V2640

REPORT NO. KAR-97-05

NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST

NISSAN MOTOR COMPANY, LTD.
1997 NISSAN 200SX
2-DOOR COUPE
NHTSA NO. MV5200

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

MAY 20, 1997
FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF MARKET INCENTIVES
ROOM NO. 5313 (NRM-22)
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Technical Report Documentation Page

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16. Abstract

A 35 mph (56.3 kph) frontal barrier impact test was conducted on a 1997 Nissan 200SX 2-door coupe at KARCO Engineering on 04/17/97. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), and 301 performance. The impact velocity was 56.82 kph. The ambient temperature at the barrier face at the time of impact was 22 degrees C. The vehicle's maximum post-test static crush was 570 mm.

Type of occupant restraint system tested: A 3-point continuous webbing belt system at both seating positions with driver side and passenger side air bags. Occupant injury response data summary is as follows:

Injury Criteria	Threshold Value	Driver Dummy	Passenger Dummy
Head Injury Criteria	HIC = 1000	414.8	576.5
Chest Resultant 3 msec clip	60 G's	42.9	48.7
Left Femur Force	10009 N	-3654.4	-2805.4
Right Femur Force	10009 N	-2200.6	-2391.9

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SECTION 1.

PURPOSE, TEST PROCEDURE AND SUMMARY OF TEST MV5200

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 spool out 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 55.5 to 57.1 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. Eighty-seven channels of data were recorded with a PC based (TDAS) on-board data acquisition system. The data is digitally sampled at 10,000 samples per second and processed per section IP11 of the Laboratory Indicant Test Procedure.

The Driver ATD (serial No. 35) and the right-front passenger ATD (serial No. 34) were used in one previous test since calibration was last performed. Injury criteria were not exceeded in test MV5200.

The test was conducted at KARCO Engineering Automotive Research Center on 04/17/97 at a speed of 56.82 kph. The frontal barrier impact event was documented by one (1) real-time camera panning motion picture camera and seventeen (17) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

No load cell barrier data channels were recorded in conducting this April 17, 1997, NCAP test. The barrier was impacted by a 1997 Nissan 200SX at a velocity of 56.82 kph. The 1997 Nissan 200SX was equipped with a 1.6 liter, four cylinder engine and a five speed manual transmission. The test weight, with two (2) 50th percentile male dummies, was 1225 kg.

The driver's Head Injury Criteria (HIC) was 414.8, the maximum chest deceleration over three (3) milliseconds was 42.9 g and the left and right femur loads were -3654.4 and -2200.6 Newtons, respectively.

The right front passenger's HIC was 576.8, maximum chest deceleration over three (3) milliseconds was 48.7 g, and the left and right femur loads were -2805.4 and -2391.9 Newtons respectively.

There was 100 percent windshield retention with no intrusion into the protected or unprotected zone of the windshield. 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 570 mm at the vehicle centerline. The windshield was severely damaged but the vehicle glazing remained intact. The driver and passenger side doors opened without the aid of tools. The driver ATD's head, chest and abdomen contacted the airbag, both knees impacted the dash panel and the left knee impacted the steering column. The driver's seat back shifted 5 mm on the left side.

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 41 mm for the driver ATD and 45 mm for the passenger ATD. On-board pullout potentiometers measured 40.5 mm for the driver ATD and 45.5 mm for the passenger ATD. Shoulder belt stretch was 0.047 cm/cm for the driver ATD and 0.043 cm/cm for the passenger ATD. Chest deflection for the driver ATD was -27.8 mm. Chest deflection for the passenger ATD was -34.9 mm.

1.4 GENERAL COMMENTS

The 1997 Nissan 200SX Coupe passed the requirements of FMVSS 212, FMVSS 219 and FMVSS 301-75. Data pertaining to these standards are presented in the data sheets.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. The dummy and vehicle response data traces are presented in Appendix B. Appendix C is for load cell barrier data, although no 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 instructions for the occupant restraint system.

SECTION 2.

OCCUPANT AND VEHICLE INFORMATION/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 kilometer (km)
1 gallon (gal.)	=	3.785 liters (L)

DATA SHEET NO. 1

CRASH TEST SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 1997 Nissan/200 SX/ Coupe

NHTSA NO.: MV5200 TEST DATE: 04/17/97 TIME: 4:00 PM

BARRIER TEMPERATURE: 22 °C WINDSHIELD MOLDING TEMPERATURE: 21 °C

VEHICLE TEST WEIGHT: 1225 kg VEHICLE/BARRIER IMPACT ANGLE: 90 °

IMPACT VELOCITY: PRIMARY 56.82 kph SECONDARY 56.93 kph

VEHICLE REBOUND FROM BARRIER:

Left Side	655 mm
Centerline	660 mm
Right Side	665 mm

MAXIMUM STATIC CRUSH:

	Pre-test	Post-test	Static Crush
Left Side	4190 mm	3676 mm	514 mm
Centerline	4310 mm	3740 mm	570 mm
Right Side	4170 mm	3669 mm	501 mm

DUMMIES:	DRIVER	PASSENGER
DUMMY TYPE	572E	572E
SERIAL NUMBER	35	34
RESTRAINT SYSTEM	TYPE II	TYPE II
NO. DATA CHANNELS:	34	44

NUMBER OF CAMERAS: 1 Real Time 17 High Speed

DOOR OPENING DATA: OK - Left Front OK - Right Front

FRONT SEAT(S) DATA:	DRIVER	PASSENGER
Seat Track Failure (shift)-	0 mm	0 mm
Seat Back Failure -	Left pivot bent back 0.5 mm, still operational	N/A

VISIBLE DUMMY CONTACT POINTS:	DRIVER	PASSENGER
Head	AIRBAG	AIRBAG
Chest	AIRBAG	AIRBAG
Knees	DASH AND STEERING COLUMN	GLOVE BOX

DATA SHEET NO. 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1997 Nissan/ 200SX/ COUPE

NHTSA No.: MV5200 VIN: 1N4AB4207VC510394 Color: Silver/Gold

Date Received: 04/04/97 Odometer Reading: 71.0 miles

Selling Dealer: Nissan Motors

ENGINE & DRIVE TRAIN DATA:

No. Cylinders: 4 Displacement: 1.6 litter

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: Power Steering: X Power Brakes: X

Power Windows: ____ Power Door Locks: ____ Other: Rear Defroster, Console

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Nissan Motor Co., Ltd.

Date of Manufacture: 12/96 VIN: 1N4AB4207VC510394

GVWR: 1513 kg GAWR FRONT: 851 kg GAWR REAR: 712 kg

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 230 kPa REAR: 200 kPa

Recommended Tire Size: P175/70R13 Load Range: 470 kg.

Recommended Cold Tire Pressure:

FRONT: 230 kPa REAR: 200 kPa

Size of Tires on Test Vehicle: P115/70R13 Manufacturer General

Type of Spare Tire: Space Saver: T155/70D14 Standard: ____

Data Sheet No. 2 (Continued)

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) = 369 kg

No. of Occupants x 68 kg. = 340 kg

Rated Cargo/Luggage Weight (RCLW) = 29 kg (Difference)

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

Right Front =	322 kg	Right Rear =	203 kg
Left Front =	333 kg	Left Rear =	194 kg
TOTAL FRONT =	655 kg	TOTAL REAR =	397 kg
% Total Weight =	62.26 %	% Total Weight =	37.74 %

TOTAL DELIVERED WEIGHT = 1052 kg

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight = 1052 kg

Rated Cargo/Luggage Weight = 29 kg

Weight of 2 P572 Dummies = 149 kg

TARGET TEST WEIGHT = 1230 kg (SUM)

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 28 kg OF CARGO (BALLAST):

Right Front =	358 kg	Right Rear =	255 kg
Left Front =	357 kg	Left Rear =	255 kg
TOTAL FRONT =	715 kg	TOTAL REAR =	510 kg
% Total Weight =	58.36 %	% Total Weight =	41.63 %

TOTAL TEST WEIGHT = 1225 kg

Weight of Ballast secured in cargo area = 28 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 664 LF 673 RR 660 LR 660

AS TESTED: RF 626 LF 639 RR 605 LR 610

Vehicle's Wheelbase = 2459 mm

Location of Vehicle's CG = (if required)

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 50.6 liters

Usable Capacity Figure Furnished by COTR = 49.9 liters

Test Volume Range (92 to 94% of Usable Capacity) = 45.97 to 46.96 liters

ACTUAL TEST VOLUME = 46.6 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 X

DETAILS OF FUEL SYSTEM: Ignition operated fuel pump with automatic shut off relay

DATA SHEET NO. 3

POST IMPACT DATA

VEHICLE MODEL YEAR & MAKE: 1997 Nissan 200SX Coupe

TEST DATE: 04/17/97 TIME: 4:00 PM TEMPERATURE: 22 °C

VEHICLE NHTSA NO.: MV5200 VIN: 1N4AB4207VC510394

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 = 56.82 kph Trap No. 2 = 56.93 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 = 4170 mm	C/L = 4310 mm	Left = 4190 mm
Post Test:	Right = 3669 mm	C/L = 3746 mm	Left = 3676 mm
CRUSH:	Right = 501 mm	C/L = 570 mm	Left = 514 mm

AVERAGE = 528 mm

VEHICLE REBOUND: (from rigid barrier only)

Distance from rear of test vehicle to impact point - -

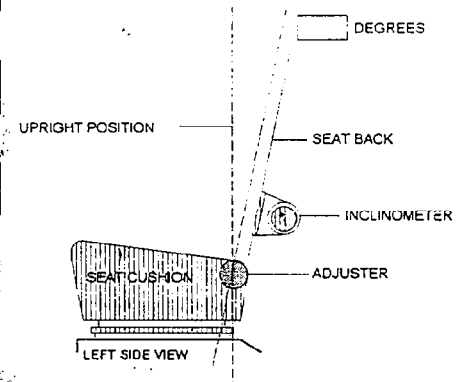
Right = 655 mm C/L = 660 mm Left = 665 mm

AVERAGE = 660 mm

DATA SHEET NO. 4

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1997 Nissan Vehicle Model & Body Style: 200SX



FRONT SEAT ASSEMBLY

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" of "1"?).

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

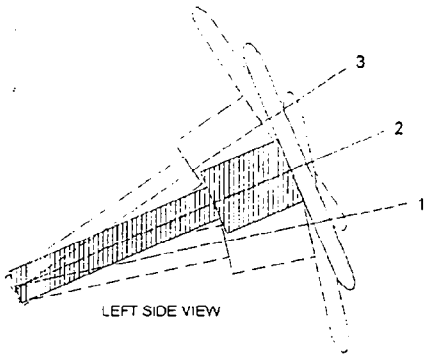
Measurement Instructions: A special application tool with pointed probes was inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly approximately 4 inches above the pivot point of the seat back. The inclinometer was placed against the flat surface of the tool 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: 20 seating positions; set to 11th position from front.

Positioning of the passenger's seat (if applicable): 20 seating positions; set to 11th position from front.

3. STEERING COLUMN ADJUSTMENTS:



STEERING COLUMN ASSEMBLY

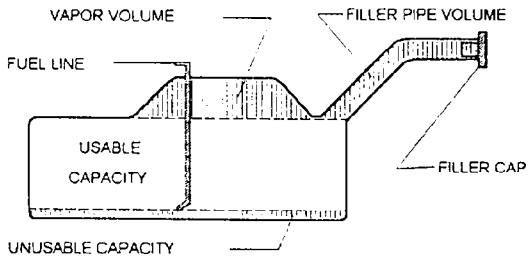
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions:
Position No. 1 is at 23°
Position No. 2 is at 25°
Position No. 3 is at 27°

4. SEAT BELT UPPER ANCHORAGE:

Nominal design riding position:

Data Sheet No. 4 (continued)



VEHICLE FUEL TANK ASSEMBLY

5. FUEL TANK CAPACITY DATA

5.1 A. "Usable Capacity" of standard equipment fuel tank = 49.962. 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 = 45.97 to 46.9 liters. –

Operational Instructions:

5.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 46.6 liters

5.3 Is vehicle equipped with electric fuel pump?

Yes X No ____

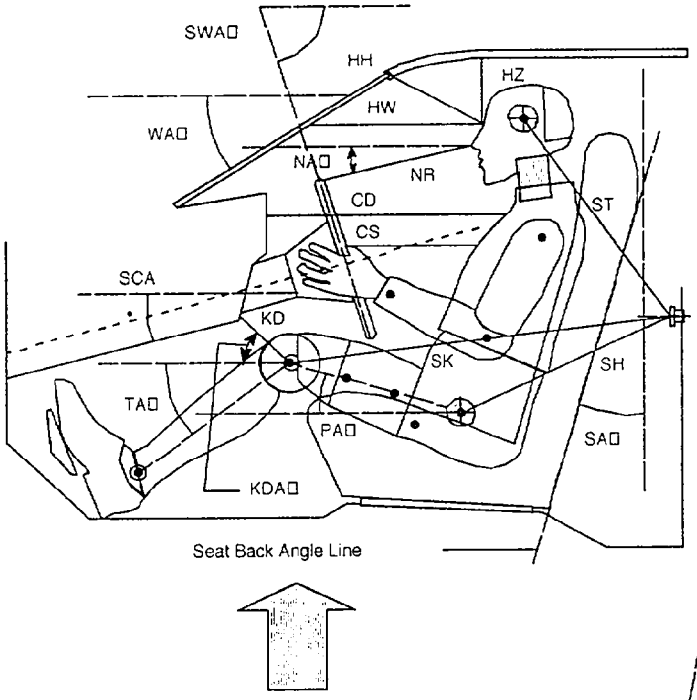
If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

Ignition operated fuel pump with automatic shut off relay.

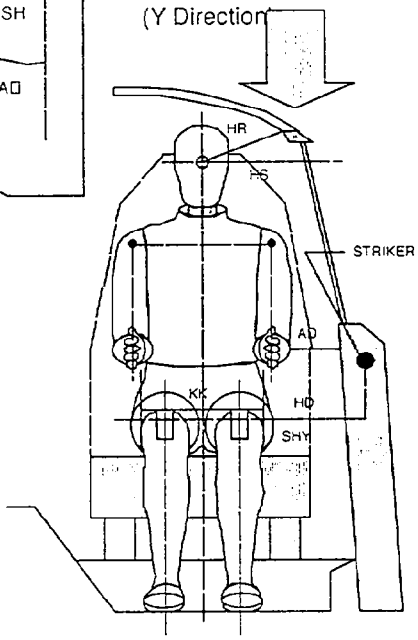
DATA SHEET NO. 5

DUMMY POSITIONING IN VEHICLE

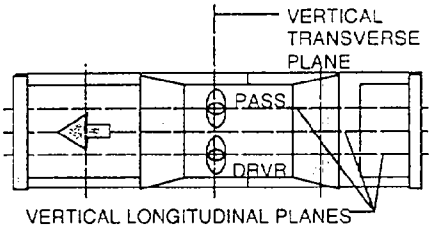
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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



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



DUMMY POSITIONING IN VEHICLE

FRONT SEAT MEASUREMENT TABLE

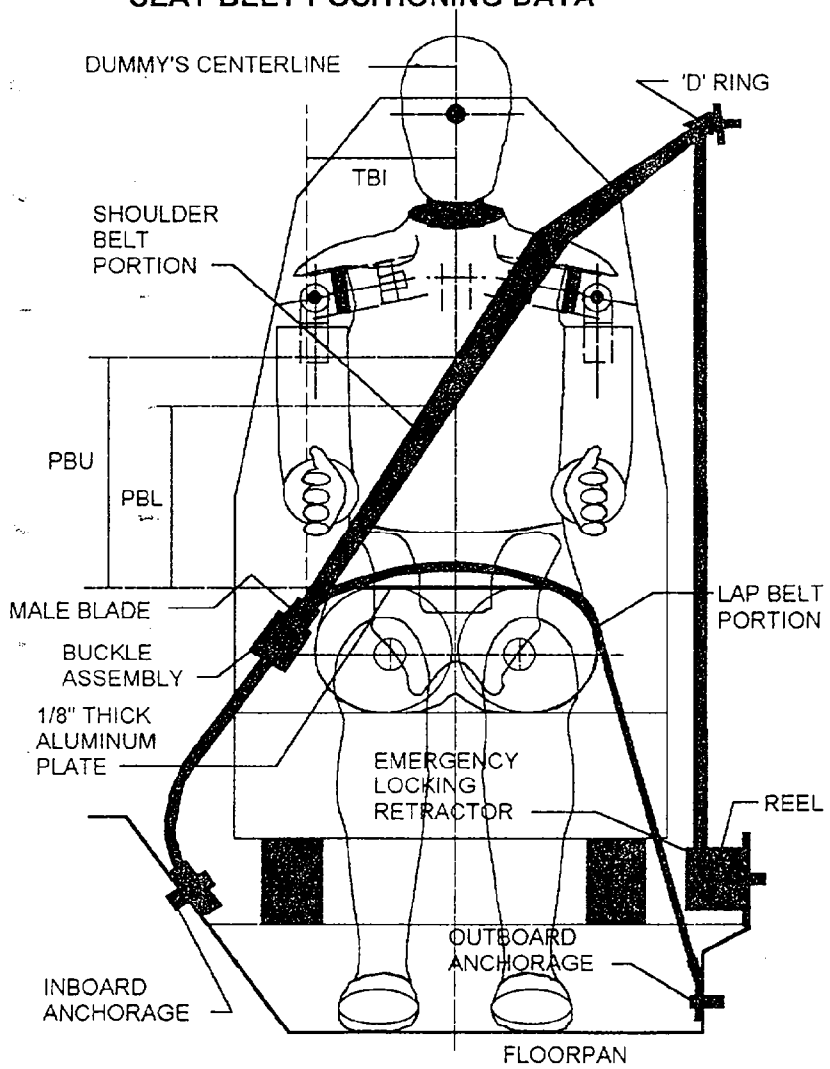
	DRIVER (Serial No. 35)	PASS. (Serial No. 34)
WA°	30°	
SWA°	65°	
SCA°	25°	
SA°	25°	25°
HZ	195 mm	197 mm
HH	320 mm	305 mm
HW	563 mm	600 mm
HR	255 mm	265 mm
NR	455@ 14°	-
CD	505 mm	470 mm
CS	305 mm	-
RA	182 mm	-
KDL	135 mm	170 mm
KDR	122 mm	165 mm @ 33°
PA°	21°	21°
TA°	50°	42°
KK	263 mm	213 mm
ST	560 mm @ 62°	565 mm @ 56°
SK	N/A	N/A
SH	485 mm @ 22.0°	410 mm @ 23°
SHY	230 mm	235 mm
HS	270 mm	340 mm
HD	185 mm	140 mm
AD	135 mm	80 mm

DATA SHEET NO. 6

SEAT BELT POSITIONING DATA

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
TBI--	23.0	23.0
PBU--Top surface of aluminum plate to belt upper edge	25.5	25.3
PBL--Top surface of aluminum plate to belt lower edge	18.3	18.0

SEAT BELT POSITIONING DATA



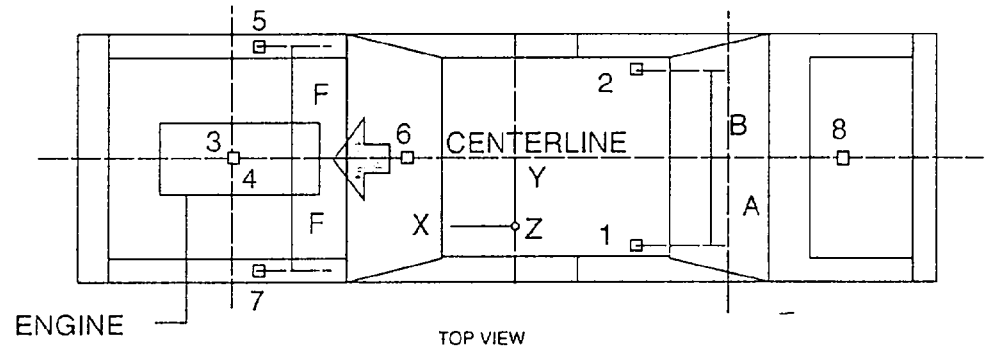
FRONT VIEW OF DUMMY

DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

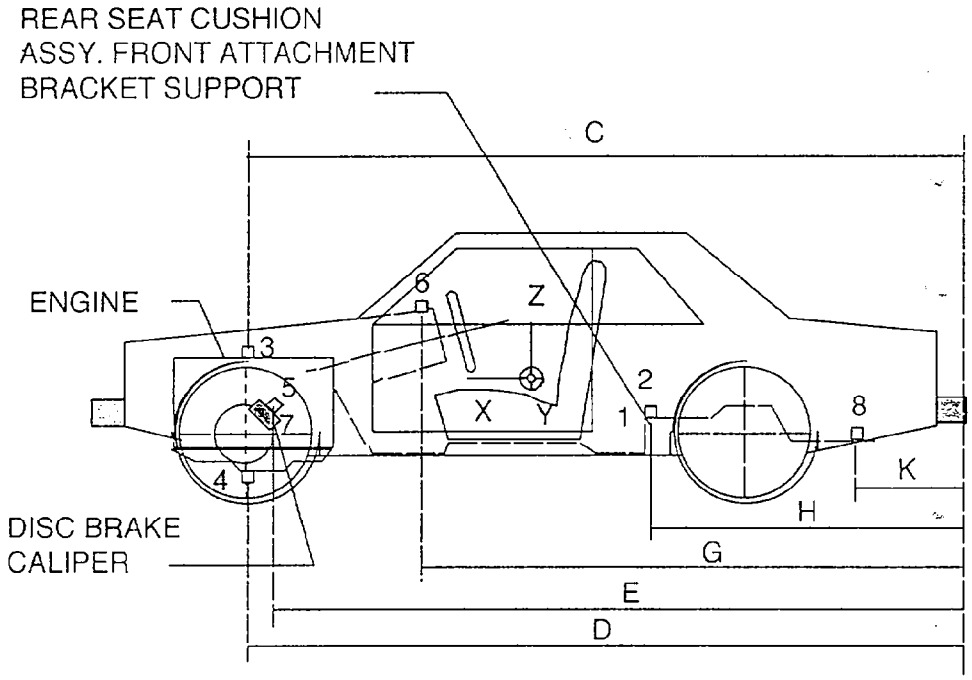
DIMENSION	LENGTH (mm)	
	PRETEST VALUES	POST TEST VALUES
A	610	610
B	615	615
C	3660	3492
D	3570	3348
E	3560	3397
F	640	640
G	2850	2813
H	1510	1507
K	1290	1290

LOCATION NO.	DESCRIPTION	MAXIMUM VALUE (G's)			
		Max.	msec.	Min.	msec.
1	Rear Seat X-Member @ Left Side	1.3	66.2	-39.2	52.0
2	Rear Seat X-Member @ Right Side	0.7	66.1	-39.8	39.9
3	Top of Engine Block	90.3	39.8	-205.3	31.4
4	Bottom of Engine	60.4	39.1	-154.0	30.9
5	Disc Brake Caliper @ Left Side	42.5	59.6	-146.4	39.9
6	Disc Brake Caliper @ Right Side	55.9	9.6	-3.4	48.8
7	Instrument Panel	13.9	48.6	-55.3	39.5
8	Left Rear, Redundant	5.8	55.6	-41.9	38.5
9	Right Rear, Redundant	2.5	123.5	-36.4	38.4

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



TOP VIEW



LEFT SIDE VIEW

DATA SHEET NO. 8

DUMMY INJURY CRITERIA VALUES

Vehicle Model Year & Make: 1997 Nissan 200SX NHTSA No.: MV5200

MAXIMUM HEAD ACCELERATIONS - PRIMARY (G's)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Head CG - X	9.5	255.2	-47.3	70.6	15.8	223.5	-50.9	75.1
Head CG - Y	11.2	84.7	-3.7	51.8	14.0	83.9	-4.6	47.8
Head CG - Z	30.5	59.9	-5.5	102.3	41.8	73.0	-2.8	124.6
Head CG Resultant	50.0	62.9			64.1	74.4		

MAXIMUM CHEST ACCELERATIONS - PRIMARY (G's)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Chest CG - X	3.9	281.6	-42.7	55.9	4.4	258.0	-51.6	69.5
Chest CG - Y	4.3	70.1	-7.8	46.2	10.9	63.7	-5.3	97.9
Chest CG - Z	12.9	100.8	-8.6	52.2	13.1	98.1	-13.7	75.7
Chest CG Resultant	43.3	55.7			52.5	69.4		

MAXIMUM FORCE - FEMUR LOAD (Newtons)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Left Femur	470.8	40.0	-3654.4	77.5	721.5	44.3	-2805.4	63.0
Right femur	382.9	31.3	-2200.6	48.9	753.3	44.3	-2391.9	49.9

MAXIMUM FORCE - SEAT BELT LOAD (Newtons)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Lap Belt	8380.5	53.7	-7.8	2.6	10364.4	54.9	-14.0	180.6
Shoulder Belt	9397.6	60.1	-2.7	206.2	10952.6	64.4	-11.5	149.2

HEAD INJURY CRITERIA (HIC)								
	DRIVER				PASSENGER			
LOCATION	HIC	T1 (msec)	T2 (msec)	Avg. Accel.	HIC	T1 (msec)	T2 (msec)	Avg. Accel.
Head CG Primary	414.8	50.3	86.2		576.8	55.1	91	

CHEST CLIP (3 MSEC)						
	DRIVER			PASSENGER		
LOCATION	CLIP	T1 (msec)	T2 (msec)	CLIP	T1 (msec)	T2 (msec)
Chest CG Primary	42.9	54.0	57.0	48.7	56.1	59.1

Data Sheet No. 8 ... (continued)

NECK, CHEST, PELVIC, LOWER LEG AND FOOT DATA

UPPER NECK MAXIMUM FORCES (Newtons) & MOMENTS (Joules)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Neck Force 'X'	565.0	50.7	-198.0	71.0	617.9	110.9	-203.5	227.3
Neck Force 'Y'	124.3	123.3	-139.1	80.0	256.7	81.2	-93.6	146.6
Neck Force 'Z'	1802.2	60.0	-155.1	113.2	1927.3	72.8	-439.3	259.2
Neck Moment 'X'	9.5	104.2	-8.9	61.6	11.1	89.7	-7.6	109.5
Neck Moment 'Y'	39.8	71.8	-28.0	110.6	411	124.8	-35.4	254.6
Neck Moment 'Z'	16.5	149.4	-29.7	85.2	6.0	137.7	-9.9	91.3

PEAK PELVIC ACCELERATIONS (G's)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Pelvis 'X'	4.7	110.4	-40.5	48.9	4.1	120.7	-51.5	62.5
Pelvis 'Y'	6.7	91.8	-11.4	46.5	12.1	49.9	-6.5	64.4
Pelvis 'Z'	3.0	236.0	-29.0	94.1	3.5	255.2	-18.9	71.2

TIBIA PEAK FORCES & MOMENTS (G's)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Lt. Upper Moment 'Y'	N/A	N/A	N/A	N/A	221.0	49.8	-34.4	76.2
Left Lower Force 'Z'	N/A	N/A	N/A	N/A	4742.9	49.7	-159.0	261.2
Rt. Upper Moment 'Y'	N/A	N/A	N/A	N/A	120.6	55.2	-13.2	119.5
Right Lower Force 'Z'	N/A	N/A	N/A	N/A	3178.5	36.9	-170.6	108.5

N/A - Instrumentation not supplied by VRTC.

FOOT PEAK ACCELERATIONS (G's)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Left Foot Aft 'X'	160.1	51.0	-38.7	35.4	243.9	47.9	-43.8	71.5
Left Foot Aft 'Z'	83.2	34.4	-142.6	45.5	186.1	47.9	-125.7	48.4
Left Foot Fore 'Z'	135.1	34.5	-215.9	44.7	267.2	58.7	-151.9	38.7
Right Foot Aft 'X'	149.6	45.0	-50.1	62.9	126.9	45.0	-77.2	70.8
Right Foot Aft 'Z'	59.7	38.9	-61.8	43.6	85.9	61.2	-67.3	39.5
Right Foot Fore 'Z'	83.3	55.8	-146.6	43.7	185.0	61.5	-169.8	57.8

Data Sheet No. 8 ...(Continued)

REDUNDANT DUMMY INJURY CRITERIA VALUES

MAXIMUM HEAD ACCELERATIONS - REDUNDANT (G's)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Head CG - X	9.9	252.2	-47.9	71.3	17.4	223.9	-51.3	75.7
Head CG - Y	12.9	84.0	-2.2	51.7	11.0	89.1	-2.9	43.0
Head CG - Z	21.9	57.1	-7.5	111.3	43.1	70.5	-1.3	-5.2
Head CG Resultant	51.0	71.6			64.3	73.8		

MAXIMUM CHEST ACCELERATIONS - REDUNDANT (G's)								
	DRIVER				PASSENGER			
LOCATION	MAX.	TIME	MIN.	TIME	MAX.	TIME	MIN.	TIME
Chest CG - X	4.0	280.0	-41.5	56.1	6.1	257.7	-53.6	69.4
Chest CG - Y	6.8	69.9	-7.0	52.3	12.0	65.5	-1.5	89.3
Chest CG - Z	10.2	100.7	-7.3	52.0	10.7	101.8	-11.4	75.6
Chest CG Resultant	42.0	55.9			54.5	69.4		

REDUNDANT HEAD INJURY CRITERIA (HIC)								
	DRIVER				PASSENGER			
LOCATION	HIC	T1 (msec)	T2 (msec)	Avg. Accel.	HIC	T1 (msec)	T2 (msec)	Avg. Accel.
Head CG Redundant	397.6	51.6	87.5		588.2	57.9	93.8	

REDUNDANT CHEST CLIP (3 MSEC)						
	DRIVER			PASSENGER		
LOCATION	CLIP	T1 (msec)	T2 (msec)	CLIP	T1 (msec)	T2 (msec)
Chest CG Redundant	41.5	84.4	87.4	49.8	85.9	88.9

DATA SHEET NO. 9

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

Vehicle: 1997 Nissan 200SX Coupe NHTSA No.: MV5200

BELT LENGTH DATA (mm)	DRIVER	PASSENGER
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	2946	2946
Shoulder belt length as measured on Part 572 Dummy	1030	1030
Lap belt length as measured on Part 572 Dummy	900	900

SHOULDER BELT SPOOL-OFF DATA (mm)	DRIVER	PASSENGER
As determined by film analysis	41.0	45.0
As determined mechanically	38.1	40.0
As determined electronically	40.5	45.5

BELT STRETCH DATA (cm/cm)	DRIVER	PASSENGER
Measured electronically between shoulder belt load cell and the "D" ring	0.047	0.043
Measured mechanically	0.040	0.038

CHEST DEFLECTION DATA (mm)	DRIVER	PASSENGER
Measured electronically	-27.8	-34.9

DATA SHEET NO. 10

SUMMARY OF FMVSS 212 DATA

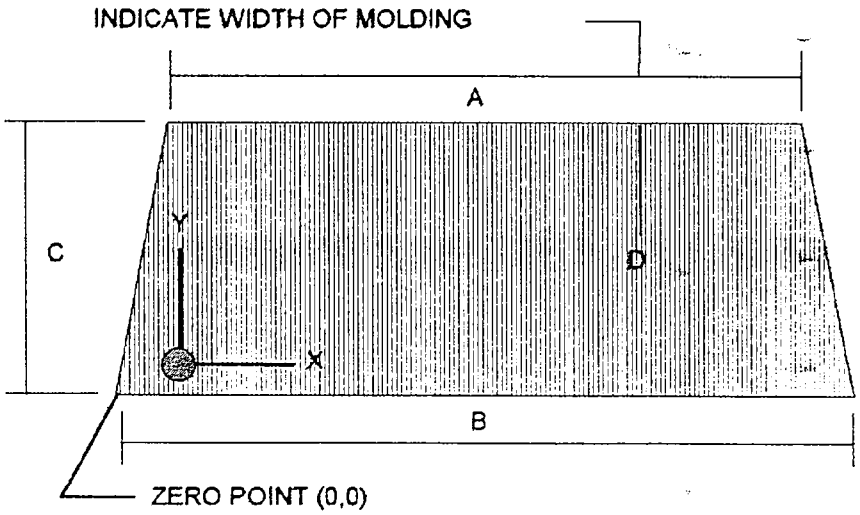
Vehicle: 1997 Nissan 200SX Coupe NHTSA No.: MV5200

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	780 mm	780	100
Left Side	780 mm	780	100
Total	4050 mm	4050	100

Indicate area of retention failure.



FRONT VIEW OF WINDSHIELD

Width of molding = Top & Side 20 mm, Bottom 17 mm.

Temperature of windshield molding during test = 21 °C

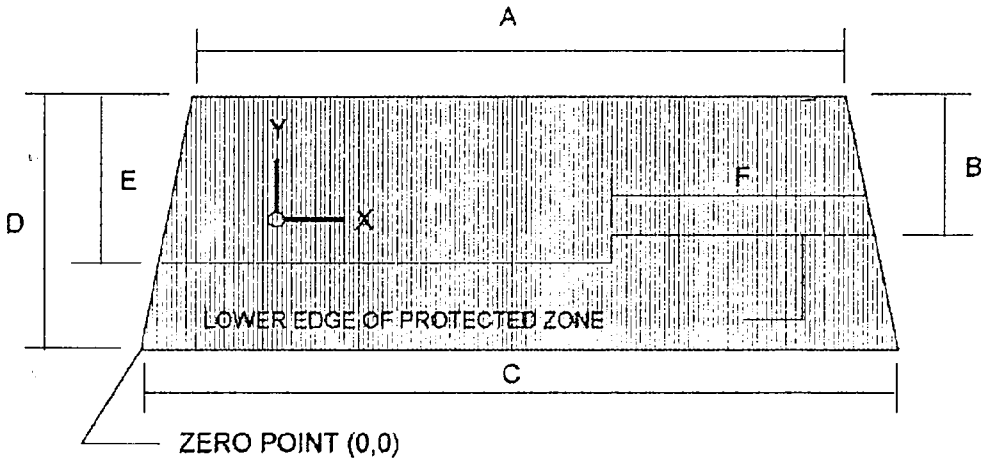
DATA SHEET NO. 11

WINDSHIELD ZONE INTRUSION FMVSS 219 DATA

Vehicle: 1997 Nissan 200SX Coupe NHTSA No.: MV5200

SKETCH OF FRONT VIEW OF WINDSHIELD:

Provide all dimensions necessary to reproduce the protected area.



FRONT VIEW OF WINDSHIELD

WINDSHIELD MEASUREMENTS:

A = 1090 mm

B = 345 mm

C = 1400 mm

D = 815 mm

E = 495 mm

F = 625 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: 1997 Nissan 200 SX Coupe NHTSA No.: MV5200

Test. Date: 04/17/97

TYPE OF IMPACT: Frontal Barrier

STODDARD SOLVENT SPILLAGE MEASUREMENT:

A. From impact until vehicle motion ceases - -
Actual = 0.0 oz. (Maximum Allowable = 1 ounce)

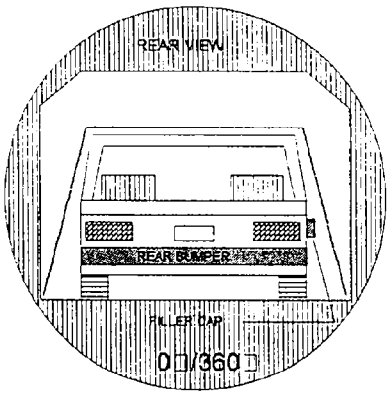
B. For 5 minute period after vehicle motion ceases - -
Actual = 0.0 oz. (Maximum Allowable = 5 ounces)

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°

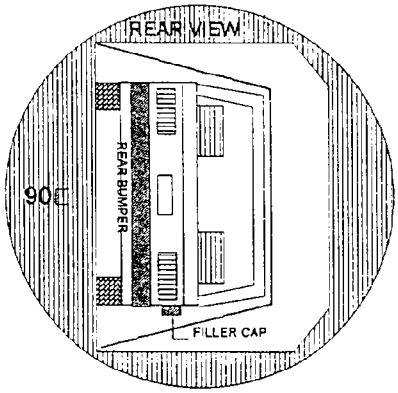
Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = __2__ minutes, __45__ seconds (Specified Range is 1 to 3 minutes)

2. FMVSS 301 Position Hold
Time = 5 minutes, 0 seconds

3. TOTAL = __7__ minutes, __45__ seconds

4. NEXT WHOLE MINUTE INTERVAL = __8__ 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)

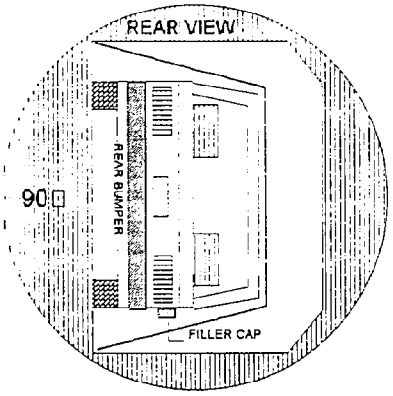
3. 7th minute = __0__ oz.
(1 oz. allowed)

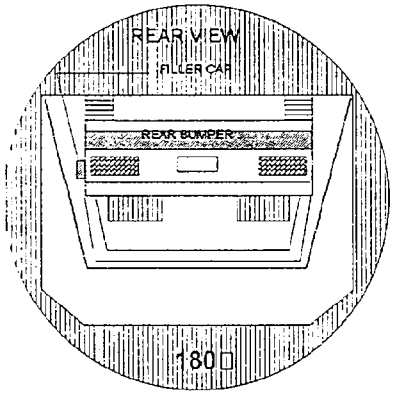
4. 8th minute (if required) =
__N/A__ oz. (1 oz. allowed)

Provide Details of Stoddard Solvent Spillage Locations--

No solvent leakage occurred during rollover tests.

Data Sheet No. 13 (Continued)





B. TEST PHASE = 90° TO 180°

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = 1 minutes, 35 seconds (Specified Range is 1 to 3 minutes)

2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds

3. TOTAL = 6 minutes, 35 seconds

4. NEXT WHOLE MINUTE INTERVAL = 15 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)

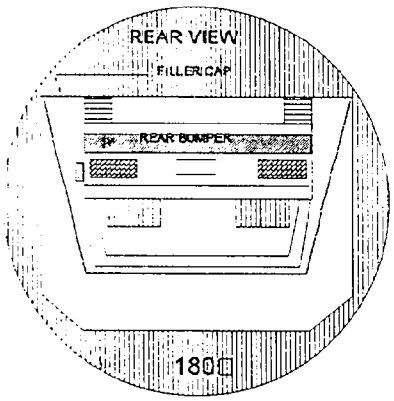
3. 7th minute = 0 oz.
(1 oz. allowed)

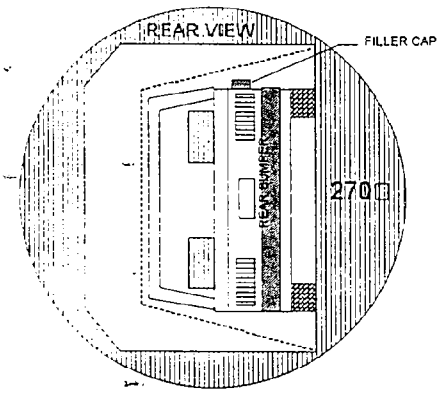
4. 8th minute (if required) = N/A oz.
(1 oz. allowed)

Provide Details of Stoddard Solvent Spillage Locations--

No solvent leakage occurred during rollover tests.

Data Sheet No. 13 (Continued)





C. TEST PHASE = 180° TO 270°

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = __1__ minutes, __13__ seconds (Specified Range is 1 to 3 minutes)

2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds

3. TOTAL = __6__ minutes, __13__ seconds

4. NEXT WHOLE MINUTE INTERVAL = __22__ 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)

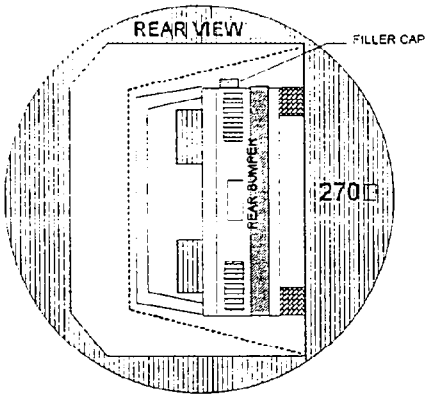
3. 7th minute = __0__ oz. (1 oz. allowed)

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. 13 (Continued)



D. TEST PHASE = 270° TO 360°

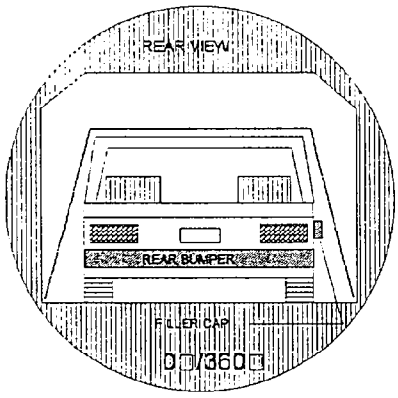
Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = __1__ minutes, __26__ seconds (Specified Range is 1 to 3 minutes)

2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds

3. TOTAL = __6__ minutes, __26__ seconds

4. NEXT WHOLE MINUTE INTERVAL = __29__ 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--

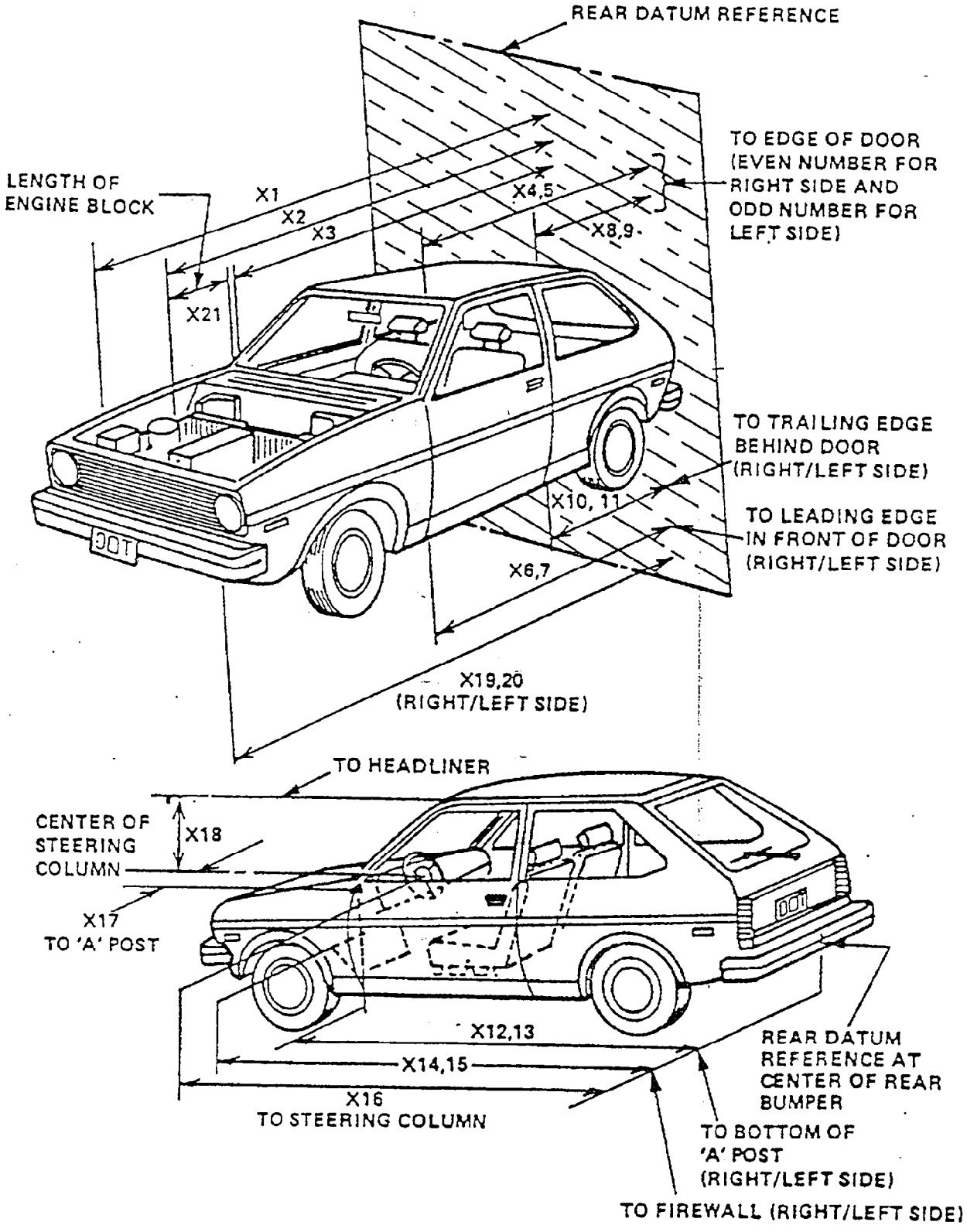
No solvent leakage occurred during rollover tests.

DATA SHEET NO. 14

VEHICLE MEASUREMENTS

Vehicle: 1997 Nissan 200 SX Coupe NHTSA No.: MV5200

NO.	MEASUREMENT DESCRIPTION	DIMENSIONS IN MM		
		PRE-TEST	POST-TEST	DIFFERENCE
1	Total length of vehicle at centerline	4310	3740	570
2	Rear surface of vehicle (RSOV) to front of engine	3780	3496	284
3	RSOV to firewall centerline	3290	3110	180
4	RSOV to leading edge of right door	2960	2954	6
5	RSOV to leading edge of left door	2960	2950	10
6	RSOV to lower leading edge of right door	2978	2973	5
7	RSOV to lower leading edge of left door	2983	2975	8
8	RSOV to upper trailing edge of right door	1668	1665	3
9	RSOV to upper trailing edge of left door	1672	1695	-23
10	RSOV to lower trailing edge of right door	1678	1775	-97
11	RSOV to lower trailing edge of left door	1790	1780	10
12	RSOV to bottom of right 'A' pillar	2950	2953	-3
13	RSOV to bottom of left 'A' pillar	2950	2980	-30
14	RSOV to firewall on right side	3265	3102	163
15	RSOV to firewall of left side	3265	3150	115
16	RSOV to steering column	2520	2483	37
17	Center of steering column to left 'A' pillar	290	316	-26
18	Center of steering column to headlining	430	420	10
19	RSOV to right side of front bumper	4170	3669	501
20	RSOV to left side of front bumper	4190	3676	514
21	Length of engine block	470	470	0
22	Right side to dash panel	2725	2690	35
23	Center to dash panel	2710	2715	-5
24	Left side to dash panel	2700	2713	-13



VEHICLE MEASUREMENTS

DATA SHEET 15 CAMERA LOCATIONS

VEH. NHTSA No.: MV5200 TEST DATE: 04/17/97 TIME: 4:00 PM

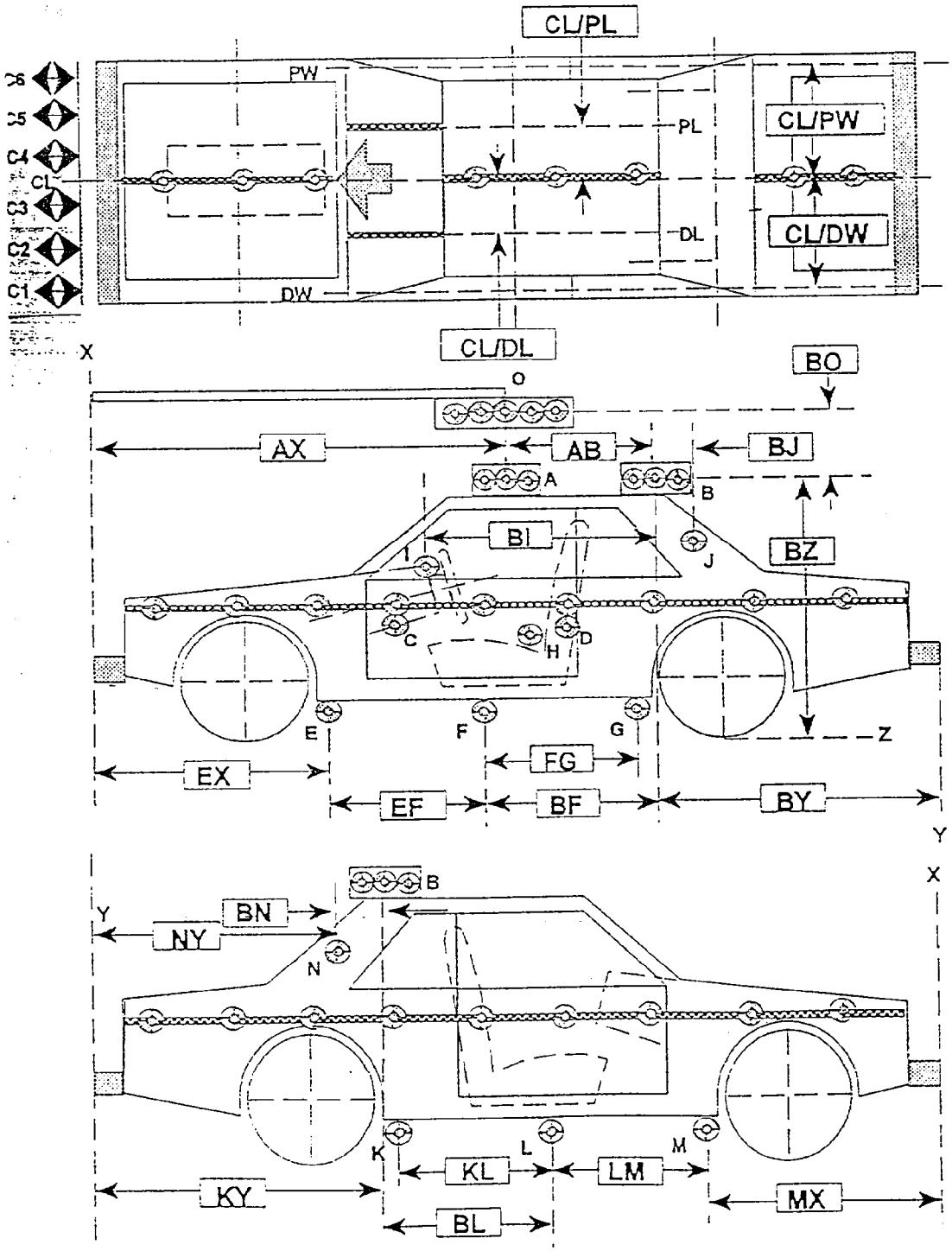
Vehicle: 1997 Nissan 200SX Coupe

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	0	14820	12-50 Zoom	24
2A	Left Side View	1270	-8280	765	0	8015	25	960
2B	Left Side Overall View	450	23310	2600	3	23740	50	1320
3	Left Side View	3327	-2210	1994	0	2038	80	950
4	Left Side View	3200	2400	1990	22	2239	14	995
5	Left Side View	2057	-8280	3073	16	8669	25	980
6	Left Side View	2057	-8280	2540	14	8555	25	1025
7	Right Side View	1905	8204	1219	3	7930	17	970
8	Right Side View	3023	11608	914	1	11318	50	1050
9	Right Side View	3310	2490	2000	22	2050	19	830
10	Right Side View	991	9677	940	2	9757	50	1100
11	Front View Windshield	-330	0	3531	64	N/A	12.5	420
12	Front View Driver	-292	-318	2489	45	N/A	19	1120
13	Front View Passenger	-368	318	2489	45	N/A	19	1000
14	Pit Camera Engine View	559	0	1651	86	N/A	13	900
15	Pit Camera Fuel Tank View	4030	0	-173	57	N/A	13	900
16	Driver Side Belt	3310	150	660	17	N/A	13	900
17	Passenger Side Belt	3310	130	670	15	N/A	13	940

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

DATA SHEET NO. 16

REFERENCE PHOTOGRAPH TARGETS



DATA SHEET NO. 17

ACCIDENT INVESTIGATION DIVISION DATA

Vehicle: 1997 Nissan 200SX Coupe

VEHICLE NHTSA NO.: MV5200 VIN: 1N4AB4207VC510394

WHEELBASE: 2644 mm BUILD DATE: 12/96

TEST DATE: 04/17/97

VEHICLE SIZE CATEGORY: Coupe

TEST WEIGHT: 1225 kg

ACCELEROMETER DATA:

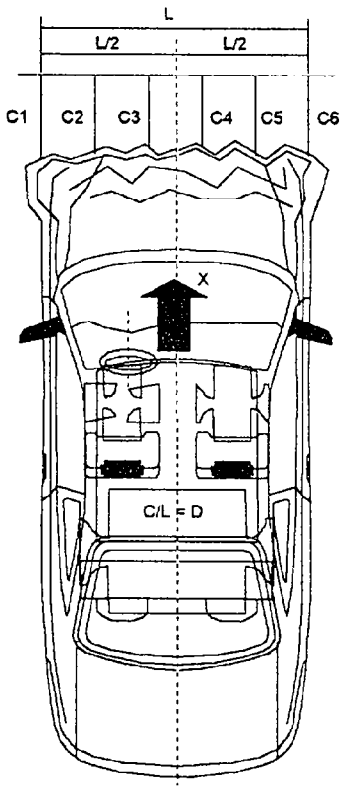
LOCATION: Left and right side passenger compartment

CALIBRATION PROCEDURE: 6 months/ drop test

LINEARITY: Good INTEGRATION ALGORITHM: NHTSA Standard

VEHICLE IMPACT SPEED: 56.82 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 = 494 mm

C2 = 510 mm

C3 = 568 mm

C4 = 515 mm

C5 = 524 mm

C6 = 521 mm

MIDPOINT OF DAMAGE: D = Vehicle centerline

(Vehicle Longitudinal Centerline)

LENGTH OF DAMAGE REGION:

L = 1524 mm

APPENDIX A

PHOTOGRAPHS

FIGURE A-1. RIGHT FRONT AS RECEIVED

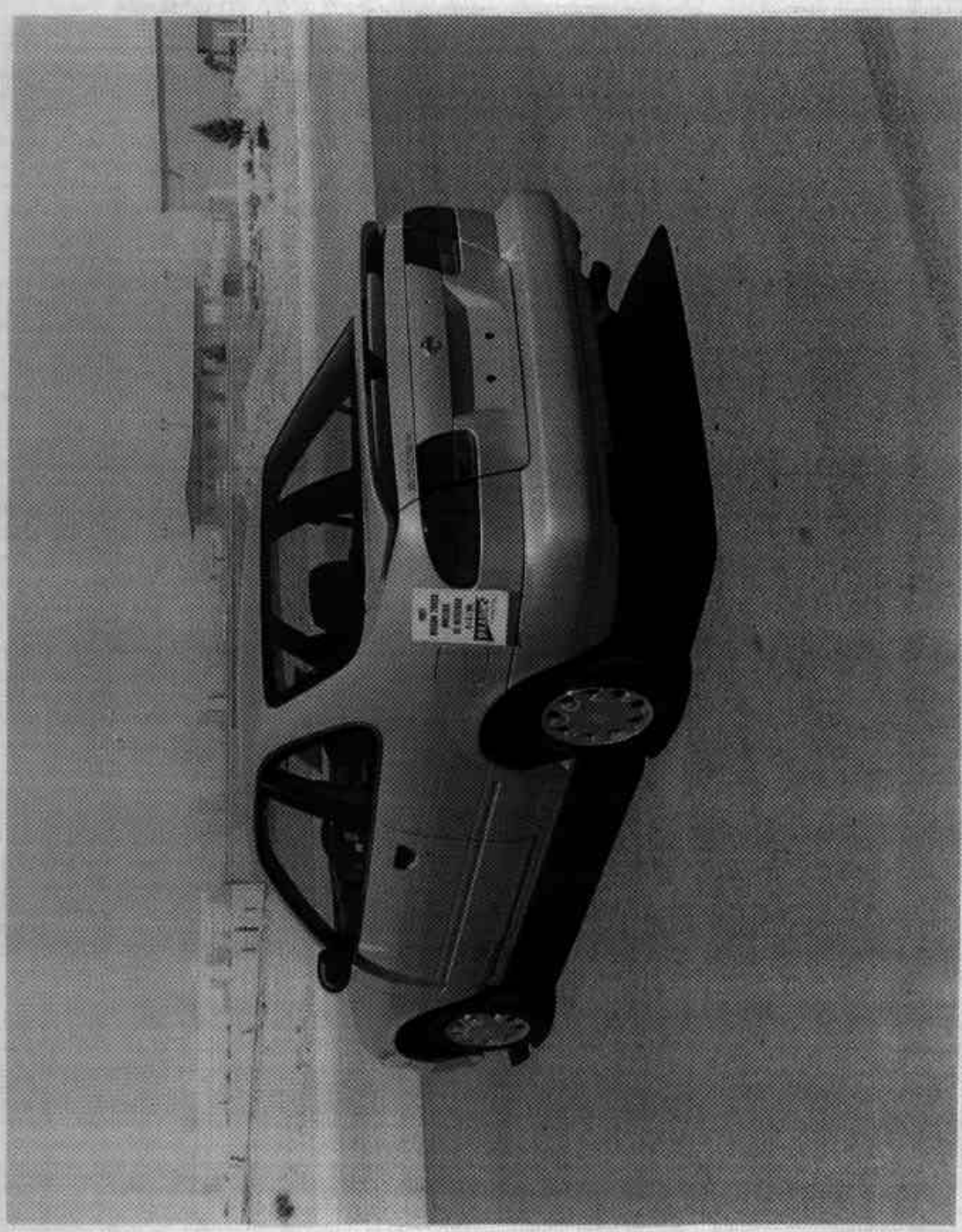


FIGURE A-2. LEFT REAR AS RECEIVED

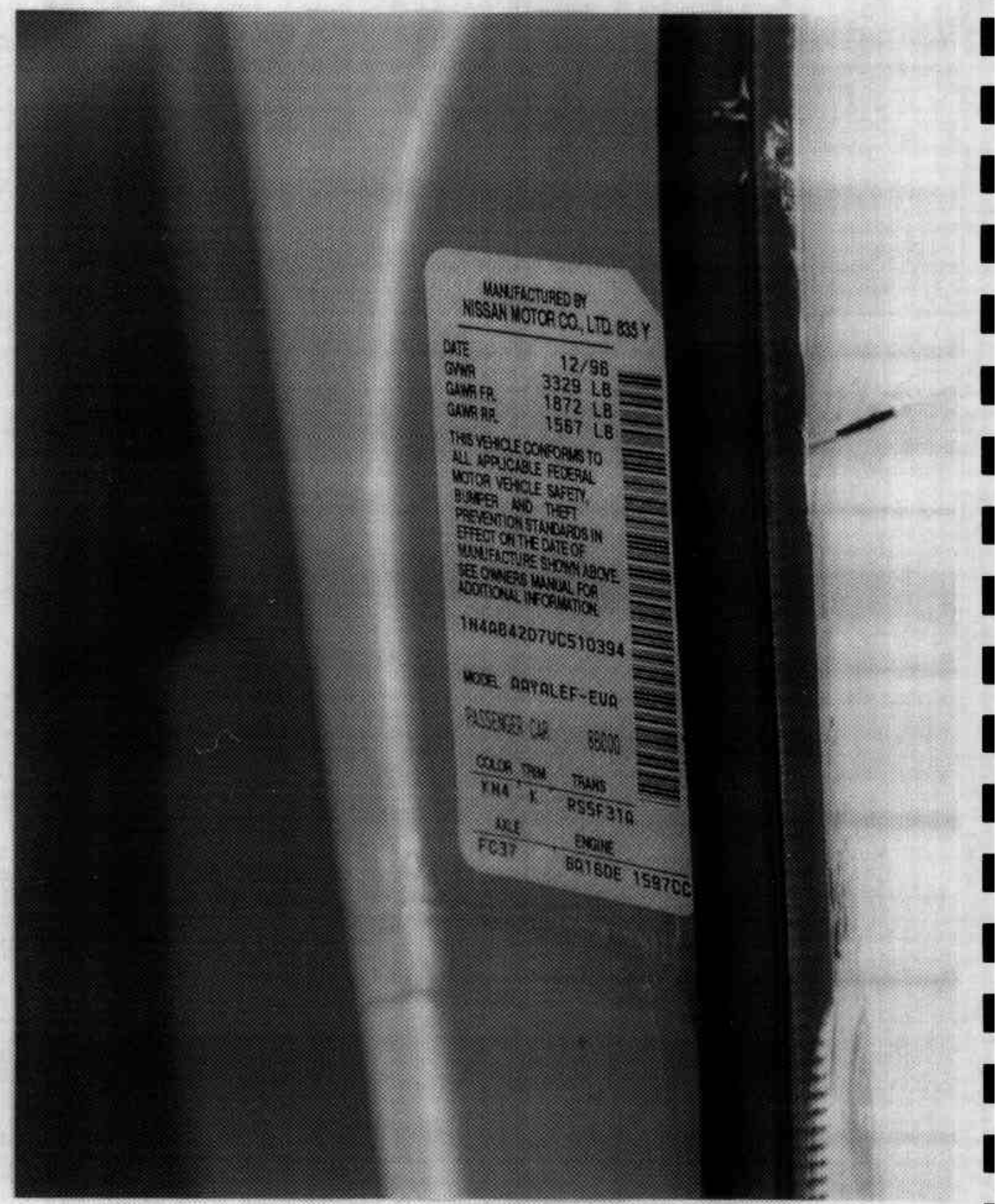


FIGURE A-3. VEHICLE CERTIFICATION LABEL

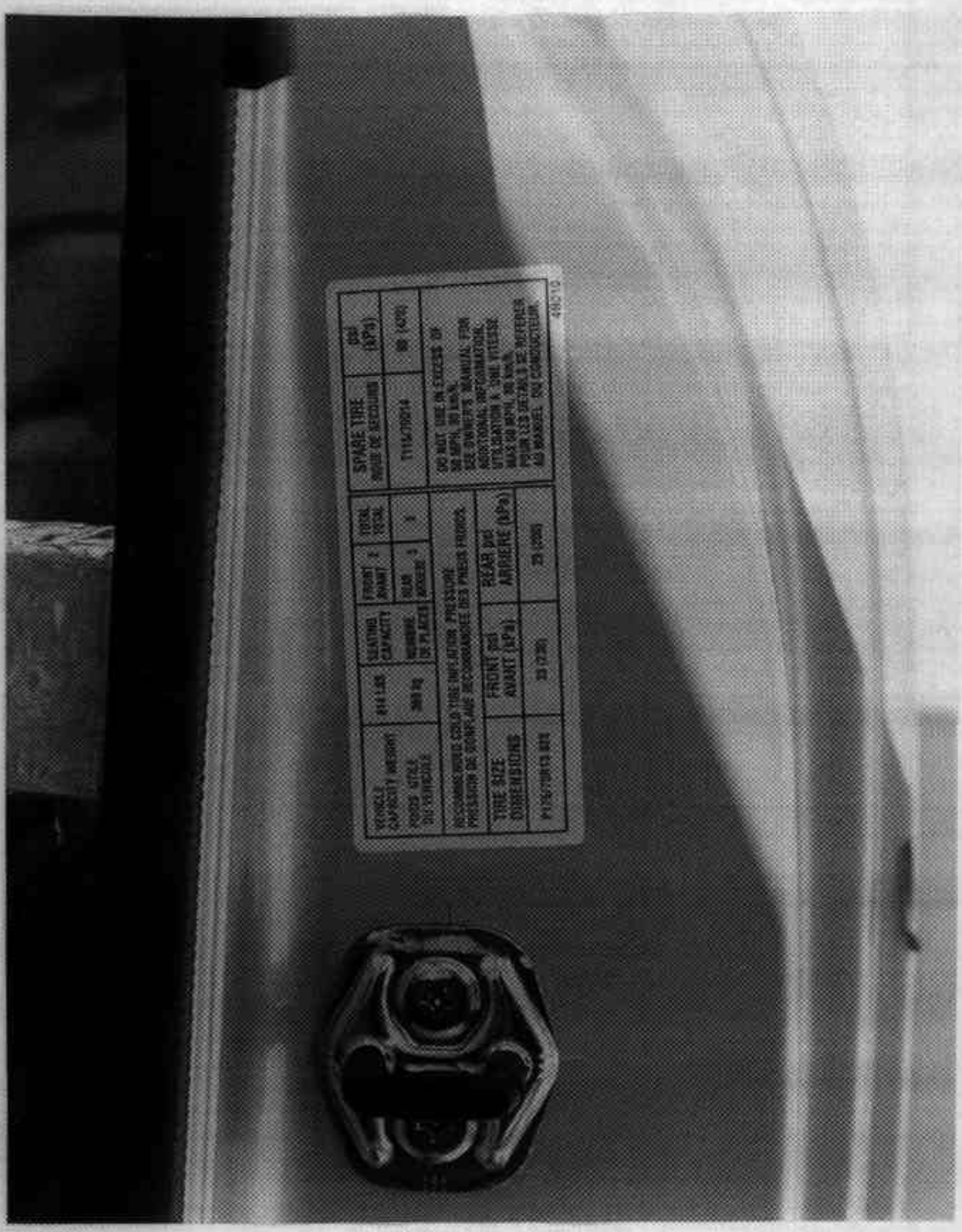


FIGURE A-4. VEHICLE TIRE PLACARD

FIGURE A-5. PRE-TEST FRONT VIEW

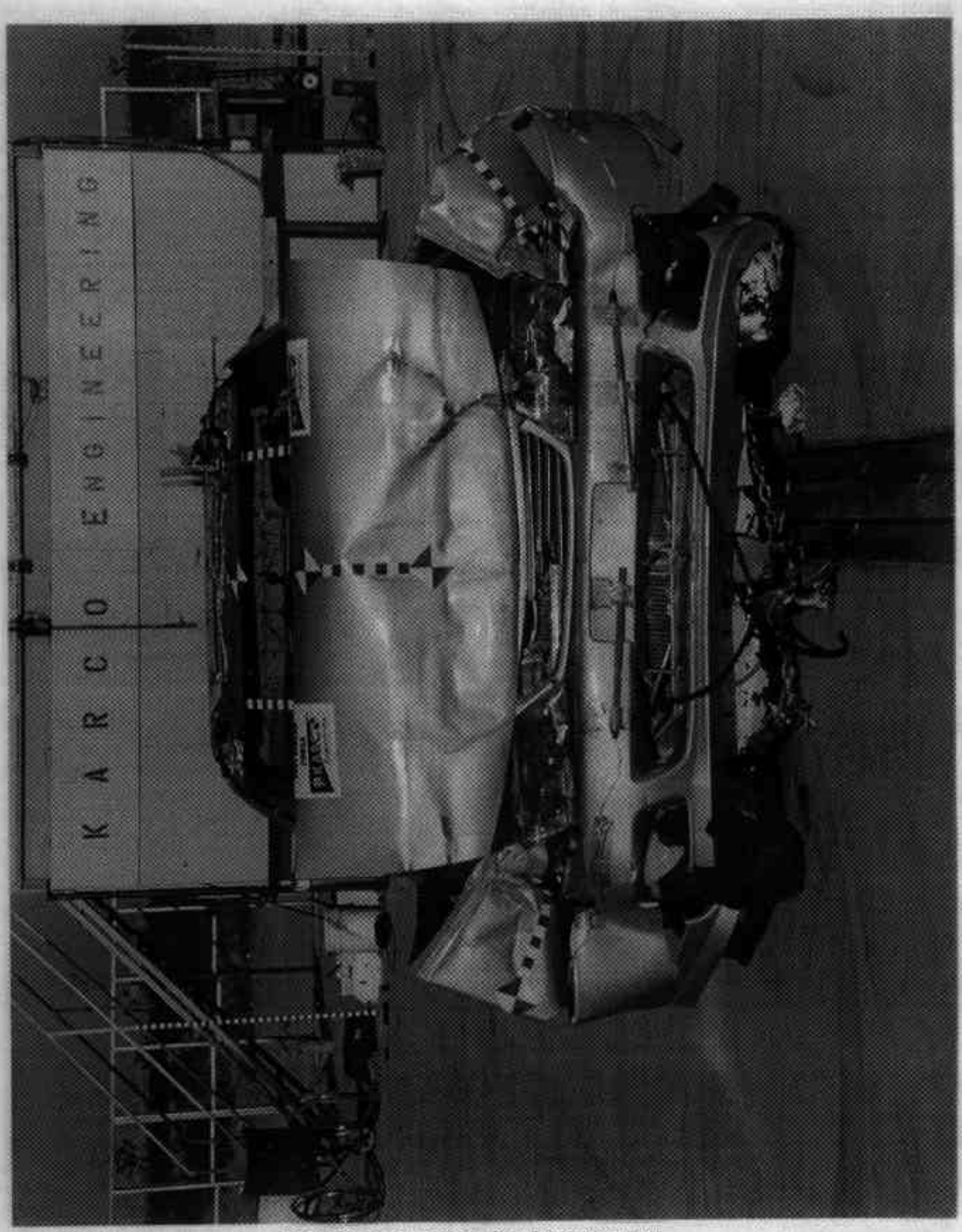


FIGURE A-6. POST-TEST FRONT VIEW

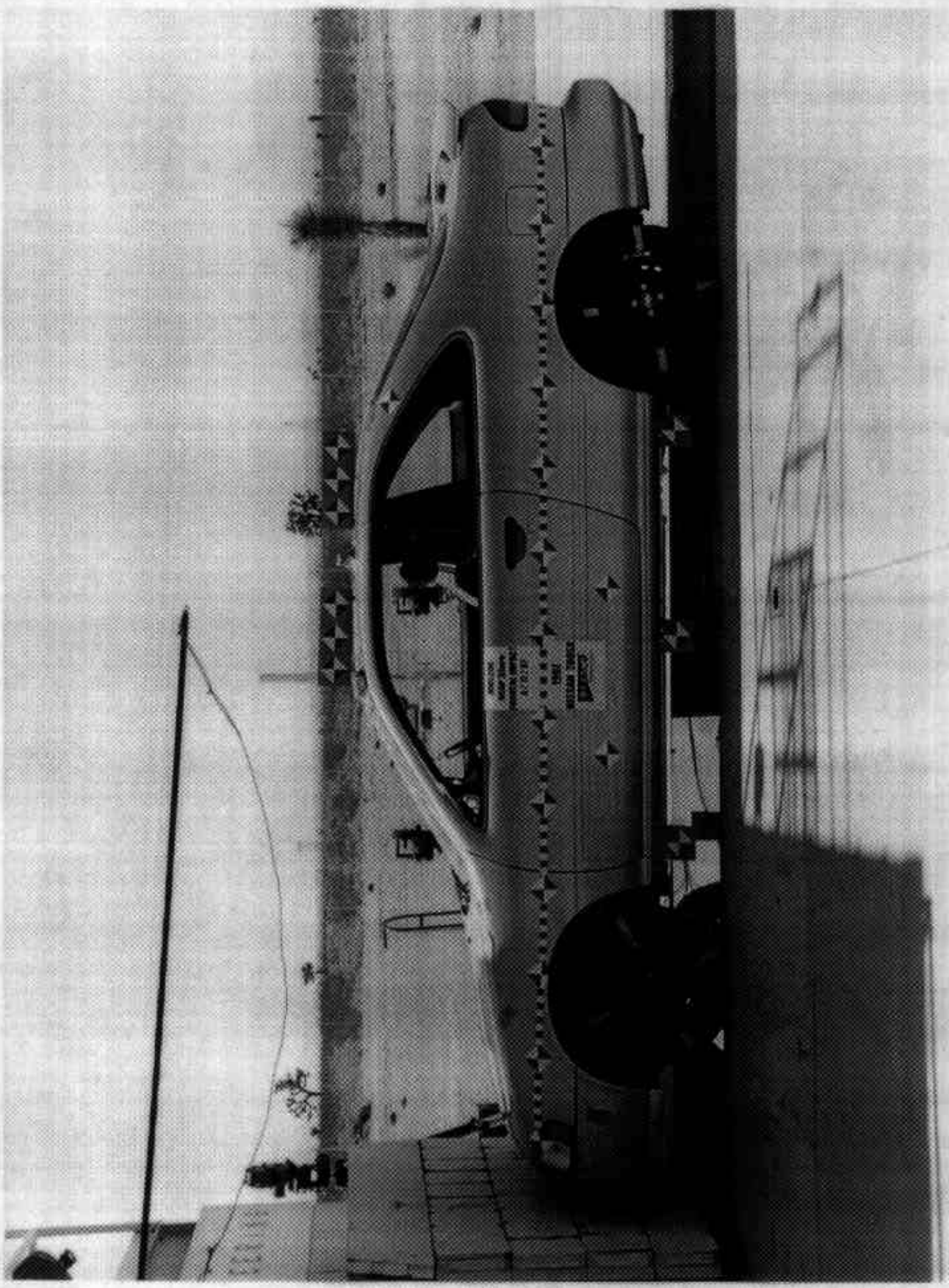


FIGURE A-7. PRE-TEST LEFT SIDE VIEW

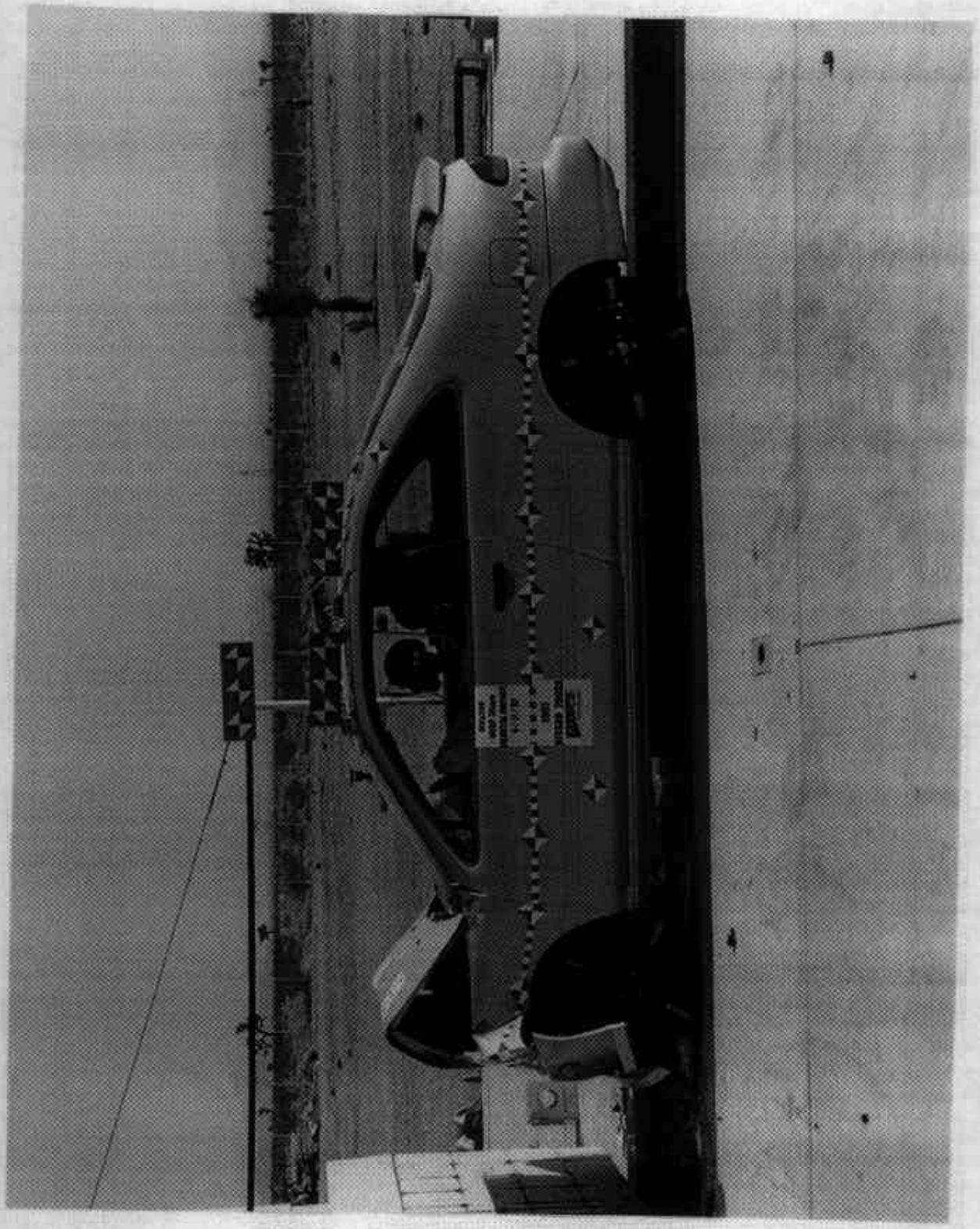


FIGURE A-8. POST-TEST LEFT SIDE VIEW

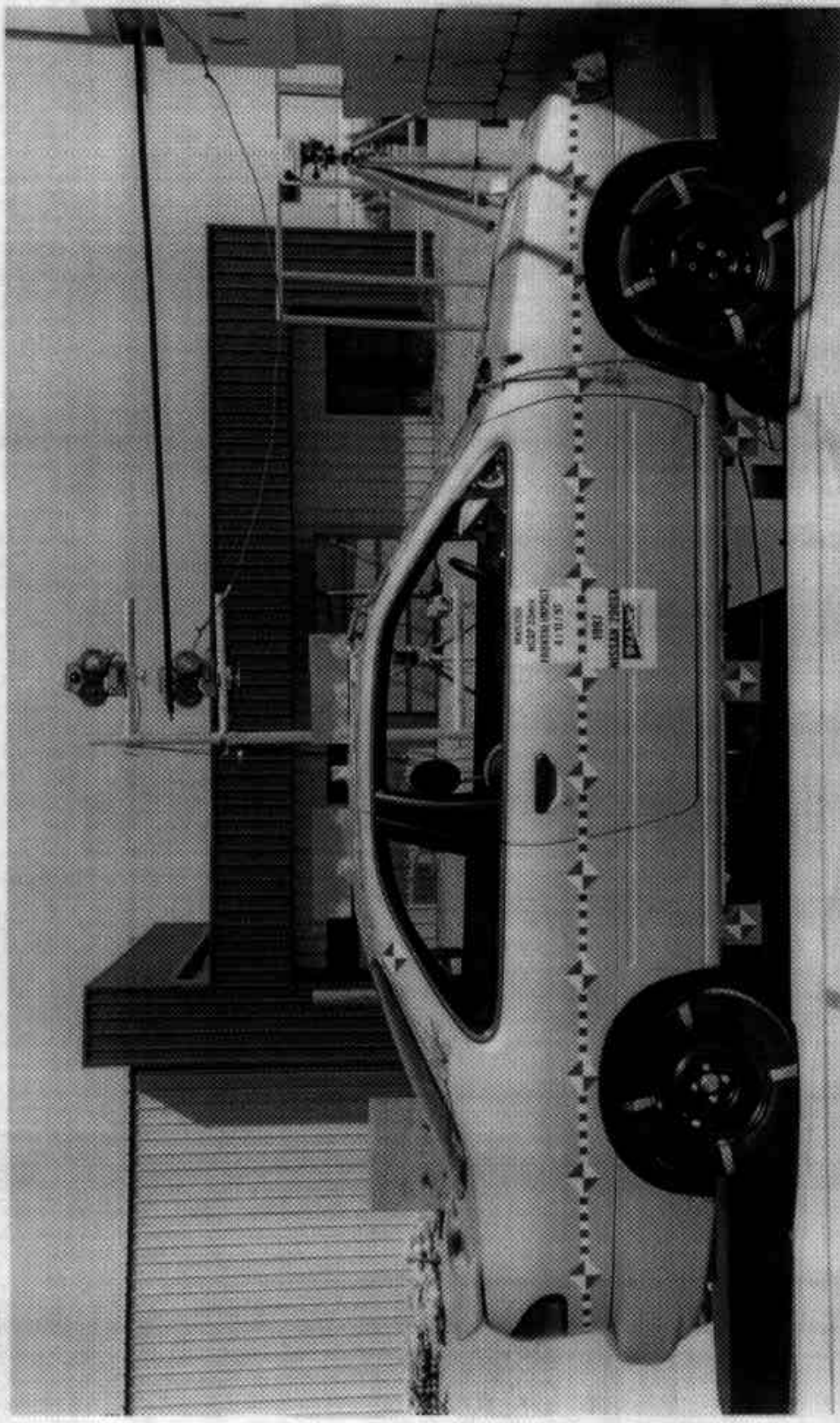


FIGURE A-9. PRE-TEST RIGHT SIDE VIEW

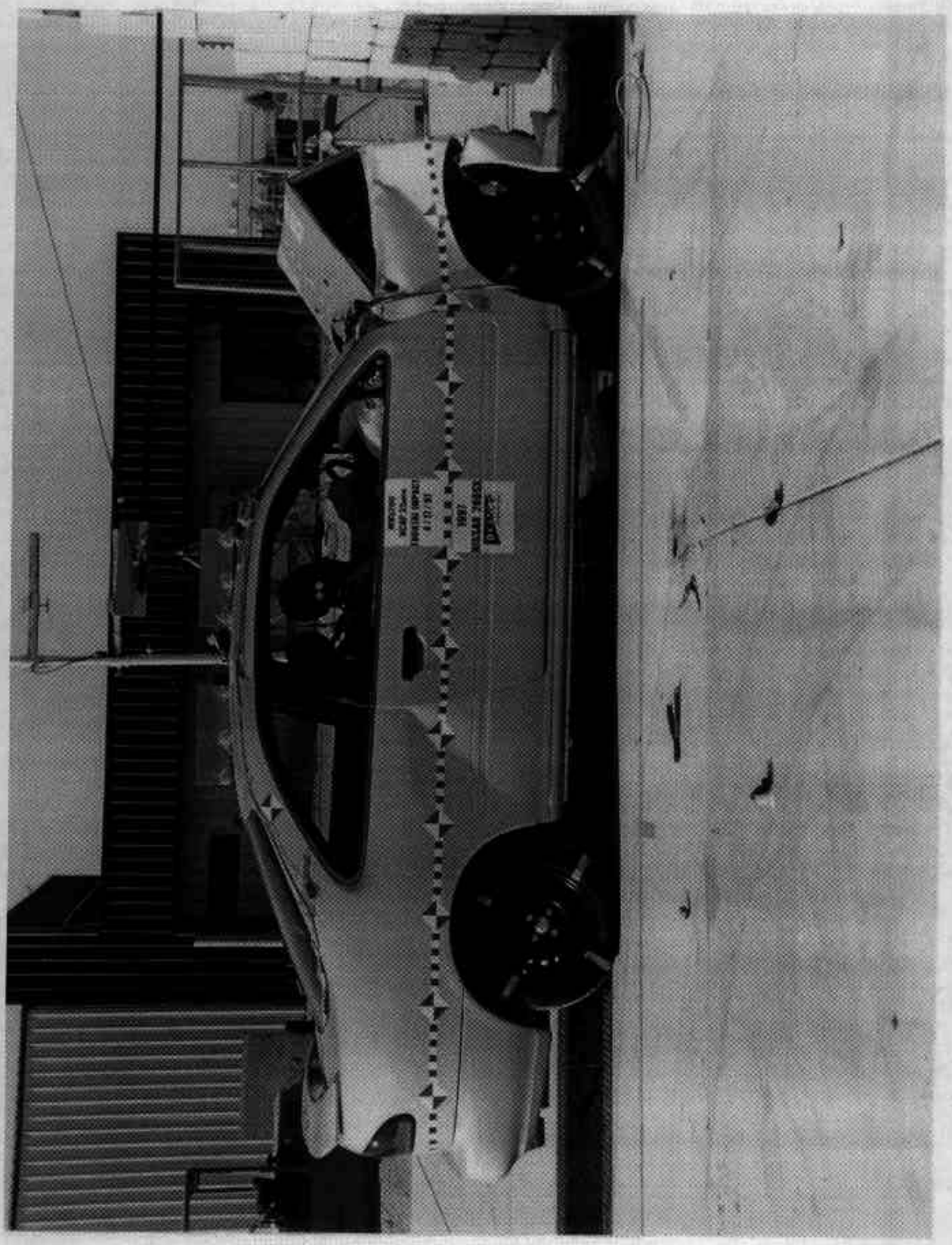


FIGURE A-10. POST-TEST RIGHT SIDE VIEW

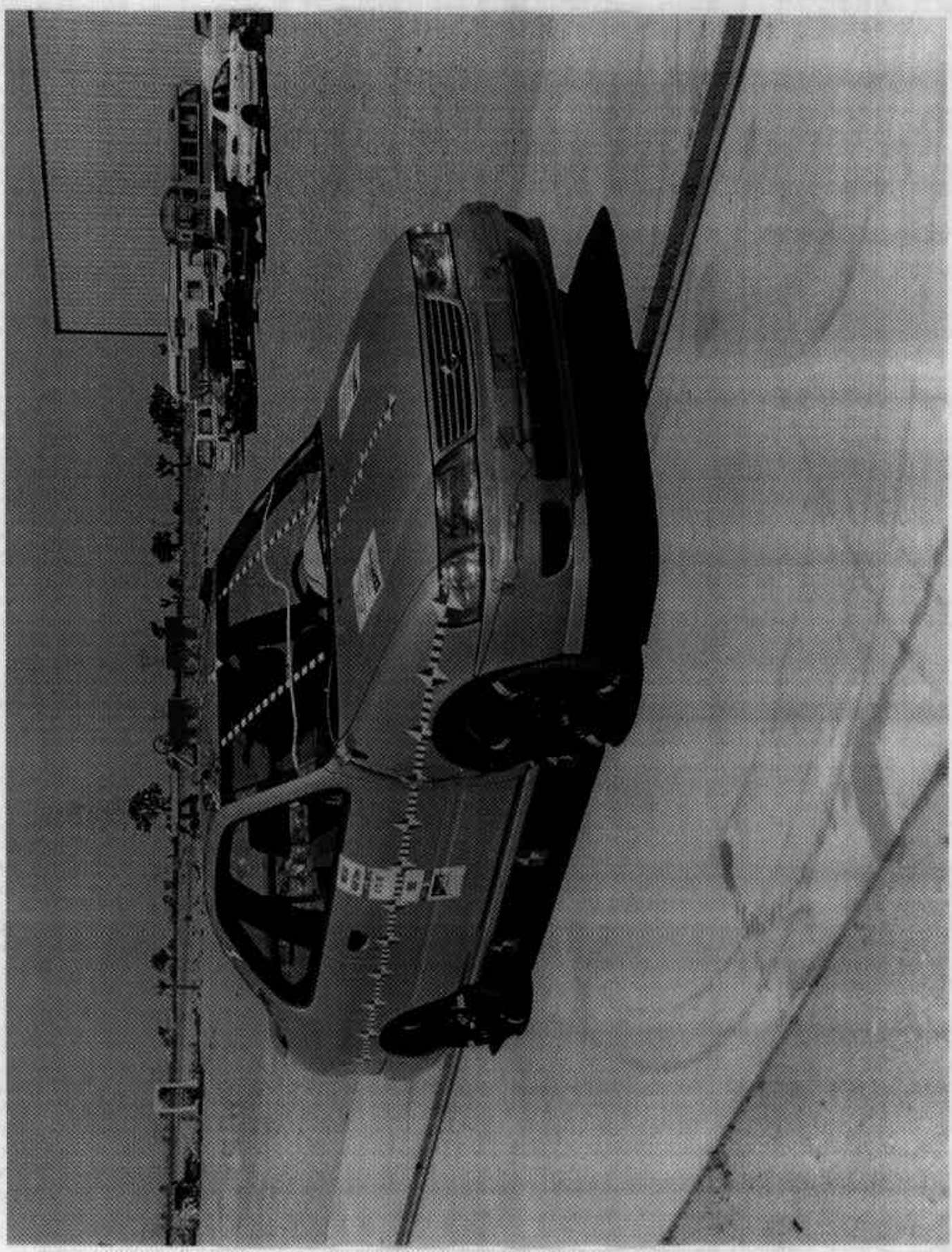


FIGURE A-11. PRE-TEST RIGHT FRONT 3/4 VIEW

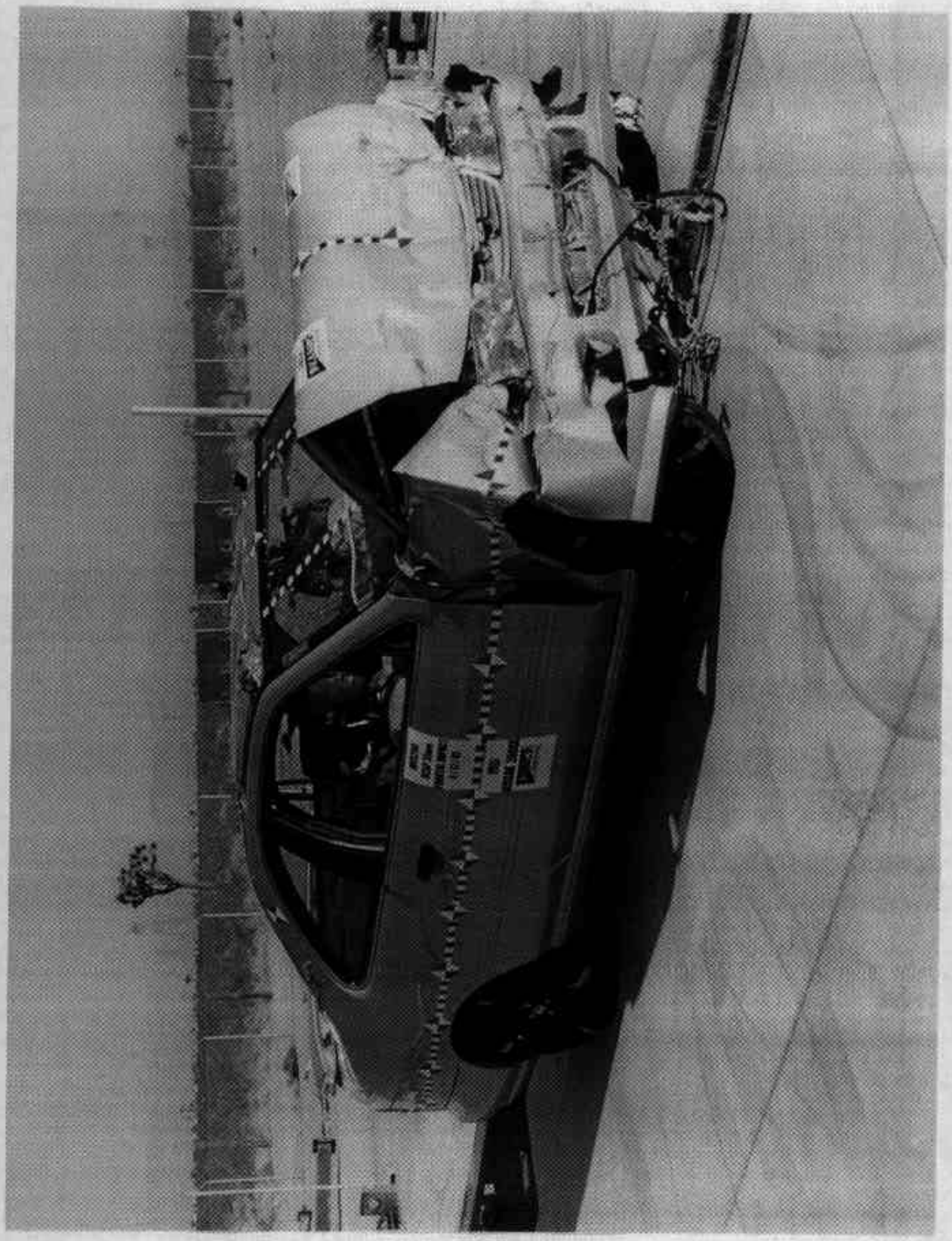


FIGURE A-12. POST-TEST RIGHT FRONT 3/4 VIEW

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

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

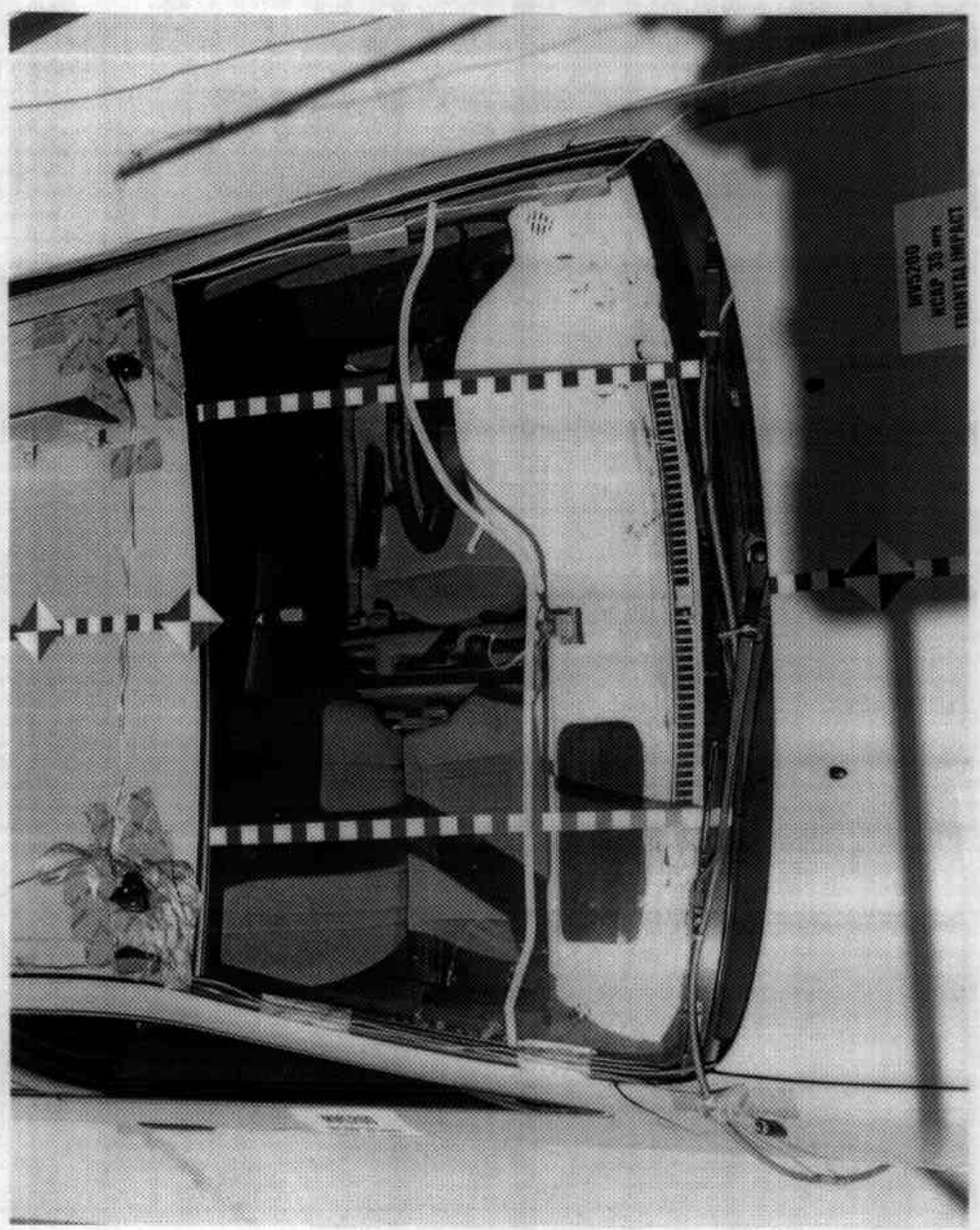


FIGURE A-15. PRE-TEST WINDSHIELD

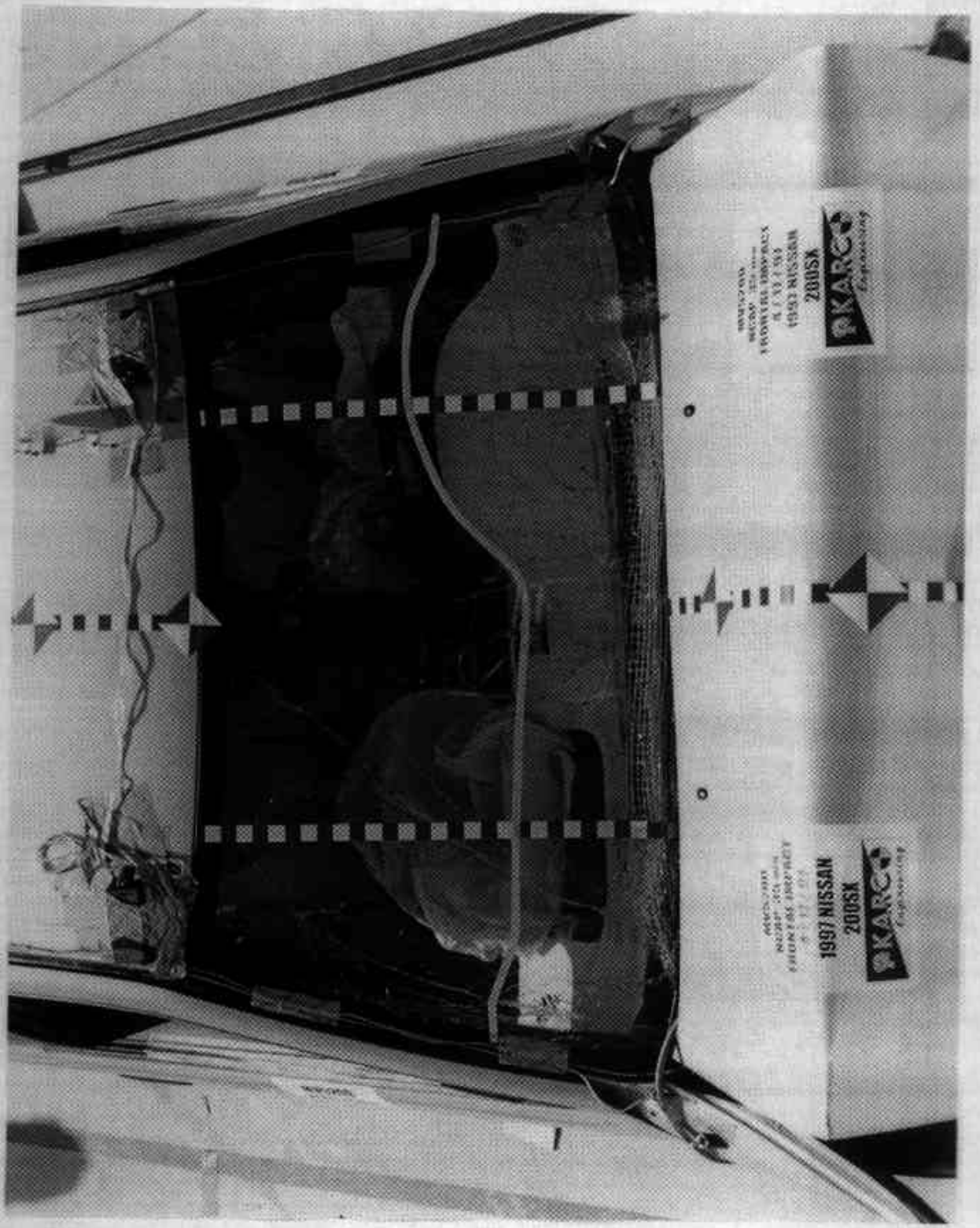


FIGURE A-16. POST-TEST WINDSHIELD

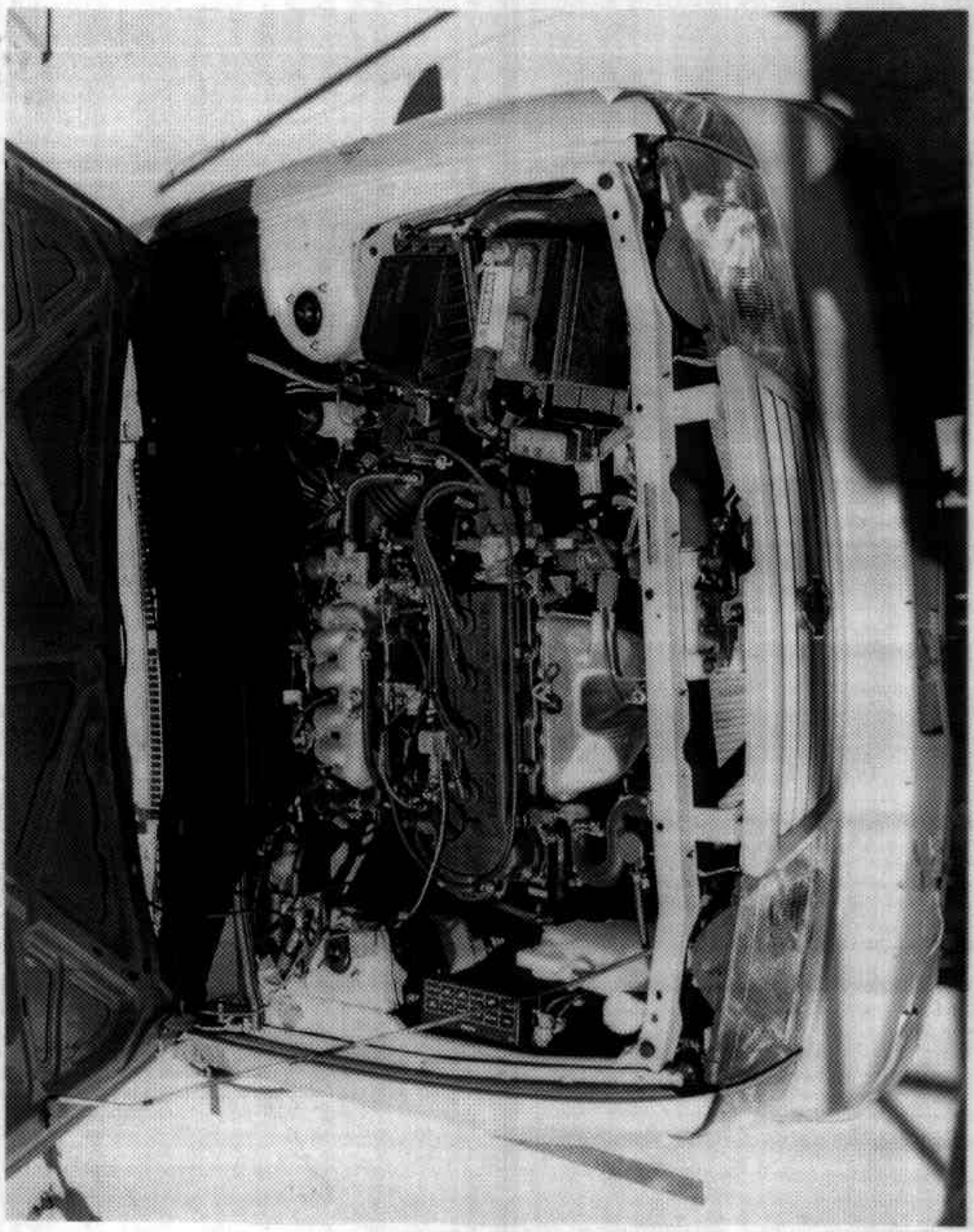


FIGURE A-17. PRE-TEST ENGINE COMPARTMENT

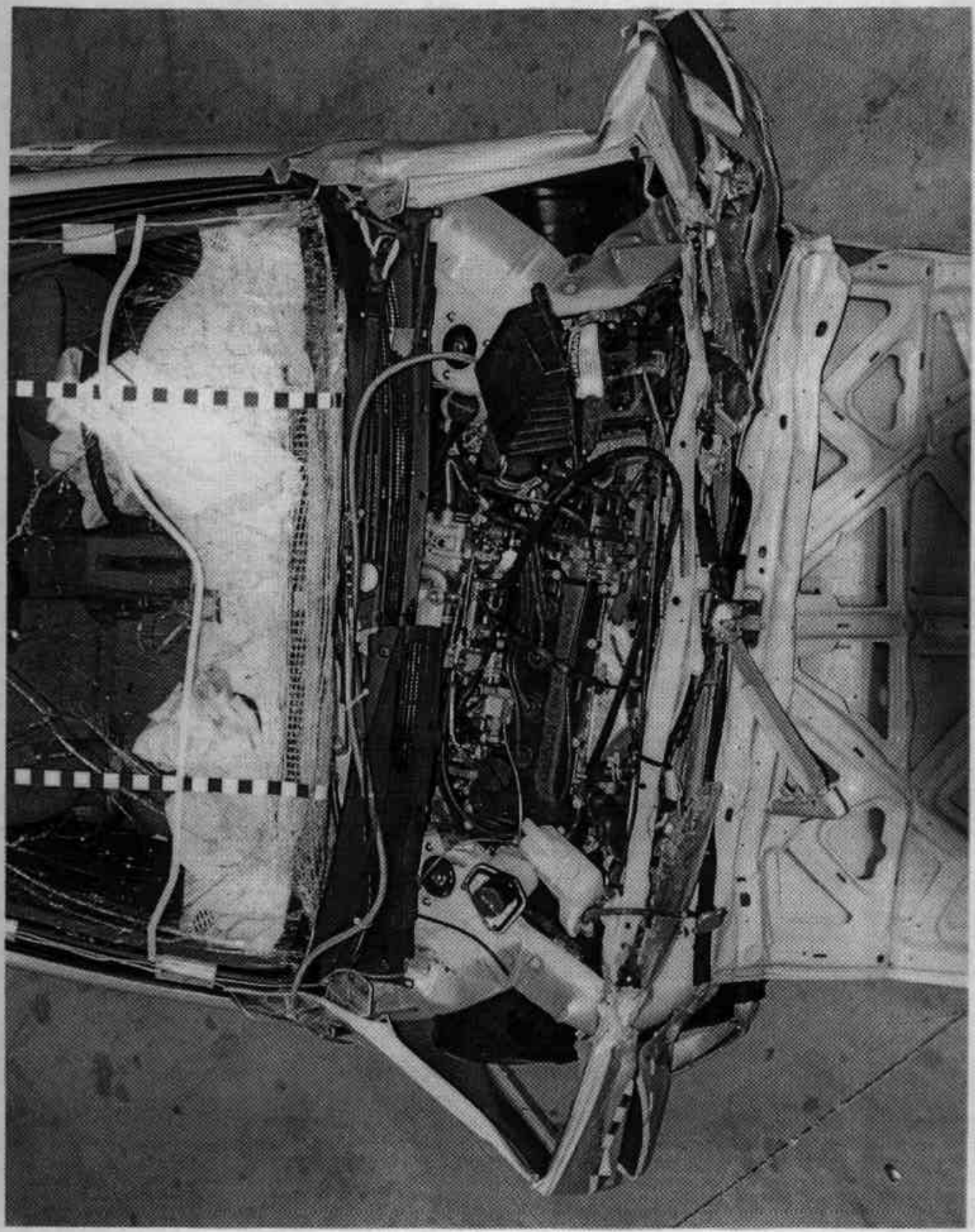


FIGURE A-18. POST-TEST ENGINE COMPARTMENT

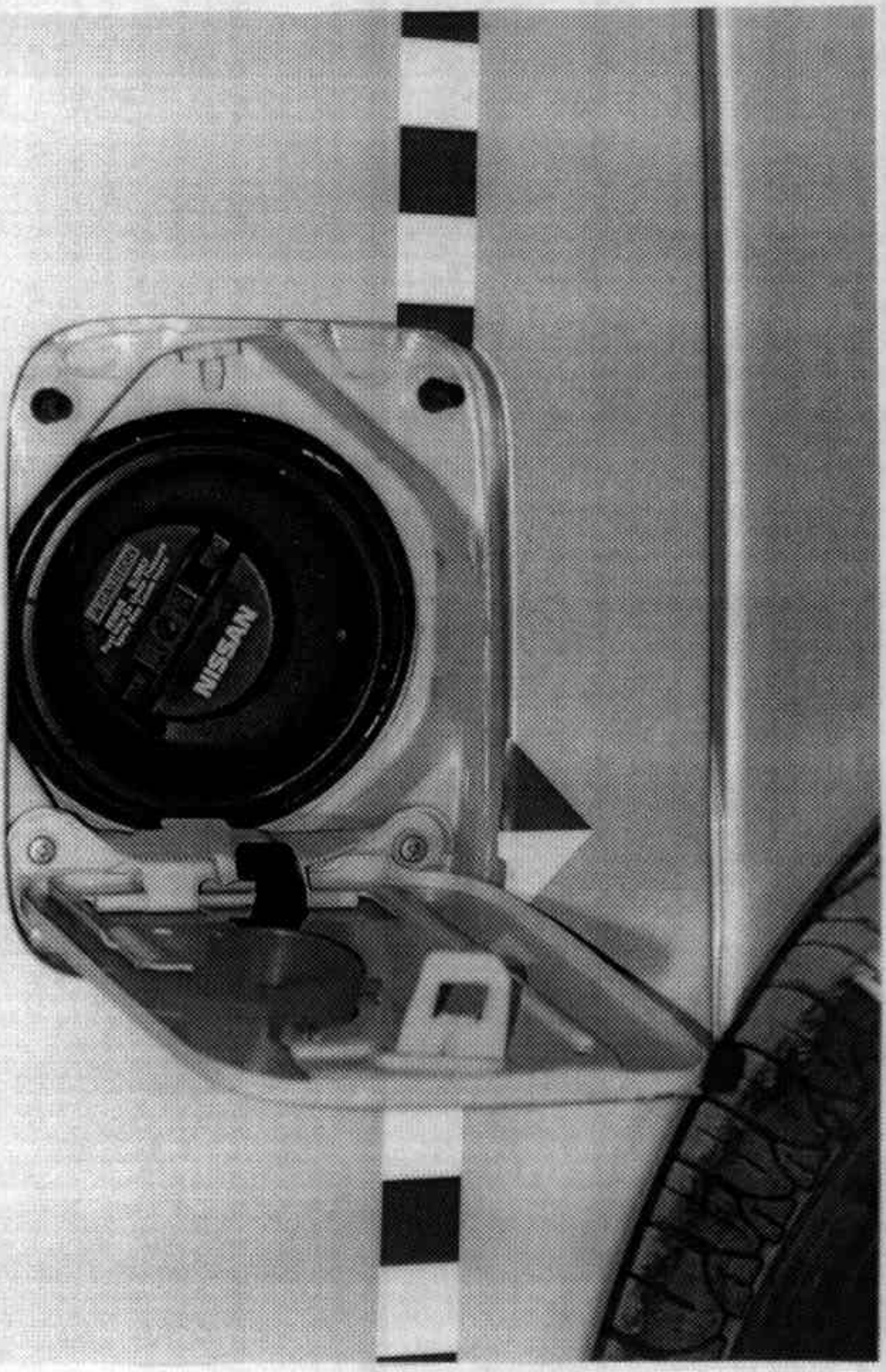


FIGURE A-19. PRE-TEST FUEL FILLER CAP

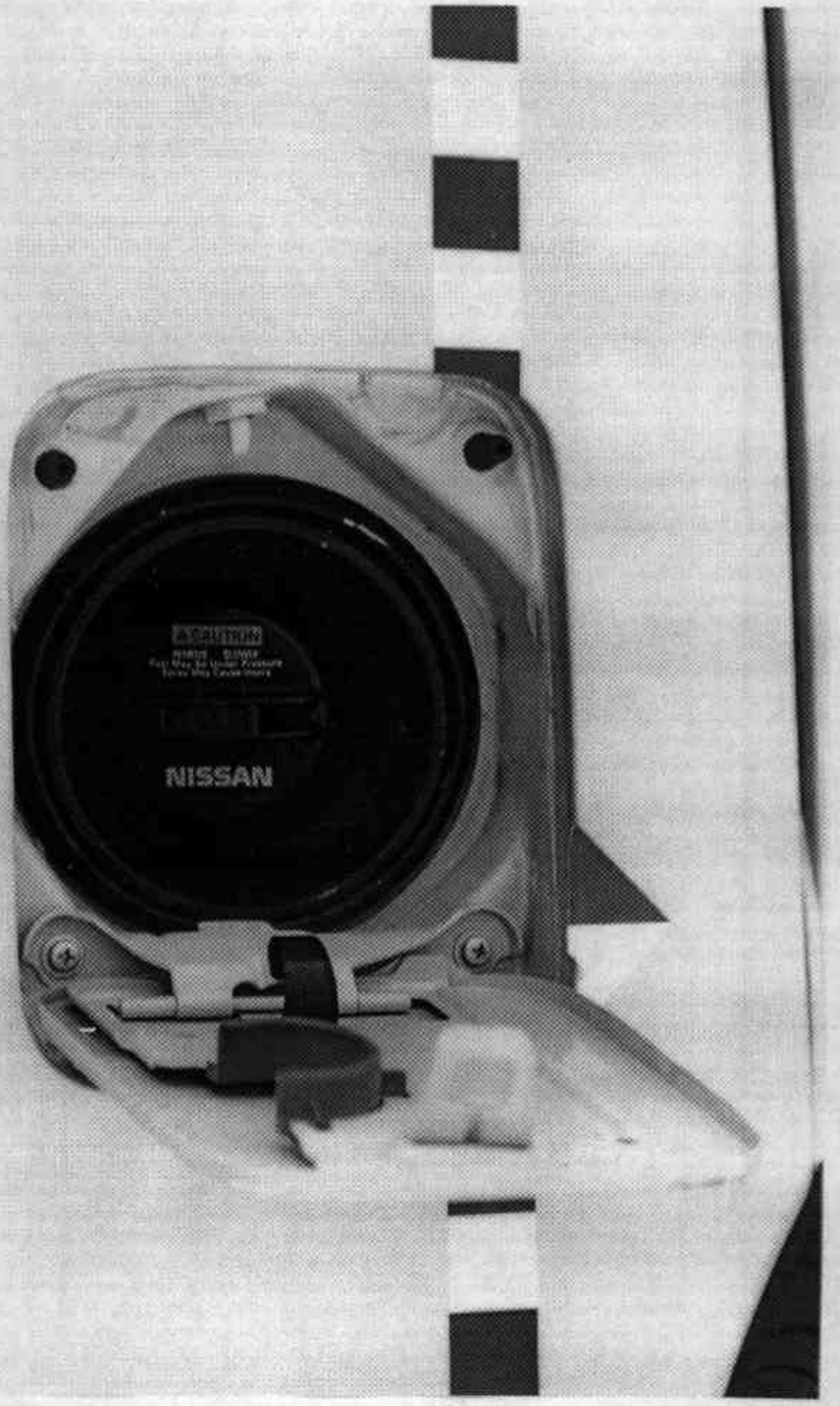


FIGURE A-20. POST-TEST FUEL FILLER CAP

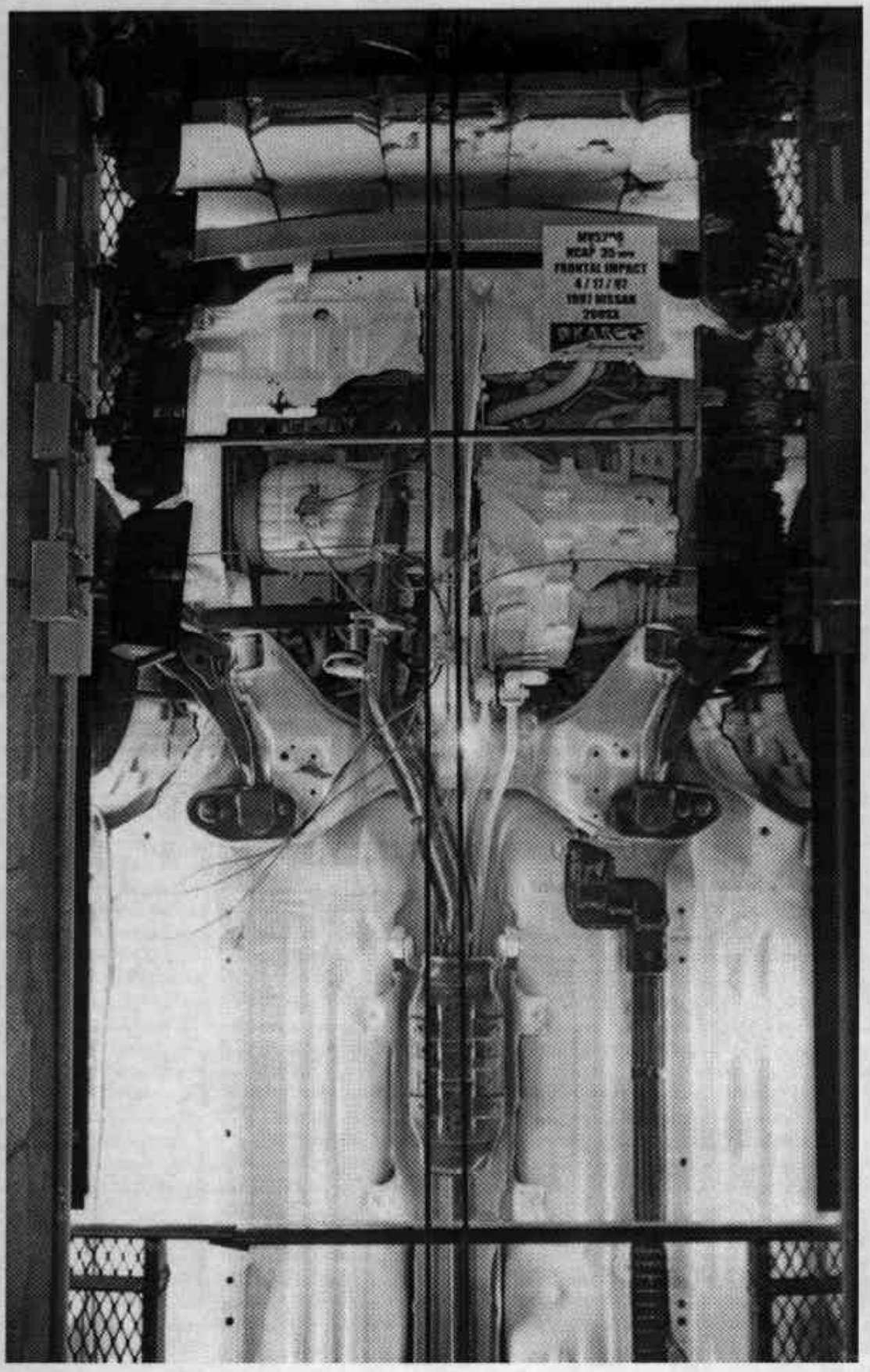


FIGURE A-21. PRE-TEST FRONT UNDERBODY

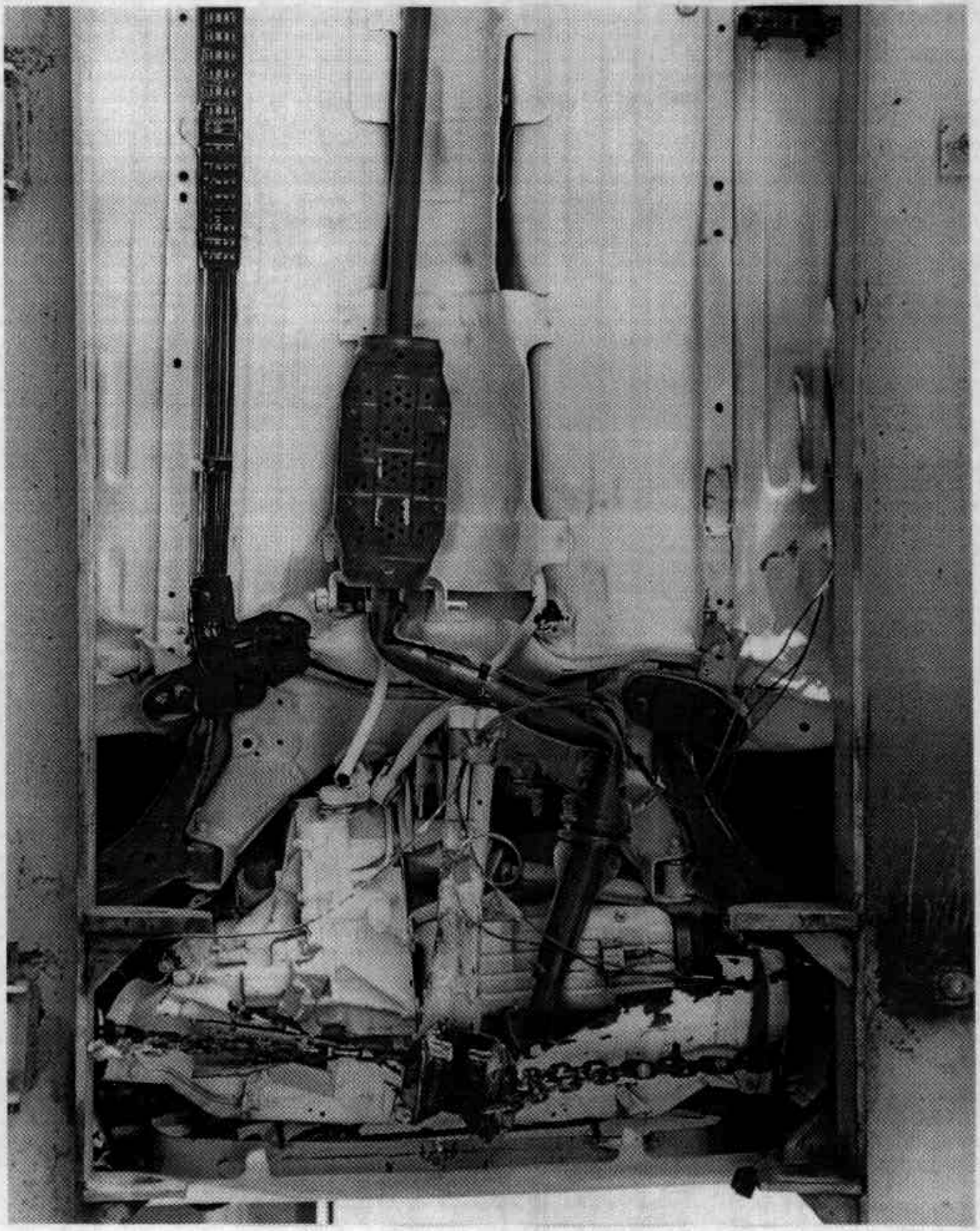


FIGURE A-22. POST-TEST FRONT UNDERBODY

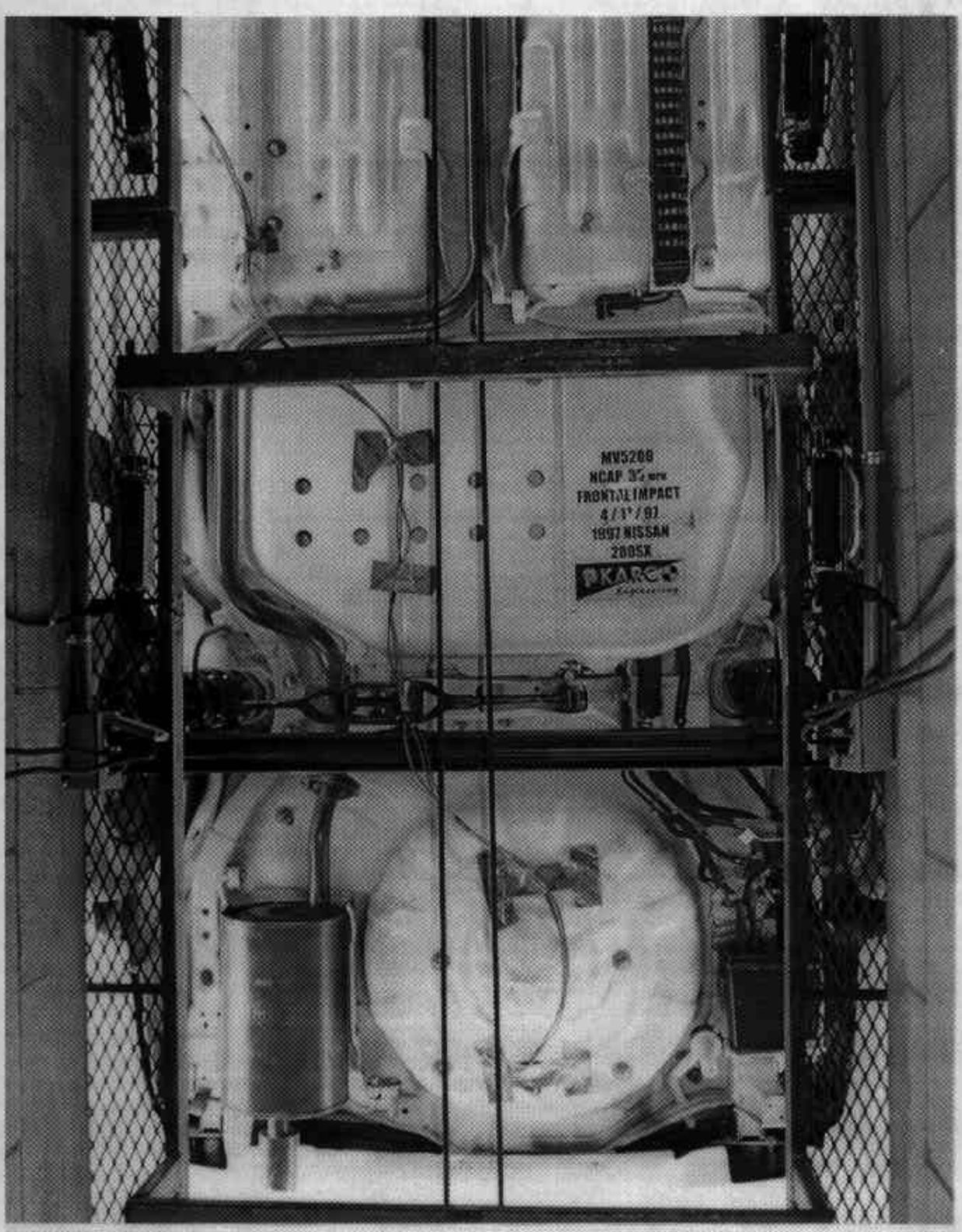


FIGURE A-23. PRE-TEST REAR UNDERBODY

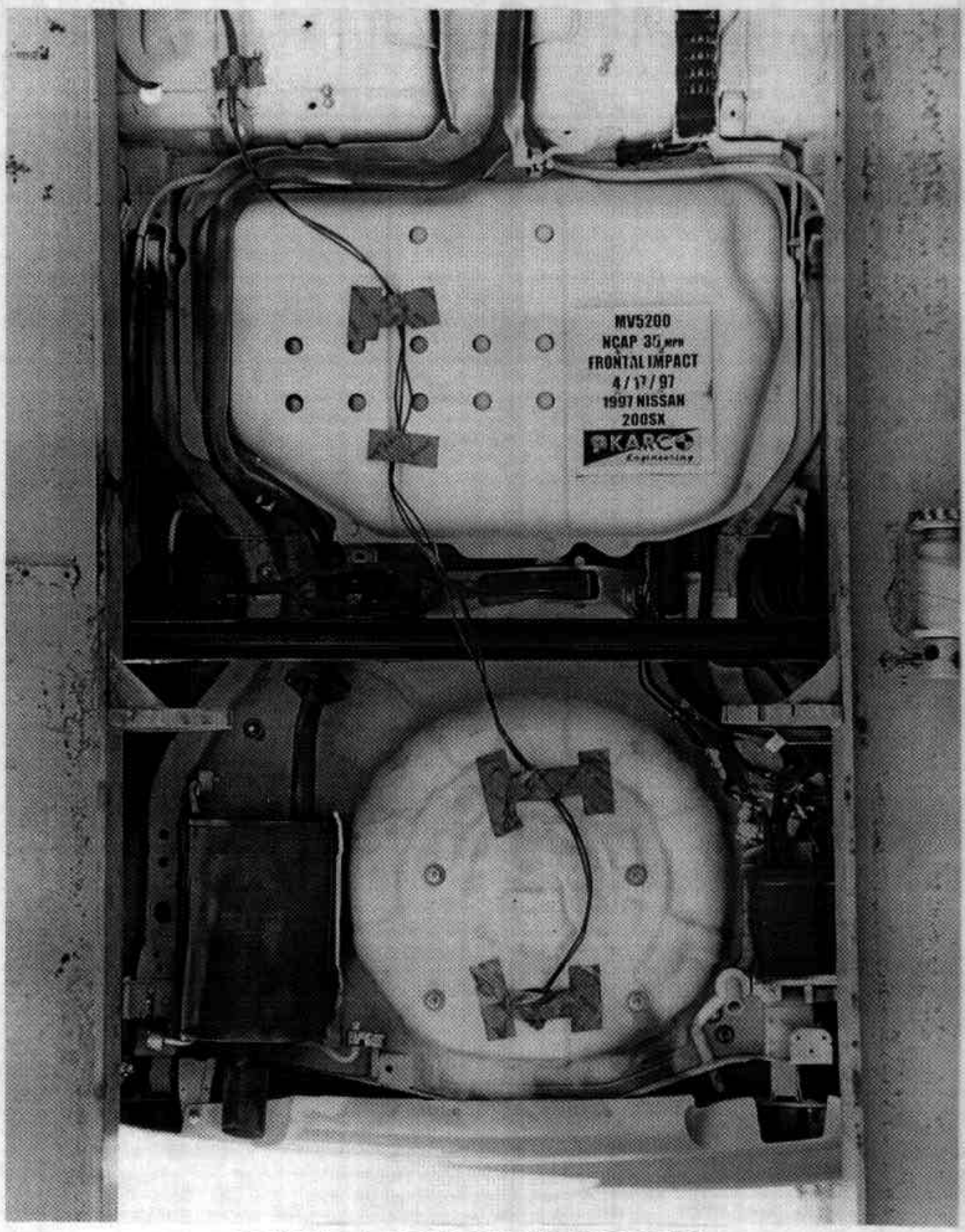


FIGURE A-24. POST-TEST REAR UNDERBODY

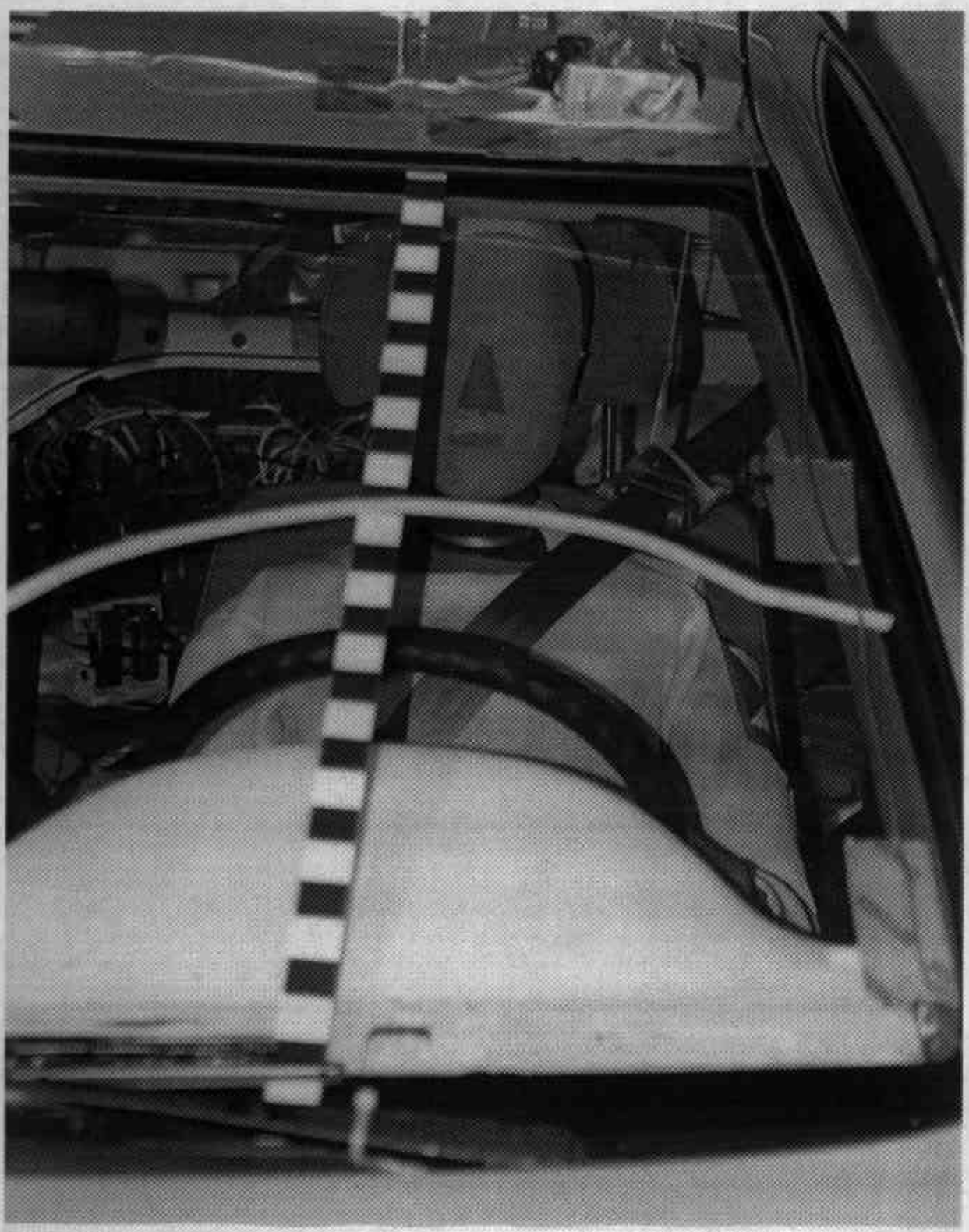


FIGURE A-25. PRE-TEST DRIVER DUMMY (FRONT VIEW)

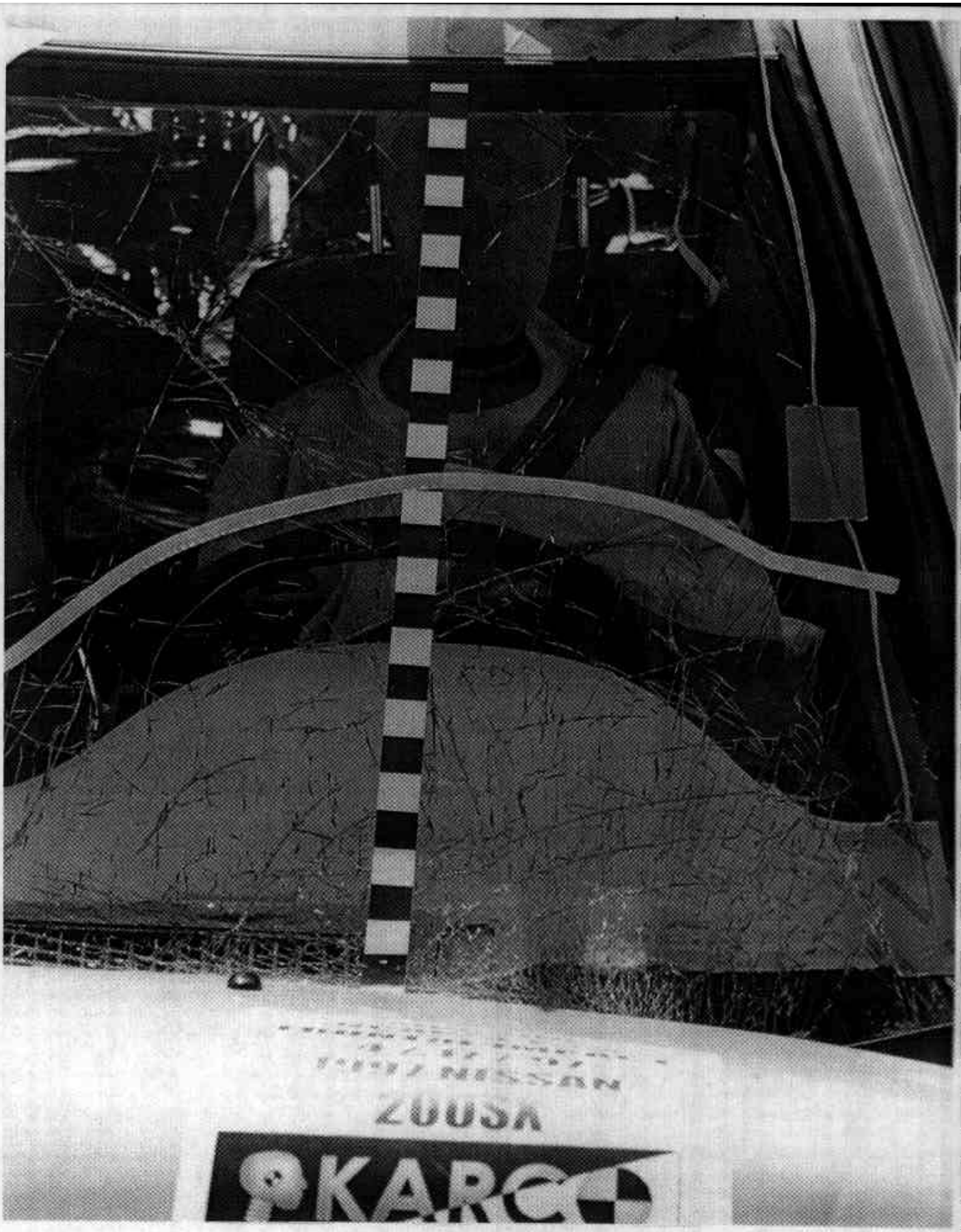


FIGURE A-26. POST TEST DRIVER DUMMY (FRONT VIEW)

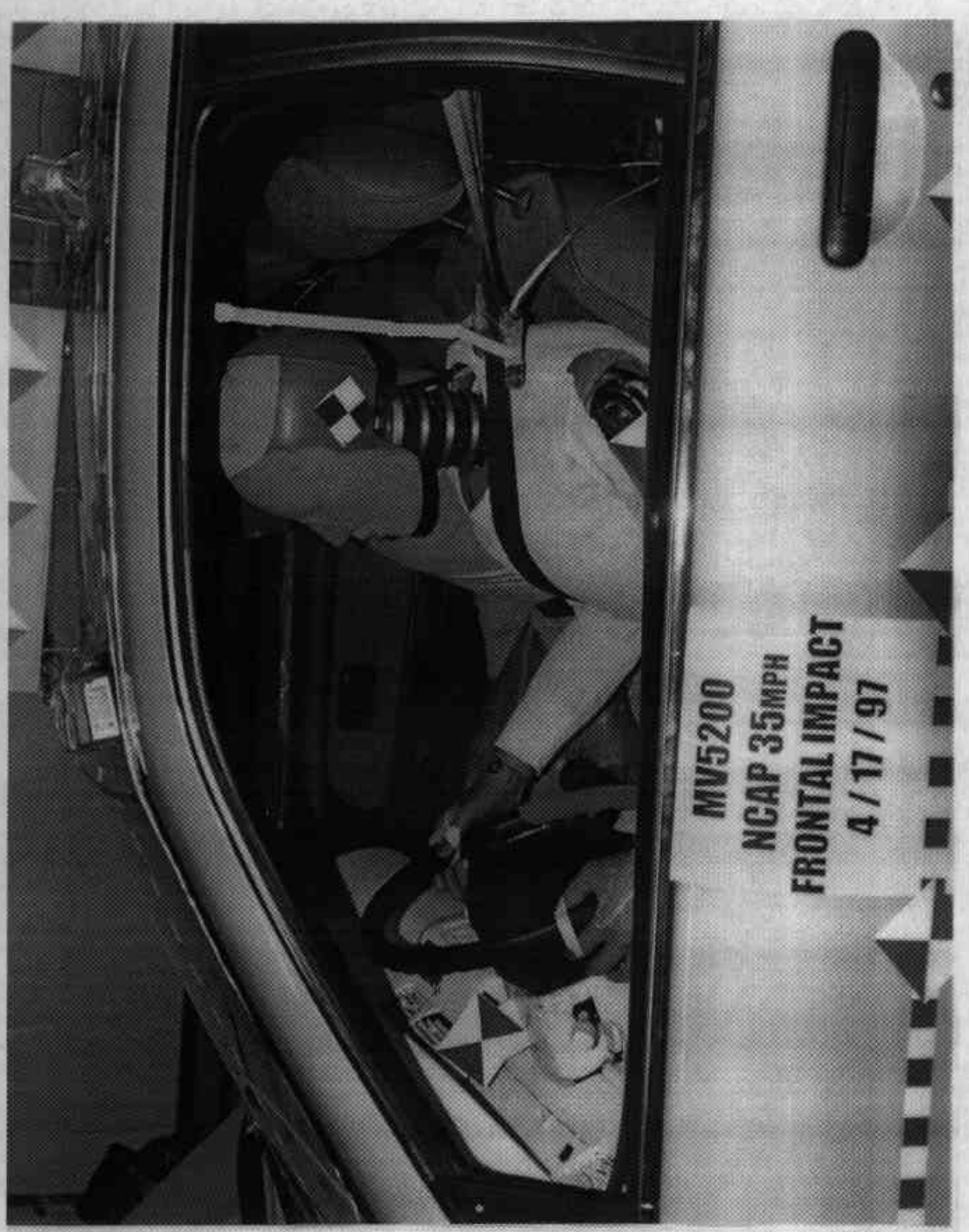


FIGURE A-27. PRE-TEST DRIVER DUMMY (THRU WINDOW)

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

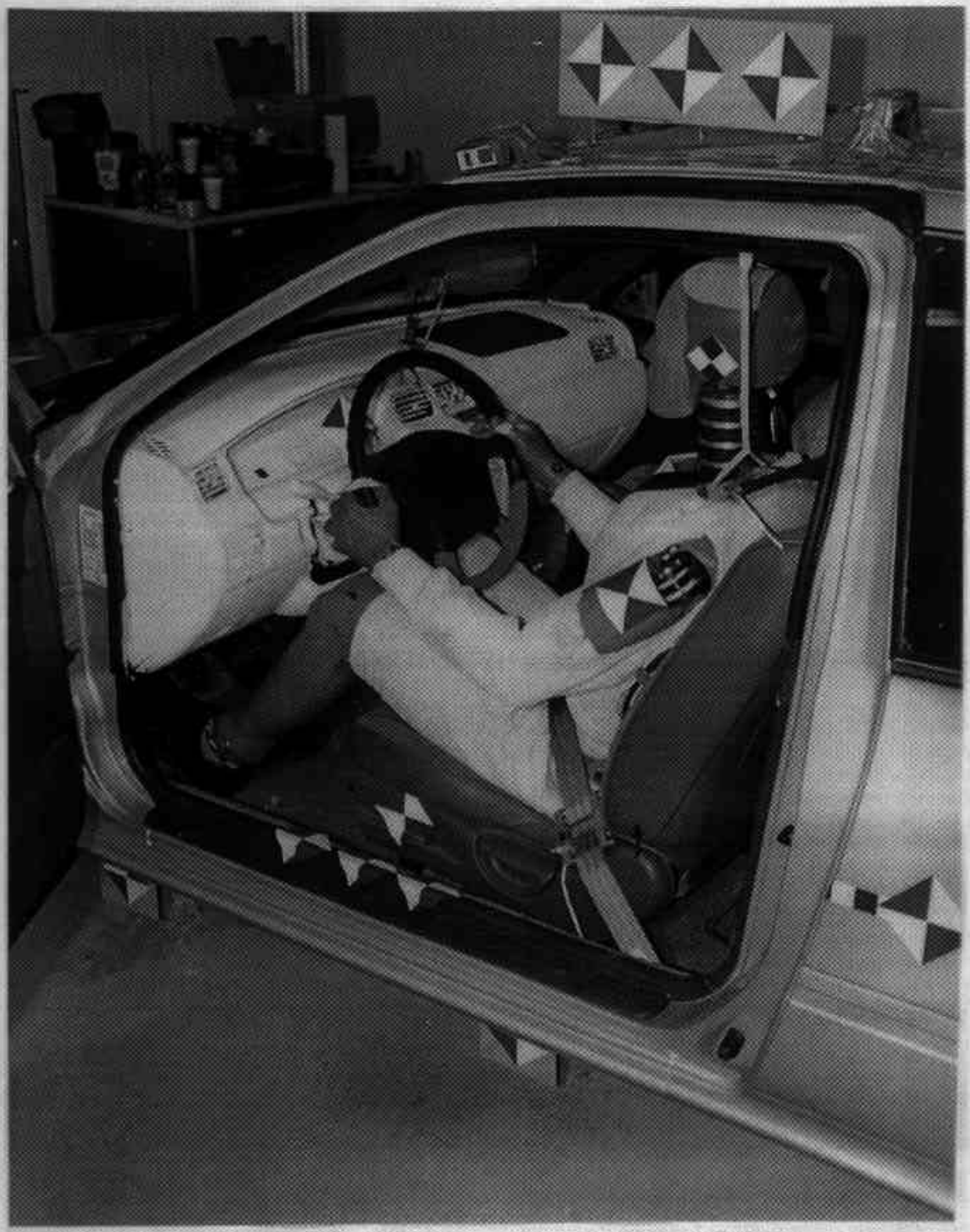


FIGURE A-29. PRE-TEST DRIVER DUMMY (DOOR OPEN)

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

FIGURE A-30. PRE-TEST DRIVER DUMMY (90• TO VEHICLE)

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

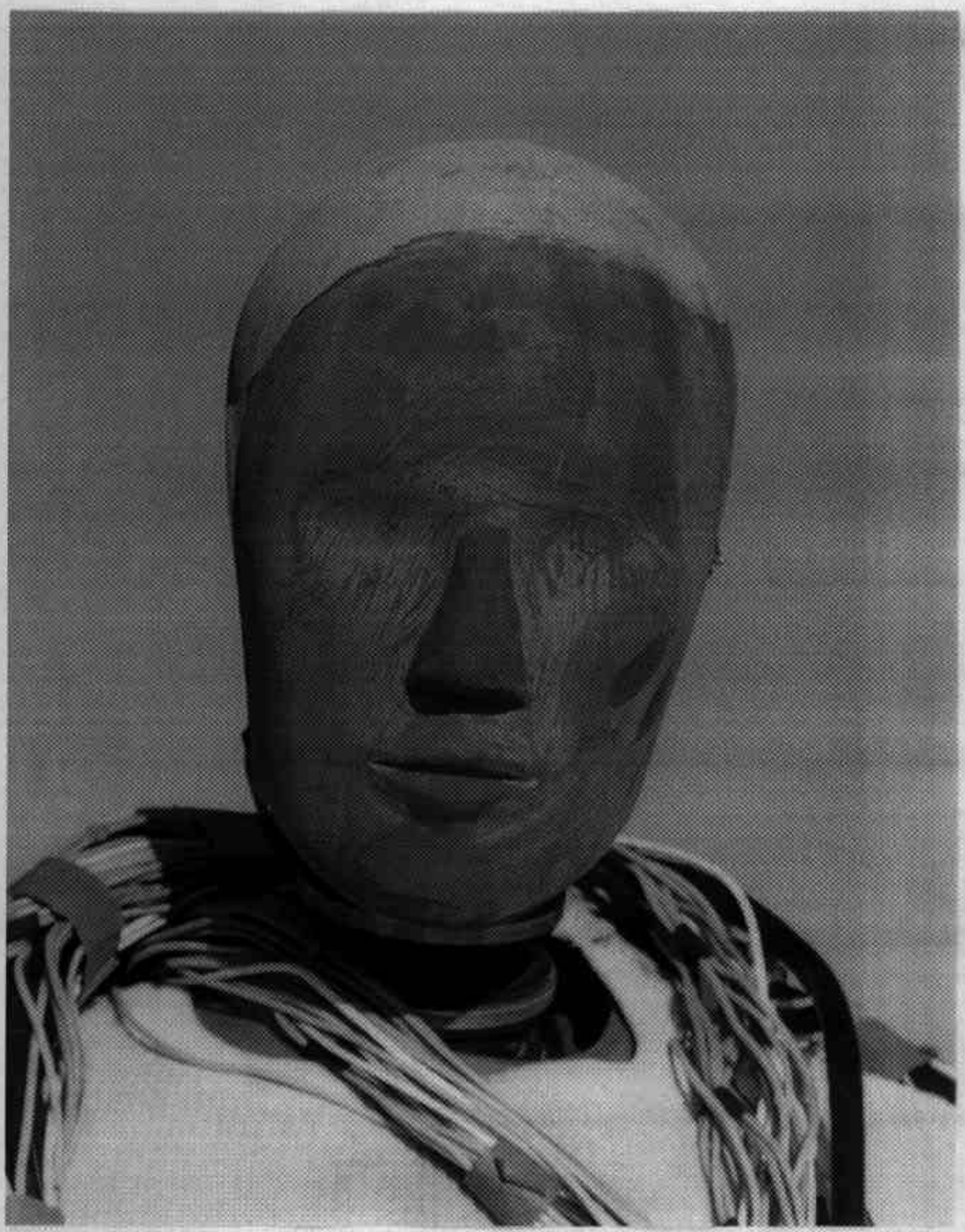


FIGURE A-33. POST-TEST DRIVER DUMMY CONTACT POINTS (1 OF 3)

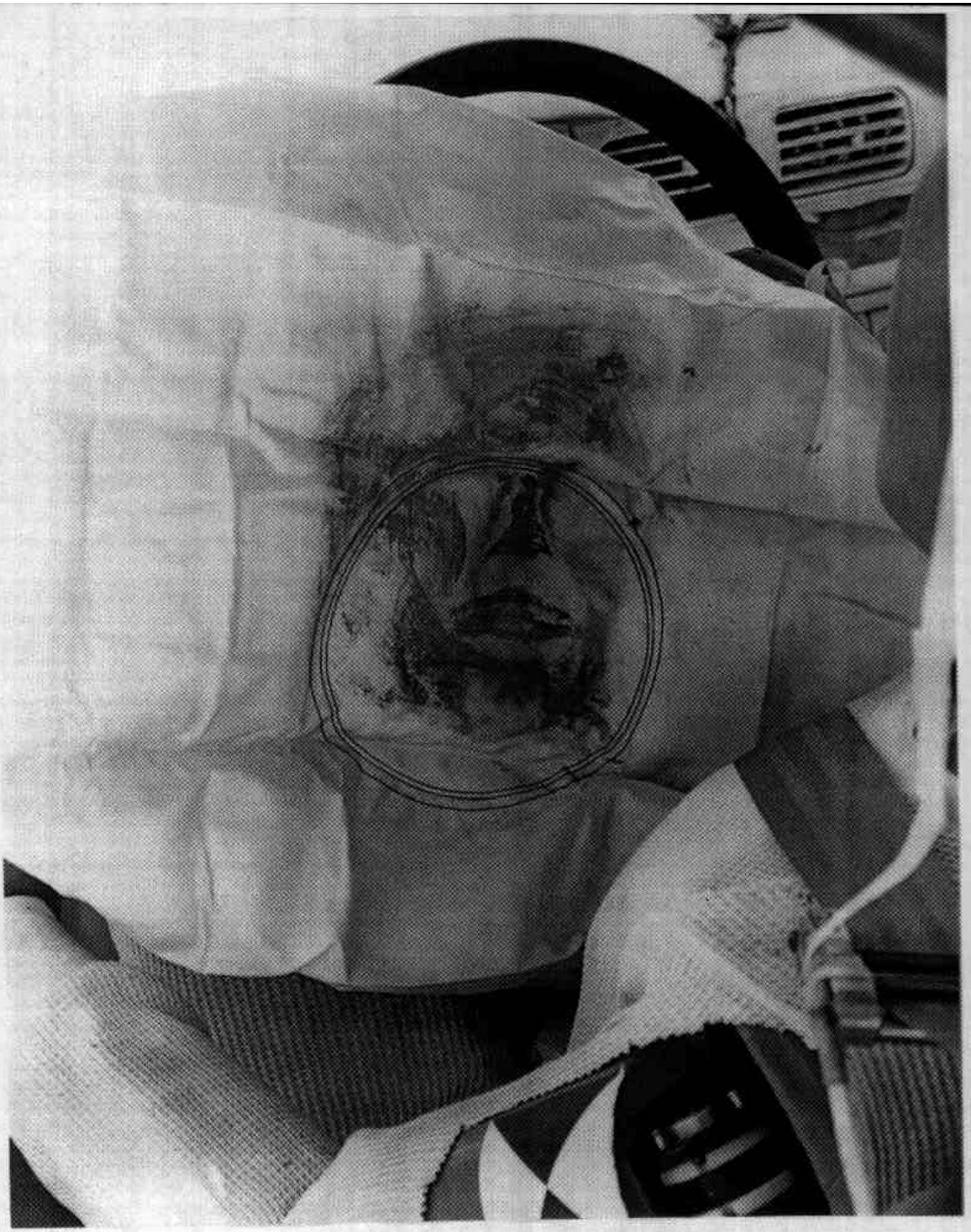


FIGURE A-34. POST-TEST DRIVER DUMMY CONTACT POINTS (2 OF 3)

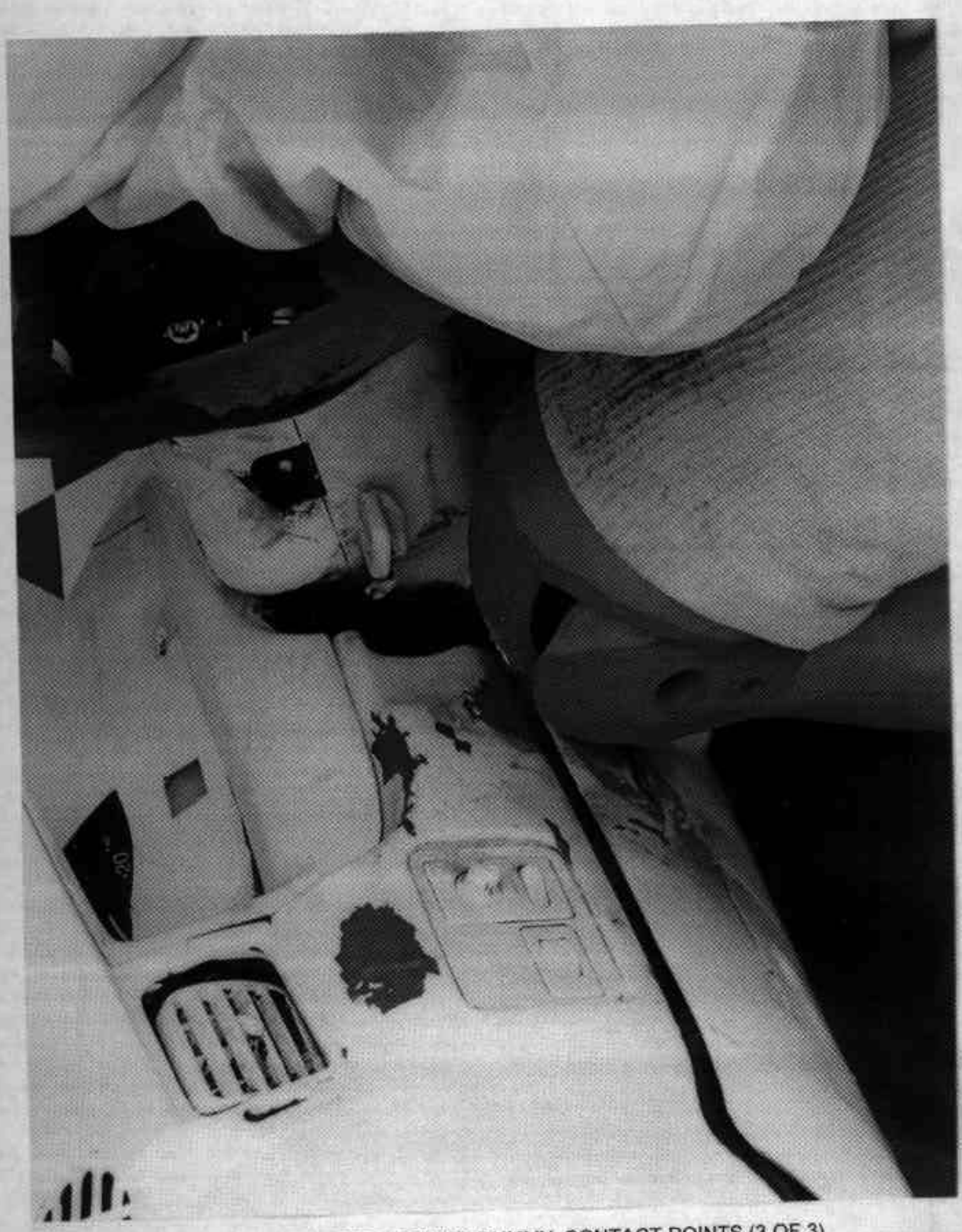


FIGURE A-35. POST-TEST DRIVER DUMMY CONTACT POINTS (3 OF 3)

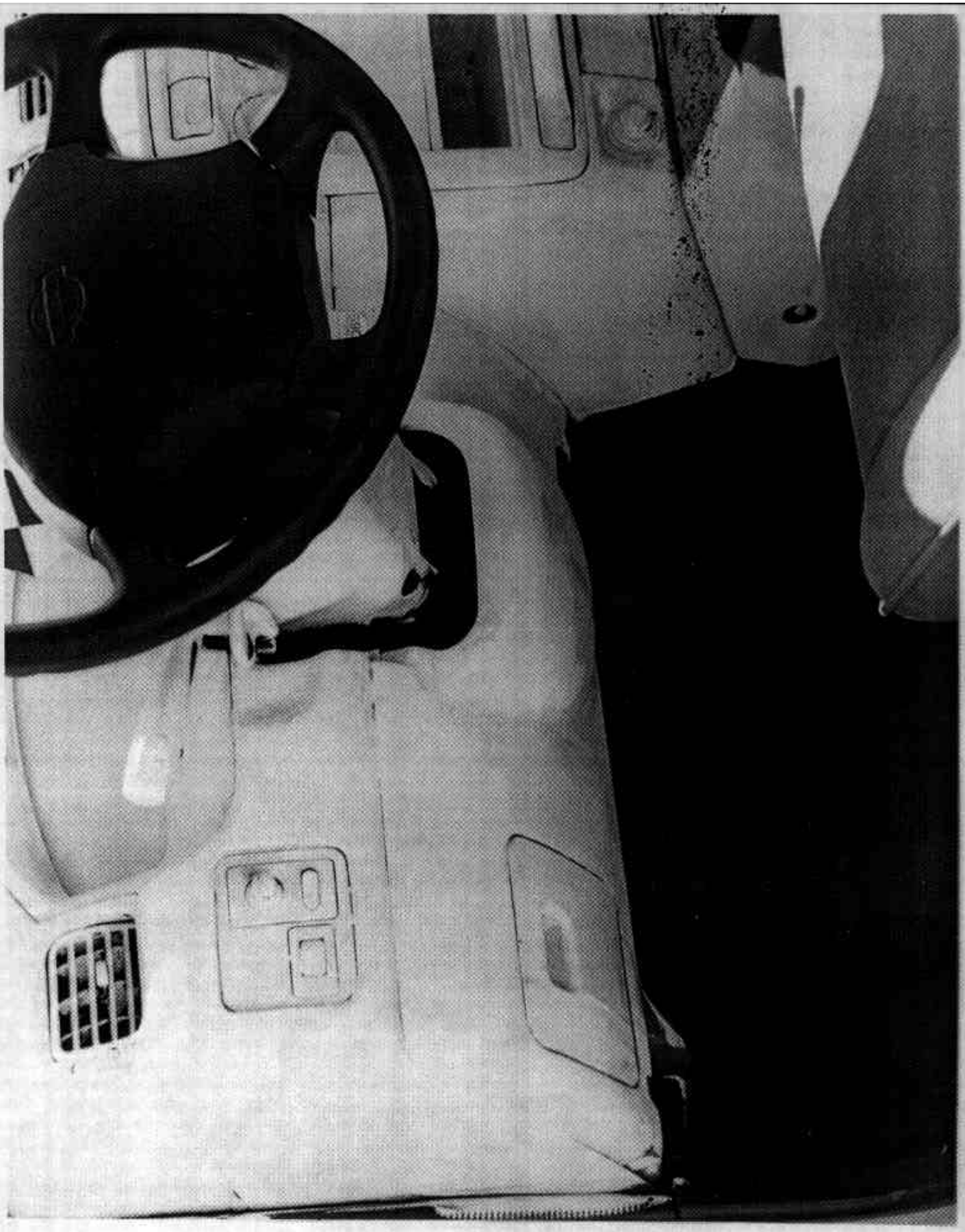


FIGURE A-36. PRE-TEST DRIVER SIDE KNEE BOLSTER

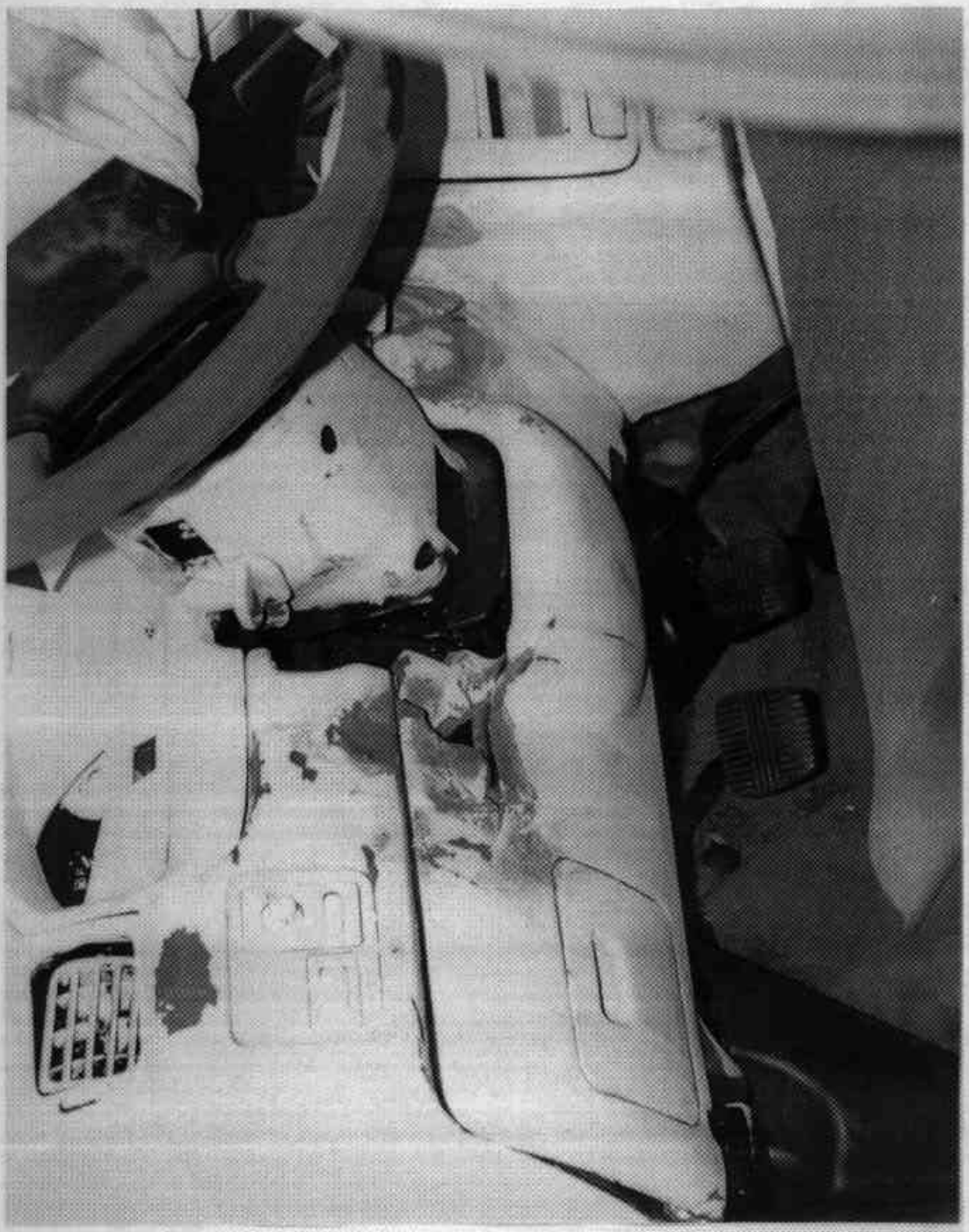


FIGURE A-37. POST-TEST DRIVER SIDE KNEE BOLSTER

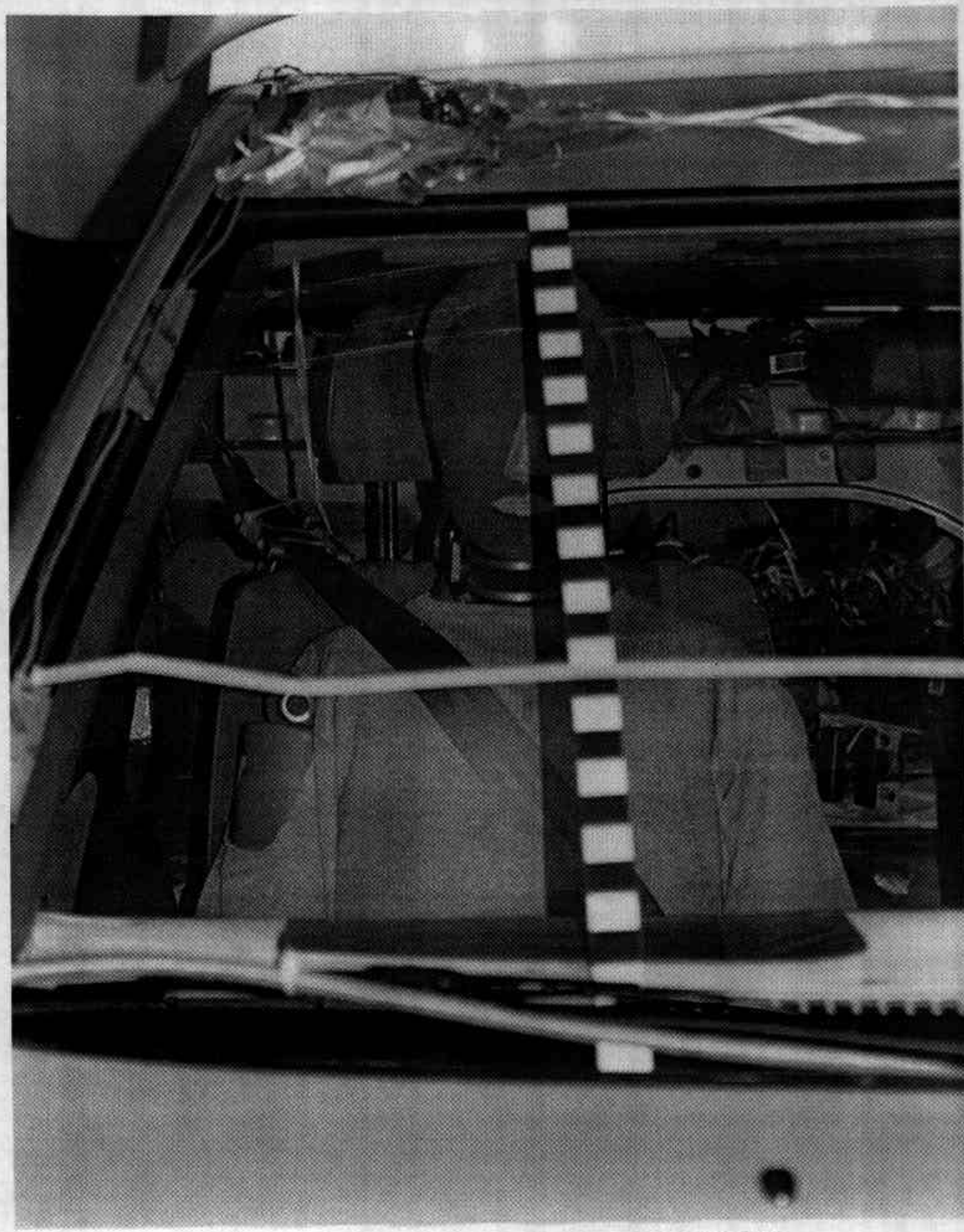


FIGURE A-38. PRE-TEST PASSENGER DUMMY (FRONT VIEW)

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

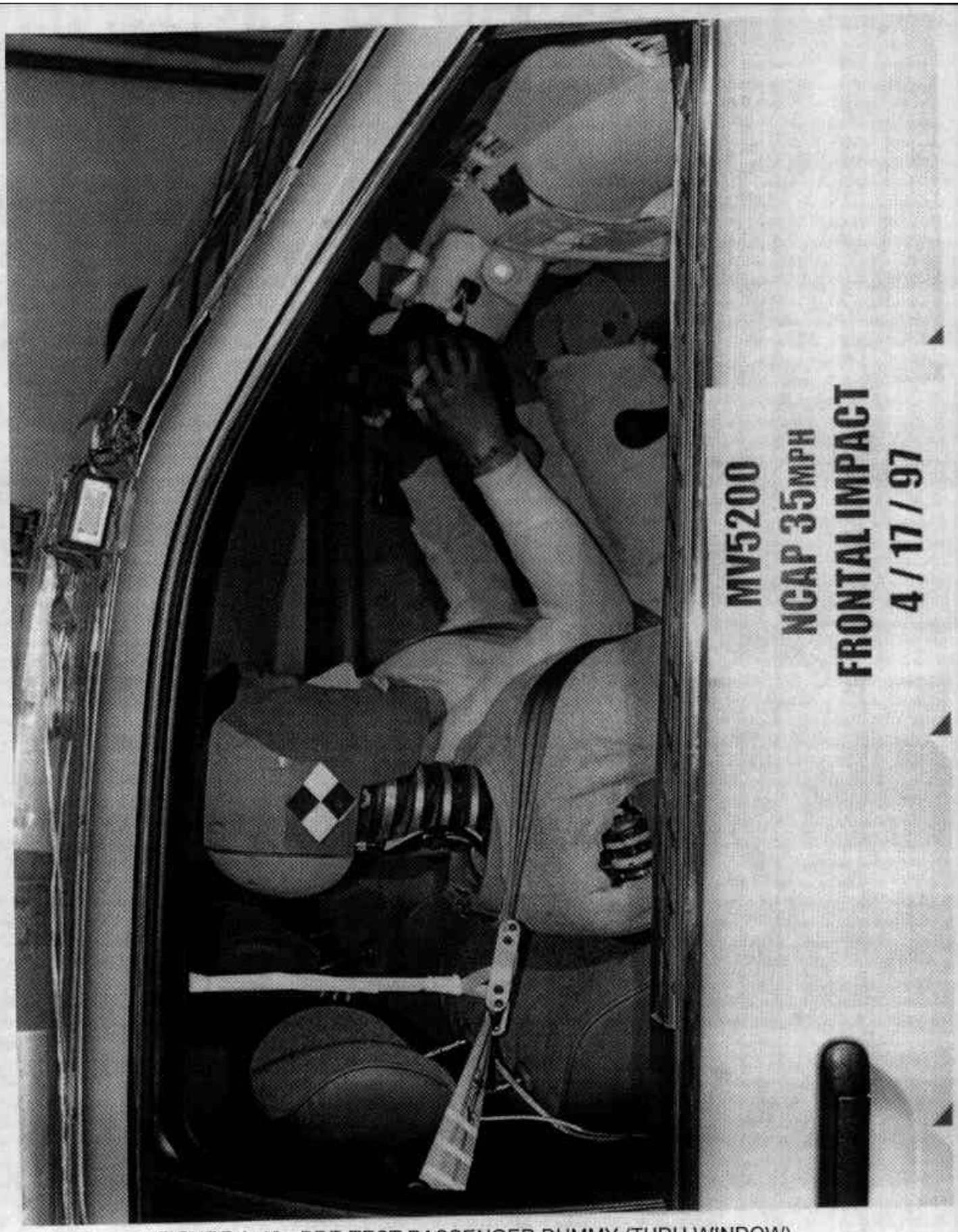


FIGURE A-40. PRE-TEST PASSENGER DUMMY (THRU WINDOW)

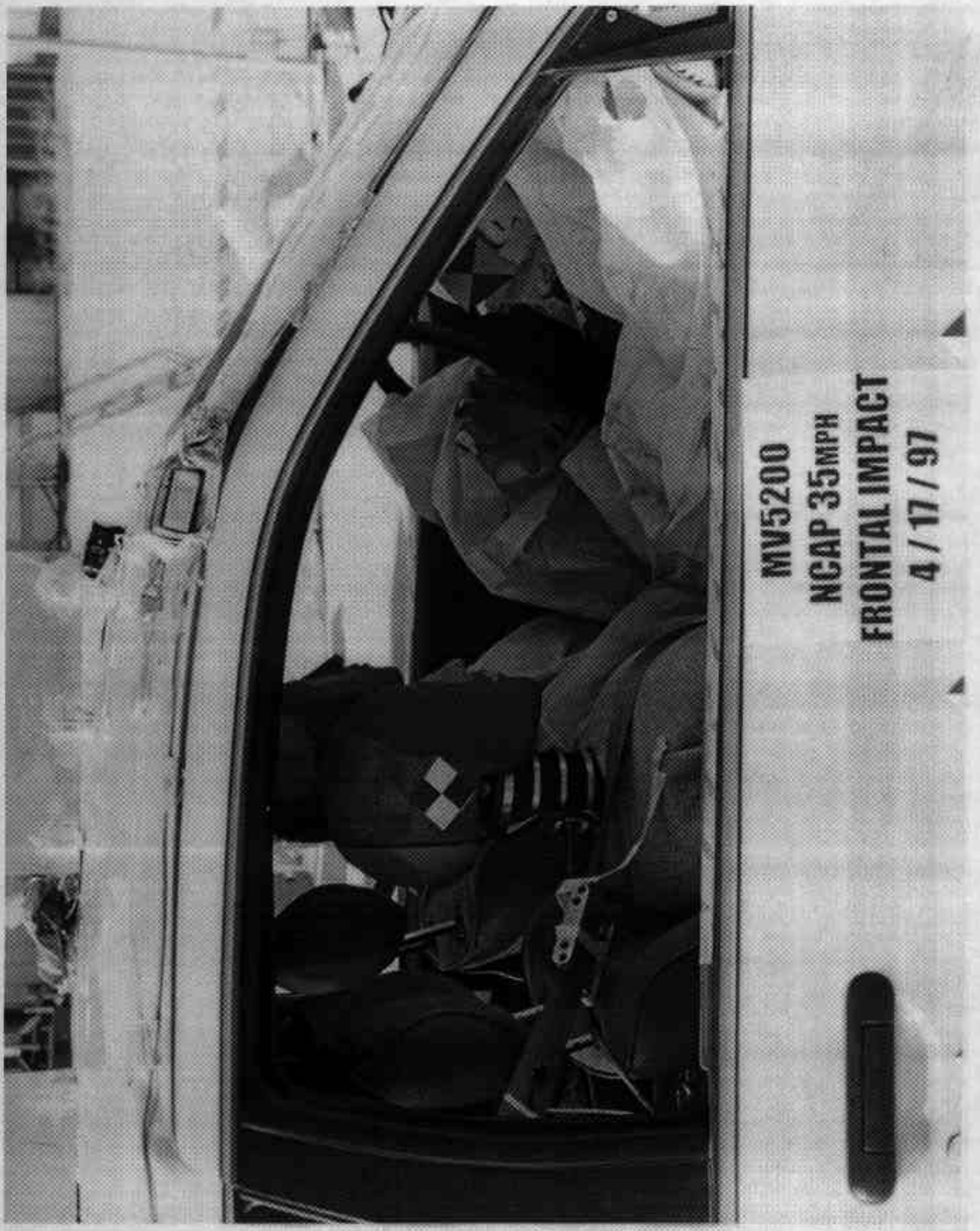


FIGURE A-41. POST-TEST PASSENGER DUMMY (THRU WINDOW)

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

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

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

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

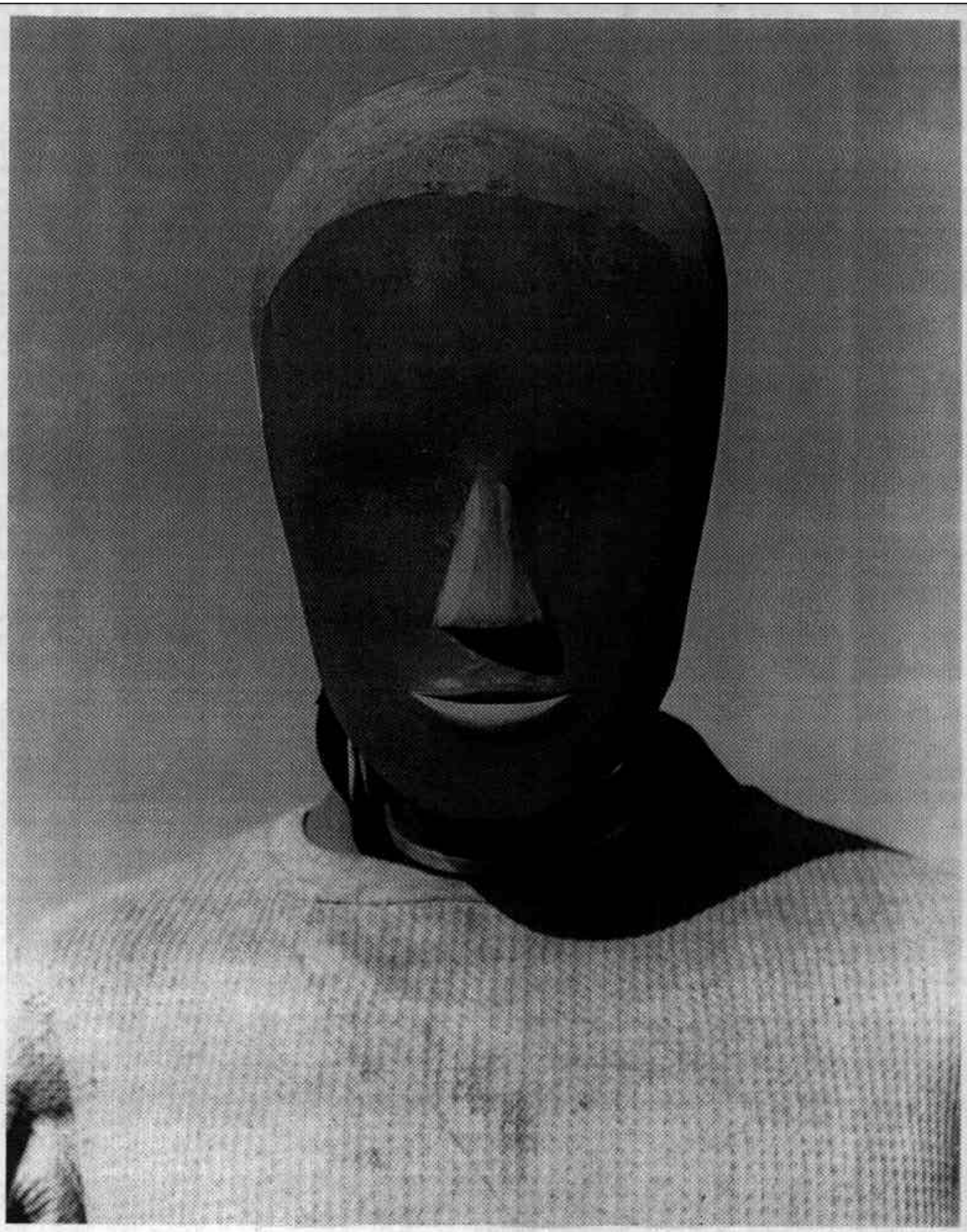


FIGURE A-46. POST-TEST PASSENGER DUMMY CONTACT POINTS (1 OF 3)

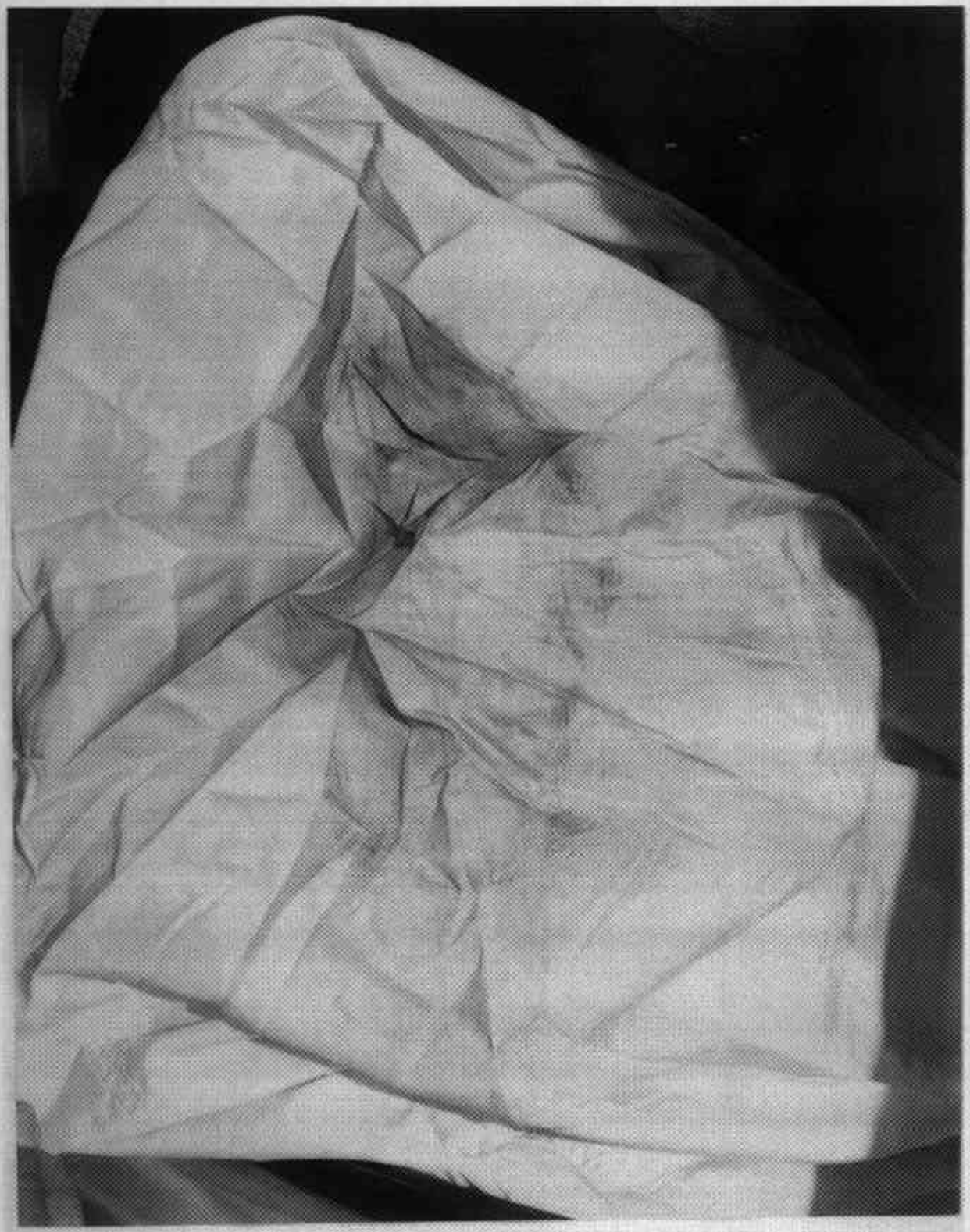


FIGURE A-47. POST-TEST PASSENGER DUMMY CONTACT POINTS (2 OF 3)

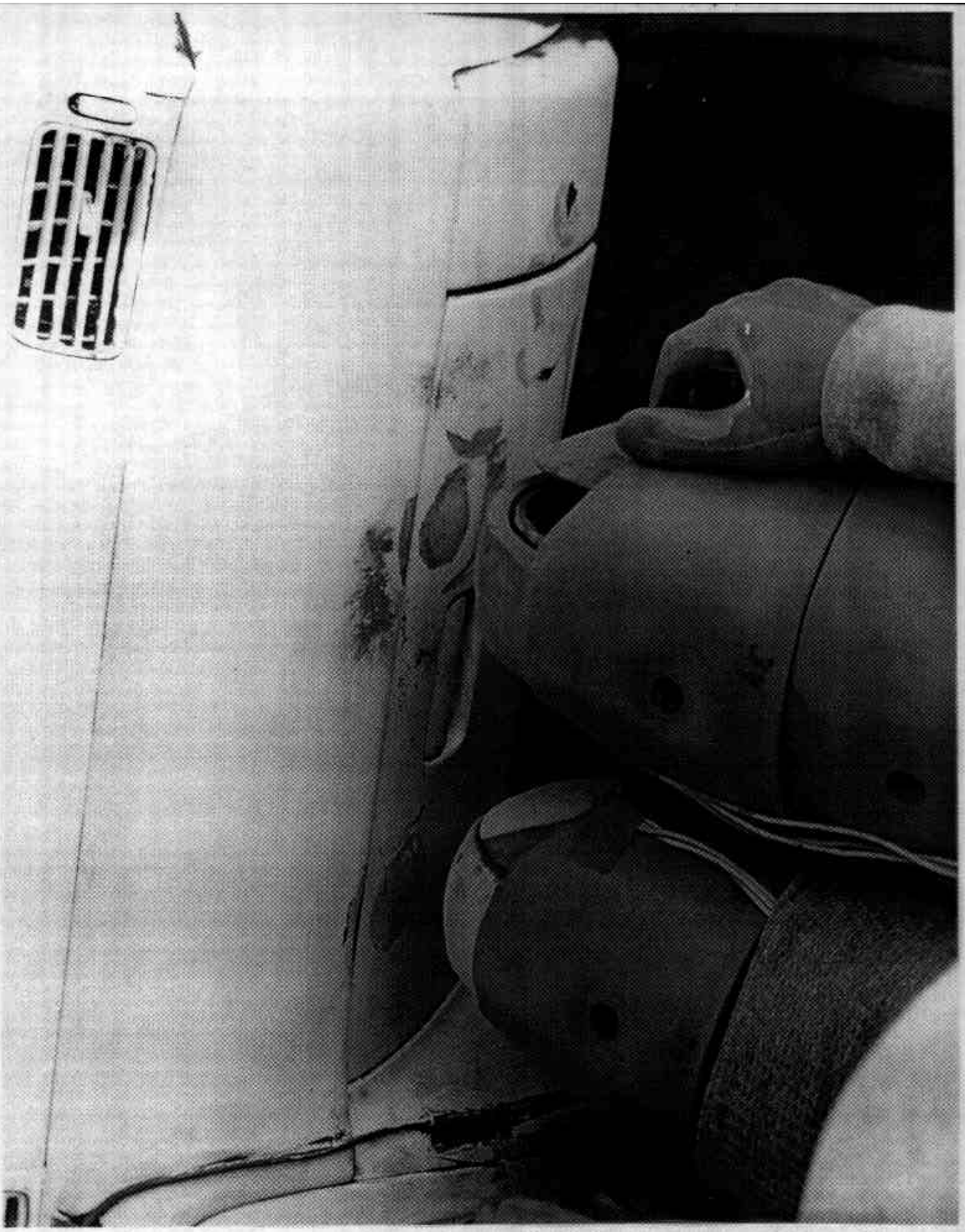


FIGURE A-48. POST-TEST PASSENGER DUMMY CONTACT POINTS (3 OF 3)

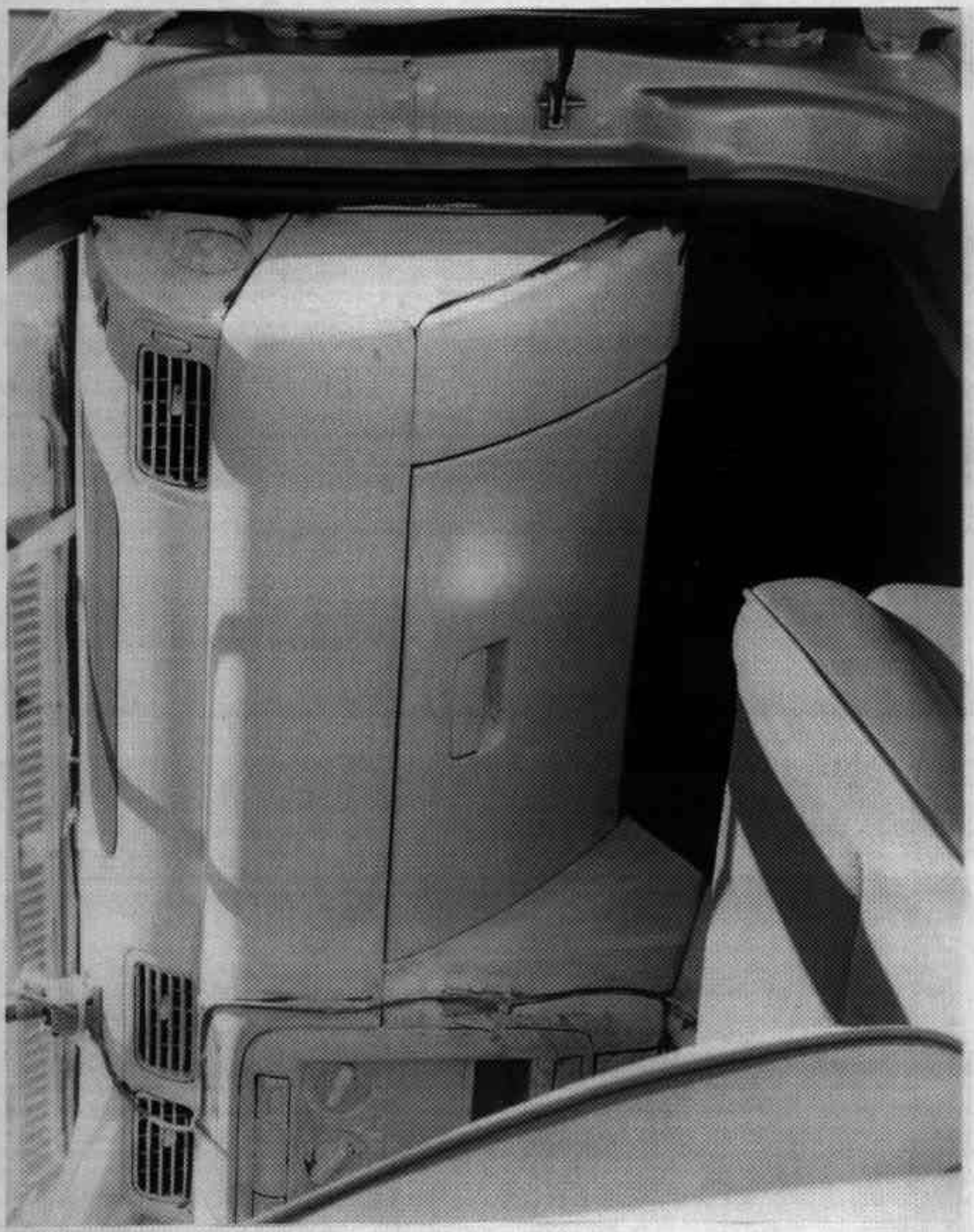


FIGURE A-49. PRE-TEST PASSENGER SIDE KNEE BOLSTER

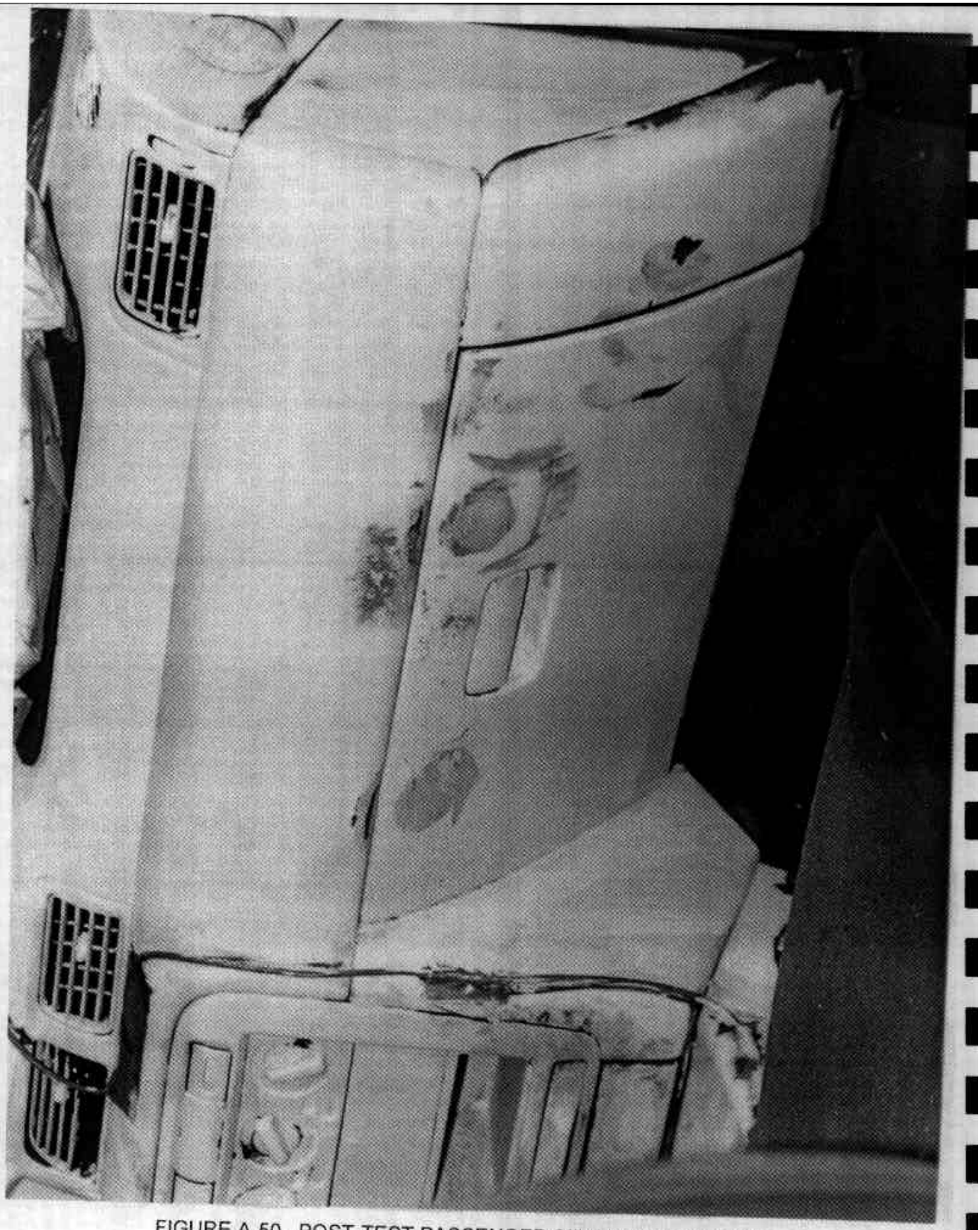


FIGURE A-50. POST-TEST PASSENGER SIDE KNEE BOLSTER

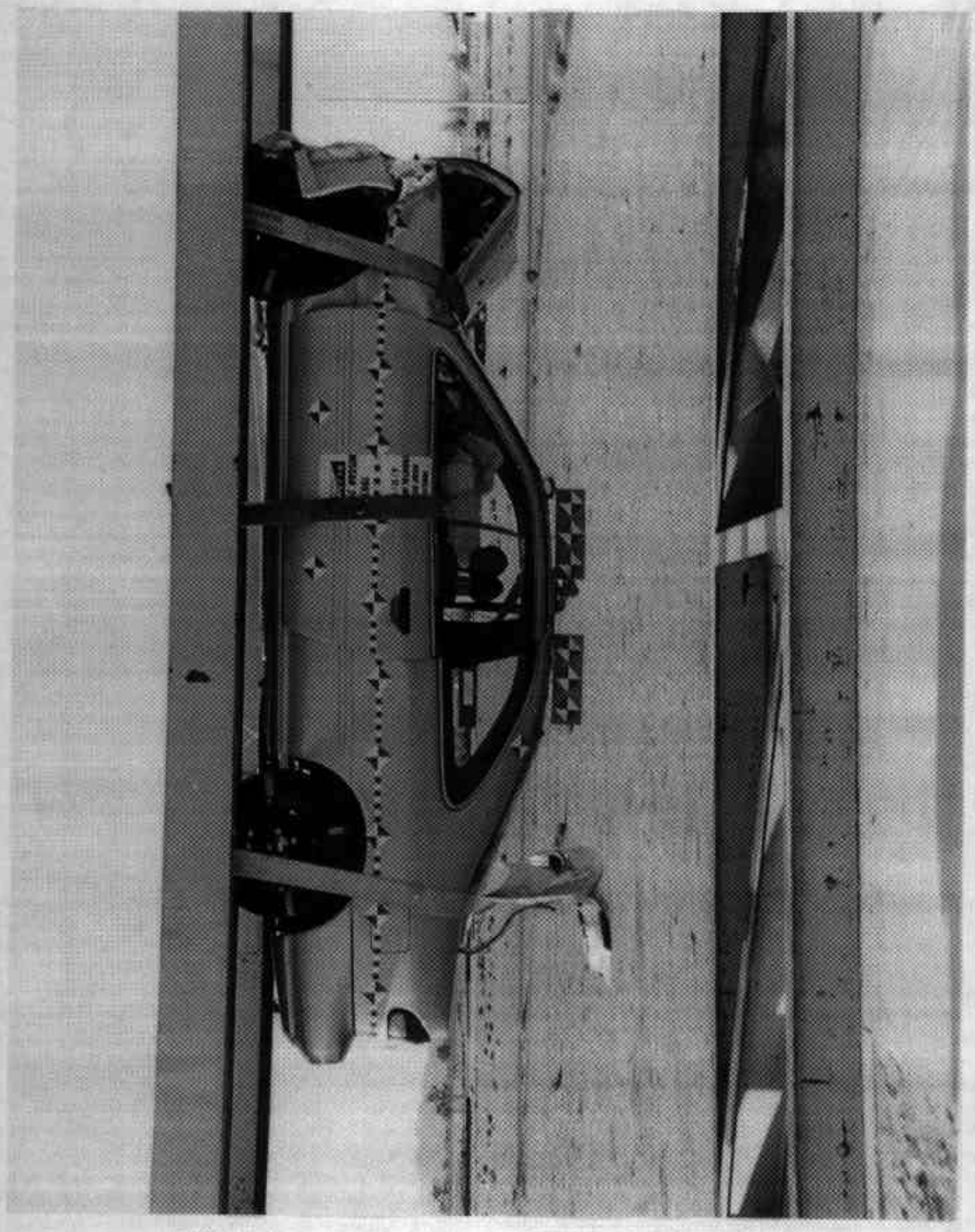
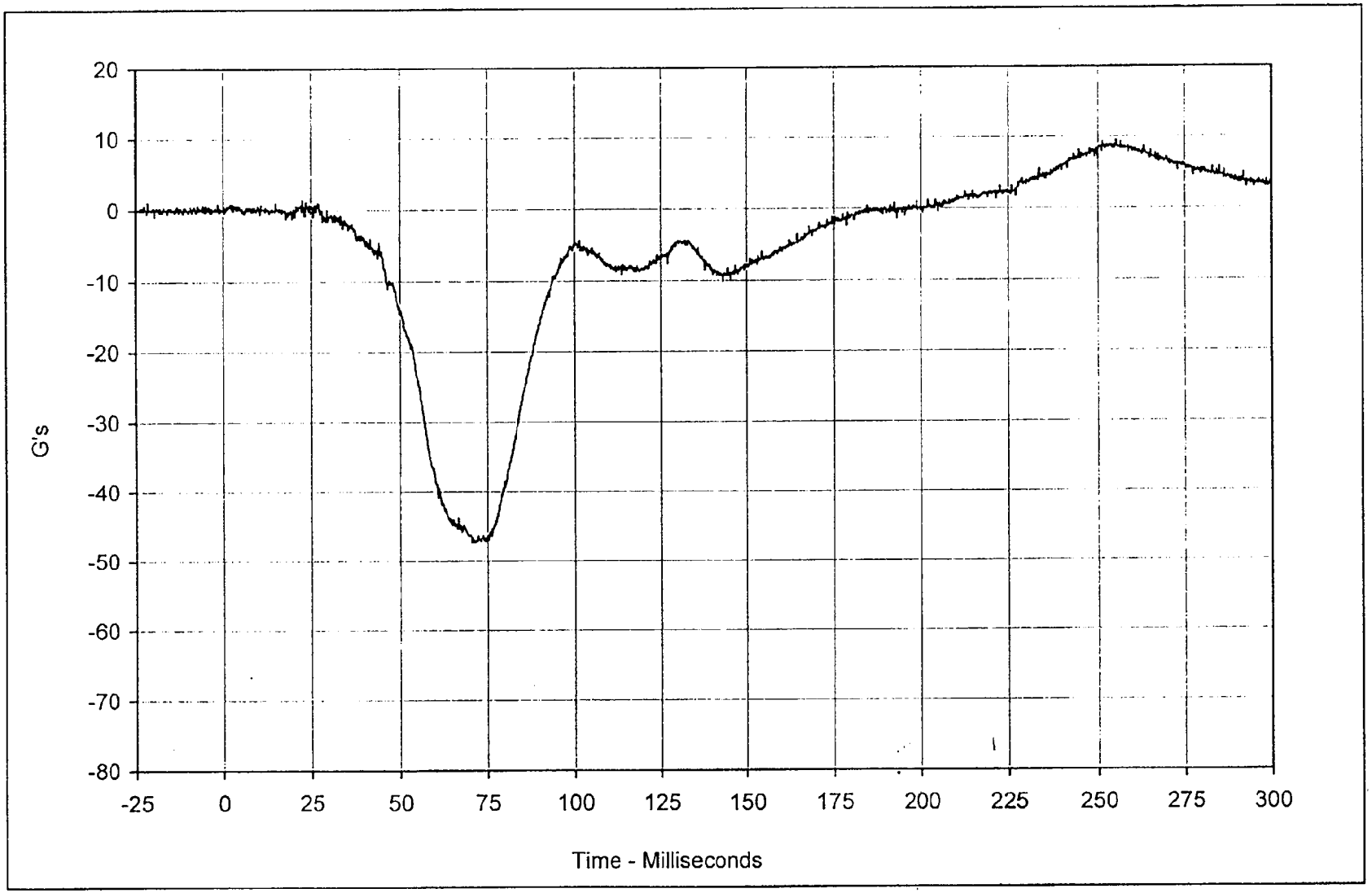


FIGURE A-51. VEHICLE ON STATIC ROLLOVER MACHINE

APPENDIX B

DUMMY, VEHICLE AND RESPONSE DATA TRACES



Curve Description: Driver Head Primary X

Maximum Value: 9.5 at 255.2 Milliseconds

Minimum Value: -47.3 at 70.6 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: FIL-001

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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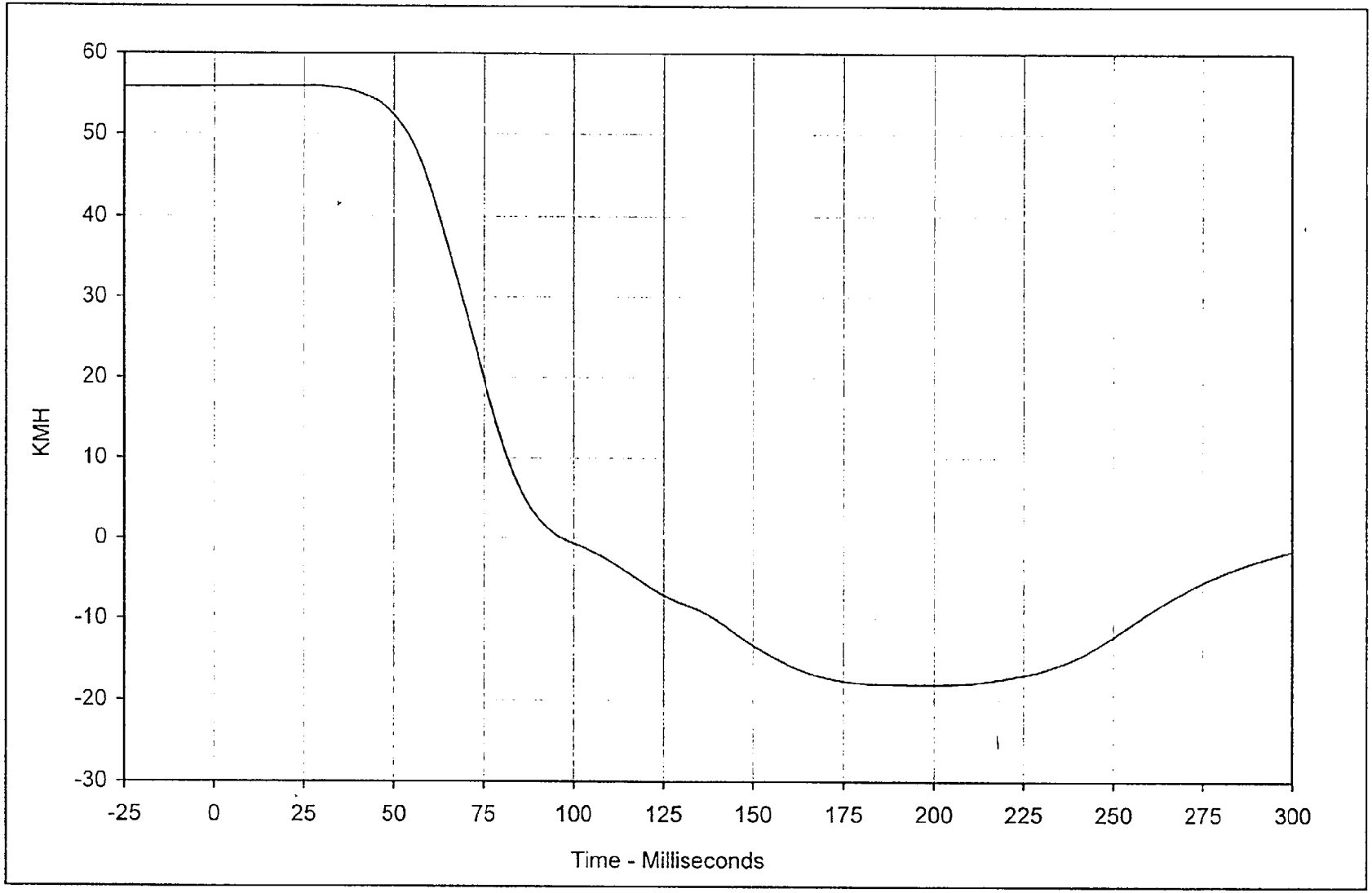
KAR-96-R96024-05

B2



Curve Description:	Driver Head Primary X Velocity			Testing Program:	1997 New Car Assesment Program
Maximum Value:	56.0	at	27.7 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-18.1	at	196.1 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	IN1-001				

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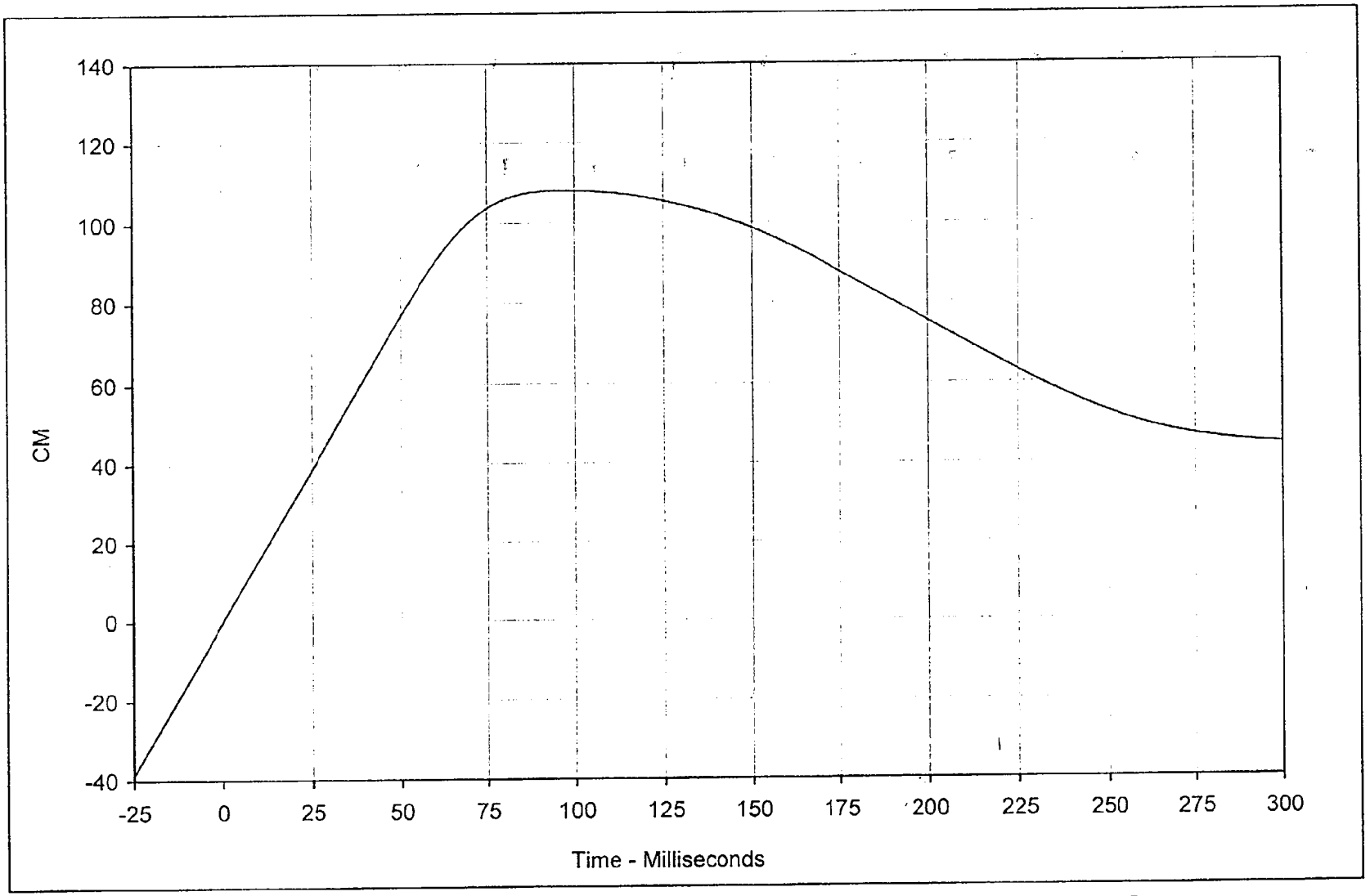

Curve Description: Driver Head Primary X Displ.

Maximum Value: 108.0 at 96.6 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-001

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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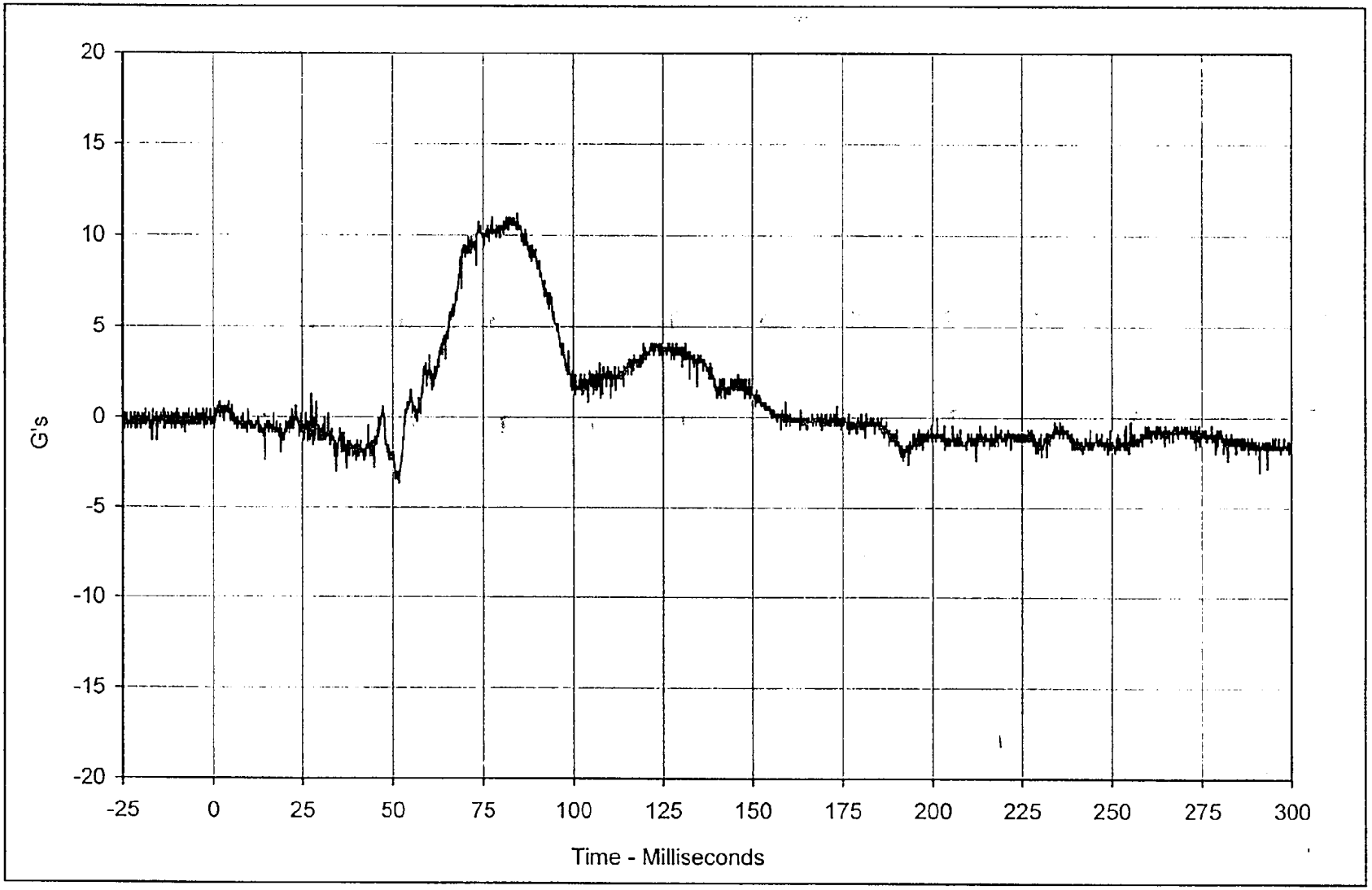

Curve Description: Driver Head Primary Y

Maximum Value: 11.2 at 84.7 Milliseconds

Minimum Value: -3.7 at 51.8 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: FIL-002

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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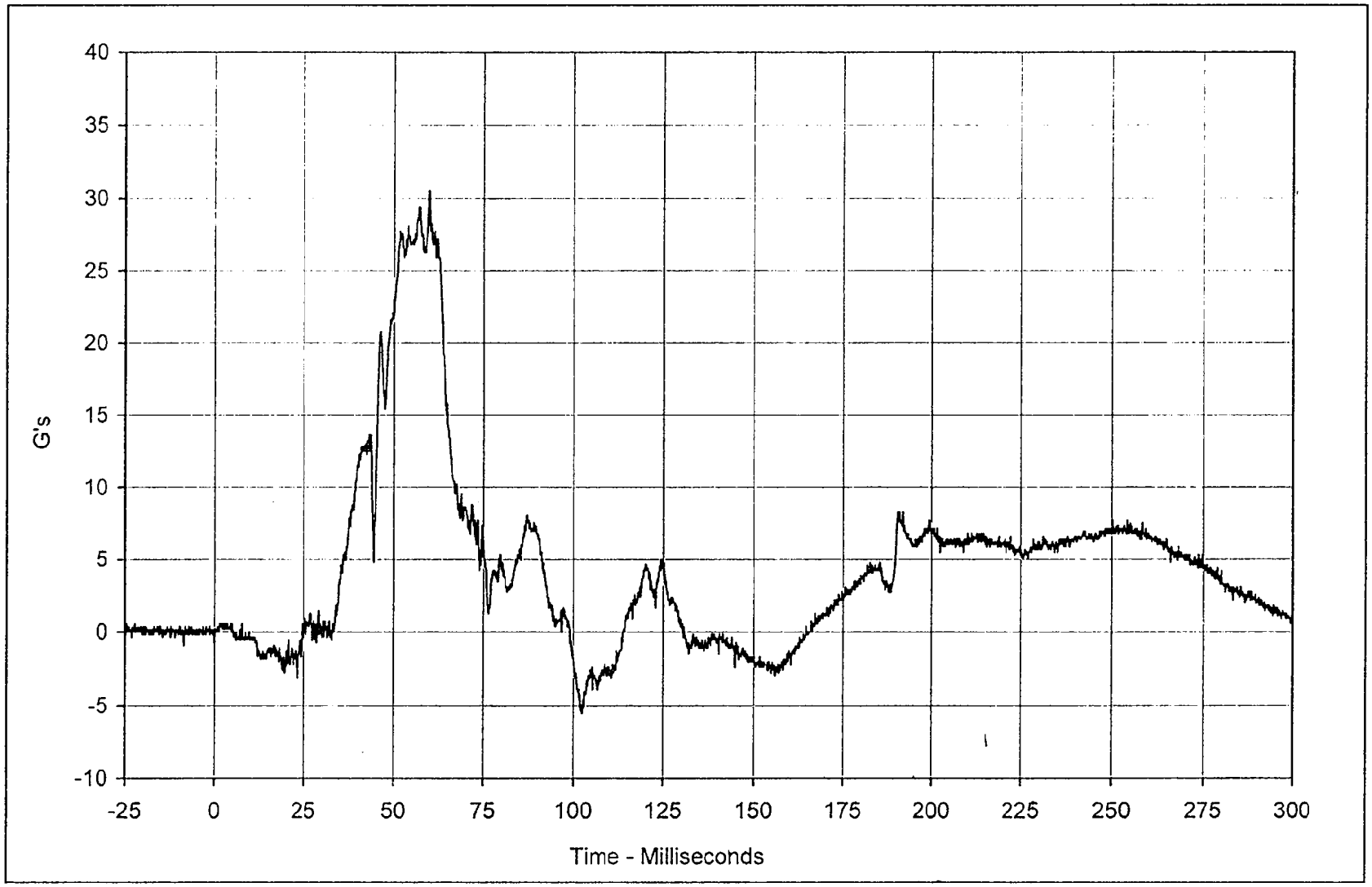

Curve Description: Driver Head Primary Z

Maximum Value: 30.5 at 59.9 Milliseconds

Minimum Value: -5.5 at 102.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: FIL-003

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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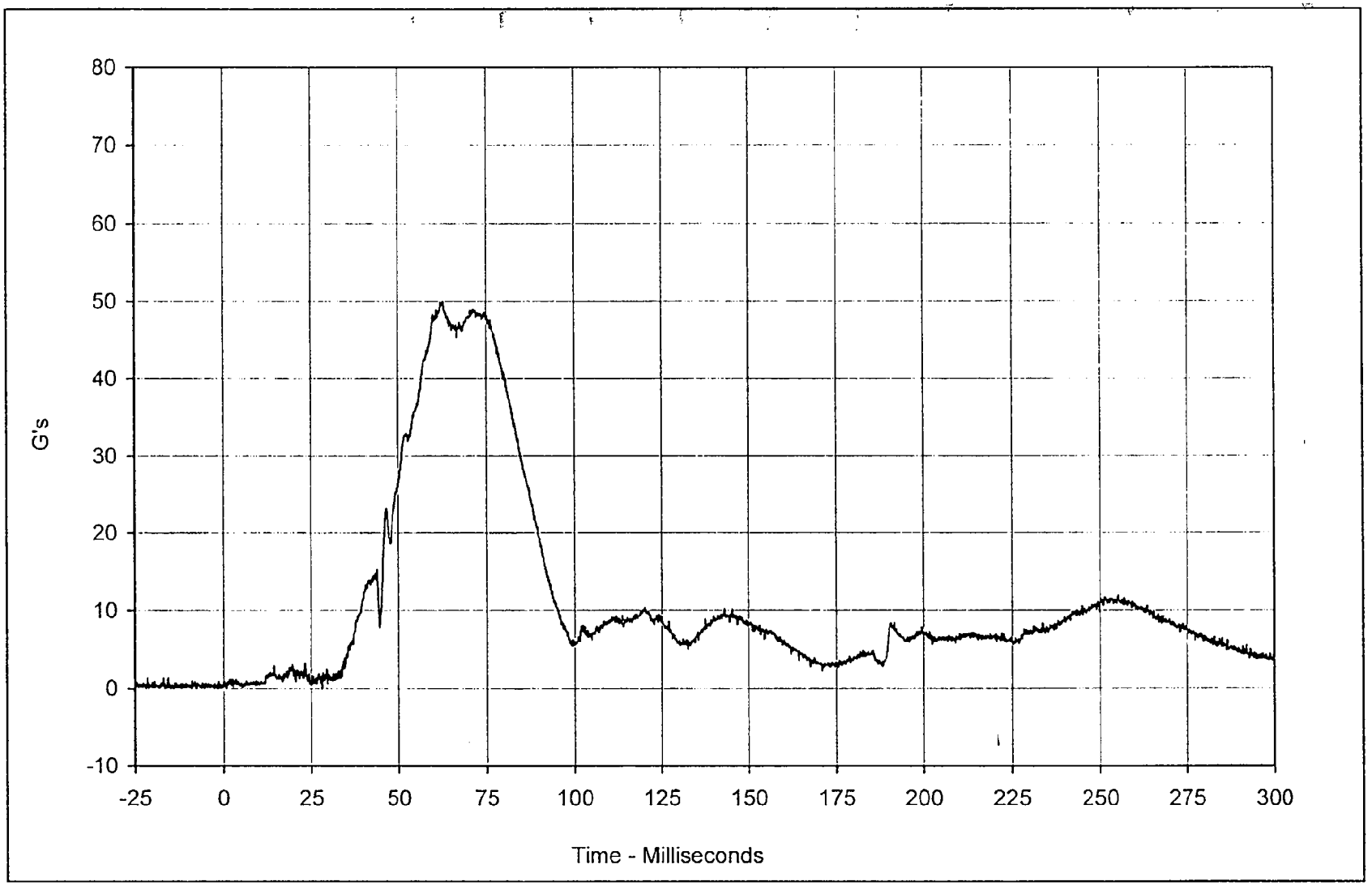

Curve Description:	Driver Head Resultant Primary			Testing Program:	1997 New Car Assesment Program
Maximum Value:	50.0	at	62.9 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.1	at	0.8 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	RES-001				

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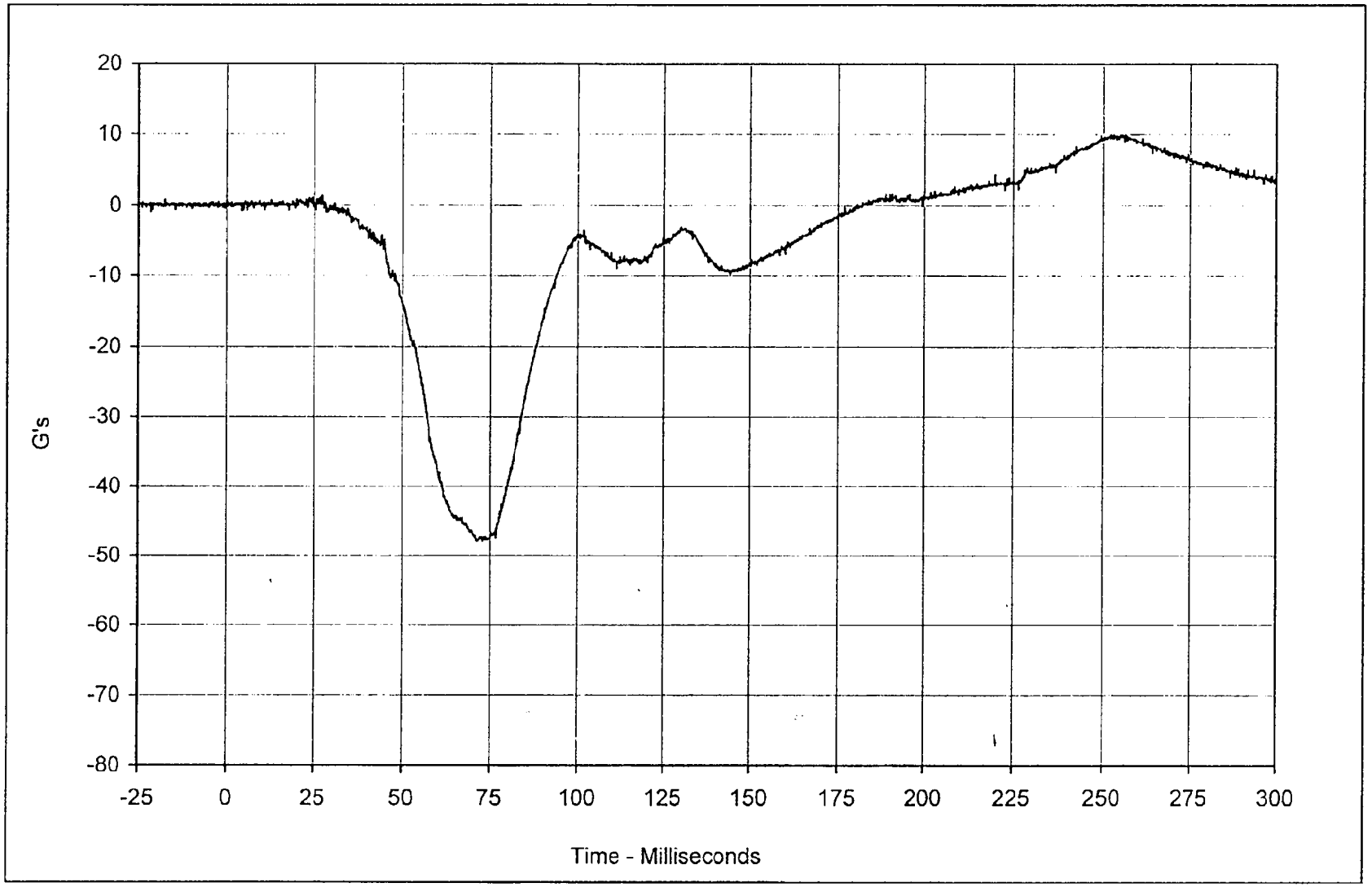

Curve Description: Driver Head Redundant X

Maximum Value: 9.9 at 252.2 Milliseconds

Minimum Value: -47.9 at 71.3 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: FIL-004

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

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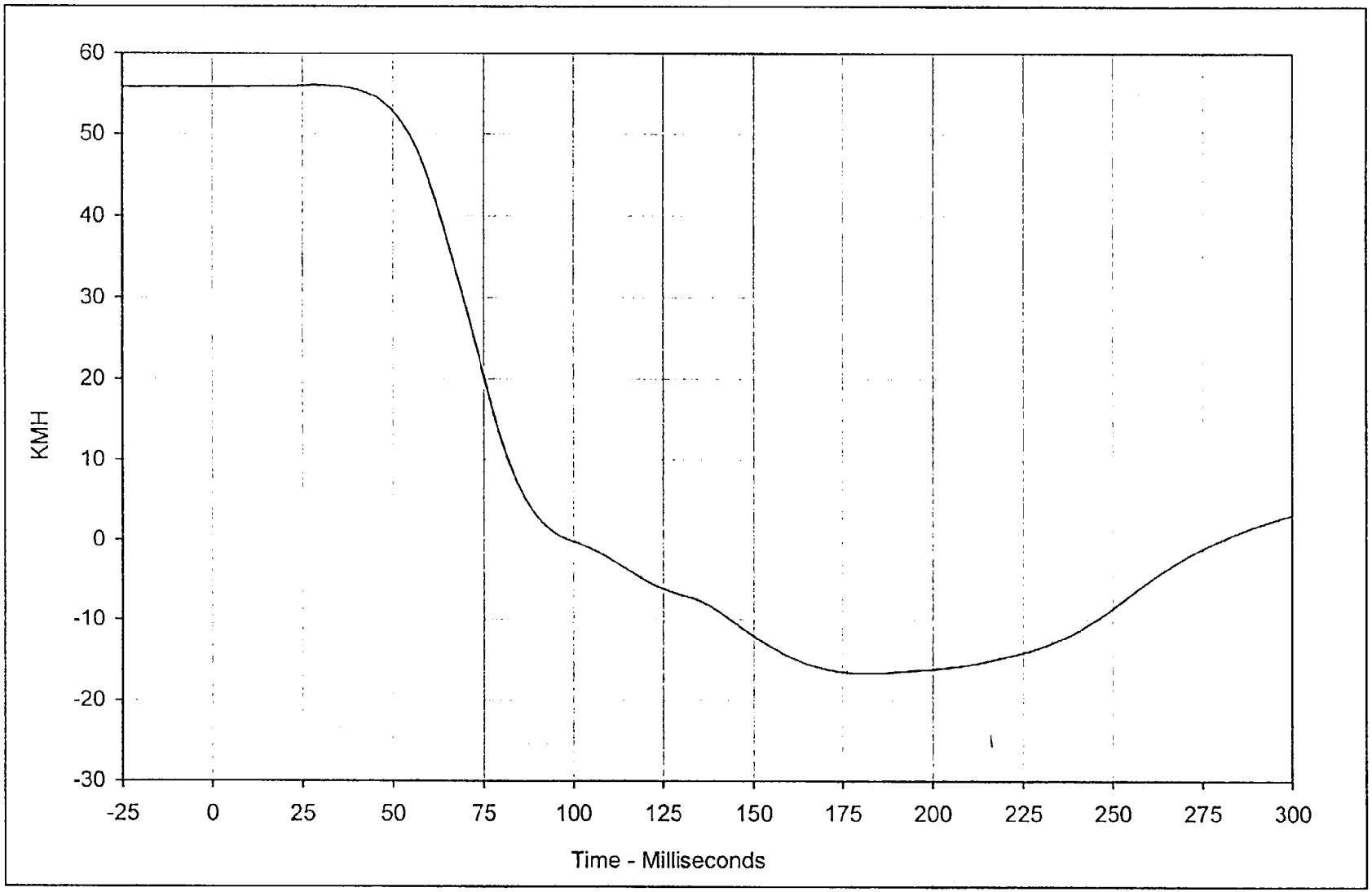

Curve Description: Driver Head Redundant X Velocity

Maximum Value: 56.0 at 28.1 Milliseconds

Minimum Value: -16.6 at 181.7 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN1-004

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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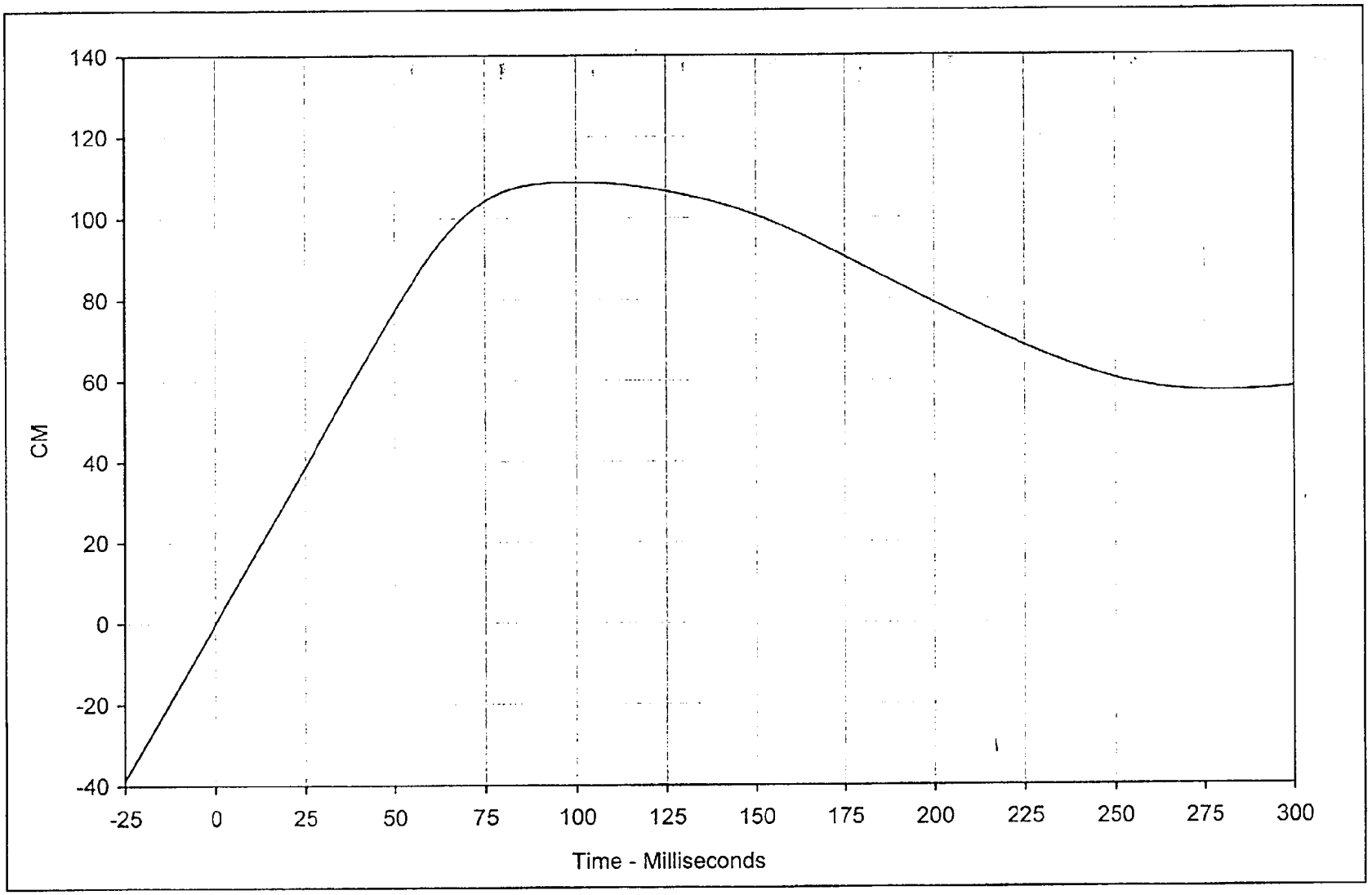


Curve Description: Driver Head Redundant X Displ.

Maximum Value: 108.7 at 98.7 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

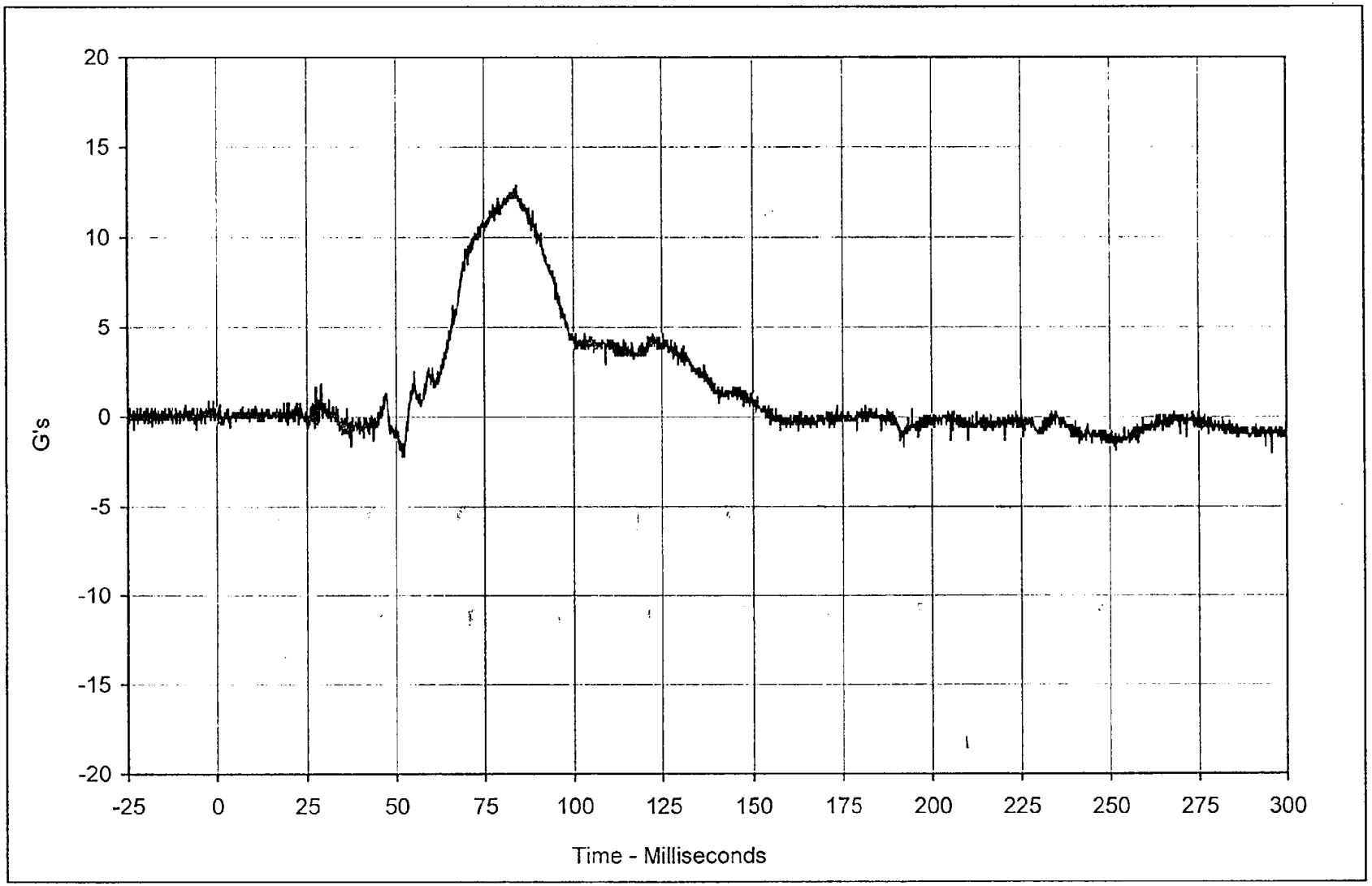
Date of Test: 4/17/97

Curve Number: IN2-004

Testing Program: 1997 New Car Assesment Program

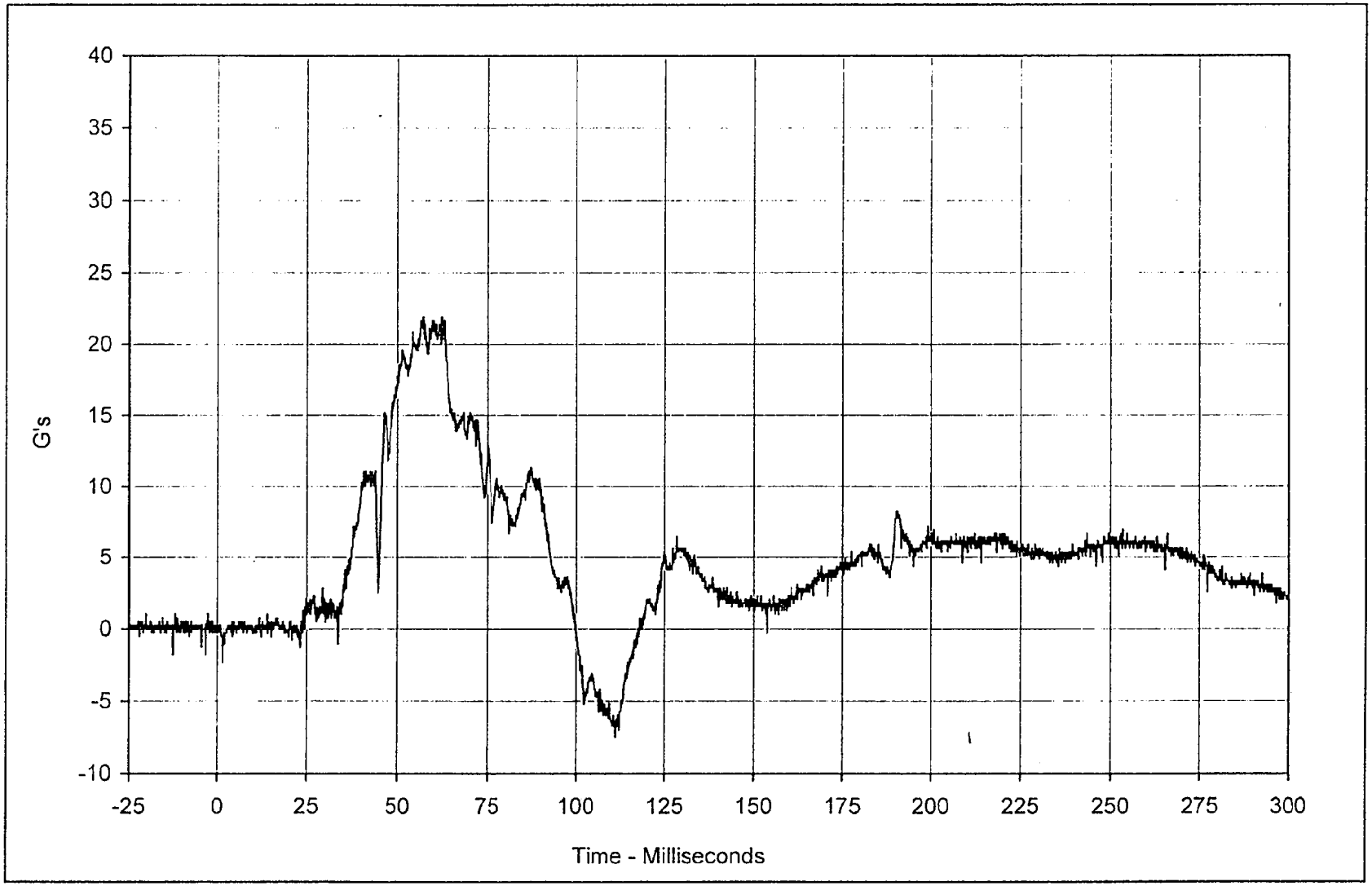
Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Head Redundant Y			Testing Program:	1997 New Car Assessment Program
Maximum Value:	12.9	at	84.0 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-2.2	at	51.7 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-005				

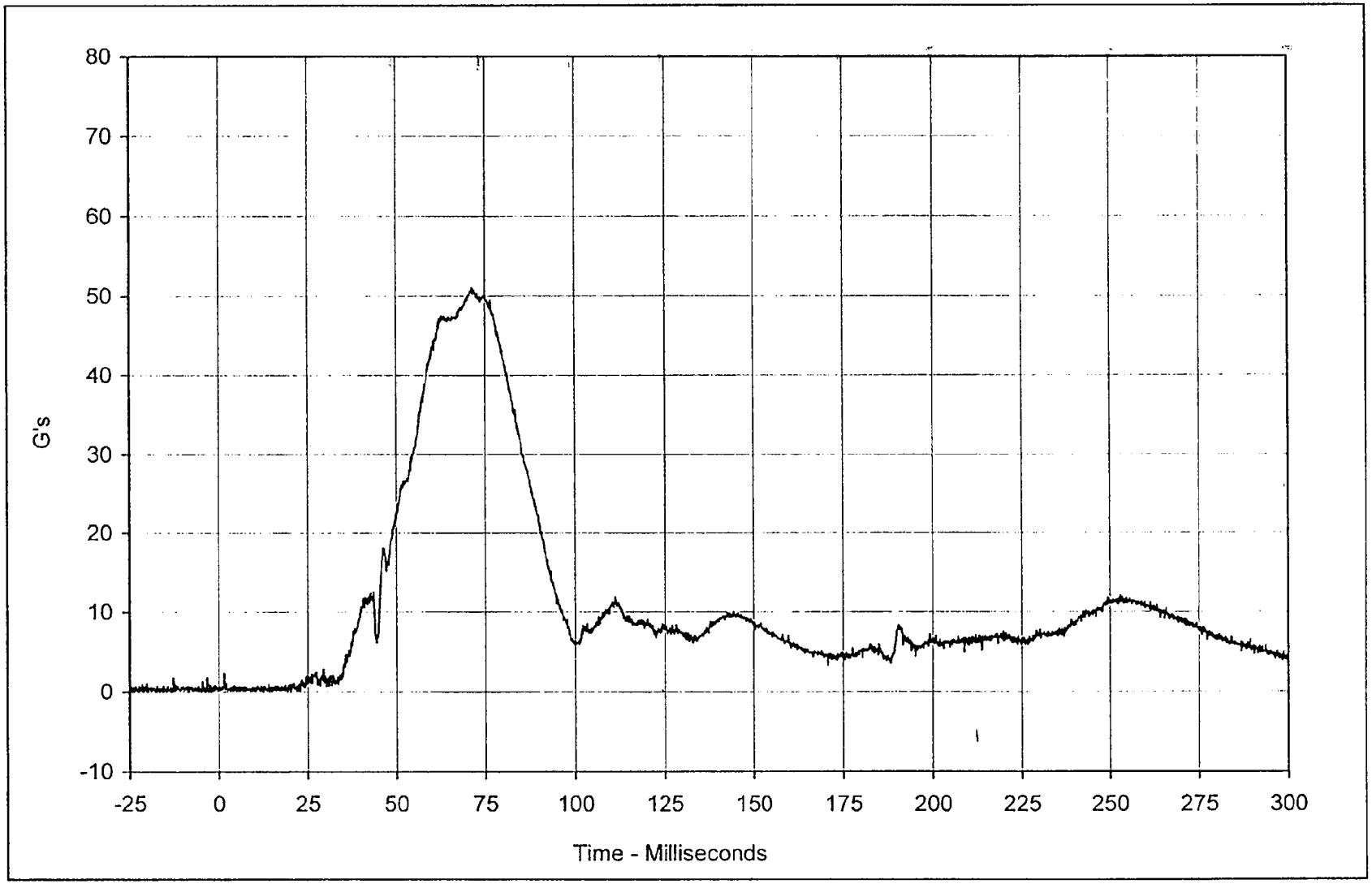
KARCO Engineering



Curve Description:	Driver Head Redundant Z			
Maximum Value:	21.9	at	57.1	Milliseconds
Minimum Value:	-7.5	at	111.3	Milliseconds
SAE Filter Class:	1000			
Date of Test:	4/17/97			
Curve Number:	FIL-006			

Testing Program:	1997 New Car Assessment Program
Test Vehicle:	1997 Nissan 200 SX

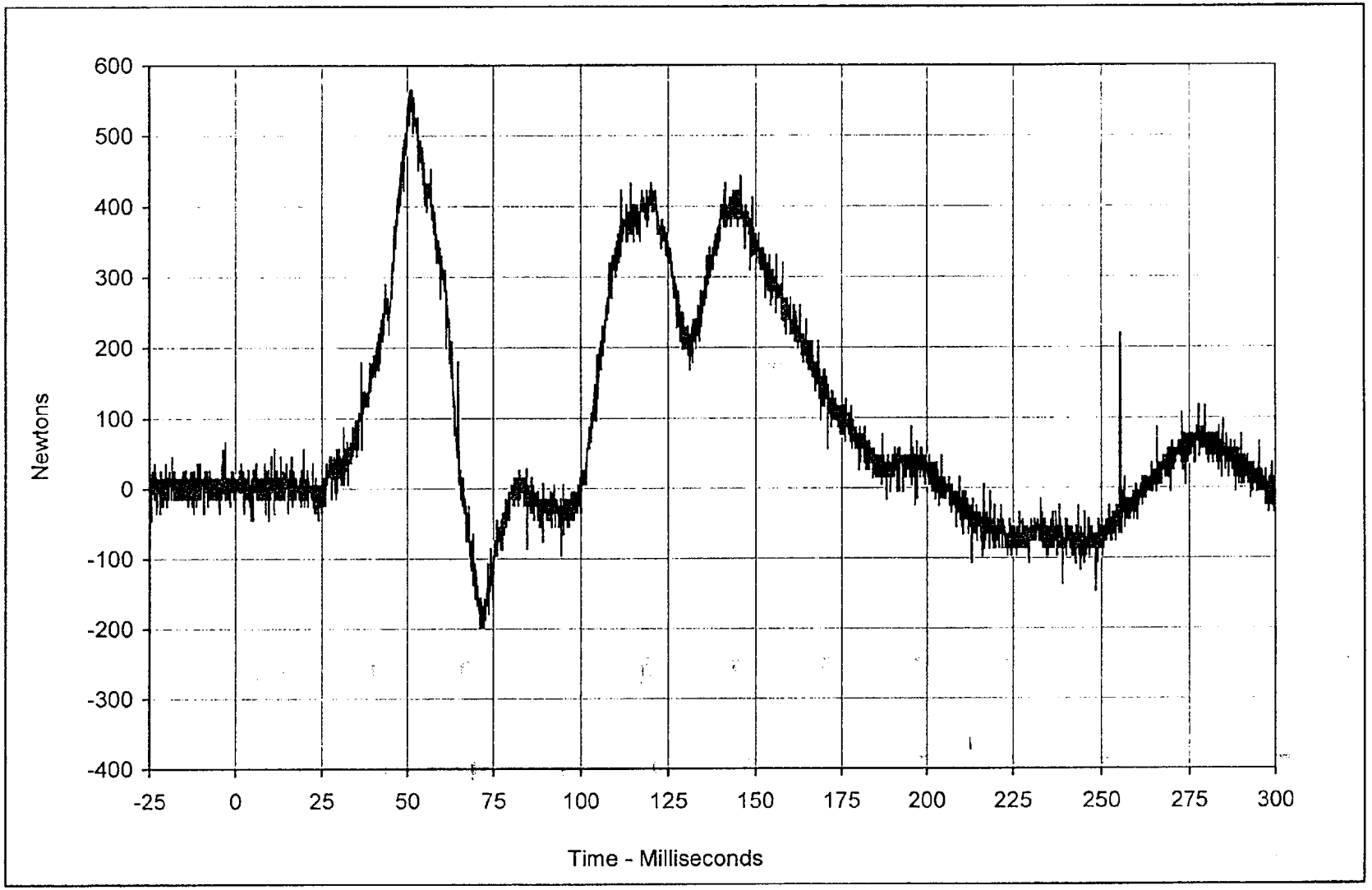
KARCO Engineering



Curve Description:	Driver Head Resultant Redundant				
Maximum Value:	51.0	at	71.6	Milliseconds	
Minimum Value:	0.1	at	14.2	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	RES-004				

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver Neck Force X

Maximum Value: 565.0 at 50.7 Milliseconds

Minimum Value: -198.0 at 71.0 Milliseconds

SAE Filter Class: 1000

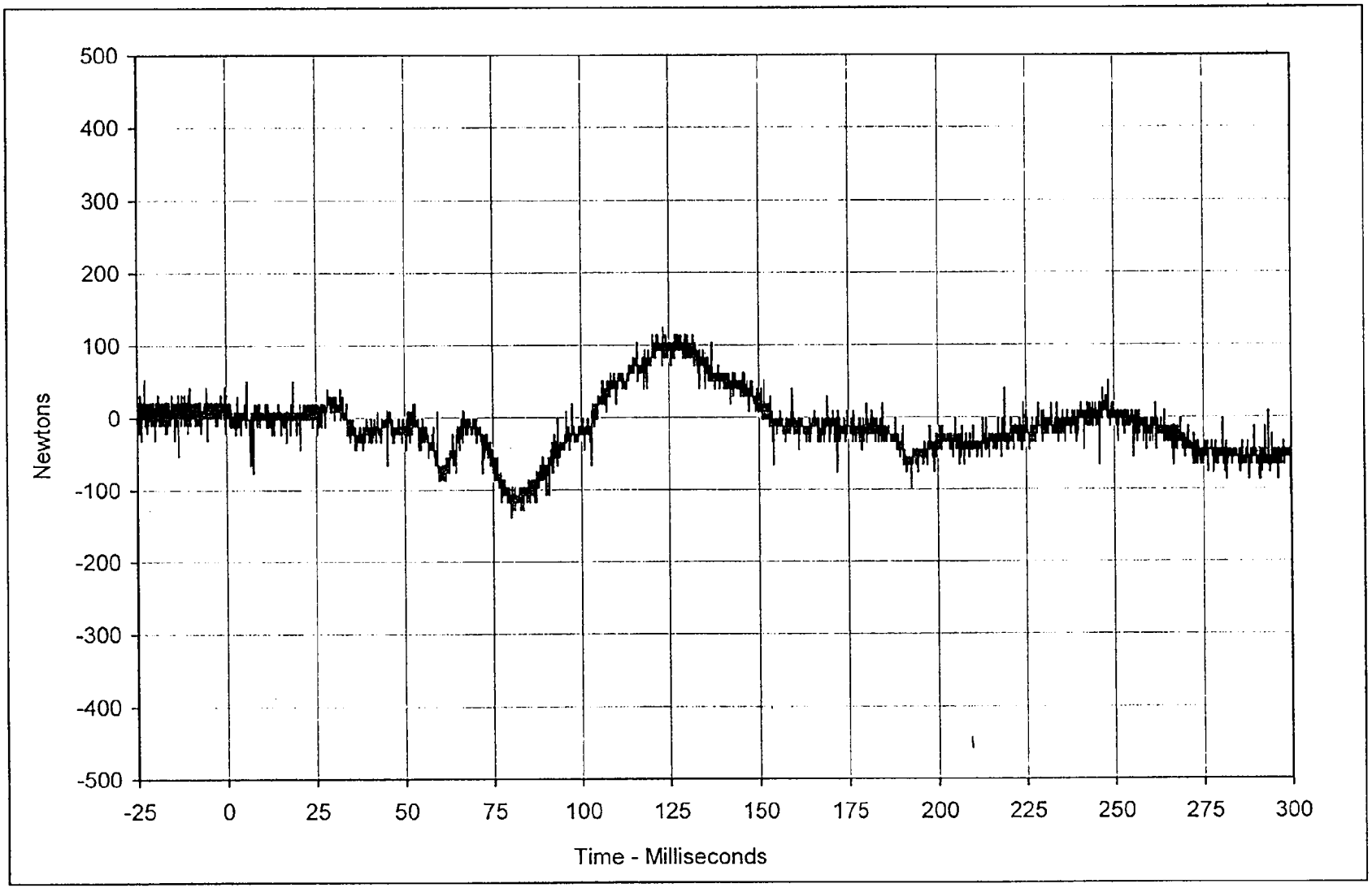
Date of Test: 4/17/97

Curve Number: FIL-007

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

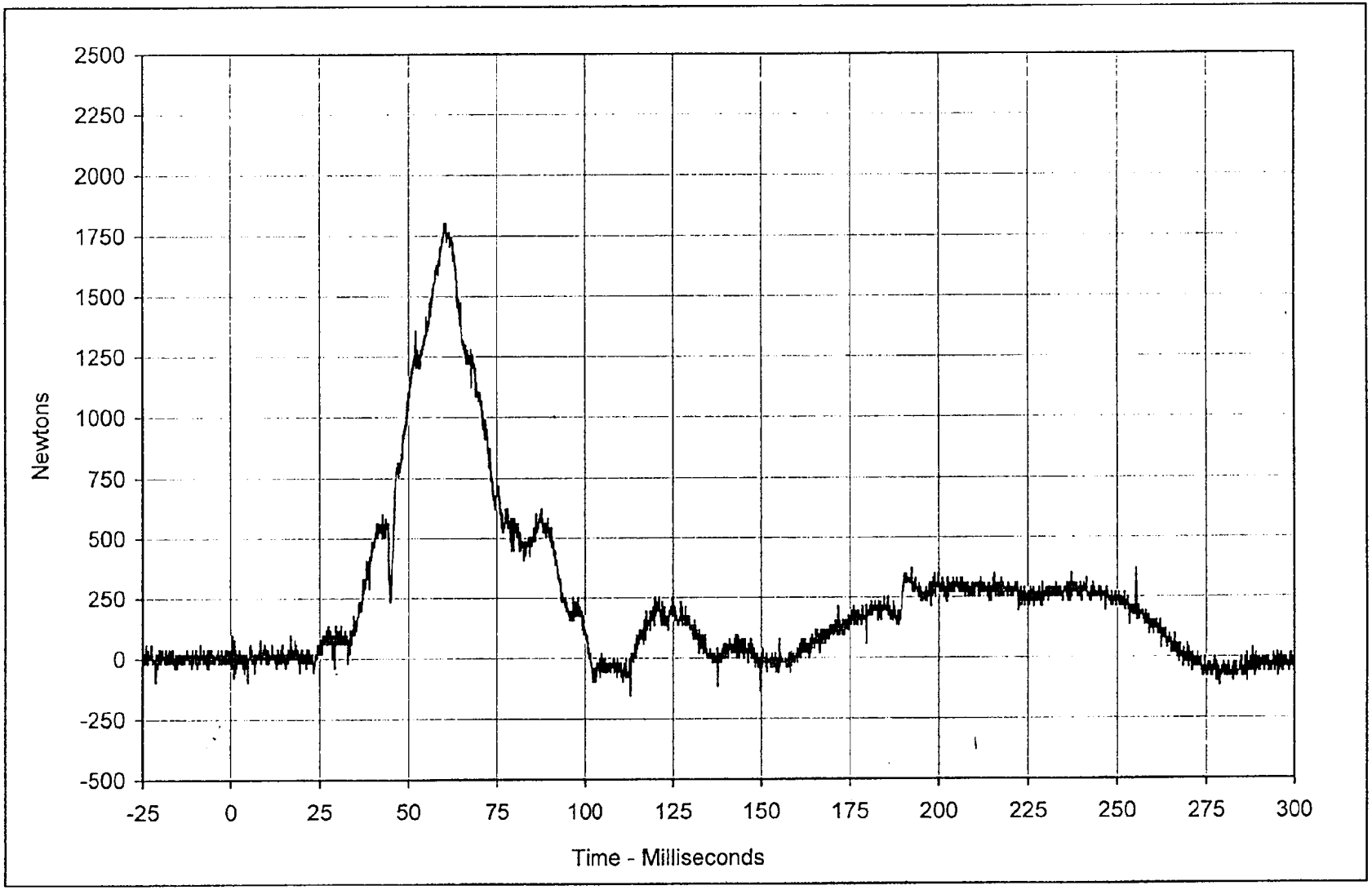
KARCO Engineering



Curve Description:	Driver Neck Force Y			
Maximum Value:	124.3	at	123.3	Milliseconds
Minimum Value:	-139.1	at	80.0	Milliseconds
SAE Filter Class:	1000			
Date of Test:	4/17/97			
Curve Number:	FIL-008			

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver Neck Force Z

Maximum Value: 1802.2 at 60.0 Milliseconds

Minimum Value: -155.1 at 113.2 Milliseconds

SAE Filter Class: 1000

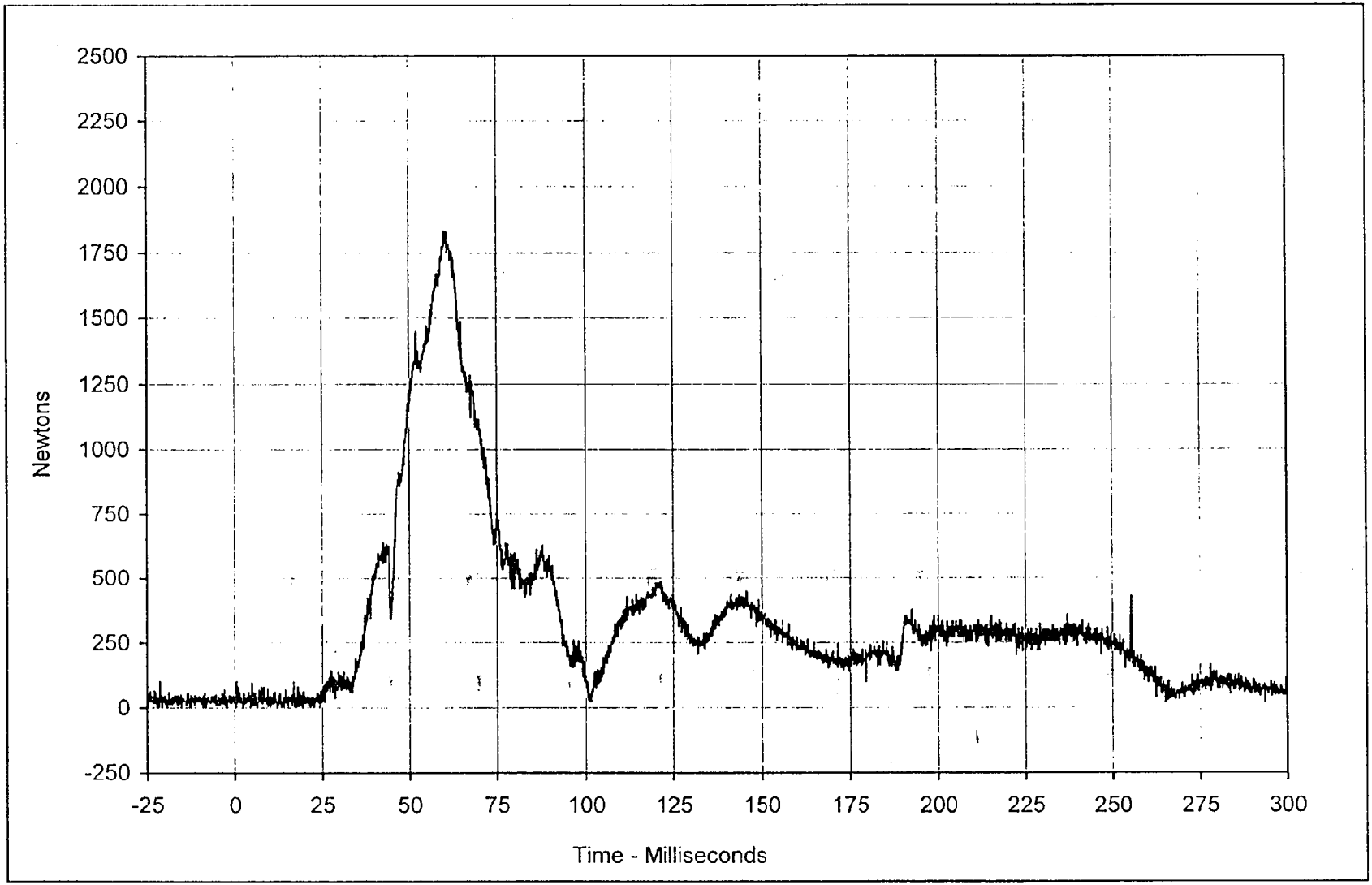
Date of Test: 4/17/97

Curve Number: FIL-009

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering

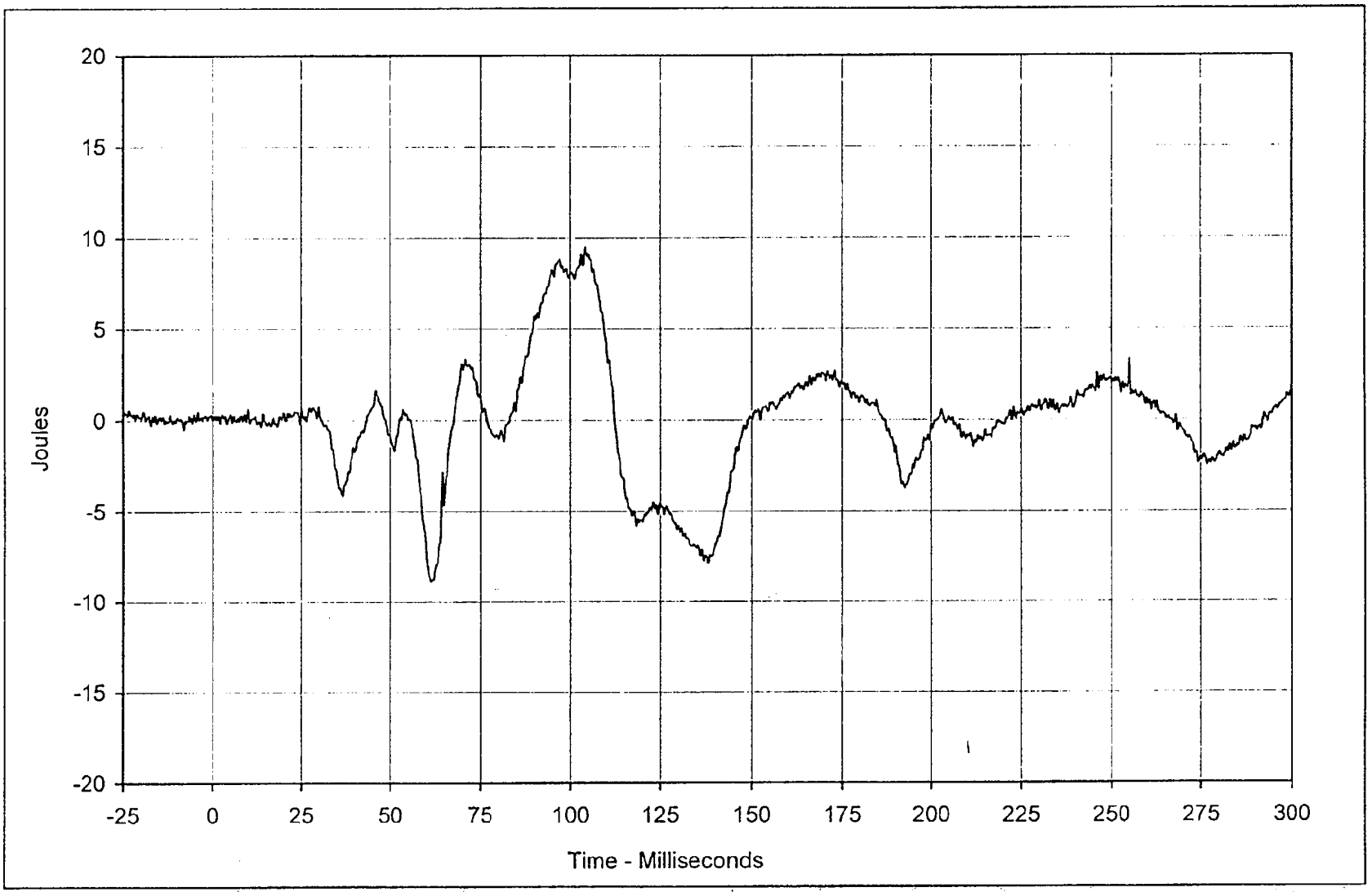


Curve Description:	Driver Neck Force Resultant			
Maximum Value:	1830.4	at	60	Milliseconds
Minimum Value:	5.2	at	4.3	Milliseconds
SAE Filter Class:	1000			
Date of Test:	4/17/97			
Curve Number:	RES-007			

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver Neck Moment X

Maximum Value: 9.5 at 104.2 Milliseconds

Minimum Value: -8.9 at 61.6 Milliseconds

SAE Filter Class: 600

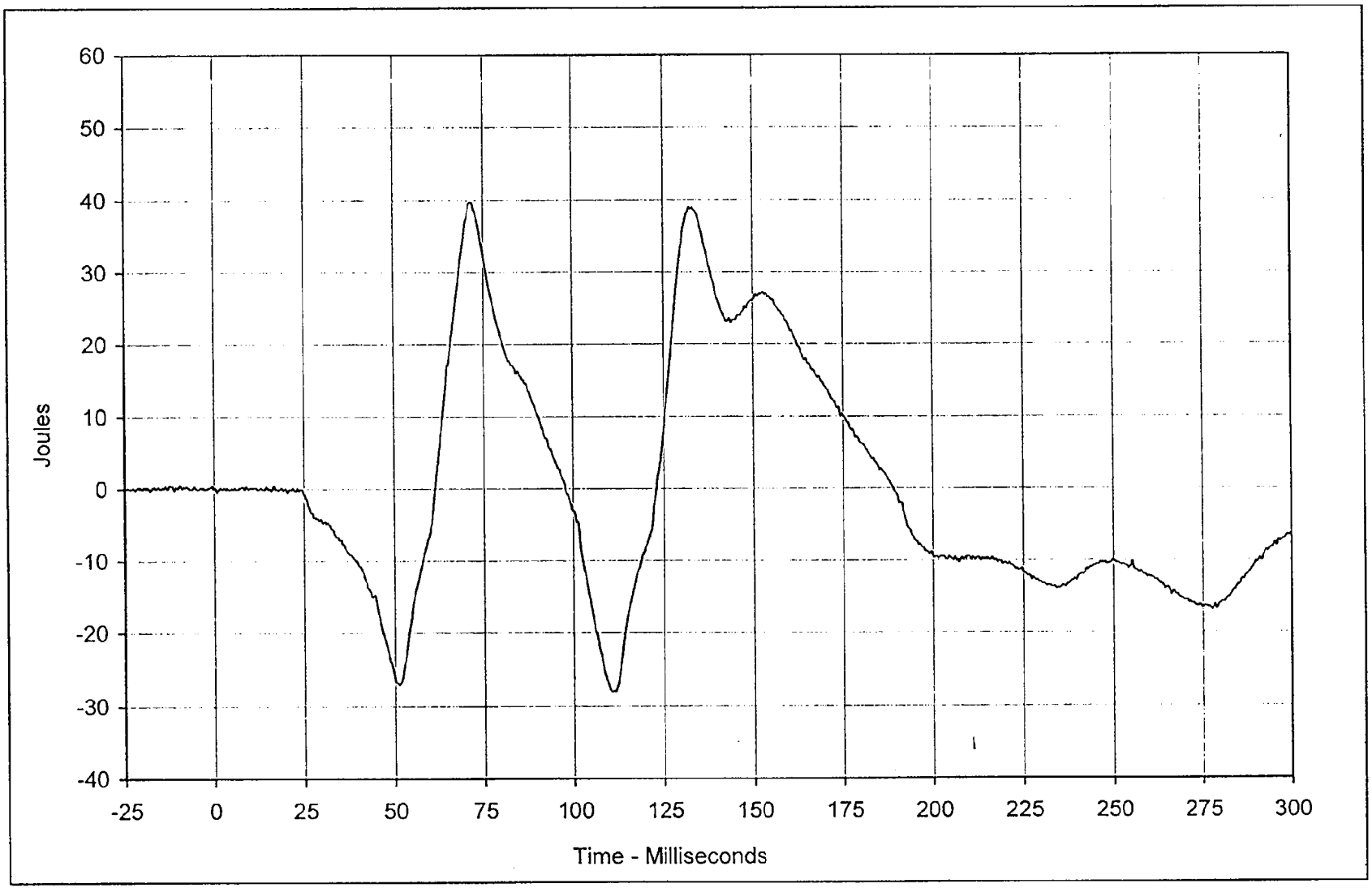
Date of Test: 4/17/97

Curve Number: FIL-010

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering

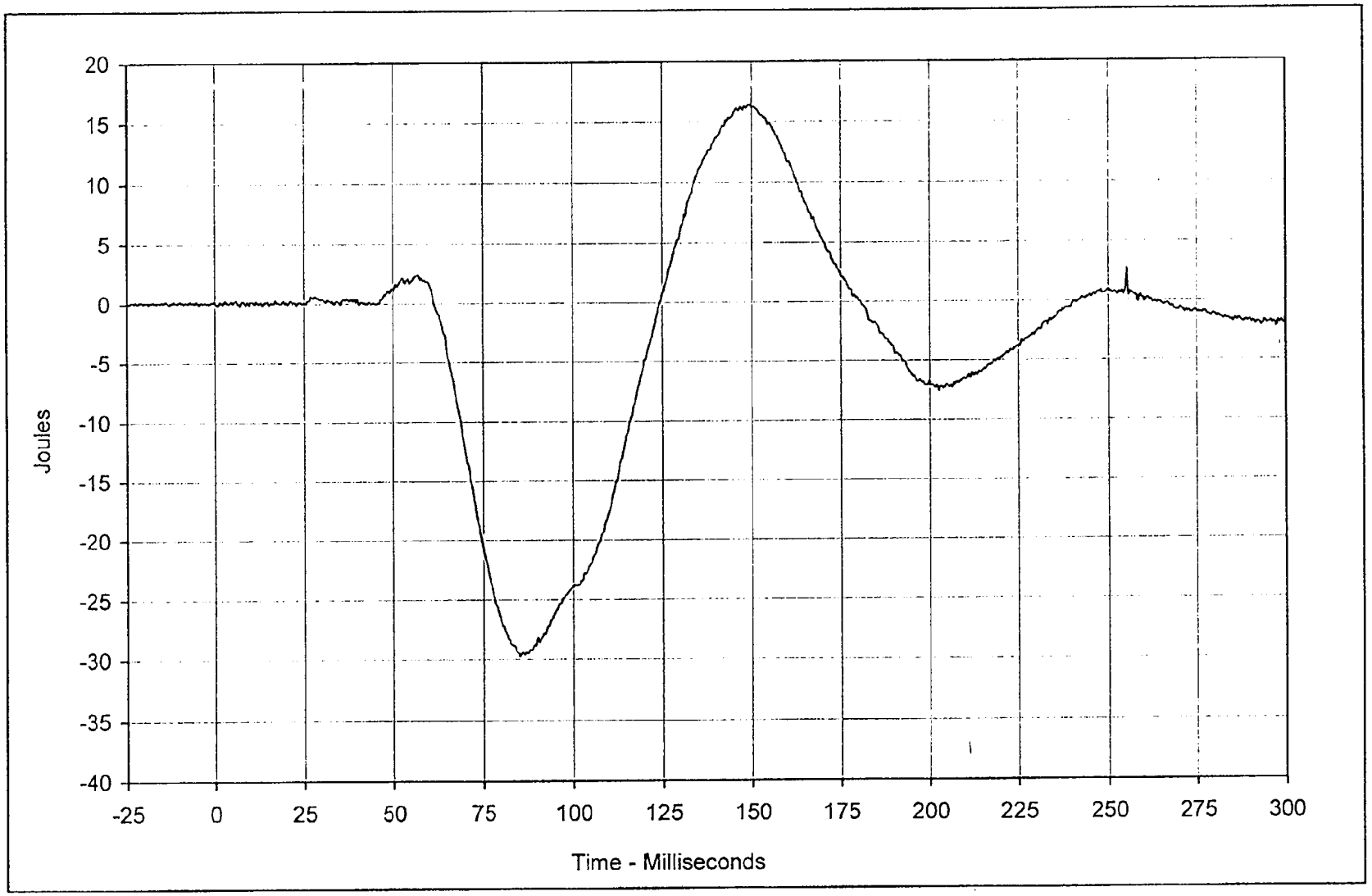


Curve Description:	Driver Neck Moment Y			
Maximum Value:	39.8	at	71.8	Milliseconds
Minimum Value:	-28.0	at	110.6	Milliseconds
SAE Filter Class:	600			
Date of Test:	4/17/97			
Curve Number:	FIL-011			

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver Neck Moment Z

Maximum Value: 16.5 at 149.4 Milliseconds

Minimum Value: -29.7 at 85.2 Milliseconds

SAE Filter Class: 600

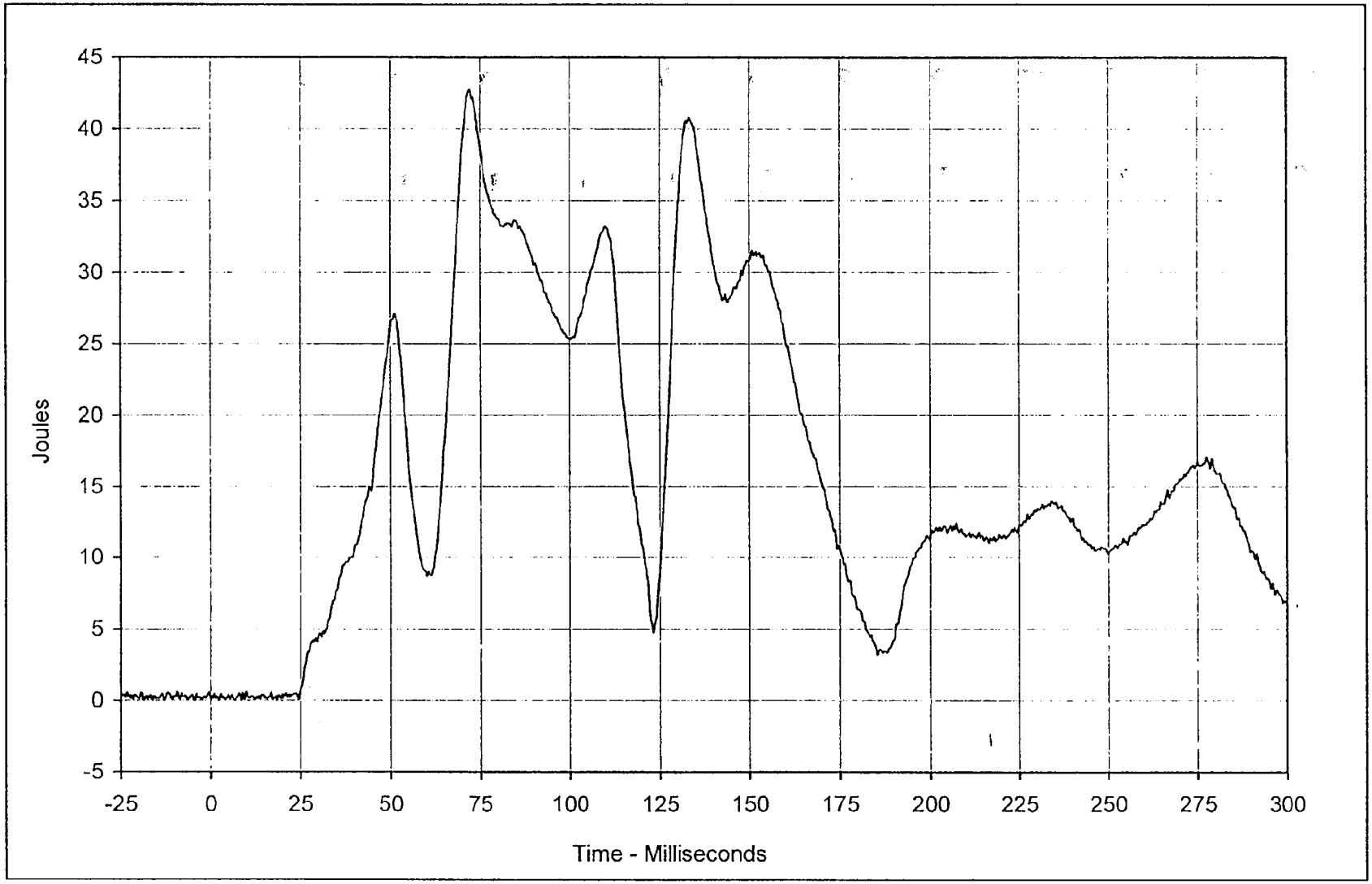
Date of Test: 4/17/97

Curve Number: FIL-012

Testing Program: 1997 New Car Assesment Program

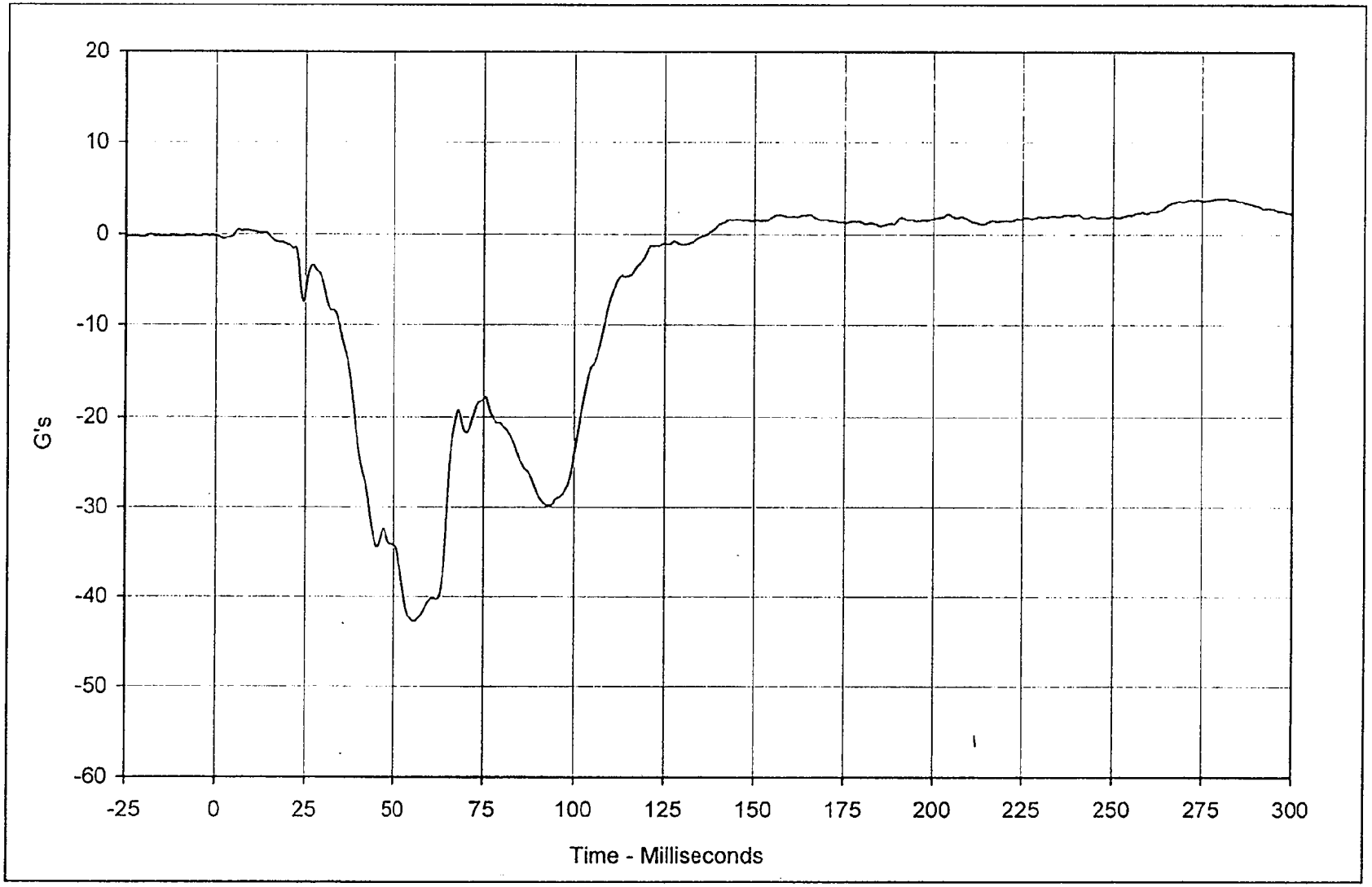
Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Neck Moment Resultant			Testing Program:	1997 New Car Assesment Program
Maximum Value:	42.7	at	72.0 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.0	at	8.5 Milliseconds		
SAE Filter Class:	600				
Date of Test:	4/17/97				
Curve Number:	RES-010				

KARCO Engineering



Curve Description: Driver Chest Primary X

Maximum Value: 3.9 at 281.6 Milliseconds

Minimum Value: -42.7 at 55.9 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: FIL-013

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering

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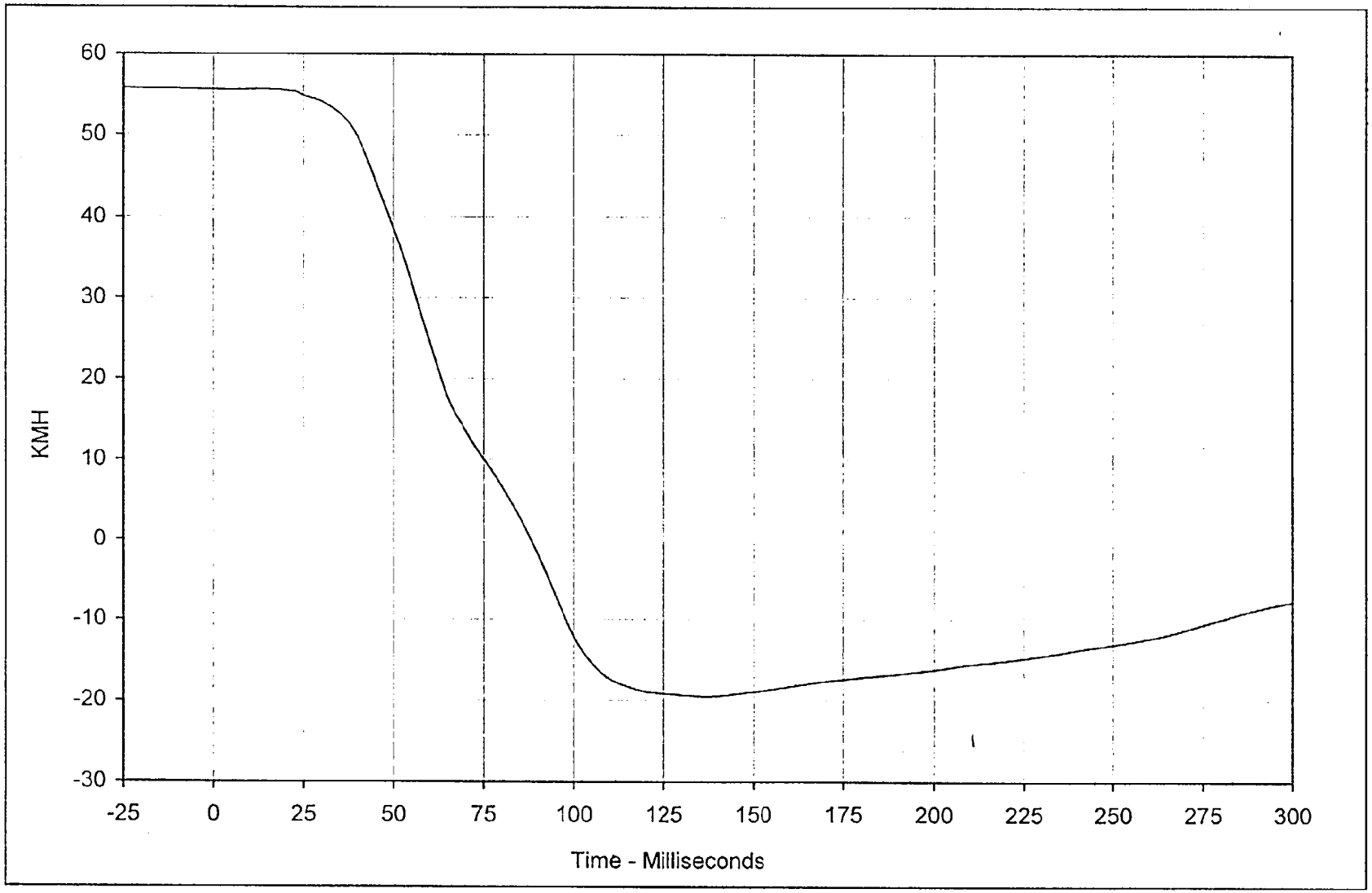
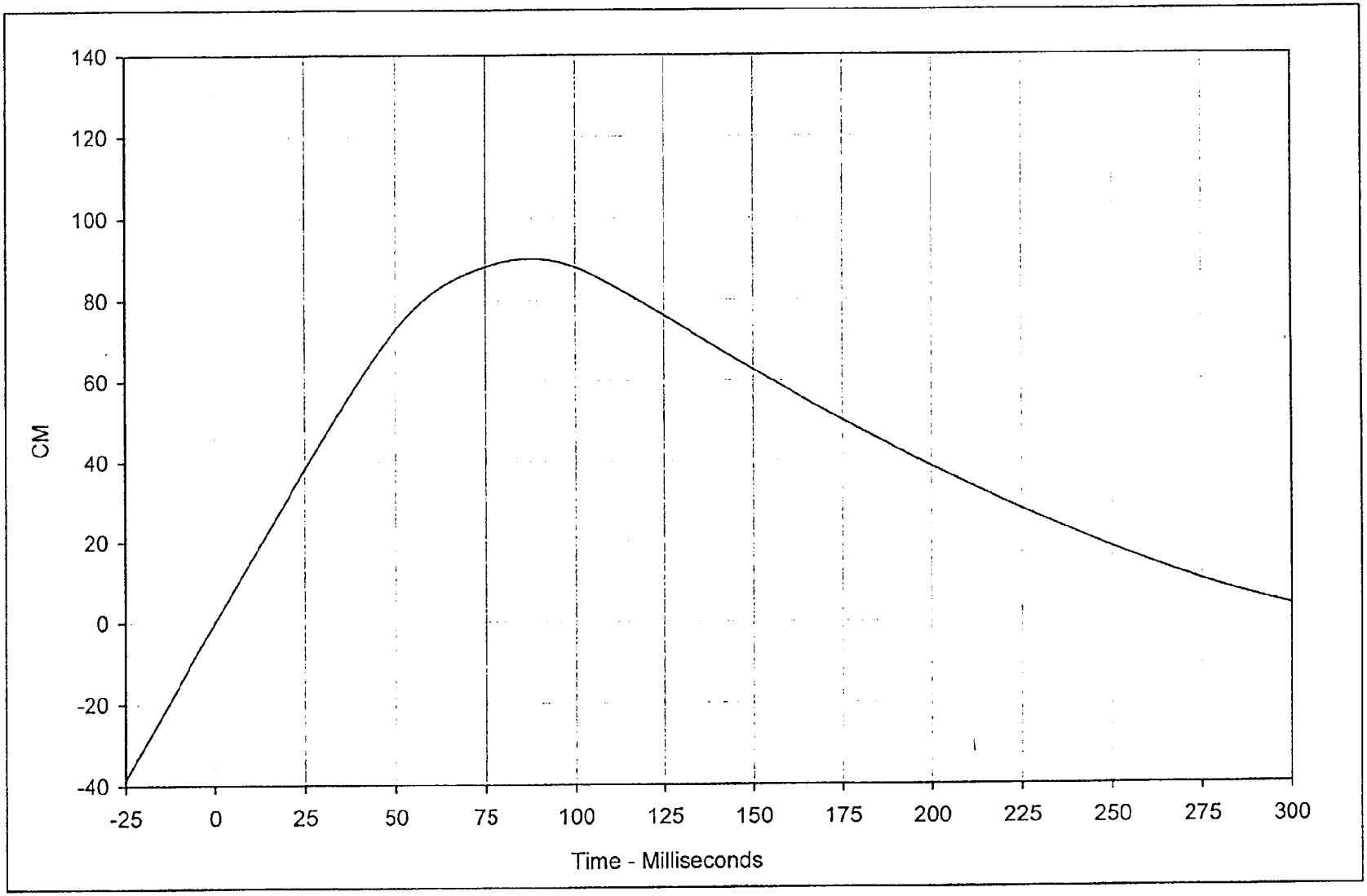
B22



Curve Description:	Driver Chest Primary X Velocity				
Maximum Value:	55.6	at	14.3	Milliseconds	
Minimum Value:	-19.5	at	136.9	Milliseconds	
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	IN1-013				

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

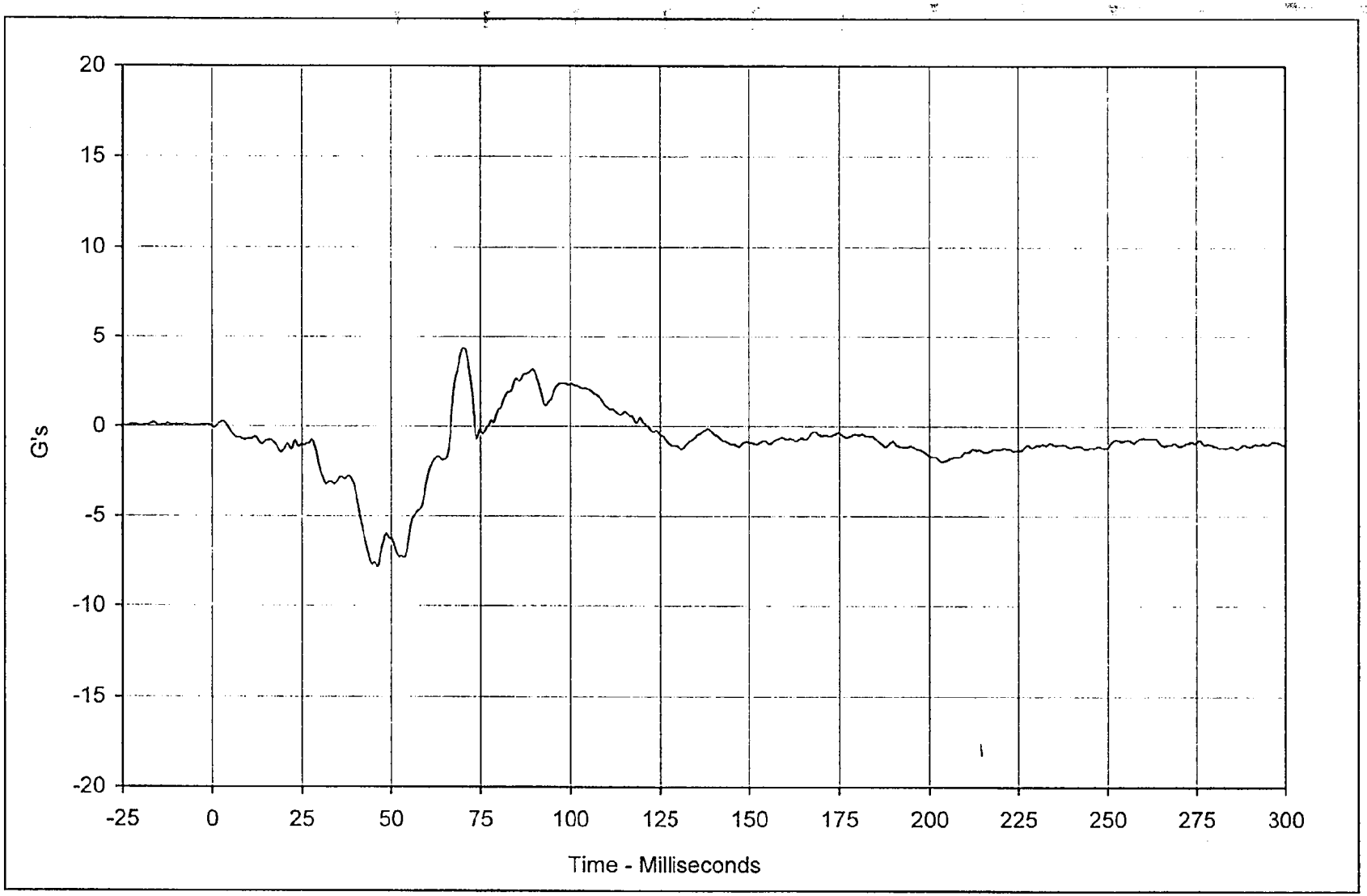
KARCO Engineering



Curve Description:	Driver Chest Primary X Displ.			
Maximum Value:	90.0	at	88.0	Milliseconds
Minimum Value:	-0.1	at	0.0	Milliseconds
SAE Filter Class:	180			
Date of Test:	4/17/97			
Curve Number:	IN2-013			

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver ChestPrimary Y

Maximum Value: 4.3 at 70.1 Milliseconds

Minimum Value: -7.8 at 46.2 Milliseconds

SAE Filter Class: 180

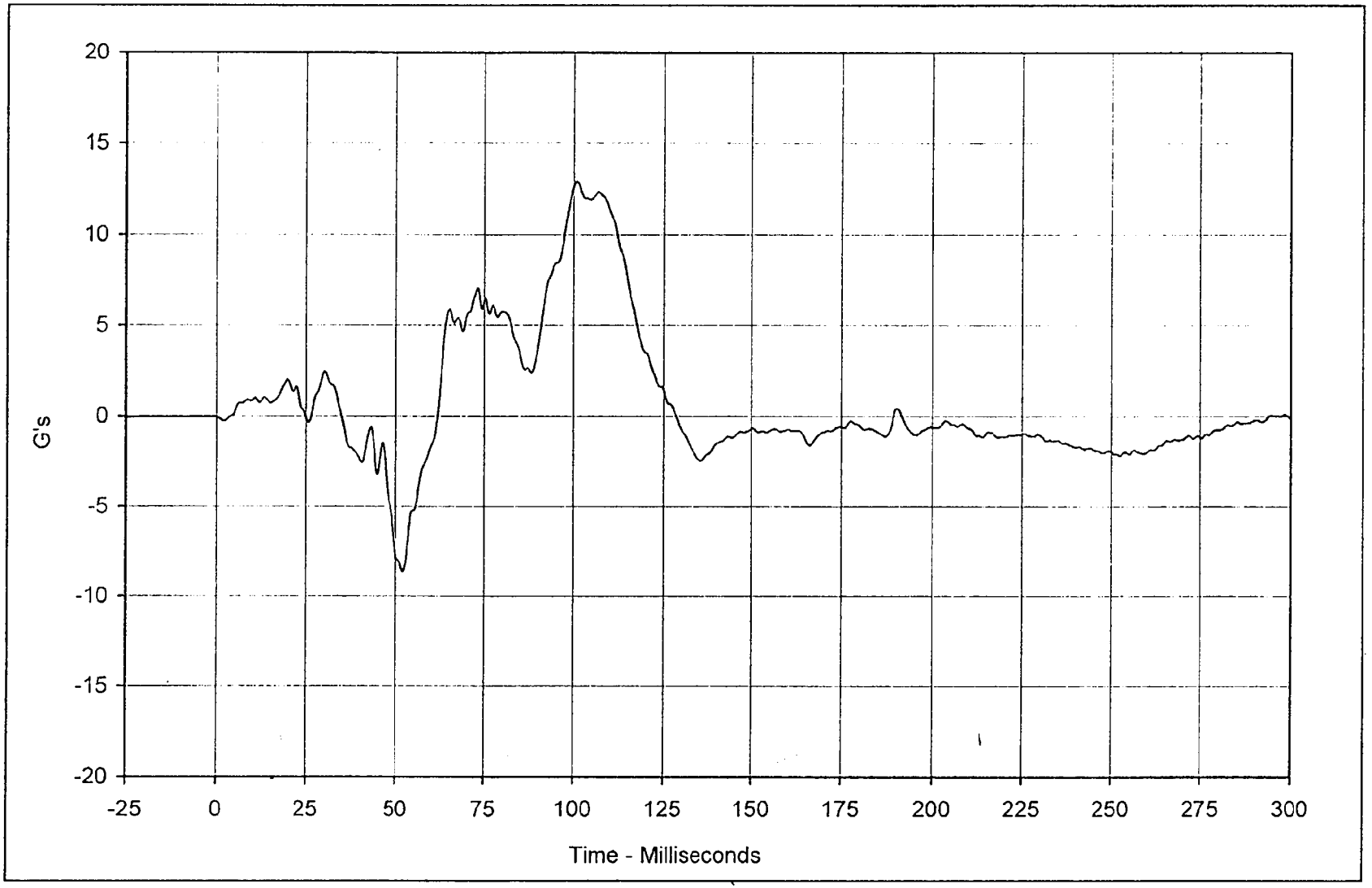
Date of Test: 4/17/97

Curve Number: FIL-014

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver Chest Primary Z

Maximum Value: 12.9 at 100.8 Milliseconds

Minimum Value: -8.6 at 52.2 Milliseconds

SAE Filter Class: 180

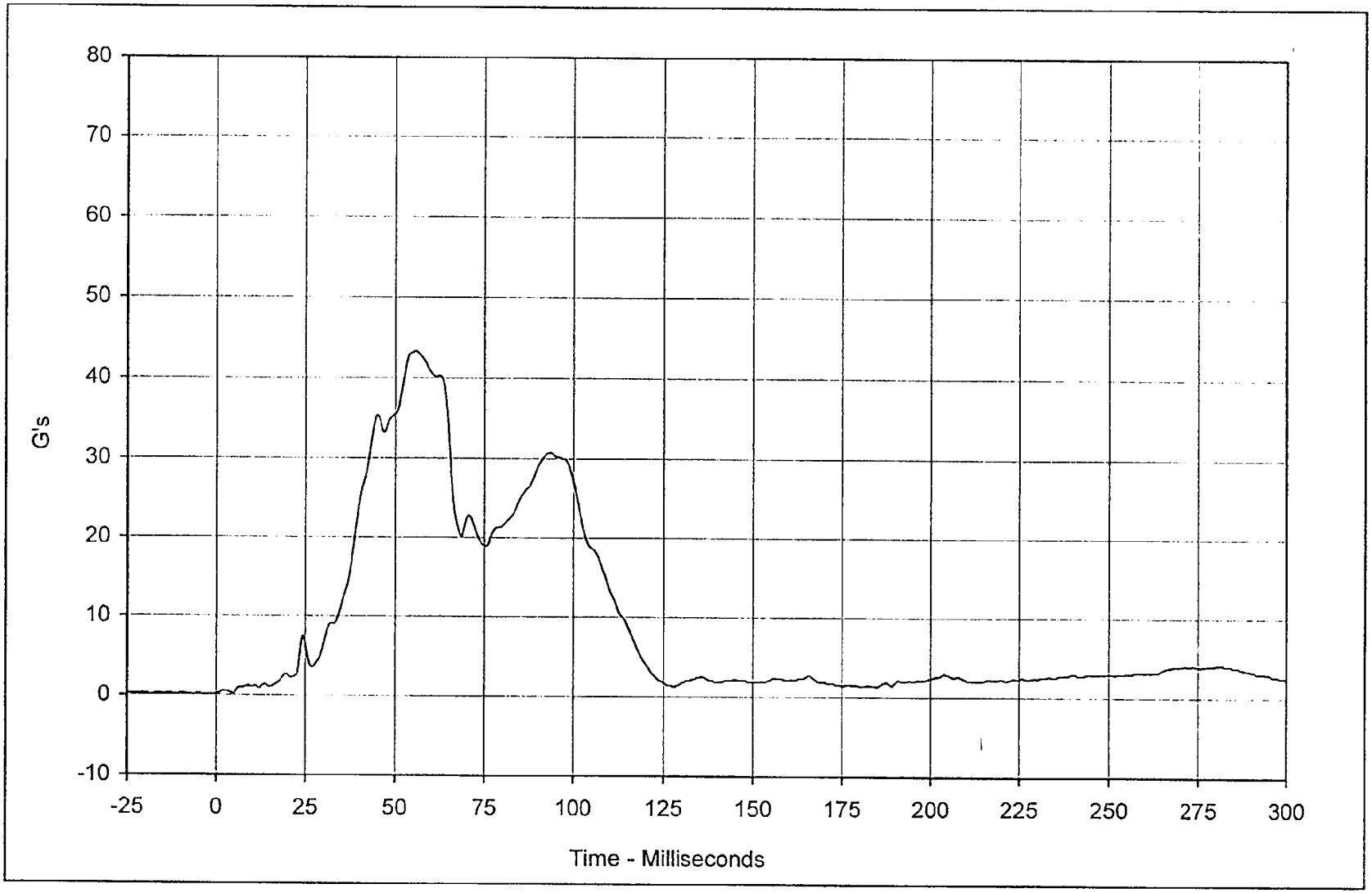
Date of Test: 4/17/97

Curve Number: FIL-015

Testing Program: 1997 New Car Assesment Program

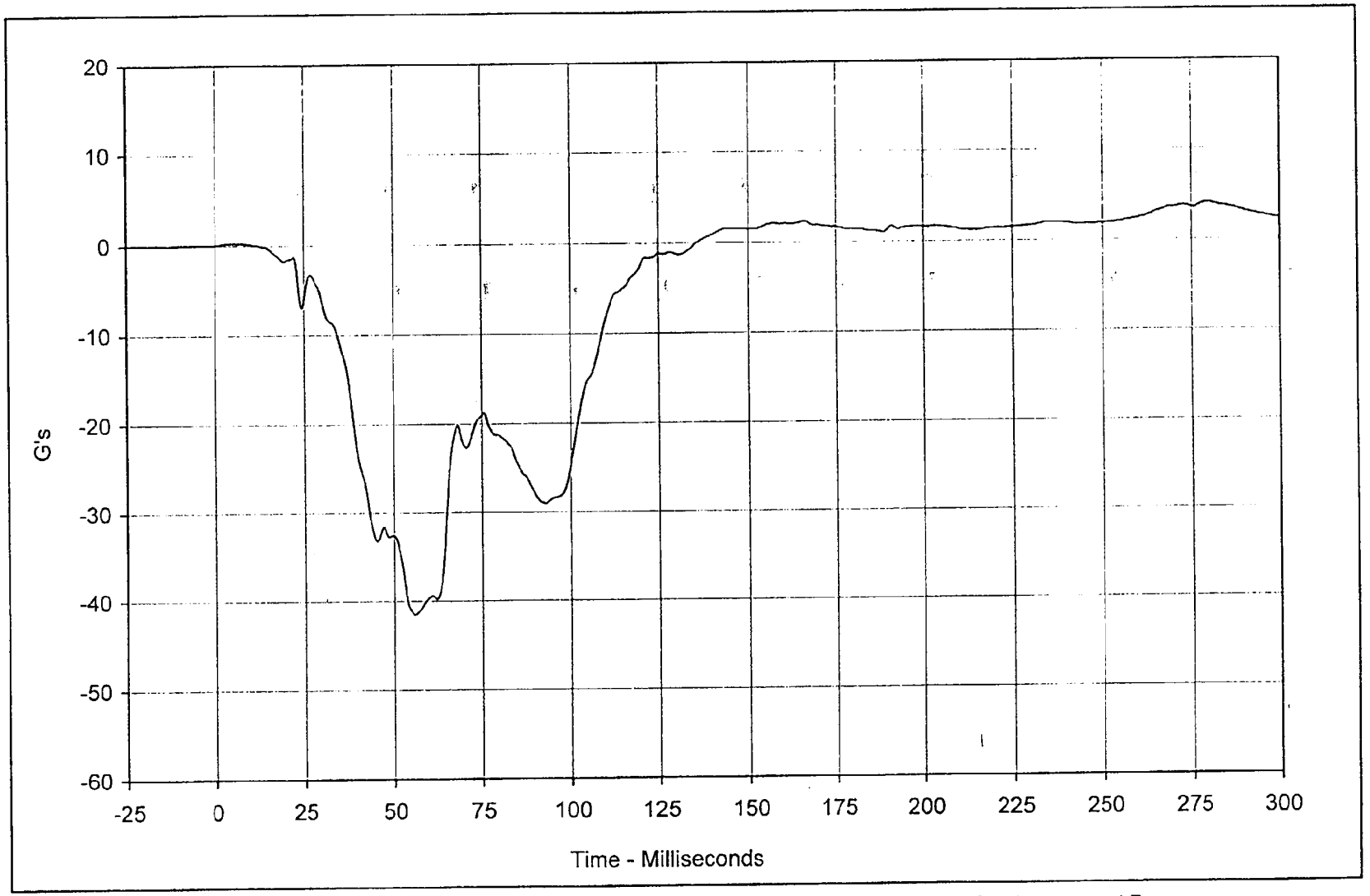
Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Chest Resultant Primary			Testing Program:	1997 New Car Assesment Program
Maximum Value:	43.3	at	55.7 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.2	at	0.0 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	RES-013				

KARCO Engineering



Curve Description: Driver Chest Redundant X

Maximum Value: 4.0 at 280.0 Milliseconds

Minimum Value: -41.5 at 56.1 Milliseconds

SAE Filter Class: 180

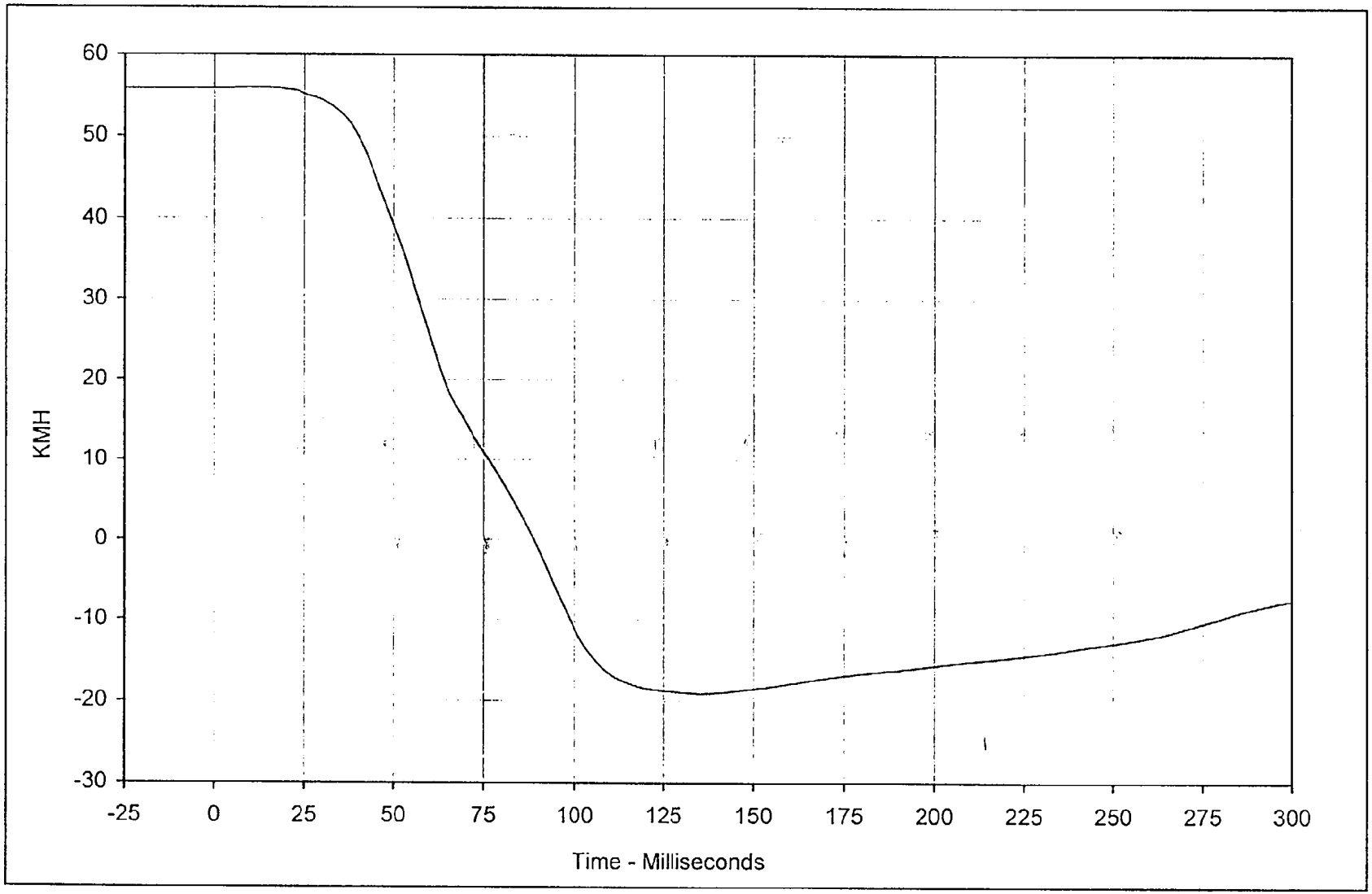
Date of Test: 4/17/97

Curve Number: FIL-016

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver Chest Redundant X Velocity

Maximum Value: 55.9 at 12.3 Milliseconds

Minimum Value: -19.1 at 135.3 Milliseconds

SAE Filter Class: 180

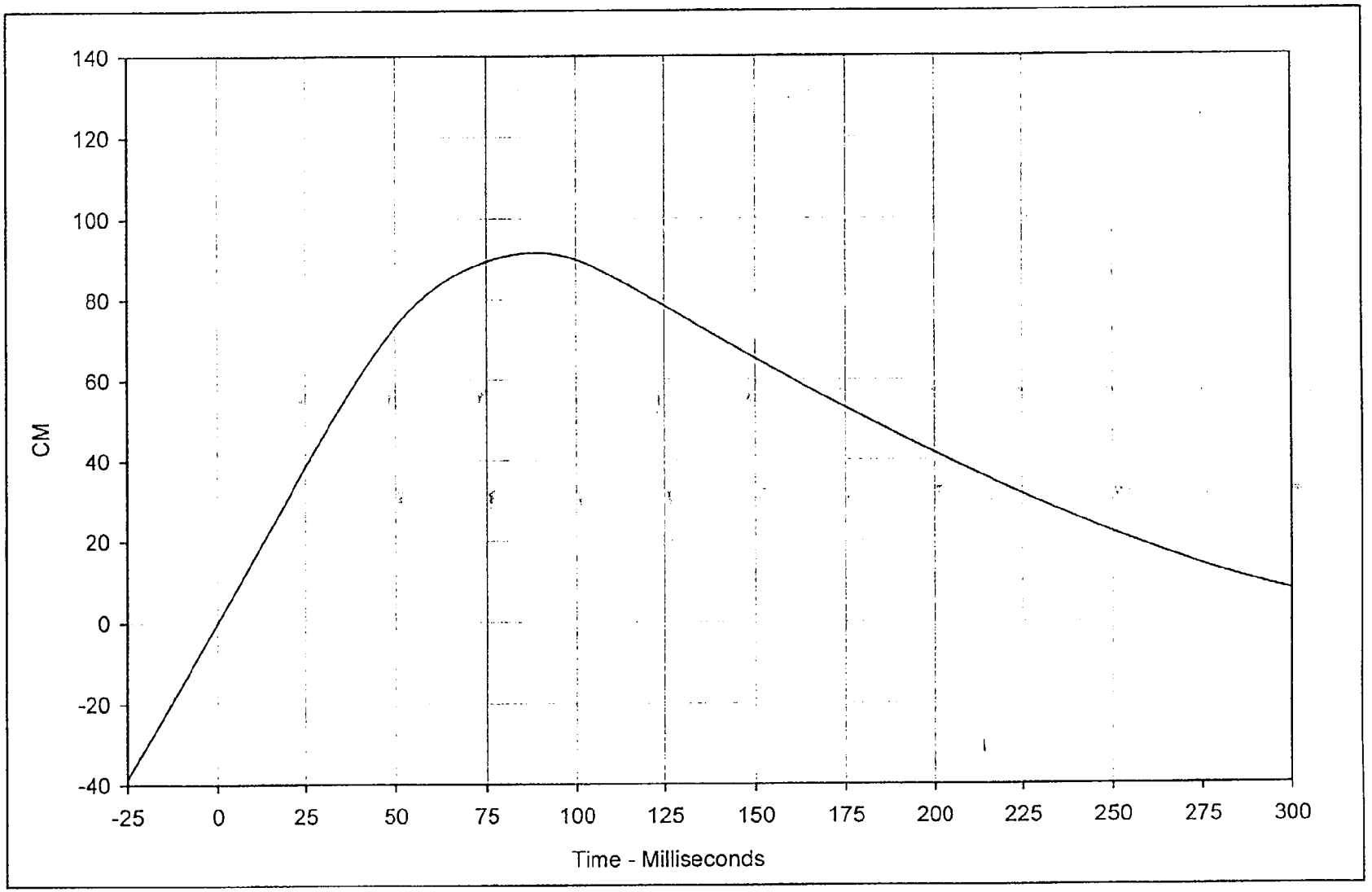
Date of Test: 4/17/97

Curve Number: IN1-016

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver Chest Redundant X Displ.

Maximum Value: 91.6 at 88.7 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-016

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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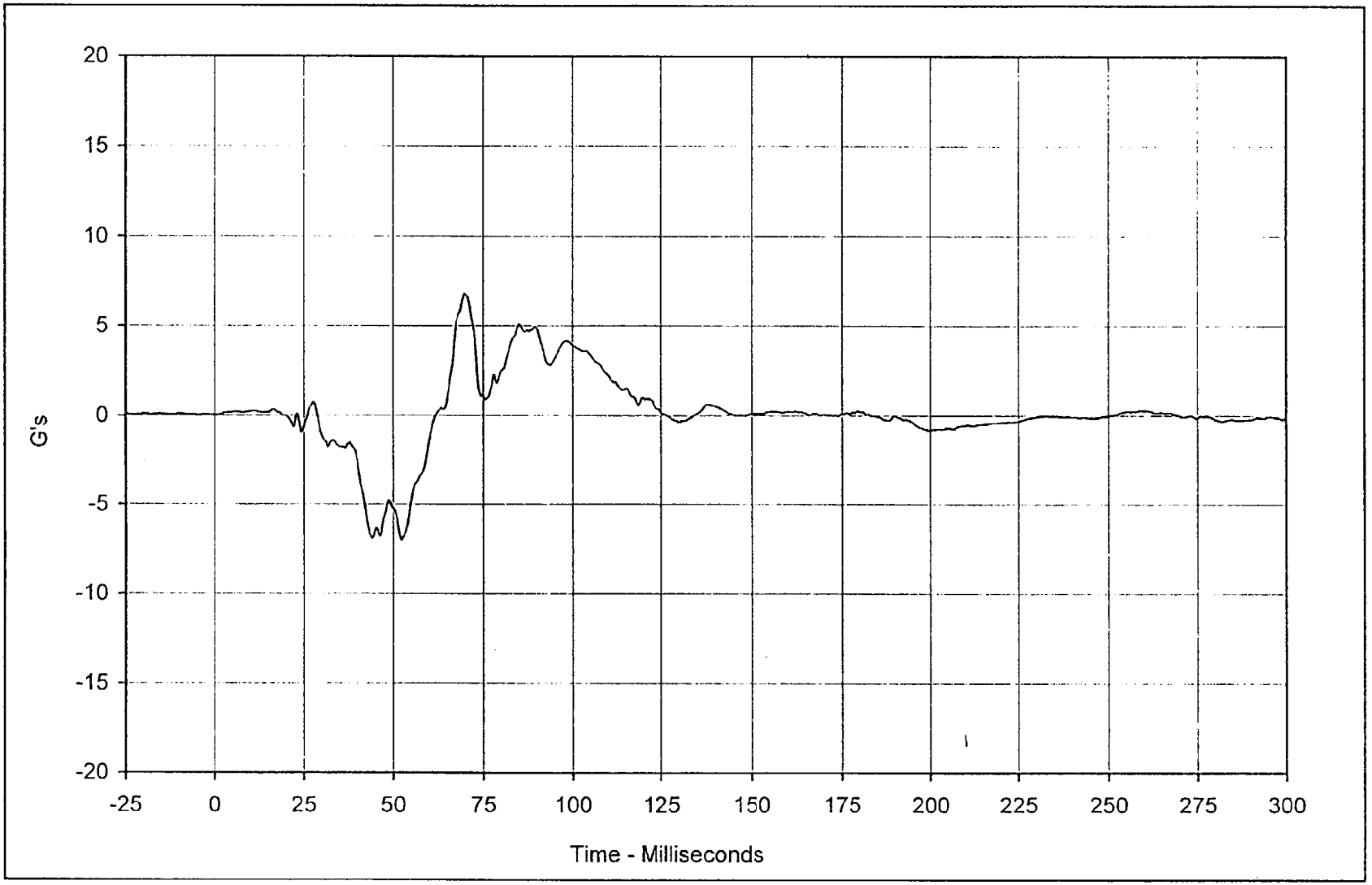
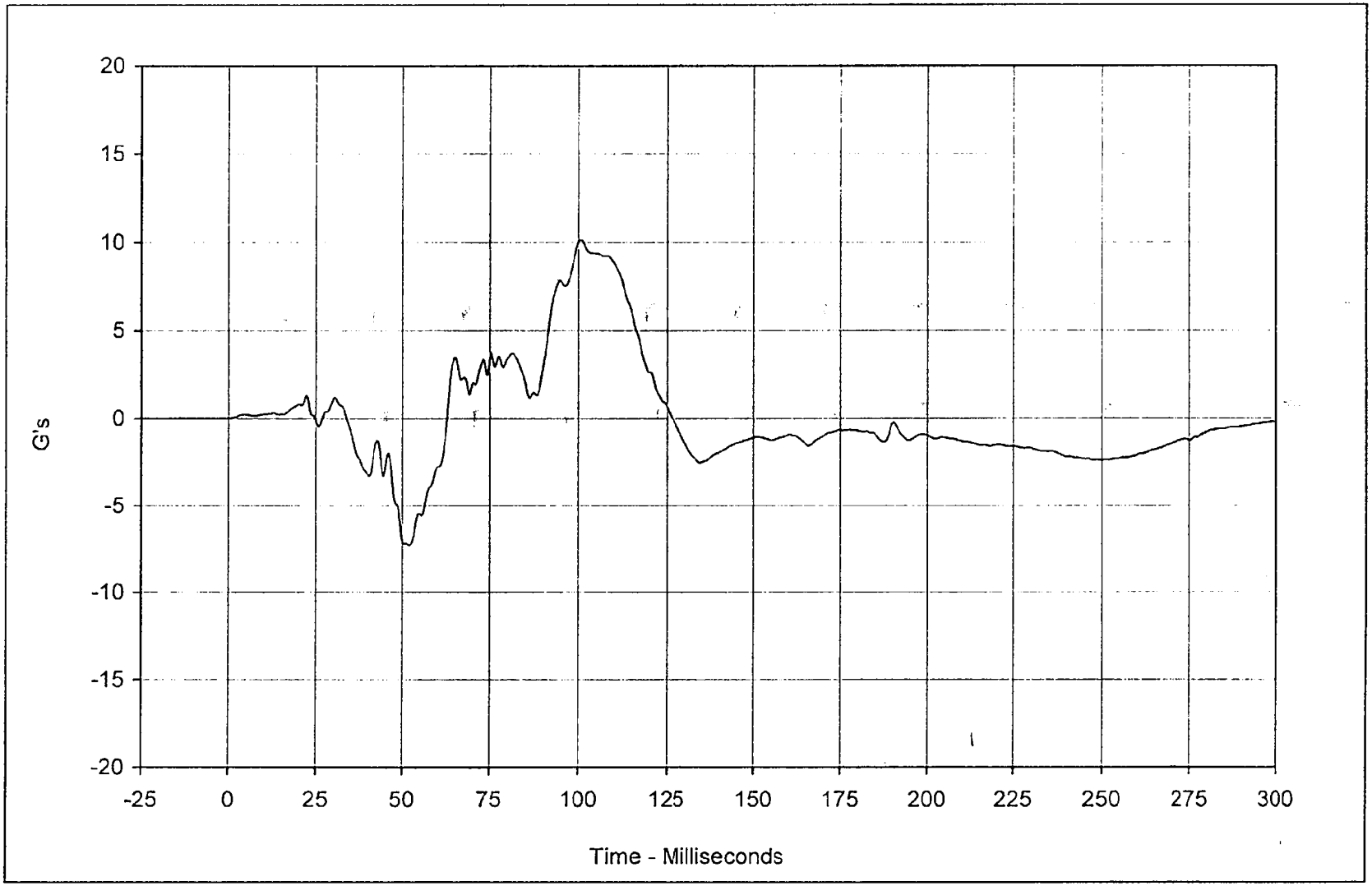
B30



Curve Description:	Driver Chest Redundant Y			
Maximum Value:	6.8	at	69.9	Milliseconds
Minimum Value:	-7.0	at	52.3	Milliseconds
SAE Filter Class:	180			
Date of Test:	4/17/97			
Curve Number:	FIL-017			

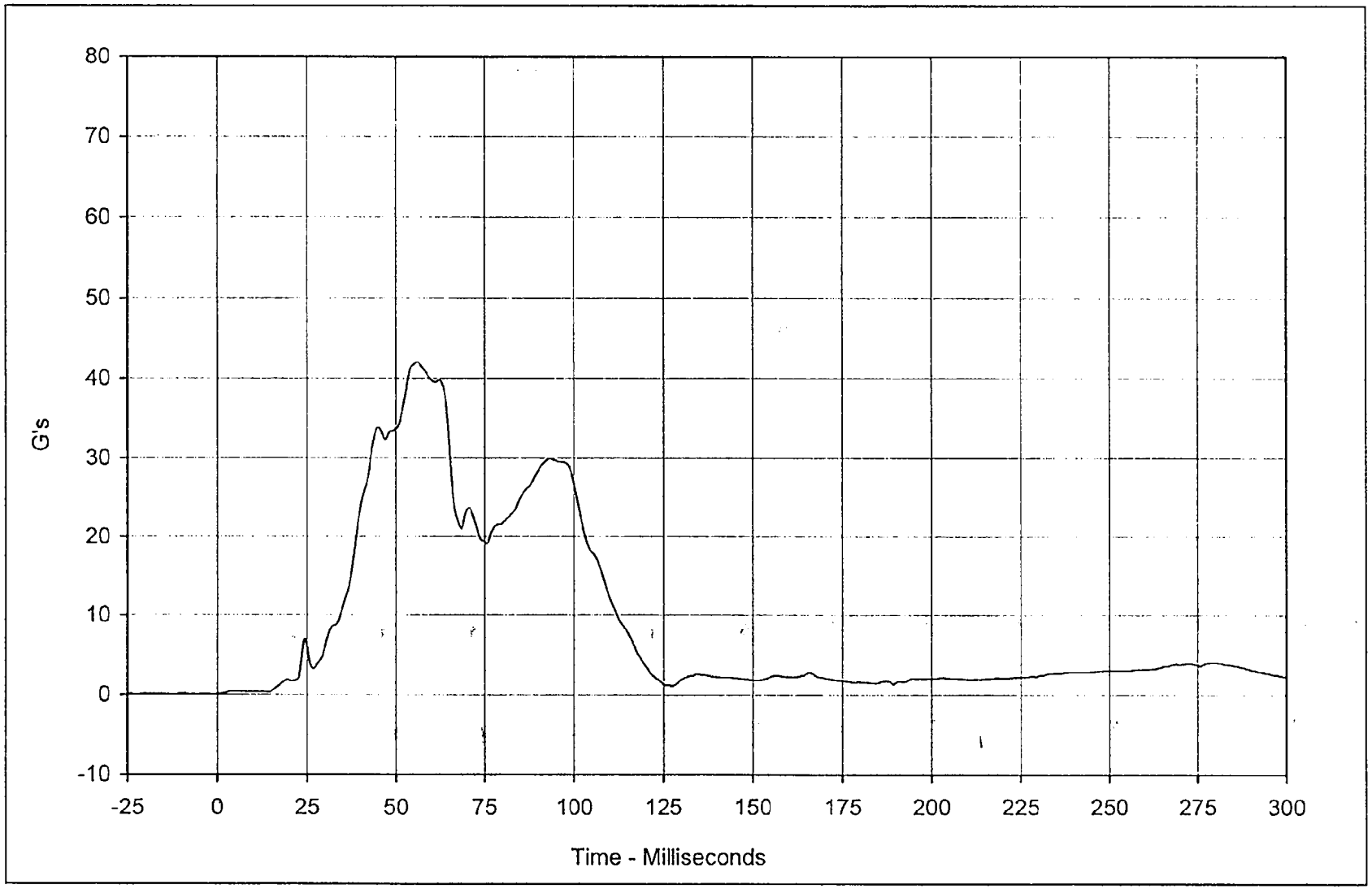
Testing Program:	1997 New Car Assessment Program
Test Vehicle:	1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Chest Redundant Z			Testing Program:	1997 New Car Assessment Program
Maximum Value:	10.2	at	100.7 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-7.3	at	52.0 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	FIL-018				

KARCO Engineering



Curve Description: Driver Chest Resultant Redundant

Maximum Value: 42.0 at 55.9 Milliseconds

Minimum Value: 0.1 at 0.0 Milliseconds

SAE Filter Class: 180

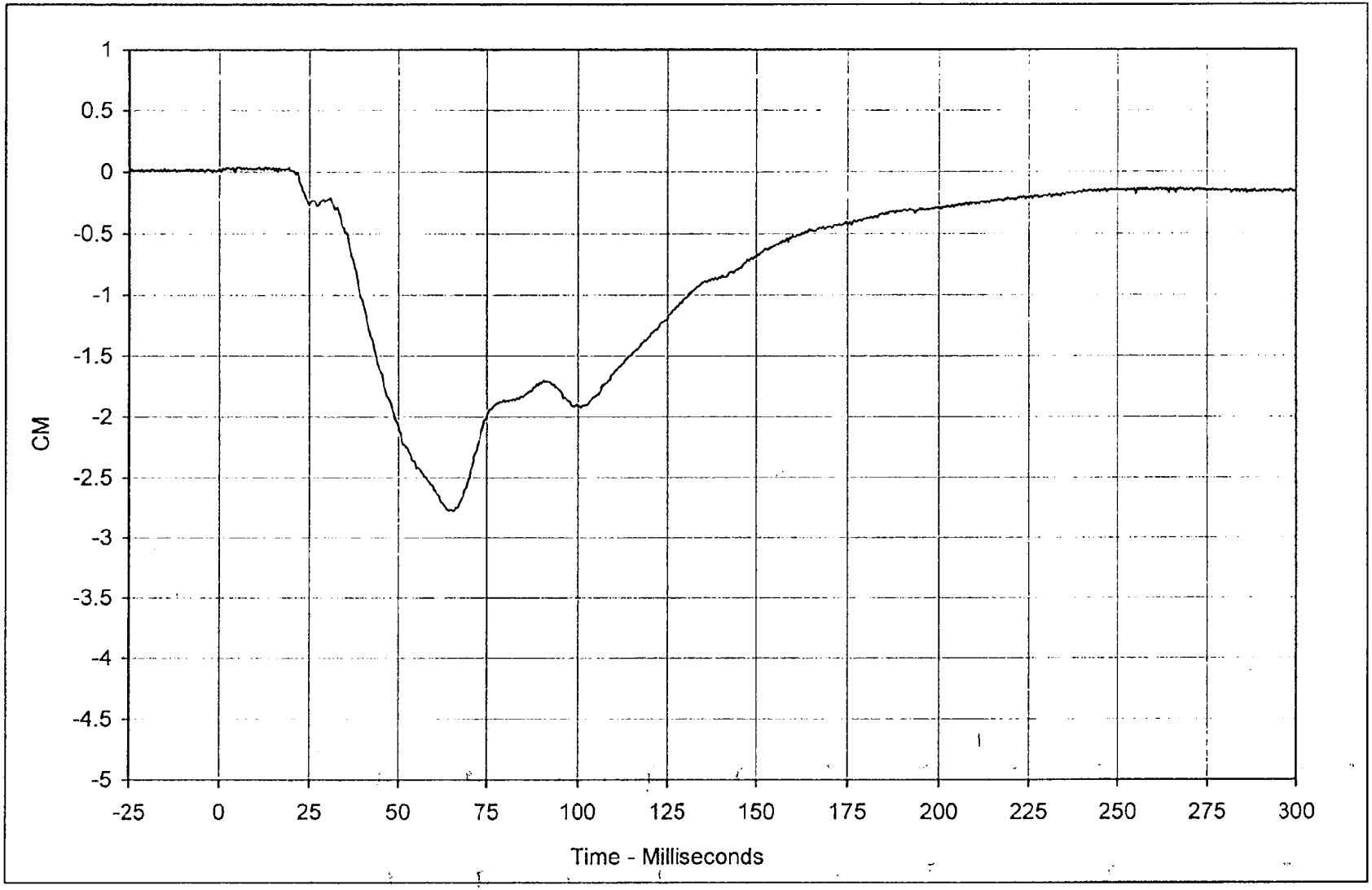
Date of Test: 4/17/97

Curve Number: RES-016

Testing Program: 1997 New Car Assesment Program

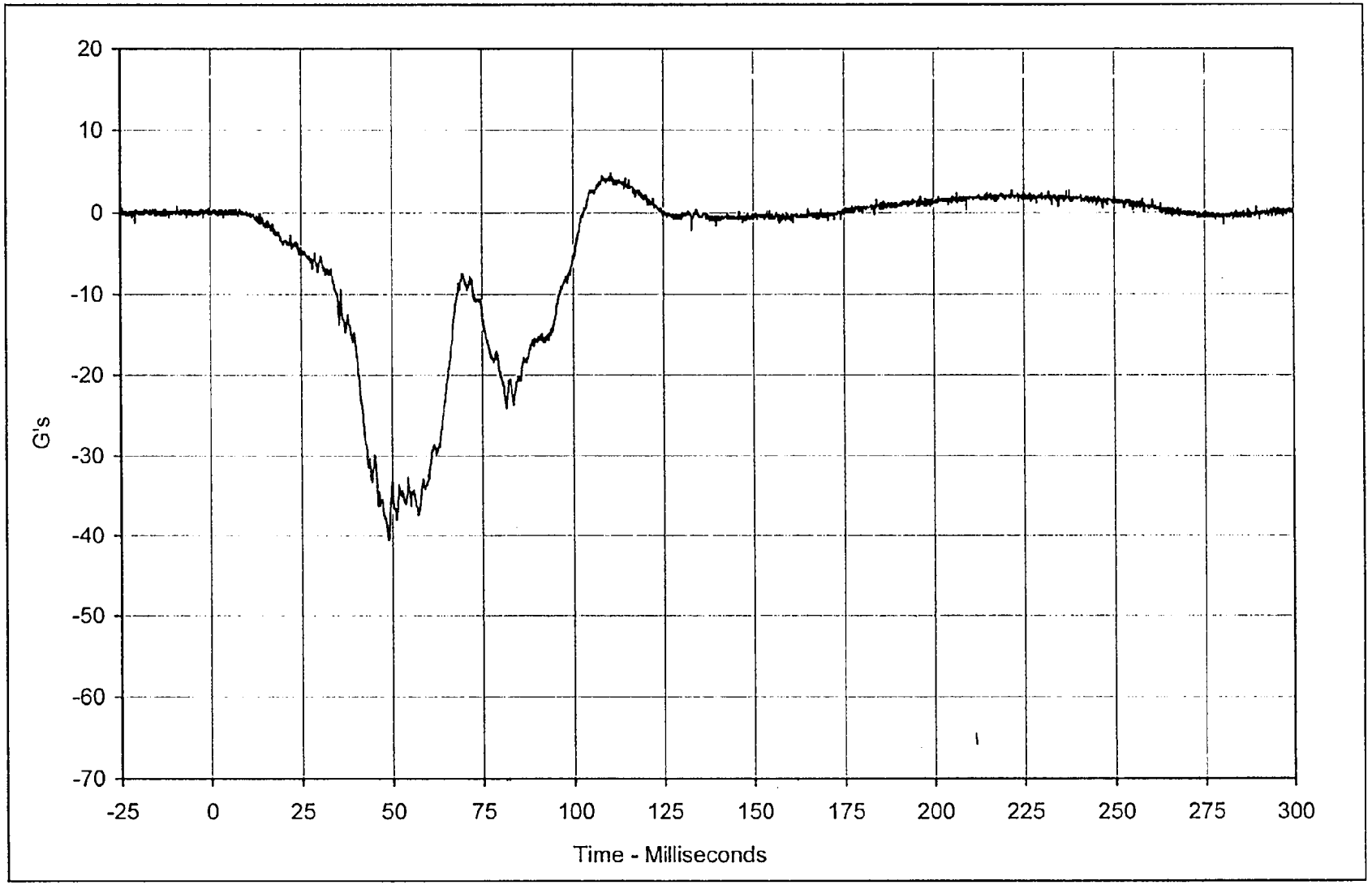
Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Chest Displacement X				Testing Program:	1997 New Car Assesment Program
Maximum Value:	0.04	at	12.5	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-2.78	at	65.5	Milliseconds		
SAE Filter Class:	600					
Date of Test:	4/17/97					
Curve Number:	FIL-019					

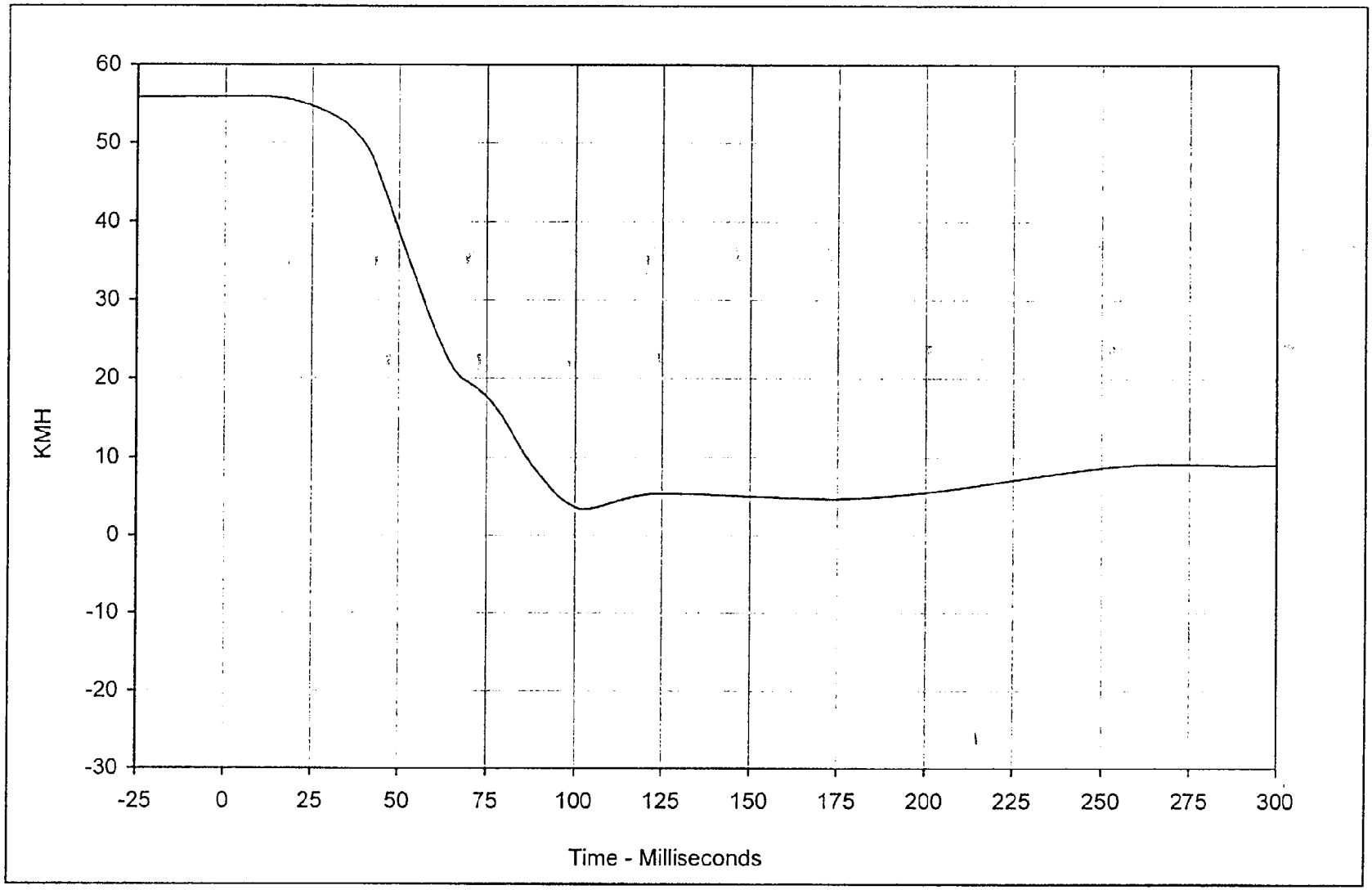
KARCO Engineering



Curve Description:	Driver Pelvis X			
Maximum Value:	4.7	at	110.4	Milliseconds
Minimum Value:	-40.5	at	48.9	Milliseconds
SAE Filter Class:	1000			
Date of Test:	4/17/97			
Curve Number:	FIL-020			

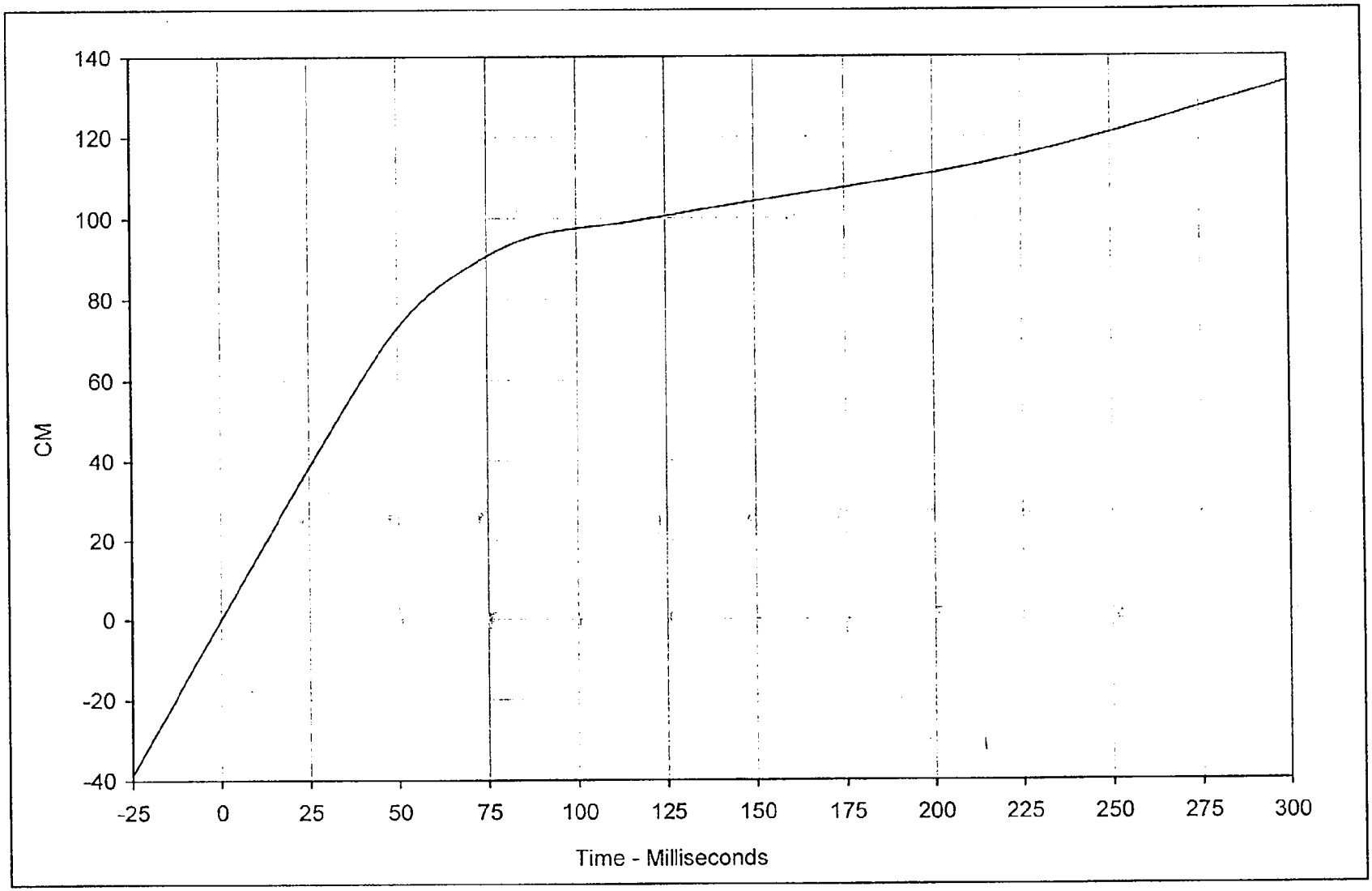
Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Pelvis X Velocity			Testing Program:	1997 New Car Assesment Program
Maximum Value:	55.9	at	8.8 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	3.4	at	102.8 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	IN1-020				

KARCO Engineering



Curve Description: Driver Pelvis X Displ.

Maximum Value: 133.4 at 299.9 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

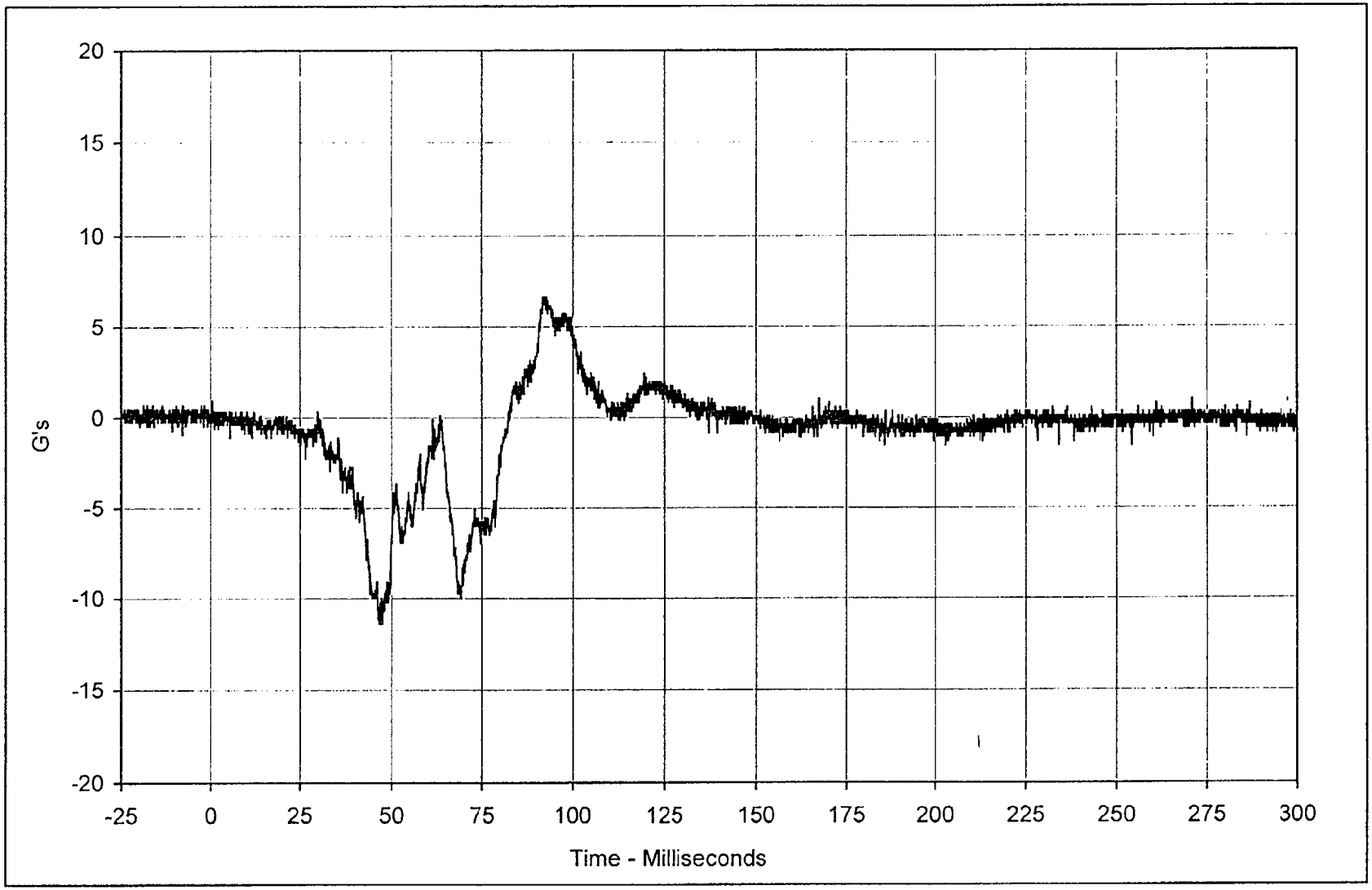
Date of Test: 4/17/97

Curve Number: IN2-020

Testing Program: 1997 New Car Assesment Program

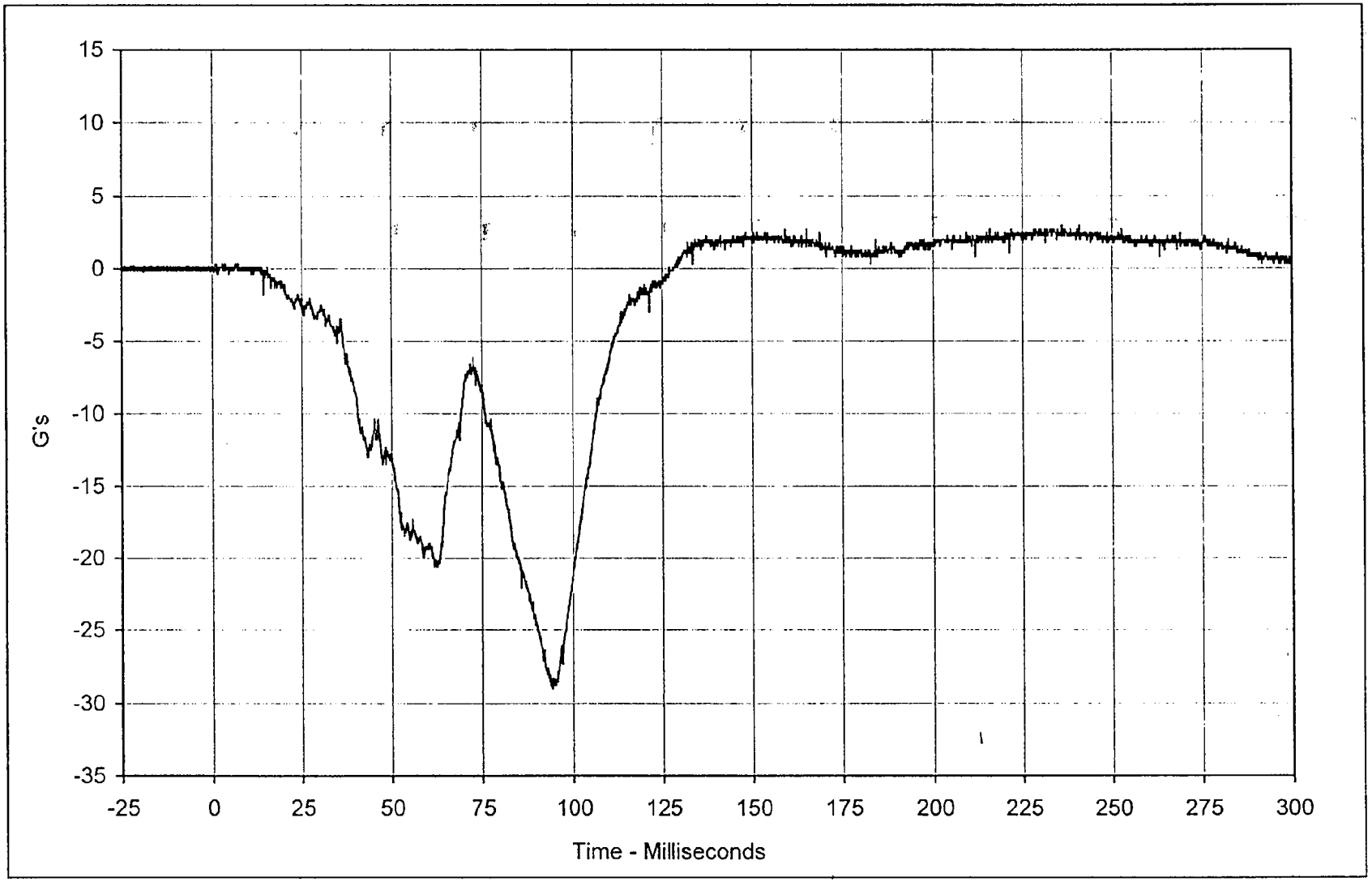
Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Pelvis Y				Testing Program:	1997 New Car Assesment Program
Maximum Value:	6.7	at	91.8	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-11.4	at	46.5	Milliseconds		
SAE Filter Class:	1000					
Date of Test:	4/17/97					
Curve Number:	FIL-021					

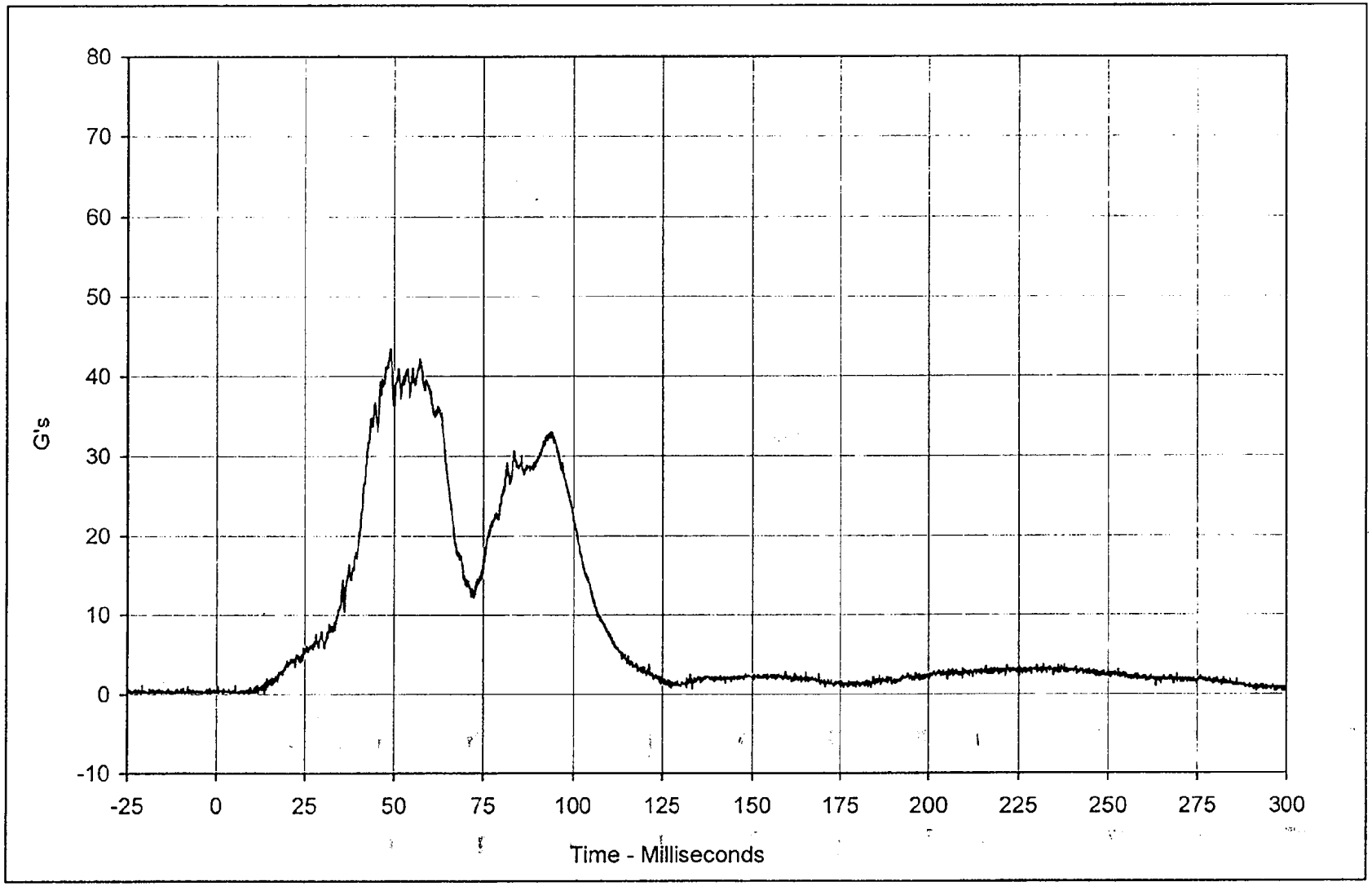
KARCO Engineering



Curve Description:	Driver Pelvis Z				
Maximum Value:	3.0	at	236	Milliseconds	
Minimum Value:	-29.0	at	94.1	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-022				

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Pelvis Resultant			Testing Program:	1997 New Car Assesment Program
Maximum Value:	43.5	at	49.0 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.1	at	6.4 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	RES-020				

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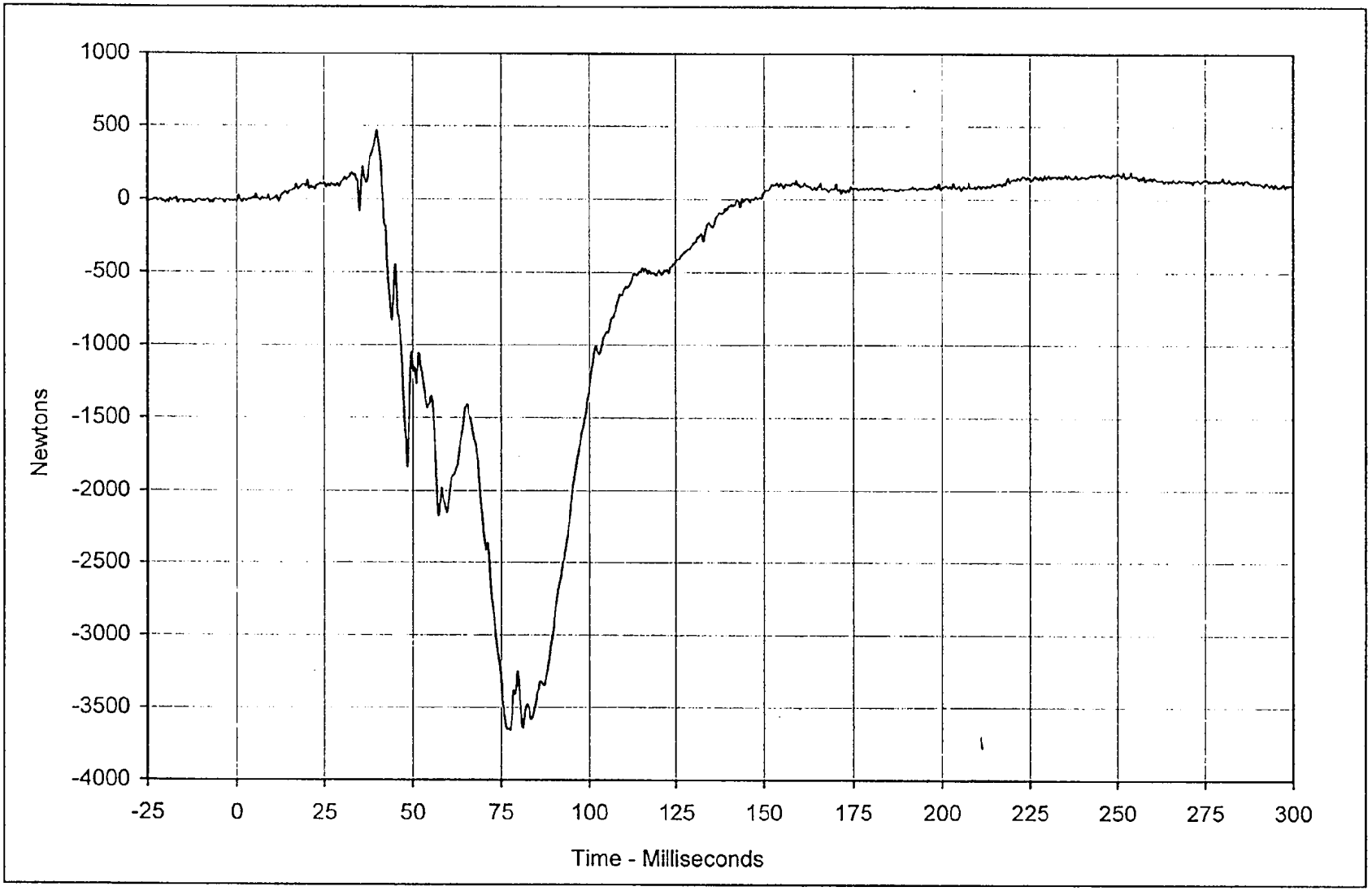
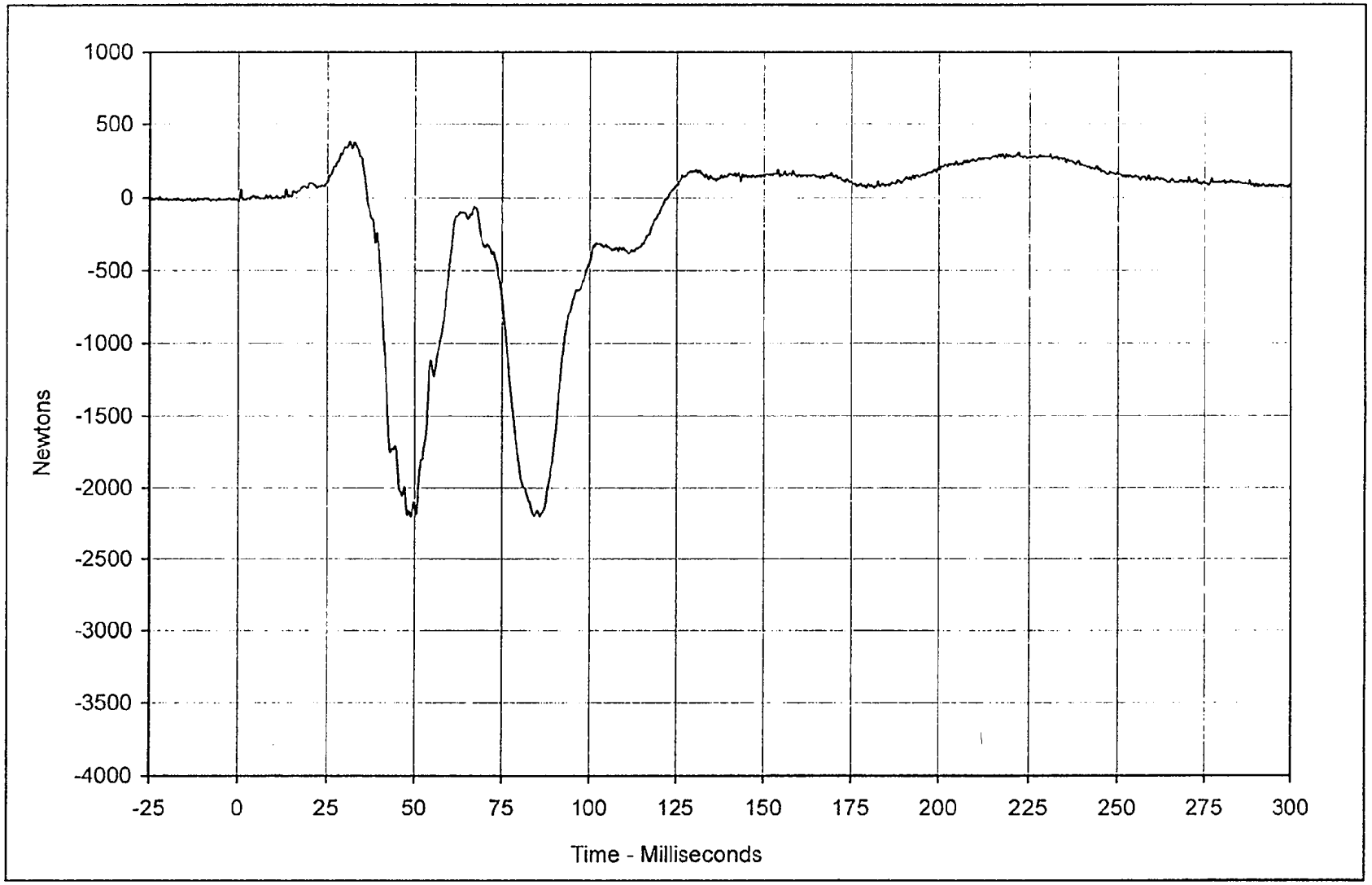
B40



Curve Description:	Driver Left Femur Force			Testing Program:	1997 New Car Assesment Program
Maximum Value:	470.8	at	40.0 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-3654.4	at	77.5 Milliseconds		
SAE Filter Class:	600				
Date of Test:	4/17/97				
Curve Number:	FIL-023				

KARCO Engineering



Curve Description: Driver Right Femur Force

Maximum Value: 382.9 at 31.3 Milliseconds

Minimum Value: -2200.6 at 48.9 Milliseconds

SAE Filter Class: 600

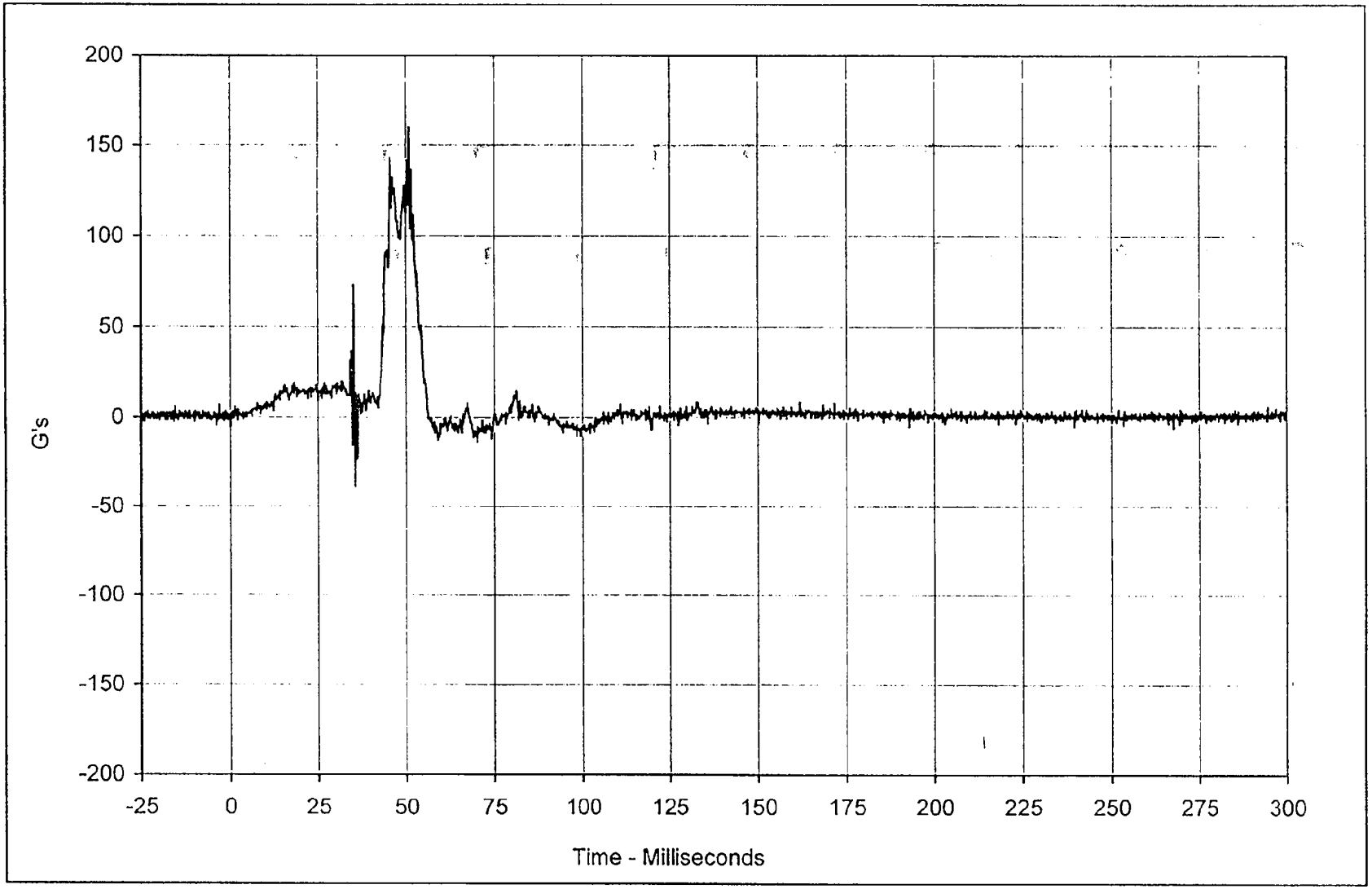
Date of Test: 4/17/97

Curve Number: FIL-024

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver Left Foot Aft X

Maximum Value: 160.1 at 51.0 Milliseconds

Minimum Value: -38.7 at 35.4 Milliseconds

SAE Filter Class: 1000

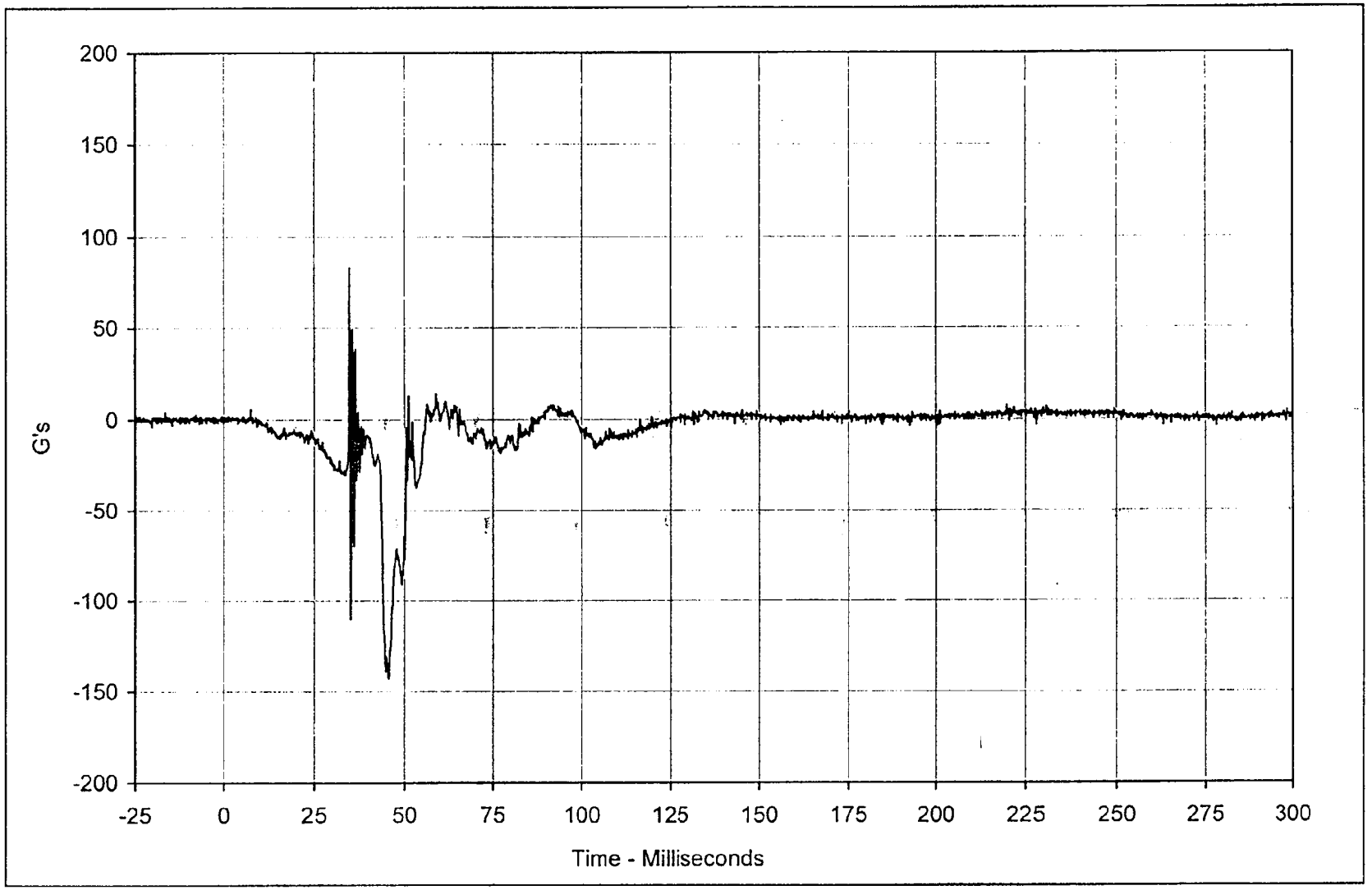
Date of Test: 4/17/97

Curve Number: FIL-035

Testing Program: 1997 New Car Assessment Program

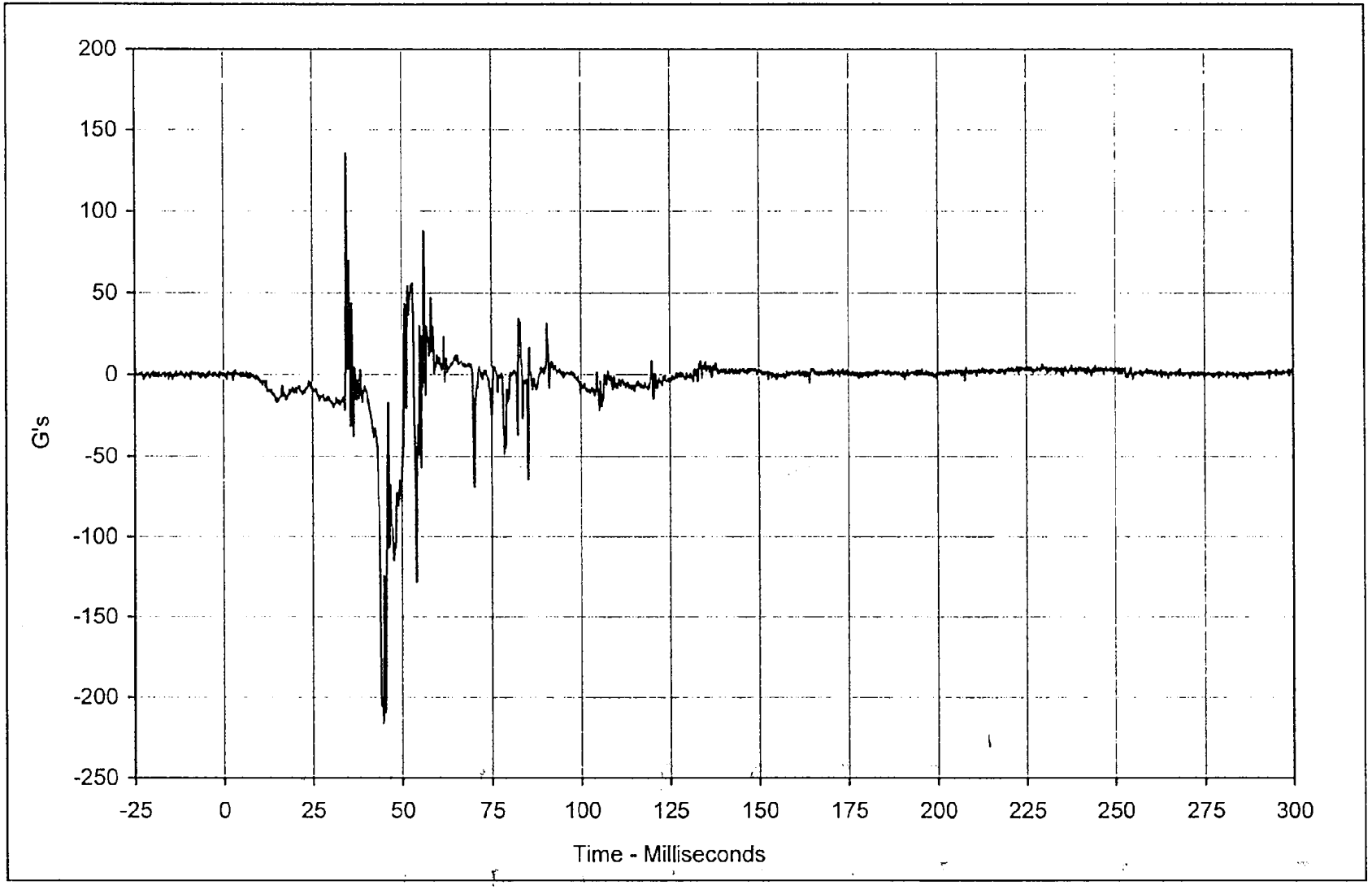
Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Left Foot Aft Z			Testing Program:	1997 New Car Assessment Program
Maximum Value:	83.2	at	34.4 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-142.6	at	45.5 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-036				

KARCO Engineering



Curve Description: Driver Left Foot Fore Z

Maximum Value: 135.1 at 34.5 Milliseconds

Minimum Value: -215.9 at 44.7 Milliseconds

SAE Filter Class: 1000

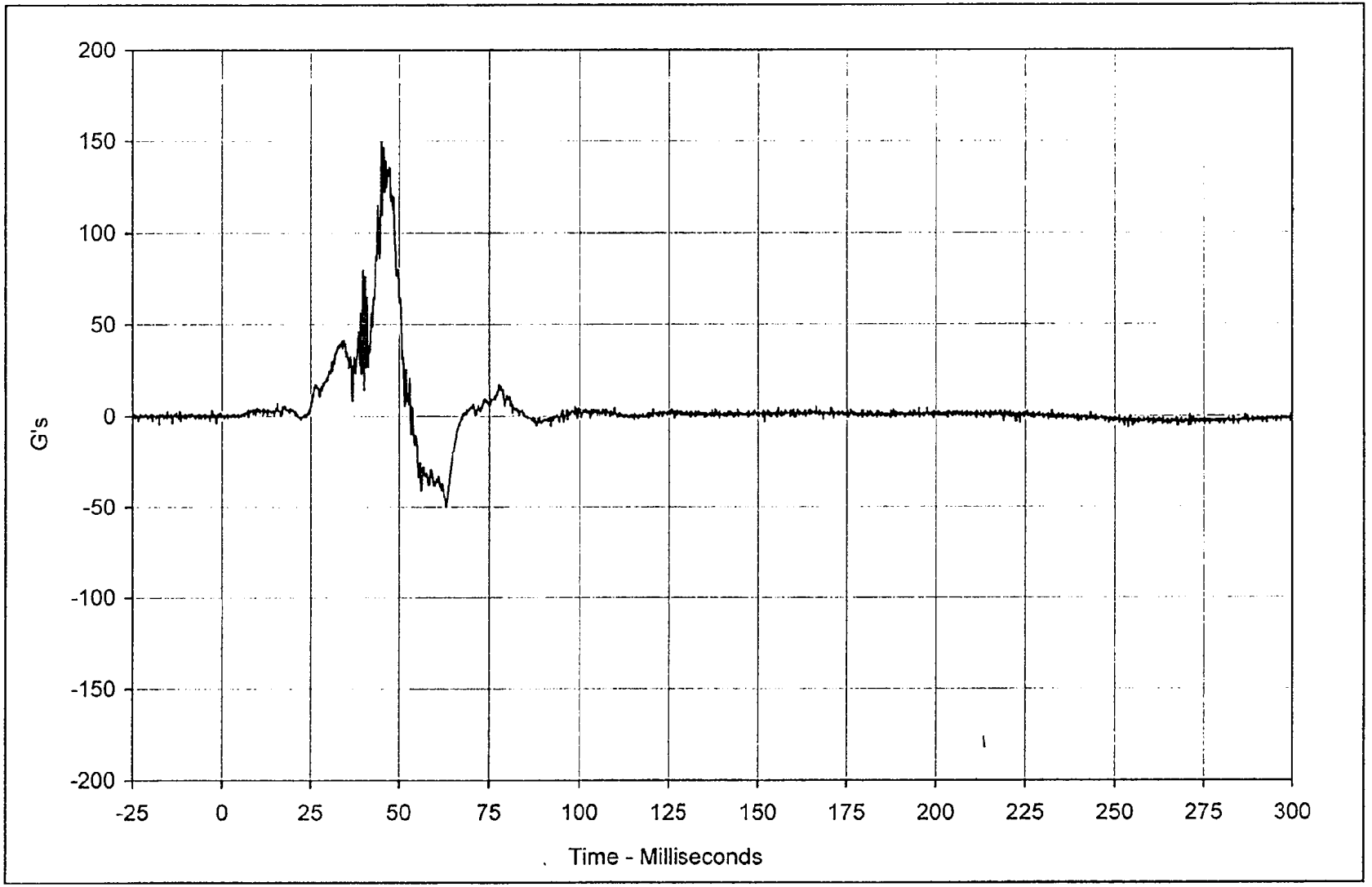
Date of Test: 4/17/97

Curve Number: FIL-037

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description: Driver Right Foot Aft X

Maximum Value: 149.6 at 45.0 Milliseconds

Minimum Value: -50.1 at 62.9 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: FIL-038

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

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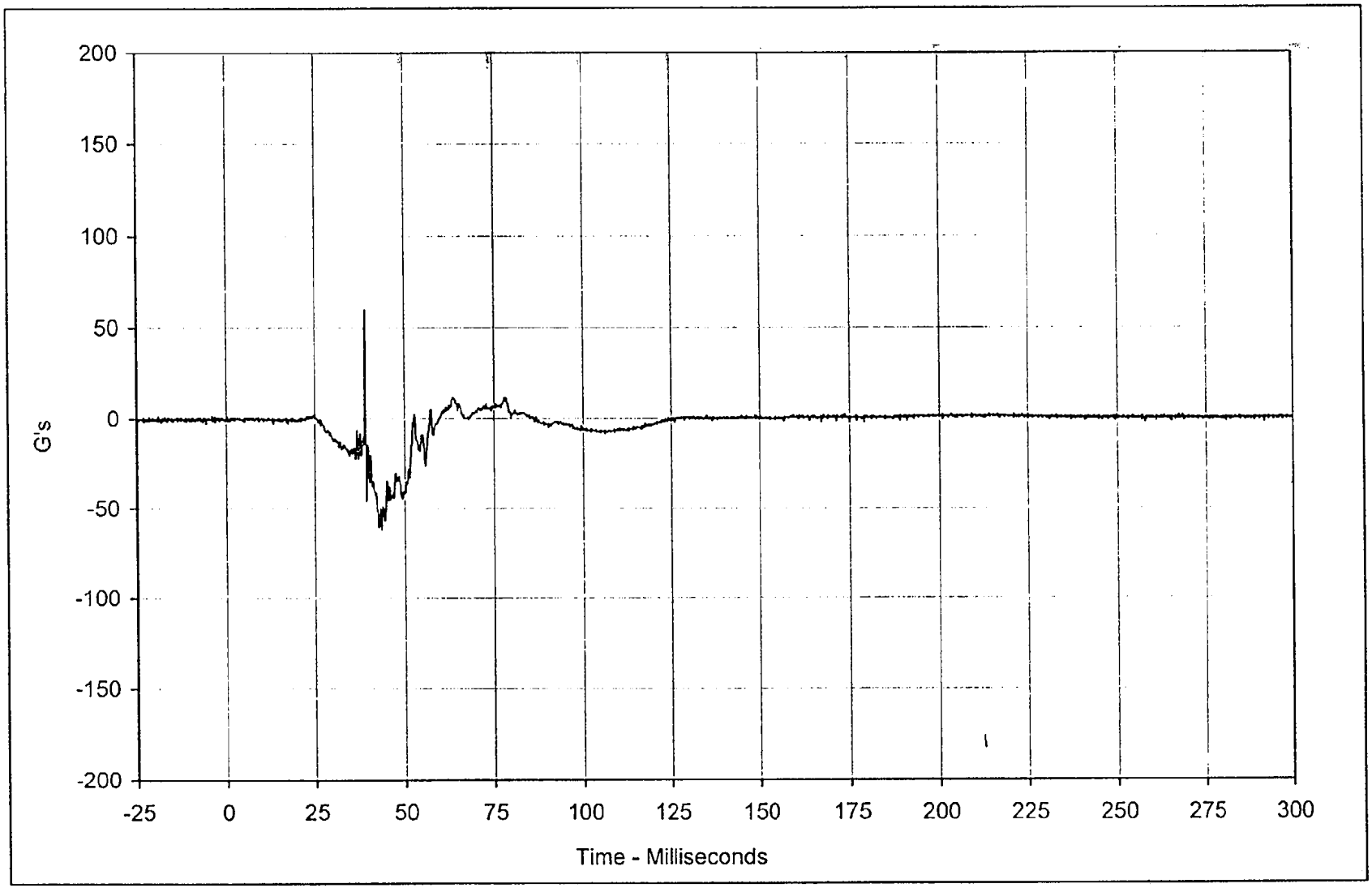
KAR-96-R96024-05

B56



Curve Description: Driver Right Foot Aft Z

Maximum Value: 59.7 at 38.9 Milliseconds

Minimum Value: -61.8 at 43.6 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: FIL-039

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering

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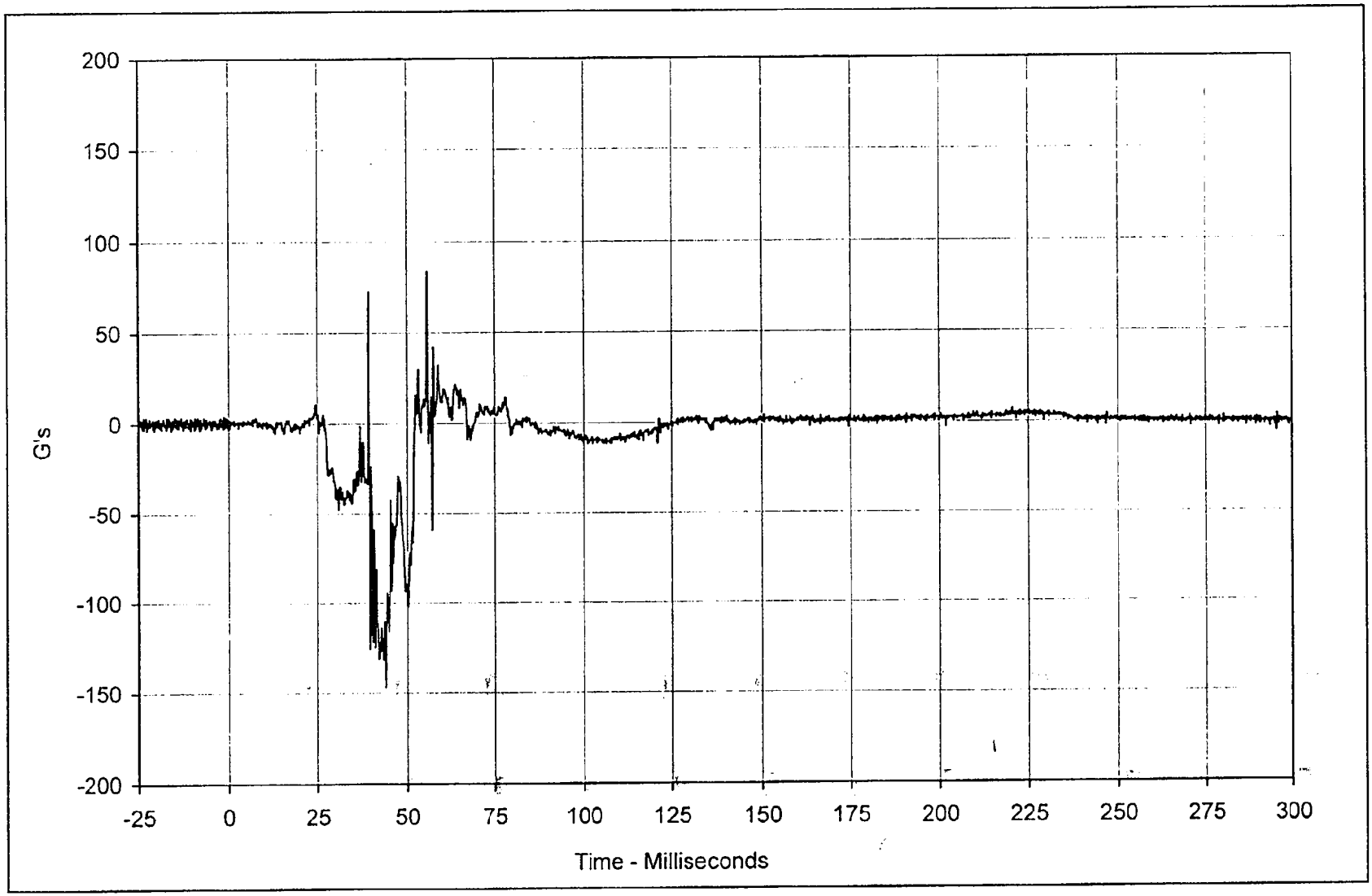


Curve Description: Driver Right Foot Fore Z

Maximum Value: 83.3 at 55.8 Milliseconds

Minimum Value: -146.6 at 43.7 Milliseconds

SAE Filter Class: 1000

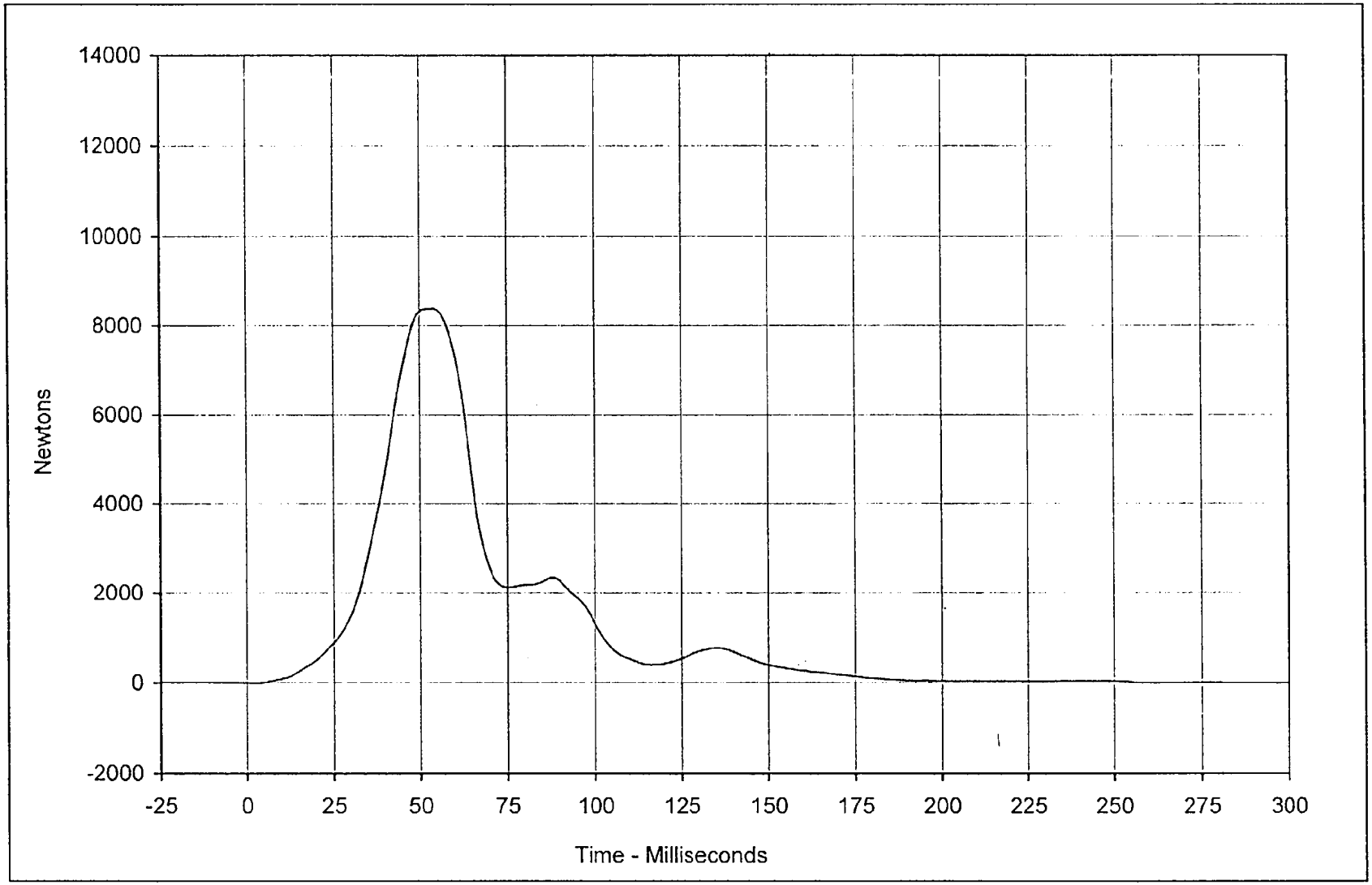
Date of Test: 4/17/97

Curve Number: FIL-040

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Driver Lap Belt Force			Testing Program:	1997 New Car Assesment Program
Maximum Value:	8380.5	at	53.7 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-7.8	at	2.6 Milliseconds		
SAE Filter Class:	60				
Date of Test:	4/17/97				
Curve Number:	FIL-041				

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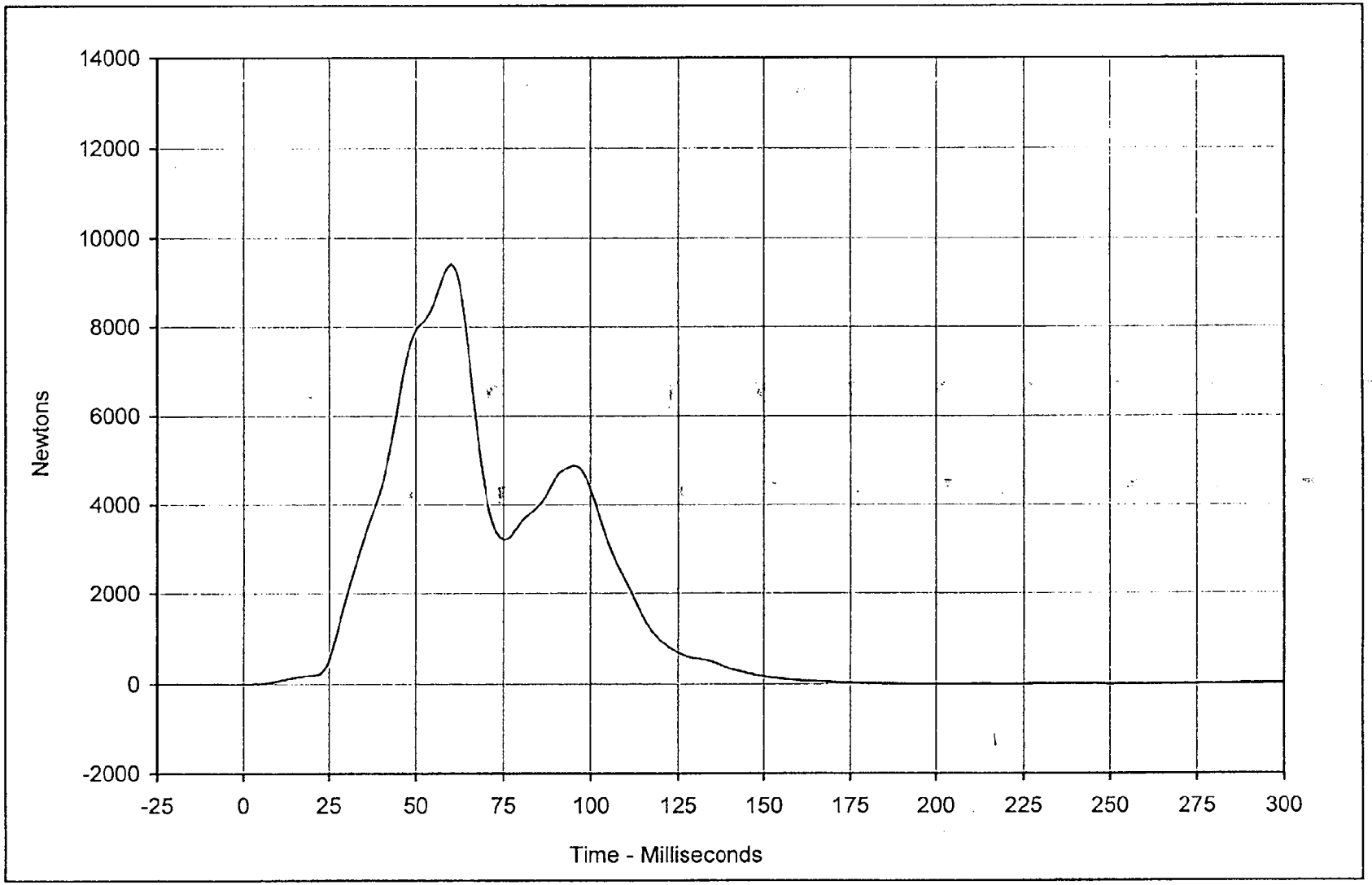

Curve Description: Driver Shoulder Belt Force

Maximum Value: 9397.6 at 60.1 Milliseconds

Minimum Value: -2.7 at 206.2 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

Curve Number: FIL-042

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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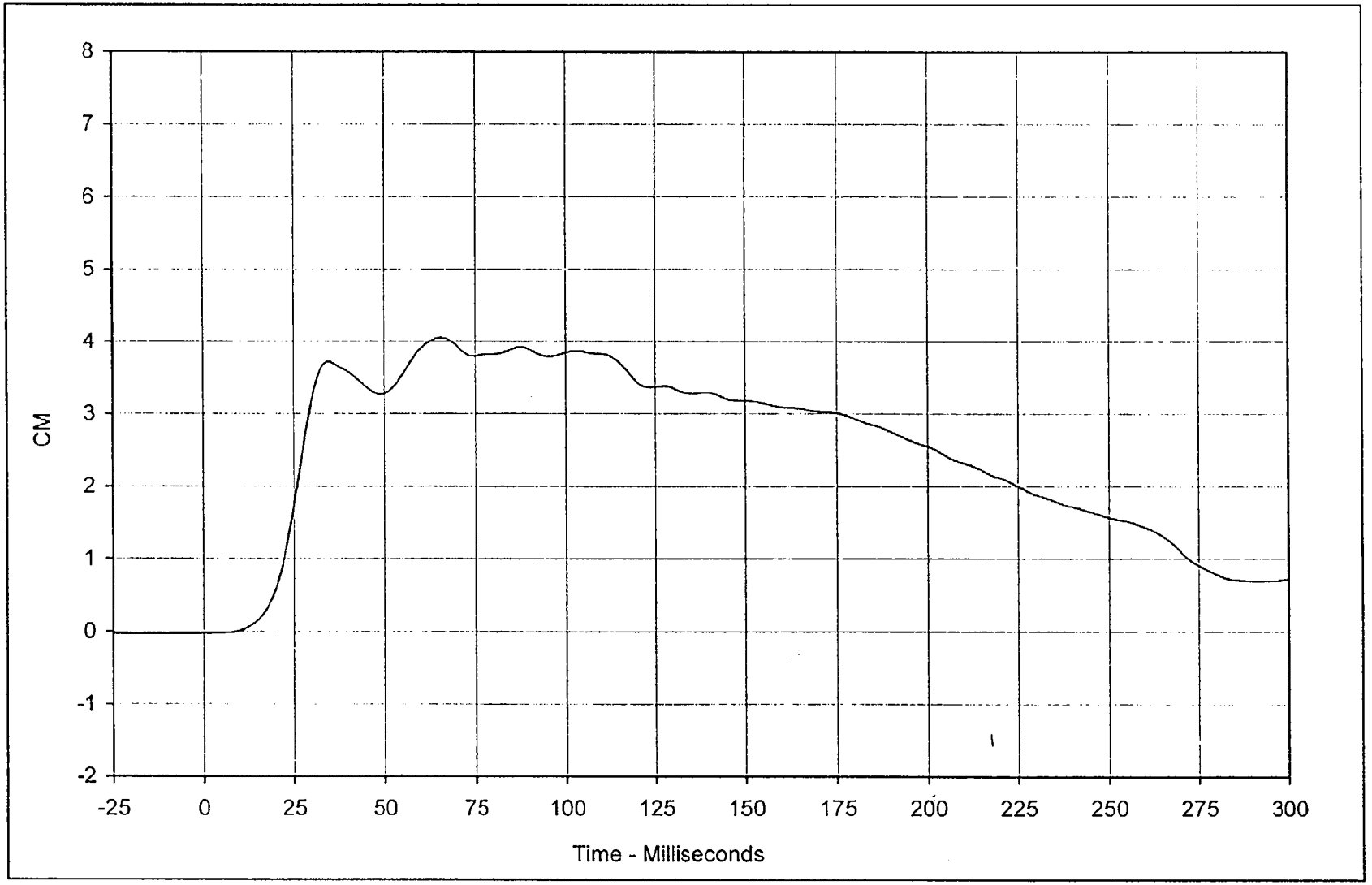
B60



Curve Description:	Driver Shoulder Belt Pullout				
Maximum Value:	4.05	at	65.6	Milliseconds	
Minimum Value:	-0.02	at	0.0	Milliseconds	
SAE Filter Class:	60				
Date of Test:	4/17/97				
Curve Number:	FIL-043				

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

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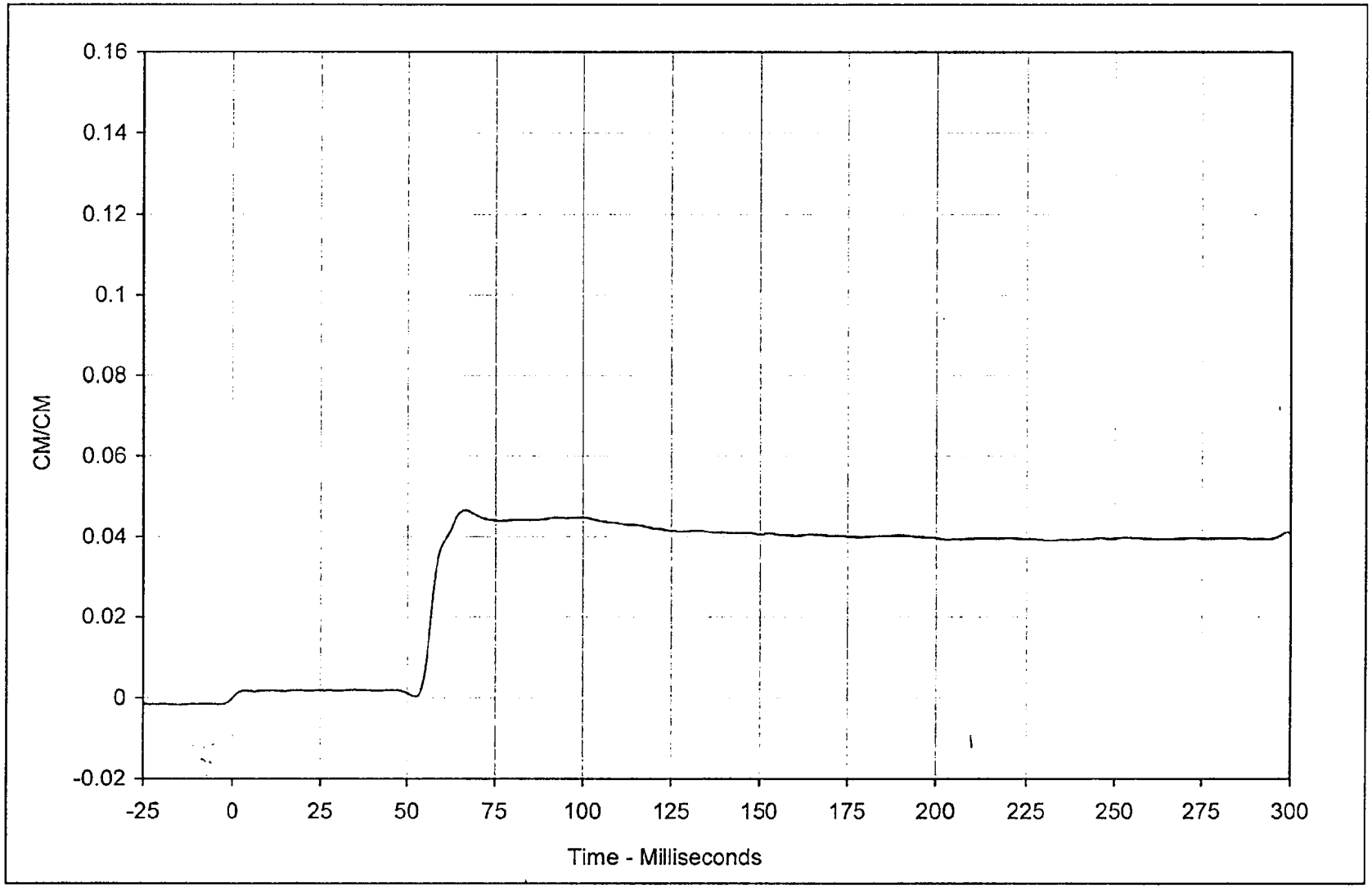
B61



Curve Description:	Driver Shoulder Belt Elongation			
Maximum Value:	0.047	at	66.3	Milliseconds
Minimum Value:	0.000	at	0.0	Milliseconds
SAE Filter Class:	60			
Date of Test:	4/17/97			
Curve Number:	FIL-044			

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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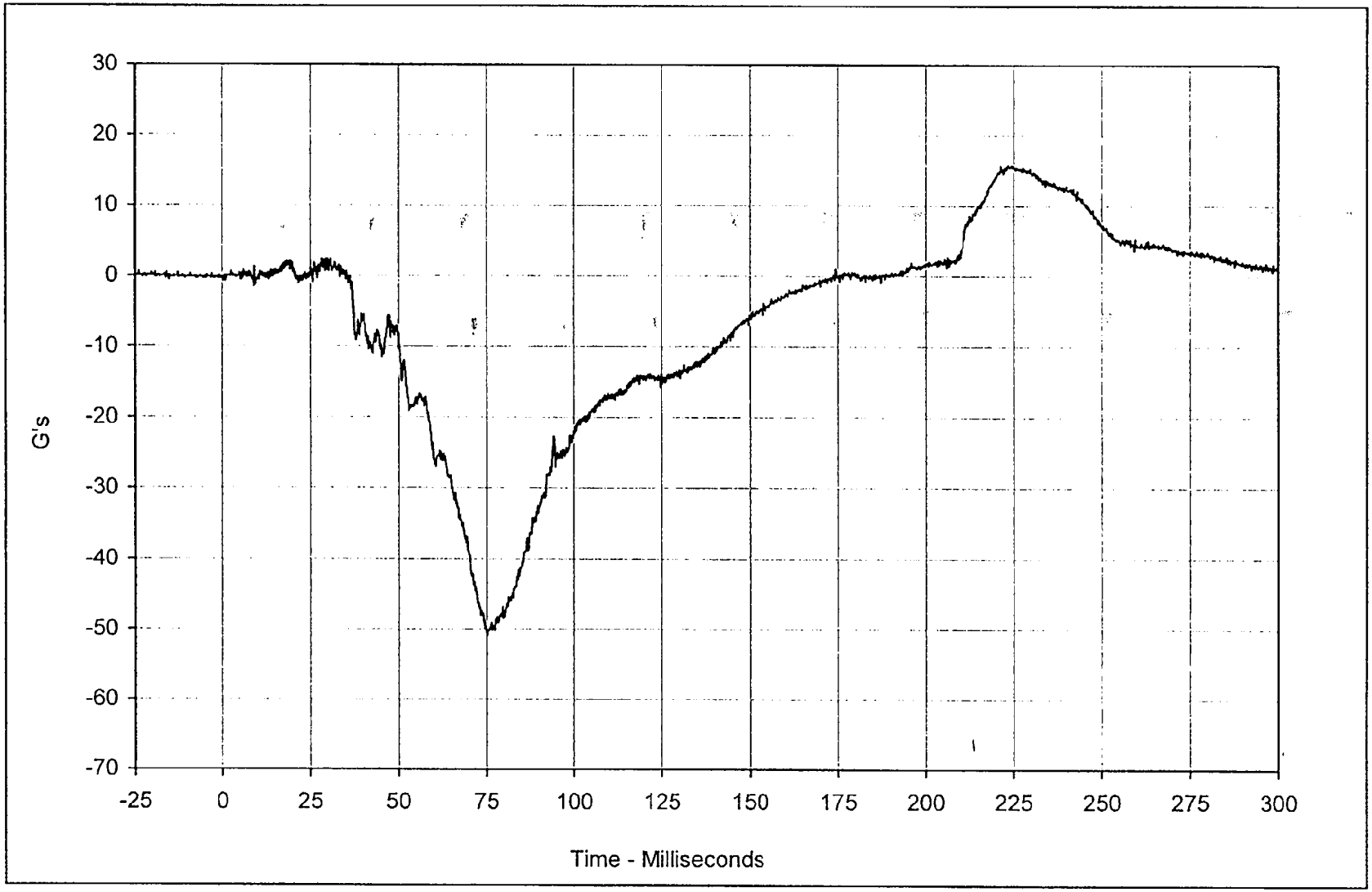


Curve Description: Passenger Head Primary X

Maximum Value: 15.8 at 223.5 Milliseconds

Minimum Value: -50.9 at 75.1 Milliseconds

SAE Filter Class: 1000

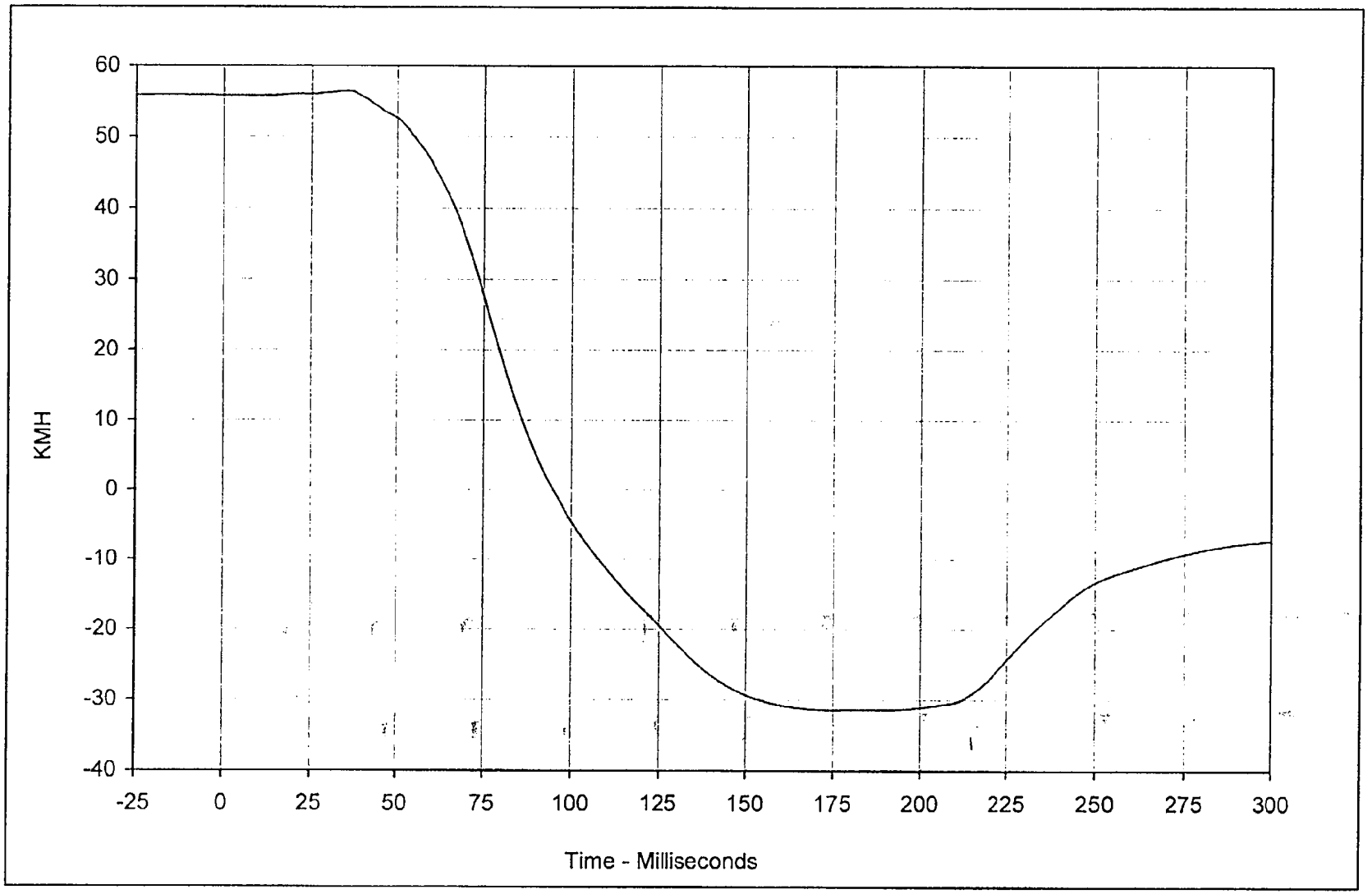
Date of Test: 4/17/97

Curve Number: FIL-045

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description:	Passenger Head Primary X Velocity				
Maximum Value:	56.4	at	35.6	Milliseconds	
Minimum Value:	-31.4	at	174.2	Milliseconds	
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	IN1-045				

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

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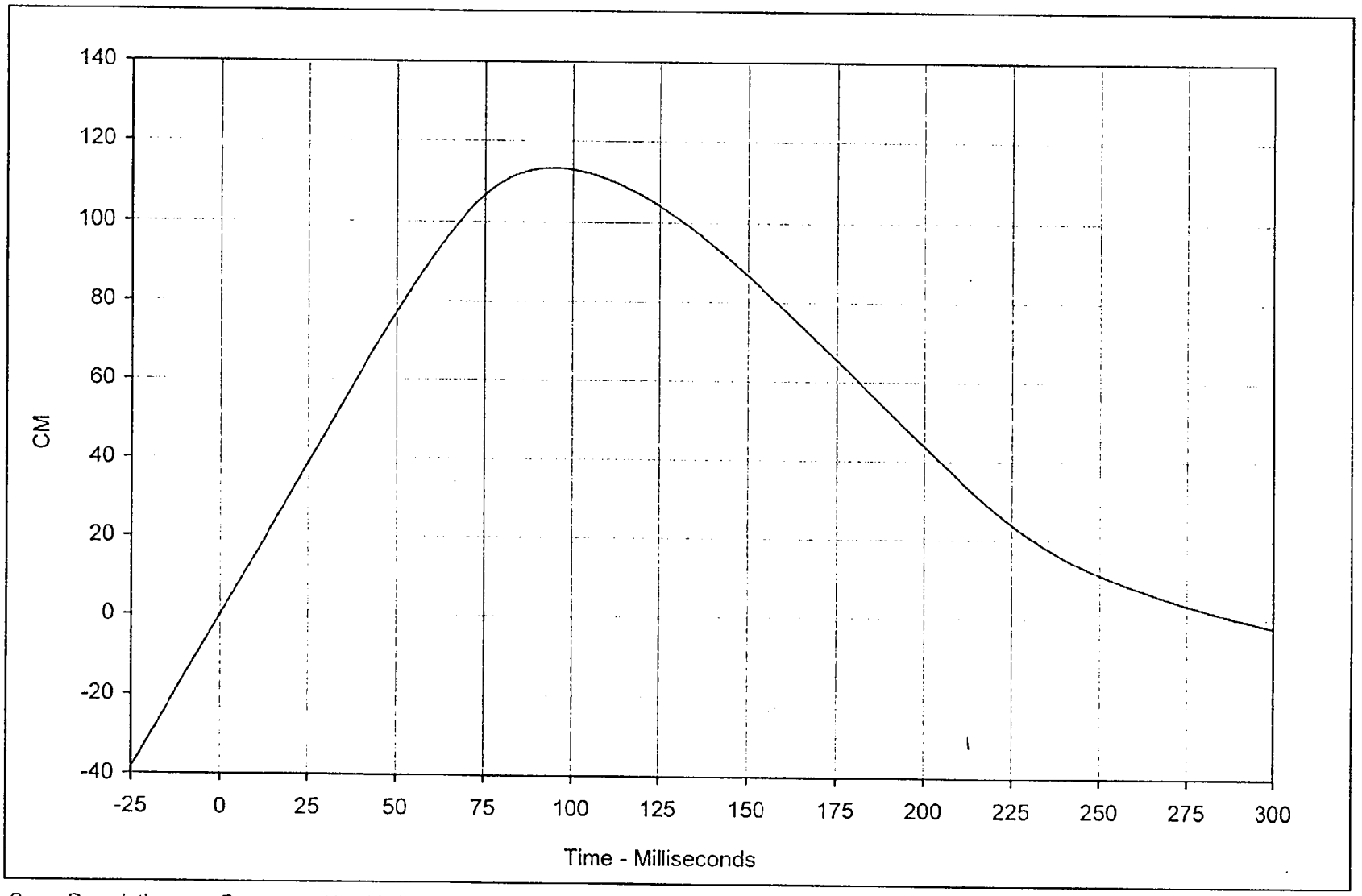
B64



Curve Description: Passenger Head Primary X Displ.

Maximum Value: 113.4 at 94.6 Milliseconds

Minimum Value: -2.0 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-045

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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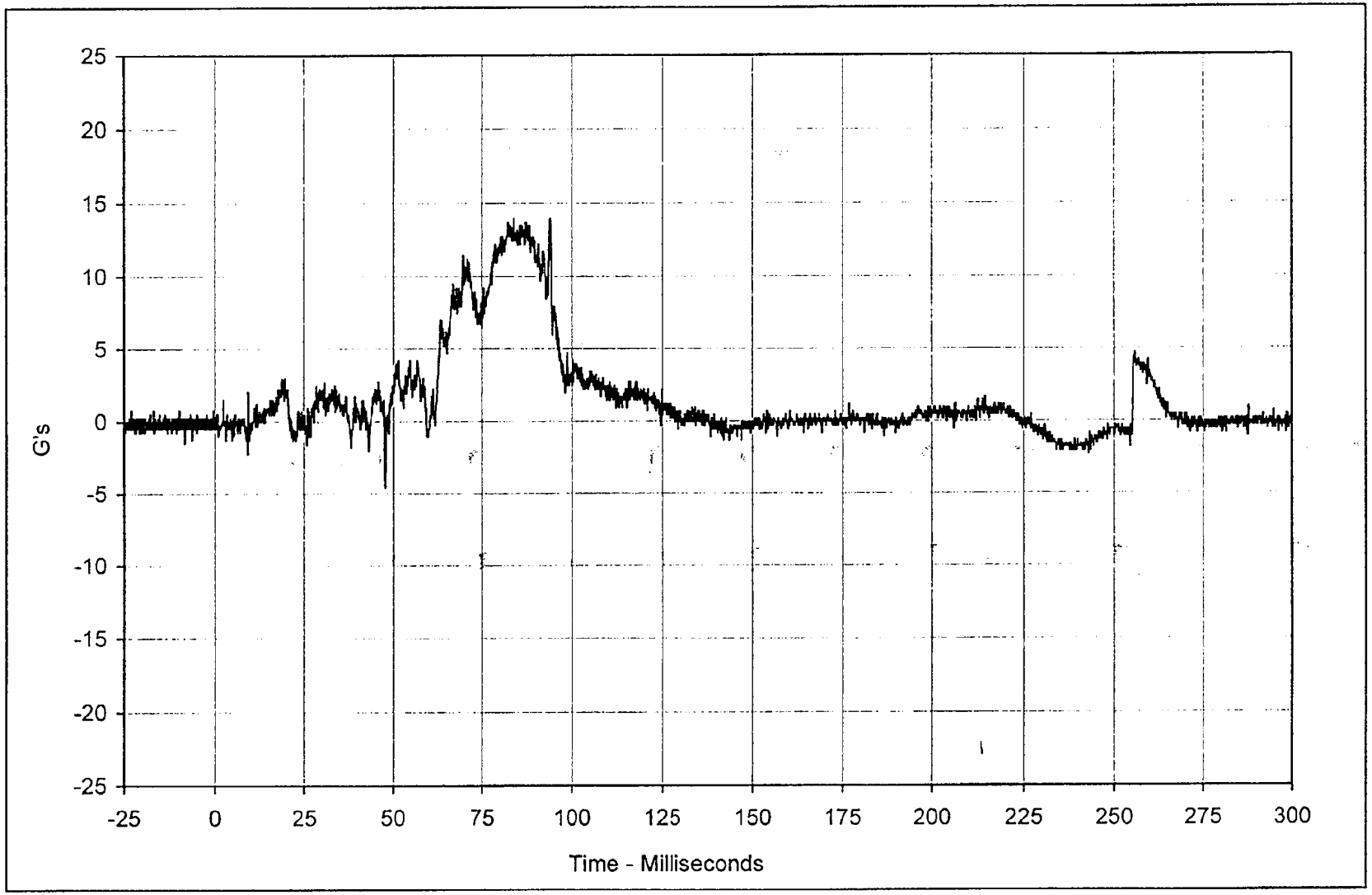

Curve Description:	Passenger Head Primary Y				
Maximum Value:	14.0	at	83.9	Milliseconds	
Minimum Value:	-4.6	at	47.8	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-046				

Testing Program:	1997 New Car Assessment Program
Test Vehicle:	1997 Nissan 200 SX

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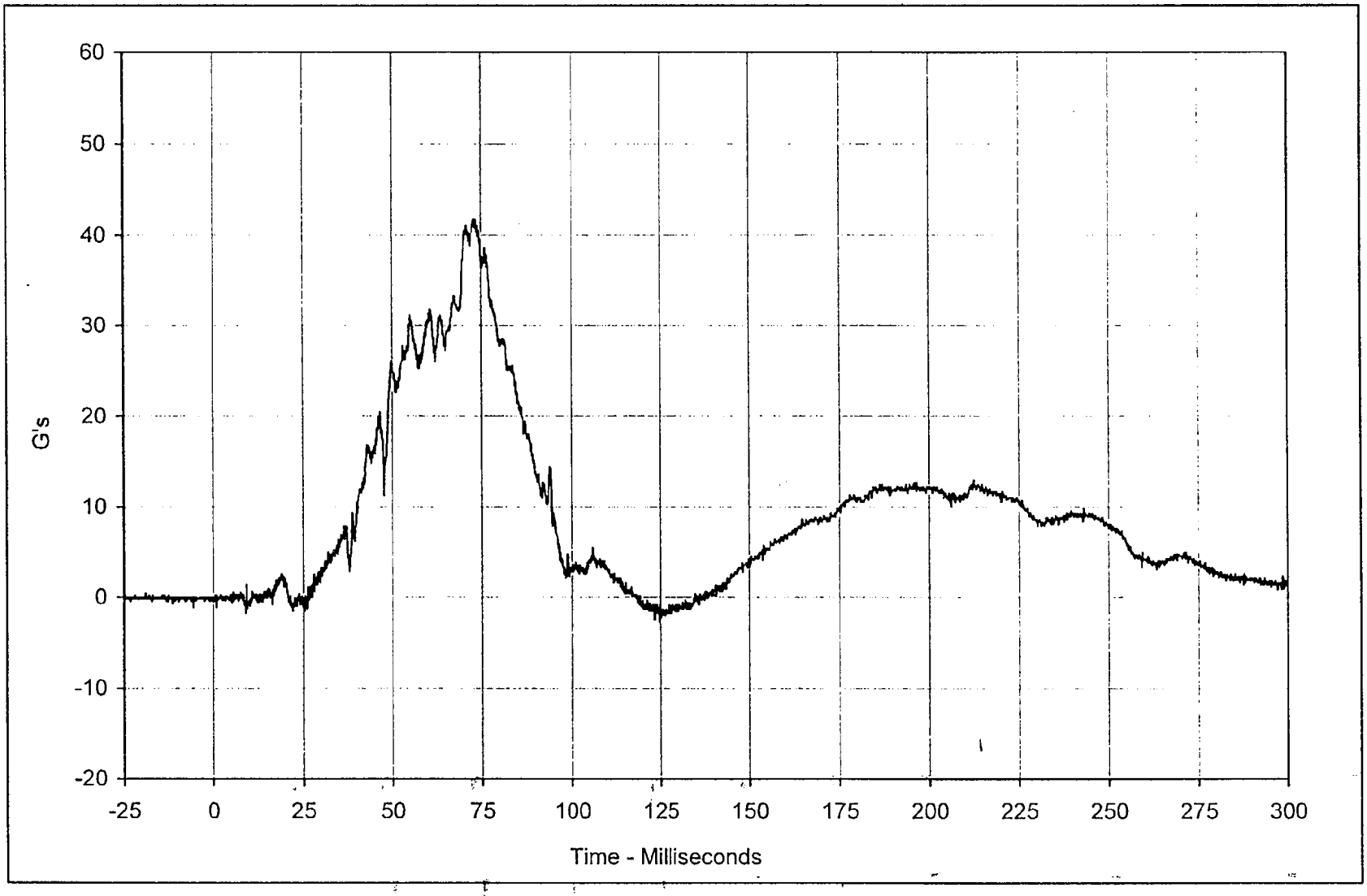
B66



Curve Description:	Passenger Head Primary Z				Testing Program:	1997 New Car Assessment Program
Maximum Value:	41.8	at	73.0	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-2.8	at	124.6	Milliseconds		
SAE Filter Class:	1000					
Date of Test:	4/17/97					
Curve Number:	FIL-047					

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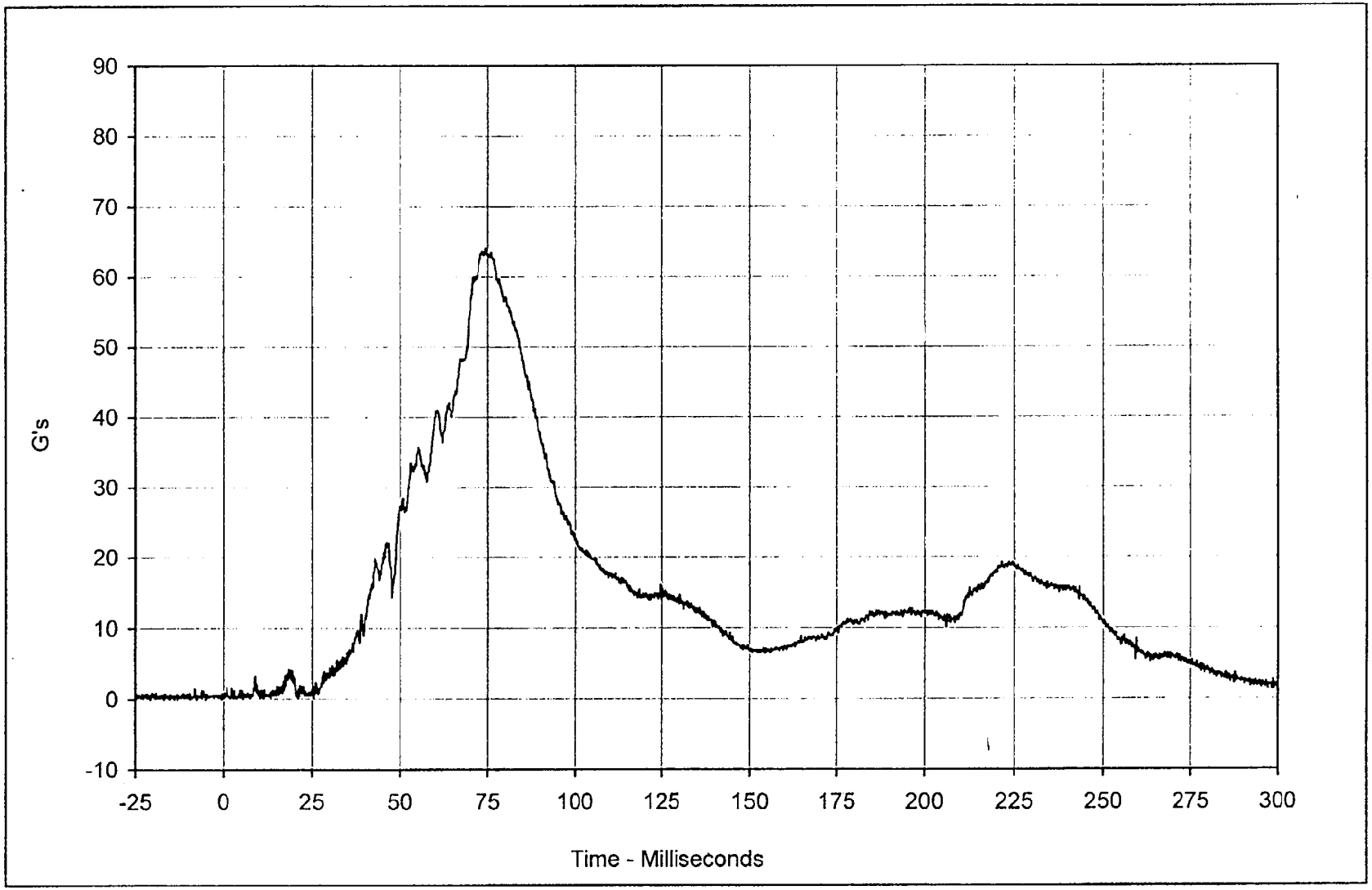
B67



Curve Description: Passenger Head Resultant Primary

Maximum Value: 64.1 at 74.4 Milliseconds

Minimum Value: 0.1 at 5.4 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: RES-045

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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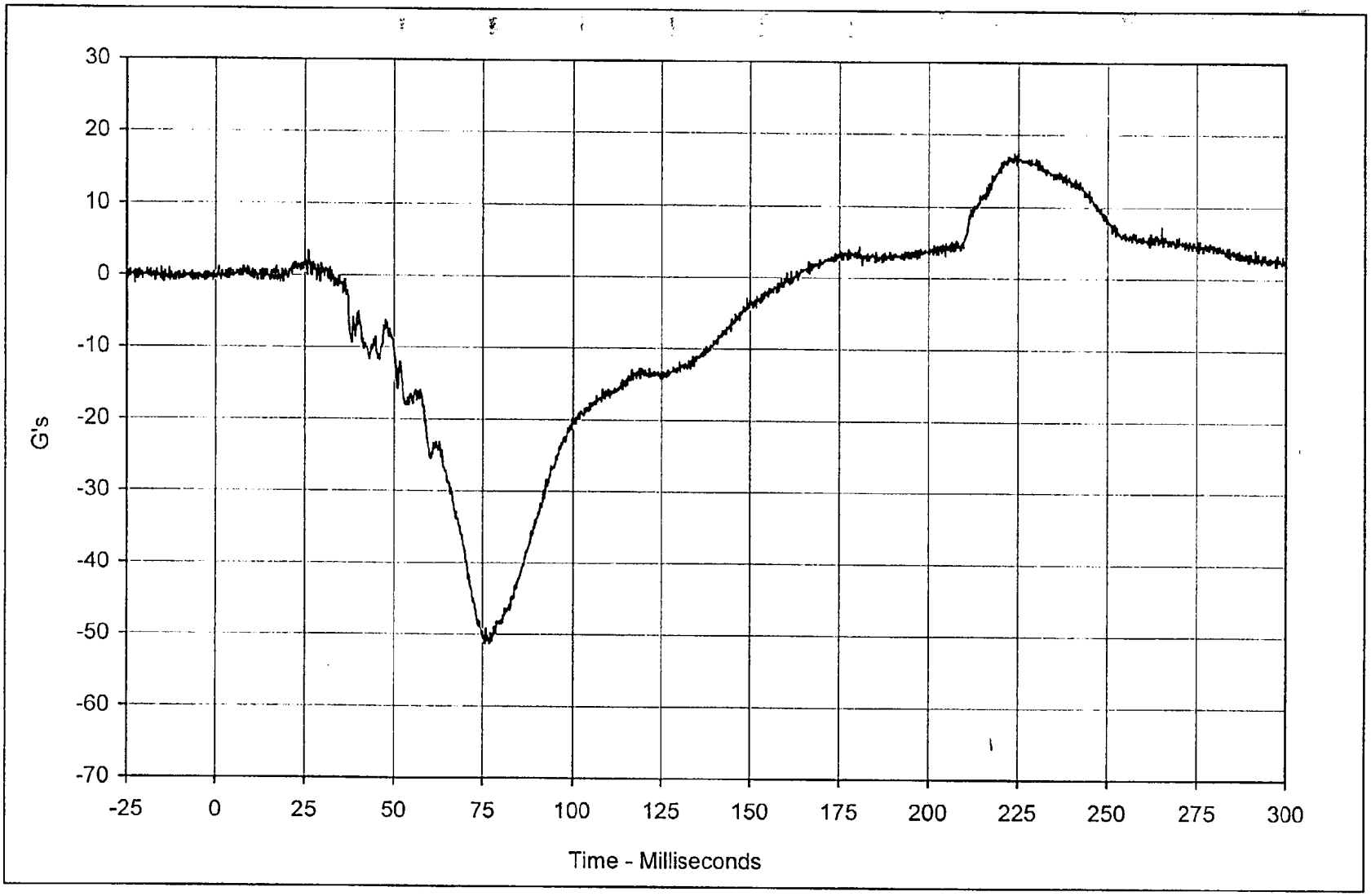

Curve Description: Passenger Head Redundant X

Maximum Value: 17.4 at 223.9 Milliseconds

Minimum Value: -51.3 at 75.7 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: FIL-048

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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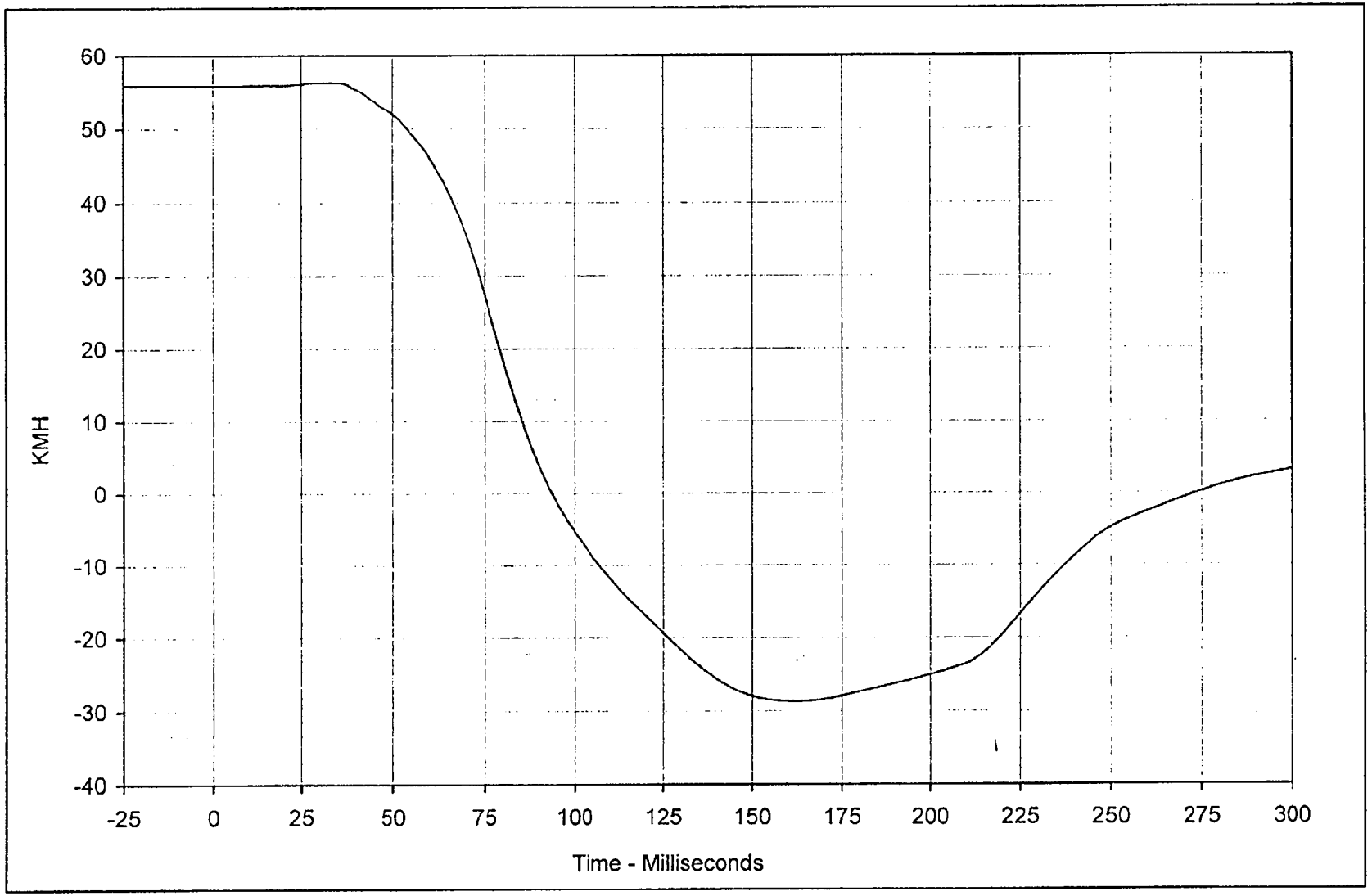

Curve Description: Passenger Head Redundant X Velocity

Maximum Value: 56.2 at 32.2 Milliseconds

Minimum Value: -28.7 at 162.5 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN1-048

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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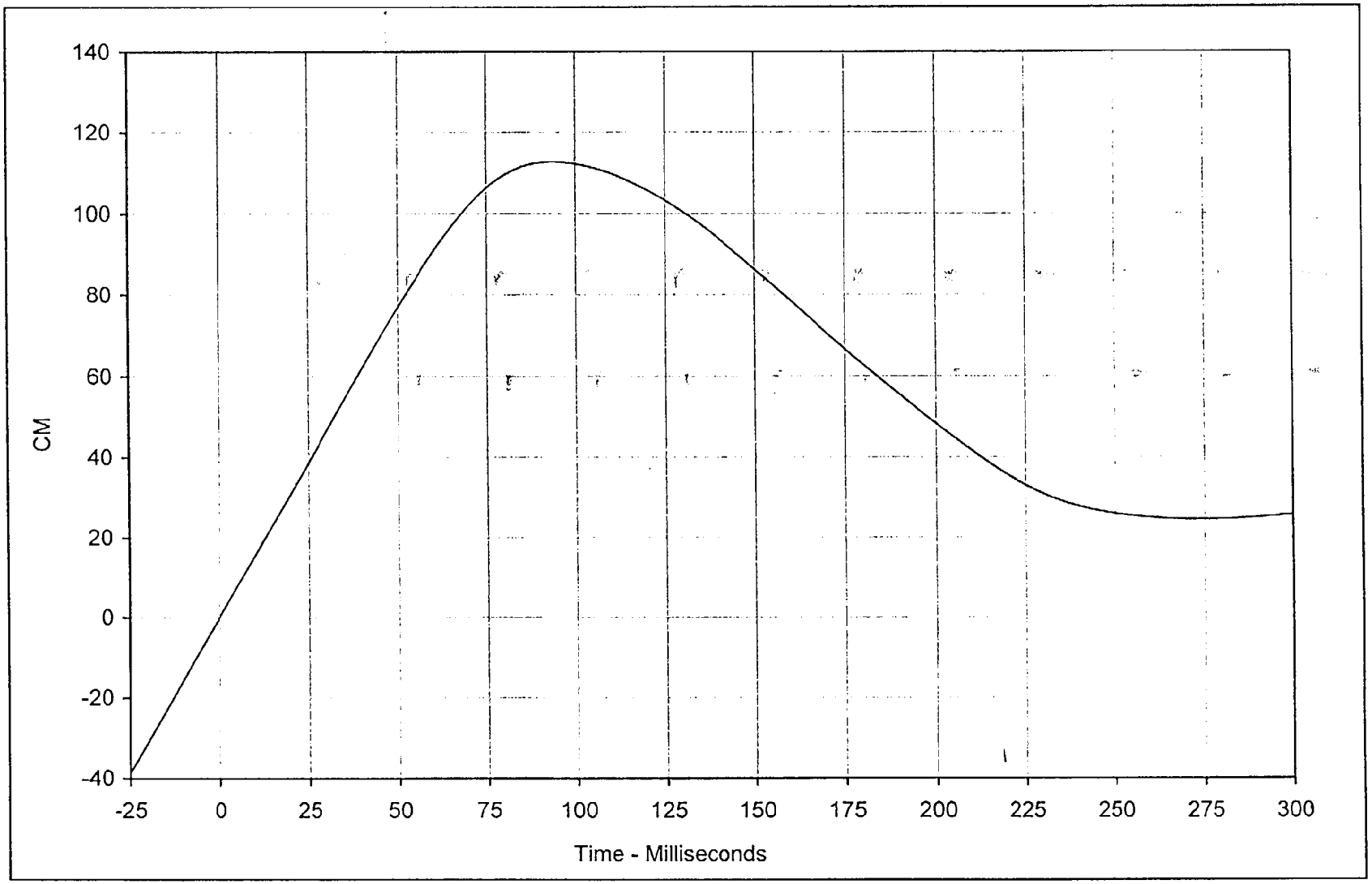

Curve Description:	Passenger Head Redundant X Displ.				Testing Program:	1997 New Car Assesment Program
Maximum Value:	112.7	at	93.7	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.0	at	0.0	Milliseconds		
SAE Filter Class:	180					
Date of Test:	4/17/97					
Curve Number:	IN2-048					

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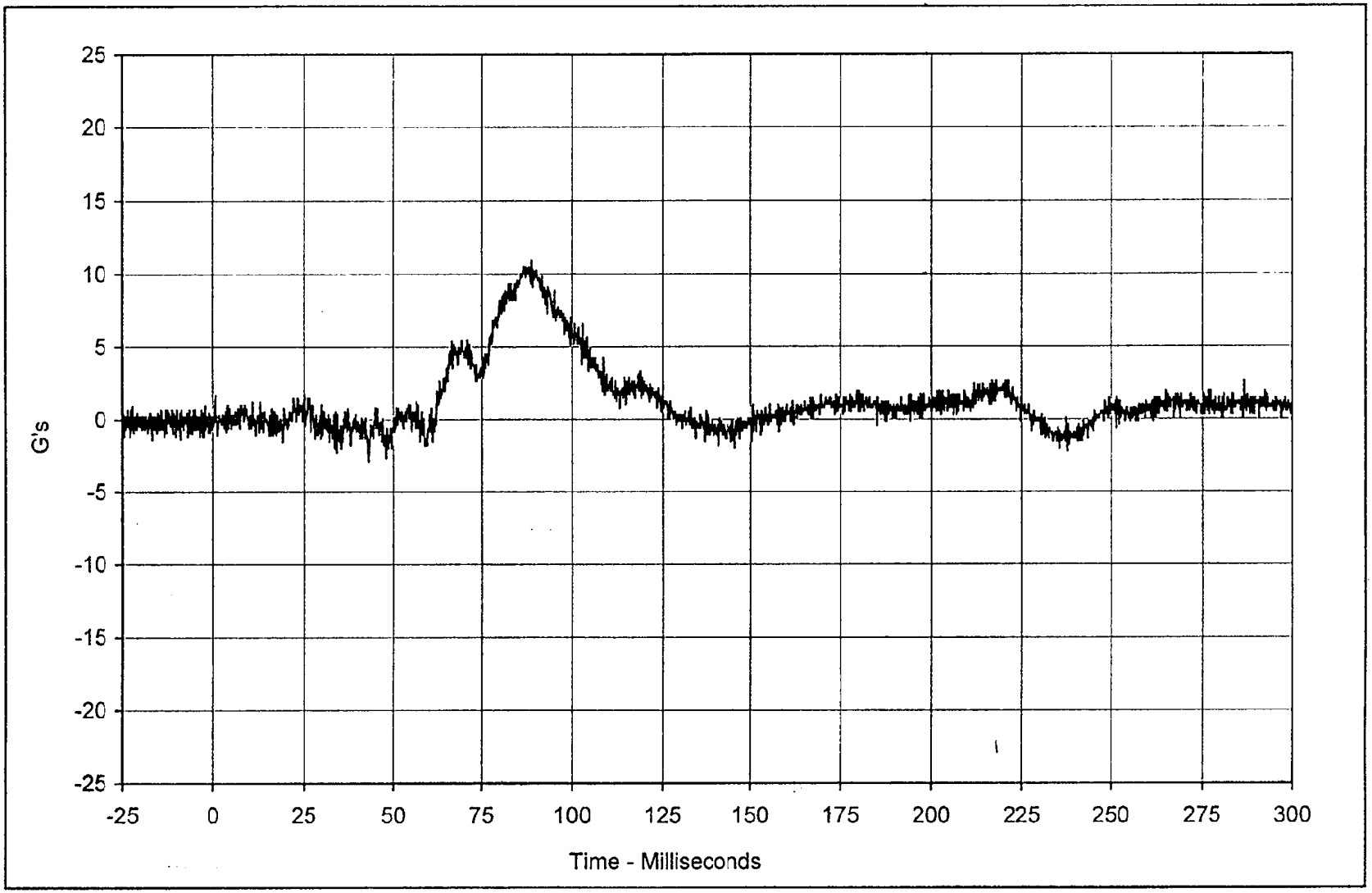
B71



Curve Description: Passenger Head Redundant Y

Maximum Value: 11.0 at 89.1 Milliseconds

Minimum Value: -2.9 at 43.0 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: FIL-049

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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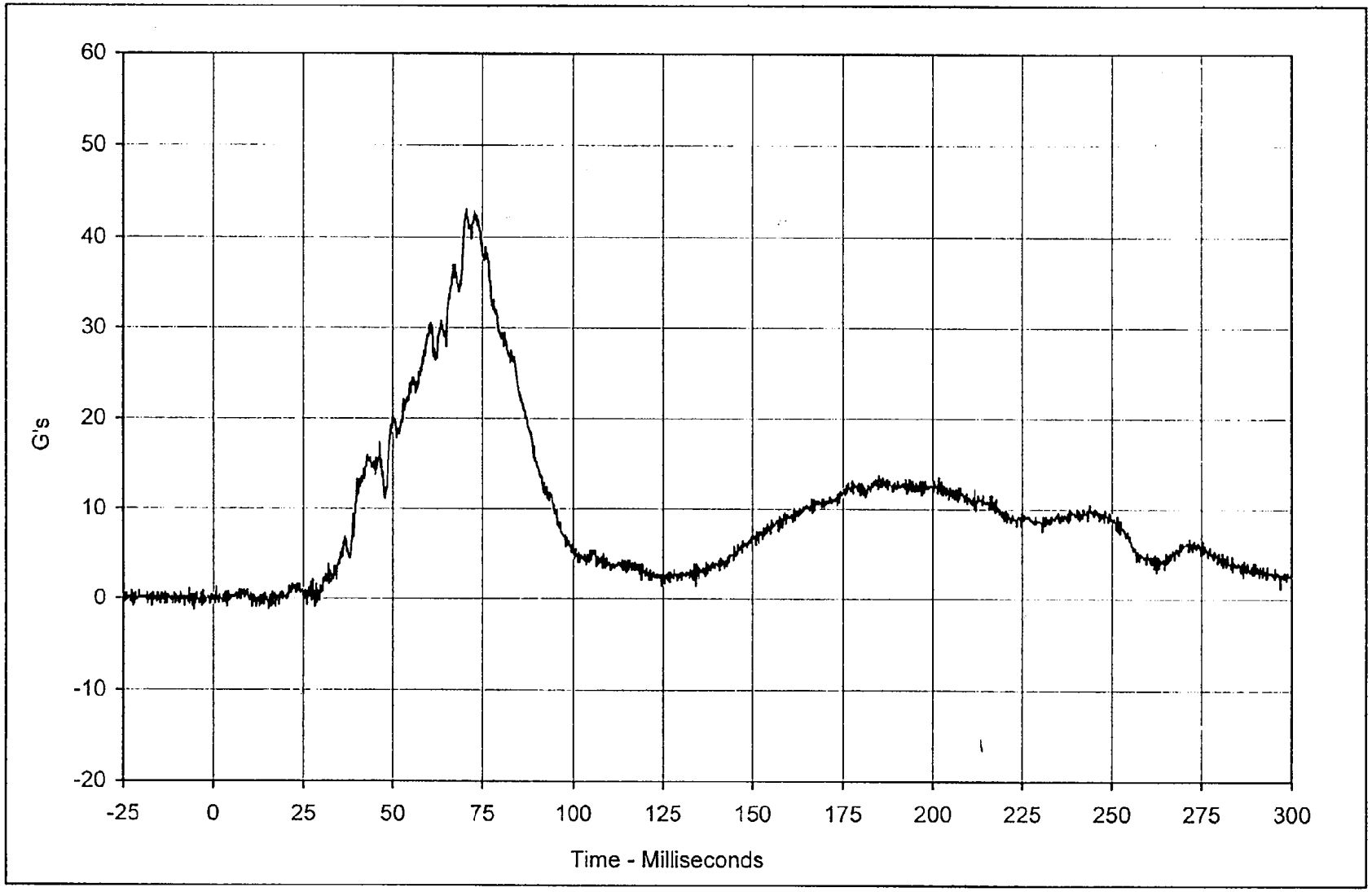
B72



Curve Description:	Passenger Head Redundant Z			Testing Program:	1997 New Car Assesment Program
Maximum Value:	43.1	at	70.5 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-1.3	at	-5.2 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-050				

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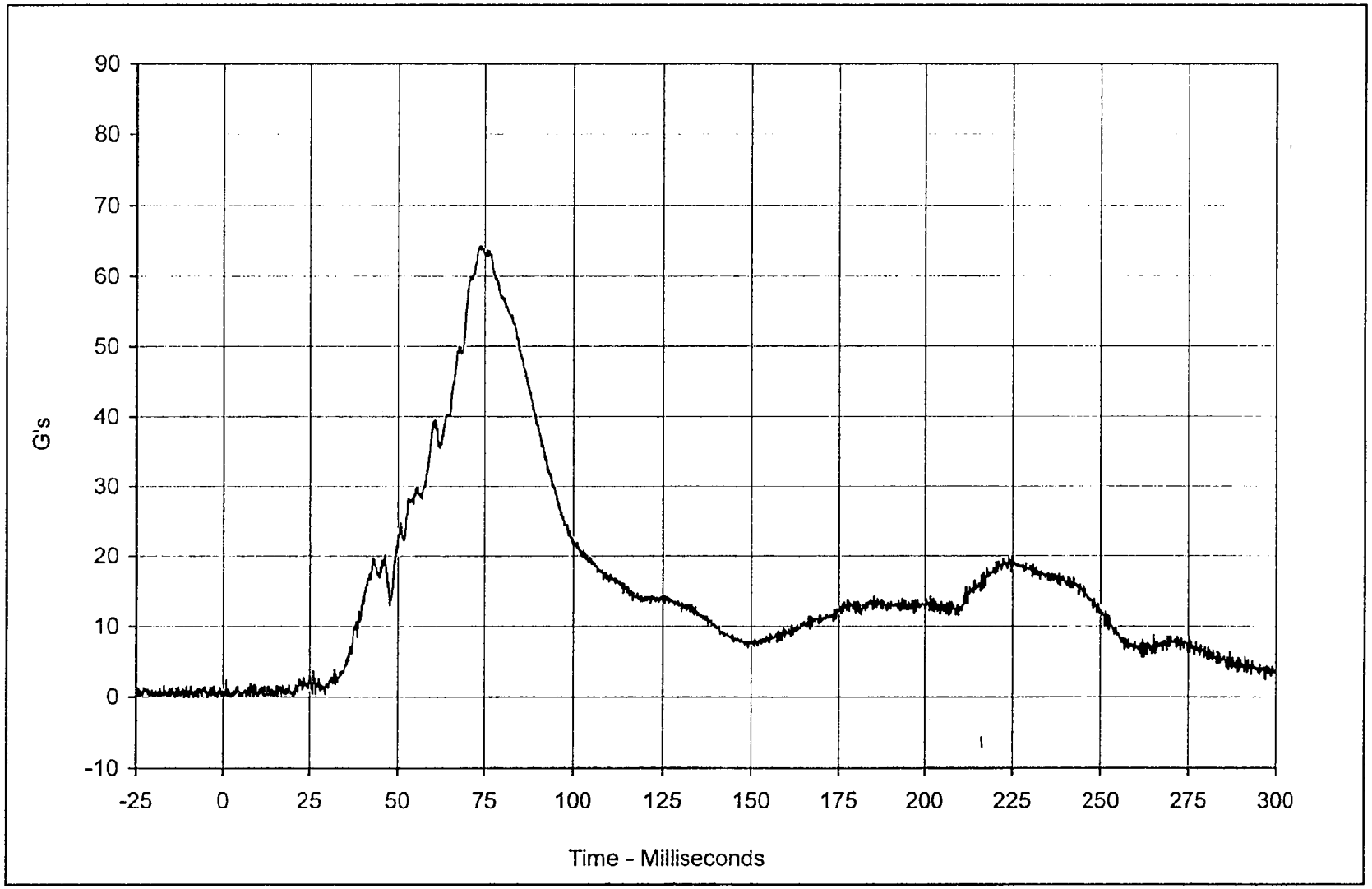
B73



Curve Description:	Passenger Head Resultant Redundant			Testing Program:	1997 New Car Assesment Program
Maximum Value:	64.3	at	73.8 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.1	at	2.1 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	RES-048				

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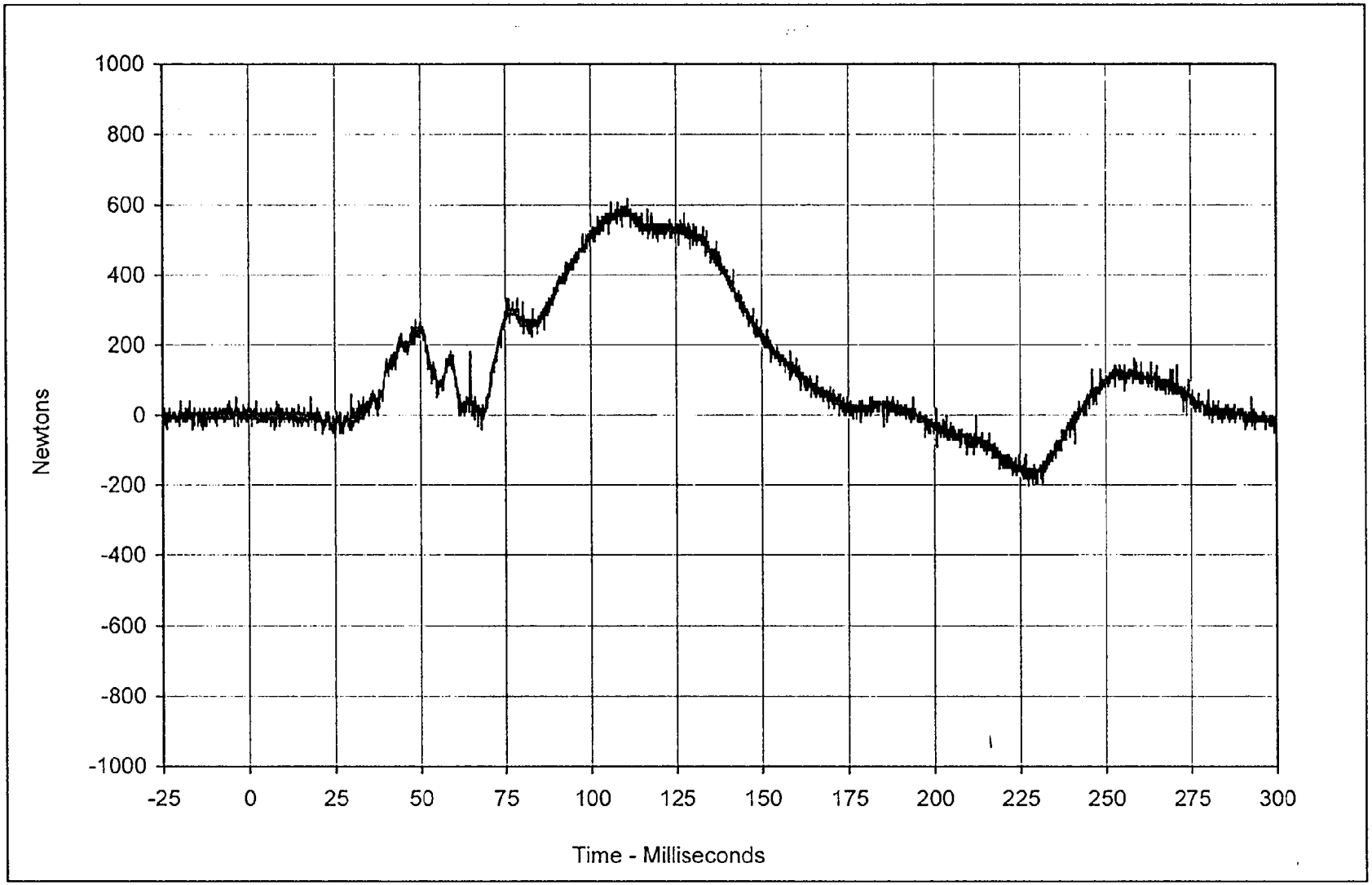

Curve Description:	Passenger Neck Force X				
Maximum Value:	617.9	at	110.9	Milliseconds	
Minimum Value:	-203.5	at	227.3	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-051				

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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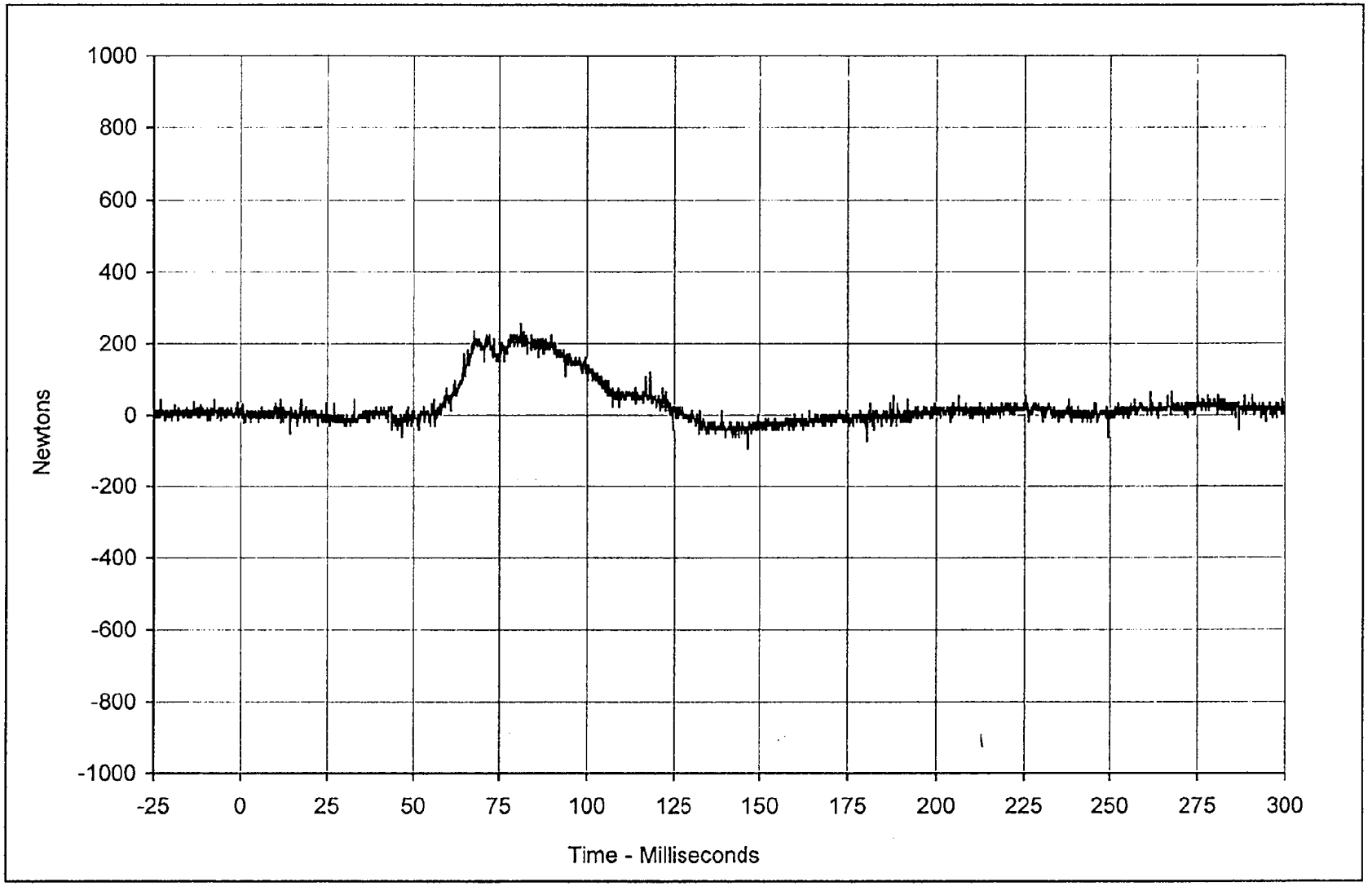
B75



Curve Description: Passenger Neck Force Y

Maximum Value: 256.7 at 81.2 Milliseconds

Minimum Value: -93.6 at 146.6 Milliseconds

SAE Filter Class: 1000

Date of Test: 4/17/97

Curve Number: FIL-052

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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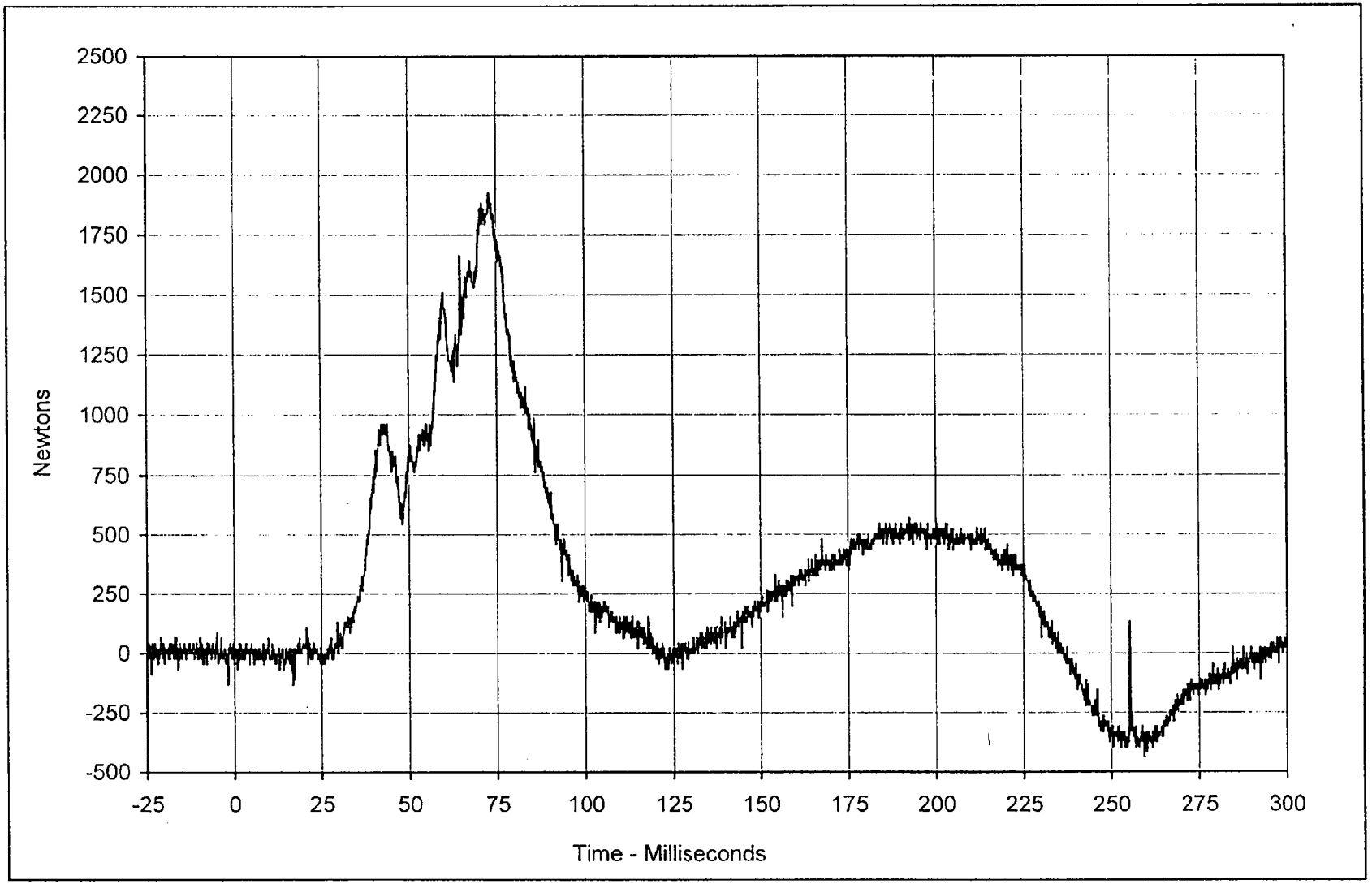
B76



Curve Description:	Passenger Neck Force Z			
Maximum Value:	1927.3	at	72.8	Milliseconds
Minimum Value:	-439.3	at	259.2	Milliseconds
SAE Filter Class:	1000			
Date of Test:	4/17/97			
Curve Number:	FIL-053			

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

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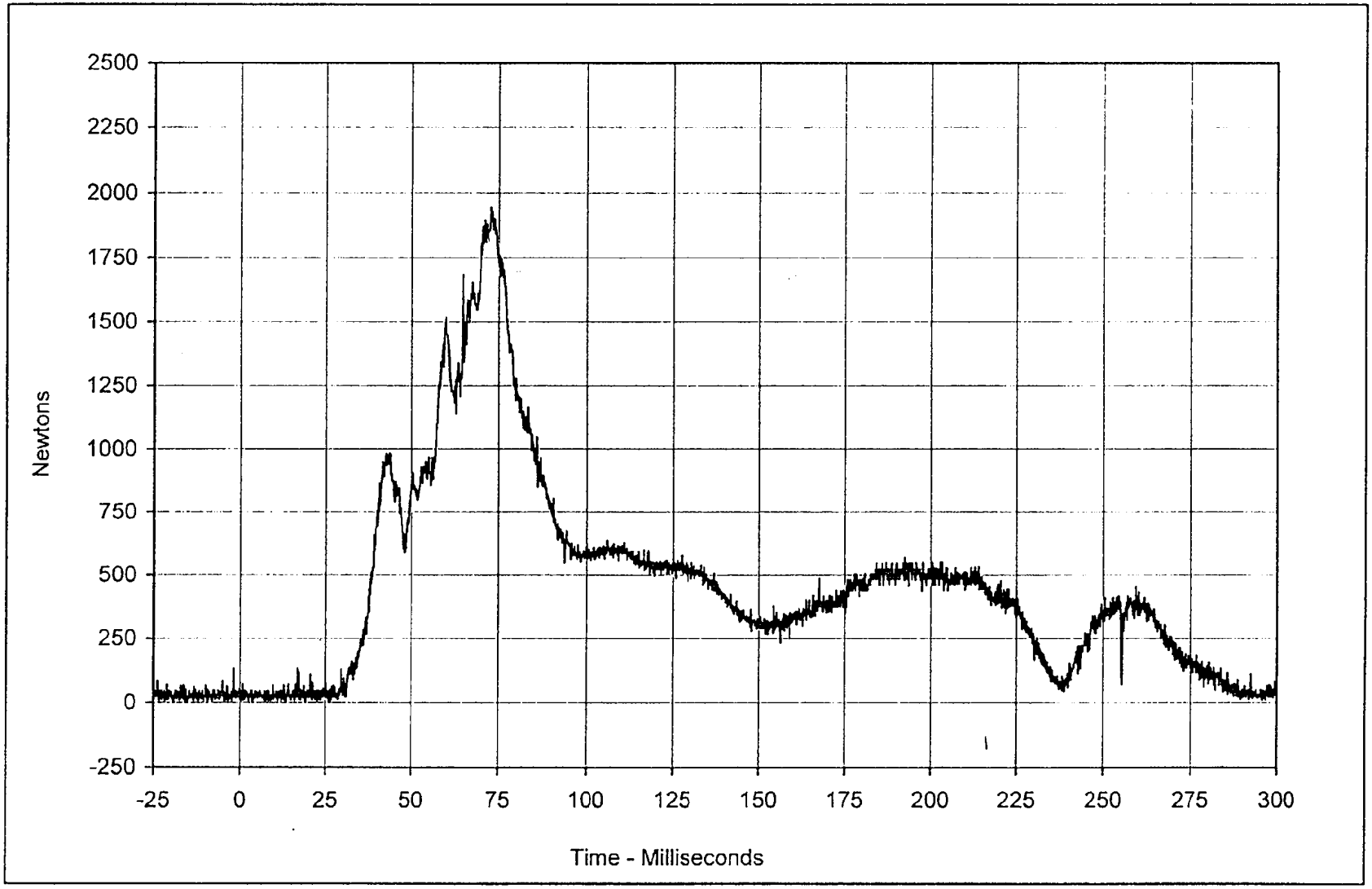

Curve Description:	Passenger Neck Force Resultant			Testing Program:	1997 New Car Assesment Program
Maximum Value:	1944.4	at	72.8 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.0	at	-25.3 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	RES-051				

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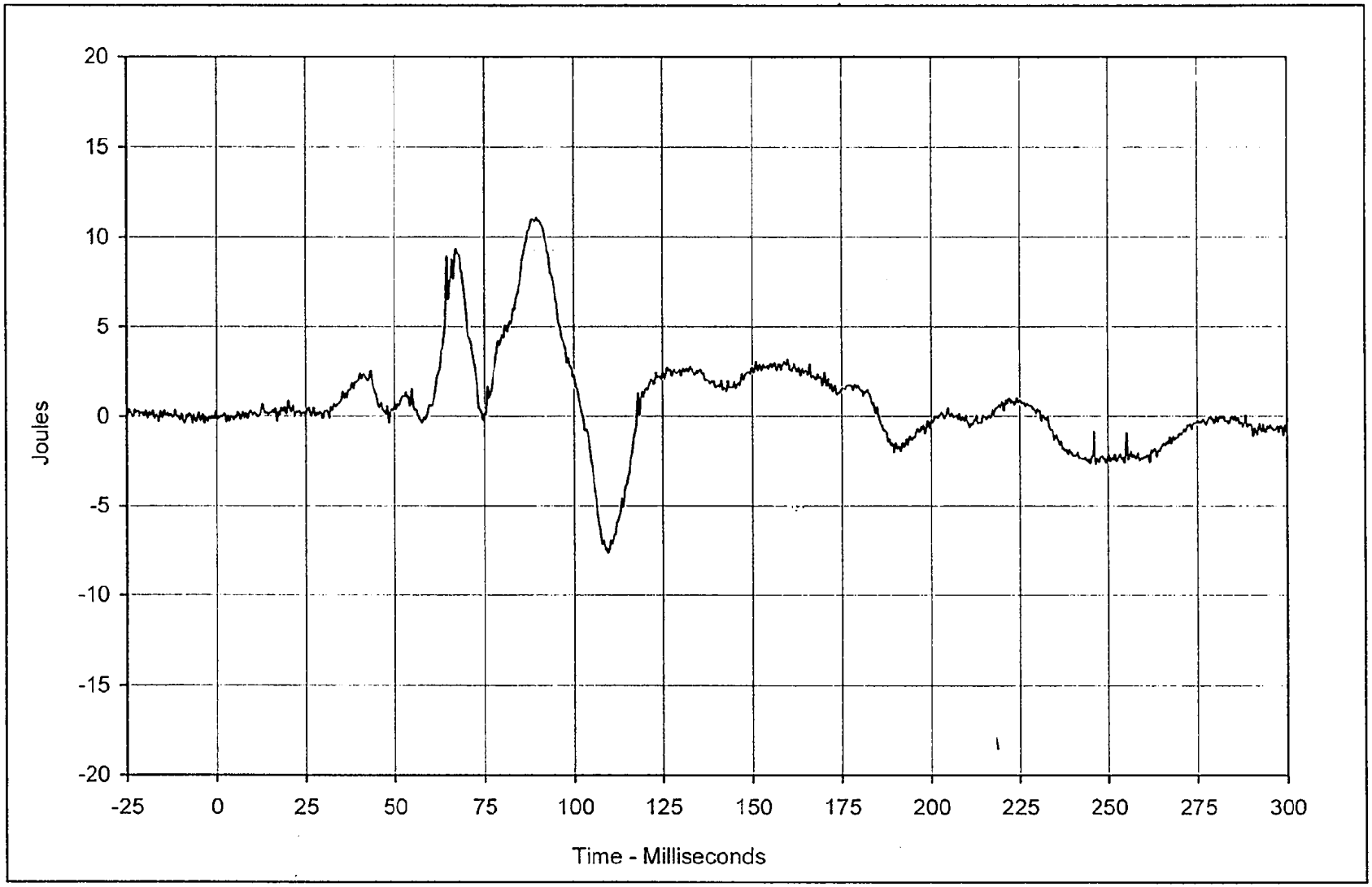

Curve Description: Passenger Neck Moment X

Maximum Value: 11.1 at 89.7 Milliseconds

Minimum Value: -7.6 at 109.5 Milliseconds

SAE Filter Class: 600

Date of Test: 4/17/97

Curve Number: FIL-054

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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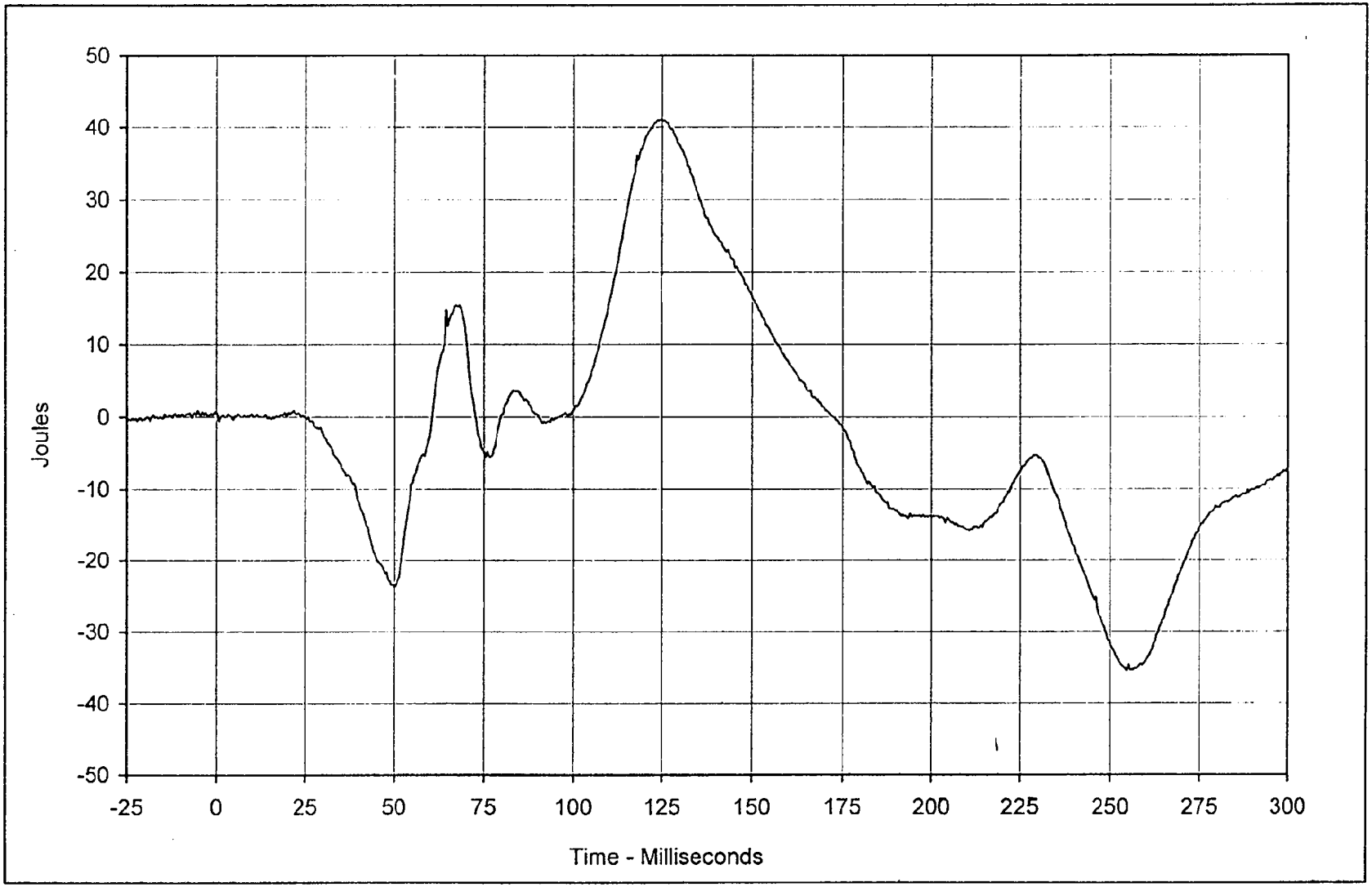
B79



Curve Description:	Passenger Neck Moment Y			Testing Program:	1997 New Car Assesment Program
Maximum Value:	41.1	at	124.8 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-35.4	at	254.6 Milliseconds		
SAE Filter Class:	600				
Date of Test:	4/17/97				
Curve Number:	FIL-055				

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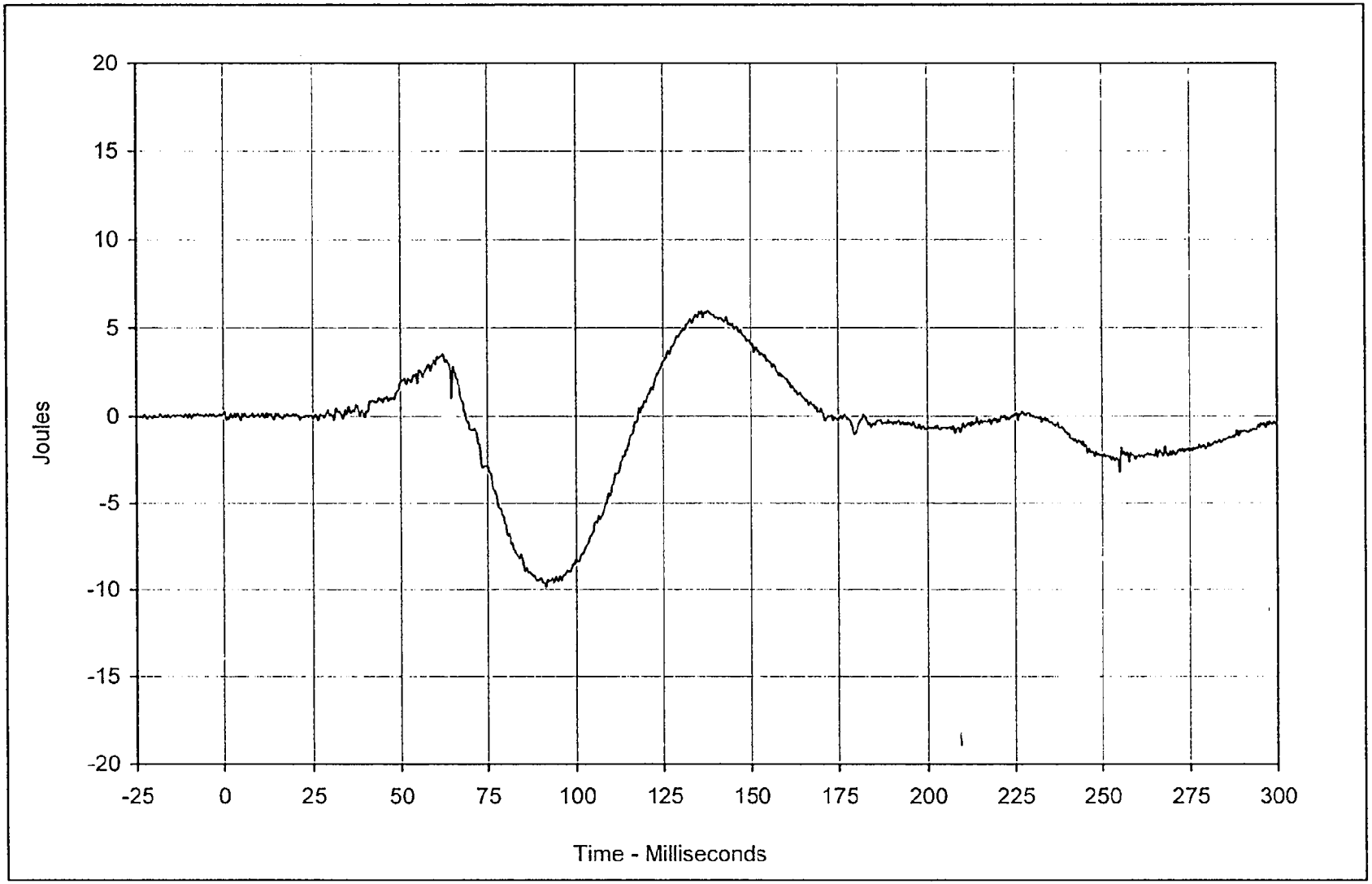
B80



Curve Description:	Passenger Neck Moment Z			Testing Program:	1997 New Car Assesment Program
Maximum Value:	6.0	at	137.7 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-9.9	at	91.3 Milliseconds		
SAE Filter Class:	600				
Date of Test:	4/17/97				
Curve Number:	FIL-056				

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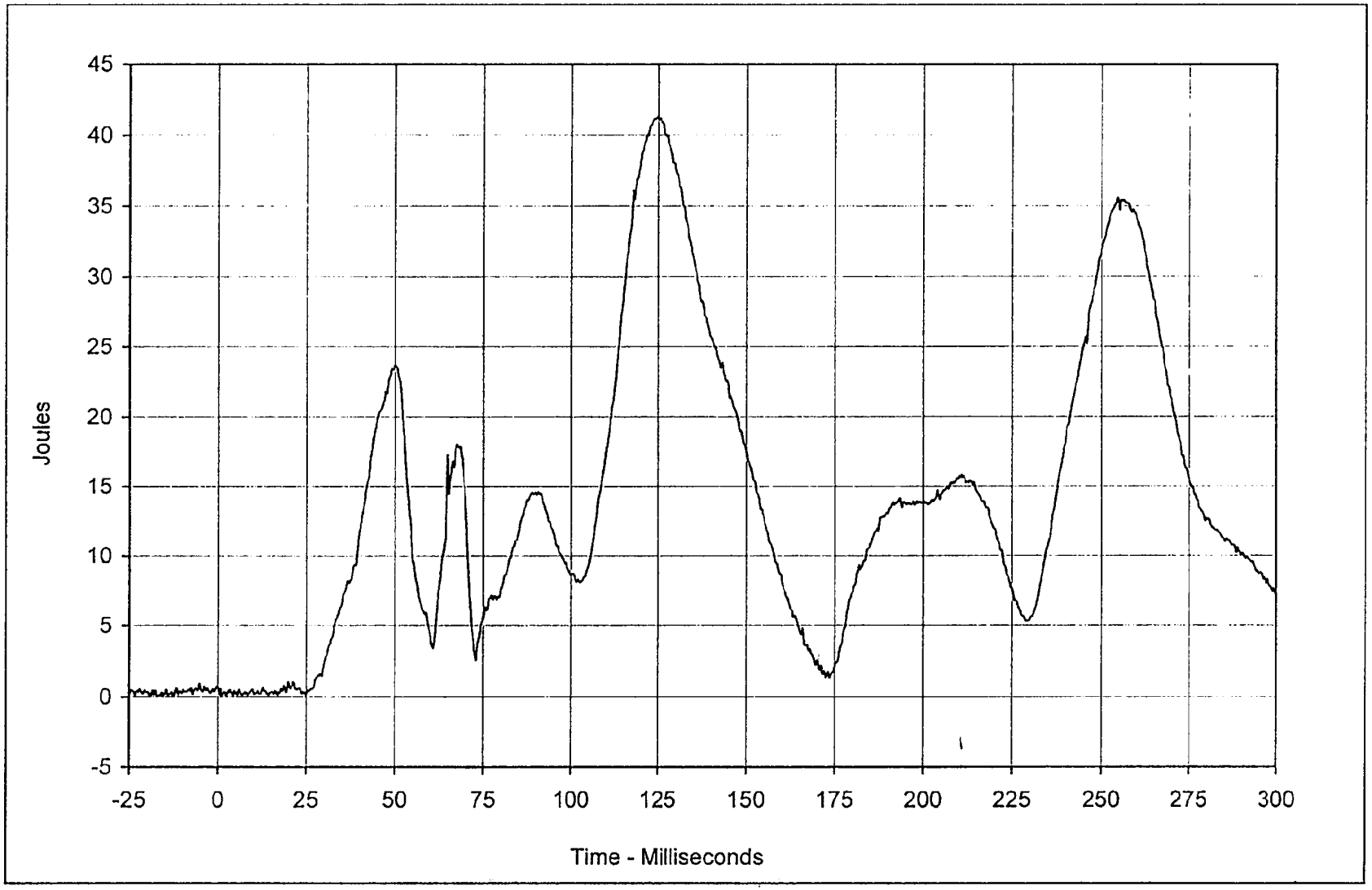

Curve Description:	Passenger Neck Moment Resultant				Testing Program:	1997 New Car Assesment Program
Maximum Value:	41.3	at	124.8	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.1	at	2.4	Milliseconds		
SAE Filter Class:	600					
Date of Test:	4/17/97					
Curve Number:	RES-054					

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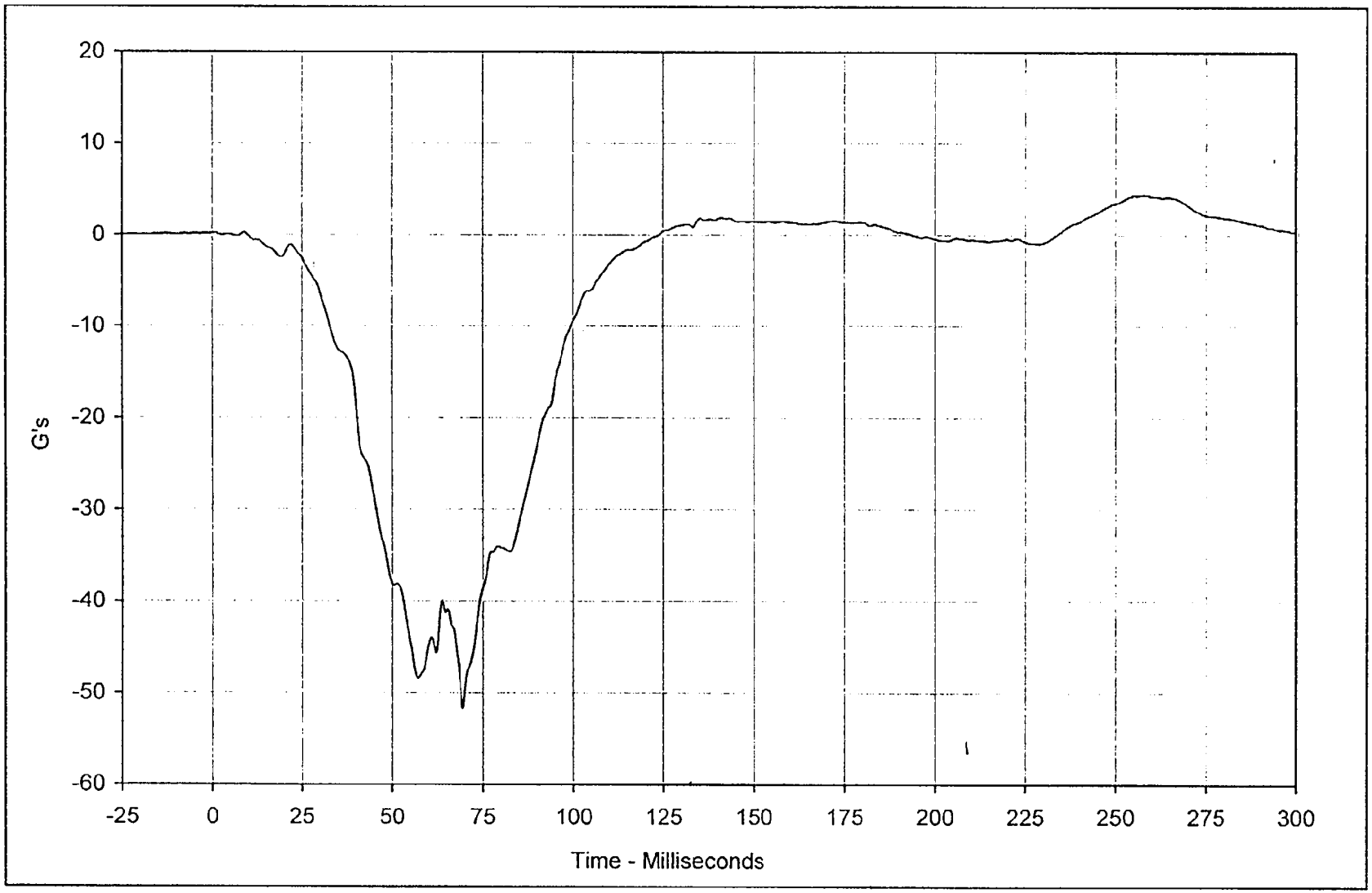
B82



Curve Description:	Passenger Chest Primary X				
Maximum Value:	4.4	at	258.0	Milliseconds	
Minimum Value:	-51.6	at	69.5	Milliseconds	
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	FIL-057				

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

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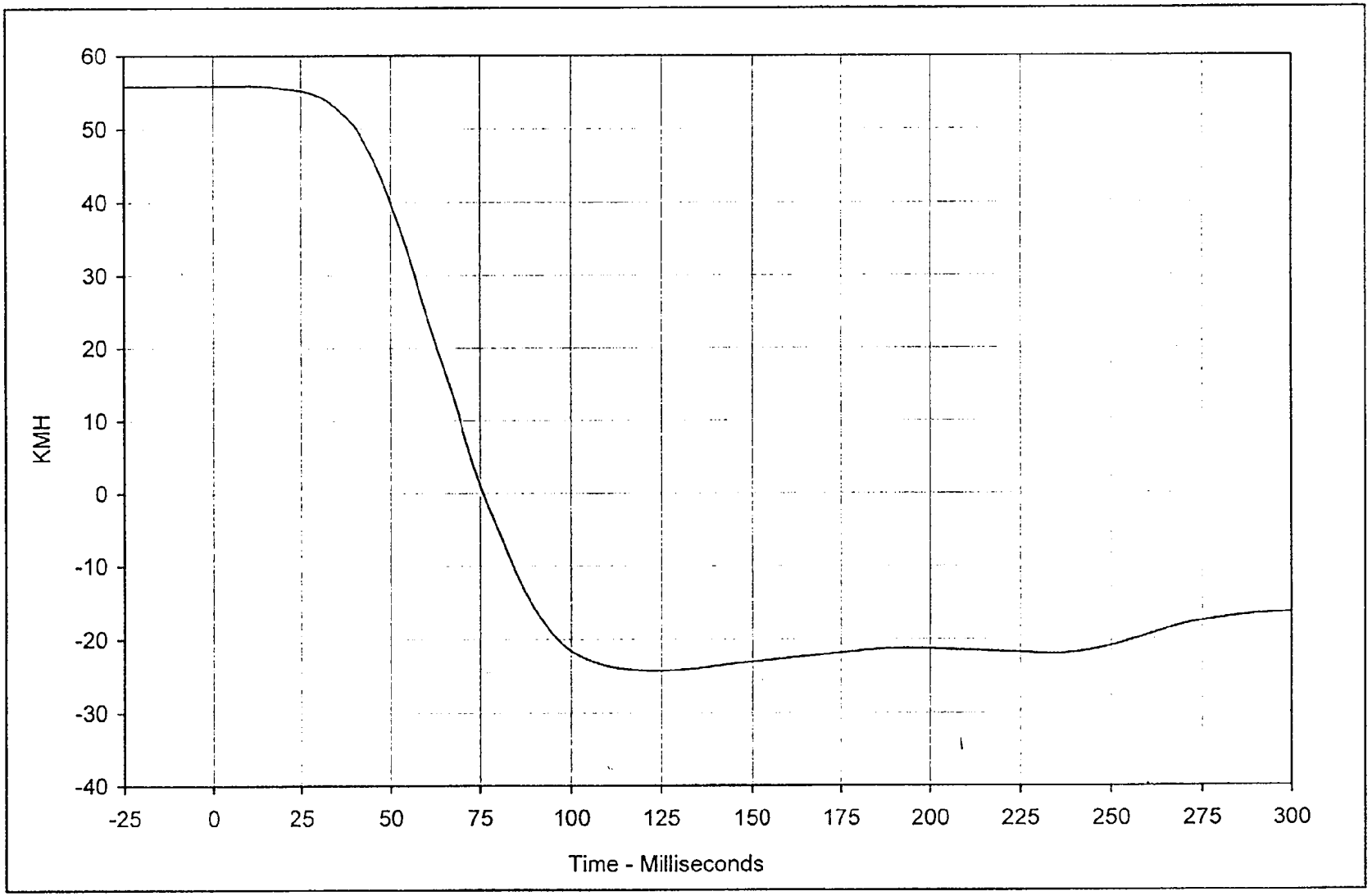
B83



Curve Description: Passenger Chest Primary X Velocity

Maximum Value: 55.9 at 9.8 Milliseconds

Minimum Value: -24.3 at 123.7 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN1-057

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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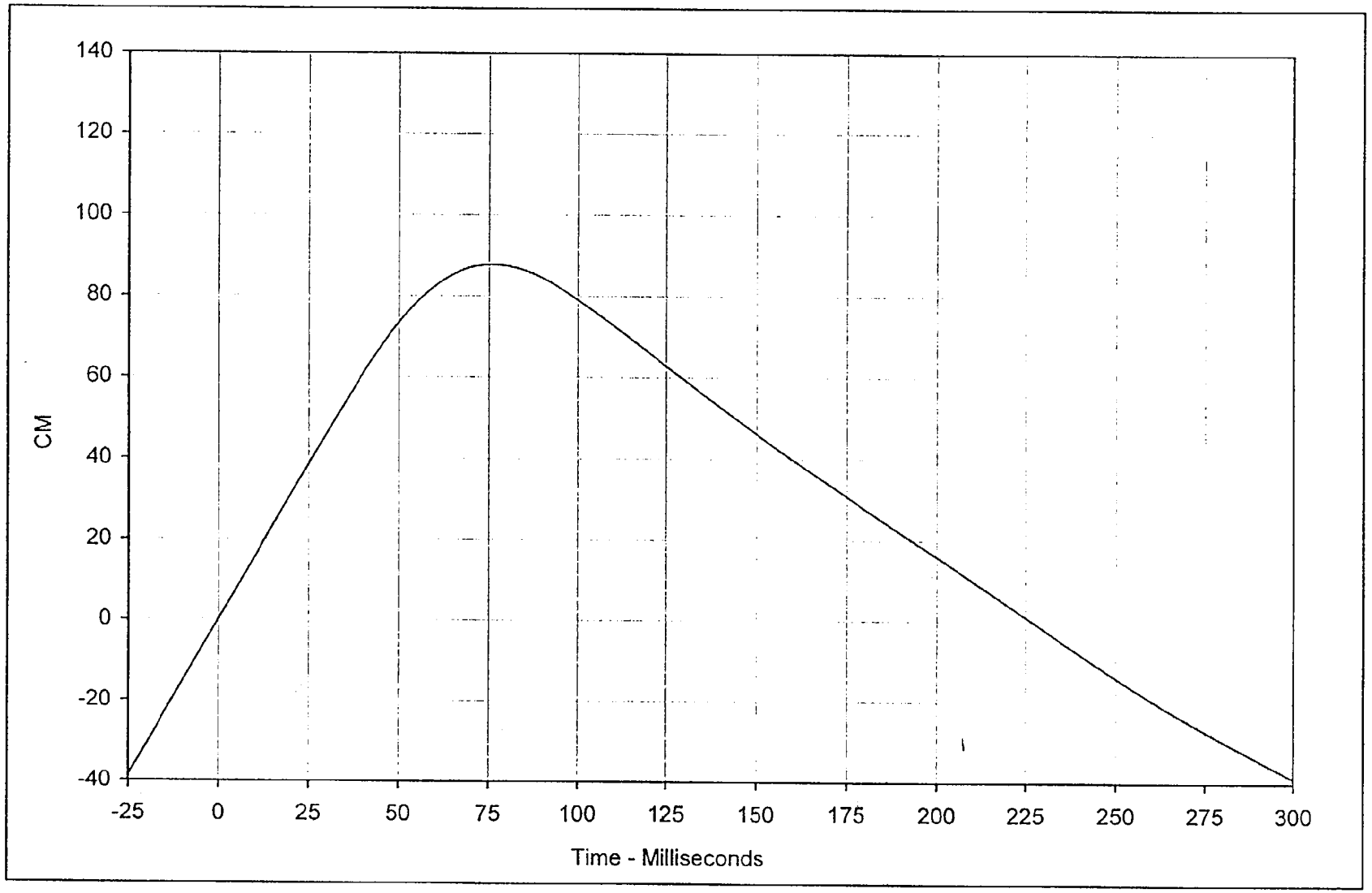

Curve Description: Passenger Chest Primary X Displ.

Maximum Value: 87.8 at 75.8 Milliseconds

Minimum Value: -38.7 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-057

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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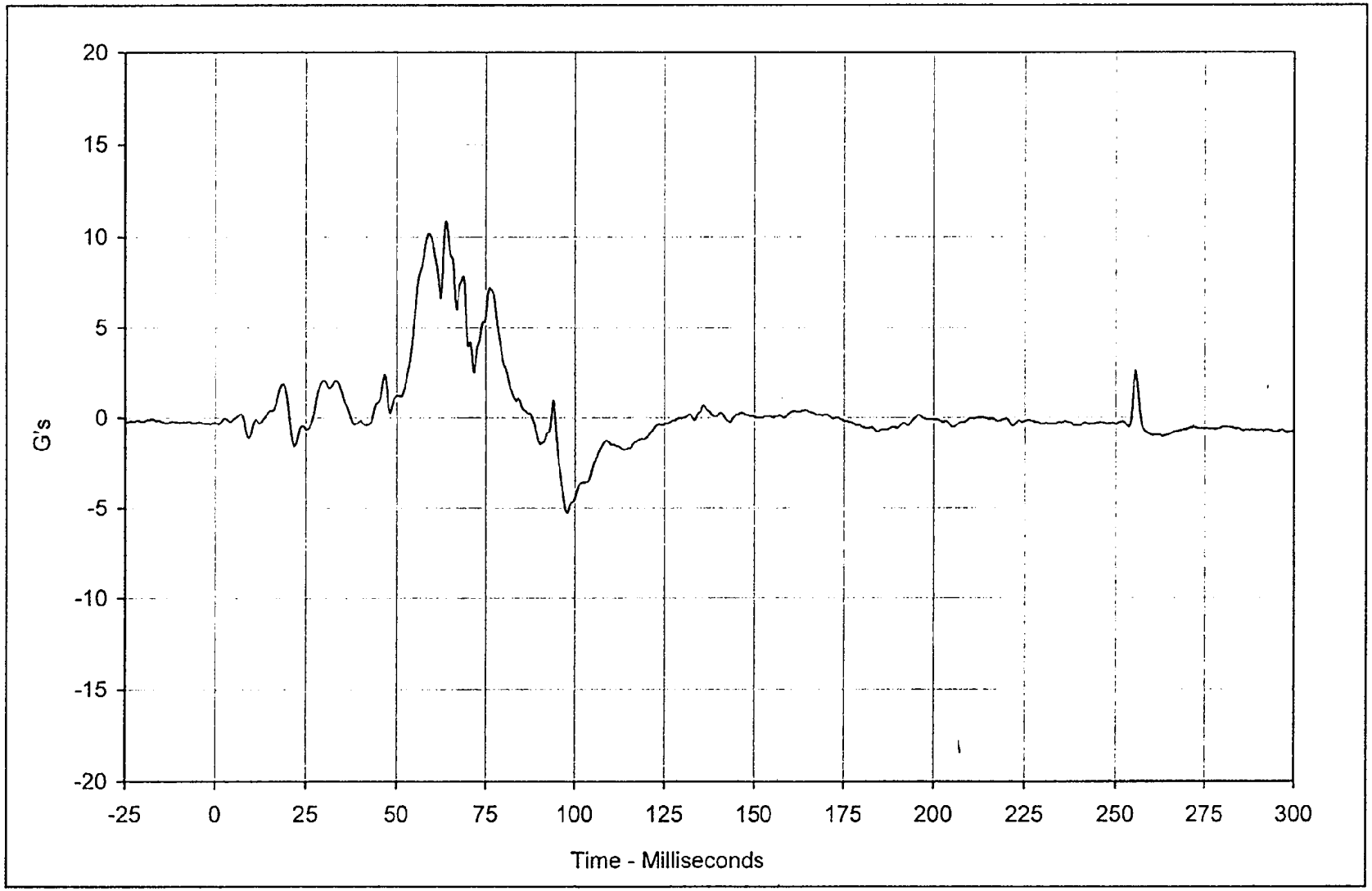
B85



Curve Description:	Passenger Chest Primary Y				Testing Program:	1997 New Car Assessment Program
Maximum Value:	10.9	at	63.7	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-5.3	at	97.9	Milliseconds		
SAE Filter Class:	180					
Date of Test:	4/17/97					
Curve Number:	FIL-058					

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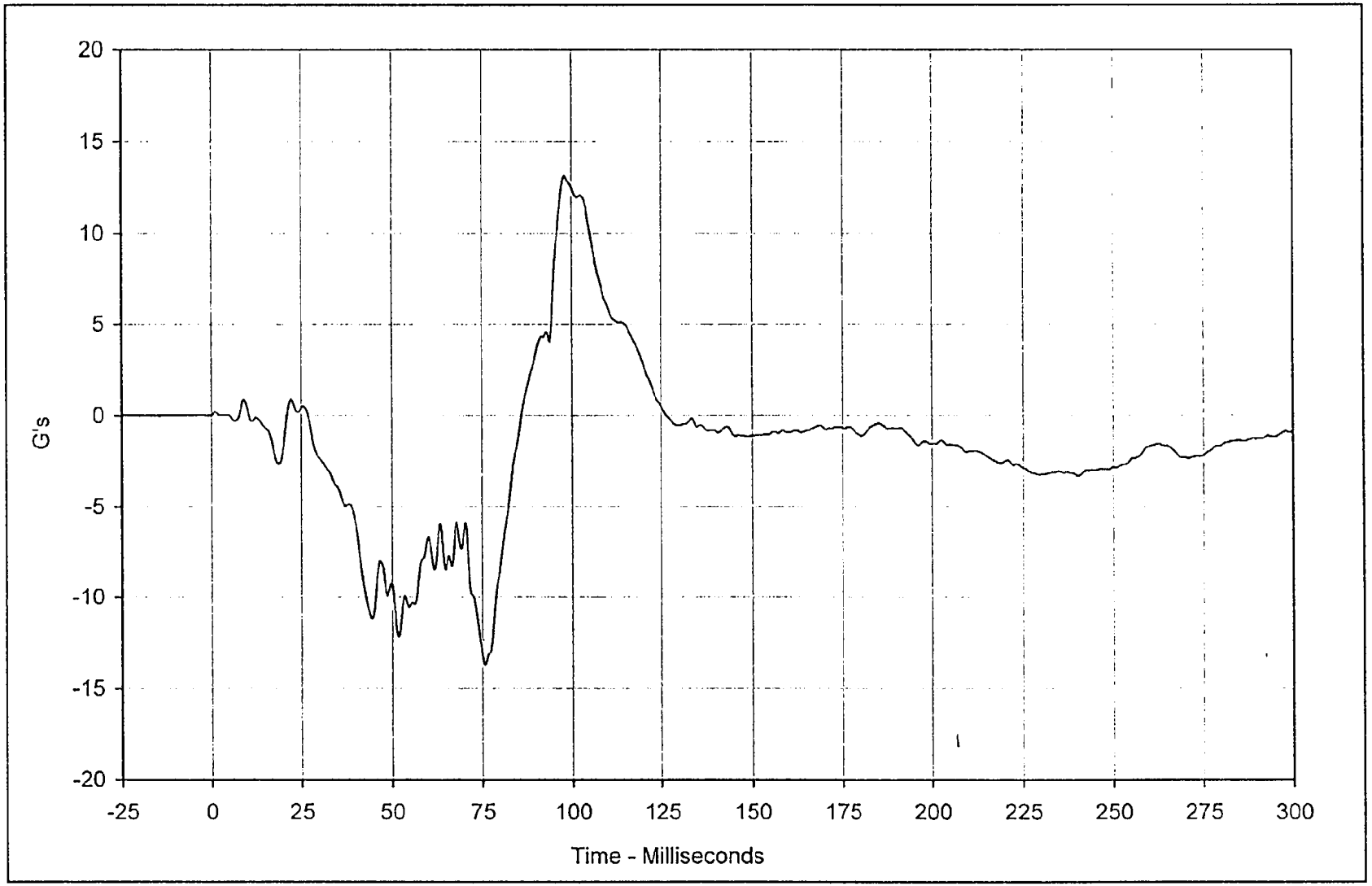
B86



Curve Description:	Passenger Chest Primary Z				Testing Program:	1997 New Car Assessment Program
Maximum Value:	13.1	at	98.1	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-13.7	at	75.7	Milliseconds		
SAE Filter Class:	180					
Date of Test:	4/17/97					
Curve Number:	FIL-059					

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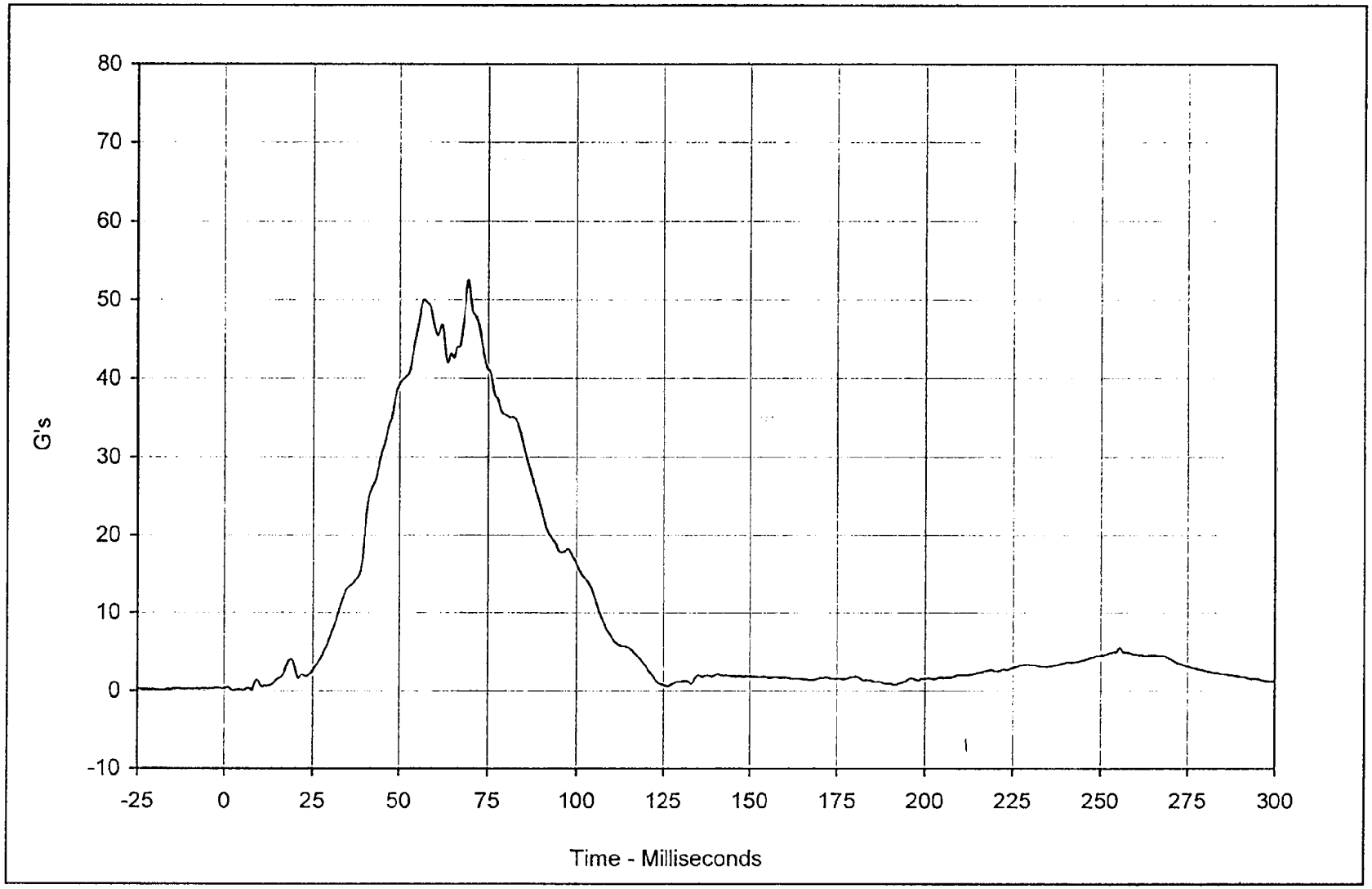
B87



Curve Description:	Passenger Chest Resultant Primary				
Maximum Value:	52.5	at	69.4	Milliseconds	
Minimum Value:	0.1	at	2.8	Milliseconds	
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	RES-057				

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

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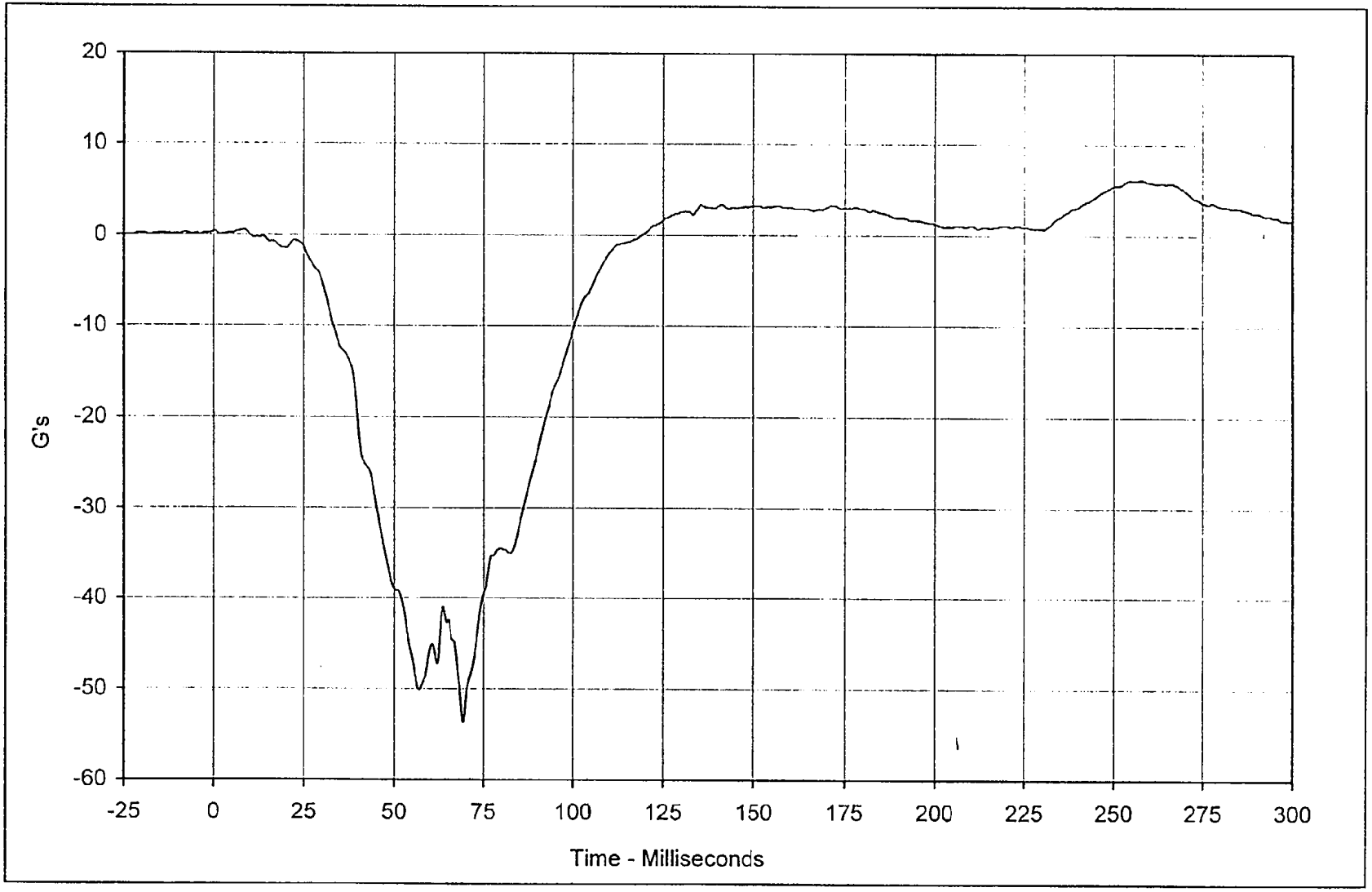
B88



Curve Description:	Passenger Chest Redundant X			Testing Program:	1997 New Car Assesment Program
Maximum Value:	6.1	at	257.7 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-53.6	at	69.4 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	FIL-060				

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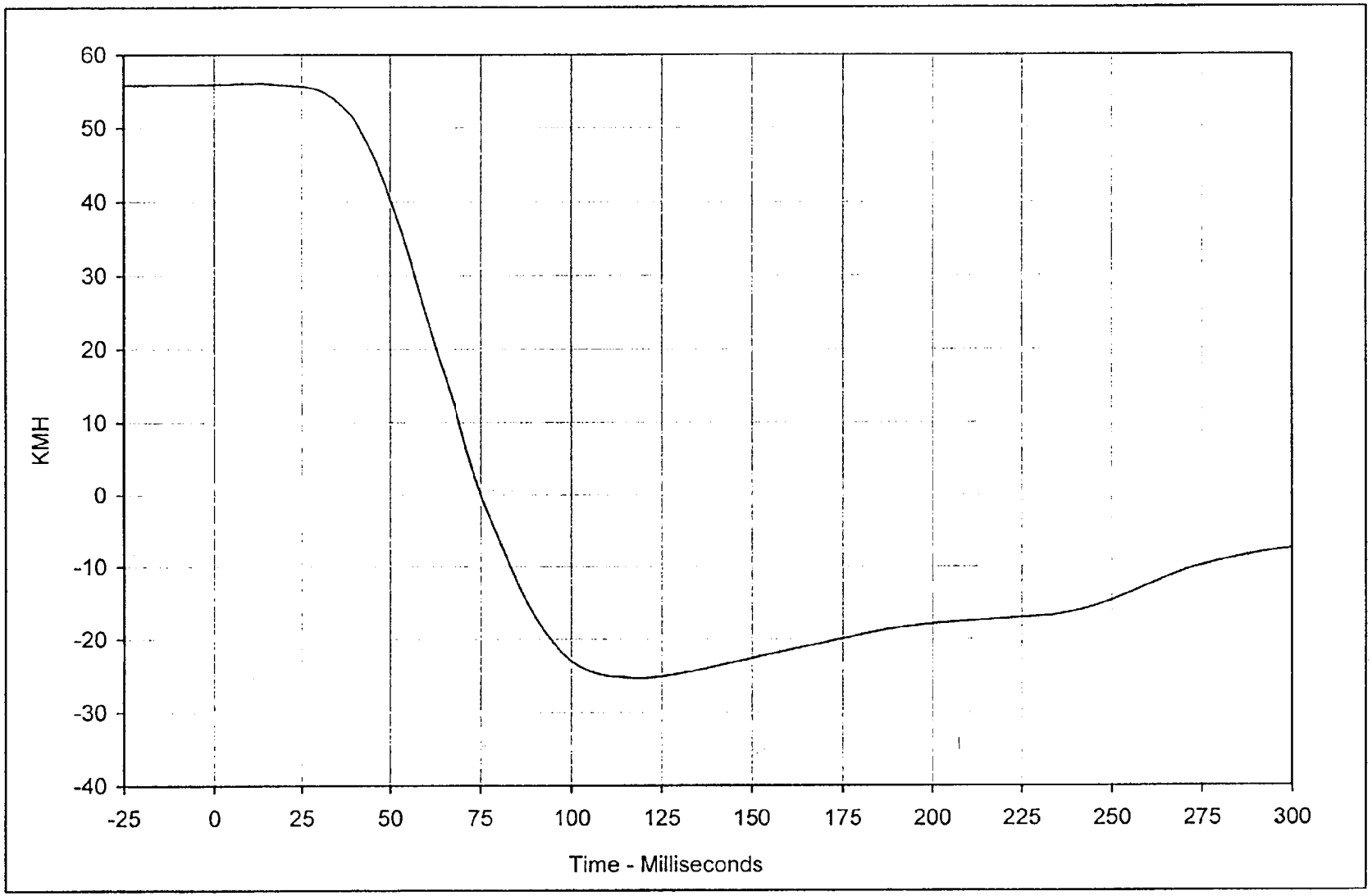
B89



Curve Description: Passenger Chest Redundant X Velocity

Maximum Value: 56.0 at 10.2 Milliseconds

Minimum Value: -25.3 at 119.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN1-060

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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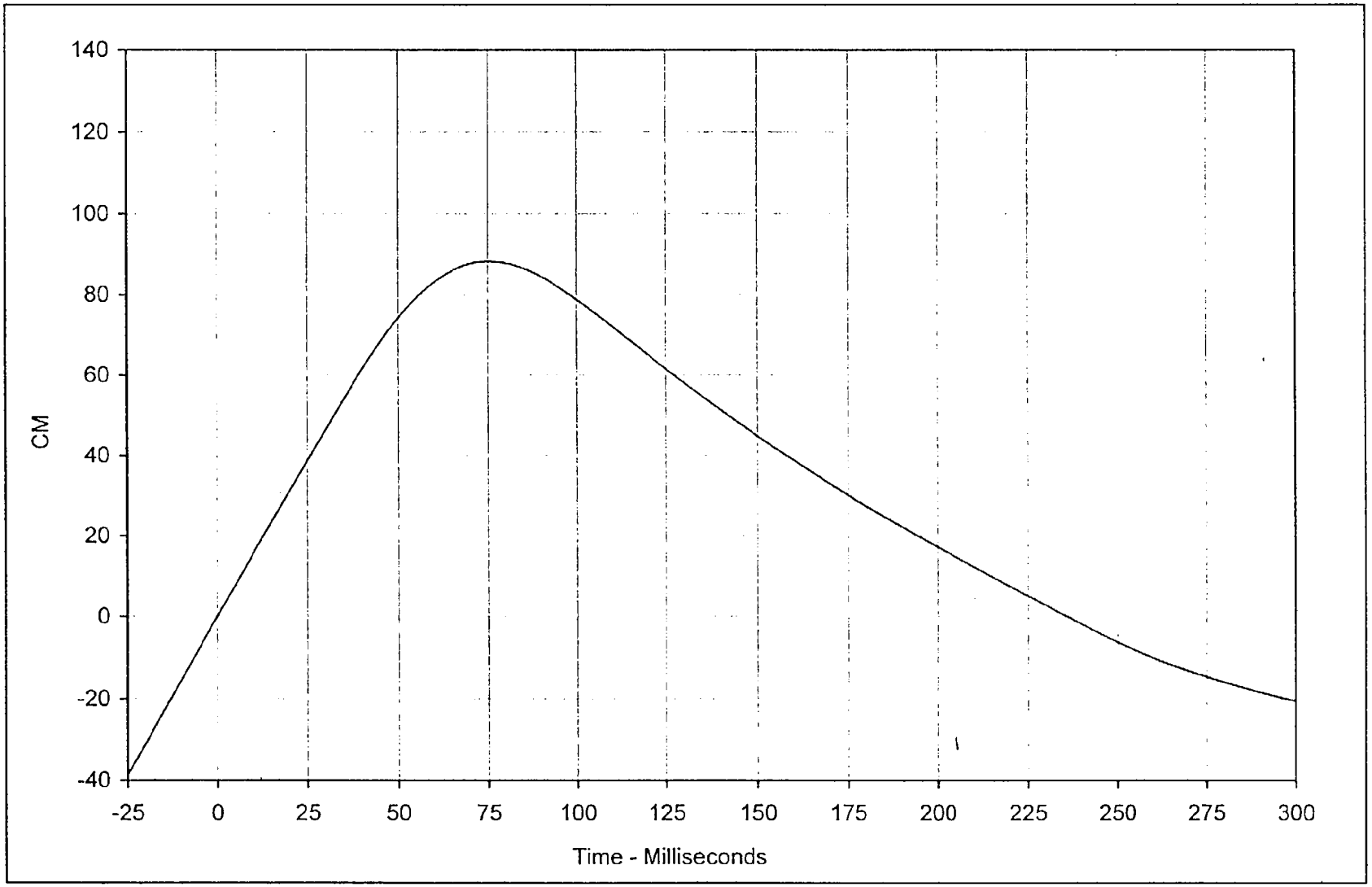
B90



Curve Description:	Passenger Chest Redundant X Displ.			Testing Program:	1997 New Car Assesment Program
Maximum Value:	88.2	at	75.1 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-20.5	at	299.9 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	IN2-060				

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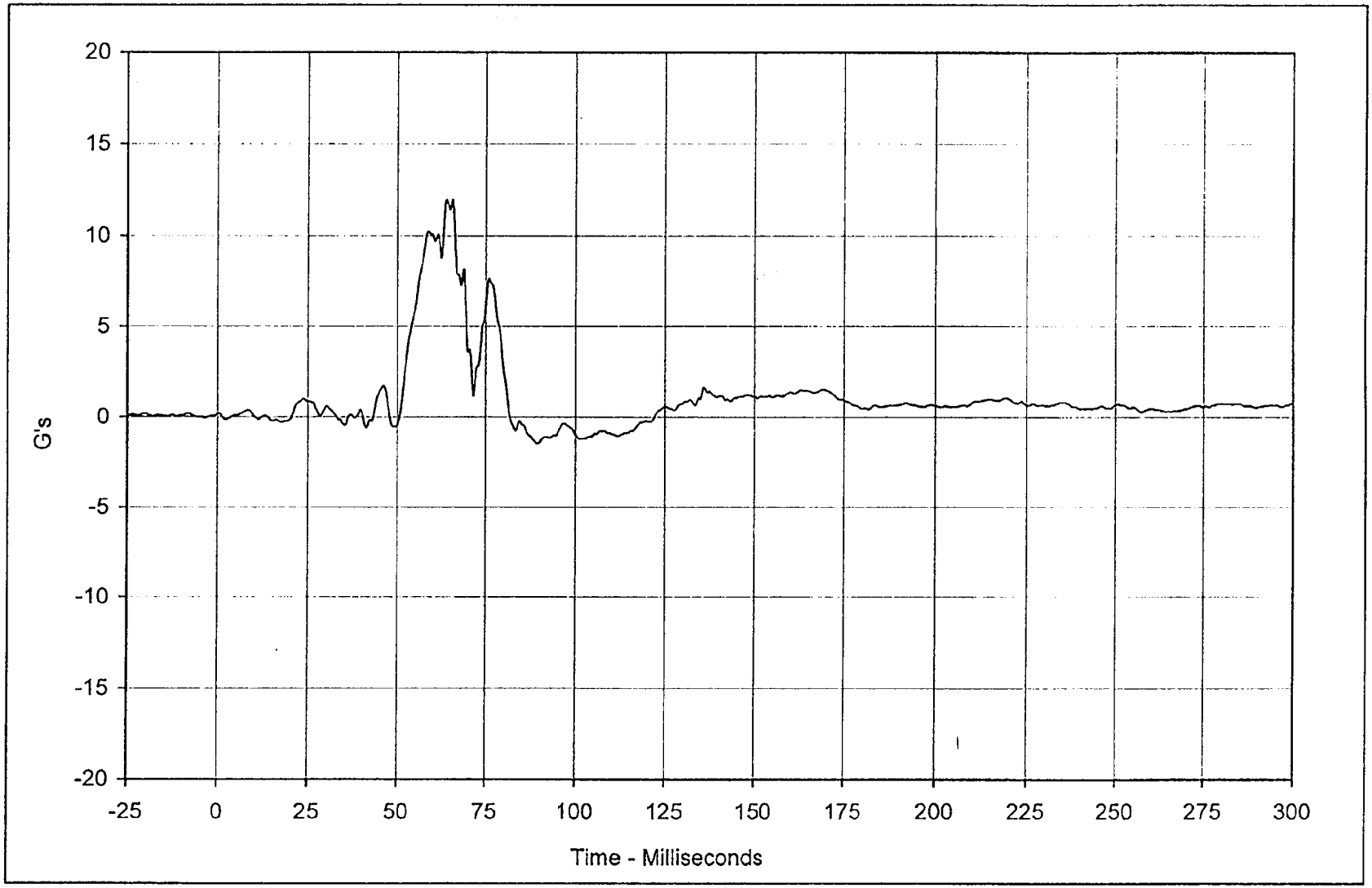
B91



Curve Description:	Passenger Chest Redundant Y				Testing Program:	1997 New Car Assesment Program
Maximum Value:	12.0	at	65.5	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-1.5	at	89.3	Milliseconds		
SAE Filter Class:	180					
Date of Test:	4/17/97					
Curve Number:	FIL-061					

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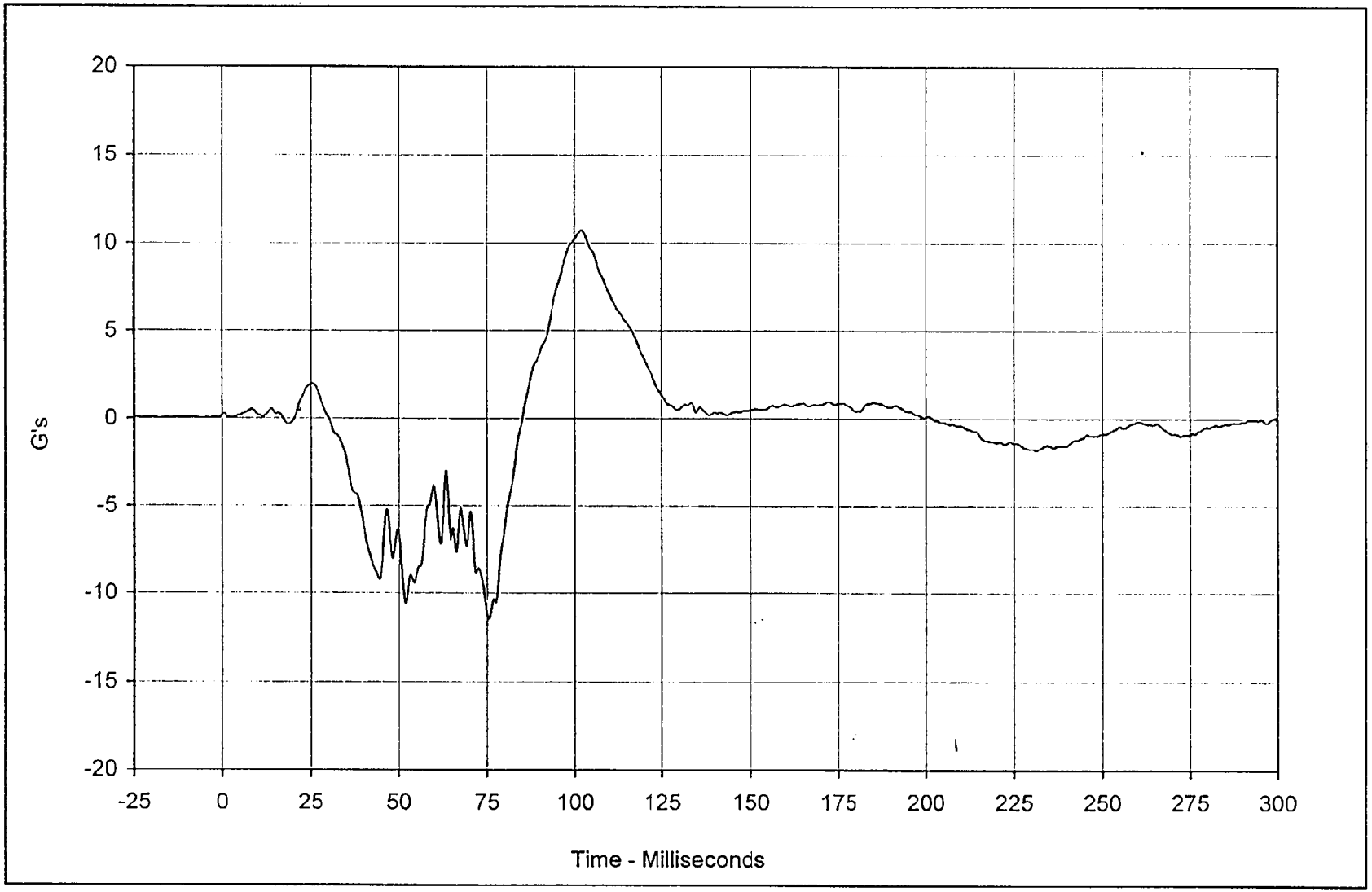
B92



Curve Description:	Passenger Chest Redundant Z			Testing Program:	1997 New Car Assesment Program
Maximum Value:	10.7	at	101.8 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-11.4	at	75.6 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	FIL-062				

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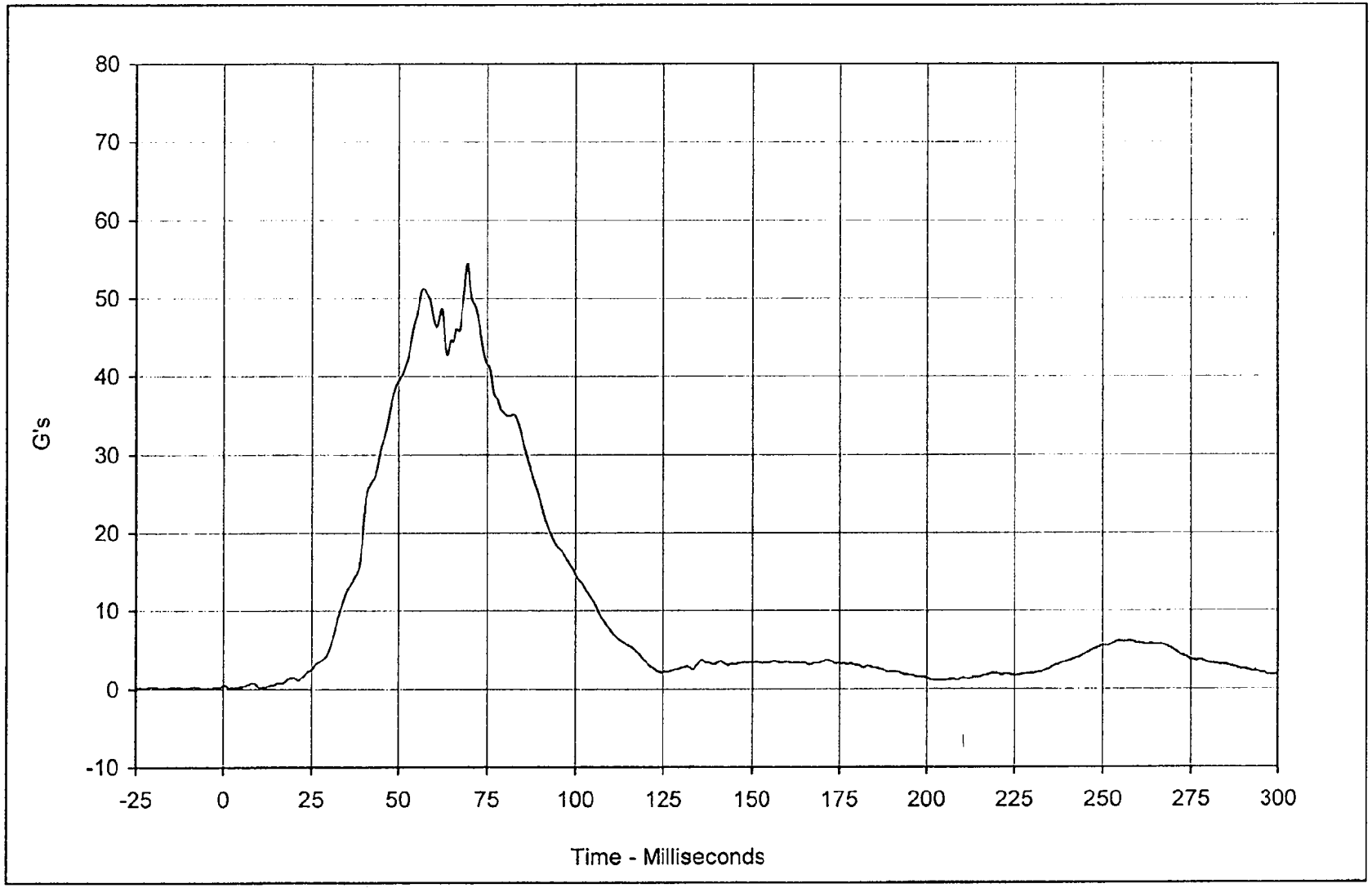

Curve Description:	Passenger Chest Resultant Redundant			Testing Program:	1997 New Car Assesment Program
Maximum Value:	54.5	at	69.4 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.1	at	1.7 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	RES-060				

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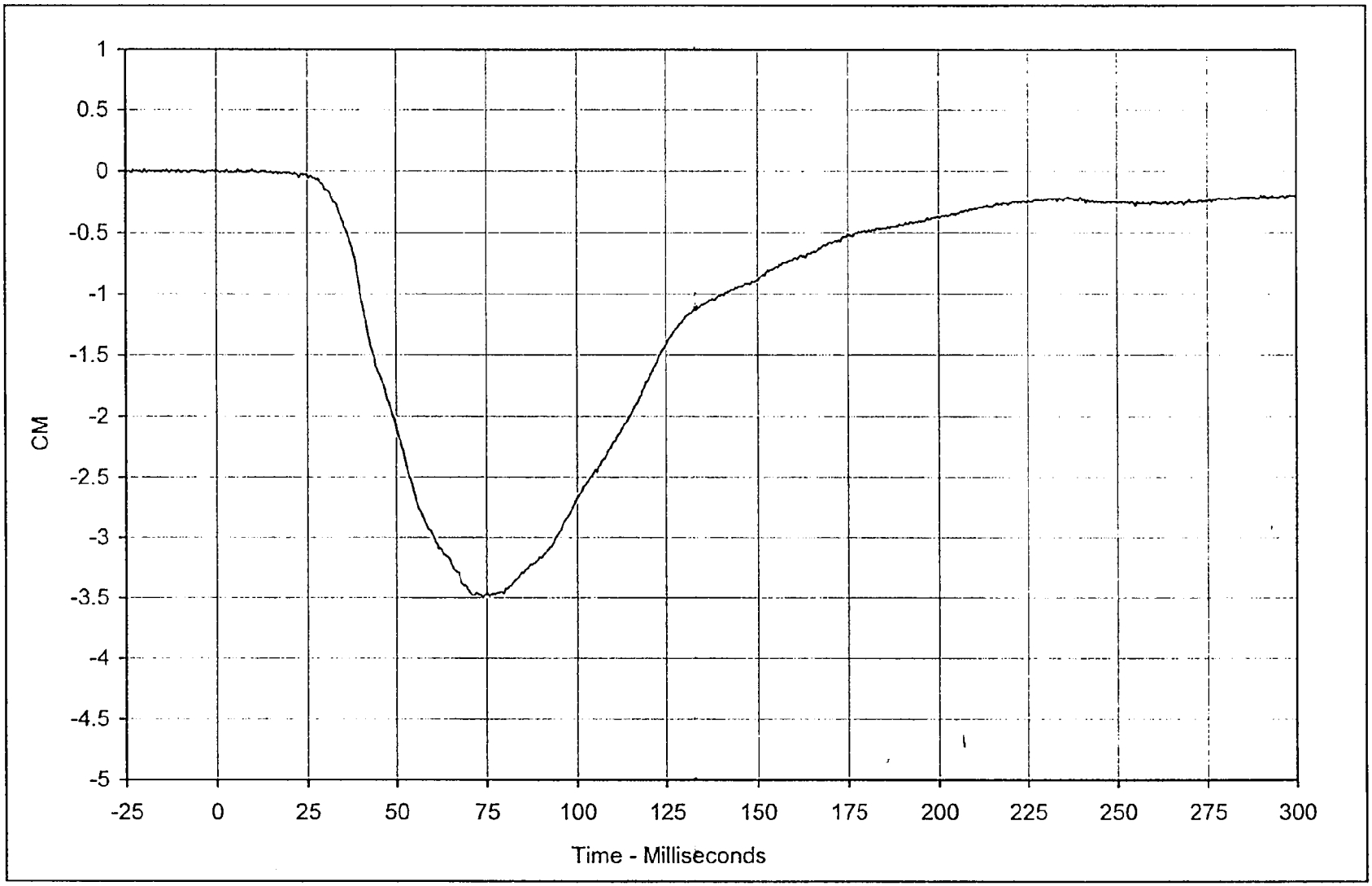

Curve Description:	Passenger Chest Displacement X			Testing Program:	1997 New Car Assesment Program
Maximum Value:	0.01	at	6.0 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-3.49	at	73.8 Milliseconds		
SAE Filter Class:	600				
Date of Test:	4/17/97				
Curve Number:	FIL-063				

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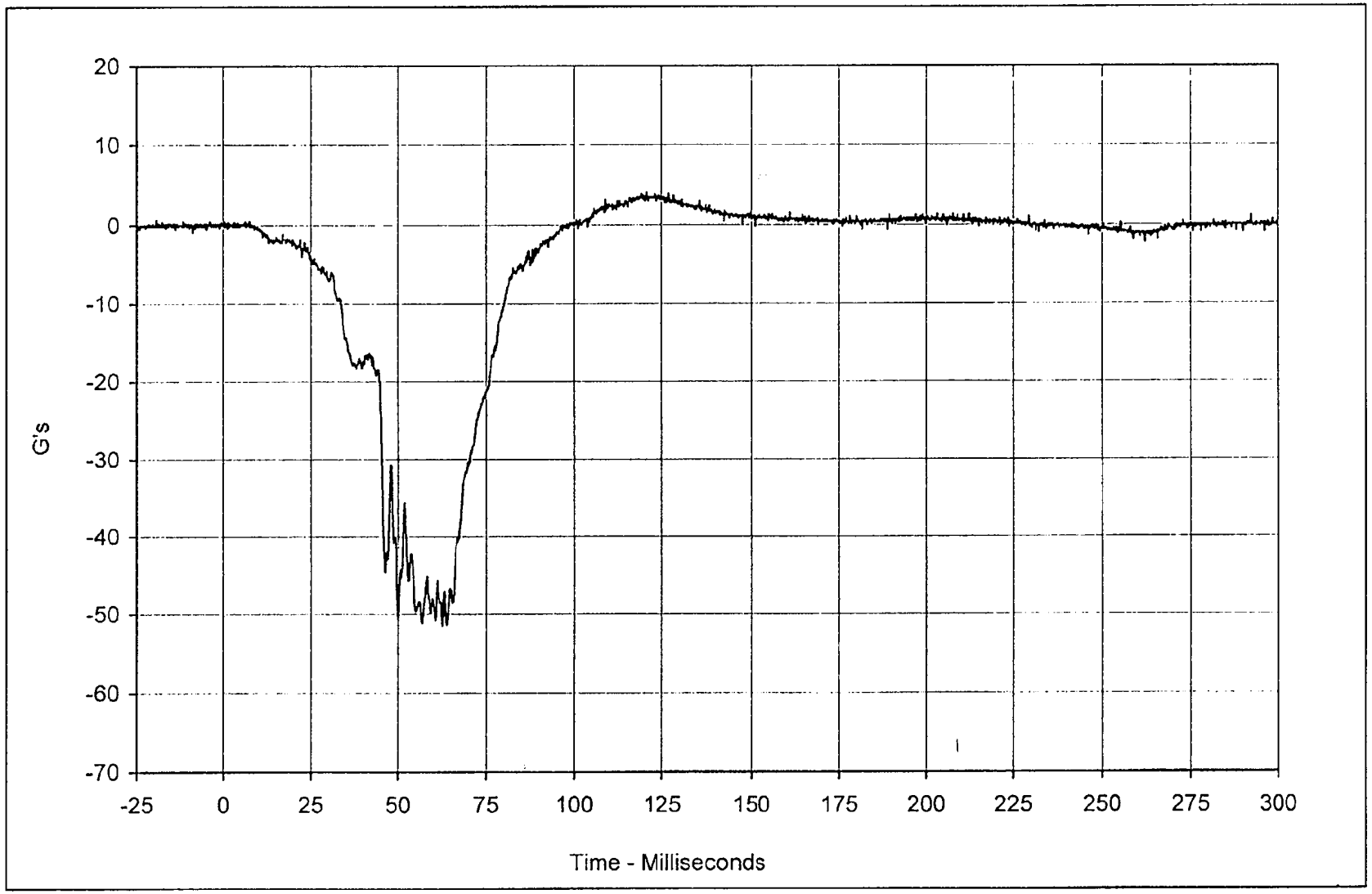

Curve Description:	Passenger Pelvis X			Testing Program:	1997 New Car Assesment Program
Maximum Value:	4.1	at	120.7 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-51.5	at	62.5 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-064				

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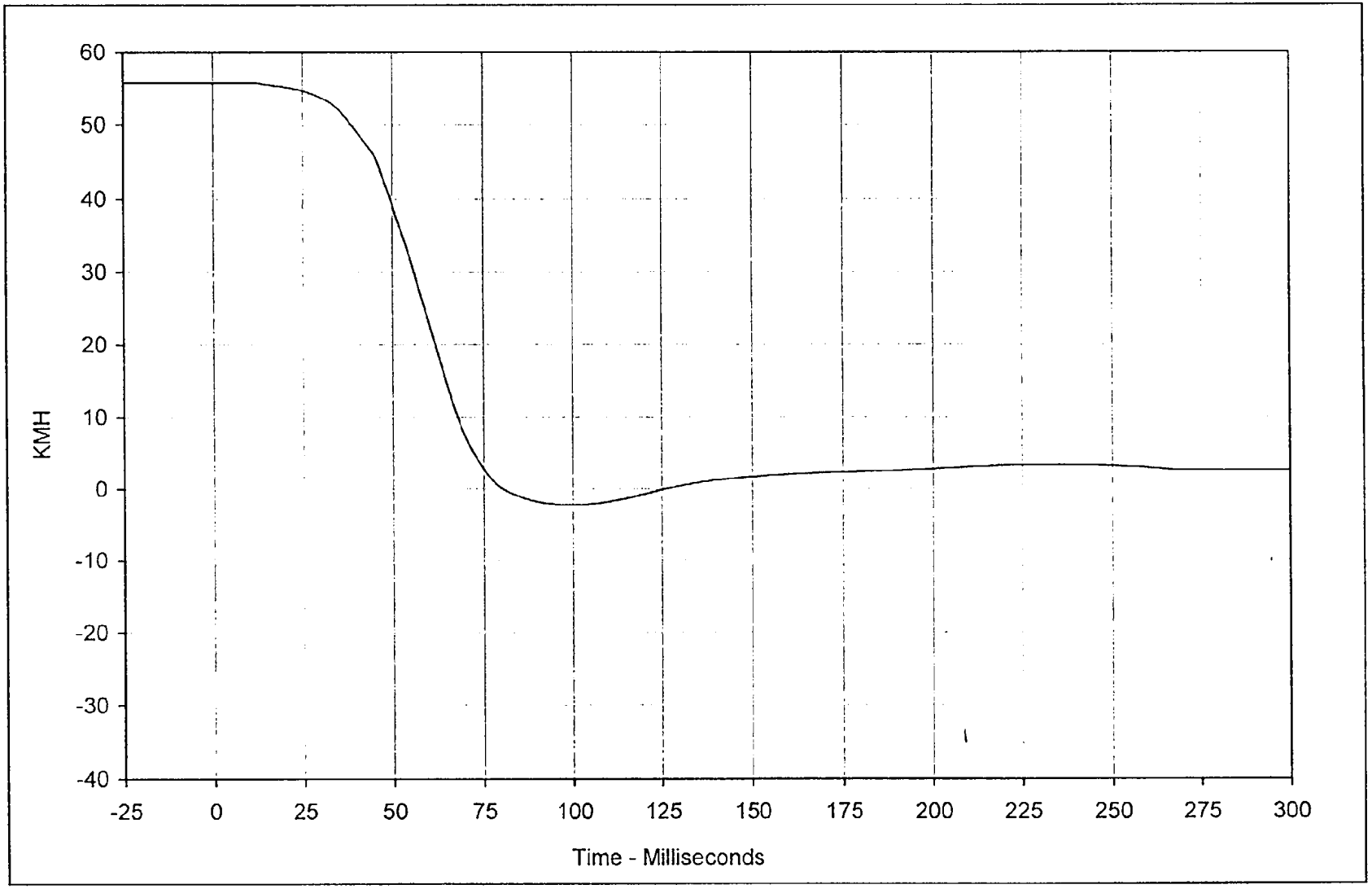
B96



Curve Description:	Passenger Pelvis X Velocity			Testing Program:	1997 New Car Assesment Program
Maximum Value:	55.8	at	8.1 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-2.2	at	98.7 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	IN1-064				

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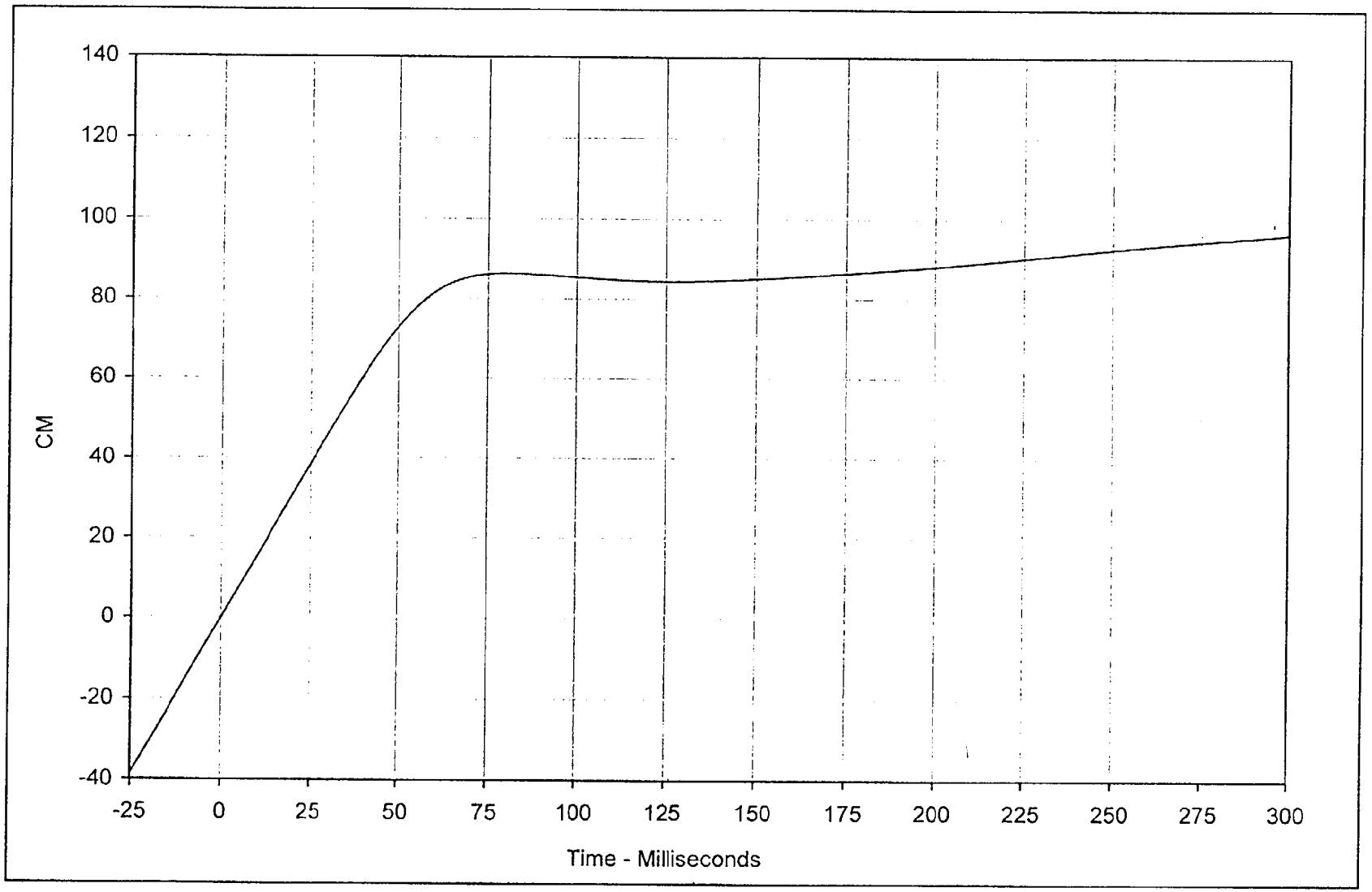
B97



Curve Description: Passenger Pelvis X Displ.

Maximum Value: 96.4 at 299.9 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-064

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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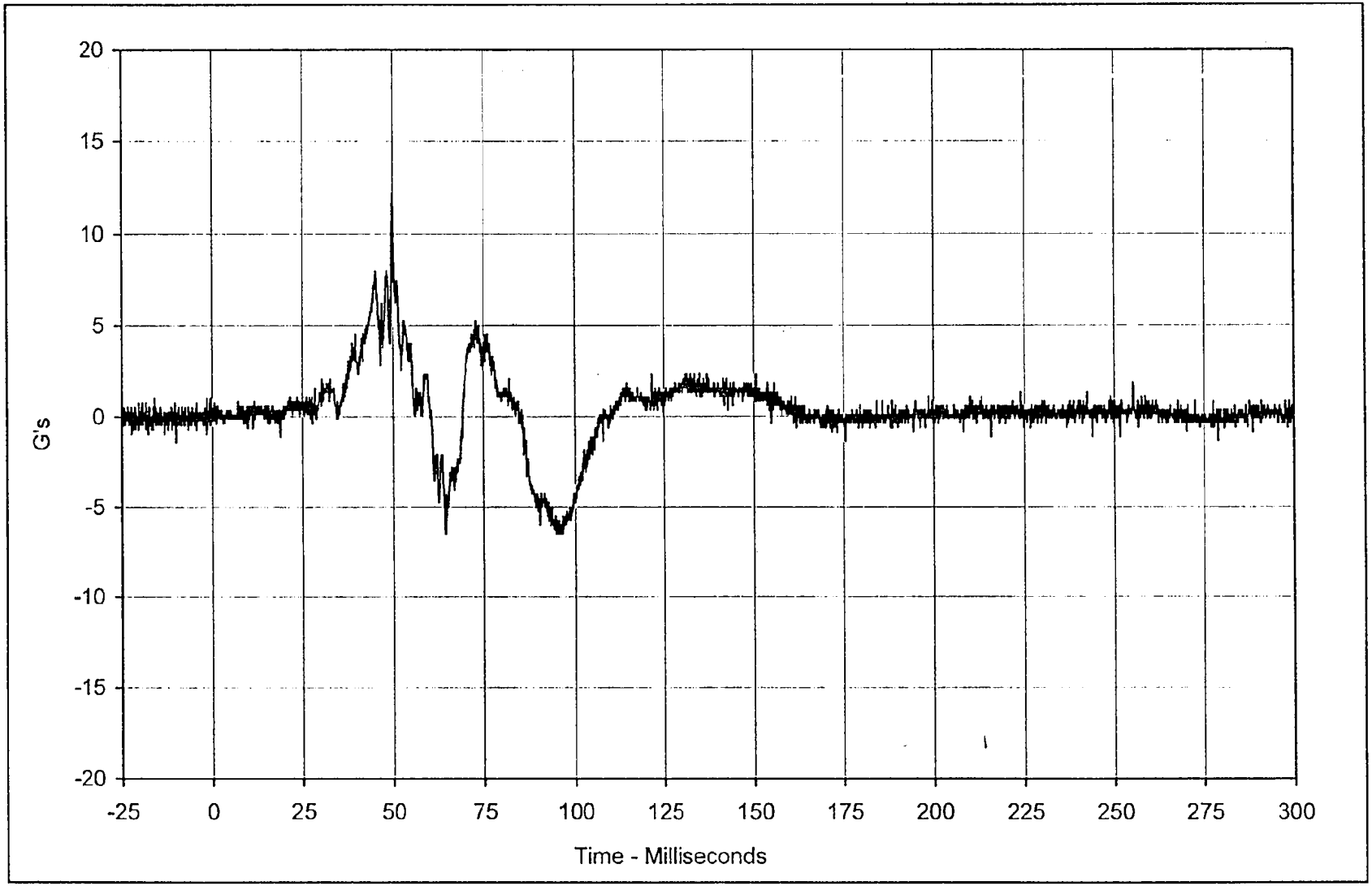
B98



Curve Description:	Passenger Pelvis Y				Testing Program:	1997 New Car Assesment Program
Maximum Value:	12.1	at	49.9	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-6.5	at	64.4	Milliseconds		
SAE Filter Class:	1000					
Date of Test:	4/17/97					
Curve Number:	FIL-065					

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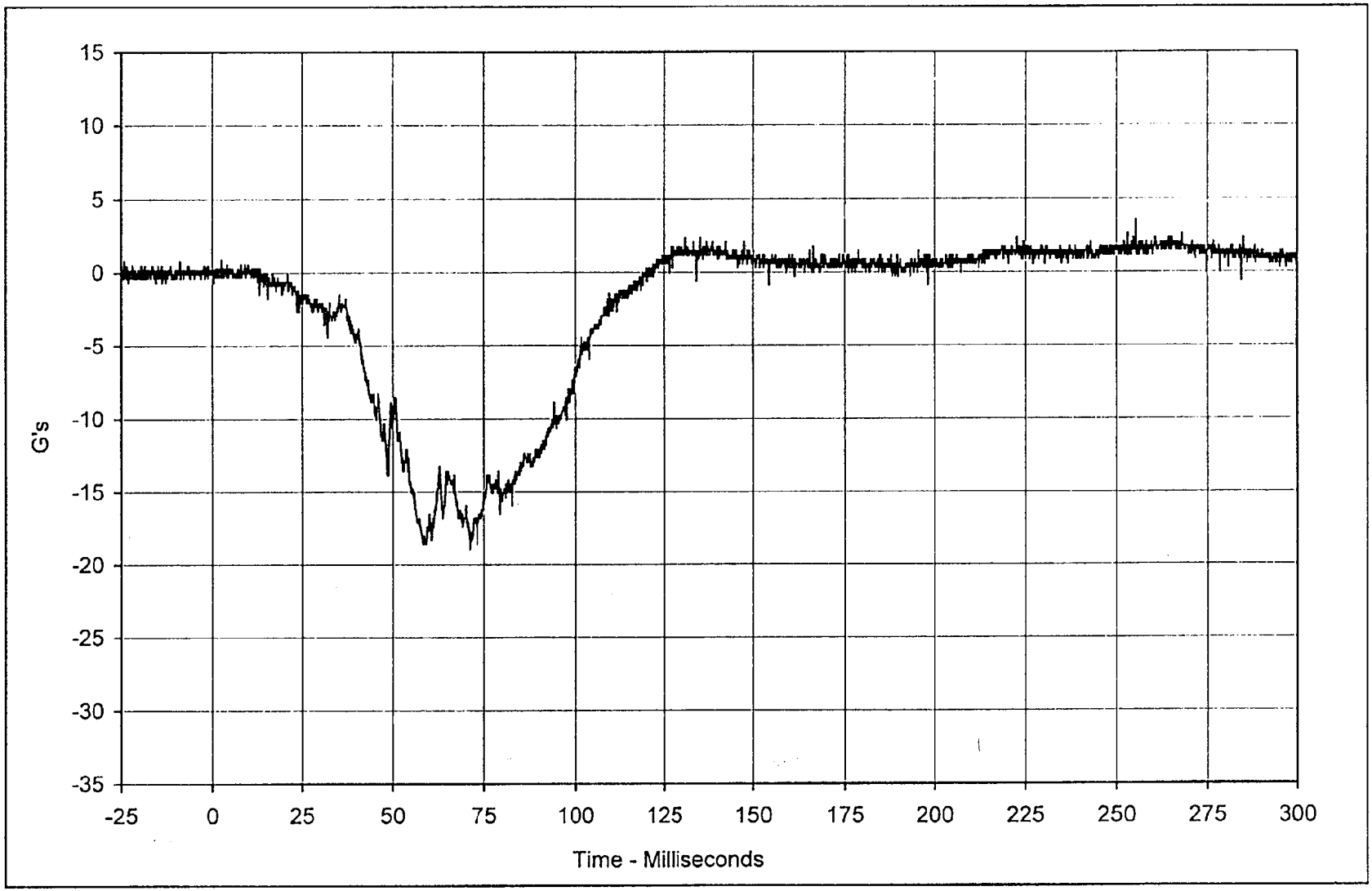
B99



Curve Description:	Passenger Pelvis Z			Testing Program:	1997 New Car Assesment Program
Maximum Value:	3.5	at	255.2 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-18.9	at	71.2 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-066				

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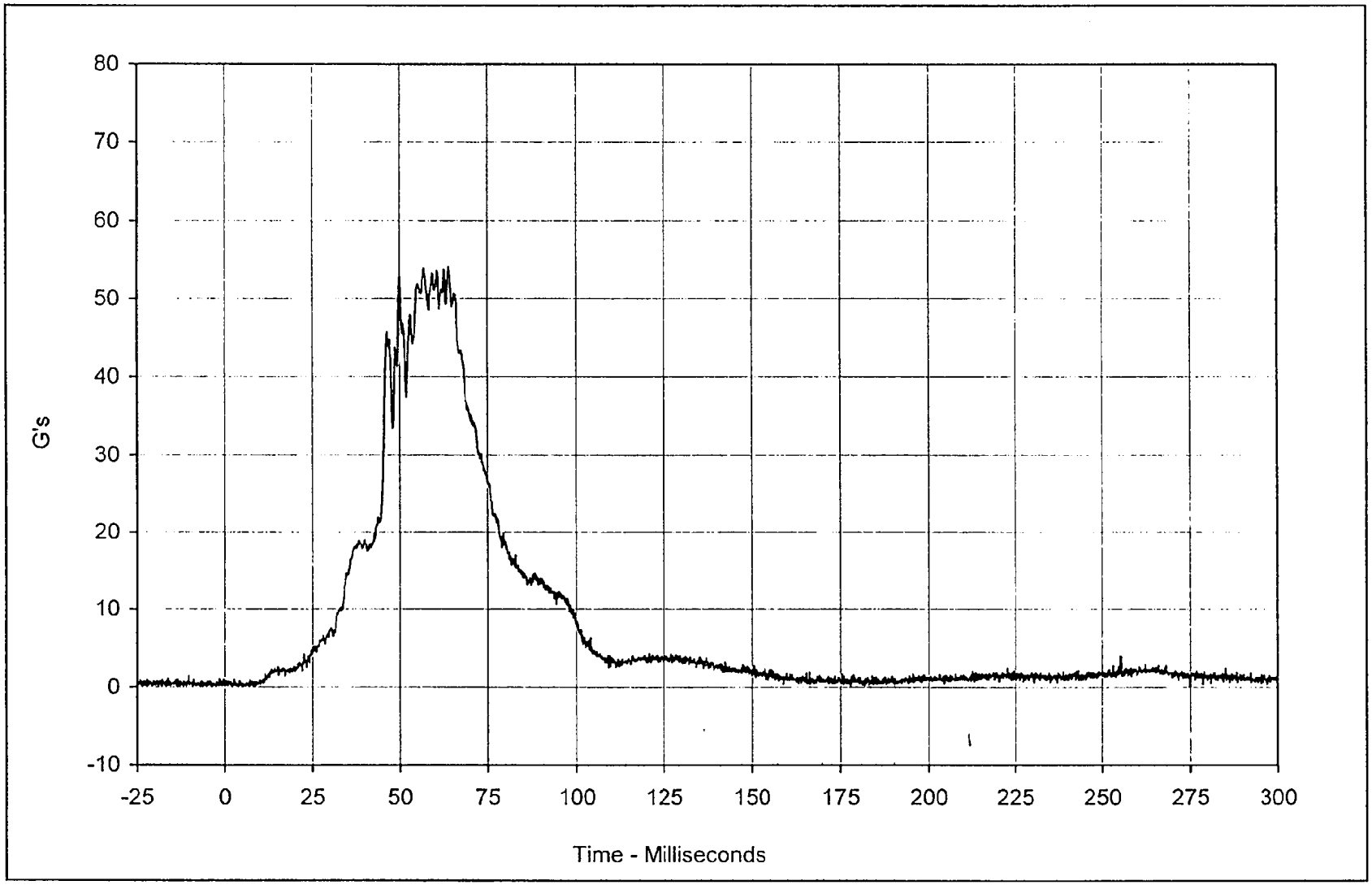
B100



Curve Description:	Passenger Pelvis Resultant				
Maximum Value:	54.1	at	63.8	Milliseconds	
Minimum Value:	0.1	at	2.2	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	RES-064				

Testing Program:	1997 New Car Assesment Program
Test Vehicle:	1997 Nissan 200 SX

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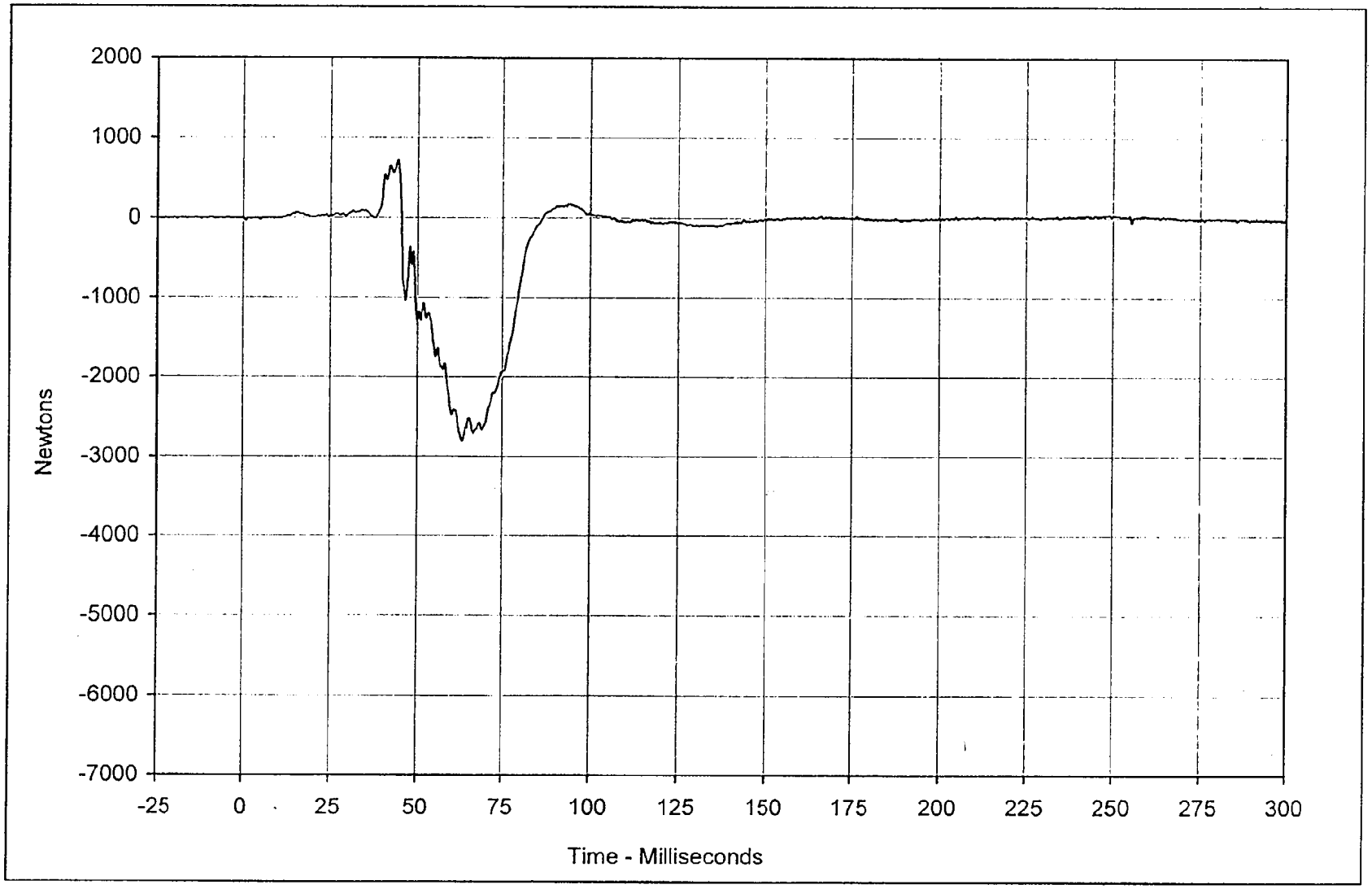
B101



Curve Description:	Passenger Left Femur Force			
Maximum Value:	721.5	at	44.3	Milliseconds
Minimum Value:	-2805.4	at	63.0	Milliseconds
SAE Filter Class:	600			
Date of Test:	4/17/97			
Curve Number:	FIL-067			

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

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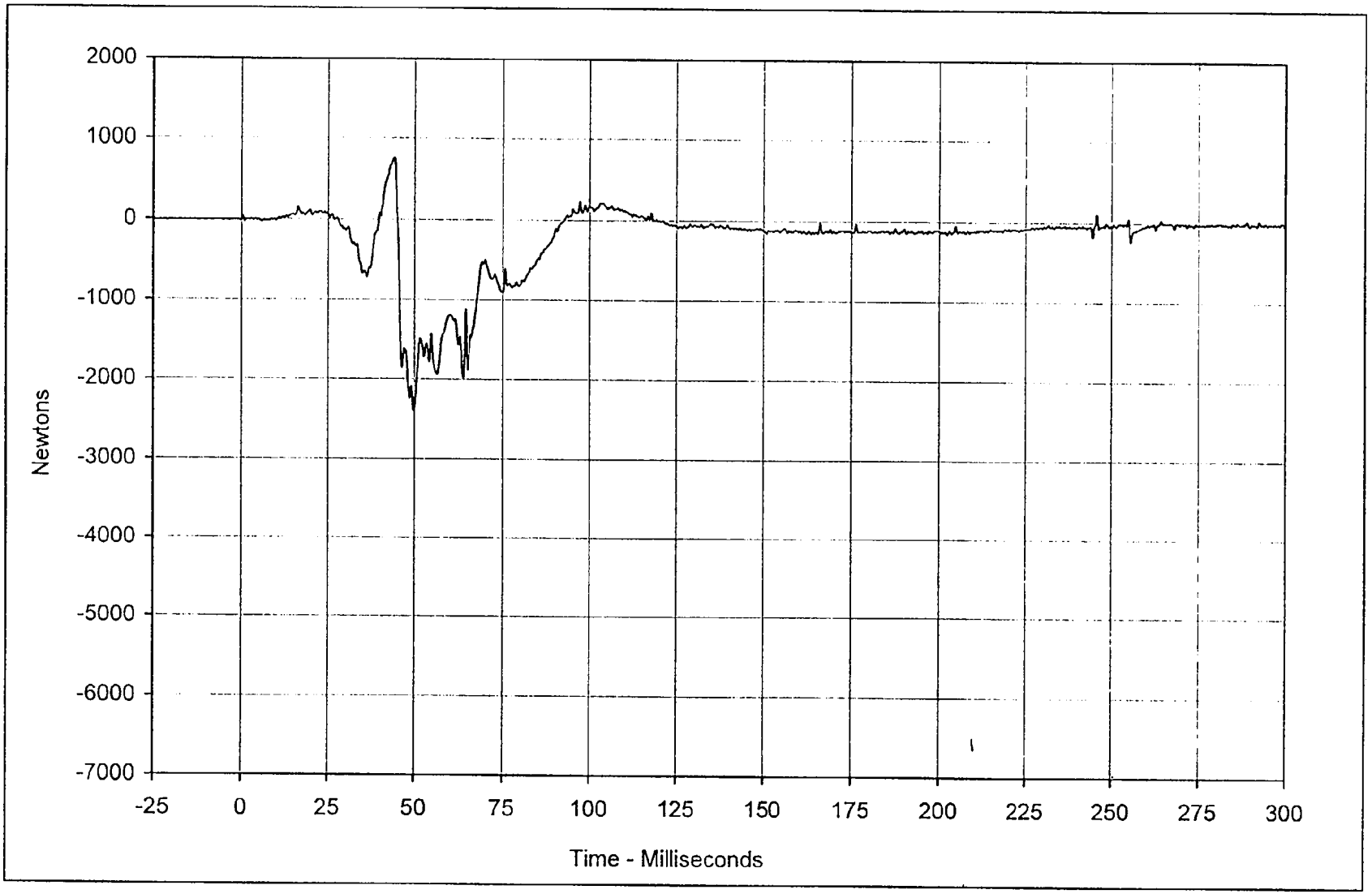
B102



Curve Description:	Passenger Right Femur Force			Testing Program:	1997 New Car Assessment Program
Maximum Value:	753.3	at	44.3 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-2391.9	at	49.9 Milliseconds		
SAE Filter Class:	600				
Date of Test:	4/17/97				
Curve Number:	FIL-068				

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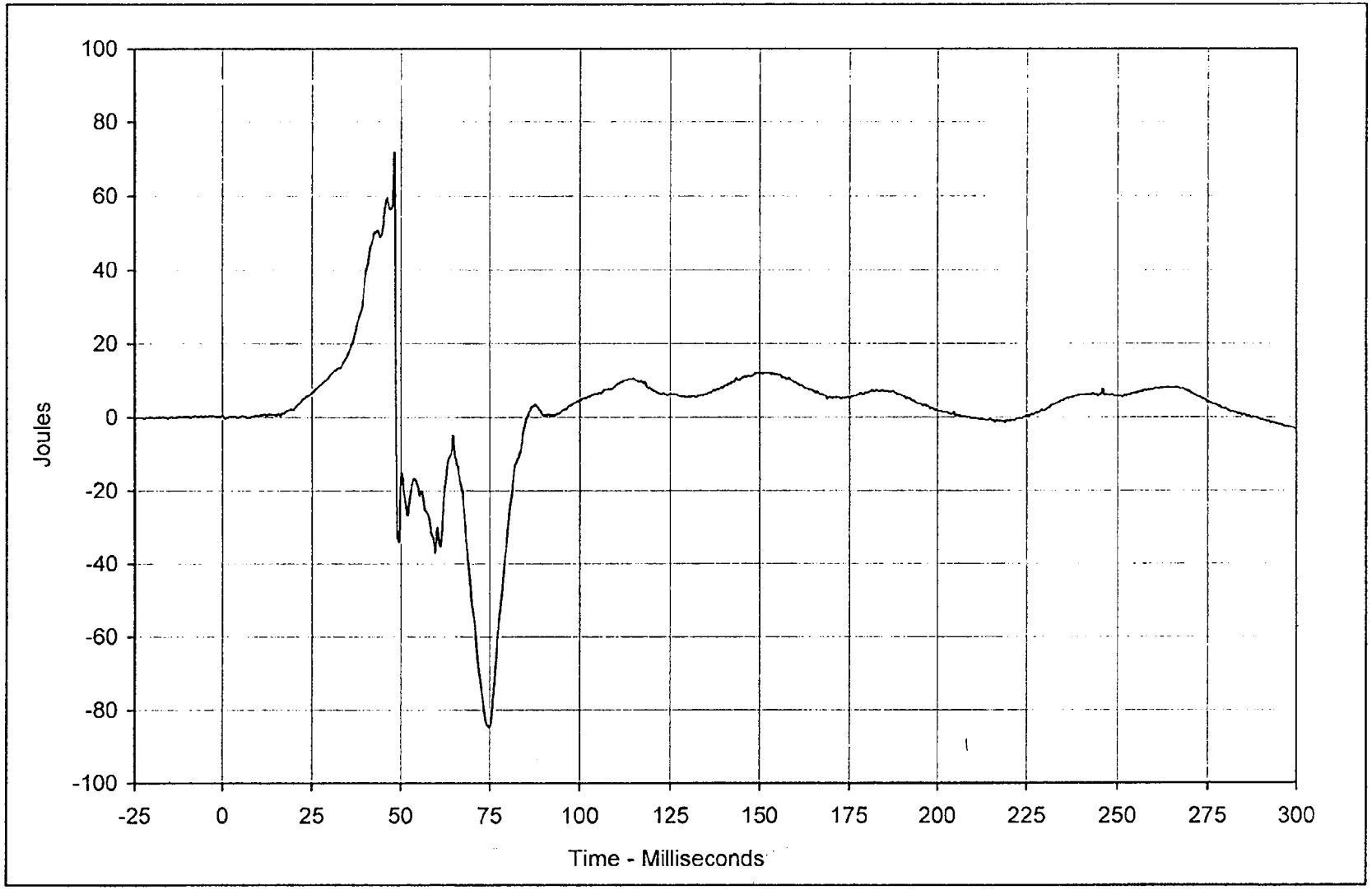

Curve Description: Passenger Left Upper Tibia Moment X

Maximum Value: 71.8 at 48.0 Milliseconds

Minimum Value: -84.6 at 74.9 Milliseconds

SAE Filter Class: 600

Date of Test: 4/17/97

Curve Number: FIL-069

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

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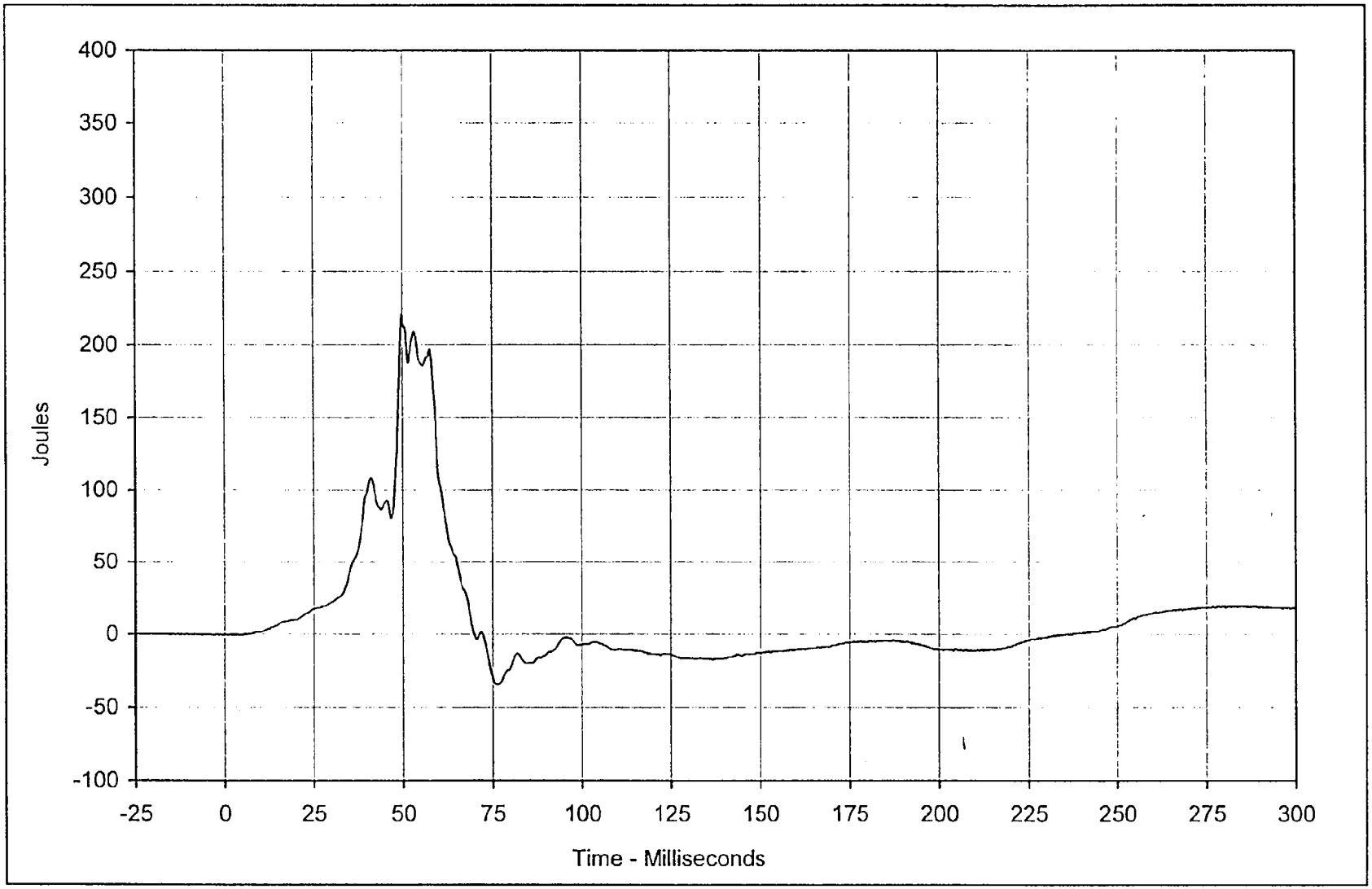

Curve Description:	Passenger Left Upper Tibia Moment Y				Testing Program:	1997 New Car Assessment Program
Maximum Value:	221.0	at	49.8	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-34.4	at	76.2	Milliseconds		
SAE Filter Class:	600					
Date of Test:	4/17/97					
Curve Number:	FIL-070					

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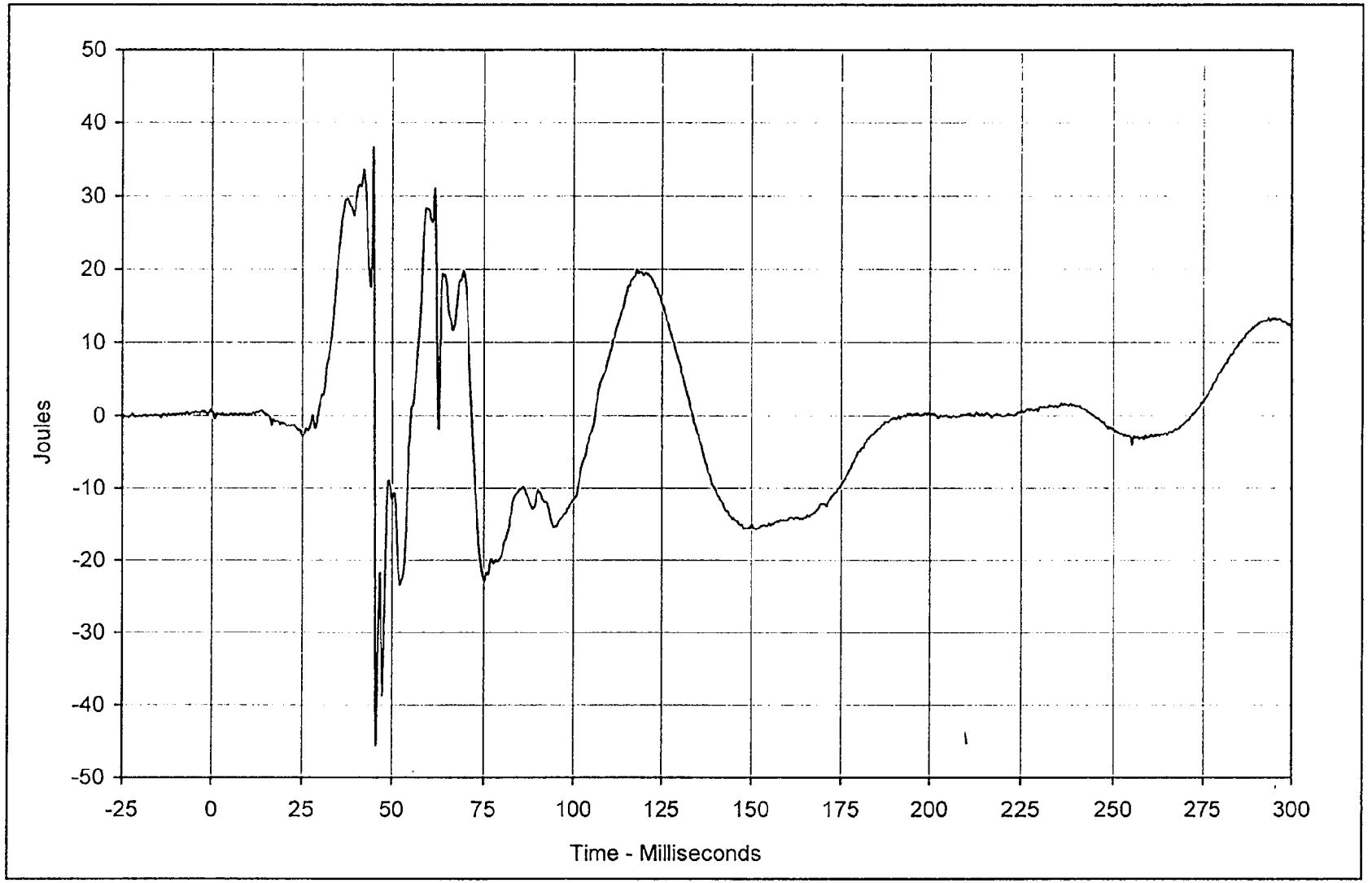
B105



Curve Description:	Passenger Right Upper Tibia Moment X				
Maximum Value:	36.6	at	44.7	Milliseconds	
Minimum Value:	-45.6	at	45.6	Milliseconds	
SAE Filter Class:	600				
Date of Test:	4/17/97				
Curve Number:	FIL-071				

Testing Program:	1997 New Car Assessment Program
Test Vehicle:	1997 Nissan 200 SX

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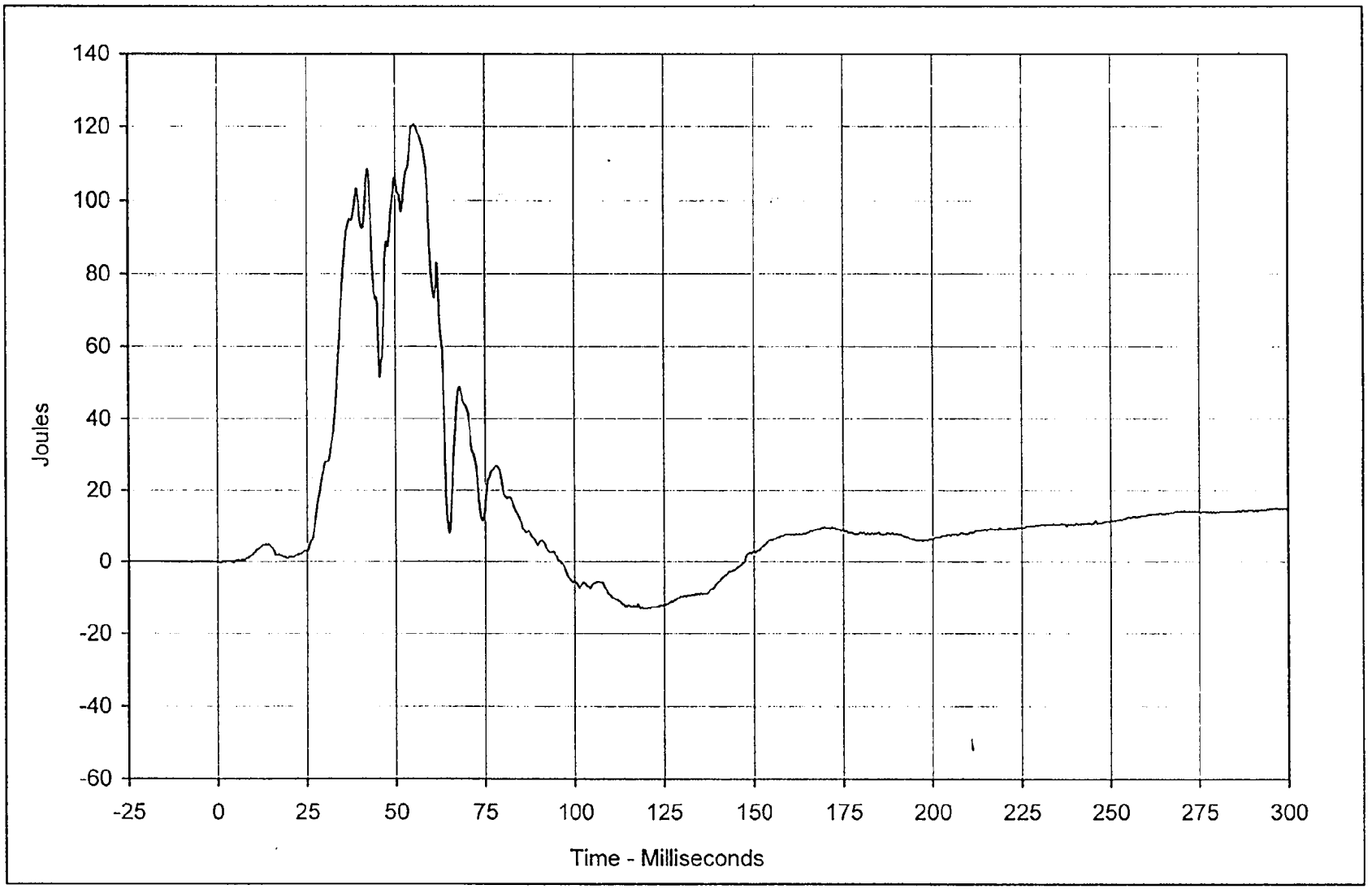
B106



Curve Description:	Passenger Right Upper Tibia Moment Y				Testing Program:	1997 New Car Assessment Program	
Maximum Value:	120.6	at	55.2	Milliseconds	Test Vehicle:	1997 Nissan 200 SX	
Minimum Value:	-13.2	at	119.5	Milliseconds			
SAE Filter Class:	600						
Date of Test:	4/17/97						
Curve Number:	FIL-072						

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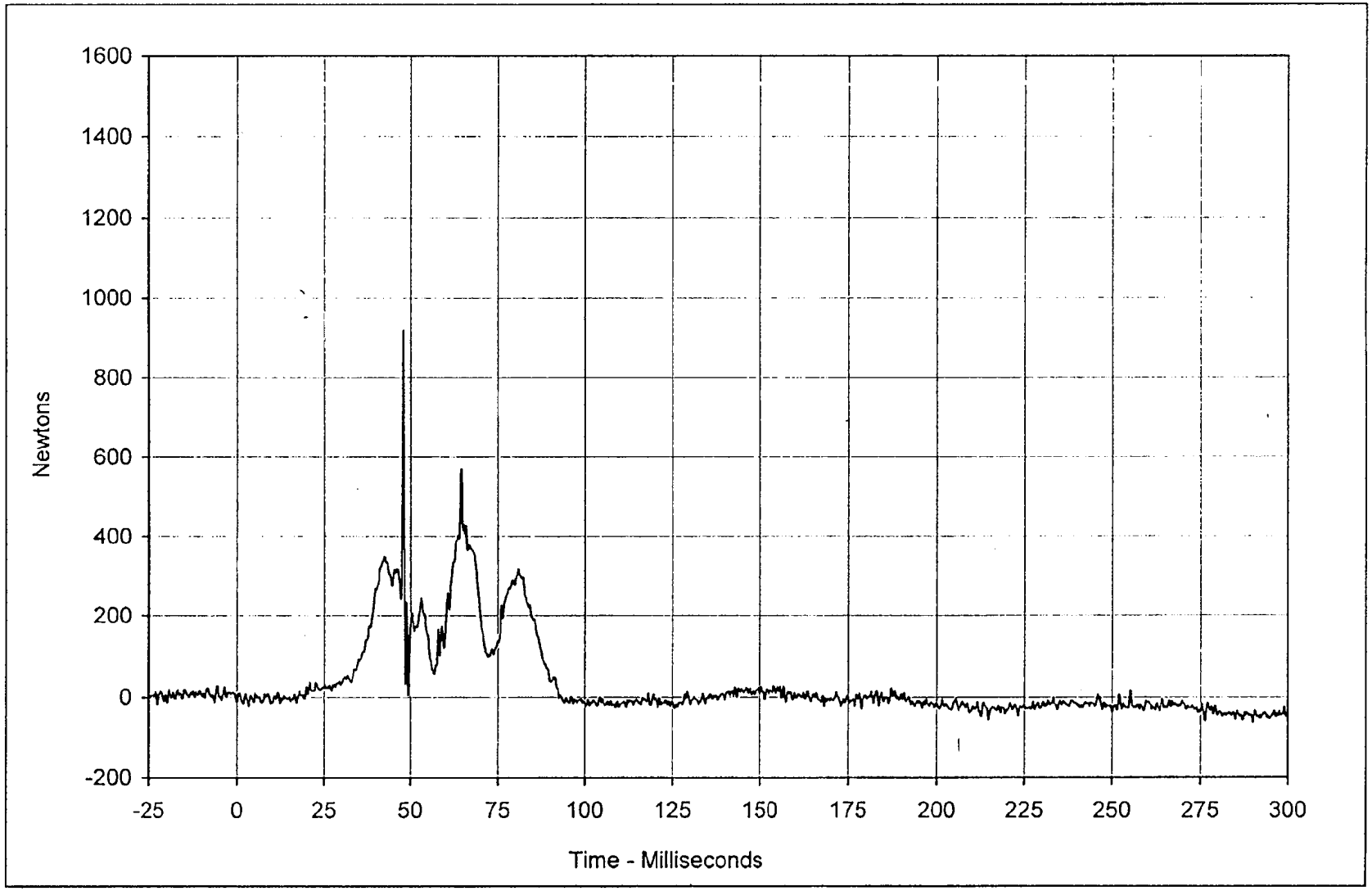
B107



Curve Description:	Passenger Left Lower Tibia Force Y				Testing Program:	1997 New Car Assessment Program
Maximum Value:	918.0	at	48.0	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-62.9	at	289.9	Milliseconds		
SAE Filter Class:	600					
Date of Test:	4/17/97					
Curve Number:	FIL-073					

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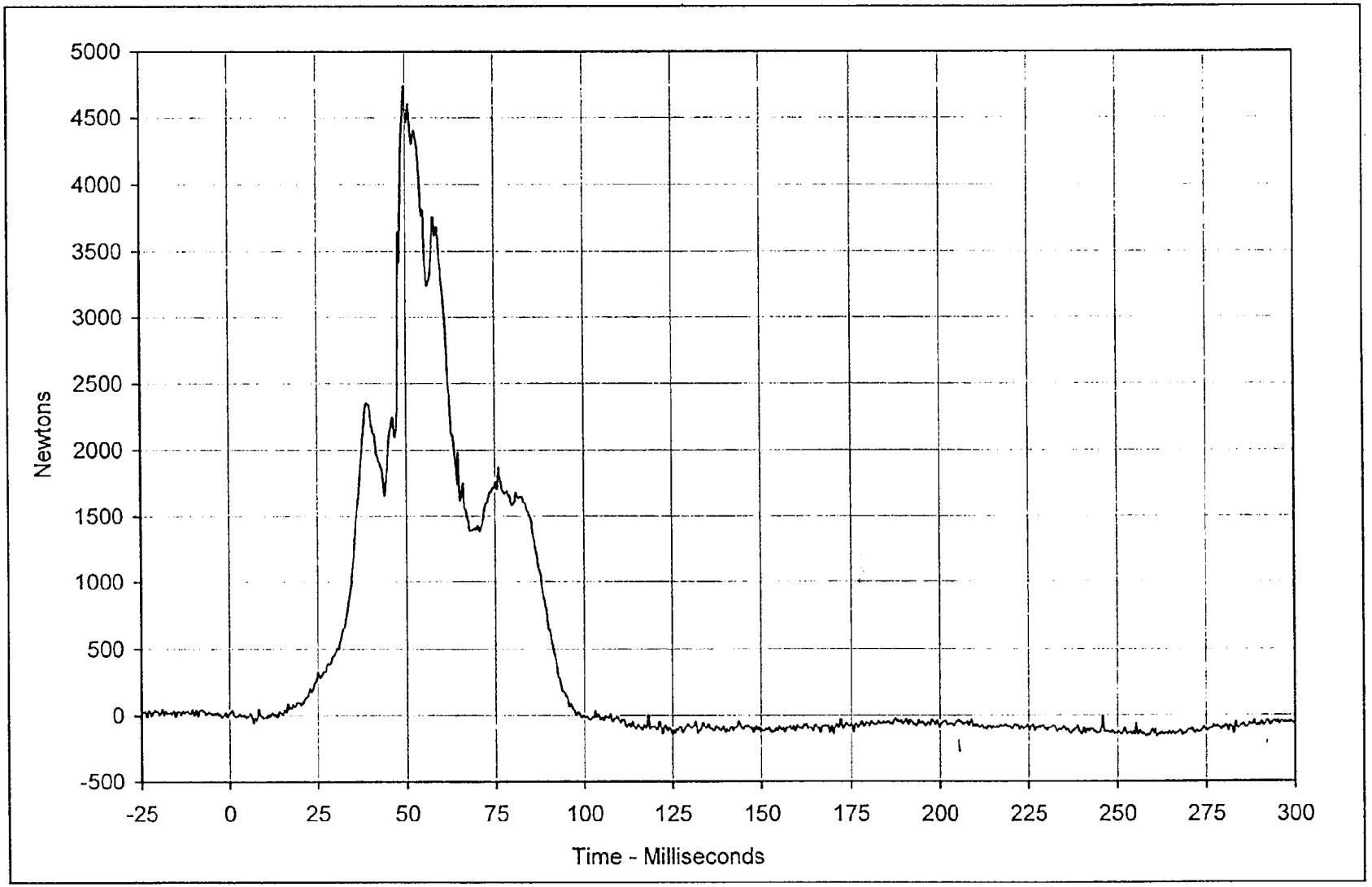
B108



Curve Description:	Passenger Left Lower Tibia Force Z			Testing Program:	1997 New Car Assessment Program
Maximum Value:	4742.9	at	49.7 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-159.0	at	261.2 Milliseconds		
SAE Filter Class:	600				
Date of Test:	4/17/97				
Curve Number:	FIL-074				

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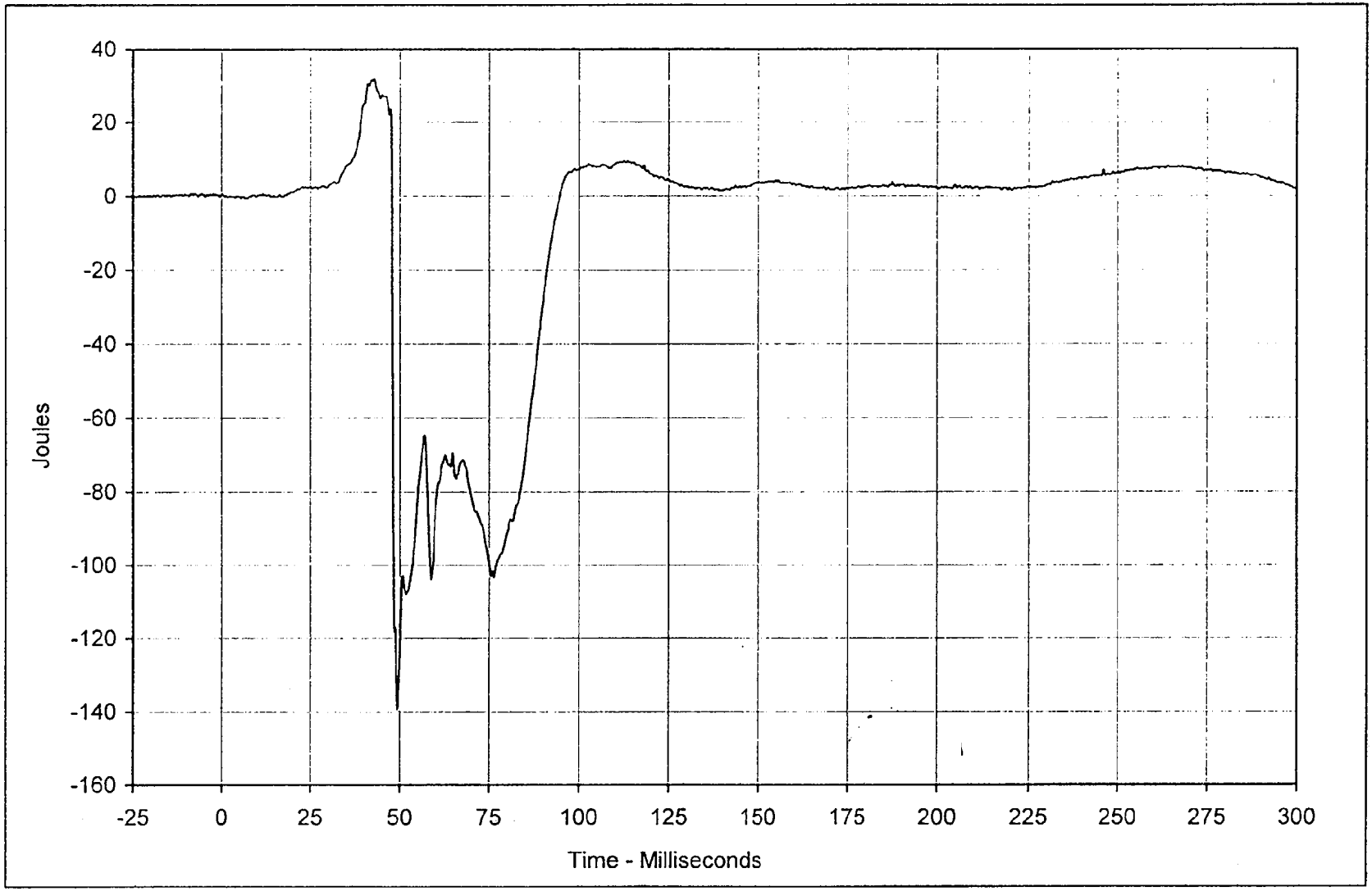

Curve Description: Passenger Left Lower Tibia Moment X

Maximum Value: 31.8 at 42.9 Milliseconds

Minimum Value: -139.3 at 49.3 Milliseconds

SAE Filter Class: 600

Date of Test: 4/17/97

Curve Number: FIL-075

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

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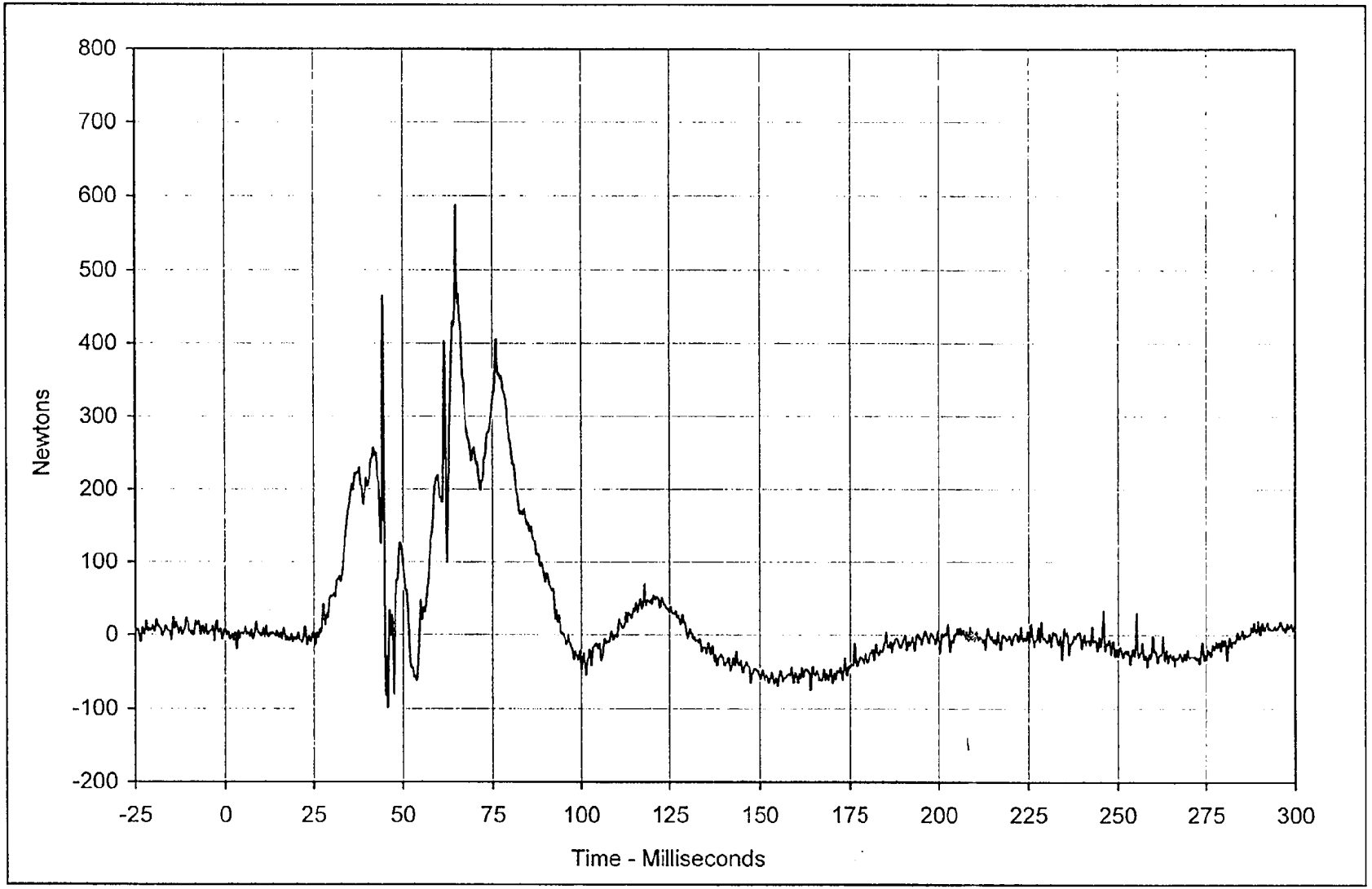
B110



Curve Description:	Passenger Right Lower Tibia Force Y				Testing Program:	1997 New Car Assessment Program
Maximum Value:	587.1	at	64.7	Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-97.5	at	45.9	Milliseconds		
SAE Filter Class:	600					
Date of Test:	4/17/97					
Curve Number:	FIL-076					

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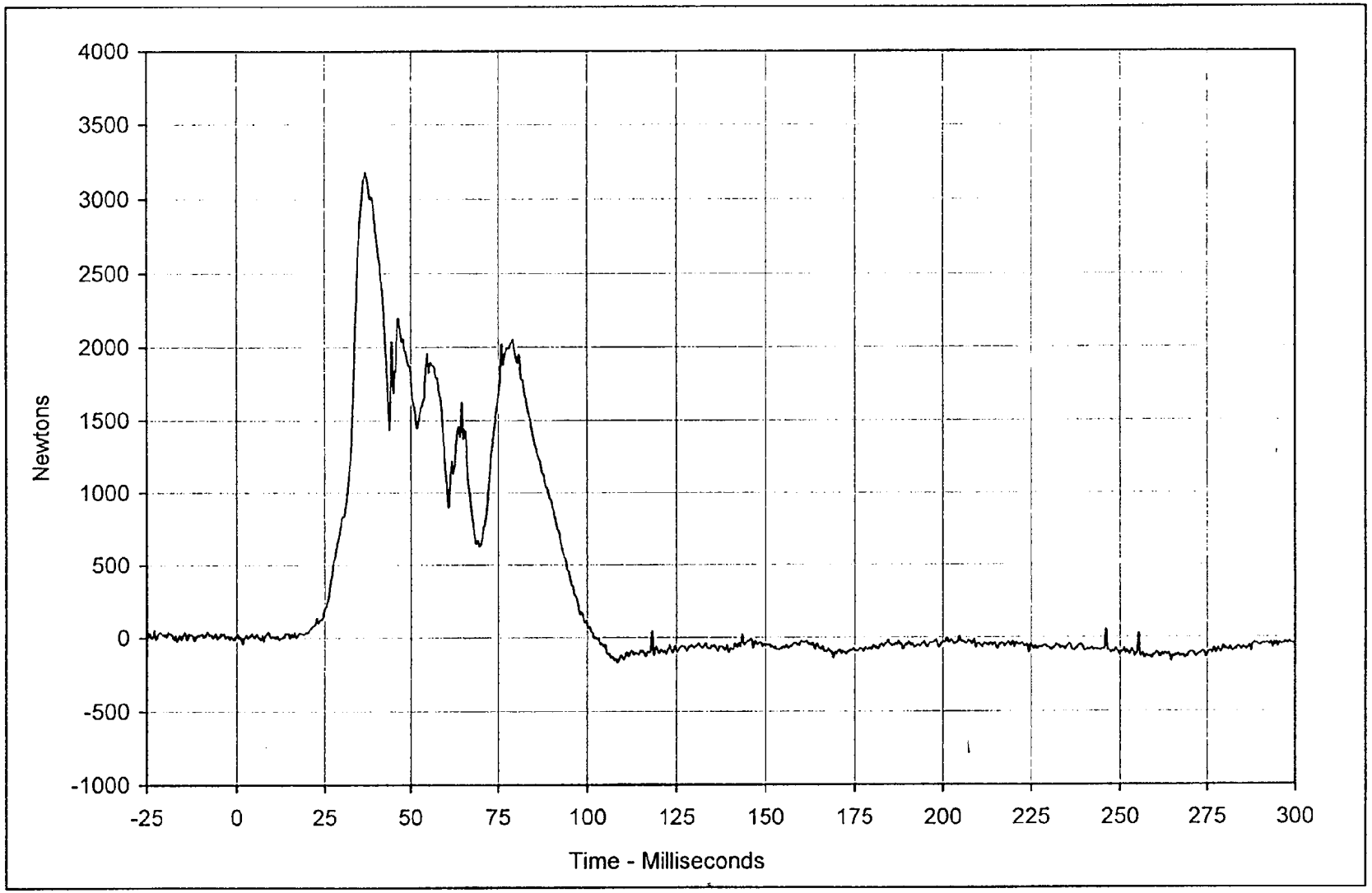
B111



Curve Description: Passenger Right Lower Tibia Force Z

Maximum Value: 3178.5 at 36.9 Milliseconds

Minimum Value: -170.6 at 108.5 Milliseconds

SAE Filter Class: 600

Date of Test: 4/17/97

Curve Number: FIL-077

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

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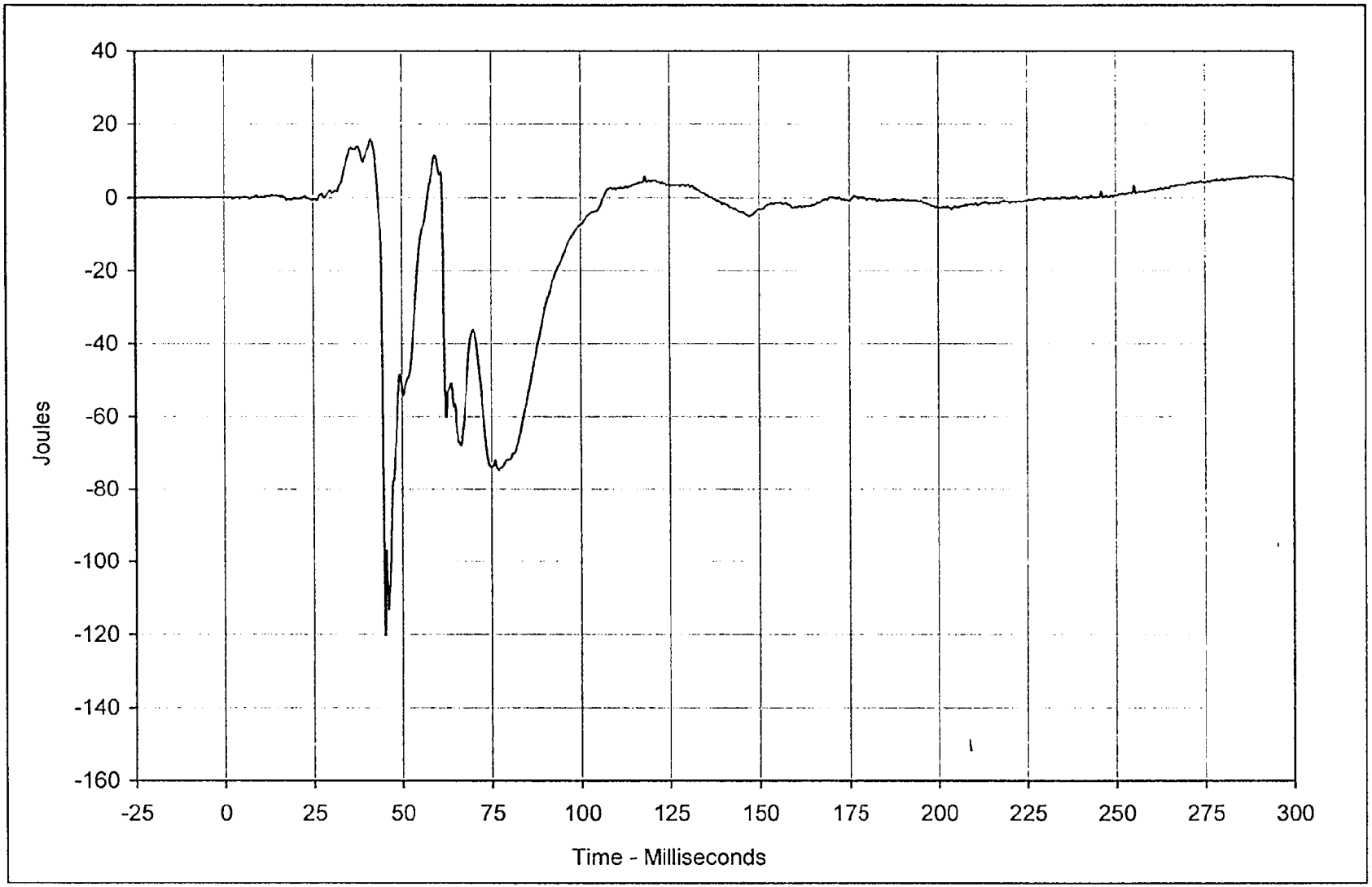

Curve Description:	Passenger Right Lower Tibia Moment X				
Maximum Value:	15.9	at	41.3	Milliseconds	
Minimum Value:	-120.3	at	45.1	Milliseconds	
SAE Filter Class:	600				
Date of Test:	4/17/97				
Curve Number:	FIL-078				

Testing Program:	1997 New Car Assessment Program
Test Vehicle:	1997 Nissan 200 SX

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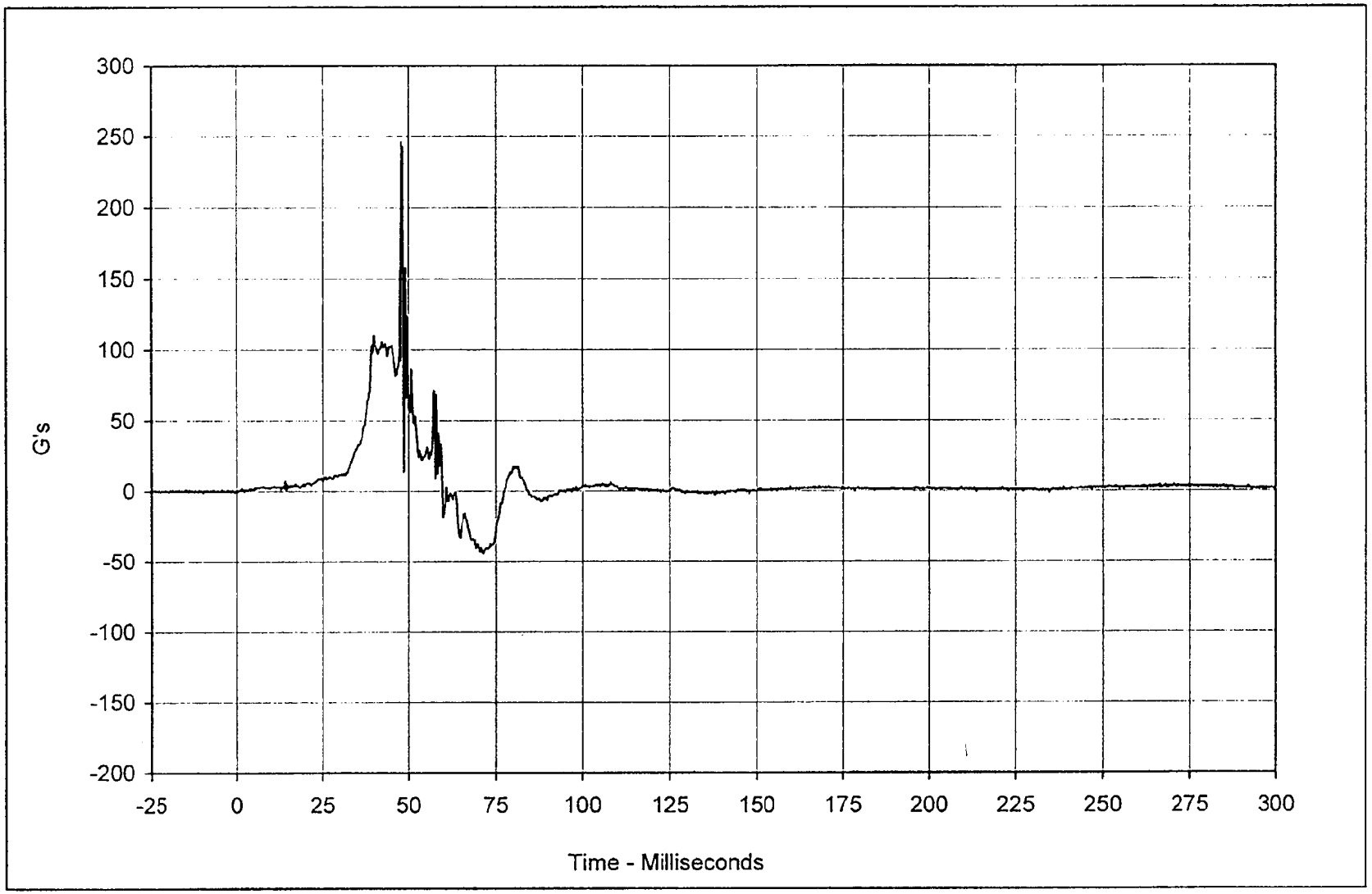
B113



Curve Description:	Passenger Left Foot Aft X				
Maximum Value:	243.9	at	47.9	Milliseconds	
Minimum Value:	-43.8	at	71.5	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-079				

Testing Program:	1997 New Car Assessment Program
Test Vehicle:	1997 Nissan 200 SX

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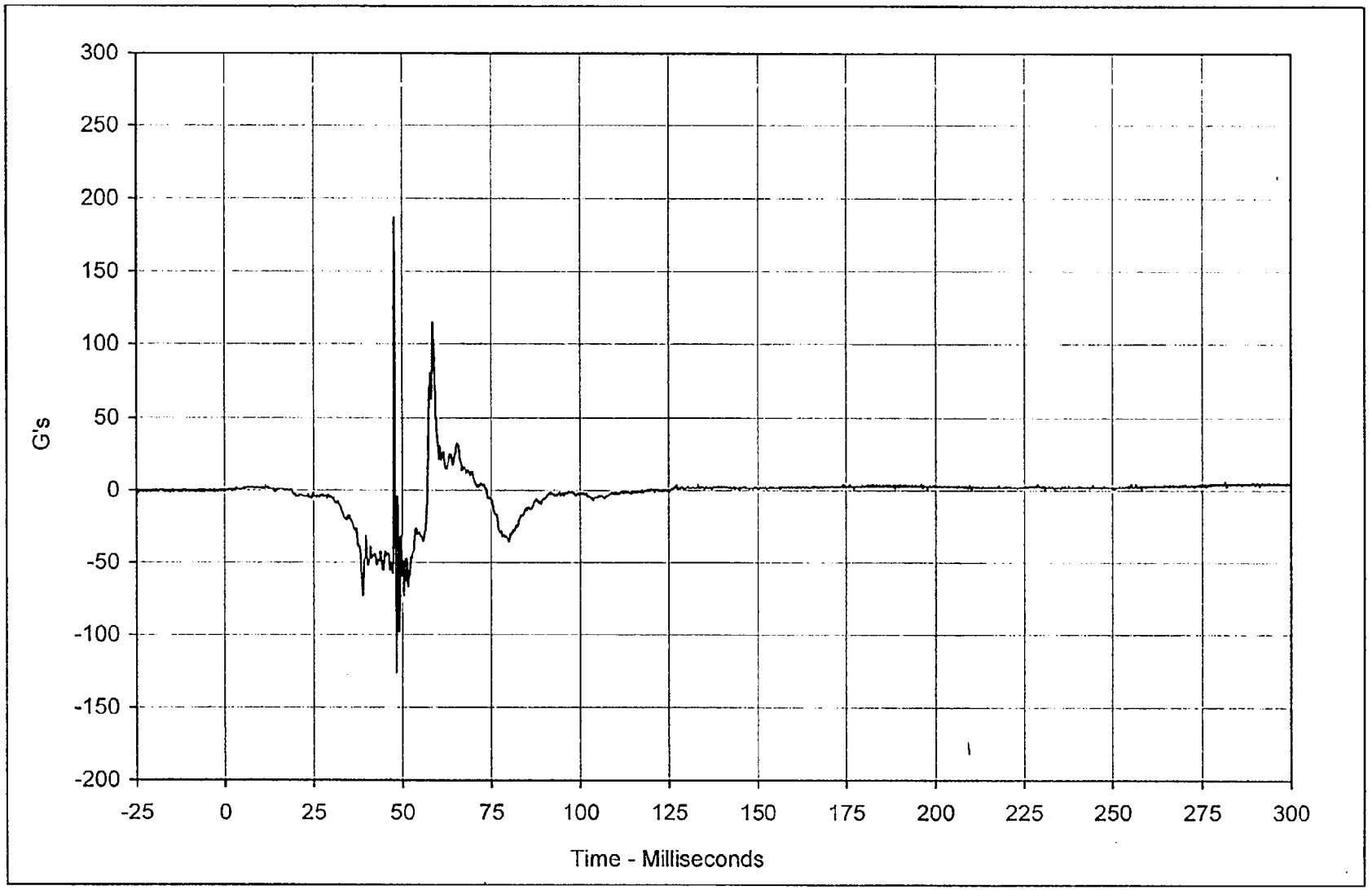

Curve Description:	Passenger Left Foot Aft Z				
Maximum Value:	186.1	at	47.9	Milliseconds	
Minimum Value:	-125.7	at	48.4	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-080				

Testing Program:	1997 New Car Assessment Program
Test Vehicle:	1997 Nissan 200 SX

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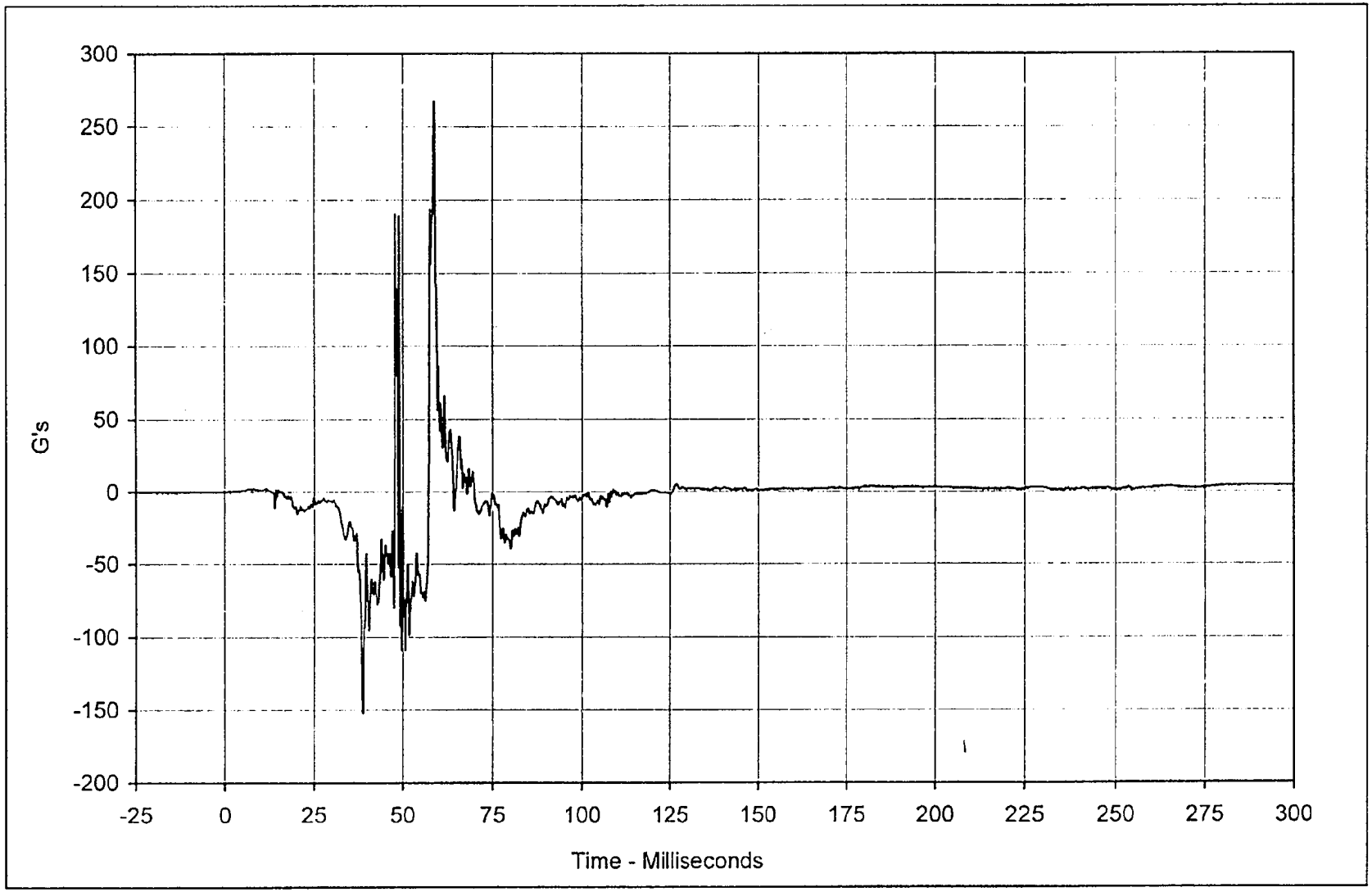

Curve Description:	Passenger Left Foot Fore Z				
Maximum Value:	267.2	at	58.7	Milliseconds	
Minimum Value:	-151.9	at	38.7	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-081				

Testing Program:	1997 New Car Assessment Program
Test Vehicle:	1997 Nissan 200 SX

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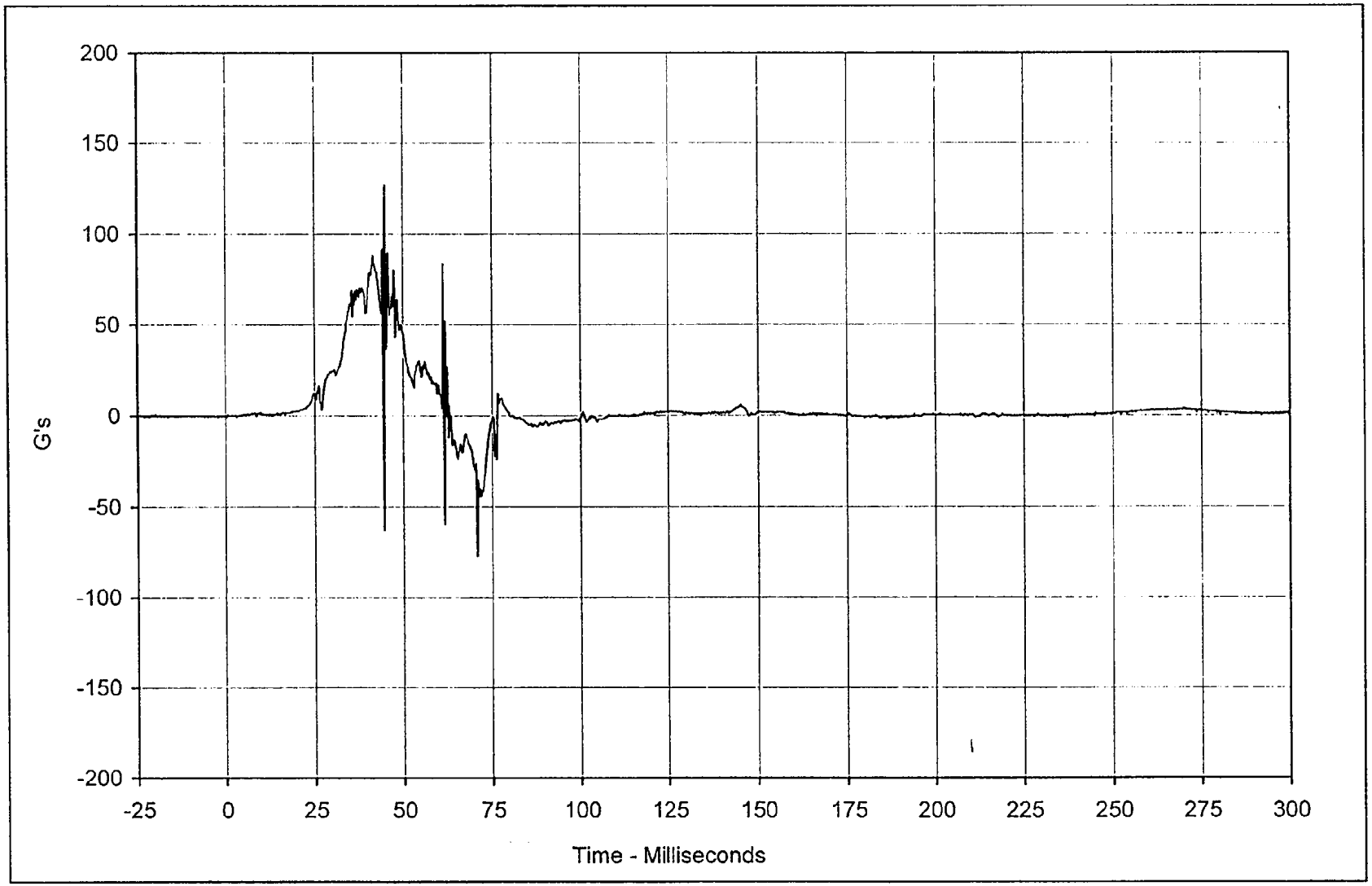
B116



Curve Description:	Passenger Right Foot Aft X			Testing Program:	1997 New Car Assessment Program
Maximum Value:	126.9	at	45.0 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-77.2	at	70.8 Milliseconds		
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-082				

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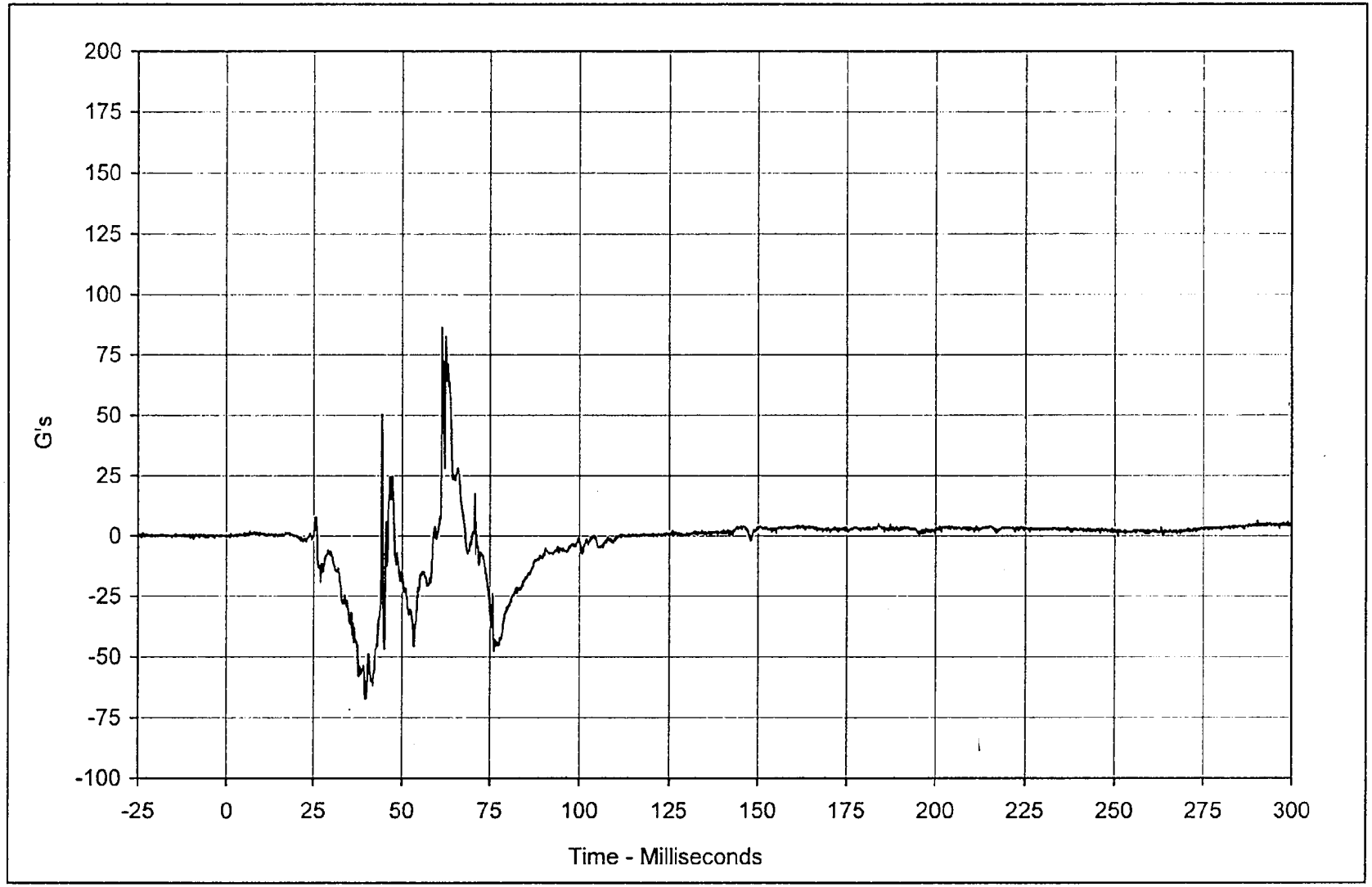
B117



Curve Description:	Passenger Right Foot Aft Z				
Maximum Value:	85.9	at	61.2	Milliseconds	
Minimum Value:	-67.3	at	39.5	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-083				

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

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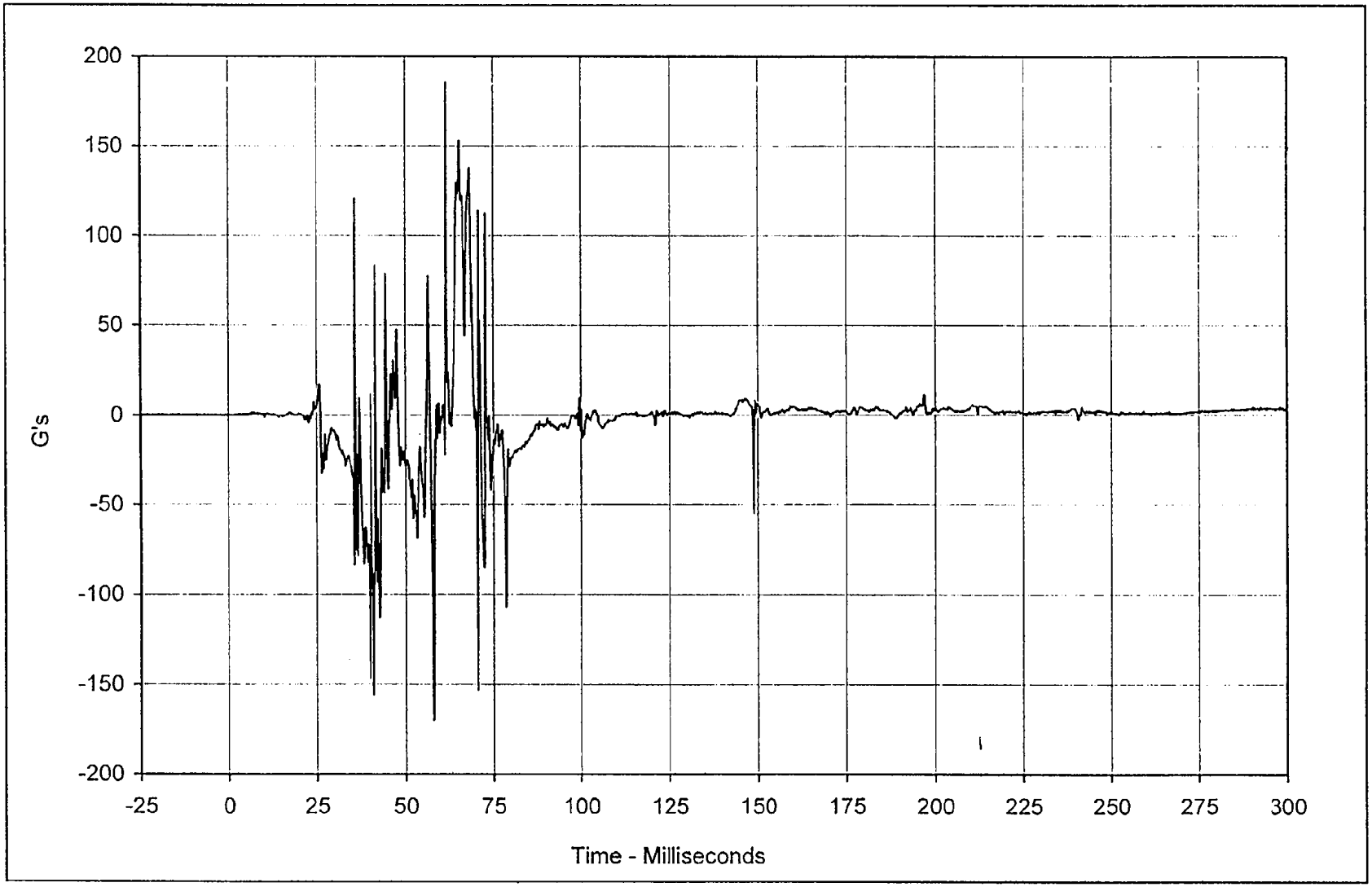
B118



Curve Description:	Passenger Right Foot Fore Z				
Maximum Value:	185.0	at	61.5	Milliseconds	
Minimum Value:	-169.8	at	57.8	Milliseconds	
SAE Filter Class:	1000				
Date of Test:	4/17/97				
Curve Number:	FIL-084				

Testing Program:	1997 New Car Assessment Program
Test Vehicle:	1997 Nissan 200 SX

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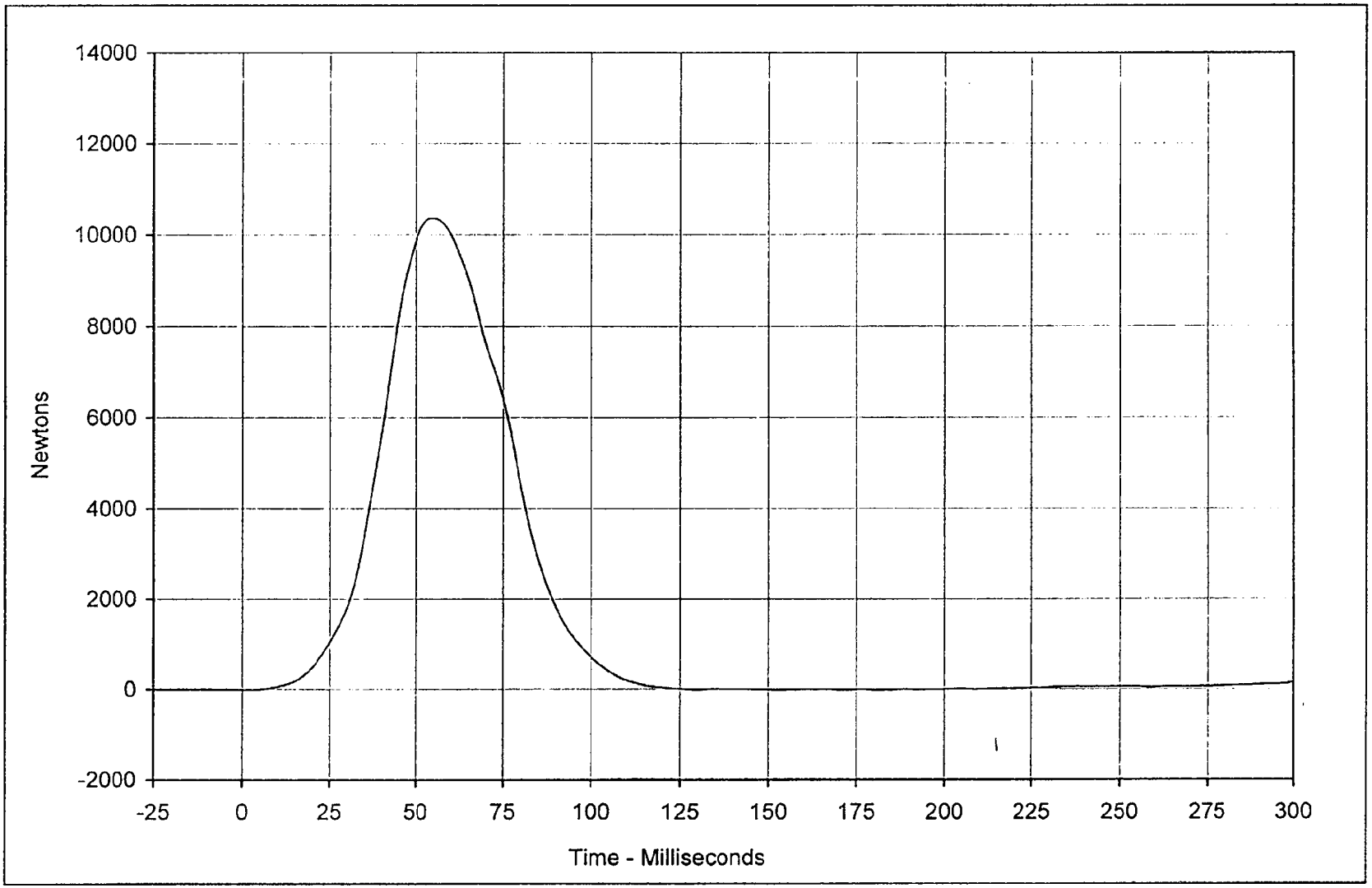
B119



Curve Description:	Passenger Lap Belt Force			Testing Program:	1997 New Car Assesment Program
Maximum Value:	10364.4	at	54.9 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-14.0	at	180.6 Milliseconds		
SAE Filter Class:	60				
Date of Test:	4/17/97				
Curve Number:	FIL-085				

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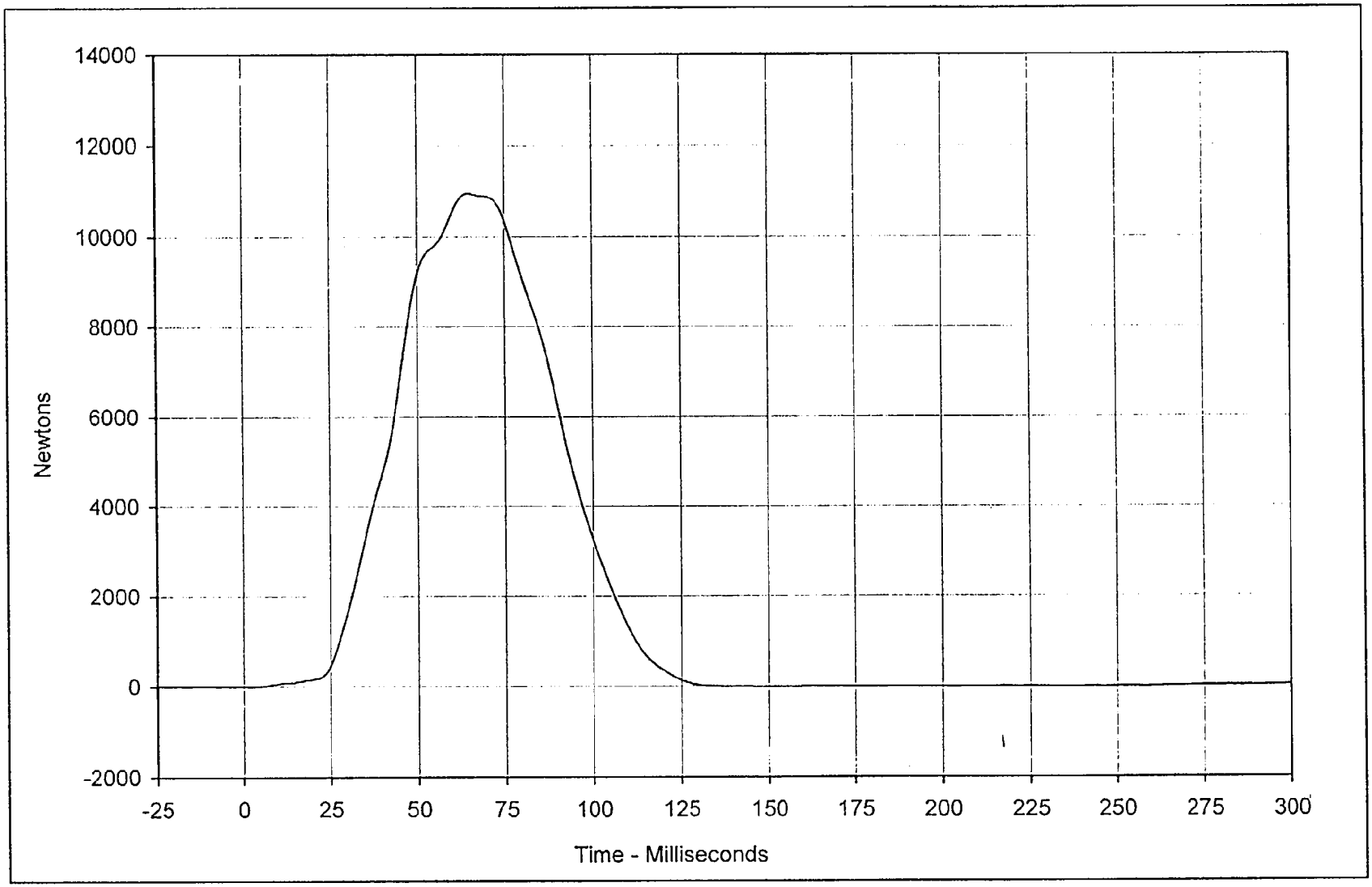

Curve Description: Passenger Shoulder Belt Force

Maximum Value: 10952.6 at 64.4 Milliseconds

Minimum Value: -11.5 at 149.2 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

Curve Number: FIL-086

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

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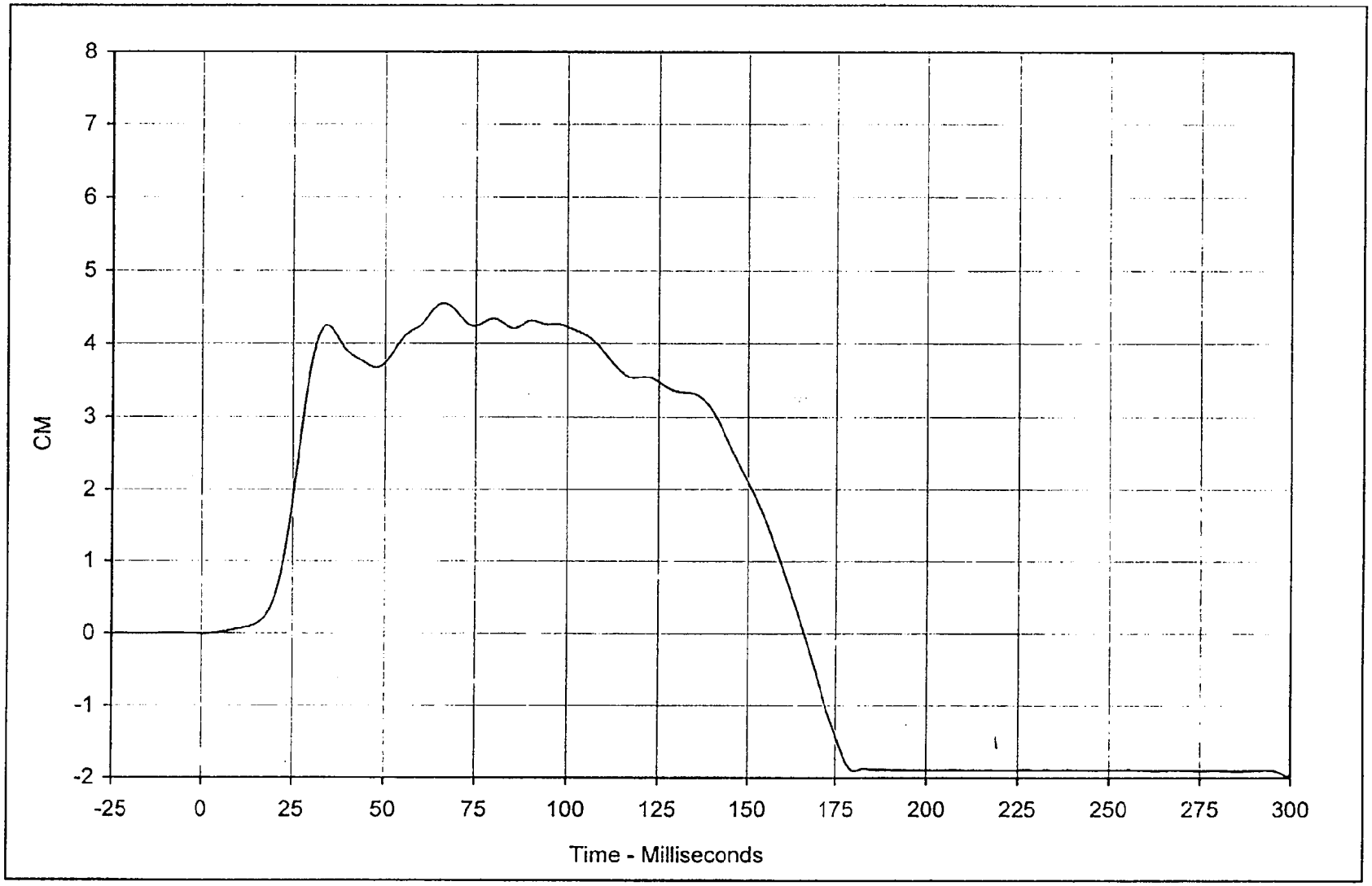
KAR-96-R96024-05

B121



Curve Description: Passenger Shoulder Belt Pullout

Maximum Value: 4.55 at 66.2 Milliseconds

Minimum Value: -1.97 at 299.2 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

Curve Number: FIL-087

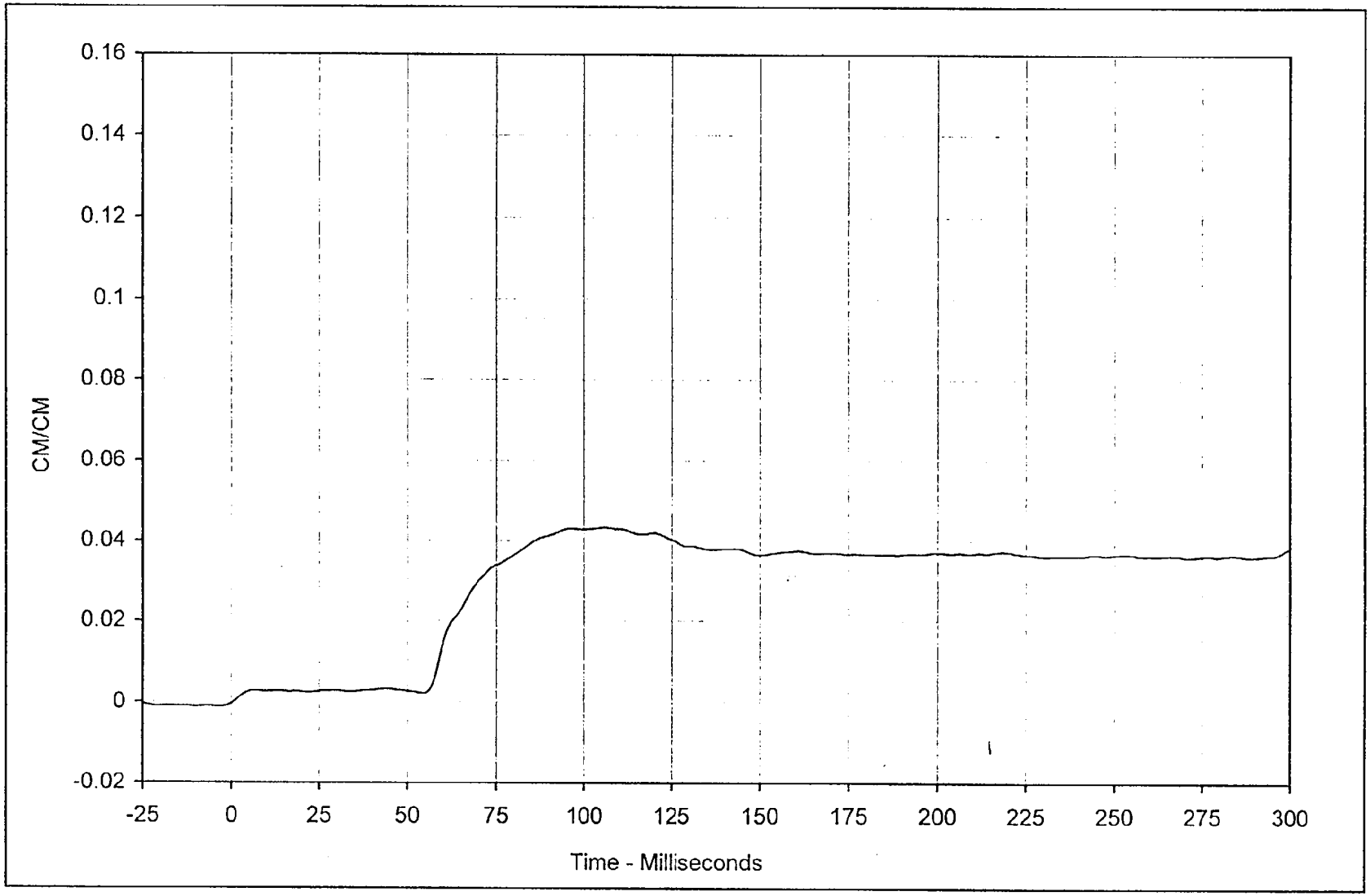
Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering

KAR-96-R96024-05

B122

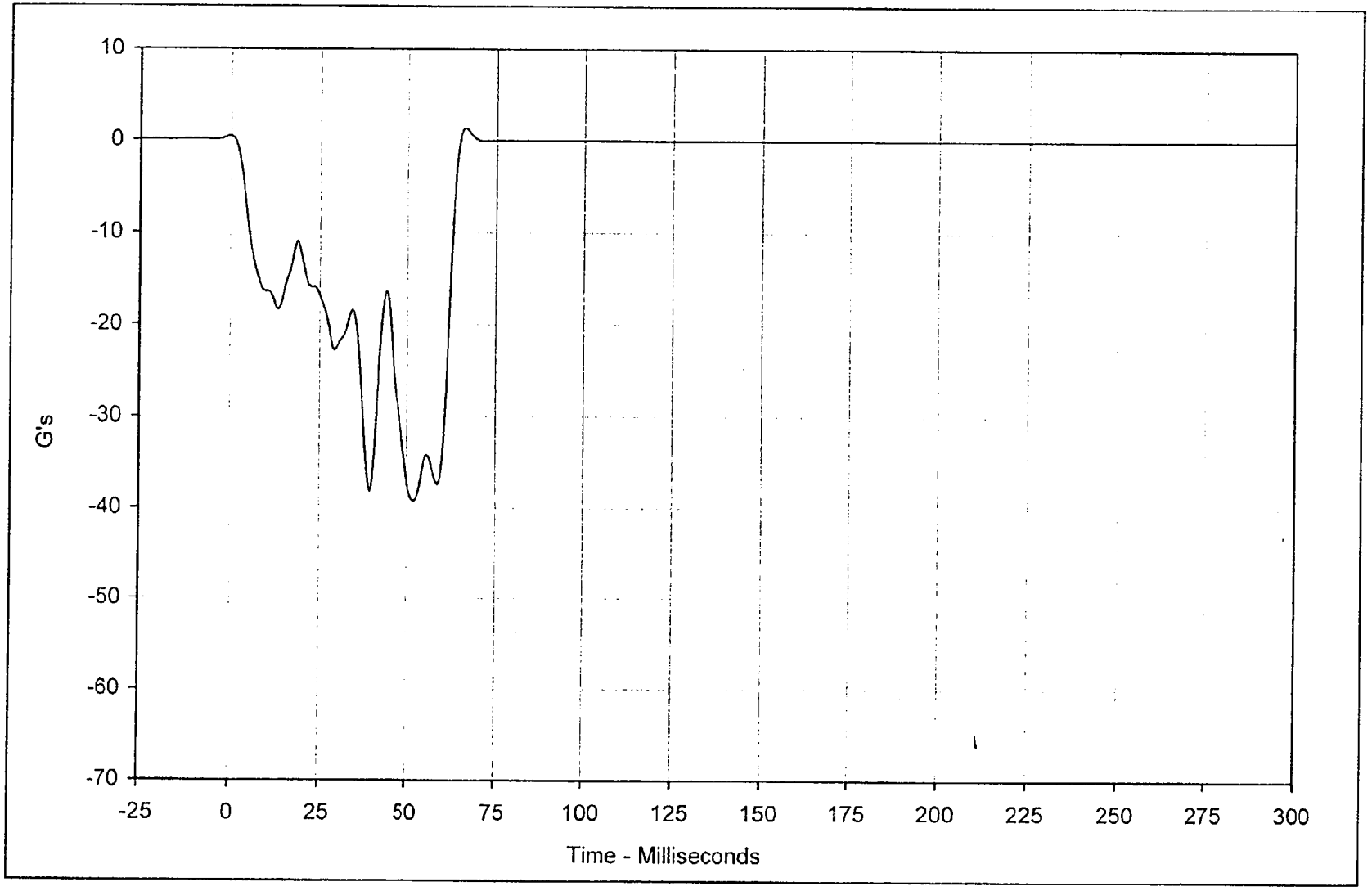


Curve Description:	Passenger Shoulder Belt Elongation			Testing Program:	1997 New Car Assessment Program
Maximum Value:	0.043	at	105.9 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	0.000	at	0.0 Milliseconds		
SAE Filter Class:	60				
Date of Test:	4/17/97				
Curve Number:	FIL-088				

KARCO Engineering

KAR-96-R96024-05

B123



Curve Description: Vehicle Left Rear Primary X *

Maximum Value: 1.3 at 66.2 Milliseconds

Minimum Value: -39.2 at 52 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

Curve Number: FIL-089

*Channel failed at 62 Msec.

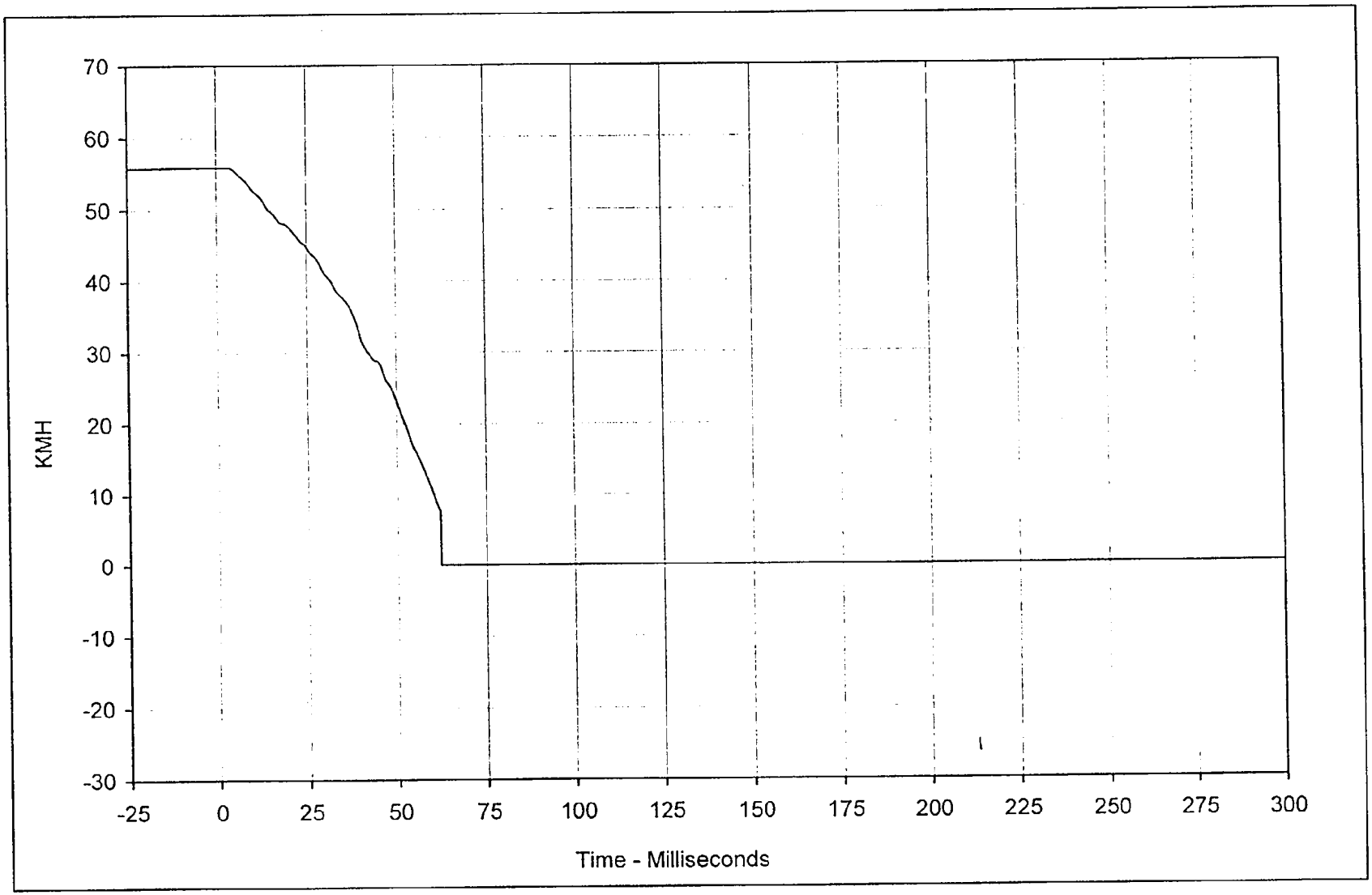
Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering

KAR-96-R96024-05

B124



Curve Description: Vehicle Left Rear Primary X Velocity *

Maximum Value: 55.9 at 2.1 Milliseconds

Minimum Value: 0.0 at 62.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

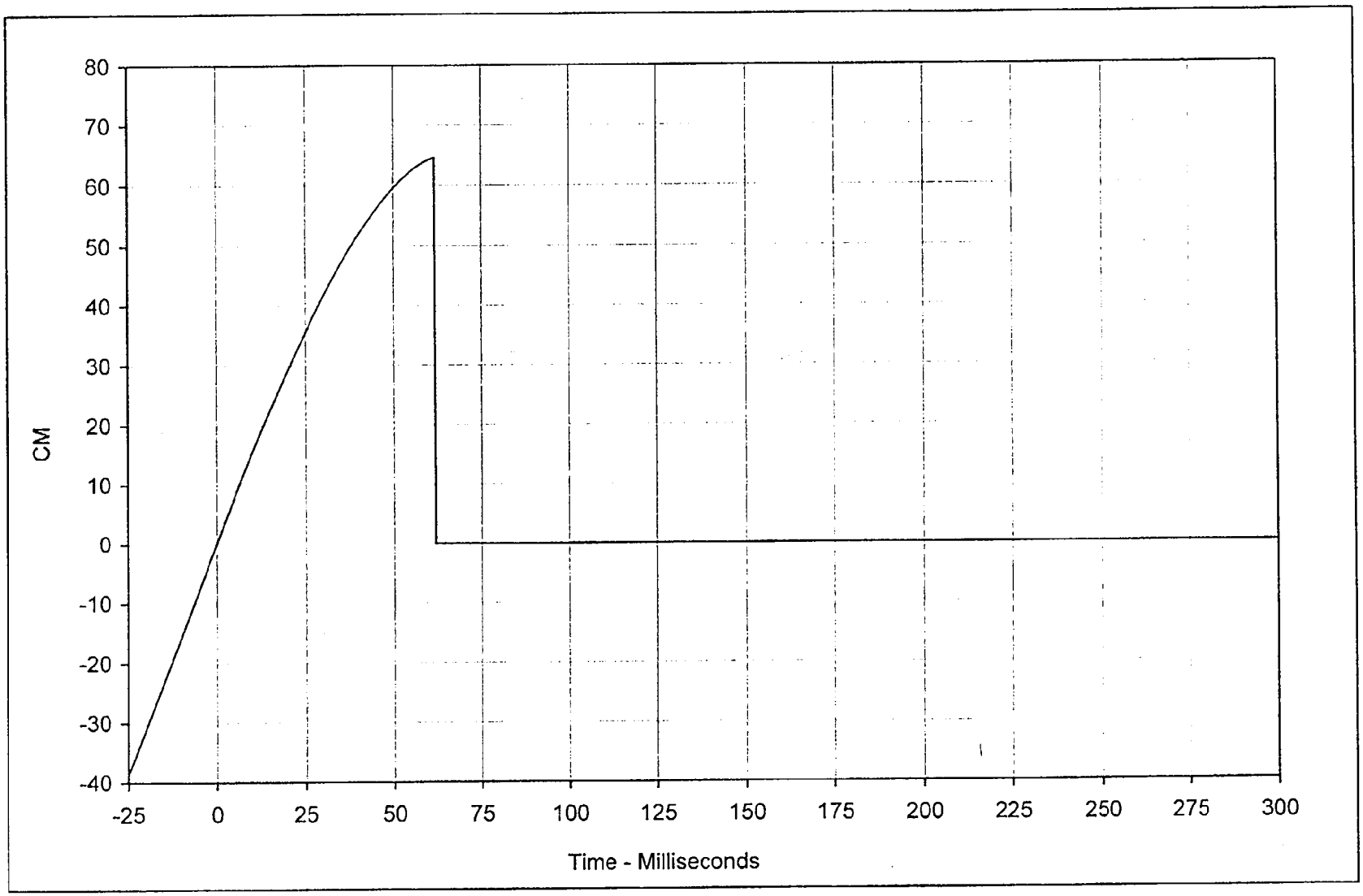
Curve Number: IN1-089

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering



Curve Description: Vehicle Left Rear Primary X Displ. *

Maximum Value: 64.6 at 61.9 Milliseconds

Minimum Value: 0.0 at 62.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-089

Testing Program: 1997 New Car Assesment Program

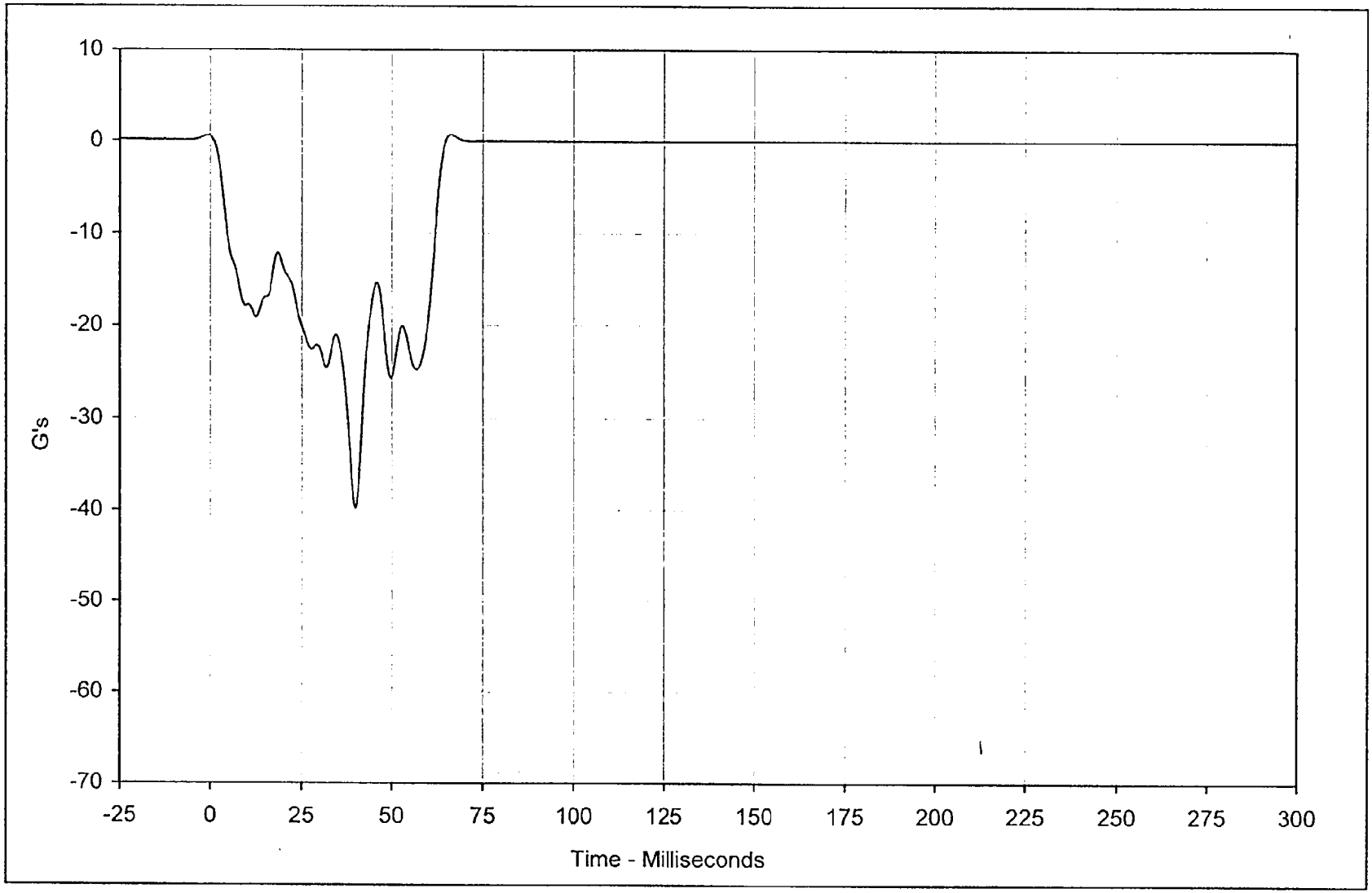
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B126



Curve Description: Vehicle Right Rear Primary X *

Maximum Value: 0.7 at 66.1 Milliseconds

Minimum Value: -39.8 at 39.9 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

Curve Number: FIL-090

Testing Program: 1997 New Car Assessment Program

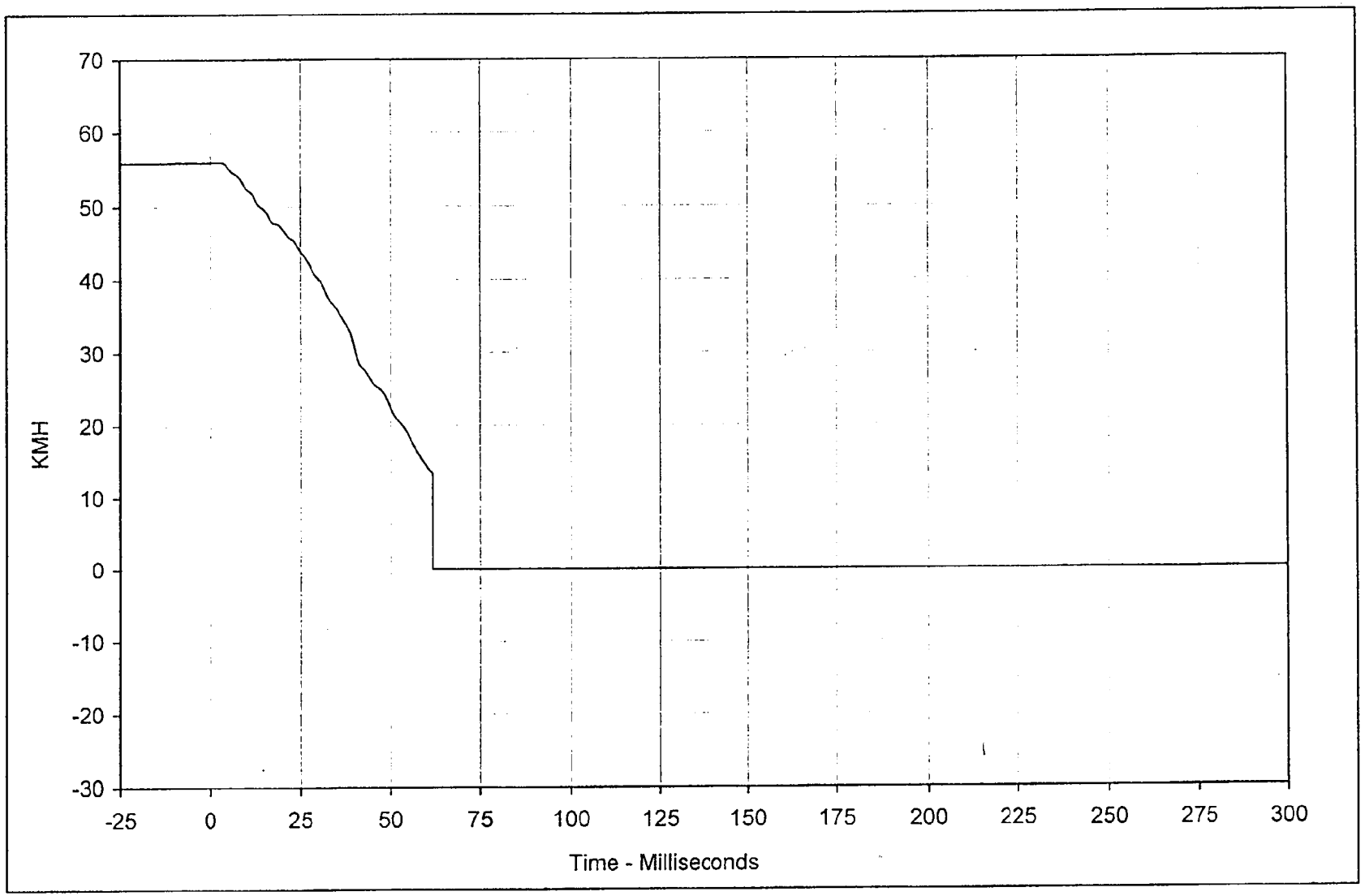
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec.

KARCO Engineering

KAR-96-R96024-05

B127



Curve Description: Vehicle Right Rear Primary X Velocity *

Maximum Value: 55.9 at 2.8 Milliseconds

Minimum Value: 0.0 at 62.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN1-090

Testing Program: 1997 New Car Assesment Program

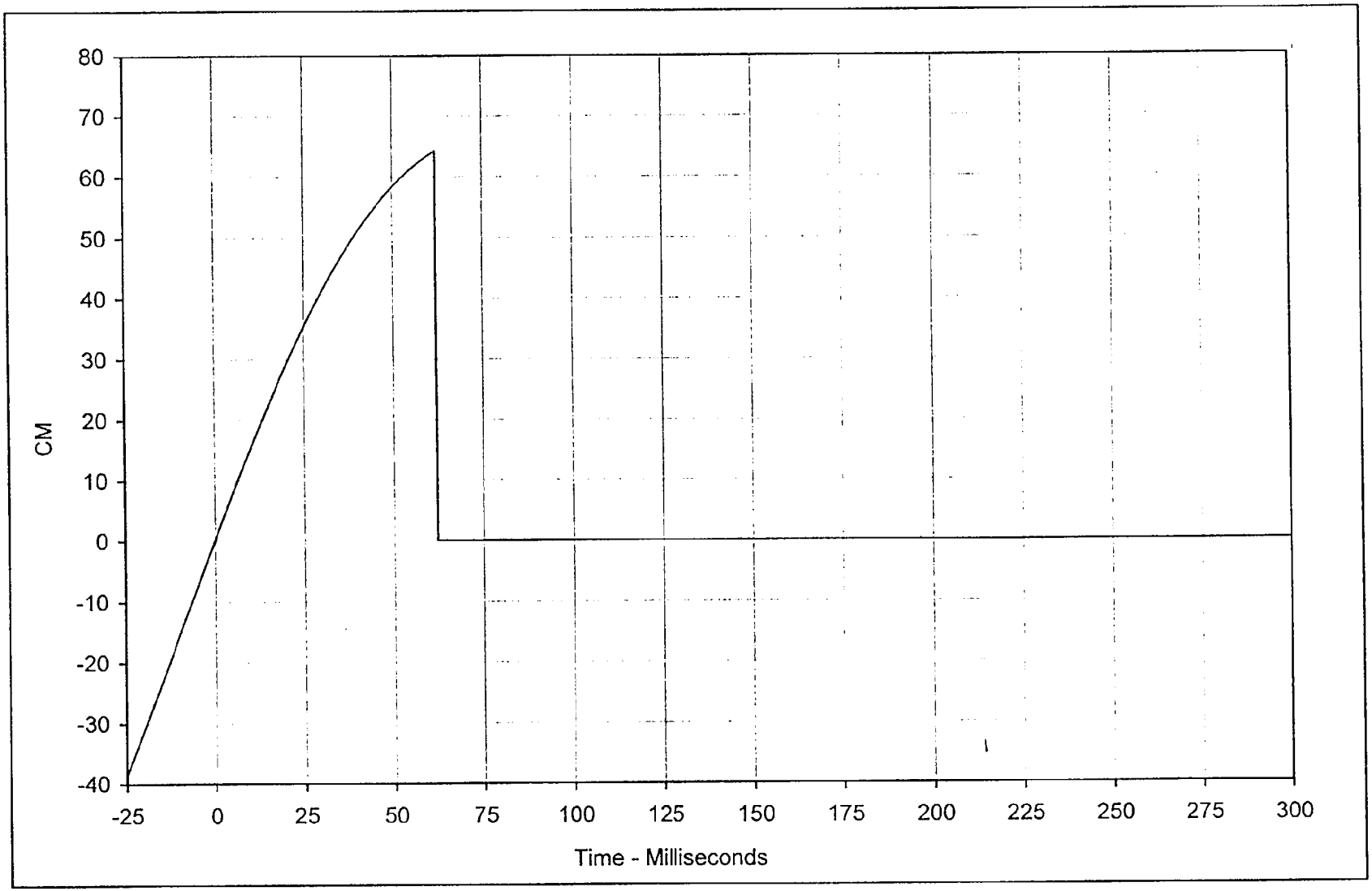
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B128



Curve Description: Vehicle Right Rear Primary X Displ. *

Maximum Value: 64.3 at 61.9 Milliseconds

Minimum Value: 0.0 at 62.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-090

Testing Program: 1997 New Car Assesment Program

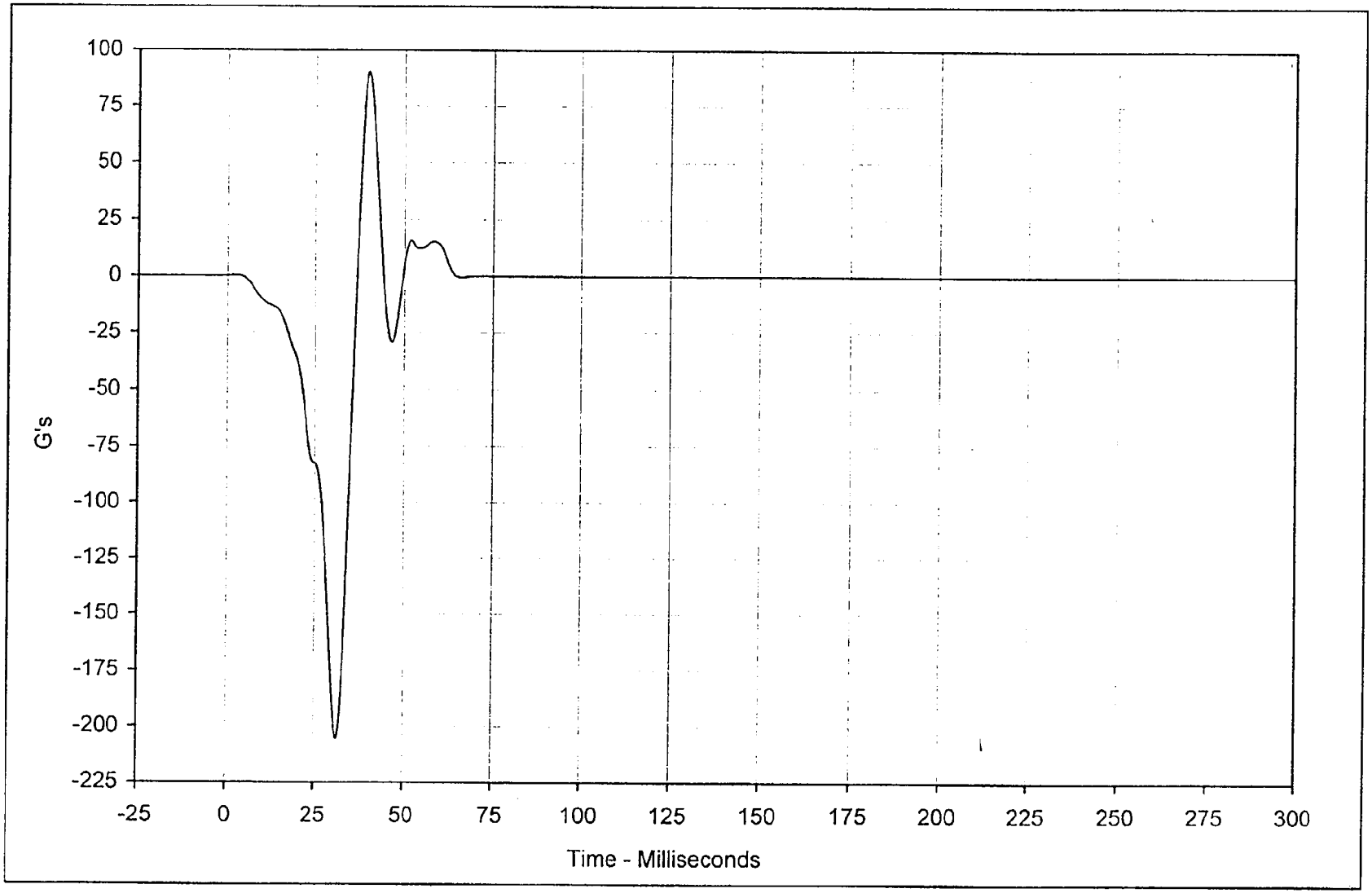
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B129



Curve Description: Vehicle Engine Top X *

Maximum Value: 90.3 at 39.8 Milliseconds

Minimum Value: -205.3 at 31.4 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

Curve Number: FIL-091

Testing Program: 1997 New Car Assessment Program

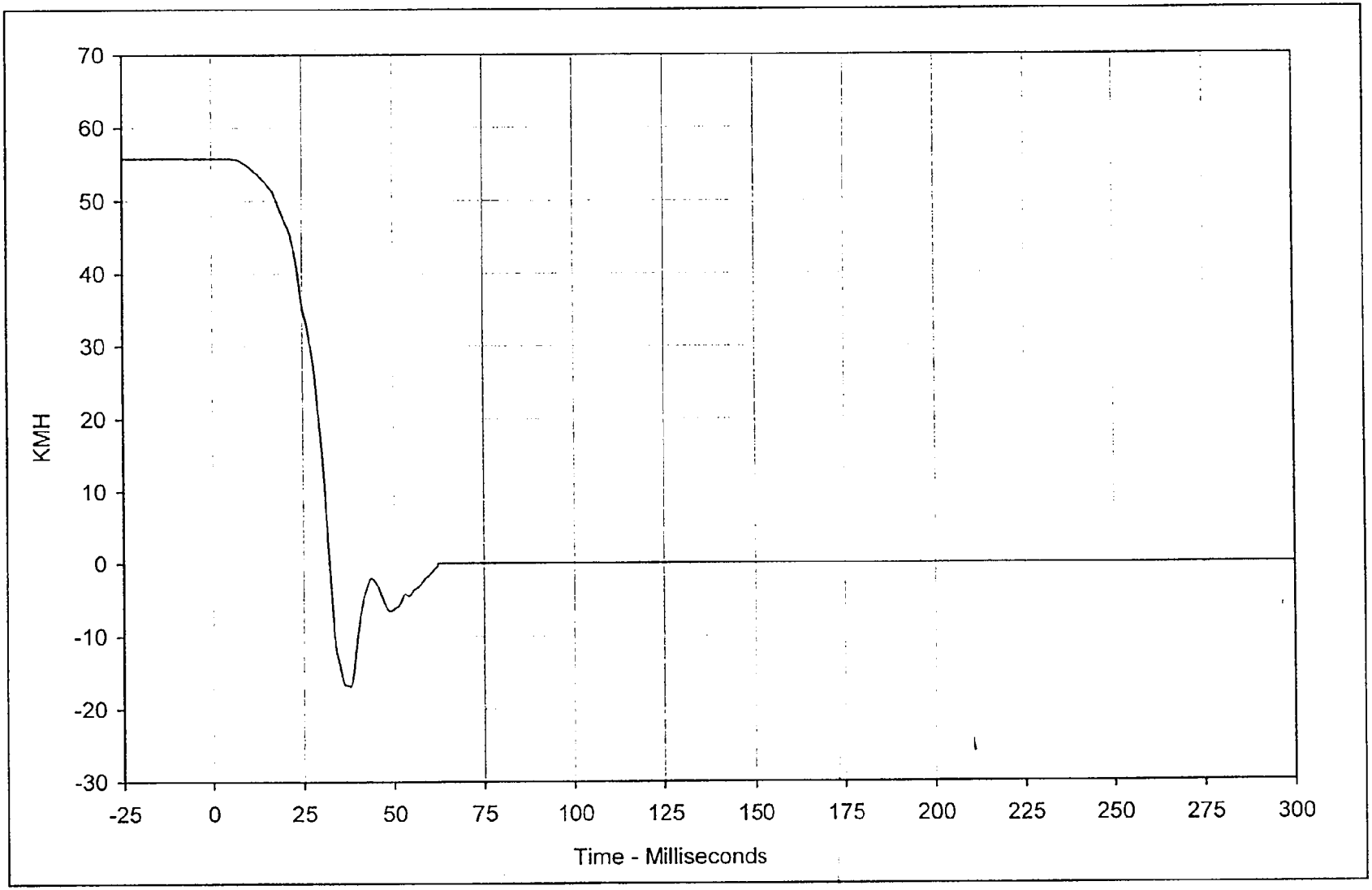
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec.

KARCO Engineering

KAR-96-R96024-05

B130



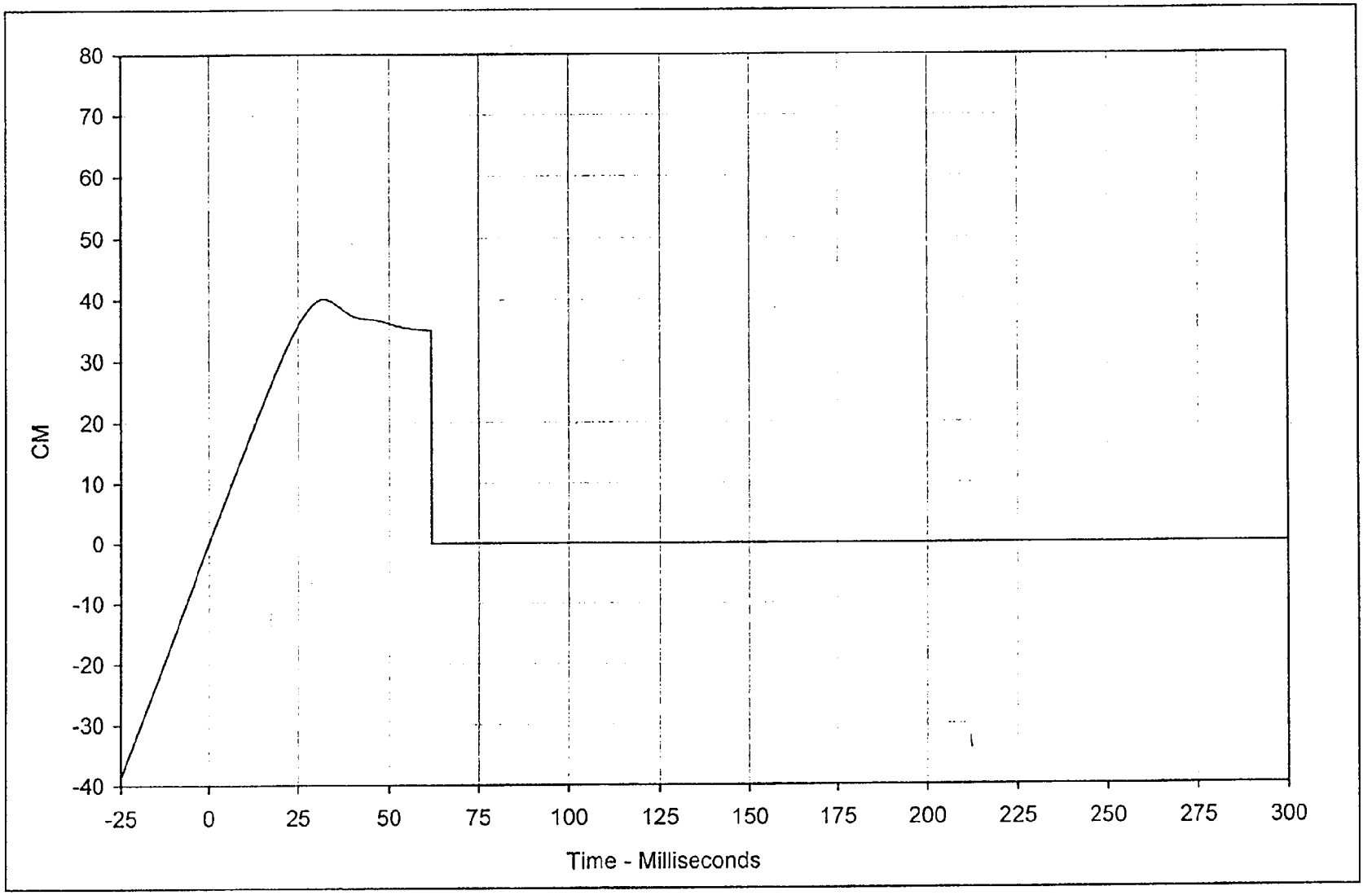
Curve Description:	Vehicle Engine Top X Velocity *			Testing Program:	1997 New Car Assesment Program
Maximum Value:	55.8	at	4.5 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-16.8	at	37.7 Milliseconds		
SAE Filter Class:	180				
Date of Test:	4/17/97				
Curve Number:	IN1-091				

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B131



Curve Description: Vehicle Engine Top X Displ. *

Maximum Value: 40.1 at 32.2 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-091

Testing Program: 1997 New Car Assesment Program

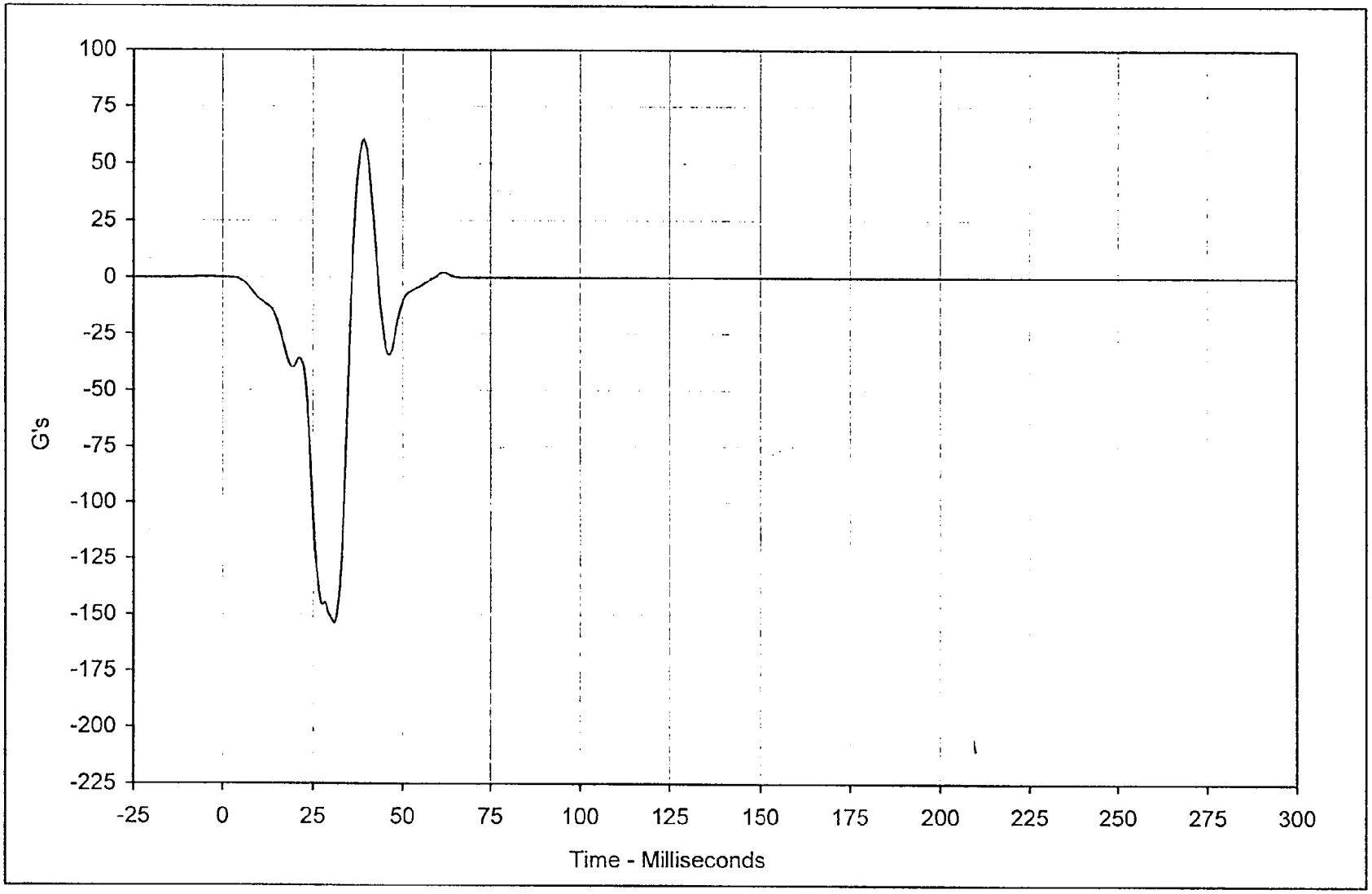
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B132



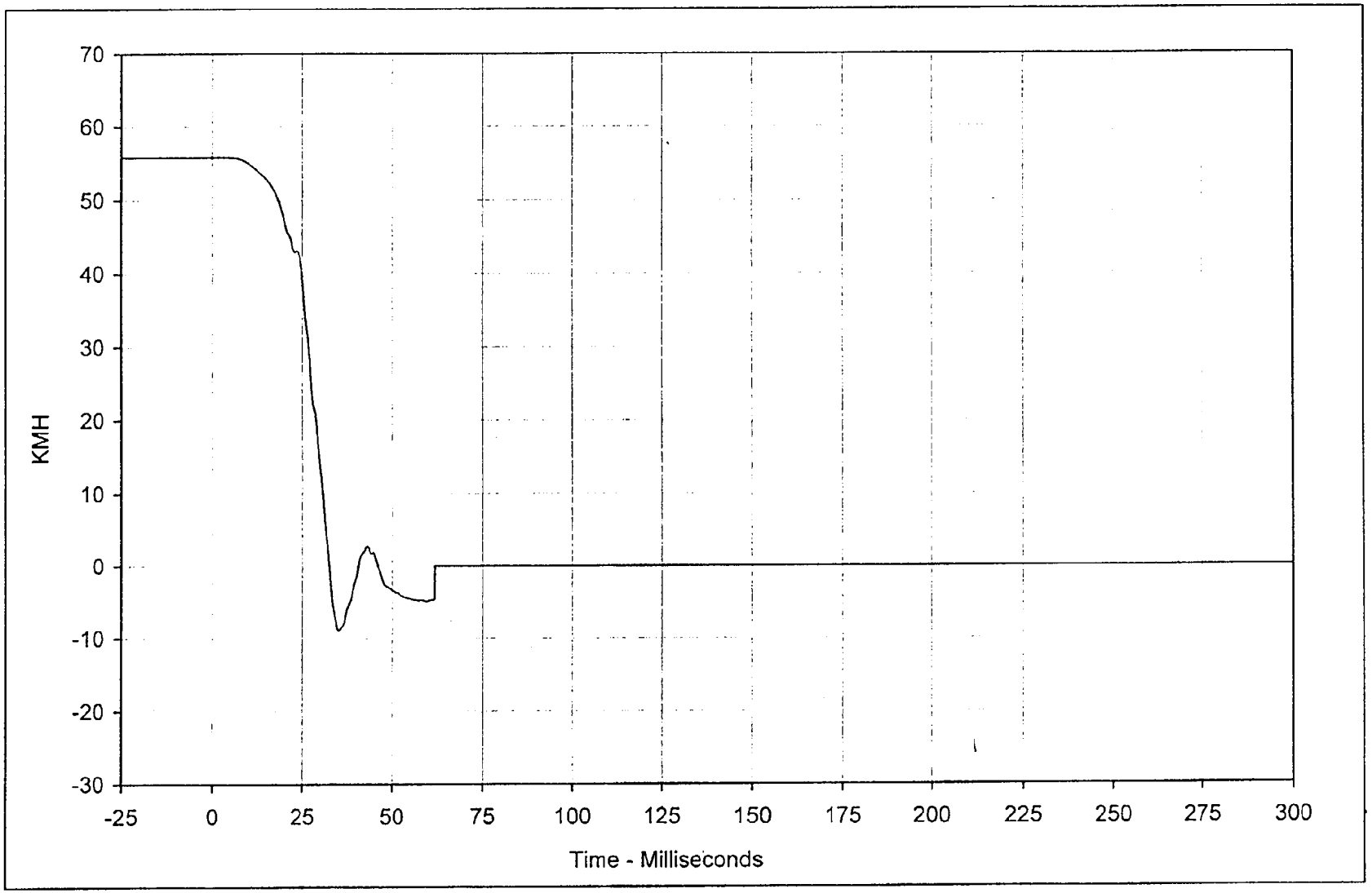
Curve Description:	Vehicle Engine Bottom X *			Testing Program:	1997 New Car Assessment Program
Maximum Value:	60.4	at	39.1 Milliseconds	Test Vehicle:	1997 Nissan 200 SX
Minimum Value:	-154.0	at	30.9 Milliseconds		
SAE Filter Class:	60				
Date of Test:	4/17/97				
Curve Number:	FIL-092				

*Channel failed at 62 Msec.

KARCO Engineering

KAR-96-R96024-05

B133



Curve Description: Vehicle Engine Bottom X Velocity *

Maximum Value: 55.8 at 1.0 Milliseconds

Minimum Value: -8.9 at 35.2 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

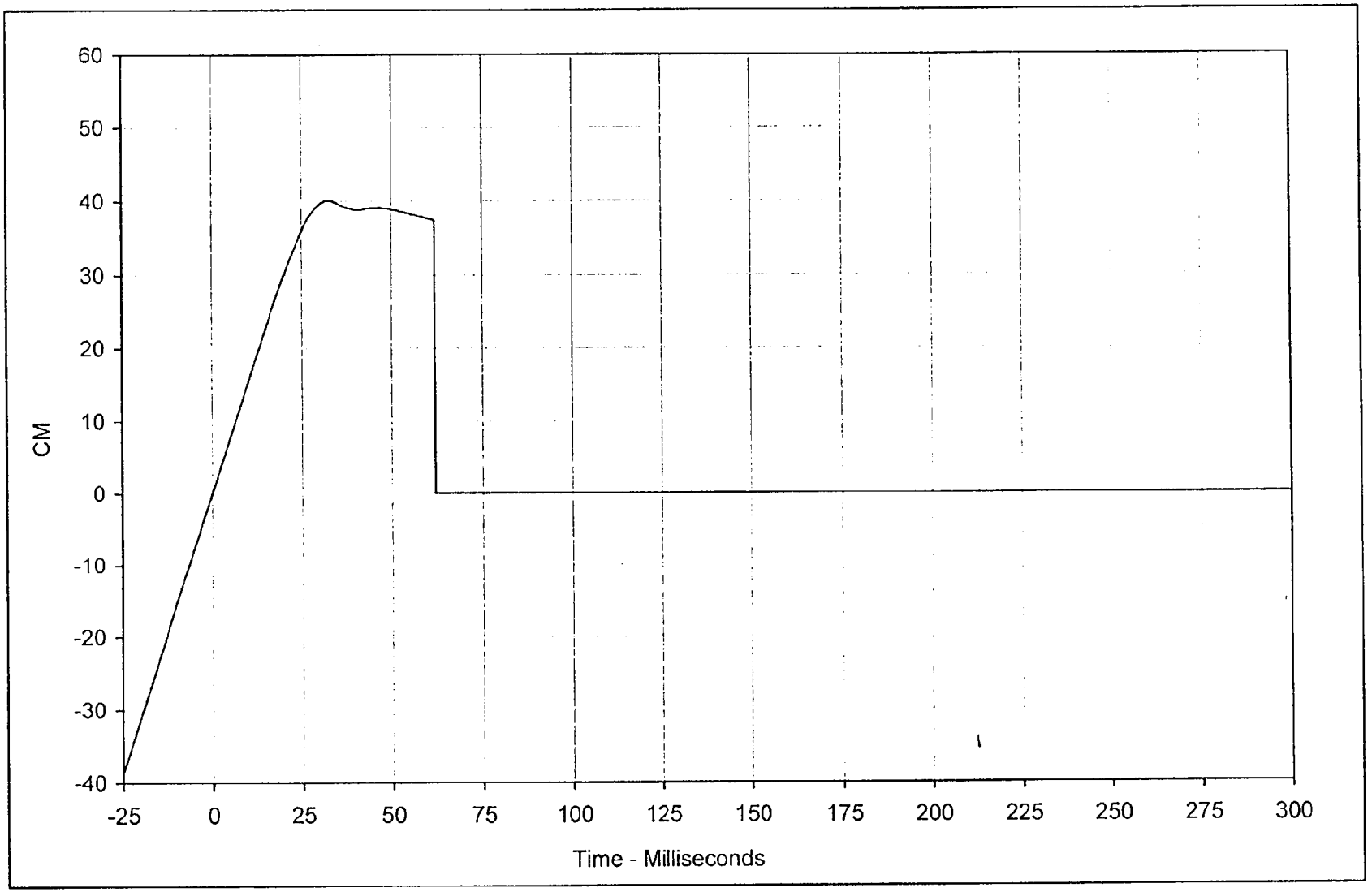
Curve Number: IN1-092

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering



Curve Description: Vehicle Engine Bottom X Displ. *

Maximum Value: 40.0 at 32.6 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-092

Testing Program: 1997 New Car Assesment Program

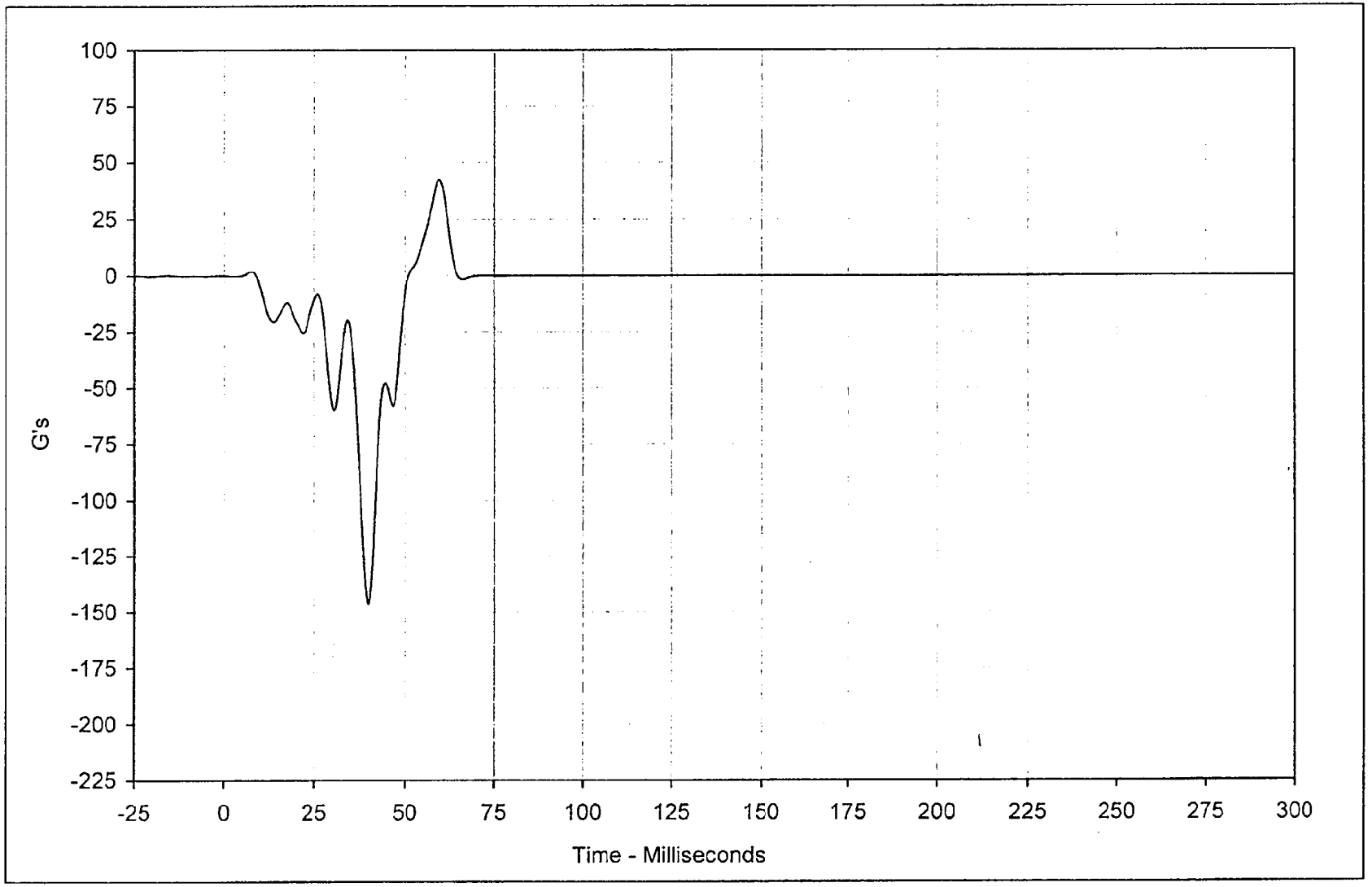
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B135



Curve Description: Vehicle Left Brake Caliper X *

Maximum Value: 42.5 at 59.6 Milliseconds

Minimum Value: -146.4 at 39.9 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

Curve Number: FIL-093

Testing Program: 1997 New Car Assessment Program

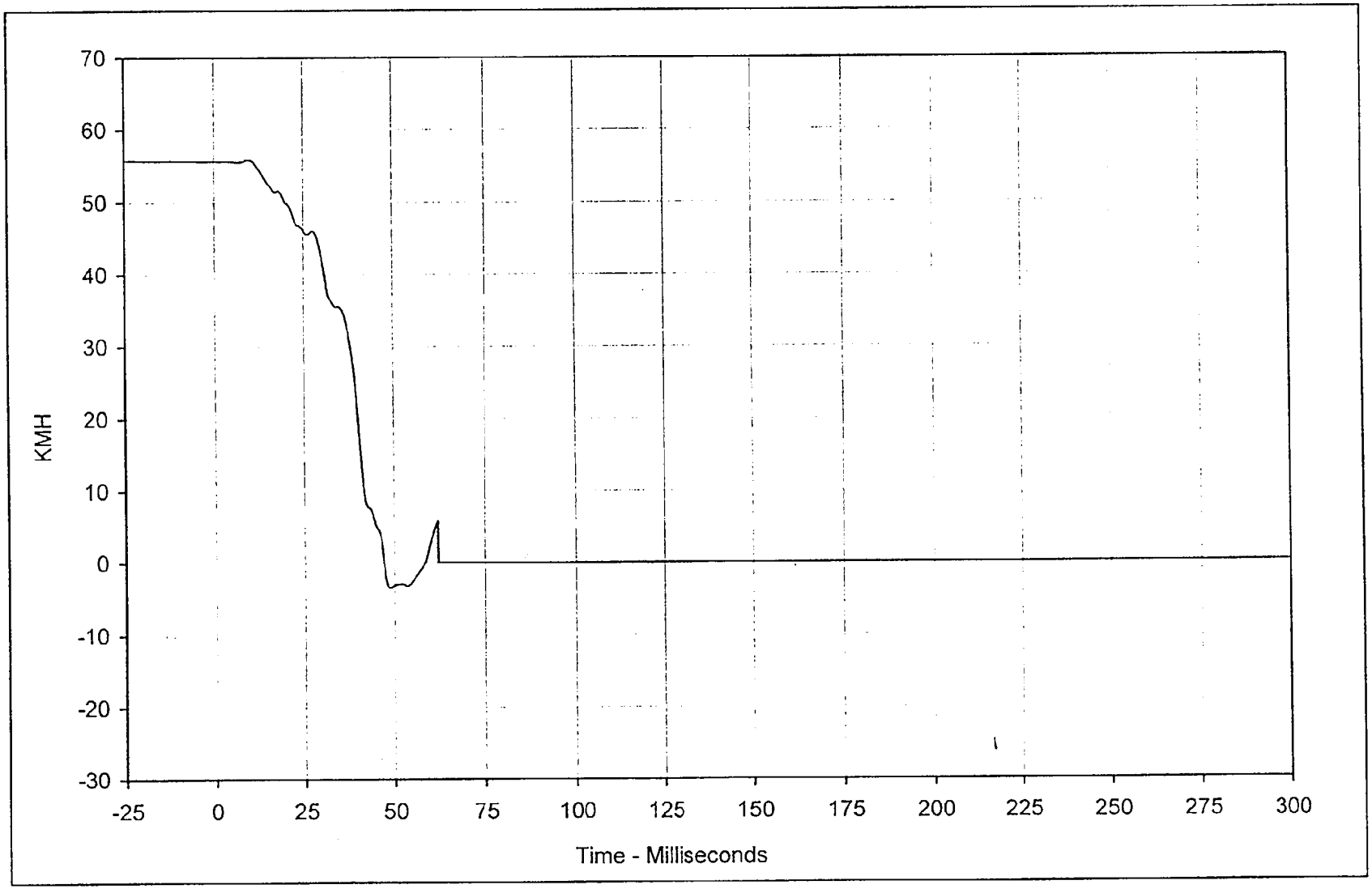
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec.

KARCO Engineering

KAR-96-R96024-05

B136



Curve Description: Vehicle Left Brake Caliper X Velocity *

Maximum Value: 55.9 at 9.6 Milliseconds

Minimum Value: -3.4 at 48.8 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN1-093

Testing Program: 1997 New Car Assesment Program

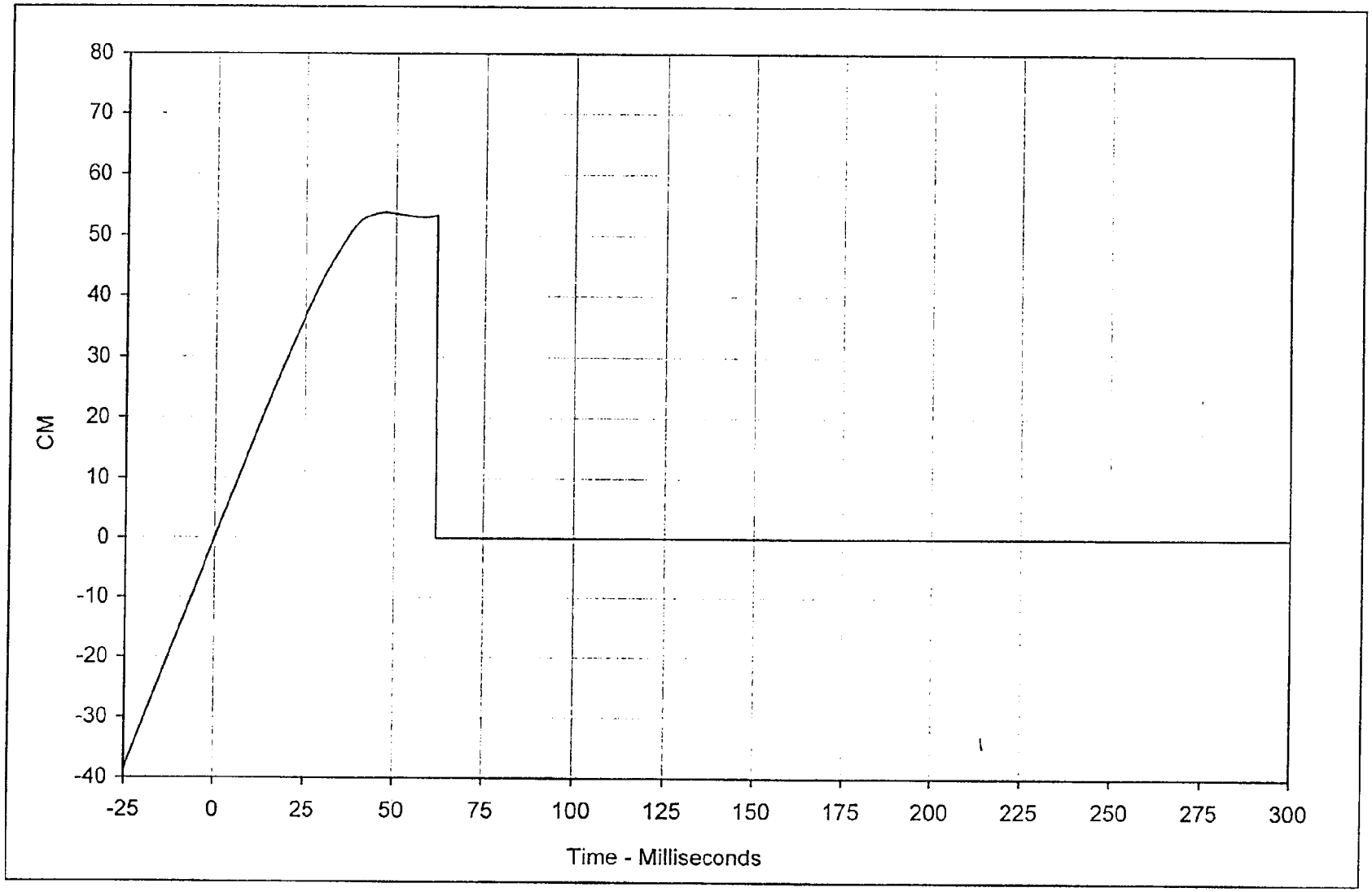
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B137



Curve Description: Vehicle Left Brake Caliper X Displ. *

Maximum Value: 53.8 at 47.1 Milliseconds

Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-093

Testing Program: 1997 New Car Assesment Program

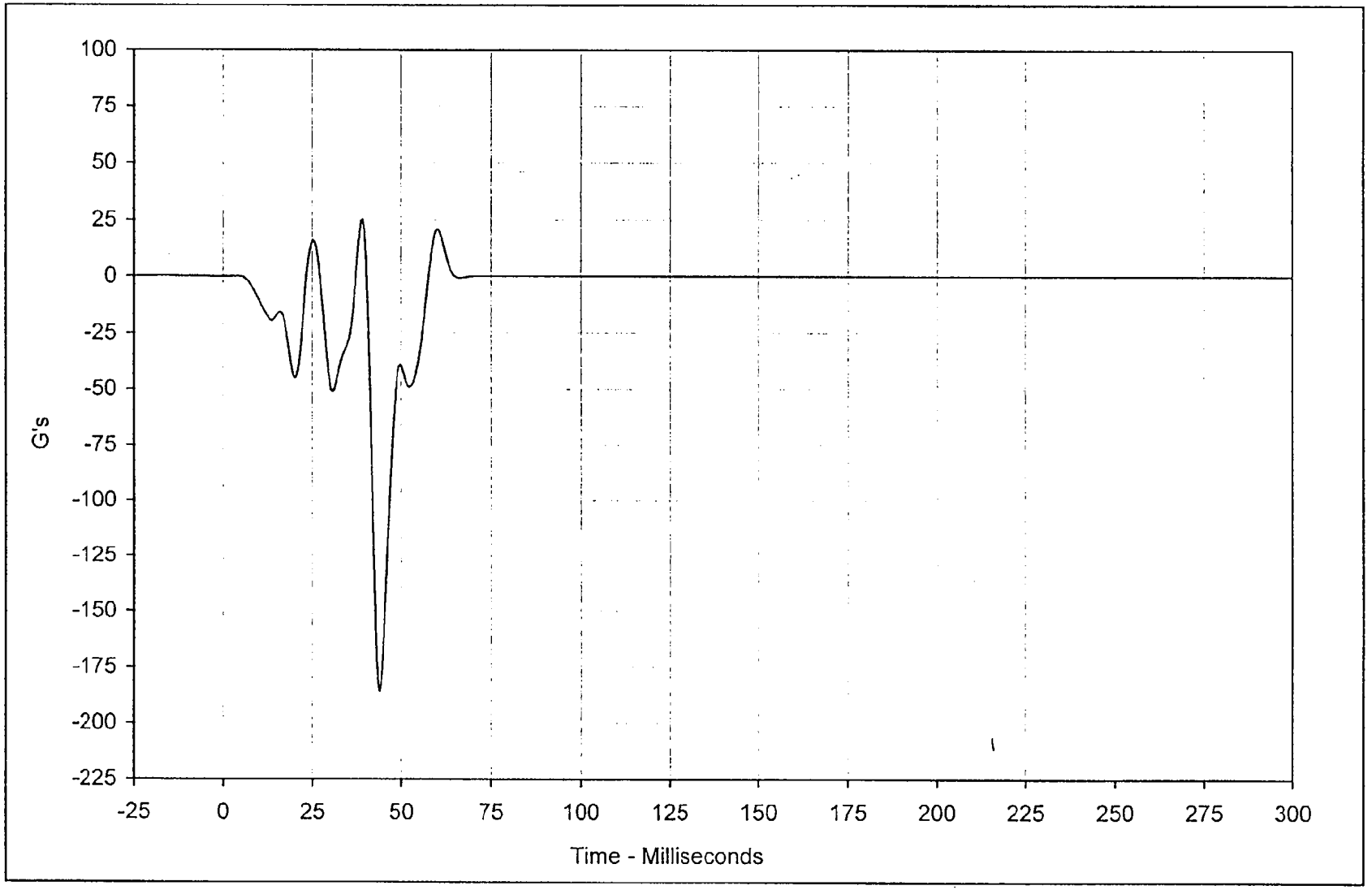
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B138



Curve Description: Vehicle Right Brake Caliper X *

Maximum Value: 25.3 at 38.8 Milliseconds

Minimum Value: -185.6 at 43.6 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

Curve Number: FIL-094

Testing Program: 1997 New Car Assessment Program

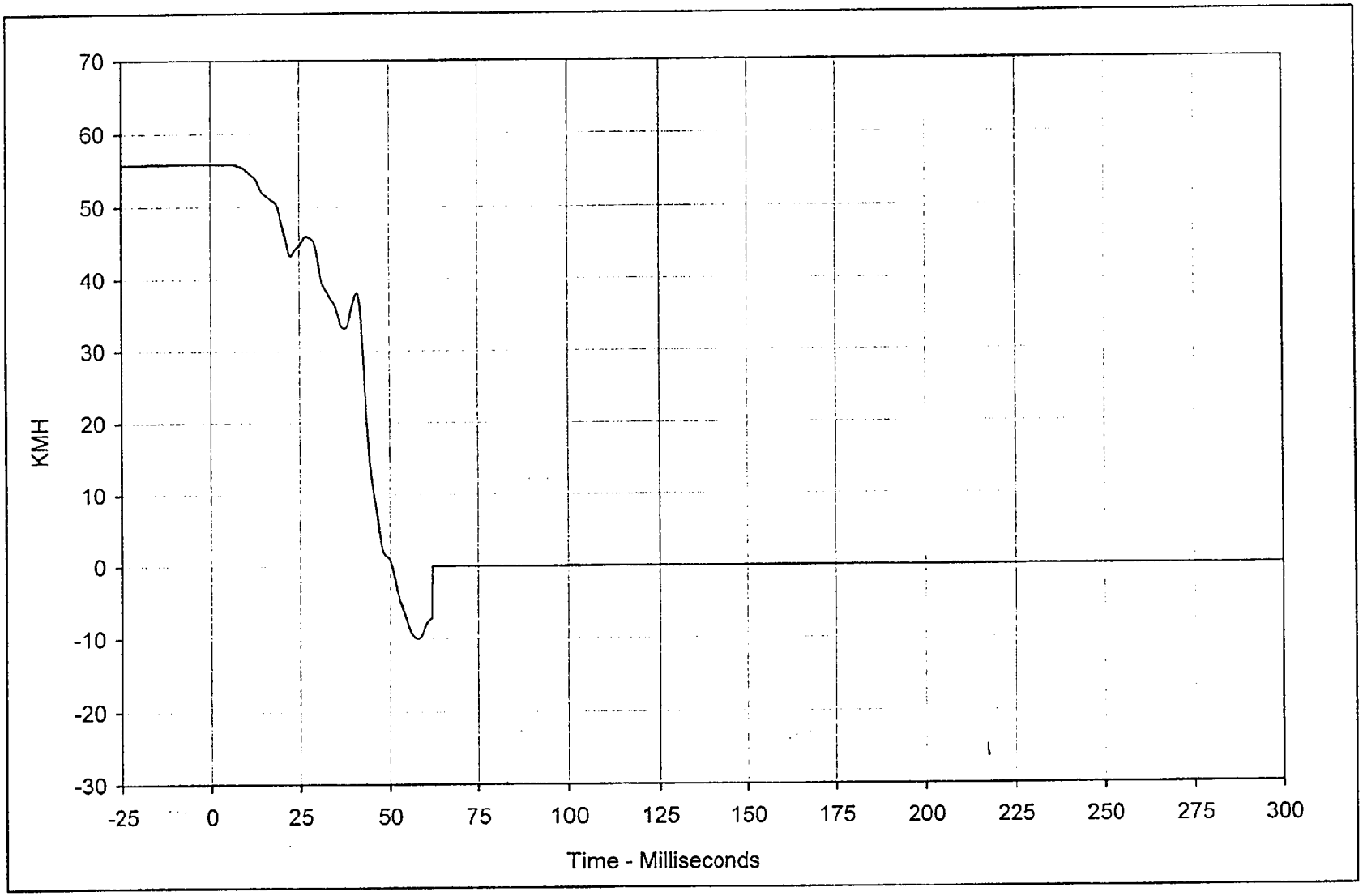
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec.

KARCO Engineering

KAR-96-R96024-05

B139



Curve Description: Vehicle Right Brake Caliper X Velocity *

Maximum Value: 55.8 at 0.3 Milliseconds

Minimum Value: -10.1 at 57.8 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN1-094

*Channel failed at 62 Msec

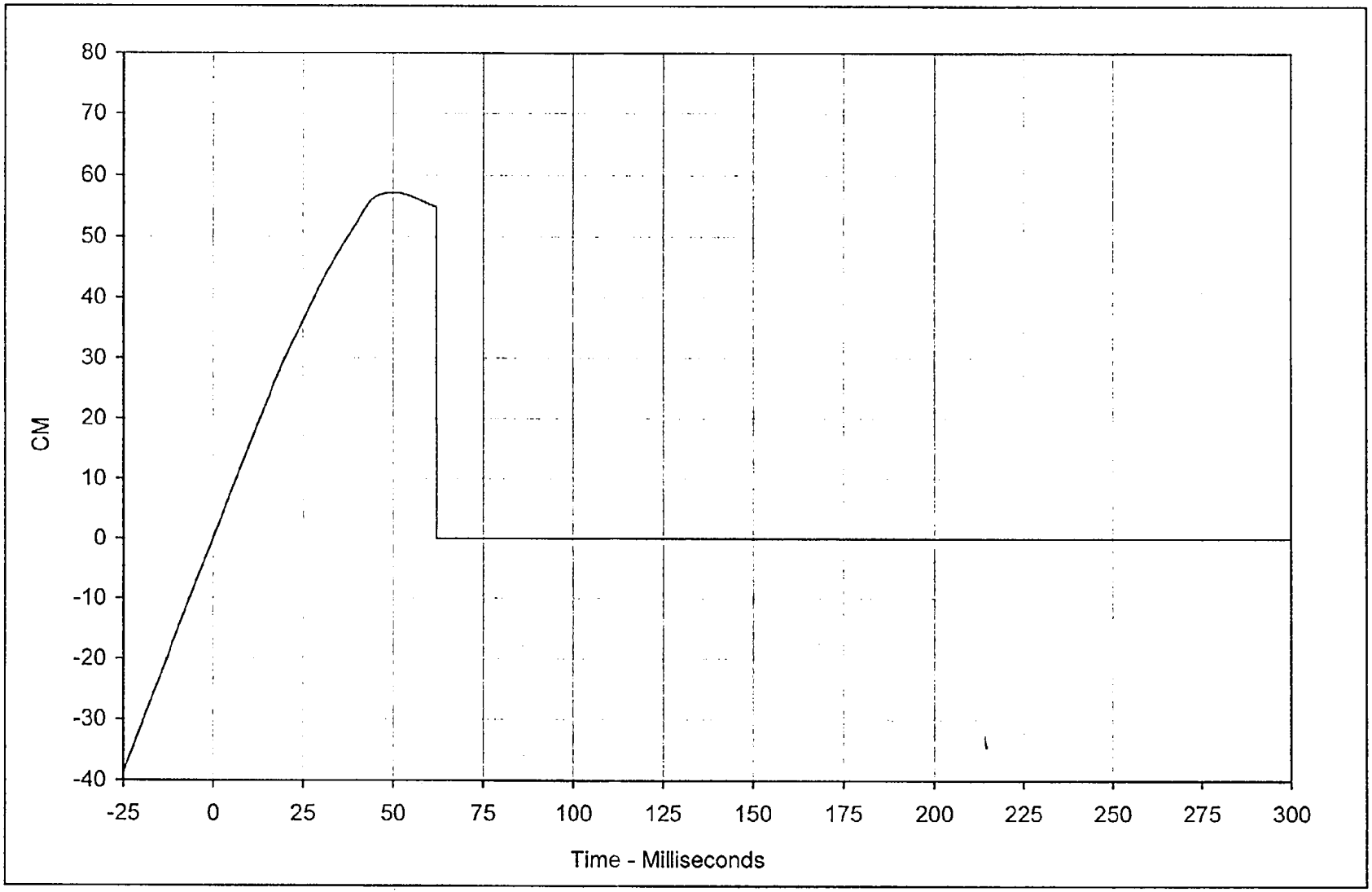
Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering

KAR-96-R96024-05

B140



Curve Description: Vehicle Right Brake Caliper X Displ. *

Maximum Value: 57.2 at 50.6 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-094

Testing Program: 1997 New Car Assesment Program

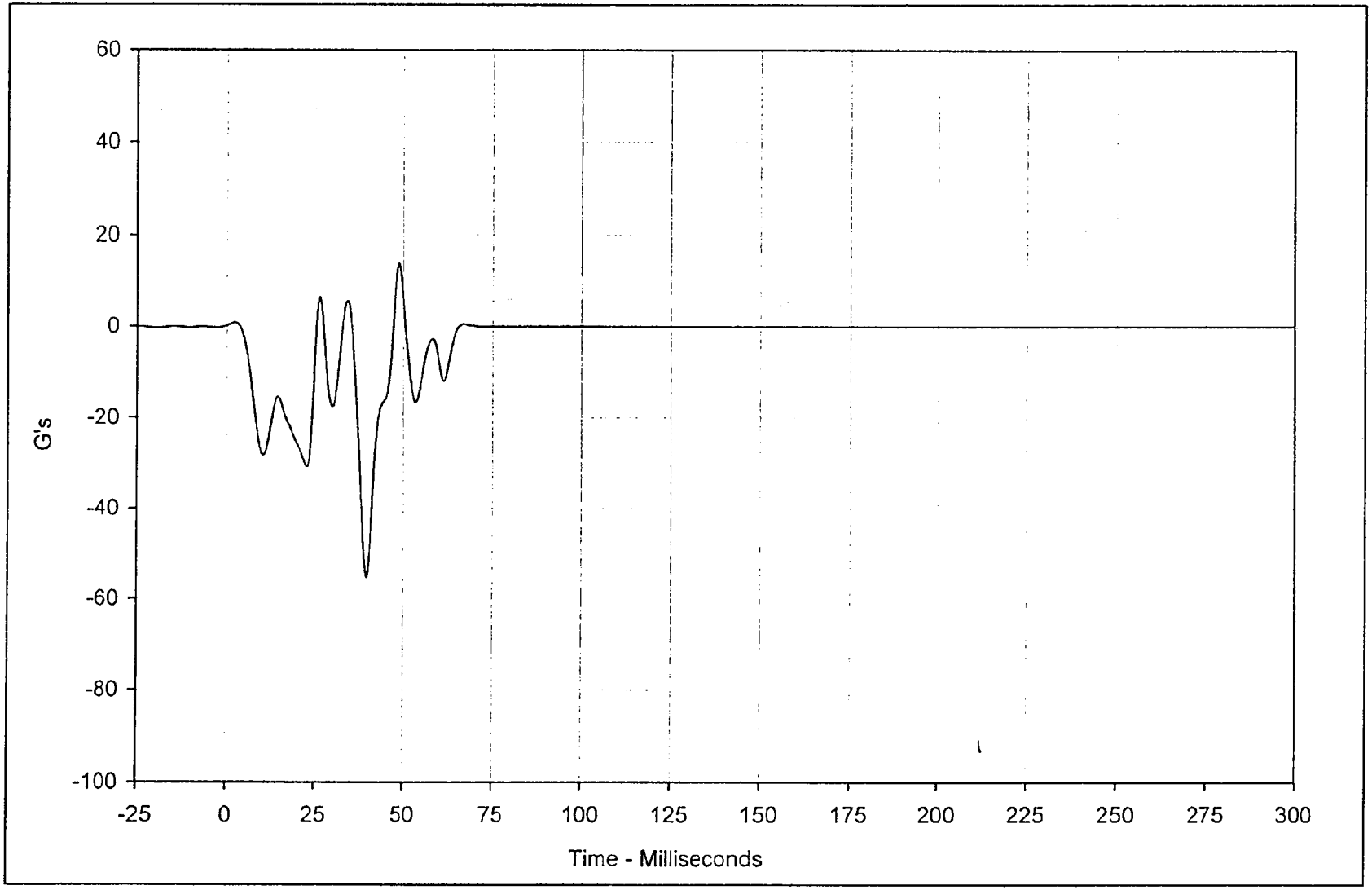
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B141



Curve Description: Vehicle Instrument Panel X *

Maximum Value: 13.9 at 48.6 Milliseconds

Minimum Value: -55.3 at 39.5 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

Curve Number: FIL-095

Testing Program: 1997 New Car Assessment Program

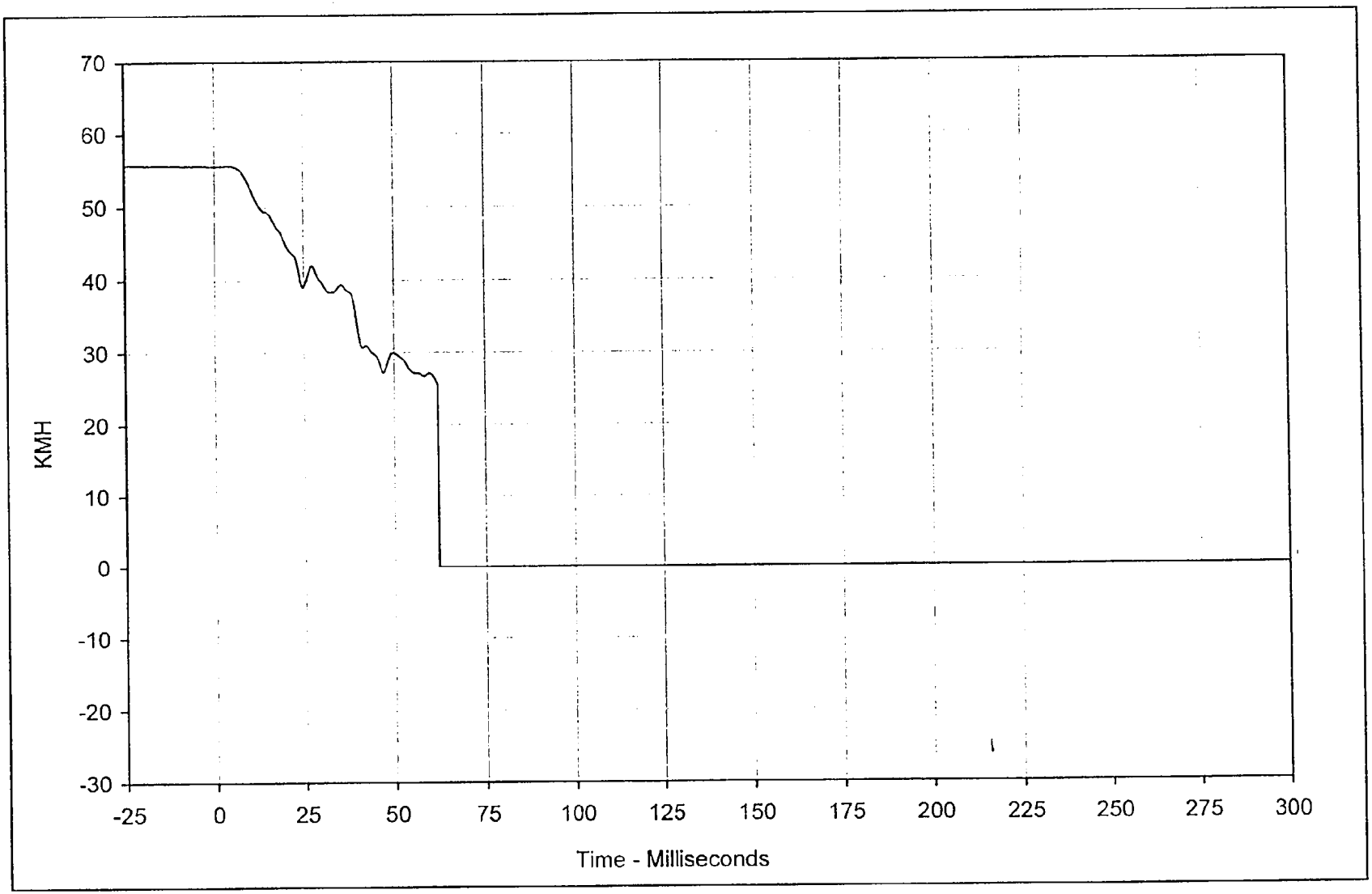
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec.

KARCO Engineering

KAR-96-R96024-05

B142



Curve Description: Vehicle Instrument Panel X Velocity *

Maximum Value: 55.6 at 4.2 Milliseconds

Minimum Value: 0.0 at 62.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

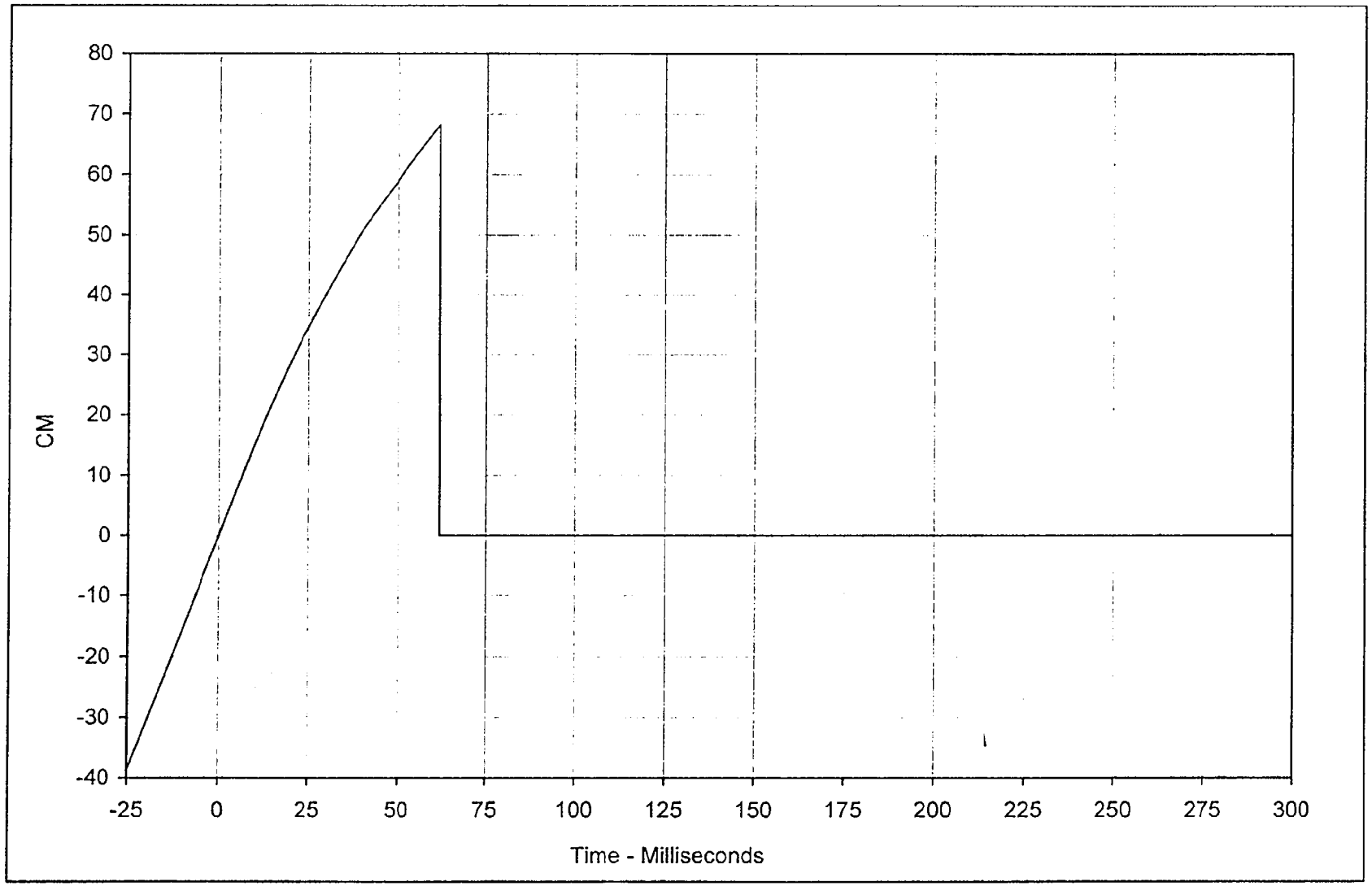
Curve Number: IN1-095

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering



Curve Description: Vehicle Instrument Panel X Displ. *

Maximum Value: 68.2 at 61.9 Milliseconds

Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

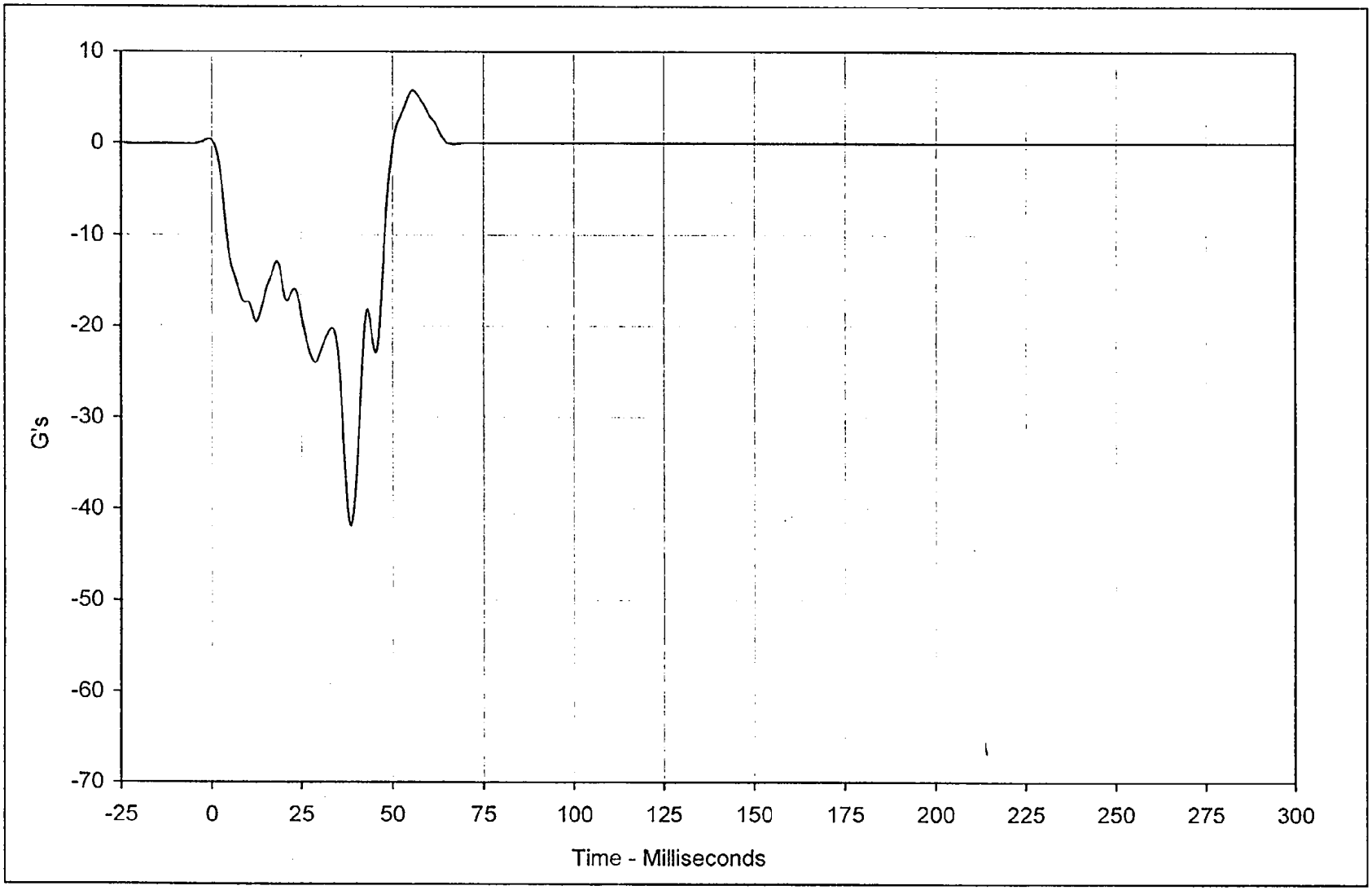
Curve Number: IN2-095

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering



Curve Description: Vehicle Left Rear Redundant X *

Maximum Value: 5.8 at 55.6 Milliseconds

Minimum Value: -41.9 at 38.5 Milliseconds

SAE Filter Class: 60

Date of Test: 4/17/97

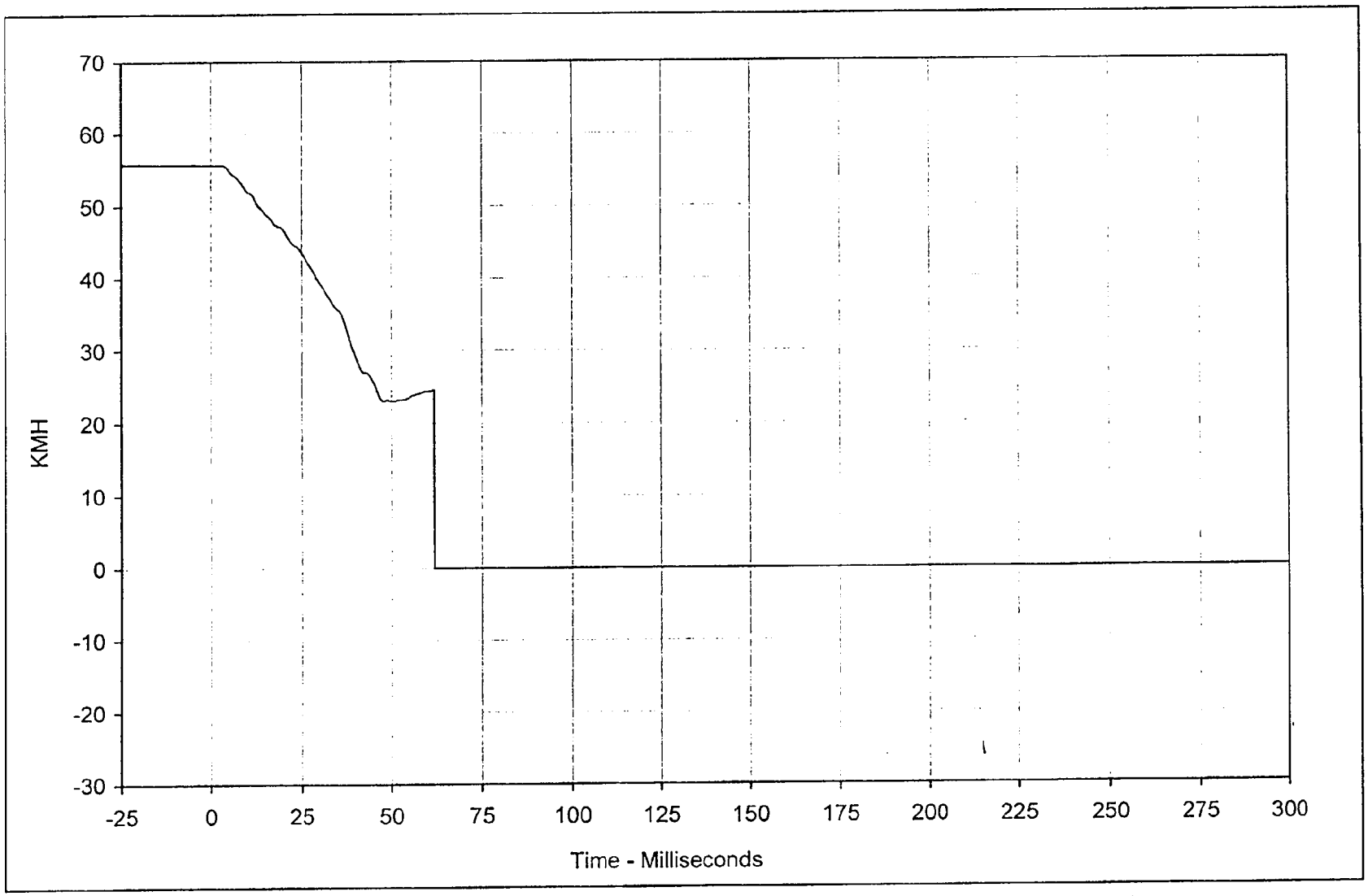
Curve Number: FIL-096

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec.

KARCO Engineering



Curve Description: Vehicle Left Rear Redundant X Velocity *

Maximum Value: 55.7 at 0.0 Milliseconds

Minimum Value: 0.0 at 62.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN1-096

Testing Program: 1997 New Car Assesment Program

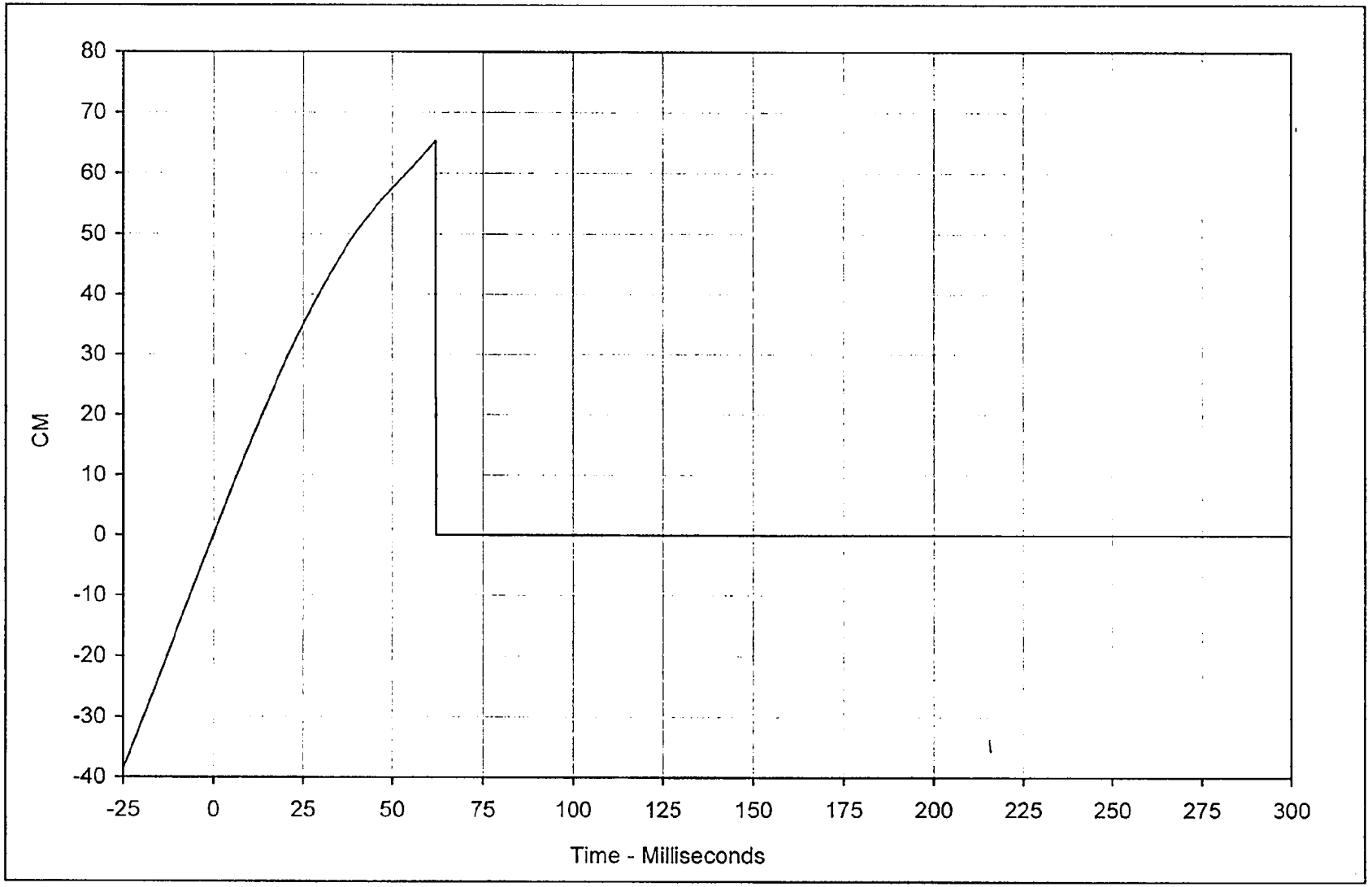
Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering

KAR-96-R96024-05

B146



Curve Description: Vehicle Left Rear Redundant X Displ. *

Maximum Value: 65.4 at 61.9 Milliseconds

Minimum Value: -0.1 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

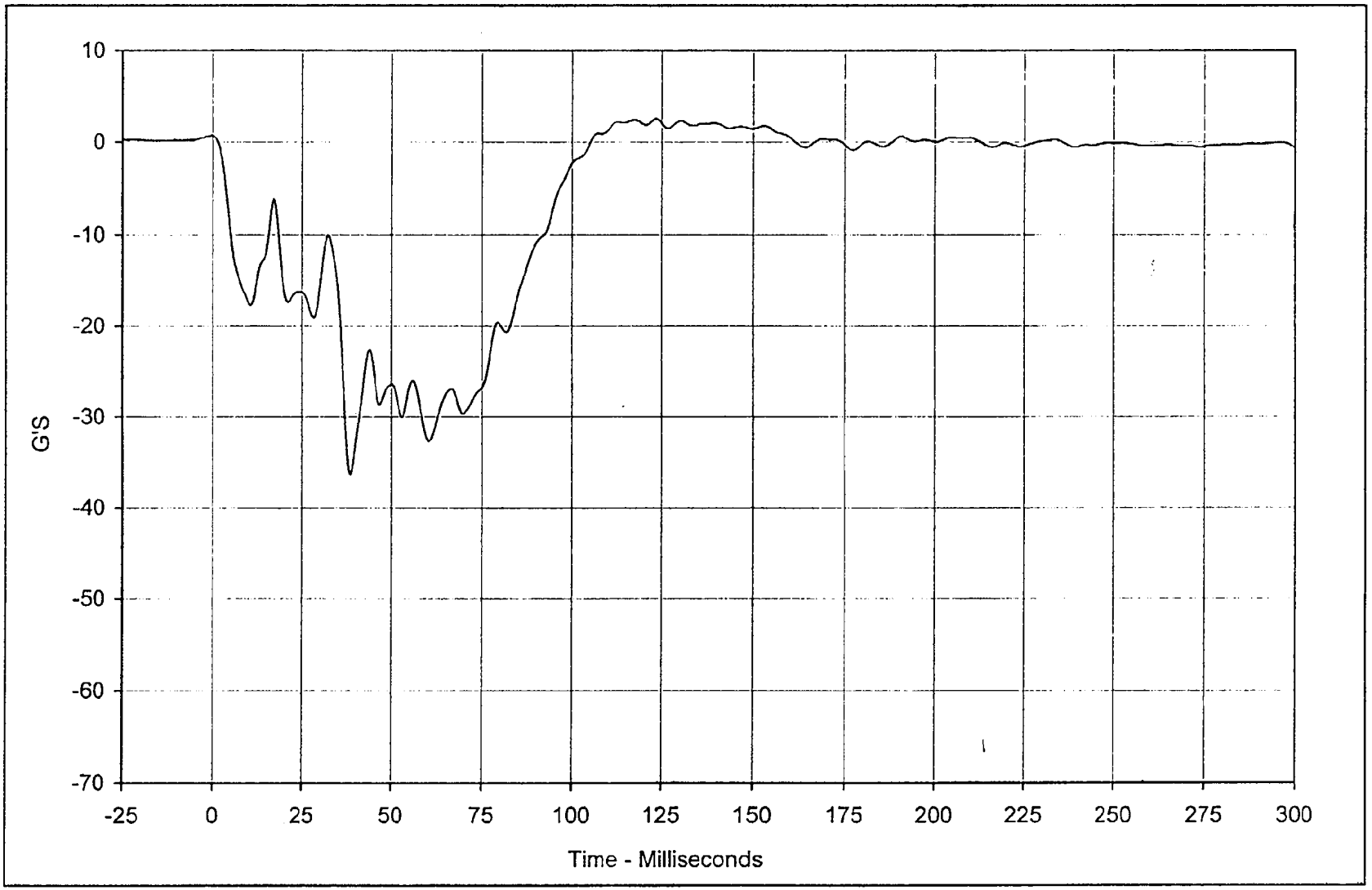
Curve Number: IN2-096

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

*Channel failed at 62 Msec

KARCO Engineering



Curve Description: Vehicle Right Rear Redundant X

Maximum Value: 2.5 at 123.5 Milliseconds

Minimum Value: -36.4 at 38.4 Milliseconds

SAE Filter Class: 60

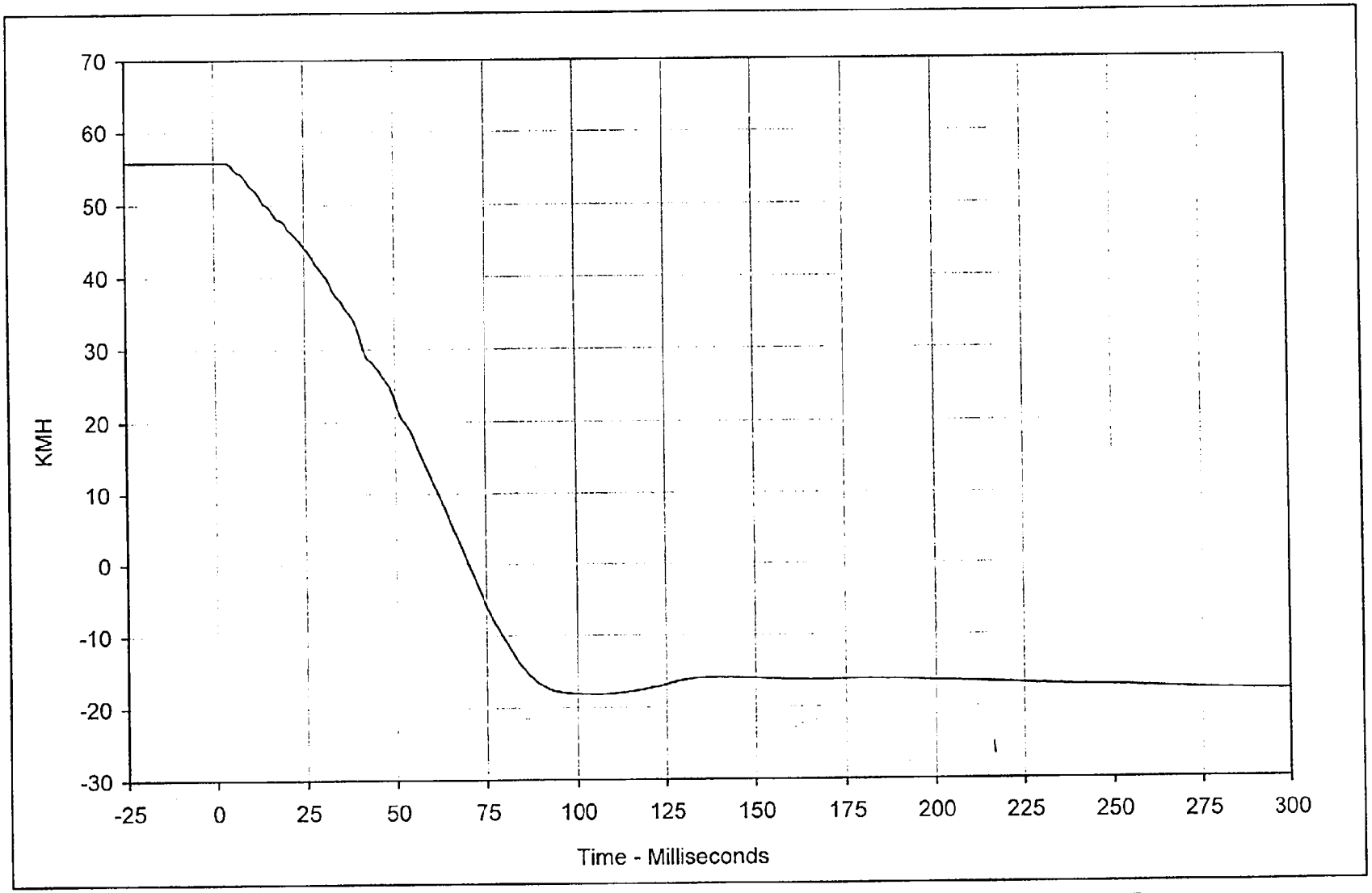
Date of Test: 4/17/97

Curve Number: FIL-097

Testing Program: 1997 New Car Assessment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description: Vehicle Right Rear Redundant X Velocity

Maximum Value: 55.8 at 0.0 Milliseconds

Minimum Value: -18.1 at 106.9 Milliseconds

SAE Filter Class: 180

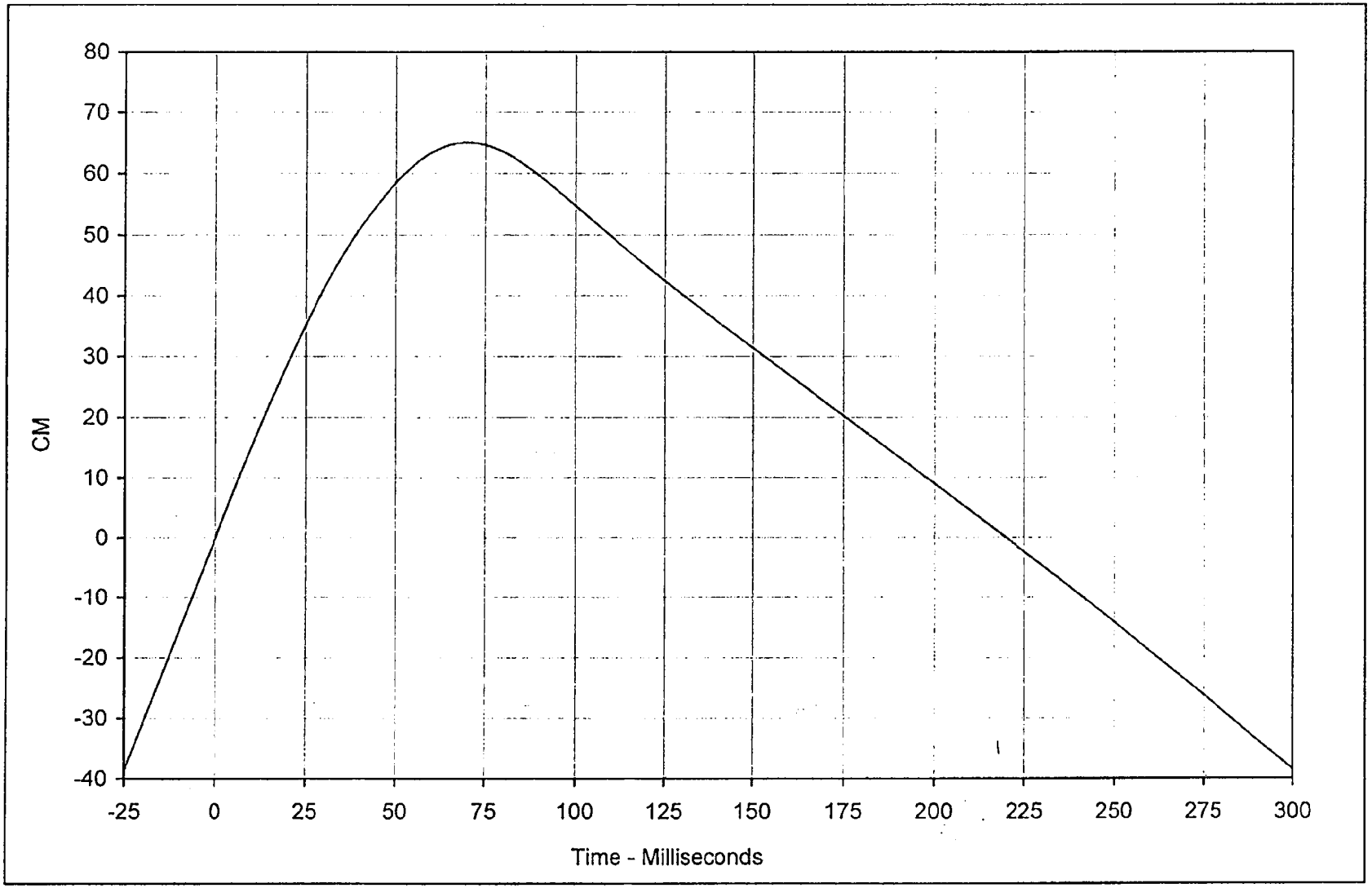
Date of Test: 4/17/97

Curve Number: IN1-097

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering



Curve Description: Vehicle Right Rear Redundant X Displ.

Maximum Value: 65.1 at 70.0 Milliseconds

Minimum Value: -38.4 at 299.9 Milliseconds

SAE Filter Class: 180

Date of Test: 4/17/97

Curve Number: IN2-097

Testing Program: 1997 New Car Assesment Program

Test Vehicle: 1997 Nissan 200 SX

KARCO Engineering

APPENDIX C

LOAD CELL BARRIER DATA

(No data for this test)

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

New Car Assesment Program
Instrumentation Data Channel Assignments
Passenger A.T.D Serial Number 34
Test Date: 4/17/97
Vehicle: 1997 Nissan 200 SX

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	GPRP001	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 Assesment Program
Instrumentation Data Channel Assignments
Passenger A.T.D Serial Number 34
Test Date: 4/17/97
Vehicle: 1997 Nissan 200 SX

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 Assesment Program
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 35
Test Date: 4/17/97
Vehicle: 1997 Nissan 200 SX

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 Assesment Program
Instrumentation Data Channel Assignments
Driver A.T.D Serial Number 35
Test Date: 4/17/97
Vehicle: 1997 Nissan 200 SX

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 Assesment Program
Instrumentation Data Channel Assignments
Vehicle Accelerometers
Test Date: 4/17/97
Vehicle: 1997 Nissan 200 SX

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

KARCO Engineering

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	21.5	Pass
Laboratory relative humidity	%	10 to 70	40	Pass
Probe Velocity	MPS	2.07 to 2.13	2.12	Pass
Peak Acceleration	G's	96.36 to 118.18	103.23	Pass
Pendulum Mass	Kgs	4.994	4.994	Pass
Peak Impact Force	Kgs	481.2 to 590.2	515.5	Pass
		Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

2/19/97
Test Date

Right Knee Impact Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	18.8 to 25.4	20.4	Pass
Laboratory relative humidity	%	10 to 70	34	Pass
Probe Velocity	MPS	2.07 to 2.13	2.11	Pass
Peak Acceleration	G's	96.36 to 118.18	111.55	Pass
Pendulum Mass	Kgs	4.994	4.994	Pass
Peak Impact Force	Kgs	481.2 to 590.2	557.1	Pass
		Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

2/19/97
Test Date

Approved By

2/19/97
Date

KARCO Engineering

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	20.9	Pass
Laboratory relative humidity		%	10 to 70	38	Pass
Pendulum velocity		MPS	5.94 to 6.19	6.09	Pass
Peak deceleration	10 Msec	G's	17.2 to 21.2	20.00	Pass
	20 Msec	G's	14.0 to 19.0	17.50	Pass
	30 Msec	G's	11.0 to 16.0	15.30	Pass
Max. decel. above 30 Msec.		G's	22.0 maximum	13.90	Pass
Deceleration decay time to first cross 5 G's		Msec.	38.0 to 46.0	44.9	Pass
"D" plane rotation	maximum	Degrees	81.0 to 106.0	96.1	Pass
	Time	Msec.	72.0 to 82.0	75.9	Pass
Moment about Occipital Condyle	maximum	Mt. Kgs	-80.0 to -53.0	-75.5	Pass
	Time	Msec.	65.0 to 79.0	68.0	Pass
Rotation angle decay time to cross zero		Msec.	147.0 to 174.0	161.2	Pass
Negative moment decay time to cross zero		Msec.	120.0 to 148.0	133.5	Pass
			Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

2/21/97
Test Date

Approved By

2/21/97
Date

KARCO Engineering

Hybrid III Calibration Data
Configuration Verification Data
(Metric units)

Part 572E ATD I.D. Number 34

Calibration Sequence 9701

External Measurement Data				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.7	Pass
Laboratory relative humidity	%	10 to 70	18	Pass
A - Total sitting height	mm	878.8 to 889.0	881.4	Pass
B - Shoulder pivot height	mm	505.5 to 520.7	513.1	Pass
C - "H" point height	mm	83.8 to 88.9	83.8	Pass
D - "H" point from seat back	mm	134.6 to 139.7	137.2	Pass
E - Shoulder pivot from back	mm	83.8 to 94.0	91.4	Pass
F - Thigh clearance	mm	139.7 to 154.9	144.8	Pass
G - Elbow back to wrist pivot	mm	289.6 to 304.8	294.6	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	337.8	Pass
J - Elbow rest height	mm	190.5 to 210.8	198.1	Pass
K - Buttock to knee length	mm	579.1 to 604.5	596.9	Pass
L - Poplipteal length	mm	429.3 to 454.7	436.9	Pass
M - Knee pivot height	mm	485.1 to 500.4	492.8	Pass
N - Buttock poplipteal length	mm	452.1 to 477.5	469.9	Pass
O - Chest depth	mm	213.4 to 228.6	215.9	Pass
P - Foot length	mm	251.5 to 266.7	259.1	Pass
V - Shoulder breadth	mm	421.6 to 436.9	426.7	Pass
W - Foot breadth	mm	91.4 to 106.7	106.7	Pass
Y - Chest circumference	mm	970.3 to 1000.8	980.4	Pass
Z - Waist circumference	mm	835.7 to 866.1	856.0	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	228.6	Pass
		Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

2/23/97
Test Date

Approved By

2/23/97
Date

KARCO Engineering

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	20.4	Pass
Laboratory relative humidity	%	10 to 70	36	Pass
Probe Velocity	MPS	2.07 to 2.13	2.10	Pass
Peak Acceleration	G's	96.36 to 118.18	97.56	Pass
Pendulum Mass	Kgs	4.994	4.994	Pass
Peak Impact Force	Kgs	481.2 to 590.2	487.2	Pass
		Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

2/19/97
Test Date

Right Knee Impact Test				
Tested Parameter	Units	Spec	Result	Pass/Fail
Laboratory temperature	°C	18.8 to 25.4	20.4	Pass
Laboratory relative humidity	%	10 to 70	36	Pass
Probe Velocity	MPS	2.07 to 2.13	2.10	Pass
Peak Acceleration	G's	96.36 to 118.18	111.38	Pass
Pendulum Mass	Kgs	4.994	4.994	Pass
Peak Impact Force	Kgs	481.2 to 590.2	556.2	Pass
		Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

2/19/97
Test Date

Approved By

2/19/97
Date

KARCO Engineering

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	21.0	Pass
Laboratory relative humidity	%	10 to 70	58	Pass
Peak resultant acceleration	G's	225.0 to 275.0	254.9	Pass
Peak lateral acceleration	G's	15.0 Max.	5.9	Pass
Is acceleration unimodal?	Yes/No	Yes	Yes	Pass
		Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

2/19/97
Test Date

Approved By

2/19/97
Date

KARCO Engineering

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	21.5	Pass
Laboratory relative humidity	%	10 to 70	32	Pass
Probe Velocity	MPS	6.58 to 6.83	6.72	Pass
Peak acceleration	G's	22.53 to 25.73	24.1	Pass
Pendulum Mass	Kgs	23.4	23.4	Pass
Peak resistive force	Kgs	526.6 to 601.6	564.2	Pass
Peak chest deflection	CM	6.35 to 7.26	6.37	Pass
Internal hysteresis	%	69 to 85	76.1	Pass
		Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

12/19/96
Test Date

Approved By

2/19/97
Date

KARCO Engineering

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	21.0	Pass
Laboratory relative humidity		%	10 to 70	40	Pass
Pendulum velocity		MPS	6.89 to 7.14	6.98	Pass
Peak deceleration	10 Msec	G's	22.5 to 27.5	23.85	Pass
	20 Msec.	G's	17.6 to 22.6	19.12	Pass
	30 Msec	G's	12.5 to 18.5	15.99	Pass
Max. decel. above 30 Msec.		G's	29.0 maximum	15.05	Pass
Deceleration decay time to first cross 5 G's		Msec.	34.0 to 42.0	41.10	Pass
"D" plane rotation	maximum	Degrees	64.0 to 78.0	70.8	Pass
	Time	Msec.	57.0 to 64.0	60.3	Pass
Moment about Occipital Condyle	maximum	N.m	84.1 to 108.5	92.0	Pass
	Time	Msec.	47.0 to 58.0	54.5	Pass
Rotation angle decay time to cross zero		Msec.	113.0 to 128.0	118.3	Pass
Positive moment decay time to cross zero		Msec.	97.0 to 107.0	99.9	Pass
			Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

2/21/97
Test Date

Approved By

2/21/97
Date

KARCO Engineering

Hybrid III Calibration Data
Neck Extension Test
(Metric units)

Part 572E ATD I.D. Number 35

Calibration Sequence 9701

Neck Extension Test					
Tested Parameter		Units	Spec	Result	Pass/Fail
Laboratory temperature		°C	20.6 to 22.2	20.6	Pass
Laboratory relative humidity		%	10 to 70	38	Pass
Pendulum velocity		MPS	5.94 to 6.19	6.15	Pass
Peak deceleration	10 Msec	G's	17.2 to 21.2	20.55	Pass
	20 Msec	G's	14.0 to 19.0	18.38	Pass
	30 Msec	G's	11.0 to 16.0	15.60	Pass
Max. decel. above 30 Msec.		G's	22.0 maximum	14.99	Pass
Deceleration decay time to first cross 5 G's		Msec.	38.0 to 46.0	43.2	Pass
"D" plane rotation	maximum	Degrees	81.0 to 106.0	99.4	Pass
	Time	Msec.	72.0 to 82.0	73.1	Pass
Moment about Occipital Condyle	maximum	Mt. Kgs	-80.0 to -53.0	-77.8	Pass
	Time	Msec.	65.0 to 79.0	65.6	Pass
Rotation angle decay time to cross zero		Msec.	147.0 to 174.0	159.1	Pass
Negative moment decay time to cross zero		Msec.	120.0 to 148.0	126.8	Pass
			Overall Test Results		Pass

Michael Dunlap
Laboratory Technician

2/21/97
Test Date

Approved By

2/21/97
Date

KARCO Engineering

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	21.7	Pass
Laboratory relative humidity	%	10 to 70	18	Pass
A - Total sitting height	mm	878.8 to 889.0	886.5	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	139.7	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 - Poplipteal 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 poplipteal 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

2/23/97
Test Date

Approved By

2/23/97
Date

APPENDIX F

VEHICLE OWNER'S MANUAL

OCCUPANT RESTRAINT INSTRUCTIONS

UPPLEMENTAL RESTRAINT SYSTEM (supplemental air bag system) (if so equipped)

his Supplemental Restraint System section contains important information concerning the driver and passenger supplemental air bags. The Supplemental Restraint System Air Bag can help reduce impact force to he driver and to the front passenger in certain frontal collisions. The supplemental air bags are designed to supplement the rash protection provided by the driver and ront passenger seat belts and are not a substitute for them. The seat belts should always be correctly worn and the driver and ront passenger seated a suitable distance rom the steering wheel and instrument panel. (See "Seat belts" for instructions and precautions on seat belt usage.)

NOTE:

For Canada, some vehicles are not equipped with a Supplemental Air Bag System.

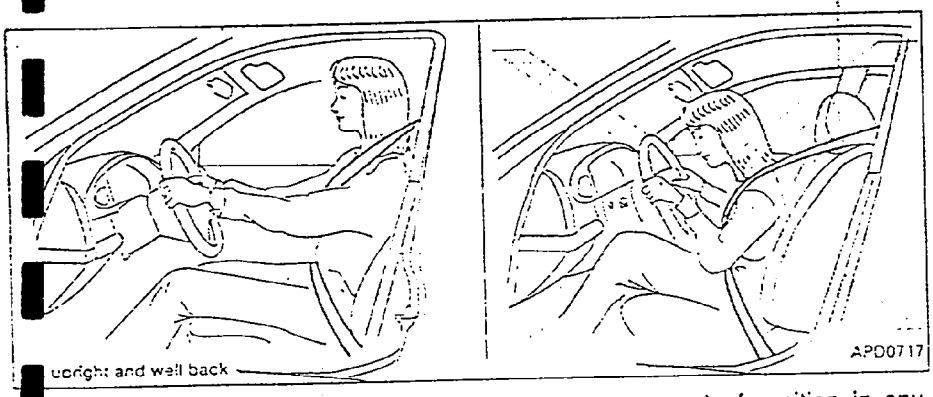
Your vehicle may not have a Driver and Passenger-side Supplemental Air Bag.

If your vehicle is not equipped with a Supplemental Air Bag System, it will not have the following equipment:

- Supplemental Air Bag Warning Light (see "Supplemental air bag warning light" later in this section).
- Driver Supplemental Air Bag (see "Meters and gauges" in the "Instruments and controls" section).
- Passenger-side Supplemental Air Bag (see "Meters and gauges" in the "Instruments and controls" section).
- Supplemental Restraint System Warning Labels (see "Warning labels" later in this section).

Every person who drives or rides in this vehicle should use a seat belt at all times. Children should be in appropriate child restraints (see "Seat belts" and "Child restraints for infants and small children" later in this section).

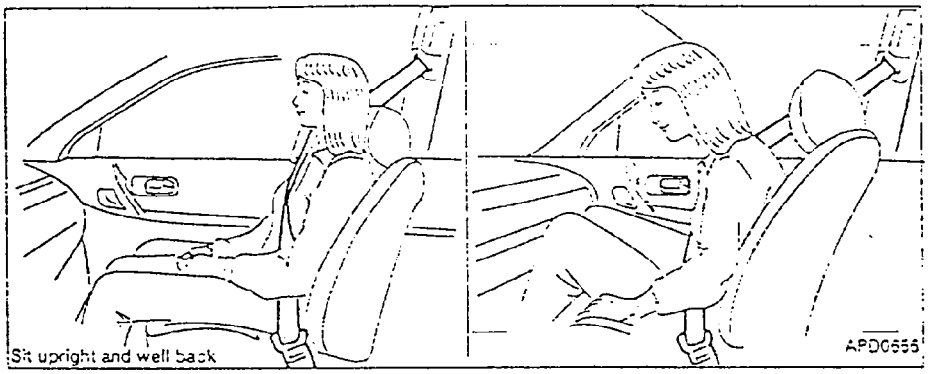
The supplemental air bags operate only when the ignition switch is in the ON or START position.

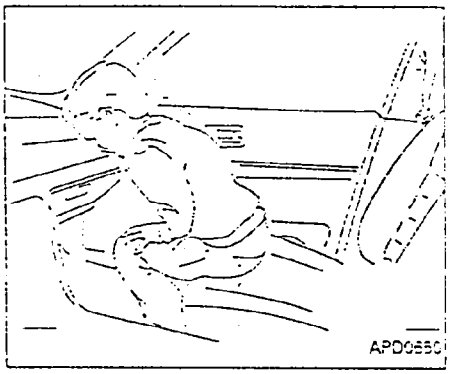


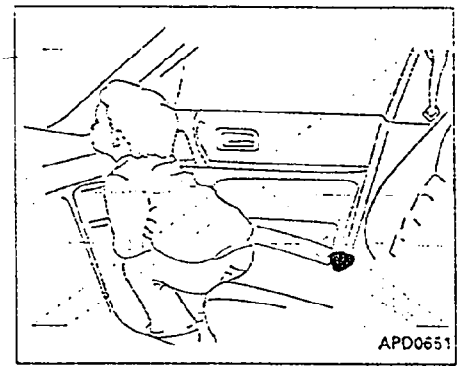
uoright and well back

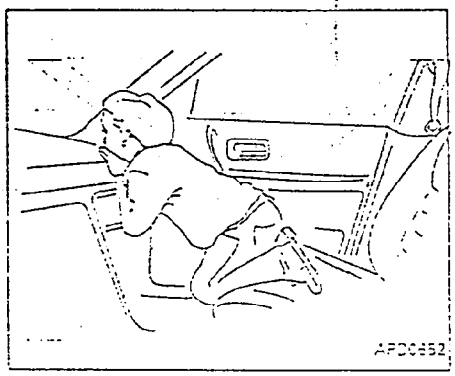
⚠ WARNING

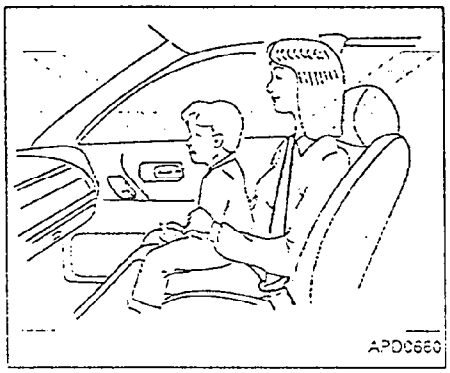
- The supplemental air bags ordinarily will not inflate in the event of a side impact, rear impact, roll over, or lower severity frontal collision. Always wear your seat belts to help reduce the risk or severity of injury in various kinds of accidents.
- The seat belts and the supplemental air bags are most effective when you are sitting back and upright in the seat. Supplemental air bags inflate with great force. If you are unre- [illegible] sideways or out of position in any way, you are at greater risk of injury or death in a crash and may also receive serious or fatal injuries from the supplemental air bag if you are up against it when it inflates. Always sit back against the seatback and as far away as practical from the steering wheel or instrument panel. Always use the seatbelts.
- Keep hands on the outside of the steering wheel. Placing them inside the steering wheel rim could increase the risk that they are injured when the air bag inflates.

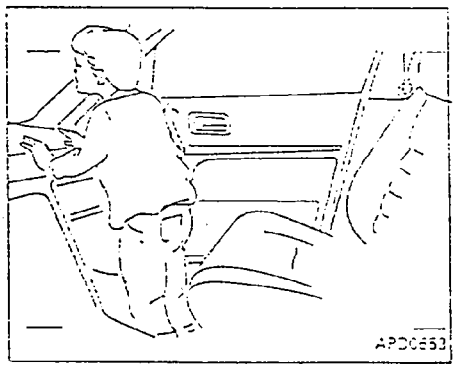


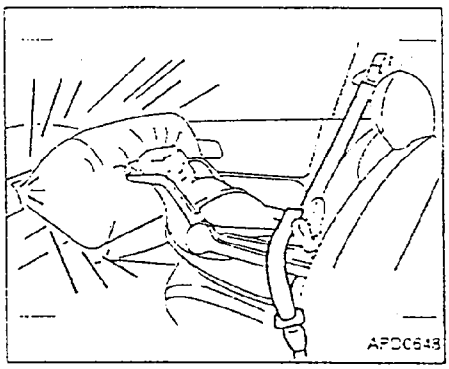








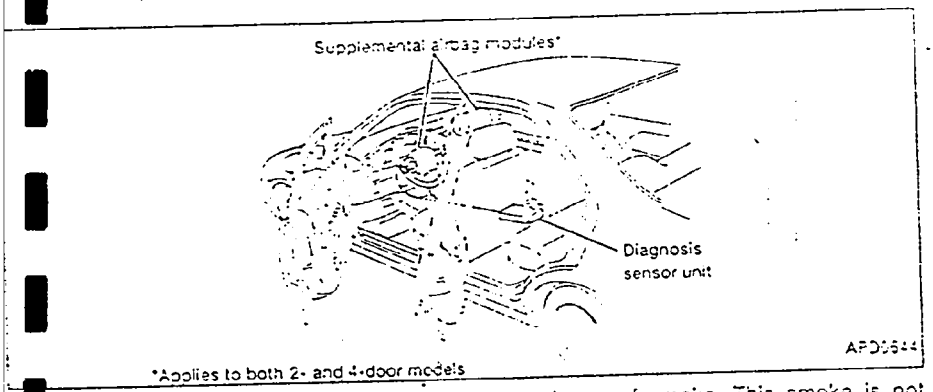




⚠ WARNING

- Never let children ride unrestrained. Do not attempt to hold them in your lap or arms. Some examples of dangerous riding positions are shown in the previous illustrations.
- Children may be severely injured or killed when the supplemental air bag inflates if they are not properly restrained.
- Also, never install a rear-facing child restraint in the front seat. An inflating supplemental air bag could seriously injure or kill your child. See "Child restraints for infants and small children" for details.

SUPPLEMENTAL AIR BAG SYSTEM (if so equipped)



*Applies to both 2- and 4-door models

The driver supplemental air bag is located in the center of the steering wheel; the front passenger supplemental air bag is mounted in the dashboard above the glove box. The supplemental air bag system is designed to inflate in higher severity frontal collisions, although it may inflate if the forces in another type of collision are similar to those of a higher severity frontal impact. It may not inflate in certain frontal collisions. Vehicle damage (or lack of it) is not always an indication of proper supplemental air bag operation.

When the supplemental air bag inflates, a fairly loud noise may be heard, followed by the release of smoke. This smoke is not harmful and does not indicate a fire, but care should be taken to not unintentionally inhale it, as it may cause irritation and choking. Those with a history of breathing trouble should get fresh air promptly.

The supplemental air bags, along with the use of seat belts, help to cushion the impact force on the face and chest of the occupant. They can help save lives and reduce serious injuries. However, an inflating supplemental air bag may cause facial abrasions or other injuries. Supplemental air bags do not provide restraint to the lower body.

Seat belts should be correctly worn, and the driver and passenger seated upright as far as practical away from the steering wheel or dashboard. Since the supplemental air bag inflates quickly in order to help protect the occupant, the force of the supplemental air bag inflating can increase the risk of injury if the occupant is too close to or is against the supplemental air bag module during inflation.

The supplemental air bag deflates quickly after a collision.

The supplemental air bags operate only when the ignition switch is in the ON or START position.

⚠ WARNING

- **Do not place any objects on the steering wheel pad or on the instrument panel. Also, do not place any objects between any occupant and the steering wheel or instrument panel. Such objects may become dangerous projectiles and cause injury if the supplemental air bag inflates.**
- **Right after inflation, several supplemental air bag system components will be hot. Do not touch them; you may severely burn yourself.**

No unauthorized changes should be made to any components or wiring of the supplemental air bag system. This is to prevent accidental inflation of the supplemental air bag or damage to the supplemental air bag system.

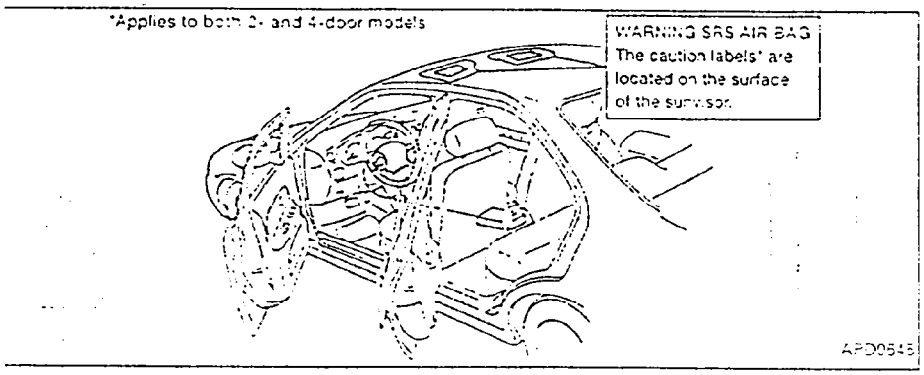
Do not make unauthorized changes to your vehicle's electrical system, suspension system or front end structure. This could affect proper operation of the supplemental air bag system.

Tampering with the supplemental air bag system may result in serious personal injury. Tampering includes changes to the steering wheel and the instrument panel assembly by placing material over the steering wheel pad and above the instrument panel, or by installing additional trim material around the supplemental air bag system.

- **Work around and on the supplemental air bag system should be done by an authorized NISSAN dealer. Installation of electrical equipment should also be done by an authorized NISSAN dealer. The yellow SRS wiring should not be modified or disconnected. Unauthorized electrical test equipment and probing devices should not be used on the supplemental air bag system.**
- **The SRS wiring harnesses are covered with yellow insulation either just before the harness connectors or over the complete harness for easy identification.**

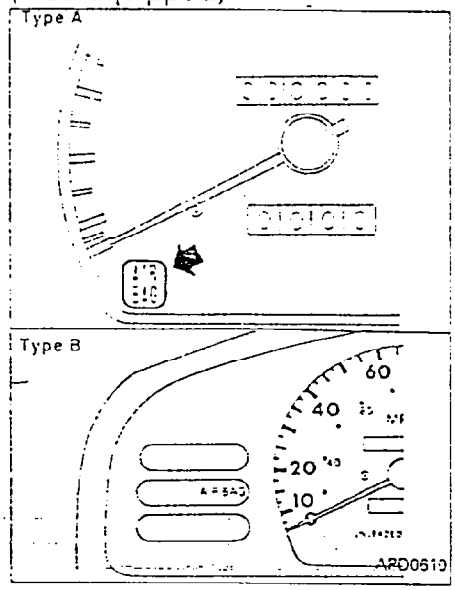
When selling your vehicle, we request that you inform the buyer about the supplemental air bag system and guide the buyer to the appropriate sections in this Owner's Manual.

WARNING LABELS
(if so equipped)



Warning labels about the supplemental air bag system are placed in the vehicle as shown in the illustration.

SUPPLEMENTAL AIR BAG WARNING LIGHT
(if so equipped)



The supplemental air bag warning light, displaying AIR BAG in the instrument panel, monitors the circuits of the supplemental air bag. The circuits monitored by the supplemental air bag light are the diagnosis sensor

unit, supplemental air bag modules and all related wiring.

When the ignition key is in the ON or START position, the supplemental air bag warning light illuminates for about 7 seconds and then turns off. This means the system is operational.

If any of the following conditions occur, the supplemental air bag needs servicing:

1. The supplemental air bag light does not come on and remain on for 7 seconds and then go off as described above.
2. The supplemental air bag light flashes intermittently or remains on.
3. The supplemental air bag light does not come on at all.

Under these conditions, the Supplemental Restraint System Air Bag may not operate properly. It must be checked and repaired. Take your vehicle to the nearest authorized NISSAN dealer.

⚠ WARNING

If the supplemental air bag warning light is on, it could mean that the supplemental air bag will not operate in an accident.

Repair and replacement procedure

The supplemental air bag system is designed to inflate on a one-time-only basis. As a reminder, unless it is damaged, the supplemental air bag light remains illuminated after inflation has occurred. Repair and replacement of the supplemental air bag system should be done only by an authorized NISSAN dealer.

After a supplemental air bag inflates, the front instrument panel assembly should be replaced by your NISSAN dealer if damaged.

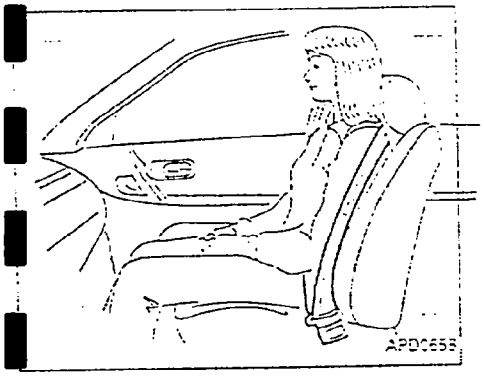
To ensure long-term functioning, the system must be inspected 10 years after the date of manufacture as noted on the certification label located on the driver side front pillar.

When maintenance work is required on the vehicle, the supplemental air bag system and related parts should be pointed out to the person conducting the maintenance. The ignition key should always be in the LOCK position when working under the hood or inside the vehicle.

⚠ WARNING

- **Once the supplemental air bag inflates, the supplemental air bag module will not function again and must be replaced. The supplemental air bag module cannot be repaired.**
- **The supplemental air bag system should be inspected by an authorized NISSAN dealer if there is any damage to the front end portion of the vehicle, or replaced if the supplemental air bag has inflated.**
- **If you need to dispose of a supplemental air bag or scrap the vehicle, contact an authorized NISSAN dealer. Correct supplemental air bag disposal procedures are set forth in the appropriate NISSAN Service Manual. Incorrect disposal procedures could cause personal injury.**

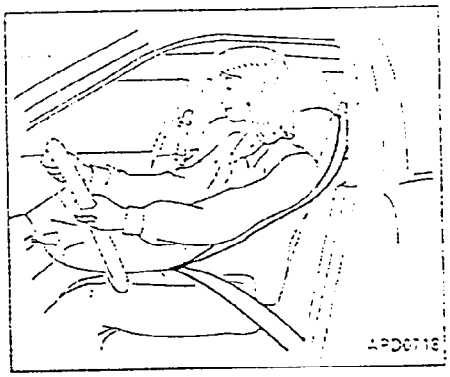
SEAT BELTS



PRECAUTIONS ON SEAT BELT USAGE

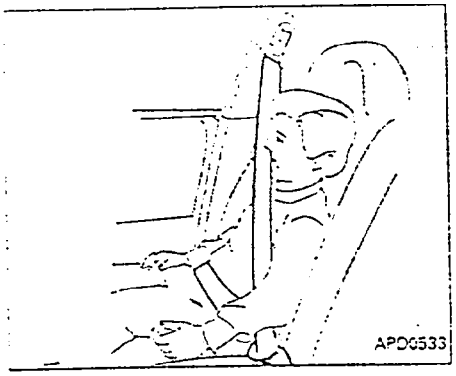
If you are wearing your seat belt properly adjusted, your chances of being injured or killed in an accident and/or the severity of injury may be greatly reduced. NISSAN strongly encourages you and all of your passengers to buckle up every time you drive, even if your seating position includes a supplemental air bag.

Some states and all Canadian provinces or territories require that seat belts be worn at all times when a vehicle is being driven.



⚠ WARNING

- Every person who drives or rides in this vehicle should use a seat belt at all times. Children should be properly restrained and, if appropriate in a child restraint.
- The belt should be properly adjusted to a snug fit. Failure to do so may reduce the effectiveness of the entire restraint system and increase the chances or severity of injury in an accident. Serious injury or death can occur if the seat belt is not worn properly.



- Always route the shoulder belt over your shoulder and across your chest. Never run the belt behind your back, under your arm or across your neck. The belt should be away from your face and neck, but not falling off your shoulder.
- Position the lap belt as low as possible AROUND THE HIPS, NOT THE WAIST. A lap belt worn too high could increase the risk of internal injuries in an accident.
- Be sure the seat belt tongue is securely fastened to the proper buckle.

- Do not wear the belt inside out or twisted. Doing so may reduce its effectiveness.
- Do not allow more than one person to use the same belt.
- Never carry more people in the vehicle than there are seat belts.
- If the seat belt warning lamp glows continuously while the ignition is turned ON with all doors closed and all seat belts fastened, it may indicate a malfunction in the system. Have the system checked by your NISSAN dealer.
- All seat belt assemblies including retractors and attaching hardware should be inspected after any collision at your NISSAN dealer. NISSAN recommends that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly. Seat belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

CHILD SAFETY

Children need adults to help protect them.

⚠ WARNING

Infants and children need special protection. The vehicle's seat belts may not fit them properly. The shoulder belt may come too close to the face or neck. The lap belt may not fit over their small hip bones. In an accident, an improperly fitting seat belt could cause serious or fatal injury. Always use appropriate child restraints.

All U.S. states and provinces of Canada require the use of approved child restraints for infants and small children. (See "Child Restraints for Infants and Small Children" later in this section.)

In addition, there are many types of child restraints available for larger children which should be used for maximum protection.

Infant or small child

NISSAN recommends that infants or small children be placed in child restraints that comply with Federal Motor Vehicle Safety Standards or Canadian Motor Vehicle Safety Standards. You should choose a child restraint which fits your vehicle and always follow the manufacturer's instructions for installation and use.

Children

Children who are too large for child restraints should be seated and restrained by the seat belts which are provided.

NISSAN recommends that children sit in the rear seat if possible. According to accident statistics, children are safer when properly restrained in the rear seat than in the front seat.

If the child's seating position has a shoulder belt that fits close to the face or neck, the use of a booster seat (commercially available) may help overcome this. The booster seat should raise the child so that the shoulder belt is properly positioned across the top, middle portion of the shoulder and the lap belt is low on the hips. The booster seat should fit the vehicle seat and have a label certifying that it complies with Federal Motor Vehicle Safety Standards or Canadian Motor Vehicle Safety Standards. Once the child has grown enough so the shoulder belt is no longer on or near the face and neck, use the shoulder belt without the booster seat.

⚠ WARNING

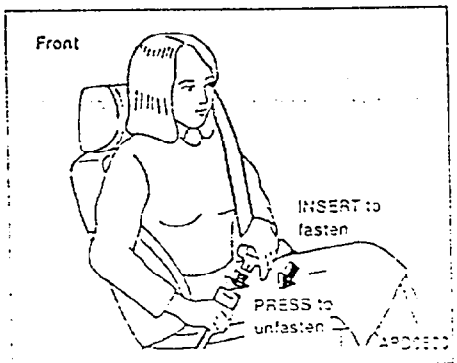
Never let a child stand or kneel on any seat and do not allow a child in the cargo areas while the vehicle is moving. The child could be seriously injured or killed in an accident.

Pregnant women

NISSAN recommends that pregnant women use seat belts. Contact your doctor for specific recommendations. The lap belt should be worn snug and positioned as low as possible around the hips, not the waist.

Injured persons

NISSAN recommends that injured persons use seat belts. Check with your doctor for specific recommendations.



3-POINT TYPE WITH RETRACTOR

⚠ WARNING

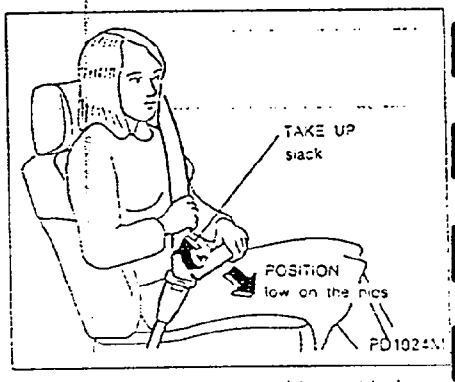
- Every person who drives or rides in this vehicle should wear a seat belt at all times.
- Do not ride in a moving vehicle when the seatback is reclined. This can be dangerous. The shoulder belt will not be against your body. In an accident, you could be thrown into it and receive neck or other serious injuries. You could also slide under the lap belt and receive serious internal injuries.
- For the most effective protection when the vehicle is in motion, the seat should be upright. Always sit well back in the seat and adjust the seat belt properly.

Fastening the belts

1. Adjust the seat.
2. Slowly pull the seat belt out of the retractor and insert the tongue into the buckle until it snaps.

The retractor is designed to lock during a sudden stop or on impact. A slow pulling motion permits the belt to move, and allows you some freedom of movement in the seat.

3. Position the lap belt portion low on the hips as shown.
4. Pull the shoulder belt portion toward the retractor to take up extra slack.



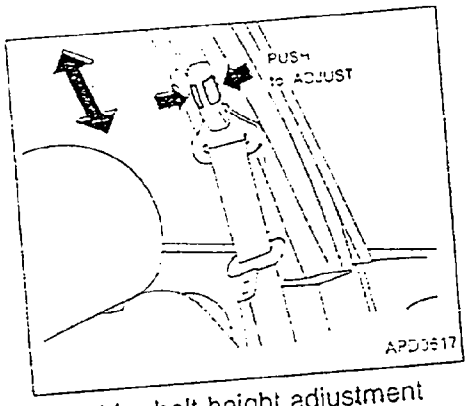
The front seat passenger side seat belt and rear 3-point seat belts have a cinching mechanism for child seat installation. It is referred to as the automatic locking mode.

When the cinching mechanism is activated the seat belt cannot be withdrawn again until the seat belt tongue is detached from the buckle and fully retracted. Refer to "Child Restraints for Infants and Small Children" later in this section for more information.

...matic locking mode should be ...nly for child seat installation. Dur... ...rmal seat belt use by a passenger, ...cking mode should not be acti... ...it is activated it may cause ...mfortable seat belt tension.

...stening the belts

...fa...en the belt, press the button on the ...e. The seat belt automatically retracts.



Shoulder belt height adjustment (for front seats)

The shoulder belt anchor height should be adjusted to the position best for you. (See "Precautions on Seat Belt Usage".) To adjust, press both release buttons and move it to the desired position so the belt passes over the center of the shoulder. The belt should be away from your face and neck, but not falling off of your shoulder.

⚠ WARNING

After adjustment, release the button and check that it does not move up and down to make sure the shoulder belt anchor is securely fixed in position.

Checking seat belt operation (3-point type with retractor)

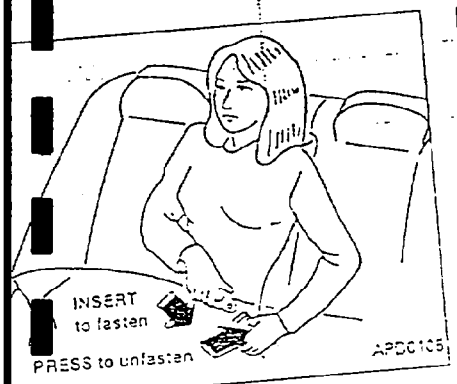
Your seat belt retractors are designed to lock belt movement by two separate methods:

1) When the belt is pulled quickly from the retractor.
2) When the vehicle slows down rapidly.

To increase your confidence in the belts, check the operation as follows:

- Grasp the shoulder belt and pull forward quickly. The retractor should lock and restrict further belt movement.

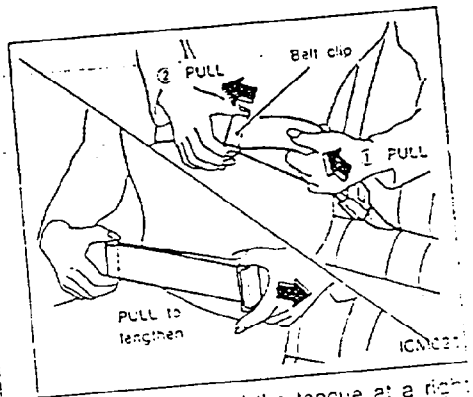
If the retractor does not lock during this check or if you have any question about belt operation, see your NISSAN dealer.



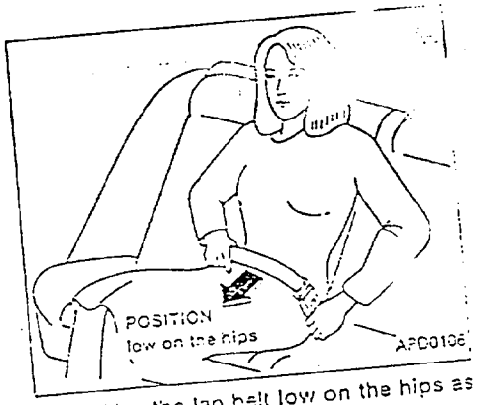
2-POINT TYPE WITHOUT RETRACTOR (rear center lap belt)

Fastening the belts

1. Insert the tongue into the buckle until it snaps. Both the tongue and the buckle are marked CENTER.



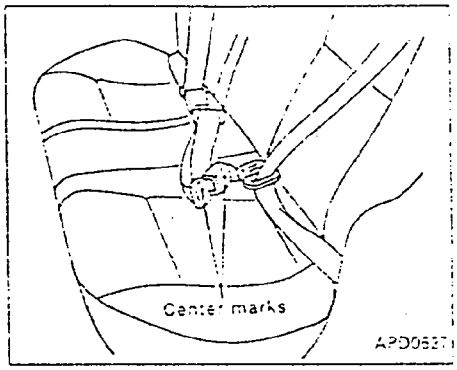
2. To lengthen, hold the tongue at a right angle to the belt and pull on the belt. To shorten, pull the end of the belt attached to the belt clip away from the tongue, then pull the belt clip to take up the slack.



3. Position the lap belt low on the hips as illustrated

Unfastening the belts

To unfasten the belt, press the button on the buckle.



Selecting correct set of belts

The center seat belt buckle and tongue are identified by the CENTER label. The center seat belt tongue can be fastened only into the center seat belt buckle.

SEAT BELT EXTENDERS

If, because of body size or driving position, it is not possible to properly fit the lap-shoulder belt and fasten it, an extender is available which is compatible with the installed seat belts. The extender adds approximately 8 inches (200 mm) of length and may be used for either the driver or front passenger seating position. See your NISSAN dealer for assistance if the extender is required.

⚠ WARNING

- **Only NISSAN belt extenders, made by the same company which made the original equipment belts, should be used with NISSAN belts.**
- **Persons who can use the standard seat belt should not use an extender. Such unnecessary use could result in serious personal injury in the event of an accident.**

SEAT BELT MAINTENANCE

- To clean the seat belt webbings, apply a mild soap solution or any solution recommended for cleaning upholstery or carpets. Then brush the webbing, wipe it with a cloth and allow it to dry in the shade. Do not allow the seat belts to retract until they are completely dry.
- If dirt builds up in the shoulder belt guide of the seat belt anchors, the seat belts may retract slowly. Wipe the shoulder belt guide with a clean, dry cloth.
- Periodically check to see that the seat belt and metal components, such as buckles, tongues, retractors, flexible wires and anchors, work properly. If loose parts, deterioration, cuts or other damage on the webbing is found, the entire seat belt assembly should be replaced.

CHILD RESTRAINTS FOR INFANTS AND SMALL CHILDREN

⚠ WARNING

- **Infants and small children should always be placed in an appropriate child restraint while riding in the vehicle. Failure to use a child restraint can result in serious injury or death.**
- **Children and infants should never be carried on your lap. It is not possible for even the strongest adult to resist the forces of a severe accident. The child could be crushed between the adult and parts of the vehicle. Also, do not put the same seat belt around both your child and yourself.**
- **Nissan recommends that the child restraint system be installed in the rear seat. According to accident statistics, children are safer when properly restrained in the rear seat than in the front seat.**
- **An improperly installed child restraint could lead to serious injury or death in an accident.**

In general, child restraints are designed to be installed with a lap belt or the lap portion of a three-point type seat belt.

Child restraints specially designed for infants and small children are offered by several manufacturers. When selecting any child restraint, keep the following points in mind:

1) Choose only a restraint with a label certifying that it complies with Federal Motor Vehicle Safety Standard 213 or Canadian Motor Vehicle Safety Standard 213.
2) Check the child restraint in your vehicle to be sure it is compatible with the vehicle's seat and seat belt system. Choose the child restraint that meets the guidelines of Society of Automotive Engineers recommended practice J1819 for child seat installation.
3) If the child restraint is compatible with your vehicle, place your child in the child restraint and check the various adjustments to be sure the child restraint is compatible with your child. Always follow all recommended procedures.

All U.S. states and provinces of Canada require that infants and small children be restrained in approved child restraints at all times while the vehicle is being operated.

⚠ WARNING

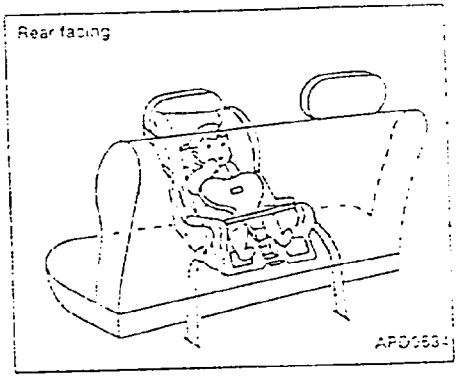
- **Never install a rear-facing child restraint in the front seat. An inflating air bag could seriously injure or kill your child. A rear-facing child restraint must only be used in the rear seat. See "Installation on front passenger seat" for details.**
- **Improper use of a child restraint can result in increased injuries for both the infant or child and other occupants in the vehicle.**
- **Follow all of the child restraint manufacturer's instructions for installation and use. When purchasing a child restraint, be sure to select one which will fit your child and vehicle. It may not be possible to properly install some types of child restraints in your vehicle.**
- **If the child restraint is not anchored properly, the risk of a child being injured in a collision or a sudden stop greatly increases.**
- **Adjustable seatbacks should be positioned to fit the child restraint, but as upright as possible.**

- After attaching the child restraint, test it before you place the child in it.

  Tilt it from side to side. Try to tug it forward and check to see if the belt holds the restraint in place. If the restraint is not secure, tighten the belt as necessary, or put the restraint in another seat and test it again.
- For a front facing child restraint, if the seat position where it is installed has a 3-point type lap/shoulder belt, check to make sure the shoulder belt does not go in front of the child's face or neck. If it does, put the shoulder belt behind the child restraint.
- When your child restraint is not in use, keep it secured with a seat belt to prevent it from being thrown around in case of a sudden stop or accident.

⚠ CAUTION

Remember that a child restraint left in a closed vehicle can become very hot. Check the seating surface and buckles before placing your child in the child restraint.



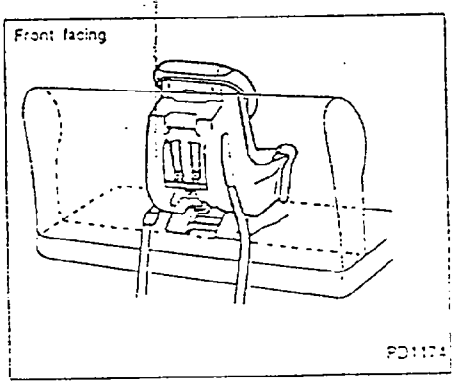
Installation on rear seat

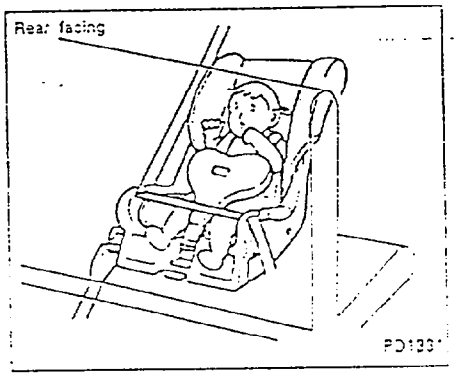
Center lap belt

When you install a child restraint in a rear center seat, follow these steps:

1. Position the child restraint on the seat, as illustrated. It can be placed in a forward facing or rear facing direction, depending on the size of the child. Always follow the restraint manufacturer's instructions.
2. Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage. Be sure to follow the restraint manufacturer's instructions for belt routing.

3. Remove all slack in the lap belt for a very tight fit by pulling forcefully on the lap belt adjustment.
4. Before placing the child in the child restraint, use force to tilt the child restraint from side to side, and tug it forward to make sure it is securely held in place.
5. If it is not secure, try to tighten the belt again, or put the restraint in another seat.
6. Check to make sure the child restraint is properly secured prior to each use.





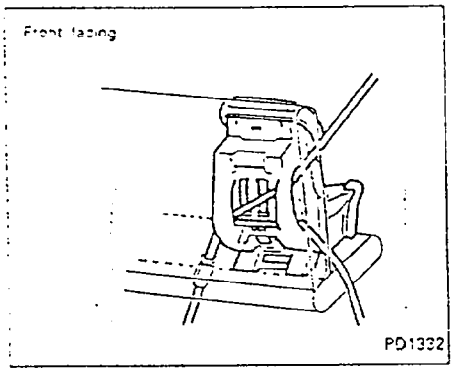
Installation on rear outboard seating positions

⚠ WARNING

- The 3-point belt in your vehicle is equipped with a locking mode retractor which must be used when installing a child restraint.
- Failure to do so will result in the child restraint not being properly secured. It could tip over or otherwise be unsecured and cause injury to the child in a sudden stop or collision.

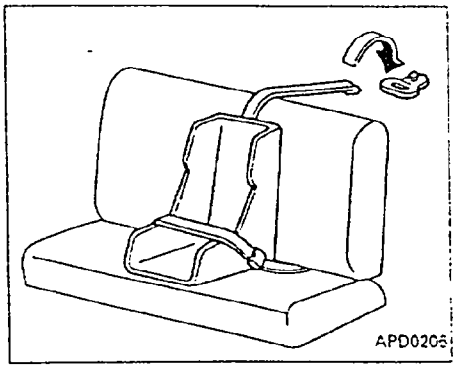
When you install a child restraint in a rear outboard seat, follow these steps:

1. Position the child restraint on the seat. It can be placed in a forward facing or rear facing direction, depending on the size of the child. Always follow the restraint manufacturer's instructions.
2. Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage. Be sure to follow the child restraint manufacturer's instructions for belt routing.
3. Pull on the shoulder belt until all of the belt is fully extended and a click is heard. At this time, the belt retractor is in the automatic locking mode (child restraint mode). (It reverts back to "emergency locking" when the belt is fully retracted.)
4. Allow the belt to retract. A clicking sound will be heard as the belt retracts. This indicates that the retractor is in the automatic locking mode. Pull up on the belt to remove any slack in the belt.



5. Before placing the child in the child restraint, use force to tilt the child restraint from side to side, and tug it forward to make sure that it is securely held in place.
6. Check that the retractor is in the automatic locking mode by trying to pull more belt out of the retractor. If you cannot pull any more belt webbing out of the retractor, the belt is in the automatic locking mode.
7. Check to make sure that the child restraint is properly secured prior to each use. If the belt is not locked, repeat steps 3 through 6.

After the child restraint is removed and the seat belt is allowed to wind back into the retractor, the automatic locking mode (child restraint mode) is canceled; the seat belt may be used as normal and only locks during a sudden stop or impact.



TOP STRAP CHILD RESTRAINT

If your child restraint has a top strap, it must be secured to the provided anchor point. Anchor bracket hardware must be installed. The top strap anchor bracket hardware is available through your NISSAN dealer.

Part #88894-89900

Secure the child restraint with the center lap belt or the lap portion of the outboard 3-point belt and latch the top strap hook onto the anchor bracket.

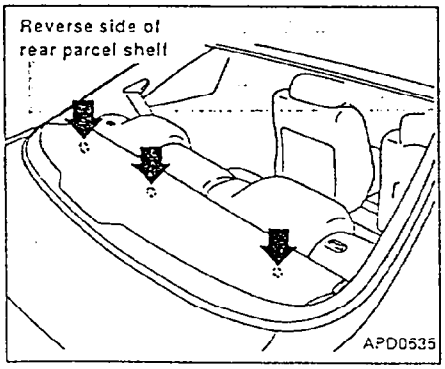
To install the anchor bracket, a metric bolt of the dimensions listed below must be used.

Bolt diameter: 8.0 mm
Bolt length: more than 1.18 in (30 mm)
Thread pitch: 1.25 mm

The top strap should be secured to the attaching bolt which provides the straightest installation of the top strap.

⚠ WARNING

Child restraint anchor points are designed to withstand only those loads imposed by correctly fitted child restraints. Under no circumstances are they to be used for adult seat belts or harnesses.

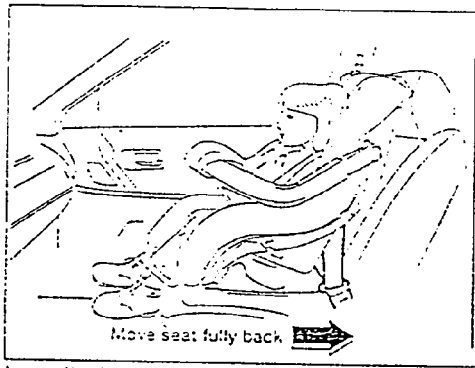


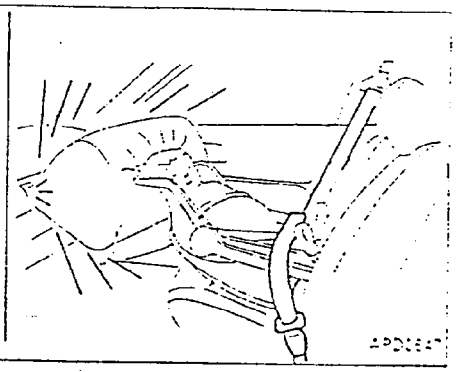
Anchor point locations

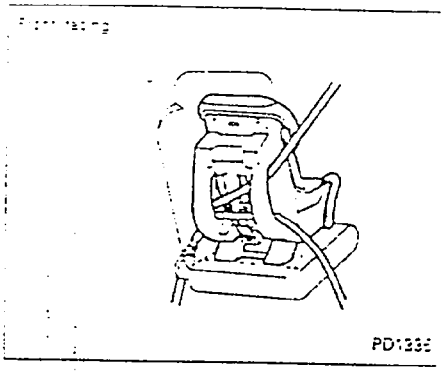
Anchor points are located under the rear parcel shelf finisher.

To use attaching hardware for child restraints with top straps, follow these instructions carefully:

1. Open the trunk and find the anchor point nuts on the underside of the rear parcel shelf. Thread a bolt (8.0 mm diameter, 1.25 pitch) up through the nut behind the seating position where the child restraint will be installed and use it to break through the rear parcel shelf support material. There are pre-cut circles at each anchor point location that should break away from the shelf support material when pressure is applied to them. Remove the bolt after you feel the pre-cut circle separate from the shelf support material.
2. Cut a small slit through the parcel shelf fabric at the anchor point location. Reach through the fabric with a tool such as a pair of needle-nose pliers and remove the pre-cut circle in the parcel shelf support material.
3. Install the bolt through the top strap hook and into the anchor point nut.
4. Be sure to follow all of the instructions that accompany the top strap attaching hardware.







Installation on front passenger seat (vehicles with passenger-side air bag)

⚠ WARNING

- **Never install a rear-facing child restraint in the front passenger seat. Air bags inflate with great force. A rear-facing child restraint could be struck by the air bag in a crash and could seriously injure or kill your child.**
- **If you install a forward-facing child restraint in the front passenger seat, place the passenger seat as far back as possible.**

A child restraint with a top strap should not be used in the front passenger seat.

⚠ WARNING

- **The 3-point belt in your vehicle is equipped with a locking mode retractor which must be used when installing a child restraint.**
- **Failure to use the retractor's locking mode will result in the child restraint not being properly secured. The restraint could tip over or otherwise be unsecured and cause injury to the child in a sudden stop or collision.**

When you install a child restraint in the front seat, follow these steps:

1. Position the child restraint on the front passenger seat. It should be placed in a forward-facing direction only. Move the seat as far back from the instrument panel as possible. Always follow the restraint manufacturer's instructions. Child restraints for infants must be used in the rear-facing direction and therefore must not be used in the front seat.
2. Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage.

Be sure to follow the child restraint manufacturer's instructions for belt routing.

3. Pull on the shoulder belt until all of the belt is fully extended and a click is heard. At this time, the belt retractor is in the automatic locking mode (child restraint mode). (It reverts back to "emergency locking" when the belt is fully retracted.)
4. Allow the belt to retract. A clicking sound is heard as the belt retracts. This indicates that the retractor is in the automatic locking mode. Pull up on the belt to remove any slack in the belt.
5. Before placing the child in the child restraint, use force to tilt the child restraint from side to side, and tug it forward to make sure it is securely held in place.
6. Check that the retractor is in the automatic locking mode by trying to pull more belt out of the retractor. If you cannot pull any more belt webbing out of the retractor, the belt is in the automatic locking mode.
7. Check to make sure the child restraint is properly secured prior to each use. If the lap belt is not locked, repeat steps 3 through 6.

After the child restraint is removed and the seat belt is allowed to wind back into the retractor, the automatic locking mode (child restraint mode) is canceled; the seat belt may be used as normal and will only lock during a sudden stop or impact.

NOTE:

For Canada, some vehicles are not equipped with a Supplemental Air Bag System and do not have a passenger-side supplemental air bag. If your vehicle does not have a passenger-side air bag, a rear facing child restraint may be used in the front passenger seat. Follow the instructions in "Installation on rear outboard seating positions" earlier in this section.