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301-CAL-91-08

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

CHRYSLER CORPORATION
1991 CHRYSLER NEW YORKER
FIFTH AVENUE 4-DOOR SEDAN

NHTSA NUMBER: CM0302

CALSPAN TEST NUMBER: 7853-10

APRIL 16, 1991

CALSPAN CORPORATION
ADVANCED TECHNOLOGY CENTER
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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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16. Abstract A 30 mph vehicle safety compliance test was conducted on a 1991 Chrysler New Yorker 5th Avenue 4-Door Sedan. This test was performed at the Calspan Advanced Technology Center in Buffalo, New York on April 16, 1991. 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 52°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 a driver side airbag and passenger side manual 3-point seat belt. Driver side manual 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 <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 I

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 1991 Chrysler New Yorker Fifth Avenue 4-Door Sedan, 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 CM0302

A frontal barrier was impacted by a 1991 Chrysler New Yorker Fifth Avenue 4-door Sedan at a velocity of 29.2 mph. The test was performed at the Calspan Corporation Advanced Technology Center on April 16, 1991. 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.

One Part 572E, 50th percentile male anthropomorphic test device (ATD), was placed in the driver seating position and one part 572B ATD was placed in the right front passenger seating position according to dummy placement instructions specified in the OVSC Laboratory Test Procedure.

Both ATDs were fully instrumented with head and chest triaxial accelerometers 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 right brake caliper (X) accelerometer data cable was cut after approximately 90 msec.

The driver's HIC was 226. The maximum chest deceleration over 3 milliseconds was 47.3 g's. The maximum force on the driver's left femur was 932 pounds and 1118 pounds on the right femur.

The right front passenger's HIC was 204. The maximum chest deceleration over 3 milliseconds was 31.0 g's and loads were 537 and 661 on the left and right femurs respectively.

Table 1

CRASH TEST SUMMARYVehicle NHTSA No.: CM0302 Test Mode: 30 mph Frontal BarrierTest Date.: April 16, 1991 Time: 14:10 Temperature: 52°FVehicle Make/Model/Body Style: 1991 Chrysler New Yorker Fifth Ave. 4-Dr. SedanVehicle Test Weight: 3920 lbs.Vehicle/Barrier Impact Angle: 0°Impact Velocity: 29.2 mphMaximum Static Crush: 23.3 in.Vehicle Rebound: 9.7 in.DUMMIES:DRIVERPASSENGERType: Part 572-E Part 572-B*Restraint System: Air Bag 3-Point
Continuous BeltNumber of Data Channels: 23Number of Cameras: 1 Real Time
14 High SpeedDOOR OPENING DATA: closed-operable - Left Front
closed-operable - Right FrontFront Seat(s) Data:DRIVERPASSENGERSeat Track Failure: 0.0 0.7 inches rearward
inches of shiftSeat Back Failure: none noneVISIBLE DUMMY CONTACT POINTS:DRIVERPASSENGERHead: Airbag Top Rear of Head
with Middle of Dash
Abdomen No Contact No Contact
Chest Airbag No Contact
Knees lower dash Glove Box

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1991 Chrysler New Yorker Fifth Ave. 4-Dr. Sedan
NHTSA No. CM0302 ; VIN: 1C3XY66RXMD190702 ; Color: White
Engine Data: 6 cylinders; - CID; 3.3 Litres; - cc
Placement - Longitudinal or In-Line; X Transverse or Lateral
Transmission Data: 4 speeds; - Manual; X Automatic; - Overdrive
Final Drive: - Rear Wheel Drive; X Front Wheel Drive; - Four Wheel Drive
Major Options: X A/C; X Pwr. Strg.; X Pwr. Brakes; X Pwr. Windows
X Power Door Locks
Date Received: 02-06-91 ; Odometer Reading 21 miles
Selling Dealer: Sheridan Chrysler Plymouth
& Address 3845 Sheridan Dr., Buffalo, NY 14226

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Chrysler Corporation
Date of Manufacture: 12-90
GVWR: 4688 lbs.; GAWR: 2566 lbs. FRONT REAR: 2172 lbs.

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load: 32 psi FRONT
32 psi REAR
Recommended Tire Size: Minimum P195/75R14 Load Range: -
Recommended Cold Tire Pressure: 29 psi FRONT; 29 psi REAR
Size of Tires on Test Vehicle: P195/75R14; Manufacturer: Goodyear
Vehicle Capacity Data:
Type of Front Seats: - Bench; - Bucket; X Split Bench
Number of Occupants: 3 Front; 3 Rear; 6 Total
Vehicle Capacity Weight (VCW) = 1100 lbs.
No. of Occupants x 150 lbs. = 900 lbs.
Rated Cargo/Luggage Weight (RCLW) = 200 lbs. (Difference)

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

Right Front = 1070 lbs. Right Rear = 610 lbs.
Left Front = 1090 lbs. Left Rear = 630 lbs.
TOTAL FRONT = 2160 lbs. TOTAL REAR = 1240 lbs.
% of Total Vehicle Weight = 63.5 % of Total Weight = 36.5
TOTAL DELIVERED WEIGHT = 3400 lbs.

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight = 3400 lbs.
 Rated Cargo/Luggage Weight (RCLW) = 200 lbs.
 *Weight of 2 P572 Dummies 164 and 167 ea. = 331 lbs.
 TARGET TEST WEIGHT = 3931 lbs. (sum)

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

Right Front = 1130 lbs. Right Rear = 790 lbs.
 Left Front = 1210 lbs. Left Rear = 790 lbs.
 TOTAL FRONT = 2340 lbs. TOTAL REAR = 1580 lbs.
 % of Total Weight = 59.7 % % of Total Weight = 40.3 %
 TOTAL TEST WEIGHT = 3920 lbs.
 Weight of Ballast Secured in Vehicle Trunk Area = 70 lbs.
 Vehicle Components Removed for Weight Reduction -

VEHICLE ATTITUDE (all dimensions in inches):**

AS DELIVERED: RF 27.6" LF 27.5" RR 28.0" LR 28.0"
 FULLY LOADED: RF 26.5" LF 26.6" RR 26.2" LR 26.4"
 AS TESTED: RF 27.4" LF 27.4" RR 26.5" LR 26.7"
 Vehicle's Wheel Base: 109.4 in.
 Location of Vehicle's C.G.: 44.4 inches rearward of front axle centerline

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 16.0 gallons
 Usable Capacity Figure Furnished by COTR = 16.0 gallons
 Test Volume Range (92 to 94% of Usable Capacity) = 14.7 to 15.0 gallons
 ACTUAL TEST VOLUME = 14.9 gallons (with entire fuel system filled)

*Hybrid III used for driver and Hybrid II used for passenger

**Vehicle equipped with automatic leveling system

Table 3

POST IMPACT DATATYPE OF TEST:

Type of Test: Frontal Barrier Impact Angle: 0°
 Test Date: April 16, 1991 Time: 14:10 Temperature: 52 °F
 Vehicle NHTSA No.: CM0302
 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 = 29.2 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	=	<u>195.2</u>	;	C/L =	<u>197.5</u>	;	Left =	<u>195.5</u>
Post-Test	Right	=	<u>174.4</u>	;	C/L =	<u>174.2</u>	;	Left =	<u>173.9</u>
Crush	Right	=	<u>20.8</u>	;	C/L =	<u>23.3</u>	;	Left =	<u>21.6</u>
AVERAGE		=	<u>21.9</u>	inches					

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point:

	Right	=	<u>10.3 "</u>	;	C/L =	<u>8.9 "</u>	;	Left =	<u>10.0 "</u>
AVERAGE		=	<u>9.7</u>	inches					

DOOR OPENING:

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

SEAT MOVEMENT:

	Seat Back Failure	Seat Shift
Front	<u>None</u>	<u>Right Passenger 0.7" Rearward</u>
Rear	<u>N/A</u>	<u>N/A</u>

Table 3

POST IMPACT DATA (cont.)

GLAZING DAMAGE: Lower center of windshield cracked.

OTHER NOTABLE IMPACT FEATURES: None.

Section 3
OCCUPANT AND VEHICLE DATA

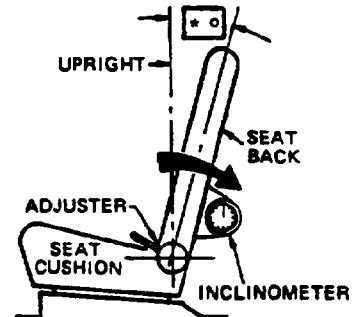
Figure 1

TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year: 1991 Vehicle Model: Chrysler NY 5th Ave. Body Style: 4-Dr. Sedan

1. Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable



LEFT SIDE VIEW

Seat back angle for driver's seat: *

Measurement instructions: Place seat according to manufacturer's specifications. Align adjuster with 3rd notch.

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: Power seat, locate mid-point by measuring from a fixed reference point.

Positioning of the passenger's seat (if applicable): Place seat in 6th notch (mid-position) out of 11 total notches.

3. Fuel Tank Capacity Data

A. "Usable Capacity" of the standard equipment fuel tank is 16.0 gallons

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

Additional Instructions: None.

Figure 2

PART 572 DUMMY IN-VEHICLE POSITION

Test No.: CM0302 Vehicle: 1991 Chrysler New Yorker Fifth Avenue 4-Door

SEAT TYPE:

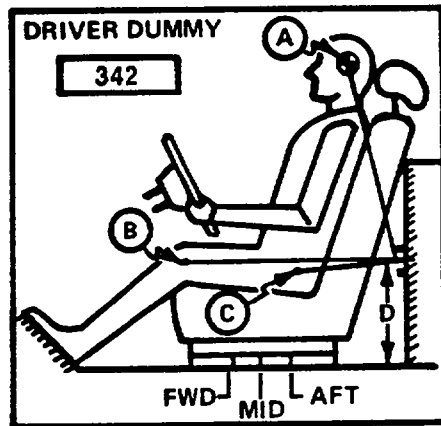
- Bench
- Bucket
X Split Bench

ADJUSTER TYPE:

X Manual
X Power (Driver)

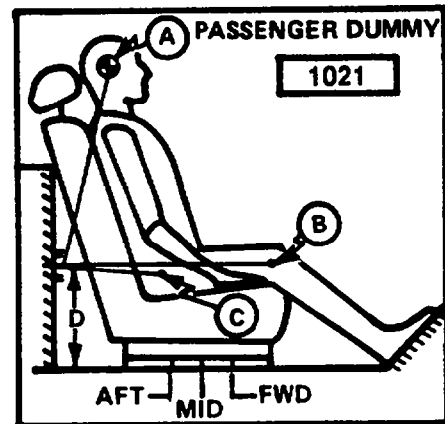
SEAT BACK TYPE:

- Fixed
X Adjustable Reclining



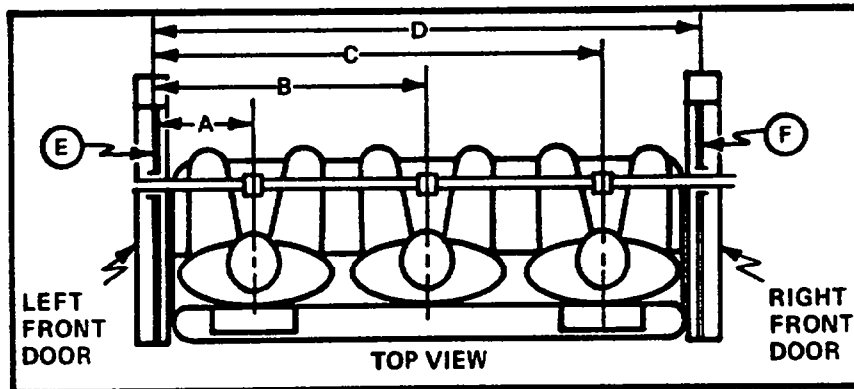
MEASUREMENT
LOCATION

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



A = 20.1 in. 17 Degrees
 B = 24.9 in. 96 Degrees
 C = 10.4 in. 126 Degrees
 D = 14.5 in.

A = 21.7 in. 7 Degrees
 B = 24.7 in. 94 Degrees
 C = 10.0 in. 126 Degrees
 D = 14.5 in.



S/N 342

DUMMY ID

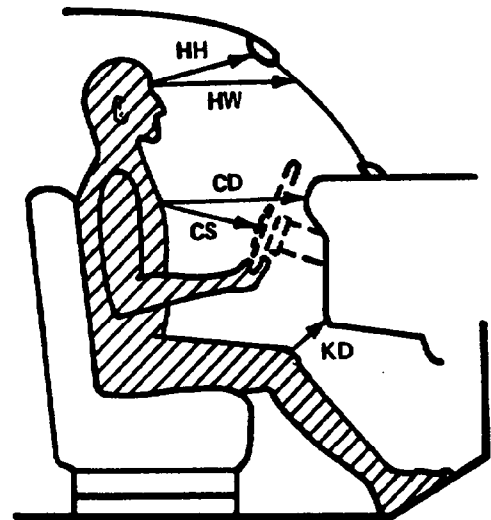
S/N 1021

A = Left Door to Driver Centerline 15.2 in.
 B = Left Door to Center Passenger Centerline - in.
 C = Left Door to Right Passenger Centerline 41.5 in.
 D = Left Door to Right Door 55.0 in.
 E, F = Window Glass Height (Right and Left Must Be Equal) 9.3 in.

Figure 3

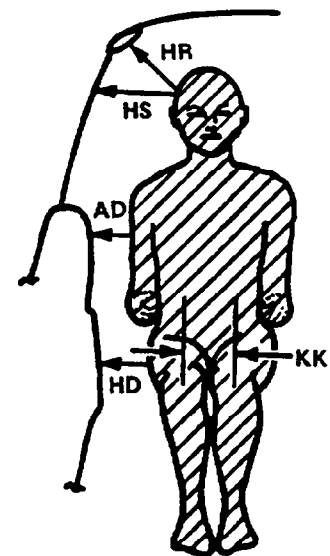
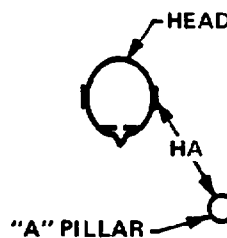
OCCUPANT CLEARANCE DIMENSIONS

	DRIVER Part 572E	PASSENGER Part 572B
HH	12.4	13.4
HW	20.3	16.5
CD	18.0	18.8
CS	8.9	-
KDL	2.8	4.0
KDR	2.5	3.9
SA	See Note	See Note
TA	22°	22°
PA	22.5	-



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
 PA = Pelvic 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

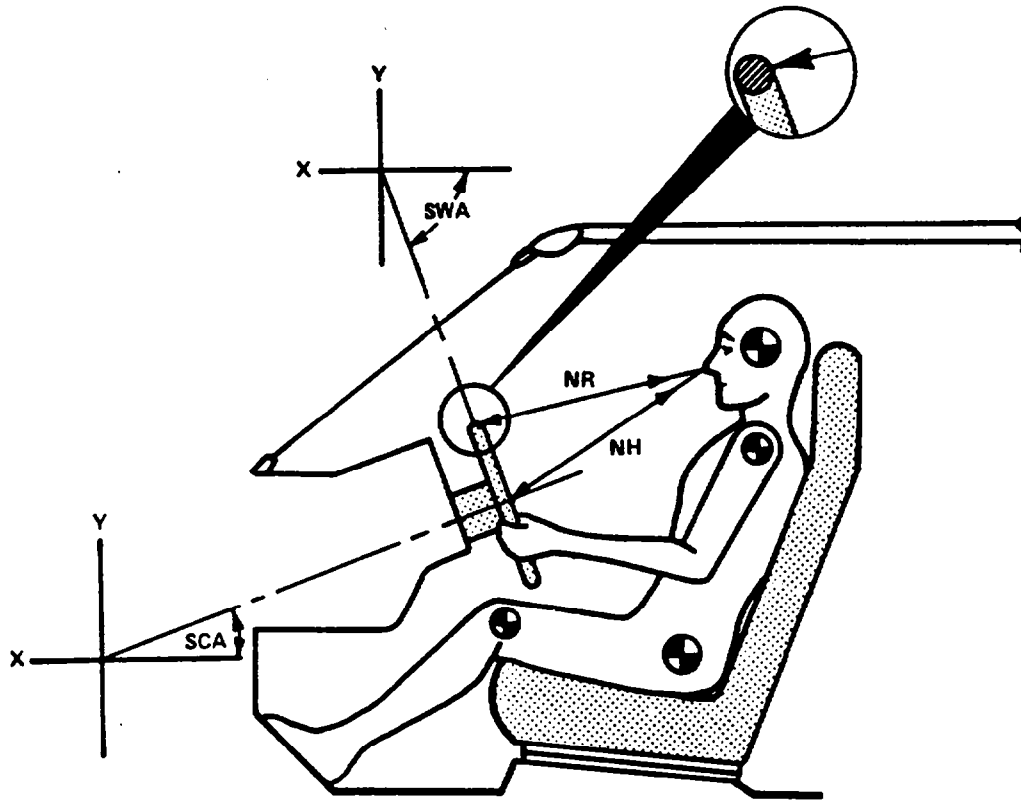


	DRIVER	PASSENGER
HR	8.5	6.3
HS	11.9	11.0
AD	5.3	4.2
HD	7.2	7.4
KK	8.5	8.0
HA	16.8	14.4

NOTE: Seat angle was positioned as specified by manufacturer.

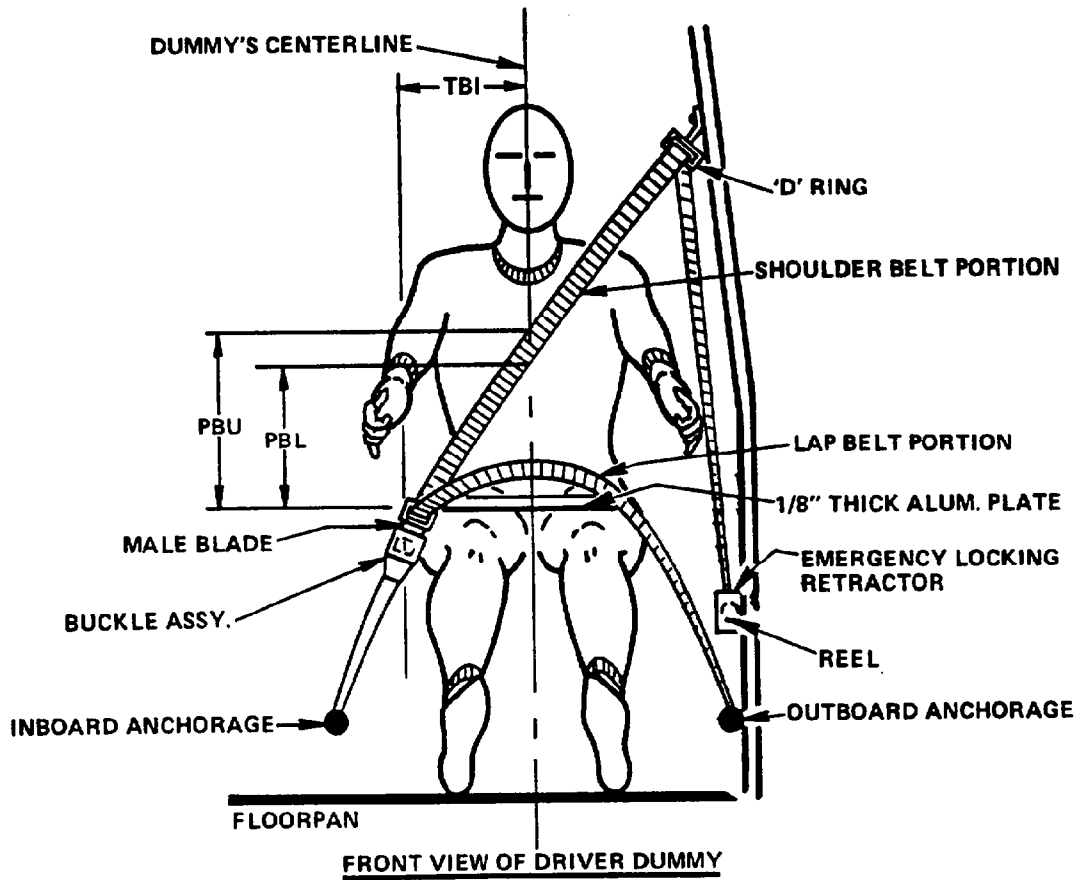
Figure 4

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS



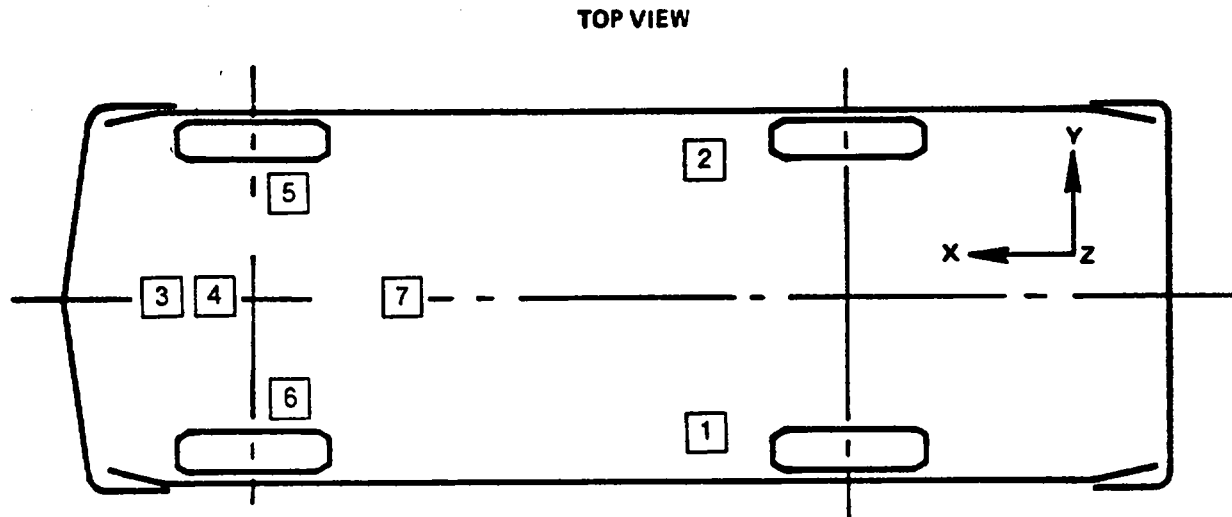
		MEASUREMENTS	
<u>NR</u>	-- Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	12.3	Inches
<u>NH</u>	-- Distance from tip of dummy's nose to center of steering wheel hub	13.2	Inches
<u>SCA</u>	-- Angle of steering column relative to the horizontal X axis	24	Degrees
<u>SWA</u>	-- Angle of steering wheel relative to the horizontal X axis	-66	Degrees

Figure 5
SEAT BELT POSITIONING DATA



	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
<u>PBU</u> -- Top surface of alum. plate to upper edge	-	14.7
<u>PBL</u> -- Top surface of alum. plate to belt lower edge	-	11.7
<u>TBI</u> -- Distance from torso centerline to buckle	-	7.7

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:	69.9	22.8	15.5				
		POST:	69.9	22.8	15.5				
	LONGITUDINAL ACCELERATION					2	166	-28	70
2	REAR SEAT X-MEMBER AT RIGHT SIDE	PRE:	70.2	-22.8	15.6				
		POST:	70.2	-22.8	15.6				
	LONGITUDINAL ACCELERATION					3	174	-34	42
3	TOP OF ENGINE BLOCK	PRE:	168.4	-4.6	33.5				
		POST:	164.4	-5.0	30.9				
	LONGITUDINAL ACCELERATION					11	57	-78	44
4	BOTTOM OF ENGINE	PRE:	158.7	-3.7	9.4				
		POST:	150.2	-3.6	10.9				
	LONGITUDINAL ACCELERATION					18	51	-64	58
5	BRAKE CALIPER AT RIGHT SIDE	PRE:	151.4	-22.6	20.2				
		POST:	149.1	-22.6	20.2				
	LONGITUDINAL ACCELERATION					-	-	-68	58
6	BRAKE CALIPER AT LEFT SIDE	PRE:	151.2	22.4	20.2				
		POST:	150.9	22.4	20.2				
	LONGITUDINAL ACCELERATION					50	124	-64	98
7	DASH PANEL	PRE:	125.4	-2.5	33.1				
		POST:	125.5	-2.5	33.4				
	LONGITUDINAL ACCELERATION					25	98	-62	60

*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

DISTANCE MEASUREMENTS IN INCHES

Figure 7
CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 5.

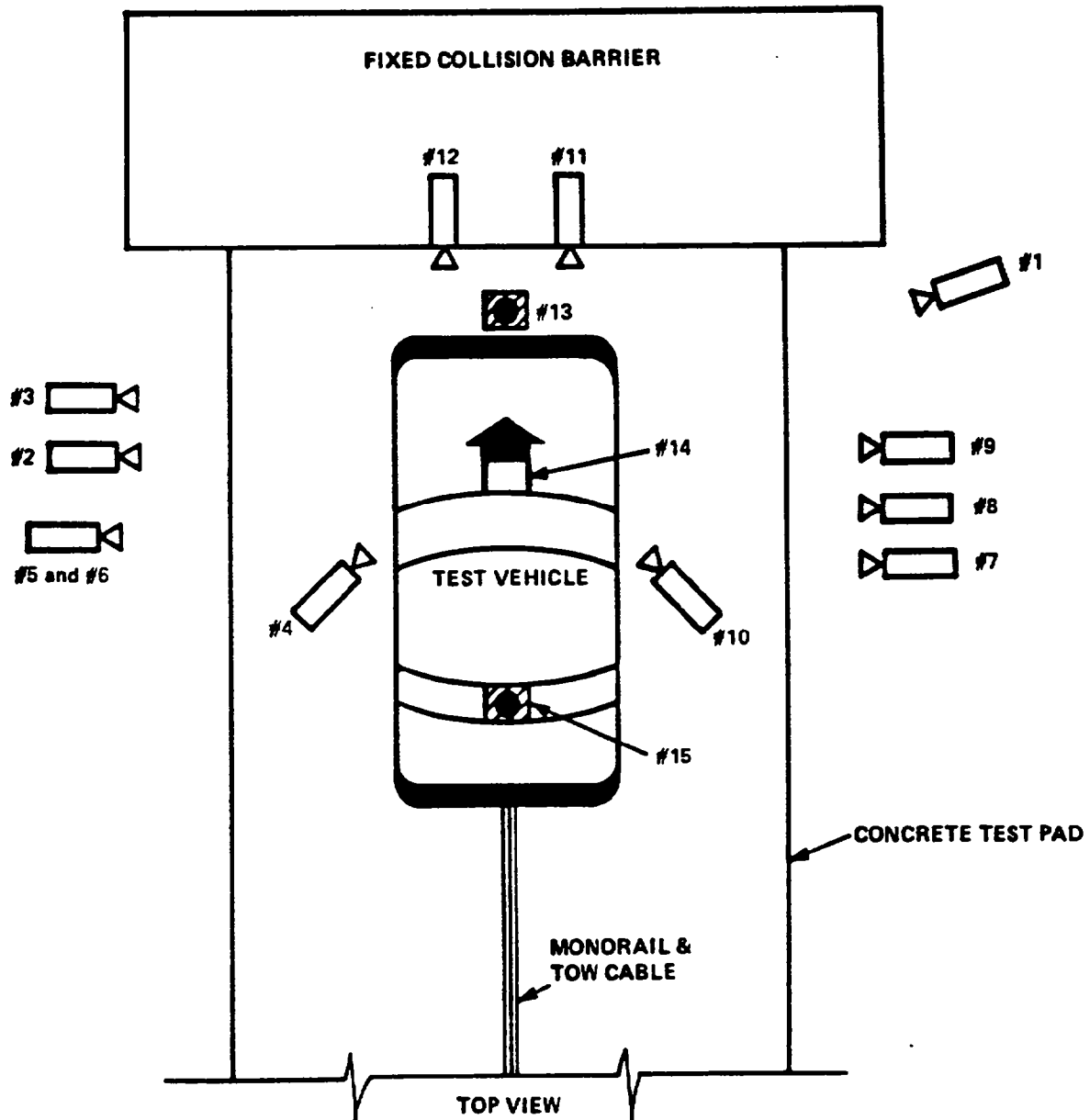


Table 5

HIGH-SPEED CAMERA LOCATIONS

Test No. CM0302 Vehicle: 1991 Chrysler New Yorker Fifth Avenue 4-Door Sedan

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	226	63.0	41	-3	210.7	13	550
3	Left Side View	300	37.0	41	-2	284.7	25	570
4	Driver and Interior View	109	100.0	67	-19	-	13	660
5	Steering Column (Bottom)	282	79.0	46	-5	266.7	25	550
6	Steering Column (Top)	282	79.0	70	-10	266.7	25	360
7	Overall Right Side	241	77	42	0	225.7	13	No Timing
8	Right Side View	301	52	41	-2	285.7	25	610
9	Right Passenger View	300	70	54	-4	284.7	35	520
10	Passenger and Interior View	113	102	66	-20	-	13	530
11	Passenger Front View	22	18	76	-43	-	13	525
12	Driver Front View	22	18	76	-42	-	13	530
13	Windshield View	0.0	0.0	130	-53	-	13	550
14	Pit View of Engine	0.0	34.0	-120	90	-	13	720
15	Pit View of Fuel Tank	0.0	109.0	-120	90	-	13	690

*X = film plane to monorail centerline

Y = film plane to impact location

Z = film plane to ground

** = referenced to horizontal plane

VEHICLE TARGET LOCATIONS



Figure 9
TEST VEHICLE MEASUREMENTS

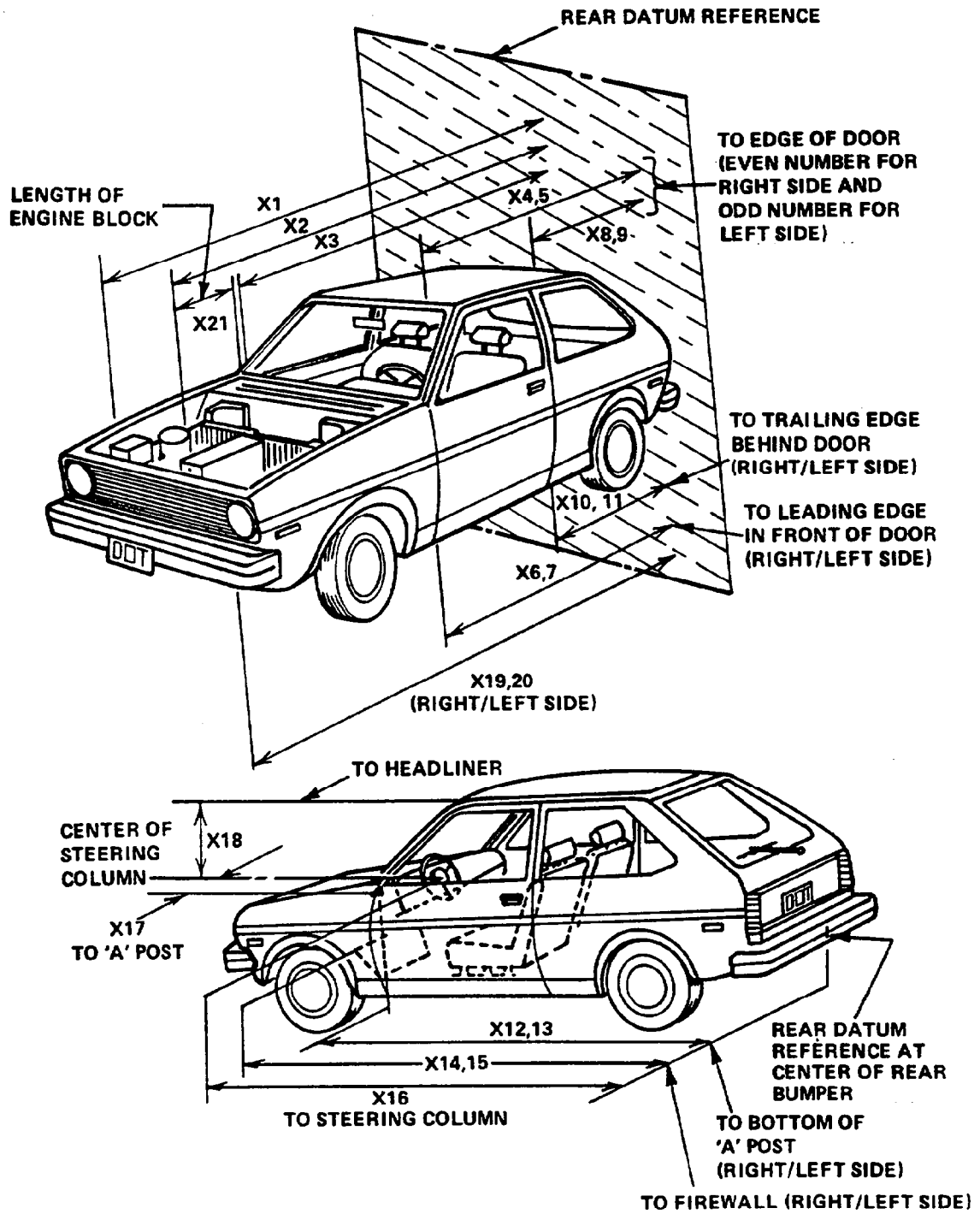


Table 6

VEHICLE MEASUREMENTS

No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	197.5	174.2	23.3
X2	Rear Surface of Vehicle to Front of Engine	170.2	165.4	4.8
X3	Rear Surface of Vehicle to Firewall	147.4	143.8	3.6
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	134.2	133.9	0.3
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	134.5	134.4	0.1
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	132.8	132.9	-0.1
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	132.8	132.8	0.0
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	93.3	93.3	0.0
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	93.6	93.3	0.3
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	93.6	93.8	-0.2
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	93.9	93.9	0.0
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	132.6	133.0	-0.4
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	132.8	132.9	-0.1
X14	Rear Surface of Vehicle to Firewall, Right Side	147.6	145.2	2.4
X15	Rear Surface of Vehicle to Firewall, Left Side	147.2	147.2	0.0
X16	Rear Surface of Vehicle to Steering Column	116.0	116.5	-0.5
X17	Center of Steering Column to "A" Post	16.3	15.5	0.8
X18	Center of Steering Column to Headliner	15.6	15.2	0.4
X19	Rear Surface of Vehicle to Right Side of Front Bumper	195.2	174.4	20.8
X20	Rear Surface of Vehicle to Left Side of Front Bumper	195.5	173.9	21.6
X21	Length of Engine Block	18.5	18.5	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 7

DUMMY INJURY CRITERIA VALUESNHTSA No.: CM0302 Vehicle: 1991 Chrysler New Yorker Fifth Ave. 4-Dr. Sedan

	MAXIMUM ACCELERATION (g's)							
	HEAD				CHEST			
	X	Y	Z	R	X	Y	Z	R*
Dummy (1)	-36	-21	-26	38	-60	-12	9	47.3
Dummy (2)	-22	12	77	77	-31	-24	19	31.0

	MAXIMUM FORCE - FEMUR LOAD (lbs.)	
	LEFT FEMUR	RIGHT FEMUR
Dummy (1)	932	1118
Dummy (2)	537	661

	HEAD INJURY CRITERIA**			
	HIC	36 millisecond Maximum		Avg. Acc. (g) t ₁ TO t ₂
		t ₁ (SEC)	t ₂ (SEC)	
Dummy (1)	225.80	68.400	104.280	33.08
Dummy (2)	203.8	74.760	110.640	31.75

*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 = 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 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: Inside of glove box door.

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 -

The manufacturers recommended schedule is to inspect this system:

- a. by - month, every 3 years, or
- b. by 30,000/48,000 miles
- c. or after a time interval of - months or - years.
or, if airbag light does not come on momentarily after
ignition is turned on or if light flashes during driving.

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 - NO X

Describe the location of the readiness indicator:

Lower right side of instrument cluster.

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 -

FMVSS NO. 208 - COMFORT AND CONVENIENCE TEST SUMMARY

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.

1. Automatic seat belts YES _____ NO ☒ X

2. Manual seat belts* YES X** NO

YES N/A NO N/A

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.

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

7853-10

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 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 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 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 for is 0.5 pounds. Contact the COTR if the contact force exceeds 0.7 pounds.

Table 11 (cont.)

D4

LATCHPLATE ACCESS

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 N/A NO N/A

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 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 0.7" metal and rubber trim along the top and 0.8" metal and rubber trim along the sides of the windshield. A plastic shroud covers the bottom of the windshield.

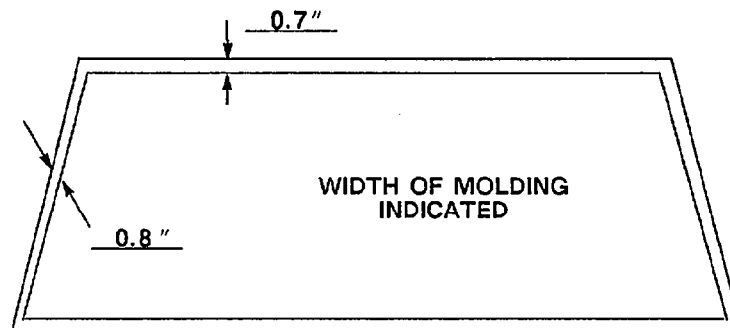
FMVSS 212 REQUIREMENTS:

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		
	PRE-TEST (in.)	POST-TEST (in.)	PERCENT RETENTION
RIGHT SIDE	83.1	83.1	100%
LEFT SIDE	83.1	83.1	100%
TOTAL	166.2	166.2	100%

AREA OF RETENTION FAILURE:



FRONT VIEW

FAILURE DETAILS:

None.

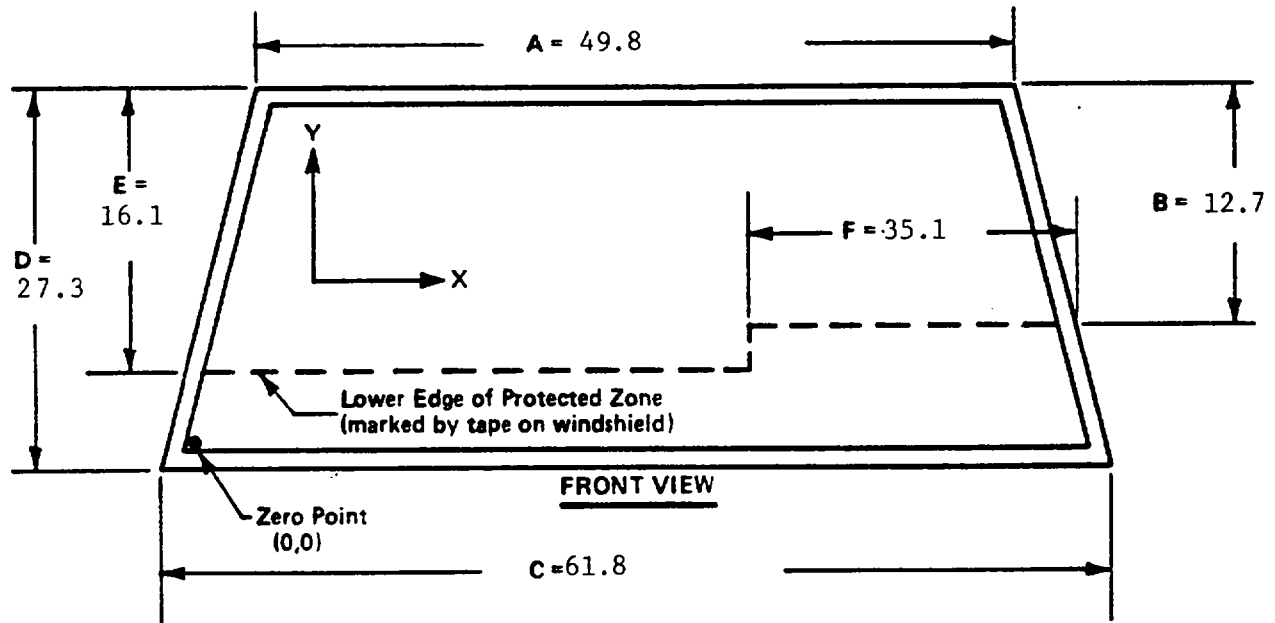
Figure 11

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.

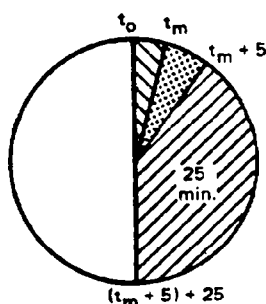
COORDINATES		
	X	Y
1.		
2.		
3.		
4.		

FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

TEST VEHICLE NHTSA NO.: CM0302 TEST DATE: 4/16/91

Test vehicle fuel tank filled to 92% to 94% of manufacturer's "usable" capacity and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

FUEL SPILLAGE MEASUREMENT:



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 13

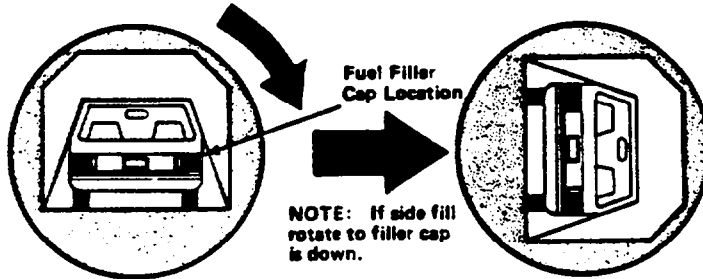
FMVSS NO. 301 STATIC ROLLOVER DATA SHEETTEST PHASE:

0°

90°

Vehicle NHTSA ID No.:

CM0302

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time _____ 3 _____ minutes _____ 00 _____ seconds
(Spec. Range = 1 to 3 minutes)

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

TOTAL _____

_____ 8 _____ minutes _____ 00 _____ 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.

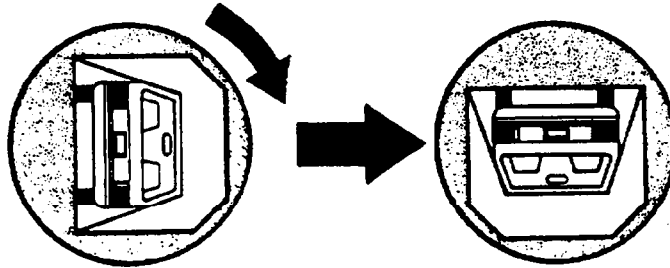
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)TEST PHASE:**90°****180°**

Vehicle NHTSA ID No.:

CM0302I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90° Rotation Time
(Spec. Range = 1 to 3 minutes)3 minutes 00 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

8 minutes 00 seconds

Next whole minute interval

8 minutesII. 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
---	---	---	---

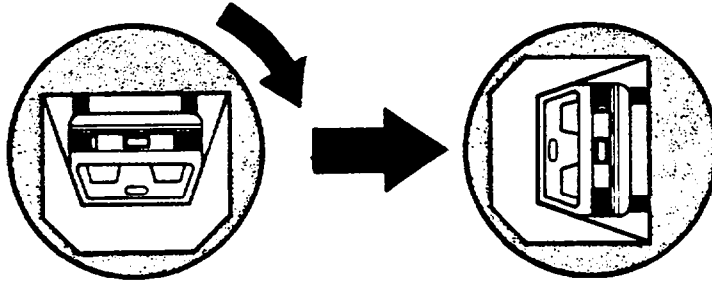
Note: Record spillage for whole minute
intervals only as determined above.IV. SOLVENT SPILLAGE LOCATION(S):

None.

Table 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)TEST PHASE:**180°****270°**

Vehicle NHTSA ID No.:

CM0302I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

3 minutes 00 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

8 minutes 0 seconds

Next whole minute interval

8 minutesII. 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.)

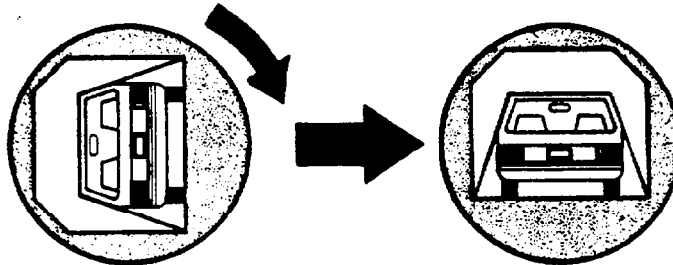
TEST PHASE:

270°

360°

Vehicle NHTSA ID No.:

CM0302



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

3 minutes 00 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

8 minutes 00 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

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: April 16, 1991 Vehicle NHTSA No.: CM0302

Vehicle Manufacturer: Chrysler Corporation

Model Year: 1991 VIN: 1C3XY66RXMD190702

Body Style: 4-Door Sedan Build Date: 12/90

Dummy Stabilized Temperature at Time of Test: 70°F (Spec. = 69-72°F)

Impact Velocity: 29.2 mph Time of Test: 14:10

*Type of Automatic Restraint System: Driver side airbag, and passenger side
3-point manual seat belt restraint system.

Failure Details:

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

Appendix A

PHOTOGRAPHS

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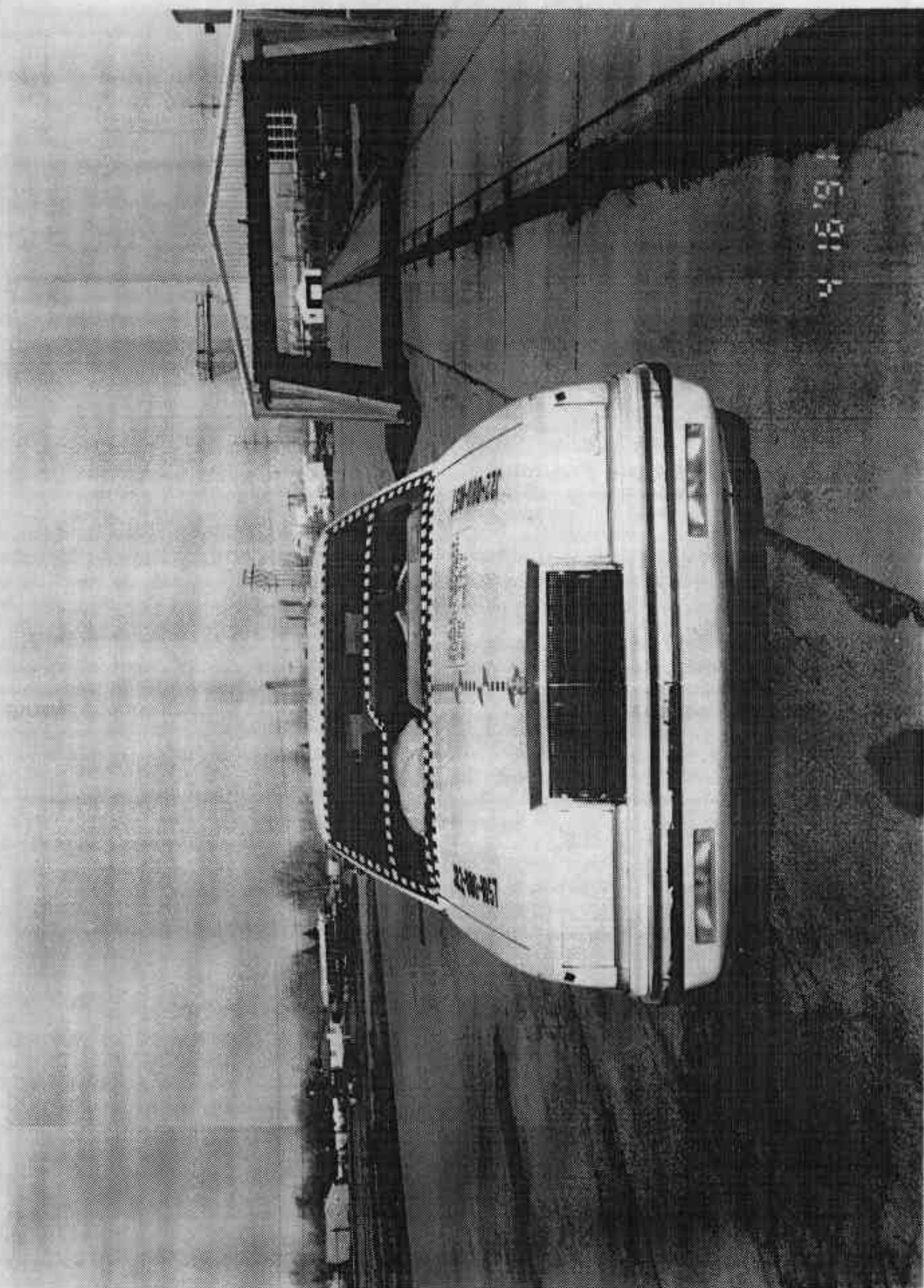
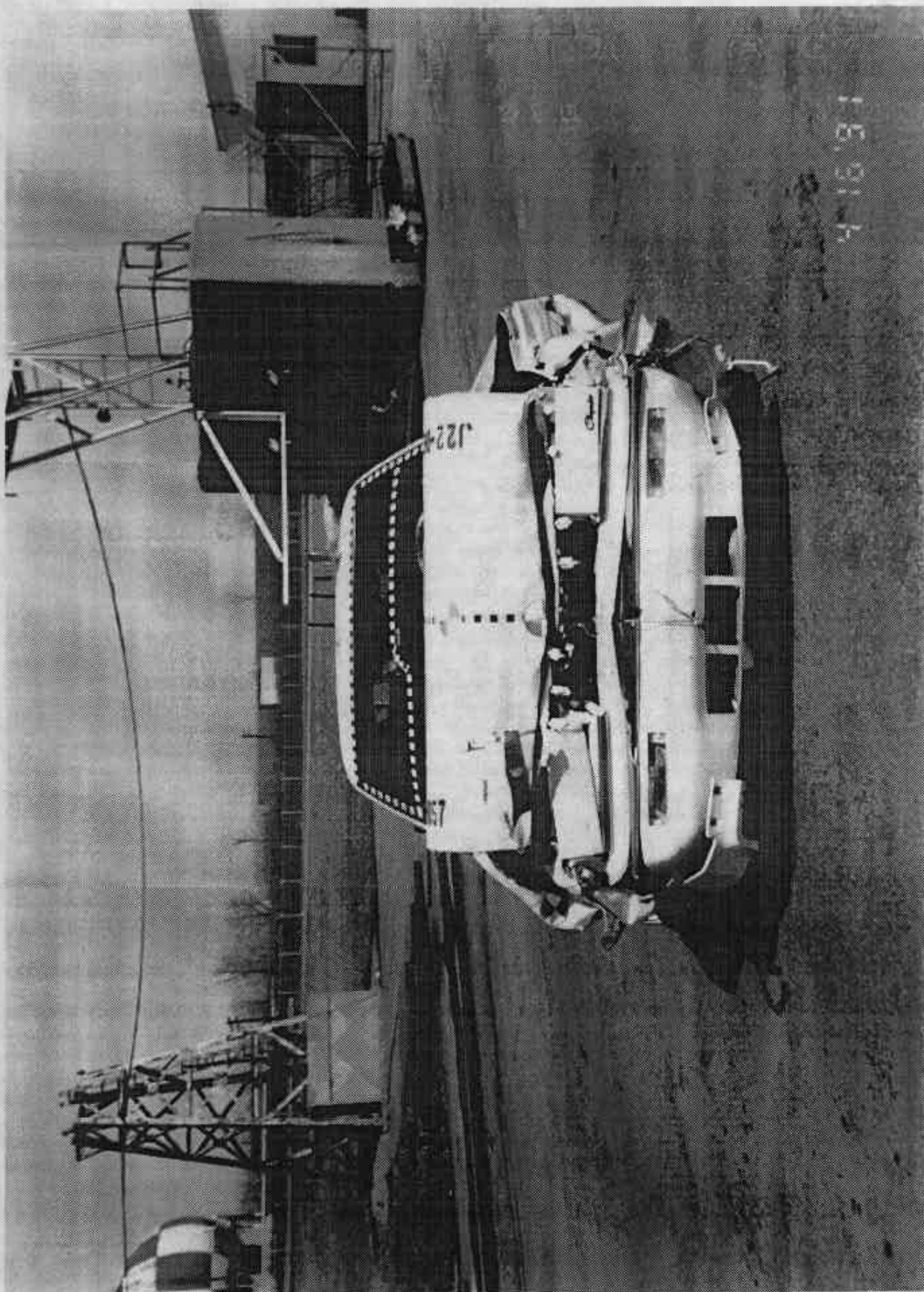


Figure A-1 PRE-TEST FRONT VIEW



16.314

Figure A-2 POST TEST FRONT VIEW

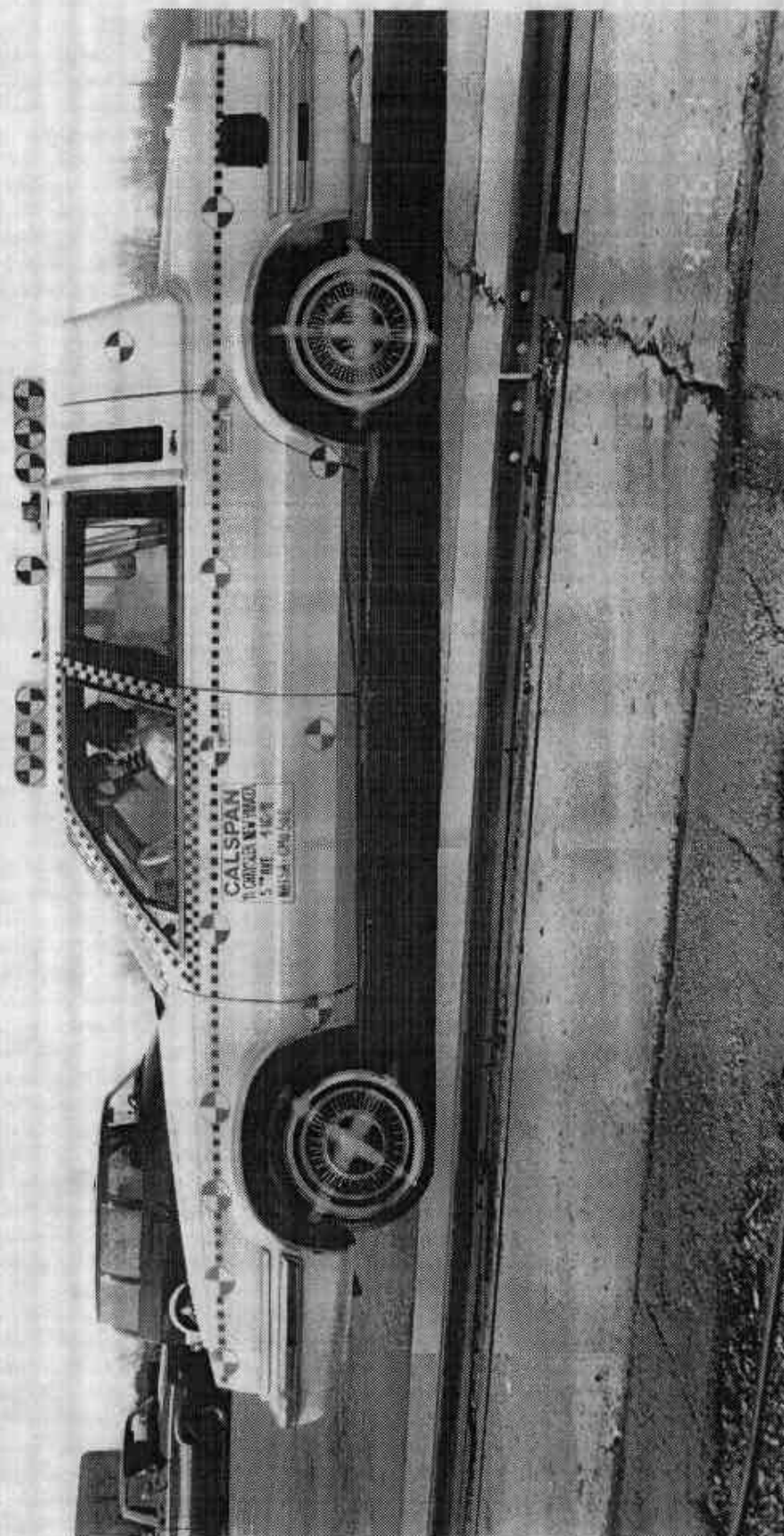


FIGURE A-3 PRE-TEST LEFT SIDE VIEW

A-5

7853-10



Figure A-4 POST TEST LEFT SIDE VIEW

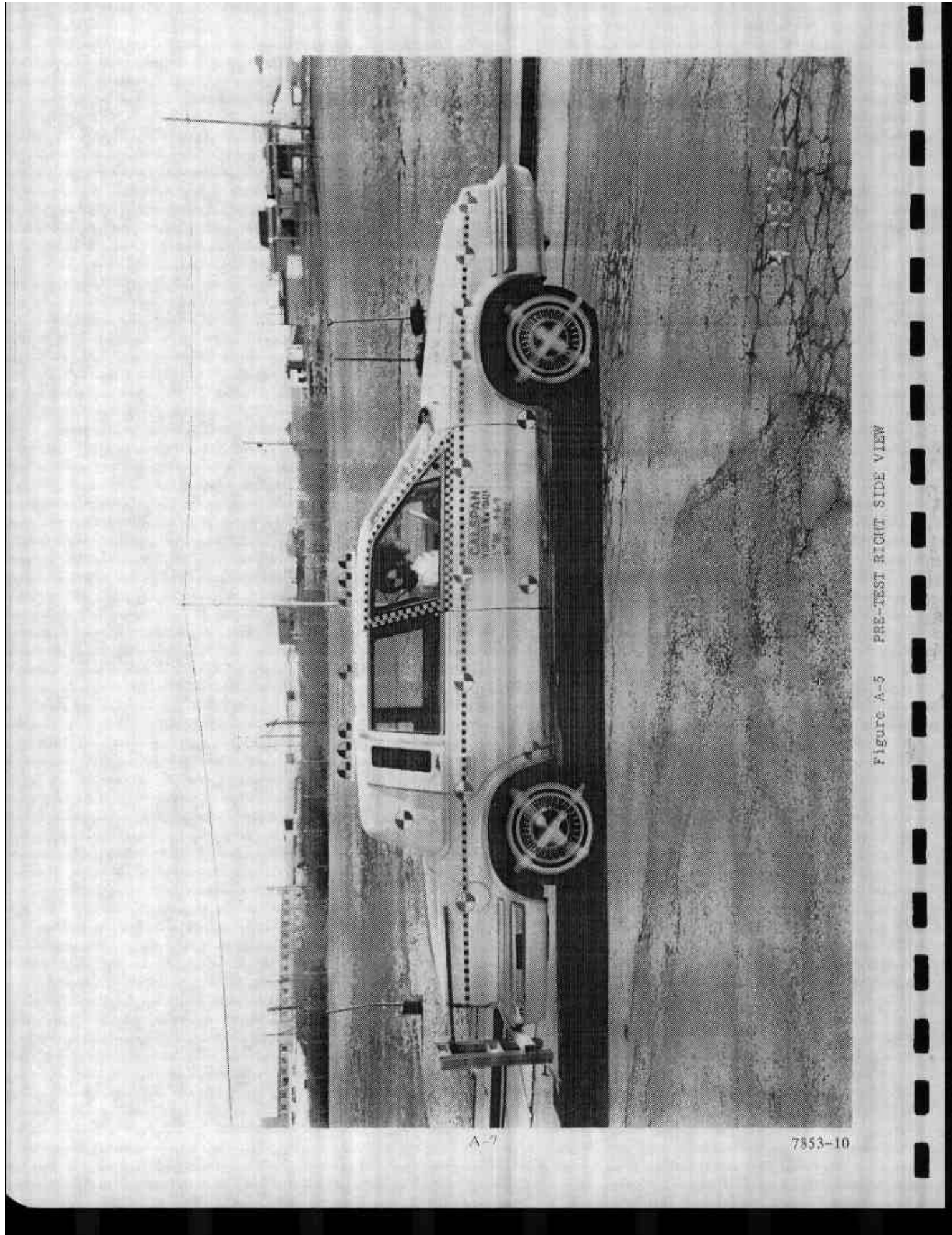


FIGURE A-5 PRE-TEST RIGHT SIDE VIEW

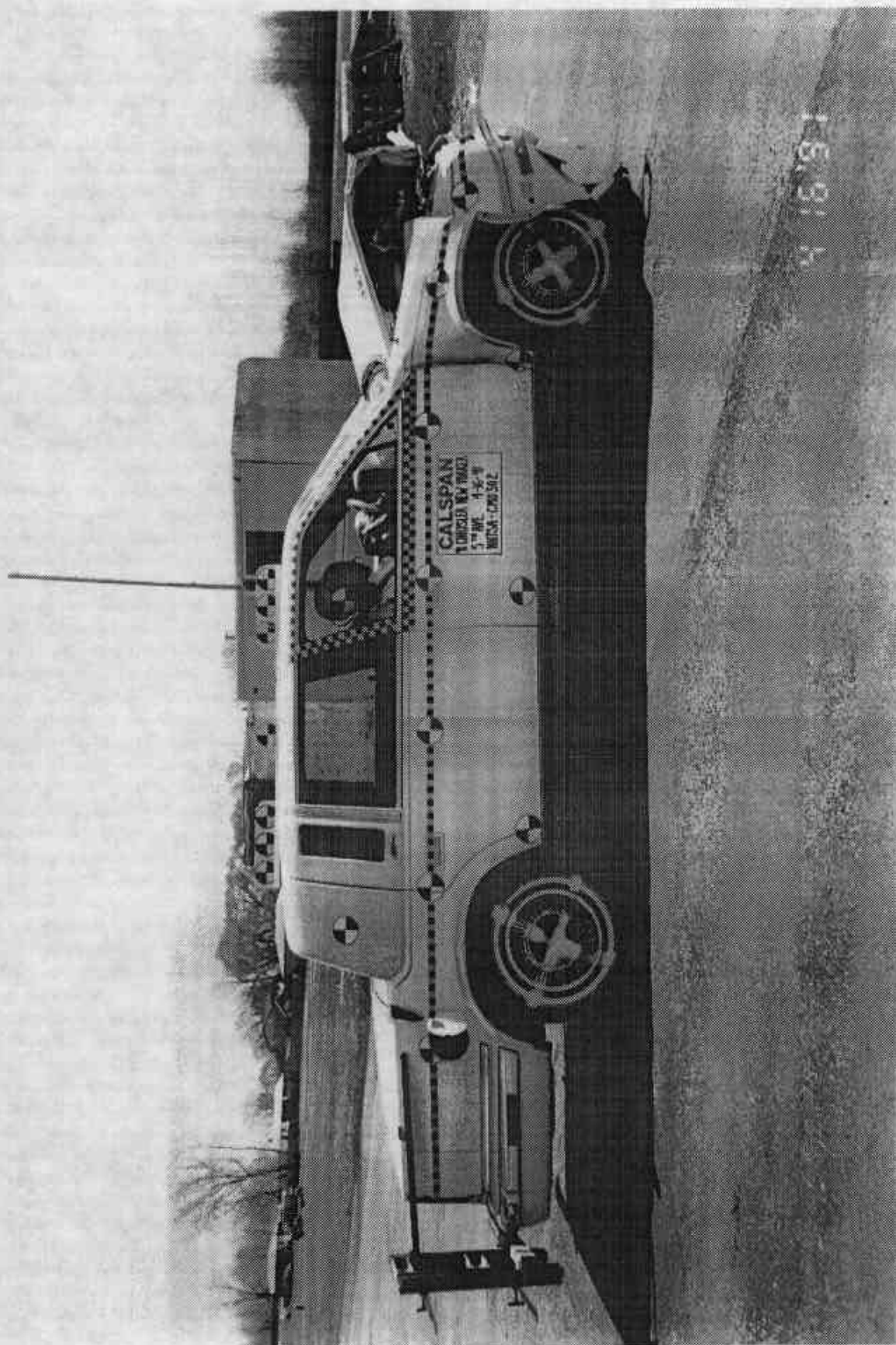


Figure A-8. POST-TEST RIGHT SIDE VIEW



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

A-9

7853-10

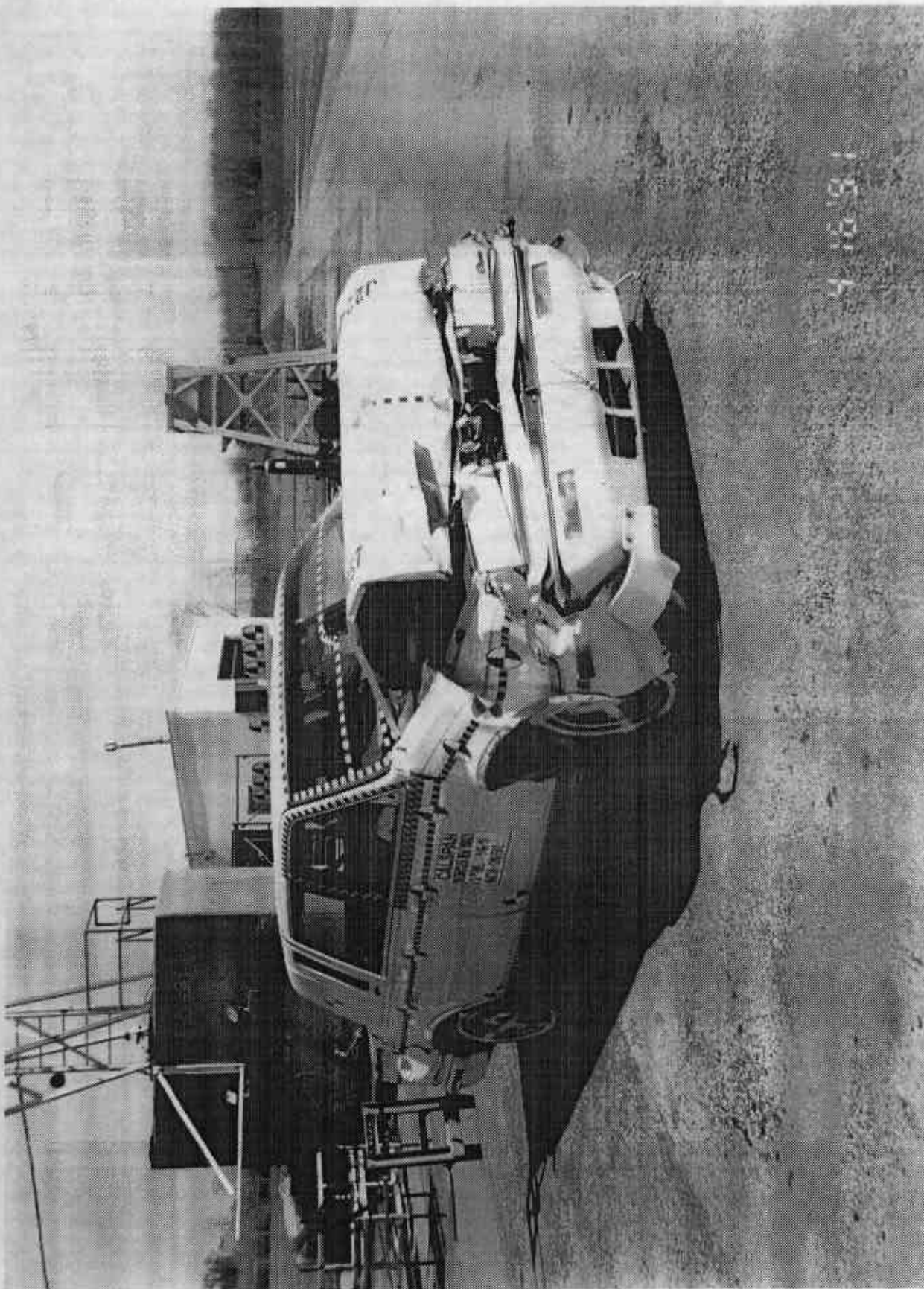


Figure A-8 POST-TEST RIGHT FRONT THREE-QUARTER VIEW

A-10

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4 16'91

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

A-11

7853-10

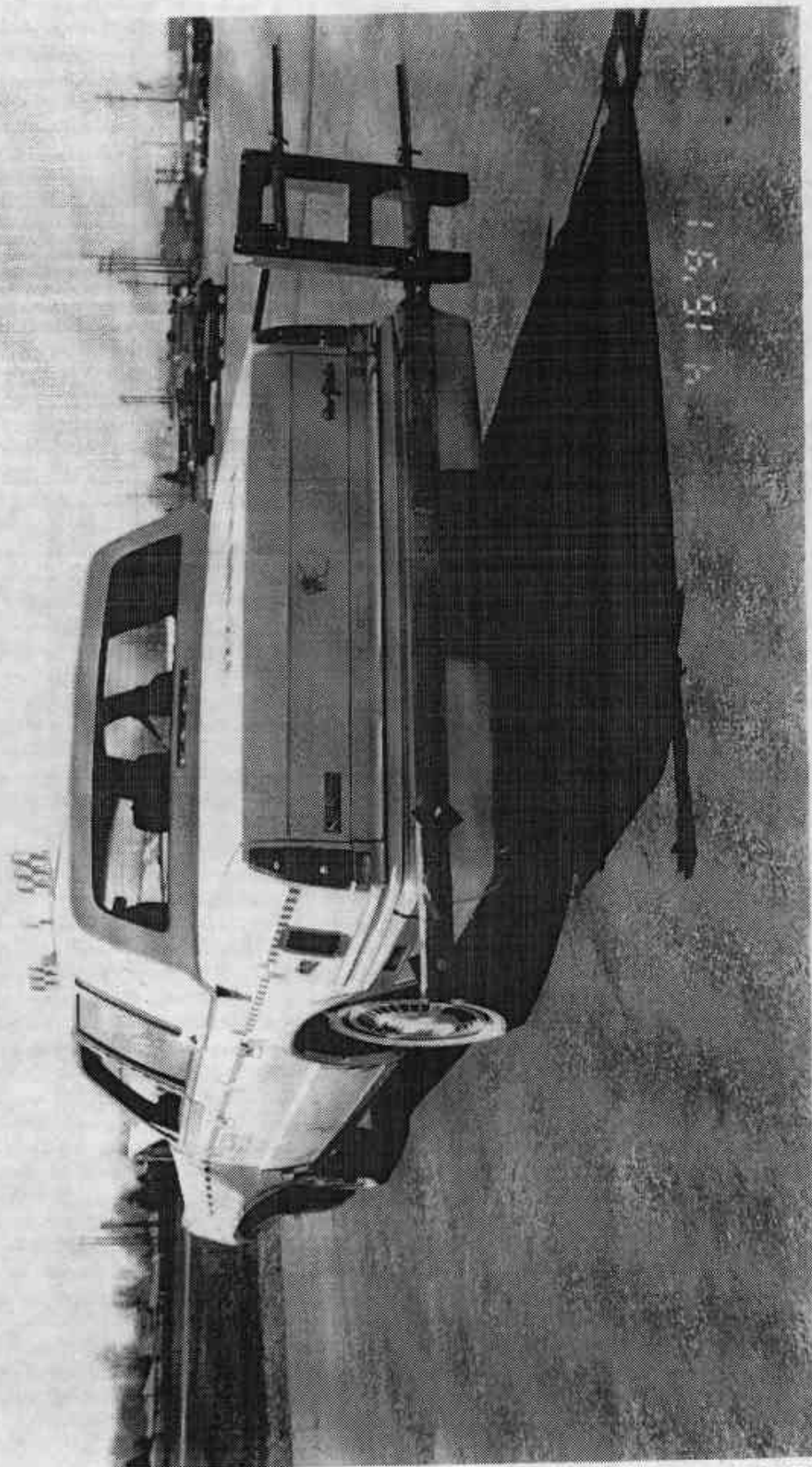


FIGURE A-10 POST-TEST LEFT REAR THREE-QUARTER VIEW

A-12

7853-10



Figure A-11 POST TEST TOP VIEW

A-13

7853-10

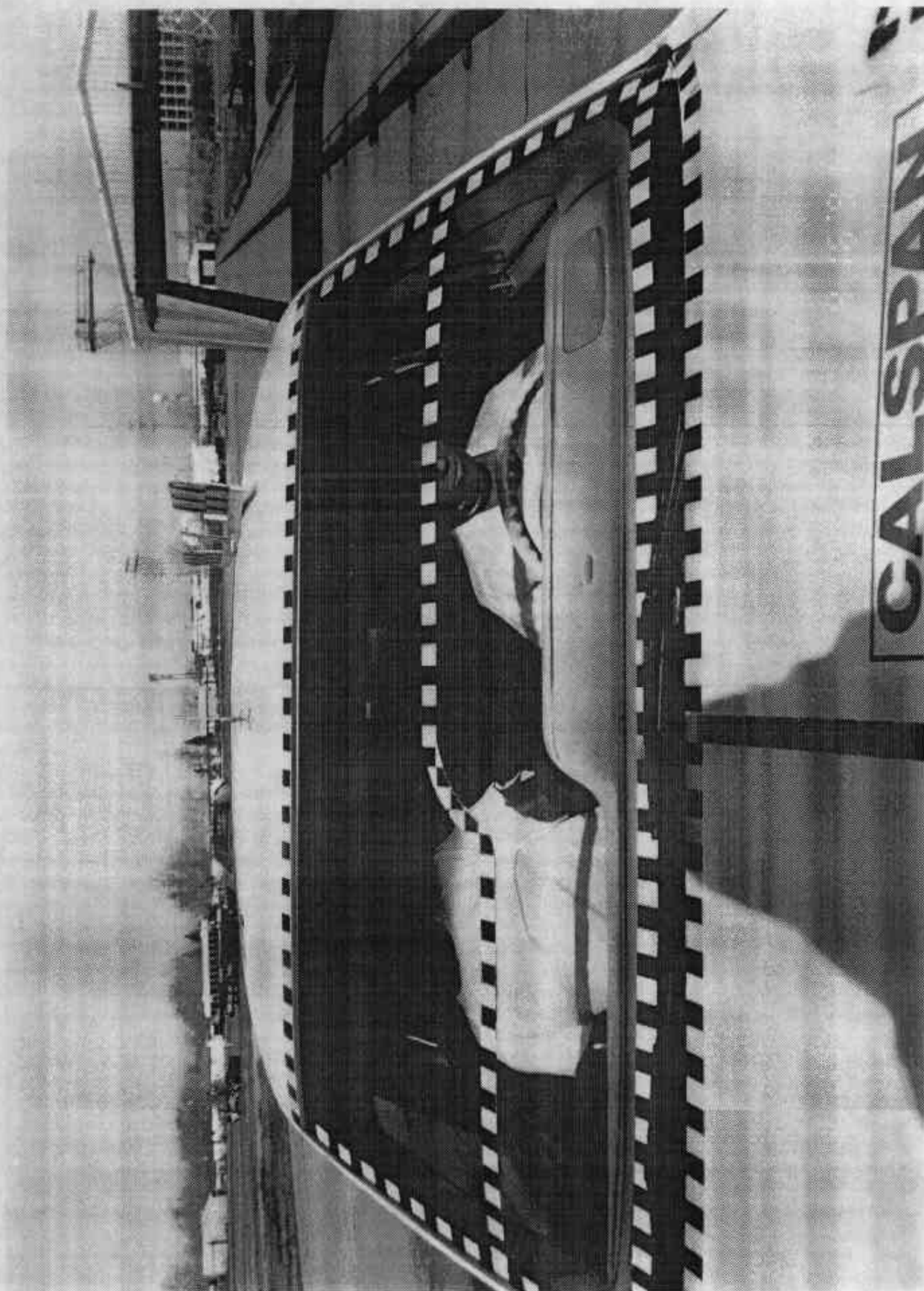


FIGURE A-12 PRE-TEST WINDSHIELD VIEW

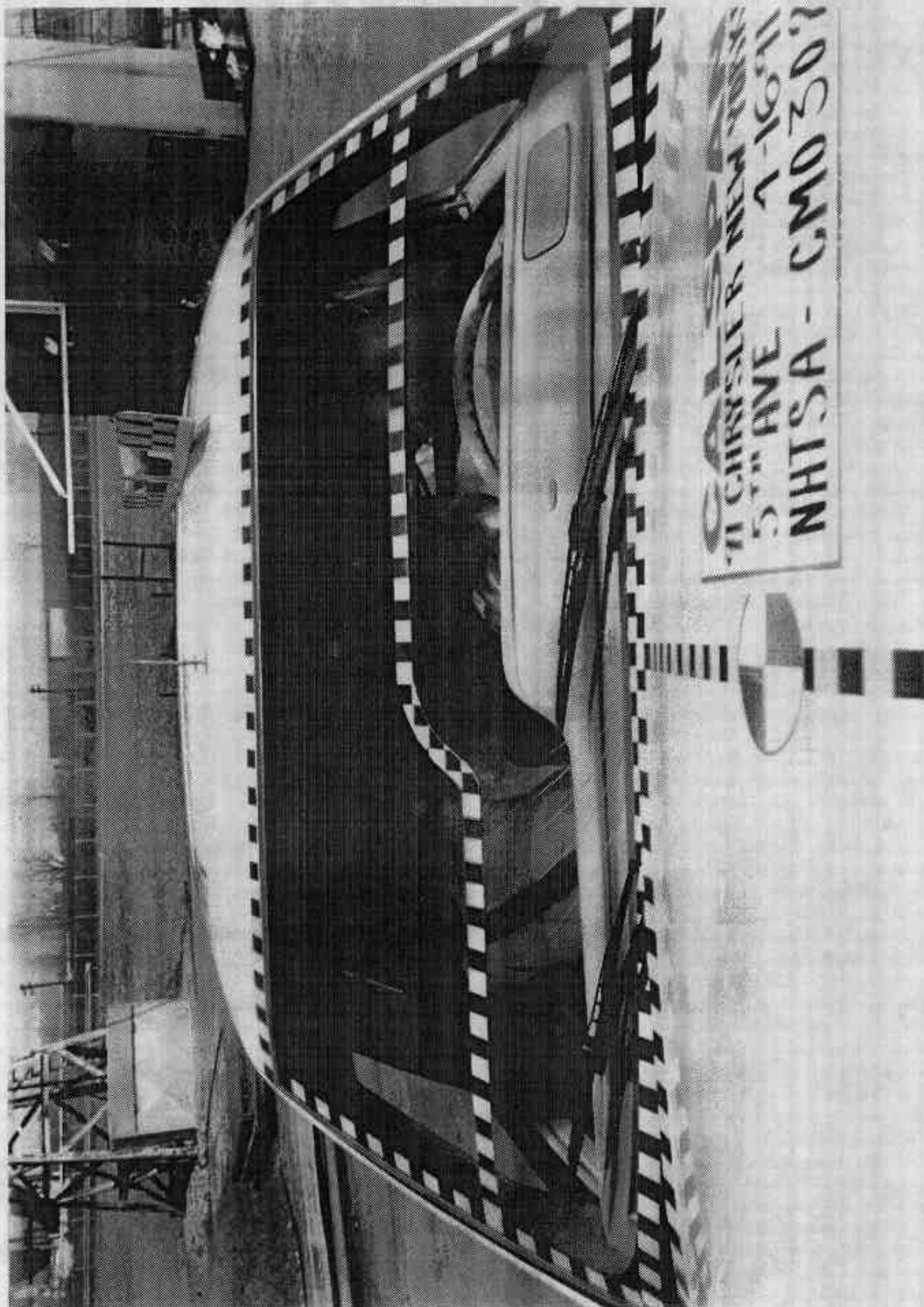


Figure A-13 POST-TEST WINDSHIELD VIEW

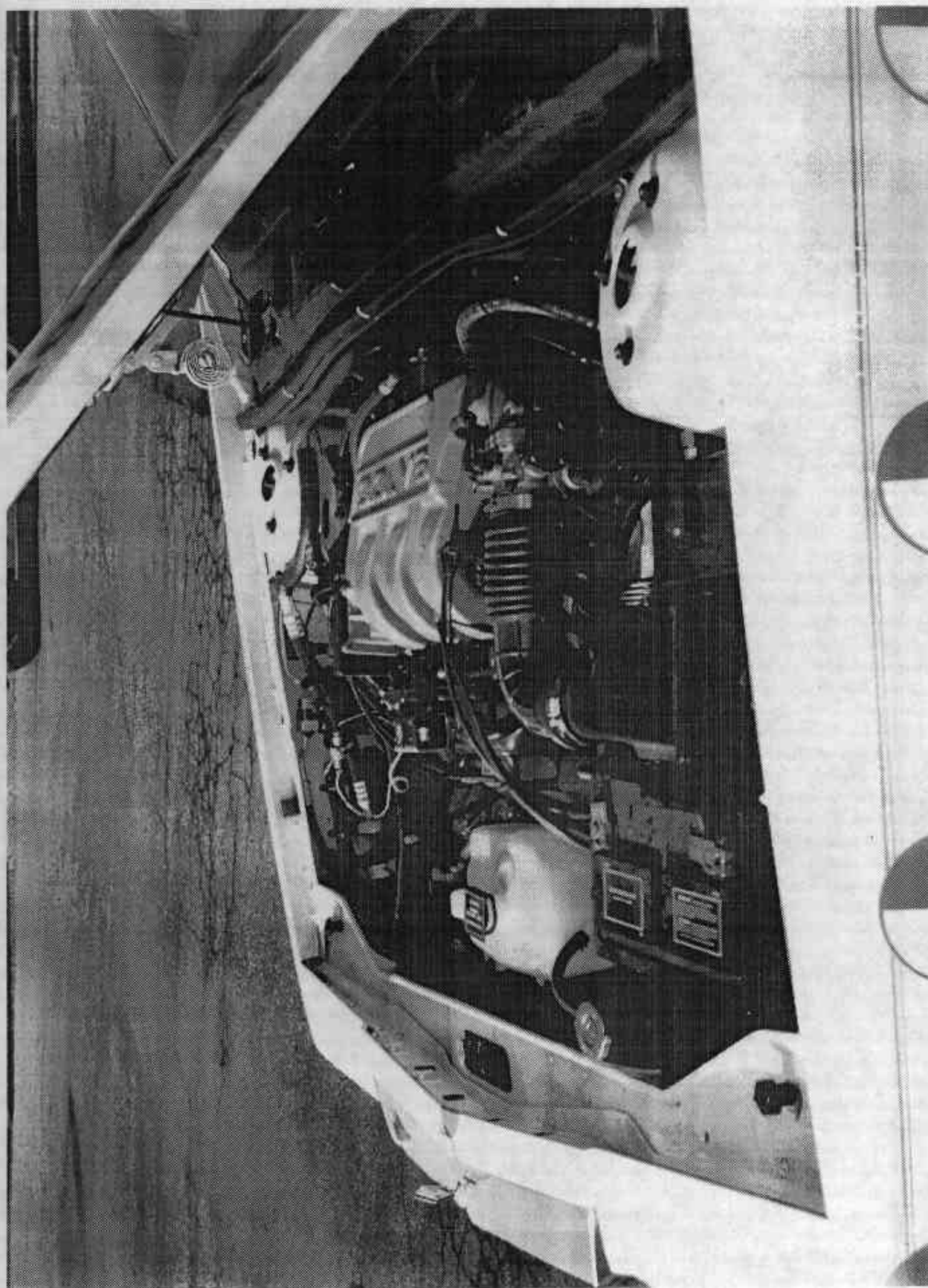


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

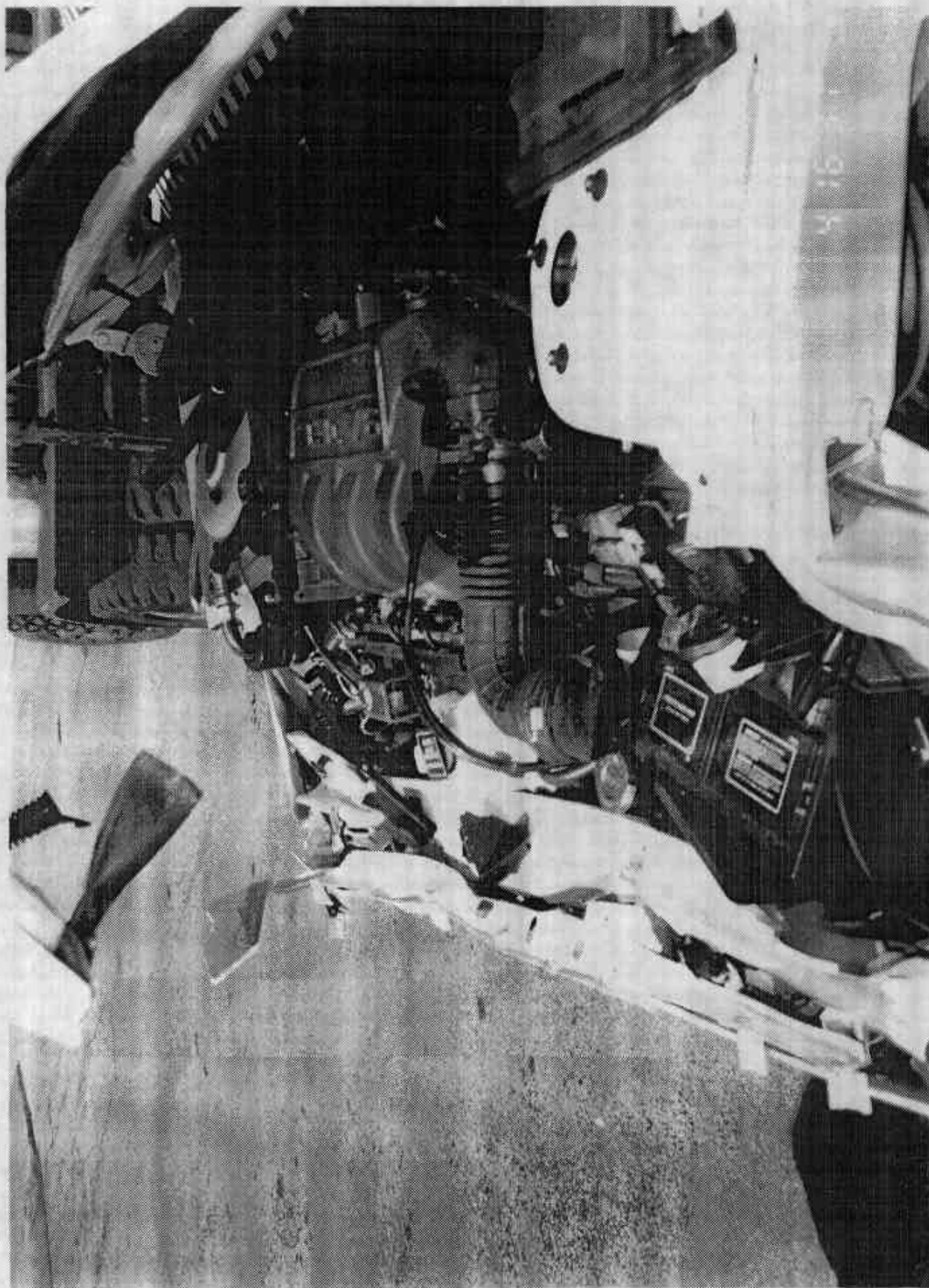


FIGURE A-15 POST-TEST ENGINE COMPARTMENT VIEW

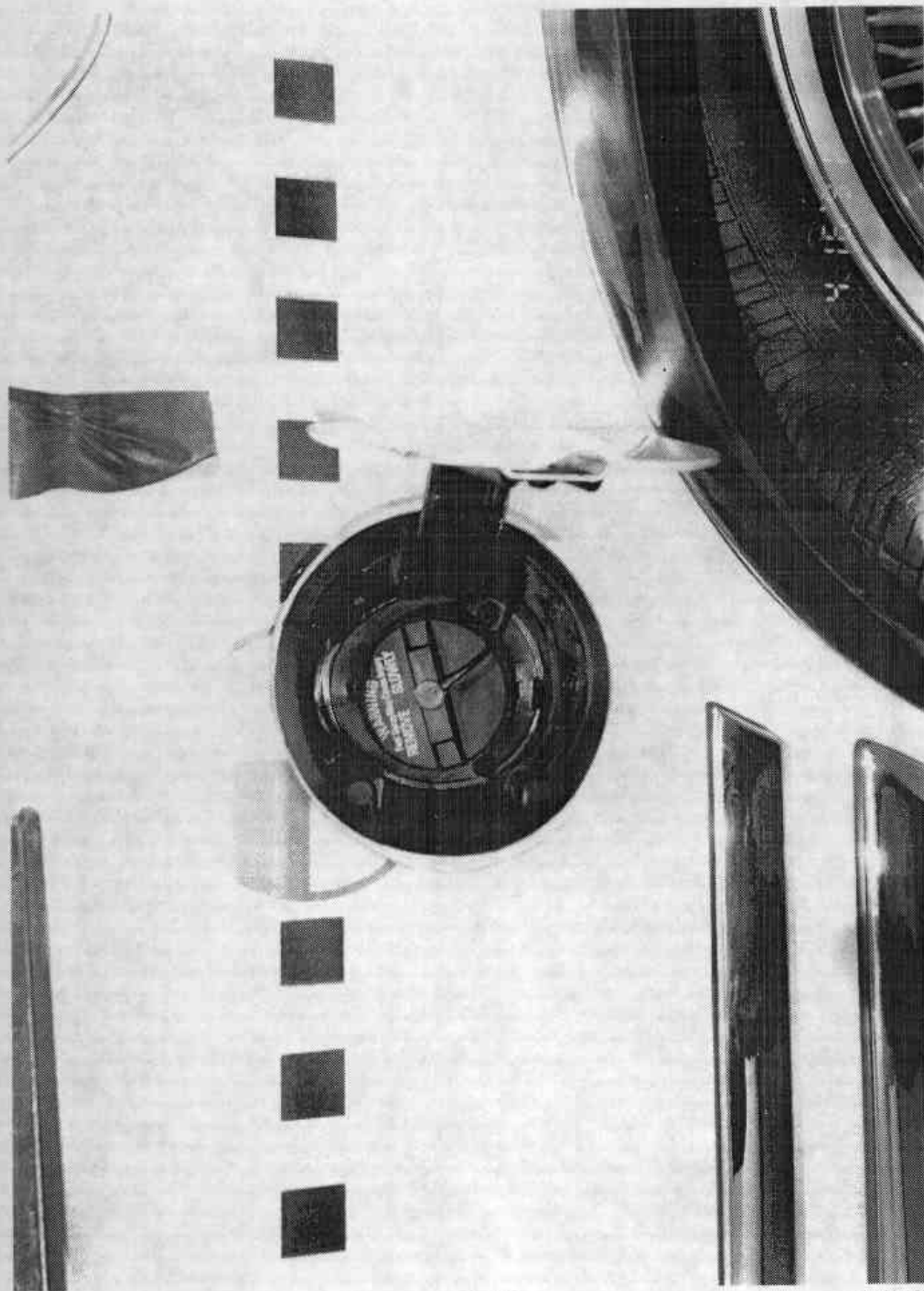


FIGURE A-16 PRE-TEST FUEL FILLER CAP PHOTO

A-18

7853-10

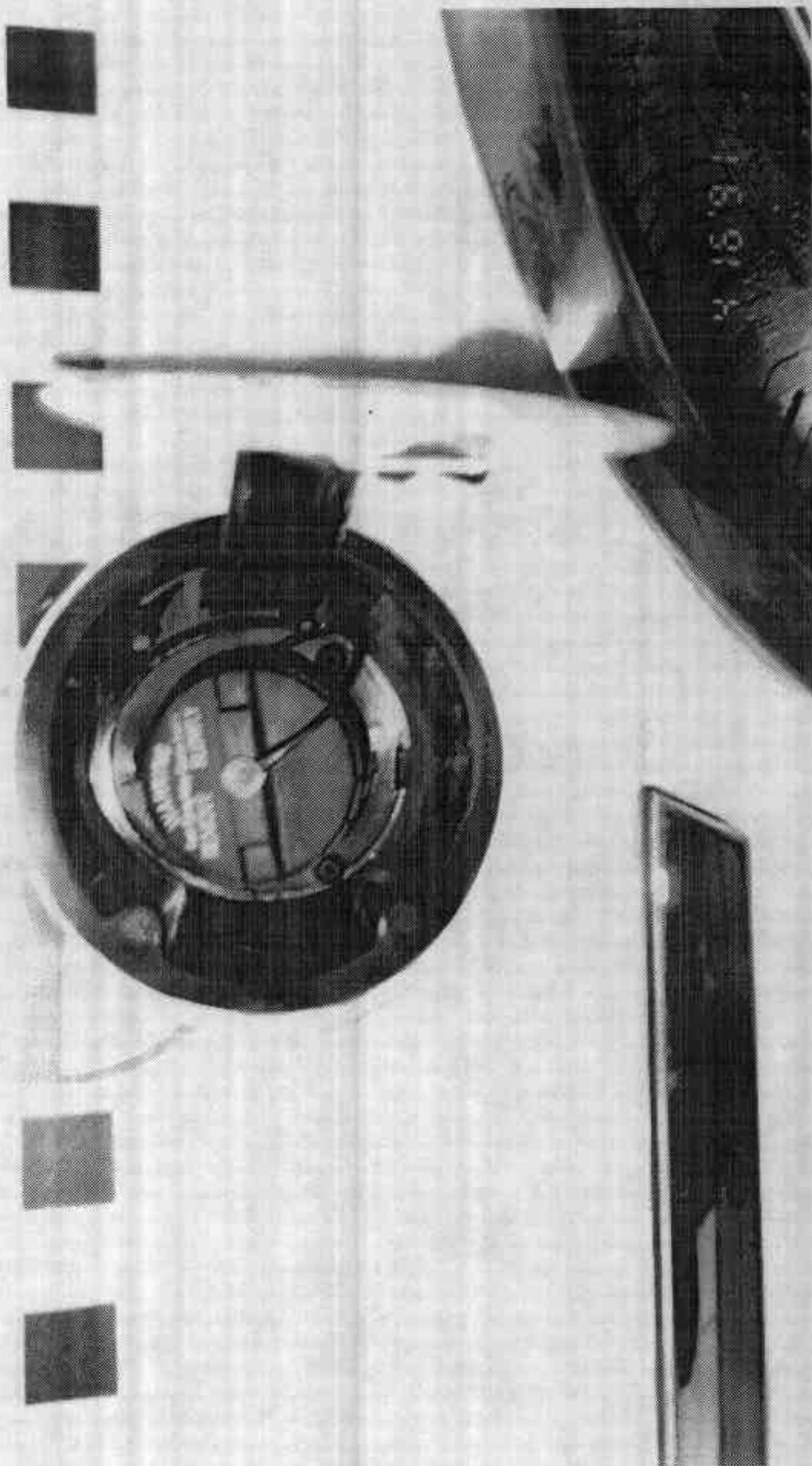


FIGURE A-17 POST-TEST FUEL FILLER CAP PHOTO

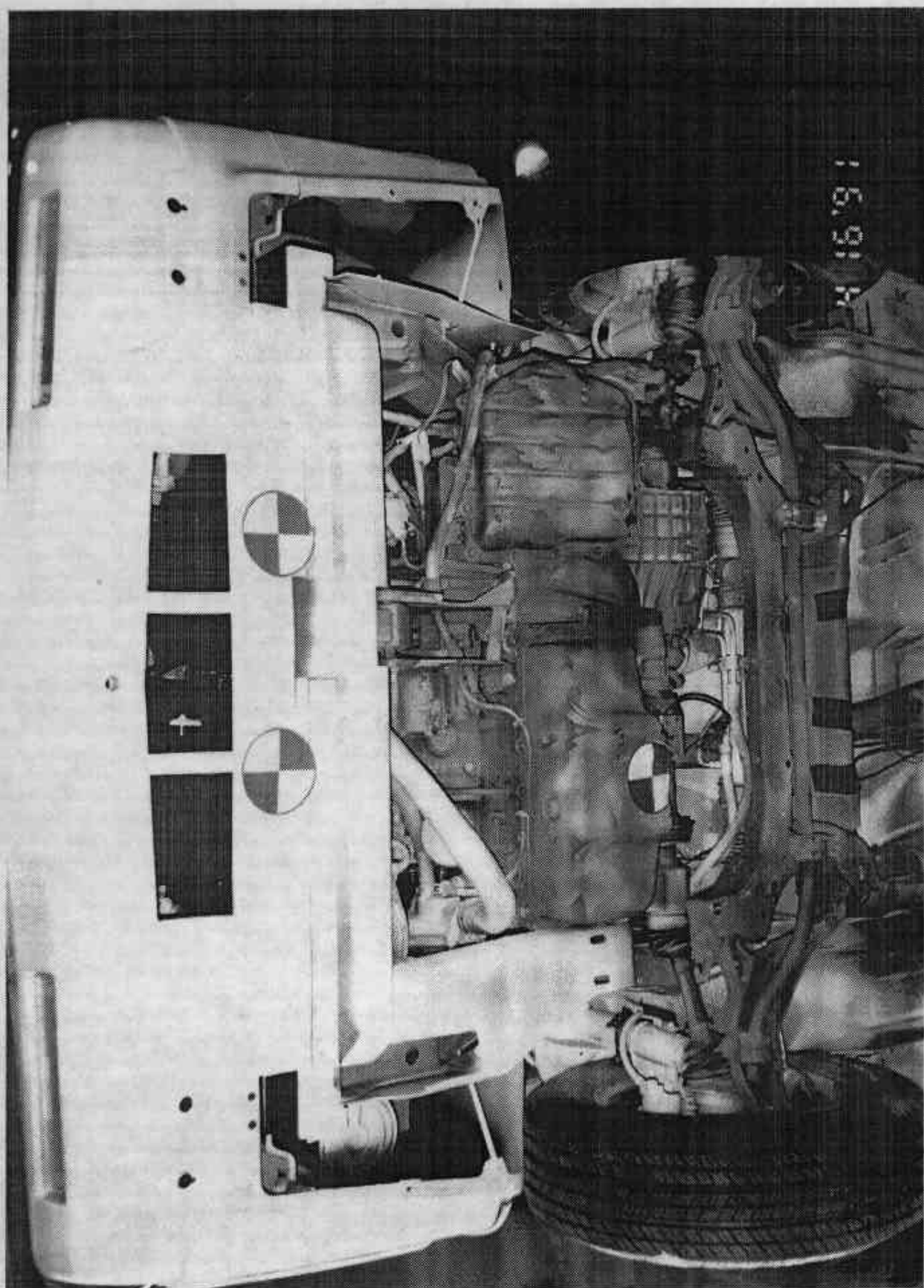


FIGURE A-18 PRE-TEST FRONT UNDERBODY VIEW

A-20

7853-10

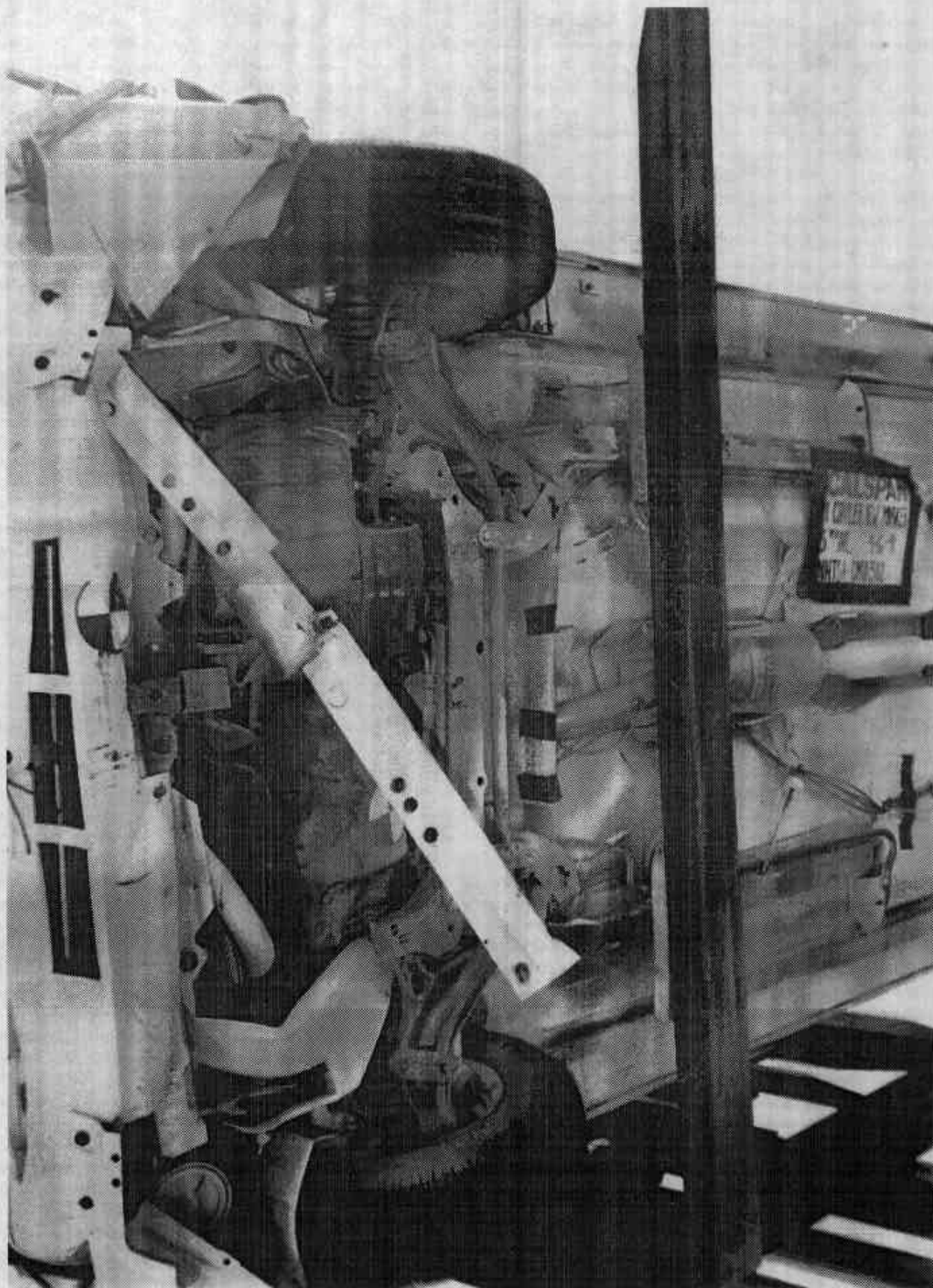


Figure A-19 POST-TEST FRONT UNDERBODY VIEW

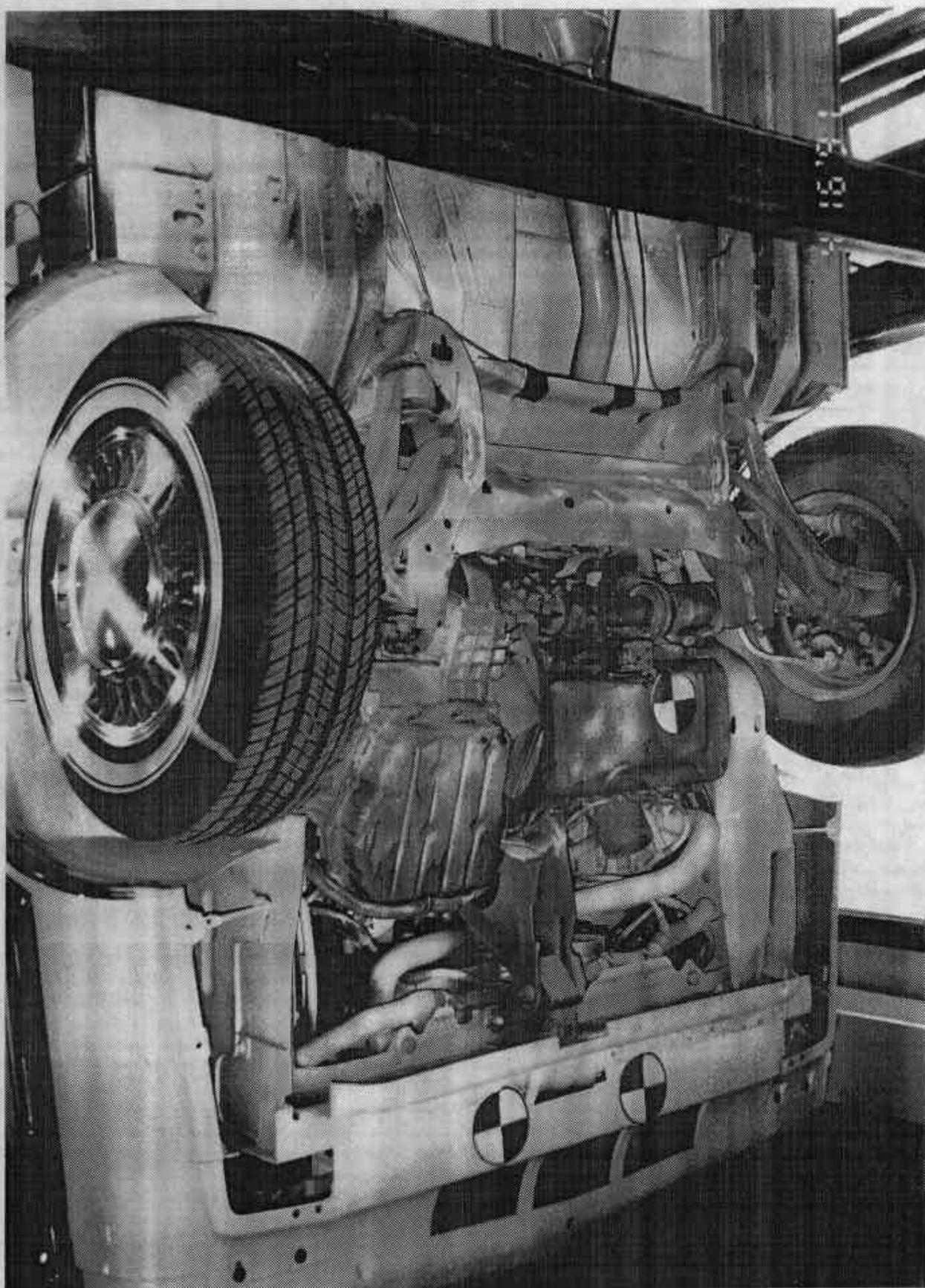


FIGURE A-20 PRE-TEST FRONT SIDE UNDERBODY VIEW

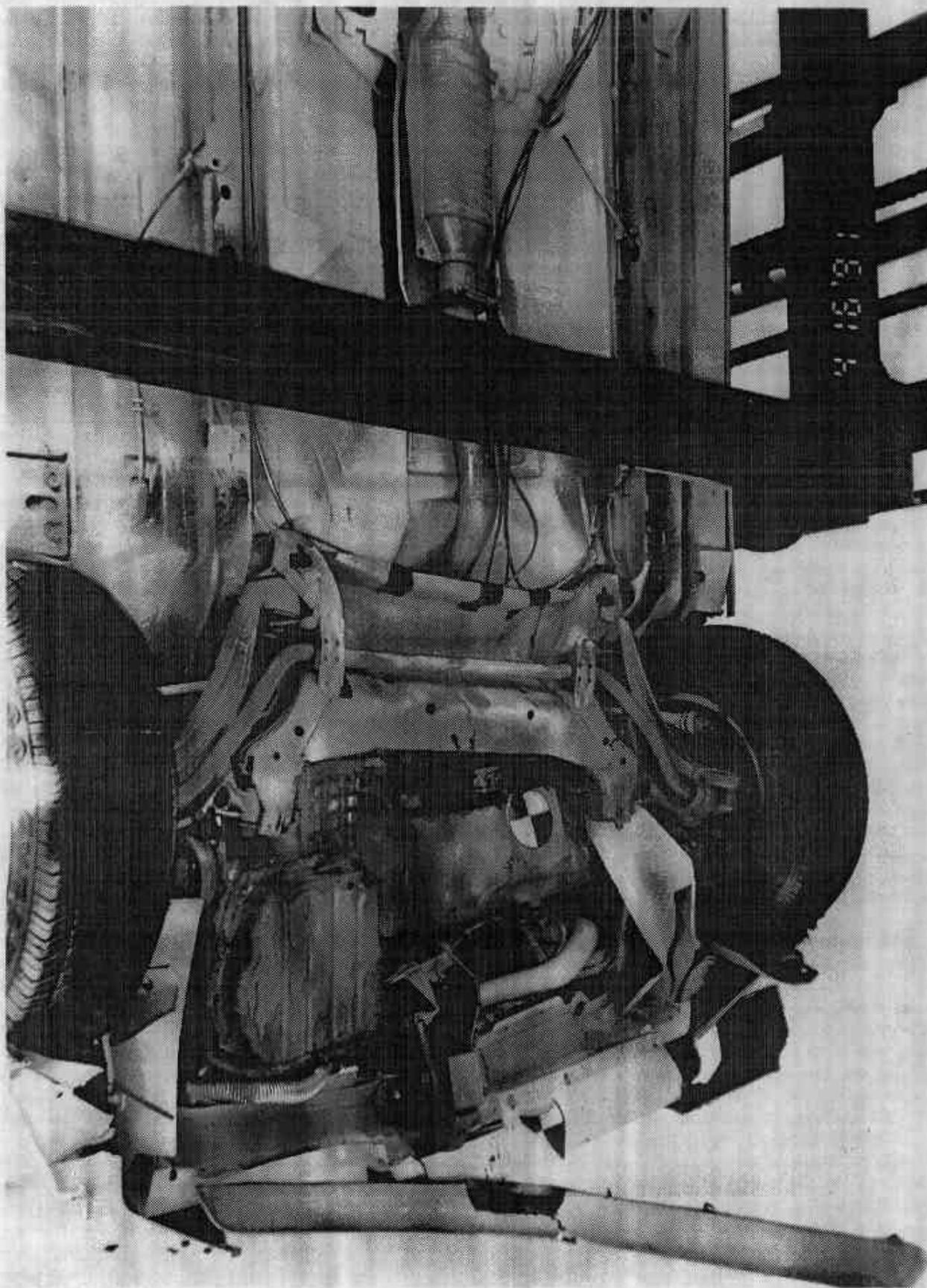


FIGURE A-21 POST-TEST FRONT SIDE UNDERBODY VIEW

A-23

7853-10

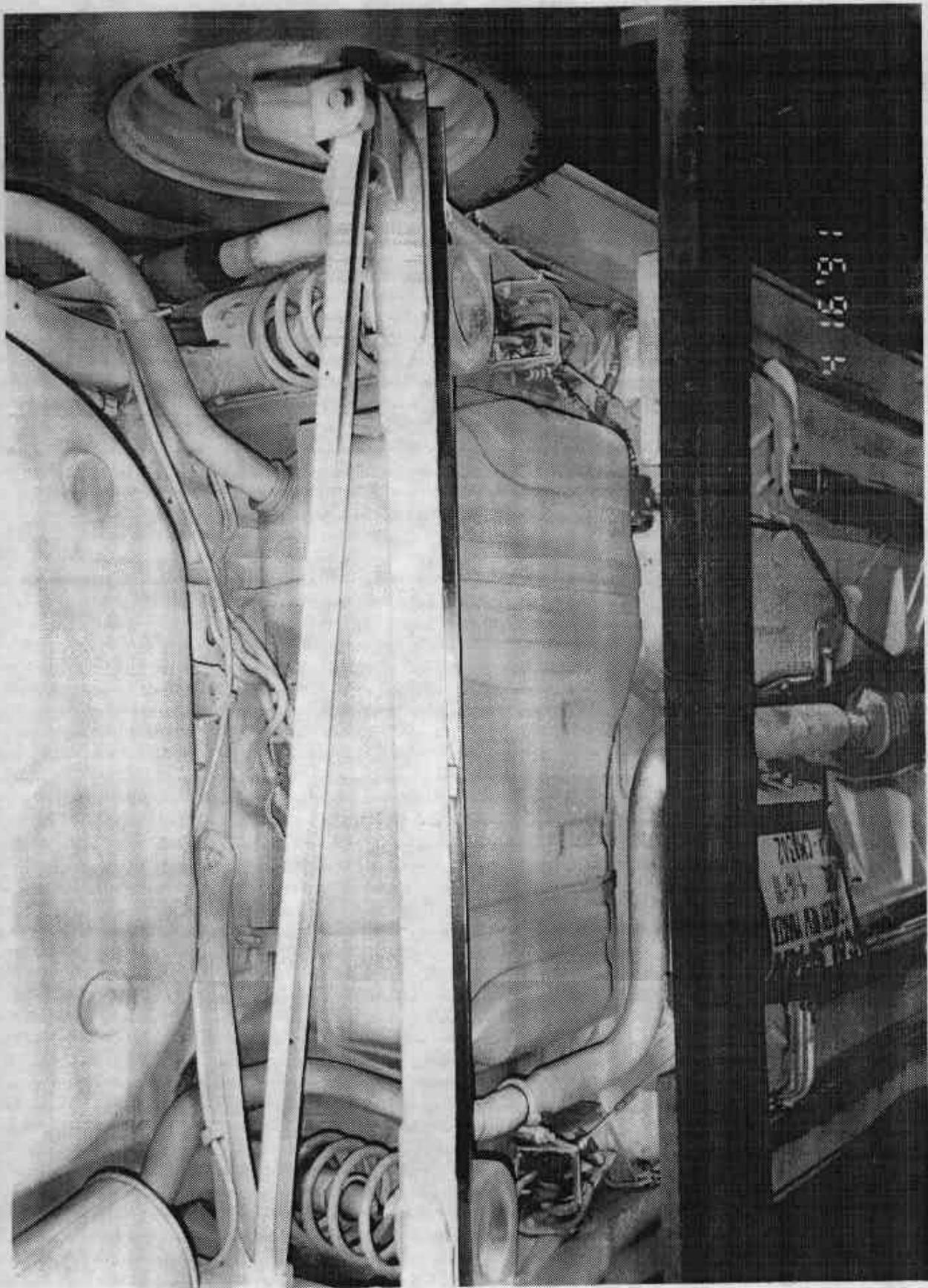


FIGURE A-22 PRE-TEST REAR UNDERSOYD VIEW

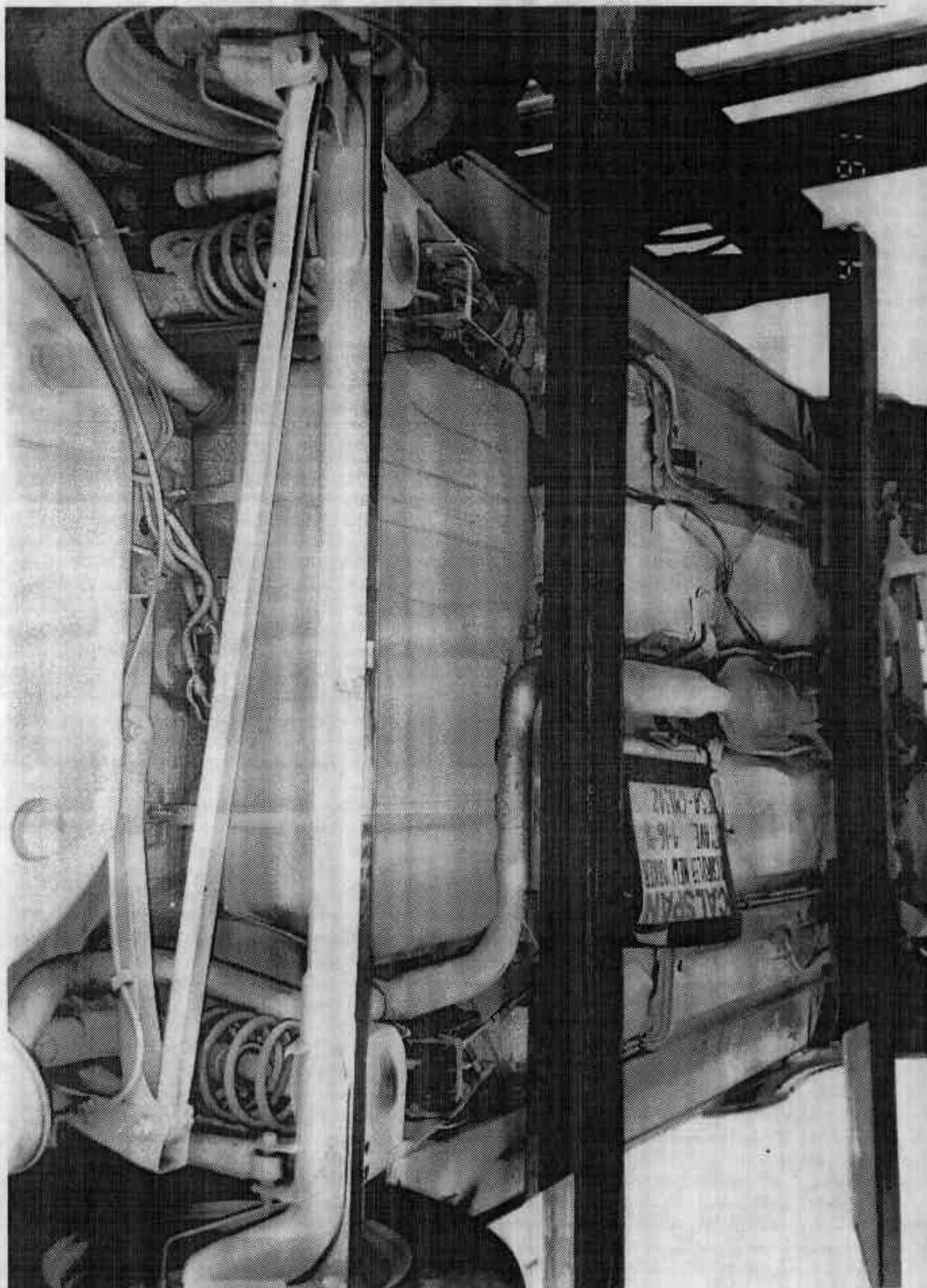


FIGURE A-23 POST-TEST REAR UNDERBODY VIEW

A-25

7853-10



Figure A-24 CERTIFICATION LABEL AND TIRE PLACARD

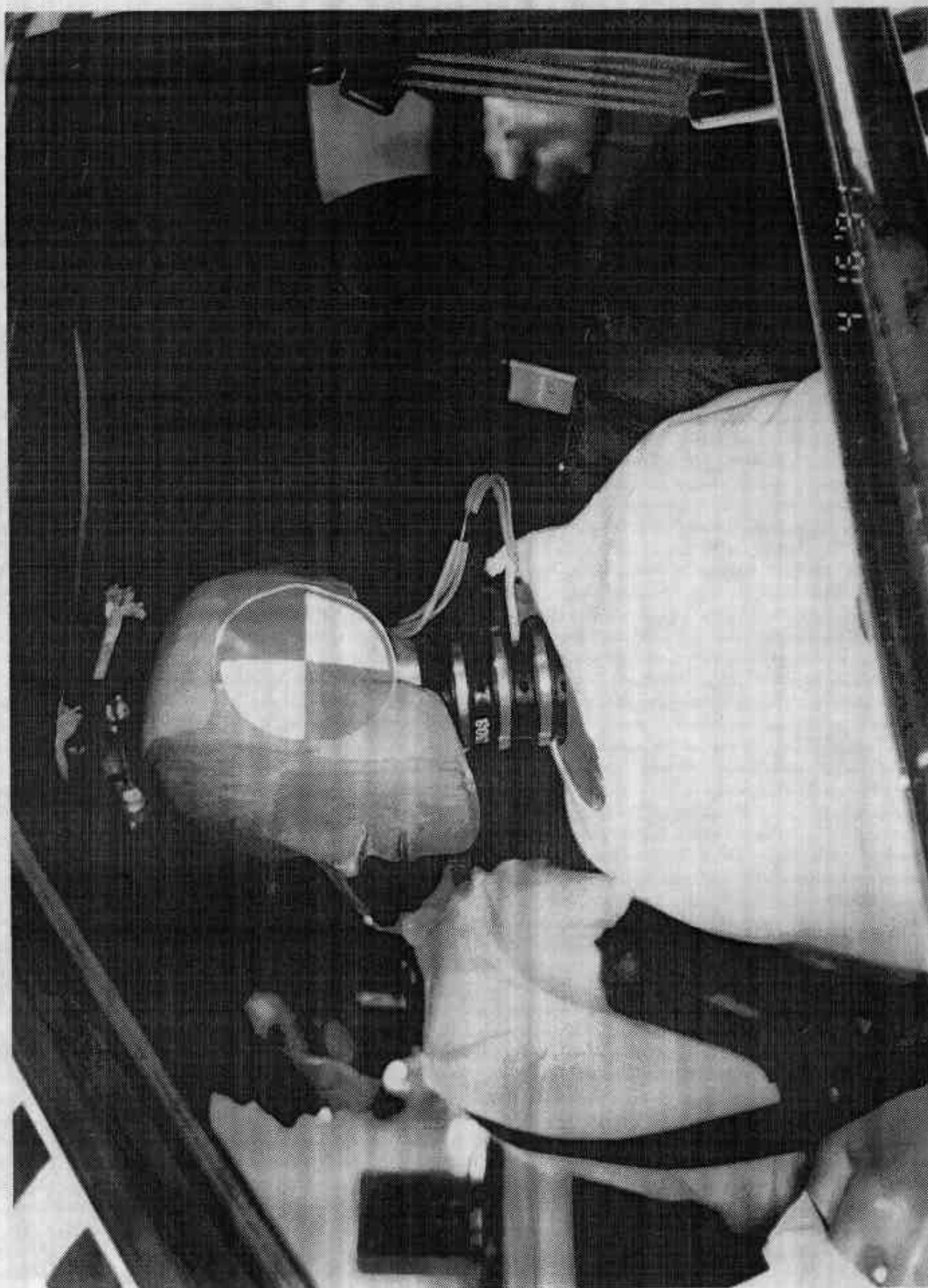


FIGURE A-26 PRE-TEST DRIVER DUMMY POSITION



FIGURE A-26 POST-TEST DRIVER DUMMY POSITION



FIGURE A-27 PRE-TEST PASSENGER DUMMY POSITION

A-29

7853-10



FIGURE A-28 POST-TEST PASSENGER DUMMY POSITION



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

A-31

7853-10



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

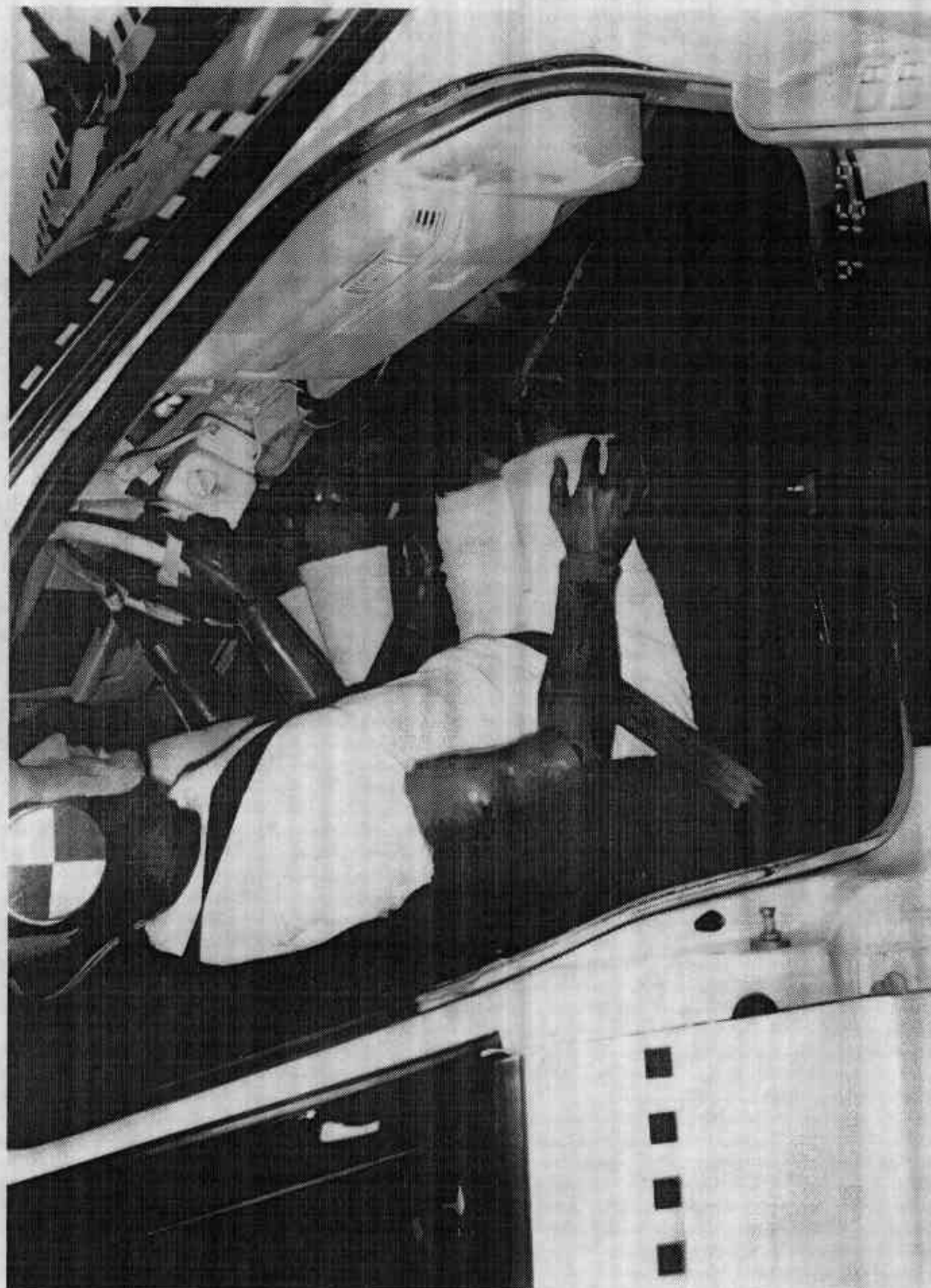


Figure A-31 PRE-TEST PASSENGER DUMMY AND INTERIOR VIEW

A-33

7853-10



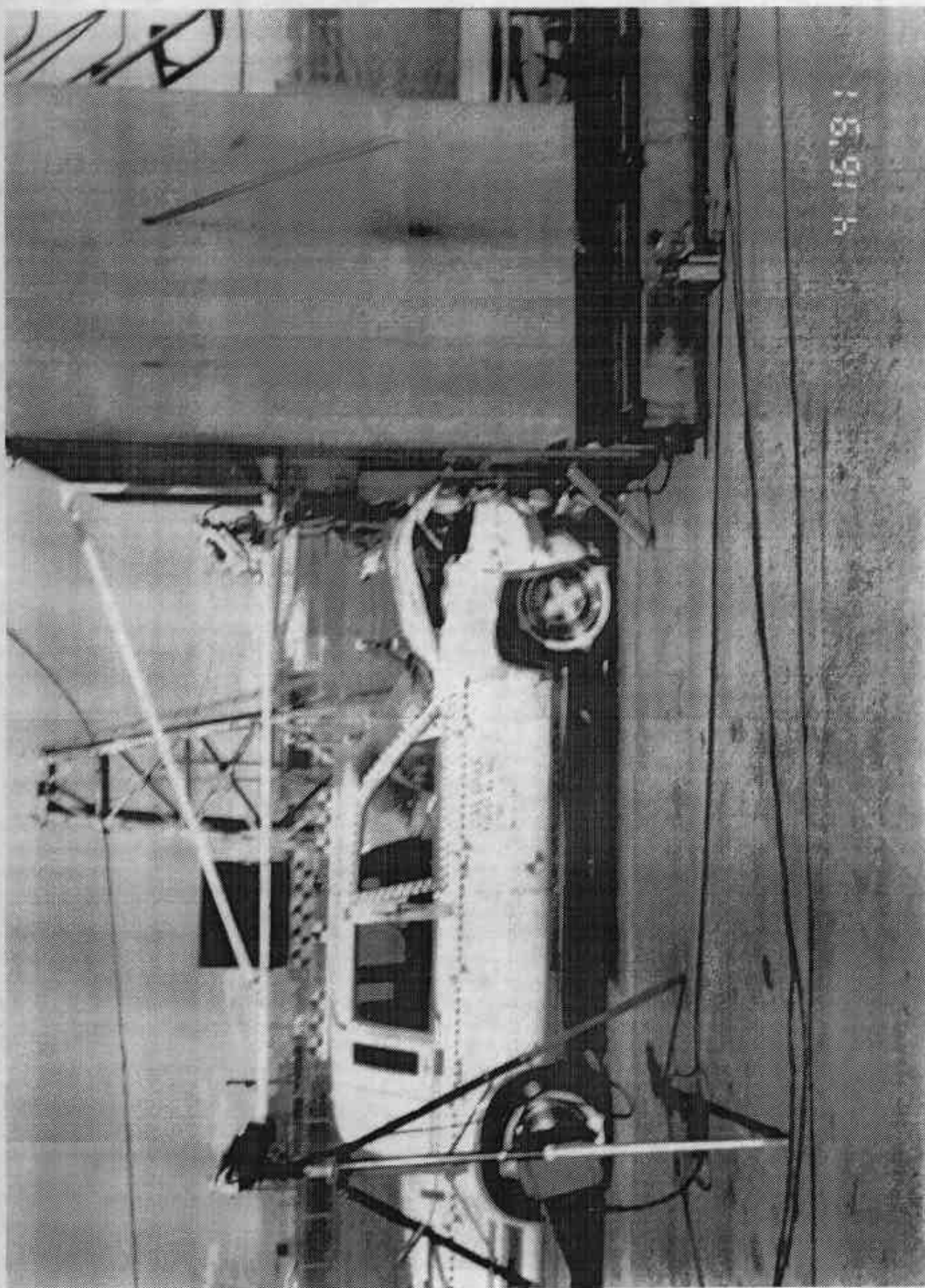
Figure A-32 POST-TEST PASSENGER DUMMY AND INTERIOR VIEW



Figure A-33 POST-TEST DRIVER AIRBAG VIEW

A-35

7853-16



4 16'9"

FIGURE A-34 VEHICLE IMPACT

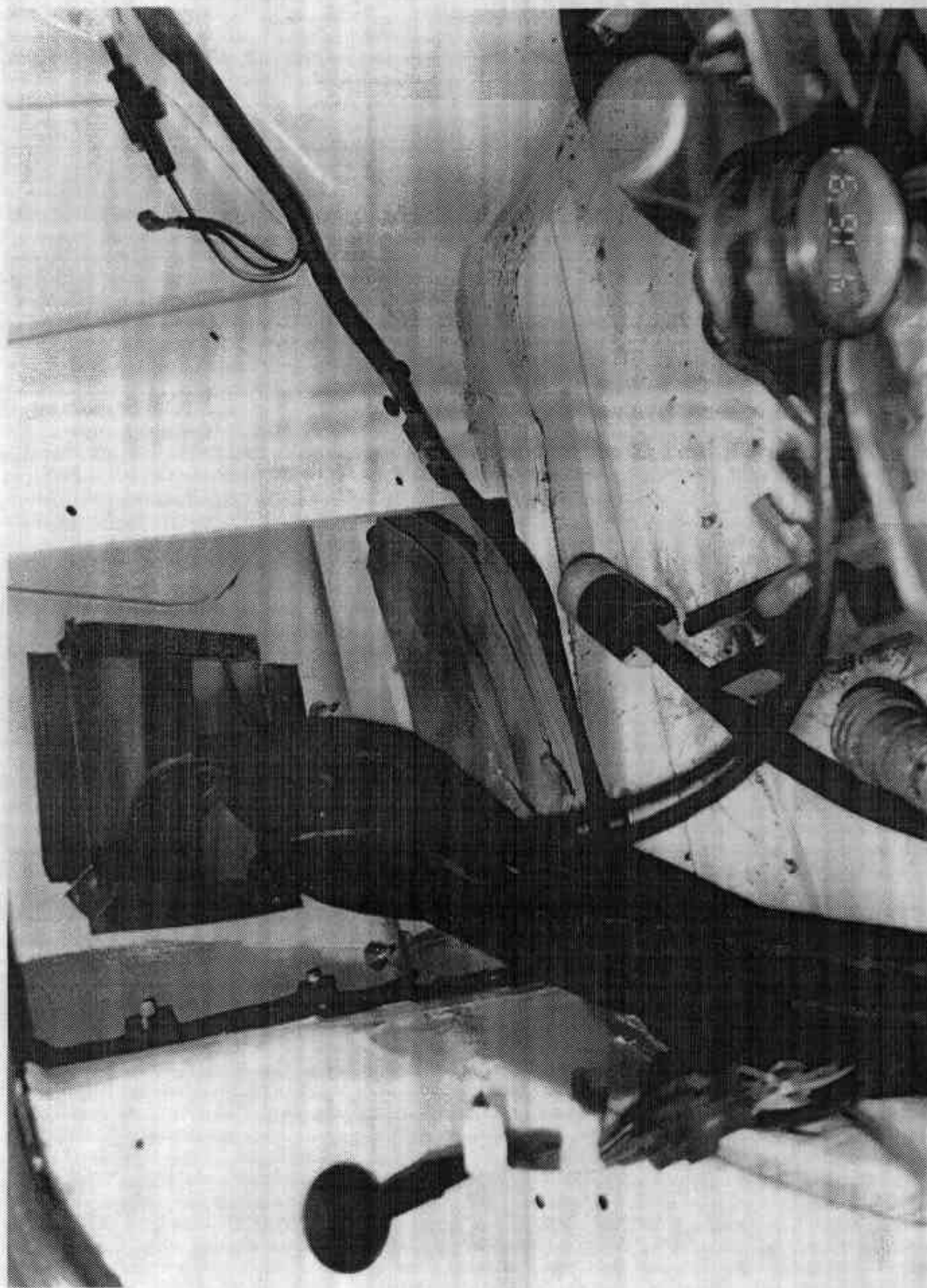


FIGURE A-35 BALLAST PLACED IN LEFT REAR OF TRUCK

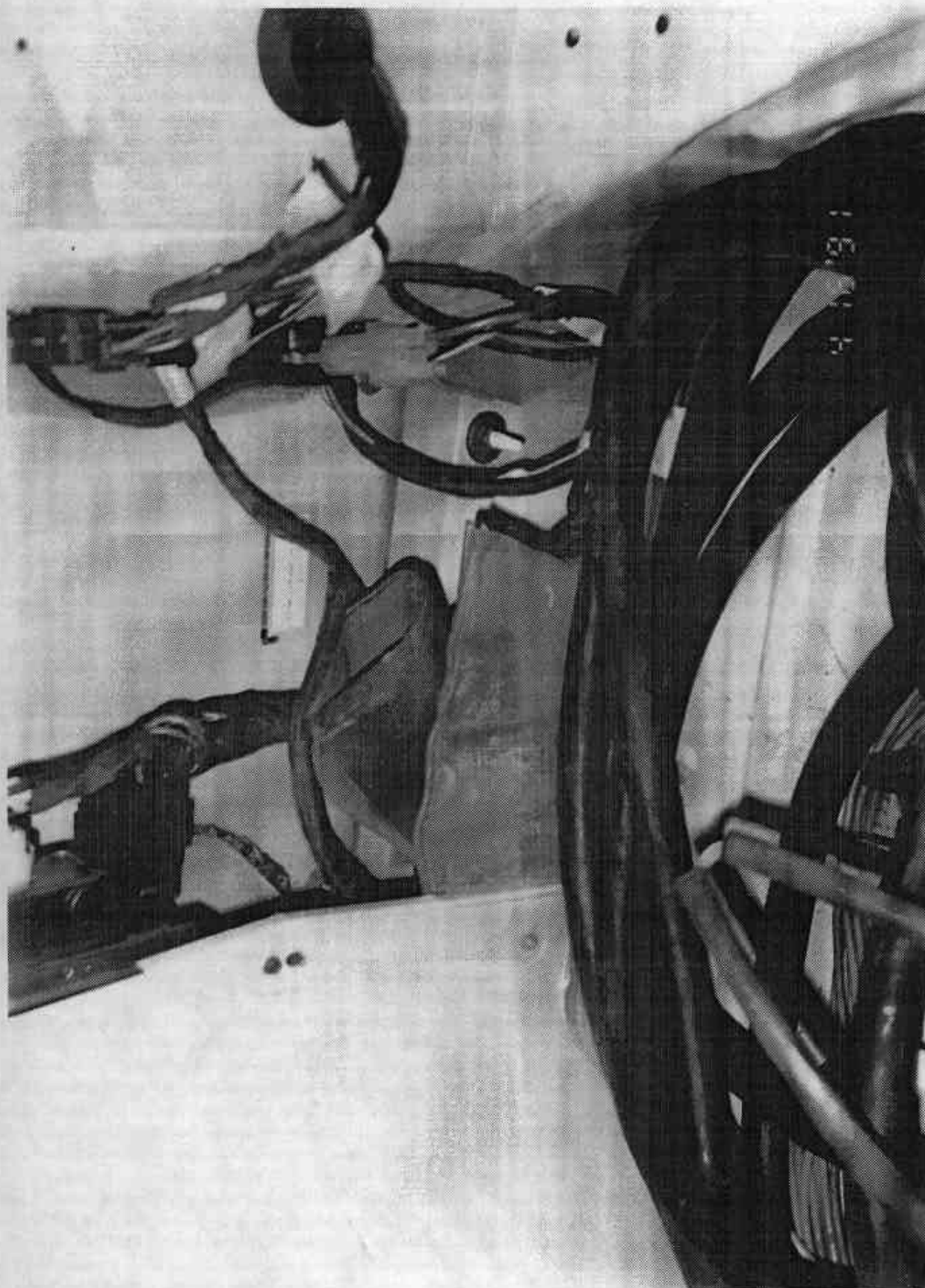


Figure A-36 BALLAST PLACED IN RIGHT REAR OF TRUNK

Appendix B

VEHICLE AND DUMMY RESPONSE DATA

TEST NO. CM0302

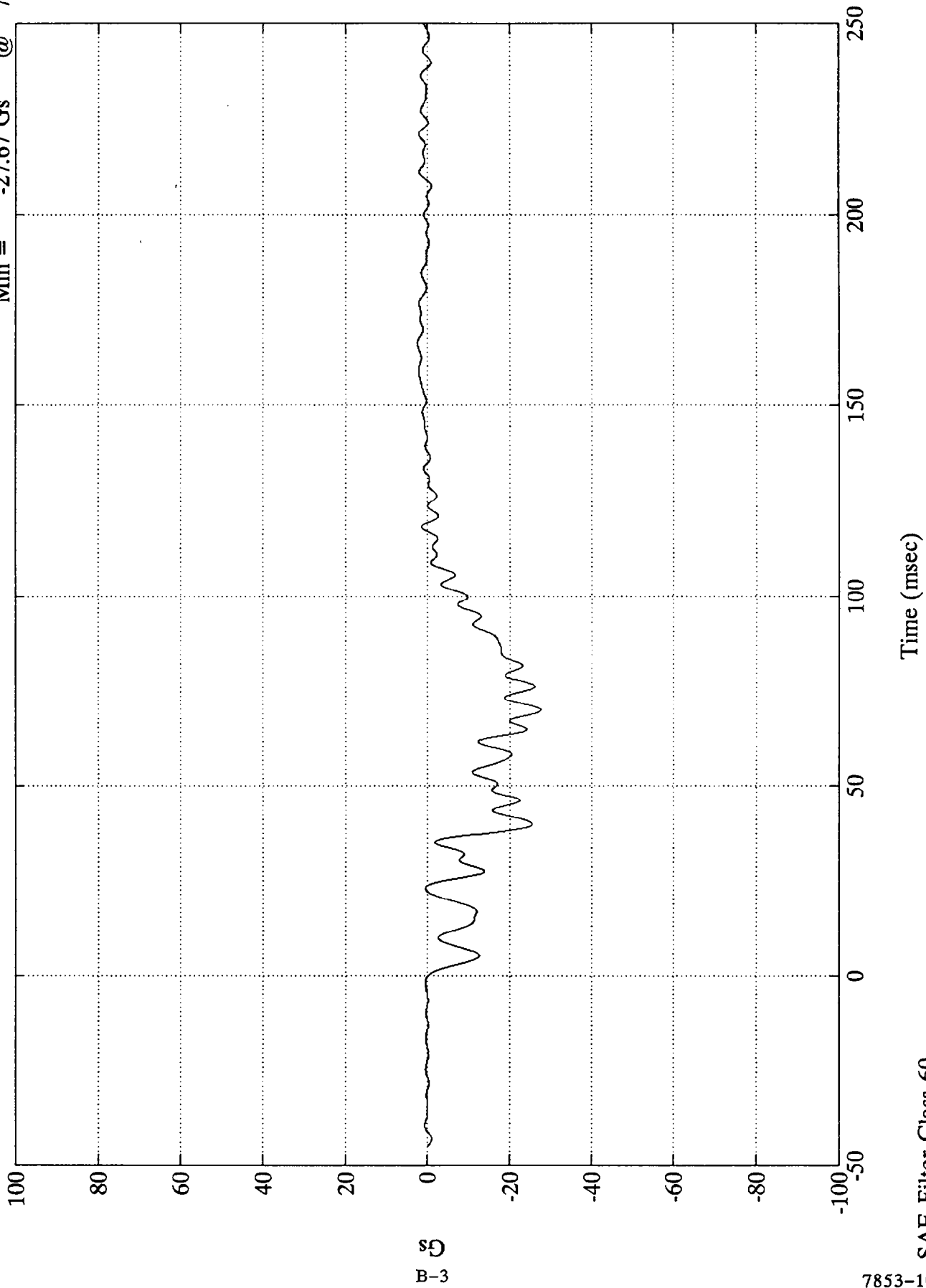
VEHICLE DATA

FILTER CHANNEL CLASS

60

L. Rear X-member X (#1)

Max = 2.42 Gs @ 165.95 msec
Min = -27.67 Gs @ 70.08 msec



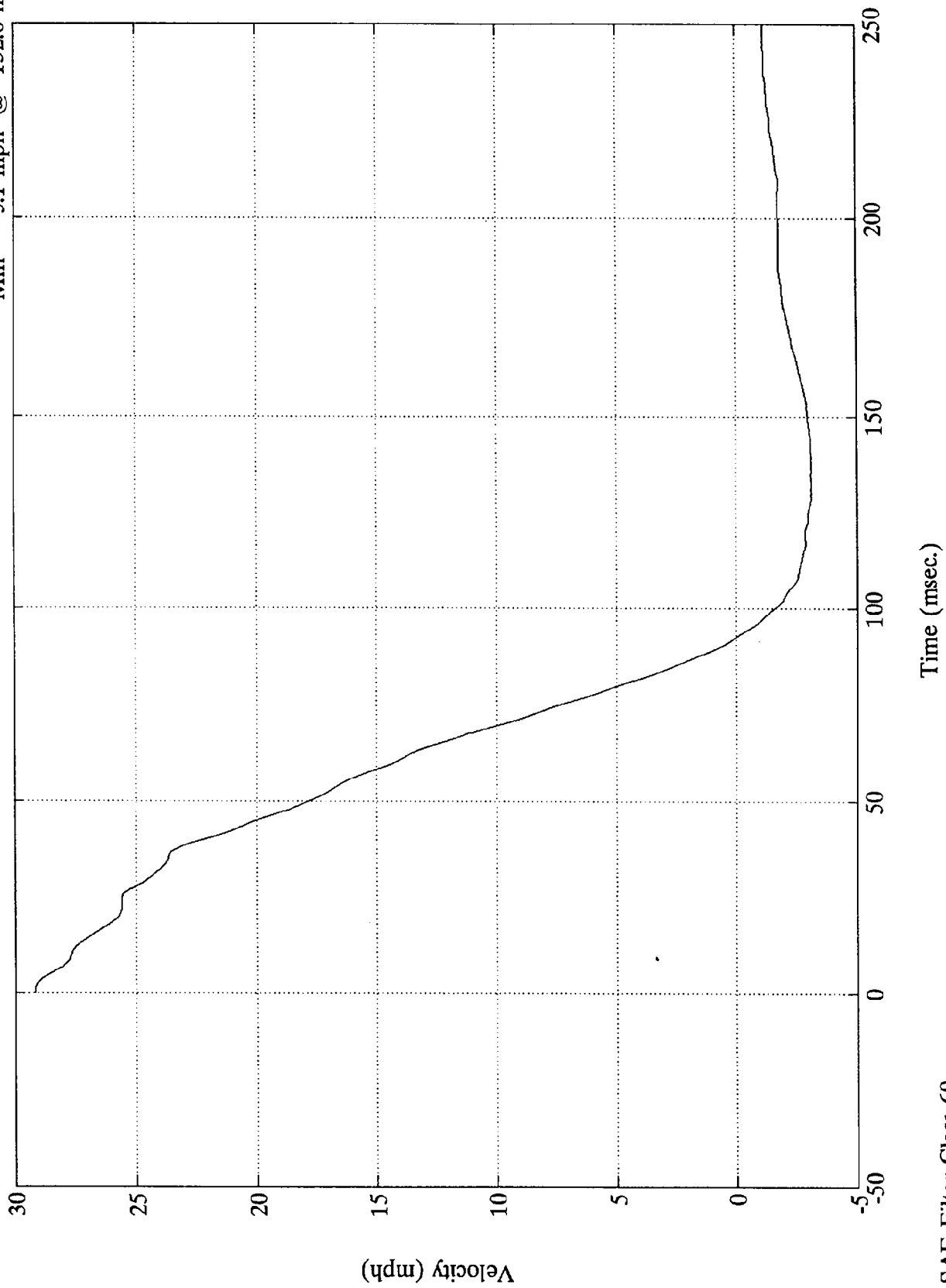
B-3

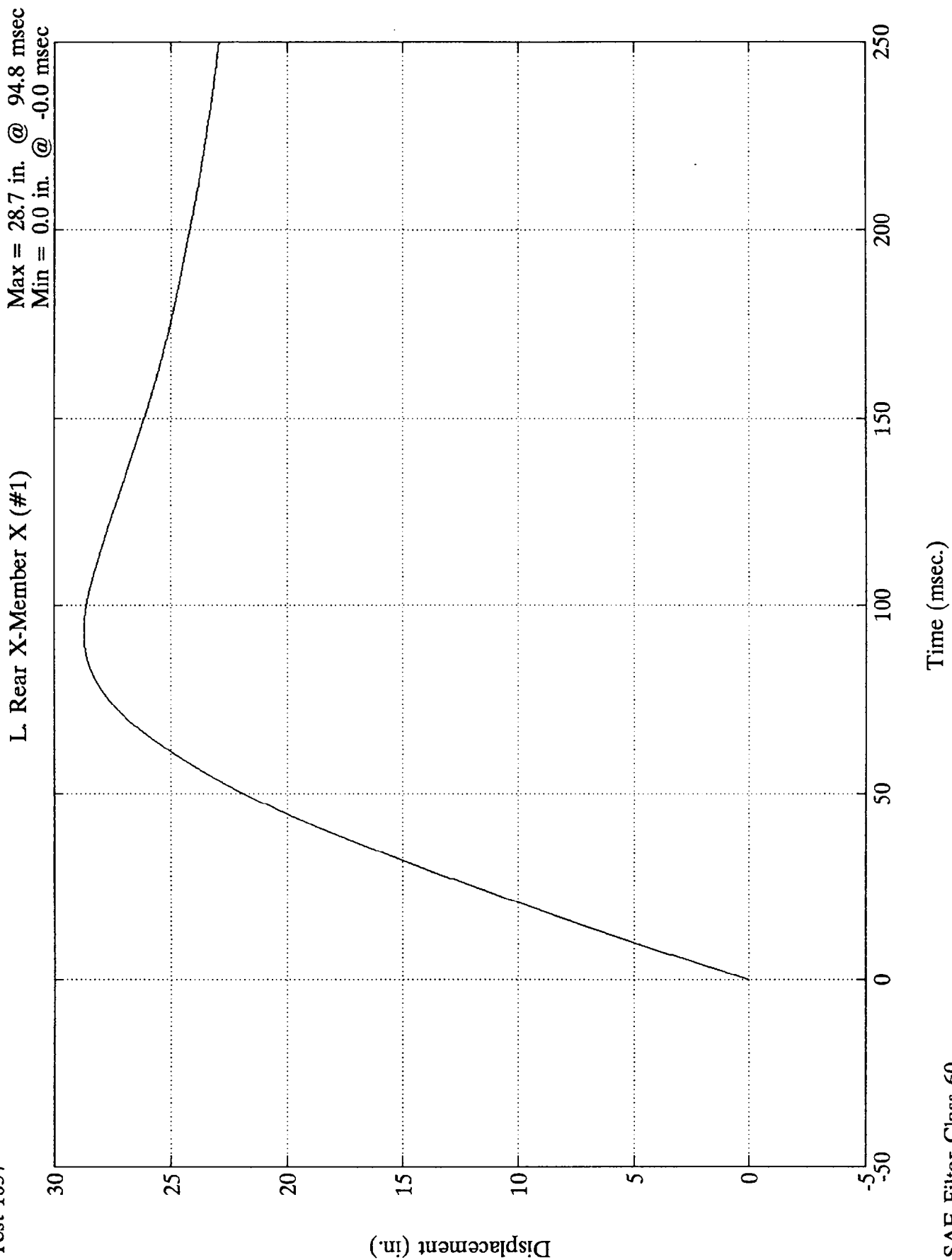
SAE Filter Class 60

Test 1057

L. Rear X-Member X (#1)

Max = 29.2 mph @ -0.0 msec
Min = -3.1 mph @ 132.0 msec

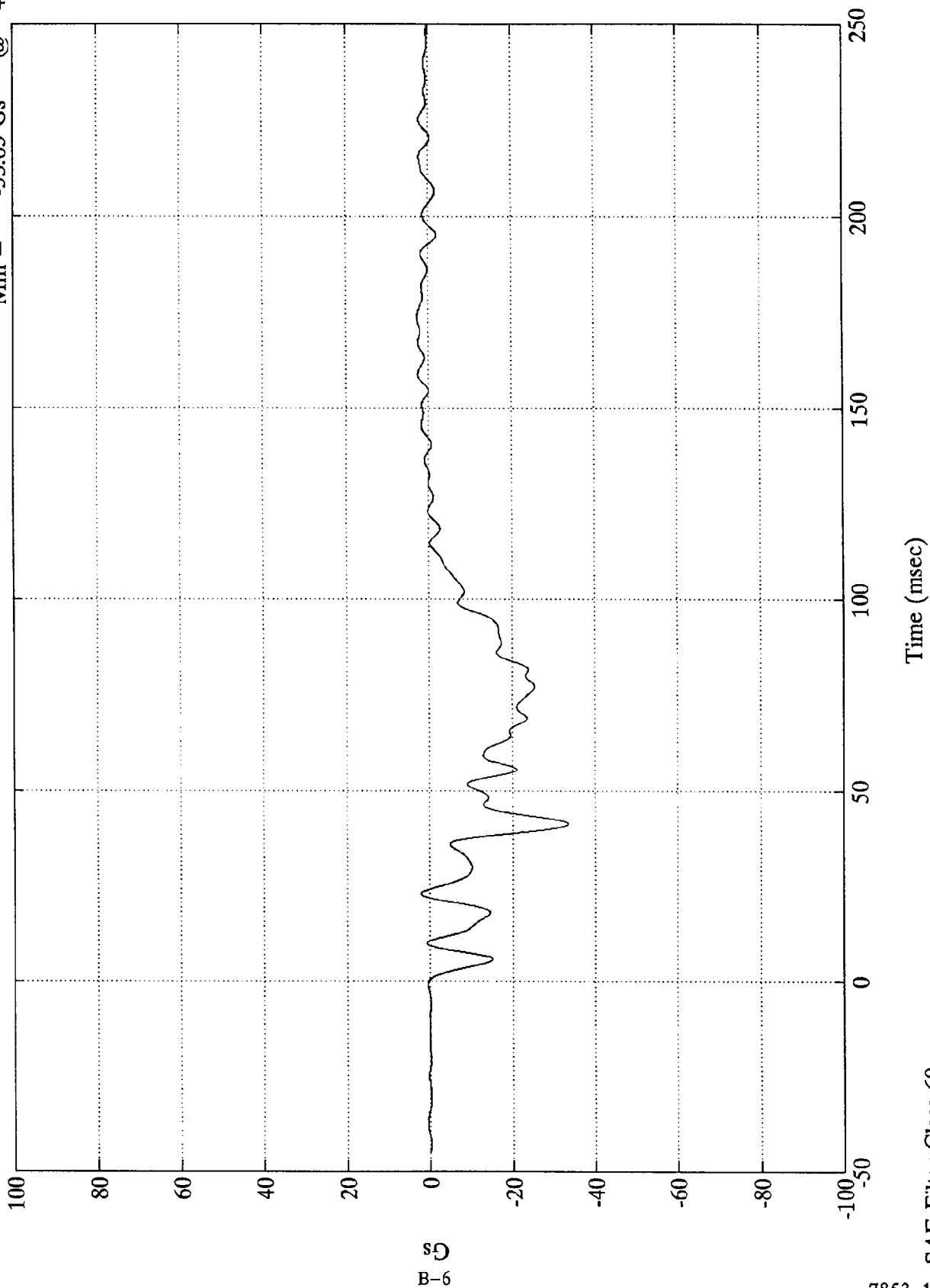




Run 1057

R. Rear X-member X (#2)

Max = 2.72 Gs @ 173.52 msec
Min = -33.63 Gs @ 41.52 msec



SAE Filter Class 60

7853-10

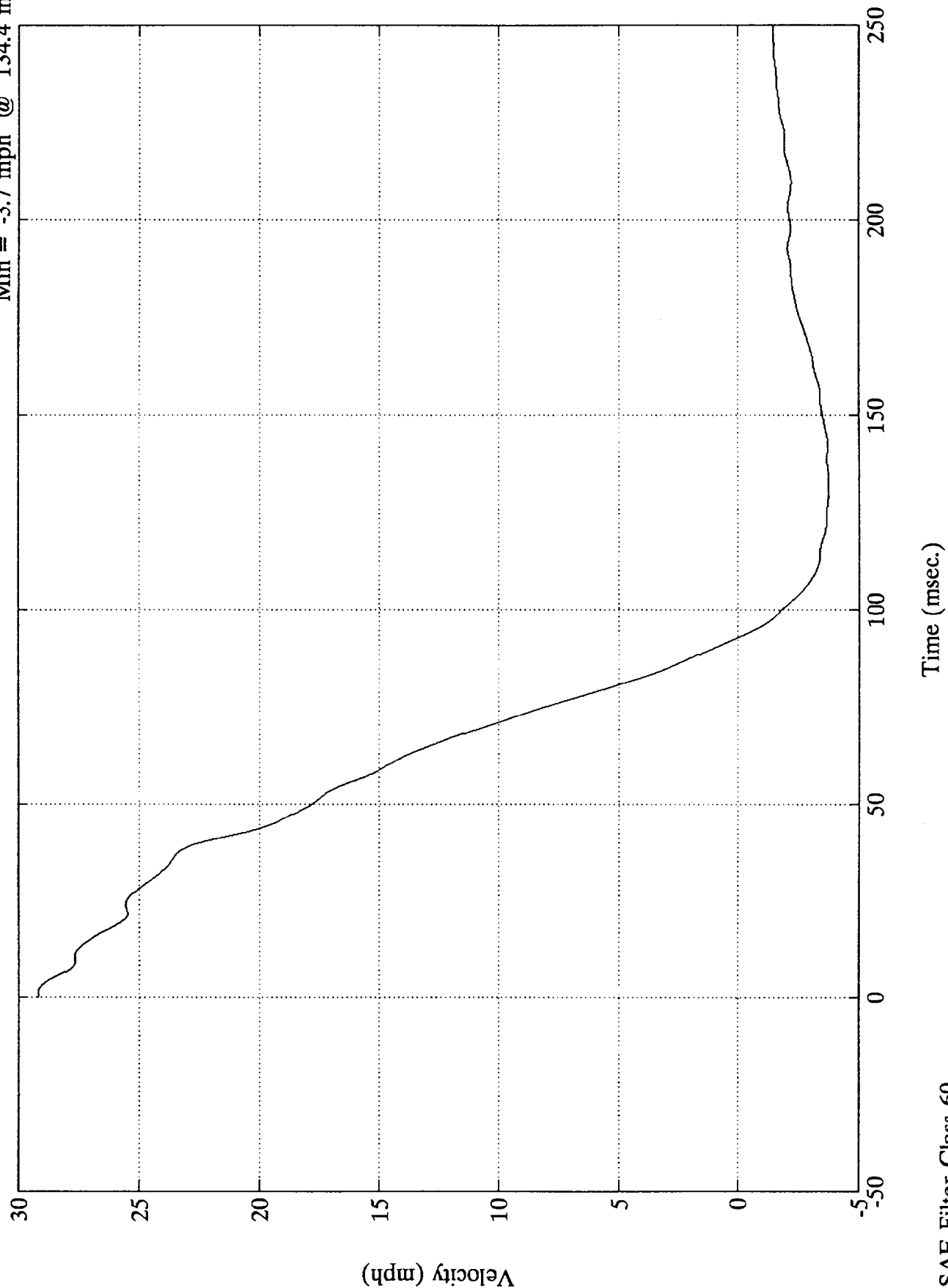
Test 1057

B-7

7853-10

Max = 29.2 mph @ 0.7 msec
Min = -3.7 mph @ 134.4 msec

R. Rear X-Member X (#2)

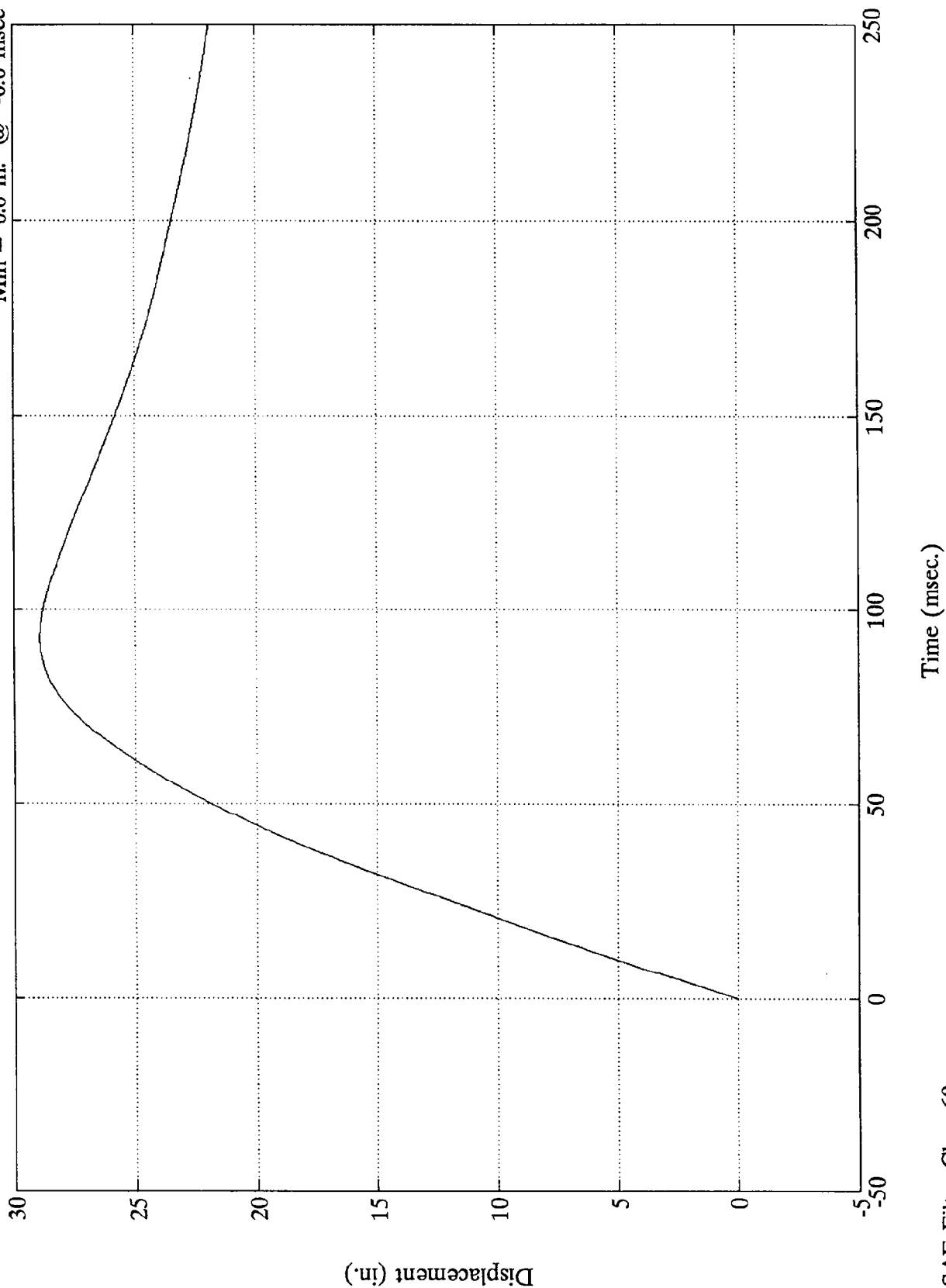


SAE Filter Class 60

Test 1057

R. Rear X-Member X (#2)

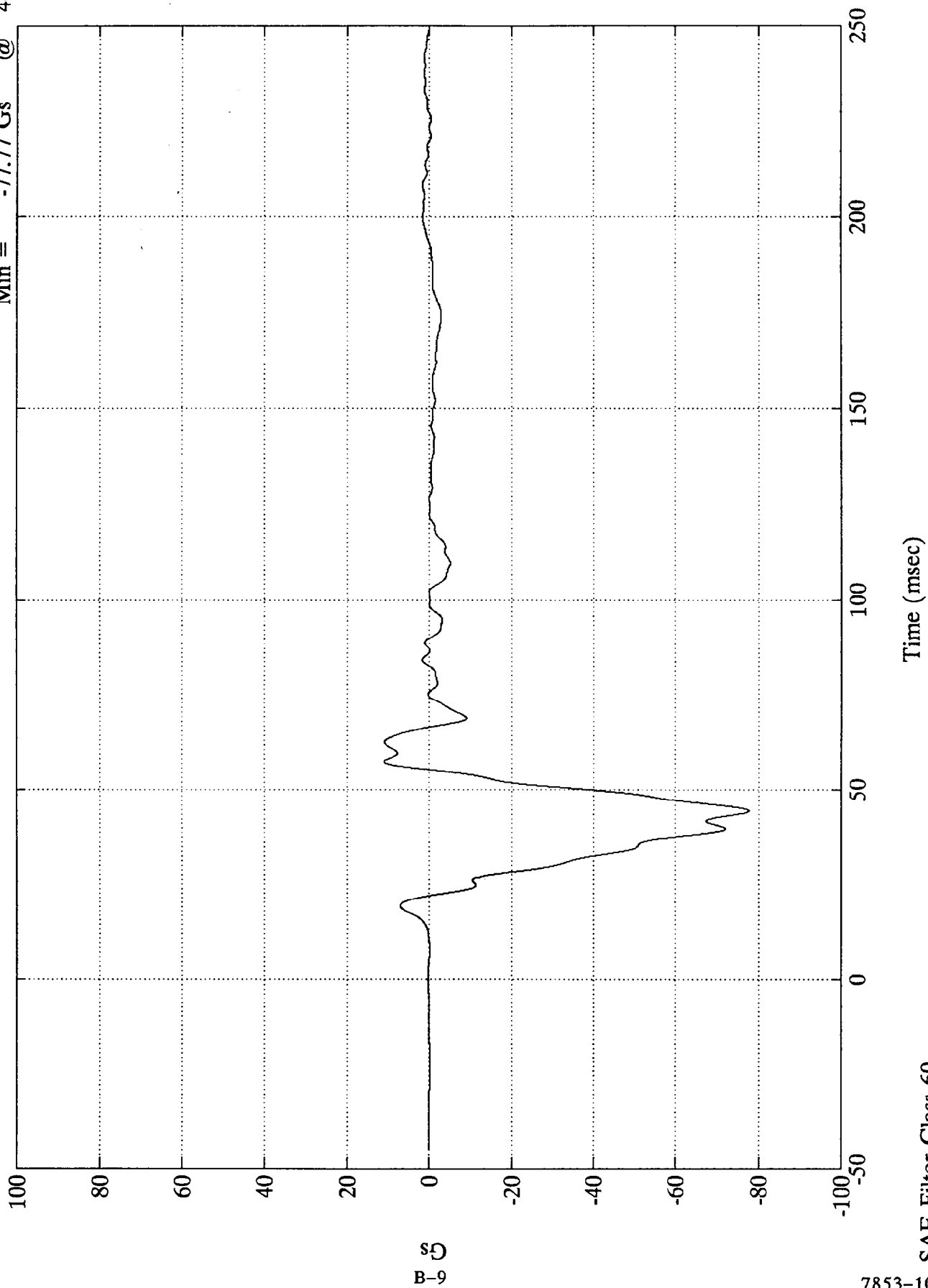
Max = 28.9 in. @ 94.1 msec
Min = 0.0 in. @ -0.0 msec



Run 1057

Engine Top X (#3)

Max = 11.09 Gs @ 57.36 ms
Min = -77.77 Gs @ 44.39 ms



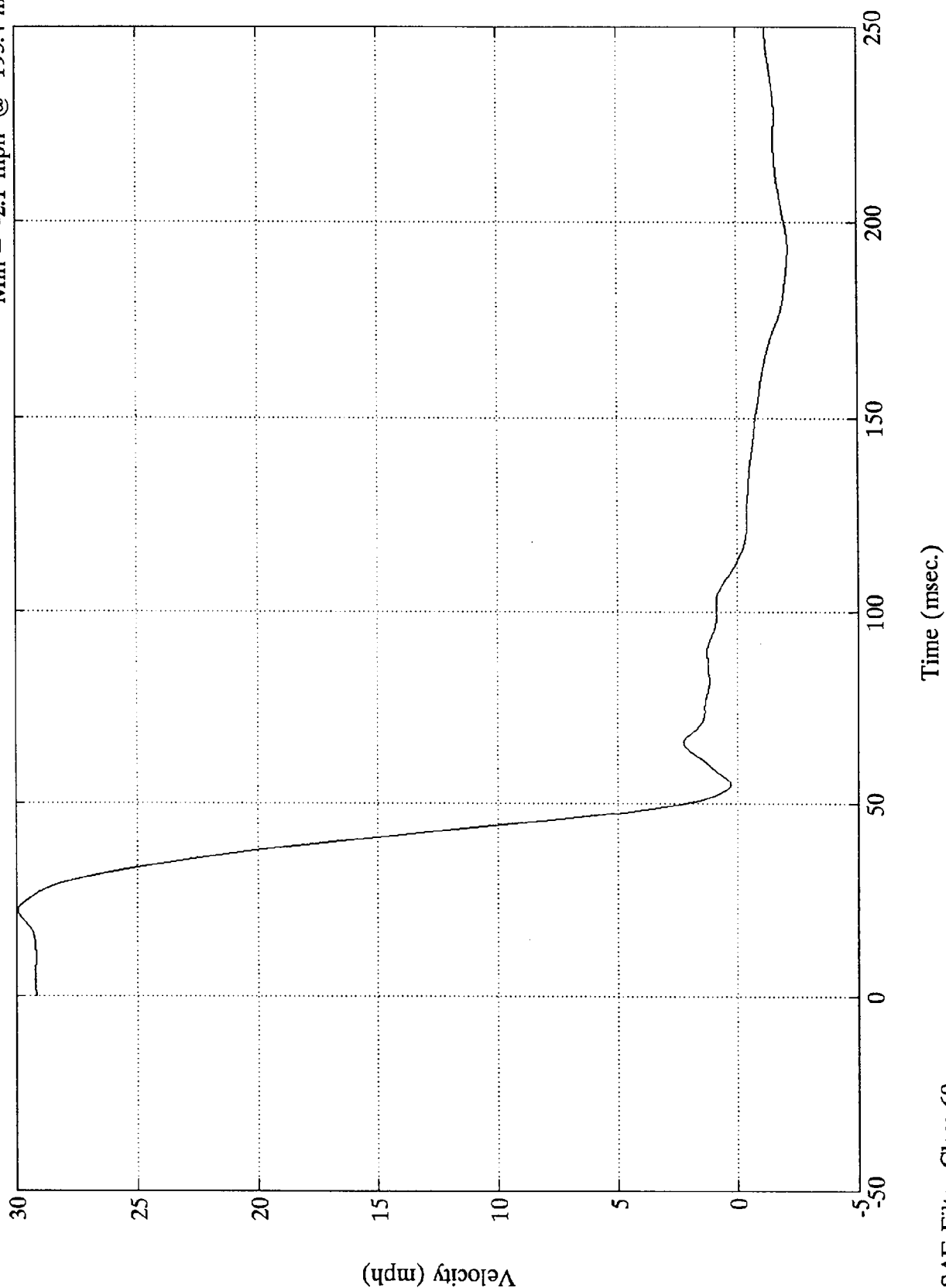
SAE Filter Class 60

7853-10

Test 1057

Engine Top X (#3)

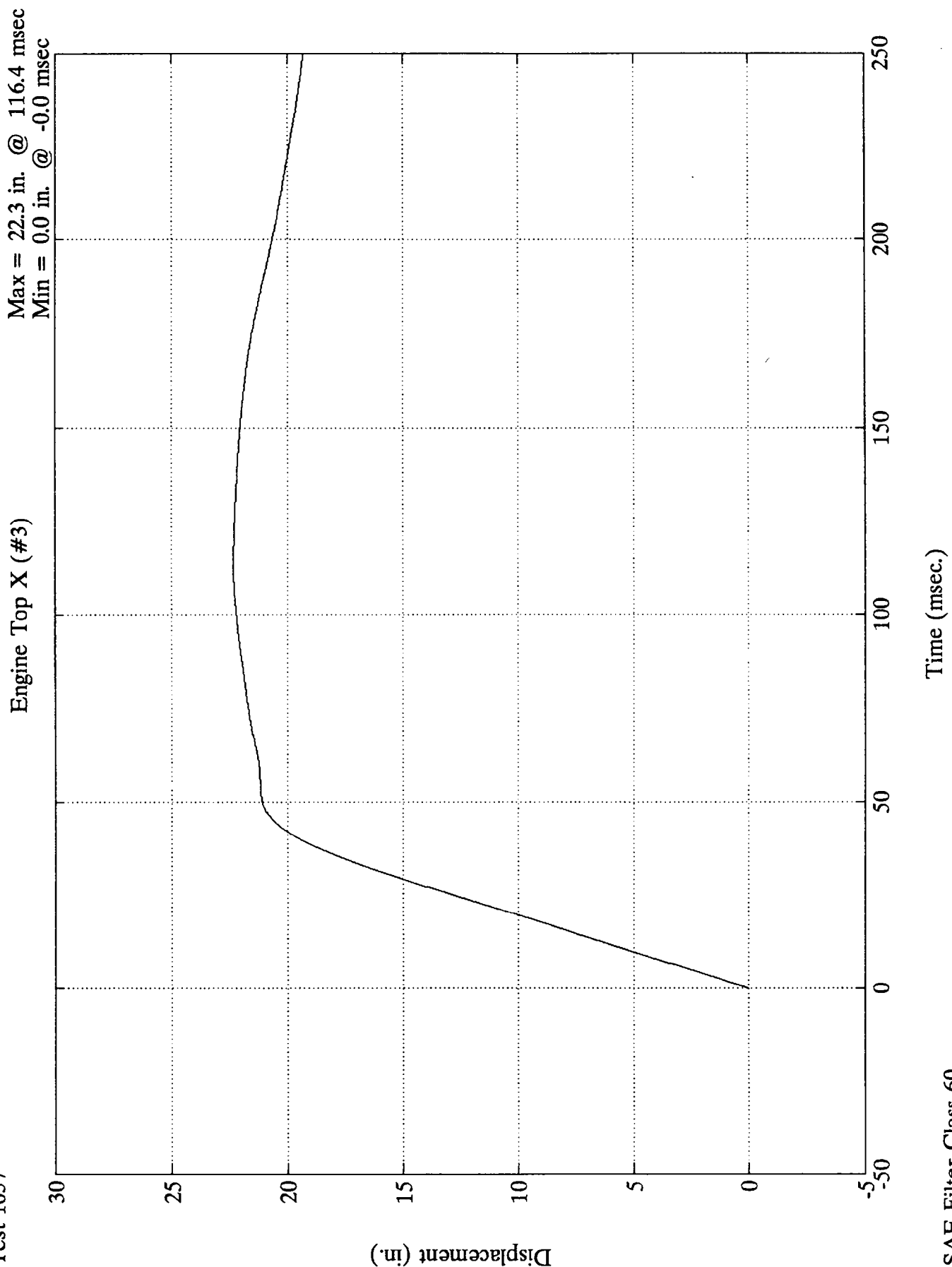
Max = 29.9 mph @ 22.3 msec
Min = -2.1 mph @ 193.4 msec



B-10

7853-10

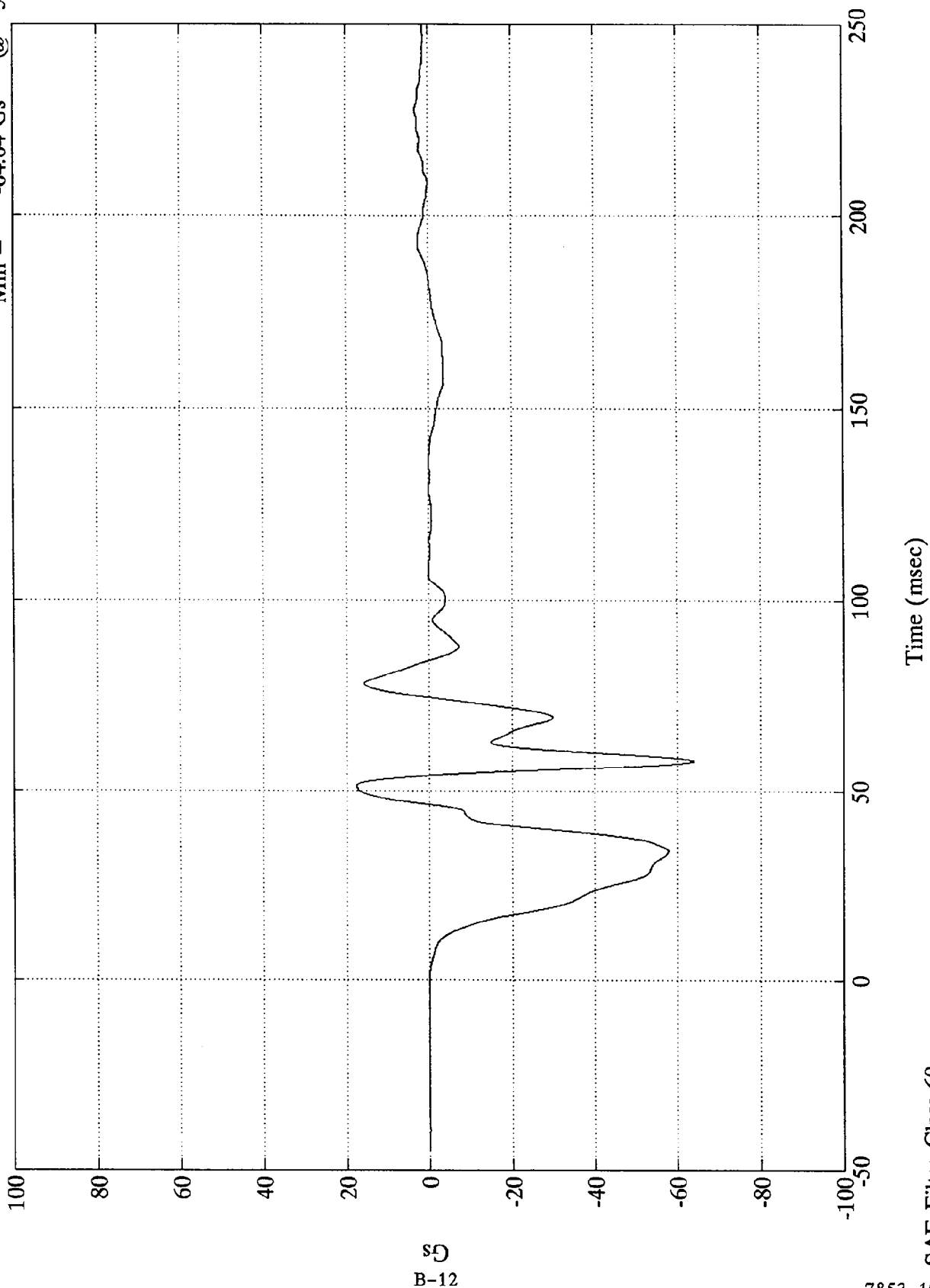
SAE Filter Class 60



Run 1057

Engine Bottom X (#4)

Max = 17.48 Gs @ 51.36 msec
Min = -64.04 Gs @ 58.08 msec



SAE Filter Class 60

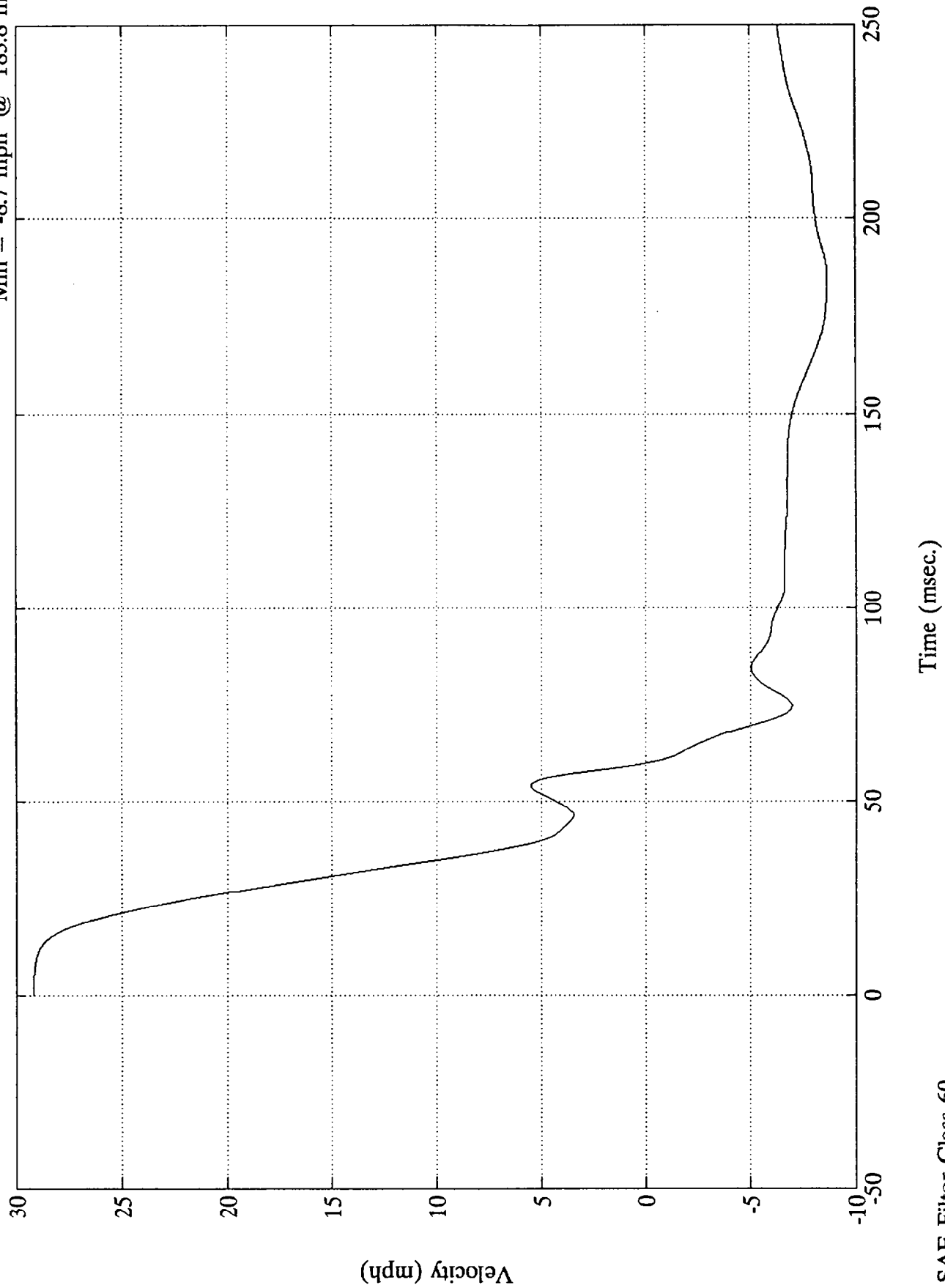
7853-10

B-12

Test 1057

Engine Bottom X (#4)

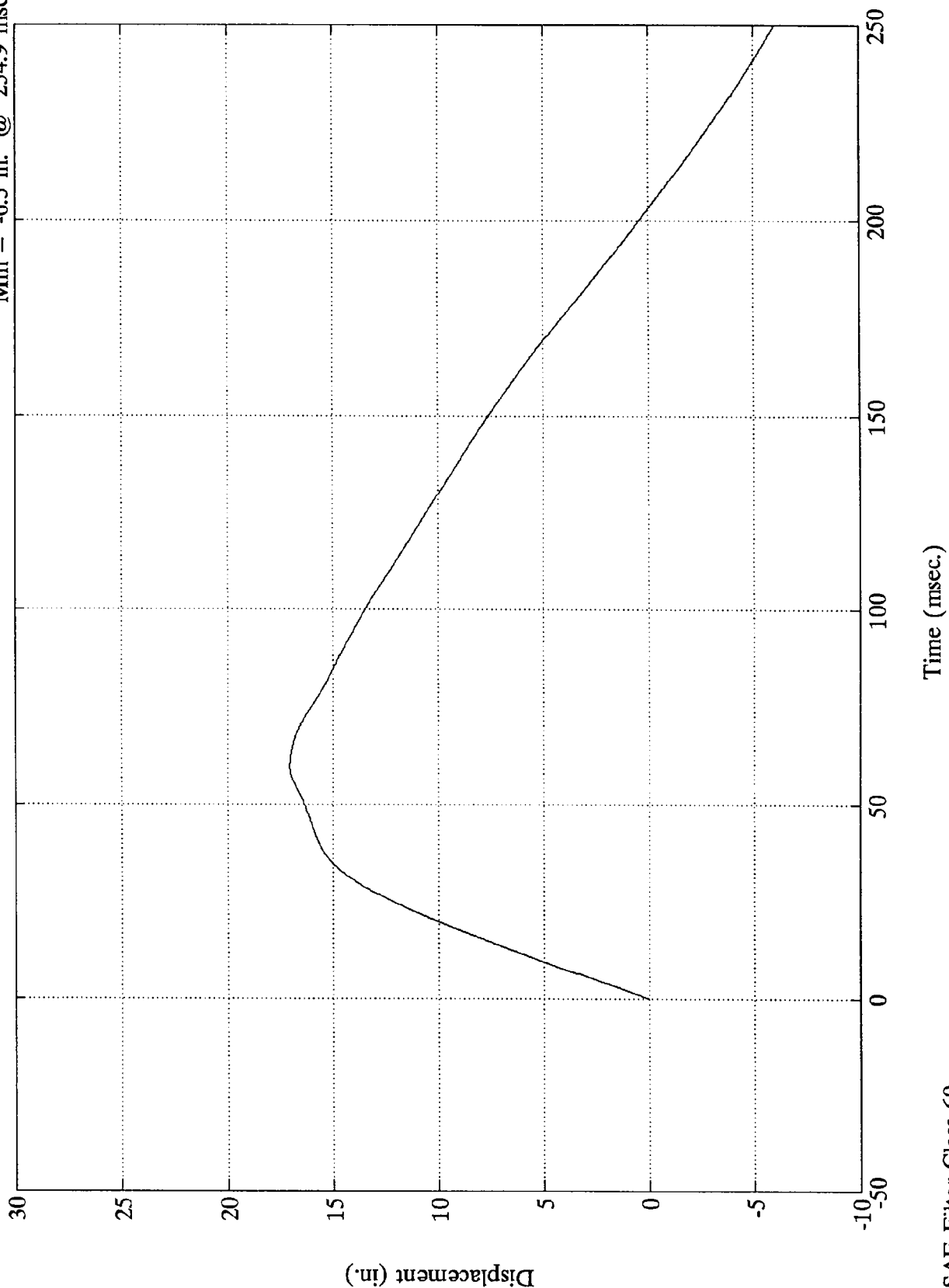
Max = 29.2 mph @ 2.4 msec
Min = -8.7 mph @ 183.8 msec



Test 1057

Engine Bottom X (#4)

Max = 17.1 in. @ 60.5 msec
Min = -6.5 in. @ 254.9 msec



B-14

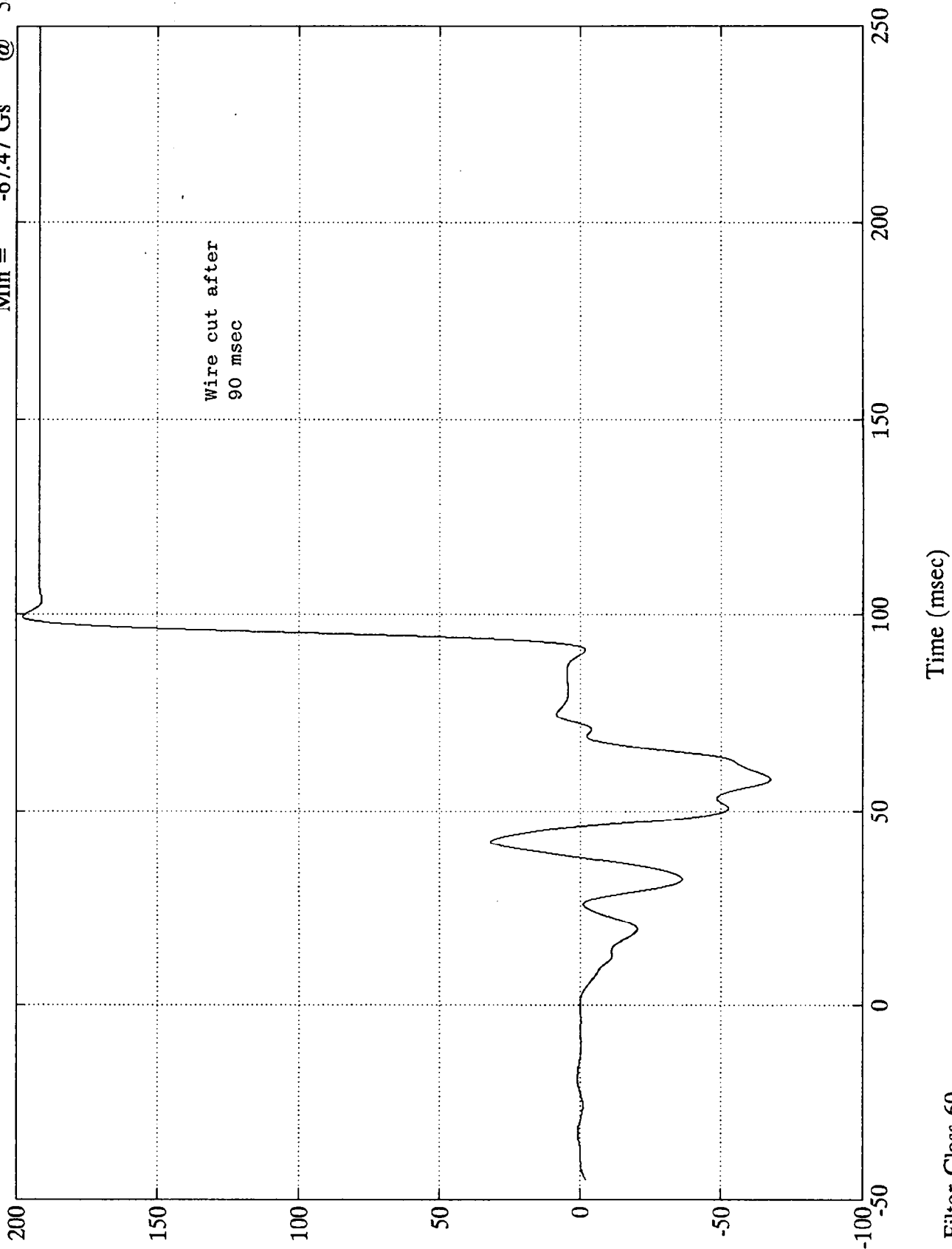
7853-10

SAE Filter Class 60

R. Brake Caliper X (#5)

Max = 197.72 Gs
Min = -67.47 Gs

@ 99.36 ms
@ 58.08 ms

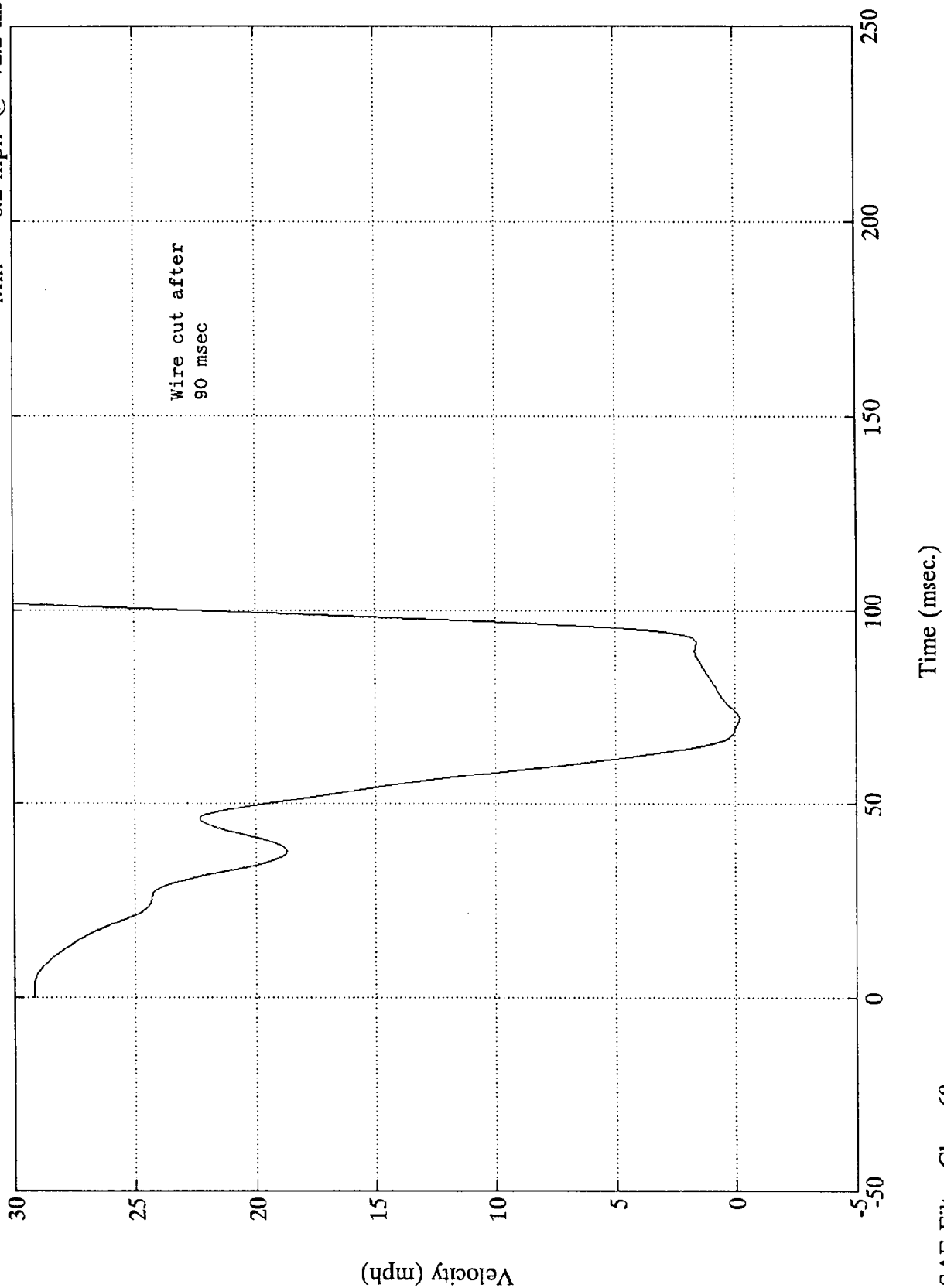


B-15

Test 1057

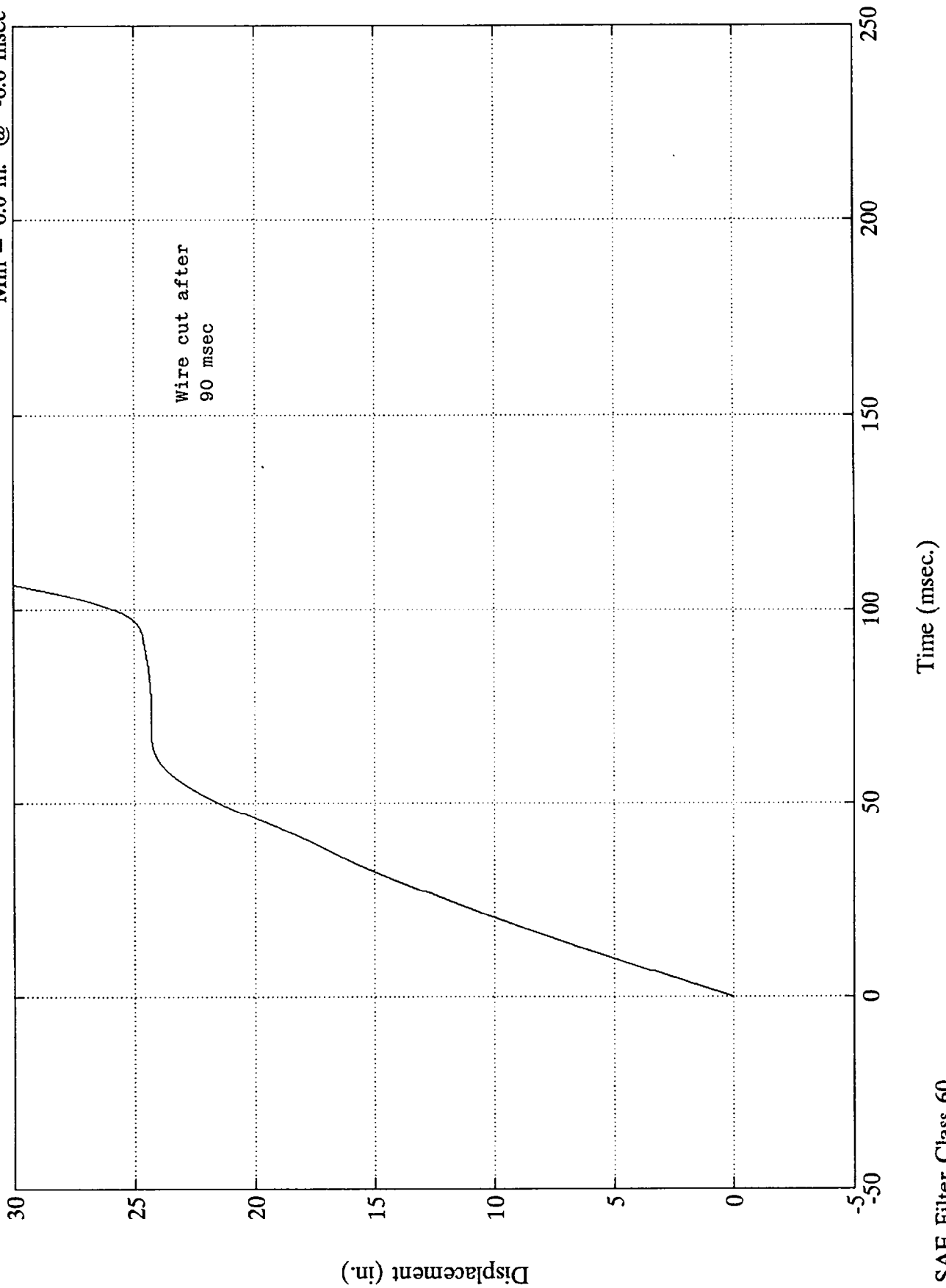
R. Brake Caliper X (#5)

Max = 673.7 mph @ 254.9 msec
Min = -0.2 mph @ 72.2 msec



R. Brake Caliper X (#5)

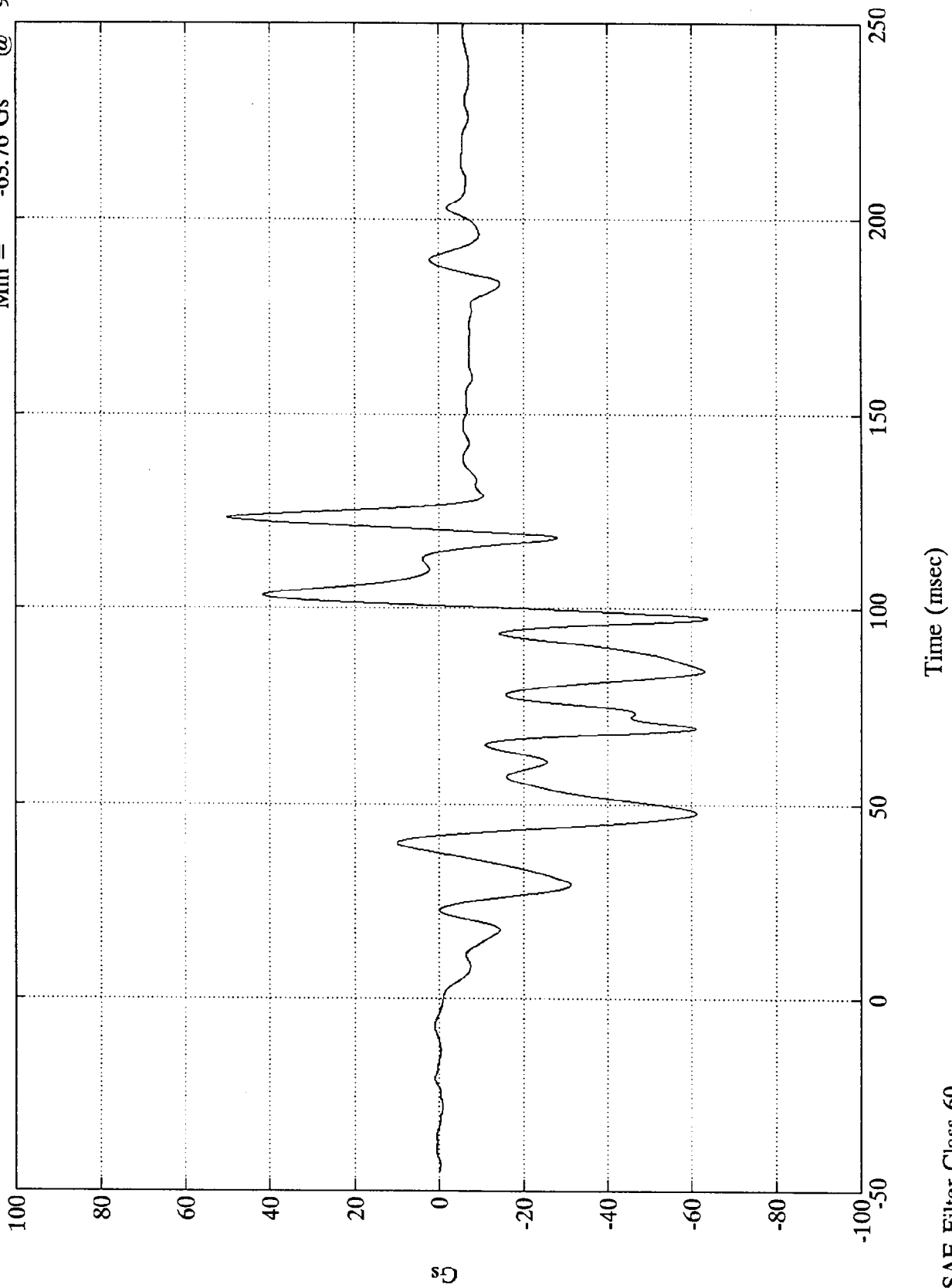
Max = 974.6 in. @ 254.9 msec
Min = 0.0 in. @ -0.0 msec



Run 1057

L. Brake Caliper X (#6)

Max = 50.11 Gs @ 123.60 msec
Min = -63.76 Gs @ 97.56 msec

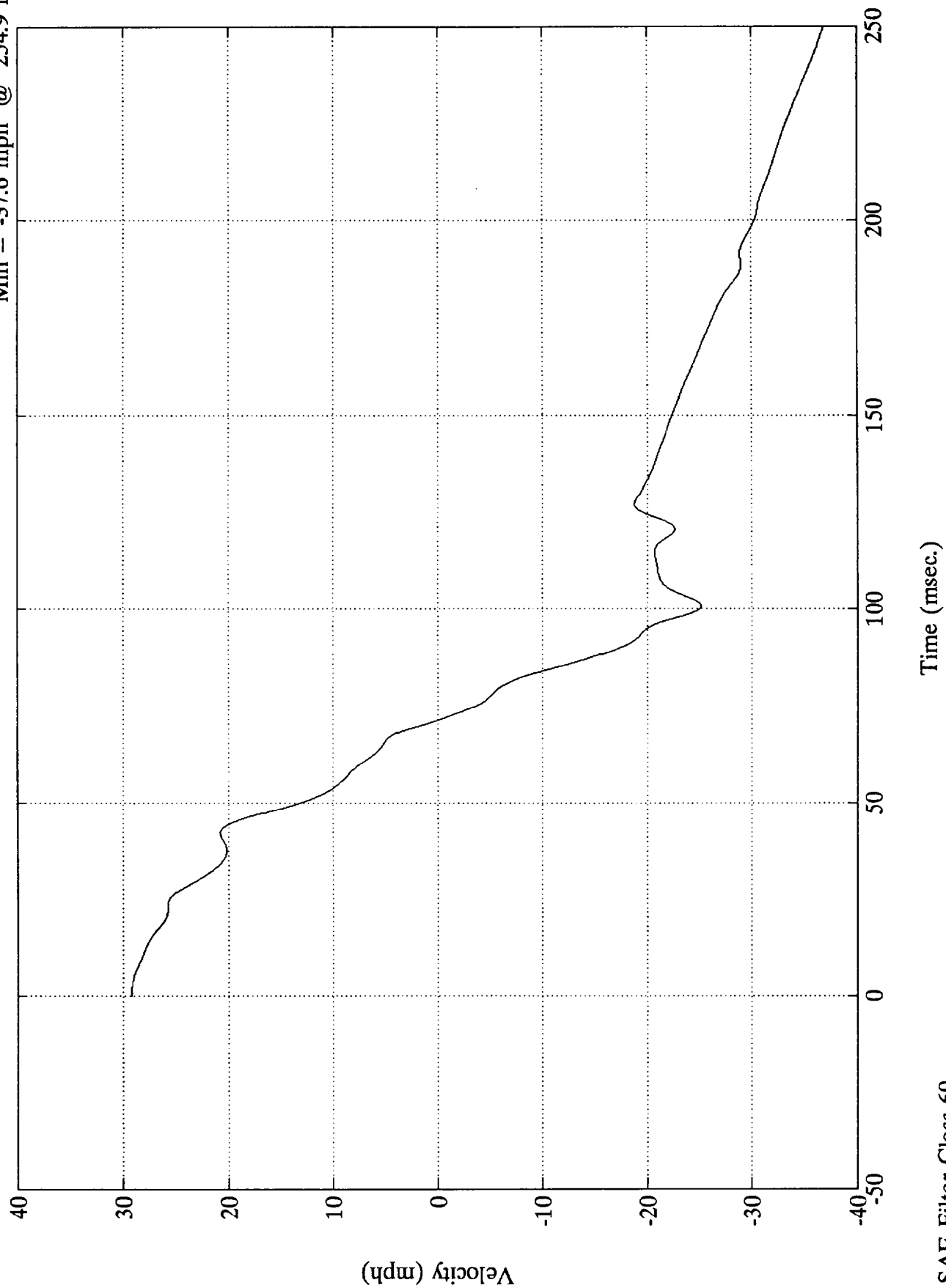


B-18

Test 1057

L. Brake Caliper X (#6)

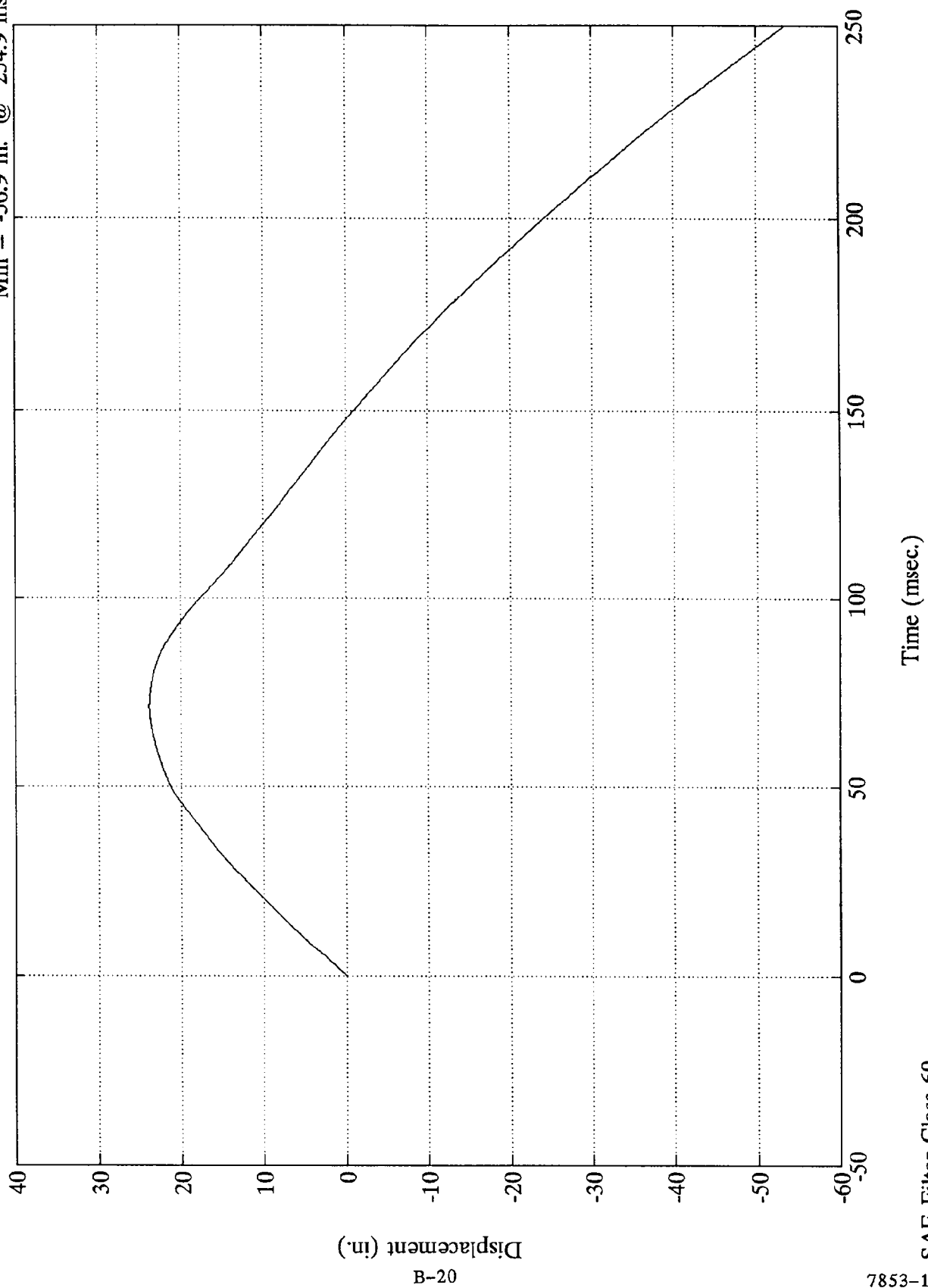
Max = 29.2 mph @ -0.0 msec
Min = -37.6 mph @ 254.9 msec



Test 1057

L. Brake Caliper X (#6)

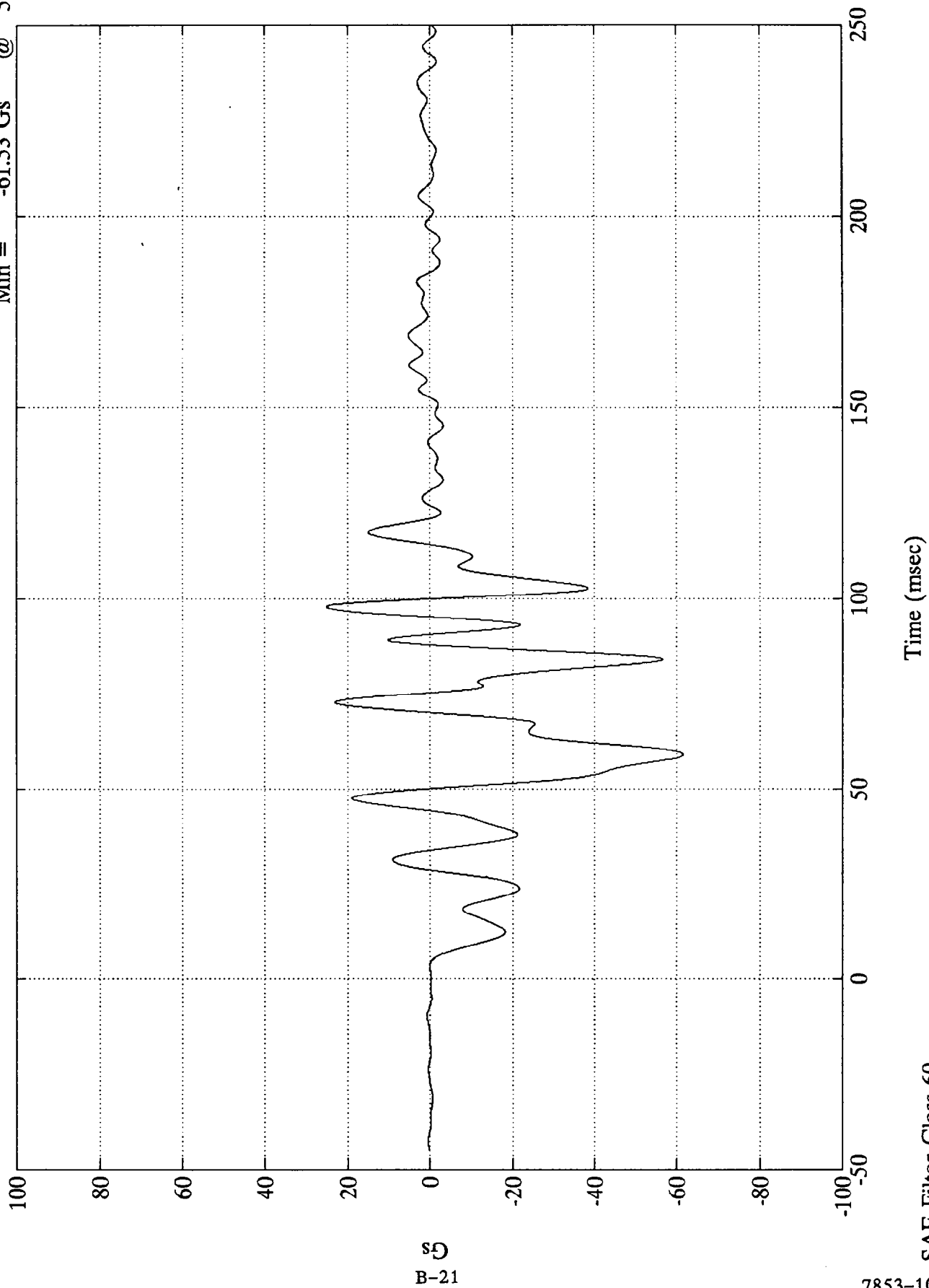
Max = 23.9 in. @ 71.8 msec
Min = -56.9 in. @ 254.9 msec



Run 1057

Instrument Panel X (#7)

Max = 25.16 Gs @ 97.91 msec
Min = -61.53 Gs @ 59.15 msec



B-21

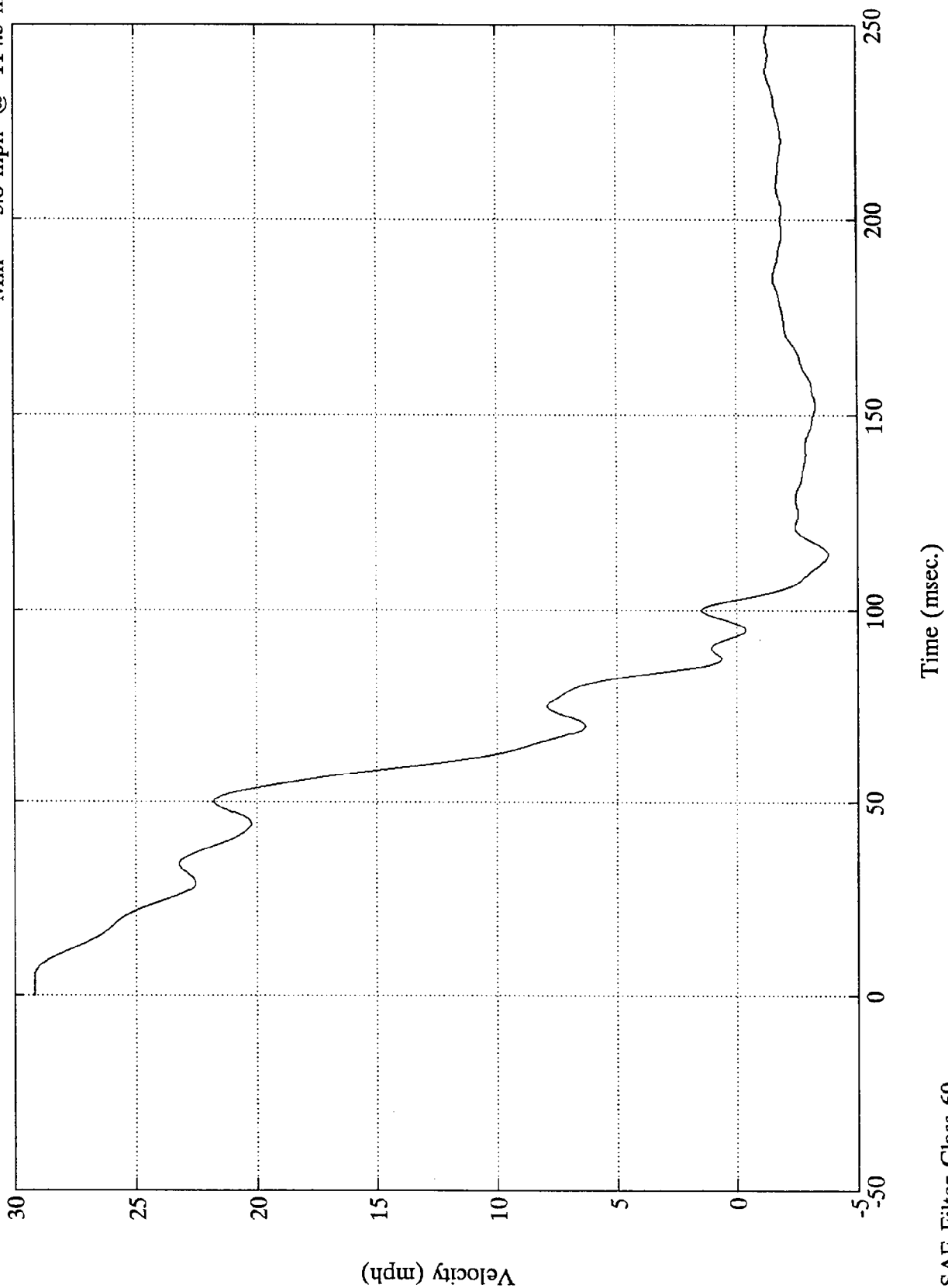
7853-10

SAE Filter Class 60

Test 1057

Instrument Panel X (#7)

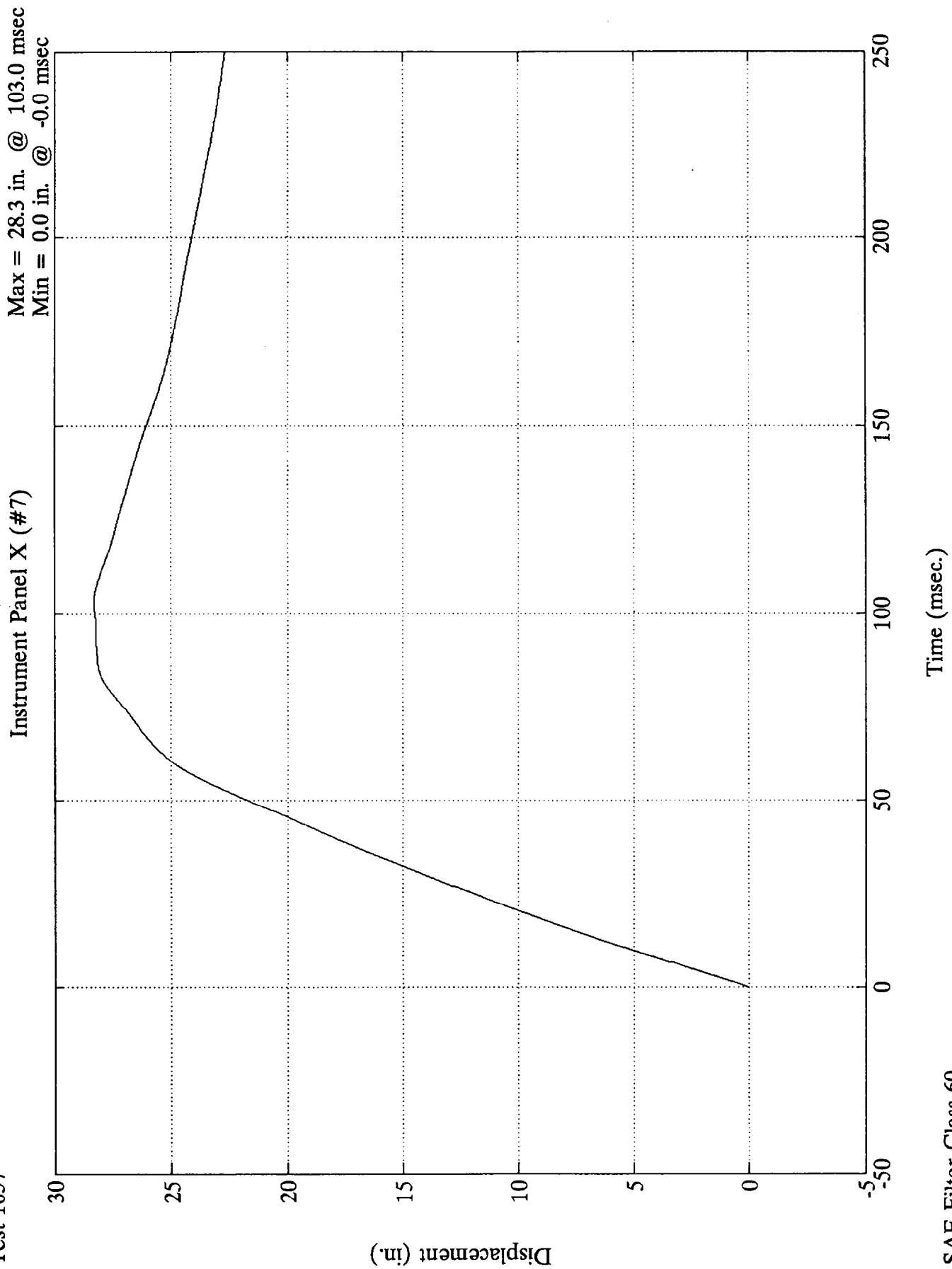
Max = 29.2 mph @ -0.0 msec
Min = -3.8 mph @ 114.5 msec



B-22

7853-10

SAE Filter Class 60



TEST NO. CM0302

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

hic: 225.80
t1 = 68.400 msec
t2 = 104.280 msec
Average G's Over Hic Duration = 33.08

HIC SUMMARY: Pos. 2 Head Resultant

hic: 203.80
t1 = 74.760 msec
t2 = 110.640 msec
Average G's Over Hic Duration = 31.75

CLIP SUMMARY: Pos. 1 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 47.321 G's
Tstart = 103.9200 ms
Tend = 106.8000 ms
CSI = 315.132

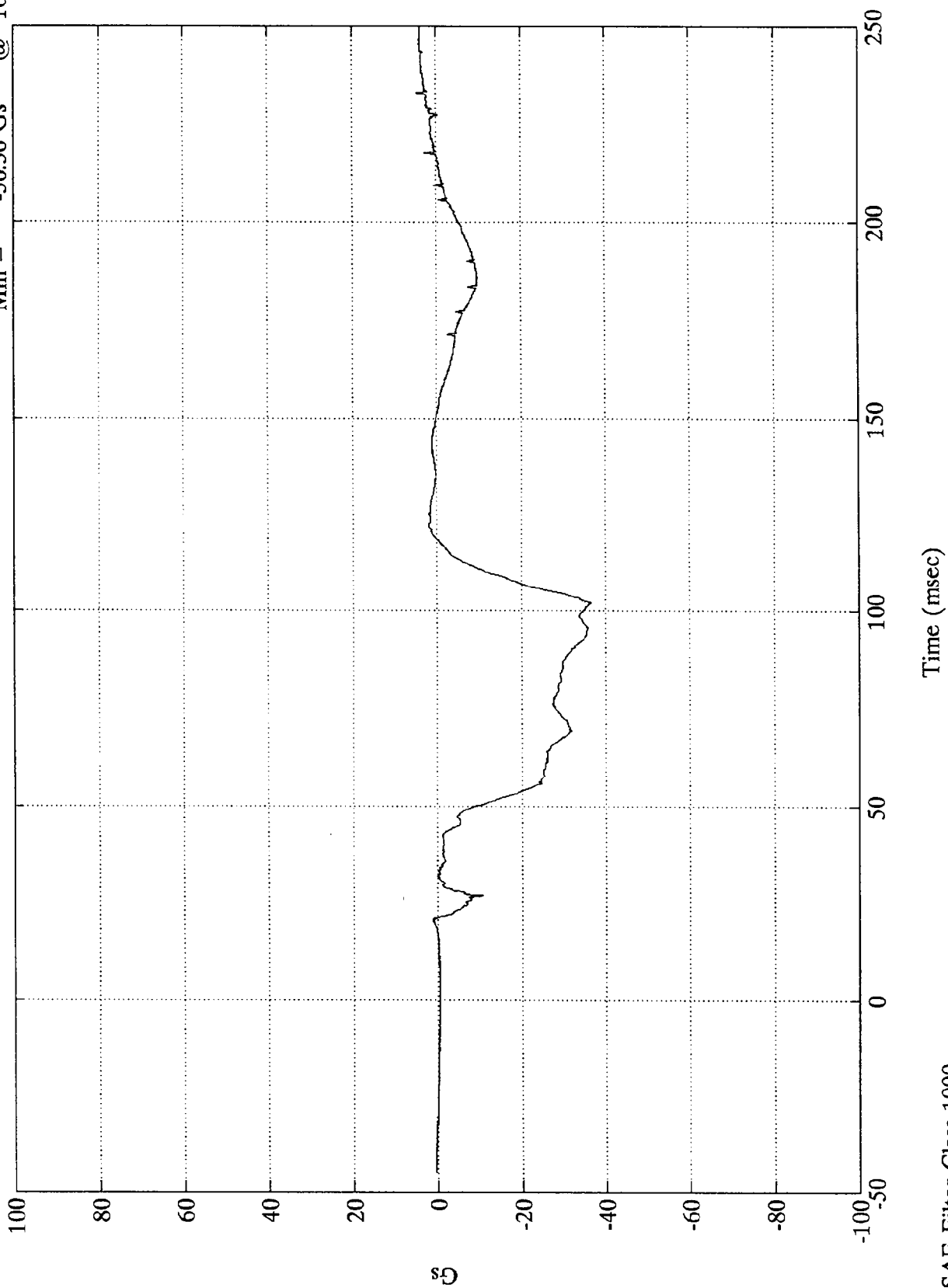
CLIP SUMMARY: Pos. 2 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 31.041 G's
Tstart = 69.9600 ms
Tend = 72.9600 ms
CSI = 173.465

Run 1057

Pos. 1 Head X

Max = 4.61 Gs @ 233.16 msec
Min = -36.36 Gs @ 102.24 msec



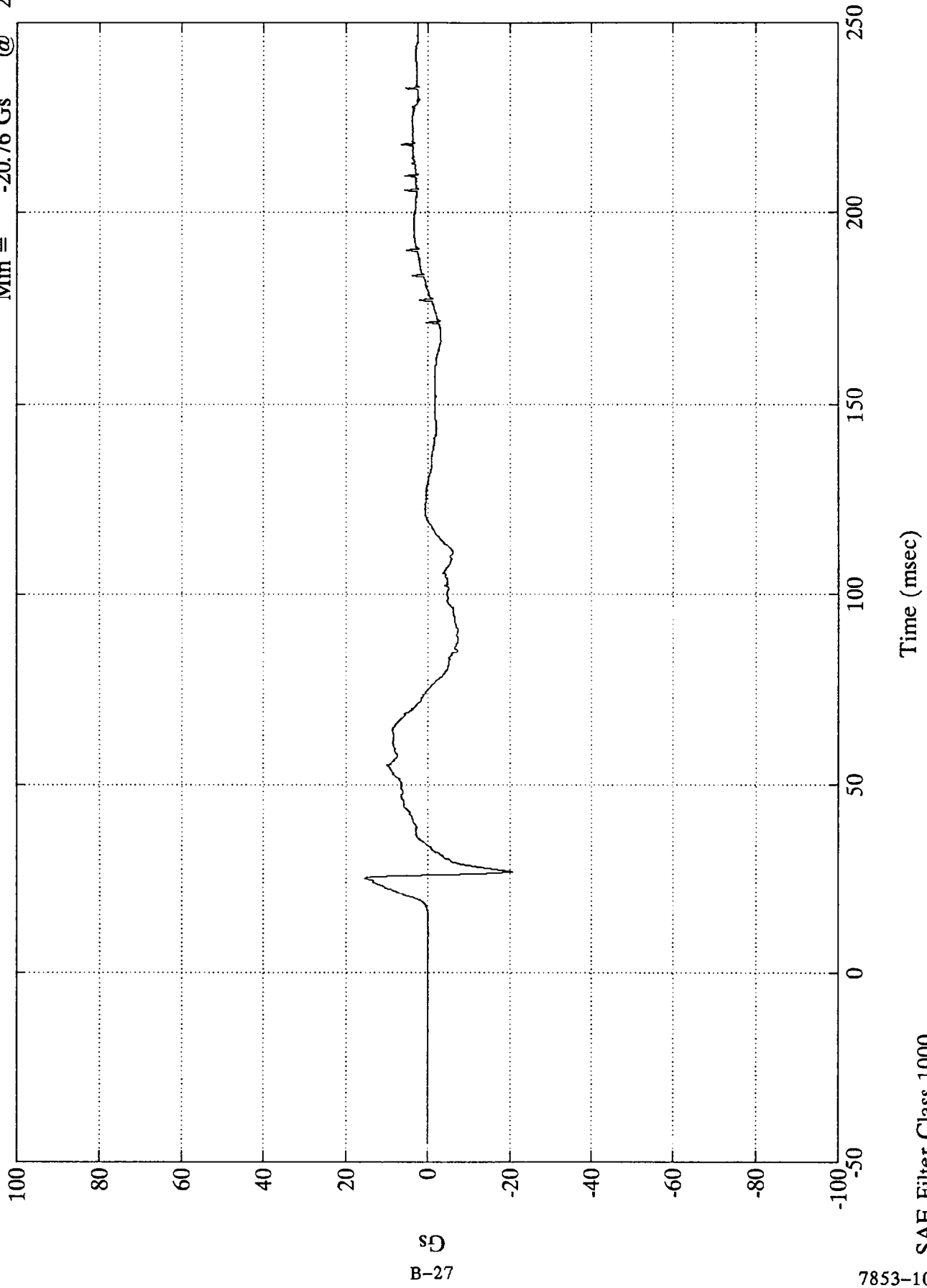
B-26

7853-10

SAE Filter Class 1000

Pos. 1 Head Y

Max = 15.55 Gs @ 25.31 msec
Min = -20.76 Gs @ 27.11 msec

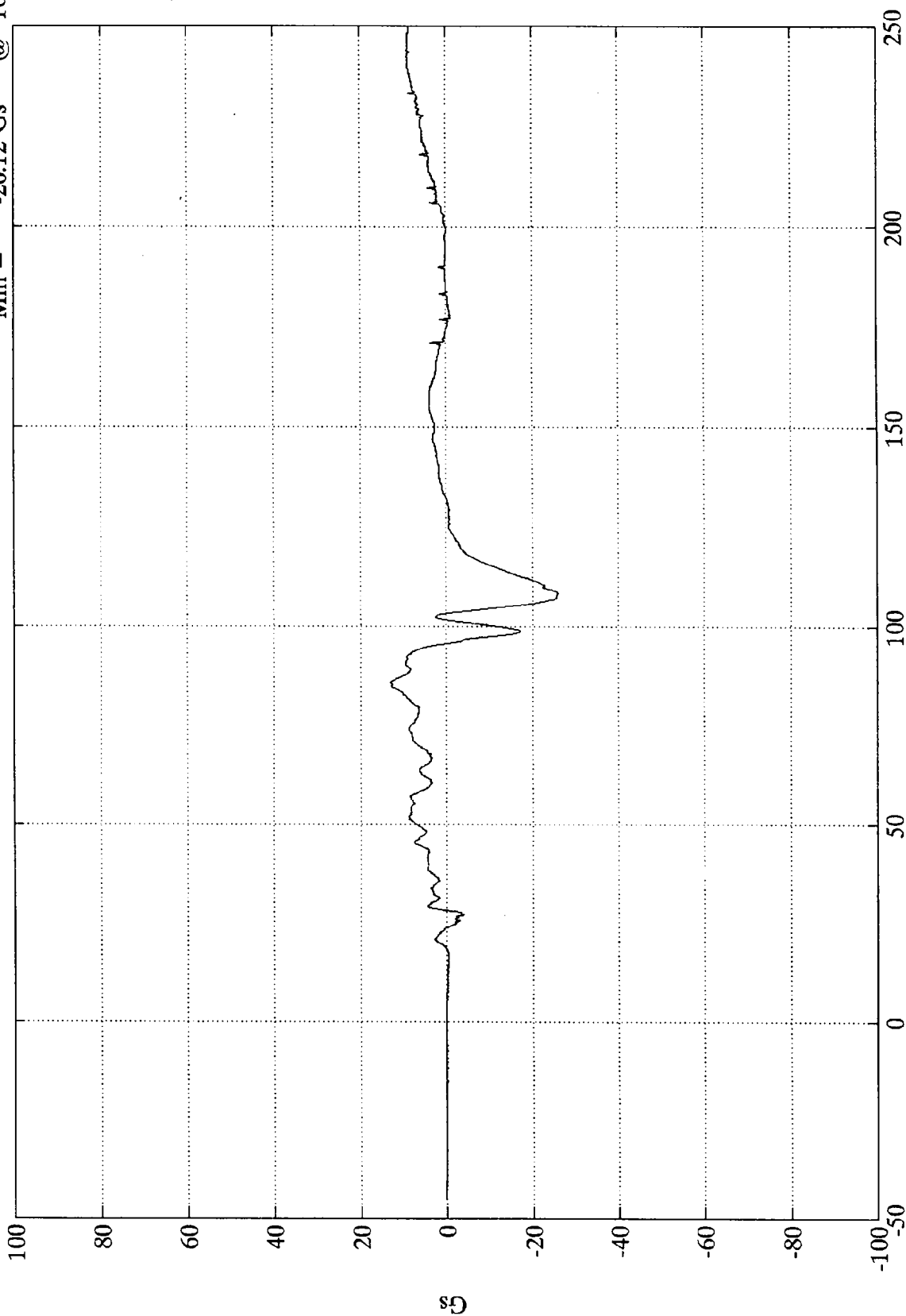


B-27

Run 1057

Pos. 1 Head Z

Max = 12.90 Gs @ 86.04 msec
Min = -26.12 Gs @ 108.47 msec

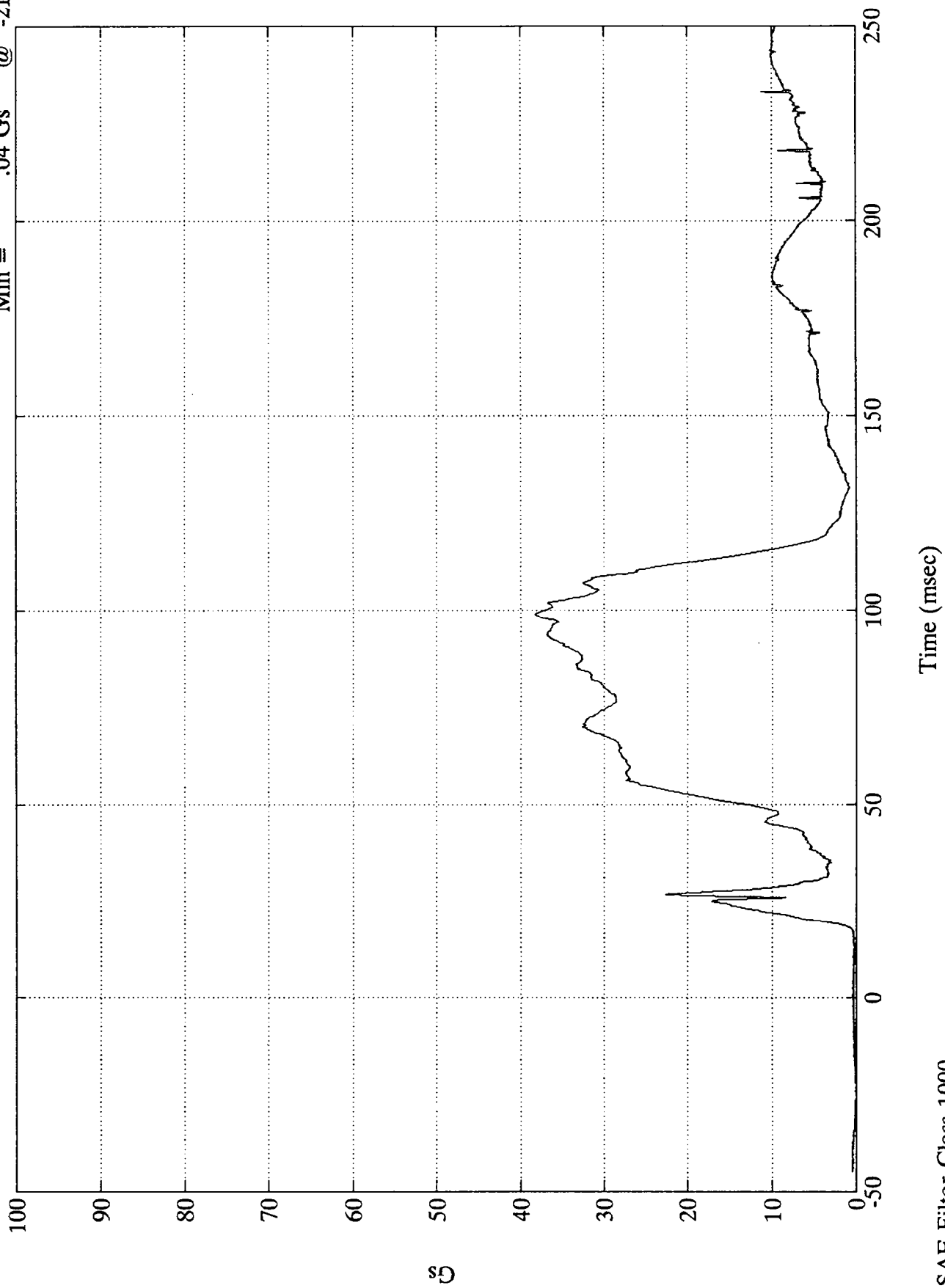


Time (msec)

SAE Filter Class 1000

Run 1057

Pos. 1 Head Resultant
Max = 38.30 Gs @ 99.12 ms
Min = .04 Gs @ -21.84 ms



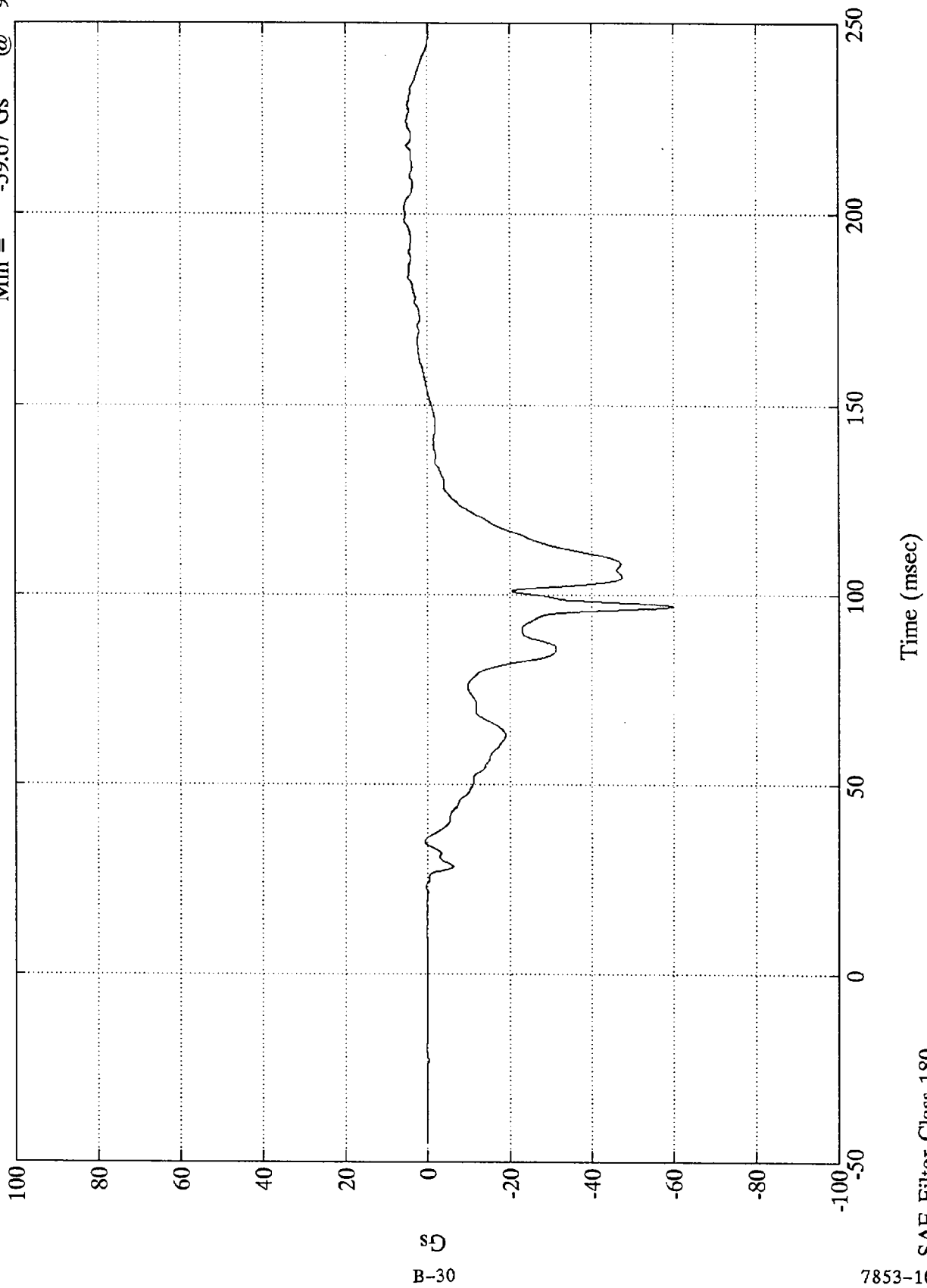
B-29

7853-10 SAE Filter Class 1000

Run 1057

Pos. 1 Chest X

Max = 5.65 Gs @ 201.36 msec
Min = -59.67 Gs @ 96.95 msec



B-30

7853-10

SAE Filter Class 180

Pos. 1 Chest Y

Max =

7.98 Gs

@

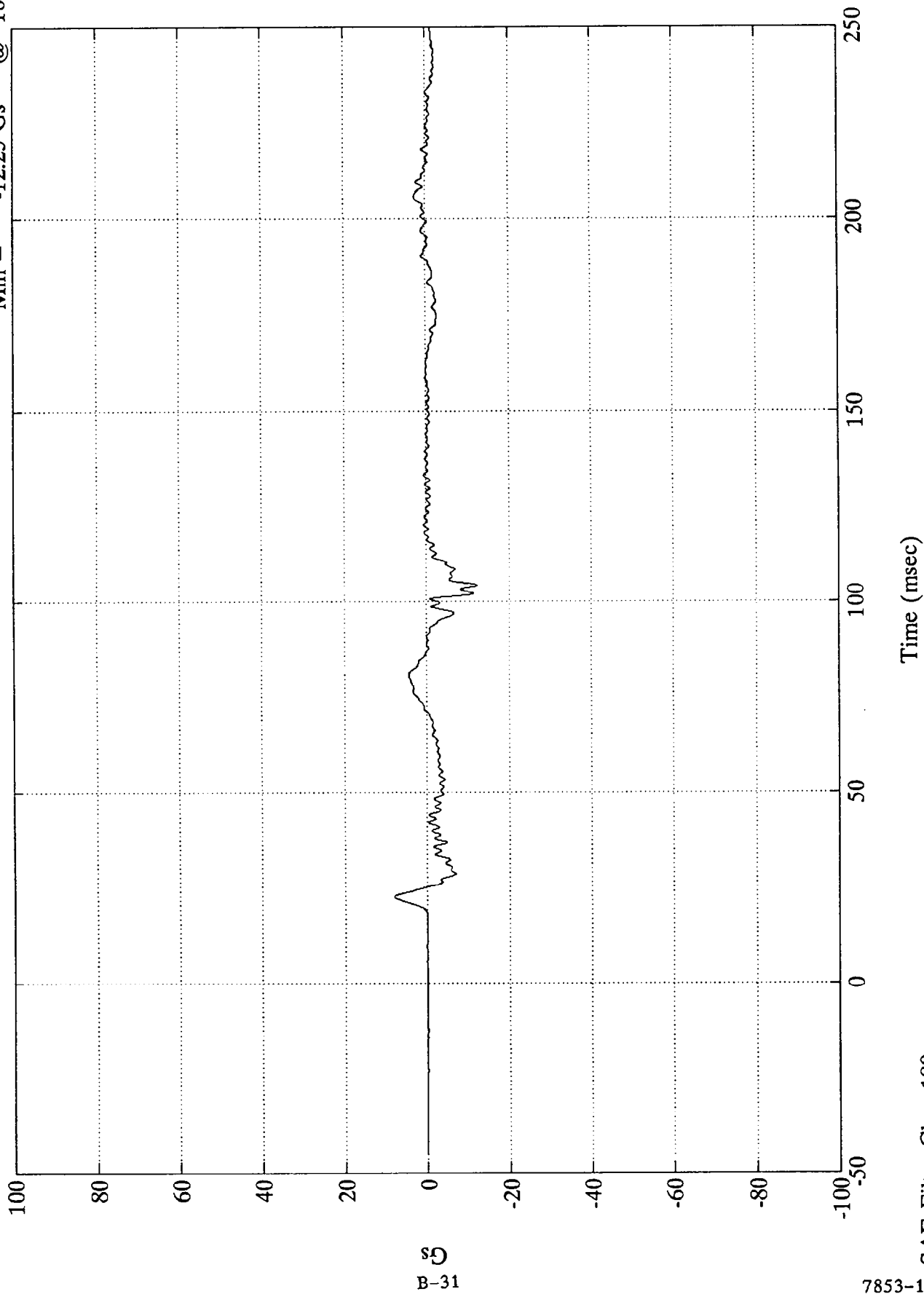
22.68 msec

Min =

-12.25 Gs

@

104.40 msec



B-31

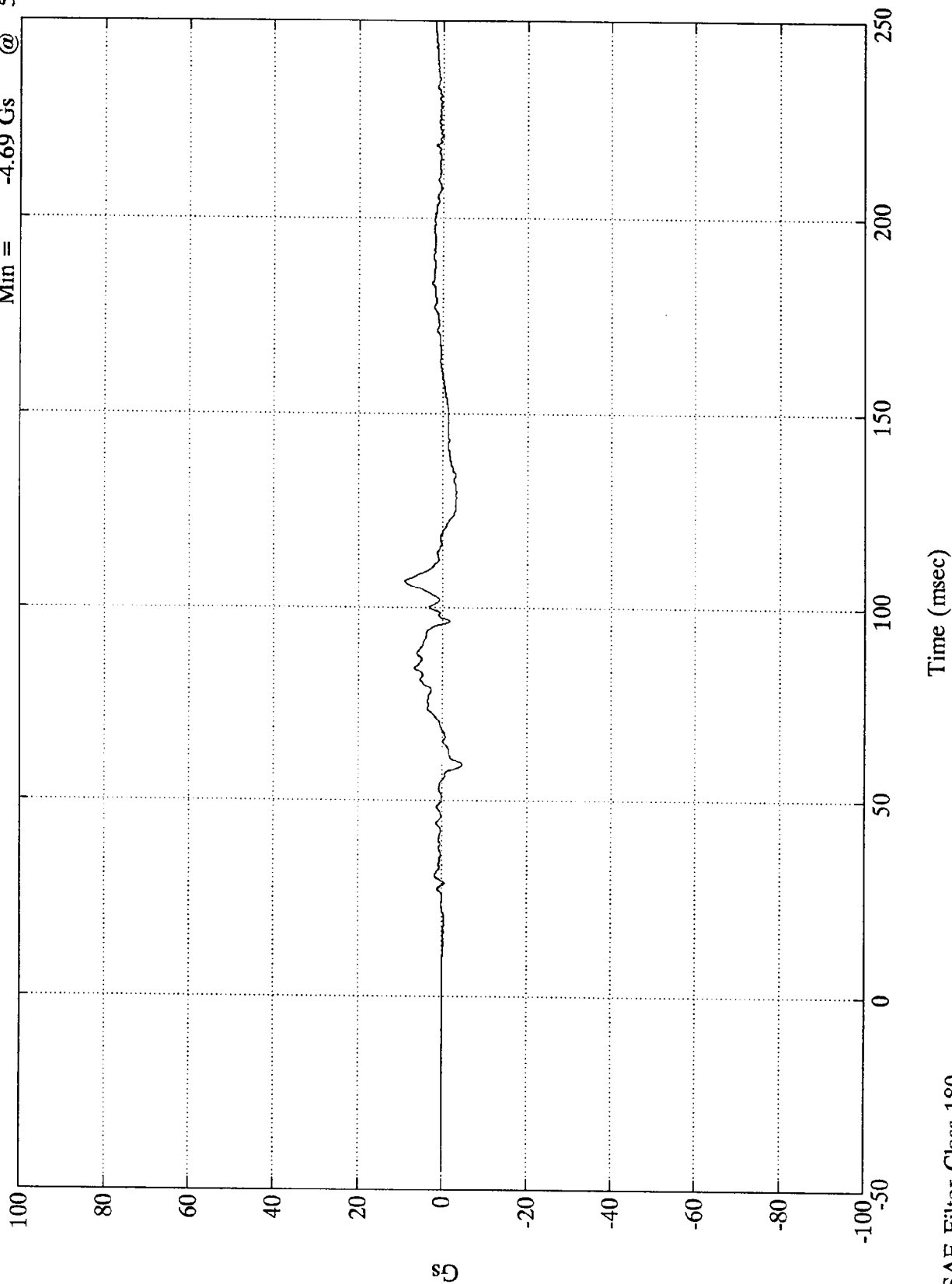
SAE Filter Class 180

7853-10

Run 1057

Pos. 1 Chest Z

Max = 9.05 Gs @ 107.04 msec
Min = -4.69 Gs @ 59.52 msec

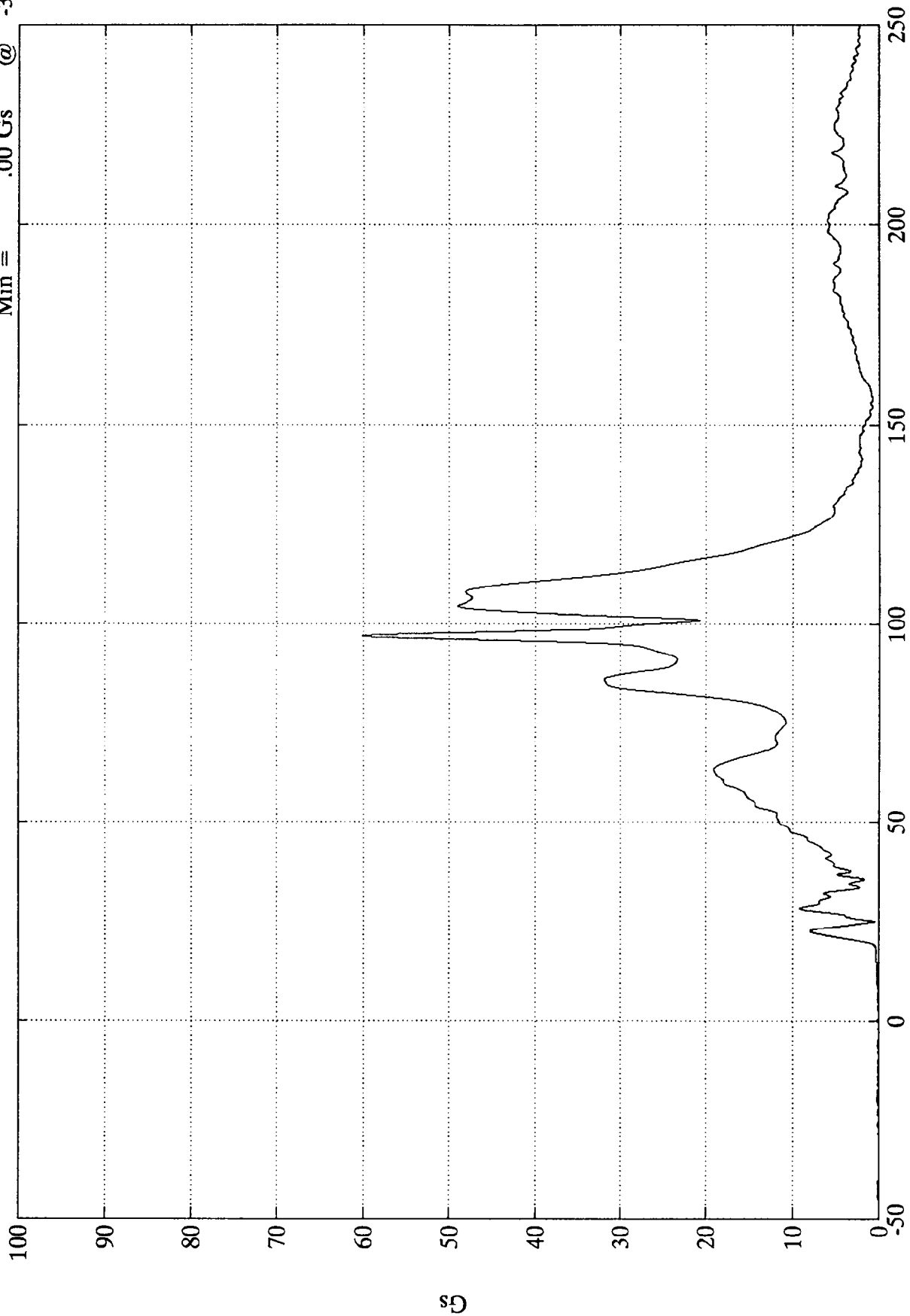


B-32

7853-10
SAE Filter Class 180

Pos. 1 Chest Resultant

Max = 60.06 Gs @ 96.95 ms
Min = .00 Gs @ -3.00 msec

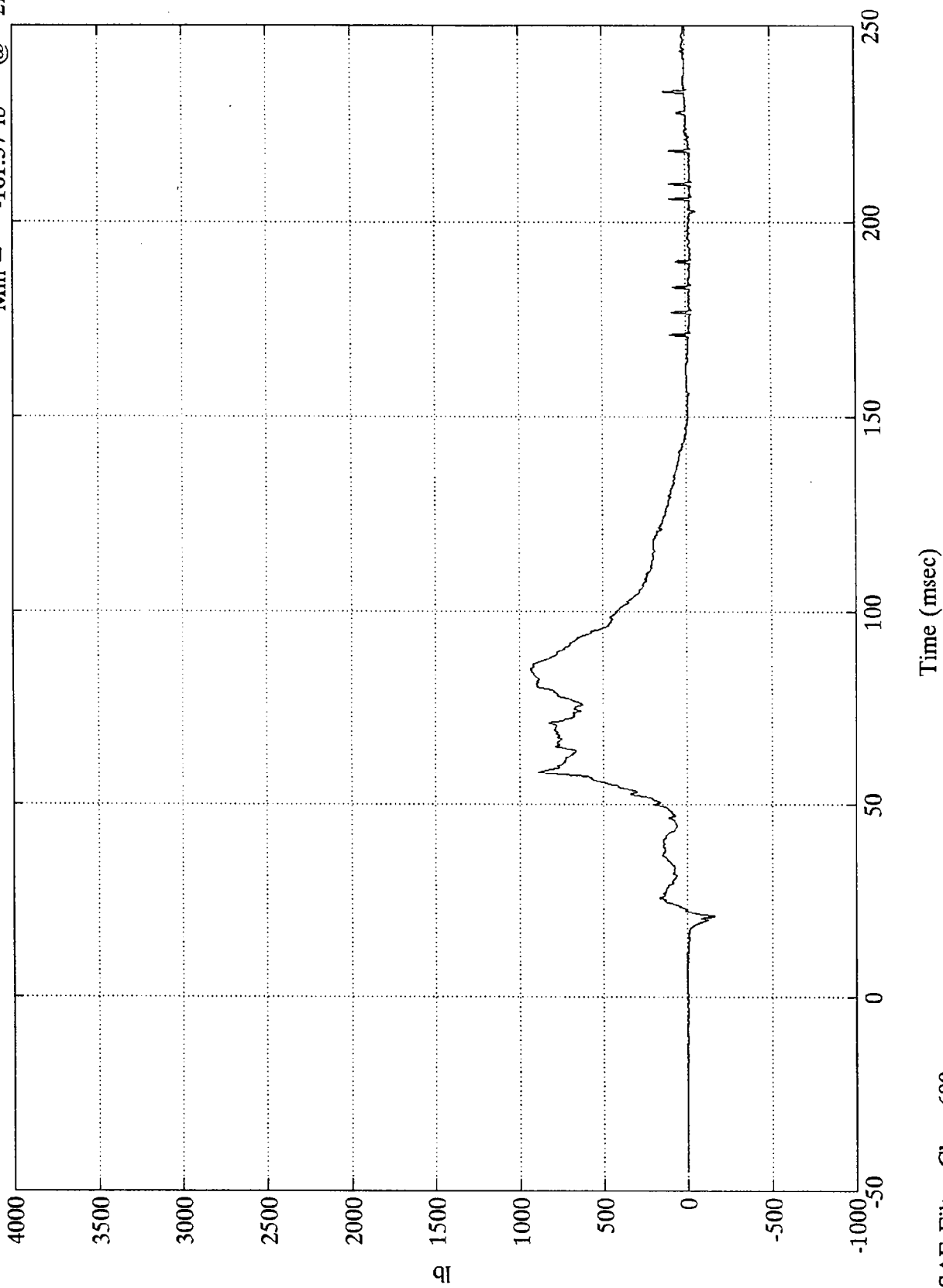


Time (msec)

Run 1057

Max = 932.02 lb @ 84.95 msec
Min = -161.37 lb @ 21.00 msec

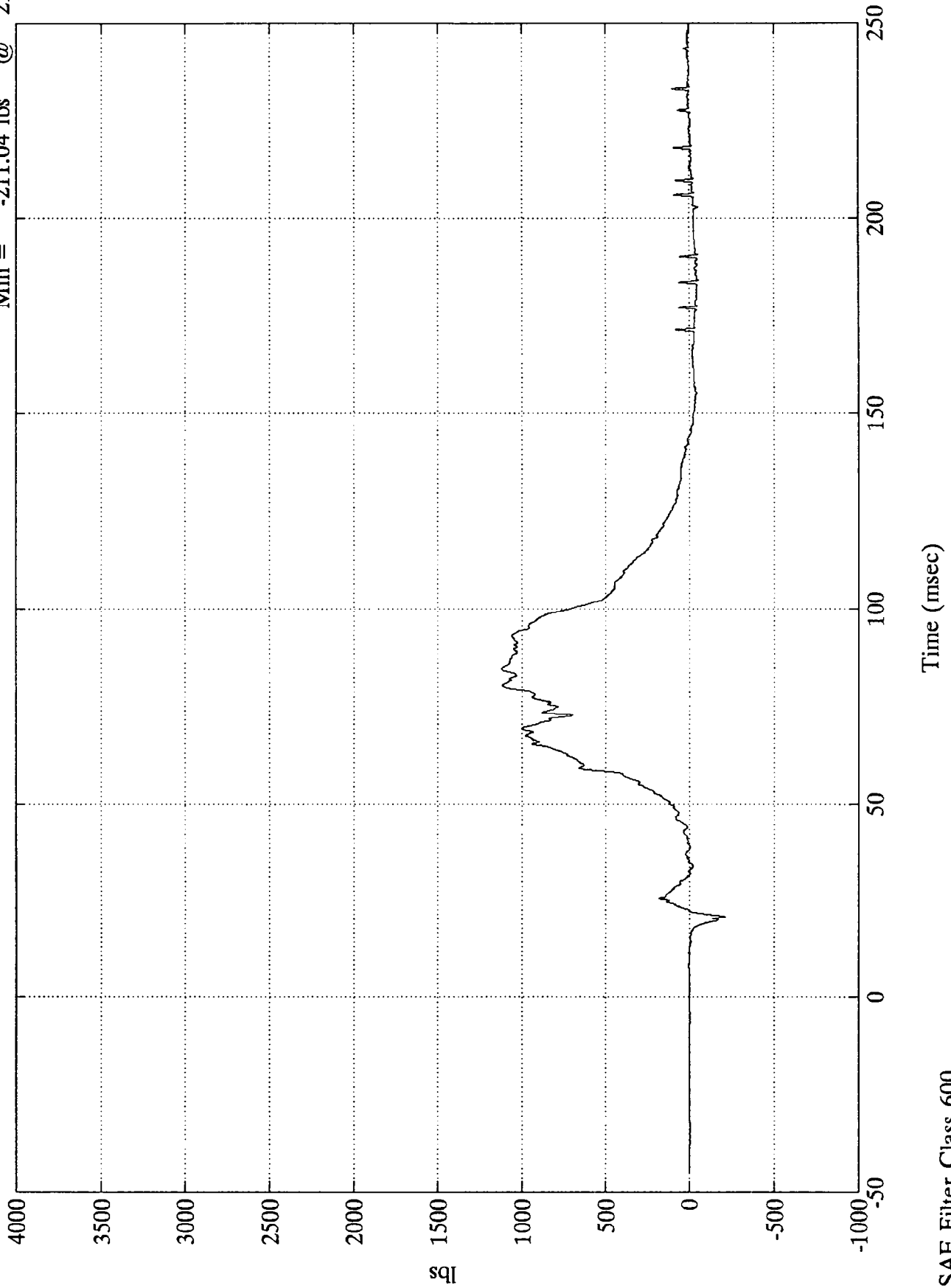
Pos. 1 Left Femur



Run 1057

Pos. 1 Right Femur

Max = 1118.08 lbs @ 84.48 msec
Min = -211.04 lbs @ 21.11 msec



B-35

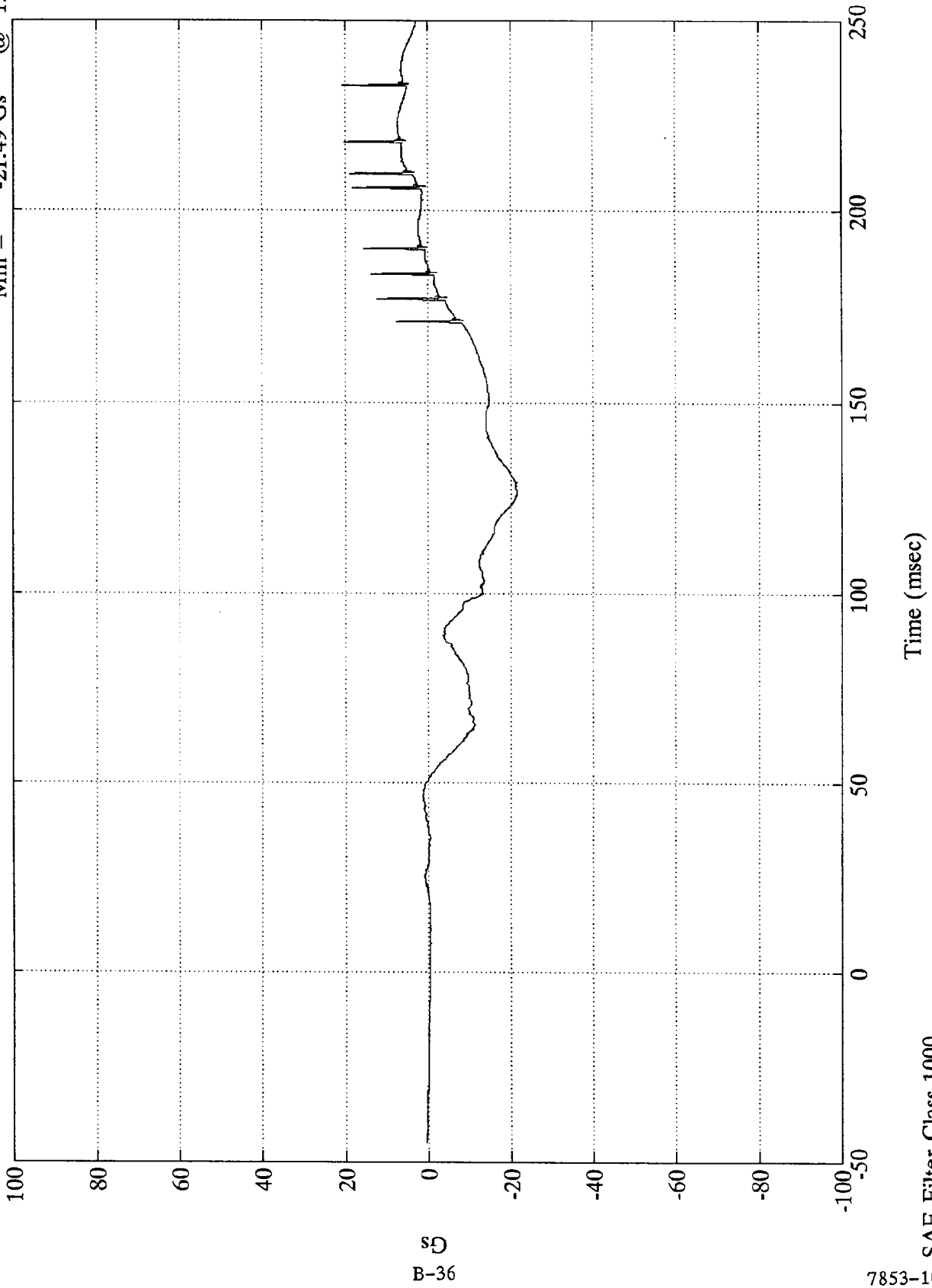
7853-10

SAE Filter Class 600

Run 1057

Pos. 2 Head X

Max = 20.51 Gs @ 233.16 msec
Min = -21.49 Gs @ 127.08 msec



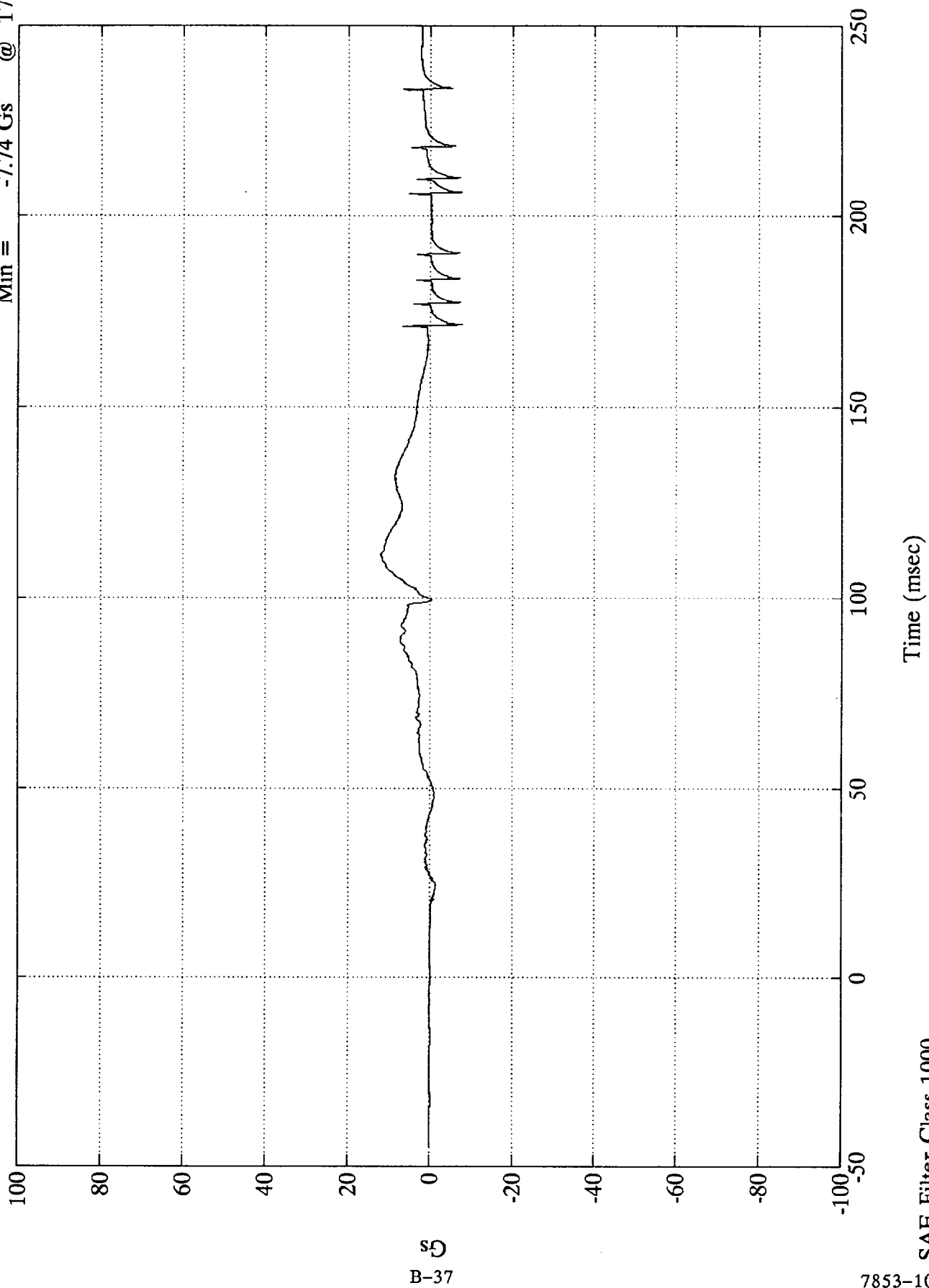
B-36

7853-10

SAE Filter Class 1000

Pos. 2 Head Y

Max = 12.01 Gs @ 111.48 ms
Min = -7.74 Gs @ 171.47 ms



B-37

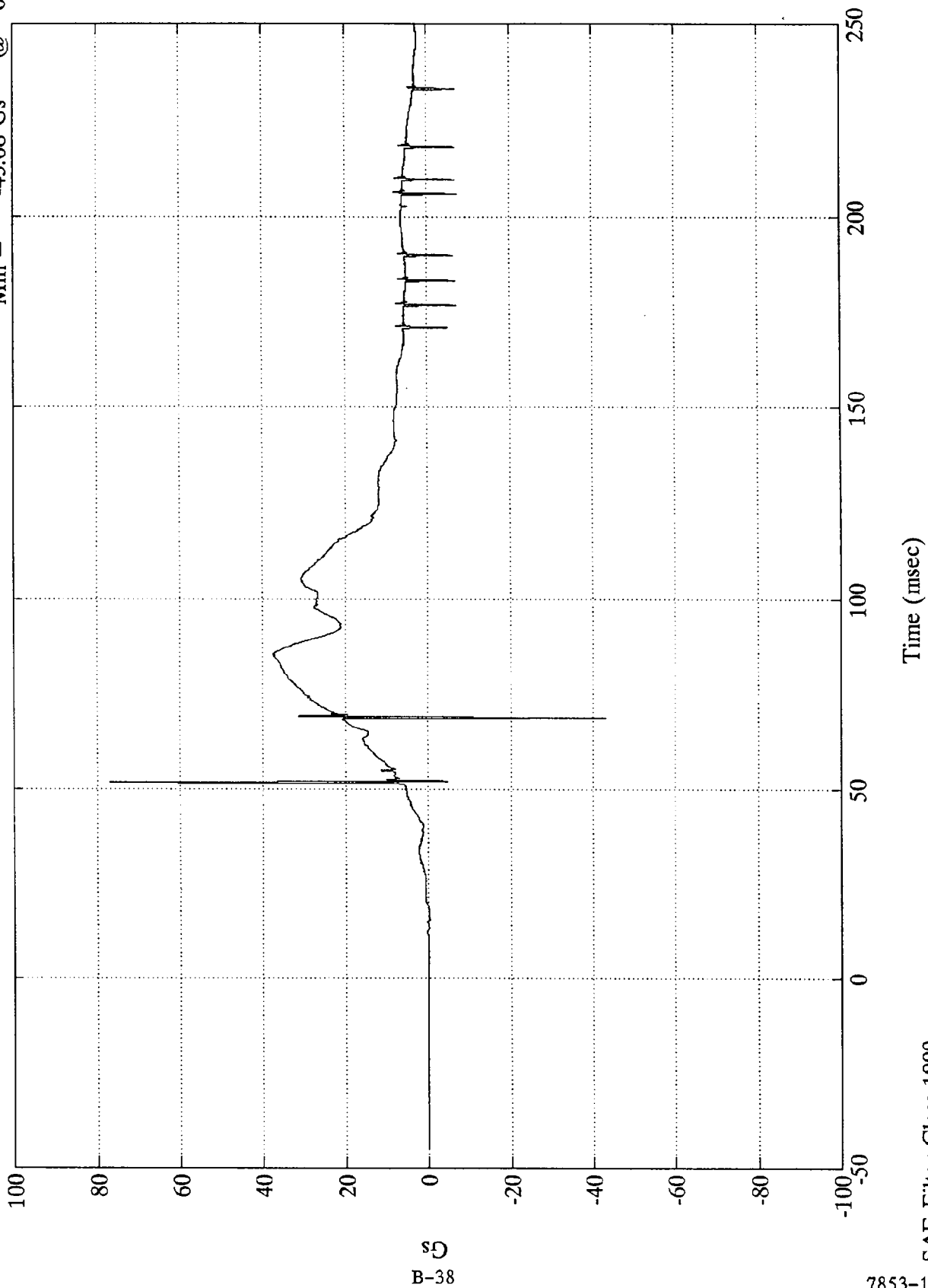
SAE Filter Class 1000

7853-10

Run 1057

Pos. 2 Head Z

Max = 77.07 Gs @ 51.72 msec
Min = -43.08 Gs @ 68.76 msec

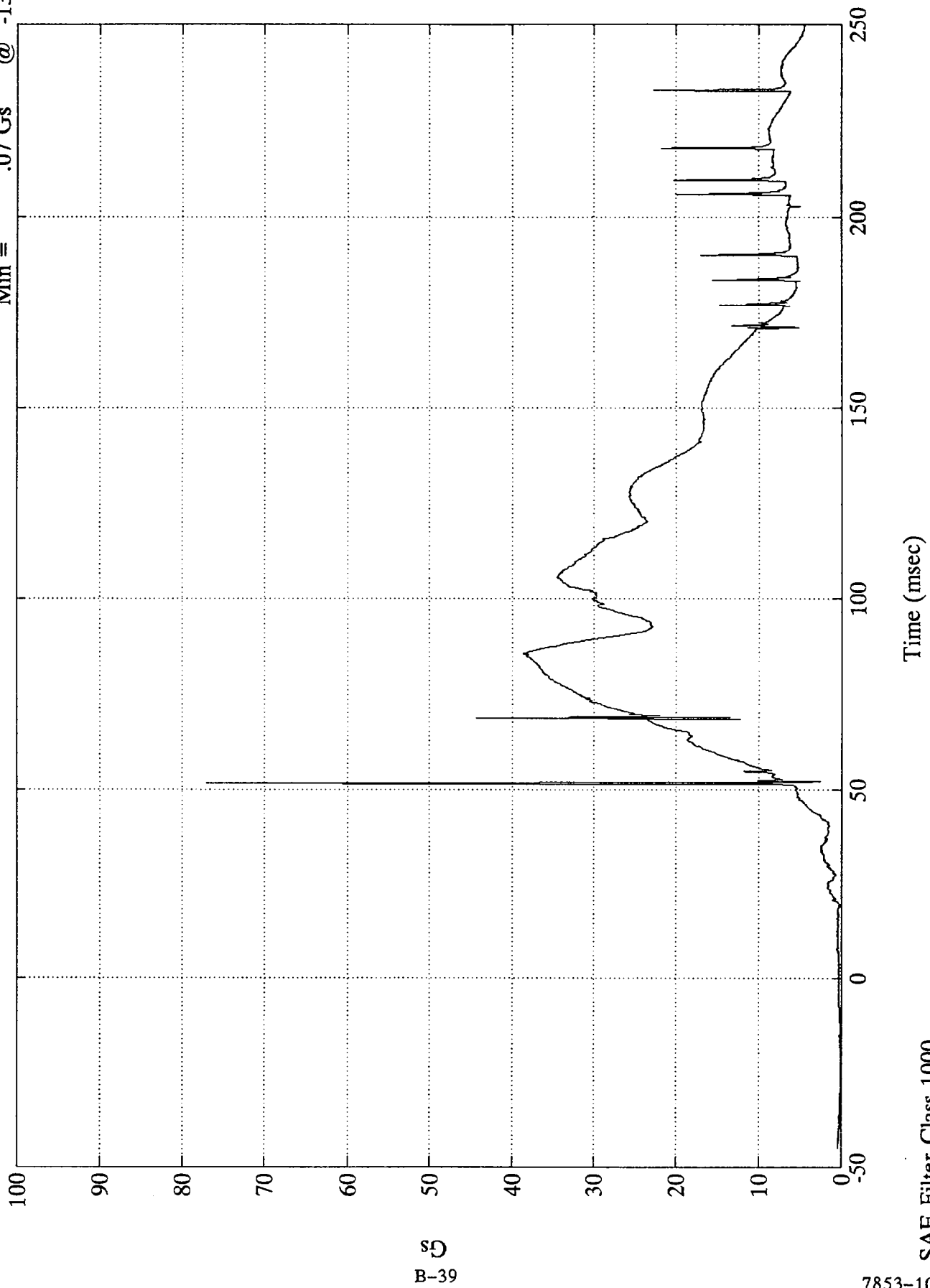


B-38

SAE Filter Class 1000
7853-10

Pos. 2 Head Resultant

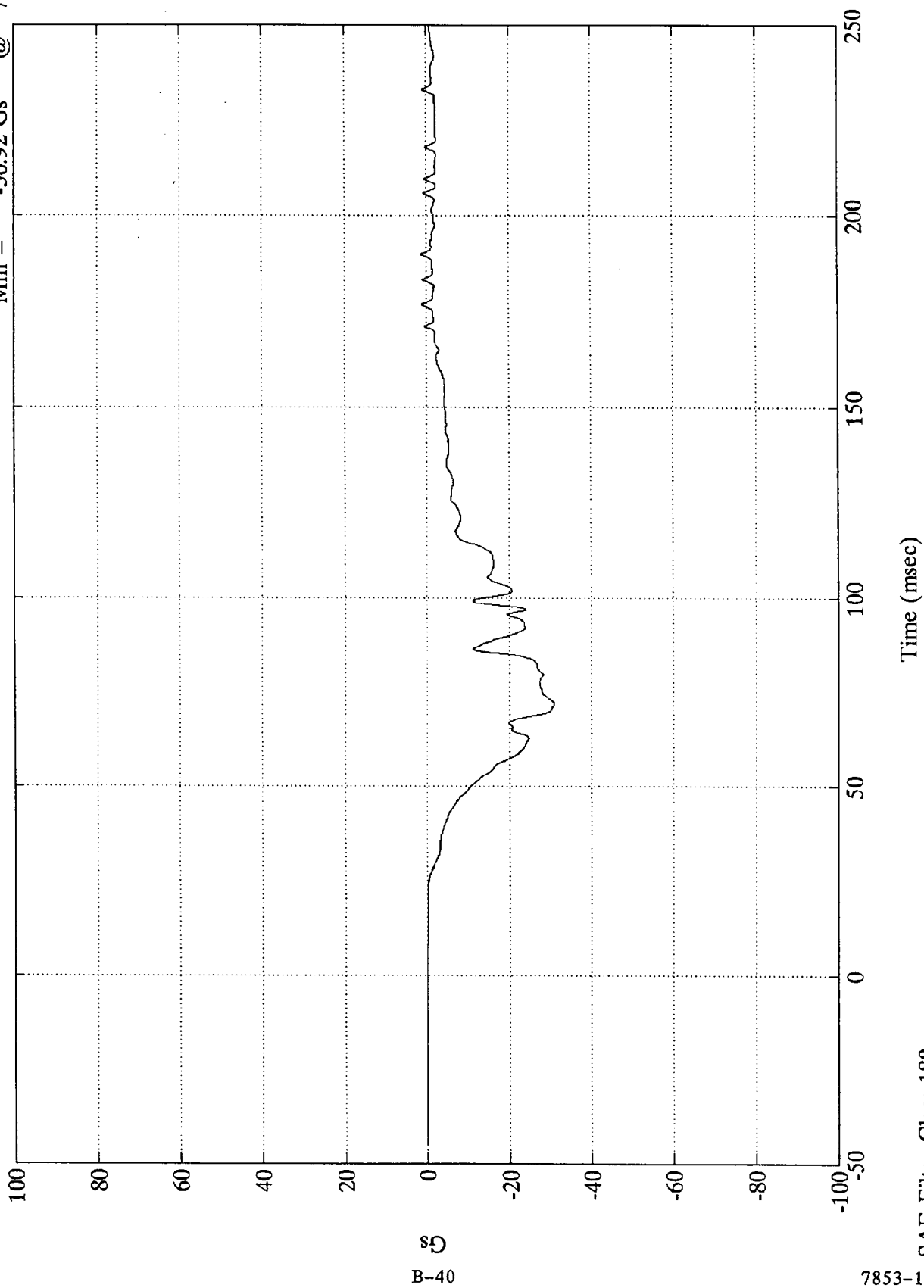
Max = 77.07 Gs @ 51.72 ms
Min = .07 Gs @ -13.20 ms



Run 1057

Pos. 2 Chest X

Max = 1.32 Gs @ 189.96 msec
Min = -30.92 Gs @ 72.00 msec



B-40

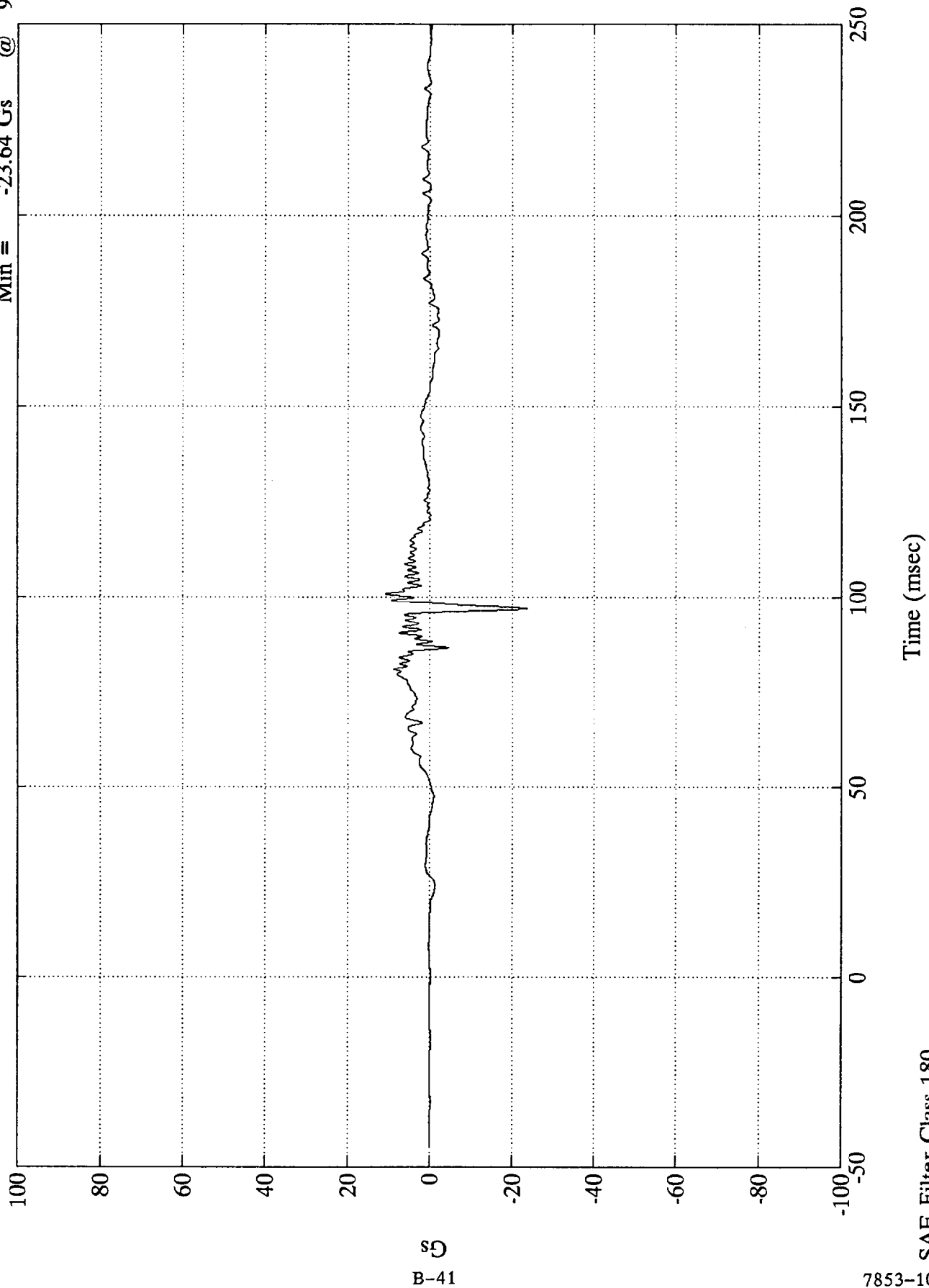
7853-10

SAE Filter Class 180

Run 1057

Pos. 2 Chest Y

Max = 10.85 Gs @ 100.91 ms
Min = -23.64 Gs @ 97.08 ms



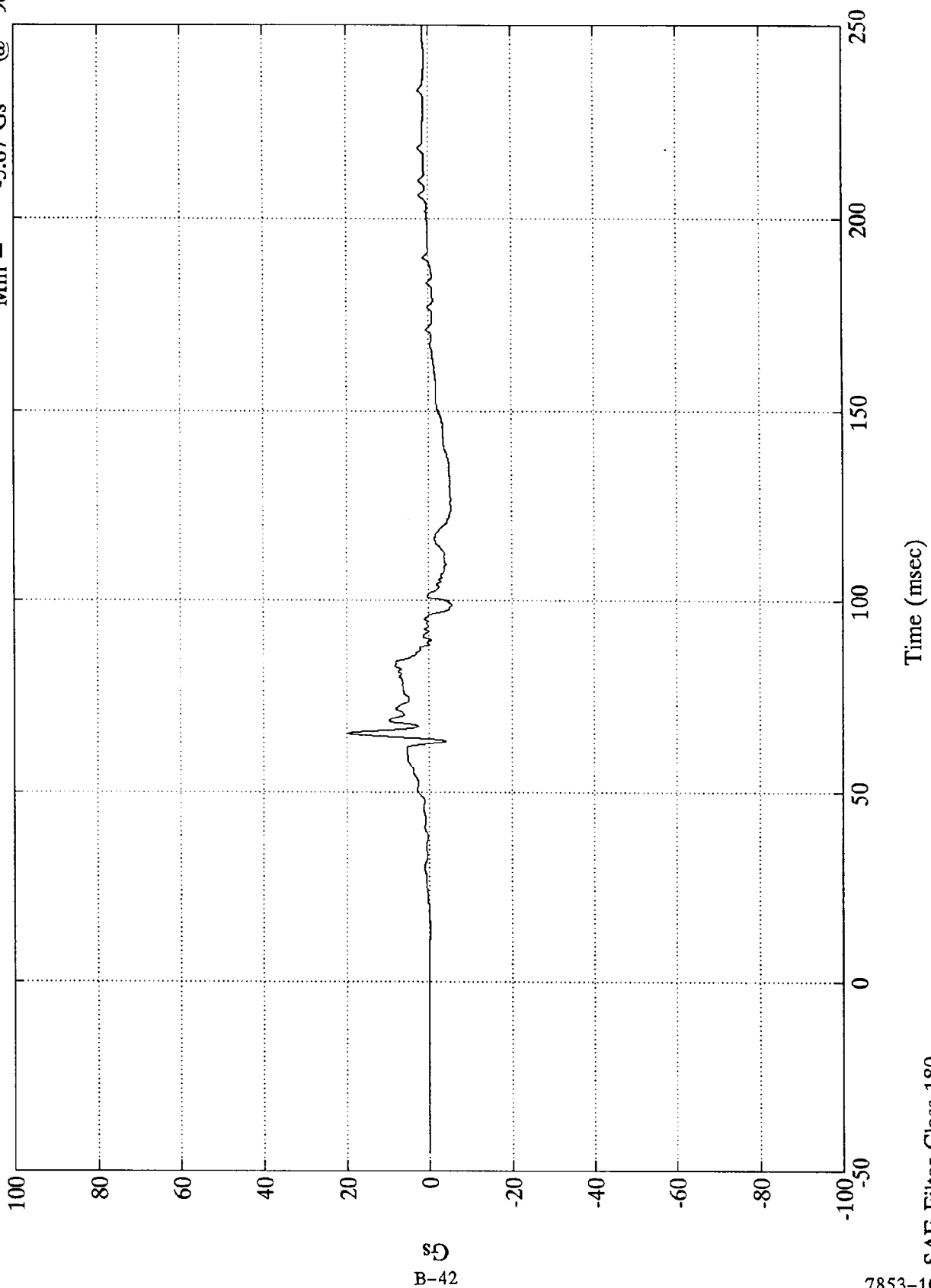
B-41

7853-10 SAE Filter Class 180

Run 1057

Pos. 2 Chest Z

Max = 19.43 Gs @ 65.27 msec
Min = -5.67 Gs @ 98.87 msec



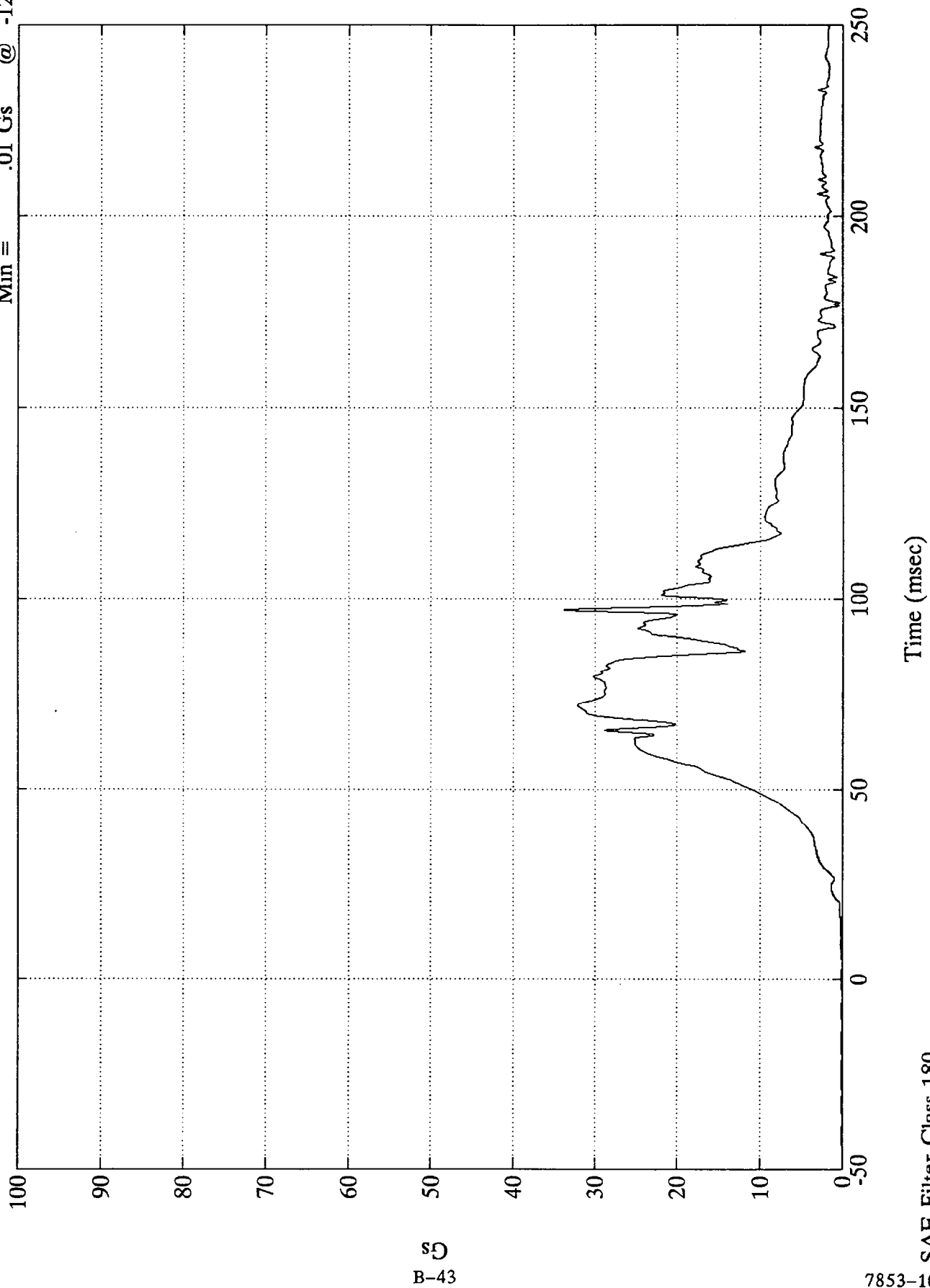
B-42

SAE Filter Class 180

7853-10

Run 1057

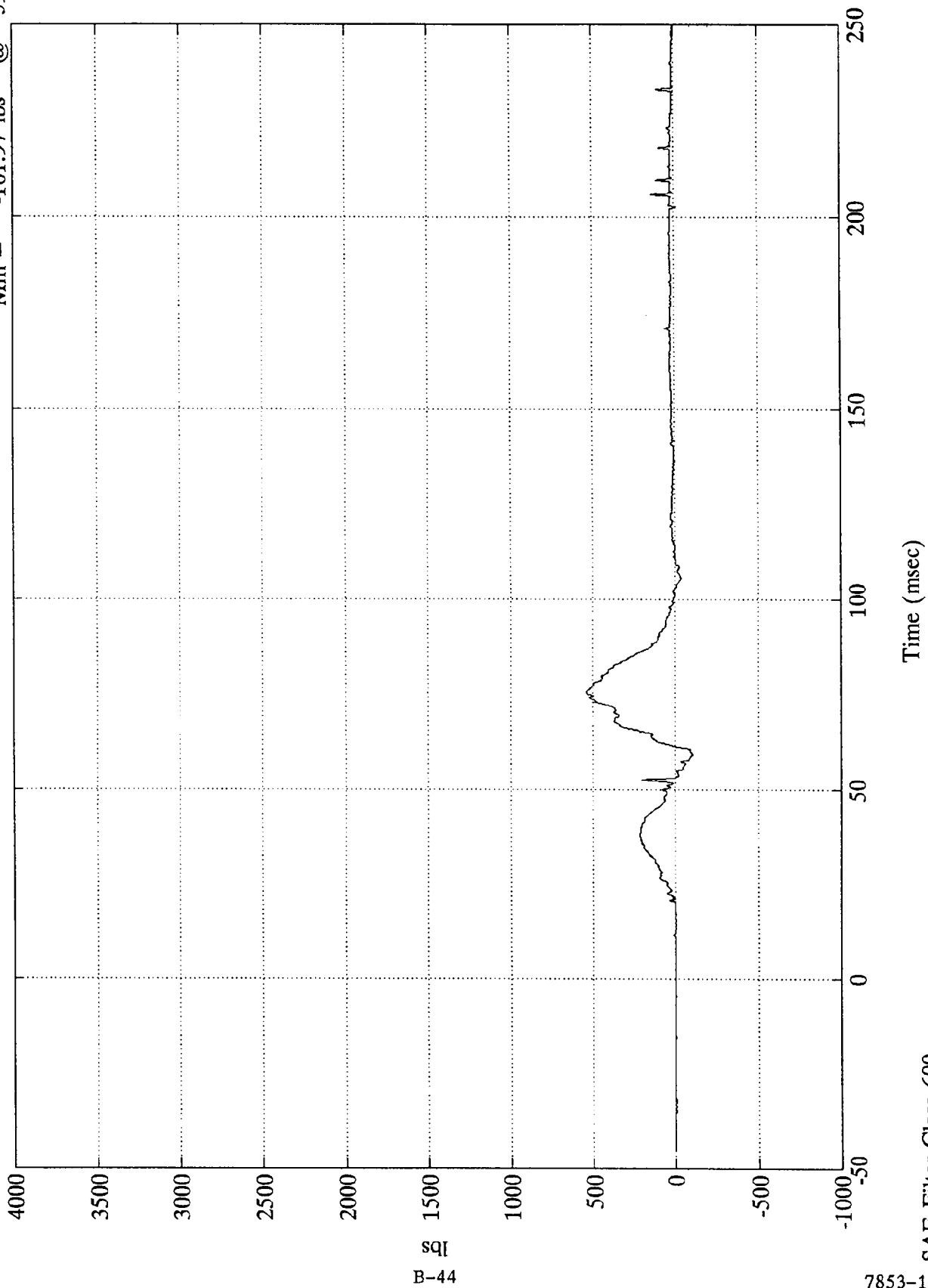
Pos. 2 Chest Resultant
Max = 33.79 Gs @ 96.95 ms
Min = .01 Gs @ -12.60 ms



B-43

Run 1057

Pos. 2 Left Femur
Max = 536.51 lbs @ 75.23 msec
Min = -101.97 lbs @ 59.40 msec



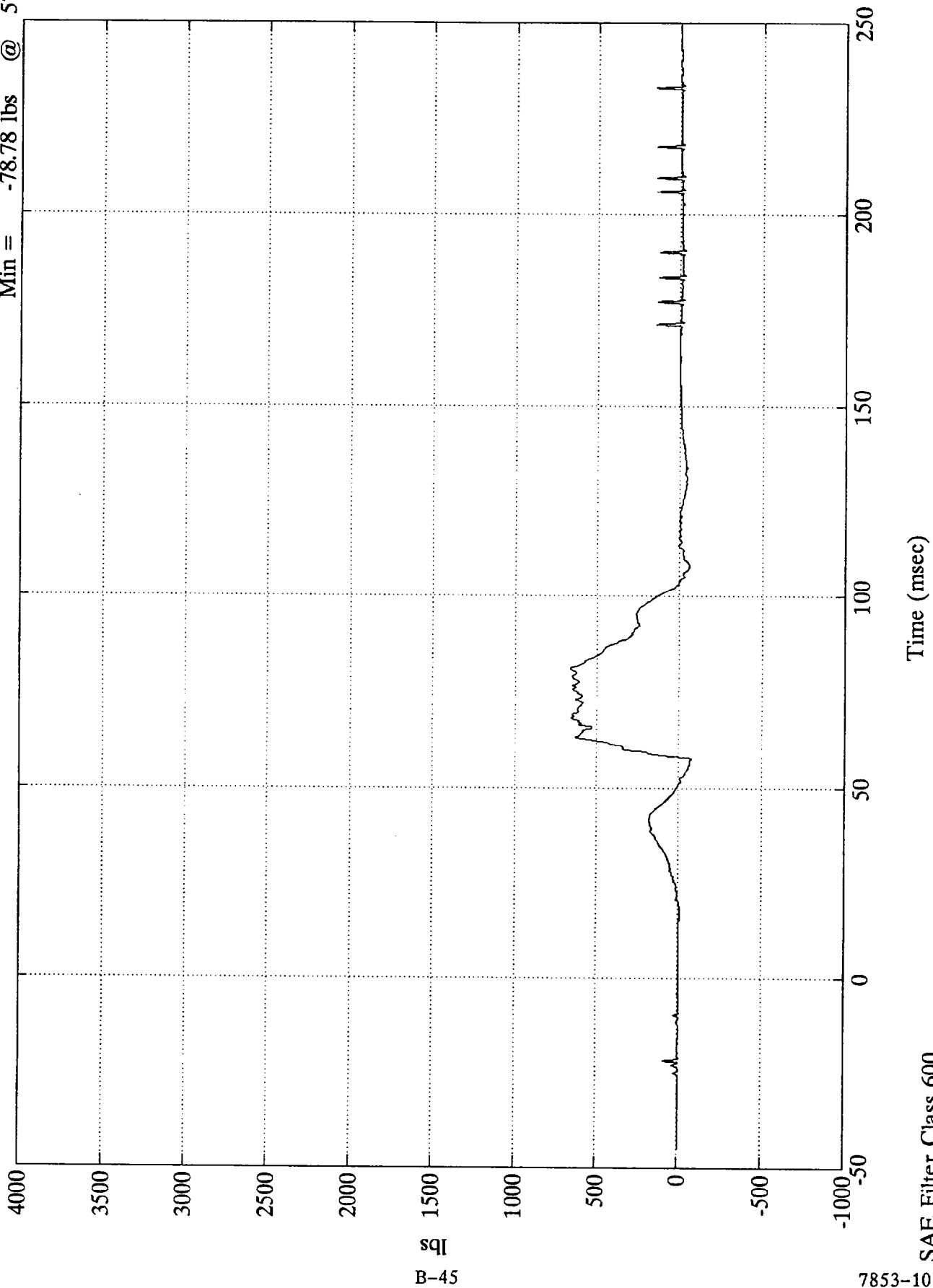
B-44

7853-10

SAE Filter Class 600

Pos. 2 Right Femur

Max = 661.15 lbs @ 81.12 msec
Min = -78.78 lbs @ 57.84 msec



Appendix C

VEHICLE OWNERS MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

locks if the transaxle is in gear, all doors are closed, and vehicle speed is above 15 mph.

If the door lock switch is activated while the keys are in the ignition switch, the doors will not lock. A chime will sound as a reminder to remove the keys.

Power Windows

Window controls, mounted on the driver's door, give the driver control of all door windows. There is an individual window control on each of the doors. A window LOCK switch allows the driver to lock all windows when small children are passengers in the car.

Remote Trunk Lid Release

The trunk lid can be opened from inside the vehicle by pressing the switch located in the glove compartment.

When the ignition key must be left with the vehicle, such as for service or parking lot attendants, be sure that the glove box is locked to prevent unauthorized access into the trunk compartment.

Power Trunk Lid Pulldown (if so equipped)

This feature reduces the effort required to close the trunk lid, eliminating the need to "slam" the trunk lid to close it securely.

To operate the system, close the trunk lid until the latch engages. The system then automatically closes the trunk lid to a secure position.

WARNING! To prevent possible injury, keep your hands and fingers away from the trunk edges during closing. Do not attempt to remove objects from the sealing edges or to stop the system once the initial latching cycle starts. When the Power Pulldown has stopped, the trunk may be unlatched in the normal manner.

Cup Holder

Front cupholders are located in the front seat arm rest. Pull forward on the latch on the front of the arm rest to release the cup holder. Pull the cup holder forward until it latches. To return, push rearward until the cup holder latches.

OCCUPANT RESTRAINTS

Seat Belts

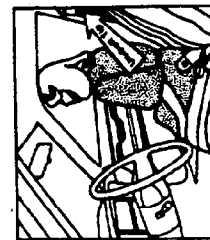
Always use the seat belts. The chance of a serious injury is greatly reduced when the belts are properly used.

Seat belts provide protection against being thrown from the vehicle as well as reducing the risk of an injury caused by striking the interior of the vehicle.

Unibelts

The "UNIBELT", or single continuous-belt restraint system, incorporates an inertia sensitive belt webbing retractor which is designed to lock (i.e., prevent belt travel) *only during very sudden stops or impacts*. This feature allows the shoulder belt to move freely with the wearer under normal conditions. *The retractor will also lock if the belt webbing is jerked or pulled rapidly.*

UNIBELT OPERATING INSTRUCTIONS



1. Enter the vehicle and close the door. Sit back and erect and adjust the seat. Note the latch plate of the unibelt in its stowed position.



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2. Grasp the latch plate and slide it up the webbing as far as necessary to go around your lap as you pull out the webbing.



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3. As you pull the webbing across your lap and over your shoulder, move the latch plate toward the buckle.

Insert the latch plate into the buckle until a "click" is heard.

Do not wear the shoulder belt under your arm or otherwise out of position. Such use could increase the chance and/or severity of injury in a collision.



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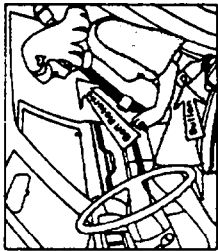
4. Position the lap belt with the upper edge of the belt drawn across the thighs and snug against the hips. Slack will automatically be removed due to tension created by the retractor. If a snug fit in the lap belt portion is desired, pull up on the shoulder belt as shown. A *snug belt reduces the risk of sliding under the belt in a collision.*



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5. Position the shoulder belt on your chest so that it is comfortable and not resting on your neck. Any slack in the belt will be withdrawn automatically by the retractor.

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

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

DRIVER SUPPLEMENTAL RESTRAINT SYSTEM - AIRBAG (if so equipped)

This vehicle is equipped with a supplemental airbag restraint system for the driver. The seat belt continues to be the primary restraint and should be worn whenever the vehicle is in motion. It is important to wear the seat belt because it helps to provide protection in collisions for which the airbag is not designed to deploy, either because of low impact speed or non-frontal direction of impact (such as lateral, rollover or rear impacts). The seat belt also helps to position the driver for higher-speed frontal collisions in which the airbag does deploy. The steering wheel mounted airbag, lower instrument panel knee bolster and seat belt work together as a system to provide protection for the driver.

Service and general information labels about the airbag system can be found on the driver's sun visor, glove box door and in the engine compartment. Instructions on how to properly dispose of deployed airbags or airbag equipped vehicles can be obtained from your Chrysler Motors dealer.

The supplemental restraint system consists of the following items:

- impact sensors
- system diagnostic unit
- "AIRBAG" readiness lamp

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- airbag module/inflator unit
- unique steering column and wheel
- interconnecting wiring
- instrument panel knee bolster

When the impact sensors located in the front of the car and in the passenger compartment detect a front end collision warranting airbag deployment, their internal switches complete an electrical circuit that actuates the inflator unit in the airbag module. This starts the process of generating a large quantity of non-toxic nitrogen gas which inflates the airbag. As the airbag inflates from its folded, stored position behind the steering wheel hub trim cover, the trim cover separates along seams and folds back out of the way to allow the airbag to inflate to its full size. The airbag fully inflates in about 50 milliseconds, about half the time it takes to blink your eye. It then begins to deflate by venting the non-toxic nitrogen gas through holes in the rear of the airbag so it will not interfere with controlling the car, and within a short amount of time, the airbag is almost entirely deflated.

Should A Deployment Occur

The airbag system is designed to deploy when the impact sensors detect a moderate to severe frontal collision, and then immediately deflate.

NOTE: A frontal collision that does not warrant airbag protection will not activate the system. This does not indicate something is wrong with the airbag system.

Should you experience a frontal collision which deploys the airbag, any or all of the following events may occur.

The nylon airbag material may under certain conditions cause abrasions and/or skin reddening to the driver as the airbag deploys and unfolds itself from its stored position. The abrasions are similar in

nature to friction type rope burns or those experienced by sliding along a carpet or gymnasium floor. They are not caused by contact with chemicals, are not permanent and normally heal quickly. However, if significant healing has not occurred within a few days, or in the unlikely event that blistering occurs, seek the immediate advice of a personal physician.

As the airbag deflates from its fully inflated condition, some degree of smoke-like particles may be observed. The particles are a normal by-product of the process which generates the non-toxic nitrogen gas used for airbag inflation. These airborne particles may cause irritation of the skin, eyes, nose, or throat. Should skin or eye irritation occur, rinse the area with cool water. For nose or throat irritation, move to fresh air. If irritation continues, seek the advice of a personal physician.

Within a few seconds, the particles will begin to settle out and dissipate. As they do, the residue will settle on the interior surfaces of the vehicle. Avoid prolonged contact with this residue as it could irritate the skin and/or eyes. Should any irritation occur, rinse the skin or eyes with cool water. If the irritation continues, seek the advice of a personal physician. Should the residue come in contact with clothing, follow the garment manufacturer's instructions for cleaning.

If the vehicle is safely driveable following the airbag deployment, the deployed airbag can be tucked back inside the opening in the steering wheel hub trim cover to make driving the vehicle somewhat easier. The airbag once deployed, will not re-deploy to provide occupant protection in a subsequent collision, and should be replaced by an authorized dealer as soon as possible.

Readiness Indicator

The diagnostic unit monitors the electrical portions of the airbag system components listed above, continuously whenever the ignition switch is in the "start" or "run" position. When the ignition switch is first turned on, the diagnostic unit will light the "AIRBAG" lamp in the instrument cluster for a period of 6 to 8 seconds and then turn the lamp off. This indicates the airbag system is ready to deploy for your protection in the event of an impact.

NOTE: *Should the "AIRBAG" lamp not come on at all, remain lit or light either momentarily or continuously while driving, a malfunction in one or more of the monitored components may have occurred and prompt service is required.*

Important Maintenance

To assure that the airbag will be ready to deploy in a collision, have the system serviced promptly by an authorized dealer if any of the following indications of a possible system malfunction occurs:

- the "AIRBAG" lamp does not light for 6 to 8 seconds when the ignition switch is first turned on;
- the "AIRBAG" lamp remains lit after the ignition switch is first turned on;
- the "AIRBAG" lamp flickers during the 6 to 8 second period when the ignition switch is first turned on;
- the "AIRBAG" lamp flickers or lights and remains lit while operating the vehicle.

WARNING! Failure to have the airbag system properly serviced by an authorized dealer should one of the above conditions exist may lead to possible injury in the event of an accident.

Aside from the maintenance required in response to the above "AIRBAG" lamp conditions, an inspection of the mechanical and electrical components of the system is included in the regular maintenance service recommended for every 3 years or 30,000 miles. (See SECTION 4 - MAINTENANCE.)

System Precautions

WARNING! Modification to the airbag system components or wiring, including the addition of any kind of badges or stickers to the steering wheel hub trim cover or modifications to the front bumper or vehicle body structure, can adversely affect system performance and lead to possible injury.

Make sure the fuse access panel, located in the left lower portion of the knee bolster is in place before driving the vehicle, and do not mount or locate any aftermarket equipment on or behind the knee bolster. This is important to provide proper knee impact protection in the event of a collision.

Do not attempt to repair any component of the airbag system yourself. You can be injured if you are too close to the steering wheel hub and the air bag inflates. Be sure to tell anyone who works on your vehicle that it is equipped with an airbag.

Front Center and Rear Center Lap Belts

The lap belts should be worn with the upper edge of the belt drawn across the thighs and snug against the hips. To reduce the risk of sliding under the belt in a collision, it should be adjusted as tight as comfort will allow, while sitting back and erect in the seat.

The center front and center rear seat belts are lengthened by tilting the tip (latch plate) relative to the webbing and pulling. To shorten the belt, pull the loose end of the webbing.

Never use the same lap belt on more than one person at a time.

Use of Seat Belts During Pregnancy

Chrysler Motors recommends that pregnant women use the available seat belts. This will reduce the likelihood of injury to both the woman and the unborn child. The lap belt should be worn across the thighs and as snug against the hips as possible, *but not across the waist.*

Seat Belt Extender

If the seat belt is too short, even when fully extended, a seat belt extender can be obtained from your dealer. This extender should only be used if the existing belt is not long enough. When not required, it must be removed and slowed because use of the extender when not required may deactivate the seat belt locking mechanism.

CHILD RESTRAINT

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions. When transporting children in your vehicle, they should be properly restrained in an adequate child restraint system, or if they are large enough, they should use the available seat belts. This is required by law in all states and Canadian Provinces. Failure to use a proper restraint system can result in severe or fatal injuries to your child in the event of a collision, and fines or other penalties being assessed against you.

Infants and Small Children

Two different child restraint systems are generally available: the infant carrier for babies weighing up to 20 lbs.

(9kg.), and the child seat for small children over 20 lbs. In addition, some manufacturers make systems that can be used first as an infant carrier, and then converted to a child seat as the child grows older. Both an infant carrier and a child seat are available from your dealer.

Before purchasing a restraint system, make sure that it has a label certifying that it meets Motor Vehicle Safety Standard 213.

The restraint system should be appropriate for your child's weight and height. This information can be found on the restraint system's label.

After purchasing the restraint system, carefully follow the instructions that come with it. *Failure to do so can result in severe or fatal injury to your child.*

Infant and child restraint systems are designed to be secured in vehicle seats by the lap belt or the lap portion of the lap/shoulder belt. In the rear seats, if the belt cannot be tightened because of buckle or latch plate location on a particular child restraint system, disconnect the latch plate from the buckle end and twist the short buckle-end belt several turns to shorten it. Reassemble the latch plate to the buckle with the release button turned so that it is accessible. In the front seats, move the seat forward to reposition the buckle against the side of the child restraint.

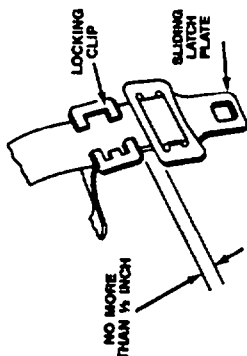
In the center rear seat, if the belt still cannot be tightened, or if pulling or pushing on the restraint system loosens the belt, disconnect the latch plate from the buckle, turn it over, and reassemble it to the buckle. If the child restraint system is still not secure, try a different seating position.

A seat belt locking clip must be used with your child seat when used in the right front and right and left rear seating positions. If a locking clip has not been supplied with your child seat, one may be purchased where child seats

are sold or from your dealer. Failure to use the seat belt locking clip as directed may result in severe or fatal injury to your child in the event of a collision.

To Use The Locking Clip — Install the child seat according to the instructions supplied with the child seat.

Grasp the webbing and the latch plate to unbuckle the seat belt. Do not allow the latch plate to slide along the webbing.



Install the locking clip as shown in the illustration. Keep the locking clip as close to the latch plate as possible.

Buckle the seat belt and check that the seat belt is snug around the child seat.

CAUTION! To help lessen the severity of injury in a collision, the locking clip must be removed from the seat belt webbing when the seat belt is to be used by another person.

The child seat should be installed in the center rear seat position whenever possible.

Some child seat manufacturers recommend the use of a top anchorage (tether) strap in addition to the lap belt with their seats. Tether strap anchorages have been provided behind the rear seating positions for use with these child seats. Anchorage hardware and installation instructions are available from your dealer.

When your infant carrier or child seat is not in use, secure it with the seat belt, or remove it from the vehicle in order to prevent injury to occupants in the event of a sudden stop or collision.

Children Too Large for Child Seats

Children who are too large for child seats and who can sit upright by themselves should use the available lap/shoulder belts for the best protection. Make sure that the child is seated upright in the seat with the lap belt fastened low on the hips and as snug as possible. Belt fit should be checked periodically, in case the belt has been mispositioned by the child's squirming or slouching.

If the shoulder belt contacts the face or neck, move the child closer to the middle of the vehicle. If belt contact is still objectionable, move the child to the rear center seating position and use the lap belt.

Booster seats that may help overcome this problem are also available for use with lap/shoulder belts. Before purchasing a booster seat, make sure that it has a label certifying that it meets applicable Motor Vehicle Safety Standards and that it is satisfactory for use in this vehicle.

SEATS

Seat Adjustment

The adjusting lever is located at the front of the seat, near the floor. With the release lever pushed toward the outside of the car, move the seat to the desired position.

Using body pressure, move forward and rearward on the seat to be sure the seat adjusters have latched.

Note: Do not adjust a manually operated seat while the vehicle is in motion.

Reclining Seats

The reclining mechanism is operated by a control located on the door-side of the seat. To recline, lean forward slightly before lifting the lever, then push back to the desired position and release the lever. Lean forward and lift the lever to return the seatback to its normal position.