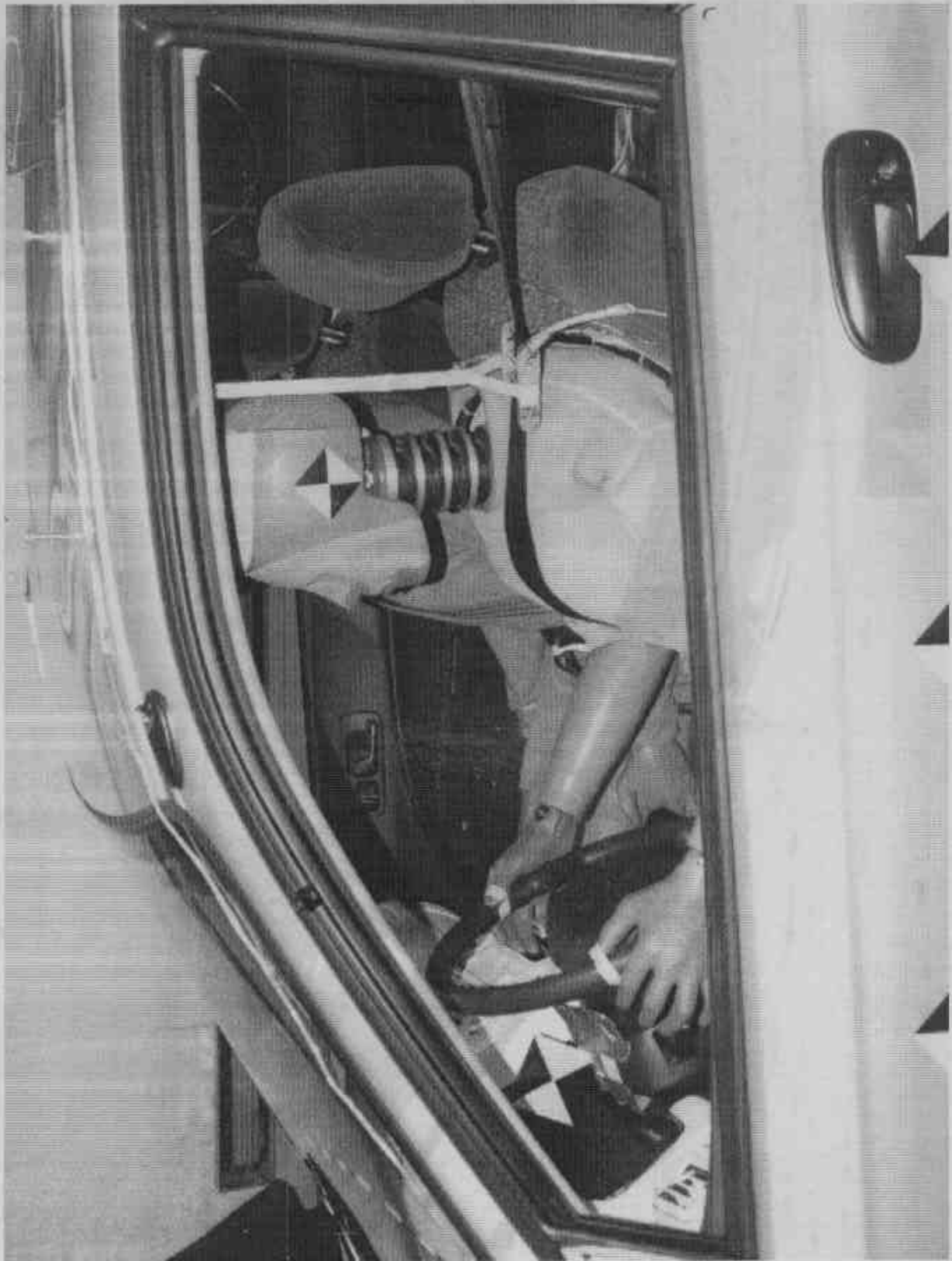


FIGURE A-27. PRETEST DRIVER DUMMY (THRU WINDOW)

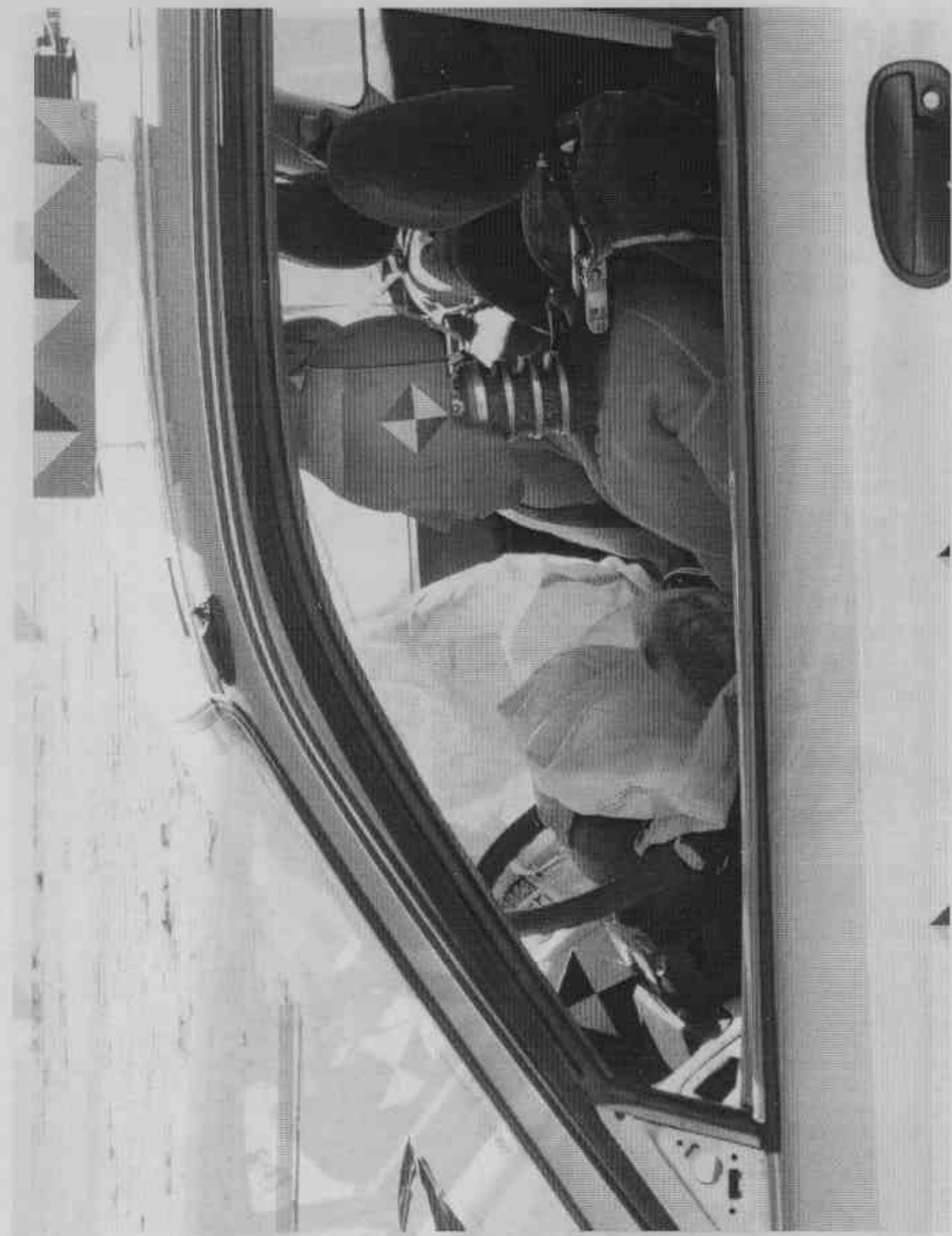


FIGURE A-28. POST TEST DRIVER DUMMY (THRU WINDOW)



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



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

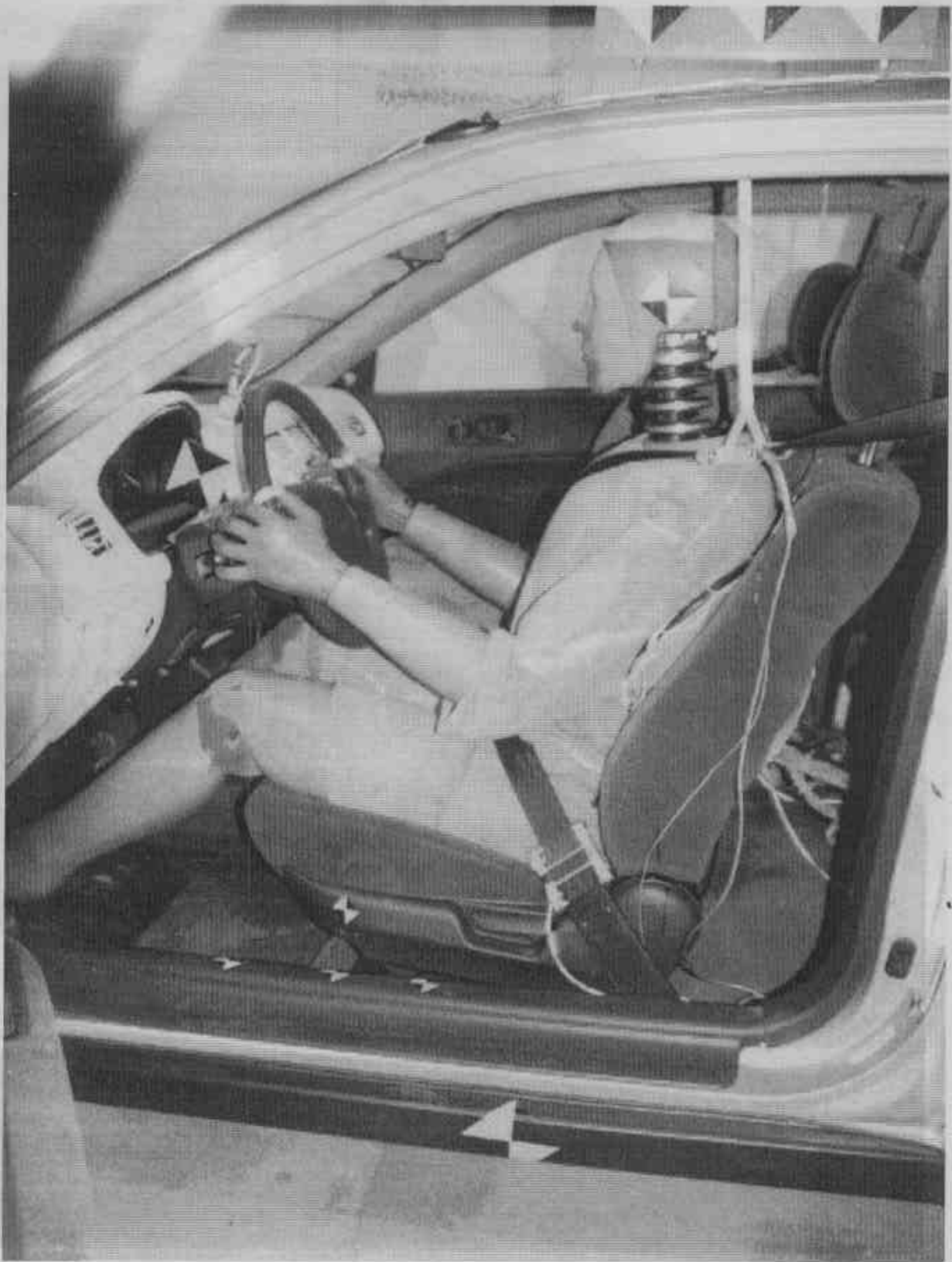


FIGURE A-31. PRETEST DRIVER DUMMY (90° TO VEHICLE)



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



FIGURE A-33. PRETEST DRIVER DUMMY FEET



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

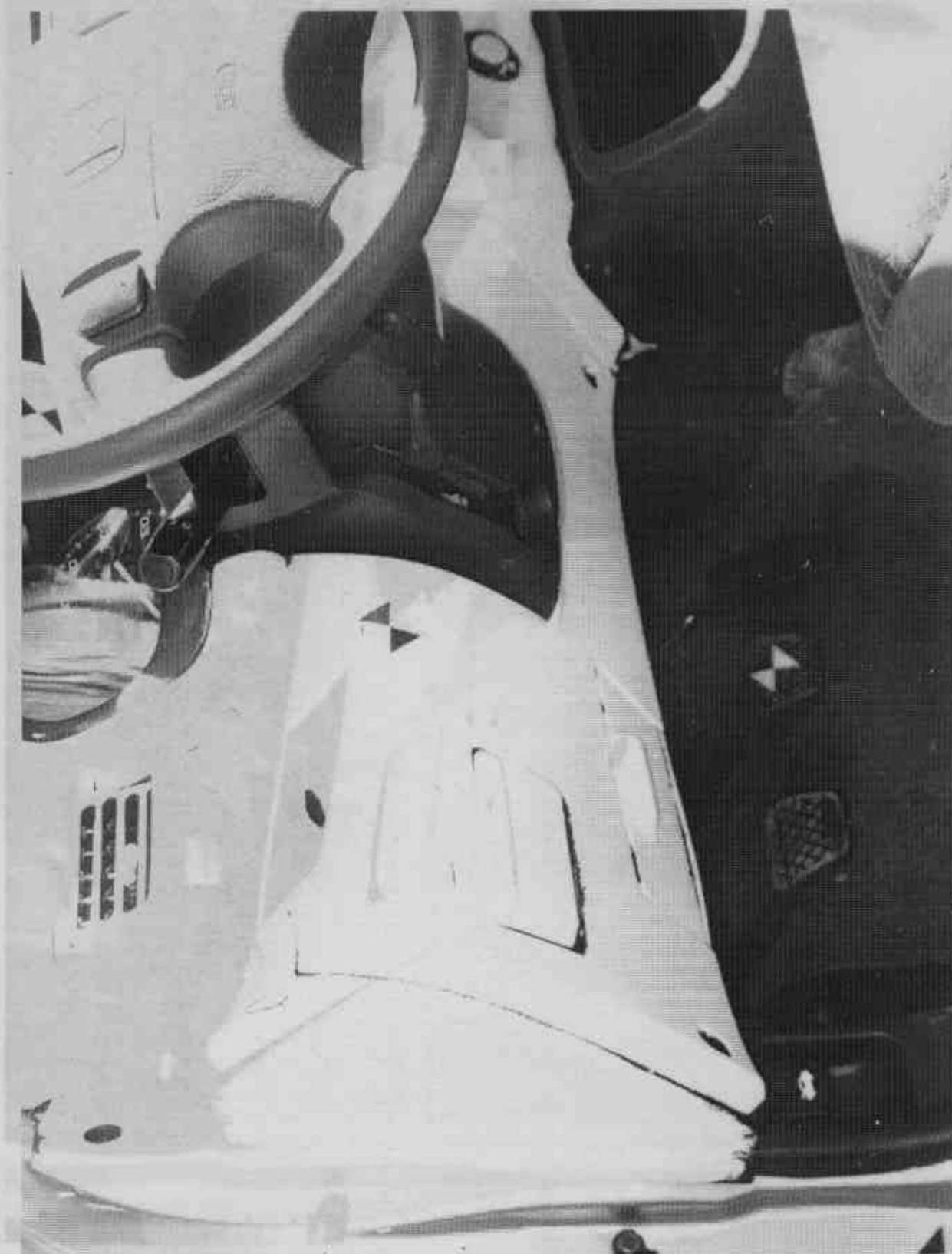


FIGURE A-35. PRETEST DRIVER KNEE BOLSTER



FIGURE A-36. POST TEST DRIVER KNEE BOLSTER

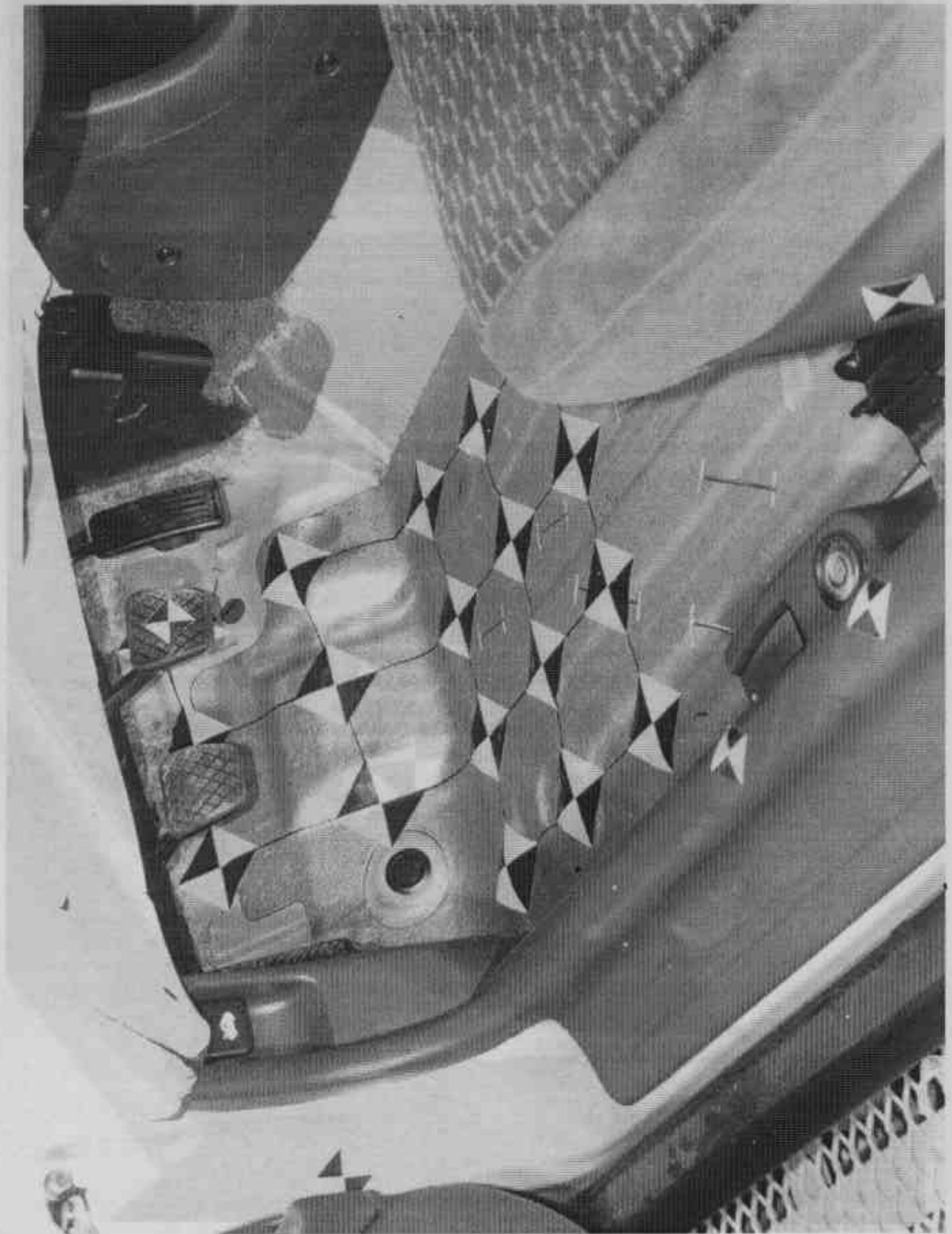


FIGURE A-37. PRETEST DRIVER SIDE FLOOR PAN

80-100000A

A-37

KAR99001-05

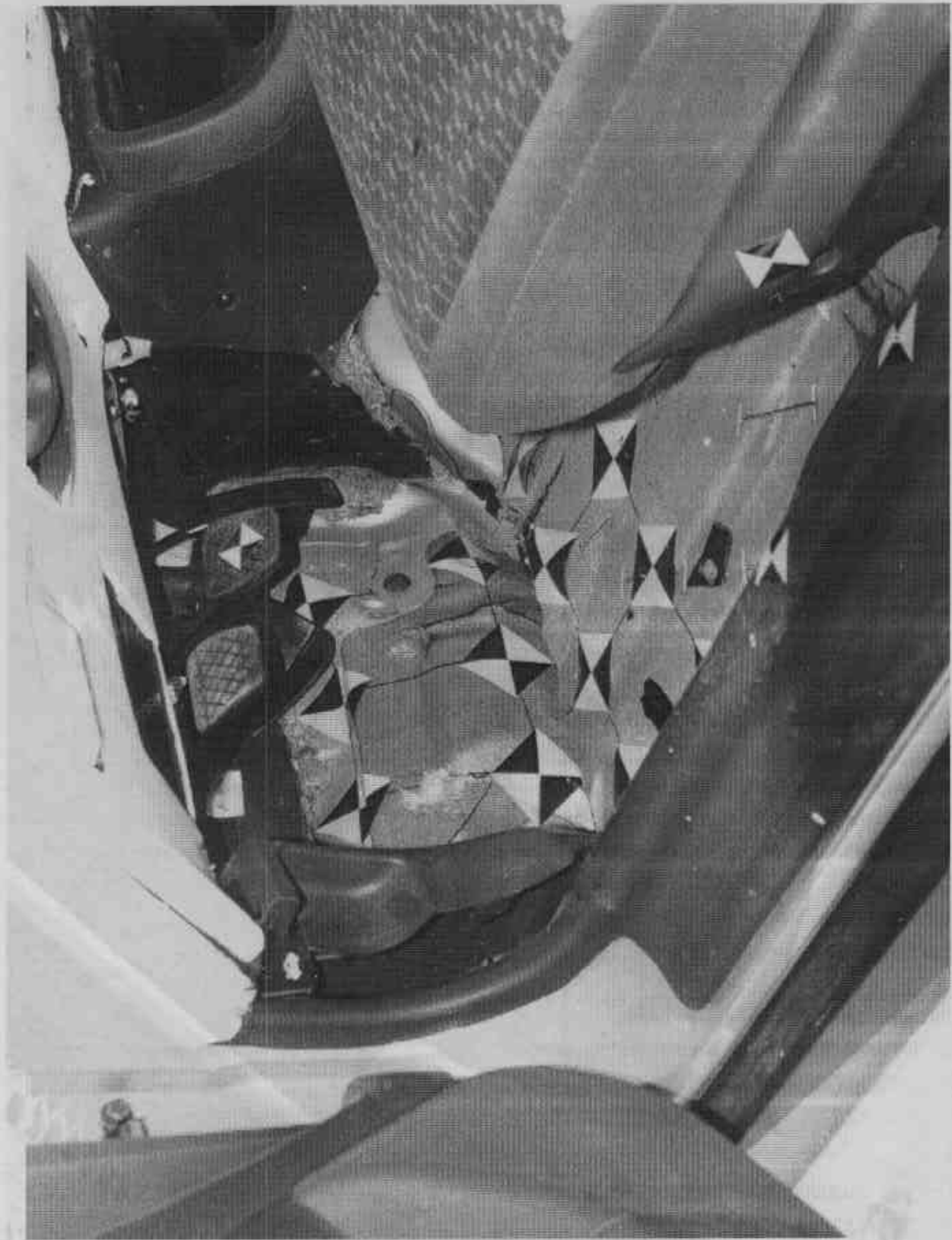


FIGURE A-38. POST TEST DRIVER SIDE FLOOR PAN

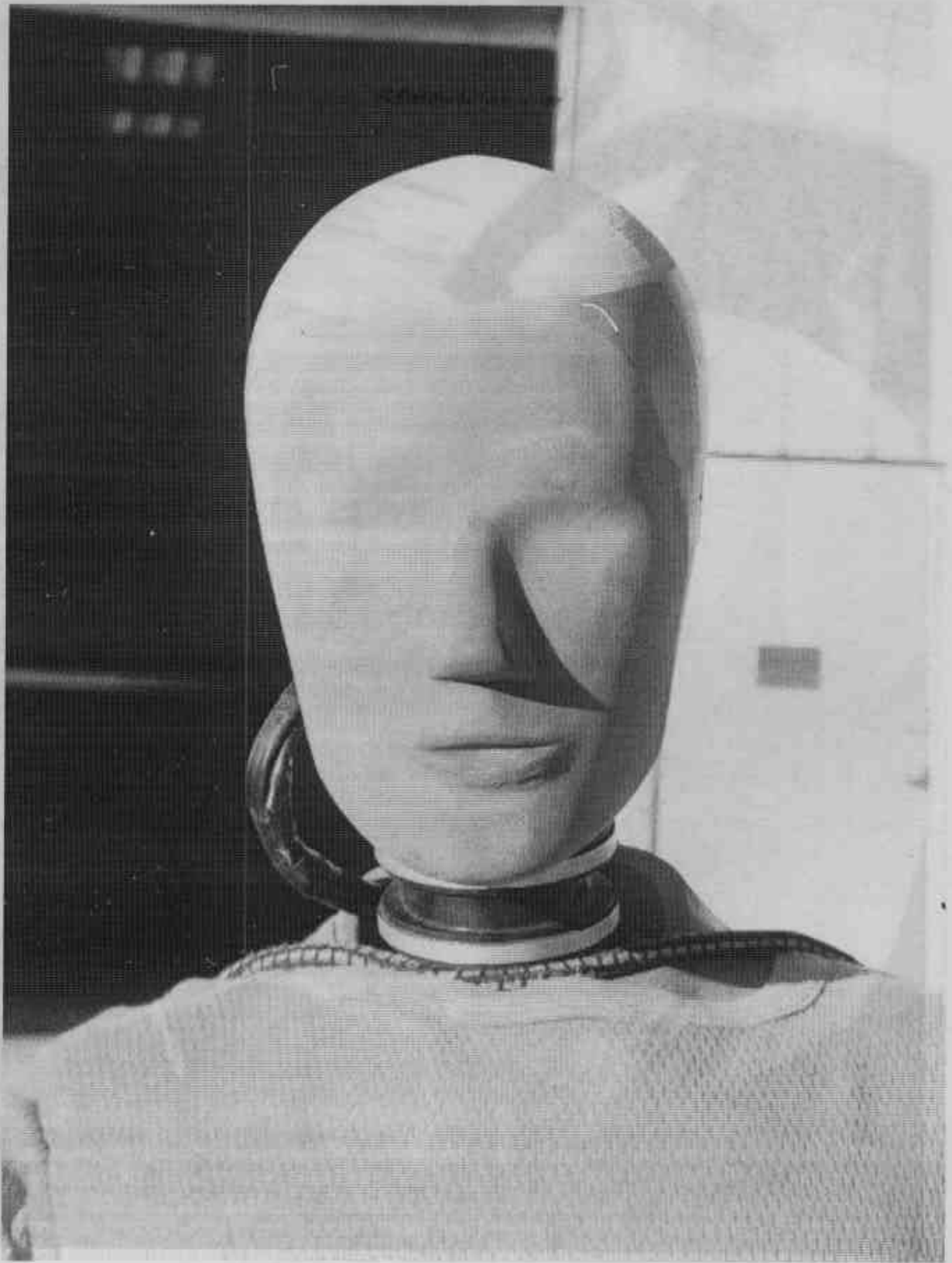


FIGURE A-39. POST TEST DRIVER HEAD

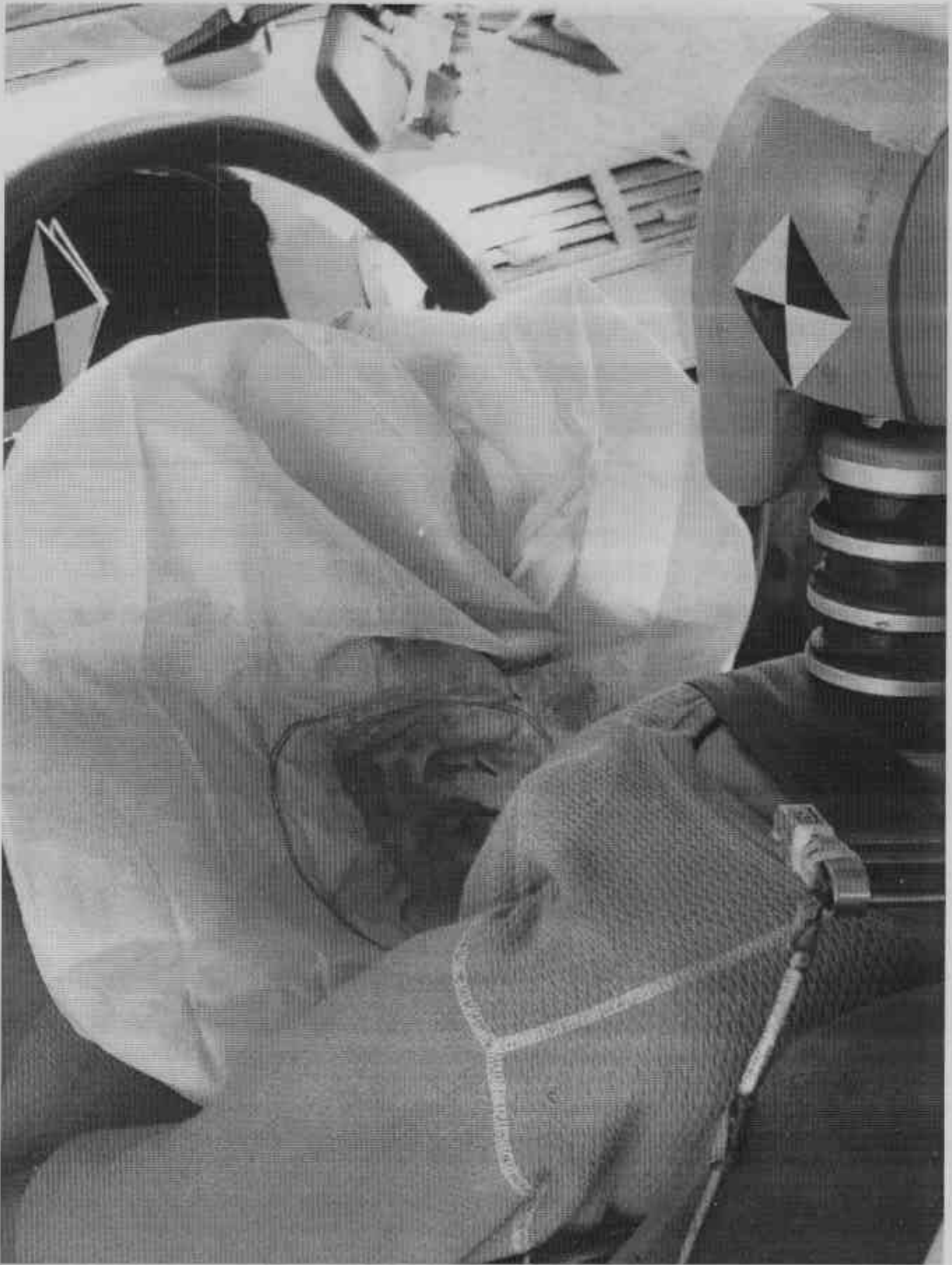


FIGURE A-40. POST TEST DRIVER DUMMY CONTACT



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

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A-41

KAR99001-05

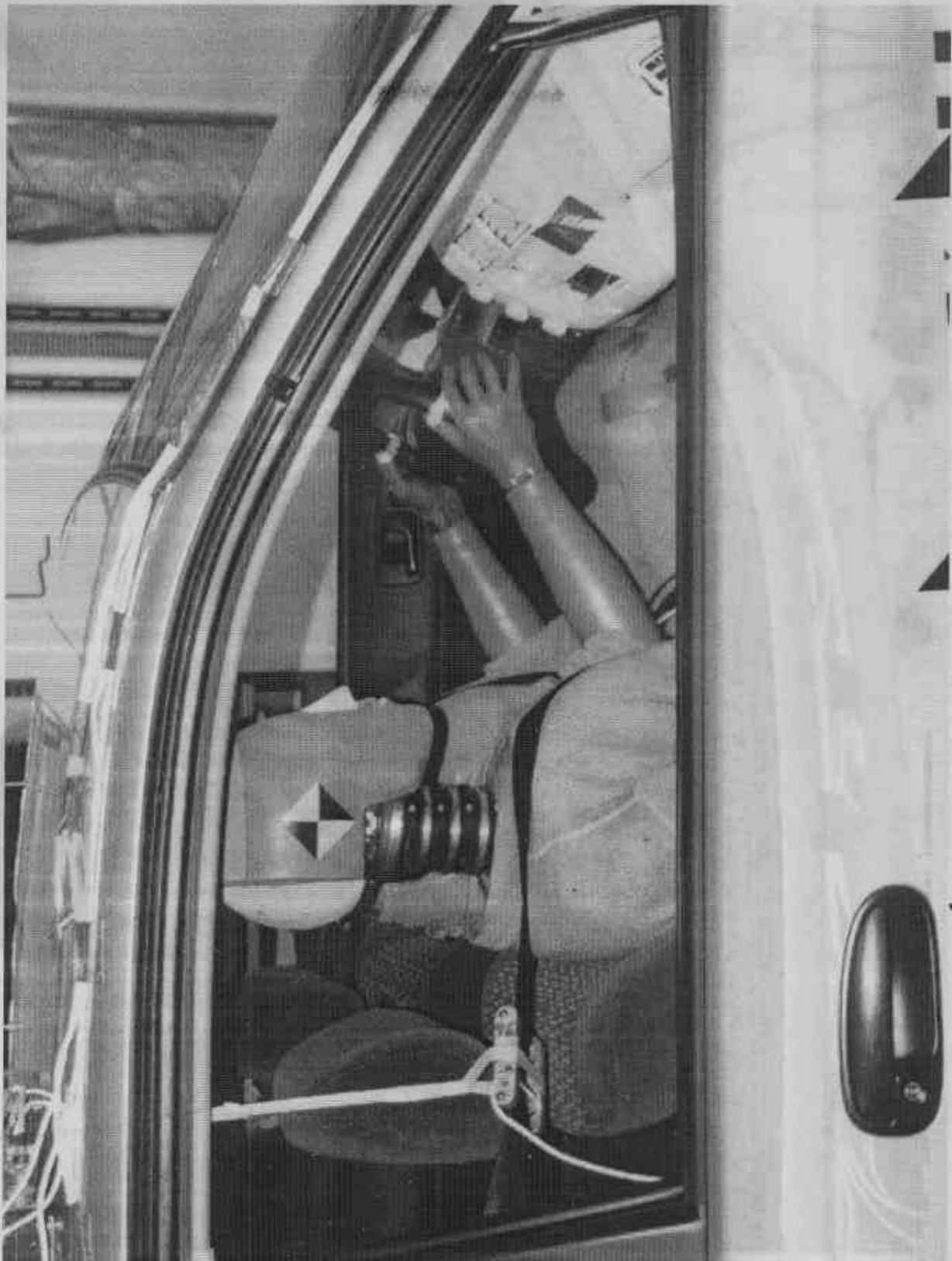


FIGURE A-43. PRETEST PASSENGER DUMMY (THRU WINDOW)



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



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



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



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



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



FIGURE A-49. PRETEST PASSENGER DUMMY FEET

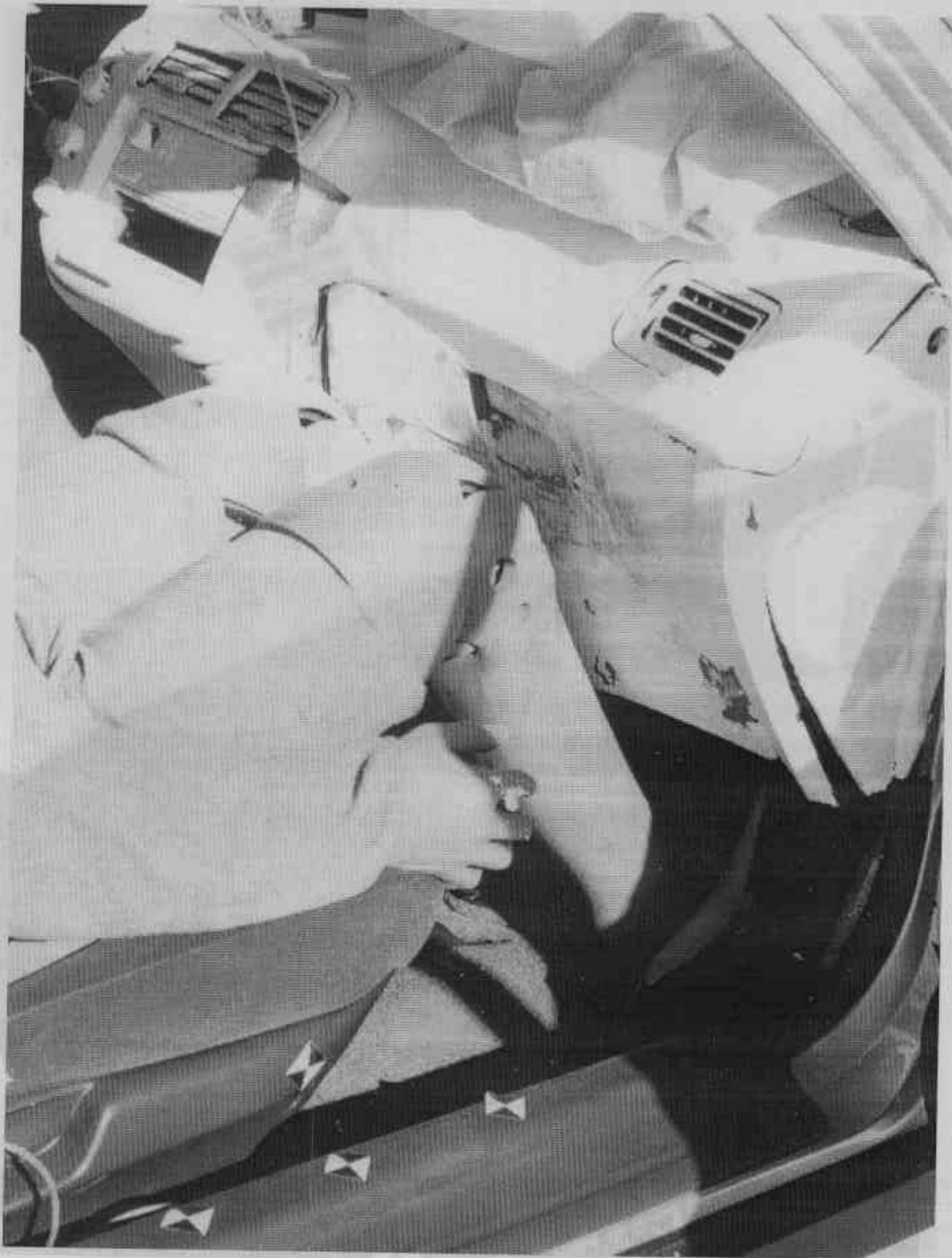


FIGURE A-50. POST TEST PASSENGER DUMMY FEET AND CONTACT POINT

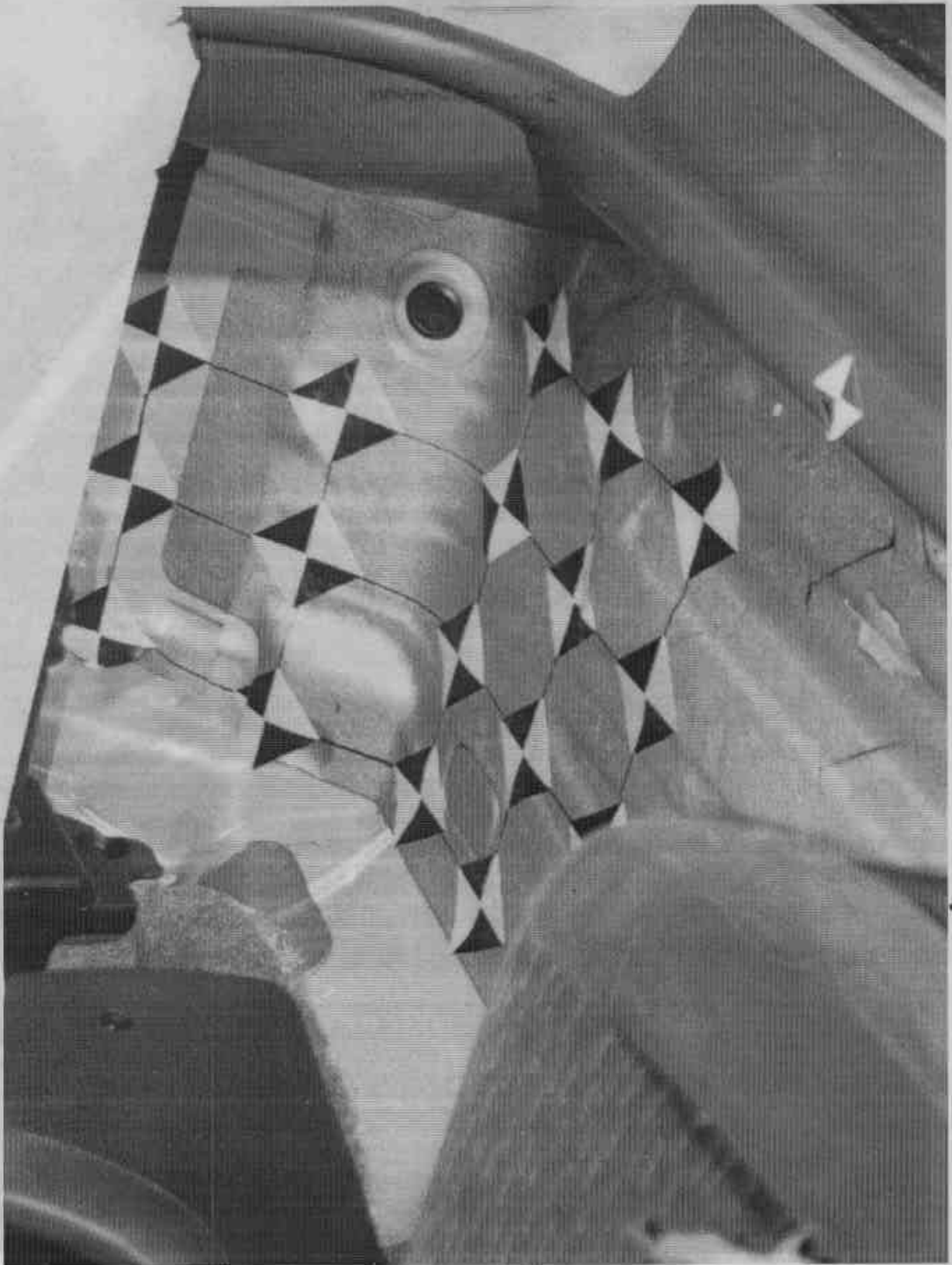


FIGURE A-51. PRETEST PASSENGER SIDE FLOOR PAN



FIGURE A-52. POST TEST PASSENGER SIDE FLOOR PAN

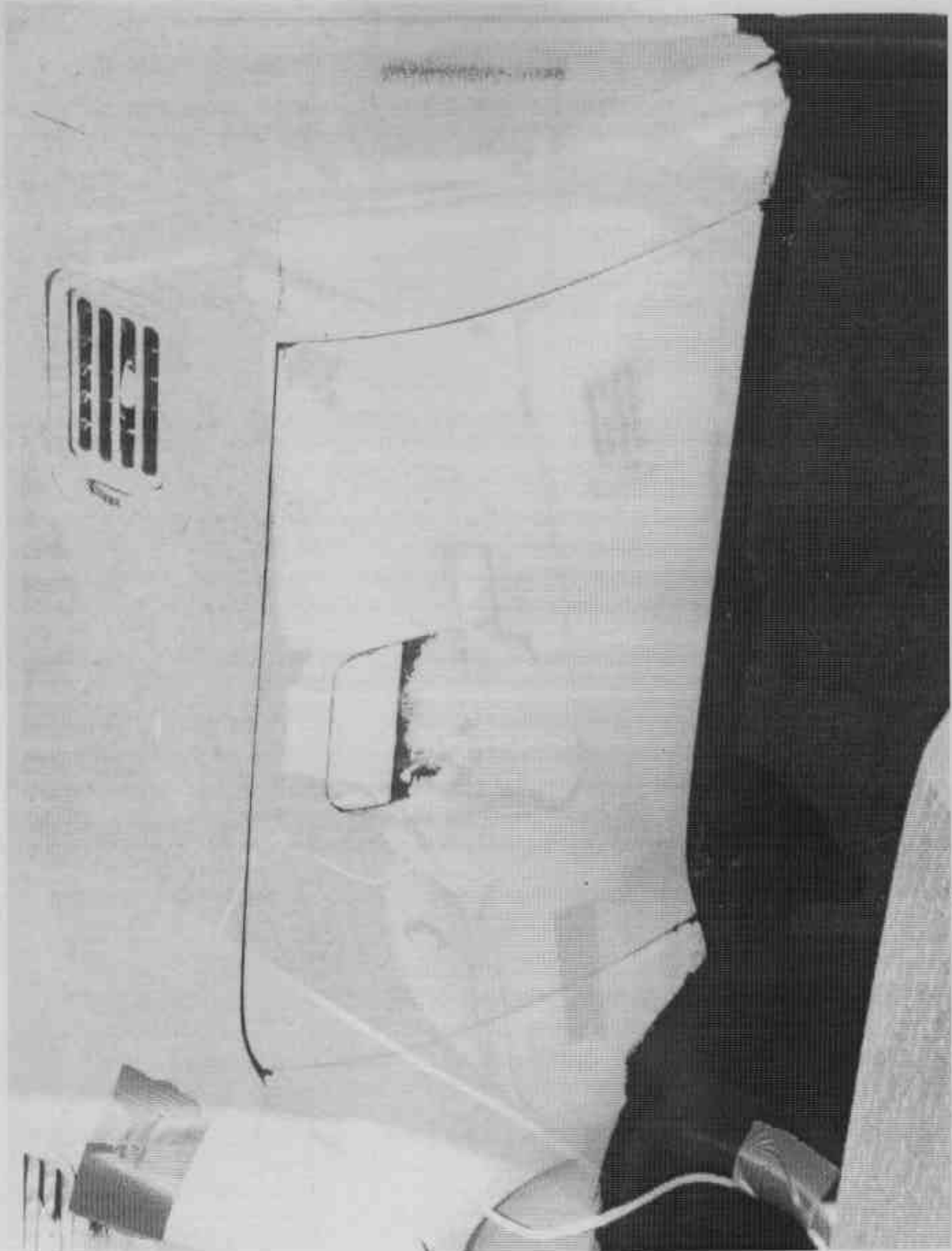


FIGURE A-53. PRETEST PASSENGER SIDE KNEE BOLSTER



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



FIGURE A-55. POST TEST PASSENGER HEAD

A-55

KAR99001-05



FIGURE A-56. POST TEST PASSENGER DUMMY CONTACT

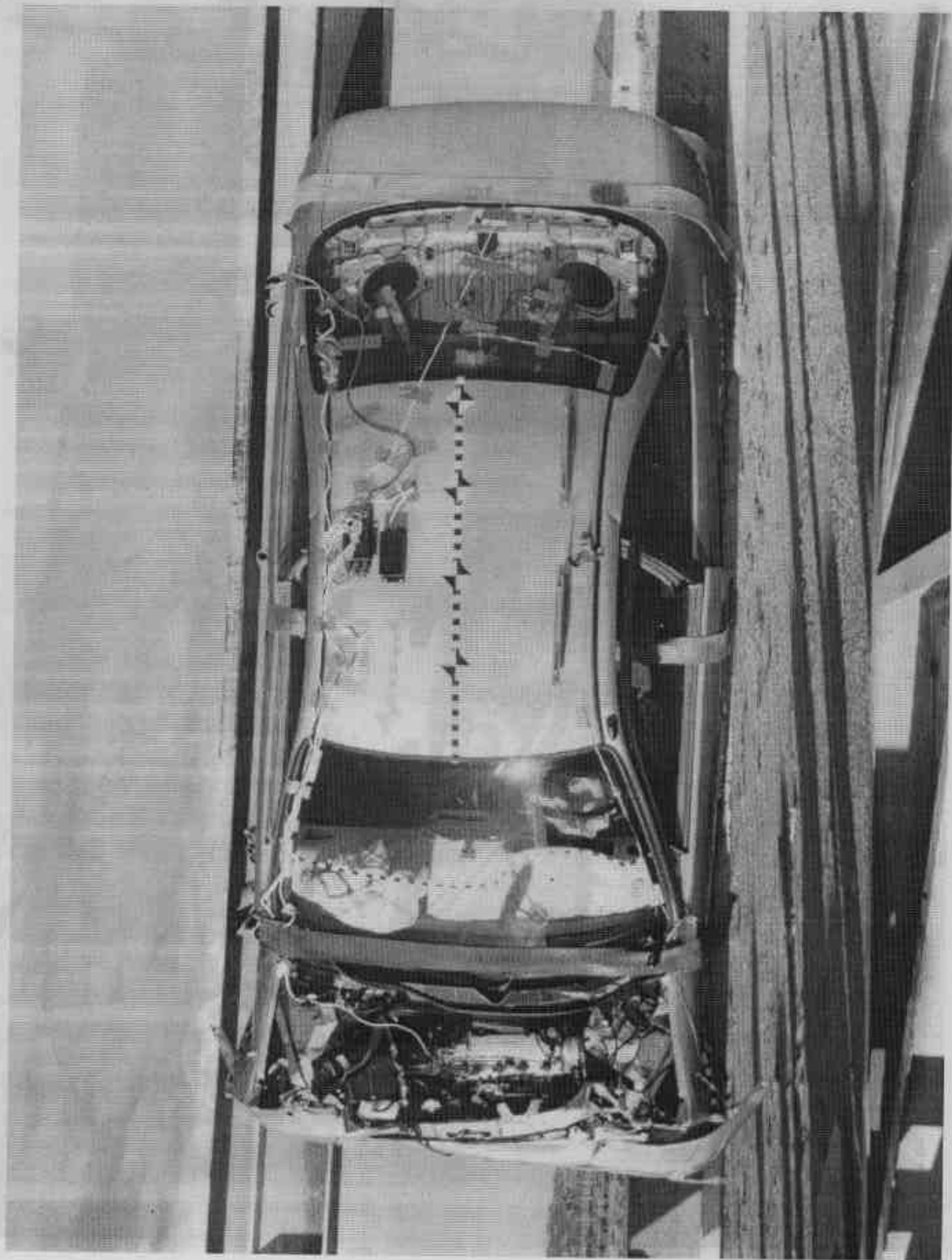


FIGURE A-57. VEHICLE ON ROLLOVER

A-57

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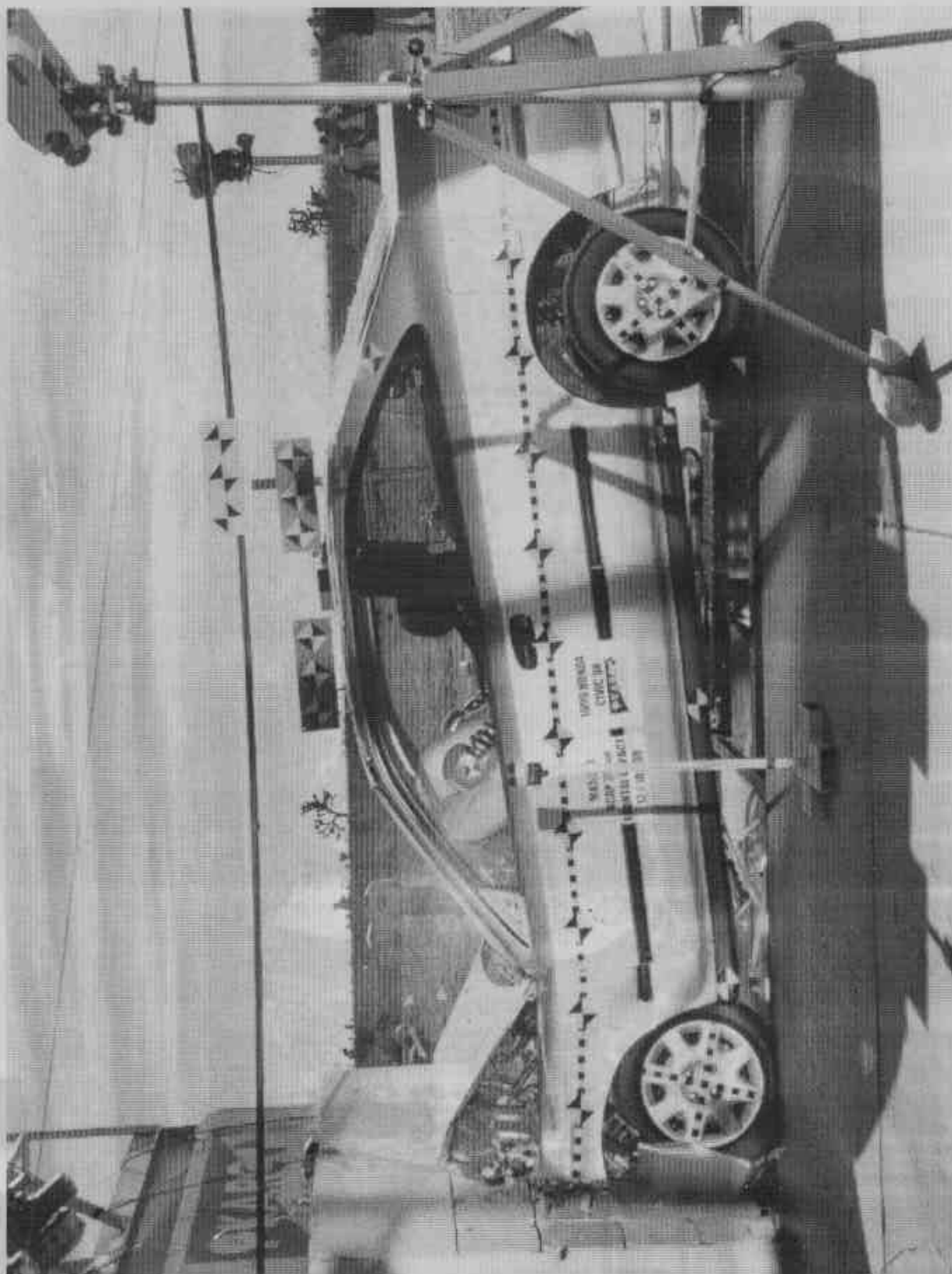


FIGURE A-58. VEHICLE DURING IMPACT

APPENDIX B
DUMMY AND VEHICLE RESPONSE DATA TRACES

LIST OF DATA PLOTS

Data Plot		Page
B-1	Driver Head Primary X	B-1
B-2	Driver Head Primary X Velocity	B-2
B-3	Driver Head Primary X Displacement	B-3
B-4	Driver Head Primary Y	B-4
B-5	Driver Head Primary Z	B-5
B-6	Driver Head Resultant Primary	B-6
B-7	Driver Head Redundant X	B-7
B-8	Driver Head Redundant X Velocity	B-8
B-9	Driver Head Redundant X Displacement	B-9
B-10	Driver Head Redundant Y	B-10
B-11	Driver Head Redundant Z	B-11
B-12	Driver Head Resultant Redundant	B-12
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B-16	Driver Neck Force Resultant	B-16
B-17	Driver Neck Moment X	B-17
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B-19	Driver Neck Moment Z	B-19
B-20	Driver Neck Moment Resultant	B-20
B-21	Driver Chest Primary X	B-21
B-22	Driver Chest Primary X Velocity	B-22
B-23	Driver Chest Primary X Displacement	B-23
B-24	Driver Chest Primary Y	B-24
B-25	Driver Chest Primary Z	B-25
B-26	Driver Chest Primary Resultant	B-26
B-27	Driver Chest Redundant X	B-27
B-28	Driver Chest Redundant X Velocity	B-28
B-29	Driver Chest Redundant X Displacement	B-29
B-30	Driver Chest Redundant Y	B-30
B-31	Driver Chest Redundant Z	B-31
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B-33	Driver Chest Displacement X	B-33
B-34	Driver Pelvis X	B-34
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LIST OF DATA PLOTS...(Continued)

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

LIST OF DATA PLOTS...(Continued)

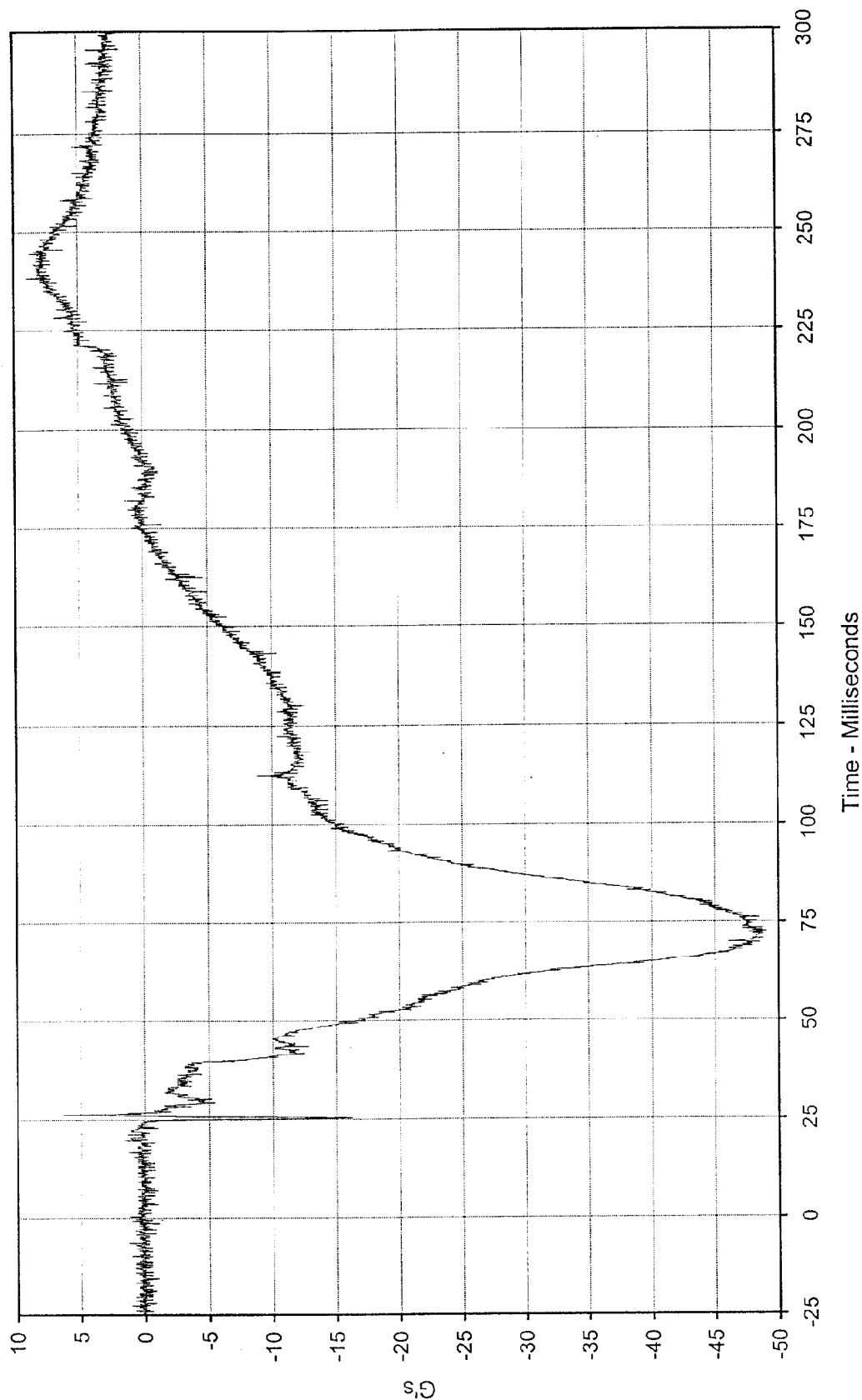
Data Plot		Page
B-71	Passenger Head Redundant Y	B-71
B-72	Passenger Head Redundant Z	B-72
B-73	Passenger Head Resultant Redundant	B-73
B-74	Passenger Neck Force X	B-74
B-75	Passenger Neck Force Y	B-75
B-76	Passenger Neck Force Z	B-76
B-77	Passenger Neck Force Resultant	B-77
B-78	Passenger Neck Moment X	B-78
B-79	Passenger Neck Moment Y	B-79
B-80	Passenger Neck Moment Z	B-80
B-81	Passenger Neck Moment Resultant	B-81
B-82	Passenger Chest Primary X	B-82
B-83	Passenger Chest Primary X Velocity	B-83
B-84	Passenger Chest Primary X Displacement	B-84
B-85	Passenger Chest Primary Y	B-85
B-86	Passenger Chest Primary Z	B-86
B-87	Passenger Chest Primary Resultant	B-87
B-88	Passenger Chest Redundant X	B-88
B-89	Passenger Chest Redundant X Velocity	B-89
B-90	Passenger Chest Redundant X Displacement	B-90
B-91	Passenger Chest Redundant Y	B-91
B-92	Passenger Chest Redundant Z	B-92
B-93	Passenger Chest Redundant Resultant	B-93
B-94	Passenger Chest Displacement X	B-94
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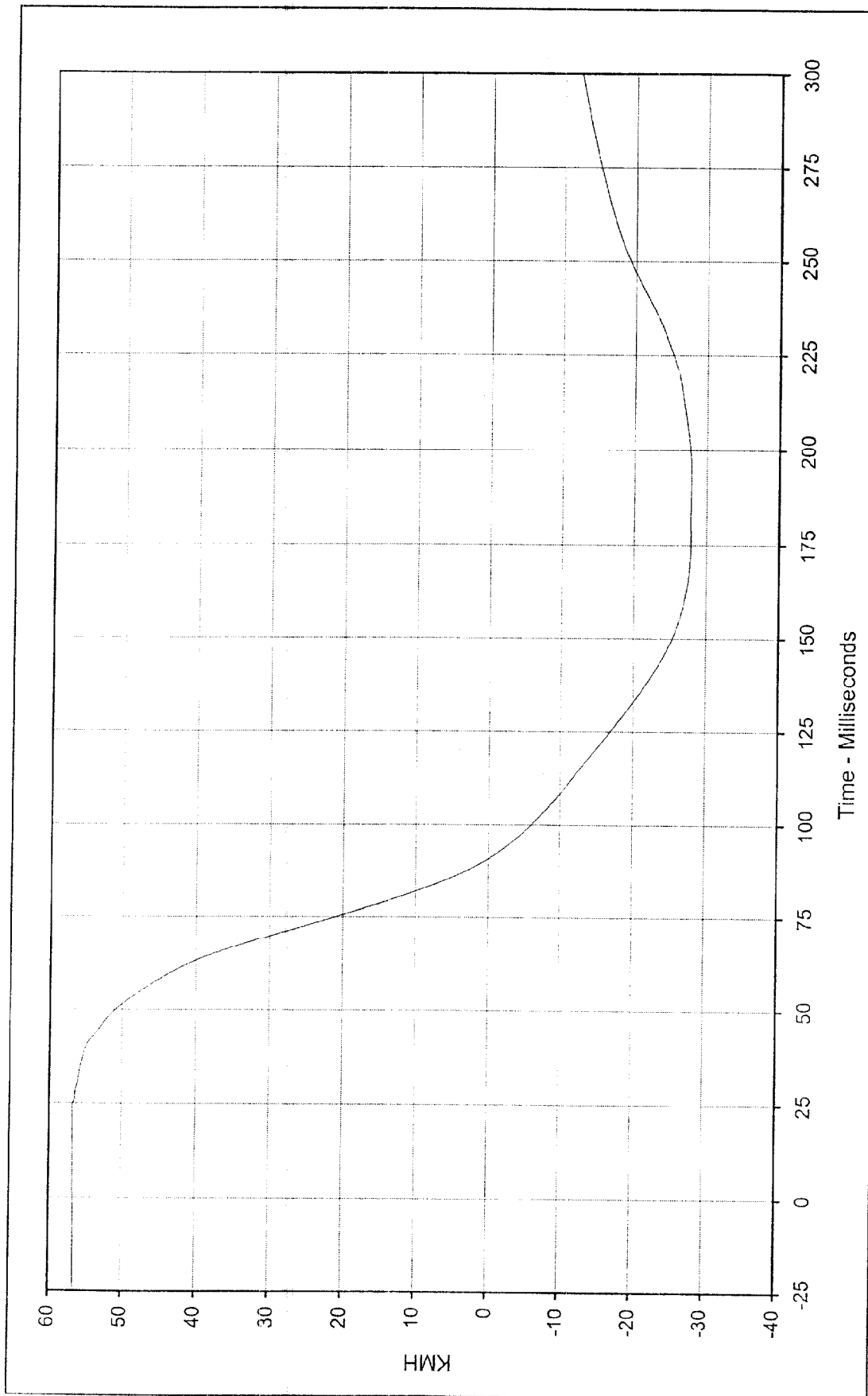
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Curve Description: Driver Head Primary X
 Maximum Value: 9.0 at 238.1 Milliseconds
 Minimum Value: -49.1 at 72.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: FIL-001

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Driver Head Primary X Velocity

Maximum Value: 56.8 at 23.9 Milliseconds

Minimum Value: -27.9 at 192.0 Milliseconds

SAE Filler Class: 180

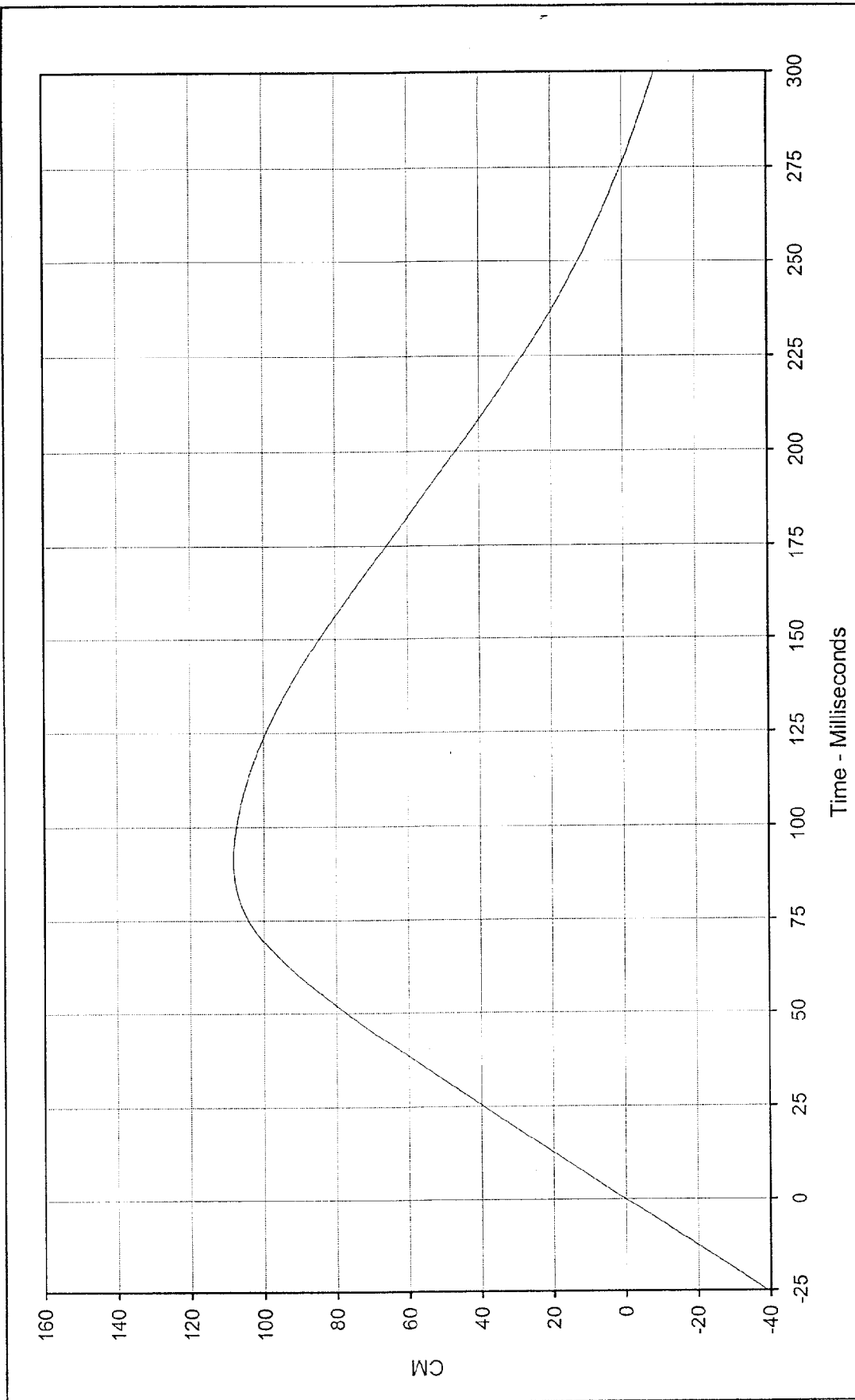
Date of Test: 12/18/98

Curve Number: IN1-001

Testing Program 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

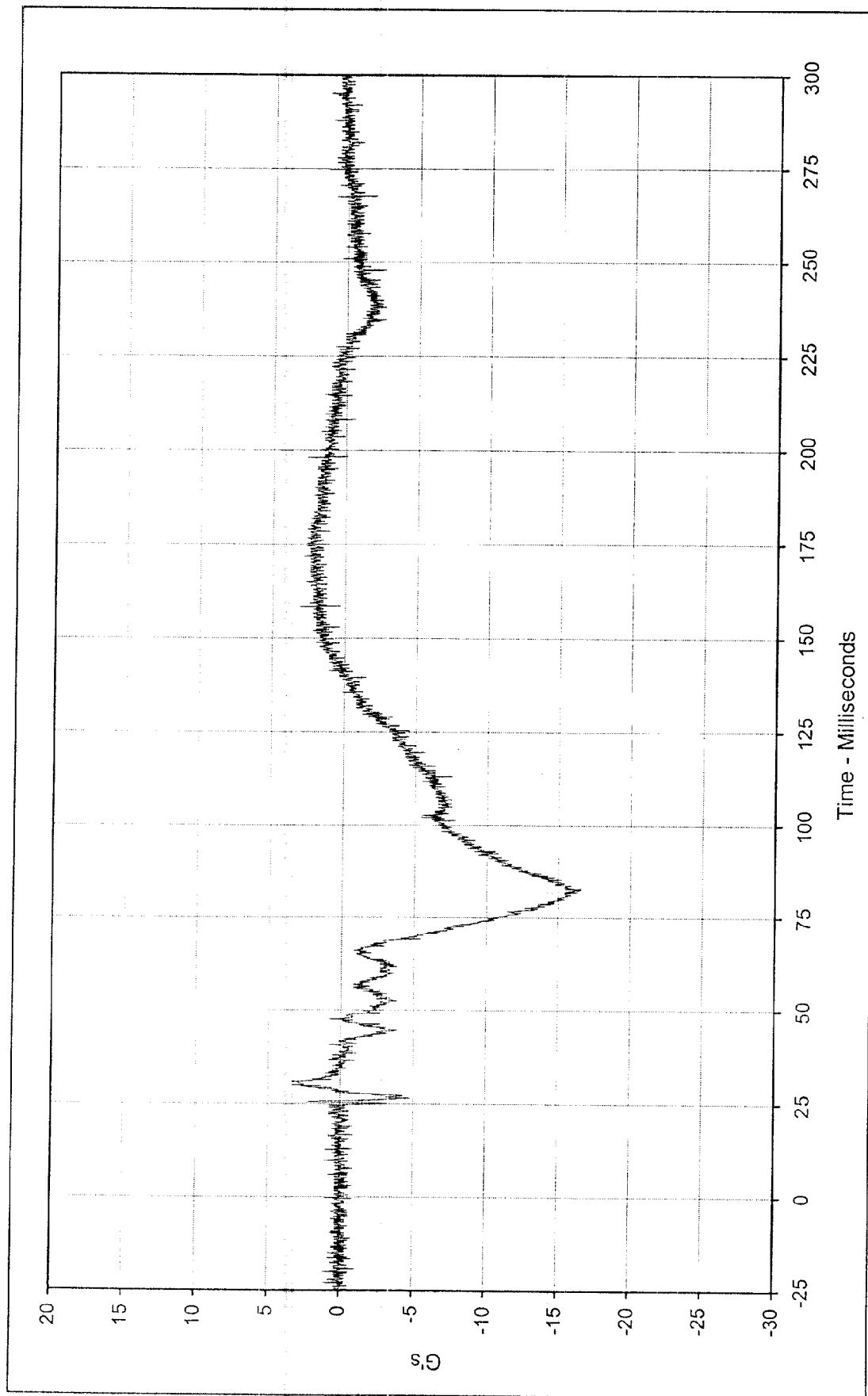




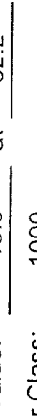
Curve Description: Driver Head Primary X Displ.
 Maximum Value: 108.2 at 90.9 Milliseconds
 Minimum Value: -8.9 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN2-001

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

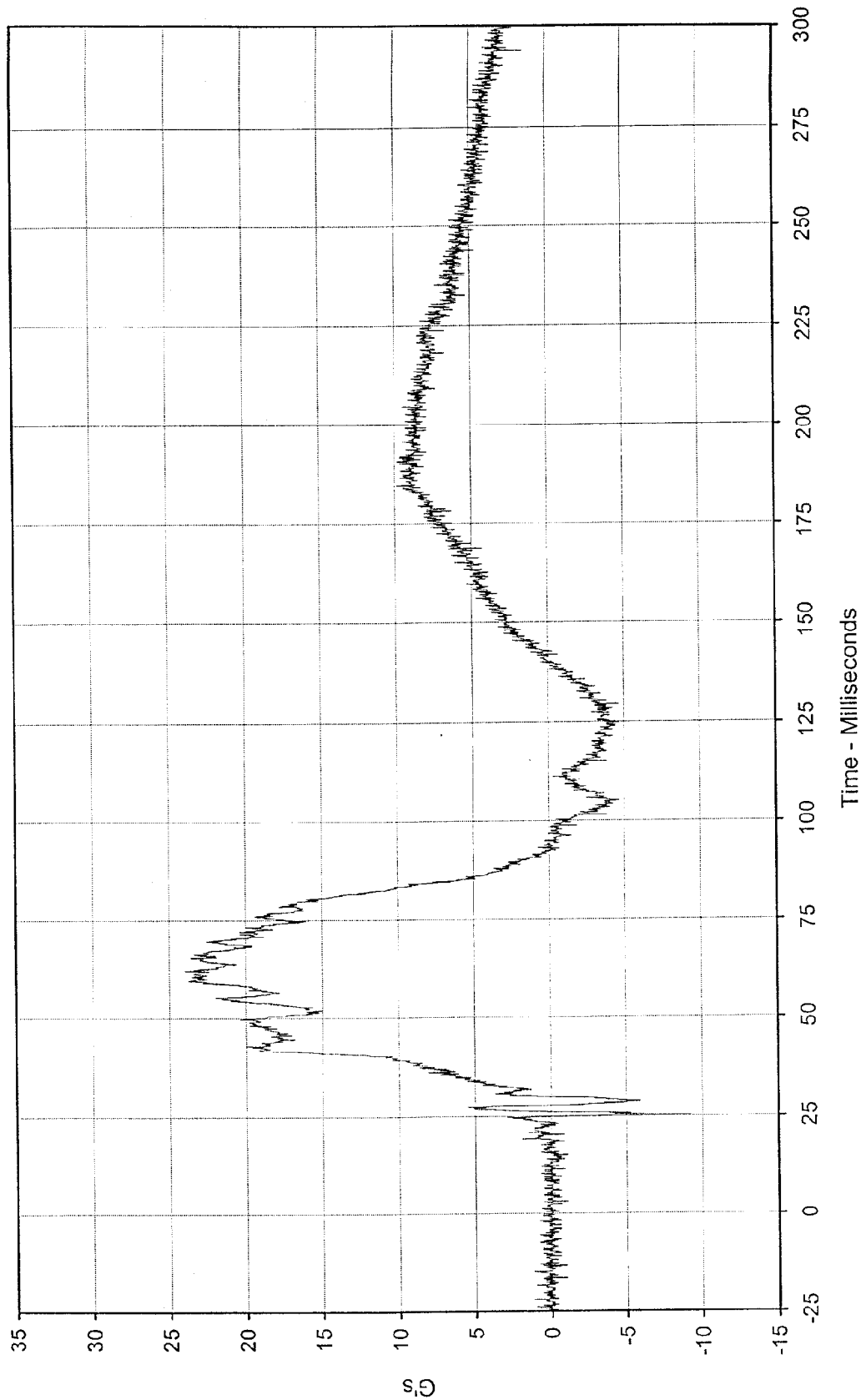




Curve Description:		Driver Head Primary Y		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	3.3	at	30.0	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-16.6	at	82.2			
SAE Filter Class:	1000					
Date of Test:	12/18/98					
Curve Number:	FIL-002					







Curve Description: Driver Head Primary Z

Maximum Value: 24.0 at 62.0 Milliseconds

Minimum Value: -9.2 at 25.2 Milliseconds

SAE Filter Class: 1000

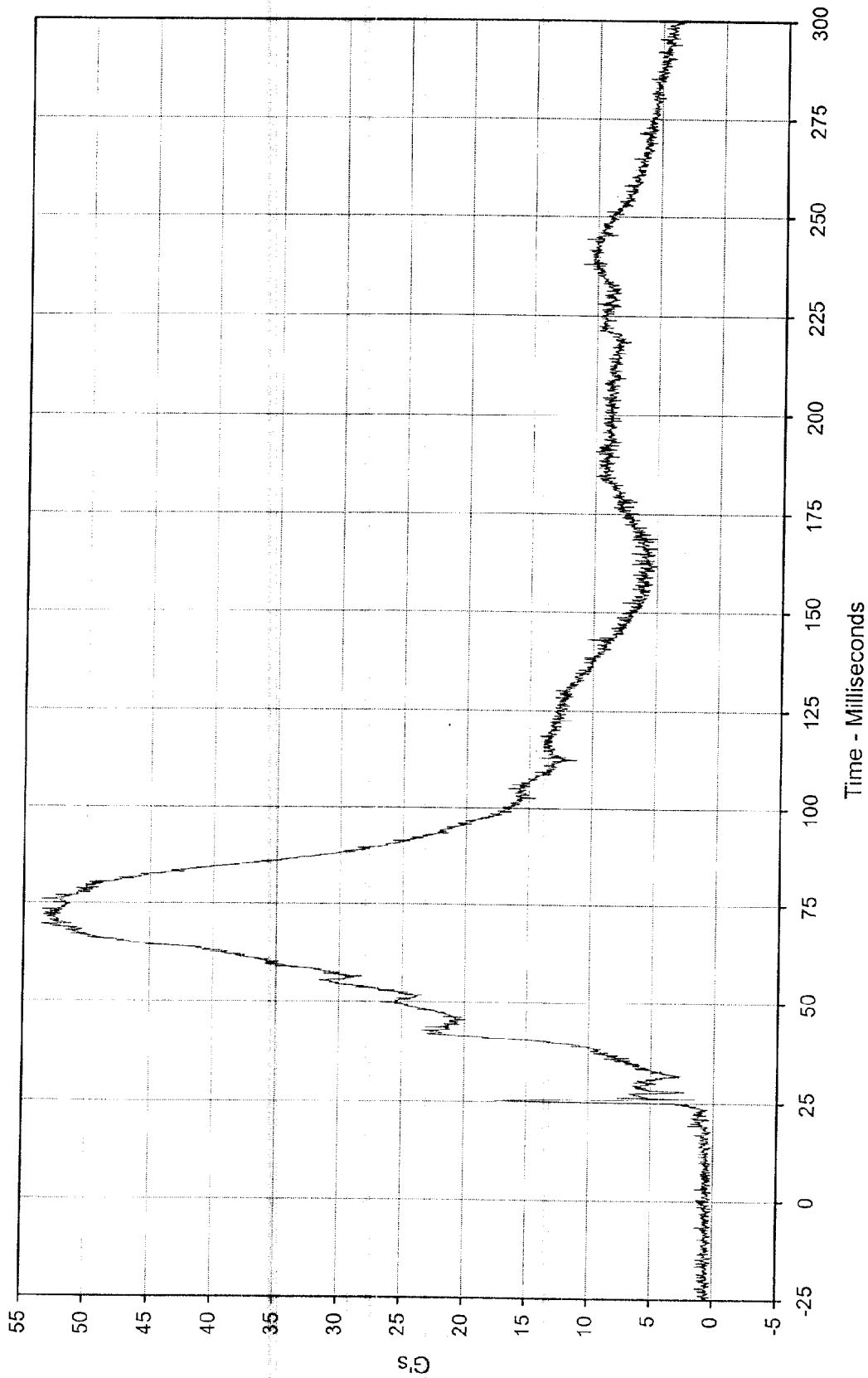
Date of Test: 12/18/98

Curve Number: FIL-003

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Driver Head Resultant Primary

Maximum Value: 53.6 at 76.0 Milliseconds

Minimum Value: 0.1 at 2.5 Milliseconds

SAE Filter Class: 1000

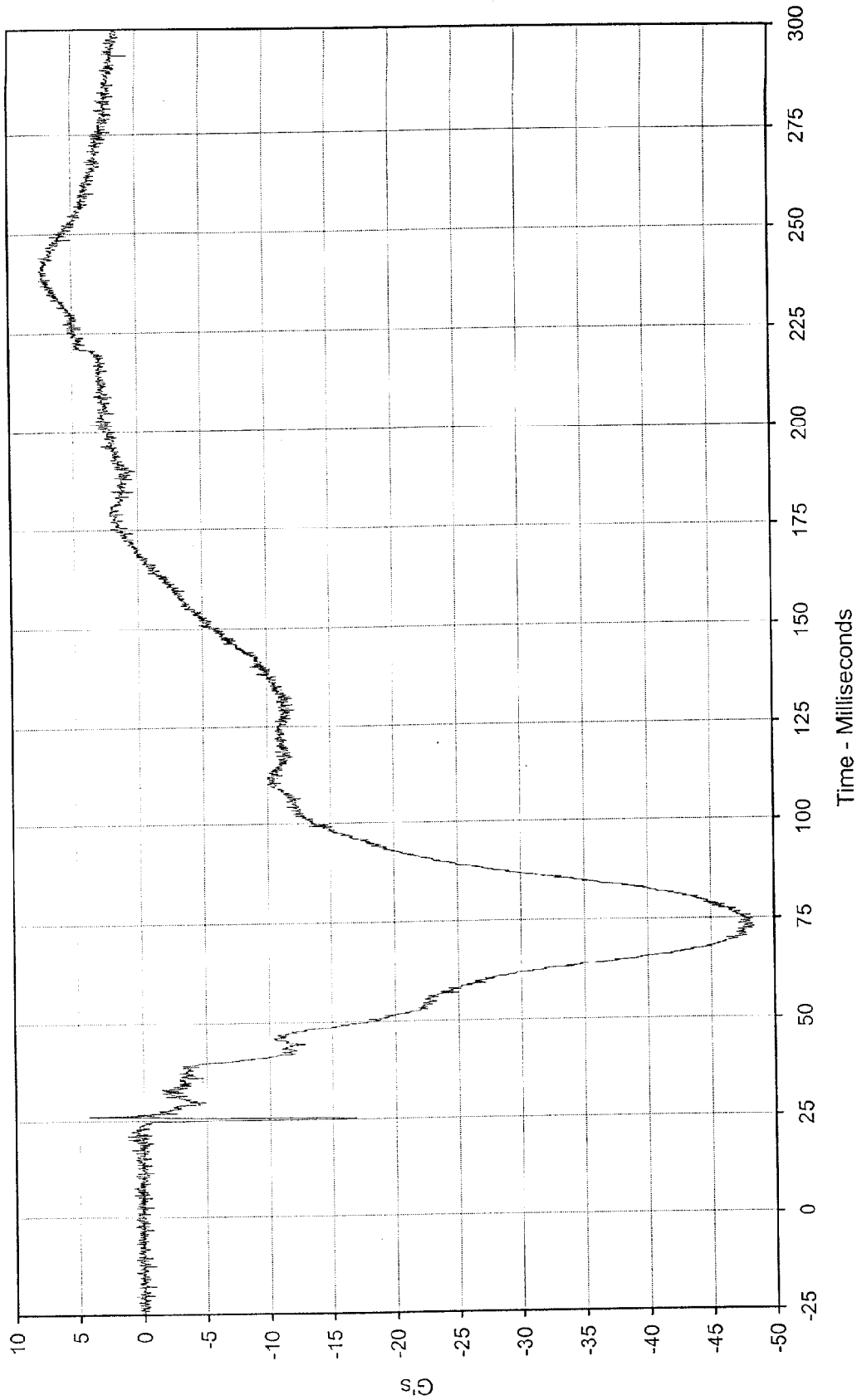
Date of Test: 12/18/98

Curve Number: RES-001

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Driver Head Redundant X

Test Program: 1999 NHTSA 35 mph NCAP

No.: MX5301

Maximum Value: 7.6 at 238.4 Milliseconds

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

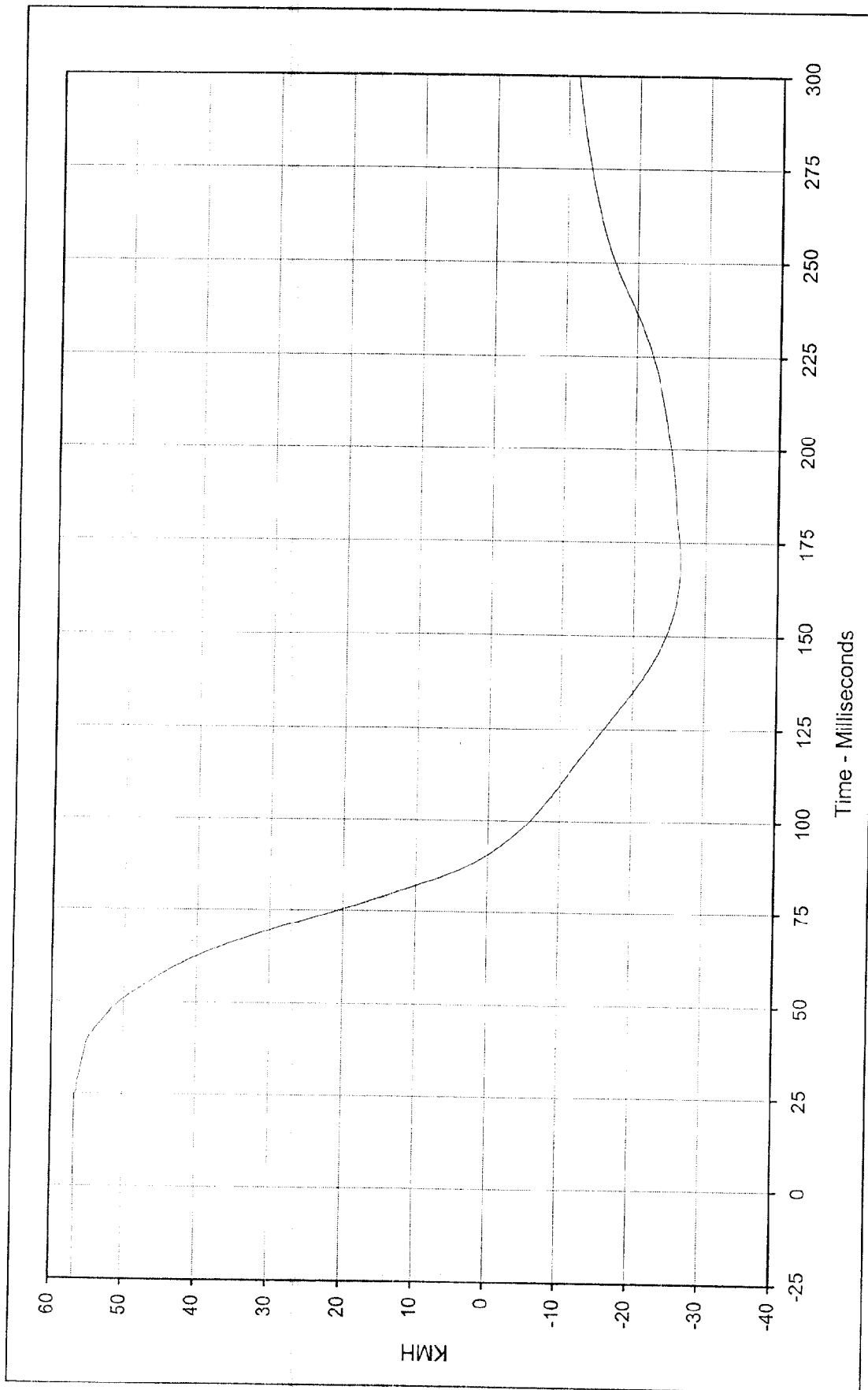
Minimum Value: -48.5 at 72.8 Milliseconds

SAE Filter Class: 1000

Date of Test: 12/18/98

Curve Number: FIL-004

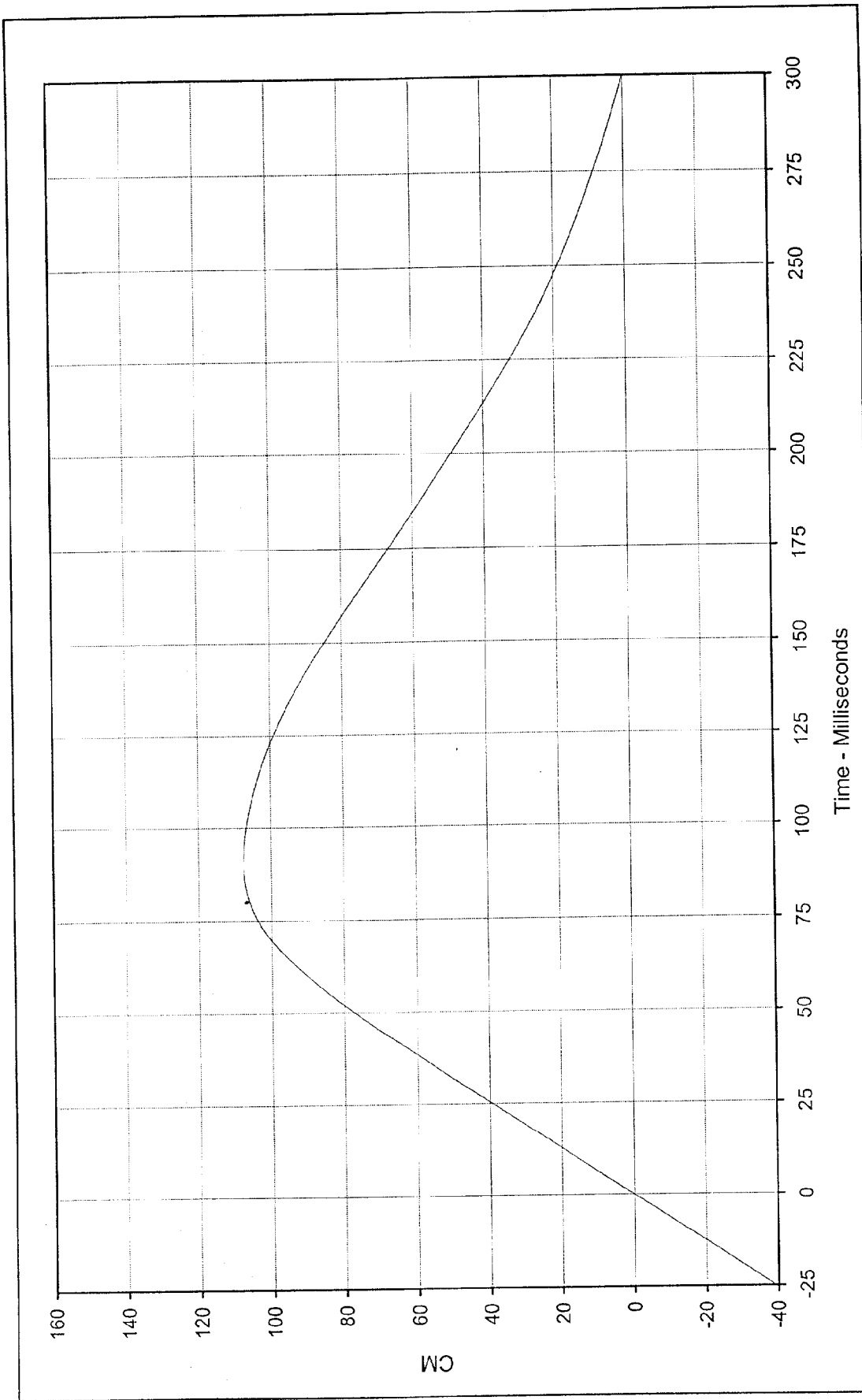




Curve Description: Driver Head Redundant X Velocity
 Maximum Value: 56.8 at 23.7 Milliseconds
 Minimum Value: -26.5 at 169.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN1-004

Testing Program 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

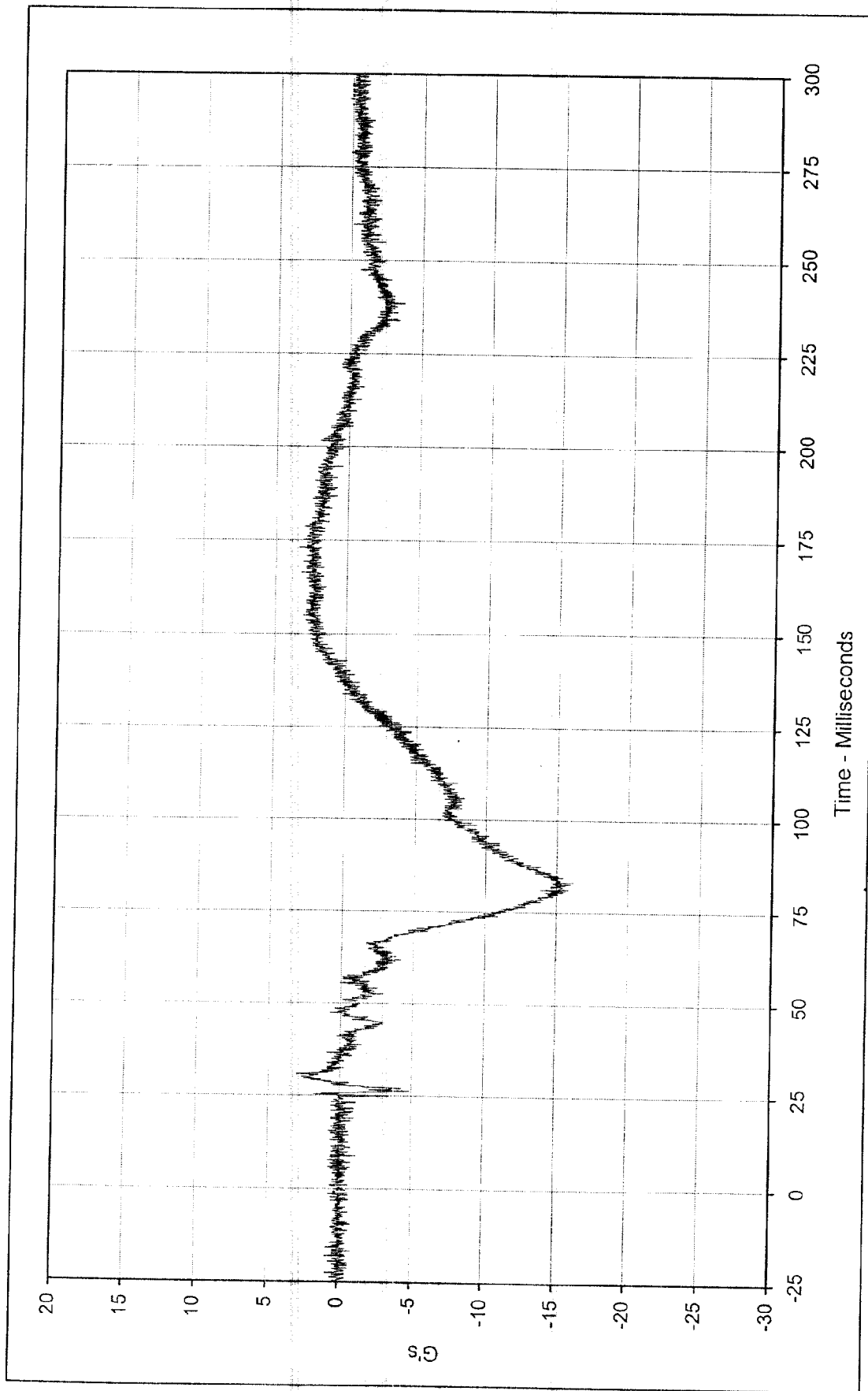




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Driver Head Redundant X Displ.
 Maximum Value: 107.6 at 90.6 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN2-004



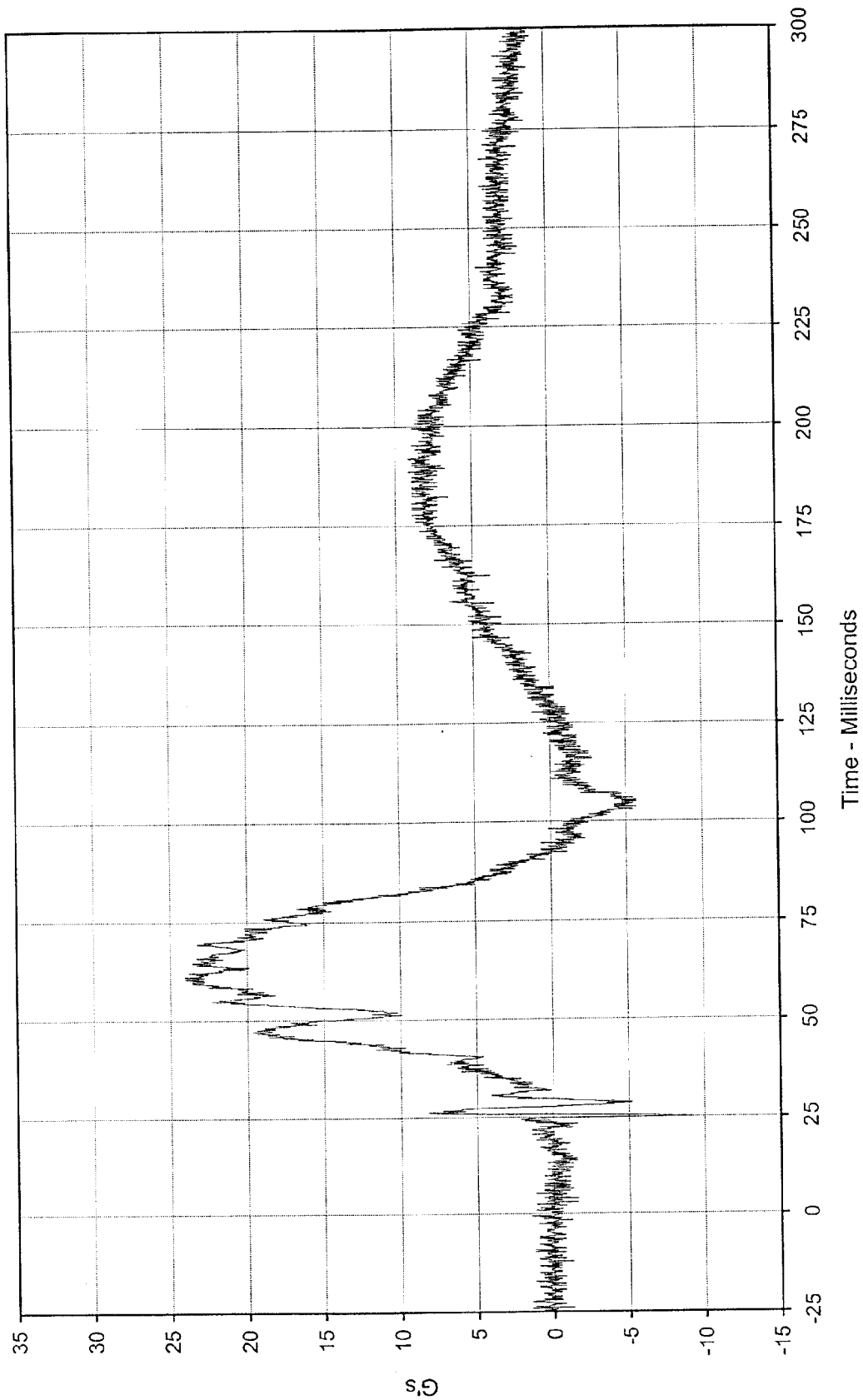


Curve Description:		Driver Head Redundant Y		Test Program:	1999 NHTSA 35 mph NCAP No.: MX5301
Maximum Value:	3.4	at	173.1	Milliseconds	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	-16.1	at	82.9	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	12/18/98				
Curve Number:	FIL-005				



KARCO
Engineering





Curve Description: Driver Head Redundant Z

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Maximum Value: 24.0 at 60.5 Milliseconds

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

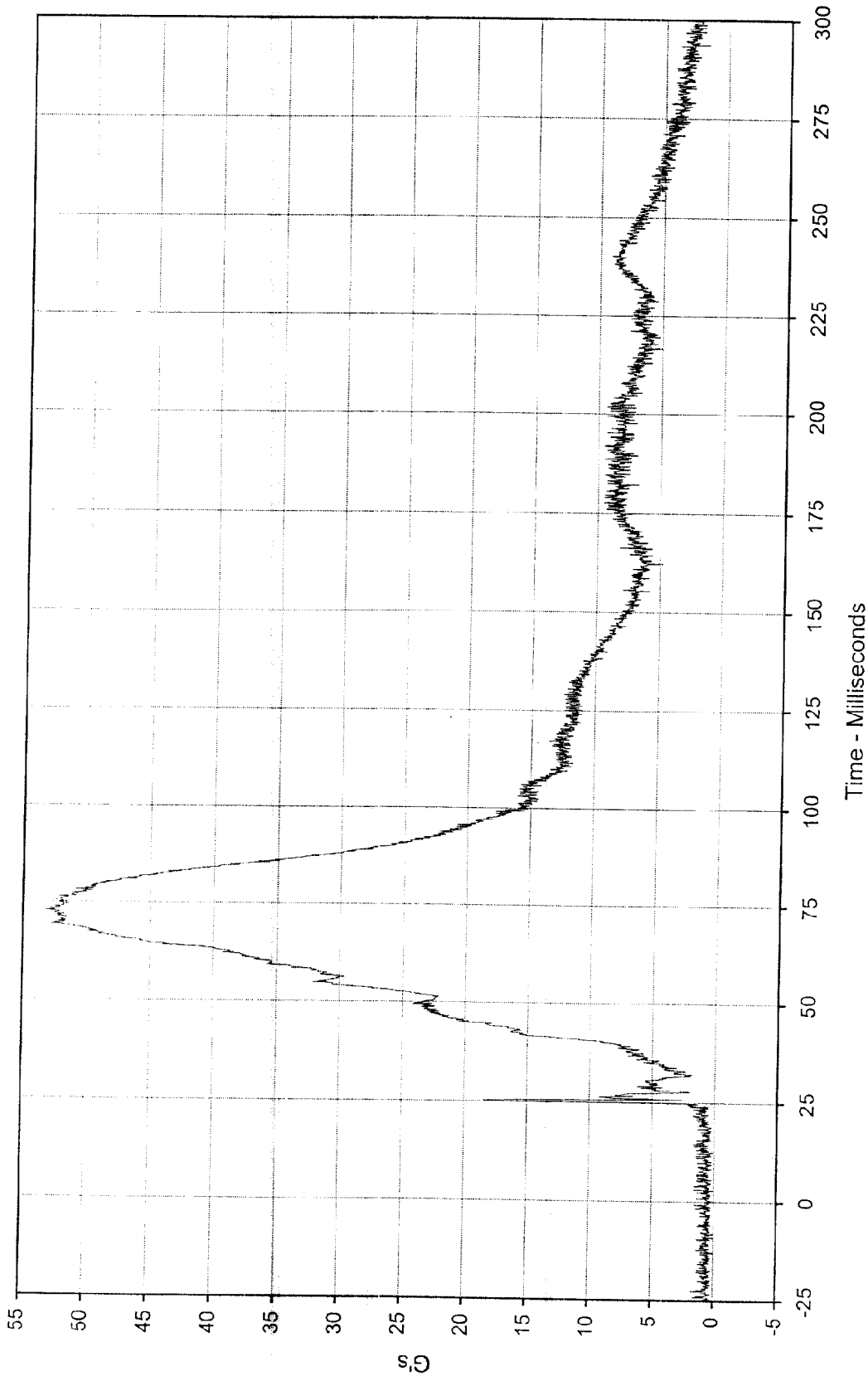
Minimum Value: -9.2 at 25.1 Milliseconds

SAE Filter Class: 1000

Date of Test: 12/18/98

Curve Number: FIL-006

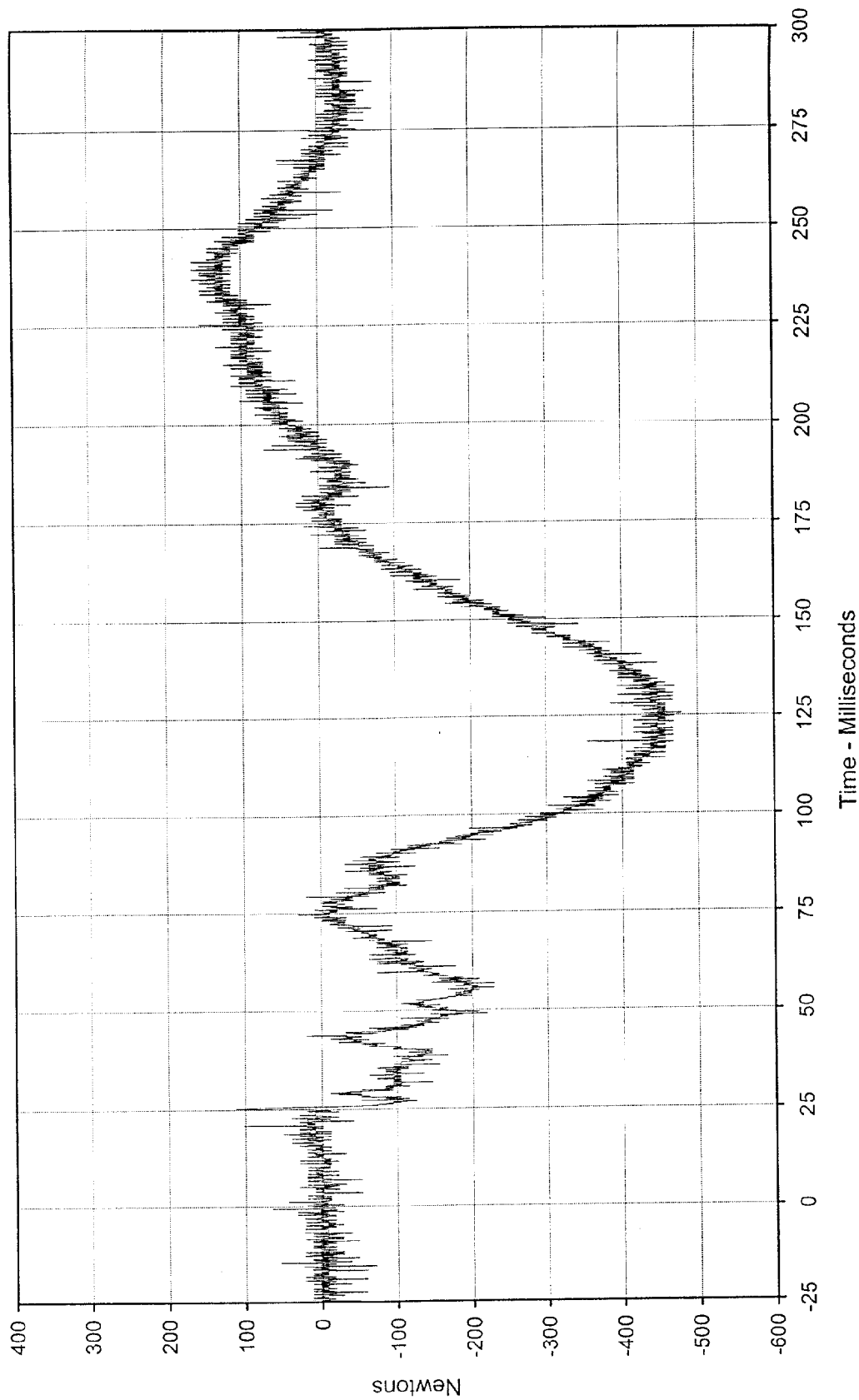




Curve Description: Driver Head Resultant Redundant
 Maximum Value: 53.3 at 72.9 Milliseconds
 Minimum Value: 0.1 at 2.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: RES-004

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Driver Neck Force X

Maximum Value: 164.2 at 237.0 Milliseconds

Minimum Value: -478.5 at 125.6 Milliseconds

SAE Filter Class: 1000

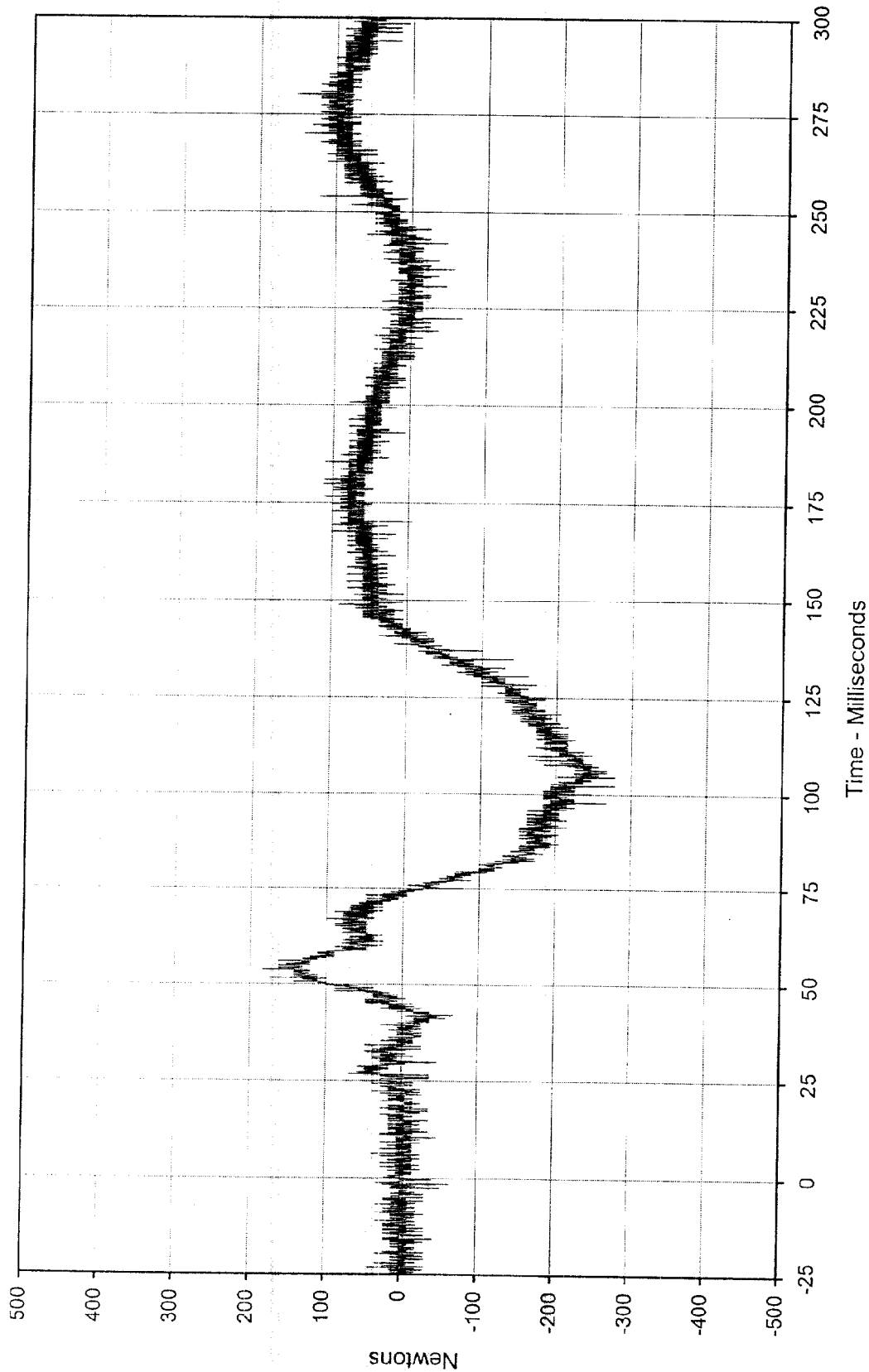
Date of Test: 12/18/98

Curve Number: FIL-007

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Driver Neck Force Y

Maximum Value: 184.0 at 53.7 Milliseconds

Minimum Value: -278.0 at 102.3 Milliseconds

SAE Filter Class: 1000

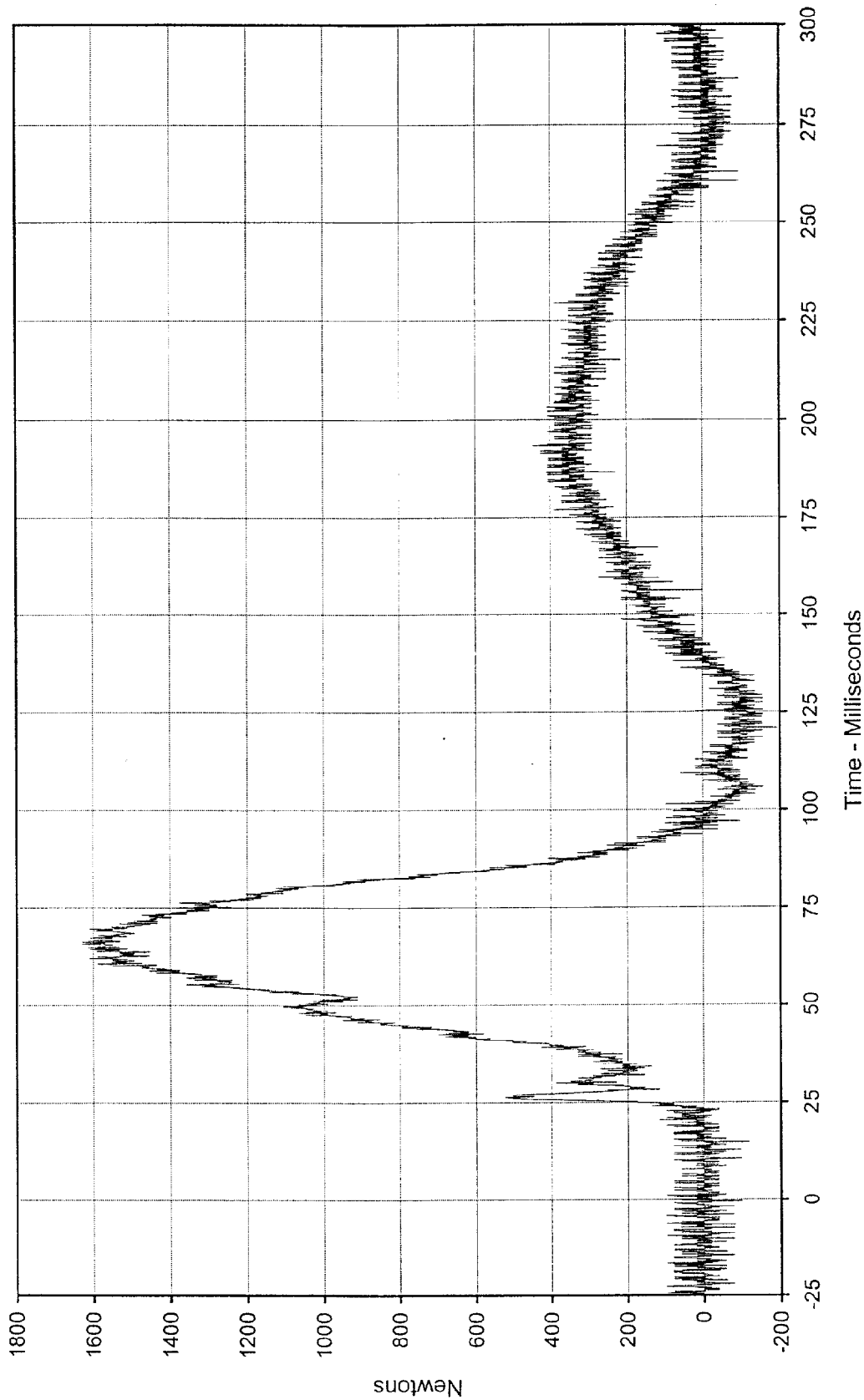
Date of Test: 12/18/98

Curve Number: FIL-008

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

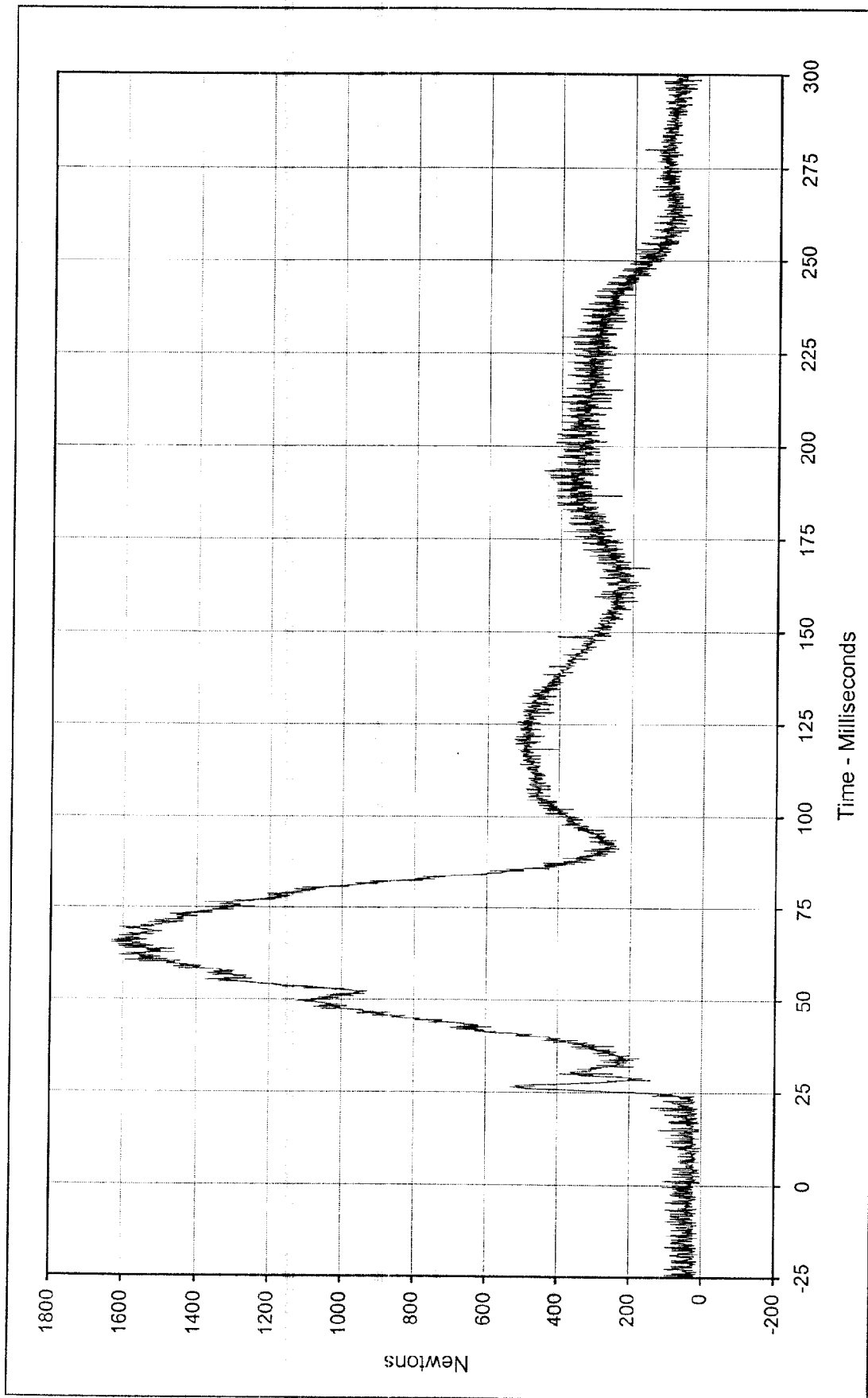
Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Driver Neck Force Z	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	1627.8 at 65.5 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-193.8 at 121.0 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	12/18/98			
Curve Number:	FIL-009			

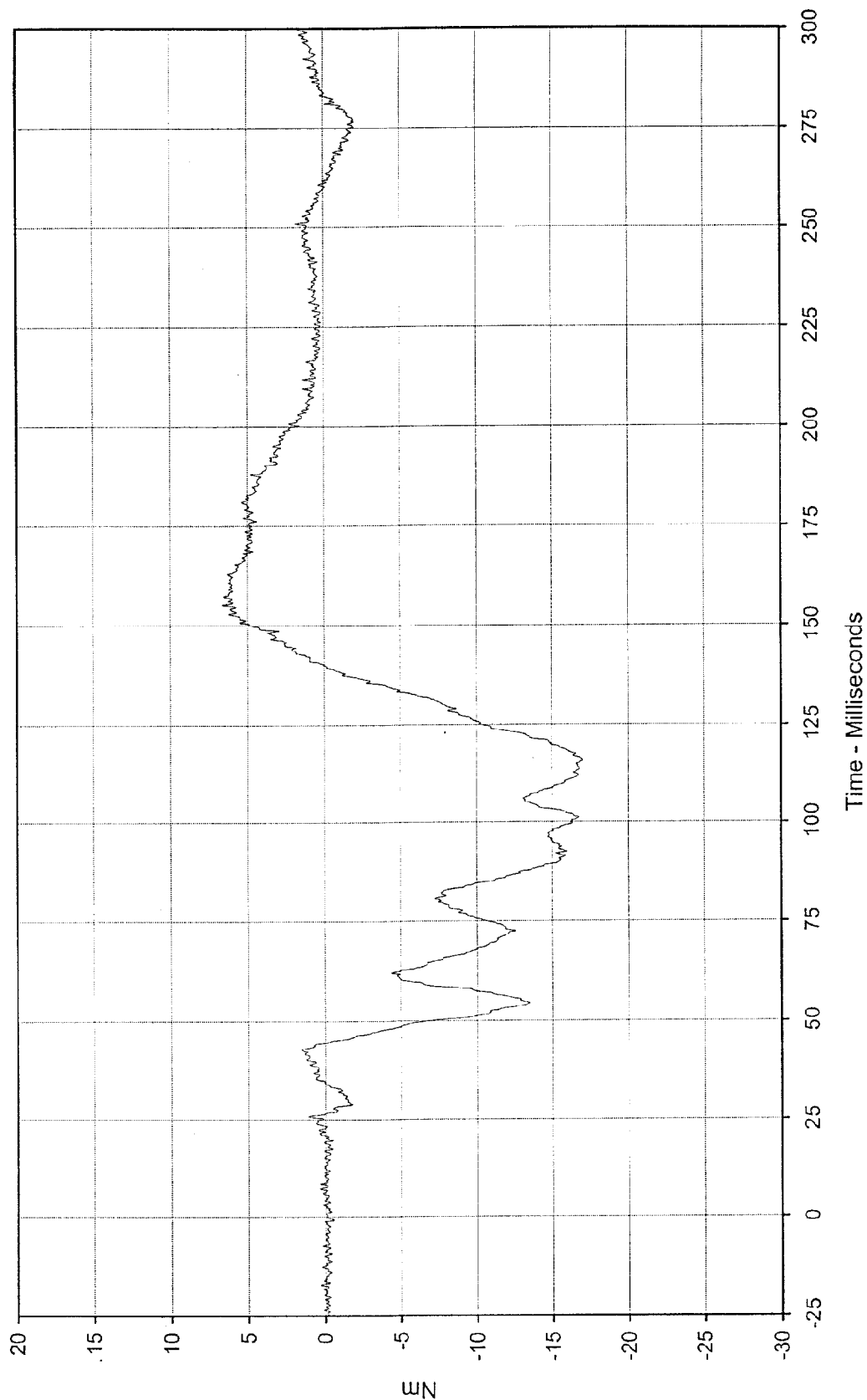




Curve Description: Driver Neck Force Resultant
Maximum Value: 1633.6 at 65.5 Milliseconds
Minimum Value: 5.3 at 2.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 12/18/98
Curve Number: RES-007

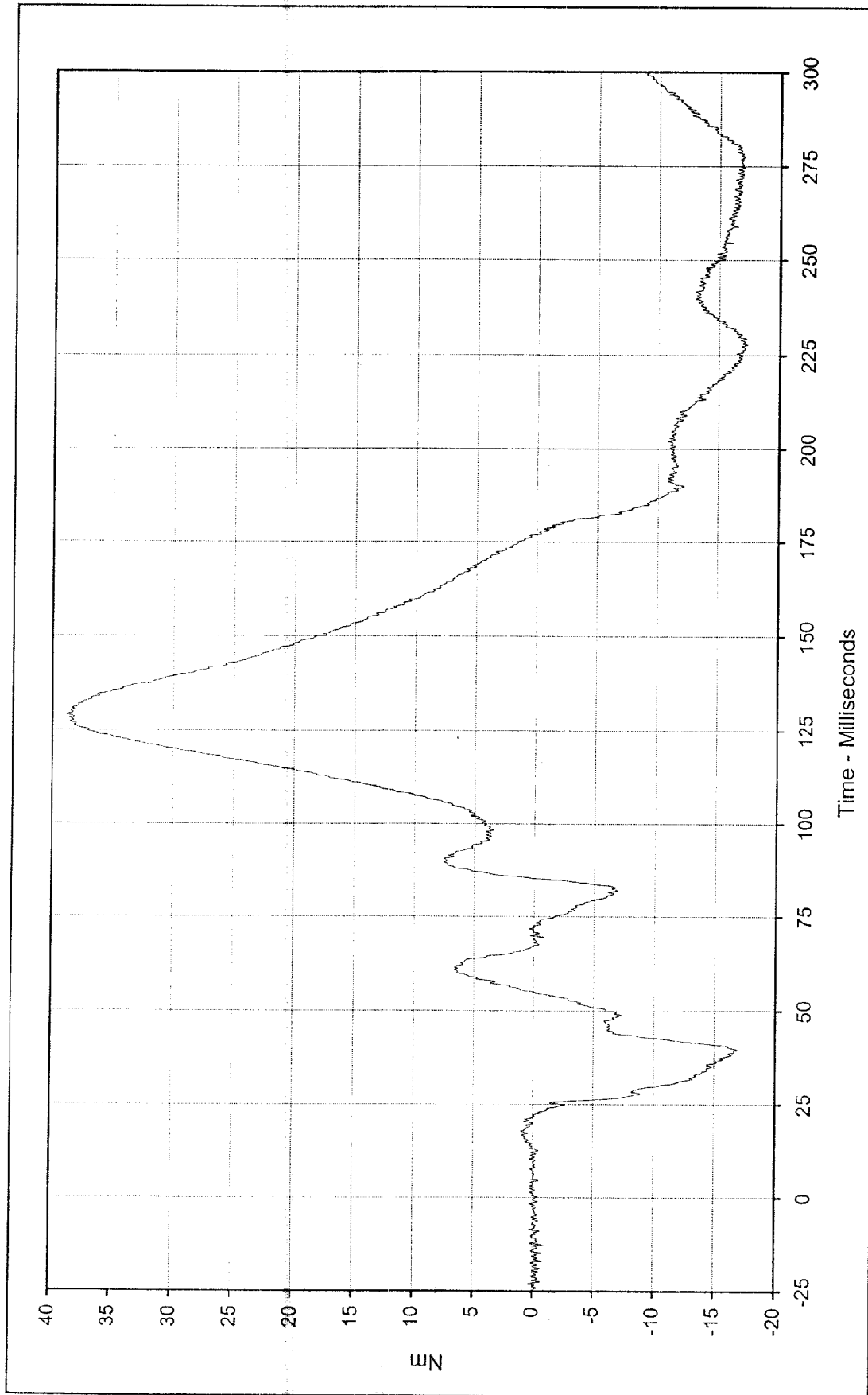
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





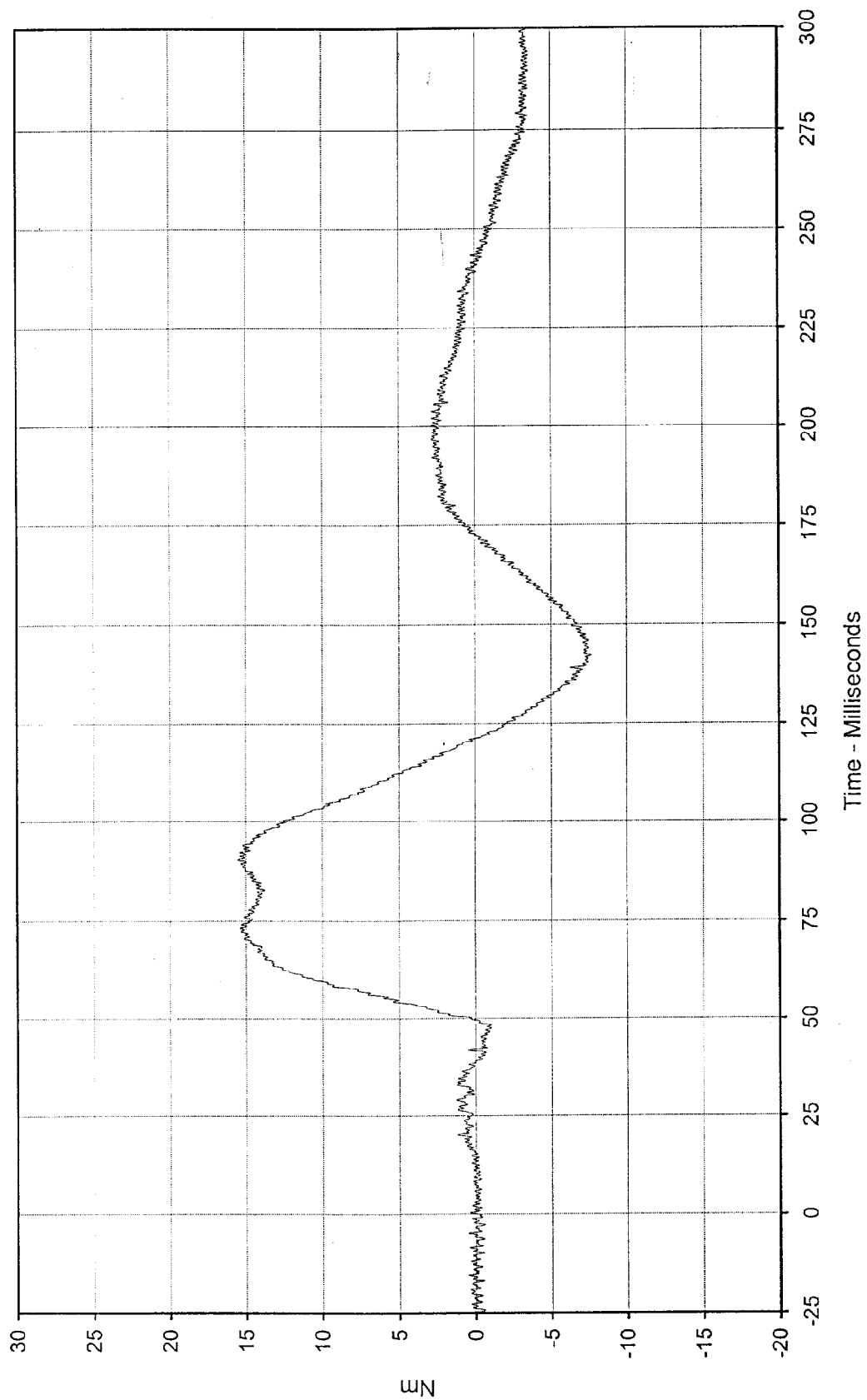
Curve Description:	Driver Neck Moment X	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	6.6 at 155.4 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-17.0 at 115.8 Milliseconds			
SAE Filter Class:	600			
Date of Test:	12/18/98			
Curve Number:	FIL-010			





Curve Description:	Driver Neck Moment Y	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	38.9	at	129.2	Milliseconds
Minimum Value:	-17.4	at	227.8	Milliseconds
SAE Filter Class:	600	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Date of Test:	12/18/98			
Curve Number:	FIL-011			





Curve Description: Driver Neck Moment Z

Maximum Value: 15.5 at 90.3 Milliseconds

Minimum Value: -7.7 at 142.1 Milliseconds

SAE Filter Class: 600

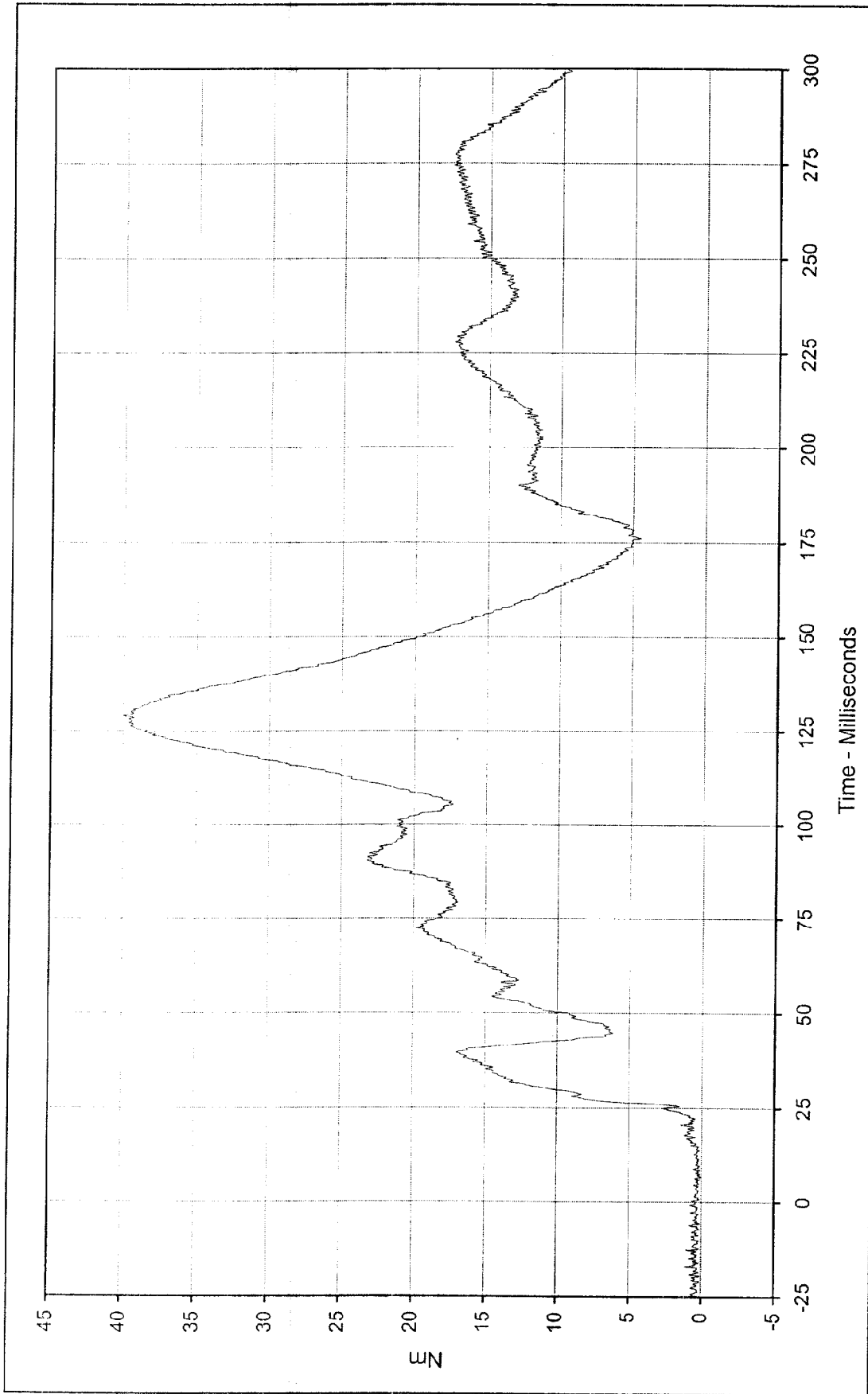
Date of Test: 12/18/98

Curve Number: FIL-012

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Driver Neck Moment Resultant

Maximum Value: 40.0 at 129.2 Milliseconds

Minimum Value: 0.0 at 6.6 Milliseconds

SAE Filter Class: 600

Date of Test: 12/18/98

Curve Number: RES-010

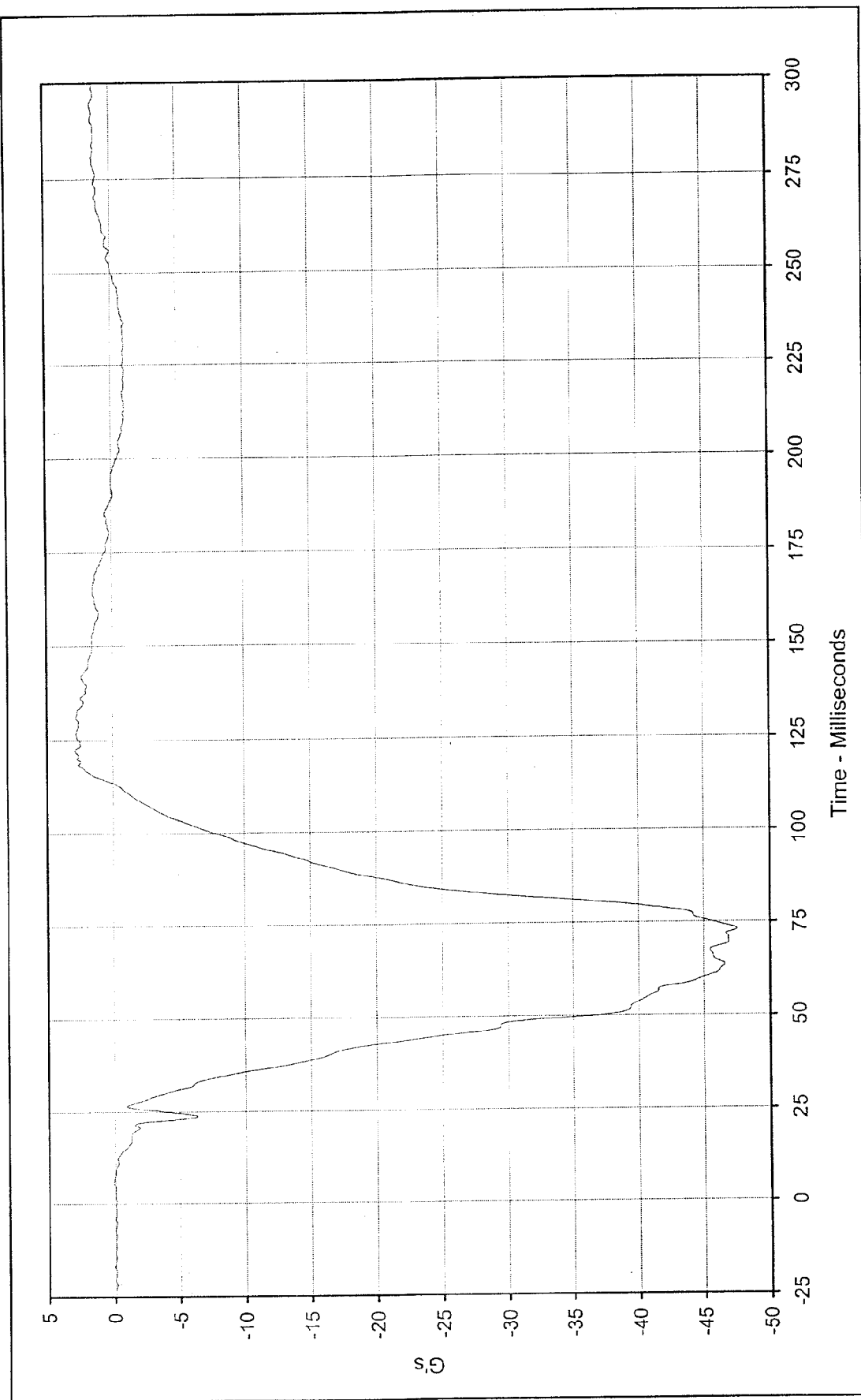
Test Program:

1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle:

1999 Honda Civic DX 2 Door Coupe

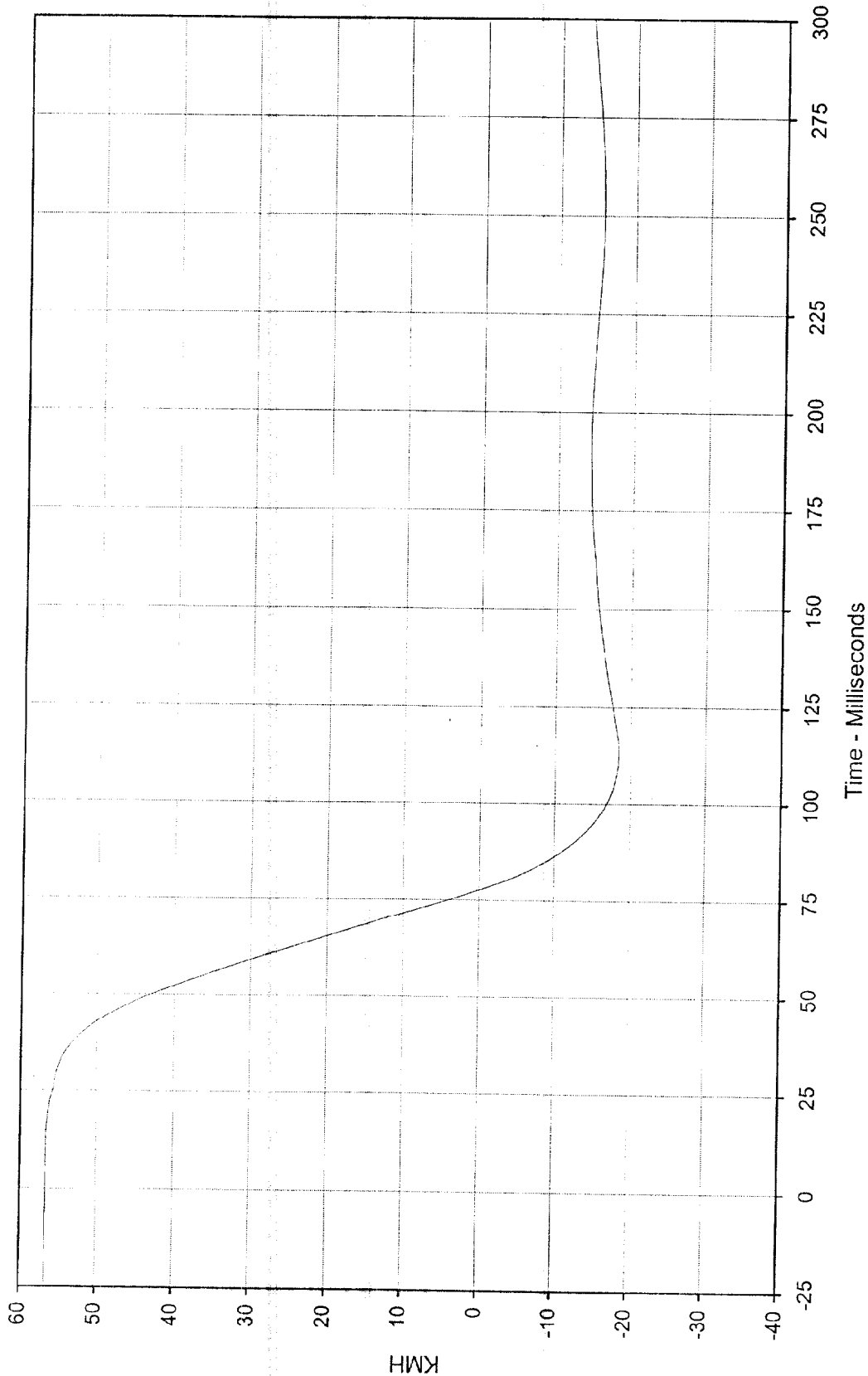




Curve Description: Driver Chest Primary X
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Maximum Value: 2.9 at 122.2 Milliseconds
 Minimum Value: -47.5 at 73.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: FIL-013





Curve Description: Driver Chest Primary X Velocity

Maximum Value: 56.6 at 0.0 Milliseconds

Minimum Value: -18.4 at 113.5 Milliseconds

SAE Filter Class: 180

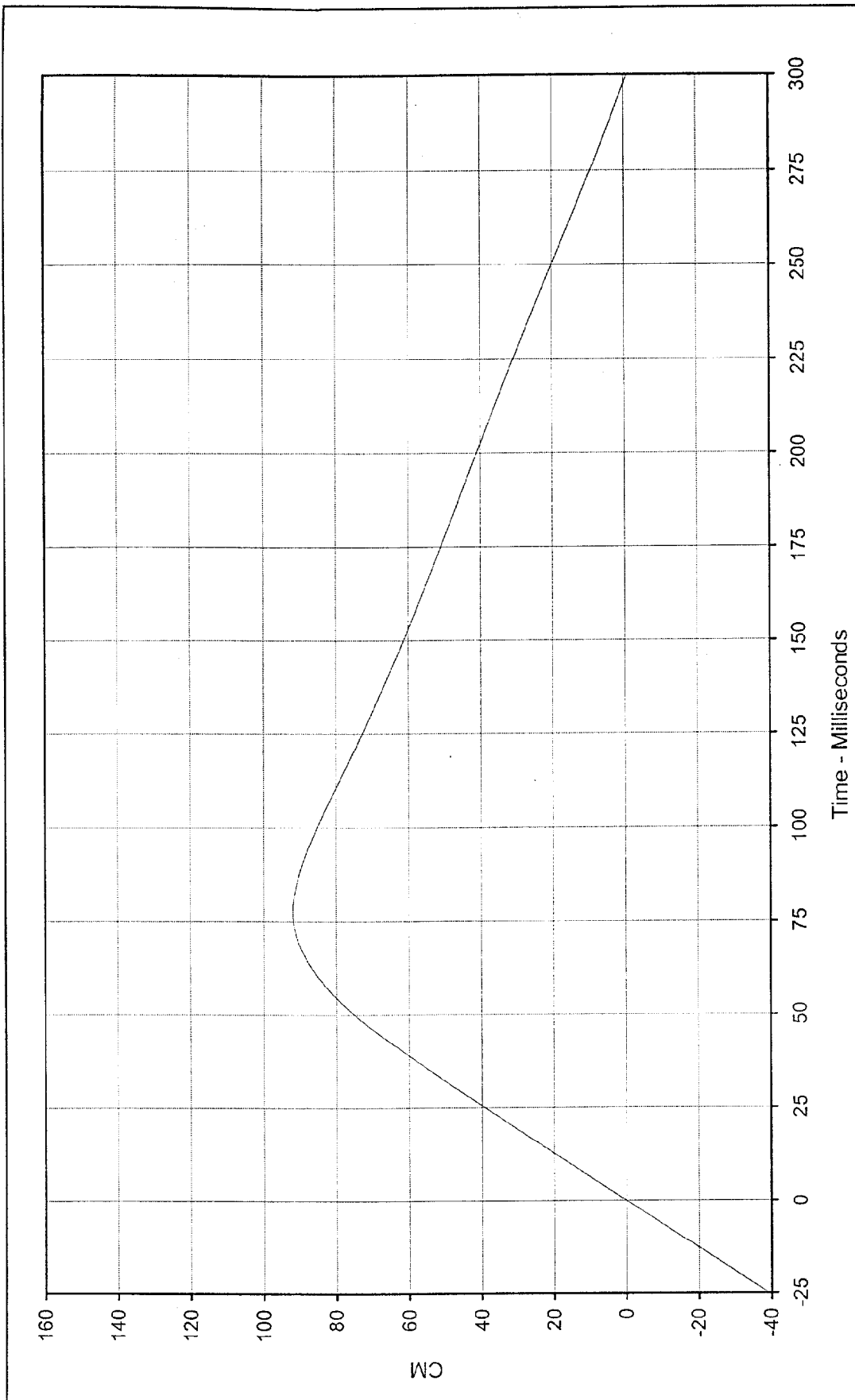
Date of Test: 12/18/98

Curve Number: IN1-013

Testing Program 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

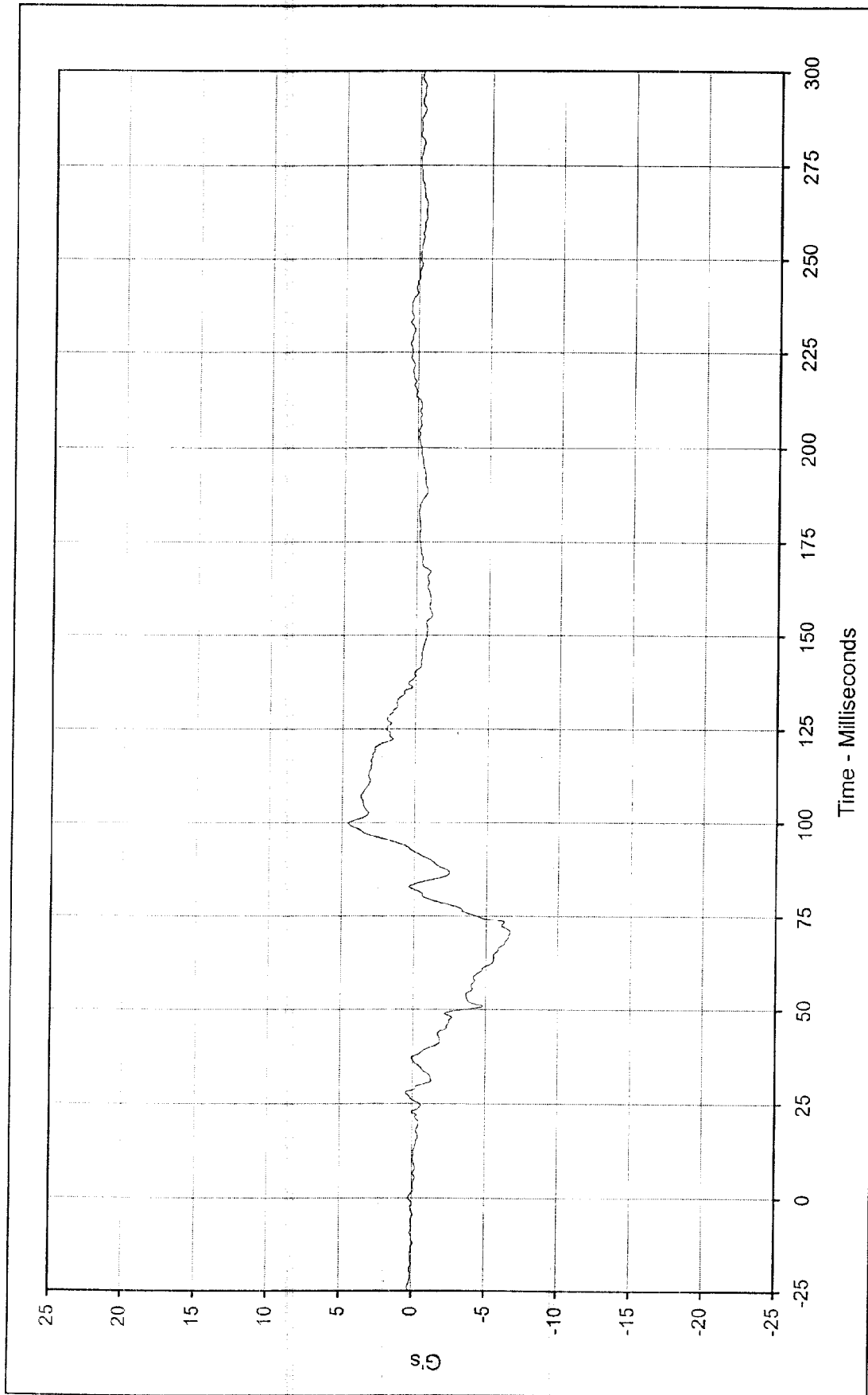




Curve Description: Driver Chest Primary X Displ.
 Maximum Value: 91.9 at 77.5 Milliseconds
 Minimum Value: -0.9 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN2-013

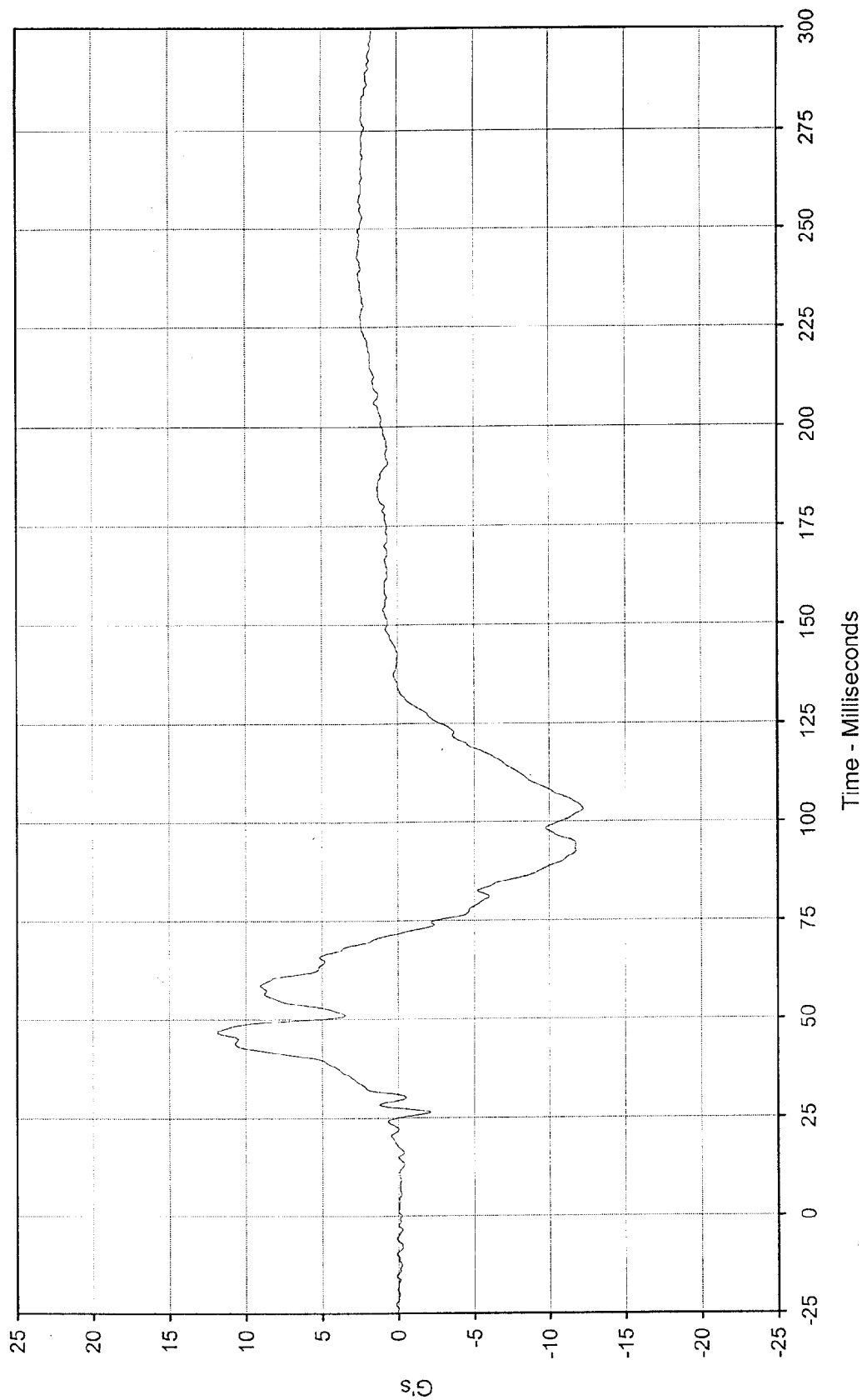
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Driver Chest Primary Y	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	4.6	at	99.8	Milliseconds
Minimum Value:	-6.7	at	70.6	Milliseconds
SAE Filter Class:	180	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Date of Test:	12/18/98			
Curve Number:	FIL-014			

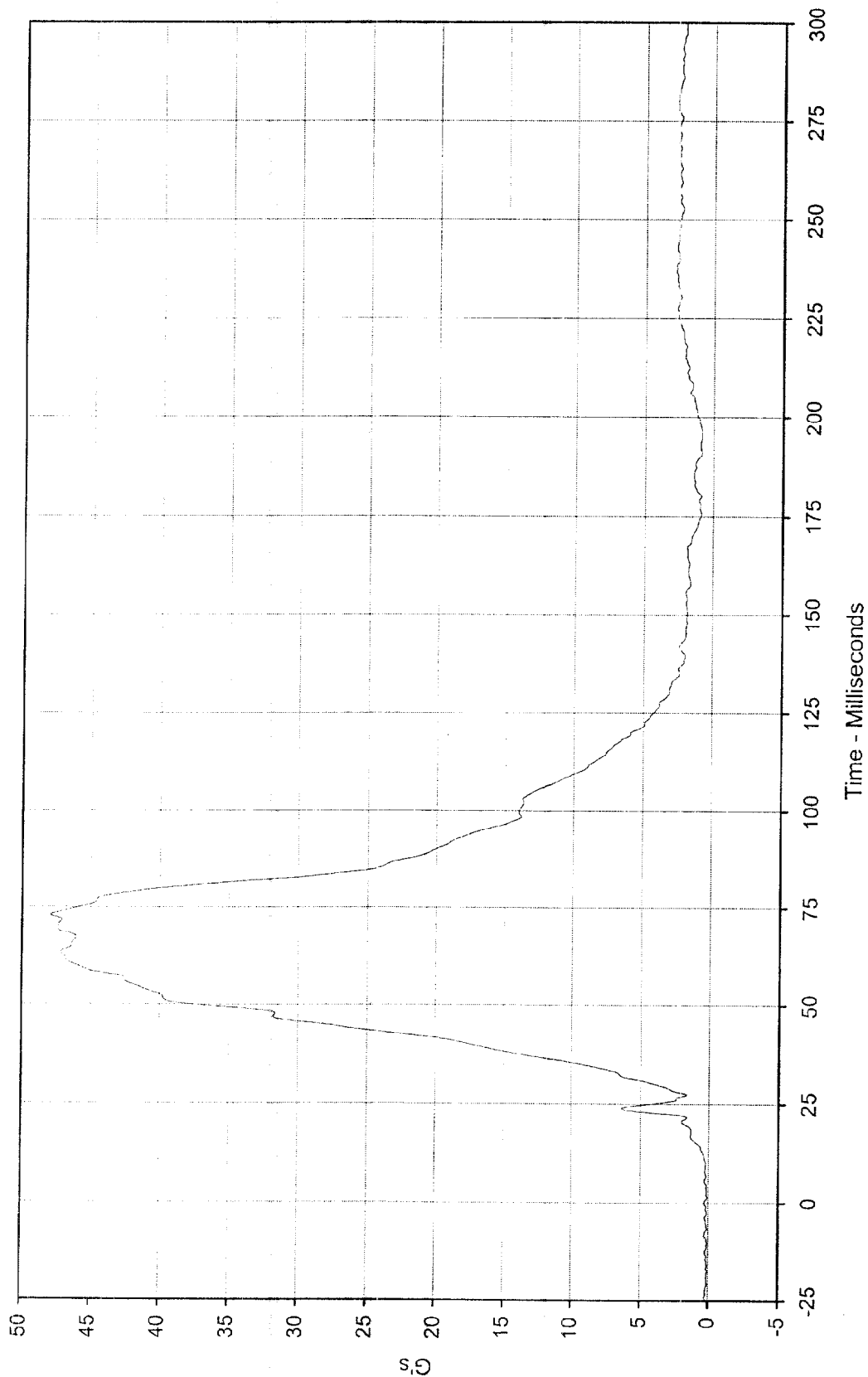




Curve Description: Driver Chest Primary Z
 Maximum Value: 11.9 at 46.7 Milliseconds
 Minimum Value: -12.3 at 103.1 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: FIL-015

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

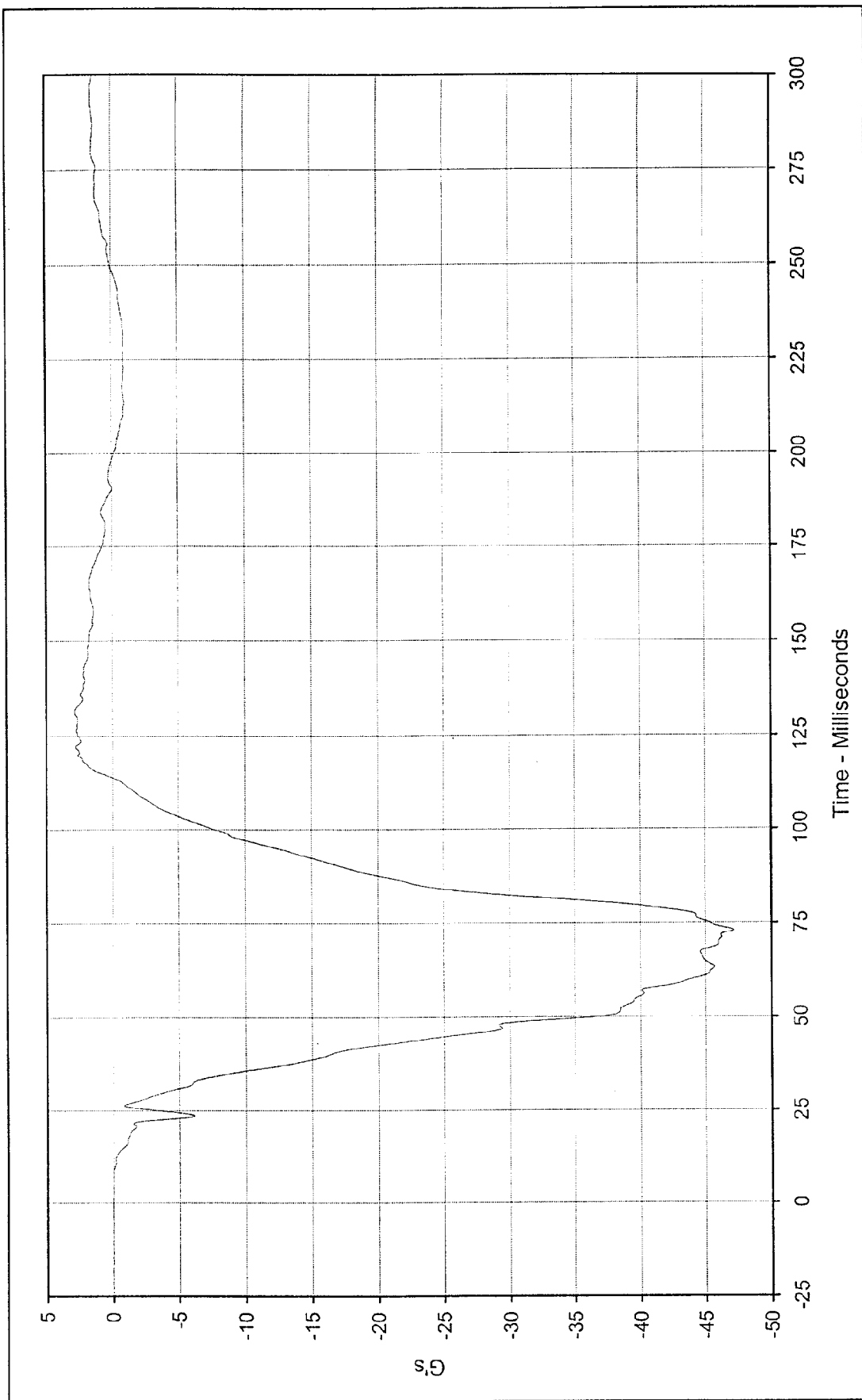




Curve Description: Driver Chest Resultant Primary
 Maximum Value: 48.0 at 73.0 Milliseconds
 Minimum Value: 0.1 at 1.4 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: RES-013

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

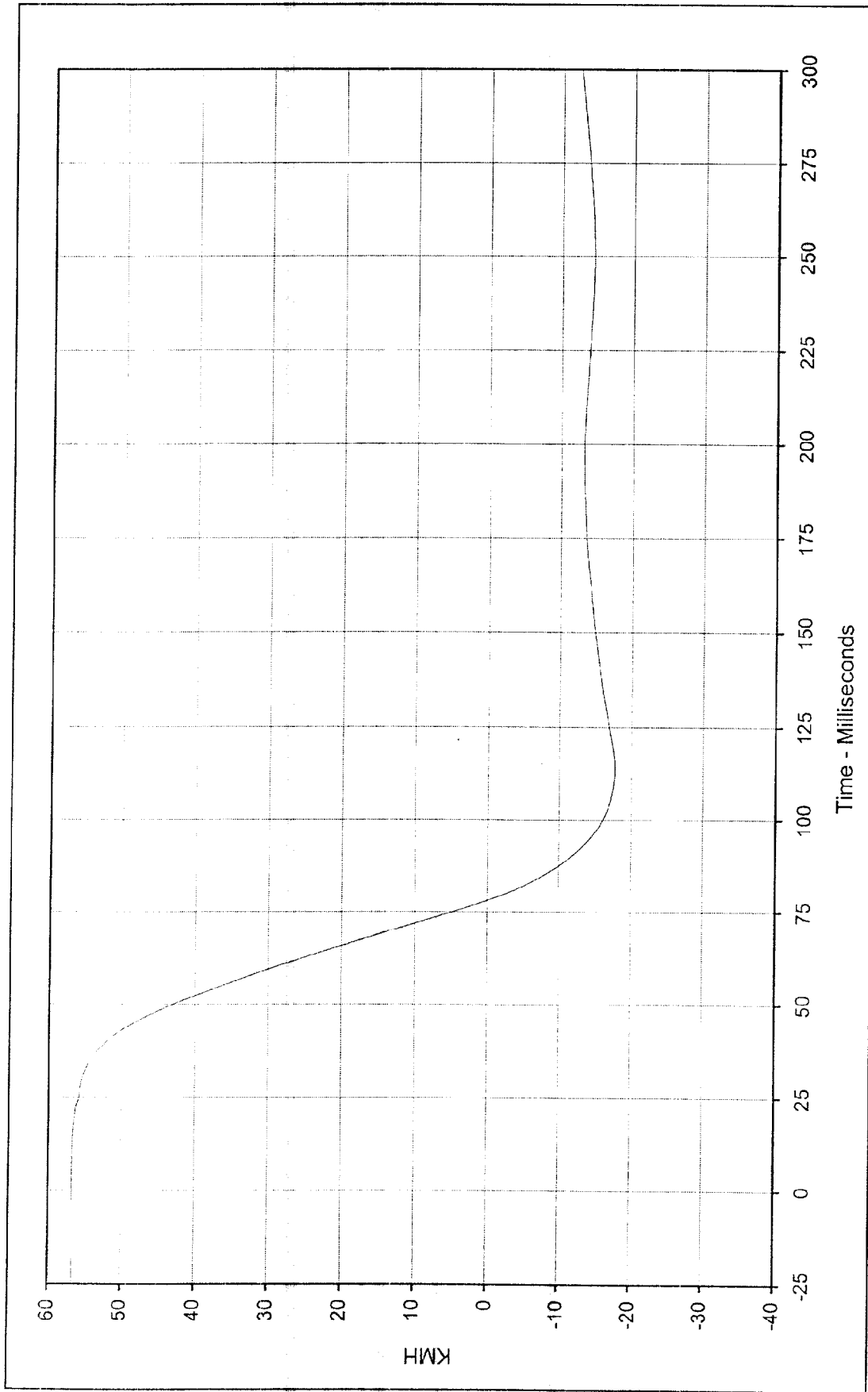




Curve Description:	Driver Chest Redundant X	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	2.9 at 131.2 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-47.2 at 72.9 Milliseconds			



SAE Filter Class:	180
Date of Test:	12/18/98
Curve Number:	FIL-016



Curve Description: Driver Chest Redundant X Velocity

Maximum Value: 56.7 at 2.0 Milliseconds

Minimum Value: -17.7 at 113.7 Milliseconds

SAE Filter Class: 180

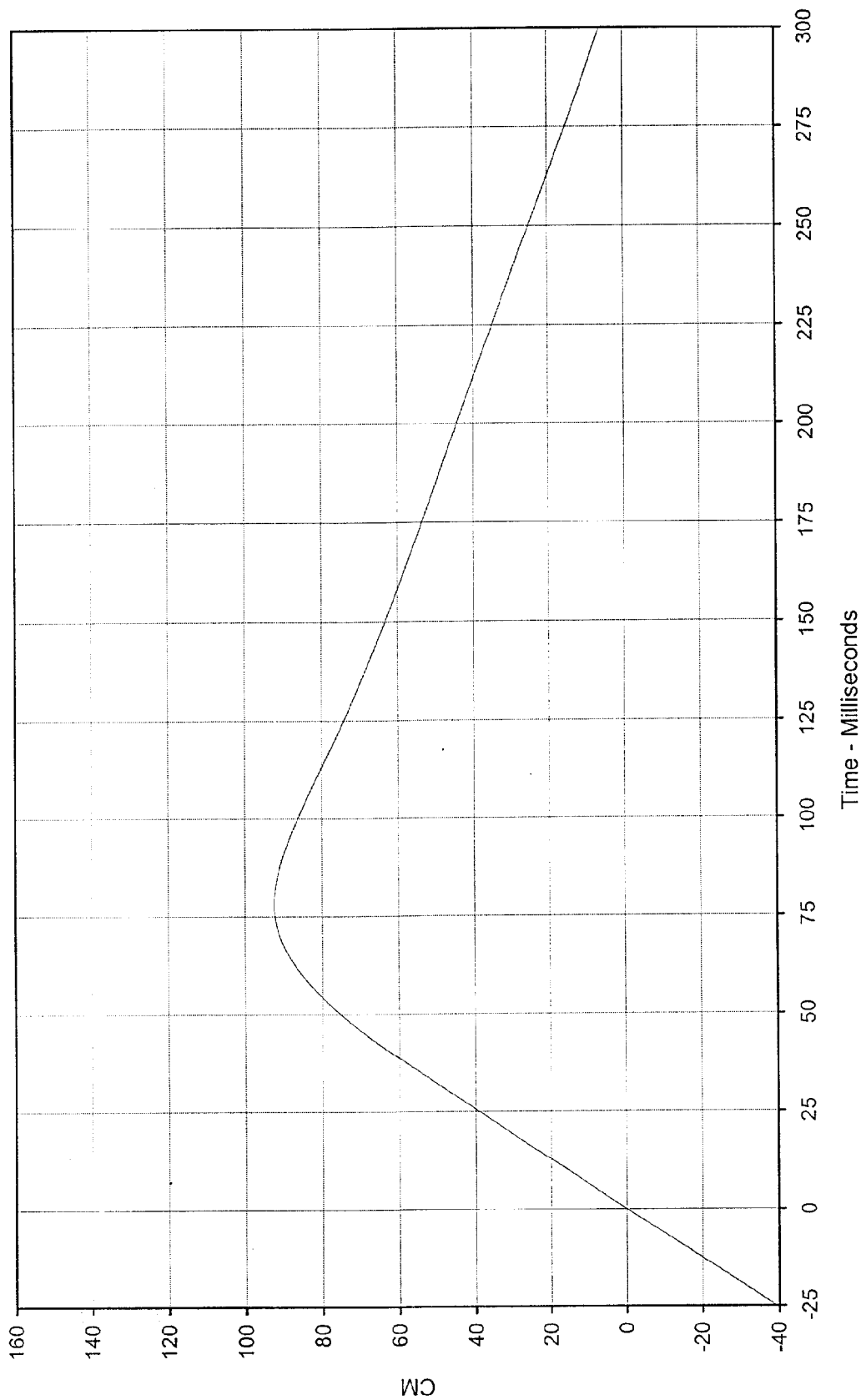
Date of Test: 12/18/98

Curve Number: IN1-016

Testing Program 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

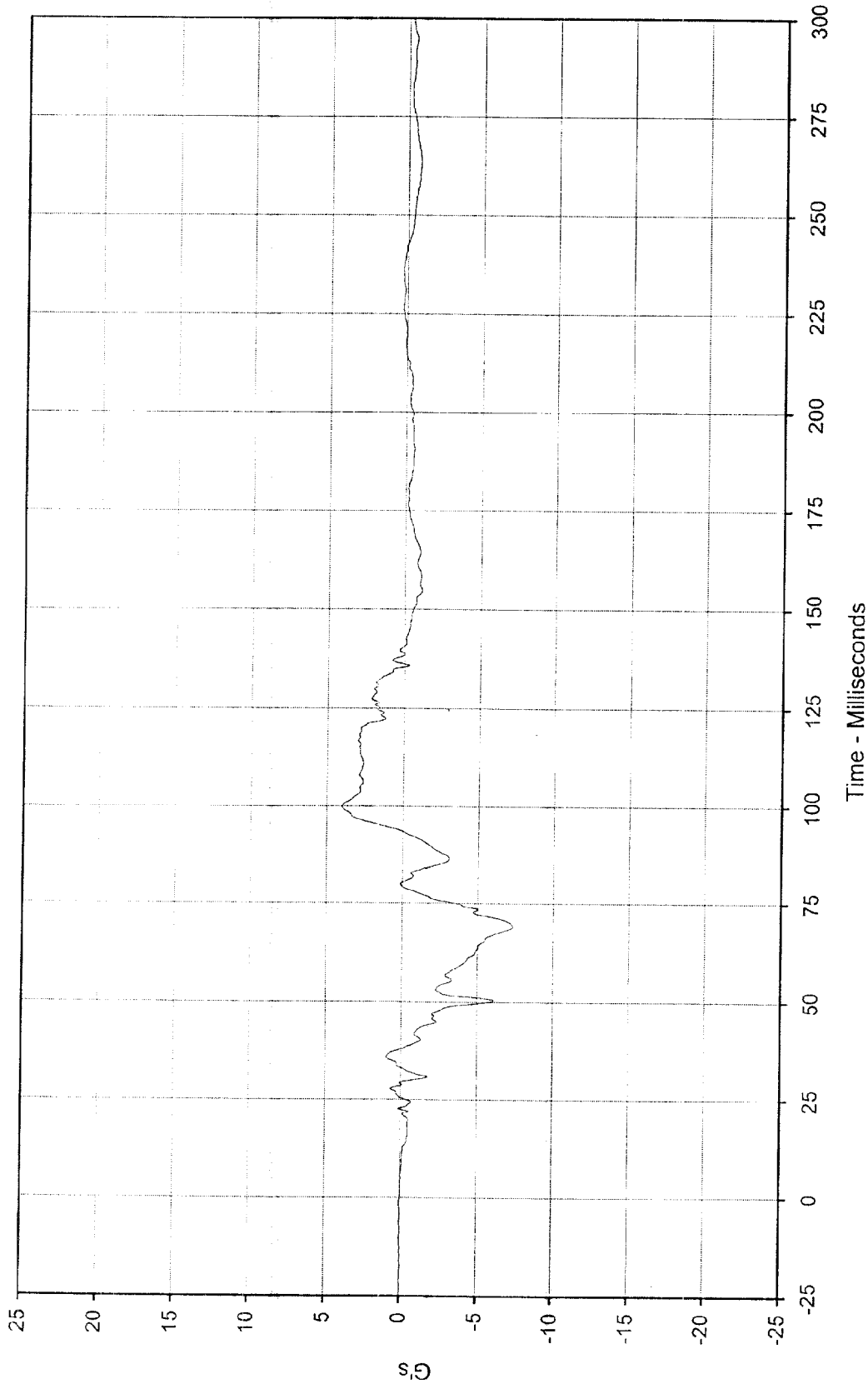




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Driver Chest Redundant X Displ.
 Maximum Value: 92.4 at 78.0 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN2-016





Curve Description: Driver Chest Redundant Y Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Maximum Value: 4.0 at 99.9 Milliseconds Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

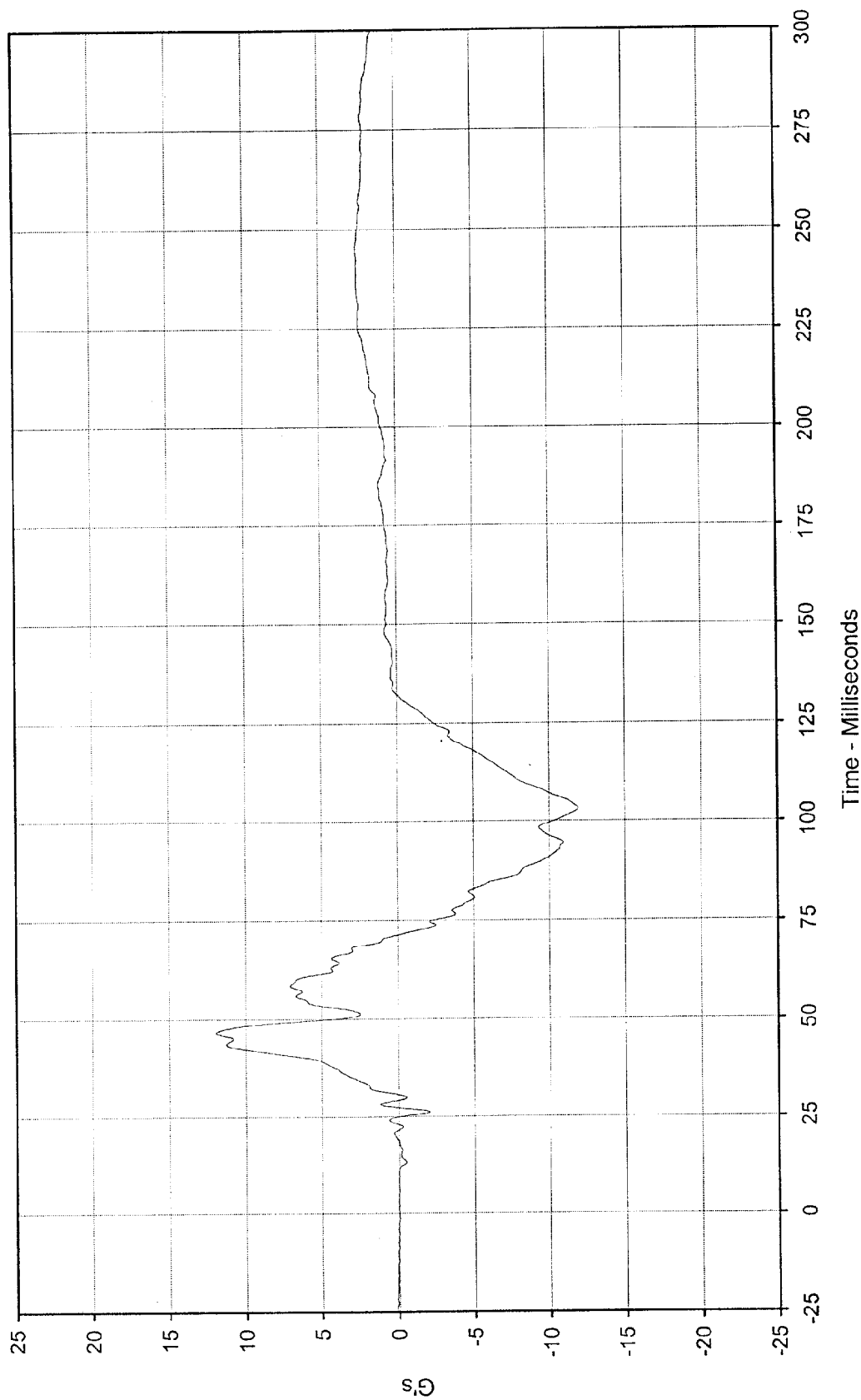
Minimum Value: -7.3 at 68.8 Milliseconds

SAE Filter Class: 180

Date of Test: 12/18/98

Curve Number: FIL-017





Curve Description: Driver Chest Redundant Z

Test Program: 1999 NHTSA 35 mph NCAP

Maximum Value: 11.9 at 46.7 Milliseconds

Minimum Value: -11.9 at 103.1 Milliseconds

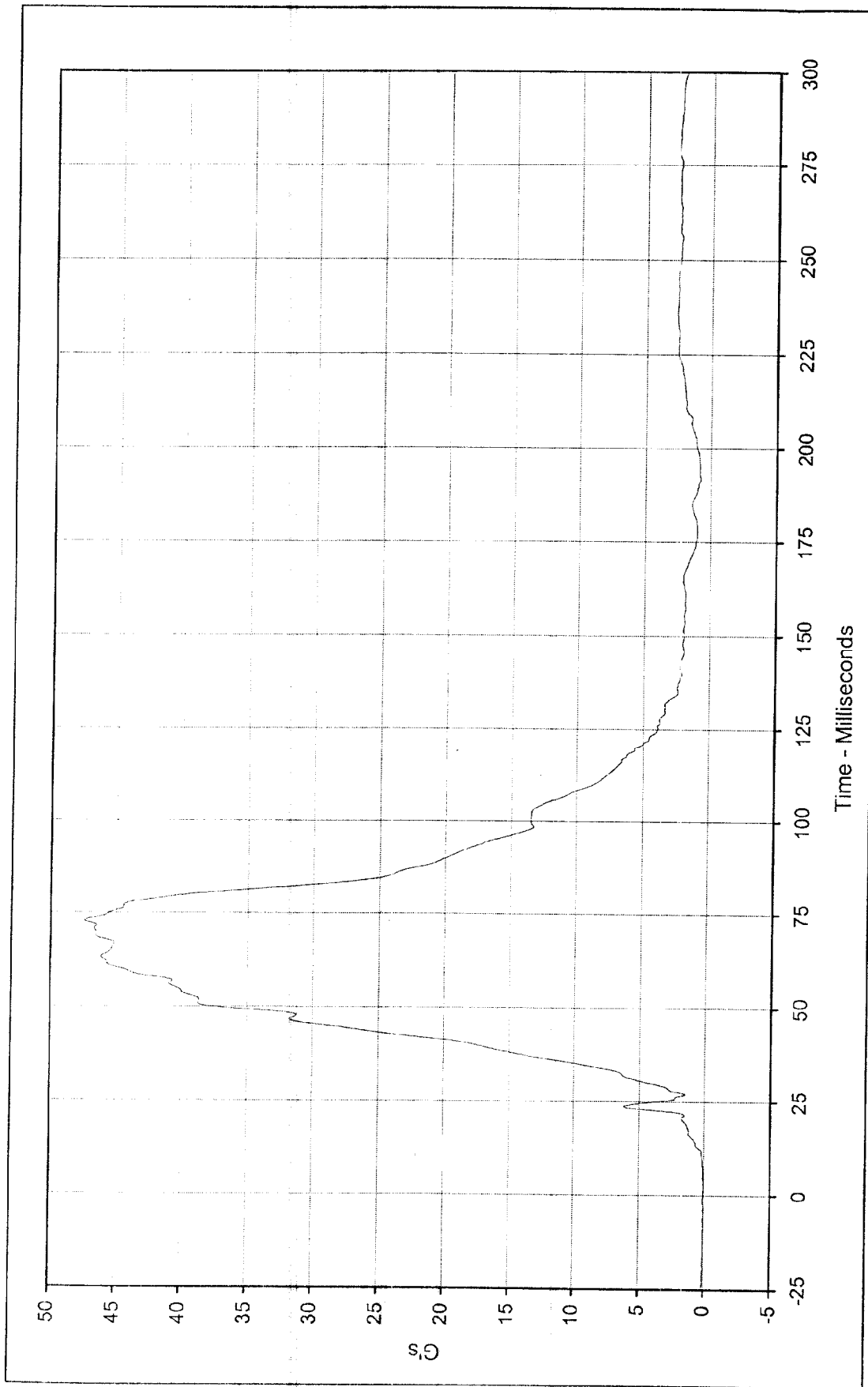
Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

SAE Filter Class: 180

Date of Test: 12/18/98

Curve Number: FIL-018





Curve Description: Driver Chest Resultant Redundant

Maximum Value: 47.4 at 72.9 Milliseconds

Minimum Value: 0.0 at 1.8 Milliseconds

SAE Filter Class: 180

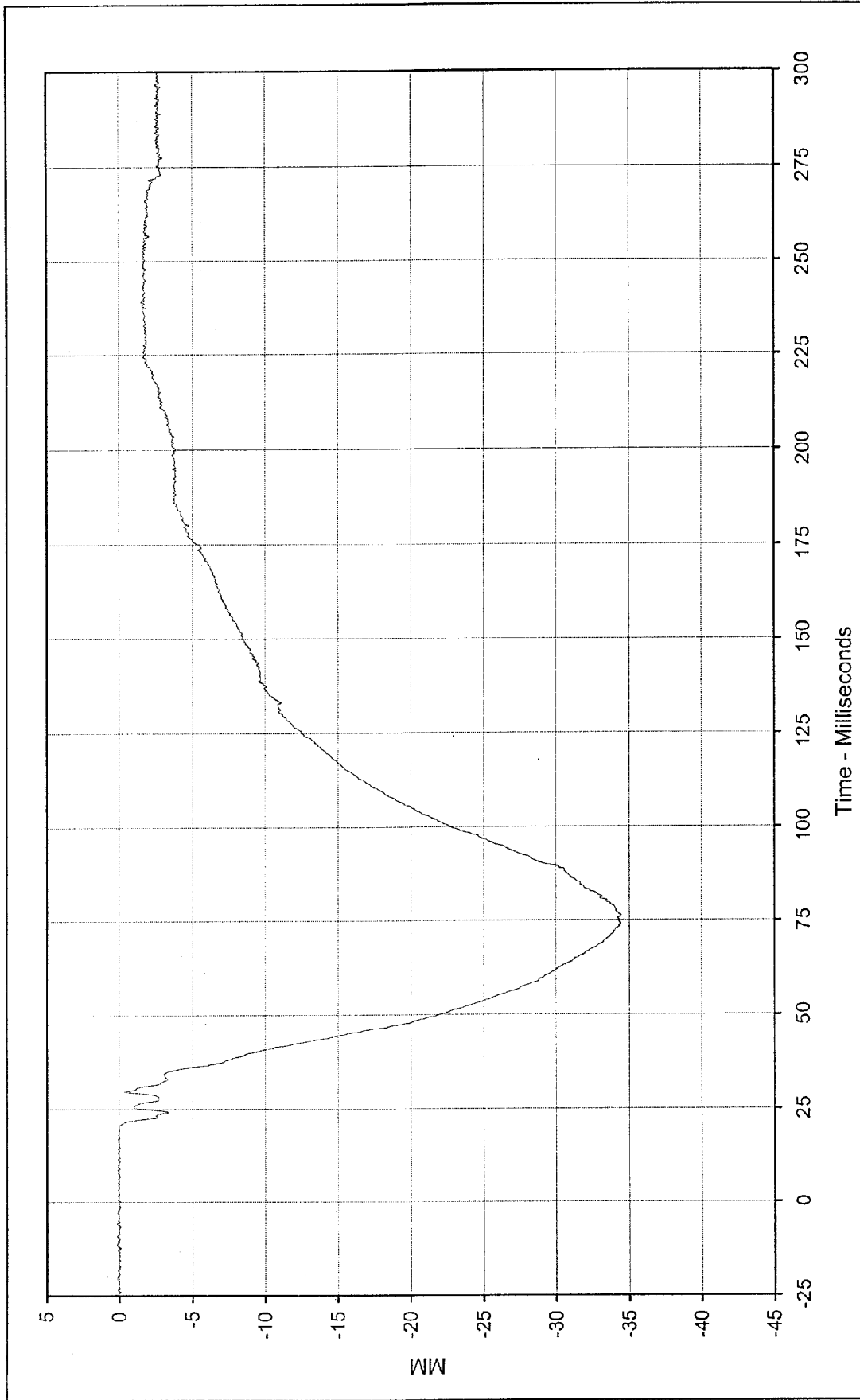
Date of Test: 12/18/98

Curve Number: RES-016

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

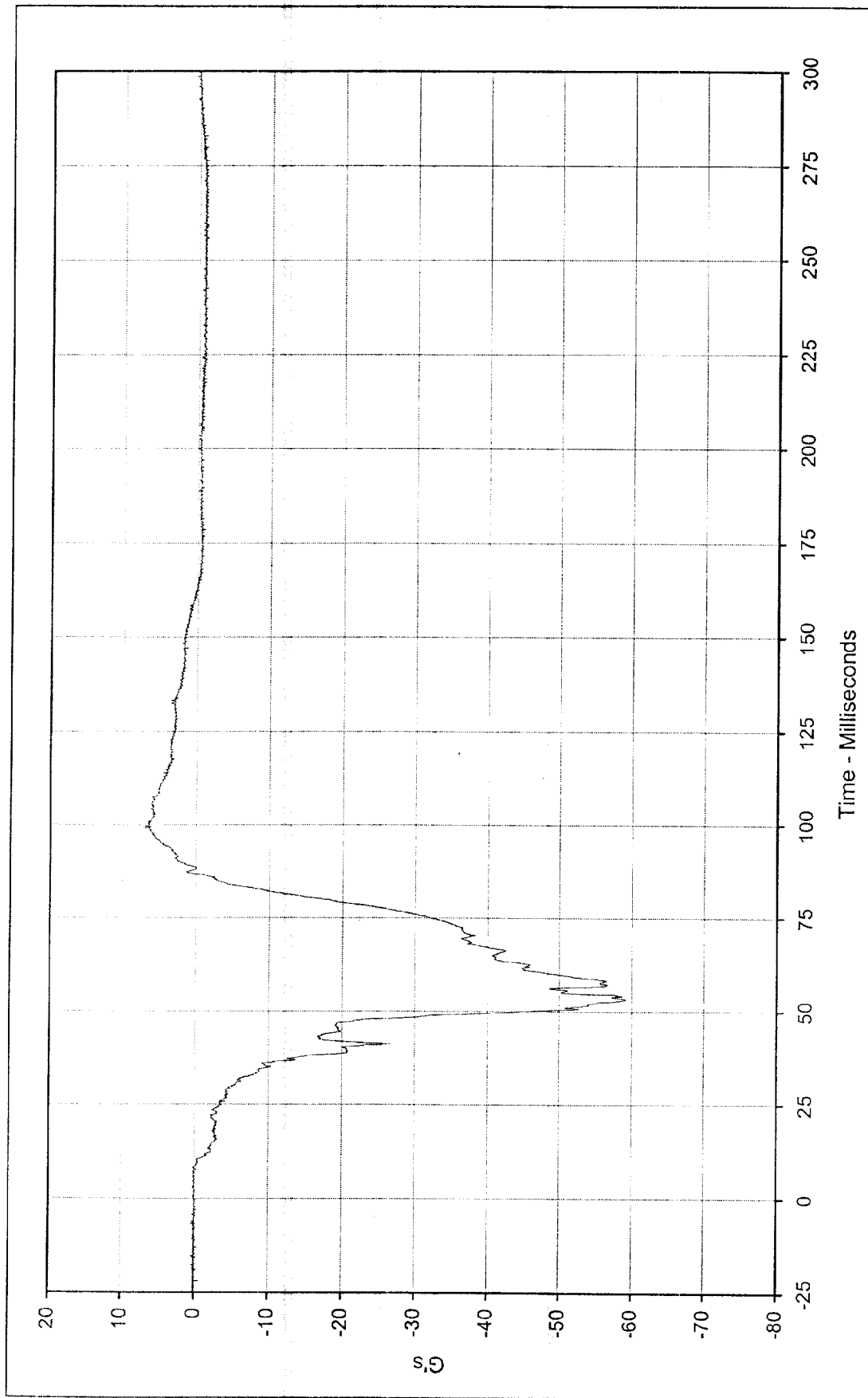




Curve Description: Driver Chest Displacement X
 Maximum Value: 0.1 at 0.7 Milliseconds
 Minimum Value: -34.5 at 76.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-019

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

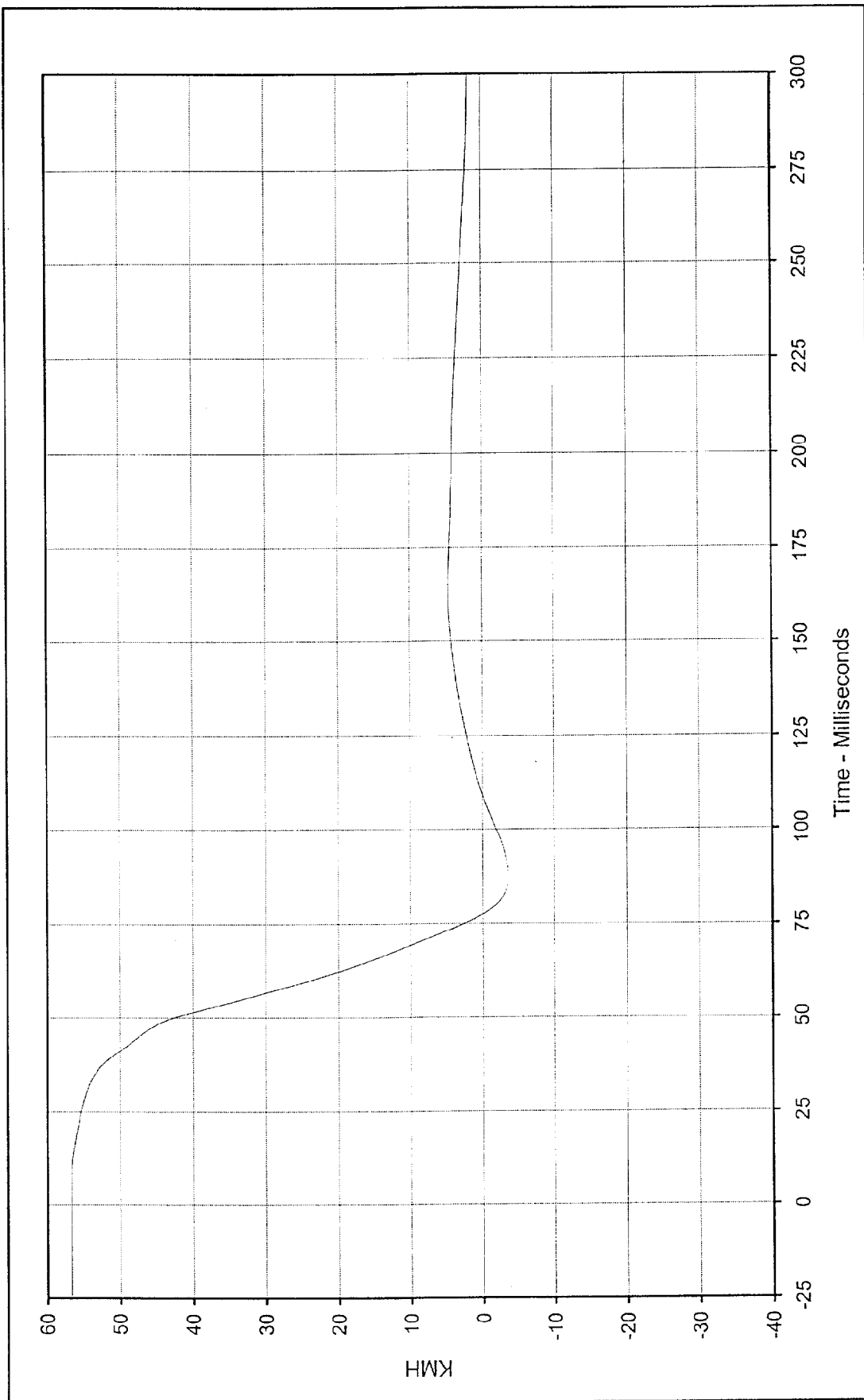




Curve Description:		Driver Pelvis X		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	7.1	at	99.2	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-59.4	at	53.2			
SAE Filter Class:	1000					
Date of Test:	12/18/98					
Curve Number:	FIL-020					





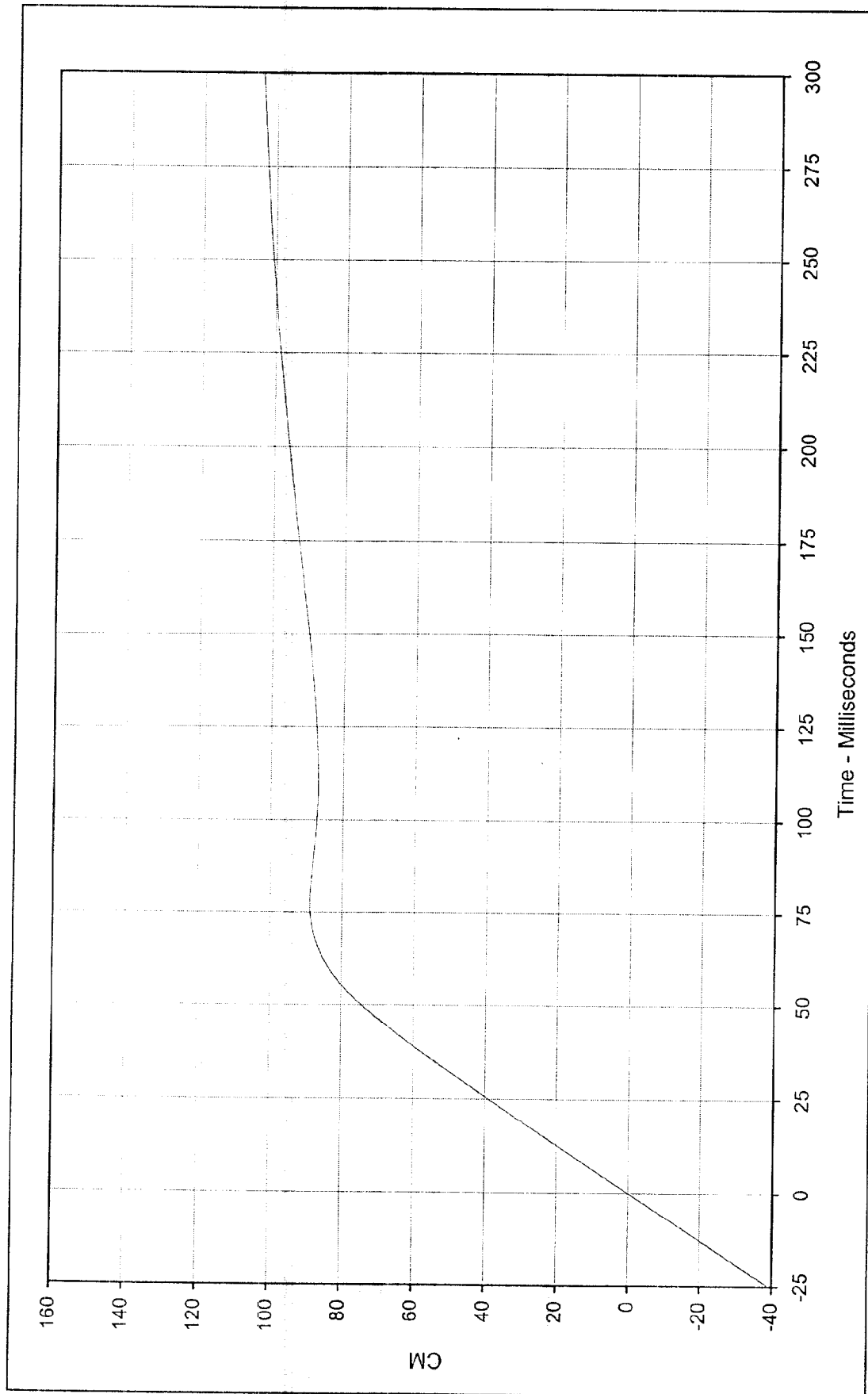


Curve Description: Driver Pelvis X Velocity
 Maximum Value: 56.7 at 7.4 Milliseconds
 Minimum Value: -3.6 at 86.8 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN1-020

Testing Program 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

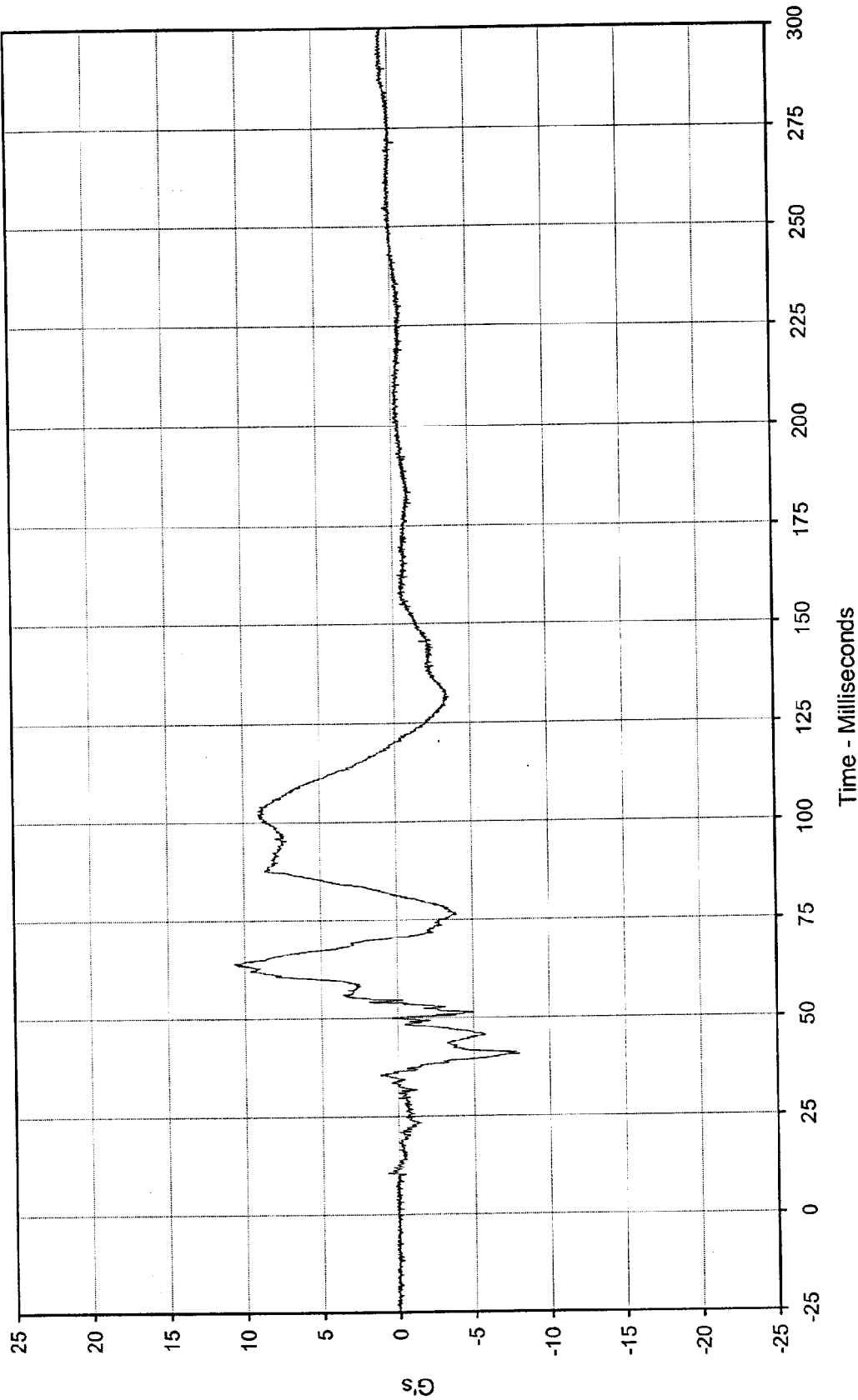




Curve Description: Driver Pelvis X Displ.
 Maximum Value: 103.8 at 299.9 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN2-020

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

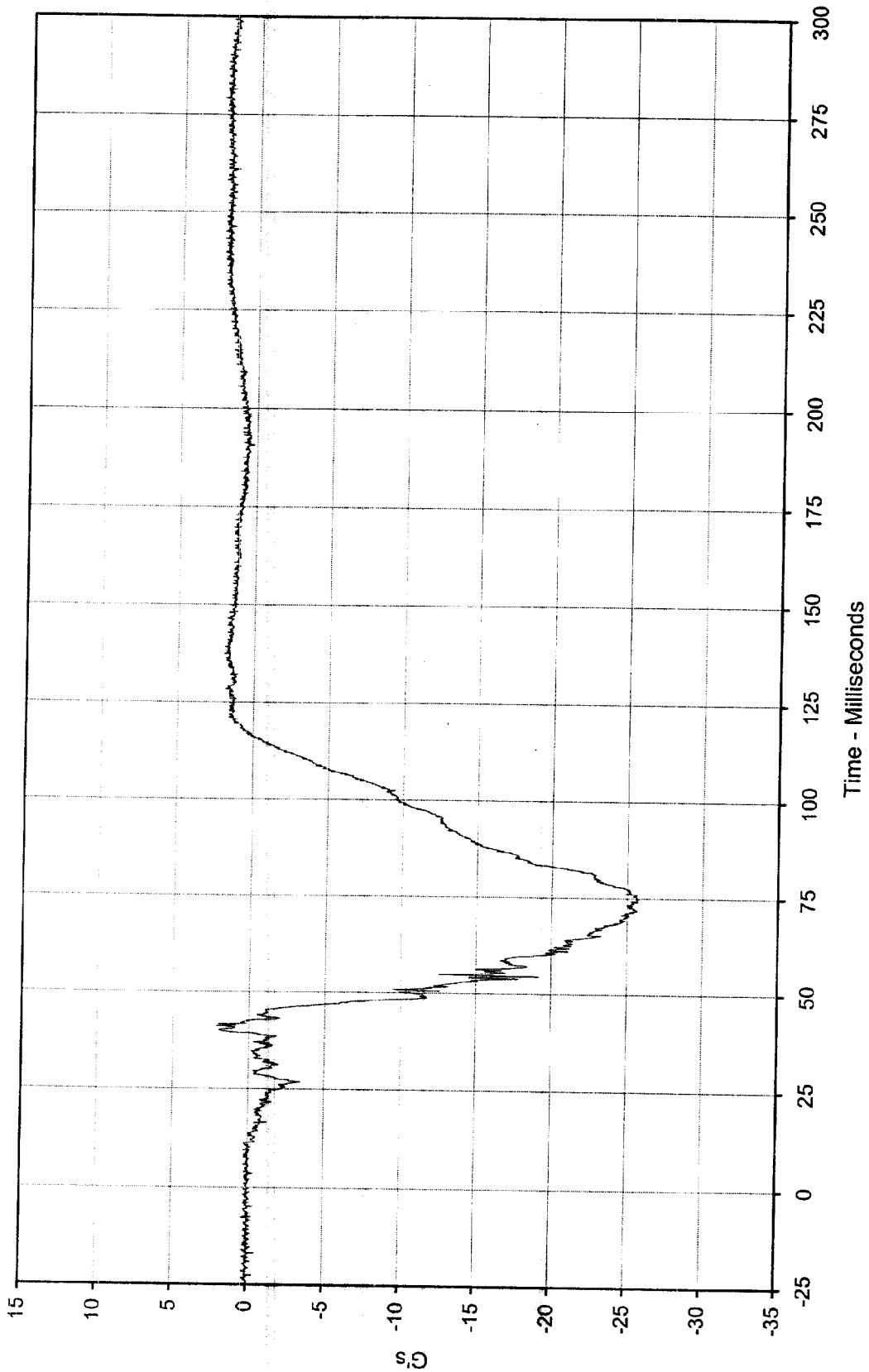




Curve Description: Driver Pelvis Y
 Maximum Value: 10.7 at 63.8 Milliseconds
 Minimum Value: -8.0 at 40.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: FIL-021

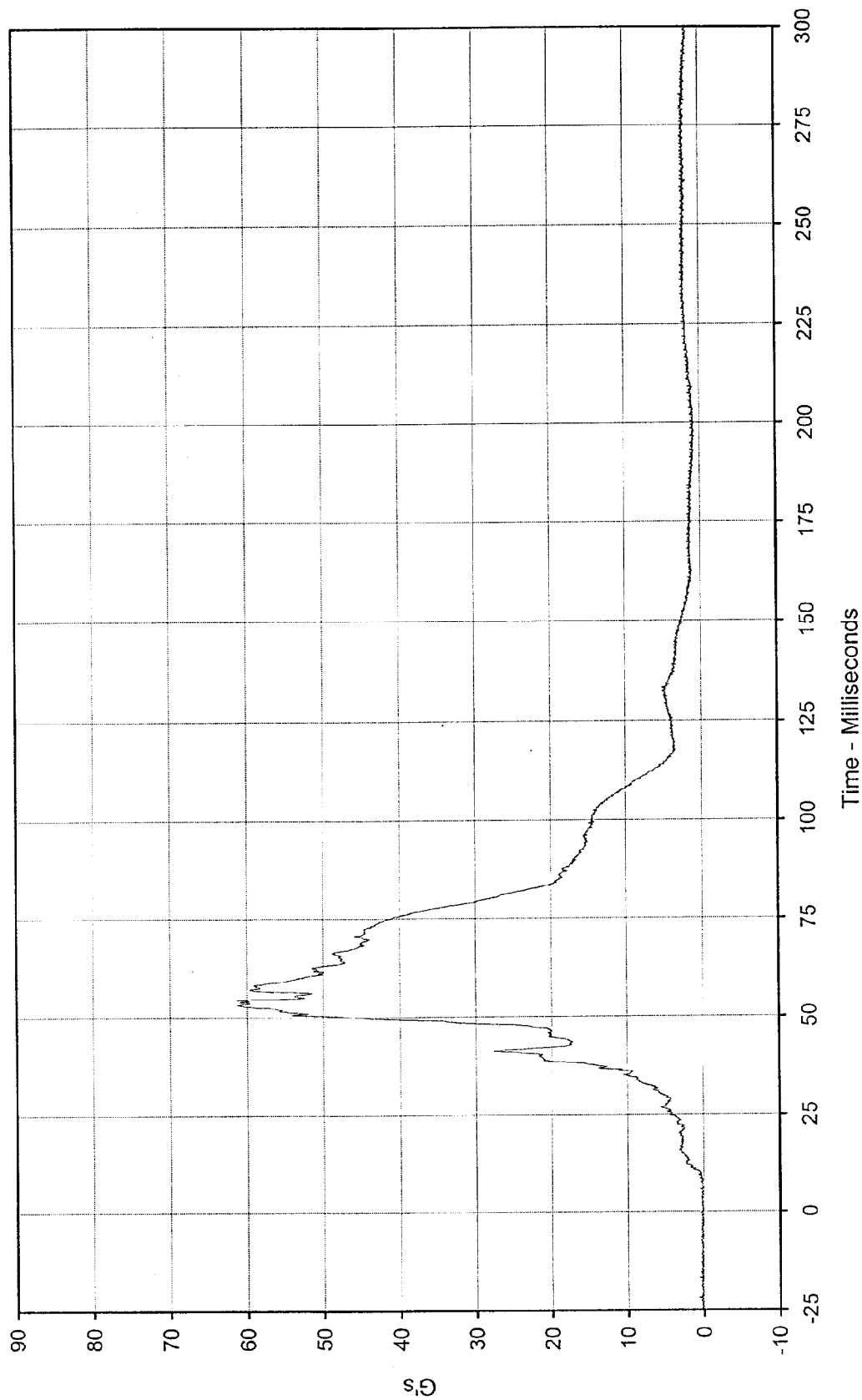
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:		Test Program:	
Maximum Value:		1999 NHTSA 35 mph NCAP No.: MX5301	
Minimum Value:		Test Vehicle:	
SAE Filler Class:		1999 Honda Civic DX 2 Door Coupe	
Date of Test:			
Curve Number:			

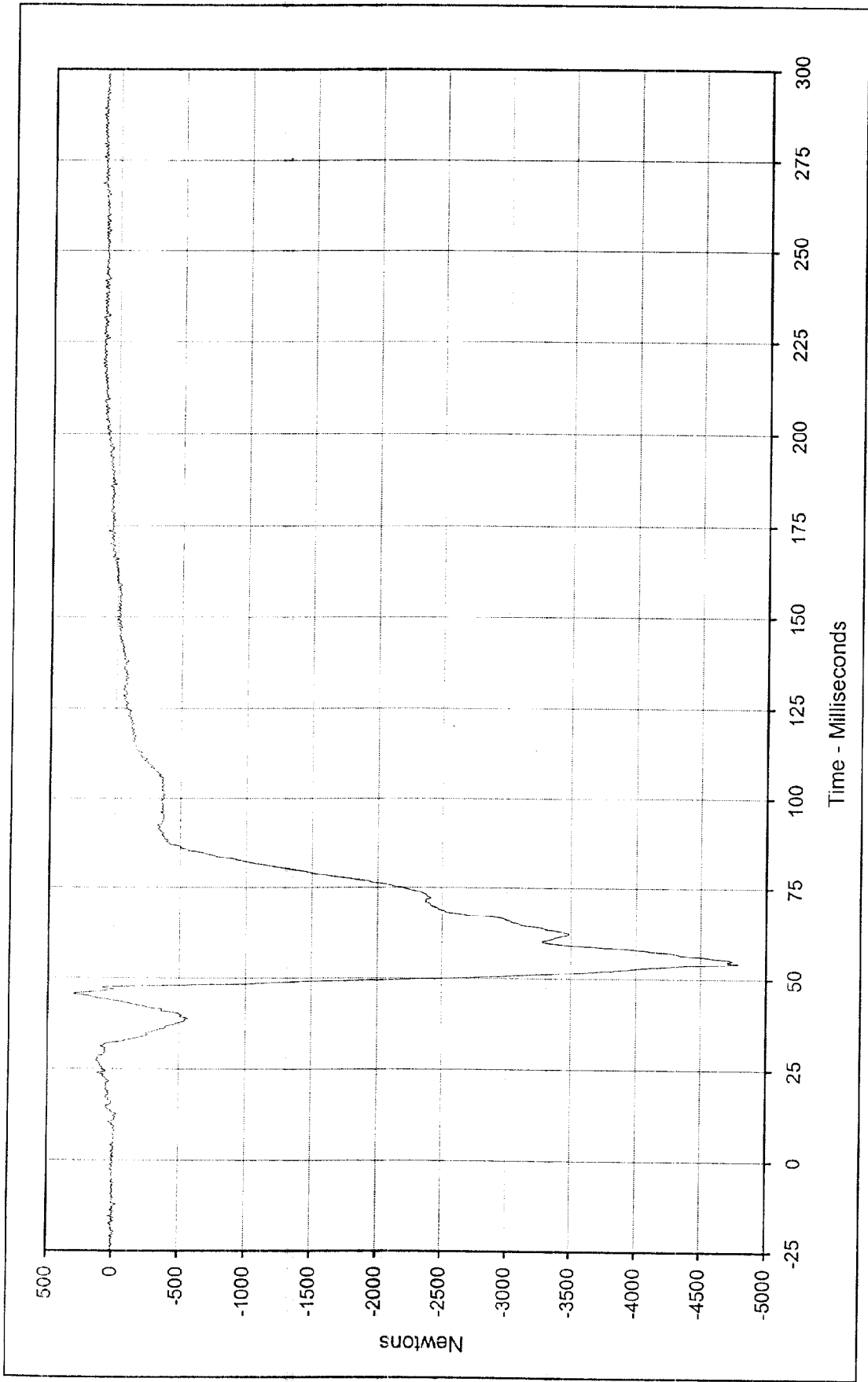




Curve Description: Driver Pelvis Resultant
 Maximum Value: 61.3 at 54.5 Milliseconds
 Minimum Value: 0.0 at 3.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: RES-020

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

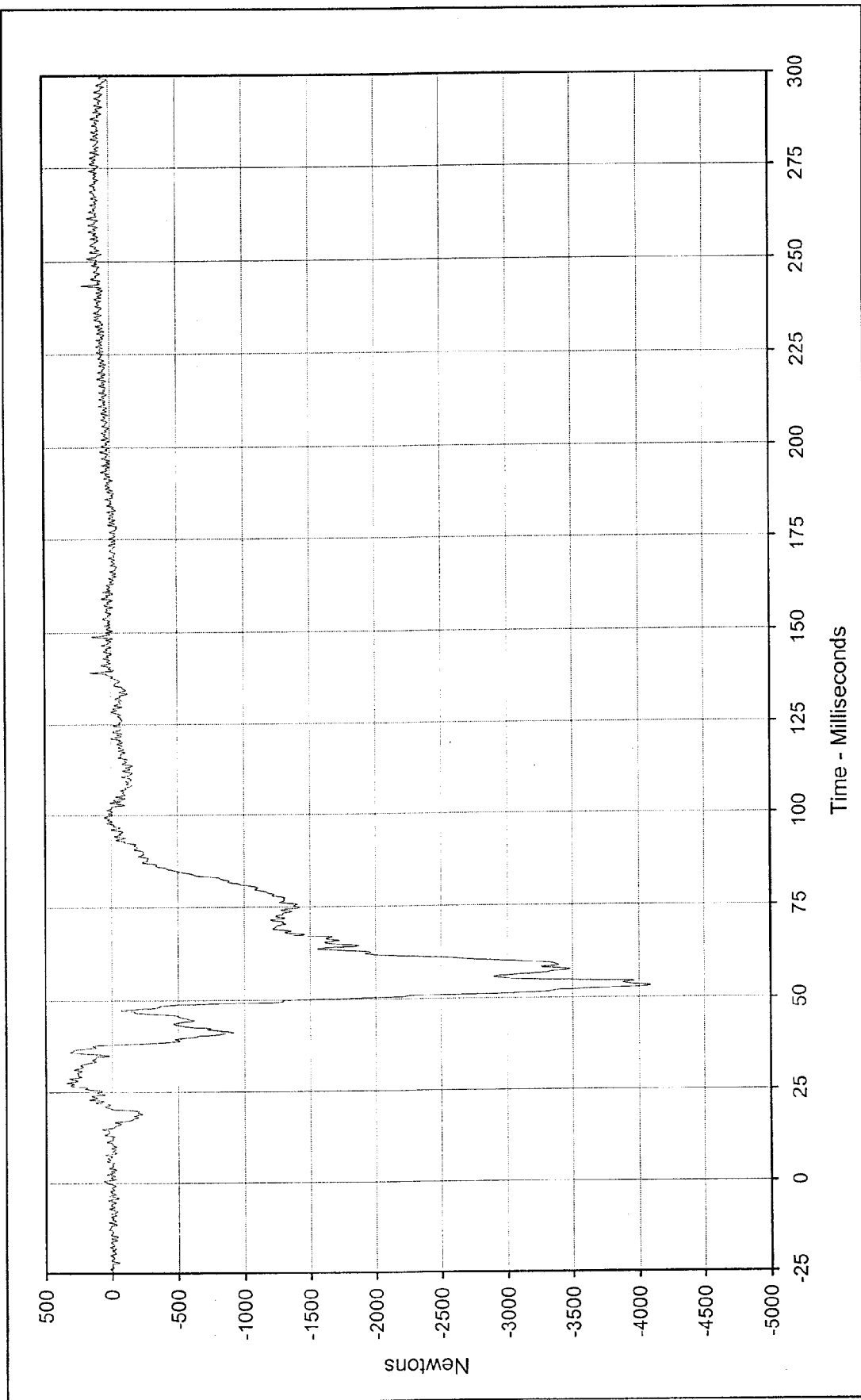




Curve Description: Driver Left Femur Force
Maximum Value: 303.1 at 45.7 Milliseconds
Minimum Value: -4787.5 at 54.3 Milliseconds
SAE Filter Class: 600
Date of Test: 12/18/98
Curve Number: FIL-023

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

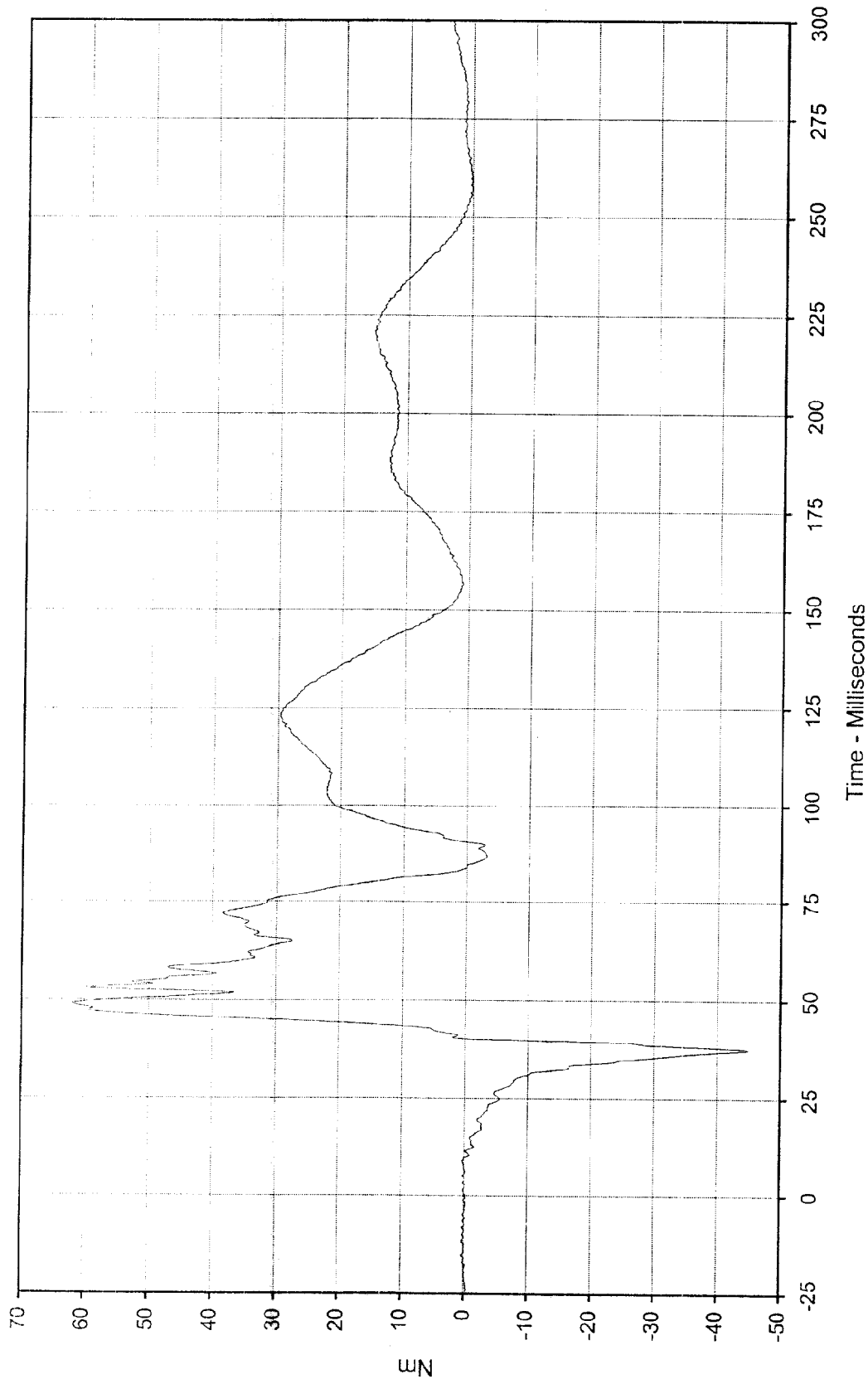




Curve Description: Driver Right Femur Force
 Maximum Value: 344.4 at 27.5 Milliseconds
 Minimum Value: -4092.2 at 53.1 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-024

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Driver Left Upper Tibia Moment X

Maximum Value: 61.9 at 49.0 Milliseconds

Minimum Value: -45.0 at 37.6 Milliseconds

SAE Filter Class: 600

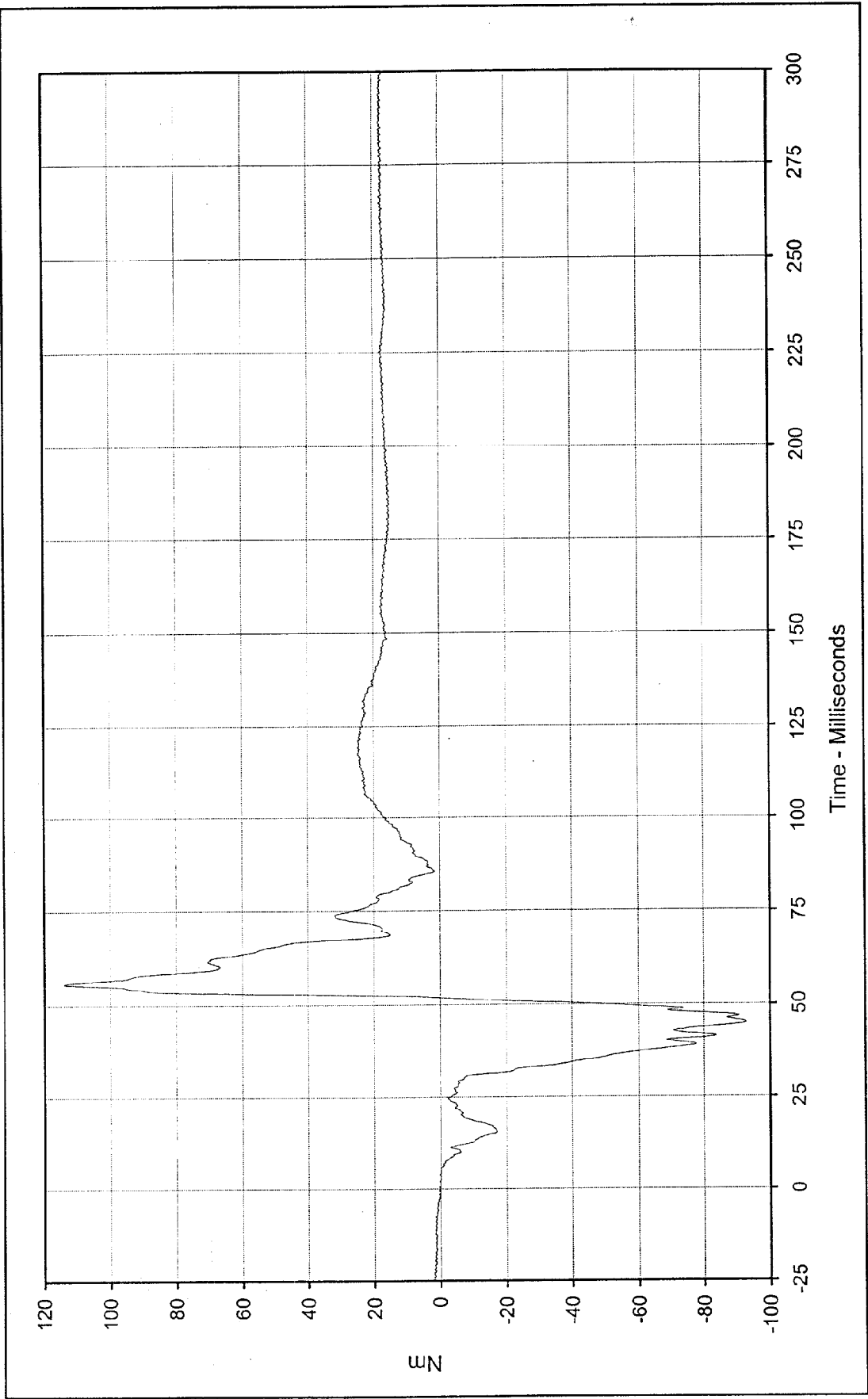
Date of Test: 12/18/98

Curve Number: FIL-025

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

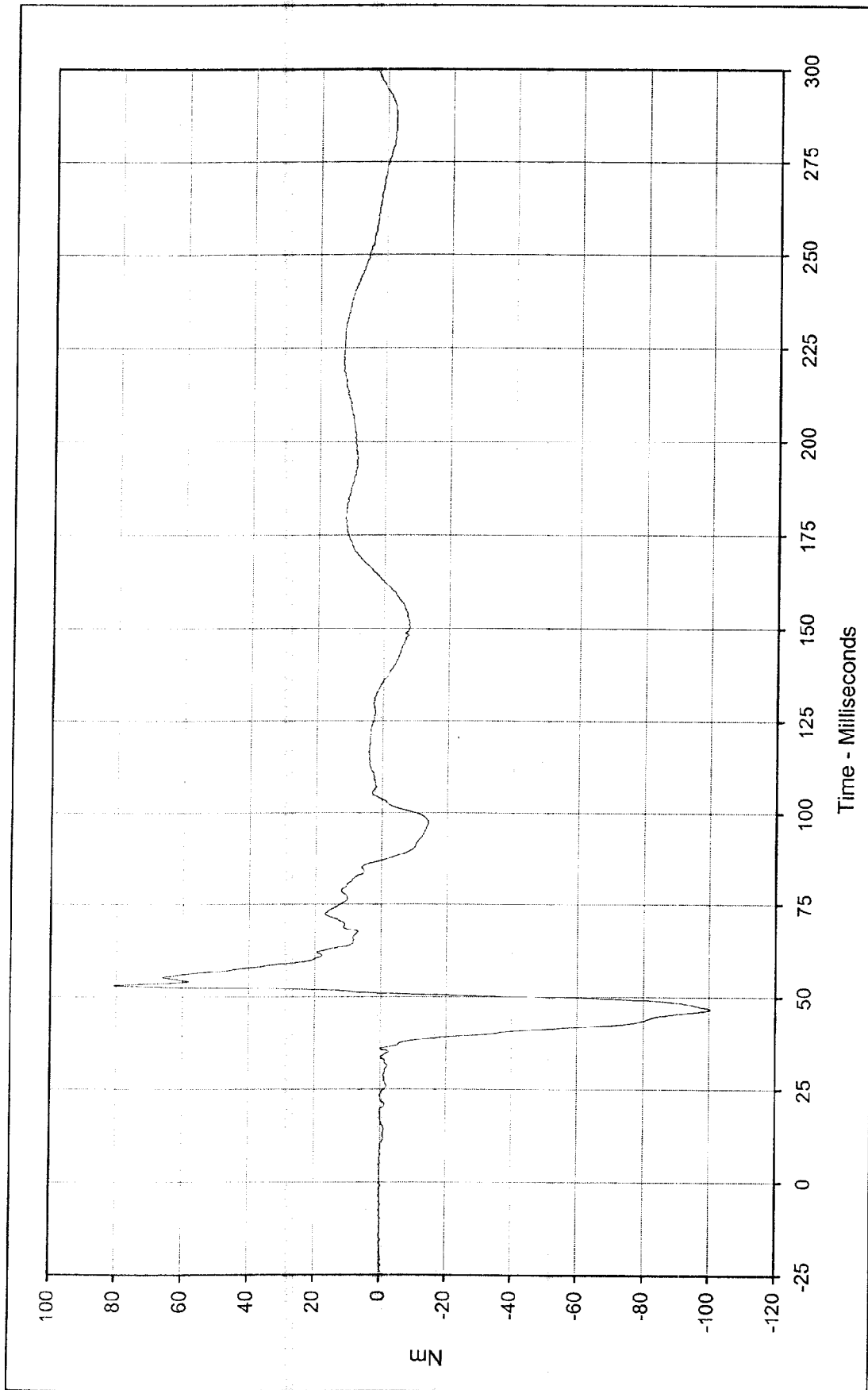




Curve Description: Driver Left Upper Tibia Moment Y
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Maximum Value: 113.8 at 55.7 Milliseconds
 Minimum Value: -92.9 at 45.0 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-026





Curve Description: Driver Right Upper Tibia Moment X

Maximum Value: 80.7 at 53.1 Milliseconds

Minimum Value: -100.4 at 46.8 Milliseconds

SAE Filter Class: 600

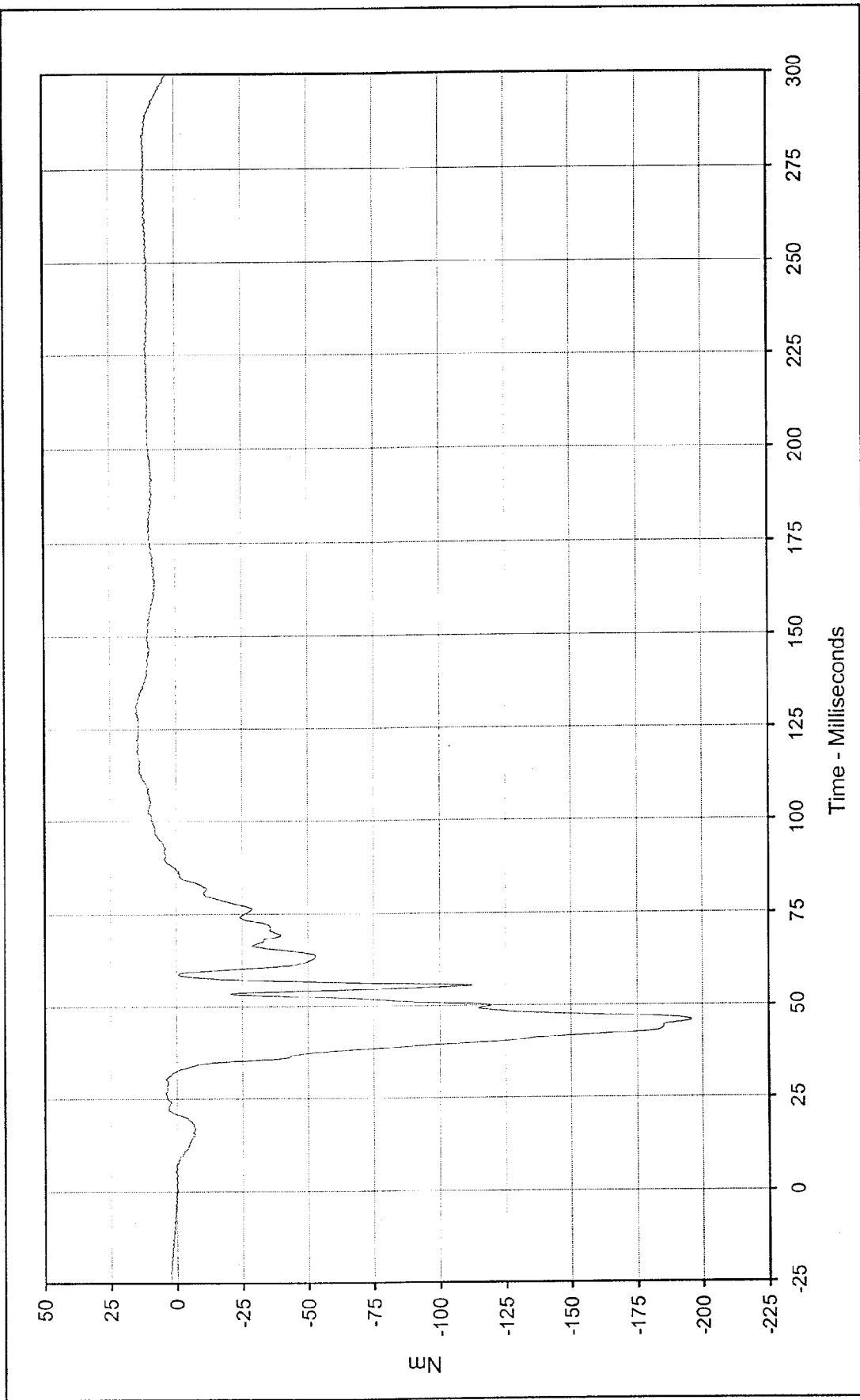
Date of Test: 12/18/98

Curve Number: FIL-027

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

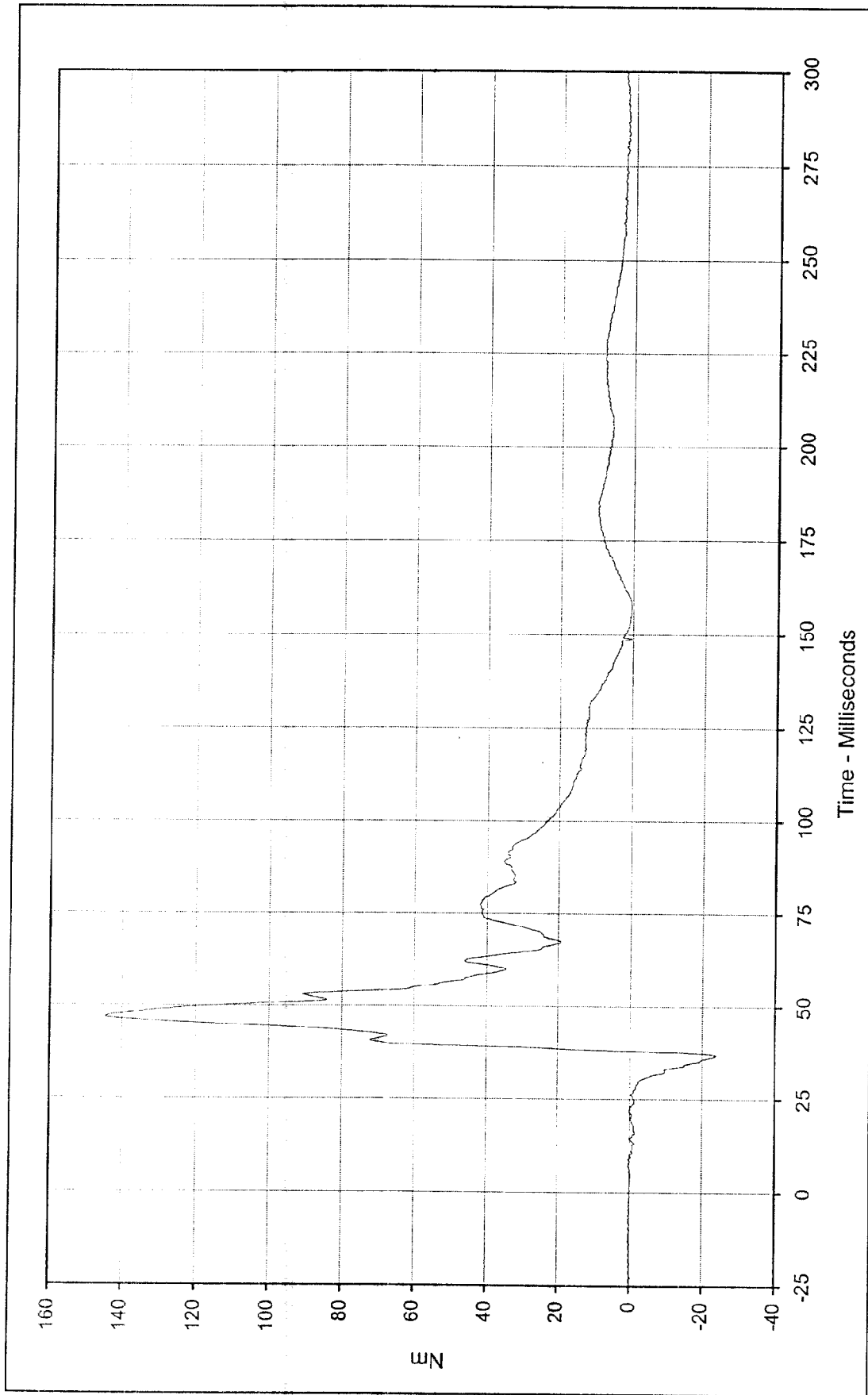




Curve Description: Driver Right Upper Tibia Moment Y
 Maximum Value: 15.2 at 131.0 Milliseconds
 Minimum Value: -195.8 at 45.9 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-028

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Driver Left Lower Tibia Moment X

Maximum Value: 144.6 at 47.0 Milliseconds

Minimum Value: -23.8 at 36.8 Milliseconds

SAE Filter Class: 600

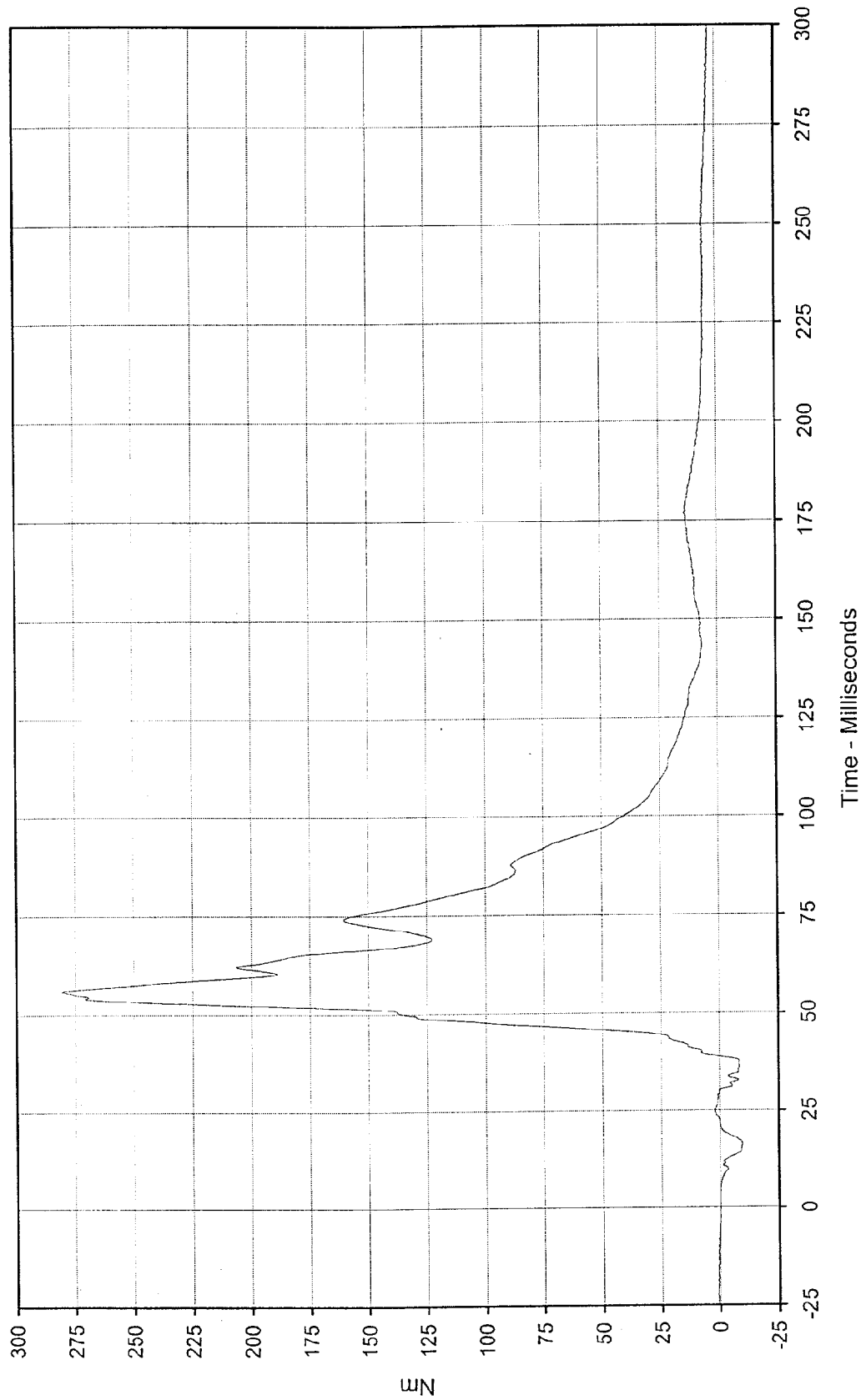
Date of Test: 12/18/98

Curve Number: FIL-029

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



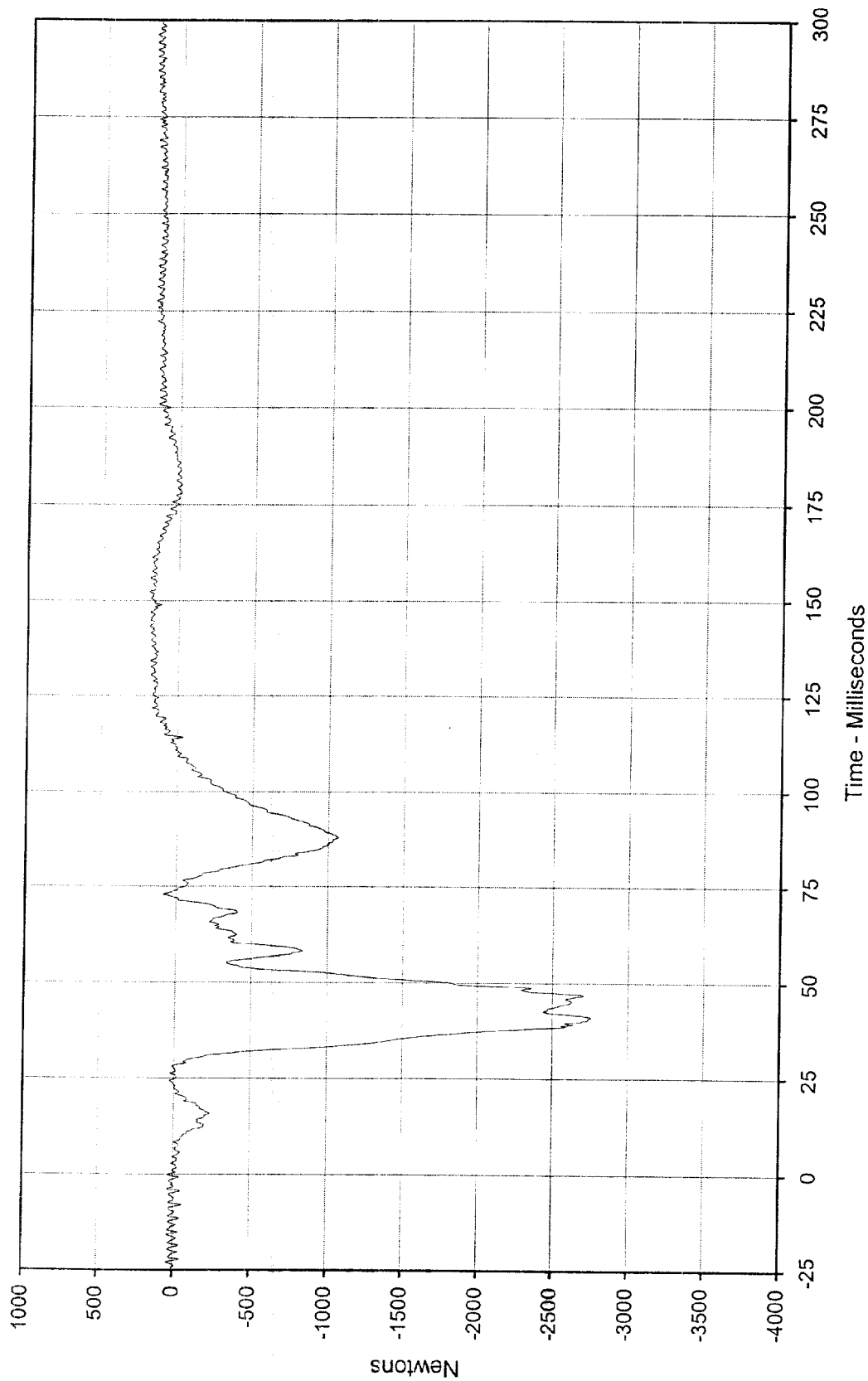


Curve Description: Driver Left Lower Tibia Moment Y
 Maximum Value: 280.7 at 55.9 Milliseconds
 Minimum Value: -9.6 at 16.3 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-030

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

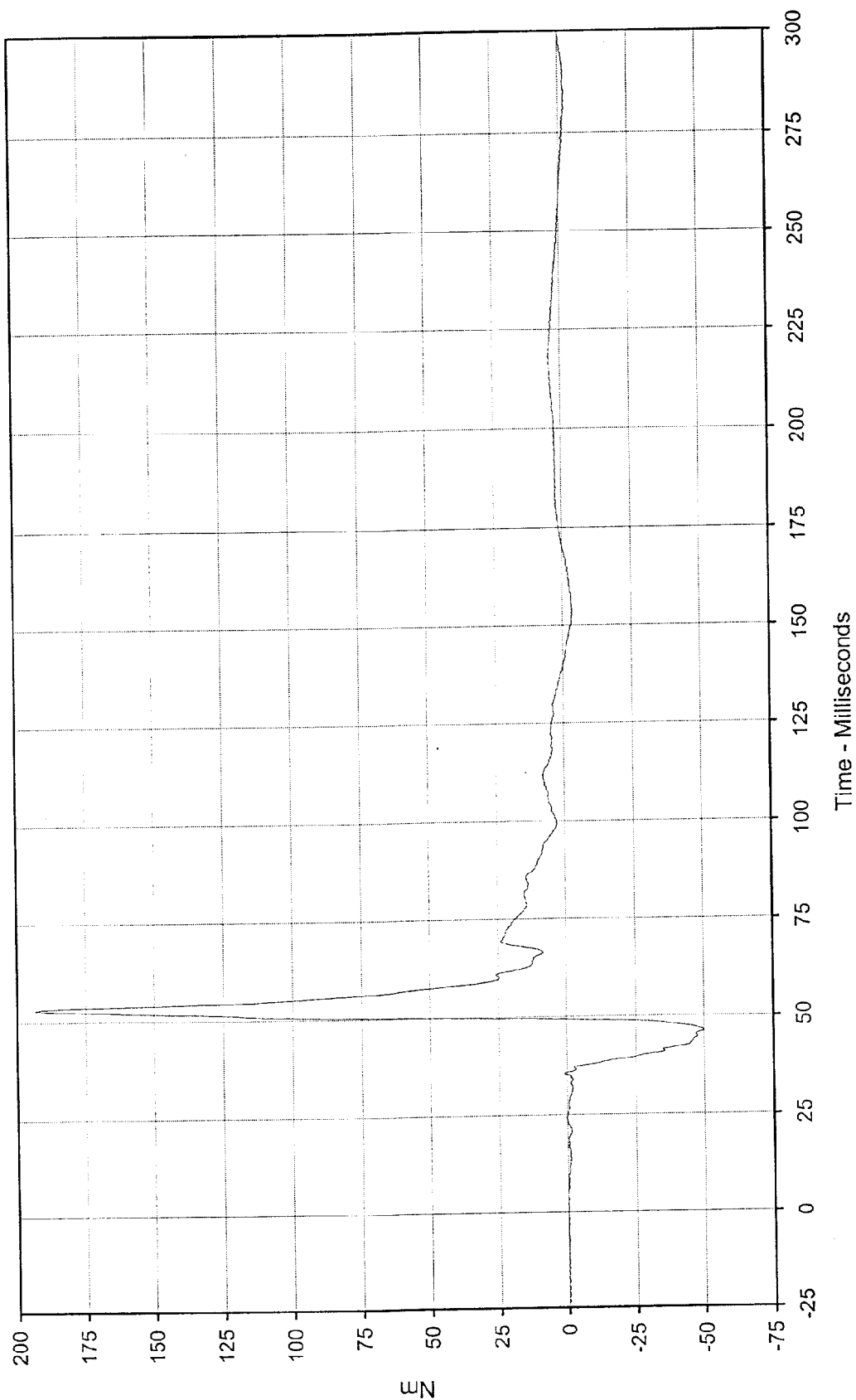
Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Driver Left Lower Tibia Force Z	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	193.6 at 152.3 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-2757.2 at 41.1 Milliseconds			
SAE Filter Class:	600			
Date of Test:	12/18/98			
Curve Number:	FIL-031			





Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Driver Right Lower Tibia Moment X

Maximum Value: 193.3 at 53.0 Milliseconds

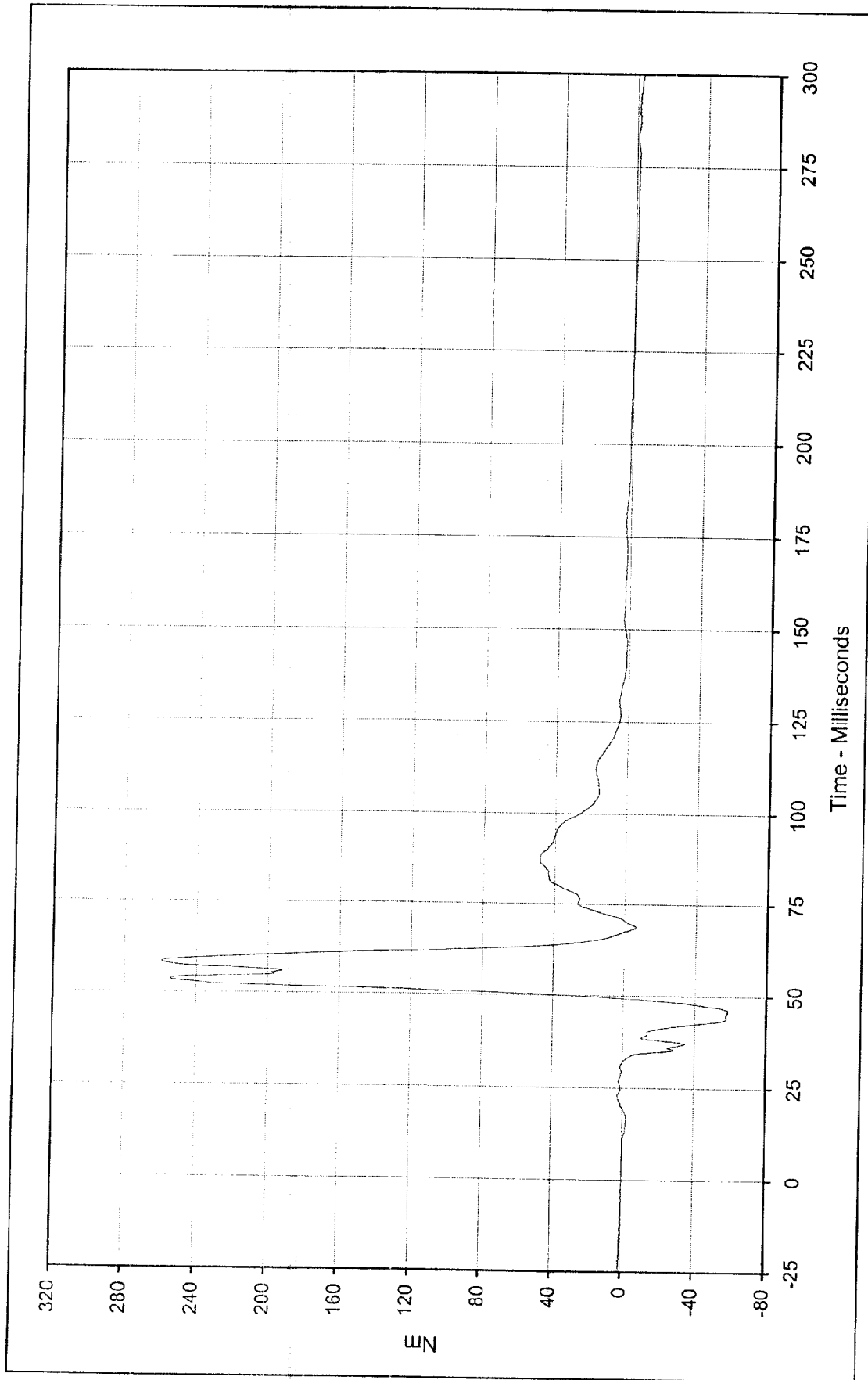
Minimum Value: -50.1 at 46.4 Milliseconds

SAE Filter Class: 600

Date of Test: 12/18/98

Curve Number: FIL-032



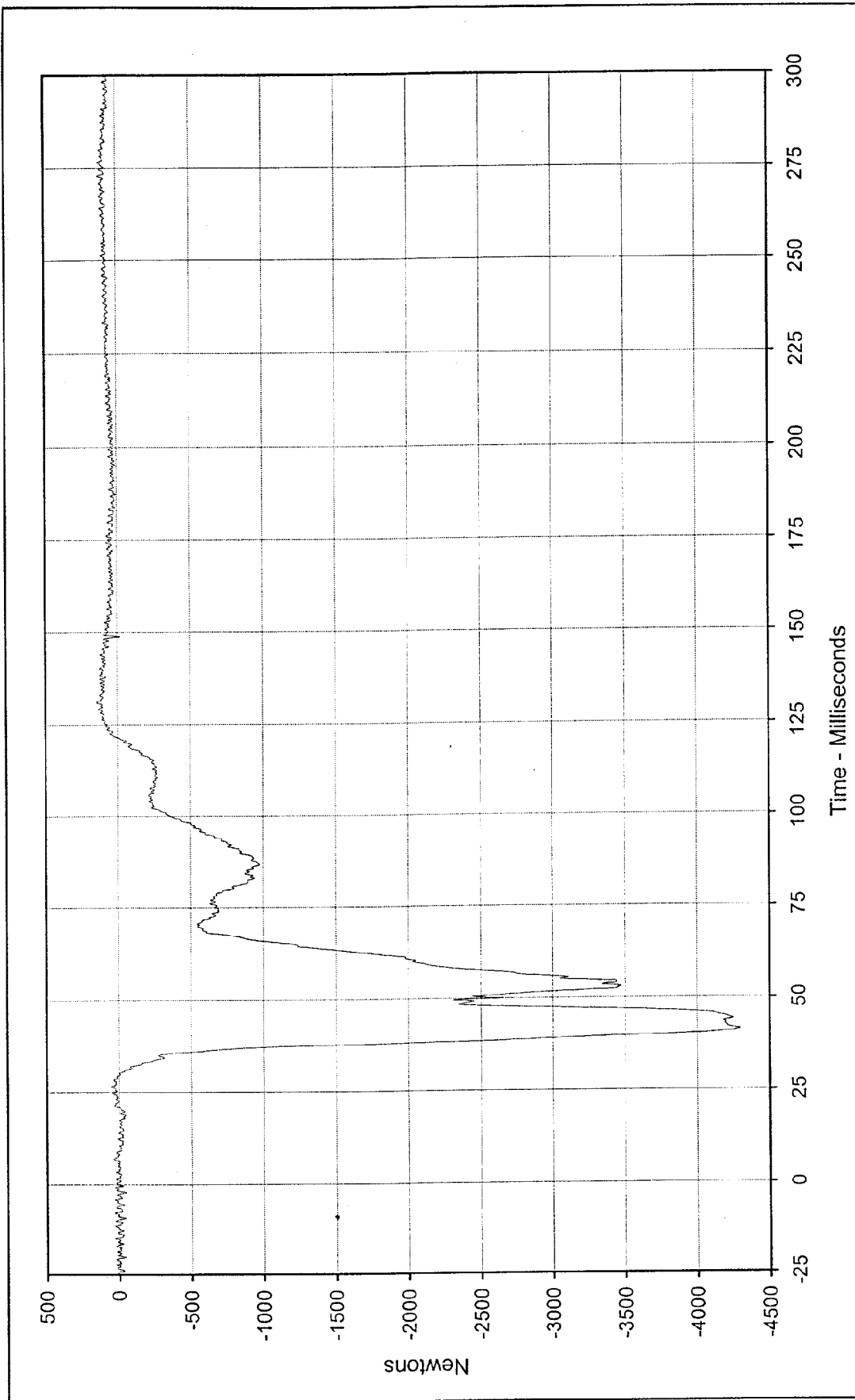


Curve Description: Driver Right Lower Tibia Moment Y

Maximum Value:	259.3	at	58.2	Milliseconds
Minimum Value:	-58.6	at	46.0	Milliseconds
SAE Filter Class:	600			
Date of Test:	12/18/98			
Curve Number:	FIL-033			

Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	

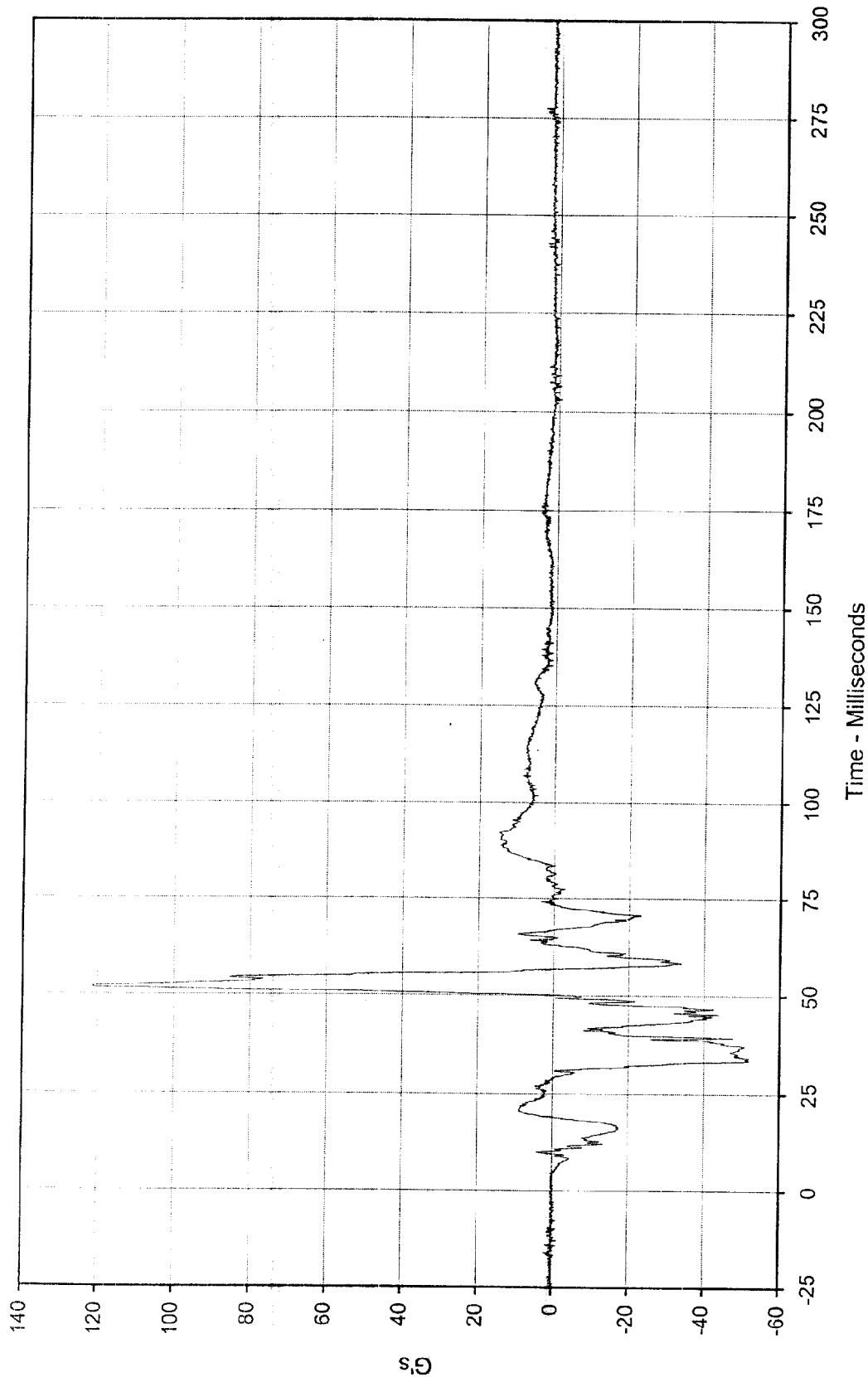




Curve Description: Driver Right Lower Tibia Force Z
 Maximum Value: 143.5 at 131.0 Milliseconds
 Minimum Value: -4297.1 at 41.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-034

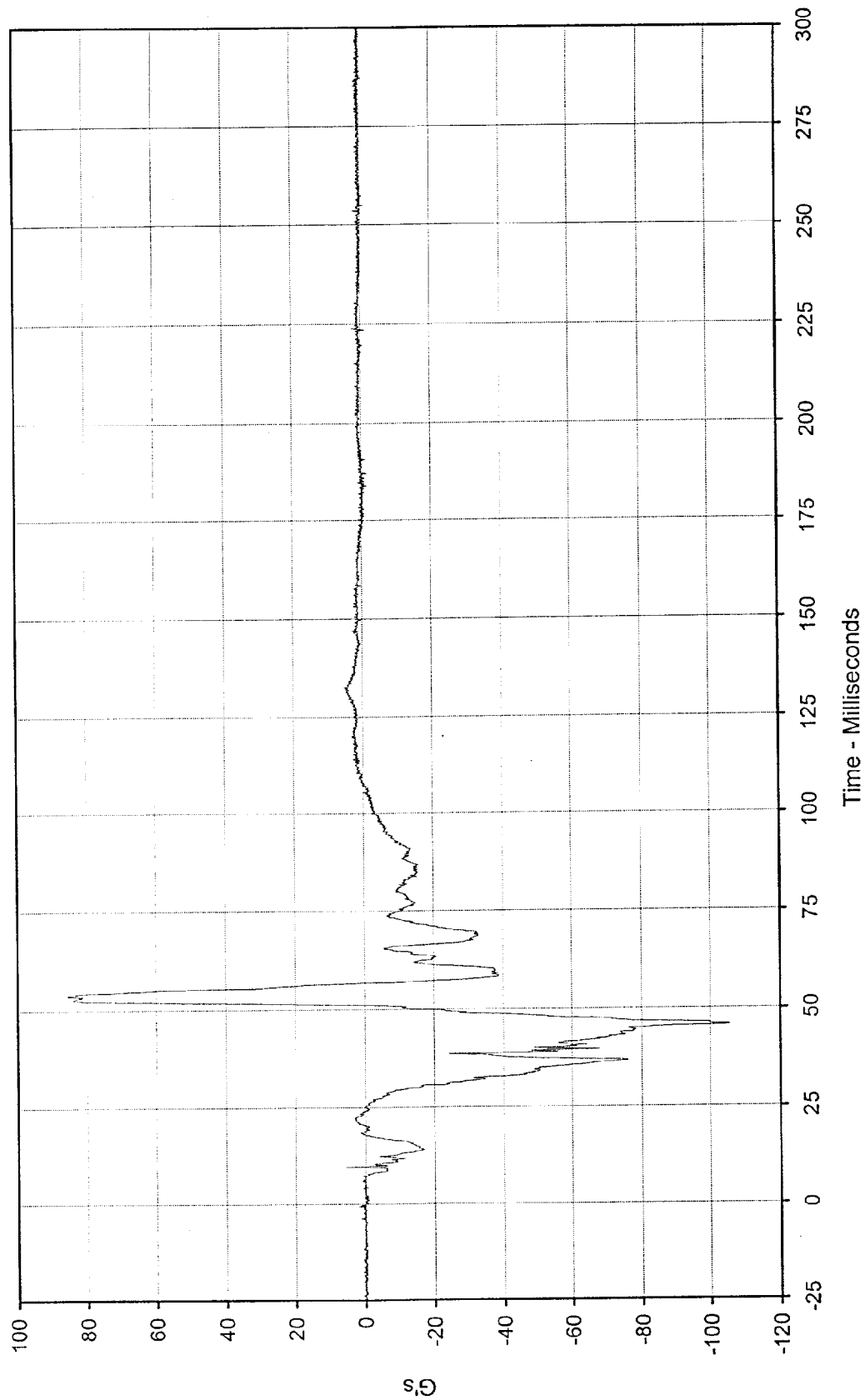
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Driver Left Foot Aft X	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	121.4 at 51.8 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-51.9 at 33.4 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	12/18/98			
Curve Number:	FIL-035			

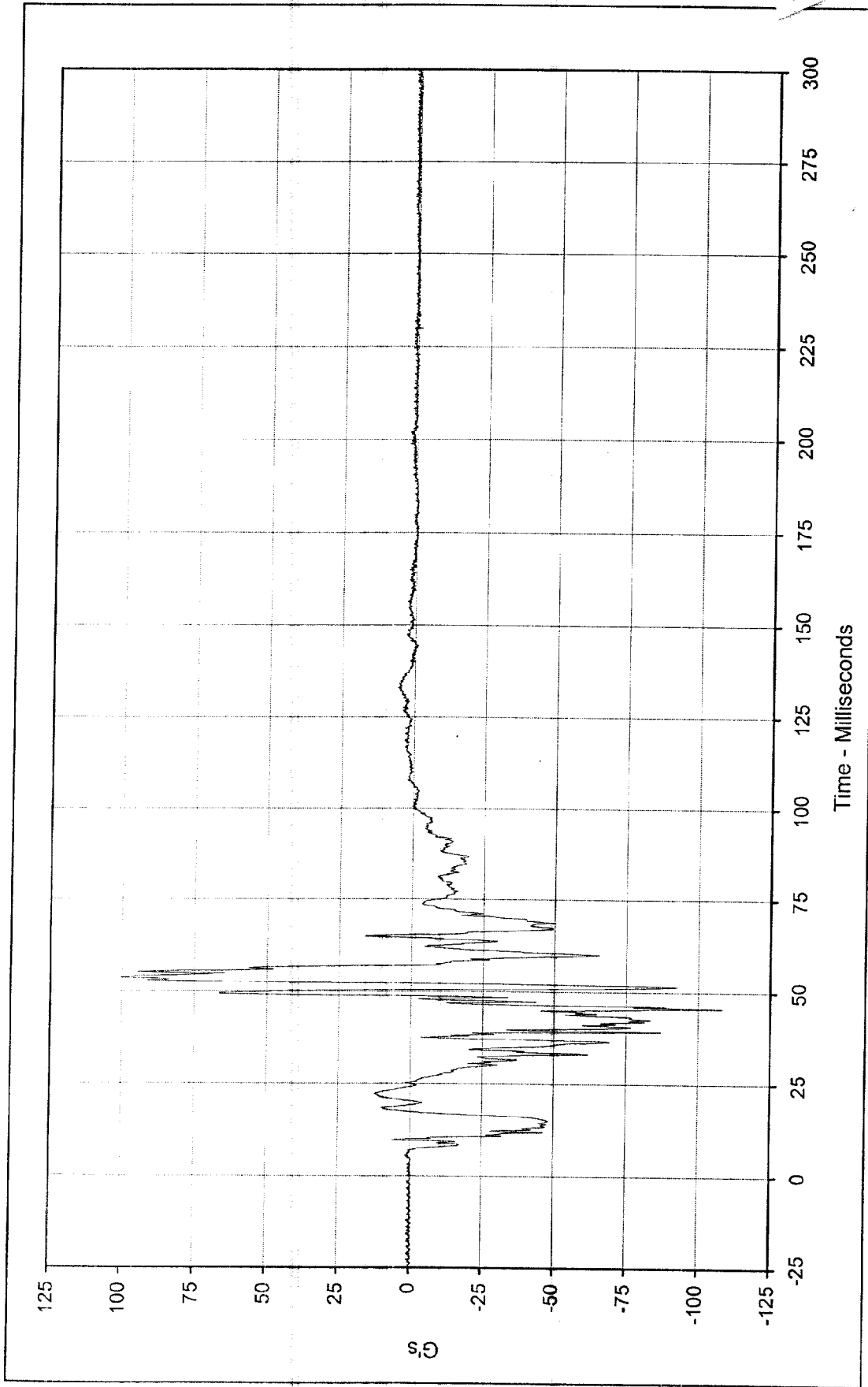




Curve Description:	Driver Left Foot Aft Z	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	85.7 at 53.8 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-105.7 at 45.8 Milliseconds			

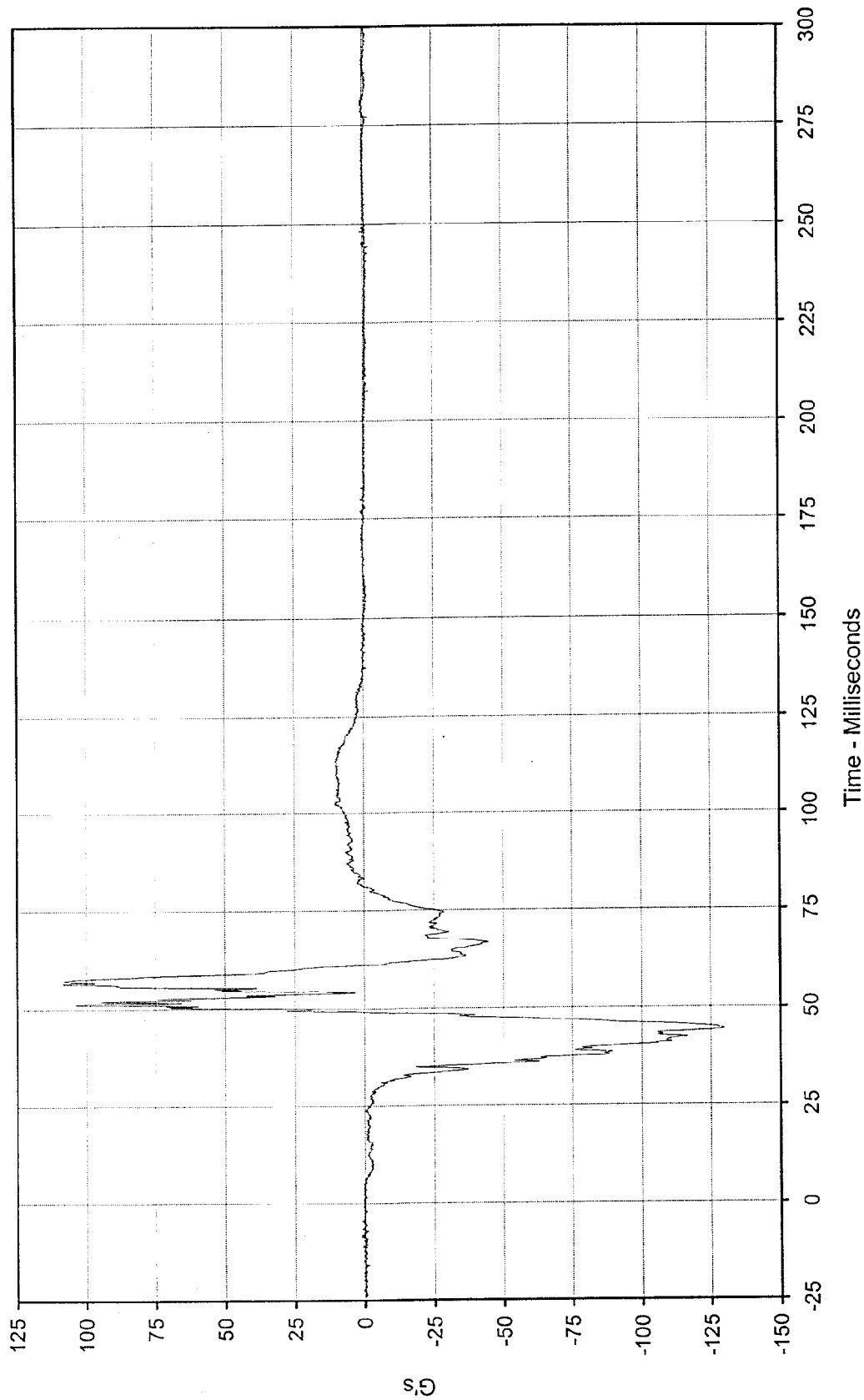


SAE Filter Class:	1000
Date of Test:	12/18/98
Curve Number:	FIL-036



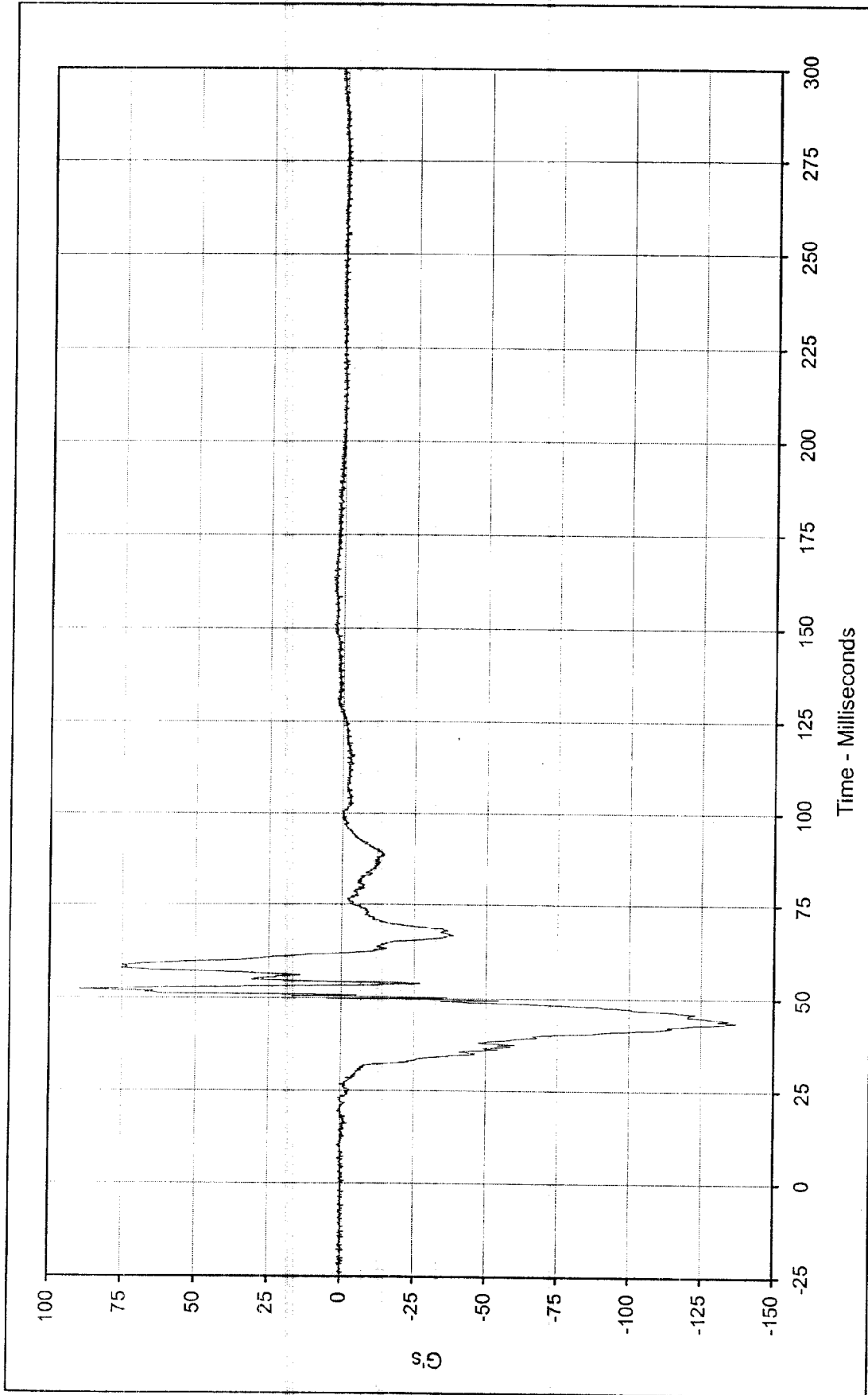
Curve Description:	Driver Left Foot Fore Z	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	100.9 at 53.6 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-108.4 at 45.7 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	12/18/98			
Curve Number:	FIL-037			





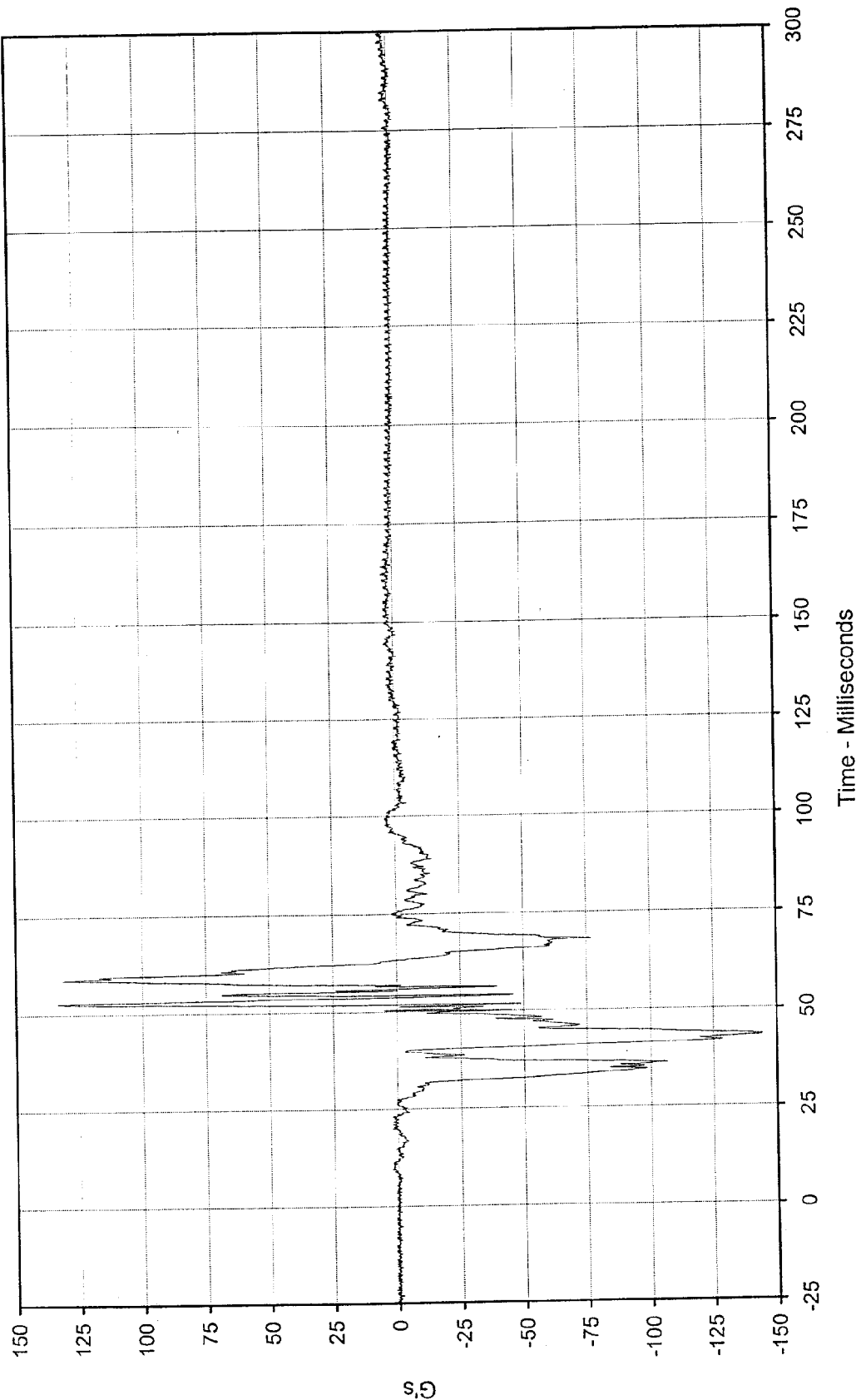
Curve Description:		Driver Right Foot Aft X		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	108.4	at	56.6	Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	-129.7	at	44.5	Milliseconds		
SAE Filter Class:	1000					
Date of Test:	12/18/98					
Curve Number:	FIL-038					





Curve Description:	Driver Right Foot Aft Z	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	89.4 at 52.3 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-137.1 at 43.7 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	12/18/98			
Curve Number:	FIL-039			





Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Driver Right Foot Fore Z

Maximum Value: 133.4 at 52.8 Milliseconds

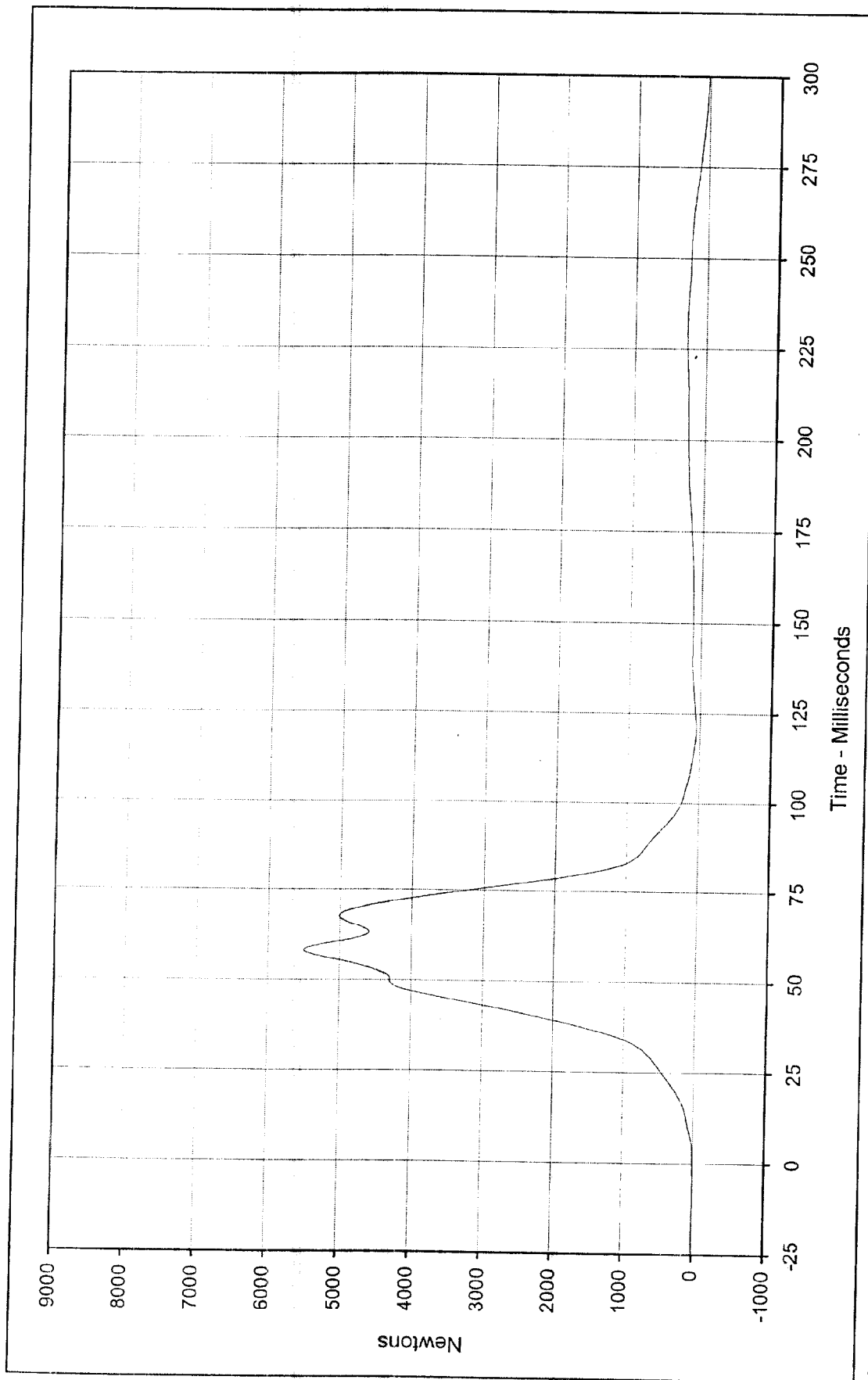
Minimum Value: -144.5 at 43.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 12/18/98

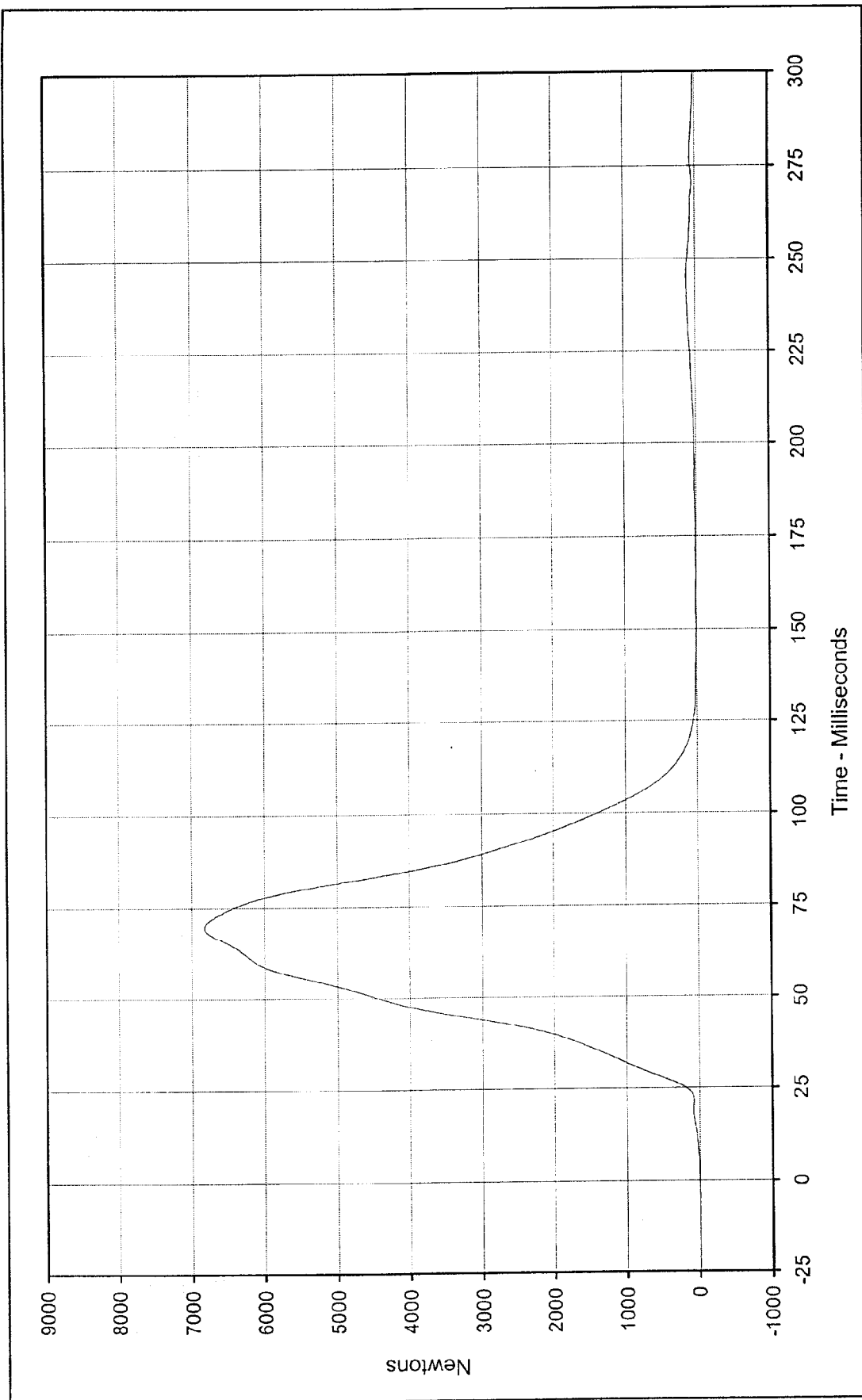
Curve Number: FIL-040





Curve Description:	Driver Lap Belt Force	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	5499.6 at 58.1 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	4.2 at 0.0 Milliseconds			
SAE Filter Class:	60			
Date of Test:	12/18/98			
Curve Number:	FIL-041			

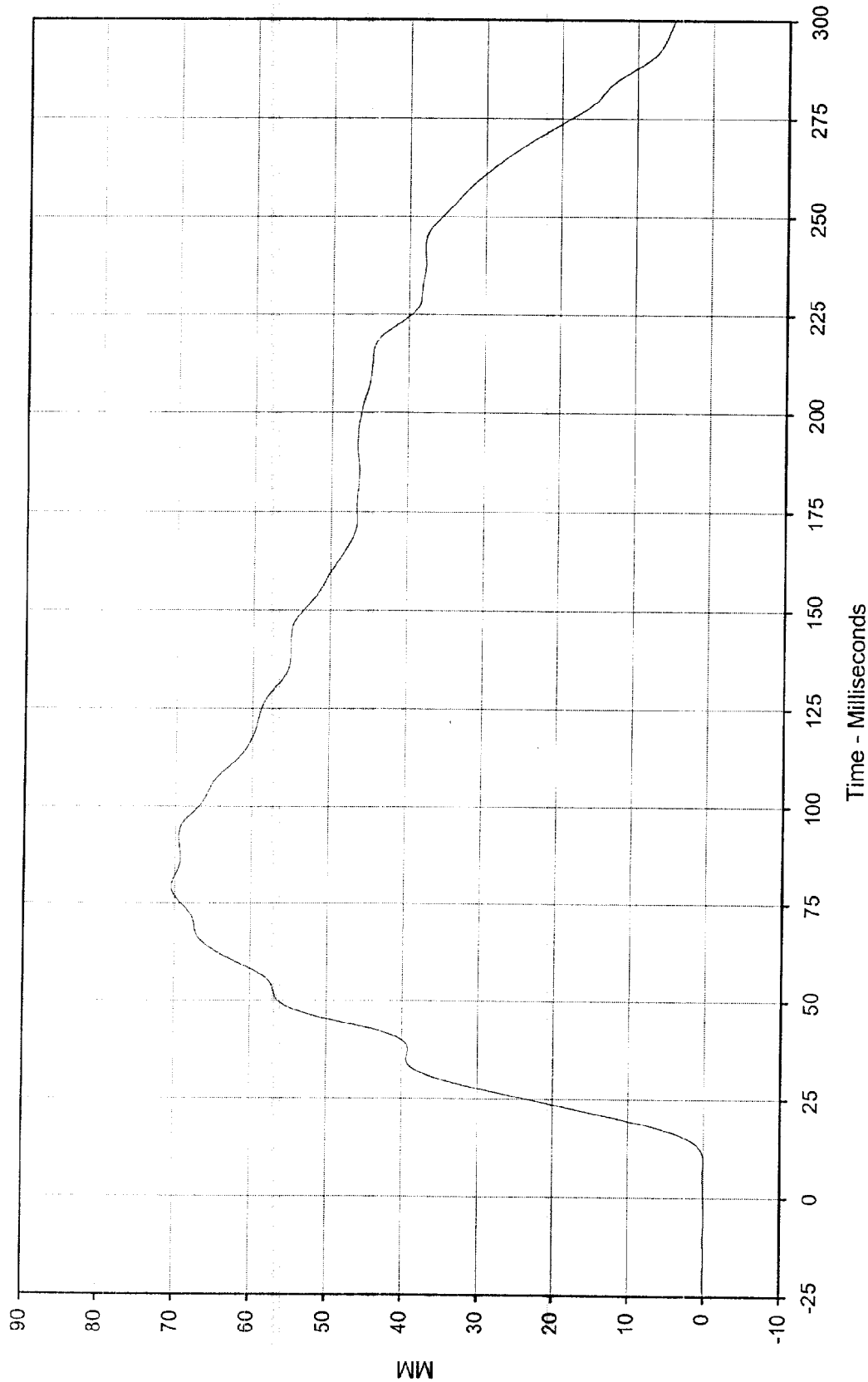




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Driver Shoulder Belt Force
 Maximum Value: 6824.9 at 69.7 Milliseconds
 Minimum Value: 1.8 at 0.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-042

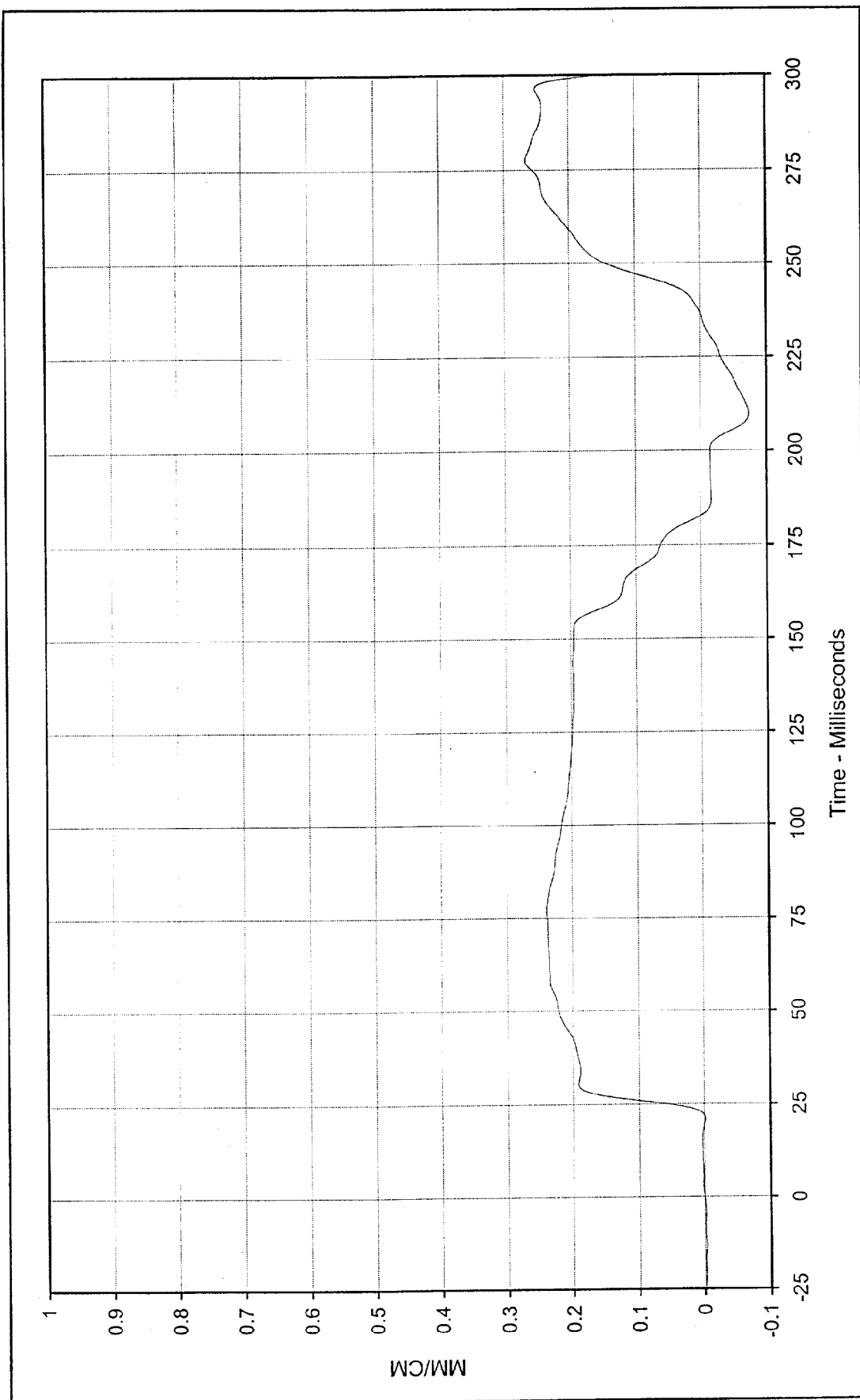




Curve Description: Driver Shoulder Belt Pullout
 Maximum Value: 70.4 at 79.2 Milliseconds
 Minimum Value: 0.0 at 9.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-043

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

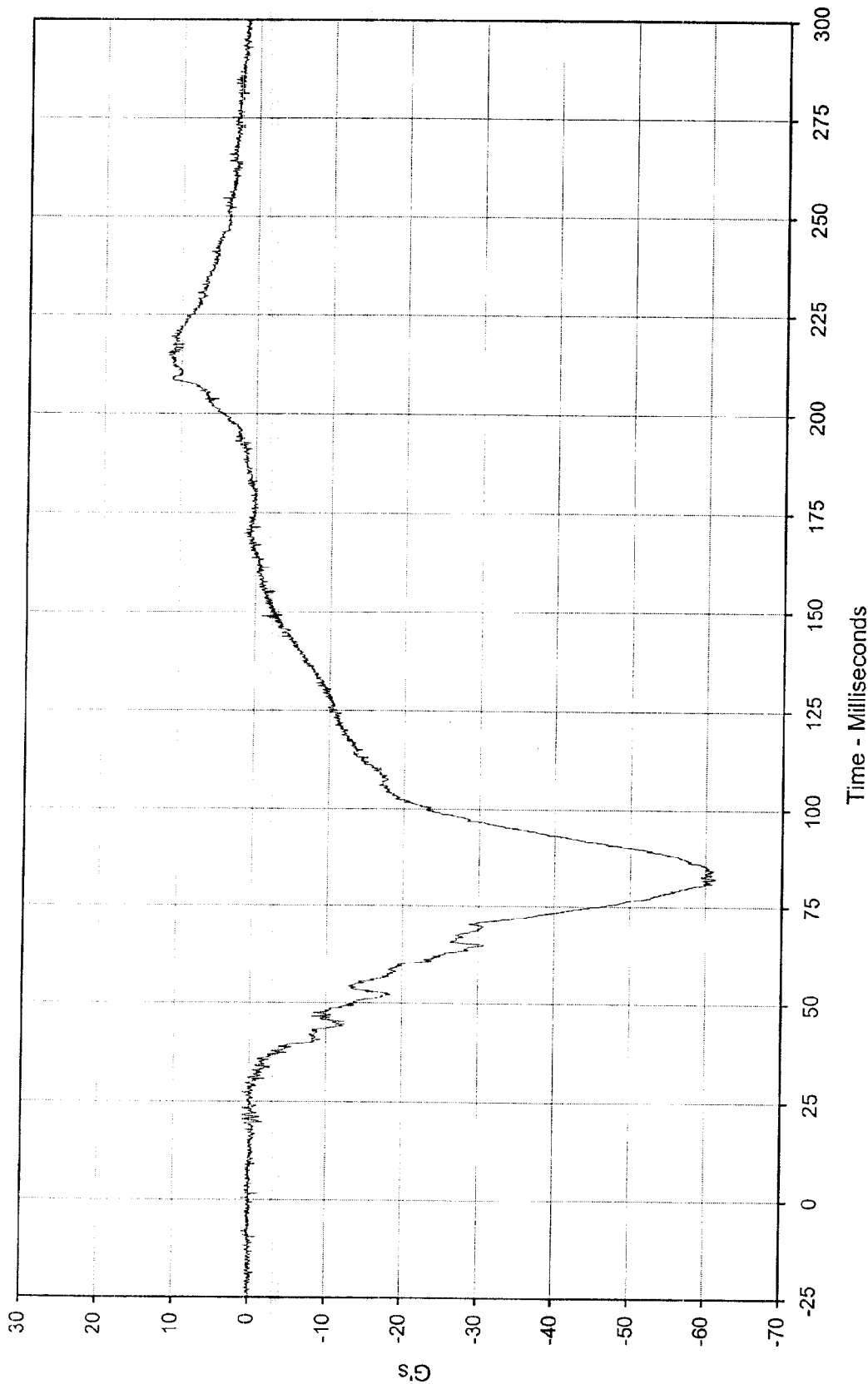




Curve Description: Driver Shoulder Belt Elongation
 Maximum Value: 0.27 at 277.8 Milliseconds
 Minimum Value: -0.07 at 209.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-044

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Head Primary X

Maximum Value: 11.7 at 214.9 Milliseconds

Minimum Value: -61.4 at 82.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 12/18/98

Curve Number: FIL-045

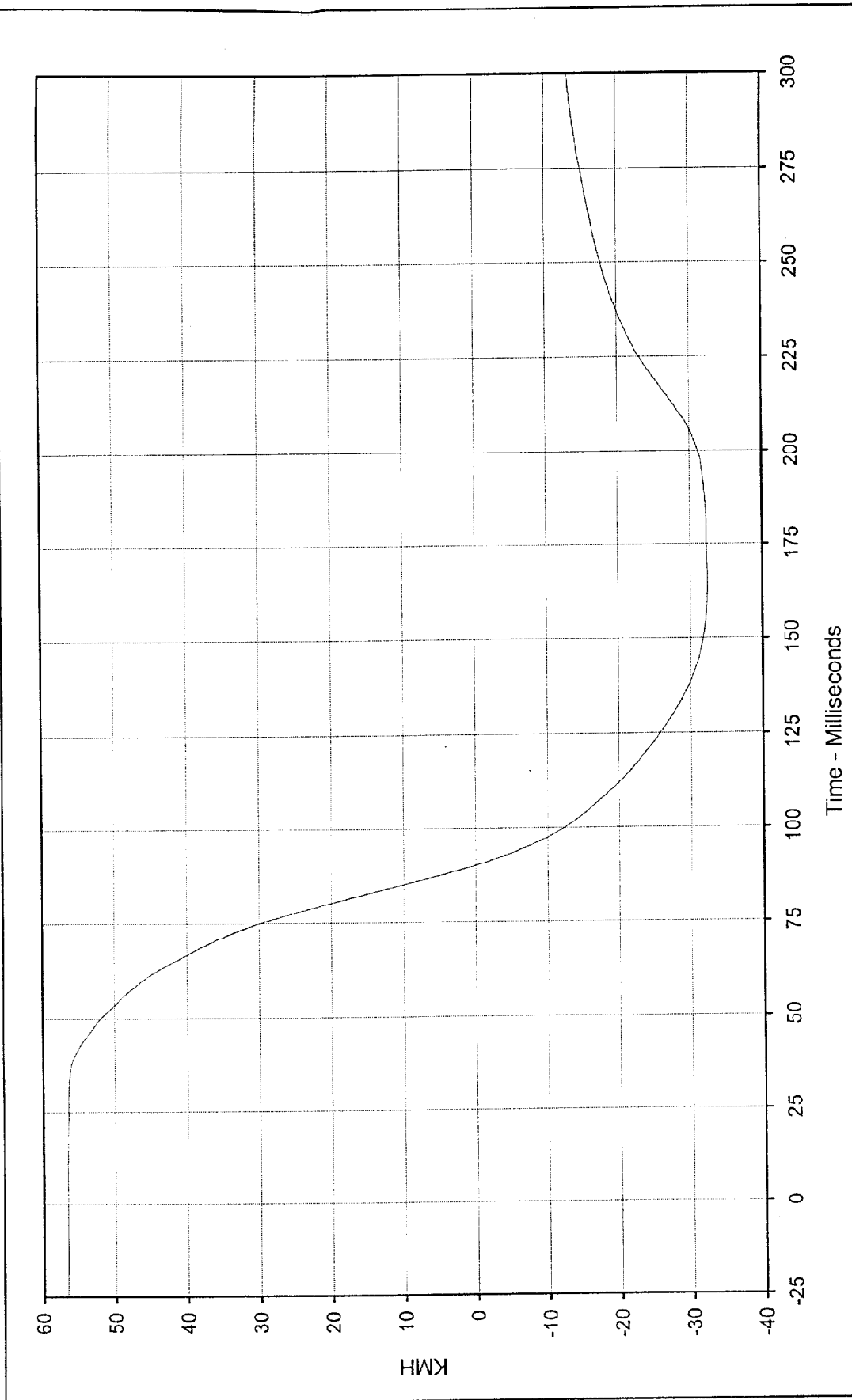
Test Program:

1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle:

1999 Honda Civic DX 2 Door Coupe

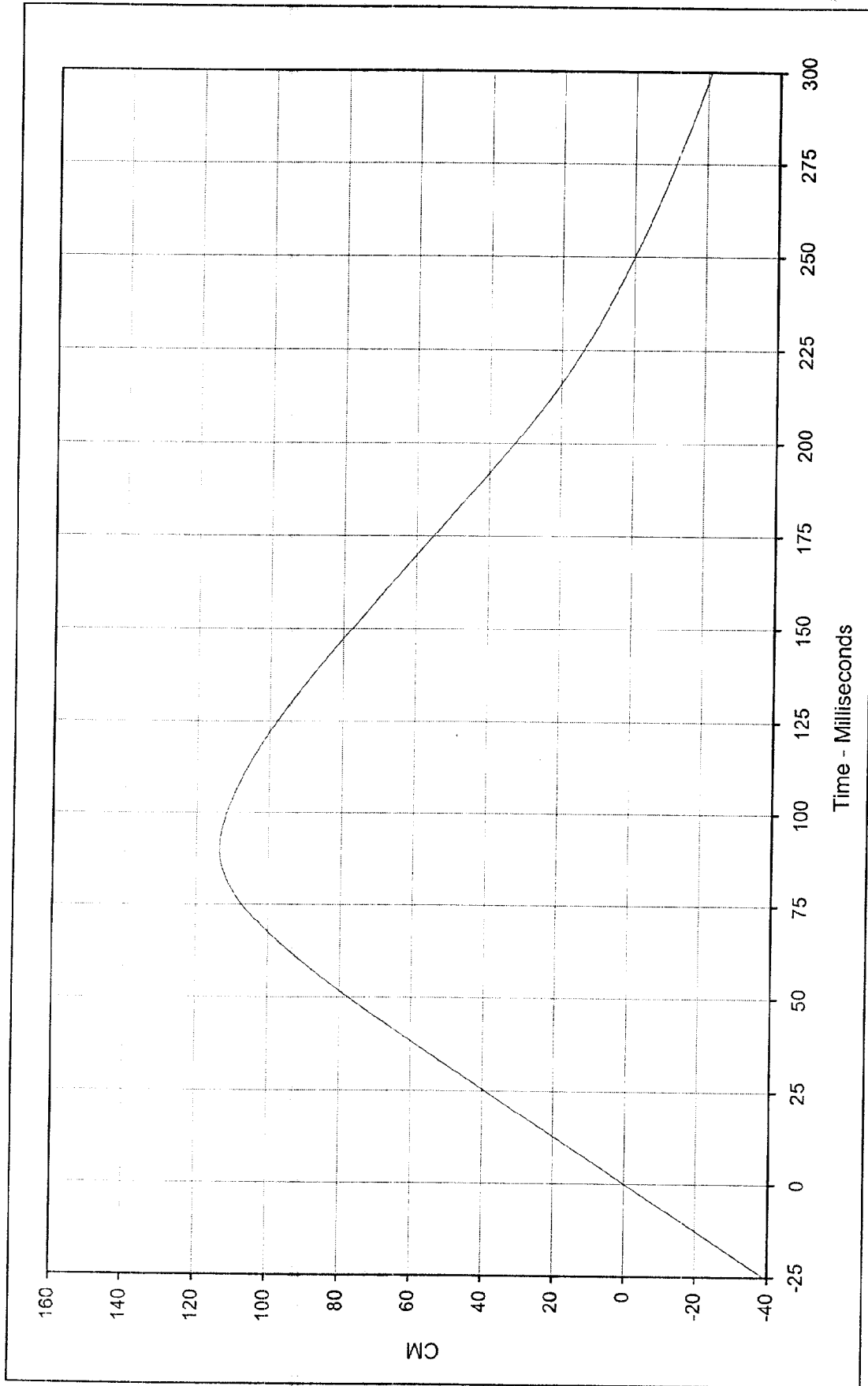




Curve Description: Passenger Head Primary X Velocity
Maximum Value: 56.6 at 8.0 Milliseconds
Minimum Value: -32.4 at 165.1 Milliseconds

Testing Program 1999 NHTSA 35 mph NCAP No.: MX5301
Test Vehicle: 1999 Honda Civic DX 2 Door Coupe
SAE Filter Class: 180
Date of Test: 12/18/98
Curve Number: IN1-045

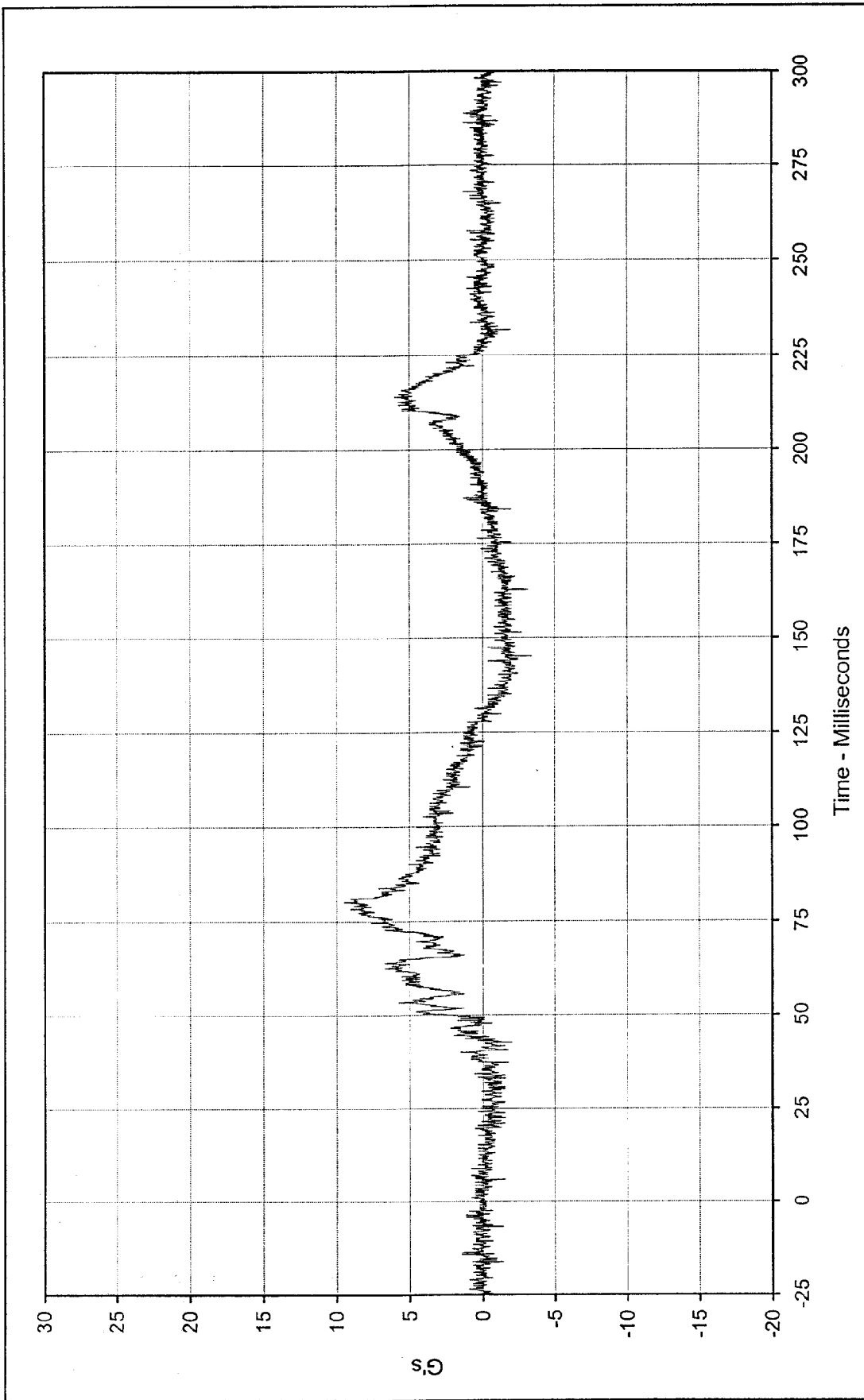




Curve Description: Passenger Head Primary X Displ.
 Maximum Value: 113.6 at 90.1 Milliseconds
 Minimum Value: -21.0 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN2-045

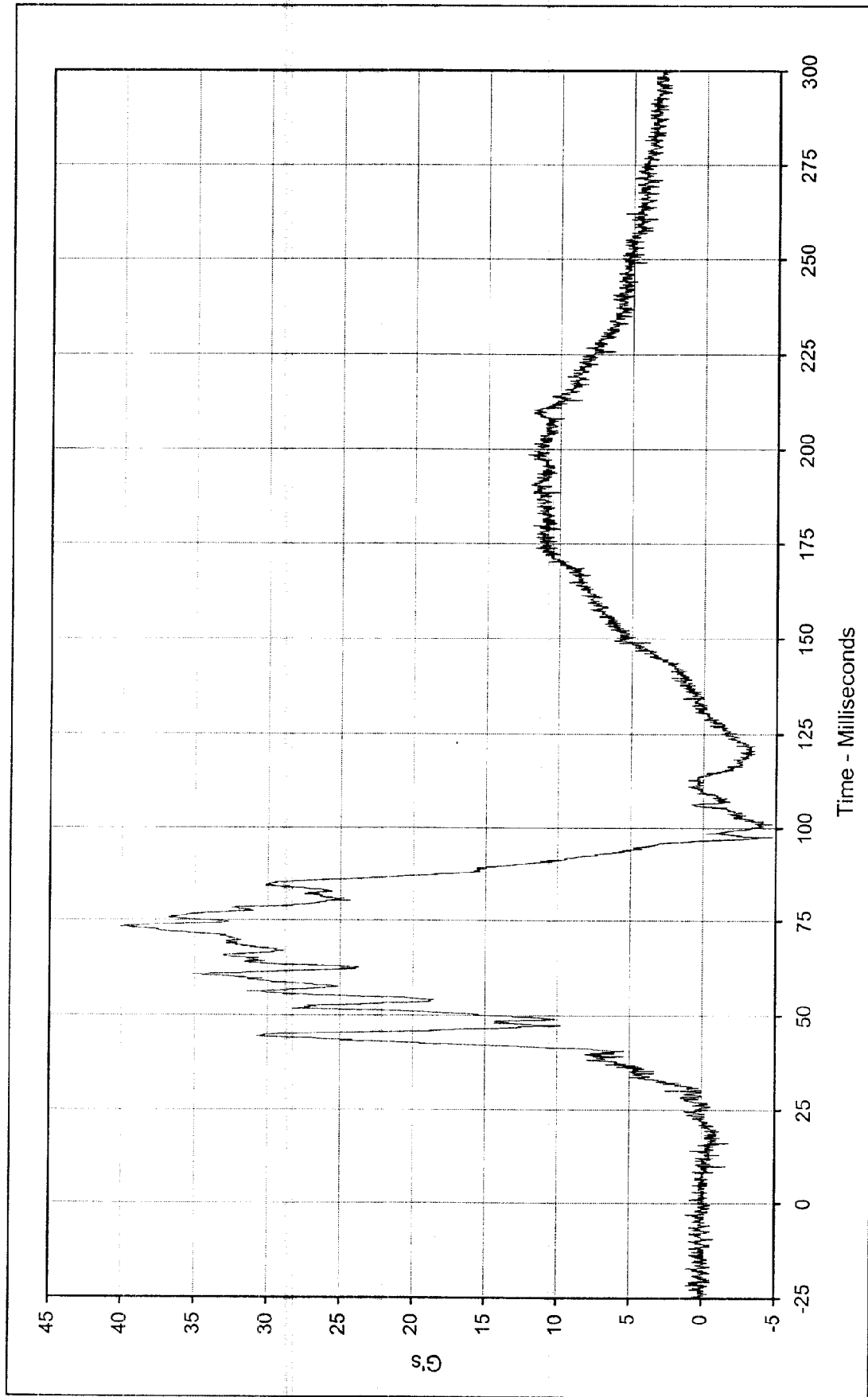
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Passenger Head Primary Y	Test Program:	1999 NHTSA 35 mph NCAP	No.:	MX5301
Maximum Value:	9.5 at 80.0 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe		
Minimum Value:	-3.4 at 145.0 Milliseconds				
SAE Filter Class:	1000				
Date of Test:	12/18/98				
Curve Number:	FIL-046				

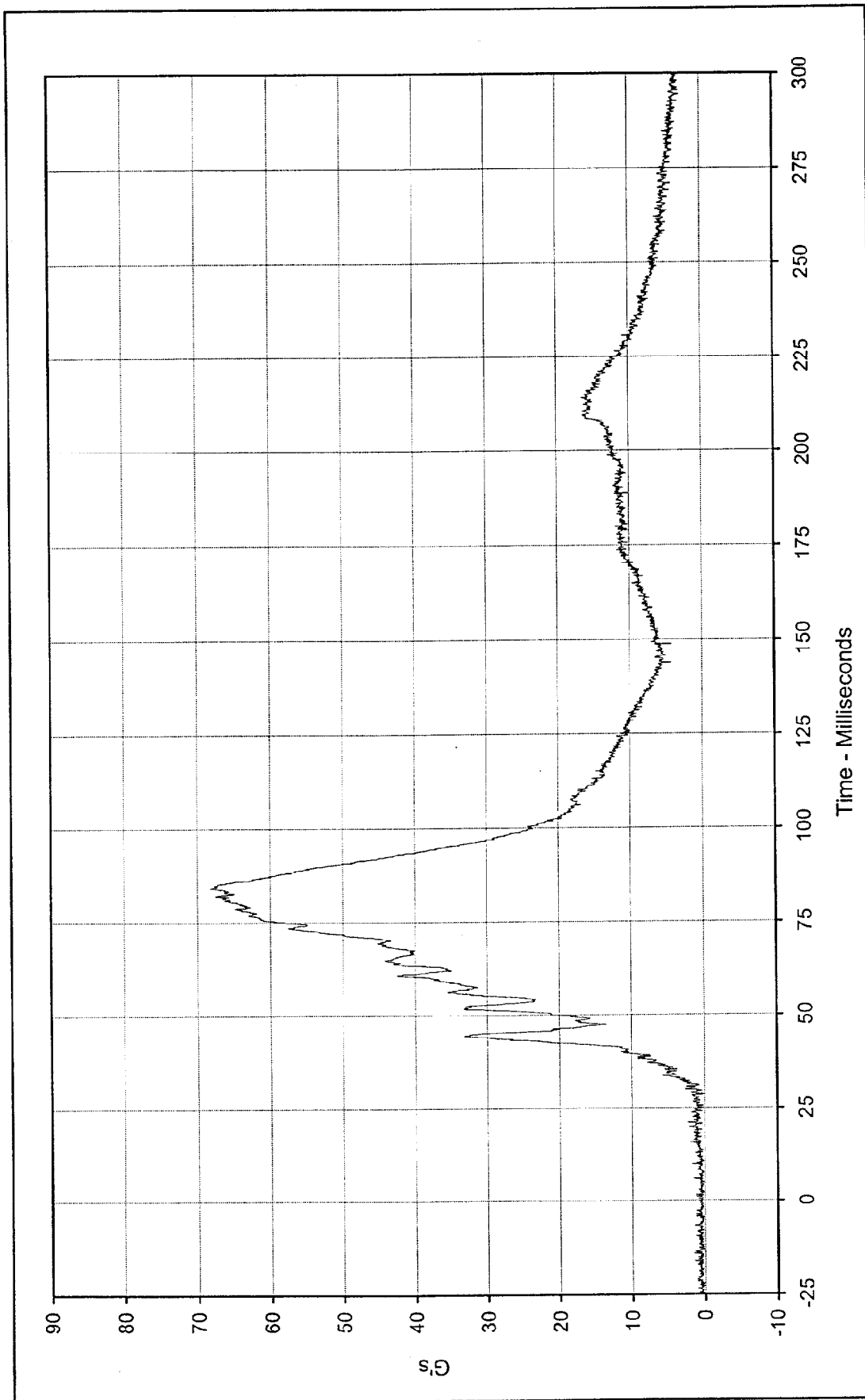




Curve Description: Passenger Head Primary Z
 Maximum Value: 40.1 at 73.2 Milliseconds
 Minimum Value: -4.8 at 97.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: FIL-047

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



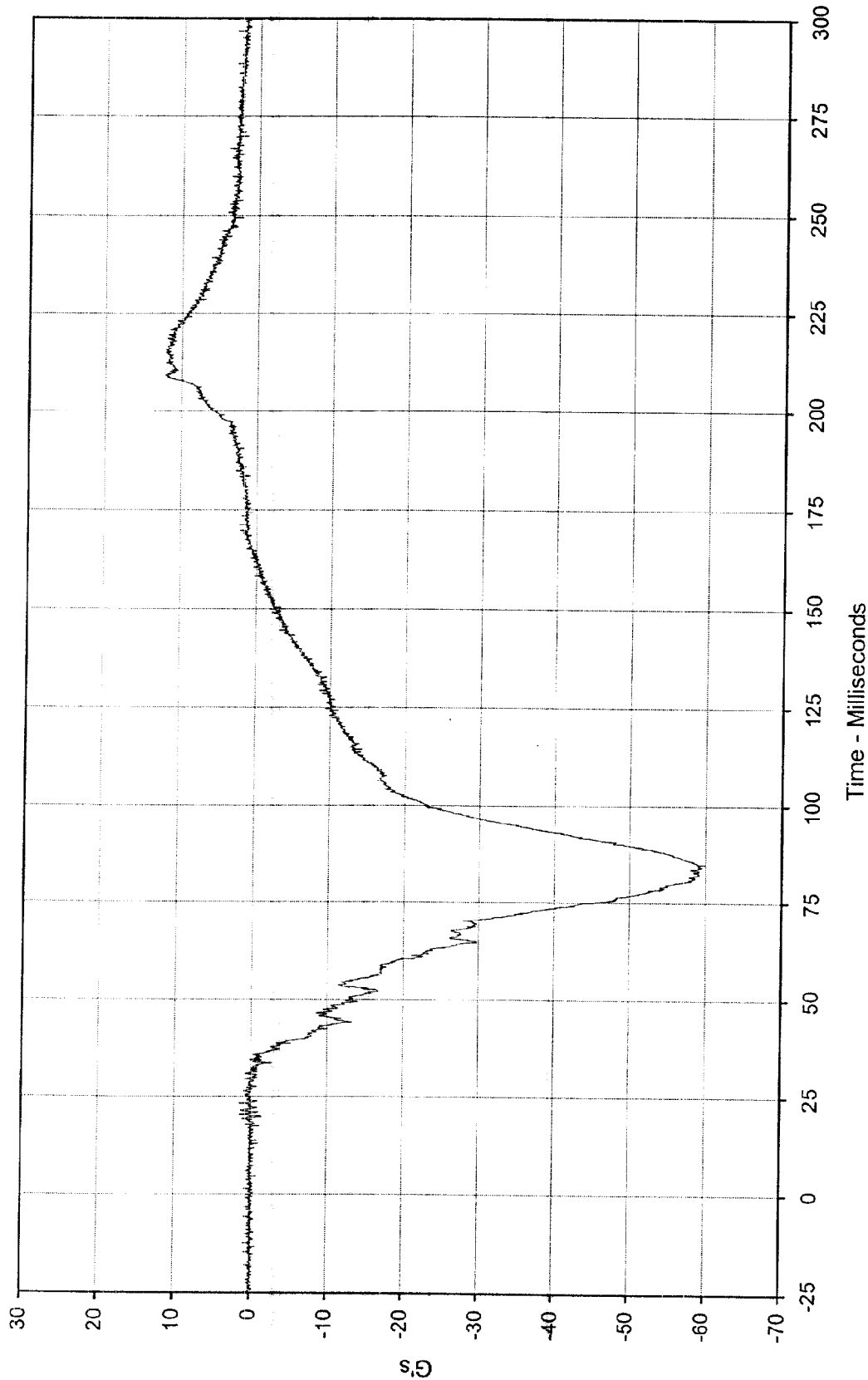


Curve Description: Passenger Head Resultant Primary
 Maximum Value: 68.1 at 84.0 Milliseconds
 Minimum Value: 0.1 at 4.4 Milliseconds

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: RES-045



Curve Description: Passenger Head Redundant X

Maximum Value: 12.1 at 209.3 Milliseconds

Minimum Value: -60.0 at 84.7 Milliseconds

SAE Filter Class: 1000

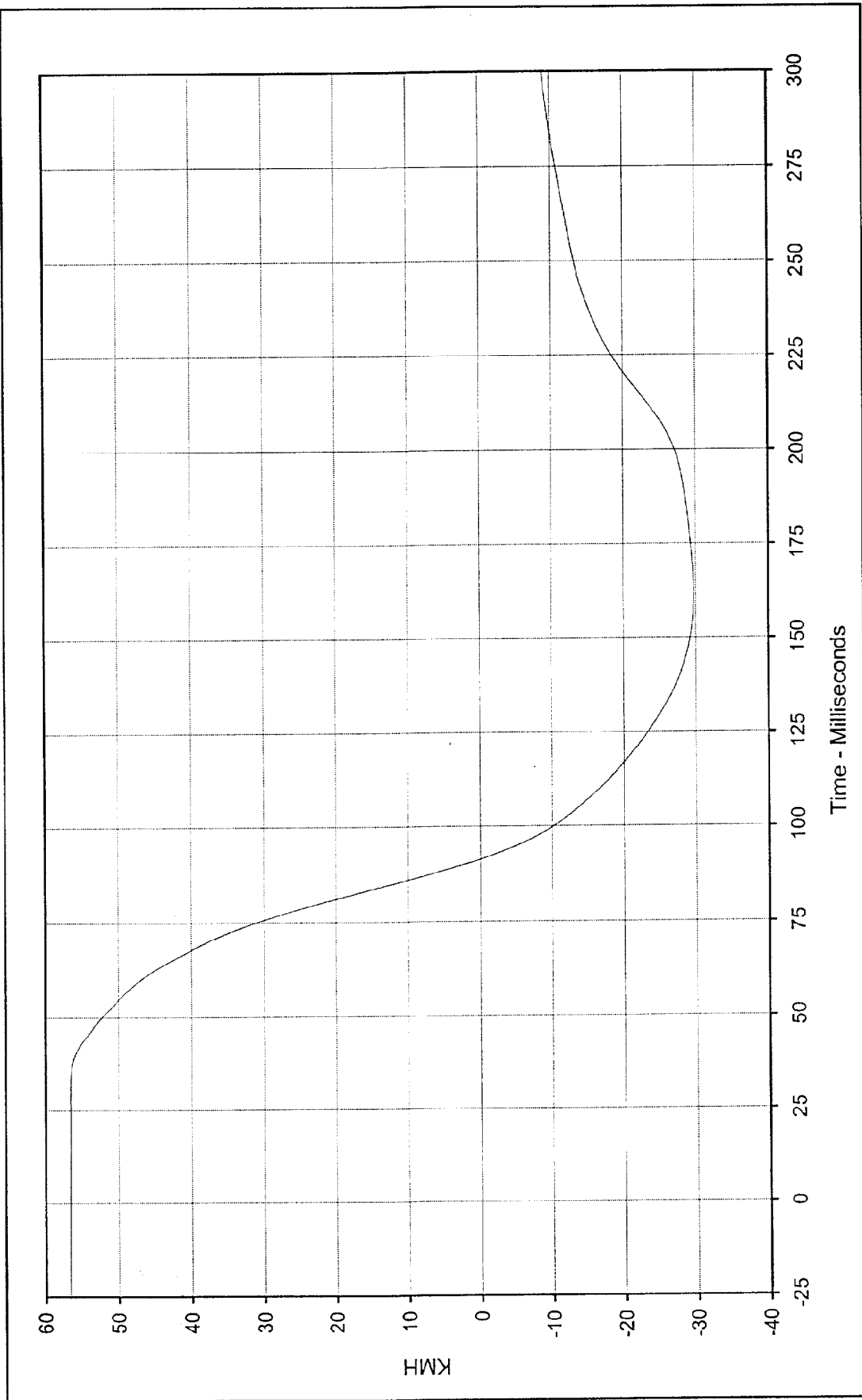
Date of Test: 12/18/98

Curve Number: FIL-048

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

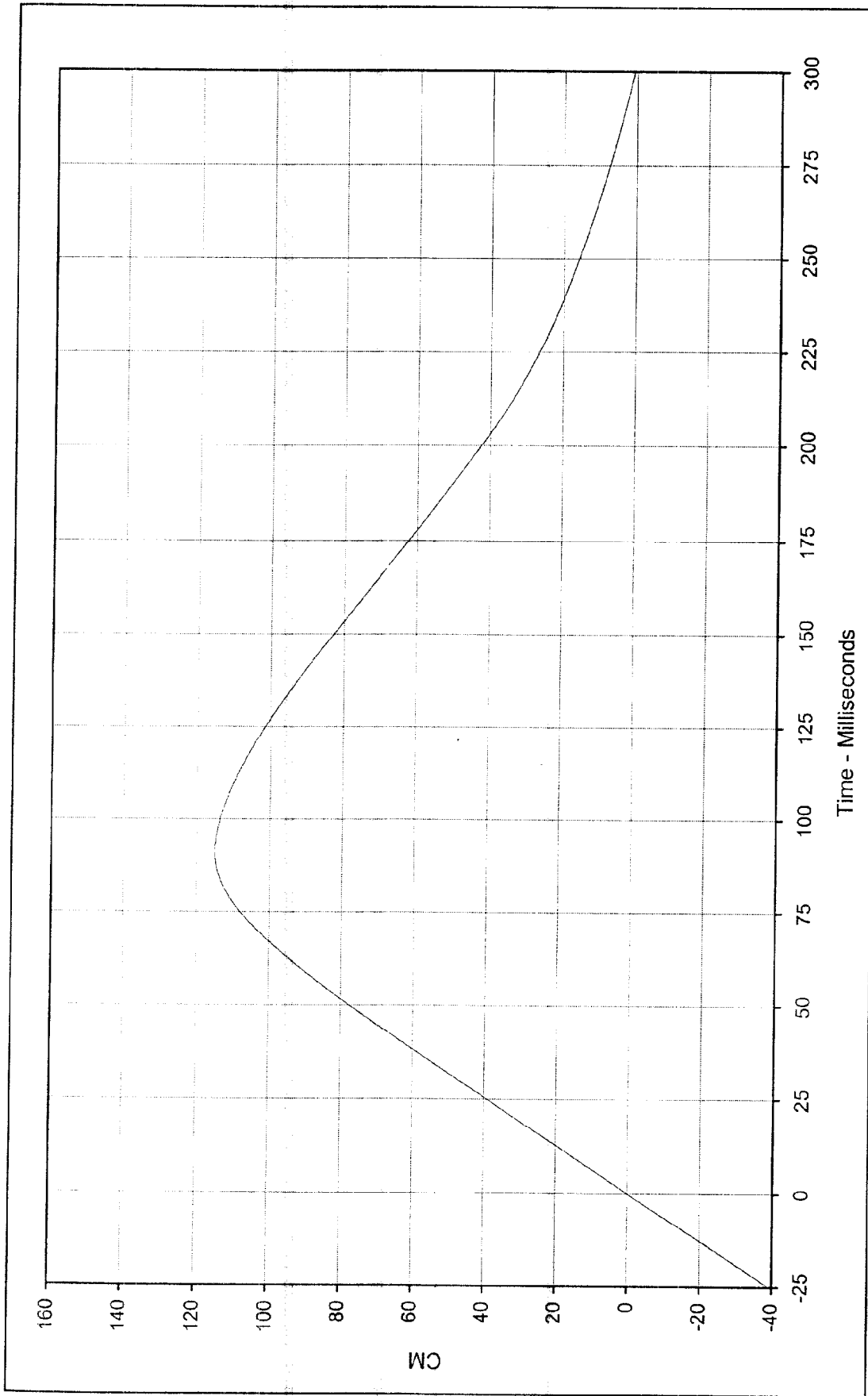




Curve Description: Passenger Head Redundant X Velocity
 Maximum Value: 56.6 at 0.0 Milliseconds
 Minimum Value: -29.8 at 162.5 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN1-048

Testing Program 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Head Redundant X Displ.

Maximum Value: 115.0 at 91.2 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

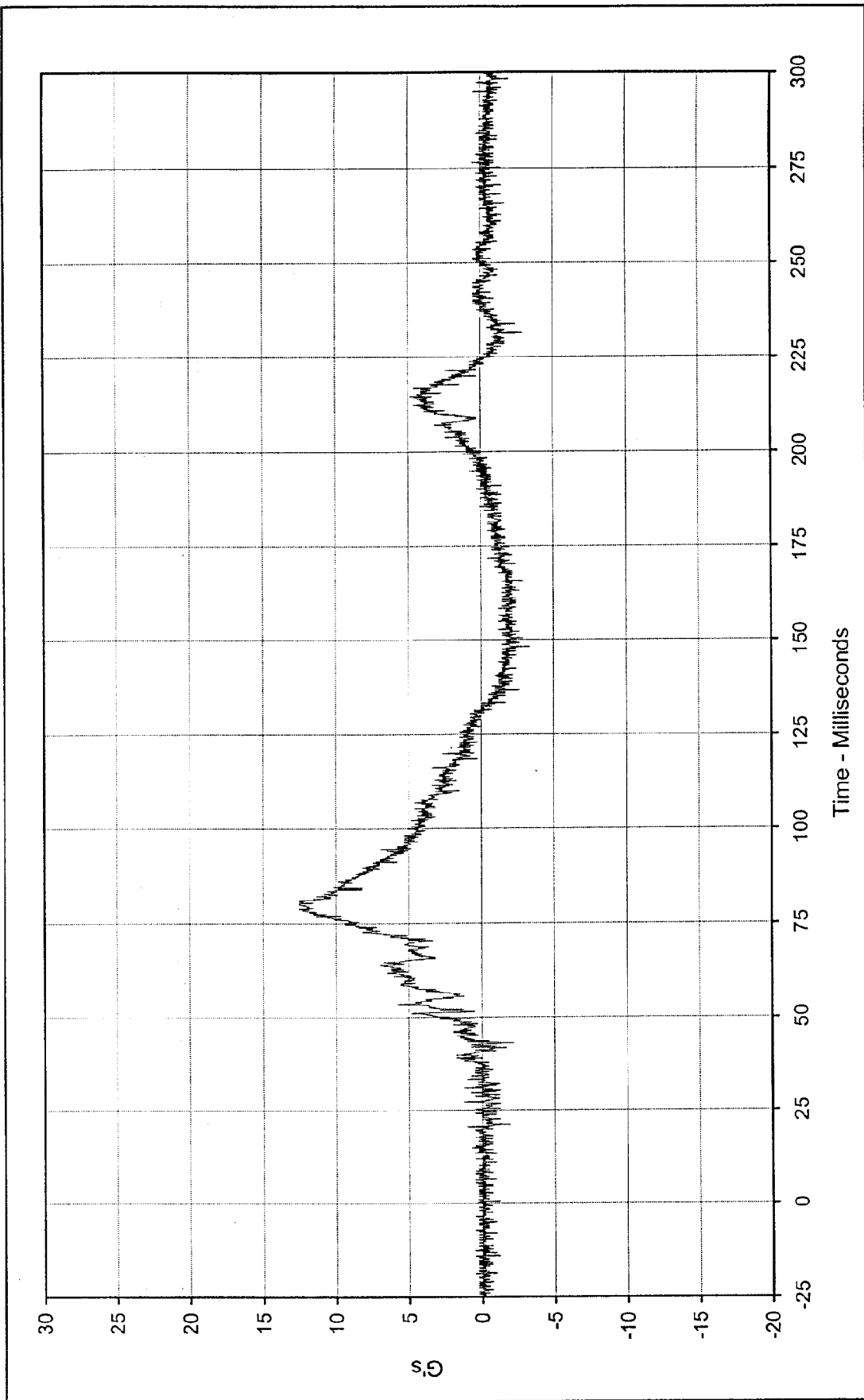
Date of Test: 12/18/98

Curve Number: IN2-048

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

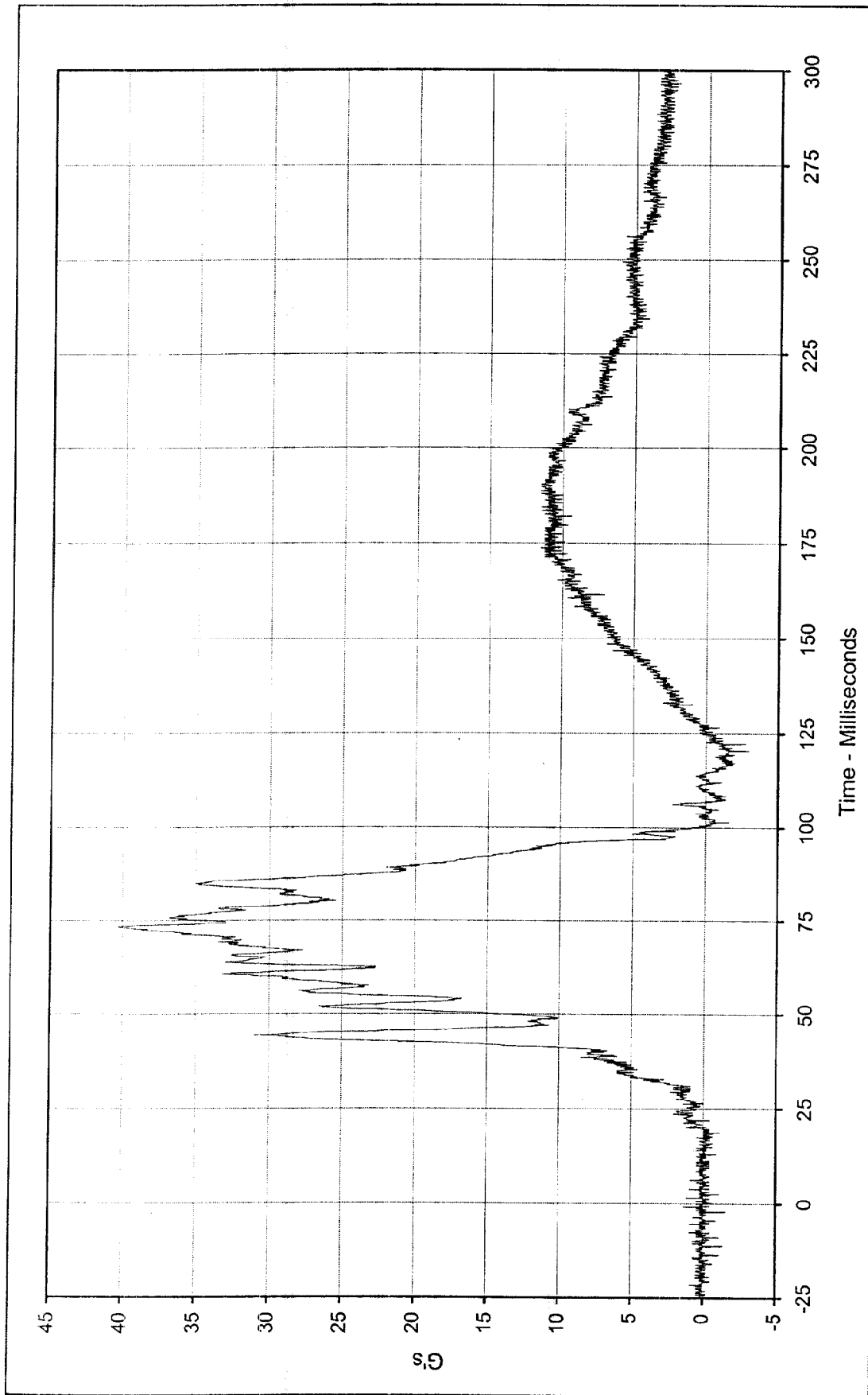




Curve Description:	Passenger Head Redundant Y	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	12.5 at 78.6 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-3.4 at 148.2 Milliseconds			

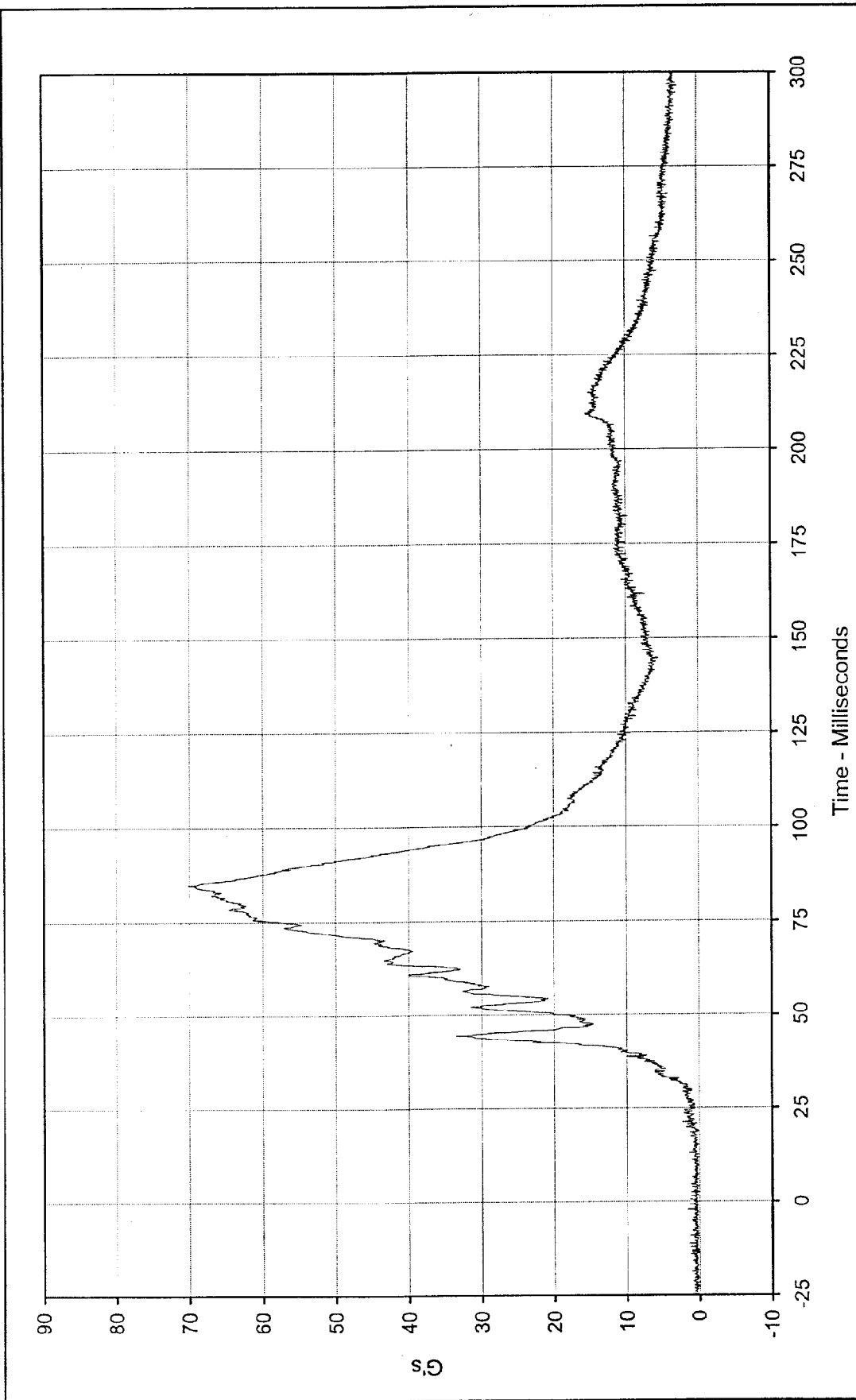


SAE Filter Class:	1000
Date of Test:	12/18/98
Curve Number:	FIL-049



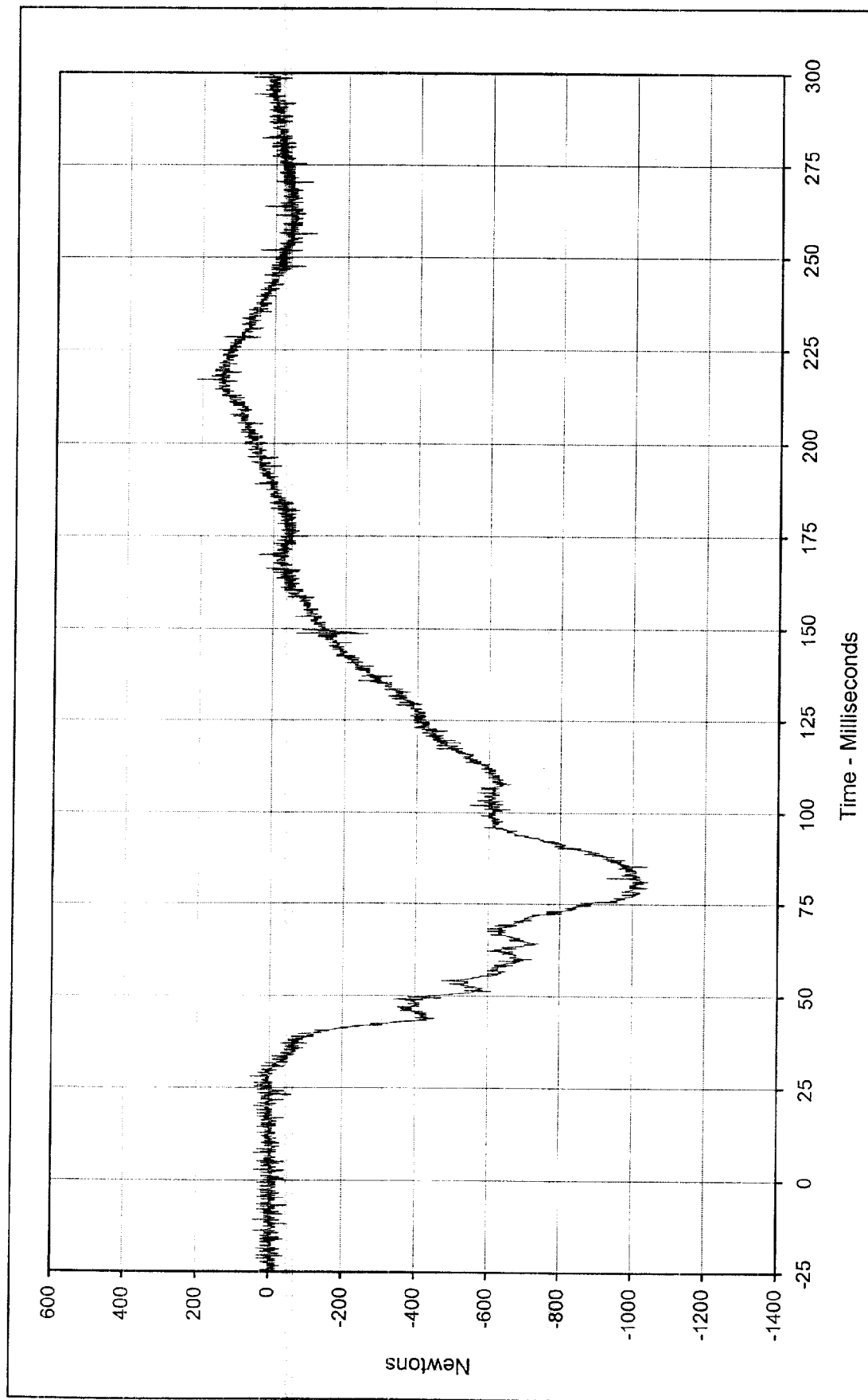
Curve Description:	Passenger Head Redundant Z	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	40.3	at	73.3	Milliseconds
Minimum Value:	-3.0	at	120.2	Milliseconds
SAE Filter Class:	1000	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Date of Test:	12/18/98			
Curve Number:	FIL-050			





Curve Description:	Passenger Head Resultant Redundant	Test Program:	1999 NHTSA 35 mph NCAP	No.:	MX5301
Maximum Value:	70.2	at	84.7	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	0.0	at	2.5		
SAE Filter Class:	1000				
Date of Test:	12/18/98				
Curve Number:	RES-048				

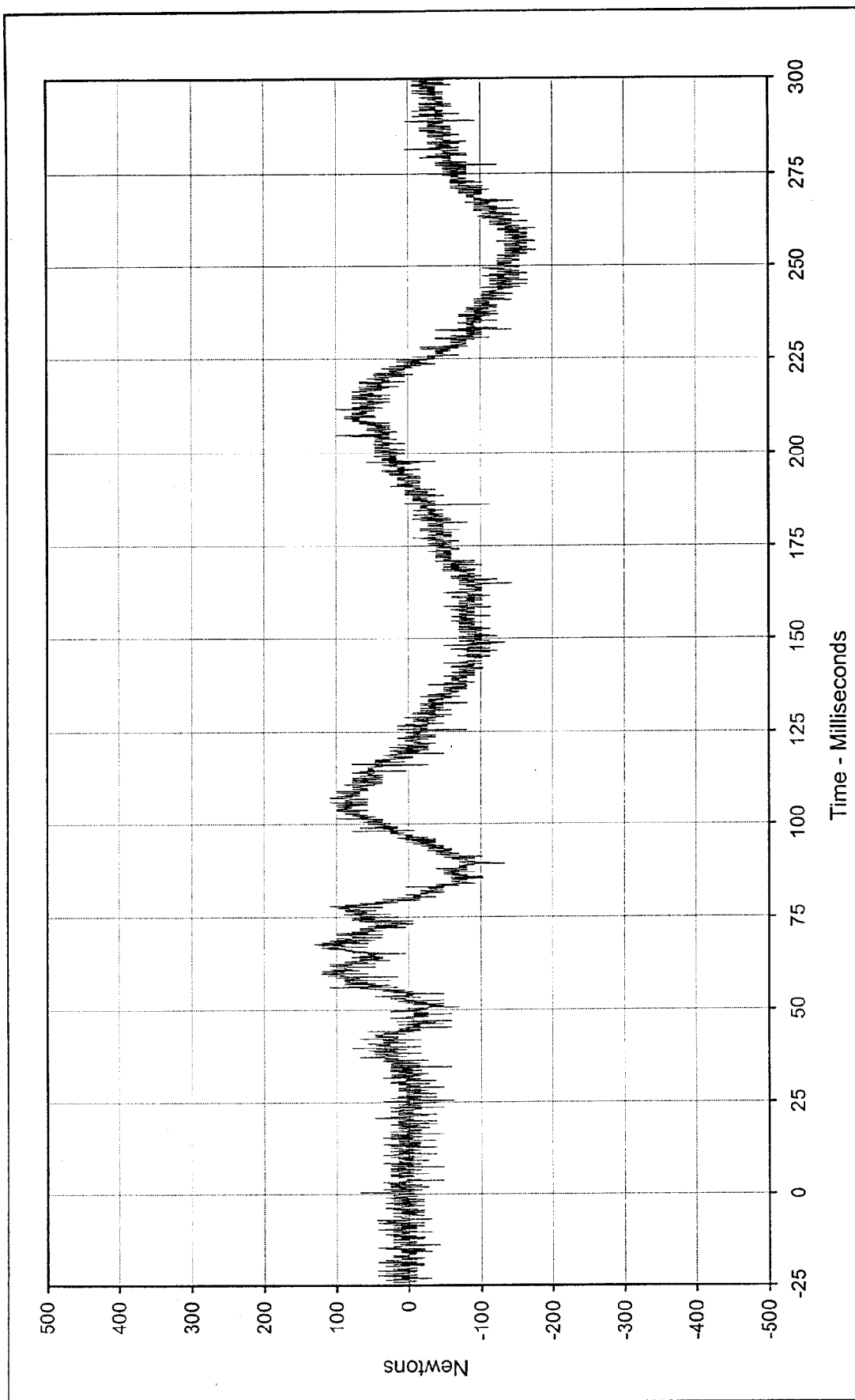




Curve Description: Passenger Neck Force X
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Maximum Value: 216.7 at 217.1 Milliseconds
 Minimum Value: -1042.1 at 79.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: FIL-051

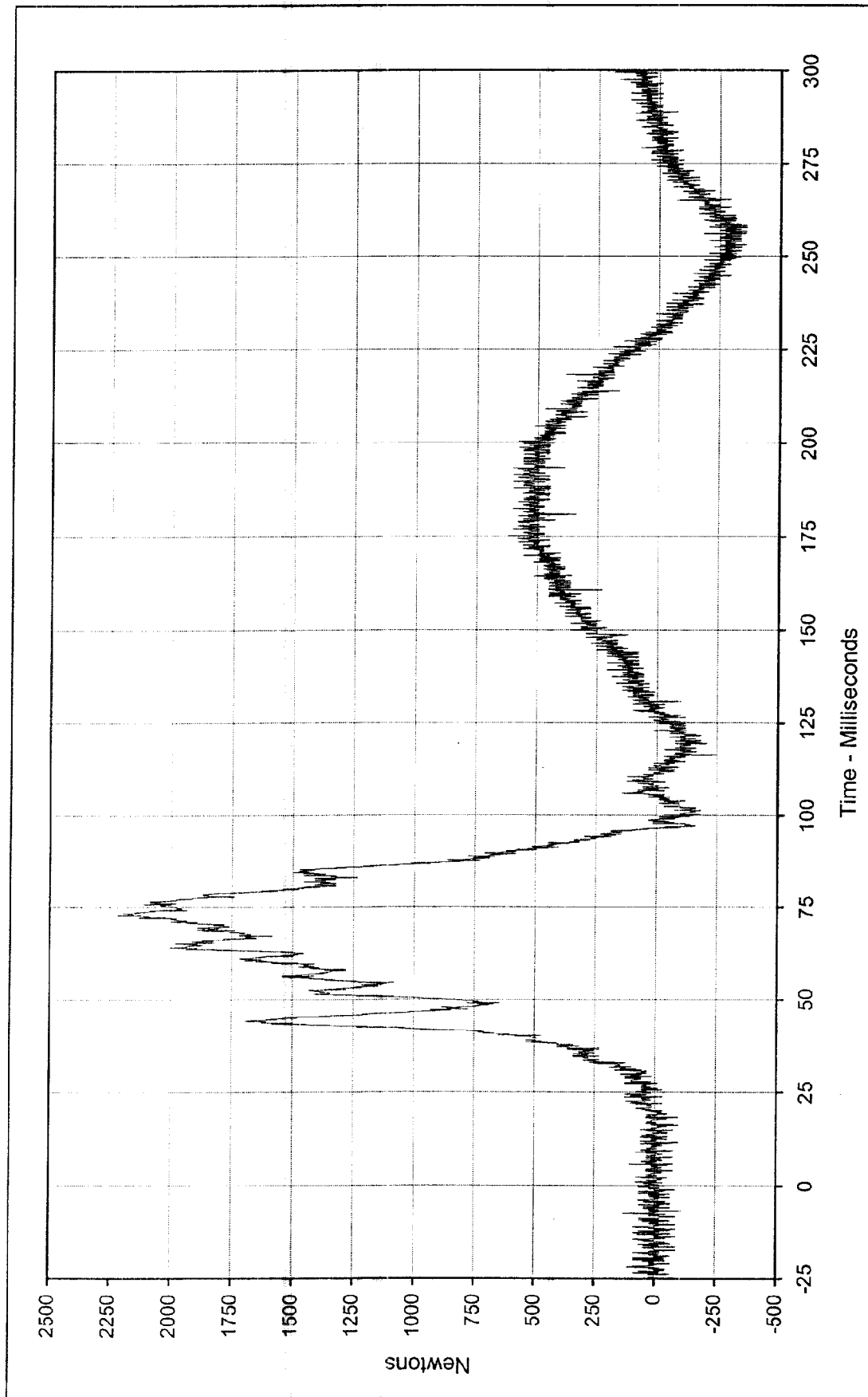




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Passenger Neck Force Y
 Maximum Value: 130.5 at 67.6 Milliseconds
 Minimum Value: -176.3 at 254.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: FIL-052





Curve Description: Passenger Neck Force Z Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Maximum Value: 2218.0 at 72.9 Milliseconds Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

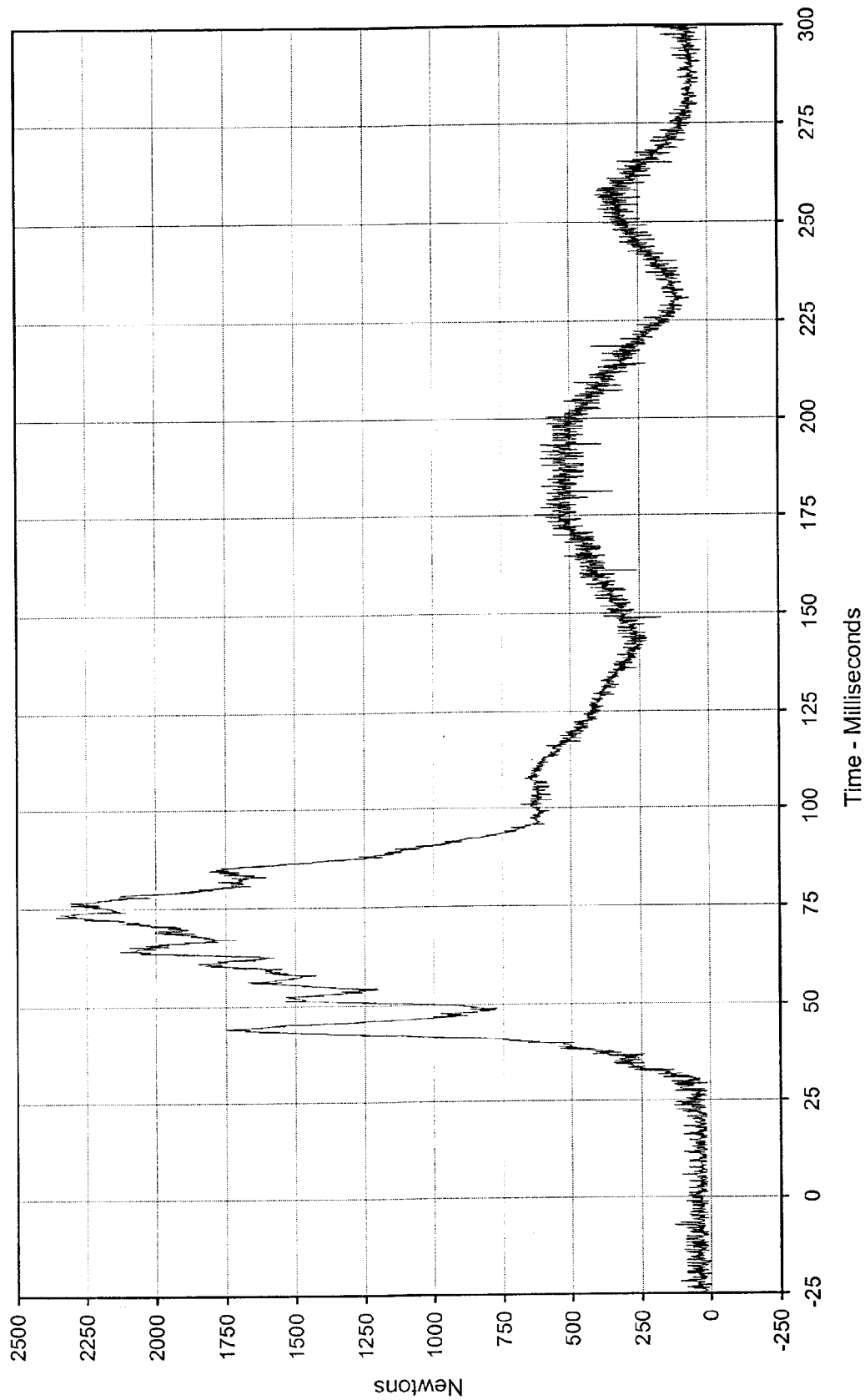
Minimum Value: -359.5 at 253.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 12/18/98

Curve Number: FIL-053

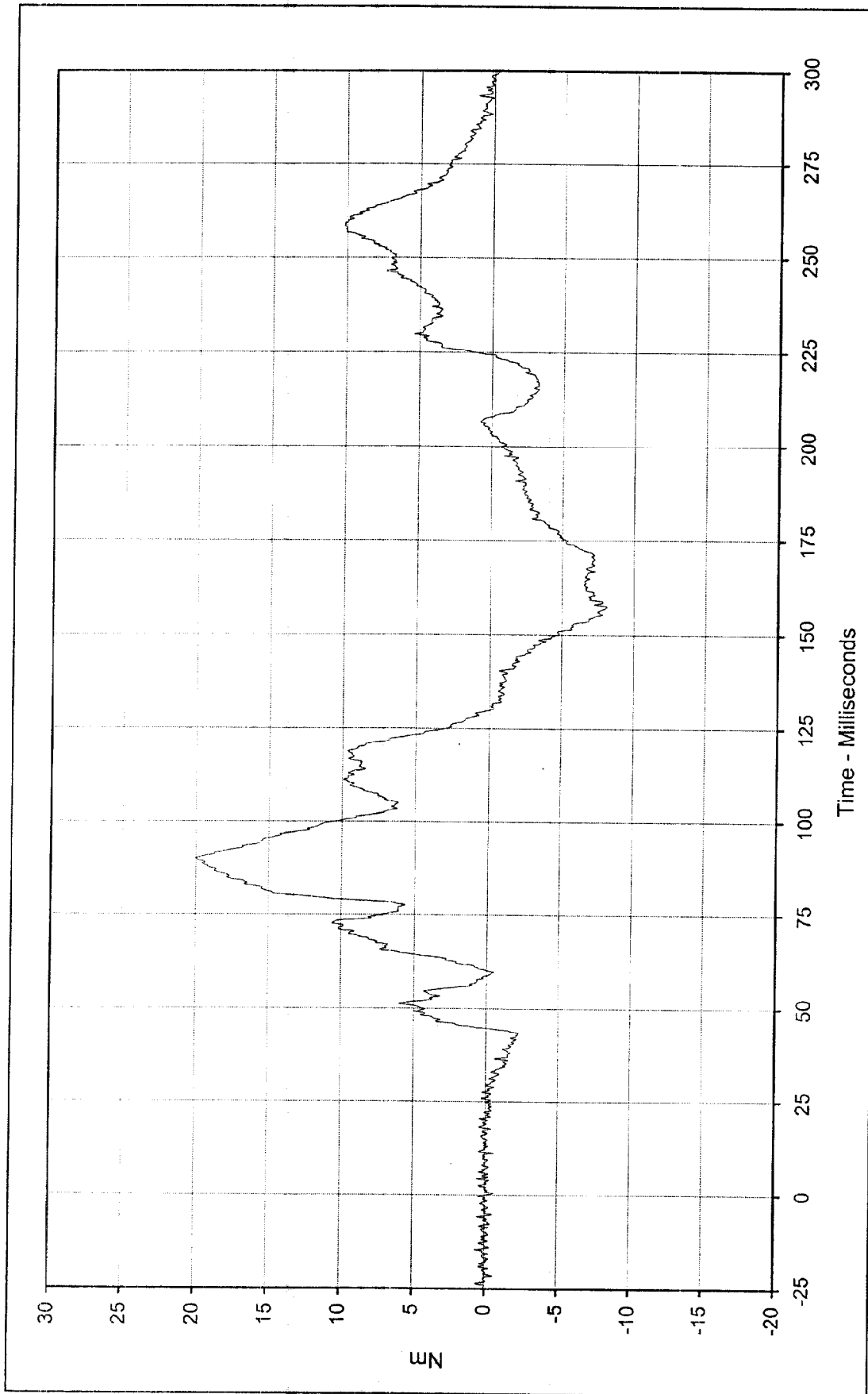




Curve Description: Passenger Neck Force Resultant
 Maximum Value: 2359.5 at 72.9 Milliseconds
 Minimum Value: 10.6 at 3.7 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: RES-051

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

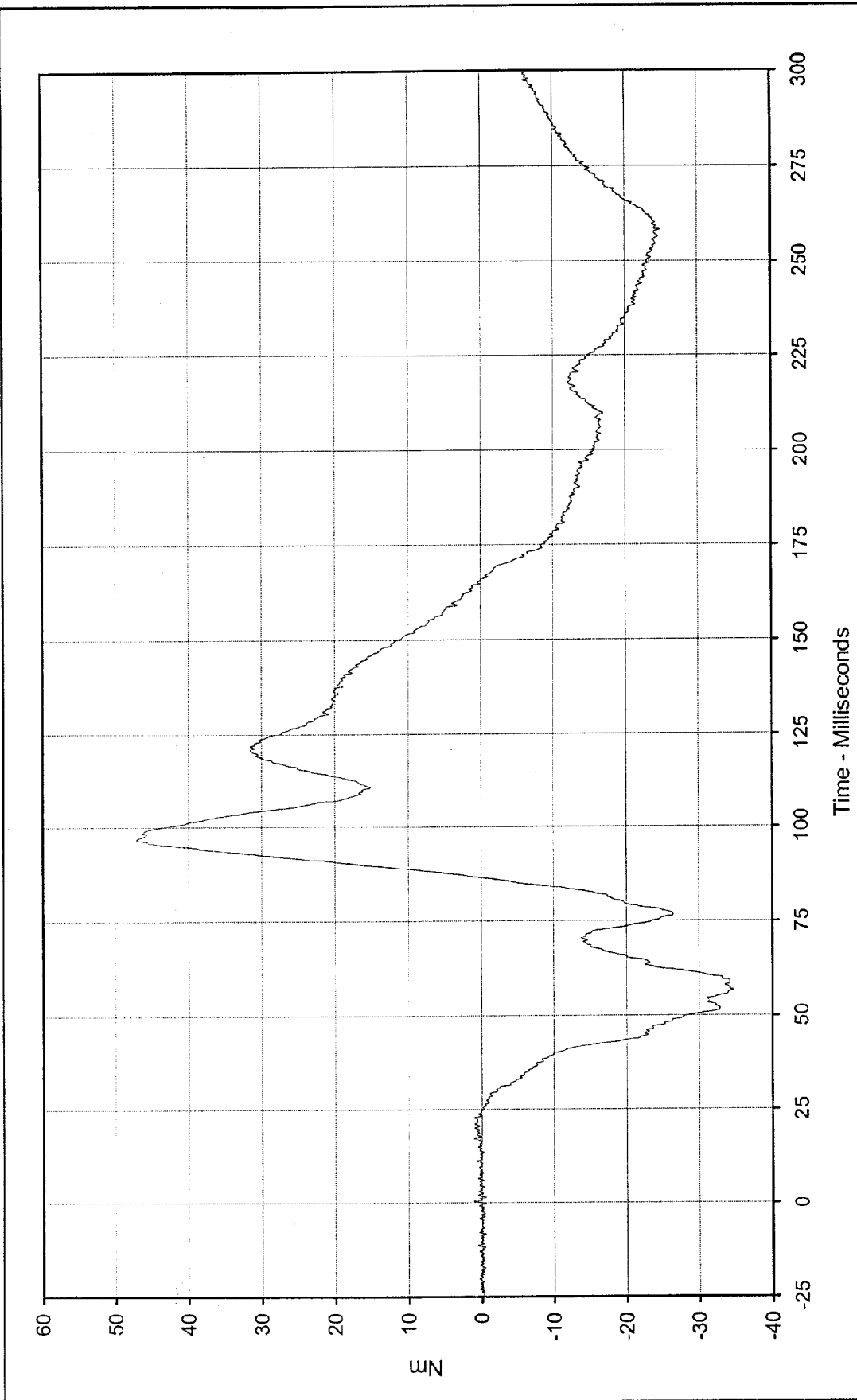




Curve Description: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Program: 1999 Honda Civic DX 2 Door Coupe
 Test Vehicle:

Passenger Neck Moment X
 Maximum Value: 20.0 at 90.0 Milliseconds
 Minimum Value: -8.1 at 157.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-054





Curve Description: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Program: 1999 Honda Civic DX 2 Door Coupe

Maximum Value: 47.1 at 96.7 Milliseconds

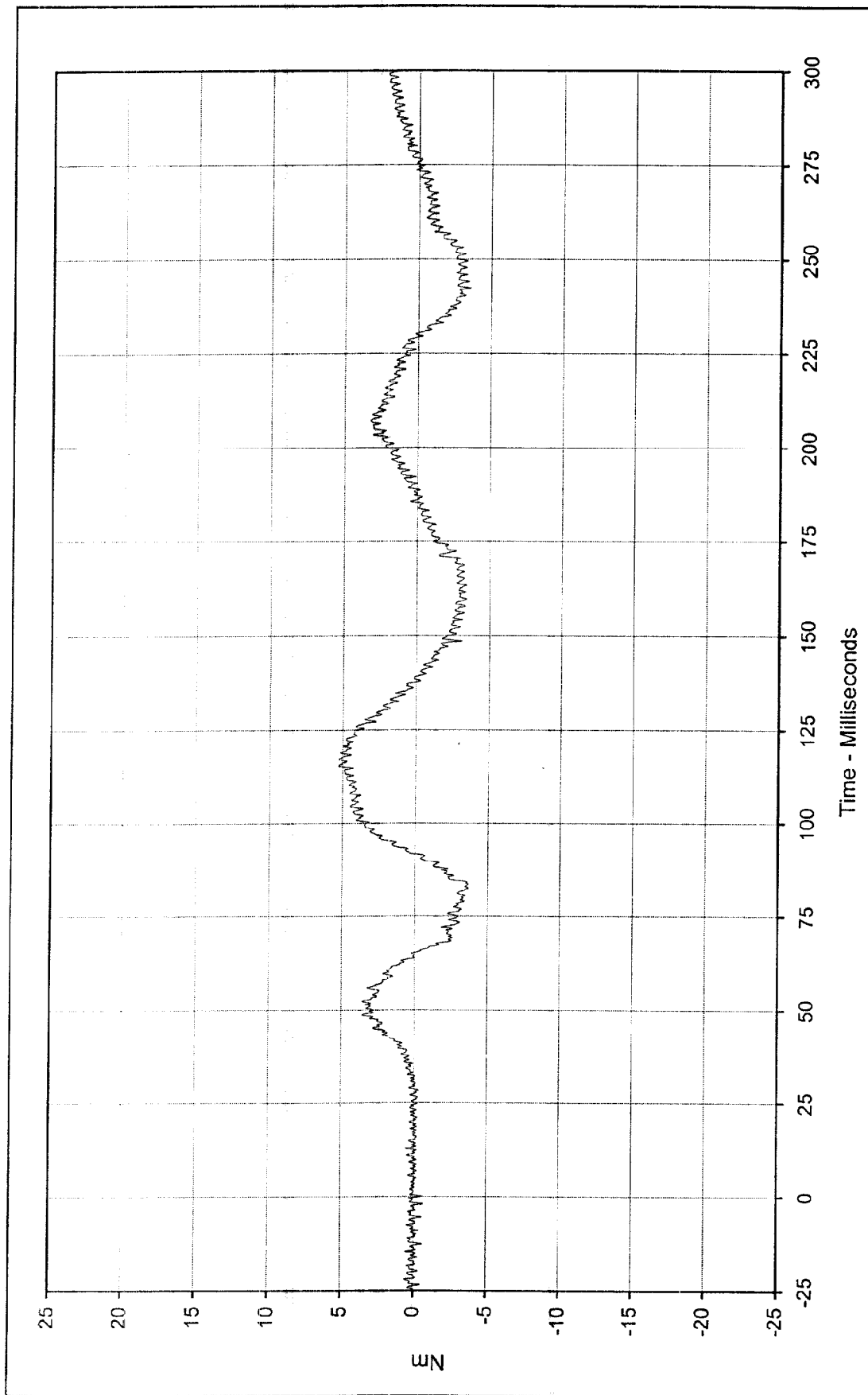
Minimum Value: -34.7 at 56.6 Milliseconds

SAE Filter Class: 600

Date of Test: 12/18/98

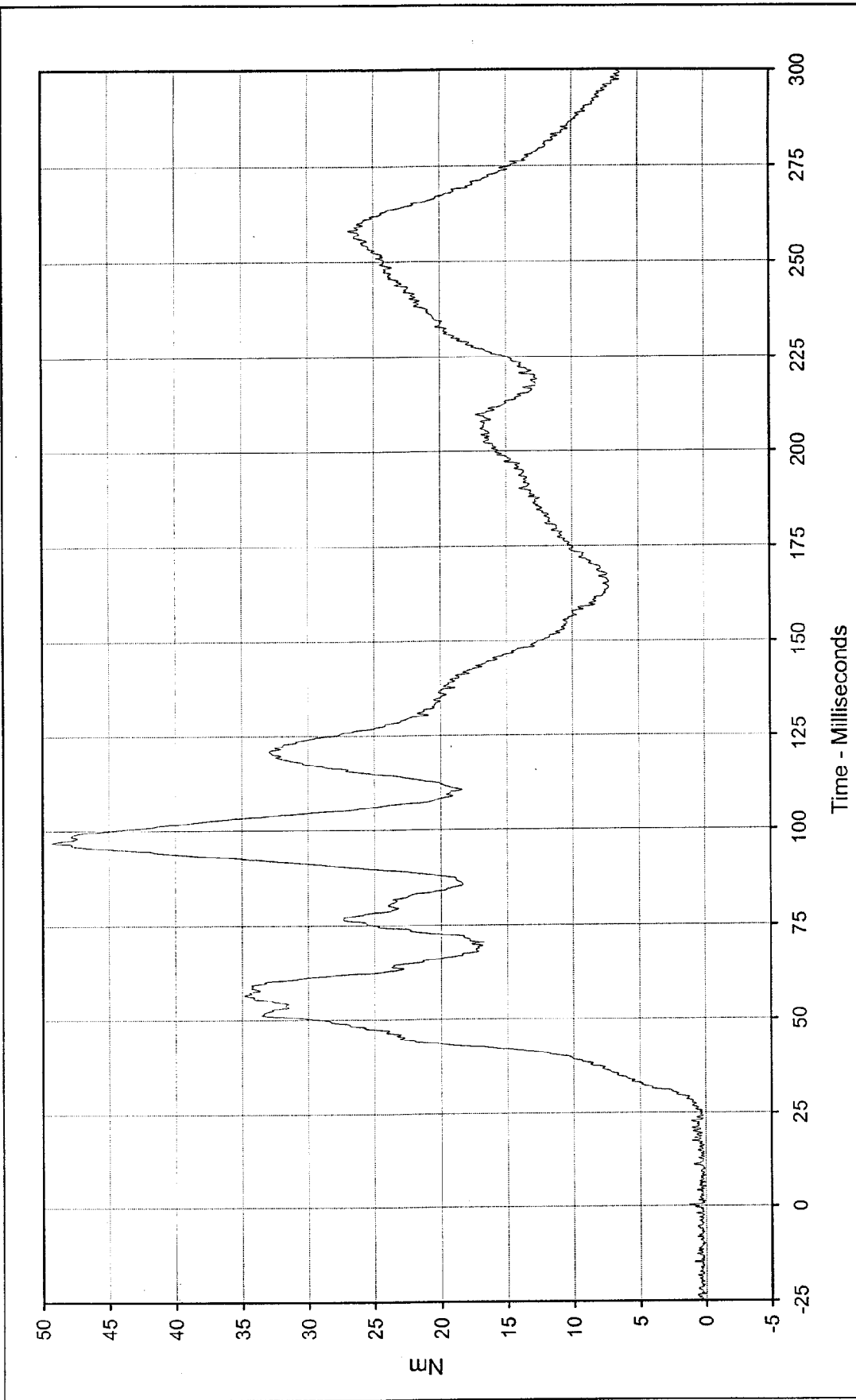
Curve Number: FIL-055





Curve Description:	Passenger Neck Moment Z	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	5.3	at	115.3	Milliseconds
Minimum Value:	-3.7	at	82.2	Milliseconds
SAE Filter Class:	600			
Date of Test:	12/18/98	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Curve Number:	FIL-056			

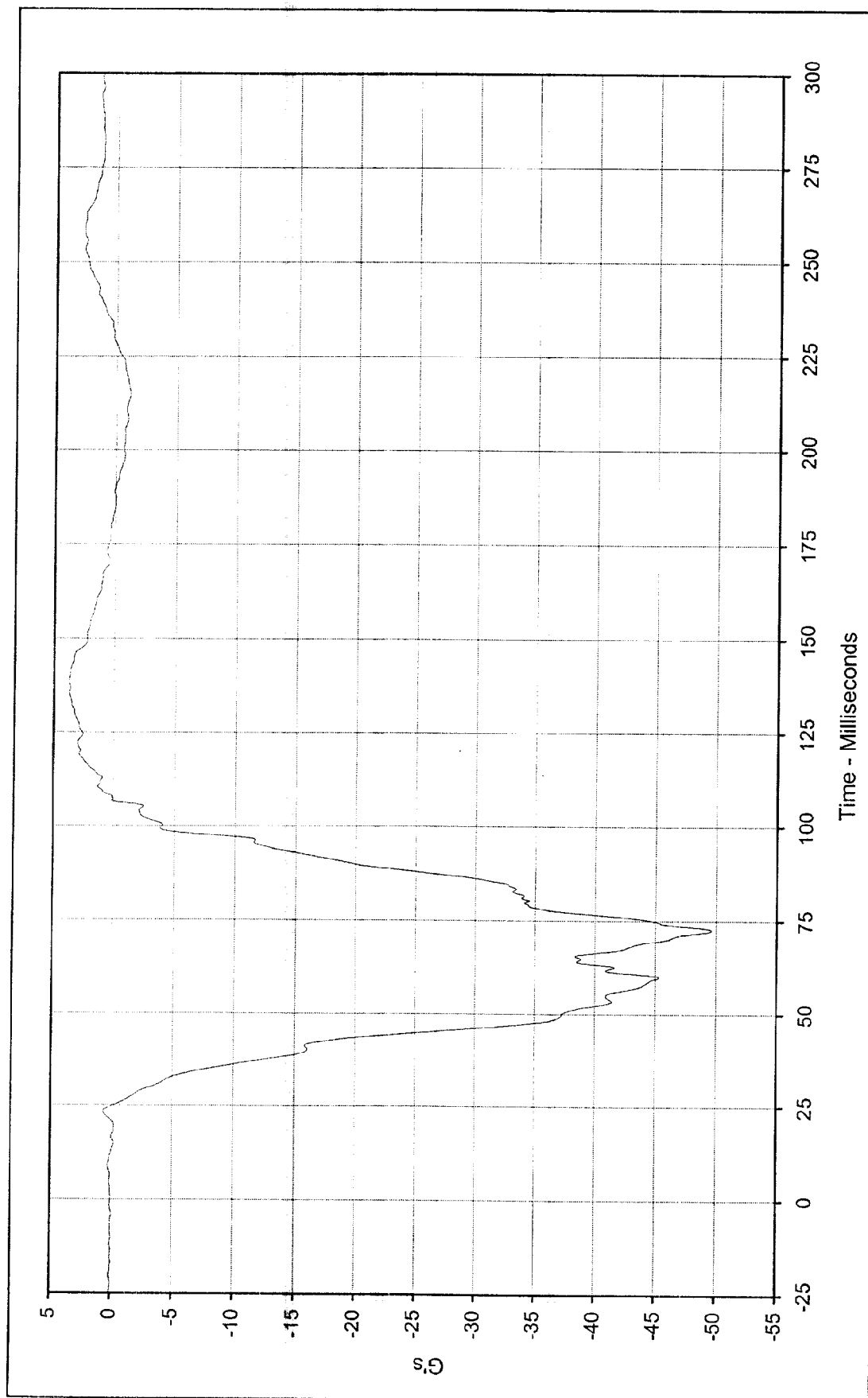




Curve Description: Passenger Neck Moment Resultant
 Maximum Value: 49.3 at 96.7 Milliseconds
 Minimum Value: 0.0 at 5.2 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: RES-054

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

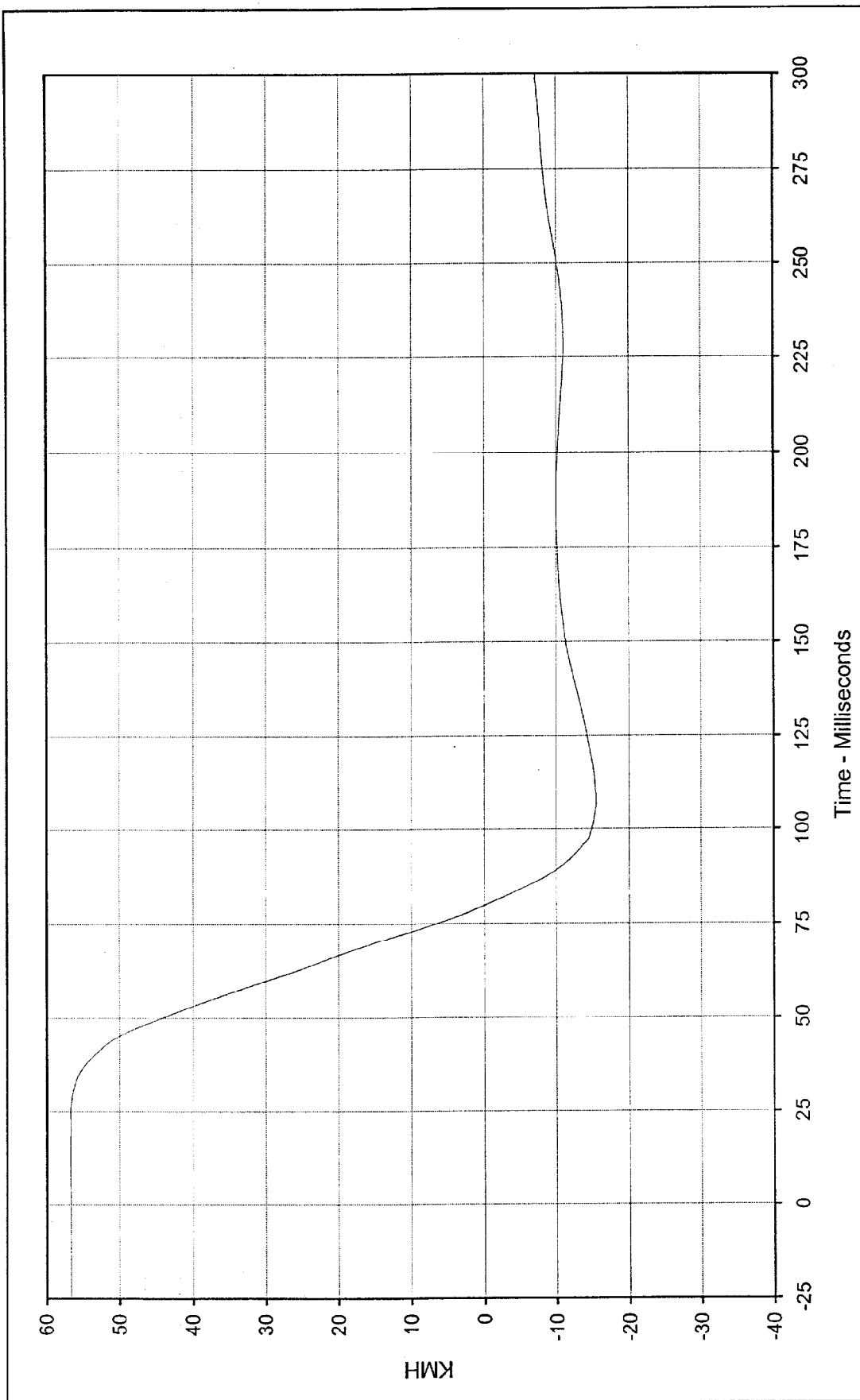




Curve Description: Passenger Chest Primary X
 Maximum Value: 3.7 at 138.9 Milliseconds
 Minimum Value: -49.7 at 72.5 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: FIL-057

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

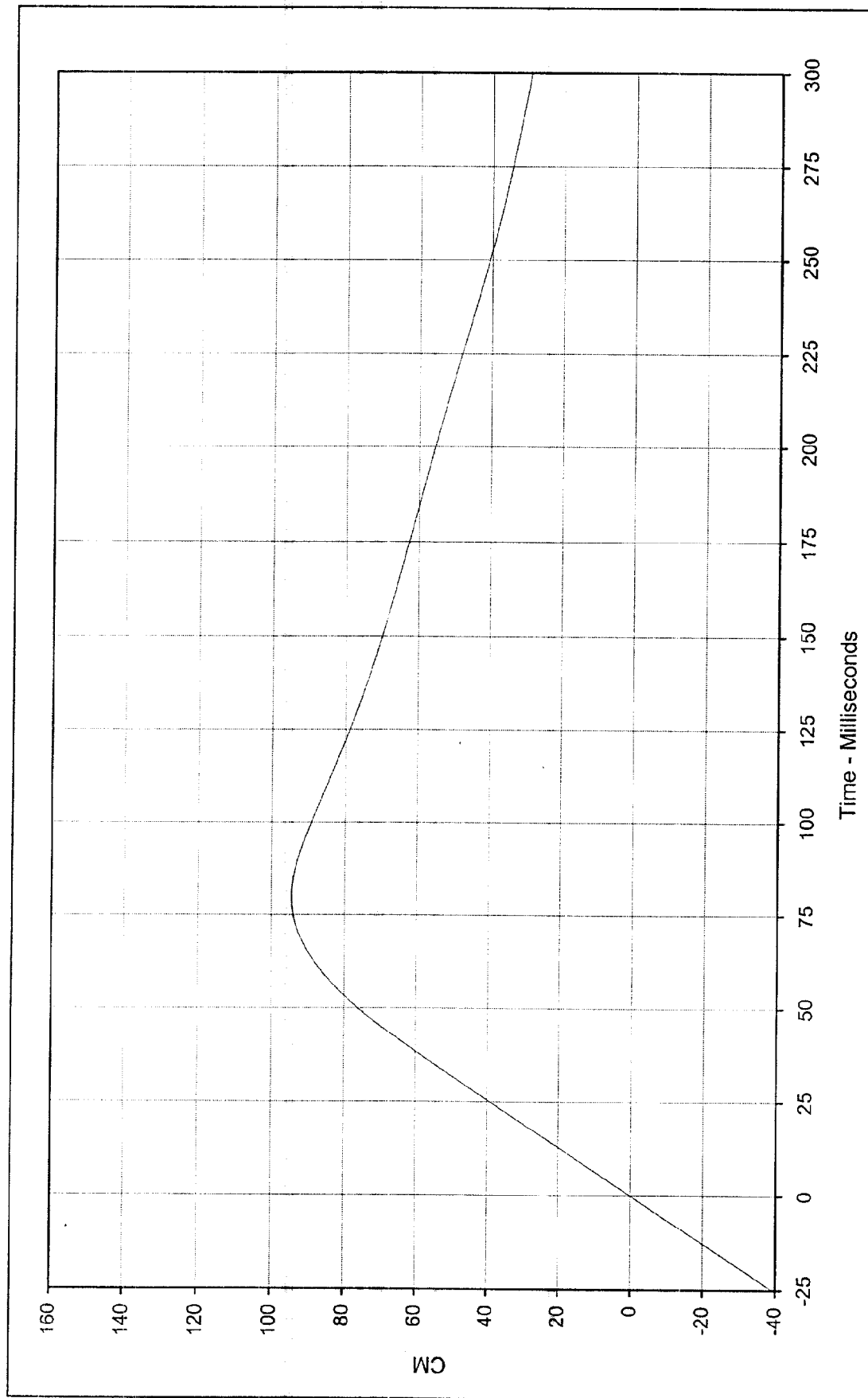




Curve Description: Passenger Chest Primary X Velocity
 Maximum Value: 56.7 at 12.3 Milliseconds
 Minimum Value: -15.5 at 106.5 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN1-057

Testing Program 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

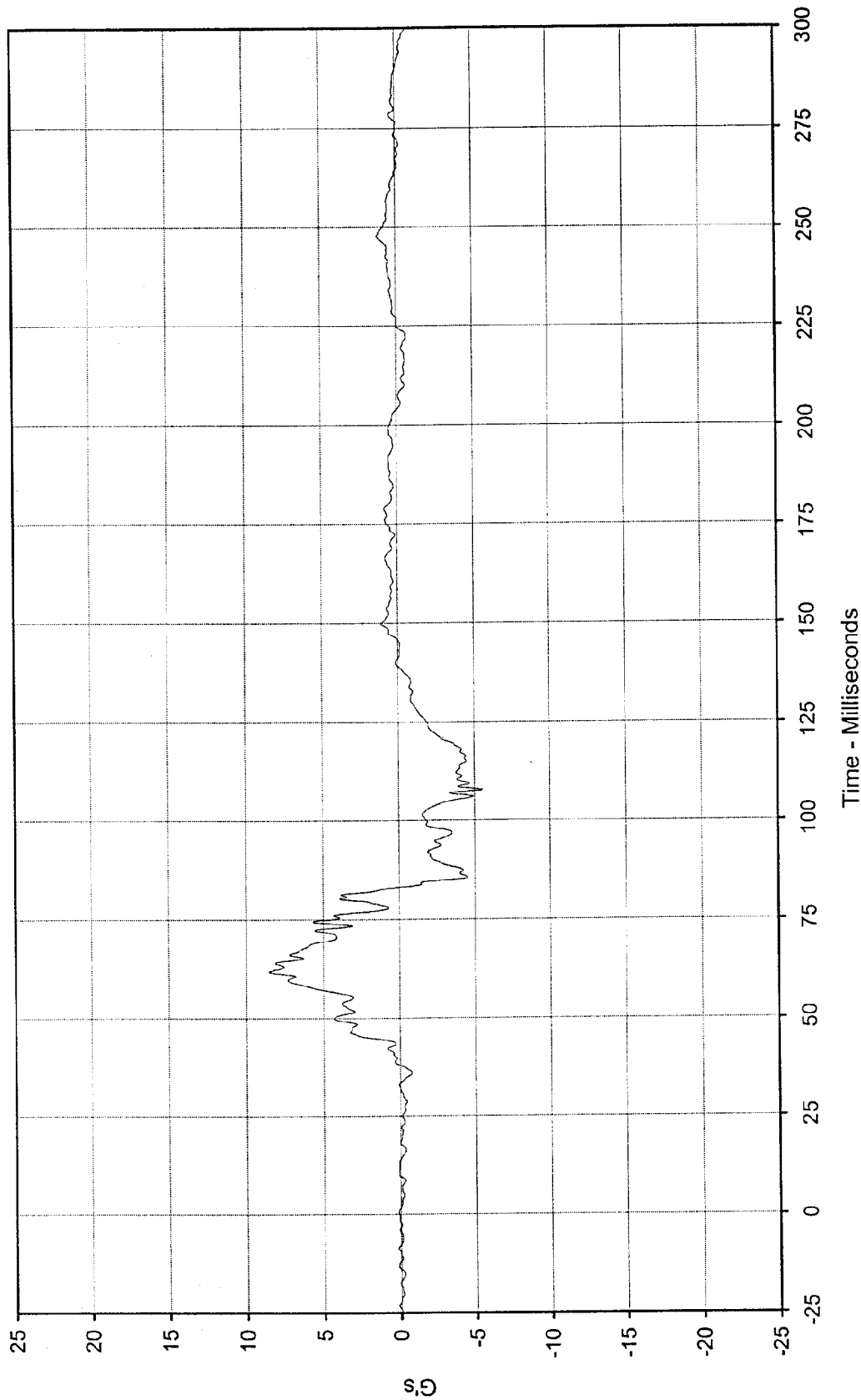




Curve Description: Passenger Chest Primary X Displ.
 Maximum Value: 94.5 at 79.8 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN2-057

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

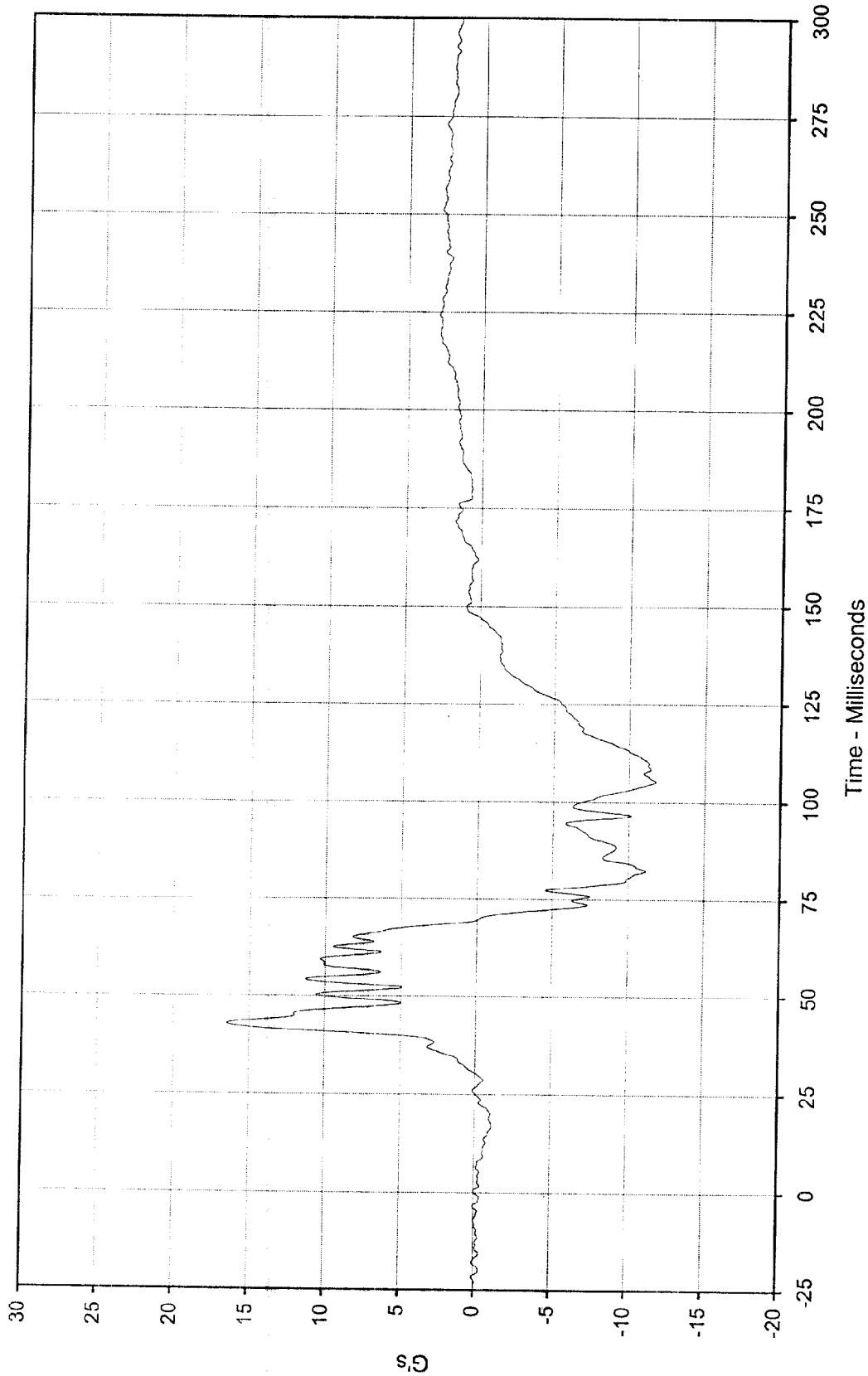




Curve Description: Passenger Chest Primary Y
 Maximum Value: 8.5 at 61.7 Milliseconds
 Minimum Value: -5.5 at 107.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: FIL-058

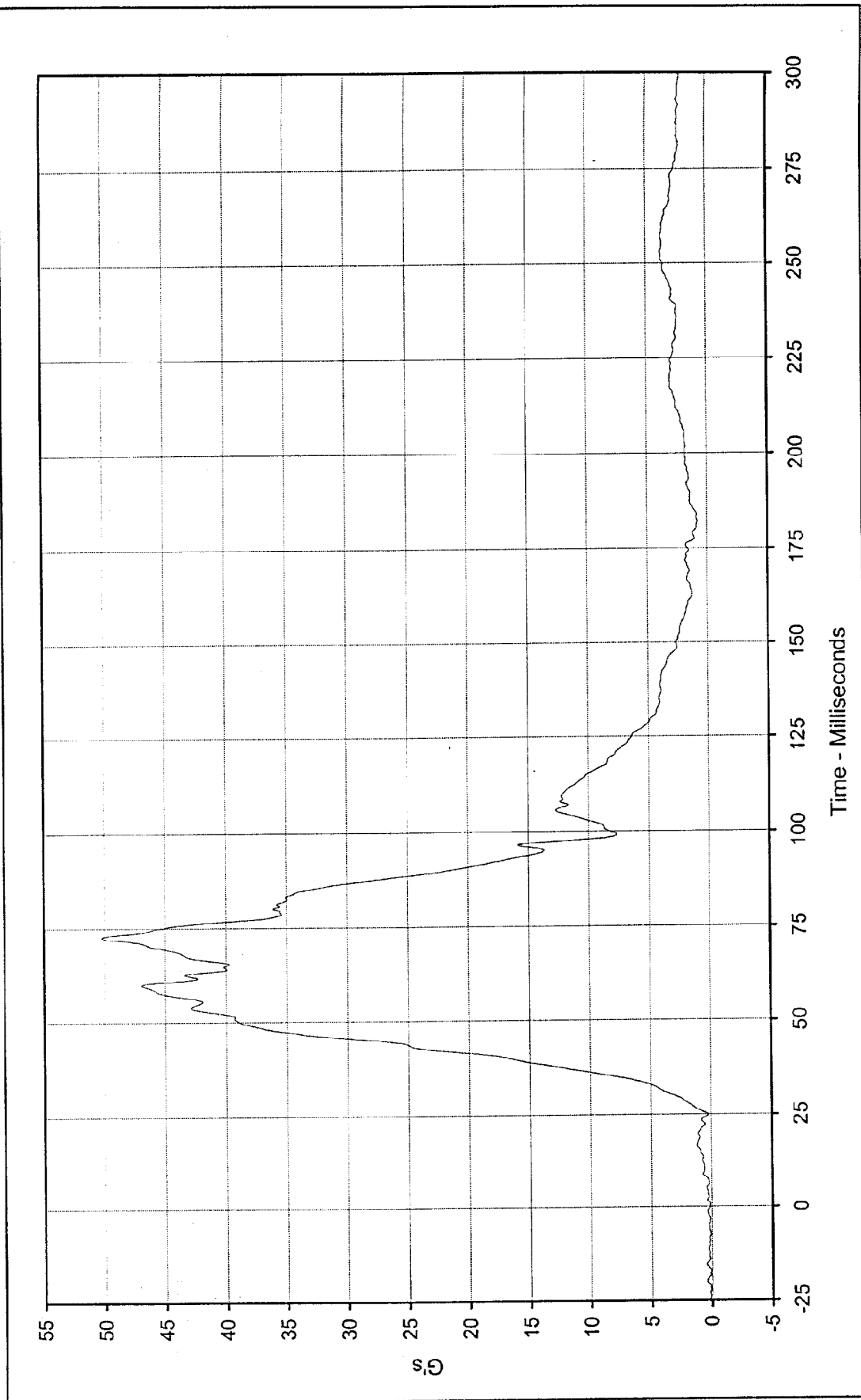
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Passenger Chest Primary Z		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	16.5	at 42.8	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-11.8	at 105.4			
SAE Filter Class:	180				
Date of Test:	12/18/98				
Curve Number:	FIL-059				

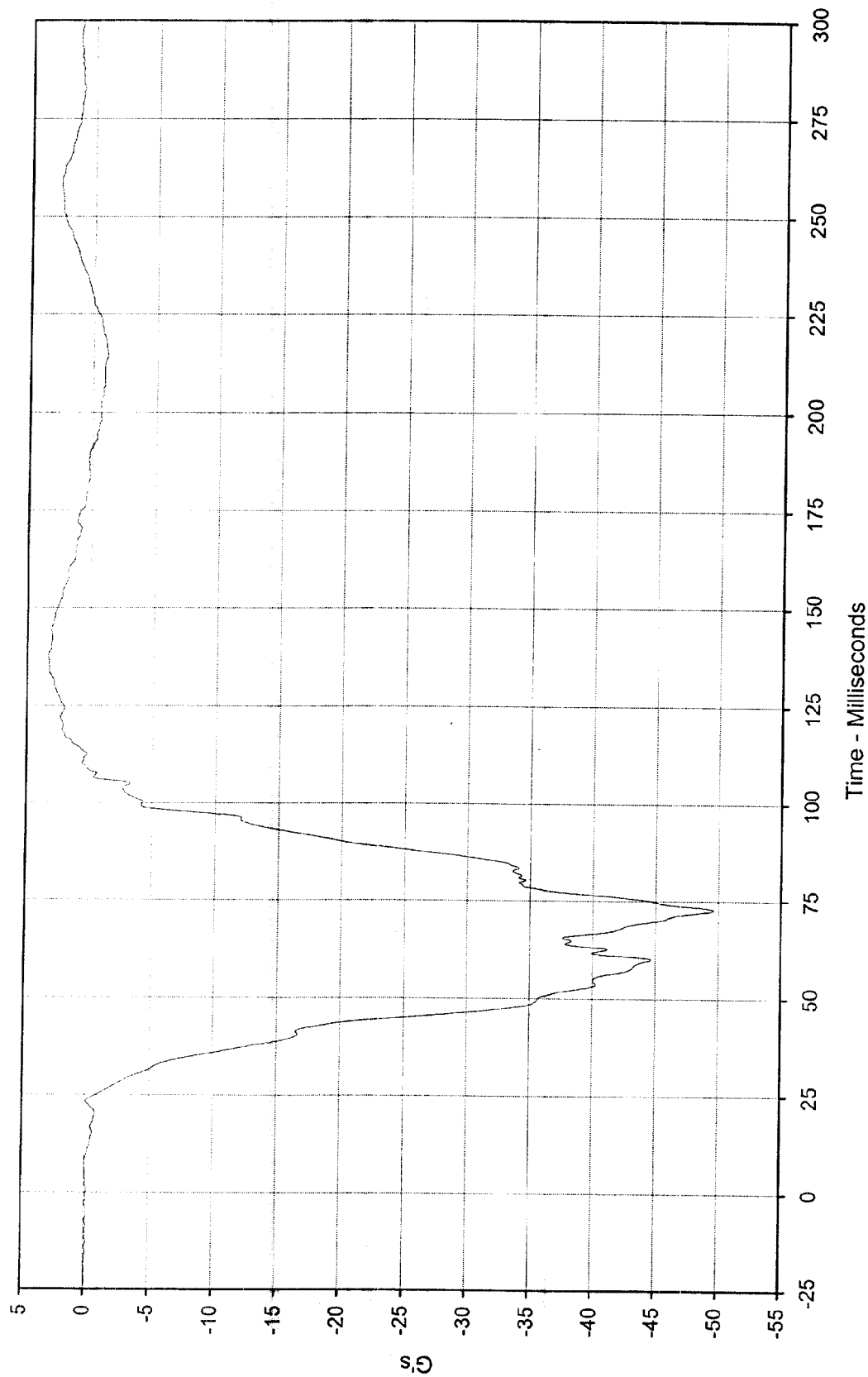




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Passenger Chest Resultant Primary
 Maximum Value: 50.2 at 72.6 Milliseconds
 Minimum Value: 0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: RES-057

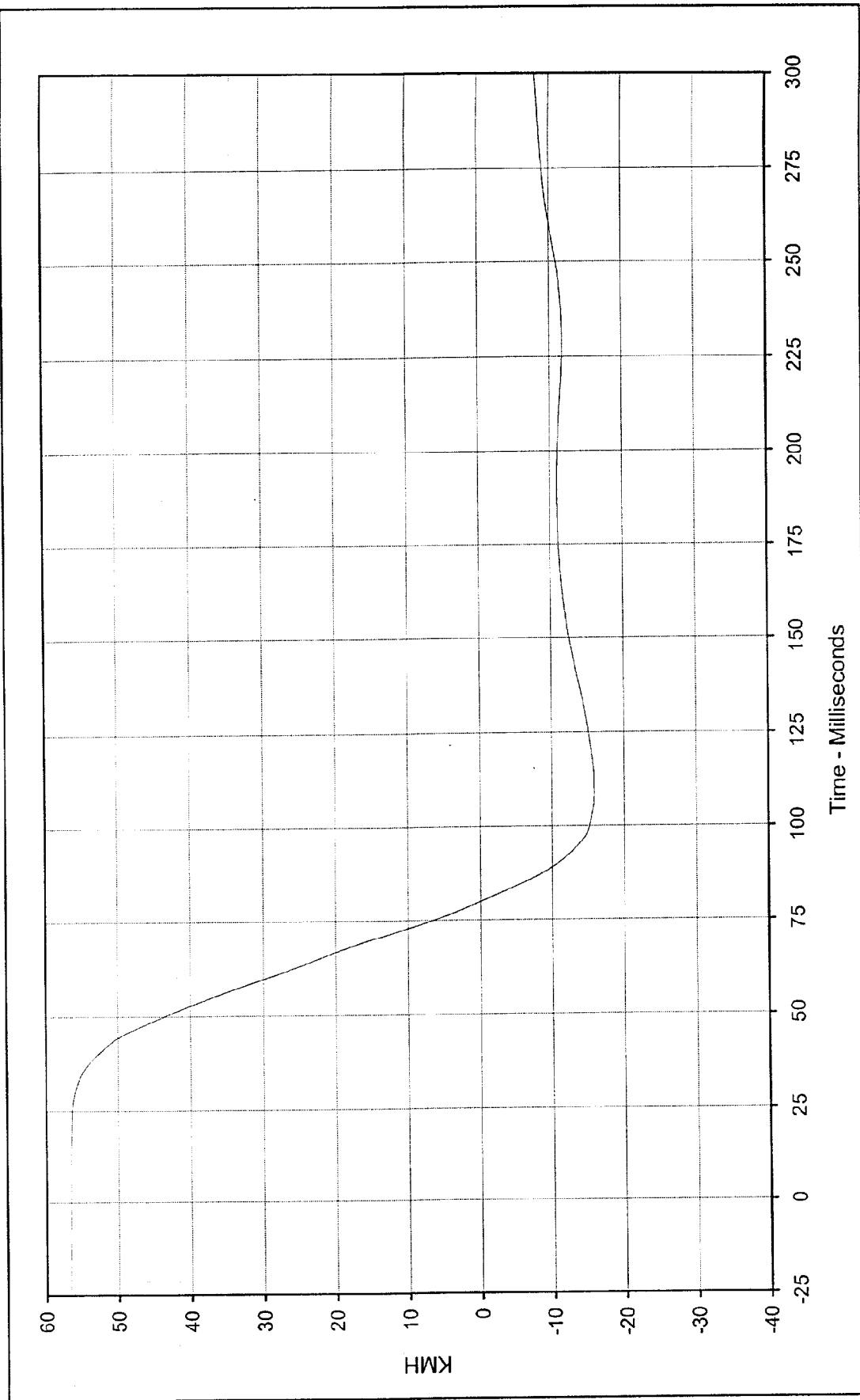




Curve Description: Passenger Chest Redundant X
 Maximum Value: 3.3 at 137.8 Milliseconds
 Minimum Value: -49.6 at 72.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: FIL-060

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



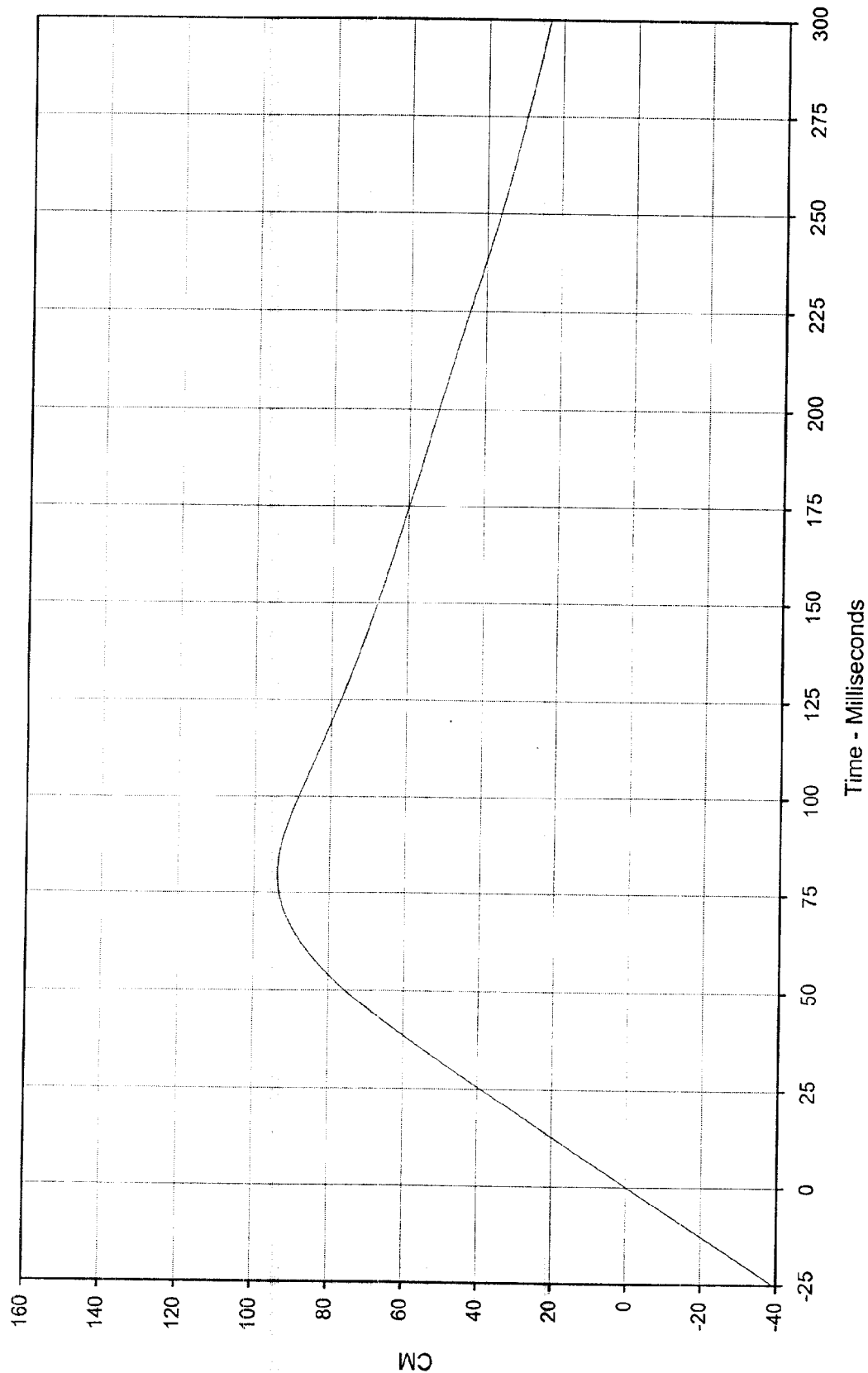


Curve Description: Passenger Chest Redundant X Velocity
 Maximum Value: 56.6 at 0.0 Milliseconds
 Minimum Value: -15.9 at 108.5 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN1-060

Testing Program 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Chest Redundant X Displ.

Maximum Value: 93.7 at 79.8 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

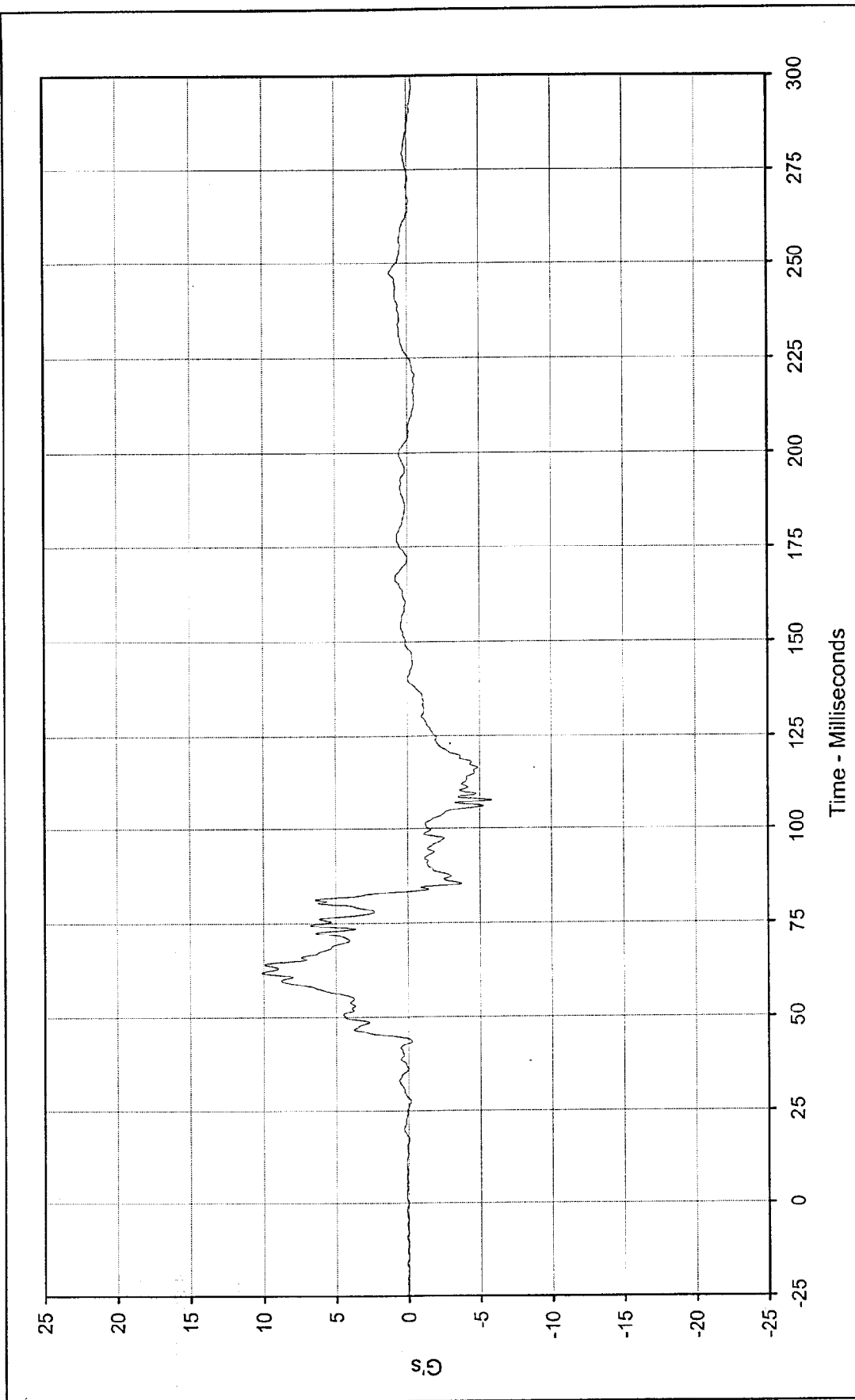
Date of Test: 12/18/98

Curve Number: IN2-060

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

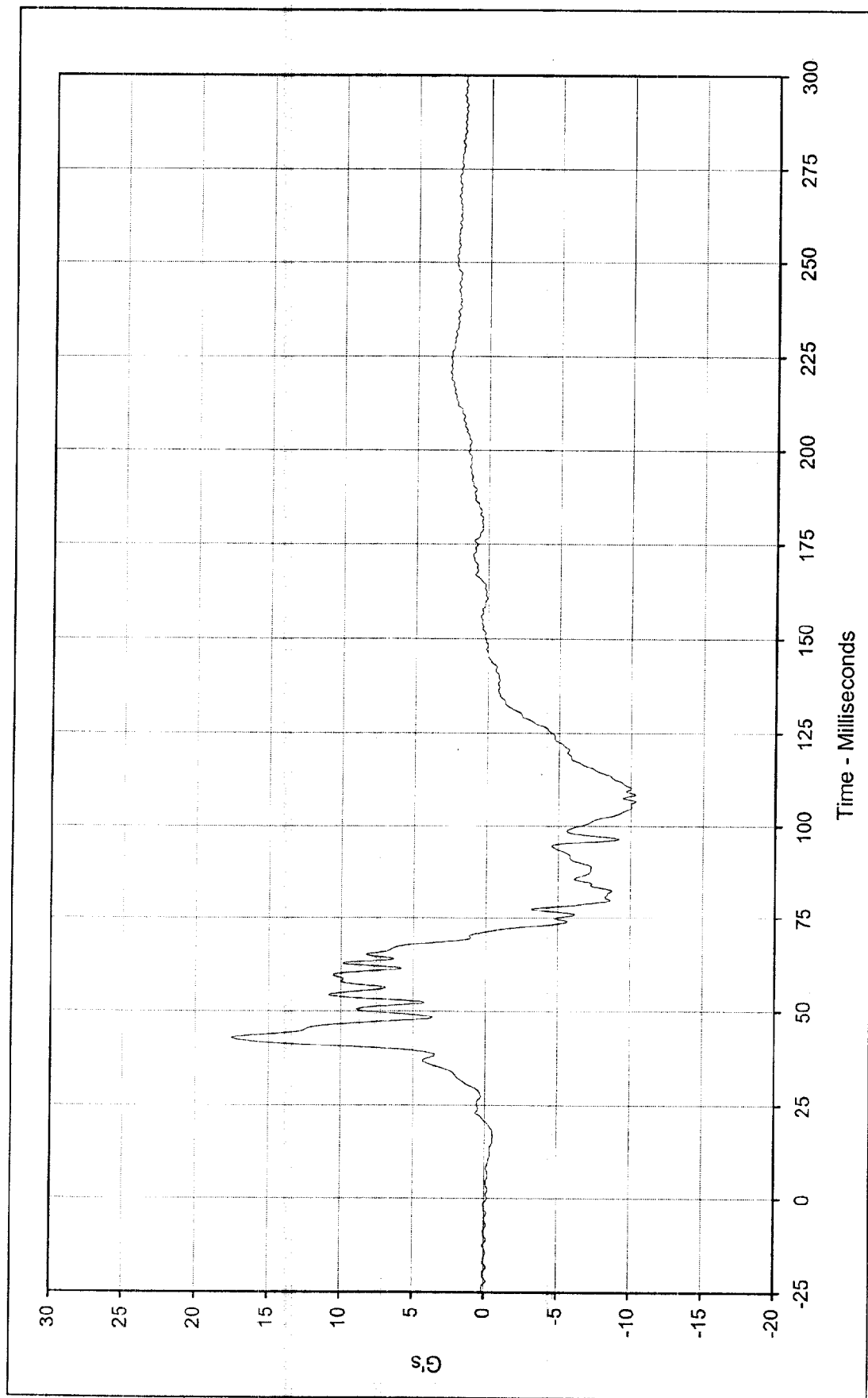




Curve Description: Passenger Chest Redundant Y
 Maximum Value: 10.1 at 61.8 Milliseconds
 Minimum Value: -5.8 at 107.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: FIL-061

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Chest Redundant Z

Maximum Value: 17.5 at 42.7 Milliseconds

Minimum Value: -10.4 at 106.7 Milliseconds

SAE Filter Class: 180

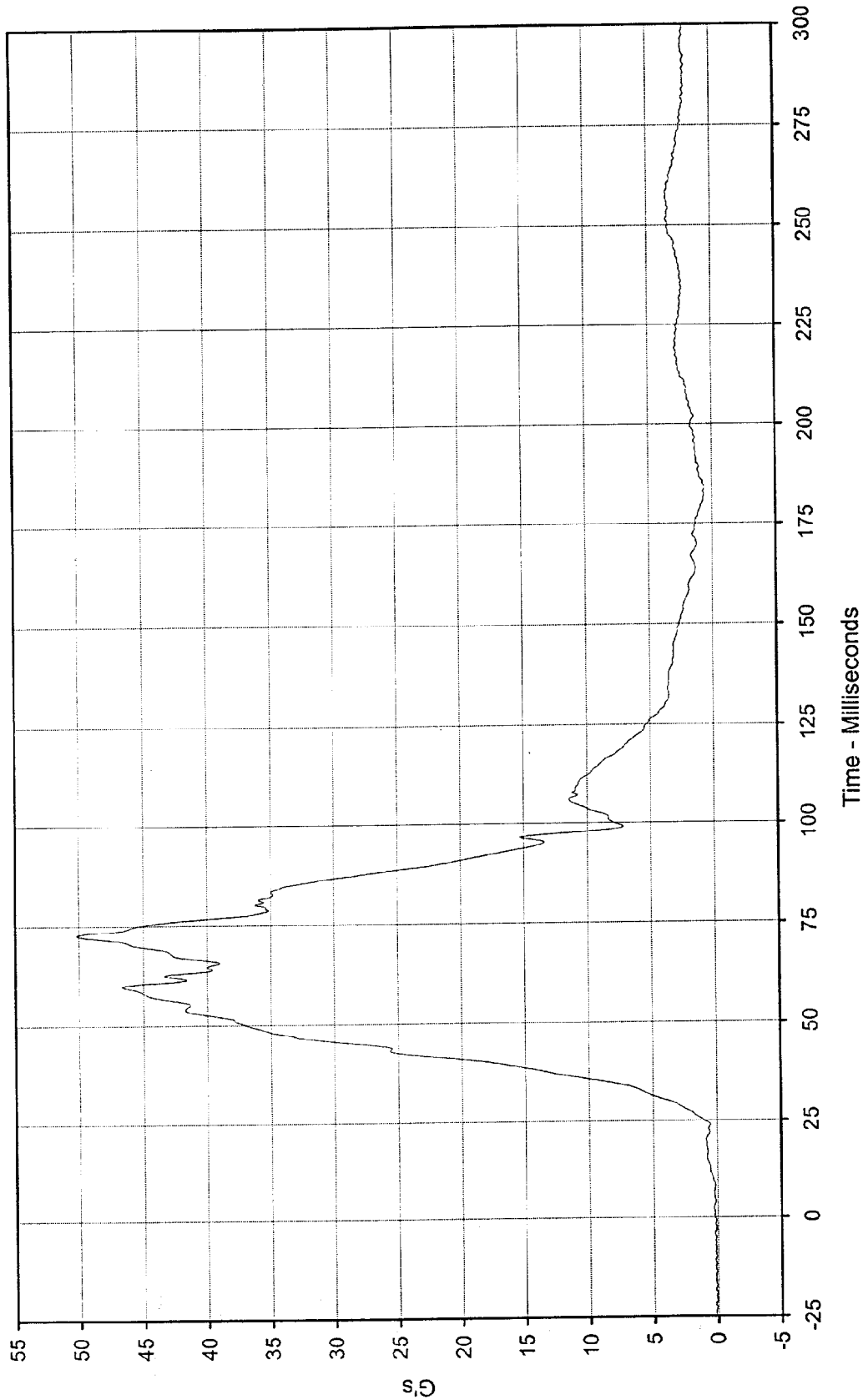
Date of Test: 12/18/98

Curve Number: FIL-062

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Chest Resultant Redundant

Maximum Value: 50.1 at 72.6 Milliseconds

Minimum Value: 0.1 at 4.2 Milliseconds

SAE Filter Class: 180

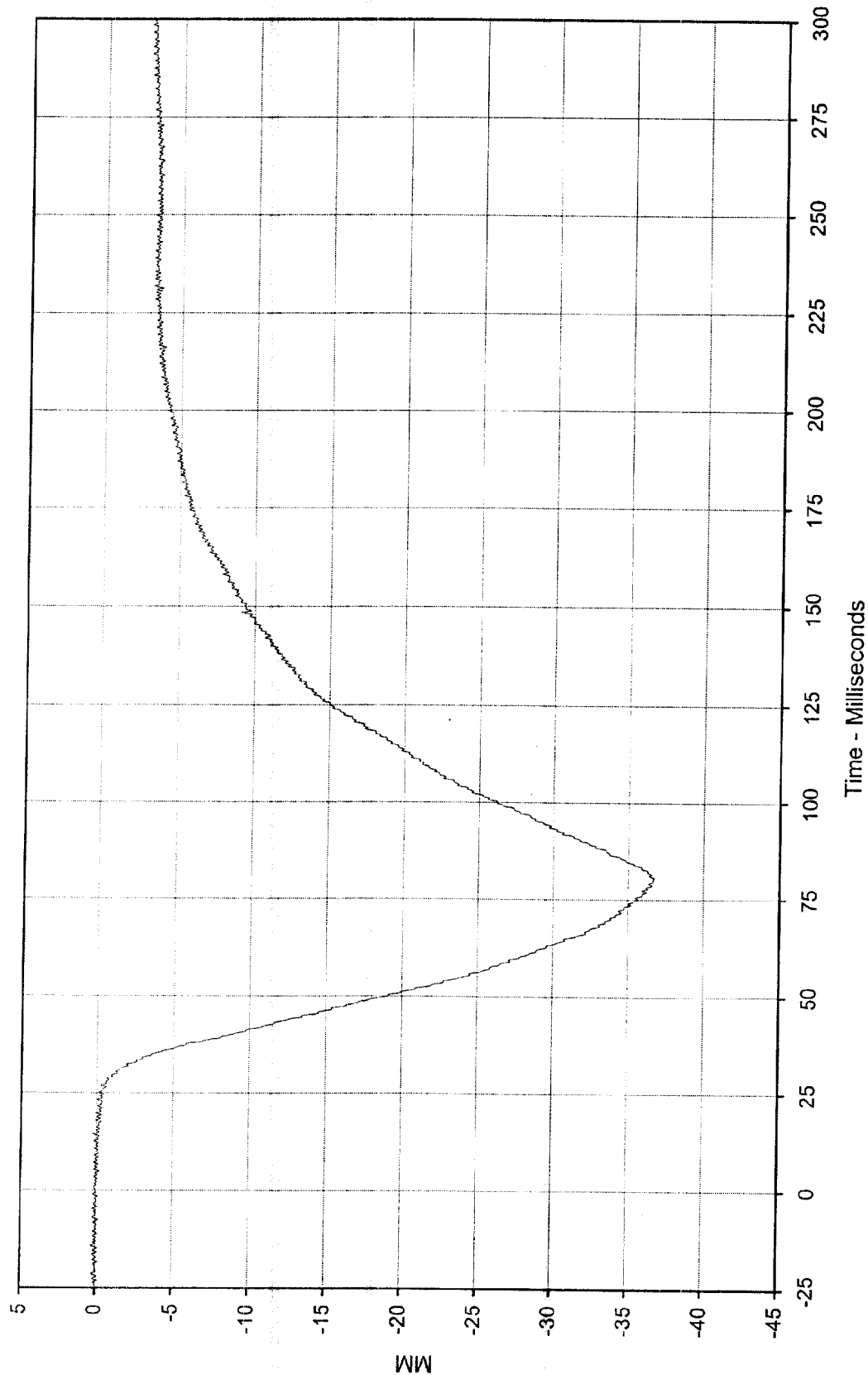
Date of Test: 12/18/98

Curve Number: RES-060

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Chest Displacement X

Maximum Value: 0.2 at 14.3 Milliseconds

Minimum Value: -36.8 at 80.4 Milliseconds

SAE Filter Class: 600

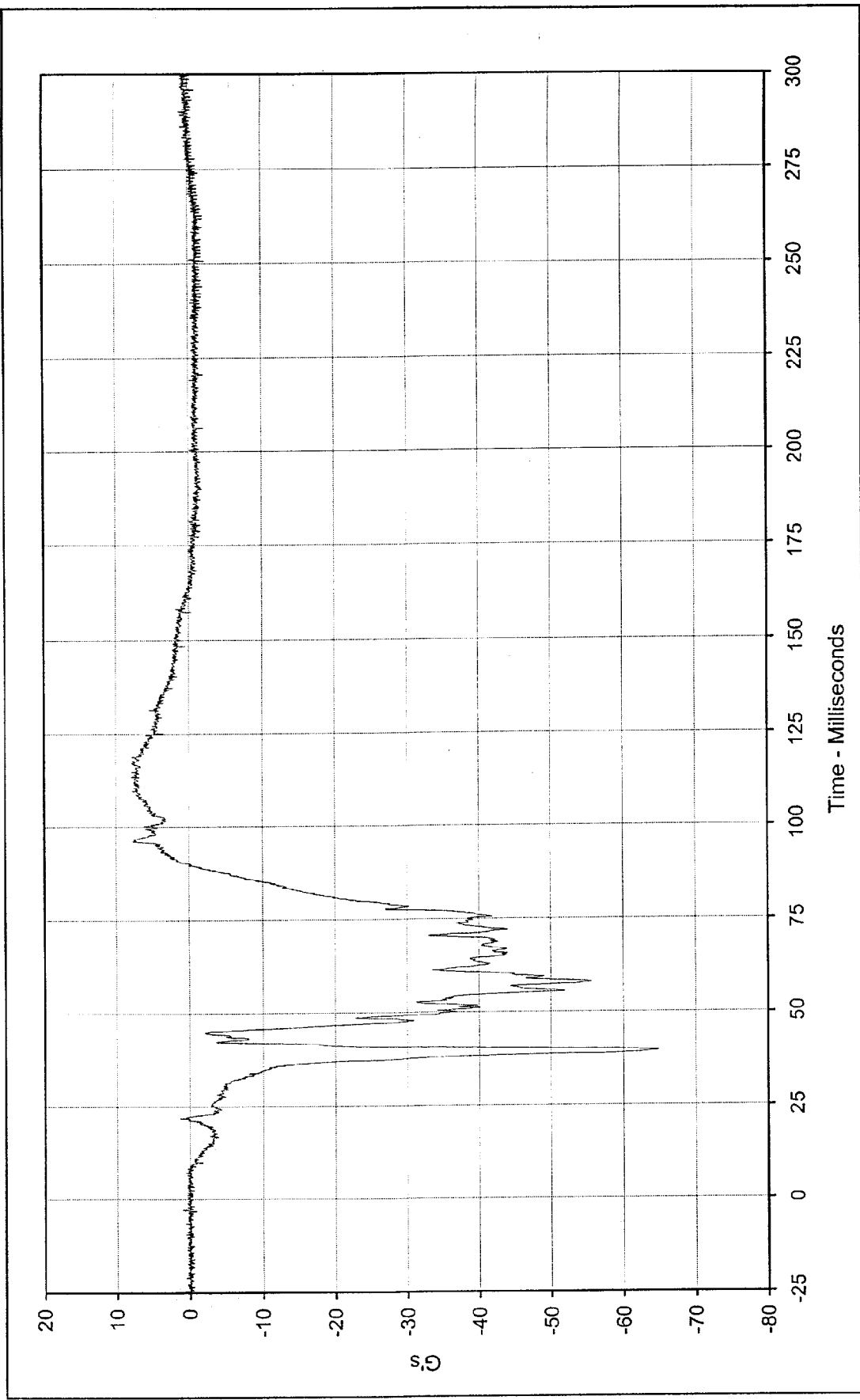
Date of Test: 12/18/98

Curve Number: FIL-063

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

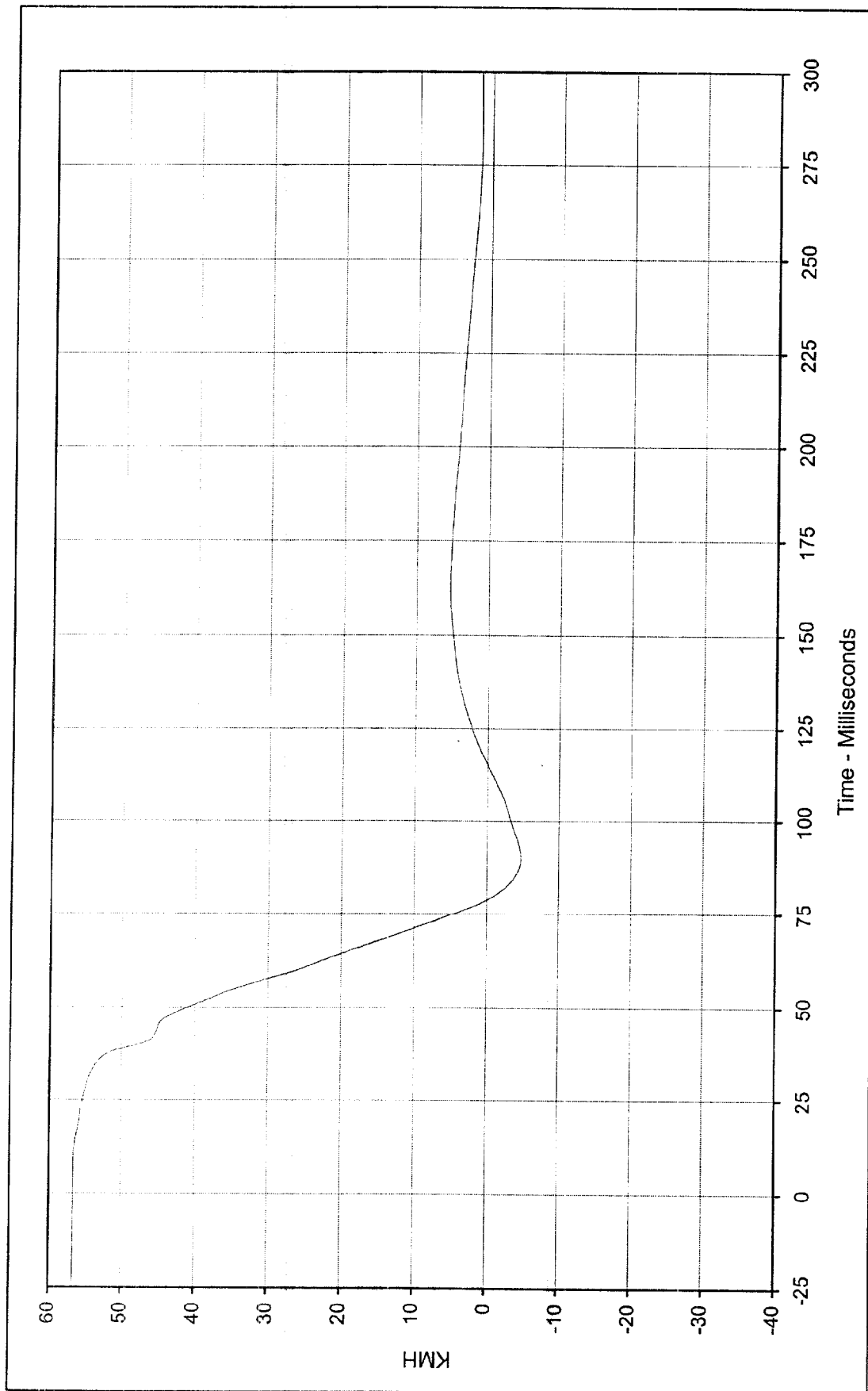




Curve Description: Passenger Pelvis X
 Maximum Value: 7.9 at 113.4 Milliseconds
 Minimum Value: -64.9 at 39.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: FIL-064

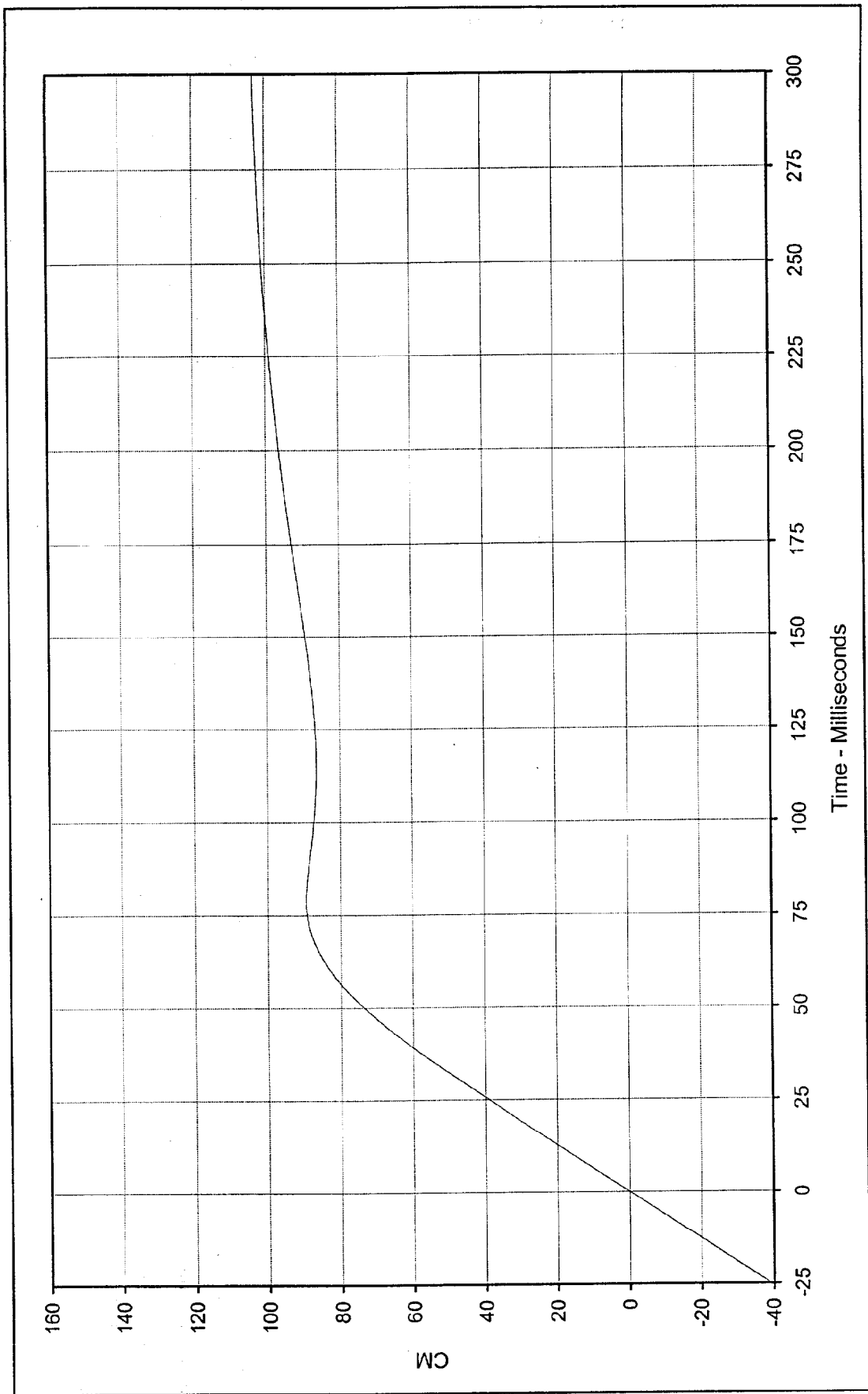
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Passenger Pelvis X Velocity	Testing Program	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	56.6 at 0.3 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-4.8 at 89.7 Milliseconds			
SAE Filter Class:	180			
Date of Test:	12/18/98			
Curve Number:	IN1-064			





Curve Description: Passenger Pelvis X Displ.

Maximum Value: 103.2 at 299.9 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

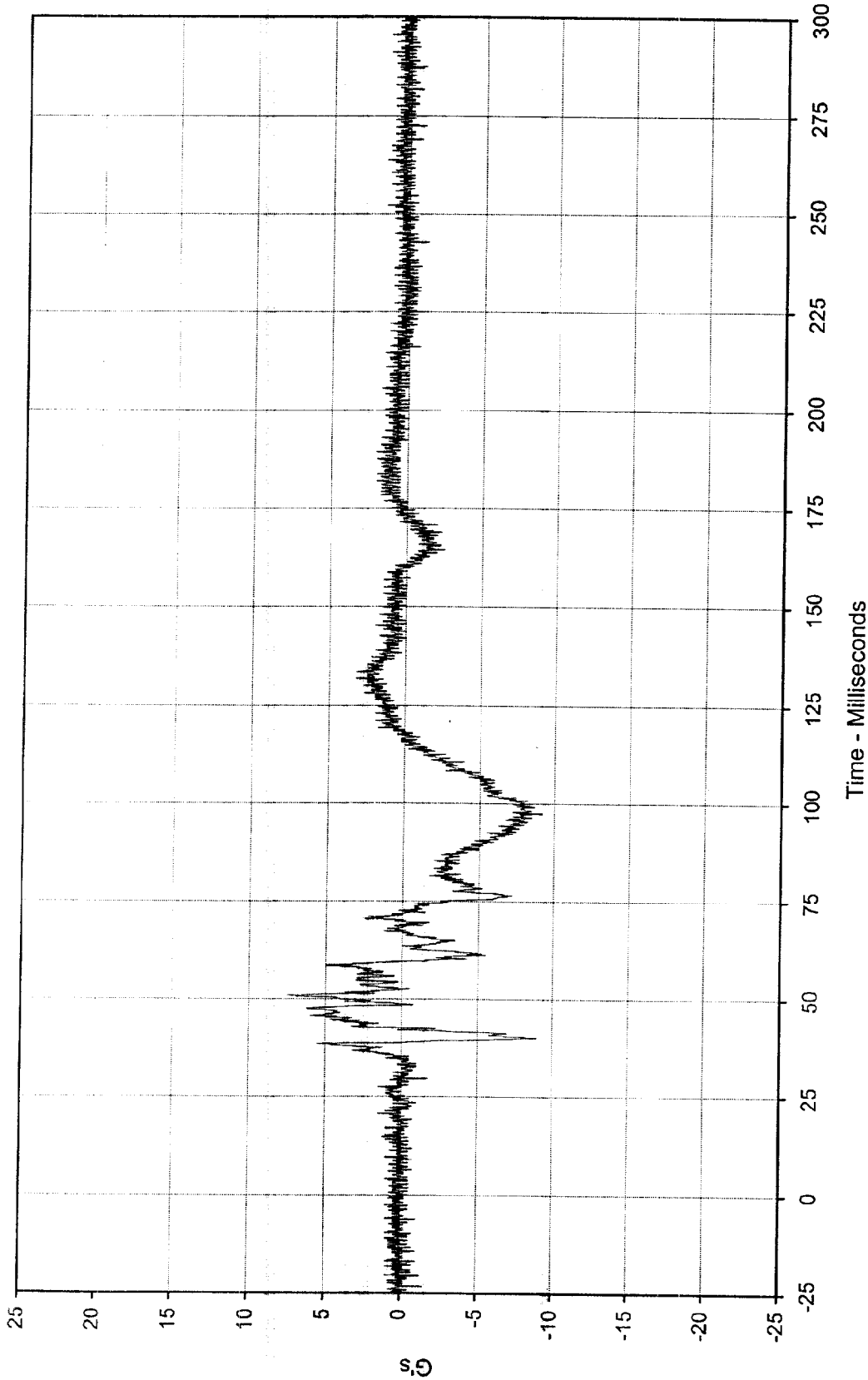
Date of Test: 12/18/98

Curve Number: IN2-064

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

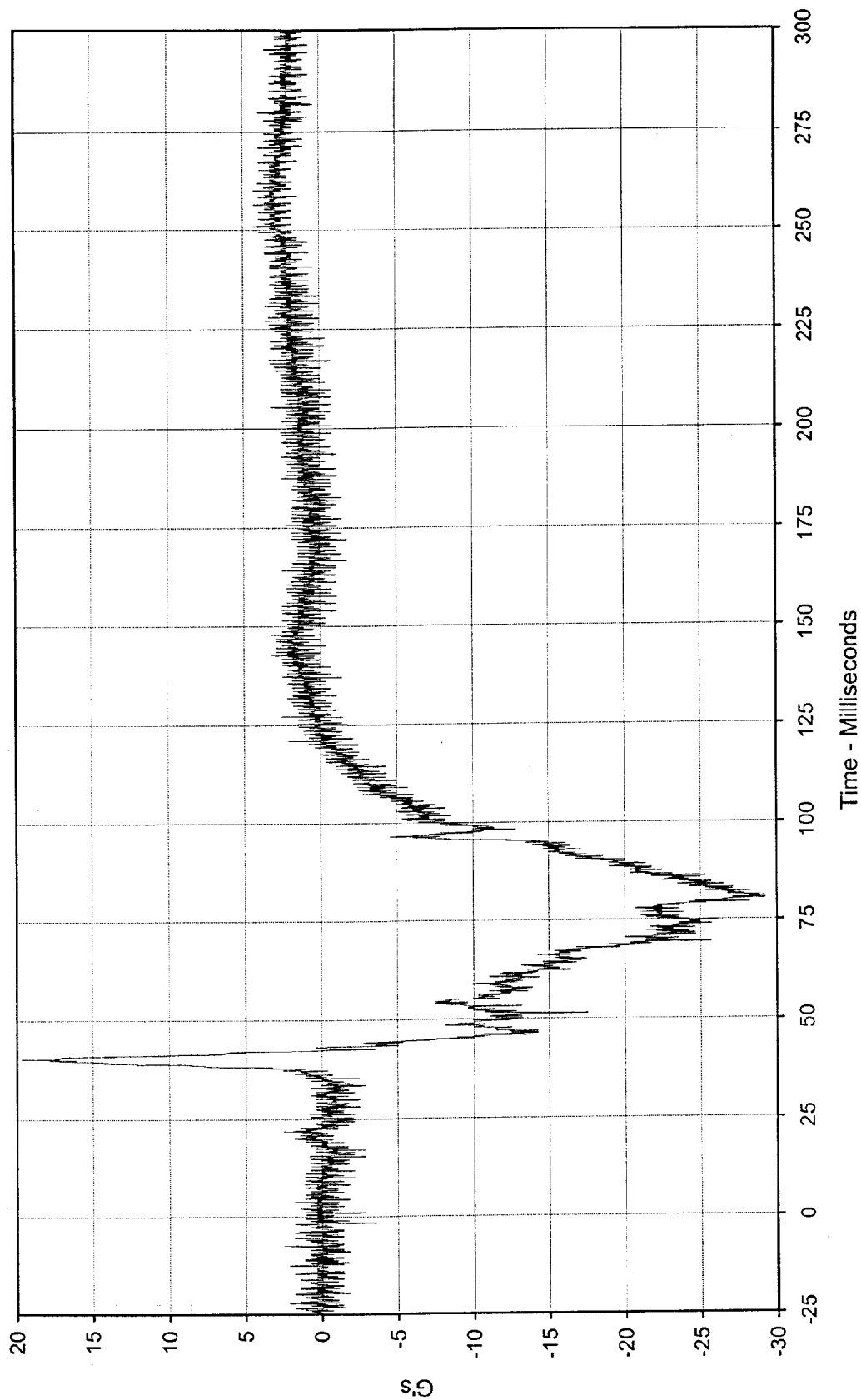
Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Passenger Pelvis Y		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	7.5	at 50.9	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-9.2	at 97.5			
SAE Filter Class:	1000				
Date of Test:	12/18/98				
Curve Number:	FIL-065				





Curve Description: Passenger Pelvis Z

Maximum Value: 19.6 at 39.9 Milliseconds

Minimum Value: -29.3 at 80.2 Milliseconds

SAE Filter Class: 1000

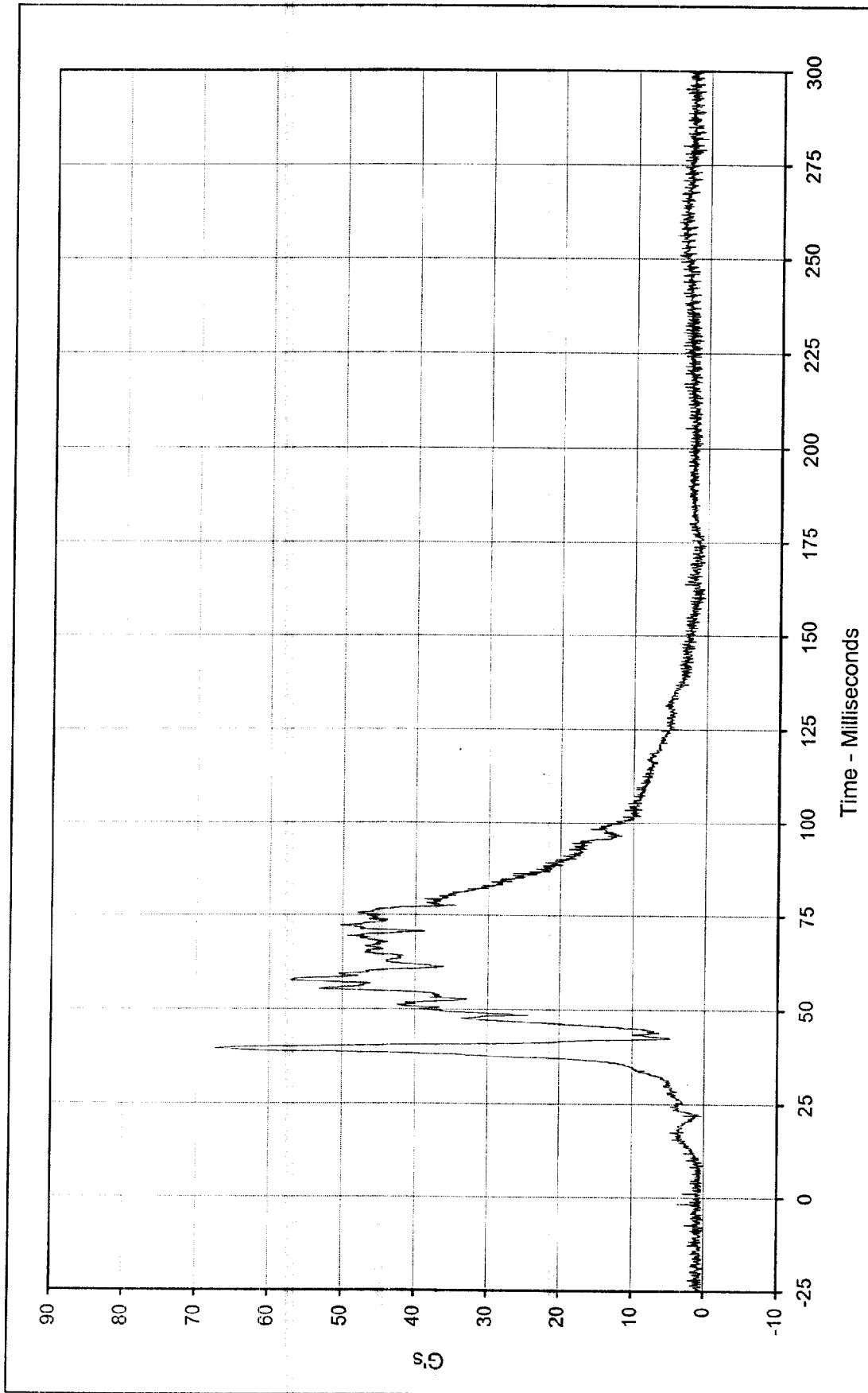
Date of Test: 12/18/98

Curve Number: FIL-066

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Pelvis Resultant Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Maximum Value: 67.3 at 39.5 Milliseconds Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

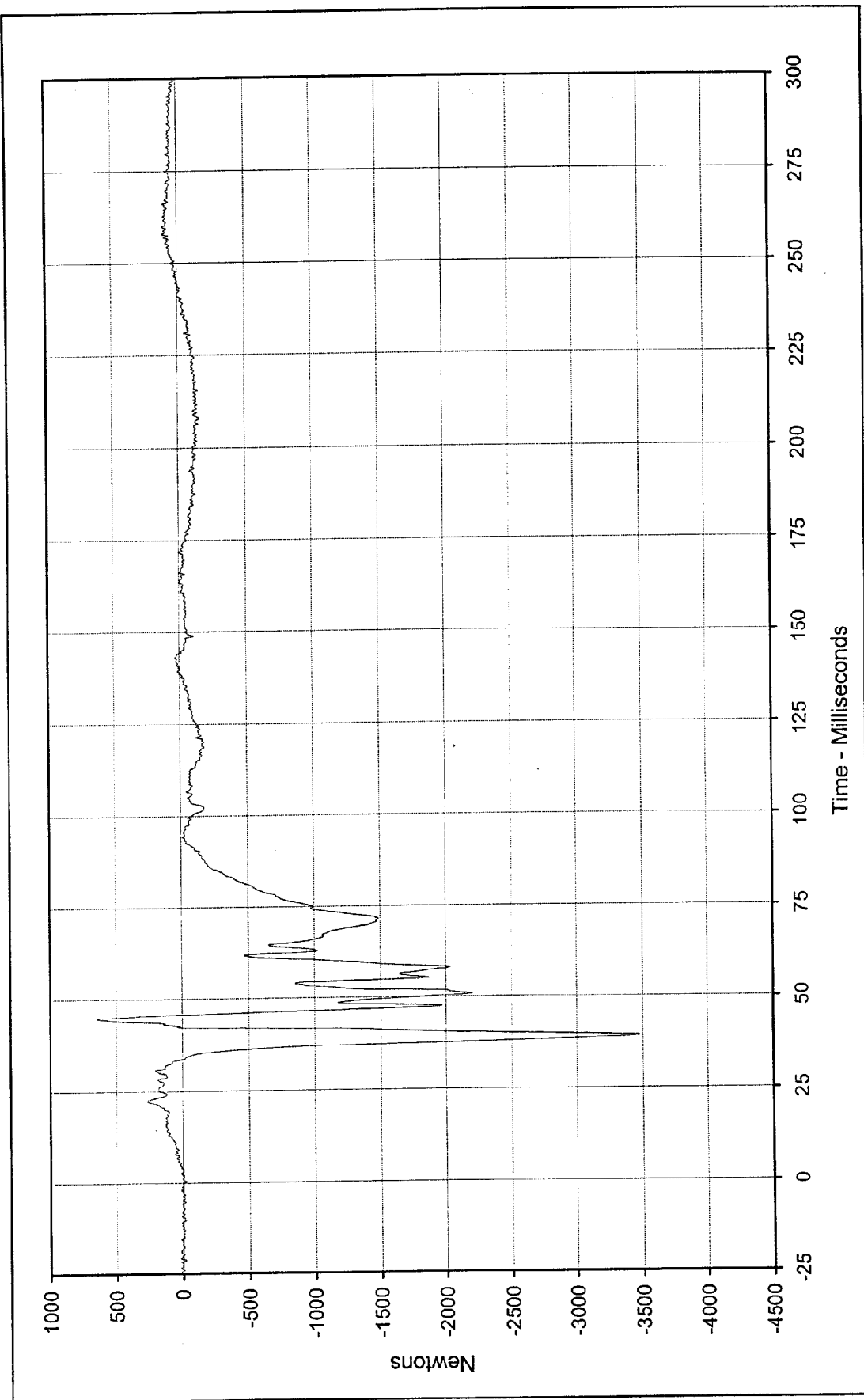
Minimum Value: 0.0 at 8.5 Milliseconds

SAE Filter Class: 1000

Date of Test: 12/18/98

Curve Number: RES-064

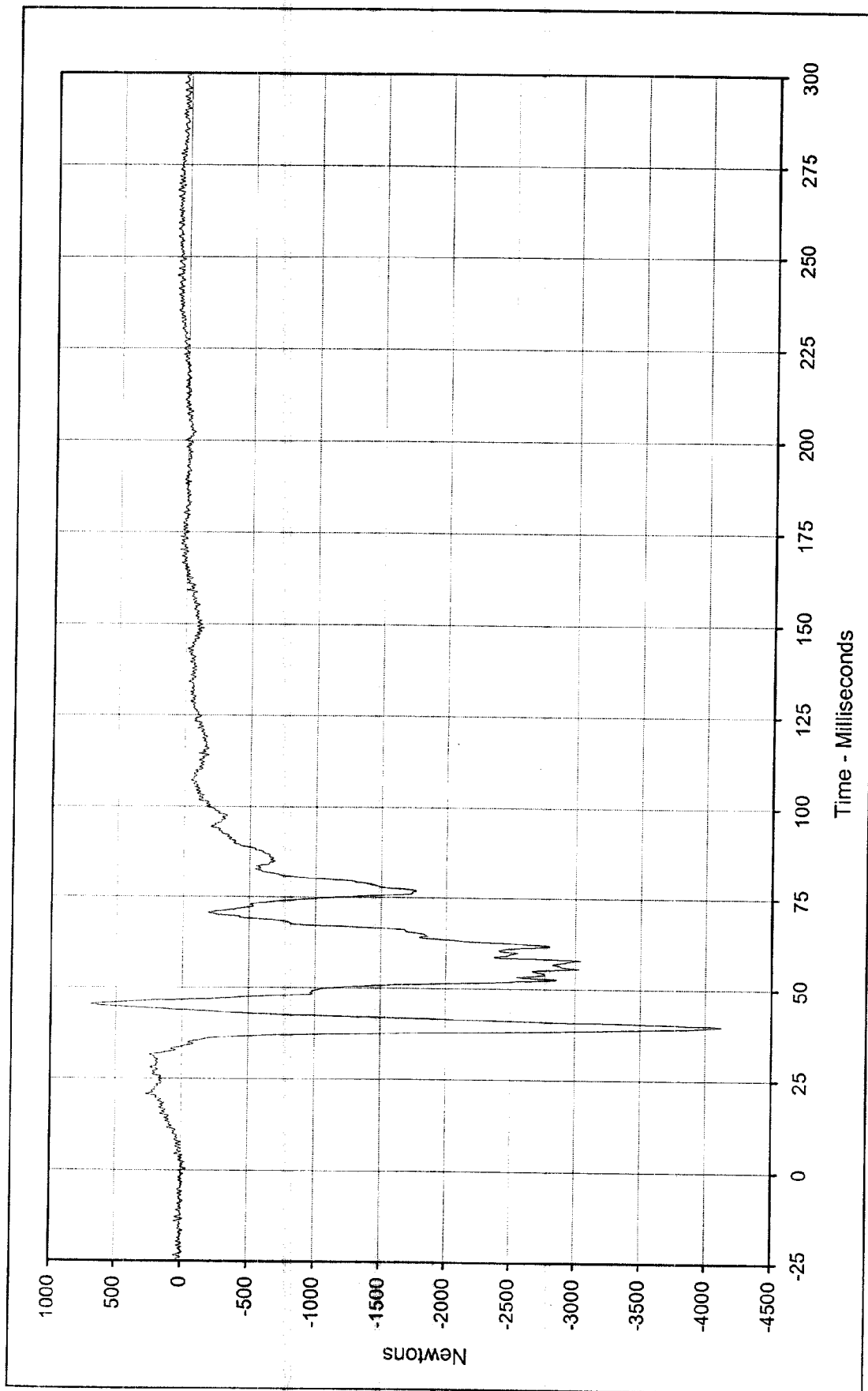




Curve Description: Passenger Left Femur Force
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Maximum Value: 640.9 at 44.5 Milliseconds
 Minimum Value: -3484.5 at 39.1 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-067





Curve Description: Passenger Right Femur Force

Maximum Value: 692.2 at 45.5 Milliseconds

Minimum Value: -4125.3 at 40.0 Milliseconds

SAE Filter Class: 600

Date of Test: 12/18/98

Curve Number: FIL-068

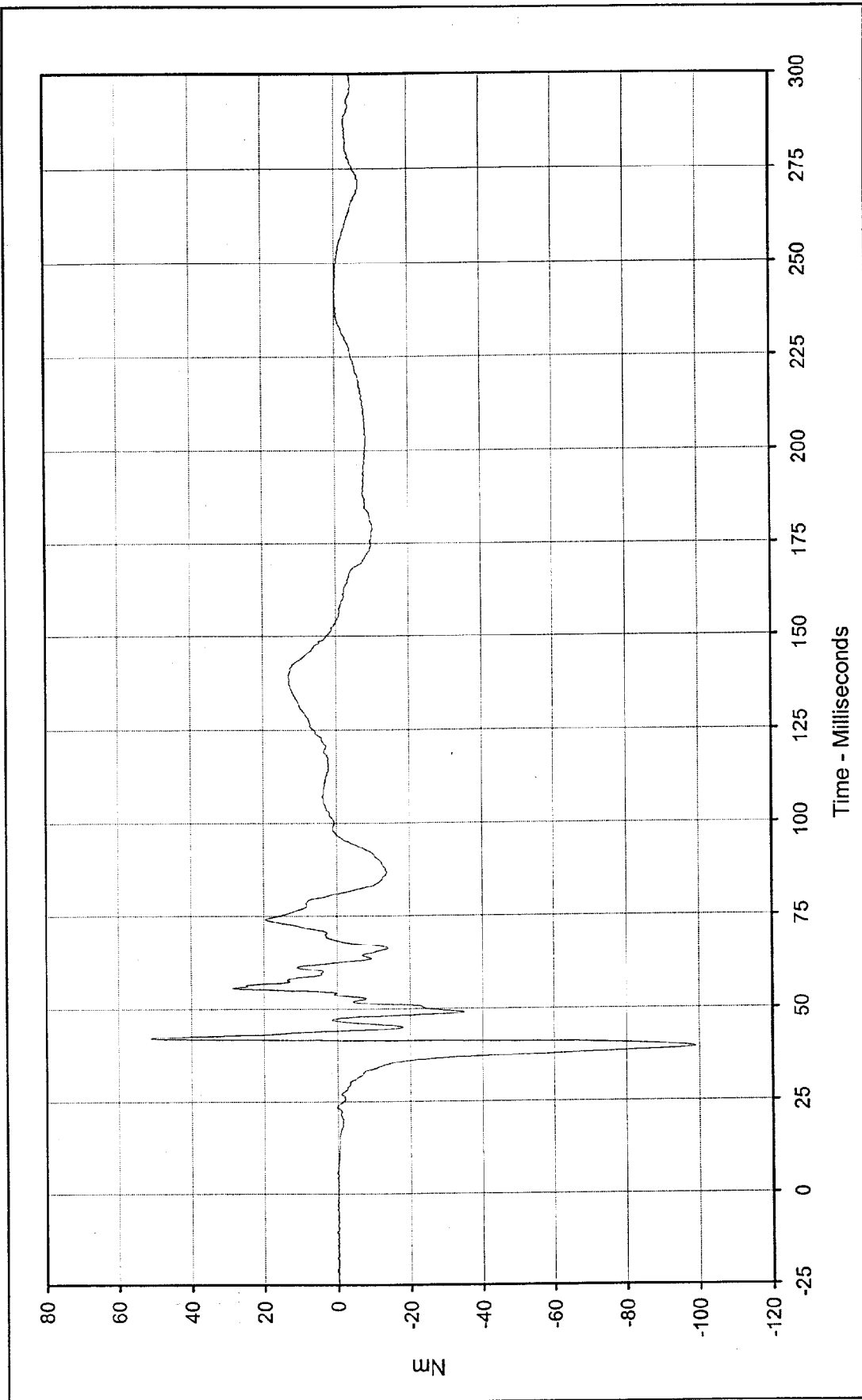
Test Program:

Test Vehicle:

1999 NHTSA 35 mph NCAP No.: MX5301

1999 Honda Civic DX 2 Door Coupe

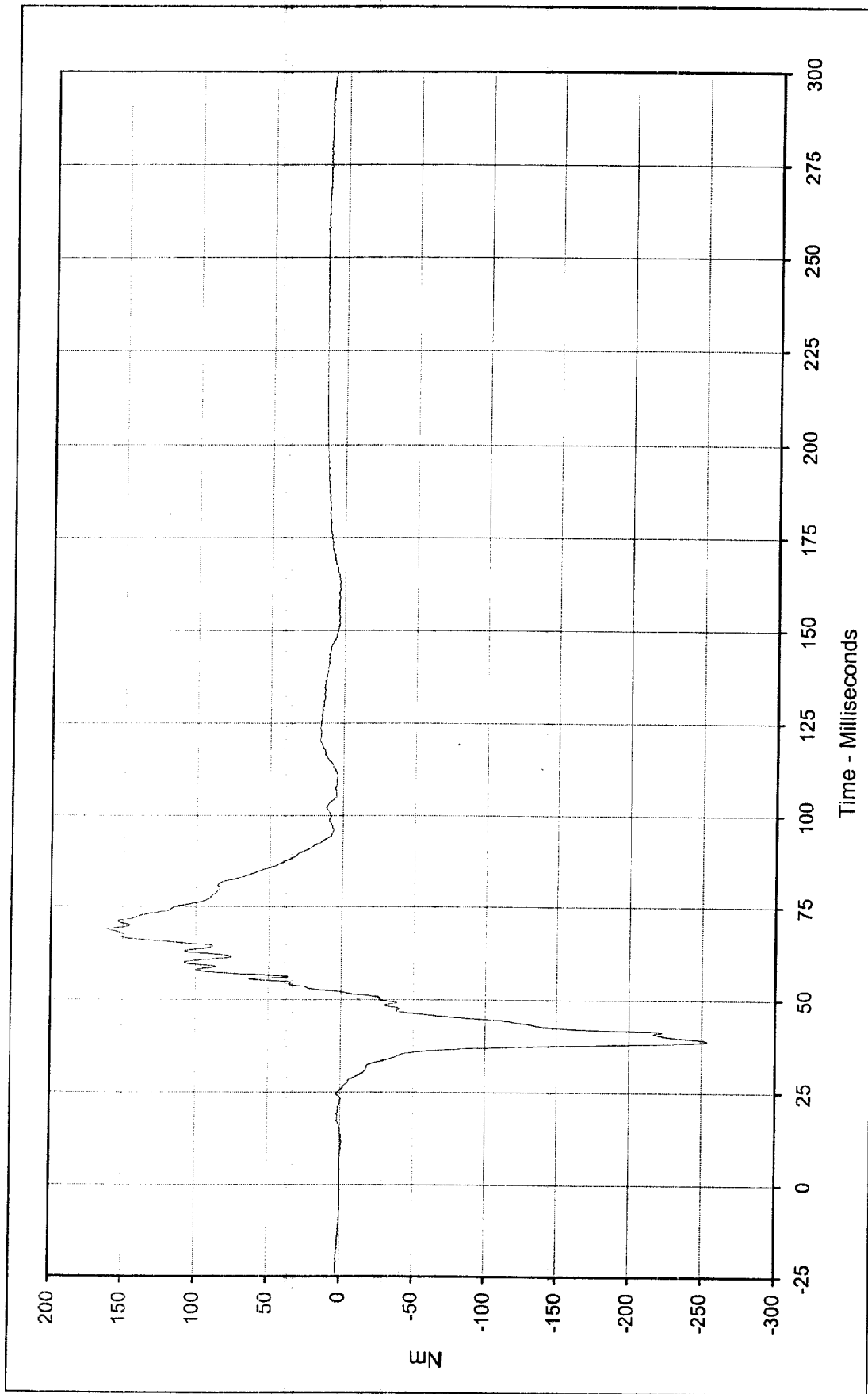




Curve Description: Passenger Left Upper Tibia Moment X
 Maximum Value: 51.0 at 42.1 Milliseconds
 Minimum Value: -99.1 at 39.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-069

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Left Upper Tibia Moment Y

Maximum Value: 161.2 at 68.9 Milliseconds

Minimum Value: -253.7 at 38.8 Milliseconds

SAE Filter Class: 600

Date of Test: 12/18/98

Curve Number: FIL-070

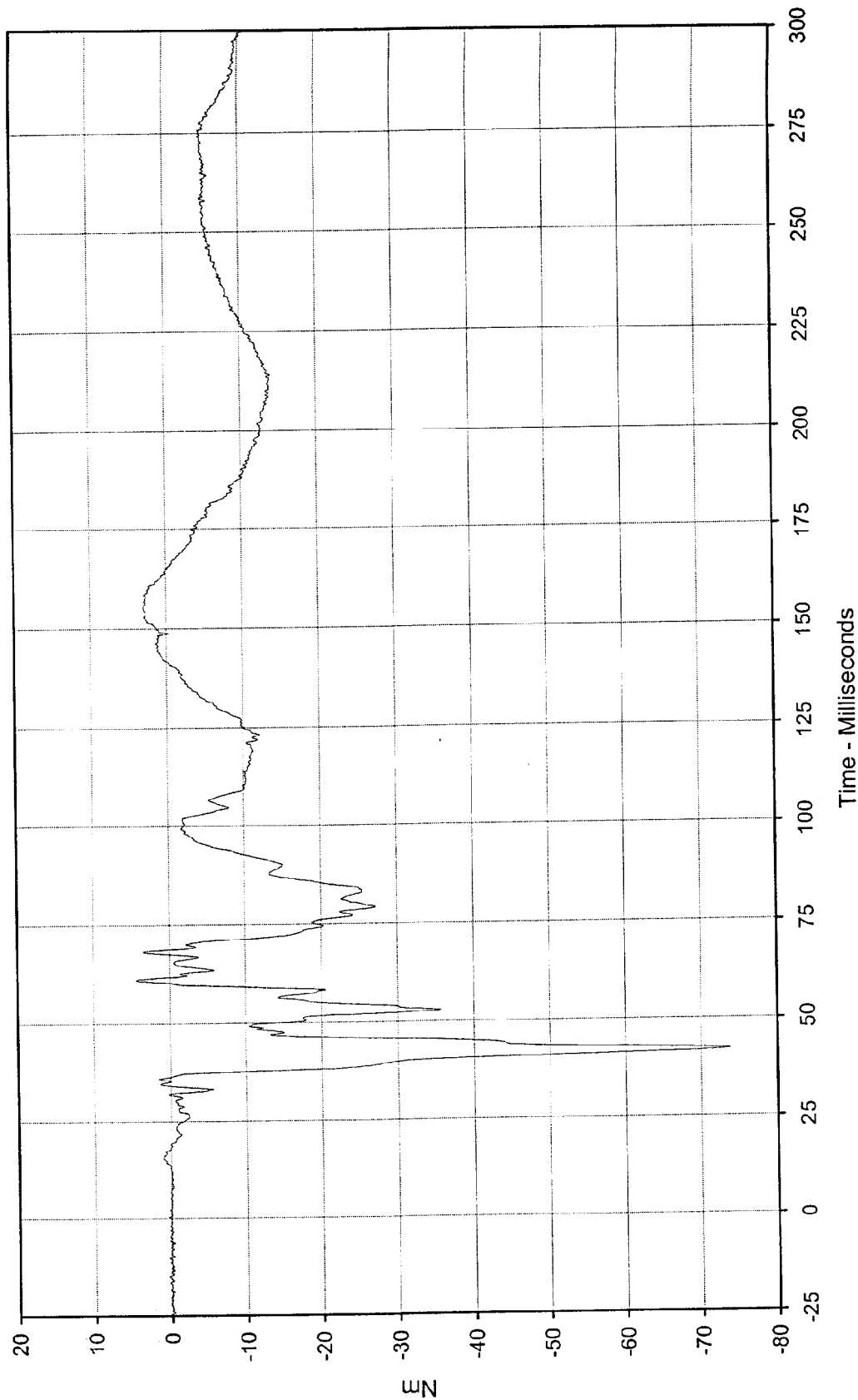
Test Program:

1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle:

1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Right Upper Tibia Moment X

Maximum Value: 4.4 at 60.9 Milliseconds

Minimum Value: -73.9 at 42.0 Milliseconds

SAE Filter Class: 600

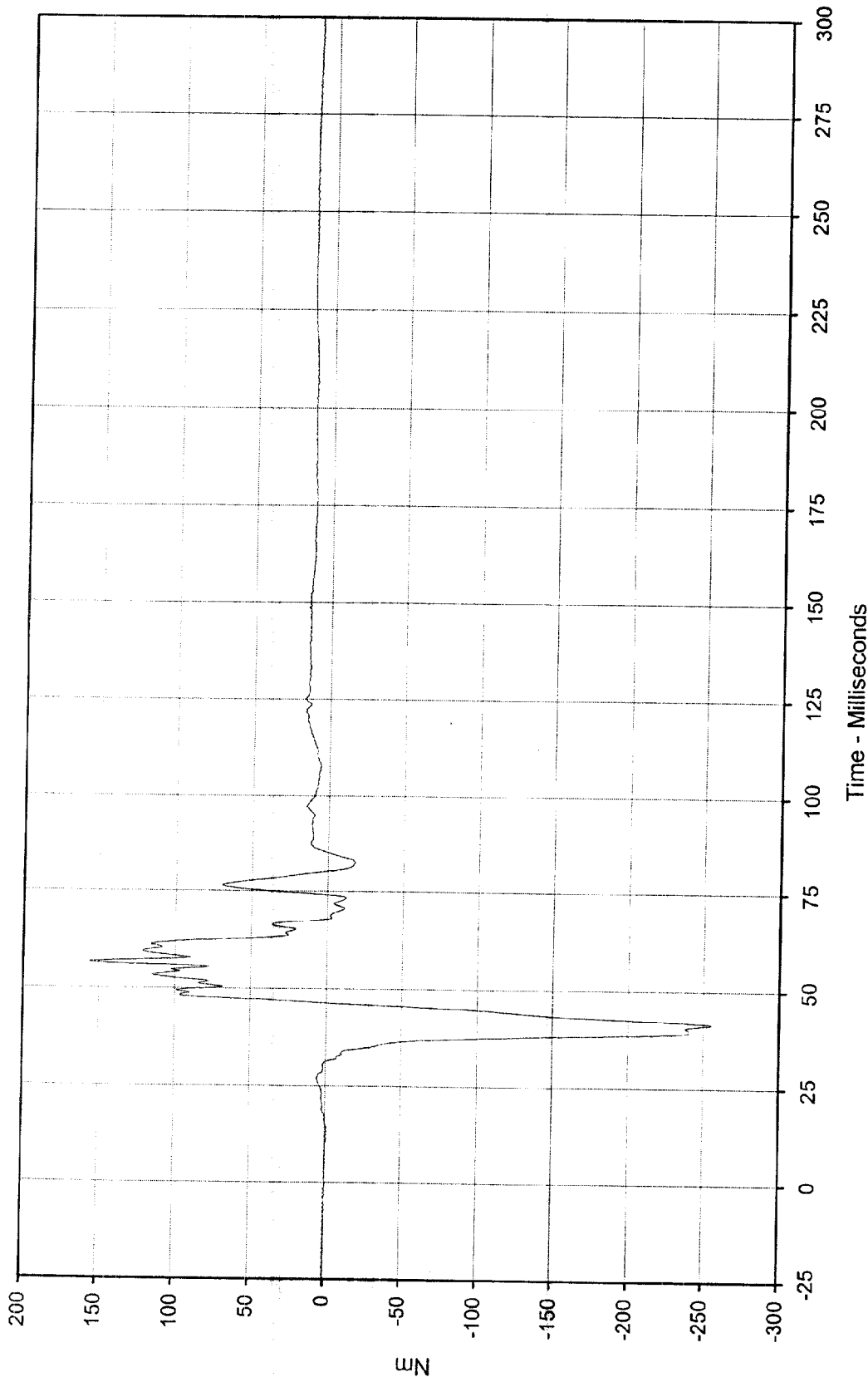
Date of Test: 12/18/98

Curve Number: FIL-071

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Right Upper Tibia Moment Y

Maximum Value: 155.8 at 56.6 Milliseconds

Minimum Value: -255.5 at 41.4 Milliseconds

SAE Filter Class: 600

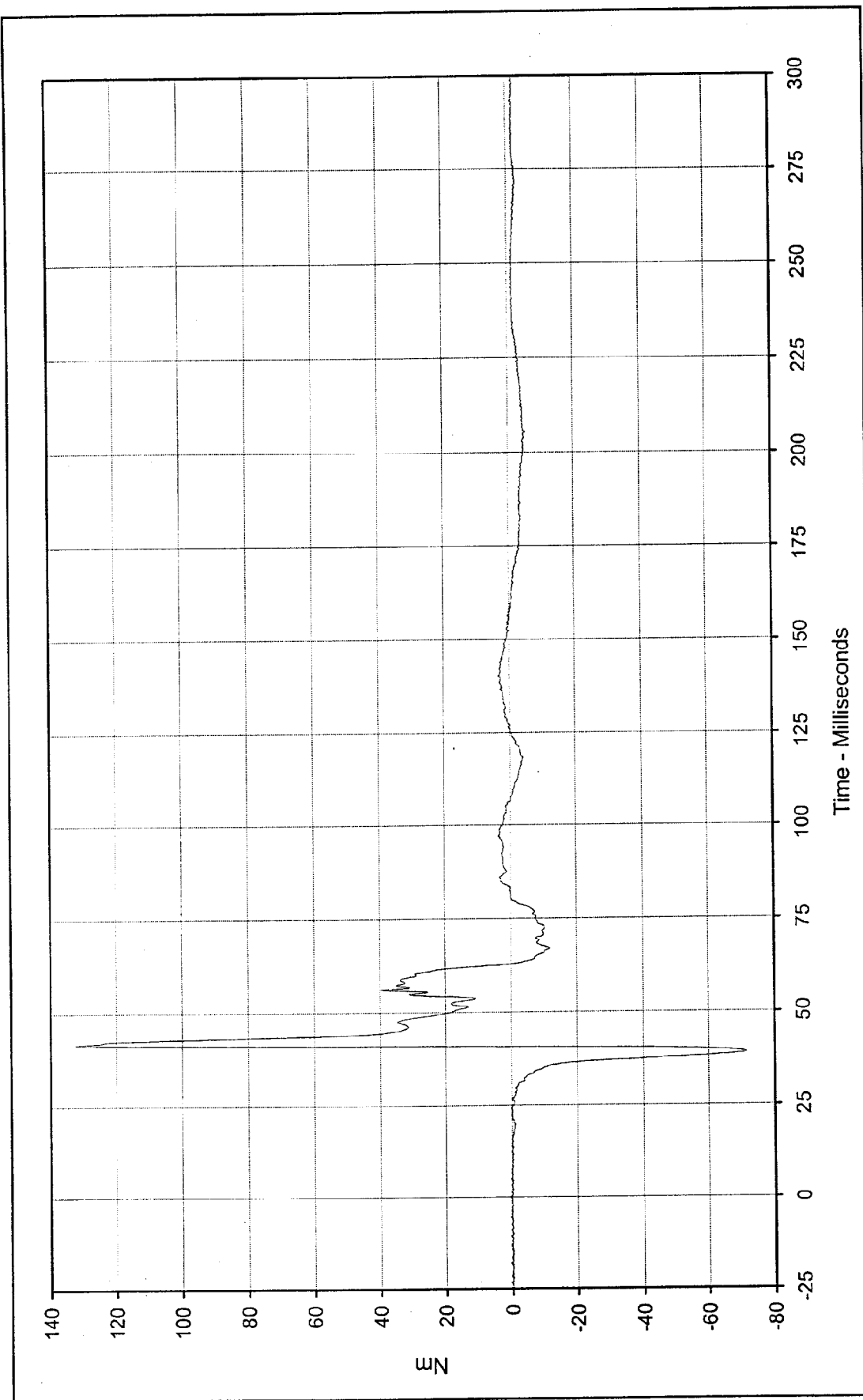
Date of Test: 12/18/98

Curve Number: FIL-072

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

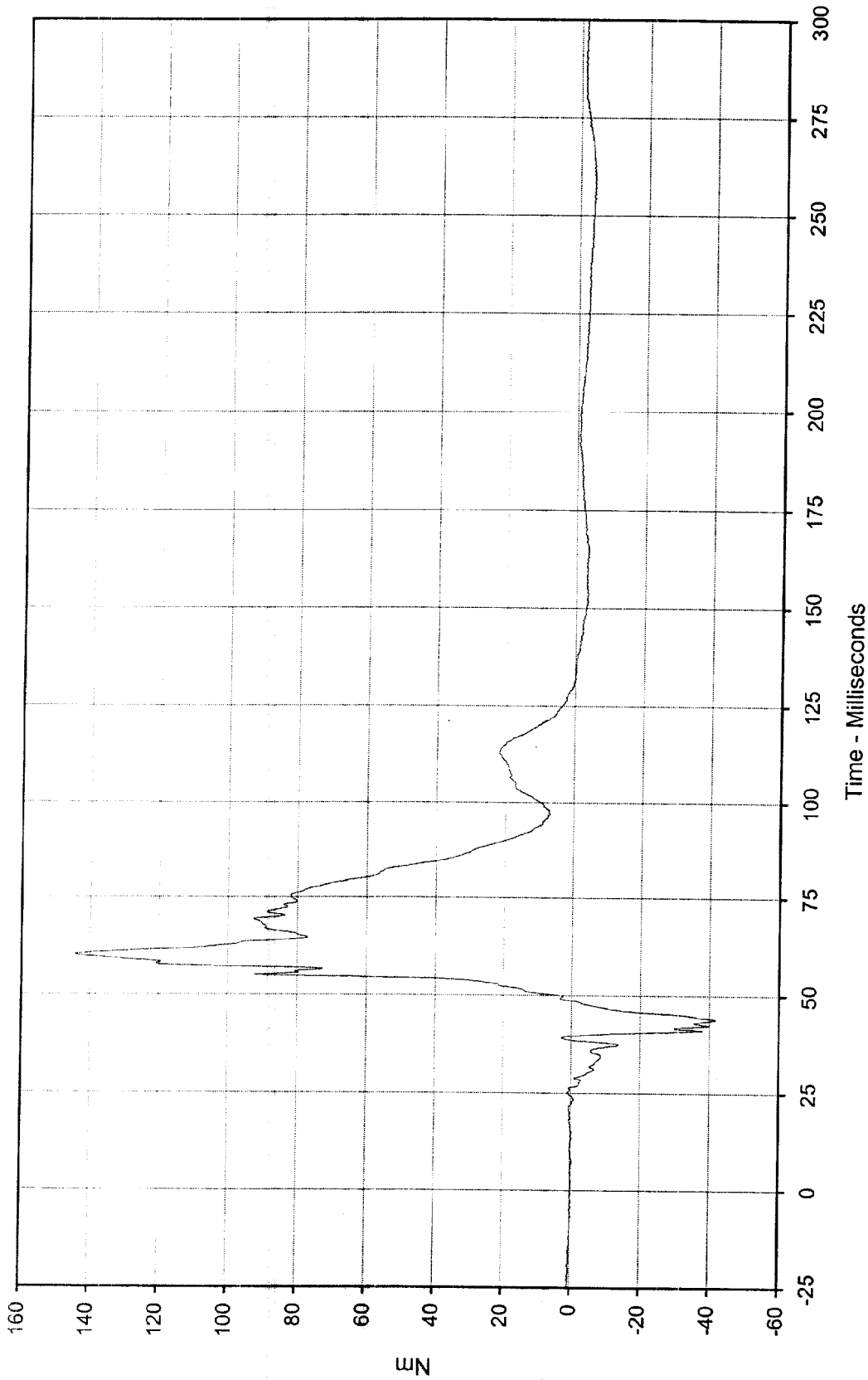




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Passenger Left Lower Tibia Moment X
 Maximum Value: 132.4 at 41.6 Milliseconds
 Minimum Value: -71.5 at 38.9 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-073





Curve Description: Passenger Left Lower Tibia Moment Y

Maximum Value: 144.3 at 60.2 Milliseconds

Minimum Value: -41.7 at 44.0 Milliseconds

SAE Filter Class: 600

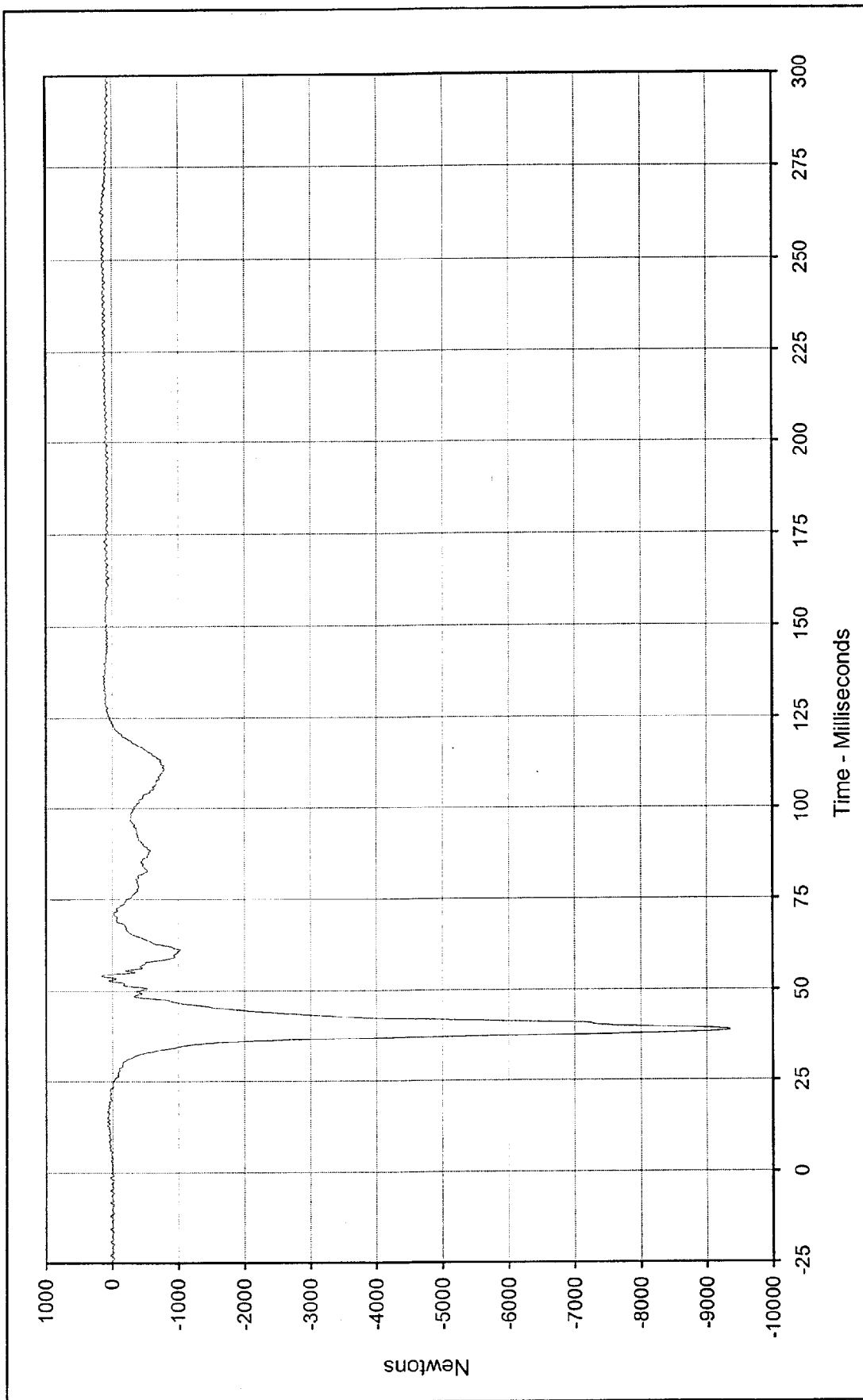
Date of Test: 12/18/98

Curve Number: FIL-074

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

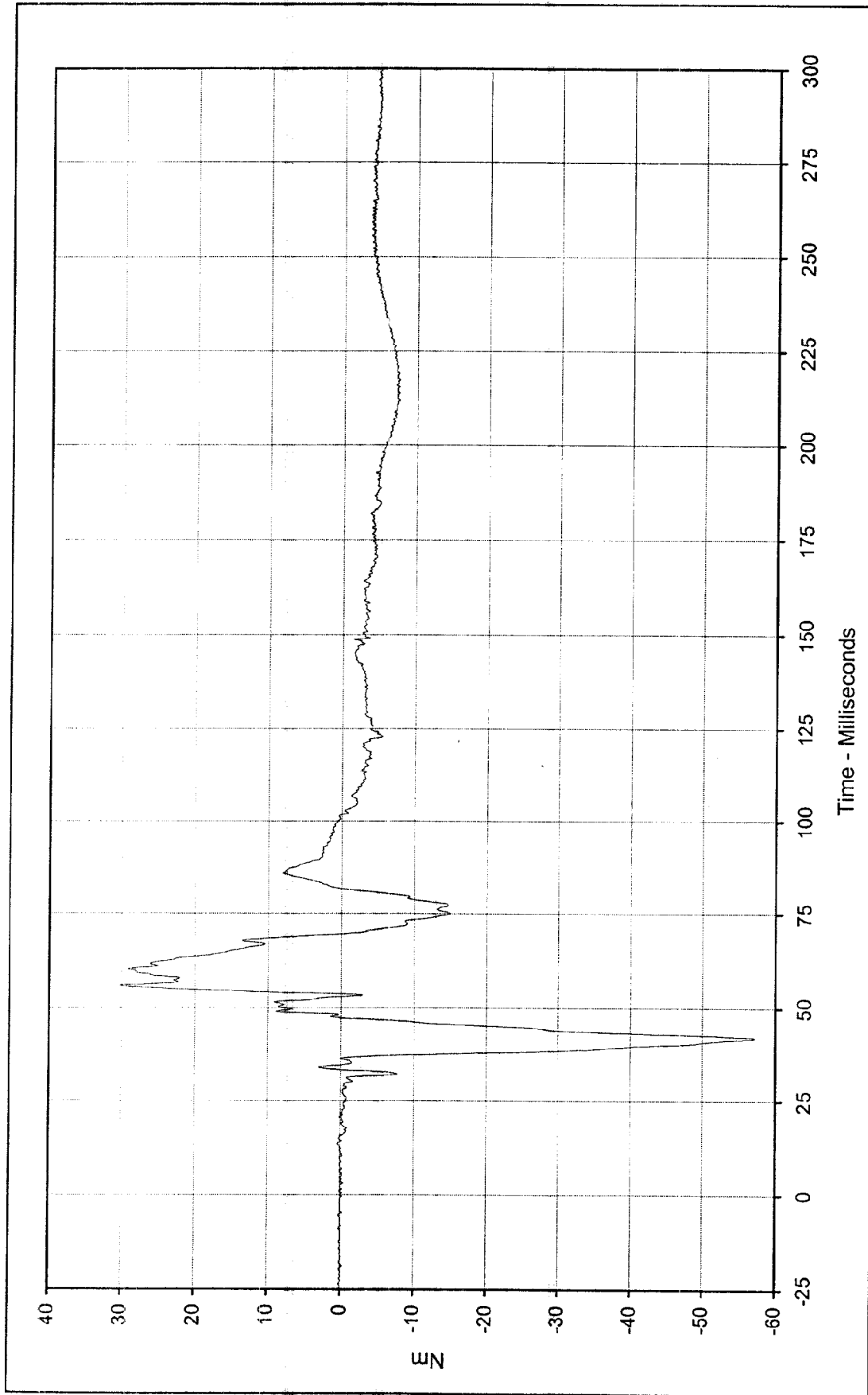




Curve Description: Passenger Left Lower Tibia Force Z
 Maximum Value: 169.0 at 262.9 Milliseconds
 Minimum Value: -9360.3 at 38.9 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/18/98
 Curve Number: FIL-075

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Right Lower Tibia Moment X

Maximum Value: 30.2 at 55.8 Milliseconds

Minimum Value: -57.2 at 41.9 Milliseconds

SAE Filter Class: 600

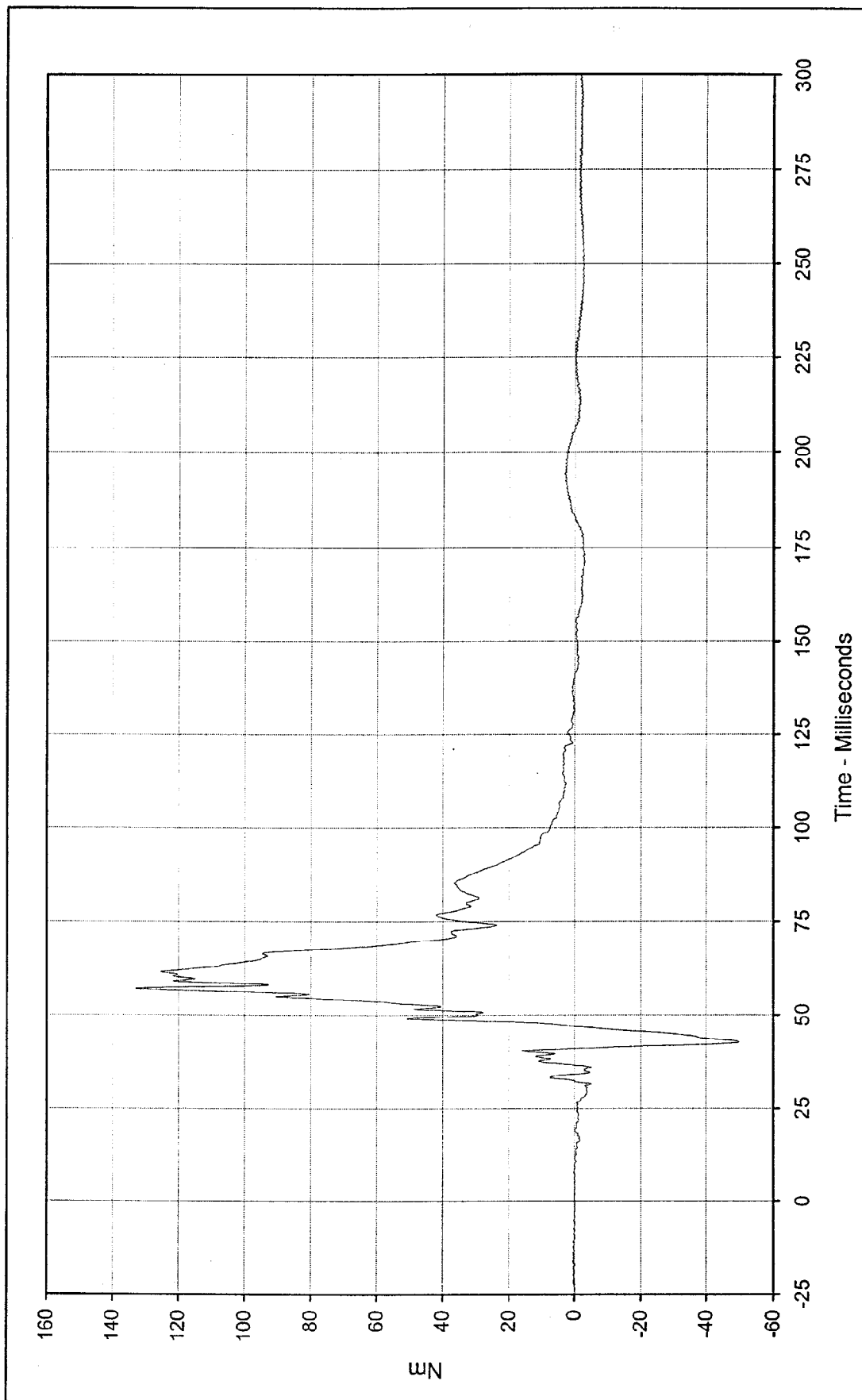
Date of Test: 12/18/98

Curve Number: FIL-076

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Right Lower Tibia Moment Y

Maximum Value: 133.0 at 57.0 Milliseconds

Minimum Value: -49.7 at 42.5 Milliseconds

SAE Filter Class: 600

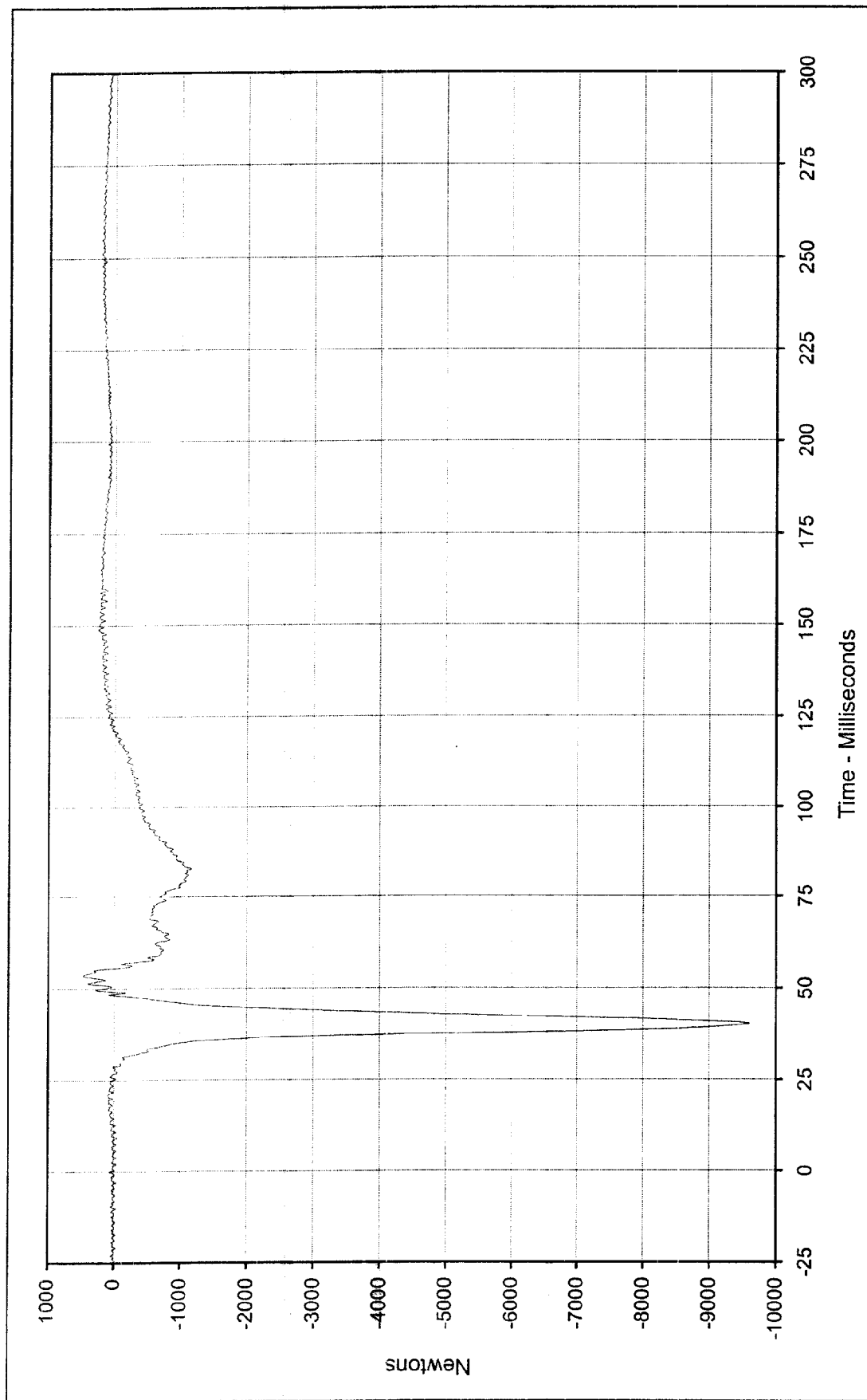
Date of Test: 12/18/98

Curve Number: FIL-077

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Right lower Tibia Force Z

Maximum Value: 470.3 at 53.6 Milliseconds

Minimum Value: -9595.8 at 40.3 Milliseconds

SAE Filter Class: 600

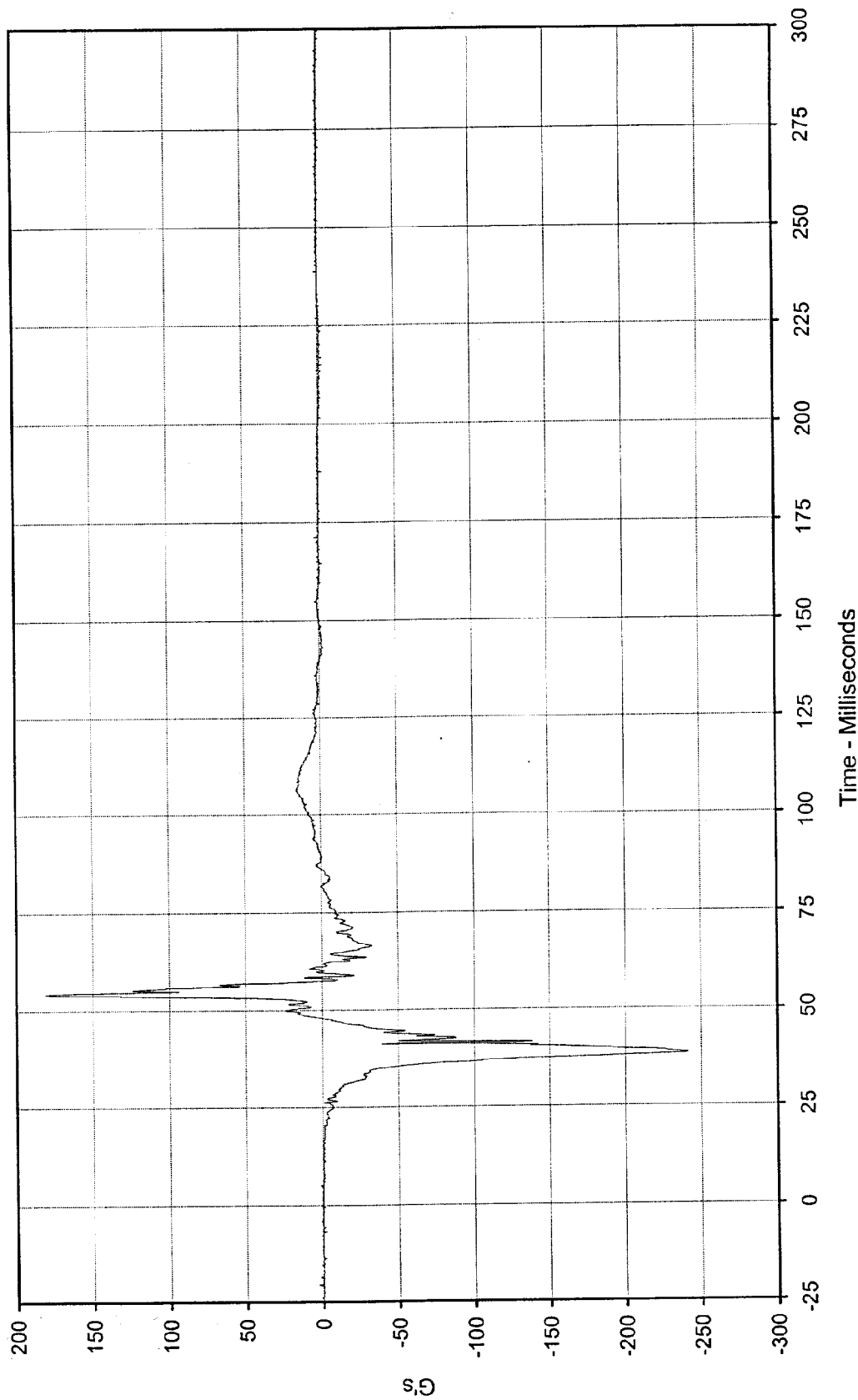
Date of Test: 12/18/98

Curve Number: FIL-078

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

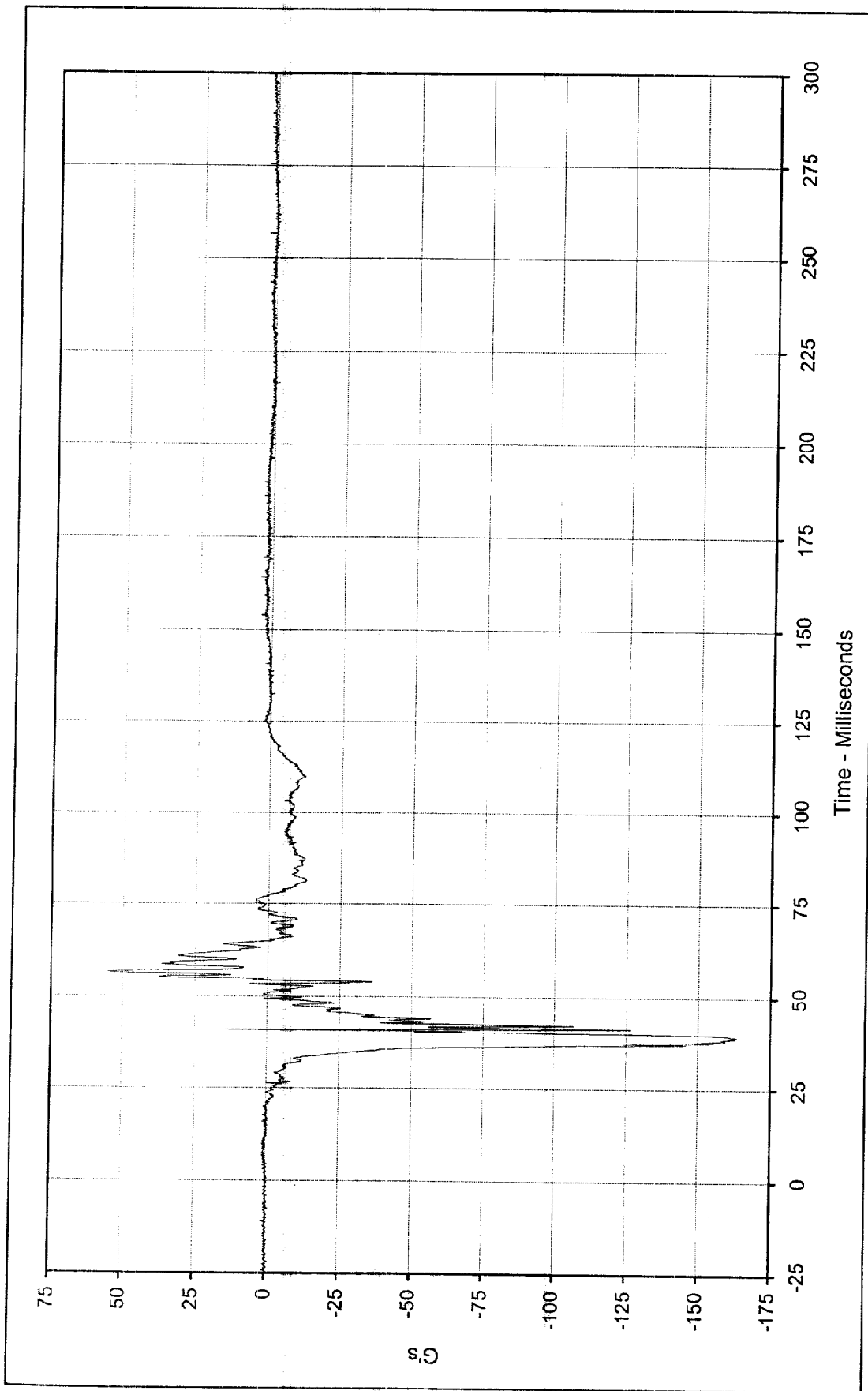




Curve Description: Passenger Left Foot Aft X
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

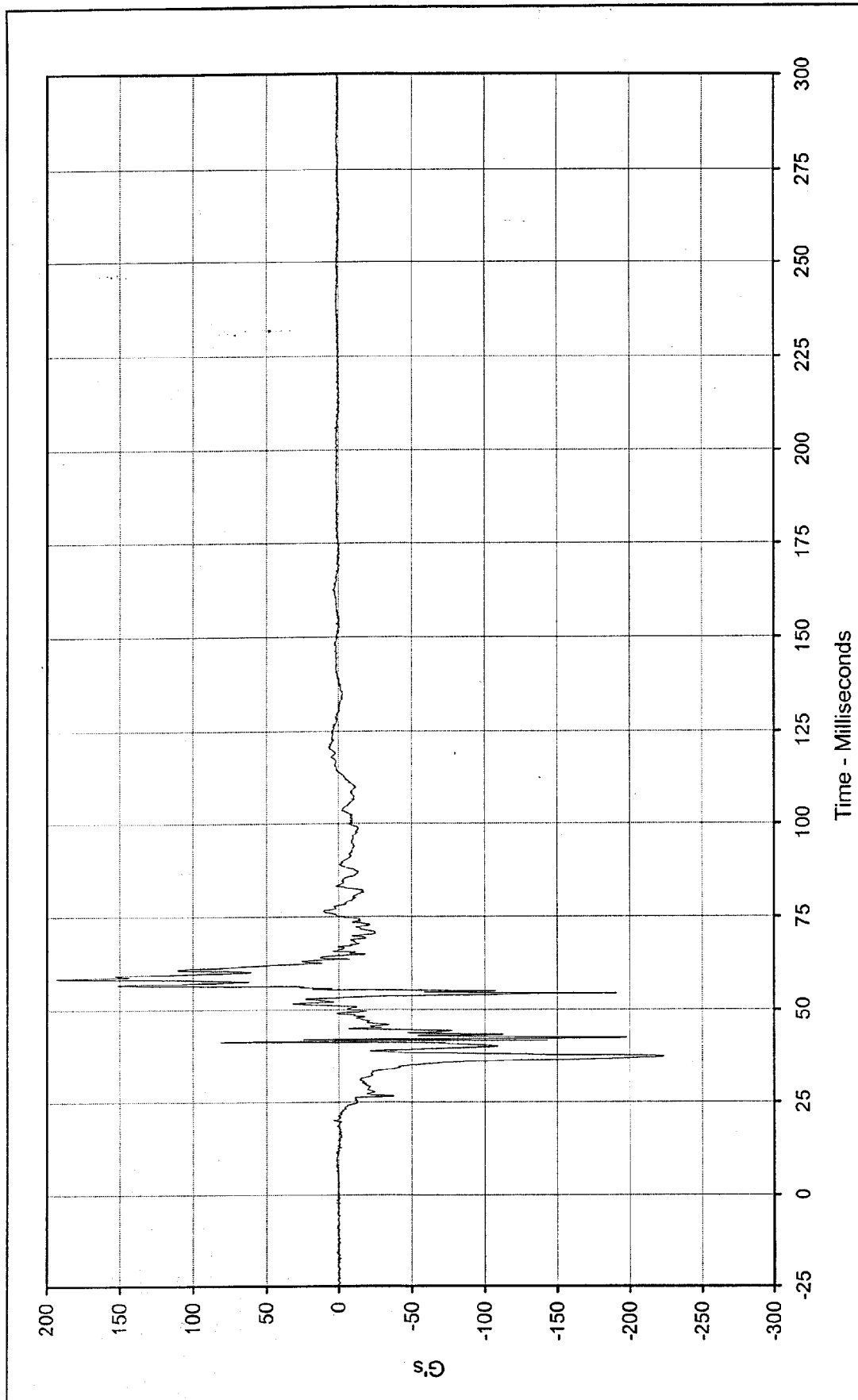
Maximum Value: 181.0 at 54.2 Milliseconds
 Minimum Value: -241.4 at 38.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: FIL-079





Curve Description:	Passenger Left Foot Aft Z	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	55.0 at 56.3 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-163.4 at 39.1 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	12/18/98			
Curve Number:	FIL-080			

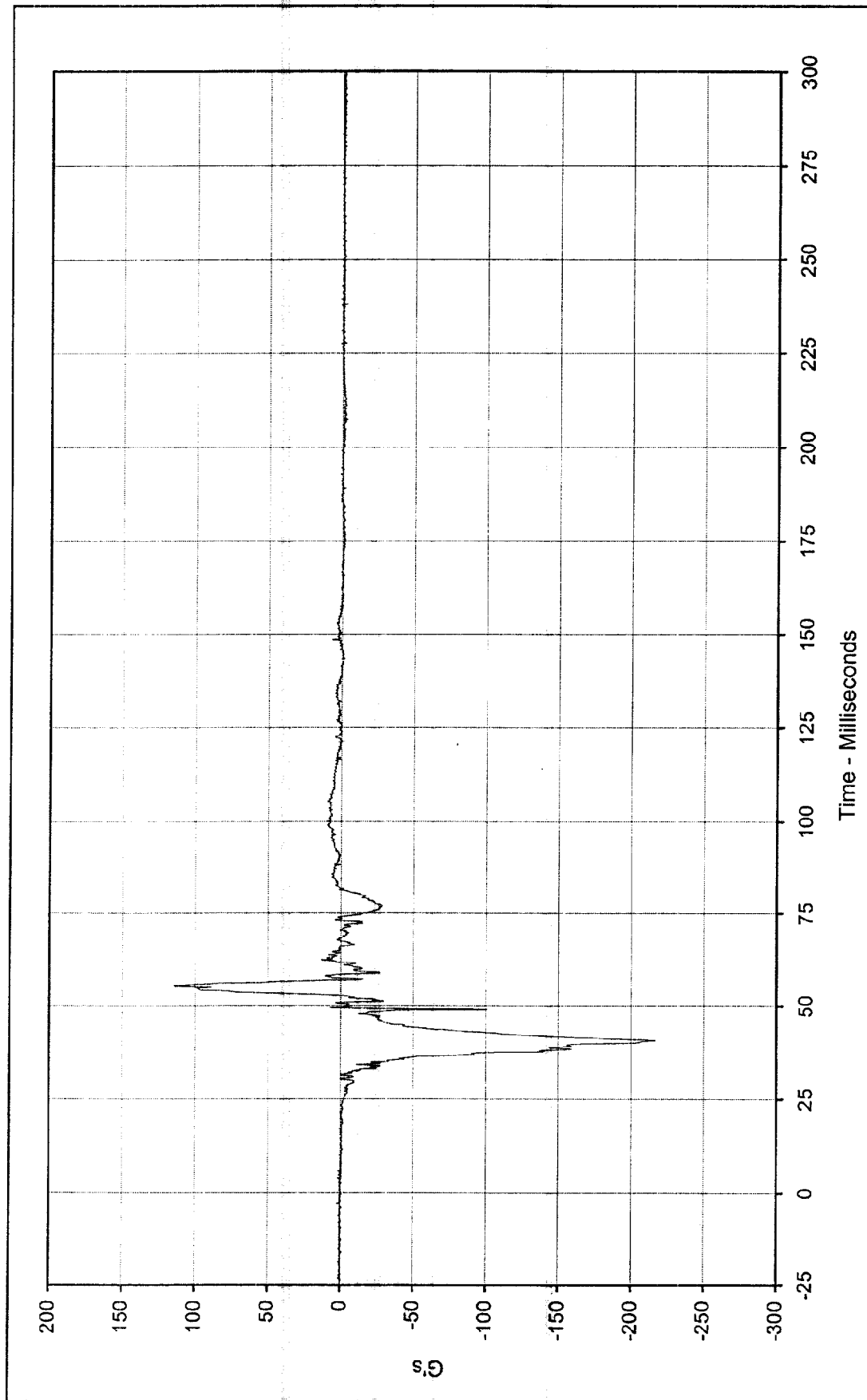




Curve Description: Passenger Left Foot Fore Z
 Maximum Value: 193.3 at 58.3 Milliseconds
 Minimum Value: -223.7 at 37.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/18/98
 Curve Number: FIL-081

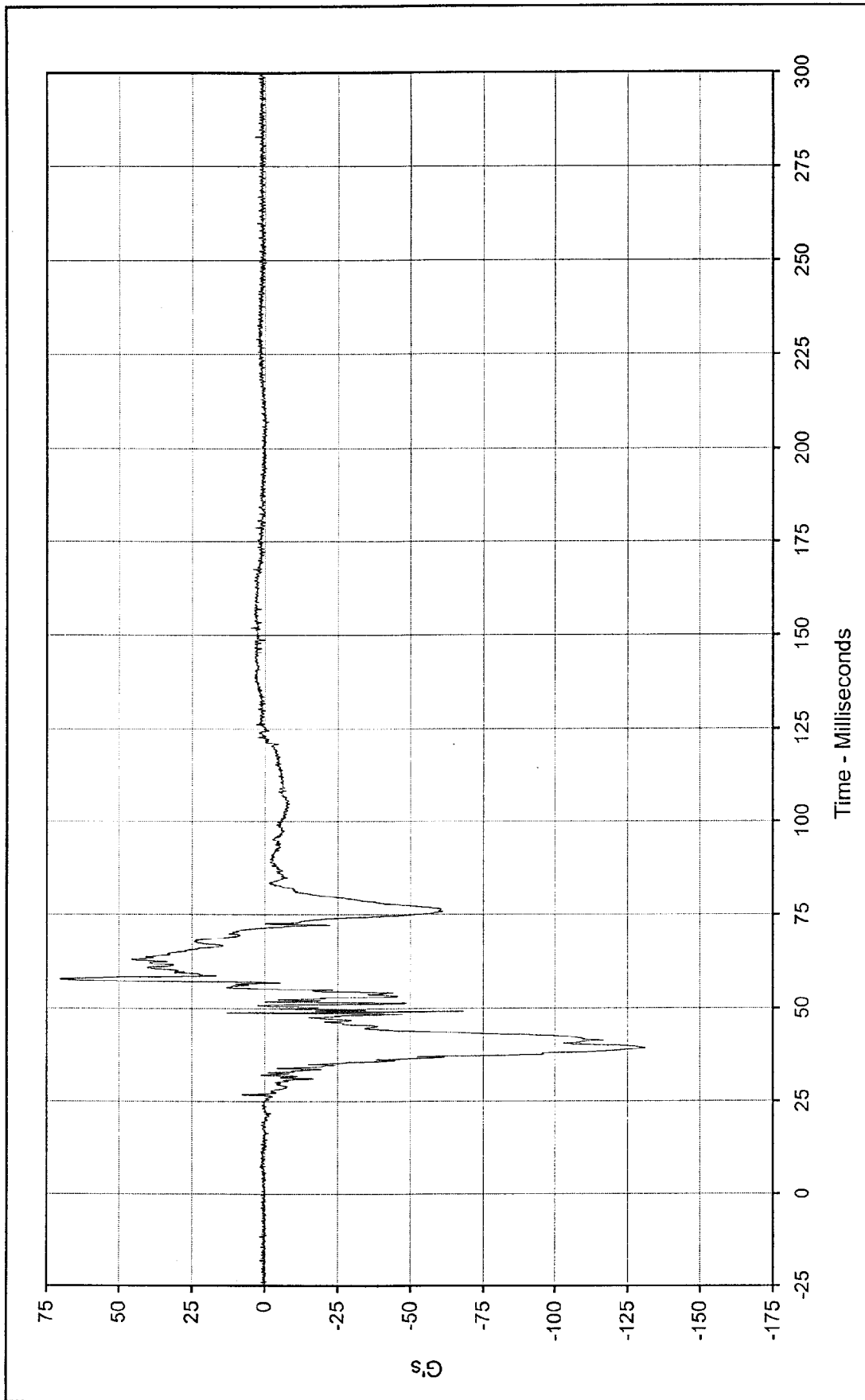
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





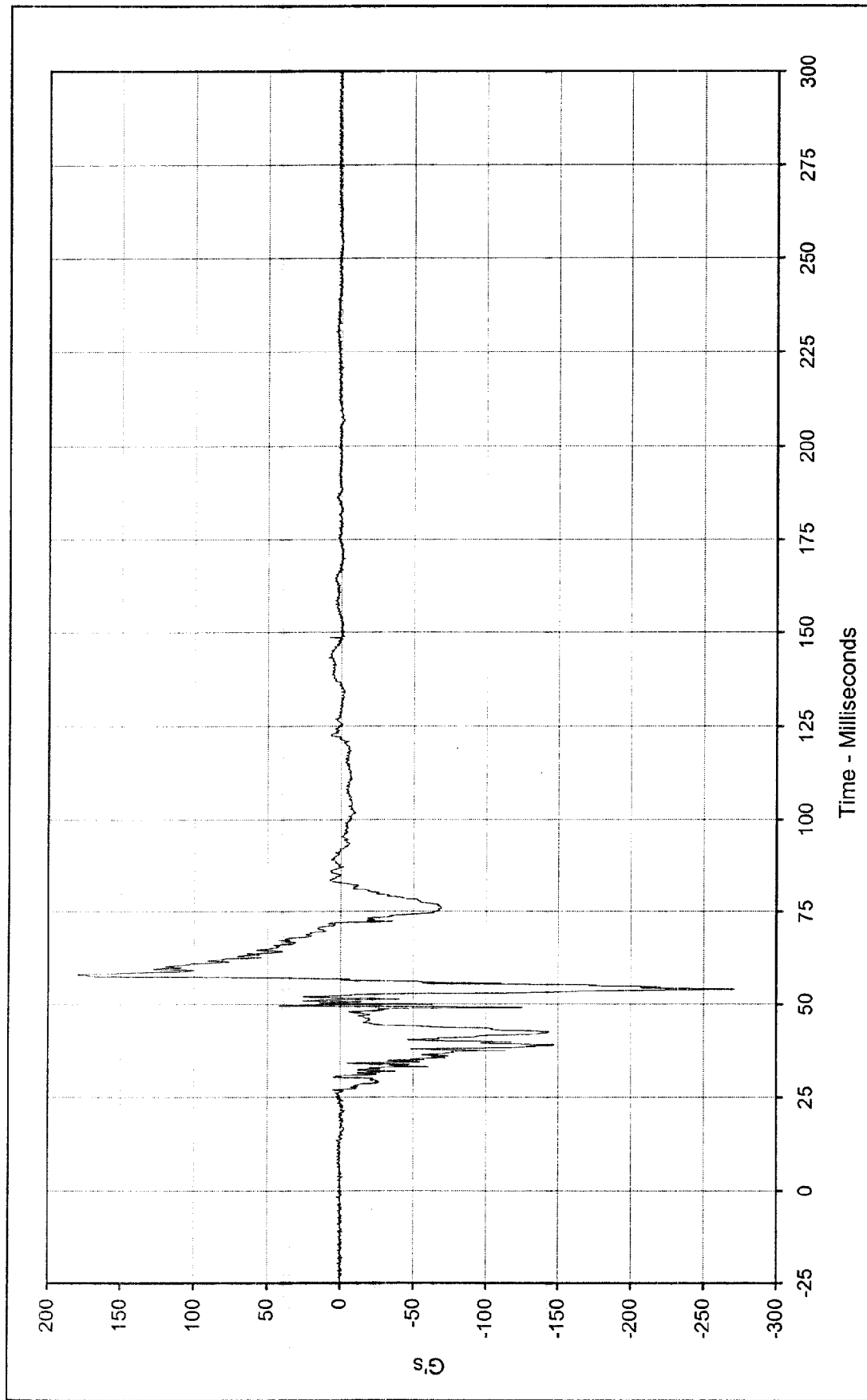
Curve Description:	Passenger Right Foot Aft X	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	114.3 at 55.4 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-216.5 at 40.7 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	12/18/98			
Curve Number:	FIL-082			





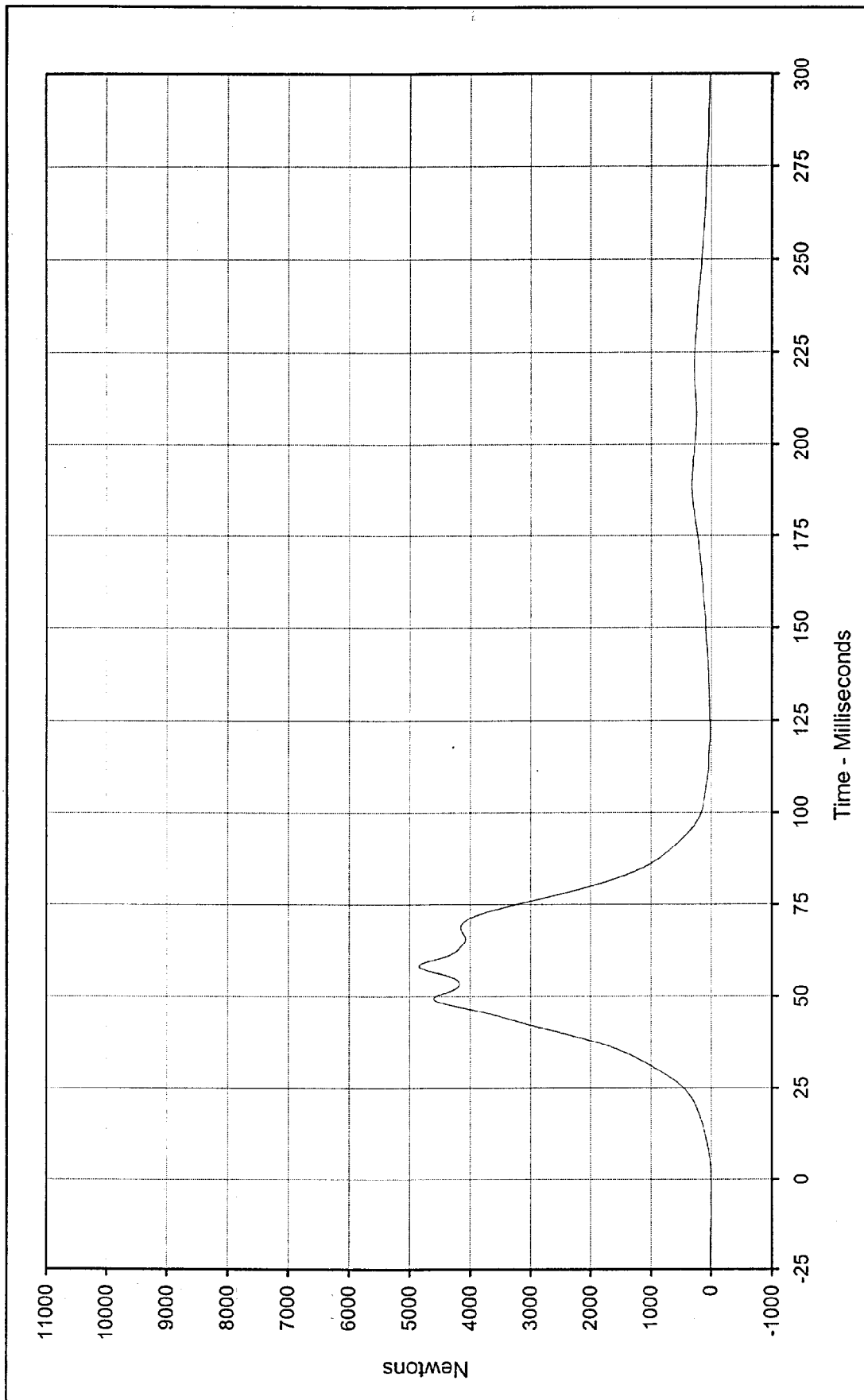
Curve Description:	Passenger Right Foot Aft Z	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	70.4 at 57.8 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-131.4 at 39.2 Milliseconds			
SAE Filter Class:	1000			
Date of Test:	12/18/98			
Curve Number:	FIL-083			





Curve Description:		Passenger Right Foot Fore Z		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	179.7	at	57.9	Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	-271.7	at	54.0	Milliseconds		
SAE Filter Class:	1000					
Date of Test:	12/18/98					
Curve Number:	FIL-084					

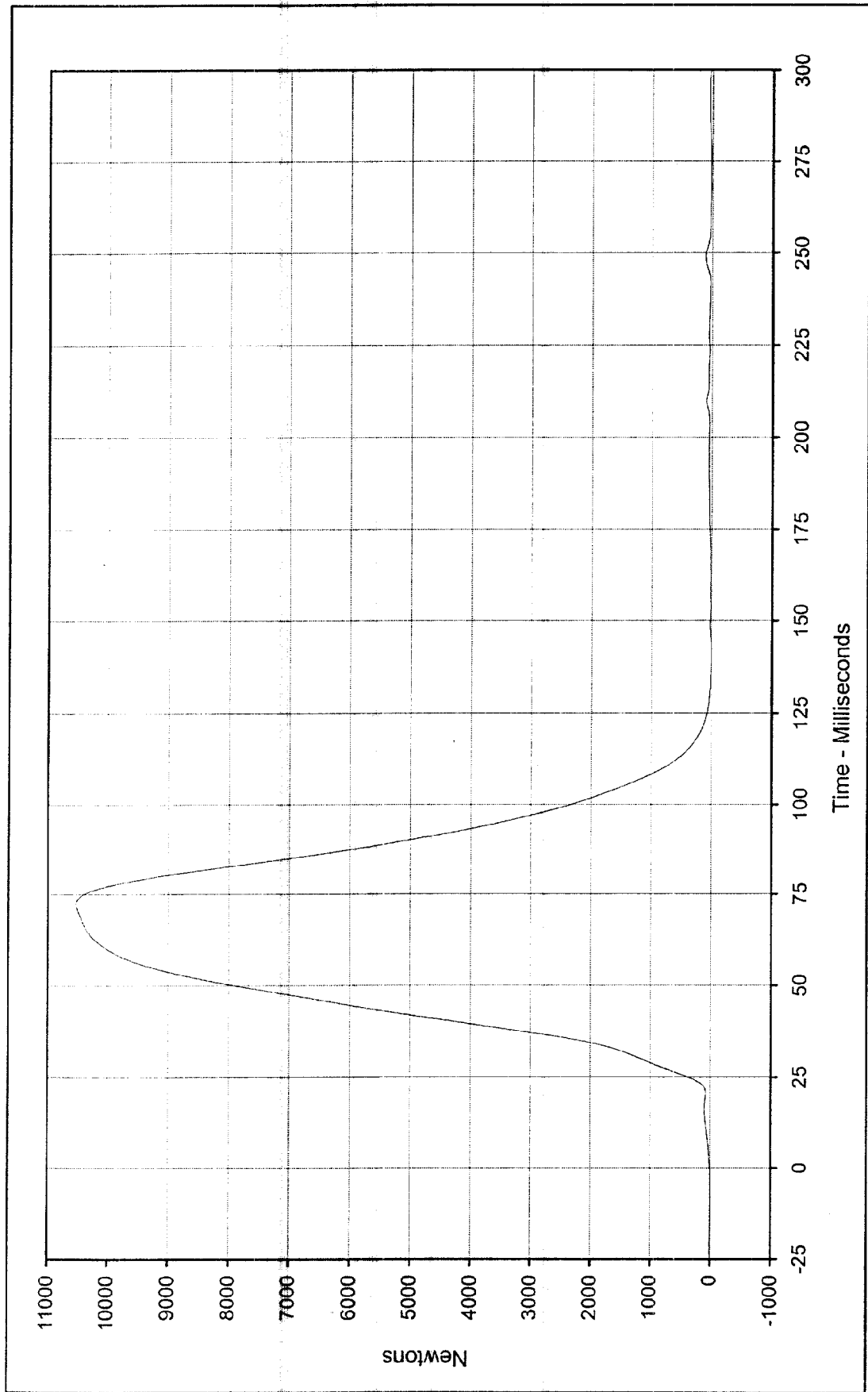




Curve Description: Passenger Lap Belt Force
 Maximum Value: 4840.4 at 58.2 Milliseconds
 Minimum Value: 0.3 at 0.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-085

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

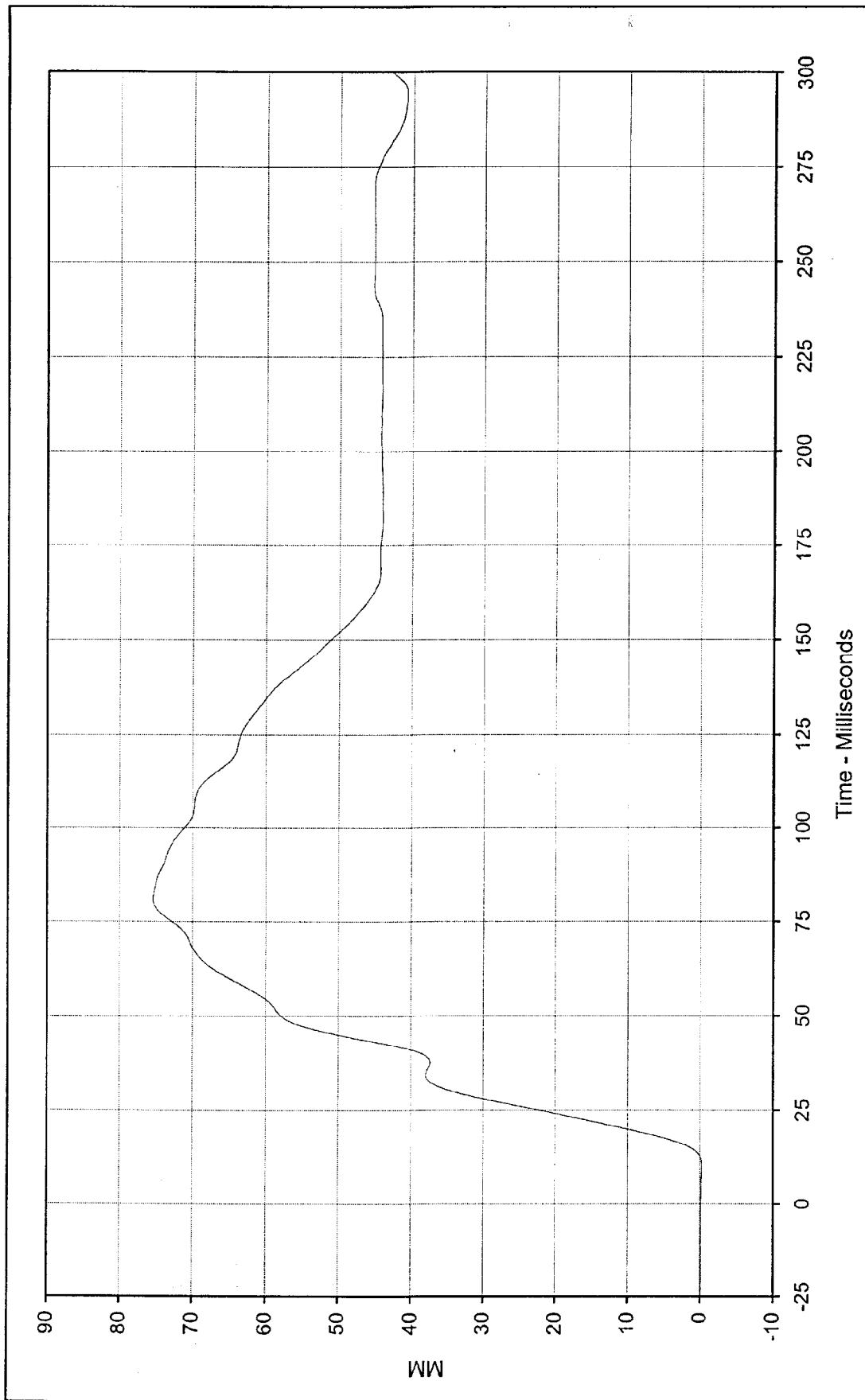




Curve Description: Passenger Shoulder Belt Force
Maximum Value: 10529.5 at 72.4 Milliseconds
Minimum Value: -3.4 at 141.4 Milliseconds
SAE Filter Class: 60
Date of Test: 12/18/98
Curve Number: FIL-086

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Shoulder Belt Pullout

Maximum Value: 75.4 at 81.0 Milliseconds

Minimum Value: -0.3 at 9.8 Milliseconds

SAE Filter Class: 60

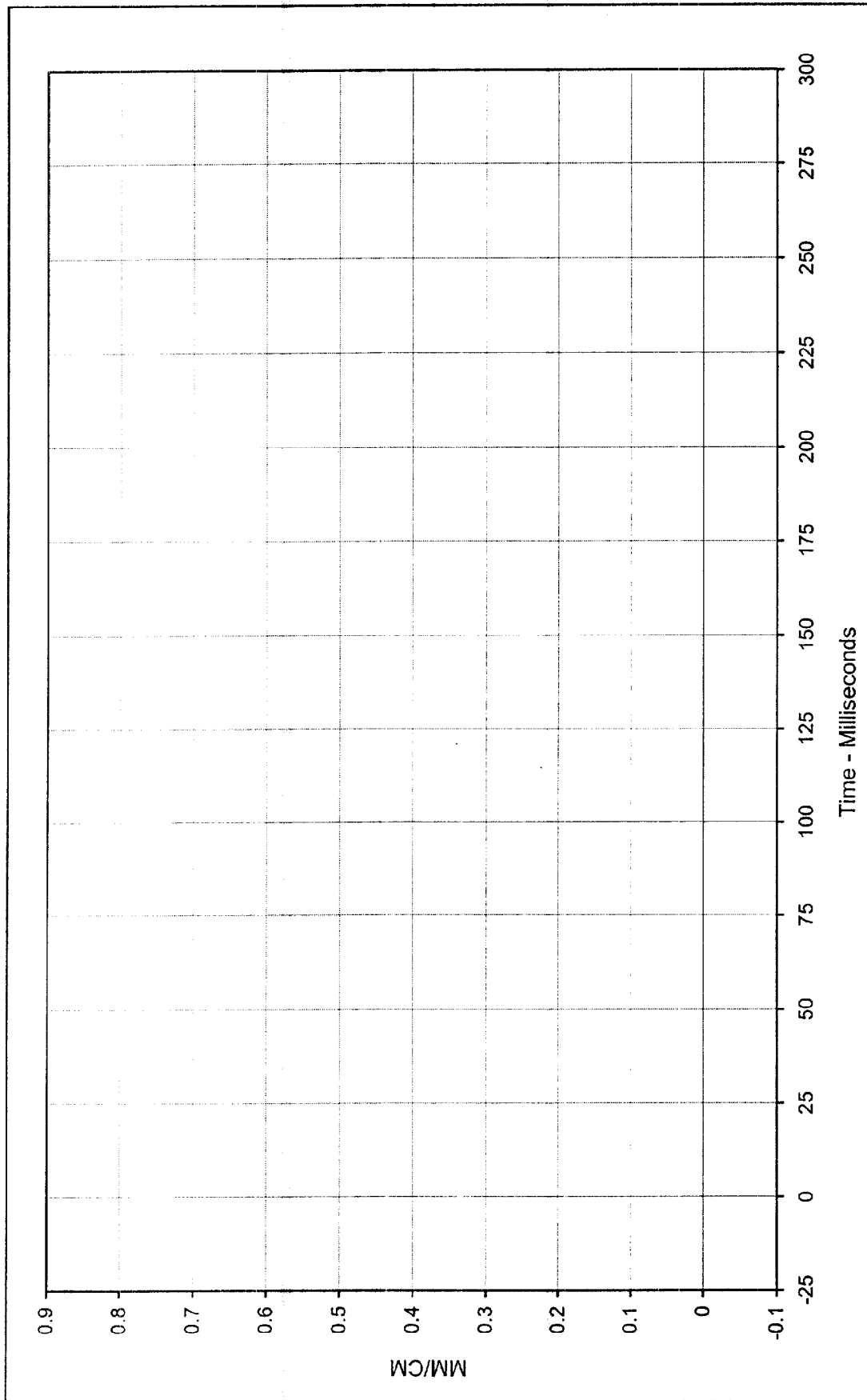
Date of Test: 12/18/98

Curve Number: FIL-087

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Passenger Shoulder Belt Elongation *

Maximum Value: 0.00 at 0.0 Milliseconds

Minimum Value: 0.00 at 0.0 Milliseconds

SAE Filter Class: 60

Date of Test: 12/18/98

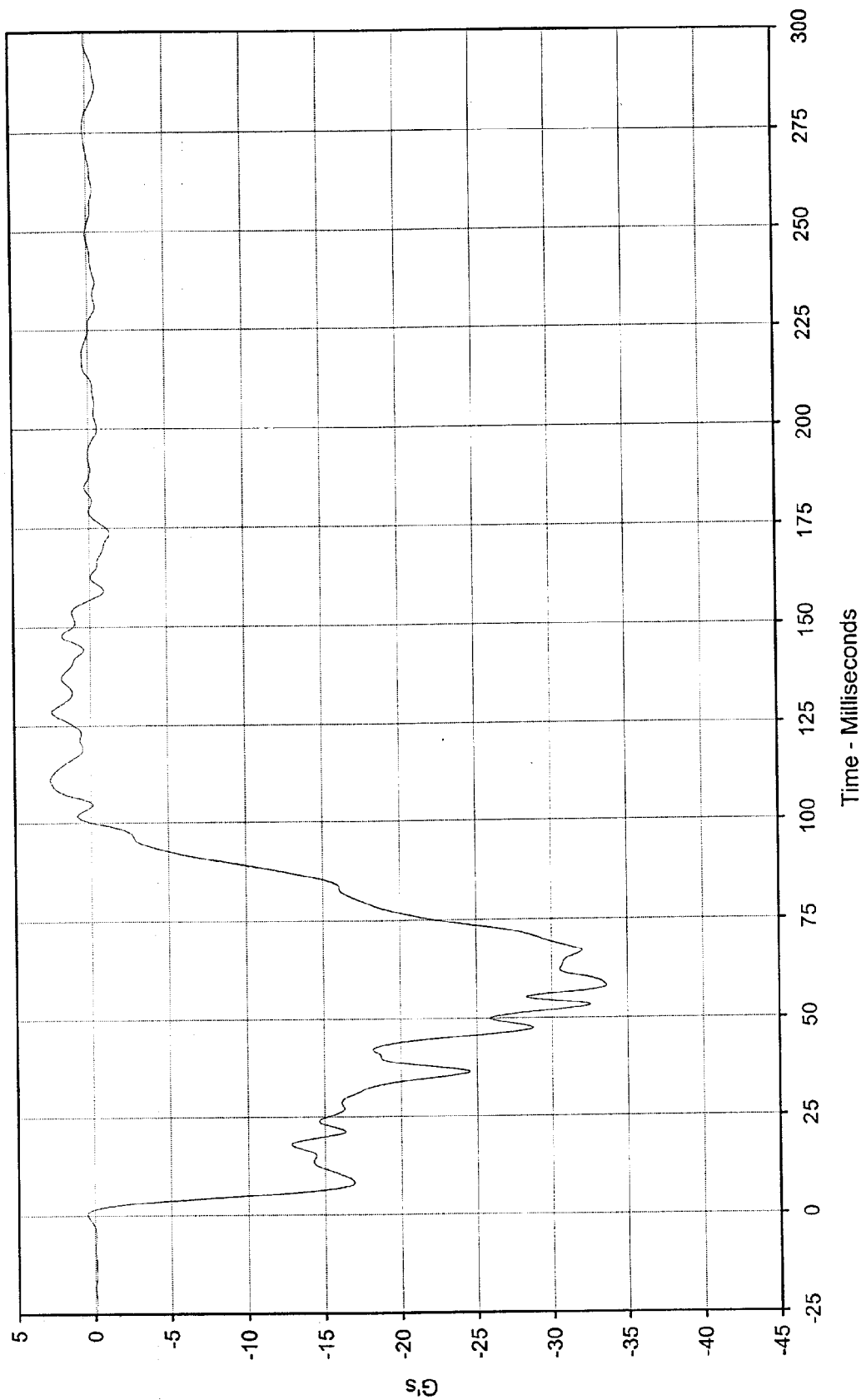
Curve Number: FIL-088

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

* Channel failed, No Data





Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Vehicle Left Rear Primary

Maximum Value: 2.7 at 110.9 Milliseconds

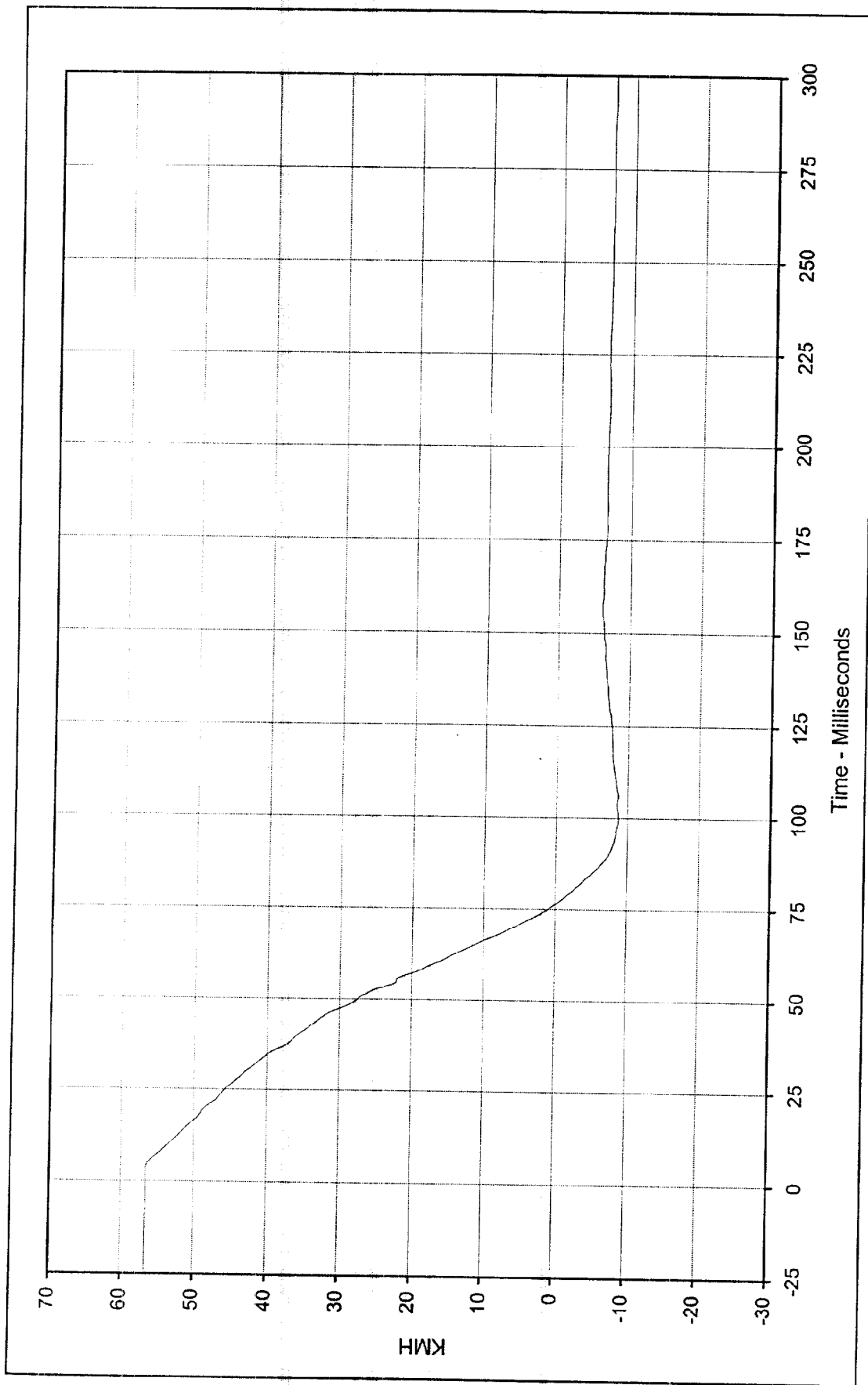
Minimum Value: -33.6 at 57.9 Milliseconds

SAE Filter Class: 60

Date of Test: 12/18/98

Curve Number: FIL-089





Curve Description: Vehicle Left Rear Primary Velocity

Maximum Value: 56.6 at 3.0 Milliseconds

Minimum Value: -8.7 at 99.5 Milliseconds

SAE Filter Class: 180

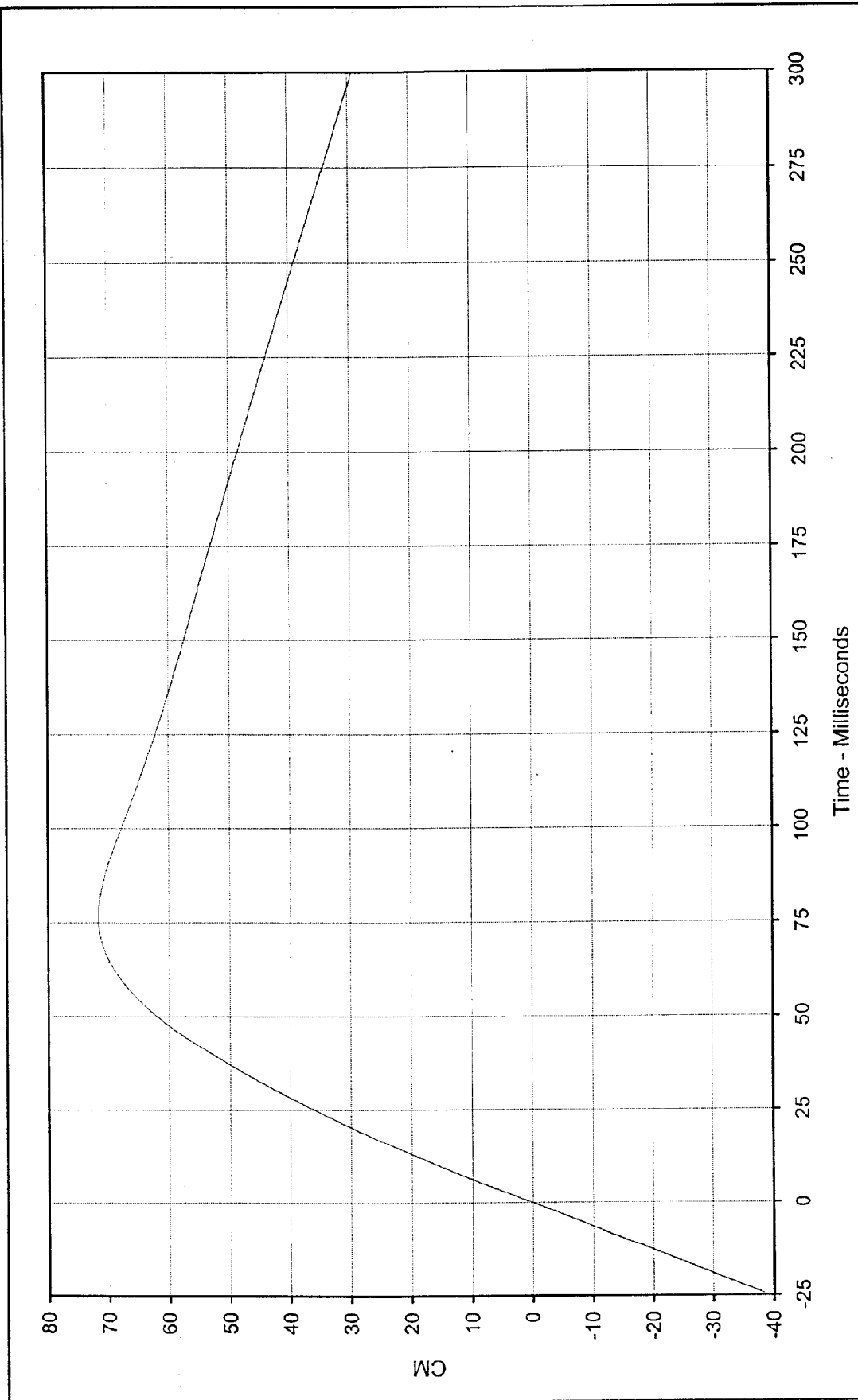
Date of Test: 12/18/98

Curve Number: IN1-089

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Vehicle Left Rear Primary Displ.

Maximum Value: 71.7 at 76.4 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 12/18/98

Curve Number: IN2-089

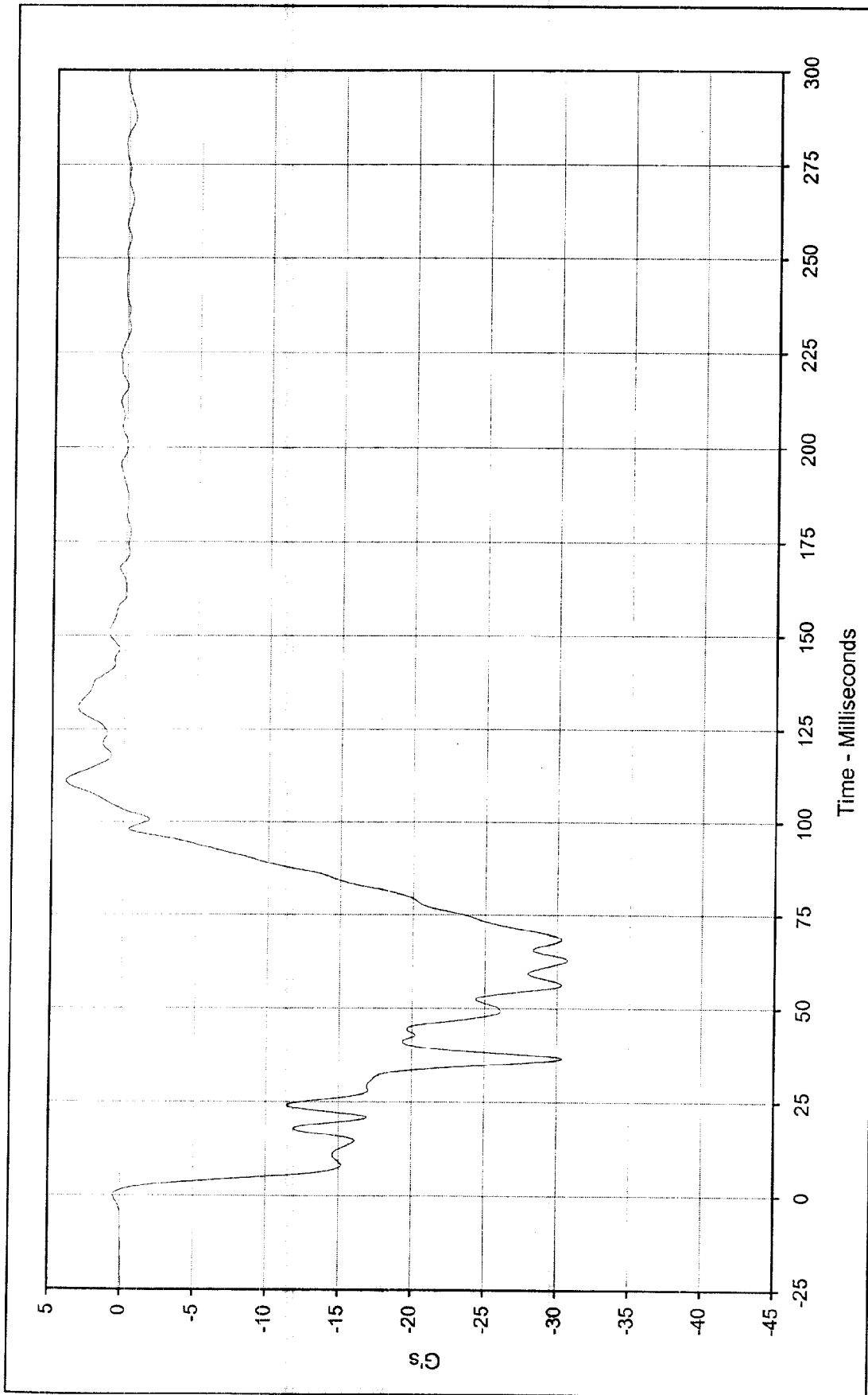
Test Program:

1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle:

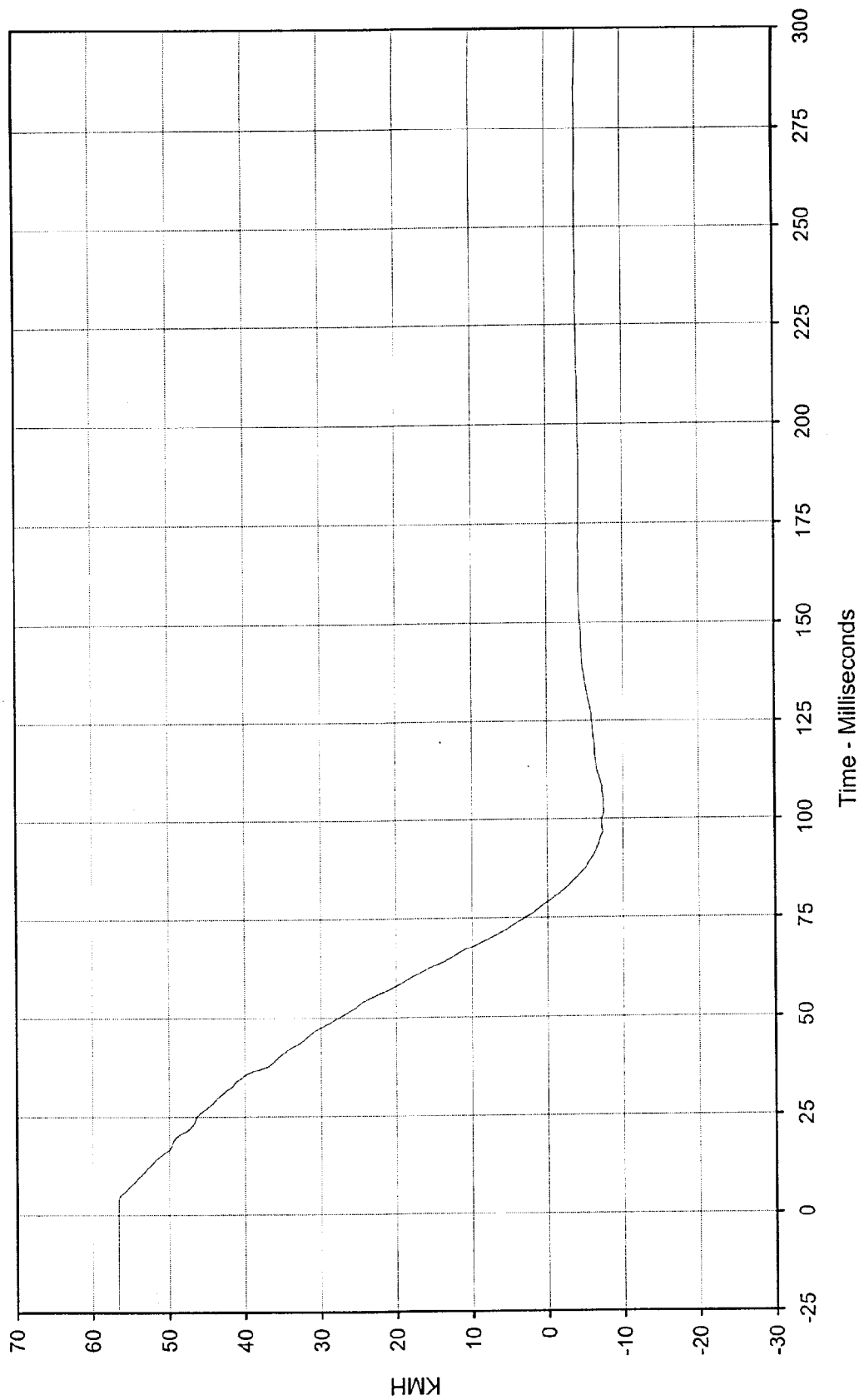
1999 Honda Civic DX 2 Door Coupe





Curve Description:	Vehicle Right Rear Primary		Test Program:	1999 NHTSA 35 mph NCAP No.: MX5301	
Maximum Value:	4.1	at 111.0	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-30.7	at 62.8			
SAE Filter Class:	60				
Date of Test:	12/18/98				
Curve Number:	FIL-090				

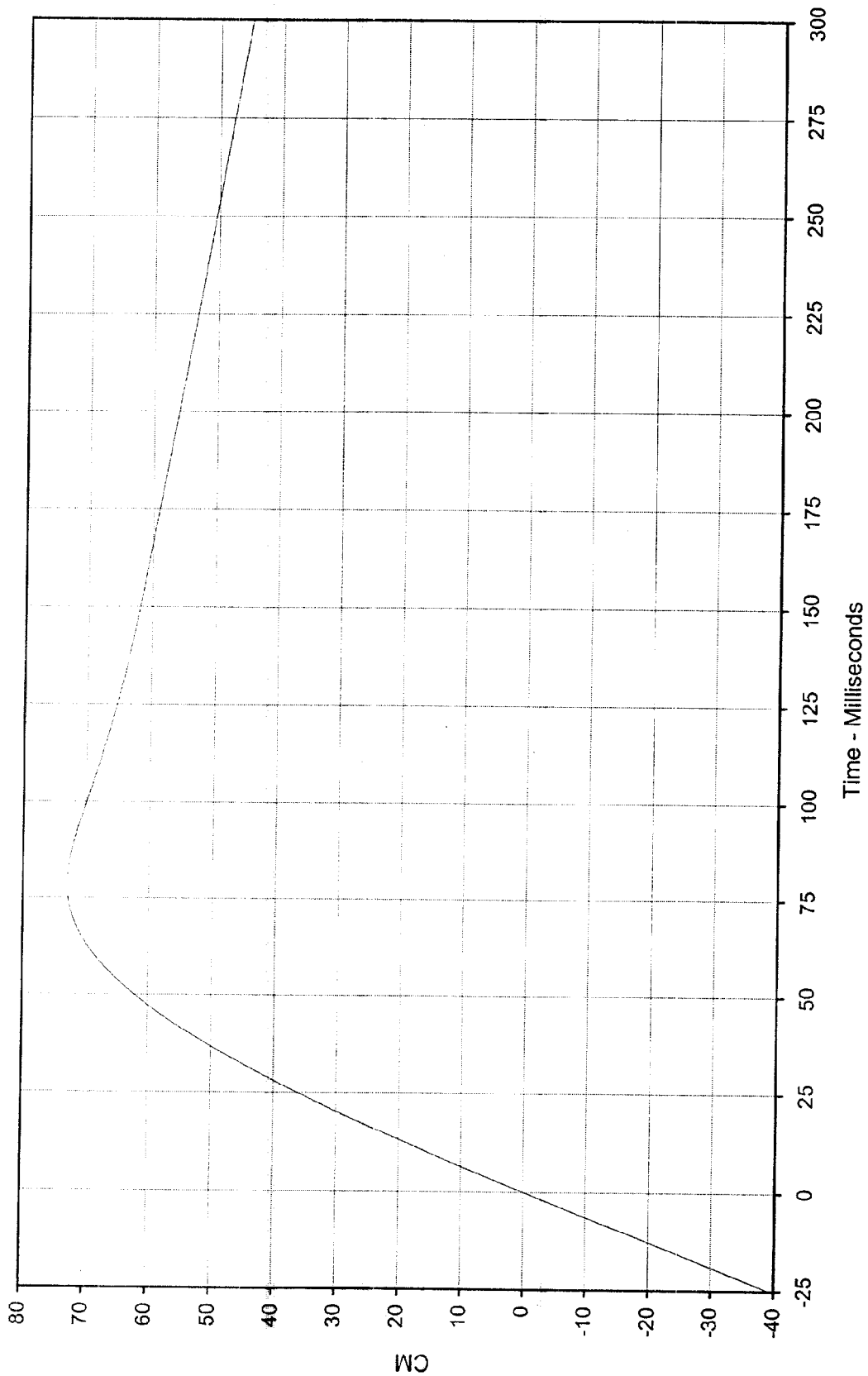




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



Curve Description: Vehicle Right Rear Primary Velocity
 Maximum Value: 56.6 at 3.3 Milliseconds
 Minimum Value: -7.4 at 101.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN1-090



Curve Description: Vehicle Right Rear Primary Displ.

Maximum Value: 72.9 at 78.9 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

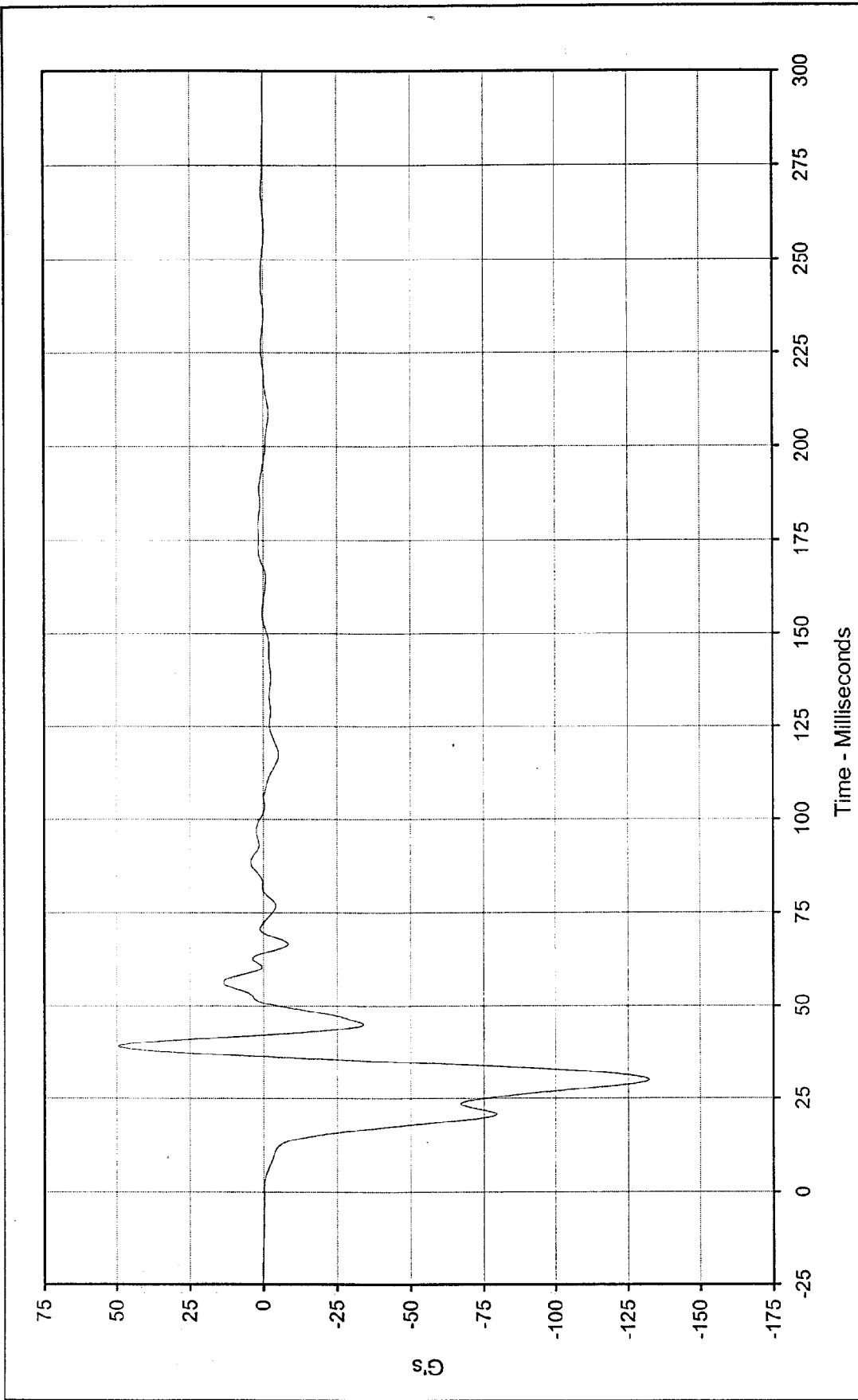
Date of Test: 12/18/98

Curve Number: IN2-090

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

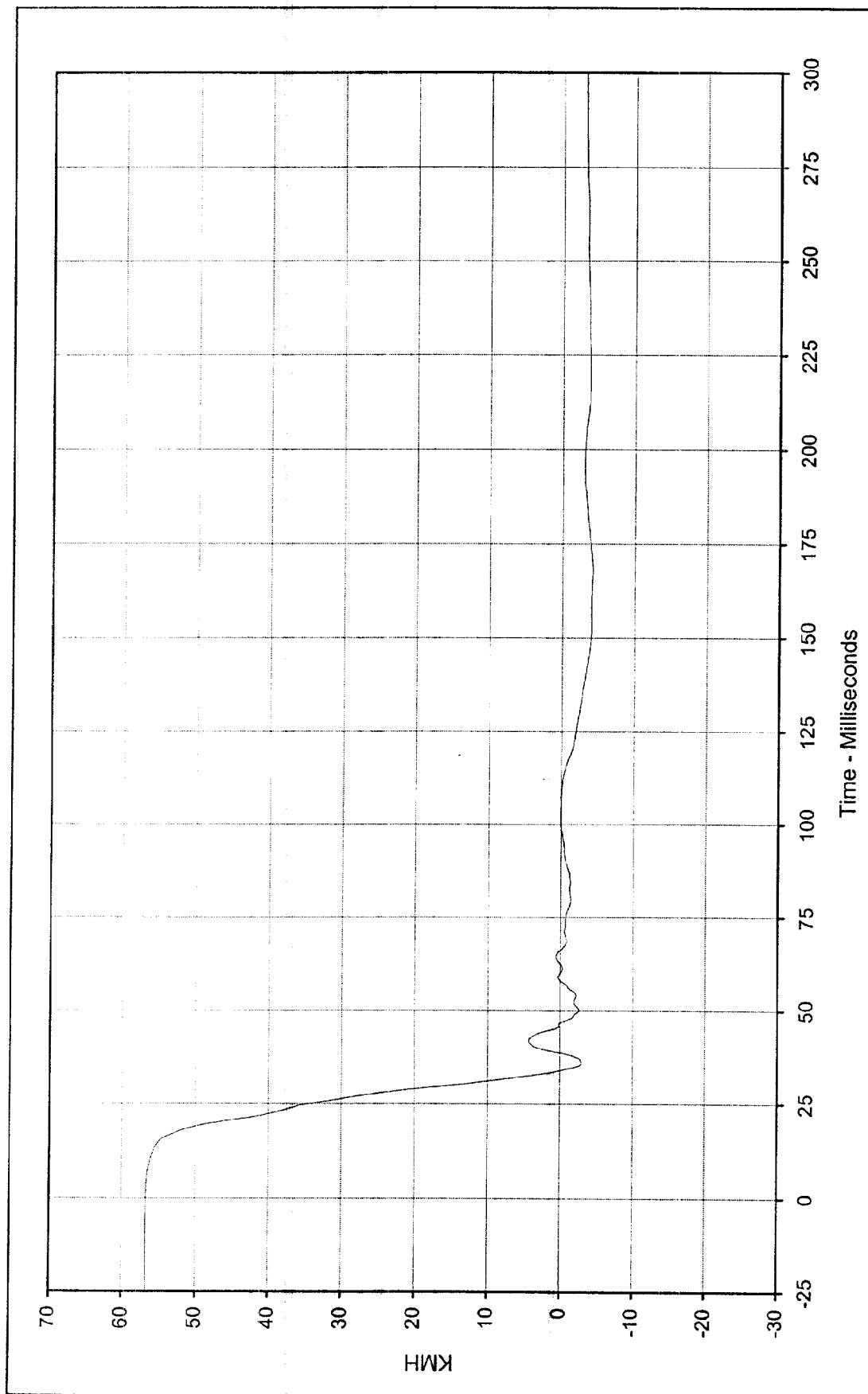




Curve Description: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Program: 1999 Honda Civic DX 2 Door Coupe
 Test Vehicle:

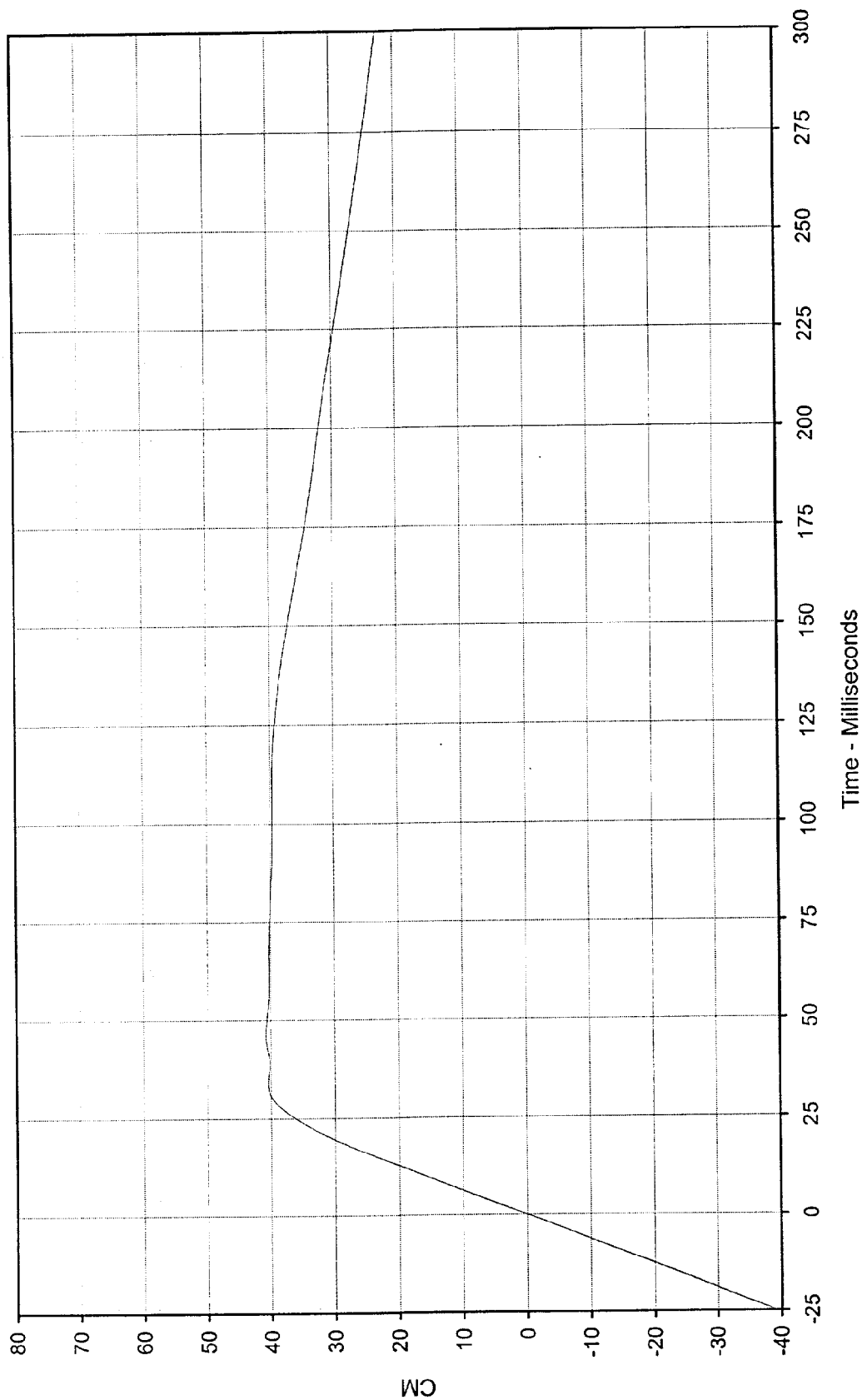
Vehicle Engine Top
 Maximum Value: 49.6 at 38.9 Milliseconds
 Minimum Value: -132.5 at 29.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-091





Curve Description:	Vehicle Engine Top Velocity	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	56.7 at 0.0 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-4.2 at 168.0 Milliseconds			
SAE Filter Class:	180			
Date of Test:	12/18/98			
Curve Number:	IN1-091			





Curve Description: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Program: 1999 Honda Civic DX 2 Door Coupe

Test Vehicle:

Vehicle Engine Top Displacement

Maximum Value: 40.8 at 46.7 Milliseconds

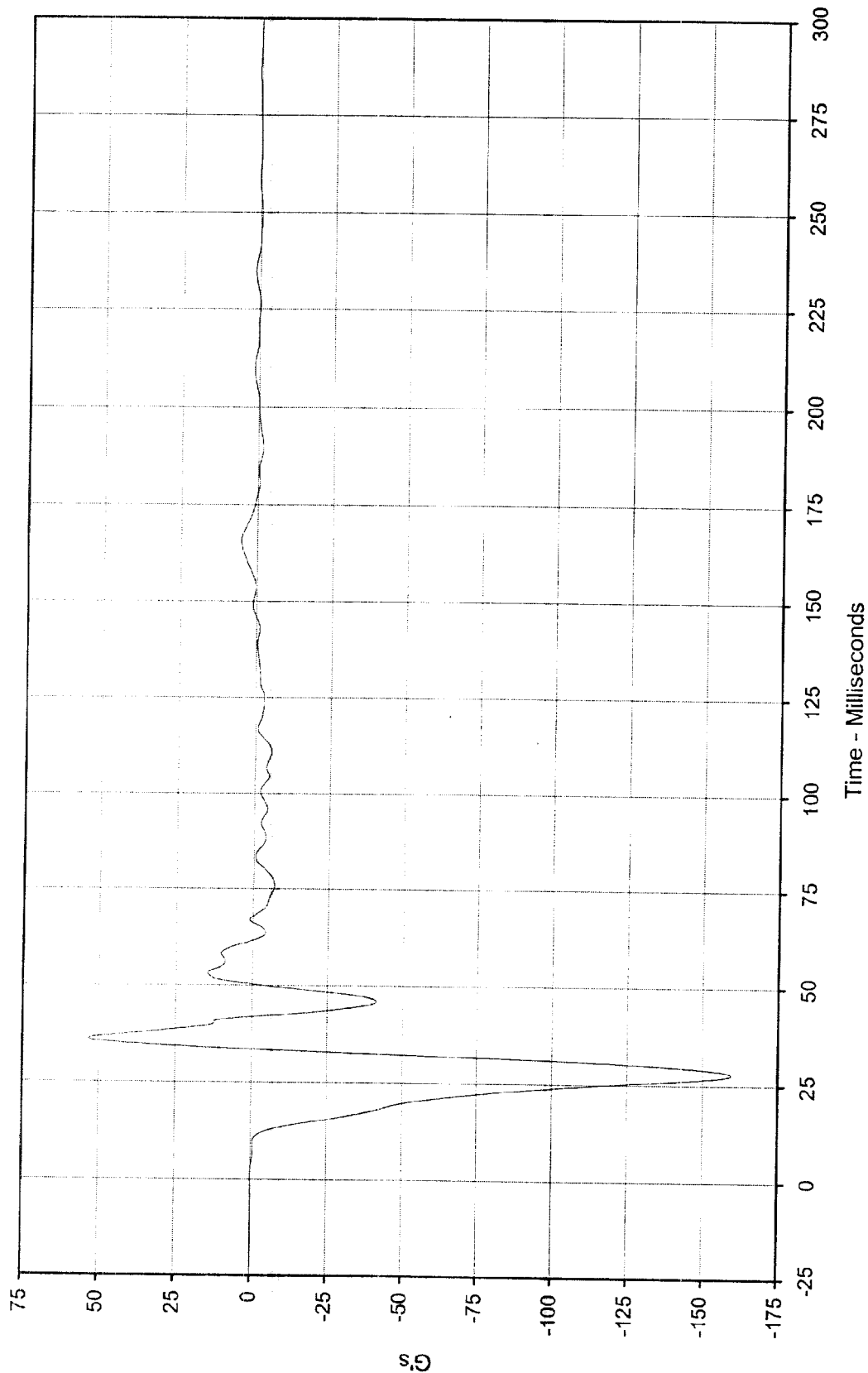
Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 12/18/98

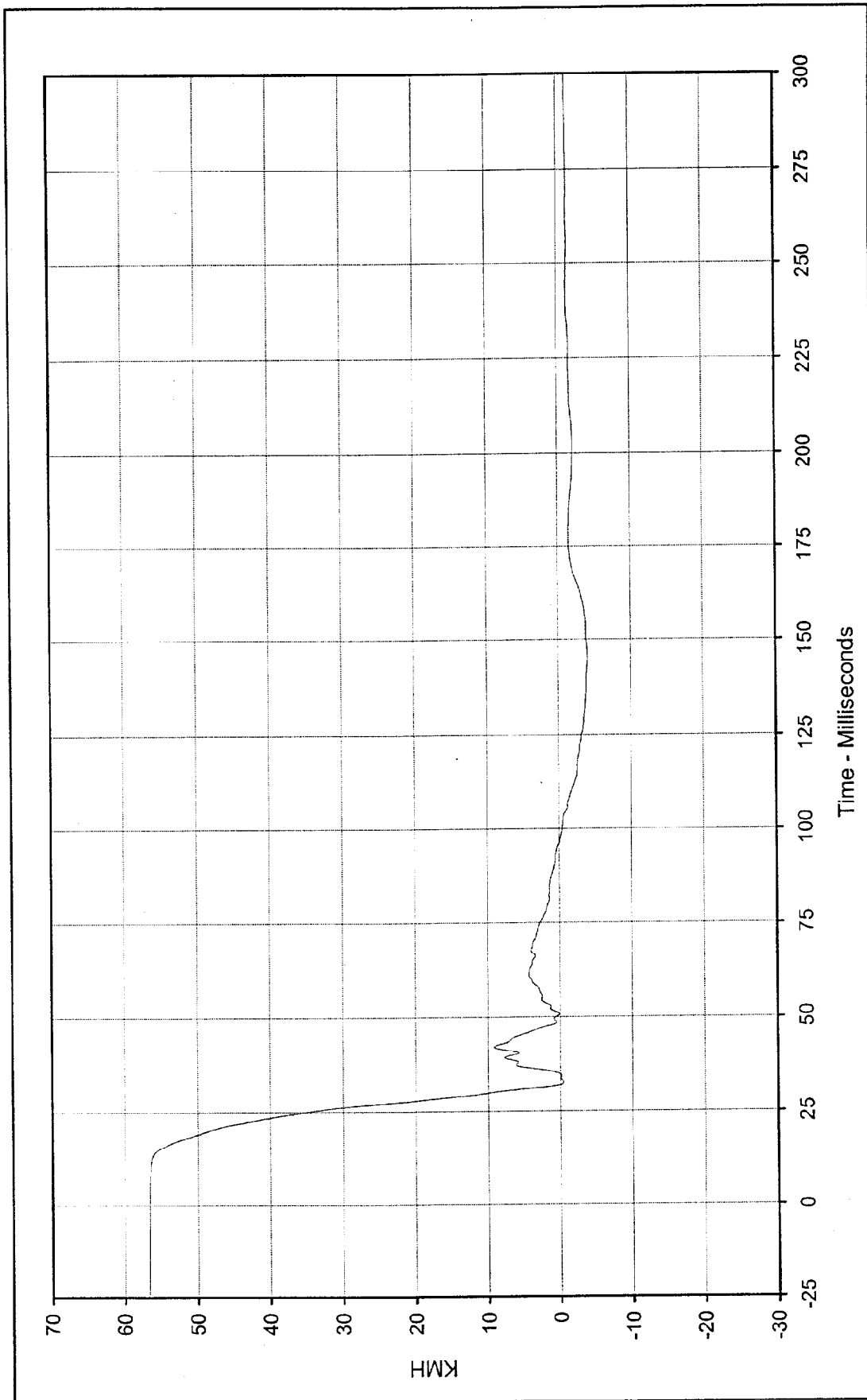
Curve Number: IN2-091





Curve Description:	Vehicle Engine Bottom		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	53.3	at 36.1	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-159.7	at 27.8			
SAE Filter Class:	60				
Date of Test:	12/18/98				
Curve Number:	FIL-092				

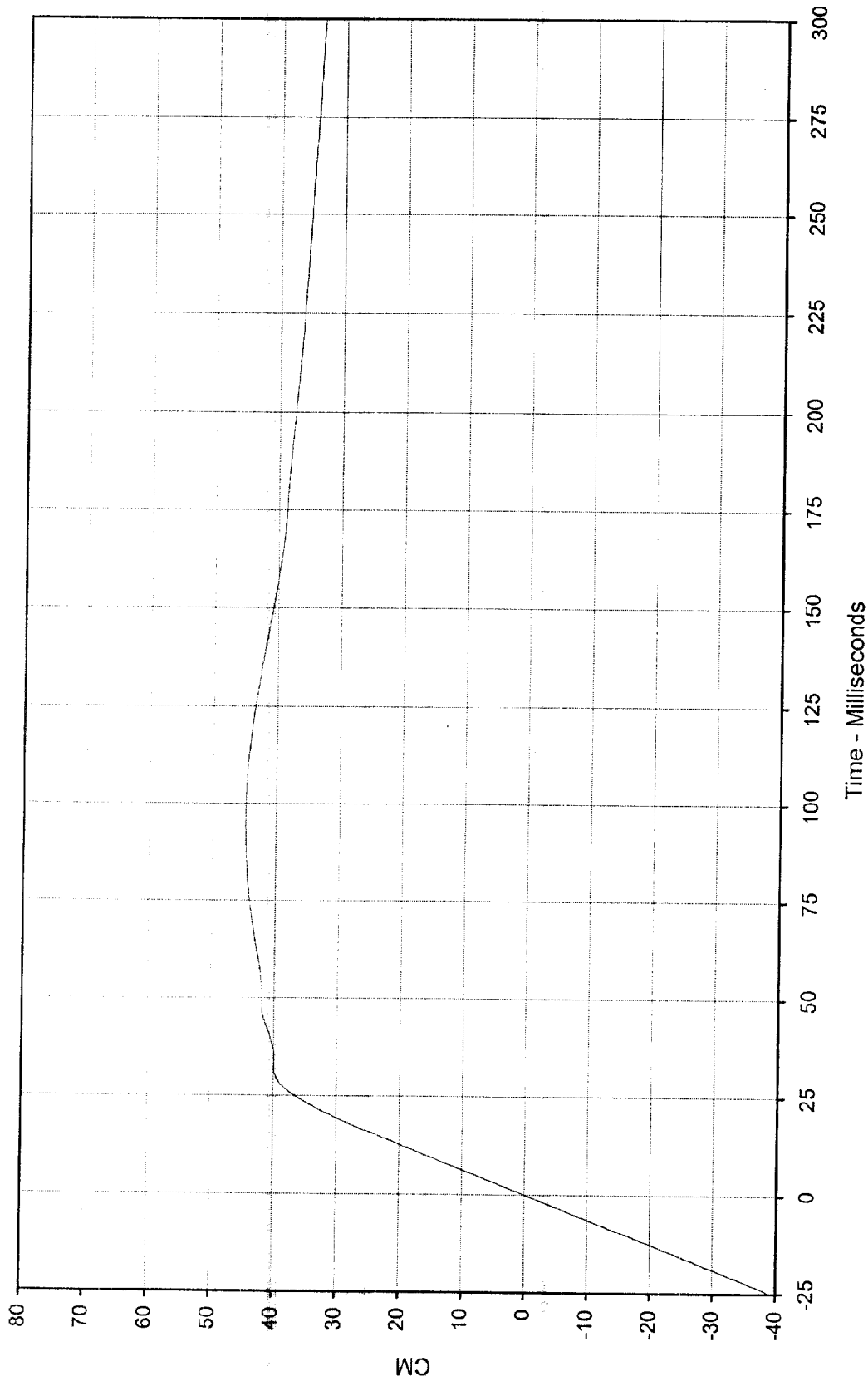




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Vehicle Engine Bottom Velocity
 Maximum Value: 56.6 at 3.3 Milliseconds
 Minimum Value: -4.1 at 145.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN1-092





Curve Description: Vehicle Engine Bottom Displacement

Maximum Value: 44.8 at 96.3 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

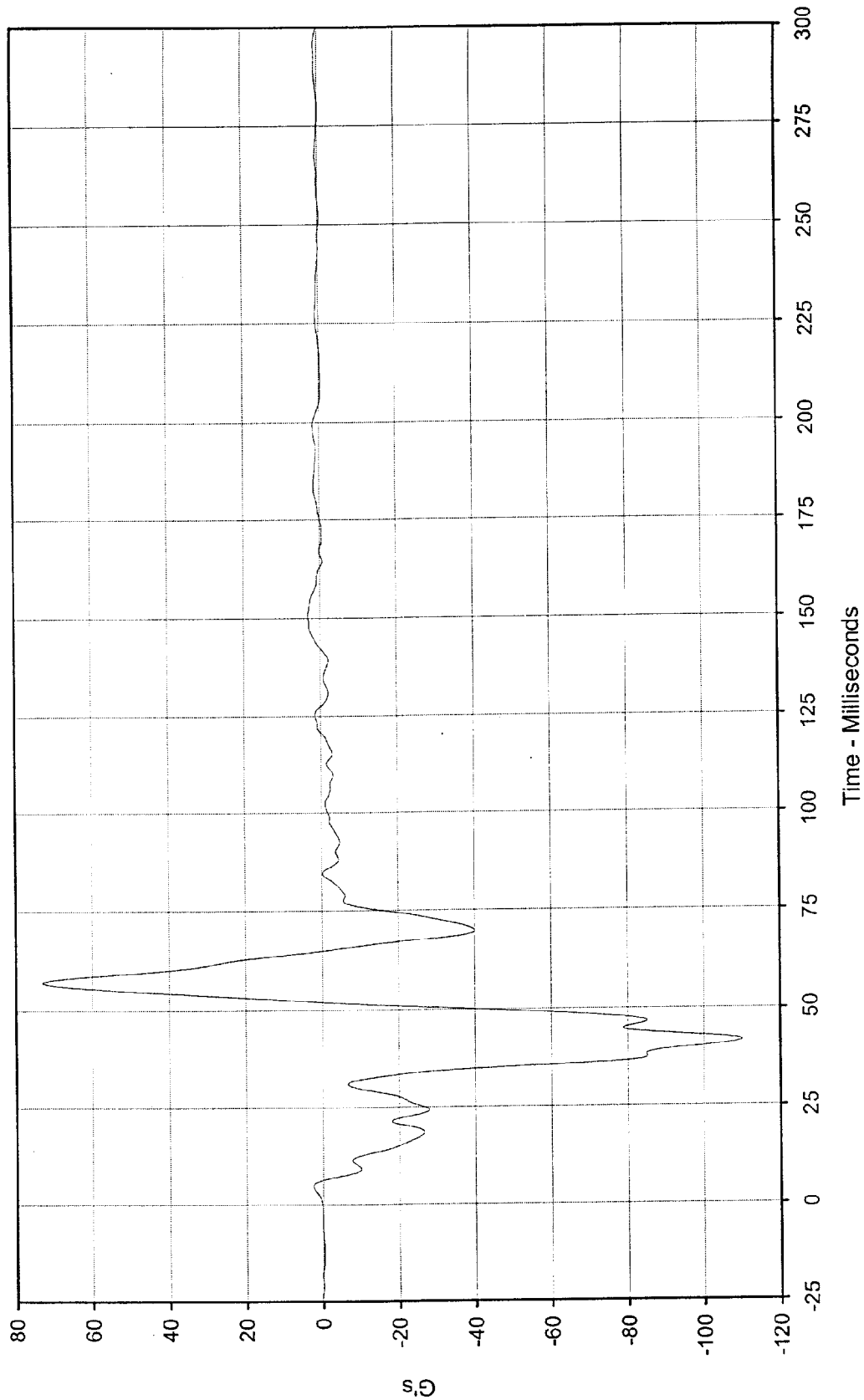
Date of Test: 12/18/98

Curve Number: IN2-092

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

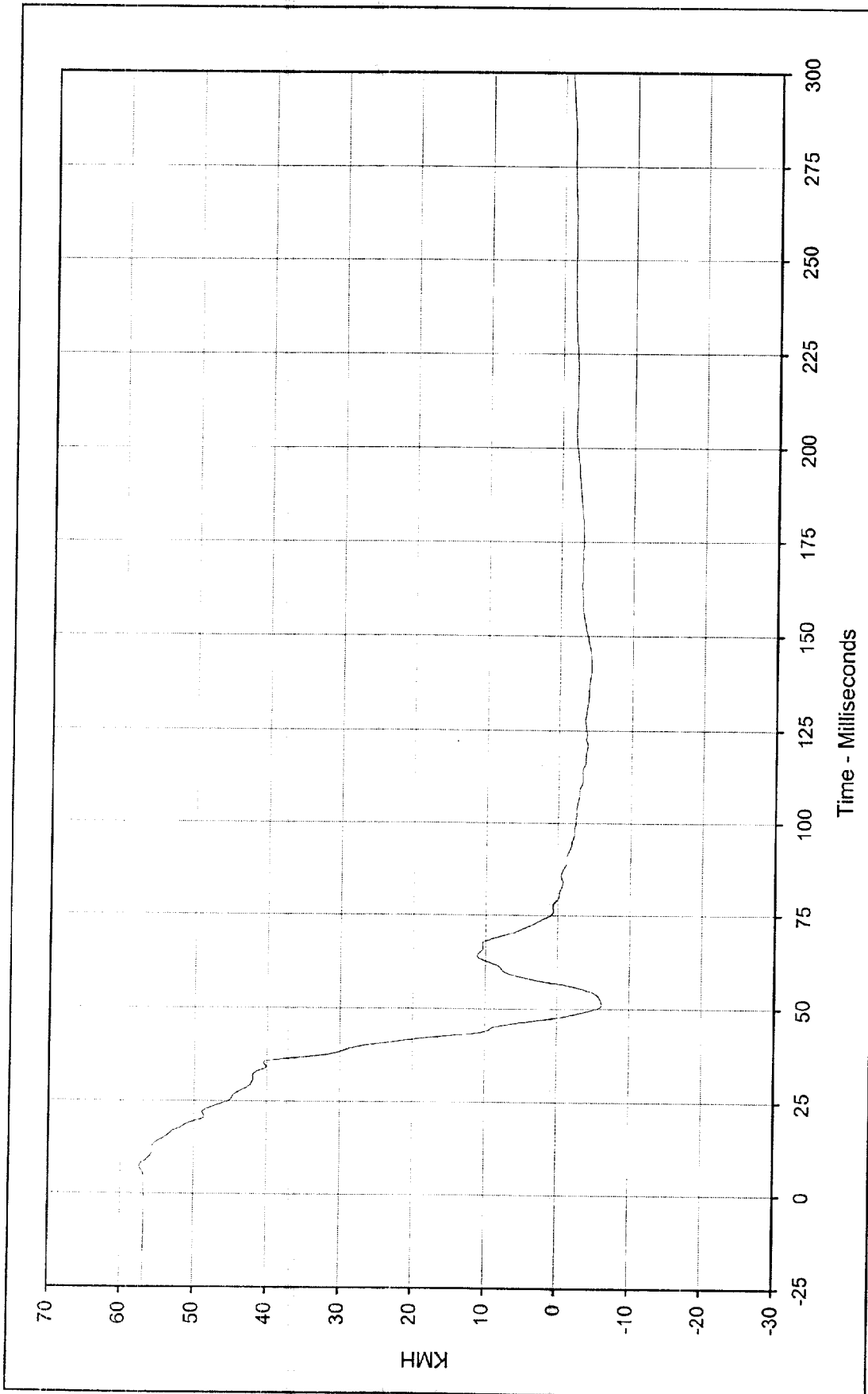




Curve Description: Vehicle Left Brake Caliper
 Maximum Value: 73.1 at 57.0 Milliseconds
 Minimum Value: -110.2 at 41.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-093

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description: Vehicle Left Brake Caliper Velocity

Maximum Value: 57.4 at 7.2 Milliseconds

Minimum Value: -6.2 at 51.3 Milliseconds

SAE Filter Class: 180

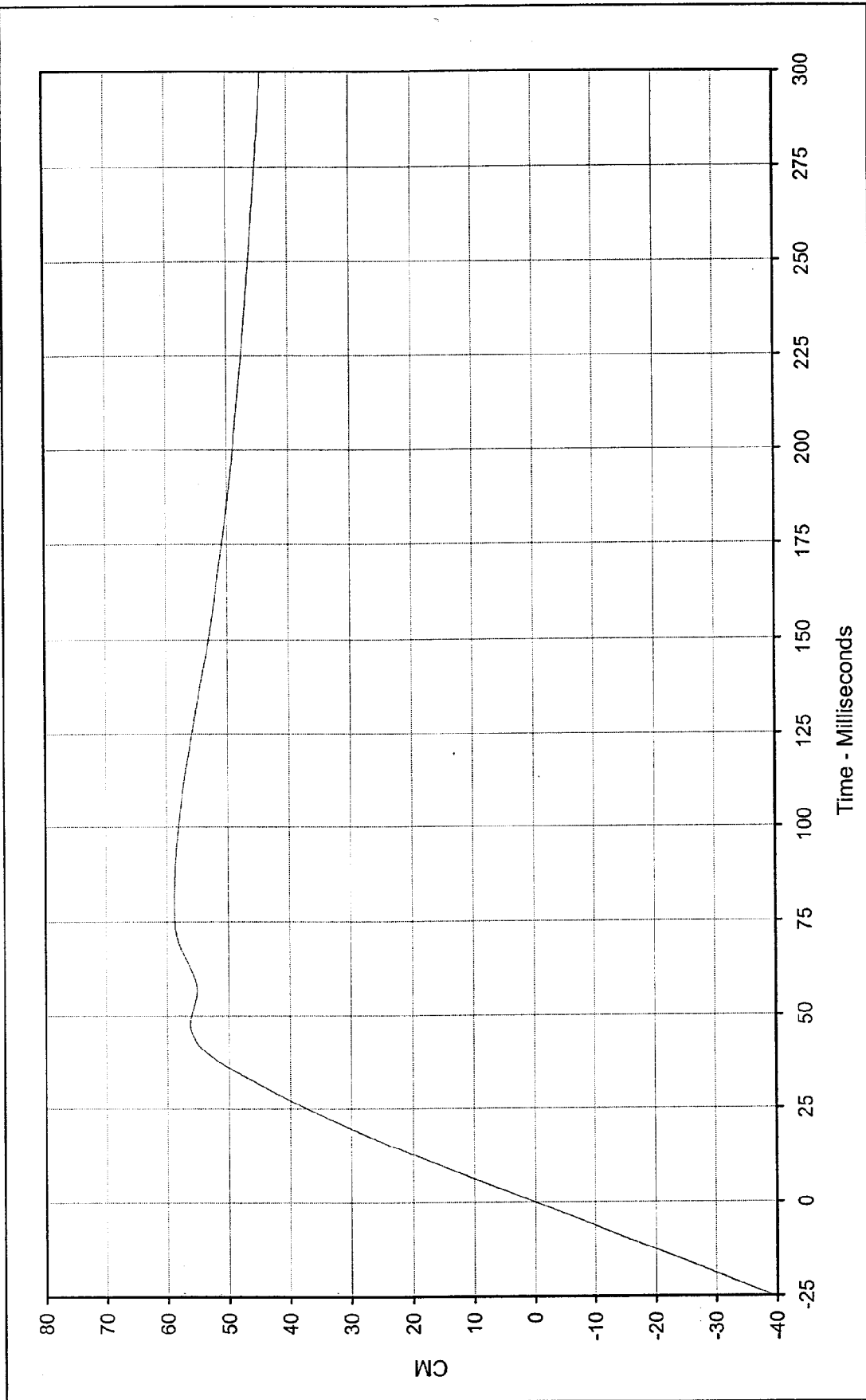
Date of Test: 12/18/98

Curve Number: IN1-093

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



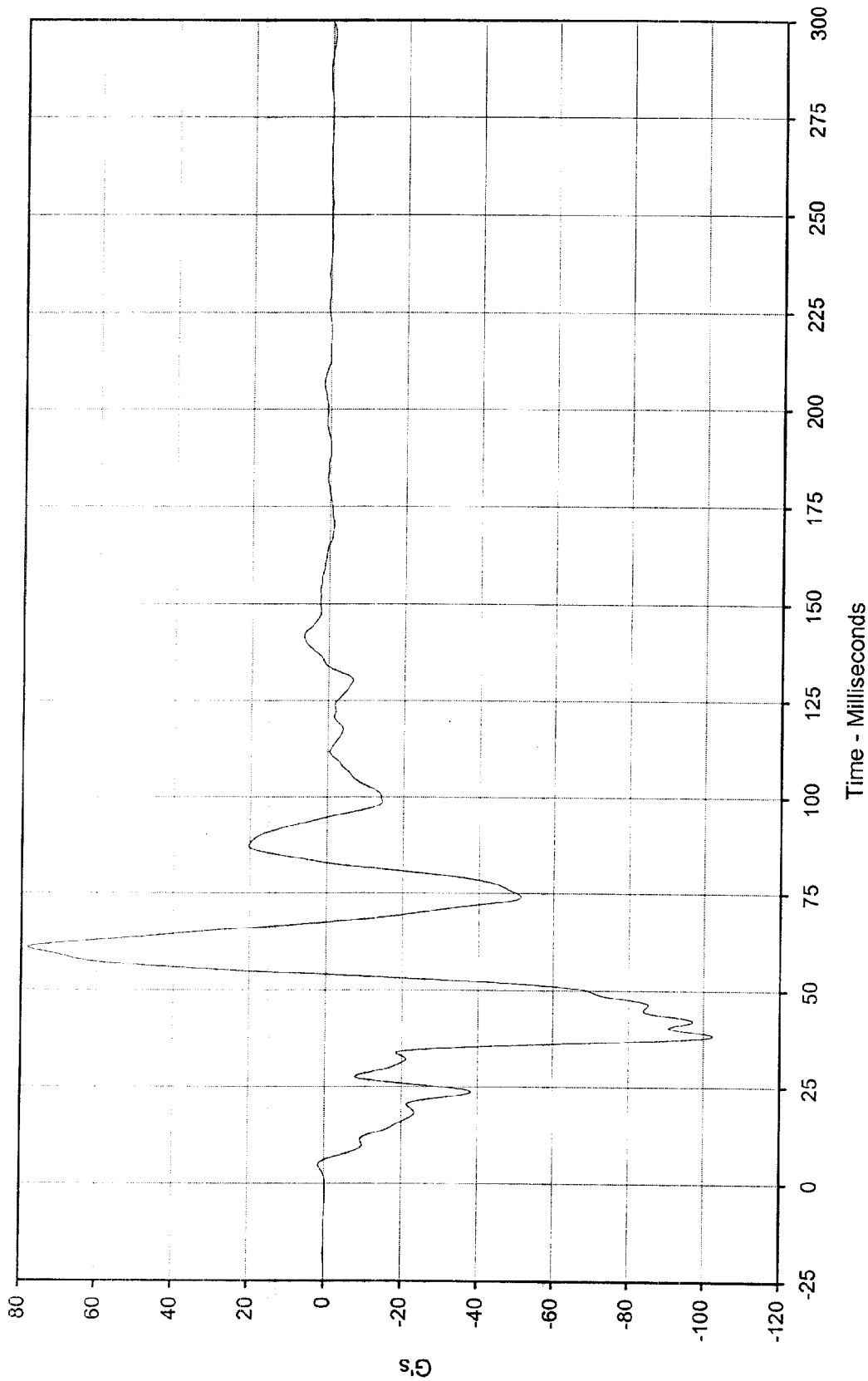


Curve Description: Vehicle Left Brake Caliper Displ.
 Maximum Value: 58.8 at 79.2 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN2-093



Curve Description: Vehicle Right Brake Caliper

Maximum Value: 78.3 at 60.8 Milliseconds

Minimum Value: -102.5 at 38.2 Milliseconds

SAE Filter Class: 60

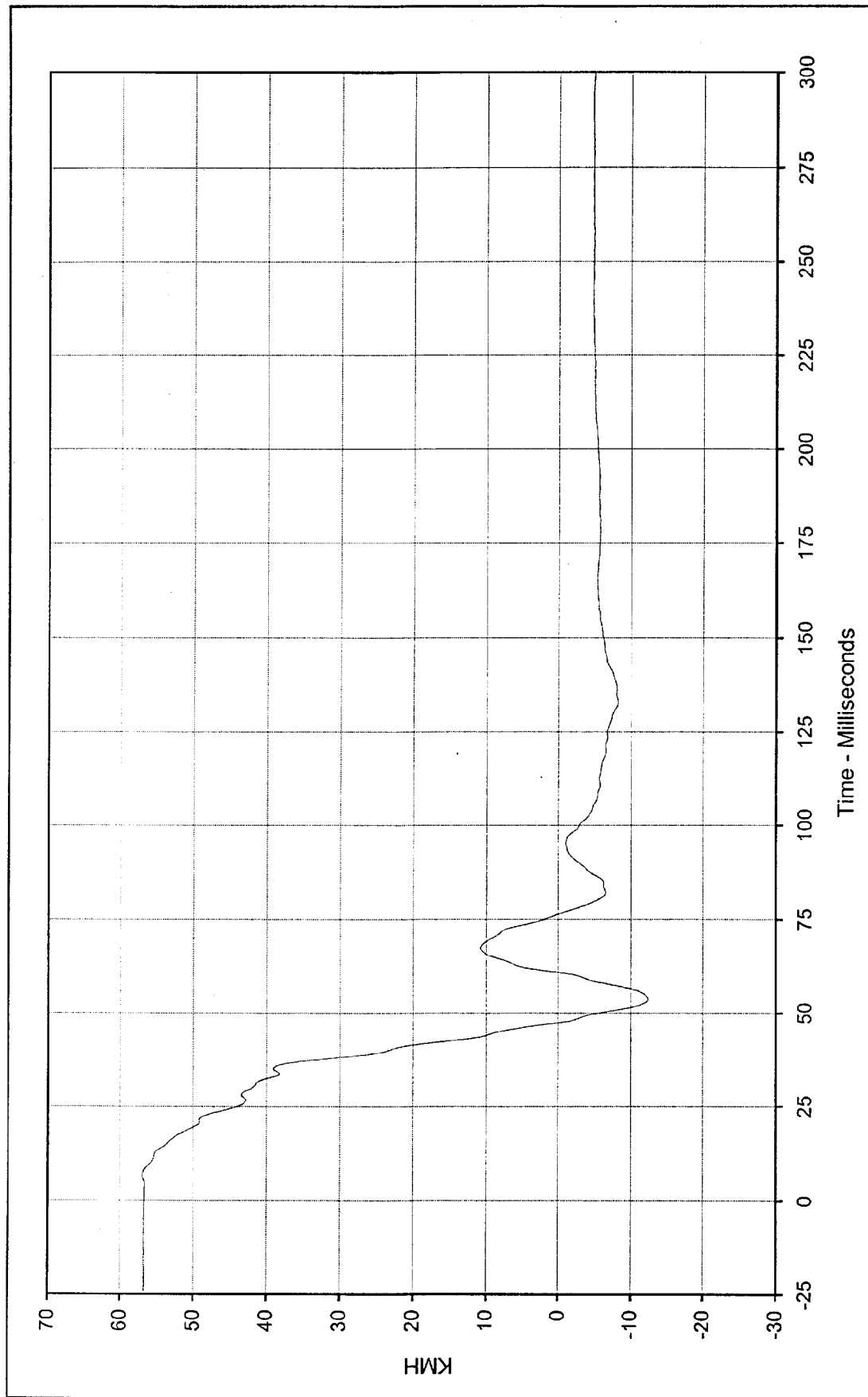
Date of Test: 12/18/98

Curve Number: FIL-094

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

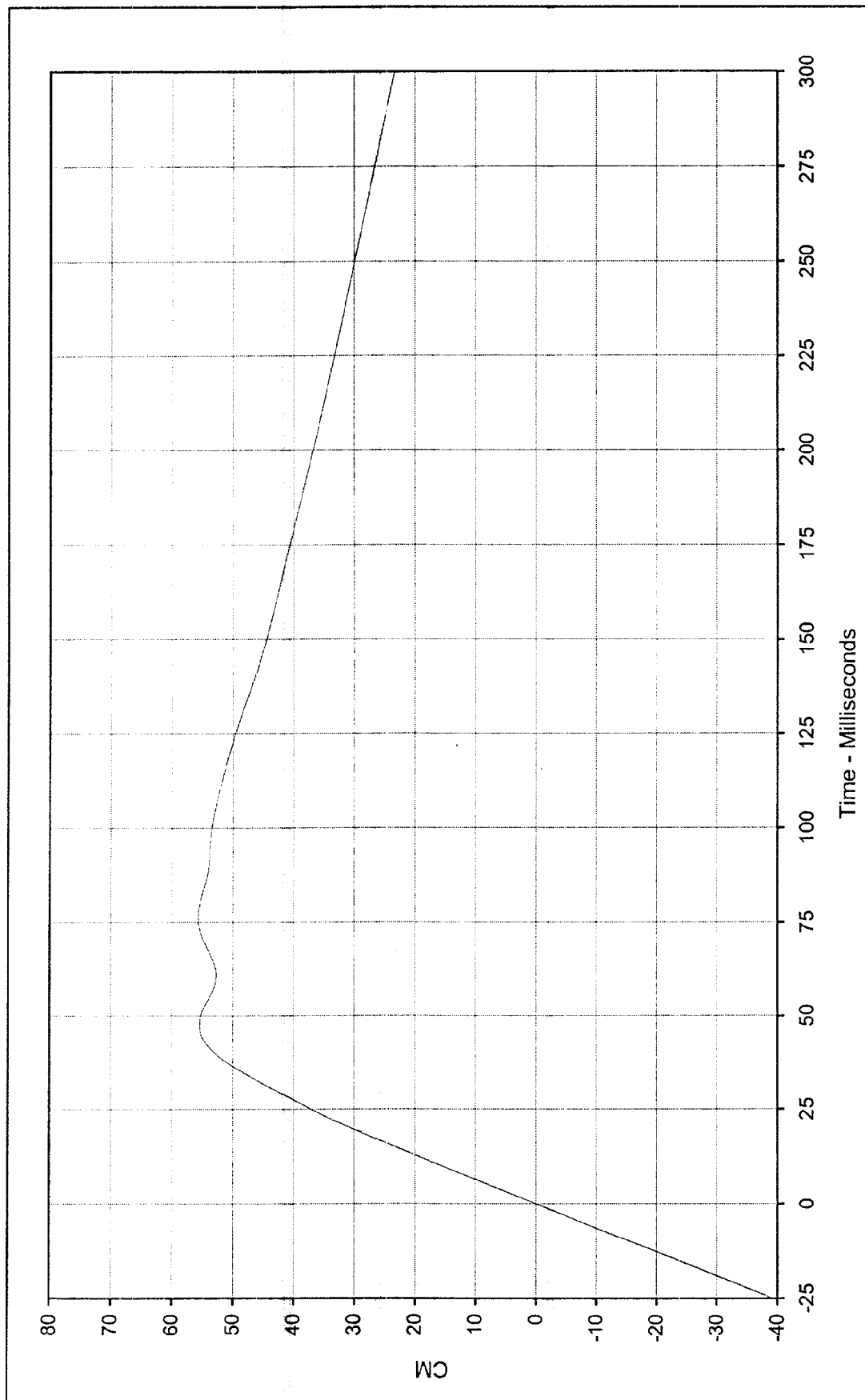




Curve Description: Vehicle Right Brake Caliper Velocity
 Maximum Value: 56.9 at 6.7 Milliseconds
 Minimum Value: -12.4 at 53.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN1-094

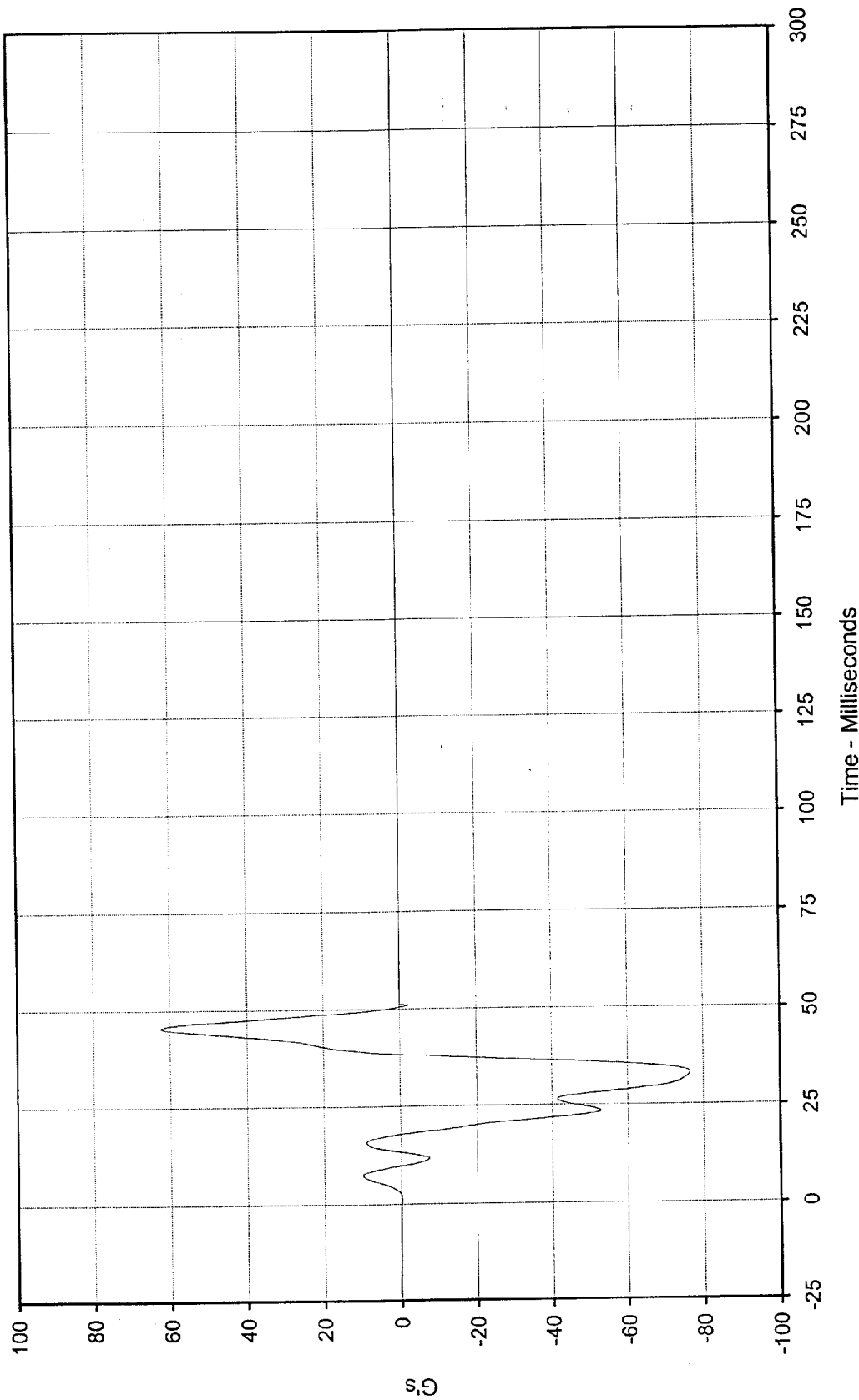
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Vehicle Right Brake Caliper Displ.	Test Program:	1999 NHTSA 35 mph NCAP No.: MX5301
Maximum Value:	55.7 at 76.3 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	0.0 at 0.0 Milliseconds		
SAE Filter Class:	180		
Date of Test:	12/18/98		
Curve Number:	IN2-094		



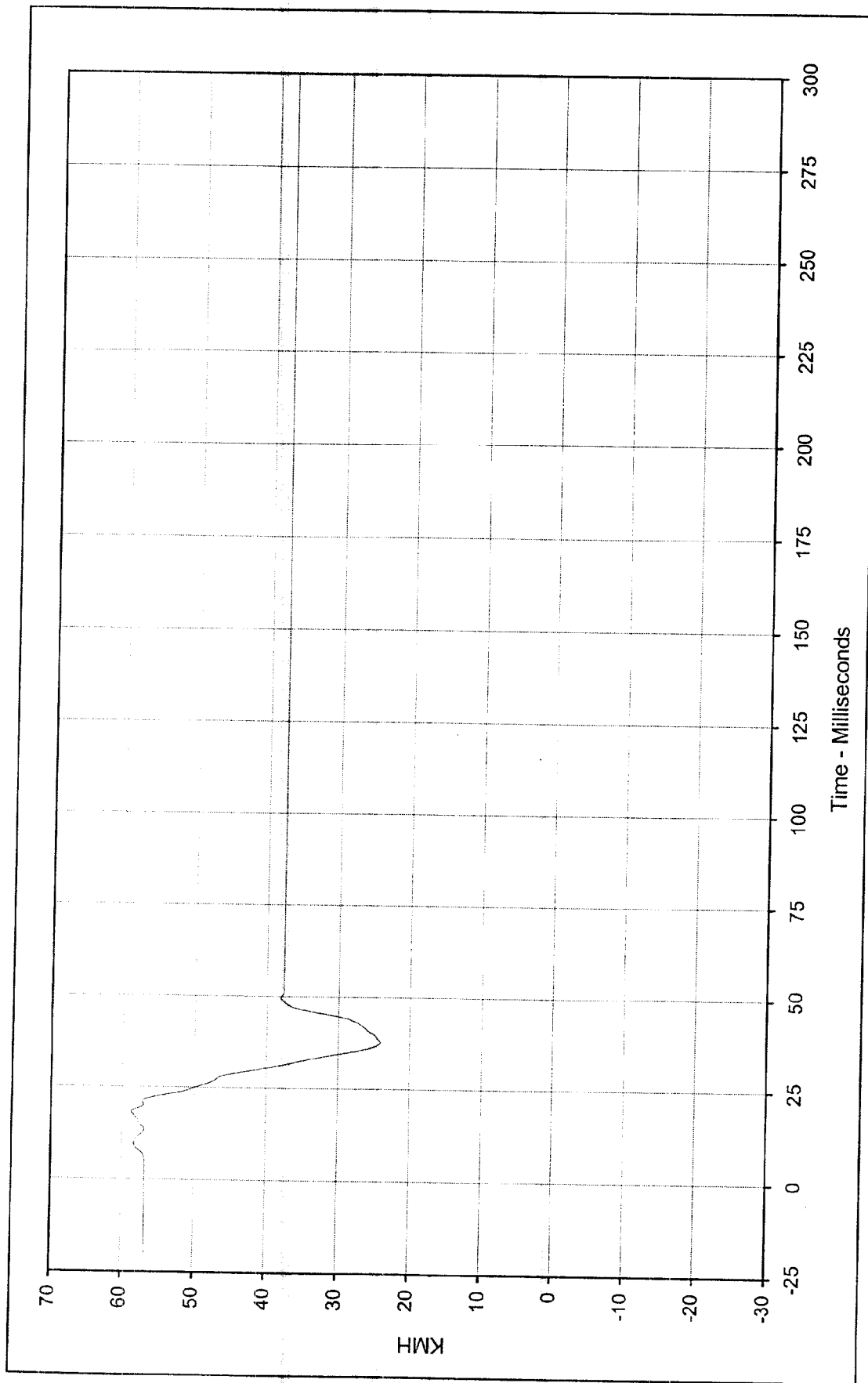


Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



Curve Description: Vehicle Instrument Panel *
 Maximum Value: 62.2 at 45.5 Milliseconds
 Minimum Value: -76.5 at 33.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-095

* Channel Failed at 51.2 Msec.

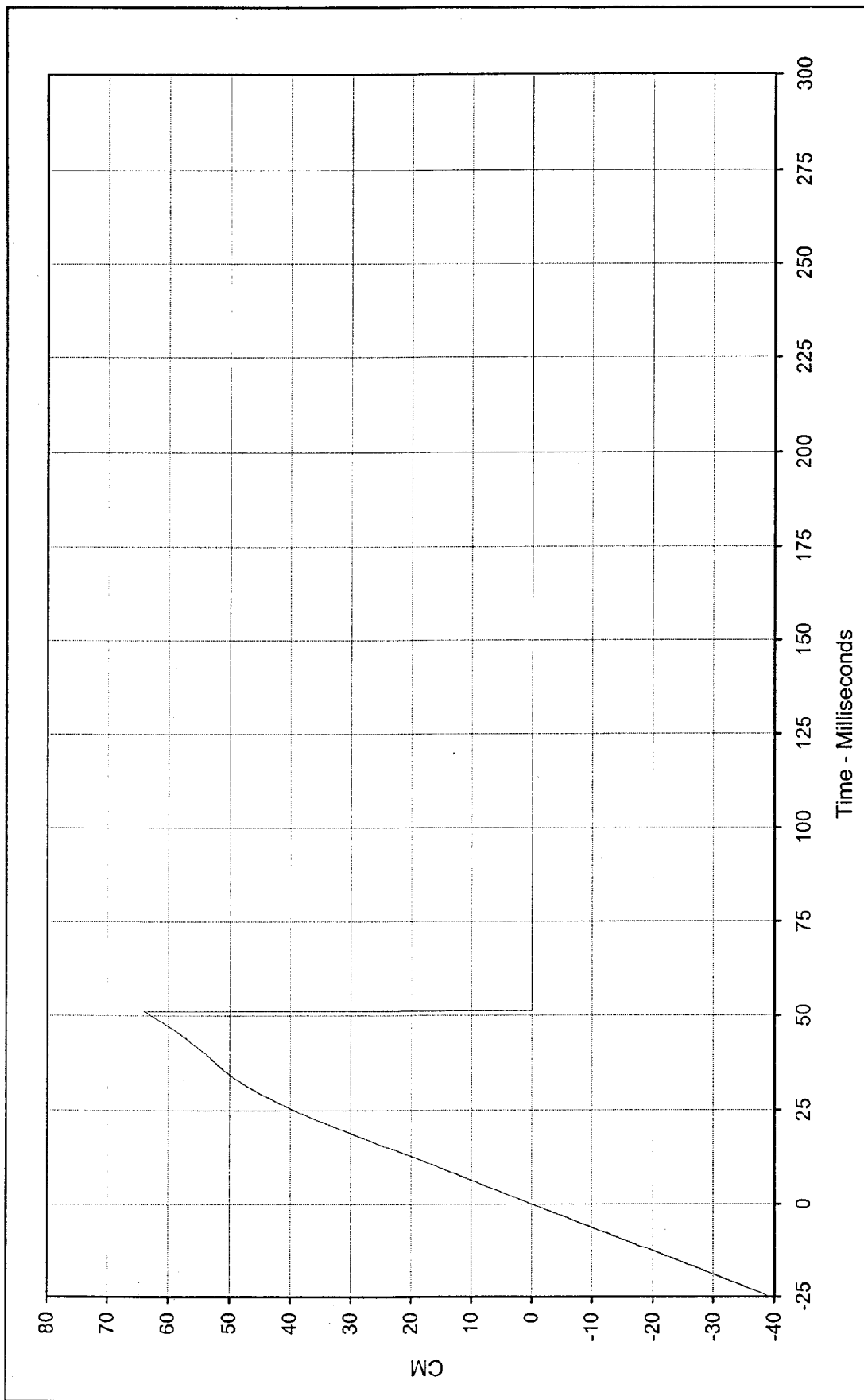


Curve Description: Vehicle Instrument Panel Velocity *
 Maximum Value: 58.7 at 18.3 Milliseconds
 Minimum Value: 24.1 at 37.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 12/18/98
 Curve Number: IN1-095

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



*Channel Failed at 51.2 msec.



Curve Description: Vehicle Instrument Panel Displacement *

Maximum Value: 64.0 at 51.1 Milliseconds

Minimum Value: 0.0 at 51.2 Milliseconds

SAE Filter Class: 180

Date of Test: 12/18/98

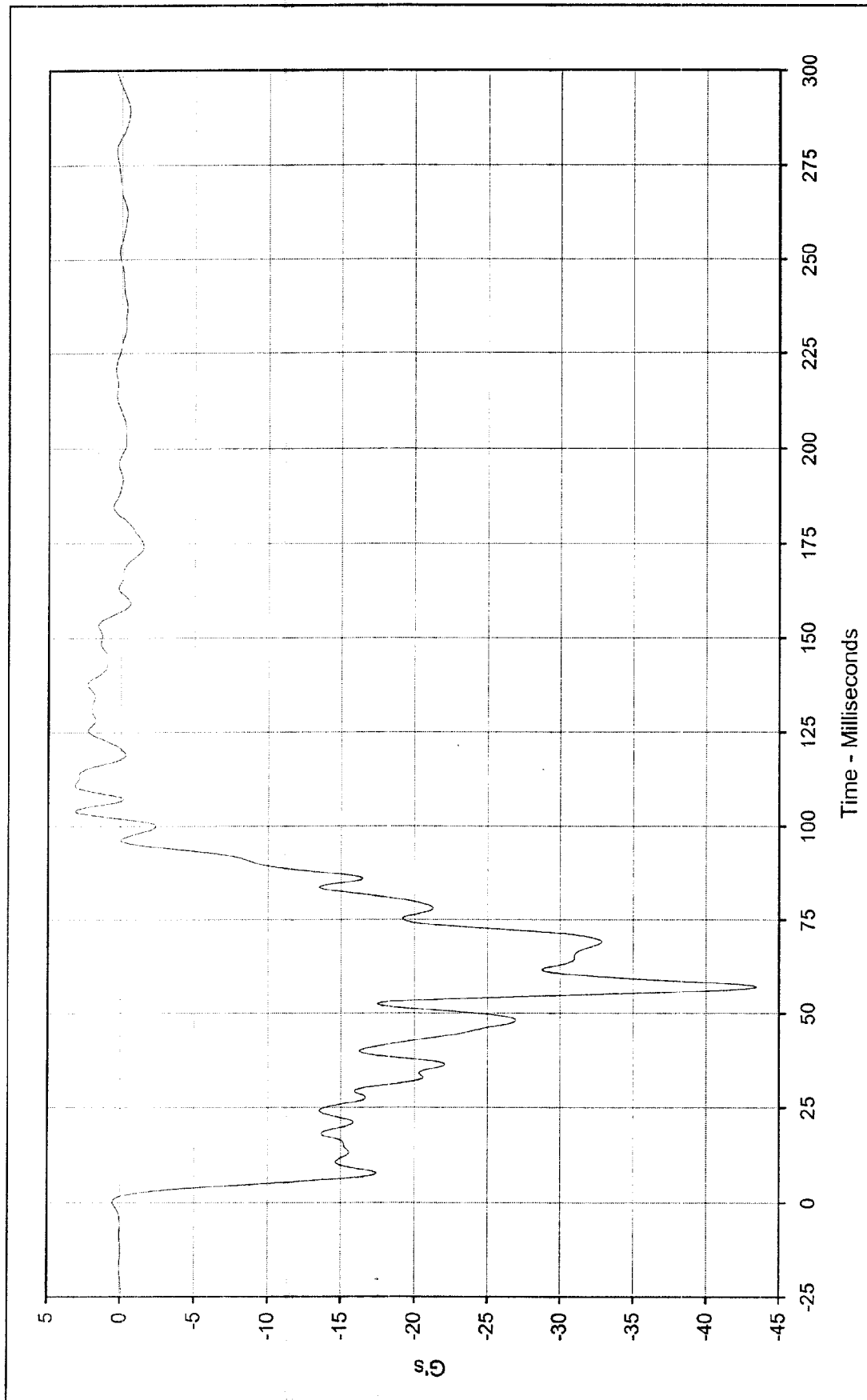
Curve Number: IN2-095

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

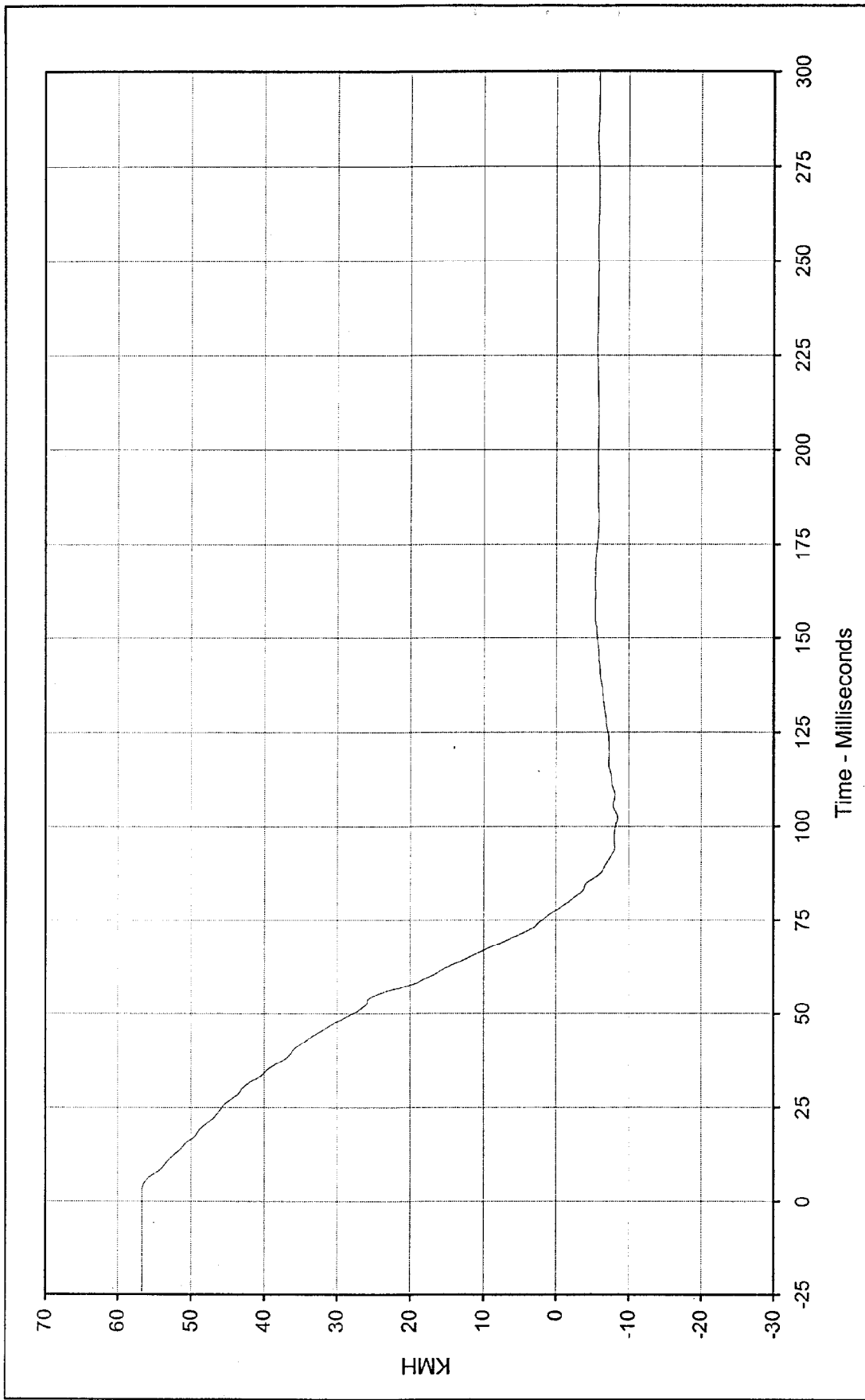


* Channel Failed at 51.2 Msec.



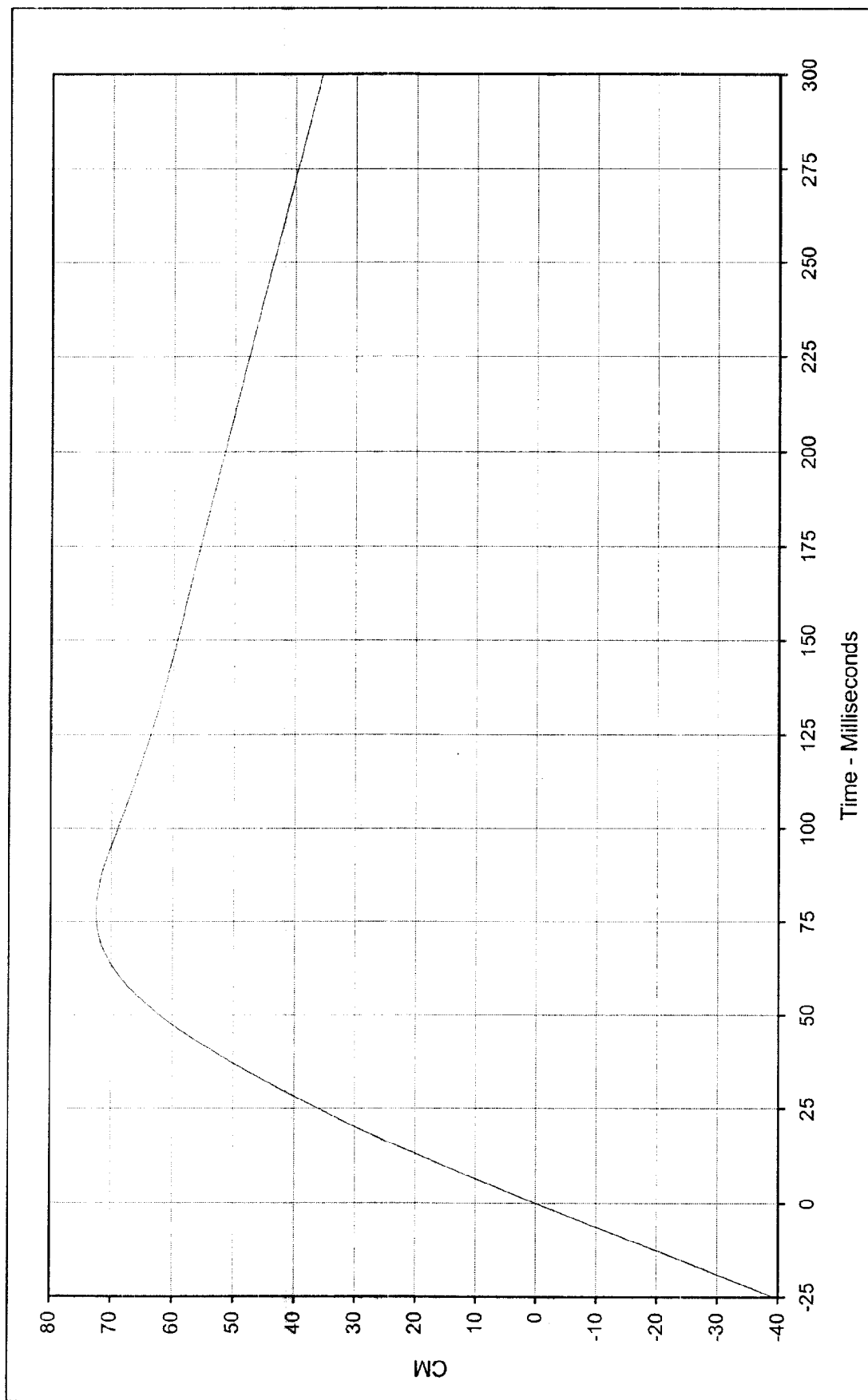
Curve Description:	Vehicle Left Rear Redundant	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	3.1 at 110.8 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-43.5 at 57.0 Milliseconds			
SAE Filter Class:	60			
Date of Test:	12/18/98			
Curve Number:	FIL-096			





Curve Description:	Vehicle Left Rear Redundant Velocity	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	56.7 at 2.7 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-8.4 at 102.2 Milliseconds			
SAE Filter Class:	180			
Date of Test:	12/18/98			
Curve Number:	IN1-096			





Curve Description: Vehicle Left Rear Redundant Displ.

Maximum Value: 72.5 at 77.6 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 12/18/98

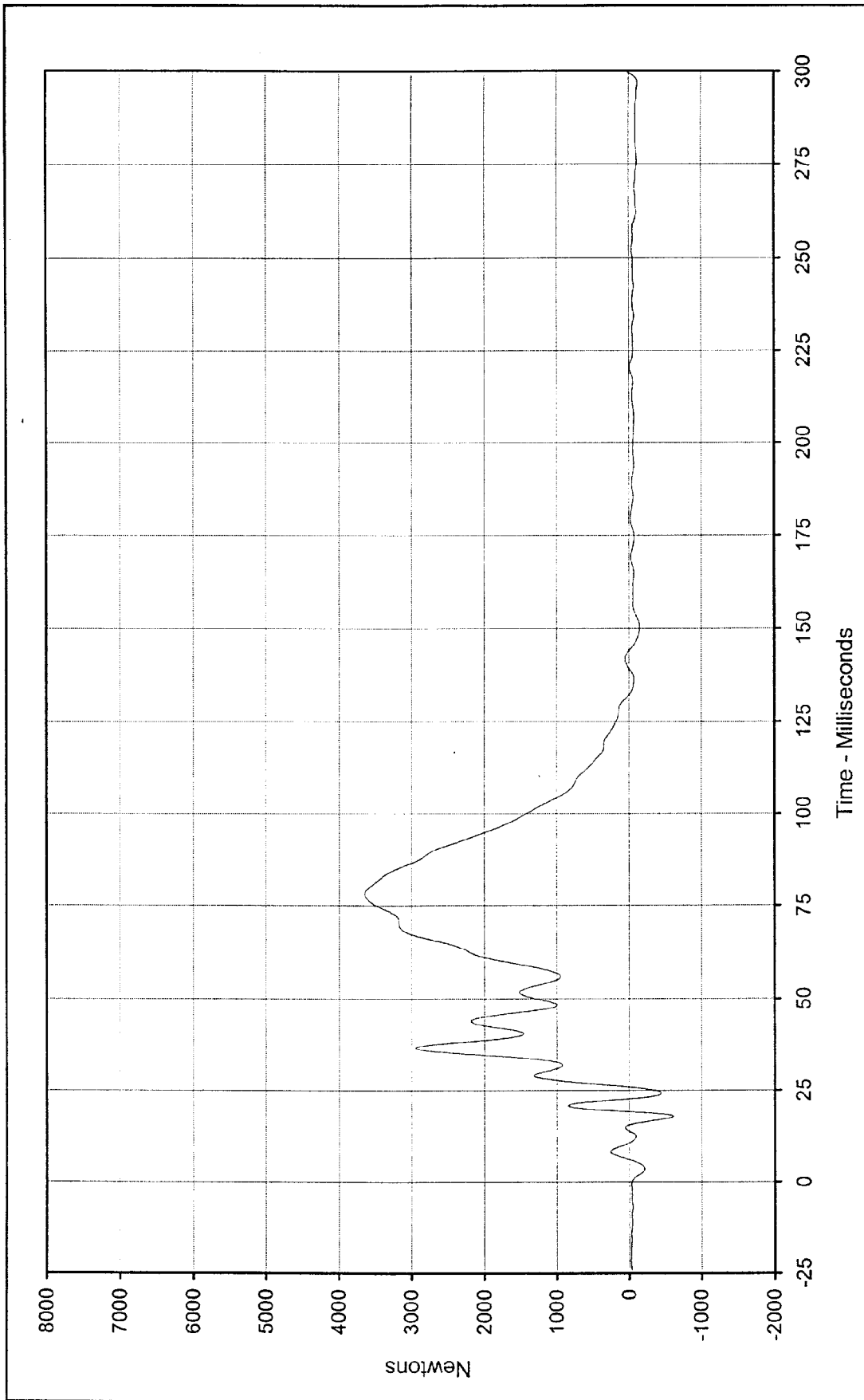
Curve Number: IN2-096

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe



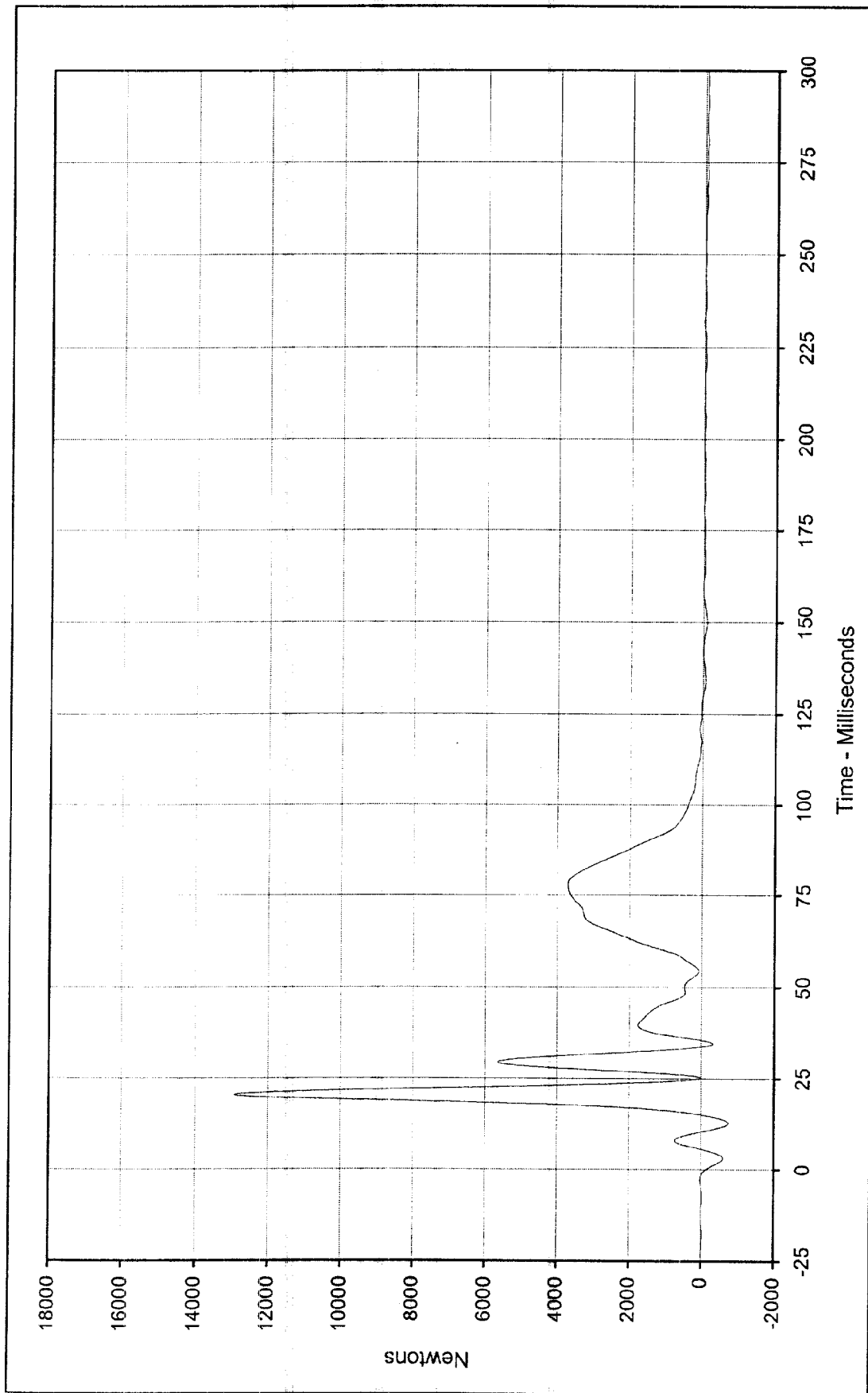
APPENDIX C
LOAD CELL BARRIER INFORMATION



Curve Description: Barrier Force A2
 Maximum Value: 3644.5 at 78.1 Milliseconds
 Minimum Value: -612.4 at 17.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-099

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

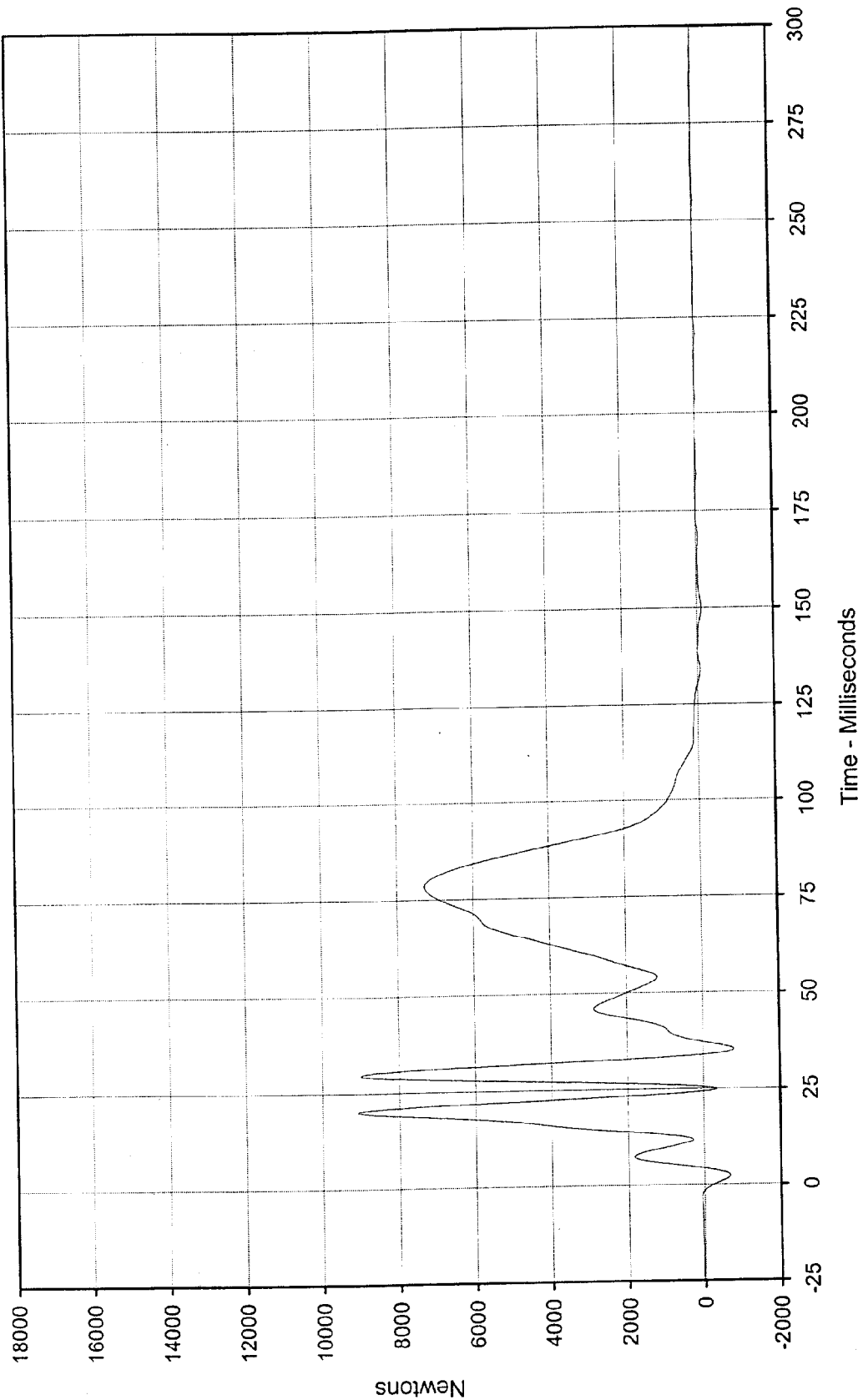




Curve Description: Barrier Force A3
 Maximum Value: 12912.9 at 20.3 Milliseconds
 Minimum Value: -756.0 at 12.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-100

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

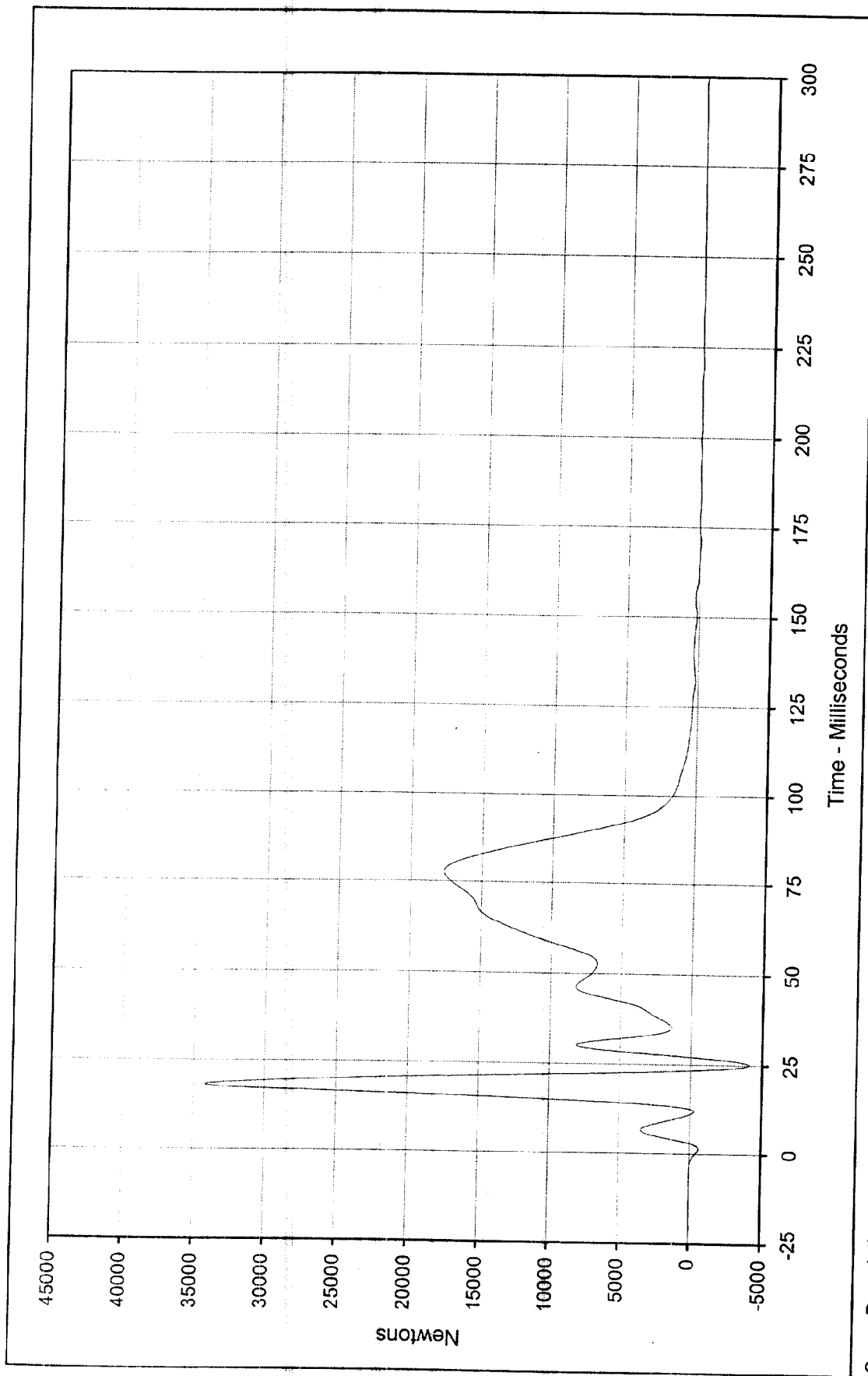




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

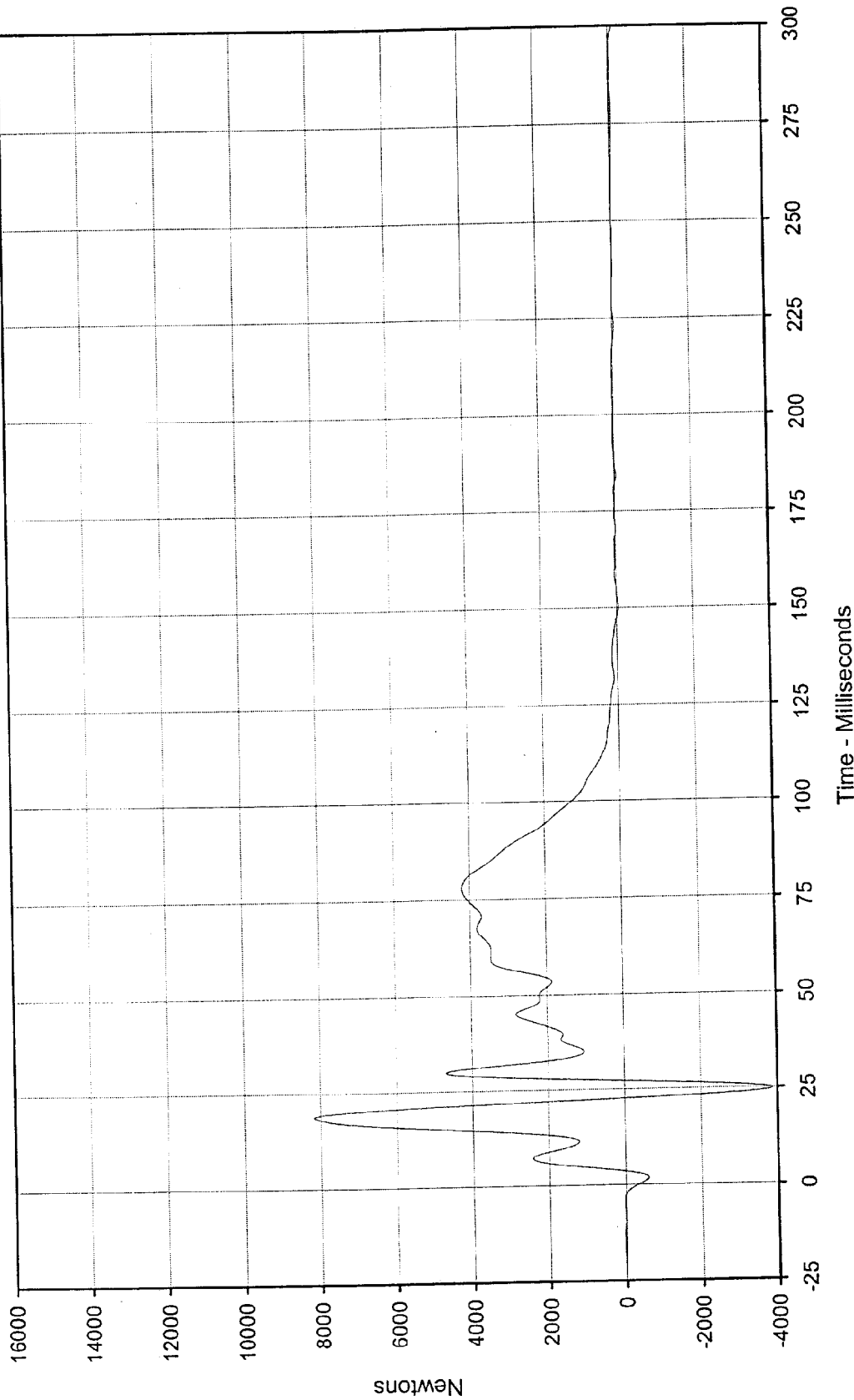
Curve Description: Barrier Force A4
 Maximum Value: 9074.5 at 20.2 Milliseconds
 Minimum Value: -813.2 at 35.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-101





Curve Description:		Barrier Force A5		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	34172.4	at	18.1	Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	-4084.6	at	25.1	Milliseconds		
SAE Filter Class:	60					
Date of Test:	12/18/98					
Curve Number:	FIL-102					





Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Barrier Force A6

Curve Description:

Maximum Value: 8171.7 at 18.8 Milliseconds

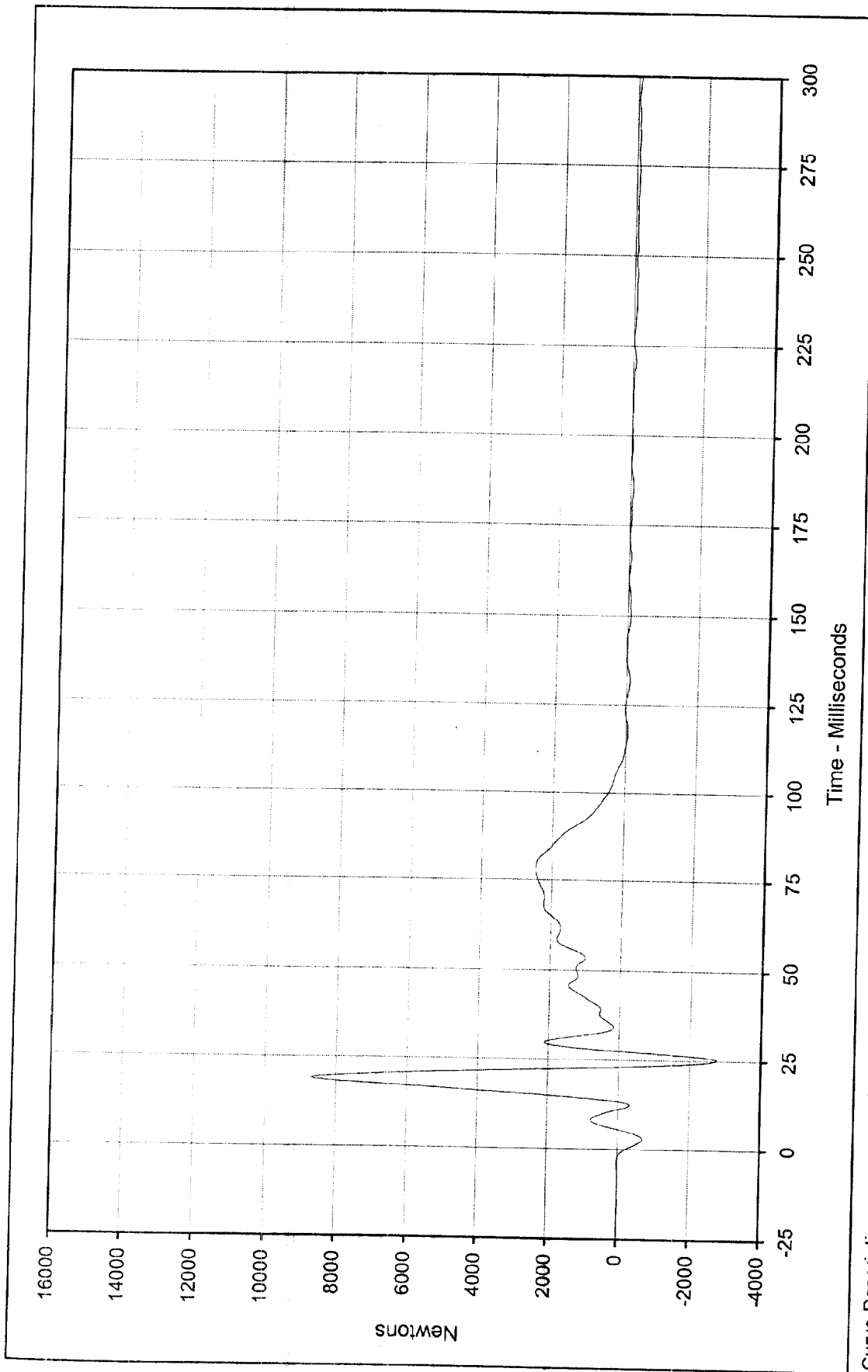
Minimum Value: -3892.1 at 24.8 Milliseconds

SAE Filter Class: 60

Date of Test: 12/18/98

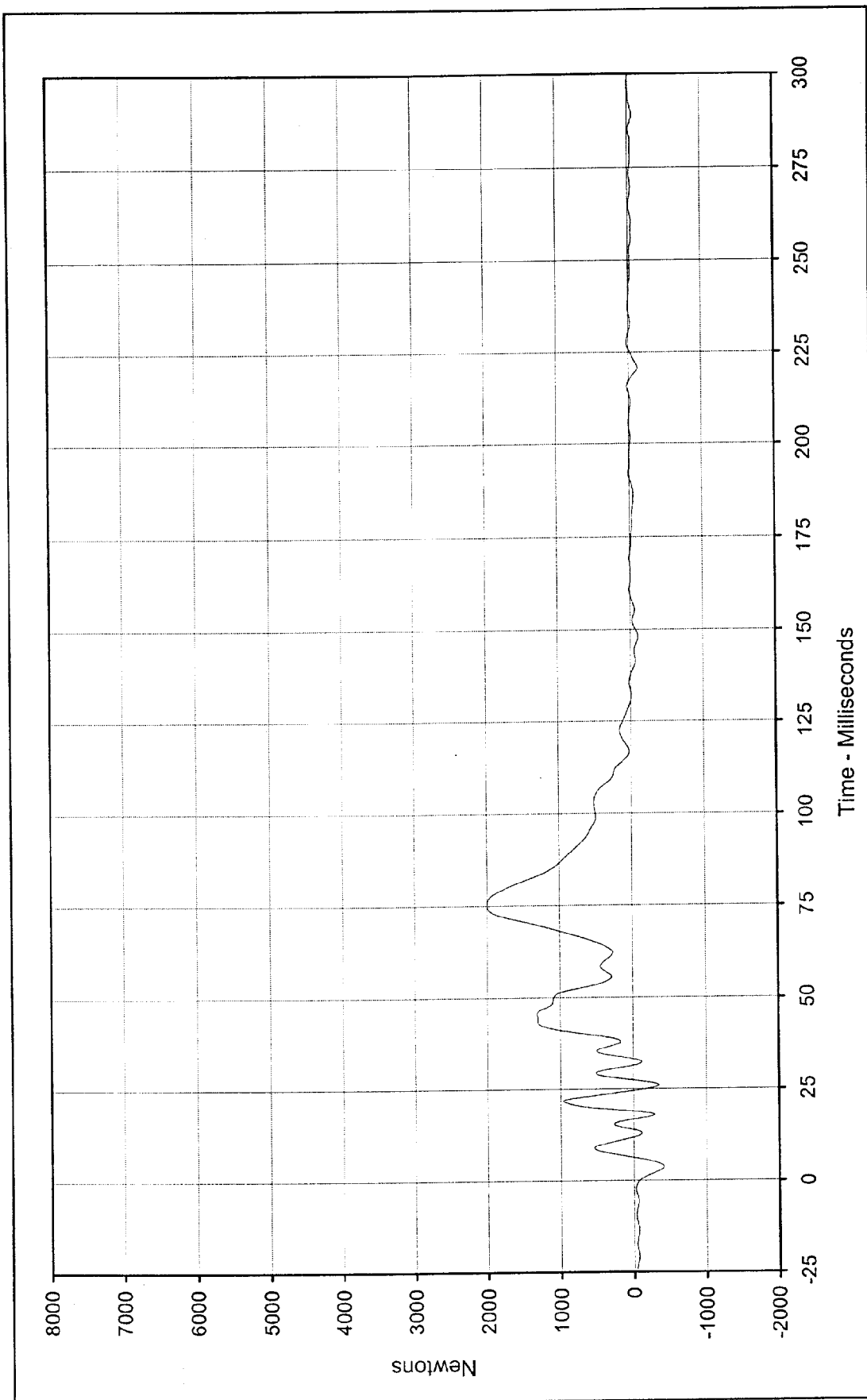
Curve Number: FIL-103





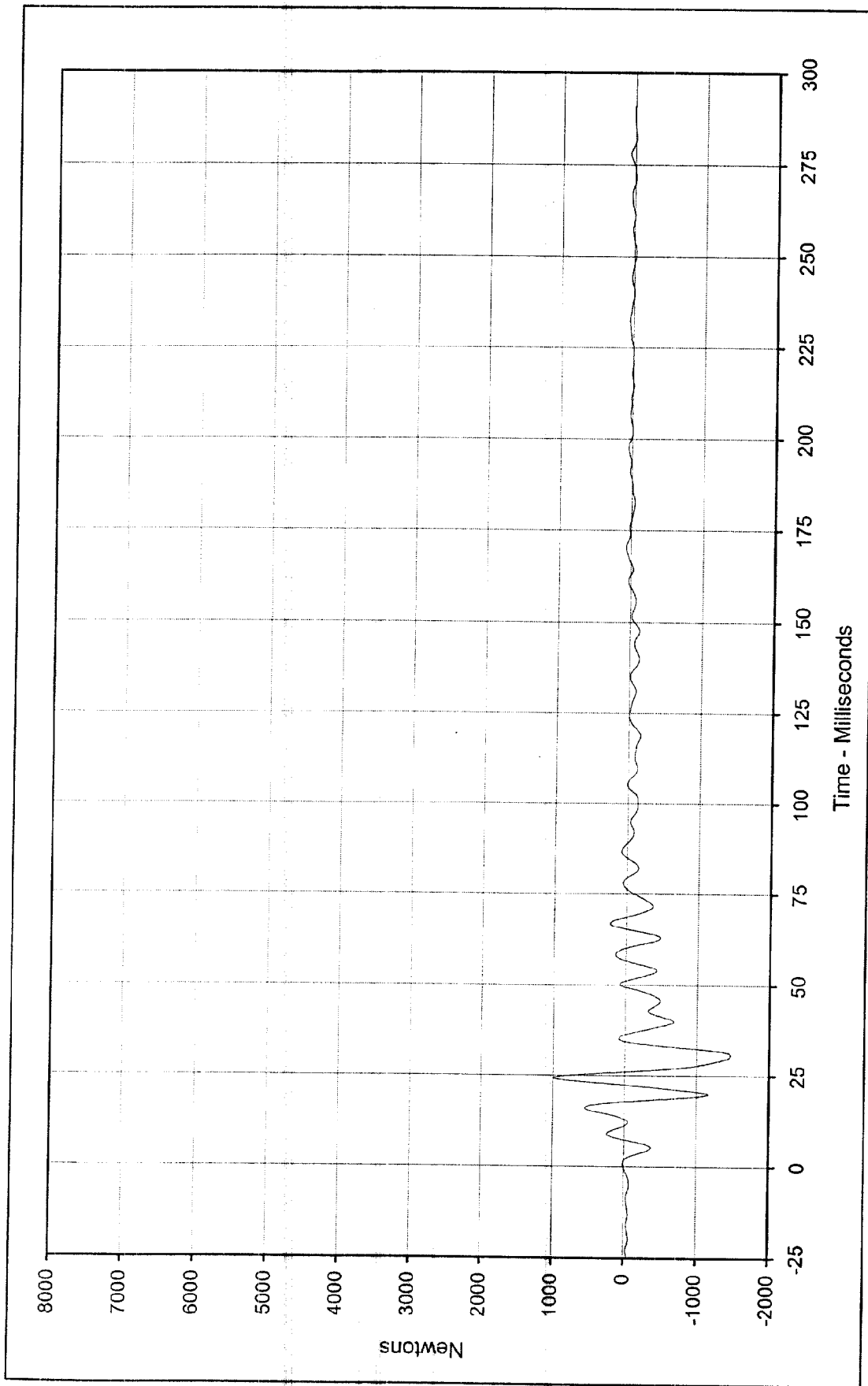
Curve Description:	Barrier Force A7	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	8689.3 at 18.9 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-2762.9 at 25.2 Milliseconds			
SAE Filter Class:	60			
Date of Test:	12/18/98			
Curve Number:	FIL-104			





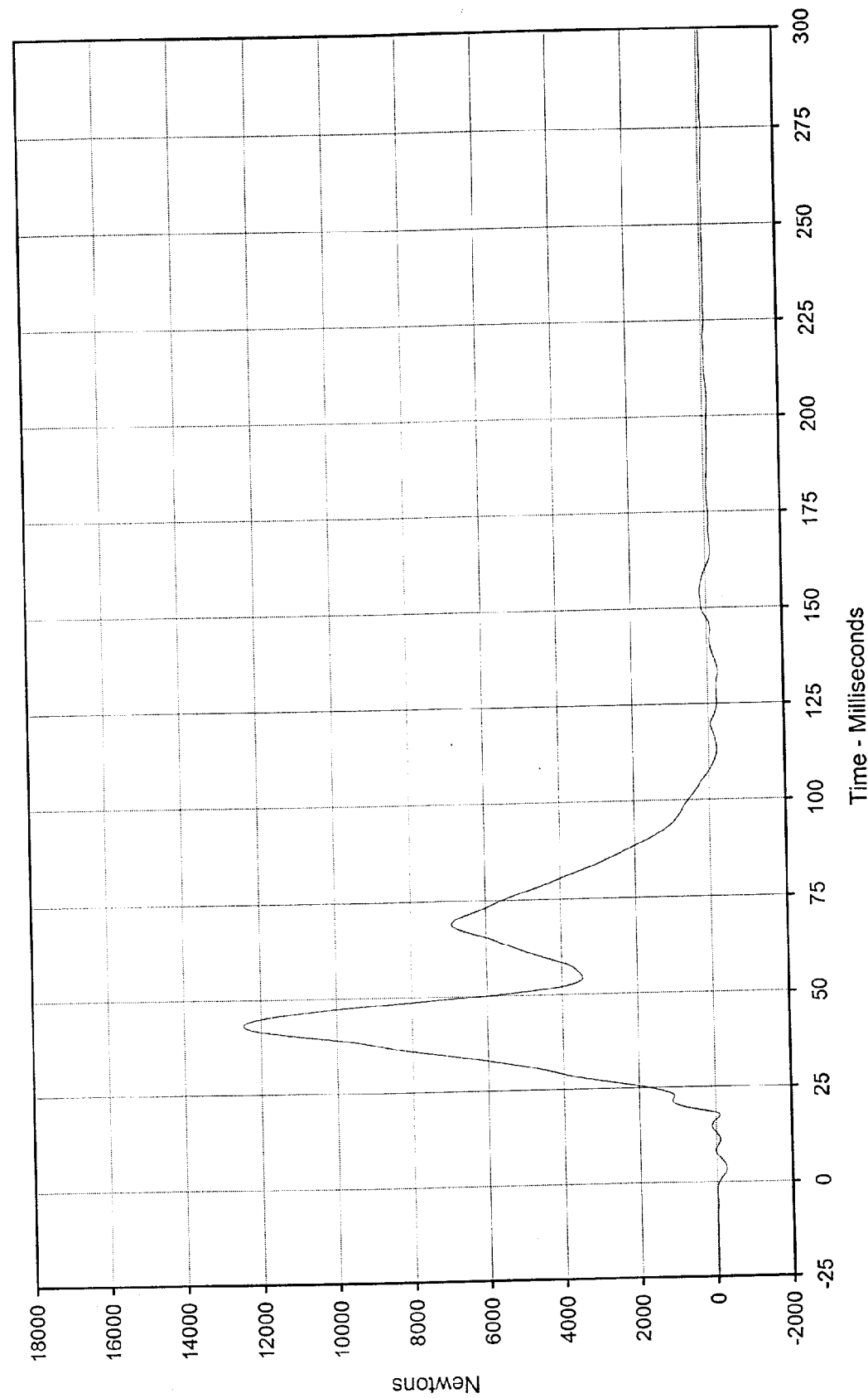
Curve Description:	Barrier Force A8	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	1995.6 at 75.0 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-410.9 at 3.7 Milliseconds			
SAE Filter Class:	60			
Date of Test:	12/18/98			
Curve Number:	FIL-105			





Curve Description:		Barrier Force A9		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	990.6	at	24.3	Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	-1473.9	at	30.7	Milliseconds		
SAE Filter Class:	60					
Date of Test:	12/18/98					
Curve Number:	FIL-106					

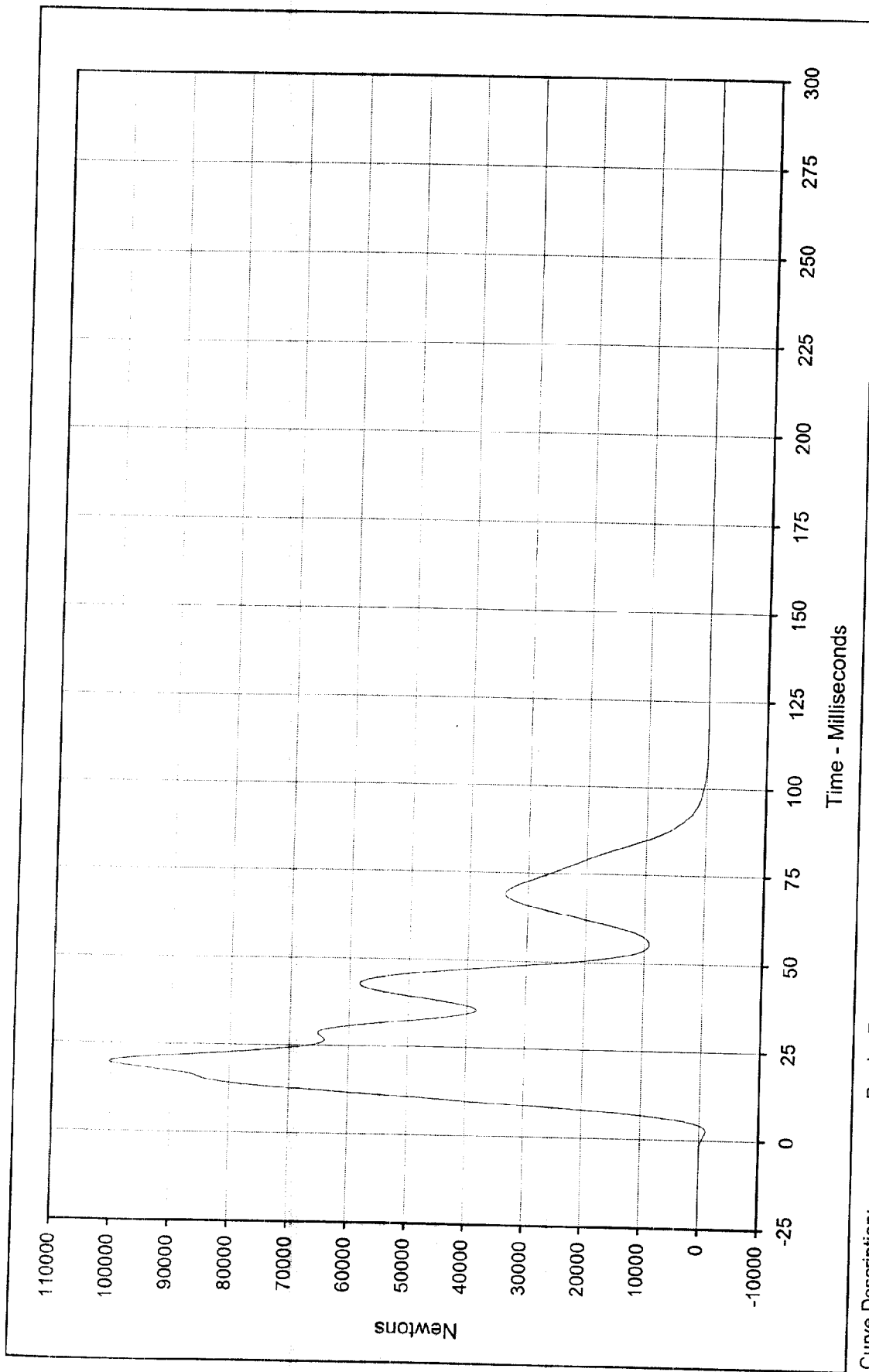




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description: Barrier Force B2
 Maximum Value: 12447.2 at 43.4 Milliseconds
 Minimum Value: -281.5 at 3.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-108





Curve Description:

Maximum Value: 100311.9

Minimum Value: -1090.8

SAE Filter Class: 60

Date of Test: 12/18/98

Curve Number: FIL-109

Barrier Force B3

at 19.8 Milliseconds

at 2.5 Milliseconds

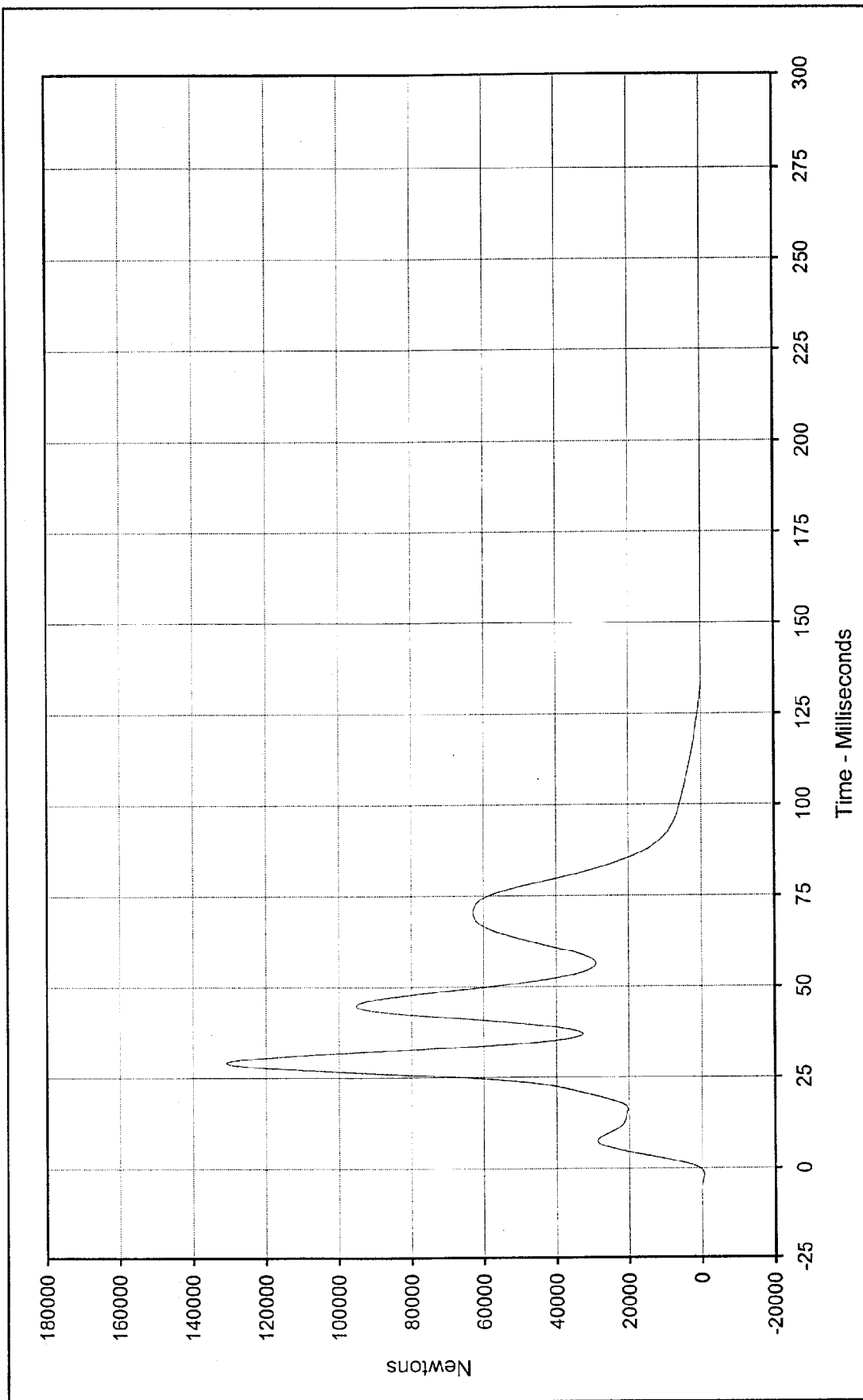
Test Program:

Test Vehicle:

1999 NHTSA 35 mph NCAP No.: MX5301

1999 Honda Civic DX 2 Door Coupe

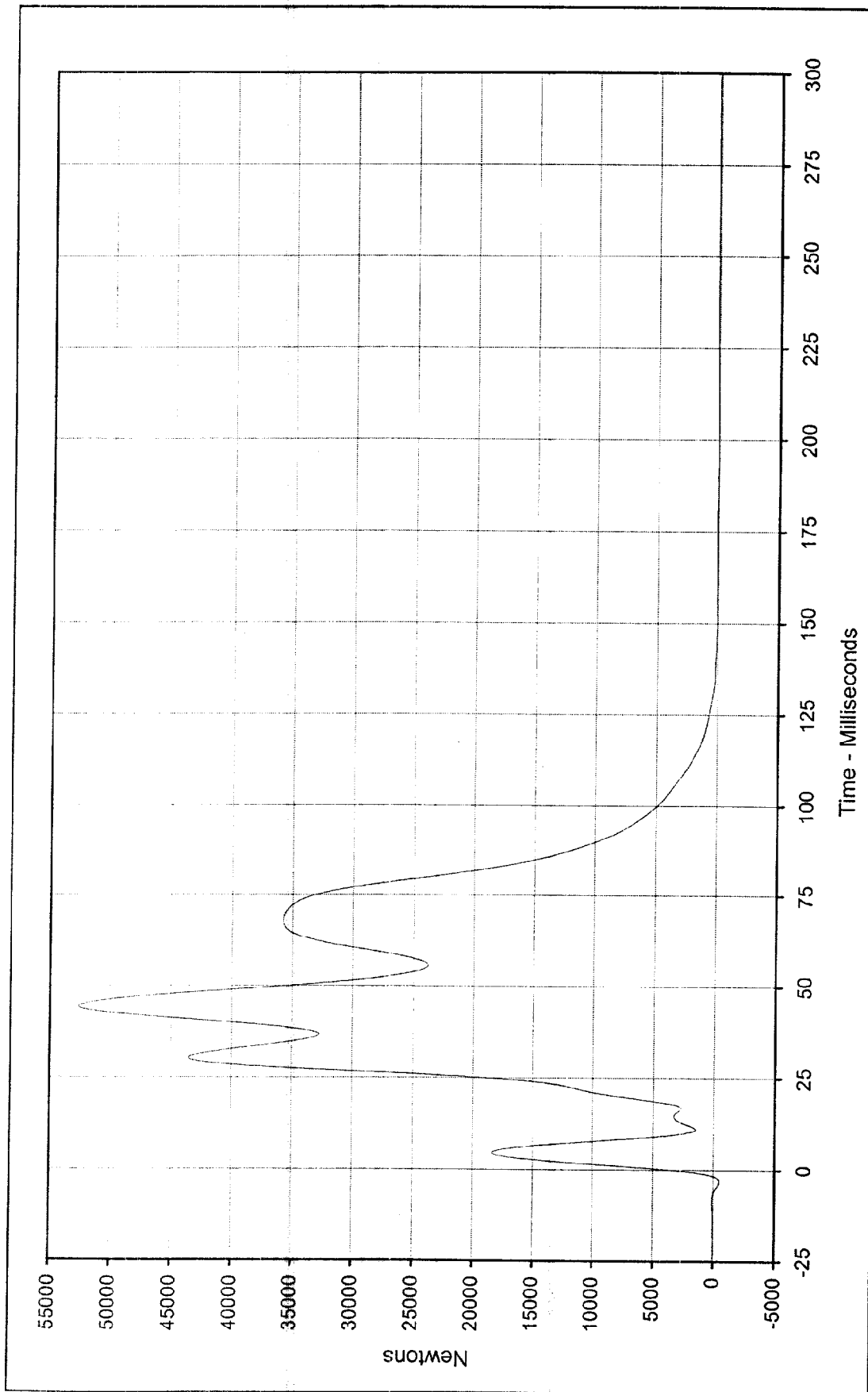




Curve Description: Barrier Force B4
 Maximum Value: 130840.8 at 29.1 Milliseconds
 Minimum Value: -90.3 at 299.9 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-110

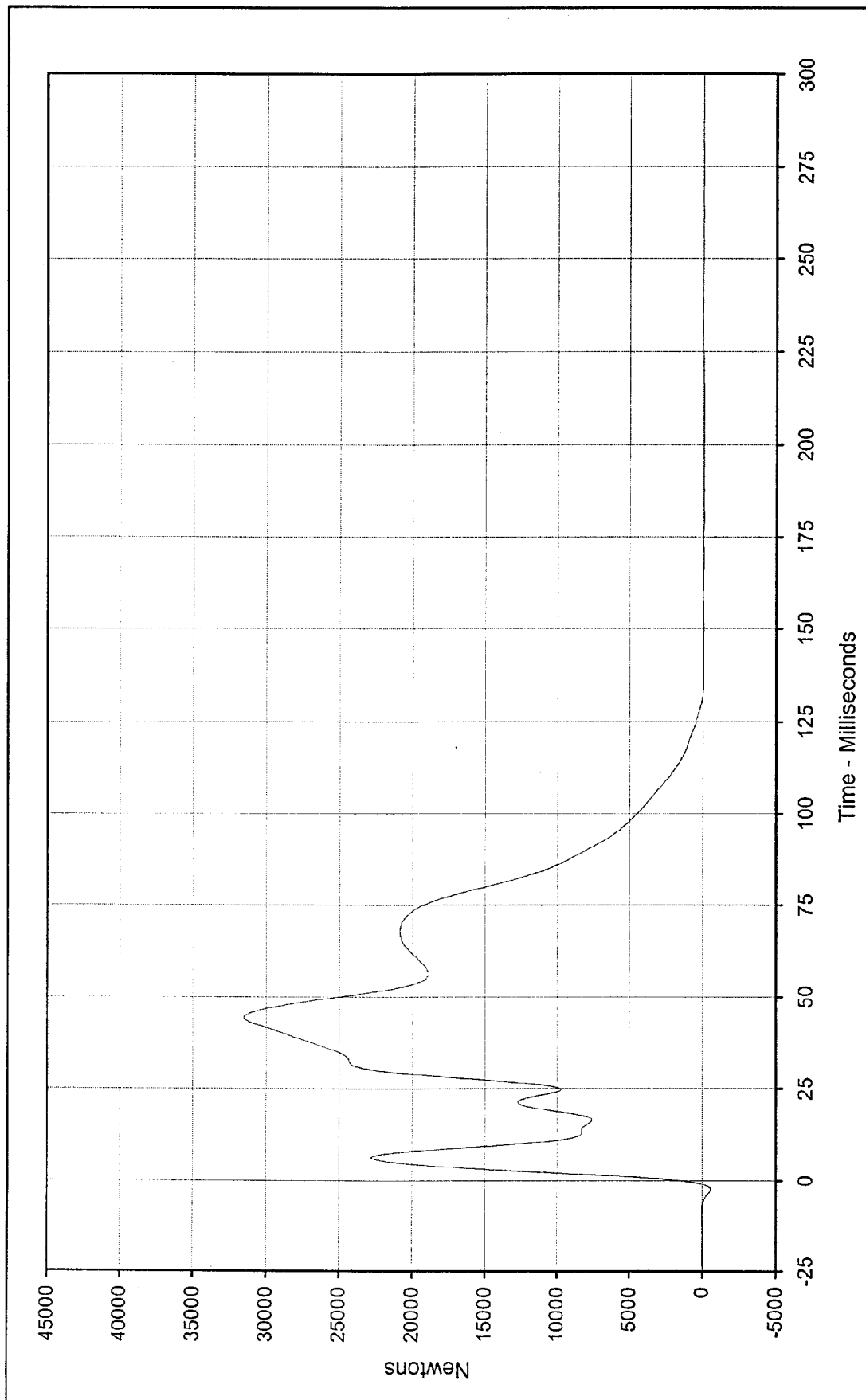
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





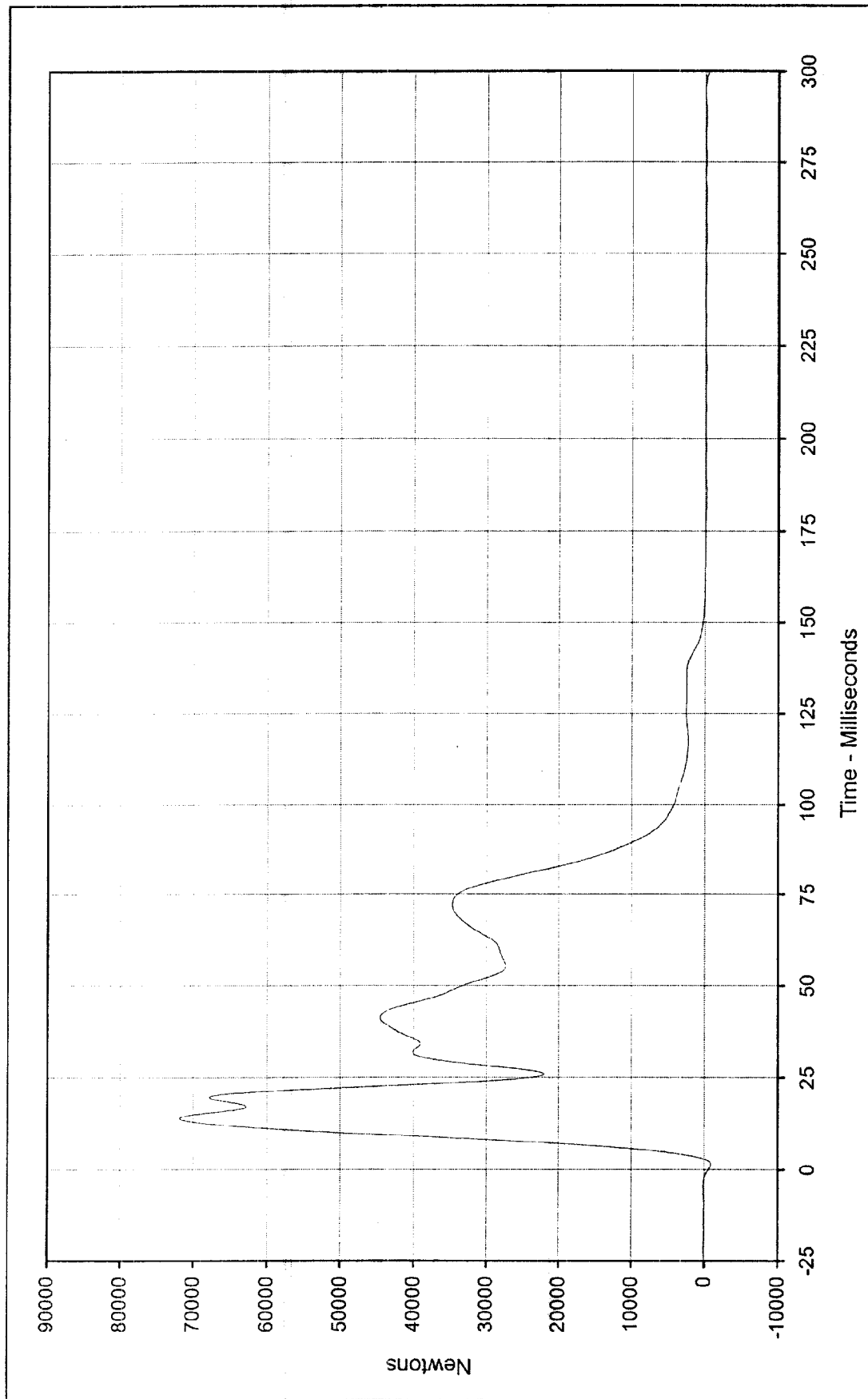
Curve Description:		Barrier Force B5		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	52637.8	at	44.3	Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	10.7	at	194.0	Milliseconds		
SAE Filter Class:	60					
Date of Test:	12/18/98					
Curve Number:	FIL-111					





Curve Description:		Barrier Force B6		Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	31528.3	at	44.5	Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	-91.6	at	180.2	Milliseconds		
SAE Filter Class:	60					
Date of Test:	12/18/98					
Curve Number:	FIL-112					

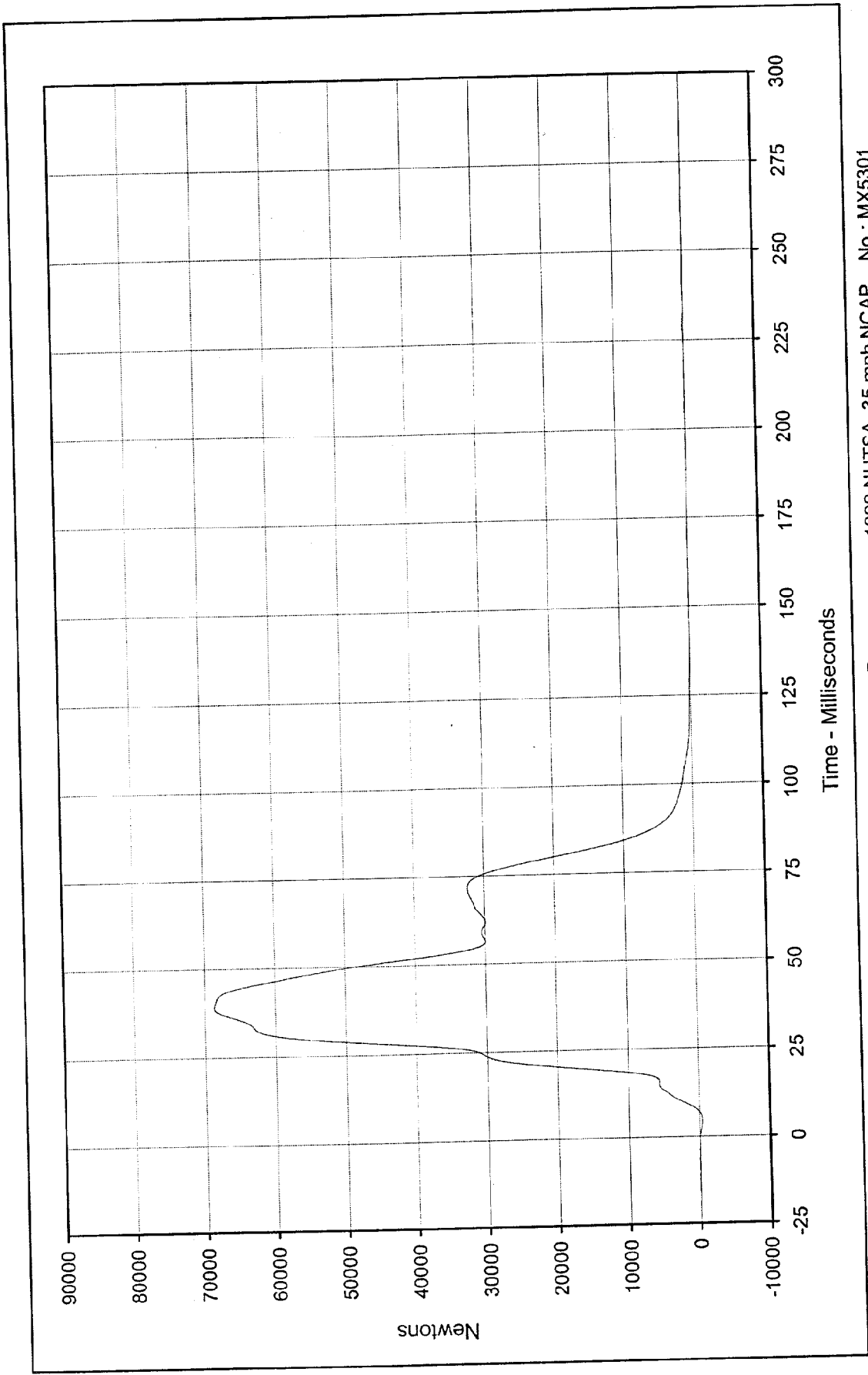




Curve Description: Barrier Force B7
 Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Maximum Value: 71852.1 at 14.1 Milliseconds
 Minimum Value: -907.4 at 1.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-113

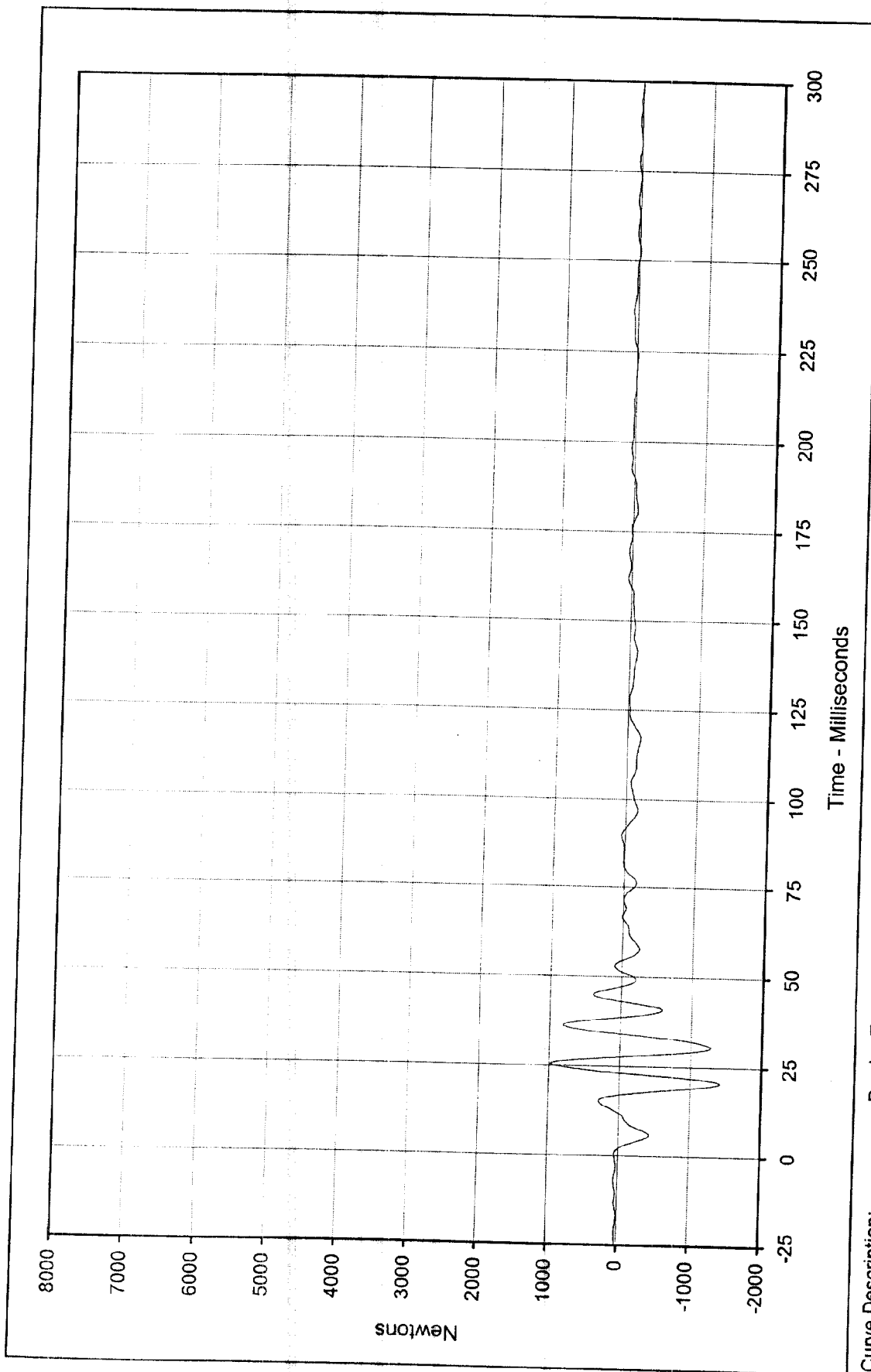




Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

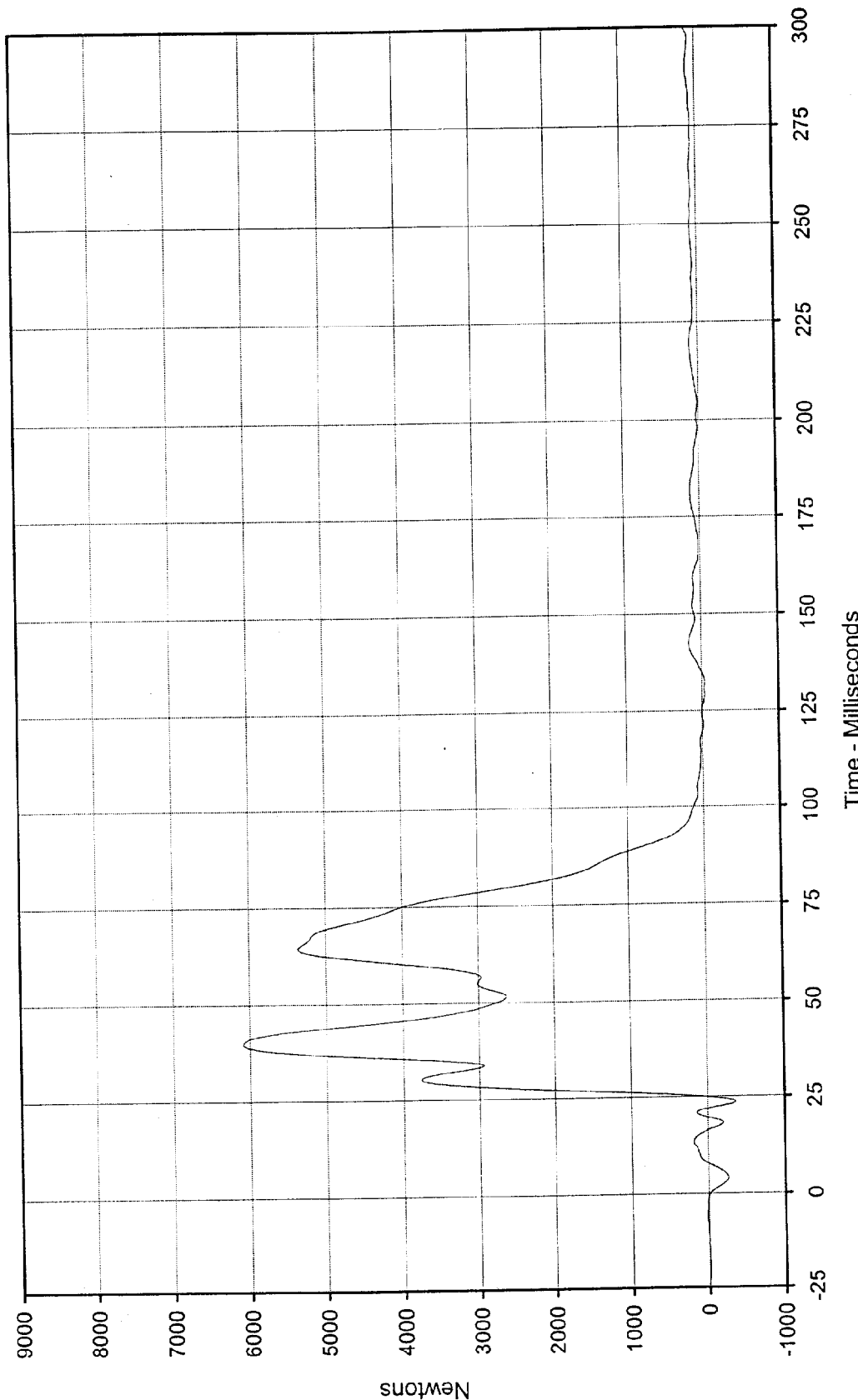
Curve Description: Barrier Force B8
Maximum Value: 68643.4 at 38.8 Milliseconds
Minimum Value: -468.0 at 4.4 Milliseconds
SAE Filter Class: 60
Date of Test: 12/18/98
Curve Number: FIL-114





Curve Description:	Barrier Force B9			
Maximum Value:	980.7	at	25.5	Milliseconds
Minimum Value:	-1418.8	at	20.6	Milliseconds
SAE Filter Class:	60			
Date of Test:	12/18/98			
Curve Number:	FIL-115			
Test Program:	1999 NHTSA 35 mph NCAP No.: MX5301			
Test Vehicle:	1999 Honda Civic DX 2 Door Coupe			

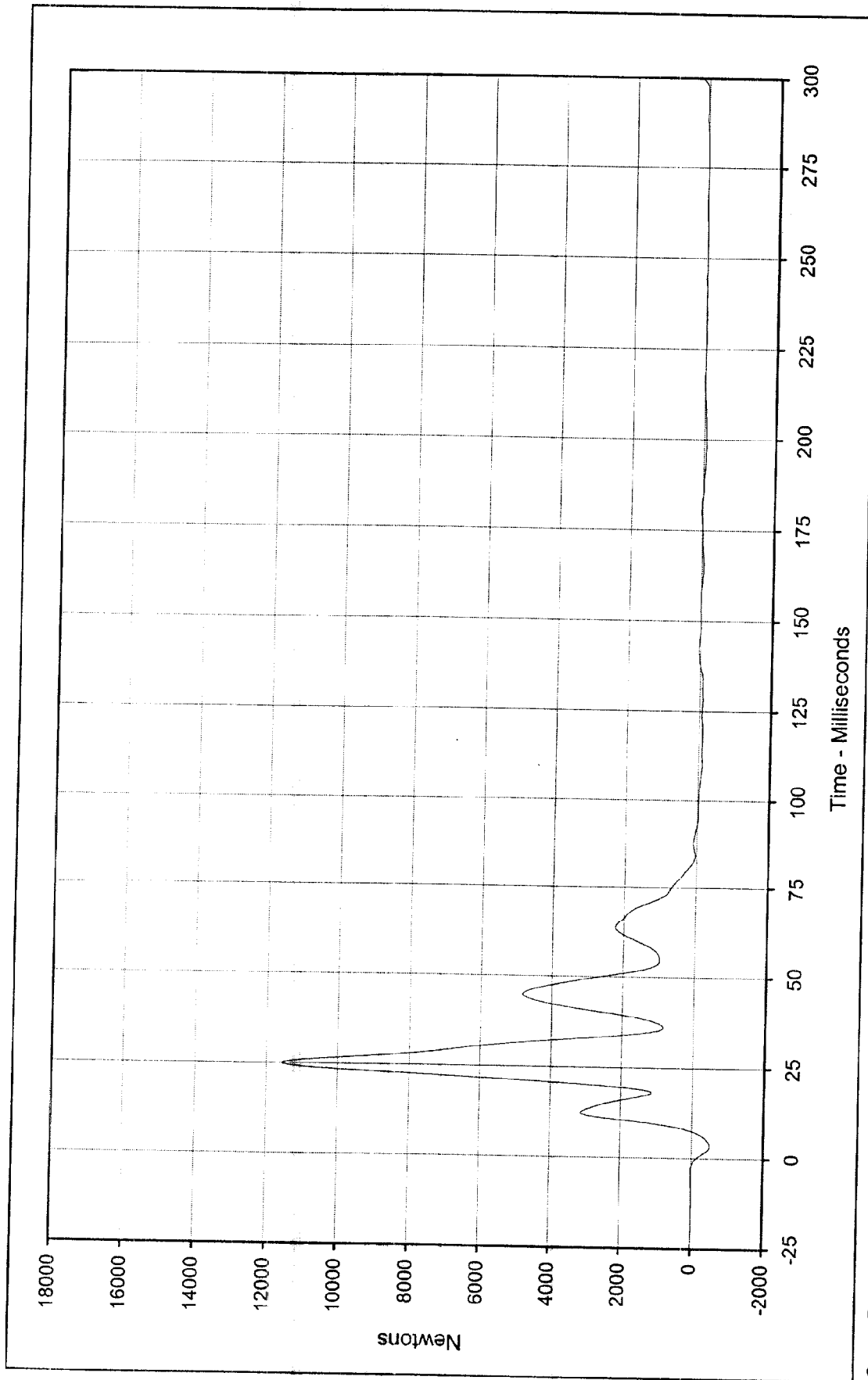




Curve Description: Barrier Force C2
 Maximum Value: 6084.8 at 39.8 Milliseconds
 Minimum Value: -368.6 at 23.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-117

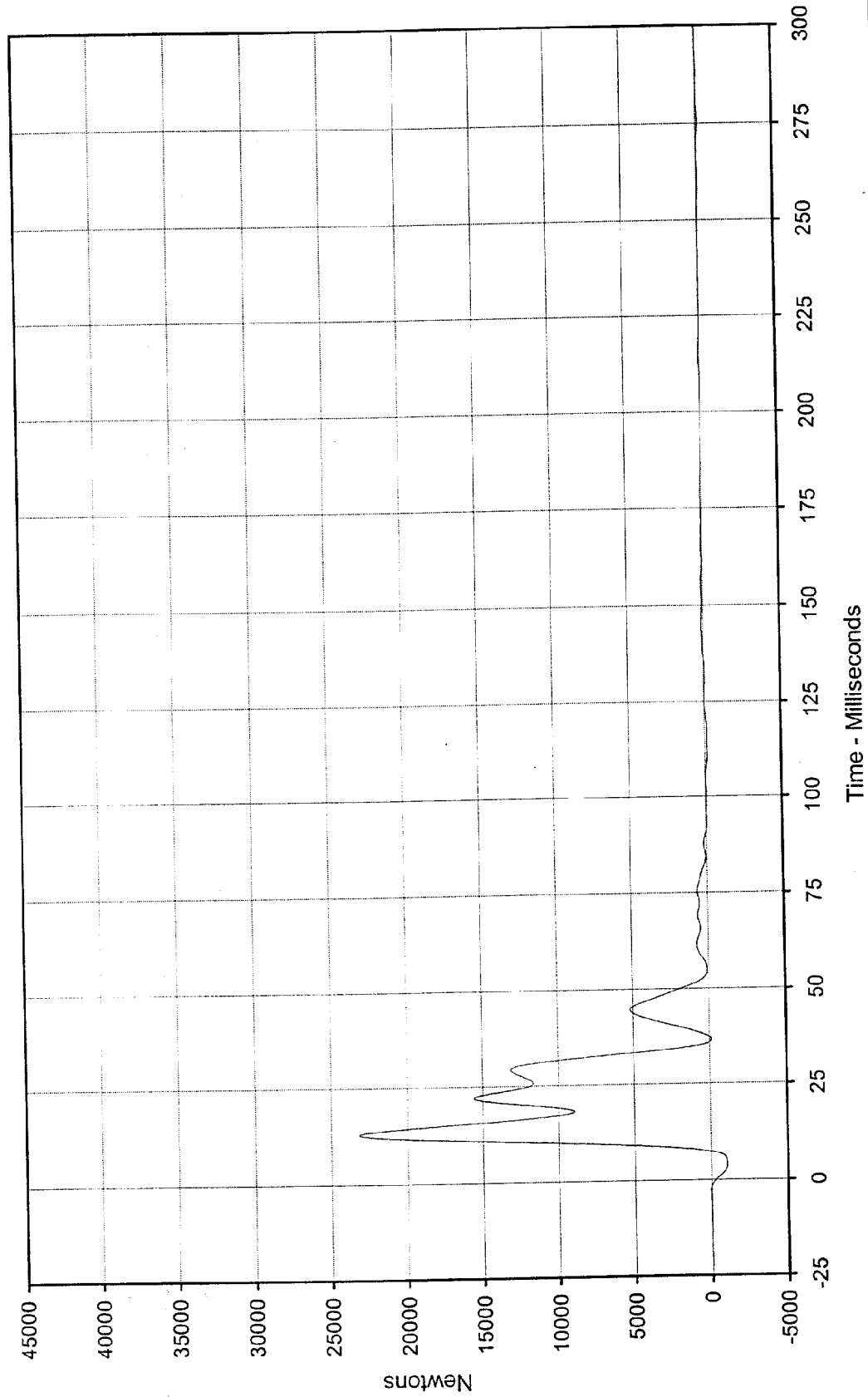
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Barrier Force C3		Test Program:	1999 NHTSA 35 mph NCAP No.: MX5301	
Maximum Value:	11563.6	at 25.0 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-507.5	at 3.3 Milliseconds			
SAE Filter Class:	60				
Date of Test:	12/18/98				
Curve Number:	FIL-118				

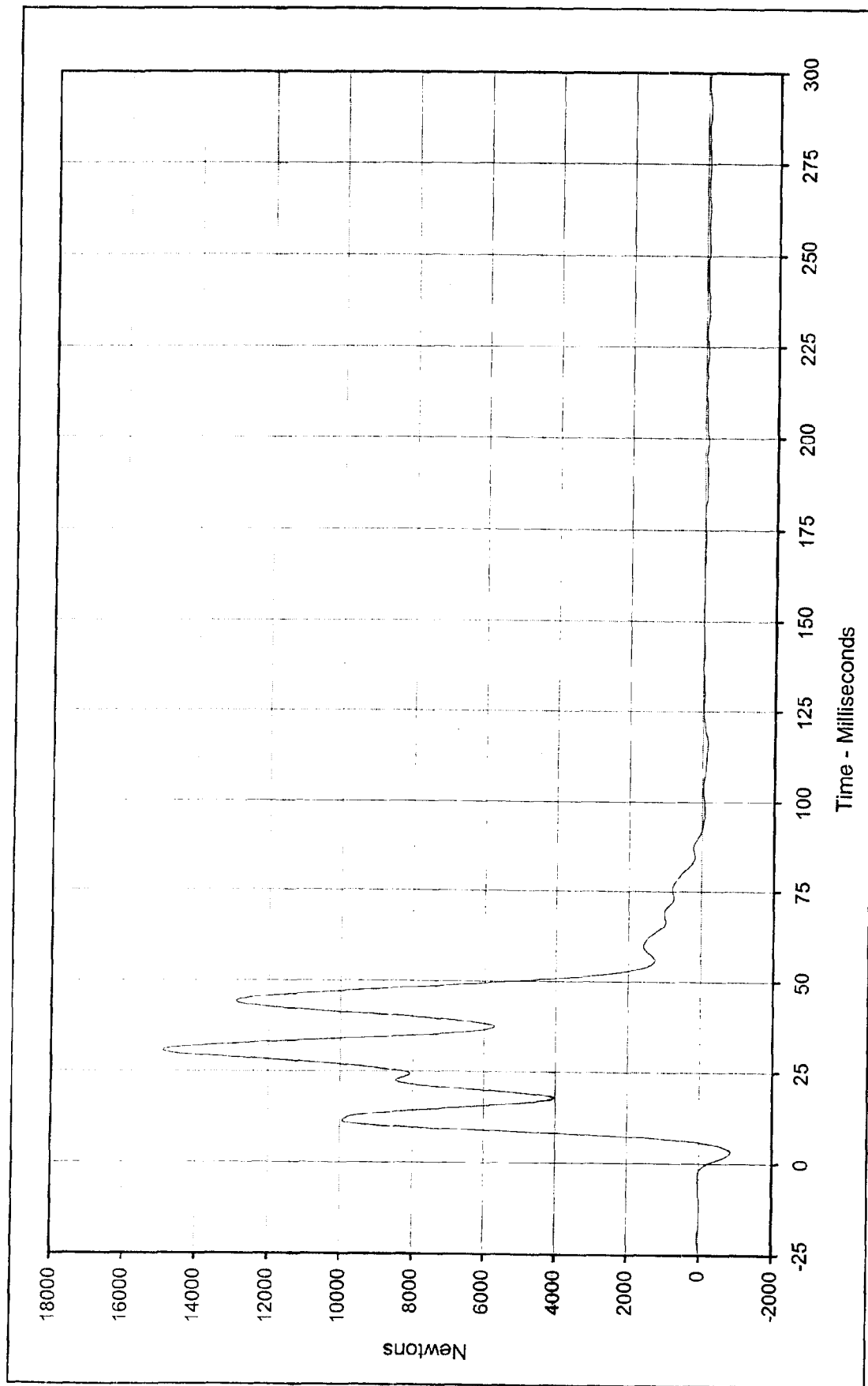




Curve Description: Barrier Force C4
 Maximum Value: 23174.9 at 13.0 Milliseconds
 Minimum Value: -1046.3 at 3.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-119

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

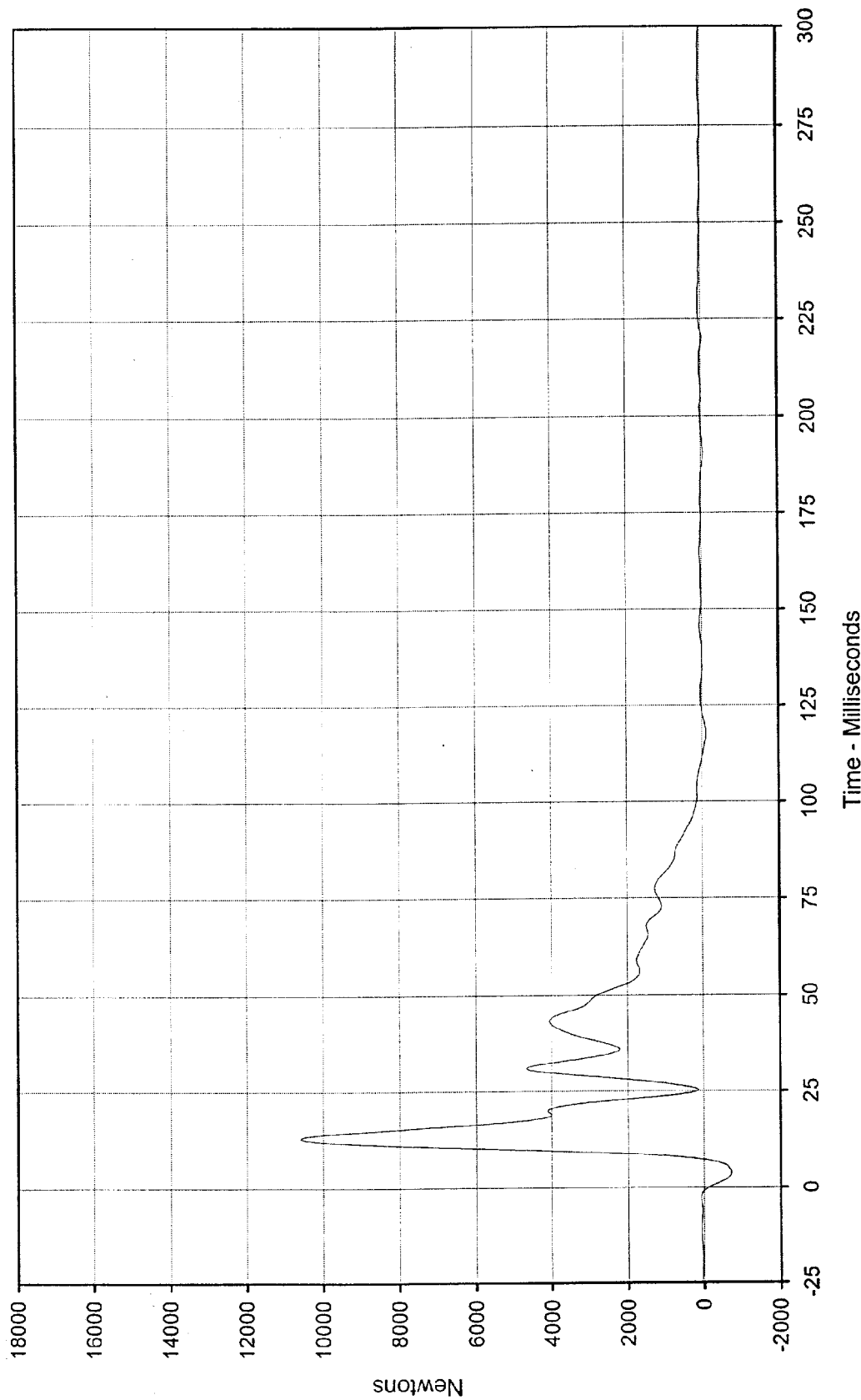




Curve Description: Barrier Force C5
 Maximum Value: 14896.6 at 30.7 Milliseconds
 Minimum Value: -857.9 at 3.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-120

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

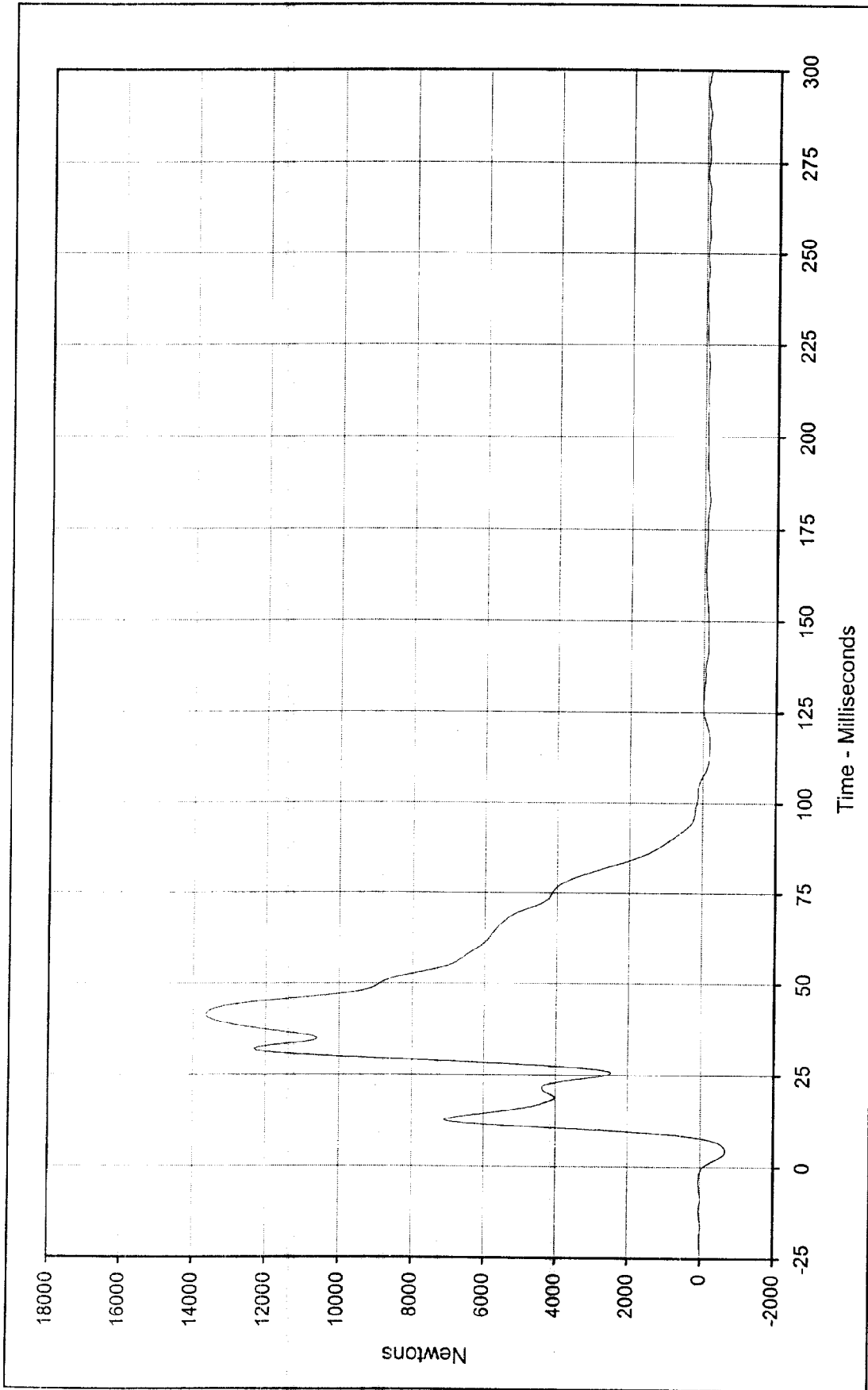




Curve Description: Barrier Force C6
 Maximum Value: 10596.6 at 13.0 Milliseconds
 Minimum Value: -717.3 at 3.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: FIL-121

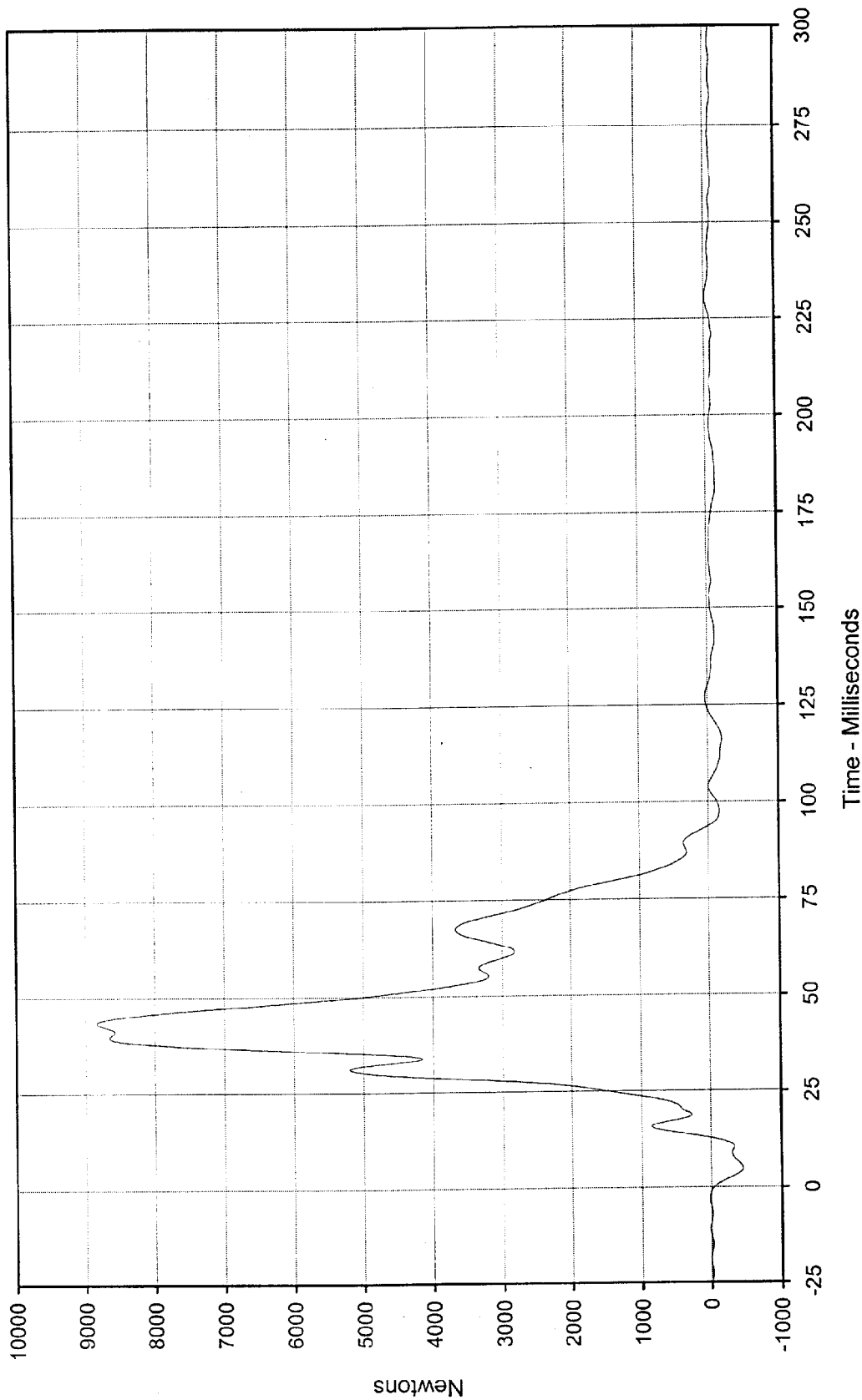
Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe





Curve Description:	Barrier Force C7	Test Program:	1999 NHTSA 35 mph NCAP No.: MX5301
Maximum Value:	13635.5 at 41.4 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	-688.2 at 4.4 Milliseconds		
SAE Filter Class:	60		
Date of Test:	12/18/98		
Curve Number:	FIL-122		



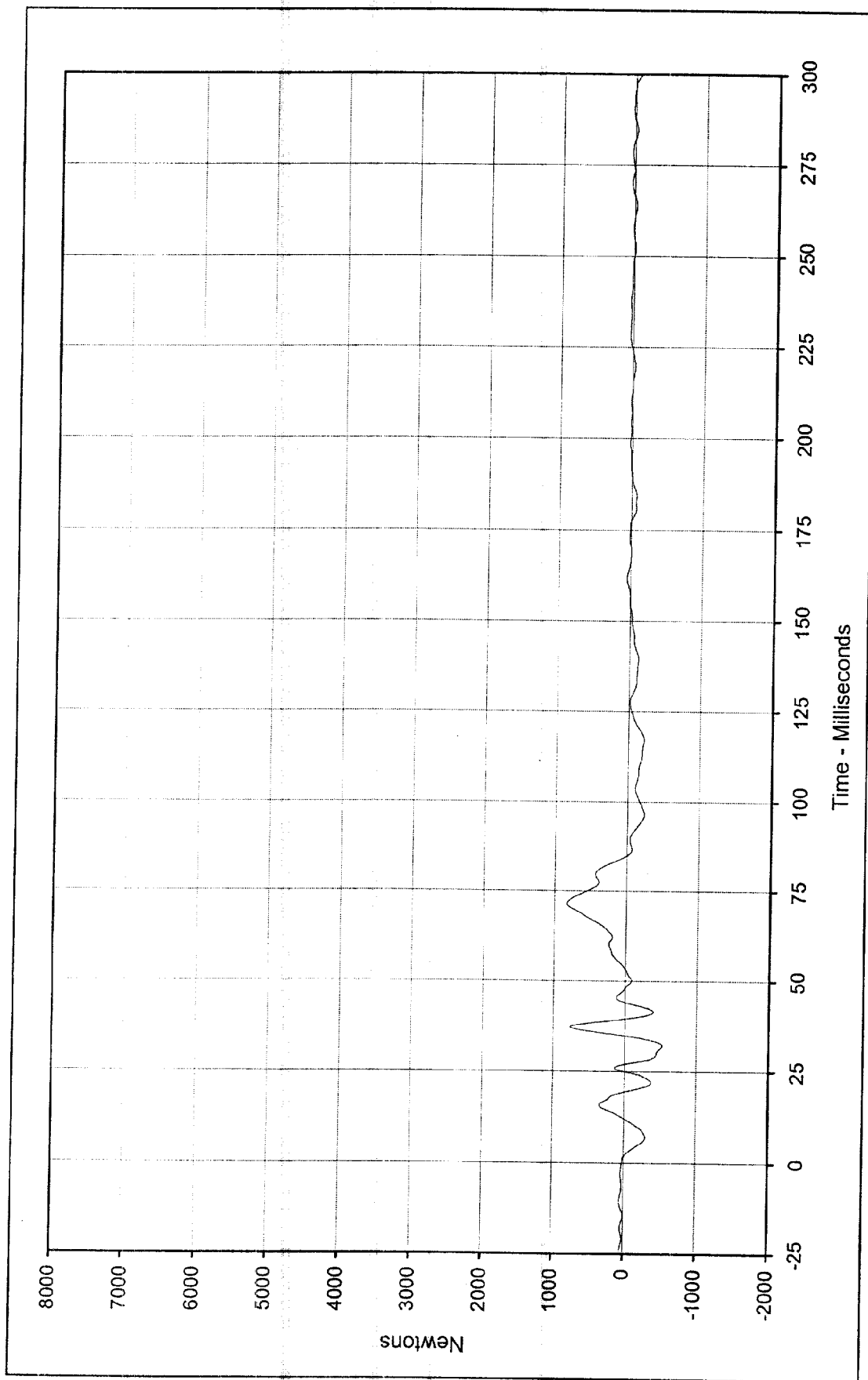


Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Curve Description:		Barrier Force C8	
Maximum Value:	8839.6	at	43.5 Milliseconds
Minimum Value:	-450.5	at	4.8 Milliseconds
SAE Filter Class:	60		
Date of Test:	12/18/98		
Curve Number:	FIL-123		



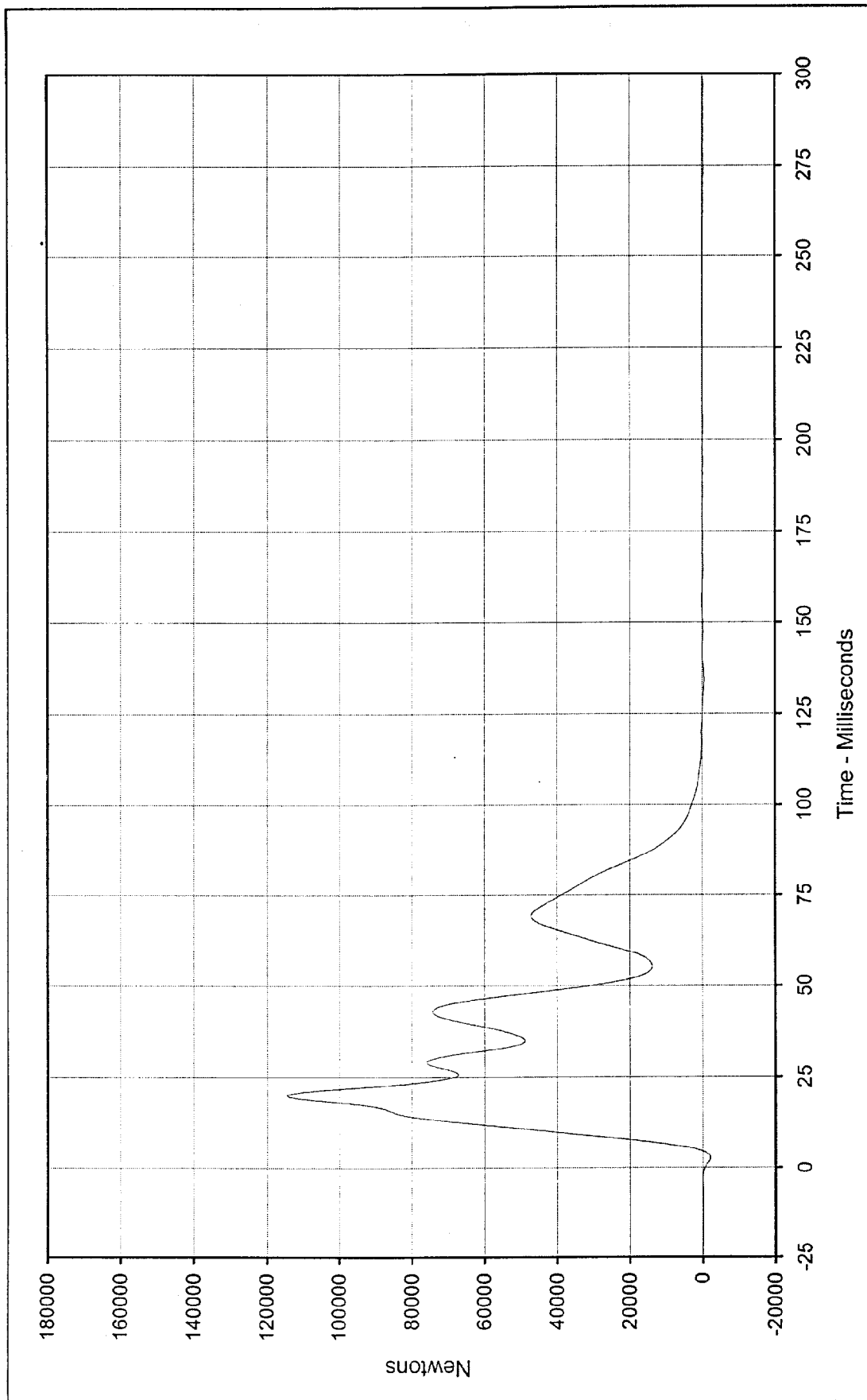


Curve Description:	Barrier Force C9			Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	827.1	at	71.5	Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe
Minimum Value:	-523.5	at	32.1	Milliseconds		
SAE Filter Class:	60					
Date of Test:	12/18/98					
Curve Number:	FIL-124					



AKARCO
Engineering

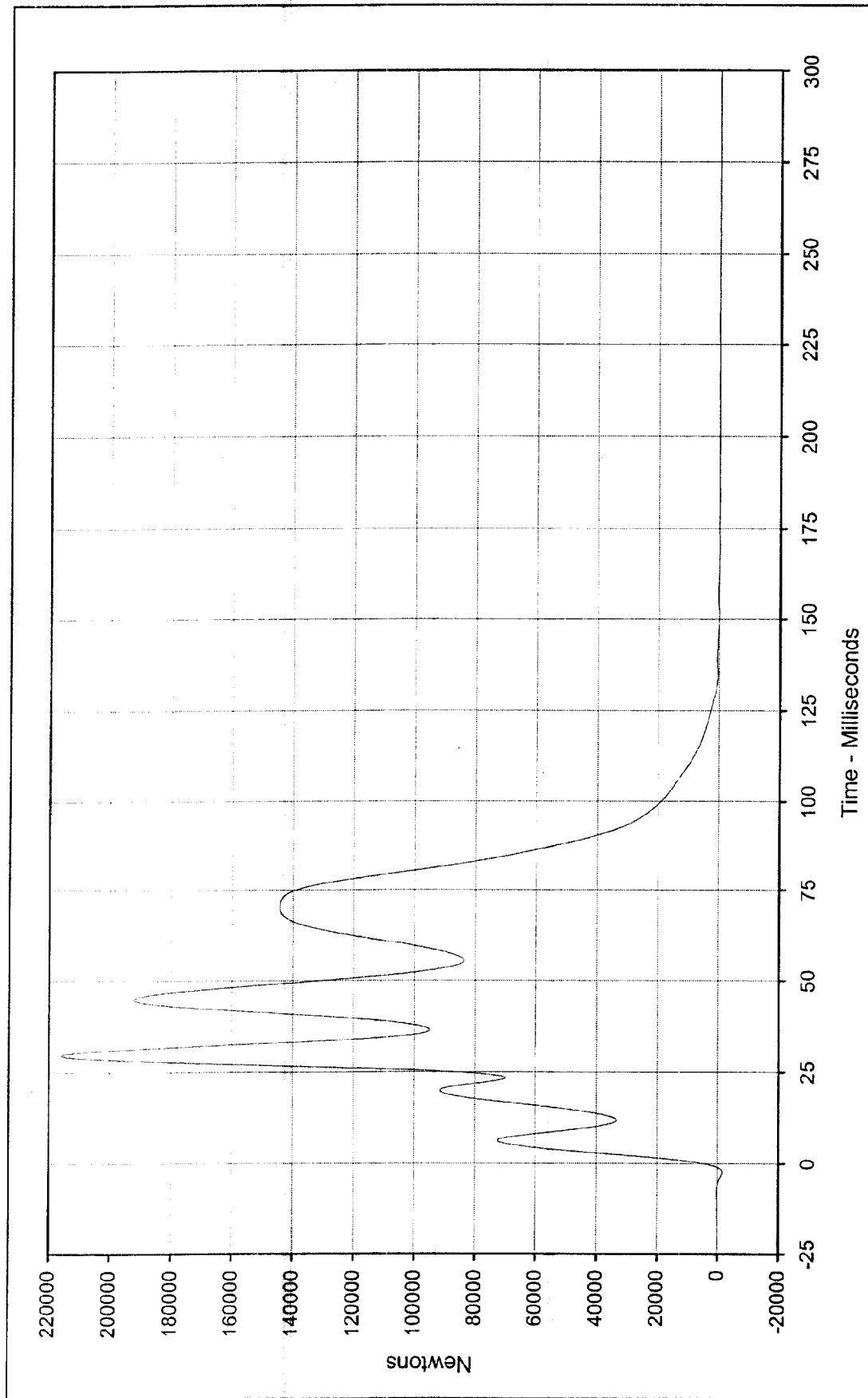




Curve Description: Barrier Force Sum No.1 Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Maximum Value: 114484.4 at 20.1 Milliseconds Test Vehicle: 1999 Honda Civic DX 2 Door Coupe
 Minimum Value: -2134.7 at 2.8 Milliseconds

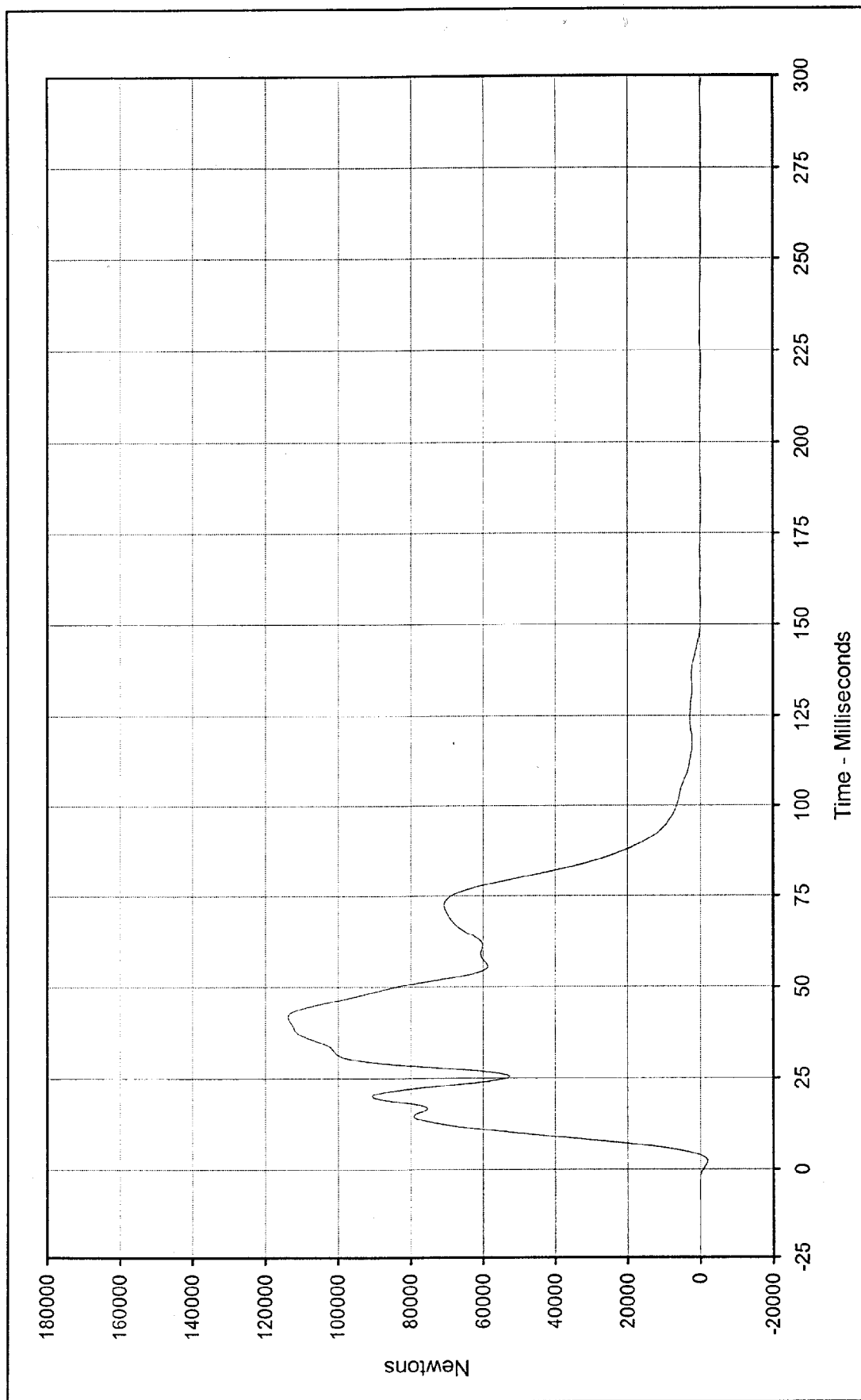


SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: SUM-001



Curve Description:	Barrier Force Sum No.2	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	215904.5 at 29.6 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-198.6 at 170.2 Milliseconds			
SAE Filter Class:	60			
Date of Test:	12/18/98			
Curve Number:	SUM-002			

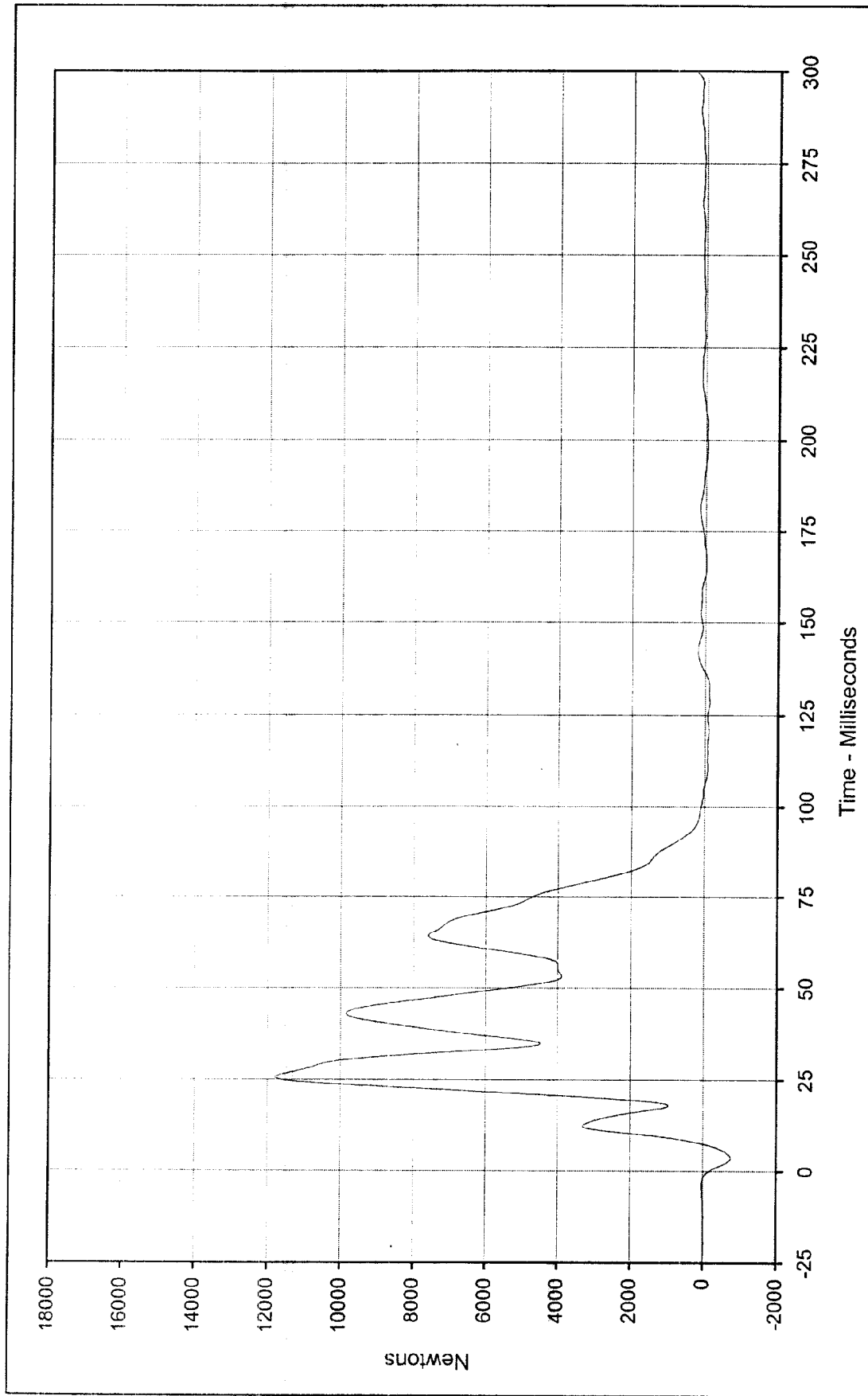




Curve Description: Barrier Force Sum No.3
 Maximum Value: 11835.0 at 42.1 Milliseconds
 Minimum Value: -1957.9 at 2.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: SUM-003

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

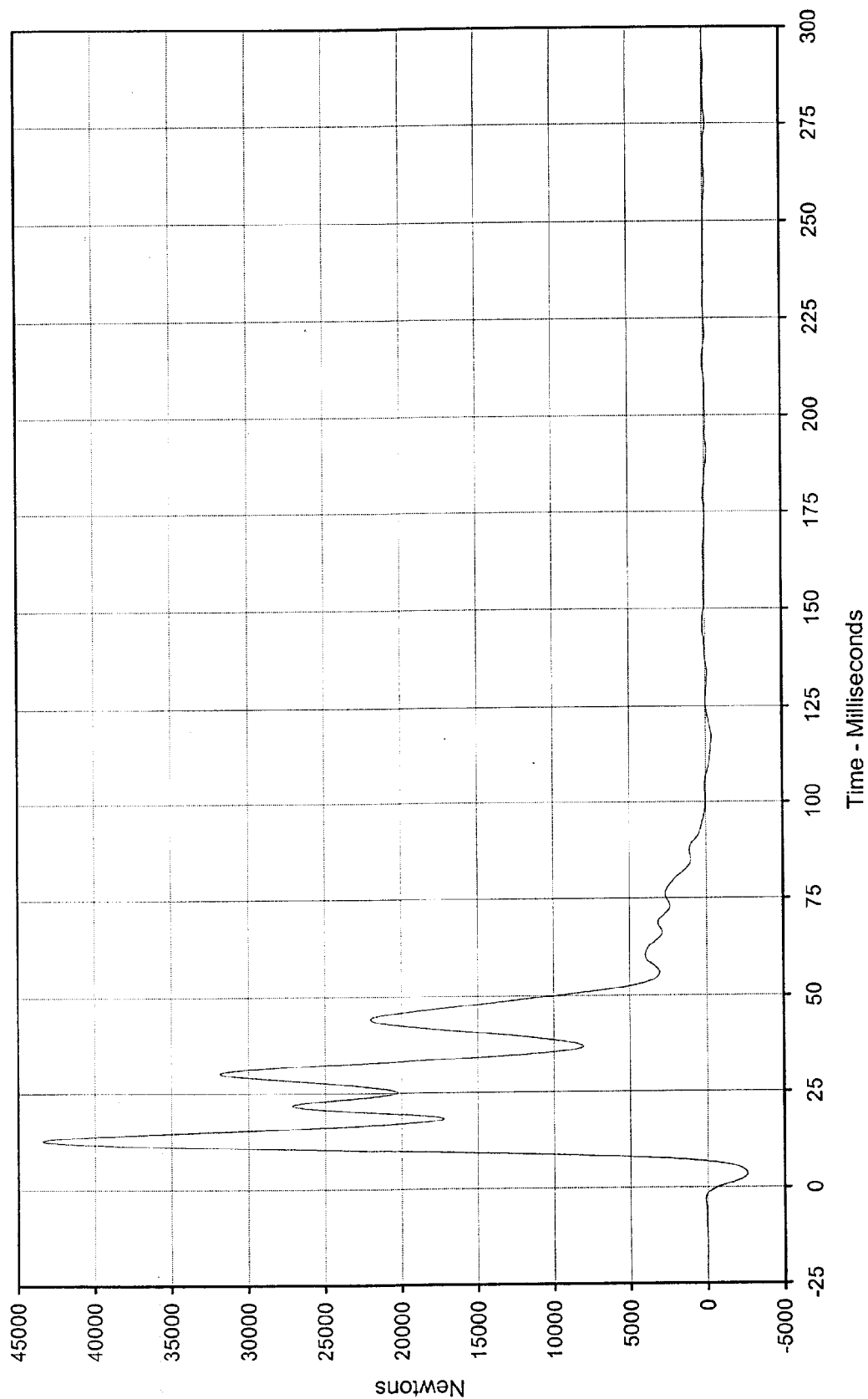




Curve Description: Barrier Force Sum No.4
 Maximum Value: 11786.9 at 25.7 Milliseconds
 Minimum Value: -760.7 at 3.6 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: SUM-004

Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

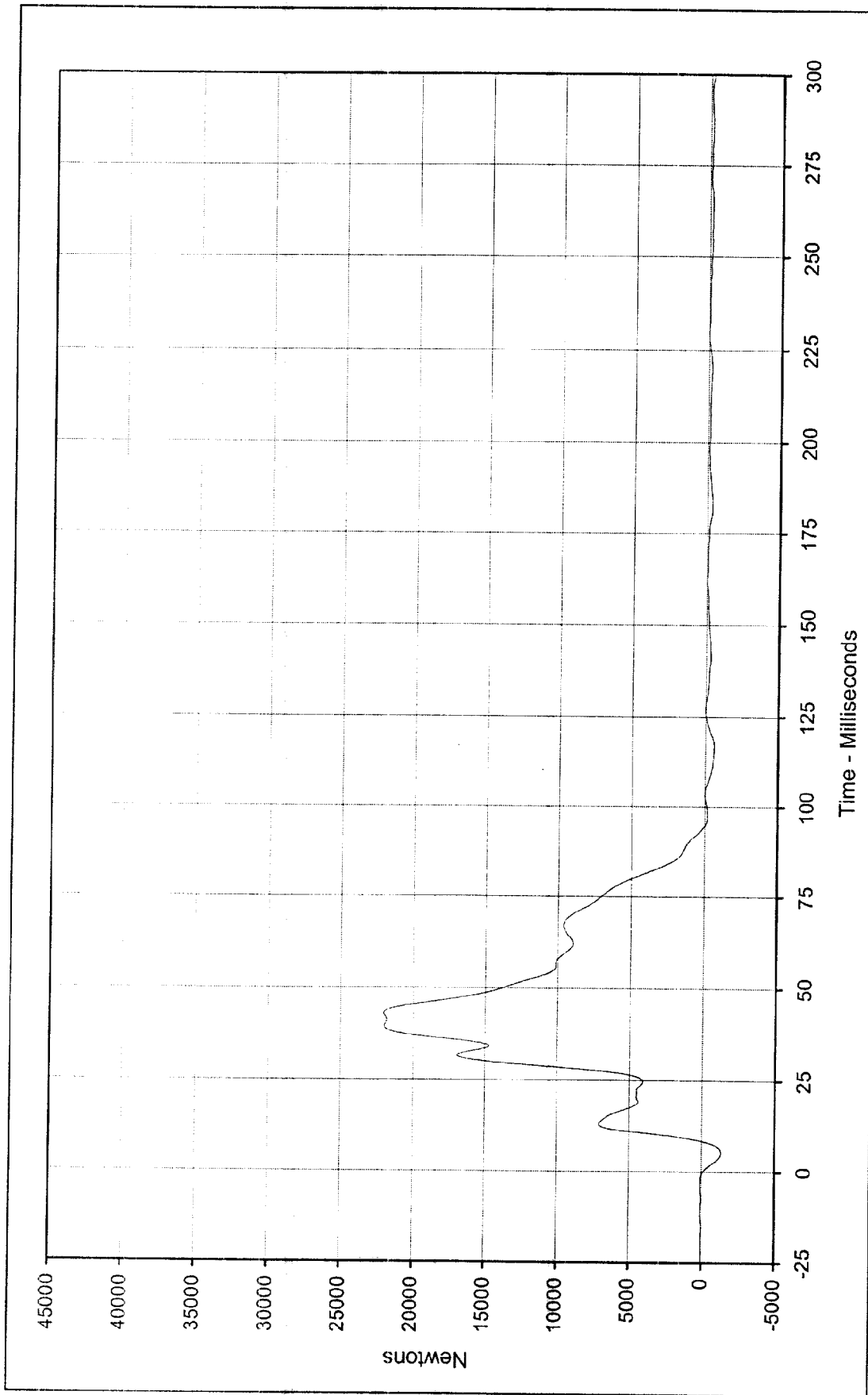




Curve Description: Barrier Force Sum No.5 Test Program: 1999 NHTSA 35 mph NCAP No.: MX5301
Maximum Value: 43401.8 at 12.9 Milliseconds Test Vehicle: 1999 Honda Civic DX 2 Door Coupe
Minimum Value: -2605.7 at 3.4 Milliseconds

SAE Filter Class: 60
Date of Test: 12/18/98
Curve Number: SUM-005

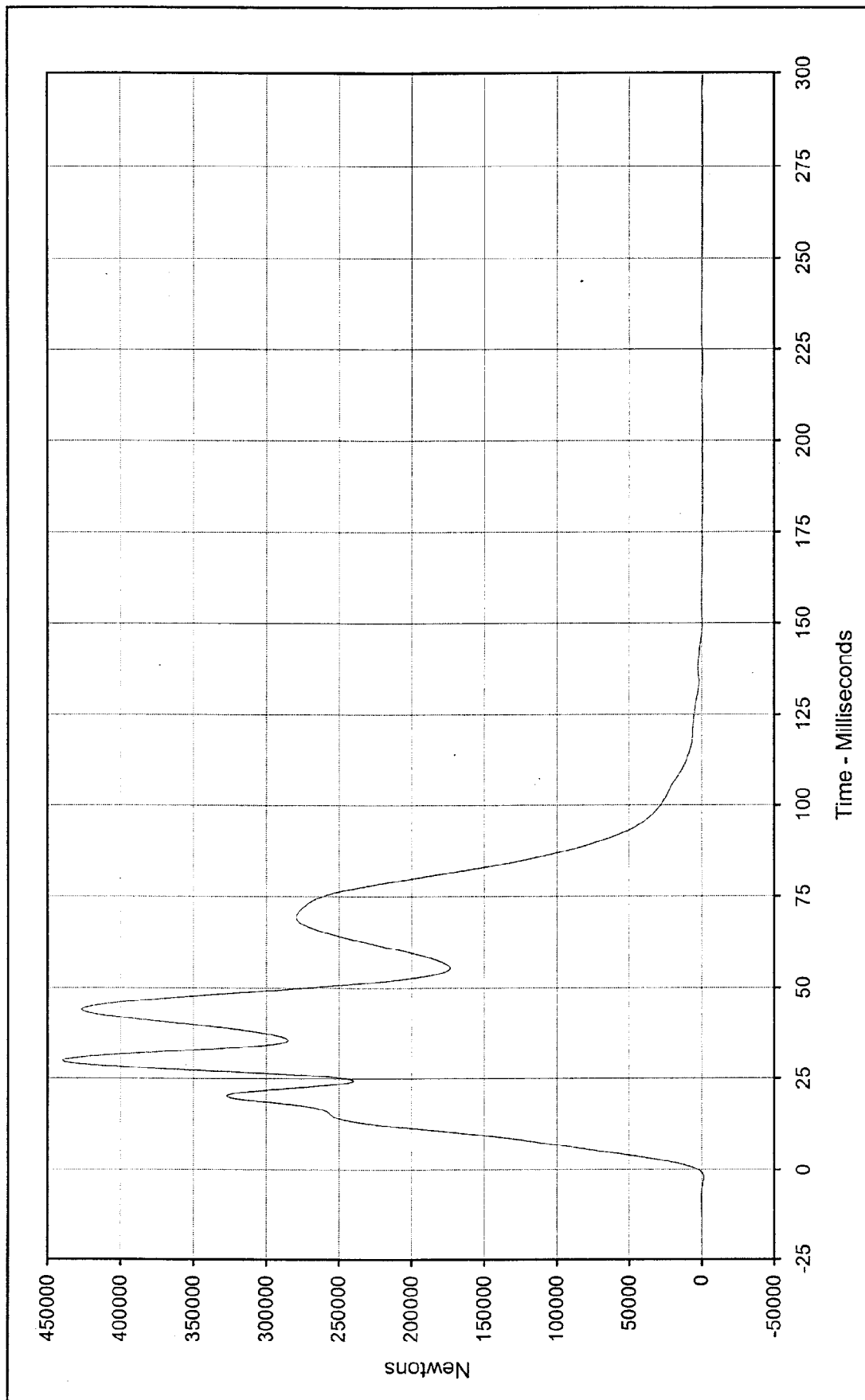




Curve Description: 1999 NHTSA 35 mph NCAP No.: MX5301
 Test Program:
 Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

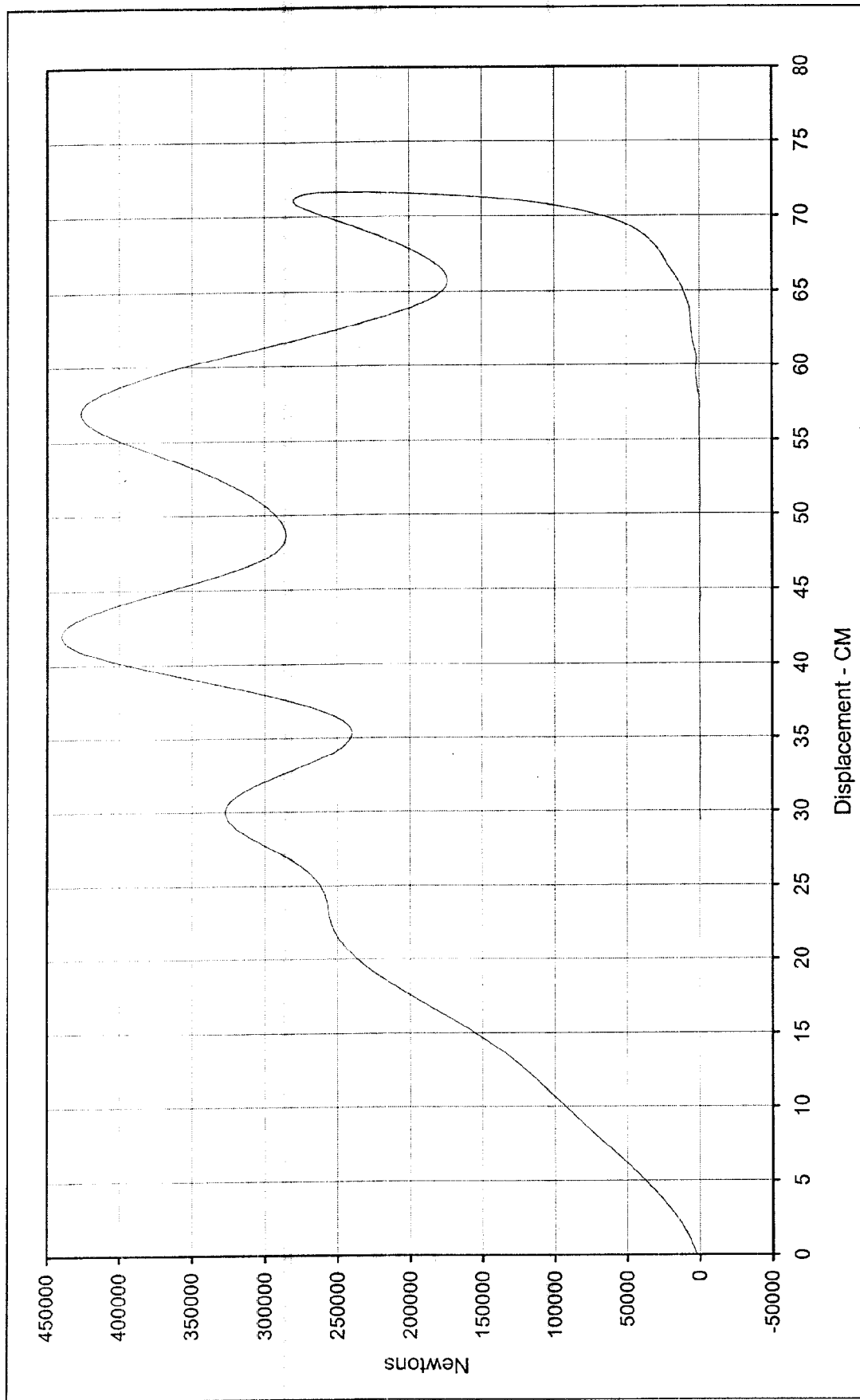
Barrier Force Sum No.6
 Maximum Value: 22034.3 at 43.1 Milliseconds
 Minimum Value: -1331.5 at 5.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/18/98
 Curve Number: SUM-006





Curve Description:	Barrier Force Sum Total	Test Program:	1999 NHTSA 35 mph NCAP	No.: MX5301
Maximum Value:	439862.1 at 29.9 Milliseconds	Test Vehicle:	1999 Honda Civic DX 2 Door Coupe	
Minimum Value:	-1012.8 at 184.9 Milliseconds			
SAE Filter Class:	60			
Date of Test:	12/18/98			
Curve Number:	SUM-007			





Curve Description: 1999 NHTSA 35 mph NCAP No.: MX5301

Test Program:

Test Vehicle: 1999 Honda Civic DX 2 Door Coupe

Maximum Displ.: 71.7 at 76.4 Milliseconds

Maximum Force: 439862.1 at 29.9 Milliseconds

SAE Filter Class: N/A

Date of Test: 12/18/98

Curve Number: XVY-001



BARRIER LOAD CELL SUMMARY DATA

TEST VEHICLE: 1999 HONDA CIVIC DX 2 DOOR COUPE

NHTSA No.: MX5301

TEST PROGRAM: 1999 NHTSA 35 MPH NCAP

TEST DATE: 12/18/98

BARRIER LOAD CELL PEAK FORCES

Location	Units	Max	Time	Min	Time
Barrier Force A2	Newtons	3644.5	78.1	-612.4	17.9
Barrier Force A3	Newtons	12912.9	20.3	-756.0	12.8
Barrier Force A4	Newtons	9074.5	20.2	-813.2	35.1
Barrier Force A5	Newtons	34172.4	18.1	-4084.6	25.1
Barrier Force A6	Newtons	8171.7	18.8	-3892.1	24.8
Barrier Force A7	Newtons	8689.3	18.9	-2762.9	25.2
Barrier Force A8	Newtons	1995.6	75.0	-410.9	3.7
Barrier Force A9	Newtons	990.6	24.3	-1473.9	30.7
Barrier Force B2	Newtons	12447.2	43.4	-281.5	3.4
Barrier Force B3	Newtons	100311.9	19.8	-1090.8	2.5
Barrier Force B4	Newtons	130840.8	29.1	-90.3	299.9
Barrier Force B5	Newtons	52637.8	44.3	10.7	194.0
Barrier Force B6	Newtons	31528.3	44.5	-91.6	180.2
Barrier Force B7	Newtons	71852.1	14.1	-907.4	1.4
Barrier Force B8	Newtons	68643.4	38.8	-468.0	4.4
Barrier Force B9	Newtons	980.7	25.5	-1418.8	20.6
Barrier Force C2	Newtons	6084.8	39.8	-368.6	23.7
Barrier Force C3	Newtons	11563.6	25.0	-507.5	3.3
Barrier Force C4	Newtons	23174.9	13.0	-1046.3	3.8
Barrier Force C5	Newtons	14896.6	30.7	-857.9	3.2
Barrier Force C6	Newtons	10596.6	13.0	-717.3	3.8
Barrier Force C7	Newtons	13635.5	41.4	-688.2	4.4
Barrier Force C8	Newtons	8839.6	43.5	-450.5	4.8
Barrier Force C9	Newtons	827.1	71.5	-523.5	32.1
Barrier Force Sum No.1	Newtons	114484.4	20.1	-2134.7	2.8
Barrier Force Sum No.2	Newtons	215904.5	29.6	-198.6	170.2
Barrier Force Sum No.3	Newtons	113835.0	42.1	-1957.9	2.1
Barrier Force Sum No.4	Newtons	11786.9	25.7	-760.7	3.6
Barrier Force Sum No.5	Newtons	43401.8	12.9	-2605.7	3.4
Barrier Force Sum No.6	Newtons	22034.3	43.1	-1331.5	5.1
Barrier Force Sum Total	Newtons	439862.1	29.9	-1012.8	184.9

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

APPENDIX D
INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 34
12/18/98
1999 Honda Civic DX 2 Door Coupe

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

1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 34
12/18/98
1999 Honda Civic DX 2 Door Coupe

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

1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 35
12/18/98
1999 Honda Civic DX 2 Door Coupe

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
45	HEAD, PRIMARY	X	GPAC027	Accel., 1/2 bridge	Endevco	7264-2000	G
46	HEAD, PRIMARY	Y	GPAC002	Accel., 1/2 bridge	Endevco	7264-2000	G
47	HEAD, PRIMARY	Z	GPAC003	Accel., 1/2 bridge	Endevco	7264-2000	G
48	HEAD, REDUNDANT	X	GPAC032	Accel., 1/2 bridge	Endevco	7264-2000	G
49	HEAD, REDUNDANT	Y	GPAC021	Accel., 1/2 bridge	Endevco	7264-2000	G
50	HEAD, REDUNDANT	Z	GPAC026	Accel., 1/2 bridge	Endevco	7264-2000	G
51	NECK FORCE	X	GPUN01FX	Load cell, six axis neck	R. A. Denton	1716A	N
52	NECK FORCE	Y	GPUN01FY	Load cell, six axis neck	R. A. Denton	1716A	N
53	NECK FORCE	Z	GPUN01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
54	NECK MOMENT	X	GPUN01MX	Load cell, six axis neck	R. A. Denton	1716A	N.m
55	NECK MOMENT	Y	GPUN01MY	Load cell, six axis neck	R. A. Denton	1716A	N.m
56	NECK MOMENT	Z	GPUN01MZ	Load cell, six axis neck	R. A. Denton	1716A	N.m
57	CHEST, PRIMARY	X	GPAC005	Accel., 1/2 bridge	Endevco	7264-2000	G
58	CHEST, PRIMARY	Y	GPAC011	Accel., 1/2 bridge	Endevco	7264-2000	G
59	CHEST, PRIMARY	Z	GPAC010	Accel., 1/2 bridge	Endevco	7264-2000	G
60	CHEST, REDUNDANT	X	GPAC034	Accel., 1/2 bridge	Endevco	7264-2000	G
61	CHEST, REDUNDANT	Y	GPAC023	Accel., 1/2 bridge	Endevco	7264-2000	G
62	CHEST, REDUNDANT	Z	GPAC020	Accel., 1/2 bridge	Endevco	7264-2000	G
63	CHEST DISPLACEMENT	X	GPCP002	Rotary Pot Chest	Servo	14CBI	MM
64	PELVIS, PRIMARY	X	GPAC025	Accel., 1/2 bridge	Endevco	7264-2000	G
65	PELVIS, PRIMARY	Y	GPAC022	Accel., 1/2 bridge	Endevco	7264-2000	G
66	PELVIS, PRIMARY	Z	GPAC019	Accel., 1/2 bridge	Endevco	7264-2000	G
67	LEFT FEMUR FORCE	Z	KEFF001	Load cell, Femur	R.A. Denton	2121	N
68	RIGHT FEMUR FORCE	Z	GPLC001	Load cell, Femur	G.S.E.	2430	N

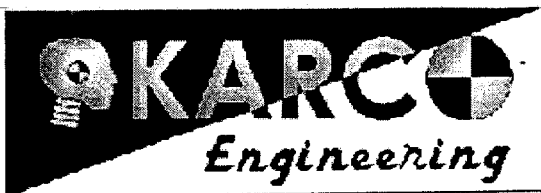
1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 35
12/18/98
1999 Honda Civic DX 2 Door Coupe

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
70	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
71	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
72	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	N.m
73	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	N.m
74	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	N.m
75	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
76	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	N.m
77	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	N.m
78	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
79	FOOT LEFT	X	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT	Y	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT	Y	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT	Z	KEIC001Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	X	KELC003	Load cell, Seat belt	Lebow	3371	N
86	SHOULDER BELT FORCE	X	KELC004	Load cell, Seat belt	Lebow	3371	N
87	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	CM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

1999 NHTSA 35 mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers
12/18/98
1999 Honda Civic DX 2 Door Coupe

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	Left Rear X-Member (Pri.)	X	KEVA005	Accel., Vehicle block	I.C. Sensor	3031-500	G
90	Right Rear X-Member (Pri.)	X	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
91	Engine Top	X	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	G
92	Engine Bottom	X	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-500	G
93	Left Brake Caliper	X	KEVA008	Accel., Vehicle block	I.C. Sensor	3031-500	G
94	Right Brake Caliper	X	KEVA009	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	Instrument Panel	X	KEVA004	Accel., Vehicle block	I.C. Sensor	3031-500	G
96	Left Rear X-Member (Rednt.)	X	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-200	G

APPENDIX E
DUMMY CALIBRATION DATA



Hybrid III Calibration Data Sheet

50TH Percentile Male

Left Knee Impact Test

ATD Serial No.: 34

Part Serial No.: n/a

Test I.D.: KI12A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.116	Pass
Peak Probe Force	Newtons	4715 to 5782	5425.1	Pass
Overall Test Results				Pass



Laboratory Technician



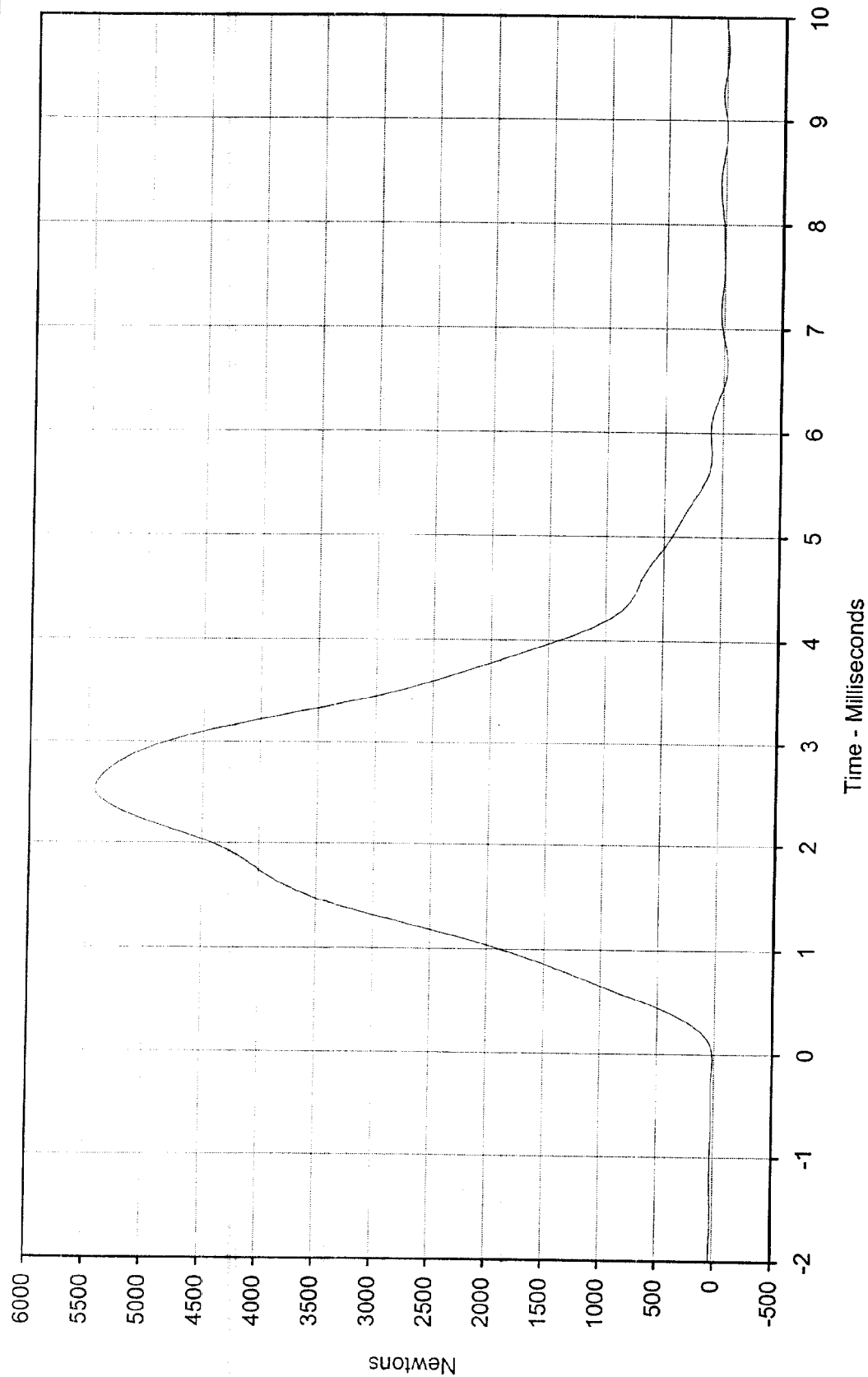
Approved By

December 12, 1998

Test Date

12/21/98

Date



Curve Description:

Probe Force	
Maximum Value:	5425.1 at 2.5 Milliseconds
Minimum Value:	-30.8 at 6.7 Milliseconds
SAE Filter Class:	600
Date of Test:	12/12/98
ATD Serial No.:	34

Testing Program

Hybrid III Left Knee Impact Test

Test Information:

Part S/N: n/a Test I.D.: K112A





Hybrid III Calibration Data Sheet

50TH Percentile Male

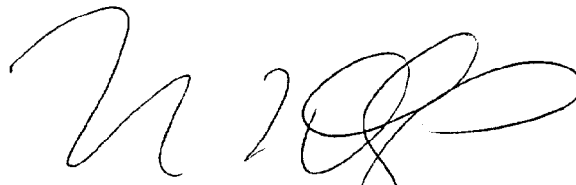
Right Knee Impact Test

ATD Serial No.: 34

Part Serial No.: n/a

Test I.D.: KI12B

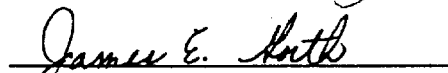
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.091	Pass
Peak Probe Force	Newtons	4715 to 5782	5185.5	Pass
Overall Test Results				Pass



Laboratory Technician

December 12, 1998

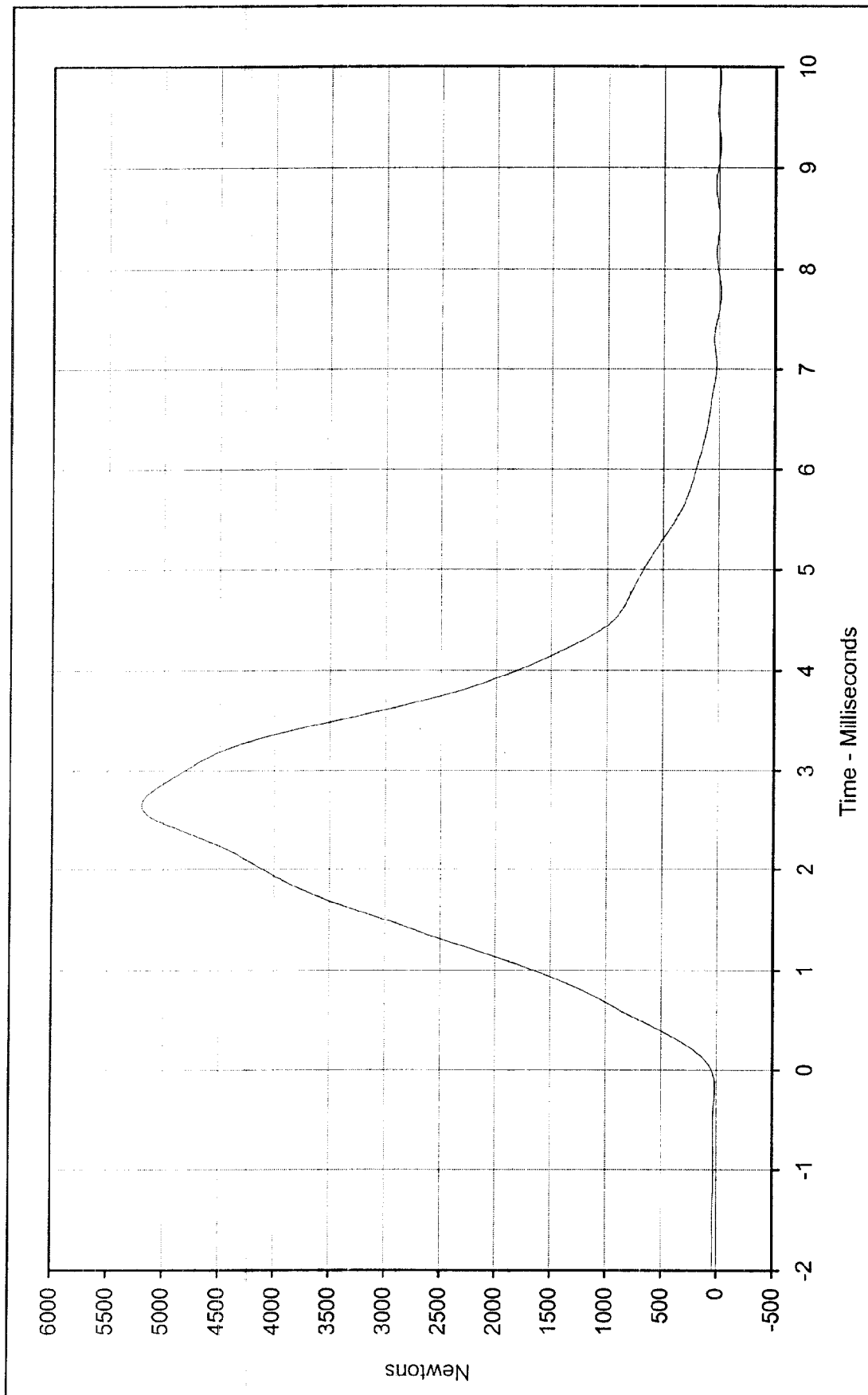
Test Date



Approved By

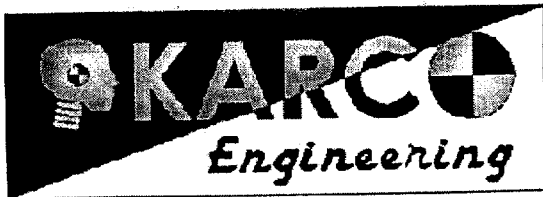
12/21/98

Date



Curve Description:		Testing Program	Hybrid III Right Knee Impact Test
Maximum Value:	5185.5	Part S/N:	n/a
Minimum Value:	-15.2	Test I.D.:	K112B
SAE Filter Class:	600		
Date of Test:	12/12/98		
ATD Serial No.:	34		





Hybrid III Calibration Data Sheet

50TH Percentile Male

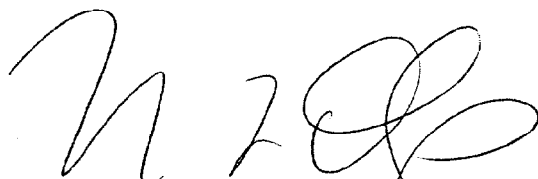
Head Drop Calibration

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: HD12A

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



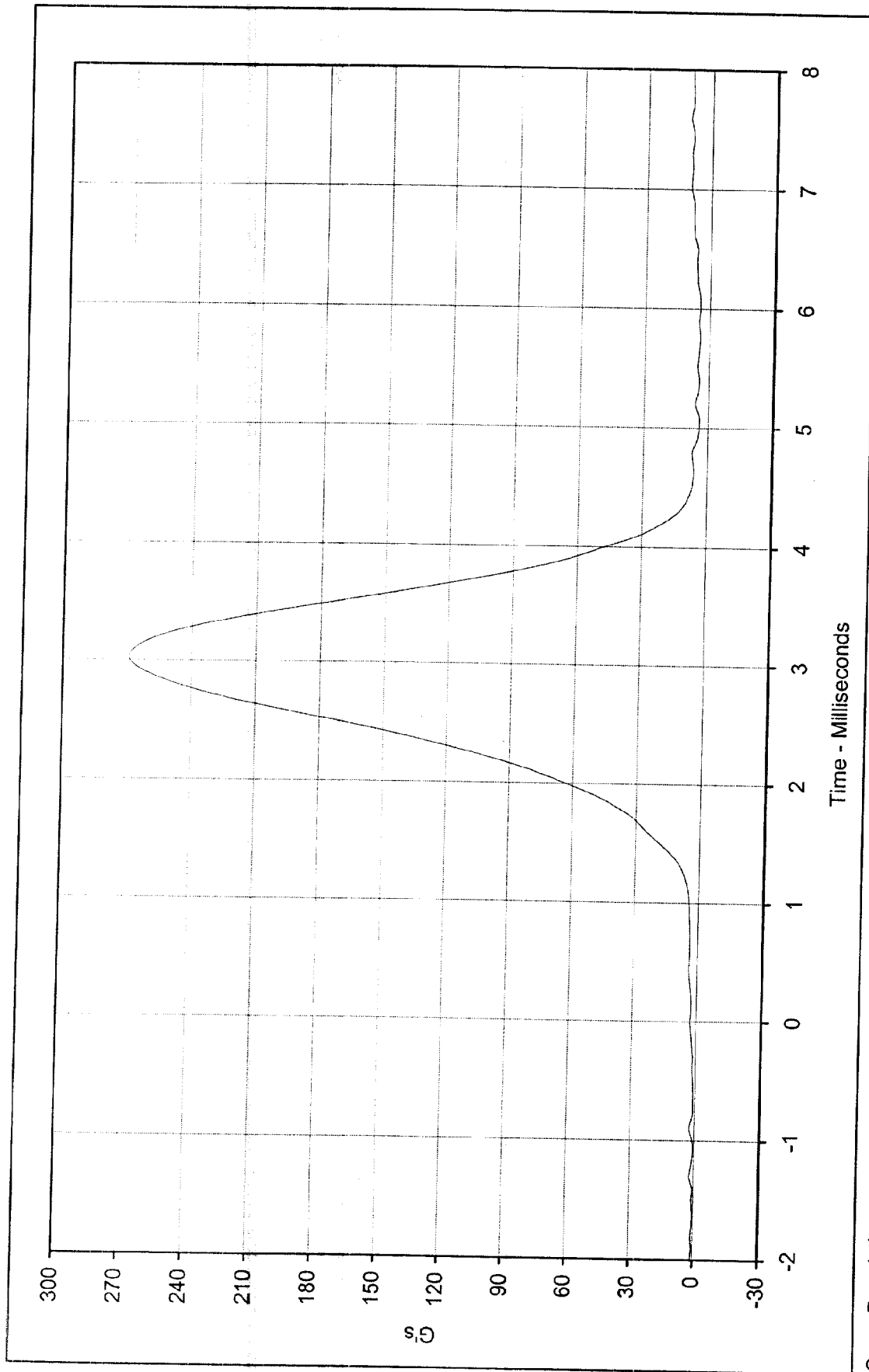
Laboratory Technician



Approved By

December 7, 1998
Test Date

12/21/98
Date



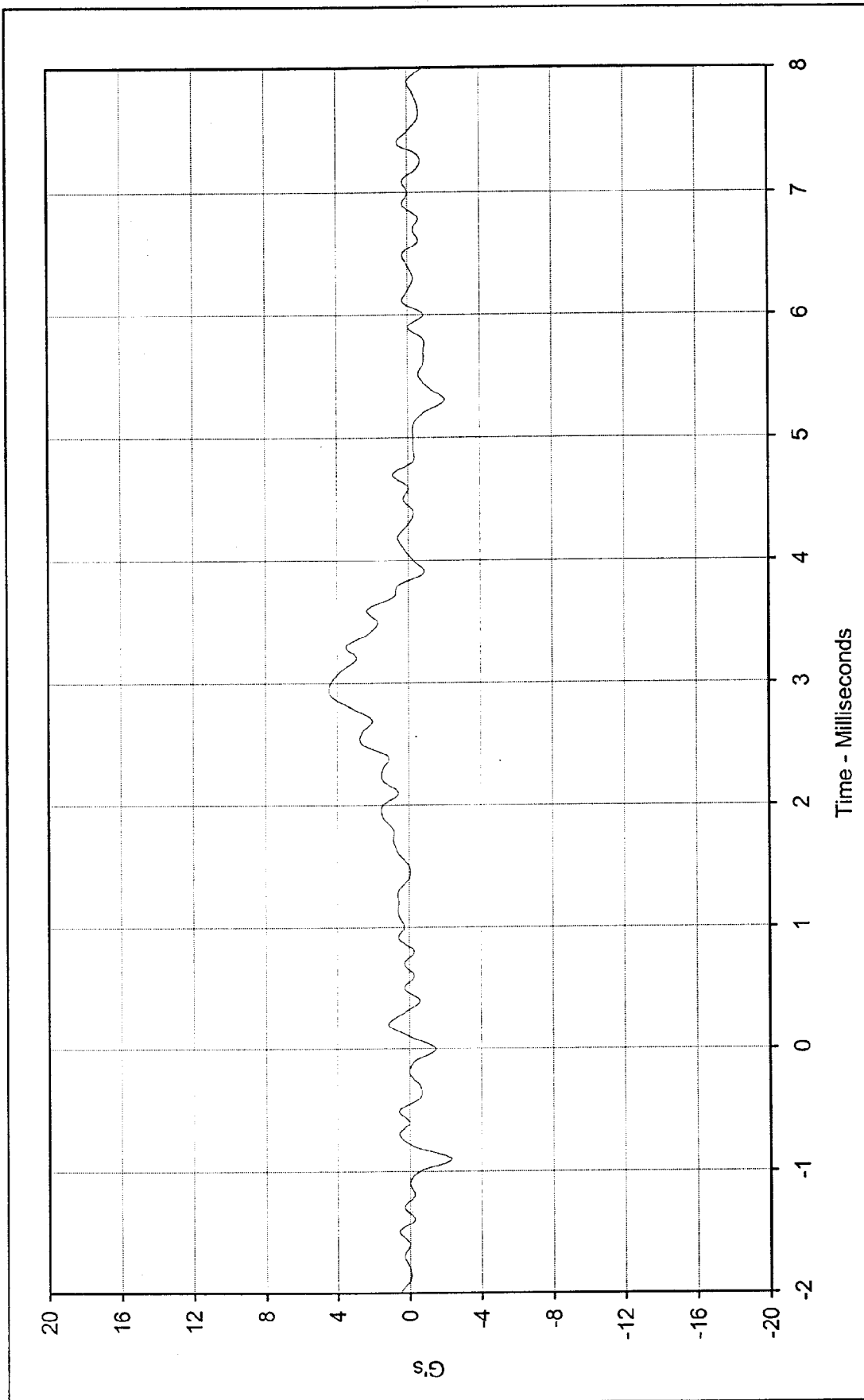
Curve Description: Head Resultant Acceleration

Maximum Value:	268.5	at	3.0	Milliseconds
Minimum Value:	0.4	at	-1.6	Milliseconds
SAE Filter Class:	1000			
Date of Test:	12/7/98			
ATD Serial No.:	034			

Testing Program Hybrid III Head Drop Calibration (Male)

Test Information: S/N of Part: n/a Test I.D.: HD12A

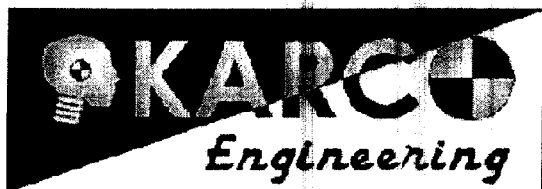




Curve Description: Head Acceleration Y Axis
 Testing Program Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: HD12A

Maximum Value: 4.4 at 2.9 Milliseconds
 Minimum Value: -2.3 at -0.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/7/98
 ATD Serial No.: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male

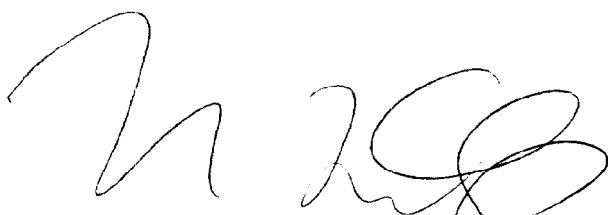
Thorax Impact Test

ATD Serial No.: 034

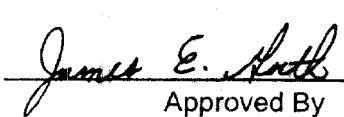
Part Serial No.: N/A

Test I.D.: CH12A

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	6.75	Pass
Peak Probe Force	Newtons	5159 to 5893	5552	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.56	Pass
Internal Hysteresis	%	69 to 85	76.8	Pass
Overall Test Results				Pass



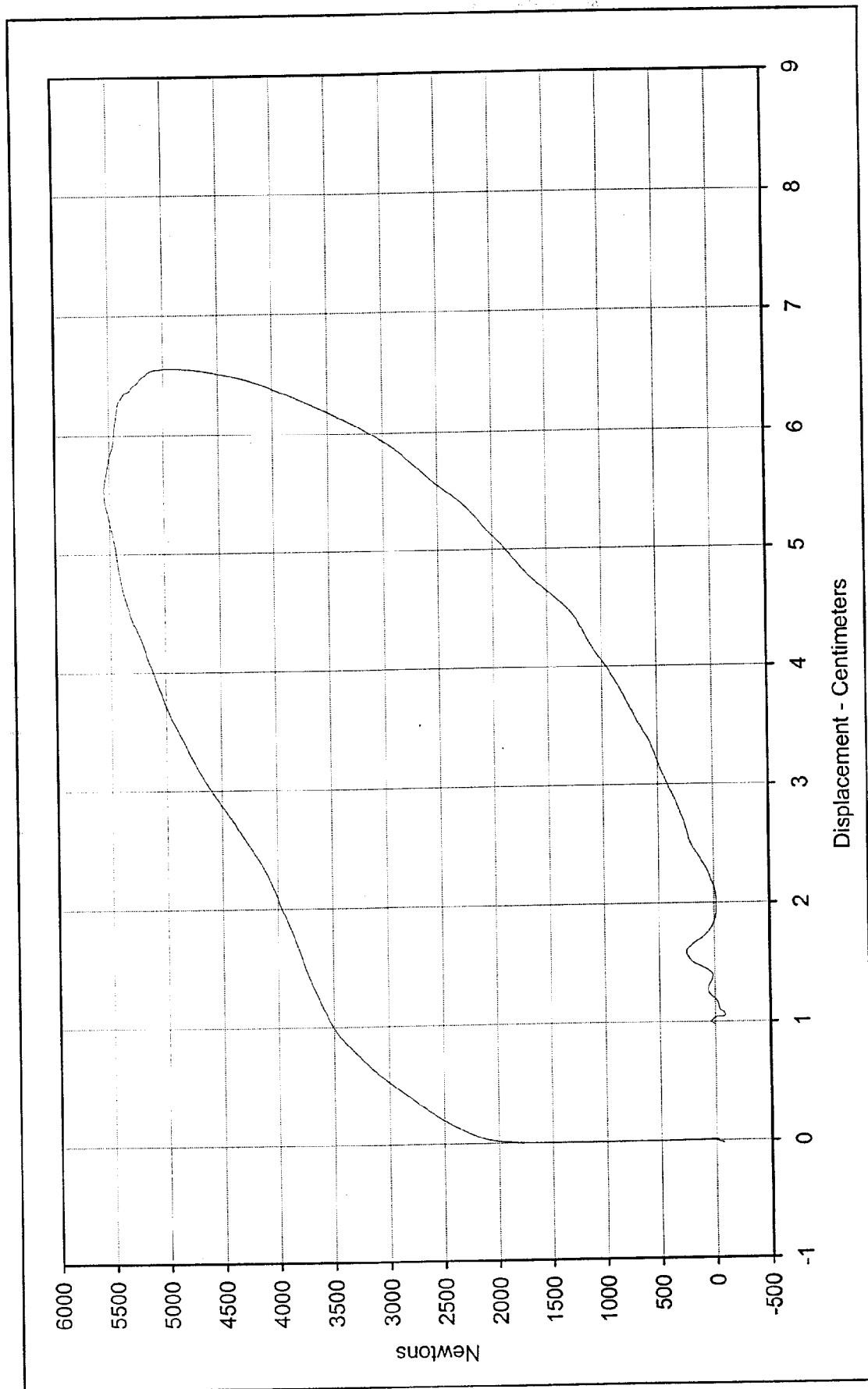
Laboratory Technician



Approved By

December 14, 1998
Test Date

12/21/98
Date



Curve Description: Probe Force vs. Chest Displacement
 Testing Program: Hybrid III Thorax Impact Test
 Test Information: S/N of Part: N/A Test I.D.: CH12A

Probe Force: 5551.8 Newtons
 Chest Displ.: 6.56 Centimeters
 SAE Filter Class: 180
 Date of Test: 12/14/98
 ATD Serial No.: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male

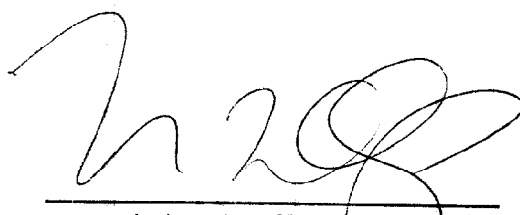
Neck Flexion Test

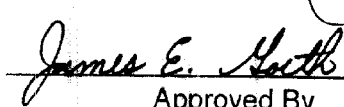
ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: NB12A

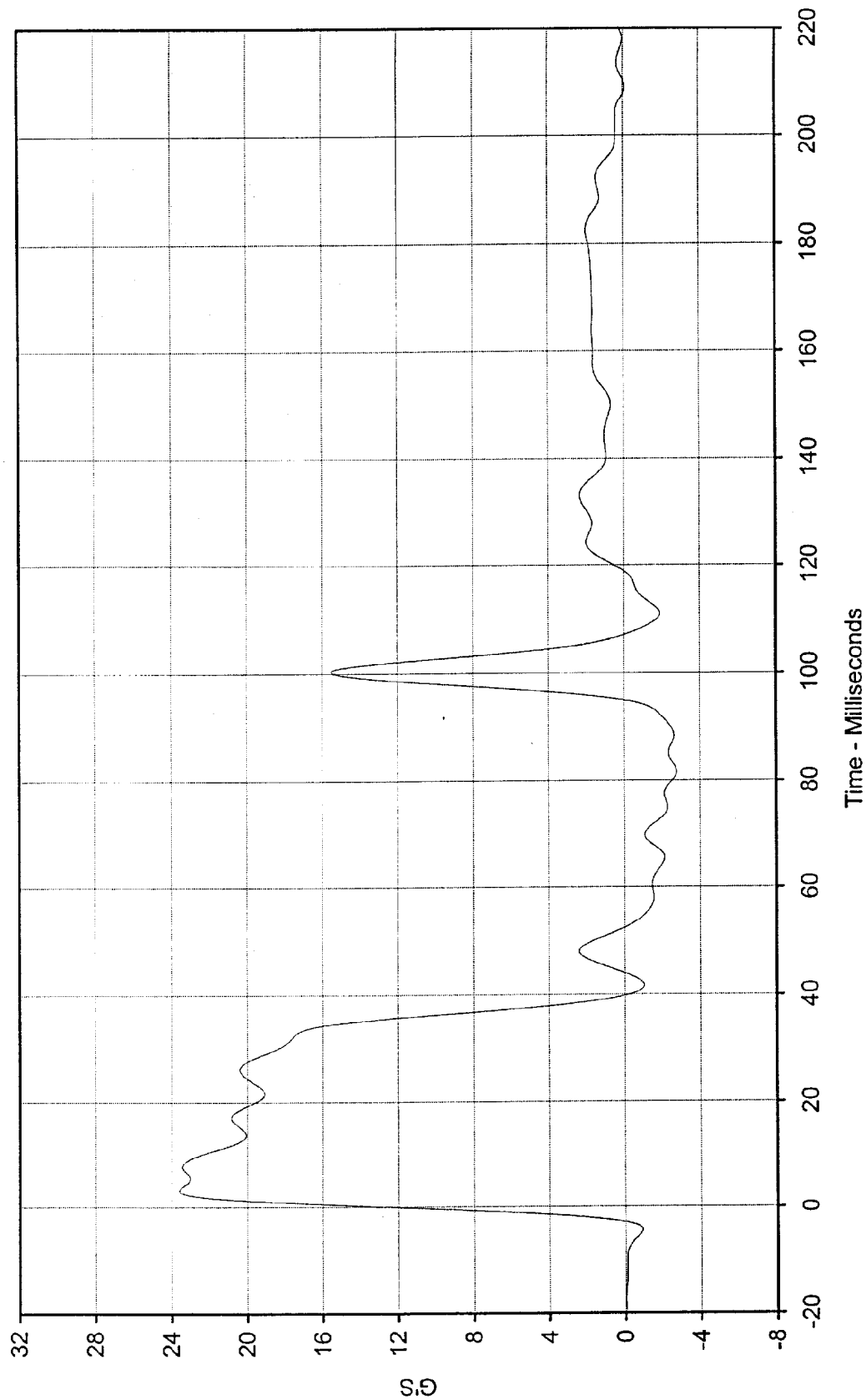
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity		%	10 to 70	40	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	22.6	Pass
	20 Msec.	G's	17.6 to 22.6	19.6	Pass
	30 Msec.	G's	12.5 to 18.5	18.4	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	18.4	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	37.7	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	64.7	Pass
	Time	Msec.	57.0 to 64.0	63.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	115.3	Pass
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	87.7	Pass
	Time	Msec.	47.0 to 58.0	54.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	100.9	Pass
Overall Test Results					Pass


 Laboratory Technician


 Approved By

December 14, 1998
 Test Date

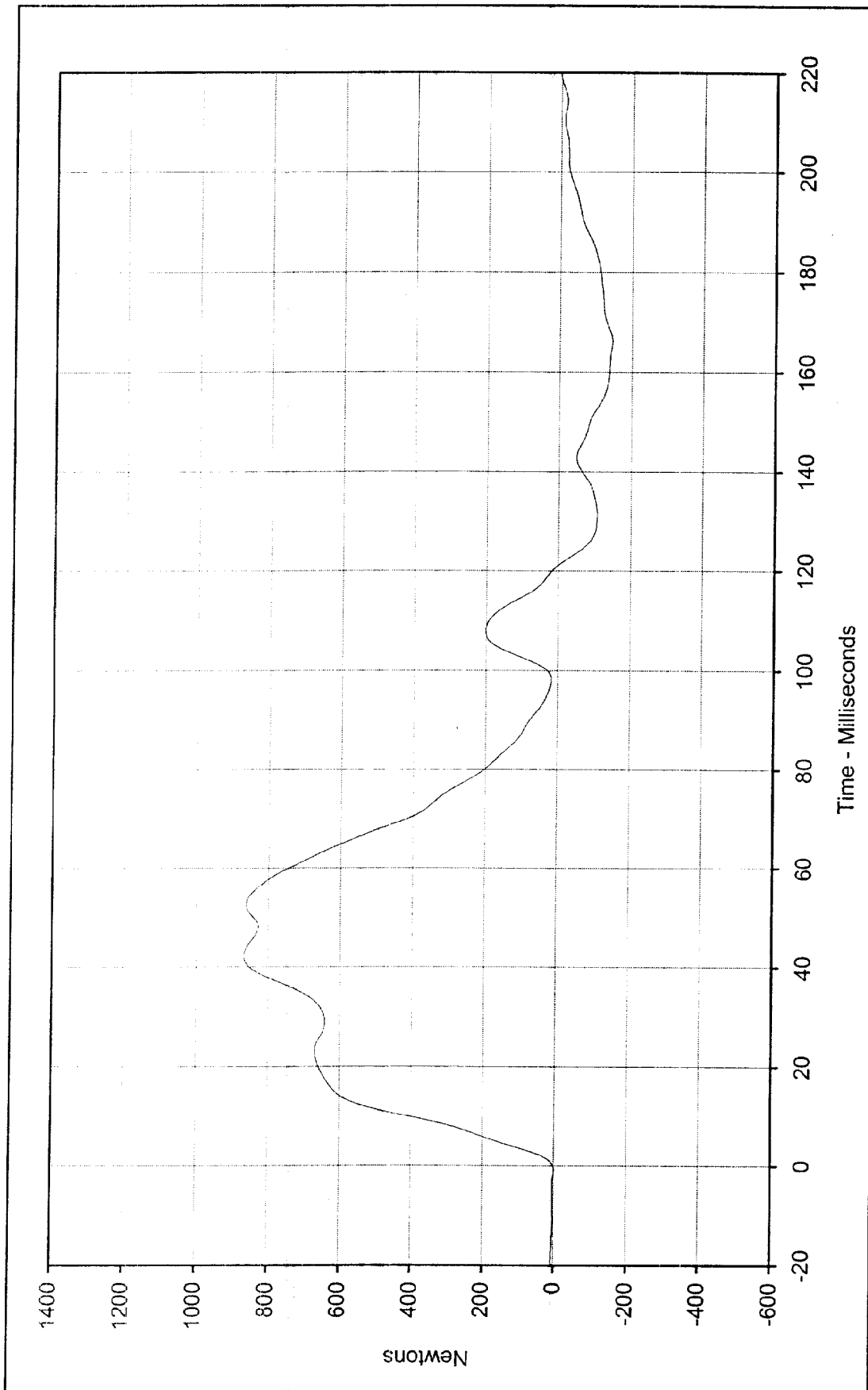
12/21/98
 Date



Curve Description: Pendulum Deceleration
 Maximum Value: 23.6 at 3.3 Milliseconds
 Minimum Value: -2.8 at 81.6 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/14/98
 ATD Serial No.: 034

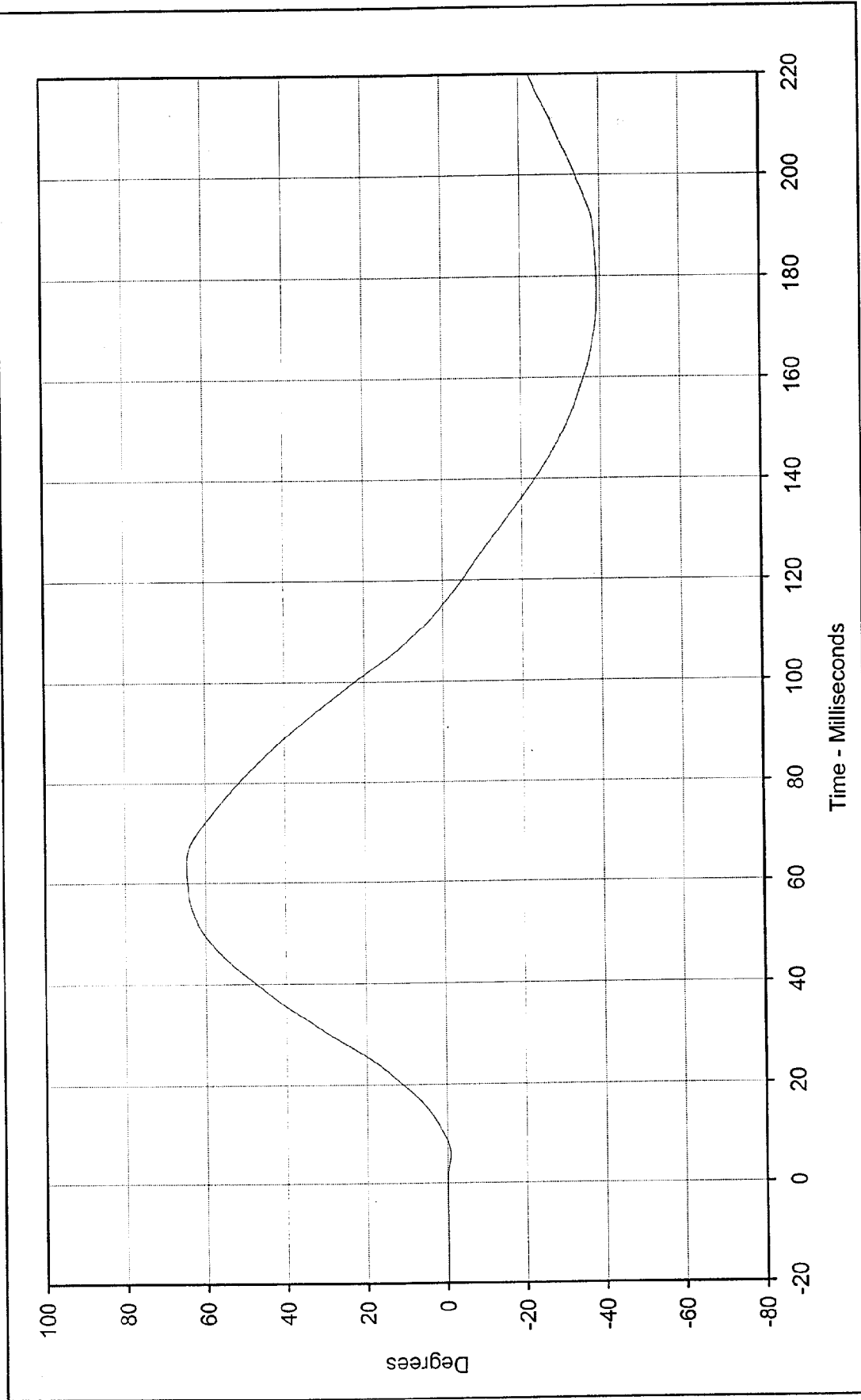
Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NB12A





Curve Description:	Neck Force X		Testing Program	Hybrid III Neck Flexion Test (Male)
	Maximum Value:	867.2	at	42.2
	Minimum Value:	-145.3	at	166.2
	SAE Filter Class:	60		
	Date of Test:	12/14/98		
	ATD Serial No.:	034		
			Test Information:	S/N of Part: n/a Test I.D.: NB12A

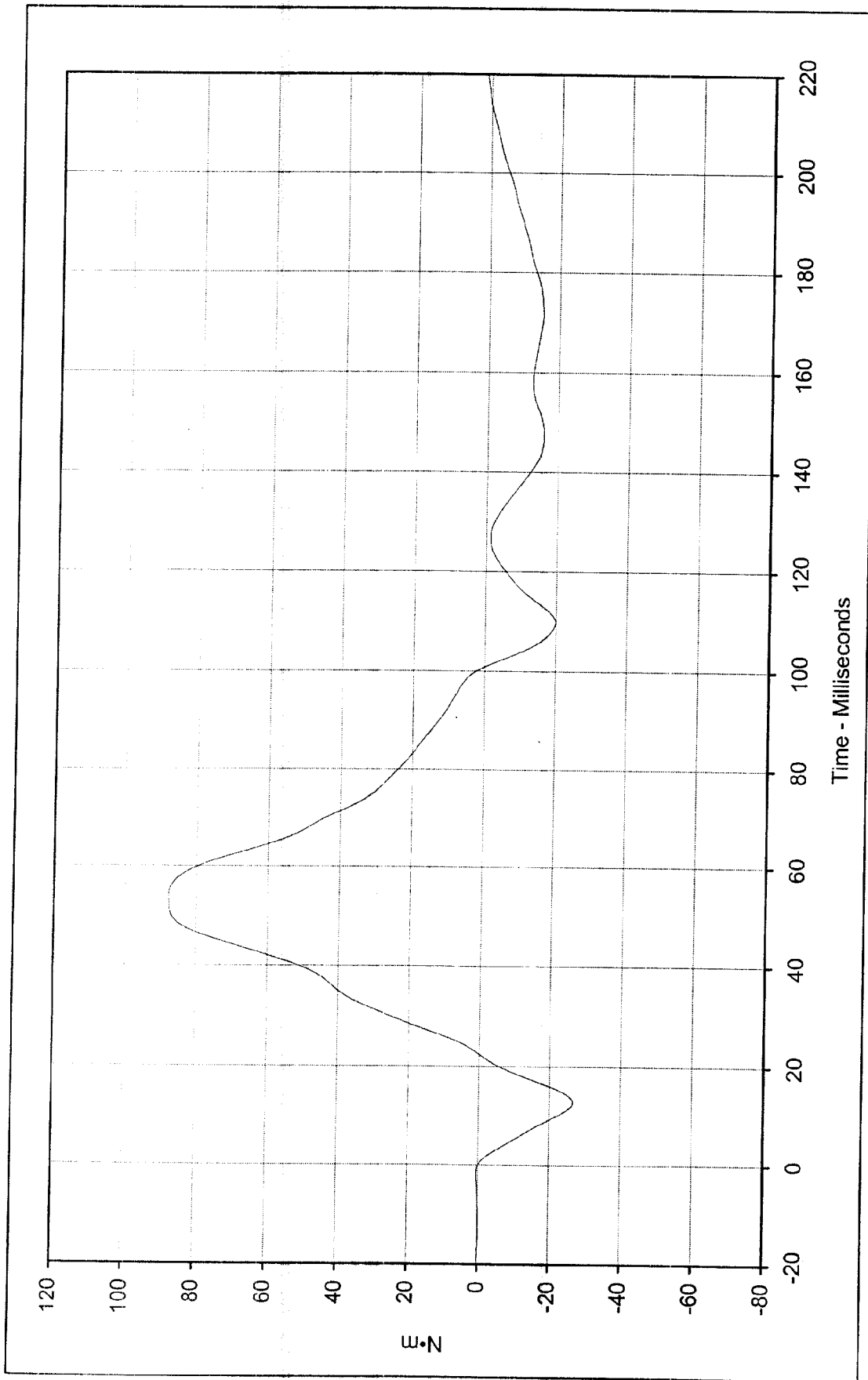




Testing Program: Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NB12A

Curve Description: "D" Plane Rotation
 Maximum Value: 64.7 at 63.5 Milliseconds
 Minimum Value: -39.2 at 177.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/14/98
 ATD Serial No.: 034

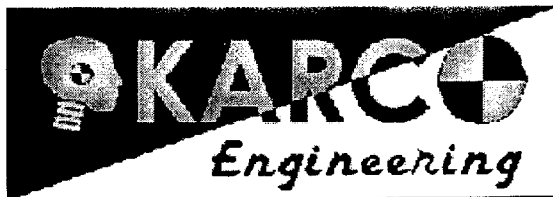




Curve Description: Moment About Occipital Condyles
 Maximum Value: 87.7 at 54.1 Milliseconds
 Minimum Value: -26.6 at 12.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/14/98
 ATD Serial No.: 034

Testing Program Hybrid III Neck Flexion Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NB12A





Hybrid III Calibration Data Sheet

50TH Percentile Male

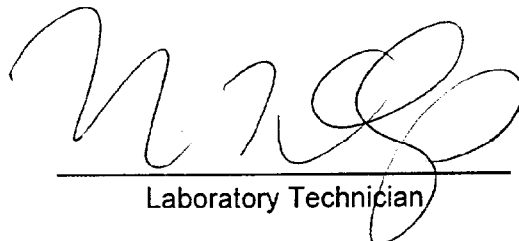
Neck Extension Test

ATD Serial No.: 034

Part Serial No.: n/a

Test I.D.: NE12B

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	6.17	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.5	Pass
	20 Msec.	G's	14.0 to 19.0	17.1	Pass
	30 Msec.	G's	11.0 to 16.0	15.8	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.8	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	38.2	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	96.1	Pass
	Time	Msec.	72.0 to 82.0	73.3	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	161.9	Pass
Moment About Occipital Condyle	Maximum	N • m	-52.9 to- 79.9	-71.7	Pass
	Time	Msec.	65.0 to 79.0	67.8	Pass
Negative Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	136.2	Pass
Overall Test Results					Pass


Laboratory Technician

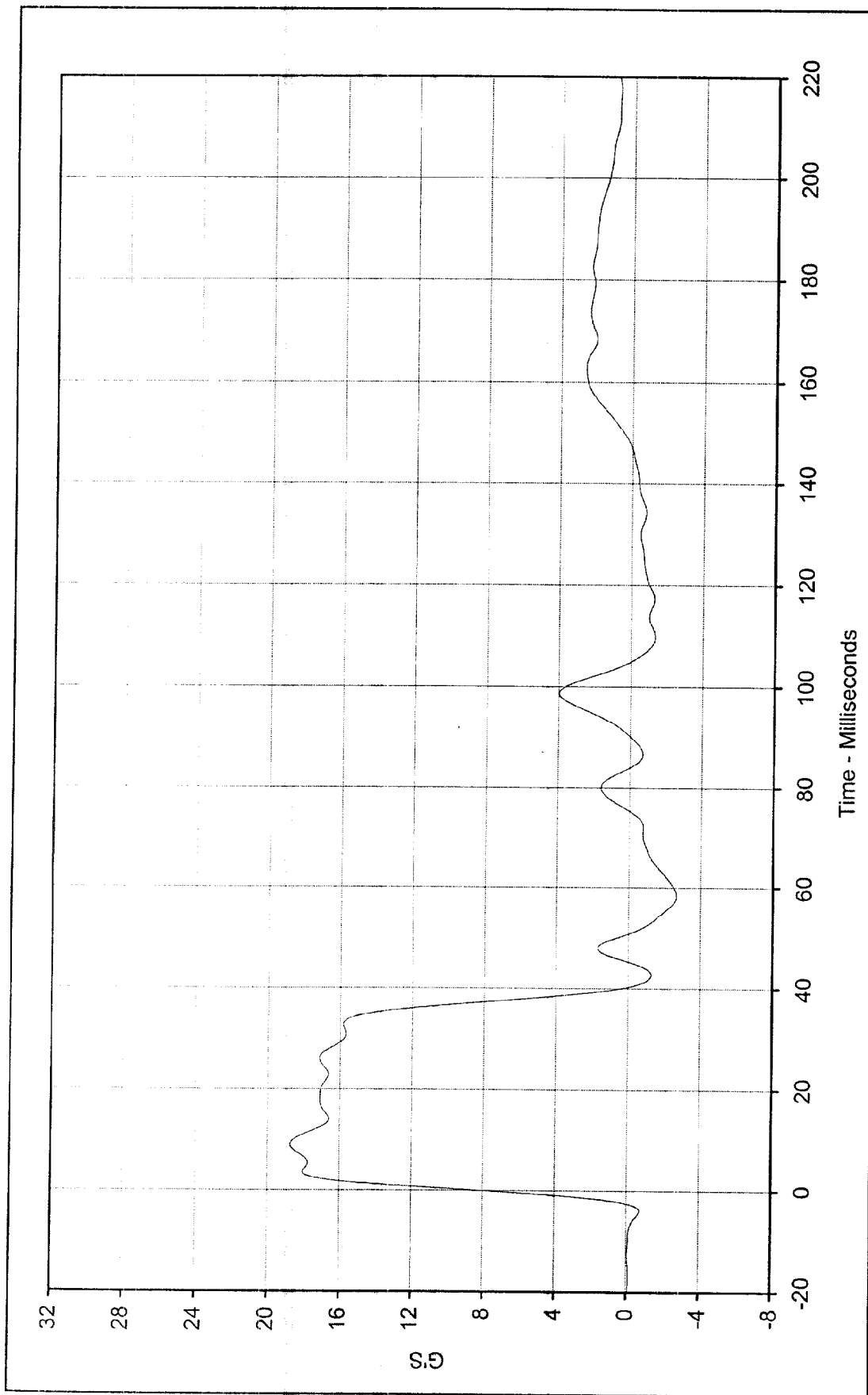

Approved By

December 14, 1998

Test Date

12/21/98

Date

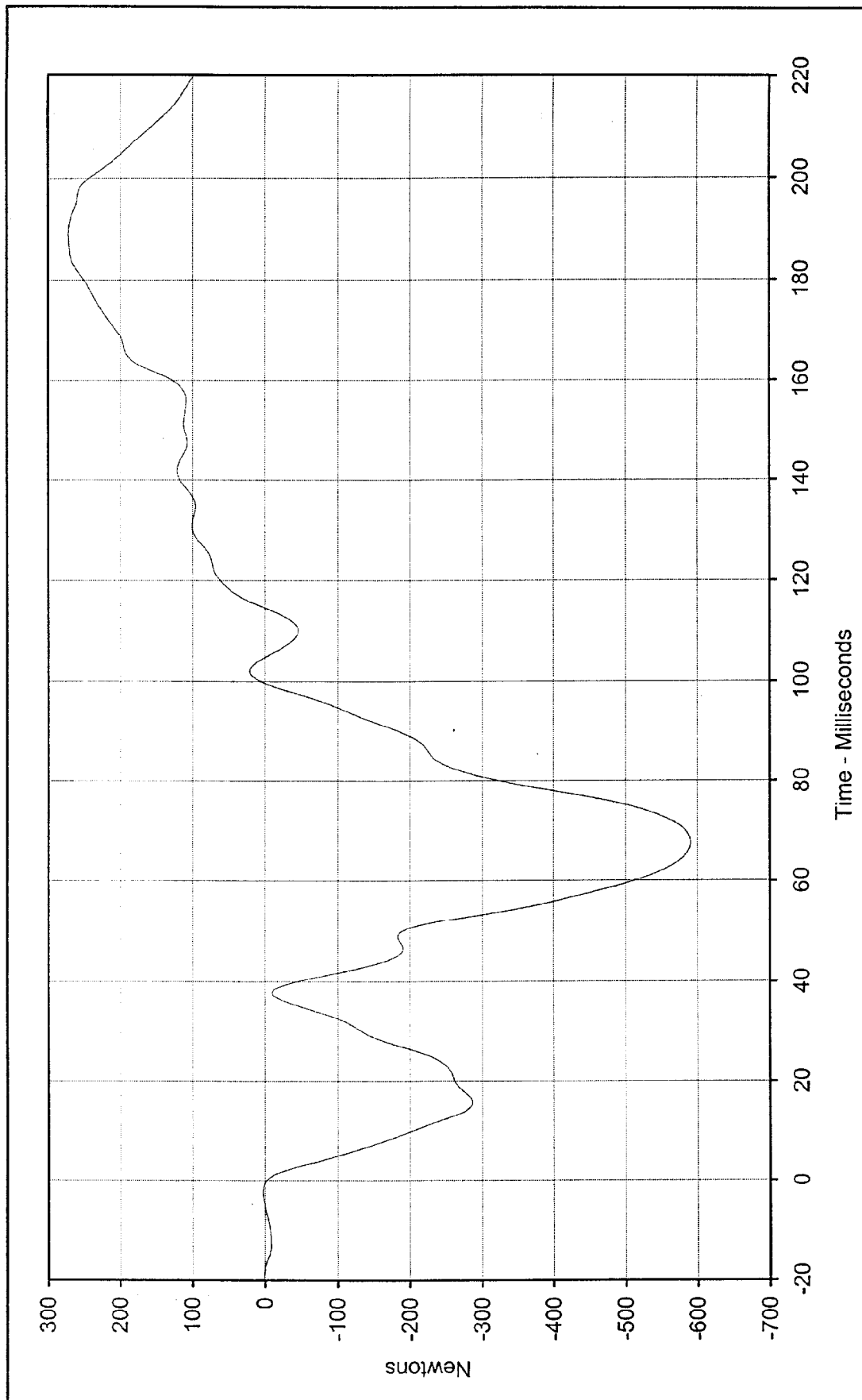


Curve Description:	Pendulum Deceleration		Testing Program	Hybrid III Neck Extension Test (Male)
Maximum Value:	18.7	at 9.0	Test Information:	S/N of Part: n/a Test I.D.: NE12B
Minimum Value:	-2.7	at 58.3		
SAE Filter Class:	60			
Date of Test:	12/14/98			
ATD Serial No.:	034			



KARCO
Engineering

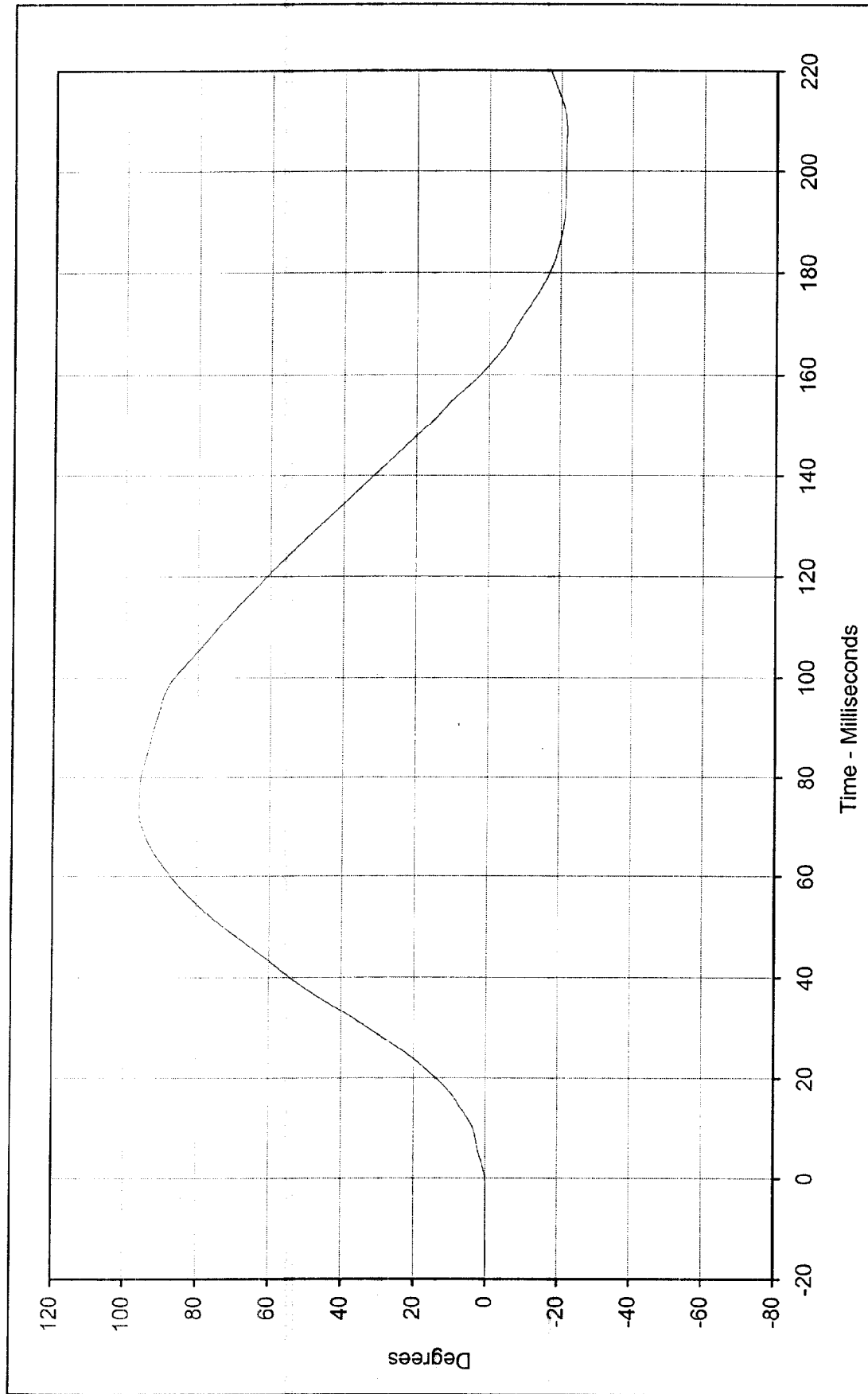




Curve Description: Neck Force X
 Maximum Value: 272.2 at 189.2 Milliseconds
 Minimum Value: -590.6 at 67.4 Milliseconds

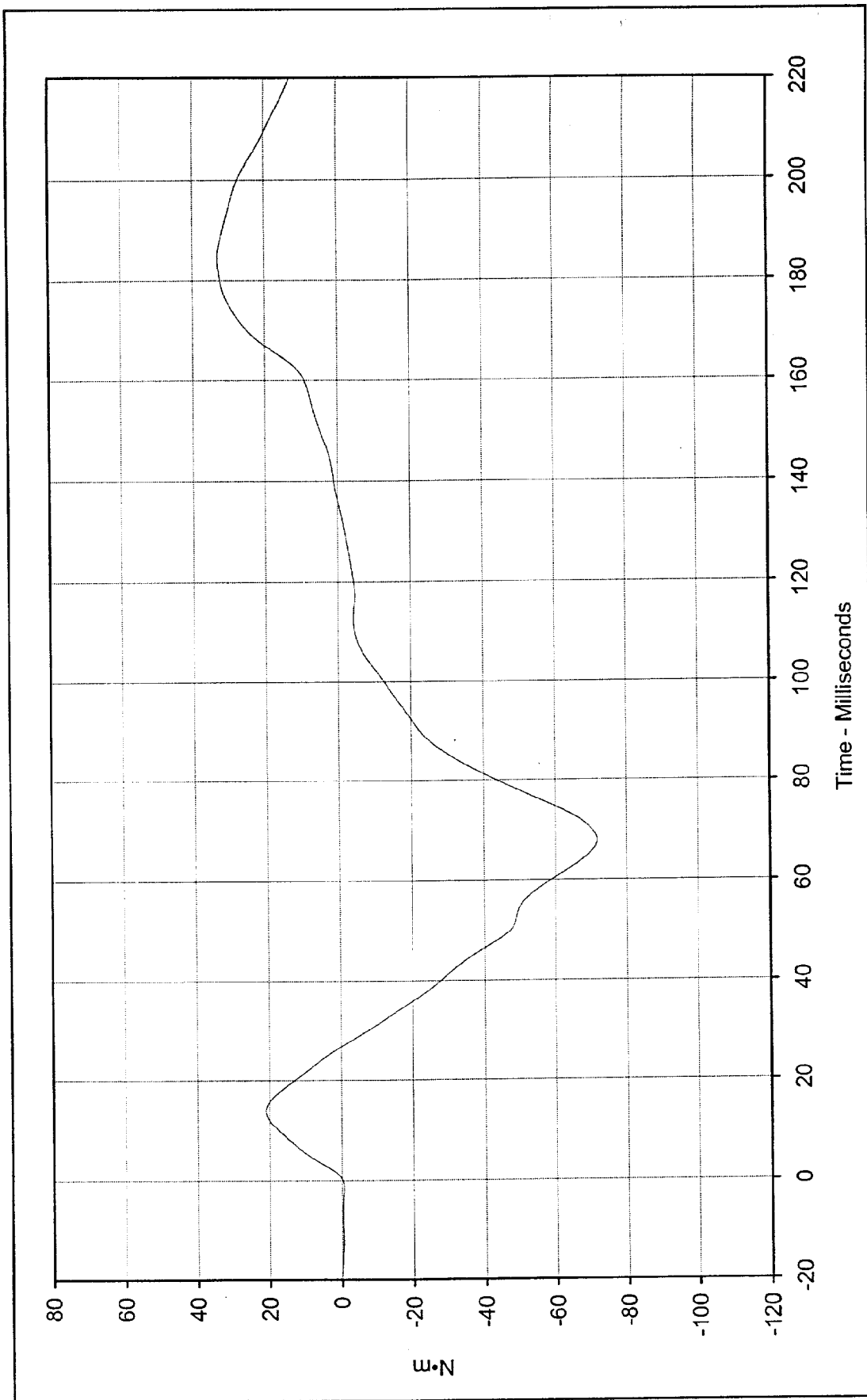


SAE Filter Class: 60
 Date of Test: 12/14/98
 ATD Serial No.: 034



Curve Description:	"D" Plane Rotation		Testing Program	Hybrid III Neck Extension Test (Male)
Maximum Value:	96.1	at 73.3 Milliseconds	Test Information:	S/N of Part: n/a Test I.D.: NE12B
Minimum Value:	-21.6	at 208.1 Milliseconds		
SAE Filter Class:	60			
Date of Test:	12/14/98			
ATD Serial No.:	034			





Testing Program Hybrid III Neck Extension Test (Male)
 Test Information: S/N of Part: n/a Test I.D.: NE12B

Curve Description: Moment About Occipital Condyles
 Maximum Value: 33.1 at 184.5 Milliseconds
 Minimum Value: -71.7 at 67.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 12/14/98
 ATD Serial No.: 034





Hybrid III Calibration Data Sheet

50TH Percentile Male

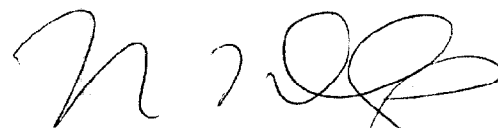
External Measurements

ATD Serial No.: 034

Part Serial No.: N/A

Test I.D.: N/A

External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.9	Pass
Laboratory relative humidity	%	10 to 70	44	Pass
A - Total sitting height	mm	878.8 to 889.0	888.5	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	506.0	Pass
C - "H" point height	mm	83.8 to 88.9	88.0	Pass
D - "H" point from seat back	mm	134.6 to 139.7	136.5	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	93.1	Pass
F - Thigh clearance	mm	139.7 to 154.9	152.4	Pass
G - Elbow back to wrist pivot	mm	289.6 to 304.8	304.0	Pass
H - Skull cap to back line	mm	40.6 to 45.7	44.0	Pass
I - Shoulder to elbow length	mm	330.2 to 345.4	344.0	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	603.0	Pass
L - Popliteal length	mm	429.3 to 454.7	445.0	Pass
M - Knee pivot height	mm	485.1 to 500.4	487.0	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	470.0	Pass
O - Chest depth	mm	213.4 to 228.6	223.0	Pass
P - Foot length	mm	251.5 to 266.7	260.0	Pass
V - Shoulder breadth	mm	421.6 to 436.9	431.0	Pass
W - Foot breadth	mm	91.4 to 106.7	92.0	Pass
Y - Chest circumference	mm	970.3 to 1000.8	990.0	Pass
Z - Waist circumference	mm	835.7 to 866.1	864.0	Pass
AA - Location for chest circumference	mm	429.3 to 434.3	430.0	Pass
BB - Location for waist circumference	mm	226.1 to 231.1	229.0	Pass
Overall Test Results				Pass


 Laboratory Technician

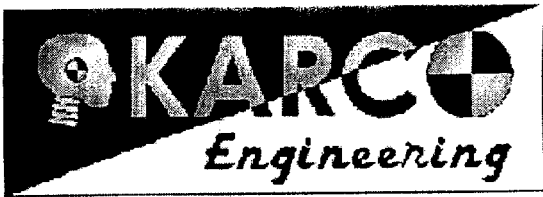

 Approved By

December 15, 1998

Test Date

12/21/98

Date



Hybrid III Calibration Data Sheet

50TH Percentile Male

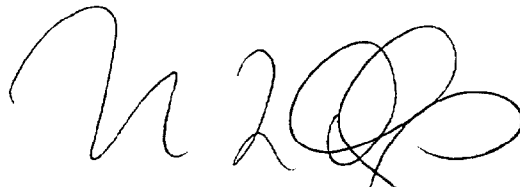
Left Knee Impact Test

ATD Serial No.: 35

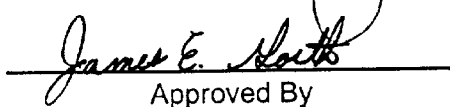
Part Serial No.: n/a

Test I.D.: KI12C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.093	Pass
Peak Probe Force	Newtons	4715 to 5782	5432.3	Pass
Overall Test Results				Pass



Laboratory Technician



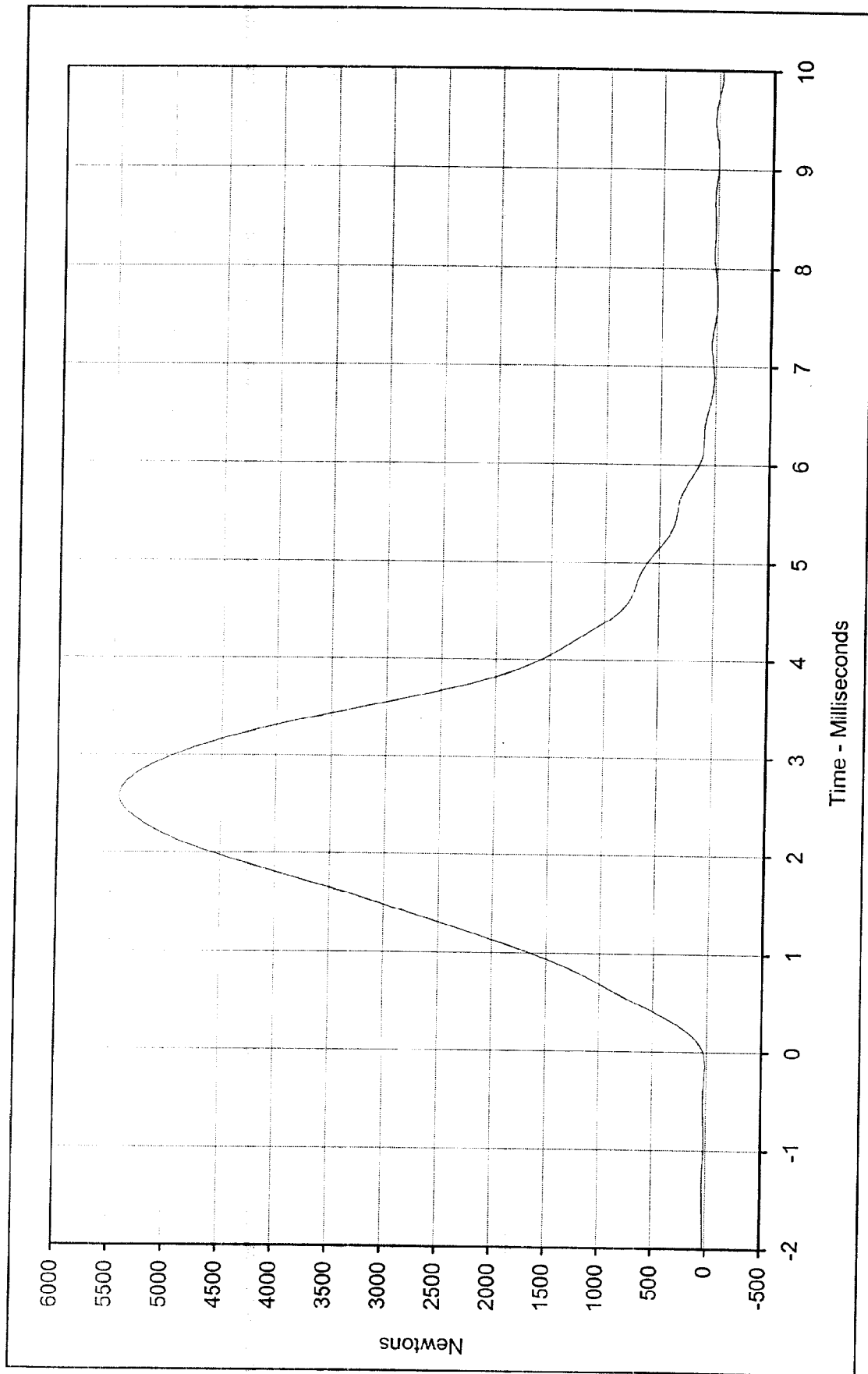
Approved By

December 12, 1998

Test Date

12/21/98

Date



Curve Description:

Probe Force

Maximum Value: 5432.3 at 2.6 Milliseconds

Minimum Value: -7.0 at 7.7 Milliseconds

SAE Filter Class: 600

Date of Test: 12/12/98

ATD Serial No.: 35

Testing Program

Hybrid III Left Knee Impact Test

Test Information:

Part S/N: n/a Test I.D.: K112C





Hybrid III Calibration Data Sheet

50TH Percentile Male

Right Knee Impact Test

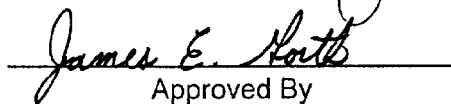
ATD Serial No.: 35

Part Serial No.: n/a

Test I.D.: KI12D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	2.073 to 2.134	2.090	Pass
Peak Probe Force	Newtons	4715 to 5782	5421.5	Pass
Overall Test Results				Pass


Laboratory Technician

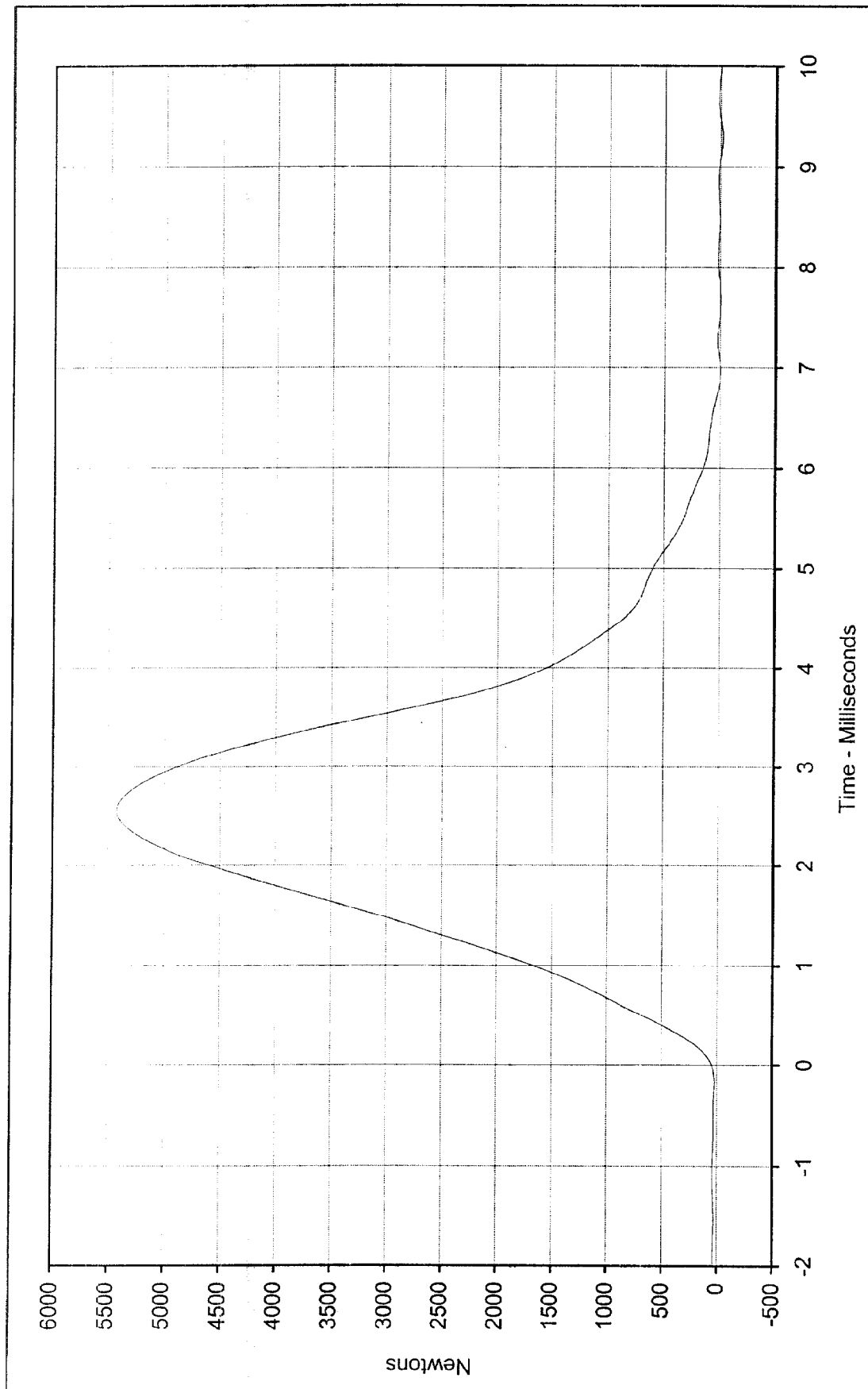

Approved By

December 12, 1998

Test Date

12/21/98

Date



Curve Description: _____
 Testing Program: Hybrid III Right Knee Impact Test
 Test Information: Part S/N: n/a Test I.D.: KI12D

Probe Force
 Maximum Value: 5421.5 at 2.6 Milliseconds
 Minimum Value: -5.0 at 7.7 Milliseconds
 SAE Filter Class: 600
 Date of Test: 12/12/98
 ATD Serial No.: 35





Hybrid III Calibration Data Sheet

50TH Percentile Male

Head Drop Calibration

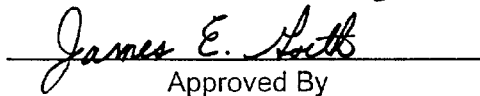
ATD Serial No.: 035

Part Serial No.: n/a

Test I.D.: HD12B

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


Laboratory Technician

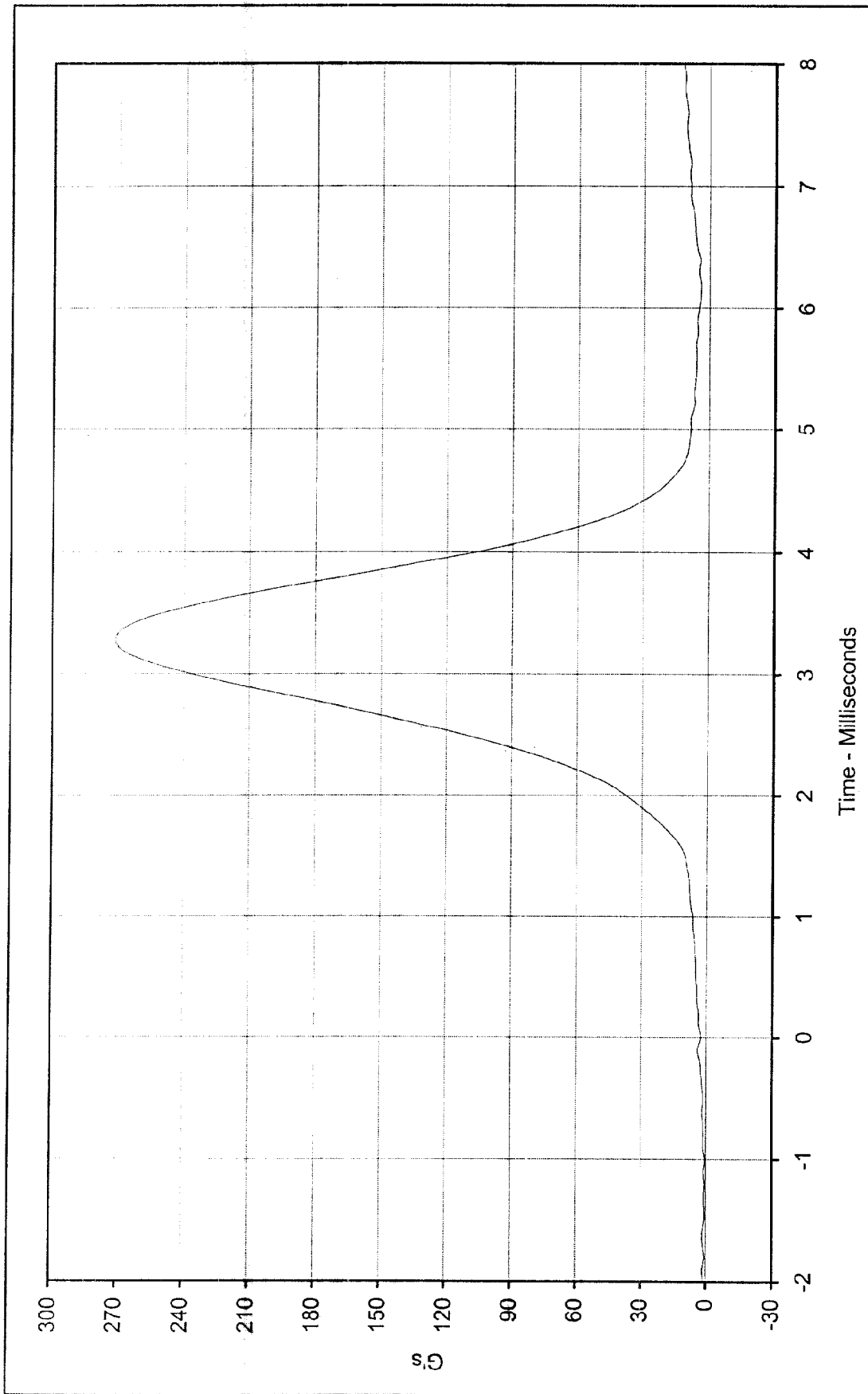

Approved By

December 7, 1998

Test Date

12/21/98

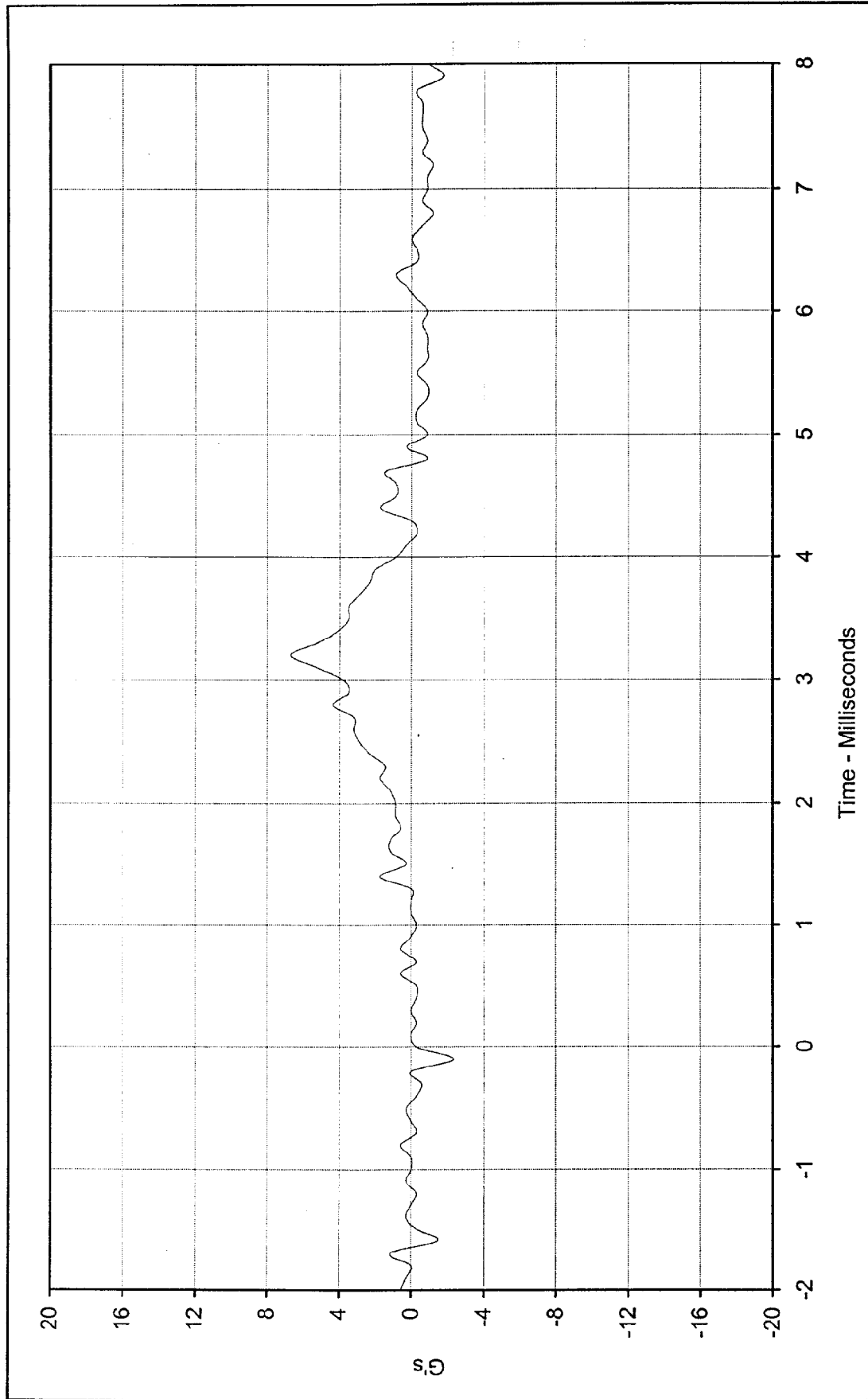
Date



Curve Description:		Head Resultant Acceleration	
Maximum Value:	270.9	at	3.3 Milliseconds
Minimum Value:	0.3	at	-1.0 Milliseconds
SAE Filter Class:	1000		
Date of Test:	12/7/98		
ATD Serial No.:	035		

Testing Program	Hybrid III Head Drop Calibration (Male)
Test Information:	S/N of Part: n/a Test I.D.: HD12B





Curve Description: Head Acceleration Y Axis
 Testing Program: Hybrid III Head Drop Calibration (Male)
 Test Information: S/N of Part: n/a Test I.D.: HD12B

Maximum Value: 6.7 at 3.2 Milliseconds
 Minimum Value: -2.3 at -0.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 12/7/98
 ATD Serial No.: 035





Hybrid III Calibration Data Sheet

50TH Percentile Male

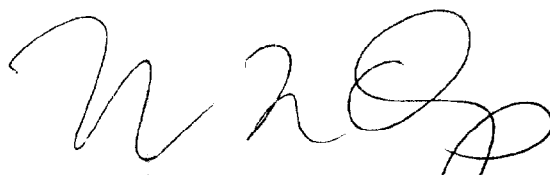
Thorax Impact Test

ATD Serial No.: 035

Part Serial No.: N/A

Test I.D.: CH12C

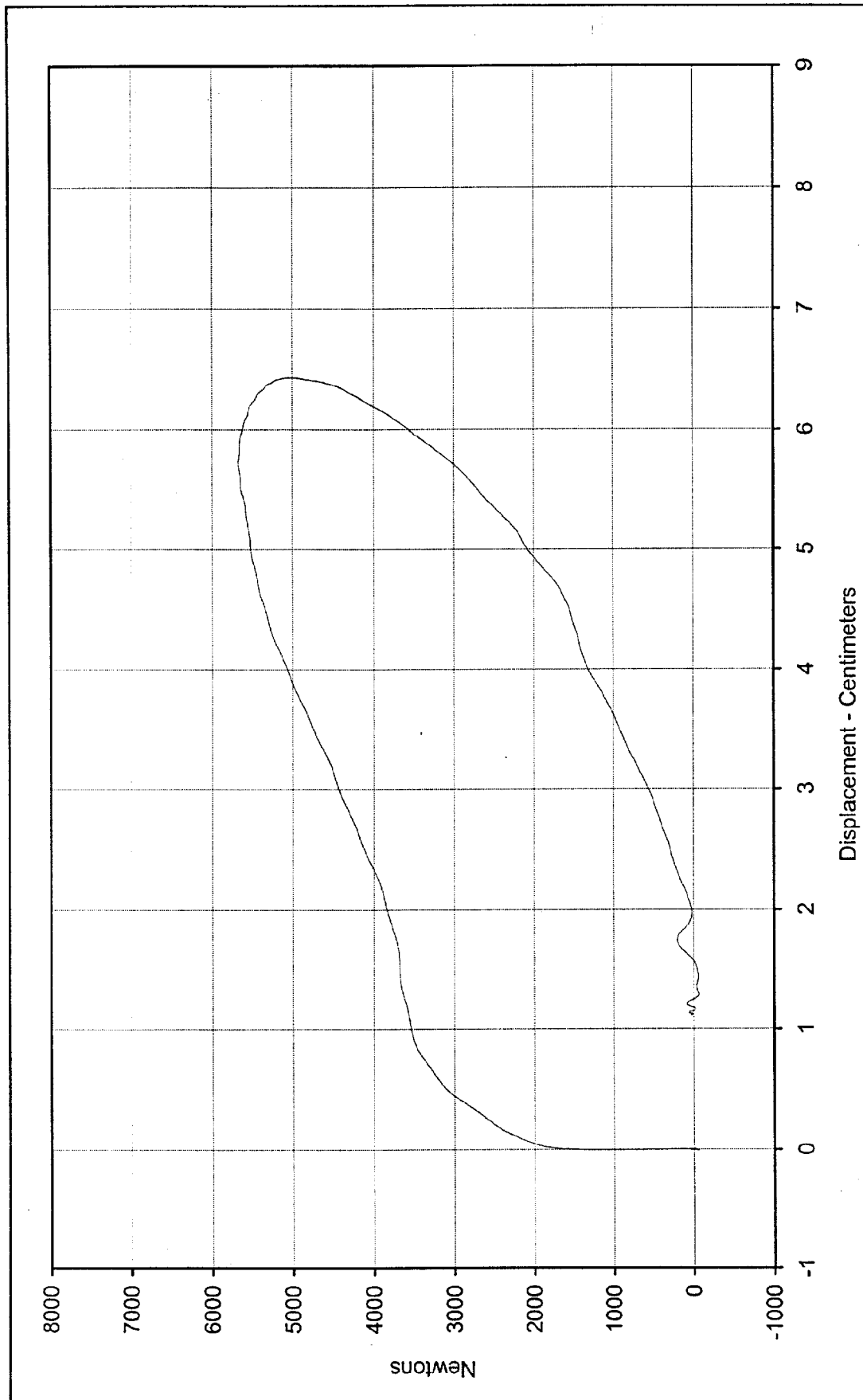
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Probe Velocity	m/s	6.58 to 6.82	6.81	Pass
Peak Probe Force	Newtons	5159 to 5893	5677	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.43	Pass
Internal Hysteresis	%	69 to 85	74.4	Pass
Overall Test Results				Pass


Laboratory Technician


Approved By

December 14, 1998
Test Date

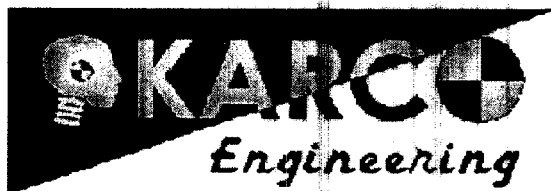
12/21/98
Date



Curve Description: Probe Force vs. Chest Displacement Testing Program Hybrid III Thorax Impact Test
 Probe Force: 5676.5 Newtons Test Information: S/N of Part: N/A Test I.D.: CH12C
 Chest Displ.: 6.43 Centimeters



SAE Filter Class: 180
 Date of Test: 12/14/98
 ATD Serial No.: 035



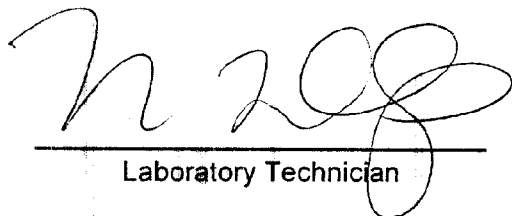
Hybrid III Calibration Data Sheet

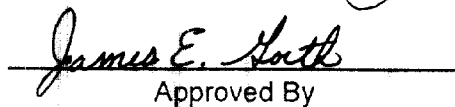
50TH Percentile Male

Neck Flexion Test

ATD Serial No.: 035Part Serial No.: n/aTest I.D.: NF12B

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity		%	10 to 70	40	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.97	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.1	Pass
	20 Msec.	G's	17.6 to 22.6	21.1	Pass
	30 Msec.	G's	12.5 to 18.5	17.2	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.2	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	36.1	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	72.2	Pass
	Time	Msec.	57.0 to 64.0	60.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	113.2	Pass
Moment About Occipital Condyle	Maximum	N • m	84.1 to 108.5	86.4	Pass
	Time	Msec.	47.0 to 58.0	48.3	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.0	Pass
Overall Test Results					Pass


Laboratory Technician


Approved By

December 14, 1998

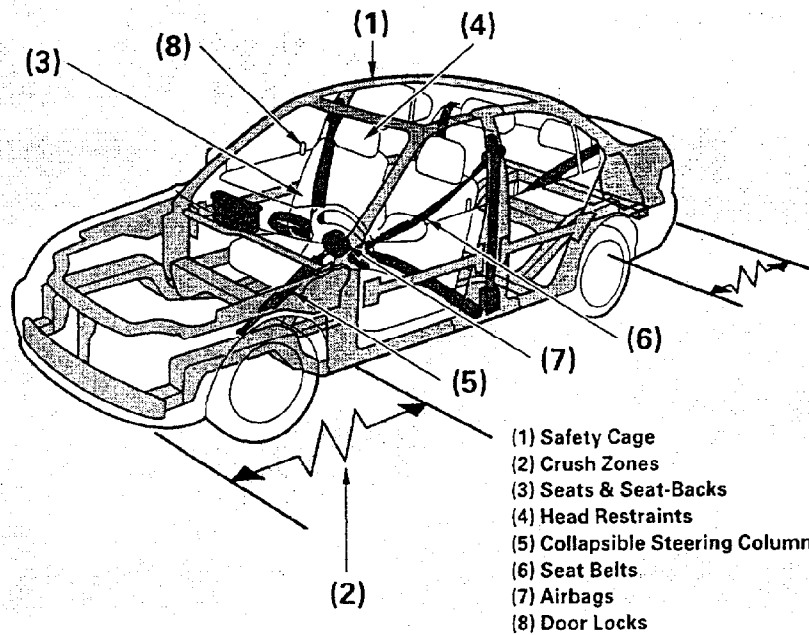
Test Date

12/21/98

Date

APPENDIX F
VEHICLE OWNER'S MANUAL
OCCUPANT RESTRAINT INSTRUCTIONS

Your Car's Safety Features



Your car is equipped with many features that work together to protect you and your passengers during a crash.

Some safety features do not require any action on your part. These include a strong steel framework that forms a safety cage around the passenger compartment; front and rear crush zones that are designed to crumple and absorb energy during a crash; and a collapsible steering column.

These safety features are designed to reduce the severity of injuries in a crash. However, you and your passengers can't take full advantage of these safety features unless you remain sitting in a proper position and *always wear your seat belts properly*. In fact, some safety features can contribute to injuries if they are not used properly.

Your Car's Safety Features

Seat Belts

For your safety, and the safety of your passengers, your car is equipped with seat belts in all seating positions.



Your seat belt system also includes a light on the instrument panel to remind you and your passengers to fasten your seat belts.

Why Wear Seat Belts

Seat belts are the single most effective safety device for adults and larger children. (Infants and smaller children must be properly restrained in child seats.)

Not wearing a seat belt properly increases the chance of serious injury or death in a crash, even though your car has airbags.

In addition, most states and all Canadian provinces require you to wear seat belts.

WARNING

Not wearing a seat belt properly increases the chance of serious injury or death in a crash, even if you have airbags.

Be sure you and your passengers always wear seat belts and wear them properly.

When Properly worn, seat belts:

- Keep you connected to the vehicle so you can take advantage of the car's built-in safety features.
- Help protect you in almost every type of crash, including side and rear impacts and rollovers. (Your airbag can only be helpful in a moderate to severe frontal collision.)

collision.)

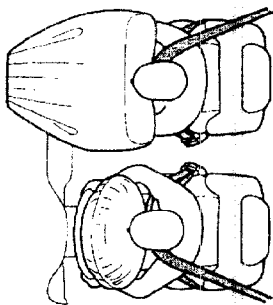
- Help keep you from being thrown against the inside of the vehicle and against other occupants.
- Keep you from being thrown out of the vehicle.
- Help keep you in a good position should the airbags ever deploy. A good position reduces the risk of injury from an inflating airbag, and allows you to get the best advantage from the airbag.

Of course, seat belts cannot completely protect you in every crash. But in most cases, seat belts can reduce your risk of serious injury.

What you should do: Always wear your seat belt, and make sure you wear it properly.

Your Car's Safety Features

Airbags



Your car has a Supplemental Restraint System (SRS) with frontal airbags to help protect the driver and a front seat passenger.

SRS This system also includes an indicator light on the instrument panel to alert you to a possible problem with the system.

The most important things you need to know about your airbags are:

- **Airbags do not replace seat belts.** The seat belts are the occupants' primary protection in all types of collisions. The airbags supplement the seat belts by providing extra protection for the head and chest of each front seat occupant in a moderate to severe frontal collision.
- **Airbags offer no protection in side impacts, rear impacts, rollovers, or minor collisions.** Airbags are designed to deploy only during a moderate to severe frontal collision.
- **Airbags can pose serious hazards.** To do their job, airbags must inflate with tremendous force and speed. So while airbags save lives,

they can cause serious injuries to adults and larger children who are not wearing seat belts, are not wearing them properly, are sitting too close to the airbag, or are not sitting in a proper position. Infants and small children are at an even greater risk of injury or death.

What you should do: Always wear your seat belt properly, and sit upright and as far back as possible from the steering wheel or dashboard.

Your Car's Safety Features

Seats & Seat-Racks

Your car's seats are designed to keep you in a comfortable, upright position so you can take full advantage of the protection offered by seat belts and the energy absorbing materials in the seats.

How you adjust your seats and seat-backs can also affect your safety. For example, sitting too close to the steering wheel or dashboard increases the risk of you or your passenger being injured by striking the inside of the car, or by an inflating airbag.

Reclining a seat-back too far reduces the seat belt's effectiveness and increases the chance that the seat's occupant will slide under the seat belt in a crash and be seriously injured.

What you should do: Move the front seats as far back as possible, and keep adjustable seat-backs in an upright position whenever the car is moving.

Head Restraints

Head restraints can help protect you from whiplash and other injuries. For maximum protection, the back of your head should rest against the center of the head restraint.

10 Driver and Passenger Safety

Your Car's Safety Features

Door Locks

Keeping your doors locked reduces the chance of being thrown out of the car during a crash. It also helps prevent occupants from accidentally opening a door and falling out, and outsiders from unexpectedly opening your doors.

Pre-Drive Safety Checklist

To make sure you and your passengers get the maximum protection from your car's safety features, check the following each time before you drive away:

- All adults, and children who have outgrown child safety seats, are wearing their seat belts and wearing them properly (see page 15).
- Any infant or small child is properly restrained in a child seat in the back seat (see page 21).
- Front seat occupants are sitting upright and as far back as possible from the steering wheel and dashboard (see page 12).
- Seat-backs are upright (see page 13).

- Head restraints are properly adjusted (see page 15).
- All doors are closed and locked (see page 12).
- All cargo is properly stored or secured (see page 15).

The rest of this section gives more detailed information about how you can maximize your safety.

Remember, however, that no safety system can prevent all injuries or deaths that can occur in severe crashes, even when seat belts are properly worn and the airbags deploy.

Protecting Adults

Introduction

The following pages provide instructions on how to properly protect the driver and other adult occupants.

These instructions also apply to children who have outgrown child seats and are large enough to wear lap/shoulder belts. (See page 37 for important additional guidelines on how to properly protect larger children.)

1. Close and Lock the Doors

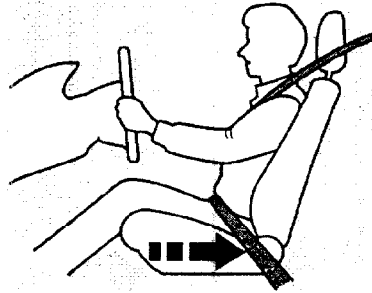
After everyone has entered the car, be sure the doors are closed and locked.

For safety, locking the doors reduces the chance that a passenger, especially a child, will open a door while the car is moving and accidentally fall out. It also reduces the chance of someone being thrown out of the car during a crash.

For security, locked doors can prevent an outsider from unexpectedly opening a door when you come to a stop.

See page 70 for how to lock the doors.

2. Adjust the Front Seats



Any driver who sits too close to the steering wheel is at risk of being seriously injured or killed by striking the steering wheel, or from being struck by an inflating airbag during a crash.

To reduce the chance of injury, wear your seat belt properly, sit upright with your back against the seat, and move the seat as far back as possible from the steering wheel while still maintaining full control of the car. Also make sure your front seat passenger moves the seat as far to the rear as possible.

Protecting Adults

Sitting too close to an airbag can result in serious injury or death if the airbags inflate.

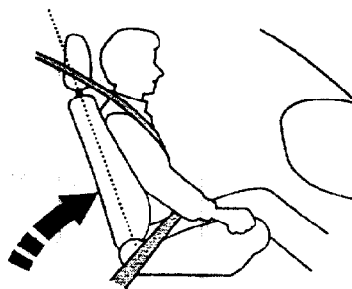
Always sit as far back from the airbags as possible.

Most shorter drivers can get far enough away from the steering wheel and still reach the pedals. However, if you are concerned about sitting too close, we recommend that you investigate whether some type of adaptive equipment may help.

Once your seat is adjusted correctly, rock it back and forth to make sure the seat is locked in position.

See page 76 for how to adjust the front seats.

3. Adjust the Seat-Backs



Adjust the driver's seat-back to a comfortable, upright position, leaving ample space between your chest and the airbag cover in the center of the steering wheel. If you sit too close to the steering wheel, you could be injured if the front airbag inflates.

A front passenger should also adjust the seat-back to an upright position, but as far from the dashboard as

possible. A passenger who sits too close to the dashboard could be injured if the front airbag inflates.

Reclining a seat-back so that the shoulder part of the belt no longer rests against the occupant's chest reduces the protective capability of the belt. It also increases the chance of sliding under the belt in a crash and being seriously injured. The farther a seat-back is reclined, the greater the risk of injury.

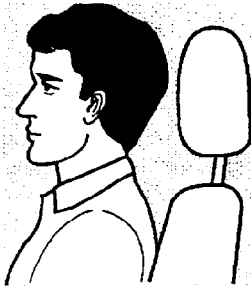
Reclining the seat-back too far can result in serious injury or death in a crash.

Adjust the seat-back to an upright position and sit well back in the seat.

See page 78 for how to adjust seat-backs.

Protecting Adults

4. Adjust the Head Restraints



Before driving, make sure everyone with an adjustable head restraint has properly positioned the head restraint. The restraint should be positioned so the back of the occupant's head rests against the center of the restraint. A taller person should adjust the restraint as high as possible.

Improperly positioning head restraints reduces their effectiveness and you can be seriously injured in a crash.

Make sure head restraints are in place and positioned properly before driving.

Properly adjusted head restraints will help protect occupants from whiplash and other crash injuries.

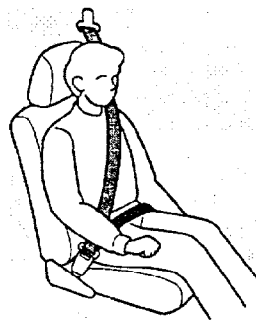
See page 78 for how to adjust the head restraints.

Protecting Adults

5. Fasten and Position the Seat Belts

Using a Lap/Shoulder Belt

Insert the latch plate into the buckle, then tug on the belt to make sure the belt is securely latched. Also check that the belt is not twisted, because a twisted belt can cause serious injuries in a crash.



Position the lap part of the belt as low as possible across your hips, then pull up on the shoulder part of the belt so the lap part fits snugly. This lets your strong pelvic bones take the force of a crash and reduces the chance of internal injuries.

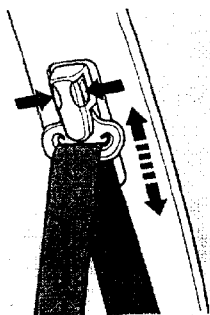
If necessary, pull up on the belt again to remove any slack from the shoulder part, then check that the belt rests across the center of your chest and over your shoulder. This spreads the forces of a crash over the strongest bones in your upper body.

Improperly positioning the seat belts can cause serious injury or death in a crash.

Make sure all seat belts are properly positioned before driving.

CONTINUED

Protecting Adults

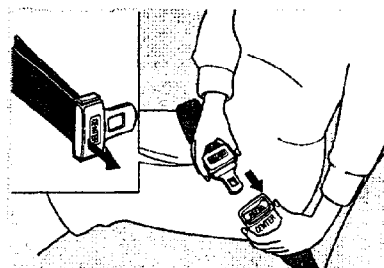


If the seat belt touches or crosses your neck, or if it crosses your arm instead of your shoulder, you need to adjust the seat belt anchor height.

To adjust the height of a front seat belt anchor, squeeze the two release buttons and slide the anchor up or down as needed (it has four positions).

Never place the shoulder portion of a lap/shoulder belt under your arm or behind your back. This could cause very serious injuries in a crash.

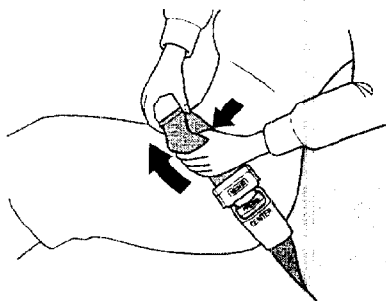
Using the Lap Belt



Insert the latch plate into the buckle marked CENTER.

If the belt is too short, hold the latch plate at a right angle and pull on the plate to extend the belt. Then insert the latch plate into the buckle, and tug on the belt to make sure the belt is securely latched.

Protecting Adults



Position the belt as low as possible across your hips. This lets your strong pelvic bones take the force of a crash and reduces the chance of internal injuries.

Pull on the loose end of the belt for a snug but comfortable fit.

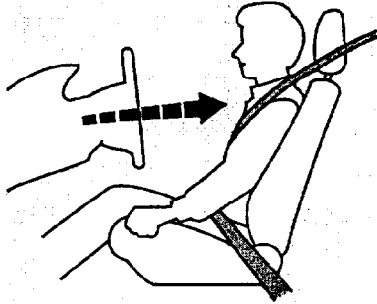
If a Seat Belt Doesn't Work Properly

If a seat belt does not seem to work as it should, it may not protect the occupant in a crash. **No one should sit in a seat with an inoperative seat belt.** Anyone using a seat belt that is not working properly can be seriously injured or killed. Have your Honda dealer check the belt as soon as possible.

See page 42 for additional information about your seat belt system and how to take care of your belts.

Protecting Adults

6. Adjust the Steering Wheel



Adjust the steering wheel, if needed, so that the wheel points toward your chest, not toward your face.

Pointing the steering wheel toward your face decreases the protective capability of the driver's airbag.

See page 65 for how to adjust the steering wheel.

7. Maintain a Proper Sitting Position

After all occupants have adjusted their seats and put on seat belts, it is very important that they continue to sit upright, well back in their seats, with their feet on the floor, until the car is parked and the engine is off.

Sitting improperly can increase the chance of injury during a crash. For example, if an occupant slouches, lies down, turns sideways, sits forward, leans forward or sideways, or puts one or both feet up, the chance of injury during a crash is greatly increased.

In addition, an occupant who is out of position in the front seat can be seriously or fatally injured by striking interior parts of the car, or by being struck by an inflating airbag.

Sitting improperly or out of position can result in serious injury or death in a crash.

Always sit upright, well back in the seat, with your feet on the floor.

Remember, to get the best protection from your car's airbags and other safety features, you must sit properly and wear your seat belt properly.

Protecting Adults

Advice for Pregnant Women



Because protecting the mother is the best way to protect her unborn child, a pregnant woman should always wear a seat belt whenever she drives or rides in a vehicle.

We recommend that pregnant women use a lap/shoulder belt whenever possible. Remember to keep the lap portion of the belt as low as possible across your hips.

Pregnant women should also sit upright and as far back as possible from the steering wheel or dashboard. This will reduce the risk of injuries to both the mother and her unborn child that can be caused by a crash or an inflating airbag.

Each time you have a check-up, ask your doctor if it's okay for you to drive.

Additional Safety Precautions

- *Two people should never use the same seat belt.* If they do, they could be very seriously injured in a crash.
- *Do not put any accessories on seat belts.* Devices intended to improve occupant comfort or reposition the shoulder part of a seat belt, can severely compromise the protective capability of seat belts and increase the chance of serious injury in a crash.

CONTINUED

Protecting Adults

- **Do not place hard or sharp objects between yourself and an airbag.** Carrying hard or sharp objects on your lap, or driving with a pipe or other sharp object in your mouth, can result in injuries if your airbags inflate.
- **Keep your hands and arms away from the airbag covers.** If your hands or arms are close to the SRS covers in the center of the steering wheel and on top of the dashboard, they could be injured if the airbags inflate.

Additional Information About Your Seat Belts

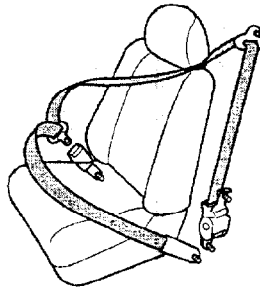
Seat Belt System Components

Your seat belt system includes lap/shoulder belts in the front seats and the outer back seats, and a lap belt in the center back seat.



The system also includes a light on the instrument panel to remind you and your passengers to fasten your belts. If the driver's seat belt is not fastened before the ignition is turned ON (II), the light will come on and a beeper will also sound. The beeper will stop after a few seconds, but the light will stay on until the driver's seat belt is fastened.

Lap/Shoulder Belt



This seat belt has a single belt that goes over your shoulder, across your chest and across your hips. To fasten the belt, insert the latch plate into the buckle, then tug on the belt to make sure the buckle is latched. To unlock the belt, push the red PRESS button on the buckle. Guide the belt across your body to the door pillar. After exiting the car, be sure the belt is out of the way and

will not get closed in the door.

All lap/shoulder belts have an emergency locking retractor. In normal driving, the retractor lets you move freely in your seat while it keeps some tension on the belt. During a collision or sudden stop, the retractor automatically locks the belt to help restrain your body.

The lap/shoulder belts in all seating positions except the driver's have an additional locking mechanism that must be activated to secure a child seat. (See pages 30 and 34 for instructions on how to secure child seats with this type of seat belt.)

If the shoulder part of the belt is pulled all the way out, the locking mechanism will activate. The belt will retract, but it will not allow a passenger to move freely.

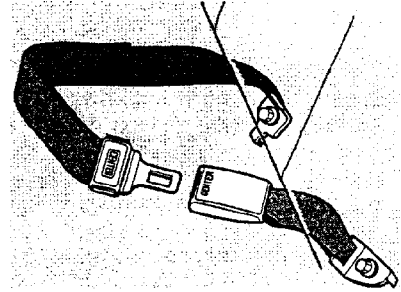
Additional Information About Your Seat Belts

To deactivate the locking mechanism, unlatch the buckle and let the seat belt fully retract. To refasten the belt, pull it out only as far as needed.

See page 15 for instructions on how to wear the lap/shoulder belt properly.

Lap Belt

The lap belt has one manually-adjusted belt that fits across the hips.



To fasten the belt, insert the latch plate into the buckle marked CENTER, then tug on the belt to make sure the buckle is latched.

To unlock the belt, push the red PRESS button.

See page 16 for how to lengthen the lap belt, and how to properly position the belt.

Additional Information About Your Seat Belts

Seat Belt Maintenance

For safety, you should check the condition of your seat belts regularly.

Pull each belt out fully and look for frays, cuts, burns, and wear. Check that the latches work smoothly and that the lap/shoulder belts retract easily. Any belt not in good condition or not working properly will not provide good protection and should be replaced as soon as possible.

U.S. Models

Honda provides a lifetime warranty on seat belts. Honda will repair or replace any seat belt component that fails to function properly during normal use. Please see your *Honda Warranty Information* booklet for details.

Not checking or maintaining seat belts can result in serious injury or death if the seat belts do not work properly when needed.

Check your seat belts regularly and have any problem corrected as soon as possible.

After a crash, you should have your dealer inspect the belt. A belt that has been worn during a crash may not provide the same level of protection. The dealer should also inspect the anchors for damage and replace them if needed.

For information on how to clean your seat belts, see page 234.

Additional Information About Your SRS

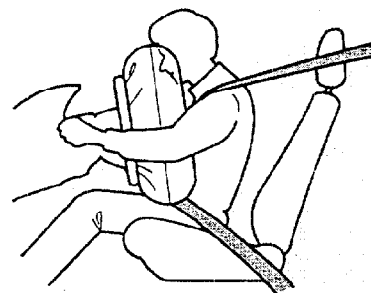
SRS Components

Your Supplemental Restraint System (SRS) includes:

- Two front airbags. The driver's airbag is stored in the center of the steering wheel; the front passenger's airbag is stored in the dashboard. Both are marked "SRS AIRBAG."
- Sensors that can detect a moderate to severe frontal collision.
- A sophisticated electronic system that continually monitors the sensors, control unit, the airbag activators, and all related wiring when the ignition is ON (II).

- An indicator light on the instrument panel that alerts you to a possible problem with the system (see page 47).
- Emergency backup power in case your car's electrical system is disconnected in a crash.

How Your Airbags Work



If you ever have a moderate to severe frontal collision, the sensors will detect rapid deceleration and signal the control unit to instantly inflate the airbags.

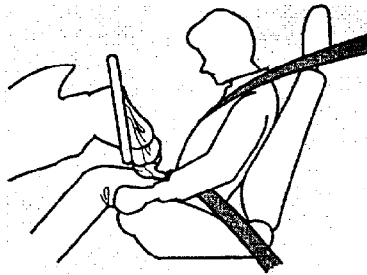
During a crash, your seat belt helps restrain your lower body and torso. Your airbag provides a cushion to help restrain and protect your head and chest.

CONTINUED

Additional Information About Your SRS

Since both airbags use the same sensors, both airbags normally inflate at the same time. However, it is possible for only one airbag to inflate.

This can occur when the severity of a collision is at the margin, or threshold, that determines whether or not the airbags will deploy. In such cases, the seat belt will provide sufficient protection, and the supplemental protection offered by the airbag would be minimal.



After inflating, the airbags immediately deflate, so they won't interfere with the driver's visibility, or the ability to steer or operate other controls.

The total time for inflation and deflation is approximately one-tenth of a second, so fast that most occupants are not aware that the airbags deployed until they see them lying in their laps.

After a crash, you may see what looks like smoke. This is actually powder from the airbag's surface. Although the powder is not harmful, people with respiratory problems may experience some temporary discomfort. If this occurs, get out of the car as soon as it is safe to do so.

U.S. Owners

For additional information on how your airbags work, see the booklet titled *SRS: What You Need to Know About Airbags* that came with your owner's manual.

Canadian Owners

For additional information on how your airbags work, ask your dealer for a copy of the booklet titled *SRS: What You Need to Know About Airbags*.

Additional Information About Your SRS

How the SRS Indicator Light Works

SRS The purpose of the SRS light is to alert you to a potential problem with your Supplemental Restraint System.

When you turn the ignition ON (II), this indicator will light up briefly then go out. This tells you that the system is working properly.

However, if the light comes on at any other time, you should have the system checked by your dealer. For example:

- If the SRS indicator light does not come on after you turn the ignition ON (II).
- If the light stays on after the engine starts.

- If the light comes on or flashes on and off while you drive.

If you see any of these indications, your airbags may not deploy when you need them. See your Honda dealer as soon as possible.

Ignoring the SRS indicator light can result in serious injury or death if the airbags do not inflate when needed.

Have your vehicle checked by a dealer as soon as possible if the SRS light alerts you to a potential problem.

SRS Service

Your Supplemental Restraint System is virtually maintenance-free, and there are no parts you can safely service. However, you must have your car serviced if:

- *Your airbags ever inflate.* The airbags and the control unit must be replaced. Do not try to remove or replace the airbags yourself. This must be done by a Honda dealer or a knowledgeable body shop.
- *The SRS indicator light alerts you to a problem.* Take your car to an authorized Honda dealer as soon as possible. If you ignore this indication, the airbags might not inflate when you need them.

Additional Information About Your SRS

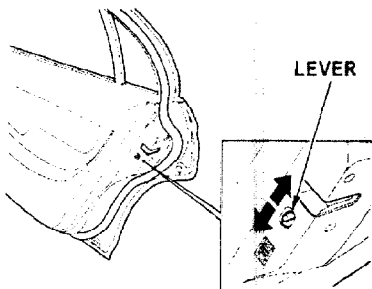
Additional Safety Precautions

- Do not attempt to deactivate your airbags. Together, airbags and seat belts provide the best protection in a moderate to severe frontal collision.
- Do not tamper with SRS components or wiring for any reason. Tampering could cause the airbags to deploy, possibly causing very serious injury.

See page 150 for further information and precautions relating to your SRS.

Keys and Locks

Childproof Door Locks



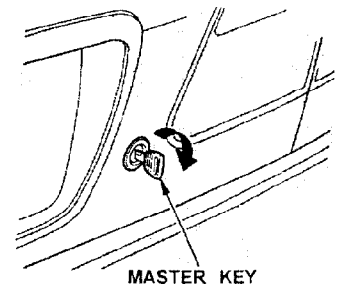
The childproof door locks are designed to prevent children seated in the rear from accidentally opening the rear doors. Each rear door has a lock lever near the edge. With the lever in the LOCK position, the door cannot be opened from the inside regardless of the position of the lock tab. To open the door, pull the lock tab up and use the outside door handle.

Trunk



You can open the trunk in two ways:

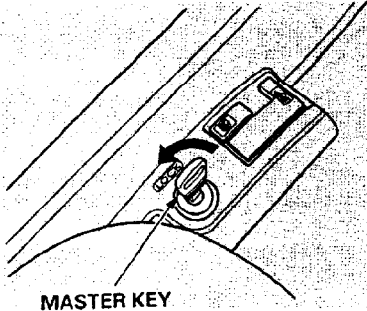
- Pull the trunk release handle to the left of the driver's seat.
- Use the master key to open the trunk lock. The valet key does not work in this lock.



To close the trunk, press down on the trunk lid.

See page 151 for cargo loading and weight limit information. Keep the trunk lid closed at all times while driving to avoid damaging the lid, and to prevent exhaust gas from getting into the interior. See **Carbon Monoxide Hazard** on page 49.

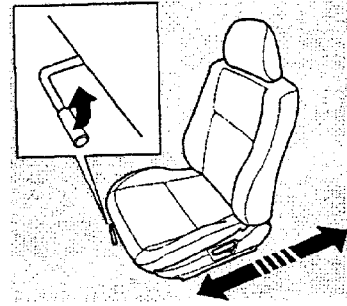
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To protect items in the trunk when you need to give the key to someone else, lock the trunk release handle with the master key and give the other person the valet key.

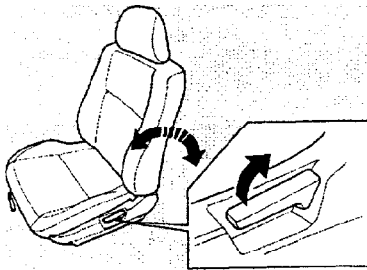
Front Seat Adjustments

See pages 12 – 13 for important safety information and warnings about how to properly position seats and seat-backs. Adjust the seat before you start driving.



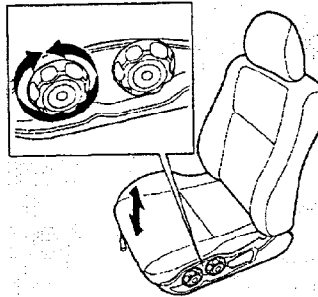
To adjust the seat forward and backward, pull up on the lever under the seat cushion's front edge. Move the seat to the desired position and release the lever. Try to move the seat to make sure it is locked in position.

Seat Adjustments



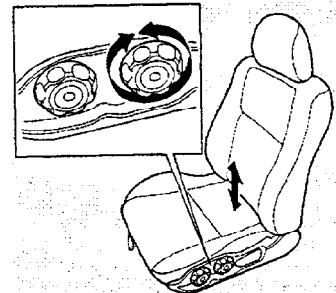
To change the angle of the seat-back, pull up on the lever on the outside of the seat bottom. Move the seat-back to the desired position and release the lever. Let the seat-back latch in the new position.

Driver's Seat Height Adjustment



On LX and EX models in the U.S., and EX model in Canada

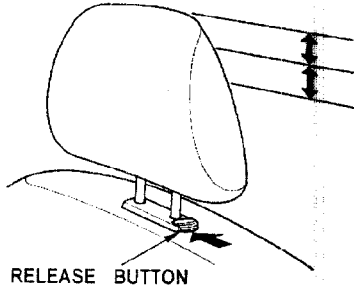
The height of your driver's seat is adjustable. Turn the front dial on the outside of the seat cushion to raise the front of the seat bottom and turn the rear dial to raise the rear.



Make all adjustments before you start driving.

Seat Adjustments

Head Restraints



See page 14 for important safety information and a warning about how to properly position the head restraints.

The front head restraints help protect you and your passenger from whiplash and other injuries. They are most effective when you adjust them so the back of the occupant's head rests against the center of the restraint. A taller person should adjust the restraint as high as possible.

The front head restraints adjust for height. You need both hands to adjust the restraint. Do not attempt to adjust it while driving. To raise it, pull upward. To lower the restraint, push the release button sideways and push the restraint down.

To remove a head restraint for cleaning or repair, pull it up as far as it will go. Push the release button and pull the restraint out of the seat-back.