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VEHICLE SAFETY COMPLIANCE TESTING FOR OCCUPANT CRASH PROTECTION,
WINDSHIELD MOUNTING, WINDSHIELD ZONE INTRUSION (PARTIAL)
AND FUEL SYSTEM INTEGRITY

CHRYSLER CORPORATION
1992 DODGE RAM 150
2-DOOR PICKUP

NHTSA NUMBER: CN0308

CALSPAN TEST NUMBER: 7979-4

MAY 22, 1992

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FINAL REPORT

PREPARED FOR:

U. S. Department of Transportation
National Highway Traffic Safety Administration
ENFORCEMENT
Office of Vehicle Safety Compliance
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*Reid
7/14/92*

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16. Abstract A 30 mph vehicle safety compliance test was conducted a 1992 Dodge Ram 150 2-door pickup. This test was performed at the Calspan Advanced Technology Center in Buffalo, New York on May 22, 1992. The purpose of this test was to determine compliance with the performance requirements of the following Federal Motor Vehicle Safety Standards: 1. FMVSS No. 208, "Occupant Crash Protection" 2. FMVSS No. 212, "Windshield Mounting" 3. FMVSS No. 219 (partial), "Windshield Zone Intrusion" 4. FMVSS No. 301, "Fuel System Integrity" The test mode was perpendicular (0°) and the impact velocity was 29.2 mph. The ambient temperature at the impact face was 80°F. The subject test vehicle appears to comply with the requirements of FMVSS Nos. 208, 212, 219 (partial) and 301. <u>Type of Restraint System:</u> The test vehicle was equipped with both a driver and right front passenger manual 3-point seat belt restraint.					
17. Key Words 30 mph Vehicle Safety Compliance Testing FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219, "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity" Frontal Impact			18. Distribution Statement <u>Copies of this report are available from:</u> Technical Reference Division National Highway Traffic Safety Admin. Nassif Building, Room 5108 (NAD-52) 400 Seventh St., S.W., Washington, DC 20590		
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Section 1

PURPOSE AND TEST PROCEDURE

This 30 mph frontal barrier impact test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 208, 212, 219 (partial) and 301 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by Calspan Advanced Technology Center under Contract No. DTNH22-90-C-01003. The purpose of this test was to determine if the subject vehicle, a 1992 Dodge Ram 150 2-door pickup, meets the performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS No. 212, "Windshield Mounting"; FMVSS No. 219 (partial), "Windshield Zone Intrusion"; and FMVSS No. 301, "Fuel System Integrity". This compliance test was conducted using the requirements found in the OVSC Laboratory Test Procedure No. TP-208-08, dated September 8, 1989.

Section 2
SUMMARY OF TEST NUMBER CN0308

A frontal barrier was impacted by A 1992 Dodge Ram 150 2-door pickup at a velocity of 29.2 mph. The test was performed at the Calspan Corporation Advanced Technology Center on May 22, 1992. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by one real-time camera and 14 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

Two Part 572E, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right front passenger seating positions according to dummy placement instructions specified in the OVSC Laboratory Test Procedure.

Both ATDs were fully instrumented with head and chest triaxial accelerometers, chest displacement potentiometers and left/right femur load cells. These ATDs had been certified prior to the test.

The 25 channels of data were recorded on two 14-channel FM tape recorders. Appendix B contains the vehicle and dummy response data traces.

The driver's HIC was 465. The maximum chest deceleration over 3 milliseconds was 38.2 g's with 1.8 inches of displacement. The maximum force on the driver's left femur was 627 pounds and 180 pounds on the right femur.

The right front passenger's HIC was 329. The maximum chest deceleration over 3 milliseconds was 33.4 g's with 1.5 inches of displacement. Loads were 123 and 156 pounds on the left and right femurs respectively.

Table 1

CRASH TEST SUMMARY

Vehicle NHTSA No.: CN0308 Test Mode: 30 mph Frontal Barrier
 Test Date: May 22, 1992 Time: 14.55 Temperature: 80 F°
 Vehicle Make/Model/Body Style: 1992 Dodge Ram 150 2-Door Pickup
 Vehicle Test Weight: 4630 lbs.
 Vehicle/Barrier Impact Angle: 0°
 Impact Velocity: 29.2 mph
 Maximum Static Crush: 22.5 inches
 Vehicle Rebound: 5.6 inches

DUMMIES:

	<u>DRIVER</u>	<u>PASSENGER</u>
Type:	<u>Part 572E</u>	<u>Part 572E</u>
Restraint System:	<u>3-Point Manual Seat Belt</u>	<u>3-Point Manual Seat Belt</u>

Number of Data Channels: 25
 Number of Cameras: 1 Real Time
14 High Speed

DOOR OPENING DATA: Closed-operable - Left Front
Closed-operable - Right Front

Front Seat(s) Data:

	<u>DRIVER</u>	<u>PASSENGER</u>
Seat Track Failure:	<u>0.0</u>	<u>0.0</u>
	inches of shift	
Seat Back Failure:	<u>None</u>	<u>None</u>

Table 1
CRASH TEST SUMMARY (cont.)

<u>VISIBLE DUMMY CONTACT POINTS:</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Head:	Rear of head with headrest. Forehead with upper steering rim. <u>Mouth with horn pad.</u>	Chin with chest. Top rear of head with D-ring and B-pillar on <u>rebound.</u>
Abdomen:	<u>No contact</u>	<u>No contact</u>
Chest:	<u>Lower steering rim</u>	<u>No contact</u>
Knees:	Lower dash panel. Steering Column with <u>Left Knee</u>	<u>Glove box door</u>

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1992 Dodge Ram 150 2-door pickup
 NHTSA No.: CN0308; VIN: 1B7HE16Y4NS500049; Color: Red
 Engine Data: 8 cylinders; 318 CID; - Liters; - cc
 Placement: X Longitudinal or In-Line; - Transverse or Lateral
 Transmission Data: 4 speeds; - Manual; X Automatic; - Overdrive
 Final Drive: X Rear Wheel Drive; - Front Wheel Drive; - Four Wheel Drive
 Major Options: - A/C; X Pwr.Strg.; X Pwr.Brakes
- Pwr.Windows; - Pwr.Door Locks; X Tilt Wheel
 Date Received: 2/25/92; Odometer Reading 30 miles
 Selling Dealer: Joe Cecconis Chrysler Complex
 & Address 2380 Military Road, Niagara Falls, NY 14304

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Chrysler Corporation
 Date of Manufacture: 8/91
 GVWR: 6200 lbs.; GAWR: 3000 lbs. FRONT; 3600 lbs. REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load: 35 psi FRONT
41 psi REAR
 Recommended Tire Size: P235/75R15XL
 * Recommended Cold Tire Pressure: 35 psi FRONT; 41 psi REAR
 Size of Tires on Test Vehicle: P235/75RXW4; Manufacturer: Michelin
 Vehicle Capacity Data:
 Type of Front Seats: X Bench; - Bucket; - Split Bench
 Number of Occupants: 3 Front; - Rear; 3 Total
 Rated Cargo/Luggage Weight (RCLW) = 300** lbs. (Difference)

* Tire pressure used for test

**300 lbs for light trucks

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS) = UDW:

Right Front = 1120 lbs. Right Rear = 810 lbs.
 Left Front = 1260 lbs. Left Rear = 820 lbs.
 TOTAL FRONT = 2380 lbs. TOTAL REAR = 1630 lbs.
 % of Total Vehicle Weight = 59.4 % of Total Weight = 40.6 %
 TOTAL DELIVERED WEIGHT = 4010 lbs.

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight = 4010 lbs.
 Rated Cargo/Luggage Weight (RCLW) = 300 lbs.
 Weight of 2 P.572 Dummies @ 167 ea. = 334 lbs.
 TARGET TEST WEIGHT = 4644 lbs. (sum)

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 101 POUNDS OF CARGO WEIGHT:

Right Front = 1190 lbs. Right Rear = 1040 lbs.
 Left Front = 1320 lbs. Left Rear = 1080 lbs.
 TOTAL FRONT = 2510 lbs. TOTAL REAR = 2120 lbs.
 % of Total Weight = 54.2 % % of Total Weight = 45.8 %
 TOTAL TEST WEIGHT = 4630 lbs.
 Weight of Ballast Secured in Vehicle Trunk Area = 101 lbs.
 Vehicle Components Removed for Weight Reduction: None

VEHICLE ATTITUDE (all dimensions in inches):

AS DELIVERED: RF 31.9 LF 30.7 RR 33.5 LR 33.0
 FULLY LOADED: RF 31.3 LF 30.3 RR 30.7 LR 30.6
 AS TESTED: RF 31.5 LF 30.5 RR 31.9 LR 31.7

Vehicle's Wheel Base: 131.2 in.

Location of Vehicle's C.G.: 60.1 inches rearward of front wheel center

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 30 gallons
 Usable Capacity Figure Furnished by COTR = 30 gallons
 Test Volume Range (92 to 94% of Usable Capacity) = 27.6 to 28.2 gallons
 ACTUAL TEST VOLUME = 28.0 gallons (with entire fuel system filled)

Table 3
POST IMPACT DATA

TYPE OF TEST:

Type of Test: Frontal Barrier Impact Angle: 0°
 Test Date: May 22, 1992 Time: 14:55 Temperature: 80°F
 Vehicle NHTSA No.: CN0308
 Required Impact Velocity Range: 28.9 to 29.9 mph

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

Trap No. 1 = 29.2 mph; Trap No. 2 = 29.1 mph
 Distance from vehicle to barrier: (1) entering trap = 52 inches
 (2) exiting trap = 12 inches

VEHICLE STATIC CRUSH: (For frontal and rear impacts only.)

Vehicle Length:

Pre-Test Right = 217.5; C/L = 219.7; Left = 217.6
 Post-Test Right = 196.4; C/L = 197.2; Left = 197.1
 Crush Right = 21.1; C/L = 22.5; Left = 20.5
 AVERAGE = 21.4 inches

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point:

Right = 5.3; C/L = 5.3; Left = 6.2
 AVERAGE = 5.6 inches

DOOR OPENING:

	Left	Right
Front	<u>Closed - operable</u>	<u>Closed - operable</u>
Rear	<u>-</u>	<u>-</u>

SEAT MOVEMENT:

	Seat Back Failure	Seat Shift
Front	<u>None</u>	<u>None</u>
Rear	<u>-</u>	<u>-</u>

Table 3

POST IMPACT DATA (cont.)

GLAZING DAMAGE: None

OTHER NOTABLE IMPACT FEATURES: None

Section 3
OCCUPANT AND VEHICLE DATA

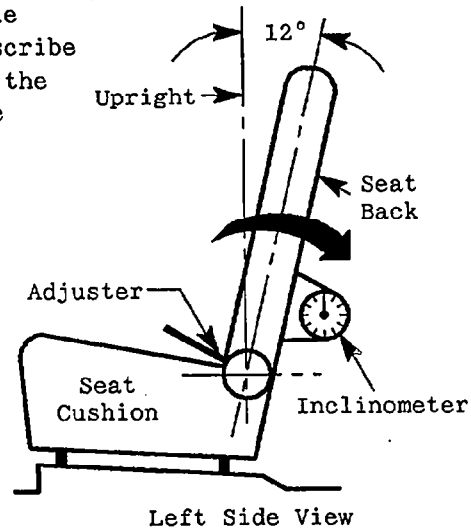
Figure 1

TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year: 1992 Vehicle Model: Ram 150 Body Style: 2-Door Pickup Truck

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.



Seat back angle for driver's seat: 12°

Measurement instructions: Fixed

Seat back angle for passenger's seat: 12°

Measurement instructions: Fixed

2. Seat Fore and Aft Positioning

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: Place seat in 4th detent (mid-position)
from a total of 7 detents

Positioning of the passenger's seat (if applicable): Same as driver

3. Fuel Tank Capacity Data

A. "Usable Capacity" of the standard equipment fuel tank is 22.0 gallons

B. "Usable Capacity" of the optional equipment fuel tank is 30.0 gallons

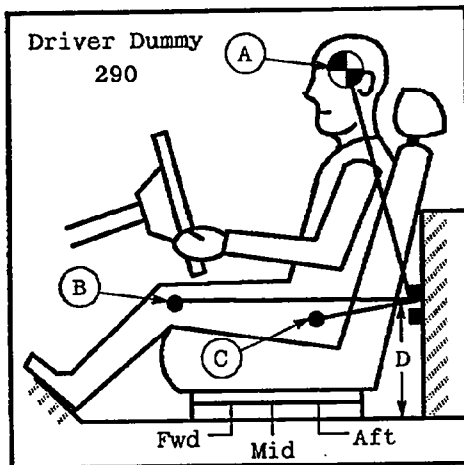
Additional Instructions: Vehicle equipped with optional fuel tank only

Figure 2

PART 572 DUMMY IN-VEHICLE POSITION

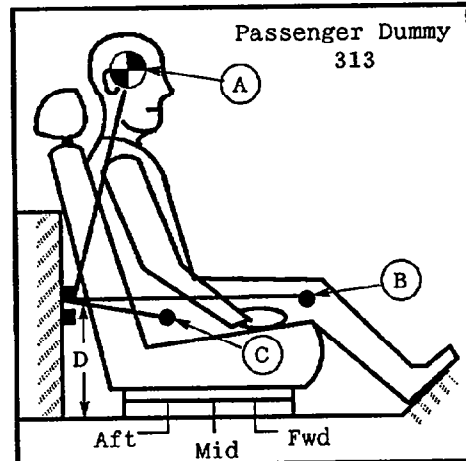
Test No.: CN0308 Vehicle: 1992 Dodge Ram 150 2-Door Pickup

<u>SEAT TYPE:</u>	<u>ADJUSTER TYPE:</u>	<u>SEAT BACK TYPE:</u>
<u>-</u> Bench	<u>X</u> Manual	<u>X</u> Fixed
<u>-</u> Bucket	<u>-</u> Power	<u>-</u> Adjustable Reclining
<u>X</u> Split Bench		



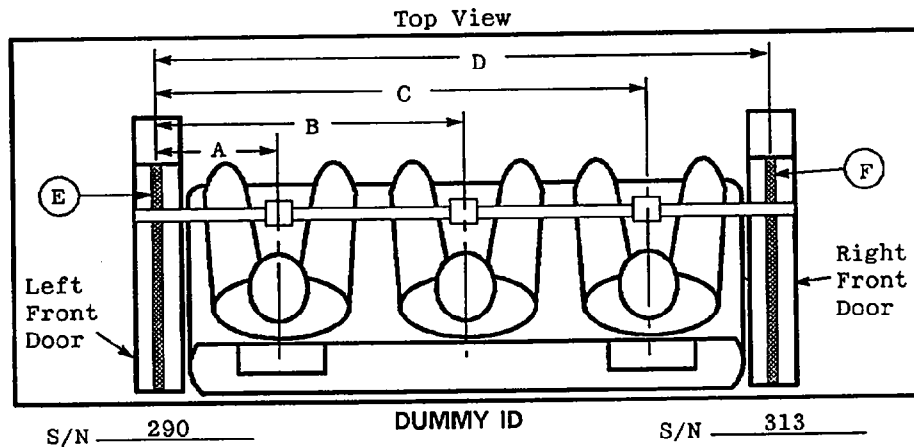
MEASUREMENT LOCATION

- A - Head Target
- B - Knee Joint
- C - Approximate 'H' Point
- D - Sill to Reference Point



A = 24.0 in. 20 Degrees
 B = 27.0 in. 90 Degrees
 C = 11.8 in. 112 Degrees
 D = 17.3 in.

A = 23.4 in. 20 Degrees
 B = 26.3 in. 91 Degrees
 C = 10.9 in. 109 Degrees
 D = 17.3 in.



A = Left Door to Driver Centerline	<u>12.0</u> in.
B = Left Door to Center Passenger Centerline	<u>-</u> in.
C = Left Door to Right Passenger Centerline	<u>49.7</u> in.
D = Left Door to Right Door	<u>61.5</u> in.
E, F = Window Glass Height (Right and Left Must Be Equal)	<u>11.1</u> in.

Figure 3
OCCUPANT CLEARANCE DIMENSIONS
(Dimensions in inches)

	DRIVER	PASSENGER
HH	20.3	20.5
HW	25.1	25.8
CD	23.7	23.7
CS	14.7	-
KDL	7.1	8.7
KDR	7.2	8.7
SA	*	*
PA	22°	24°

* Non Adjustable Seat Back

HH = Head to Windshield Header
 HW = Head to Windshield
 CD = Chest to Dash
 CS = Chest to Steering Wheel
 KD(L/R) = Knee to Dash (Left/Right)
 SA = Seat Back Angle
 TA = Torso Angle
 HA = Head Target to "A" Pillar
 HR = Head to Side Roof
 HS = Head to Side Window
 AD = Arm to Door
 HD = Hip to Door
 KK = Knee to Knee

	DRIVER	PASSENGER
HR	6.7	7.1
HS	8.9	8.9
AD	3.1	3.0
HD	6.3	6.0
KK	8.3	8.4
HA	22.5	22.9

	H-Point from Target	
	Vertical	Horizontal
Driver	0.3" below	0.2" forward
Passenger	0.1" above	0.0"

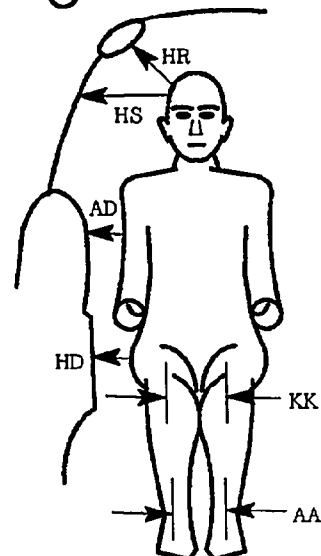
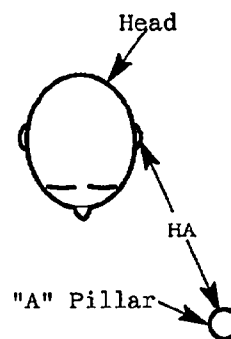
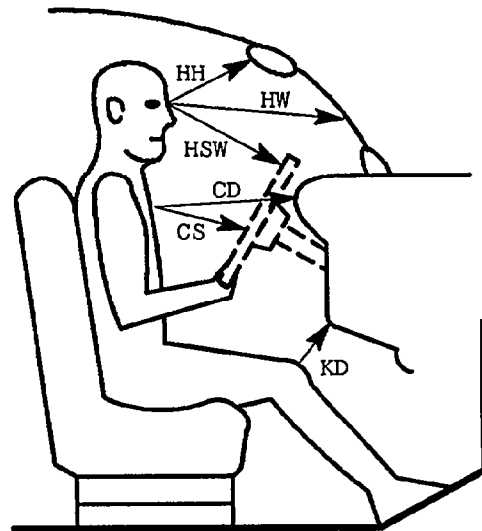
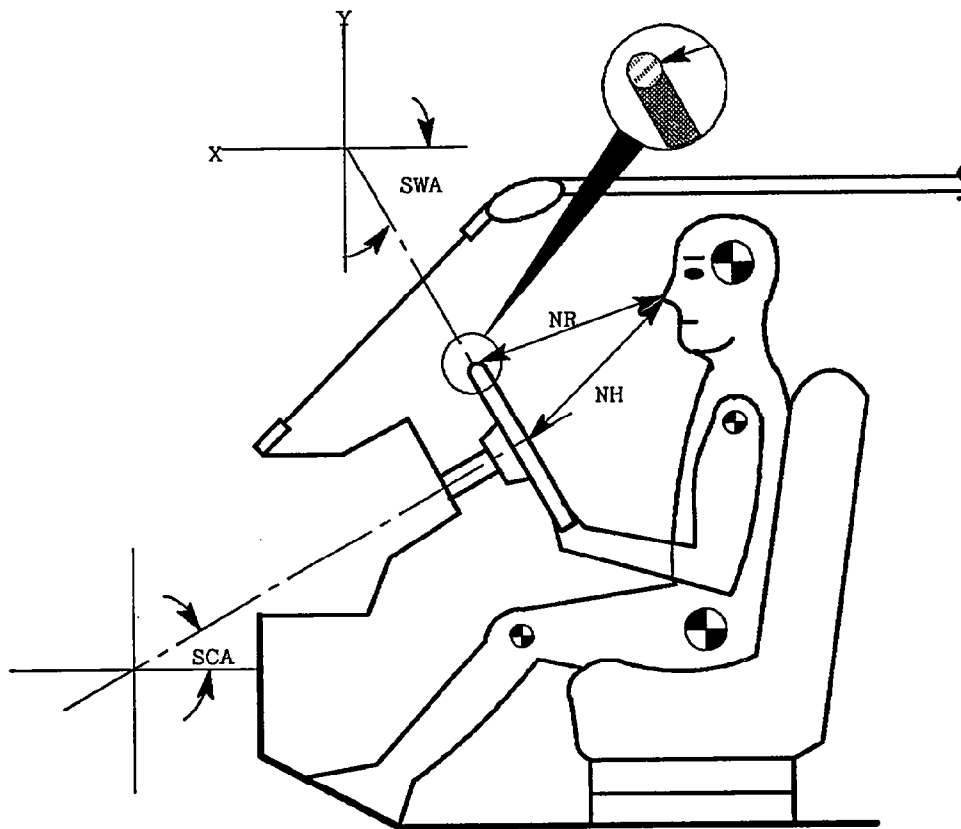


Figure 4

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSEMBLY REFERENCE DIMENSIONS

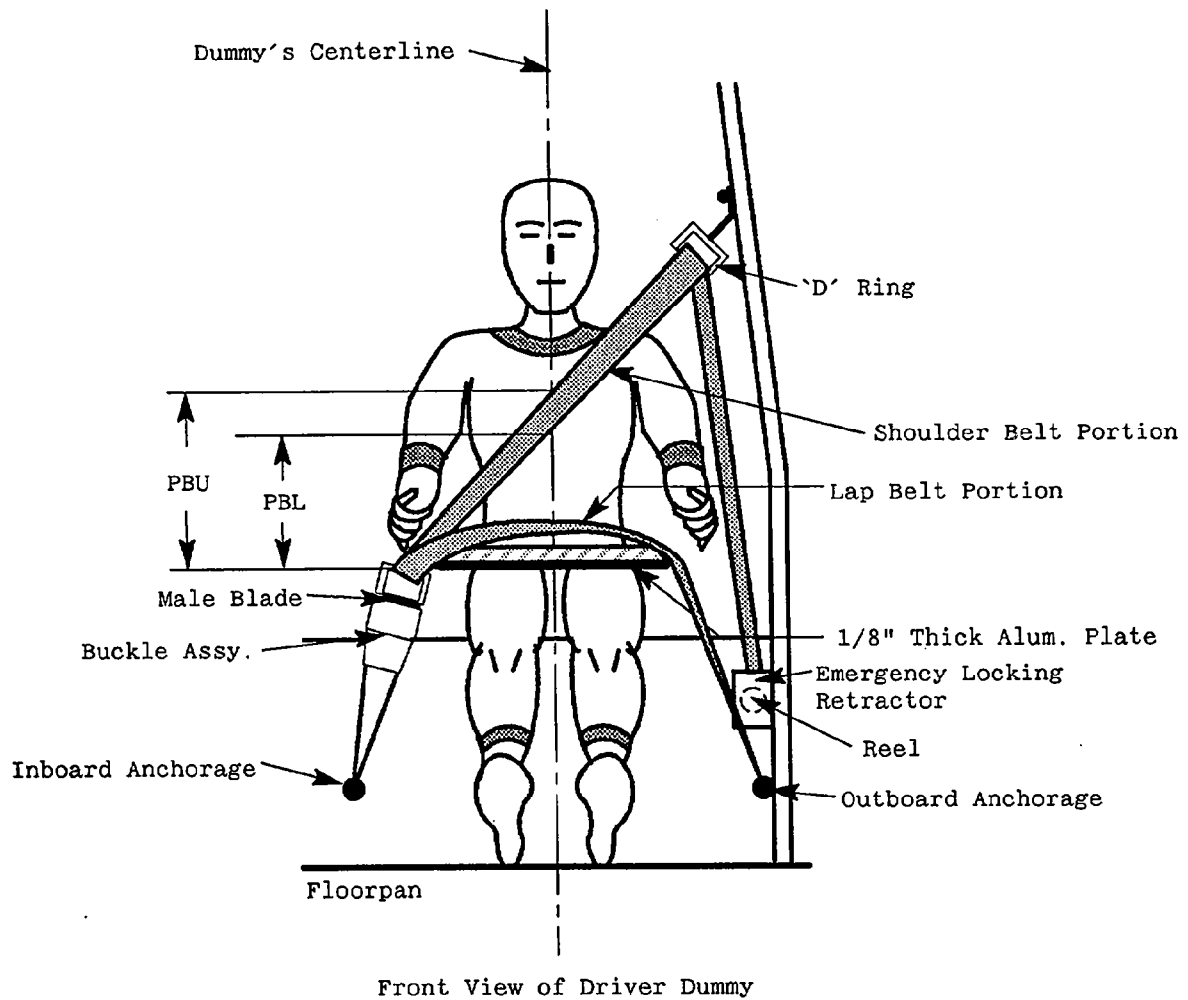


Left Side View

MEASUREMENTS		
<u>NR</u> -- Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	14.5	Inches
<u>NH</u> -- Distance from tip of dummy's nose to center of steering wheel hub	16.0	Inches
<u>SCA</u> -- Angle of steering column relative to the horizontal X axis	24.0*	Degrees
<u>SWA</u> -- Angle of steering wheel relative to the horizontal X axis	66.0	Degrees

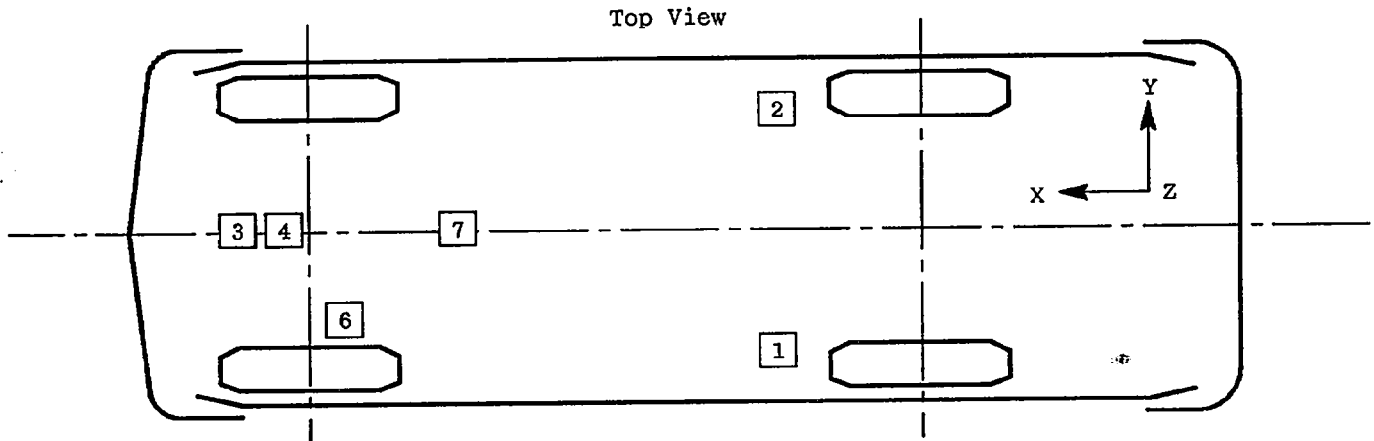
*Steering column not adjustable

Figure 5
SEAT BELT POSITIONING DATA



	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
<u>PBU</u> -- Top surface of alum. plate to upper edge	13.4	13.5
<u>PBL</u> -- Top surface of alum. plate to belt lower edge	10.0	9.9
<u>TBI</u> -- Distance from torso centerline to buckle	8.2	8.1

Figure 6
VEHICLE ACCELEROMETER LOCATIONS



ACCELEROMETER NUMBER*	ACCELEROMETER LOCATION	DIRECTION		
		X	Y	Z
1	Left Rear Seat Crossmember	X		
2	Right Rear Seat Crossmember	X		
3	Top of Engine	X		
4	Bottom of Engine	X		
5	Right Disc Brake Caliper	X		
6	Left Disc Brake Caliper	X		
7	Instrument Panel	X		

*The accelerometer pack number can be correlated with the vehicle response data traces found in Appendix B.

Table 4
VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

NO.	LOCATION		X*	Y*	Z*	POSITIVE DIRECTION**		NEGATIVE DIRECTION**	
						MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	REAR SEAT X-MEMBER AT LEFT SIDE	PRE:	111.8	20.8	26.1				
		POST:	111.8	20.8	24.1				
	LONGITUDINAL ACCELERATION					9	11	-41	17
2	REAR SEAT X-MEMBER AT RIGHT SIDE	PRE:	112.8	-20.8	26.0				
		POST:	112.5	-20.8	24.9				
	LONGITUDINAL ACCELERATION					8	9	-39	16
3	TOP OF ENGINE BLOCK	PRE:	180.7	-9.4	37.4				
		POST:	178.7	-9.3	38.7				
	LONGITUDINAL ACCELERATION					21	82	-83	47
4	BOTTOM OF ENGINE	PRE:	174.7	-6.1	14.5				
		POST:	171.7	-6.1	14.8				
	LONGITUDINAL ACCELERATION					16	64	-64	50
5	BRAKE CALIPER AT RIGHT SIDE	PRE:	179.2	-20.7	9.5				
		POST:	170.9	-20.7	11.5				
	LONGITUDINAL ACCELERATION					60	8	-87	15
6	BRAKE CALIPER AT LEFT SIDE	PRE:	179.2	20.7	9.5				
		POST:	168.8	20.7	10.4				
	LONGITUDINAL ACCELERATION					100	214	-237	208
7	DASH PANEL	PRE:	151.2	9.3	44.5				
		POST:	151.1	9.3	42.6				
	LONGITUDINAL ACCELERATION					41	83	-72	99

*X + Forward from rear bumper Y + Left from vehicle centerline Z + Up from ground	** LONGITUDINAL: LATERAL: VERTICAL:	<u>POSITIVE</u> FORWARD LEFTWARD UPWARD	<u>NEGATIVE</u> REARWARD RIGHTWARD DOWNWARD
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DISTANCE MEASUREMENTS IN INCHES

Figure 7
CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 5.

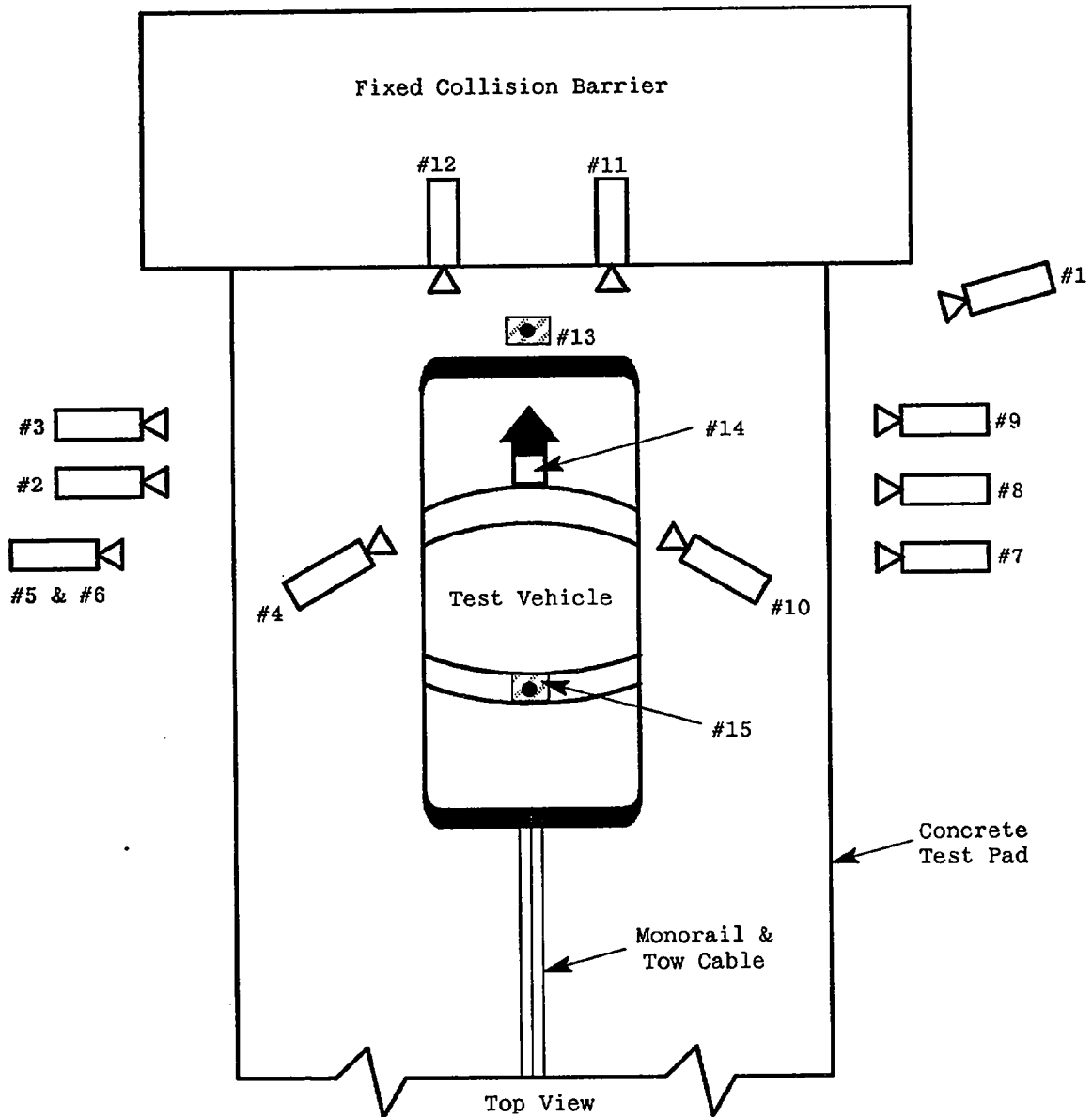


Table 5

HIGH-SPEED CAMERA LOCATIONS

CAMERA NO.	VIEW	CAMERA POSITIONS (in)*			ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	264	67	41	-2	242.2	13	540
3	Left Side View	316	40	44	-2	294.2	25	560
4	Driver and Interior View	102	112	69	-12	-	13	520
5	Steering Column (Bottom)	319	79	46	-2	297.2	25	510
6	Steering Column (Top)	319	79	70	-6	297.2	25	570
7	Overall Right Side	271	71	42	-2	249.2	13	600
8	Right Side View	326	49	41	-1	304.2	25	600
9	Right Passenger View	321	68	56	-3	299.2	35	580
10	Passenger and Interior View	109	110	69	-11	-	13	550
11	Passenger Front View	23	20	78	-36	-	13	595
12	Driver Front View	23	20	78	-38	-	13	595
13	Windshield View	0	0	129	-53	-	25	550
14	Pit View of Engine	0	29	-86	90	-	13	670
15	Pit View of Fuel Tank	0	99	-86	90	-	13	N.T.

*X = film plane to monorail centerline
 Y = film plane to impact location
 Z = film plane to ground
 ** = referenced to horizontal plane

Figure 8

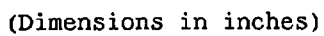


Figure 9
TEST VEHICLE MEASUREMENTS

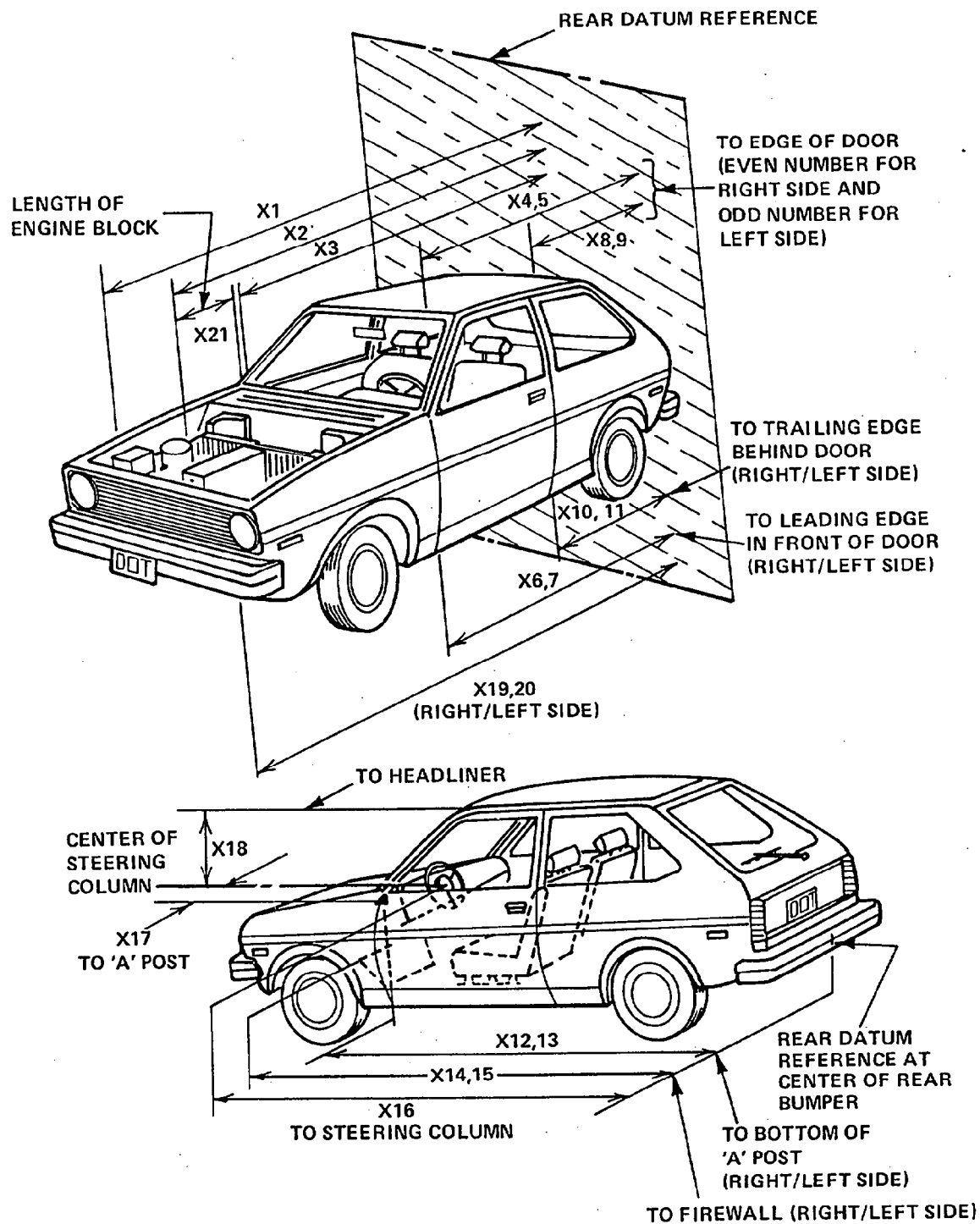


Table 8

VEHICLE MEASUREMENTS

No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	219.7	197.2	22.5
X2	Rear Surface of Vehicle to Front of Engine	194.8	190.5	4.3
X3	Rear Surface of Vehicle to Firewall	168.4	168.0	0.4
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	155.4	153.5	1.9
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	155.4	153.9	1.5
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	155.3	154.4	0.9
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	155.2	153.7	1.5
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	114.2	112.5	1.7
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	114.4	112.6	1.8
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	114.0	113.5	0.5
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	113.6	112.7	0.9
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	154.9	154.6	0.3
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	154.9	154.3	0.6
X14	Rear Surface of Vehicle to Firewall, Right Side	167.6	165.6	2.0
X15	Rear Surface of Vehicle to Firewall, Left Side	168.5	166.7	1.8
X16	Rear Surface of Vehicle to Steering Column	140.6	138.8	1.8
X17	Center of Steering Column to "A" Post	14.9	16.4	-1.5
X18	Center of Steering Column to Headliner	18.9	20.0	-1.1
X19	Rear Surface of Vehicle to Right Side of Front Bumper	217.5	196.4	21.1
X20	Rear Surface of Vehicle to Left Side of Front Bumper	217.6	197.1	20.5
X21	Length of Engine Block	25.0	25.0	0.0

Section 4

SUMMARY OF RESULTS OF FMVSS NOS. 208, 212, 219 AND 301-75

- "Occupant Crash Protection," FMVSS No. 208 Data
- "Windshield Mounting," FMVSS No. 212 Data
- "Windshield Zone Intrusion," FMVSS No. 219 (Partial) Data
- "Fuel System Integrity," FMVSS No. 301-75

Table 7

DUMMY INJURY CRITERIA VALUESNHTSA No.: CN0308 Vehicle: 1992 Dodge Ram 150 2-Door Pickup

	MAXIMUM ACCELERATION (g's)							
	HEAD				CHEST			
	X	Y	Z	R	X	Y	Z	R*
Dummy (1)	-115	-11	27	115	-37	7	-15	38.2
Dummy (2)	-44	-6	32	47	-32	6	15	33.4

	MAXIMUM FORCE - FEMUR LOAD (lbs.)	
	LEFT FEMUR	RIGHT FEMUR
Dummy (1)	627	180
Dummy (2)	123	156

	HEAD INJURY CRITERIA**			
	HIC	36 millisecond Maximum		Avg. Acc. (g) t ₁ TO t ₂
		t ₁ (msec)	t ₂ (msec)	
Dummy (1)	465	65.400	101.280	44.17
Dummy (2)	329	90.360	126.240	38.46

*Defined as exceeding 0.003 sec. duration

**As defined in FMVSS No. 208

Table 8

FMVSS NO. 208 - SEAT BELT WARNING SYSTEM CHECK

With occupant in driver's position, the lap belt in stowed position, and ignition switch placed in "Start/On" position:

Log time duration of audible warning signal = 8.0 sec.

Log time duration of reminder light operation = 8.0 sec.

With occupant in driver's position, lap belt in use, and the ignition switch placed in "Start/On" position:

Log time duration of audible warning signal = - sec.
(audible warning should not operate)

Log time duration of reminder light operation = 8.0 sec.

Note wording of visual warning:

Fasten Seat Belt -

Fasten Belt -

Symbol 101-80 X

Table 9

FMVSS NO. 208 - LABELING AND DRIVER'S MANUAL INFORMATION

Locate label which describes manufacturers maintenance or replacement schedule for crash-deployed occupant protection system.

Describe location: None

The manufacturers recommended schedule is to replace ____ - ____ or repair ____ - ____ this system:

- a. by ____ - ____ month, ____ - ____ year
- b. by ____ - ____ miles
- c. or after a time interval of ____ - ____ months or ____ - ____ years.

Were appropriate instructions concerning maintenance and/or replacement of this system provided? YES ____ - ____ NO ____ - ____

Was a description of the functional operation of the system provided? YES ____ - ____ NO ____ - ____

Is there a reference to the instructions and description of the system on the label? YES ____ - ____ NO ____ - ____

Was an owner's manual provided? YES ____ - ____ NO ____ - ____

Did the owner's manual contain appropriate information concerning maintenance and/or replacement and a description of the functional operation of the systems? YES ____ - ____ NO ____ - ____

Table 10

FMVSS NO. 208 - READINESS INDICATOR

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement.

Is the system totally mechanical? YES X NO -

Describe the location of the readiness indicator: N/A

Is the readiness indicator clearly visible to the driver?
YES N/A NO N/A

Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided?
YES N/A NO N/A

Table 11

FMVSS NO. 208 - COMFORT AND CONVENIENCE TEST SUMMARY

Test Vehicle NHTSA No.:	<u>CN0308</u>
Make/Model:	<u>Dodge Ram 150</u>
Date of Comfort/Convenience Check:	<u>5/15/92</u>
Technician Performing Check:	<u>VMP</u>
GVWR:	<u>6200</u>

Seat belt comfort and convenience requirements cover vehicles manufactured on or after September 1, 1986, which have a gross vehicle weight rating of 10,000 pounds or less. Exemptions to this rule are belts installed in a walk-in, van-type vehicle and manual Type 2 belt systems installed in the front outboard seating positions of passenger automobiles. On or after September 1, 1989, the exemption of the type 2 manual seat belts installed in the front outboard seating positions of passenger automobiles will change depending on the states' enactment of mandatory usage laws.

Was vehicle built after or on September 1, 1986, and is it equipped with:

1. Automatic seat belts YES - NO X

If yes, go to requirements D1, D2 and D3

2. Manual seat belts* YES X NO -

a. The seat belts, other than Type 2 lap/shoulder belts, are located in

the front outboard seating positions of a passenger automobile.

YES - NO X

(Go to requirements D3, D4, D5, and D6)

b. The seat belt system is Type 2 lap/shoulder belt in the front outboard seating positions or the seat belts are located in a walk-in van.

STOP

*If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Table 11 (cont.)

D1

CONVENIENCE HOOKS

A convenience hook or other device is provided to stow seat belt webbing to facilitate entering or exiting the vehicle.

YES X NO -

Check the option which applies to this test vehicle:

1. A convenience hook or other device automatically releases the webbing when the automatic belt system is operational and remains in the released mode as long as the vehicle's ignition switch is moved to the "on" or "start" position and the vehicle's drivetrain is engaged.

YES N/A NO N/A

2. A convenience hook or other device automatically releases the webbing when the automatic belt system is operational and remains in the released mode as long as the vehicle's ignition switch is moved to the "on" or "start" position and the vehicle's parking brake is in the released mode (nonengaged).

YES N/A NO N/A

D2

WEBBING TENSION - RELIEVING DEVICE

The seat belt assembly installed in the outboard designated seating position has either manual or automatic tension relieving devices permitting the introduction of slack in the webbing of the shoulder belt ("comfort clips" or "window shade" devices).

YES - NO X

Check the owner's manual and determine the maximum amount of slack recommended by the manufacturer in inches. The recommended slack is _____ inches. Introduce this slack into the shoulder belt before testing the vehicle to comply with the requirements of FMVSS 208 S5.1. A warning is included in the owner's manual that introducing slack beyond the amount specified can significantly reduce the effectiveness of the shoulder belt.

YES N/A NO N/A

(If NO, provide explanation.)

Check the option which applies to this test vehicle:

1. This vehicle is equipped with automatic seat belts and the tension relieving device is cancelled each time the adjacent door is opened.

YES N/A NO N/A

(If NO, provide explanation.)

Table 11 (cont.)

2. This vehicle is equipped with manual belts, required to meet FMVSS 208 S4.6, and the tension relieving device is cancelled each time one of the following options occurs:

a. The adjacent door is opened. YES N/A NO N/A

b. The latch plate is released from the buckle. YES N/A NO N/A

3. This is an open-body vehicle, without doors. Does the manual mean to cancel any shoulder belt slack introduced by a tension relieving device to operate properly?

YES N/A NO N/A

(If NO, provide explanation.)

D3

BELT CONTACT FORCE

1. Do not measure the belt contact force if the manual or automatic seat belt assemblies in this vehicle incorporate a webbing tension relieving device. Does the vehicle incorporate a tension relieving device?

YES - NO X

2. Seats are adjusted according to instructions in Appendix B.

YES X NO -

3. The test dummies are positioned according to dummy position placement instructions in Appendix B and Appendix C.

YES X NO -

4. Close the vehicle's adjacent door, pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest, then fasten the latch. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point, pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. Measure the contact force exerted by the belt webbing on the dummy's chest. The contact force is 0.5 pounds. Contact the COTR if the contact force exceeds 0.7 pounds.

Table 11 (cont.)

D4

LATCHPLATE ACCESSIBILITY

1. Position the test dummy in the driver's seat or passenger's seat in its forward most adjustment position.
YES X NO -
2. Attach the inboard and outboard reach string. YES X NO -
3. Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms. With the latchplate in the normal stowed position, check to assure that the latchplates are within the reach envelope.
YES X NO -
4. Using the clearance test block, determine if there is sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latchplate or buckle.
YES X NO -

D5

RETRACTION

1. Seats and seat backs are adjusted according to instructions in Appendix B "General Test Conditions" in TP-208-8.
YES X NO -
2. Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B and restrain the dummies, using the belt systems for the positions being tested.
YES X NO -
3. Outboard armrests which are capable of being stowed on vehicle seats shall be placed in their stowed positions.
YES N/A NO N/A
4. Check the option which applies to this test vehicle:
 - a. The torso and lap belt webbing of the seat belt system automatically retract to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.
YES X NO -

Table 11 (cont.)

- b. The torso and lap belt webbing of the seat belt system automatically retract when the seat belt latch plate is released.

YES X NO -

5. With the webbing and hardware in the stowed position, close the door to assure that the webbing and hardware are prevented from being pinched.

YES X NO -

6. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, check to assure that the belt system fully retracts when the tension-relief device is manually deactivated.

YES N/A NO N/A

D6

ACCESSIBILITY

The requirements for accessibility do not apply to:

1. Seats whose seat cushions are removable so that the seat back serves a function other than seating;
2. Seats which are removable;
3. Seats which are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above, then determine if:

1. Each manual seat belt assembly whose webbing is designed to pass through the seat cushion or between the seat cushion and seat back has one of the following three parts (the seat belt latchplate, the buckle, or the seat belt webbing) on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant).

YES X NO -

2. The remaining two seat belt parts are accessible under normal conditions.

YES X NO -

Table 11 (cont.)

3. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:

a. The belt is completely retracted or, if the belt is nonretractable, the belt is unattached.

YES - NO X

b. The seat is moved to any position to which it is designed to be adjusted.

YES - NO X

c. The seat back, if foldable, is folded forward as far as possible and then moved backward into positions.

YES - NO X

4. Is the inboard receptacle end of the seat belt assembly which is installed in the outboard designated seating position accessible with the center arm rest in any position to which it can be adjusted without moving the armrest?

YES N/A NO N/A

D7

LATCH MECHANISM

A seat belt assembly installed in a passenger car, except an automatic belt assembly, shall have a latch mechanism:

1. Whose components are accessible to a seated occupant in both the stowed and operational positions.

YES X NO -

2. That releases both the upper torso restraint and the lap belt simultaneously, if the assembly has a lap belt and an upper torso restraint that require unlatching for release of the occupant.

YES X NO -

3. That releases at a single point by a push button action.

YES X NO -

Figure 10

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA SHEET

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

Windshield is bonded in place with 1.5 inch rubber trim covering the periphery.

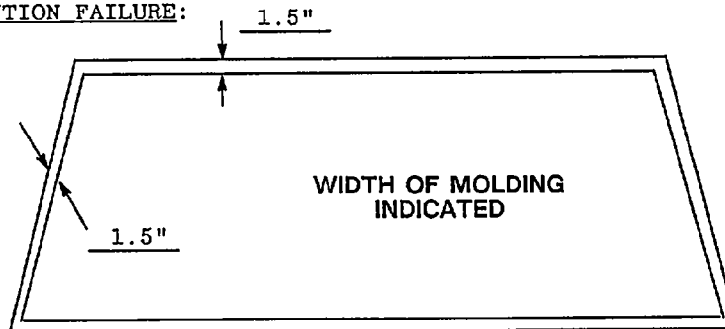
FMVSS 212 REQUIREMENTS:

The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA:

	WINDSHIELD PERIPHERY		PERCENT RETENTION
	PRE-TEST (in.)	POST-TEST (in.)	
RIGHT SIDE	85.9	85.9	100
LEFT SIDE	85.9	85.9	100
TOTAL	171.8	171.8	100 %

AREA OF RETENTION FAILURE:



FRONT VIEW

FAILURE DETAILS:

None

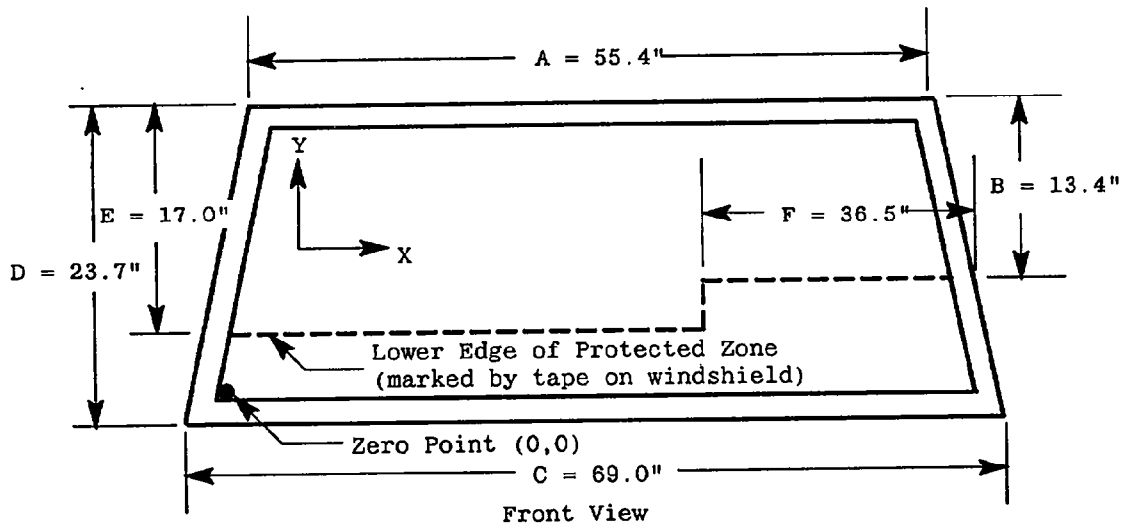
Figure 11

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

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 6.5" dia. rigid sphere weighing 15 pounds in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. The locus of points is drawn on the inner surface of the windshield contacted by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 1/2" distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection of this line onto the outer surface of the windshield.

FMVSS 219 TEST DATA: (Dimensions in inches.)



DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4":

(Show location of penetration on above sketch)

None

	COORDINATES	
	X	Y
1.		
2.		
3.		
4.		

FMVSS NO. 301

C	N	0	3	0	8
---	---	---	---	---	---

Vehicle Mfgr./Make/Model: 1992 Dodge Ram 150 2-Door Pickup

.....

____ Oblique (30 mph) with ____° barrier face first
contacting _____
(driver/passenger) side

- Lateral Moving Barrier (20 mph)

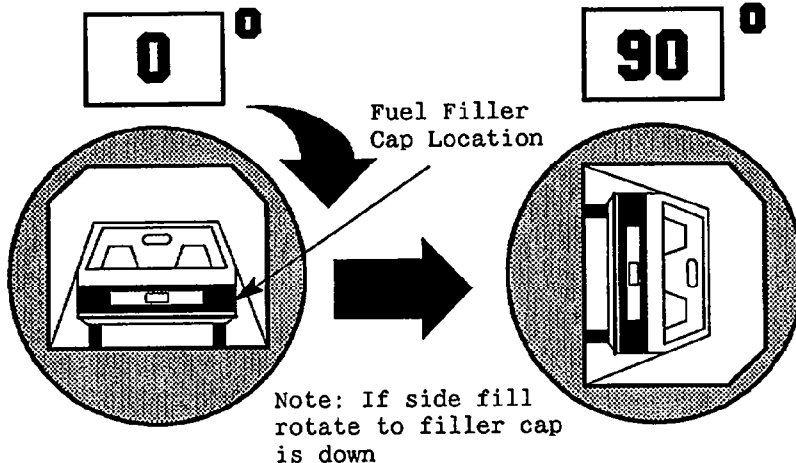
- | ACTUAL | MAX ALLOWED |
|--------|--------------|
| 0 | 1 oz. |
| 0 | 5 oz. |
| 0 | 1 oz./1 min. |

None

Table 13
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

Vehicle NHTSA ID No.:



CN0308

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	1 minutes 46 seconds
FMVSS 301 Position Hold Time +	5 minutes 00 seconds
TOTAL	6 minutes 46 seconds
Next whole minute interval	7 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record spillage for whole minute
intervals only as determined above.

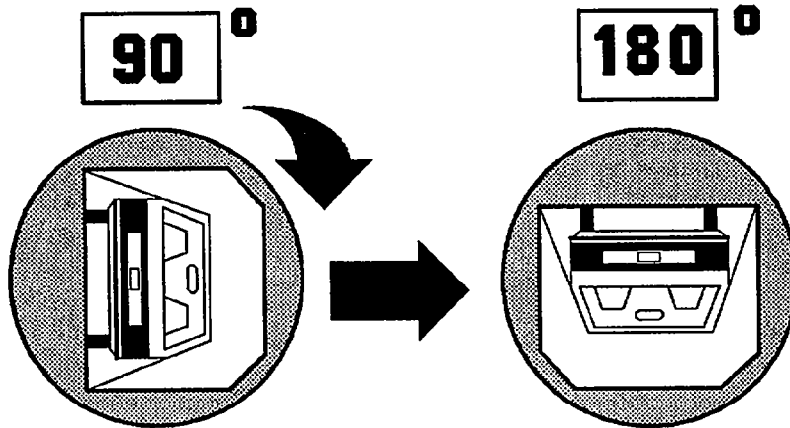
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 13
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

Vehicle NHTSA ID No.:



CN0308

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	2 minutes 02 seconds
FMVSS 301 Position Hold Time +	5 minutes 00 seconds
TOTAL	7 minutes 02 seconds
Next whole minute interval	8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record spillage for whole minute intervals only as determined above.

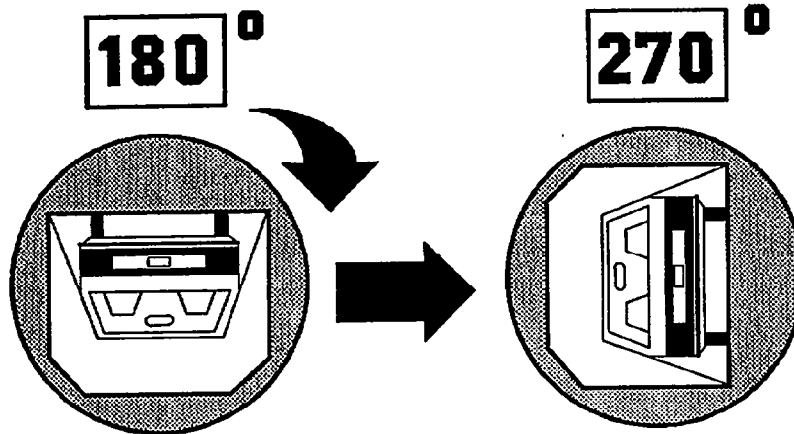
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 13
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

Vehicle NHTSA ID No.:



CN0308

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes) 2 minutes 27 seconds

FMVSS 301 Position Hold Time + 5 minutes 00 seconds

TOTAL 7 minutes 27 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record spillage for whole minute intervals only as determined above.

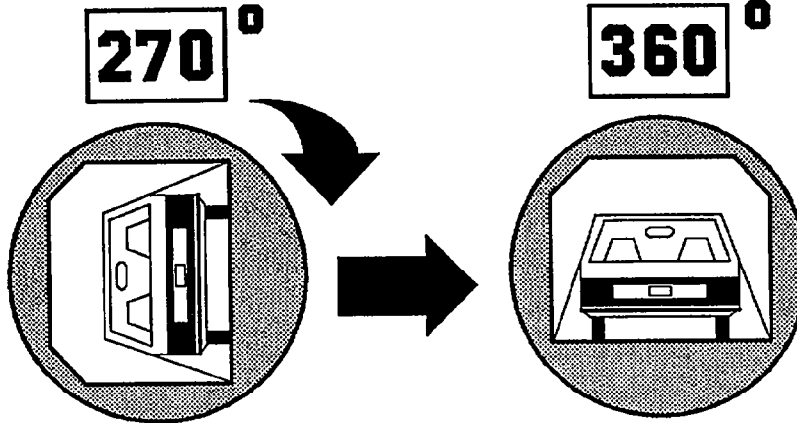
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 13
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

Vehicle NHTSA ID No.:



CN0308

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	1 minutes 53 seconds
FMVSS 301 Position Hold Time +	5 minutes 00 seconds
TOTAL	6 minutes 53 seconds
Next whole minute interval	7 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 14

TEST VEHICLE NONCOMPLIANCE NOTICE

NHTSA Contract Lab: Calspan Advanced Technology Center
Lab Project Manager & Telephone No.: Walter E. Levan (716) 632-7500
Date of Test: May 22, 1992 Vehicle NHTSA No.: CN0308
Vehicle Manufacturer: Chrysler Corporation
Model Year: 1992 VIN: 1B7HE16Y4NS500049
Model: Dodge Ram 150 Body Style: 2-Door Pickup Build Date: 8/1991
Dummy Stabilized Temperature at Time of Test: 70 °F (Spec. = 69-72°F)
Impact Velocity: 29.2 mph Time of Test: 14:55
Type of Automatic Restraint System: Driver and right front passenger manual
3-point seat belt restraint system

Failure Details:

The vehicle appears to comply with the requirements of FMVSS Nos. 208, 212,
219 (Partial), and 301.

Appendix A

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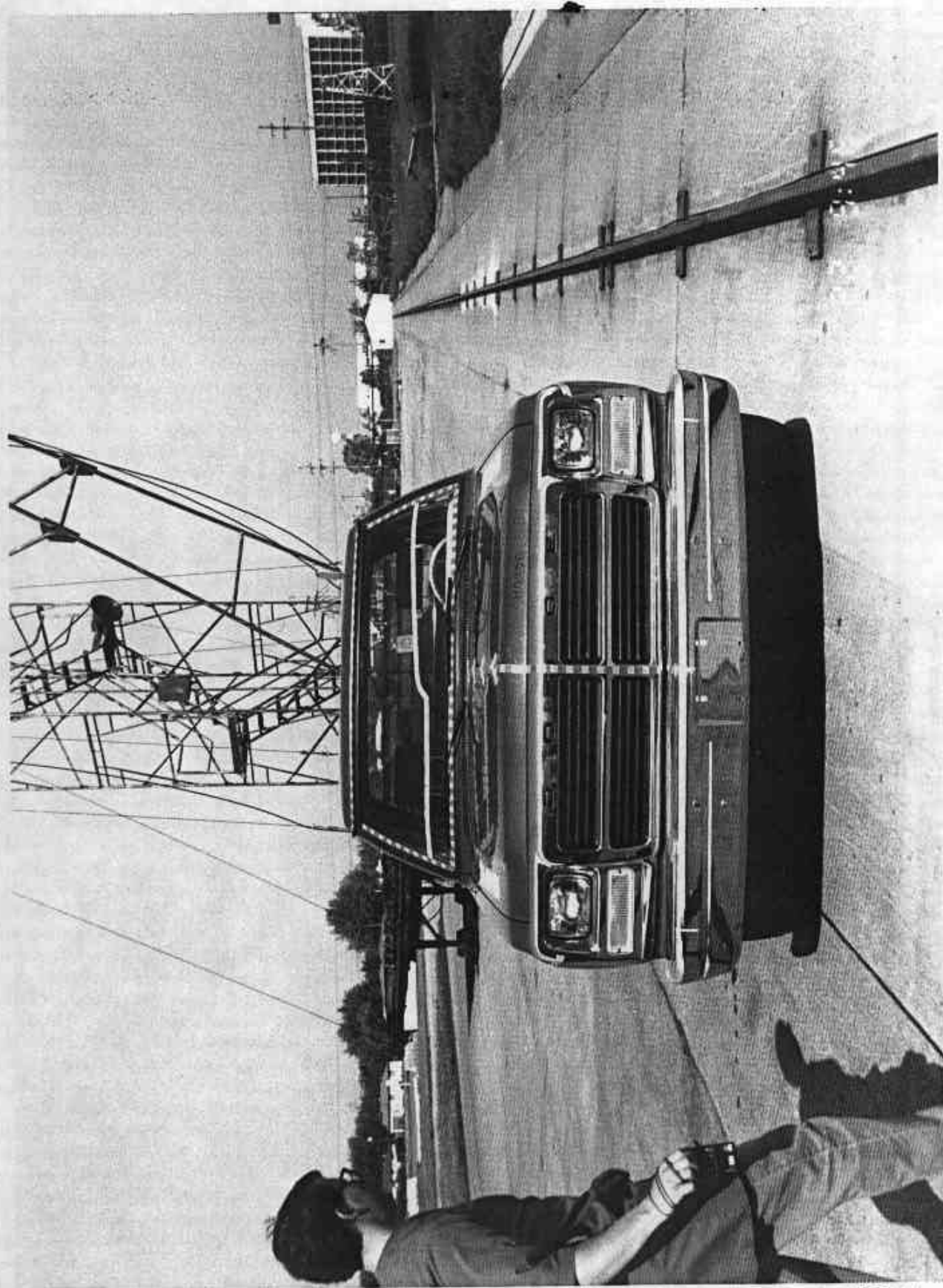


Figure A-1 PRE-TEST FRONT VIEW

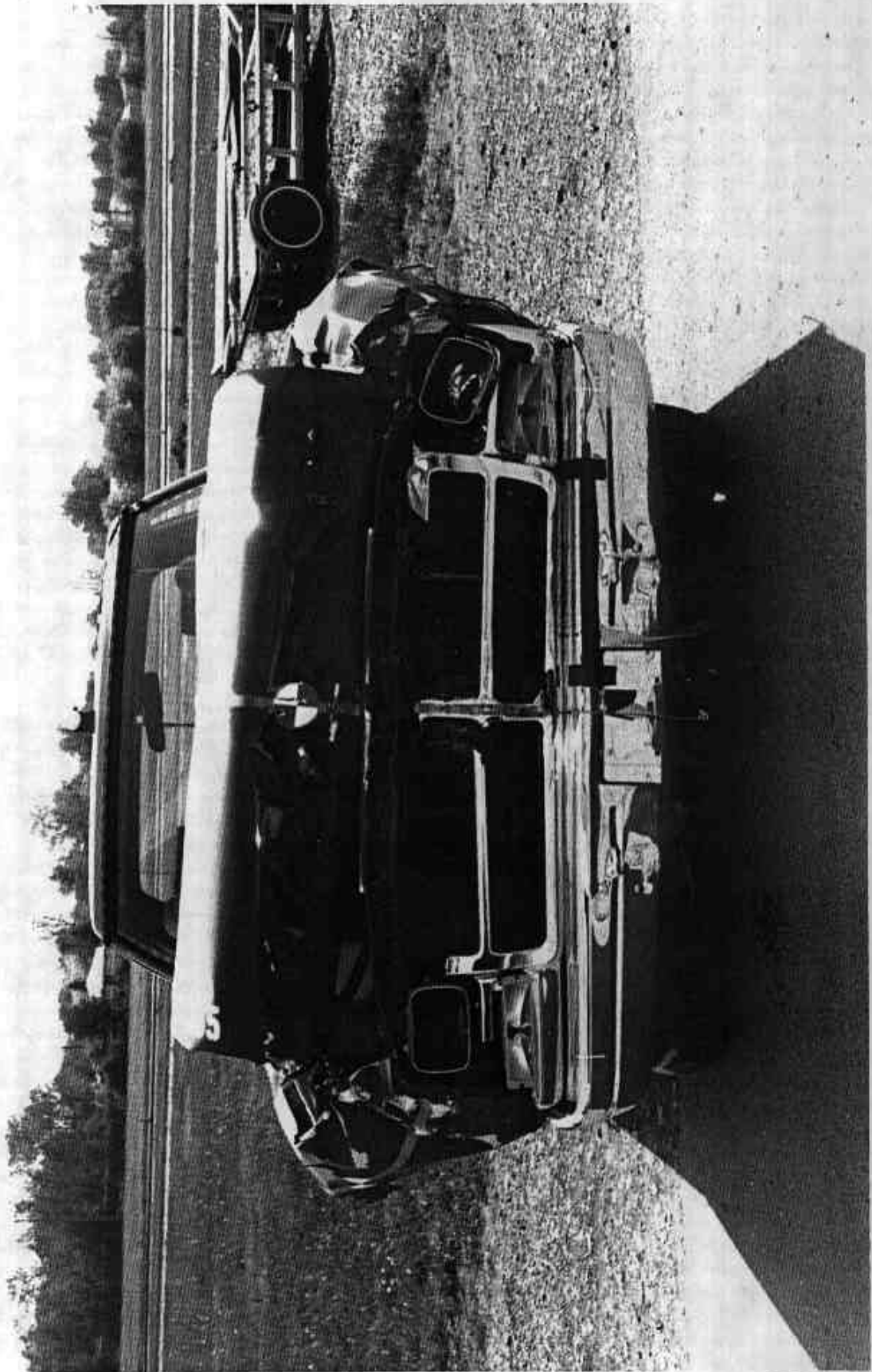


Figure A-2 POST-TEST FRONT VIEW

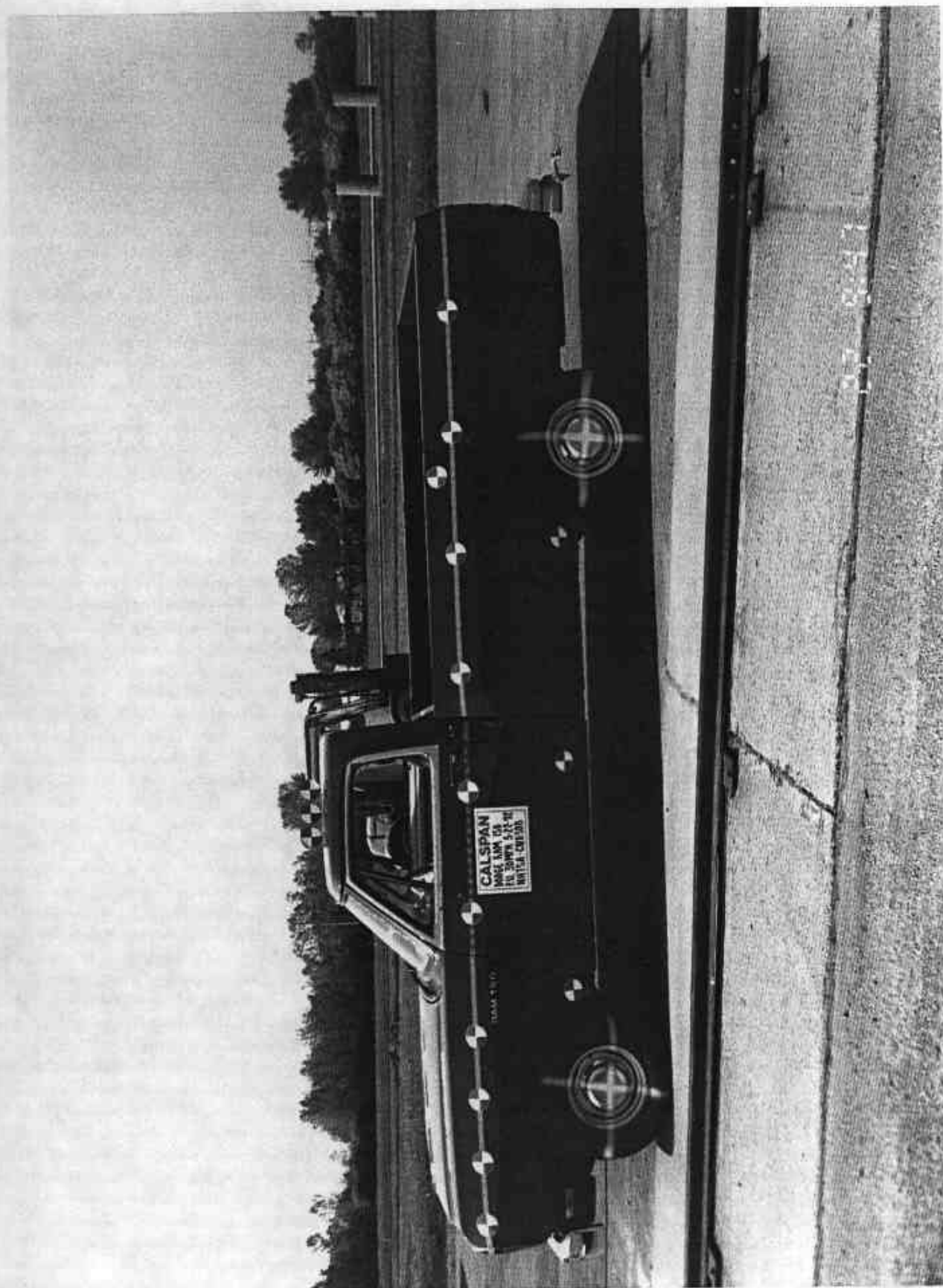


Figure A-3 PRE-TEST LEFT SIDE VIEW

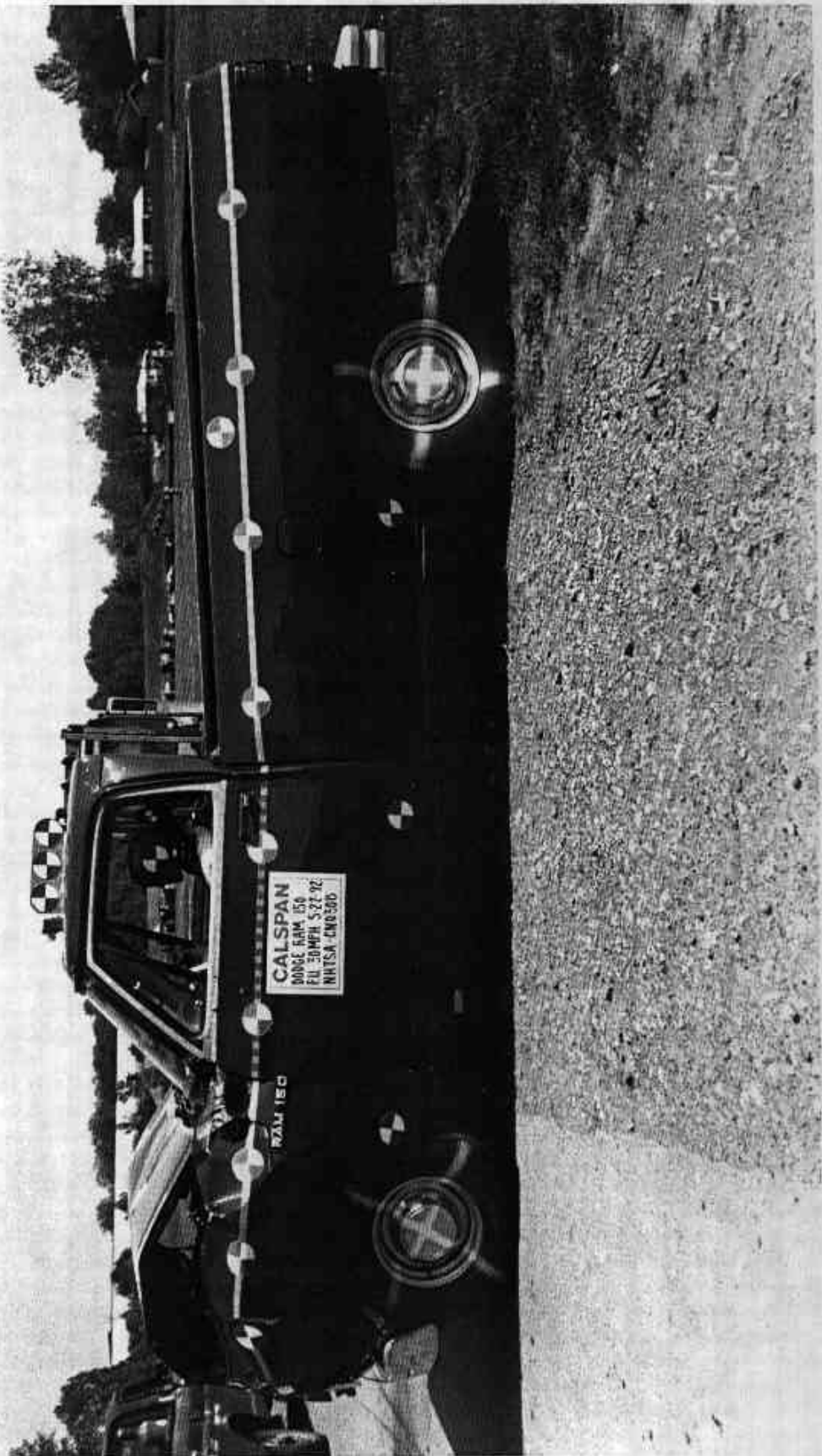


Figure A-4 POST-TEST LEFT SIDE VIEW

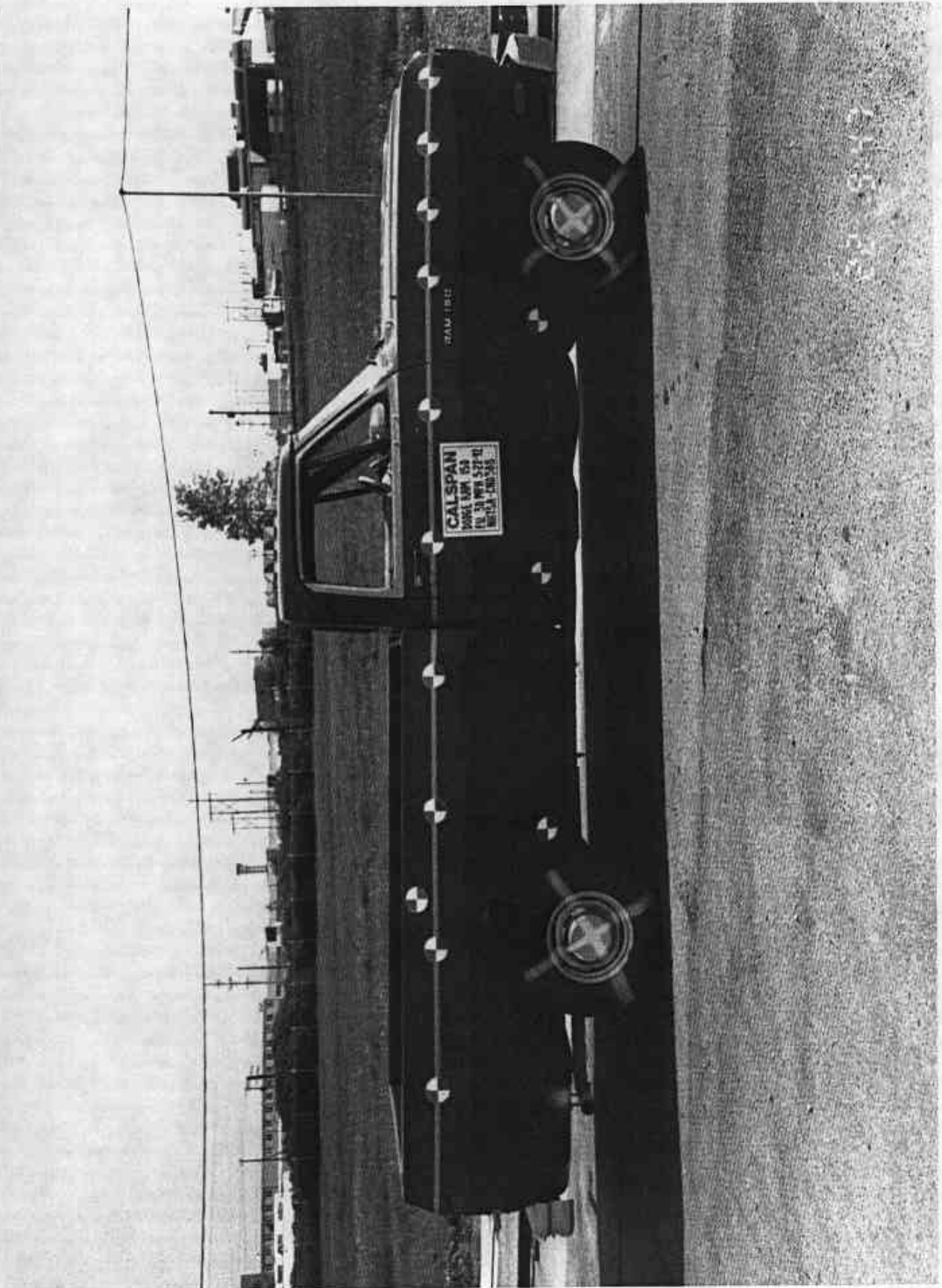


Figure A-5 PRE-TEST RIGHT SIDE VIEW



Figure A-8 POST-TEST RIGHT SIDE VIEW



Figure A-7 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-8 POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-9 PRE-TEST LEFT REAR THREE-QUARTER VIEW

A-11

7979-4



Figure A-10 POST-TEST LEFT REAR THREE-QUARTER VIEW

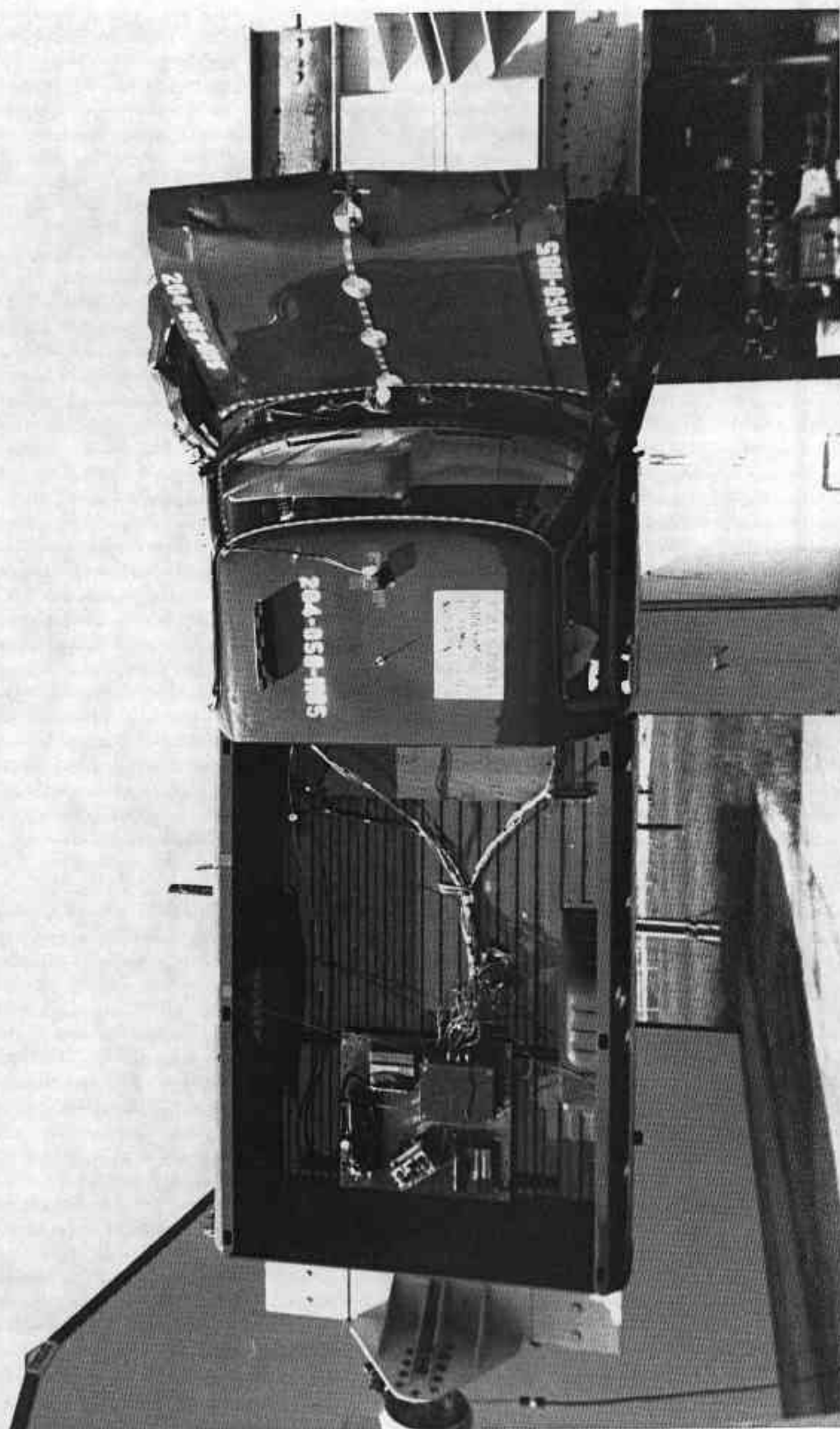


Figure A-11 POST-TEST TOP VIEW

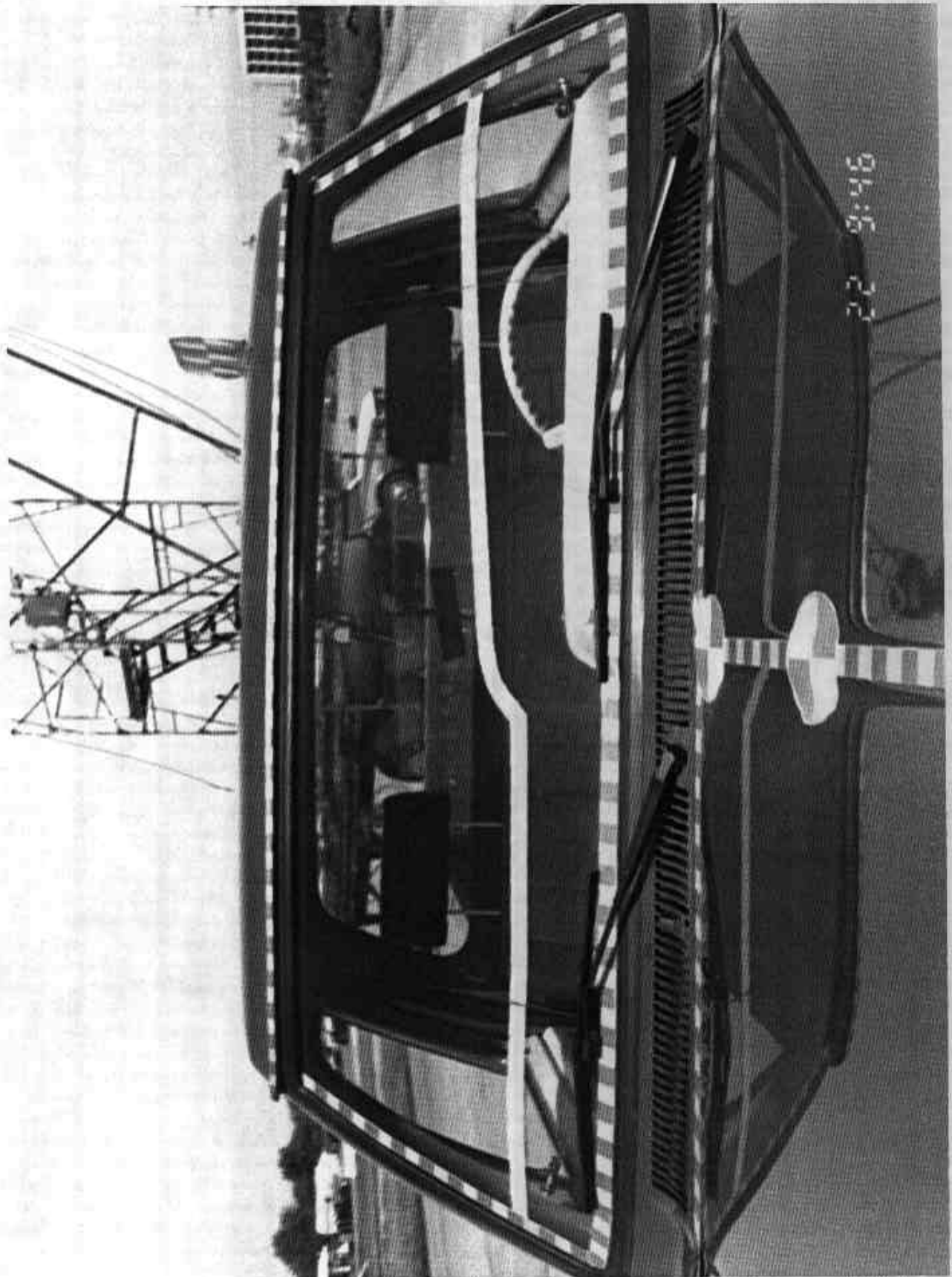


Figure A-12 PRE-TEST WINDSHIELD VIEW

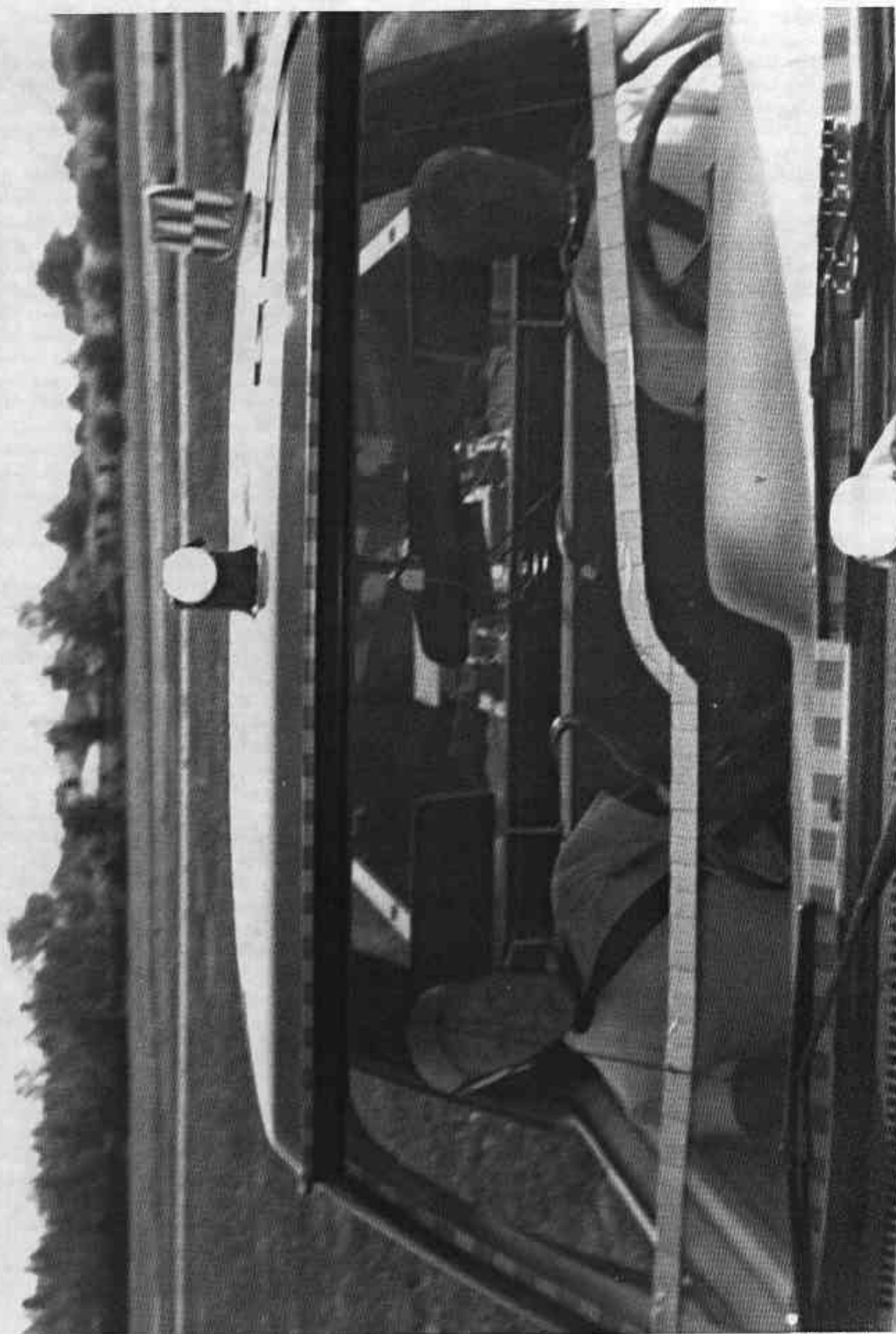
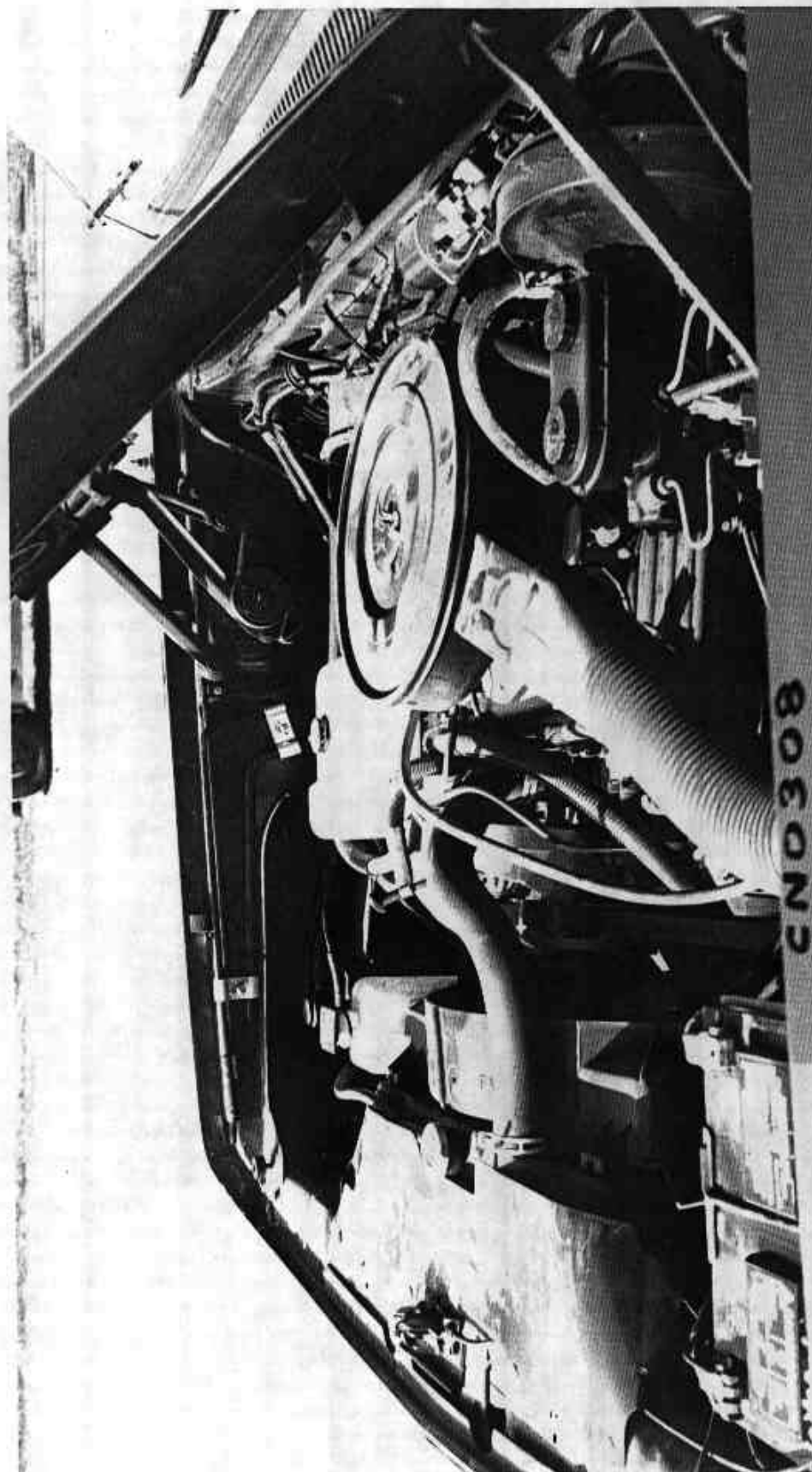


Figure A-13 POST-TEST WINDSHIELD VIEW



CND308

22 9:49

Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

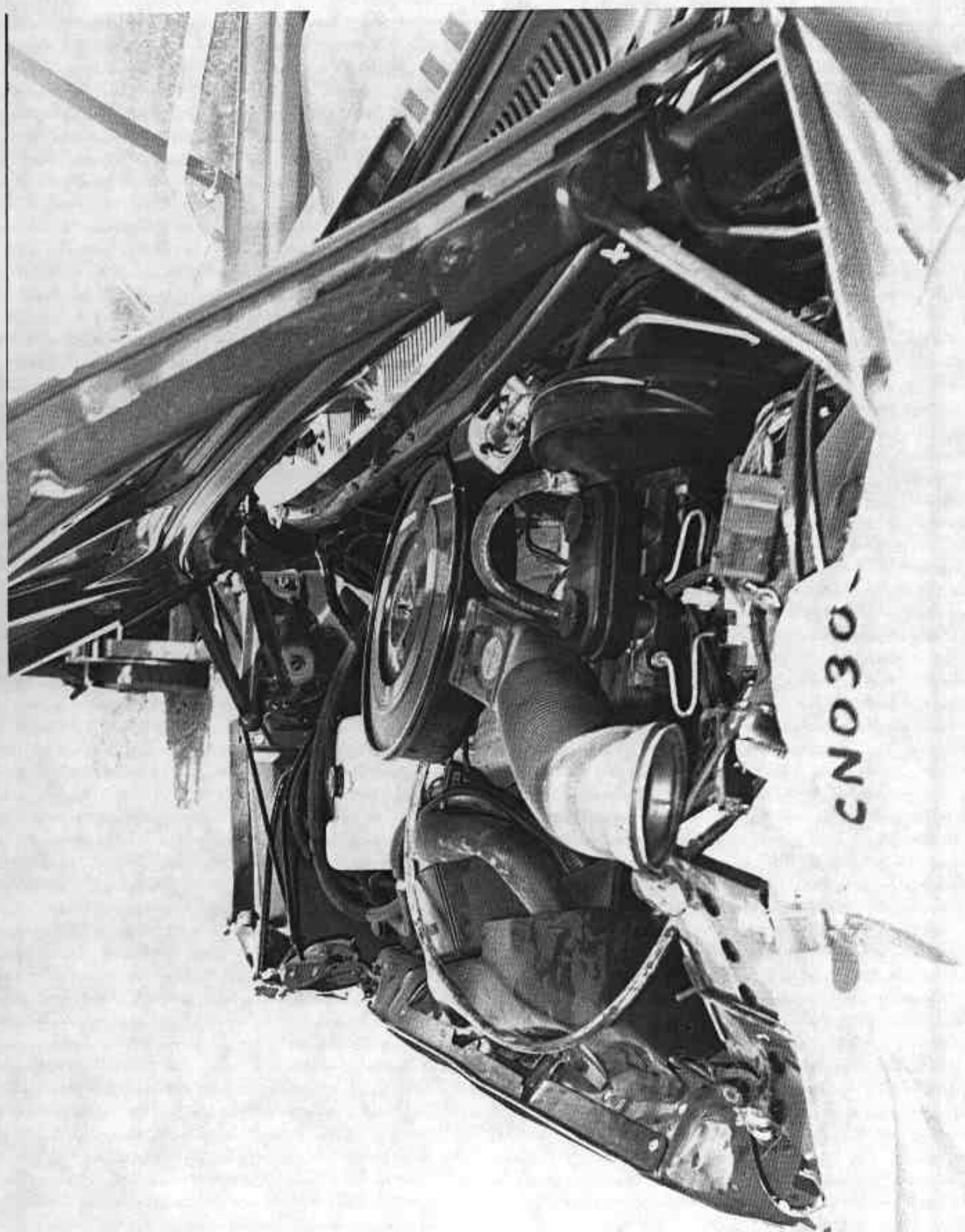


Figure A-15 POST-TEST ENGINE COMPARTMENT VIEW



Figure A-16 PRE-TEST FUEL FILLER CAP PHOTO

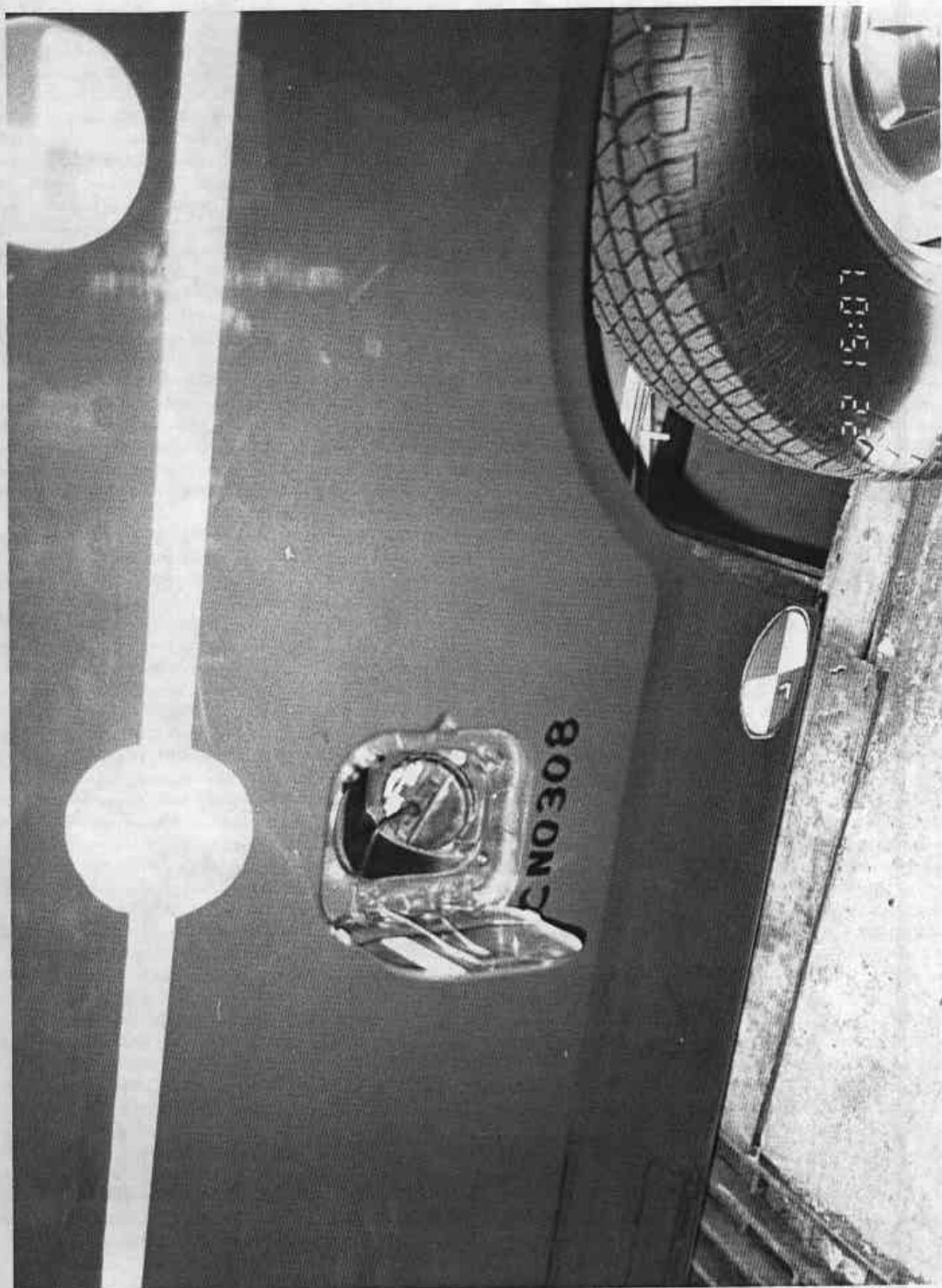


Figure A-17 POST-TEST FUEL FILLER CAP PHOTO

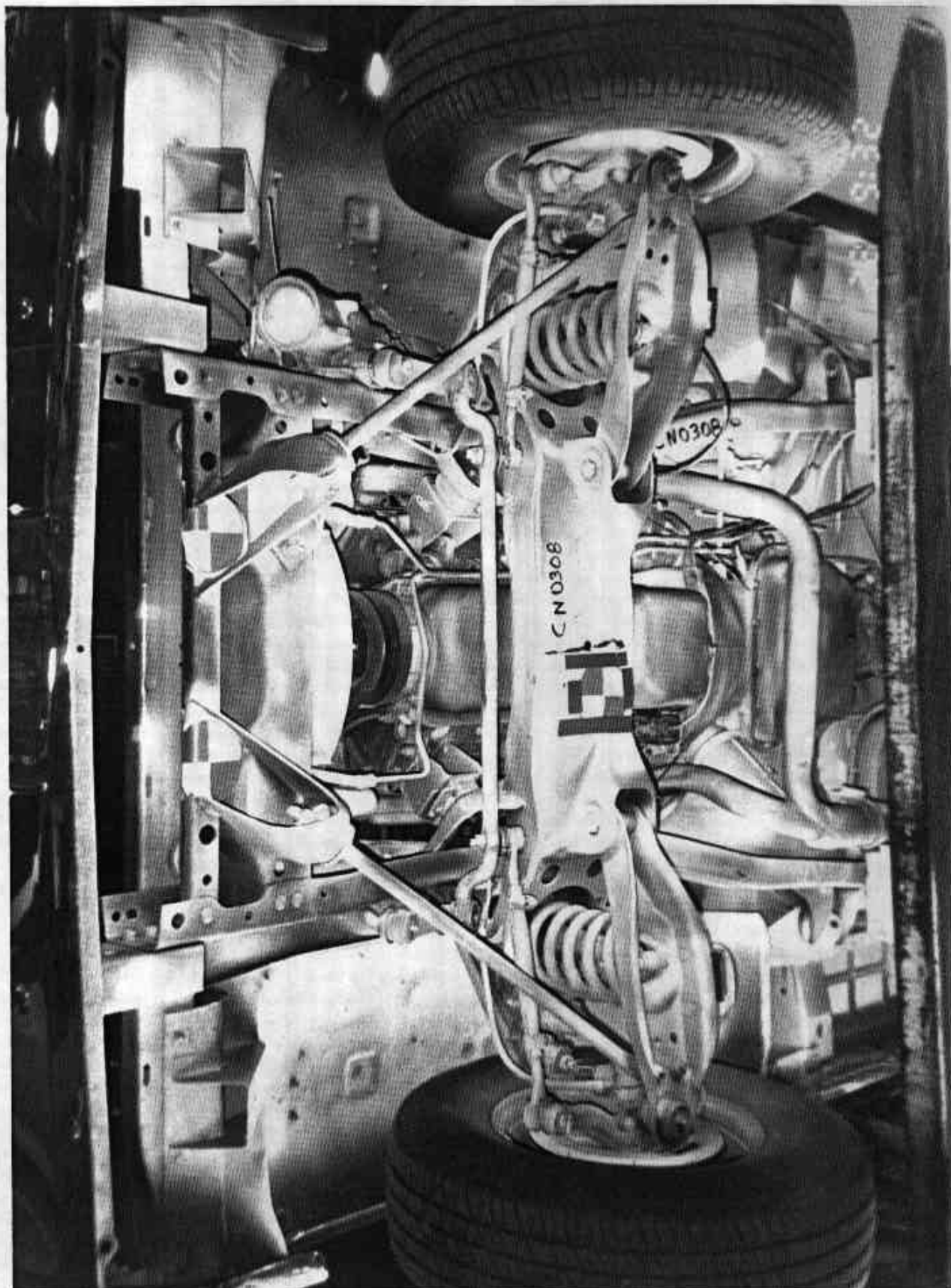


Figure A-18 PRE-TEST FRONT UNDERBODY VIEW

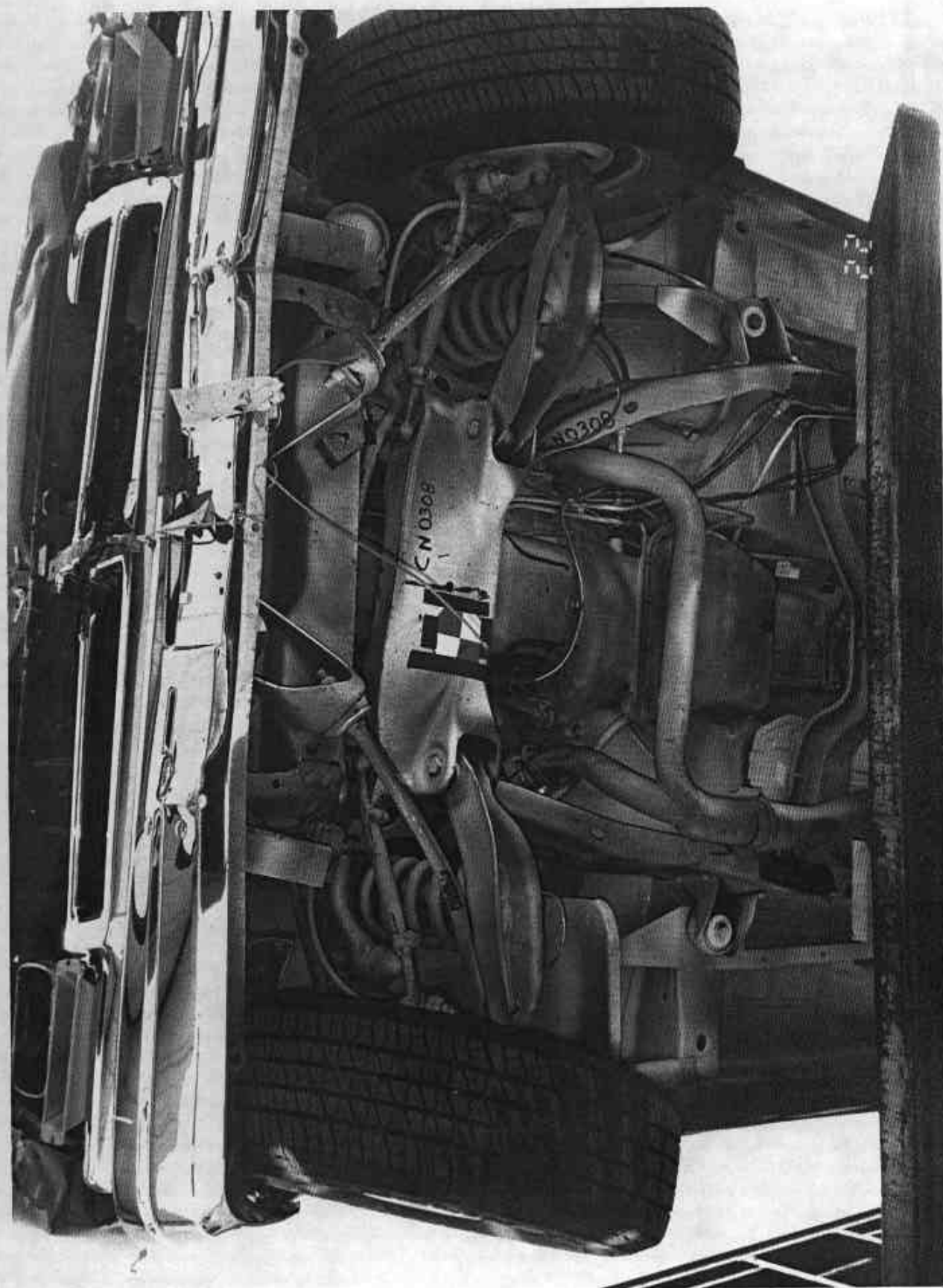


Figure A-19 POST-TEST FRONT UNDERBODY VIEW

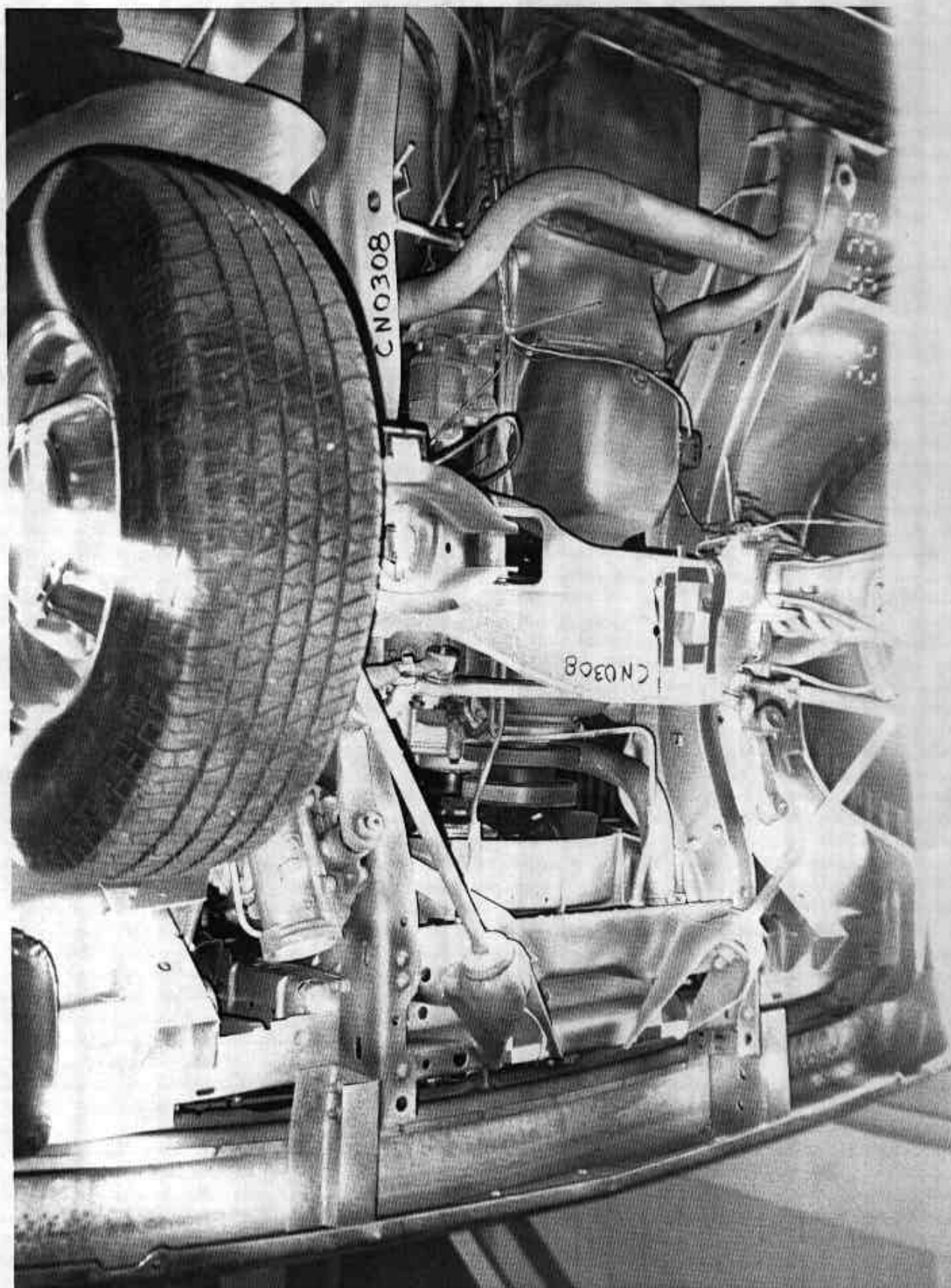


Figure A-20 PRE-TEST FRONT SIDE UNDERBODY VIEW

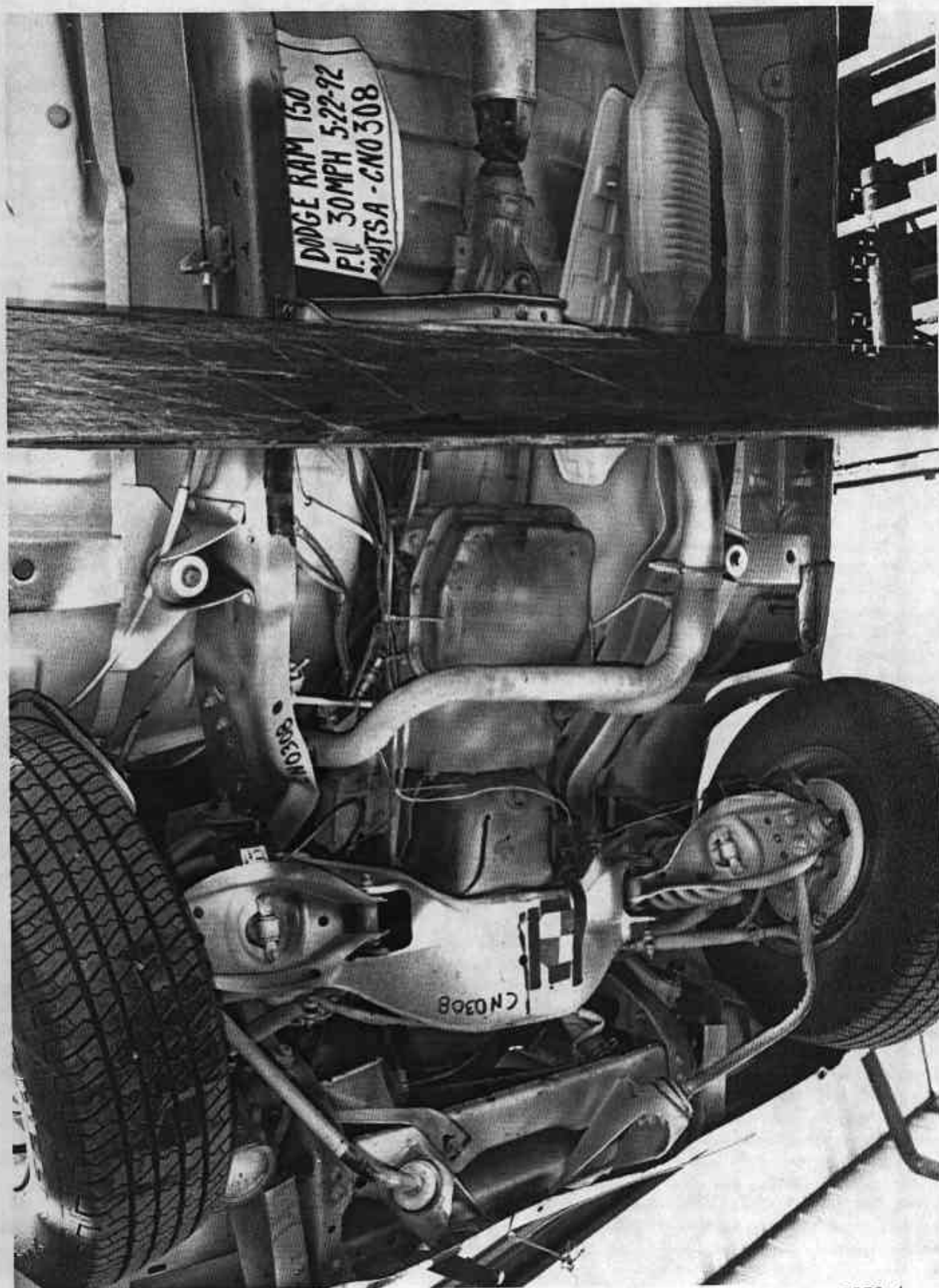


Figure A-21 POST-TEST FRONT SIDE UNDERBODY VIEW

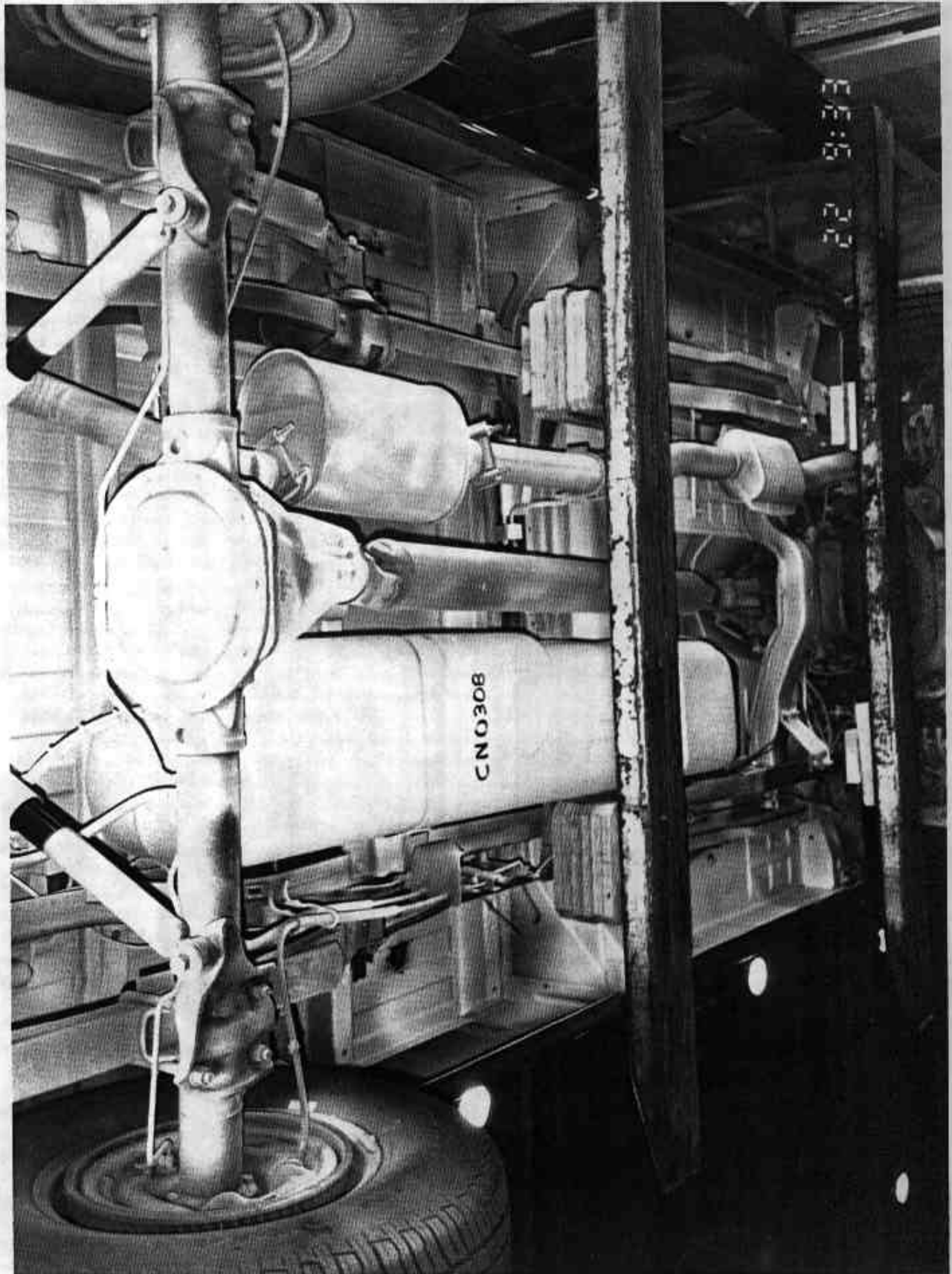


Figure A-22 PRE-TEST REAR UNDERBODY VIEW

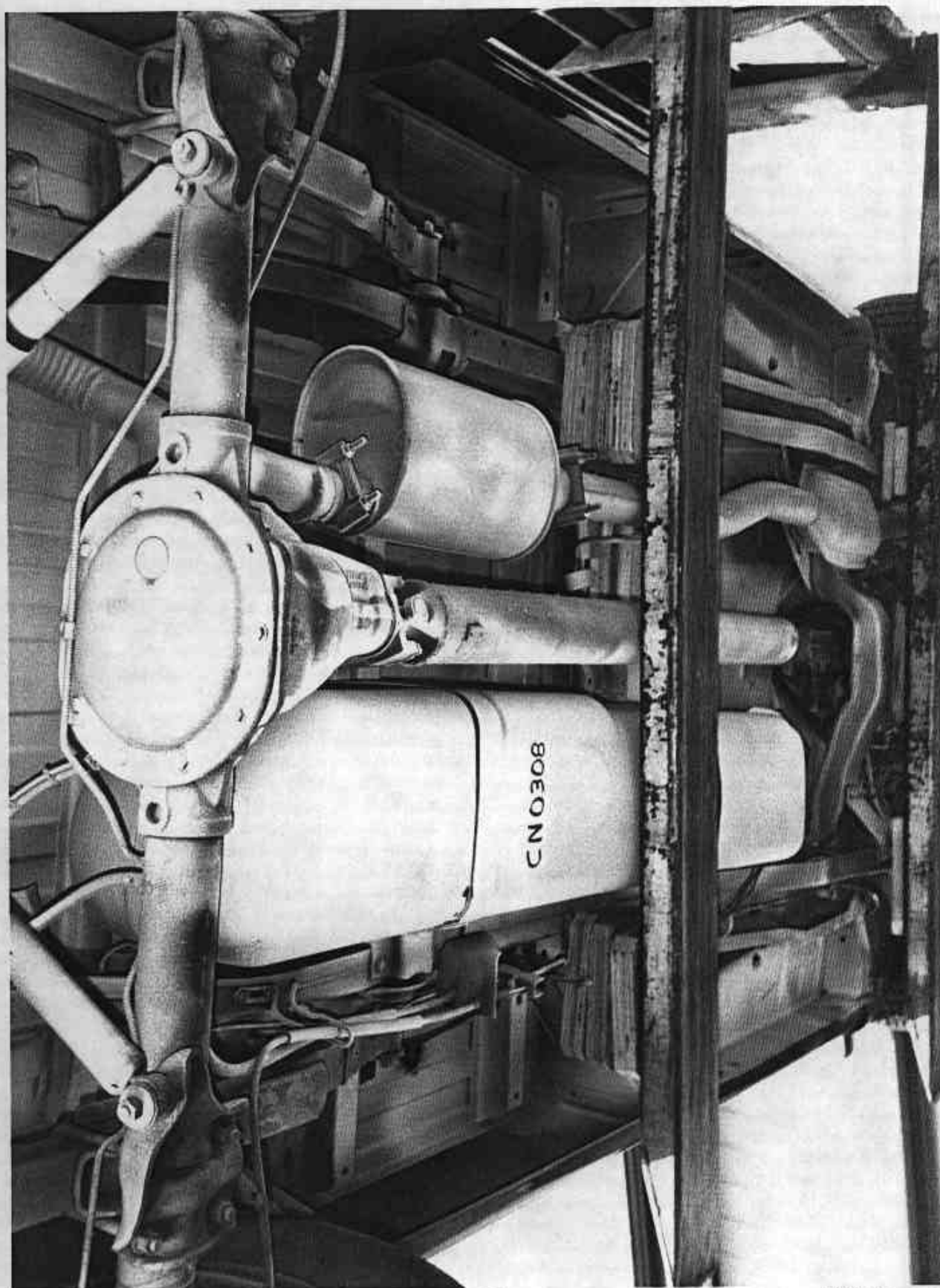


Figure A-23 POST-TEST REAR UNDERBODY VIEW

CHRYSLER CORPORATION		DATE OF MFR	06200 LB	2813 KG
		8-91		
WITH TIRES		RIMS AT	PSI COLD	
P235/75R15XL		15 X 6.5	035	
WITH TIRES		RIMS AT	PSI COLD	
P235/75R15XL		15 X 6.5	041	
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.				
137-E16V4N550049		TYPE: TRUCK	SINGLE X DUAL	
4648503		VEHICLE MADE IN U.S.A.		

Figure A-24 CERTIFICATION LABEL AND TIRE PLACARD



Figure A-25 PRE-TEST DRIVER DUMMY POSITION

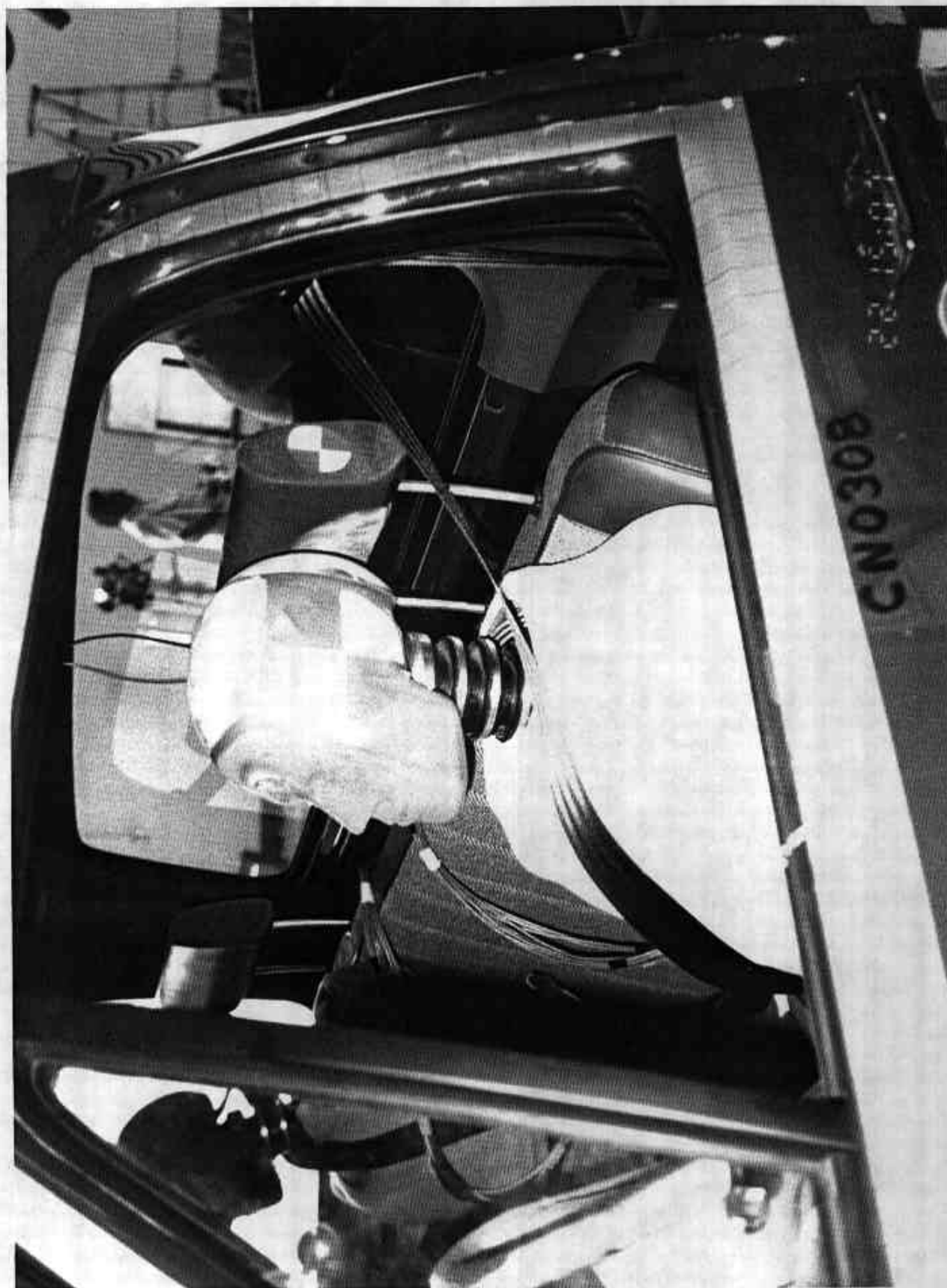


Figure A-26 POST-TEST DRIVER DUMMY POSITION



Figure A-27 PRE-TEST PASSENGER DUMMY POSITION

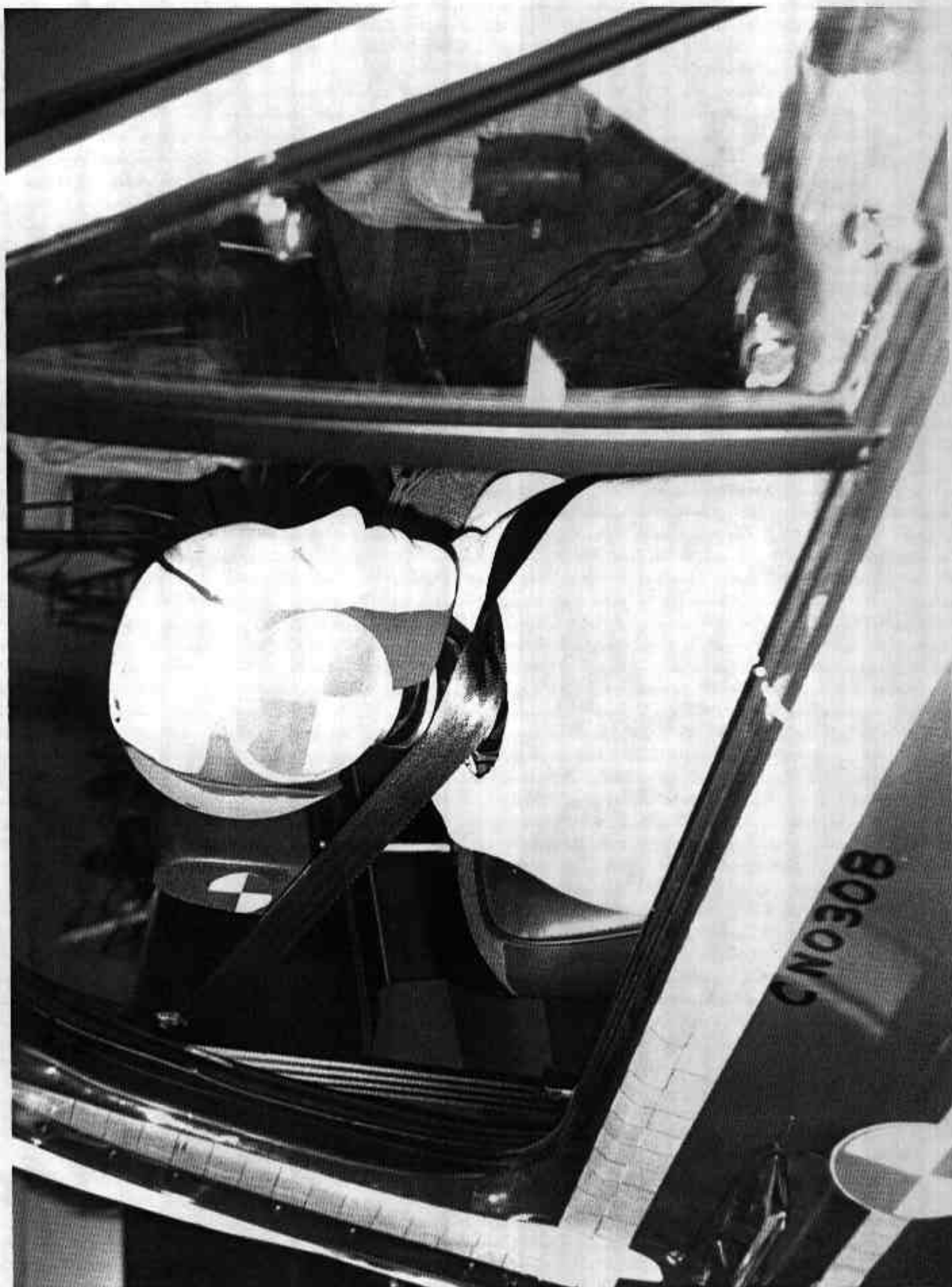


Figure A-28 POST-TEST PASSENGER DUMMY POSITION



Figure A-29 PRE-TEST DRIVER DUMMY AND INTERIOR VIEW



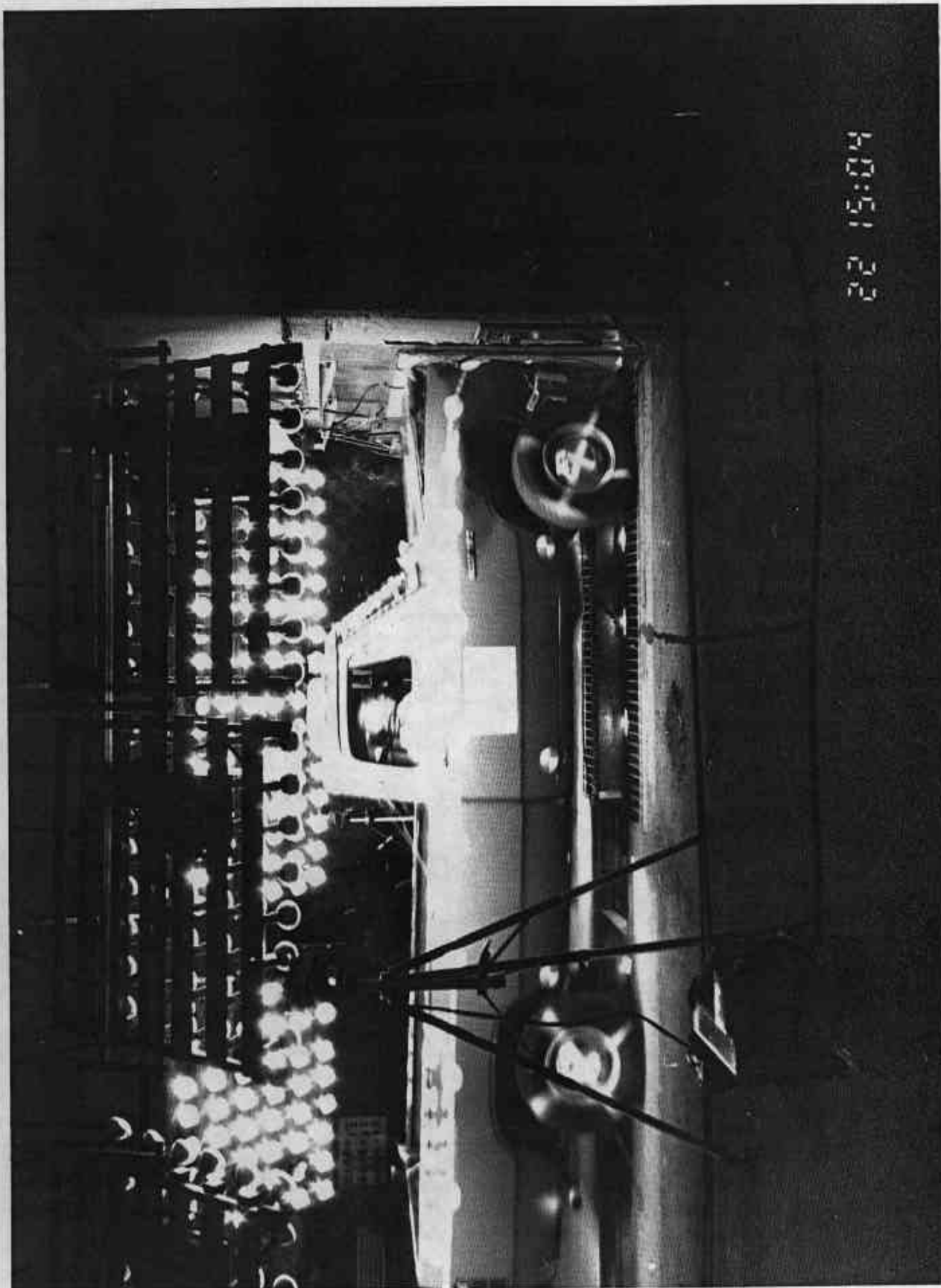
Figure A-30 POST-TEST DRIVER DUMMY AND INTERIOR VIEW



Figure A-31 PRE-TEST PASSENGER DUMMY AND INTERIOR VIEW



Figure A-32 POST-TEST PASSENGER DUMMY AND INTERIOR VIEW



22 15:04

Figure A-33 VEHICLE IMPACT

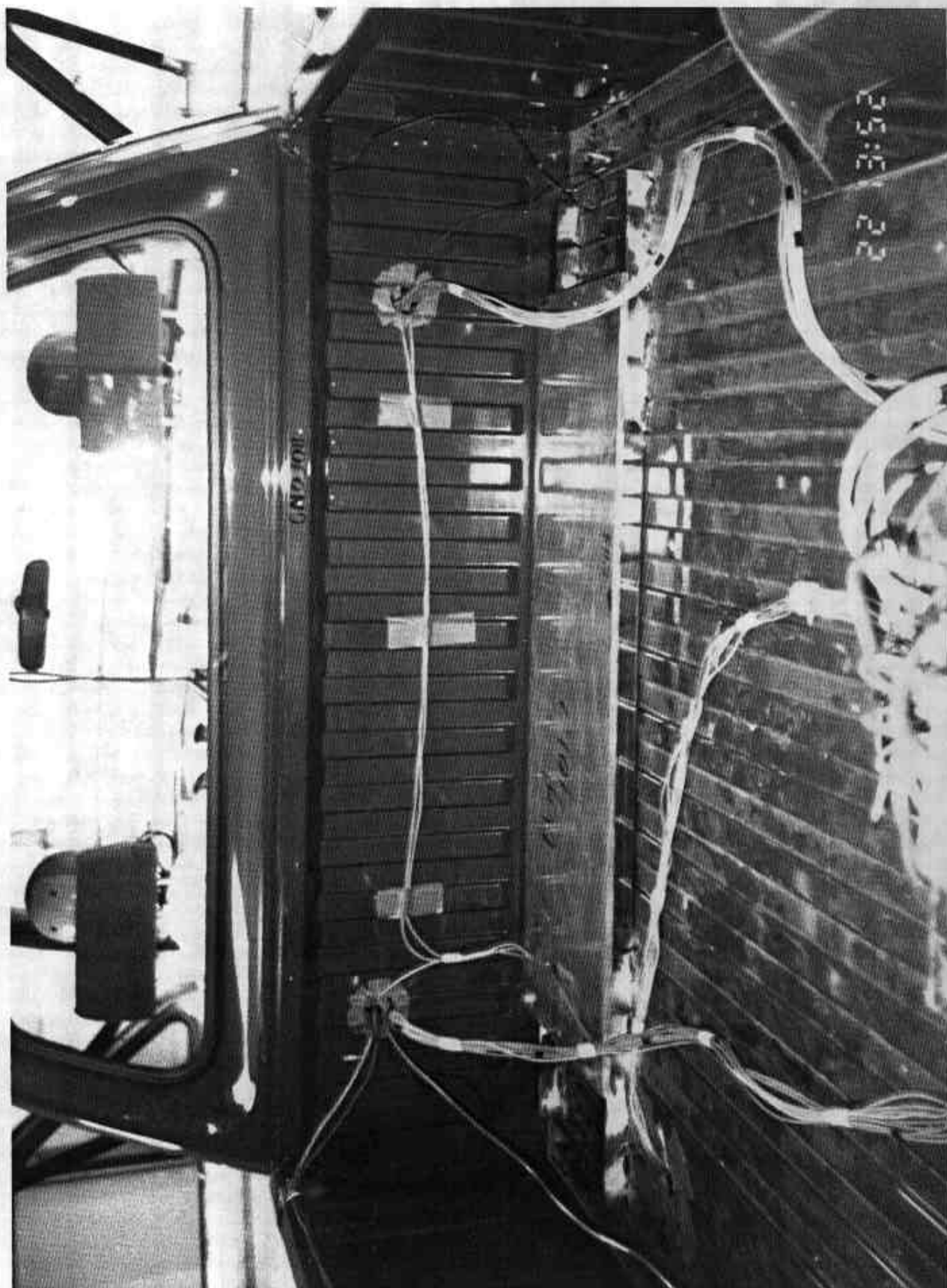


Figure A-34 BALLAST

Appendix B

VEHICLE AND DUMMY RESPONSE DATA

Calspan meets and follows the
requirements of SAE J211

TEST NO. CN0308

VEHICLE DATA

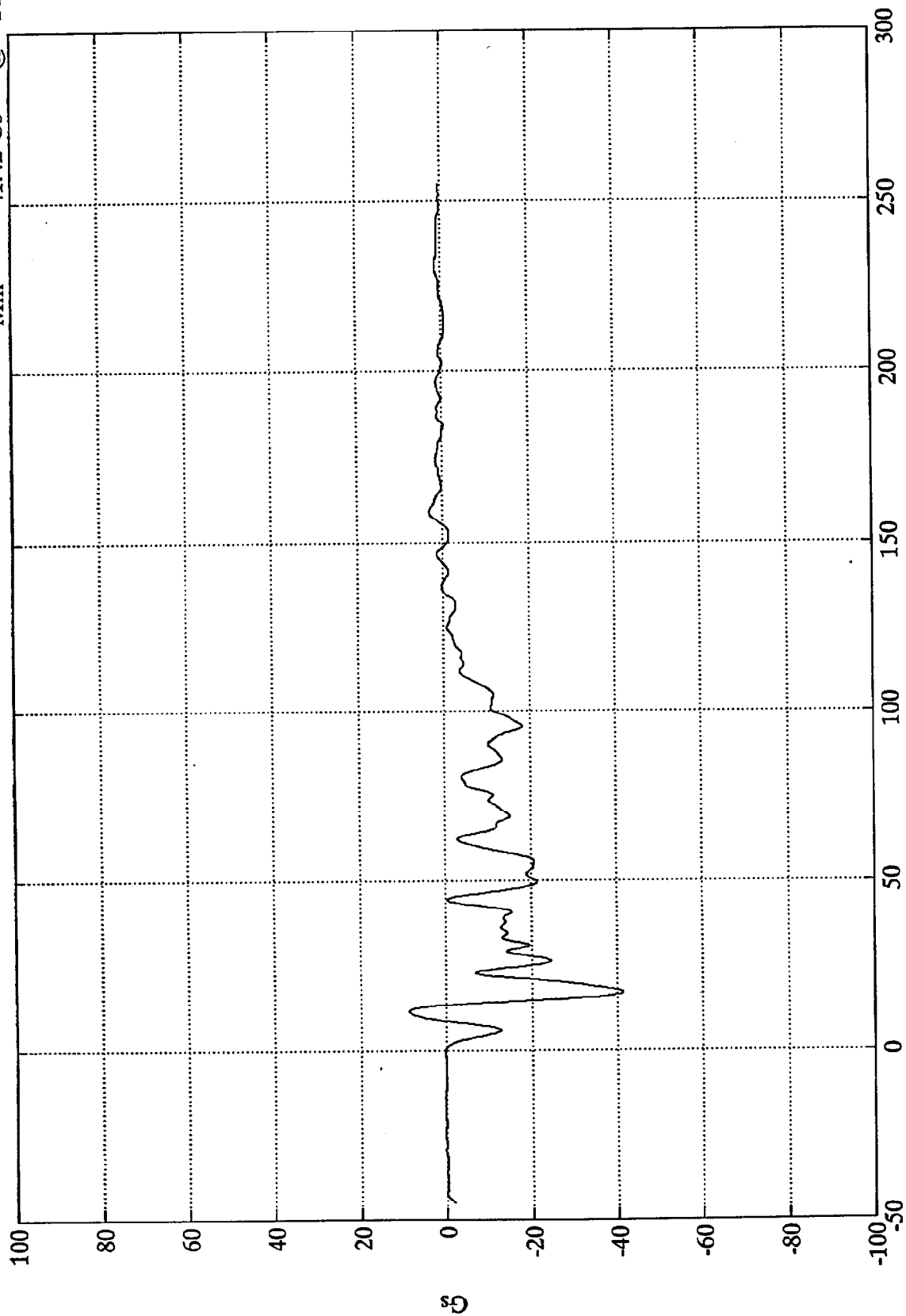
SAE FILTER CHANNEL CLASS

60

NHTSA "208" TEST 13 - 1992 DODGE RAM

L. Rear X-member X (#1)

Max = 8.69 Gs @ 11.39 msec
Min = -41.42 Gs @ 16.92 msec



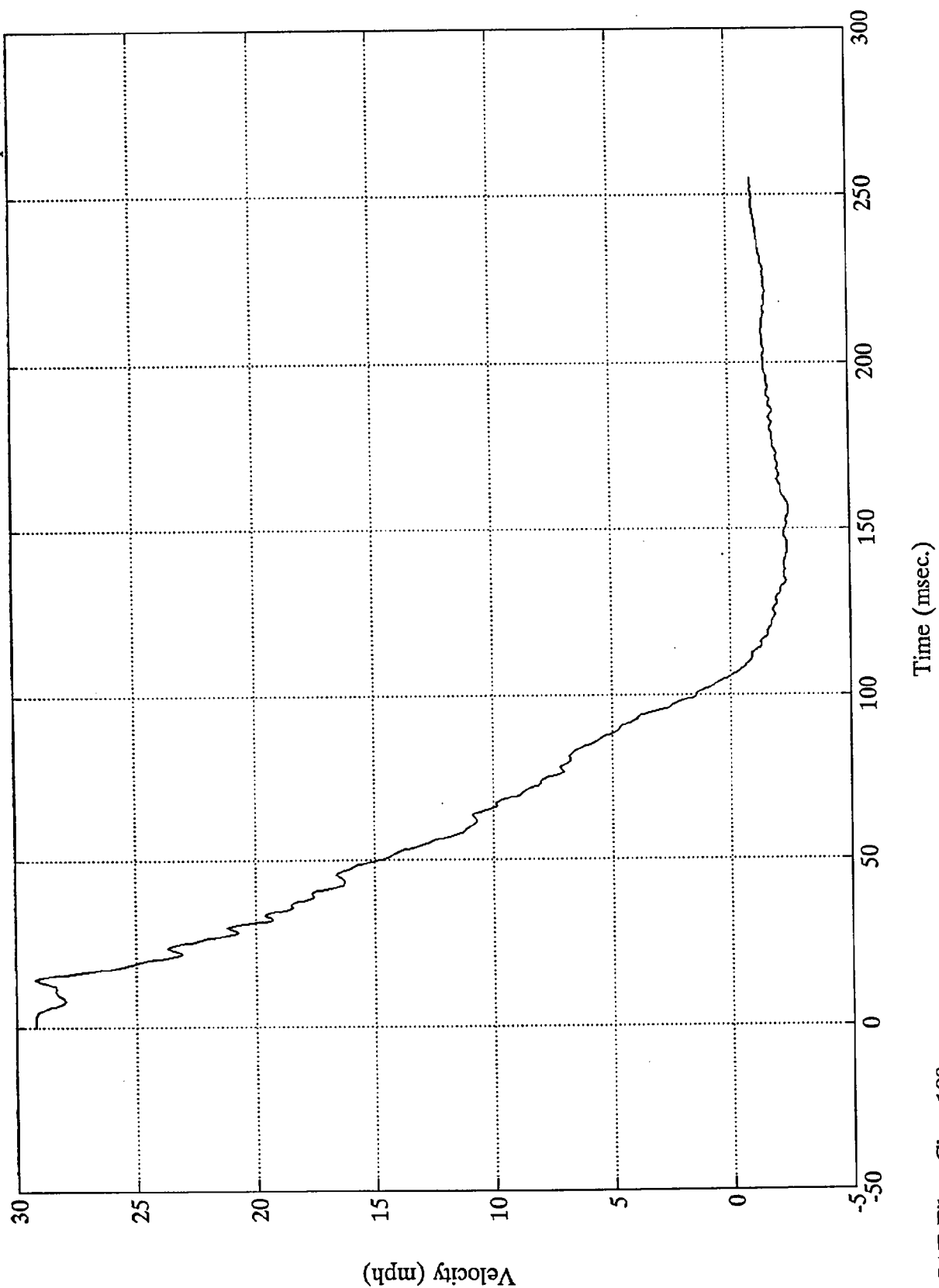
Time (msec)

Sae Filter Class 60

NHTSA '208" TEST 13 - 1992 DODGE RAM

Max = 29.20 mph @ -0.00 msec
Min = -2.45 mph @ 155.04 msec

L Rear X-member X (#1)

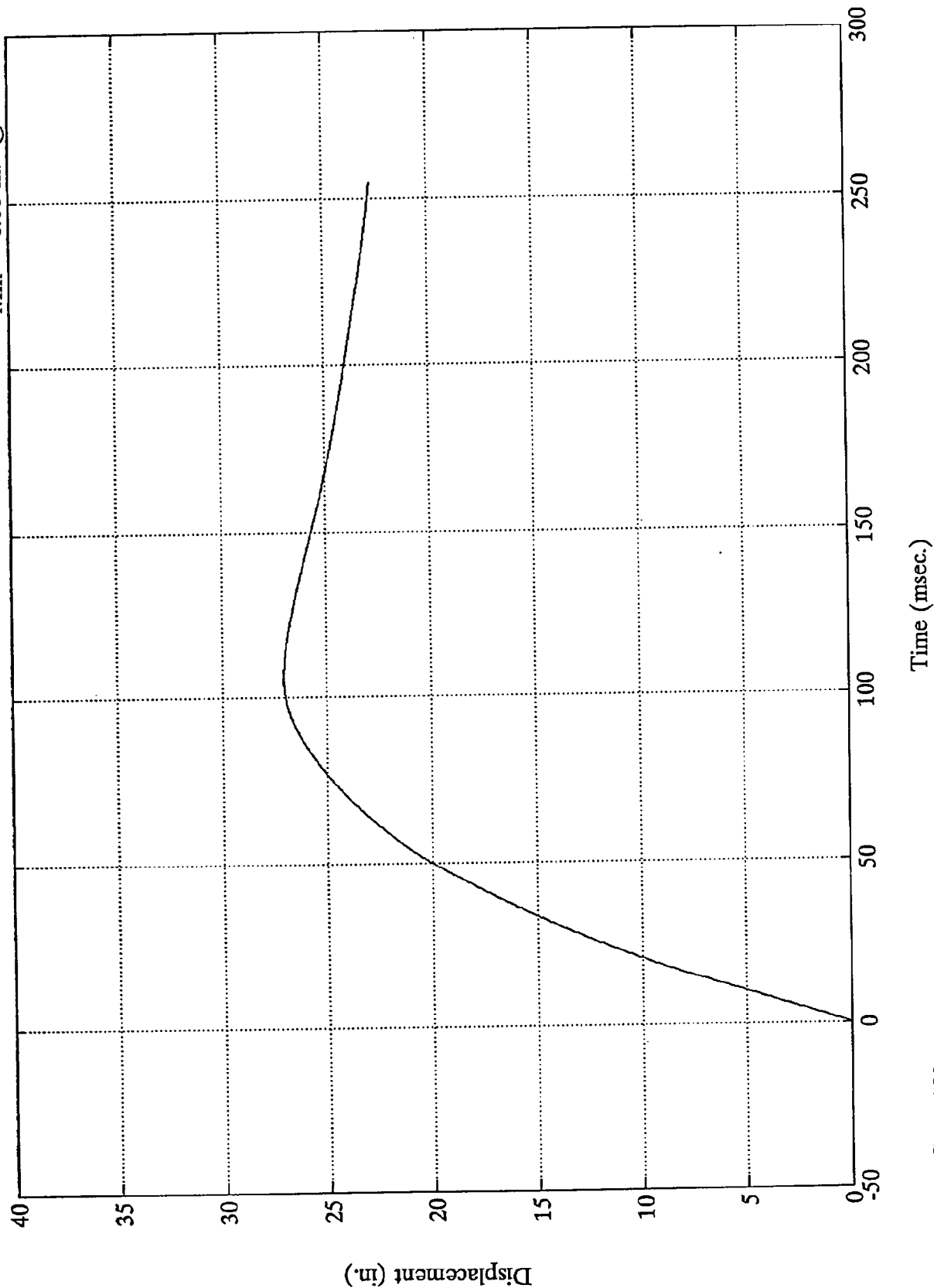


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

L. Rear X-member X (#1)

Max = 27.07 in. @ 107.28 msec
Min = 0.00 in. @ -0.00 msec

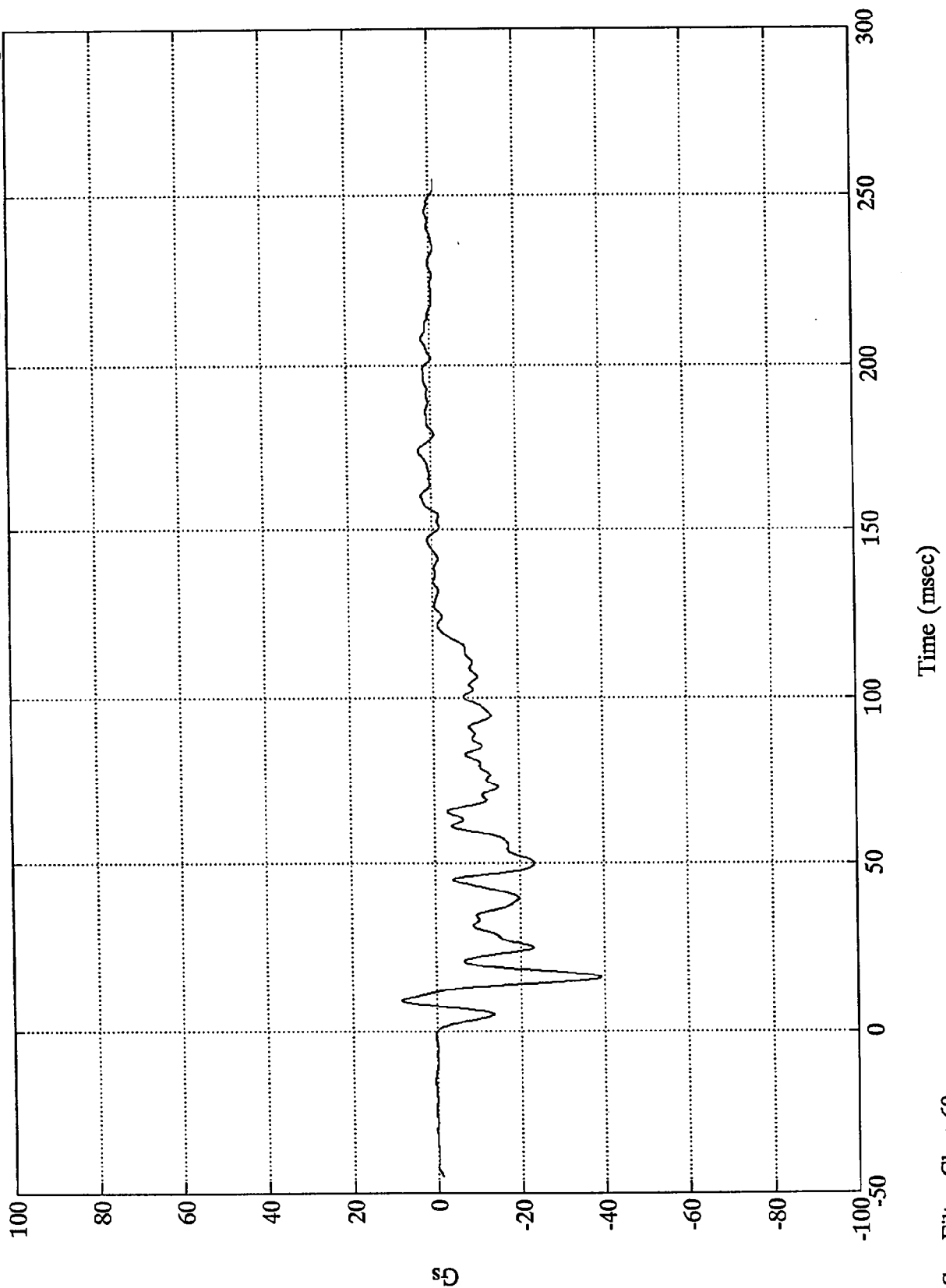


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

R. Rear X-member X (#2)

Max = 8.21 Gs @ 9.11 msec
Min = -39.10 Gs @ 16.07 msec

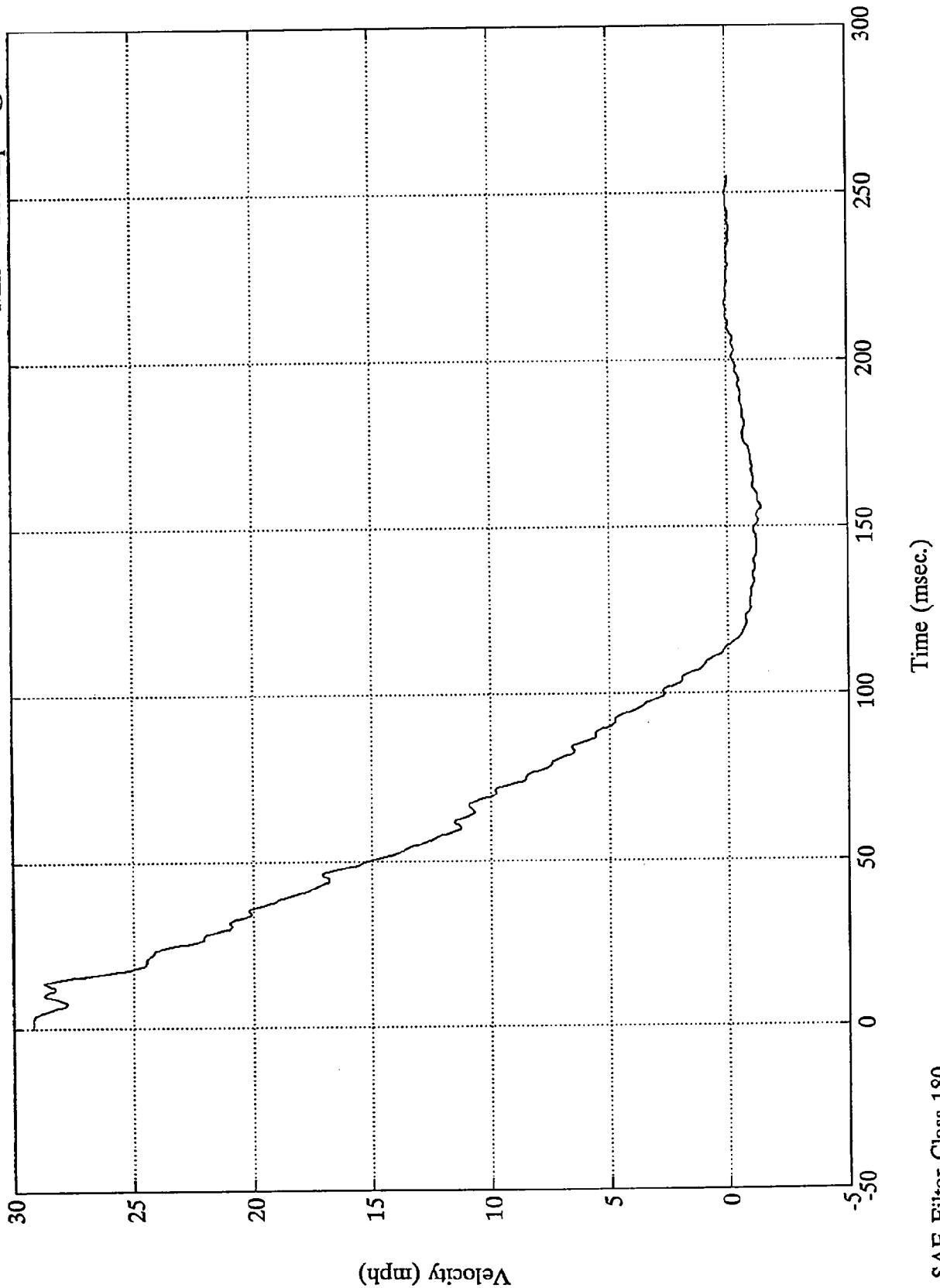


Sae Filter Class 60

NHTSA '208" TEST 13 - 1992 DODGE RAM

R. Rear X-member X (#2)

Max = 29.20 mph @ 0.96 msec
Min = -1.39 mph @ 156.00 msec

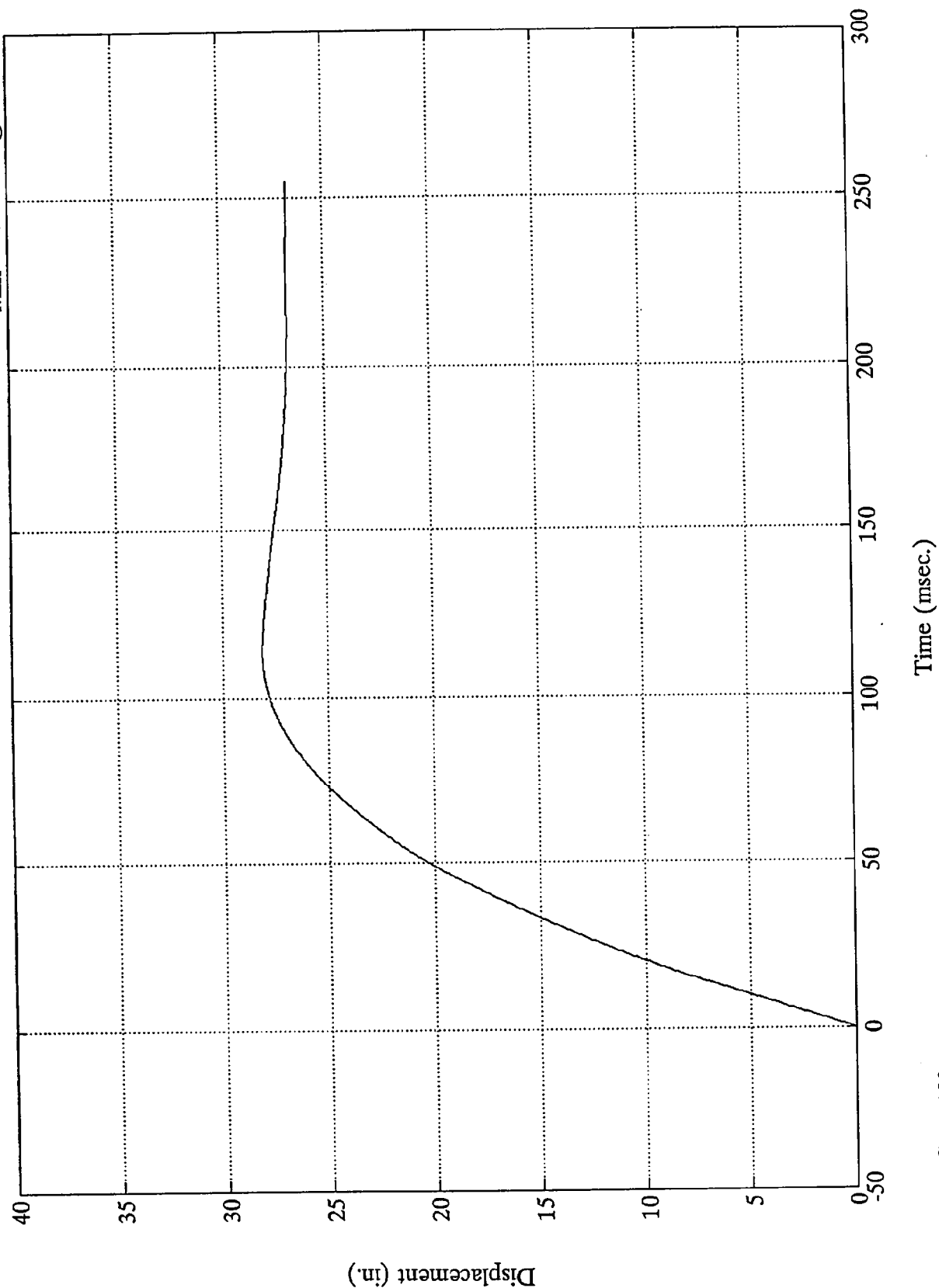


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

R. Rear X-member X (#2)

Max = 28.13 in. @ 115.92 msec
Min = 0.00 in. @ -0.00 msec

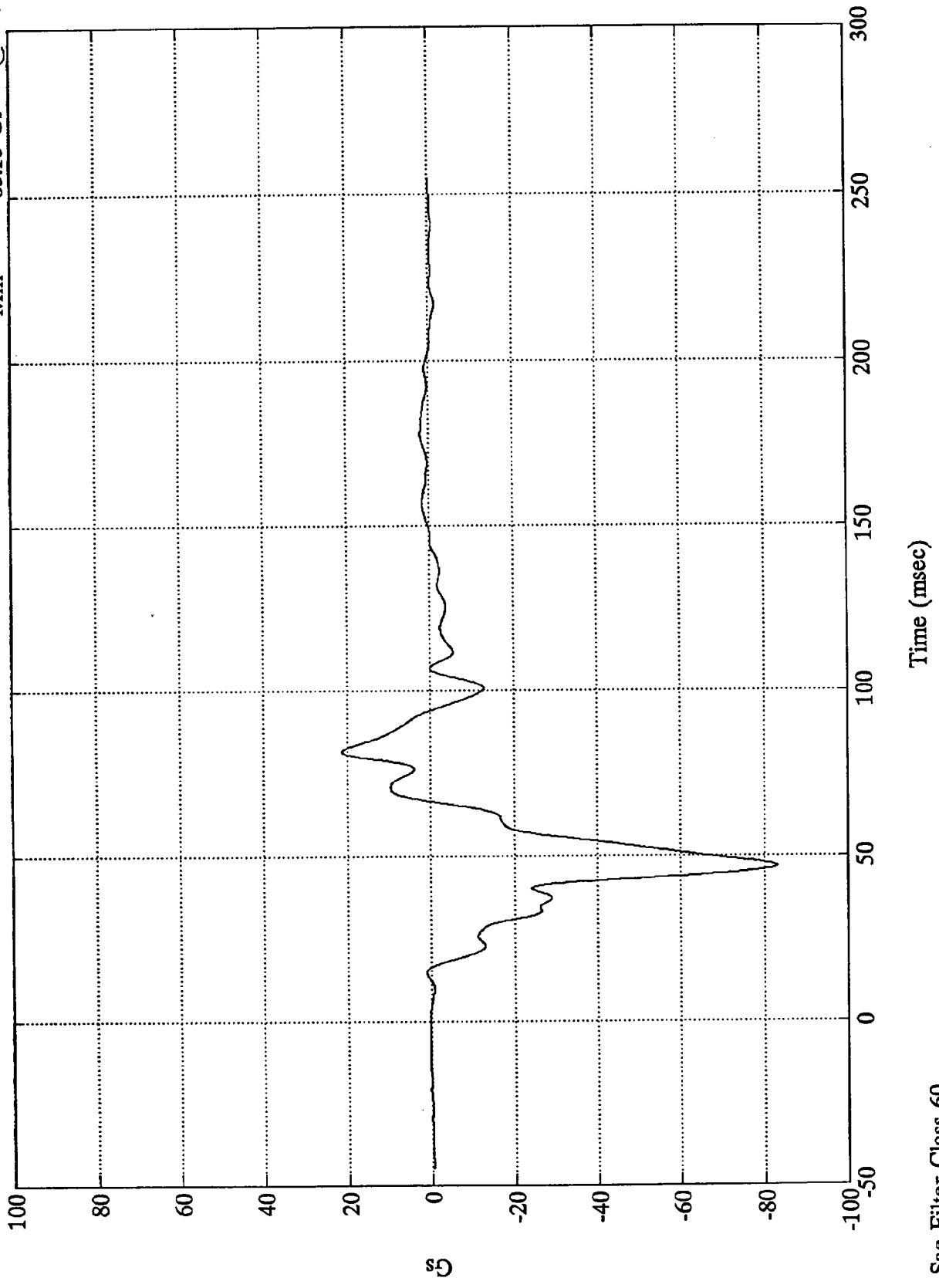


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Engine Top X (#3)

Max = 21.21 Gs @ 81.60 msec
Min = -83.15 Gs @ 46.92 msec

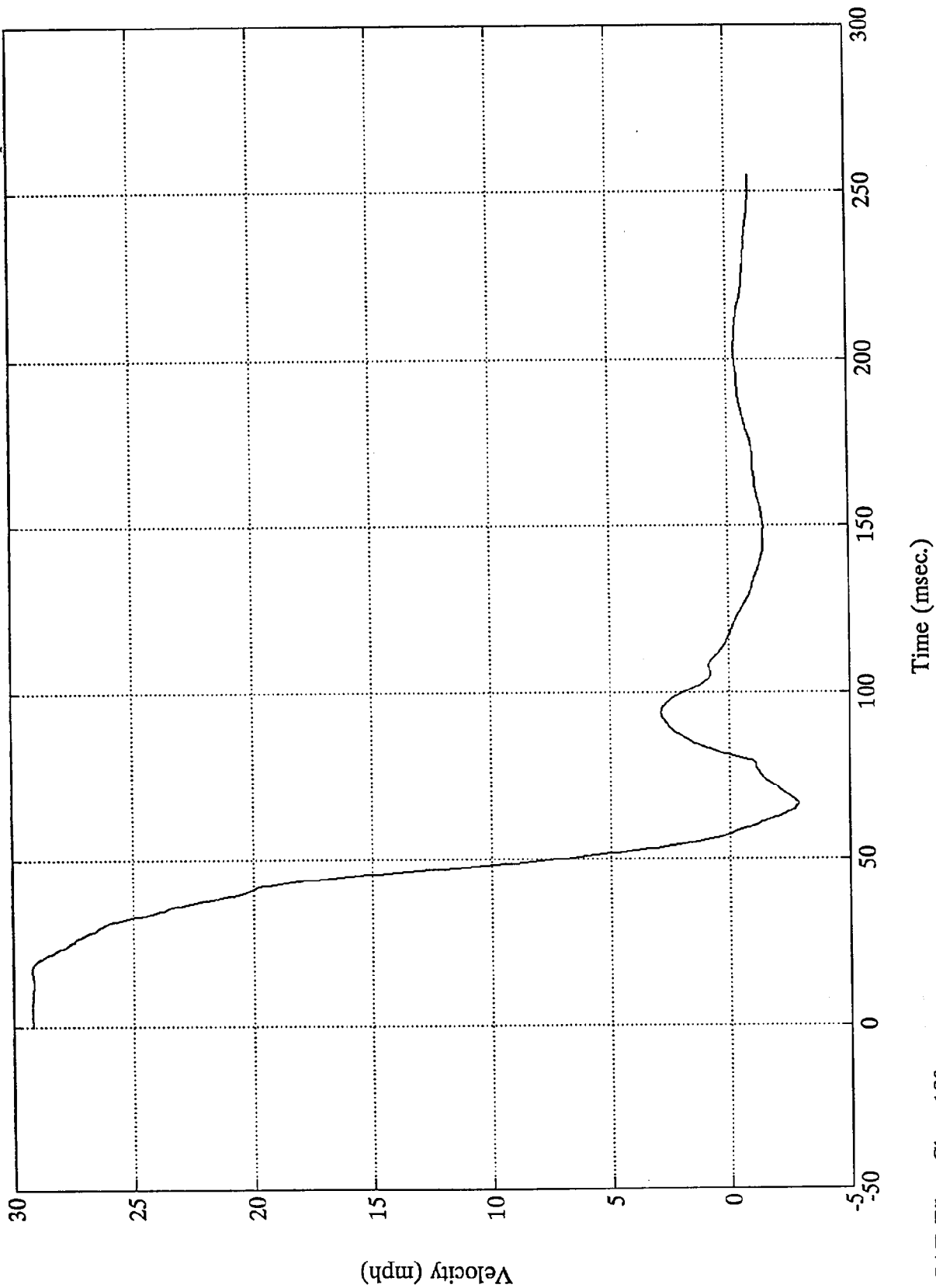


Sae Filter Class 60

NHTSA "208" TEST 13 - 1992 DODGE RAM

Engine Top X (#3)

Max = 29.23 mph @ 17.28 msec
Min = -2.85 mph @ 66.48 msec

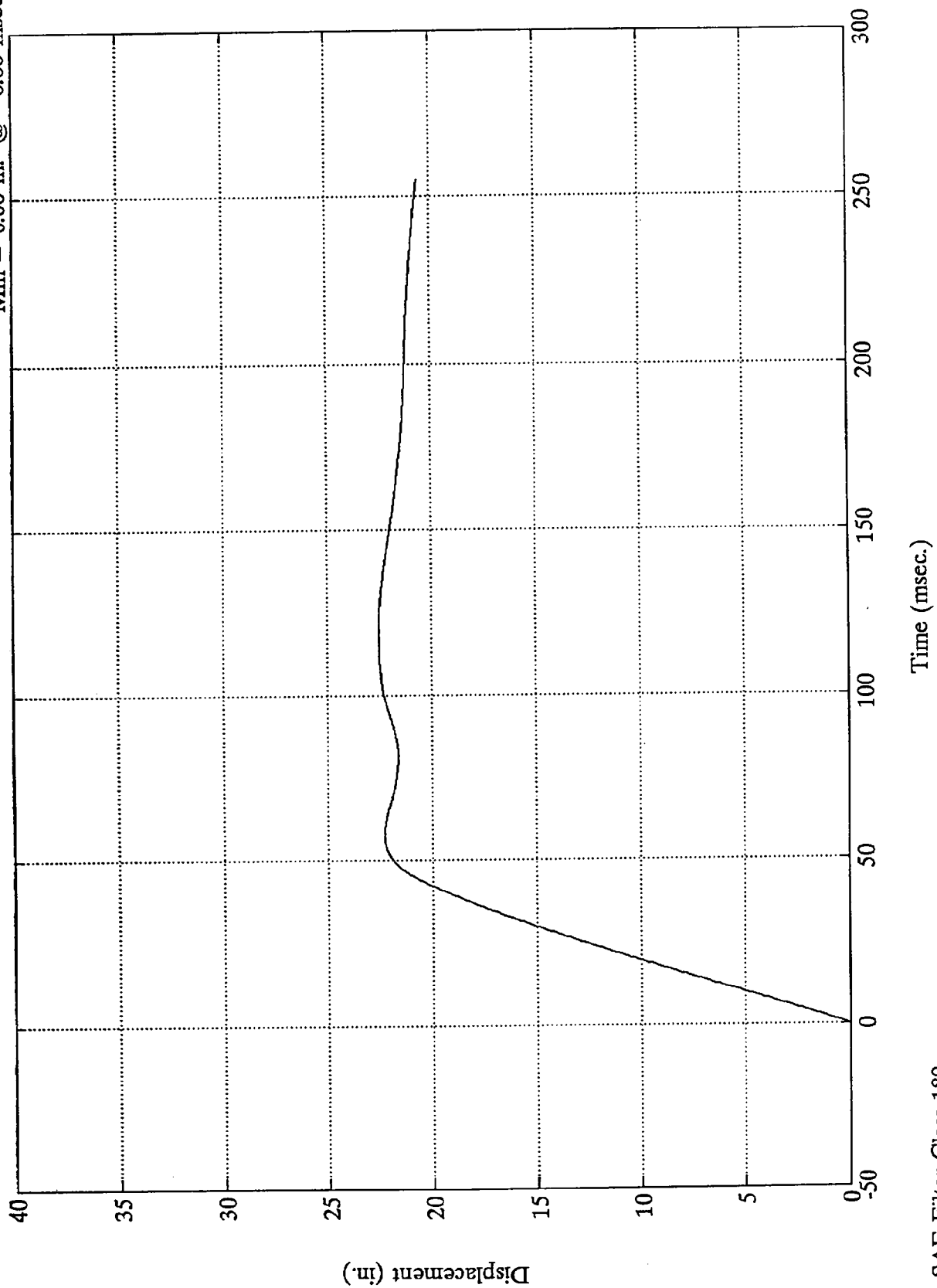


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Engine Top X (#3)

Max = 22.53 in. @ 121.68 msec
Min = 0.00 in. @ -0.00 msec

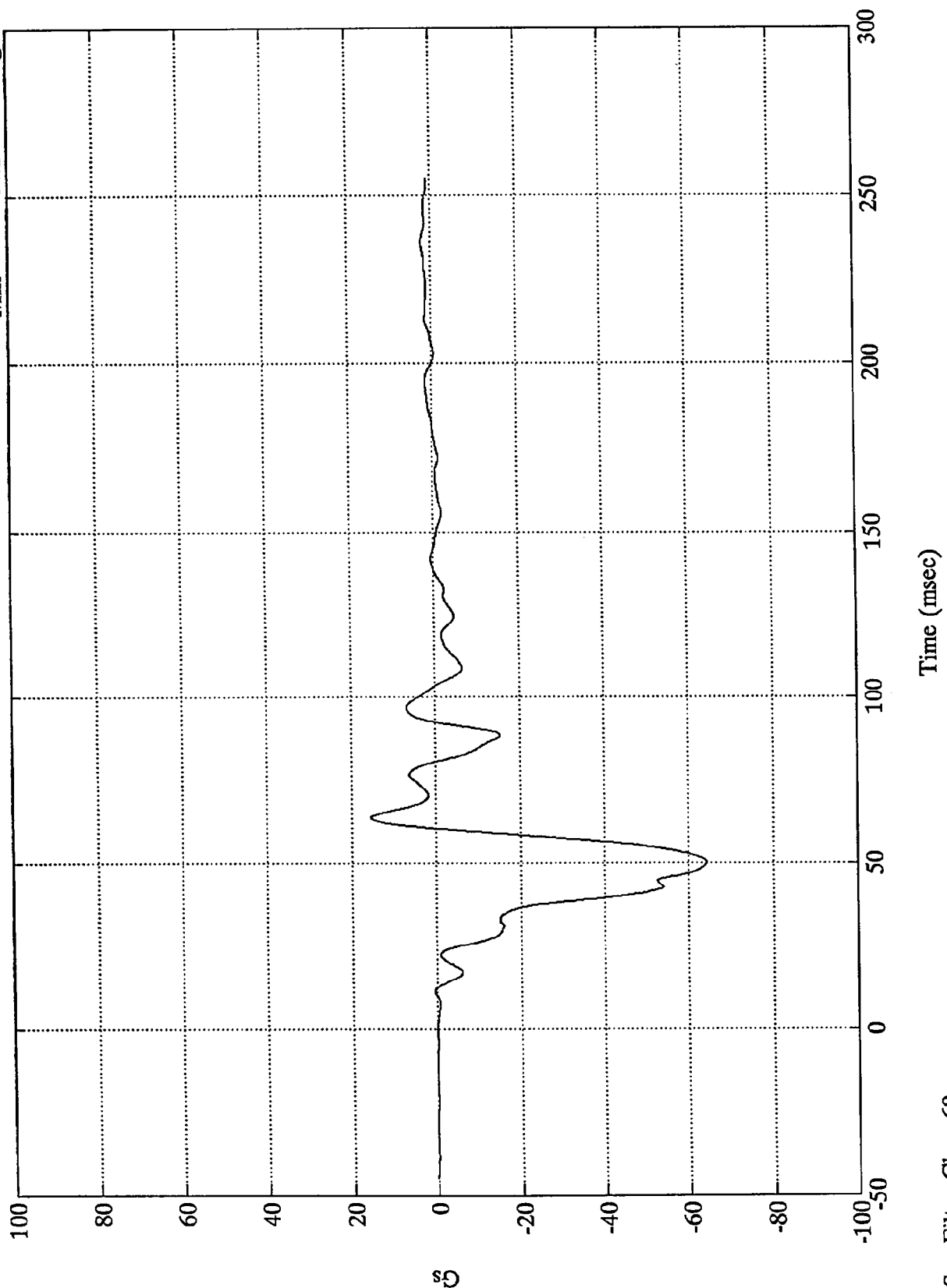


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Engine Bottom X (#4)

Max = 15.54 Gs @ 63.60 msec
 Min = -64.16 Gs @ 50.16 msec



Sae Filter Class 60

NHTSA "208" TEST 13 - 1992 DODGE RAM

Engine Bottom X (#4)

Max = 29.20 mph @ 2.16 msec
Min = -1.56 mph @ 182.88 msec

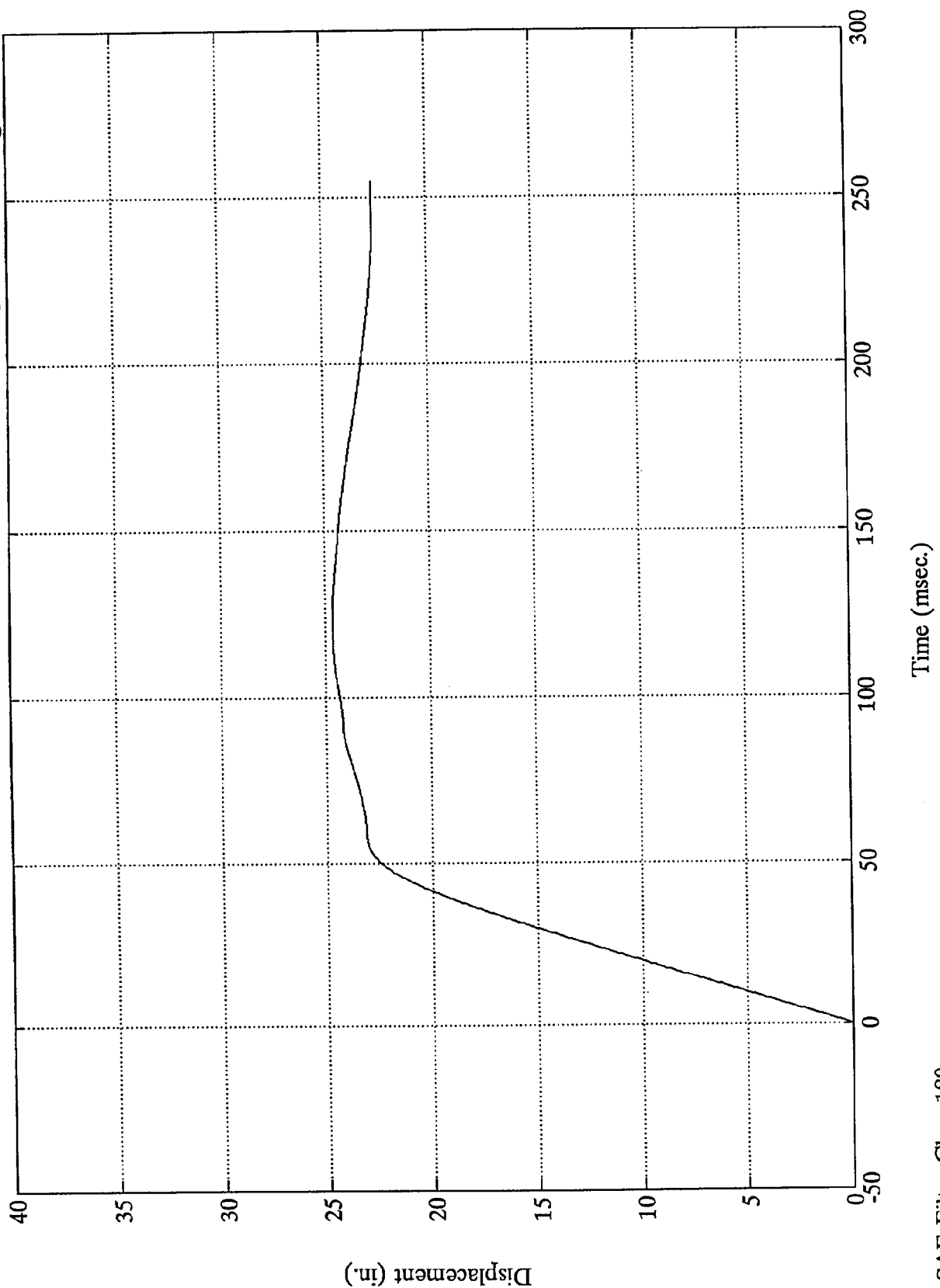


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Engine Bottom X (#4)

Max = 24.68 in. @ 126.00 msec
Min = 0.00 in. @ -0.00 msec

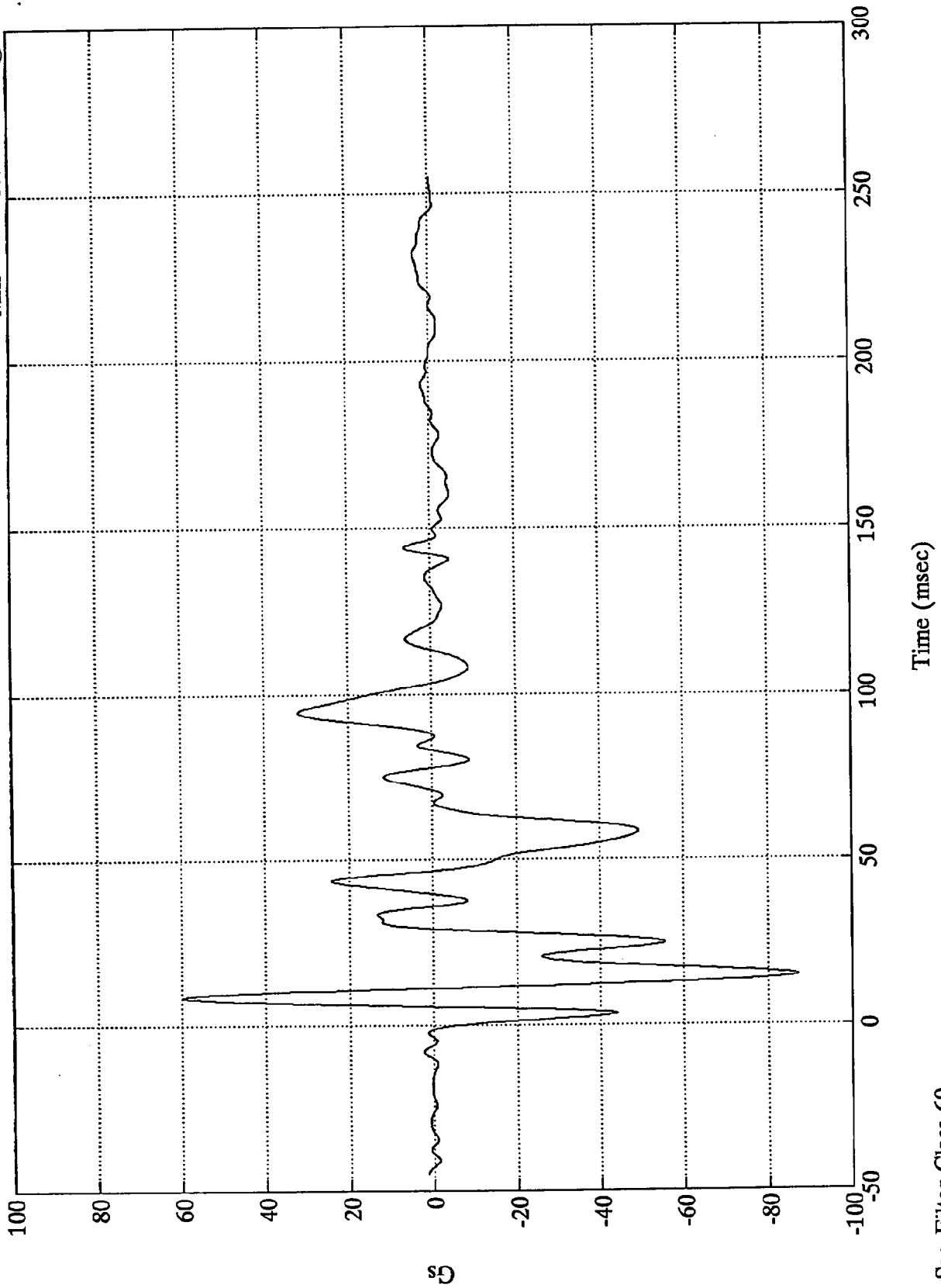


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

R. Brake Caliper X (#5)

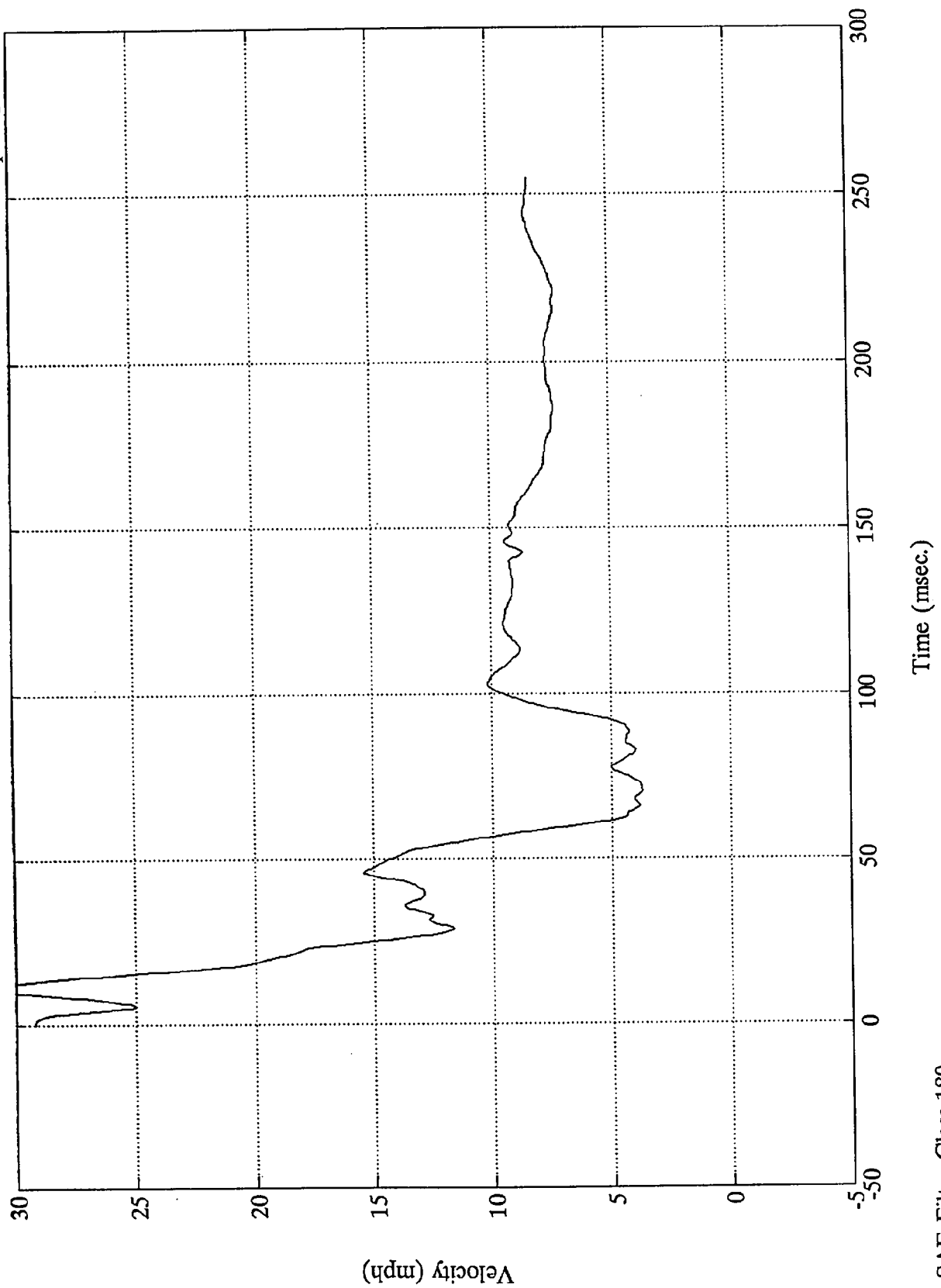
Max = 59.83 Gs @ 8.27 msec
Min = -87.32 Gs @ 14.63 msec



NHTSA "208" TEST 13 - 1992 DODGE RAM

R. Brake Caliper X (#5)

Max = 31.05 mph @ 11.04 msec
Min = 3.70 mph @ 70.56 msec

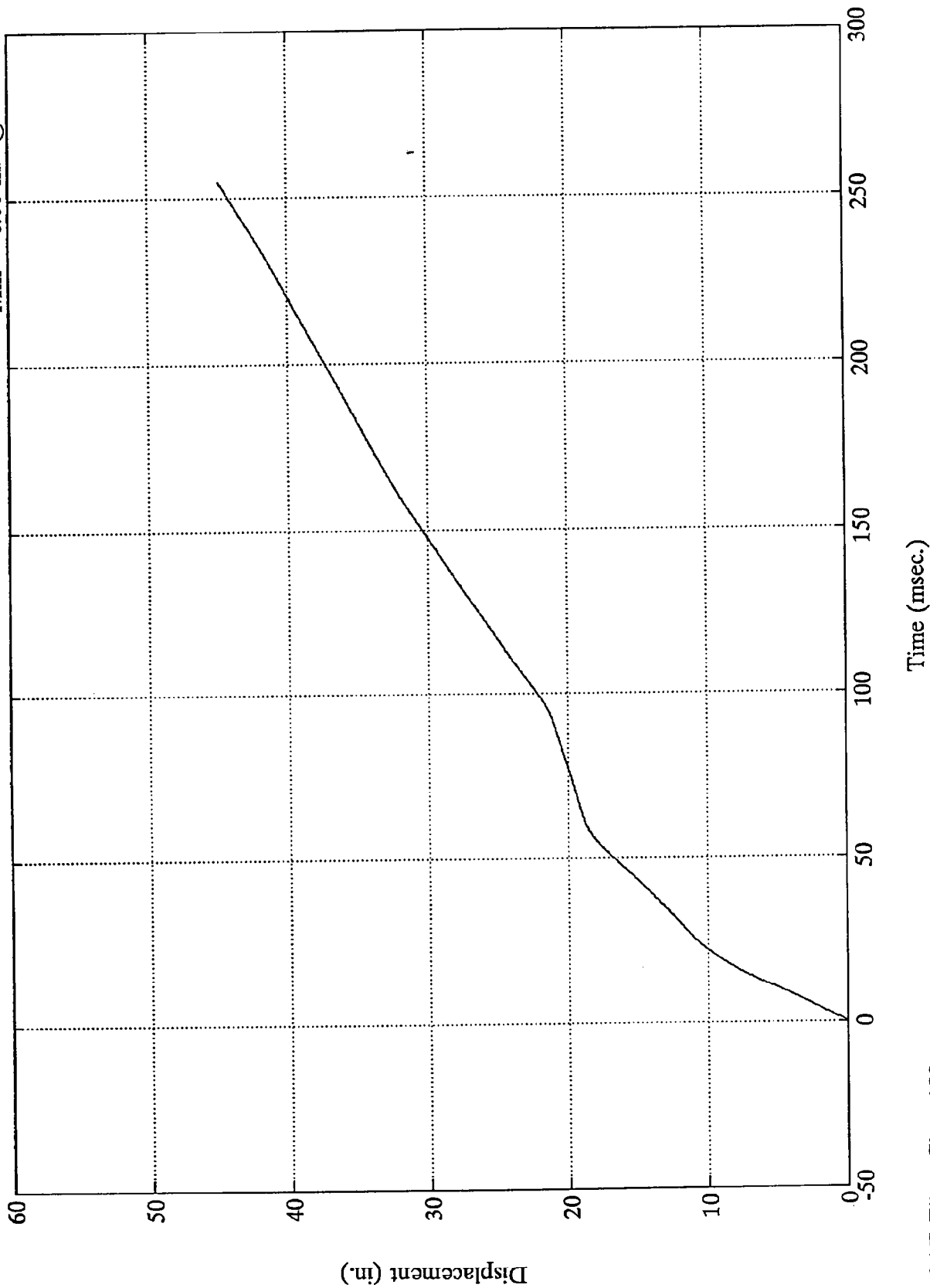


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

R. Brake Caliper X (#5)

Max = 44.88 in. @ 254.88 msec
Min = 0.00 in. @ -0.00 msec

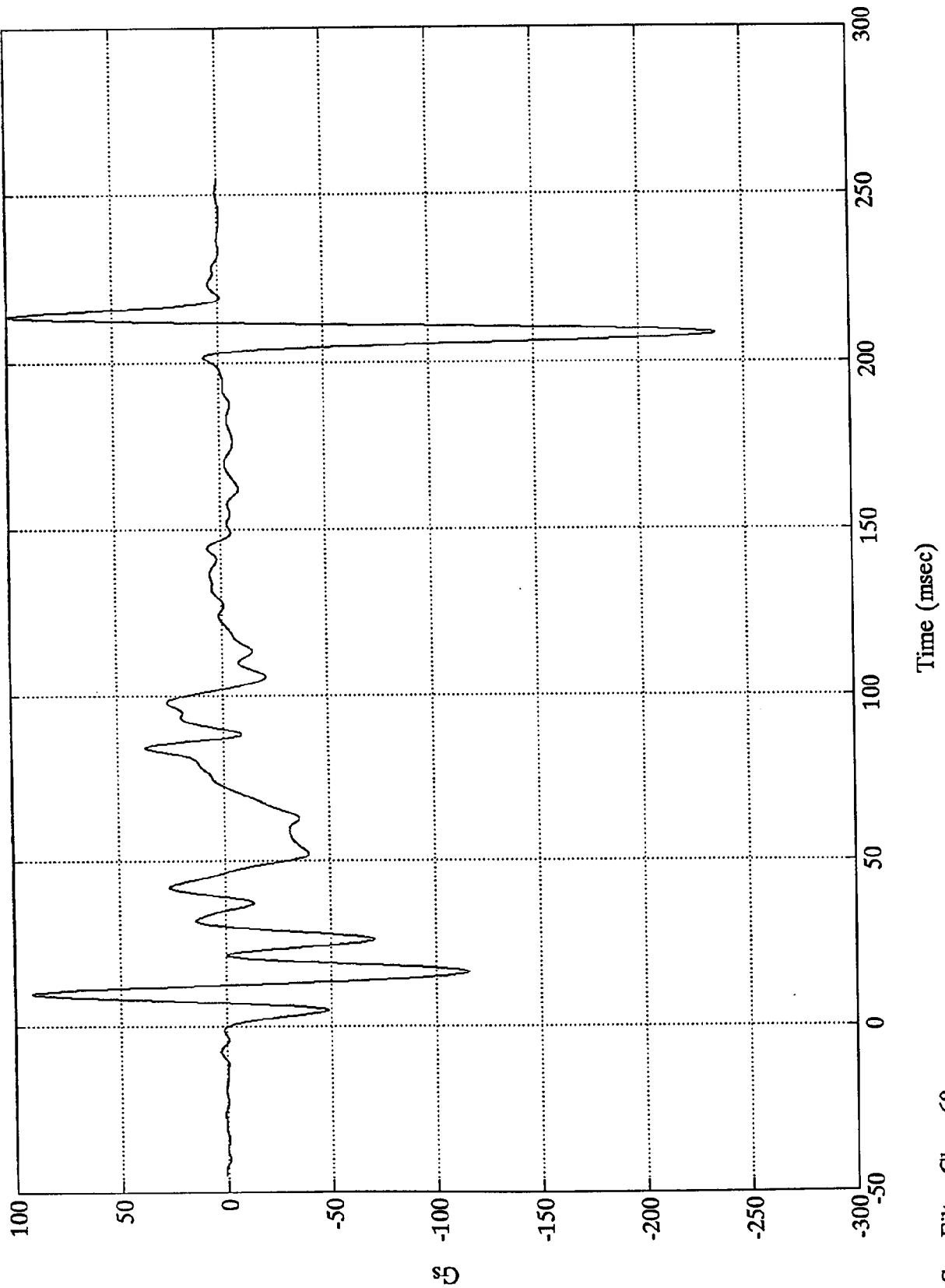


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

L. Brake Caliper X (#6)

Max = 99.93 Gs @ 213.72 msec
Min = -236.55 Gs @ 208.20 msec

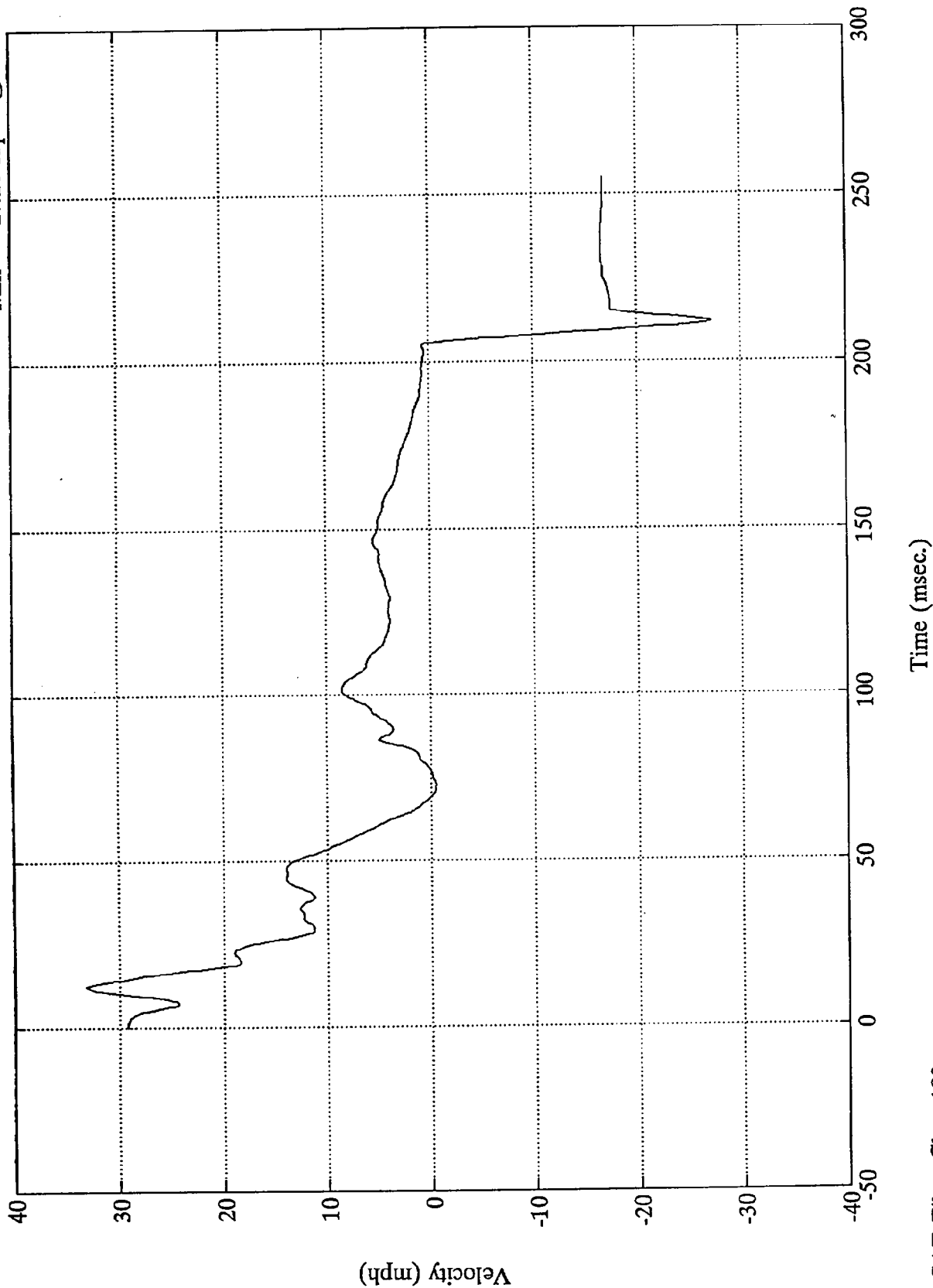


Sae Filter Class 60

NHTSA "208" TEST 13 - 1992 DODGE RAM

L. Brake Caliper X (#6)

Max = 33.13 mph @ 12.24 msec
Min = -27.20 mph @ 211.44 msec

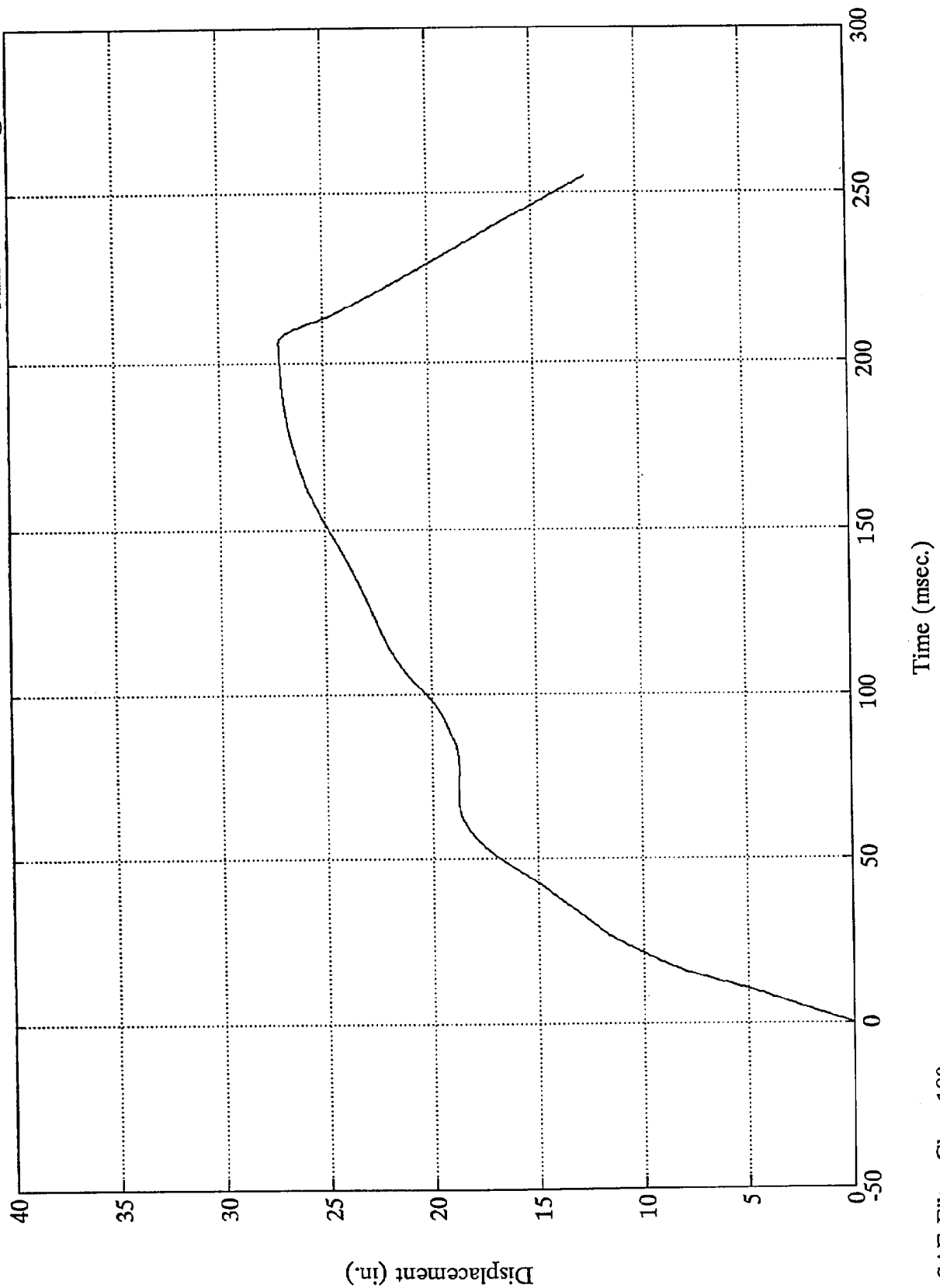


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

L. Brake Caliper X (#6)

Max = 27.15 in. @ 205.92 msec
Min = 0.00 in. @ -0.00 msec

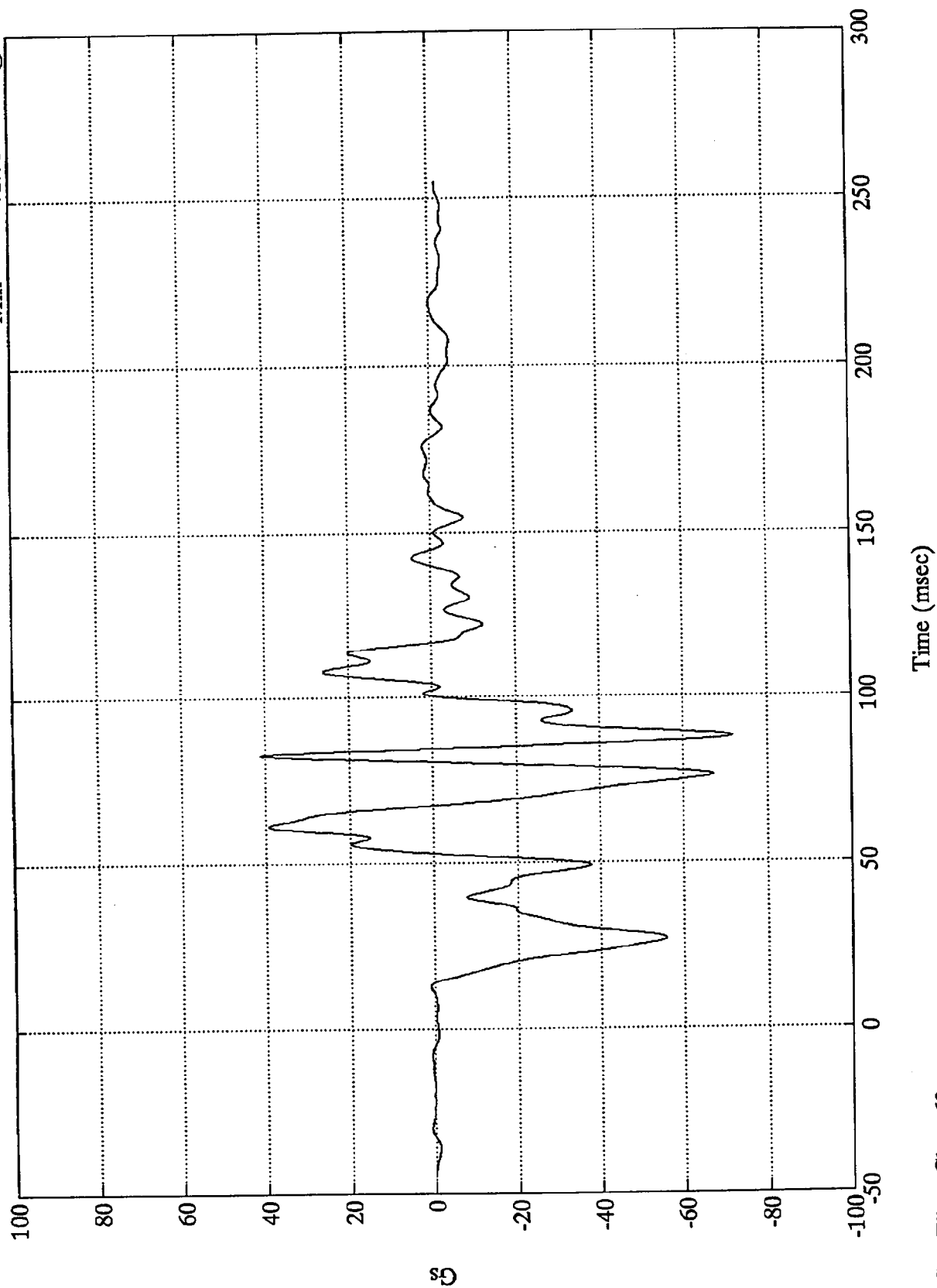


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Max = 41.18 Gs @ 82.56 msec
Min = -71.78 Gs @ 87.59 msec

Instrument Panel X (#7)

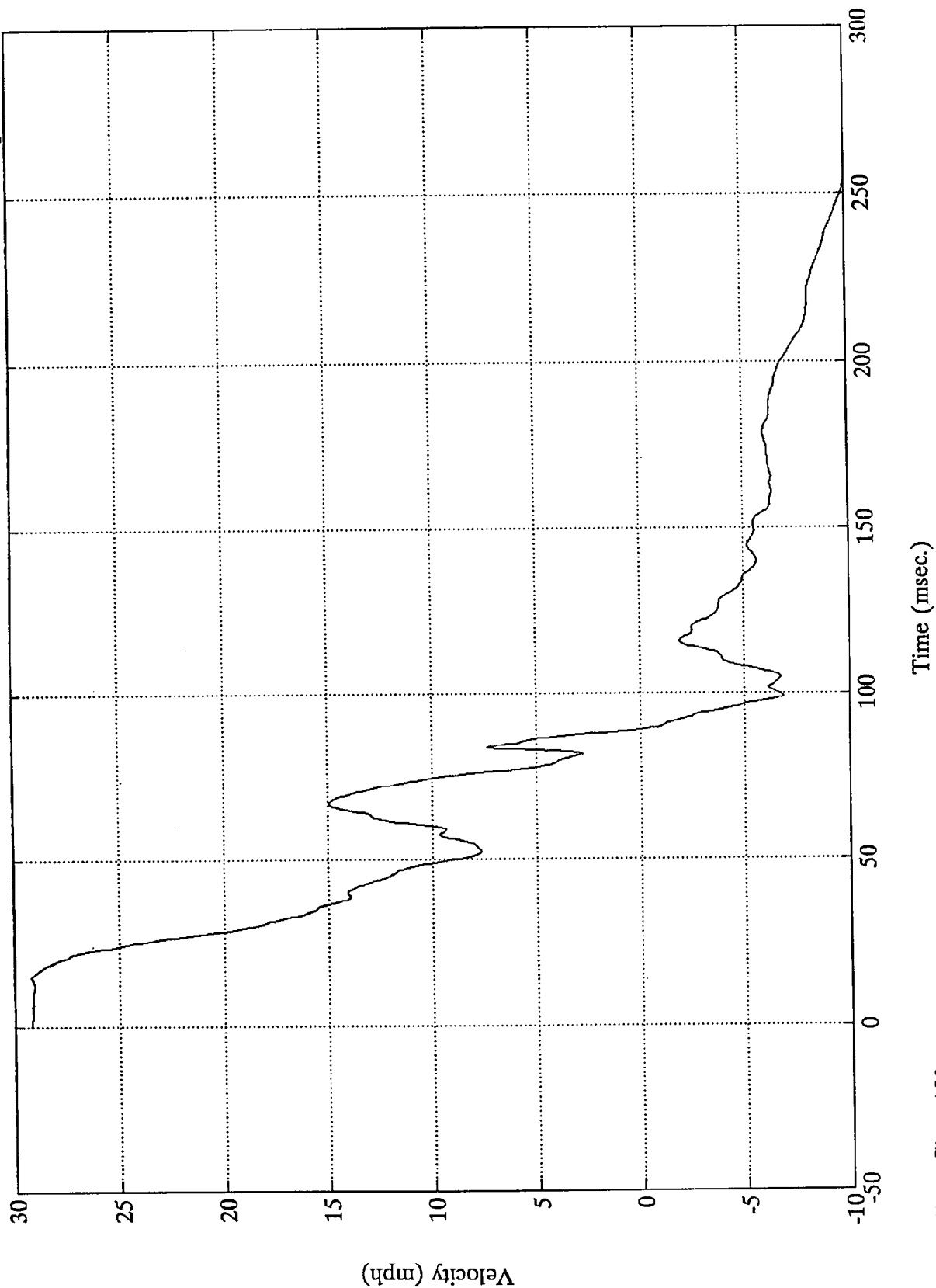


Sae Filter Class 60

NHTSA "208" TEST 13 - 1992 DODGE RAM

Instrument Panel X (#7)

Max = 29.20 mph @ -0.00 msec
Min = -10.00 mph @ 254.88 msec

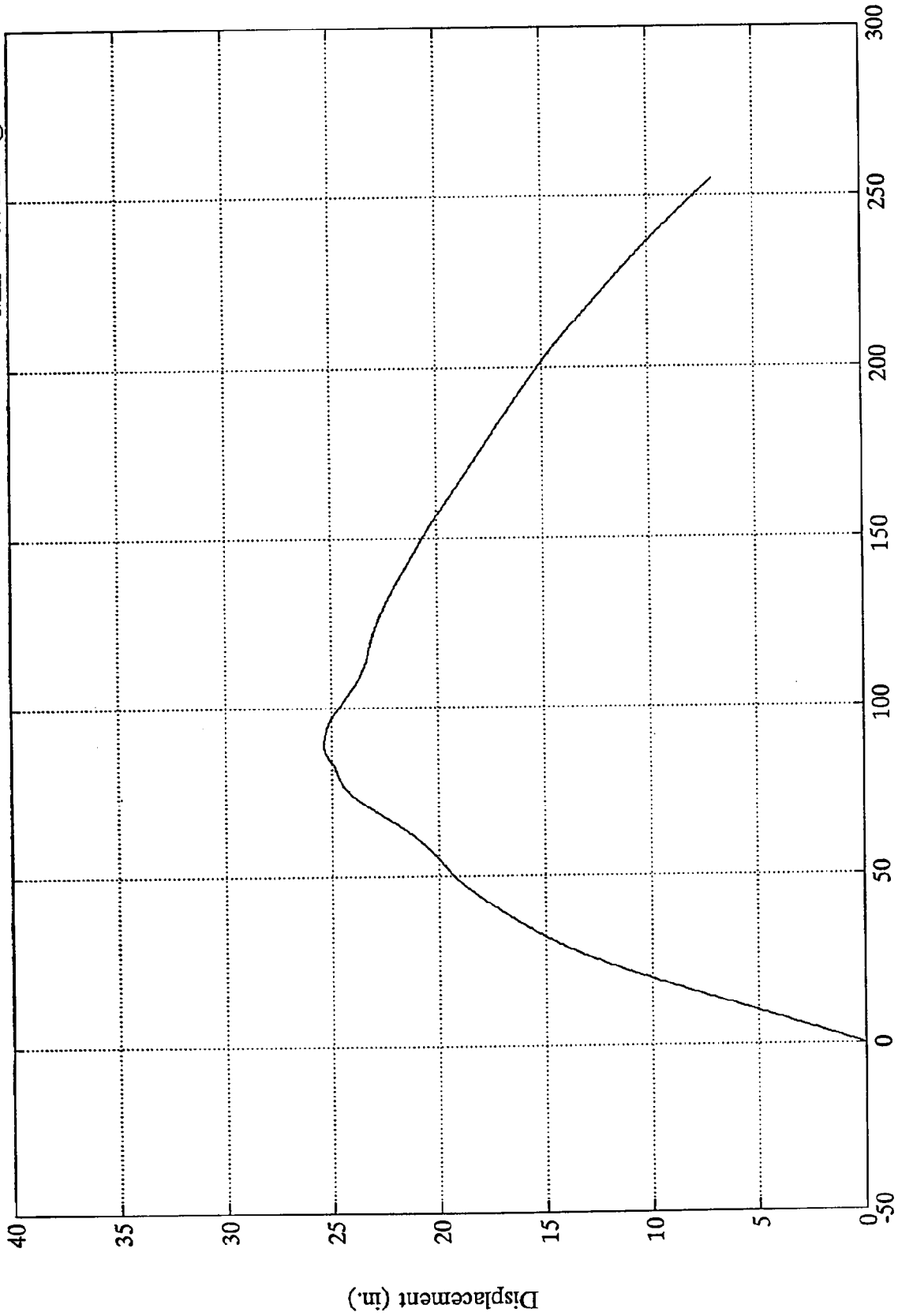


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Instrument Panel X (#7)

Max = 25.38 in. @ 89.04 msec
Min = 0.00 in. @ -0.00 msec



Time (msec.)

SAE Filter Class 180

TEST NO. CN0308

DUMMY DATA	SAE FILTER CHANNEL CLASS
Head Accelerations	1000
Chest Accelerations	180
Femur Forces	600

FACILITY: TRACK
RUN #: 1185
SERIES #: 13

TEST DATE: 22 May 1992

TITLE: NHTSA "208" TEST 13 - 1992 DODGE RAM

HIC SUMMARY: Pos. 1 Head Resultant

hic: 465.24
t1 = 65.400 msec
t2 = 101.280 msec
Average G's Over Hic Duration = 44.17

HIC SUMMARY: Pos. 2 Head Resultant

hic: 329.17
t1 = 90.360 msec
t2 = 126.240 msec
Average G's Over Hic Duration = 38.46

CLIP SUMMARY: Pos. 1 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 38.240 G's
Tstart = 61.2000 ms
Tend = 64.3200 ms
CSI = 251.061

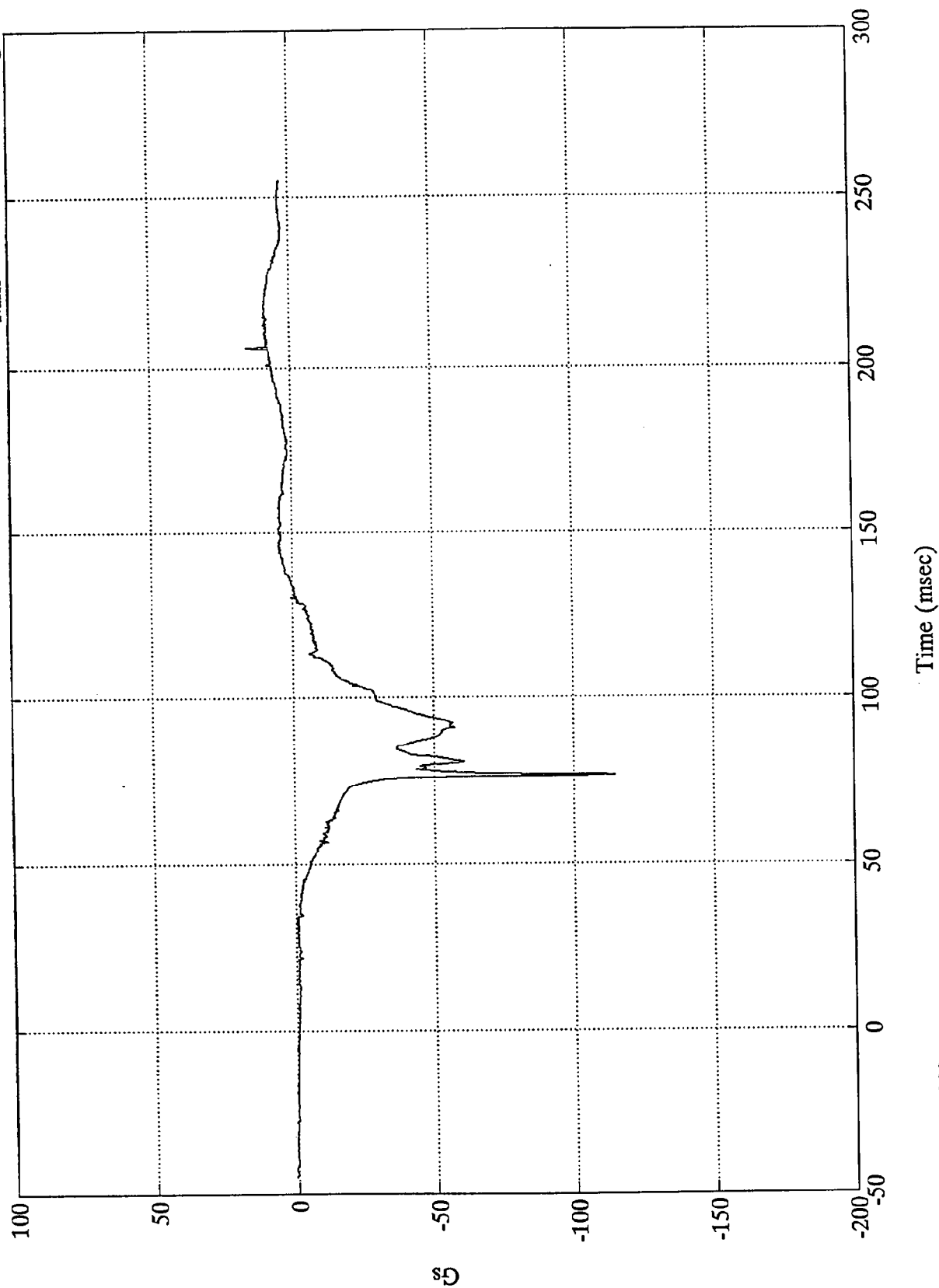
CLIP SUMMARY: Pos. 2 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 33.359 G's
Tstart = 65.7600 ms
Tend = 68.8800 ms
CSI = 233.656

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 1 Head X

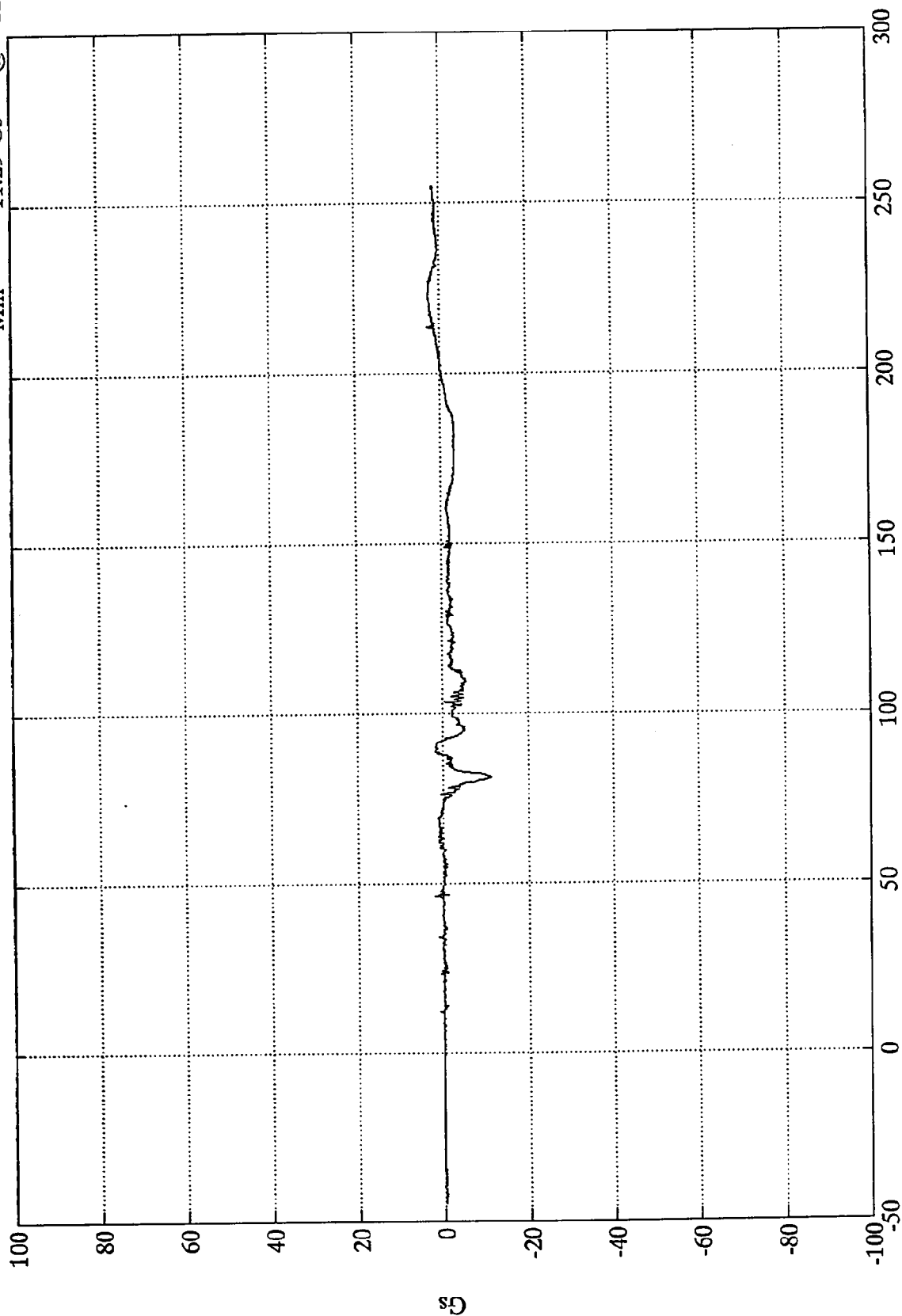
Max = 15.32 Gs @ 205.80 msec
Min = -114.69 Gs @ 76.44 msec



NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 1 Head Y

Max = 2.99 Gs @ 213.72 msec
Min = -11.29 Gs @ 81.12 msec



Time (msec)

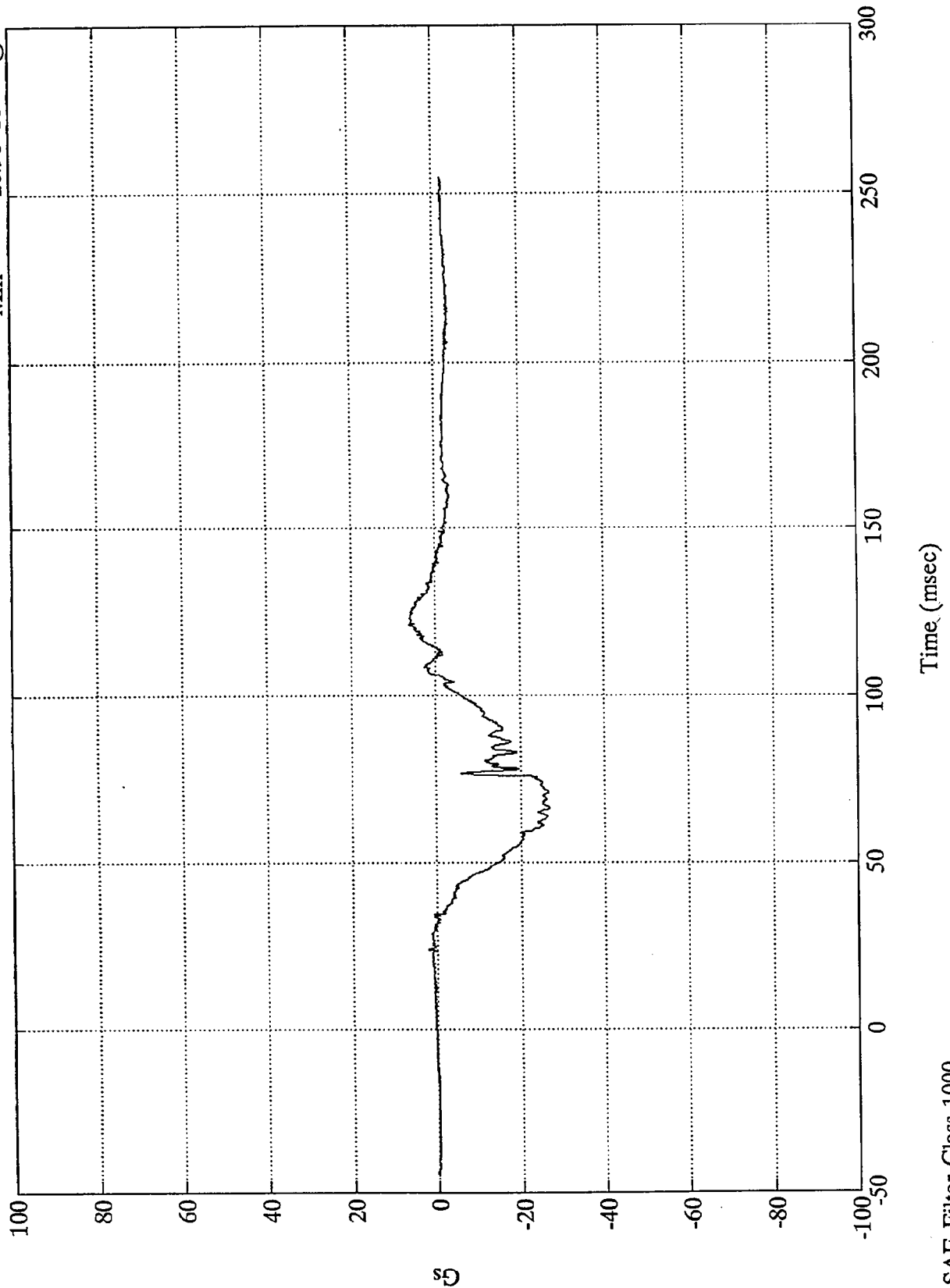
SAE Filter Class 1000

59

NHTSA "208" TEST 13 - 1992 DODGE RAM

Max = 6.36 Gs @ 121.08 msec
Min = -26.98 Gs @ 66.60 msec

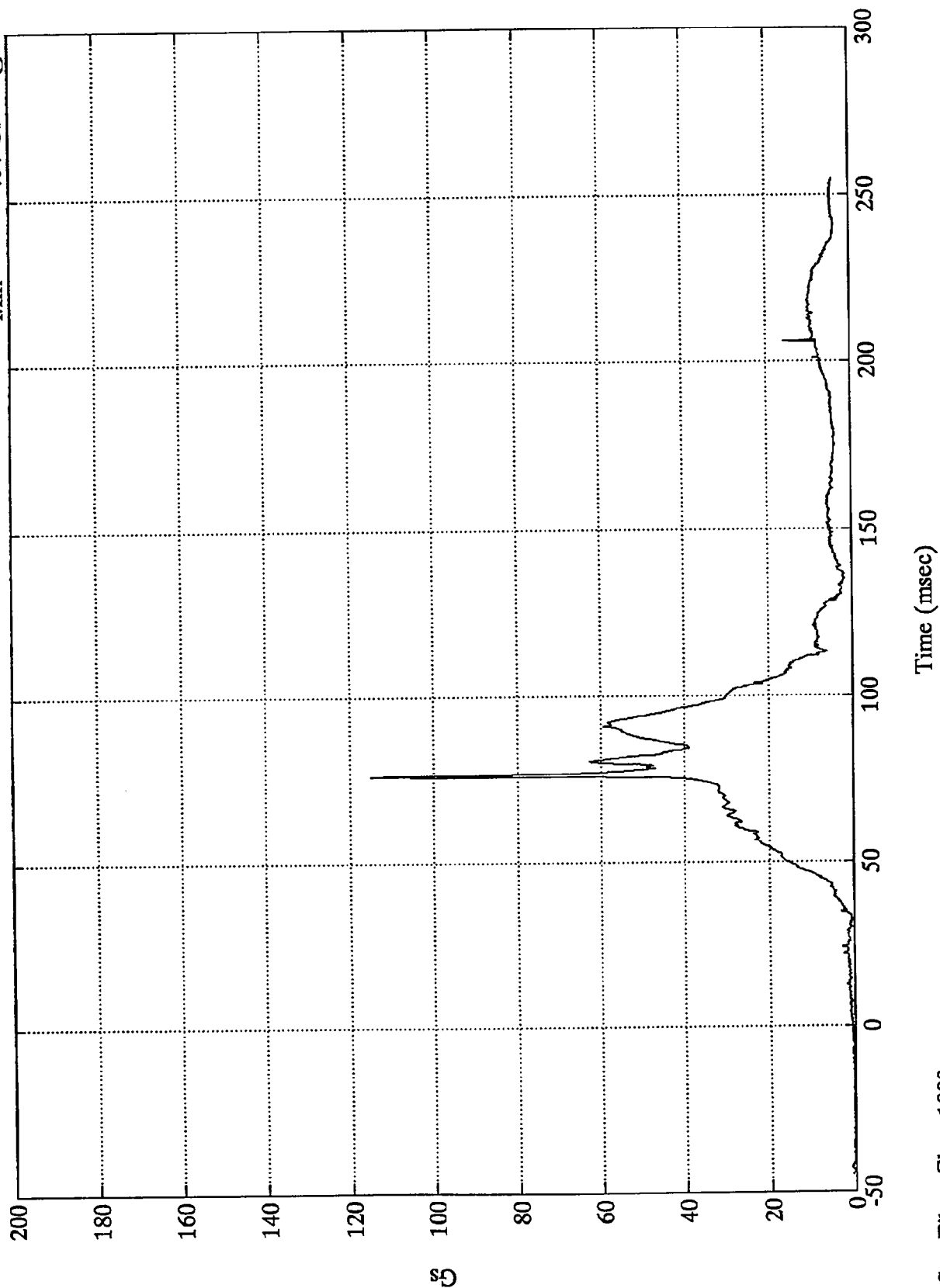
Pos. 1 Head Z



NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 1 Head Resultant

Max = 115.10 Gs @ 76.44 msec
Min = .04 Gs @ -14.28 msec

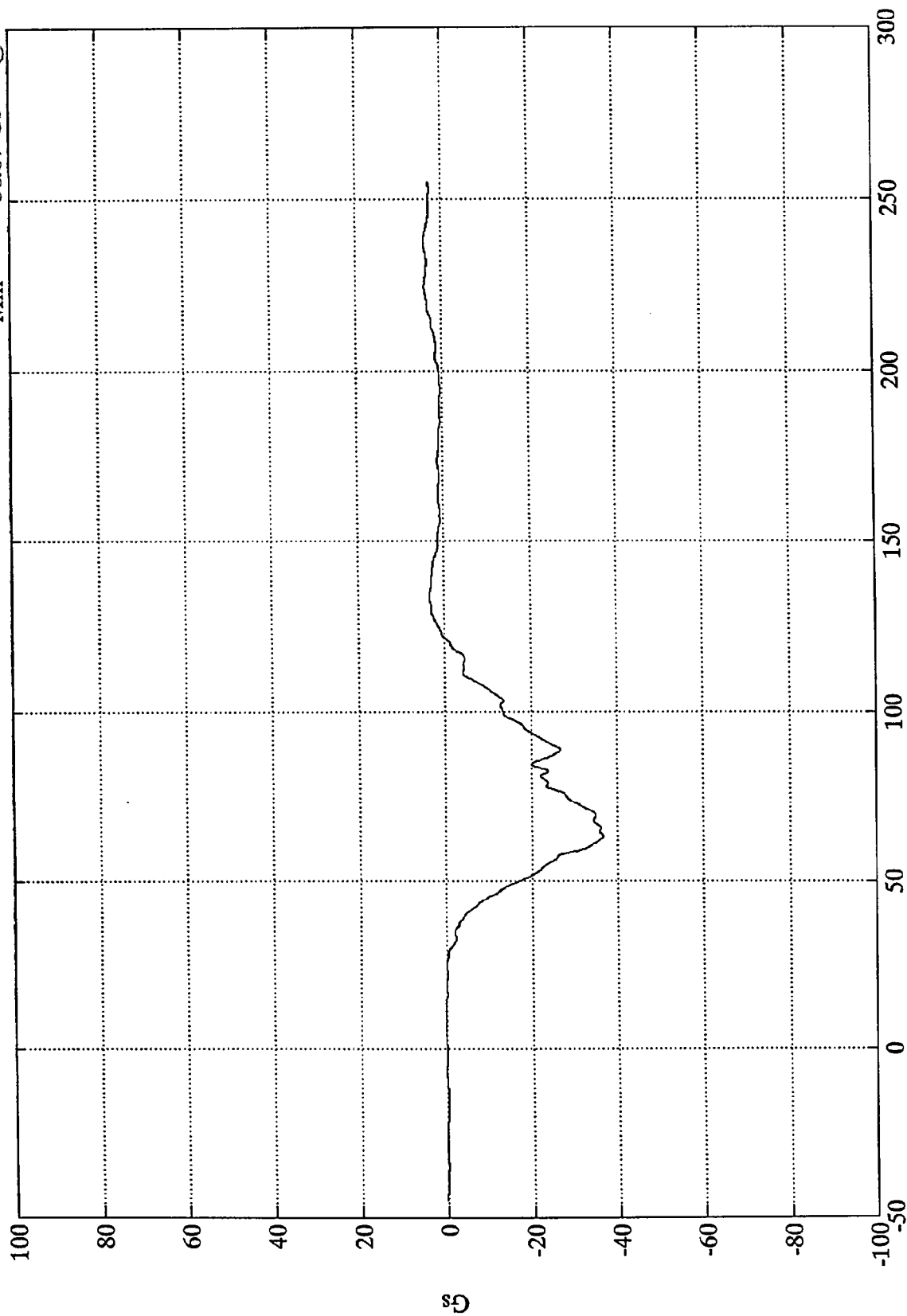


Sae Filter Class 1000

NHTSA "208" TEST 13 - 1992 DODGE RAM

Max = 4.07 Gs @ 237.24 msec
 Min = -36.67 Gs @ 63.23 msec

Pos. 1 Chest X



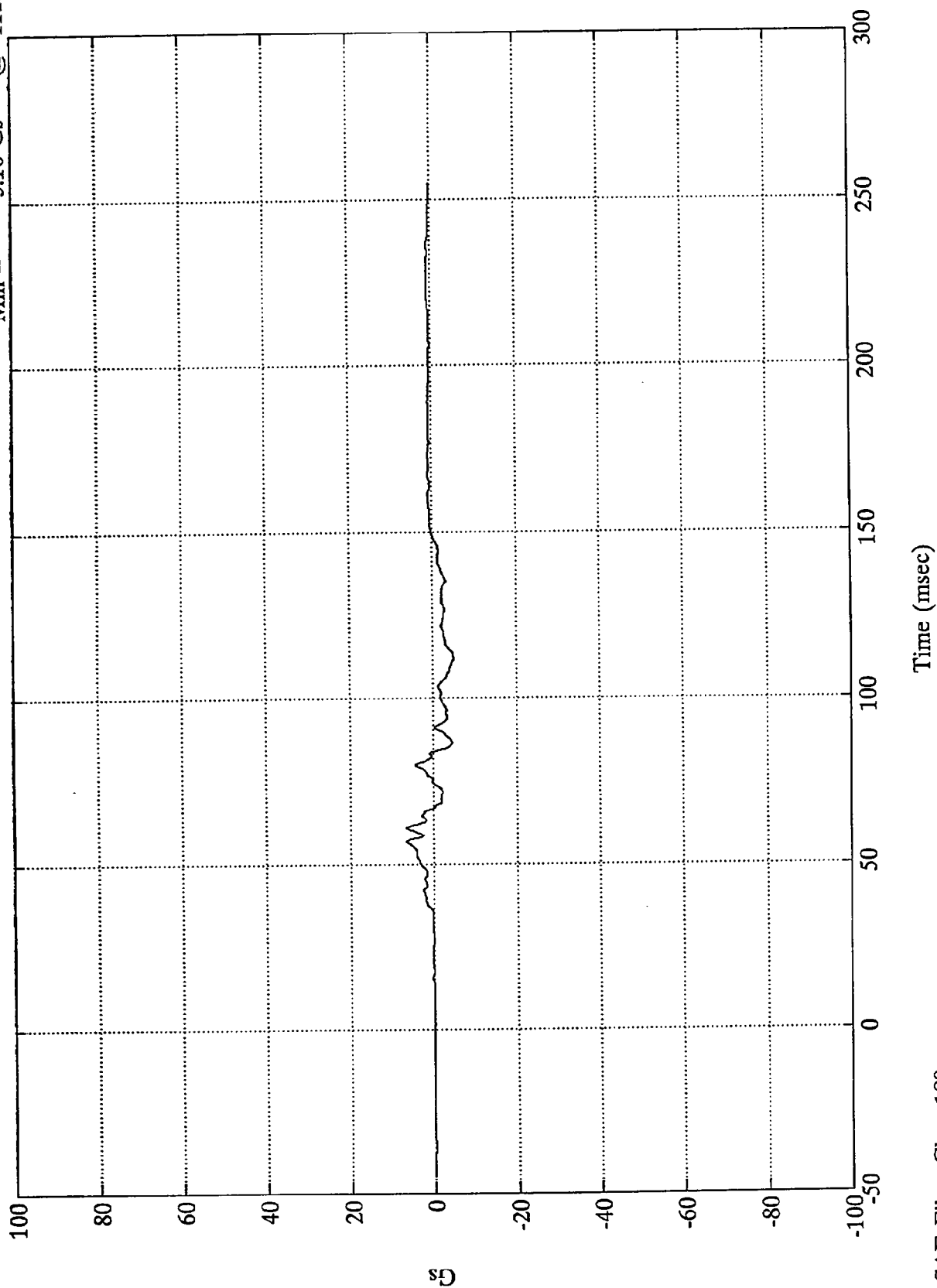
Time (msec)

Sae Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 1 Chest Y

Max = 6.46 Gs @ 60.96 msec
Min = -5.10 Gs @ 111.95 msec

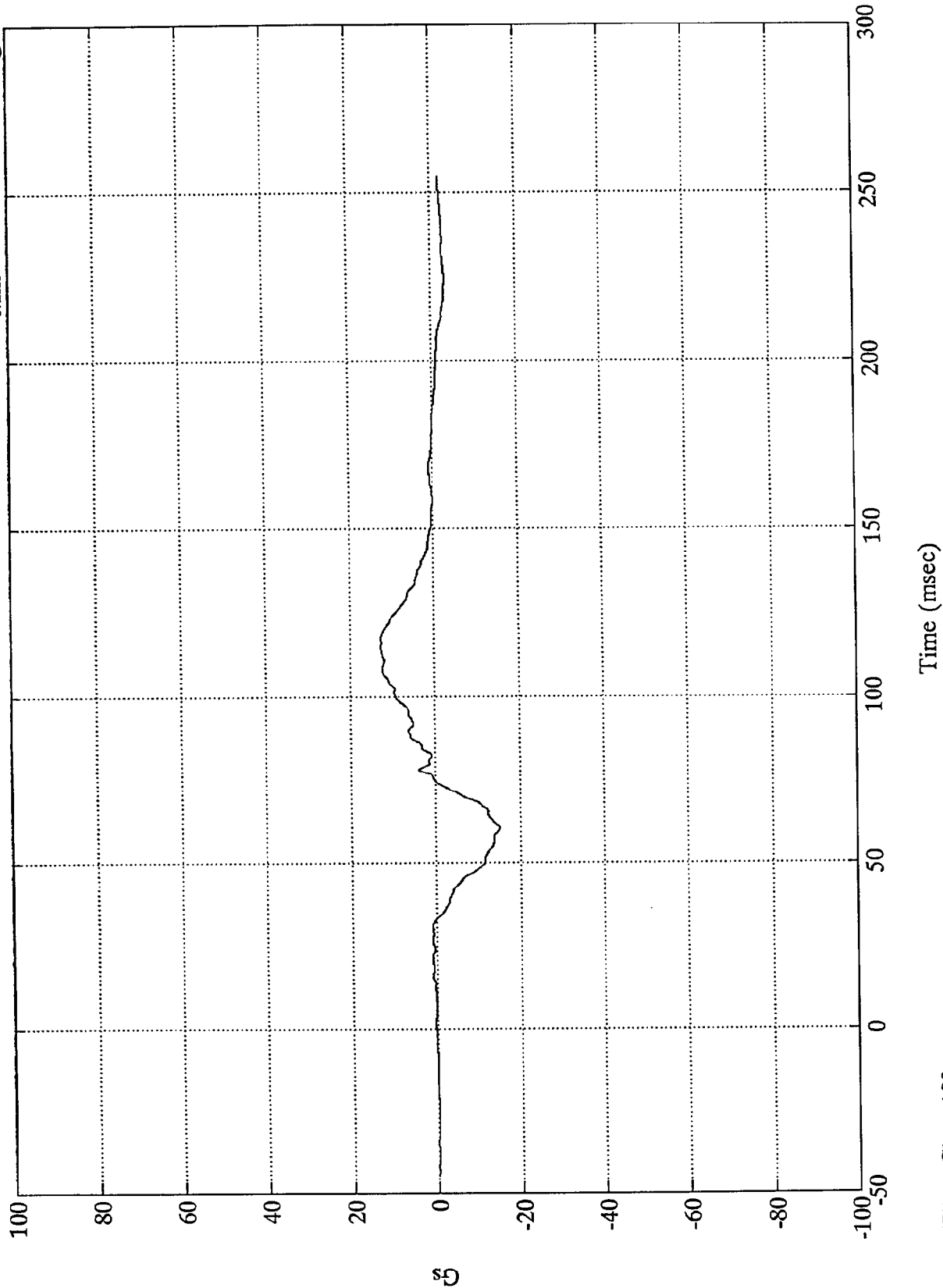


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 1 Chest Z

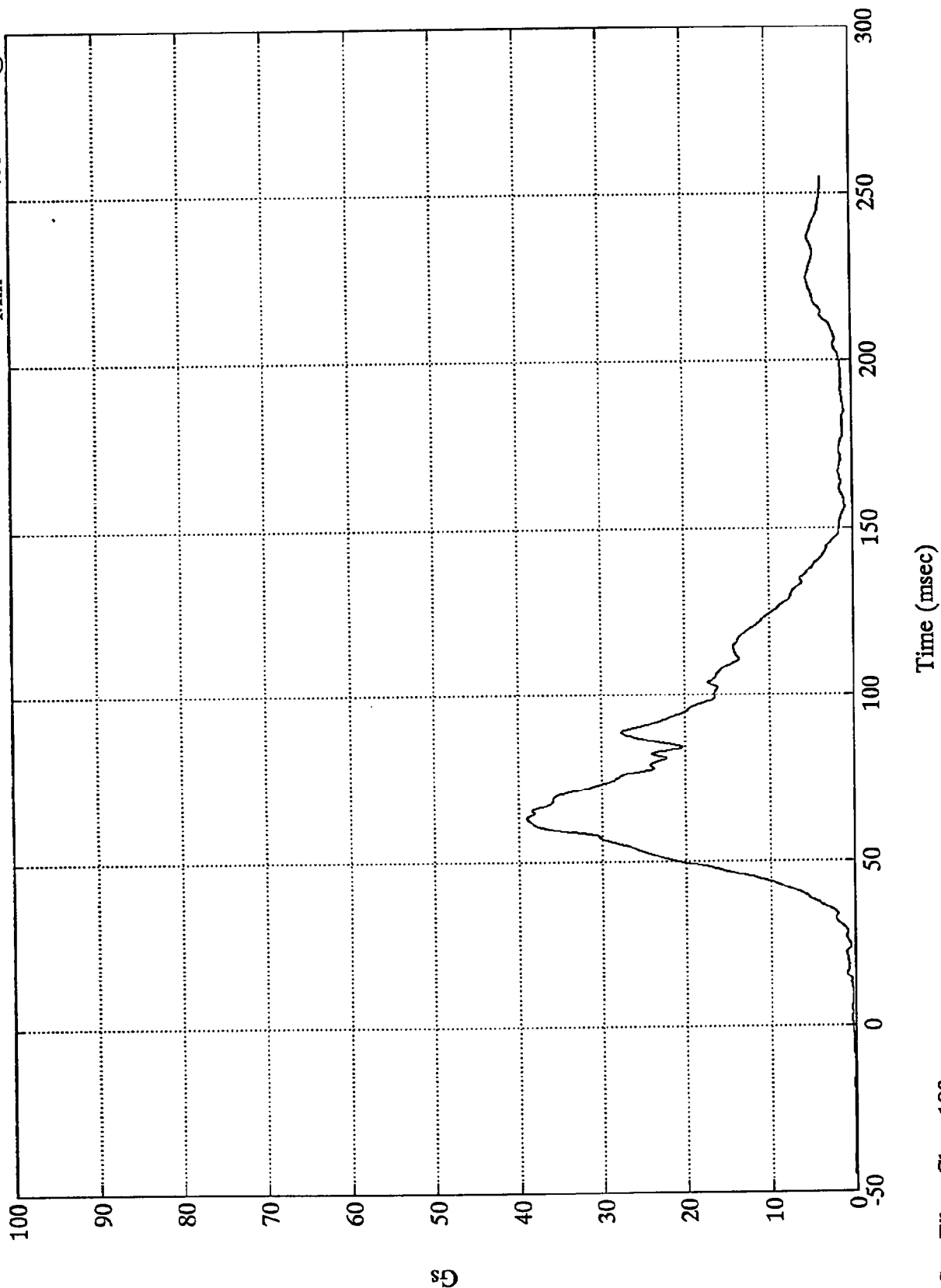
Max = 12.83 Gs @ 114.72 msec
Min = -15.16 Gs @ 60.24 msec



SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 1 Chest Resultant
Max = 38.94 Gs @ 63.11 msec
Min = .08 Gs @ -9.72 msec

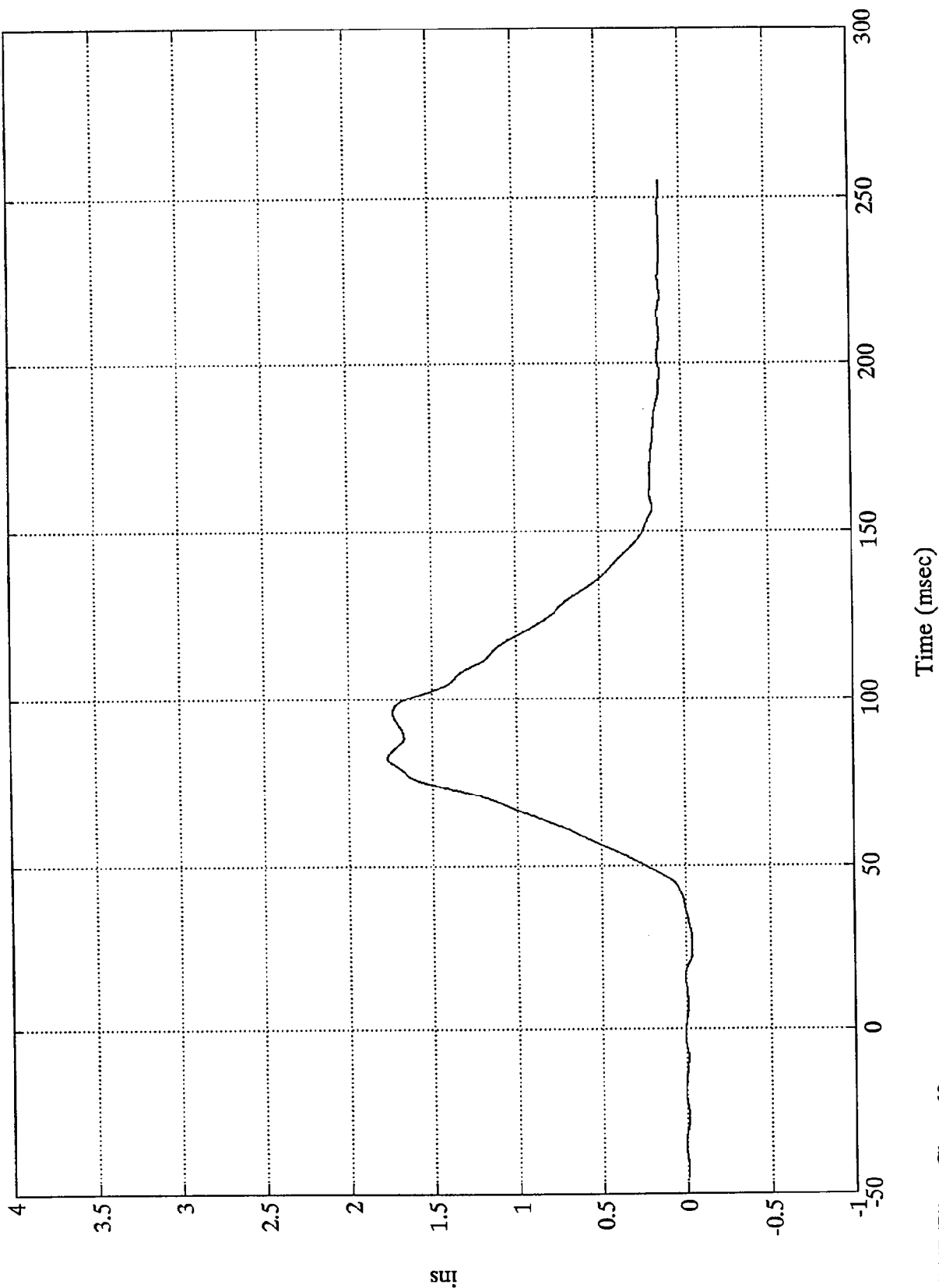


Sae Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos 1 Chest Disp.

Max = 1.77 ins @ 82.44 msec
Min = -.03 ins @ 23.28 msec

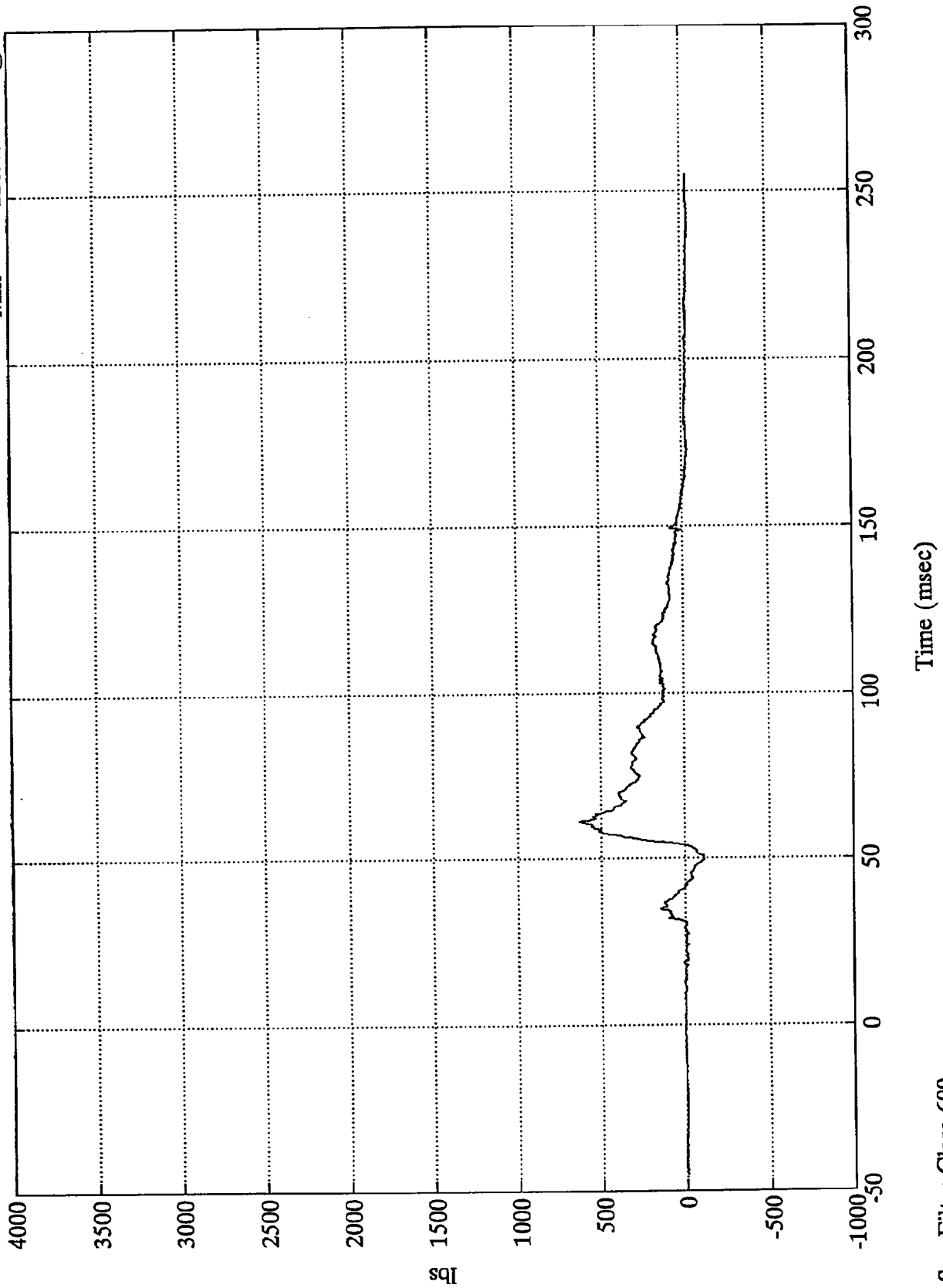


SAE Filter Class 60

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 1 Left Femur

Max = 626.48 lbs @ 61.08 msec
Min = -116.48 lbs @ 49.79 msec

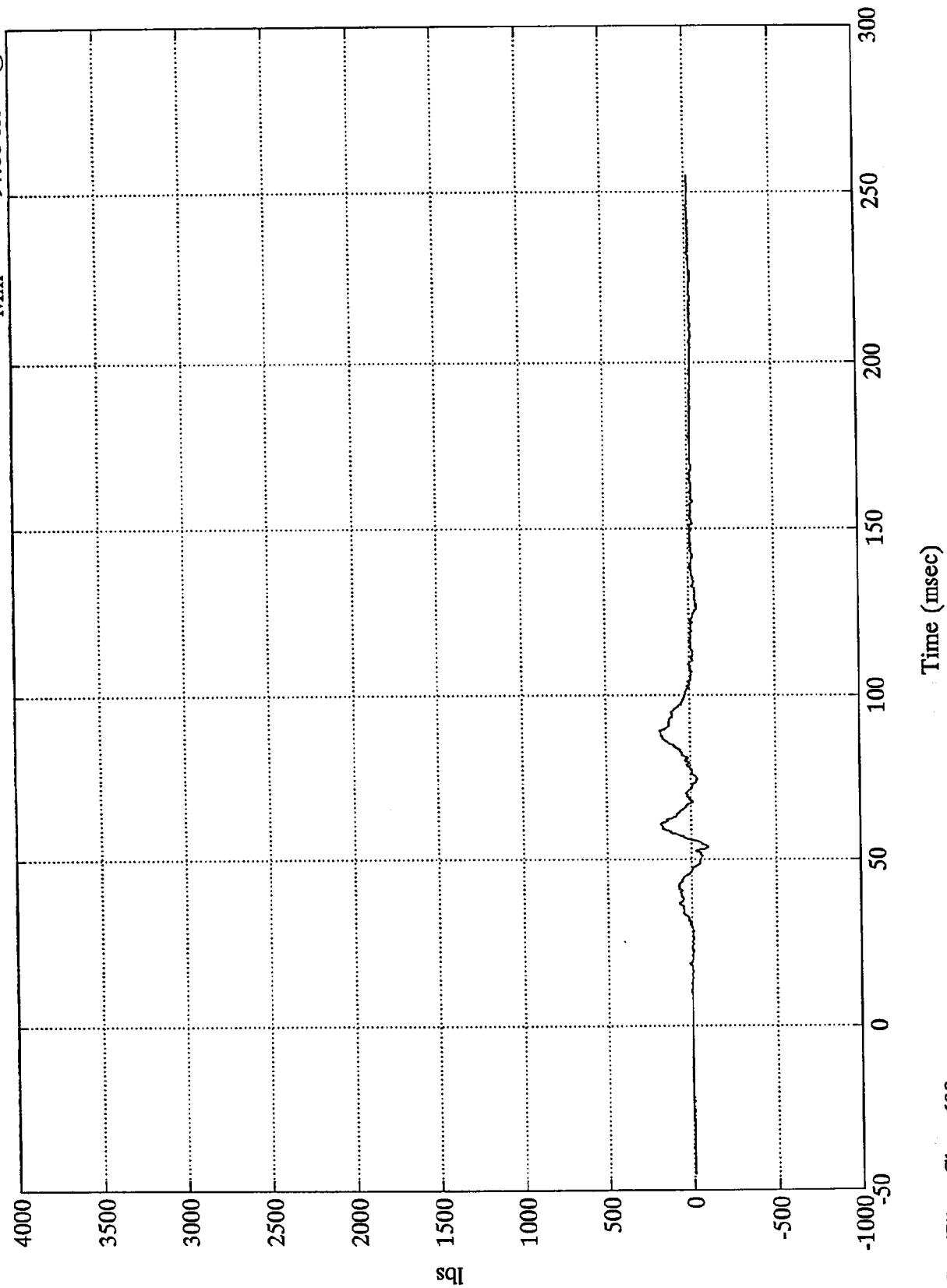


Sae Filter Class 600

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 1 Right Femur

Max = 179.84 lbs @ 60.84 msec
Min = -97.08 lbs @ 53.75 msec

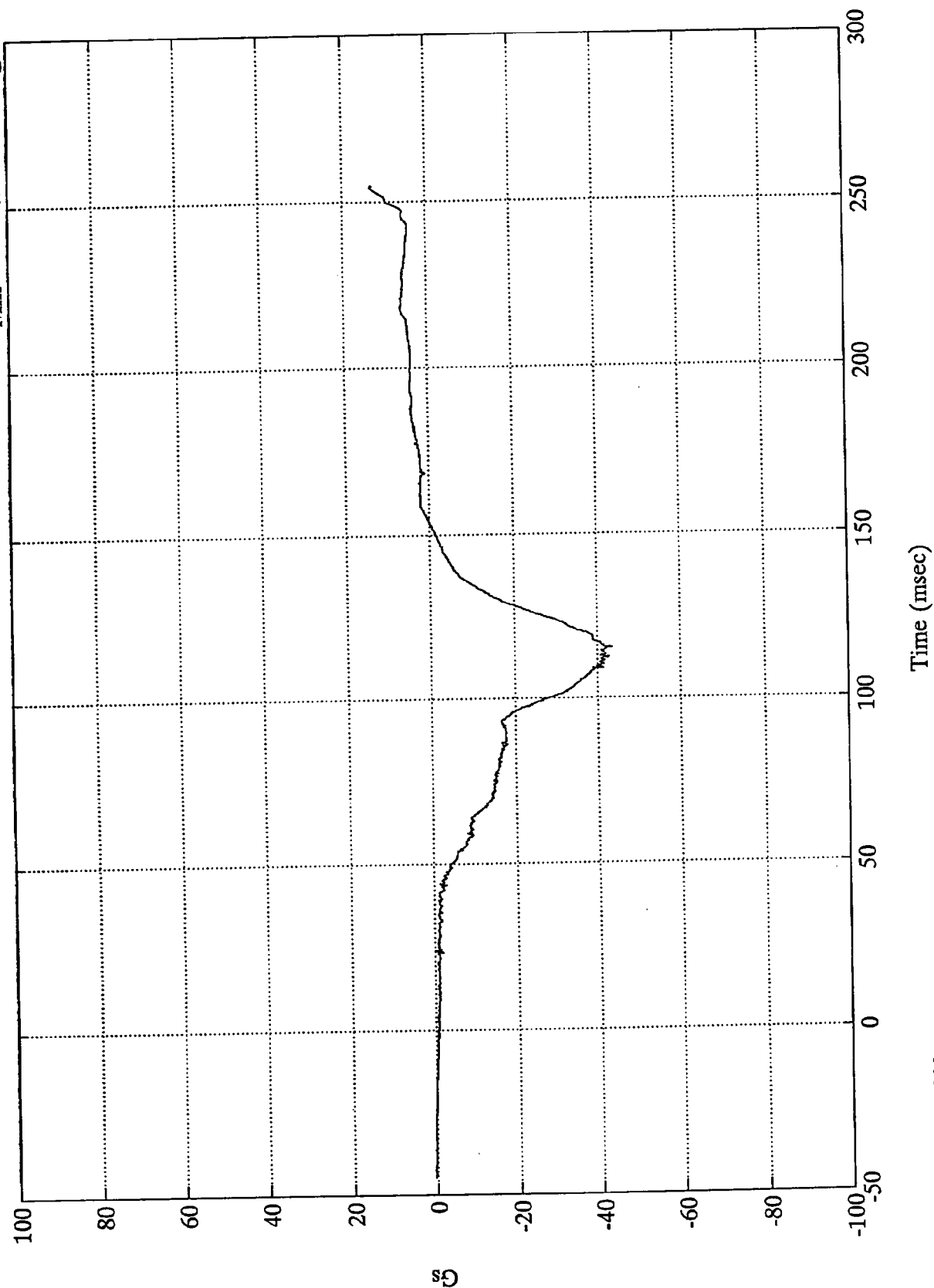


Sae Filter Class 600

NHTSA '208" TEST 13 - 1992 DODGE RAM

Pos. 2 Head X

Max = 13.19 Gs @ 254.40 msec
Min = -43.59 Gs @ 115.32 msec

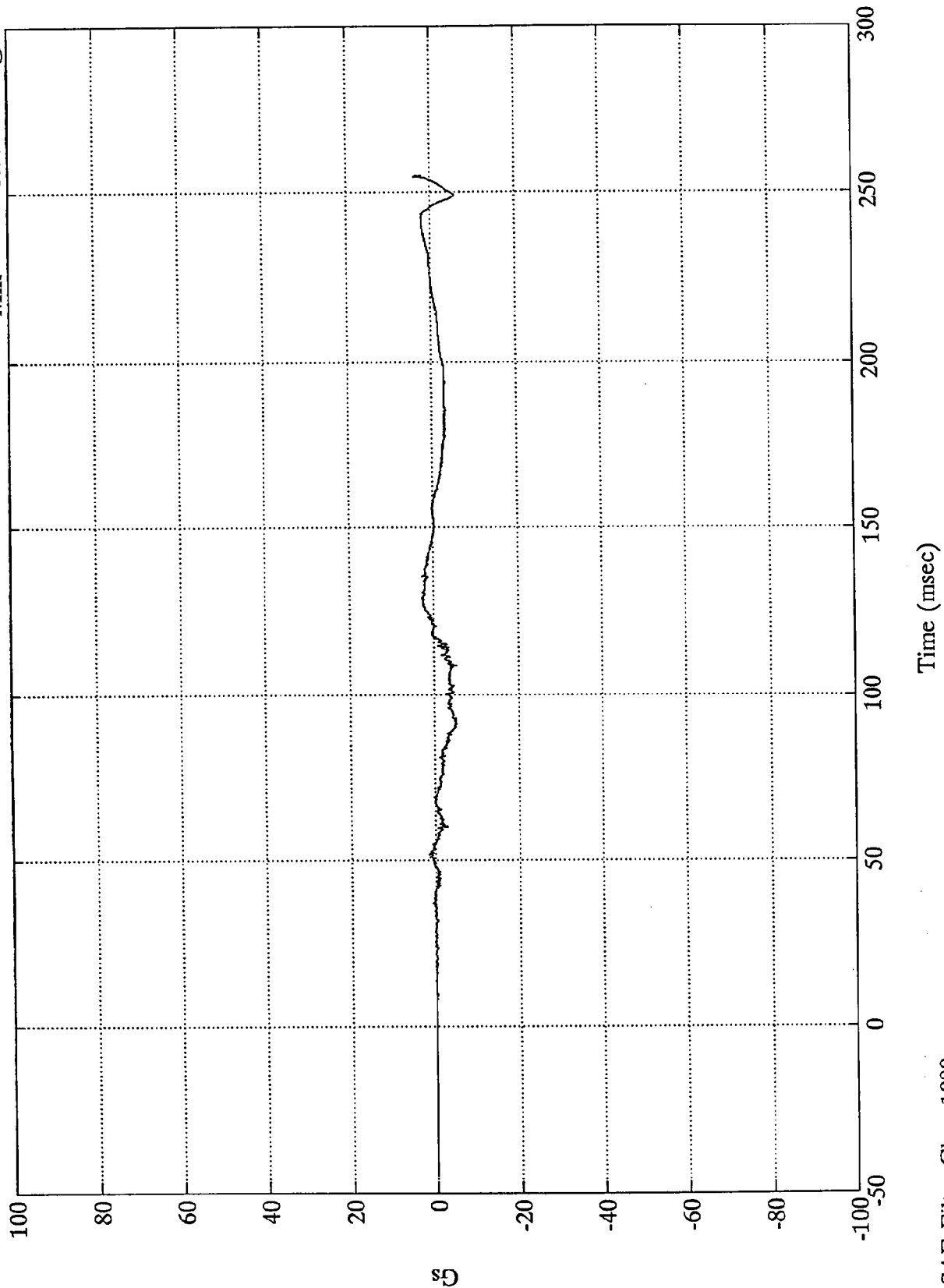


SAE Filter Class 1000

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 2 Head Y

Max = 3.93 Gs @ 254.64 msec
Min = -5.76 Gs @ 249.24 msec

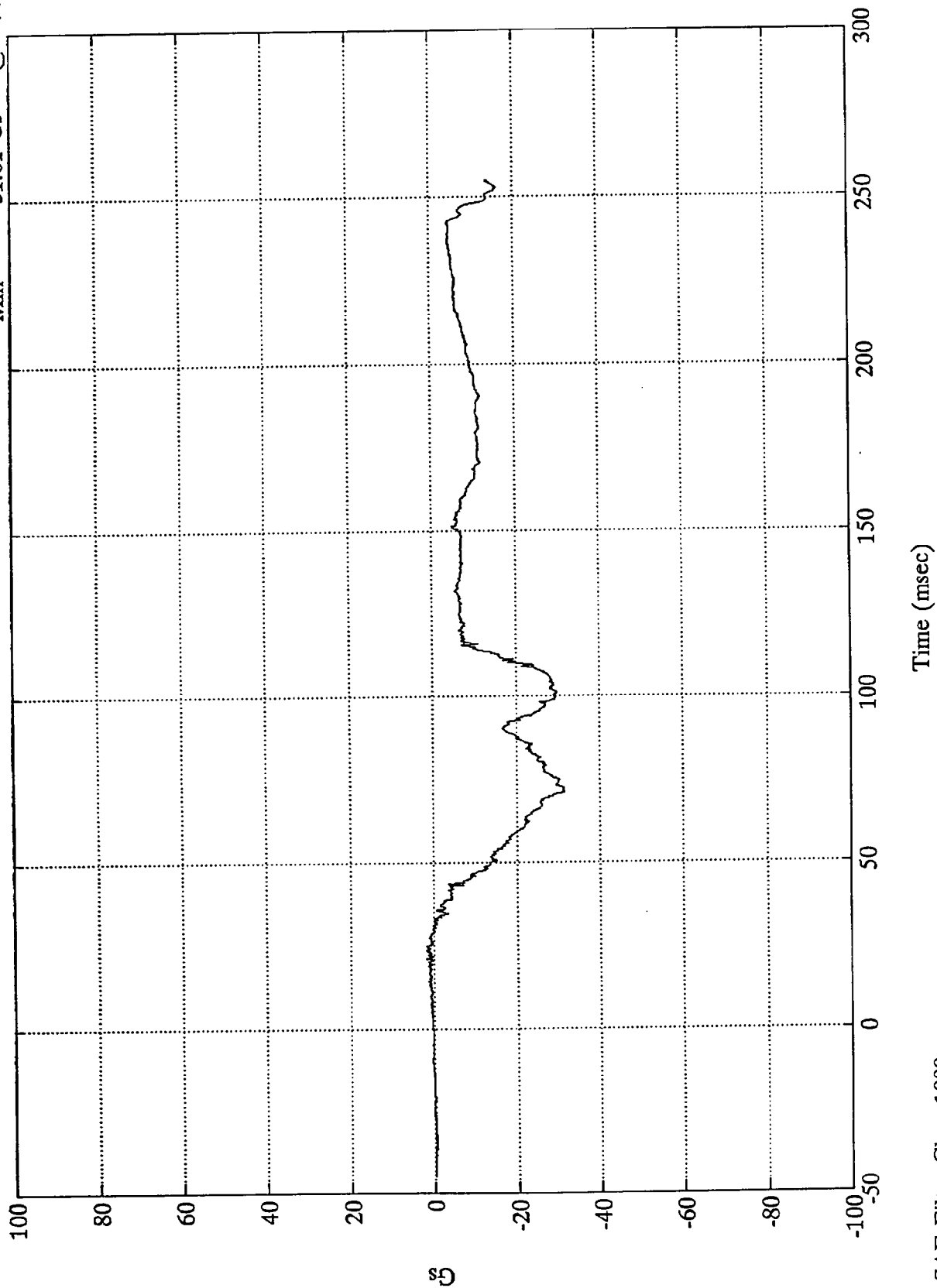


SAE Filter Class 1000

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 2 Head Z

Max = 1.86 Gs @ 21.11 msec
 Min = -31.61 Gs @ 70.91 msec

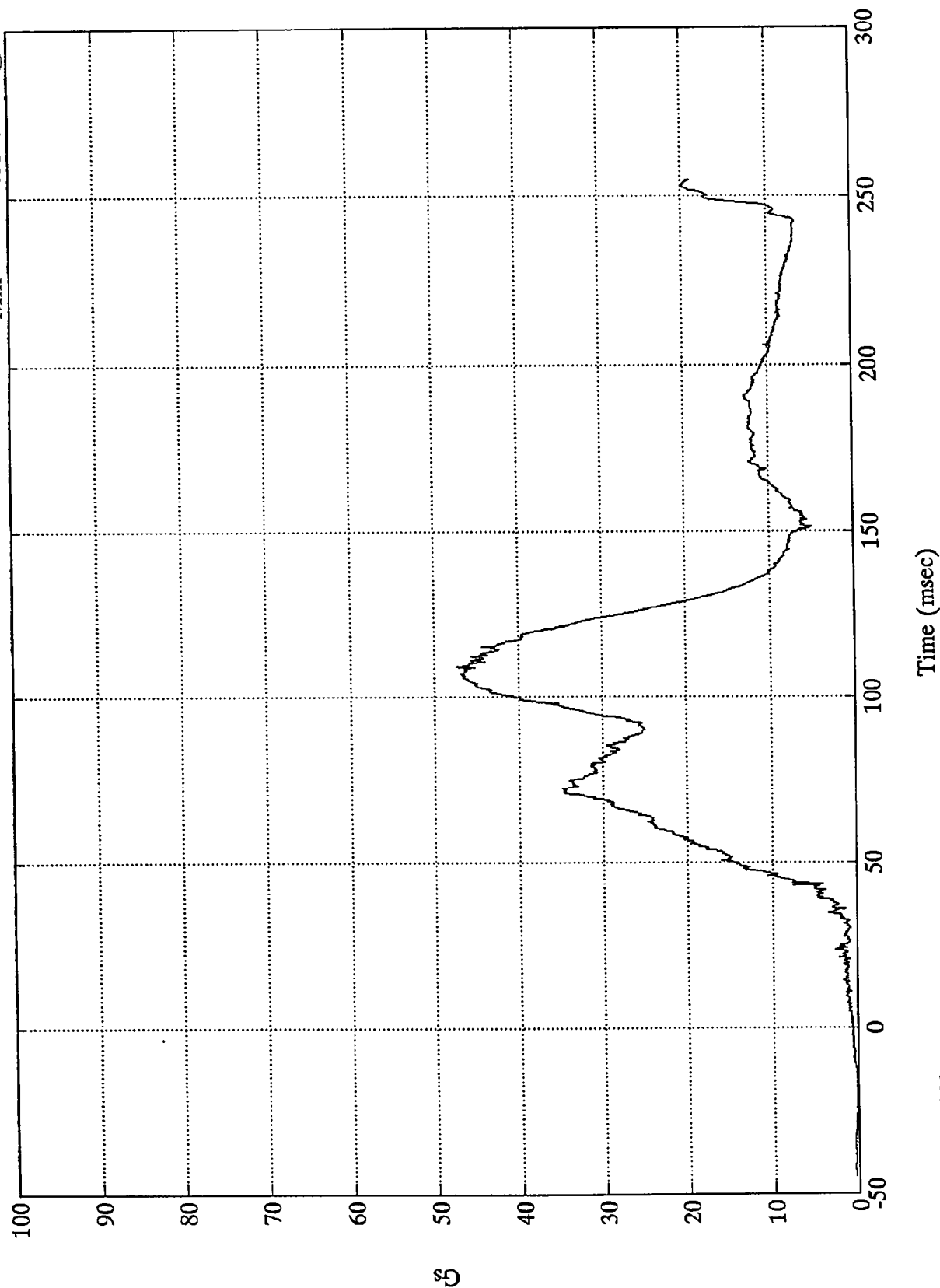


SAE Filter Class 1000

NHTSA "208" TEST 13 - 1992 DODGE RAM

Max = 47.34 Gs @ 109.19 msec
Min = .06 Gs @ -18.60 msec

Pos. 2 Head Resultant

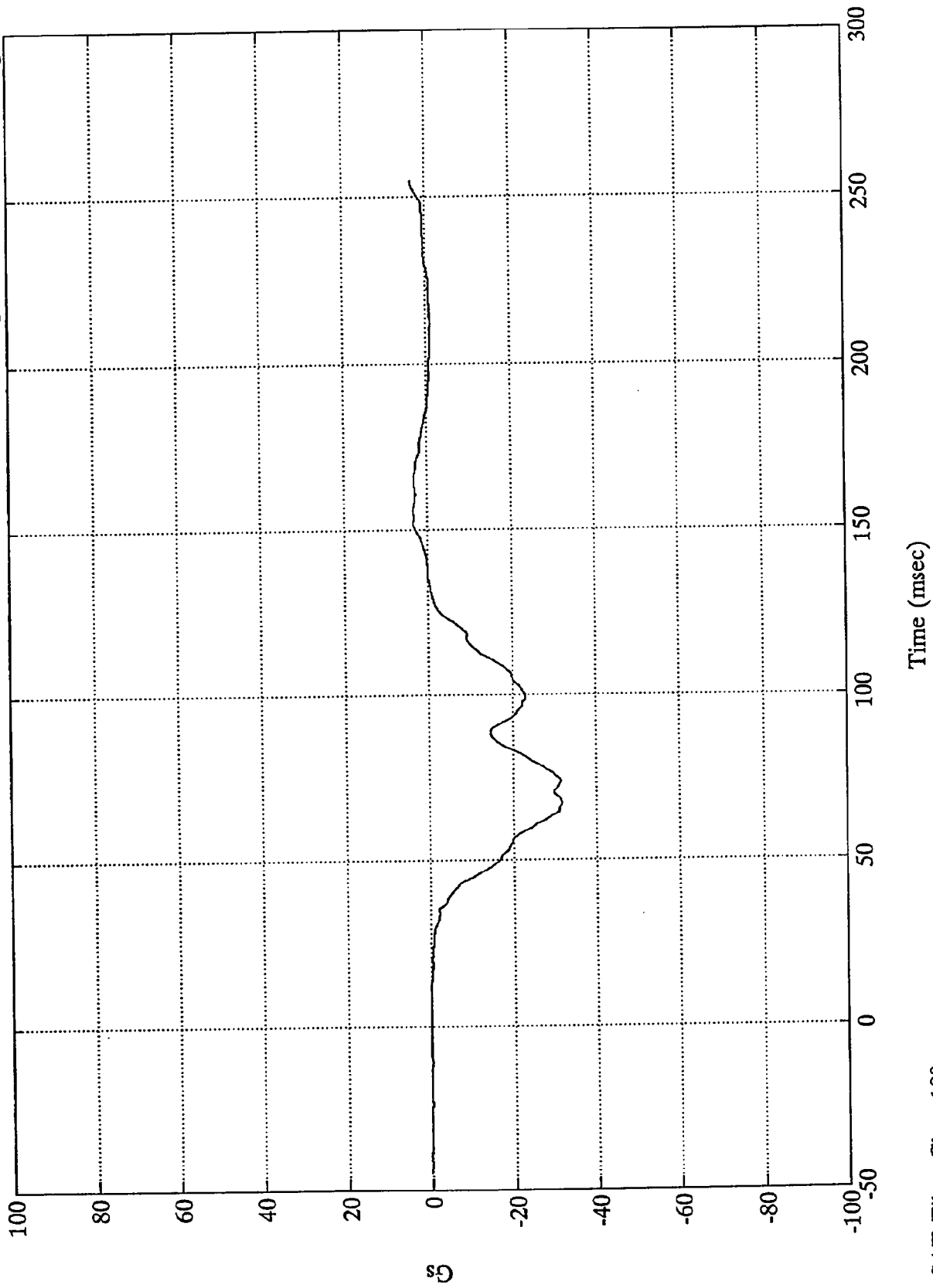


Sae Filter Class 1000

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 2 Chest X

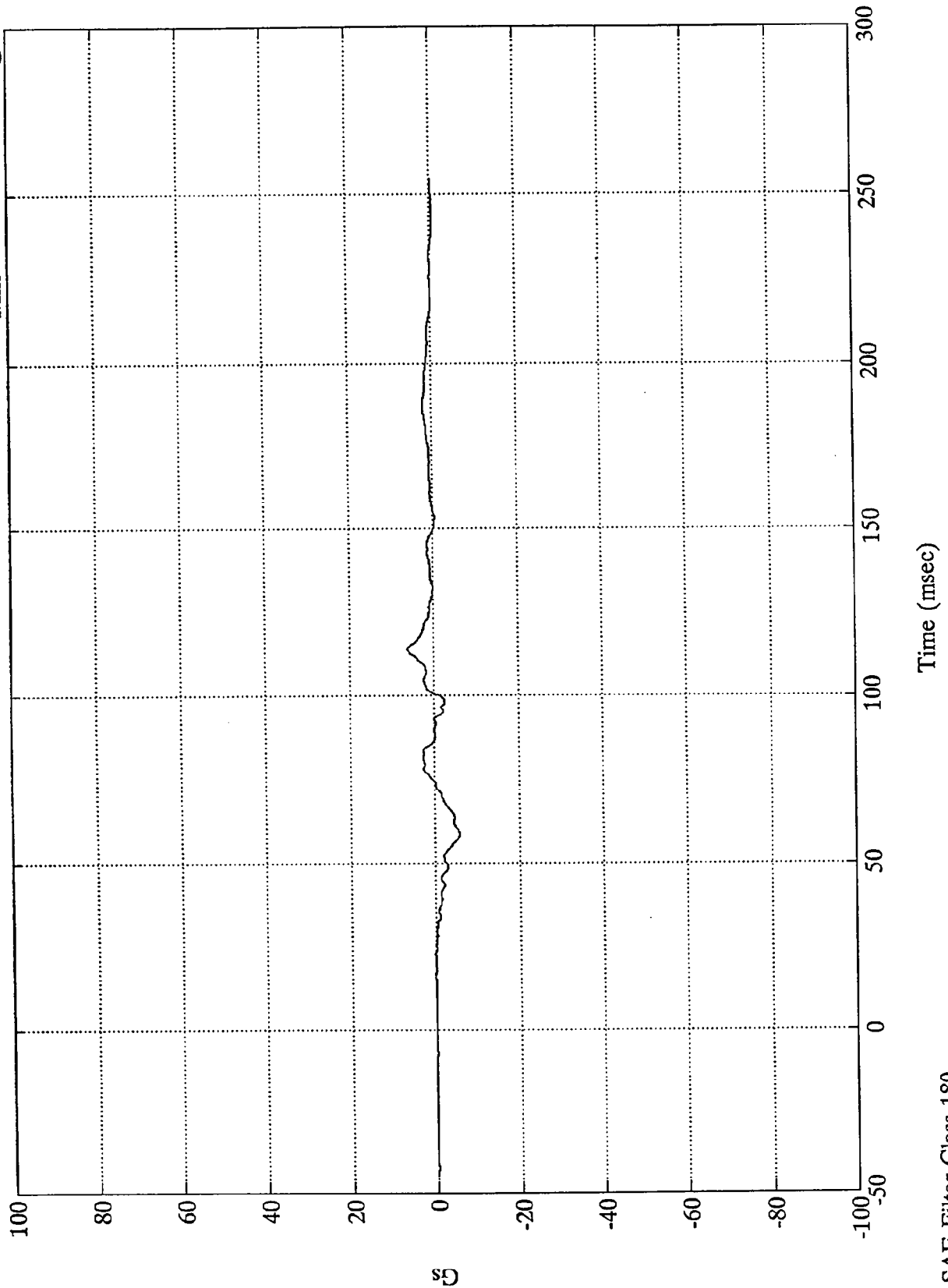
Max = 3.46 Gs @ 254.27 msec
Min = -31.70 Gs @ 67.08 msec



SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 2 Chest Y
Max = 6.29 Gs @ 113.76 msec
Min = -5.76 Gs @ 58.68 msec

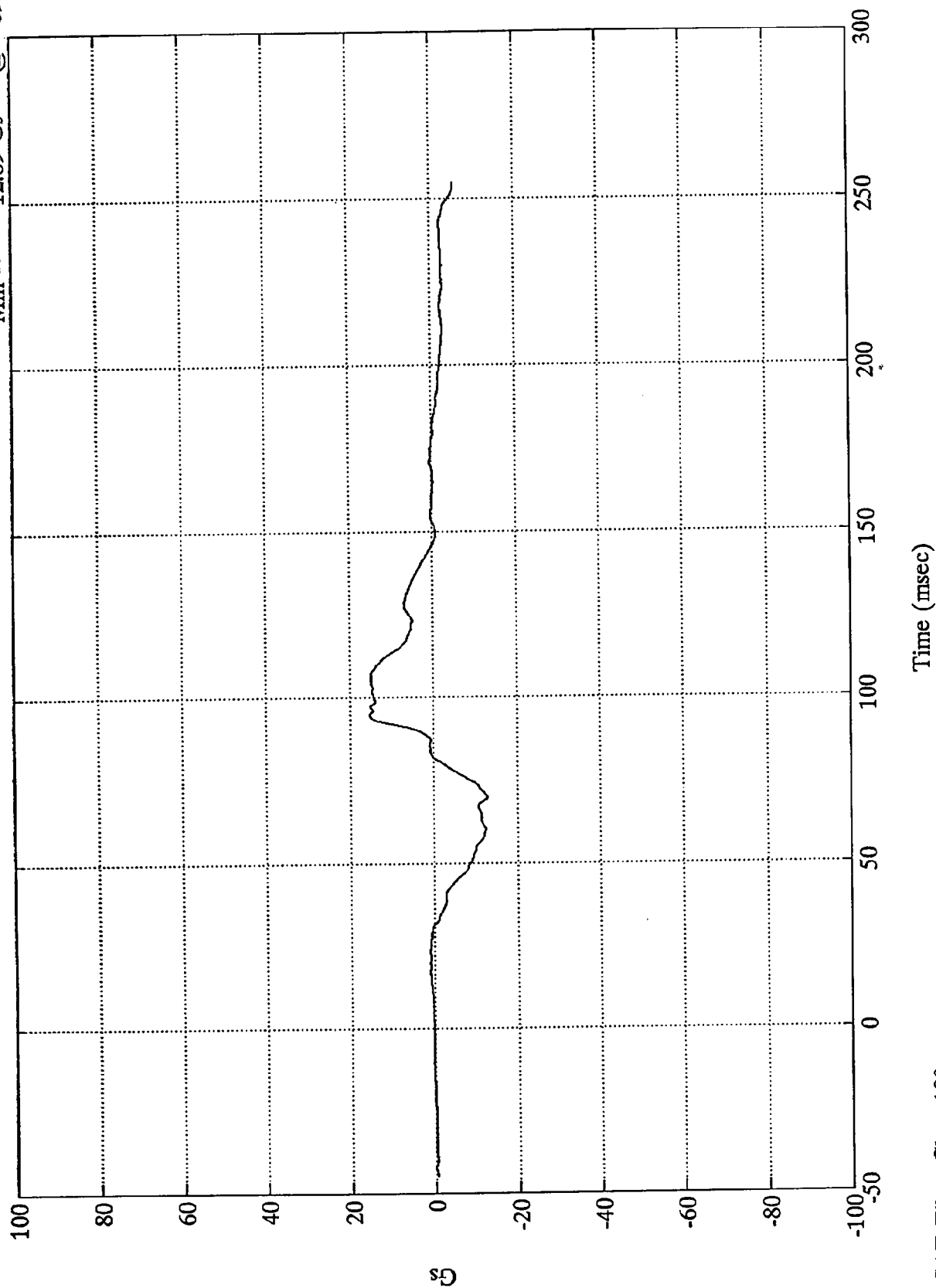


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 2 Chest Z

Max = 15.14 Gs @ 94.44 msec
Min = -12.89 Gs @ 69.72 msec

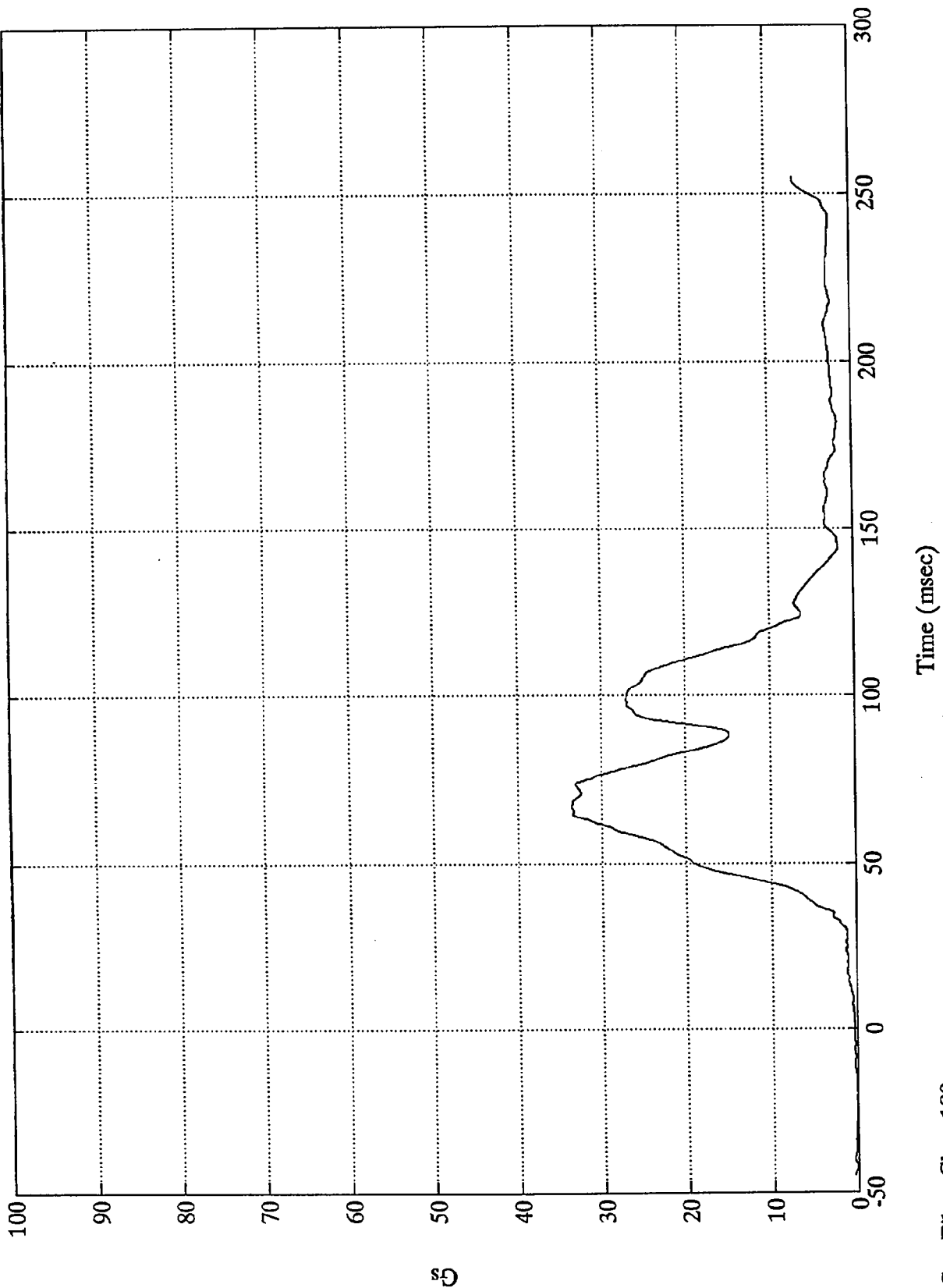


SAE Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 2 Chest Resultant

Max = 33.57 Gs @ 66.95 msec
Min = .05 Gs @ -20.16 msec

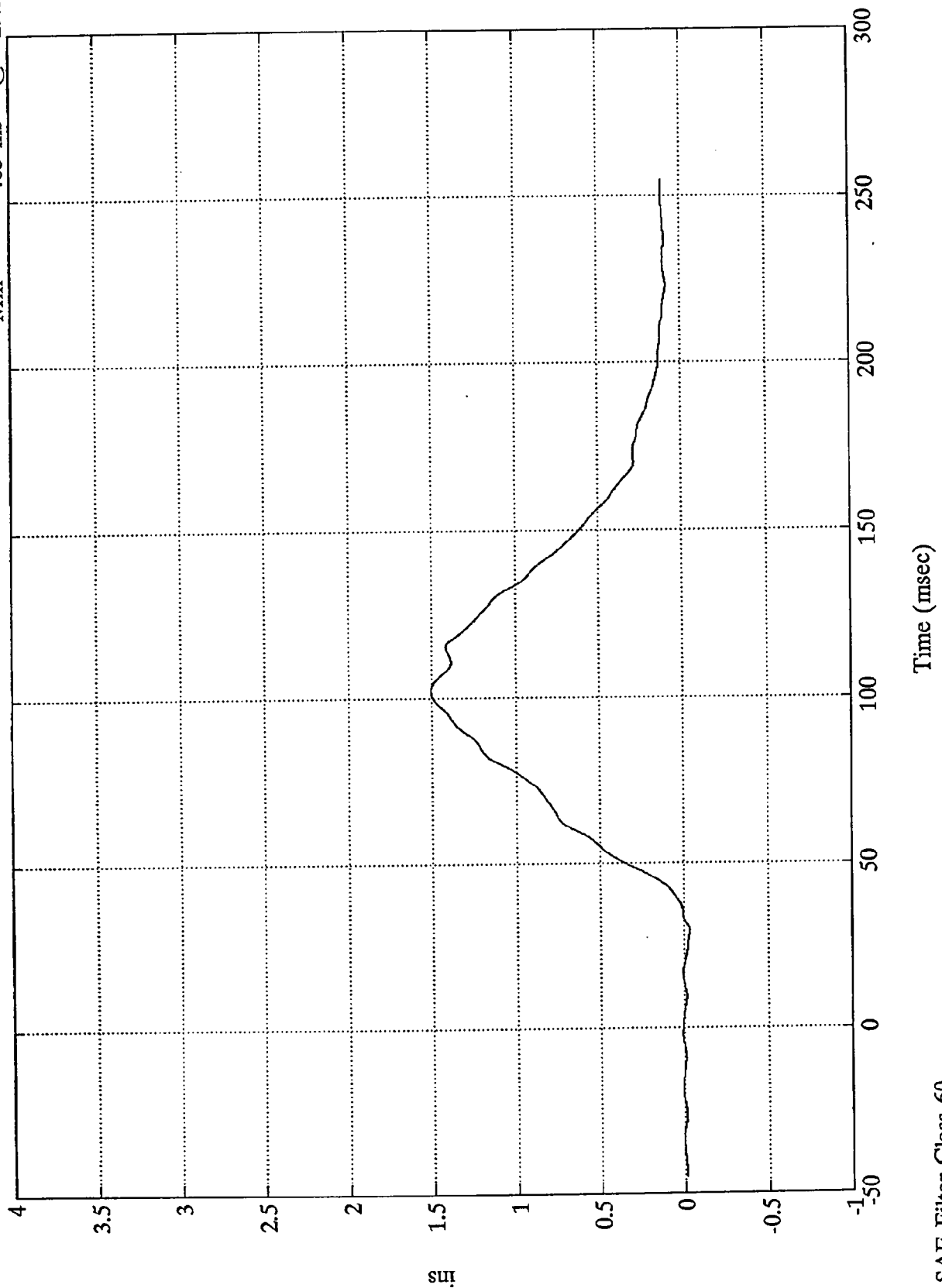


Sae Filter Class 180

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos 2 Chest Disp.

Max = 1.51 ins @ 102.00 msec
Min = -.03 ins @ 29.39 msec

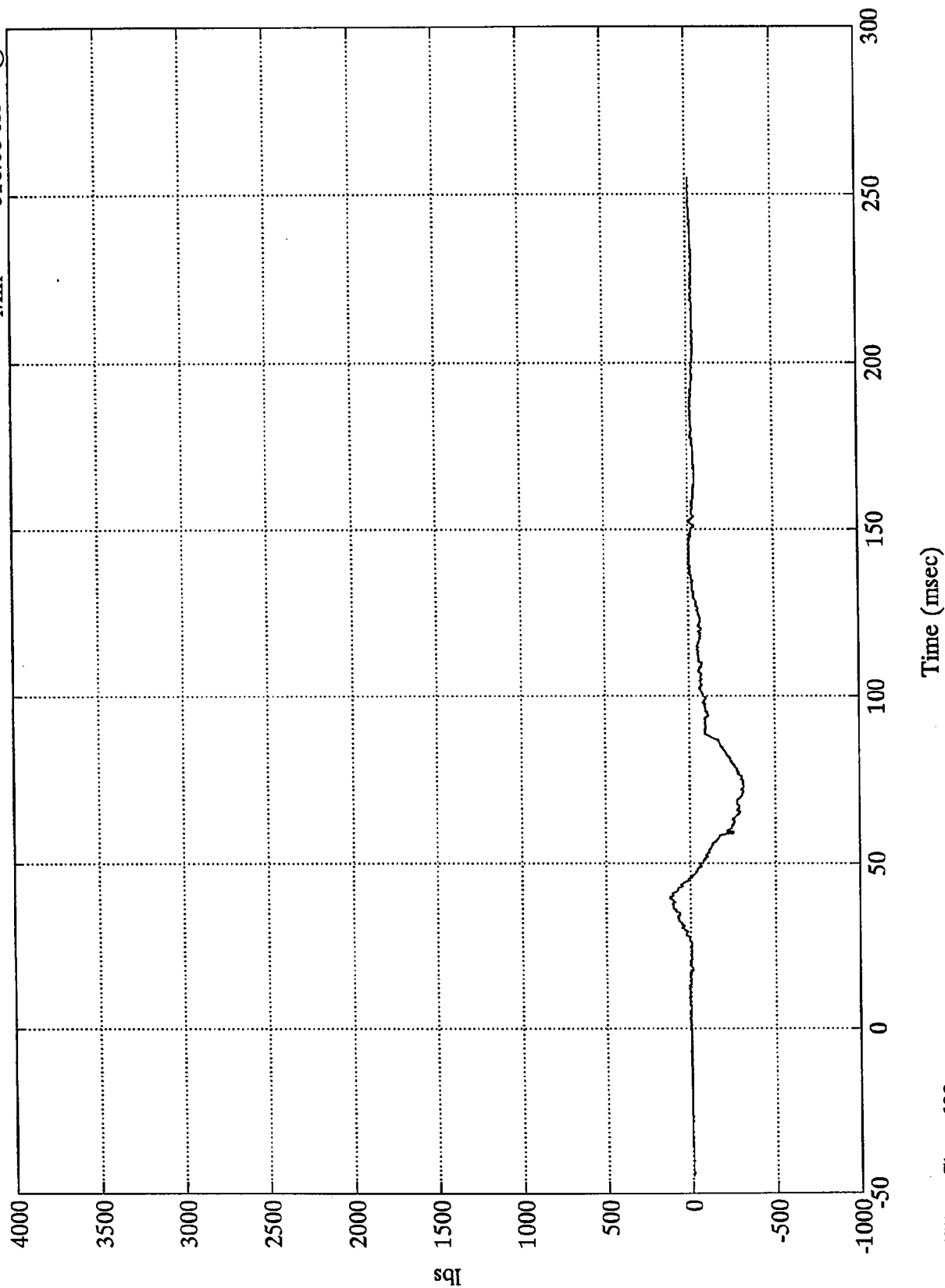


SAE Filter Class 60

NHTSA "208" TEST 13 - 1992 DODGE RAM

Max = 123.10 lbs @ 39.59 msec
Min = -318.08 lbs @ 73.08 msec

Pos. 2 Left Femur

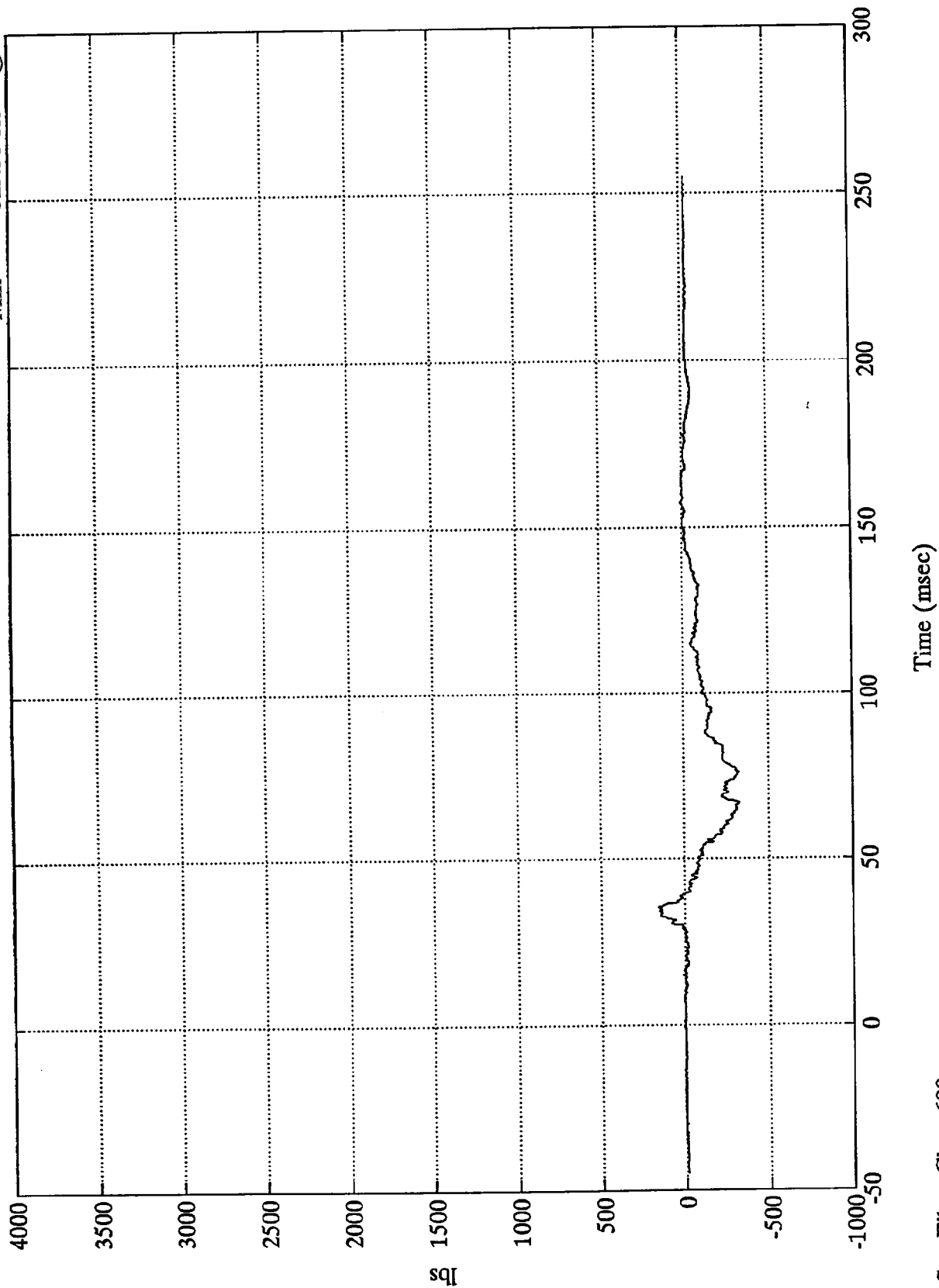


Sae Filter Class 600

NHTSA "208" TEST 13 - 1992 DODGE RAM

Pos. 2 Right Femur

Max = 156.30 lbs @ 35.63 msec
Min = -329.50 lbs @ 66.48 msec



Sae Filter Class 600

Appendix C

VEHICLE OWNERS MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

The ignition key will unlock all doors and locks on the vehicle.

Power Door Locks (optional)

Front doors equipped with power door locks can be locked or unlocked from inside by the lock switches on either of the front doors.

Power Windows (optional)

The control on the left front door has up-down switches that give you finger tip control of both front door windows. There is a single switch on the passenger door for opening and closing passenger window. The windows will operate only when the ignition switch is turned to the ON position.

Sliding Rear Window (optional)

A locking device in the center of the windows helps to prevent entry from the rear of the vehicle. Pull out on the left side of the lock to release the windows.

Easy-Off Tailgate

The tailgate can be removed quickly. Unlatch tailgate and remove support arms from the retainer pins. Raise right side of tailgate until the lower right side pivot clears the hanger bracket. Then slide the tailgate to the right to remove.

The tailgate is not removable on models with dual wheel assemblies. The rear clearance and I.D. lights require an extension of the wiring harness which threads from the rear fenders and continues along the channel at the base of the tailgate. Removal of the tailgate would require damaging these wires.

Occupant Restraints

One of the most important safety features in your vehicle is the restraint system. This system includes the front and

rear seat belts. Your seat belts can also be used to hold infant and child restraint systems if you will be carrying children too small for adult-size belts.

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

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

Buckle up even though you are an excellent driver. Even on short trips. Someone else on the road may be a poor driver and cause a collision which involves you. And this can happen far from home or on your own street.

Research has shown that seat belts save lives. And they can reduce the seriousness of injuries in a collision. Some of the worst injuries happen when people are thrown from the vehicle. Seat belts provide protection against that, and they reduce the risk of injury caused by striking the inside of the vehicle. Everyone in a motor vehicle needs to be buckled up all the time.

Unibelts

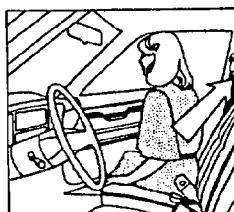
The outboard seats of your vehicle have combination lap/shoulder belts, or unibelts. The retractor is designed to lock during very sudden stops or impacts. This feature allows the shoulder part of the belt to move freely with you under normal conditions. But in a collision, the belt will lock and reduce the risk of your striking the inside of the vehicle or being thrown out.

WARNING: *Wearing a seat belt incorrectly is dangerous. Seat belts are de-*

signed to go around the large bones of your body. These are the strongest parts of your body and can take the forces of a collision the best. Wearing your belt in the wrong place could make your injuries in a collision much worse. You might suffer internal injuries, or you could even slide out of part of the belt. Follow these instructions to wear your seat belt safely and to keep your passengers safe, too.

Seat Belt Operating Instructions

1. Enter the vehicle and close the door. Sit back and adjust the seat.



1

2. The latch plate of the belt is above the back of your seat. Grasp the latch plate and pull out the belt. Slide the latch plate up the webbing as far as necessary to make the belt go around your lap.



2

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



3

7

WARNING: A belt buckled into the wrong buckle will not protect you properly. The lap portion could ride too high on your body, possibly causing internal injuries. Always buckle your belt into the buckle nearest you.

WARNING:

- A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your safety belt snugly.
- A shoulder belt worn under your arm is very dangerous. Your body could fall into the inside surfaces of the vehicle in a crash, increasing head and neck injury. And a belt worn under the arm is very likely to break your ribs. Ribs aren't as strong as shoulder bones. Wear the belt over your shoulder so that your strongest bones will take the force in a collision.

4. Position the lap belt across your thigh, below your abdomen. If you need the lap portion tighter, pull up a bit on the shoulder part, as shown. A snug belt reduces the risk of sliding under the belt in a collision.

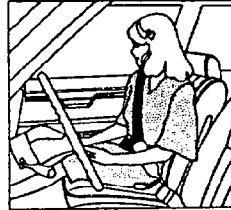


4

WARNING: A lap belt worn too high can increase the risk of internal injury in a collision. The belt forces won't be at the strong hip and pelvic bones, but across your abdomen. Always wear the lap part

of your safety belt as low as possible, and keep it snug.

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



5

WARNING: A twisted belt can't do its job as well. In a collision it could even cut into you. Be sure your belt is not twisted. If your belt can't be untwisted, take it to your dealer and have it fixed.

6. To release the belt, push the red button marked "Press" on the buckle. The belt will automatically retract to its stowed position.

If necessary, slide the latch plate down the webbing to allow the belt to retract fully.

WARNING: A frayed or torn belt could rip apart in a collision. It could leave you with no protection. Inspect your belts periodically, checking for cuts, frays, and loose parts. If you have been in a collision, have the belts checked, even though they may not show signs of damage. Have any damaged belt replaced.

Center Lap Belts

Center seating positions have a lap belt only.

To fasten a lap belt, slip the latch plate into the buckle.

To lengthen the lap belt, tilt the latch plate and pull. To shorten the belt, pull the loose end of the webbing.

Wear the lap belt snug against the hips. Sit back and erect in the seat, then adjust the belt as tightly as is comfortable.

WARNING: *A lap belt worn too loose or too high is dangerous.*

- *A belt worn too loose can allow you to slip down and under the belt in a collision.*
- *A belt that is too high will apply crash forces to the abdomen, not to the stronger hip bones.*

In either case, the risk of internal injuries is greater. Wear a lap belt low and snug.

WARNING: *Belting two people into one seat belt can lead to greater injury. People belted together can crash into one another in an accident, hurting one another badly. Never use a belt for more than one person, no matter what their size.*

Seat Belts and Pregnant Women

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

Pregnant women should wear the lap part of the belt across the thighs and as snug against the hips as possible. Keep the belt low so that it does not come across the abdomen. That way the strong bones of the hips will take the force if there is a collision.

Seat Belt Extender

If a seat belt is too short, even when fully extended, your dealer can provide you with a seat belt extender. This extender should be used only if the existing belt is not long enough.

When it is not required, remove the extender and stow it. Use of the extender when it is not needed may defeat the seat belt locking mechanism.

Child Restraint

When we say that everyone in your vehicle needs to be buckled up all the time, we mean babies and children, too.

WARNING: *In a collision, an unrestrained child, even a tiny baby, can become a missile inside the vehicle. The force required to hold even an infant on your lap can become so great that you could not hold the child, no matter how strong you are. The child and others could be badly injured. Any child riding in your vehicle should be in the proper restraint for his or her size.*

Every state in the United States and all Canadian provinces require small children to ride in proper restraint systems. This is the law, and you can be prosecuted for ignoring it.

Infants and Small Children

There are different sizes and types of restraints for children from newborn size to the bigger child almost large enough for an adult safety belt. Use the restraint that is correct for your child.

Two different child restraint systems are generally available.

- The infant carrier for babies weighing up to 20 lbs. (9 kg.)
- The child seat for small children over 20 lbs.

In addition, some manufacturers make systems that can