

V2638

REPORT NO. KAR-97-07

NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST

KIA MOTOR COMPANY, LTD.
1997 KIA SEPHIA
4-DOOR SEDAN
NHTSA NO. MV0503

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



JUNE 9, 1997
FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF MARKET INCENTIVES
ROOM NO. 5313 (NRM-22)
400 SEVENTH ST., S.W.
WASHINGTON D.C. 20590

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16. Abstract A 35 mph (56.3 kph) frontal barrier impact test was conducted on a 1997 Kia Sephia at KARCO Engineering on May 1, 1997. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), and 301 performance. The impact velocity was 55.96 kph. The ambient temperature at the barrier face at the time of impact was 23.8 degrees C. The vehicle's maximum post-test static crush was 530 mm located at the vehicle's centerline. Type of occupant restraint system tested: A 3-point continuous webbing belt system at both seating positions with driver and passenger side air bags. 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</td> <td>HIC = 1000</td> <td>873.4</td> <td>387.2</td> </tr> <tr> <td>Chest Resultant 3 msec clip</td> <td>60 G's</td> <td>45.0</td> <td>51.9</td> </tr> <tr> <td>Left Femur Force</td> <td>10009 N</td> <td>-7726.2</td> <td>-8127.7</td> </tr> <tr> <td>Right Femur Force</td> <td>10009 N</td> <td>-4537.0</td> <td>-7302.4</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	873.4	387.2	Chest Resultant 3 msec clip	60 G's	45.0	51.9	Left Femur Force	10009 N	-7726.2	-8127.7	Right Femur Force	10009 N	-4537.0	-7302.4
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SECTION 1.

PURPOSE, TEST PROCEDURE AND SUMMARY OF TEST MV0503

1.1 PURPOSE

This 35 mph (56.3 kph) frontal barrier impact test is part of the Composite FY' 97 New Car Assessment Program (NCAP) sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract No. DTNH22-97-D-02007. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph (48 kph) FMVSS 208/212/219/301 requirements.

1.2 TEST PROCEDURE

This 35 mph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) Laboratory Indicant Test Procedure, dated 01 September, 1996, and corresponding KARCO Engineering Test Procedure KTP-001, dated September 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 vehicle was instrumented with nine (9) accelerometers to measure longitudinal axis accelerations. The driver's and passenger's restraint systems were instrumented with four (4) potentiometers to measure seat belt spoolout and shoulder belt stretch, and four (4) seat belt load cells to measure lap and shoulder belt tension. The vehicle specified impact velocity range was 55.51 to 57.12 kph.

The test vehicle contained two (2) part 572E 50th percentile adult male anthropomorphic test devices (ATDs). Both ATDs were instrumented with head, chest, pelvic and redundant head and chest triaxial accelerometers, left/right femur load cells and left/right lower leg sensors (passenger ATD only). In addition, chest displacement and six-axis neck transducers were utilized. The ATDs were positioned in the front outboard seating positions according to the dummy placement procedures specified in Appendices VII and VIII of the Laboratory Indicant Test Procedure. The Driver ATD (serial No. 35) was calibrated after exceeding the HIC injury criteria during the previous test. The passenger ATD (serial No. 34) was used in one previous frontal NCAP test since its last calibration. Injury criteria were not exceeded in test MV0503.

Eighty-seven 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 test was conducted at KARCO Engineering's Automotive Research Center on 05/01/97 at a speed of 55.96 kph. The frontal barrier impact event was documented by one (1) real-time camera 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.

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

Twenty-four (24) load cell barrier data channels were obtained in conducting this NCAP test on May 1, 1997. The barrier was impacted by a 1997 Kia Sephia 4 door sedan at a velocity of 55.96 kph. The 1997 Kia Sephia was equipped with a transverse mounted 1.6 liter, four cylinder engine and a five speed manual transmission. The test weight, with two (2) 50th percentile male dummies, was 1320 kg.

The driver's Head Injury Criteria (HIC) was 873.4, the maximum chest deceleration over three milliseconds (3 msec) was 45.0 g, the left and right femur loads were -7726.2 and -4537.0 Newtons (N), respectively.

The right front passenger's HIC was 387.2, maximum chest deceleration over 3 msec was 51.9 g, the left and right femur loads were -8127.7 and -7302.4 N respectively.

There was 920 mm of lower windshield retained, 510 mm pulled away from the windshield, and the airbag blew a 305 by 318 mm hole in the windshield on the passenger side. No Stoddard solvent leakage occurred after impact or during any phase of the static rollover test.

The test vehicle sustained a maximum static crush of 530 mm at the vehicle centerline. The driver side door opened without the aid of tools, the passenger side door was jammed. The driver ATD's head, chest and abdomen contacted the airbag, both knees impacted the dash panel and steering column.

The passenger ATD's head, chest and abdomen contacted the airbag, both knees contacted the glove box.

Seat belt spoolout, measured by high-speed film analysis, was 100 mm for the driver ATD and 90 mm for the passenger ATD. On-board pullout potentiometers measured 91.8 mm for the driver ATD and 100.7 mm for the passenger ATD. Shoulder belt stretch was 0.098 cm/cm for the driver ATD and 0.010 cm/cm for the passenger ATD. Chest deflection for the driver ATD was -28.8 mm. Chest deflection for the passenger ATD was -39.4 mm.

1.4 GENERAL COMMENTS

The 1997 Kia Sephia passed the requirements of 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. The dummy and vehicle response data traces are presented in Appendix B. Appendix C is for load cell barrier data, 24 channels were collected for this test. Appendix D contains the test equipment and instrument calibration data. Appendix E contains the dummy calibration data and Appendix F the owner's manual occupant restraint system instructions.

SECTION 2.

DATA SHEETS

TEST MODE: 35 MPH FRONTAL NCAP

CONVERSION FACTORS USED IN THIS REPORT:

2.2 pounds (lb) = 1 kilogram (kg)

1 mile (mi.) = 1.609 kilometers (km)

1 gallon (gal.) = 3.785 liters (L)

DATA SHEET NO. 1

CRASH TEST SUMMARY

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1997 KIA SEPHIA 4-DOOR SEDAN

NHTSA NUMBER: MV0503 TEST DATE: 05/01/97 TIME: 2:05 PM

BARRIER TEMPERATURE: 23.8 °C WINDSHIELD MOLDING TEMPERATURE: 23.8 °C

VEHICLE TEST WEIGHT: 1320 kg VEHICLE/BARRIER IMPACT ANGLE: 90 °

IMPACT VELOCITY: PRIMARY 55.96 kph SECONDARY 55.73 kph

VEHICLE REBOUND FROM BARRIER:

Left Side	890 mm
Centerline	880 mm
Right Side	870 mm

MAXIMUM STATIC CRUSH:

	Pre-test	Post-test	Static Crush
Left Side	4145 mm	3770 mm	375 mm
Centerline	4340 mm	3810 mm	530 mm
Right Side	4165 mm	3707 mm	458 mm

DUMMIES:

	DRIVER	PASSENGER
DUMMY TYPE	<u>572E</u>	<u>572E</u>
SERIAL NUMBER	<u>35</u>	<u>34</u>
RESTRAINT SYSTEM	<u>TYPE II</u>	<u>TYPE II</u>
NO. DATA CHANNELS	<u>34</u>	<u>44</u>

NUMBER OF CAMERAS: 1 Real Time 16 High Speed

DOOR OPENING DATA: Opened - Left Front Jammed - Right Front

FRONT SEAT(S) DATA: DRIVER PASSENGER

Seat Track Failure (shift) 150 * mm 106 mm

Seat Back Failure N/A N/A

VISIBLE DUMMY CONTACT POINTS:

	DRIVER	PASSENGER
Head	<u>Airbag, headrest</u>	<u>Airbag</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Knees	<u>Dash, steering column</u>	<u>Glovebox</u>

* Seat track roller system broke and the seat moved from the mid position to 44 mm past full forward

DATA SHEET NO. 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

YEAR/MAKE/MODEL/BODY STYLE: 1997 KIA SEPHIA 4-DOOR SEDAN

NHTSA No.: MV0503 VIN: KNAFA1249V5277072 COLOR: Blue

DATE RECEIVED: 4/3/97 ODOMETER READING: 21 miles

SELLING DEALER: Ontario Auto Center

ENGINE & DRIVE TRAIN DATA:

No. Cylinders: 4 Displacement: 1.6 liter

Placement: Longitudinal/In-line: Transverse/Lateral: X

Transmission Data:

Speeds: 5 Manual: X Automatic: Overdrive:

Final Drive: Rear Wheel: Front Wheel: X Four Wheel:

MAJOR OPTIONS:

Airconditioner: X Power Steering: X Power Brakes: X

Power Windows: Power Door Locks: Other: Rear Defroster, Console, AM/FM, Tachometer, Clock

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Kia Motors

Date of Manufacture: 9/25/96 VIN: KNAFA1249V5277072

GVWR: 1573 kg GAWR FRONT: 855 kg GAWR REAR: 725 kg

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 200 kPa REAR: 200 kPa

Recommended Tire Size: 175/70R13 Load Range: 827

Recommended Cold Tire Pressure:

FRONT: 200 kPa REAR: 200 kPa

Size of Tires on Test Vehicle: 175/70R13 Manufacturer: Uniroyal

Type of Spare Tire: Space Saver: Space Saver Standard:

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench: _____ Bucket: X Split Bench: _____

Number of Occupants: Front: 2 Rear: 3 TOTAL: 5

VEHICLE CAPACITY WEIGHT (VCW) = 350 kg

No. of Occupants x 68 kg. = 340 kg

Rated Cargo/Luggage Weight (RCLW) = 10 kg (Difference)

WEIGHT OF TEST VEHICLE AS RECEIVED AT LABORATORY: (with maximum fluids)

Right Front = 353 kg Right Rear = 222 kg

Left Front = 346 kg Left Rear = 216 kg

TOTAL FRONT = 699 kg TOTAL REAR = 438 kg

% Total Weight = 61.45 % % Total Weight = 38.54 %

TOTAL DELIVERED WEIGHT = 1136 kg

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight = 1136 kg

Rated Cargo/Luggage Weight = 35 kg

Weight of 2 P572 Dummies = 149 kg

TARGET TEST WEIGHT = 1324 kg (SUM)

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 39 kg OF CARGO (BALLAST):

Right Front = 377 kg Right Rear = 282 kg

Left Front = 378 kg Left Rear = 282 kg

TOTAL FRONT = 755 kg TOTAL REAR = 564 kg

% Total Weight = 57.2 % % Total Weight = 42.8 %

TOTAL TEST WEIGHT = 1320 kg

Weight of Ballast secured in cargo area = 39 kg (Includes cameras & instrumentation)

Vehicle Components Removed For Weight Reduction: Side mirrors, jack, tools, rear seat assembly and spare tire.

Data Sheet No. 2 (Continued)

TEST VEHICLE ATTITUDE: (all dimensions in mm)

AS DELIVERED: RF 641 LF 641 RR 641 LR 647

AS TESTED: RF 615 LF 620 RR 599 LR 605

Vehicle's Wheelbase = 2438 mm

Location of Vehicle's CG =
(if required)

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 50.16 liters

Usable Capacity Figure Furnished by COTR = N/A liters

Test Volume Range (92 to 94% of Usable Capacity) = 46.14 to 47.15 liters

ACTUAL TEST VOLUME = 46.74 liters

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 _____ No _____

DETAILS OF FUEL SYSTEM: Electrically operated with automatic shutoff

DATA SHEET NO. 3

POST IMPACT DATA

YEAR/MAKE/MODEL/BODY STYLE: 1997 KIA SEPHIA 4-DOOR SEDAN

NHTSA No.: MV0503

VIN: KNAFA1249V5277072

TEST DATE: 05/01/97

TIME: 2:05 PM

TEMPERATURE: 23.8 °C

REQUIRED IMPACT VELOCITY RANGE: 55.5 kph to 57.1 kph

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

Trap No. 1 = 55.96 kph Trap No. 2 = 55.73 kph

Distance from vehicle to barrier - -

A. entering trap = 1829 mm

B. leaving trap = 610 mm

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

Vehicle Length - -

Pretest: Right = 4165 mm C/L = 4340 mm Left = 4145 mm

Post Test: Right = 3707 mm C/L = 3810 mm Left = 3770 mm

CRUSH: Right = 458 mm C/L = 530 mm Left = 375 mm

AVERAGE = 452 mm

VEHICLE REBOUND: (from rigid barrier only)

Distance from front of test vehicle to impact point - -

Right = 870 mm C/L = 880 mm Left = 890 mm

AVERAGE = 880 mm

DATA SHEET NO. 4

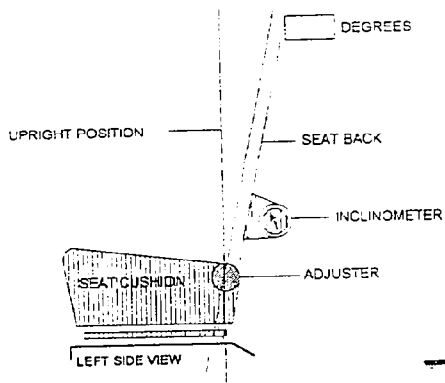
TEST VEHICLE INFORMATION

VEHICLE YEAR & MAKE: 1997 KIA

VEHICLE MODEL & BODY STYLE: SEPHIA SEDAN

1. NOMINAL DESIGN RIDING POSITION -

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



FRONT SEAT ASSEMBLY

Measurement Instructions: A special application tool with pointed probes was inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly approximately 4 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 = 25.0 °

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 4 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 = 25.0 °

2. SEAT FORE & AFT POSITIONS -

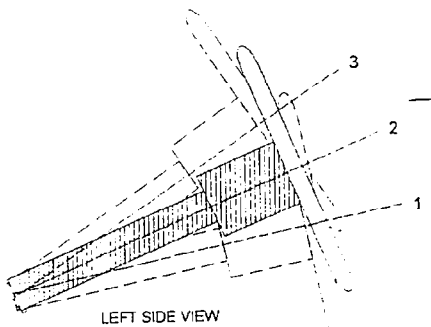
Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat: 23 seating positions: set to 11th position from front.

Positioning of the passenger's seat (if applicable): 23 seating positions: set to 11th position from front.

3. STEERING COLUMN ADJUSTMENTS:

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.



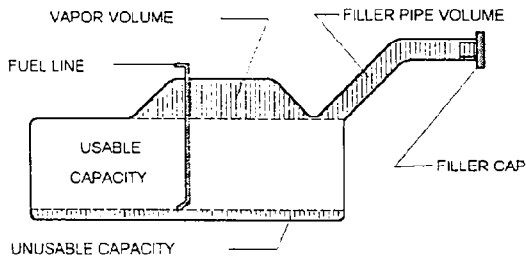
STEERING COLUMN ASSEMBLY

Operational Instructions:

- Position No. 1 is at N/A
- Position No. 2 is at 23°
- Position No. 3 is at N/A

4. SEAT BELT UPPER ANCHORAGE:

Nominal design riding position:



VEHICLE FUEL TANK ASSEMBLY

Operational Instructions:

5.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 46.7 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.

Fuel pump is activated when ignition key is turned to the "ON" (operational) position.

5. FUEL TANK CAPACITY DATA

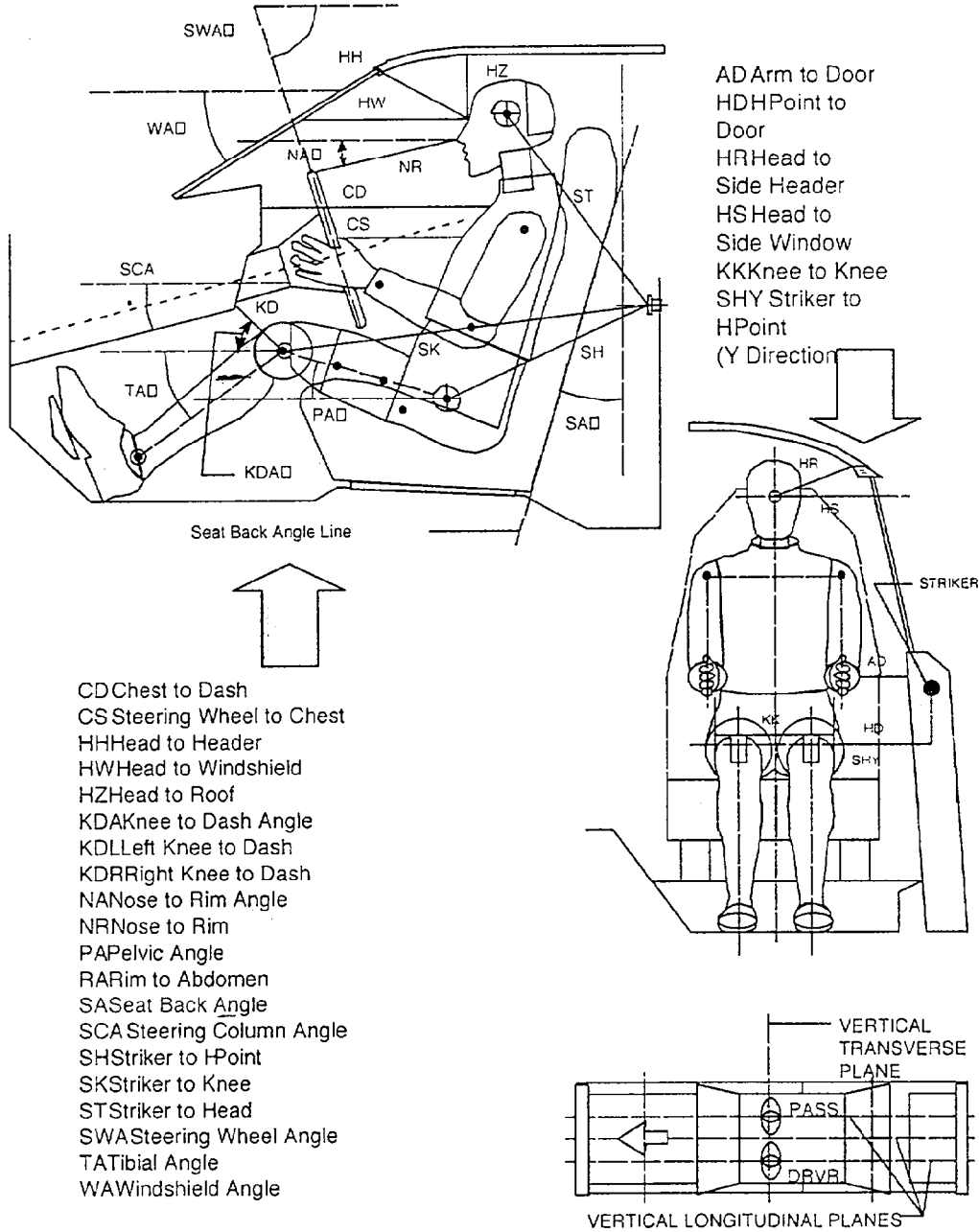
5.1 A. Usable Capacity of standard equipment fuel tank = 50.16 liters.

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 = 46.14 to 47.15 liters.

DUMMY POSITIONING IN VEHICLE

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



DUMMY POSITIONING IN VEHICLE
FRONT SEAT MEASUREMENT TABLE

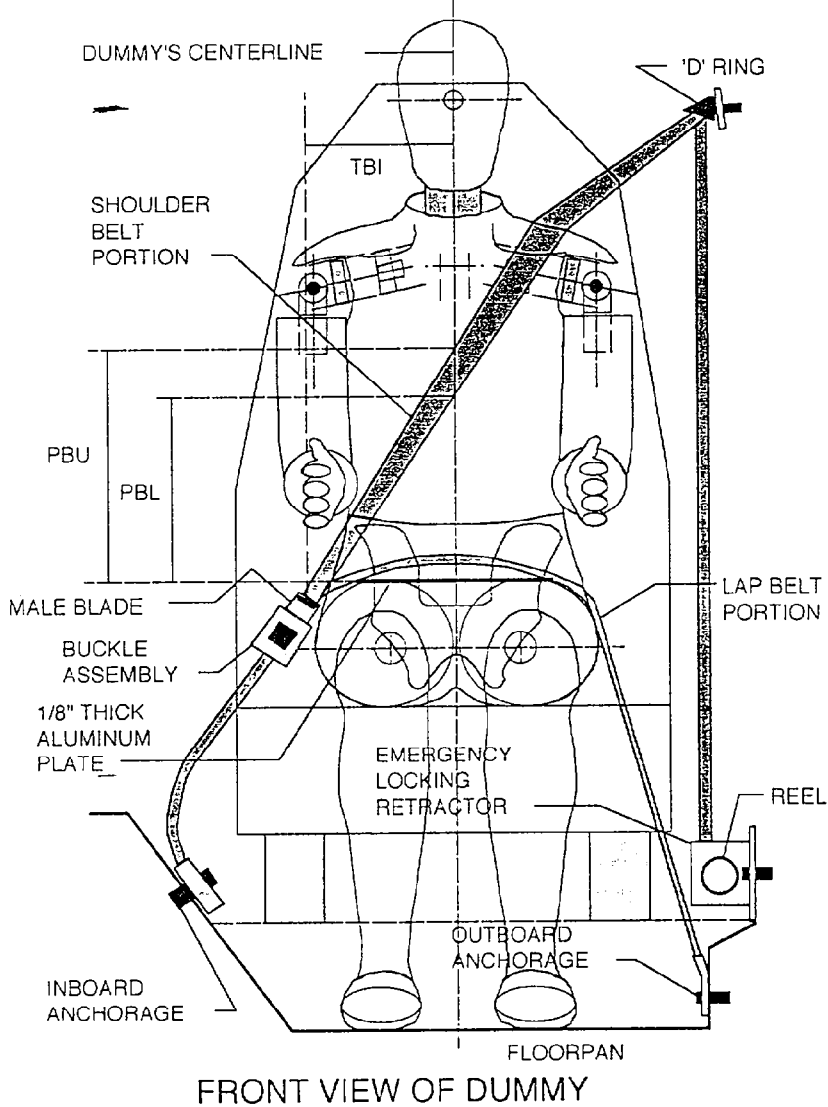
	DRIVER (Serial No. <u>35</u>)	PASS. (Serial No. <u>34</u>)
WA°	32°	
SWA°	65°	
SCA°	30°	
SA°	25.0°	25.0°
HZ	170 mm	180 mm
HH	310 mm	340 mm
HW	550 mm	530 mm
HR	240 mm	210 mm
NR	490 @ 12°	-
CD	557 mm	610 mm
CS	320 mm	-
RA	210 mm	-
KDL	170 mm	100 mm
KDR	160 mm	100 mm
PA°	28.0°	27.0°
TA°	51°	45°
KK	285 mm	260 mm
ST	550 mm @ 61.0°	555 mm
SK	540 mm @ 40°	590 mm @ 38°
SH	229 mm @ 25.0°	229 mm
SHY	249 mm	280 mm
HS	213 mm	220 mm
HD	200 mm	220 mm
AD	95 mm	40 mm

DATA SHEET NO. 6

SEAT BELT POSITIONING DATA

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU--Top surface of aluminum plate to belt upper edge	320	340
PBL--Top surface of aluminum plate to belt lower edge	240	255

SEAT BELT POSITIONING DATA



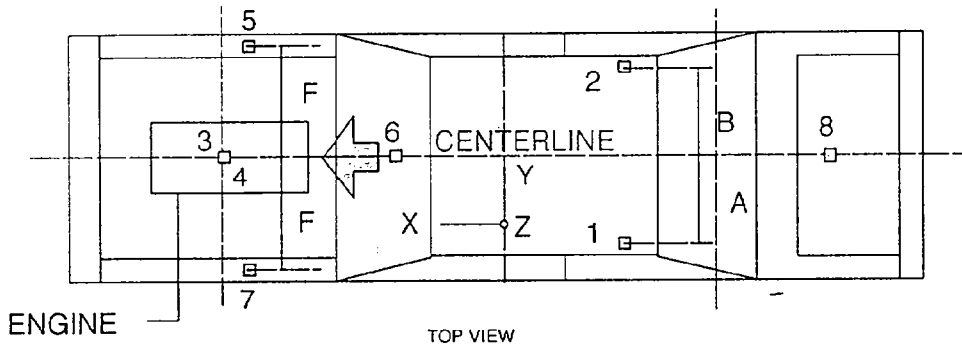
DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

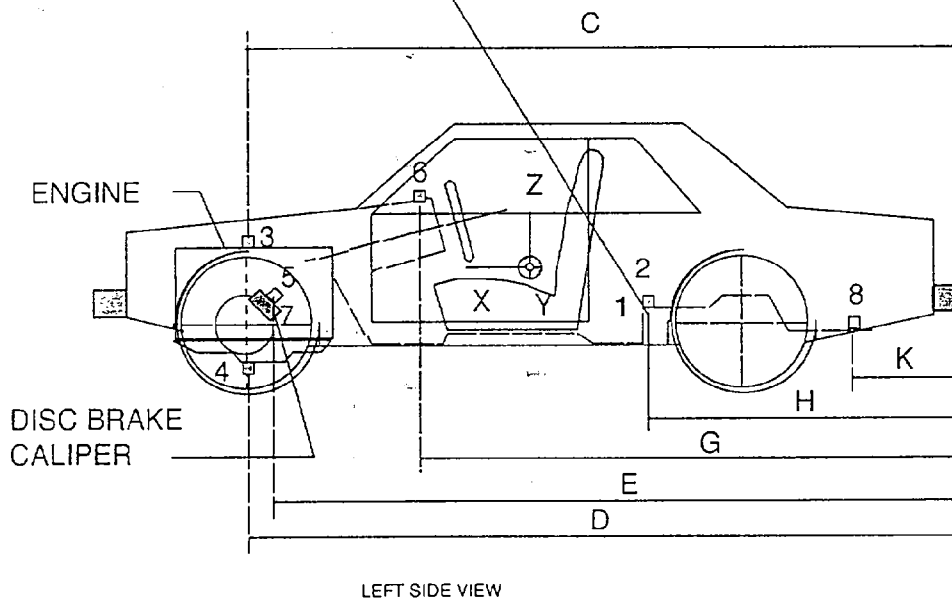
DIMENSION	LENGTH (mm)	
	PRETEST VALUES	POST TEST VALUES
A	622	622
B	622	622
C	3800	3476
D	3606	3350
E	3505	3408
F	635	655
G	2844	2844
H	1570	1570
K	1480	1480

LOCATION NO.	DESCRIPTION	MAXIMUM VALUE (G's)			
		Max.	msec.	Min.	msec.
1	Rear Seat X-Member @ Left Side	3.2	113.7	-46.3	32.3
2	Rear Seat X-Member @ Right Side	4.0	112.7	-44.2	34.4
3	Top of Engine Block	65.2	36.2	-176.0	26.5
4	Bottom of Engine	29.3	36.9	-134.0	26.5
5	Disc Brake Caliper @ Left Side	40.4	58.2	-85.6	35.4
6	Disc Brake Caliper @ Right Side	15.7	60.3	-83.7	41.5
7	Instrument Panel	79.8	40.9	-142.3	46.0
8	Left Rear, Redundant	3.2	113.1	-49.9	32.2
9	Right Rear, Redundant	3.8	112.3	-41.5	34.1

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



DATA SHEET NO. 8

DUMMY INJURY CRITERIA VALUES

VEHICLE MODEL YEAR & MAKE: 1997 KIA SEPHIA

NHTSA No.: MV0503

MAXIMUM HEAD ACCELERATIONS - PRIMARY (G's)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Head CG - X	114.4	116.7	-71.8	76.3	11.6	287.4	-55.3	74.5
Head CG - Y	7.0	89.2	-17.9	120.3	4.5	37.1	-19.6	95.3
Head CG - Z	7.9	61.0	-43.5	116.1	18.8	52.5	-10.3	49.4
Head CG Resultant	120.0	116.6			56.4	74.5		

MAXIMUM CHEST ACCELERATIONS - PRIMARY (G's)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Chest CG - X	5.6	189.0	-44.0	57.4	3.2	299.9	-52.9	71.1
Chest CG - Y	4.2	65.2	-5.0	46.8	3.0	47.0	-7.2	68.5
Chest CG - Z	24.1	58.0	-9.3	77.2	13.6	77.5	-7.5	50.0
Chest CG Resultant	49.9	57.7			53.2	71.1		

MAXIMUM FORCE - FEMUR LOAD (Newtons)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Left Femur	328.5	38.5	-7726.2	74.6	477.8	35.1	-8127.7	49.4
Right femur	738.3	44.4	-4537.0	52.4	1192.1	29.2	-7302.4	57.1

MAXIMUM FORCE - SEAT BELT LOAD (Newtons)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Lap Belt	1642.4	40.1	-33.7	226.6	2133.2	70.0	-21.2	255.0
Shoulder Belt	5831.5	62.8	-143.7	111.2	8660.6	74.6	-37.5	281.5

HEAD INJURY CRITERIA (HIC)								
LOCATION	DRIVER				PASSENGER			
	HIC	T1 (msec)	T2 (msec)	Avg. Accel.	HIC	T1 (msec)	T2 (msec)	Avg. Accel.
Head CG Primary	873.4	61.2	93.3		387.2	59.9	95.8	

CHEST CLIP (3 MSEC)						
LOCATION	DRIVER			PASSENGER		
	CLIP	T1 (msec)	T2 (msec)	CLIP	T1 (msec)	T2 (msec)
Chest CG Primary	45.0	56.4	59.4	51.9	69.3	72.3

NECK, CHEST, PELVIC, LOWER LEG AND FOOT DATA

UPPER NECK MAXIMUM FORCES (Newtons) & MOMENTS (Joules)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Neck Force 'X'	248.8	48.1	-1035.1	83.6	1504.8	73.5	-153.5	238.0
Neck Force 'Y'	129.4	181.5	-123.8	60.4	401.9	59.9	-461.9	124.2
Neck Force 'Z'	2092.3	66.6	-427.0	116.1	2520.8	67.6	-305.9	295.9
Neck Moment 'X'	3.2	48.1	-18.0	60.8	42.8	59.9	-2.7	232.3
Neck Moment 'Y'	69.9	68.9	-22.0	113.3	27.1	144.8	-112.2	74.6
Neck Moment 'Z'	4.7	189.4	-13.9	77.7	22.8	99.8	-11.4	152.3

PEAK PELVIC ACCELERATIONS (G's)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Pelvis 'X'	3.3	254.5	-48.8	58.3	3.2	256.2	-69.5	52.5
Pelvis 'Y'	11.8	99.3	-15.1	39.9	10.8	38.9	-12.0	58.7
Pelvis 'Z'	12.8	40.9	-32.5	56.5	4.5	39.9	-25.5	61.5

TIBIA PEAK FORCES & MOMENTS (G's)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Lt. Upper Moment 'Y'	N/A	N/A	N/A	N/A	284.4	39.7	-207.0	58.0
Left Lower Force 'Z'	N/A	N/A	N/A	N/A	7725.1	38.8	-402.7	281.1
Rt. Upper Moment 'Y'	N/A	N/A	N/A	N/A	75.3	41.5	-120.4	48.9
Right Lower Force 'Z'	N/A	N/A	N/A	N/A	1991.4	48.2	-154.8	119.5

N/A - Instrumentation not supplied by VRTC.

FOOT PEAK ACCELERATIONS (G's)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Left Foot Aft 'X'	189.0	43.5	-30.9	94.6	298.6	37.5	-188.0	45.4
Left Foot Aft 'Z'	142.8	42.1	-174.6	42.6	130.6	44.3	-199.4	38.8
Left Foot Fore 'Z'	85.3	90.6	-117.7	41.0	268.0	44.5	-256.7	41.7
Right Foot Aft 'X'	174.0	39.4	-297.5	44.5	153.4	42.7	-1.9	19.5
Right Foot Aft 'Z'	83.2	46.6	-86.1	52.3	56.0	39.9	-39.3	47.6
Right Foot Fore 'Z'	165.1	40.5	-337.4	35.9	126.2	47.9	-119.4	44.2

REDUNDANT DUMMY INJURY CRITERIA VALUES

MAXIMUM HEAD ACCELERATIONS - REDUNDANT (G's)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Head CG - X	116.6	116.7	-71.3	76.4	12.6	288.1	-56.8	74.6
Head CG - Y	7.3	86.9	-16.5	116.2	4.7	61.4	-15.8	93.0
Head CG - Z	7.7	60.7	-31.8	66.4	21.5	57.4	-6.9	48.6
Head CG Resultant	117.7	116.7			57.4	75.4		

MAXIMUM CHEST ACCELERATIONS - REDUNDANT (G's)								
LOCATION	DRIVER				PASSENGER			
	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Chest CG - X	6.0	188.7	-46.0	57.4	4.2	299.9	-54.6	71.2
Chest CG - Y	6.3	65.9	-4.0	47.2	5.8	47.1	-6.7	68.6
Chest CG - Z	21.2	58.1	-11.3	77.3	15.6	77.6	-8.0	50.3
Chest CG Resultant	50.3	57.7			54.8	71.2		

REDUNDANT HEAD INJURY CRITERIA (HIC)								
LOCATION	DRIVER				PASSENGER			
	HIC	T1 (msec)	T2 (msec)	Avg. Accel.	HIC	T1 (msec)	T2 (msec)	Avg. Accel.
Head CG Redundant	855.8	62.7	92.4		392.4	57.2	93.1	

REDUNDANT CHEST CLIP (3 MSEC)						
LOCATION	DRIVER			PASSENGER		
	CLIP	T1 (msec)	T2 (msec)	CLIP	T1 (msec)	T2 (msec)
Chest CG Redundant	46.1	56.3	59.3	53.4	69.3	72.3

DATA SHEET NO. 9

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

VEHICLE MODEL YEAR & MAKE: 1997 KIA SEPHIA NHTSA No.: MV0503

BELT LENGTH DATA (mm)	DRIVER	PASSENGER
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	2845	2845
Shoulder belt length as measured on Part 572 Dummy	775	775
Lap belt length as measured on Part 572 Dummy	762	762

SHOULDER BELT SPOOL-OFF DATA (mm)	DRIVER	PASSENGER
As determined by film analysis	100	90
As determined mechanically	105	110
As determined electronically	91.8	100.7

BELT STRETCH DATA (cm/cm)	DRIVER	PASSENGER
Measured electronically between shoulder belt load cell and the "D" ring	0.098	(channel failed)
Measured mechanically	0.01	0.01

DATA SHEET NO. 10

SUMMARY OF FMVSS 212 DATA

VEHICLE MODEL YEAR & MAKE: 1997 KIA SEPHIA NHTSA No.: MV0503

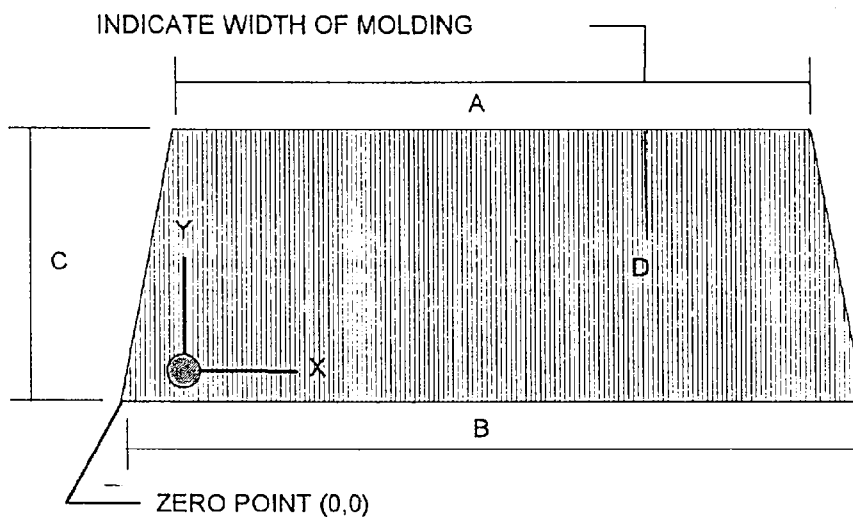
Details of windshield mounting (method of retention, type of trim, etc.):

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

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

WINDSHIELD PERIPHERY MEASUREMENTS (mm)			
	PRETEST	POST TEST	PERCENT RETENTION
Right Side	2050	1540	75
Left Side	2050	2050	100
Total	4100	3590	87.5

Indicate area of retention failure.



FRONT VIEW OF WINDSHIELD

Width of molding = Top & Side 10 mm, Bottom 17 mm.

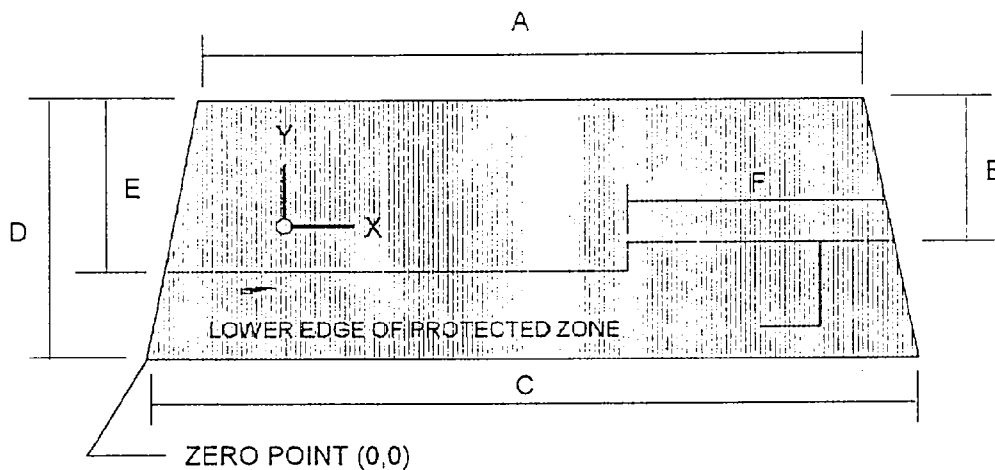
Temperature of windshield molding during test = 23.8 °C

WINDSHIELD ZONE INTRUSION FMVSS 219 DATA

VEHICLE MODEL YEAR & MAKE: 1997 KIA SEPHIA NHTSA No.: MV0503

SKETCH OF FRONT VIEW OF WINDSHIELD:

Provide all dimensions necessary to reproduce the protected area.



FRONT VIEW OF WINDSHIELD

WINDSHIELD MEASUREMENTS:

- A = 1120 mm
- B = 350 mm
- C = 1430 mm
- D = 775 mm
- E = 515 mm
- F = 840 mm

Data Sheet No. 11 (Continued)

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

C. Record any windshield retention clips or brackets used to insure that the windshield would not disengage from the body.

DATA SHEET NO. 12

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

VEHICLE MODEL YEAR & MAKE: 1997 KIA NHTSA NO.: MV0503

VEHICLE MODEL & BODY STYLE: SEPHIA TEST DATE: 05/01/97

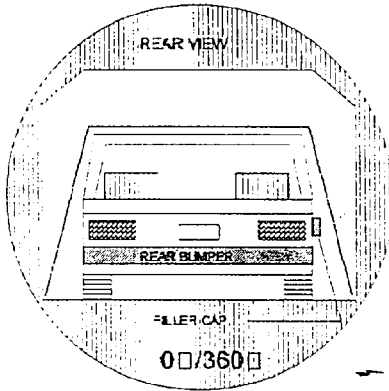
TYPE OF IMPACT: Frontal Barrier

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

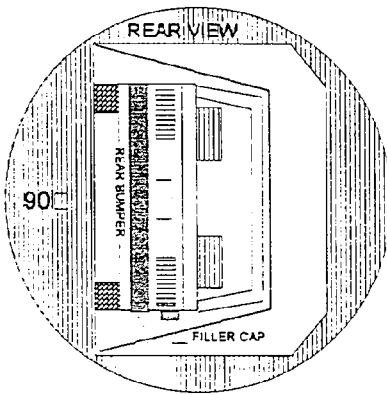
FMVSS 301 STATIC ROLLOVER DATA SHEET



A. TEST PHASE = 0° TO 90°

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = 1 minutes, 21 seconds
(Specified Range is 1 to 3 minutes)
2. FMVSS 301 Position Hold
Time = 5 minutes, 0 seconds
3. TOTAL = 6 minutes, 21 seconds
4. NEXT WHOLE MINUTE INTERVAL = 7 minutes

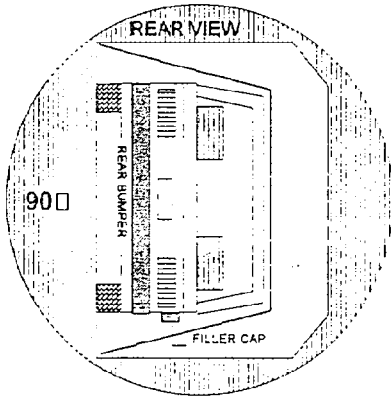


Actual Test Vehicle Stoddard Solvent Spillage:

1. First 5 min. from onset of rotation = 0 oz.
(5 oz. allowed)
2. 6th minute = 0 oz.
(1 oz. allowed)
3. 7th minute = 0 oz.
(1 oz. allowed)
4. 8th minute (if required) =
N/A oz. (1 oz. allowed)

Provide Details of Stoddard Solvent Spillage Locations--

No solvent leakage occurred during rollover tests.



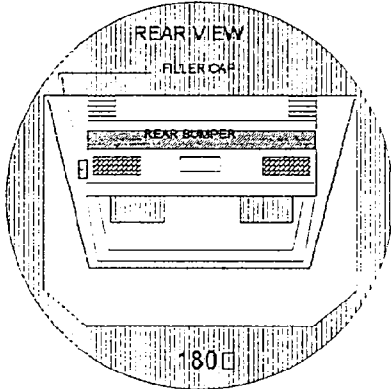
B. TEST PHASE = 90° TO 180°

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = 1 minutes, 20 seconds (Specified Range is 1 to 3 minutes)
2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds
3. TOTAL = 6 minutes, 20 seconds
4. NEXT WHOLE MINUTE INTERVAL = 13 minutes

Actual Test Vehicle Stoddard

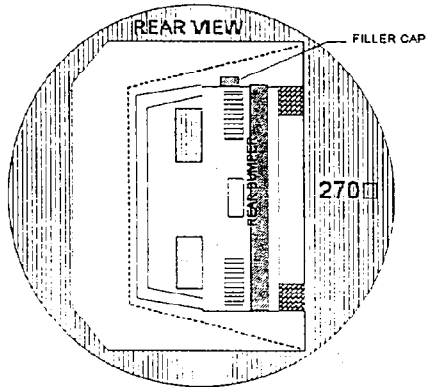
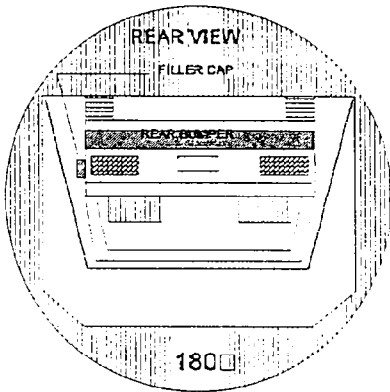
Solvent Spillage:



1. First 5 min. from onset of rotation = 0 oz. (5 oz. allowed)
2. 6th minute = 0 oz. (1 oz. allowed)
3. 7th minute = 0 oz. (1 oz. allowed)
4. 8th minute (if required) = N/A oz. (1 oz. allowed)

Provide Details of Stoddard Solvent Spillage Locations--

No solvent leakage occurred during rollover tests.



C. TEST PHASE = 180° TO 270°

Determination of Stoddard Solvent Collection Time Period:

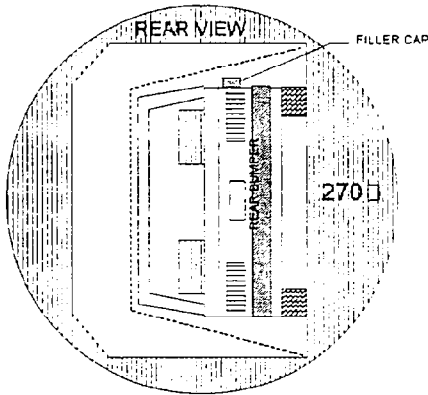
1. Rollover Fixture 90° Rotation Time = 1 minutes, 20 seconds (Specified Range is 1 to 3 minutes)
2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds
3. TOTAL = 6 minutes, 20 seconds
4. NEXT WHOLE MINUTE INTERVAL = 20 minutes

Actual Test Vehicle Stoddard Solvent Spillage:

1. First 5 min. from onset of rotation = 0 oz. (5 oz. allowed)
2. 6th minute = 0 oz. (1 oz. allowed)
3. 7th minute = 0 oz. (1 oz. allowed)
4. 8th minute (if required) = N/A oz. (1 oz. allowed)

Provide Details of Stoddard Solvent Spillage Locations--

No solvent leakage occurred during rollover tests.

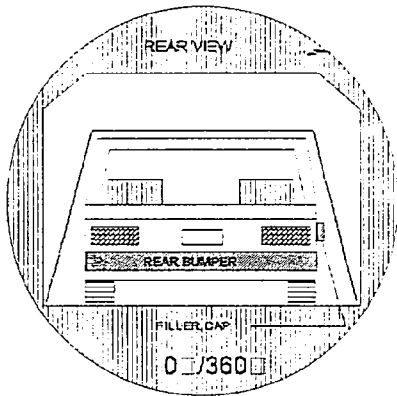


D. TEST PHASE = 270° TO 360°

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = 1 minutes, 20 seconds (Specified Range is 1 to 3 minutes)
2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds
3. TOTAL = 6 minutes, 20 seconds
4. NEXT WHOLE MINUTE INTERVAL = 27 minutes

Actual Test Vehicle Stoddard Solvent Spillage:



1. First 5 min. from onset of rotation = 0 oz. (5 oz. allowed)
2. 6th minute = 0 oz. (1 oz. allowed)
3. 7th minute = 0 oz. (1 oz. allowed)
4. 8th minute (if required) = N/A oz. (1 oz. allowed)

Provide Details of Stoddard Solvent Spillage Locations--

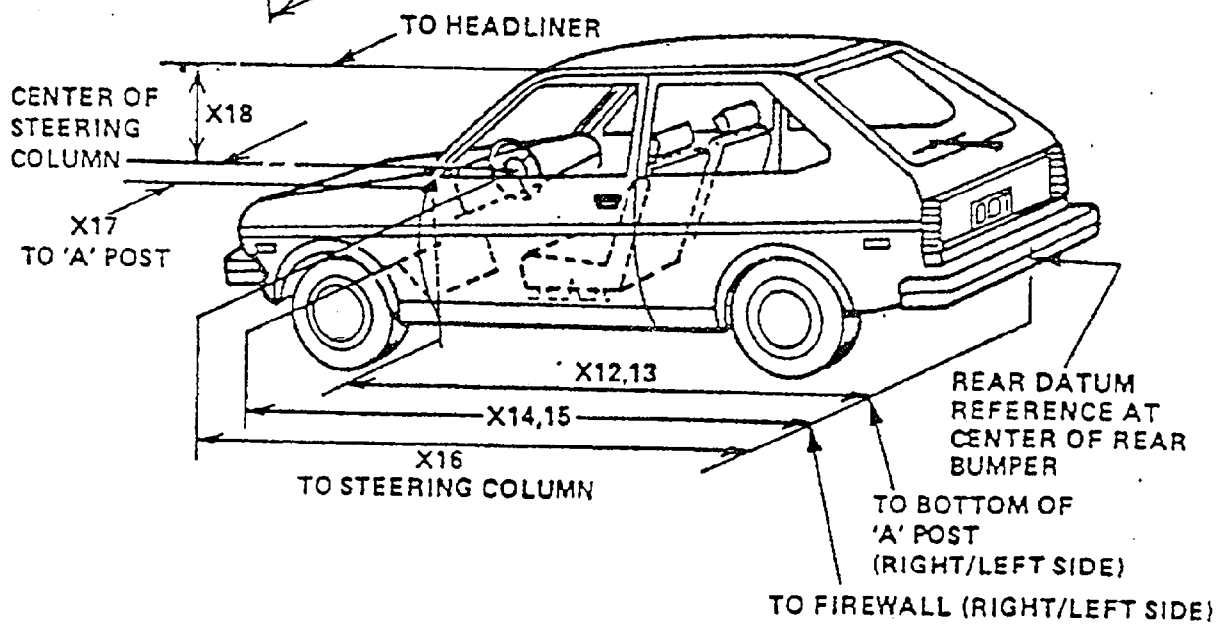
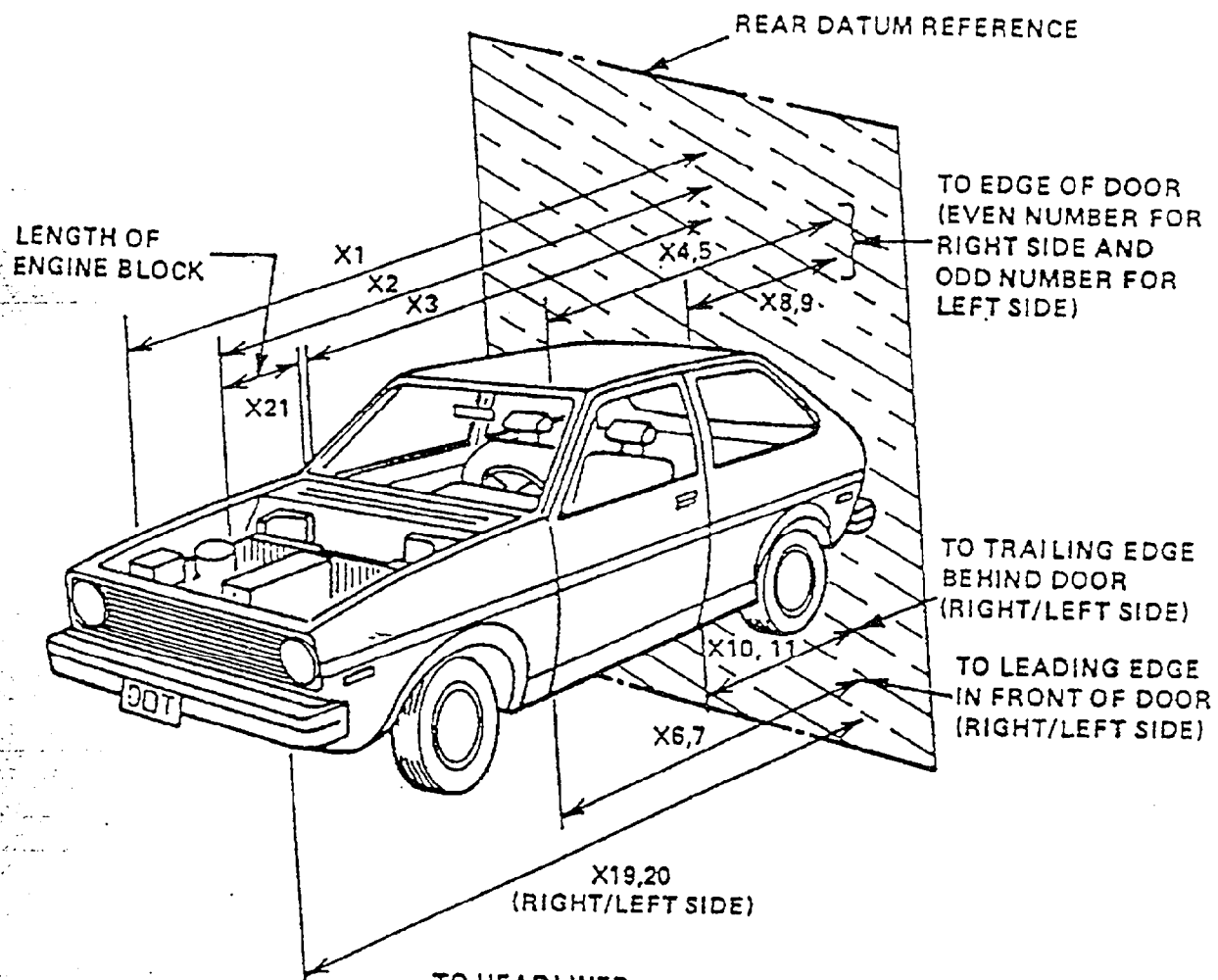
No solvent leakage occurred during rollover tests.

DATA SHEET NO. 14
VEHICLE MEASUREMENTS

VEHICLE MODEL YEAR & MAKE: 1997 KIA

NHTSA No.: MV0503

NO.	MEASUREMENT DESCRIPTION	DIMENSIONS IN MM		
		PRE-TEST	POST-TEST	DIFFERENCE
1	Total length of vehicle at centerline	4340	3810	530
2	Rear surface of vehicle (RSOV) to front of engine	3860	3594	266
3	RSOV to firewall centerline	3280	3152	128
4	RSOV to leading edge of right door	3027	3007	20
5	RSOV to leading edge of left door	3020	2990	30
6	RSOV to lower leading edge of right door	3013	2996	17
7	RSOV to lower leading edge of left door	3000	3002	-2
8	RSOV to upper trailing edge of right door	1973	1960	13
9	RSOV to upper trailing edge of left door	1969	1970	-1
10	RSOV to lower trailing edge of right door	1963	1944	19
11	RSOV to lower trailing edge of left door	1950	1950	0
12	RSOV to bottom of right 'A' pillar	2965	2941	24
13	RSOV to bottom of left 'A' pillar	2975	2970	5
14	RSOV to firewall on right side	3280	3165	115
15	RSOV to firewall of left side	3270	3160	110
16	RSOV to steering column	2520	2610	-90
17	Center of steering column to left 'A' pillar	280	330	-50
18	Center of steering column to headlining	425	380	45
19	RSOV to right side of front bumper	4165	3707	458
20	RSOV to left side of front bumper	4145	3770	375
21	Length of engine block	440	440	0
22	Right side to dash panel	2745	2704	41
23	Center to dash panel	2730	2722	8
24	Left side to dash panel	2750	2739	11



DATA SHEET NO. 15 CAMERA LOCATIONS

VEH. NHTSA No.: MV0503

TEST DATE: 05/01/97

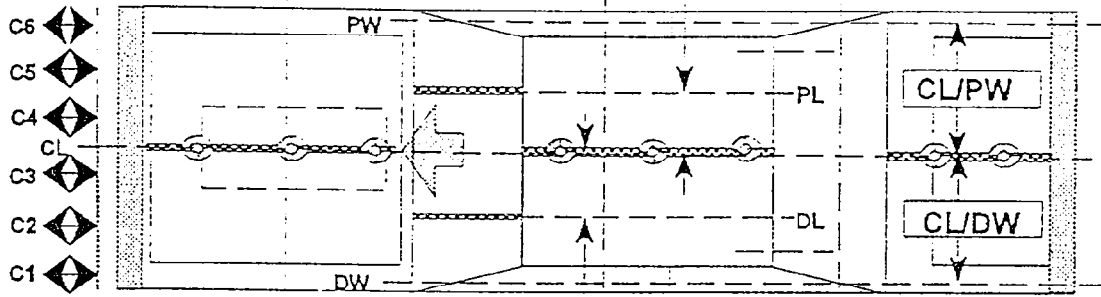
TIME: 2:05

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1997 KIA SEPHIA

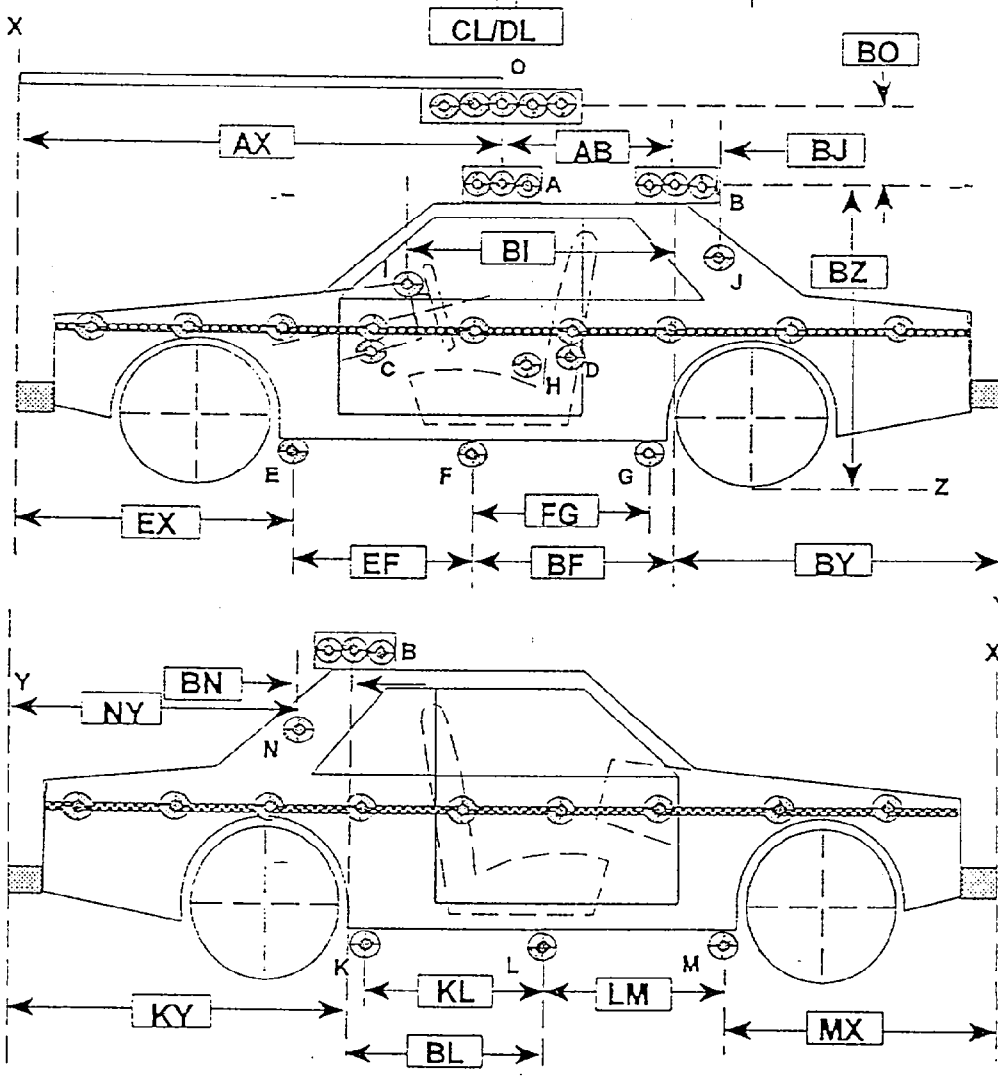
CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			ANGLE (deg.)	FILM PLANE TO HEAD TARGET (mm)	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Right Side View	3050	14500	1524	-2	14820	12-50 Zoom	24
2	Left Side View	1270	-8280	765	-3	8015	25	960
3	Left Side View	3327	-2210	1994	0	2038	80	910
4	Left Side View	3023	-2210	2070	-28	2656	14	990
5	Left Side View	2057	-8280	3073	-17	8669	25	1020
6	Left Side View	2057	-8280	2540	-11	8555	25	990
7	Right Side View	1905	8204	1219	-3	7930	17	1050
8	Right Side View	3023	11608	914	0	11318	50	* 700-1000
9	Right Side View	3226	2184	1943	-23	2936	19	920
10	Right Side View	991	9677	940	0	9757	50	* 700-1000
11	Front View Windshield	-330	0	3531	-63	N/A	12.5	500
12	Front View Driver	-292	-318	2489	-43	N/A	19	900
13	Front View Passenger	-368	318	2489	-44	N/A	19	1030
14	Pit Camera Engine View	559	0	1651	88	N/A	13	900
15	Pit Camera Fuel Tank View	4470	76	-1549	47	N/A	13	1010
16	Driver Side Belt	3429	152	572	17	N/A	13	1000
17	Passenger Side Belt	3429	-191	572	17	N/A	13	900

X - film plane to barrier face Y - film plane to monorail centerline Z - film plane to ground
 * Cameras 8 & 10 had a late build up in speed due to a faulty switch; switch replaced.

REFERENCE PHOTOGRAPH TARGETS



Distance in mm
 CL/PL = 330
 CL/PW = 750
 CL/DW = 750
 CL/DL = 330



AX = 2110
 AB = 610
 BJ = 205
 AZ = 1430
 BI = 1030
 EX = 1320
 EF = 820
 FG = 820
 BF = 500
 BY = 1735
 BN = 205
 NY = 1180
 KY = 1735
 KL = 820
 BL = 500
 LM = 820
 MX = 1320

DATA SHEET NO. 17

ACCIDENT INVESTIGATION DIVISION DATA

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1997 KIA SEPHIA

VEHICLE NHTSA NO.: MV0503

VIN: KNAFA1249V5277072

WHEELBASE: 2438 mm

BUILD DATE: 9/96

TEST DATE: 05/01/97

VEHICLE SIZE CATEGORY: Sedan

TEST WEIGHT: 1320 kg

ACCELEROMETER DATA:

LOCATION: Left and right side passenger compartment

CALIBRATION PROCEDURE: 6 months/ drop test

LINEARITY: Good INTEGRATION ALGORITHM: NHTSA Standard

VEHICLE IMPACT SPEED: 55.96 kph

TIME OF SEPARATION: 75.8 msec

VELOCITY CHANGE: 66.0 kph

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

IMPACT MODE: Frontal

CRUSH DEPTH DIMENSIONS:

C1 = 458 mm

C2 = 515 mm

C3 = 530 mm

C4 = 521 mm

C5 = 502 mm

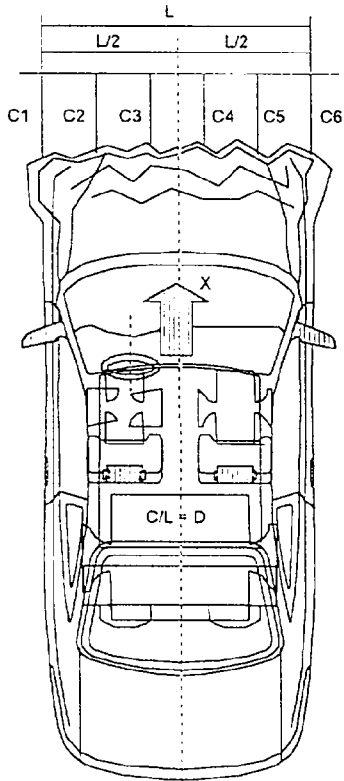
C6 = 375 mm

MIDPOINT OF DAMAGE: D = Vehicle centerline

(Vehicle Longitudinal Centerline)

LENGTH OF DAMAGE REGION:

L = 1675 mm



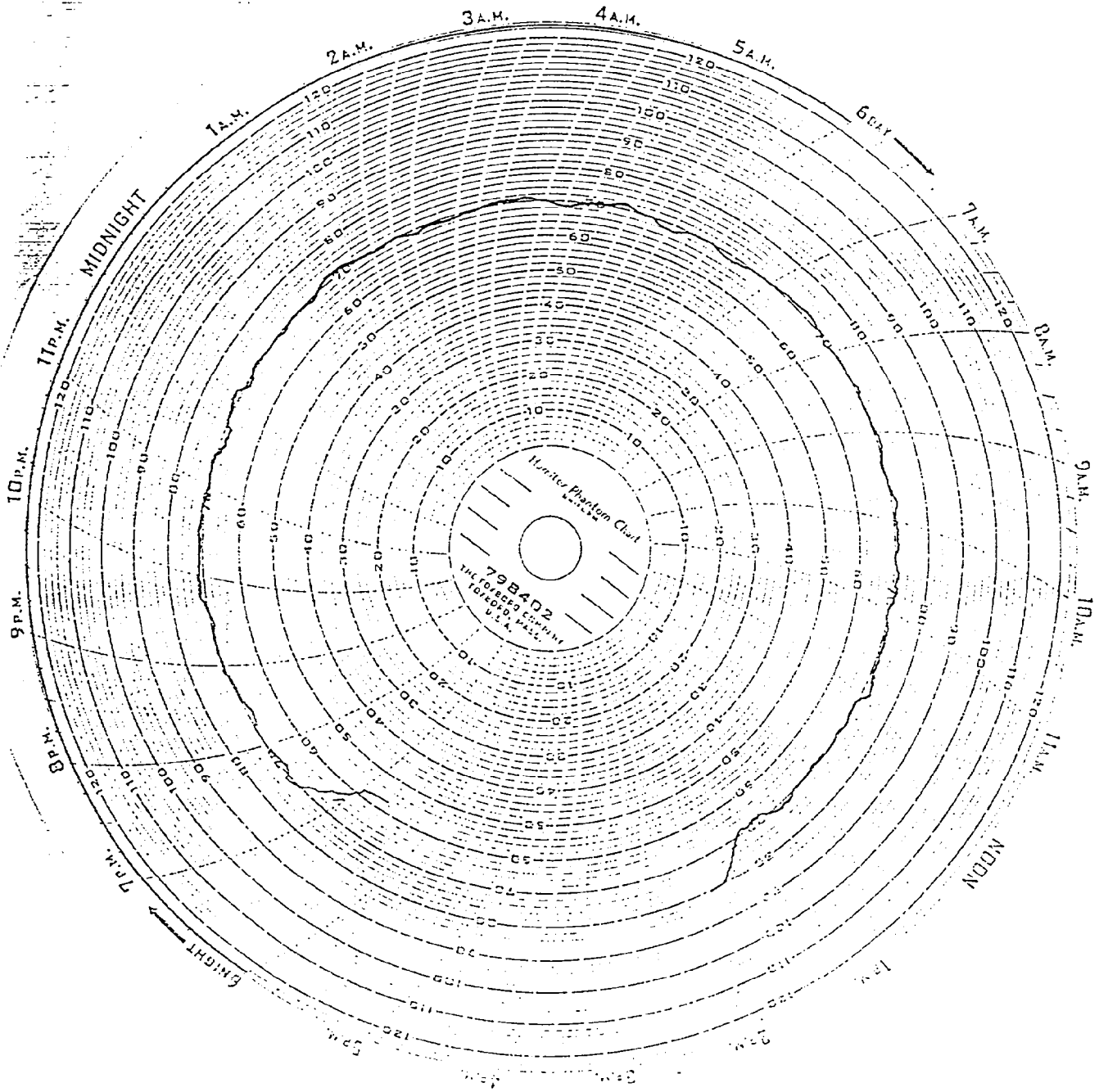
DUMMY/VEHICLE TEMPERATURE STABILIZATION

NHTSA NO. : MV0503

TEST DATE: 05/01/97

VEHICLE MODEL YEAR/MAKE/MODEL: 1997 KIA SEPHIA

TECHNICIAN: Mark. A. Kratzke



APPENDIX A
PHOTOGRAPHS

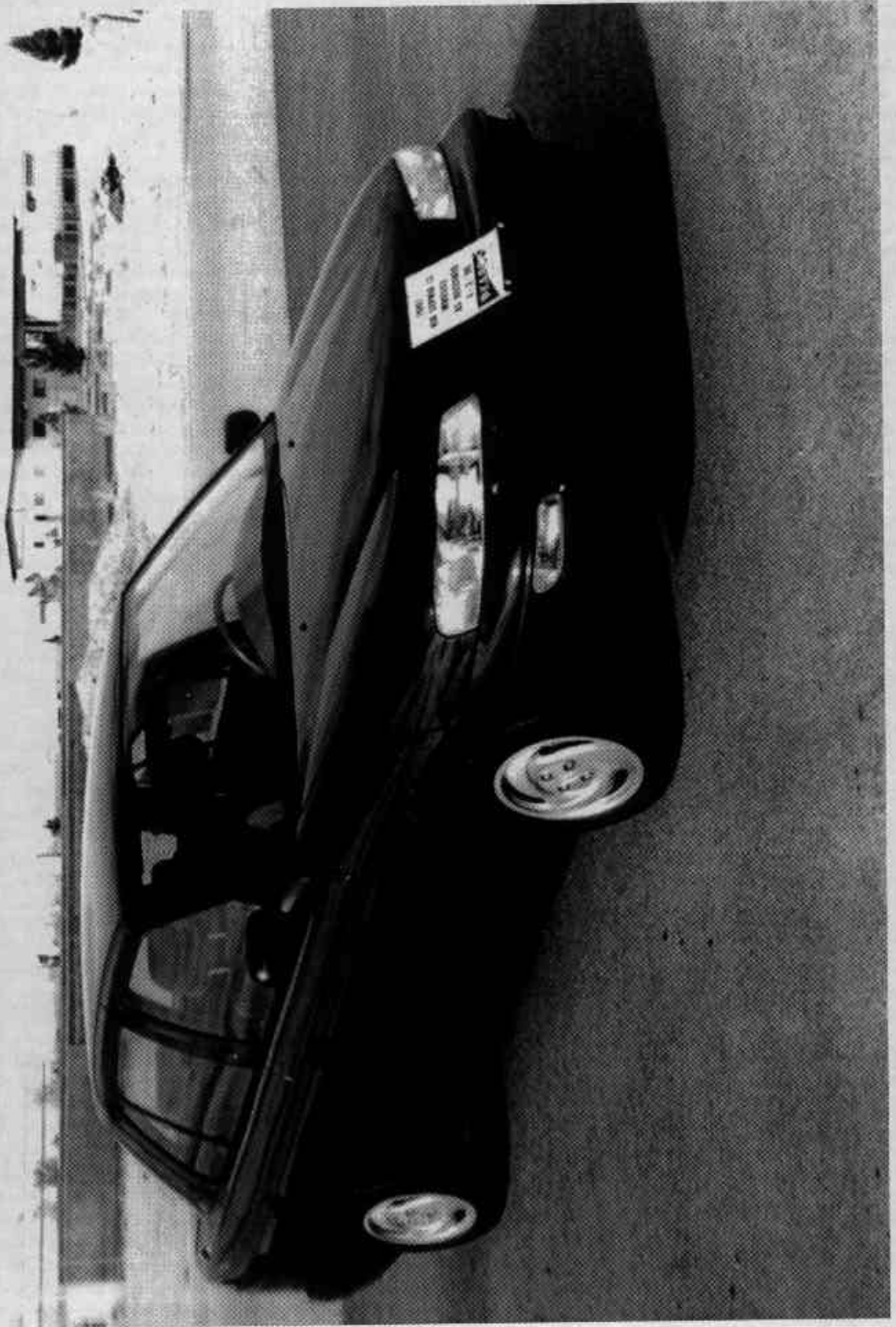


FIGURE A-1. RIGHT FRONT AS RECEIVED
A-2

KAR-96-R96024-07

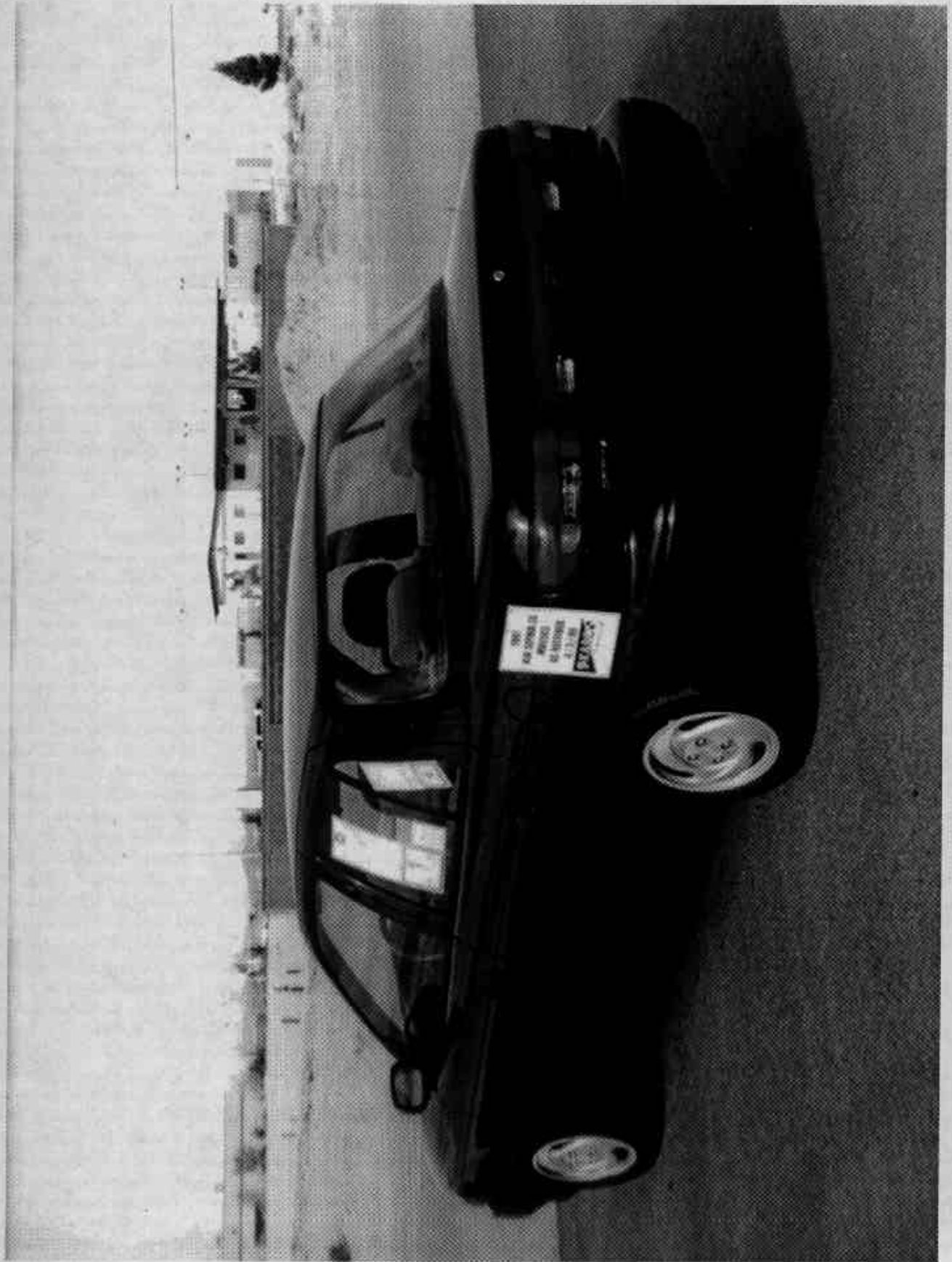


FIGURE A-2. LEFT REAR AS RECEIVED
A-3

KAR-96-R96024-07



FIGURE A-3. VEHICLE CERTIFICATION LABEL

A-4

KAR-96-R96024-07

SEPHEIA		RECOMMENDED TIRE SIZE AND INFLATION PRESSURE (COULEUR) DIMENSIONS DES PNEUS + PRESSIONS DE GONFLAGE RECOMMANDÉES (VIR)			A
LOAD RANGE / CHARGE MAXIMALE	TIRE SIZE LOAD RANGE (AS NOT PERMISSIBLE) / DIMENSIONS DES PNEUS (CHARGES MAXIMALES) C 27 2 NEW PERMISES	PRESSURE / PRESSION			
		FRONT AXLE	REAR AXLE		
STD	P175 TOR 13 82T P185 80R 14 82H	29 IN 200 kPa	29 IN 200 kPa		
T	T115 T100TS TEMPORARY SHIPARE PNEUS DE SECOURS PRESSIONS	60 IN 415 kPa	60 IN 415 kPa		
TOTAL LOAD = OCCUPANTS PLUS BAGGAGE / CHARGE TOTALE = OCCUPANTS PLUS BAGGAGES					
MODEL / MODELE	MAXIMUM LOAD / CHARGE MAXIMALE	OCCUPANTS / OCCUPANTS	DISTRIBUTION / REPARTITION		
			FRONT AXLE	REAR AXLE	LOADS / BAGGAGE
ALL TOUS	825 lb/375 kg	5	2	3	77 lb/35 kg
SEE TIRE LABELS FOR ADDITIONAL INFORMATION		FOR MODEL OF CONSTRUCTION FOR ADDITIONAL SUPPLEMENTARY			

FIGURE A-4. VEHICLE TIRE PLACARD
A-5

KAR-96-R96024-07

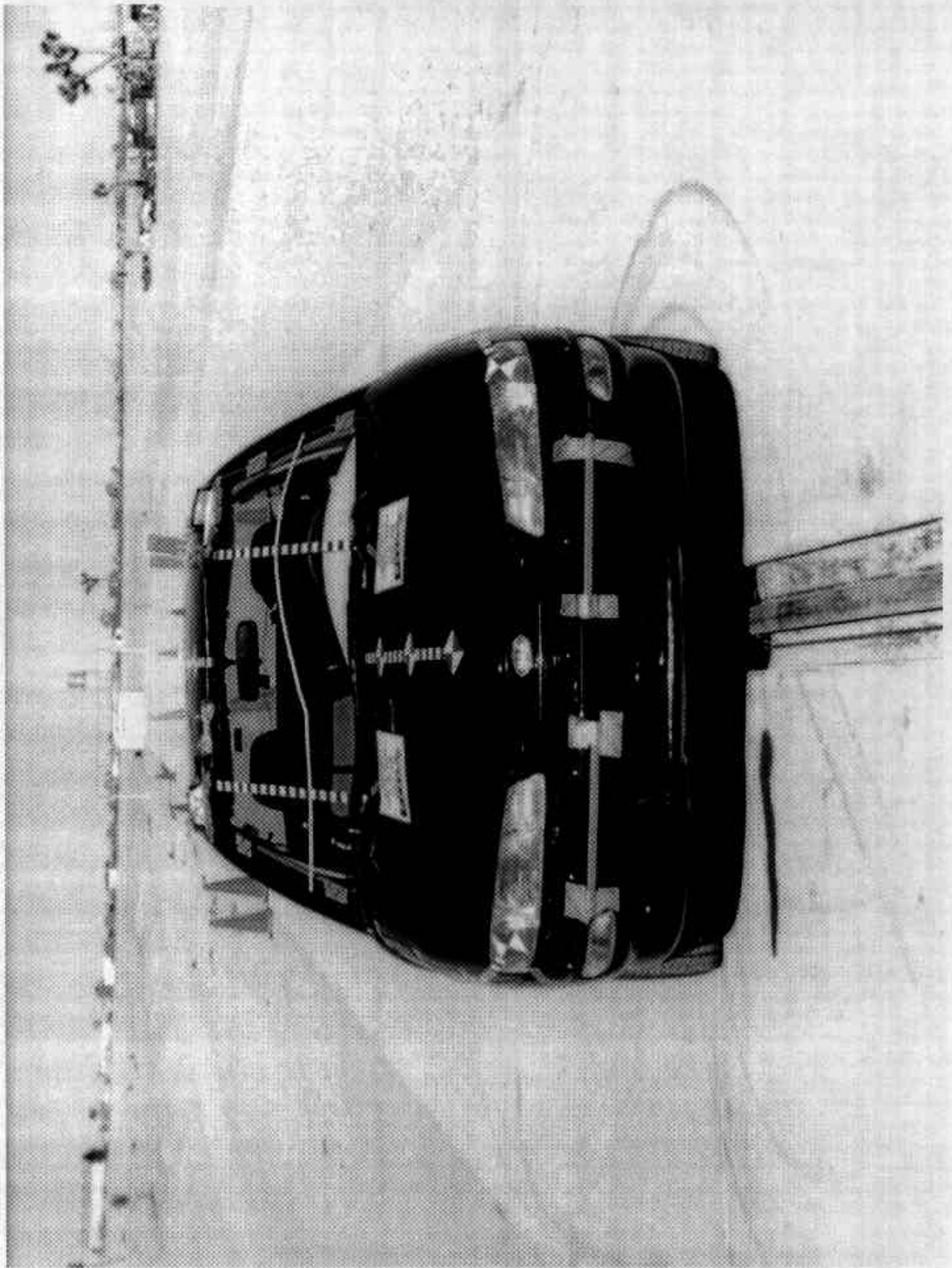


FIGURE A-5. PRE-TEST FRONT VIEW
A-6

KAR-96-R96024-07

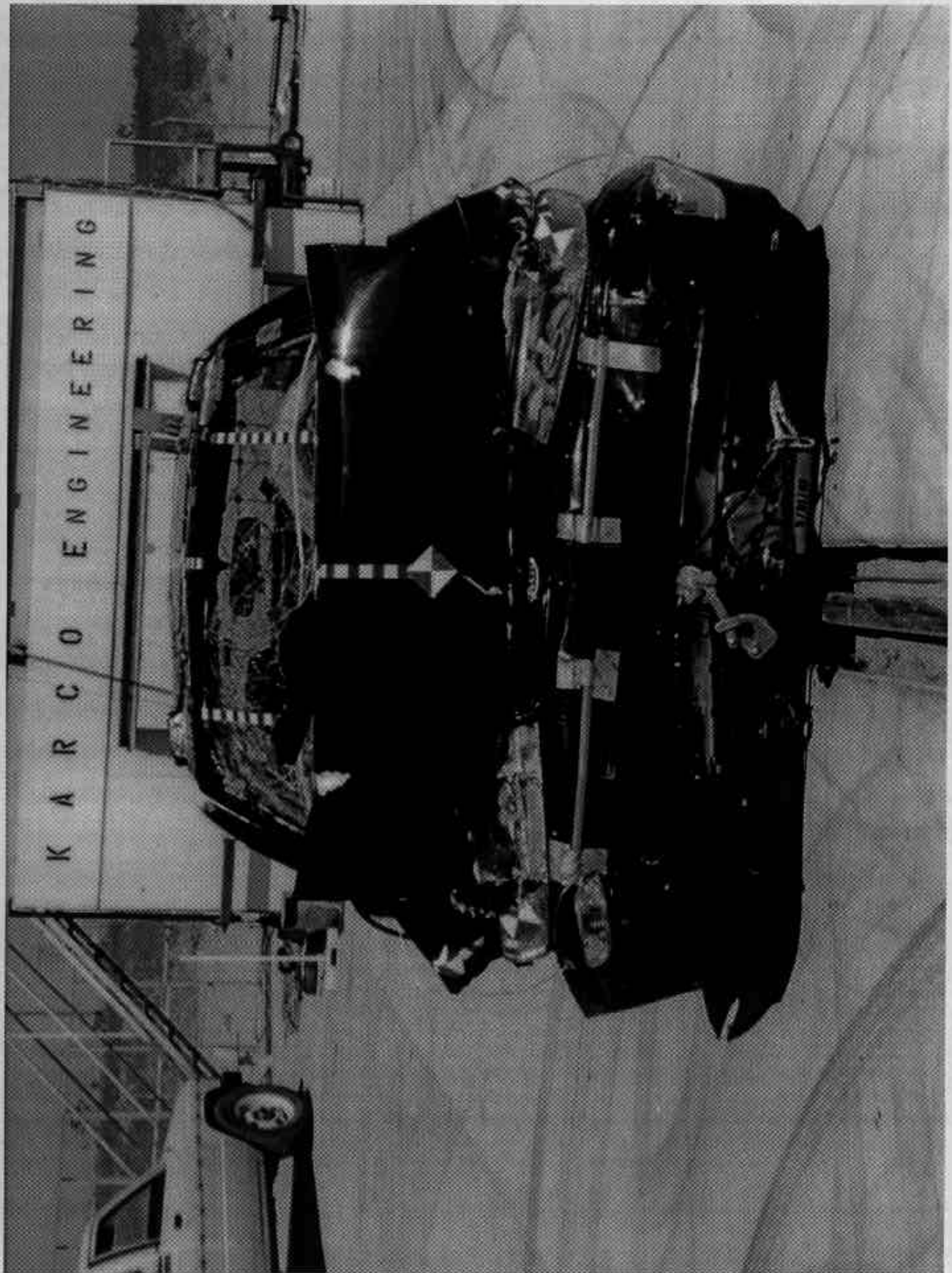


FIGURE A-6. POST-TEST FRONT VIEW
A-7

KAR-96-R96024-07

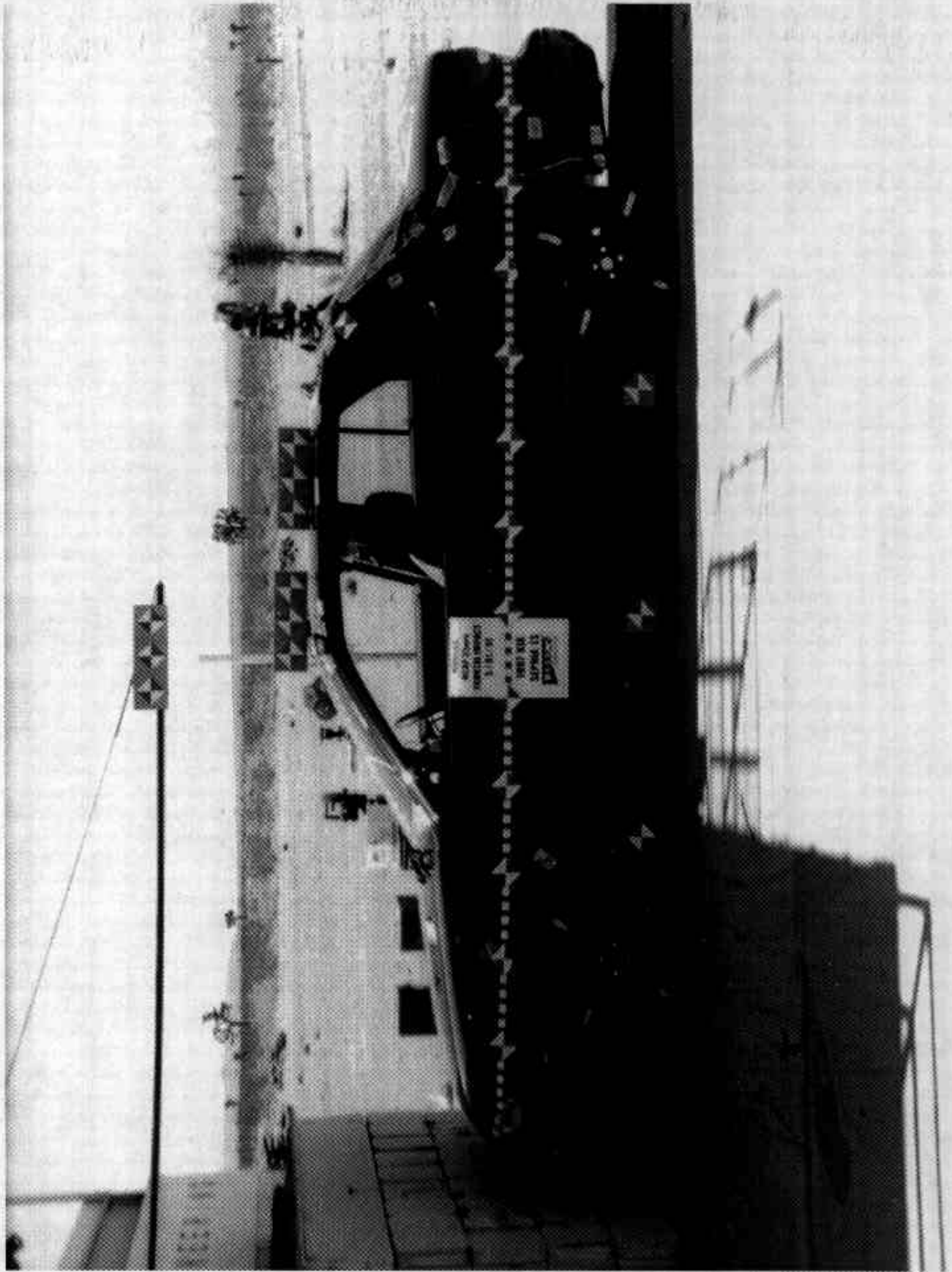


FIGURE A-7. PRE-TEST LEFT SIDE VIEW
A-8

KAR-96-R96024-07

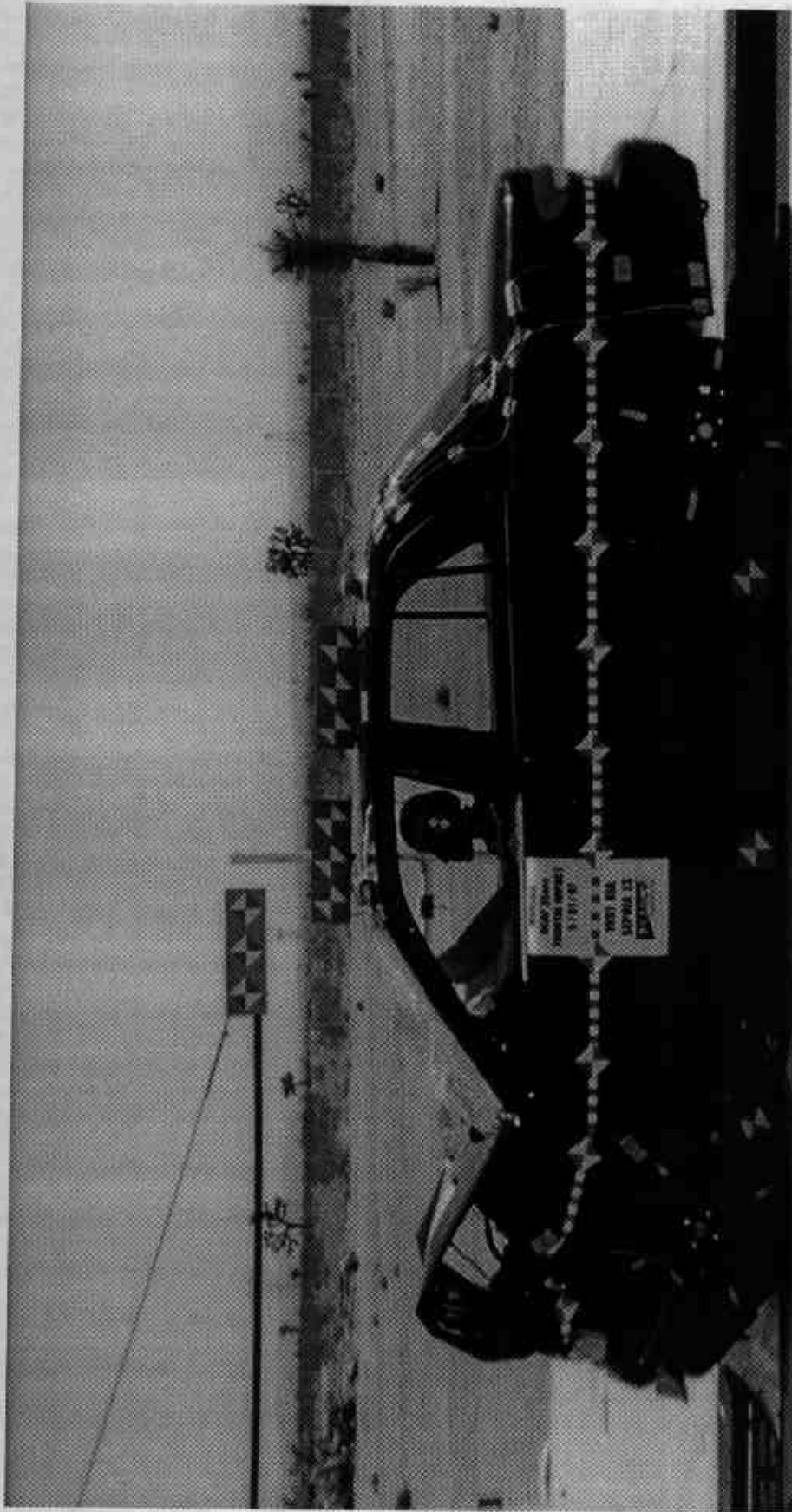


FIGURE A-8. POST-TEST LEFT SIDE VIEW
A-9

KAR-96-R96024-07

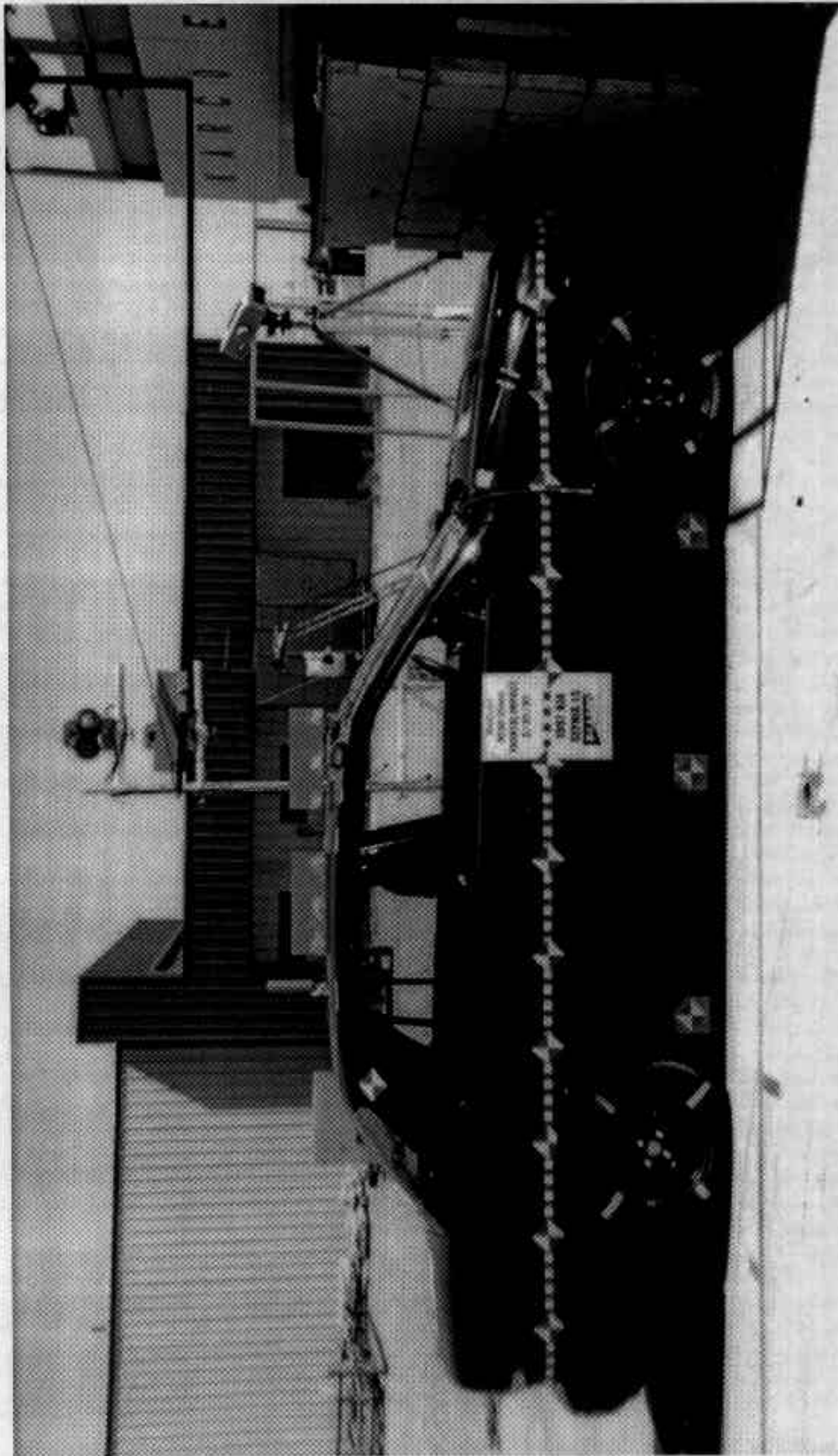


FIGURE A-9. PRE-TEST RIGHT SIDE VIEW
A-10

KAR-96-R96024-07

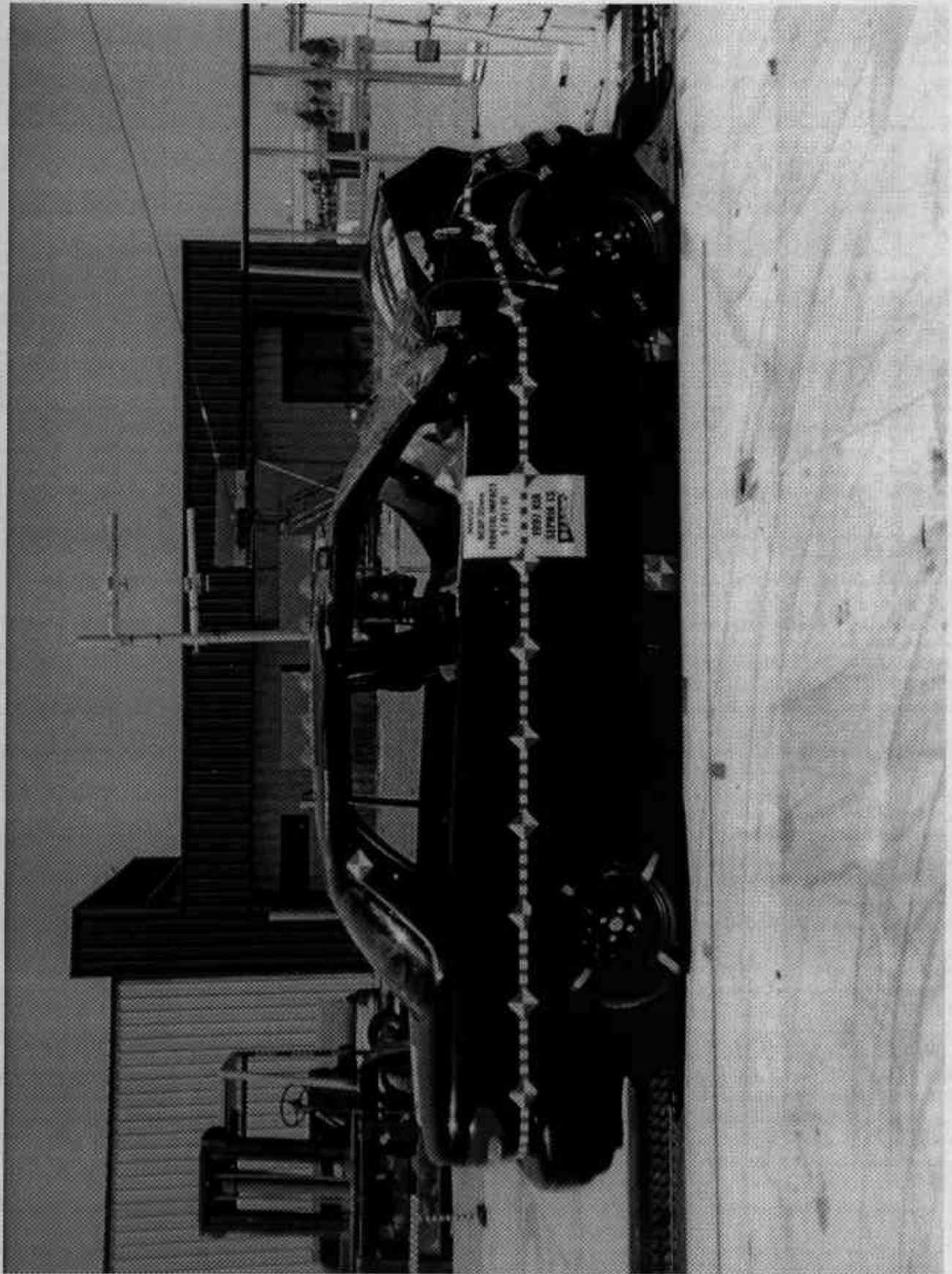


FIGURE A-10. POST-TEST RIGHT SIDE VIEW
A-11

KAR-96-R96024-07

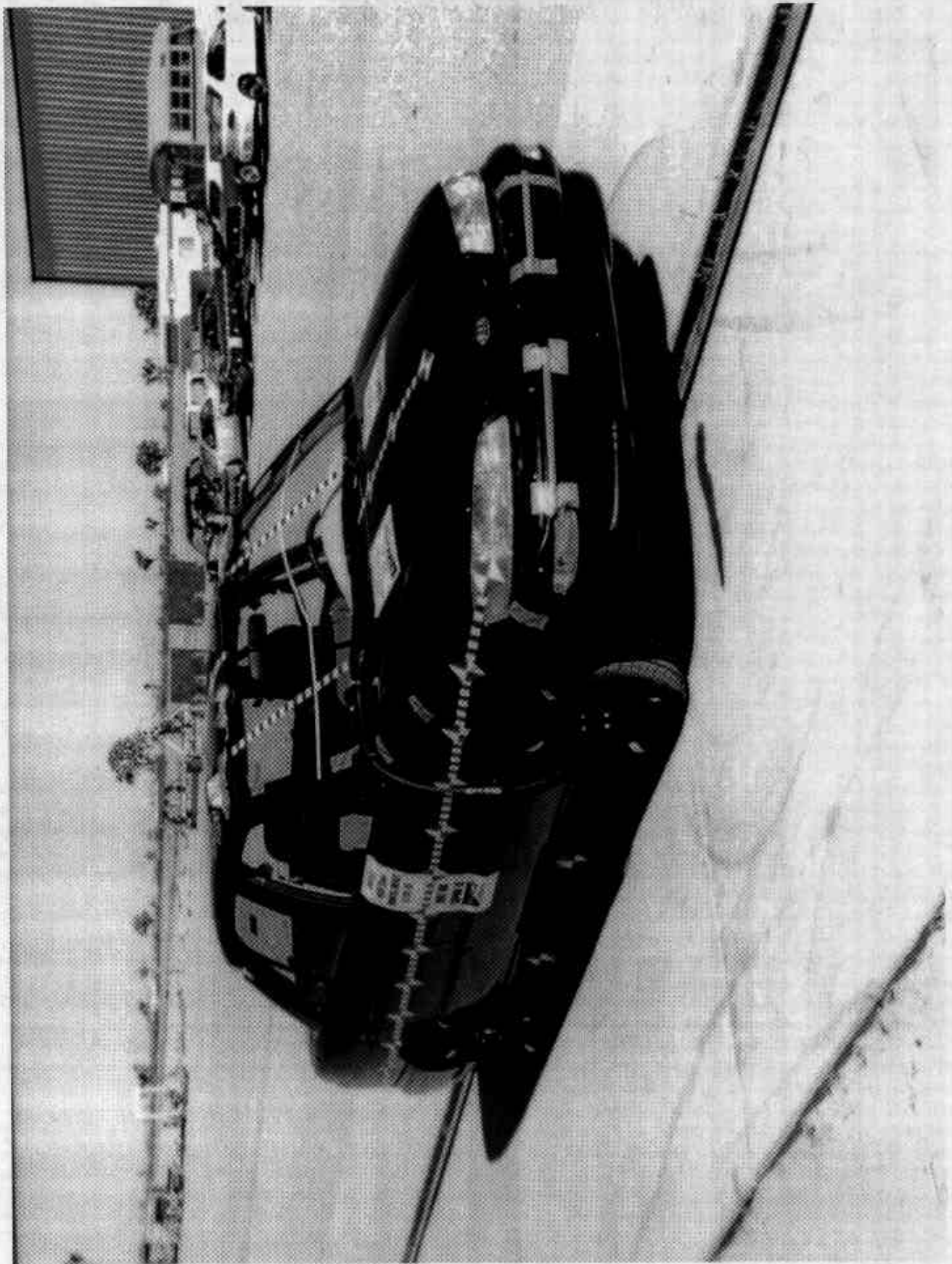


FIGURE A-11. PRE-TEST RIGHT FRONT 3/4 VIEW
A-12

KAR-96-R96024-07

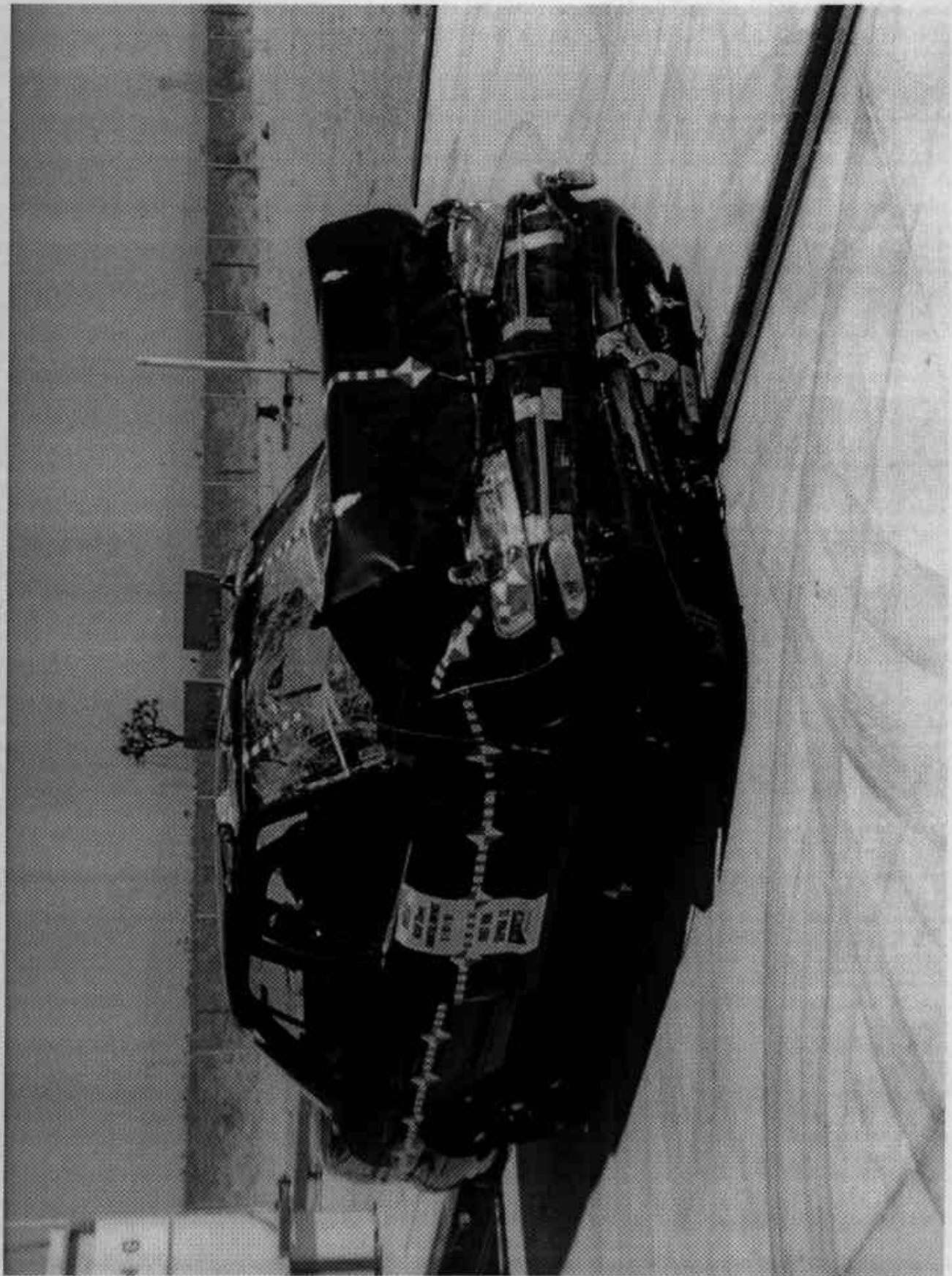


FIGURE A-12. POST-TEST RIGHT FRONT 3/4 VIEW

A-13

KAR-96-R96024-07

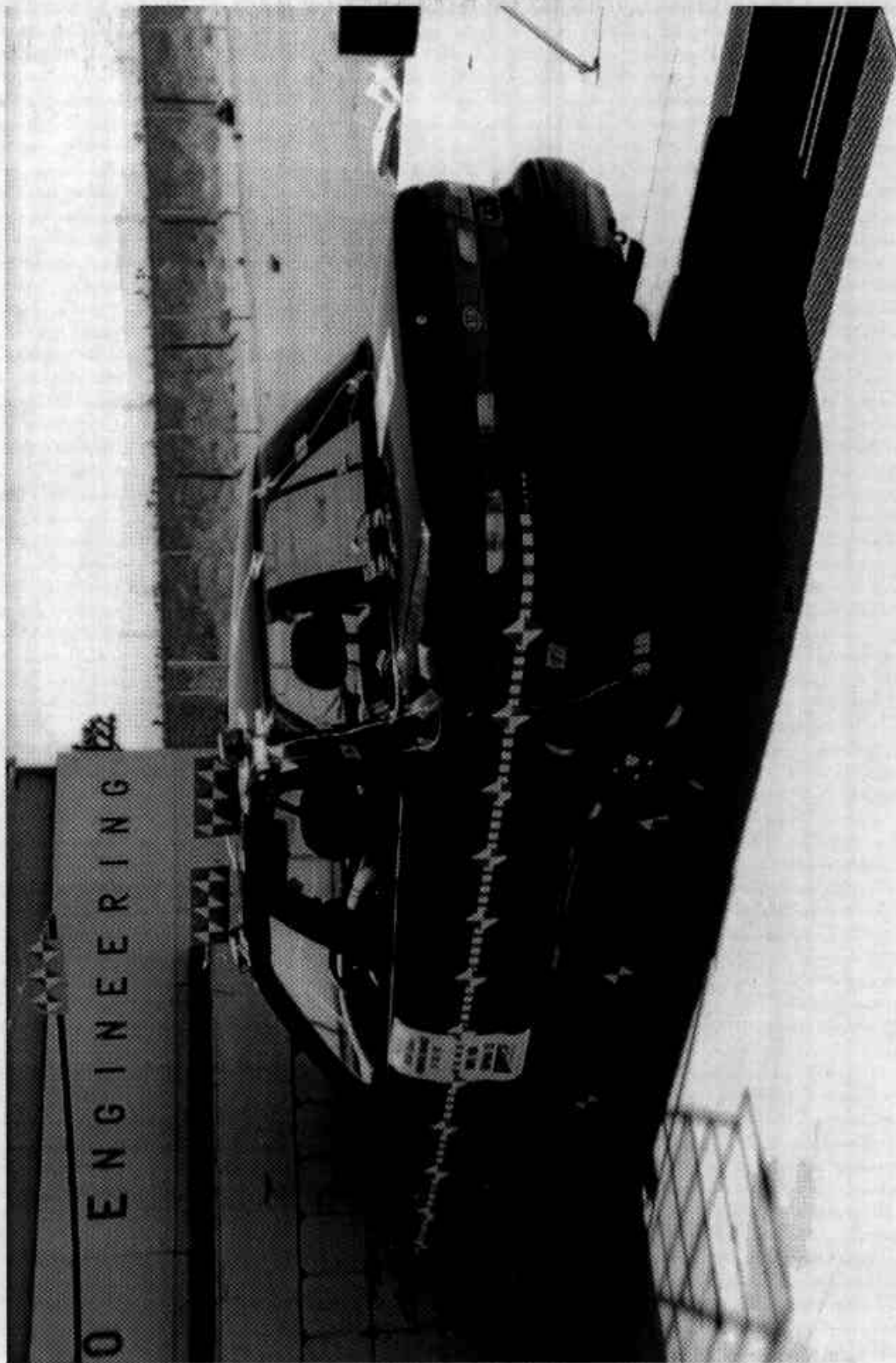


FIGURE A-13. PRE-TEST LEFT REAR 3/4 VIEW
A-14

KAR-96-R96024-07

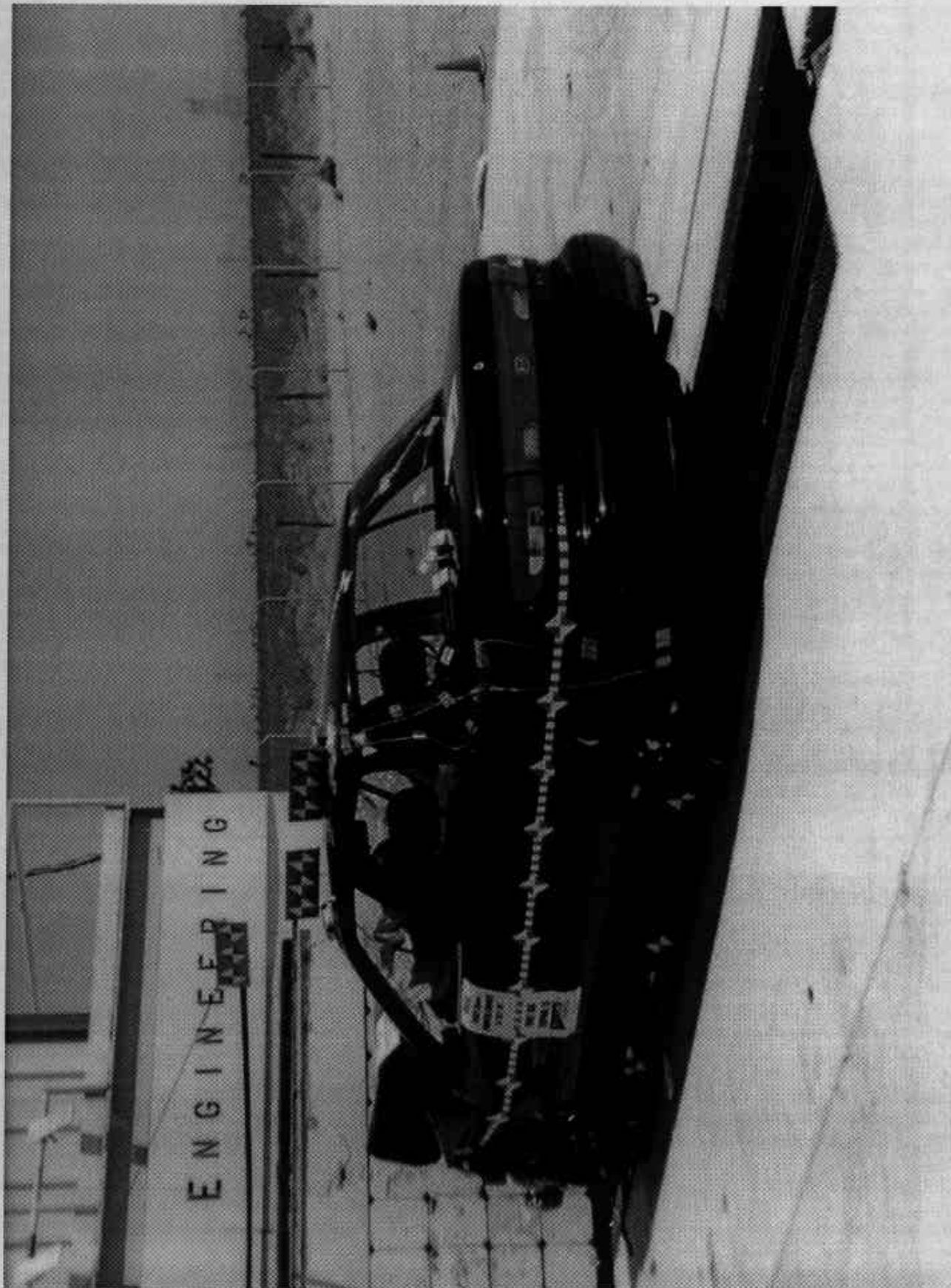


FIGURE A-14. POST-TEST LEFT REAR 3/4 VIEW
A-15

KAR-96-R96024-07

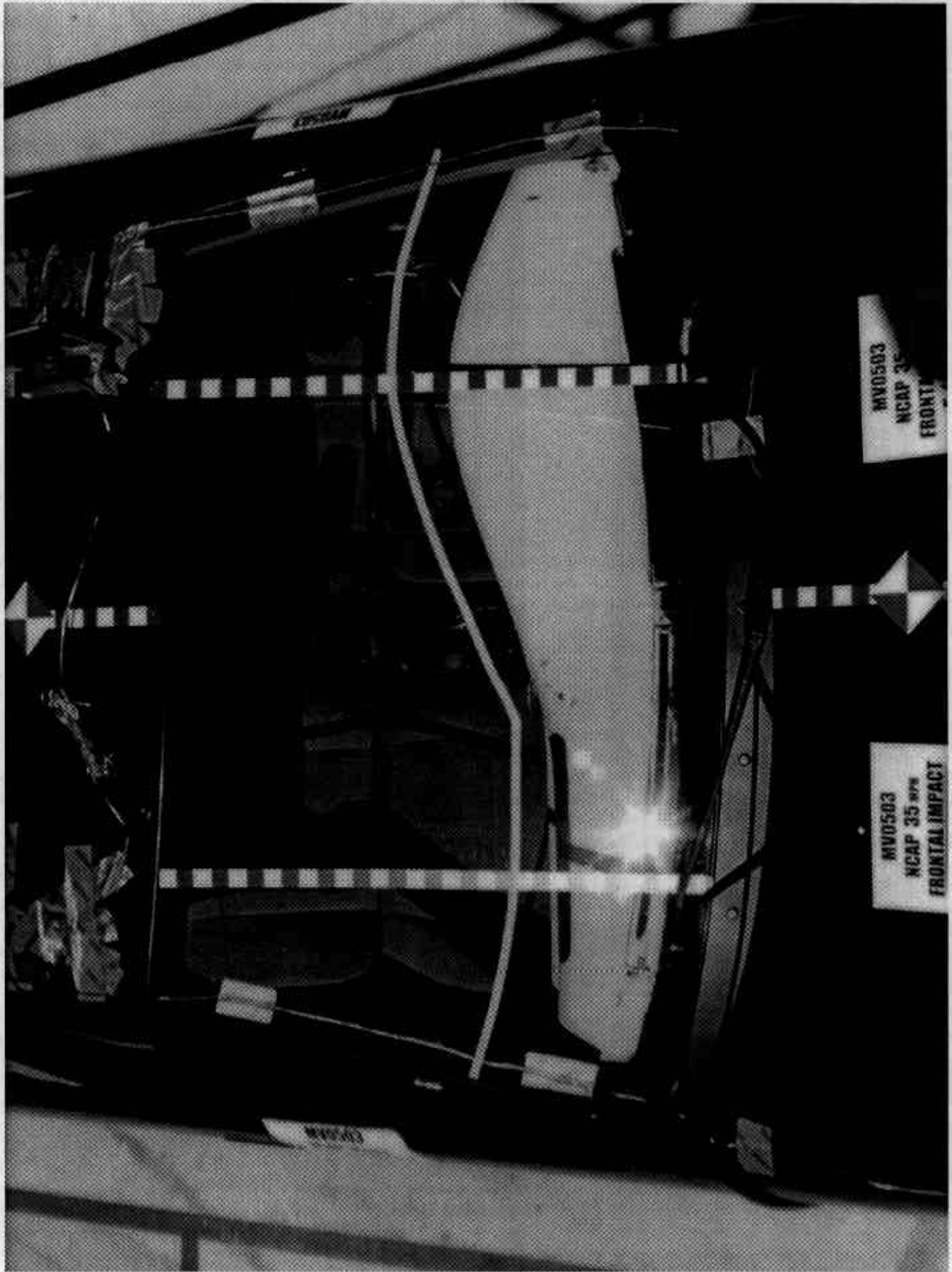


FIGURE A-15. PRE-TEST WINDSHIELD
A-16

KAR-96-R96024-07

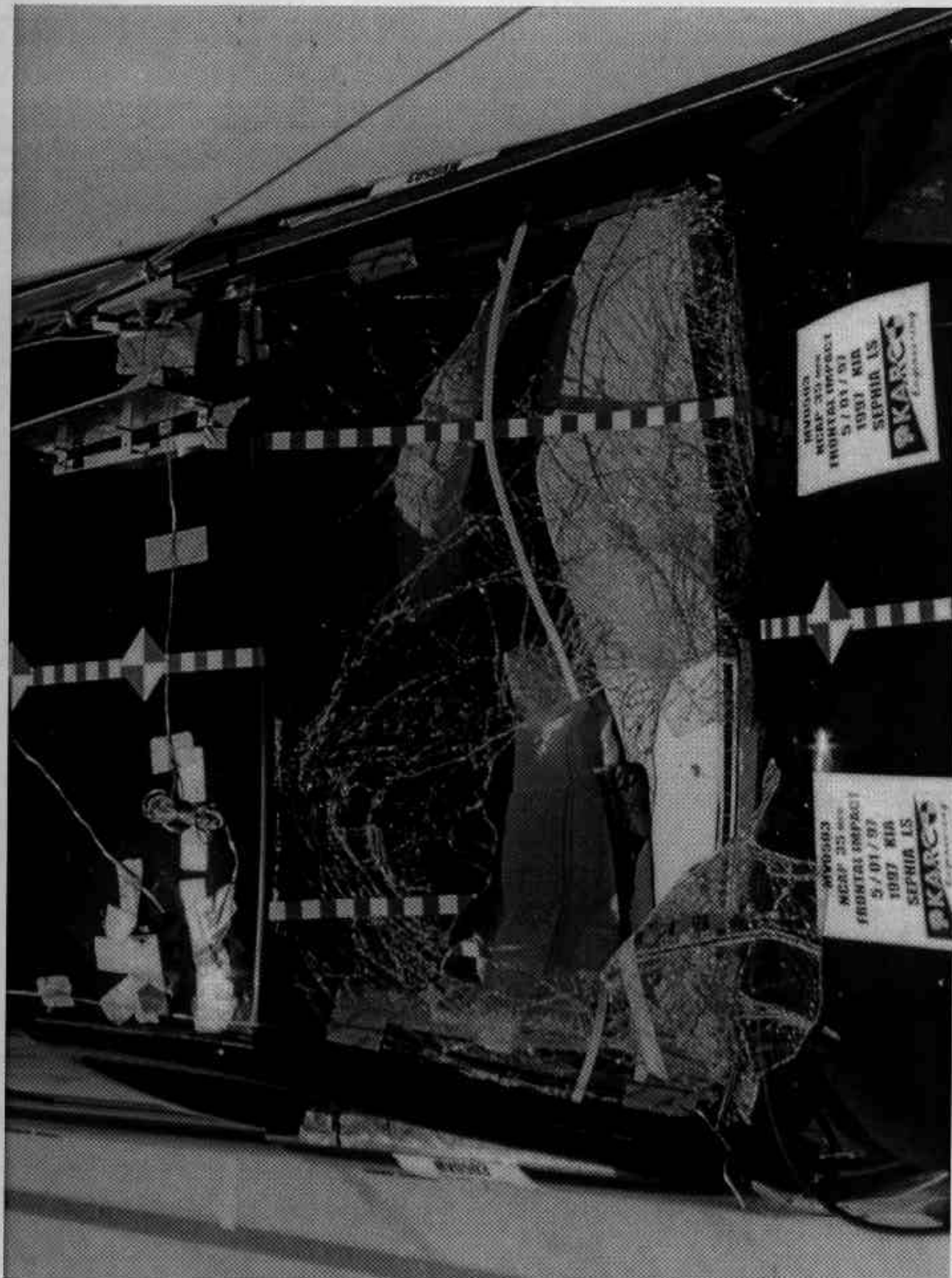


FIGURE A-16. POST-TEST WINDSHIELD
A-17

KAR-96-R96024-07

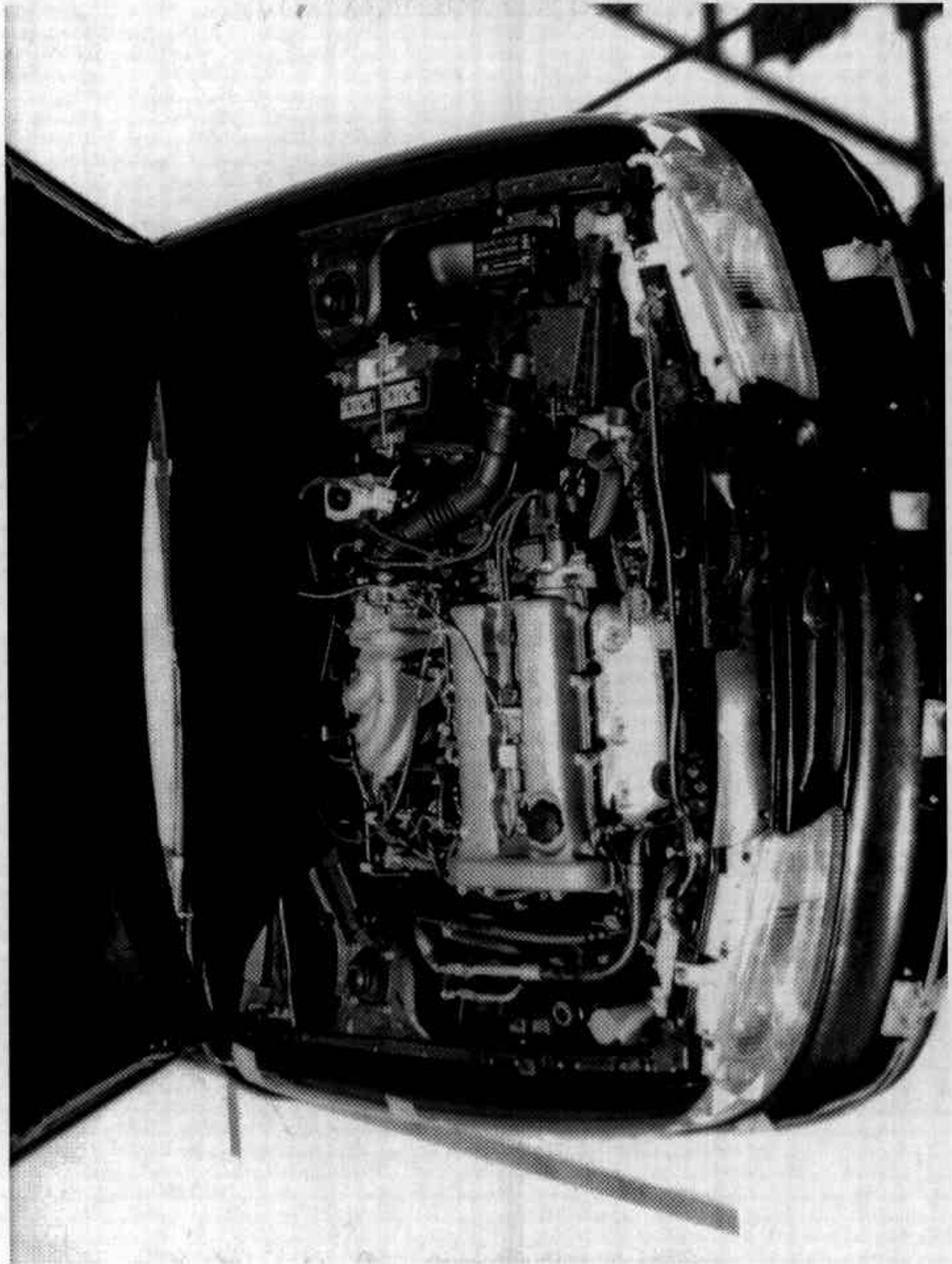


FIGURE A-17. PRE-TEST ENGINE COMPARTMENT
A-18

KAR-96-R96024-07

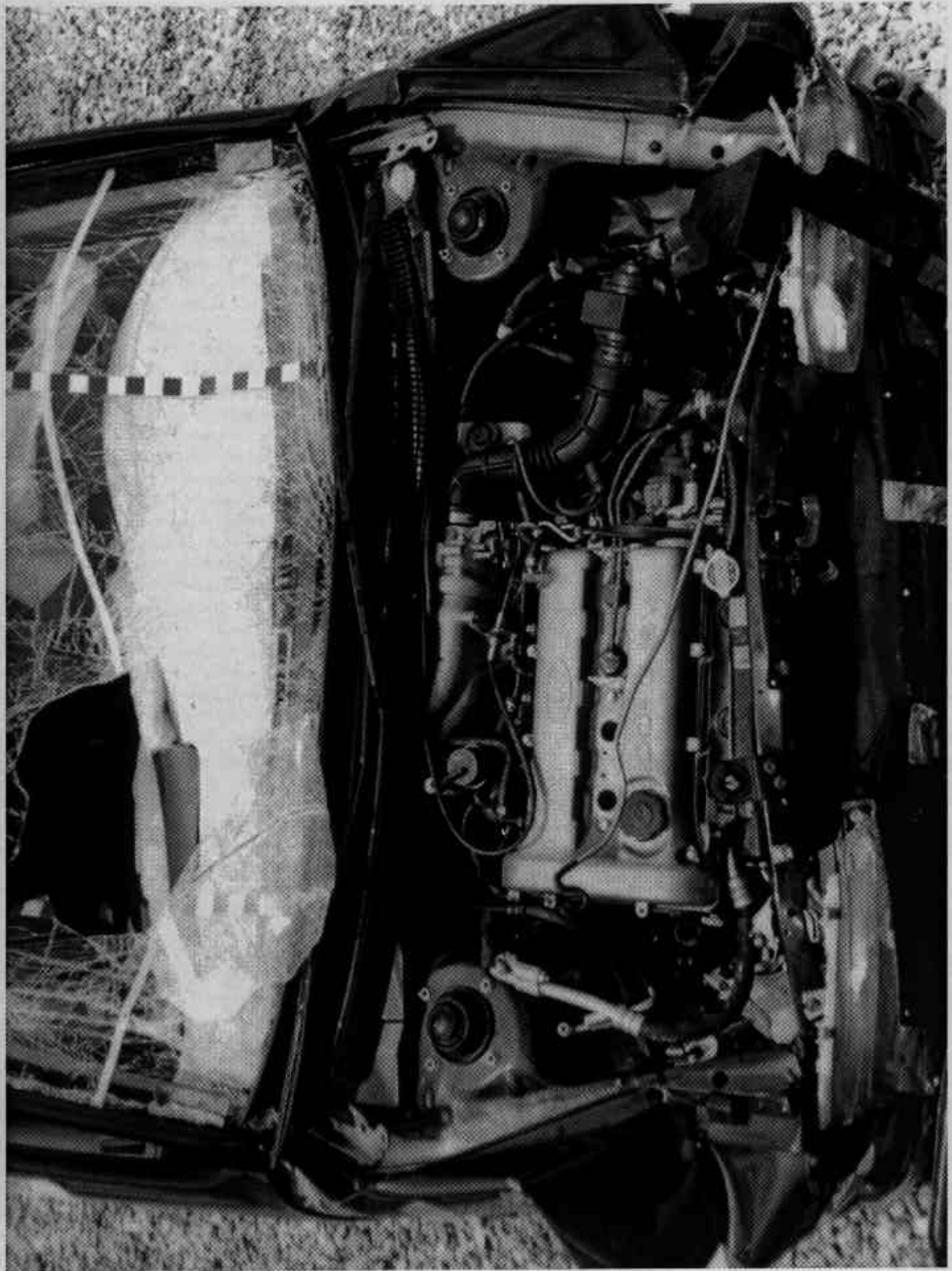


FIGURE A-18. POST-TEST ENGINE COMPARTMENT
A-19

KAR-96-R96024-07

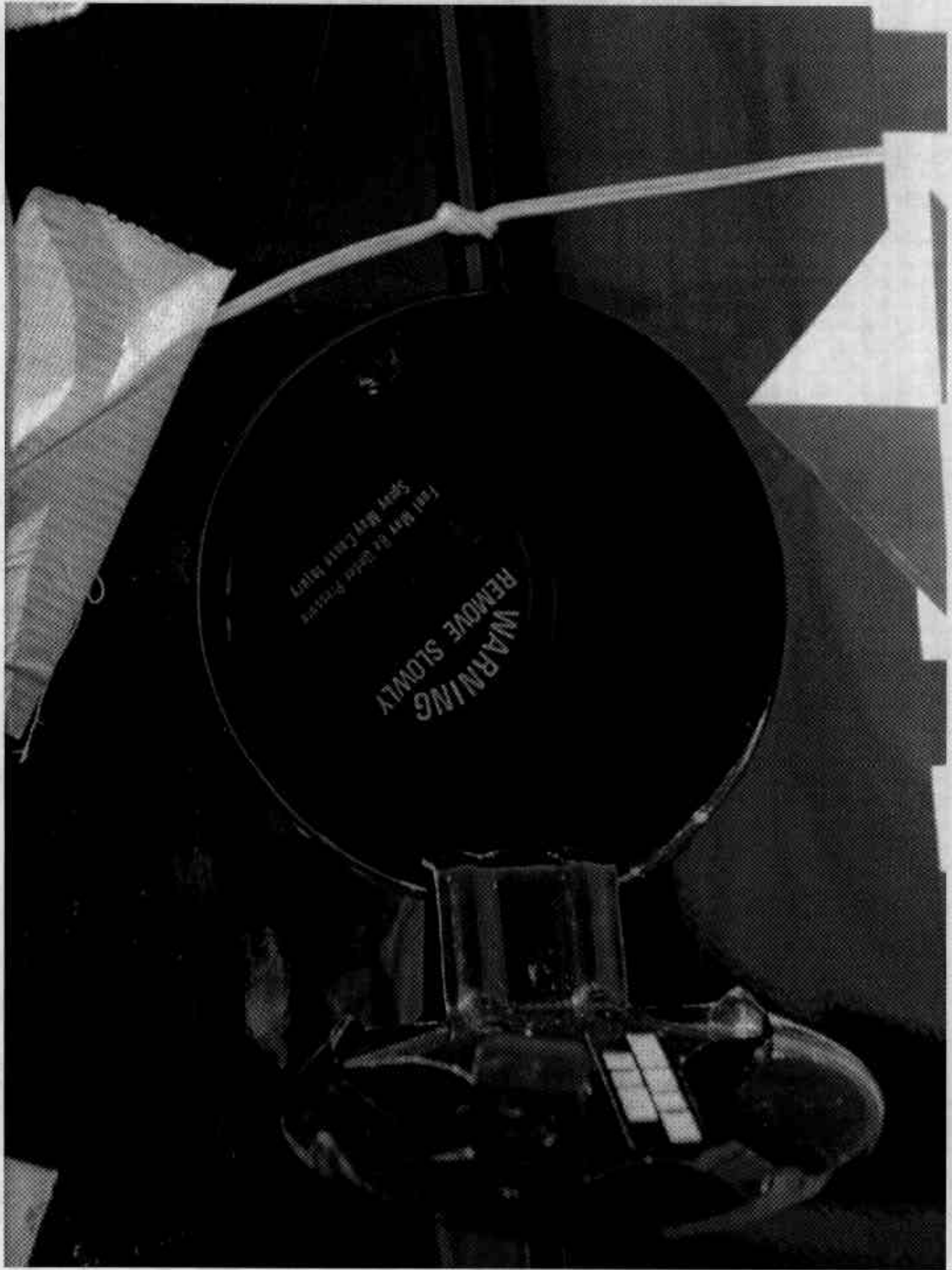


FIGURE A-19. PRE-TEST FUEL FILLER CAP
A-20

KAR-96-R96024-07

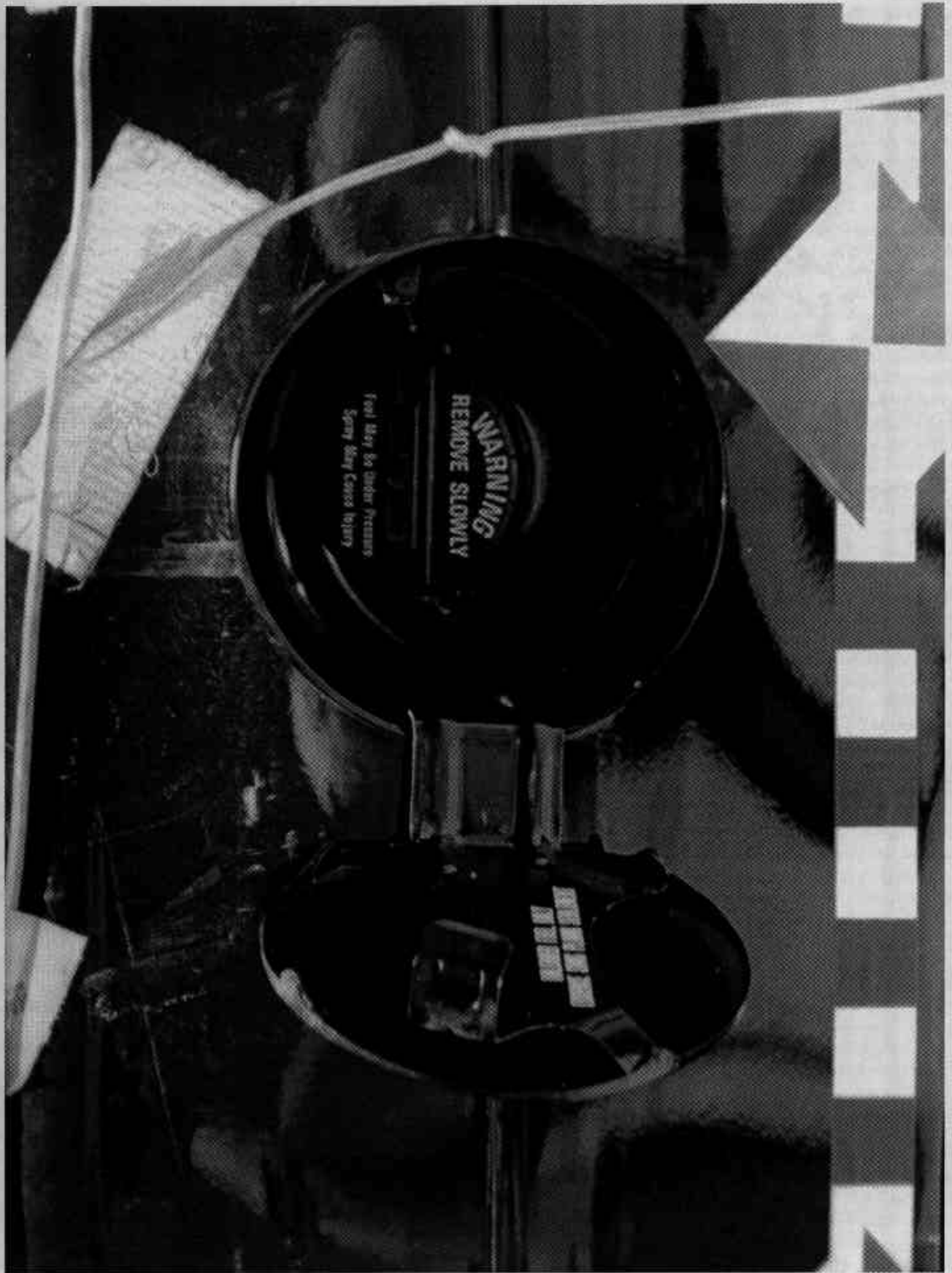


FIGURE A-20. POST-TEST FUEL FILLER CAP
A-21

KAR-96-R96024-07

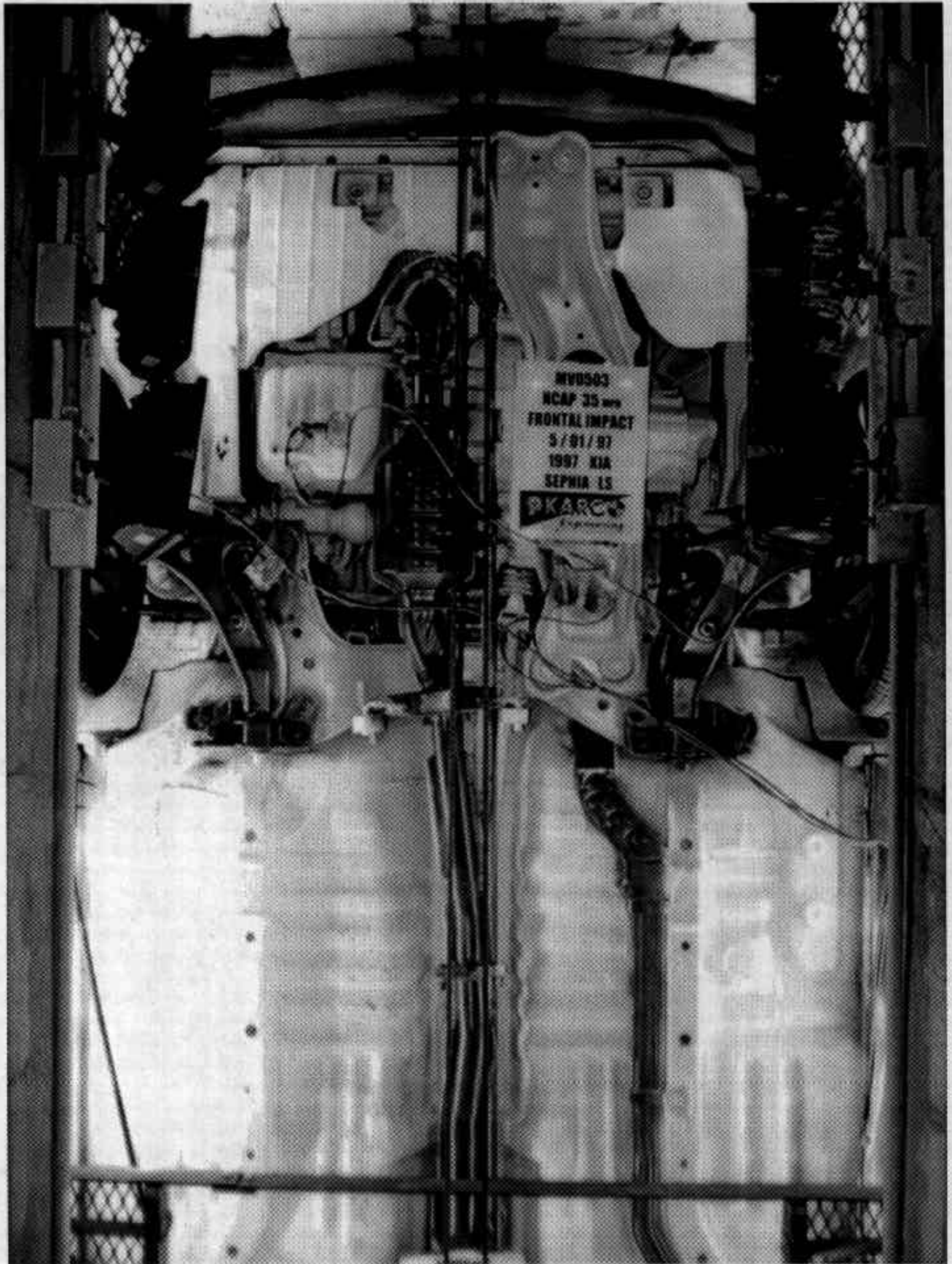


FIGURE A-21. PRE-TEST FRONT UNDERBODY
A-22

KAR-96-R96024-07

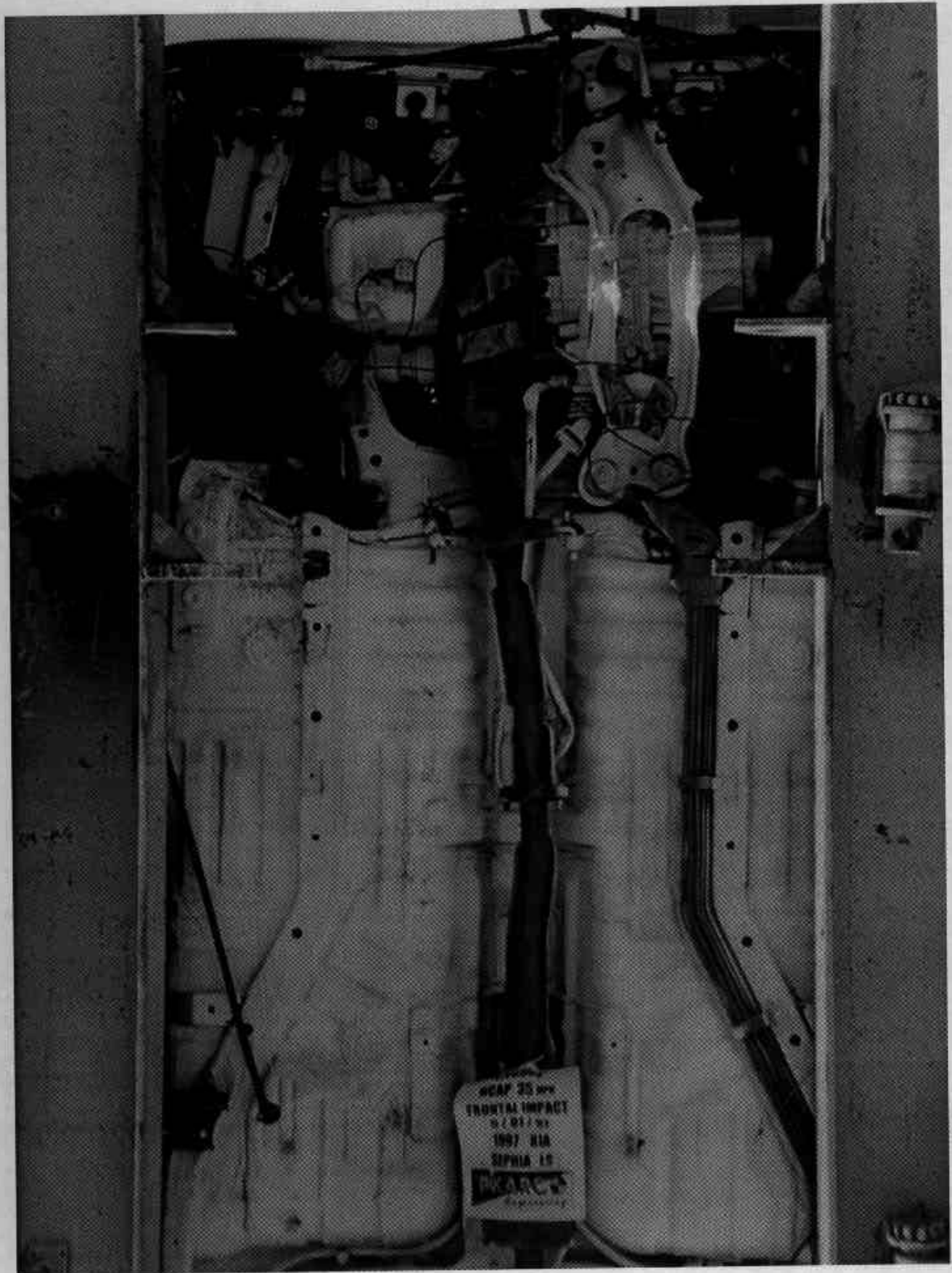


FIGURE A-22. POST-TEST FRONT UNDERBODY
A-23

KAR-96-R96024-07



FIGURE A-23. PRE-TEST REAR UNDERBODY
A-24

KAR-96-R96024-07

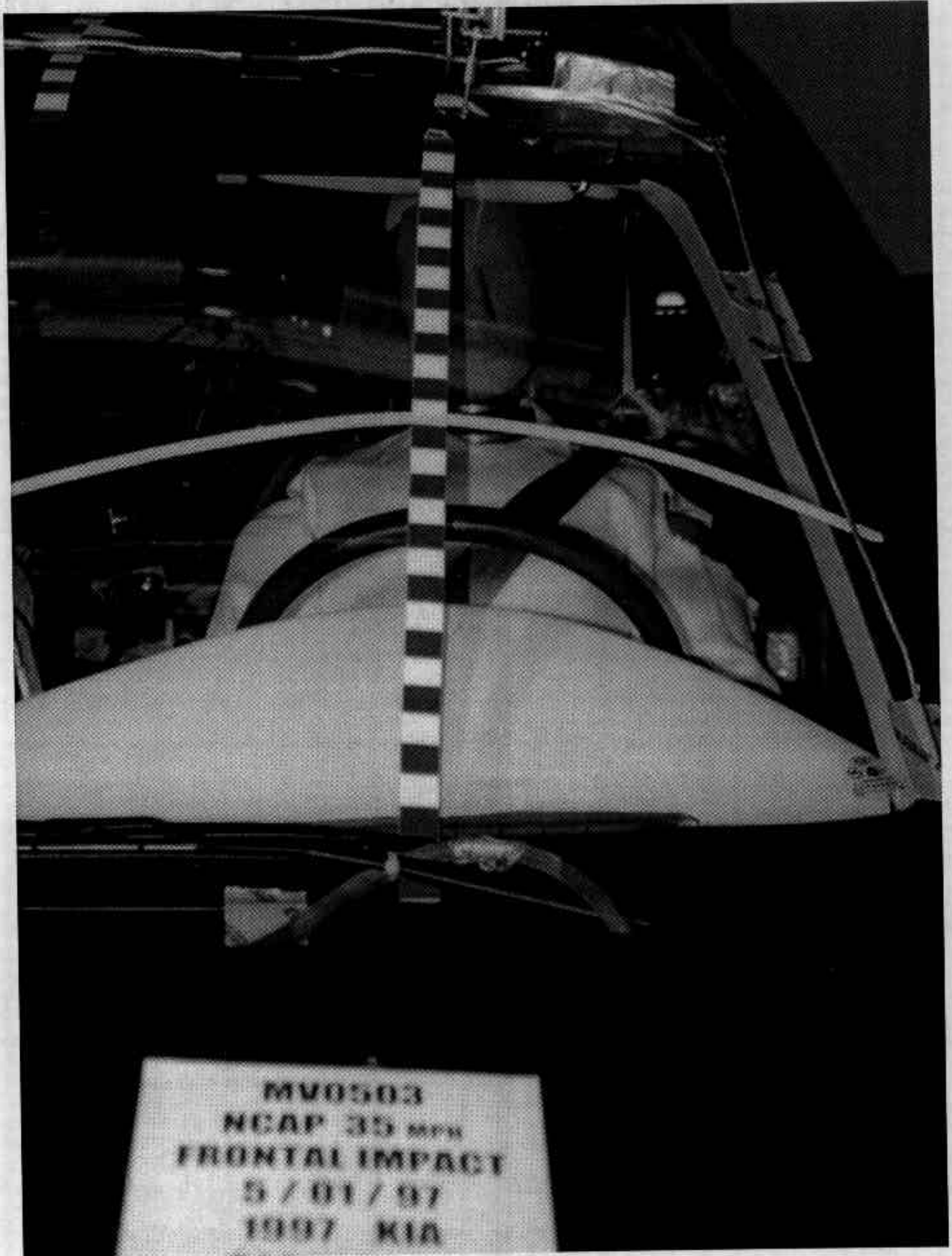


FIGURE A-25. PRE-TEST DRIVER DUMMY (FRONT VIEW)

A-26

KAR-96-R96024-07



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

A-27

KAR-96-R96024-07



FIGURE A-27. PRE-TEST DRIVER DUMMY (THRU WINDOW)

A-28

KAR-96-R96024-07

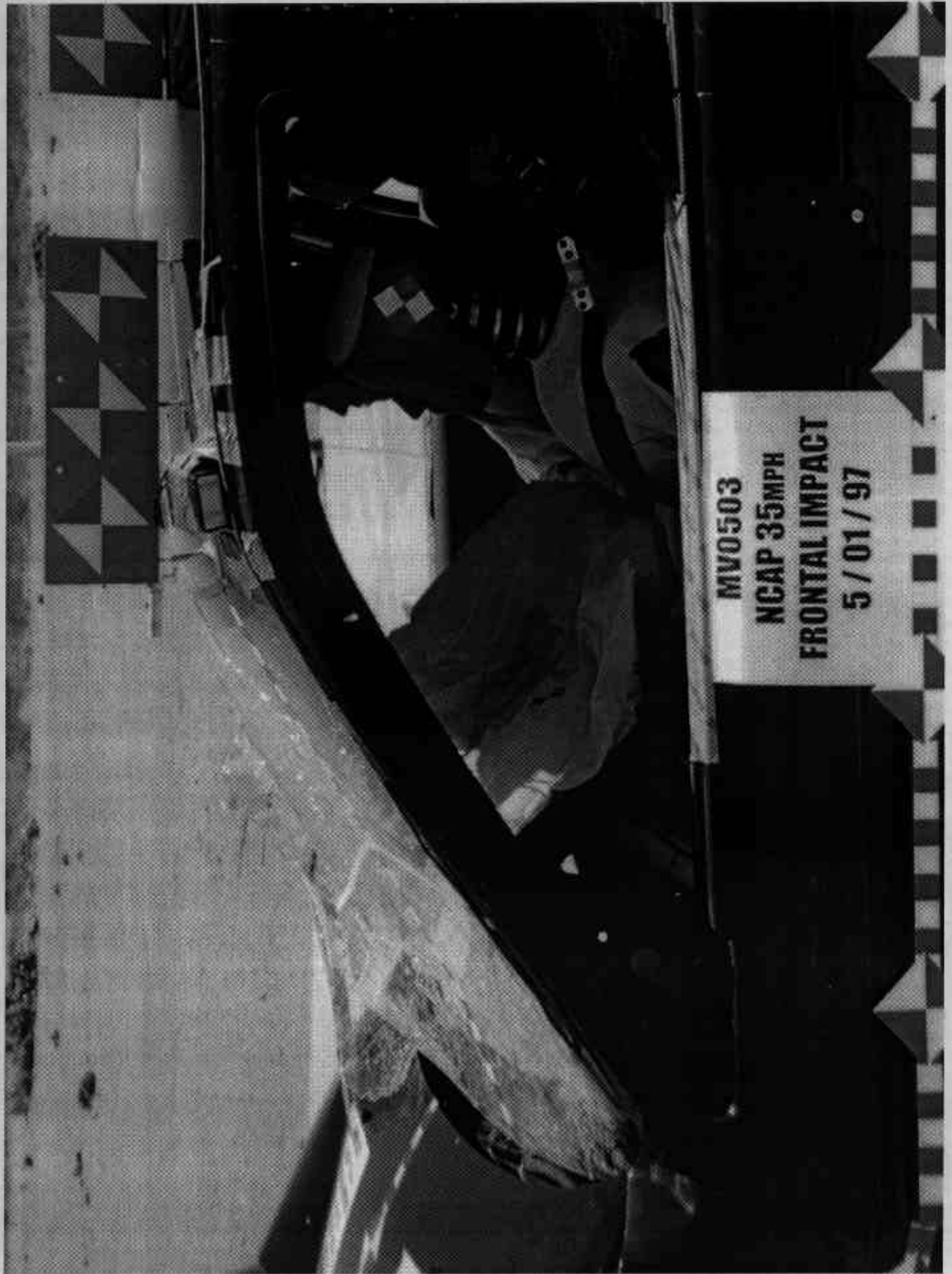


FIGURE A-28. POST-TEST DRIVER DUMMY (THRU WINDOW)

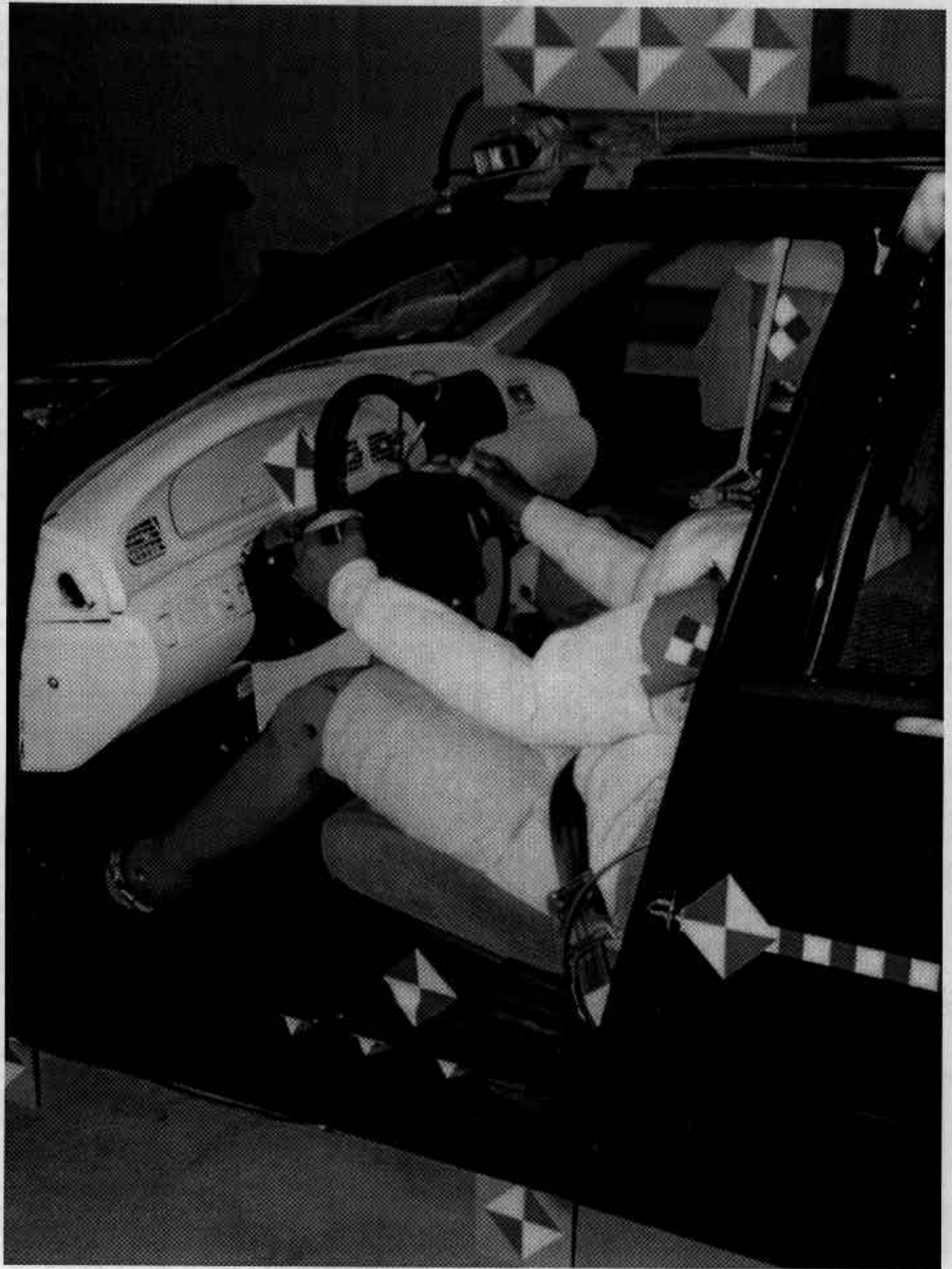


FIGURE A-29. PRE-TEST DRIVER DUMMY (DOOR OPEN)

A-30

KAR-96-R96024-07



F R I N G

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

A-31

KAR-96-R96024-07



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

A-32

KAR-96-R96024-07

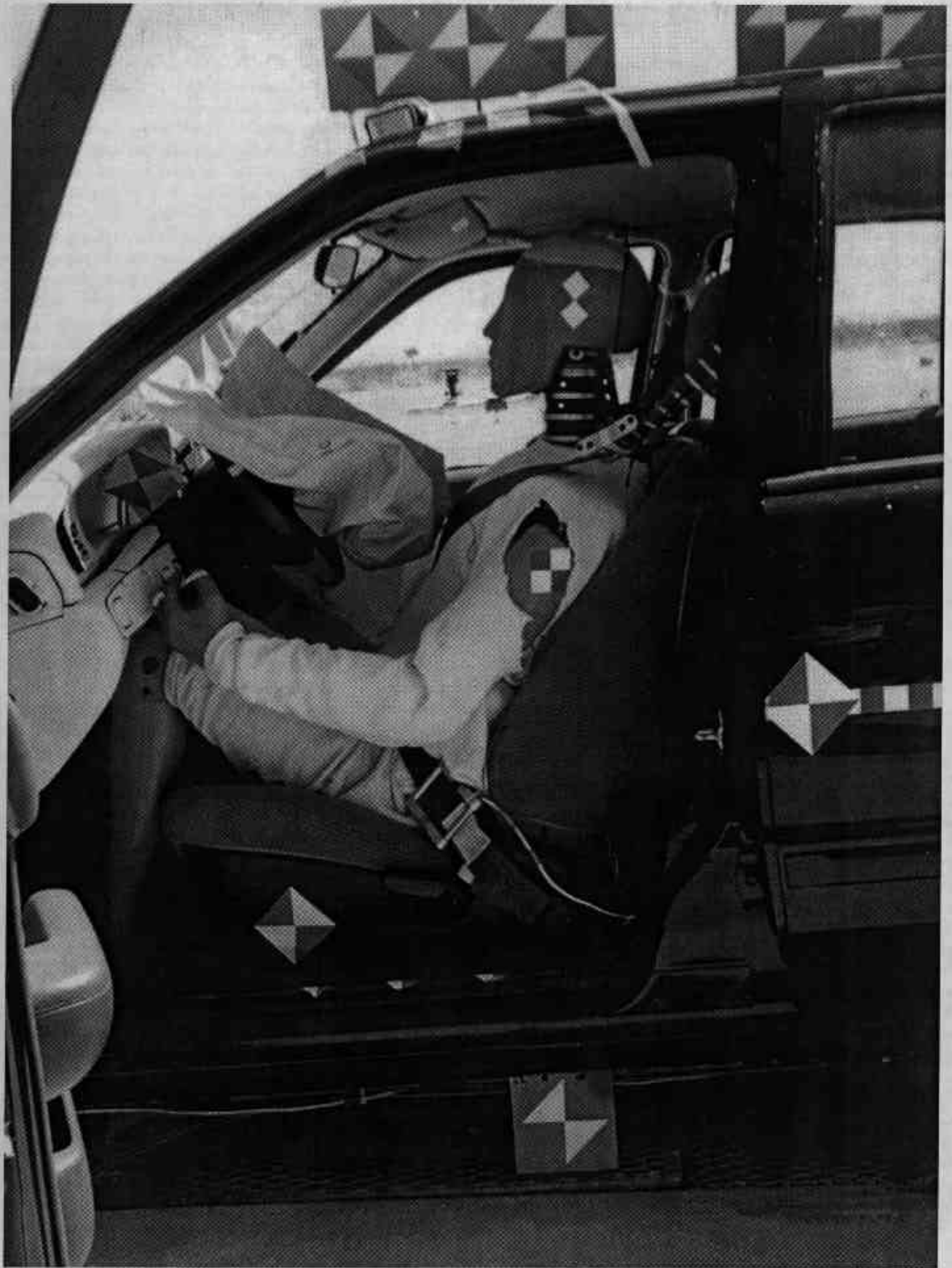


FIGURE A-32. POST-TEST DRIVER DUMMY (90° TO VEHICLE)

A-33

KAR-96-R96024-07



FIGURE A-33. POST-TEST DRIVER DUMMY CONTACT POINTS (1 OF 3)

A-34

KAR-96-R96024-07



FIGURE A-34. POST-TEST DRIVER DUMMY CONTACT POINTS (2 OF 3)

A-35

KAR-96-R96024-07

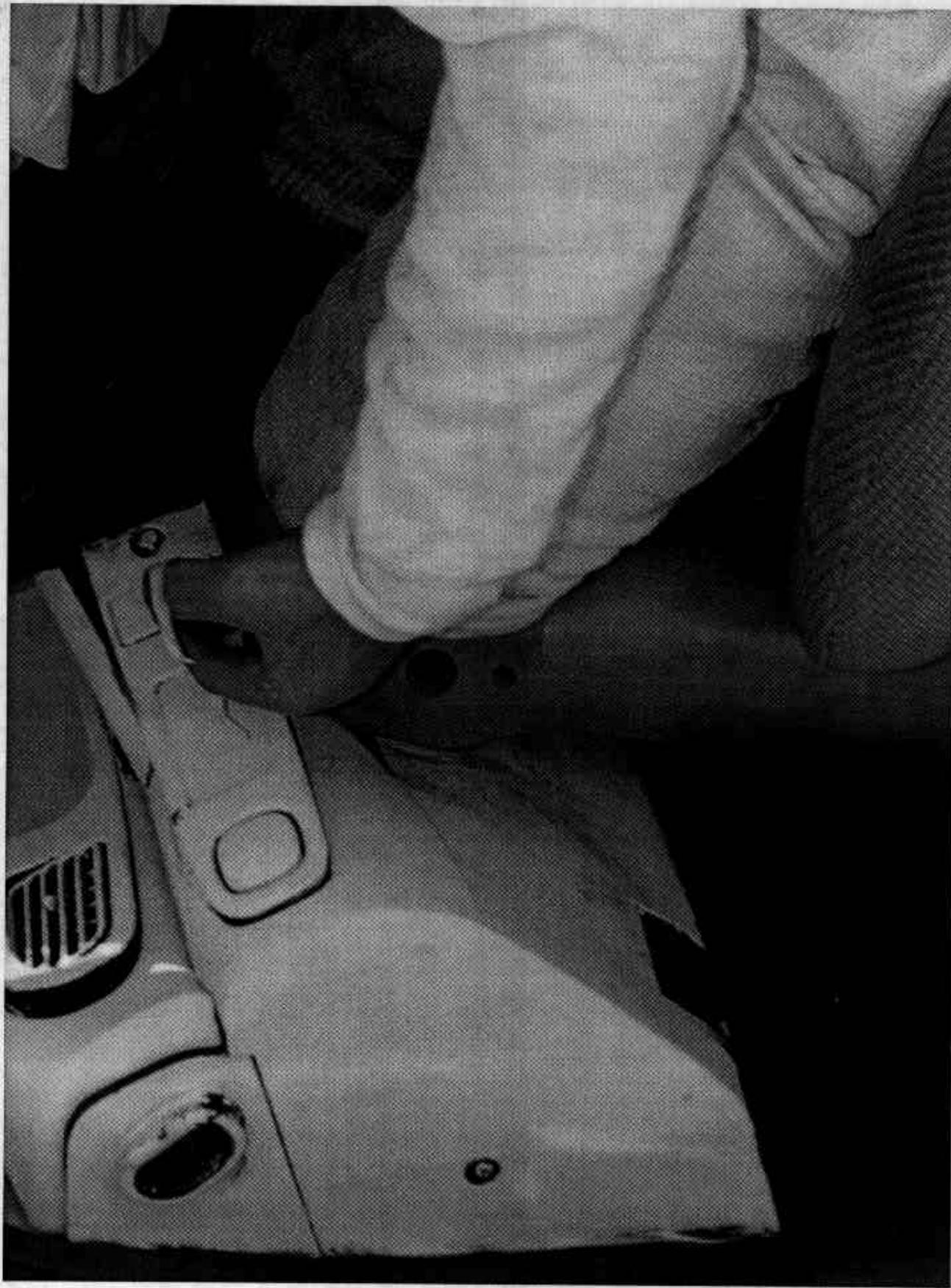


FIGURE A-35. POST-TEST DRIVER DUMMY CONTACT POINTS (3 OF 3)

A-36

KAR-96-R96024-07

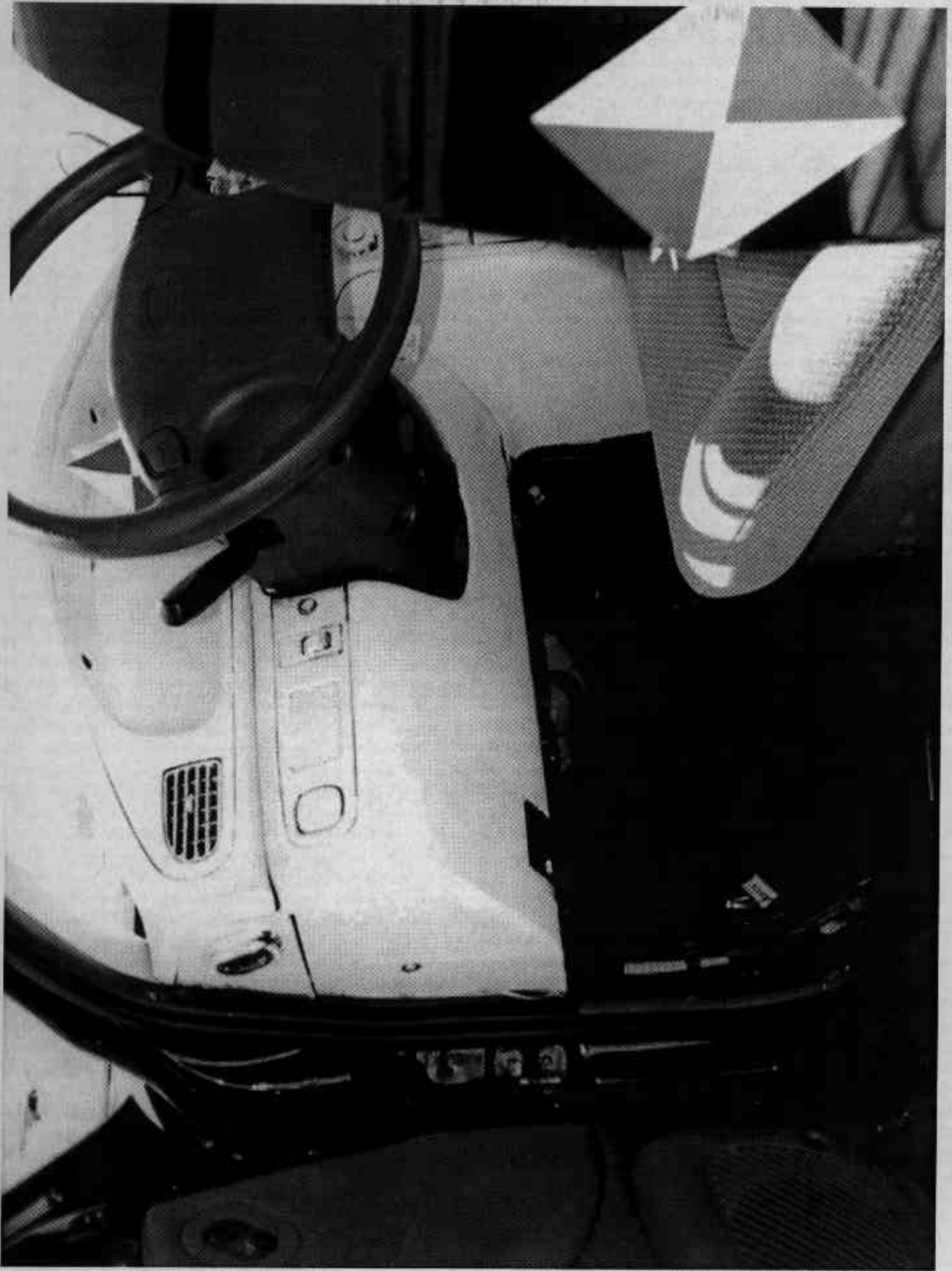


FIGURE A-36. PRE-TEST DRIVER SIDE KNEE BOLSTER
A-37

KAR-96-R96024-07



FIGURE A-37. POST-TEST DRIVER SIDE KNEE BOLSTER
A-38

KAR-96-R96024-07

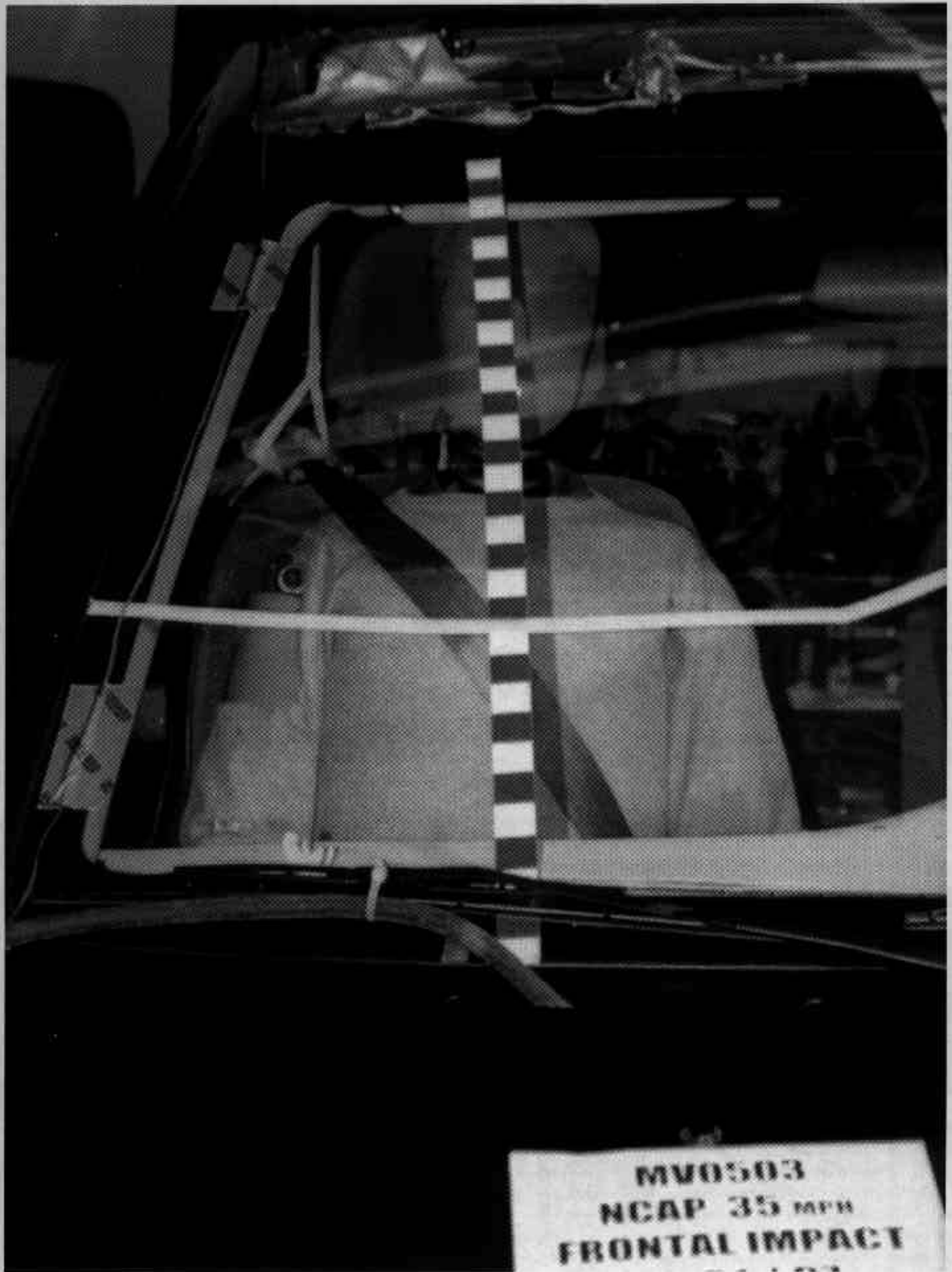


FIGURE A-38. PRE-TEST PASSENGER DUMMY (FRONT VIEW)

A-39

KAR-96-R96024-07

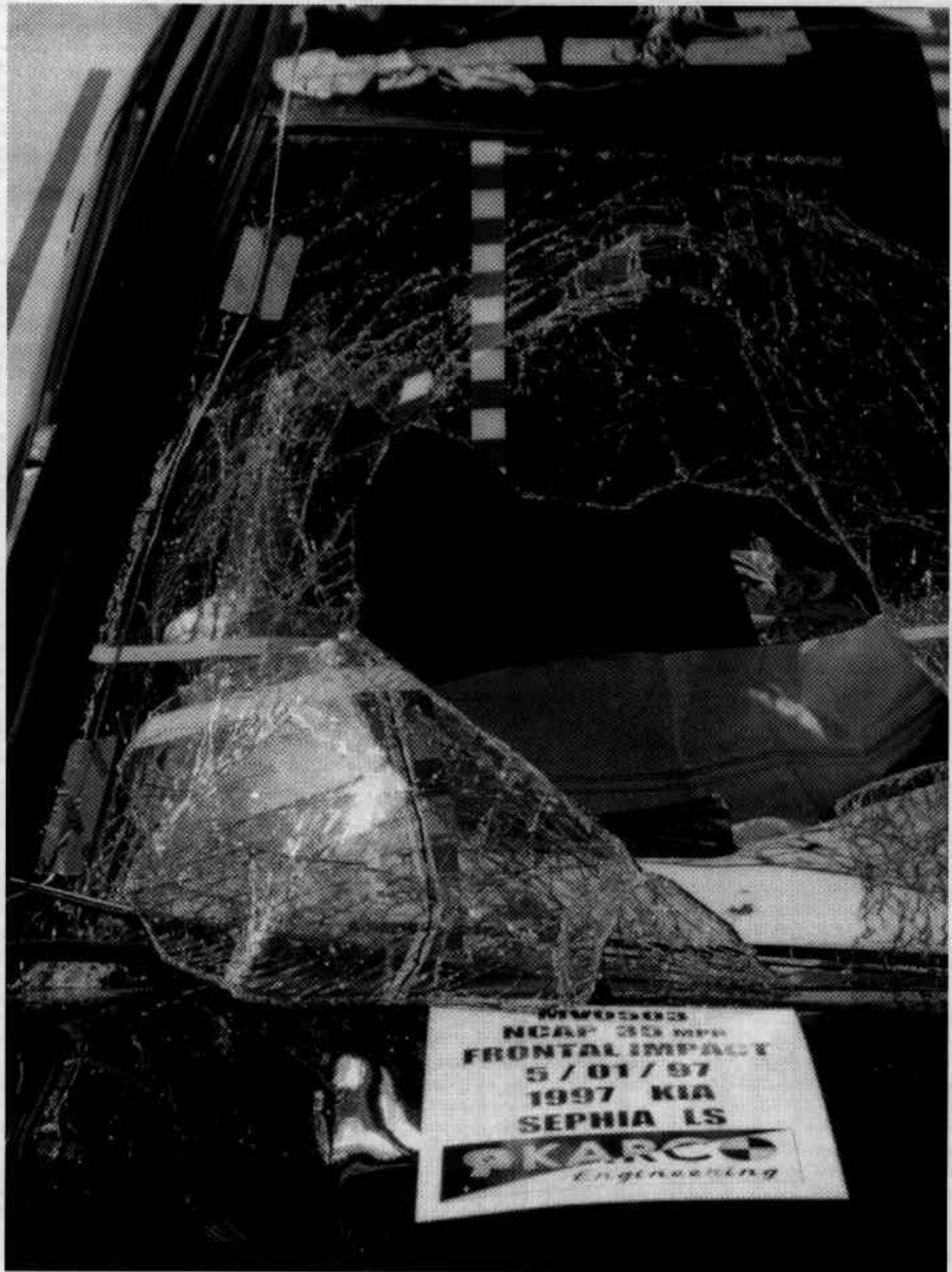


FIGURE A-39. POST TEST PASSENGER DUMMY (FRONT VIEW)

A-40

KAR-96-R96024-07

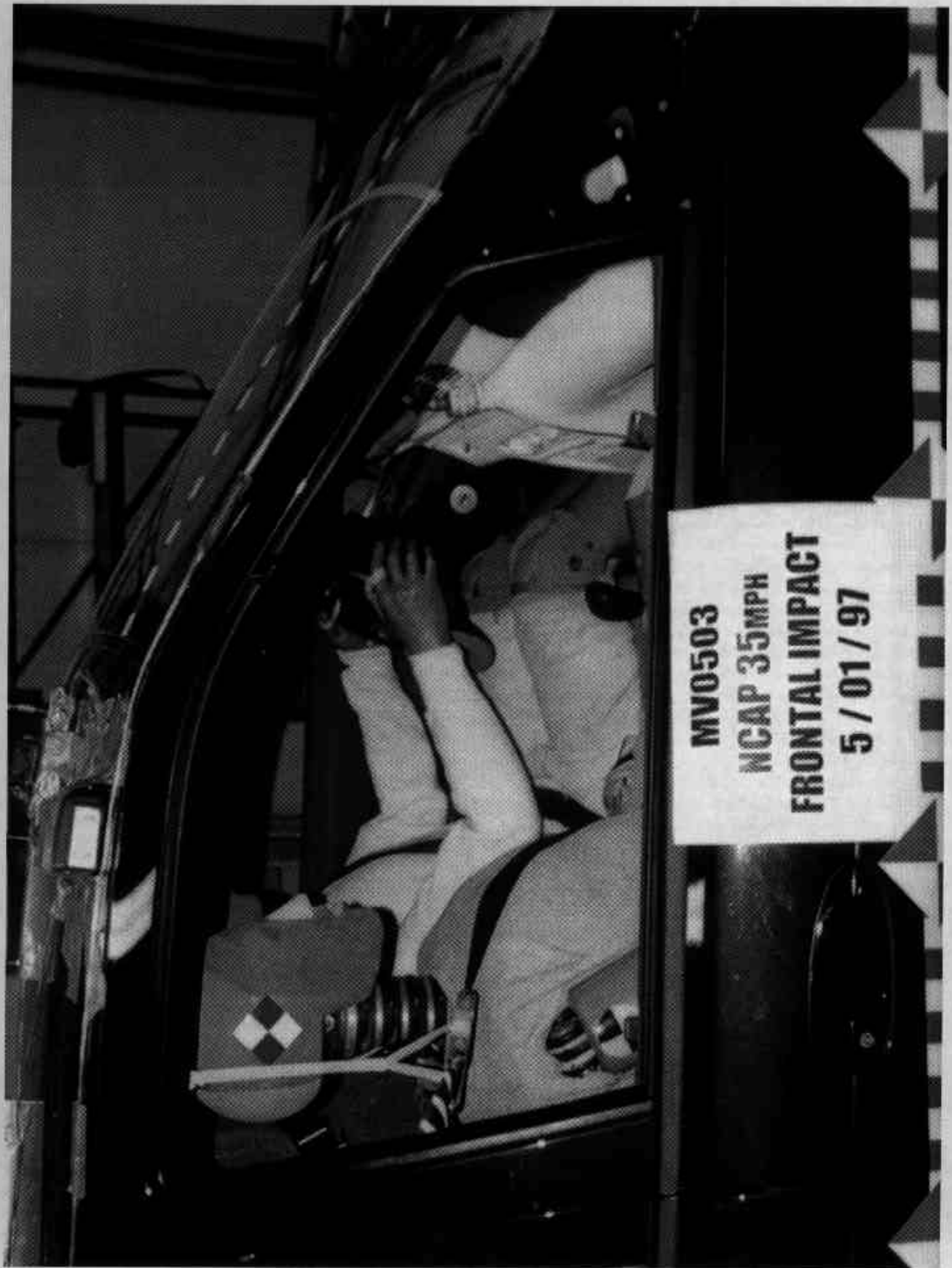


FIGURE A-40. PRE-TEST PASSENGER DUMMY (THRU WINDOW)

A-41

KAR-96-R96024-07

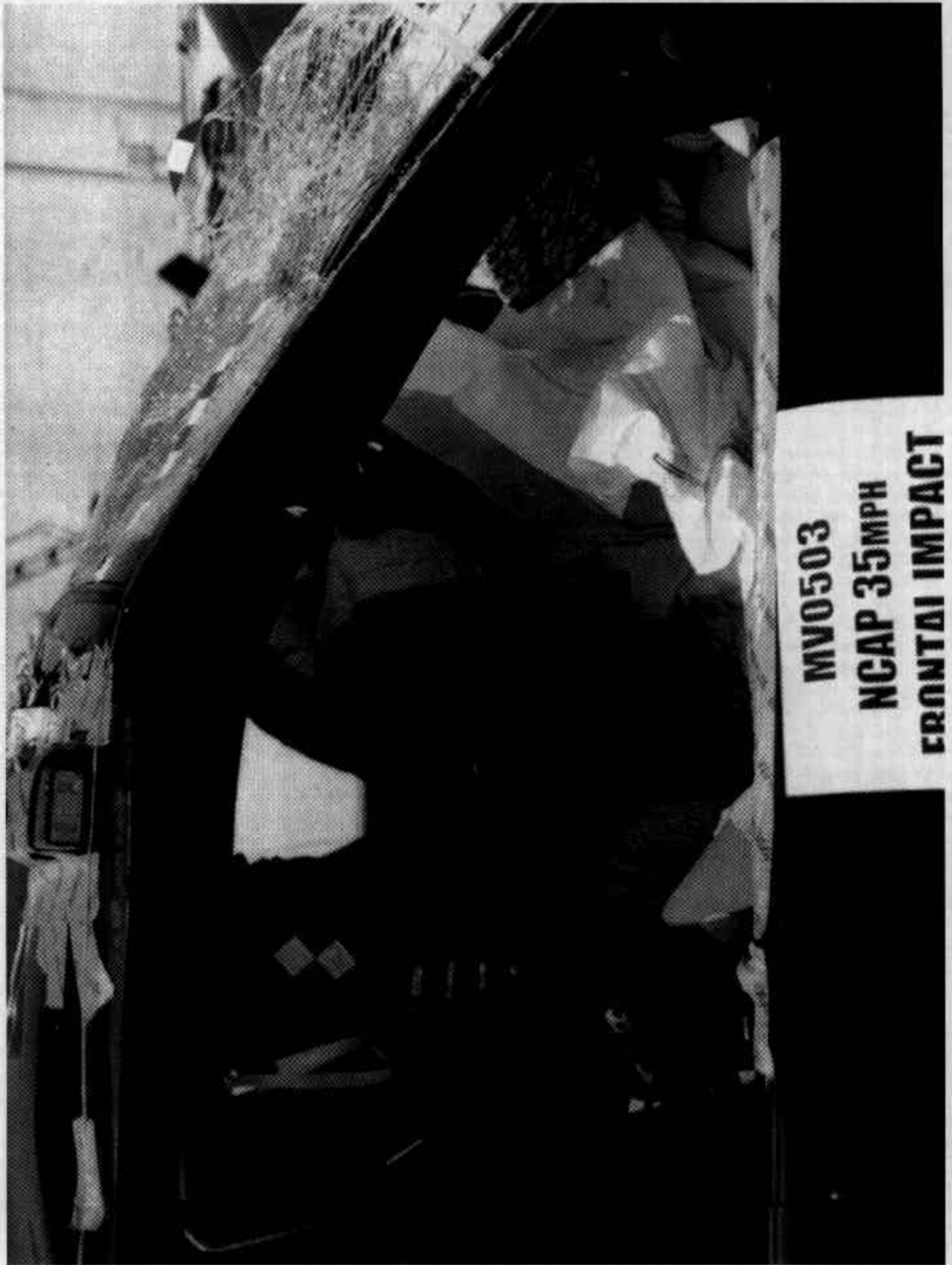


FIGURE A-41. POST-TEST PASSENGER DUMMY (THRU WINDOW)

A-42

KAR-96-R96024-07

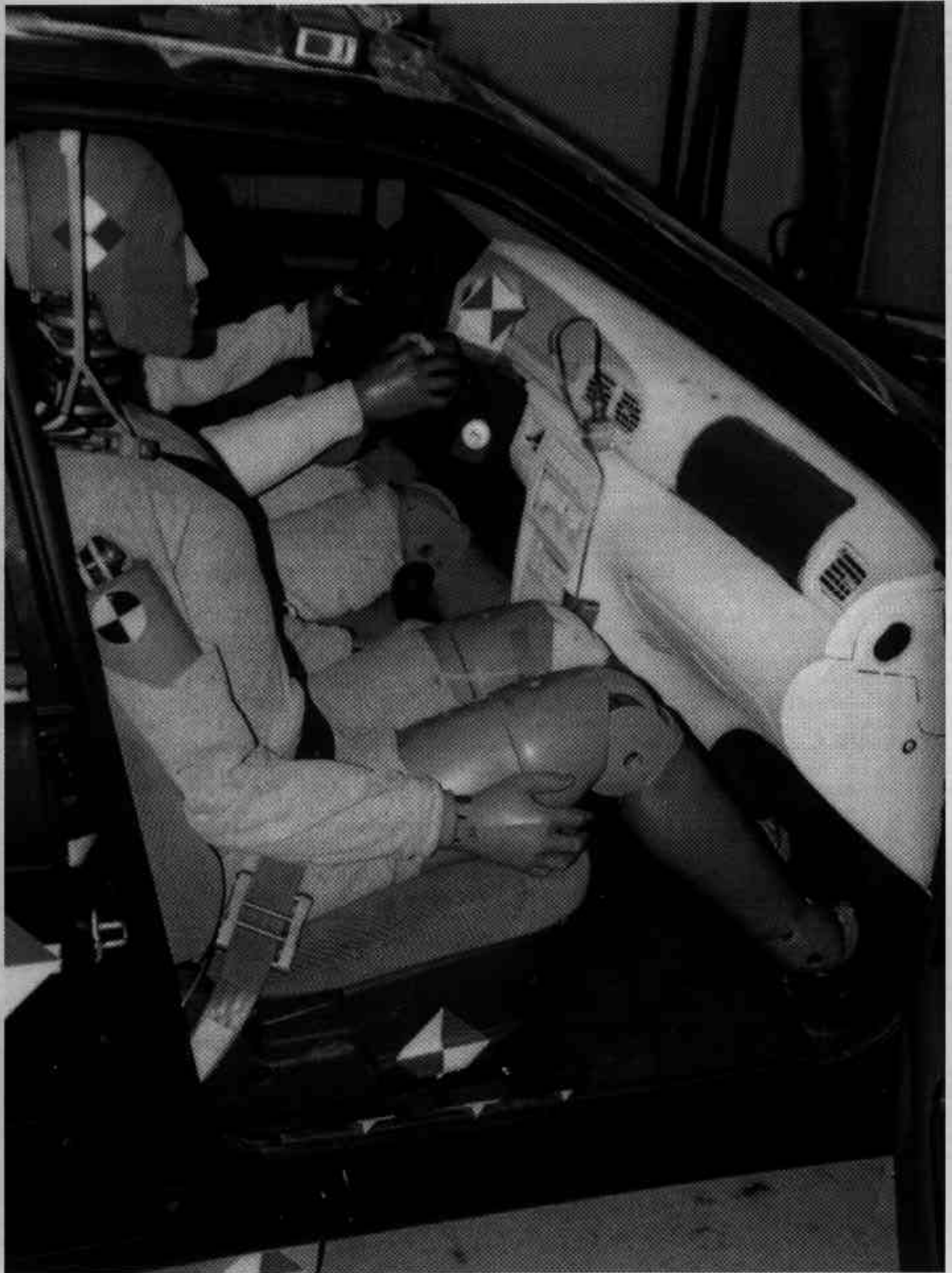


FIGURE A-42. PRE-TEST PASSENGER DUMMY (DOOR OPEN)

A-43

KAR-96-R96024-07



FIGURE A-43. POST-TEST PASSENGER DUMMY (DOOR OPEN)

A-44

KAR-96-R96024-07



FIGURE A-44. PRE-TEST PASSENGER DUMMY (90° TO VEHICLE)

A-45

KAR-96-R96024-07

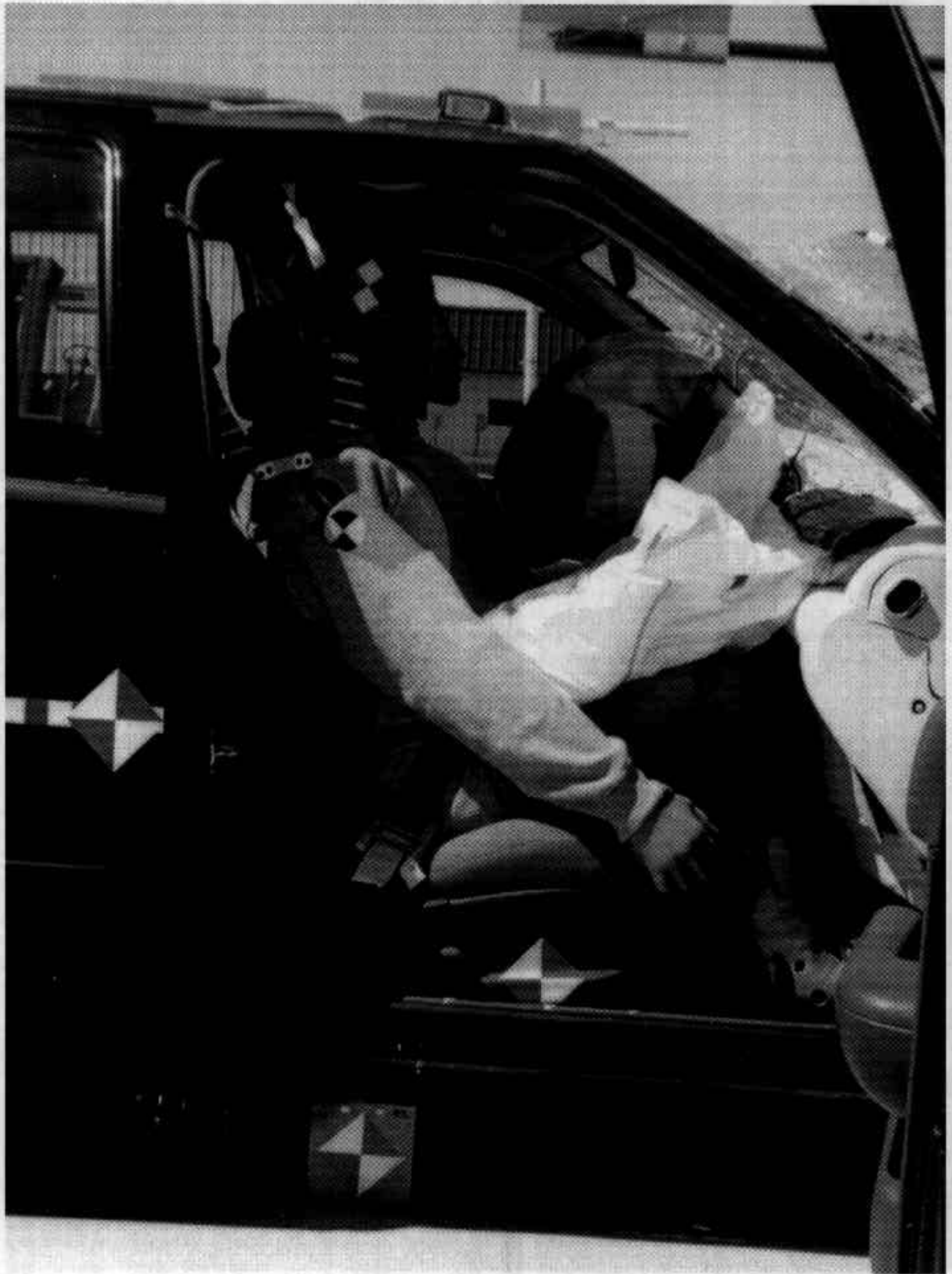


FIGURE A-45. POST-TEST PASSENGER DUMMY (90° TO VEHICLE)

A-46

KAR-96-R96024-07

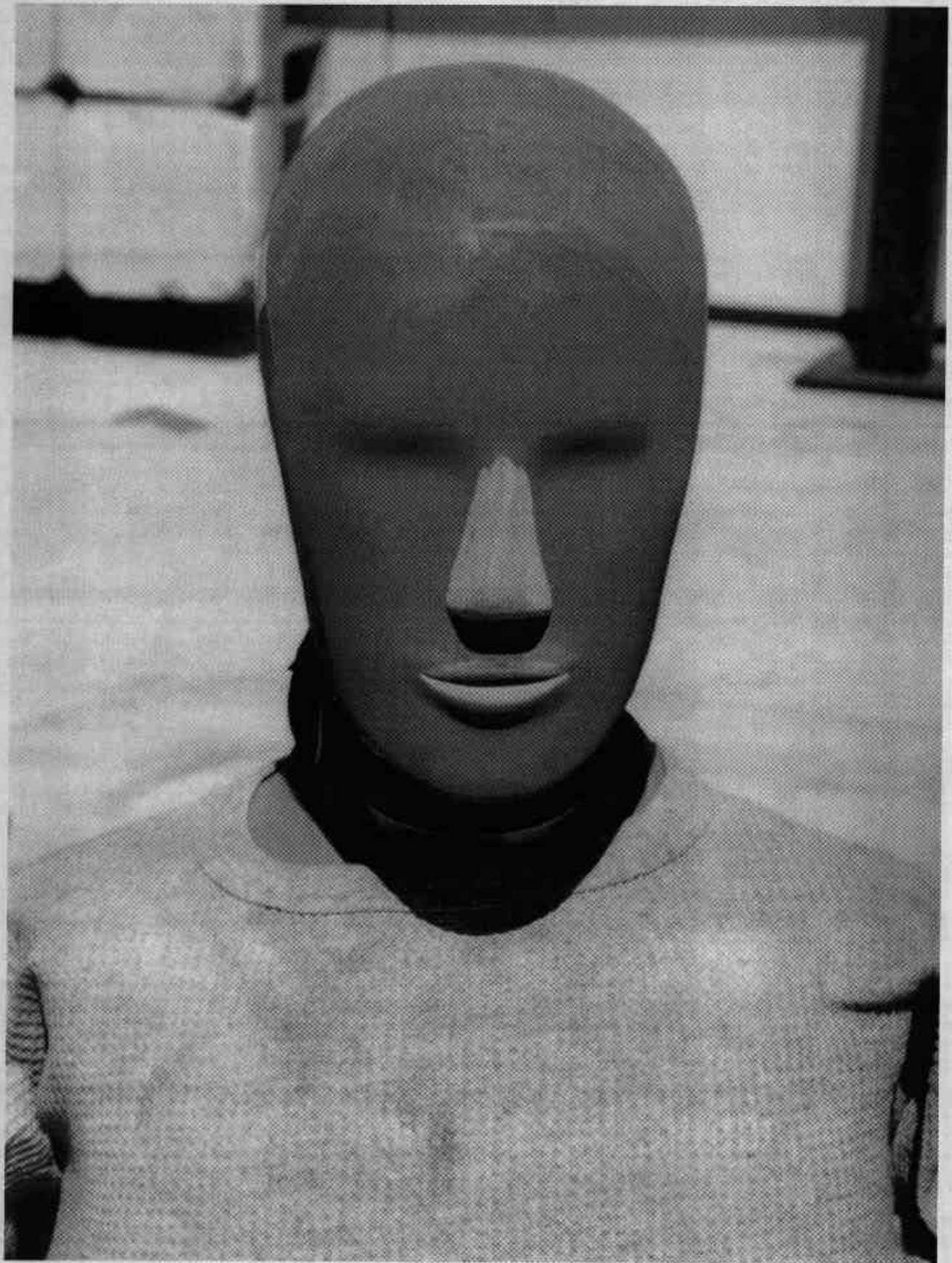


FIGURE A-46. POST-TEST PASSENGER DUMMY CONTACT POINTS (1 OF 3)
A-47

KAR-96-R96024-07



FIGURE A-47. POST-TEST PASSENGER DUMMY CONTACT POINTS (2 OF 3)

A-48

KAR-96-R96024-07



FIGURE A-48. POST-TEST PASSENGER DUMMY CONTACT POINTS (3 OF 3)

A-49

KAR-96-R96024-07

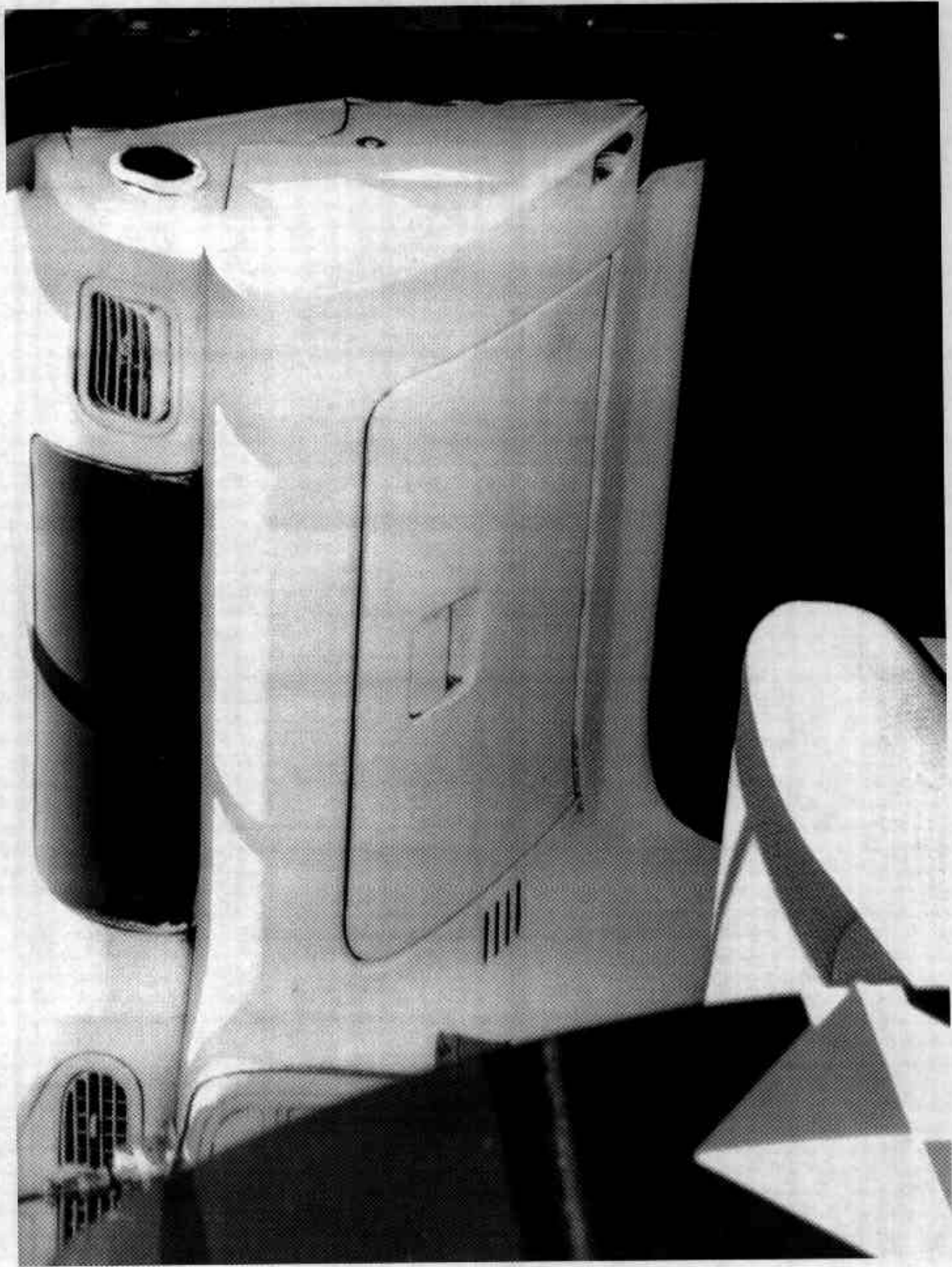


FIGURE A-49. PRE-TEST PASSENGER SIDE KNEE BOLSTER

A-50

KAR-96-R96024-07

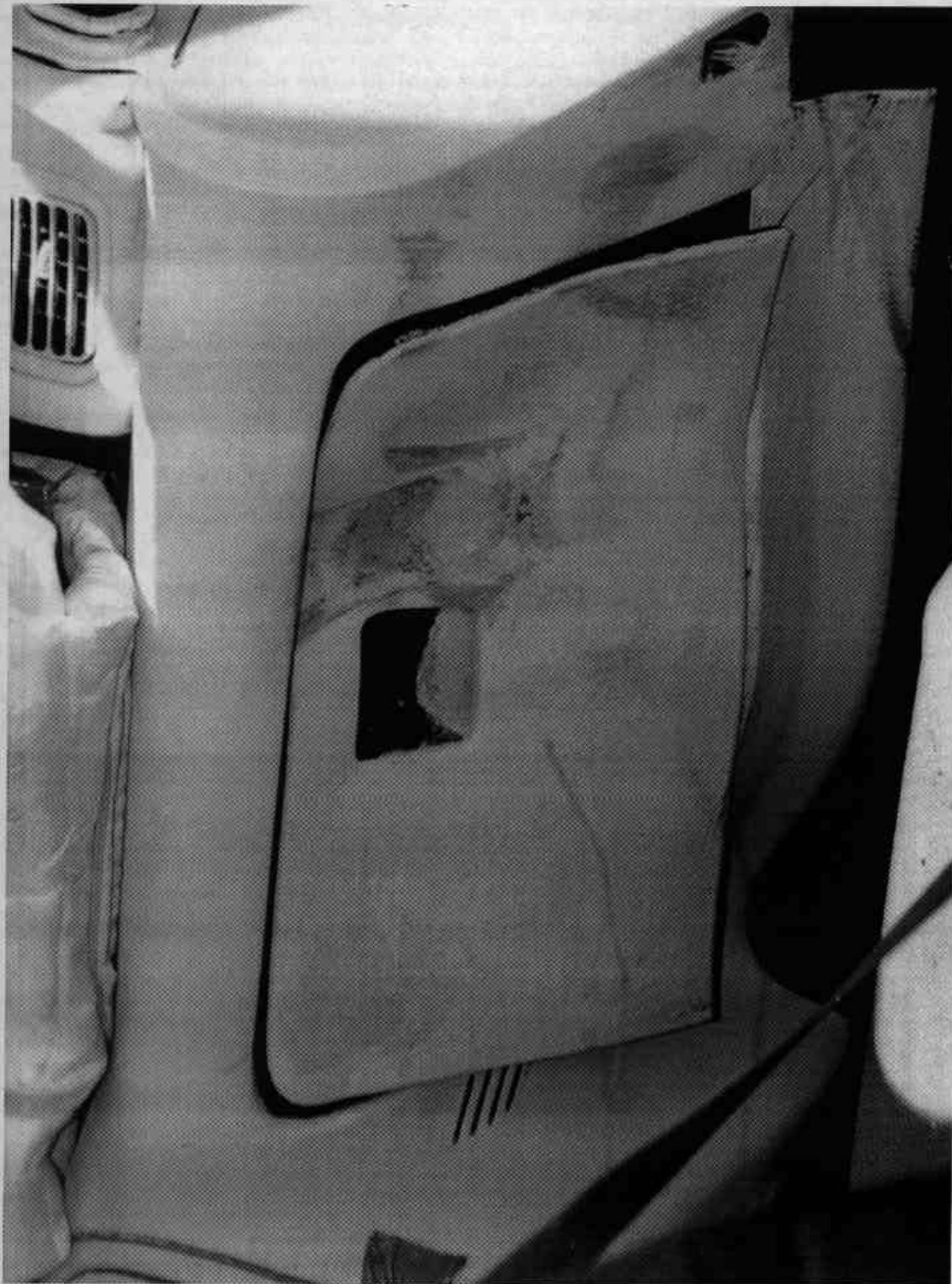


FIGURE A-50. POST-TEST PASSENGER SIDE KNEE BOLSTER

A-51

KAR-96-R96024-07

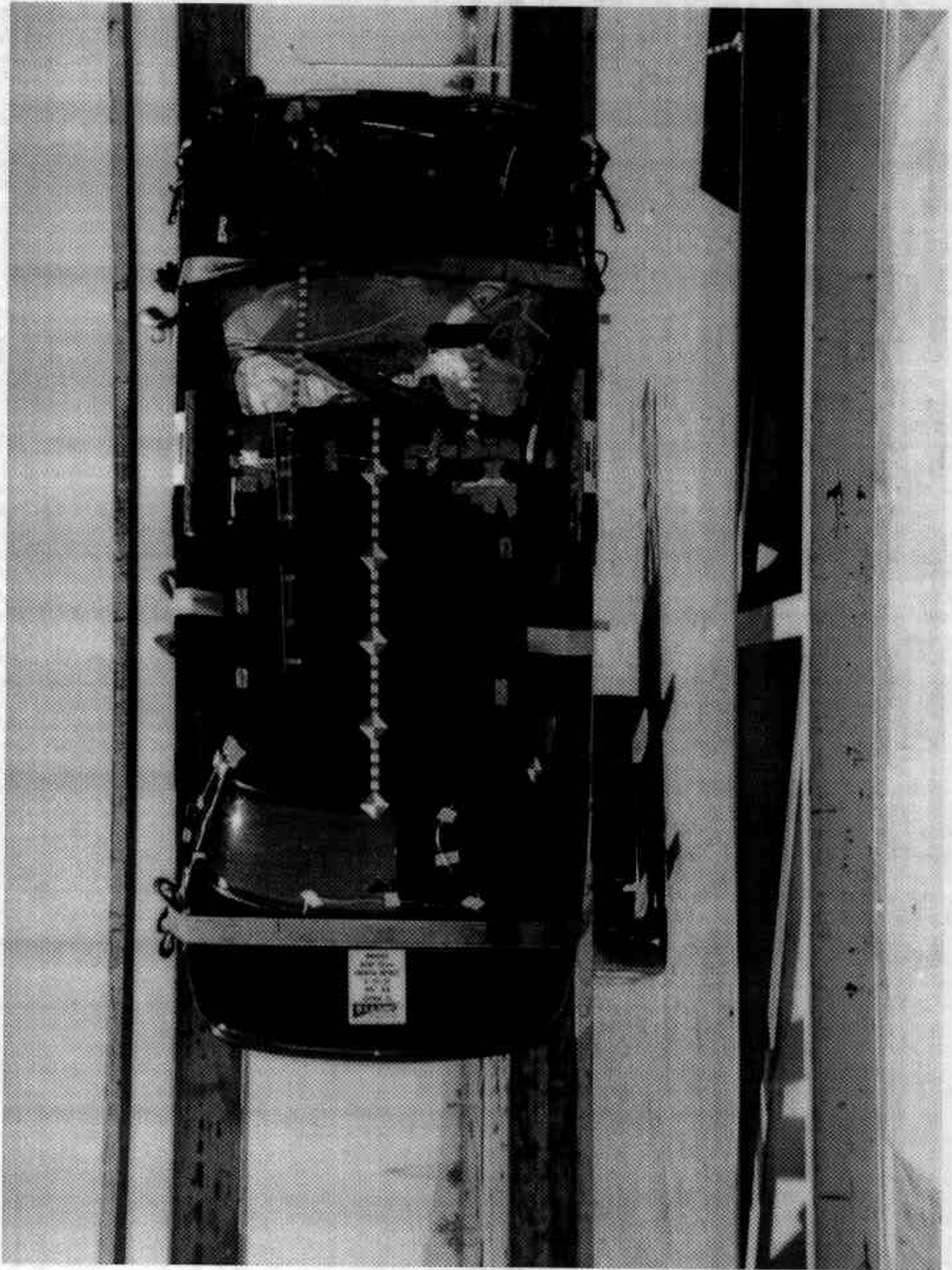


FIGURE A-51. VEHICLE ON STATIC ROLLOVER MACHINE

A-52

KAR-96-R96024-07

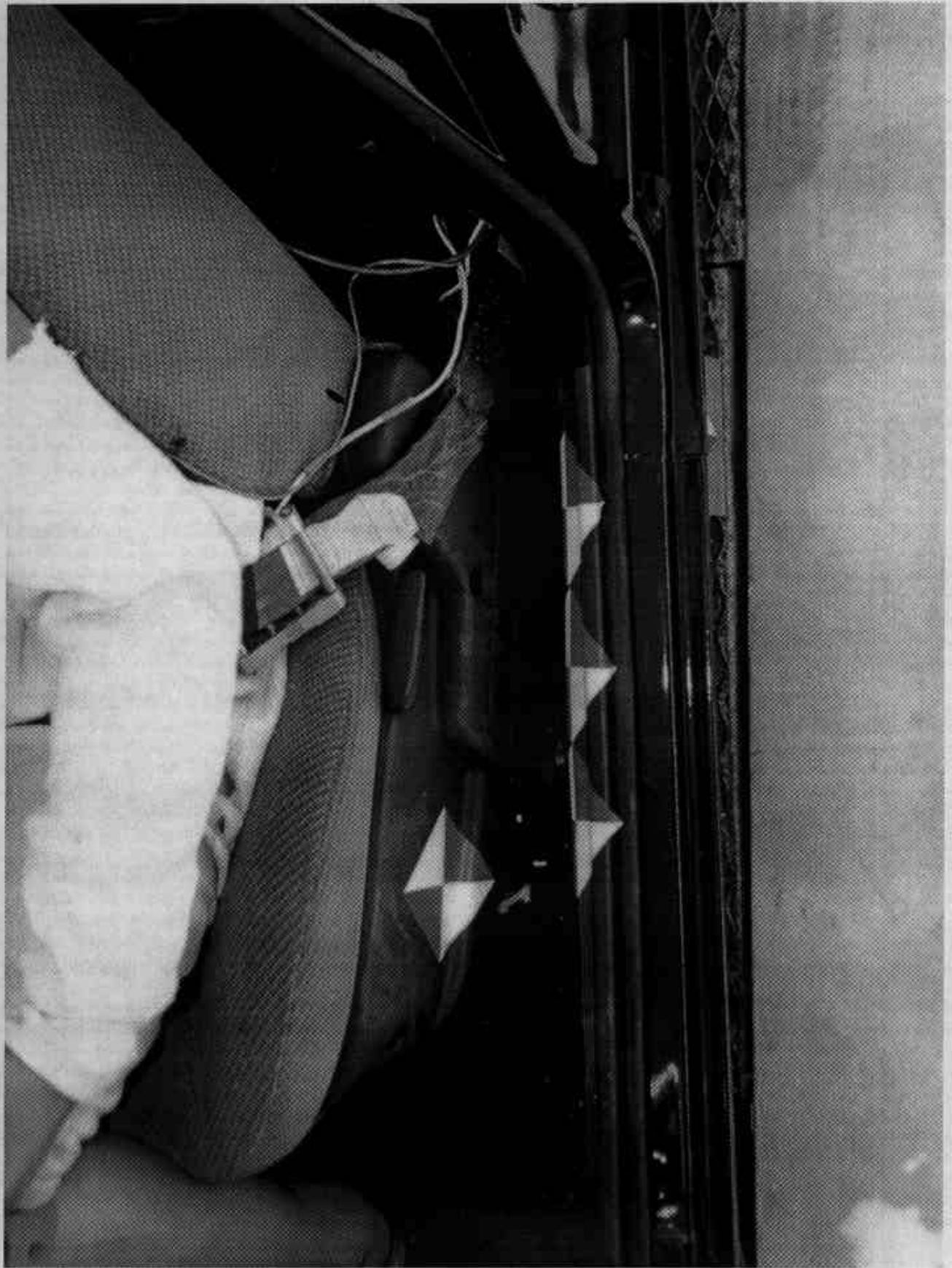


FIGURE A-52. DRIVER SEAT MOVEMENT
A-53

KAR-96-R96024-07

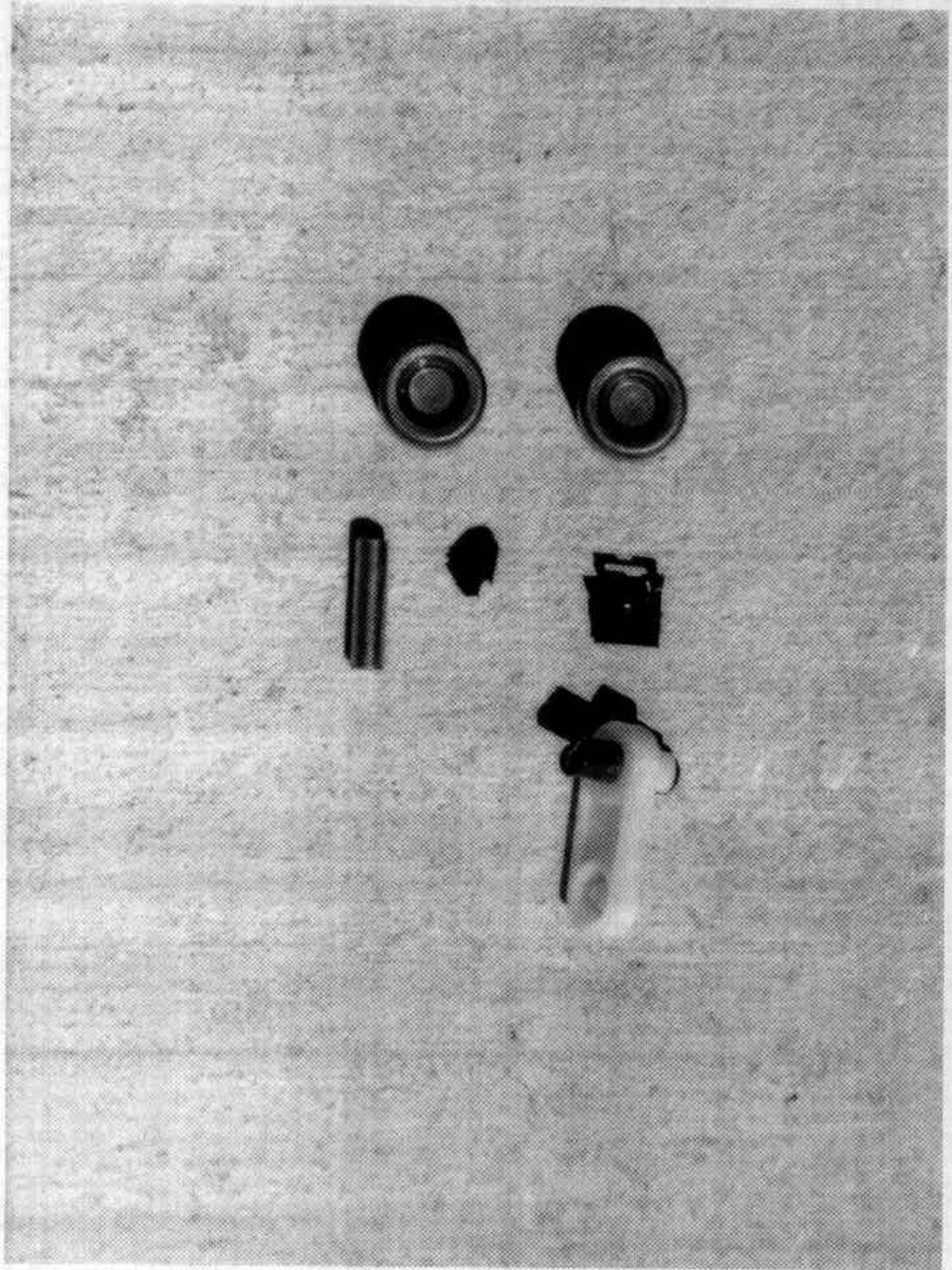


FIGURE A-53. DRIVER SEAT BROKEN PARTS
A-54

KAR-96-R96024-07

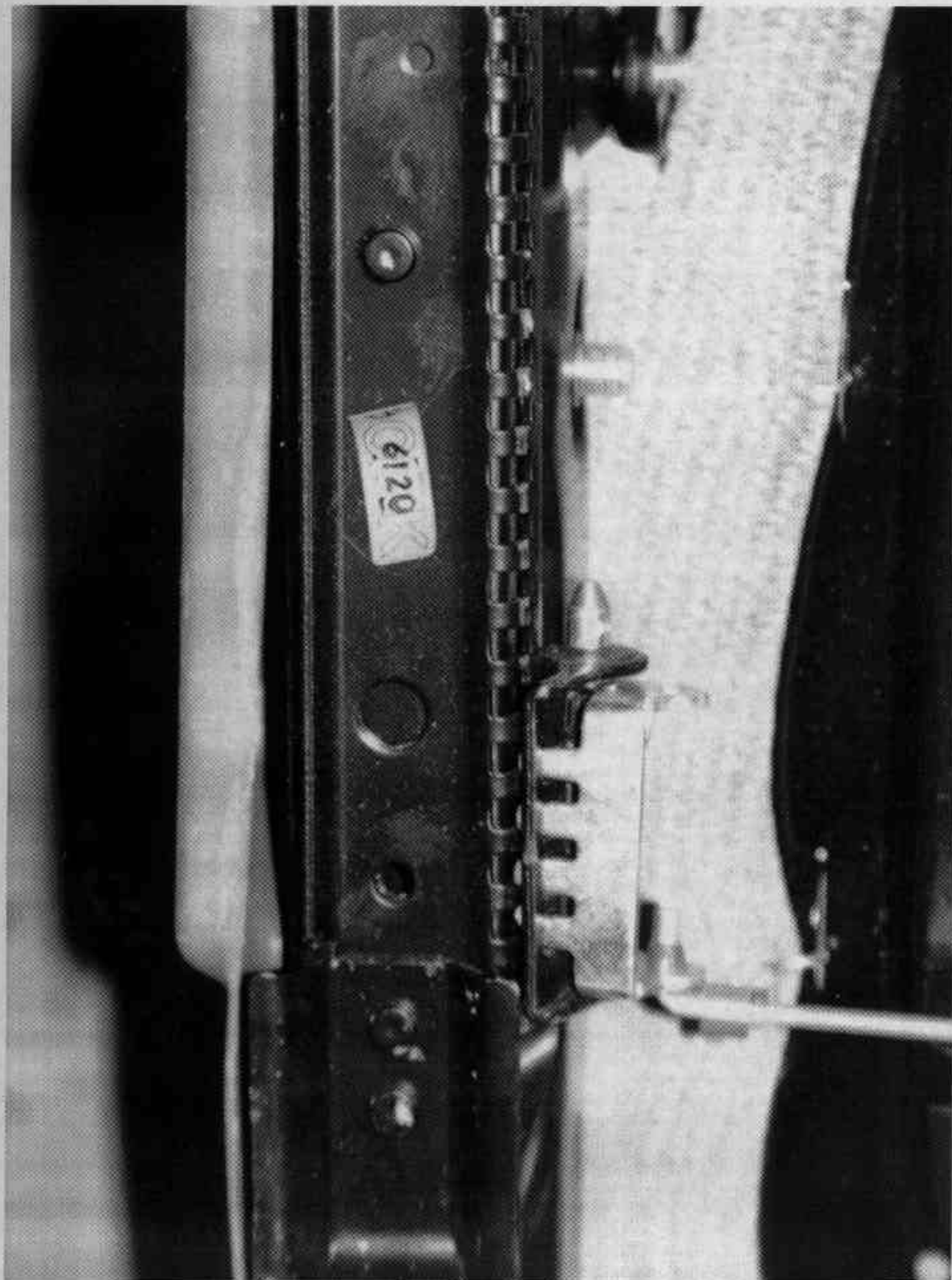


FIGURE A-54. DRIVER SEAT TRACK DAMAGE
A-55

KAR-96-R96024-07

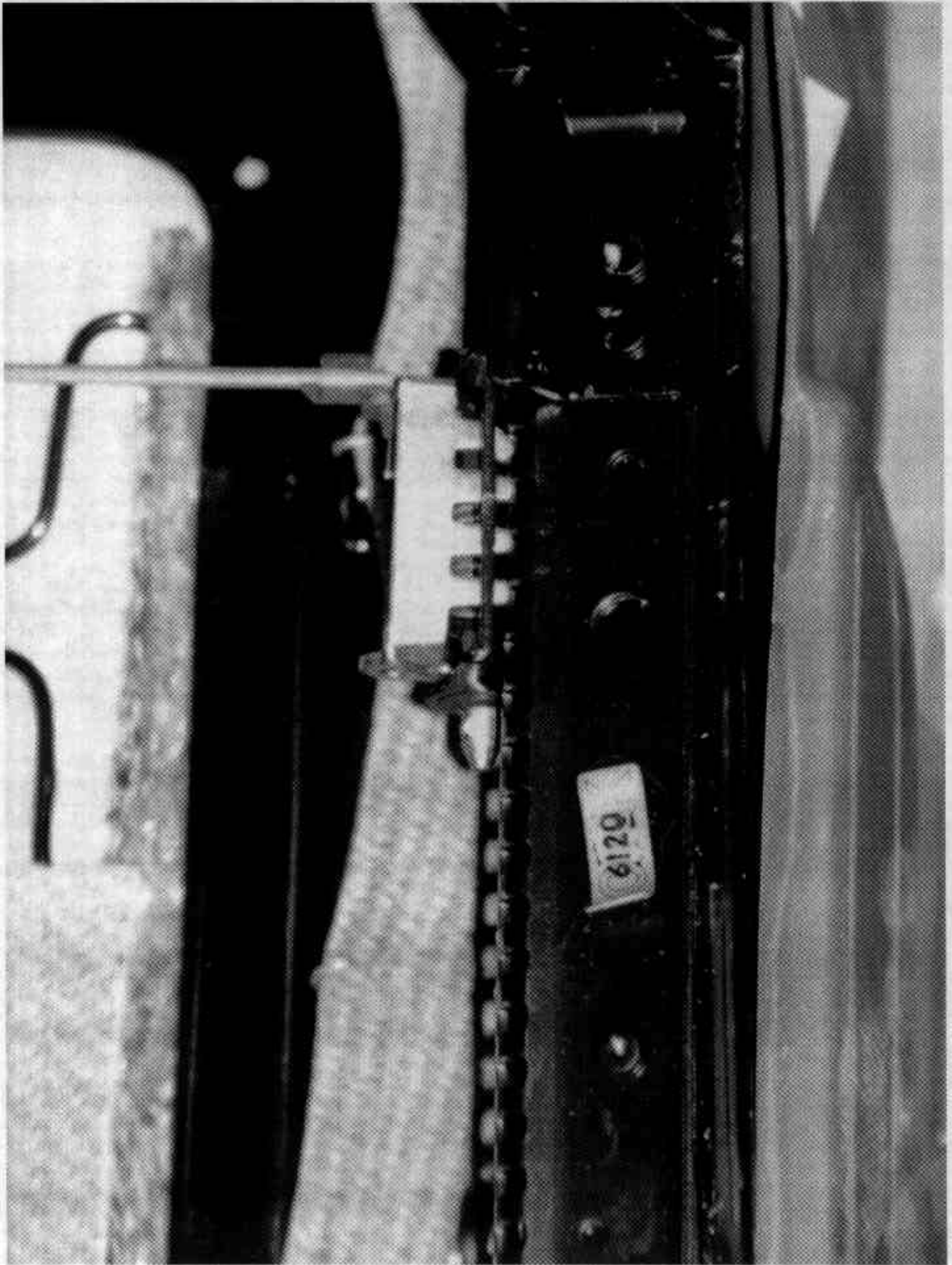
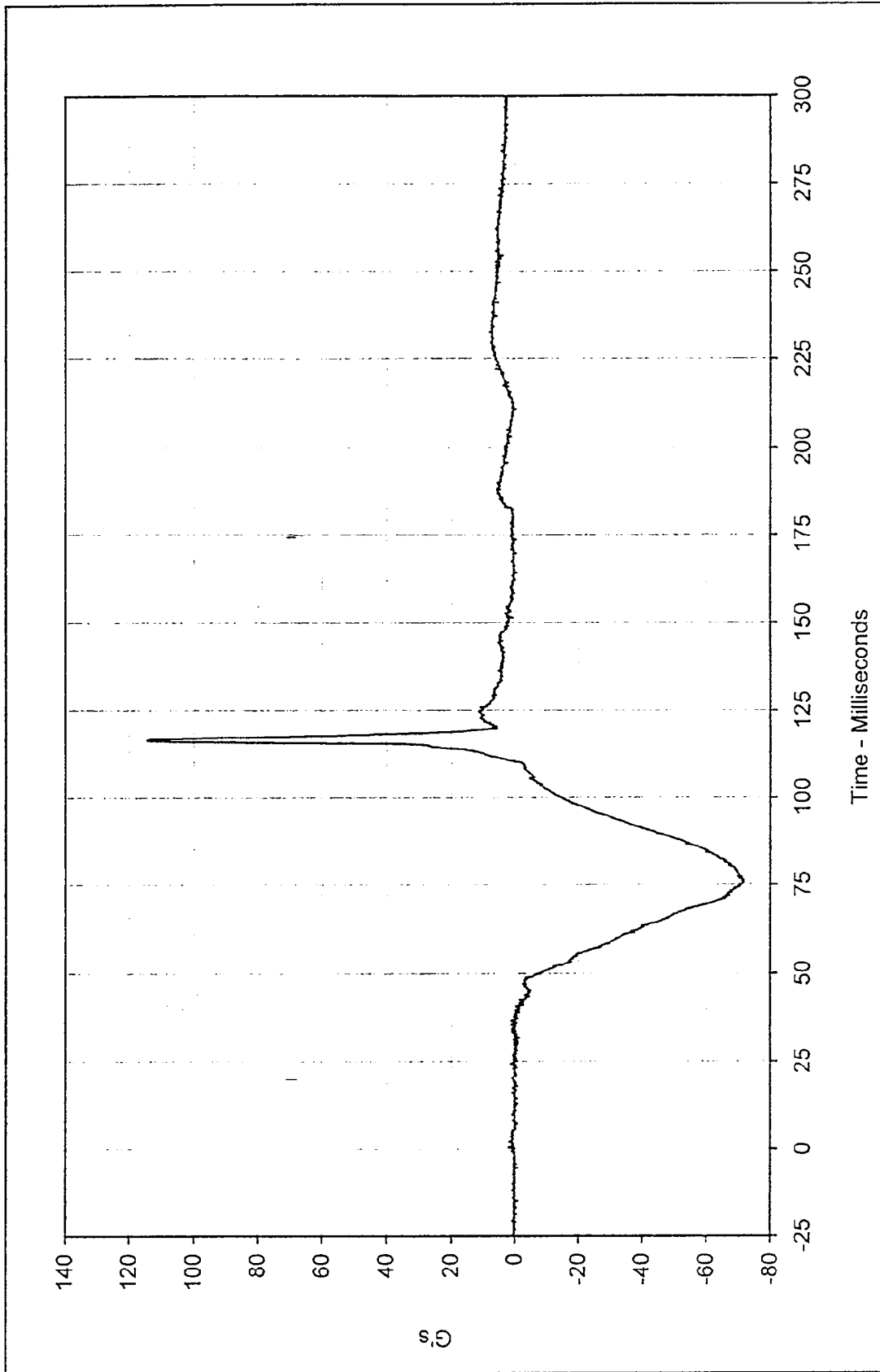


FIGURE A-55. DRIVER SEAT TRACK DAMAGE
A-56

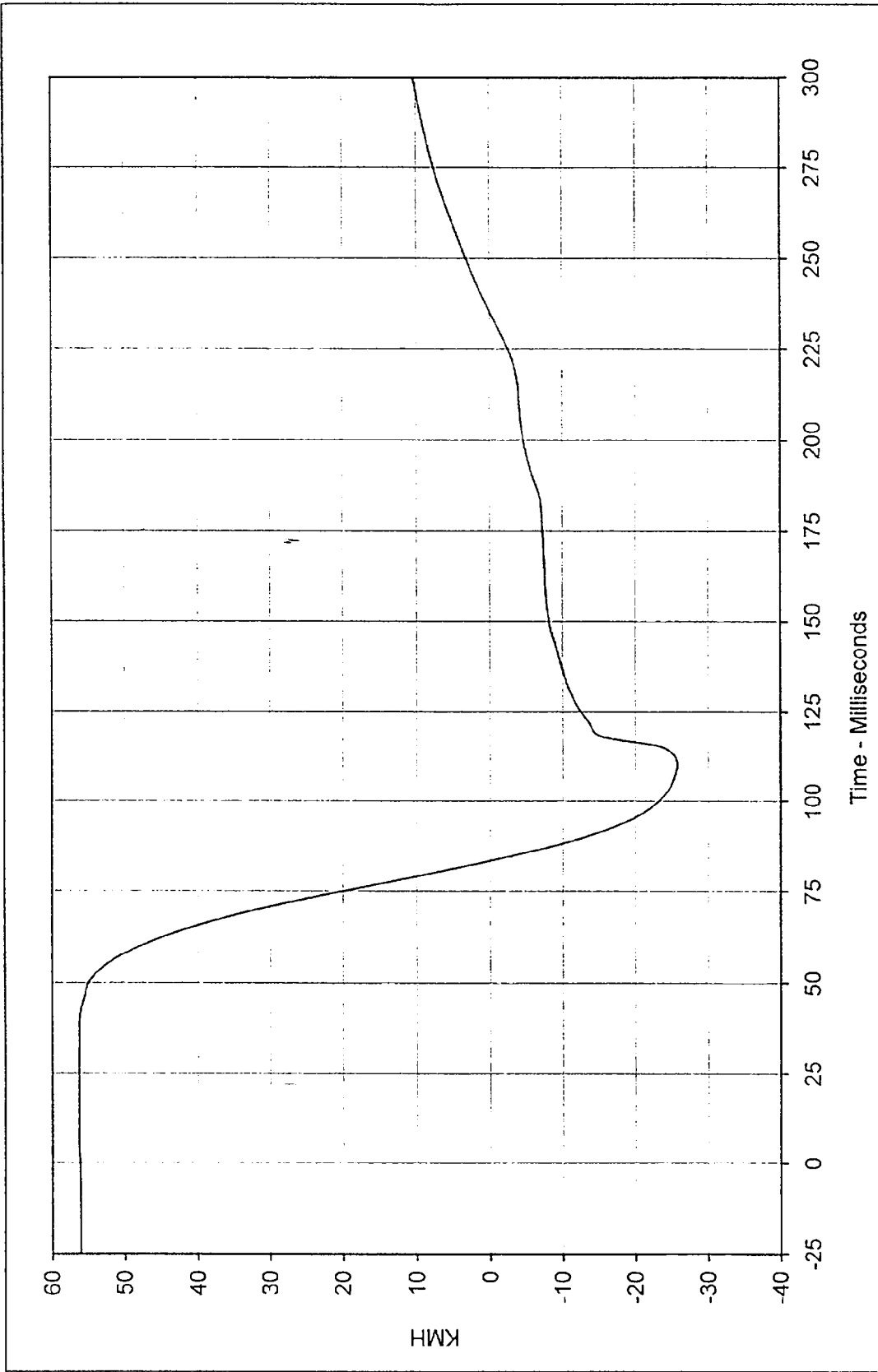
KAR-96-R96024-07

APPENDIX B
DUMMY AND VEHICLE RESPONSE DATA TRACES



Curve Description: Driver Head Primary X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 114.4 at 116.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -71.8 at 76.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-001





Curve Description: Driver Head Primary X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 56.3 at 11.1 Milliseconds Test Vehicle: 1997 Kia Sephia

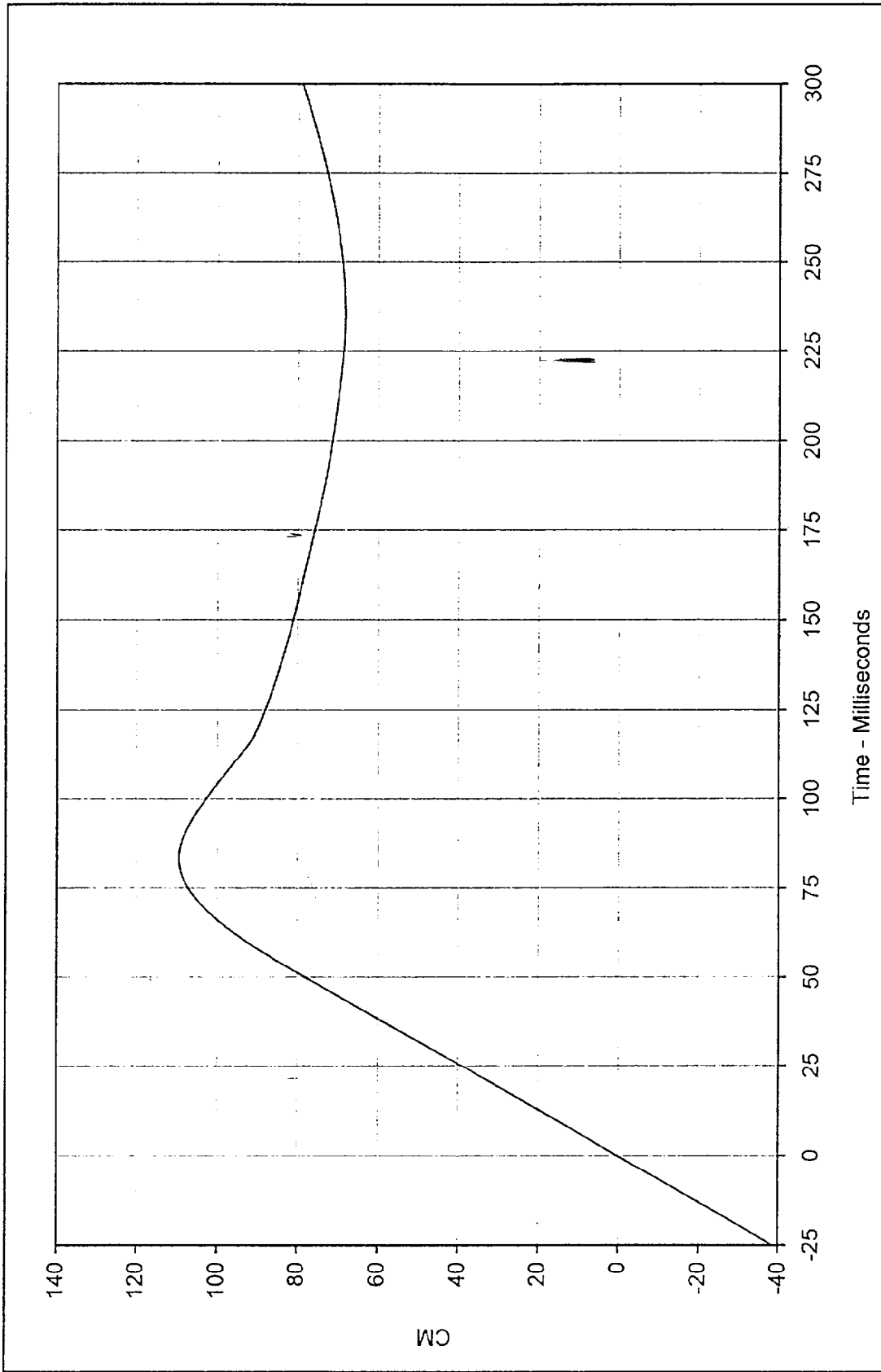
Minimum Value: -25.8 at 110.4 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

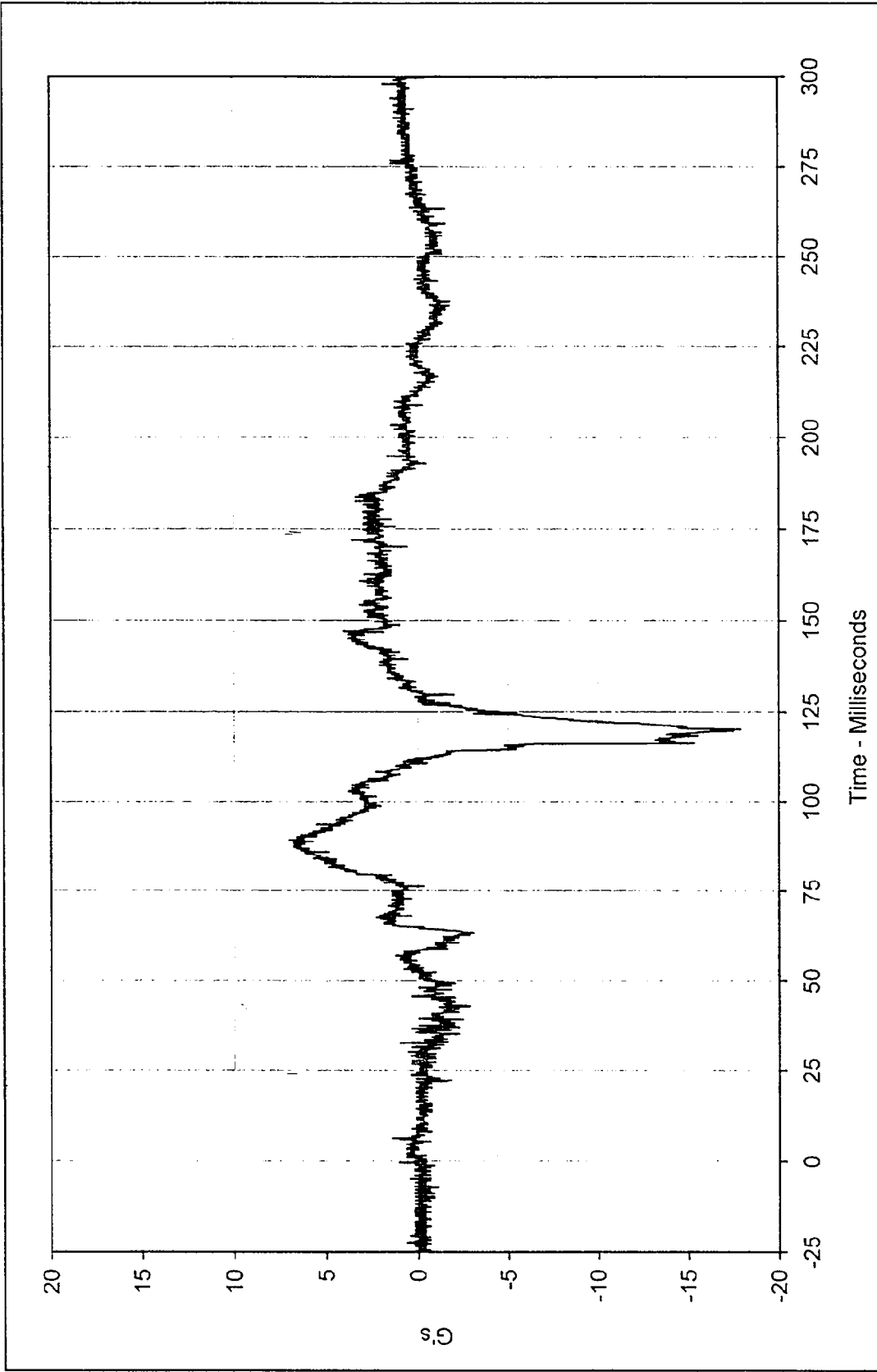
Curve Number: IN1-001





Curve Description: Driver Head Primary X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 109.4 at 83.2 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-001





Curve Description: Driver Head Primary Y Testing Program: 1997 New Car Assessment Program

Maximum Value: 7.0 at 89.2 Milliseconds Test Vehicle: 1997 Kia Sephia

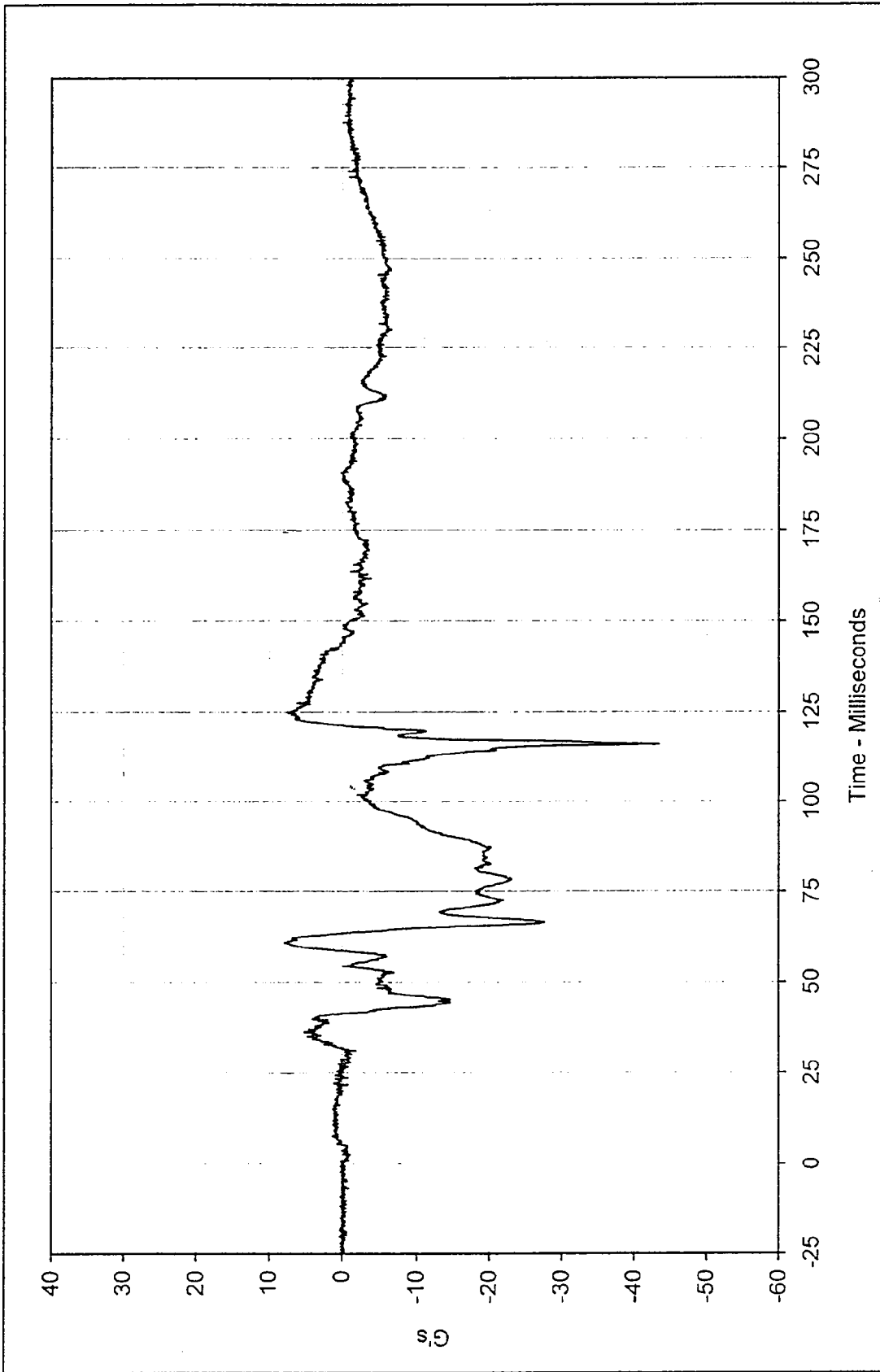
Minimum Value: -17.9 at 120.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 5/1/97

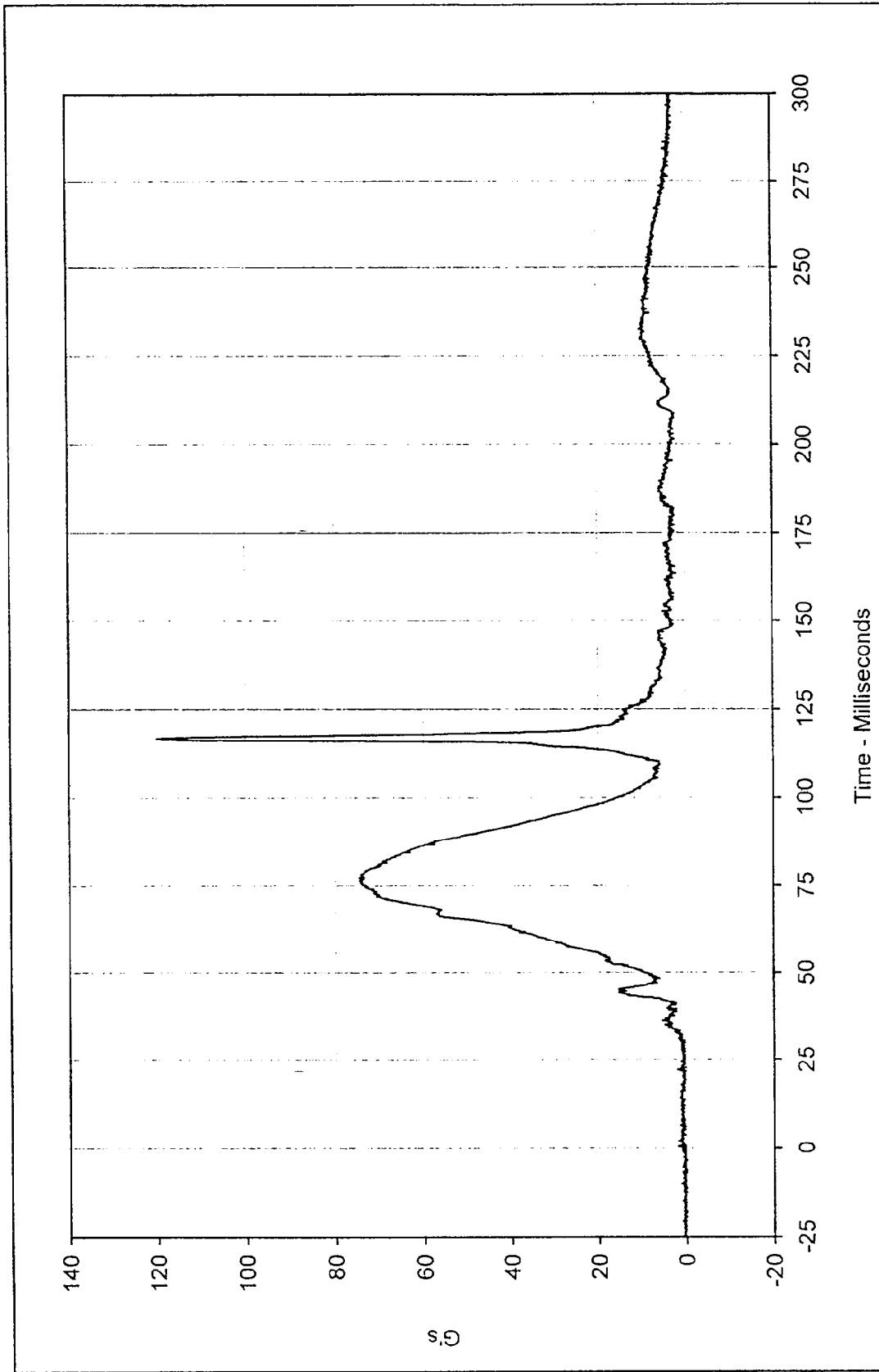
Curve Number: FIL-002





Curve Description: Driver Head Primary Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 7.9 at 61.0 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -43.5 at 116.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-003





Curve Description: Driver Head Resultant Primary Testing Program: 1997 New Car Assessment Program

Maximum Value: 120.0 at 116.6 Milliseconds Test Vehicle: 1997 Kia Sephia

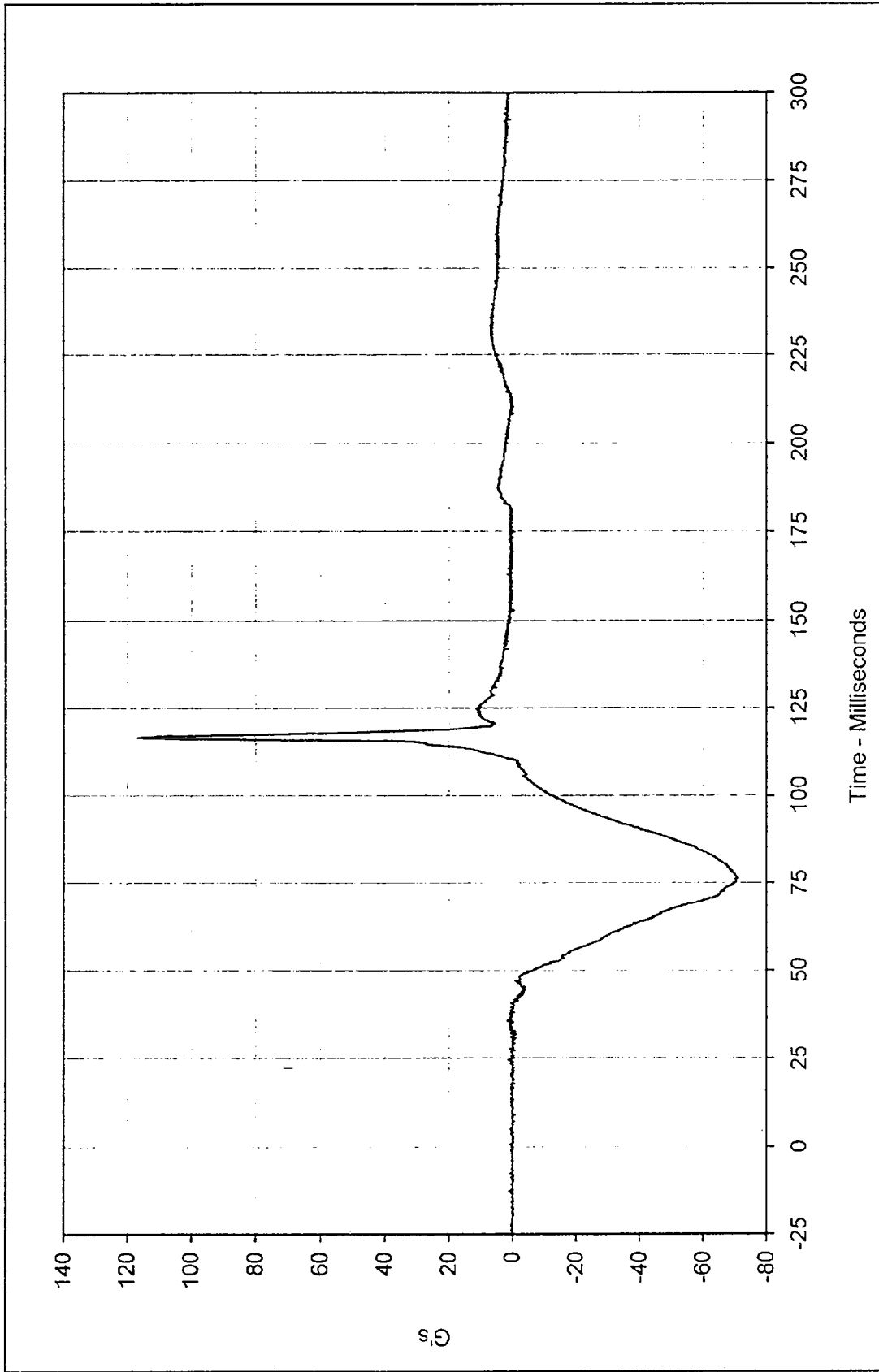
Minimum Value: 0.2 at 22.7 Milliseconds

SAE Filter Class: 1000

Date of Test: 5/1/97

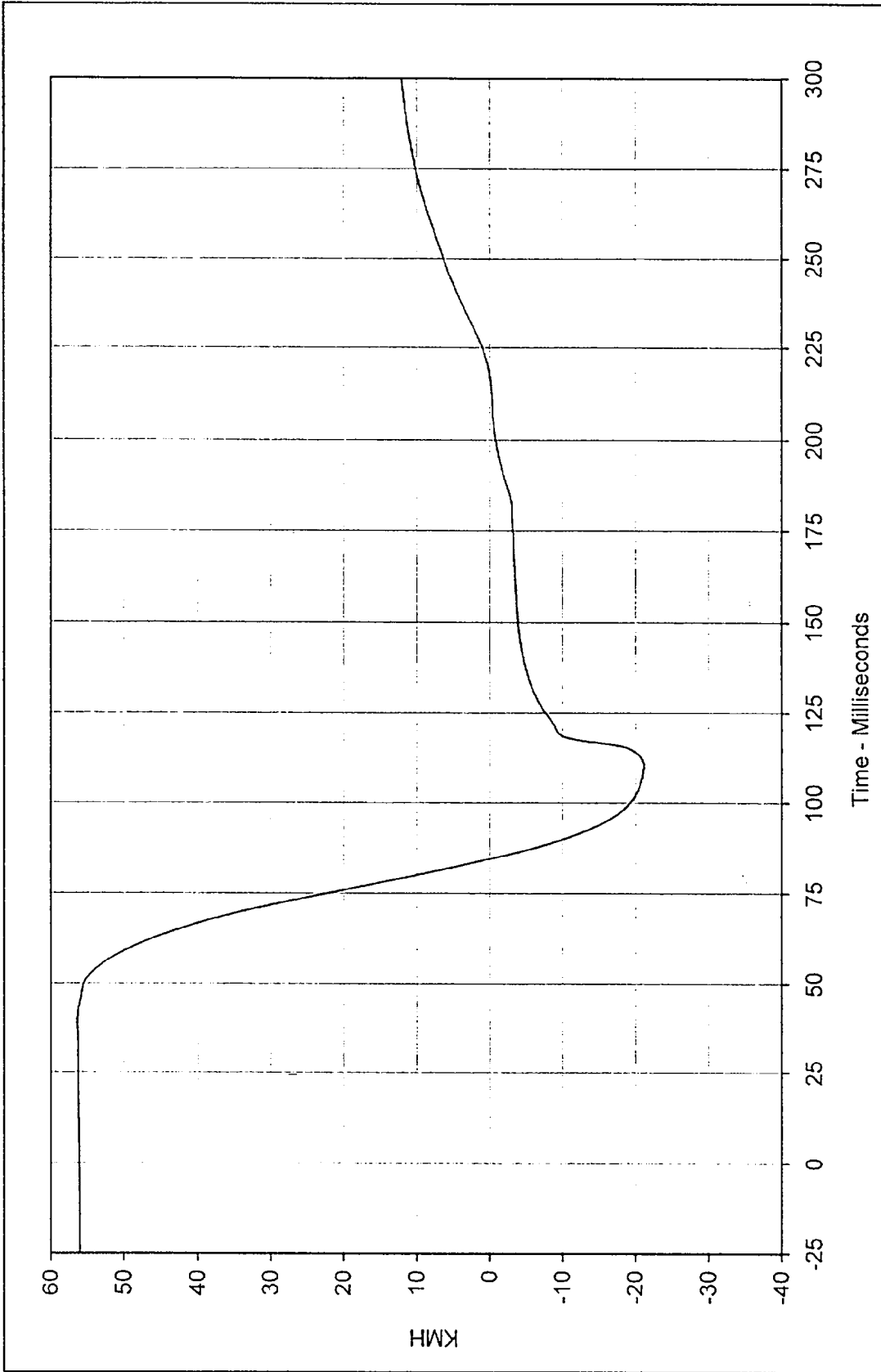
Curve Number: RES-001





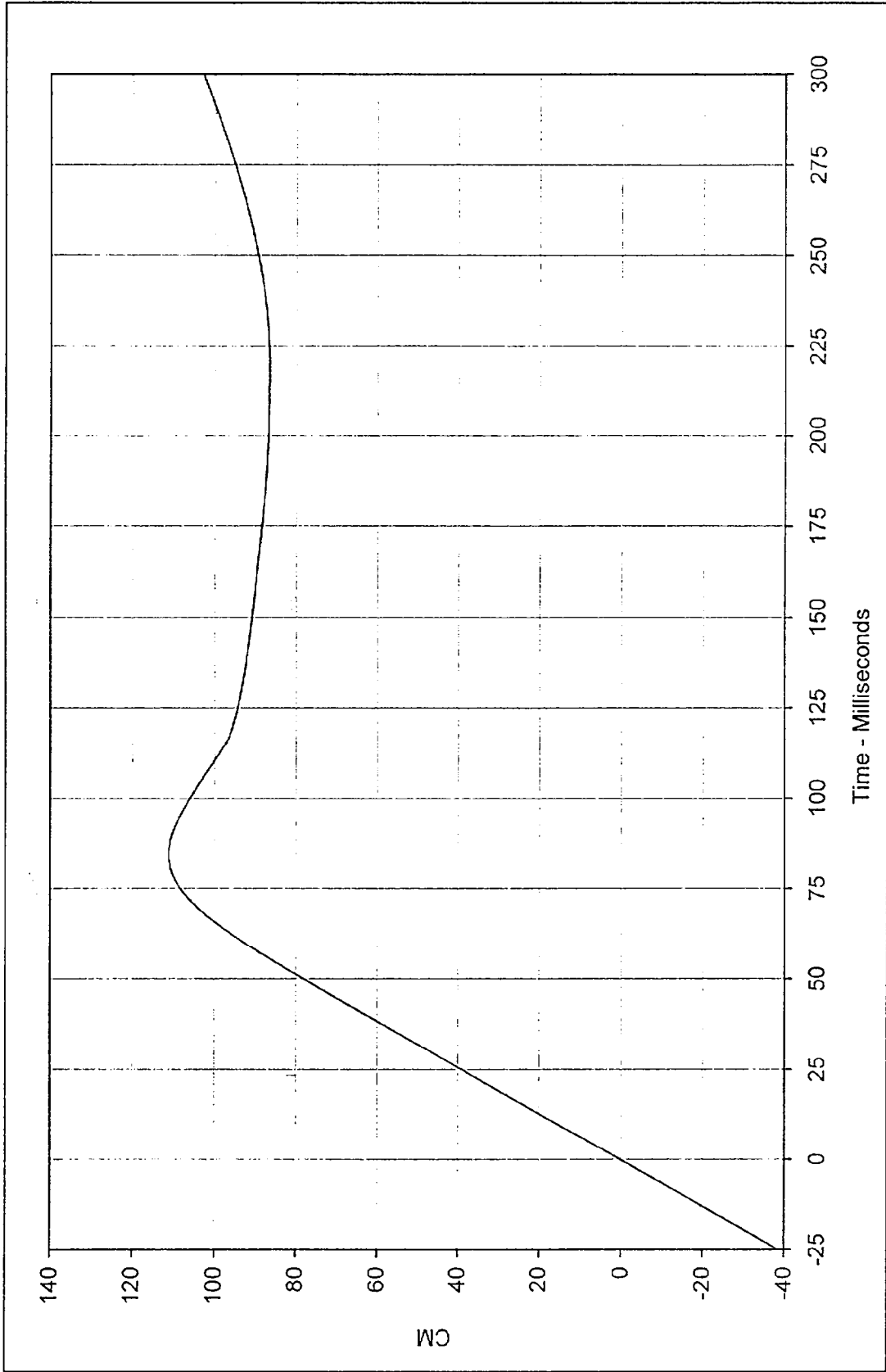
Curve Description: Driver Head Redundant X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 116.6 at 116.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -71.3 at 76.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-004





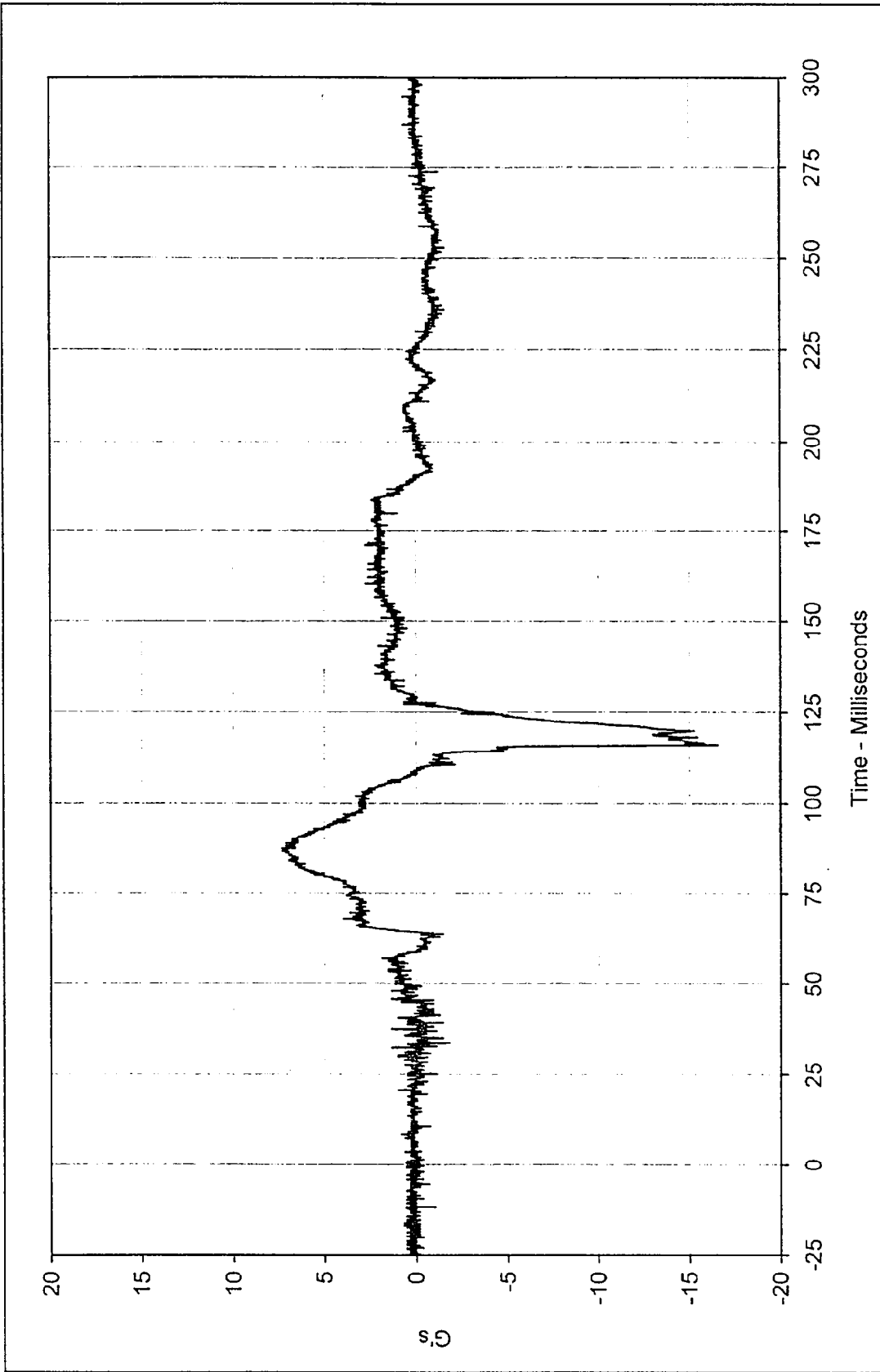
Curve Description: Driver Head Redundant X Velocity Testing Program: 1997 New Car Assessment Program
 Maximum Value: 56.4 at 39.0 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -21.2 at 110.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN1-004



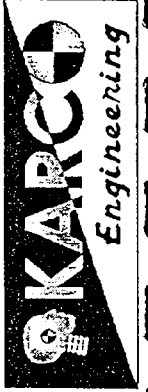


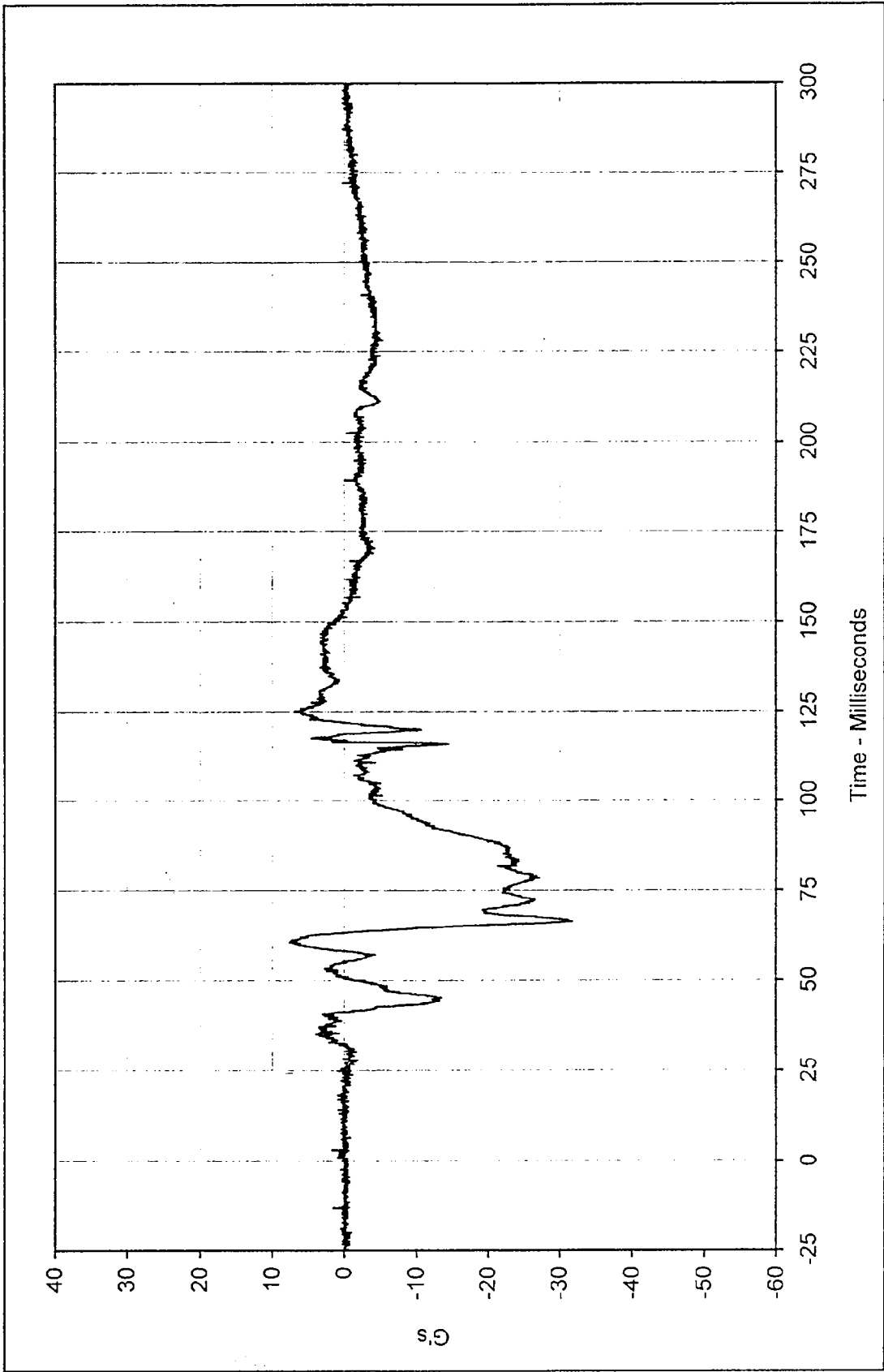
Curve Description: Driver Head Redundant X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 111.1 at 84.5 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-004





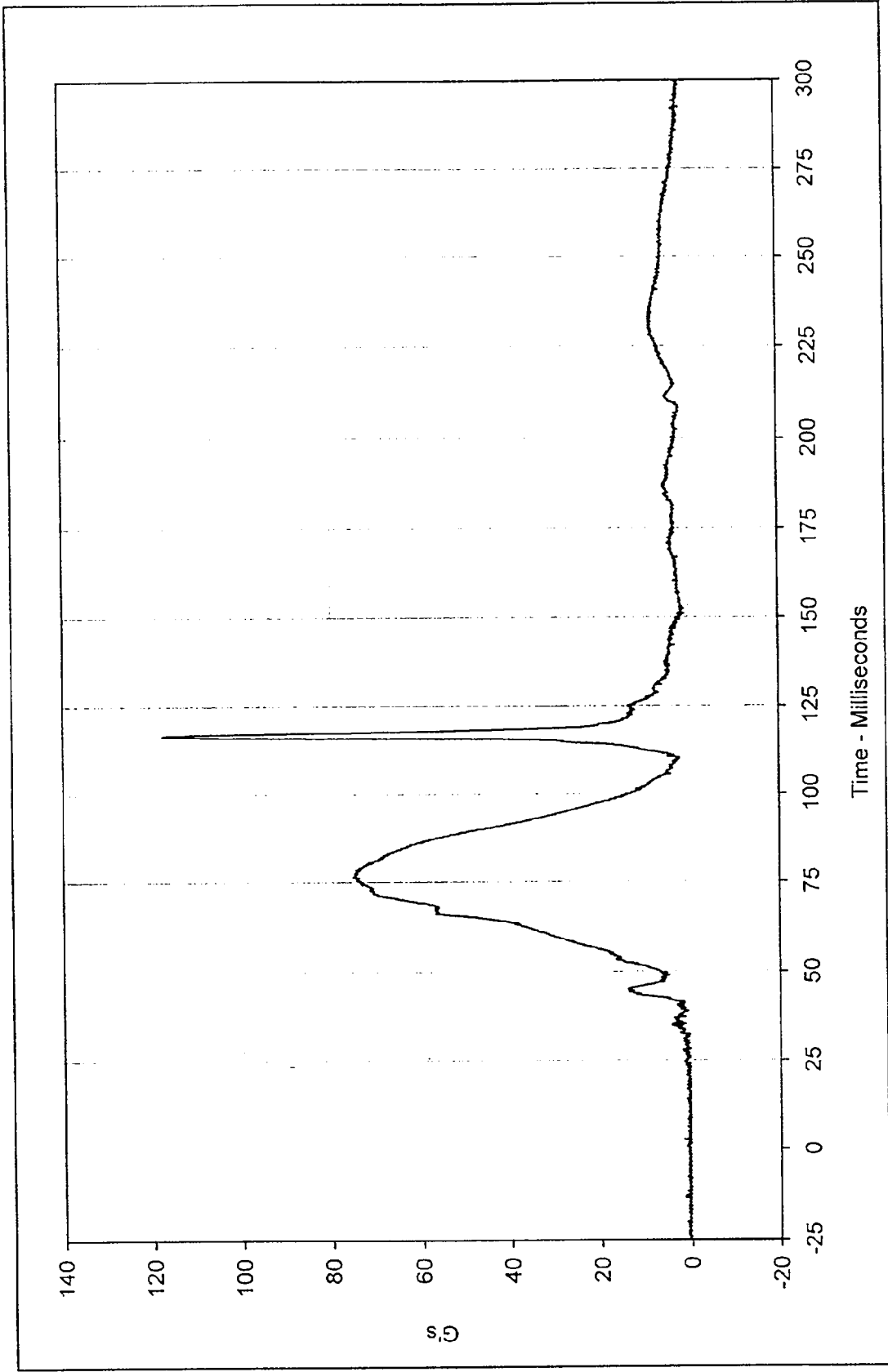
Curve Description: Driver Head Redundant Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 7.3 at 86.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -16.5 at 116.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-005





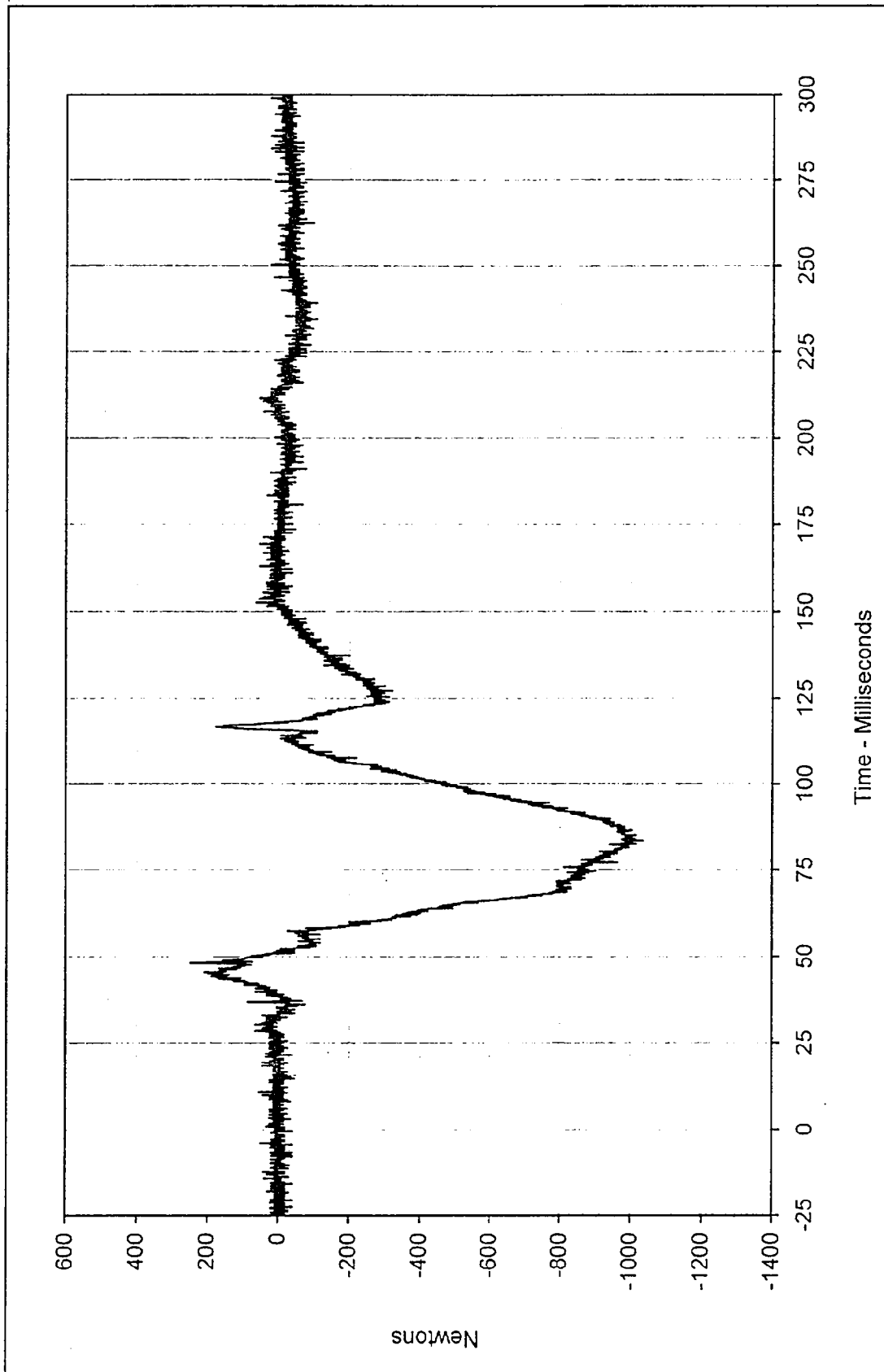
Curve Description: Driver Head Redundant Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 7.7 at 60.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -31.8 at 66.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-006





Curve Description: Driver Head Resultant Redundant Testing Program: 1997 New Car Assessment Program
 Maximum Value: 117.7 at 116.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.1 at 1.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: RES-004





Curve Description: Driver Neck Force X Testing Program: 1997 New Car Assessment Program

Maximum Value: 248.8 at 48.1 Milliseconds Test Vehicle: 1997 Kia Sephia

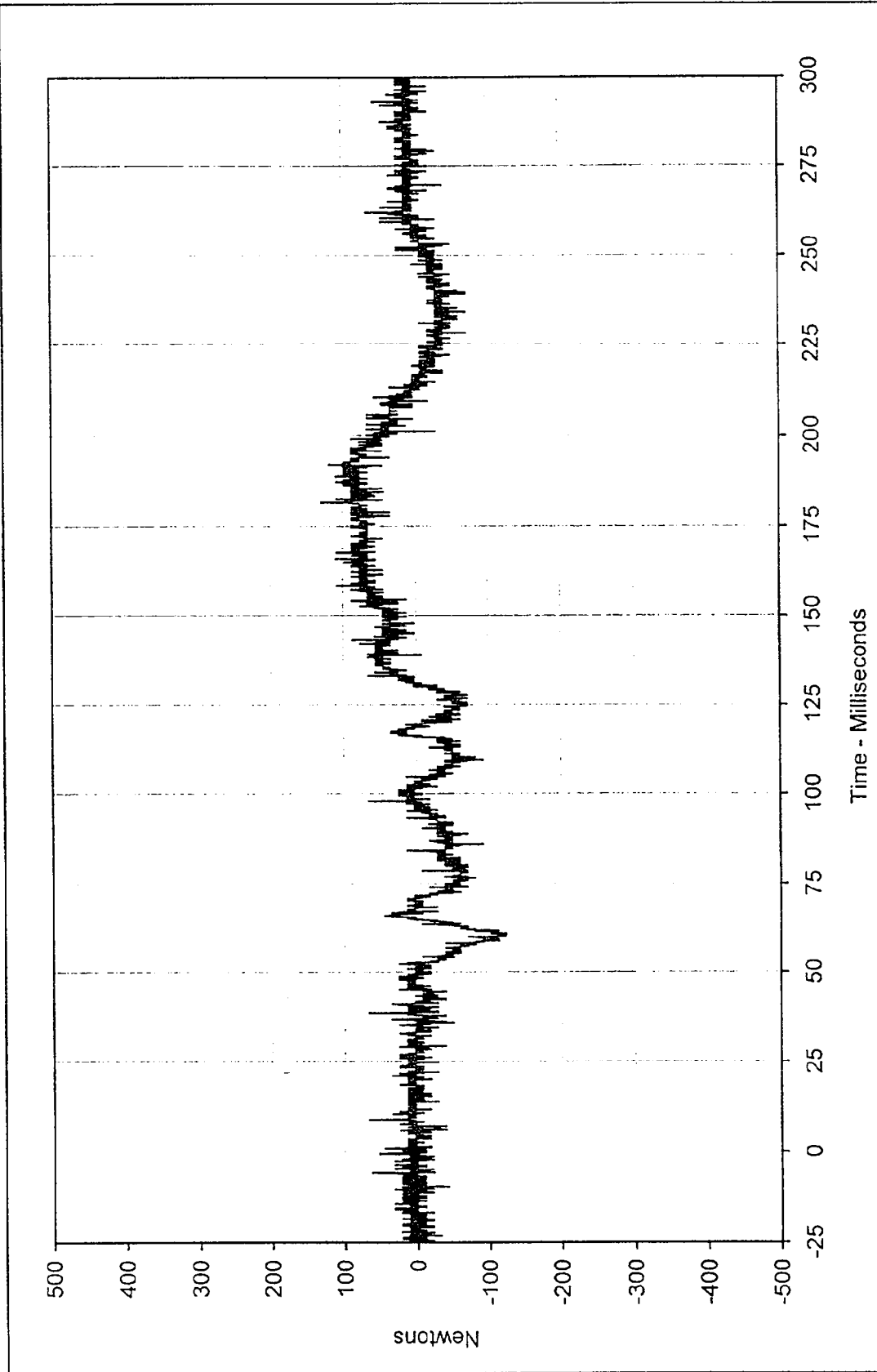
Minimum Value: -1035.1 at 83.6 Milliseconds

SAE Filter Class: 1000

Date of Test: 5/1/97

Curve Number: FIL-007

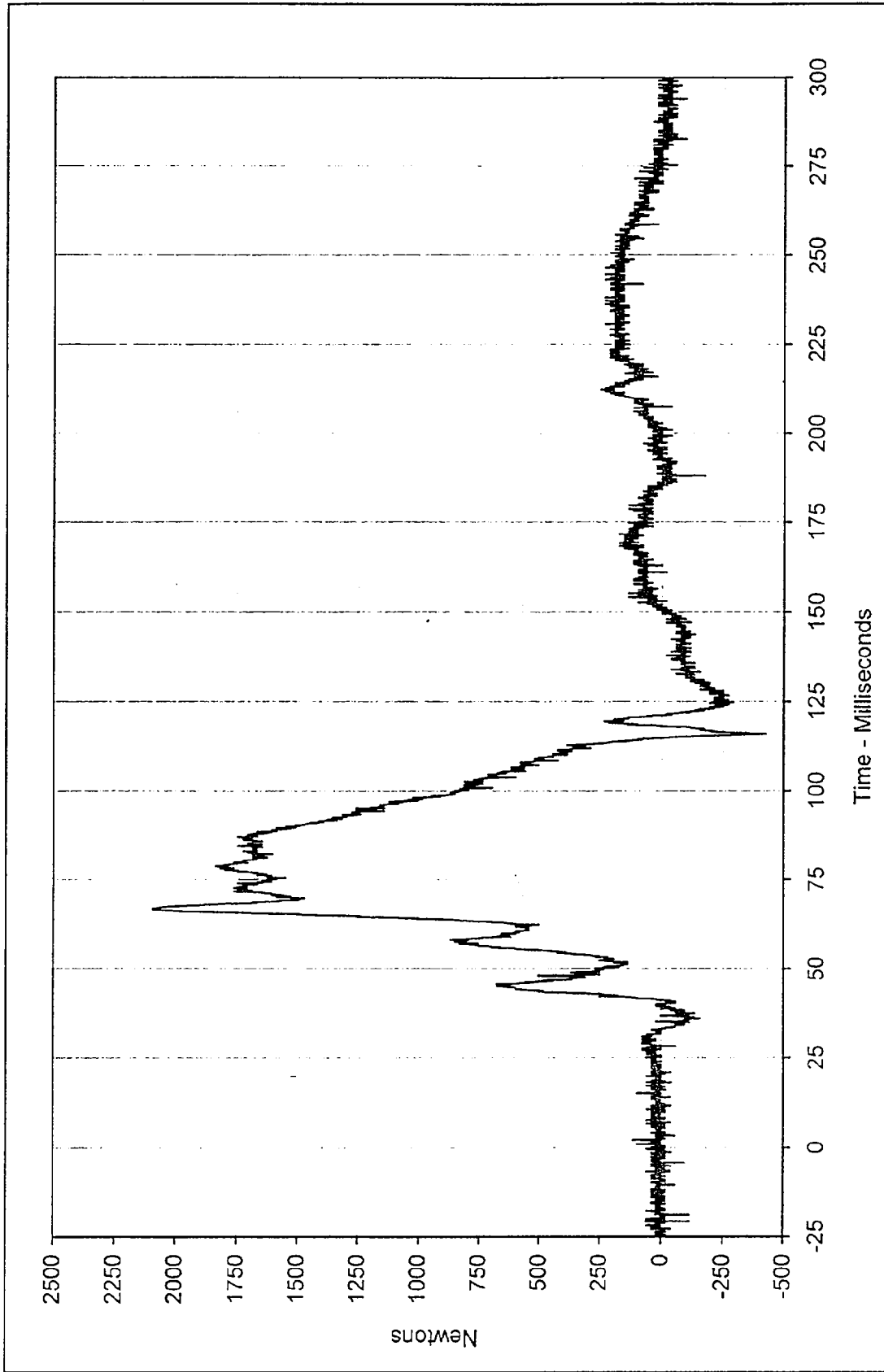




Curve Description: Driver Neck Force Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 129.4 at 181.5 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -123.8 at 60.4 Milliseconds

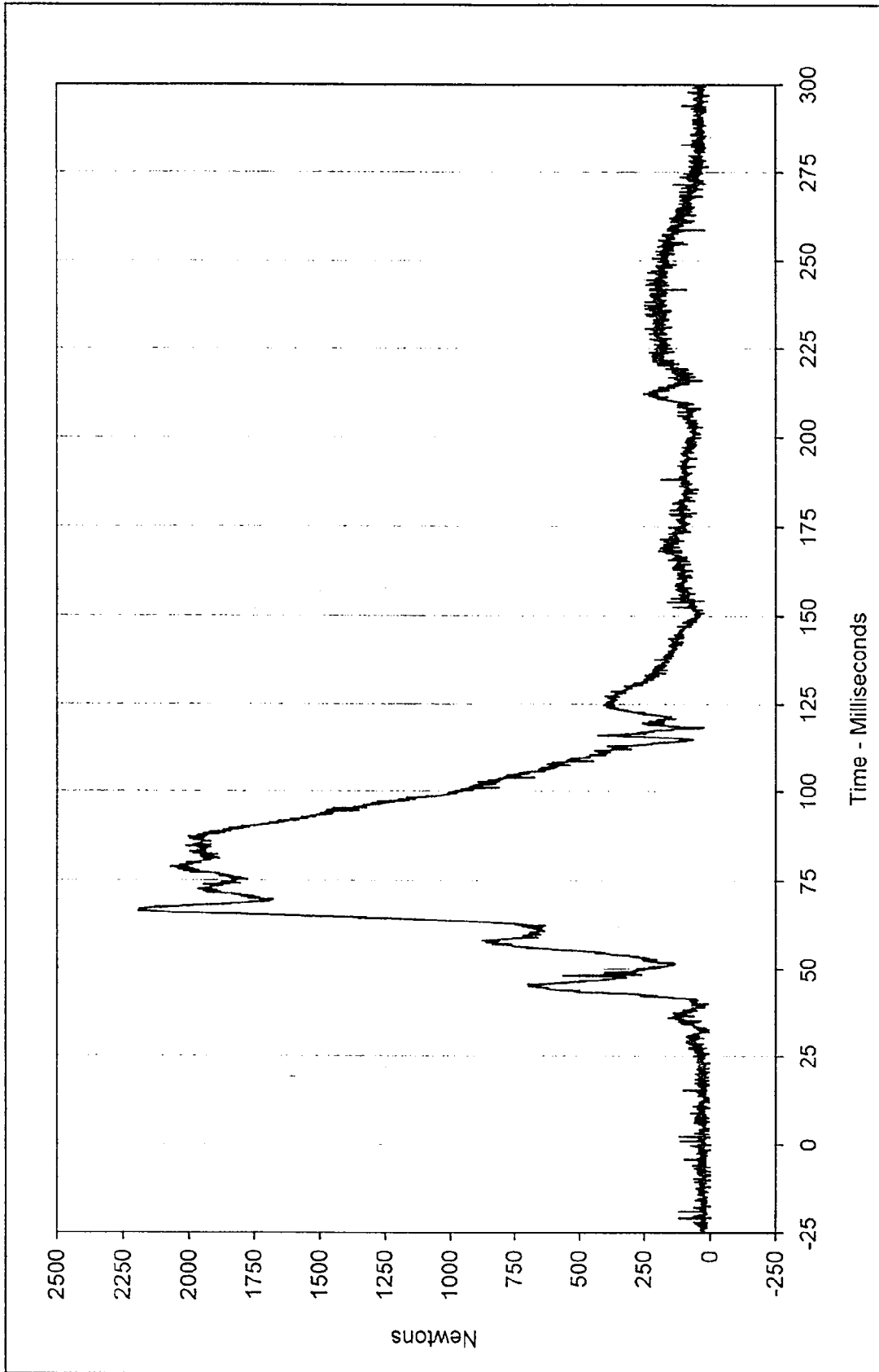


SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-008



Curve Description: Driver Neck Force Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 2092.3 at 66.6 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -427.0 at 116.1 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-009





Curve Description: Driver Neck Force Resultant Testing Program: 1997 New Car Assessment Program

Maximum Value: 2193.3 at 66.6 Milliseconds Test Vehicle: 1997 Kia Sephia

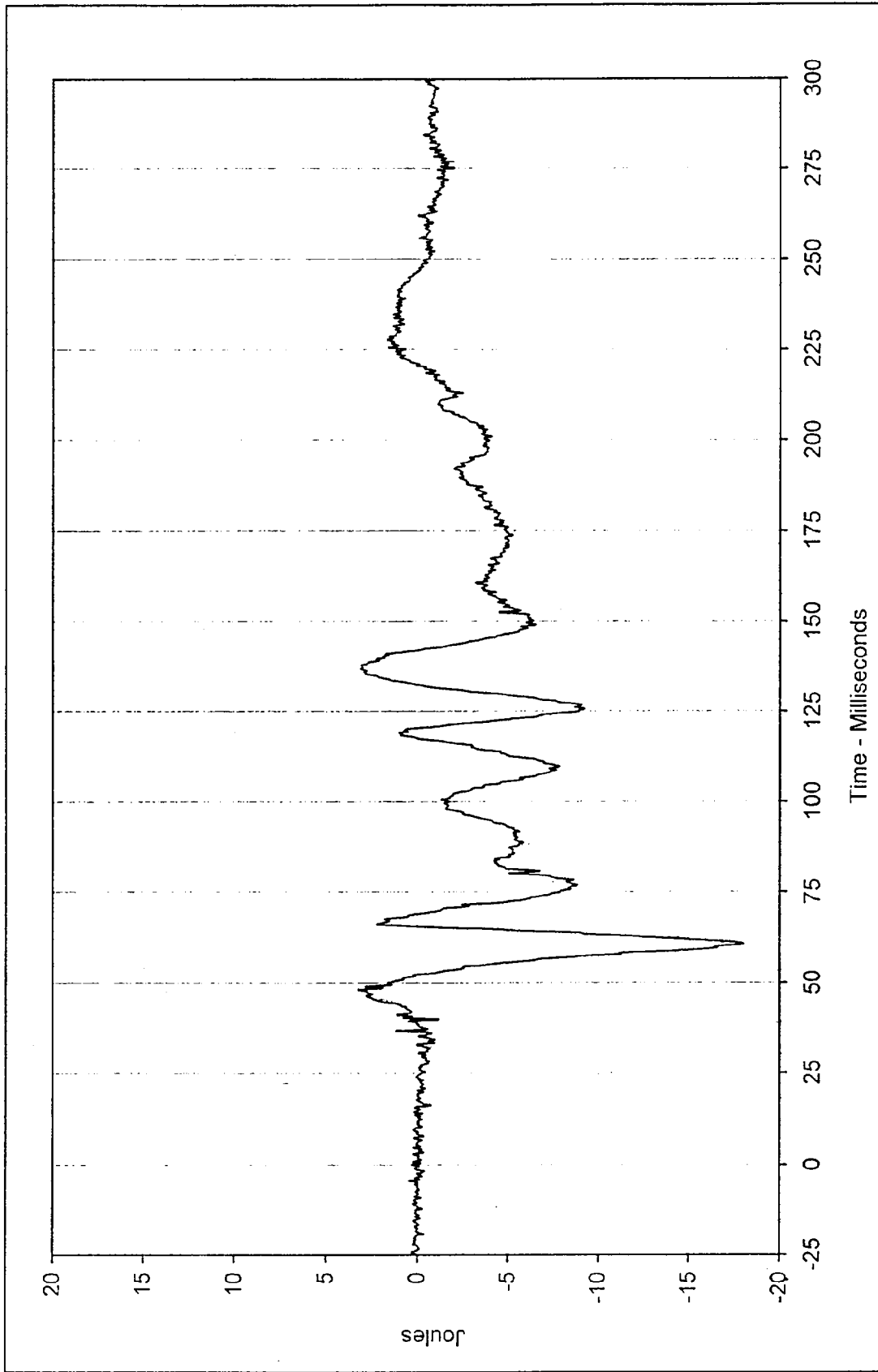
Minimum Value: 5.1 at 2 Milliseconds

SAE Filter Class: 1000

Date of Test: 5/1/97

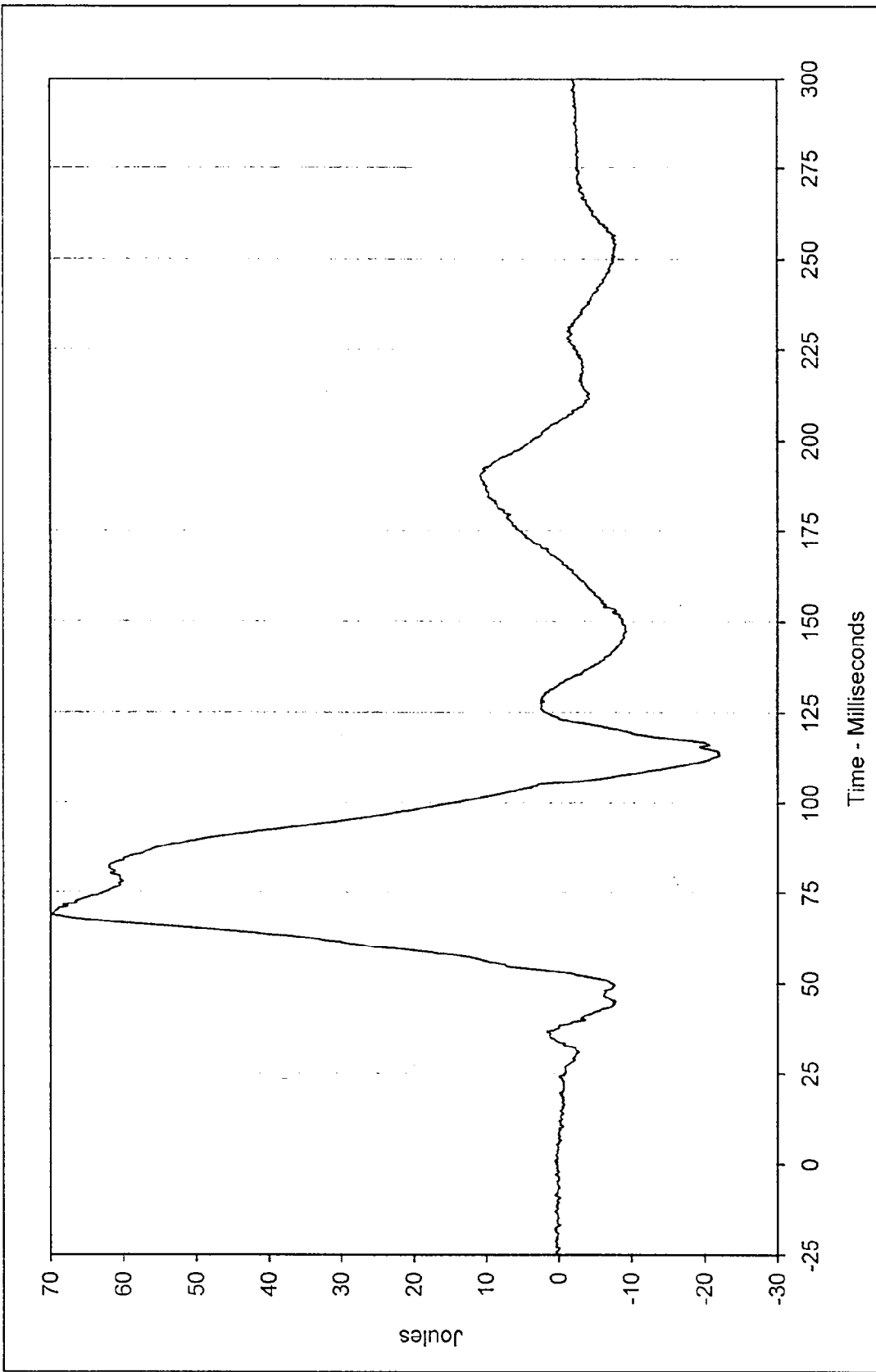
Curve Number: RES-007





Curve Description:	Driver Neck Moment X	Testing Program:	1997 New Car Assessment Program
Maximum Value:	3.2 at 48.1 Milliseconds	Test Vehicle:	1997 Kia Sephia
Minimum Value:	-18.0 at 60.8 Milliseconds		
SAE Filter Class:	600		
Date of Test:	5/1/97		
Curve Number:	FIL-010		





Curve Description: Driver Neck Moment Y Testing Program: 1997 New Car Assessment Program

Maximum Value: 69.9 at 68.9 Milliseconds Test Vehicle: 1997 Kia Sephia

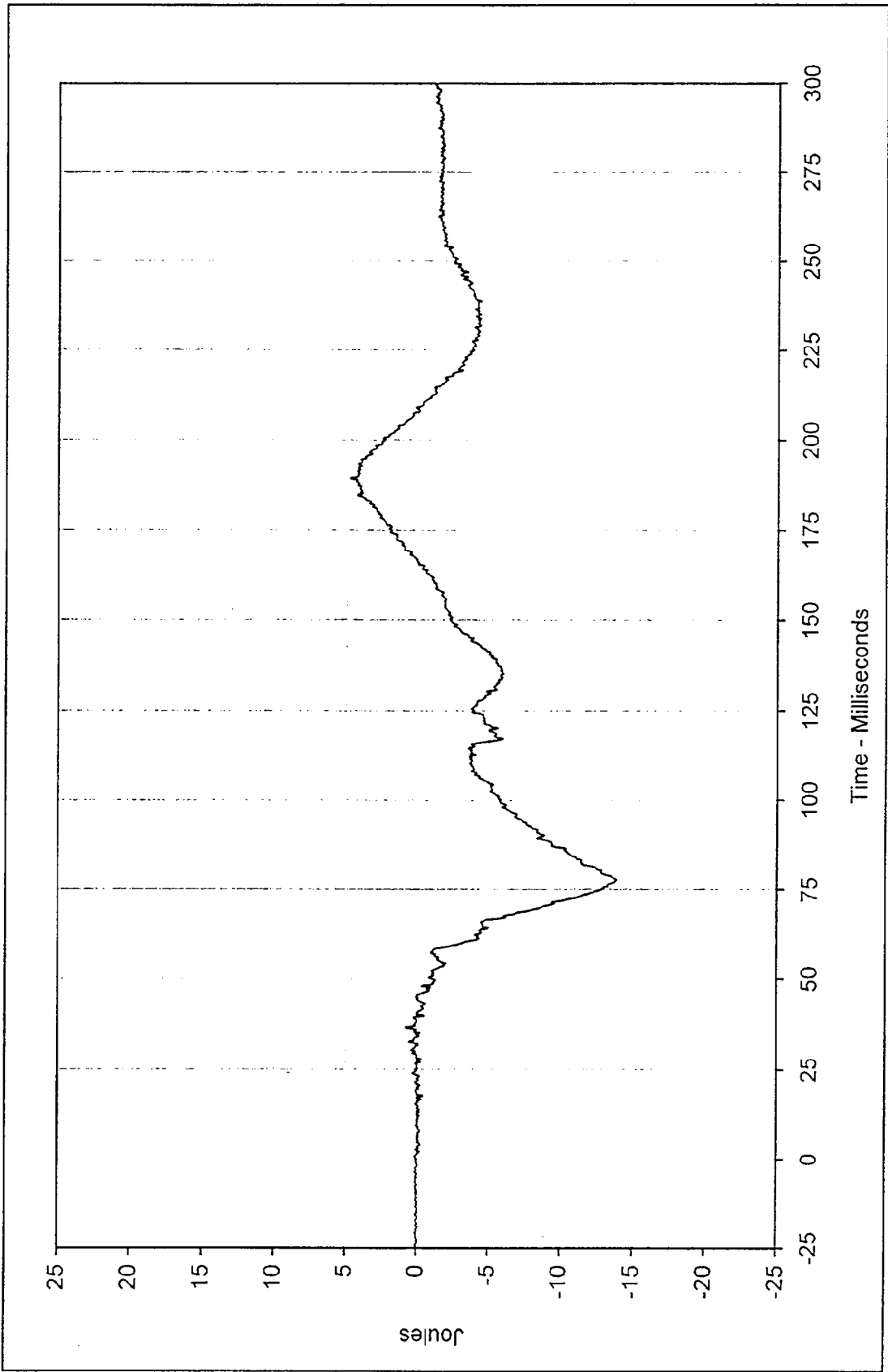
Minimum Value: -22.0 at 113.3 Milliseconds

SAE Filter Class: 600

Date of Test: 5/1/97

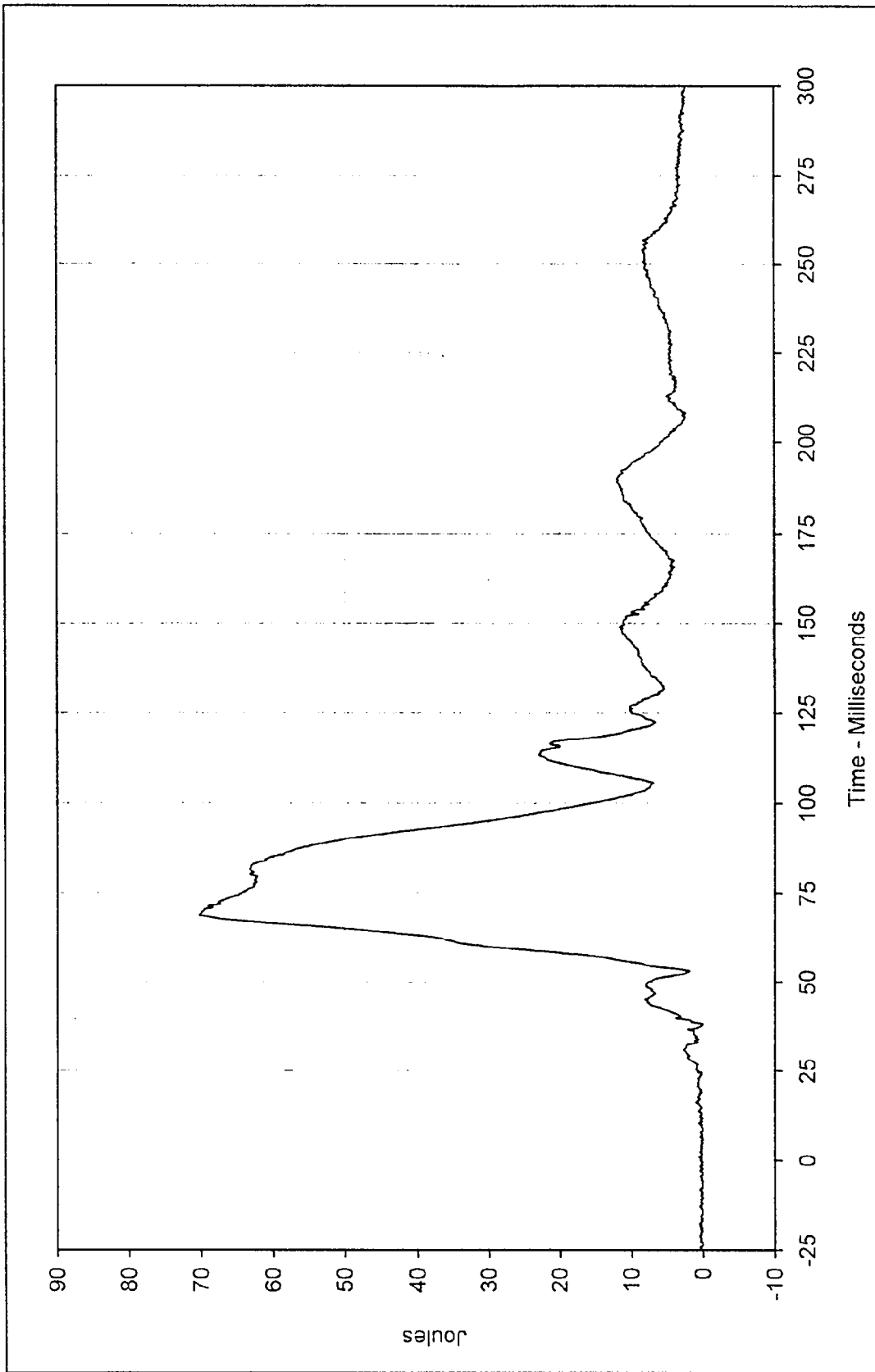
Curve Number: FIL-011





Curve Description: Driver Neck Moment Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 4.7 at 189.4 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -13.9 at 77.7 Milliseconds
 SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-012





Curve Description: Driver Neck Moment Resultant Testing Program: 1997 New Car Assessment Program

Maximum Value: 70.3 at 68.9 Milliseconds Test Vehicle: 1997 Kia Sephia

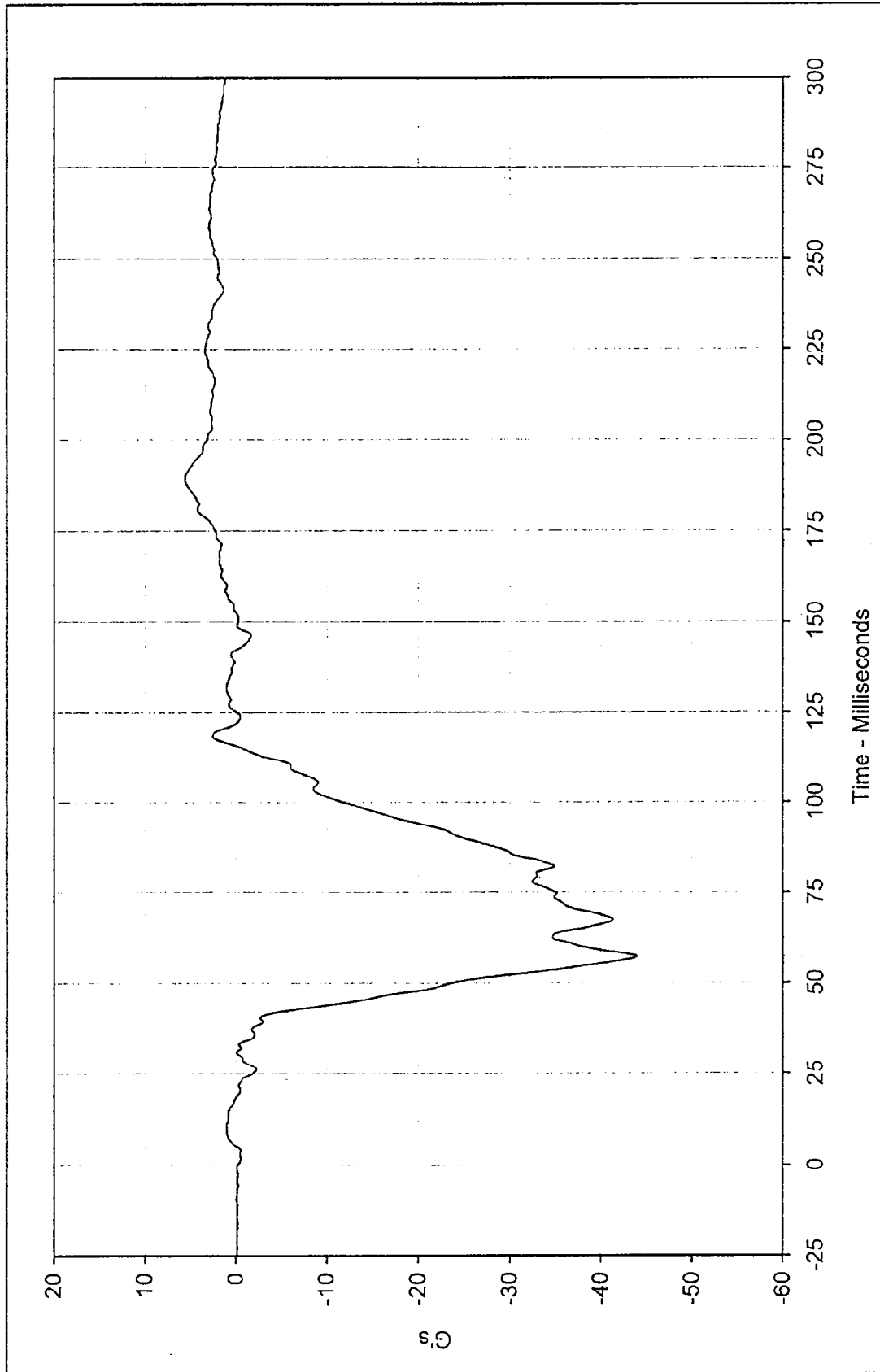
Minimum Value: 0.1 at 5.9 Milliseconds

SAE Filter Class: 600

Date of Test: 5/1/97

Curve Number: RES-010





Curve Description: Driver Chest Primary X Testing Program: 1997 New Car Assessment Program

Maximum Value: 5.6 at 189 Milliseconds Test Vehicle: 1997 Kia Sephia

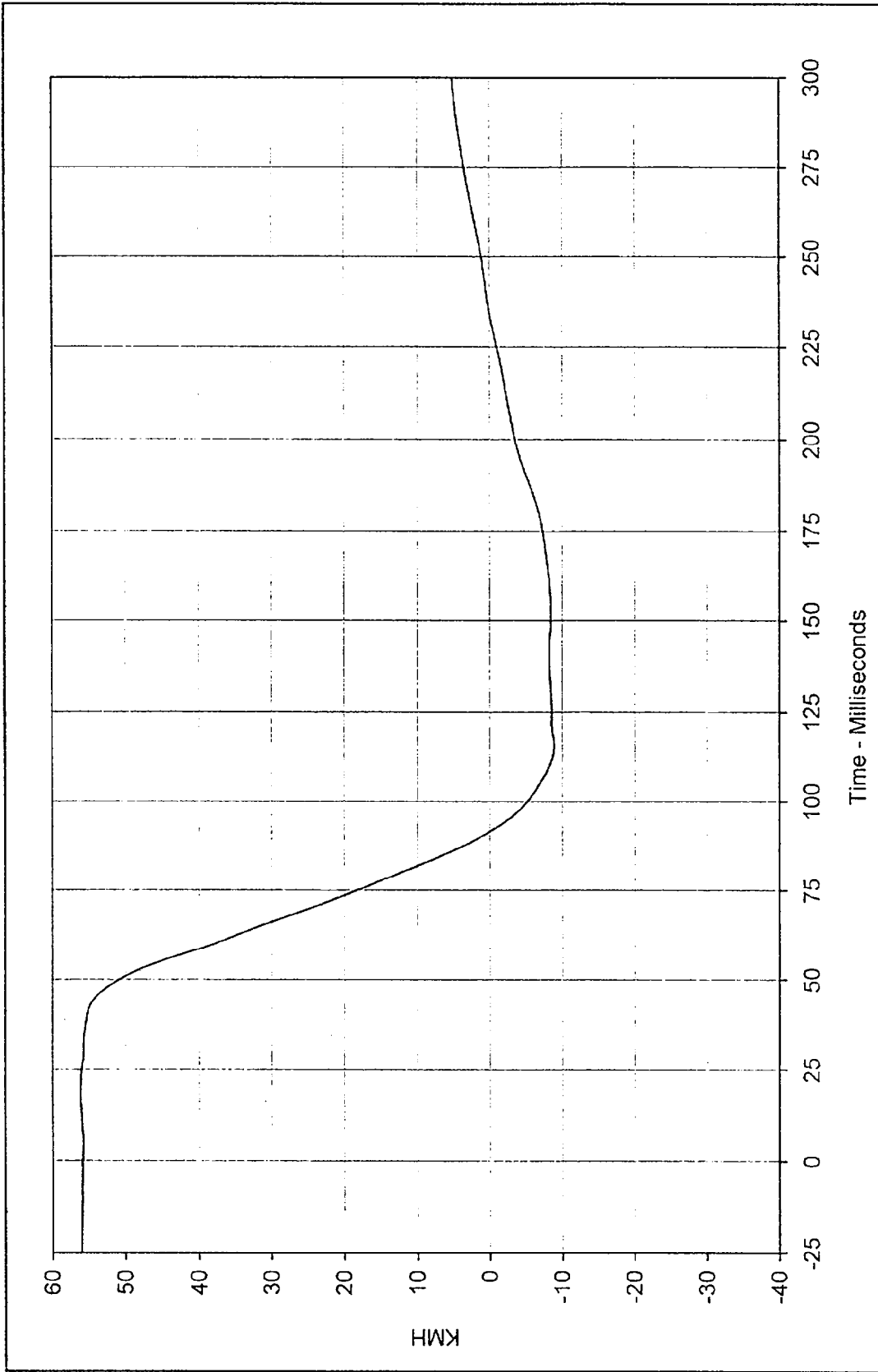
Minimum Value: -44.0 at 57.4 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: FIL-013





Curve Description: Driver Chest Primary X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 56.1 at 18.5 Milliseconds Test Vehicle: 1997 Kia Sephia

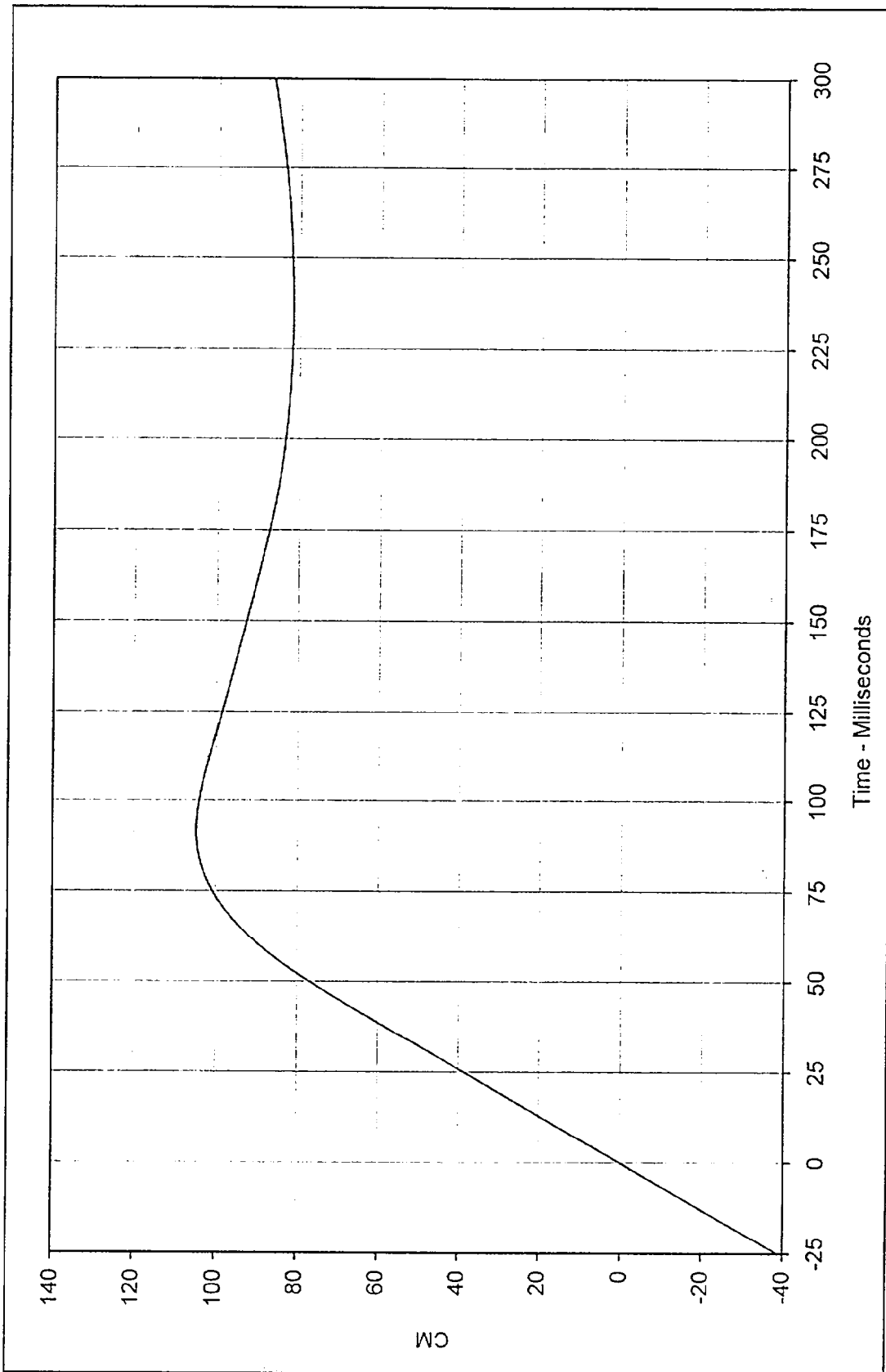
Minimum Value: -8.9 at 116.0 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

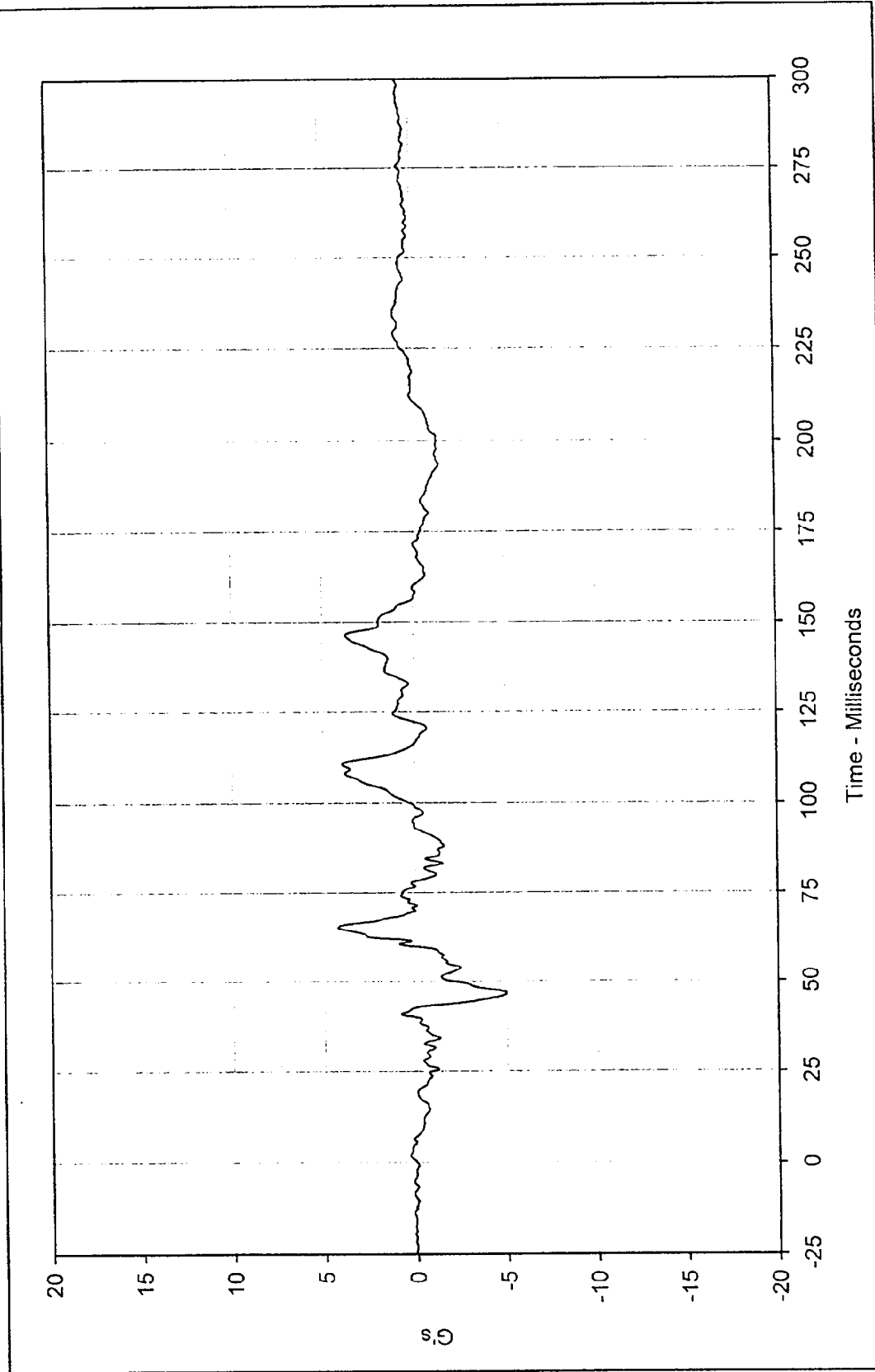
Curve Number: IN1-013





Curve Description: Driver Chest Primary X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 104.8 at 91.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-013

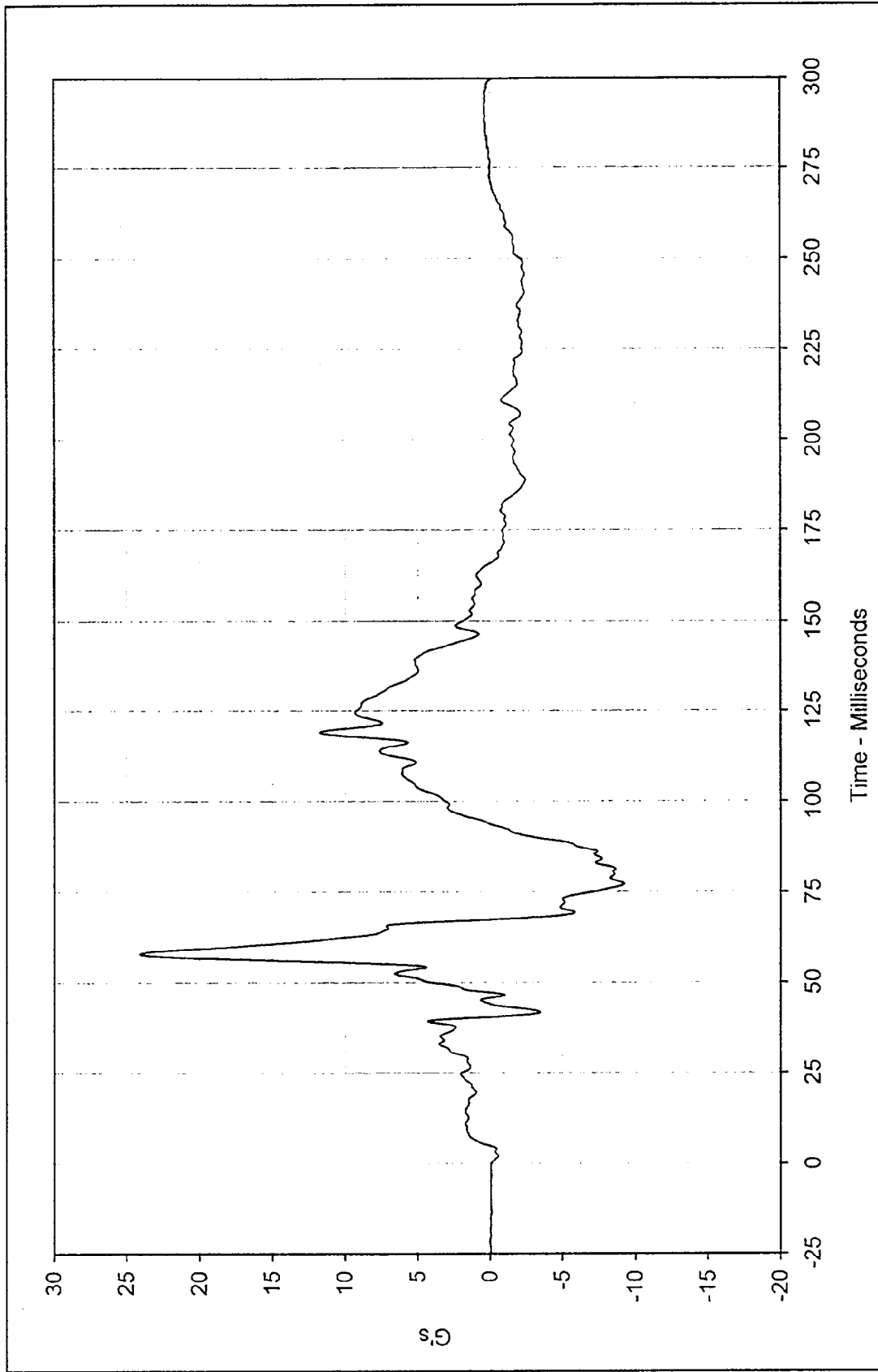




Curve Description: Driver ChestPrimary Y
 Testing Program: 1997 New Car Assessment Program
 Maximum Value: 4.2 at 65.2 Milliseconds
 Test Vehicle: 1997 Kia Sephia
 Minimum Value: -5.0 at 46.8 Milliseconds

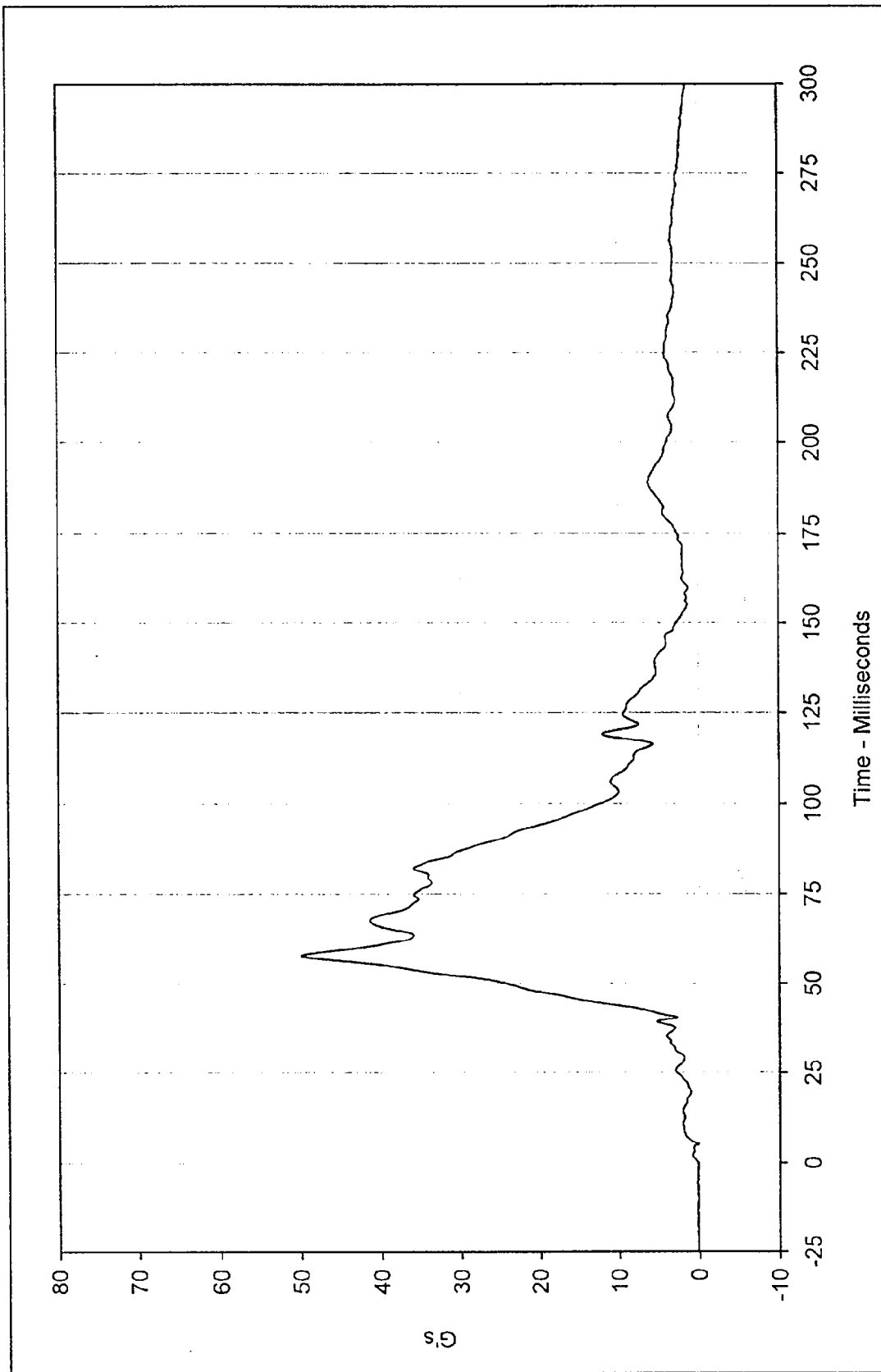


SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: FIL-014



Curve Description: Driver Chest Primary Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 24.1 at 58 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -9.3 at 77.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: FIL-015

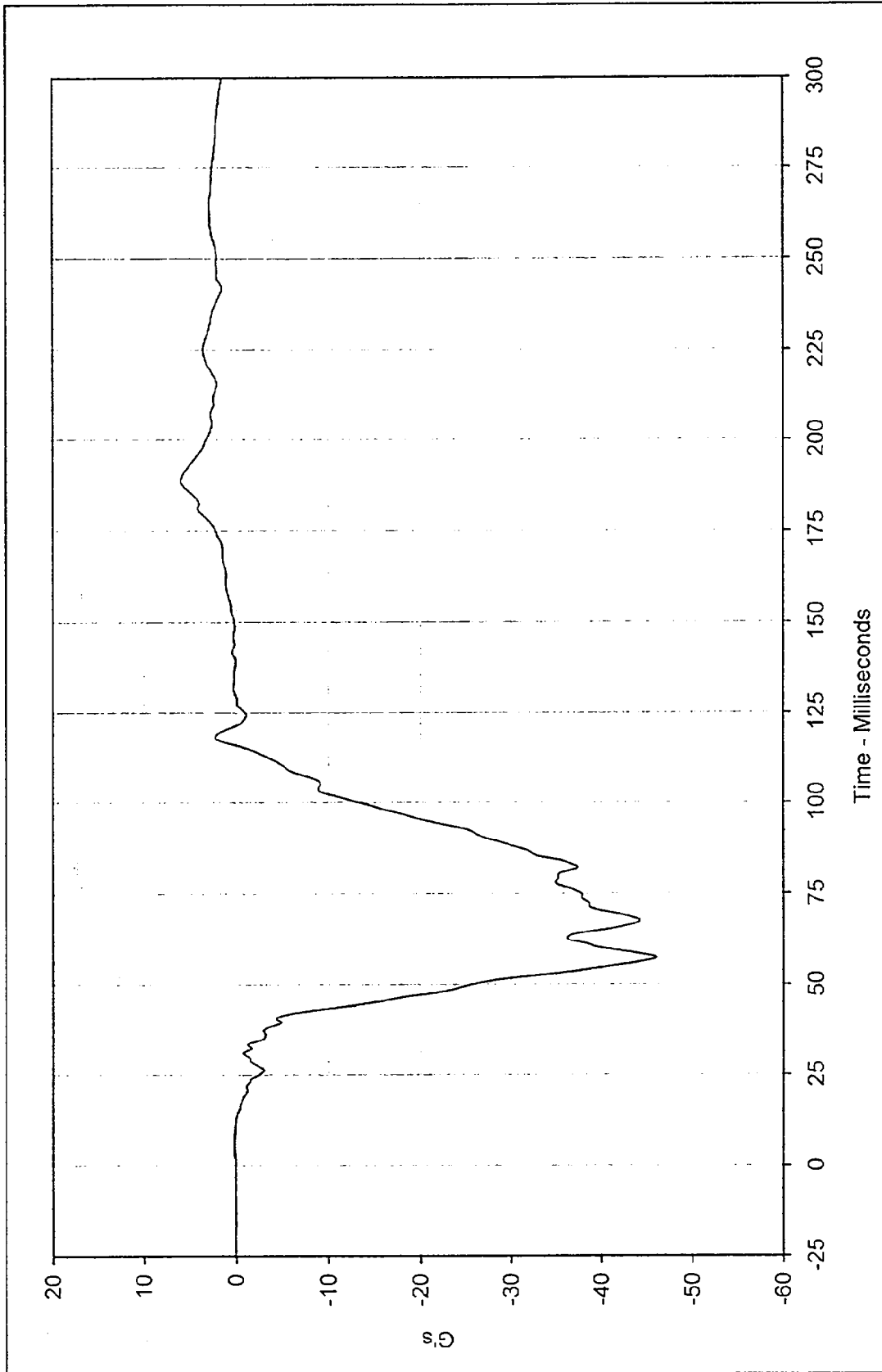




Curve Description: Driver Chest Resultant Primary Testing Program: 1997 New Car Assessment Program
 Maximum Value: 49.9 at 57.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.1 at 5.3 Milliseconds



SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: RES-013



Curve Description: Driver Chest Redundant X Testing Program: 1997 New Car Assessment Program

Maximum Value: 6.0 at 188.7 Milliseconds Test Vehicle: 1997 Kia Sephia

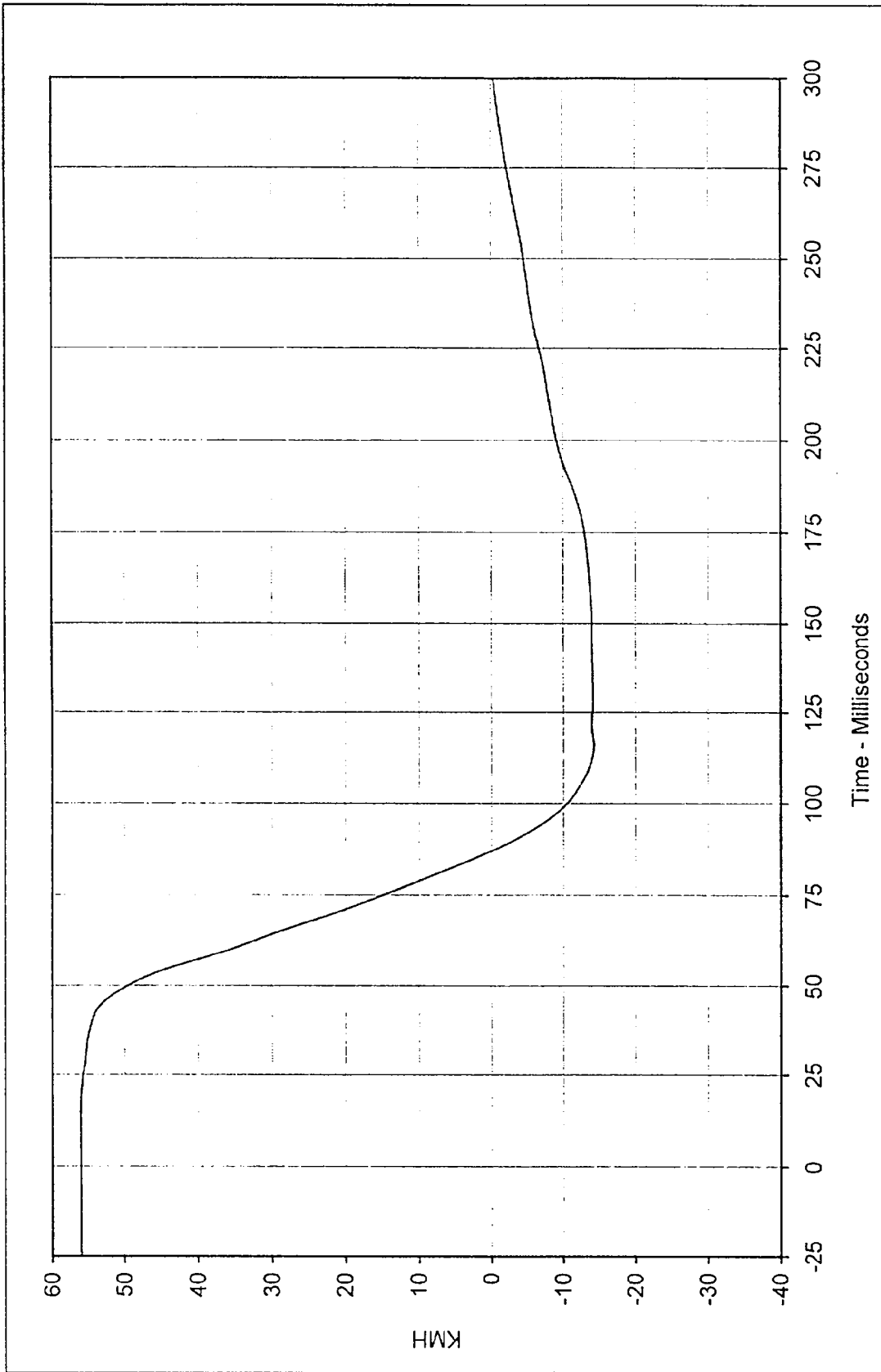
Minimum Value: -46.0 at 57.4 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: FIL-016





Curve Description: Driver Chest Redundant X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 56.1 at 13.5 Milliseconds Test Vehicle: 1997 Kia Sephia

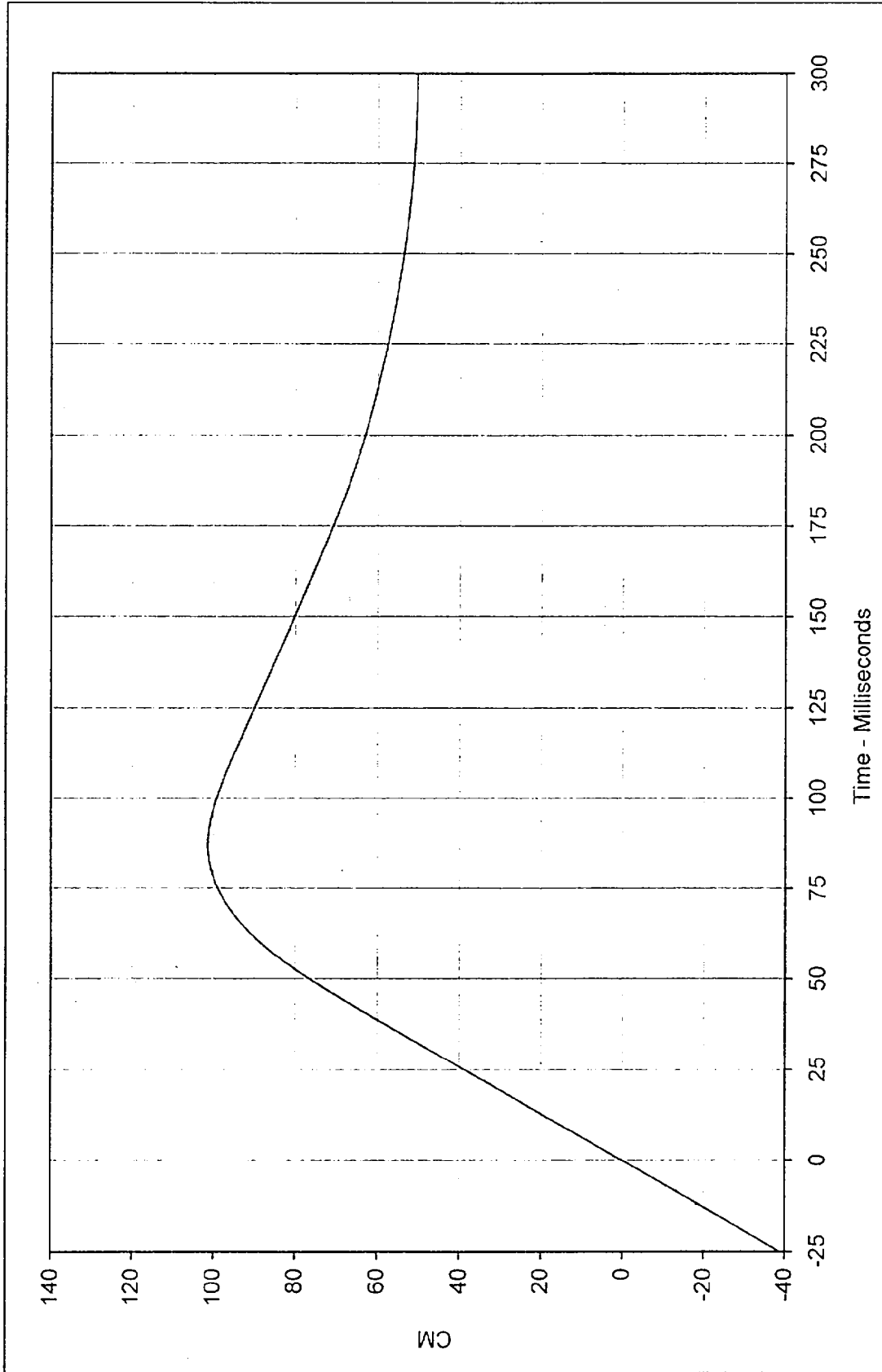
Minimum Value: -14.3 at 115.9 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

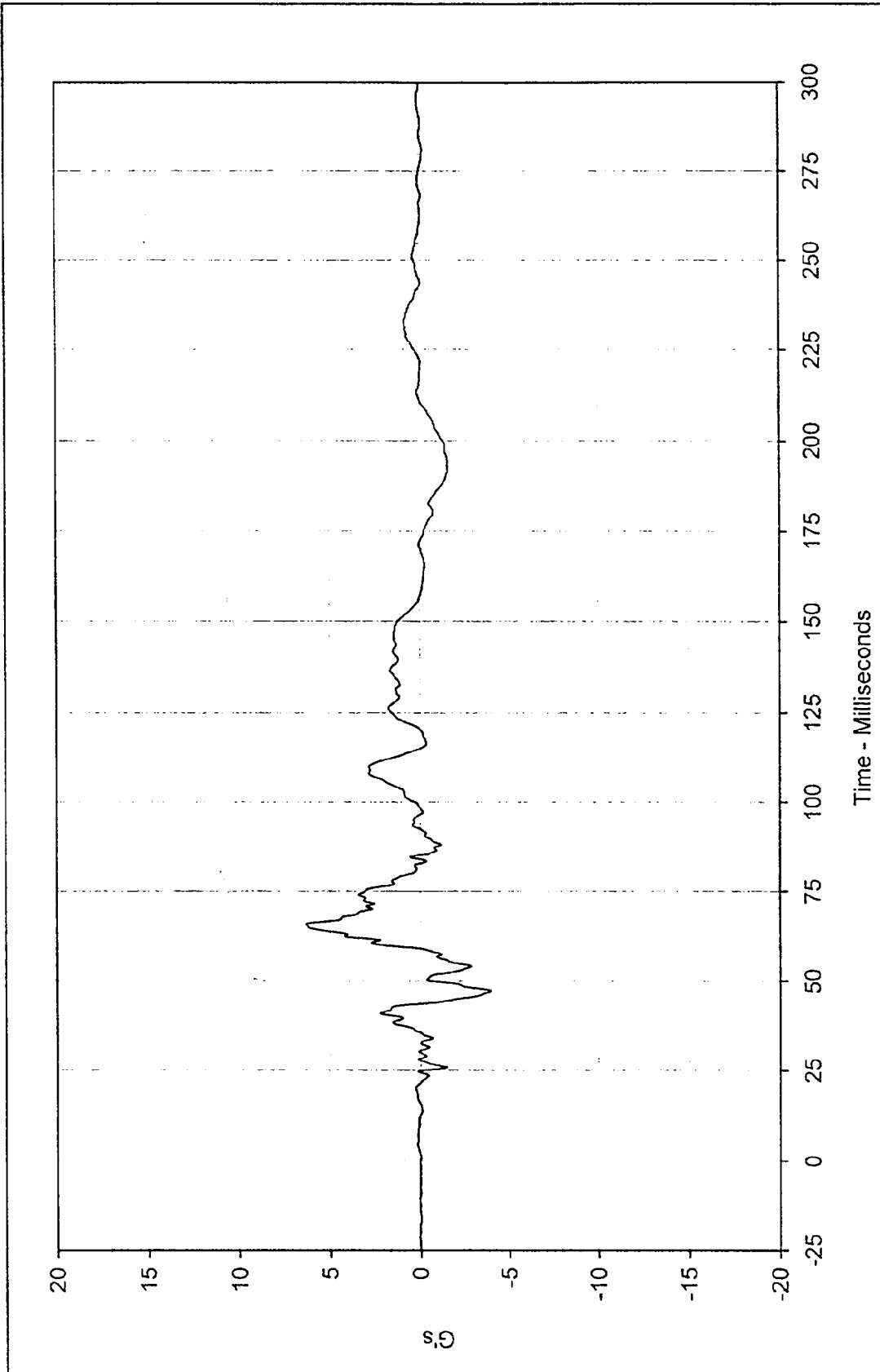
Curve Number: IN1-016





Curve Description: Driver Chest Redundant X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 101.4 at 87.0 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-016





Curve Description: Driver Chest Redundant Y Testing Program: 1997 New Car Assessment Program

Maximum Value: 6.3 at 65.9 Milliseconds Test Vehicle: 1997 Kia Sephia

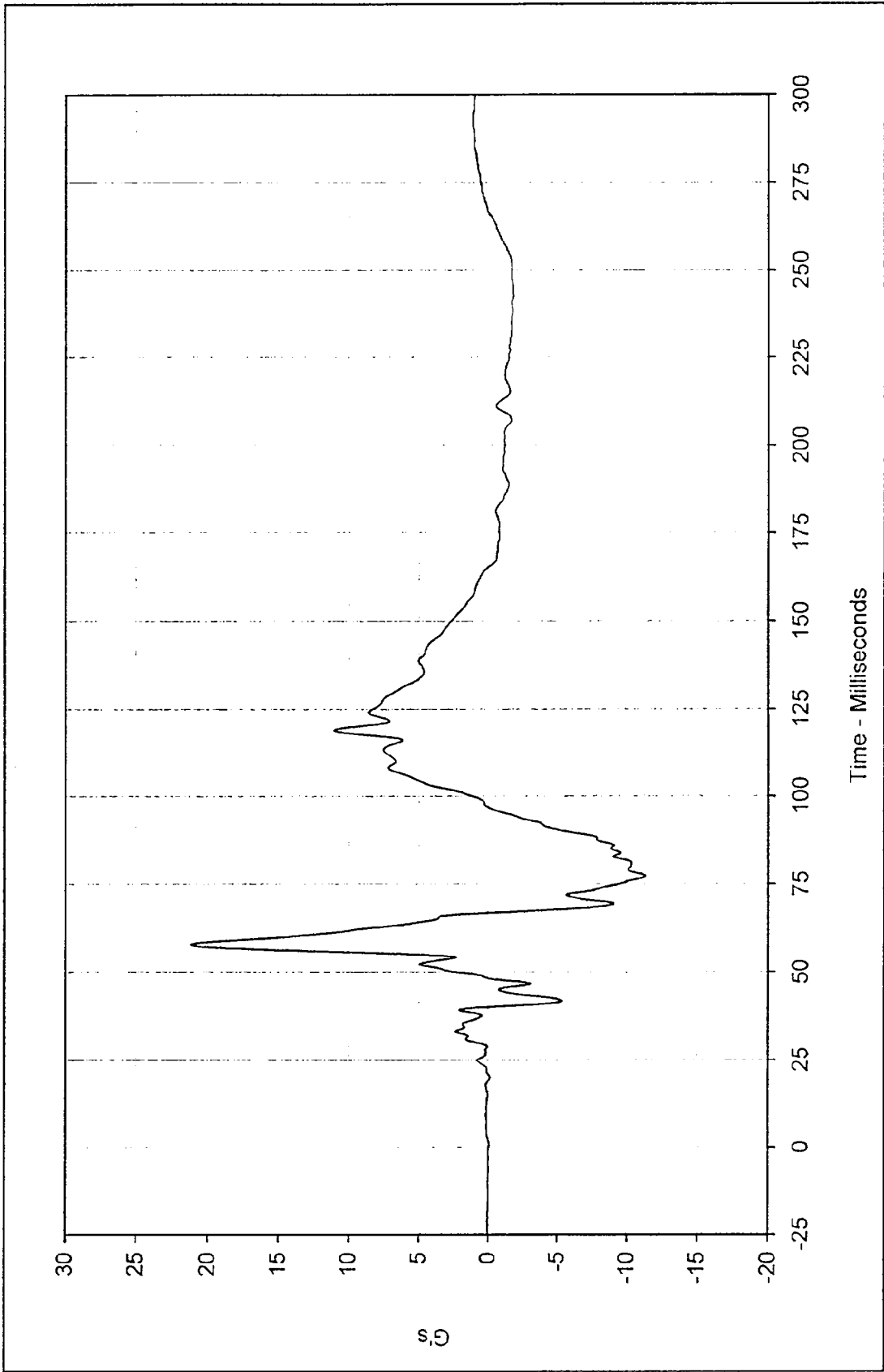
Minimum Value: -4.0 at 47.2 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

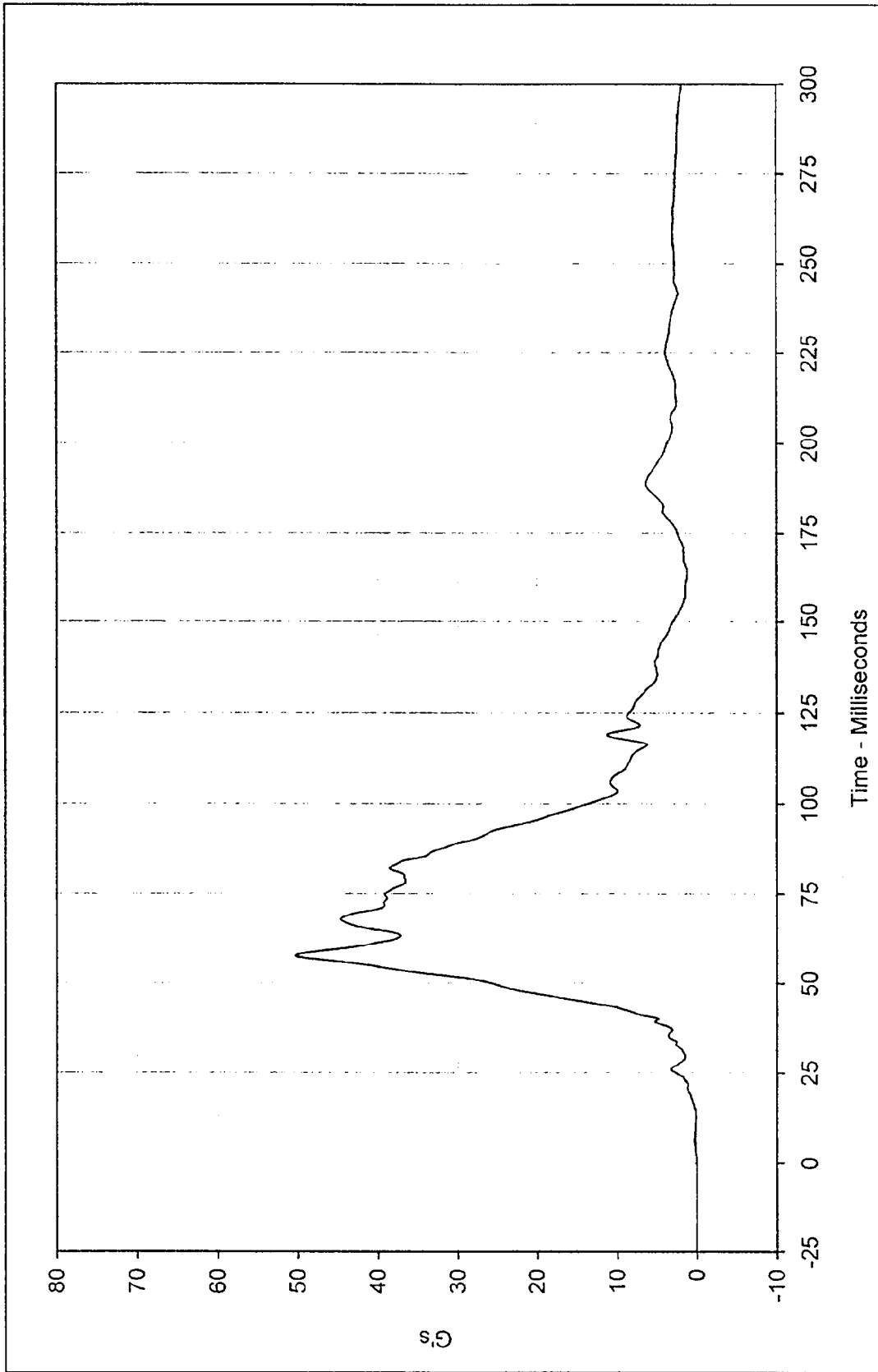
Curve Number: FIL-017





Curve Description: Driver Chest Redundant Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 21.2 at 58.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -11.3 at 77.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: FIL-018

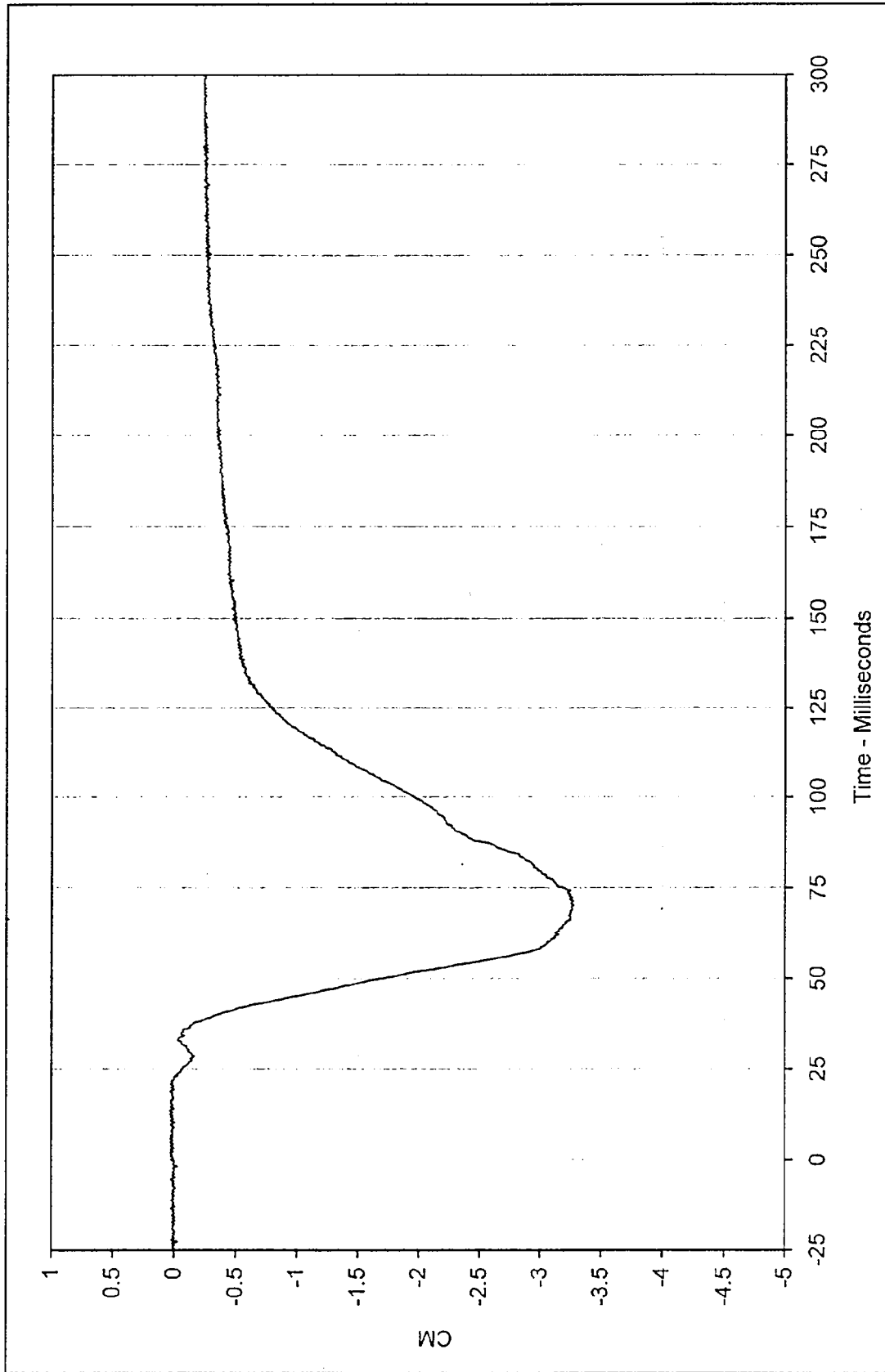




Curve Description: Driver Chest Resultant Redundant Testing Program: 1997 New Car Assessment Program
 Maximum Value: 50.3 at 57.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.1 at 0.0 Milliseconds



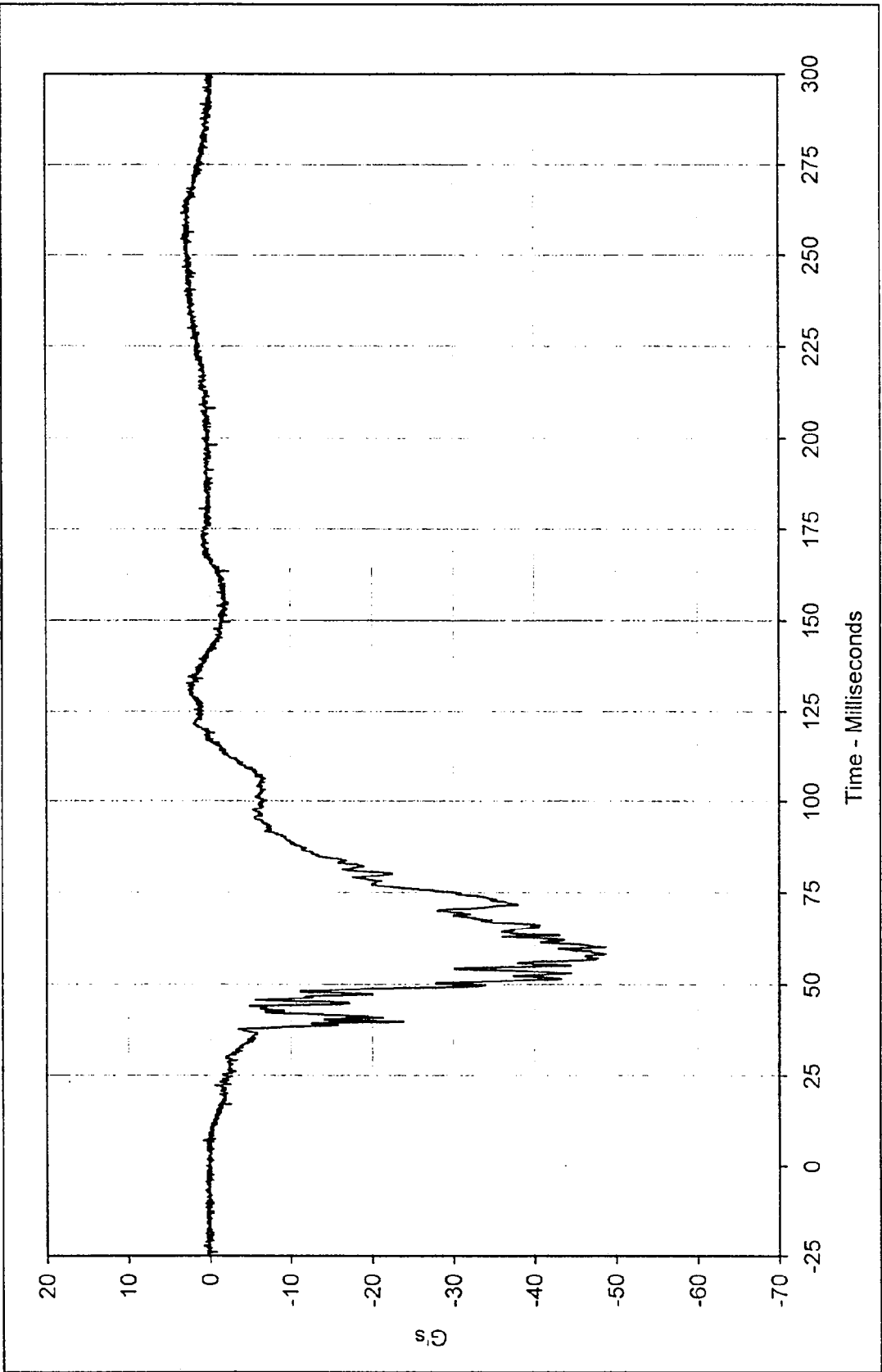
SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: RES-016



Curve Description: Driver Chest Displacement X
 Maximum Value: 0.03 at 13.6 Milliseconds
 Minimum Value: -3.27 at 70.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-019

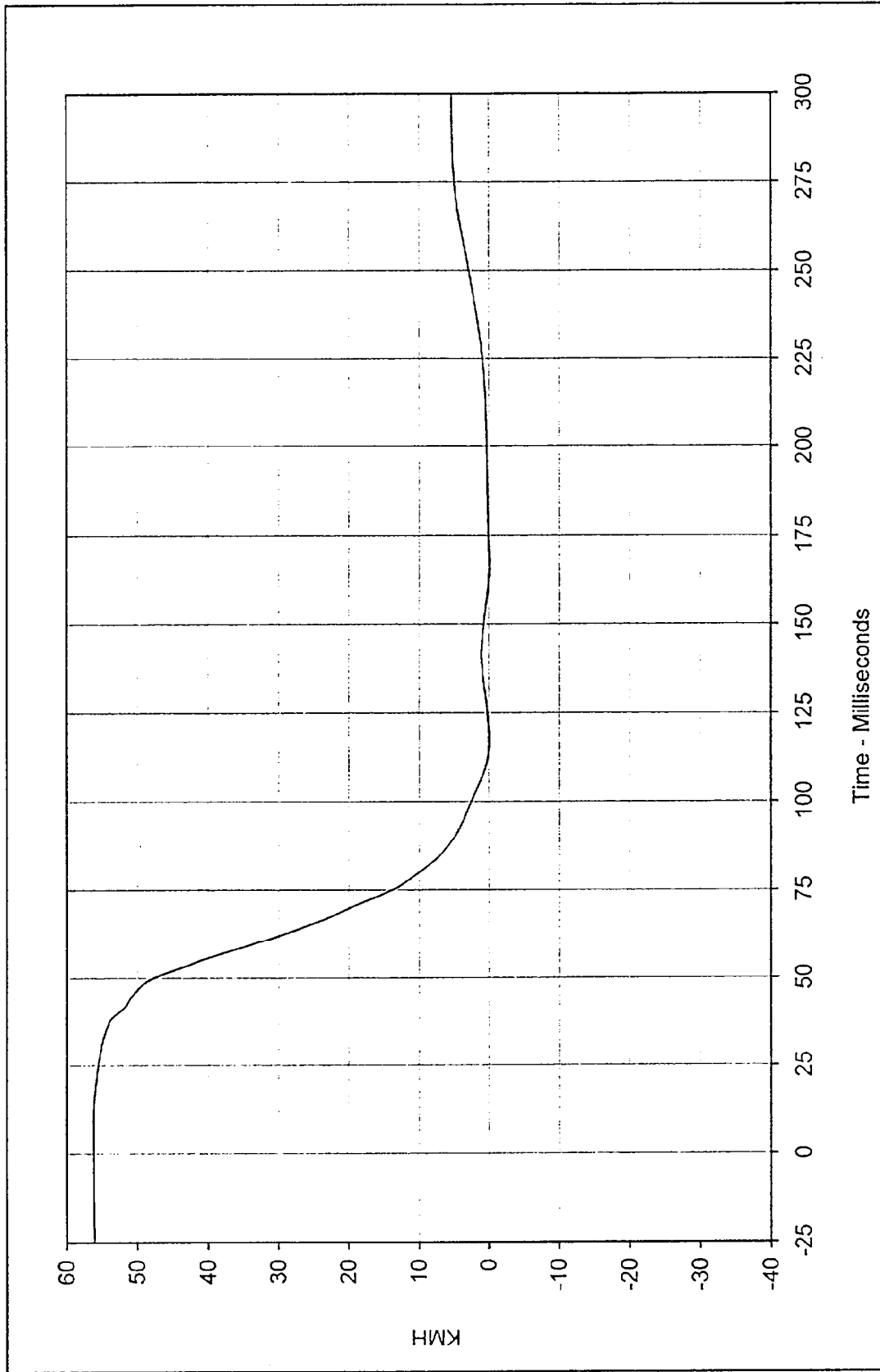
Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia





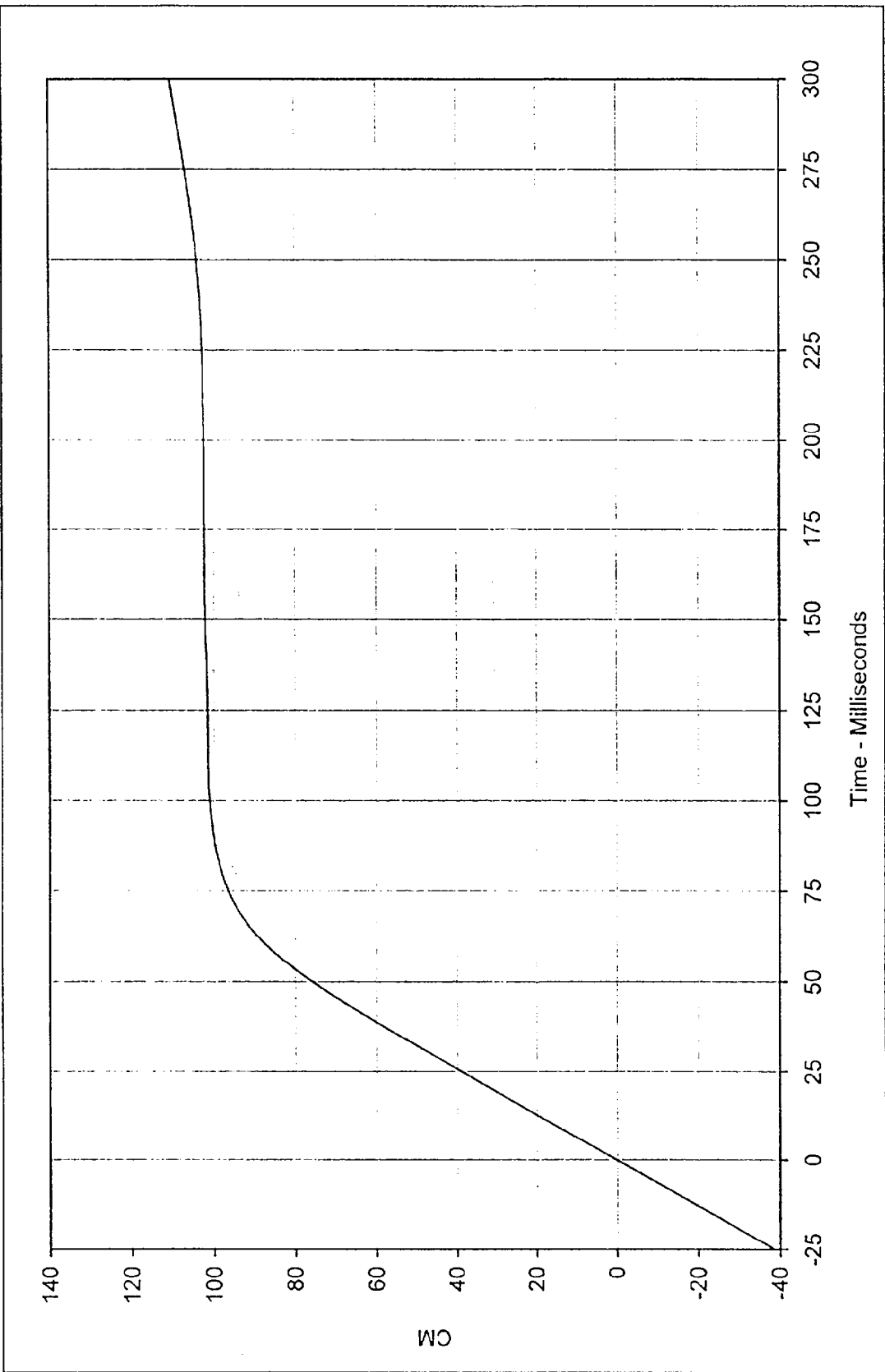
Curve Description: Driver Pelvis X
 Testing Program: 1997 New Car Assessment Program
 Maximum Value: 3.3 at 254.5 Milliseconds
 Test Vehicle: 1997 Kia Sephia
 Minimum Value: -48.8 at 58.3 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-020





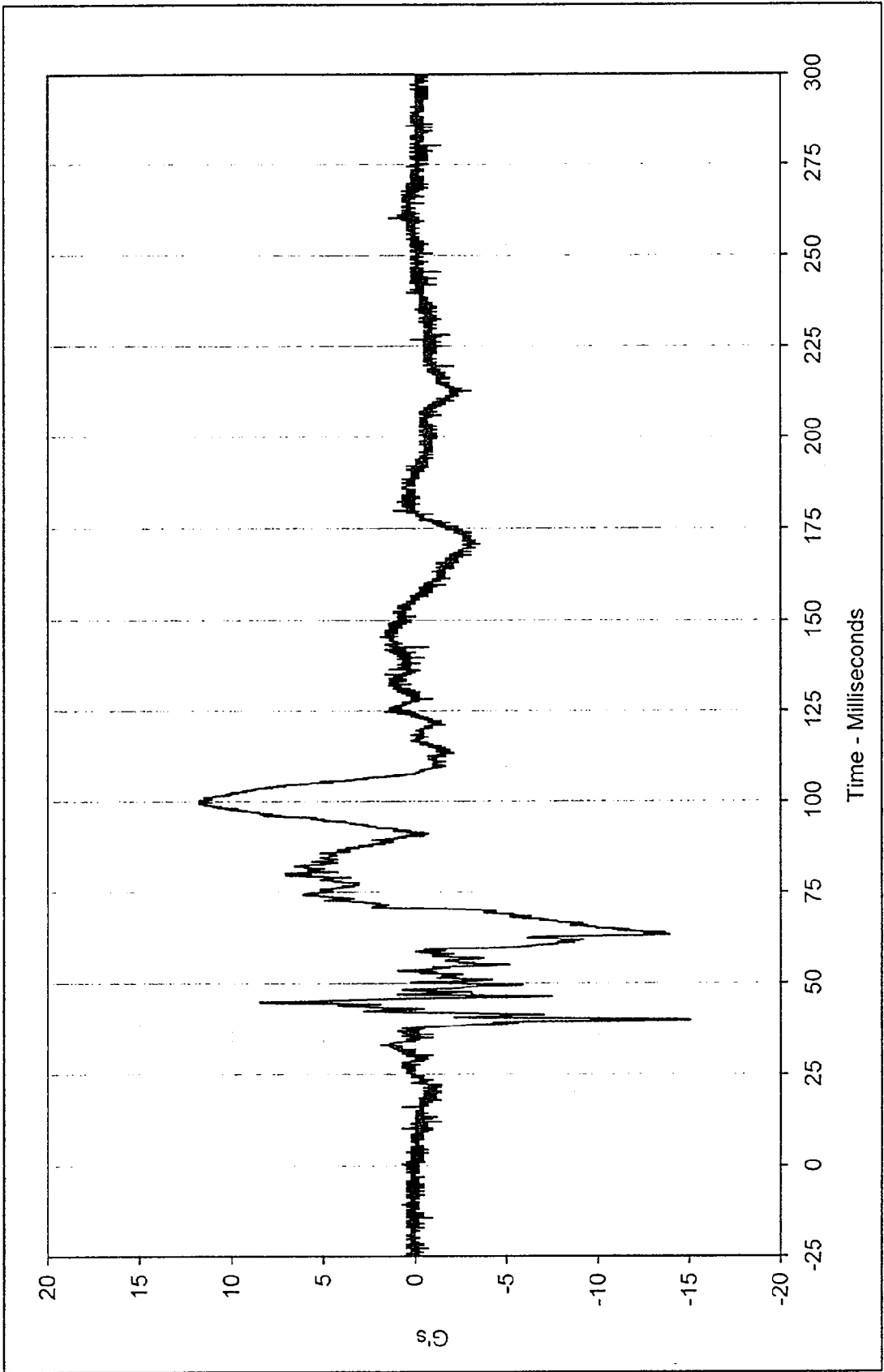
Curve Description: Driver Pelvis X Velocity Testing Program: 1997 New Car Assessment Program
 Maximum Value: 56.2 at 8.0 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -0.1 at 166.7 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN1-020





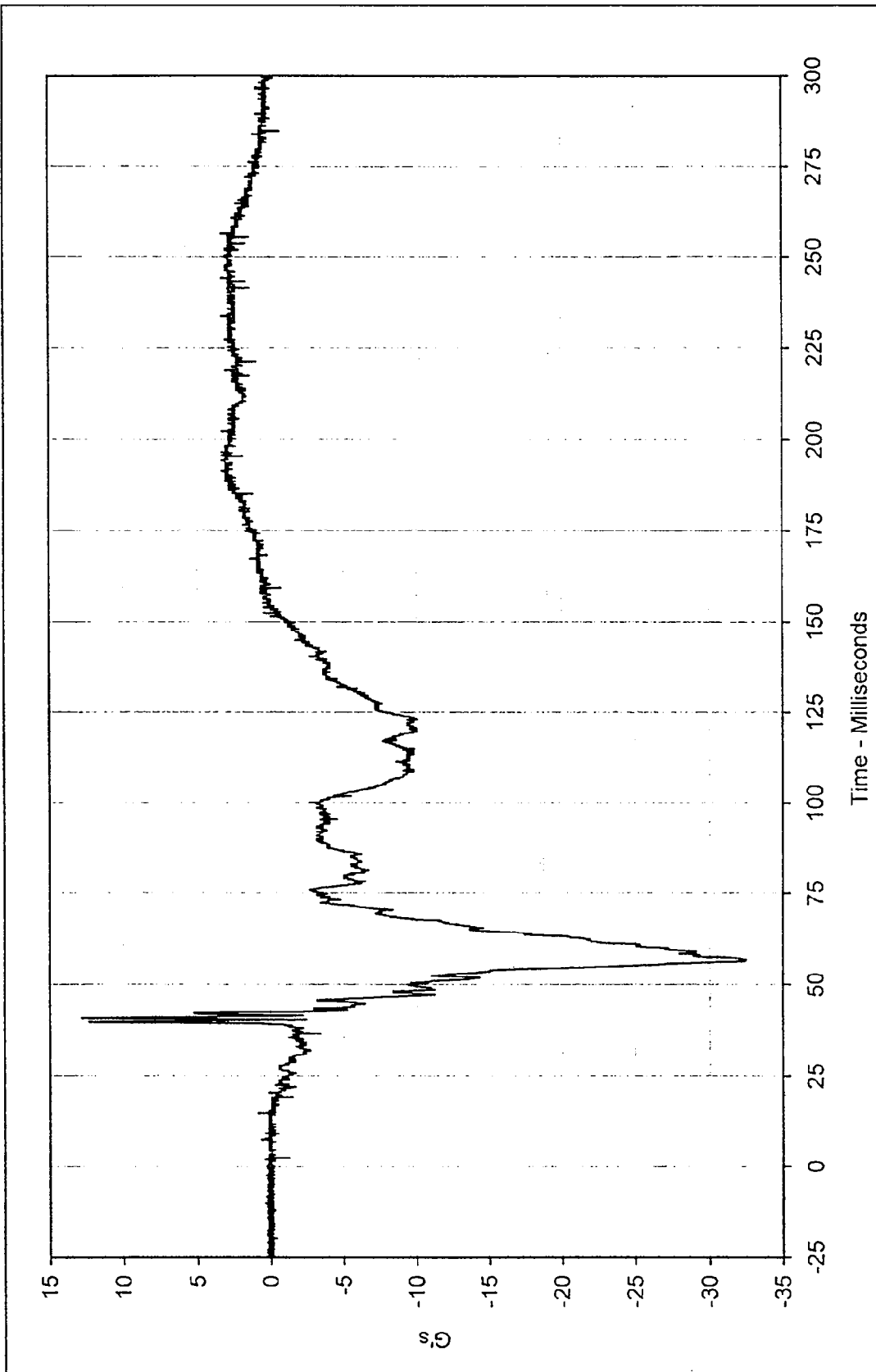
Curve Description: Driver Pelvis X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 110.3 at 299.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-020





Curve Description: Driver Pelvis Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 11.8 at 99.3 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -15.1 at 39.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-021



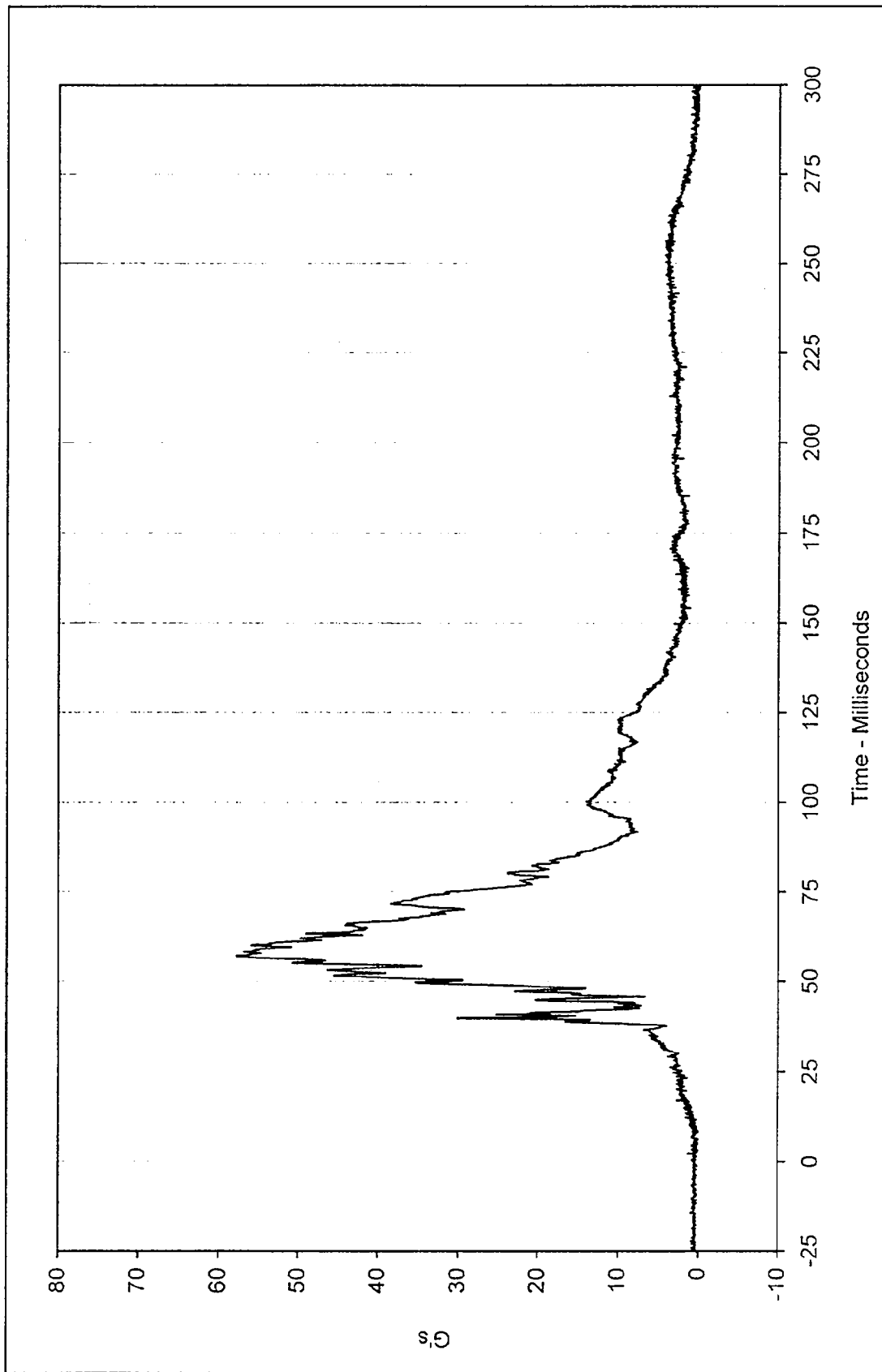


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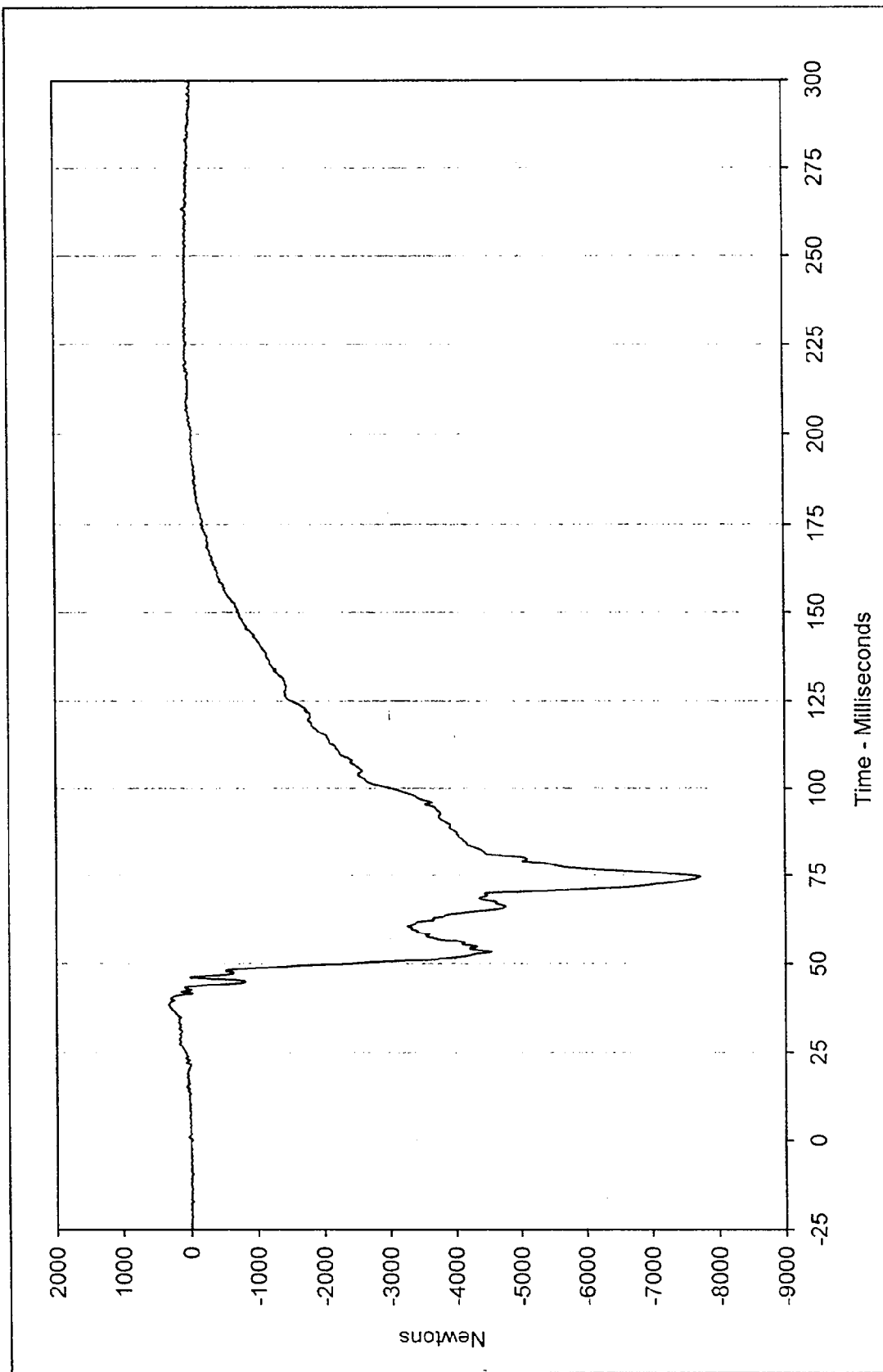
Curve Description: Driver Pelvis Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 12.8 at 40.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -32.5 at 56.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-022





Curve Description: Driver Pelvis Resultant Testing Program: 1997 New Car Assessment Program
 Maximum Value: 57.7 at 57.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 3.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: RES-020

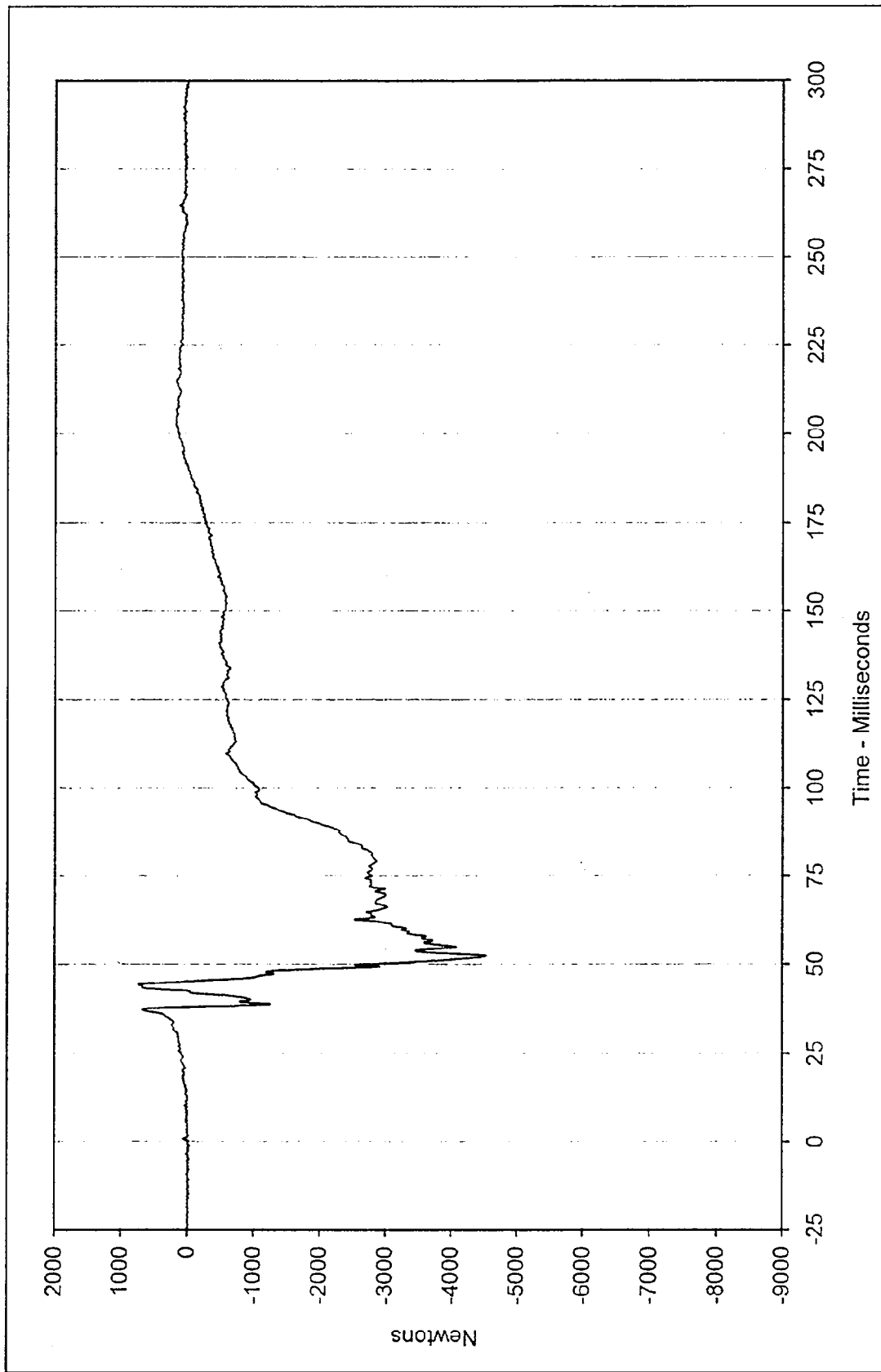




Curve Description: Driver Left Femur Force
 Testing Program: 1997 New Car Assessment Program
 Maximum Value: 328.5 at 38.5 Milliseconds
 Test Vehicle: 1997 Kia Sephia
 Minimum Value: -7726.2 at 74.6 Milliseconds

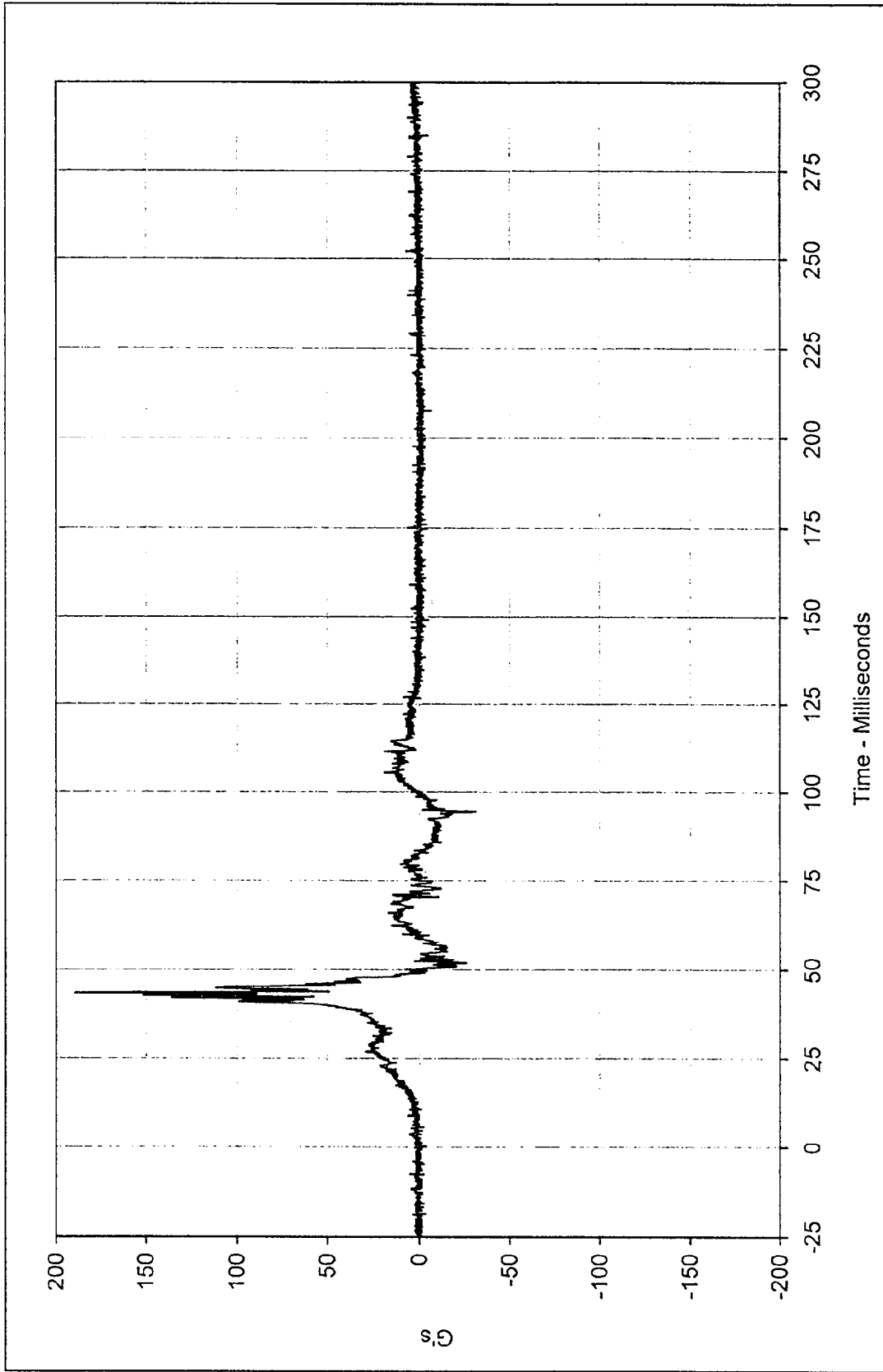


SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-023



Curve Description:	Driver Right Femur Force	Testing Program:	1997 New Car Assessment Program
Maximum Value:	738.3 at 44.4 Milliseconds	Test Vehicle:	1997 Kia Sephia
Minimum Value:	-4537.0 at 52.4 Milliseconds		
SAE Filter Class:	600		
Date of Test:	5/1/97		
Curve Number:	FIL-024		

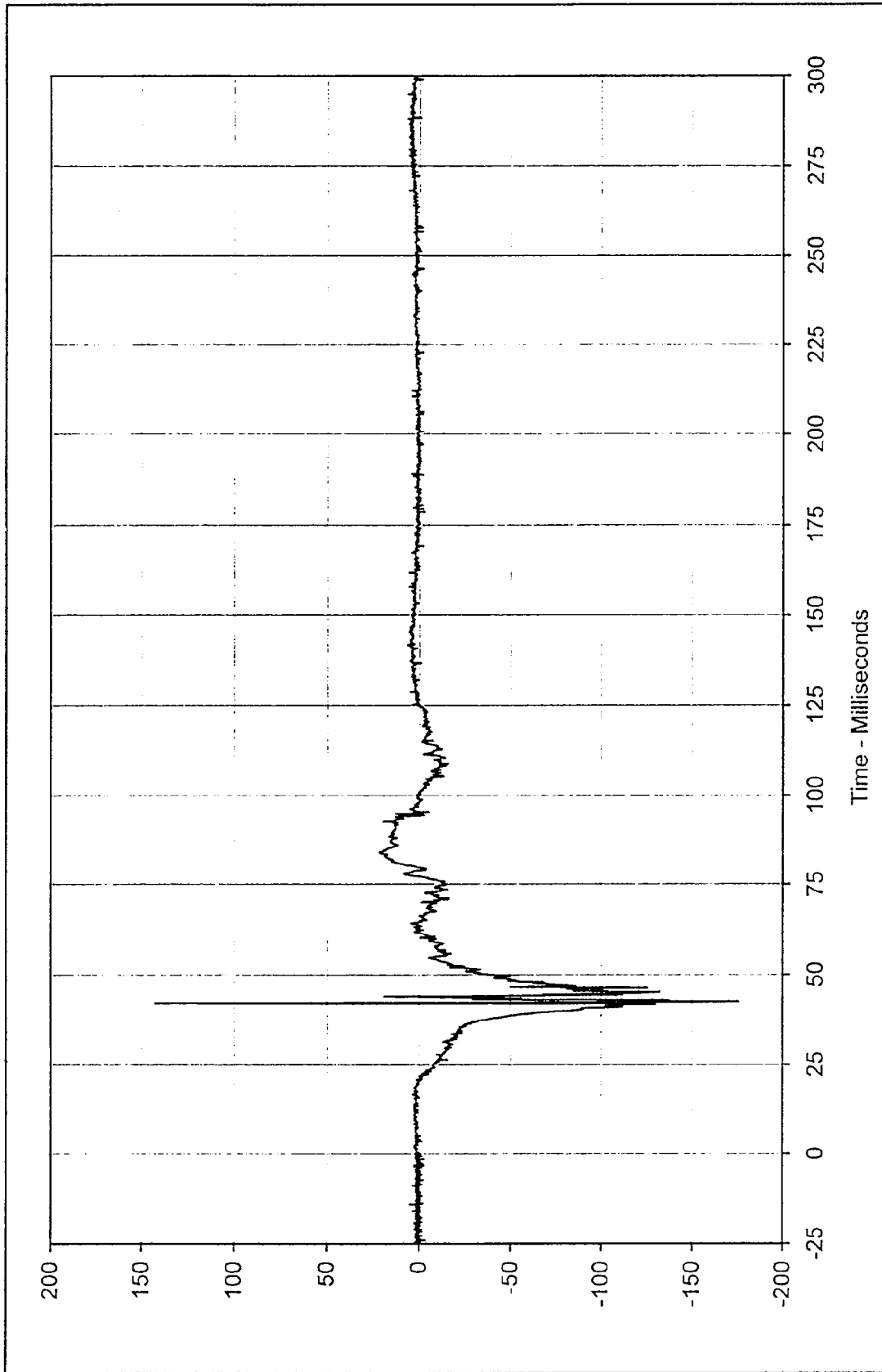




Curve Description: Driver Left Foot Aft X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 189.0 at 43.5 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -30.9 at 94.6 Milliseconds

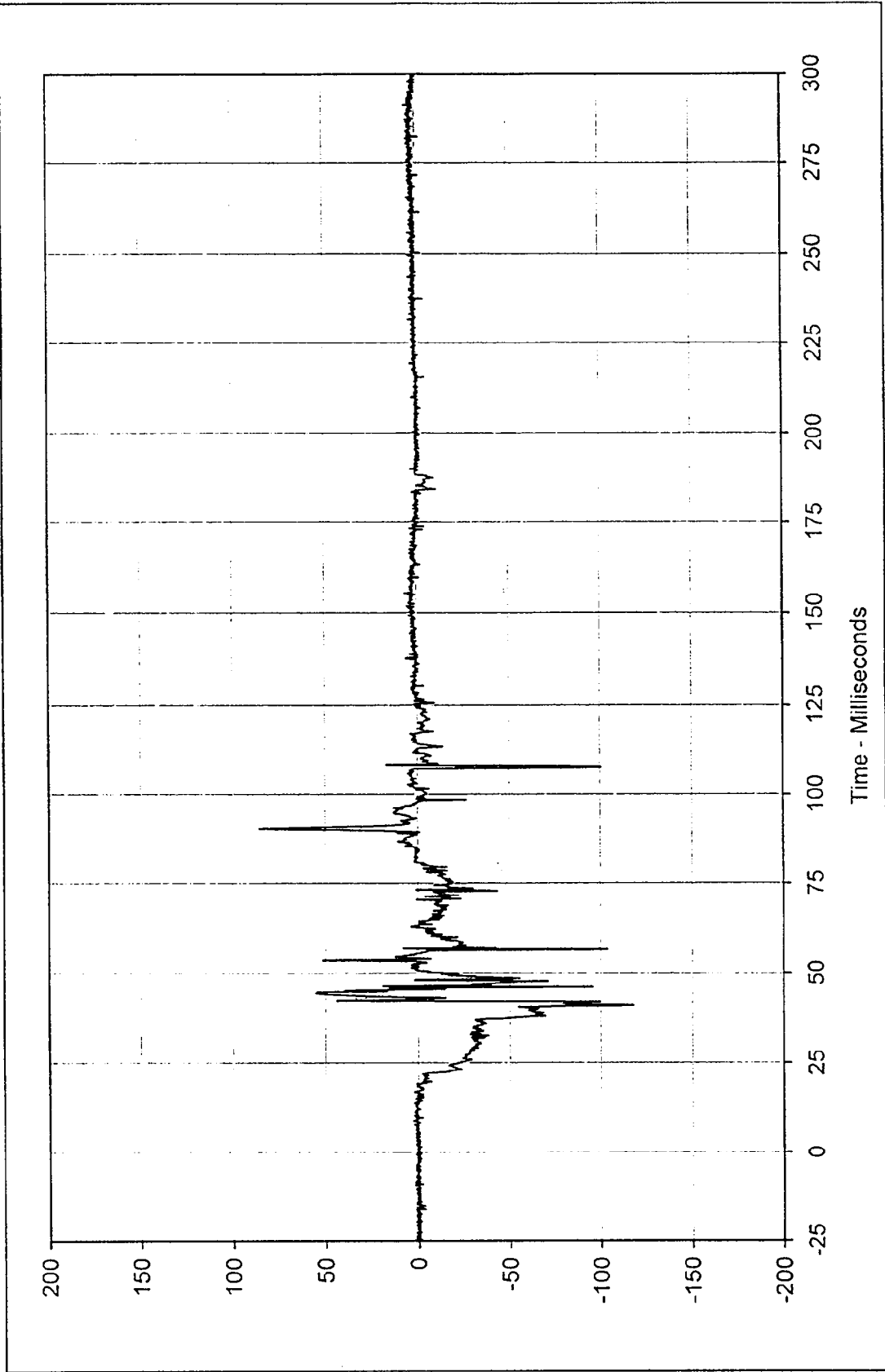


SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-035



Curve Description: Driver Left Foot Aft Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 142.8 at 42.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -174.6 at 42.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-036





Curve Description: Driver Left Foot Fore Z Testing Program: 1997 New Car Assessment Program

Maximum Value: 85.3 at 90.6 Milliseconds Test Vehicle: 1997 Kia Sephia

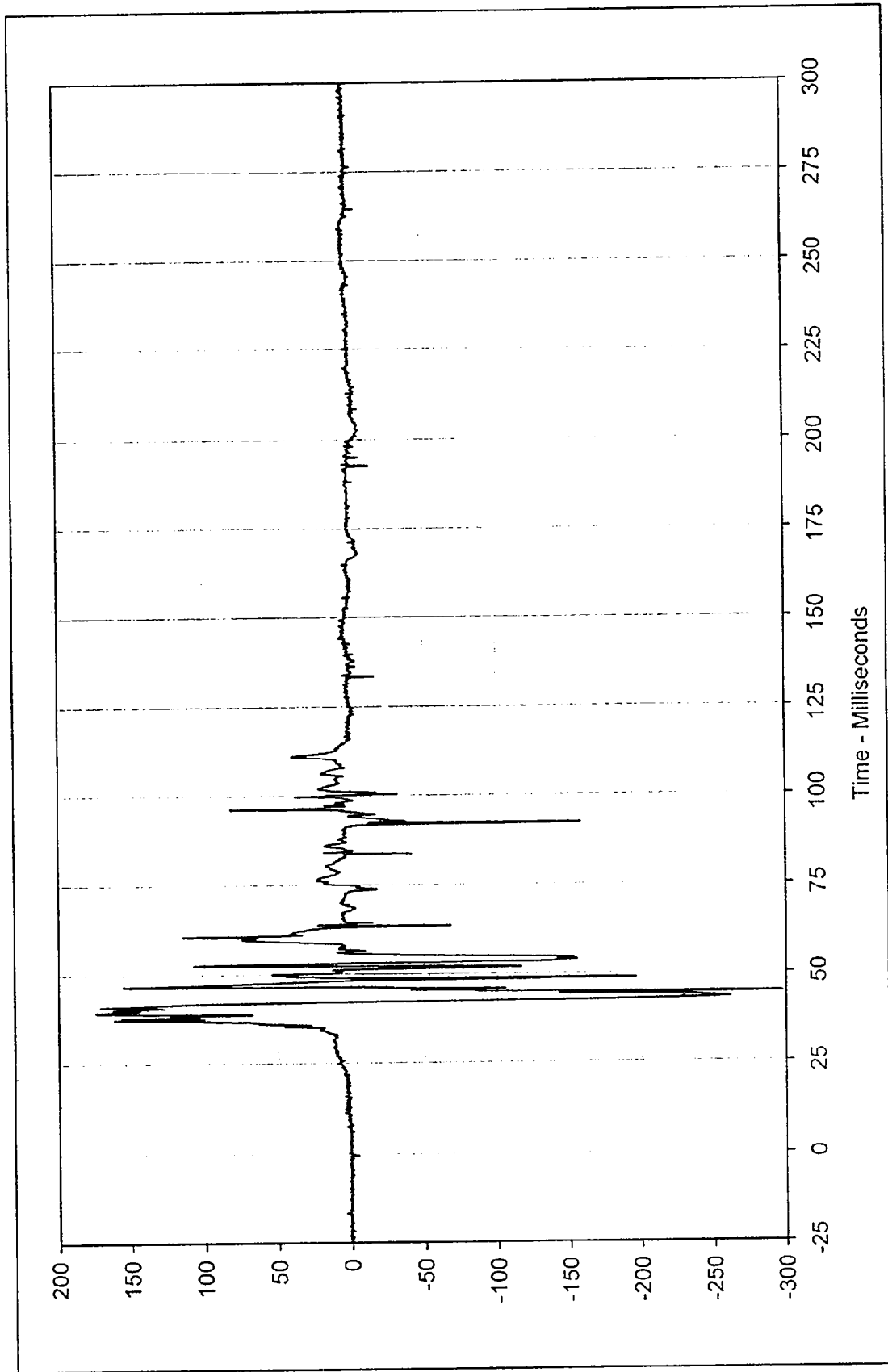
Minimum Value: -117.7 at 41.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 5/1/97

Curve Number: FIL-037

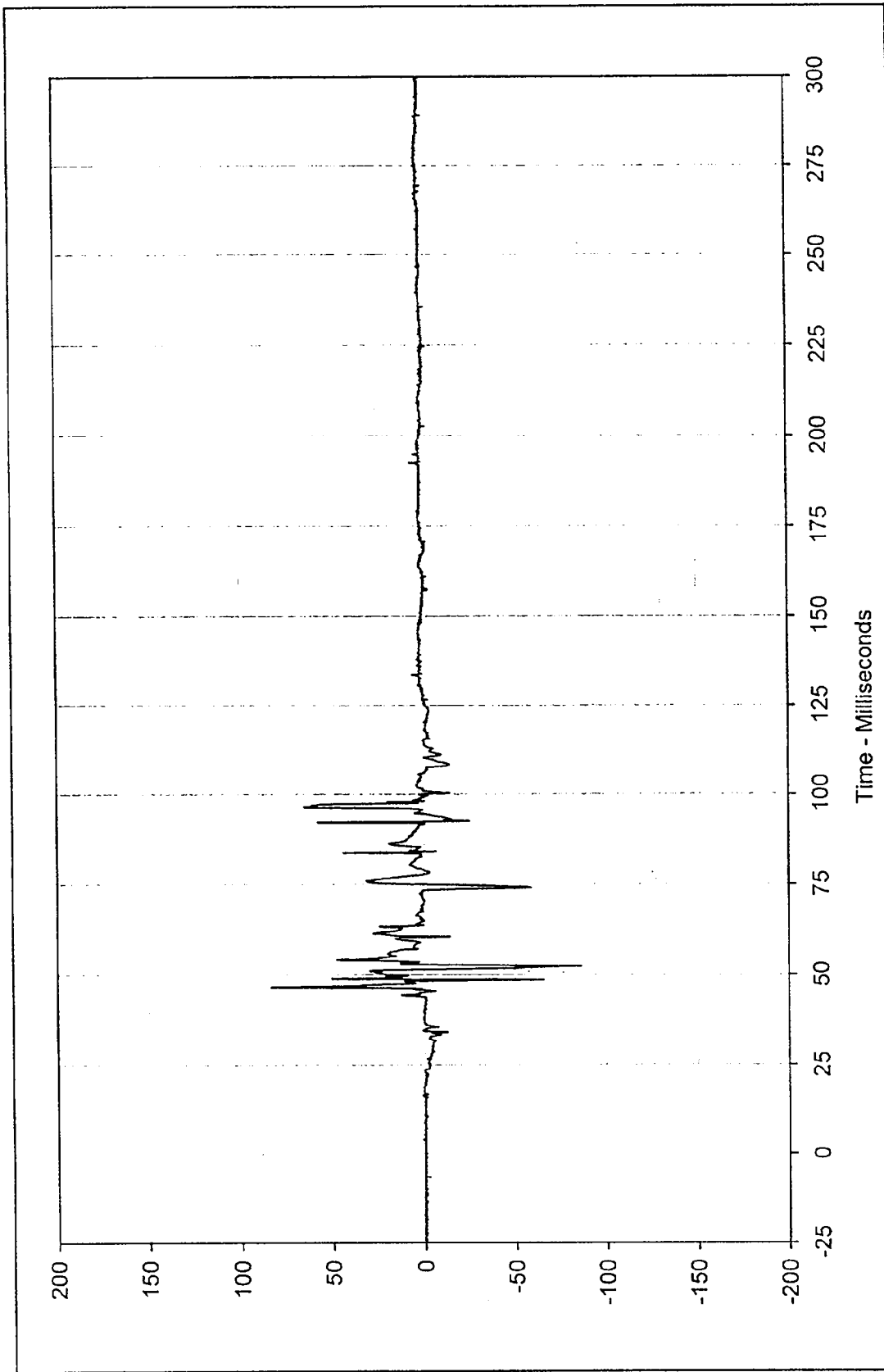




Curve Description: Driver Right Foot Aft X
 Maximum Value: 174.0 at 39.4 Milliseconds
 Minimum Value: -297.5 at 44.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-038

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia





Curve Description: Driver Right Foot Aft Z Testing Program: 1997 New Car Assessment Program

Maximum Value: 83.2 at 46.6 Milliseconds Test Vehicle: 1997 Kia Sephia

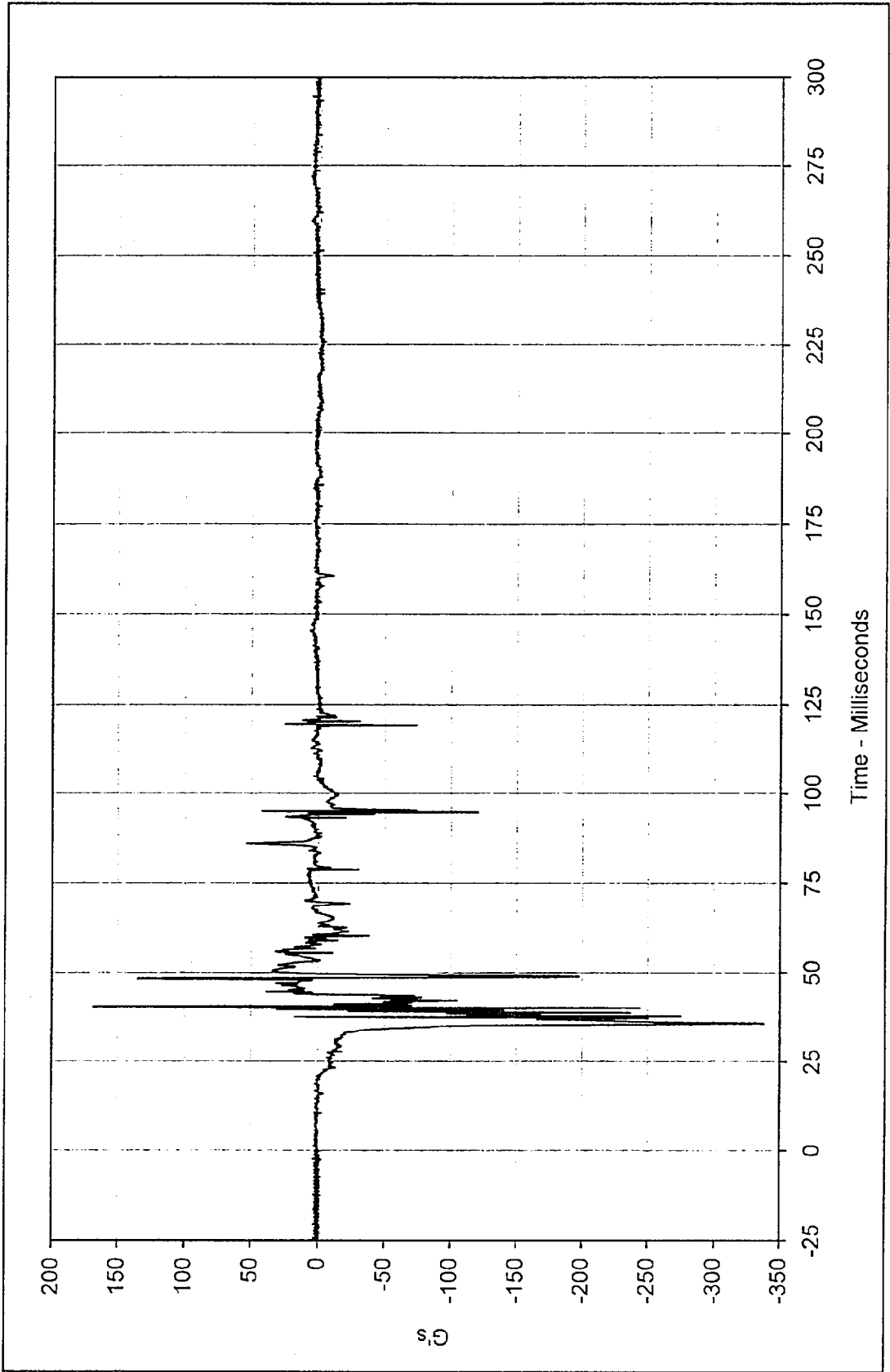
Minimum Value: -86.1 at 52.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 5/1/97

Curve Number: FIL-039

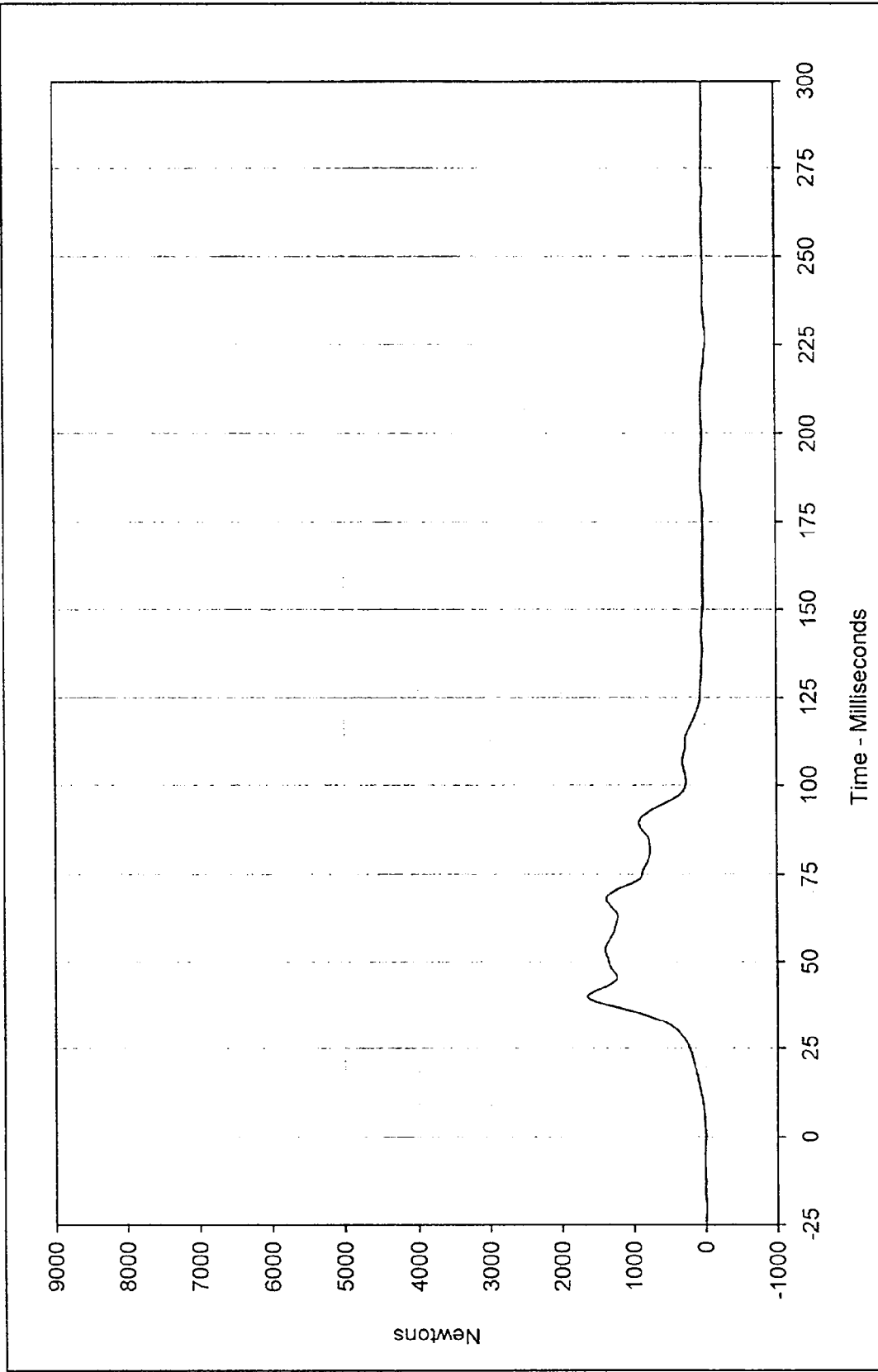




Curve Description: Driver Right Foot Fore Z
 Maximum Value: 165.1 at 40.5 Milliseconds
 Minimum Value: -337.4 at 35.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-040

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia

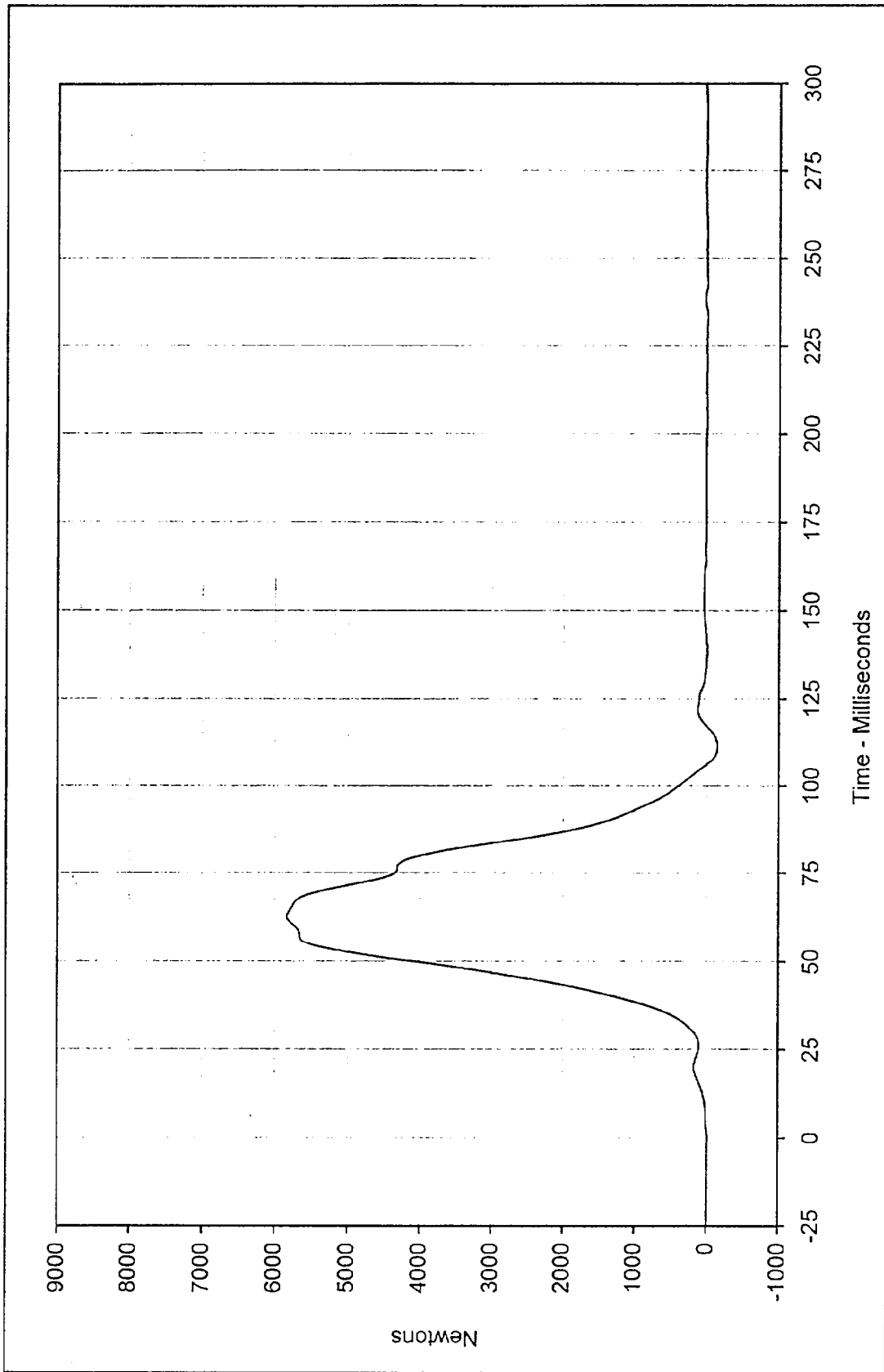




Curve Description: Driver Lap Belt Force Testing Program: 1997 New Car Assessment Program
 Maximum Value: 1642.4 at 40.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -33.7 at 226.6 Milliseconds



SAE Filter Class: 50
 Date of Test: 5/1/97
 Curve Number: FIL-041



Curve Description: Driver Shoulder Belt Force Testing Program: 1997 New Car Assessment Program

Maximum Value: 5831.5 at 62.8 Milliseconds Test Vehicle: 1997 Kia Sephia

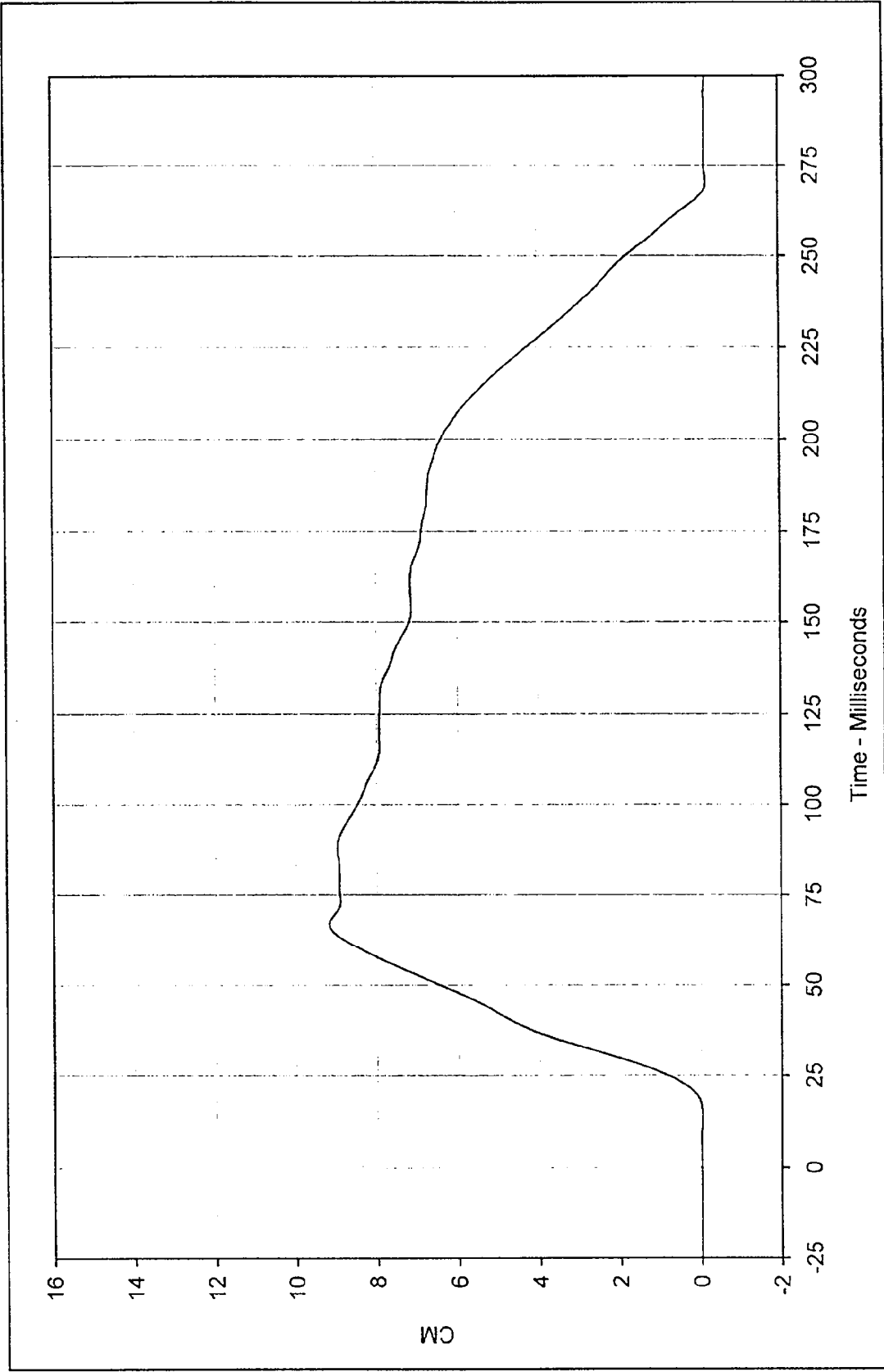
Minimum Value: -143.7 at 111.2 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

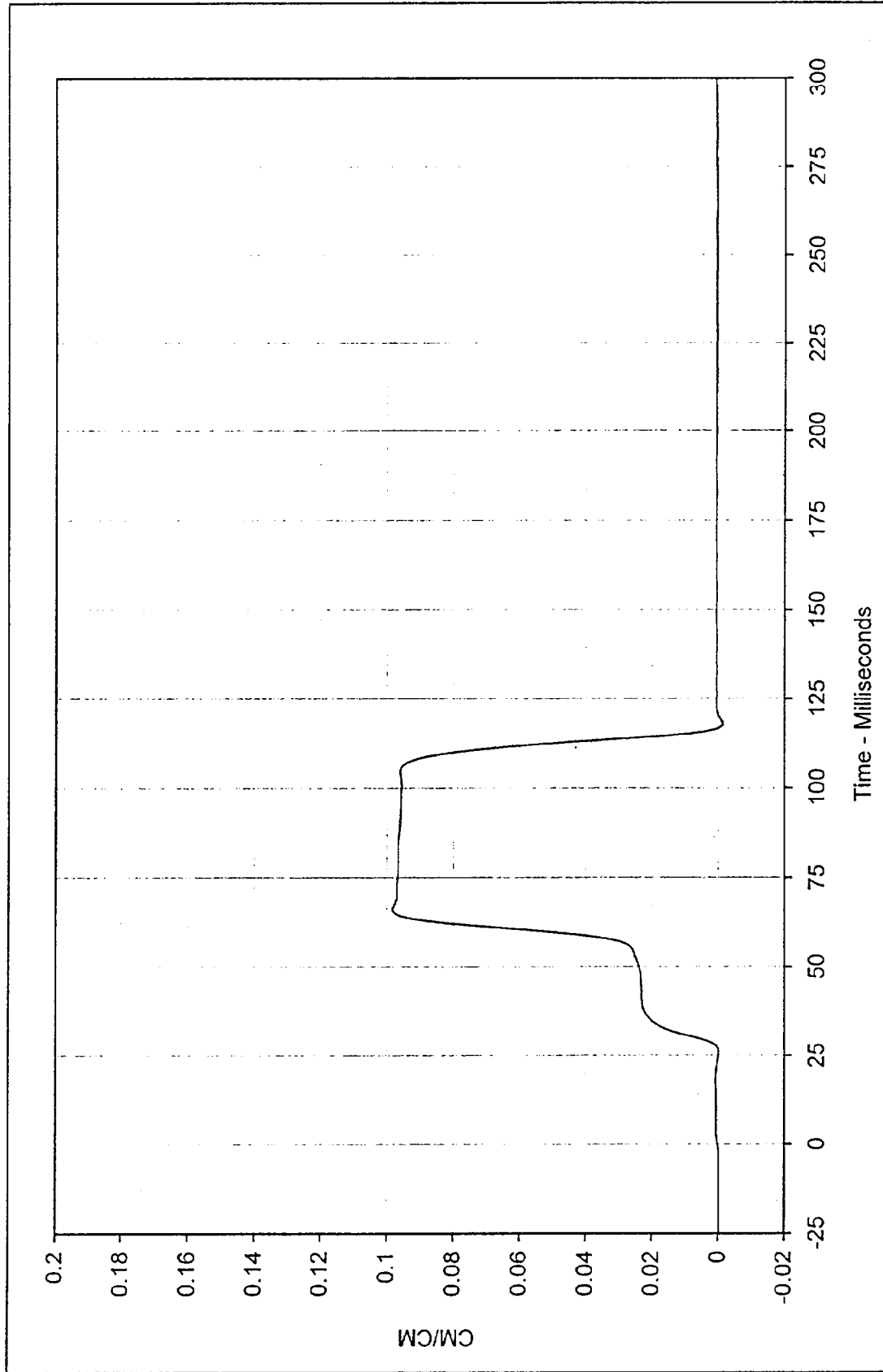
Curve Number: FIL-042





Curve Description: Driver Shoulder Belt Pullout Testing Program: 1997 New Car Assessment Program
 Maximum Value: 9.18 at 66.8 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -0.20 at 270.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-043





Curve Description: Driver Shoulder Belt Elongation Testing Program: 1997 New Car Assessment Program

Maximum Value: 0.098 at 66.0 Milliseconds Test Vehicle: 1997 Kia Sephia

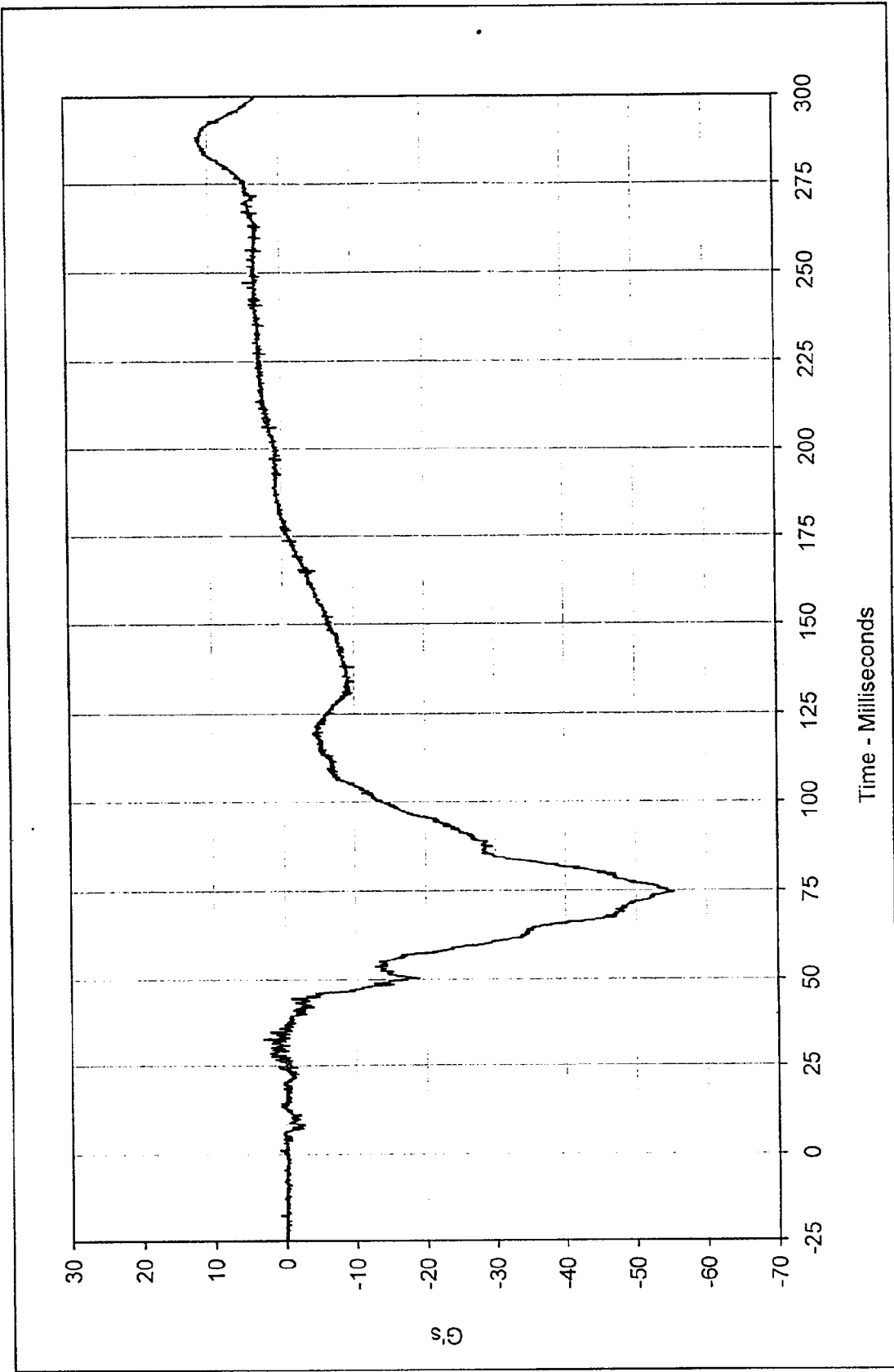
Minimum Value: -0.001 at 117.9 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

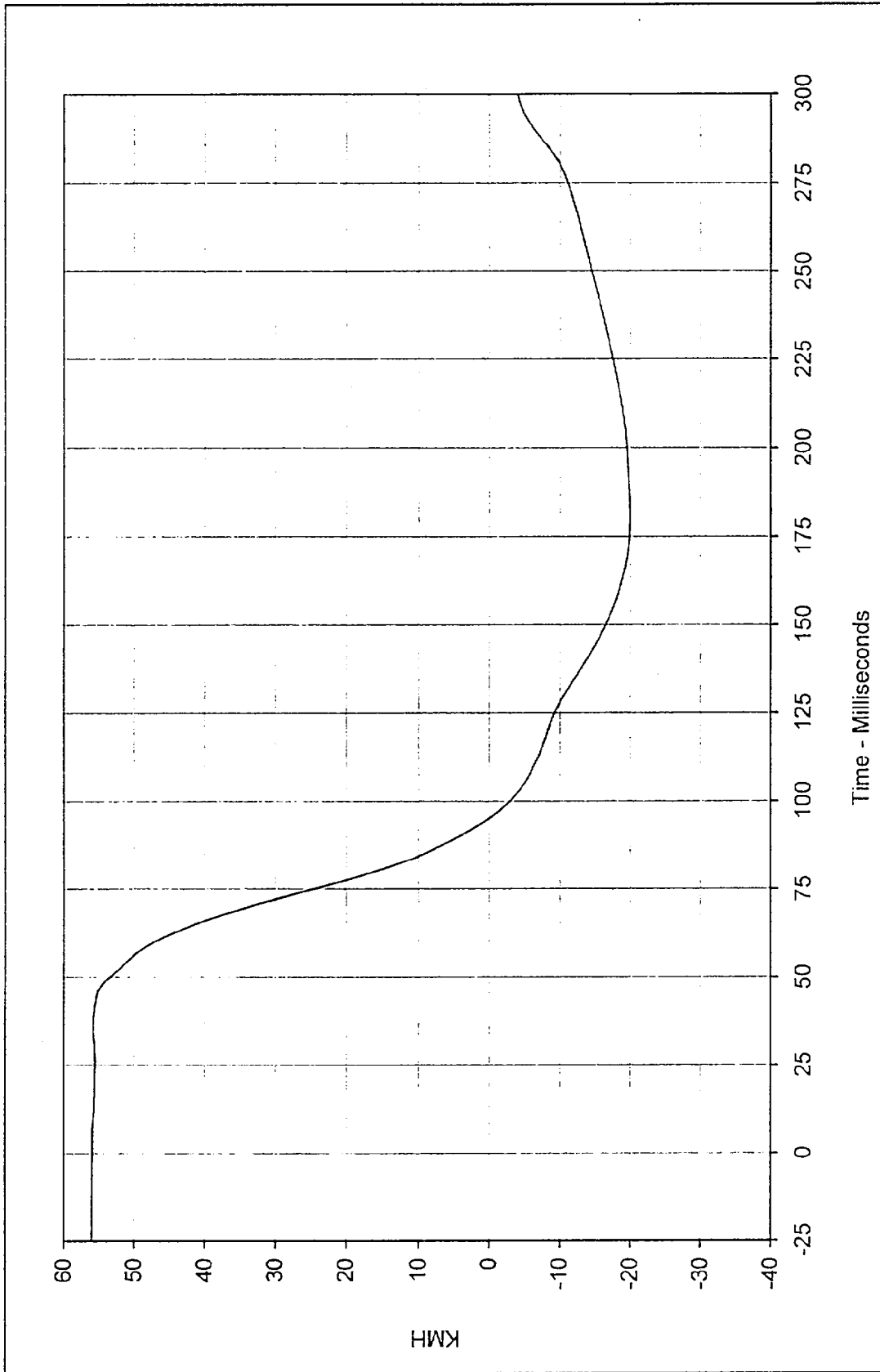
Curve Number: FIL-044





Curve Description: Passenger Head Primary X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 11.6 at 287.4 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -55.3 at 74.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-045





Curve Description: Passenger Head Primary X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 55.9 at 1.9 Milliseconds Test Vehicle: 1997 Kia Sephia

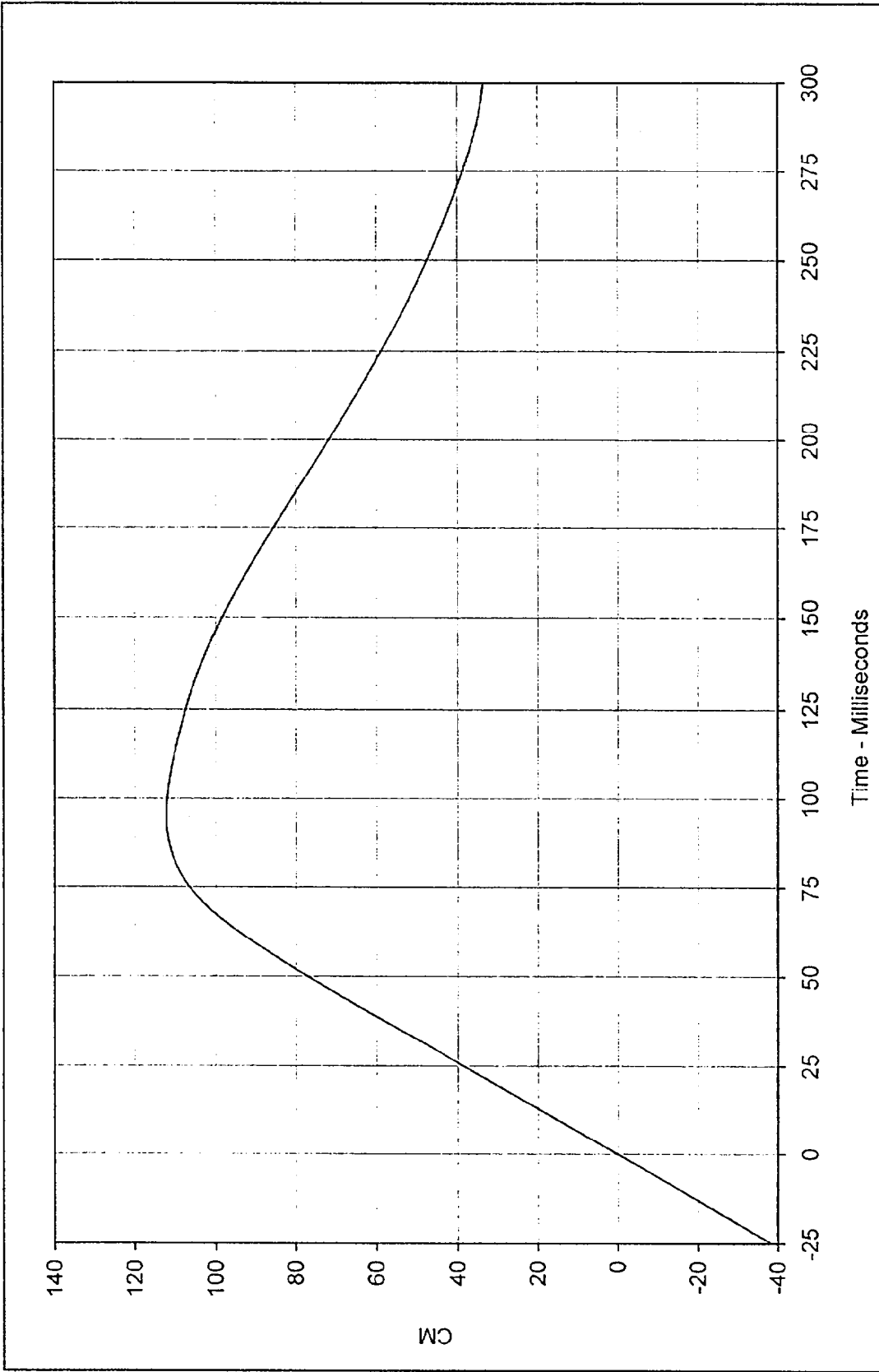
Minimum Value: -20.0 at 180.3 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: IN1-045

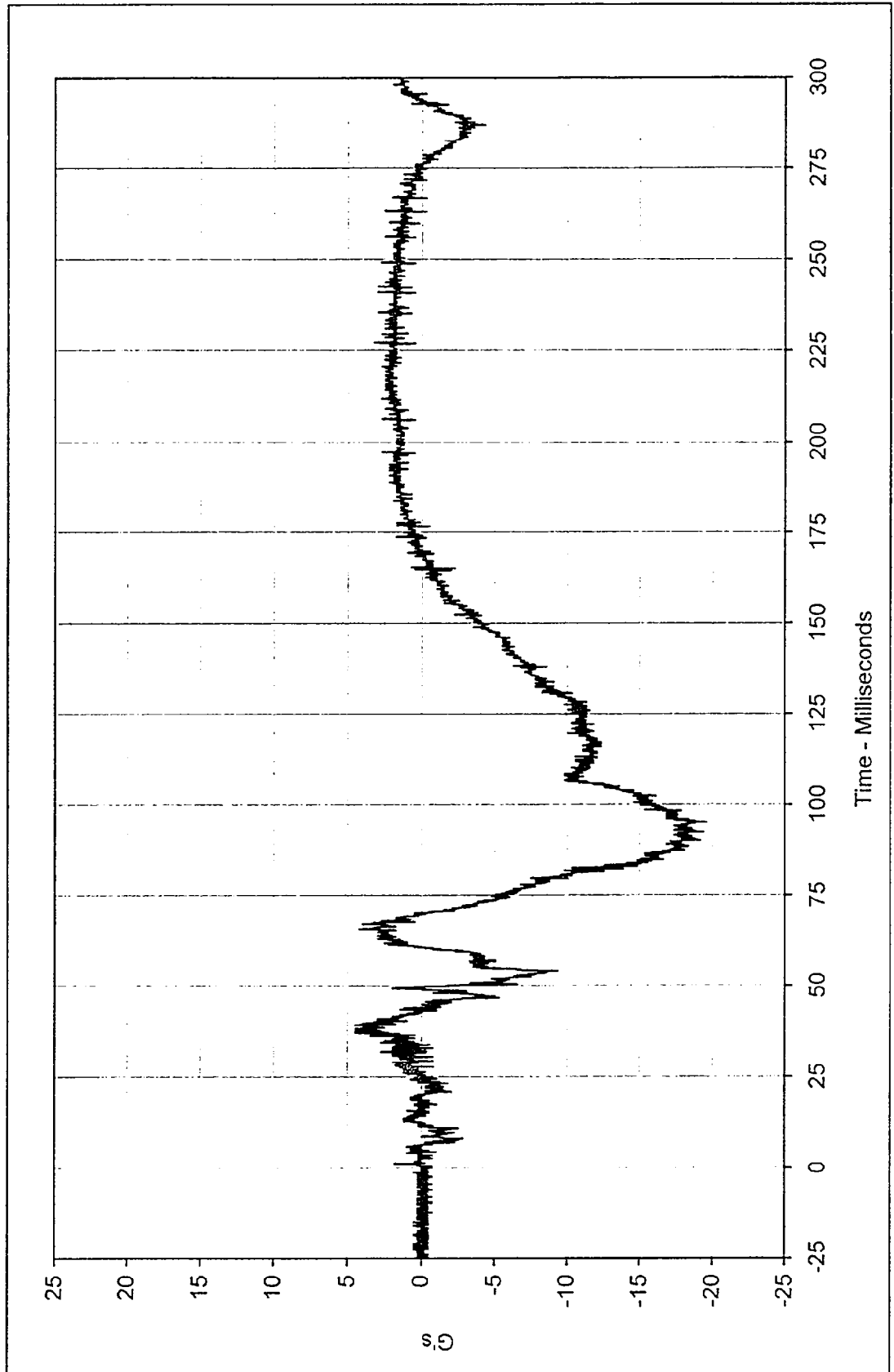




Curve Description: Passenger Head Primary X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 112.2 at 95.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 0.0 Milliseconds



SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-045



Curve Description: Passenger Head Primary Y Testing Program: 1997 New Car Assessment Program

Maximum Value: 4.5 at 37.1 Milliseconds Test Vehicle: 1997 Kia Sephia

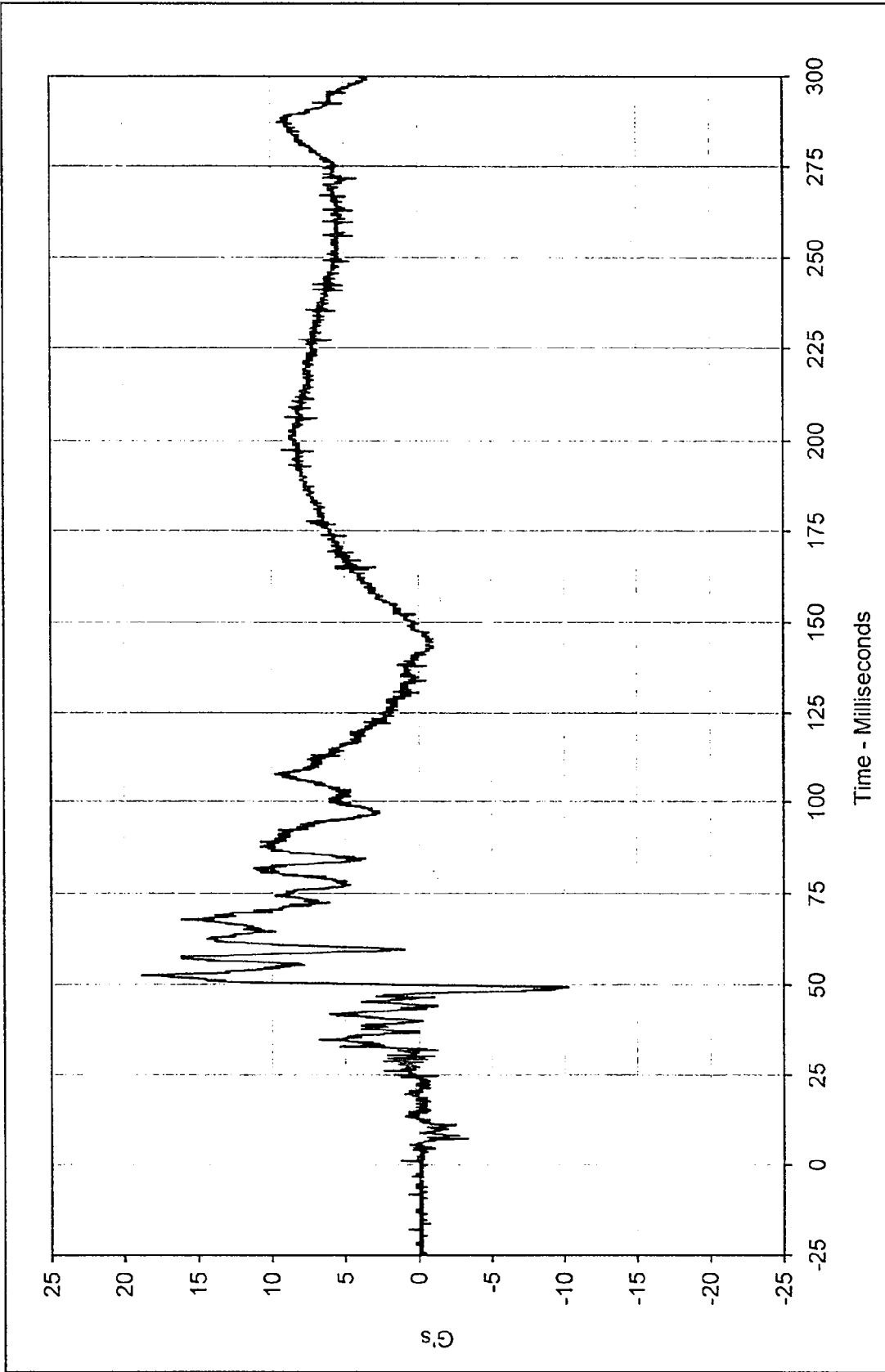
Minimum Value: -19.6 at 95.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 5/1/97

Curve Number: FIL-046





Curve Description: Passenger Head Primary Z Testing Program: 1997 New Car Assessment Program

Maximum Value: 18.8 at 52.5 Milliseconds Test Vehicle: 1997 Kia Sephia

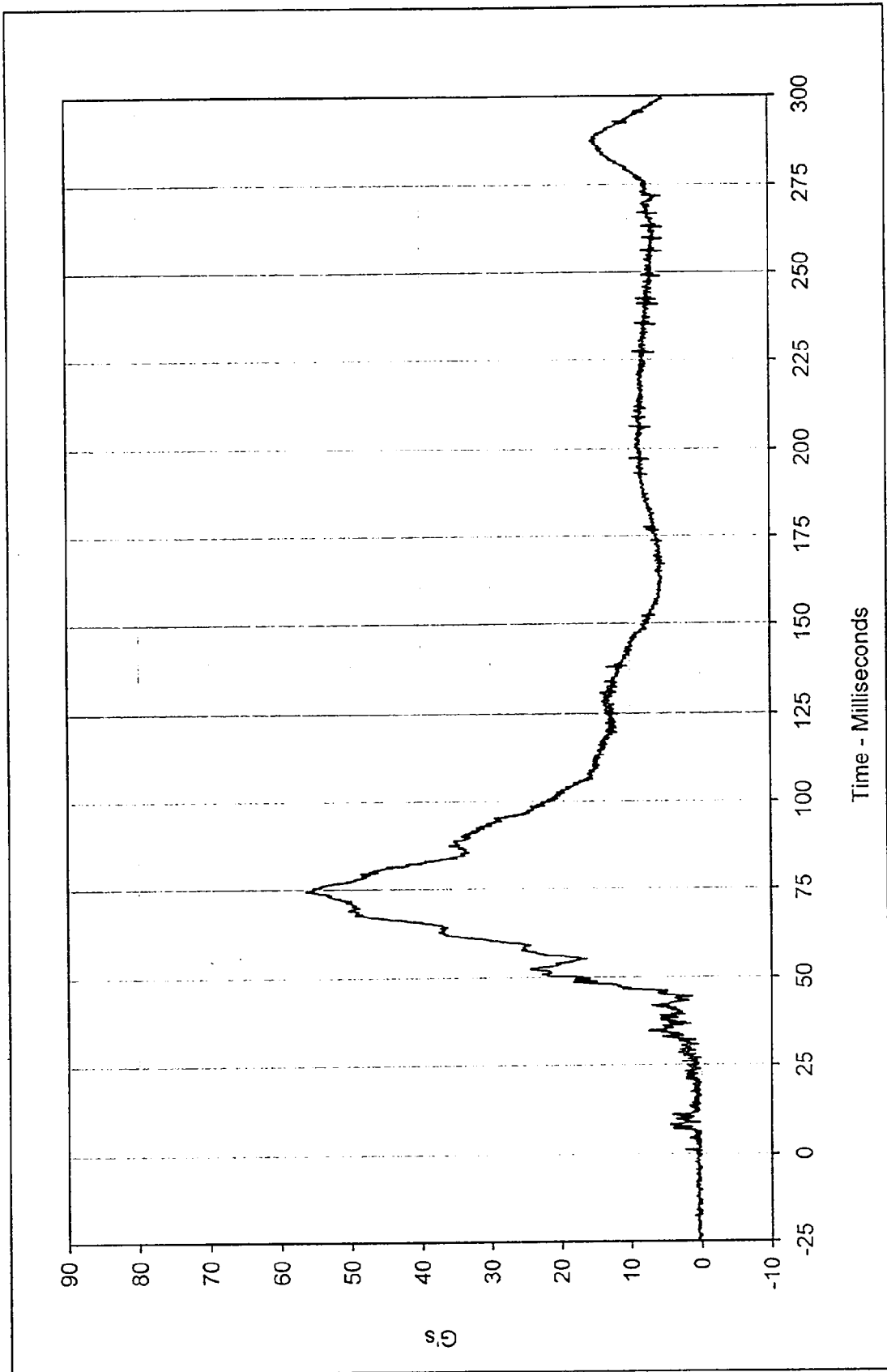
Minimum Value: -10.3 at 49.4 Milliseconds

SAE Filter Class: 1000

Date of Test: 5/1/97

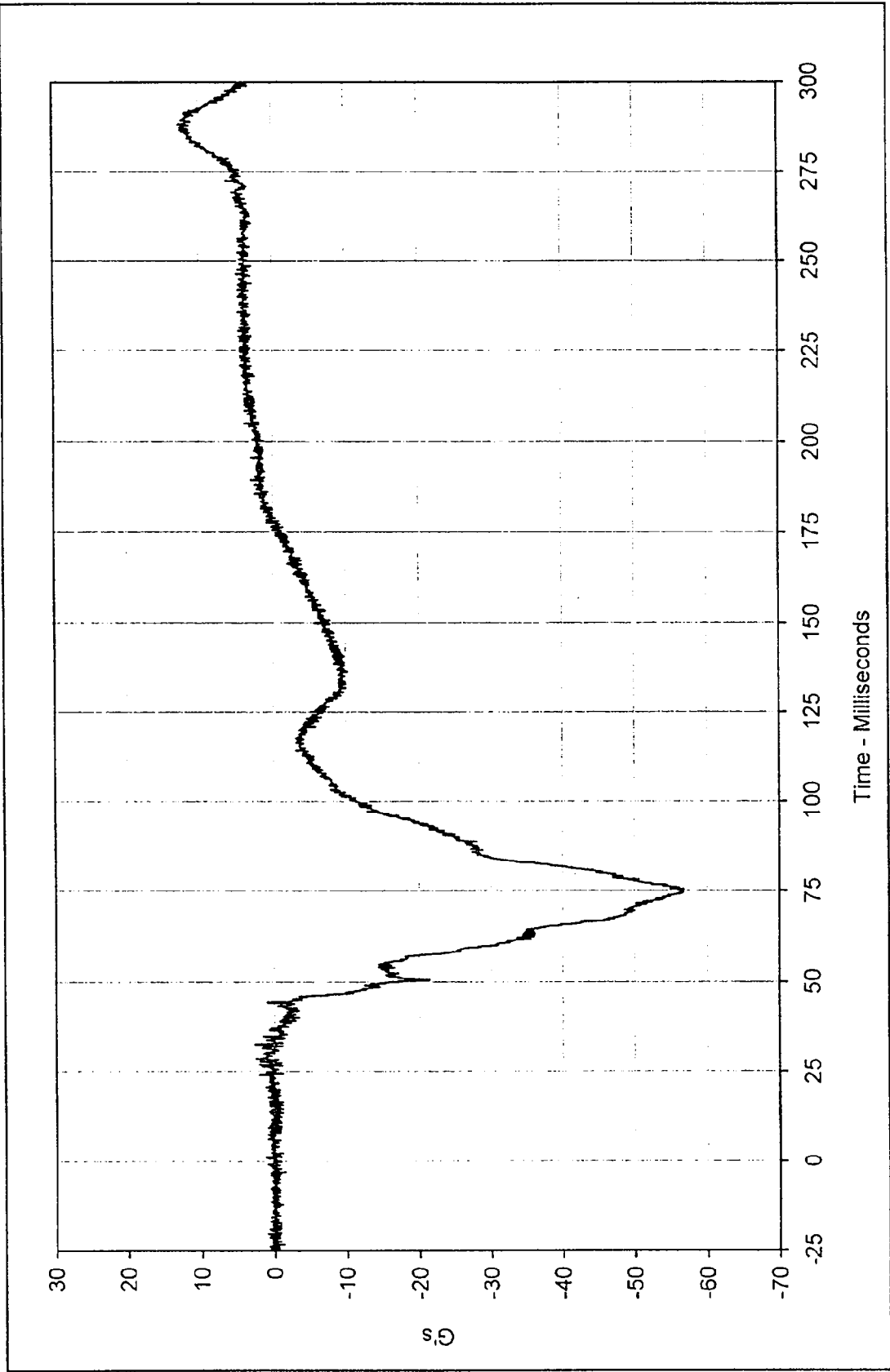
Curve Number: FIL-047





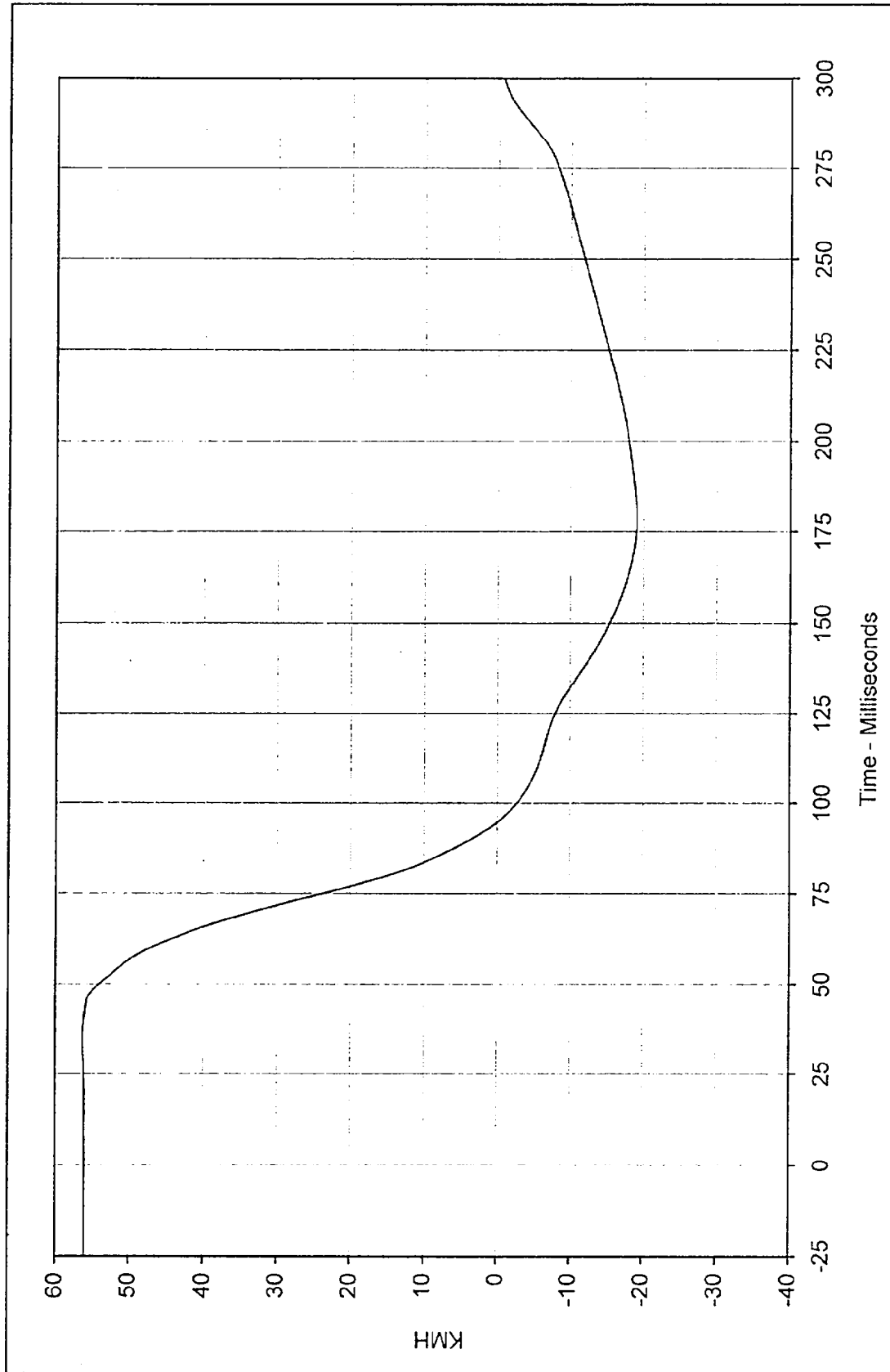
Curve Description: Passenger Head Resultant Primary Testing Program: 1997 New Car Assessment Program
 Maximum Value: 56.4 at 74.5 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 0.9 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: RES-045





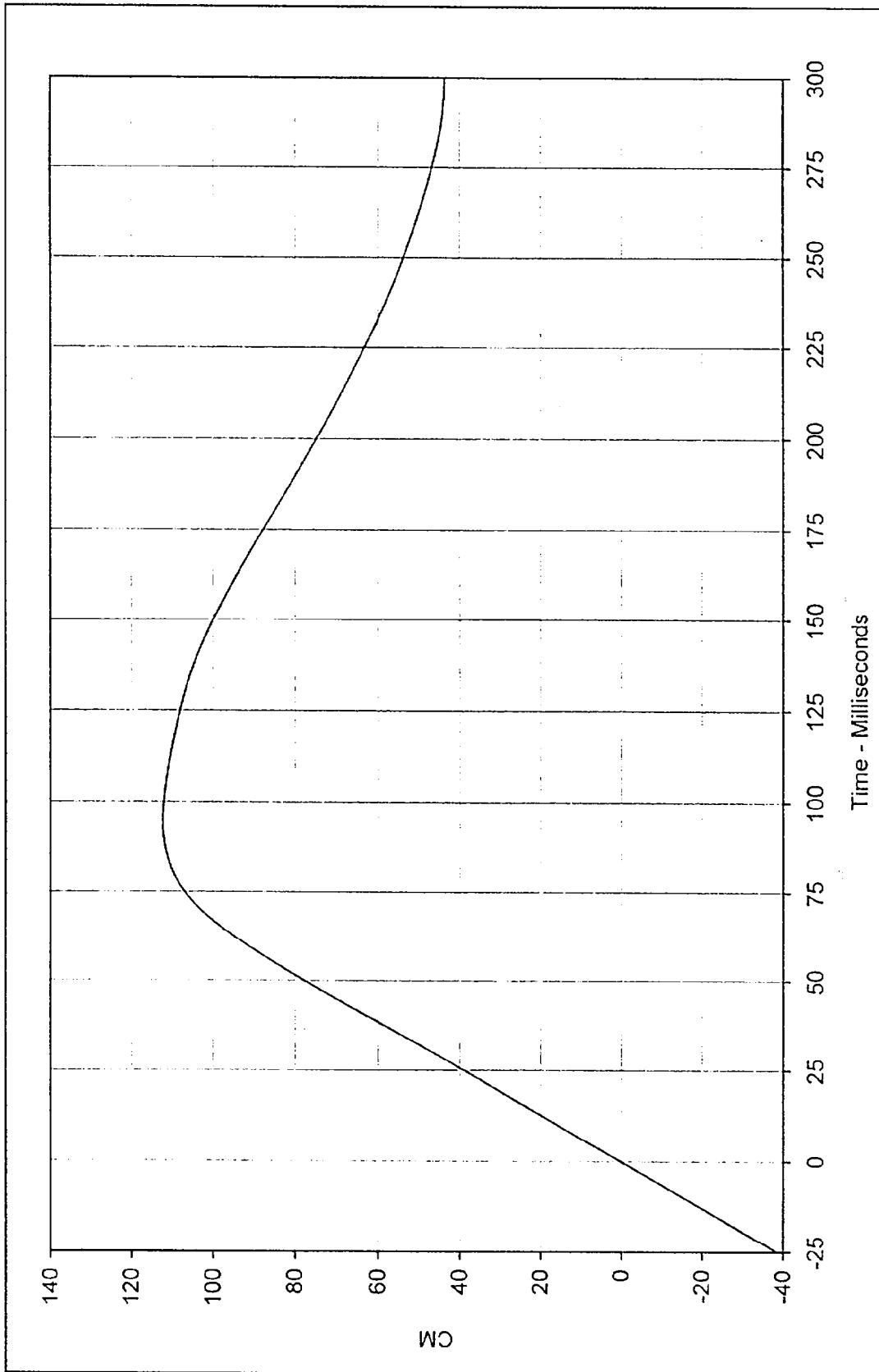
Curve Description: Passenger Head Redundant X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 12.6 at 288.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -56.8 at 74.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-048



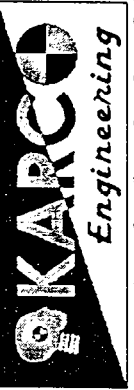


Curve Description: Passenger Head Redundant X Velocity Testing Program: 1997 New Car Assessment Program
 Maximum Value: 56.3 at 34.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -19.1 at 178.2 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN1-048

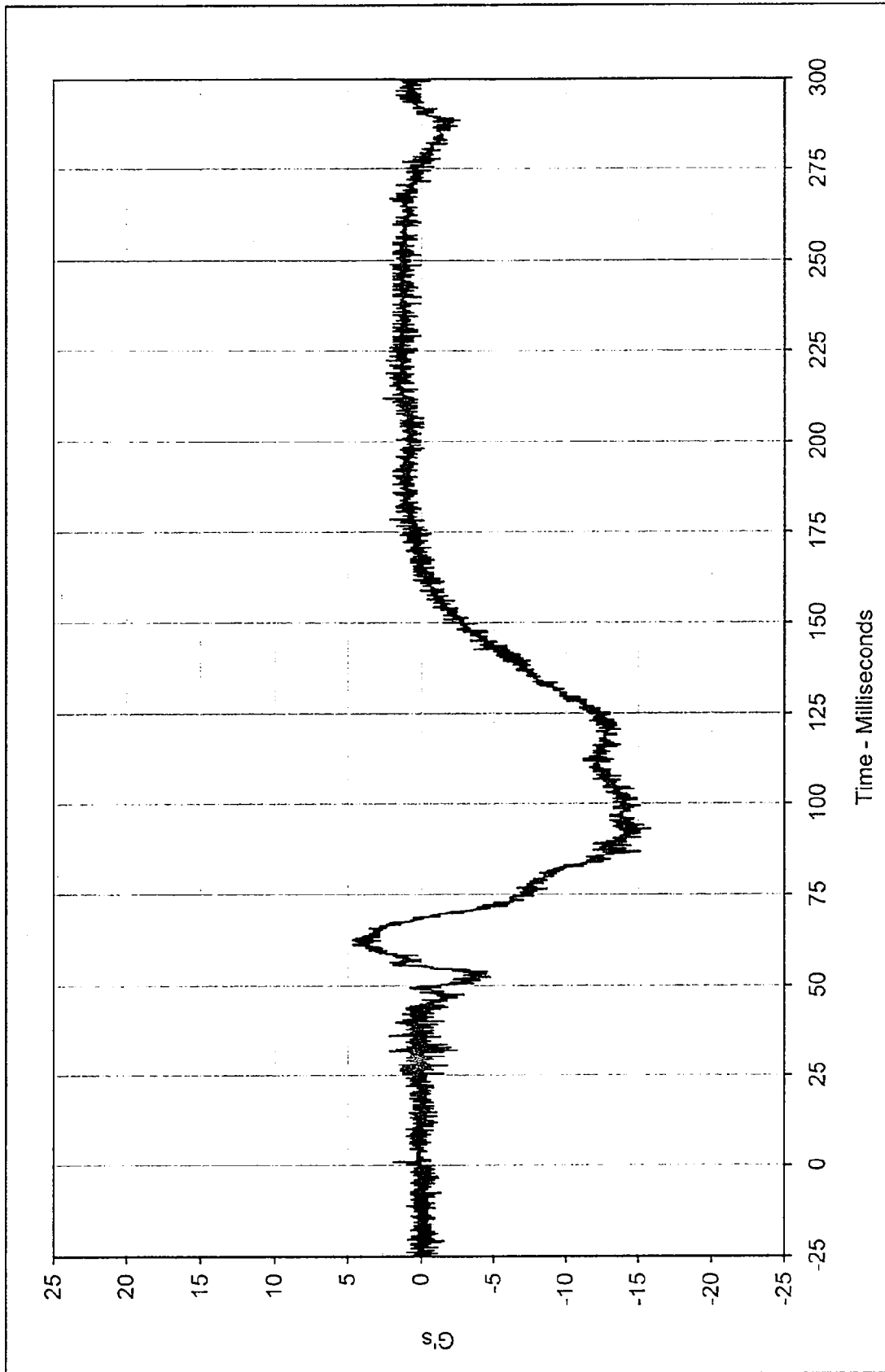




Curve Description: Passenger Head Redundant X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 112.3 at 94.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 0.0 Milliseconds

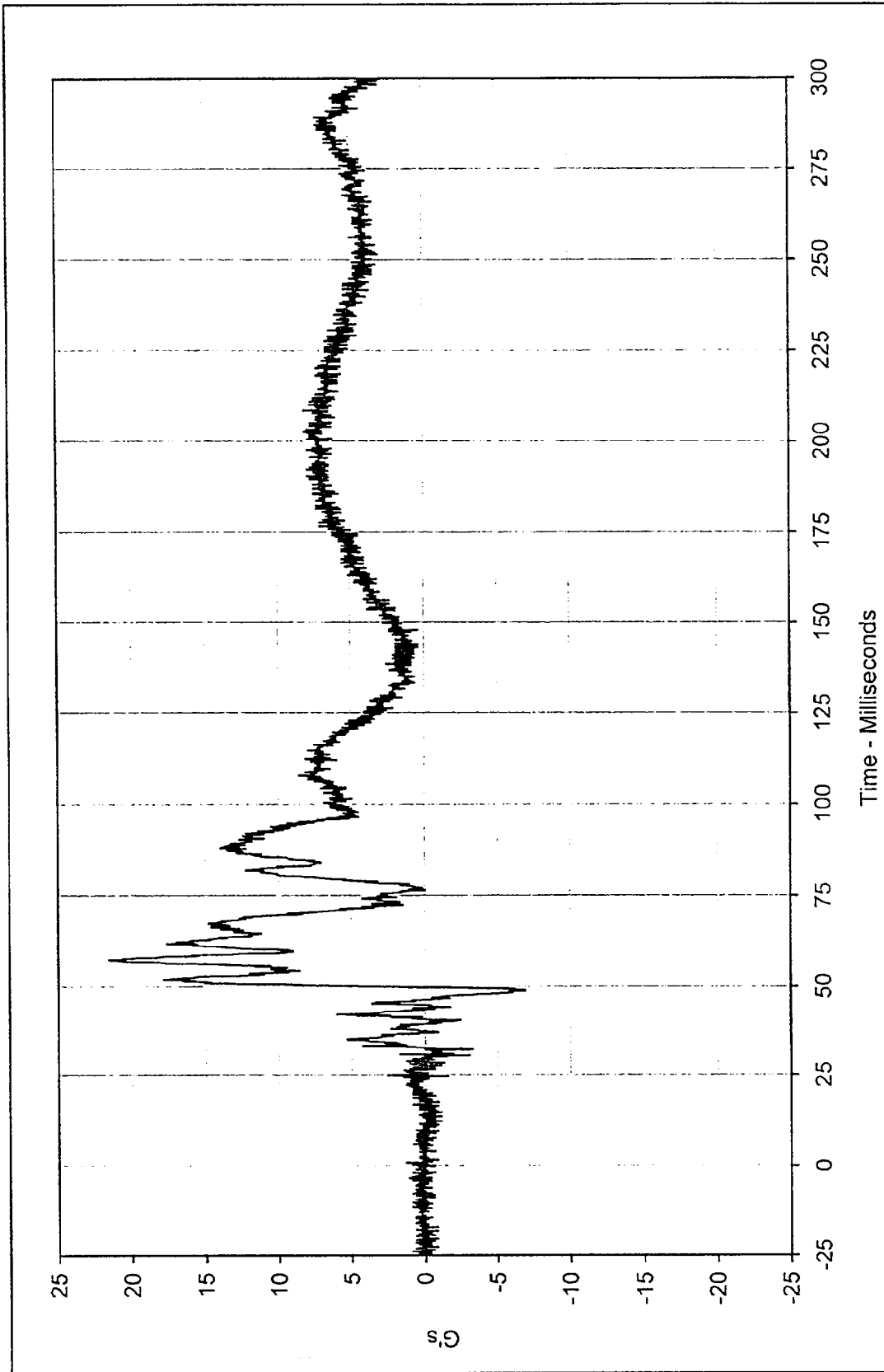


SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-048



Curve Description: Passenger Head Redundant Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 4.7 at 61.4 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -15.8 at 93.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-049





Curve Description: Passenger Head Redundant Z Testing Program: 1997 New Car Assessment Program

Maximum Value: 21.5 at 57.4 Milliseconds Test Vehicle: 1997 Kia Sephia

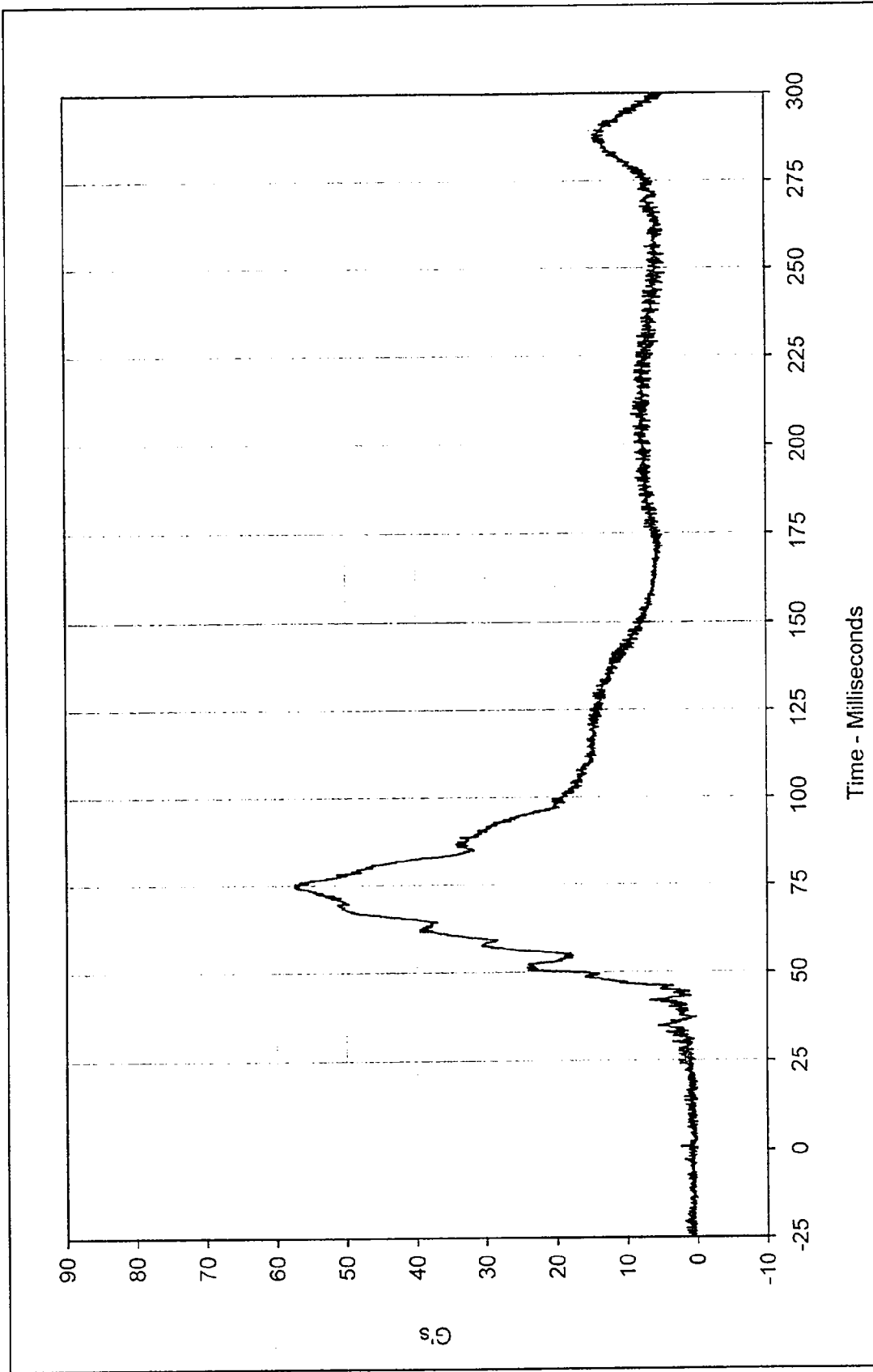
Minimum Value: -6.9 at 48.6 Milliseconds

SAE Filter Class: 1000

Date of Test: 5/1/97

Curve Number: FIL-050

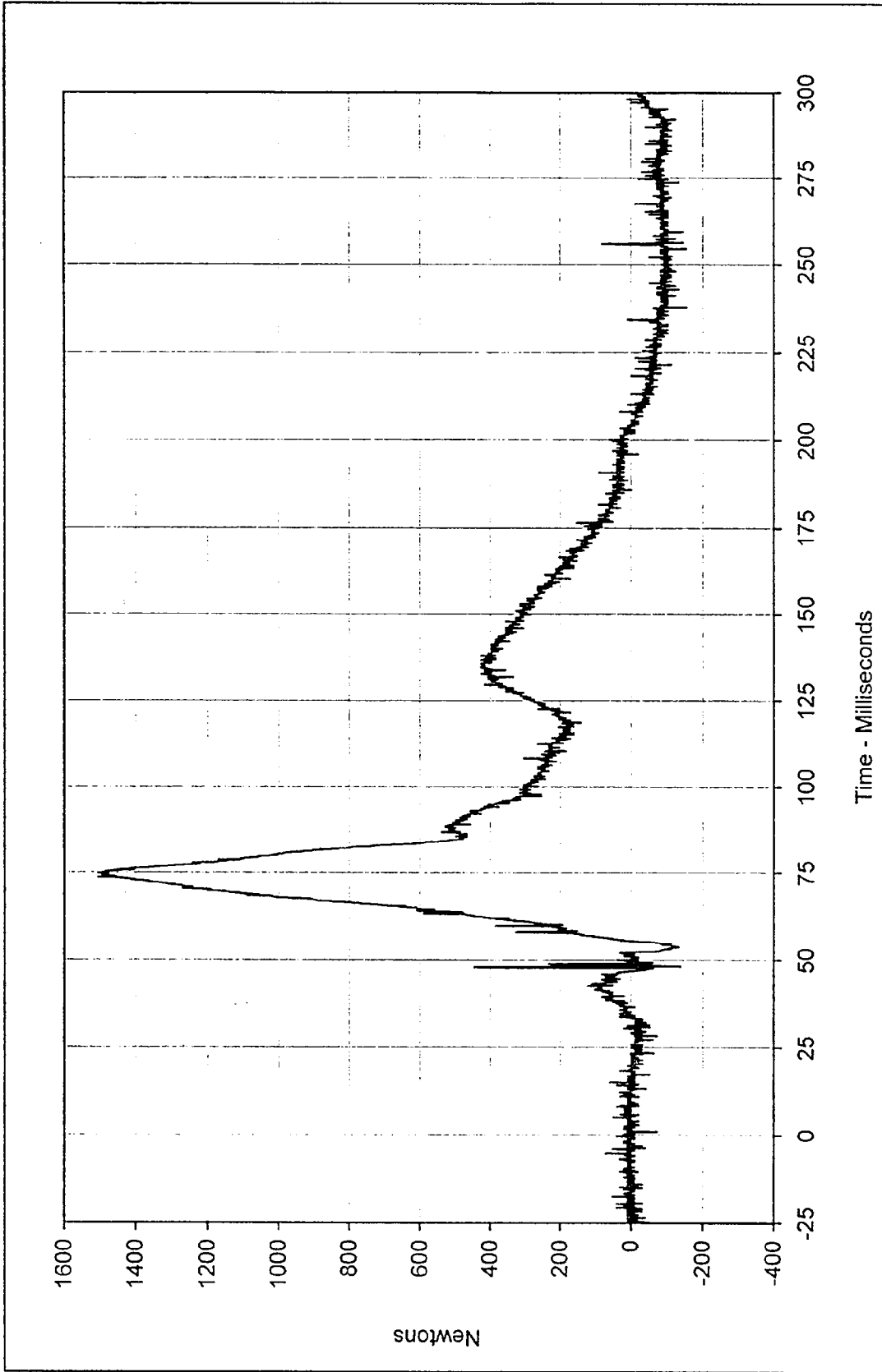




Curve Description: Passenger Head Resultant Redundant
 Maximum Value: 57.4 at 75.4 Milliseconds
 Minimum Value: 0.0 at 0.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: RES-048

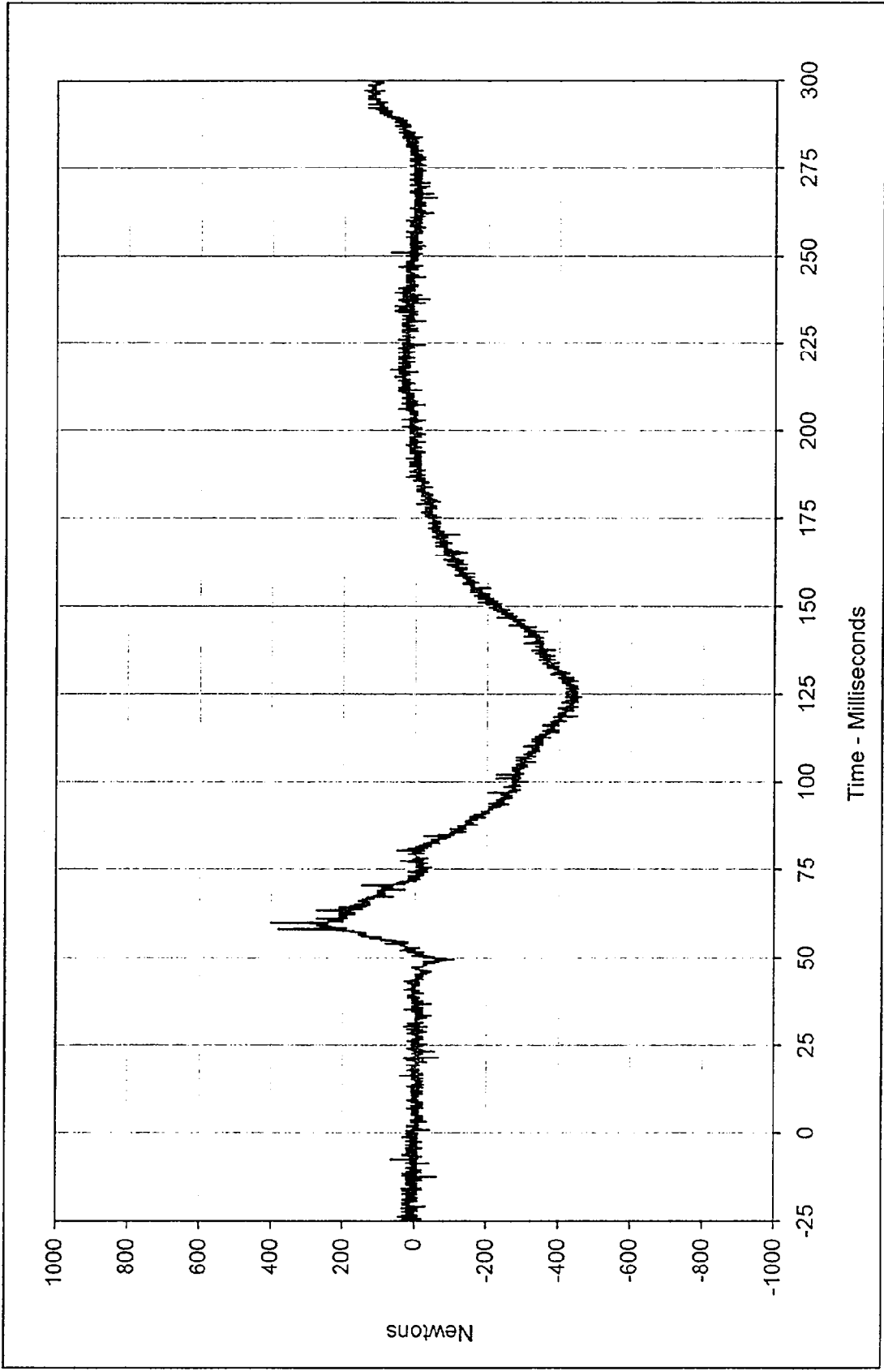
Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia





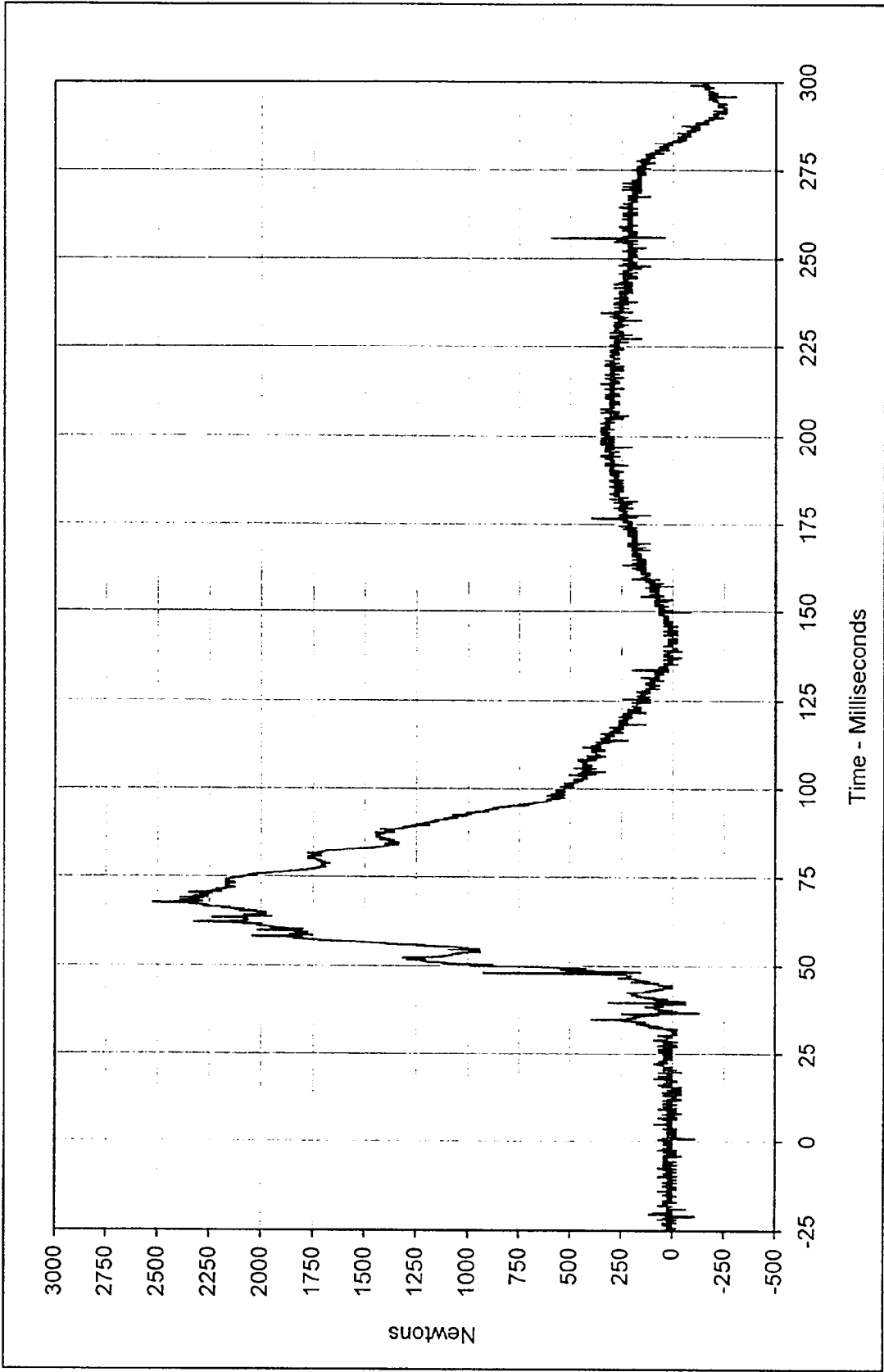
Curve Description: Passenger Neck Force X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 1504.8 at 73.5 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -153.5 at 238.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-051





Curve Description: Passenger Neck Force Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 401.9 at 59.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -461.9 at 124.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-052

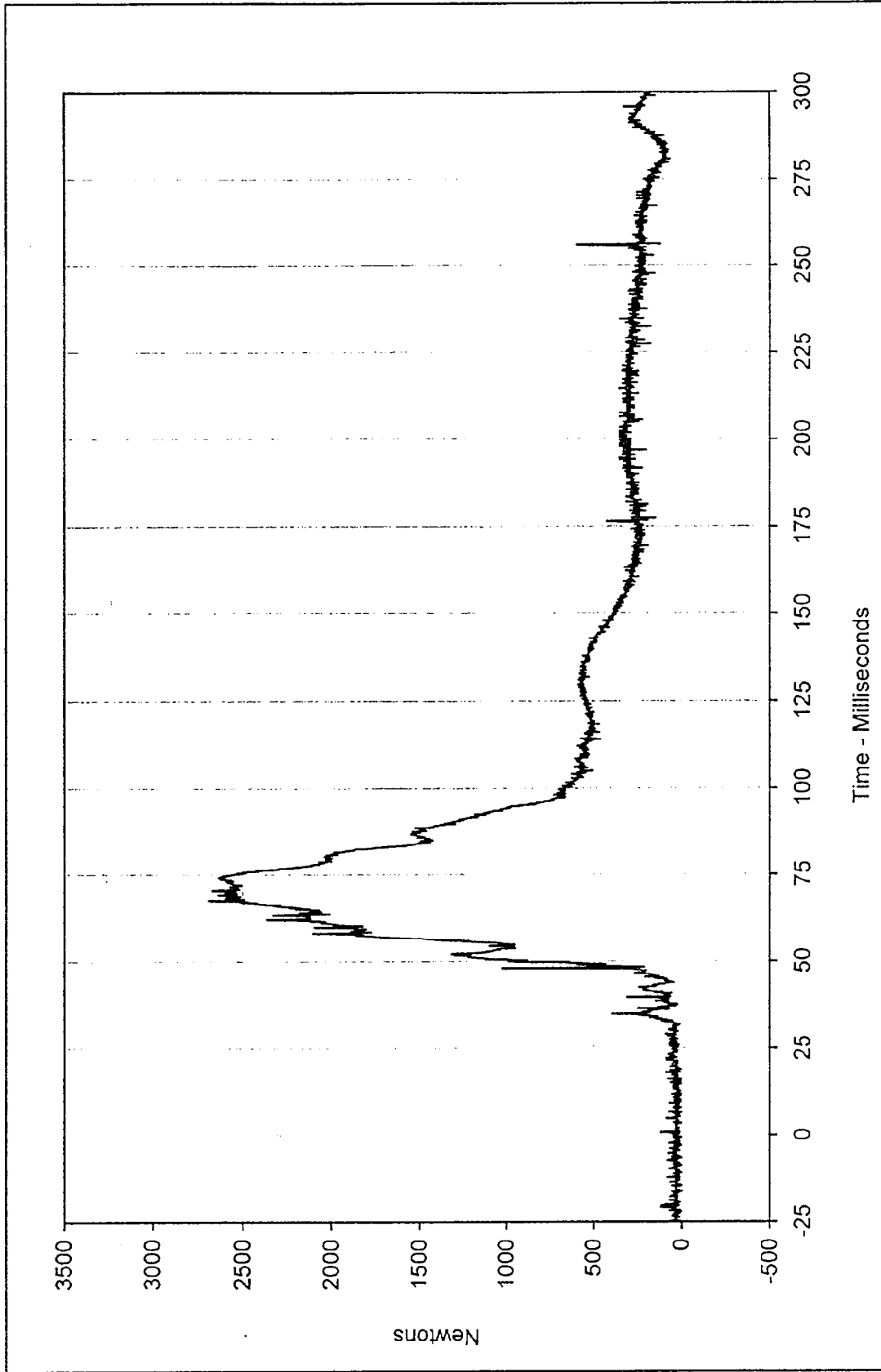




Curve Description: Passenger Neck Force Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 2520.8 at 67.6 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -305.9 at 295.9 Milliseconds



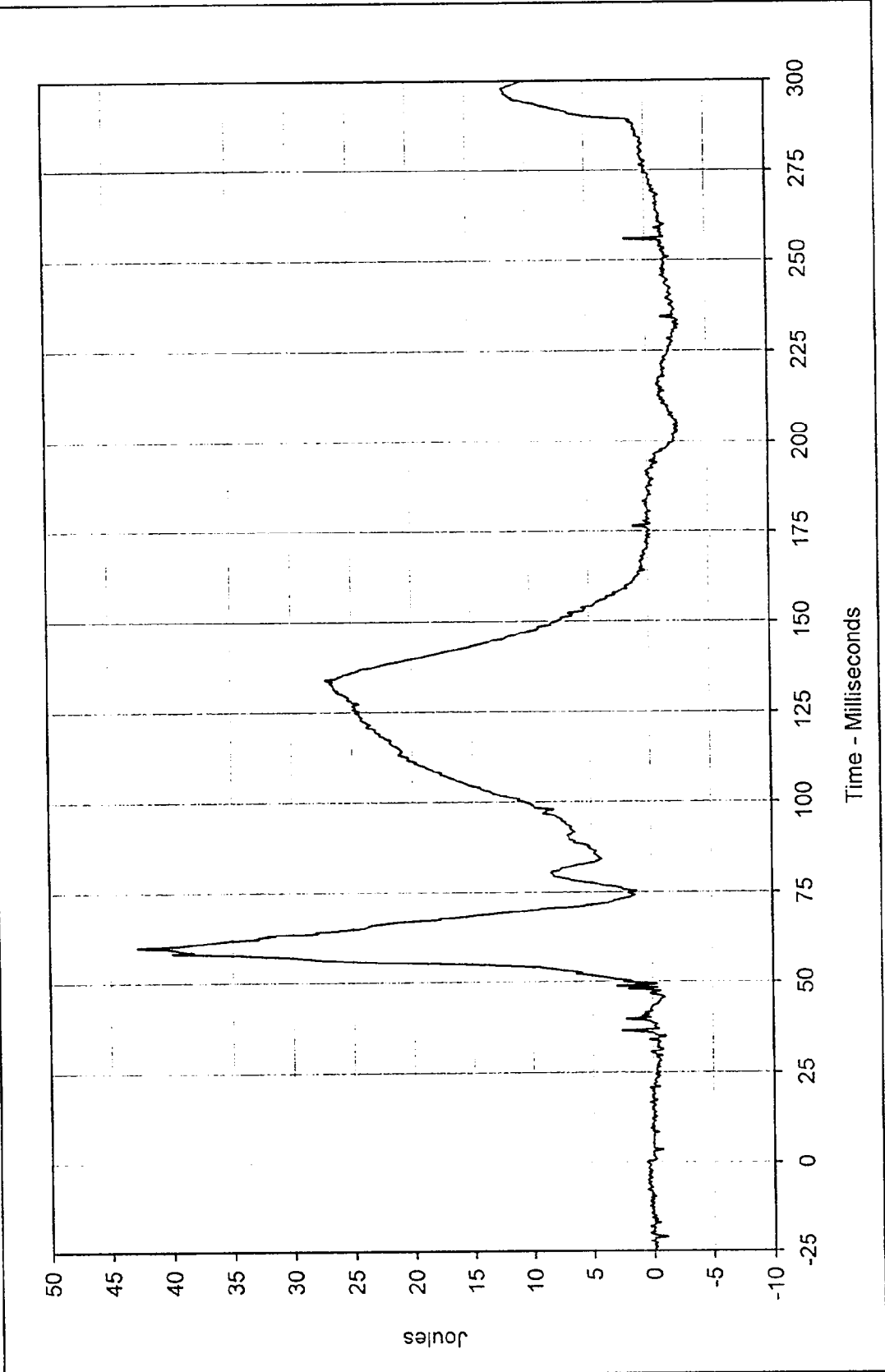
SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-053



Curve Description: Passenger Neck Force Resultant Testing Program: 1997 New Car Assessment Program
 Maximum Value: 2684.1 at 67.6 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at -22.1 Milliseconds



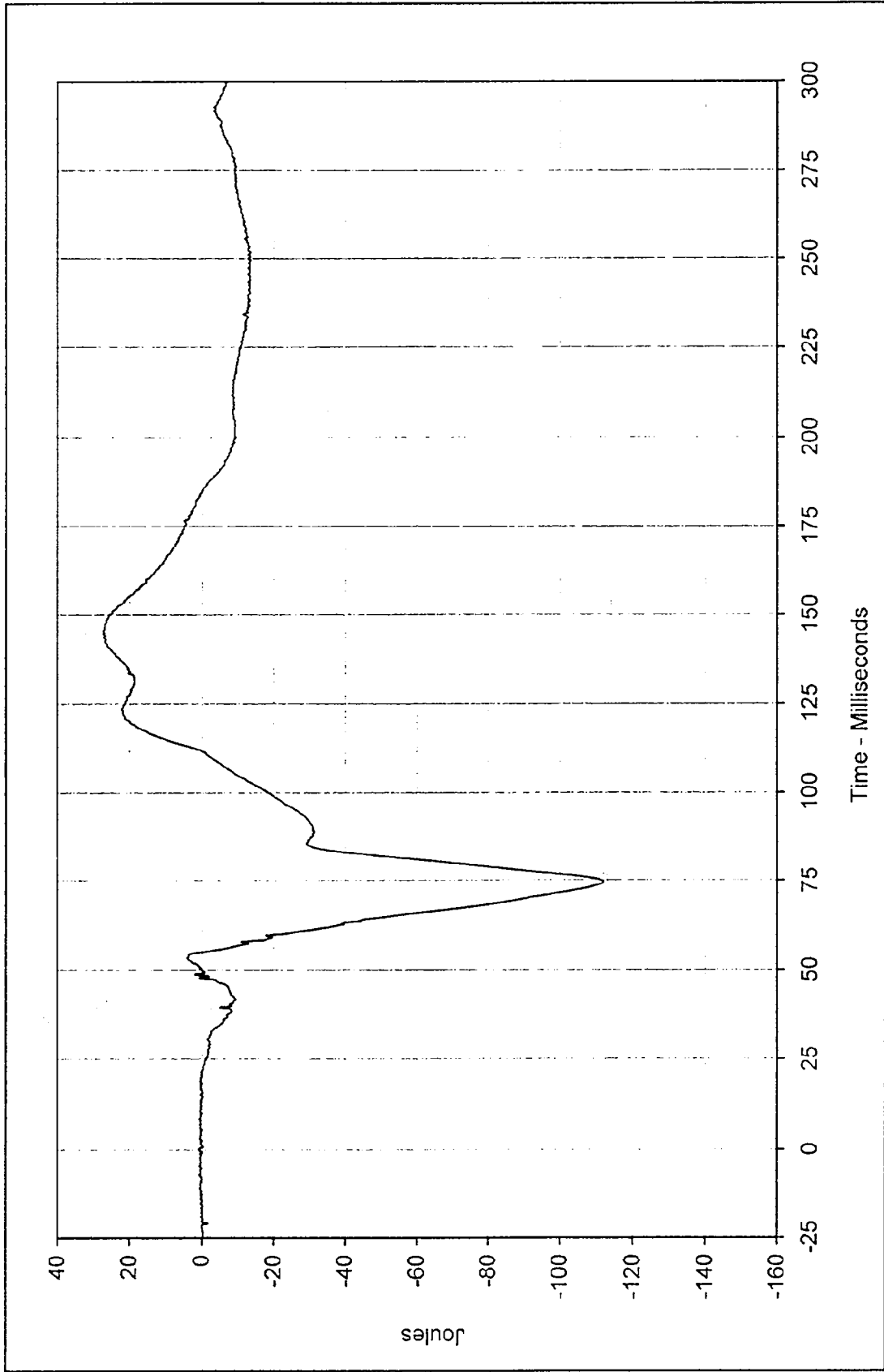
SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: RES-051



Curve Description: Passenger Neck Moment X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 42.8 at 59.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -2.7 at 232.3 Milliseconds

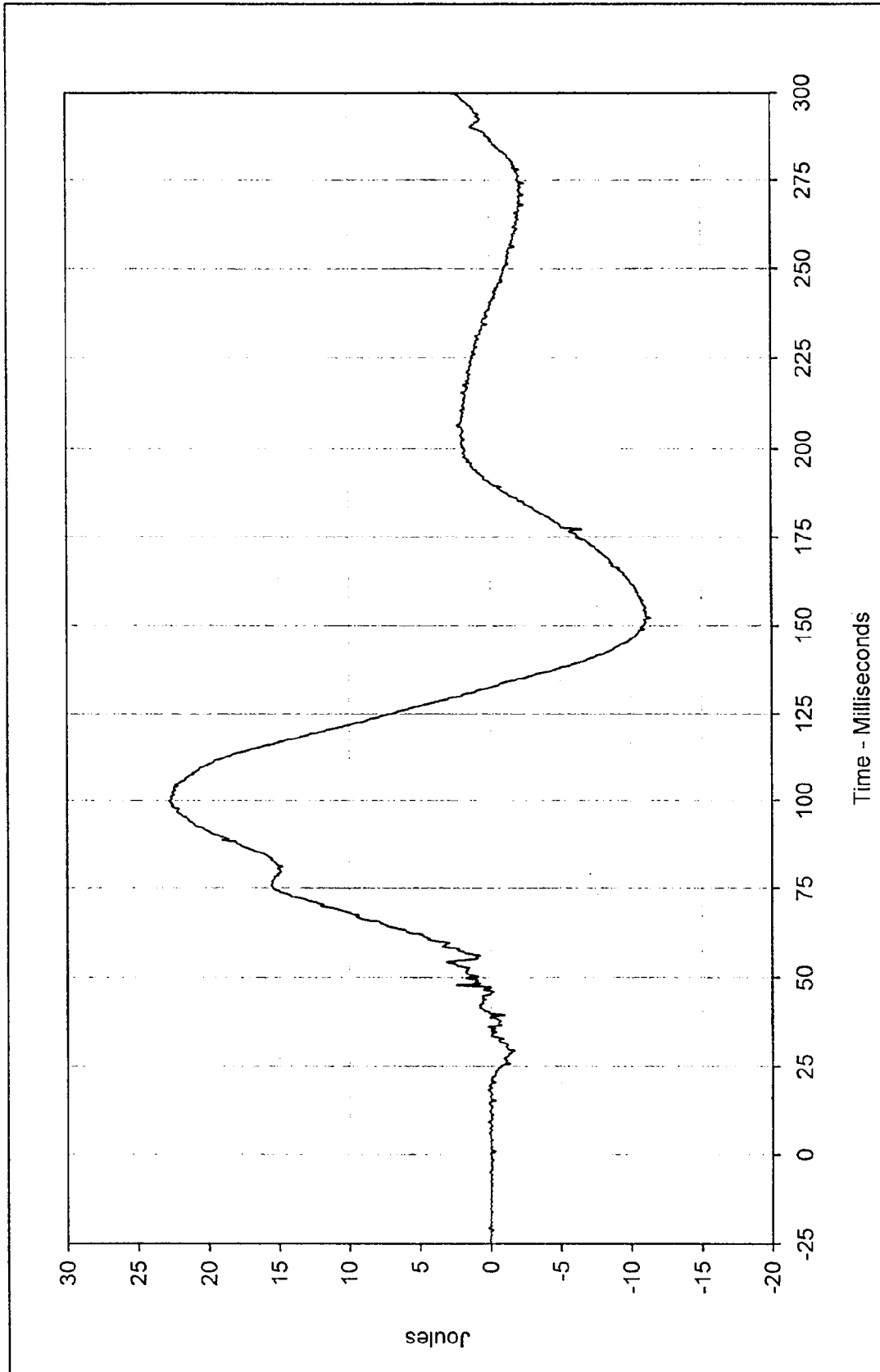


SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-054



Curve Description: Passenger Neck Moment Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 27.1 at 144.8 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -112.2 at 74.6 Milliseconds
 SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-055

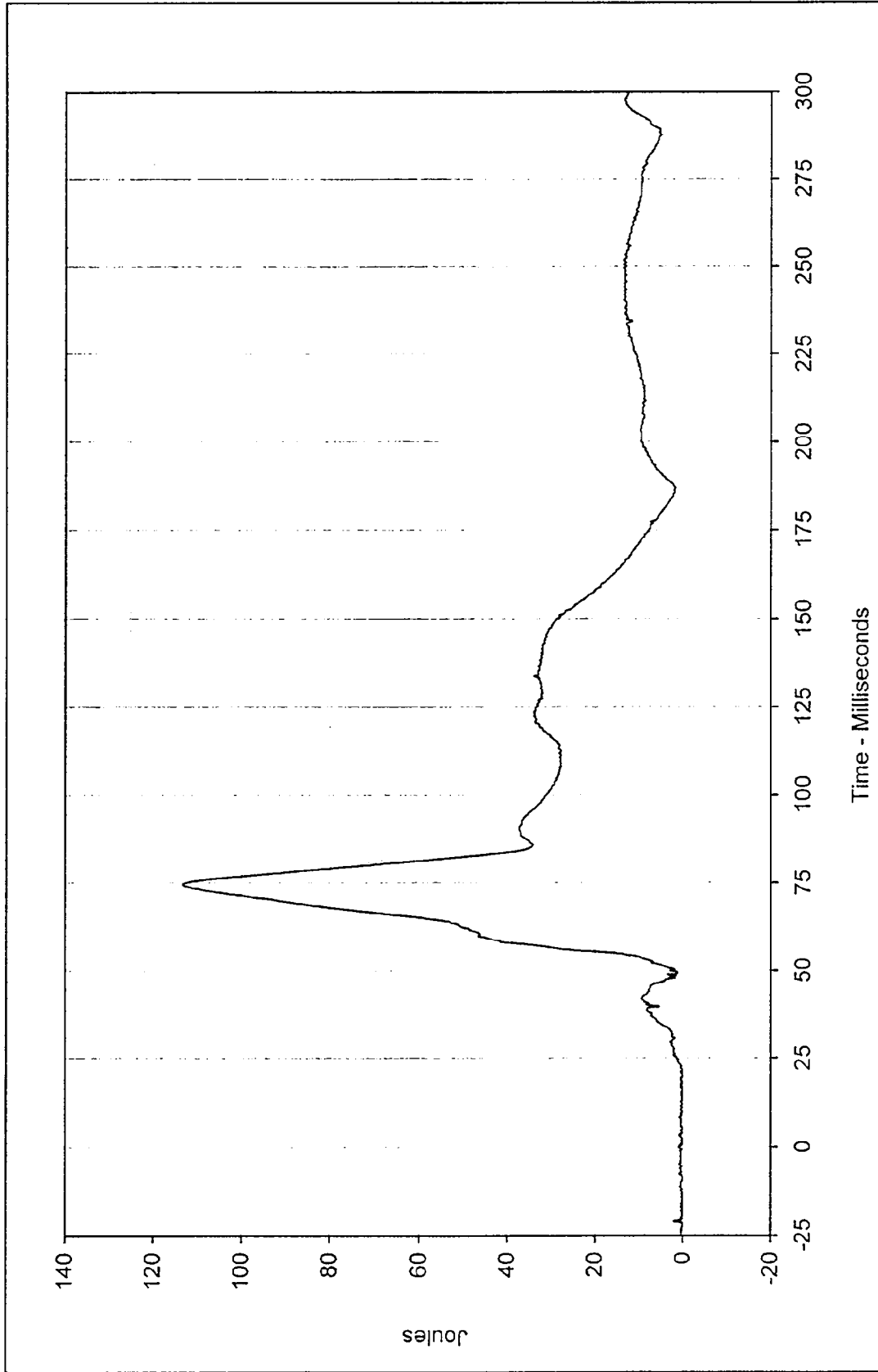




Curve Description: Passenger Neck Moment Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 22.8 at 99.8 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -11.4 at 152.3 Milliseconds



SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-056



Curve Description: Passenger Neck Moment Resultant Testing Program: 1997 New Car Assessment Program

Maximum Value: 113.2 at 74.6 Milliseconds Test Vehicle: 1997 Kia Sephia

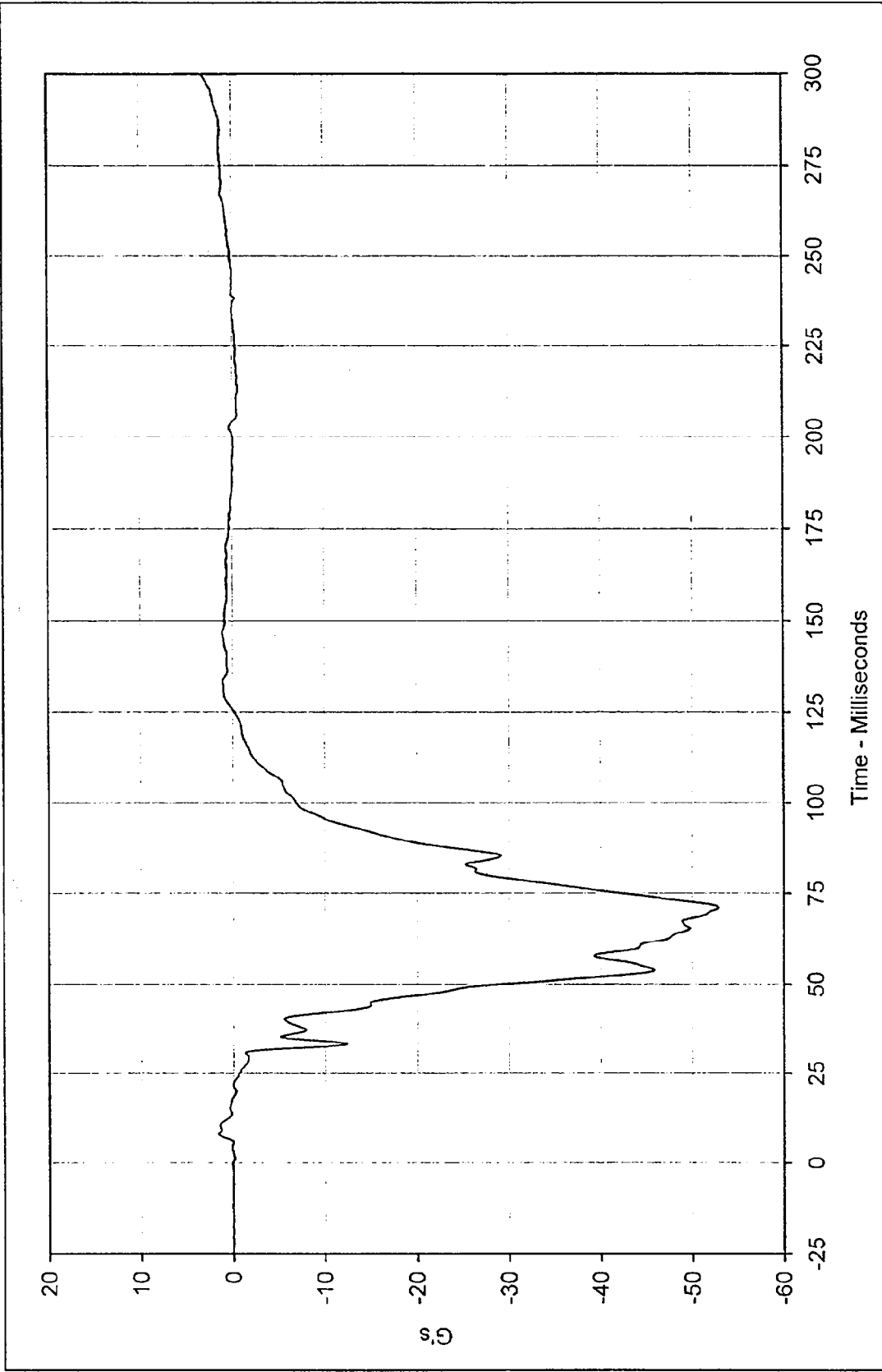
Minimum Value: 0.1 at 5.5 Milliseconds

SAE Filter Class: 600

Date of Test: 5/1/97

Curve Number: RES-054

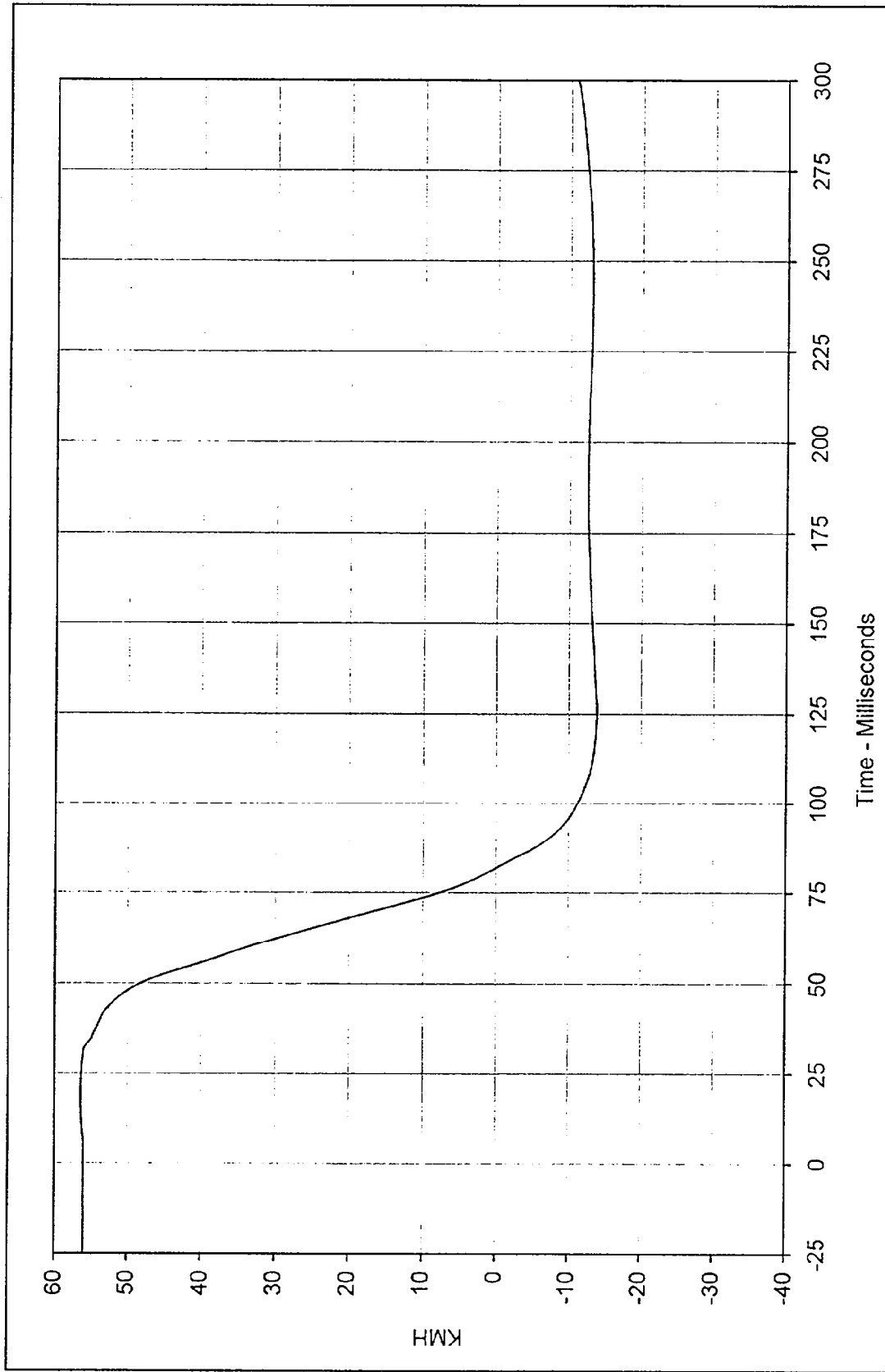




Curve Description: Passenger Chest Primary X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 3.2 at 299.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -52.9 at 71.1 Milliseconds



SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: FIL-057



Curve Description: Passenger Chest Primary X Velocity

Testing Program: 1997 New Car Assessment Program

Maximum Value: 56.4 at 18.6 Milliseconds

Test Vehicle: 1997 Kia Sephia

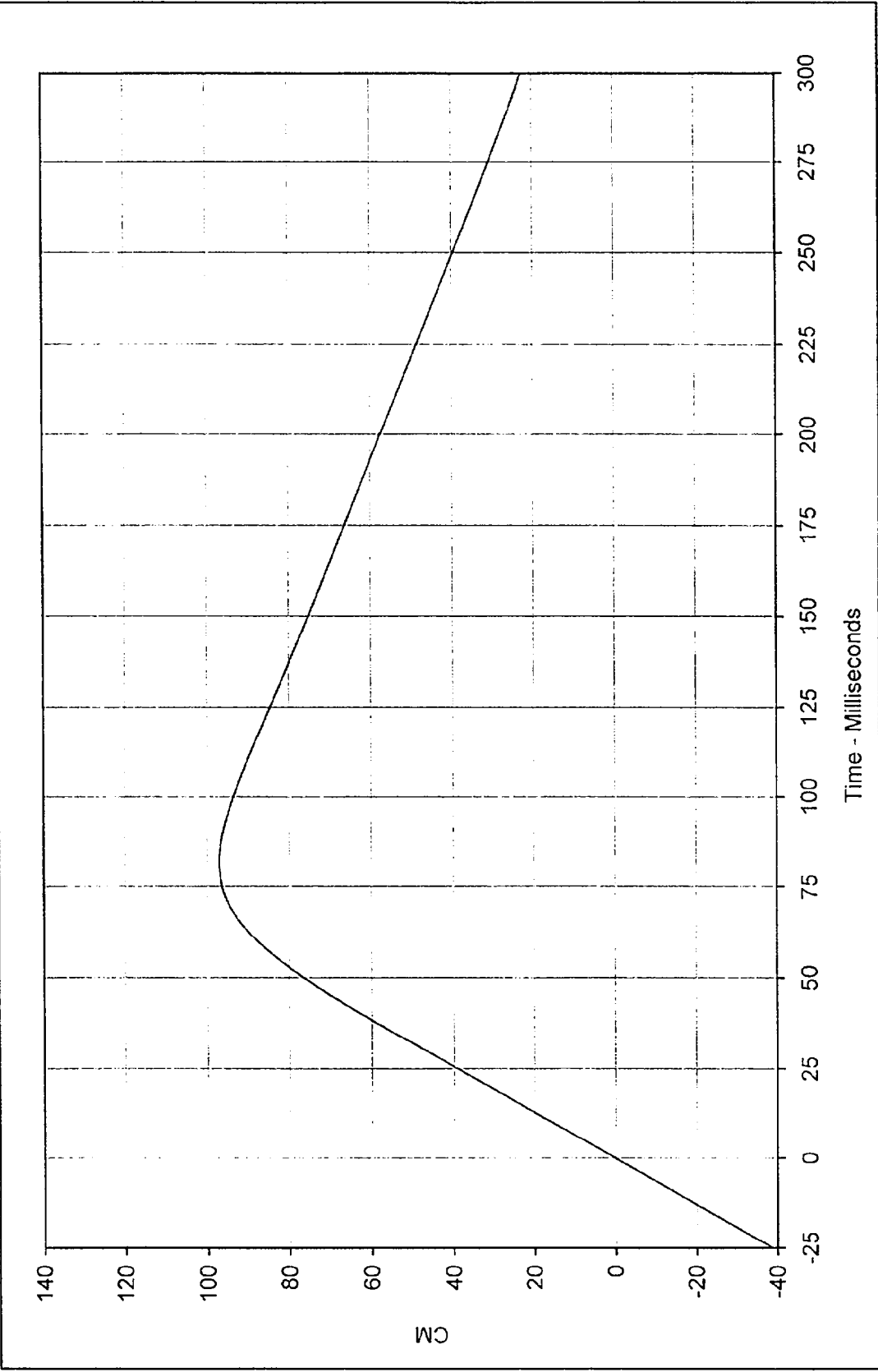
Minimum Value: -13.9 at 125.7 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: IN1-057





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Curve Description: Passenger Chest Primary X Displ. Testing Program: 1997 New Car Assessment Program

Maximum Value: 97.0 at 81.8 Milliseconds Test Vehicle: 1997 Kia Sephia

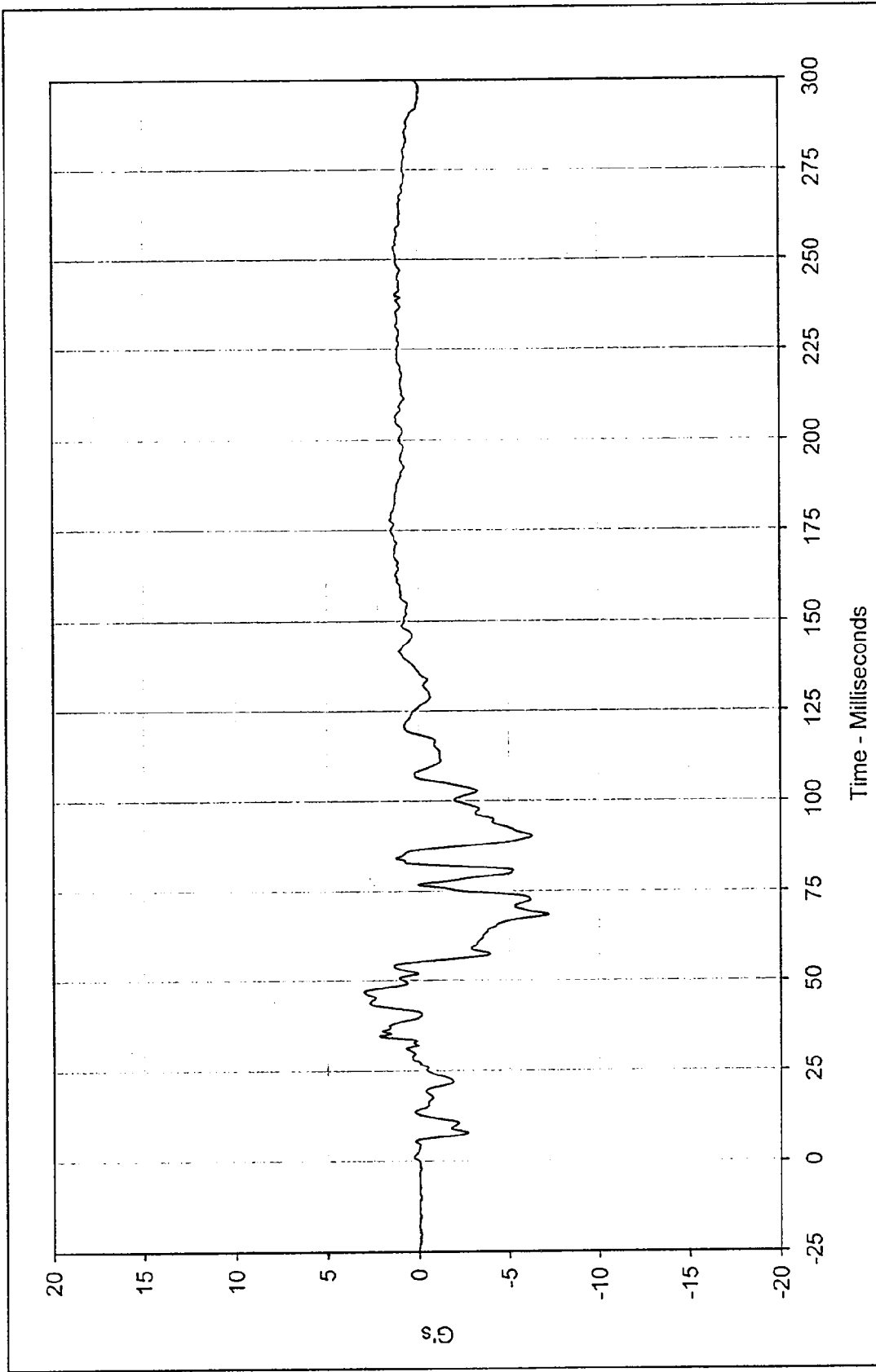
Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

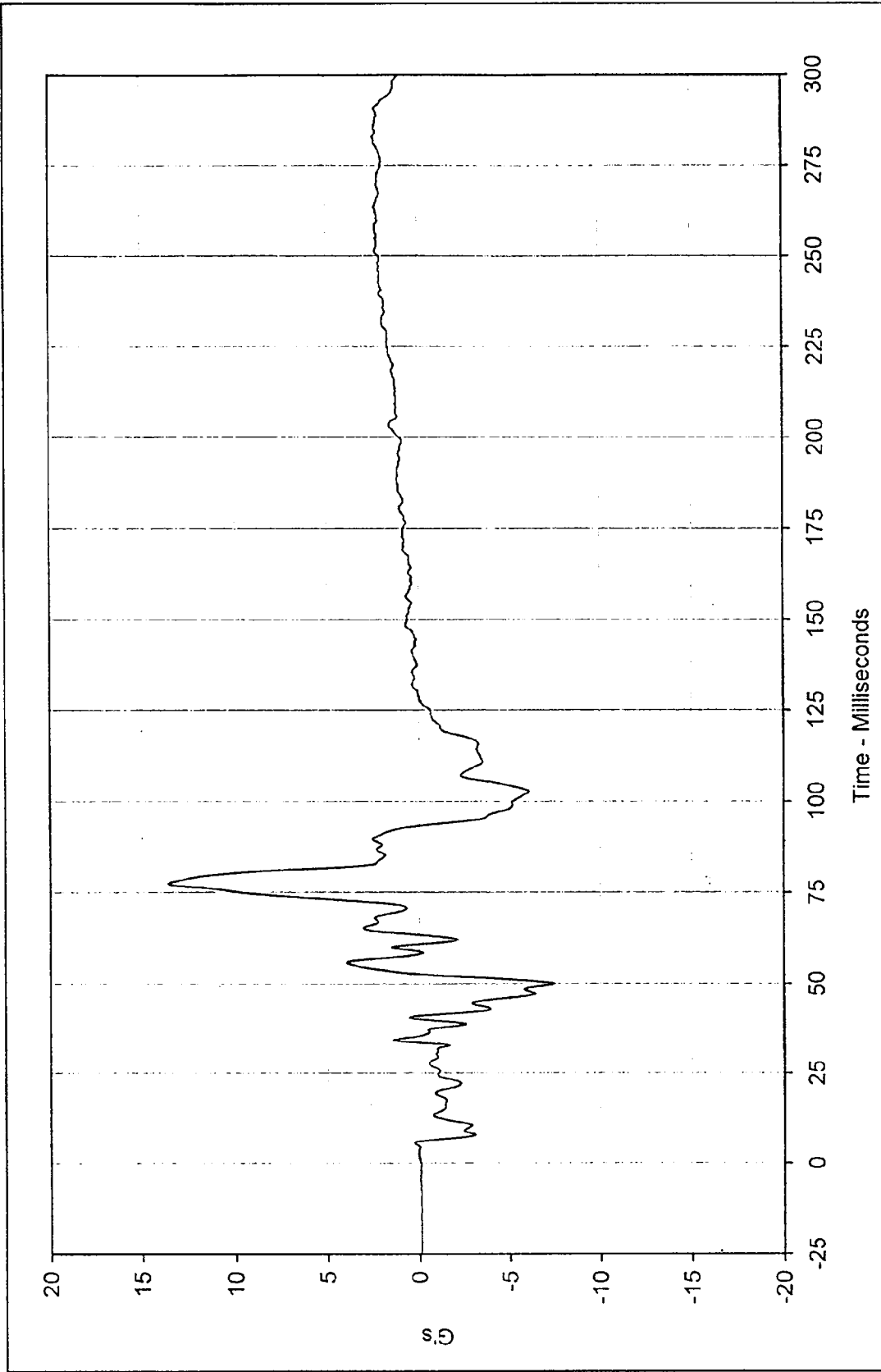
Curve Number: IN2-057





Curve Description: Passenger Chest Primary Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 3.0 at 47.0 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -7.2 at 68.5 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: FIL-058





Curve Description: Passenger Chest Primary Z Testing Program: 1997 New Car Assessment Program

Maximum Value: 13.6 at 77.5 Milliseconds Test Vehicle: 1997 Kia Sephia

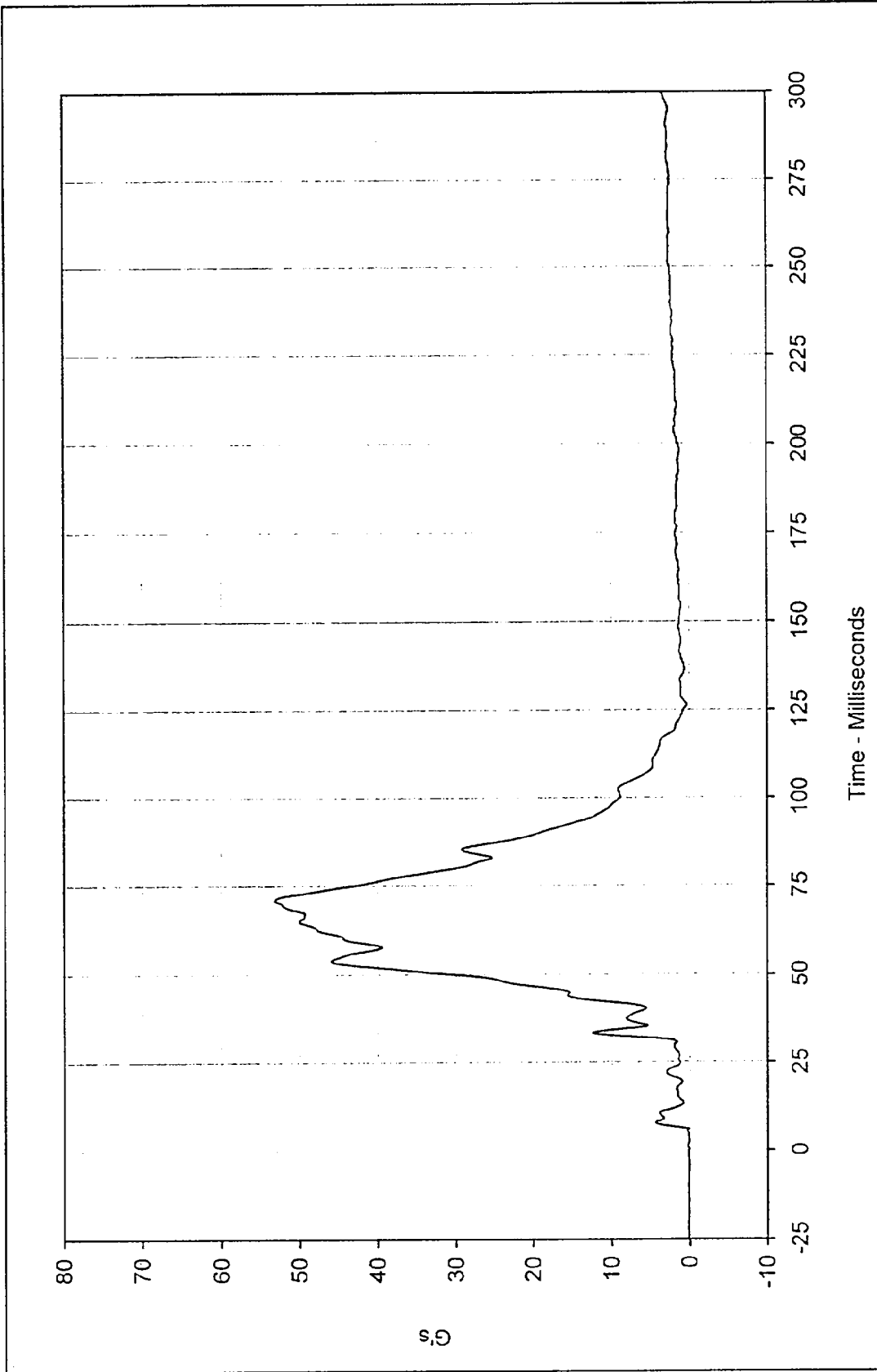
Minimum Value: -7.5 at 50.0 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: FIL-059

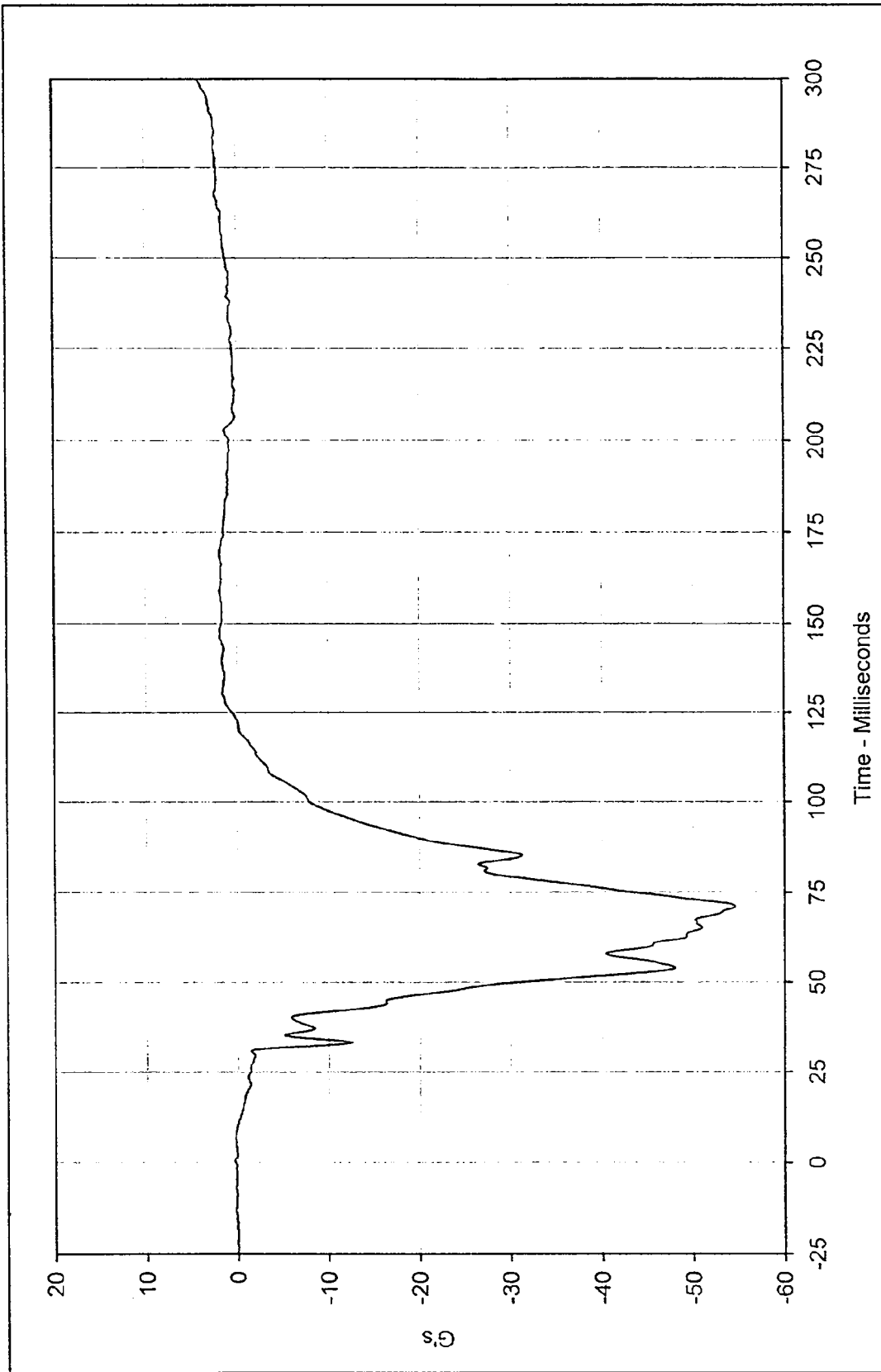




Curve Description: Passenger Chest Resultant Primary
 Maximum Value: 53.2 at 71.1 Milliseconds
 Minimum Value: 0.1 at -3.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: RES-057

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia





Curve Description: Passenger Chest Redundant X Testing Program: 1997 New Car Assessment Program

Maximum Value: 4.2 at 299.9 Milliseconds Test Vehicle: 1997 Kia Sephia

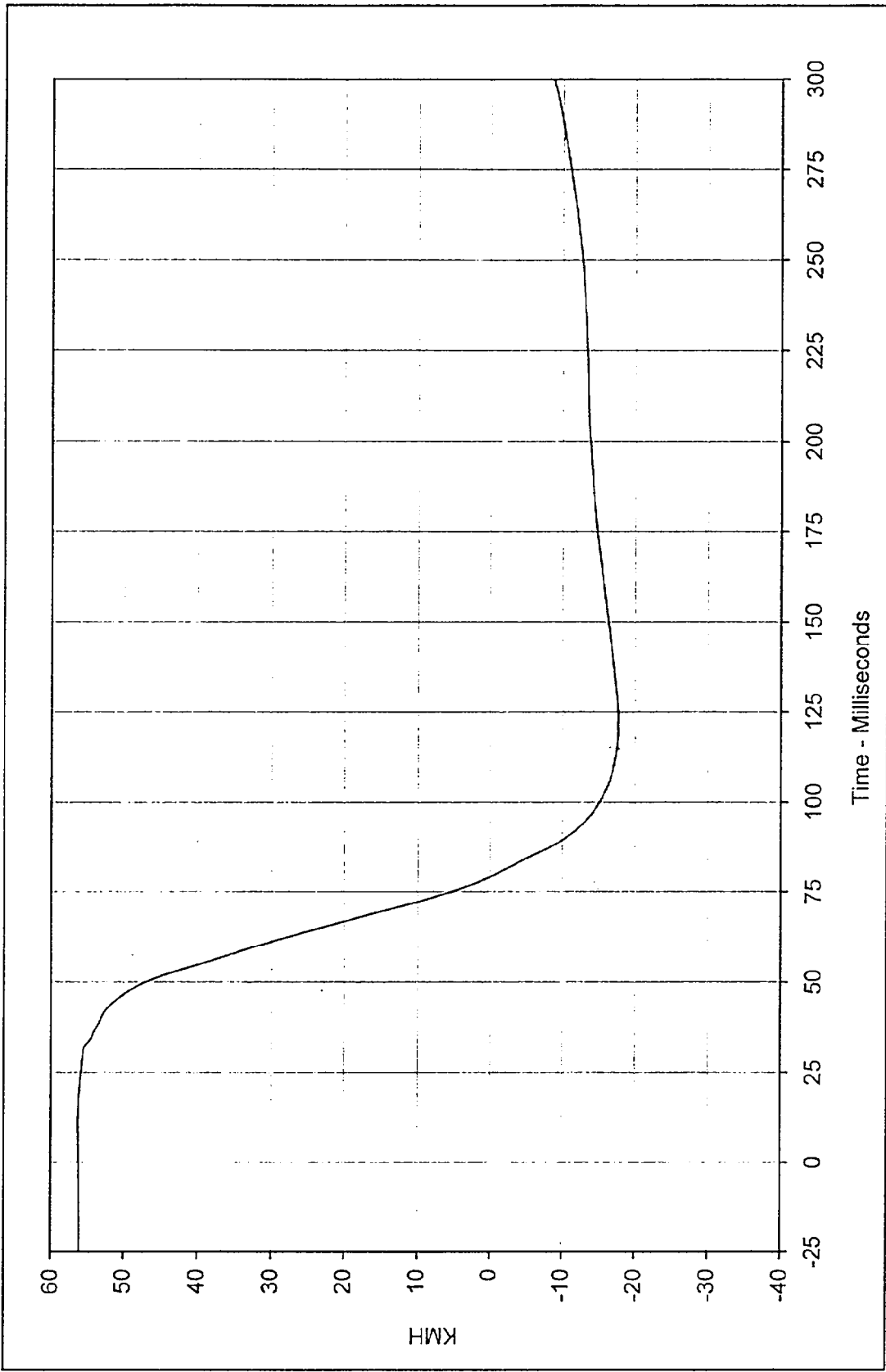
Minimum Value: -54.6 at 71.2 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: FIL-060





Curve Description: Passenger Chest Redundant X Velocity

Maximum Value: 56.2 at 10.9 Milliseconds

Minimum Value: -17.7 at 122.8 Milliseconds

SAE Filter Class: 180

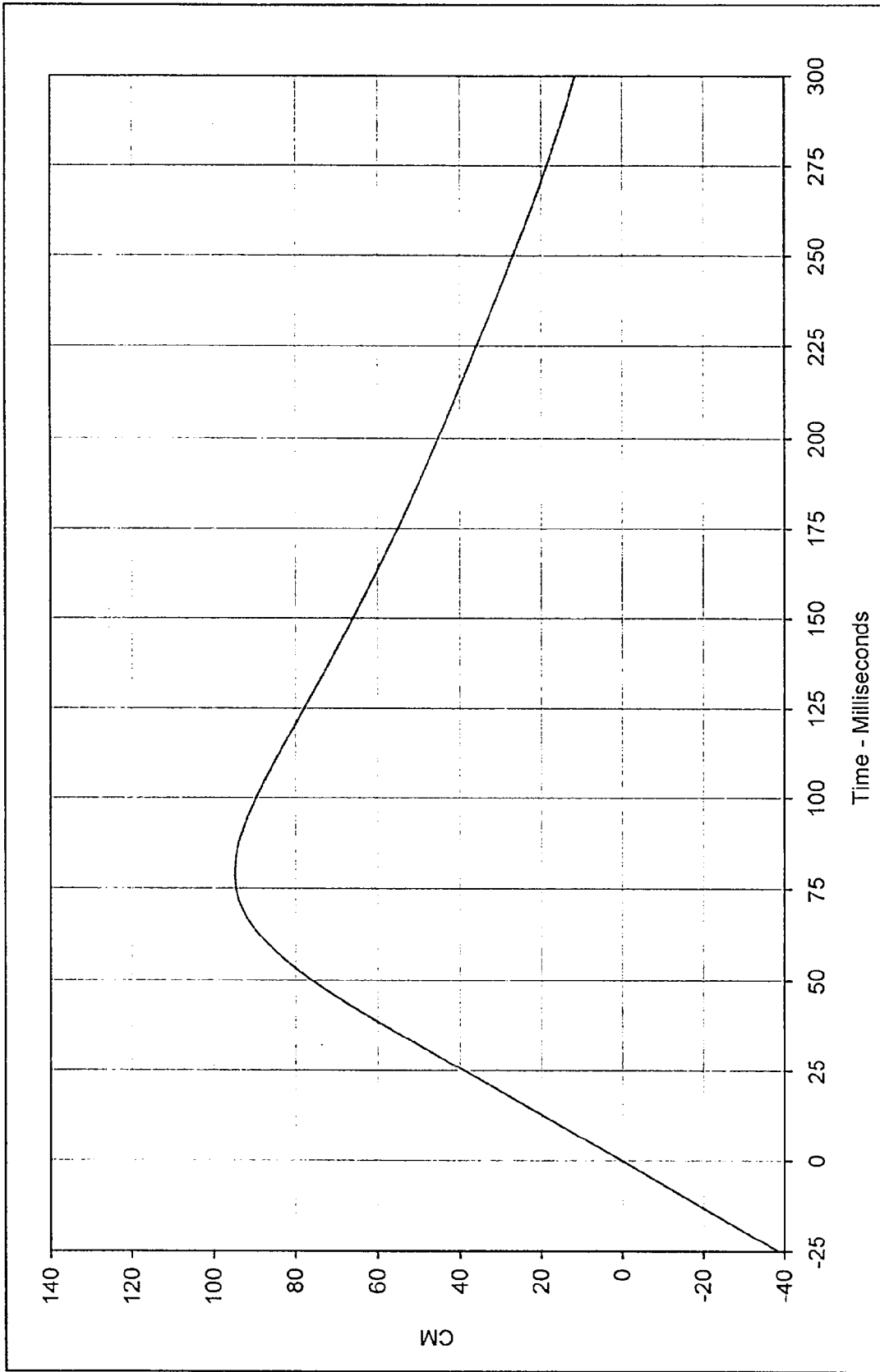
Date of Test: 5/1/97

Curve Number: IN1-060

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Kia Sephia





Curve Description: Passenger Chest Redundant X Displ.

Maximum Value: 94.9 at 79.1 Milliseconds

Minimum Value: 0.1 at 180 Milliseconds

SAE Filter Class: 180

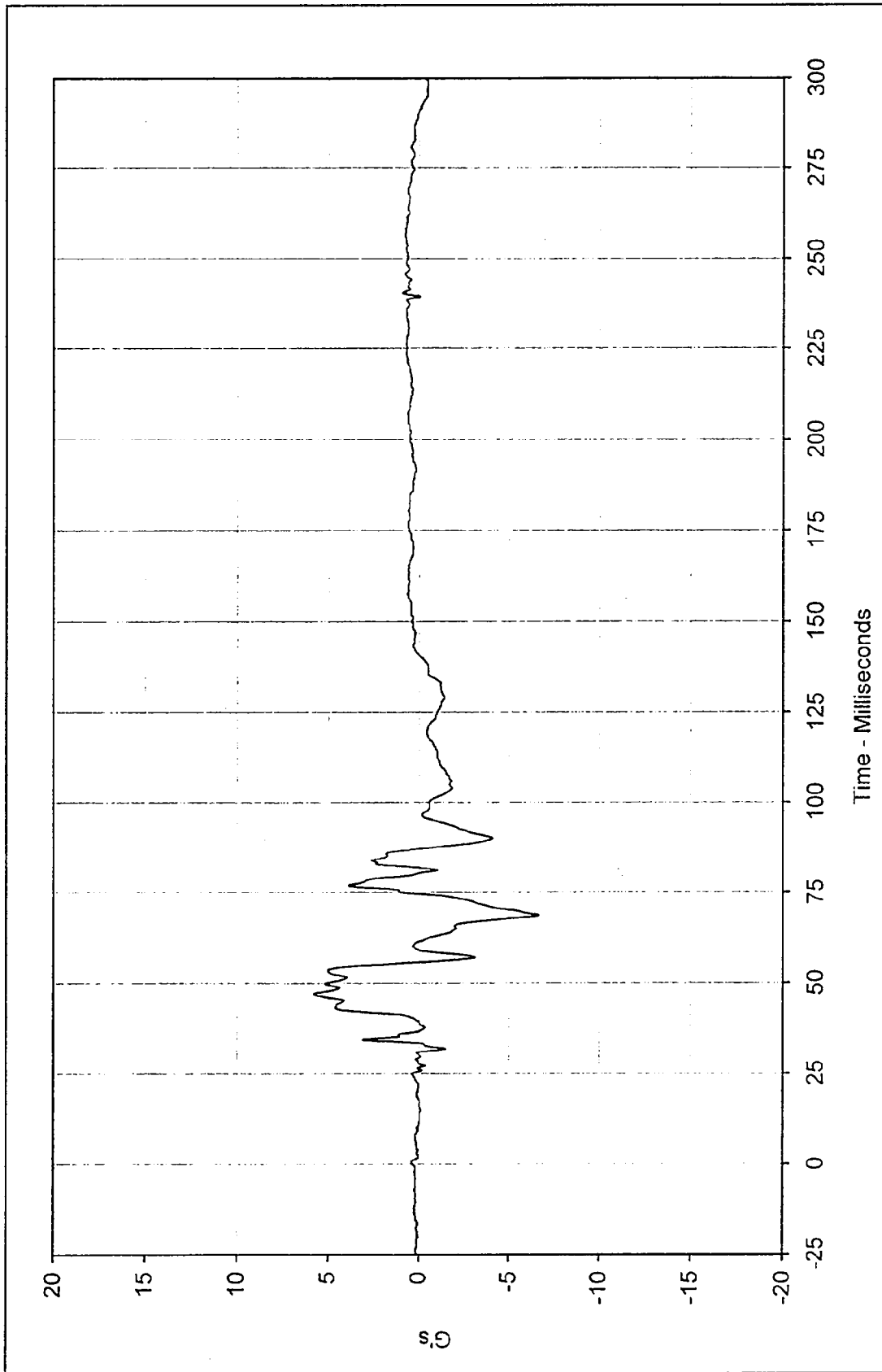
Date of Test: 5/1/97

Curve Number: IN2-060

Testing Program: 1997 New Car Assessment Program

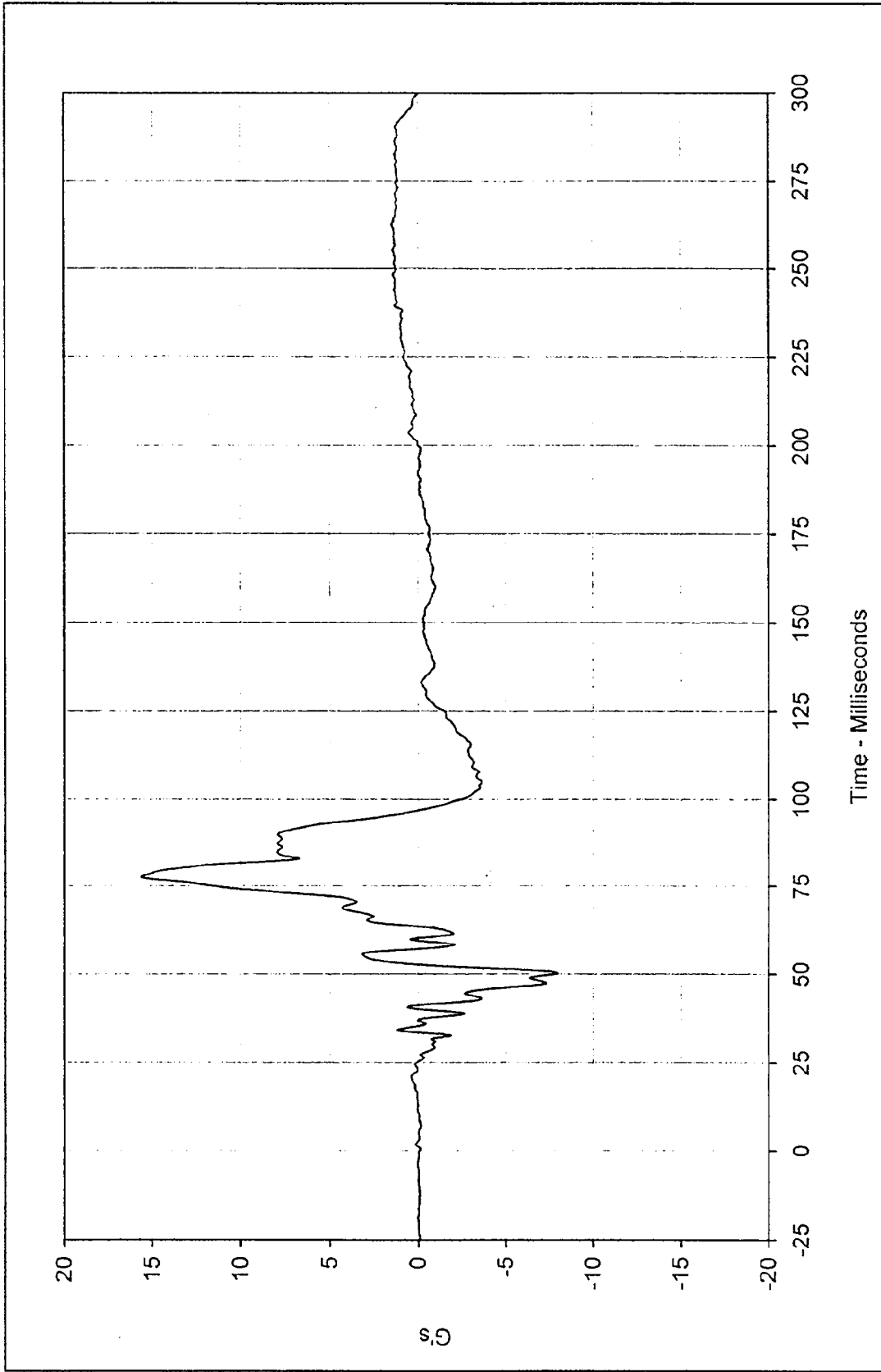
Test Vehicle: 1997 Kia Sephia





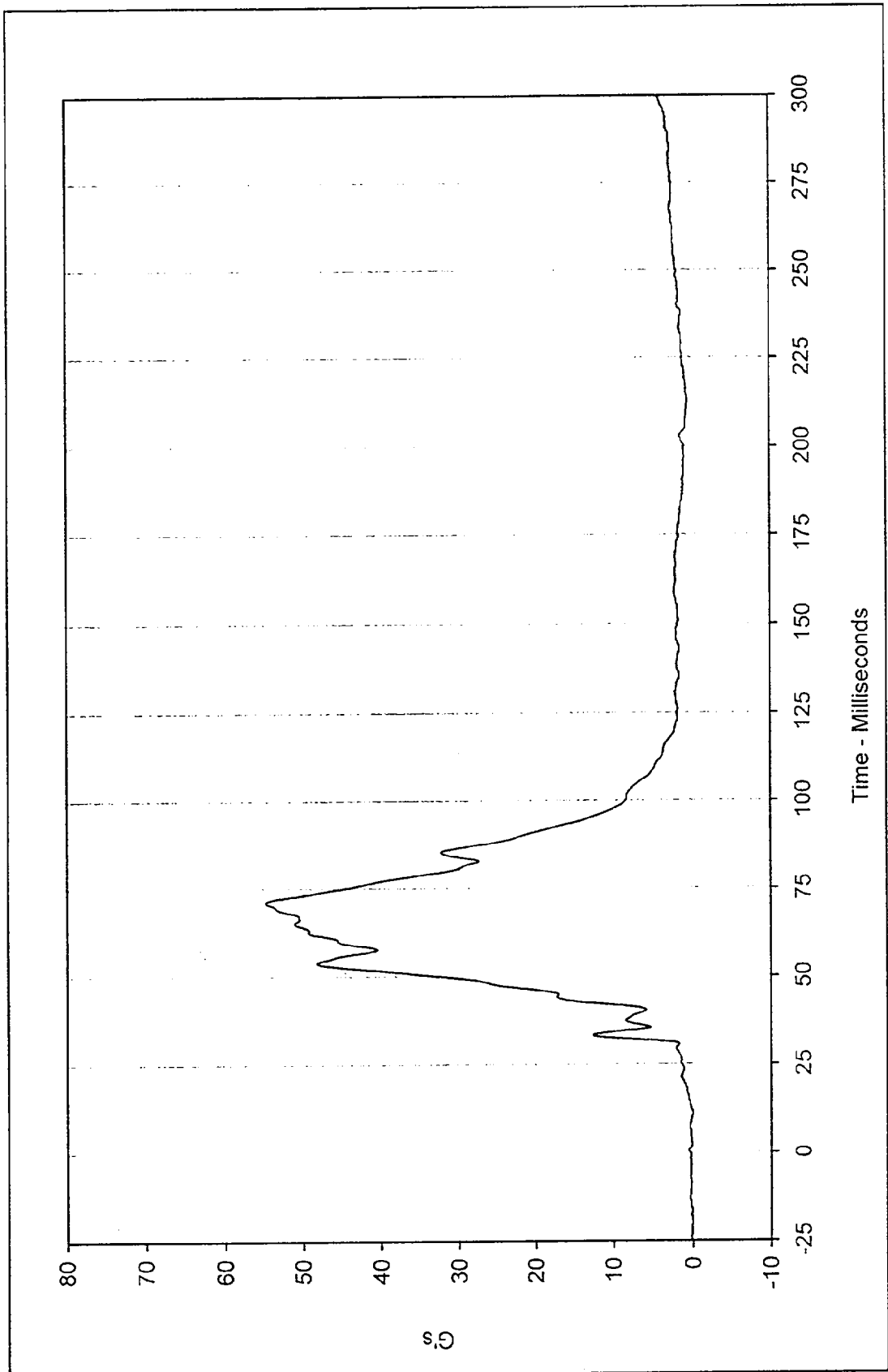
Curve Description: Passenger Chest Redundant Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 5.8 at 47.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -6.7 at 68.6 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: FIL-061





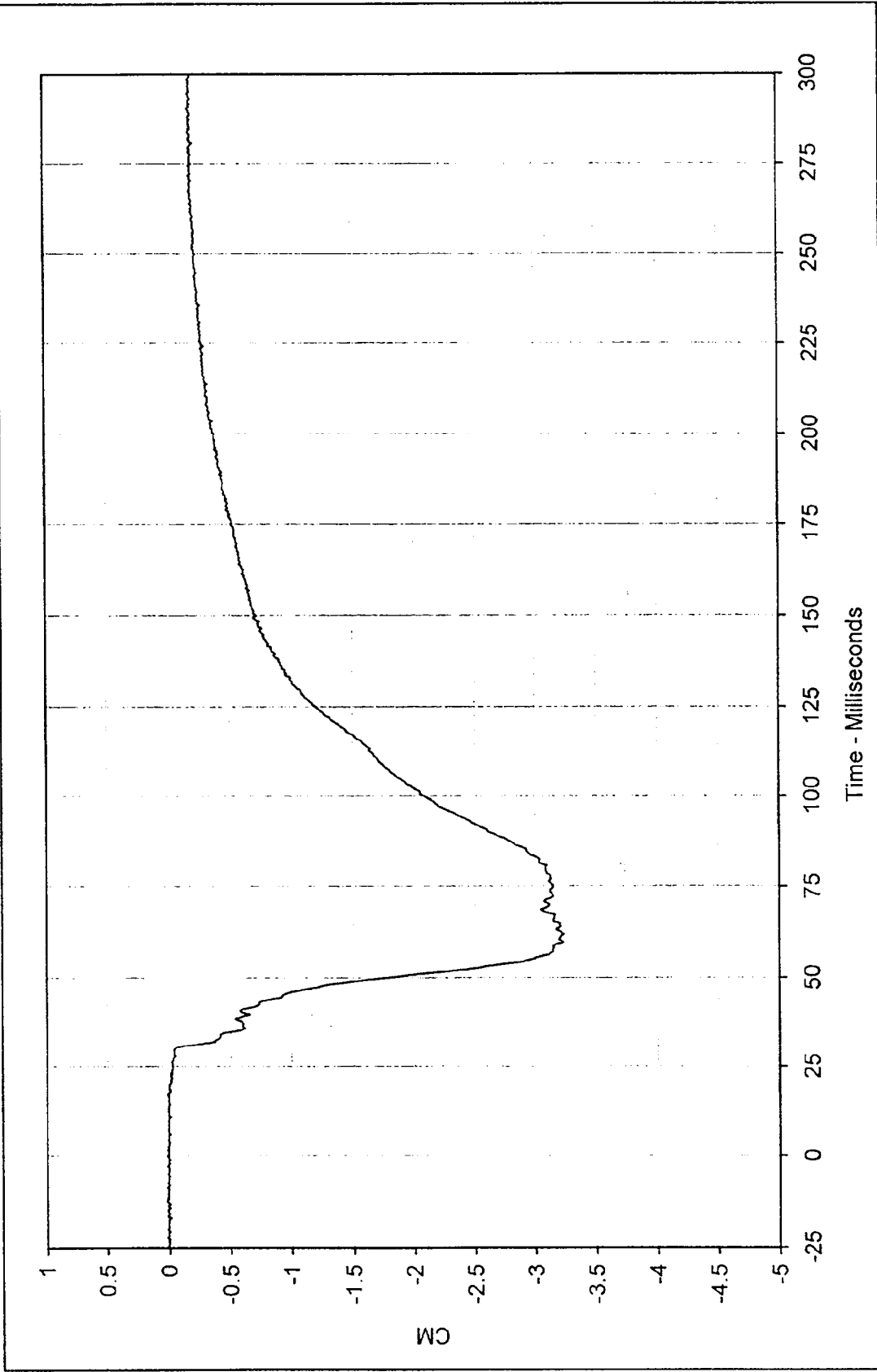
Curve Description: Passenger Chest Redundant Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 15.6 at 77.6 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -8.0 at 50.3 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: FIL-062





Curve Description: Passenger Chest Resultant Redundant Testing Program: 1997 New Car Assessment Program
 Maximum Value: 54.8 at 71.2 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 11.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: RES-060

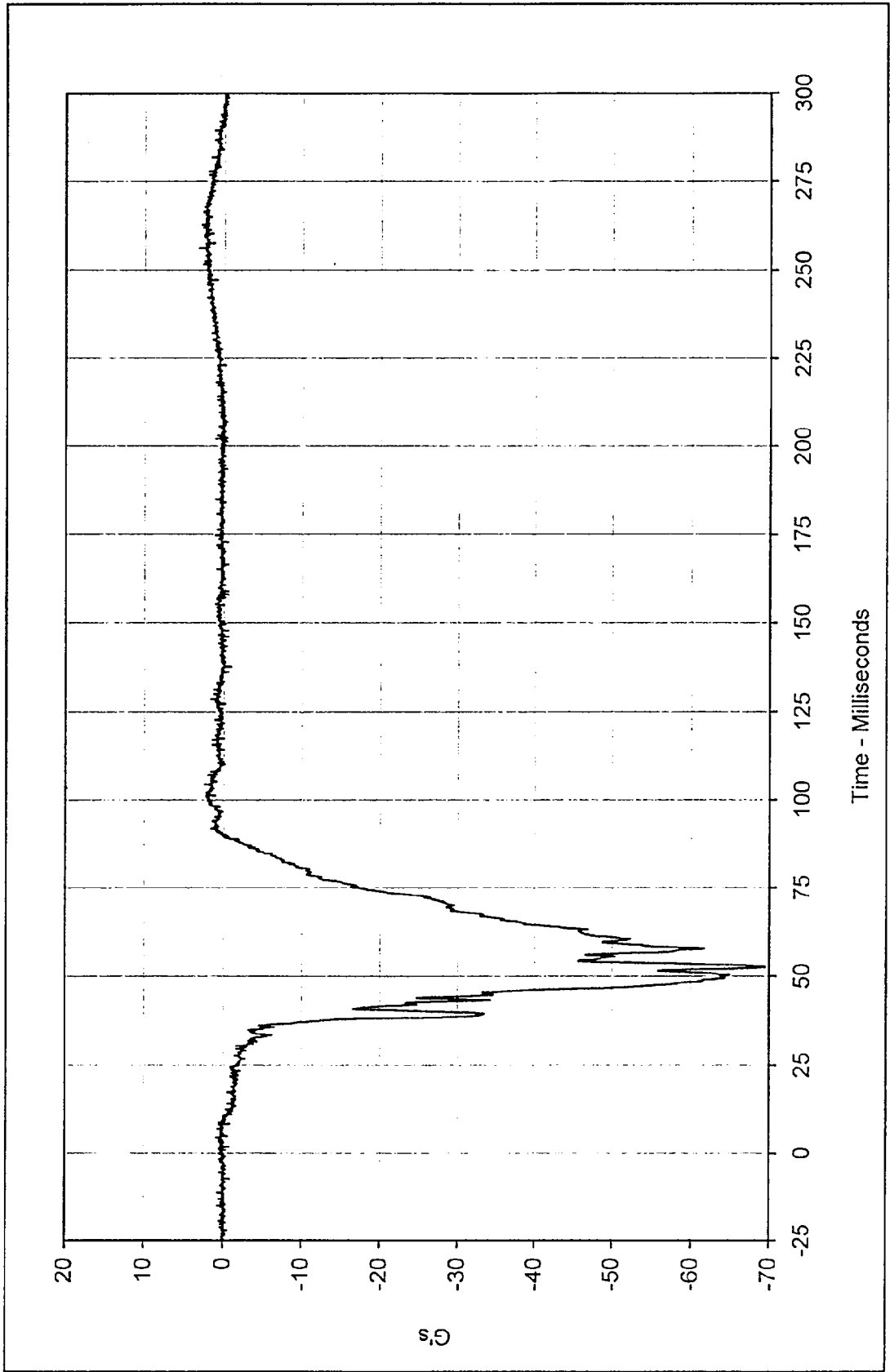




Curve Description: Passenger Chest Displacement X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 0.02 at 17.3 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -3.23 at 62.0 Milliseconds



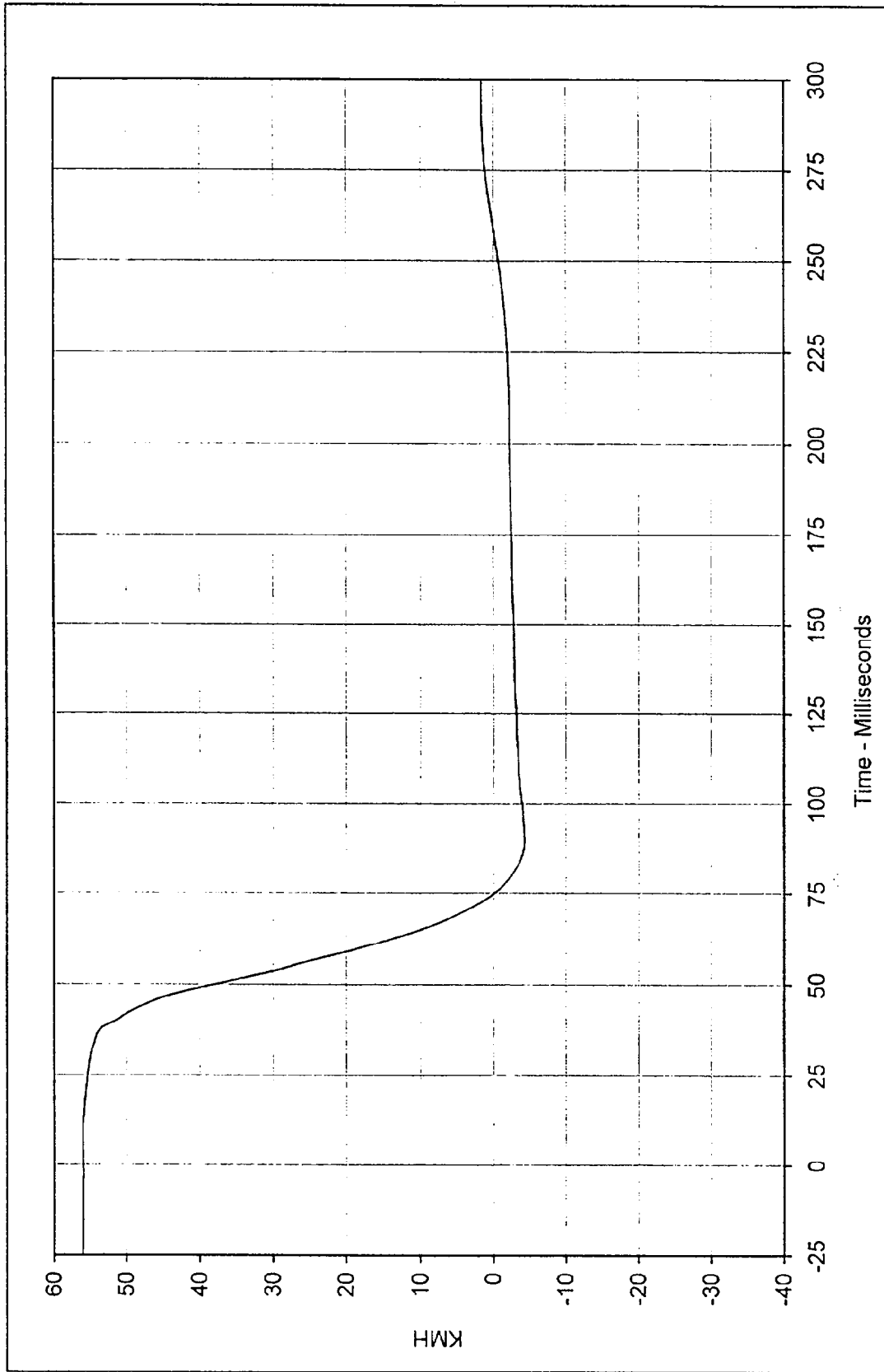
SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-063



Curve Description: Passenger Pelvis X
 Maximum Value: 3.2 at 256.2 Milliseconds
 Minimum Value: -69.5 at 52.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-064

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia

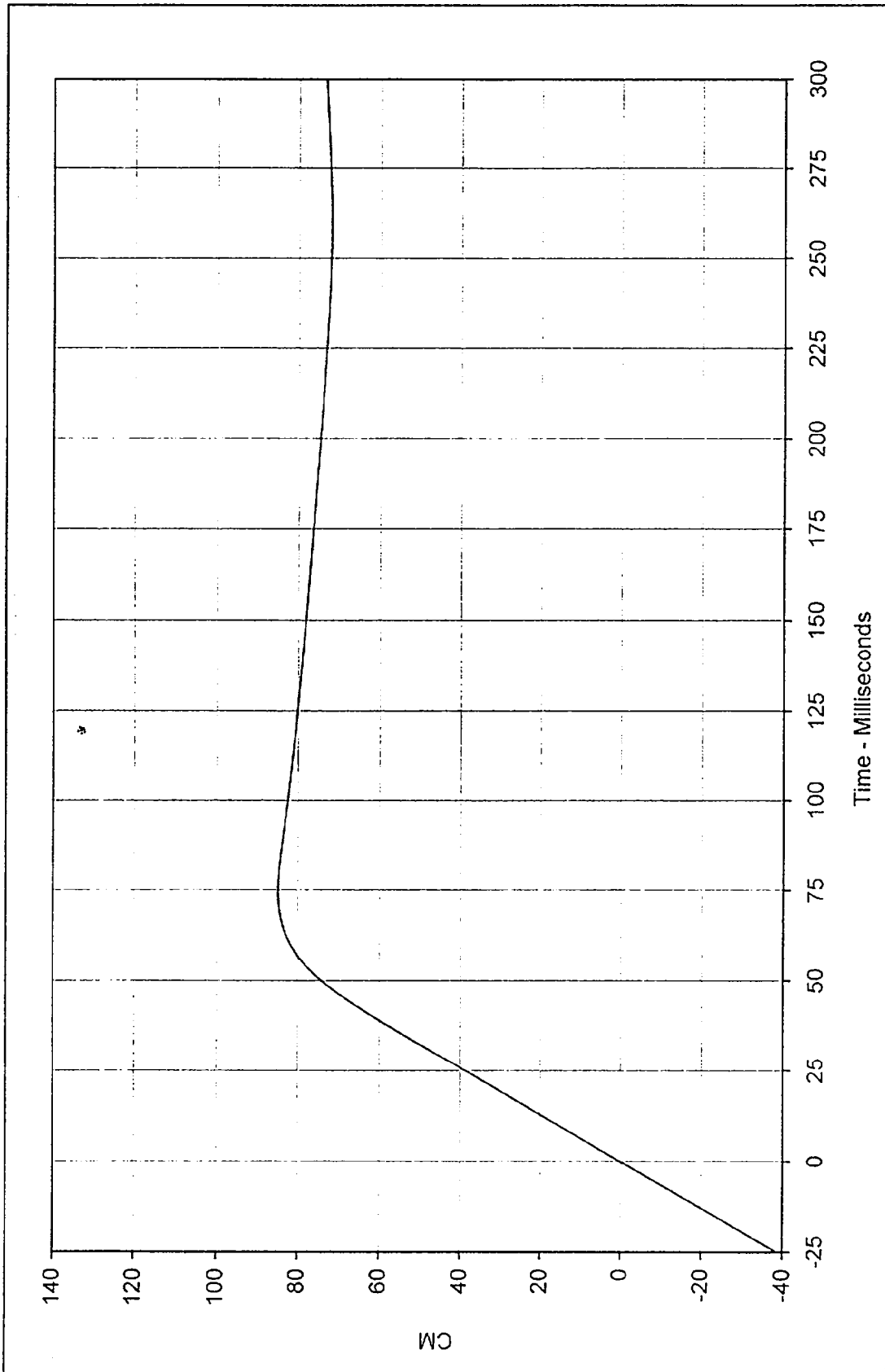




Curve Description: Passenger Pelvis X Velocity Testing Program: 1997 New Car Assessment Program
 Maximum Value: 56.0 at 9.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -4.3 at 89.8 Milliseconds

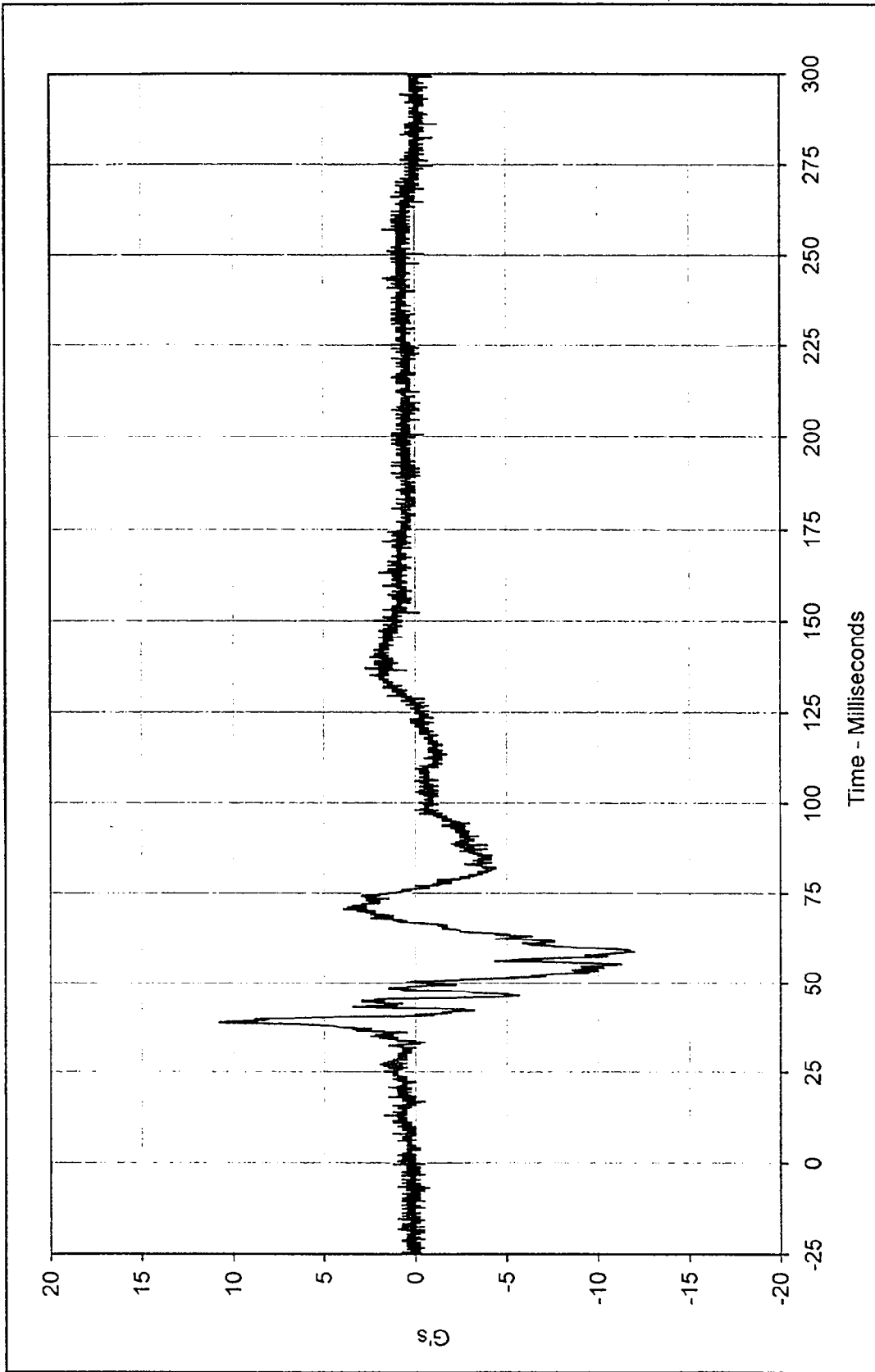


SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN1-064



Curve Description: Passenger Pelvis X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 84.9 at 74.8 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-064

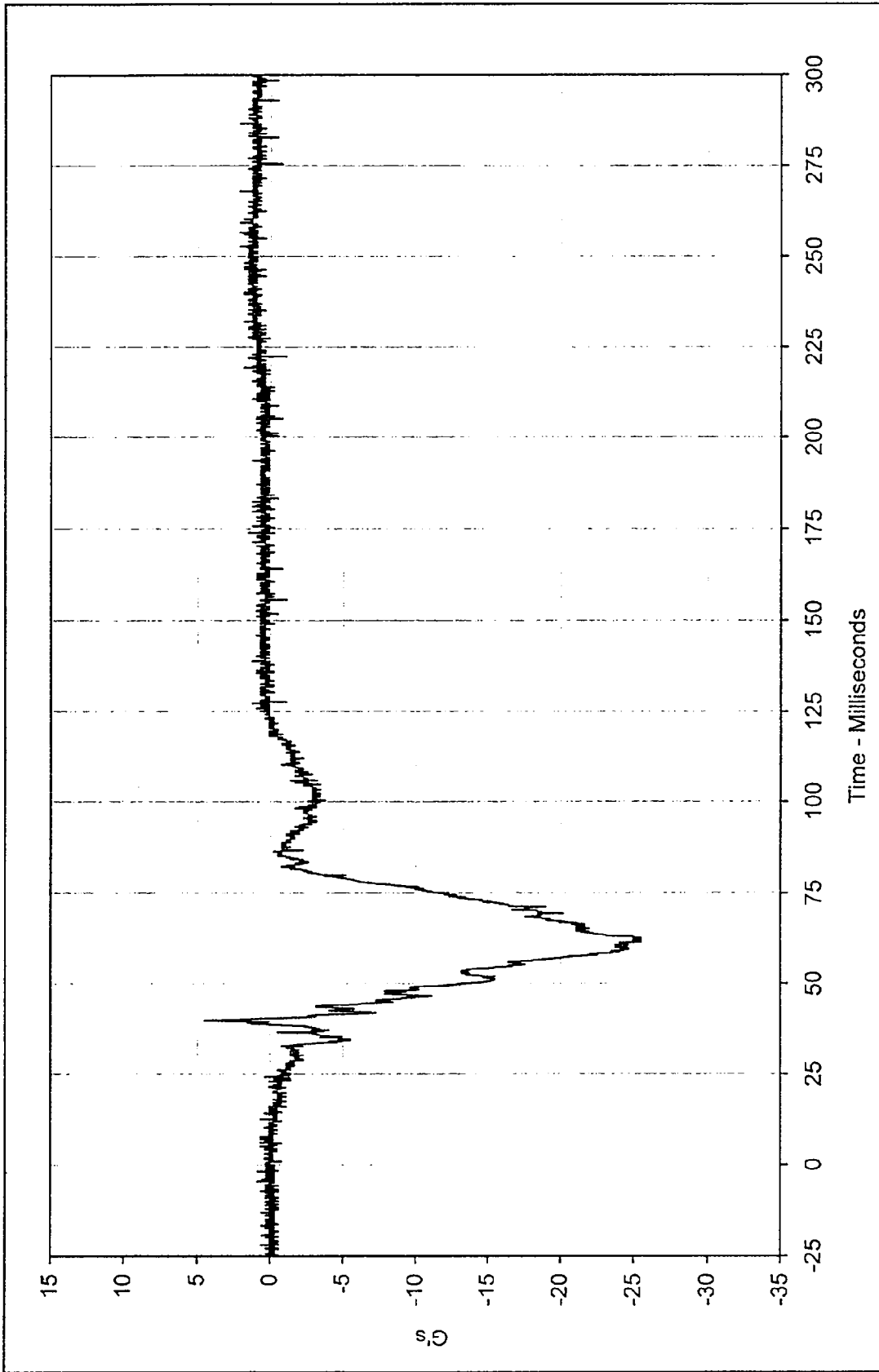




Curve Description: Passenger Pelvis Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 10.8 at 38.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -12.0 at 58.7 Milliseconds

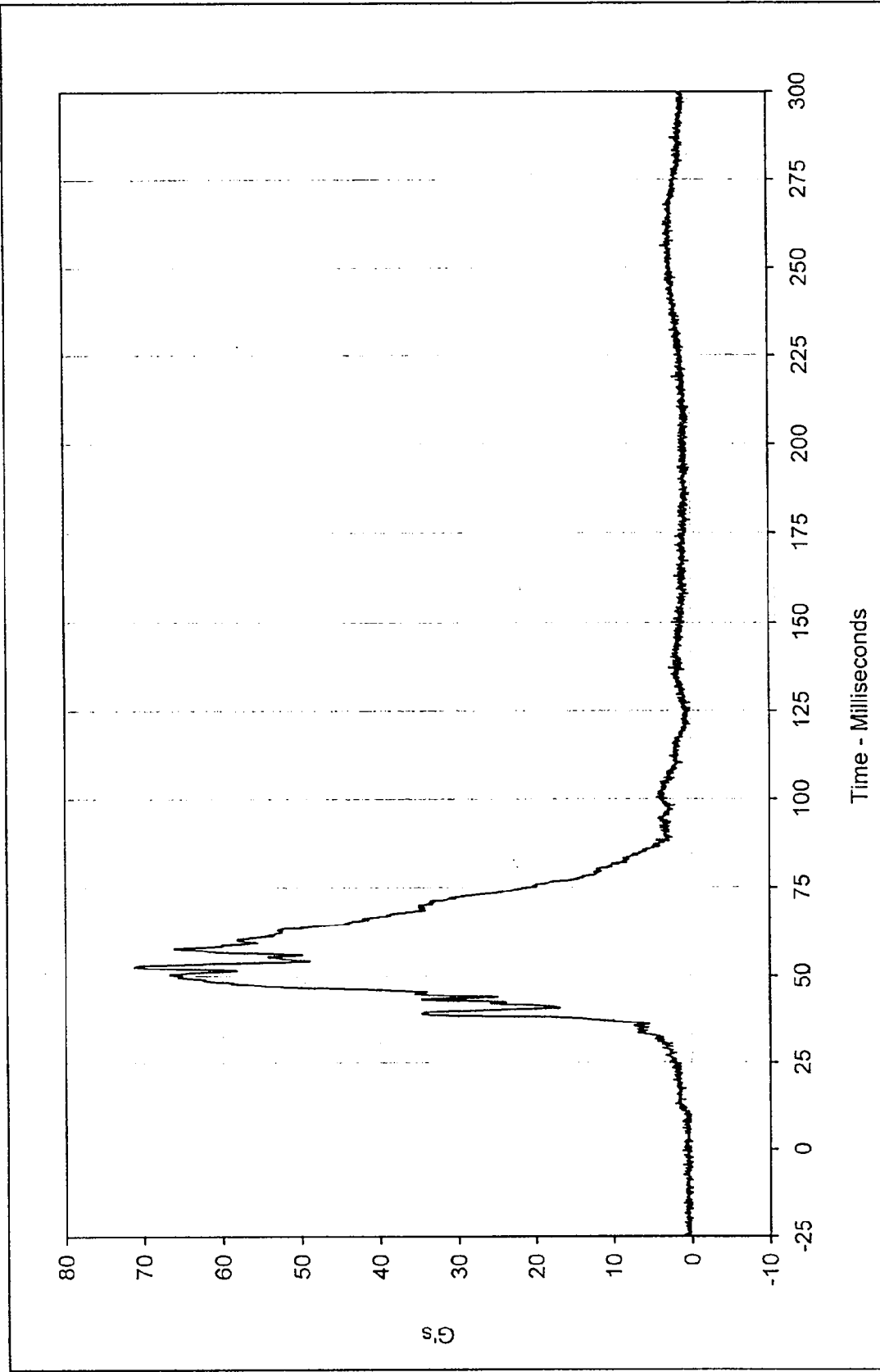


SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-065



Curve Description: Passenger Pelvis Z
 Testing Program: 1997 New Car Assessment Program
 Maximum Value: 4.5 at 39.9 Milliseconds
 Test Vehicle: 1997 Kia Sephia
 Minimum Value: -25.5 at 61.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-066



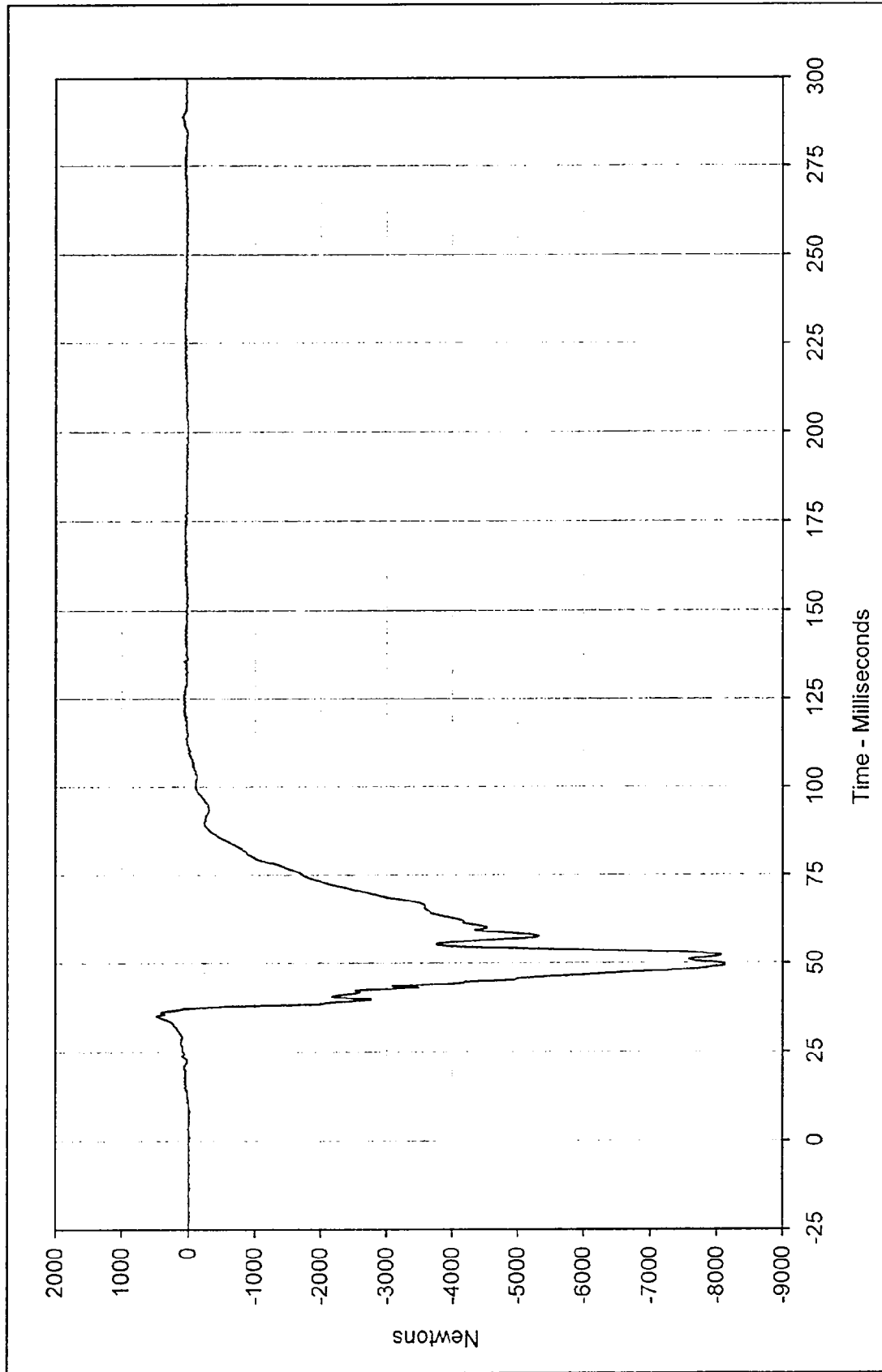


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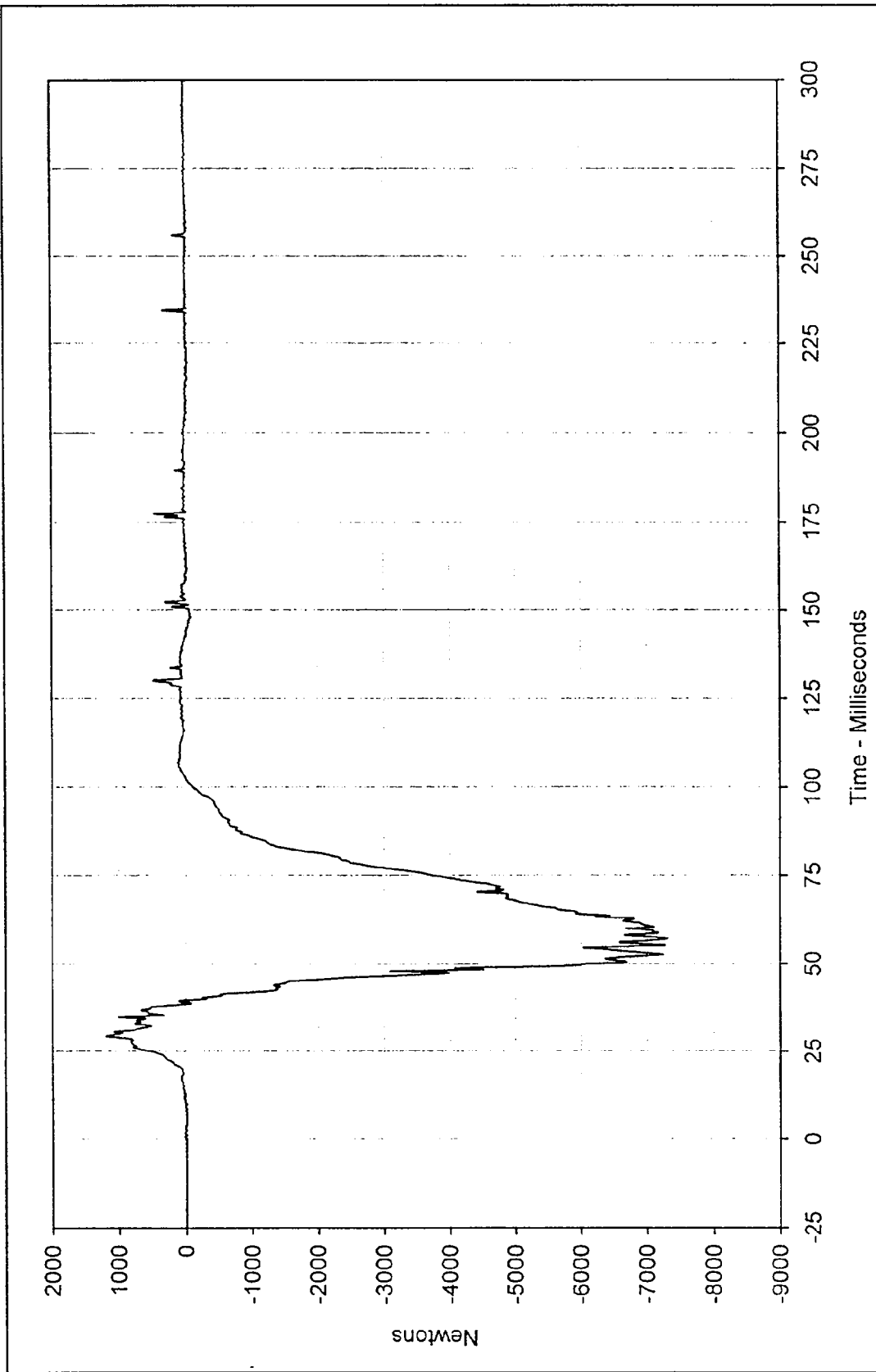
Curve Description:	Passenger Pelvis Resultant	Testing Program:	1997 New Car Assessment Program
Maximum Value:	71.2 at 52.5 Milliseconds	Test Vehicle:	1997 Kia Sephia
Minimum Value:	0.1 at 2.2 Milliseconds		
SAE Filter Class:	1000		
Date of Test:	5/1/97		
Curve Number:	RES-064		





Curve Description: Passenger Left Femur Force Testing Program: 1997 New Car Assessment Program
 Maximum Value: 477.8 at 35.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -8127.7 at 49.4 Milliseconds
 SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-067

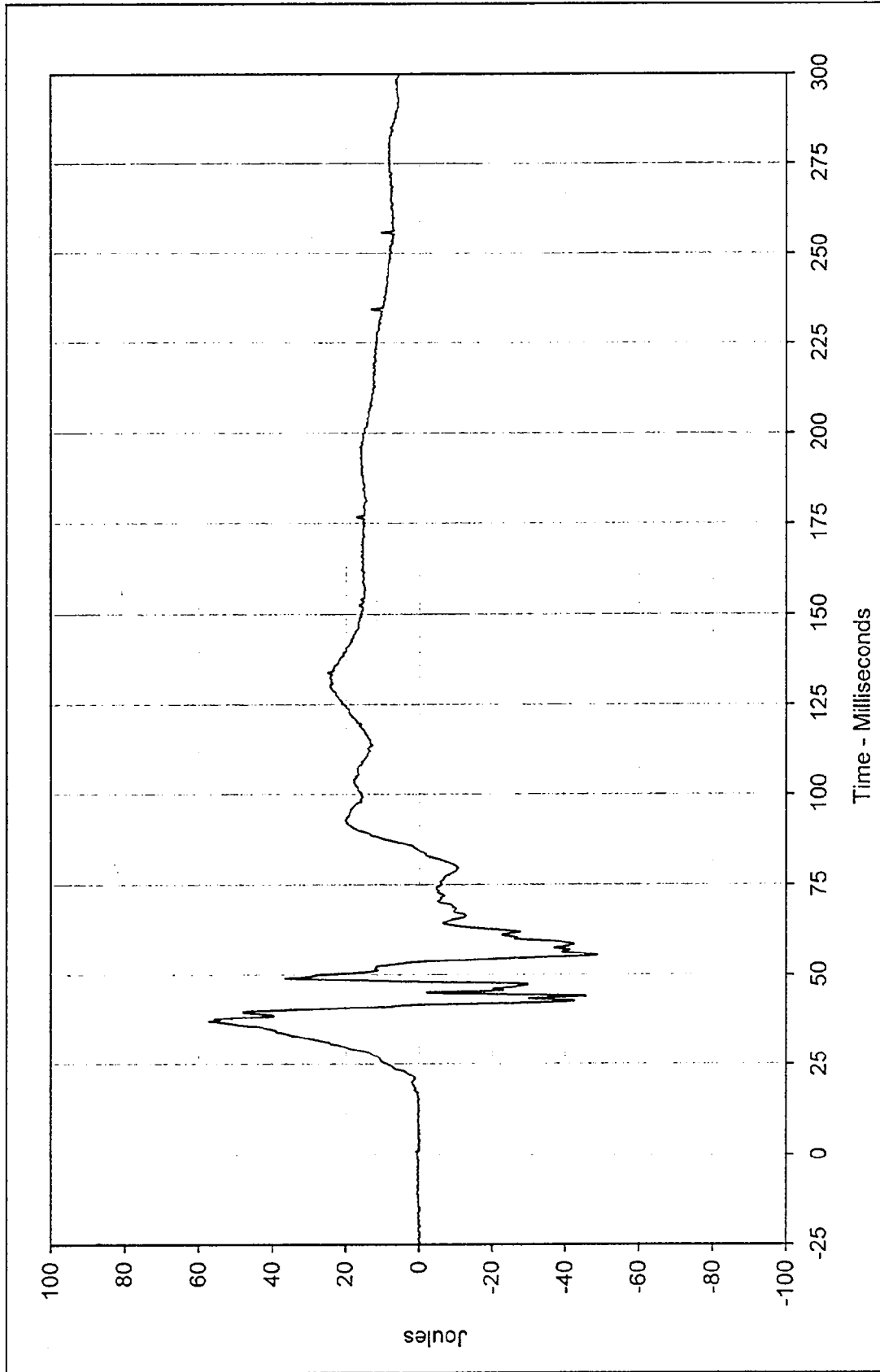




Curve Description: Passenger Right Femur Force Testing Program: 1997 New Car Assessment Program
 Maximum Value: 1192.1 at 29.2 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -7302.4 at 57.1 Milliseconds

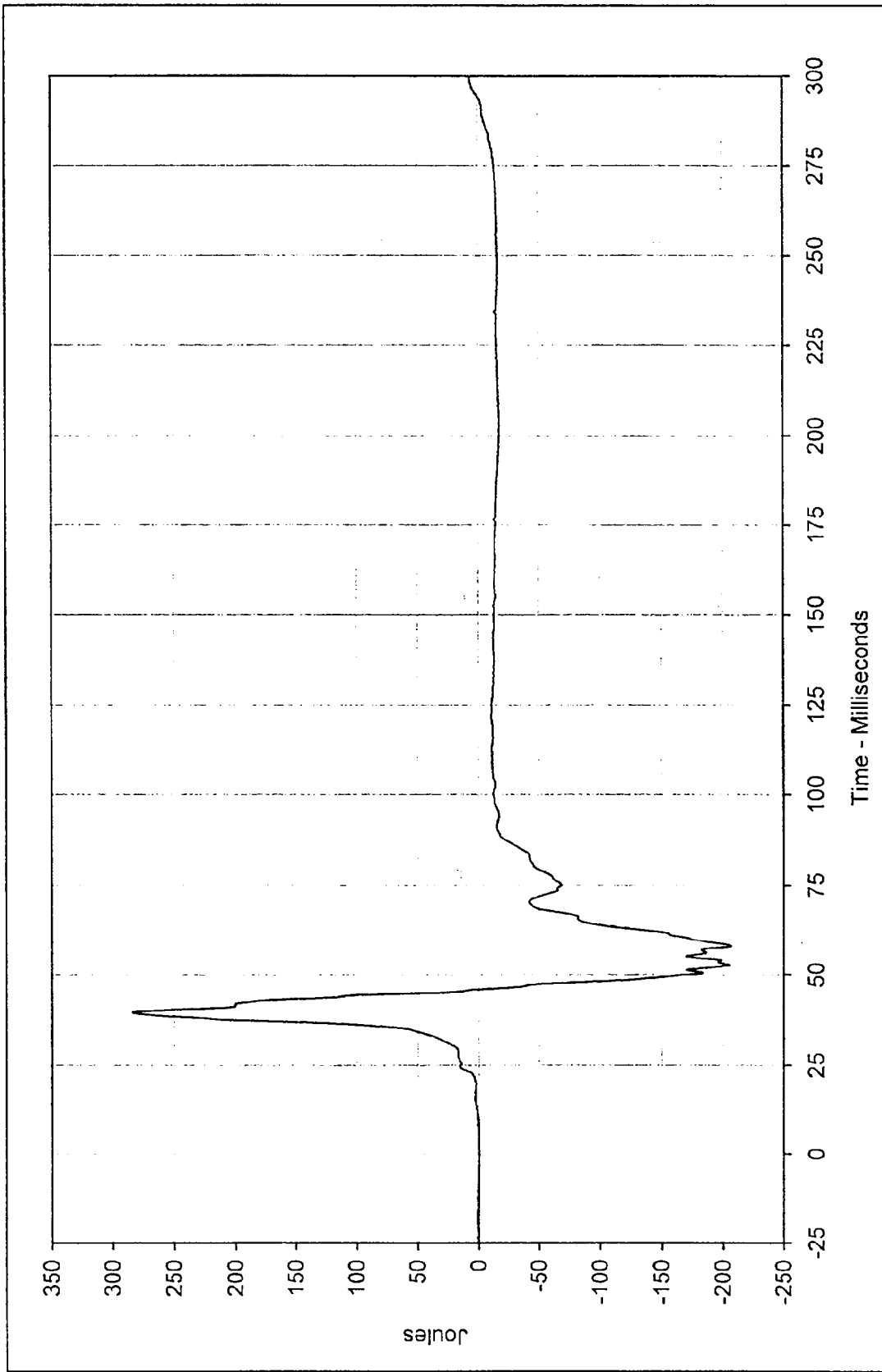


SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-068



Curve Description: Passenger Left Upper Tibia Moment X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 57.2 at 37.0 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -48.7 at 55.5 Milliseconds
 SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-069





Curve Description: Passenger Left Upper Tibia Moment Y Testing Program: 1997 New Car Assessment Program

Maximum Value: 284.4 at 39.7 Milliseconds Test Vehicle: 1997 Kia Sephia

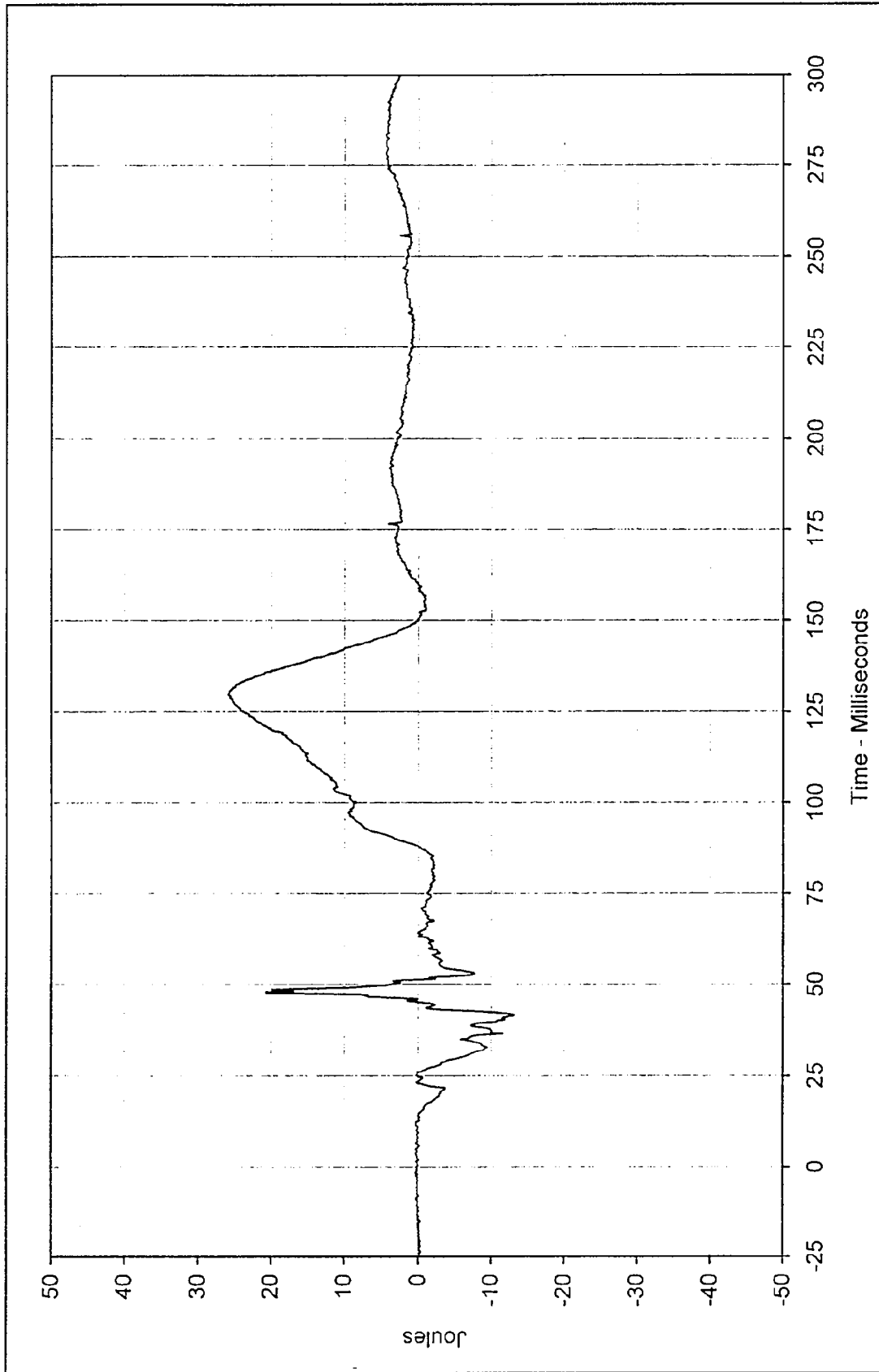
Minimum Value: -207.0 at 58.0 Milliseconds

SAE Filter Class: 600

Date of Test: 5/1/97

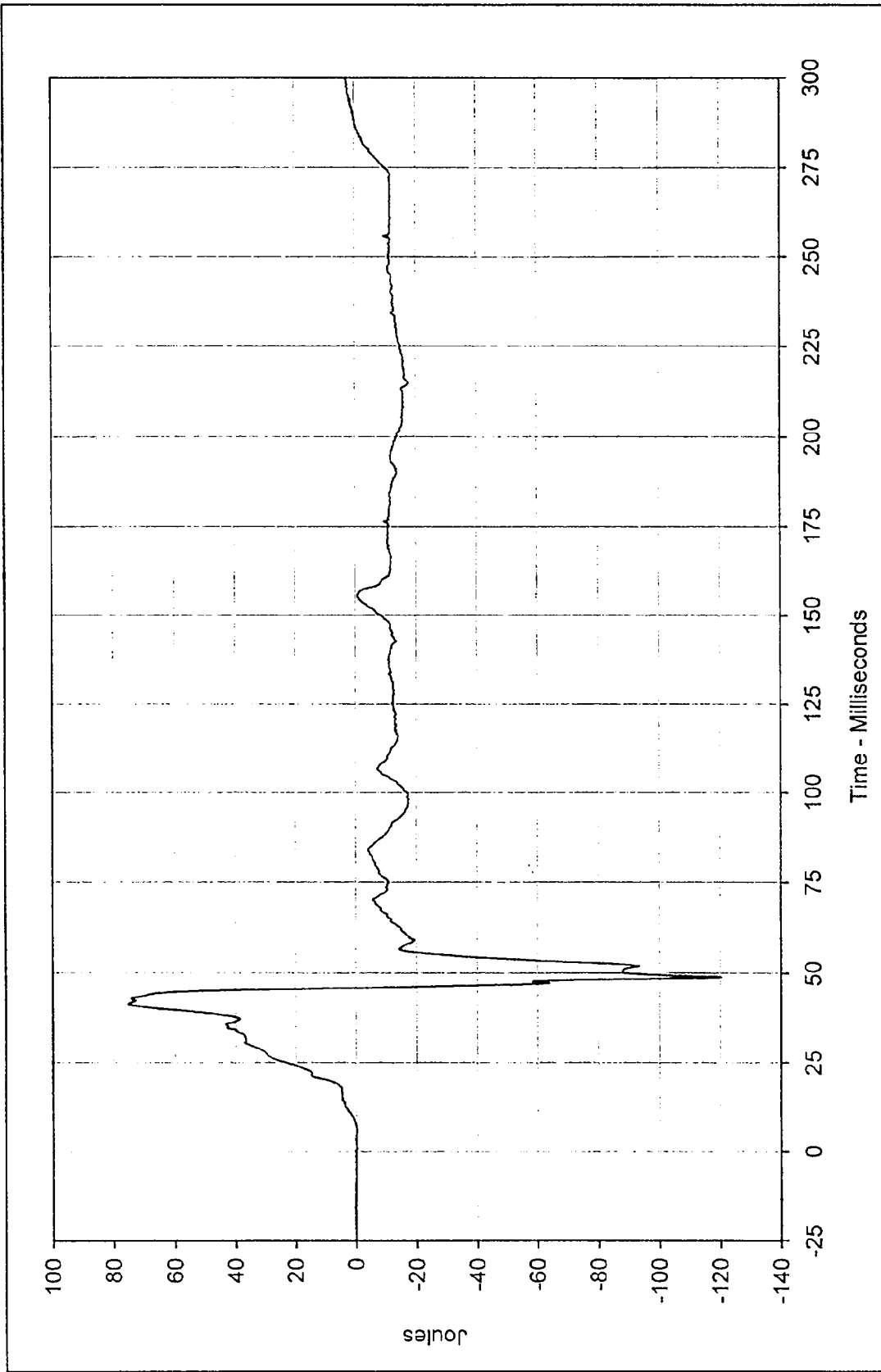
Curve Number: FIL-070





Curve Description: Passenger Right Upper Tibia Moment X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 25.9 at 129.8 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -13.1 at 41.7 Milliseconds
 SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-071





Curve Description: Passenger Right Upper Tibia Moment Y

Maximum Value: 75.3 at 41.5 Milliseconds

Minimum Value: -120.4 at 48.9 Milliseconds

SAE Filter Class: 600

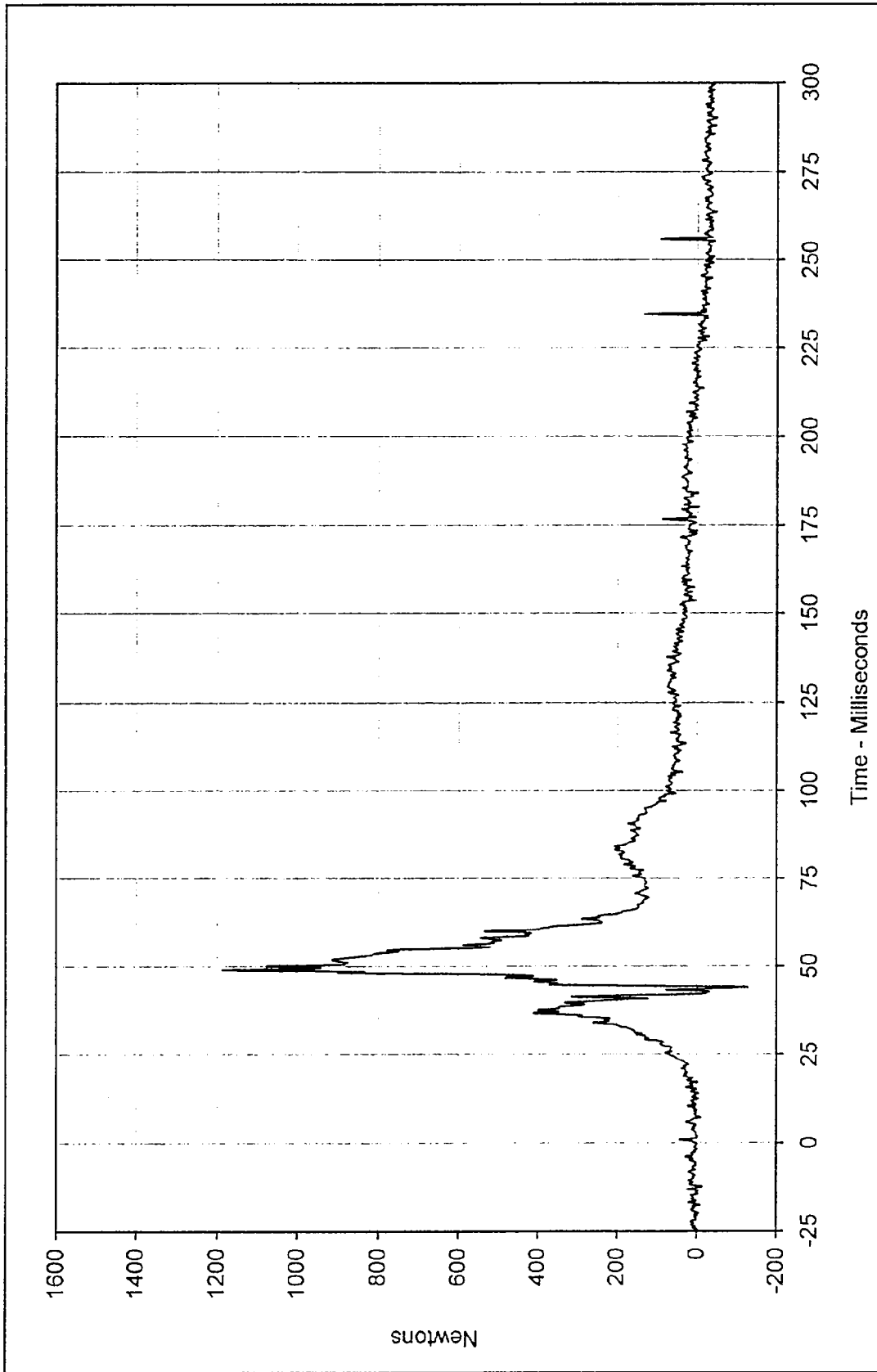
Date of Test: 5/1/97

Curve Number: FIL-072

Testing Program: 1997 New Car Assessment Program

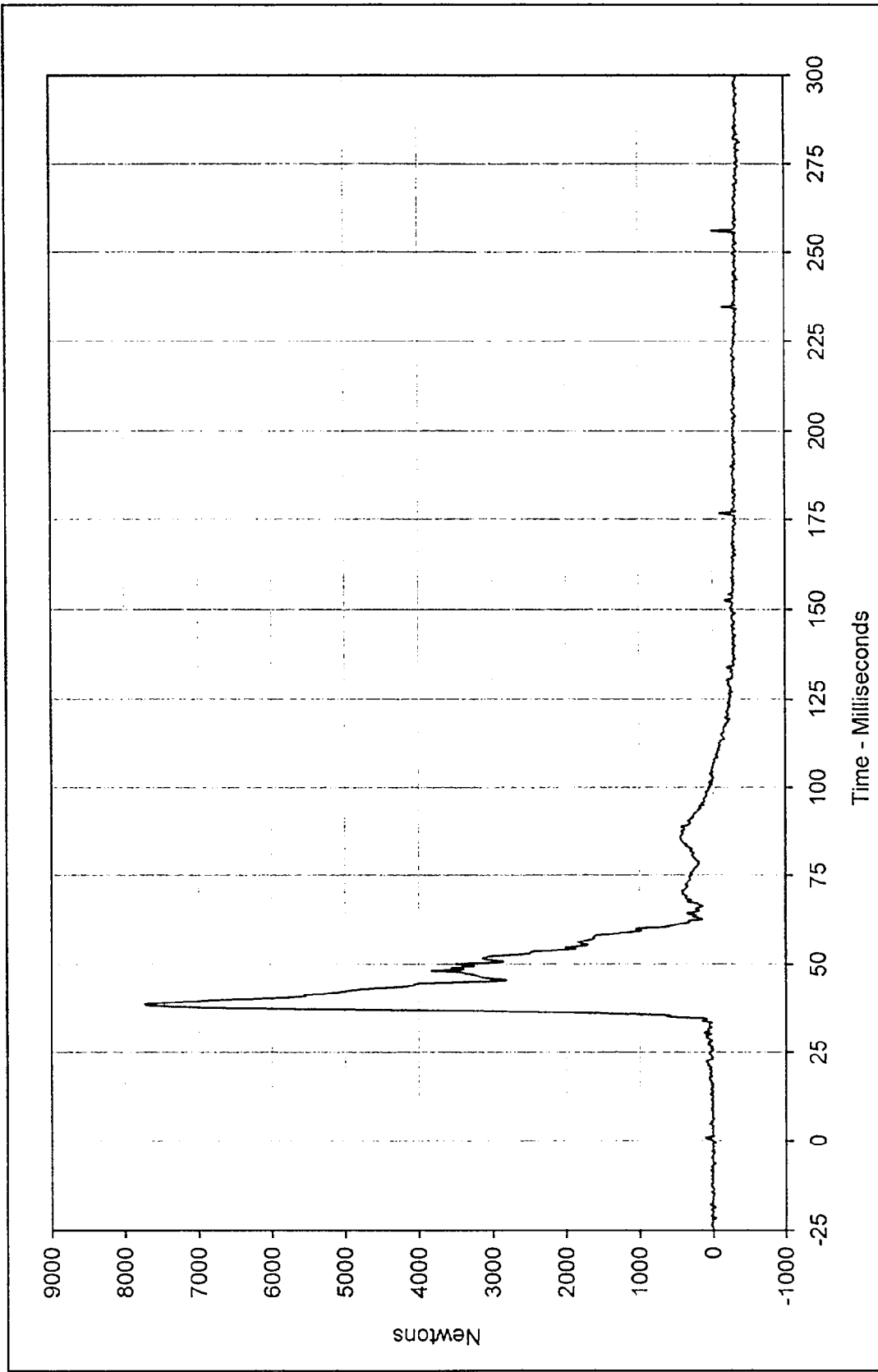
Test Vehicle: 1997 Kia Sephia





Curve Description: Passenger Left Lower Tibia Force Y Testing Program: 1997 New Car Assessment Program
 Maximum Value: 1186.3 at 49.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -127.4 at 44.1 Milliseconds
 SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-073





Curve Description: Passenger Left Lower Tibia Force Z Testing Program: 1997 New Car Assessment Program

Maximum Value: 7725.1 at 38.8 Milliseconds Test Vehicle: 1997 Kia Sephia

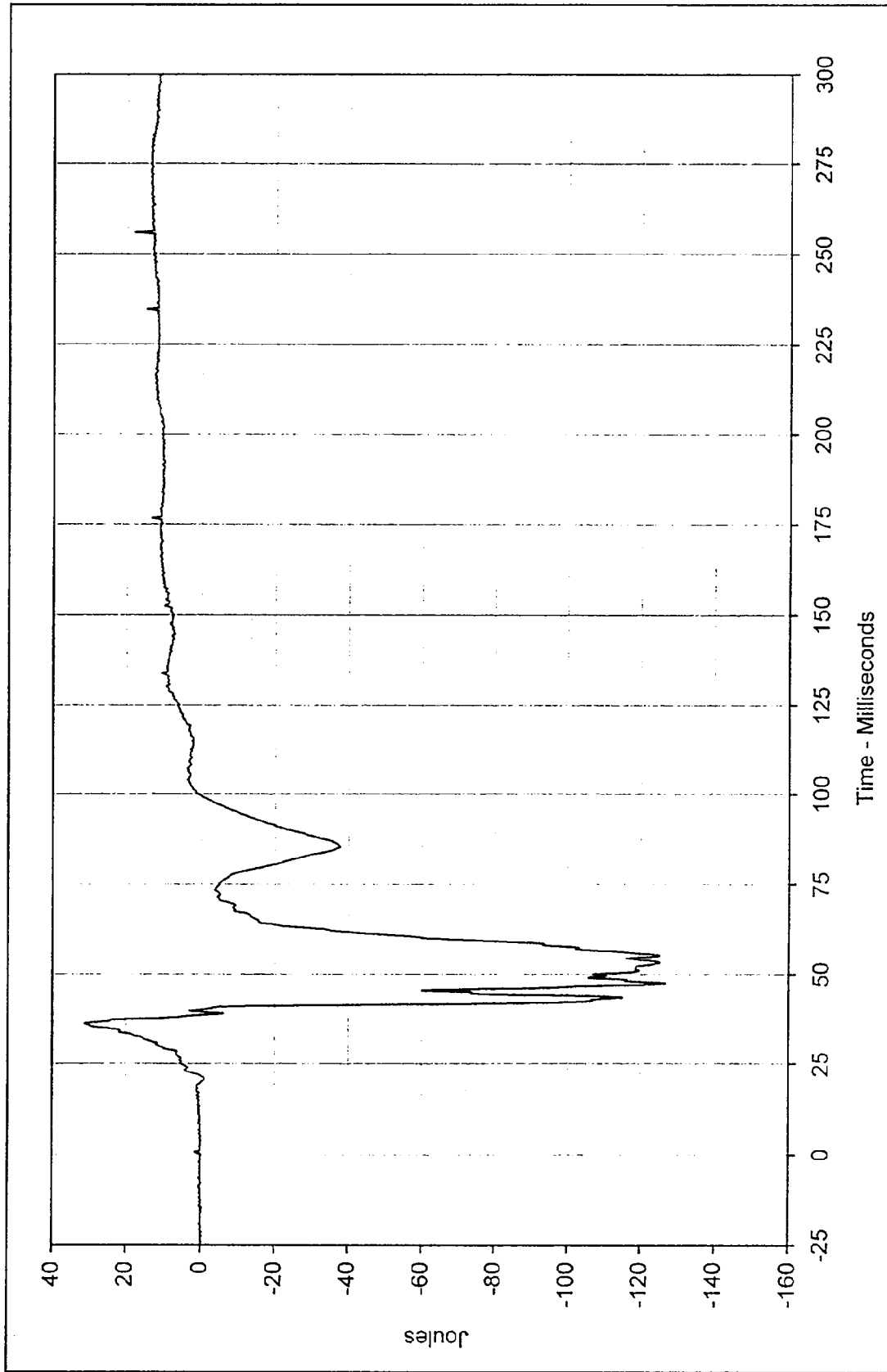
Minimum Value: -402.7 at 281.1 Milliseconds

SAE Filter Class: 600

Date of Test: 5/1/97

Curve Number: FIL-074





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Curve Description: Passenger Left Lower Tibia Moment X

Testing Program: 1997 New Car Assessment Program

Maximum Value: 31.0 at 36.5 Milliseconds

Test Vehicle: 1997 Kia Sephia

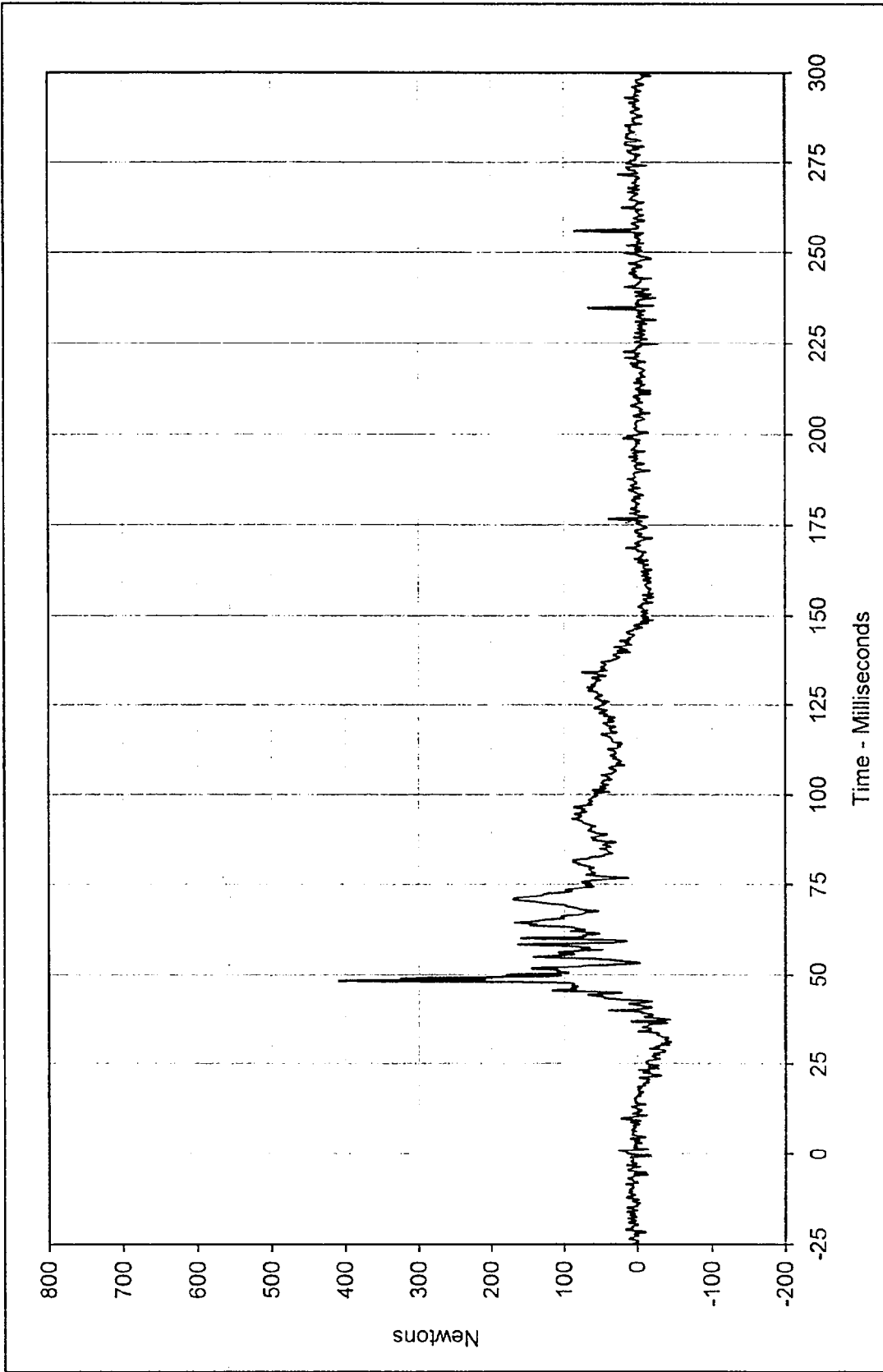
Minimum Value: -126.7 at 47.6 Milliseconds

SAE Filter Class: 600

Date of Test: 5/1/97

Curve Number: FIL-075





Curve Description: Passenger Right Lower Tibia Force Y Testing Program: 1997 New Car Assessment Program

Maximum Value: 408.7 at 48.2 Milliseconds Test Vehicle: 1997 Kia Sephia

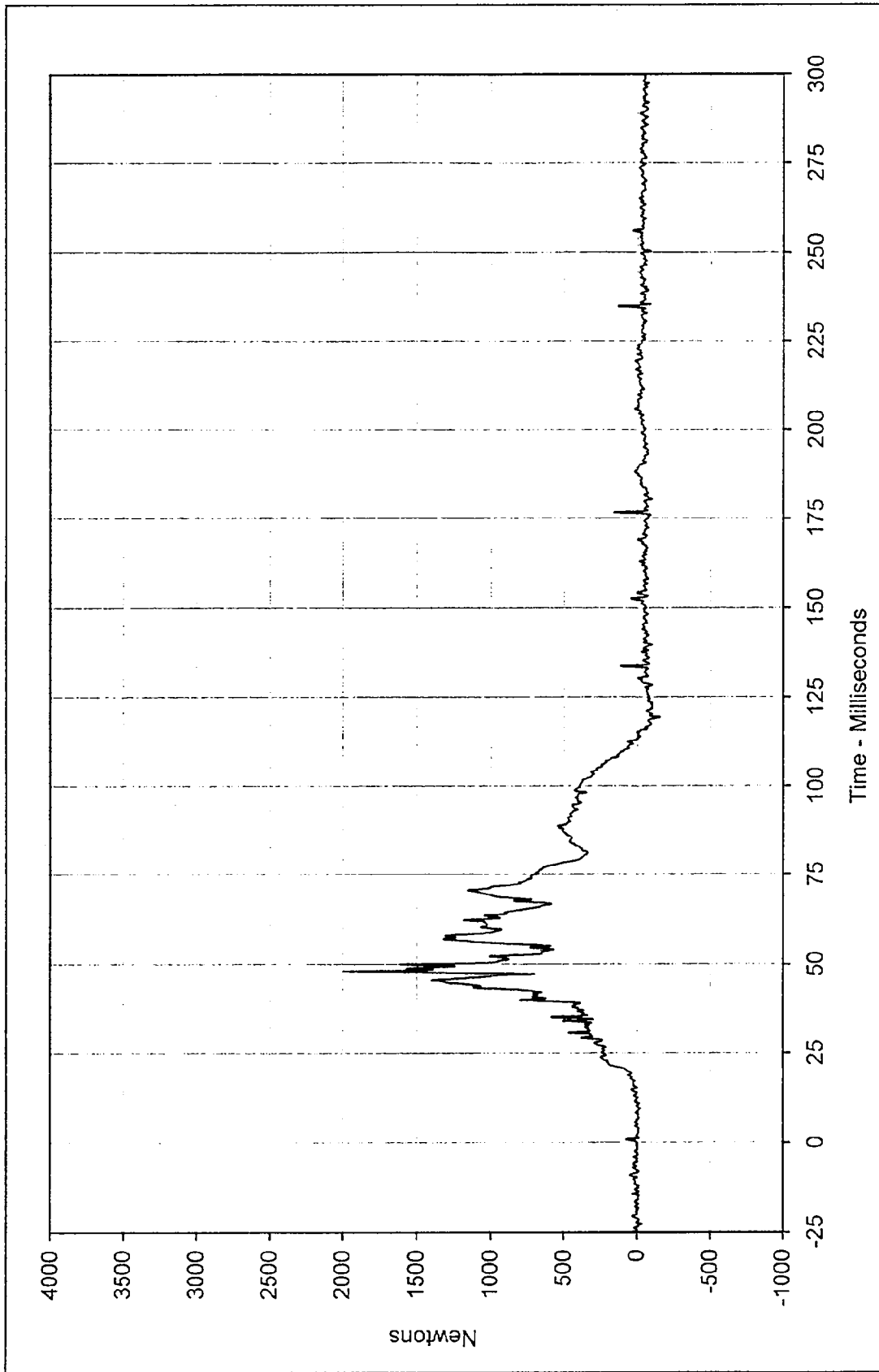
Minimum Value: -45.9 at 31.2 Milliseconds

SAE Filter Class: 600

Date of Test: 5/1/97

Curve Number: FIL-076



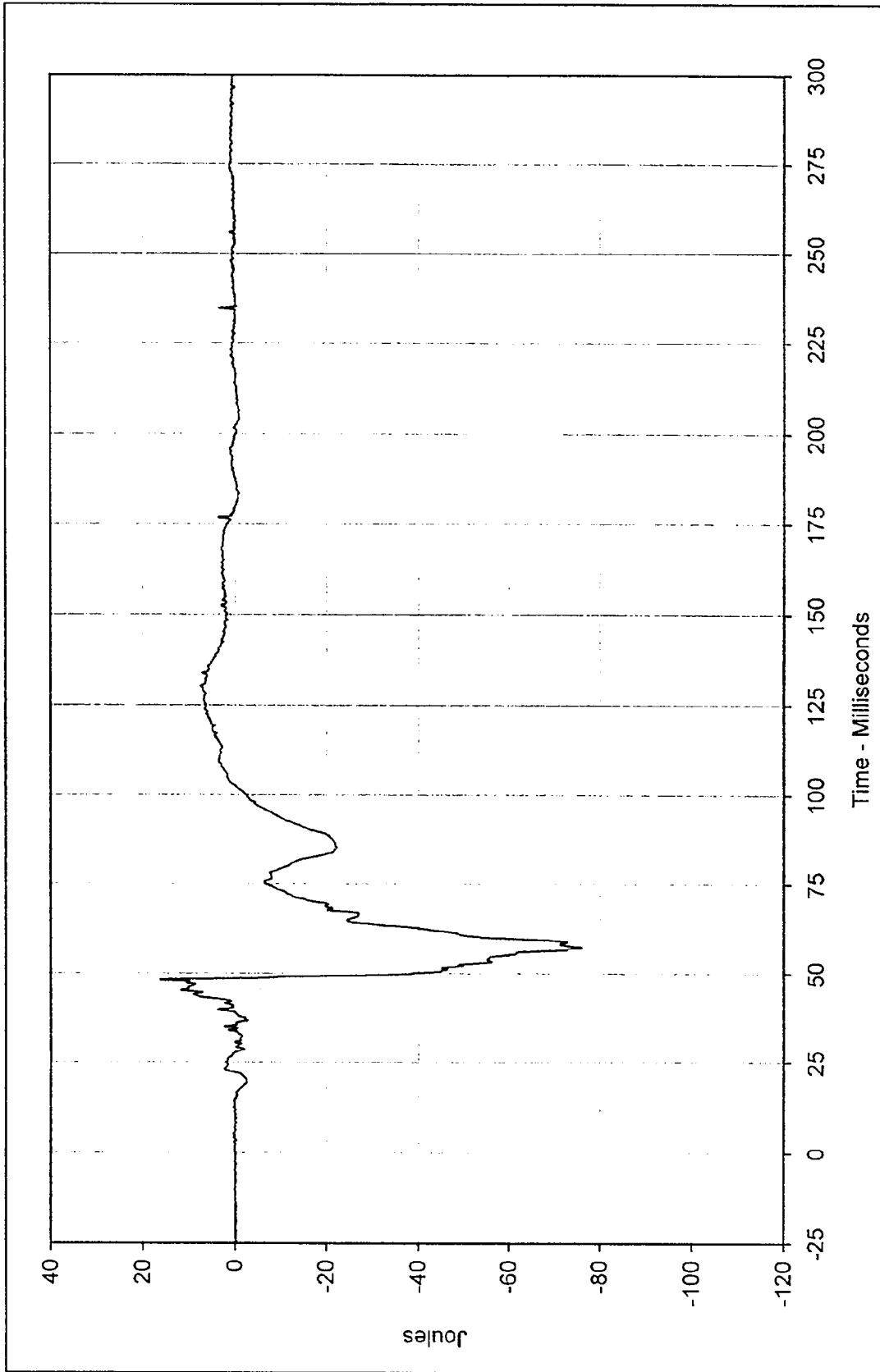


Curve Description: Passenger Right Lower Tibia Force Z Testing Program: 1997 New Car Assessment Program
 Maximum Value: 1991.4 at 48.2 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -154.8 at 119.5 Milliseconds
 SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-077



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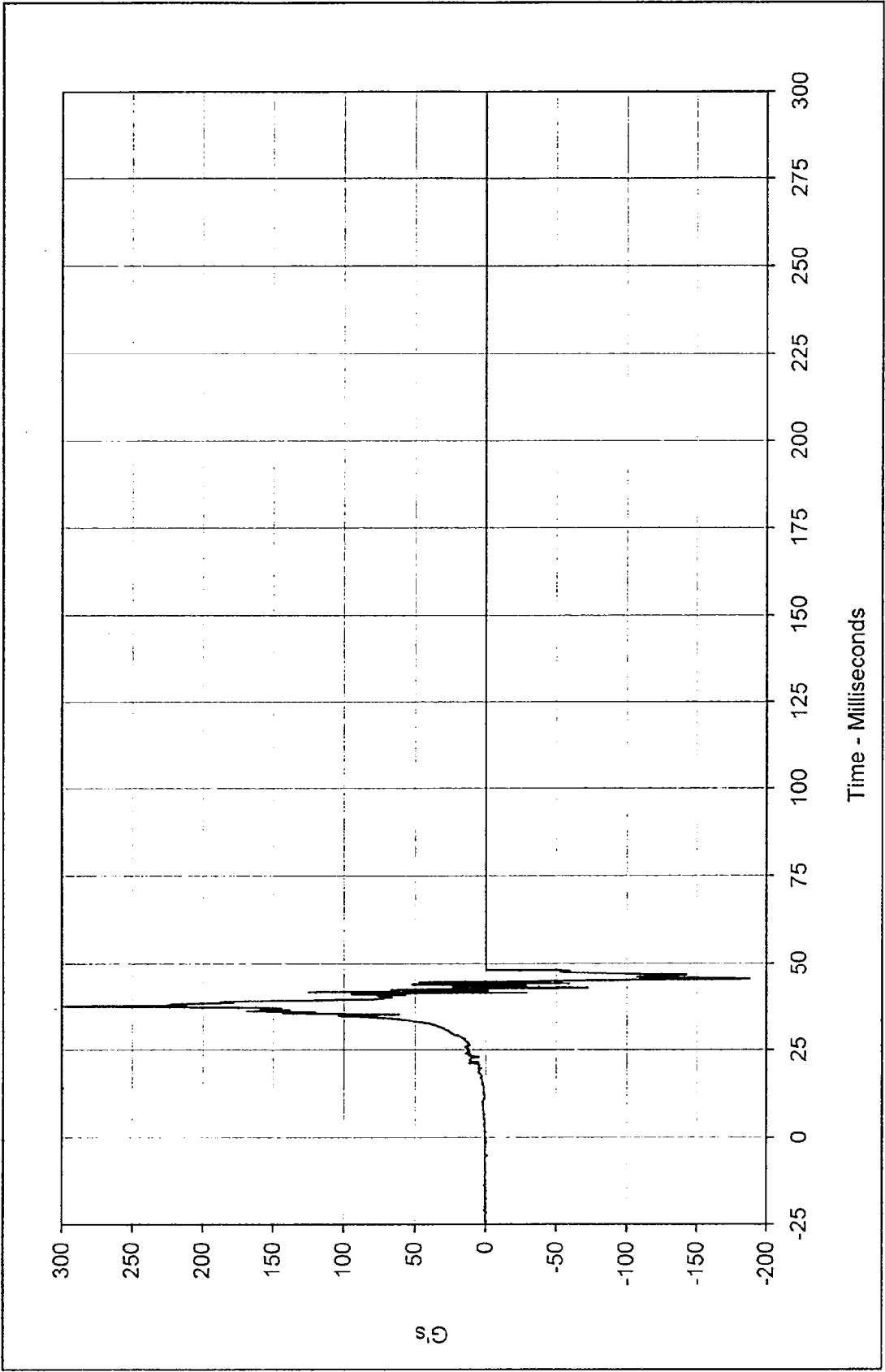


Curve Description: Passenger Right Lower Tibia Moment X
 Maximum Value: 16.2 at 48.2 Milliseconds
 Minimum Value: -76.0 at 57.5 Milliseconds



SAE Filter Class: 600
 Date of Test: 5/1/97
 Curve Number: FIL-078

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia

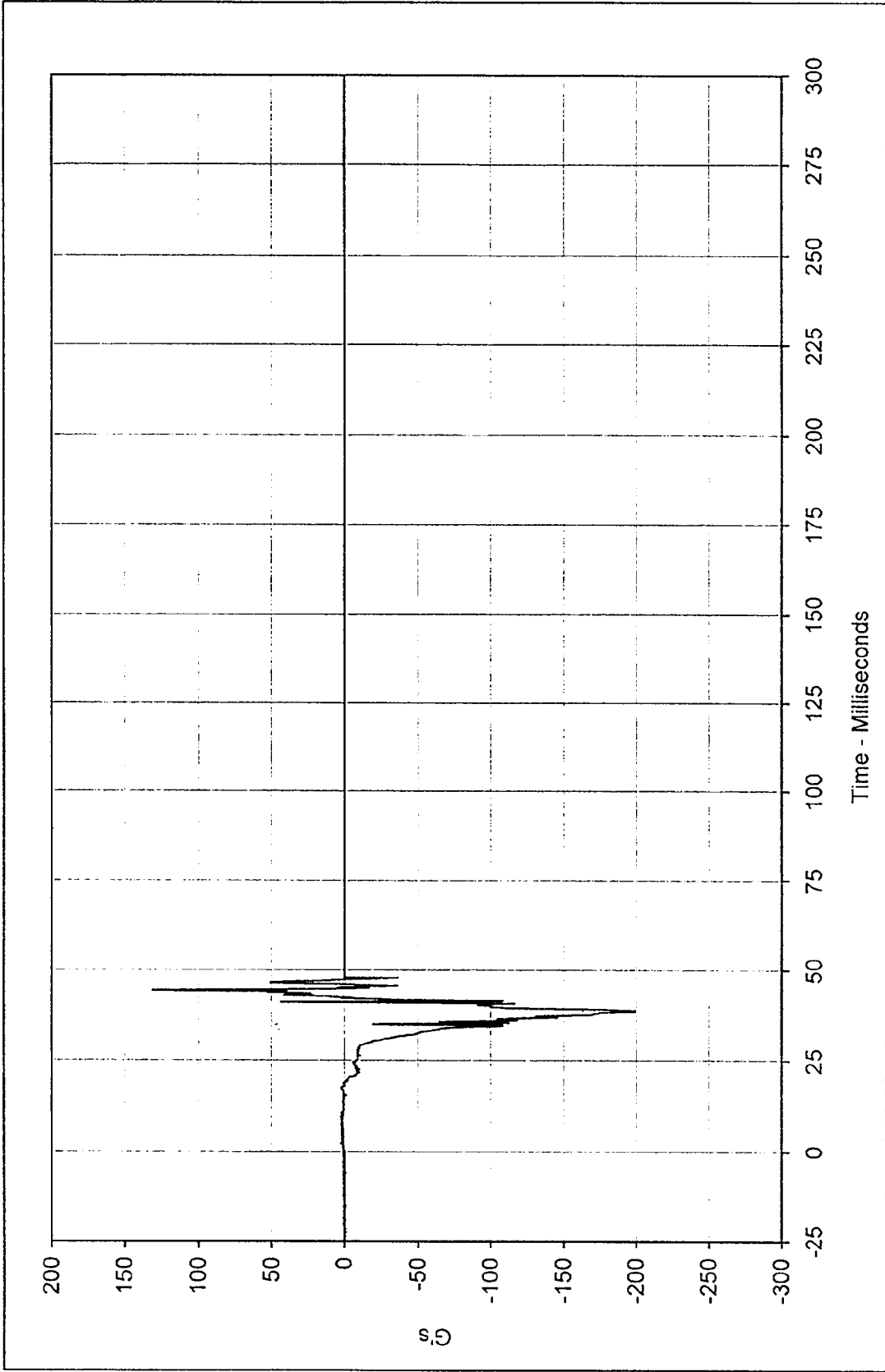


Time - Milliseconds

Curve Description: Passenger Left Foot Aft X * Testing Program: 1997 New Car Assessment Program
 Maximum Value: 298.6 at 37.5 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -188.0 at 45.4 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-079



*Channel Failed at 48 Msec



Curve Description: Passenger Left Foot Aft Z * Testing Program: 1997 New Car Assessment Program

Maximum Value: 130.6 at 44.3 Milliseconds Test Vehicle: 1997 Kia Sephia

Minimum Value: -199.4 at 38.8 Milliseconds

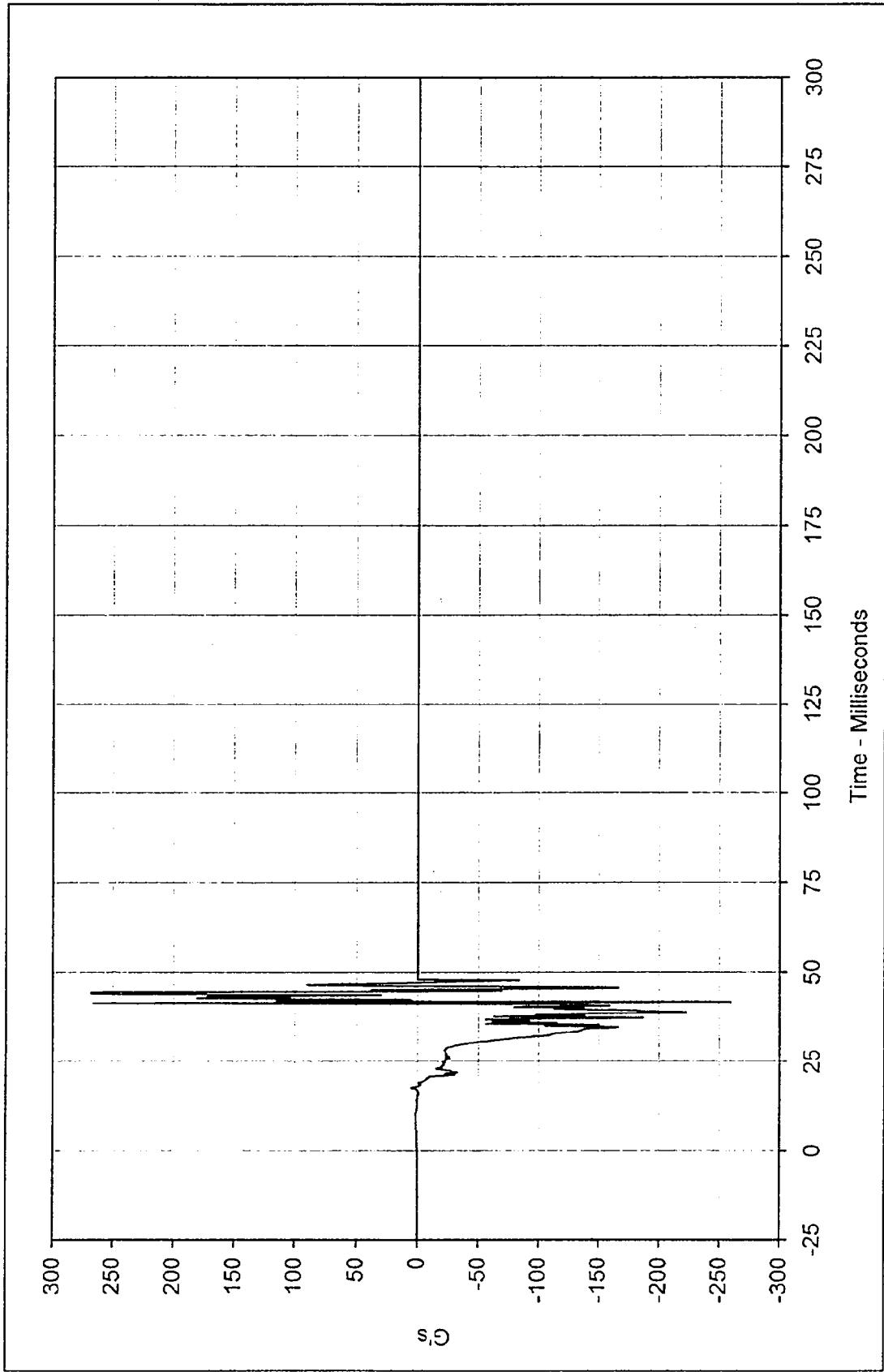
SAE Filter Class: 1000

Date of Test: 5/1/97

Curve Number: FIL-080



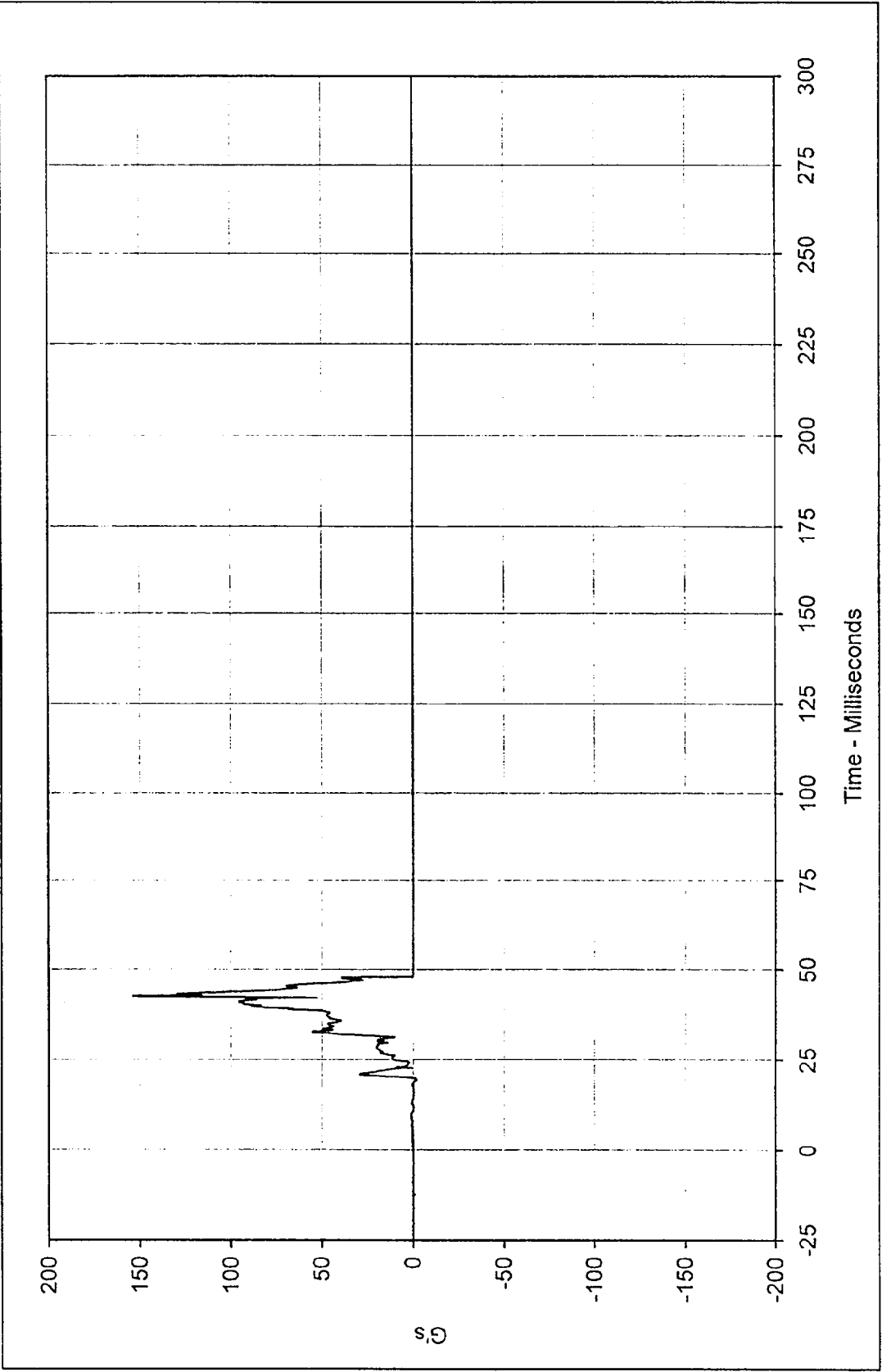
*Channel Failed at 48 Msec



Curve Description: Passenger Left Foot Fore Z * Testing Program: 1997 New Car Assessment Program
 Maximum Value: 268.0 at 44.5 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -256.7 at 41.7 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-081

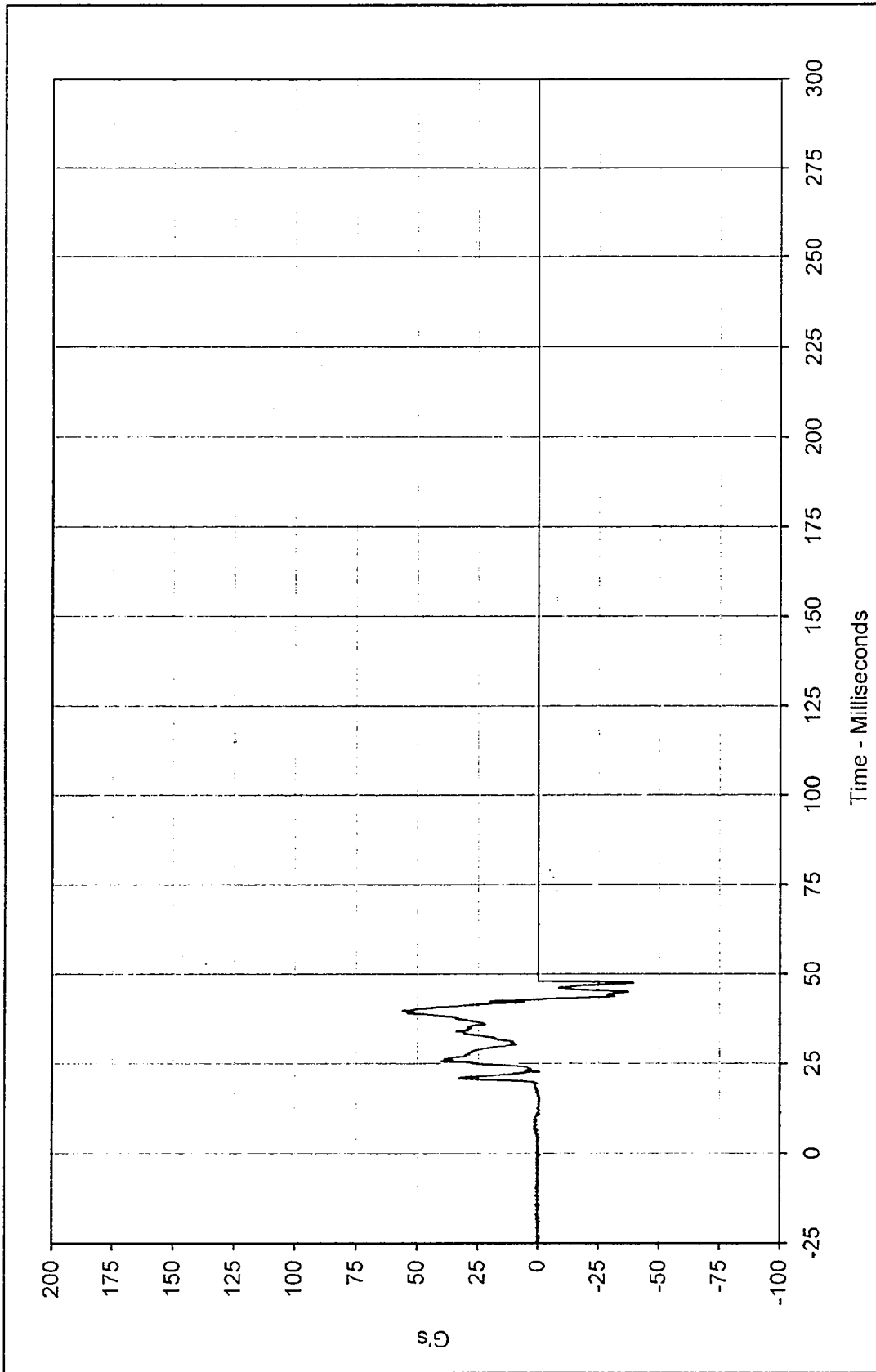


*Channel Failed at 48 Msec



Curve Description: Passenger Right Foot Aft X * Testing Program: 1997 New Car Assessment Program
 Maximum Value: 153.4 at 42.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -1.9 at 19.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-082 *Channel Failed at 48 Msec





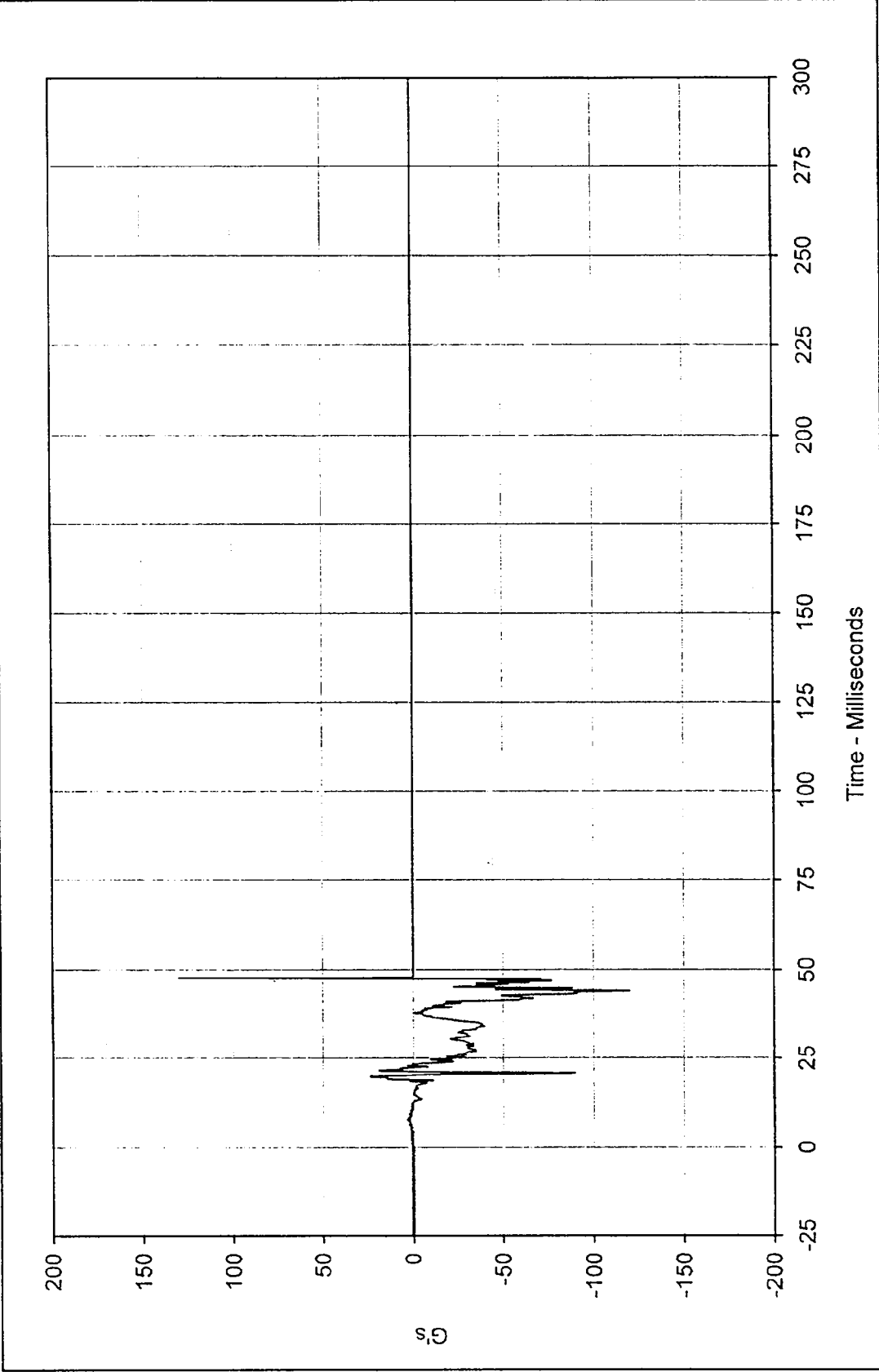
KAR-96-R96024-07

B117

Curve Description: Passenger Right Foot Aft Z * Testing Program: 1997 New Car Assessment Program
 Maximum Value: 56.0 at 39.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -39.3 at 47.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-083



*Channel Failed at 48 Msec



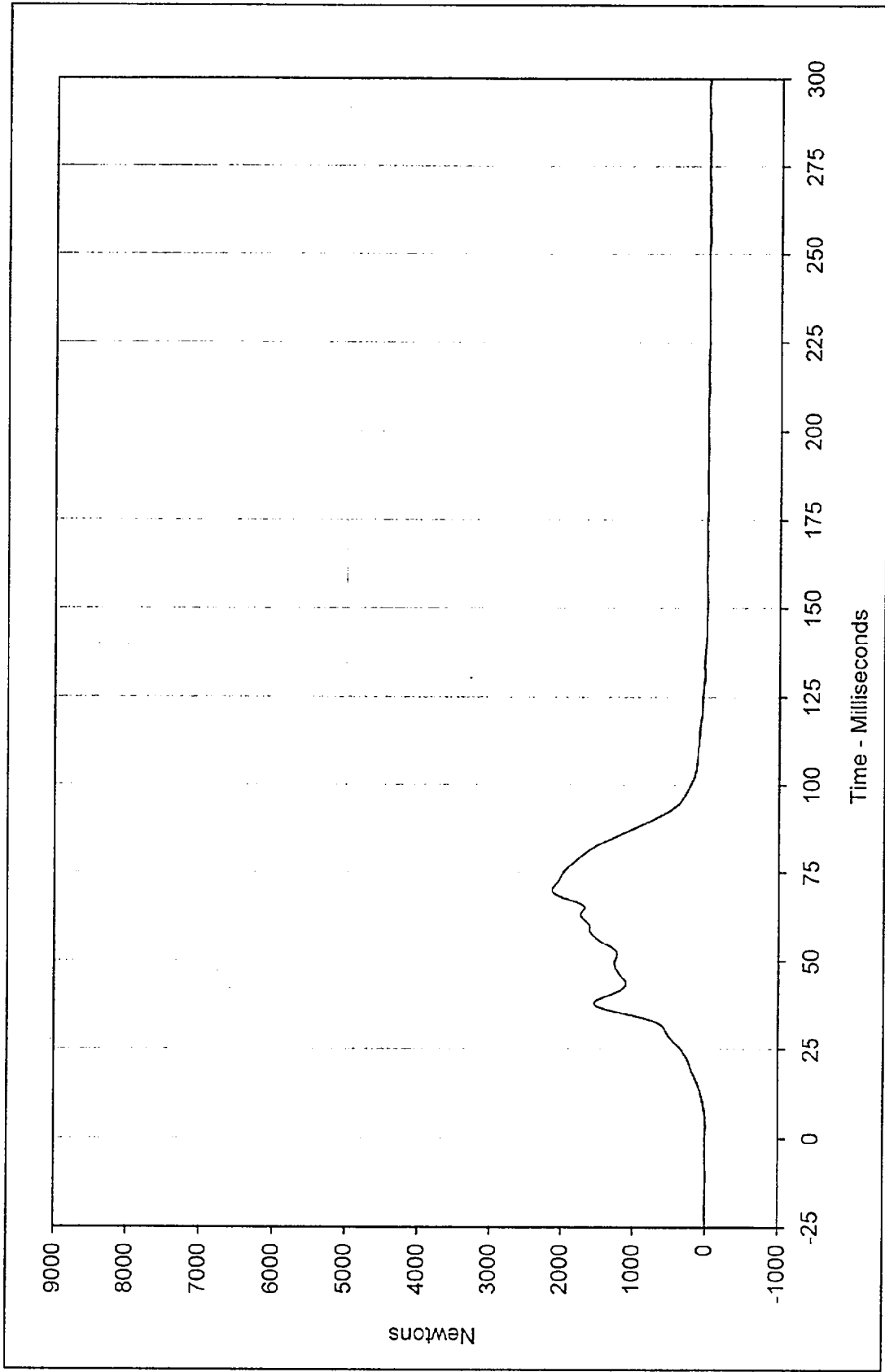
KAR-96-R96024-07

B118

Curve Description: Passenger Right Foot Fore Z * Testing Program: 1997 New Car Assessment Program
 Maximum Value: 126.2 at 47.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -119.4 at 44.2 Milliseconds

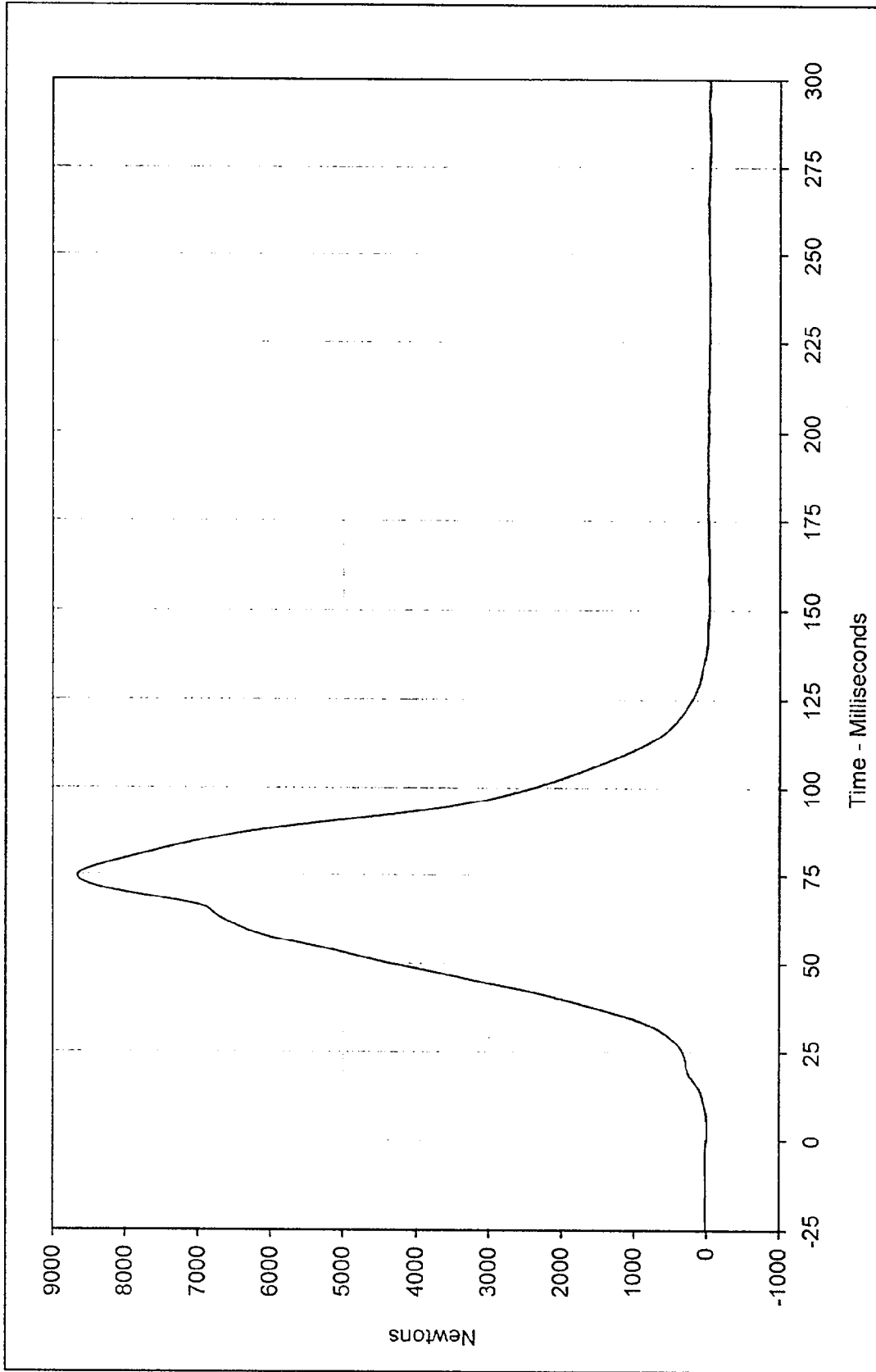


SAE Filter Class: 1000
 Date of Test: 5/1/97
 Curve Number: FIL-084
 *Channel Failed at 48 Msec



Curve Description: Passenger Lap Belt Force Testing Program: 1997 New Car Assessment Program
 Maximum Value: 2133.2 at 70 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -21.2 at 255 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-085



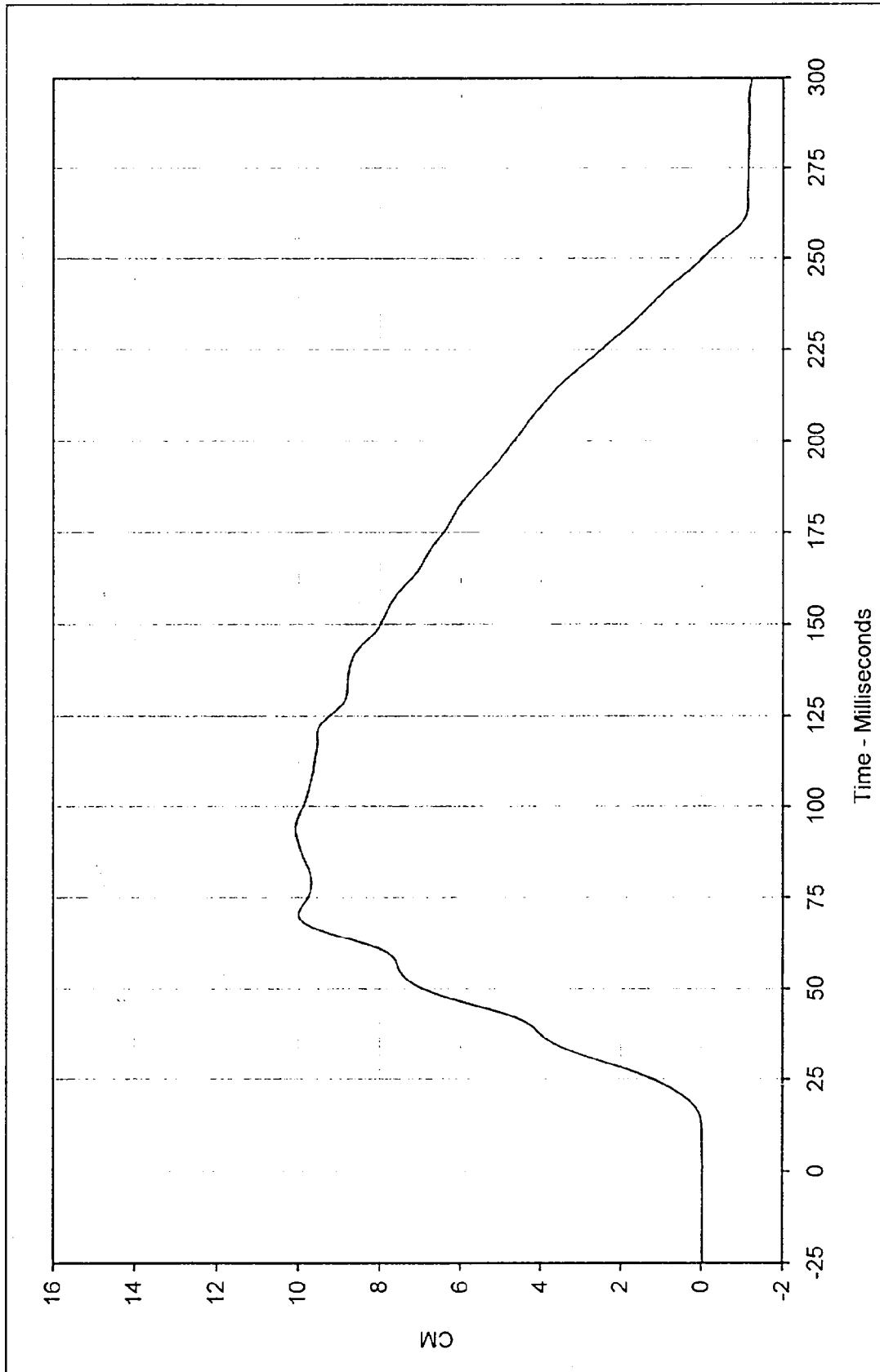


Curve Description: Passenger Shoulder Belt Force
 Maximum Value: 8660.6 at 74.6 Milliseconds
 Minimum Value: -37.5 at 281.5 Milliseconds



SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-086

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia

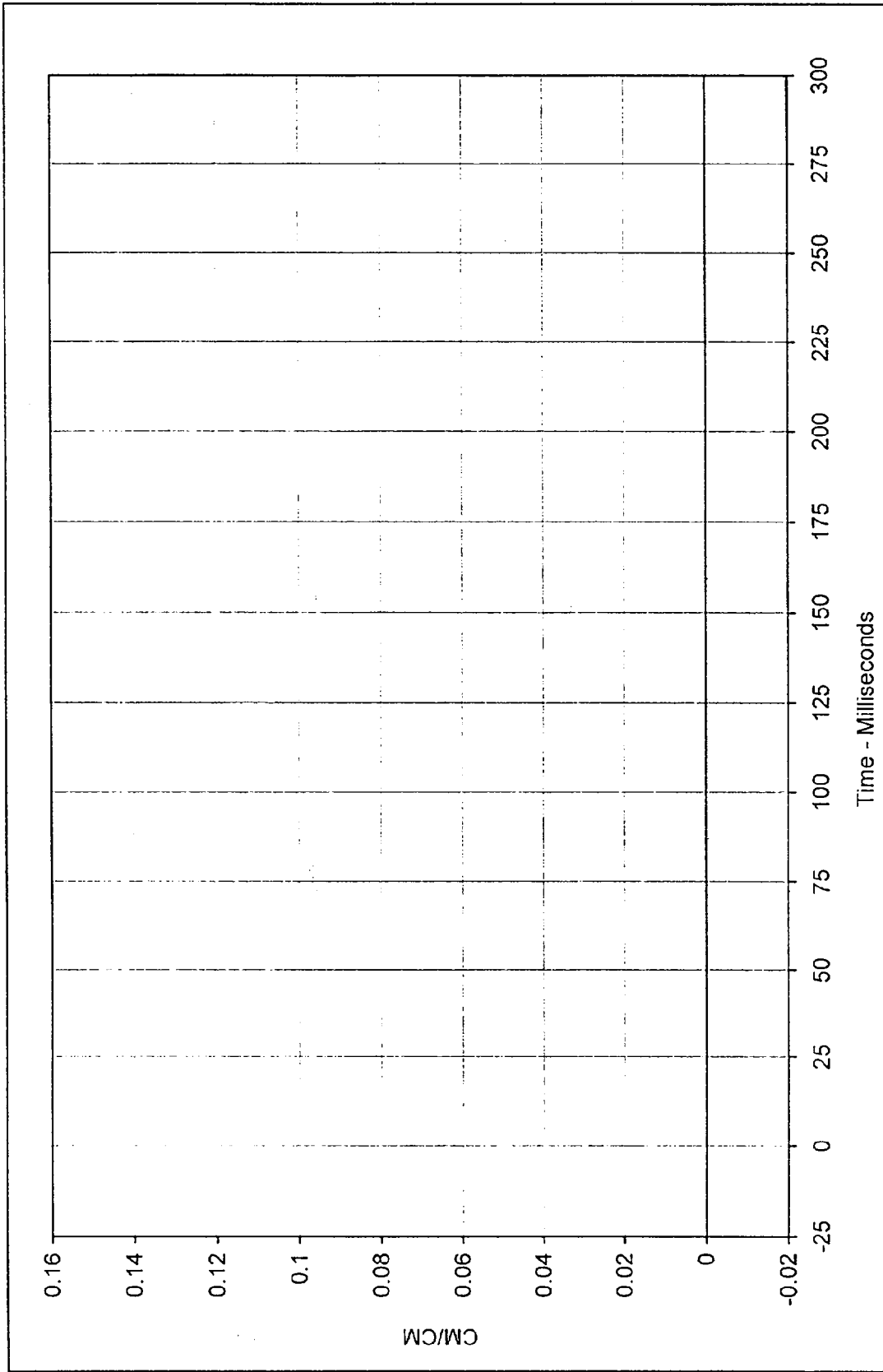


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B121

Curve Description:	Passenger Shoulder Belt Pullout	Testing Program:	1997 New Car Assessment Program
Maximum Value:	10.07 at 93.7 Milliseconds	Test Vehicle:	1997 Kia Sephia
Minimum Value:	-1.22 at 299.3 Milliseconds		
SAE Filter Class:	60		
Date of Test:	5/1/97		
Curve Number:	FIL-087		





Curve Description: Passenger Shoulder Belt Elongation

Testing Program: 1997 New Car Assessment Program

Maximum Value: 0.000 at 0.0 Milliseconds

Test Vehicle: 1997 Kia Sephia

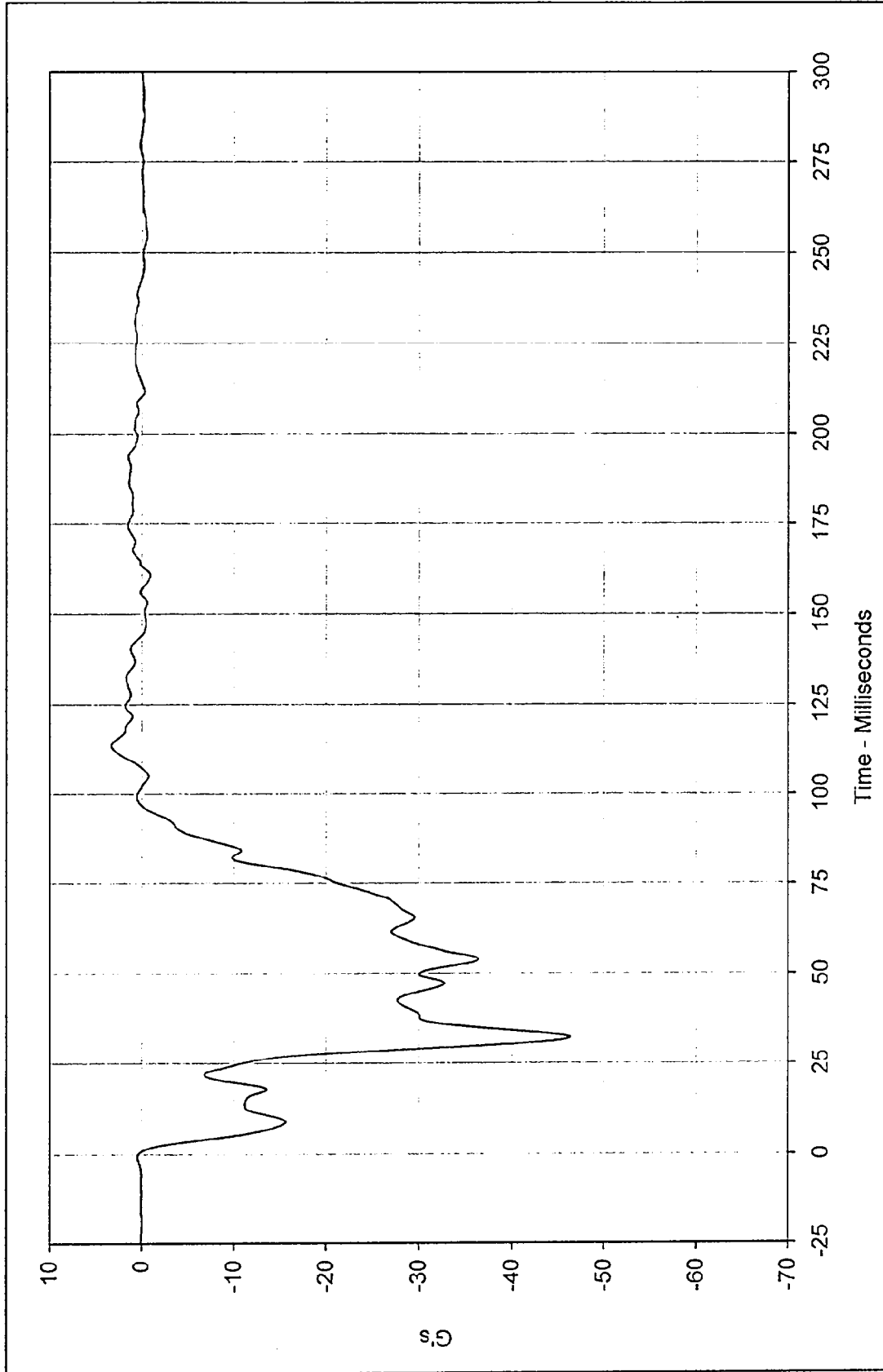
Minimum Value: 0.000 at 0.0 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: FIL-088





Curve Description: Vehicle Left Rear Primary X Testing Program: 1997 New Car Assessment Program

Maximum Value: 3.2 at 113.7 Milliseconds Test Vehicle: 1997 Kia Sephia

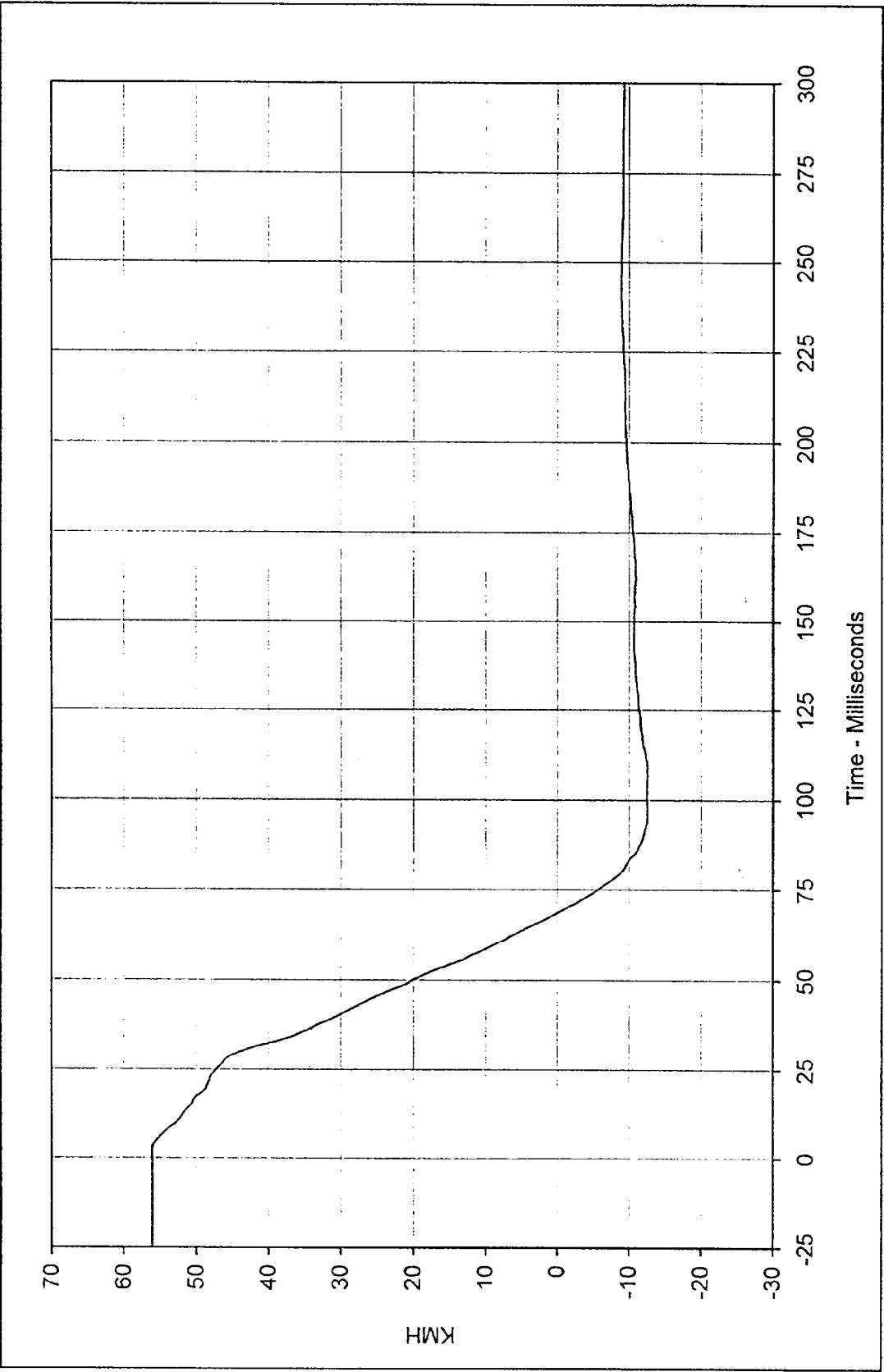
Minimum Value: -46.3 at 32.3 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: FIL-089





Curve Description: Vehicle Left Rear Primary X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 56.0 at 0.8 Milliseconds Test Vehicle: 1997 Kia Sephia

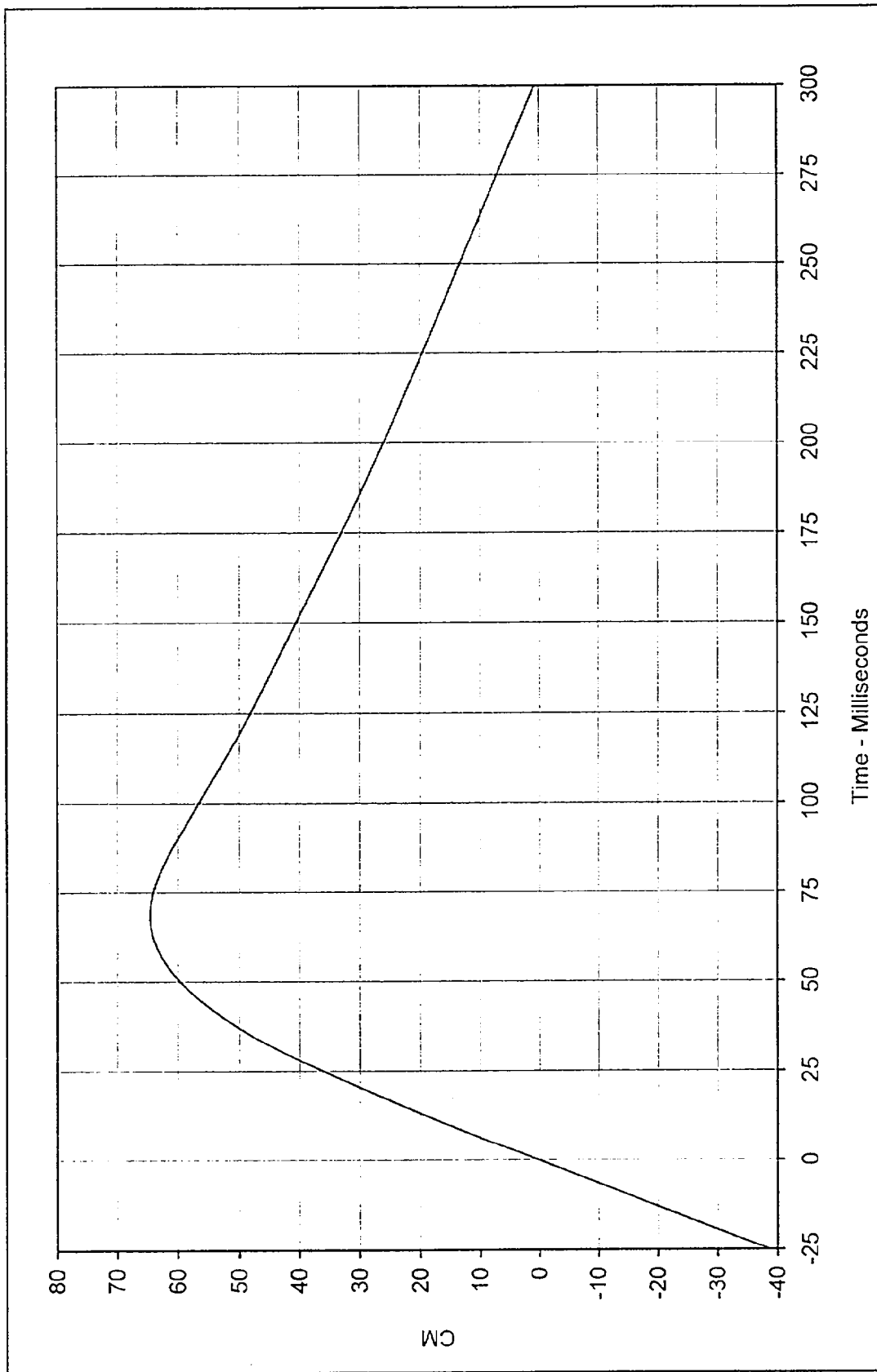
Minimum Value: -12.6 at 106.0 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: IN1-089

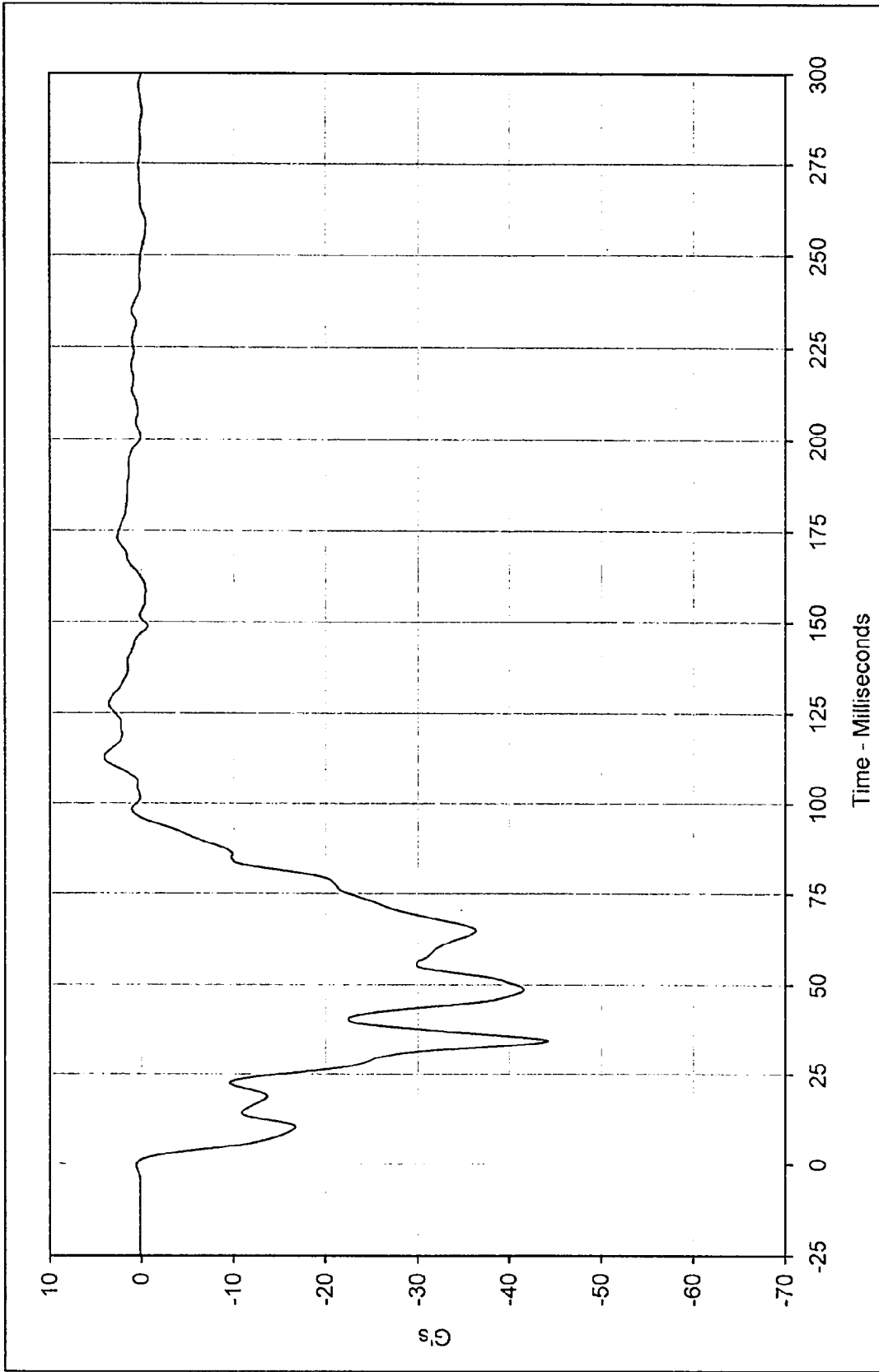




Curve Description: Vehicle Left Rear Primary X Displ.
 Maximum Value: 64.6 at 68.6 Milliseconds
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-089

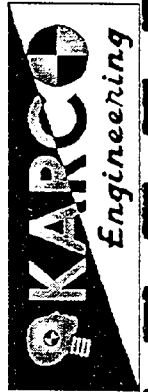
Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia

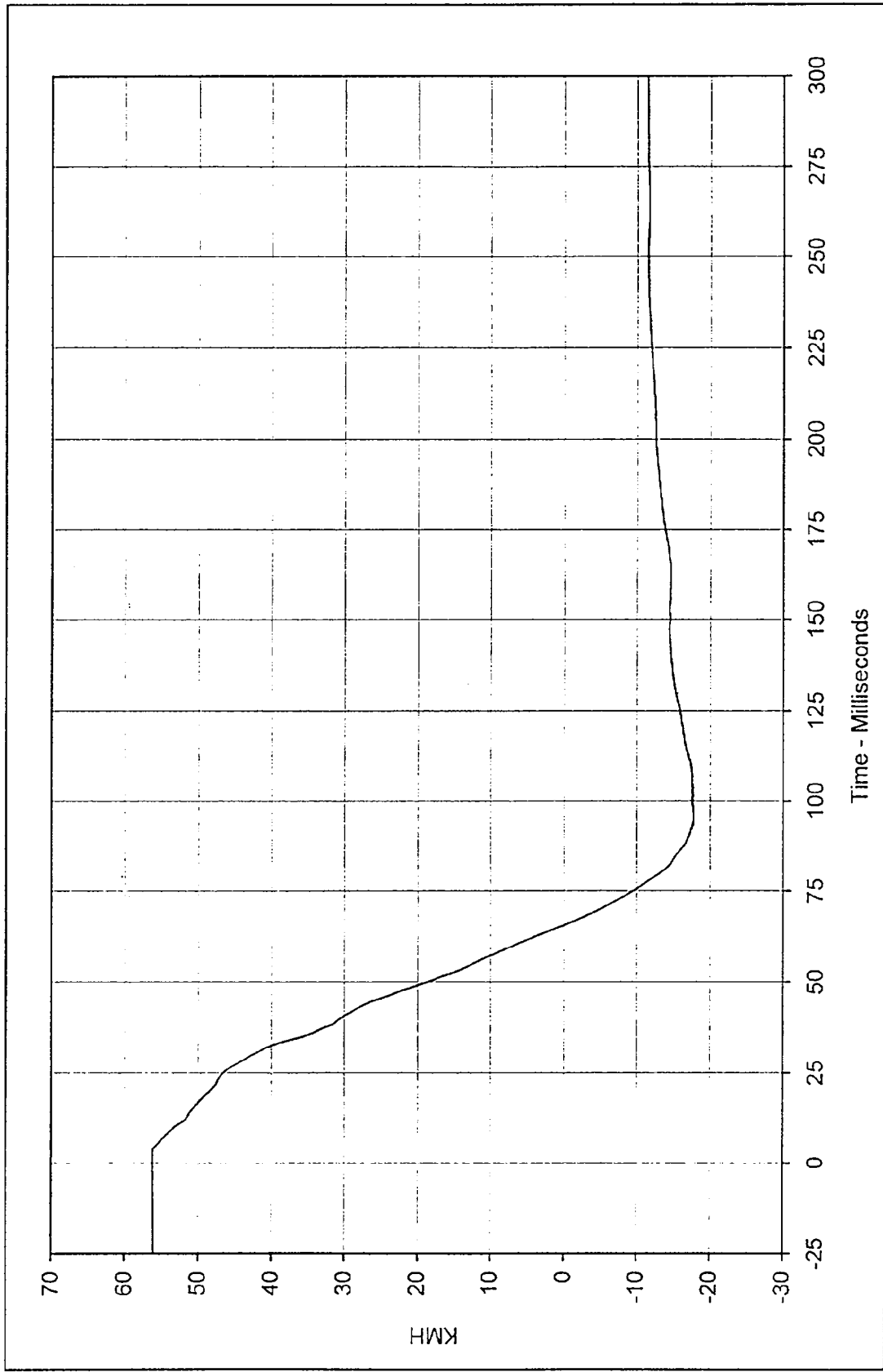




Curve Description: Vehicle Right Rear Primary X
 Maximum Value: 4.0 at 112.7 Milliseconds
 Minimum Value: -44.2 at 34.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-090

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia



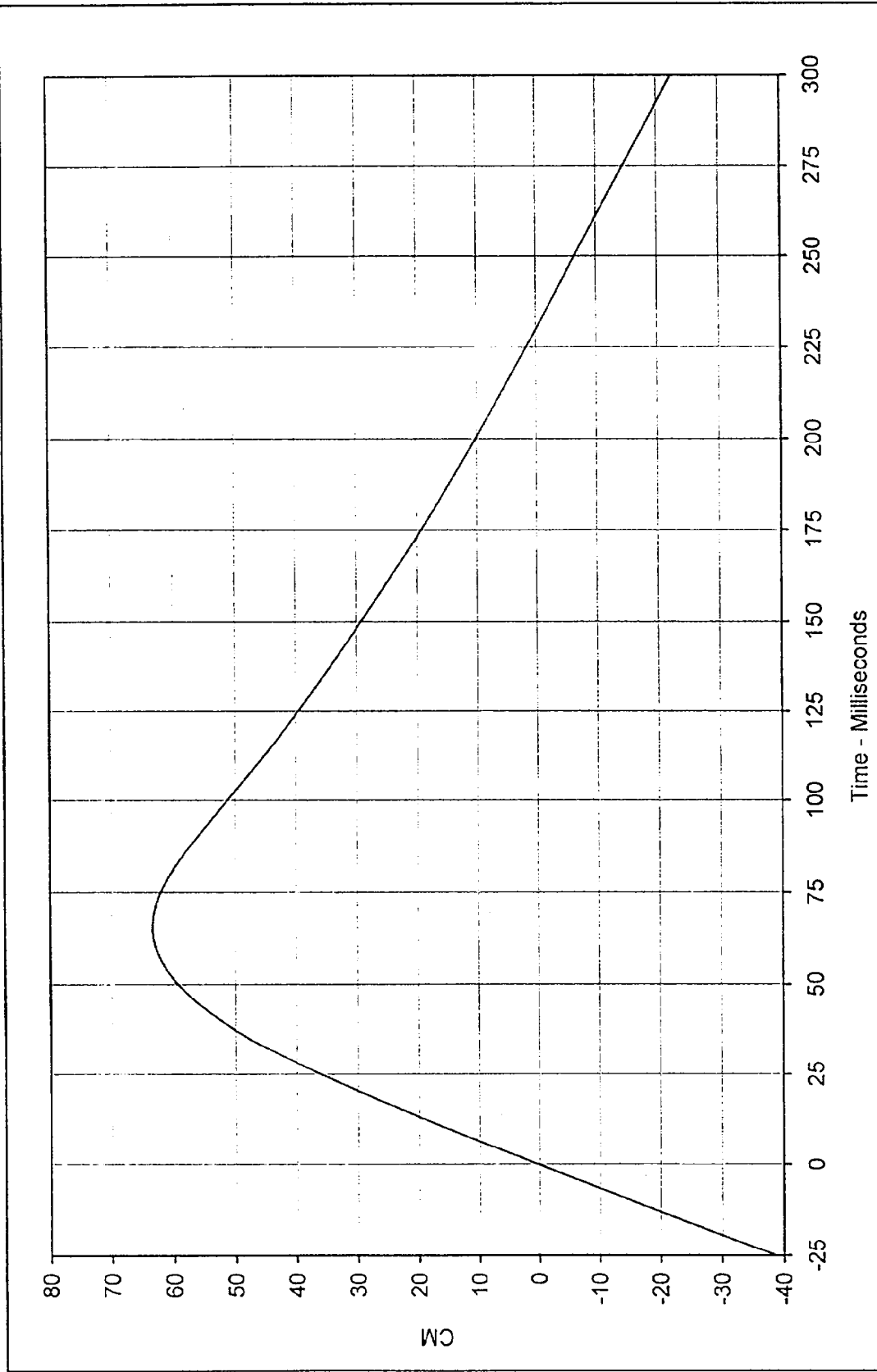


Curve Description: Vehicle Right Rear Primary X Velocity Testing Program: 1997 New Car Assessment Program
 Maximum Value: 56.2 at 2.7 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -17.8 at 95.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN1-090



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B127



Curve Description: Vehicle Right Rear Primary X Displ. Testing Program: 1997 New Car Assessment Program

Maximum Value: 63.3 at 65.7 Milliseconds Test Vehicle: 1997 Kia Sephia

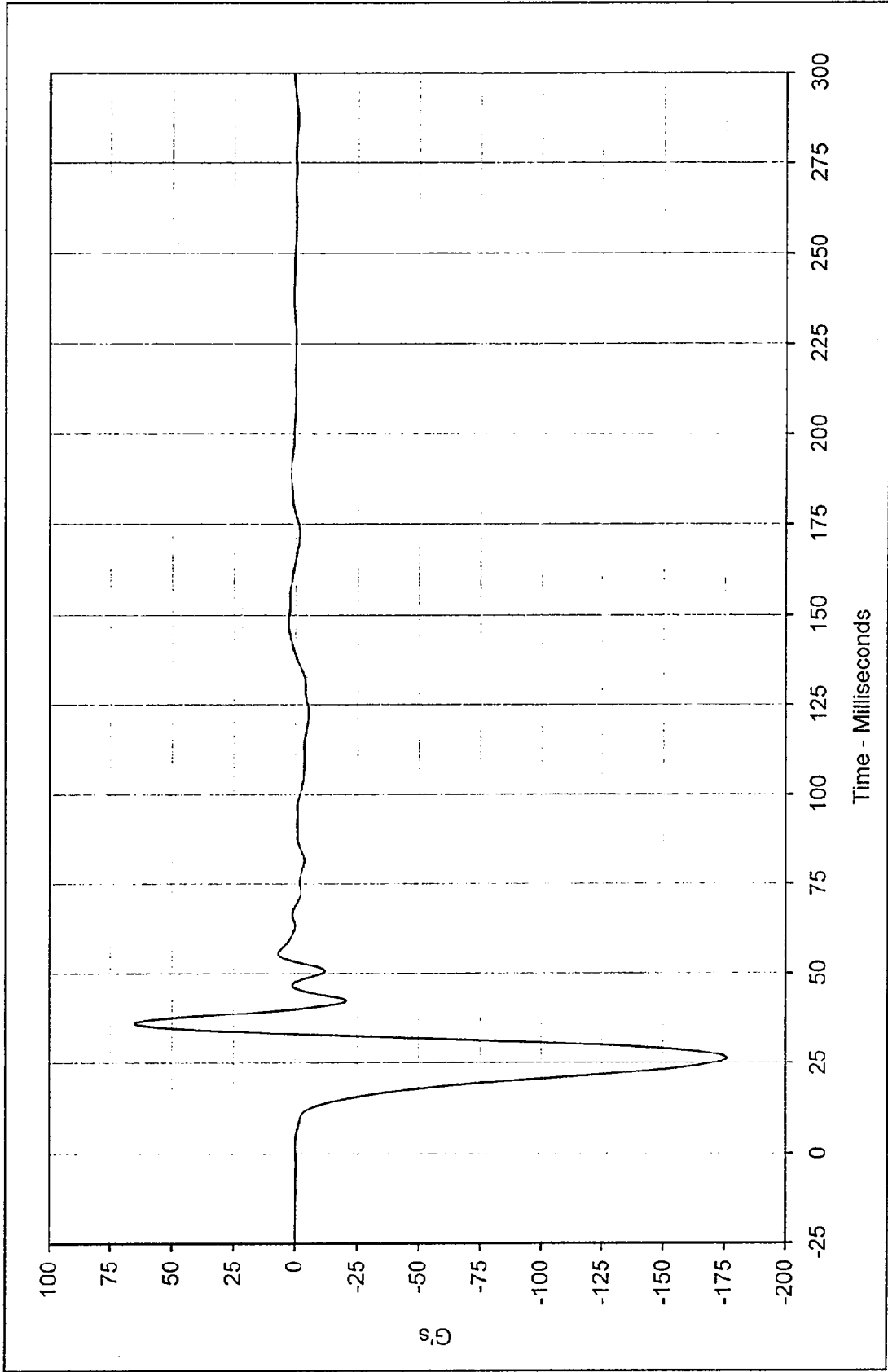
Minimum Value: -22.4 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

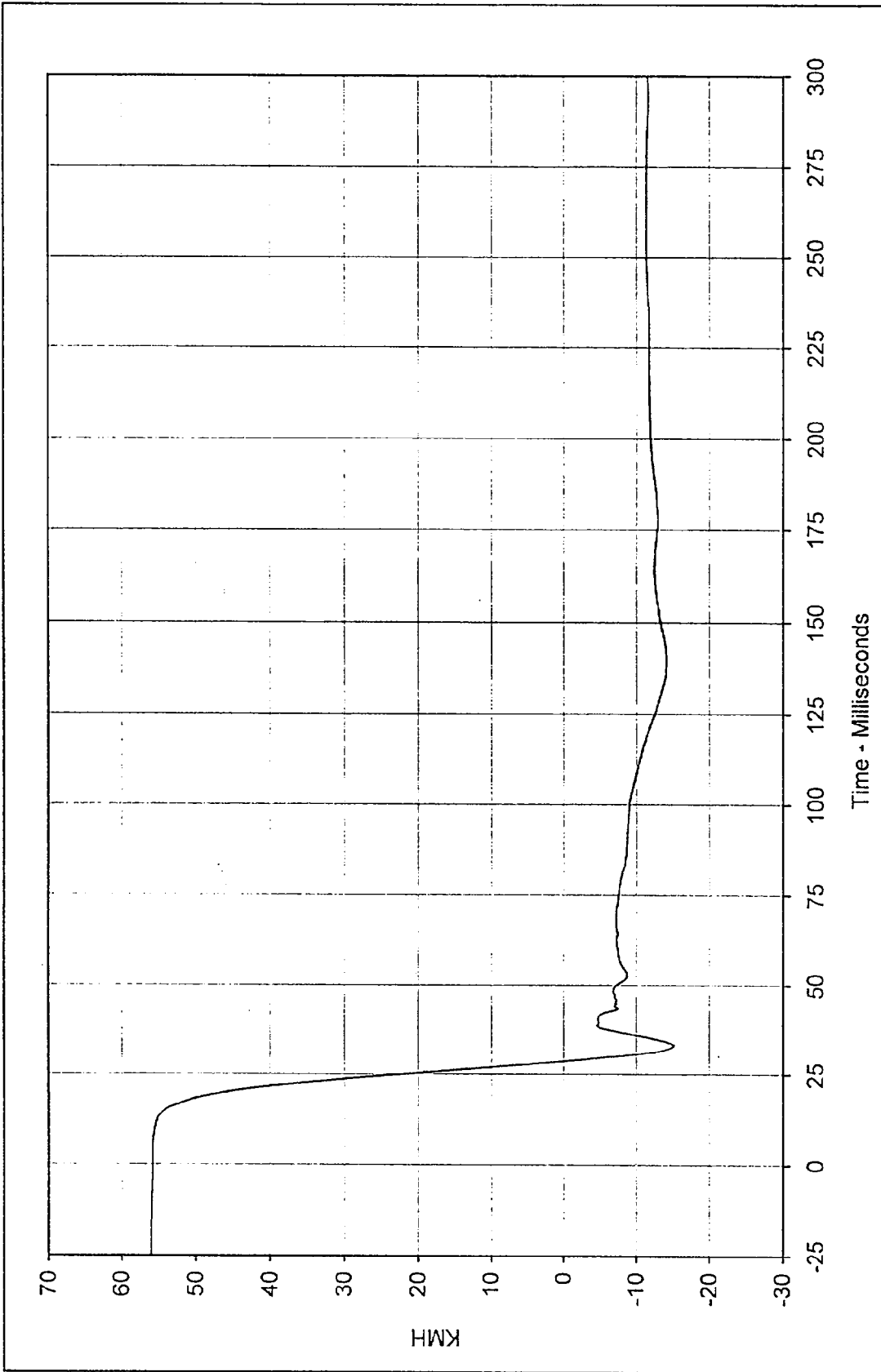
Curve Number: IN2-090





Curve Description: Vehicle Engine Top X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 65.2 at 36.2 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -176.0 at 26.5 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-091





Curve Description: Vehicle Engine Top X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 55.8 at 0.0 Milliseconds Test Vehicle: 1997 Kia Sephia

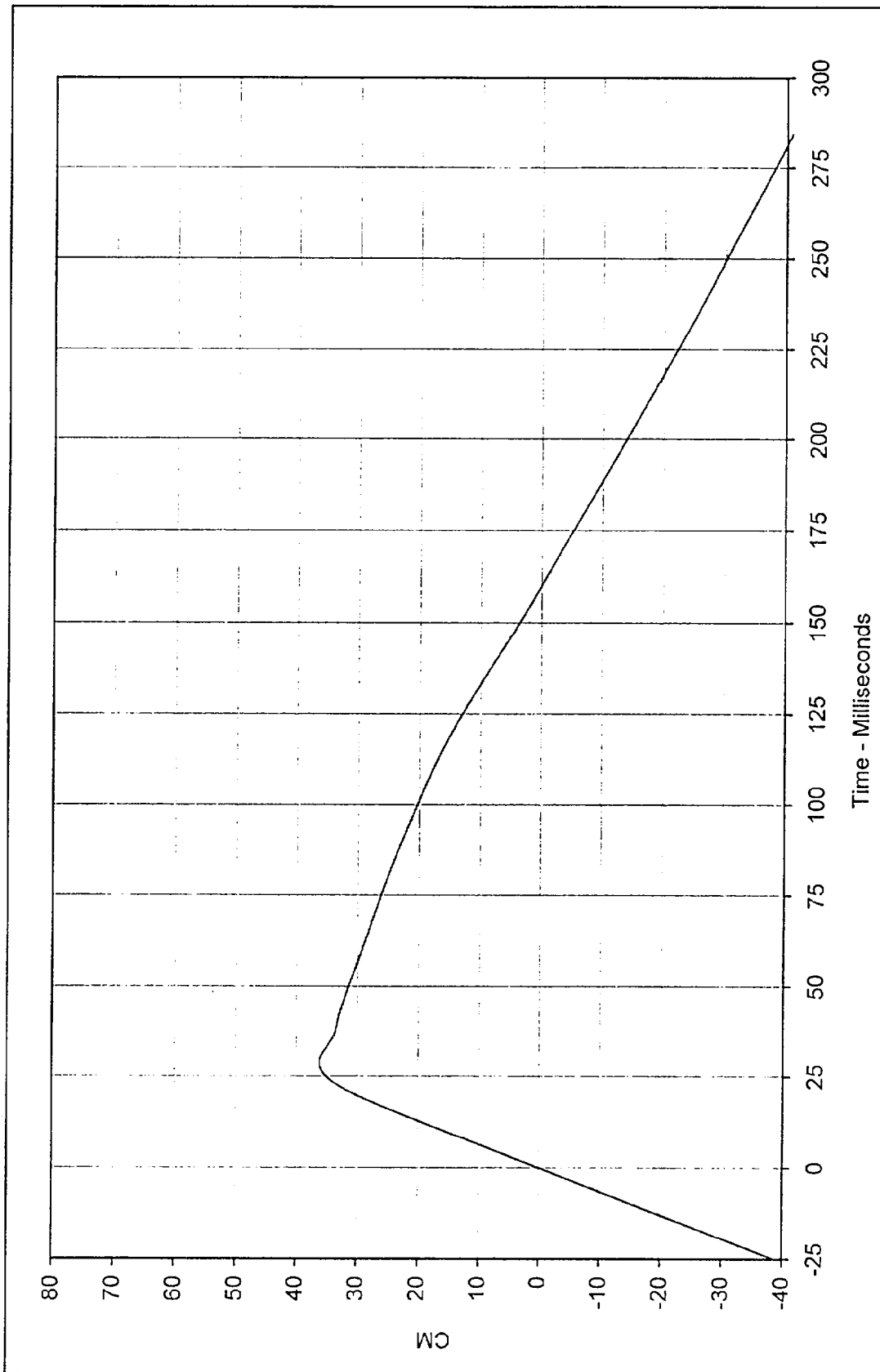
Minimum Value: -15.1 at 33.2 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: IN1-091

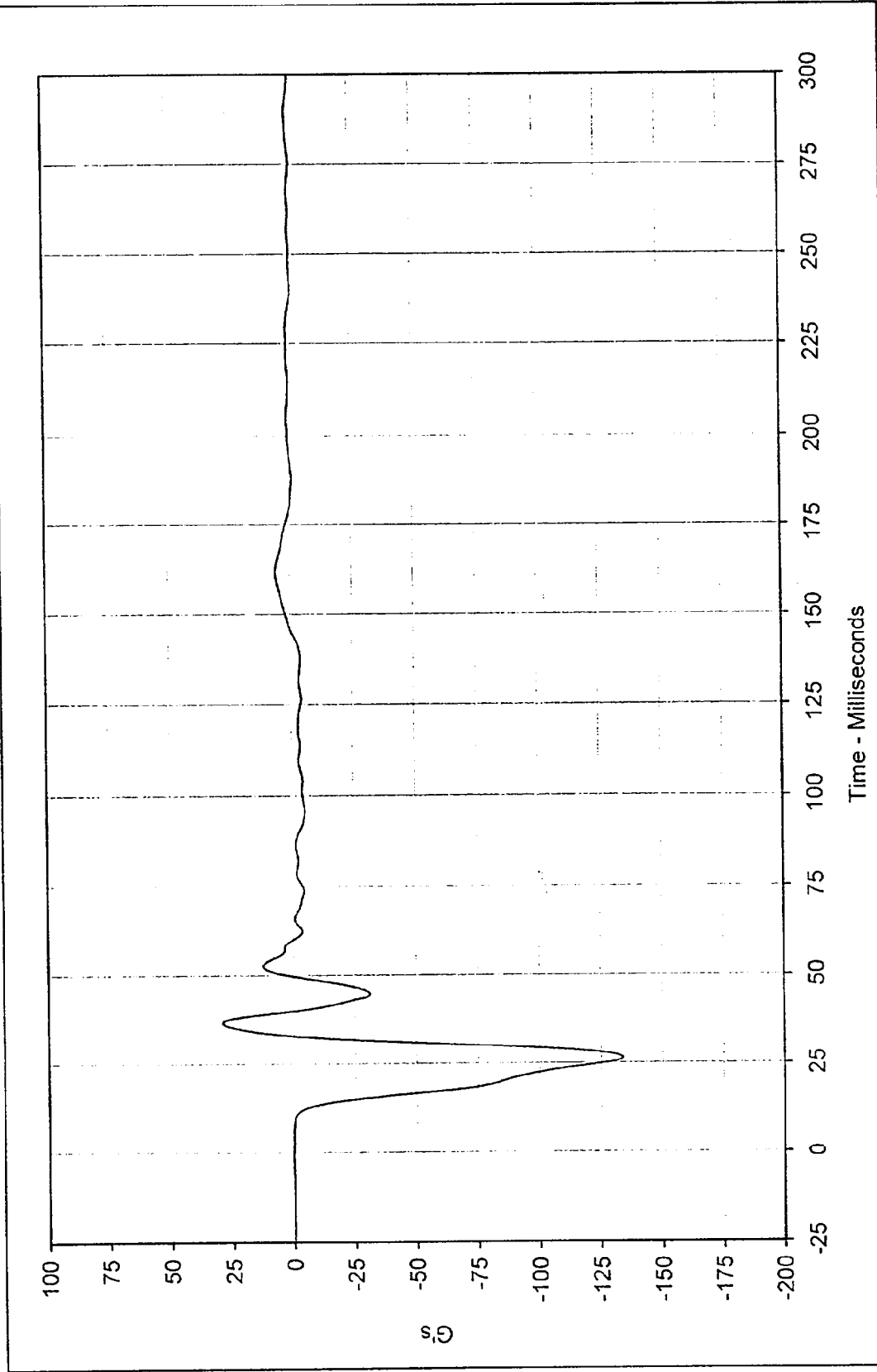




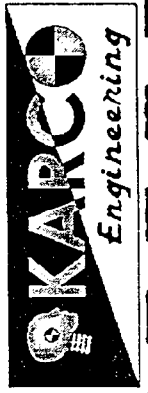
Curve Description: Vehicle Engine Top X Displ.
 Maximum Value: 36.2 at 28.7 Milliseconds
 Minimum Value: -45.9 at 299.9 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-091

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia

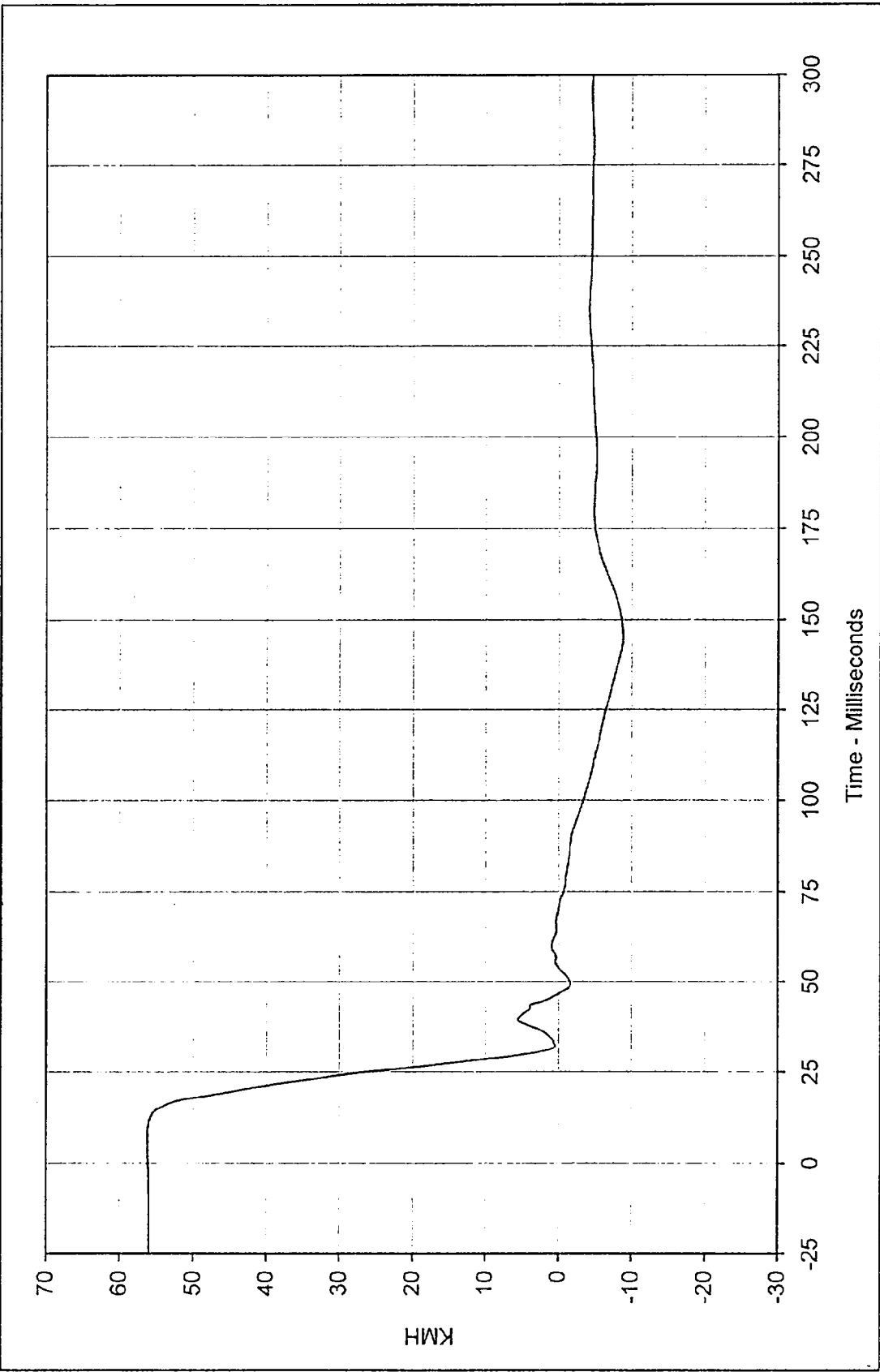




Curve Description: Vehicle Engine Bottom X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 29.3 at 36.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -134.0 at 26.5 Milliseconds



SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-092



Curve Description: Vehicle Engine Bottom X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 56.2 at 8.5 Milliseconds Test Vehicle: 1997 Kia Sephia

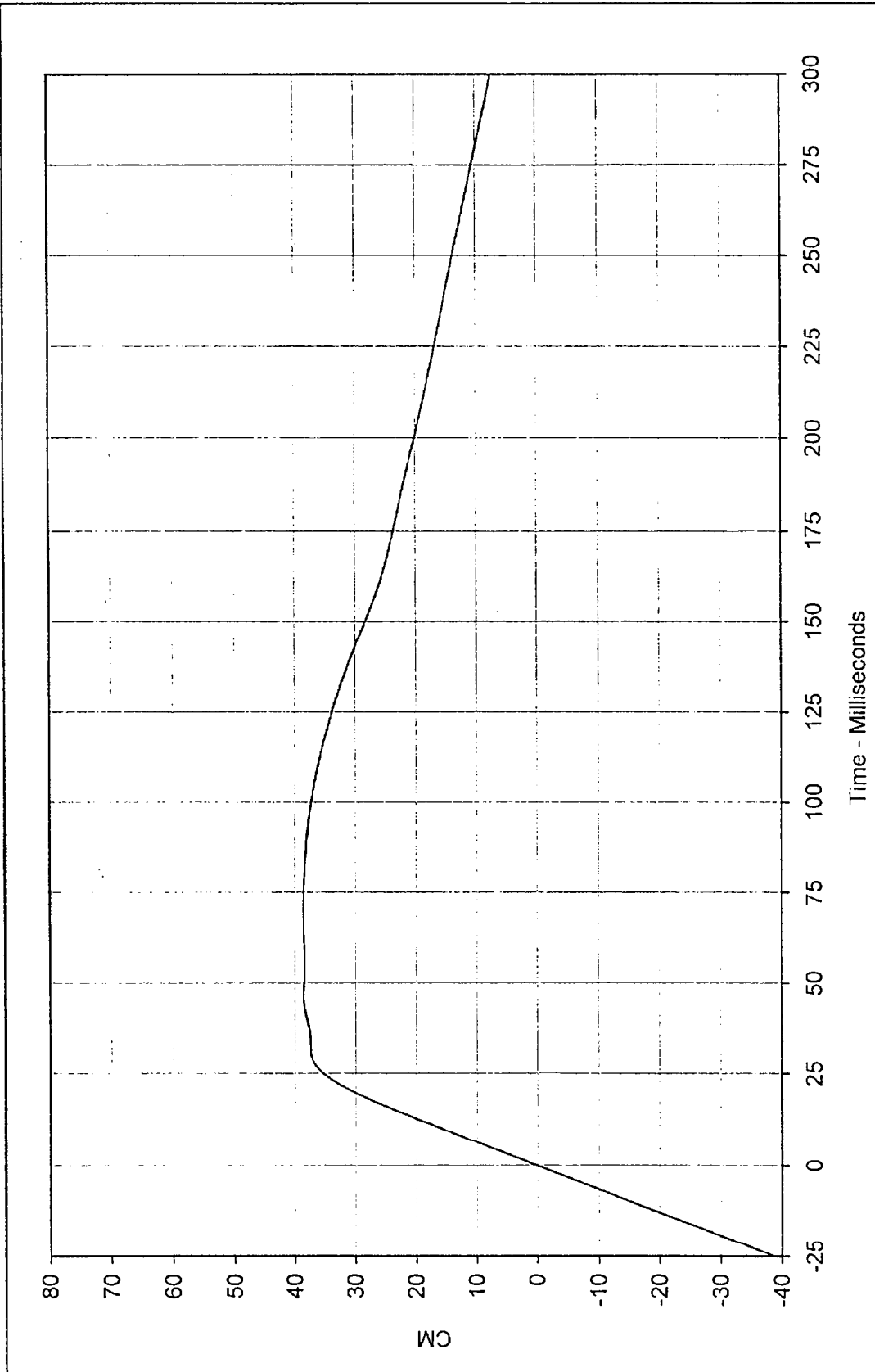
Minimum Value: -8.8 at 145.5 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: IN1-092





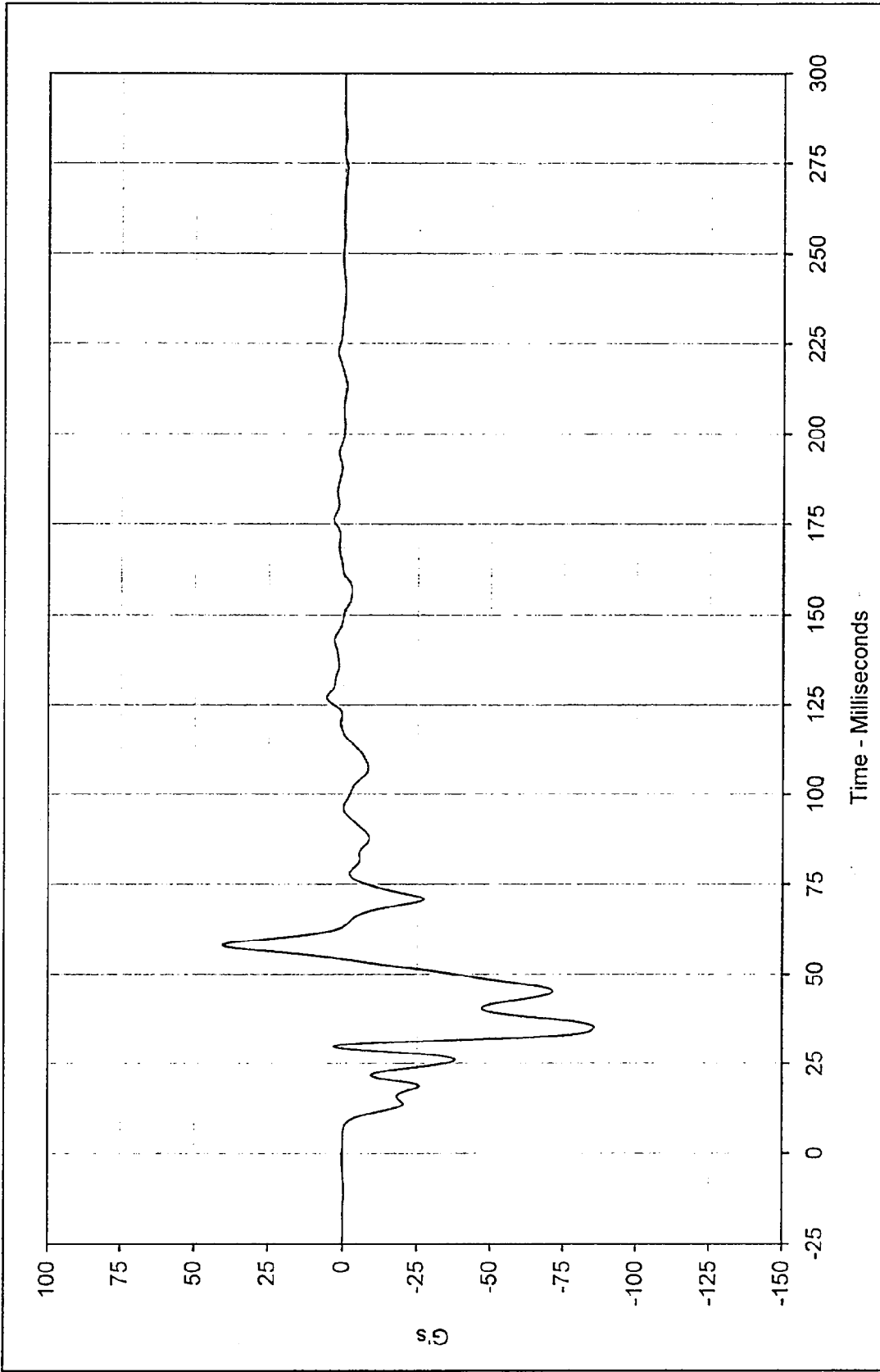
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B134

Curve Description: Vehicle Engine Bottom X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 38.5 at 46.6 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 0.0 Milliseconds

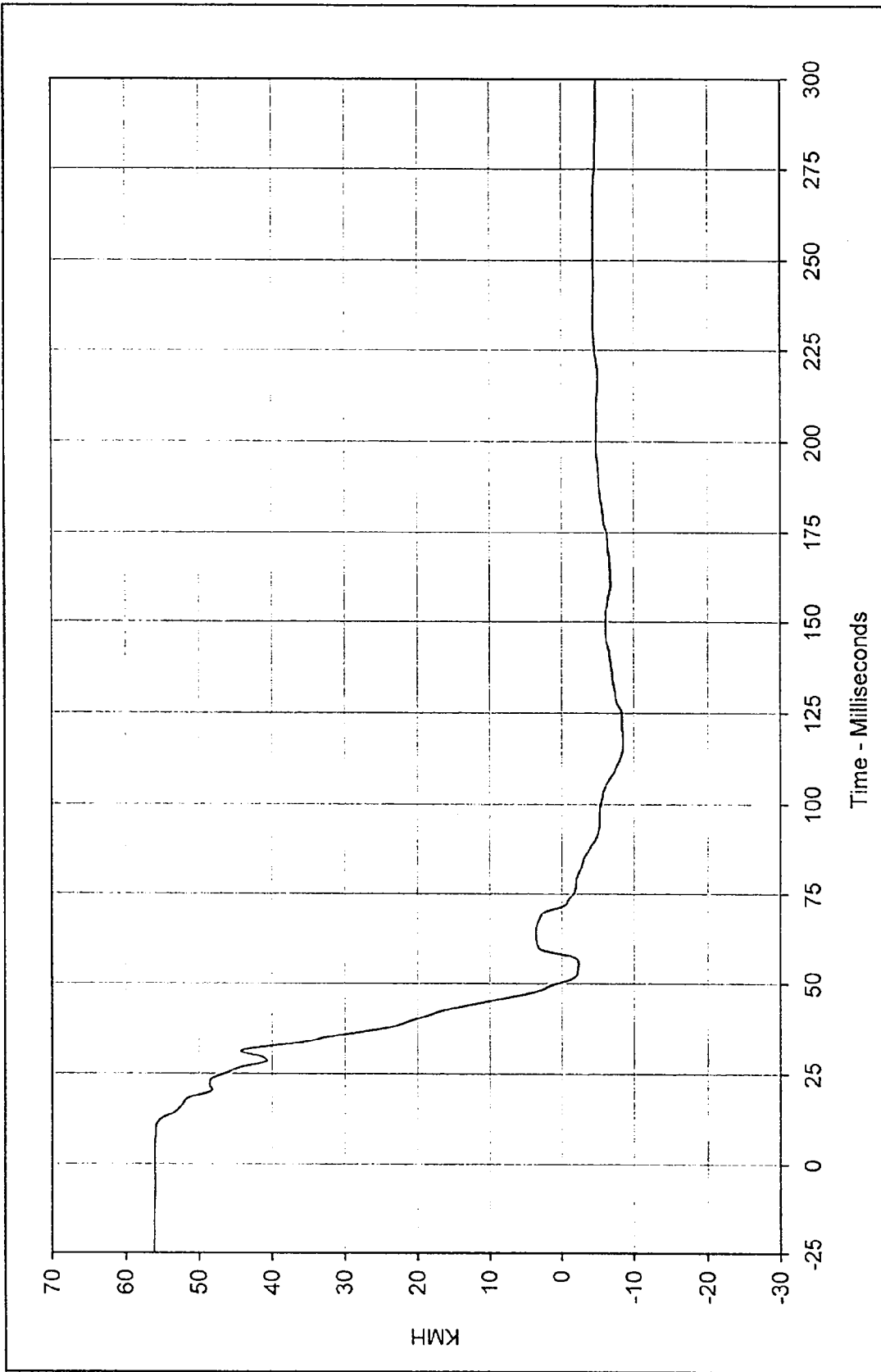


SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-092



Curve Description: Vehicle Left Brake Caliper X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 40.4 at 58.2 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -85.6 at 35.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-093





Curve Description: Vehicle Left Brake Caliper X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 56.0 at 3.0 Milliseconds Test Vehicle: 1997 Kia Sephia

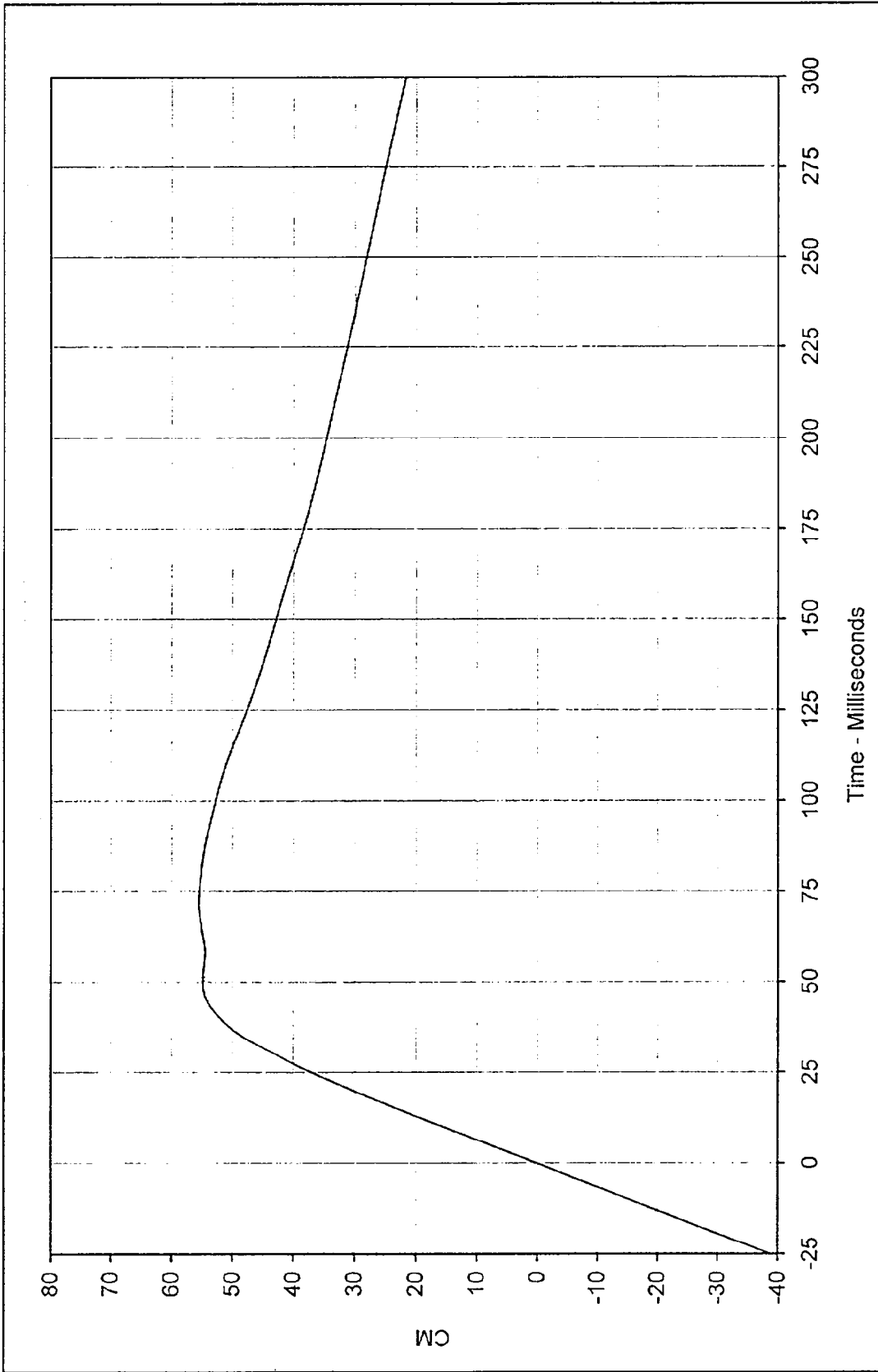
Minimum Value: -8.5 at 118.6 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

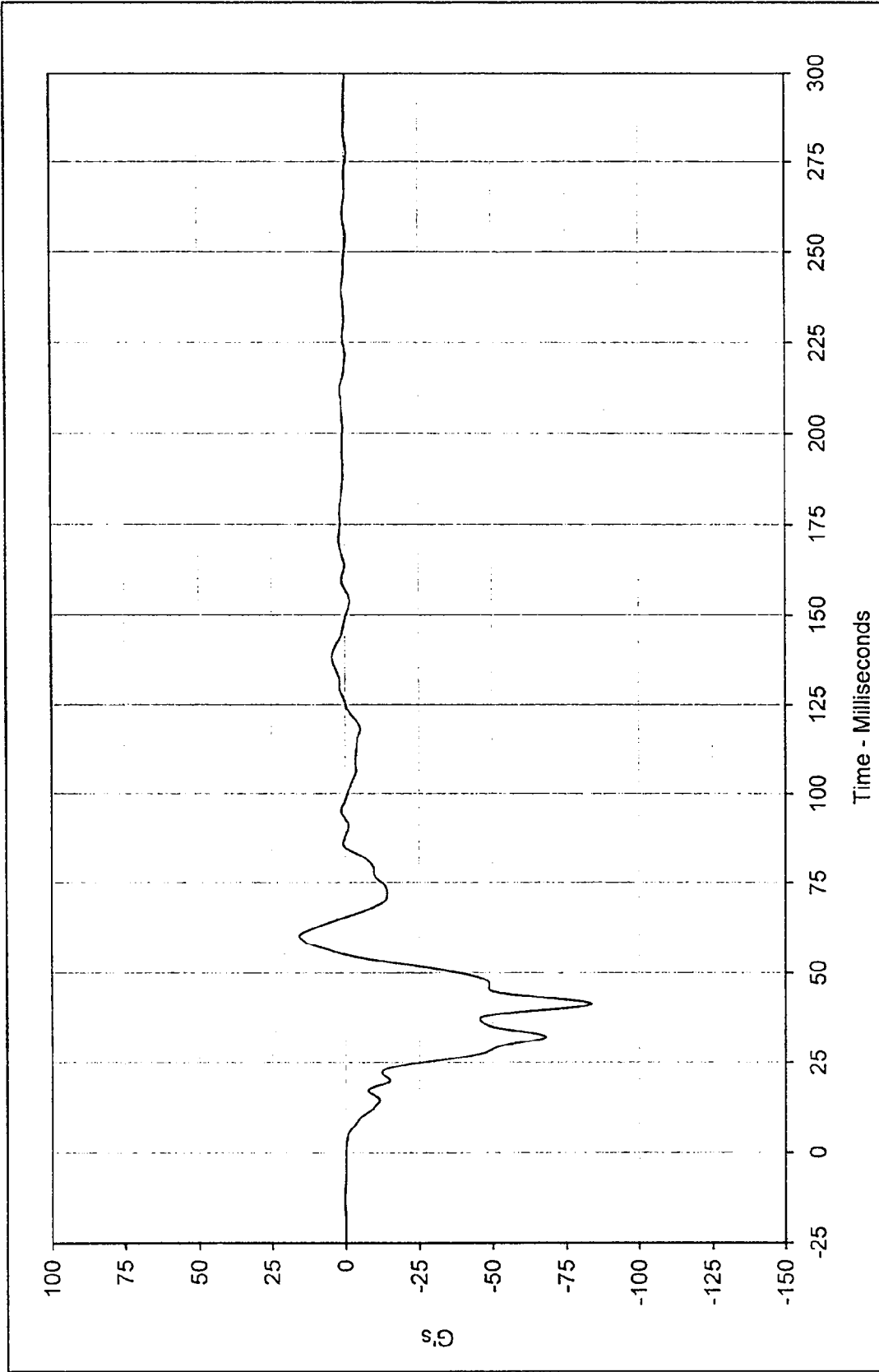
Curve Number: IN1-093





Curve Description: Vehicle Left Brake Caliper X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 55.6 at 71.4 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 0.0 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-093





Curve Description: Vehicle Right Brake Caliper X Testing Program: 1997 New Car Assessment Program

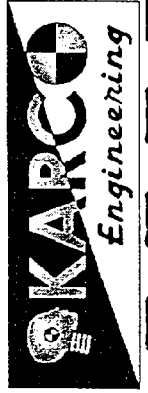
Maximum Value: 15.7 at 60.3 Milliseconds Test Vehicle: 1997 Kia Sephia

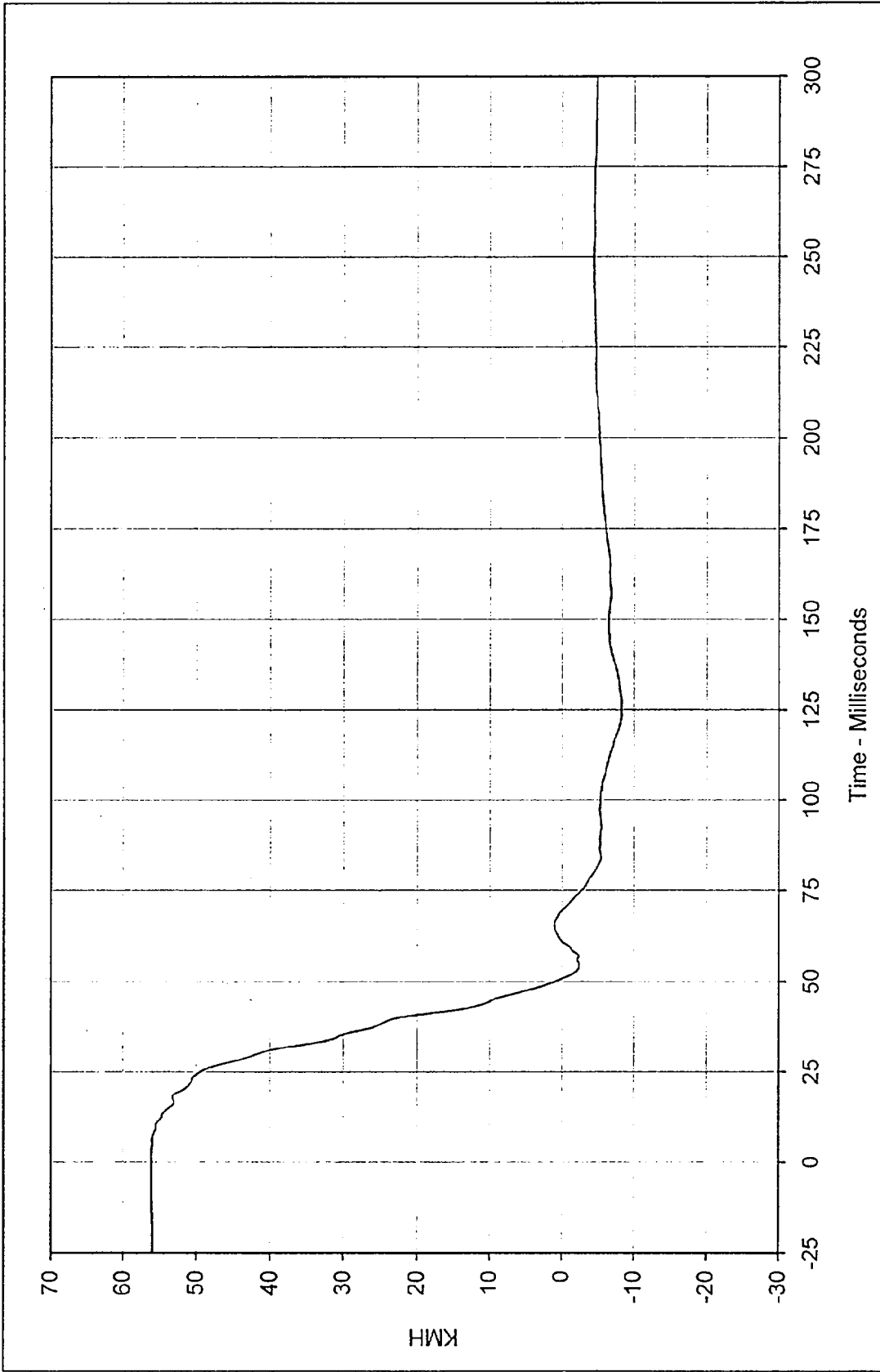
Minimum Value: -83.7 at 41.5 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

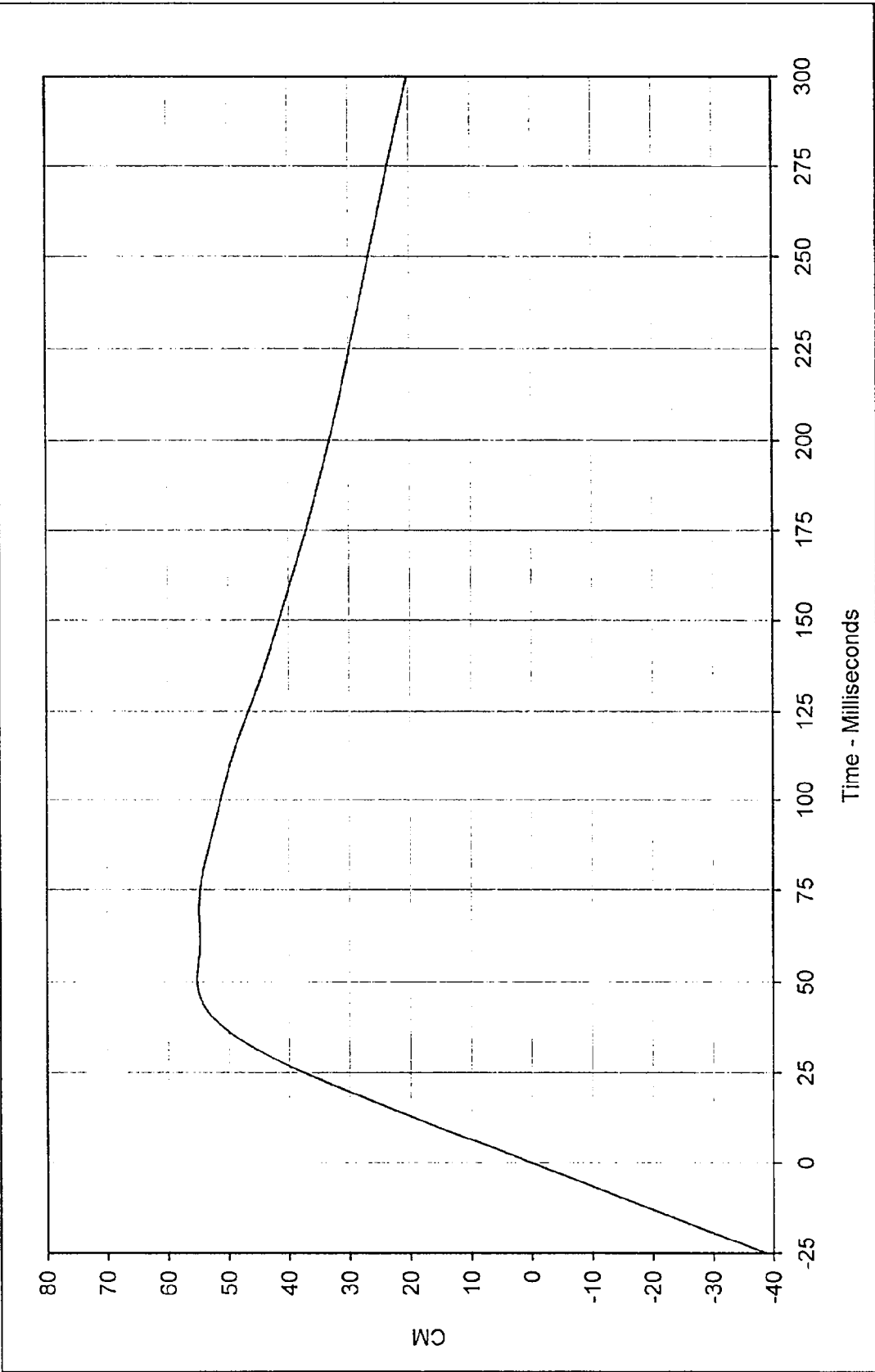
Curve Number: FIL-094





Curve Description: Vehicle Right Brake Caliper X Velocity Testing Program: 1997 New Car Assessment Program
 Maximum Value: 56.1 at 0.2 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -8.3 at 127.5 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN1-094





Curve Description: Vehicle Right Brake Caliper X Displ. Testing Program: 1997 New Car Assessment Program

Maximum Value: 55.3 at 50.8 Milliseconds Test Vehicle: 1997 Kia Sephia

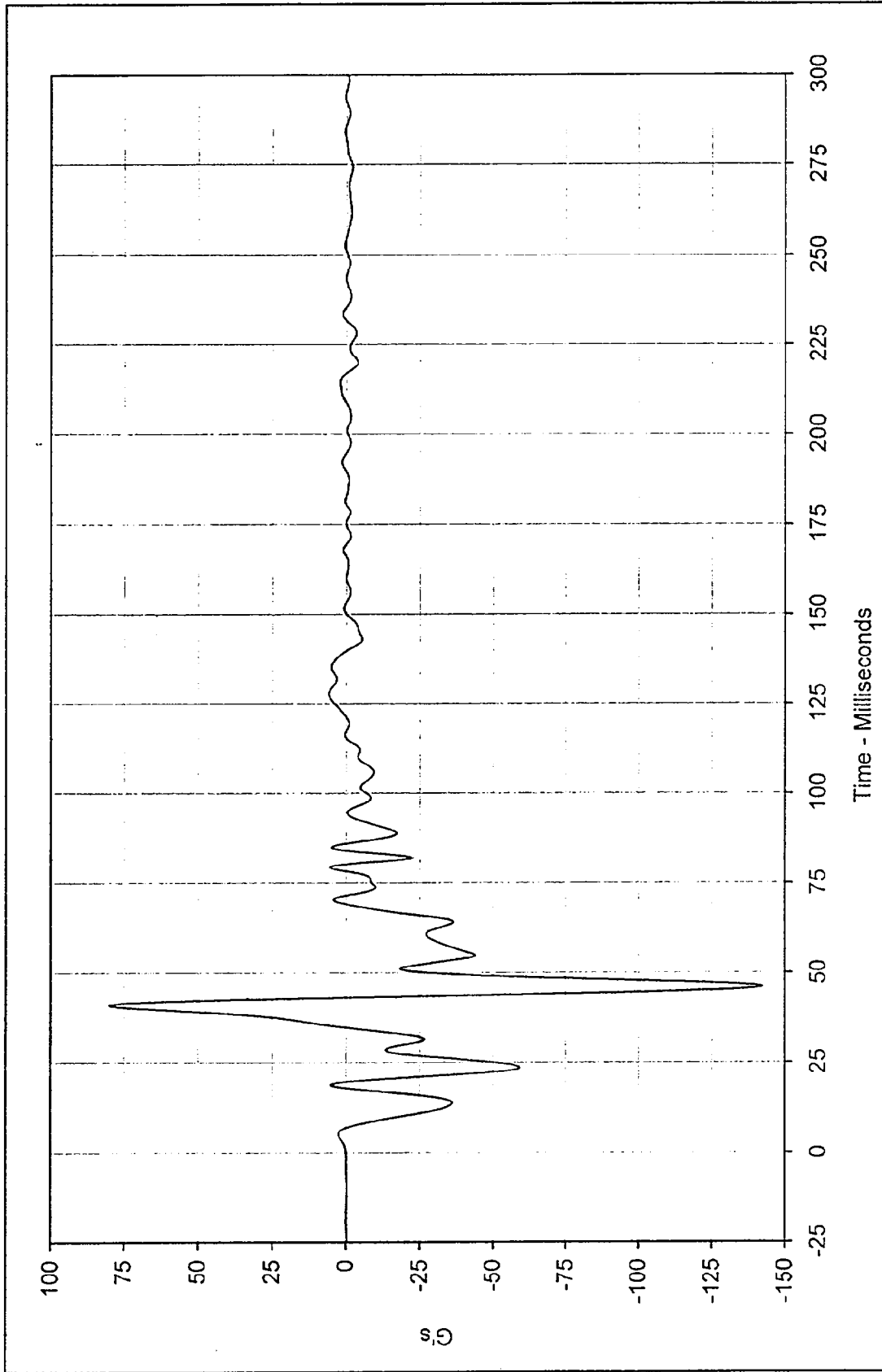
Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

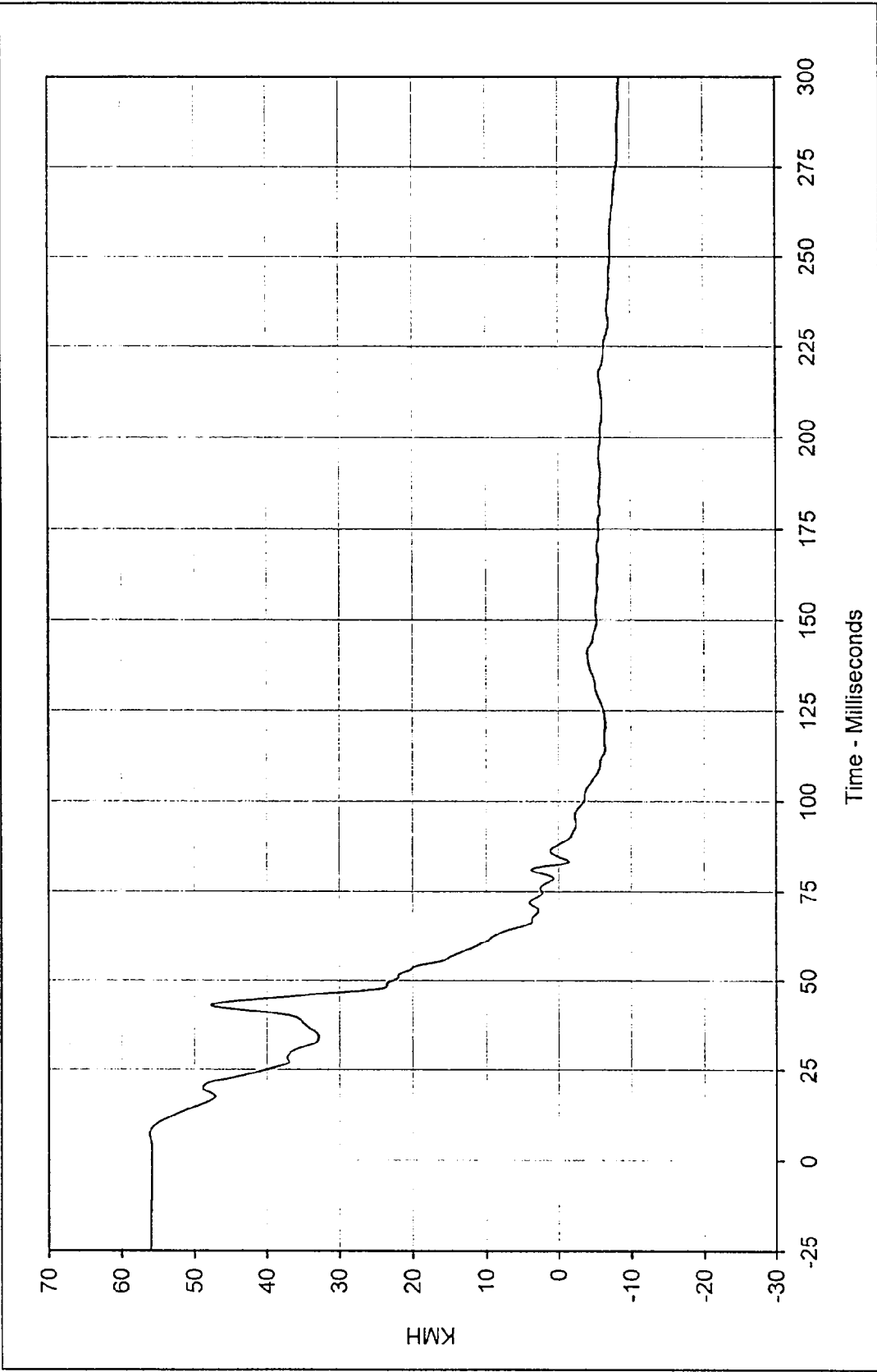
Curve Number: IN2-094





Curve Description: Vehicle Instrument Panel X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 79.8 at 40.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -142.3 at 46.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-095





Curve Description: Vehicle Instrument Panel X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 56.1 at 7.4 Milliseconds Test Vehicle: 1997 Kia Sephia

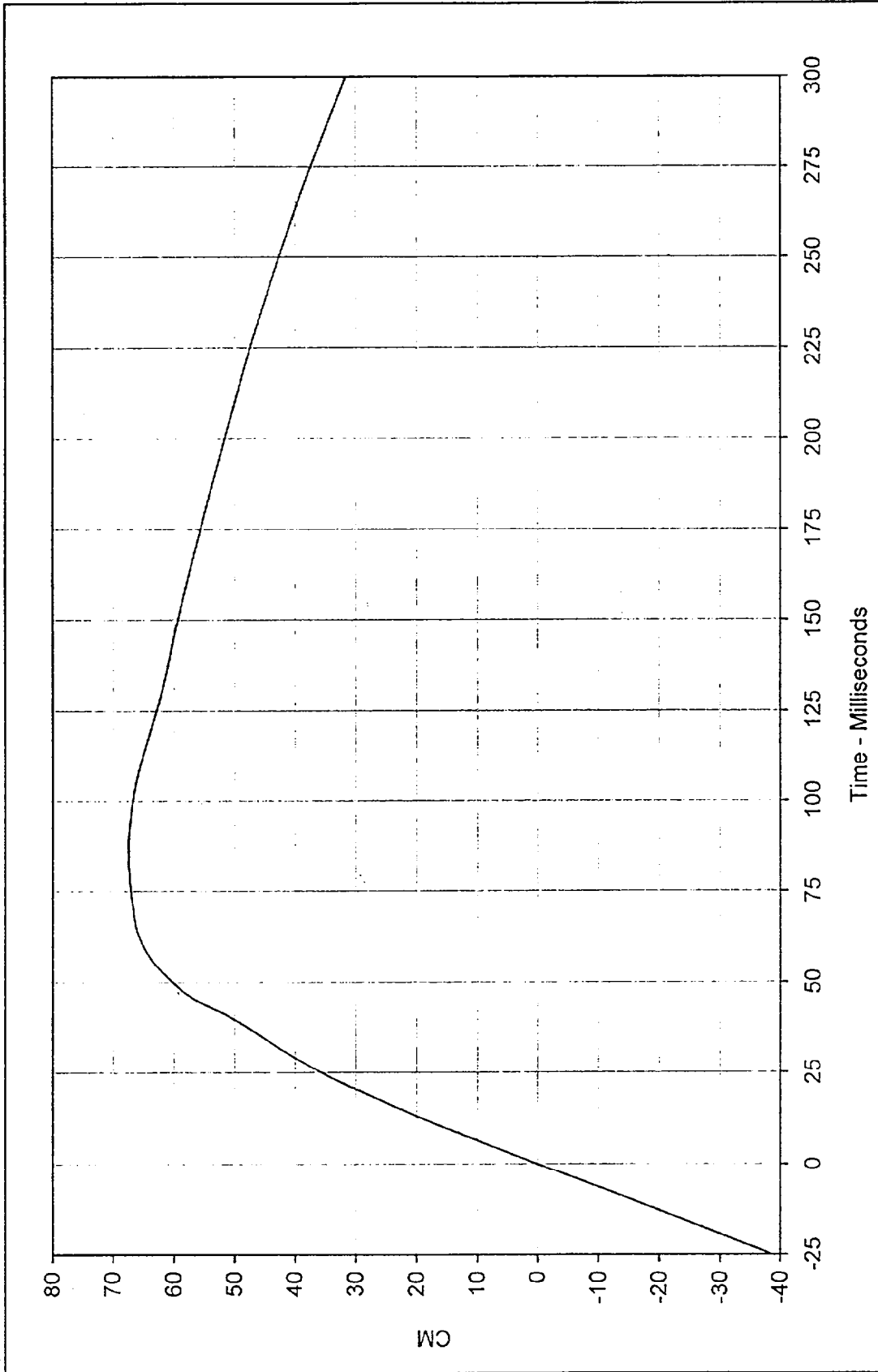
Minimum Value: -8.6 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

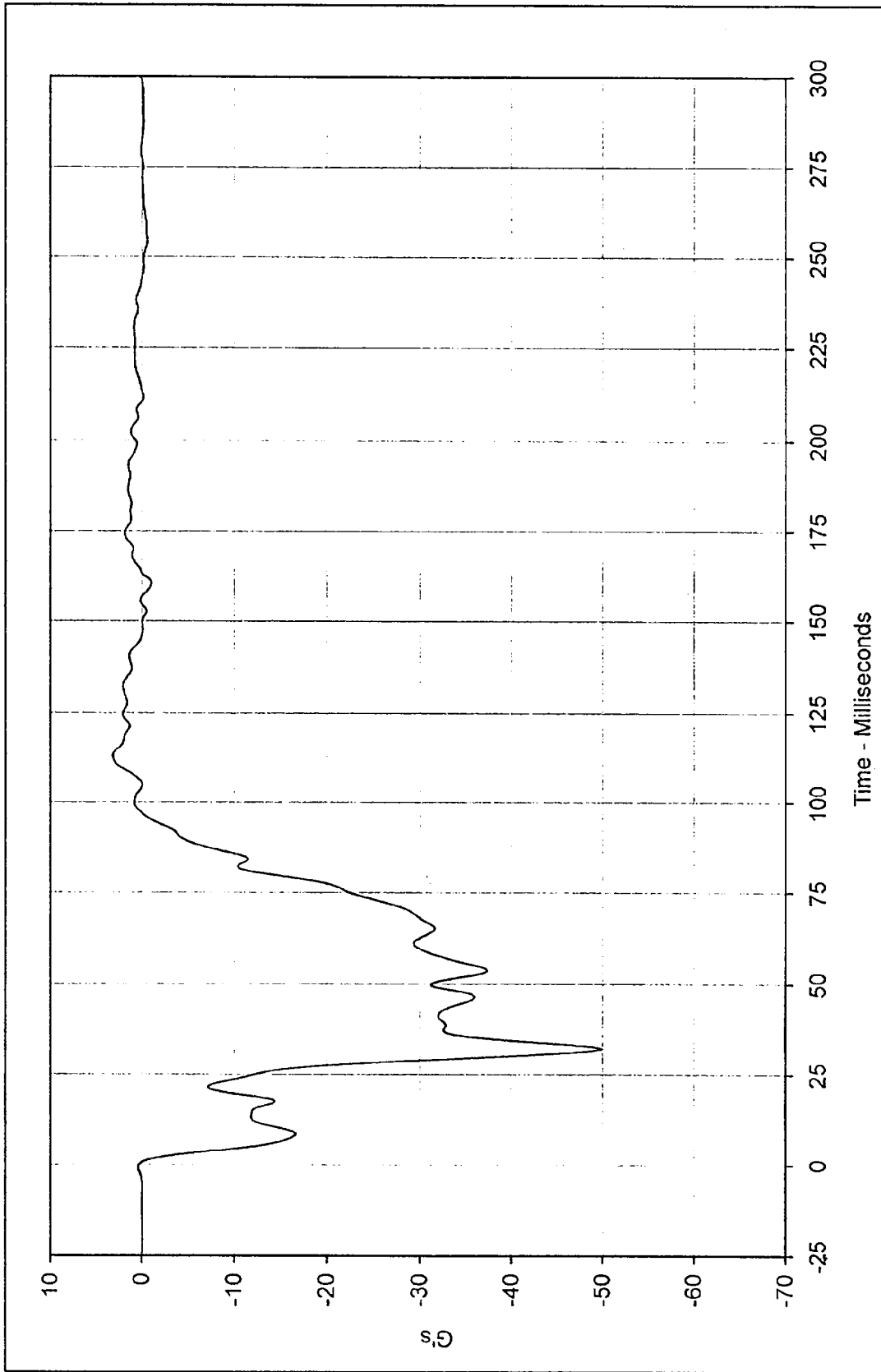
Curve Number: IN1-095





Curve Description: Vehicle Instrument Panel X Displ. Testing Program: 1997 New Car Assessment Program
 Maximum Value: 67.5 at 87.9 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-095

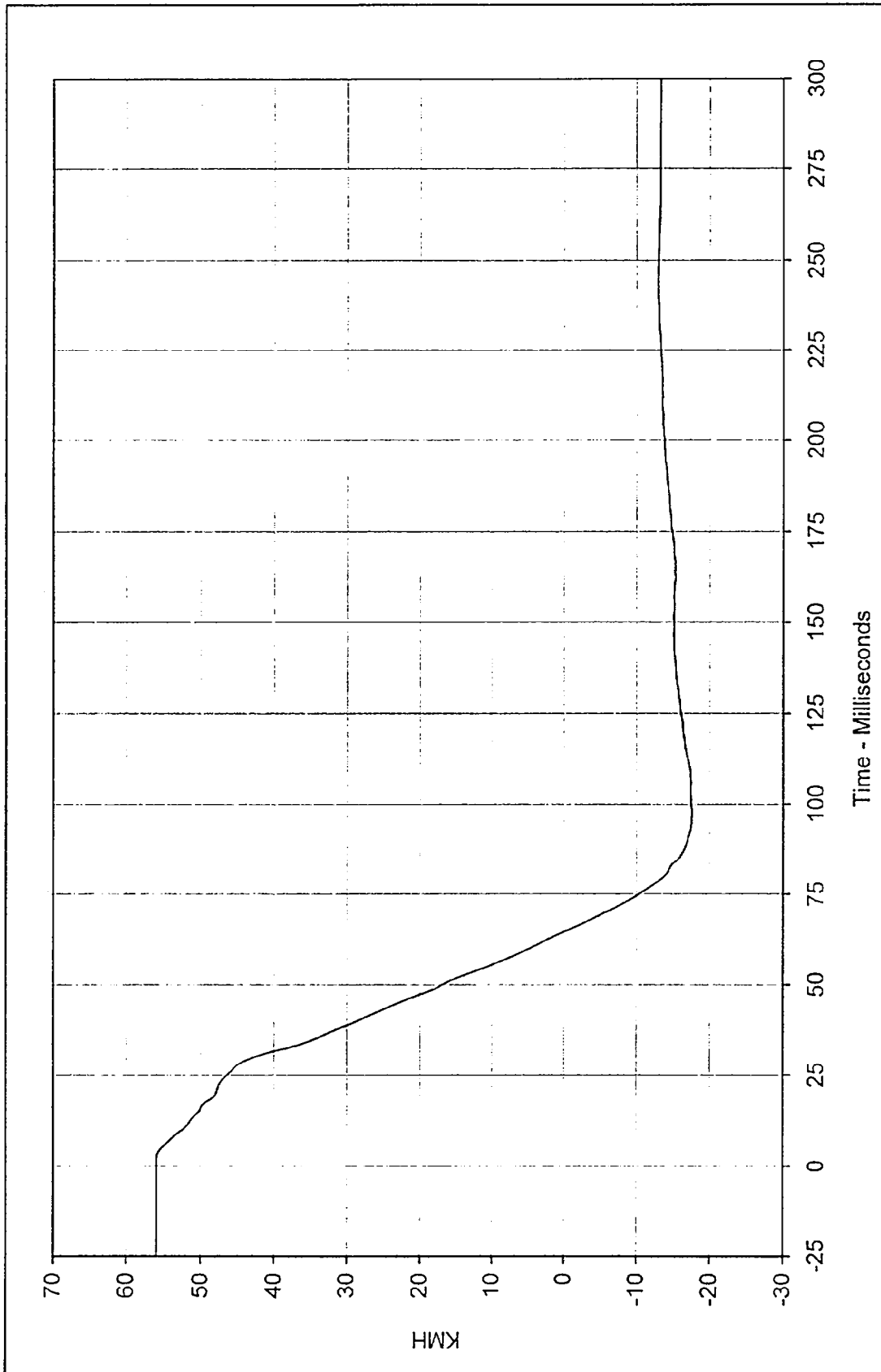




Curve Description: Vehicle Left Rear Redundant X
 Testing Program: 1997 New Car Assessment Program
 Maximum Value: 3.2 at 113.1 Milliseconds
 Test Vehicle: 1997 Kia Sephia
 Minimum Value: -49.9 at 32.2 Milliseconds



SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-096



Curve Description: Vehicle Left Rear Redundant X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 55.9 at 0.7 Milliseconds Test Vehicle: 1997 Kia Sephia

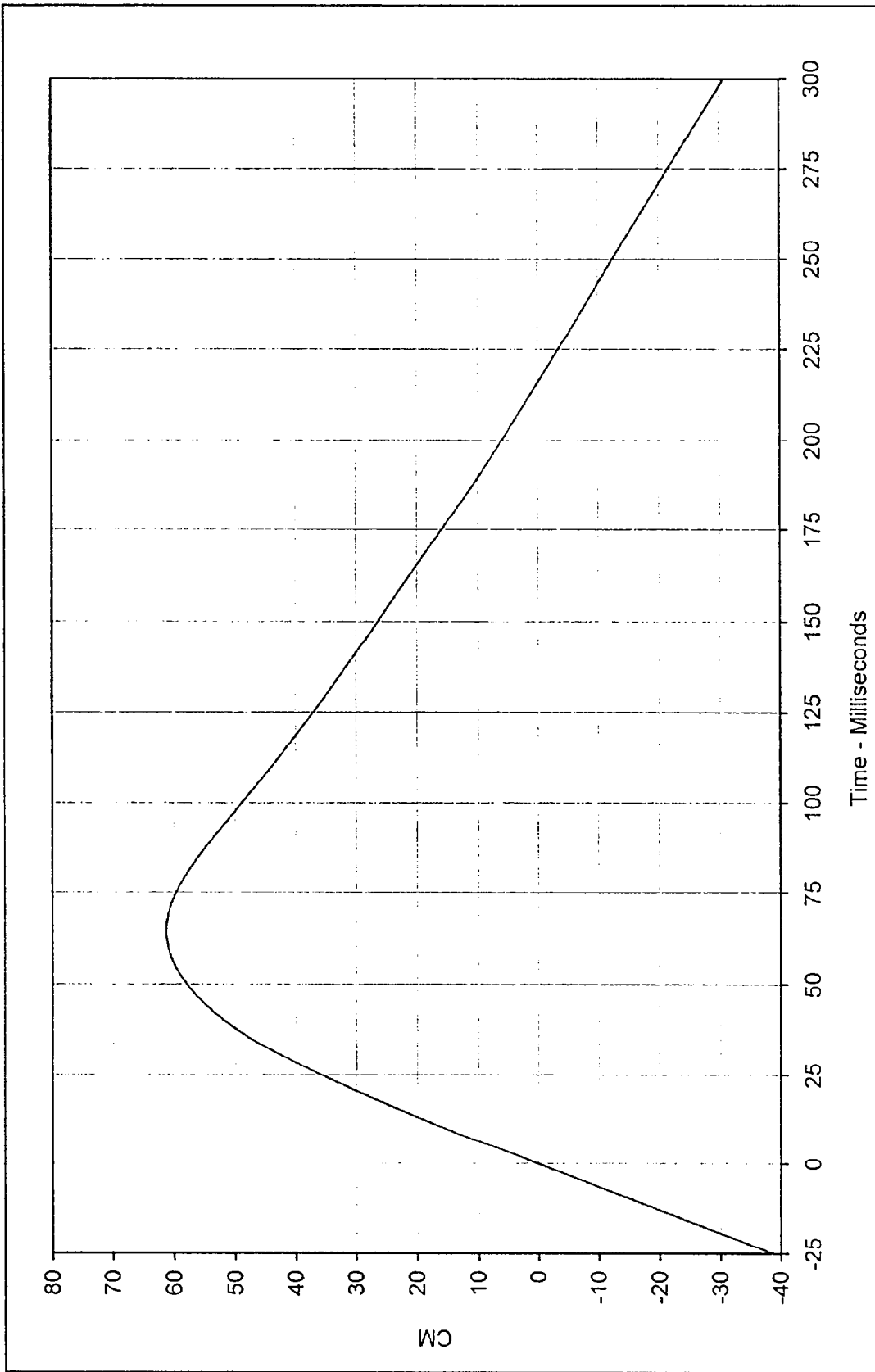
Minimum Value: -17.6 at 97.9 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: IN1-096





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B146

Curve Description: Vehicle Left Rear Redundant X Displ. Testing Program: 1997 New Car Assessment Program

Maximum Value: 61.3 at 64.7 Milliseconds Test Vehicle: 1997 Kia Sephia

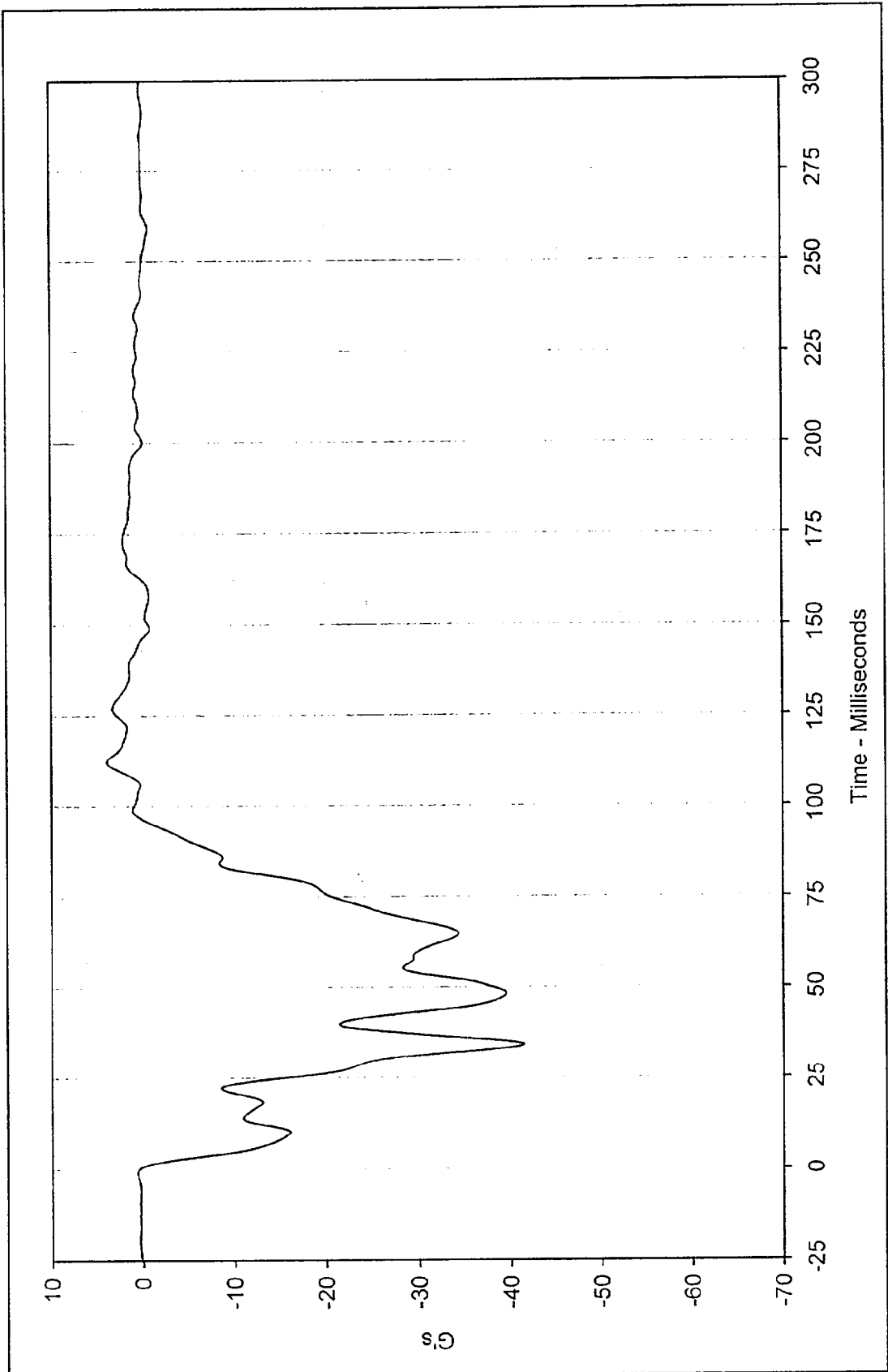
Minimum Value: -30.7 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

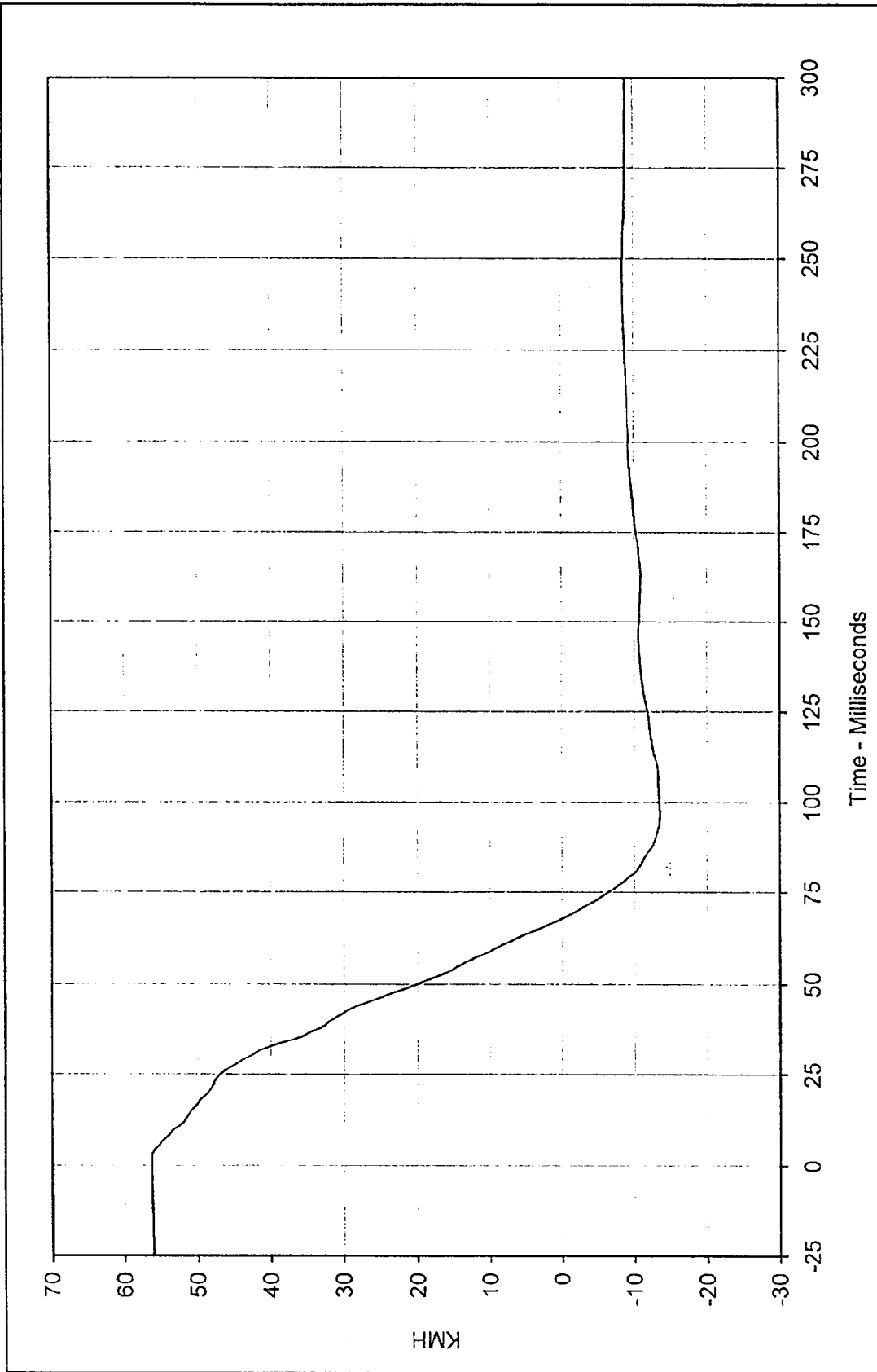
Curve Number: IN2-096





Curve Description: Vehicle Right Rear Redundant X Testing Program: 1997 New Car Assessment Program
 Maximum Value: 3.8 at 112.3 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -41.5 at 34.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-097





Curve Description: Vehicle Right Rear Redundant X Velocity Testing Program: 1997 New Car Assessment Program

Maximum Value: 56.3 at 2.2 Milliseconds Test Vehicle: 1997 Kia Sephia

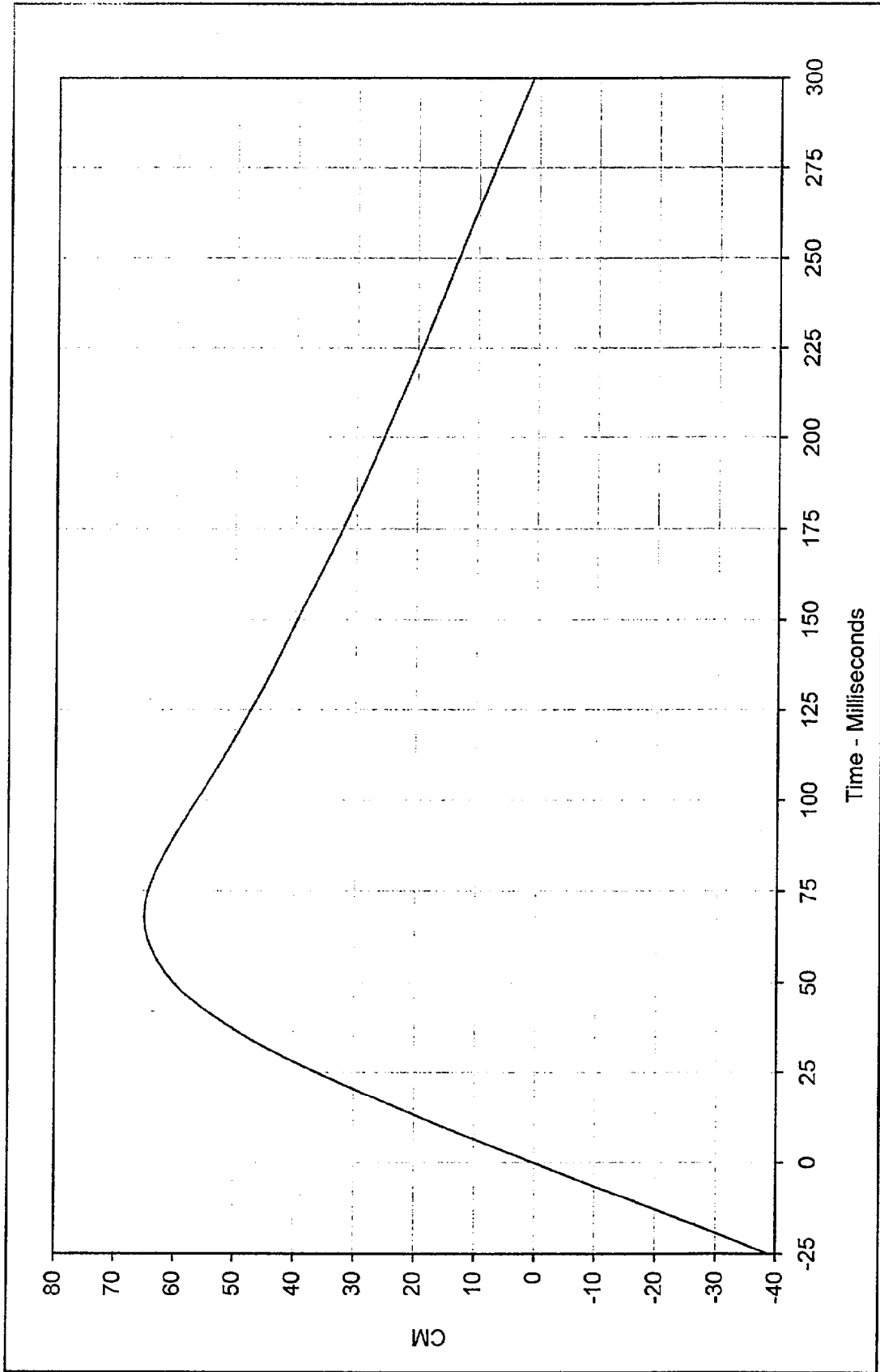
Minimum Value: -13.6 at 97.1 Milliseconds

SAE Filter Class: 180

Date of Test: 5/1/97

Curve Number: IN1-097



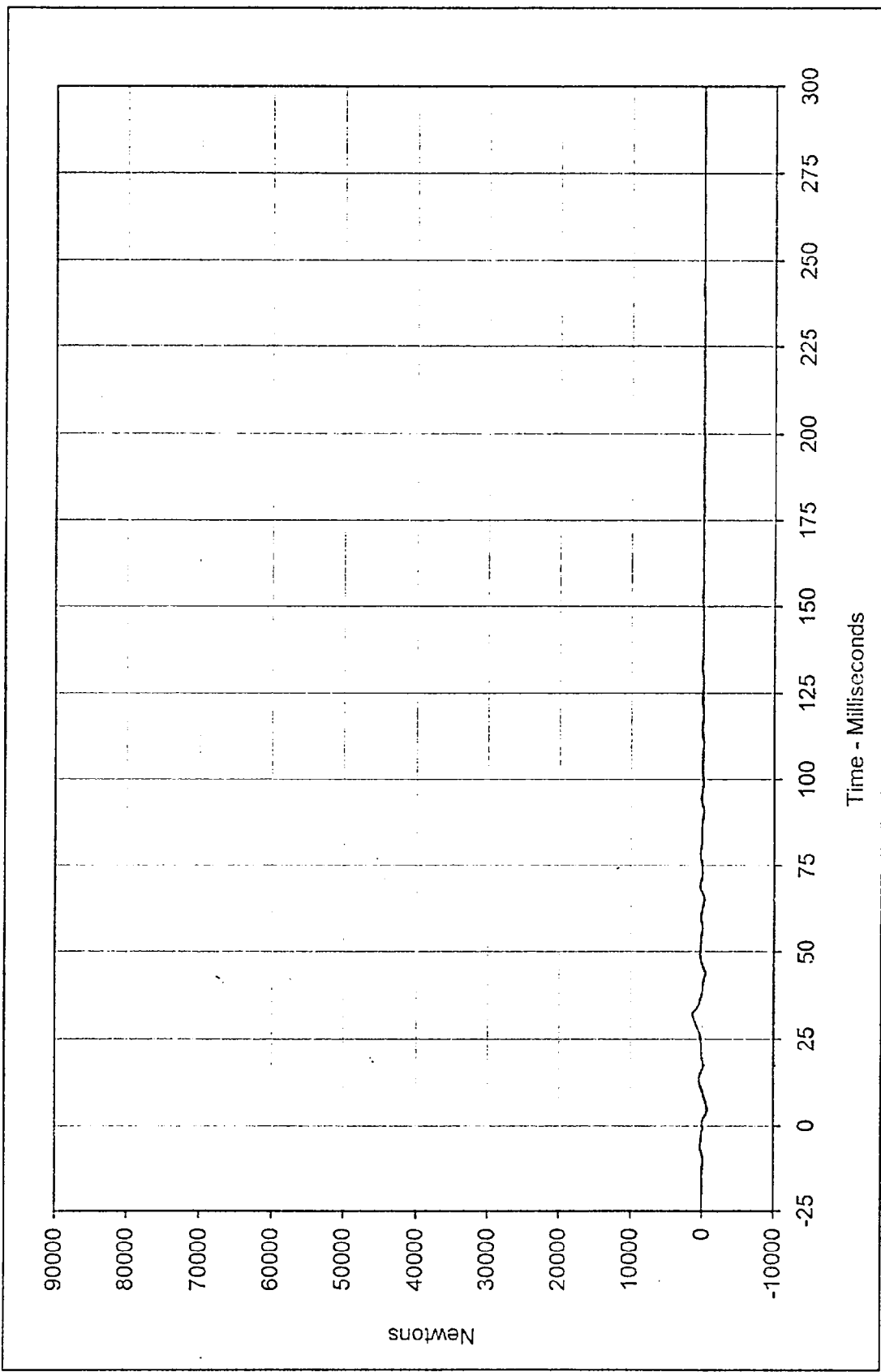


Curve Description: Vehicle Right Rear Redundant X Displ.
 Maximum Value: 65.0 at 67.9 Milliseconds
 Minimum Value: 0.1 at 0.0 Milliseconds
 SAE Filter Class: 180
 Date of Test: 5/1/97
 Curve Number: IN2-097

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia



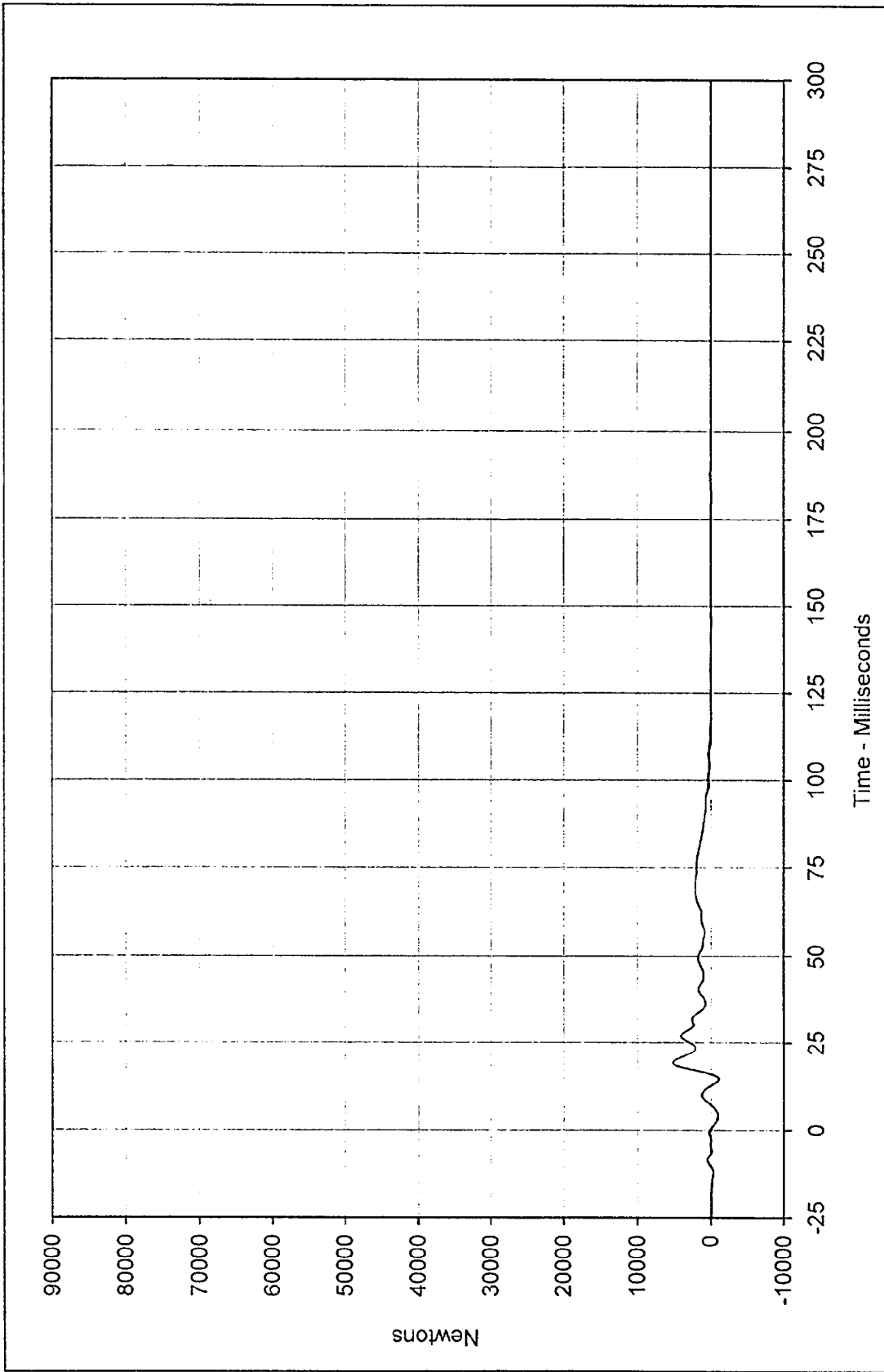
APPENDIX C
LOAD CELL BARRIER DATA



Curve Description: Barrier Force A2
 Maximum Value: 1381 at 32.1 Milliseconds
 Minimum Value: -627 at 4.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-099

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia





Curve Description: Barrier Force A3

Testing Program: 1997 New Car Assessment Program

Maximum Value: 5180 at 19.1 Milliseconds

Test Vehicle: 1997 Kia Sephia

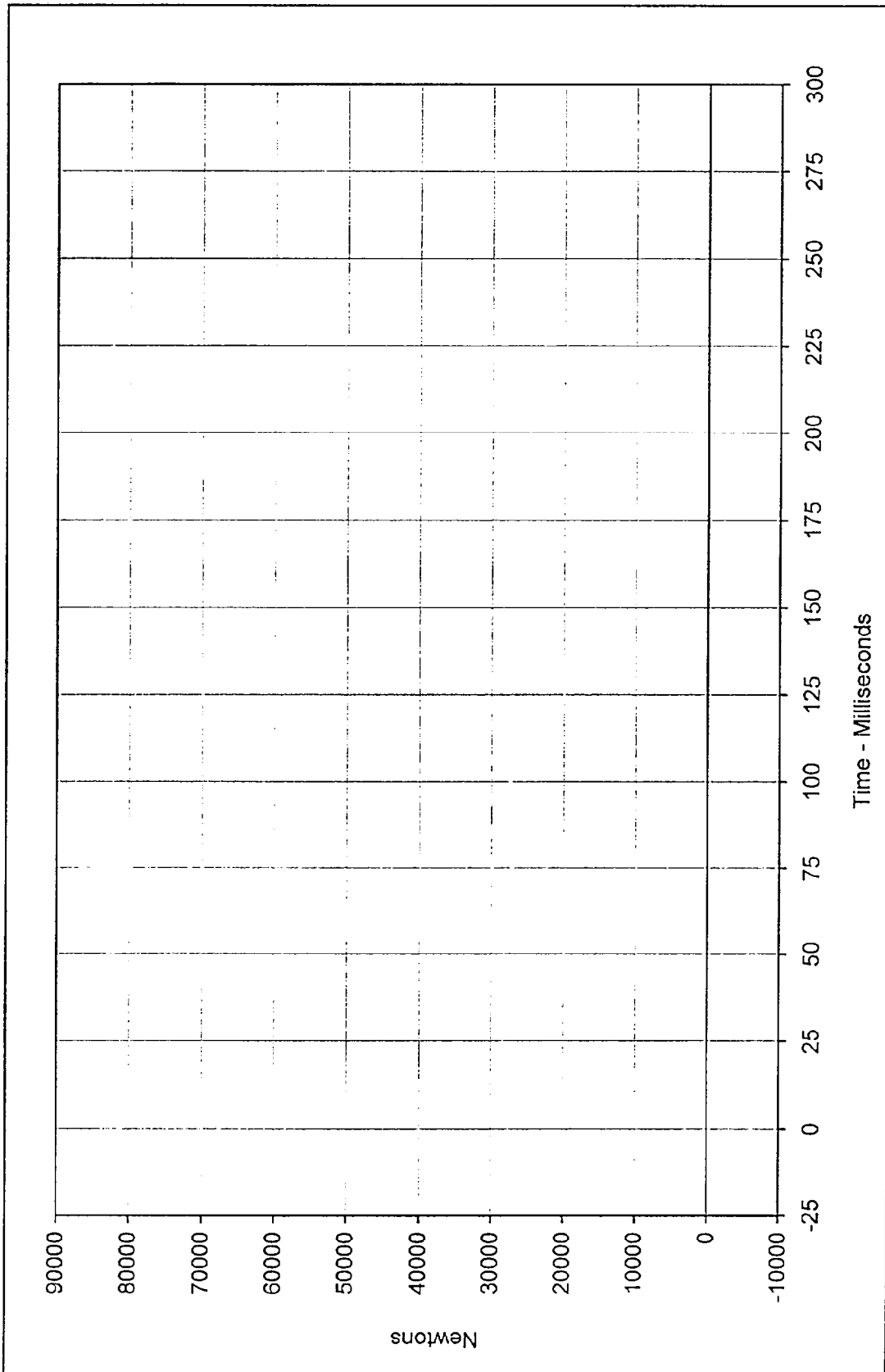
Minimum Value: -1073 at 14.4 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: FIL-100

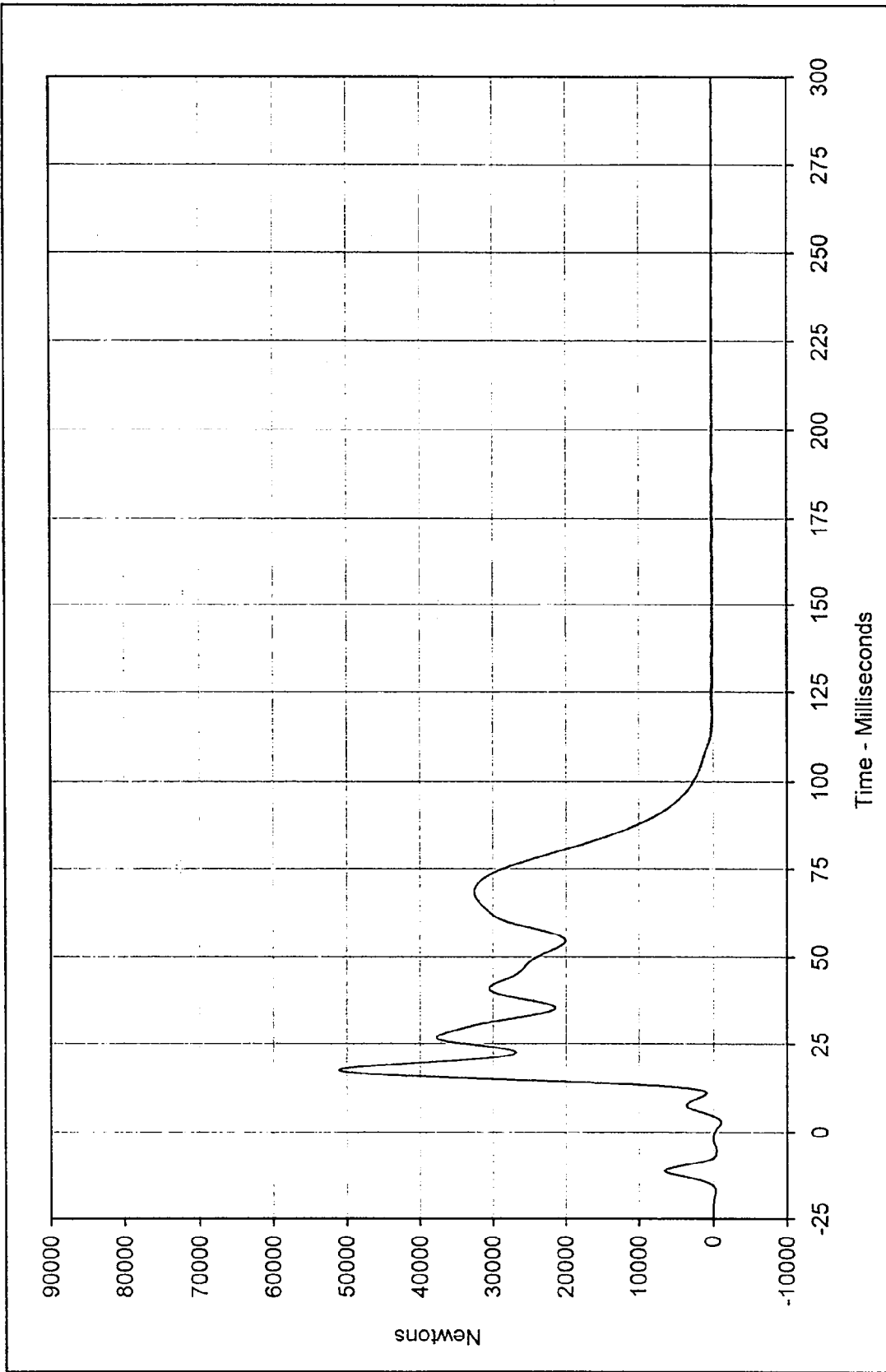




Curve Description: Barrier Force A4 * Testing Program: 1997 New Car Assessment Program
Maximum Value: 0 at 0.0 Milliseconds Test Vehicle: 1997 Kia Sephia
Minimum Value: 0 at 0.0 Milliseconds
SAE Filter Class: 60
Date of Test: 5/1/97
Curve Number: FIL-101



*Channel Failed, No Data



Curve Description: Barrier Force A5 Testing Program: 1997 New Car Assessment Program

Maximum Value: 51076 at 17.5 Milliseconds Test Vehicle: 1997 Kia Sephia

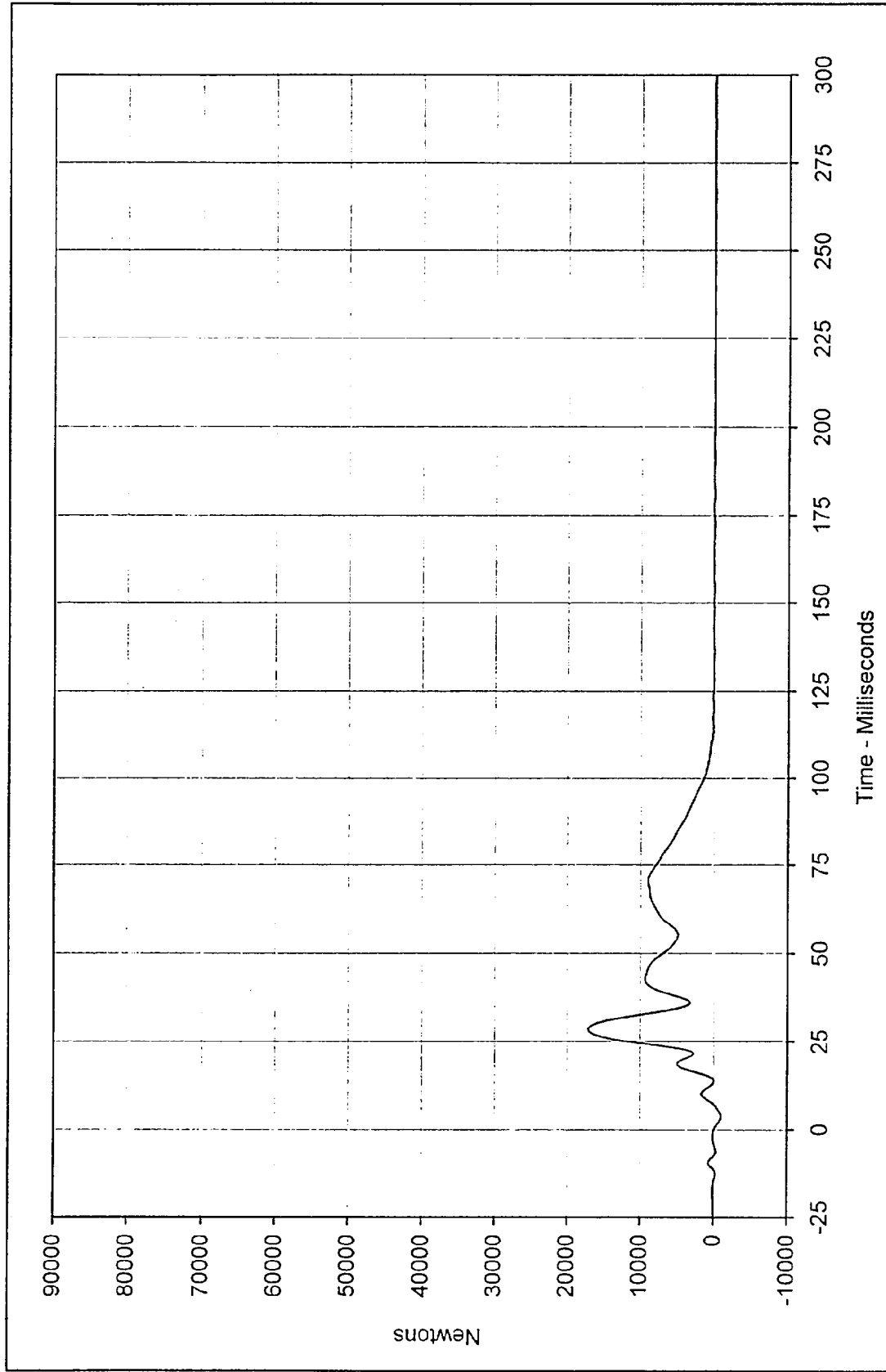
Minimum Value: -1020 at 2.8 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: FIL-102

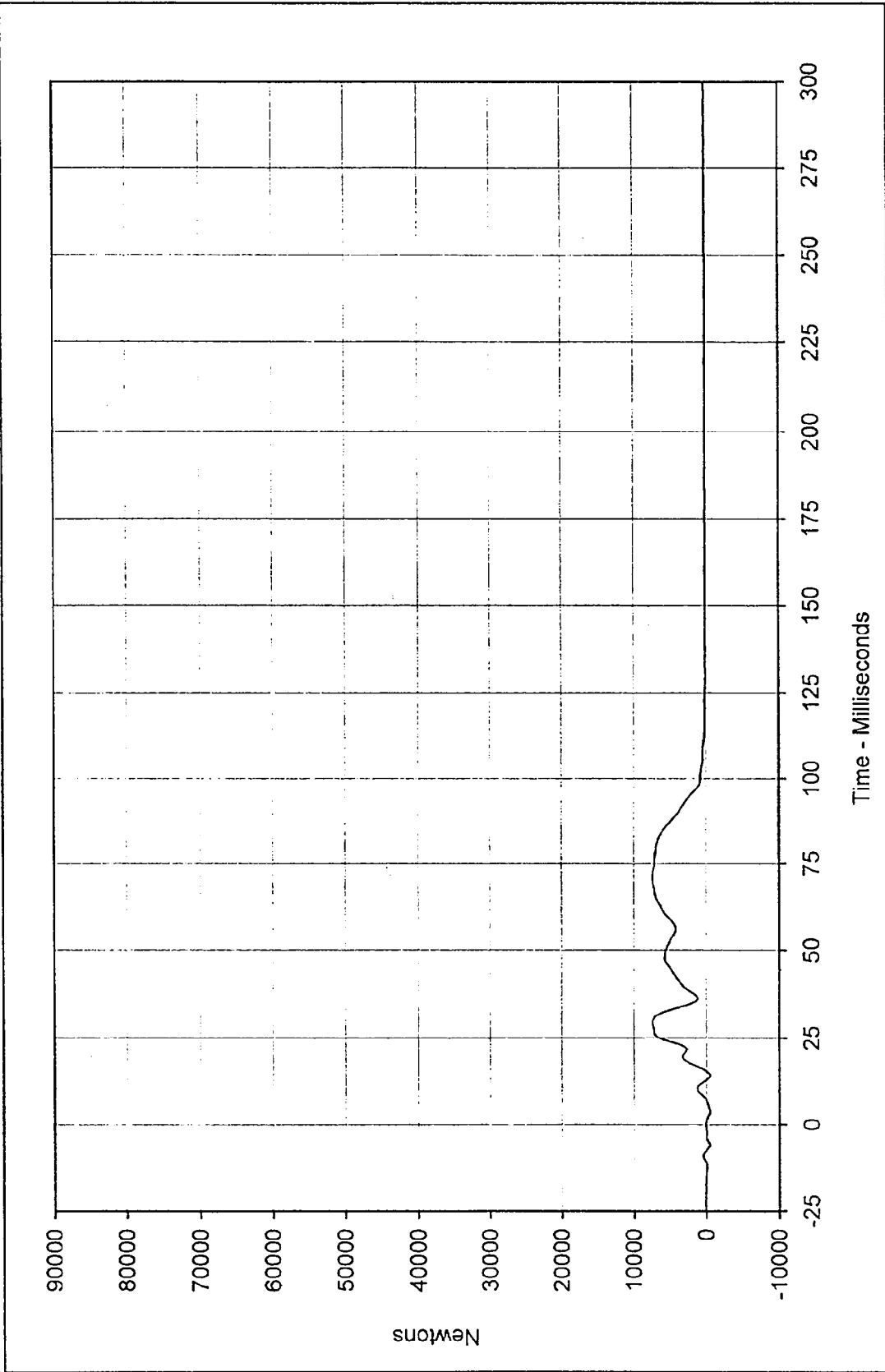




Curve Description: Barrier Force A6
 Maximum Value: 17095 at 28.7 Milliseconds
 Minimum Value: -989 at 3.8 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-103

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia

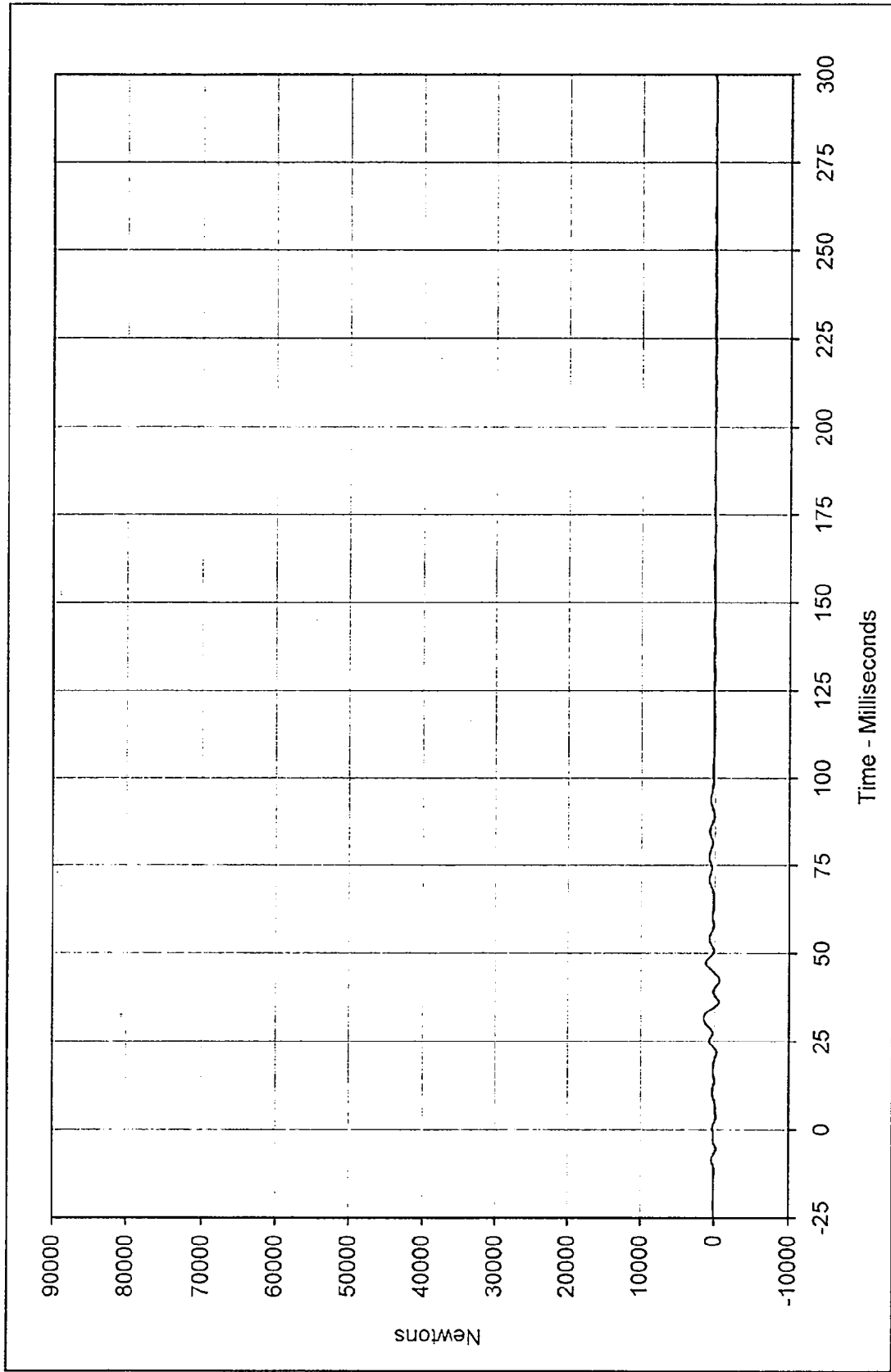




Curve Description: Barrier Force A7
Maximum Value: 7388 at 71.0 Milliseconds
Minimum Value: -529 at 14.0 Milliseconds
SAE Filter Class: 60
Date of Test: 5/1/97
Curve Number: FIL-104

Testing Program: 1997 New Car Assessment Program
Test Vehicle: 1997 Kia Sephia

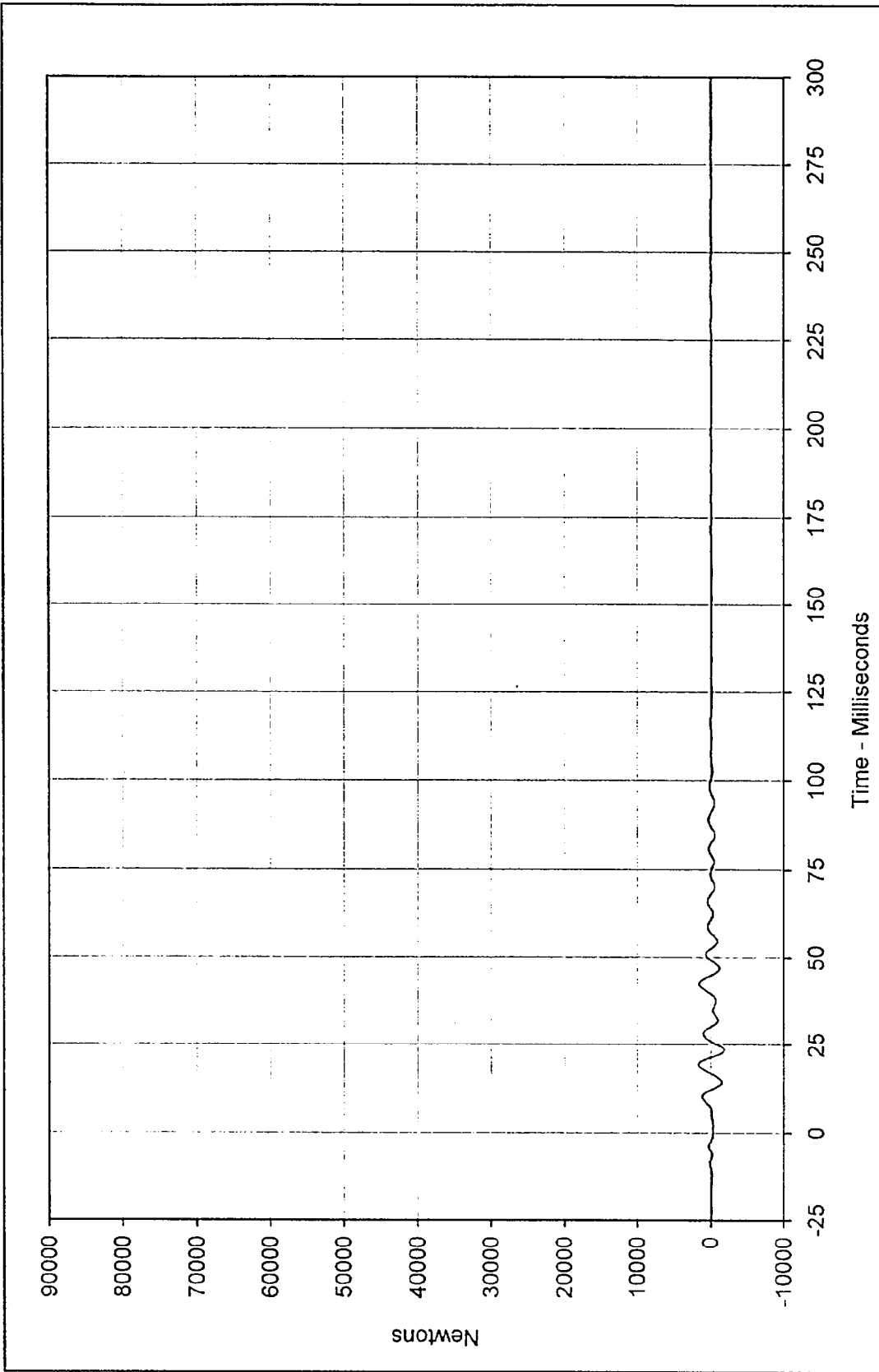




Curve Description: Barrier Force A8
 Maximum Value: 1453 at 31.7 Milliseconds
 Minimum Value: -608 at 42.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-105

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia



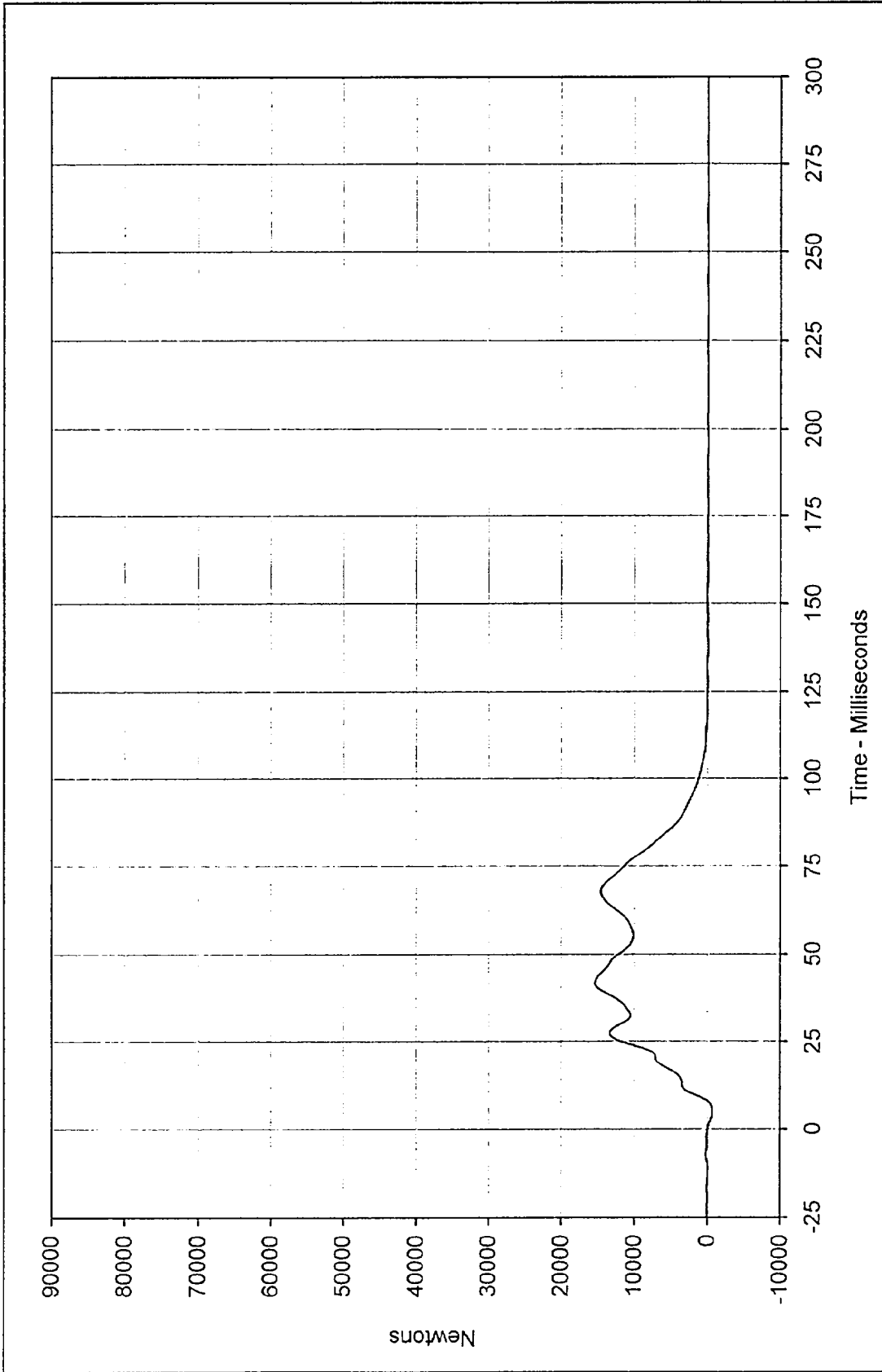


Curve Description: Barrier Force A9
 Maximum Value: 1709 at 19.3 Milliseconds
 Minimum Value: -1819 at 23.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-106

Testing Program: 1997 New Car Assessment Program

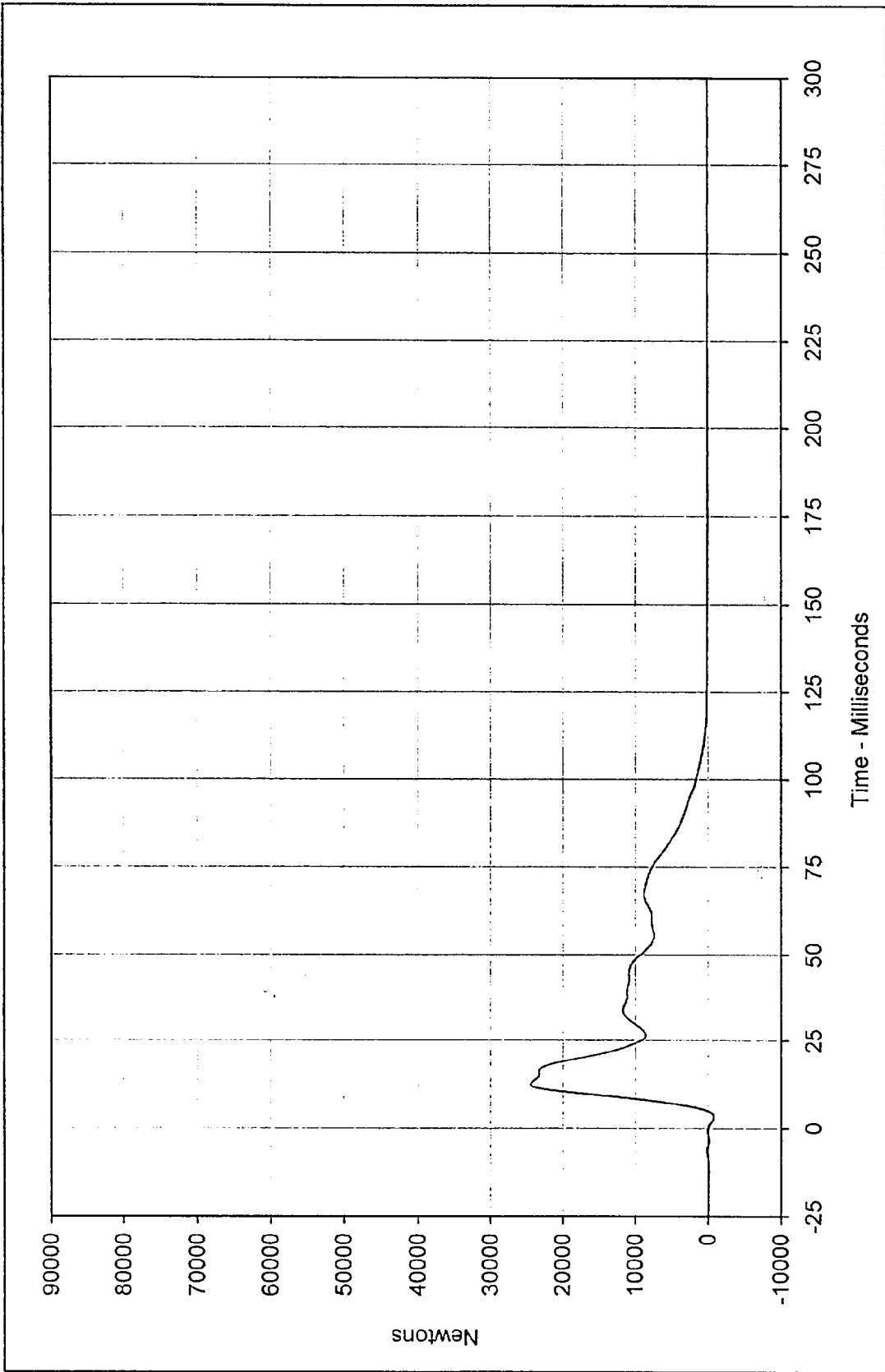
Test Vehicle: 1997 Kia Sephia





Curve Description: Barrier Force B2 Testing Program: 1997 New Car Assessment Program
 Maximum Value: 15380 at 41.6 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -673 at 4.6 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-108

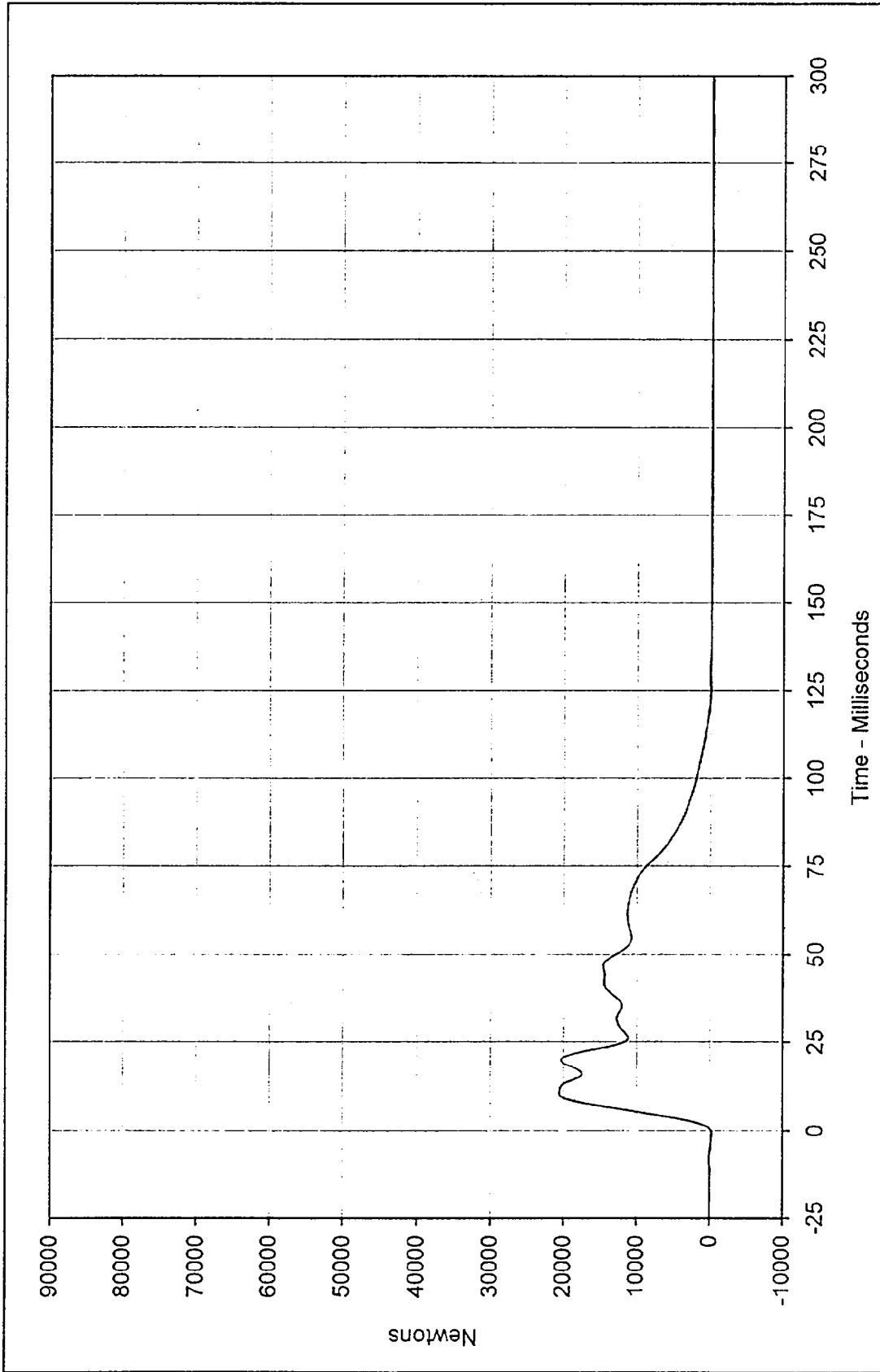




Curve Description: Barrier Force B3
 Maximum Value: 24485 at 12.3 Milliseconds
 Minimum Value: -745 at 3.3 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-109

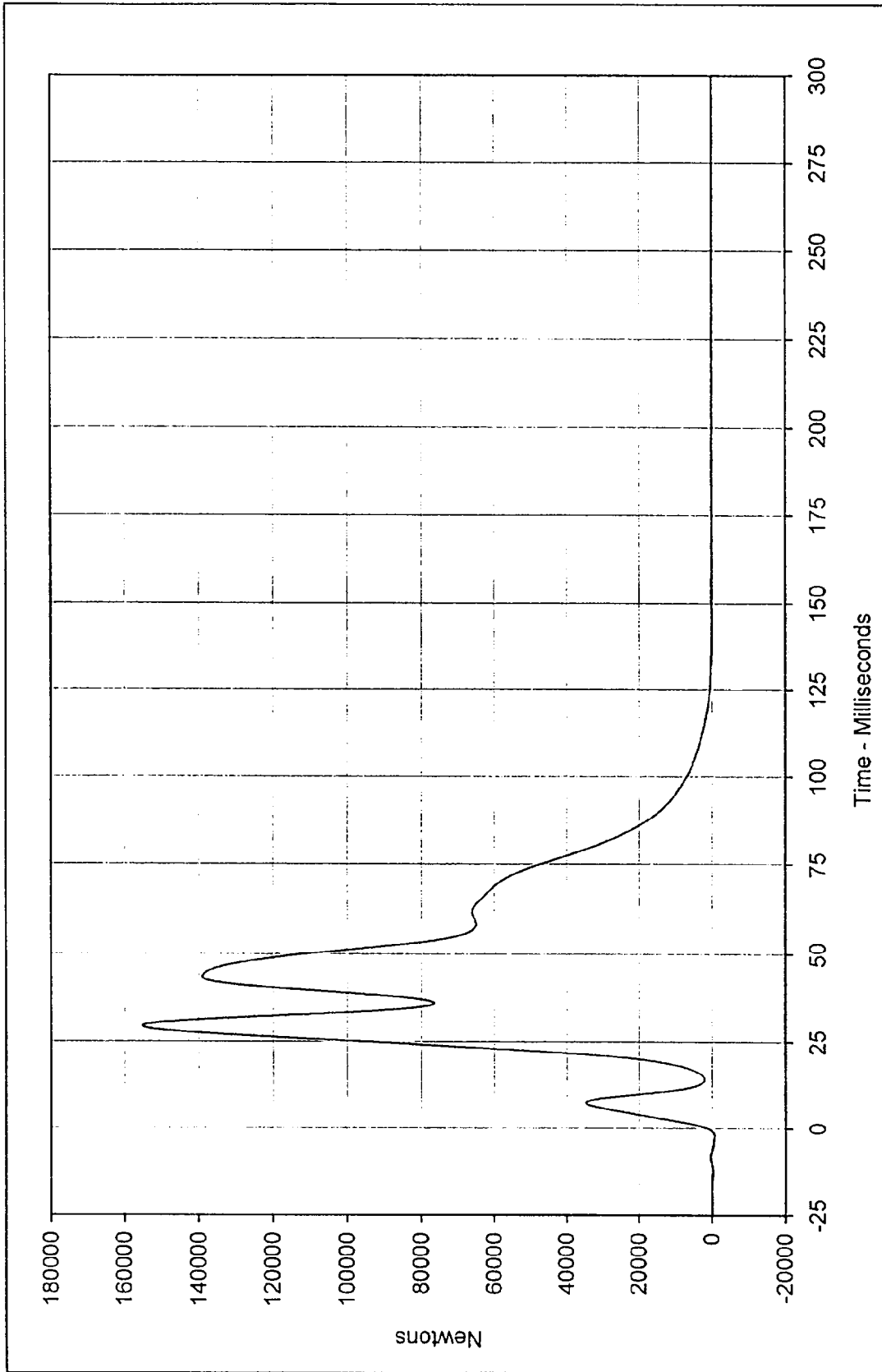
Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia





Curve Description: Barrier Force B4 Testing Program: 1997 New Car Assessment Program
 Maximum Value: 20562 at 10.5 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -314 at -0.7 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-110





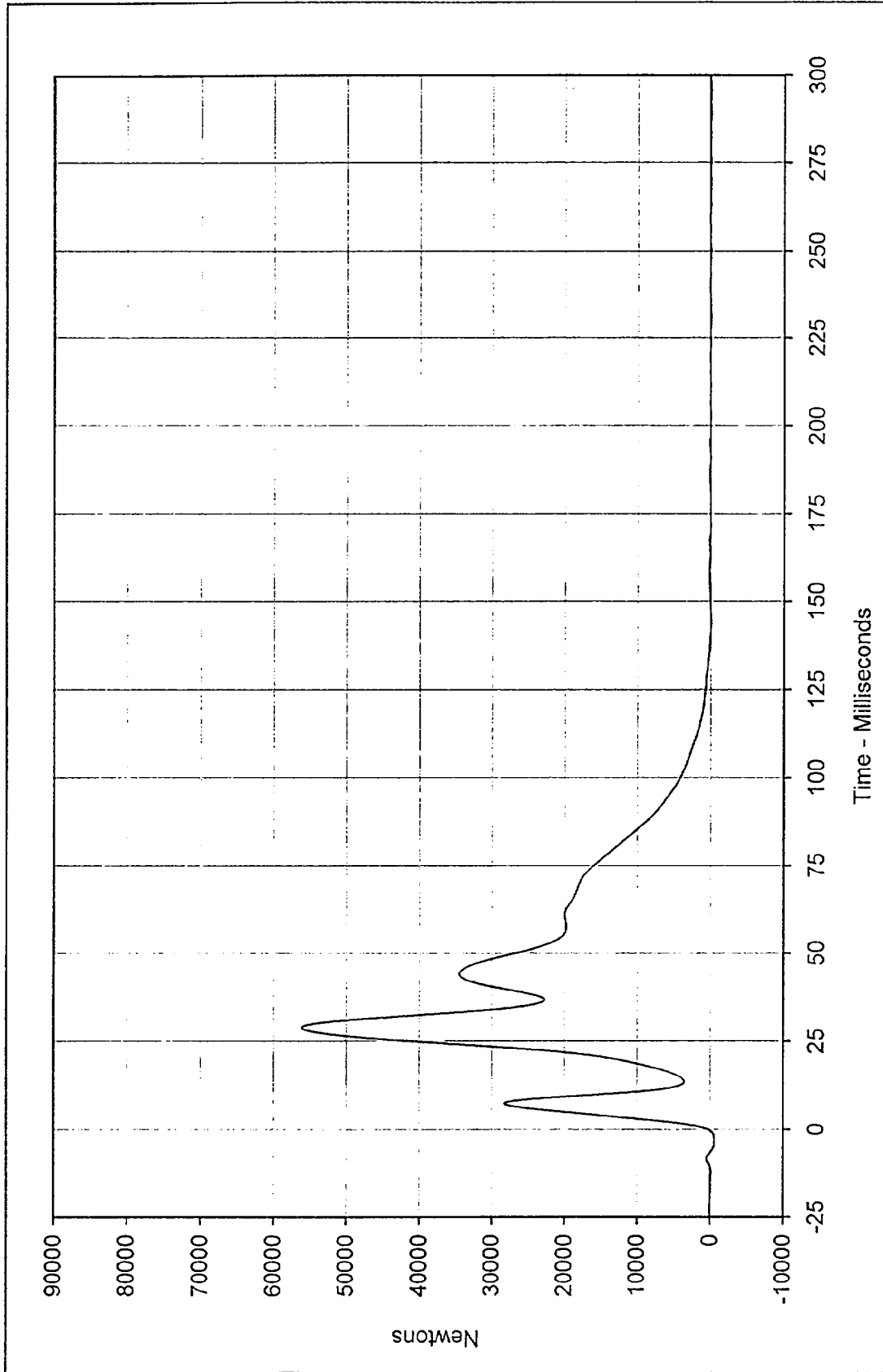
KAR-96-R96024-07

C12

Curve Description: Barrier Force B5
 Maximum Value: 155144 at 29.5 Milliseconds
 Minimum Value: -23 at 161.1 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-111

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia

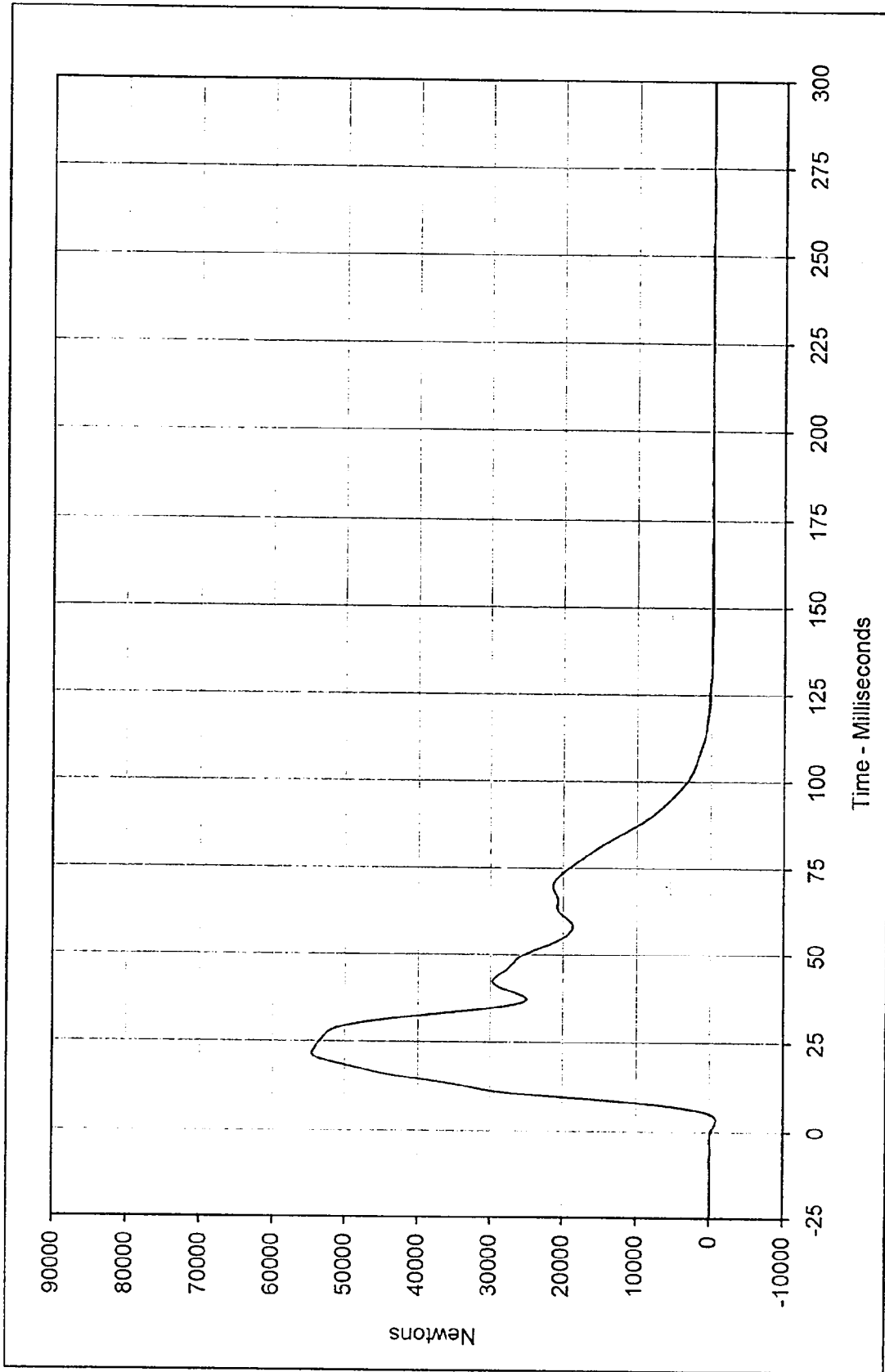




Curve Description: Barrier Force B6
 Maximum Value: 56124 at 28.8 Milliseconds
 Minimum Value: -51 at 144.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-112

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia





Curve Description: Barrier Force B7 Testing Program: 1997 New Car Assessment Program

Maximum Value: 54534 at 21.7 Milliseconds Test Vehicle: 1997 Kia Sephia

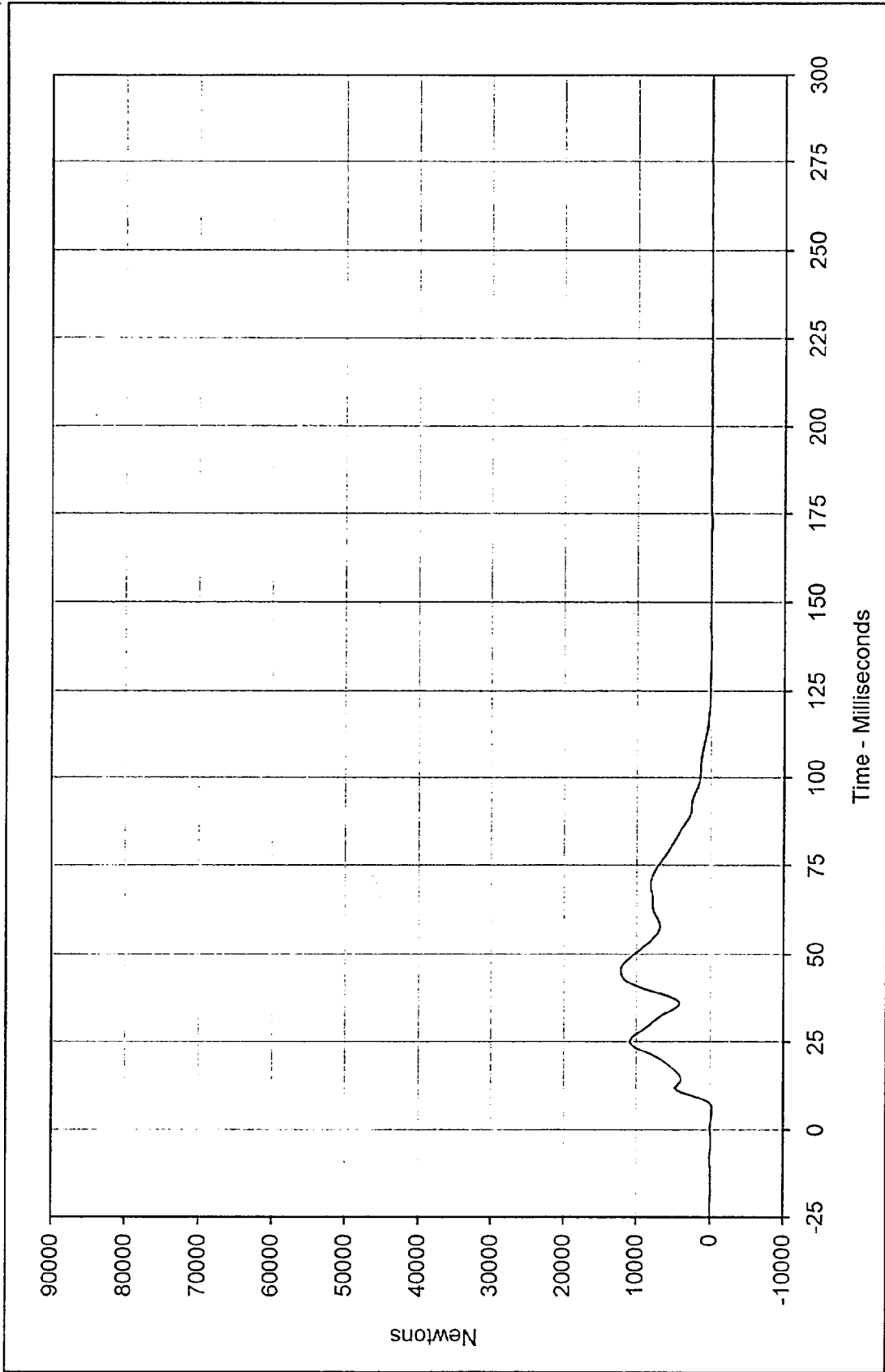
Minimum Value: -837 at 3.3 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: FIL-113





Curve Description: Barrier Force B8

Maximum Value: 12149 at 45.2 Milliseconds

Minimum Value: -2777 at 5.9 Milliseconds

SAE Filter Class: 60

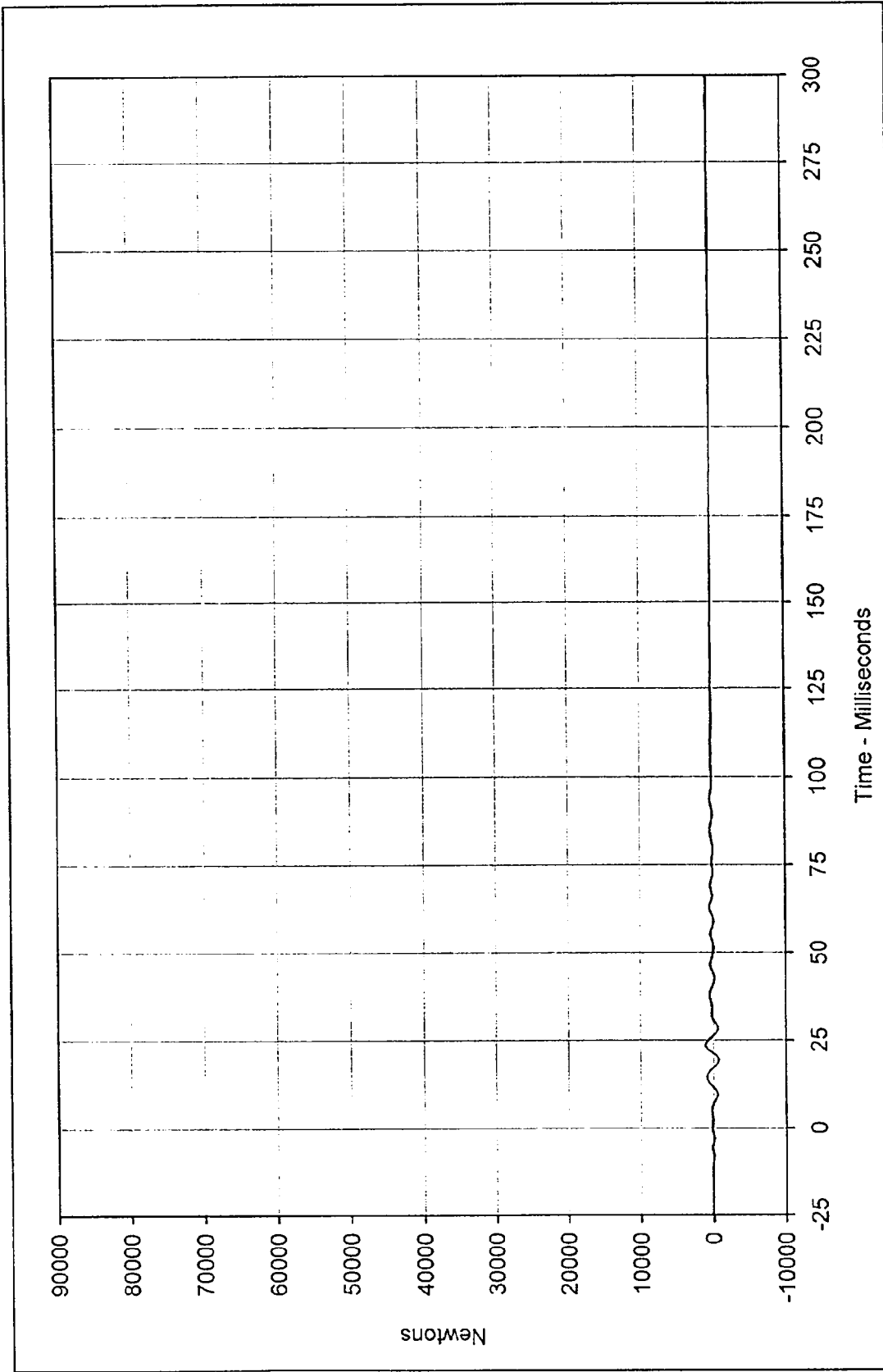
Date of Test: 5/1/97

Curve Number: FIL-114

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Kia Sephia





KAR-96-R96024-07

C16

Curve Description: Barrier Force B9 Testing Program: 1997 New Car Assessment Program

Maximum Value: 1089 at 23.5 Milliseconds Test Vehicle: 1997 Kia Sephia

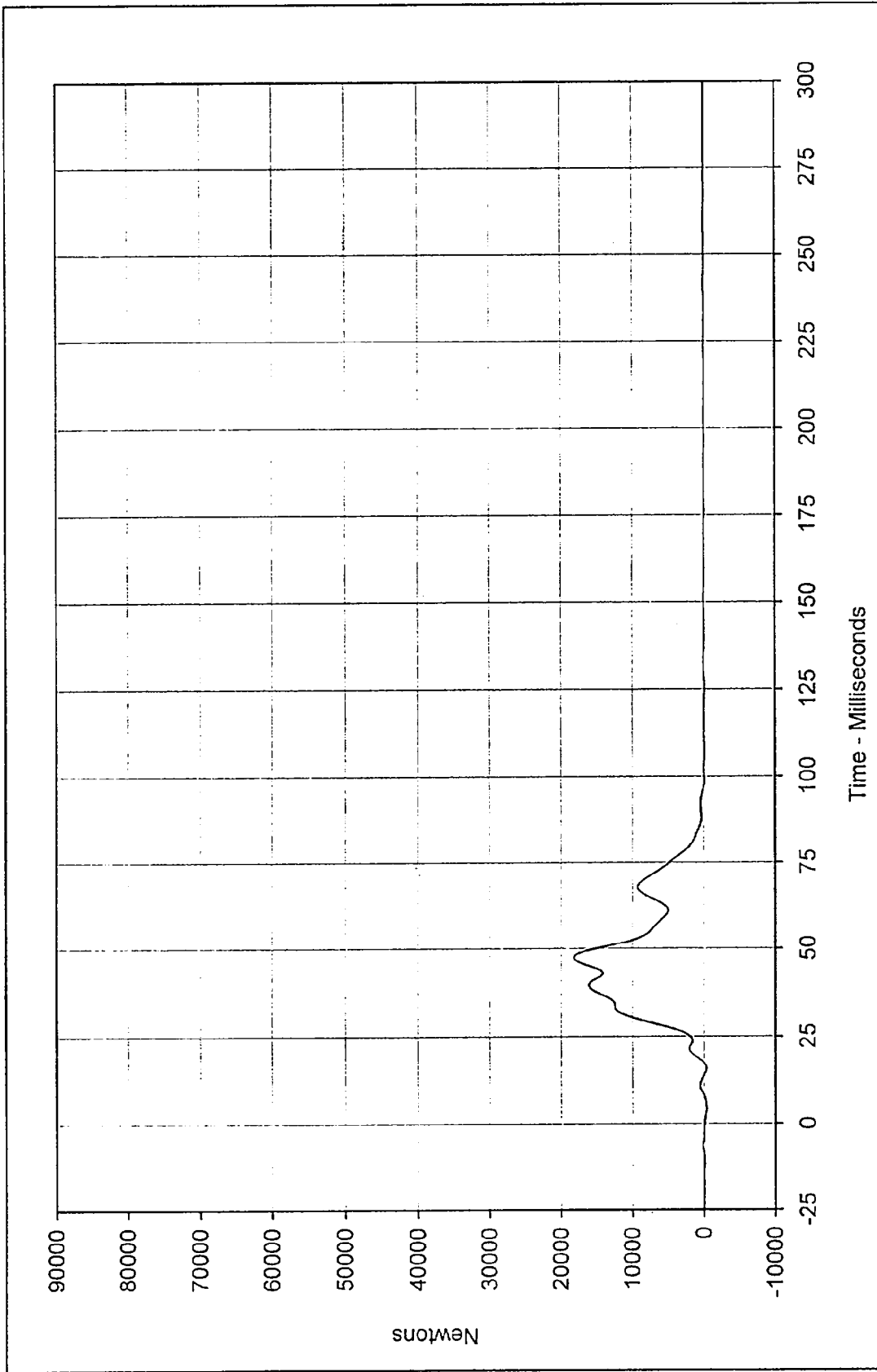
Minimum Value: -775 at 19.2 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: FIL-145





KAR-96-R96024-07

C17

Curve Description: Barrier Force C2 Testing Program: 1997 New Car Assessment Program

Maximum Value: 18159 at 47.4 Milliseconds Test Vehicle: 1997 Kia Sephia

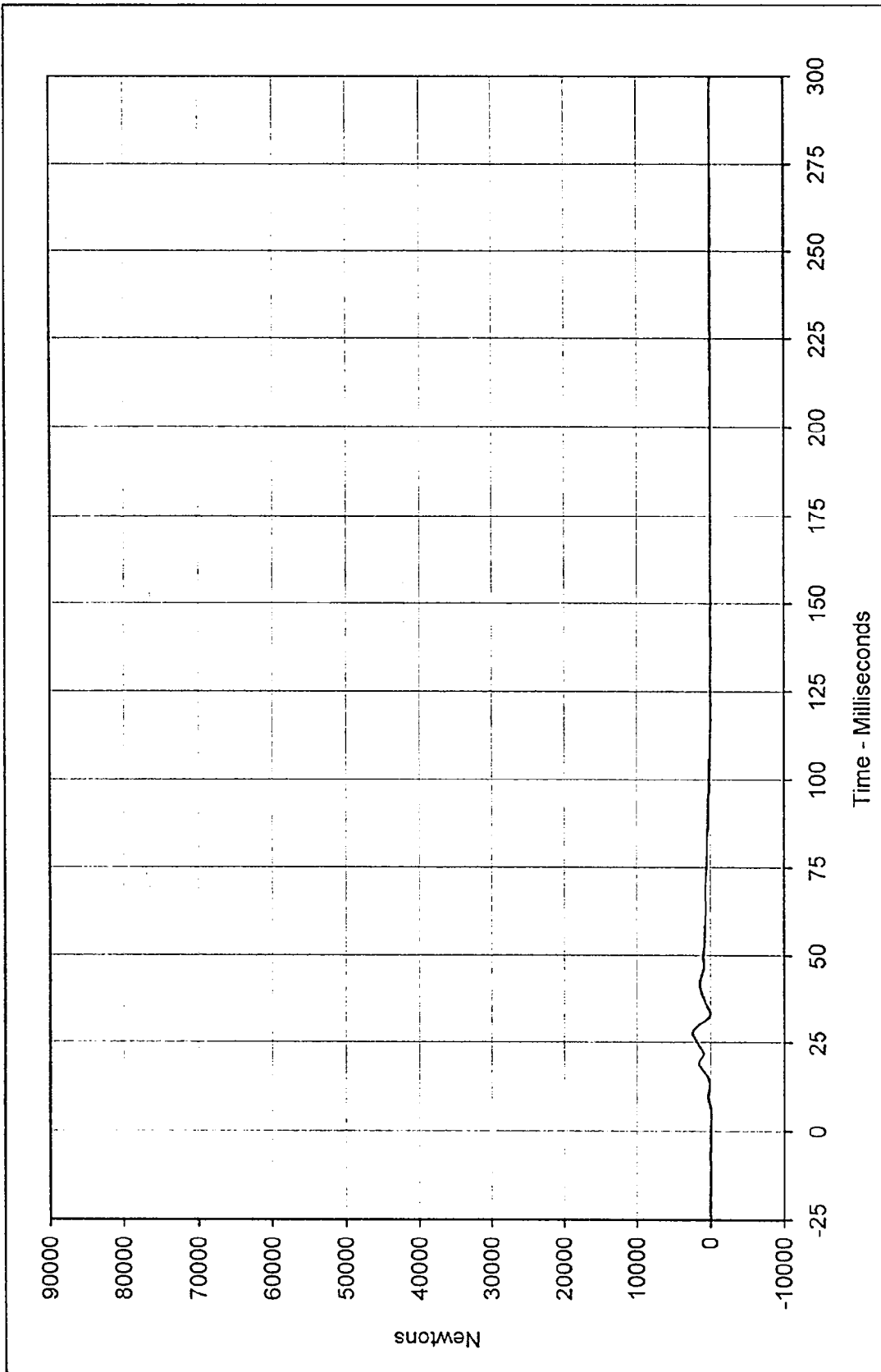
Minimum Value: -380 at 4.4 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: FIL-117





KAR-96-R96024-07

C18

Curve Description: Barrier Force C3 Testing Program: 1997 New Car Assessment Program

Maximum Value: 2428 at 27.9 Milliseconds Test Vehicle: 1997 Kia Sephia

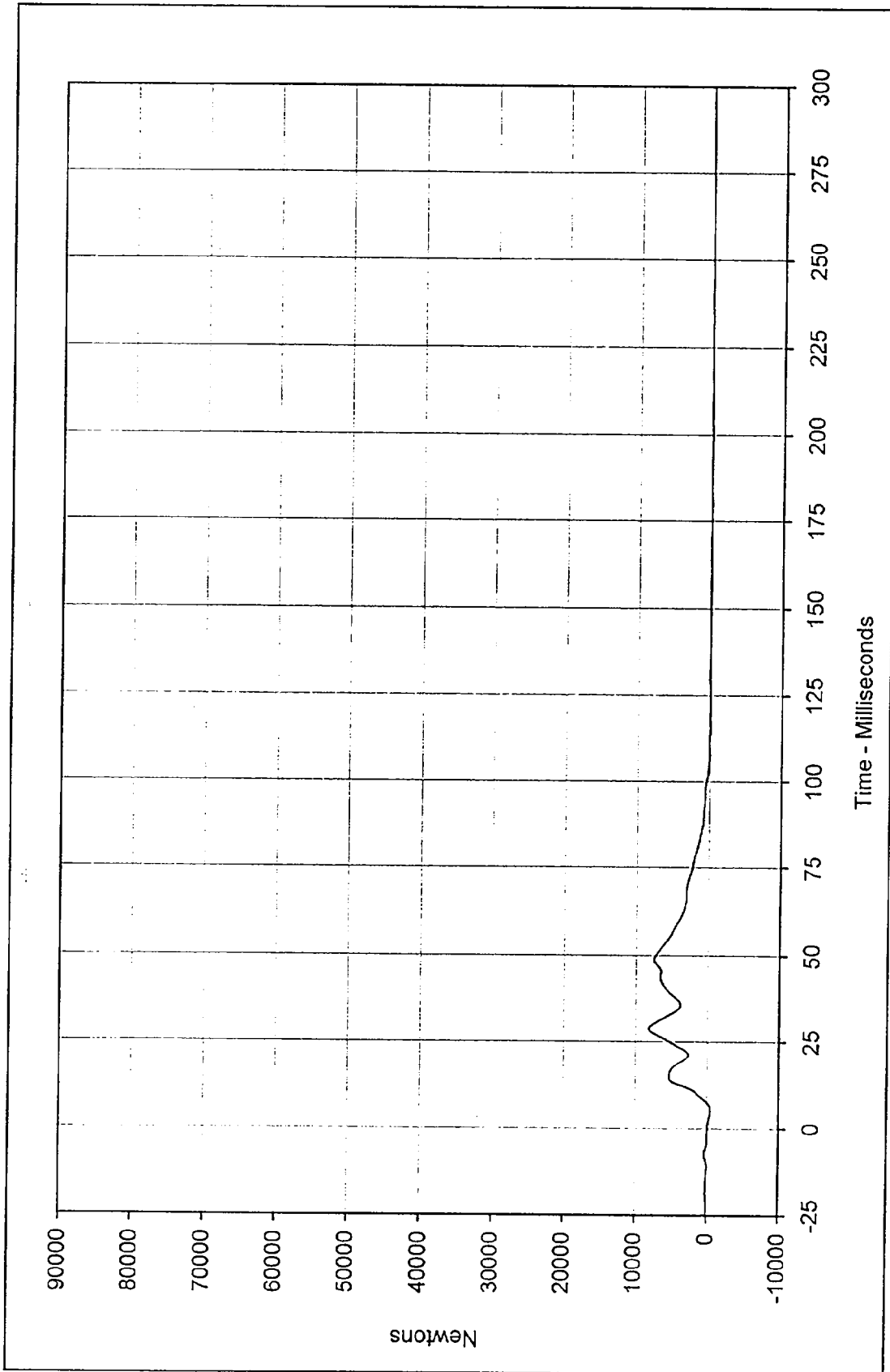
Minimum Value: -135 at 299.9 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Queue Number: [REDACTED]

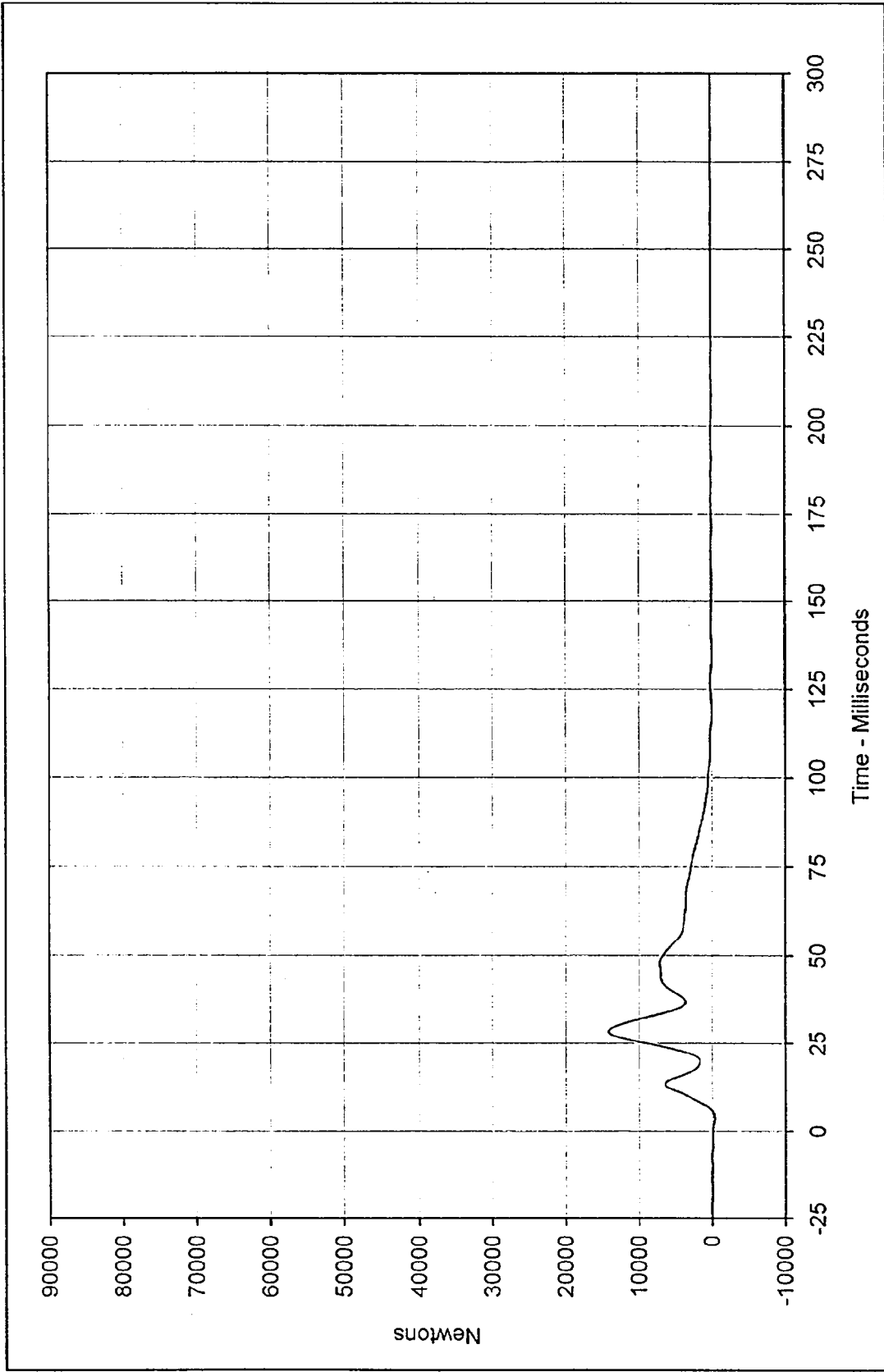




Curve Description: Barrier Force C4
 Maximum Value: 8120 at 28.8 Milliseconds
 Minimum Value: -449 at 5.4 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-119

Testing Program: 1997 New Car Assessment Program
 Test Vehicle: 1997 Kia Sephia

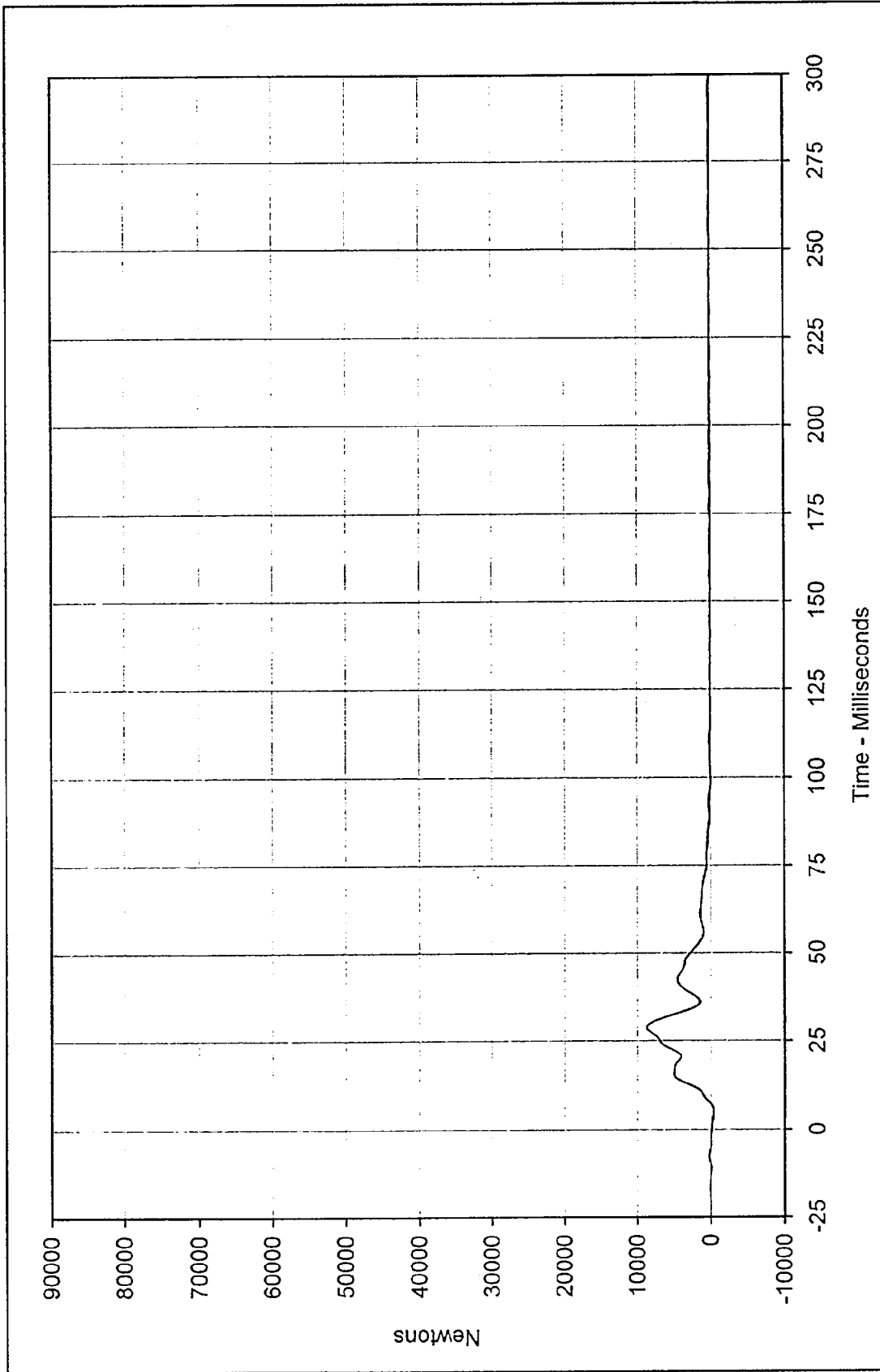




Curve Description: Barrier Force C5 Testing Program: 1997 New Car Assessment Program
 Maximum Value: 14149 at 28.4 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -352 at 3.5 Milliseconds



SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-120



KAR-96-R96024-07

C21

Curve Description: Barrier Force C6

Maximum Value: 8743 at 28.8 Milliseconds

Minimum Value: -380 at 4.8 Milliseconds

SAE Filter Class: 60

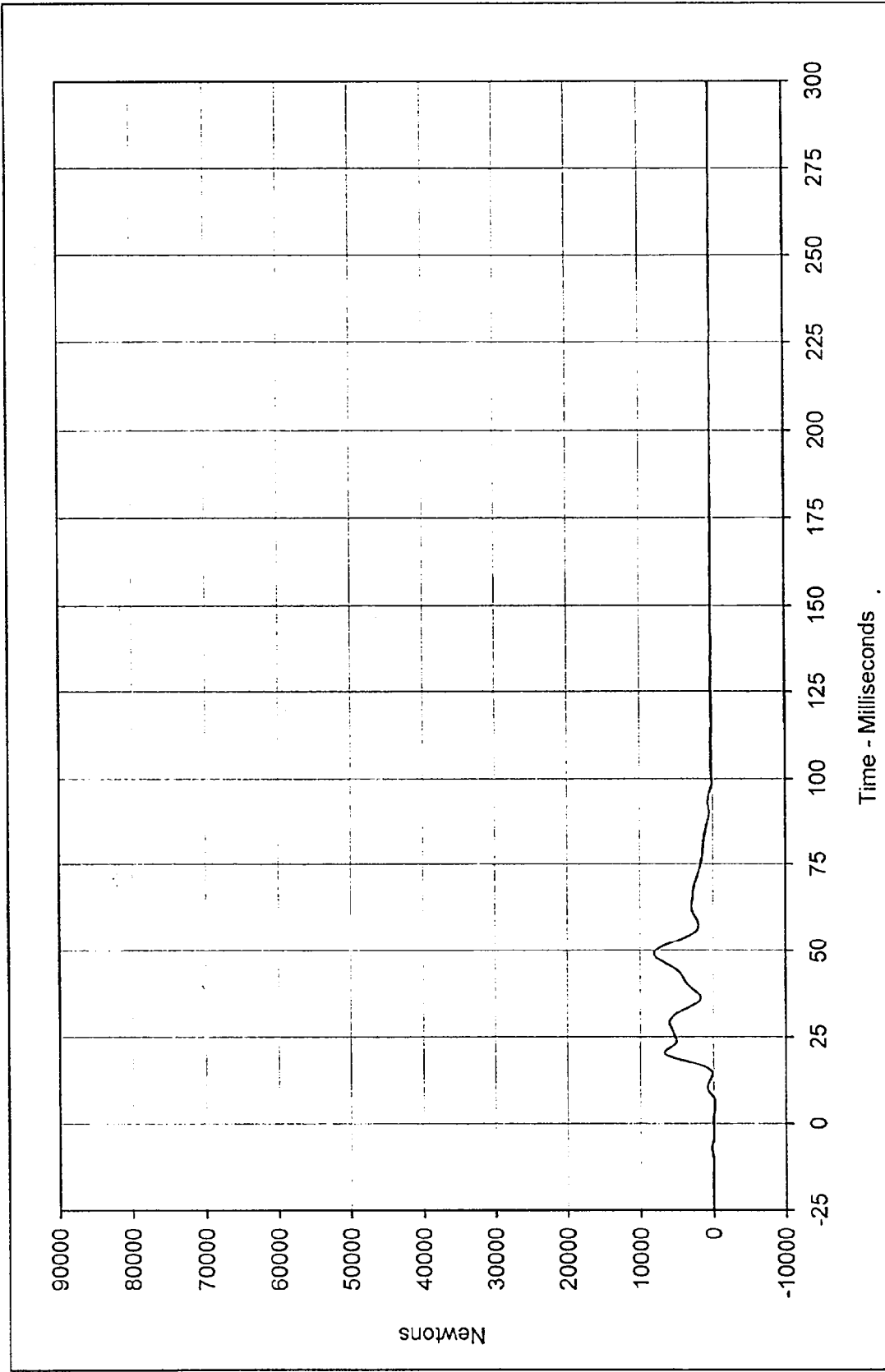
Date of Test: 5/1/97

Curve Number: FIL-121

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Kia Sephia

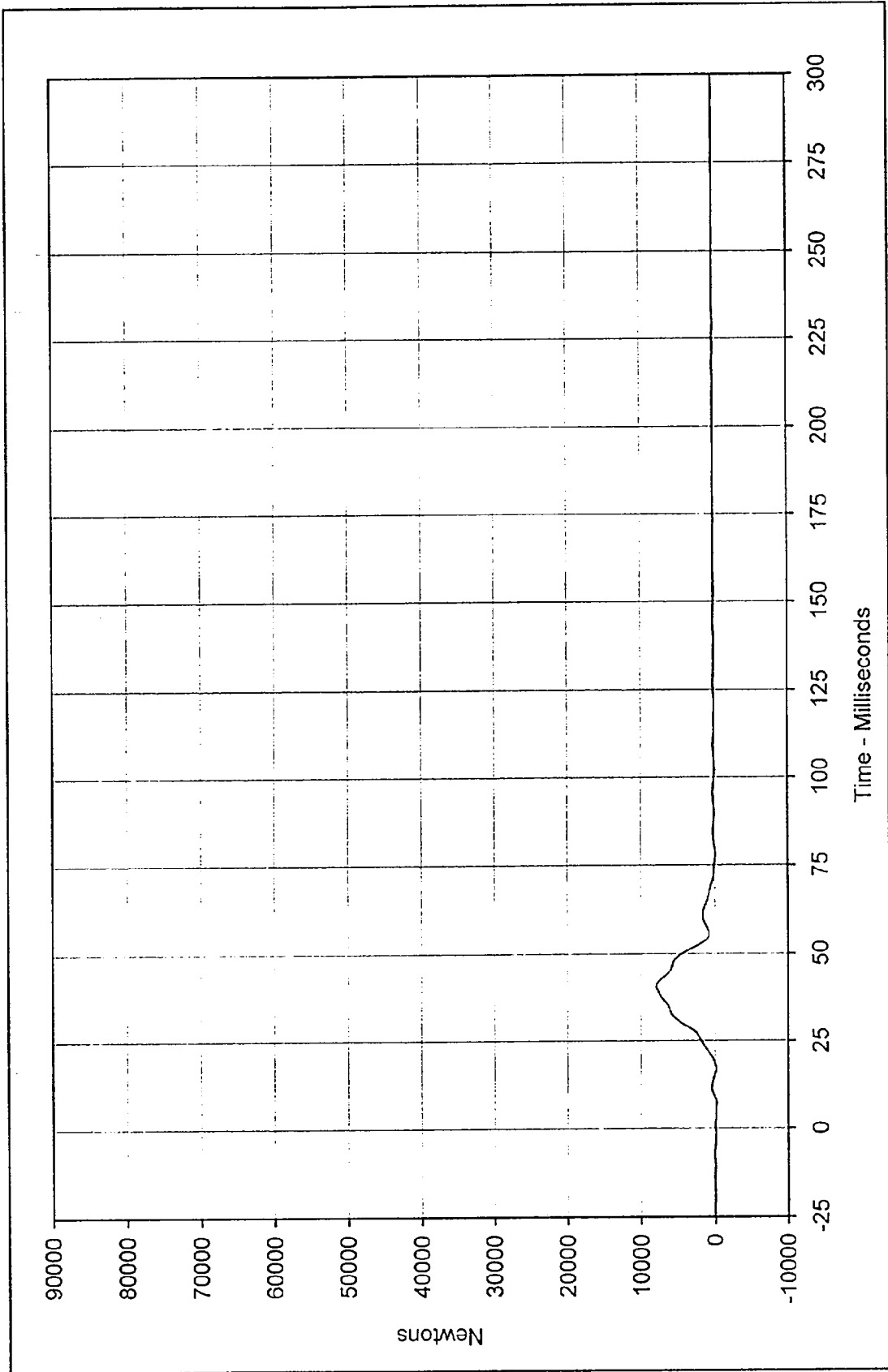




Curve Description: Barrier Force C7 Testing Program: 1997 New Car Assessment Program
 Maximum Value: 8047 at 49.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -207 at 5.6 Milliseconds



SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: FIL-122



Curve Description: Barrier Force C8

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Kia Sephia

Maximum Value: 7938 at 40.6 Milliseconds

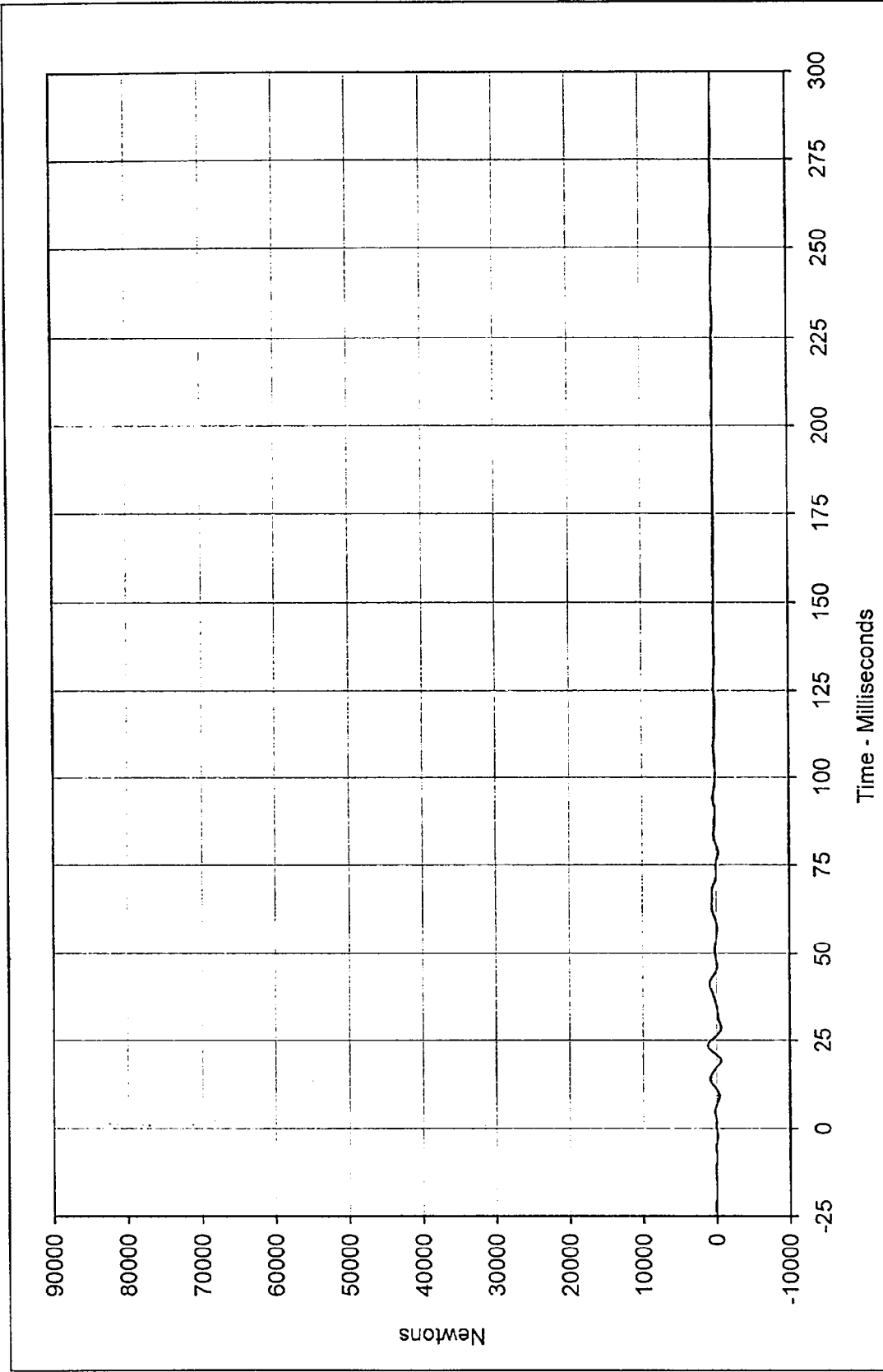
Minimum Value: -219 at 7.2 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: FIL-123





Curve Description: Barrier Force C9 Testing Program: 1997 New Car Assessment Program

Maximum Value: 1189 at 23.4 Milliseconds Test Vehicle: 1997 Kia Sephia

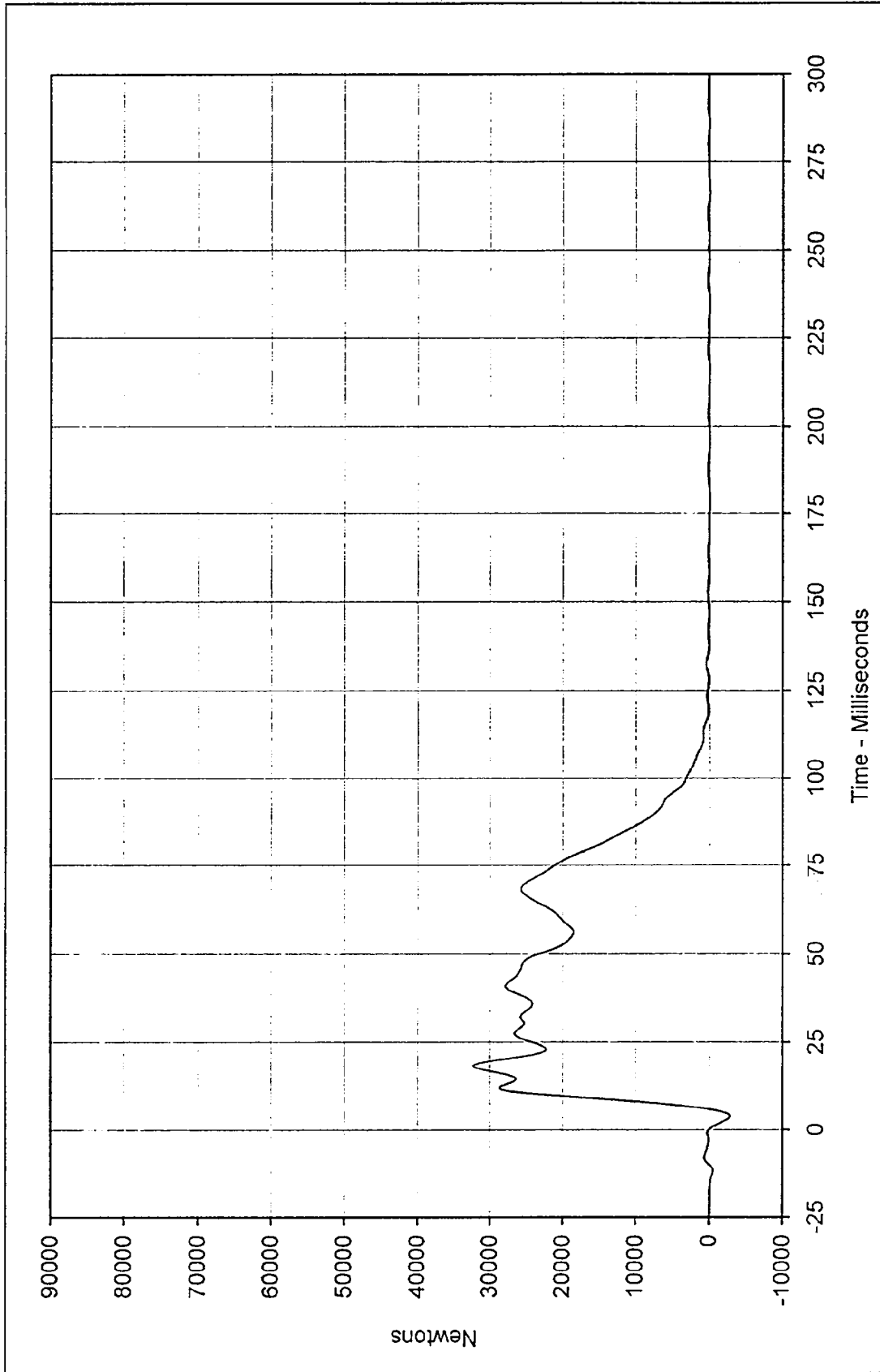
Minimum Value: -612 at 28.7 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: [REDACTED]



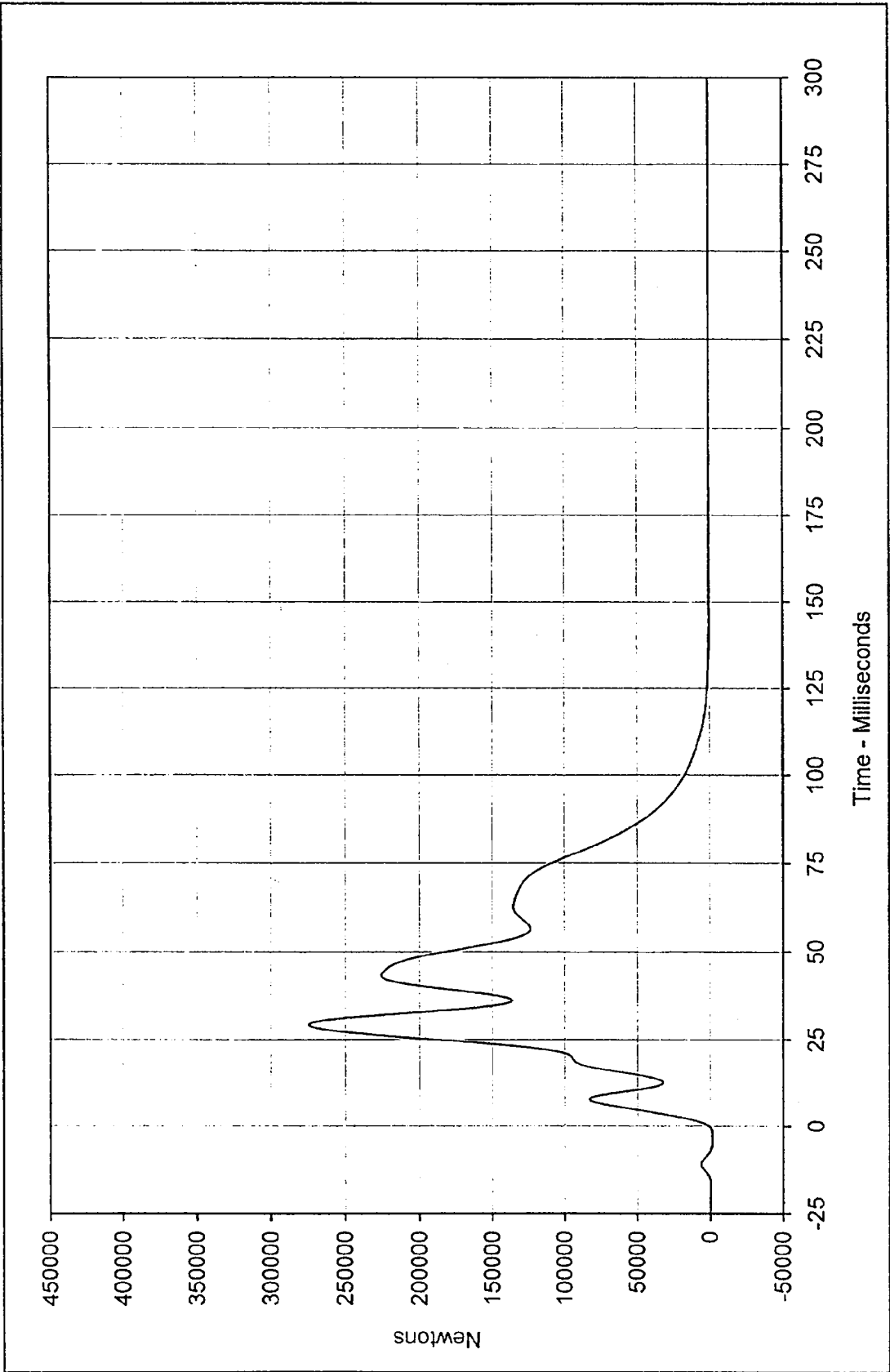


KAR-96-R96024- 07

C25

Curve Description:	Barrier Force Group 1 Sum	Testing Program:	1997 New Car Assessment Program
Maximum Value:	32357 at 18.3 Milliseconds	Test Vehicle:	1997 Kia Sephia
Minimum Value:	-2822 at 3.8 Milliseconds		
SAE Filter Class:	60		
Date of Test:	5/1/97		
Curve Number:	SUM-001		

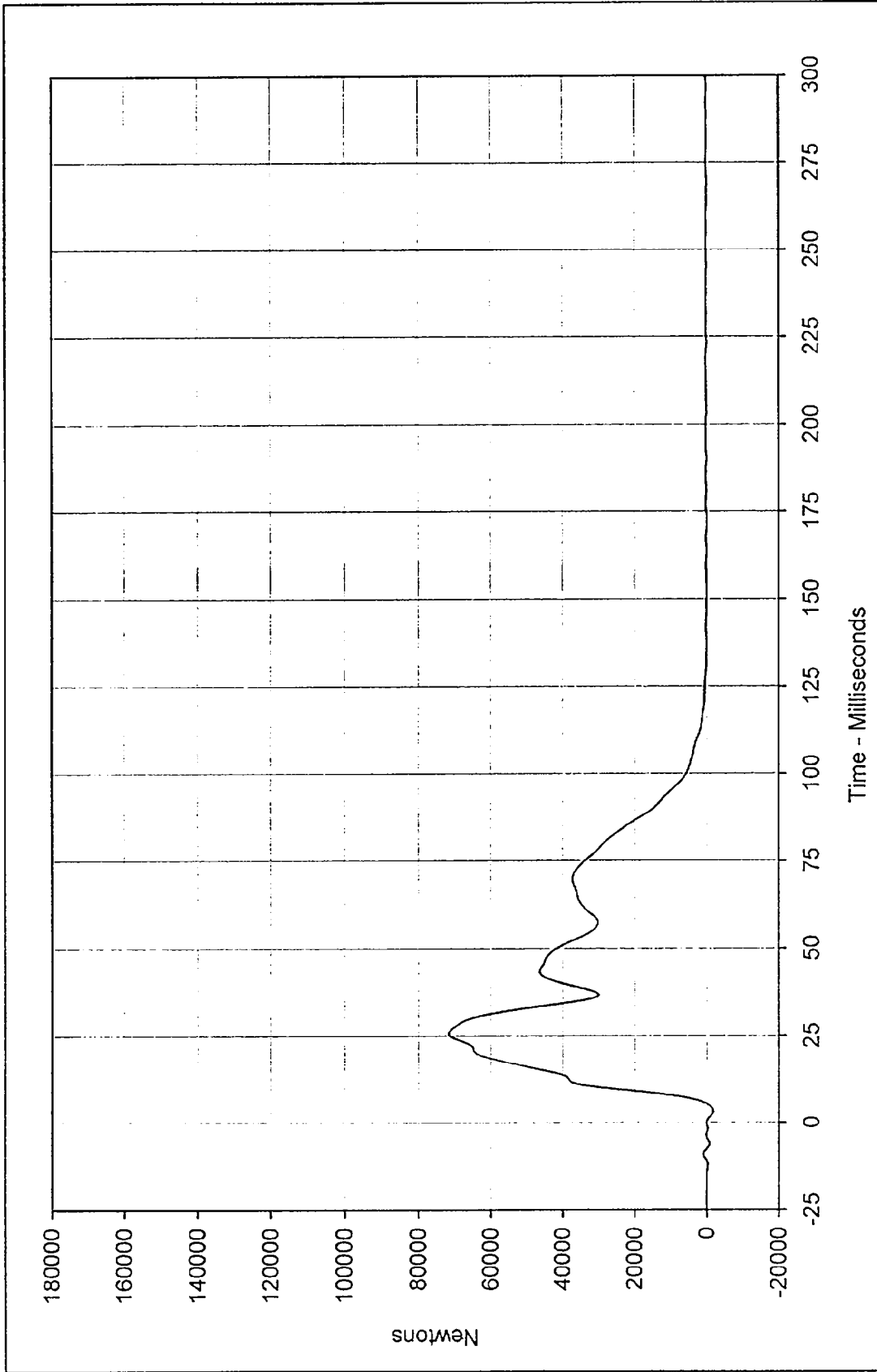




Curve Description: Barrier Force Group 2 Sum
Maximum Value: 274925 at 29.2 Milliseconds
Minimum Value: 111 at 171.6 Milliseconds
SAE Filter Class: 60
Date of Test: 5/1/97
Curve Number: SUM-002

Testing Program: 1997 New Car Assessment Program
Test Vehicle: 1997 Kia Sephia



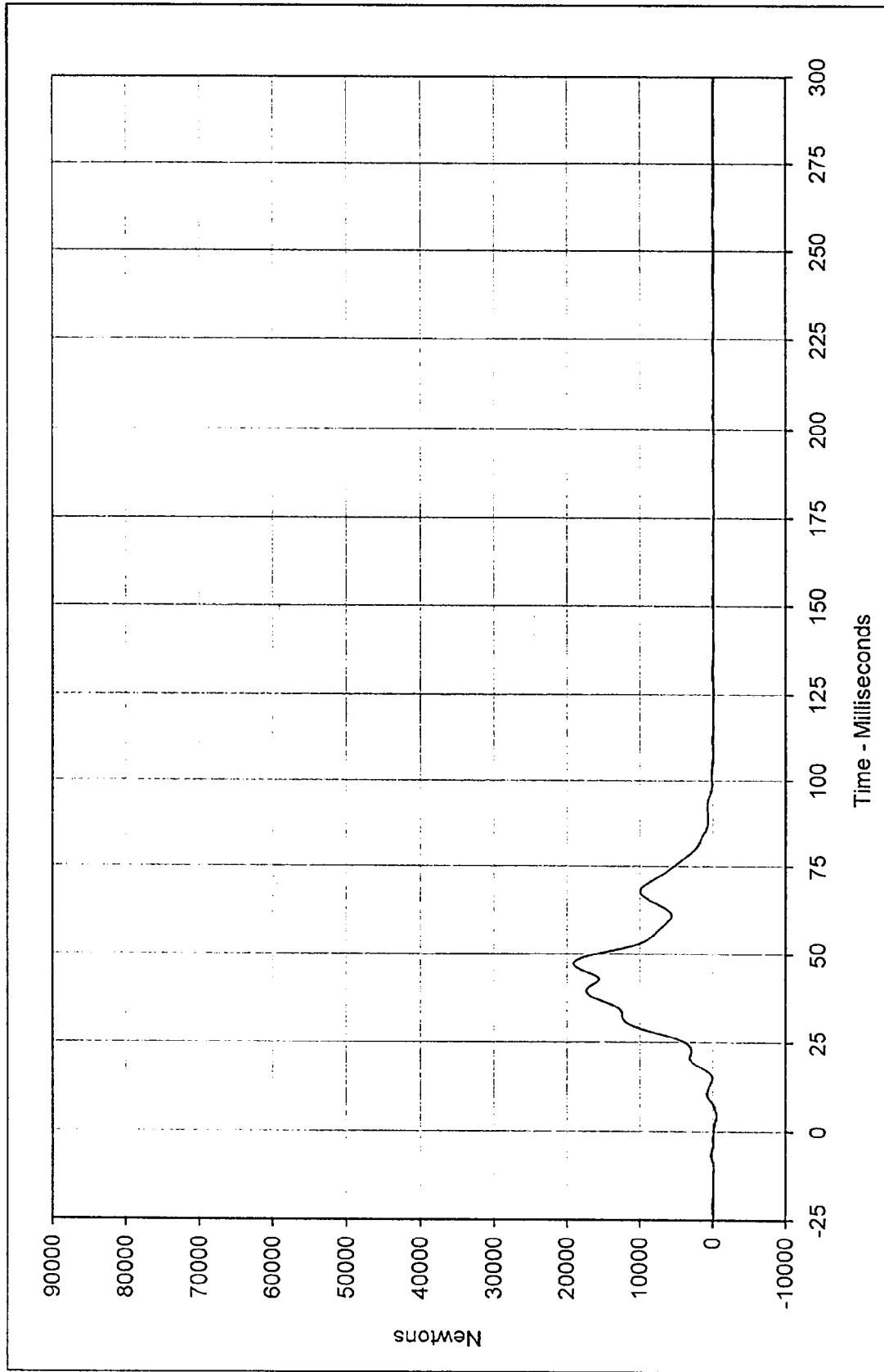


KAR-96-R96024-07

C27

Curve Description:	Barrier Force Group 3 Sum	Testing Program:	1997 New Car Assessment Program
Maximum Value:	71710 at 25.7 Milliseconds	Test Vehicle:	1997 Kia Sephia
Minimum Value:	-1761 at 3.3 Milliseconds		
SAE Filter Class:	60		
Date of Test:	5/1/97		
Curve Number:	SUM-003		





KAR-96-R96024-07

C28

Curve Description: Barrier Force Group 4 Sum Testing Program: 1997 New Car Assessment Program

Maximum Value: 19065 at 47.4 Milliseconds Test Vehicle: 1997 Kia Sephia

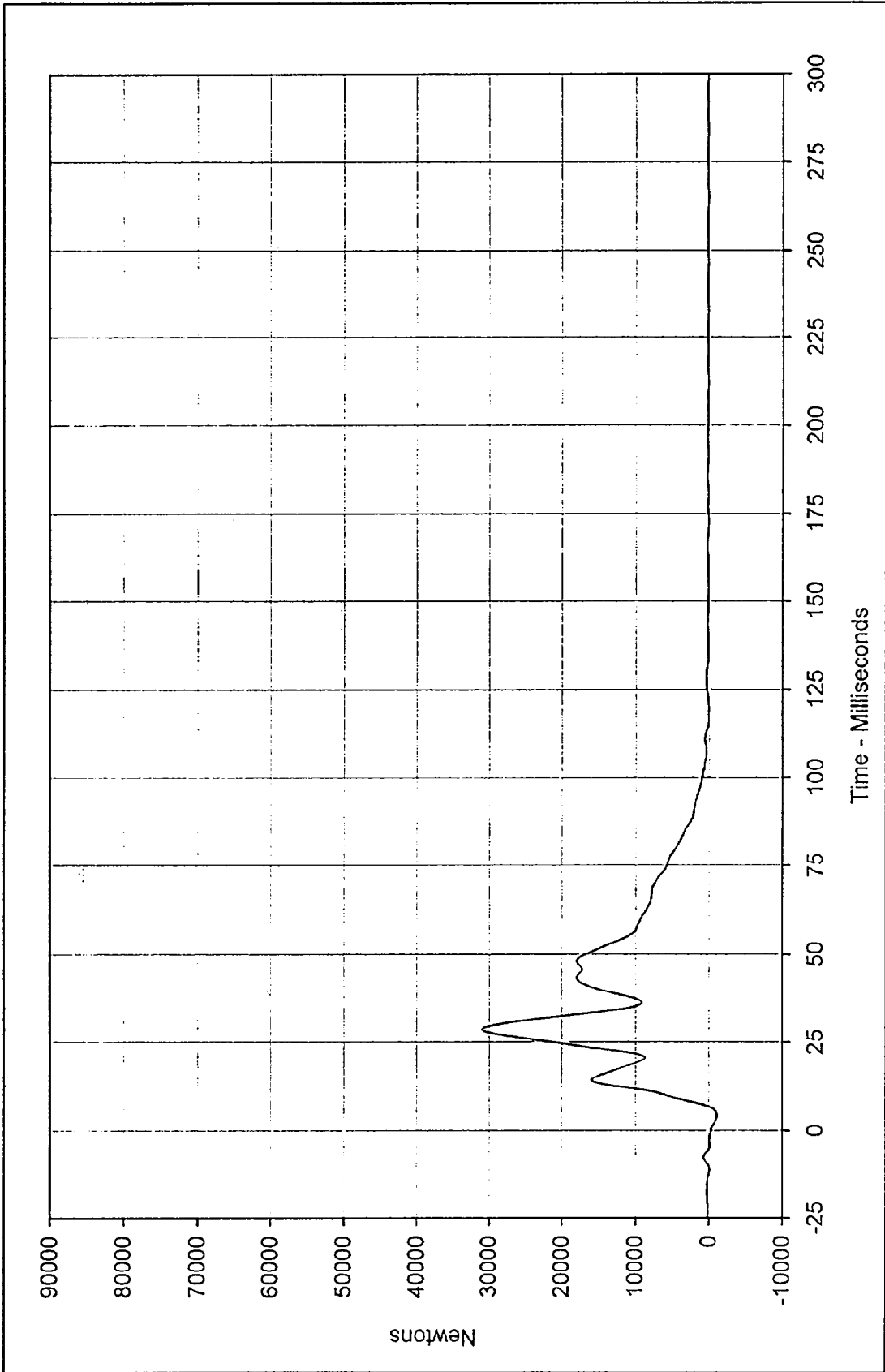
Minimum Value: -498 at 4.3 Milliseconds

SAE Filter Class: 60

Date of Test: 5/1/97

Curve Number: SJM-004





Curve Description: Barrier Force Group 5 Sum

Maximum Value: 30976 at 28.7 Milliseconds

Minimum Value: -1122 at 4.2 Milliseconds

SAE Filter Class: 60

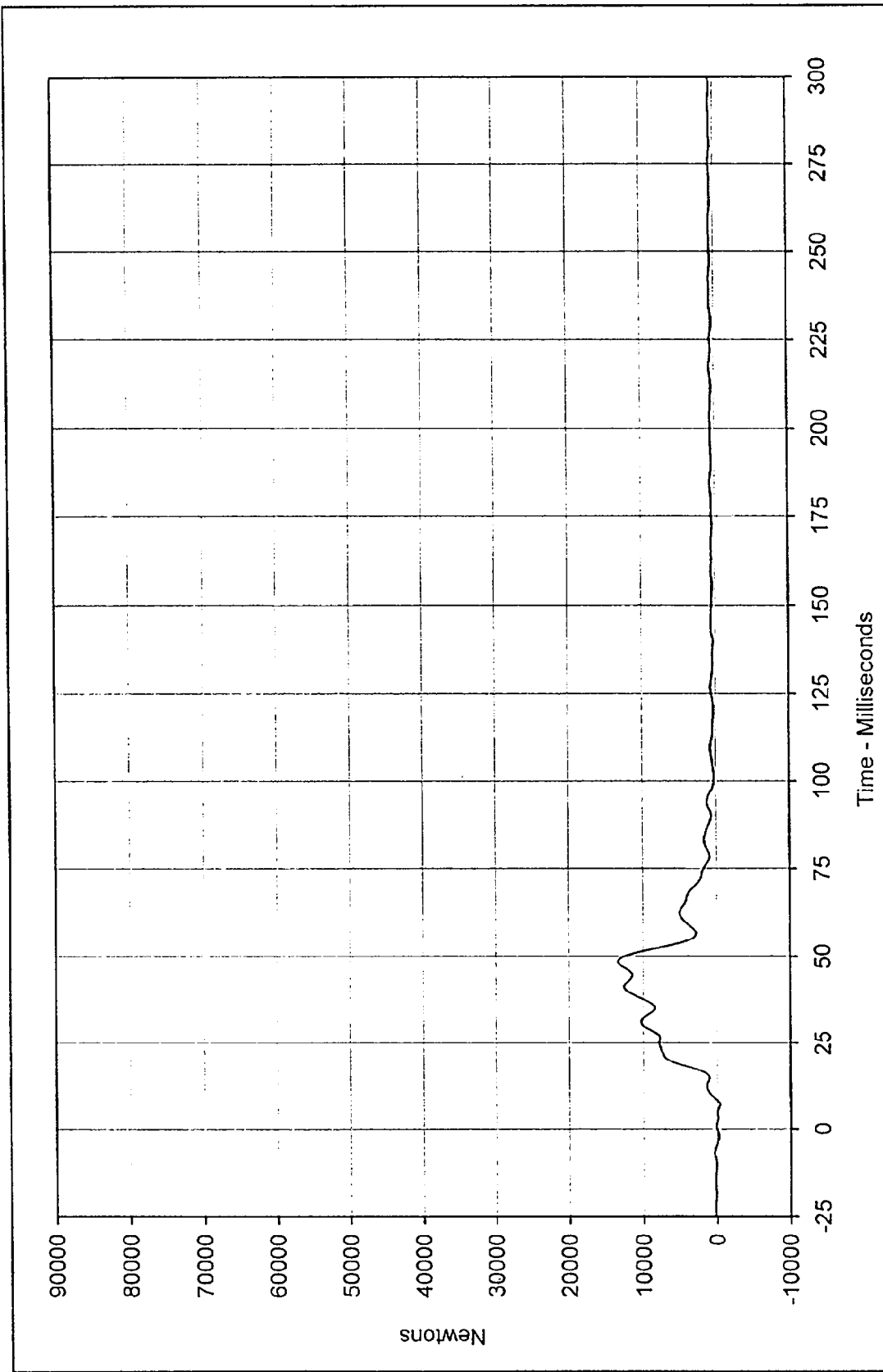
Date of Test: 5/1/97

Curve Number: SUM-005

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Kia Sephia

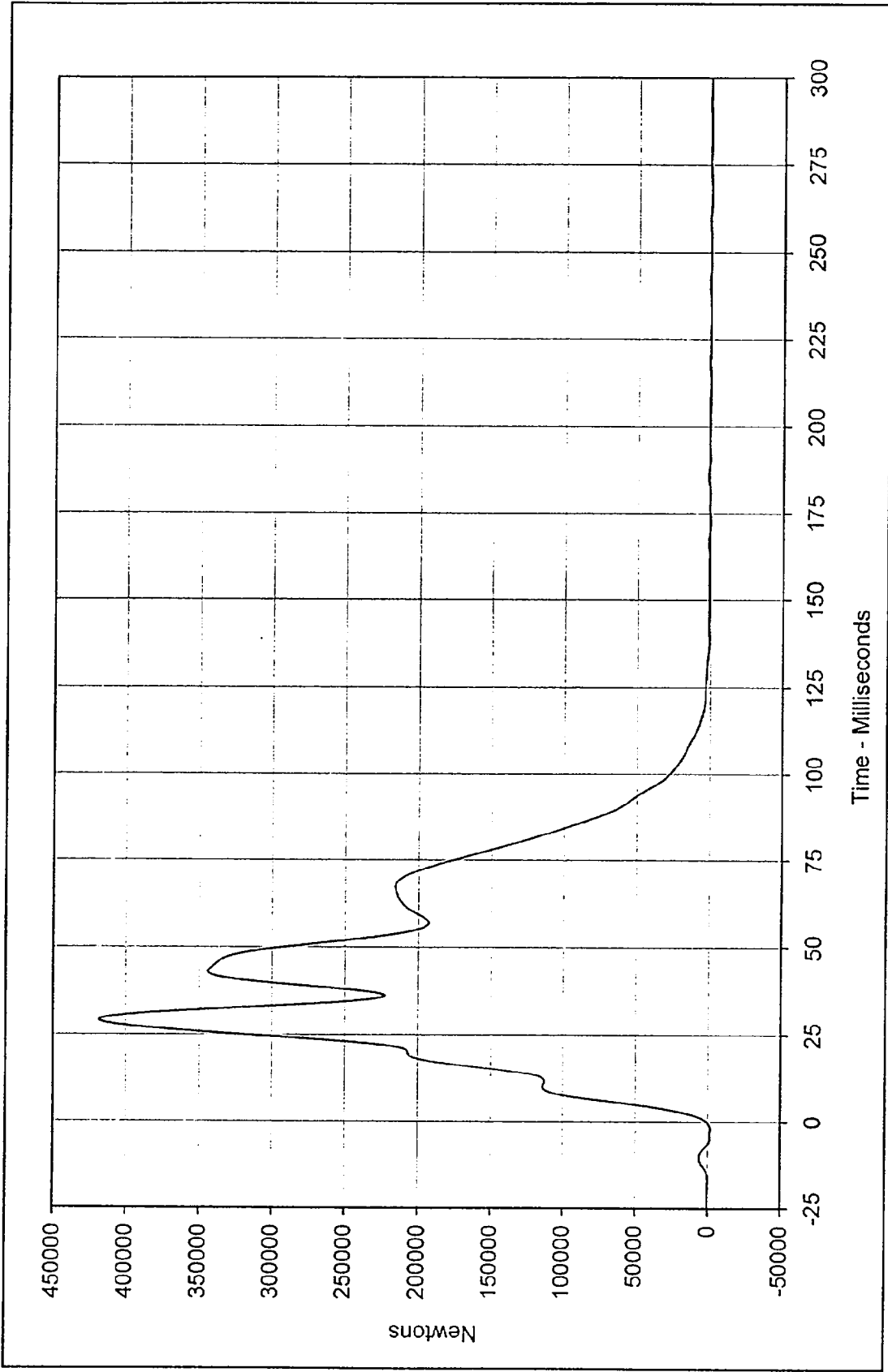




Curve Description: Barrier Force Group 6 Sum Testing Program: 1997 New Car Assessment Program
 Maximum Value: 13416 at 48.6 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: -414 at 7.2 Milliseconds



SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: SUM-006

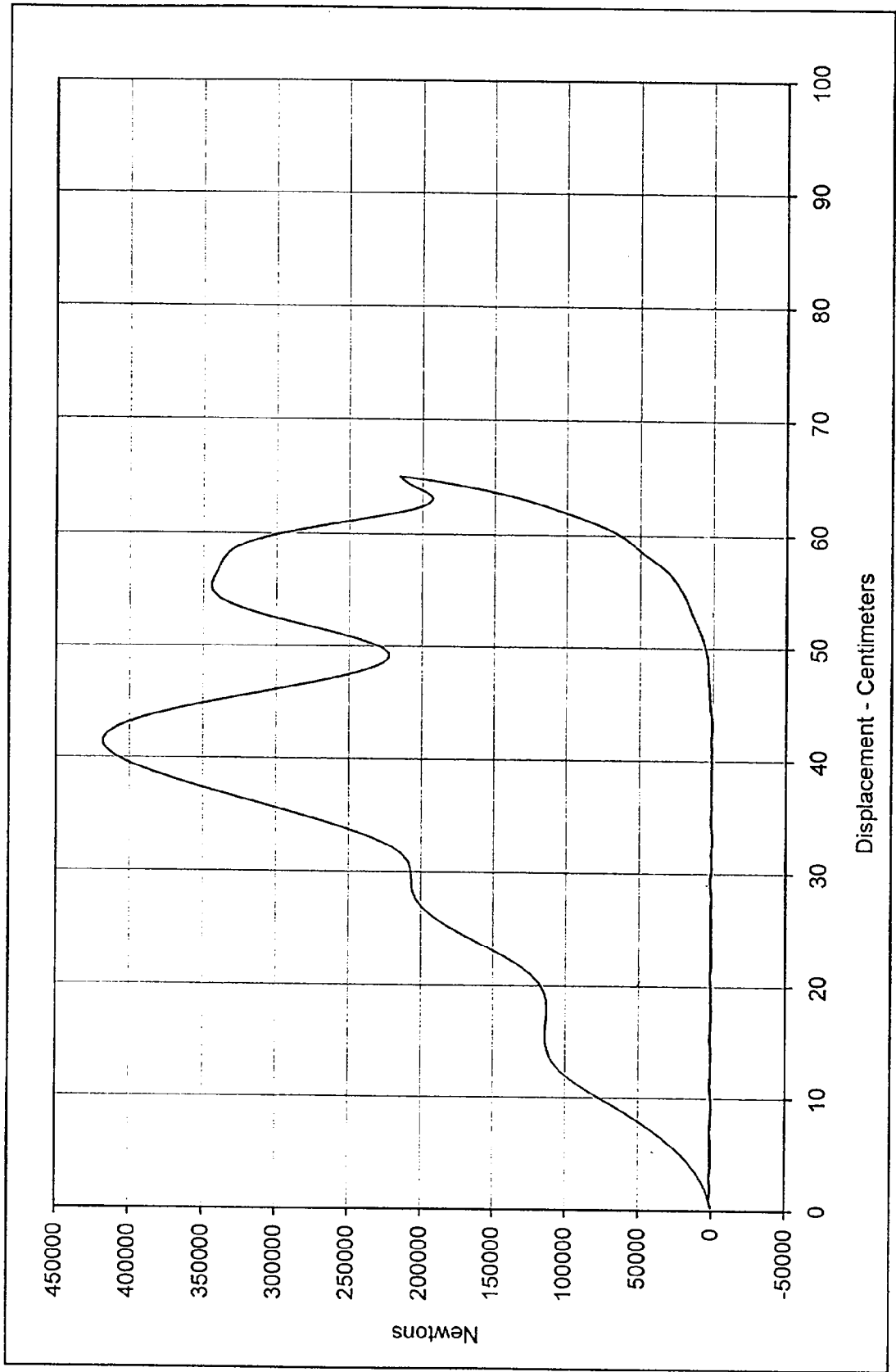


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C31

Curve Description: Barrier Force Total Sum Testing Program: 1997 New Car Assessment Program
 Maximum Value: 418087 at 29.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 455 at 0.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: SUM-007





Curve Description: Barrier Force vs. Vehicle Crush Testing Program: 1997 New Car Assessment Program
 Maximum Value: 418087 at 29.1 Milliseconds Test Vehicle: 1997 Kia Sephia
 Minimum Value: 455 at 0.0 Milliseconds
 SAE Filter Class: 60
 Date of Test: 5/1/97
 Curve Number: NONE



APPENDIX D
INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

New Car Assessment Program
Instrumentation Data Channel Assignments

Driver A.T.D Serial Number 35

Test Date: 5/01/97

Vehicle: 1997 Kia Sephia

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	GPLC002FX	Load cell, six axis neck	R. A. Denton	1716	N
8	NECK FORCE	Y	GPLC002FY	Load cell, six axis neck	R. A. Denton	1716	N
9	NECK FORCE	Z	GPLC002FZ	Load cell, six axis neck	R. A. Denton	1716	N
10	NECK MOMENT	X	GPLC002MX	Load cell, six axis neck	R. A. Denton	1716	J
11	NECK MOMENT	Y	GPLC002MY	Load cell, six axis neck	R. A. Denton	1716	J
12	NECK MOMENT	Z	GPLC002MZ	Load cell, six axis neck	R. A. Denton	1716	J
13	CHEST, PRIMARY	X	GPAC031	Accel., 1/2 bridge	Endevco	7264-2000	G
14	CHEST, PRIMARY	Y	GPAC024	Accel., 1/2 bridge	Endevco	7264-2000	G
15	CHEST, PRIMARY	Z	GPAC029	Accel., 1/2 bridge	Endevco	7264-2000	G
16	CHEST, REDUNDANT	X	KEAC023	Accel., 1/2 bridge	Endevco	7264-200	G
17	CHEST, REDUNDANT	Y	KEAC022	Accel., 1/2 bridge	Endevco	7264-200	G
18	CHEST, REDUNDANT	Z	KEAC024	Accel., 1/2 bridge	Endevco	7264-200	G
19	CHEST DISPLACEMENT	X	GPRP002	Potentiometer, Rotary	Servo	14CBI	CM
20	PELVIS, PRIMARY	X	GPAC009	Accel., 1/2 bridge	Endevco	7264-2000	G
21	PELVIS, PRIMARY	Y	GPAC017	Accel., 1/2 bridge	Endevco	7264-2000	G
22	PELVIS, PRIMARY	Z	GPAC018	Accel., 1/2 bridge	Endevco	7264-2000	G
23	LEFT FEMUR FORCE	Z	KEFF003	Load cell, Femur	R.A. Denton	2121	N
24	RIGHT FEMUR FORCE	Z	KEFF002	Load cell, Femur	R.A. Denton	2121	N

New Car Assessment Program
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 35
Test Date: 5/01/97
Vehicle: 1997 Kia Sephia

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	NOTE 1				
26	UP. TIBIA LEFT MOM.	Y	NOTE 1				
27	UP. TIBIA RIGHT MOM.	X	NOTE 1				
28	UP. TIBIA RIGHT MOM.	Y	NOTE 1				
29	LWR. TIBIA LEFT FORCE	Y	NOTE 1				
30	LWR. TIBIA LEFT FORCE	Z	NOTE 1				
31	LWR. TIBIA LEFT MOM.	X	NOTE 1				
32	LWR. TIBIA RIGHT FORCE	Y	NOTE 1				
33	LWR. TIBIA RIGHT FORCE	Z	NOTE 1				
34	LWR. TIBIA RIGHT MOM.	X	NOTE 1				
35	FOOT LEFT	X	KEAC019	Accel., 1/2 bridge	Endevco	7264-200	G'S
36	FOOT LEFT	Y	KEAC020	Accel., 1/2 bridge	Endevco	7264-200	G'S
37	FOOT LEFT	Z	KEAC021	Accel., 1/2 bridge	Endevco	7264-200	G'S
38	FOOT RIGHT	X	KEAC005	Accel., 1/2 bridge	Endevco	7264-200	G'S
39	FOOT RIGHT	Y	KEAC004	Accel., 1/2 bridge	Endevco	7264-200	G'S
40	FOOT RIGHT	Z	KEAC003	Accel., 1/2 bridge	Endevco	7264-200	G'S
41	LAP BELT FORCE	X	KELC003	Load cell, Seat belt	Lebow	3371	N
42	SHOULDER BELT FORCE	X	KELC004	Load cell, Seat belt	Lebow	3371	N
43	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	CM
44	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	CM/CM

NOTE 1: Not provided by D.O.T., channel assignments will include "0" data to maintain channel identification conformity with subsequent tests.

New Car Assessment Program
Instrumentation Data Channel Assignments
Passenger A.T.D Serial Number 34
Test Date: 5/01/97
Vehicle: 1997 Kia Sephia

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	GPLC001FX	Load cell, six axis neck	R. A. Denton	1716	N
52	NECK FORCE	Y	GPLC001FY	Load cell, six axis neck	R. A. Denton	1716	N
53	NECK FORCE	Z	GPLC001FZ	Load cell, six axis neck	R. A. Denton	1716	N
54	NECK MOMENT	X	GPLC001MX	Load cell, six axis neck	R. A. Denton	1716	J
55	NECK MOMENT	Y	GPLC001MY	Load cell, six axis neck	R. A. Denton	1716	J
56	NECK MOMENT	Z	GPLC001MZ	Load cell, six axis neck	R. A. Denton	1716	J
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	GPR001	Potentiometer, Rotary	Servo	14CBI	CM
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

New Car Assessment Program
Instrumentation Data Channel Assignments
Passenger A.T.D Serial Number 34
Test Date: 5/01/97
Vehicle: 1997 Kia Sephia

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPUT01MX	2 ch., Upper tibia gage	R. A. Denton	1583	J
70	UP. TIBIA LEFT MOM.	Y	GPUT01MY	2 ch., Upper tibia gage	R. A. Denton	1583	J
71	UP. TIBIA RIGHT MOM.	X	GPUT02MX	2 ch., Upper tibia gage	R. A. Denton	1583	J
72	UP. TIBIA RIGHT MOM.	Y	GPUT02MY	2 ch., Upper tibia gage	R. A. Denton	1583	J
73	LWR. TIBIA LEFT FORCE	Y	GPLT02FY	3 ch., lower tibia gage	R. A. Denton	1584	N
74	LWR. TIBIA LEFT FORCE	Z	GPLT01FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
75	LWR. TIBIA LEFT MOM.	X	GPLT01MX	3 ch., lower tibia gage	R. A. Denton	1584	J
76	LWR. TIBIA RIGHT FORCE	Y	GPLT02FY	3 ch., lower tibia gage	R. A. Denton	1584	N
77	LWR. TIBIA RIGHT FORCE	Z	GPLT02FZ	3 ch., lower tibia gage	R. A. Denton	1584	N
78	LWR. TIBIA RIGHT MOM.	X	GPLT02MX	3 ch., lower tibia gage	R. A. Denton	1584	J
79	FOOT LEFT	X	GPAC030	Accel., 1/2 bridge	Endevco	7264-2000	G
80	FOOT LEFT	Y	GPAC007	Accel., 1/2 bridge	Endevco	7264-2000	G
81	FOOT LEFT	Z	GPAC008	Accel., 1/2 bridge	Endevco	7264-2000	G
82	FOOT RIGHT	X	KEAC033	Accel., 1/2 bridge	Endevco	7264-2000	G
83	FOOT RIGHT	Y	GPAC016	Accel., 1/2 bridge	Endevco	7264-2000	G
84	FOOT RIGHT	Z	KEAC035	Accel., 1/2 bridge	Endevco	7264-2000	G
85	LAP BELT FORCE	X	KELC001	Load cell, Seat belt	Lebow	3371	N
86	SHOULDER BELT FORCE	X	KELC002	Load cell, Seat belt	Lebow	3371	N
87	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	CM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	CM/CM

New Car Assessment Program
Instrumentation Data Channel Assignments
Vehicle Accelerometers
Test Date: 5/01/97
Vehicle: 1997 Kia Sephia

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	LEFT REAR, PRIMARY	X	KEVA005	Accel., Vehicle block	I.C. Sensor	3031-500	G'S
90	RIGHT REAR, PRIMARY	X	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G'S
91	ENGINE TOP	X	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G'S
92	ENGINE BOTTOM	X	KEVA002	Accel., Vehicle block	I.C. Sensor	3031-500	G'S
93	LEFT BRAKE CALIPER	X	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-500	G'S
94	RIGHT BRAKE CALIPER	X	KEVA004	Accel., Vehicle block	I.C. Sensor	3031-500	G'S
95	INSTRUMENT PANEL	X	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-200	G'S
96	LEFT REAR, REDNT.	X	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	G'S
97	RIGHT REAR, REDNT.	X	KEVA008	Accel., Vehicle block	I.C. Sensor	3031-200	G'S

APPENDIX E
DUMMY CALIBRATION



Hybrid III Calibration Data Knee Impact Test (Metric units)

Part 572E ATD I.D. Number 34
 Calibration Sequence 9701

Left Knee Impact Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	18.8 to 25.4	22.7	Pass
Laboratory relative humidity	%	10 to 70	41	Pass
Probe Velocity	MPS	2.07 to 2.13	2.10	Pass
Peak Acceleration	G's	96.36 to 118.18	105.32	Pass
Pendulum Mass	Kgs	4.994	4.994	Pass
Peak Impact Force	Kgs	481.2 to 590.2	526.0	Pass
Overall Test Results				Pass

Michael Dunlap
Laboratory Technician

4/18/97
Test Date

Right Knee Impact Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	18.8 to 25.4	22.7	Pass
Laboratory relative humidity	%	10 to 70	41	Pass
Probe Velocity	MPS	2.07 to 2.13	2.09	Pass
Peak Acceleration	G's	96.36 to 118.18	111.20	Pass
Pendulum Mass	Kgs	4.994	4.994	Pass
Peak Impact Force	Kgs	481.2 to 590.2	555.3	Pass
Overall Test Results				Pass

Michael Dunlap
Laboratory Technician

4/18/97
Test Date

F. D. Philson
Approved By

4/18/97
Date



Hybrid III Calibration Data Head Drop Test (Metric units)

Part 572E ATD I.D. Number 34
Calibration Sequence 9701

Head Drop Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	18.8 to 25.4	22.7	Pass
Laboratory relative humidity	%	10 to 70	41	Pass
Peak resultant acceleration	G's	225.0 to 275.0	229.1	Pass
Peak lateral acceleration	G's	15.0 Max.	2.8	Pass
Is acceleration unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Michael Dunlap
Laboratory Technician

Frank W. Kirkland
Approved By

4/18/97
Test Date

4/18/97
Date



Hybrid III Calibration Data Thorax Impact Test (Metric units)

Part 572E ATD I.D. Number 34
Calibration Sequence 9701

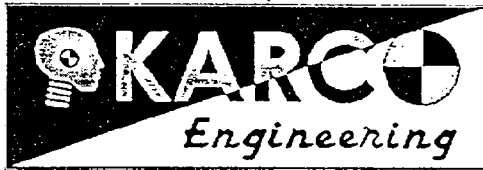
Thorax Impact Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	20.6 to 22.2	21.9	Pass
Laboratory relative humidity	%	10 to 70	47	Pass
Probe Velocity	MPS	6.58 to 6.83	6.76	Pass
Peak acceleration	G's	22.53 to 25.73	24.5	Pass
Pendulum Mass	Kgs	23.4	23.4	Pass
Peak resistive force	Kgs	526.6 to 601.6	582.8	Pass
Peak chest deflection	CM	6.35 to 7.26	6.72	Pass
Internal hysteresis	%	69 to 85	76.3	Pass
Overall Test Results				Pass

Michael Dunlap
Laboratory Technician

J. D. Richardson
Approved By

4/21/97
Test Date

4/21/97
Date

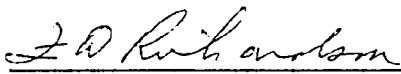


Hybrid III Calibration Data Neck Flexion Test (Metric units)

Part 572E ATD I.D. Number 34
Calibration Sequence 9701

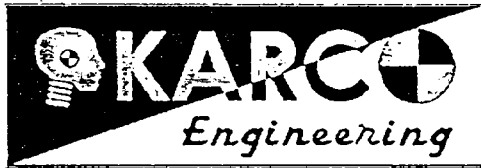
Neck Flexion Test					
Tested Parameter		Units	Spec	Result	Pass/Fail
Laboratory temperature		°C	20.6 to 22.2	21.9	Pass
Laboratory relative humidity		%	10 to 70	47	Pass
Pendulum velocity		MPS	6.89 to 7.14	6.97	Pass
Peak deceleration	10 Msec	G's	22.5 to 27.5	25.28	Pass
	20 Msec	G's	17.6 to 22.6	21.50	Pass
	30 Msec	G's	12.5 to 18.5	16.50	Pass
Max. decel. above 30 Msec.		G's	29.0 maximum	15.03	Pass
Deceleration decay time to first cross 5 G's		Msec.	34.0 to 42.0	39.80	Pass
"D" plane rotation	maximum	Degrees	64.0 to 78.0	66.1	Pass
	Time	Msec.	57.0 to 64.0	63.1	Pass
Moment about Occipital Condyle	maximum	N.m	84.1 to 108.5	91.2	Pass
	Time	Msec.	47.0 to 58.0	57.8	Pass
Rotation angle decay time to cross zero		Msec.	113.0 to 128.0	126.8	Pass
Positive moment decay time to cross zero		Msec.	97.0 to 107.0	105.2	Pass
Overall Test Results					Pass

Michael Dunlap
 Laboratory Technician


J. D. Richardson
 Approved By

4/21/97
 Test Date

4/21/97
 Date



Hybrid III Calibration Data Neck Extension Test (Metric units)

Part 572E ATD I.D. Number 34
Calibration Sequence 9701

Neck Extension Test					
Tested Parameter		Units	Spec	Result	Pass/Fail
Laboratory temperature		°C	20.6 to 22.2	21.9	Pass
Laboratory relative humidity		%	10 to 70	47	Pass
Pendulum velocity		MPS	5.94 to 6.19	6.11	Pass
Peak deceleration	10 Msec	G's	17.2 to 21.2	18.90	Pass
	20 Msec	G's	14.0 to 19.0	15.60	Pass
	30 Msec	G's	11.0 to 16.0	14.90	Pass
Max. decel. above 30 Msec.		G's	22.0 maximum	14.00	Pass
Deceleration decay time to first cross 5 G's		Msec.	38.0 to 46.0	42.7	Pass
"D" plane rotation	maximum	Degrees	81.0 to 106.0	97.2	Pass
	Time	Msec.	72.0 to 82.0	73.9	Pass
Moment about Occipital Condyle	maximum	Mt. Kgs	-80.0 to -53.0	-73.5	Pass
	Time	Msec.	65.0 to 79.0	72.0	Pass
Rotation angle decay time to cross zero		Msec.	147.0 to 174.0	163.7	Pass
Negative moment decay time to cross zero		Msec.	120.0 to 148.0	135.6	Pass
Overall Test Results					Pass

Michael Dunlap

Laboratory Technician

4/21/97

Test Date

John R. Lovelace

Approved By

4/21/97

Date



Hybrid III Calibration Data Knee Impact Test (Metric units)

Part 572E ATD I.D. Number 35
 Calibration Sequence 9701

Left Knee Impact Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	18.8 to 25.4	21.3	Pass
Laboratory relative humidity	%	10 to 70	39	Pass
Probe Velocity	MPS	2.07 to 2.13	2.12	Pass
Peak Acceleration	G's	96.36 to 118.18	100.30	Pass
Pendulum Mass	Kgs	4.994	4.994	Pass
Peak Impact Force	Kgs	481.2 to 590.2	564.2	Pass
Overall Test Results				Pass

Michael Dunlap
Laboratory Technician

4/25/97
Test Date

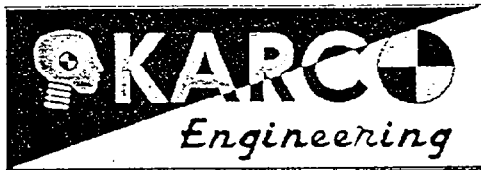
Right Knee Impact Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	18.8 to 25.4	21.3	Pass
Laboratory relative humidity	%	10 to 70	39	Pass
Probe Velocity	MPS	2.07 to 2.13	2.09	Pass
Peak Acceleration	G's	96.36 to 118.18	116.90	Pass
Pendulum Mass	Kgs	4.994	4.994	Pass
Peak Impact Force	Kgs	481.2 to 590.2	554.3	Pass
Overall Test Results				Pass

Michael Dunlap
Laboratory Technician

4/25/97
Test Date

Robert Anderson
Approved By

4/25/97
Date



Hybrid III Calibration Data Head Drop Test (Metric units)

Part 572E ATD I.D. Number 35
Calibration Sequence 9701

Head Drop Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	18.8 to 25.4	21.3	Pass
Laboratory relative humidity	%	10 to 70	39	Pass
Peak resultant acceleration	G's	225.0 to 275.0	268.0	Pass
Peak lateral acceleration	G's	15.0 Max.	7.1	Pass
Is acceleration unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Michael Dunlap
Laboratory Technician

J. W. Ruben
Approved By

4/25/97
Test Date

4/25/97
Date



Hybrid III Calibration Data Thorax Impact Test (Metric units)

Part 572E ATD I.D. Number 35
Calibration Sequence 9701

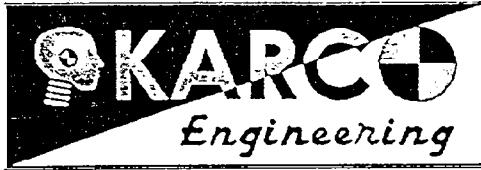
Thorax Impact Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	20.6 to 22.2	21.8	Pass
Laboratory relative humidity	%	10 to 70	38	Pass
Probe Velocity	MPS	6.58 to 6.83	6.80	Pass
Peak acceleration	G's	22.53 to 25.73	24.7	Pass
Pendulum Mass	Kgs	23.4	23.4	Pass
Peak resistive force	Kgs	526.6 to 601.6	599.2	Pass
Peak chest deflection	CM	6.35 to 7.26	7.03	Pass
Internal hysteresis	%	69 to 85	76.6	Pass
Overall Test Results				Pass

Michael Dunlap
Laboratory Technician

Michael Dunlap
Approved By

4/28/97
Test Date

4/28/97
Date



Hybrid III Calibration Data Neck Flexion Test (Metric units)

Part 572E ATD I.D. Number 35
 Calibration Sequence 9701

Neck Flexion Test					
Tested Parameter		Units	Spec	Result	Pass/Fail
Laboratory temperature		°C	20.6 to 22.2	21.8	Pass
Laboratory relative humidity		%	10 to 70	38	Pass
Pendulum velocity		MPS	6.89 to 7.14	6.91	Pass
Peak deceleration	10 Msec	G's	22.5 to 27.5	25.60	Pass
	20 Msec	G's	17.6 to 22.6	20.50	Pass
	30 Msec	G's	12.5 to 18.5	17.86	Pass
Max. decel. above 30 Msec.		G's	29.0 maximum	22.00	Pass
Deceleration decay time to first cross 5 G's		Msec.	34.0 to 42.0	40.20	Pass
"D" plane rotation	maximum	Degrees	64.0 to 78.0	67.1	Pass
	Time	Msec.	57.0 to 64.0	59.3	Pass
Moment about Occipital Condyle	maximum	N.m	84.1 to 108.5	102.8	Pass
	Time	Msec.	47.0 to 58.0	55.1	Pass
Rotation angle decay time to cross zero		Msec.	113.0 to 128.0	122.7	Pass
Positive moment decay time to cross zero		Msec.	97.0 to 107.0	104.3	Pass
Overall Test Results					Pass

Michael Dunlap
 Laboratory Technician


Joseph Anderson
 Approved By

4/28/97
 Test Date

4/28/97
 Date



Hybrid III Calibration Data Configuration Verification Data (Metric units)

Part 572E ATD I.D. Number 35
Calibration Sequence 9701

External Measurement Data				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.5	Pass
Laboratory relative humidity	%	10 to 70	40	Pass
A - Total sitting height	mm	878.8 to 889.0	885.6	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	510.5	Pass
C - "H" point height	mm	83.8 to 88.9	88.9	Pass
D - "H" point from seat back	mm	134.6 to 139.7	138.4	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	88.9	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	292.1	Pass
H - Skull cap to back line	mm	40.6 to 45.7	43.2	Pass
I - Shoulder to elbow length	mm	330.2 to 345.4	342.9	Pass
J - Elbow rest height	mm	190.5 to 210.8	190.5	Pass
K - Buttock to knee length	mm	579.1 to 604.5	596.9	Pass
L - Popliteal length	mm	429.3 to 454.7	444.5	Pass
M - Knee pivot height	mm	485.1 to 500.4	492.8	Pass
N - Buttock popliteal length	mm	452.1 to 477.5	475.0	Pass
O - Chest depth	mm	213.4 to 228.6	215.9	Pass
P - Foot length	mm	251.5 to 266.7	256.5	Pass
V - Shoulder breadth	mm	421.6 to 436.9	436.9	Pass
W - Foot breadth	mm	91.4 to 106.7	104.1	Pass
Y - Chest circumference	mm	970.3 to 1000.8	975.4	Pass
Z - Waist circumference	mm	835.7 to 866.1	843.3	Pass
AA - Location for chest circ.	mm	429.3 to 434.3	431.8	Pass
BB - Location for waist circ.	mm	226.1 to 231.1	231.1	Pass
Overall Test Results				Pass

Michael Dunlap
Laboratory Technician

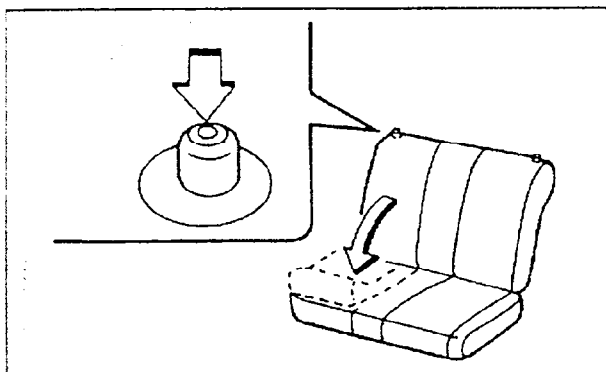
J. A. Anderson
Approved By

4/29/97
Test Date

4/29/97
Date

APPENDIX F
VEHICLE OWNER'S MANUAL
OCCUPANT RESTRAINT INSTRUCTIONS

Split Folding Rear Seat



The rear seat backs fold forward to allow direct access to the luggage compartment.

- Press the button to unlock the seat back, then fold it forward and down.
- To raise the seat back, lift it and push it firmly into place.

Safety Belts

Safety Belt Restraint System

▲WARNING

The driver and all passengers should always use the safety belts provided in order to minimize the risk of severe bodily injury.

We strongly recommend that the driver and all passengers be properly restrained at all times by using the safety belts provided with the vehicle. Proper use of the safety belts decreases the risk of severe injury or death in accidents or sudden stops.

All seats, except the center rear seat, have lap/shoulder belts. The center rear seat has a lap belt. Inertial locks in the safety belt retractors allow all of the lap/shoulder safety belts to remain unlocked during normal vehicle operation. This allows the occupants some freedom of movement and increased comfort while using the safety belts. If a force is applied to the vehicle, such as a strong stop, a sharp turn, or a collision, the safety belt retractors will automatically lock the safety belts.

Since the inertial locks do not require a collision to lock up, you may become aware of the safety belts locking while braking or going around sharp corners.

The center rear seat safety belt does not have an inertial lock so it is always in a locked condition. Whenever possible, use the center rear seat position to install your child-restraint. If the center seat is unavailable, a child-restraint may be installed in the front passenger seat or in the rear outboard seats.

The front passenger safety belt and rear outboard safety belts have been designed to allow a child-restraint to be used in these positions without a safety belt locking clip. Those safety belts normally lock only under extreme or emergency conditions (this is the emergency lock mode). However, they can be adjusted so that they remain fixed and locked when a child-restraint is placed in those positions (this auto lock mode should only be used to secure a child-

restraint). See Page 4-21 for instructions on how to place the safety belt in the auto lock mode.

The drivers' safety belt can only operate in the emergency lock mode.

▲ WARNING - Passengers

- Each passenger riding in the vehicle should be properly wearing a safety belt. Persons riding in a seat without a fastened safety belt are much more likely to suffer serious bodily injury or death during an accident.

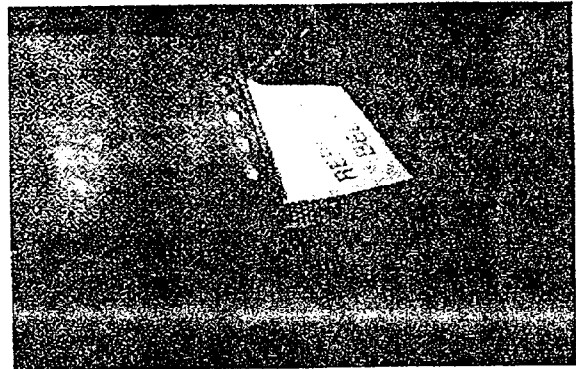
4-14

▲ WARNING - After a Collision

- Lap/shoulder belt assemblies may be stretched or damaged when subjected to the stress and forces of a collision.

A safety belt must be replaced if any part of the "Replace Belt" label is visible. You won't see this label unless your restraint system has been heavily loaded in a collision. This "Replace Belt" label, shown in the picture in the next column, is located on the front belts near the door opening.

The entire restraint system should be inspected following any collision. All belts, retractors, anchors and hardware damaged by a collision should be replaced before the vehicle is operated again.



Knowing Your Vehicle

⚠ WARNING - Safety Belt Care

- Safety belts should be inspected periodically for excessive wear or damage. Pull out each belt fully and look for excessive fraying, cuts, burns or other damage. Make sure that the lap/shoulder belts return smoothly and easily into the retractor. Check the latches to make sure they latch and release without interference or delay. Any belt not in good condition or in good working order should be promptly replaced.

⚠ CAUTION - Damage to Safety Belts

Never close the doors on any part of the lap or shoulder belt. It can damage the safety belt or buckle which could increase the risk of injury in case of an accident.

Restraint of Pregnant Women

Pregnant women should wear lap/shoulder belt assemblies whenever possible according to specific recommendations by their doctors. The lap portion of the belt should be worn **AS SNUGLY AND AS LOW AS POSSIBLE**.

⚠ WARNING - Pregnant Women

Pregnant women must never place the lap portion of the safety belt over the area of the abdomen where the fetus is located or above the abdomen.

4-16

Restraint of Infants and Small Children

Small children and infants should be restrained by an approved child-restraint system to help protect them while riding in a vehicle.

Never allow a child to stand or kneel on the seat of a moving vehicle. Never allow a safety belt to be placed around both a child and an adult or around two children at the same time.

⚠ WARNING - Children on Laps

Never hold a child on your lap or in your arms in a moving vehicle. Even a very strong person cannot hold onto a child in the event of even a minor collision.

Many companies manufacture child-restraint systems (often called child seats) for infants and small children. An acceptable child-restraint system must always satisfy U.S. Federal Motor Vehicle Safety Standards. Make sure that any child-restraint system you use in your vehicle is labeled as complying with those safety standards.

The child-restraint system should be chosen to fit both the size of the child and the size of the vehicle seat. Be sure to follow any instructions provided by the child-restraint system manufacturer when installing the child-restraint system.

⚠ CAUTION - Hot Metal Parts

Since a safety belt or child-restraint system can become very hot in a closed vehicle during warm weather, be sure to check the seat cover and buckles before placing a child in the seat.

KAR-96-R96024-07

F3

4-17

Knowing Your Vehicle

The rear outboard safety belts have been designed to allow a child-restraint to be installed in these positions in either the front or rear-facing positions. Since all three of these safety belts move freely under normal conditions and only lock under extreme or emergency conditions (emergency lock mode) you must manually adjust these belts to the auto lock mode to secure a child-restraint.

The driver's safety belt incorporates the emergency lock function only.

⚠ WARNING

- **NEVER** use a rear-facing child-restraint in the front seat. A child in a rear-facing child restraint installed in the front seat can be severely or fatally injured by an inflating air bag which could impact the child restraint with great force when the air bag inflates.
- If the rear seats are unavailable, a forward-facing child-restraint may be installed in the front passenger seat, but you should **ALWAYS** move the front passenger seat all the way rearwards on its seat track in order to place the child as far from the air bag as possible.

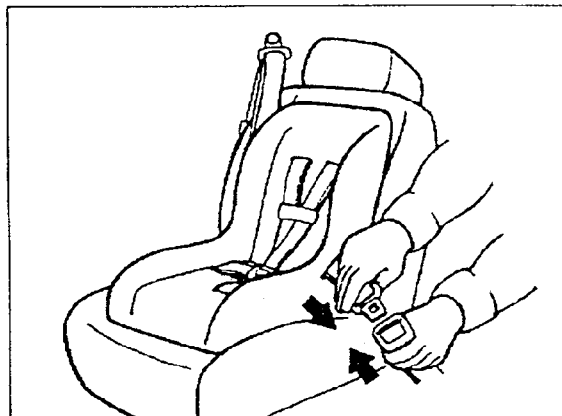
4-20

Placing a Passenger Safety Belt into the "Auto Lock" Mode

The use of the auto lock mode will ensure that the normal movement of the child in the vehicle does not cause the safety belt to be pulled out and loosen the firmness of its hold on the child-restraint.

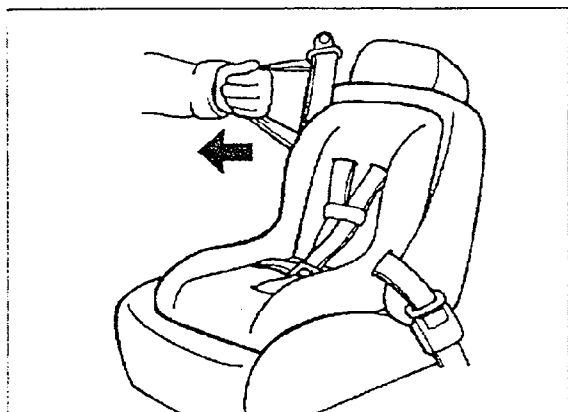
To secure a child-restraint in the front passenger seat or rear outboard seats, follow the procedure below.

1. Place the child-restraint system in the seat and route the lap/shoulder belt around or through the restraint, following the restraint manufacturer's instructions.

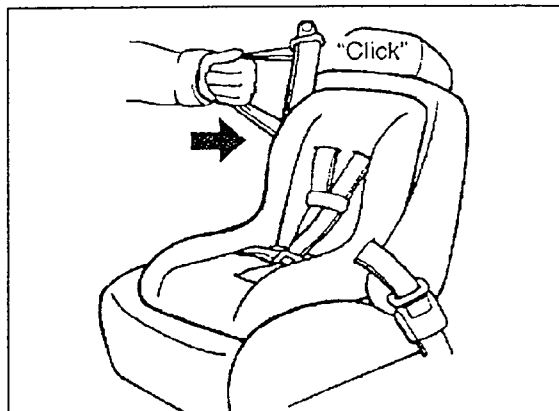


2. Fasten the lap/shoulder belt latch into the buckle. Listen for the distinct "click" sound.

Position the release button so that it is easy to access in case of an emergency.

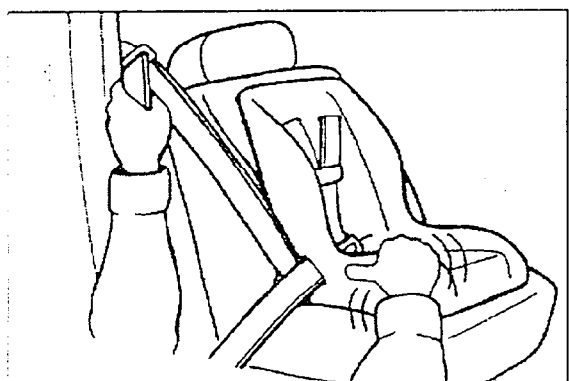


3. Pull the shoulder portion of the safety belt all the way out. When the shoulder portion of the safety belt is fully extended, it will shift the retractor to the "Auto Lock" mode.



4. Slowly allow the shoulder portion of the safety belt to retract and listen for an audible "clicking" or "ratcheting" sound. If no distinct sound is heard, repeat steps 3 and 4.

4-22



5. Remove as much slack from the belt as possible by pushing down on the child-restraint seat while feeding the shoulder belt back into the retractor.
6. Push and pull on the child-restraint seat to confirm that the safety belt is holding it firmly in place. If it is not, release the safety belt and repeat steps 2 through 6.

To remove the child-restraint, press the release button on the buckle and then pull the lap/shoulder belt out of the restraint and allow the safety belt to retract fully.

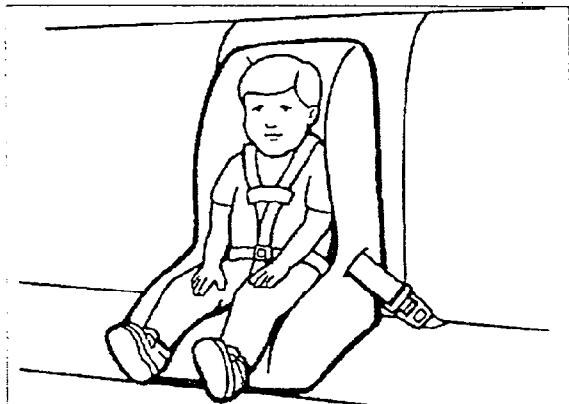
⚠ WARNING - Auto Lock Mode

The lap/shoulder belt automatically returns to the "emergency lock mode" whenever the belt is allowed to retract fully. Therefore, the preceding six steps must be followed each time a child-restraint is installed.

If the safety belt is not placed in the "auto lock" mode severe injury or death could occur to the child and/or other occupants in the vehicle.

Knowing Your Vehicle

Installing a Child-Restraint in the Rear Center Seat



To install a child-restraint in the rear center seat, do the following:

1. Place the child-restraint in the desired position. Route the lap belt through the restraint according to the restraint manufacturer's instructions.
2. Insert the latch plate into the buckle.

3. Adjust the lap safety belt for a snug hold on the child-restraint by pulling on the loose end of the belt webbing.

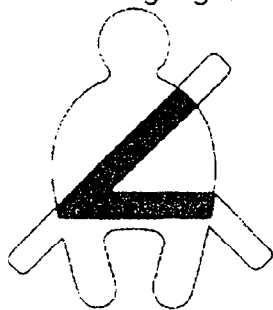
4-24

Knowing Your Vehicle

Safety Belt Warning Light and Chime

If the driver's lap/shoulder belt is not fastened when the key is turned ON, or if it is disconnected after the key is ON, the safety belt warning chime sounds for approximately six seconds and the safety belt warning light remains on until the safety belt is buckled.

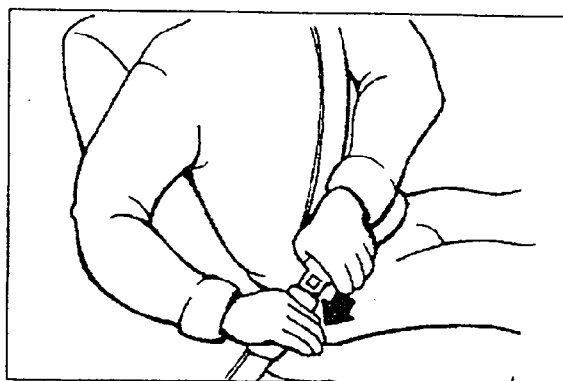
Safety Belt Warning Light

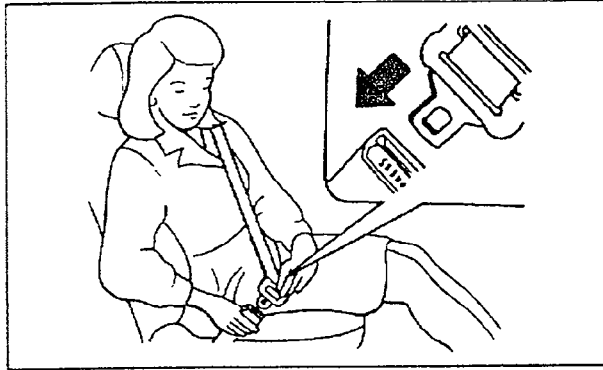


Front Lap/Shoulder Belt

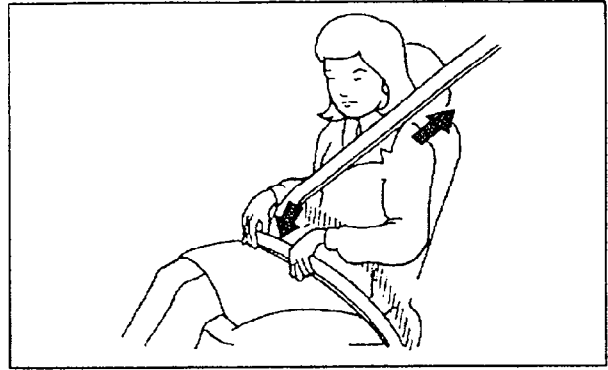
To fasten the front lap/shoulder belt:

1. Grasp the buckle and tongue plate.
2. Slowly pull the lap/shoulder belt out from the retractor.





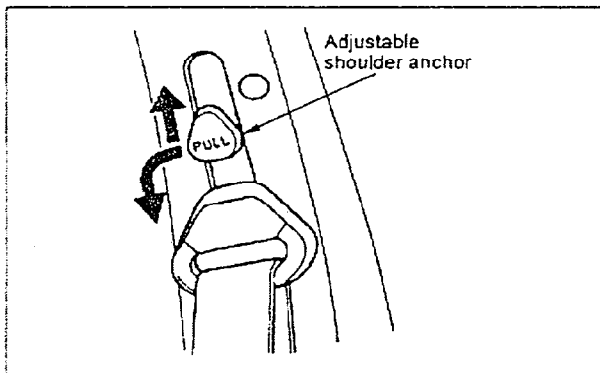
3. Insert the tongue plate into the open end of the buckle until an audible "click" is heard, indicating the belt is locked in the buckle.



4. Position the lap portion of the belt across your lap as **LOW ON THE HIPS** as possible to reduce the risk of sliding under it during an accident. Adjust the belt to a **SNUG FIT** by pulling up on the shoulder portion of the safety belt. The belt retractor applies tension to the belt in order to take up excess webbing automatically and to maintain tension on the belt. For maximum safety do not put any excess slack into the safety belt.

4-26

Knowing Your Vehicle



5. Adjust the shoulder anchor position to your size. To raise the anchor position, pull the knob and push the anchor up. To lower the anchor position, pull the knob and slide the anchor down. After adjustment, make sure the anchor is locked in position.

⚠ WARNING - Front Safety Belts

- The front seatbacks should always remain in a comfortable, upright position while the vehicle is in motion. The safety belt system will provide the most protection with the seatbacks in an upright position.
- Never wear the shoulder portion of the safety belt under the outside arm or behind the back.
- Never wear the shoulder portion of the safety belt across the neck or face.
- Wear the lap portion of the safety belt as low as possible. Be sure the lap belt fits snugly around the hips. Never wear the lap belt over your waist.
- Make sure the safety belts are not twisted while in use.
- Never use a single belt to restrain more than one person at a time.

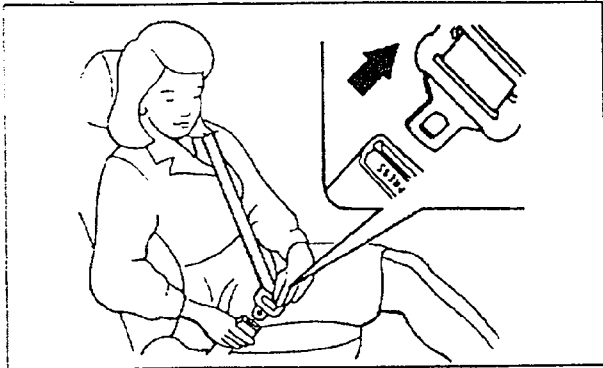
Failure to follow these warnings will increase the chance and severity of injury in an accident.

KAR-96-R96024-07

Knowing Your Vehicle

To Unfasten the Front Lap/Shoulder Belt:

Press the release button on the buckle.



4-28

Rear Safety Belts

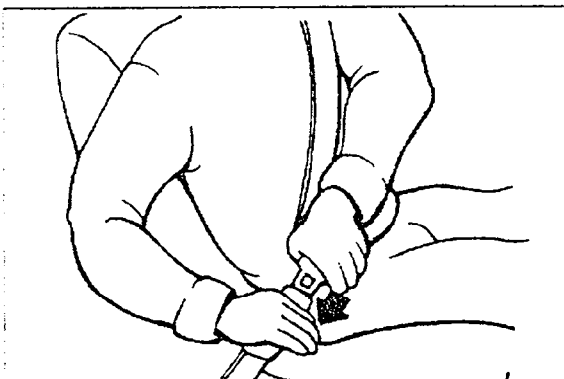
Two kinds of safety belts are provided:

- Lap/shoulder belts for people who sit on the out-board sides of the vehicle.
- A lap belt for people who sit in the center of the rear seat.

Rear Lap/Shoulder Belt

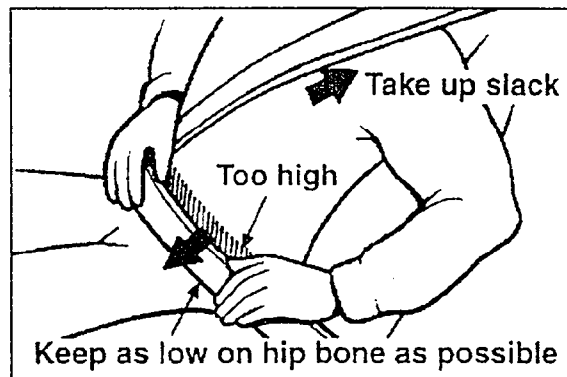
To Fasten:

1. Grasp the buckle and tongue plate.
2. Slowly pull the lap/shoulder belt out.



3. Insert the tongue plate into the open end of the buckle until an audible "click" is heard, indicating the belt is locked.
4. Position the lap portion of the belt across your lap as **LOW ON THE HIPS** as possible to reduce the

risk of sliding under it during an accident. Adjust the belt to a **SNUG FIT** by pulling up on the shoulder portion of the safety belt. The belt retractor is designed to take up excess webbing automatically and to maintain tension on the belt. This is for your safety. Do not put excess slack into the safety belt.



To Unfasten:

Press the button on the buckle.

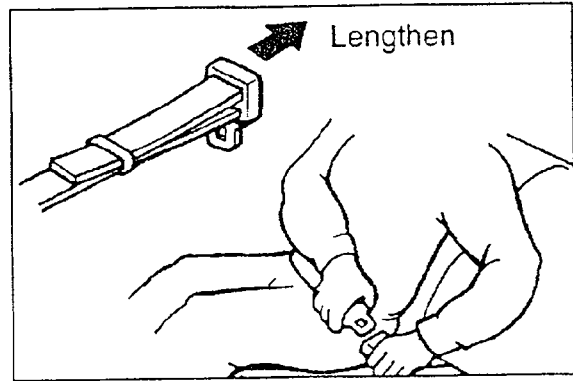
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**⚠ WARNING - Rear Lap/
Shoulder Safety Belts**

- Never wear the shoulder portion of the safety belt under the outside arm or behind the back.
- Never wear the shoulder portion of the safety belt across the neck or face.
- Wear the lap belt or the lap portion of the belt as low as possible. Be sure the lap belt fits snugly around the hips. Never wear the lap belt over your waist.
- Make sure the safety belts are not twisted while in use.
- Never use a single belt to restrain more than one person at a time.

Failure to follow these warnings could increase the chance and severity of injury in an accident.

2. Insert the tongue plate into the open end of the buckle until an audible "click" is heard, indicating the latch is locked. Make sure the belt is not twisted.



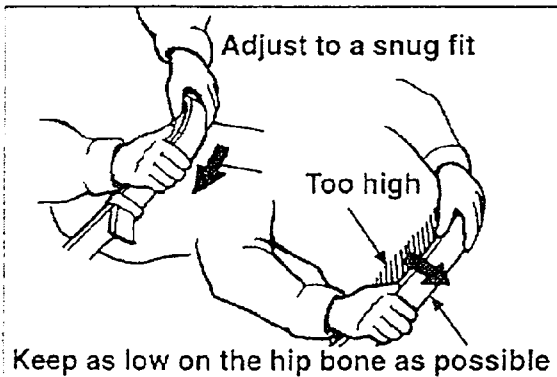
Lap Belt (Rear Center Seat)

To Fasten the Rear Lap Belt:

1. Grasp the buckle end and pull it low over the abdomen.

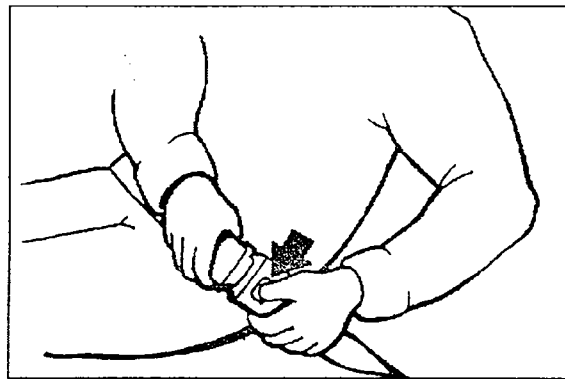
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3. Grasp the free portion of the belt webbing and pull until the belt is snug over the hips and lower abdomen. If it becomes necessary to lengthen or shorten the belt, hold the latch plate tongue at right angles to the webbing and pull.



4. Make sure that the belt is placed as **LOW ON THE HIPS** as possible.

To Unfasten the Rear Lap Belt:



Press the release button on buckle.

Knowing your vehicle

▲ WARNING - Center Rear Lap Belt

Be sure the center rear lap belt is positioned snugly around the hips. Failure to position the center rear lap belt snugly around the hips will increase the chance and severity of injury in the event of a collision.

Proper Use and Care of the Safety Belt System

To ensure that the safety belts provide the maximum protection, please follow these instructions.

- Use the belts at all times, even on short trips.
- If the safety belt is twisted, straighten it prior to use.
- Keep sharp edges and damaging objects away from the belt.
- Periodically inspect belt webbing, anchors, buckles, and all other parts for signs of wear and damage.

Replace damaged, excessively worn or questionable parts immediately.

- To clean the belt webbing, use any mild soap solution recommended for cleaning upholstery or carpets. Follow the instructions provided with the soap. Do not bleach or dye the webbing because this may weaken the webbing fibers and allow them to fail when loaded in a collision.
- Do not make modifications or additions to the safety belt.
- After wearing a safety belt, make sure it fully retracts to the stowed position. Do not allow the belt to get caught in the door when you close it.

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Air Bag – Supplemental Restraint System

What Your Air Bag Does

Your vehicle is equipped with a dual Supplemental Restraint System (SRS): which includes an air bag for the driver and another air bag for the front passenger.

What Your Air Bag Does Not Do

The air bag system is designed to supplement or add to the protection offered by the vehicle's safety belt system. It is not a substitute for the driver's or front passenger's safety belts.

Why Didn't My Air Bag Go Off in a Collision?

There are many types of accidents in which the air bag would not be expected to provide additional protection. These include side or rear impacts, rollovers, and second or third impacts in multiple-impact accidents.

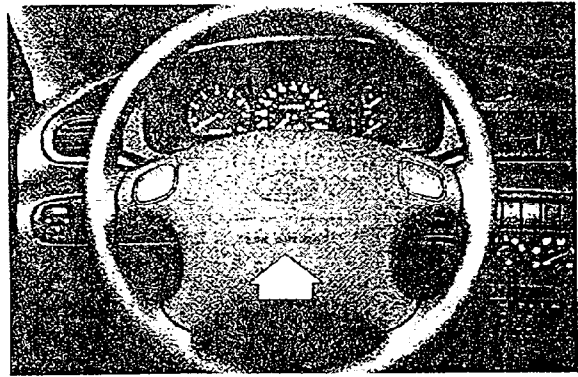
Air bags are only designed to inflate when the impact would throw the occupant into the air bags – generally from a little to the left or a little to the right or straight ahead.

In other words, just because your vehicle is damaged and even if it is totally unusable, don't be surprised that the air bag(s) did not inflate.

▲ WARNING

- Even in vehicles with air bags, you and your passengers must always wear the safety belts provided in order to minimize the risk and severity of injury in the event of a collision or rollover.
- Always wear your safety belt. It can help keep you away from the air bags during heavy braking just before a collision. Air bags are designed to inflate only in severe frontal collisions and will generally not provide protection in side or rear impacts, rollovers or less severe frontal collisions. They will also not provide protection from later impacts in a multi-impact collision.

- If your vehicle has been subjected to flood conditions (e.g. soaked carpeting/standing water on the floor of the vehicle, etc.) or if your vehicle has become flood damaged in any way, do not attempt to start the vehicle or put the key in the ignition before disconnecting the battery. This may cause air bag deployment, which could result in serious personal injury or death. Have the vehicle towed to an Authorized Kia Dealer for inspection and necessary repairs.



To indicate that your vehicle is equipped with air bags, the air bag covers on the steering wheel and on the dash board will be marked with "SRS AIR BAG."

Air Bag System Components

The main components of your vehicle's SRS are:

- One air bag in the steering wheel for the driver, and another in the dashboard for the front passenger.
- A diagnostic system that continually monitors system operation.
- An indicator light to warn you of a possible problem with the system.
- Emergency power backup in case your vehicle's electrical system is disconnected in a crash.

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How the Air Bag System Works

The driver's air bag is stored in the center of the steering wheel. The passenger side air bag is stored in the front dashboard above the glove box.

If you ever have a severe frontal collision, your air bags will instantly inflate to help protect you from serious physical injury.

There is no single vehicle speed at which the air bags will inflate. Generally, air bags are designed to inflate in severe frontal collisions. The air bag Supplemental Restraint System (SRS) reacts to the severity of a collision and its direction. These two factors determine whether the sensors send out an electronic deployment or inflation signal. Whether the air bags will inflate depends of a number of factors including vehicle speed, angle of impact and the density and stiffness of the vehicles or objects which your vehicle hits in a collision.

The air bags will completely inflate and deflate in less than 1/10 of one second. The speed of inflation and deflation protects the driver's ability to operate the vehicle. This is important in crashes where a vehicle continues to move after an impact and the

driver still has some control of the vehicle's steering, braking, throttle and/or transmission systems.

It is virtually impossible for you to see the air bags inflate during an accident. It is much more likely that you will simply see the deflated air bags hanging out of their storage compartments after the collision.

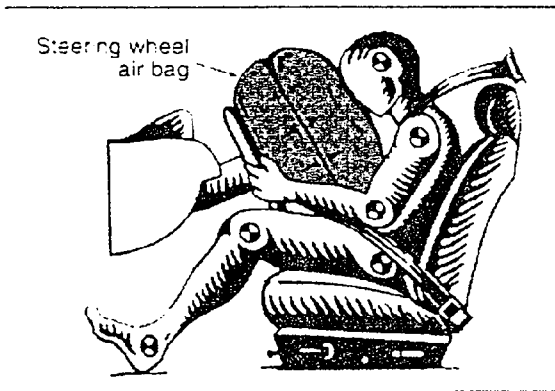
In order to help provide protection in a severe collision, the air bags must inflate rapidly. However, that speed also causes the air bags to expand with a great deal of force. The speed of this inflation can reduce the likelihood of serious or life-threatening injuries and is thus desirable.

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Knowing Your Vehicle



Thus, air bag inflation can also cause injuries which normally can include facial abrasions, bruises and broken bones. There are even circumstances under which contact with the steering wheel air bag can cause fatal injuries, especially if the occupant is positioned excessively close to the steering wheel.

YOU MUST ALWAYS SIT AS FAR BACK FROM THE STEERING WHEEL AIR BAG AS POSSIBLE, WHILE STILL MAINTAINING A COMFORTABLE SEATING POSITION FOR GOOD VEHICLE CONTROL, IN ORDER TO REDUCE THE RISK OF INJURY OR DEATH IN A COLLISION.

⚠ WARNING - Air Bag Injuries

- Sit as far back from the steering wheel as possible without interfering with your control of the vehicle. Positioning yourself too close to the steering wheel can result in serious or even fatal injuries if the air bag deploys.
- Never place objects over the air bag storage compartments or between the air bags and yourself. Due to the speed and force of the air bag inflation, such objects could hit your body at high speed and cause severe bodily injury and even death.

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When the air bags inflate, they make a loud noise and they leave smoke and powder in the air inside of the vehicle. This is normal and is a result of the ignition of the air bag inflator.

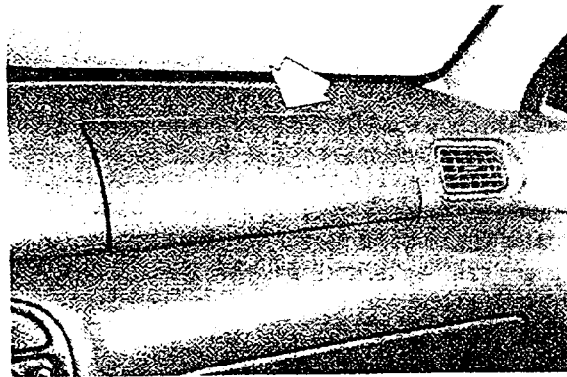
After the air bags inflate, you may feel substantial discomfort in breathing due both to the contact by your chest with both the safety belt and the air bag, as well as from breathing the smoke and powder.

WE STRONGLY URGE YOU TO OPEN YOUR DOORS AND/OR WINDOWS AS PROMPTLY AS POSSIBLE AFTER IMPACT IN ORDER TO REDUCE DISCOMFORT AND PREVENT PROLONGED EXPOSURE TO THE SMOKE AND POWDER.

⚠ WARNING - Hot Metal Parts

- When the air bags deploy, the air bag inflators in the steering wheel and/or below the dashboard are very hot. To prevent injury, do not touch the air bag storage areas internal components after an air bag has inflated.

Special Information About the Passenger Air Bag



The front seat passenger's air bag is much larger than the driver's air bag and inflates with considerable force. It can seriously hurt a passenger who is not in the proper position and wearing the safety belt properly. The front passenger should always move their seat as far back as practical and sit well back in the seat.

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Knowing Your Vehicle

Because of the air bag, you should **never install a rear-facing child-restraint system** in the front passenger seat. There is a very significant risk of serious or fatal injuries to a child in a rear-facing child-restraint if the right front passenger air bag inflates.

We also strongly recommend that you do not put a front-facing child-restraint system in the passenger seat. If a front-facing child-restraint system must be used in the front passenger seat, the vehicle seat should be moved as far back as possible. If the passenger's air bag inflates, it could seriously or fatally hurt a child who is not in the proper position or properly restrained.

⚠ WARNING - Front Passengers

- **NEVER use a rear-facing child-restraint in the front seat. In the front seat, a rear-facing child-restraint would be positioned too close to where the air bags are stored and in the event an air bag deploys, an infant or child sitting in the child-restraint could suffer serious injuries or death.**
- **Failure to observe the following instructions and the instructions provided with the child-restraint system could increase the risk and/or severity of injury in an accident.**

Air Bag Warning Light

The purpose of the air bag warning light in your instrument panel is to alert you of a potential problem with your Air Bag – Supplemental Restraint System (SRS).

Have the system checked if:

- The light does not illuminate briefly when you turn the ignition ON.
- The light stays on after the engine starts.

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- The light comes on or flashes while you are driving.

Supplemental Restraint System Service

Your Supplemental Restraint System is virtually maintenance-free. There are no parts which you can service.

You must have the system serviced under the following circumstances:

- If an air bag ever inflates, the air bag must be replaced. Do not try to remove or discard the air bag by yourself. This must be done by an authorized Kia dealer or service representative.
- If the air bag warning indicator light alerts you of a problem, have the air bag system checked as soon as possible. Otherwise, your air bag might not inflate when you need it.

⚠ WARNING

- **Do not modify your steering wheel or any other part of the Supplemental Restraint System. Modification could make the system ineffective.**
- **Do not work on the system's components or wiring. This could cause the air bags to inflate inadvertently, possibly injuring someone very seriously. Working on the system could also disable the system so that the air bags did not deploy in a collision.**