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212-CAL-93-1
301-CAL-93-1

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

FORD MOTOR COMPANY
1993 FORD PROBE
2-DOOR HATCHBACK

NHTSA NUMBER: CP0202

CALSPAN TEST NUMBER: 8056-2

September 16, 1992

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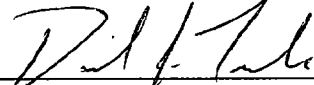
FINAL REPORT

PREPARED FOR:

U. S. Department of Transportation
National Highway Traffic Safety Administration
ENFORCEMENT
Office of Vehicle Safety Compliance
400 Seventh Street, S.W.
Room No. 6115 (NEF-30)
Washington, DC 20590

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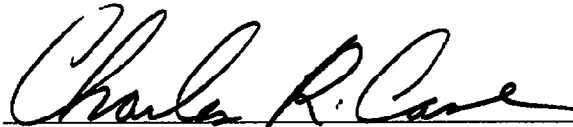
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16. Abstract A 30 mph vehicle safety compliance test was conducted on 1993 Ford Probe 2-Door Hatchback. This test was performed at the Calspan Advanced Technology Center in Buffalo, New York on September 16, 1992. The purpose of this test was to determine 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 29.5 mph. The ambient temperature at the impact face was 77°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 and a driver side air bag. The driver side 3-point seat belt was not used for this test.					
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 Copies of this report are available from: 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 1993 Ford Probe, 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 256-1-1216

A frontal barrier was impacted by a 1993 Ford Probe 2 Door Hatchback at velocity of 29.5 mph. The test was performed at the Calspan Corporation Advanced Technology Center on September 16, 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 572B, 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 23 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 315. The maximum chest deceleration over 3 milliseconds was 45.6 g's. The maximum force on the driver's left femur was 1331 pounds and 1212 pounds on the right femur.

The right front passenger's HIC was 227. The maximum chest deceleration over 3 milliseconds was 35.3 g's and loads were 398 and 427 on the left and right femurs respectively.

Table 1
CRASH TEST SUMMARY

Vehicle NHTSA No.: CPO202 Test Mode: 30 mph Frontal Barrier

Test Date: September 16, 1992 Time: 11:30 Temperature: 77 °F

Vehicle Make/Model/Body Style: 1993 Ford Probe 2-Door Hatchback

Vehicle Test Weight: 2970 lbs.

Vehicle/Barrier Impact Angle: 0°

Impact Velocity: 29.5 mph

Maximum Static Crush: 16.6 inches

Vehicle Rebound: 49.8 inches

<u>DUMMIES:</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Type:	<u>Part 572B</u>	<u>Part 572B</u>
Restraint System:	<u>Air bag</u>	<u>3-Point Manual Seat Belt</u>

Number of Data Channels: 23

Number of Cameras: 1 Real Time
14 High Speed

DOOR OPENING DATA: Closed - Left Front
Closed - 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: None None

<u>VISIBLE DUMMY CONTACT POINTS:</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Head:	<u>Face with air bag. Top of head with Sunvisor, header, and windshield rear of head with headrest</u>	<u>Chin with chest</u>
Abdomen:	<u>Lower steering wheel rim</u>	<u>No contact</u>
Chest:	<u>Lower steering wheel rim</u>	<u>No contact</u>
Knees:	<u>Lower dash</u>	<u>Glove box door</u>

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATATEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1993 Ford Probe 2-Door Hatchback
 NHTSA No.: CP0202; VIN: IZVCT20A1P5126788; Color: Red
 Engine Data: 4 cylinders; - CID; 2.0 Liters; - cc
 Placement: - Longitudinal or In-Line; ✓ Transverse or Lateral
 Transmission Data: 5 speeds; ✓ Manual; - Automatic; - Overdrive
 Final Drive: - Rear Wheel Drive; ✓ Front Wheel Drive; - Four Wheel Drive
 Major Options: - A/C; ✓ Pwr.Strg.; ✓ Pwr.Brakes
- Pwr.Windows; - Pwr.Door Locks; ✓ Tilt Wheel
 Date Received: 9/9/92; Odometer Reading 7.6 miles
 Selling Dealer: Muck Motors
 & Address 10 Campbell Blvd., Getzville NY, 14068

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Mazda Motor Mfg. for Ford Motor Co.
 Date of Manufacture: 8/15/92
 GVWR: 3490 lbs.; GAWR: 2000 lbs. FRONT; 1525 lbs. REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load: 35 psi FRONT
35 psi REAR

Recommended Tire Size: P195/65R-14

*Recommended Cold Tire Pressure: 32 psi FRONT; 26 psi REAR

Size of Tires on Test Vehicle: P195/65R14; Manufacturer: Firestone FR680

Vehicle Capacity Data:

Type of Front Seats: - Bench; ✓ Bucket; - Split Bench
 Number of Occupants: 2 Front; 2 Rear; 4 Total
 Vehicle Capacity Weight (VCW) = 680 lbs.
 No. of Occupants x 150 lbs. = 600 lbs.
 Rated Cargo/Luggage Weight (RCLW) = 80 lbs. (Difference)

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS) = UDW:

Right Front = 830 lbs. Right Rear = 460 lbs.
 Left Front = 790 lbs. Left Rear = 500 lbs.
 TOTAL FRONT = 1620 lbs. TOTAL REAR = 960 lbs.
 % of Total Vehicle Weight = 62.8 % of Total Weight = 37.2 %
 TOTAL DELIVERED WEIGHT = 2580 lbs.

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight = 2580 lbs.
 Rated Cargo/Luggage Weight (RCLW) = 80 lbs.
 Weight of 2 P.572 Dummies @ 167 ea. = 328 lbs.
 TARGET TEST WEIGHT = 2988 lbs. (sum)

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 0 POUNDS OF CARGO WEIGHT:

Right Front = 870 lbs. Right Rear = 620 lbs.
 Left Front = 840 lbs. Left Rear = 640 lbs.
 TOTAL FRONT = 1710 lbs. TOTAL REAR = 1260 lbs.
 % of Total Weight = 57.6 % % of Total Weight = 42.4 %
 TOTAL TEST WEIGHT = 2970 lbs.
 Weight of Ballast Secured in Vehicle Trunk Area = 0 lbs.
 Vehicle Components Removed for Weight Reduction: None

VEHICLE ATTITUDE (all dimensions in inches):

AS DELIVERED: RF 27.4 LF 27.5 RR 27.0 LR 27.2
 FULLY LOADED: RF 26.3 LF 26.3 RR 25.2 LR 25.4
 AS TESTED: RF 26.4 LF 26.6 RR 25.4 LR 25.7
 Vehicle's Wheel Base: 102.7 in.
 Location of Vehicle's C.G.: 43.5 inches rearward of front wheel center

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 15.5 gallons
 Usable Capacity Figure Furnished by COTR = 14.5 gallons
 Test Volume Range (92 to 94% of Usable Capacity) = 13.3 to 13.6 gallons
 ACTUAL TEST VOLUME = 13.5 gallons (with entire fuel system filled)

Table 3

POST IMPACT DATATYPE OF TEST:

Type of Test: Frontal Barrier Impact Angle: 0°
 Test Date: September 16, 1992 Time: 11:30 Temperature: 77°F
 Vehicle NHTSA No.: CP0202
 Required Impact Velocity Range: 29.8 to 29.9 mph

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

Trap No. 1 = 29.5 mph; Trap No. 2 = 29.4 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 = 173.0; C/L = 178.6; Left = 173.0
 Post-Test Right = 157.2; C/L = 162.0; Left = 164.2
 Crush Right = 15.8; C/L = 16.6; Left = 8.8
 AVERAGE = 13.7 inches

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point:

Right = 51.4; C/L = 50.1; Left = 47.8
 AVERAGE = 49.8 inches

DOOR OPENING:

	Left	Right
Front	<u>Closed</u>	<u>Closed</u>
Rear	<u>N/A</u>	<u>N/A</u>

SEAT MOVEMENT:

	Seat Back Failure	Seat Shift
Front	<u>None</u>	<u>None</u>
Rear	<u>N/A</u>	<u>N/A</u>

Table 3

POST IMPACT DATA (cont.)

GLAZING DAMAGE: Windshield crack

OTHER NOTABLE IMPACT FEATURES: Steering column stroked

Section 3
OCCUPANT AND VEHICLE DATA

Figure 1

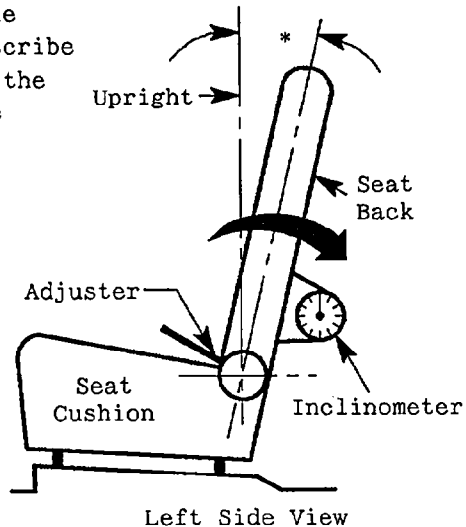
TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year: 1993 Vehicle Model: Ford Probe Body Style: 2-Door Hatchback

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 was positioned according to manufacturer specifications



Seat back angle for driver's seat: _____ *

Measurement instructions: Seat back was placed in 6th detent from first detent (first detent = '0')

Seat back angle for passenger's seat: _____ *

Measurement instructions: Same as driver

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: Seat was placed in 12 detent from most forward position (most forward position = '0')

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 14.5 gallons

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

Additional Instructions: None

Table 4
FRONT SEAT OCCUPANT MEASUREMENTS

	DRIVER (Seril #1020)	PASS (Serial #1022)
WA°	24.5°	
SWA°	71°	
SCA°	19°	
SA°	Seat was positioned as specified by manufacturer	Seat was positioned as specified by manufacturer
HZ	5.4	5.4
HH	13.1	13.1
HW	19.5	19.7
HR	6.1	6.0
NR	17.7	Angle (NA) 18°
CD	21.4	22.6
CS	12.6	
RA	7.4	
KDL	7.5 Angle (KDA) 34°	7.8
KDR	8.4	7.5 Angle (KDA) 32°
FA°	16°	16°
TA°	32°	29°
KK	15.3	11.7
ST	19.7 Angle 31°	20.7 Angle 34°
SK	34.2 Angle 98°	33.9 Angle 99°
SH	20.7 Agle 117°	20.4 Angle 119°
SHY	9.8	9.9
HS	10.0	10.0
HD	6.4	6.4
AD	2.7	2.7

Figure 2
PART 572 DUMMY IN VEHICLE POSITION

DUMMY MEASUREMENTS FOR FRONT SEAT PASSENGERS

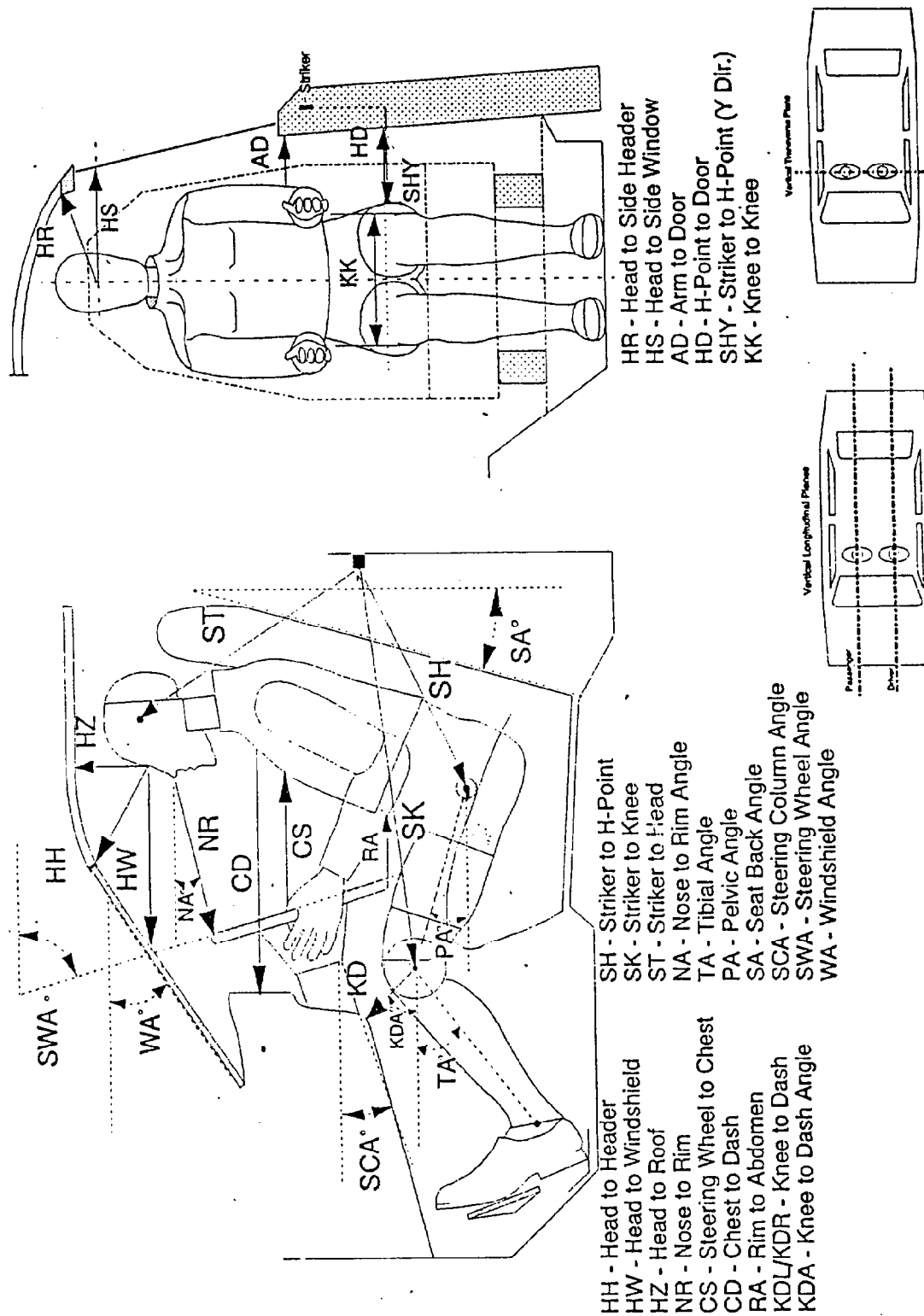
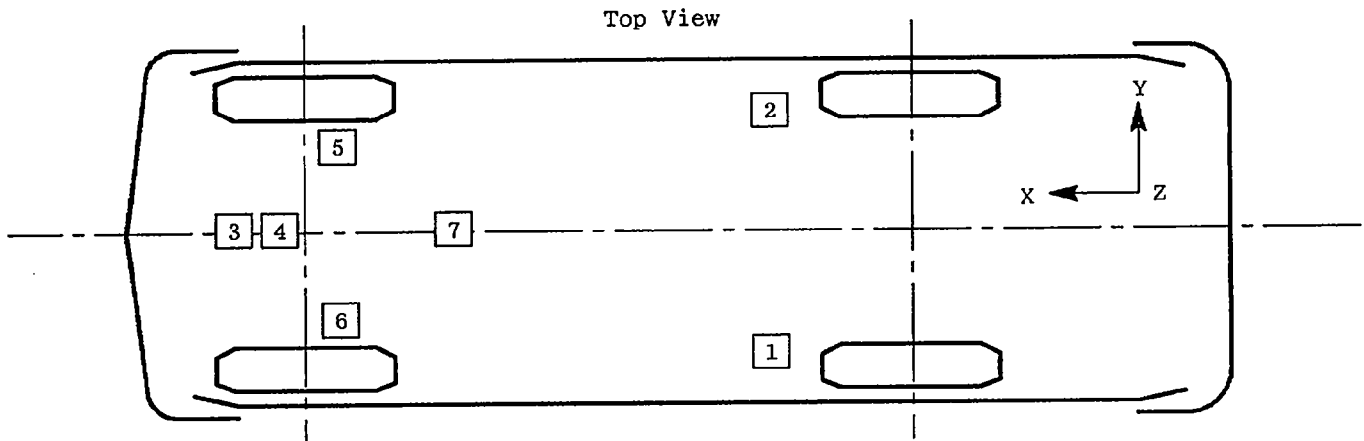


Figure 3
VEHICLE ACCELEROMETER LOCATIONS



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 5
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	PRE:	66.8	16.1	16.4				
	AT LEFT SIDE	POST:	66.8	16.1	16.2				
	LONGITUDINAL ACCELERATION					7	128	-43	46
2	REAR SEAT X-MEMBER	PRE:	67.1	-16.1	16.7				
	AT RIGHT SIDE	POST:	67.1	-16.1	16.3				
	LONGITUDINAL ACCELERATION					13	18	-49	48
3	TOP OF ENGINE BLOCK	PRE:	154.6	-3.7	27.9				
		POST:	149.9	-3.7	29.3				
	LONGITUDINAL ACCELERATION					57	20	-101	37
4	BOTTOM OF ENGINE	PRE:	143.6	-10.0	8.4				
		POST:	140.5	-10.0	10.1				
	LONGITUDINAL ACCELERATION					75	49	-80	37
5	BRAKE CALIPER AT	PRE:	135.6	-22.0	21.4				
	RIGHT SIDE	POST:	135.8	-22.0	21.3				
	LONGITUDINAL ACCELERATION					12	20	-103	50
6	BRAKE CALIPER AT	PRE:	135.6	22.0	21.4				
	LEFT SIDE	POST:	135.9	22.0	21.2				
	LONGITUDINAL ACCELERATION					11	66	-79	43
7	DASH PANEL	PRE:	106.0	2.4	28.5				
		POST:	106.0	2.4	28.5				
	LONGITUDINAL ACCELERATION					37	81	-54	49

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

Figure 4
CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 5.

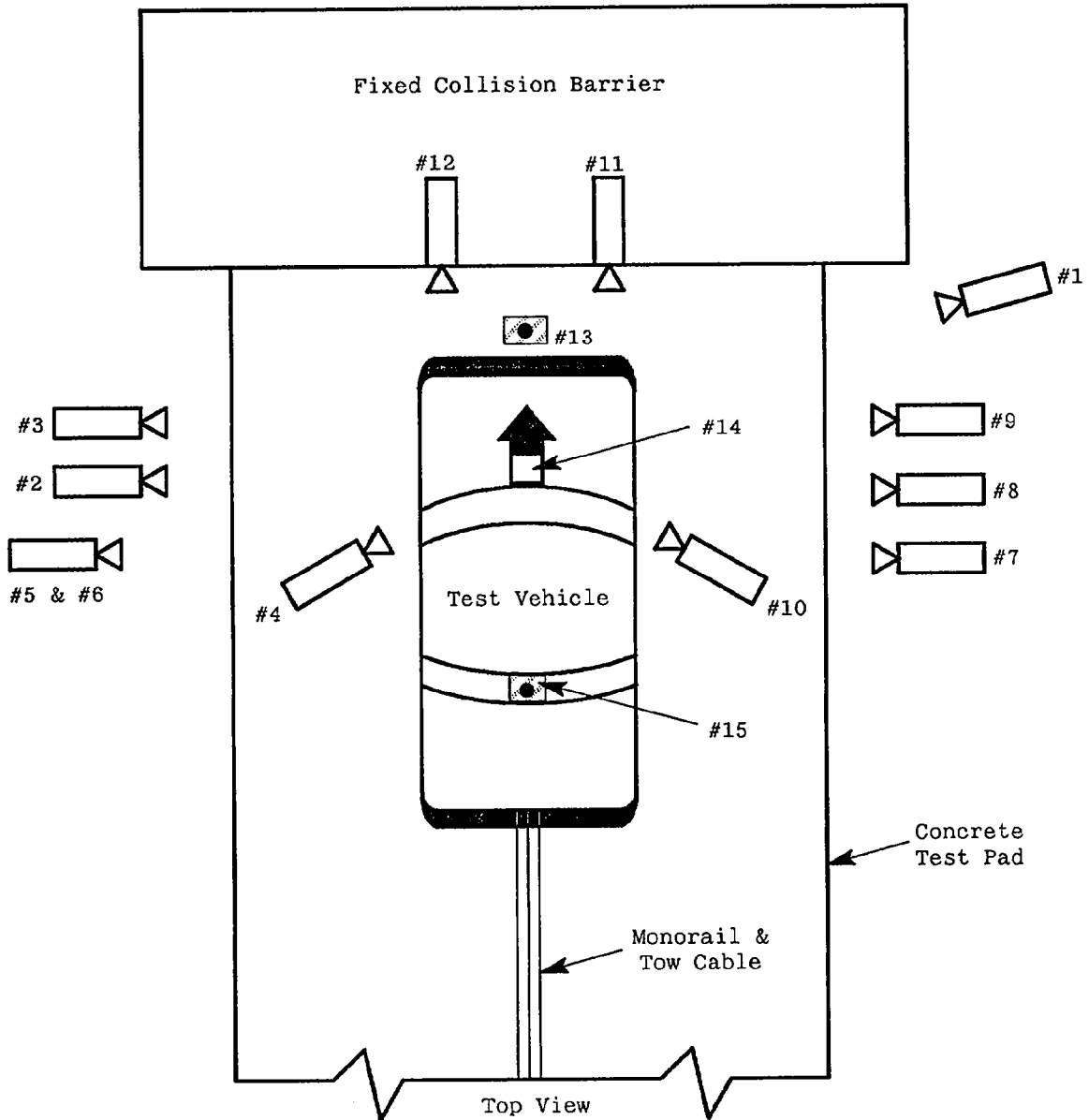


Table 6

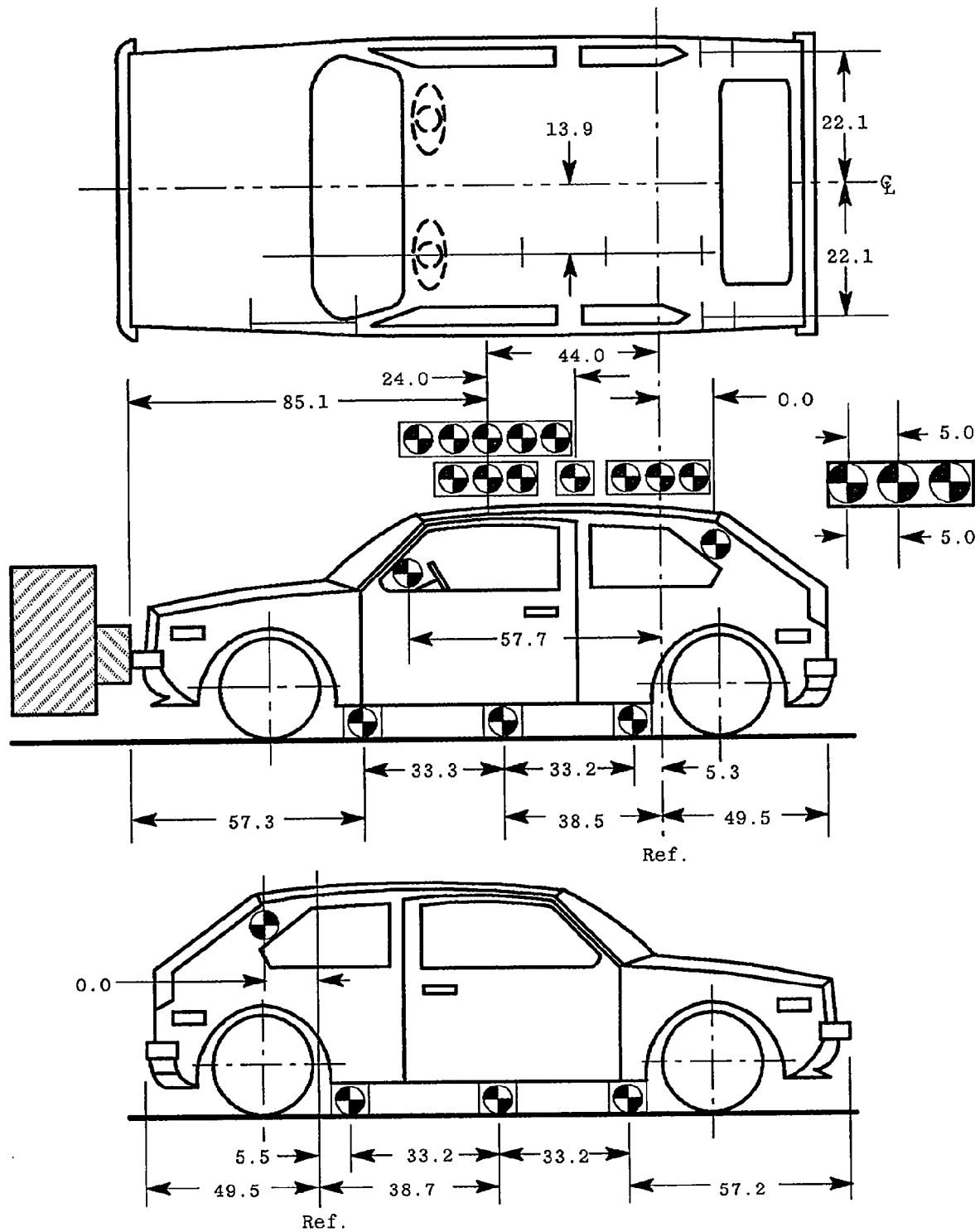
HIGH-SPEED CAMERA LOCATIONS

CAMERA NO.	VIEW	CAMERA POSITIONS (in)*			ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	-
2	Overall Left Side	233	74	41	-2	216.1	13	550
3	Left Side View	327	44	41	-3	310.1	25	600
4	Driver and Interior View	114	119	65	-17	-	13	640
5	Steering Column (Bottom)	267	78	46	-6	250.1	25	590
6	Steering Column (Top)	267	78	70	-10	250.1	25	575
7	Overall Right Side	239	80	42	-3	222.1	13	550
8	Right Side View	323	63	41	-2	306.1	25	560
9	Right Passenger View	301	83	56	-4	284.1	35	525
10	Passenger and Interior View	106	118	65	-18	-	13	570
11	Passenger Front View	19	22	76	-46	-	13	610
12	Driver Front View	19	22	76	-47	-	13	560
13	Windshield View	0	0	126	-56	-	25	600
14	Pit View of Engine	0	24	86	90	-	13	650
15	Pit View of Fuel Tank	0	92	92	90	-	13	800

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

Test No. CP0202 Vehicle: 1993 Ford Probe 2-Door Hatchback

Figure 5
VEHICLE TARGET LOCATIONS



(Dimensions in inches)

Table 7

VEHICLE MEASUREMENTS

No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	178.6	162.0	16.6
X2	Rear Surface of Vehicle to Front of Engine	152.5	147.7	4.8
X3	Rear Surface of Vehicle to Firewall	133.7	133.0	0.7
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	117.3	117.4	-0.1
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	117.4	117.6	-0.2
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	118.0	118.4	-0.4
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	117.8	118.5	-0.7
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	67.3	67.5	-0.2
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	67.3	67.8	-0.5
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	70.9	71.4	-0.5
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	71.0	71.5	-0.5
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	119.5	119.5	0.0
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	119.9	120.3	-0.4
X14	Rear Surface of Vehicle to Firewall, Right Side	130.7	130.2	0.5
X15	Rear Surface of Vehicle to Firewall, Left Side	130.2	130.4	-0.2
X16	Rear Surface of Vehicle to Steering Column	100.5	104.2	-3.7
X17	Center of Steering Column to "A" Post	16.2	16.3	-0.1
X18	Center of Steering Column to Headliner	16.5	17.2	-0.7
X19	Rear Surface of Vehicle to Right Side of Front Bumper	173.0	157.2	15.8
X20	Rear Surface of Vehicle to Left Side of Front Bumper	173.0	164.2	8.8
X21	Length of Engine Block	16.5	16.5	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 8

DUMMY INJURY CRITERIA VALUESNHTSA No.: CP0202 Vehicle: 1993 Ford Probe 2-Door Hatchback

	MAXIMUM ACCELERATION (g's)							
	HEAD				CHEST			
	X	Y	Z	R	X	Y	Z	R*
Dummy (1)	-64	36	37	74	-47	-7	-15	47
Dummy (2)	-18	12	37	39	-36	8	-10	37

	MAXIMUM FORCE - FEMUR LOAD (lbs.)	
	LEFT FEMUR	RIGHT FEMUR
Dummy (1)	1331	1211
Dummy (2)	398	427

	HEAD INJURY CRITERIA**			
	HIC	36 millisecond Maximum		Avg. Acc. (g) t ₁ TO t ₂
		t ₁ (msec)	t ₂ (msec)	
Dummy (1)	315	63.000	87.480	44
Dummy (2)	227	65.280	101.160	33

*Defined as exceeding 0.003 sec. duration

**As defined in FMVSS No. 208

Table 9

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 = 6.0 sec.

Log time duration of reminder light operation = 6.0 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 = 6.0 sec.

Note wording of visual warning:

Fasten Seat Belt -

Fasten Belt -

Symbol 101-80 X

Table 10

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: Driver side sun visor

The manufacturers states "No SRS Maintenance is Needed Unless"

- "Air Bag" lamp flashes or stays lit
- "Air Bag" lamp does not light when key is turned on
- Groups of five beeps are heard."

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

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

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

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

Table 11

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 - NO X

Describe the location of the readiness indicator:

Bottom center of instrument panel

Is the readiness indicator clearly visible to the driver?
YES X NO -

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

Table 12

FMVSS NO. 208 - COMFORT AND CONVENIENCE TEST SUMMARY

Test Vehicle NHTSA No.:	<u>CP0202</u>
Make/Model:	<u>1993 Ford Probe</u>
Date of Comfort/Convenience Check:	<u>9/15/92</u>
Technician Performing Check:	<u>V.M.P</u>
GVWR:	<u>3490 lbs</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 12 (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 X NO -

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 X NO -

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 12 (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 0.4 pounds. Contact the COTR if the contact force exceeds 0.7 pounds.

Table 12 (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 12 (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 12 (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 X NO -

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 7

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA SHEET

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

Windshield is bonded in place with 0.3" rubber and 0.4" plastic trim covering top and both sides of windshield. A 0.3" rubber trim along with a plastic cowl covers the bottom of windshield.

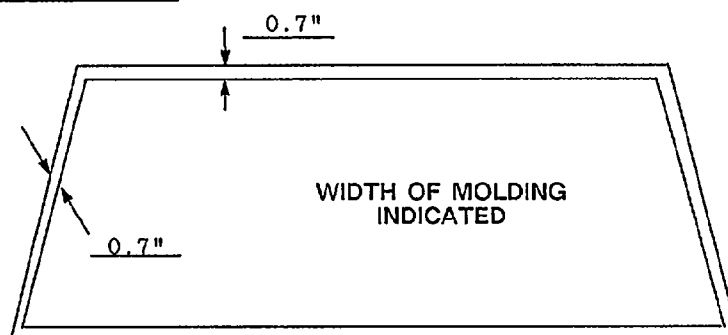
FMVSS 212 REQUIREMENTS:

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	83.5	83.5	100
LEFT SIDE	83.5	83.5	100
TOTAL	167.0	167.0	100

AREA OF RETENTION FAILURE:



FRONT VIEW

FAILURE DETAILS: None

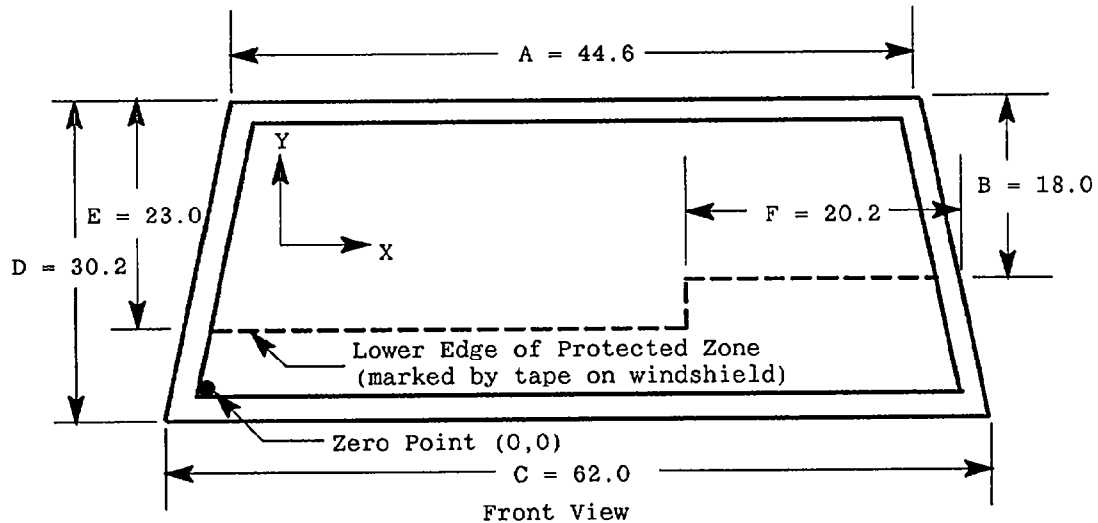
Figure 8

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	P	0	2	0	2
---	---	---	---	---	---

Vehicle Mfg./Make/Model: 1993 Ford Probe 2-Door Hatchback

TEST VEHICLE IMPACT TYPE: X Frontal (30 mph)

(driver/passenger) side

 - Rear Moving Barrier (30 mph)

 Lateral Moving Barrier (20 mph)

1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

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

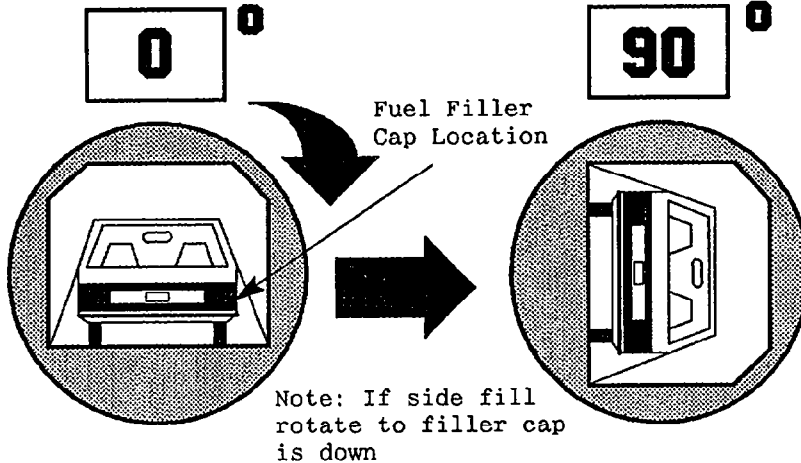
None

Table 14
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

Vehicle NHTSA ID No.:

CP0202



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	2	minutes	14	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	7	minutes	14	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.

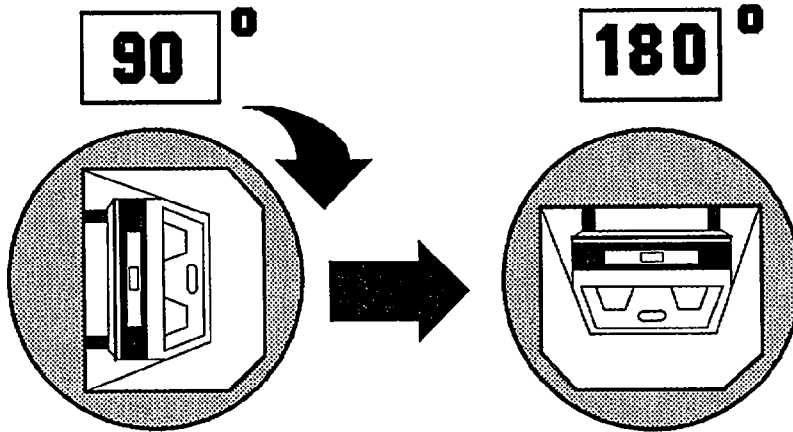
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 14
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

Vehicle NHTSA ID No.:



CP0202

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time _____ 1 _____ minutes _____ 58 _____ seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + _____ 5 _____ minutes _____ 00 _____ seconds

TOTAL _____ 6 _____ minutes _____ 58 _____ 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	N/A
---	---	---	-----

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

IV. SOLVENT SPILLAGE LOCATION(S):

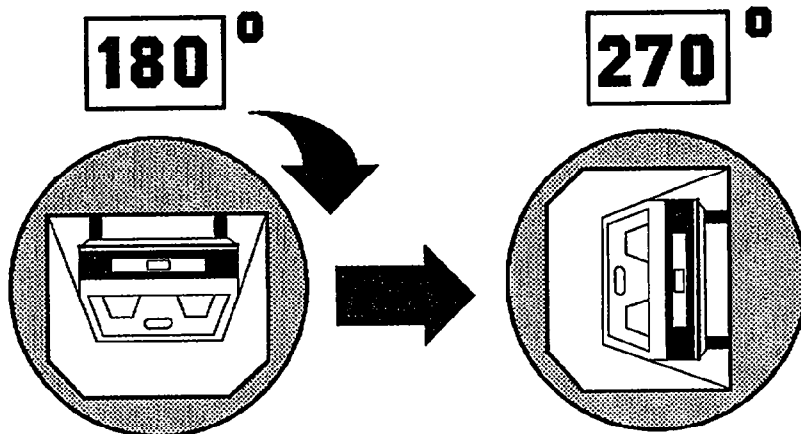
None

Table 14
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

Vehicle NHTSA ID No.:

CP0202



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time _____ 1 _____ minutes _____ 40 _____ seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + _____ 5 _____ minutes _____ 00 _____ seconds

TOTAL _____ 6 _____ minutes _____ 40 _____ 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	N/A
---	---	---	-----

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

IV. SOLVENT SPILLAGE LOCATION(S):

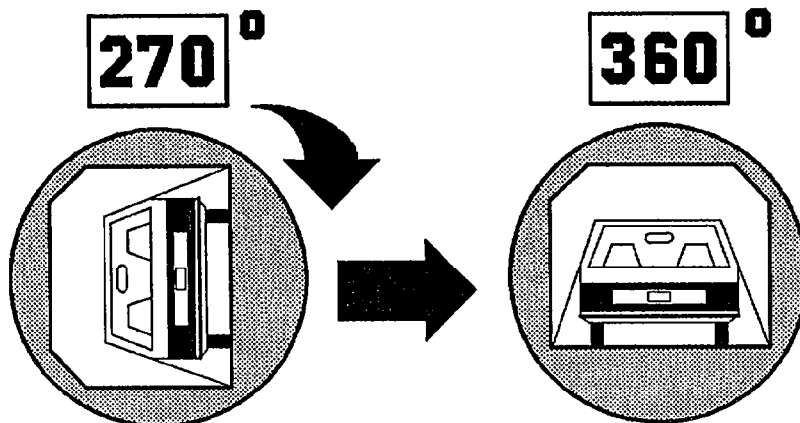
None

Table 14
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

Vehicle NHTSA ID No.:

CP0202



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	1 minutes 58 seconds
FMVSS 301 Position Hold Time +	5 minutes 00 seconds
TOTAL	6 minutes 58 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	N/A
---	---	---	-----

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 15

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: September 16, 1992 Vehicle NHTSA No.: CP0202
Vehicle Manufacturer: Ford Motor Company
Model Year: 1993 VIN: 1ZVCT20A1P5126788
Model: Probe Body Style: 2-Door Hatchback Build Date: 8/15/92
Dummy Stabilized Temperature at Time of Test: 70 °F (Spec. = 69-72°F)
Impact Velocity: 29.5 mph Time of Test: 11:30
Type of Automatic Restraint System: Driver side air bag and front passenger
3-point manual seat belt

Failure Details:

Vehicle as tested appears to comply with the requirements of FMVSS Nos. 208, .
212, 219 (Partial) and 301.

Appendix A

PHOTOGRAPHS

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Figure A-1 PRE-TEST FRONT VIEW

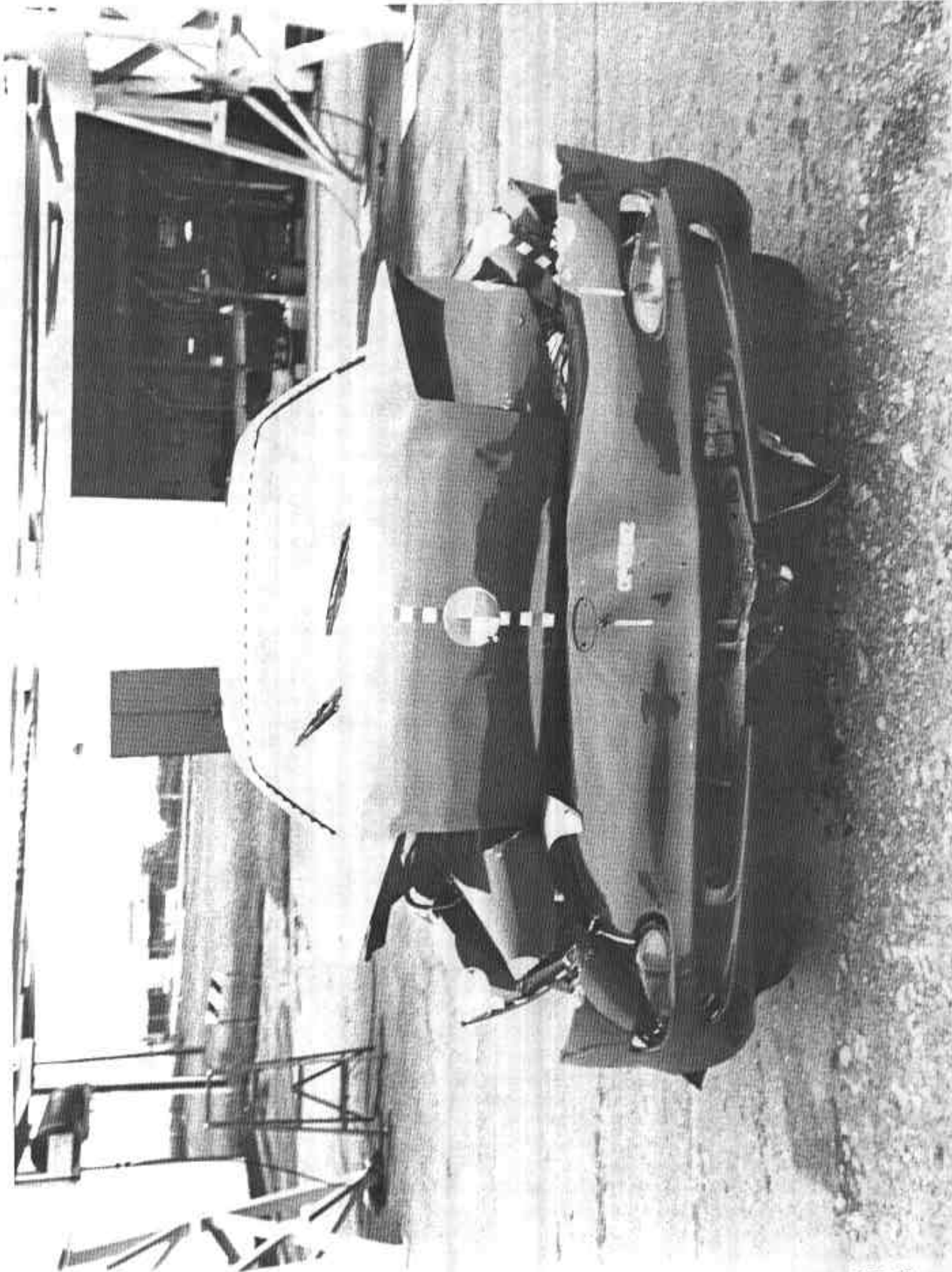


Figure A-2 POST-TEST FRONT VIEW

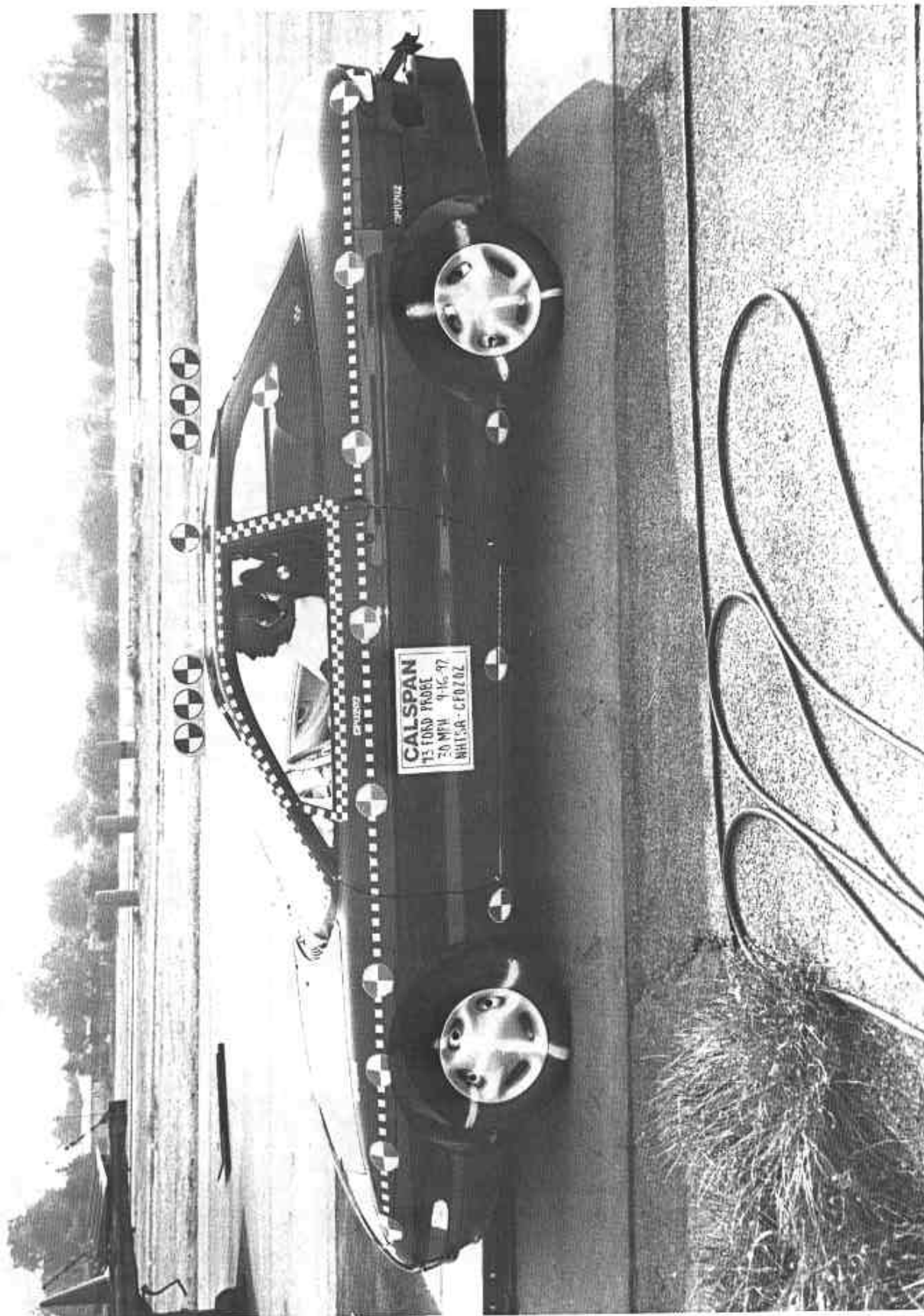


Figure A-3 PRE-TEST LEFT SIDE VIEW

A-5

8056-2

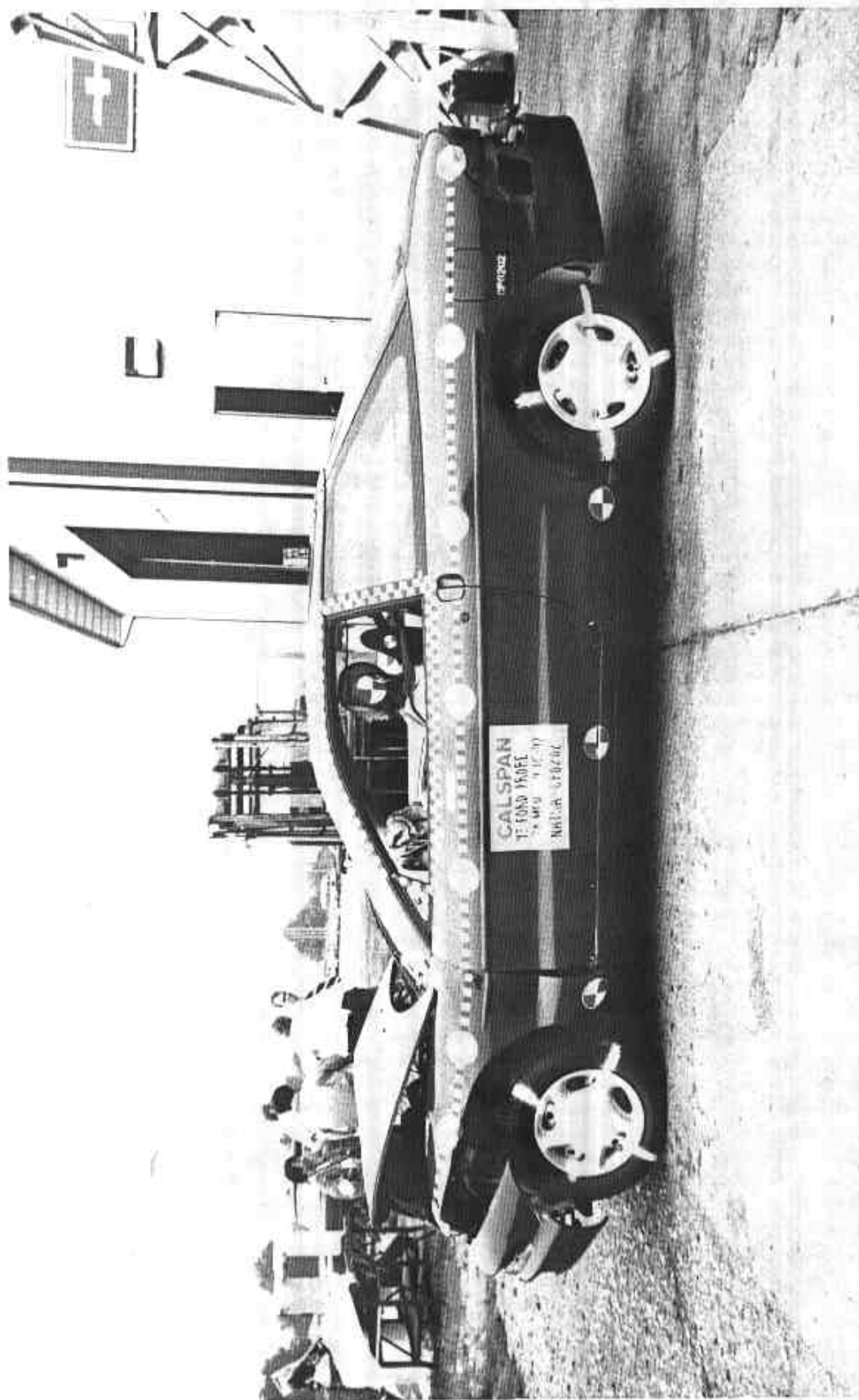
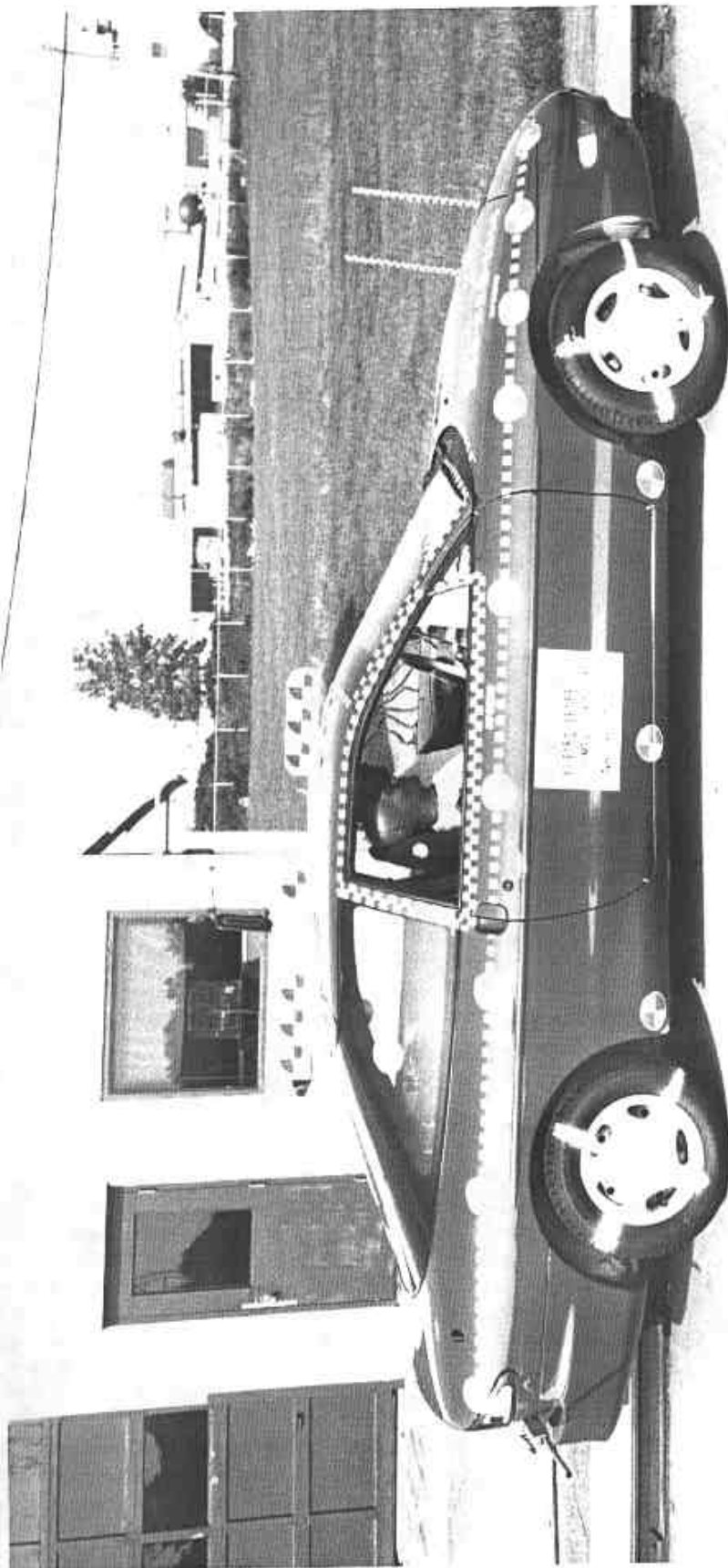


Figure A-4 POST-TEST LEFT SIDE VIEW

A-6

8056-2



A-7

Figure A-5 PRE-TEST RIGHT SIDE VIEW

8056-2

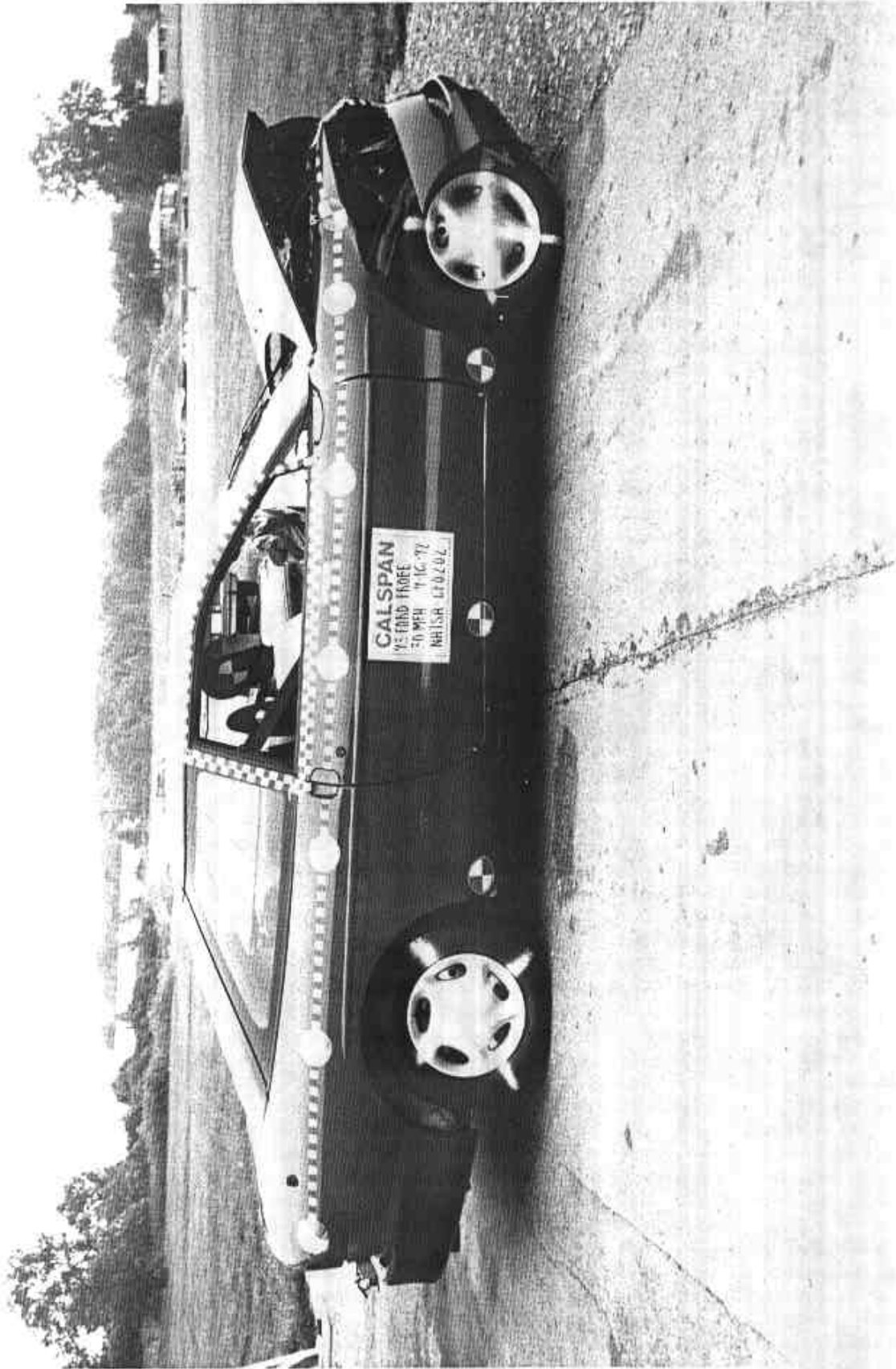


Figure A-6 POST-TEST RIGHT SIDE VIEW

A-8

8056-2



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

A-9

8056-2



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



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

A-11

8056-2



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

A-12

8056-2

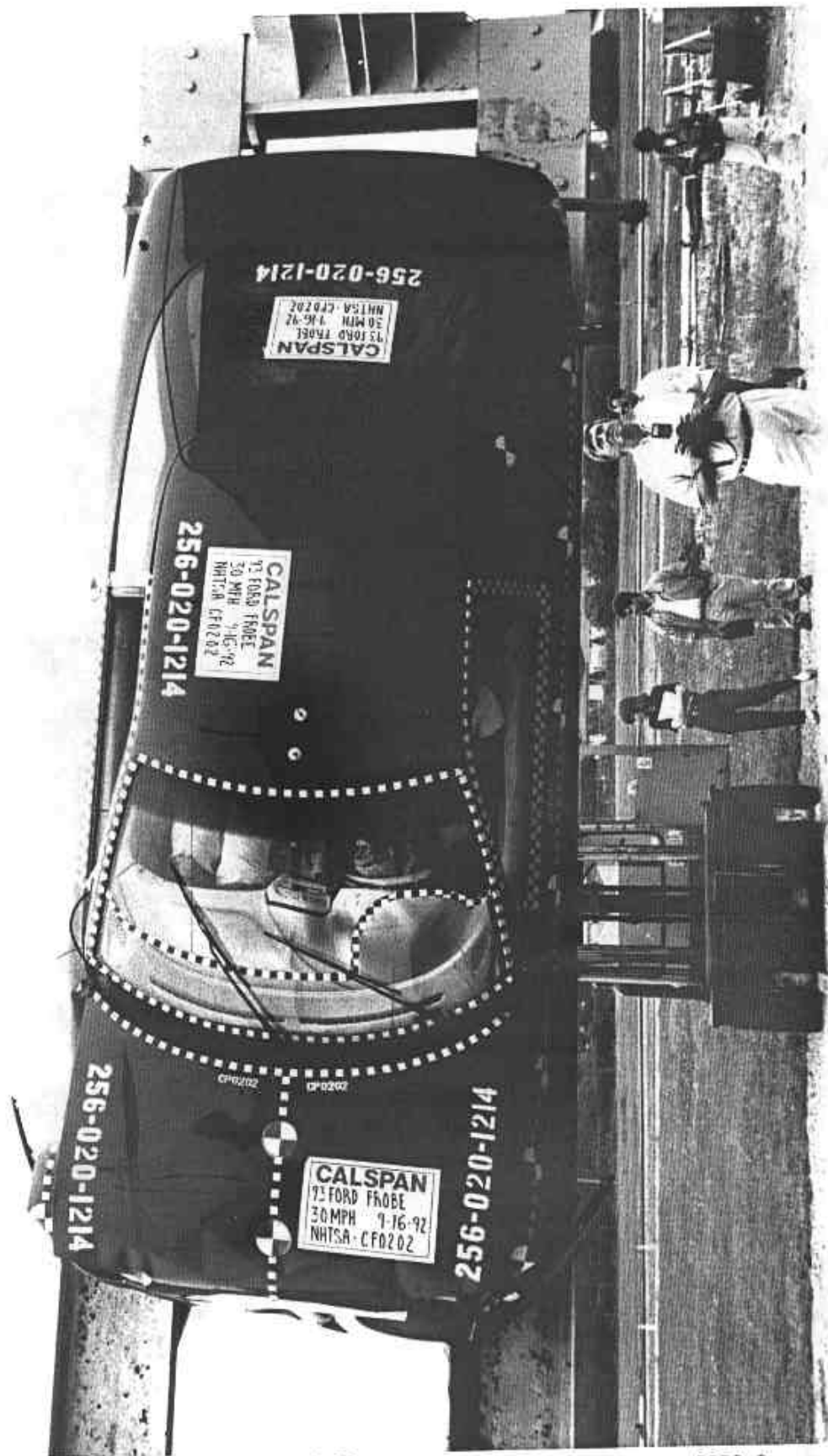


Figure A-11 POST-TEST TOP VIEW

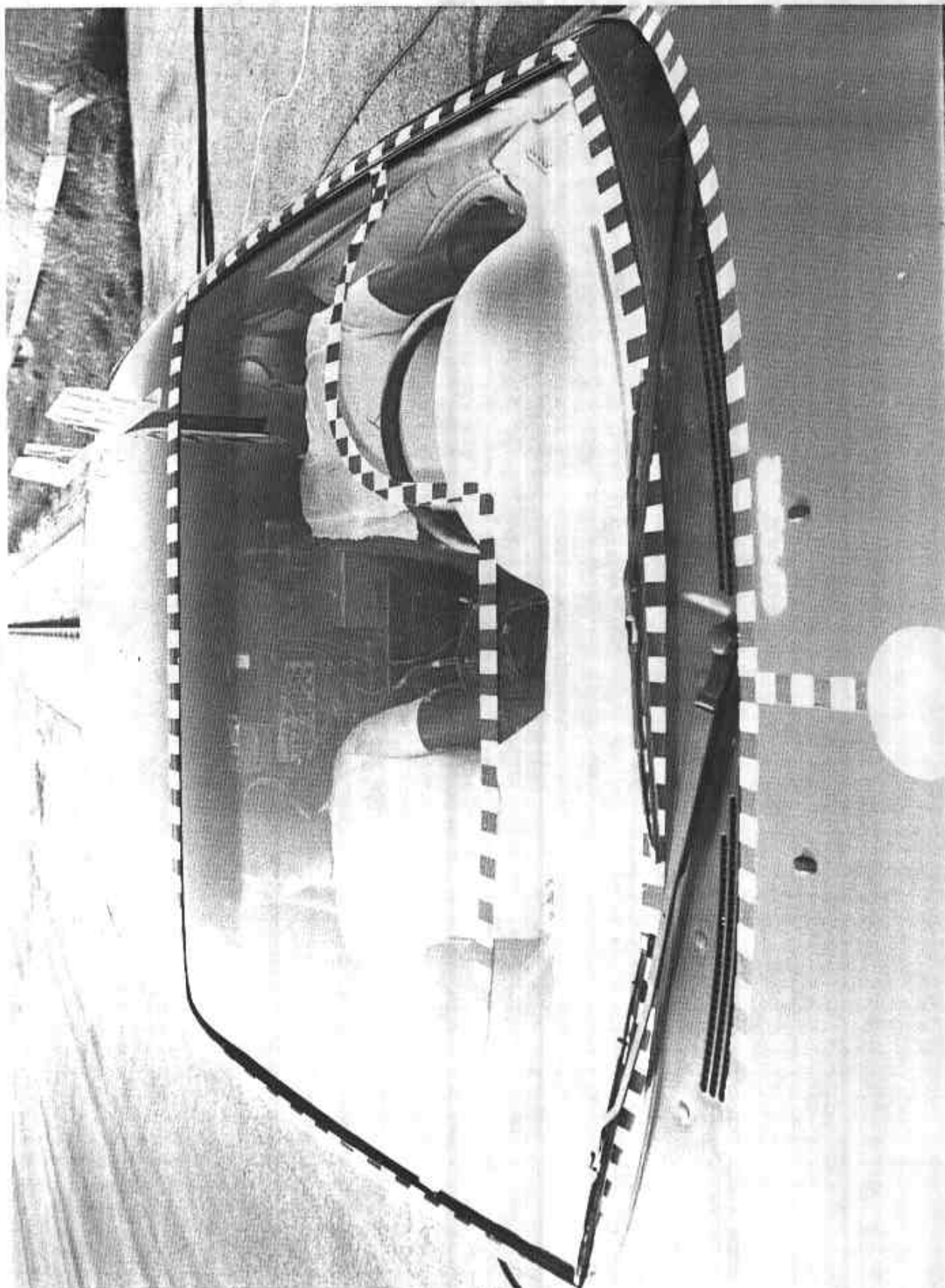


Figure A-12 PRE-TEST WINDSHIELD VIEW

A-14

8056-2

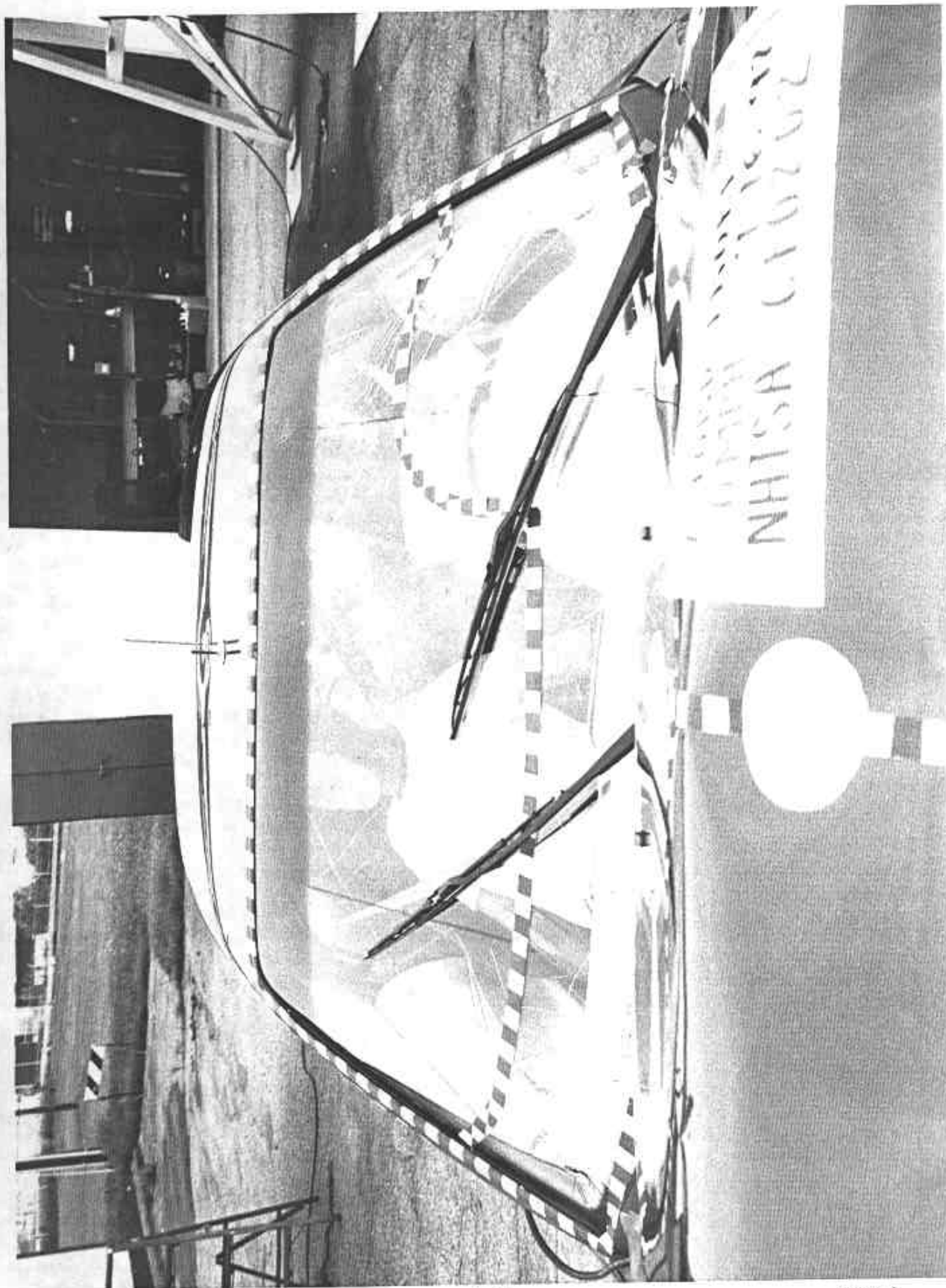


Figure A-13 POST-TEST WINDSHIELD VIEW

A-15

8056-2

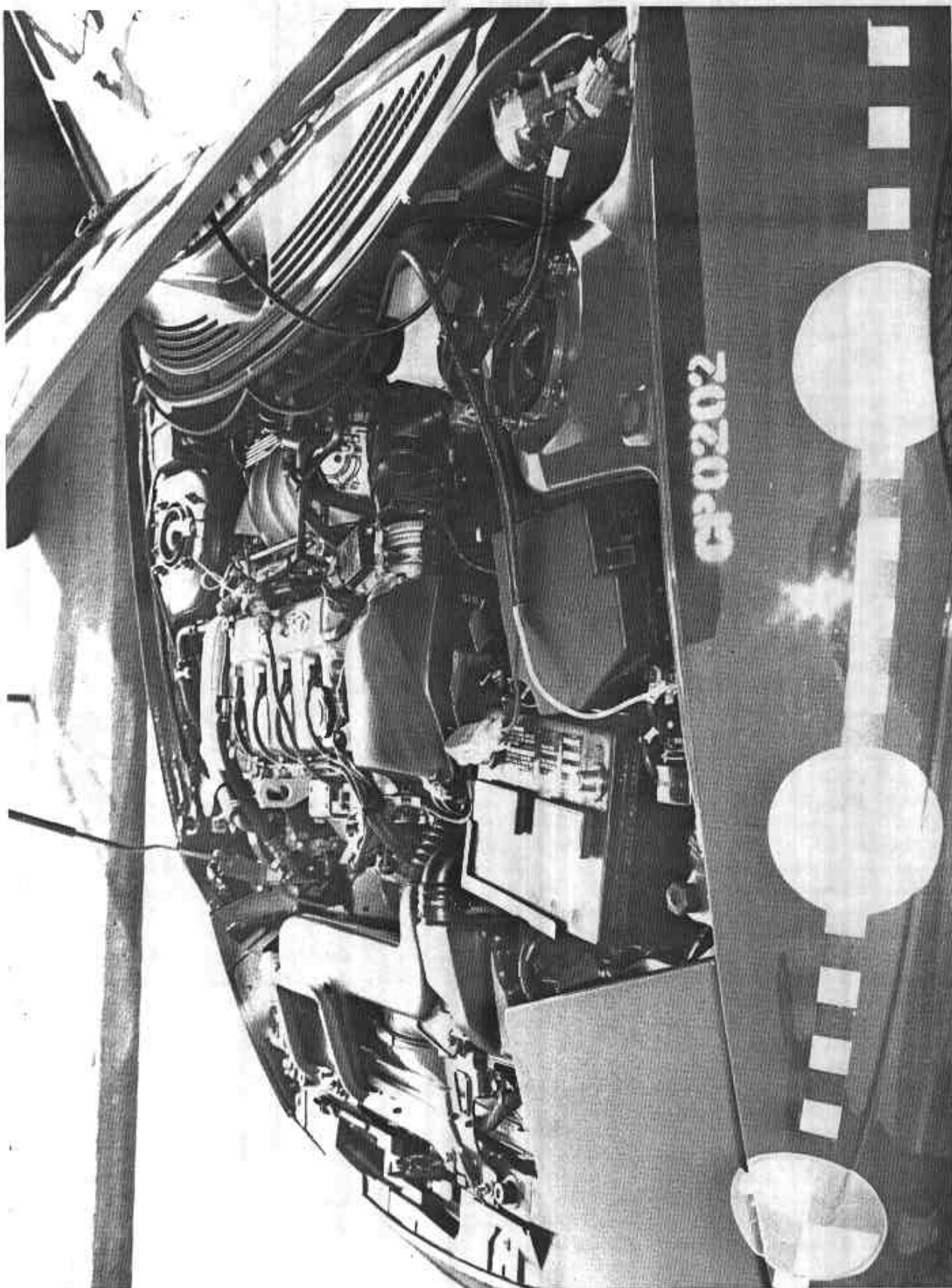


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

A-16

8056-2



Figure A-15 POST-TEST ENGINE COMPARTMENT VIEW

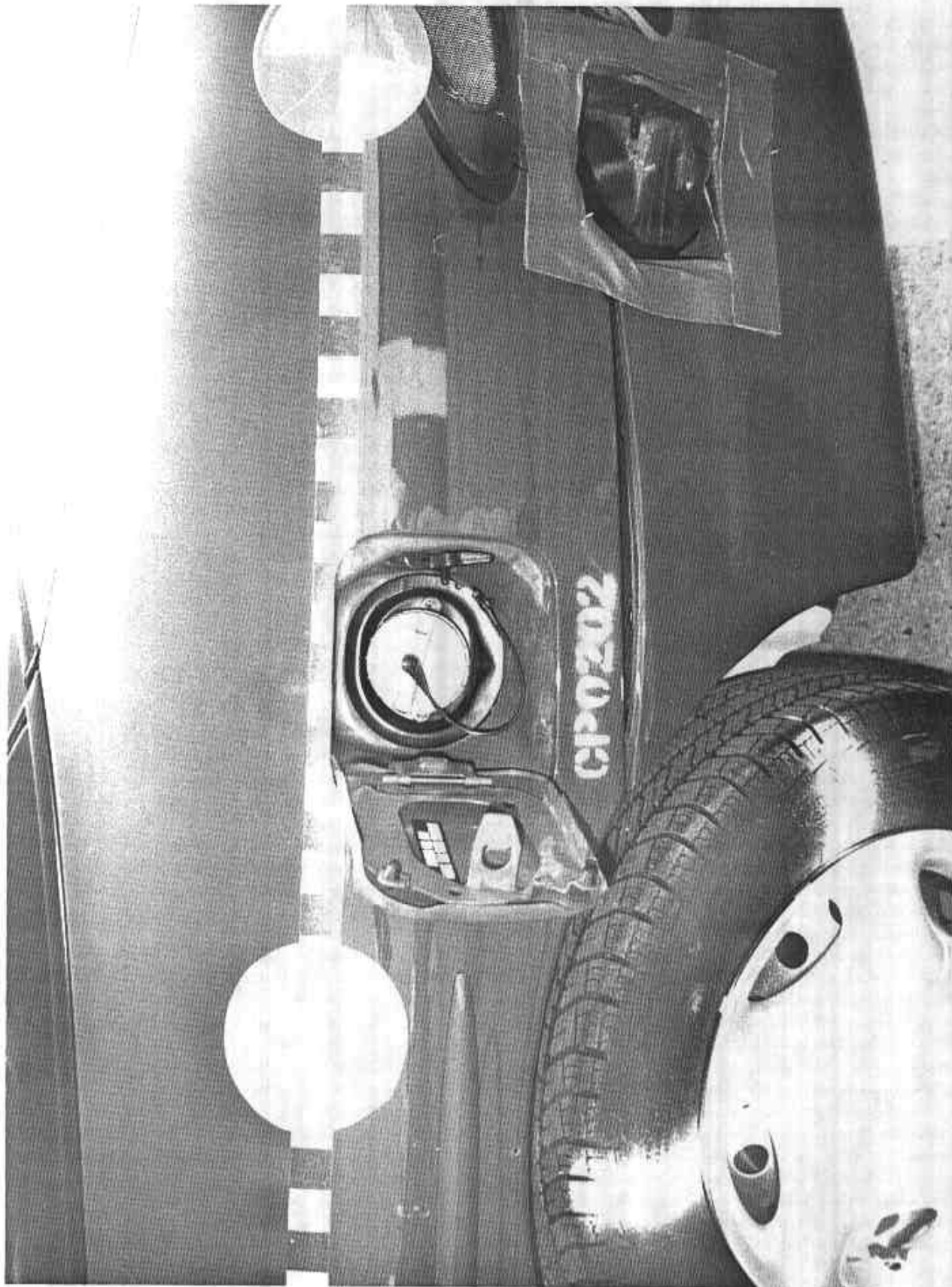


Figure A-16 PRE-TEST FUEL FILLER CAP PHOTO

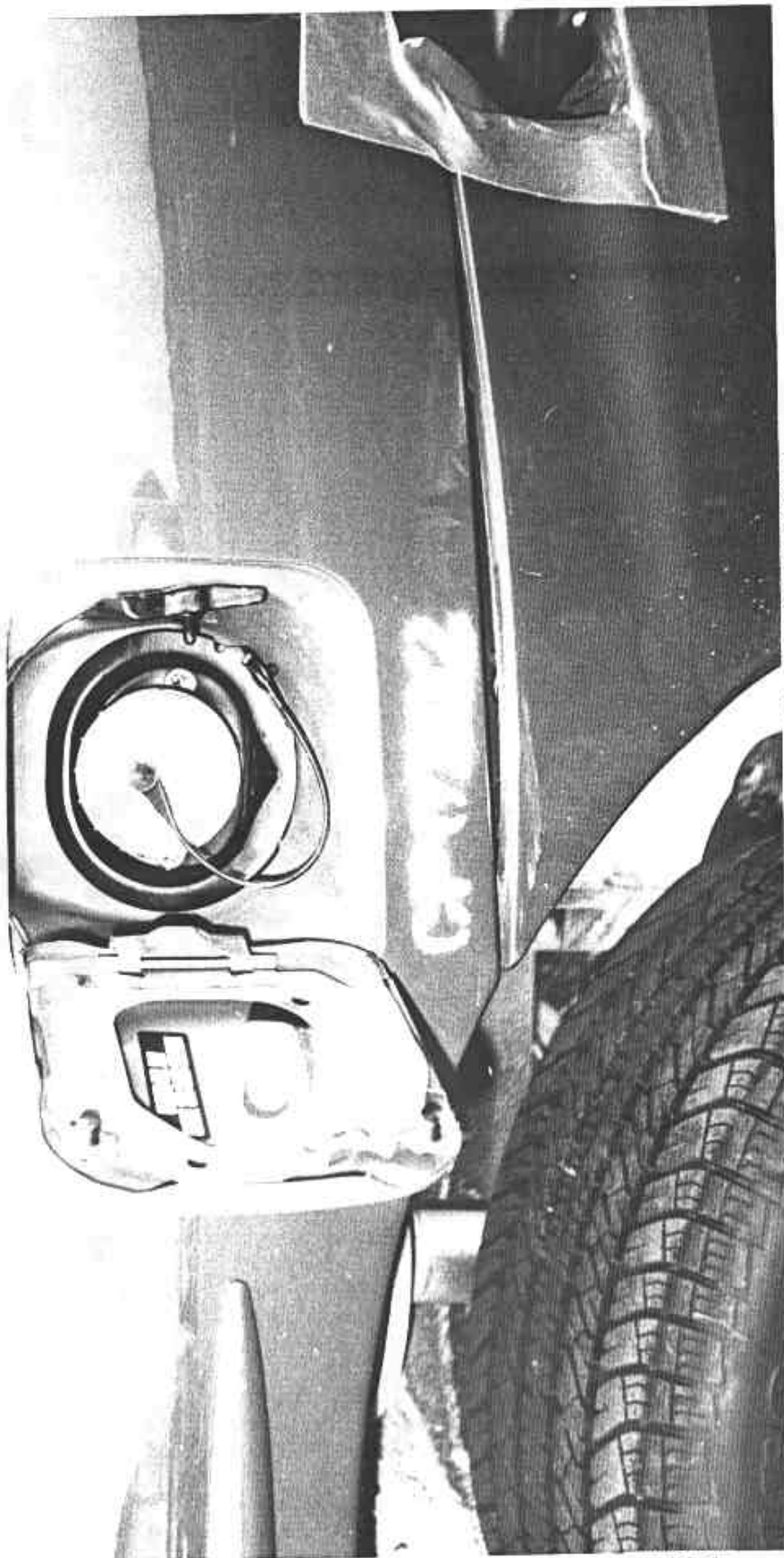


Figure A-17 POST-TEST FUEL FILLER CAP PHOTO

A-19

8056-2

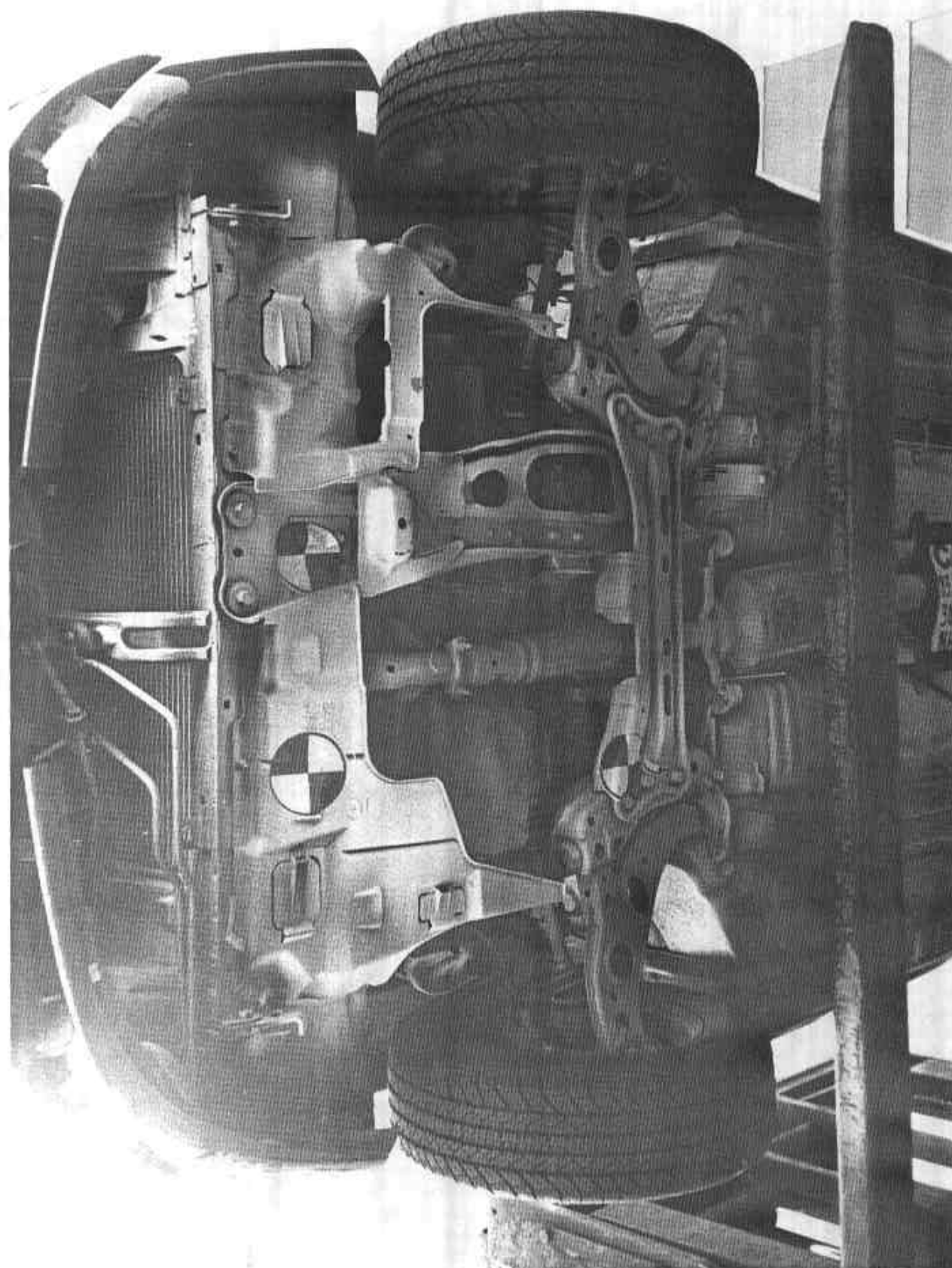


Figure A-18 PRE-TEST FRONT UNDERBODY VIEW

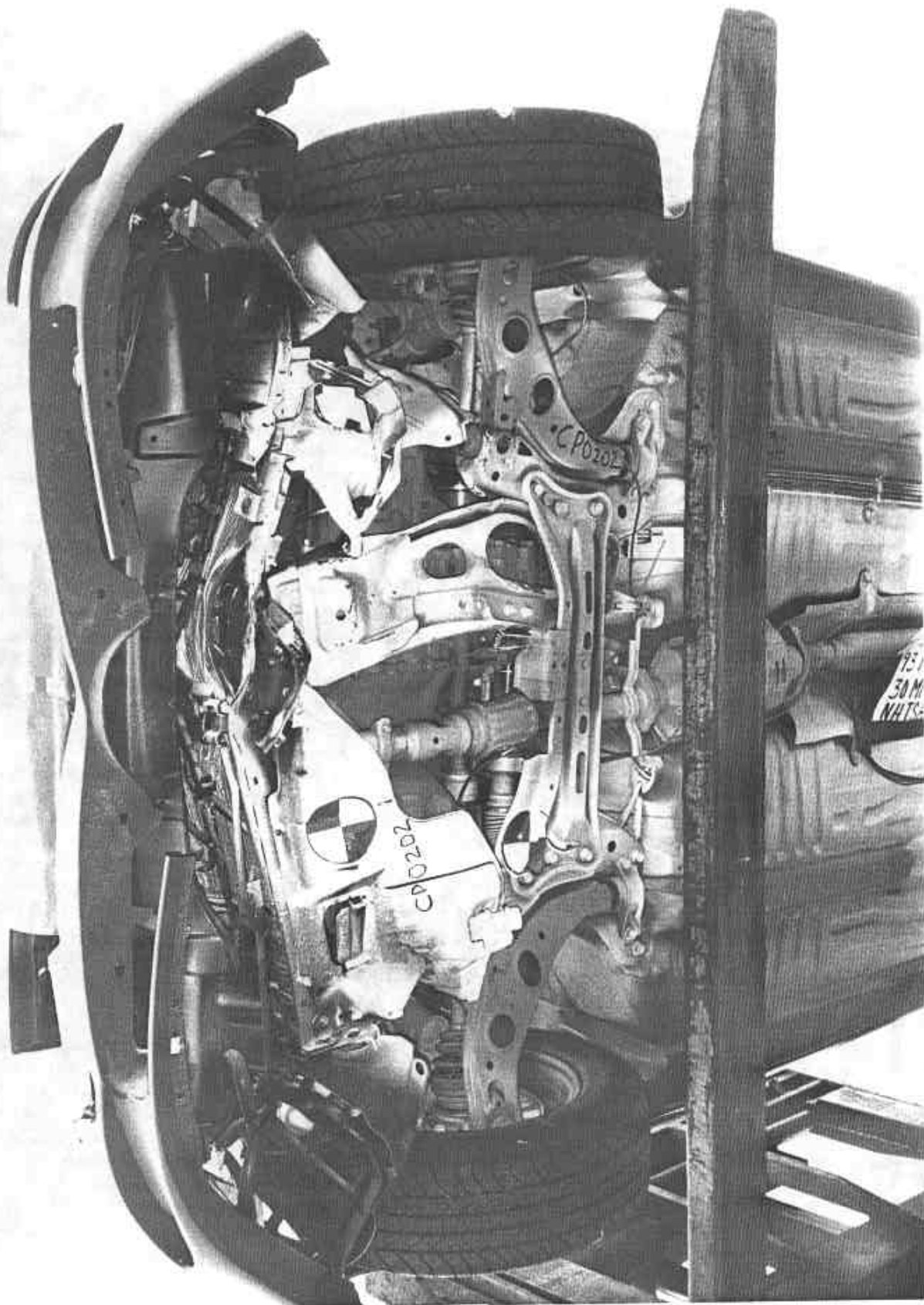


Figure A-19 POST-TEST FRONT UNDERBODY VIEW

A-21

8056-2

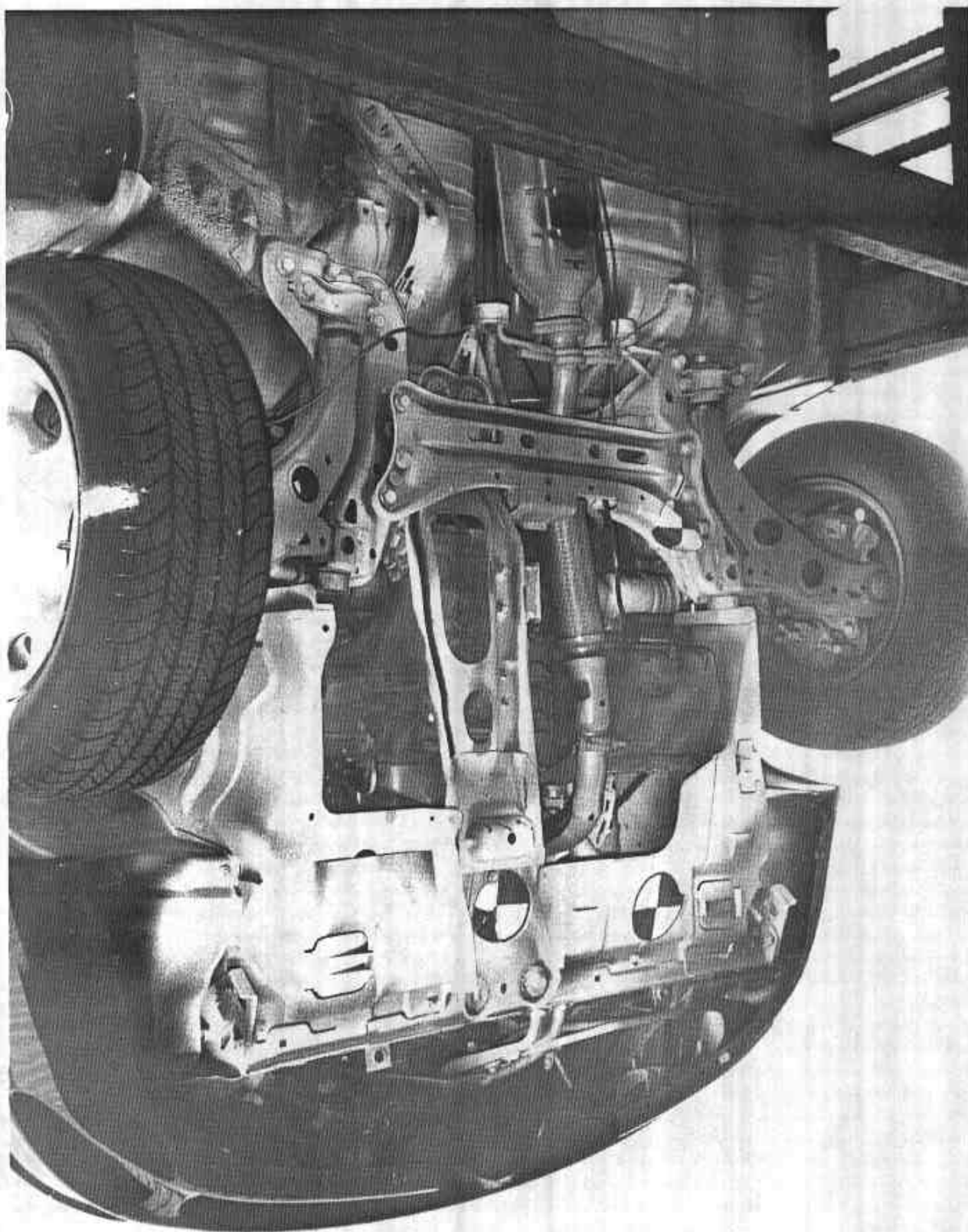


Figure A-20 PRE-TEST FRONT SIDE UNDERBODY VIEW

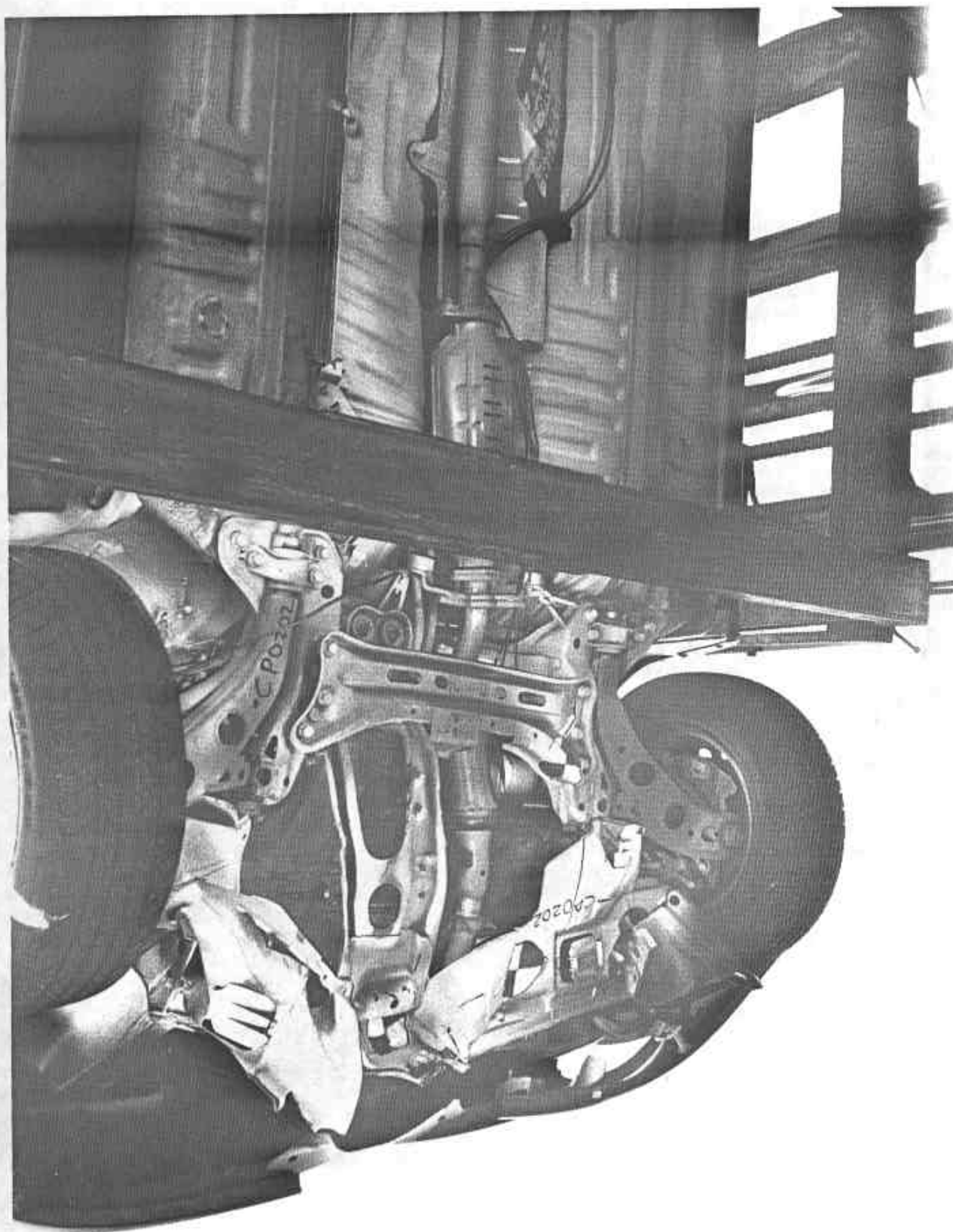


Figure A-21 POST-TEST FRONT SIDE UNDERBODY VIEW

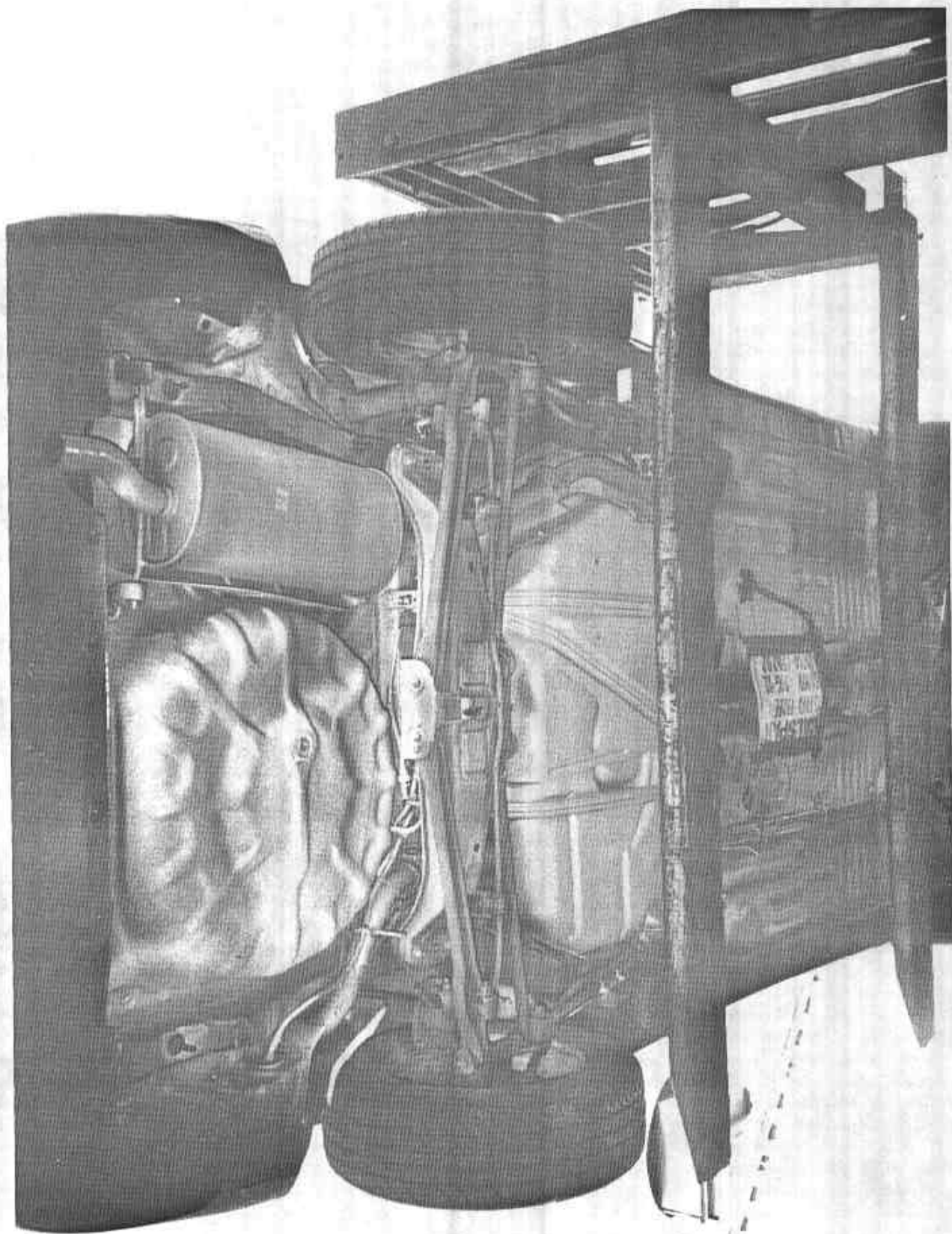


Figure A-22 PRE-TEST REAR UNDERBODY VIEW

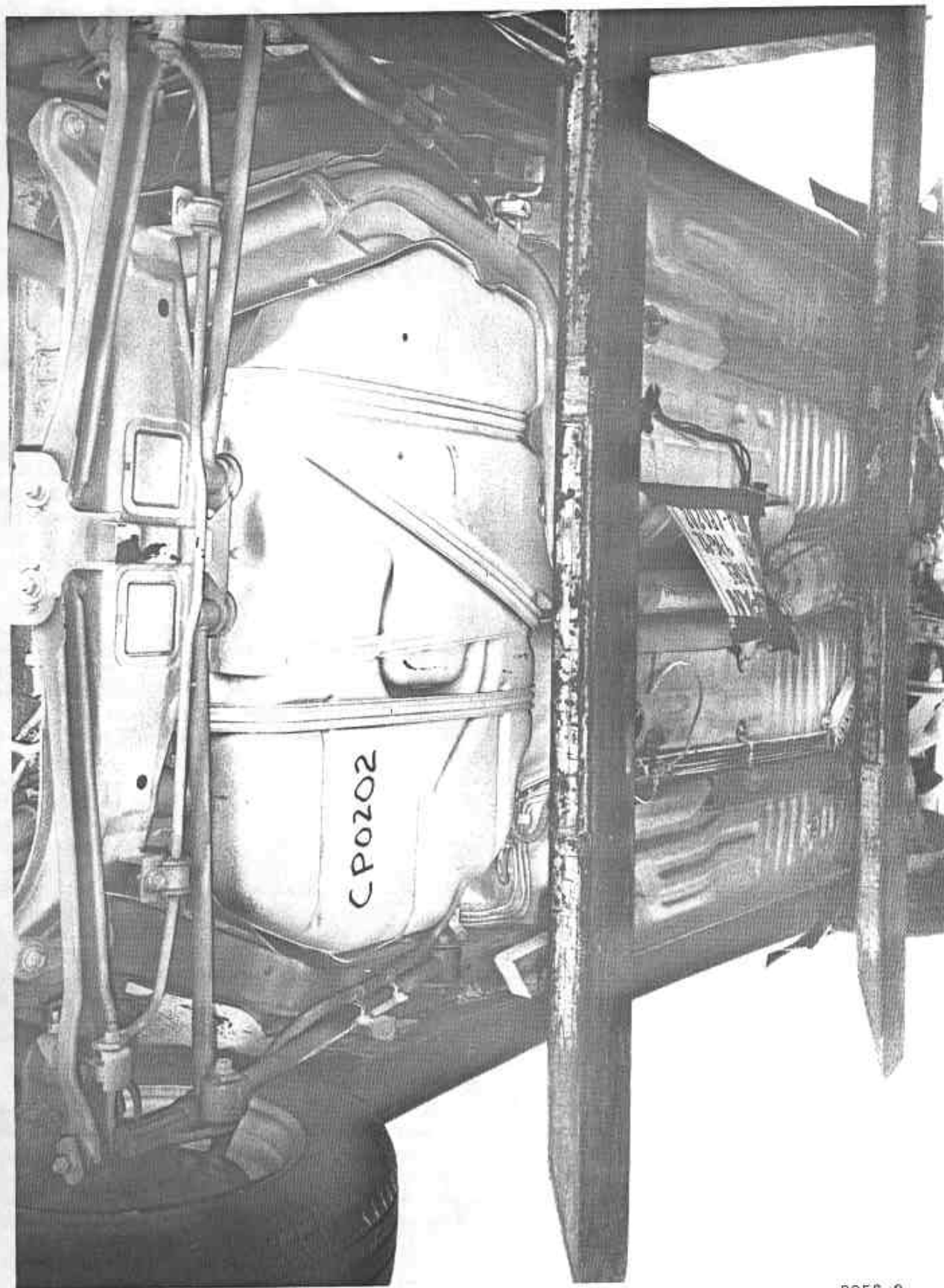


Figure A-23 POST-TEST REAR UNDERBODY VIEW

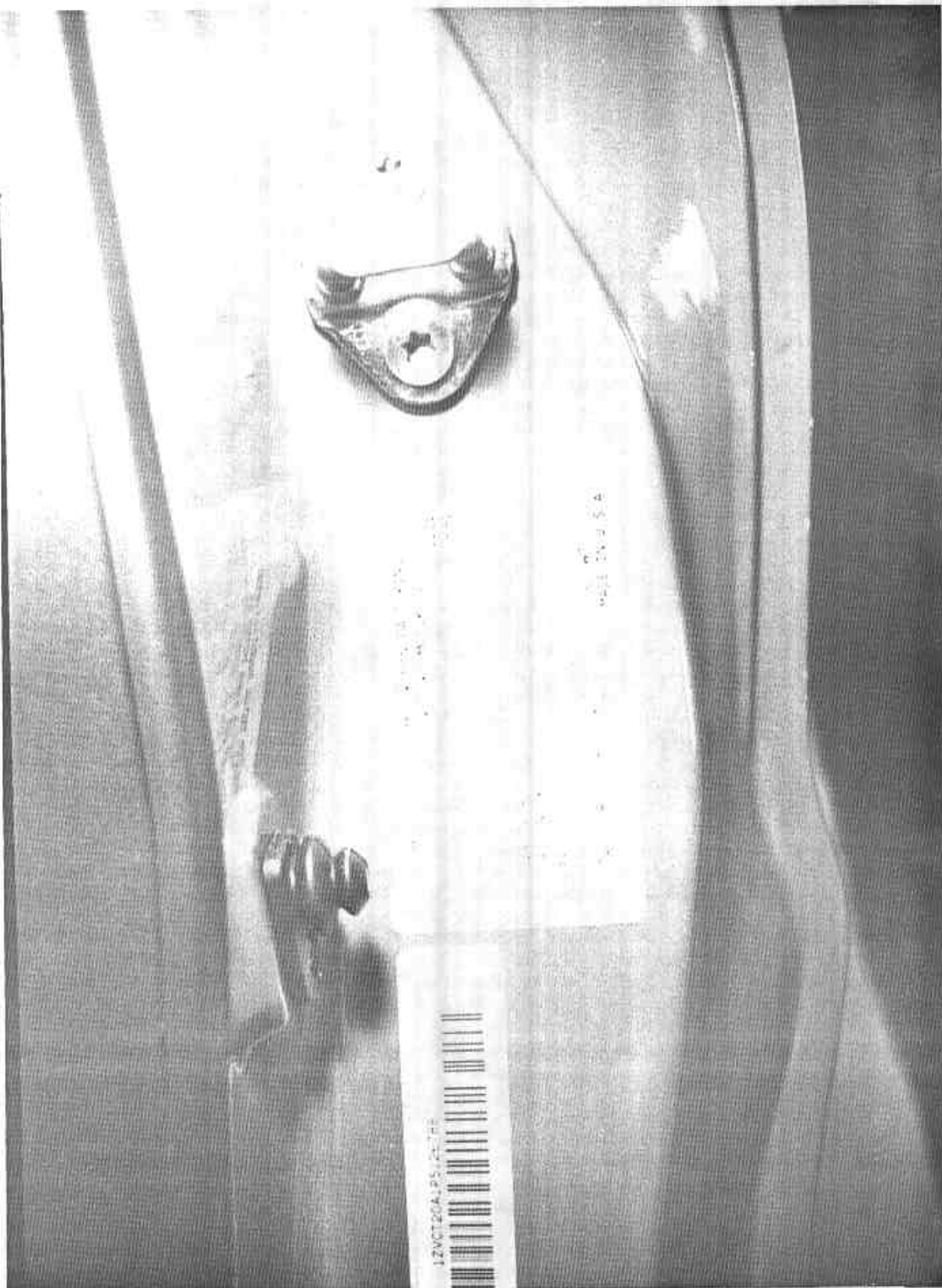


Figure A-24 CERTIFICATION LABEL



A-26

8056-2



Figure A-26 PRE-TEST DRIVER DUMMY POSITION



Figure A-27 POST-TEST DRIVER DUMMY POSITION



Figure A-28 PRE-TEST PASSENGER DUMMY POSITION

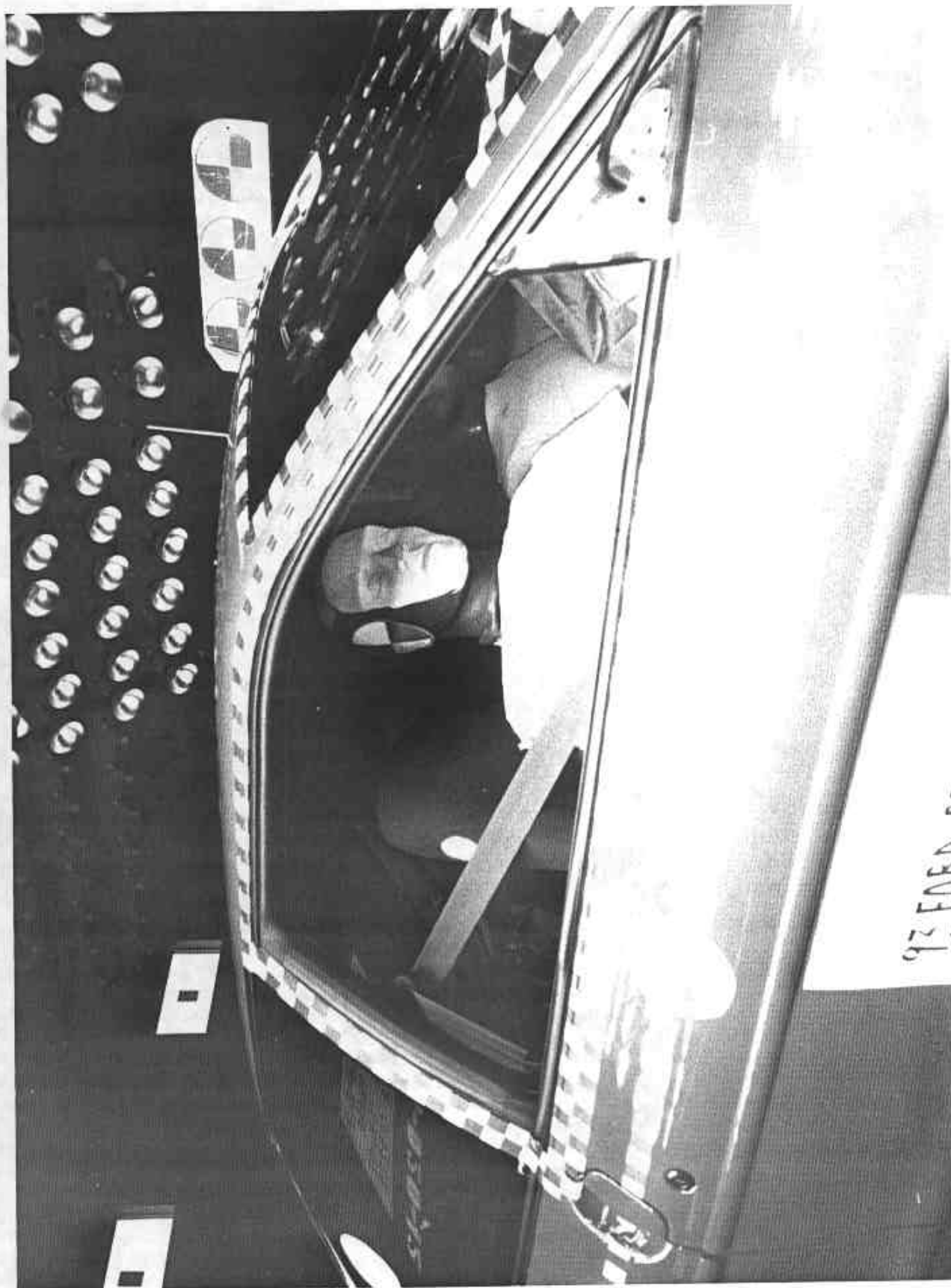


Figure A-29 POST-TEST PASSENGER DUMMY POSITION



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

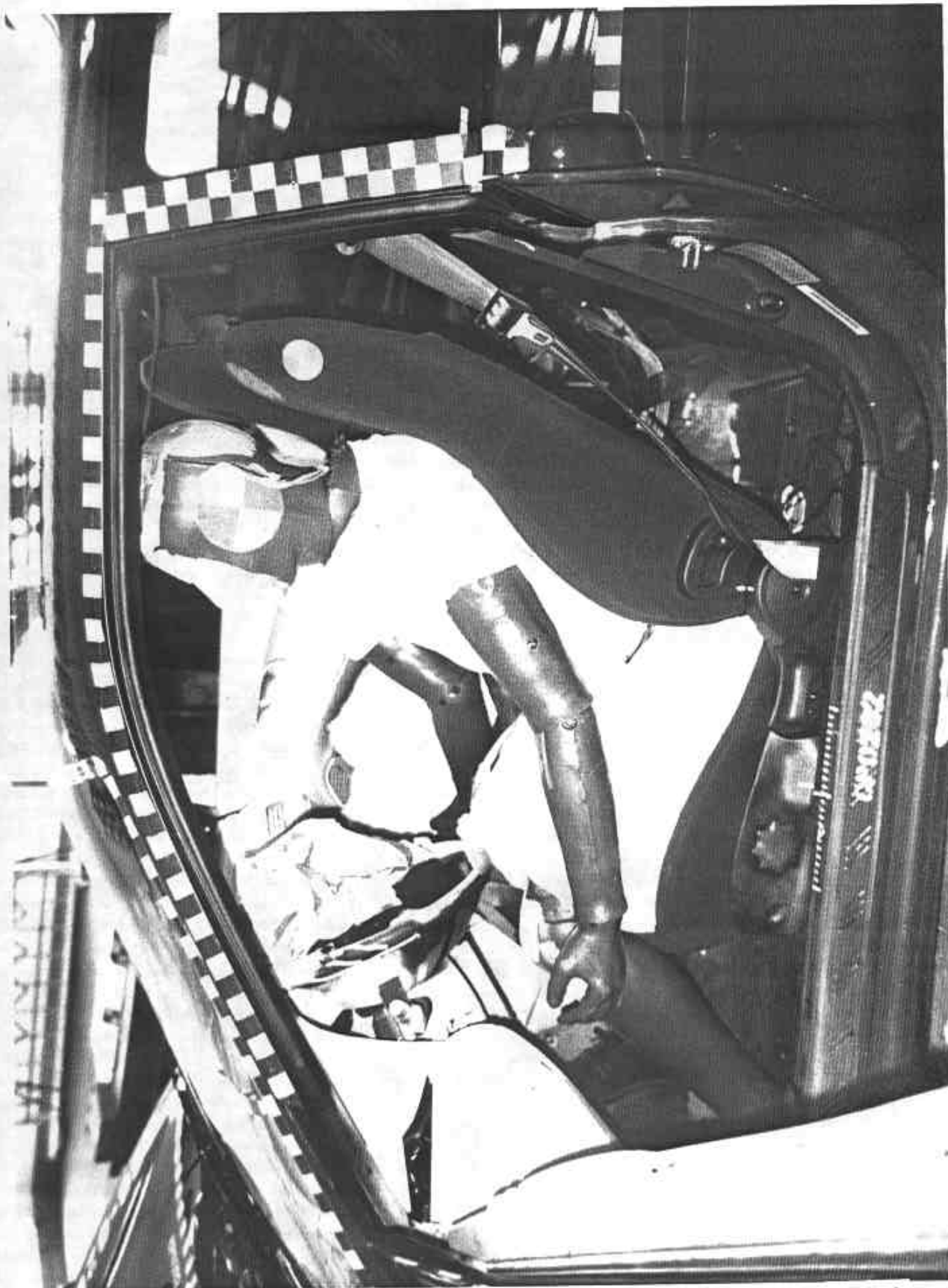


Figure A-31 POST-TEST DRIVER DUMMY AND INTERIOR VIE



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

A-34

8056-2



Figure A-33 POST-TEST PASSENGER DUMMY AND INTERIOR VIEW



Figure A-34 POST-TEST DRIVER AIRBAG VIEW

A-36

8058-2

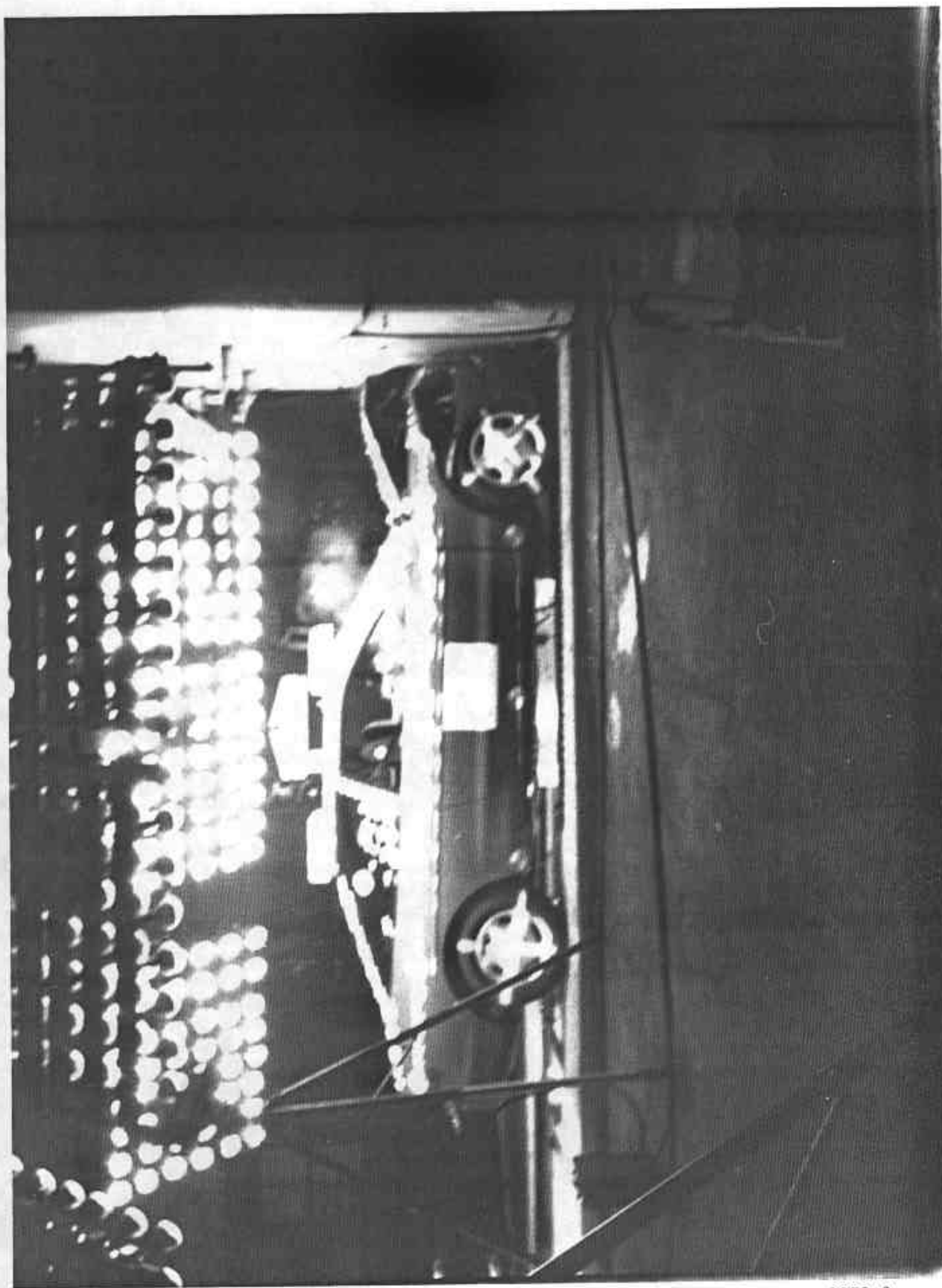


Figure A-35 VEHICLE IMPACT

A-37

8056-2

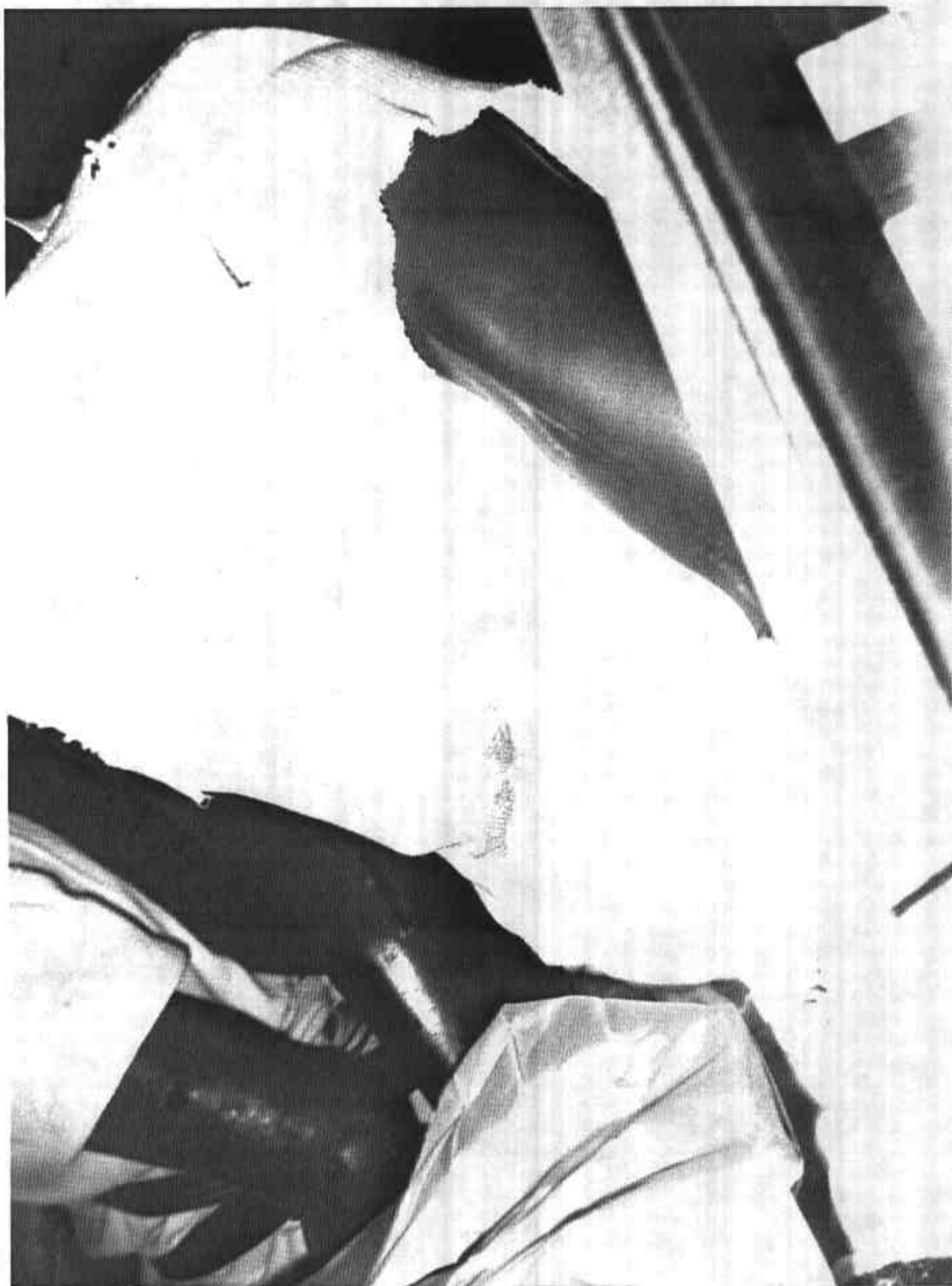


Figure A-36 POST-TEST DRIVER CHEST CONTACT WITH STEERING WHEEL

Appendix B

VEHICLE AND DUMMY RESPONSE DATA

TEST NO. CP0202

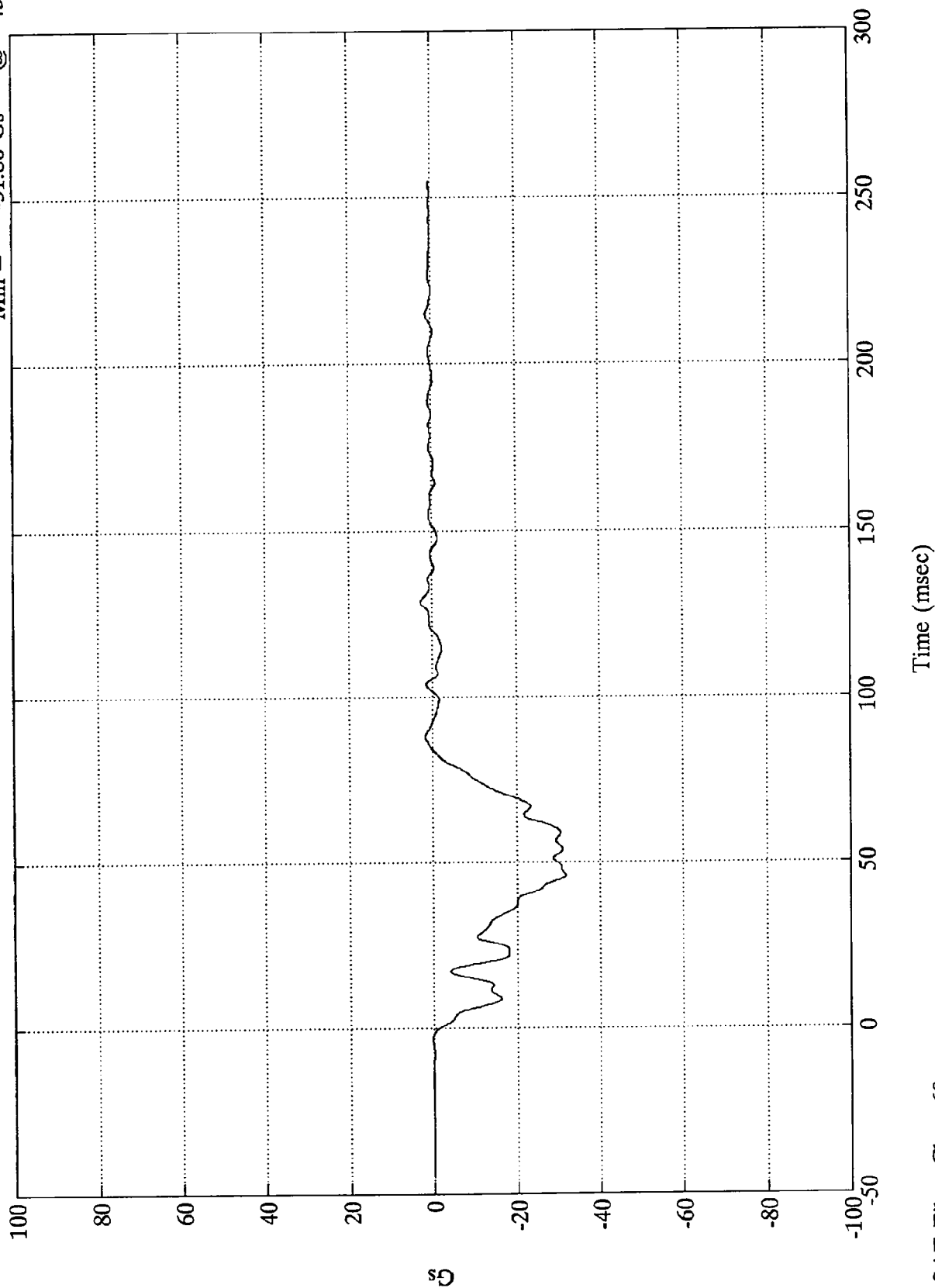
VEHICLE DATA

SAE FILTER CHANNEL CLASS

60

NHTSA "208" TEST 1 - 1993 FORD PROBE

L. Rear X-member X (#1) Max = 2.81 Gs @ 128.76 msec
Min = -31.80 Gs @ 45.96 msec



Gs

B-3

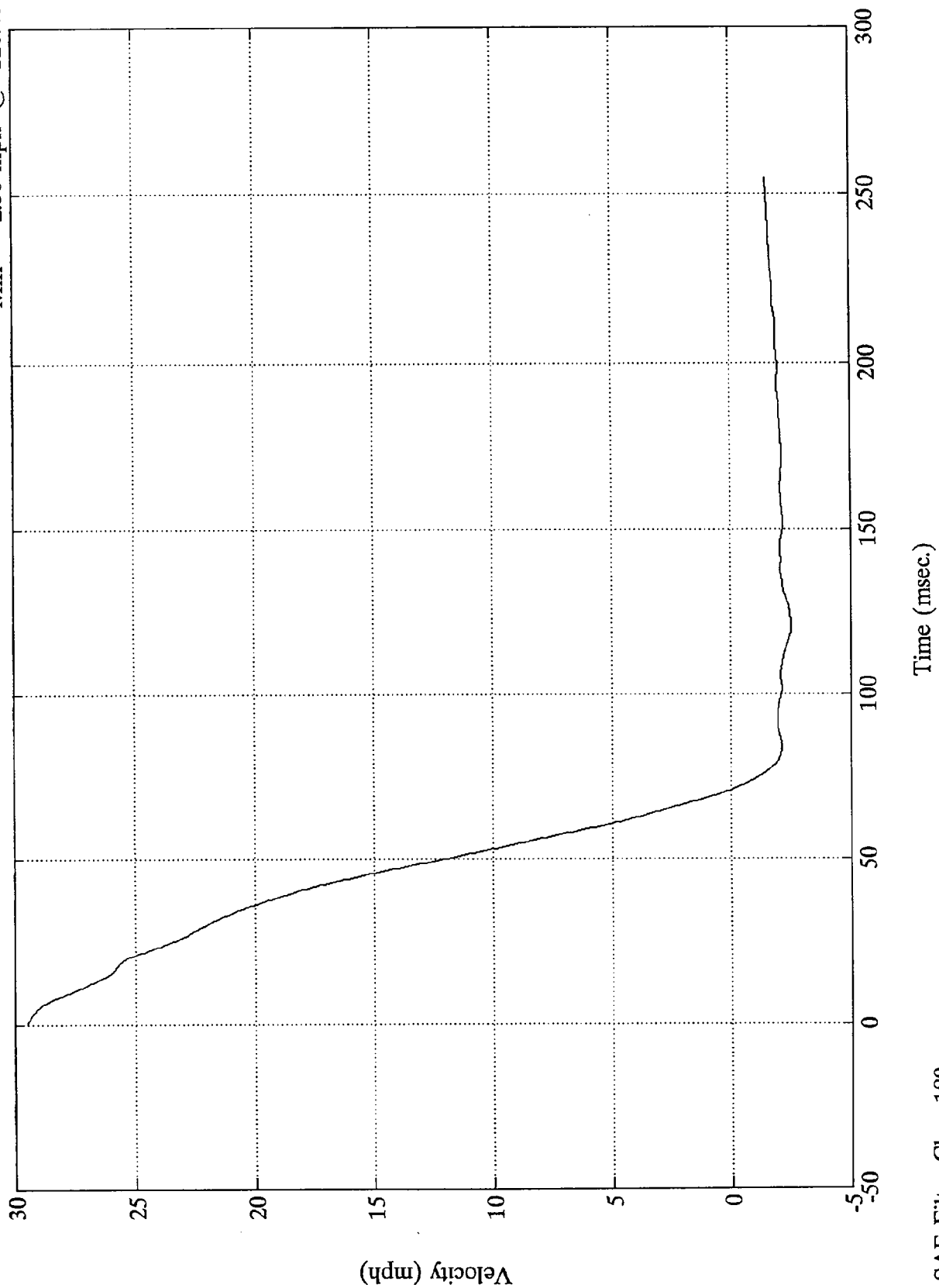
8056-2

SAE Filter Class 60

NHTSA '208" TEST 1 - 1993 FORD PROBE

L. Rear X-member X (#1)

Max = 29.50 mph @ -0.00 msec
Min = -2.50 mph @ 120.48 msec

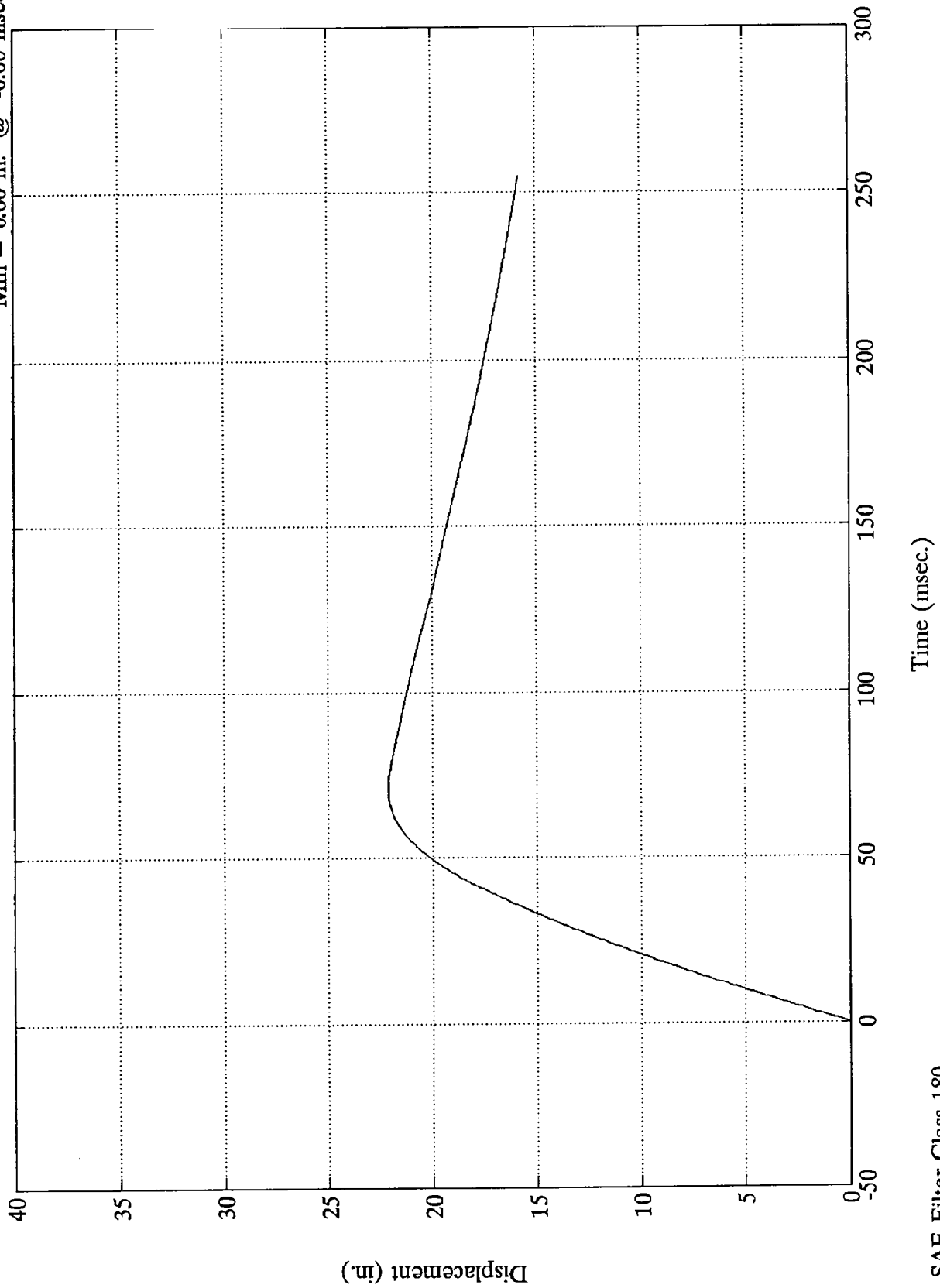


SAE Filter Class 180

NHTSA "208" TEST 1 - 1993 FORD PROBE

L. Rear X-member X (#1)

Max = 22.13 in. @ 72.48 msec
Min = 0.00 in. @ -0.00 msec

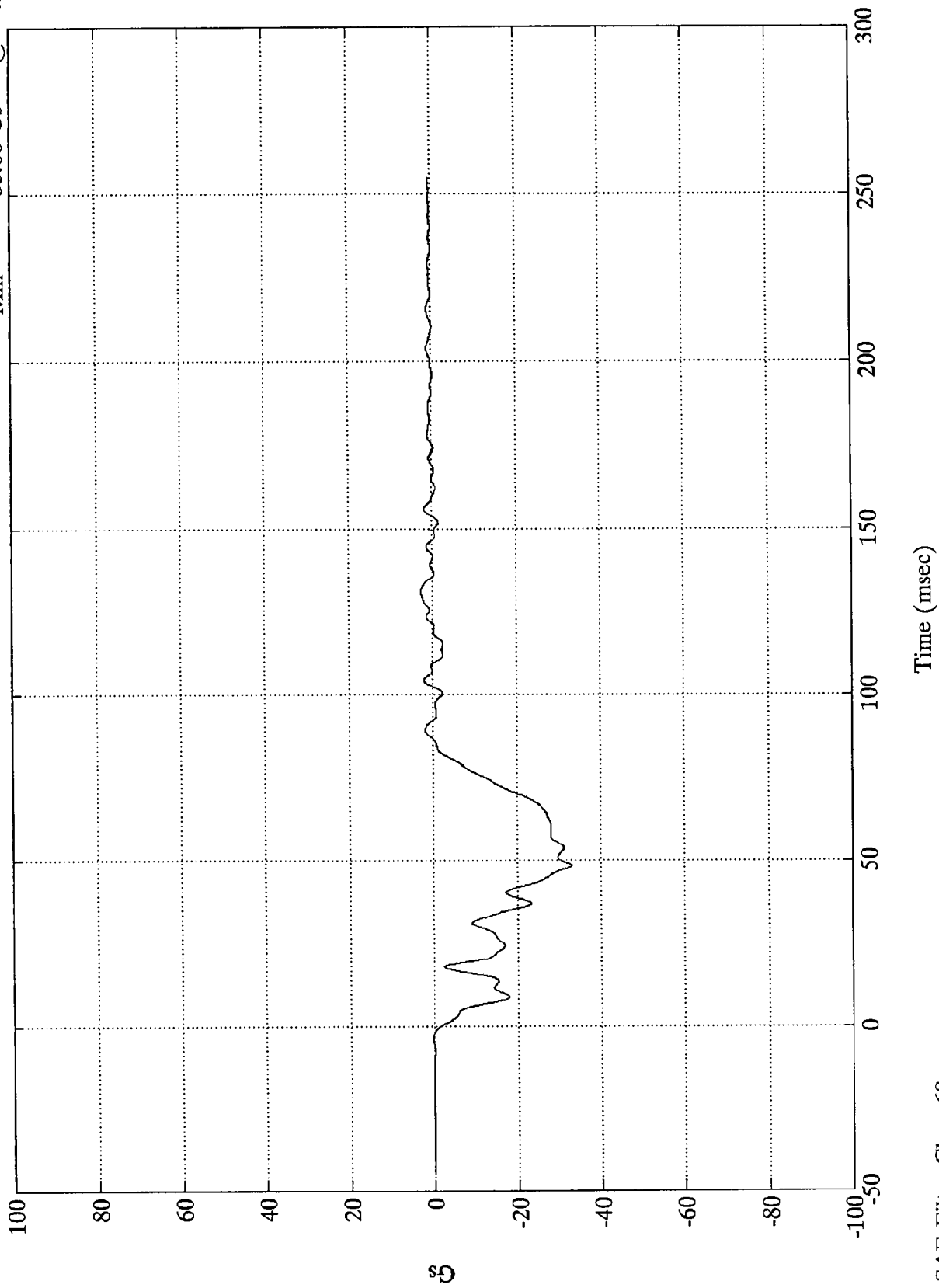


SAE Filter Class 180

NHTSA '208" TEST 1 - 1993 FORD PROBE

R. Rear X-member X (#2)

Max = 2.71 Gs @ 131.27 msec
Min = -33.06 Gs @ 48.36 msec

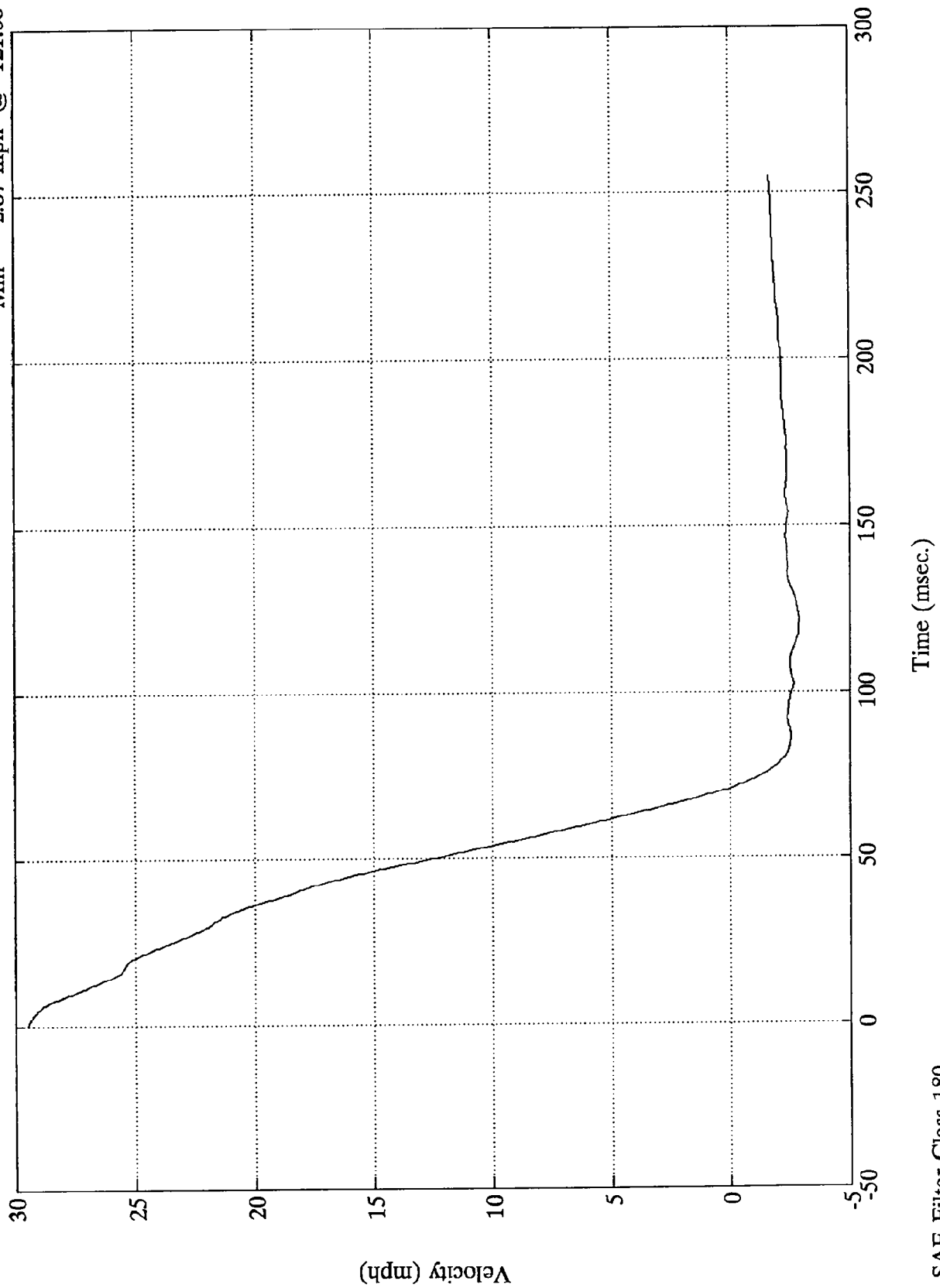


SAE Filter Class 60

NHTSA "208" TEST 1 - 1993 FORD PROBE

R. Rear X-member X (#2)

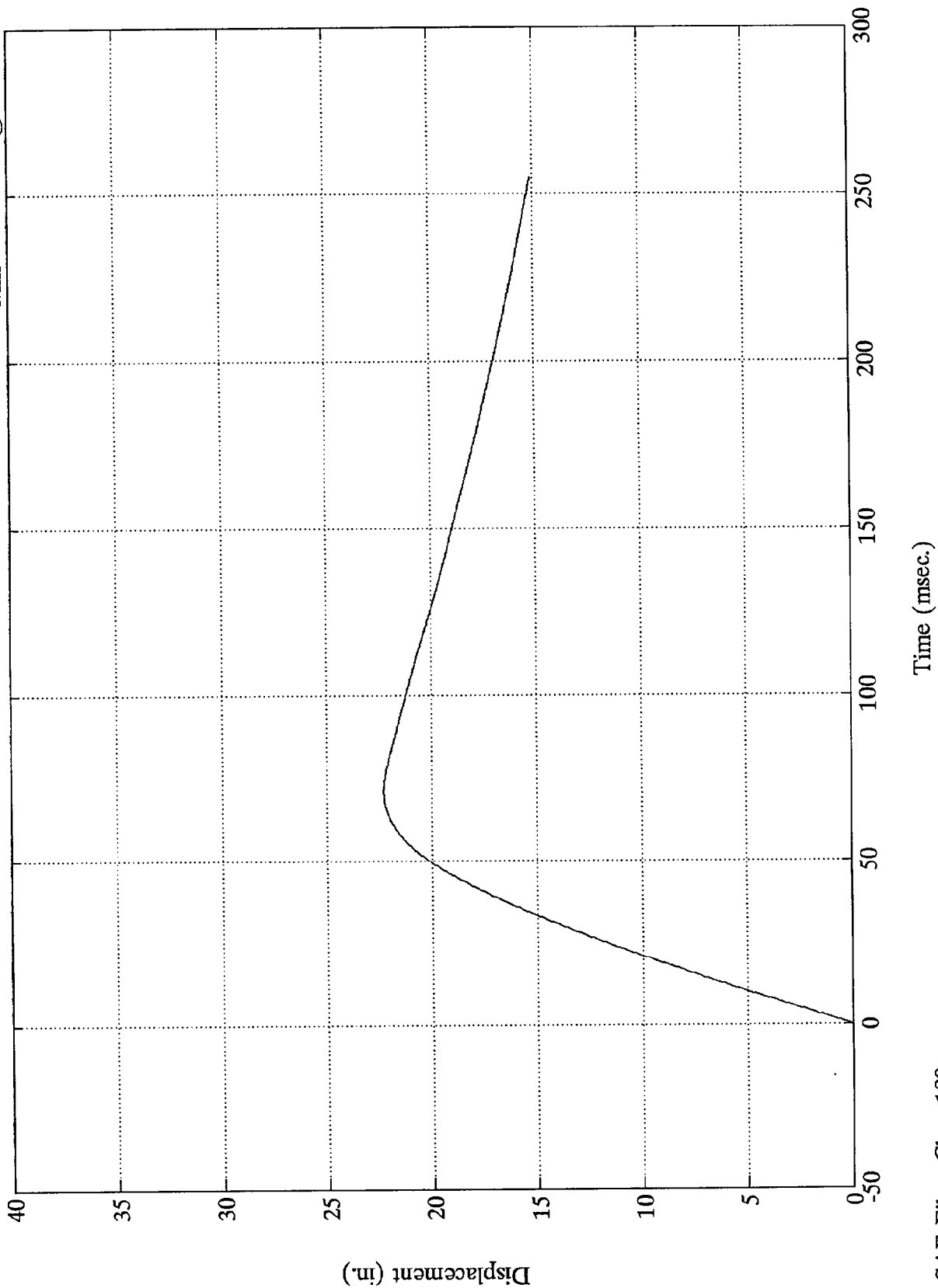
Max = 29.50 mph @ -0.00 msec
Min = -2.87 mph @ 121.68 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

R. Rear X-member X (#2)

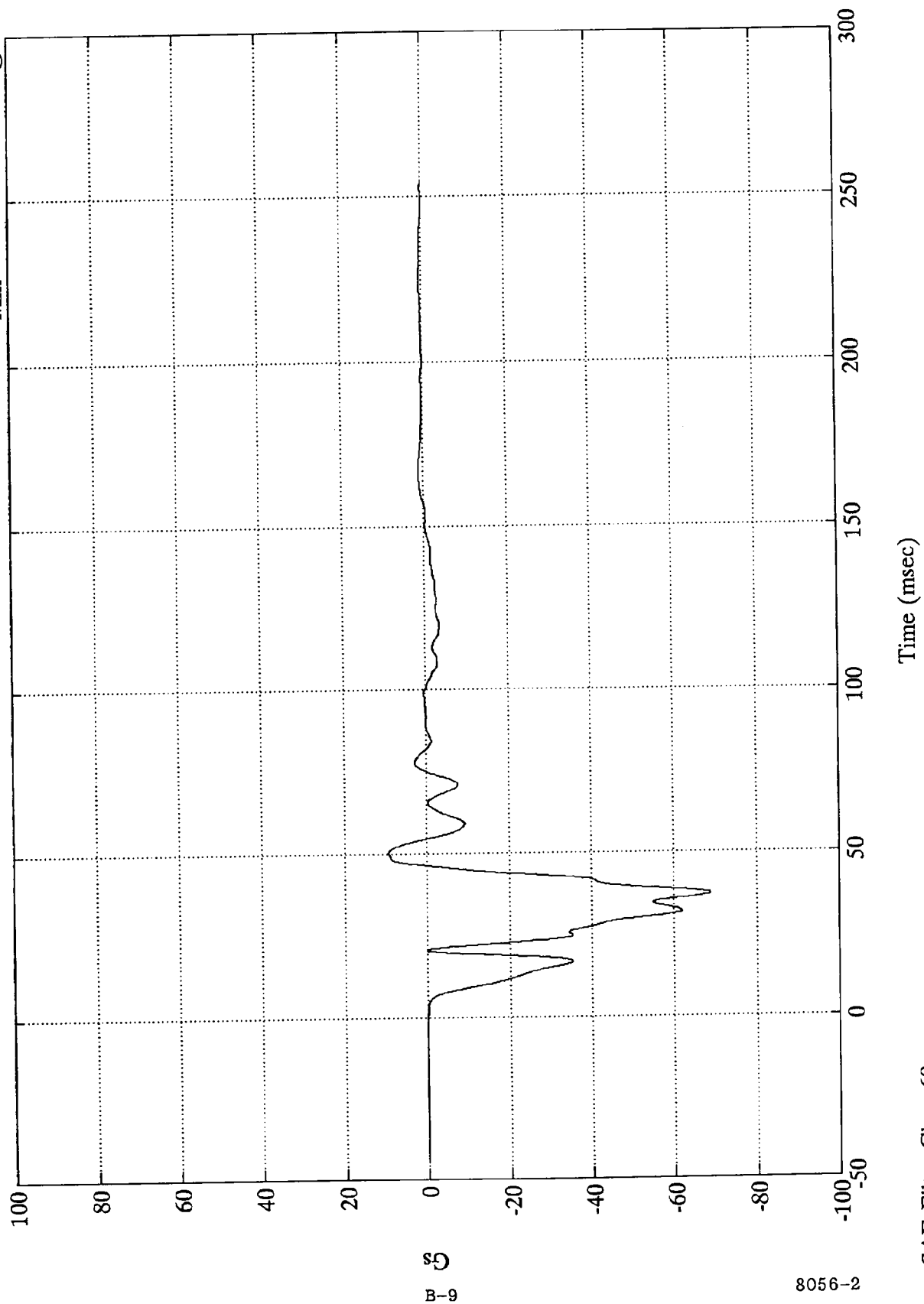
Max = 22.31 in. @ 71.52 msec
Min = 0.00 in. @ -0.00 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

Engine Top X (#3)

Max = 9.32 Gs @ 50.40 msec
Min = -68.95 Gs @ 37.20 msec



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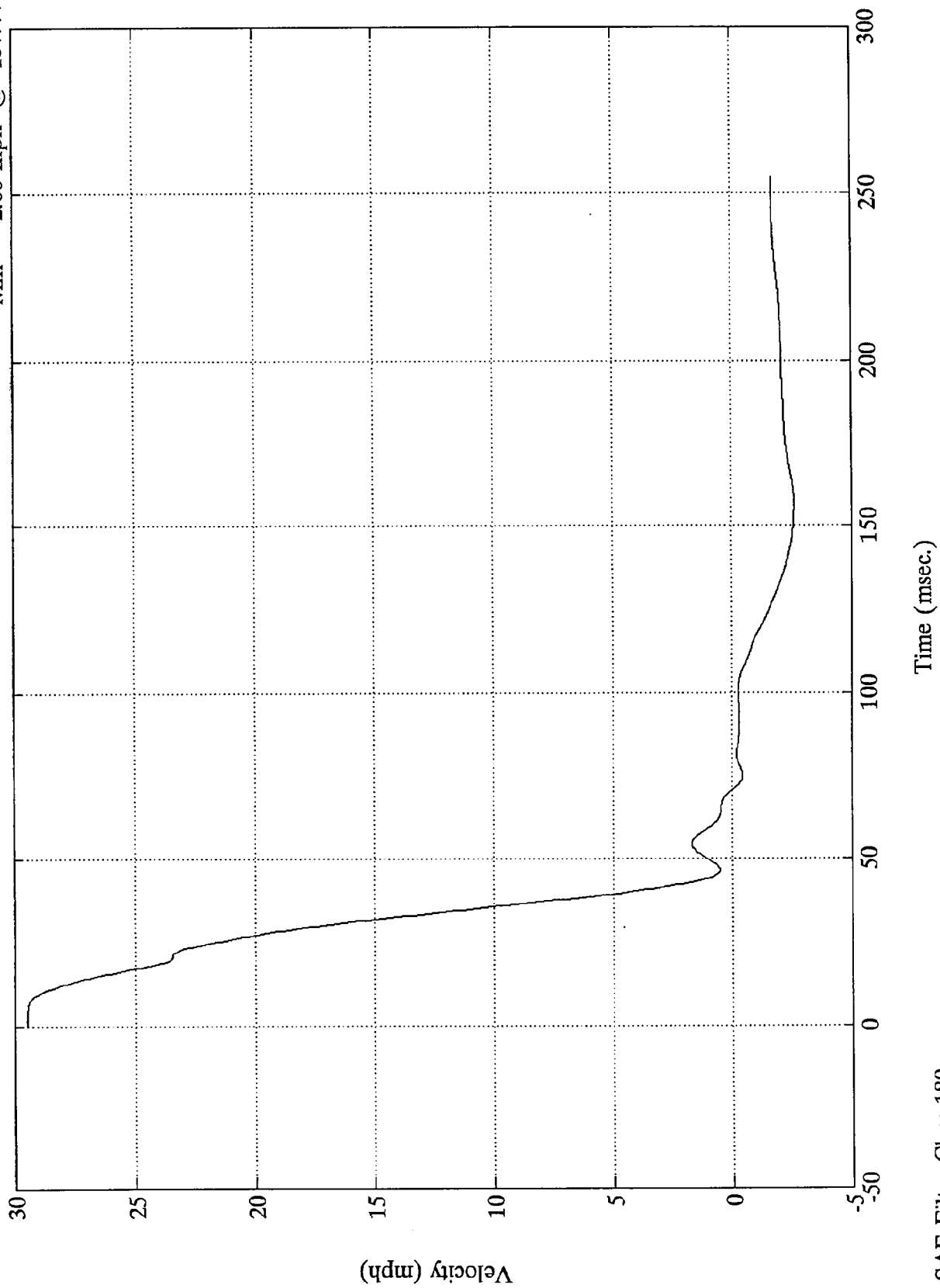
8056-2

SAE Filter Class 60

NHTSA "208" TEST 1 - 1993 FORD PROBE

Engine Top X (#3)

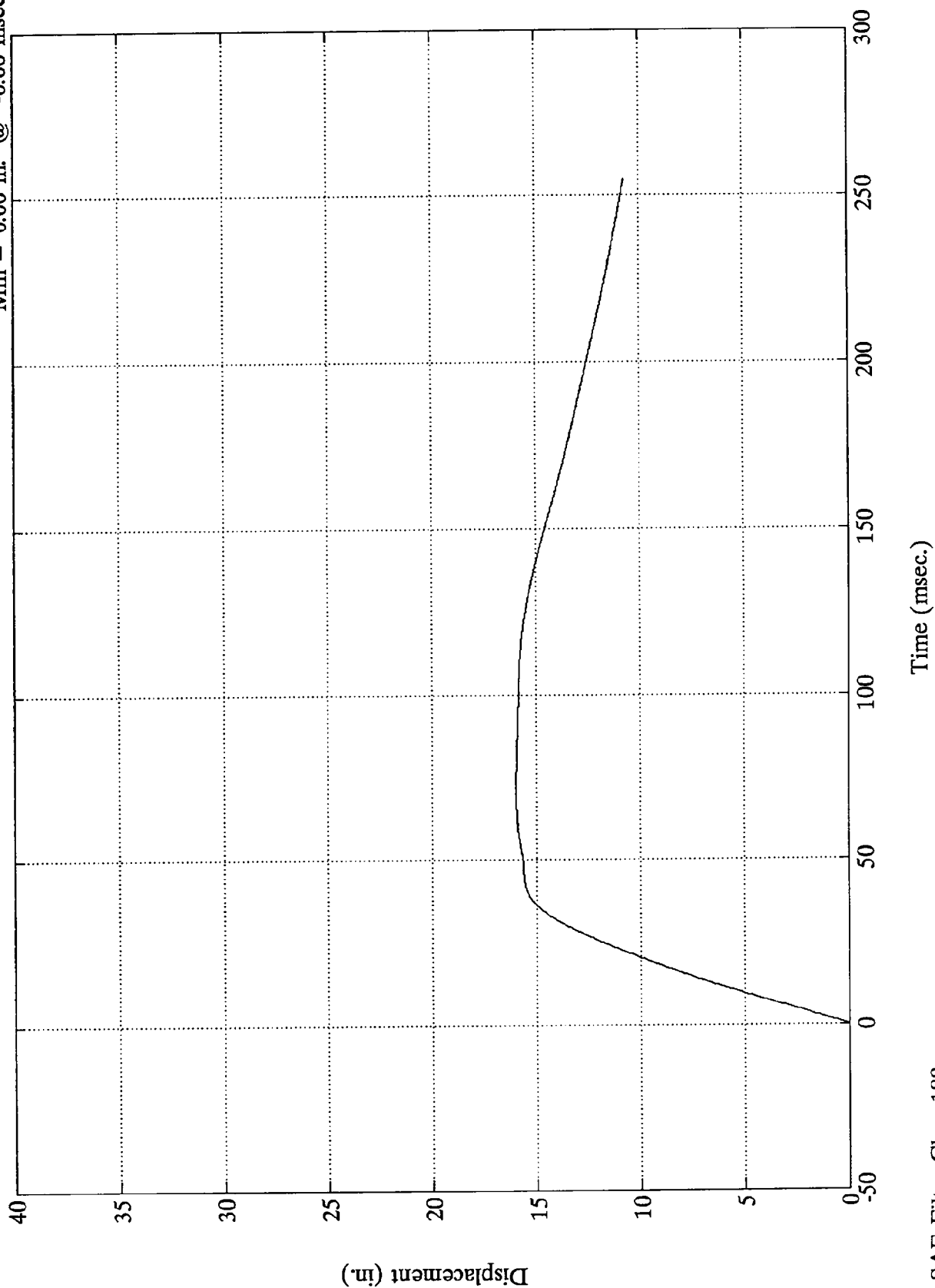
Max = 29.50 mph @ 0.72 msec
Min = -2.60 mph @ 157.44 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

Engine Top X (#3)

Max = 15.99 in. @ 72.48 msec
Min = 0.00 in. @ -0.00 msec

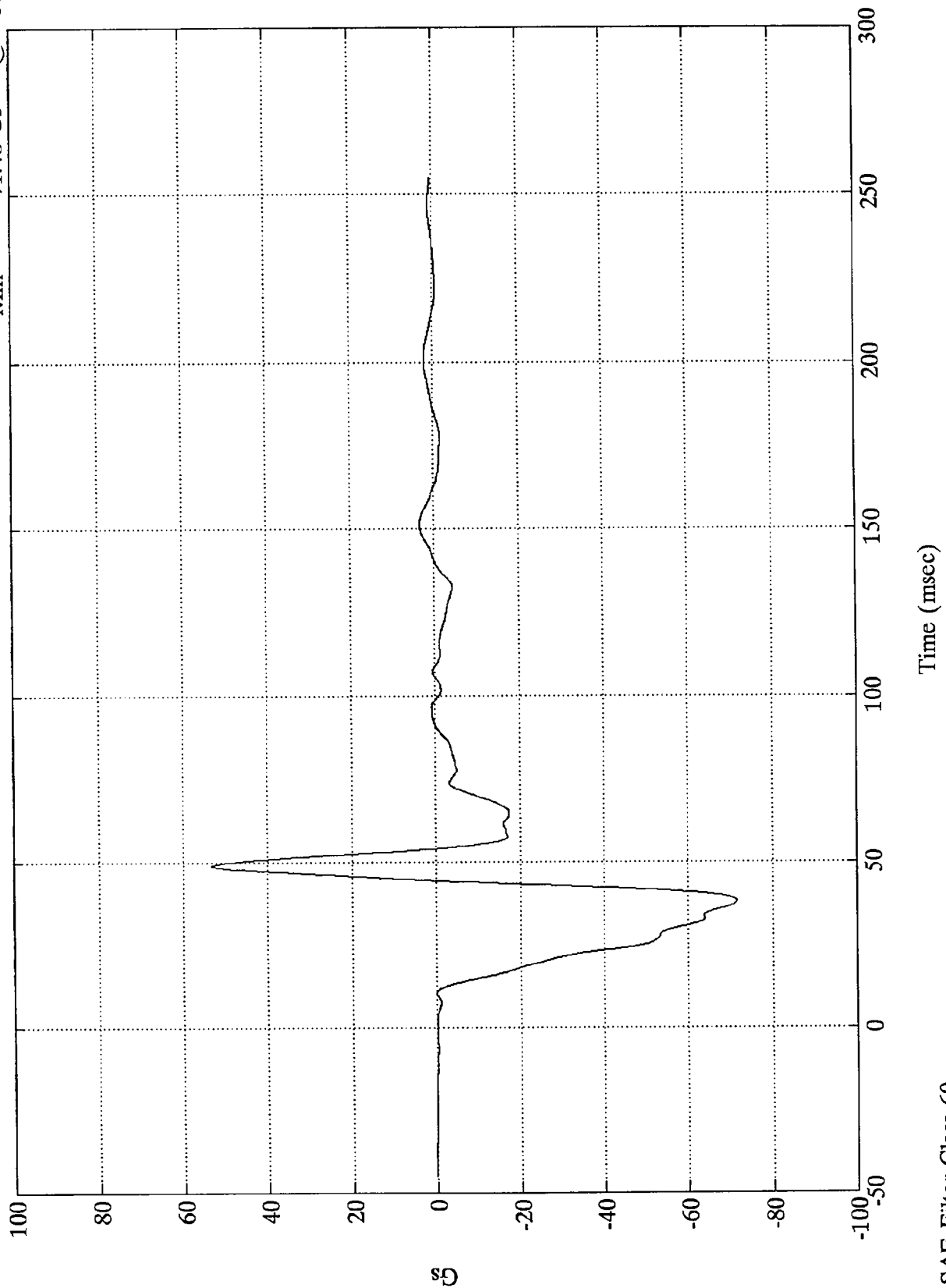


SAE Filter Class 180

NHTSA "208" TEST 1 - 1993 FORD PROBE

Engine Bottom X (#4)

Max =	53.34 Gs	@	48.95 msec
Min =	-71.48 Gs	@	37.92 msec

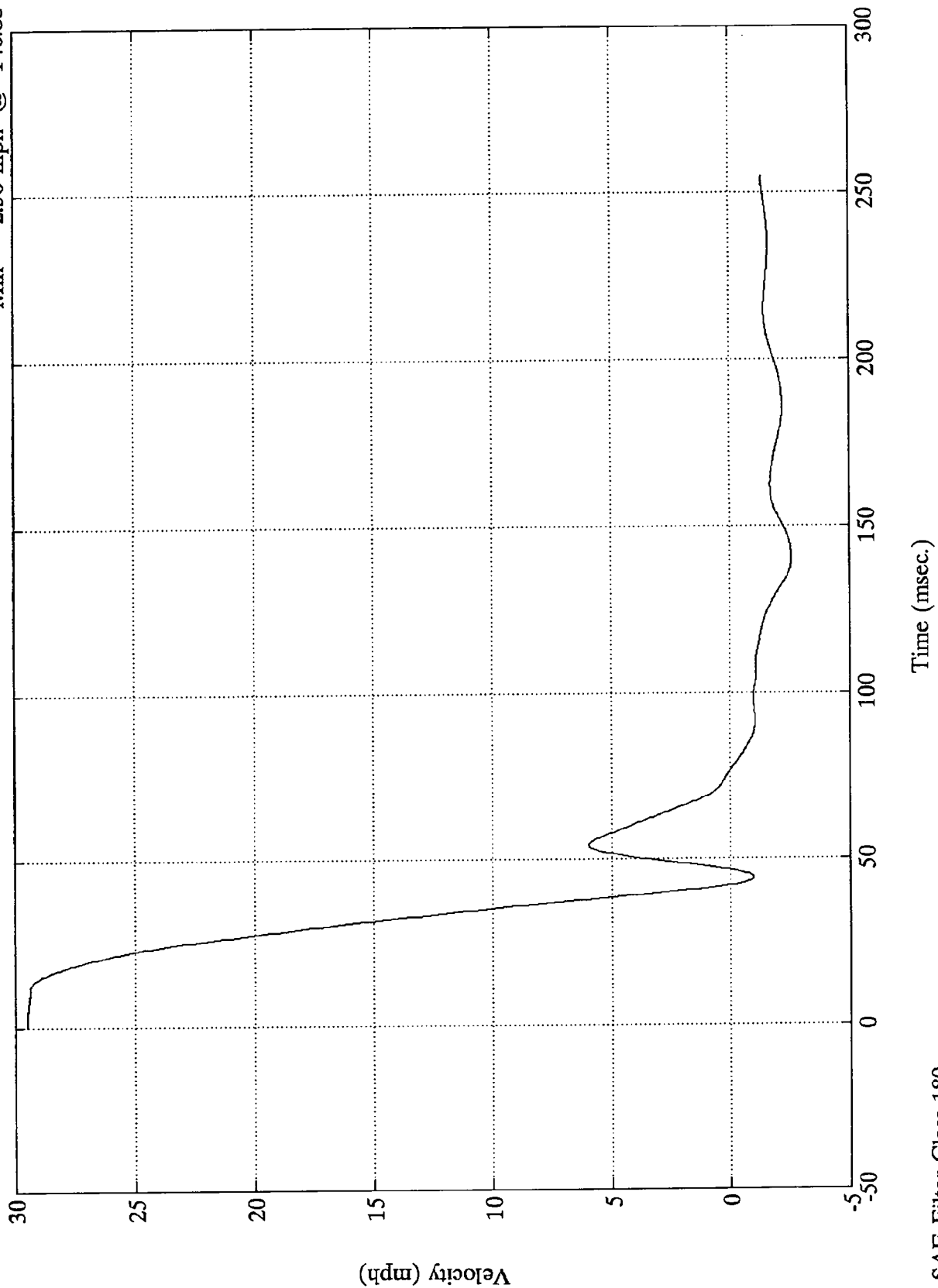


SAE Filter Class 60

NHTSA "208" TEST 1 - 1993 FORD PROBE

Engine Bottom X (#4)

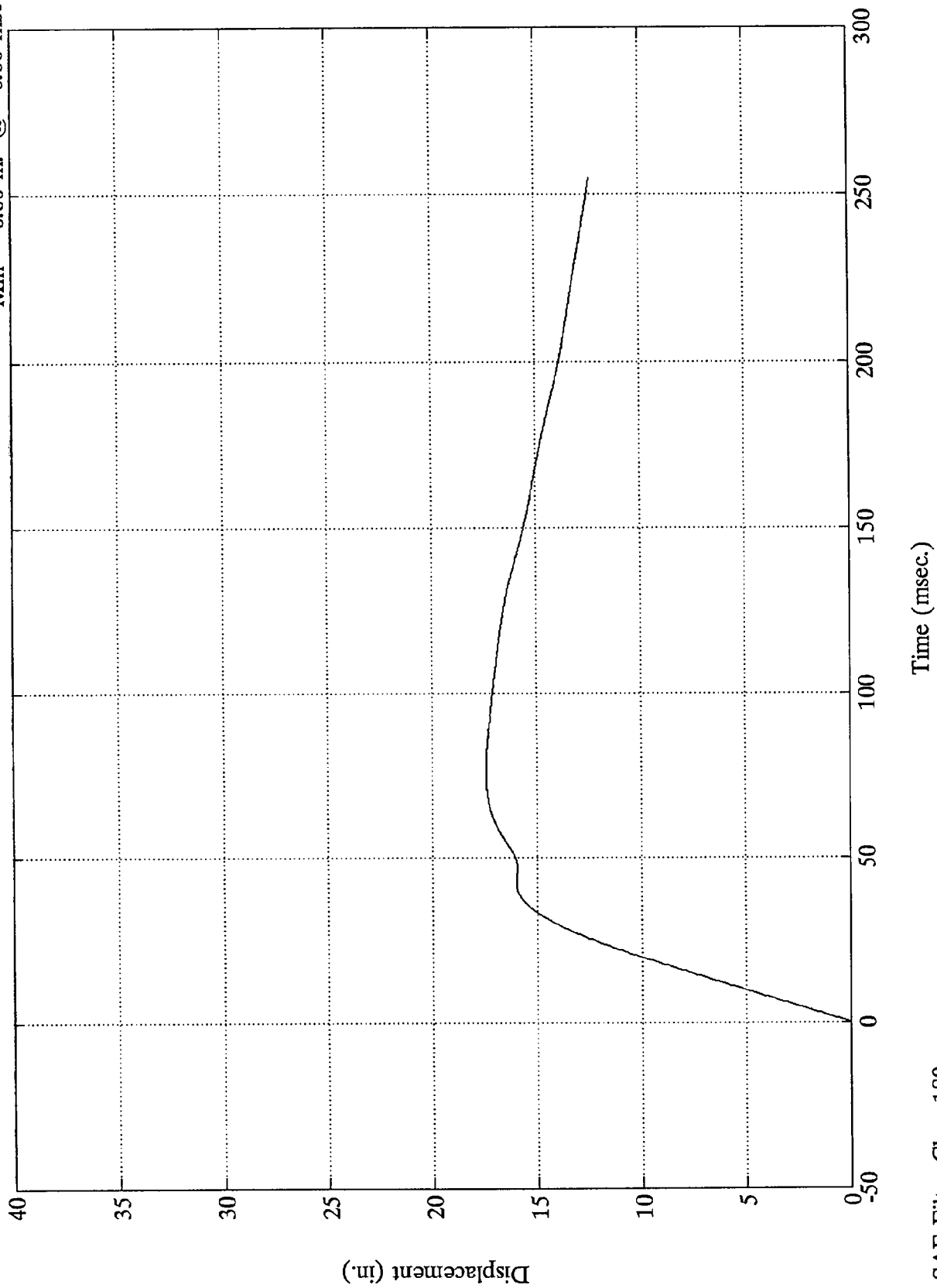
Max = 29.50 mph @ -0.00 msec
Min = -2.56 mph @ 140.88 msec



NHTSA '208" TEST 1 - 1993 FORD PROBE

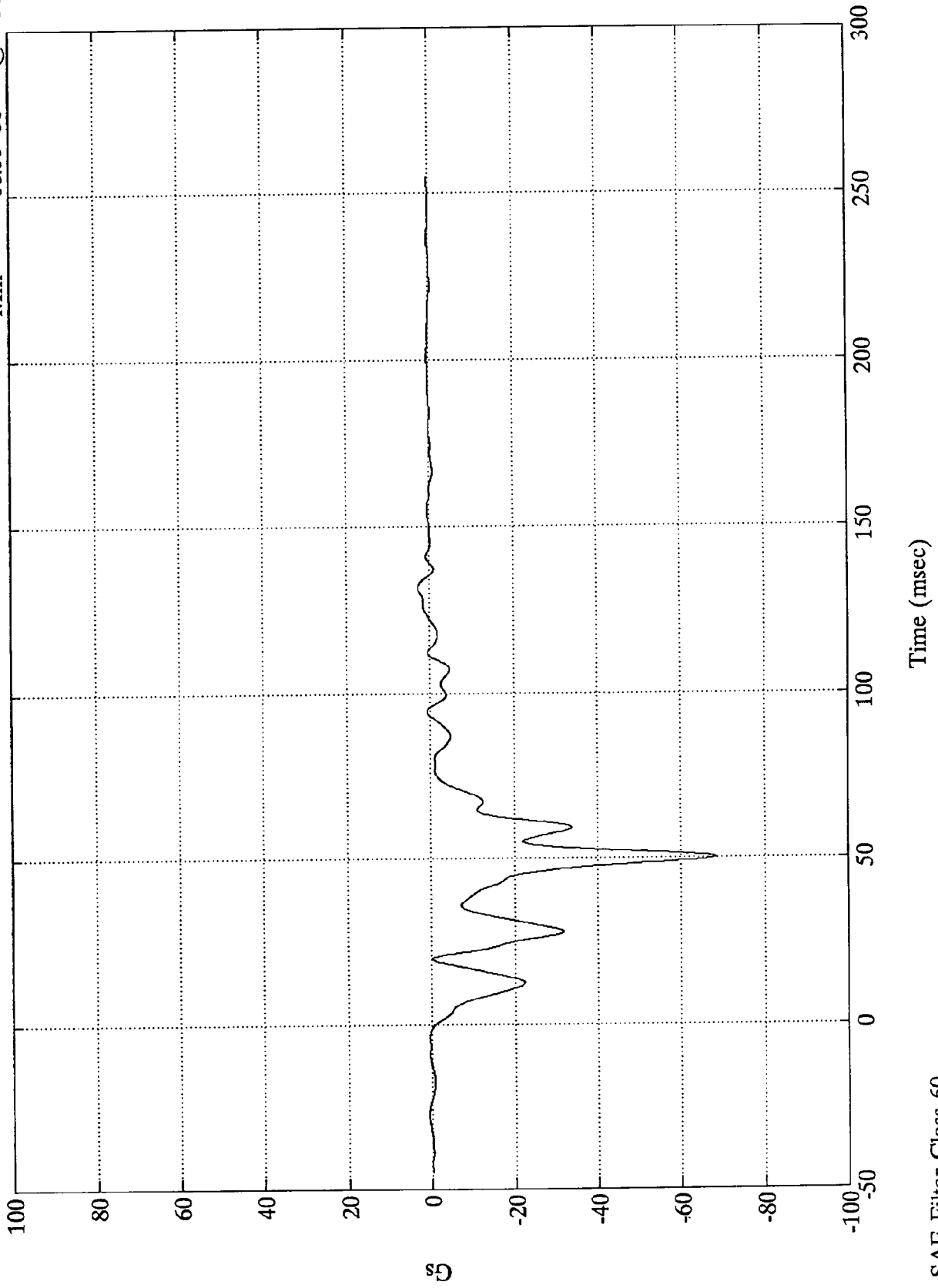
Engine Bottom X (#4)

Max = 17.42 in. @ 78.48 msec
Min = 0.00 in. @ -0.00 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

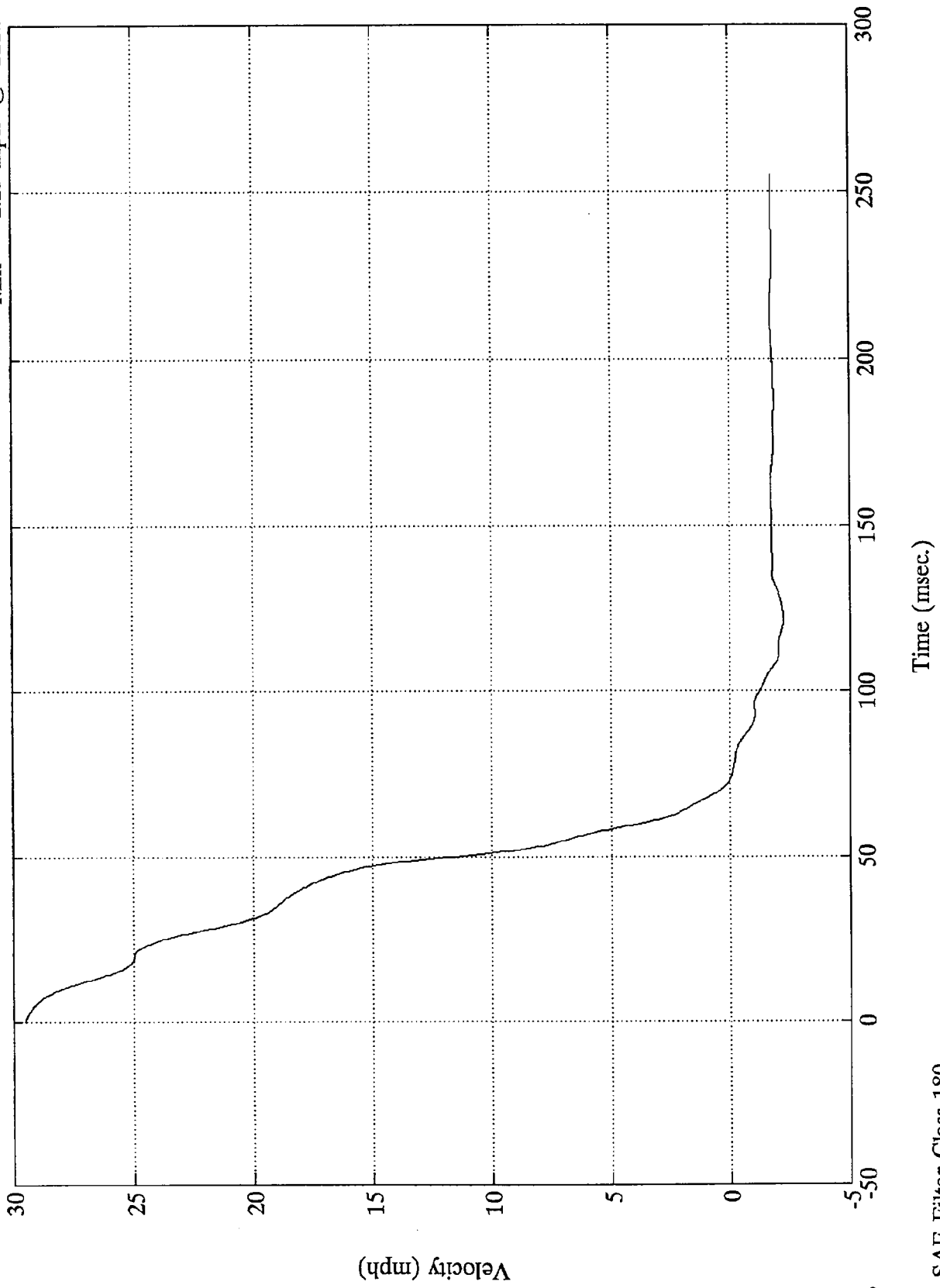
R. Brake Caliper X (#5) Max = 2.79 Gs @ 131.52 msec
Min = -68.35 Gs @ 50.16 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

R. Brake Caliper X (#5)

Max = 29.50 mph @ -0.00 msec
Min = -2.23 mph @ 121.92 msec

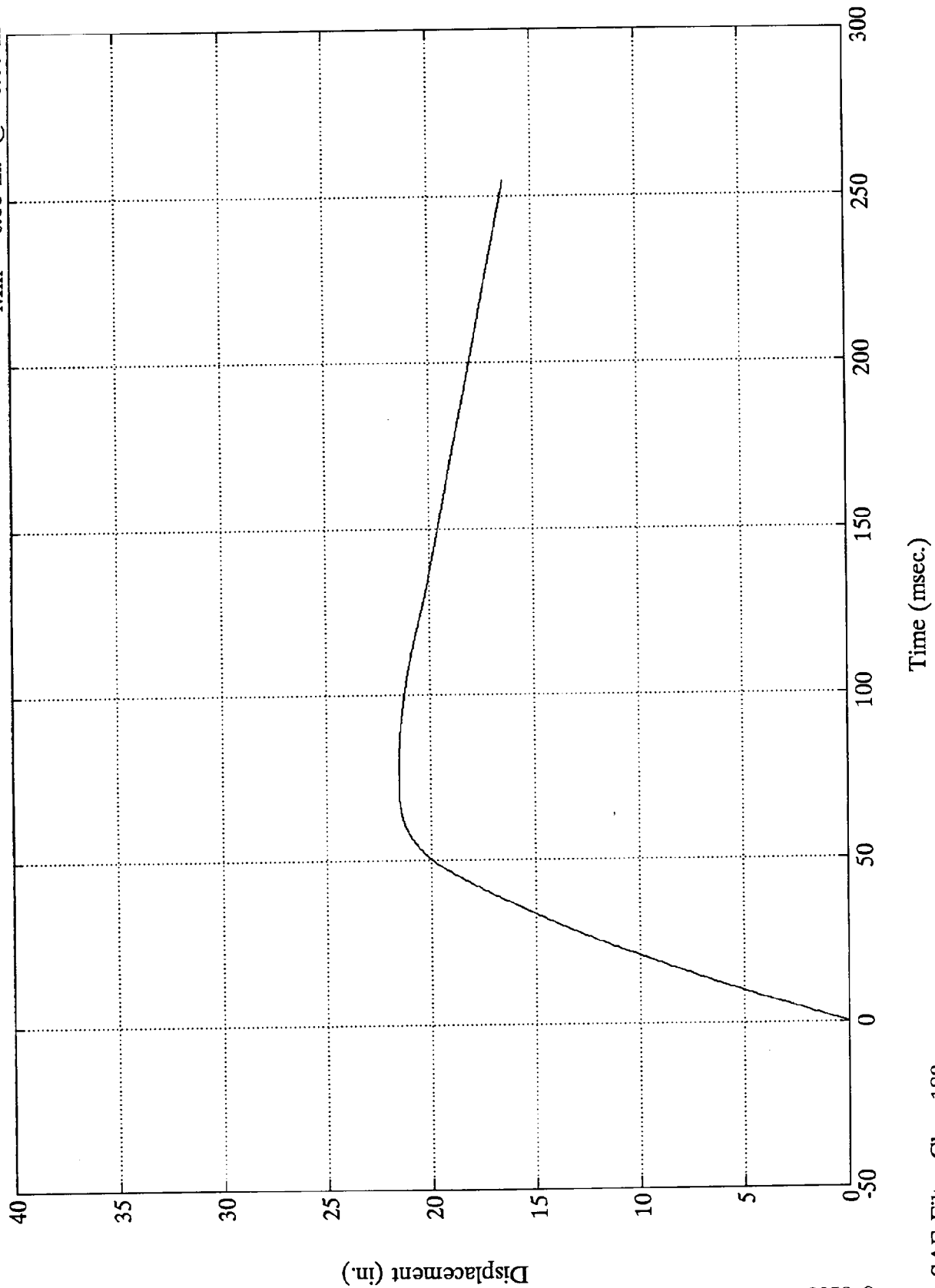


SAE Filter Class 180

NHTSA "208" TEST 1 - 1993 FORD PROBE

R. Brake Caliper X (#5)

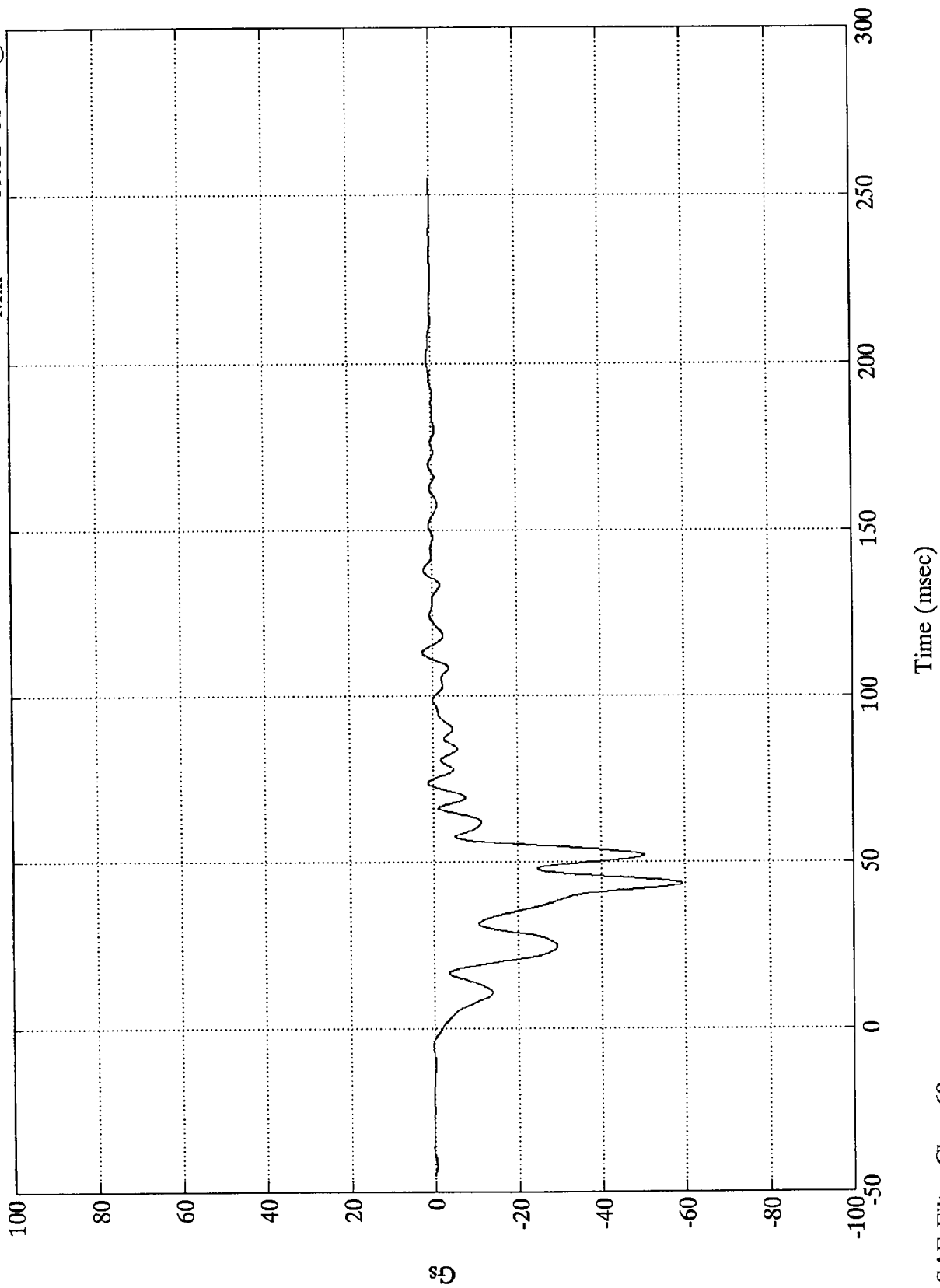
Max = 21.54 in. @ 75.60 msec
Min = 0.00 in. @ -0.00 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

L. Brake Caliper X (#6)

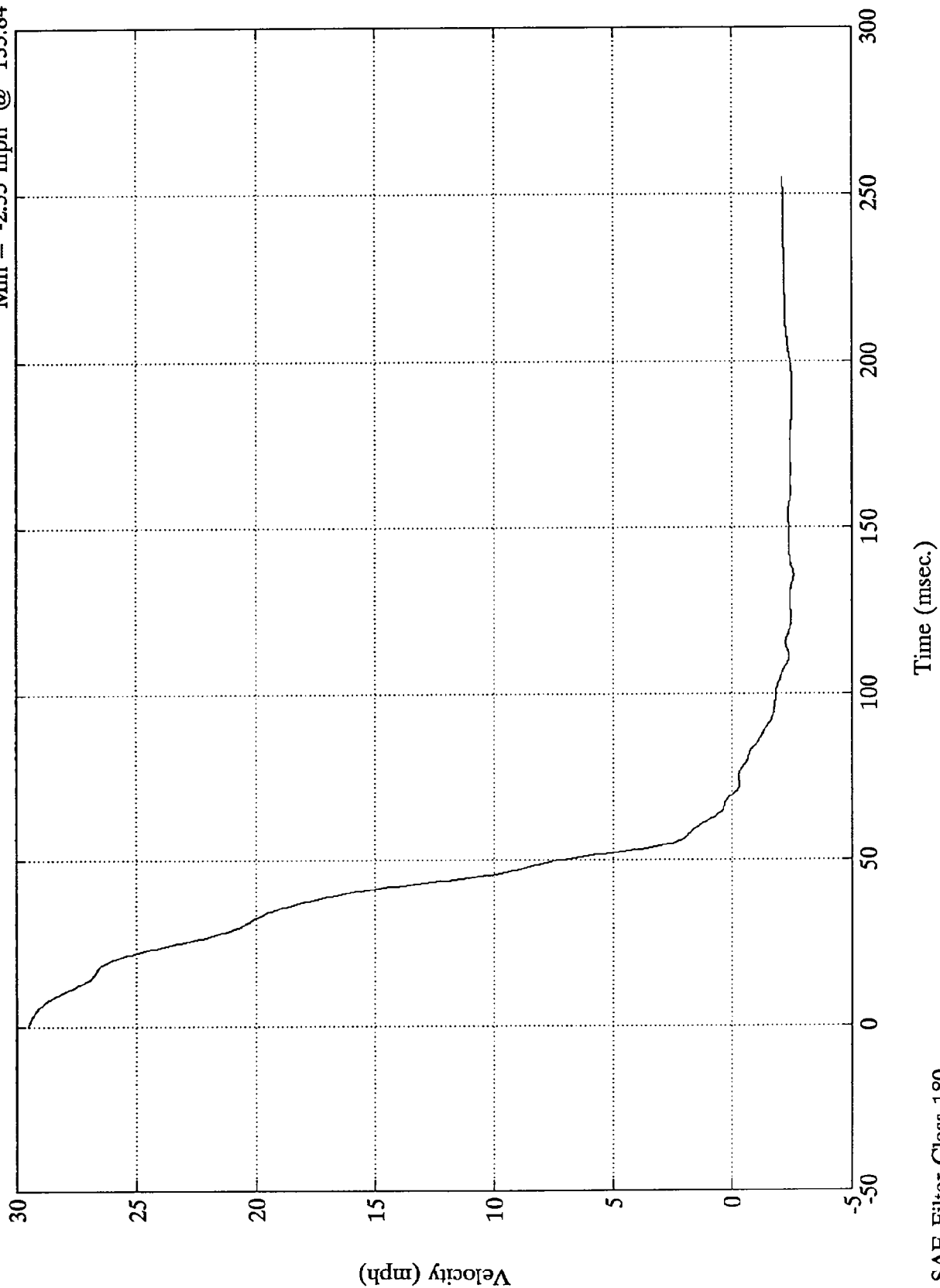
Max =	2.47 Gs	@	113.04 msec
Min =	-59.31 Gs	@	43.43 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

L. Brake Caliper X (#6)

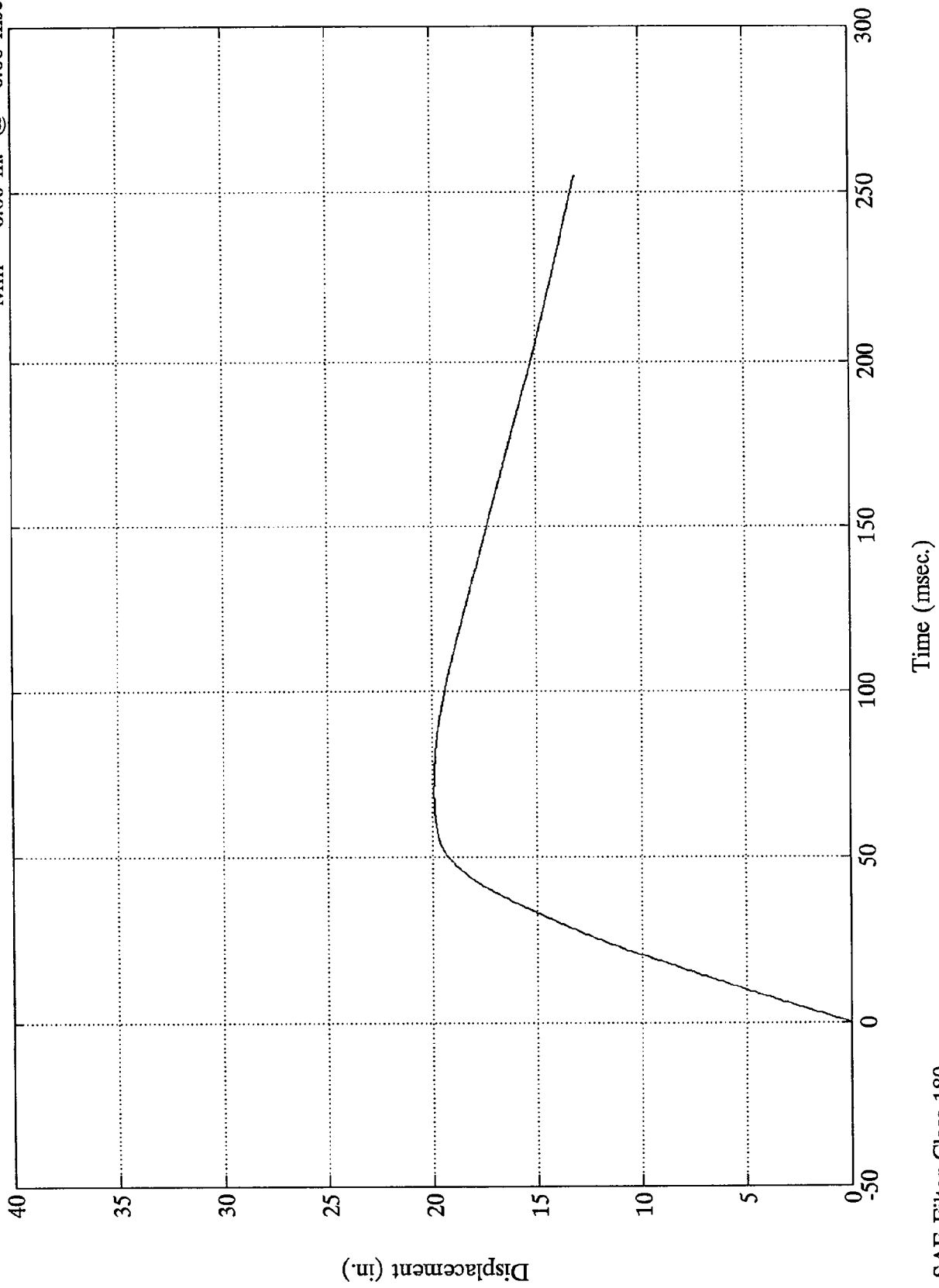
Max = 29.50 mph @ -0.00 msec
Min = -2.55 mph @ 135.84 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

L. Brake Caliper X (#6)

Max = 19.94 in. @ 71.04 msec
Min = 0.00 in. @ -0.00 msec

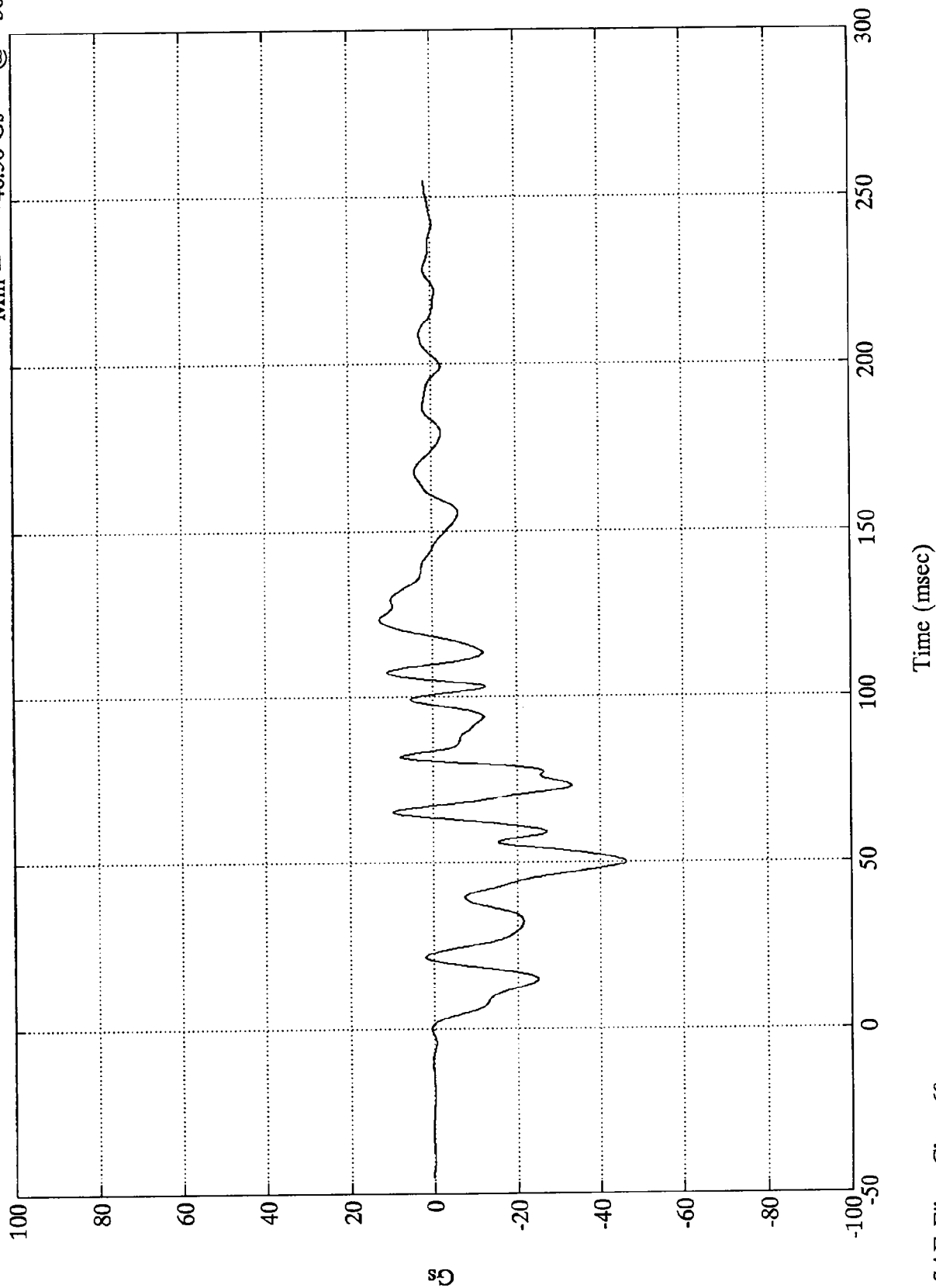


SAE Filter Class 180

NHTSA "208" TEST 1 - 1993 FORD PROBE

Instrument Panel X (#7)

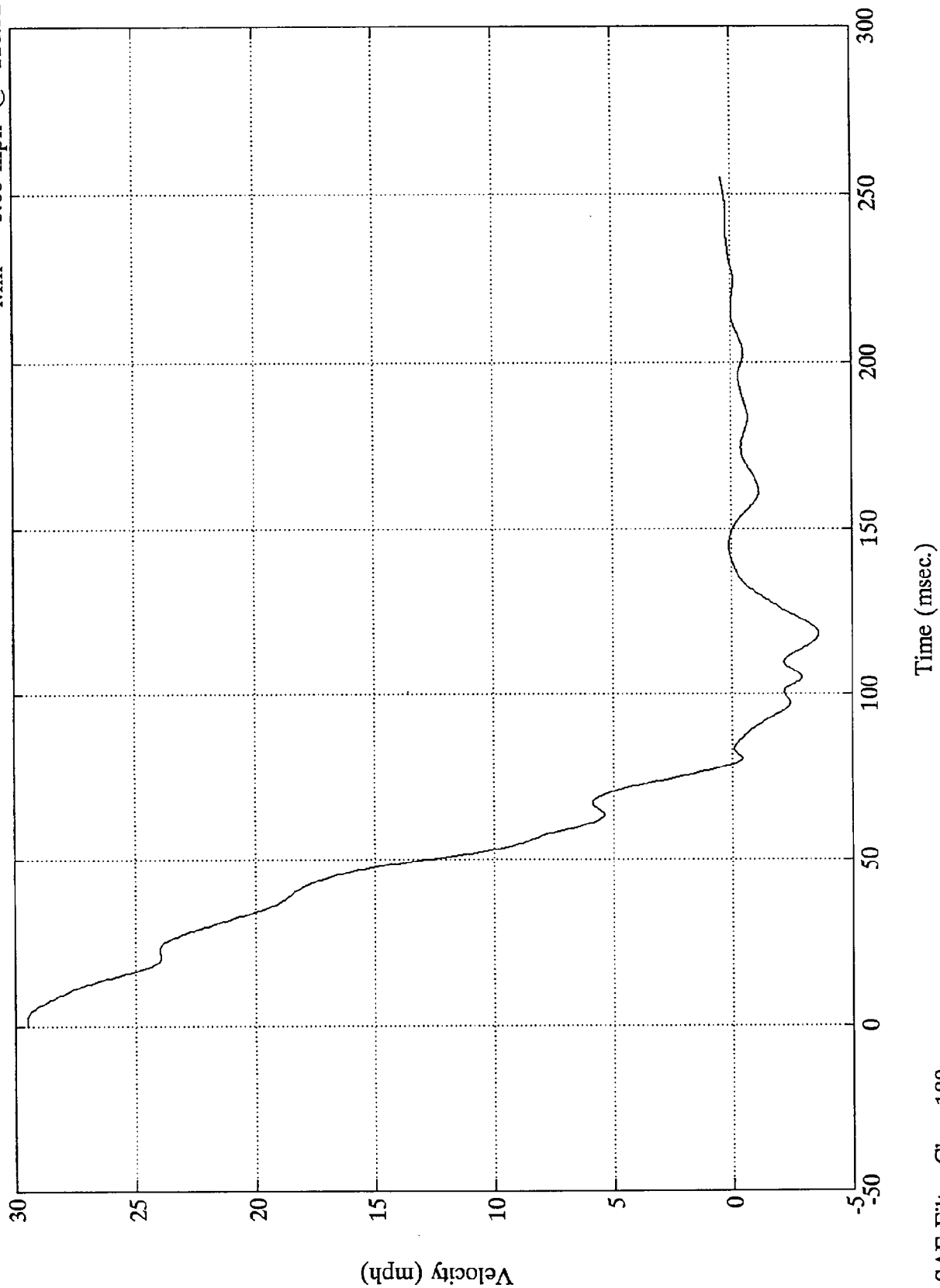
Max = 12.70 Gs @ 123.36 msec
Min = -46.36 Gs @ 50.04 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 29.51 mph @ 1.92 msec
Min = -3.60 mph @ 118.32 msec

Instrument Panel X (#7)

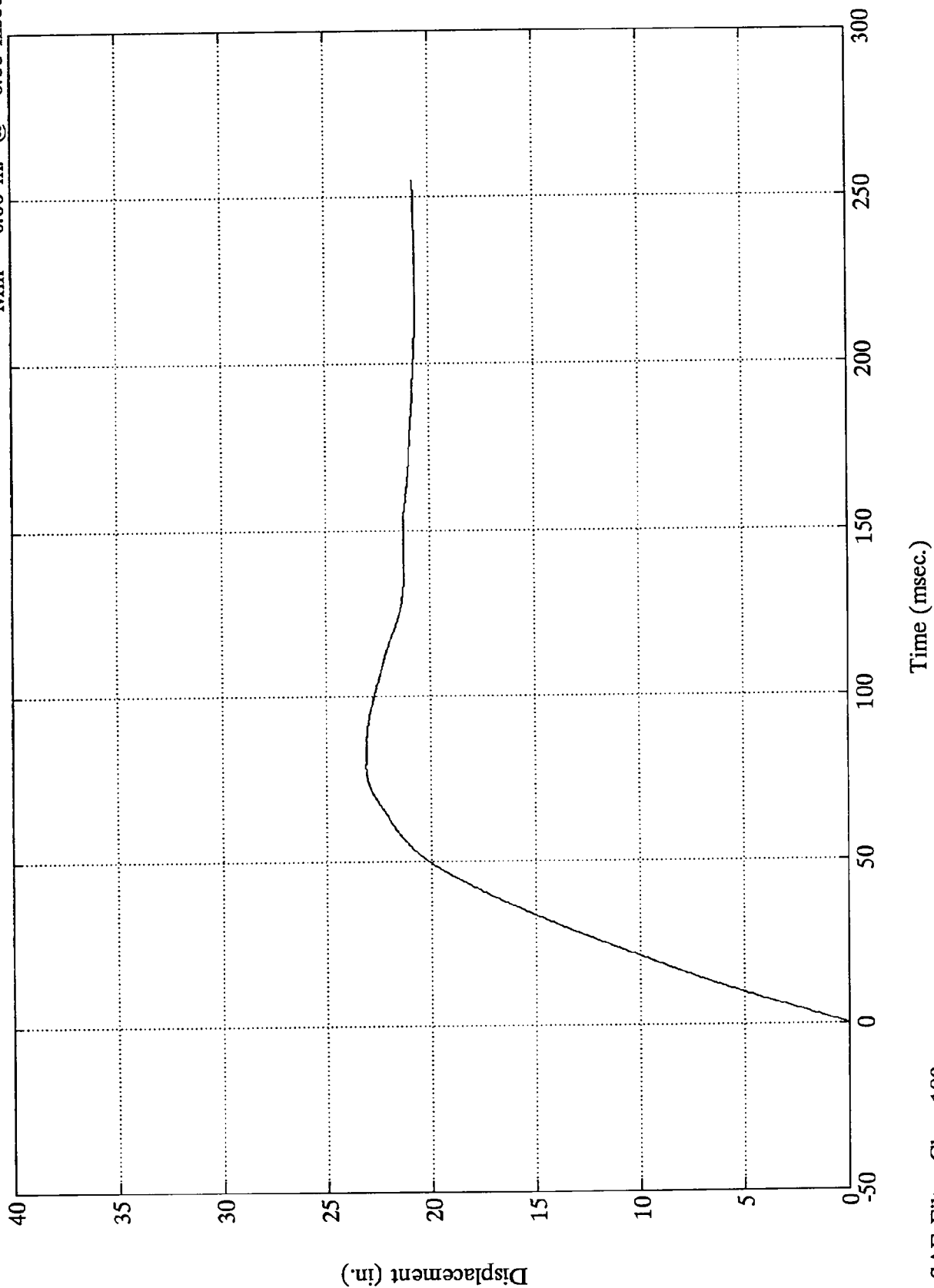


SAE Filter Class 180

NHTSA '208" TEST 1 - 1993 FORD PROBE

Instrument Panel X (#7)

Max = 23.12 in. @ 79.20 msec
Min = 0.00 in. @ -0.00 msec



TEST NO. CP0202

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

FACILITY: TRACK
RUN #: 1214
SERIES #: 1

TEST DATE: 16 Sep 1992
TEST TIME: 11:22:39
BOARD: a

TITLE: NHTSA "208" TEST 1 - 1993 FORD PROBE

CHANNEL NUMBER	DESCRIPTION	ENGR UNIT	MAXIMUM		MINIMUM		FILTER CLASS
			AMP	msec	AMP	msec	
1	Pos. 1 Head X	Gs	23.0	82.8	-63.6	81.5	1000.0
2	Pos. 1 Head Y	Gs	35.8	83.0	-7.7	25.9	1000.0
3	Pos. 1 Head Z	Gs	36.8	81.1	-28.5	82.7	1000.0
4	Pos. 1 Left Femur	lbs	50.6	38.9	-1331.2	60.8	600.0
5	Pos. 1 Chest X	Gs	5.8	152.0	-46.9	91.8	180.0
6	Pos. 1 Chest Y	Gs	3.2	133.9	-6.6	69.1	180.0
7	Pos. 1 Chest Z	Gs	2.7	254.2	-14.5	62.3	180.0
8	Pos. 1 Right Femur	lbs	86.8	54.4	-1211.5	64.0	600.0
9	Pos. 2 Head X	Gs	3.0	205.9	-18.2	116.0	1000.0
10	Pos. 2 Head Y	Gs	11.8	109.6	-1.9	189.5	1000.0
11	Pos. 2 Head Z	Gs	36.5	88.1	-1.3	28.1	1000.0
12	Pos. 2 Left Femur	lbs	173.8	53.5	-398.3	35.3	600.0
13	Pos. 2 Chest X	Gs	2.3	237.7	-35.5	73.8	180.0
14	Pos. 2 Chest Y	Gs	8.1	79.8	-1.4	238.6	180.0
15	Pos. 2 Chest Z	Gs	3.4	213.2	-10.2	77.8	180.0
16	Pos. 2 Right Femur	lbs	164.9	54.8	-426.9	57.5	600.0
17	Pos. 1 Head Resultant	Gs	74.3	81.1	.0	8.9	1000.0
18	Pos. 1 Chest Resultant	Gs	47.0	91.8	.0	-29.9	180.0
19	Pos. 2 Head Resultant	Gs	39.0	88.1	.1	6.0	1000.0
20	Pos. 2 Chest Resultant	Gs	37.1	73.8	.0	-33.0	180.0

CLIP SUMMARY: Pos. 1 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 45.566 G's
Tstart = 90.3600 ms
Tend = 93.4800 ms
CSI = 337.031

CLIP SUMMARY: Pos. 2 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 35.304 G's
Tstart = 72.3600 ms
Tend = 75.4800 ms
CSI = 215.148

36 ms Fixed Duration HIC SUMMARY: Pos. 1 Head Resultant

hic: 314.58
t1 = 63.000 msec
t2 = 87.480 msec
Average G's Over Hic Duration = 44.01

36 ms Fixed Duration HIC SUMMARY: Pos. 2 Head Resultant

hic: 227.40
t1 = 65.280 msec
t2 = 101.160 msec
Average G's Over Hic Duration = 33.17

FACILITY: TRACK TEST DATE: 16 Sep 1992
 RUN #: 1214 TEST TIME: 11:22:39
 SERIES #: 1 BOARD: b

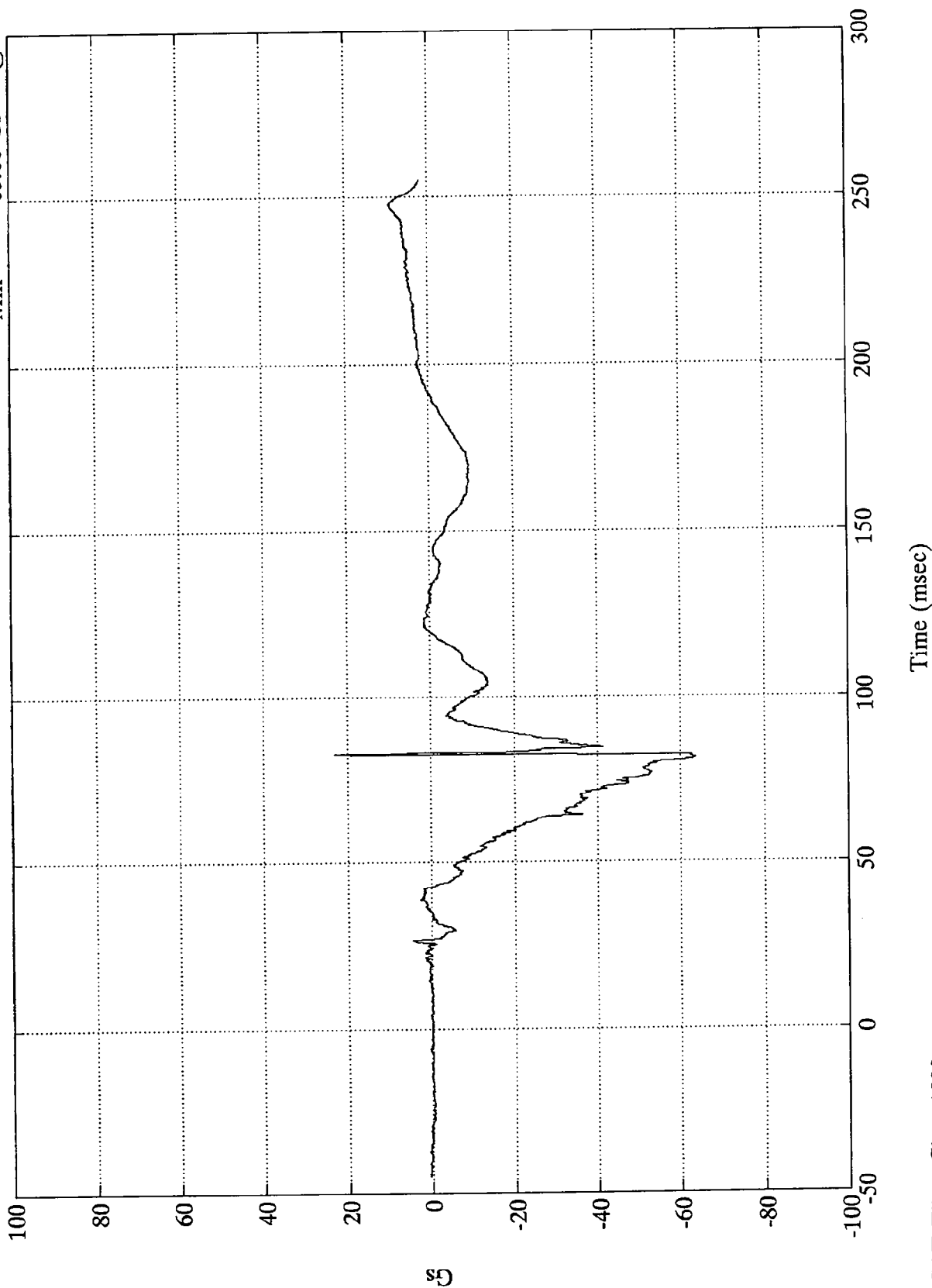
TITLE: NHTSA "208" TEST 1 - 1993 FORD PROBE

CHANNEL NUMBER	DESCRIPTION	ENGR UNIT	MAXIMUM		MINIMUM		FILTER CLASS
			AMP	msec	AMP	msec	
1	L. Rear X-member X (#1)	Gs	6.8	128.2	-42.6	45.5	180.0
2	R. Rear X-member X (#2)	Gs	12.6	18.0	-49.0	48.2	180.0
3	Engine Top X (#3)	Gs	56.5	20.2	-101.4	37.2	180.0
4	Engine Bottom X (#4)	Gs	75.0	48.5	-79.6	36.6	180.0
5	R. Brake Caliper X (#5)	Gs	11.6	20.2	-103.2	50.0	180.0
6	L. Brake Caliper X (#6)	Gs	11.2	66.2	-79.1	43.3	180.0
7	Instrument Panel X (#7)	Gs	36.8	81.0	-54.3	49.4	180.0
8	Pos 1 Chest Disp.	ins	2.3	48.7	-.1	46.8	180.0
9	Pos 2 Chest Disp.	ins	1.8	49.0	-.7	72.5	180.0
10	NULL	Gs	.0	254.9	.0	254.9	1000.0
11	NULL	Gs	.0	254.9	.0	254.9	1000.0
12	NULL	Gs	.0	254.9	.0	254.9	1000.0

NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 22.98 Gs @ 82.80 msec
 Min = -63.60 Gs @ 81.48 msec

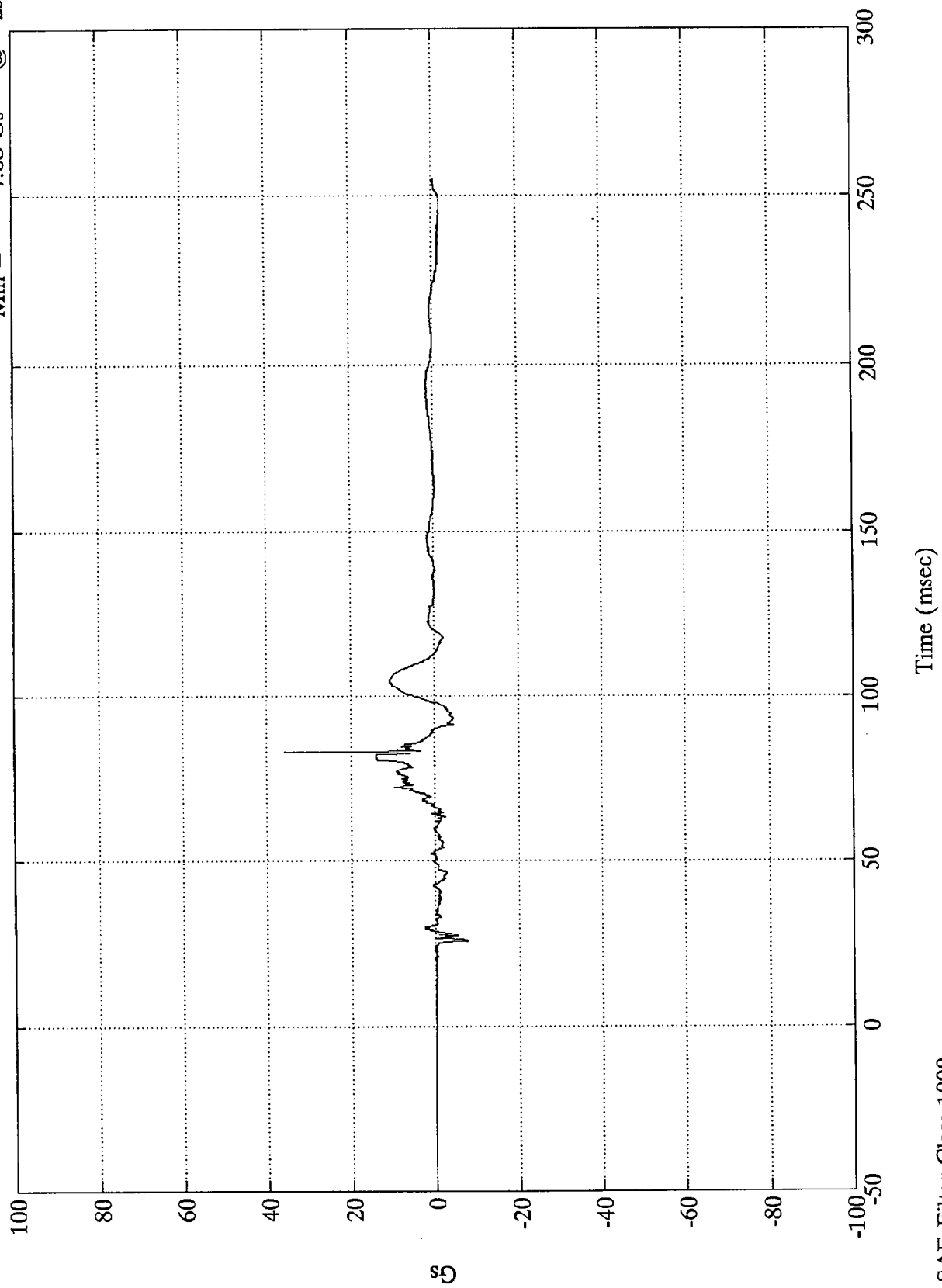
Pos. 1 Head X



SAE Filter Class 1000

NHTSA "208" TEST 1 - 1993 FORD PROBE

Pos. 1 Head Y
 Max = 35.81 Gs @ 83.04 msec
 Min = -7.68 Gs @ 25.92 msec

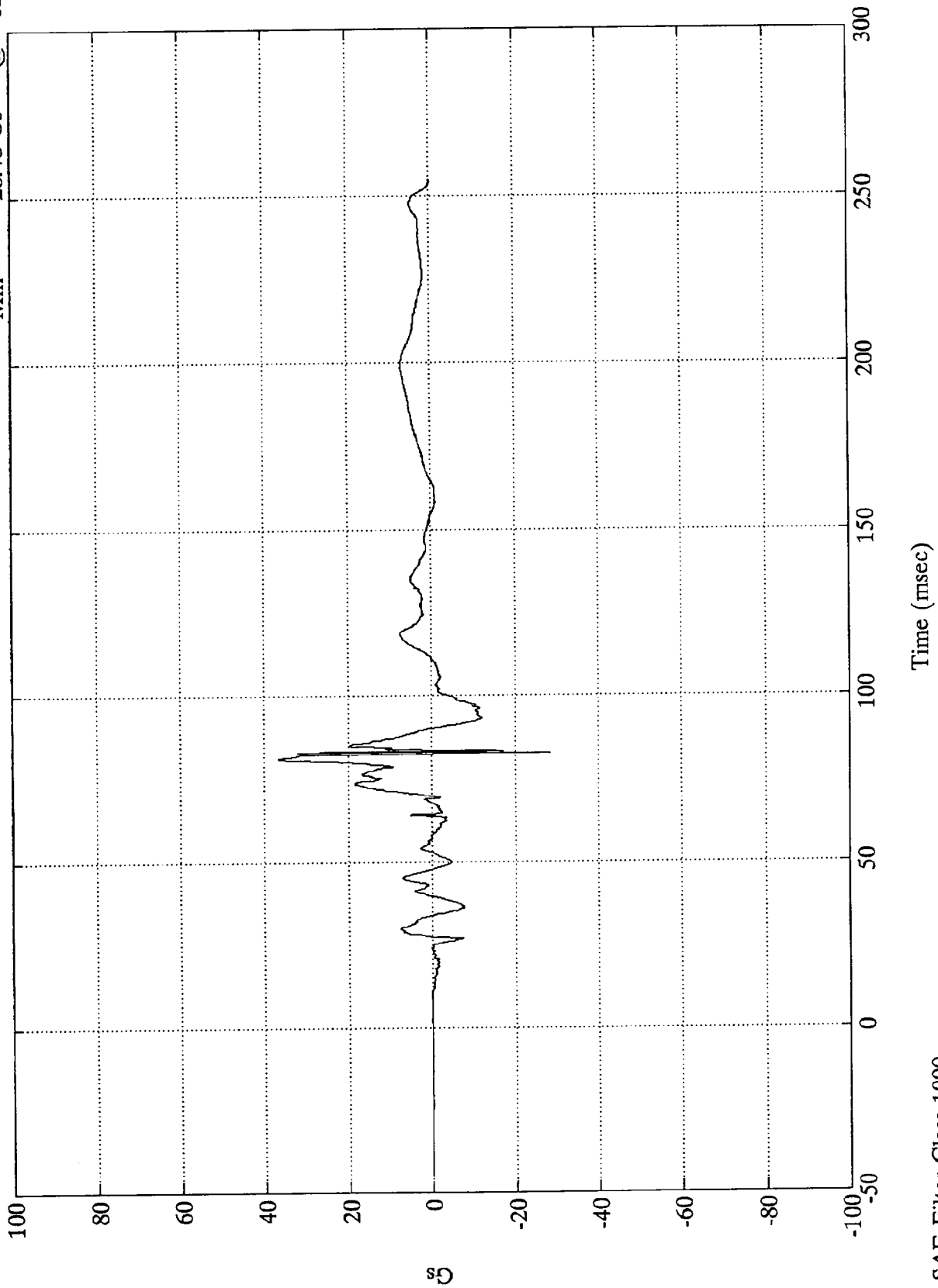


SAE Filter Class 1000

NHTSA "208" TEST 1 - 1993 FORD PROBE

Pos. 1 Head Z

Max = 36.80 Gs @ 81.12 msec
Min = -28.48 Gs @ 82.68 msec

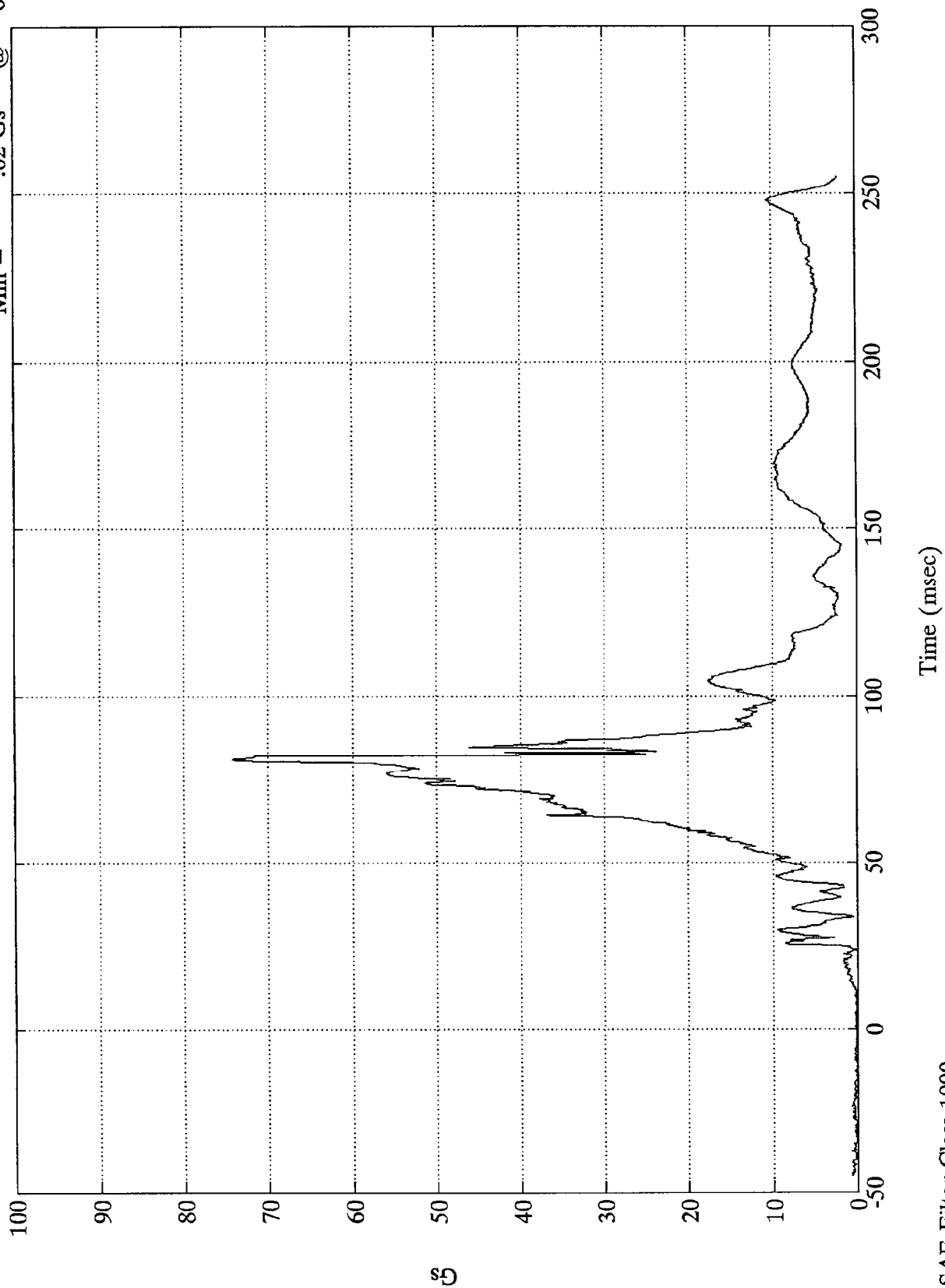


SAE Filter Class 1000

NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 74.29 Gs @ 81.12 msec
Min = .02 Gs @ 8.87 msec

Pos. 1 Head Resultant



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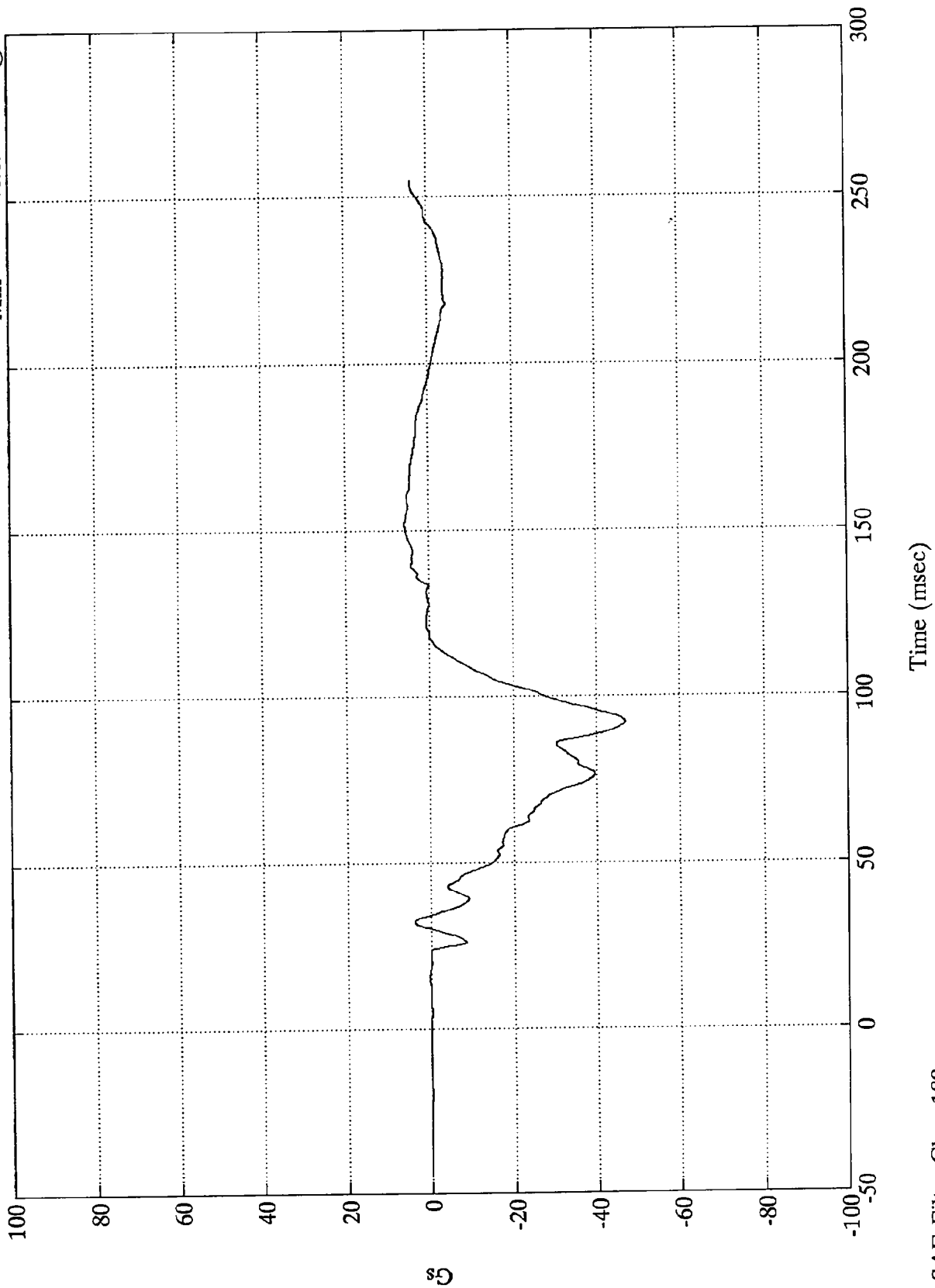
8056-2

SAE Filter Class 1000

NHTSA "208" TEST 1 - 1993 FORD PROBE

Pos. 1 Chest X

Max = 5.76 Gs @ 152.04 msec
Min = -46.89 Gs @ 91.80 msec



Gs

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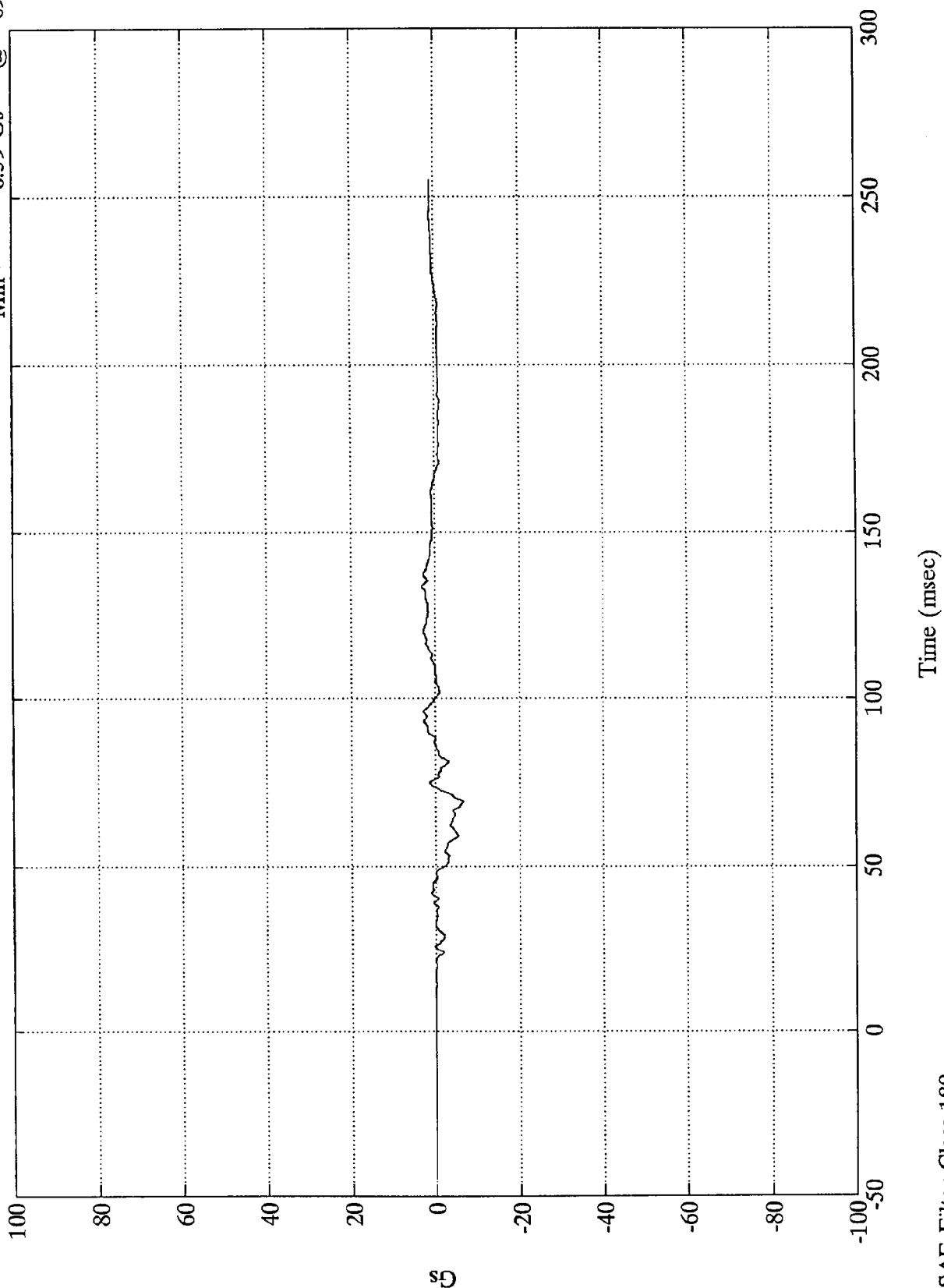
8056-2

SAE Filter Class 180

NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 3.24 Gs @ 133.91 msec
 Min = -6.59 Gs @ 69.12 msec

Pos. 1 Chest Y



Gs

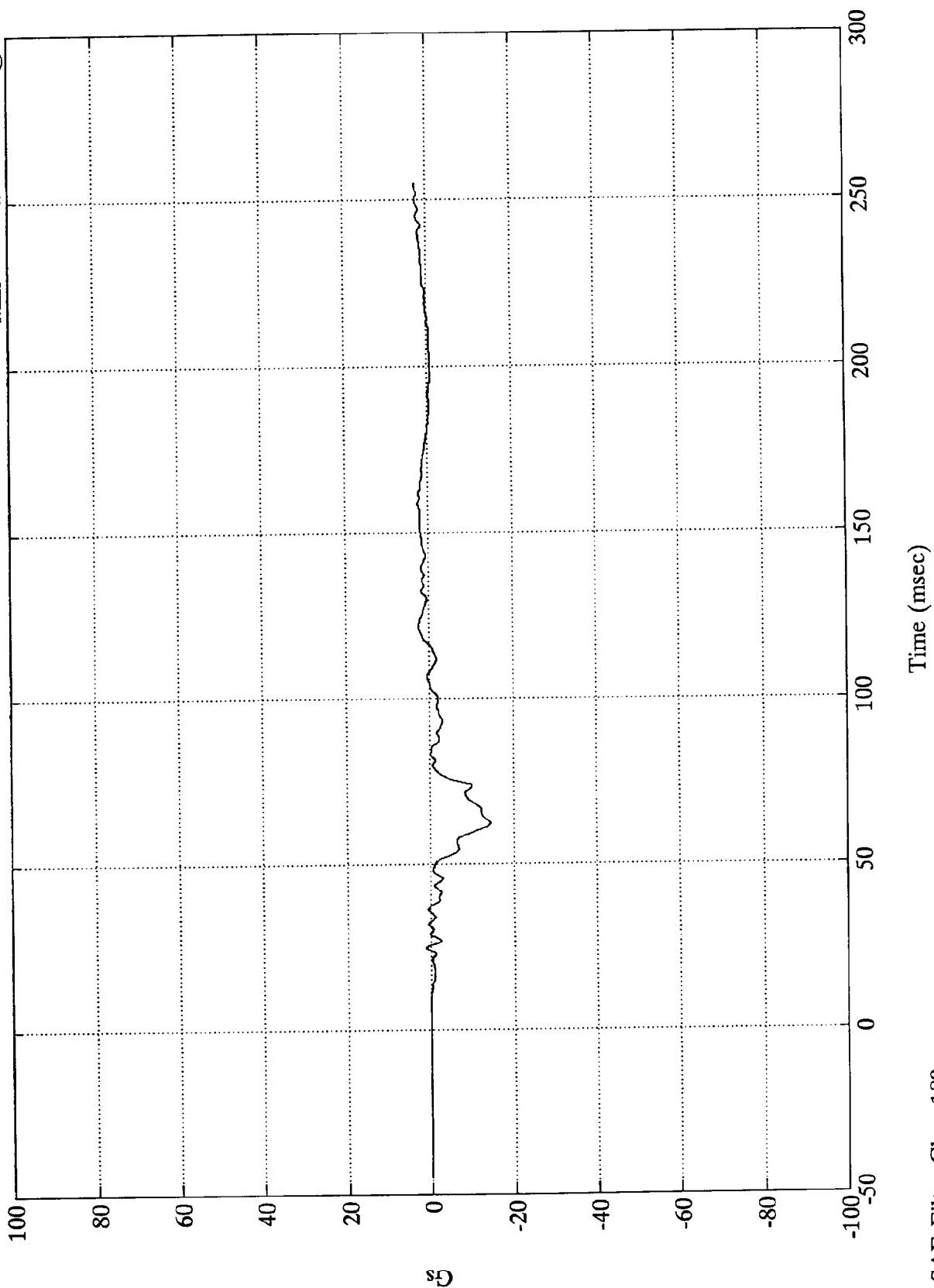
Time (msec)

SAE Filter Class 180

NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 2.67 Gs @ 254.16 msec
Min = -14.52 Gs @ 62.27 msec

Pos. 1 Chest Z



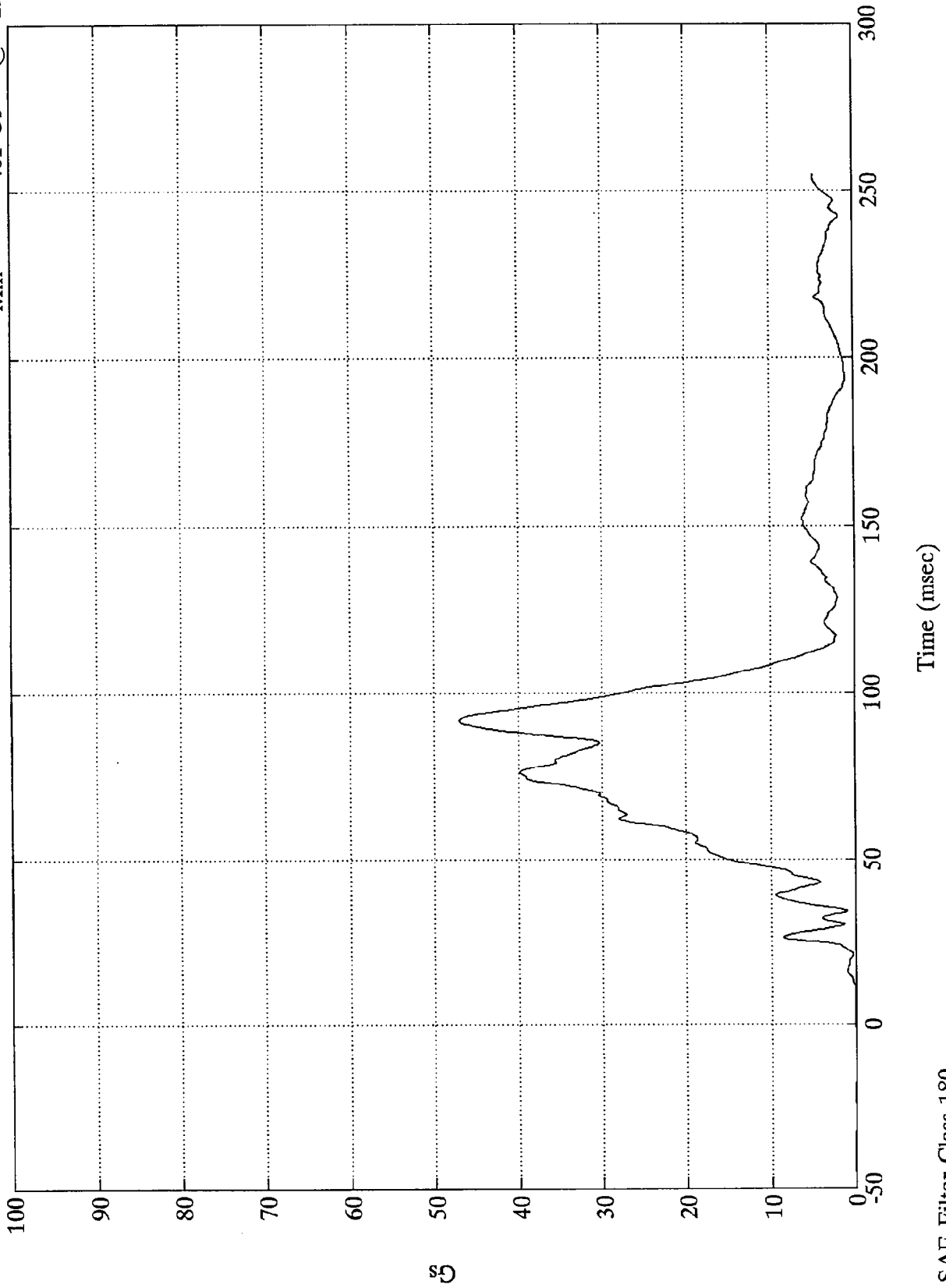
B-33

8056-2

SAE Filter Class 180

NHTSA "208" TEST 1 - 1993 FORD PROBE

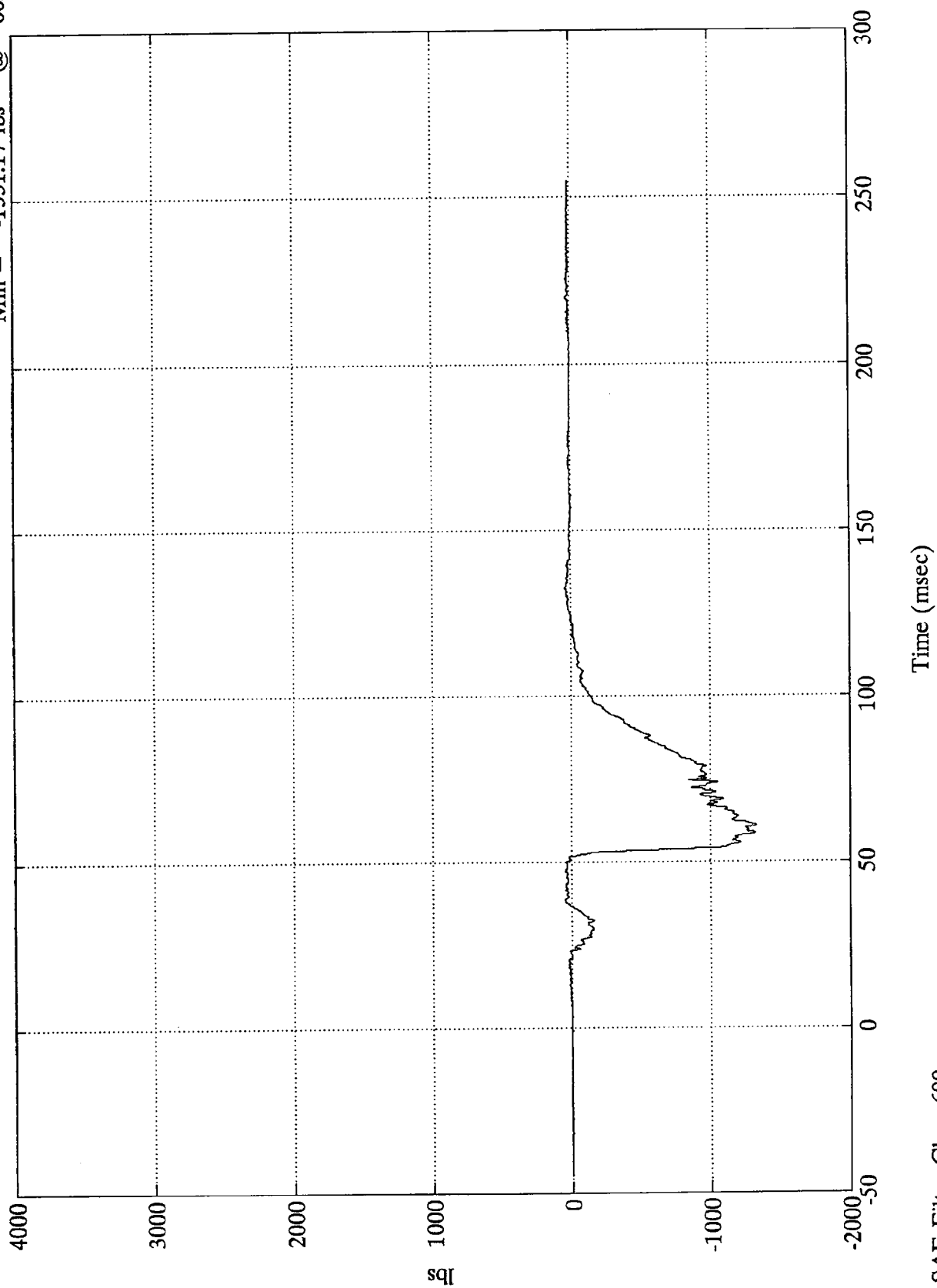
Pos. 1 Chest Resultant
 Max = 47.01 Gs @ 91.80 msec
 Min = .01 Gs @ -29.88 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 50.56 lbs @ 38.88 msec
Min = -1331.17 lbs @ 60.84 msec

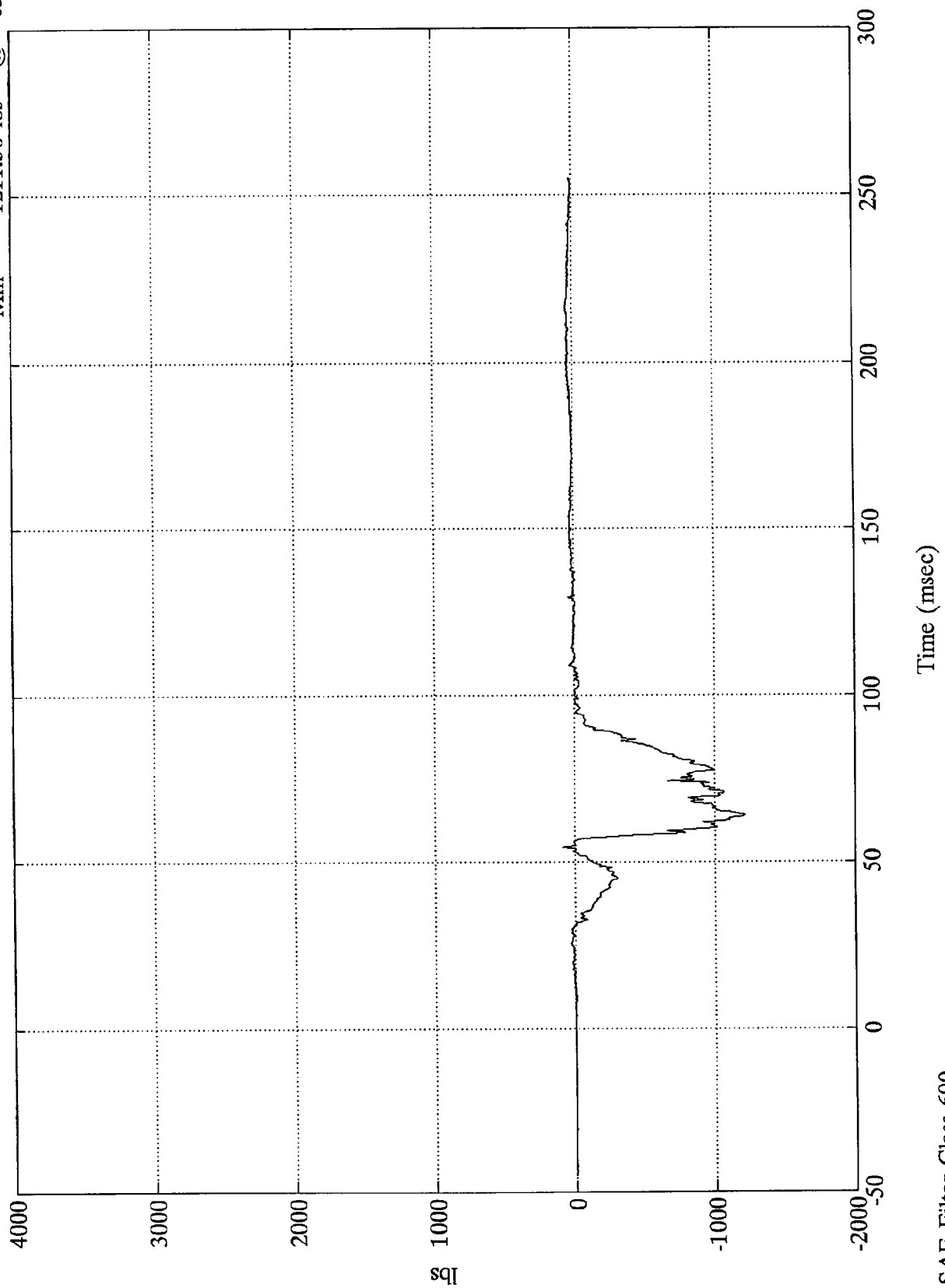
Pos. 1 Left Femur



SAE Filter Class 600

NHTSA "208" TEST 1 - 1993 FORD PROBE

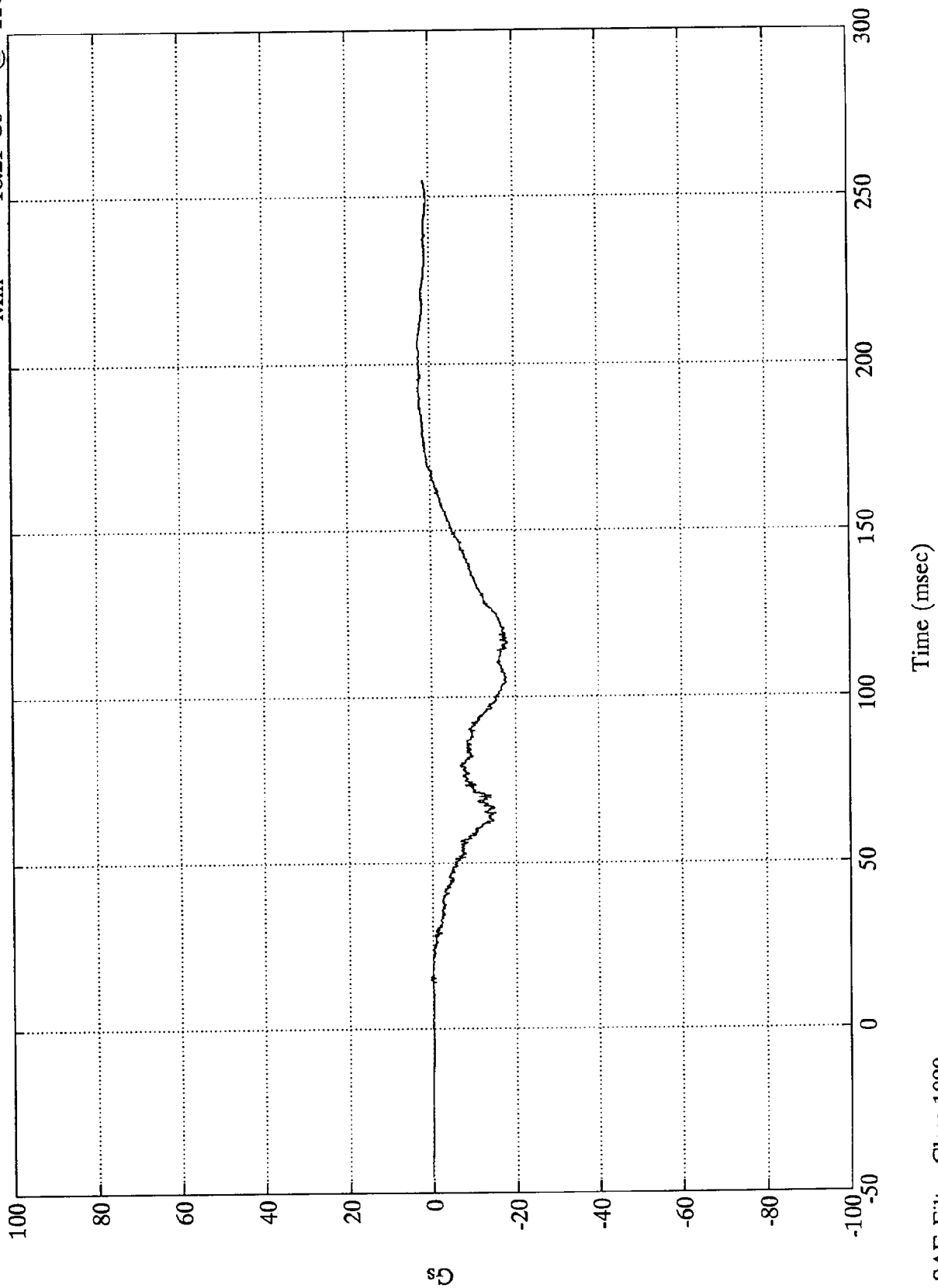
Pos. 1 Right Femur
Max = 86.82 lbs @ 54.36 msec
Min = -1211.50 lbs @ 63.95 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

Pos. 2 Head X

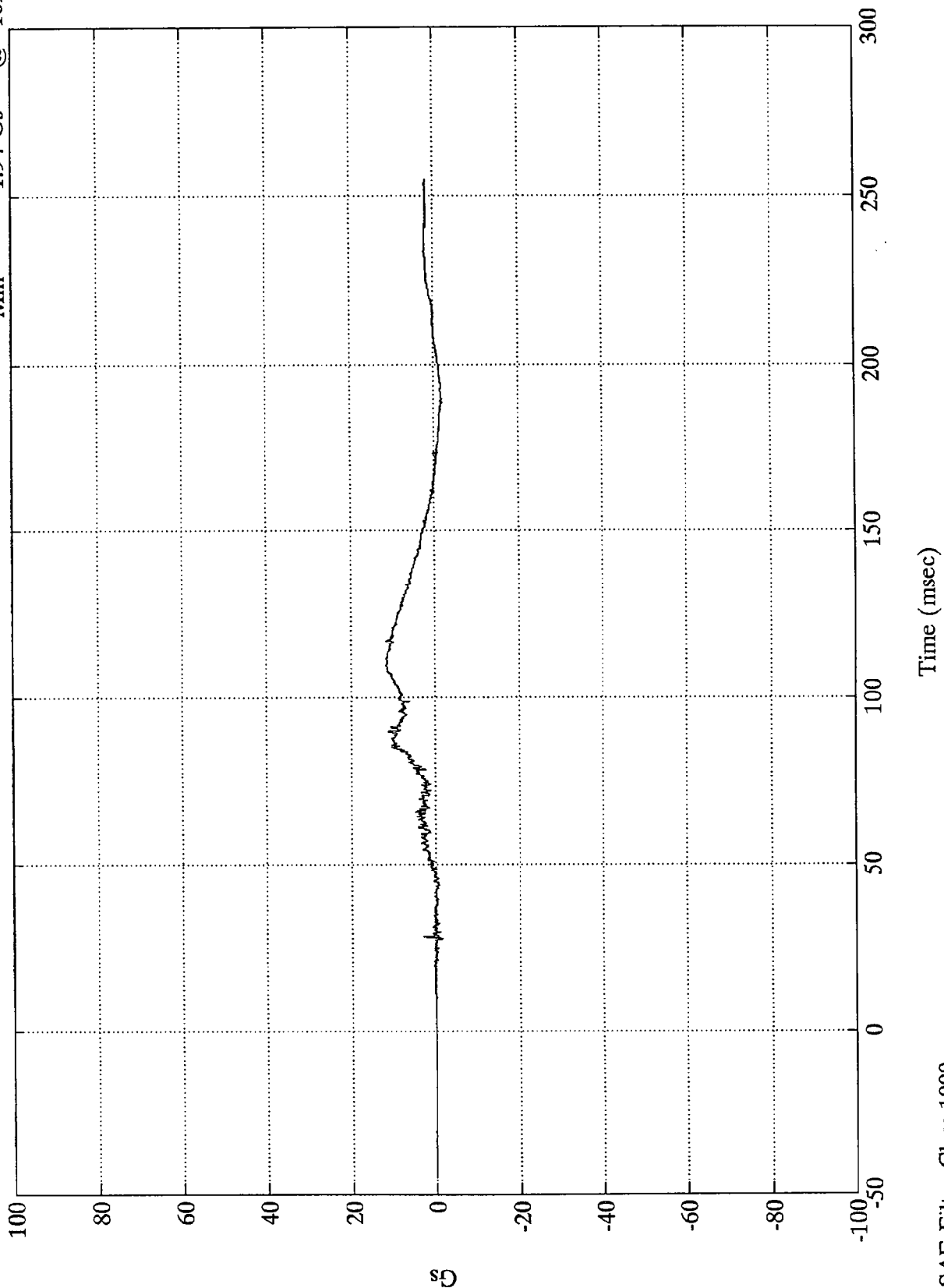
Max = 2.98 Gs @ 205.92 msec
Min = -18.21 Gs @ 116.04 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 11.76 Gs @ 109.56 msec
Min = -1.94 Gs @ 189.48 msec

Pos. 2 Head Y

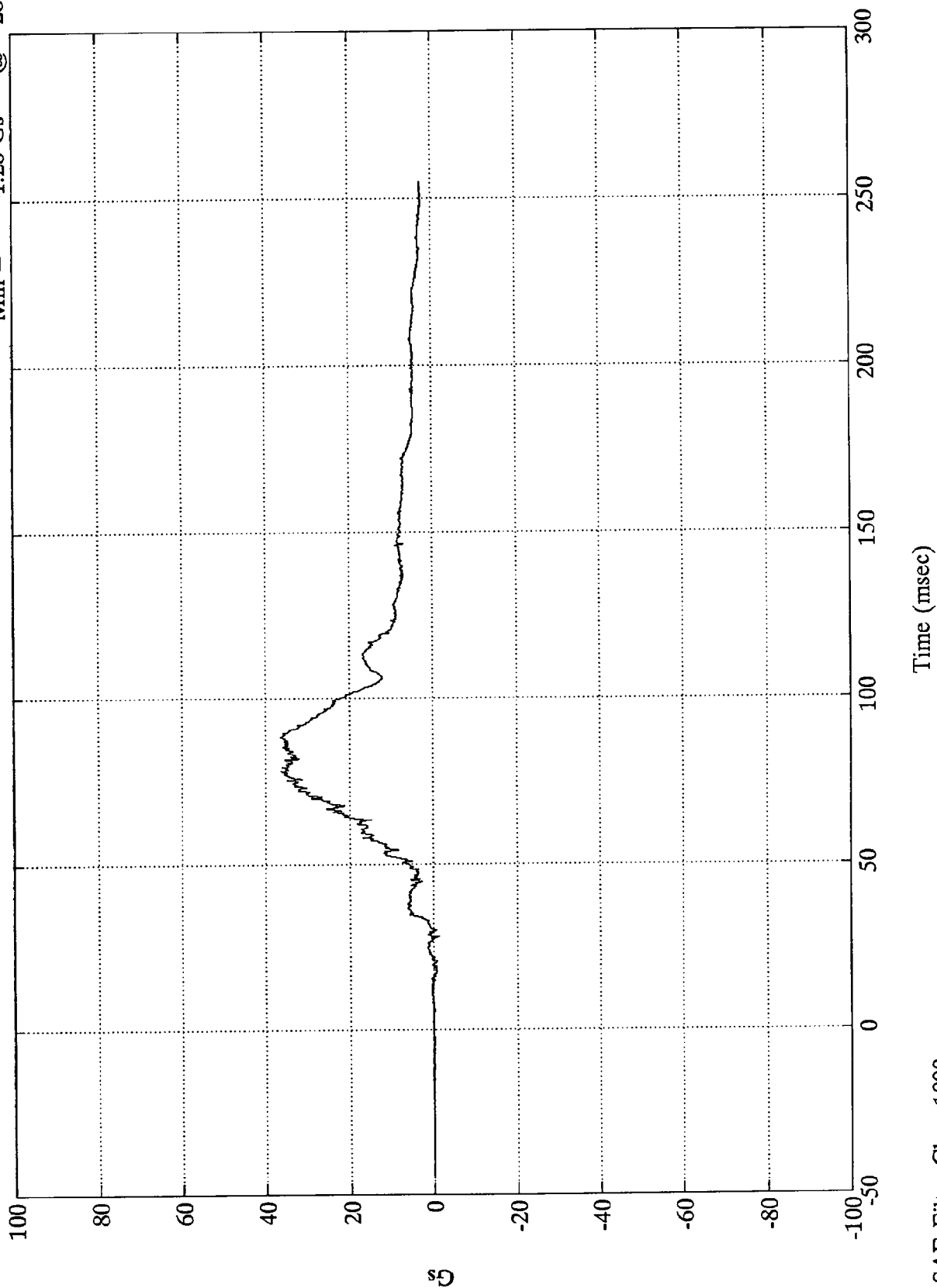


SAE Filter Class 1000

NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 36.50 Gs @ 88.08 msec
Min = -1.26 Gs @ 28.07 msec

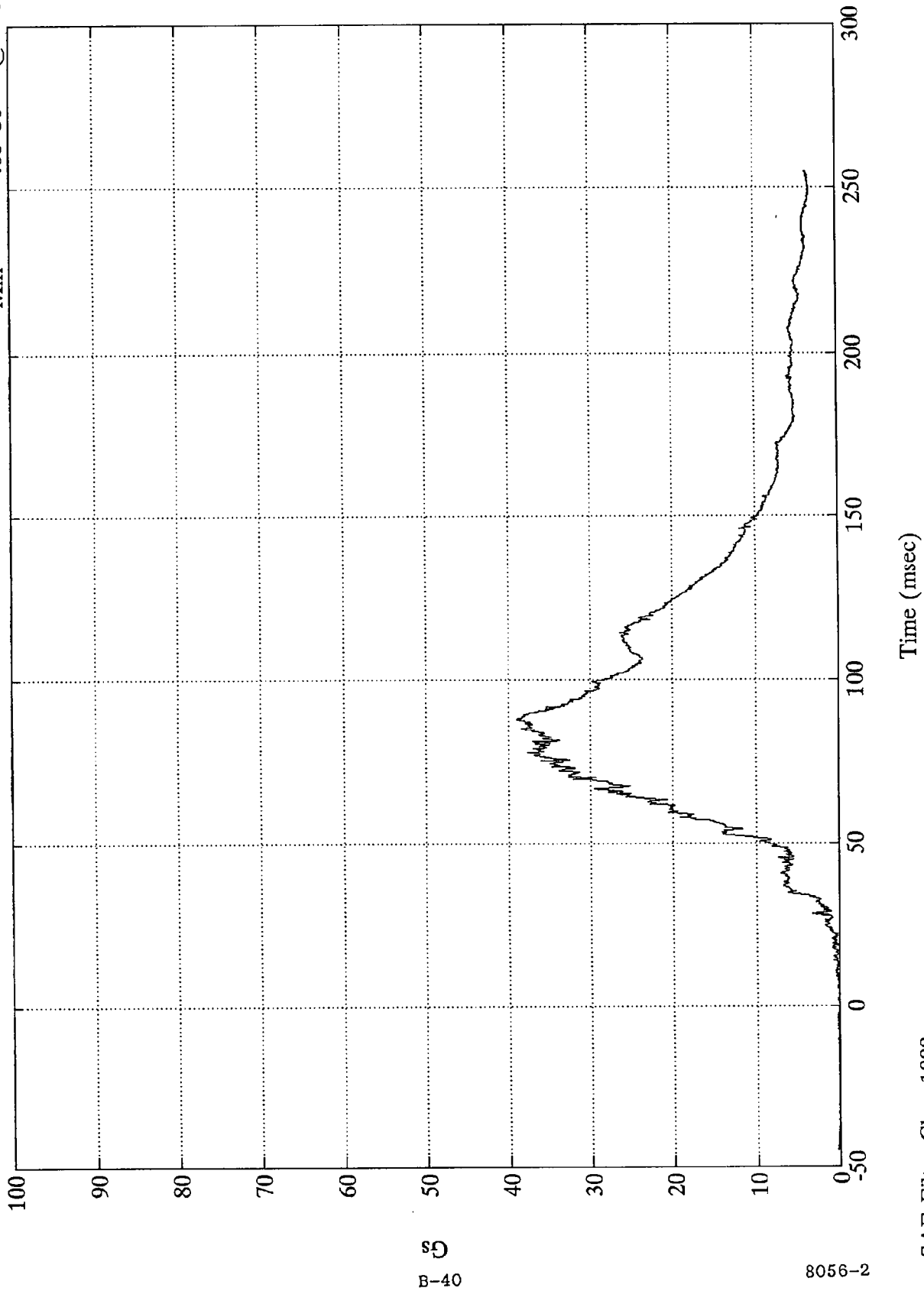
Pos. 2 Head Z



NHTSA '208" TEST 1 - 1993 FORD PROBE

Max = 38.96 Gs @ 88.08 msec
Min = .06 Gs @ 5.99 msec

Pos. 2 Head Resultant

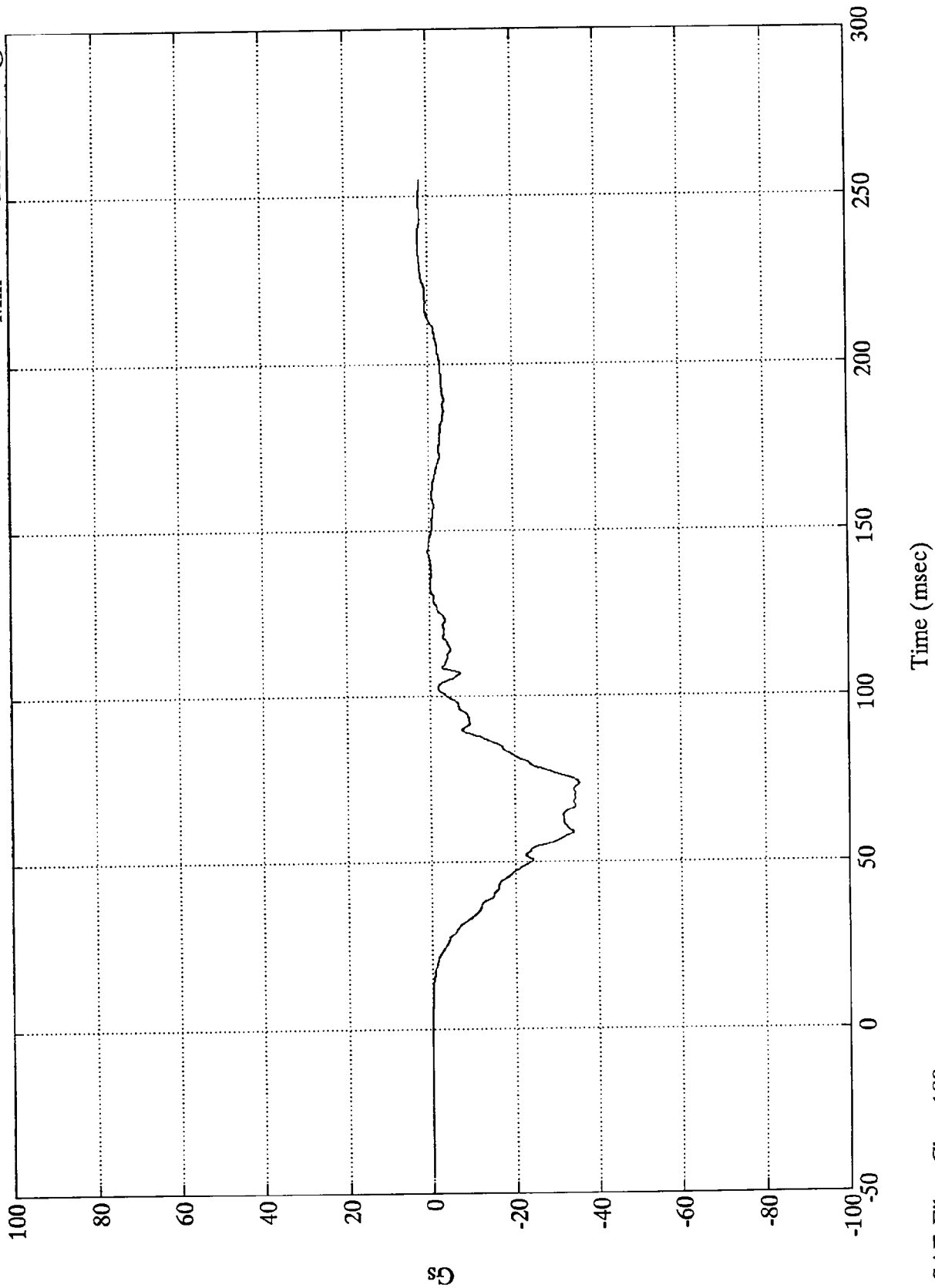


SAE Filter Class 1000

NHTSA "208" TEST 1 - 1993 FORD PROBE

Pos. 2 Chest X

Max = 2.35 Gs @ 237.72 msec
Min = -35.52 Gs @ 73.80 msec



B-41

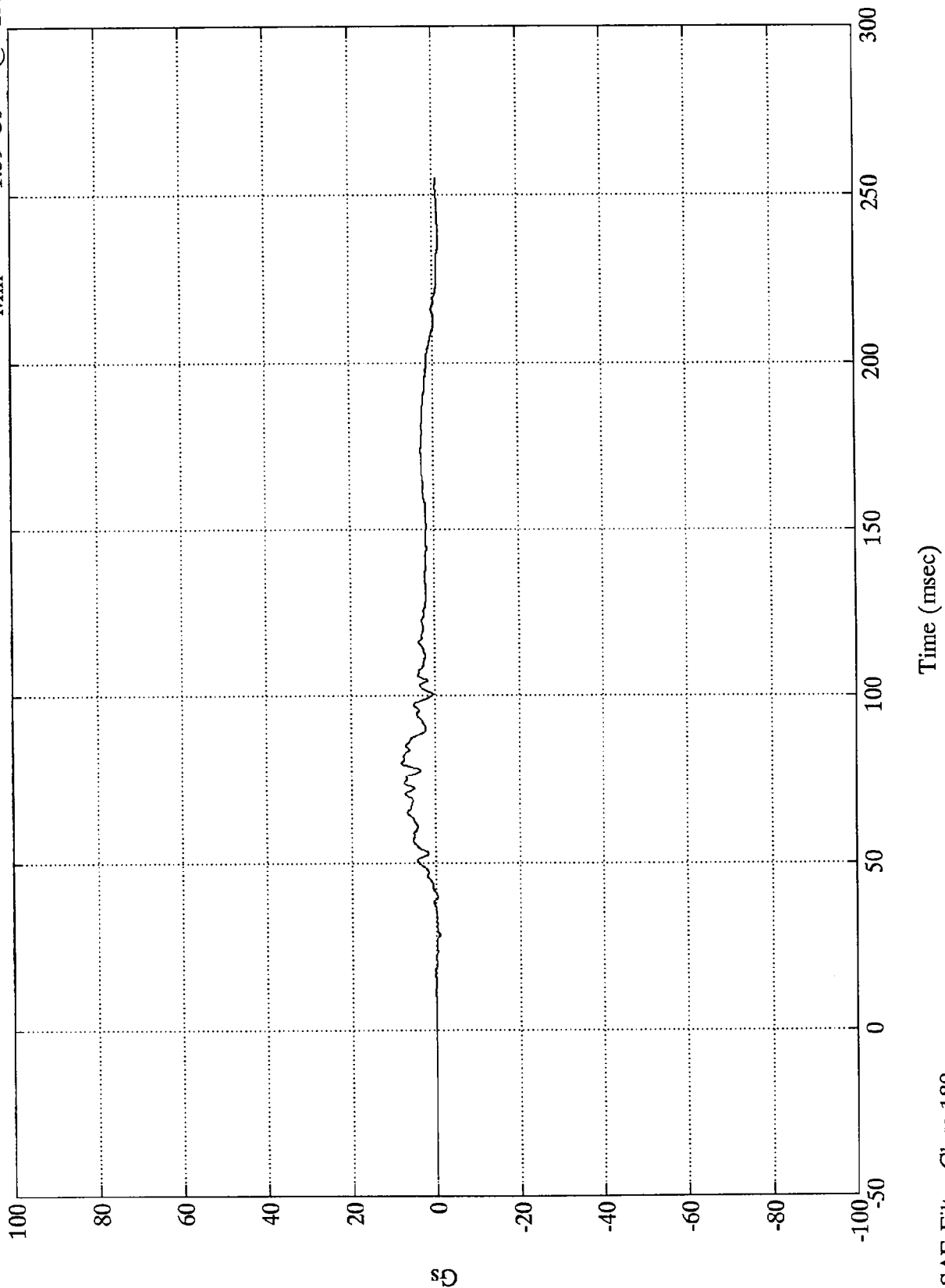
8056-2

SAE Filter Class 180

NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 8.10 Gs @ 79.80 msec
Min = -1.39 Gs @ 238.56 msec

Pos. 2 Chest Y



SAE Filter Class 180

Gs

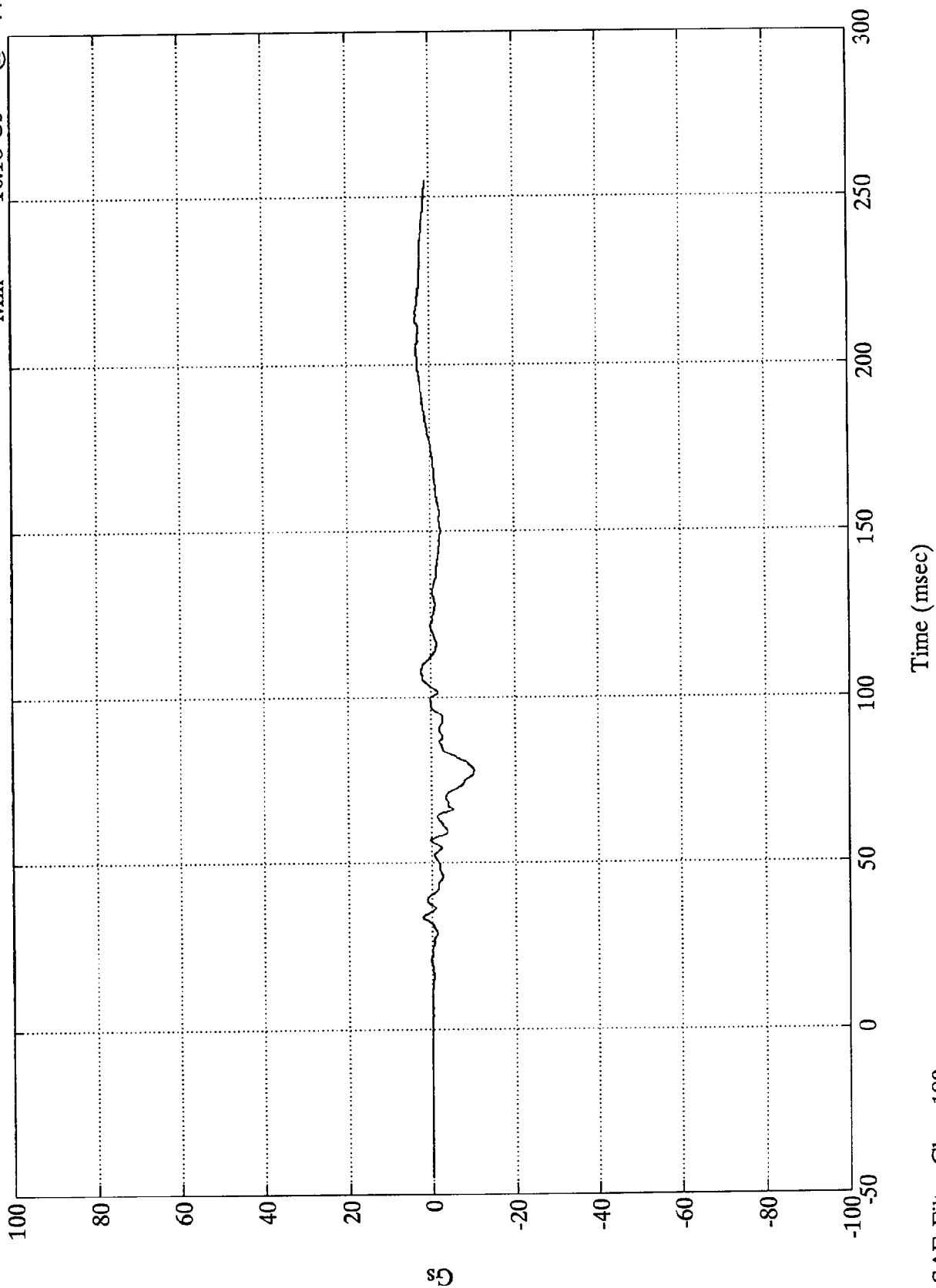
B-42

8056-2

NHTSA "208" TEST 1 - 1993 FORD PROBE

Max = 3.44 Gs @ 213.24 msec
Min = -10.18 Gs @ 77.76 msec

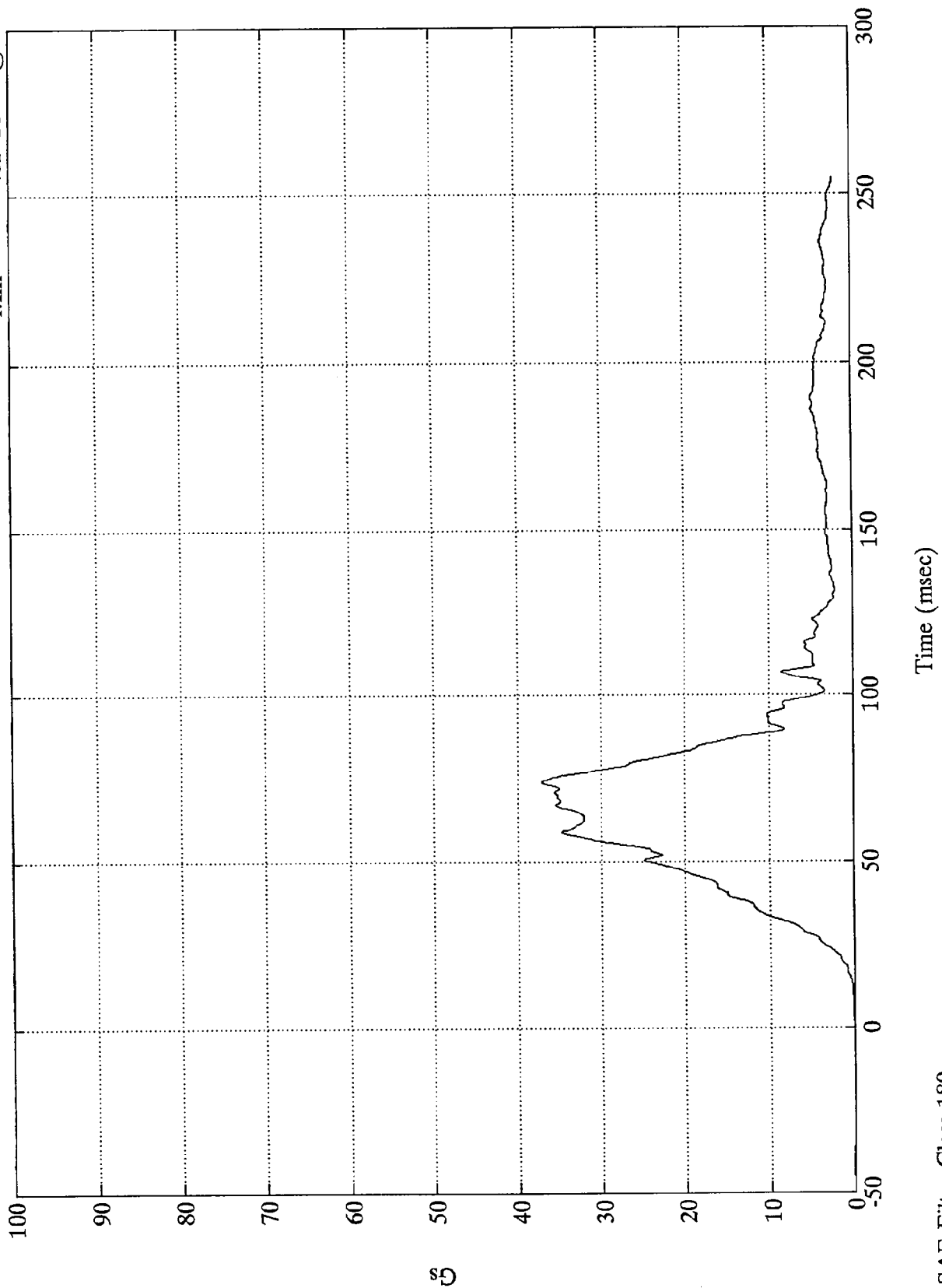
Pos. 2 Chest Z



NHTSA "208" TEST 1 - 1993 FORD PROBE

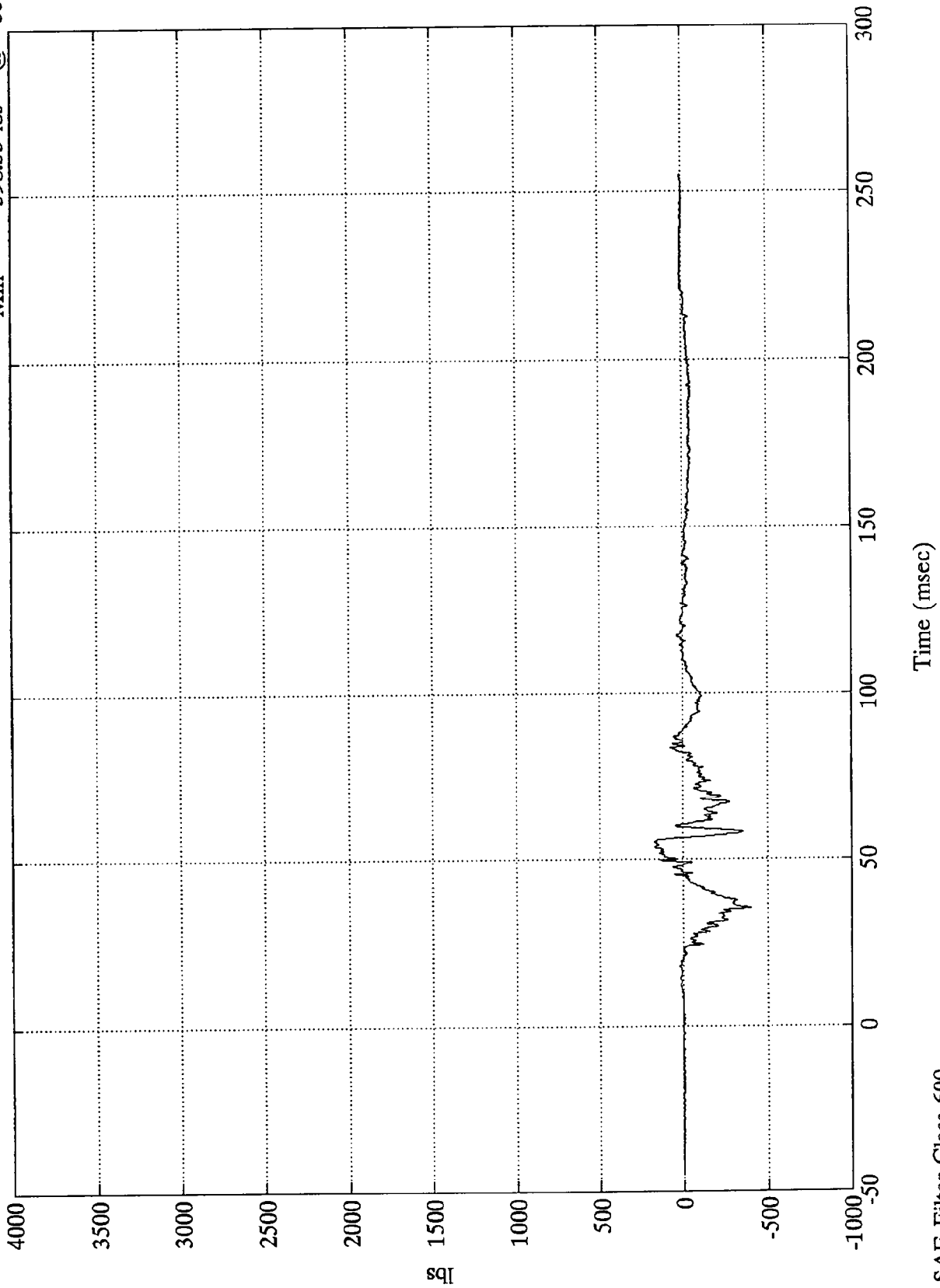
Pos. 2 Chest Resultant

Max = 37.08 Gs @ 73.80 msec
Min = .01 Gs @ -33.00 msec



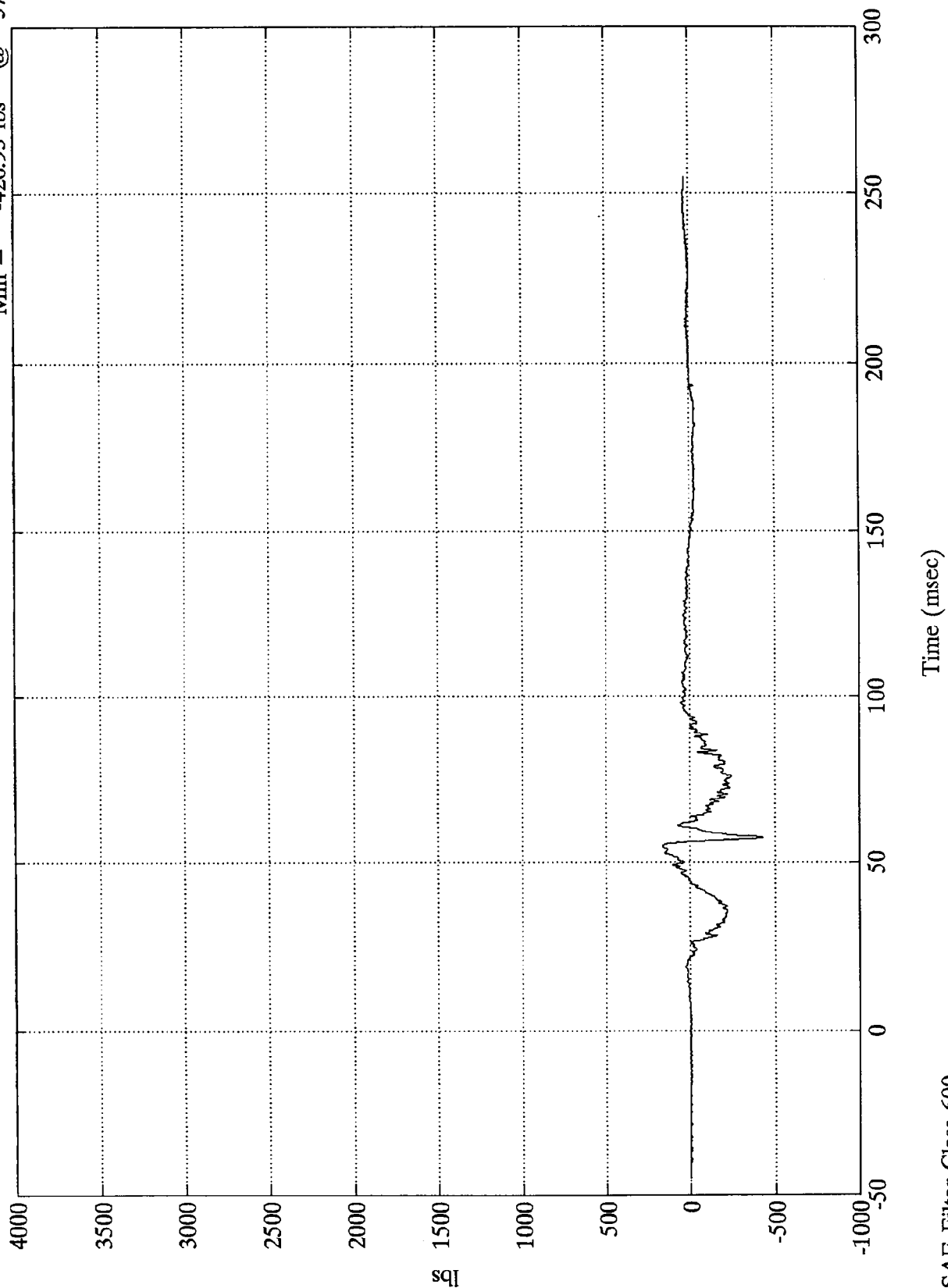
NHTSA "208" TEST 1 - 1993 FORD PROBE

Pos. 2 Left Femur
Max = 173.81 lbs @ 53.52 msec
Min = -398.33 lbs @ 35.27 msec



NHTSA "208" TEST 1 - 1993 FORD PROBE

Pos. 2 Right Femur
Max = 164.91 lbs @ 54.84 msec
Min = -426.93 lbs @ 57.47 msec



Appendix C

VEHICLE OWNERS MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

Safety Restraints

Using Safety Restraints Properly

Safety Belts

The use of safety belts help to restrain you and your passengers in case of a collision. In most states, the law requires their use. We strongly recommend that you use them every time you travel in your vehicle.

Safety belts provide best restraint when:

- ☐ the seatback is upright
- ☐ the occupant is sitting upright (not slouched)
- ☐ the lap belt is snug and low on the hips
- ☐ the shoulder belt is snug against the chest
- ☐ the knees are straight forward

Your vehicle has combination lap and shoulder belts for front and rear seat passengers.

See the following sections for directions on how to properly use these safety belts. Also see *Safety Restraints for Children* in this chapter for special instructions about using safety belts for children.

Warning:

Make sure that you and your passengers, including pregnant women, wear safety belts. Be sure that the lap belt portion of your safety belts fit snugly and as low as possible around the hips. If safety belts are not used properly, the risk of you or your passengers being injured in a collision greatly increases.

Warning:

Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. Never swing it around your neck over the inside shoulder. Never use a single belt for more than one person. Failure to follow these precautions could increase the risk and/or severity of injury in a collision.

Do not allow any people to ride in the cargo area of your vehicle. People who are not riding in seats with their safety belts fastened are much more likely to be injured in a collision.

Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Warning:

Never use a single belt for more than one person or across more than one seating position. This greatly increases the risk that one or both of the people will be injured in a collision. Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair.

Warning:

Lock the doors of your vehicle before driving to lessen the risk of the door coming open in a collision.

Warning:

Always drive and ride with your seatback upright and the lap belt portion of your safety belt snug and low across the hips. This will reduce the risk of serious injury to the abdomen or neck that could be caused by sliding under the safety belts in a collision.

Children should always ride with the seatback in the fully upright position. When the seatback is not fully upright, there is a greater risk that the child will slide under the safety belt and be seriously injured in a collision.

Safety Belt Maintenance

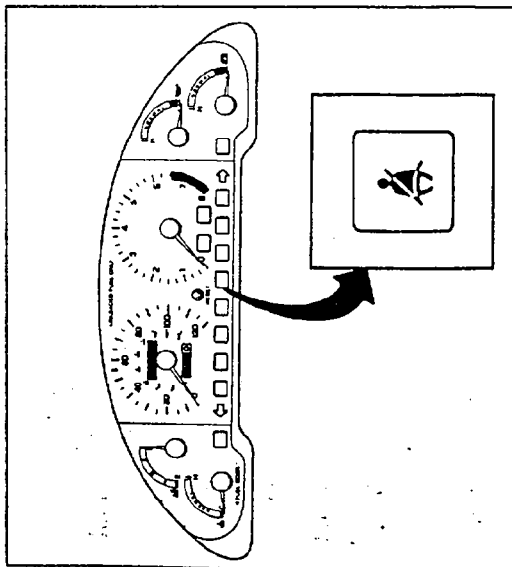
Check the safety belt systems periodically to make sure that they work properly and are not damaged.

Warning:

All safety belt assemblies, including retractors and attaching hardware, should be inspected after any collision. Ford recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and continue to operate properly, they do not need to be replaced. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

Front and Rear Seat Combination Lap and Shoulder Belts

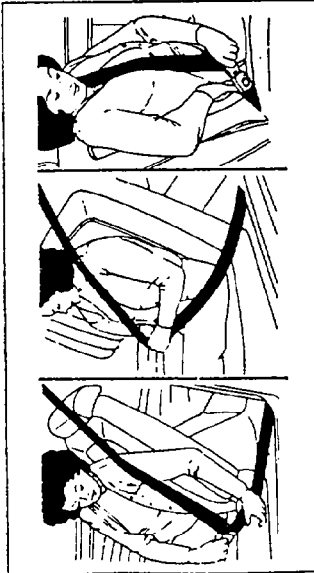
A warning light in the instrument panel lights up for 4-8 seconds and a chime sounds for 4-8 seconds if the driver doesn't fasten the safety belt before starting the car. If the driver fastens the belt, the warning light will illuminate but the chime will not sound.



Safety belt warning lamp location on cluster

While in motion, the combination lap and shoulder belt adjusts to your movement. However, if you brake hard, turn hard, or if your vehicle receives an impact of 5 mph (8 km/h) or more, the lap and shoulder belt locks and helps reduce your forward movement. After you get into your vehicle, close the door and lock it. Then adjust the seat to the position that suits you best.

To fasten the belt, find the long strap of the belt near the door, pull it across your shoulder and chest, and insert the tongue into the proper buckle on your seat until you hear a snap and feel it lock. Be sure to use the correct buckle and check to make sure the buckle is securely fastened.



Fastening the safety belt

Adjust the lap part of the belt by pulling up on the shoulder belt until the lap belt fits snugly and as low as possible around your hips.

Warning: Front and rear seat outboard occupants, including pregnant women, should wear safety belts for optimum protection in an accident.

Warning: Make sure that the lap portion of the safety belt is as low around your hips as possible. Do not wear the lap belt around your waist. If you do not use the lap belts properly, the risk of being injured in a collision greatly increases.

Warning: Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. Never swing it around the neck over the inside shoulder. Failure to follow these precautions could increase the risk and/or severity of injury in a collision.

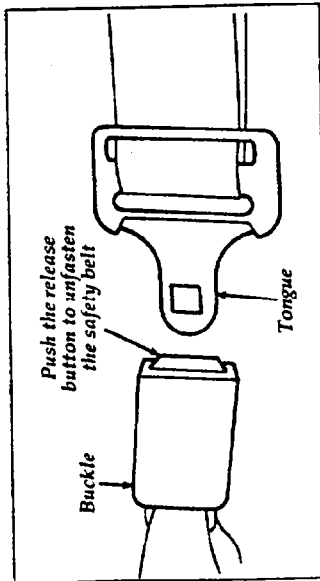
Warning:

To reduce the risk of sliding under the lap belt during a collision, always drive and ride with seatbacks in the upright position. If the lap belt slips above the hip-bone during a collision and applies force directly to the soft areas of the abdomen, it will increase the risk of serious injury. The seatbacks and the belts provide best restraint when the seat is upright, the occupant is sitting upright in the seat (not slouching), the lap belt is snug and low on the hips, the shoulder belt is snug against the chest and the knees are straight forward.

Children should always ride with the seatback in the fully upright position. When the seatback is not fully upright, there is a greater risk that the child will slide under the safety belt and be seriously injured in a collision.

To unfasten the belt:

1. Push the release button on the buckle. This allows the tongue to unlatch from the buckle.



Unfastening the lap and shoulder belt

2. While the belt retracts, guide the tongue to its original position. If you do not guide the tongue, it may strike you or part of the vehicle.

How to Untwist or Unjam a Safety Belt Retractor

If you should jam the lap belt retractor by allowing the belt to retract when it is twisted, you can free the webbing with this procedure:

1. Work the belt slowly out of its holder as far as it will go and untwist the belt or remove the object that is jamming the belt. Let the belt retract.
2. Then, pull the belt out and let it retract several times to make sure that the belt works properly.

Air Bag Supplemental Restraint System (SRS)

Your car is equipped with an air bag for the driver. This air bag is a supplemental restraint system and is designed to be used in addition to your safety belts. The air bag, in conjunction with the safety belts, will help protect the driver from head and chest injuries in certain moderate

to severe frontal collisions. The air bag is located in the steering wheel.

The Importance of Wearing Safety Belts

Warning: ALWAYS WEAR THE SAFETY BELT!

There are four very important reasons to use safety belts even with an air bag system. Use your safety belts to:

- ☐ help keep you in the proper position when the air bag inflates
- ☐ reduce the risk of harm in rollover, side or rear impact accidents. The air bag supplemental restraint system is not designed to inflate in such situations.
- ☐ reduce the risk of harm in frontal collisions that are not severe enough to activate the air bag
- ☐ reduce the risk of being thrown from your vehicle

The Importance of Being Properly Seated

In an accident, the air bag must inflate extremely fast to help provide additional protection for you. In order to do this, the air bag must inflate with considerable force. If you are not seated in a normal riding position with your back against the seatback, the air bag may not protect you properly and could possibly hurt you as it inflates.

How the Air Bag Supplemental Restraint System Operates

The driver Air Bag Supplemental Restraint System has two main parts. One part is the air bag system with the air bag and inflator located in the center of the steering wheel. The second

part is the electrical system which has impact sensors, a diagnostic module, and a backup power supply. The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system readiness, including the crash sensors, system wiring, the air bag readiness light, air bag power, and the supplemental air bag igniter.

The air bag system uses a readiness light and a tone to indicate the condition of the system. The readiness light is in the instrument cluster. When you turn the ignition key to ON, the light will illuminate for approximately six (6) seconds and then turn off. This indicates that the system is operating normally.

NOTE: Regularly scheduled maintenance of the air bag system is not required.

Warning: A problem with the system is indicated by one or more of the following:

- ☐ the readiness light will either flash or stay lit,
- ☐ or it will not light,
- ☐ or a group of five beeps will be heard.

If any of these things happen, have the air bag system serviced at your Ford or Lincoln-Mercury dealer immediately.

Warning Chime

The air bag readiness light indicates the air bag system condition. However, a series of five sets of five beeps will be heard only if the readiness light doesn't work and there is a problem with the air bag system. This also means that the Air Bag Supplemental Restraint System (SRS) is in need of service. The tone pattern will repeat (five sets of five beeps) periodically until the

problem and light are repaired. Unless serviced, the Air Bag Supplemental Restraint System may not function properly in the event of an accident.

Warning: Do not attempt to service, repair, or modify the Air Bag Supplemental Restraint System; tampering could cause activation of the system and increase the risk of personal injury. For servicing of the Air Bag Supplemental Restraint System, see your Ford or Lincoln-Mercury dealer.

The air bag system is designed to stay out of sight until it is activated. The air bag system only operates in frontal and front-angled collisions that are more severe than hitting a parked car of a similar size and weight head-on at about 28 mph (45 km/h). After receiving a signal from the crash sensors, the air bag system inflates in about 45 milliseconds.

Because the system senses severe crashes rather than vehicle speed, some frontal collisions at speeds above 25 mph (45 km/h) will not inflate the air bag.

The following three steps show how the air bag system works:

1. Sensors in the vehicle detect a severe frontal impact. When two sensors close at the same time, electricity flows to the inflator and ignites the chemicals.
2. The chemical then rapidly burns in the metal container. The rapid burning produces nitrogen gas and small amounts of dust. The nitrogen gas and dust are cooled and filtered during inflation of the air bag.

3. The inflating air bag splits open the trim cover. The air bag then rapidly unfolds and inflates in front of the occupant.

NOTE: STEPS 1 – 3 TAKE PLACE IN A FRACTION OF A SECOND.

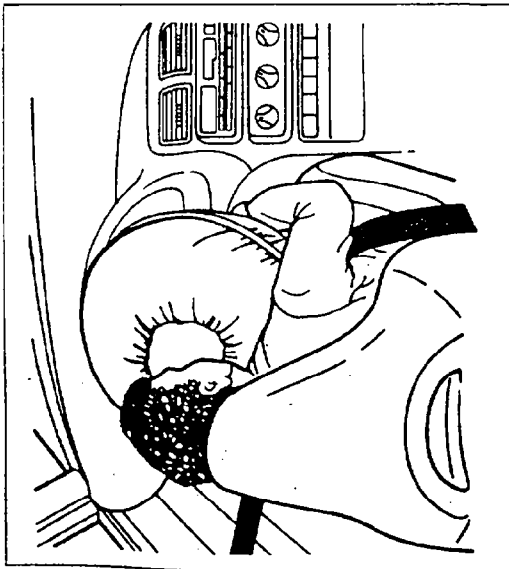
After inflation, the gas empties through holes in the air bag. The air bag deflates at once.

The surface of the air bag and the vehicle interior may be dusted with a powdery residue. The powder is corn starch or talcum powder, which is used to lubricate the air bag as it inflates, and sodium compounds such as sodium carbonates (e.g., baking soda), and possibly a very small amount of sodium hydroxide that may be irritating to the skin and eyes, but is not toxic.

Right after air bag inflation, you may notice smoke (from the powder and dust) and smell the burnt chemicals. This is normal.

NOTE: Several air bag system components get hot after inflation. Do not try to touch them after inflation.

Air bags may not inflate in certain frontal collisions, even though the vehicle may be badly damaged. The fact that your air bag did not inflate in such a collision does not mean that something is wrong with the air bag system. Rather, it means the crash forces were not severe enough to need an air bag.



Inflated driver-side air bag

Warning: The air bag will inflate only once. The system is designed to function on a one-time-only basis. If the air bag is inflated, THE AIR BAG WILL NOT FUNCTION AGAIN AND MUST BE REPLACED IMMEDIATELY. If the air bag is not replaced, the unrepaired area will increase the risk of injury in a collision.

Disposal of Air Bag Equipped Vehicles

For disposal of air bags or air bag equipped vehicles, see your local Ford or Lincoln-Mercury dealer, or refer to the procedures in the 1993 Ford Service Manual. Information on how to order a service manual is available at an authorized Ford or Lincoln-Mercury Dealer. You can also order a service manual by using the order form in your Owner Guide.

Service and Information Labels

Service and information labels are attached to the driver's visor (visible when the visor is down), and on the top of the radiator.

Un système de retenue supplémentaire (SRS) protège le conducteur. Ce COUSSIN DE SÉCURITÉ complète la ceinture de sécurité en se gonflant lors d'un choc frontal moyen ou violent. Comme il ne se déploie pas lors d'un impact latéral ou arrière, d'un capotage ou d'un faible choc frontal, IL FAUT TOUJOURS BOUCLER SA CEINTURE. Le témoin "AIR BAG" s'allume un moment quand on met le contact. AUCUN ENTRETIEN NE SIMPOSE, sauf si:

- Le témoin clignote ou reste allumé.
- Le témoin reste éteint quand on met le contact.
- Des séries de 5 "bip" se font entendre.

POUR PLUS DE DÉTAILS, VOIR LE GUIDE DU PROPRIÉTAIRE.

SEE OWNER GUIDE FOR MORE AIR BAG INFORMATION.

- Groups of five beeps are heard.
- "AIR BAG" lamp flashes or stays lit.
- "AIR BAG" lamp does not light when key is turned on.

NO SRS MAINTENANCE IS NEEDED unless:

- "AIR BAG" lamp normally lights briefly when ignition key is turned on.
- "AIR BAG" lamp flashes or stays lit.

WEAR YOUR SEAT BELT. ALWAYS designed to inflate in side or rear crashes, follows, or minor frontal collisions. It is not designed to inflate in moderate or severe frontal collisions. It is not supplemental to the driver's seat belt by inflating in moderate or severe frontal collisions. It is not designed to inflate in side or rear crashes.

Label on the back of the driver's visor

WARNING

DO NOT TAMPER WITH OR DISCONNECT THE AIR BAG SYSTEM WIRING. You could inflate the bag(s) or make it inoperative which may result in injury. See Shop Manual.

AVERTISSEMENT

NE PAS MANIPULER NI DÉBRANCHER LE CÂBLAGE ÉLECTRIQUE DU DISPOSITIF D'UN COUSSIN DE SÉCURITÉ. Cela pourrait gonfler le coussin de sécurité ou le mettre hors service et entraîner des blessures. Voir le manuel de réparation.

FOOB 640014-AA

Label on the radiator.

Safety Restraints for Children

In most states, you are required by law to use safety restraints for children. If small children ride in your vehicle – this generally includes children who are four years old or younger and who weigh 40 pounds (18 kg) or less – you must put them in safety seats that are made specially for children. Safety belts alone do not provide maximum protection for these children. Check your local and state laws for specific requirements.

Warning: Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Warning: Never let children or adults ride in the cargo area of your vehicle. Make sure that they sit where they can be properly restrained. If they are not restrained, the risk of their being injured in a collision greatly increases.

Warning: When possible, put children in the rear seat of your vehicle. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating positions.

Warning: When using any infant or child restraint system, it is important that you follow the instructions and warnings provided by the manufacturer concerning its installation and use. Failure to follow each of the restraint manufacturer's instructions could increase the risk or severity of an injury in the event of a collision or sudden stop.

Safety belts and seats can become hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check seat covers and buckles before you place a child anywhere near them.

Warning: Never leave a child unattended in your vehicle. Always remove the key from the ignition and take it with you.

Safety Belts for Children

Children who are too large for child safety seats should always wear safety belts. (See instructions with your child seat, or contact its manufacturer, to determine maximum size of child that will safely fit in the seat.)

Warning: If safety belts are not properly worn and adjusted as described, the risk of serious injury to the child in a collision will be much greater.