

V2268

REPORT NUMBER: 301-CAL-95-12

**SAFETY COMPLIANCE TESTING FOR FMVSS 301
FUEL SYSTEM INTEGRITY**

HONDA OF CANADA MFG.
1995 HONDA CIVIC CX
2-DOOR HATCHBACK

NHTSA NUMBER: CS5300

CALSPAN TEST NUMBER: 8247-12

CALSPAN CORPORATION
ADVANCED TECHNOLOGY CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



March 7, 1995

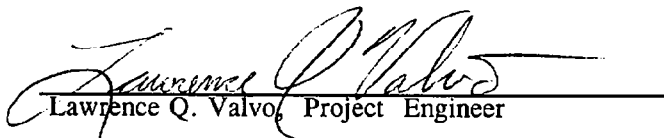
FINAL REPORT

PREPARED FOR:

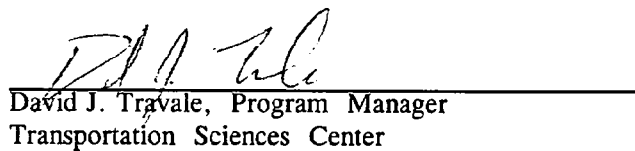
U. S. Department of Transportation
National Highway Traffic Safety Administration
ENFORCEMENT
Office of Vehicle Safety Compliance
400 Seventh Street, S. W.
Room No. 6115 (NEF-30)
Washington, DC 20590

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Section 1

PURPOSE OF COMPLIANCE TEST

This 30 mph rear moving barrier impact test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 301 Compliance Test Program conducted for the National Highway Traffic Safety Administration (NHTSA) by Calspan Advanced Technology Center under Contract No. DTNH22-94-C-01136. The purpose of this test was to determine if the subject vehicle, a 1995 Honda Civic CX 2-Door Hatchback, meets the performance requirements of FMVSS No. 301, "Fuel System Integrity." This compliance test was conducted using the requirements found in the OVSC Laboratory Test Procedure No. TP-301-01, dated March 28, 1994.

Section 2

COMPLIANCE TEST RESULTS SUMMARY

A 2513 pound 1995 Honda Civic CX 2-Door Hatchback was impacted from the rear by a 3959 pound moving barrier at a velocity of 29.3. The test was performed by the Calspan Corporation Advanced Technology Center on March 7, 1995.

One instrumented Part 572 E and one non-instrumented Part 572 B, 50th percentile male Anthropomorphic Test Device (ATD) were placed in the driver and right-front passenger seating positions respectively. No additional ballast was secured in the vehicle cargo area.

Average longitudinal crush was 9.3 inches. Pre- and post-test photographs of the vehicle can be found in appendix A.

The 10.0 gallon fuel tank was filled to 92.5 percent capacity with orange Stoddard fluid prior to the impact. After the impact, there was no fluid leakage for the first 30 minutes nor during any phase of the rollover test. The vehicle appeared to comply with all the requirements of FMVSS No. 301 "Fuel System Integrity." Section 3 presents the results of these tests.

The crash event was recorded by one real-time and eight high-speed cameras. Camera locations and other pertinent camera information are found on pages 3-9 and 3-10 of this report.

Table 1

CRASH TEST SUMMARY

Vehicle NHTSA No.: CS5300 Test Mode: 30 mph Rear Barrier

Test Date: March 7, 1995 Time: 15:35 Temperature : 58 °F

Vehicle Make/Model/Body Style: 1995 Honda Civic CX 2-Door Hatchback

Vehicle Test Weight: 2513 lbs Impact Velocity: 29.3 mph

Static Crush: Left Side = 7.2 inches

Right Side = 9.4 inches

Centerline = 11.3 inches

Average Crush: 9.3 inches

TYPE OF FRONT OCCUPANT RESTRAINT SYSTEM INSTALLED IN TEST VEHICLE:

Driver's DSP: Airbag, 3 point belts

Right Passenger's DSP: Airbag, 3 point belts

VISIBLE DUMMY CONTACT POINTS:

Driver: Back of head with headrest, top of head with rear set back.

Passenger: Headrest

DOOR OPENING DATA:

Closed/Operable - Left Front

Closed/Operable - Right Front

Stoddard Solvent Spillage from Vehicle's Fuel System: None

Remarks: Both driver and passenger set backs collapsed to full rearward position.

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATATEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1995 Honda Civic CX 2-Door Hatchback

NHTSA No.: CS5300 ; VIN: 2HGEH2354SH502544 ; Color: White

Engine Data: 4 cylinders; - CID; 1.5 Liters; - cc

Placement: - Longitudinal or In-Line; X Transverse of Lateral

Transmission Data: 5 speeds; X Manual; - Automatic; - Overdrive

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

Major Options: - A/C; - Pwr.Strg.; - Pwr. Brakes

- Pwr. Windows; - Pwr. Door Locks; - Tilt Wheel

Date Received: 9/28/94 ; Odometer Reading 00074 miles

Selling Dealer: Ralph Pontiac, Inc.

& Address: 3939 West Ridge Rd., Rochester, NY 14626

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Honda of Canada Mfg.

Date of Manufacture: 9/94

GVWR: 3055 lbs.; GAWR: 1610 lbs. FRONT; 1500 lbs. REAR

DATA FROM TIRE PLACARD:

Location of Placard on Vehicle: Glove box

Tire Pressure with Maximum Capacity Vehicle Load: 35 psi FRONT 32 psi REAR

Recommended Tire Size: P165/70R13

* Recommended Cold Tire Pressure: 35 psi FRONT; 32 psi REAR

Size of Tires on Test Vehicle: P165/70R13

Type of Spare Tire: Temporary

Vehicle Capacity Data:

Type of Front Seats:	<u>-</u> Bench;	<u>X</u> Bucket;	<u>-</u> Split Bench
Number of Occupants:	<u>2</u> Front;	<u>3</u> Rear;	<u>5</u> Total
Vehicle Capacity Weight (VCW) =	<u>850</u> lbs.		
No. of Occupants x 150 lbs. =	<u>750</u> lbs.		
Rated Cargo/Luggage Weight (RCLW) =	<u>100</u>		

*Tire pressure used for test

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with maximum fluids)= UDW:

Right Front	=	616	lbs.	Right Rear	=	414	lbs.
Left Front	=	674	lbs.	Left Rear	=	379	lbs.
TOTAL FRONT	=	1,290	lbs.	TOTAL REAR	=	793	lbs.
TOTAL DELIVERED WEIGHT	=	2,083	lbs.				
% of Total Front of Vehicle Weight	=	62	%	% of Total Rear Weight	=	38	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight	=	2,083	lbs.
Rated Cargo/Luggage Weight (RCLW)	=	100	lbs.
Weight of 2 p.572 Dummies @ 167& 164 lbs	=	331	lbs.
TARGET TEST WEIGHT	=	2,514	lbs.

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 99 POUNDS OF CARGO WEIGHT:

Right Front	=	768	lbs.	Right Rear	=	482	lbs.
Left Front	=	776	lbs.	Left Rear	=	487	lbs.
TOTAL FRONT	=	1,544	lbs.	TOTAL REAR	=	969	lbs.
TOTAL TEST WEIGHT	=	2,513	lbs.				
% of Total Front Weight	=	61	%	% of Total Rear Weight	=	39	%

* Weight of Ballast Secured in Vehicle Trunk Area = 0 lbs.

Type of Ballast: None

Method of Securing Ballast: N/A

Vehicle Components Removed for Weight Reduction: Rear bottom seat cushion

VEHICLE ATTITUDE (all dimension in inches):

AS DELIVERED:	RF	26.6	LF	25.7	RR	26.1	LR	25.5
AS TESTED:	RF	25.0	LF	24.5	RR	25.0	LR	24.7

Vehicle's Wheel Base: 101.3 in.

Location of Vehicle's C.G.: 39 inches rearward of front wheel center.

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual	=	10.0	gallons
Usable Capacity Figure Furnished by COTR	=	10.0	gallons
Test Volume Range (91 to 94 % of Usable Capacity)	=	9.1	to 9.4 gallons
ACTUAL TEST VOLUME	=	9.3	gallons (with entire fuel system filled)

* Ballast weight includes the RCLW, the weight of drained vehicle fluids and the weight of any removed vehicle components less the weight of onboard instrumentation, cameras, and hardware.

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

FUEL SYSTEM DATA (continued):

Test Fluid Type:	Stoddard solution	
Test Fluid Specific Gravity:	0.764	
Test Fluid Kinematic Viscosity:	0.96	centistokes
Test Fluid Color:	Orange	("red" is preferred)
Type of Vehicle Fuel Pump:	Electric	
Electric Fuel Pump Operation with Ignition Switch ON and Engine OFF -		
Fuel pump operates		
Details of Fuel System:	Fuel lines located on left side of vehicle underbody, fuel filler on left side aft of rear axle.	

Table 3

POST IMPACT DATATYPE OF TEST:

Type of Test: Rear Barrier Impact Angle: 0°
 Test Date: March 7, 1995 Time: 15:35 Temperature: 58 °F
 Vehicle NHTSA No.: CS5300
 Required Impact Velocity Range: 28.9 to 29.9 mph

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

Trap No. 1 = 29.3 mph; Trap No. 2 = 29.3 mph
 Average Impact Speed = 29.3 mph

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

Vehicle Length:

Pre-Test	Right =	<u>155.5</u>	; C/L =	<u>160.8</u>	; Left =	<u>155.3</u>
Post-Test	Right =	<u>148.3</u>	; C/L =	<u>151.4</u>	; Left =	<u>144.0</u>
Crush	Right =	<u>7.2</u>	; C/L =	<u>9.4</u>	; Left =	<u>11.3</u>
AVERAGE	=	<u>9.3</u>	inches			

Section 3
COMPLIANCE TEST DATA

Figure 1

PART 572 DUMMY IN-VEHICLE POSITION
(FOR REAR IMPACTS ONLY)

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

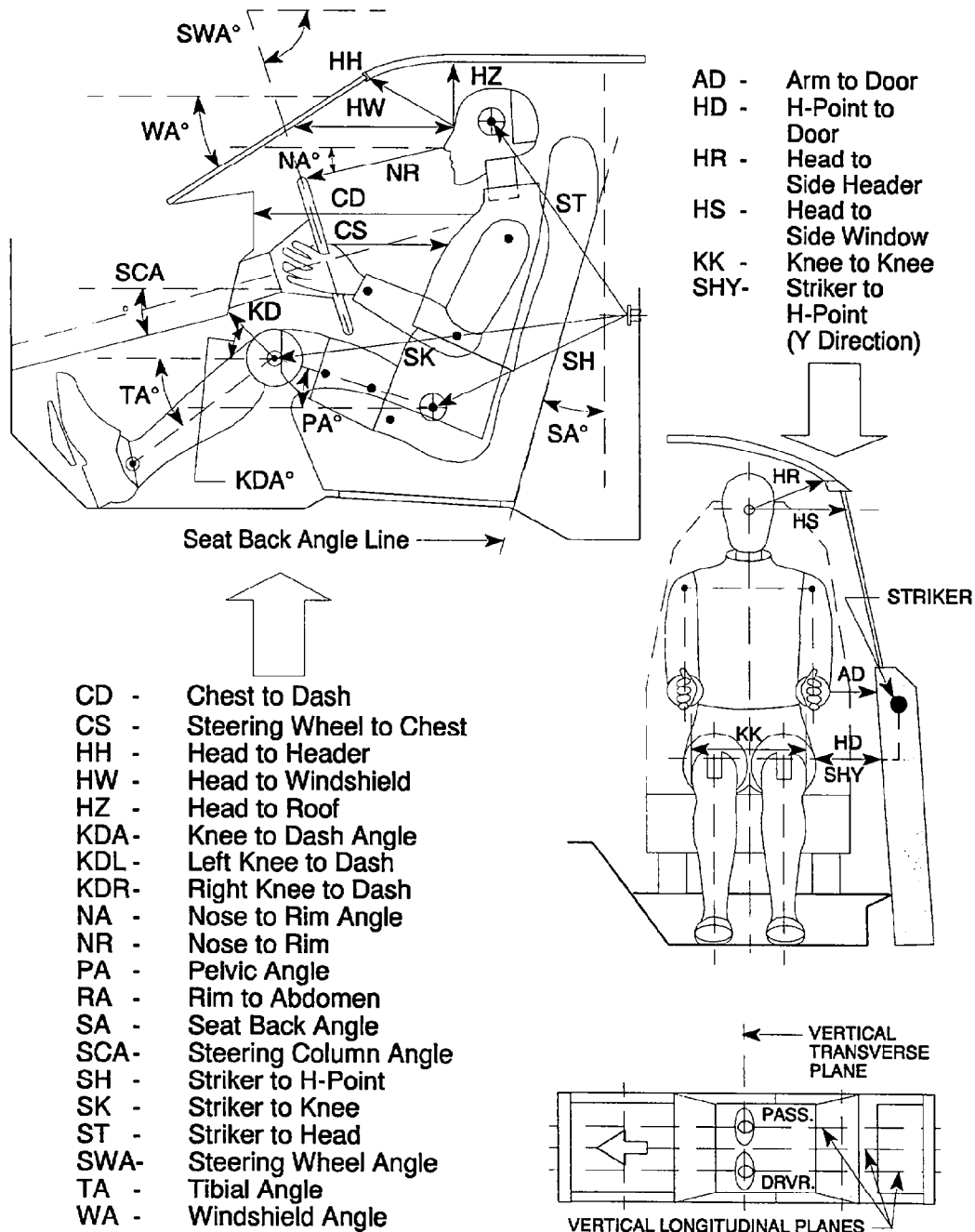


Table 4

**FRONT SEAT OCCUPANT MEASUREMENTS
(FOR REAR IMPACT ONLY)**

	DRIVER (Serial #366)
WA°	28 deg.
SWA°	74 deg.
SCA°	16 deg.
SA°	27 deg.
HZ	6.8
HH	11.1
HW	20.2
HR	8.0
NR	16.1 Angle -9 deg.
CD	22.1
CS	12.3
RA	8.2
KDL	5.7 Angle (KDA) 36 deg.
KDR	5.5
PA°	22 deg.
TA°	40 deg.
KK	11.5
ST	21.5 Angle 60 deg.
SK	31.5 Angle -1 deg.
SH	17.4 Angle -21 deg.
SHY	9.7
HS	8.9
HD	5.1
AD	5.4

Table 5
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO. 301

TEST VEHICLE NHTSA NO.: CS5300 TEST DATE: March 7, 1995

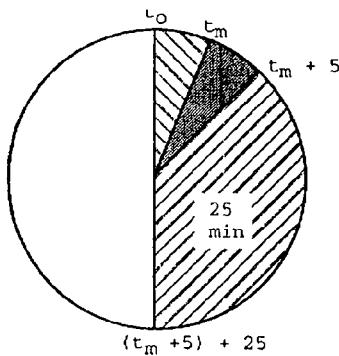
Vehicle Mfgr./Make/Model: 1995 Honda Civic CX 2-Door Hatchback

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.

TEST VEHICLE IMPACT TYPE:

- Frontal (30 mph)
- Oblique (30 mph) with - ° barrier face first
contacting -
 (driver/passenger) side
- X Rear Moving Barrier (30 mph)
- Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENT:



1. From impact until vehicle motion ceases
2. For five 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.

SOLVENT SPILLAGE DETAILS:

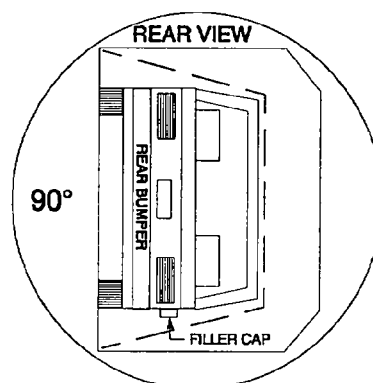
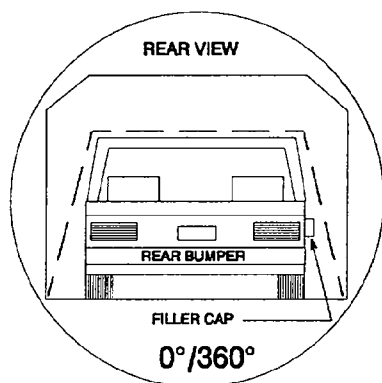
None

Table 6

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE :
0-90 Deg.

Vehicle NHTSA ID No. :
CS5300

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	52	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	52	seconds
Next whole minute interval	7	minutes		

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 minutes 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.

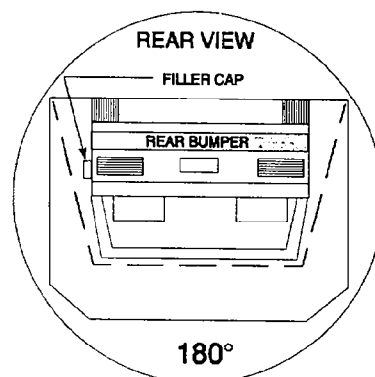
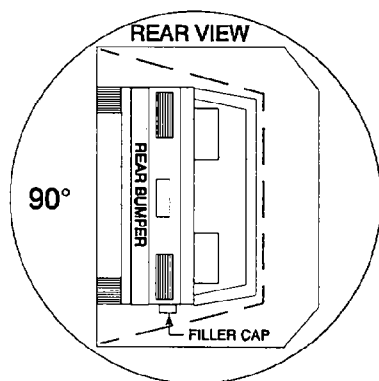
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 6
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE :
90-180 Deg.

Vehicle NHTSA ID No. :
CS5300



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	57	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	57	seconds
Next whole minute interval	7	minutes		

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 minutes 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.

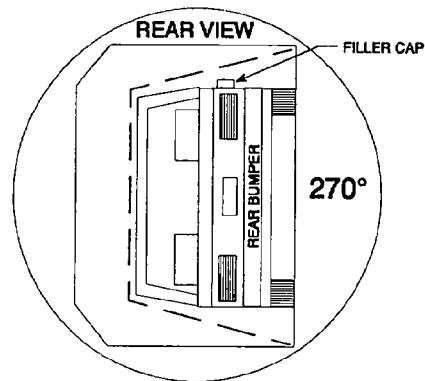
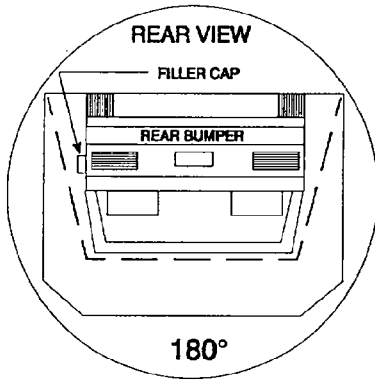
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 6
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE :
180-270 Deg.

Vehicle NHTSA ID No. :
CS5300



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	55	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	55	seconds
Next whole minute interval	7	minutes		

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 minutes 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.

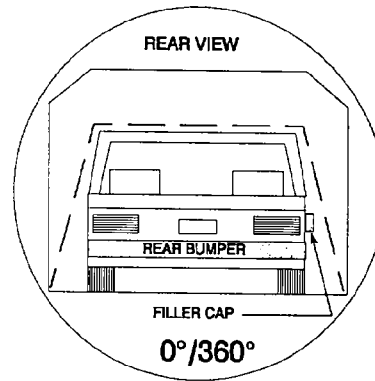
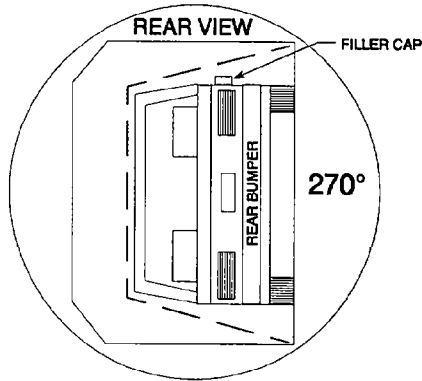
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 6
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE :
270-360 Deg.

Vehicle NHTSA ID No. :
CS5300



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 minutes 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

Figure 2

CAMERA POSITIONS FOR REAR IMPACTS

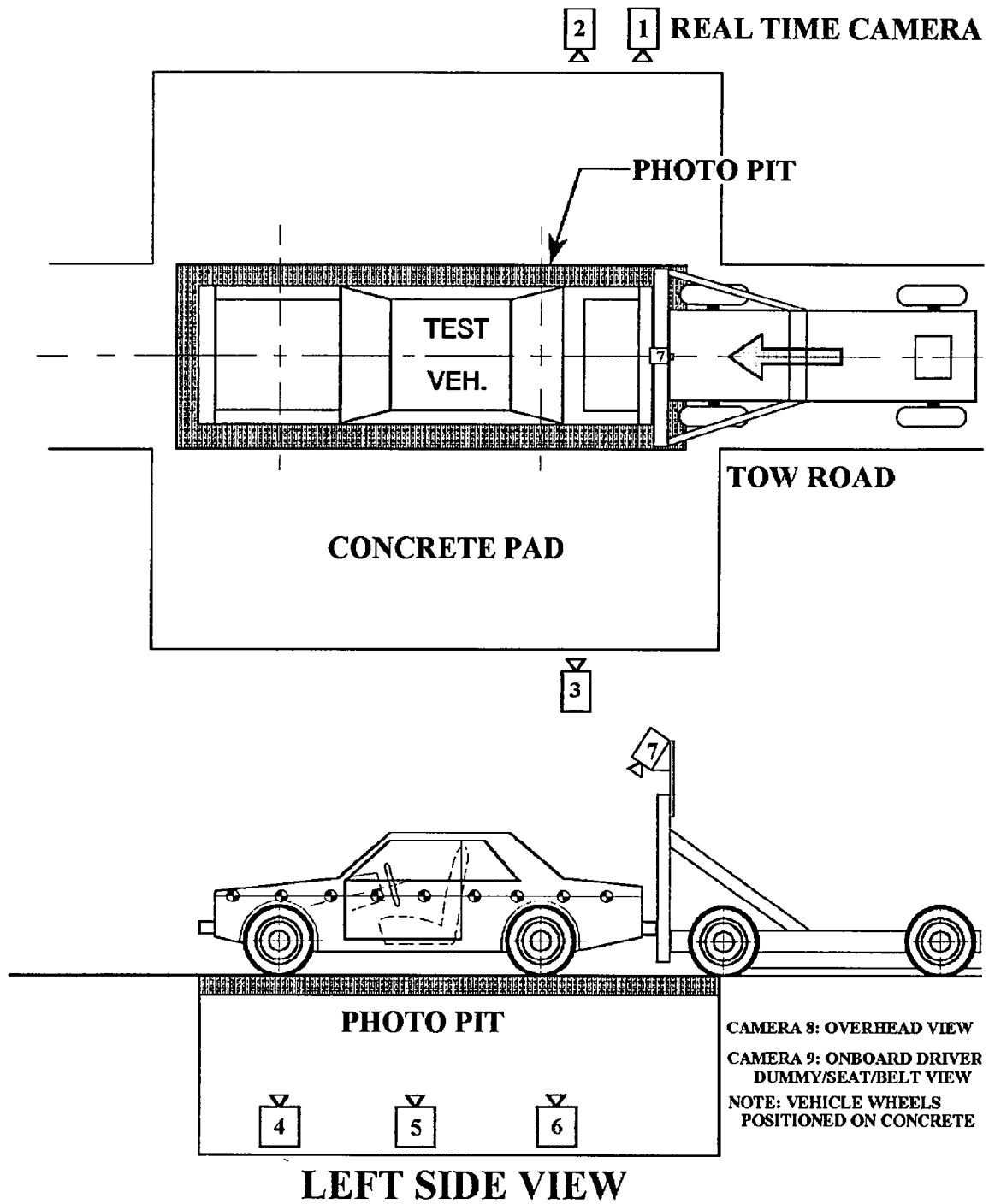


Table 7

HIGH-SPEED CAMERA LOCATIONSNHTSA No. : CS5300 Vehicle : 1995 Honda Civic CX 2-Door Hatchback

CAMERA NO.	VIEW	CAMERA POSITIONS (inches)*			ANGLE** (degrees)	LENS (mm)	SPEED (fps)
		X	Y	Z			
1	Real-Time Camera	-	-	-	-	-	24
2	Right Side View	313	0	41	1	13	900
3	Left Side View	333	75	41	1	13	940
4	Vehicle Front Underbody View	0	-120	-77	90	13	1210
5	Vehicle Mid-Section Underbody View	0	-76	-77	90	13	1270
6	Vehicle Rear Underbody View	0	-38	-77	90	13	1140
7	Moving Barrier View	0	0	-99	-105	13	510
8	Overhead Overall View	-20	0	386	-90	13	1390
9	Onboard Driver Dummy/Seat/Belt View	-	-	-	-	8	-

* X = film plant to monorail centerline (+ to left of rail)

Y = film plane to impact location (+ ahead of impact location)

Z = film plane to ground (+ above ground)

** = referenced to horizontal plane

Appendix A
PHOTOGRAPHS

LIST OF PHOTOGRAPHS

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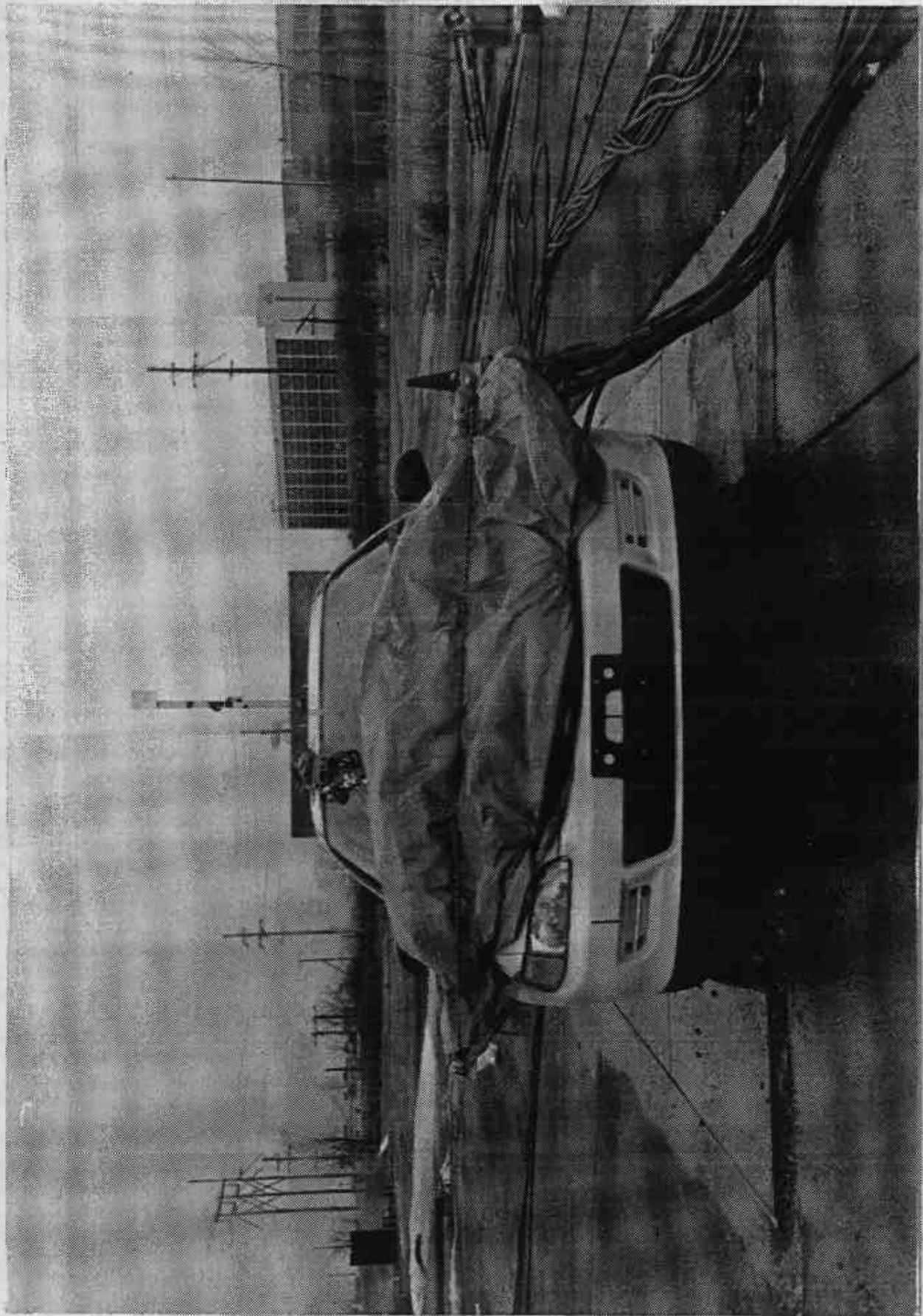


Figure A-1 PRE-TEST FRONT VIEW



Figure A-2 POST-TEST FRONT VIEW

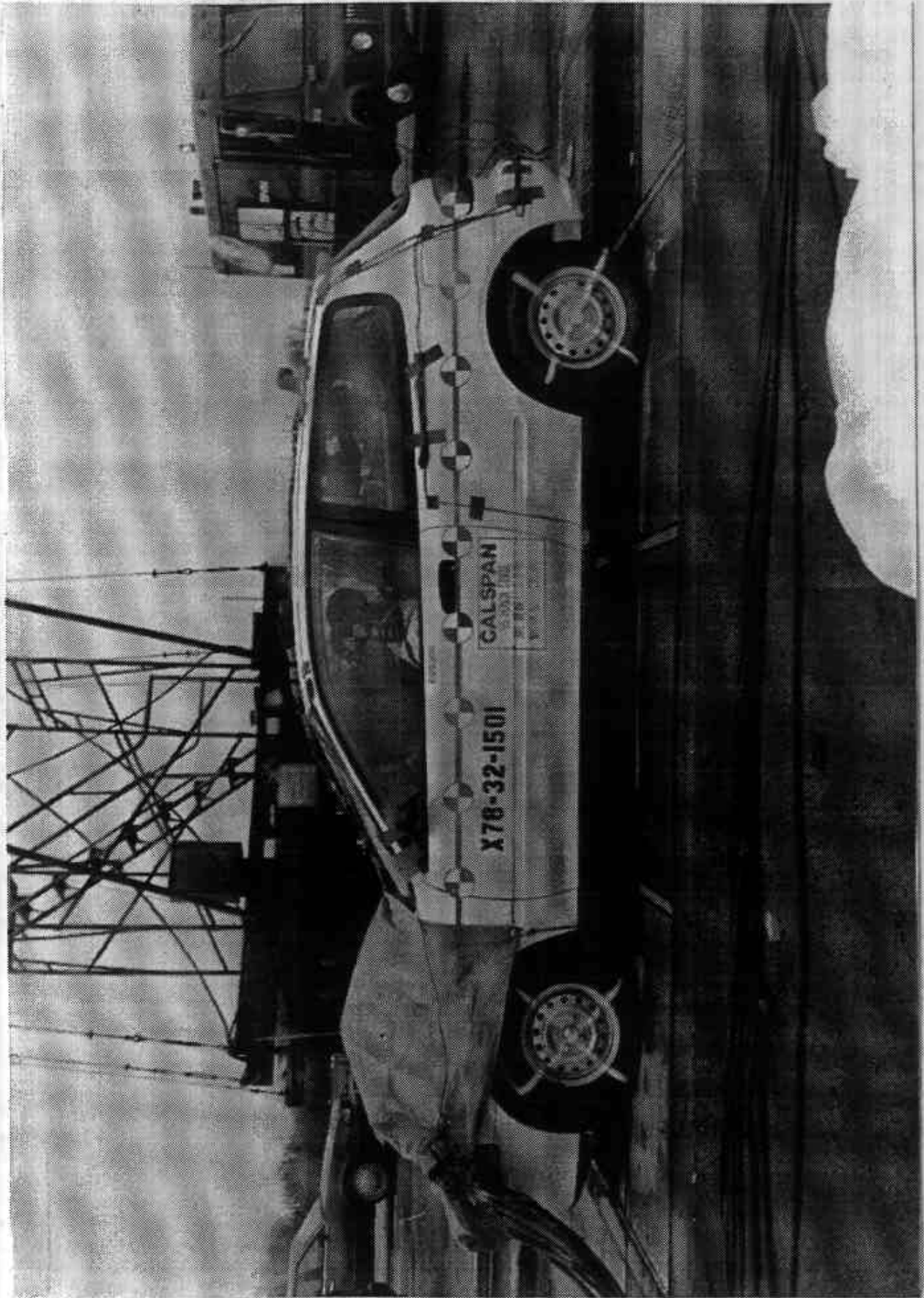


Figure A-3 PRE-TEST LEFT SIDE VIEW



Figure A-4 POST-TEST LEFT SIDE VIEW

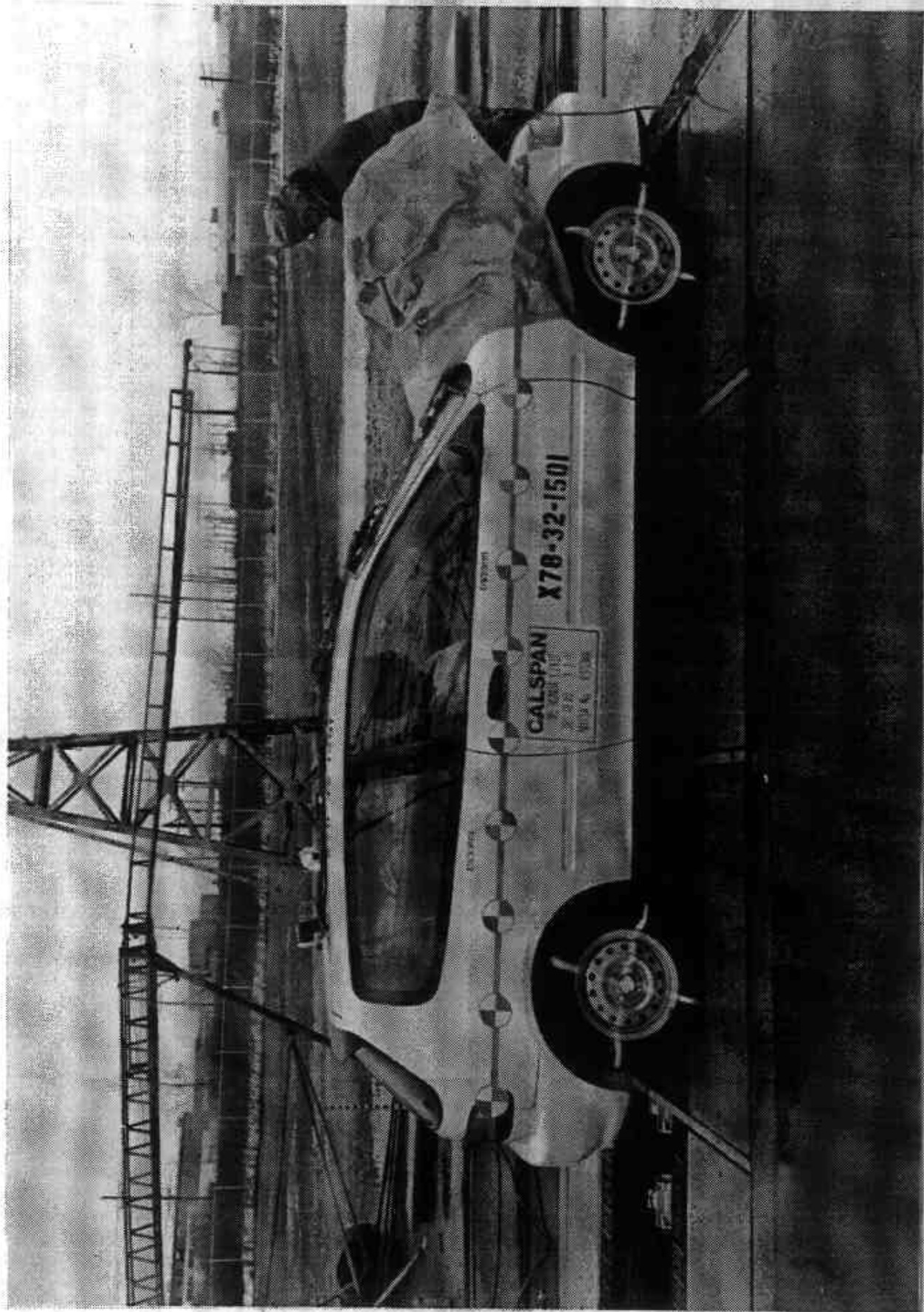


Figure A-5 PRE-TEST RIGHT SIDE VIEW

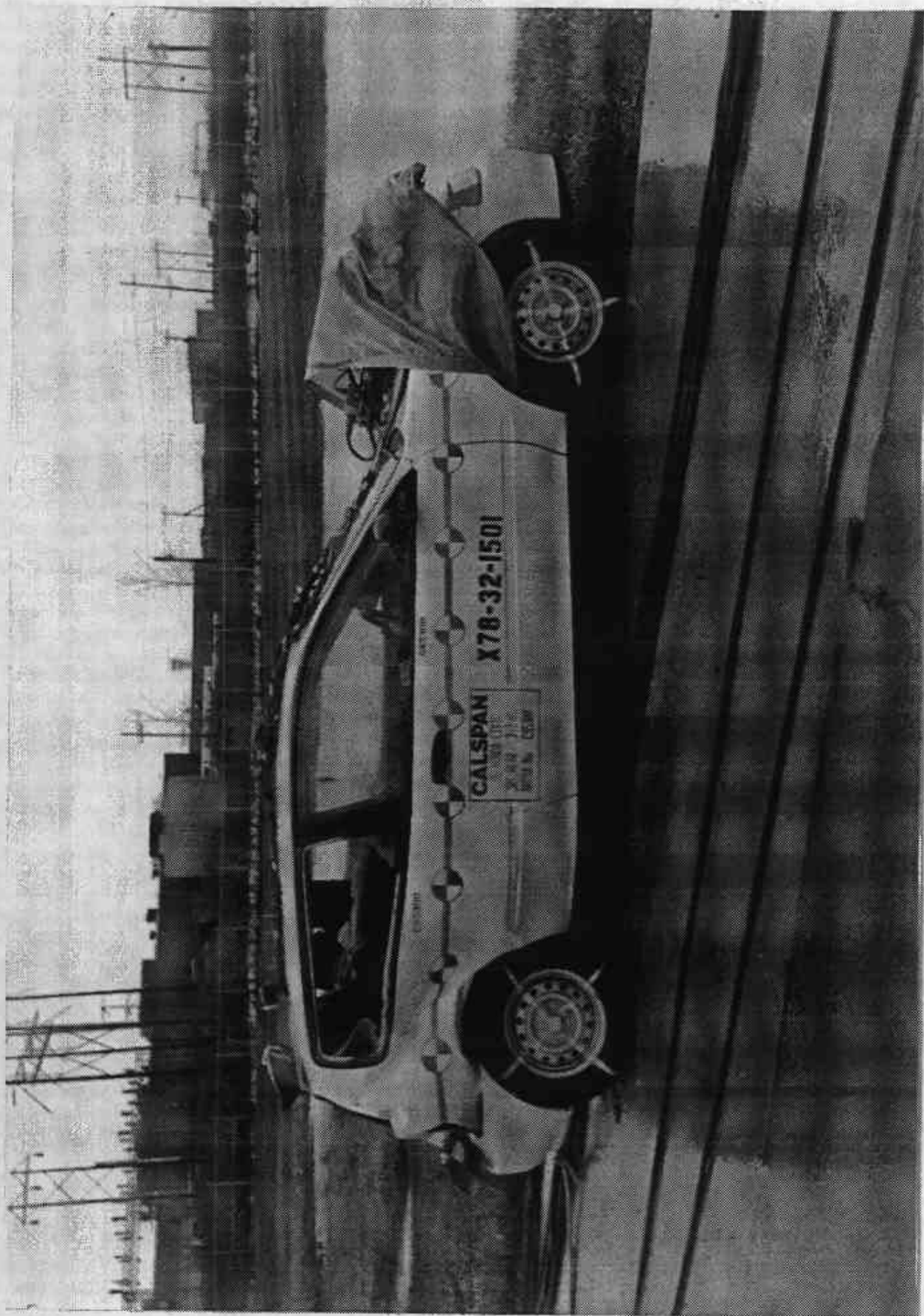


Figure A-6 POST-TEST RIGHT SIDE VIEW

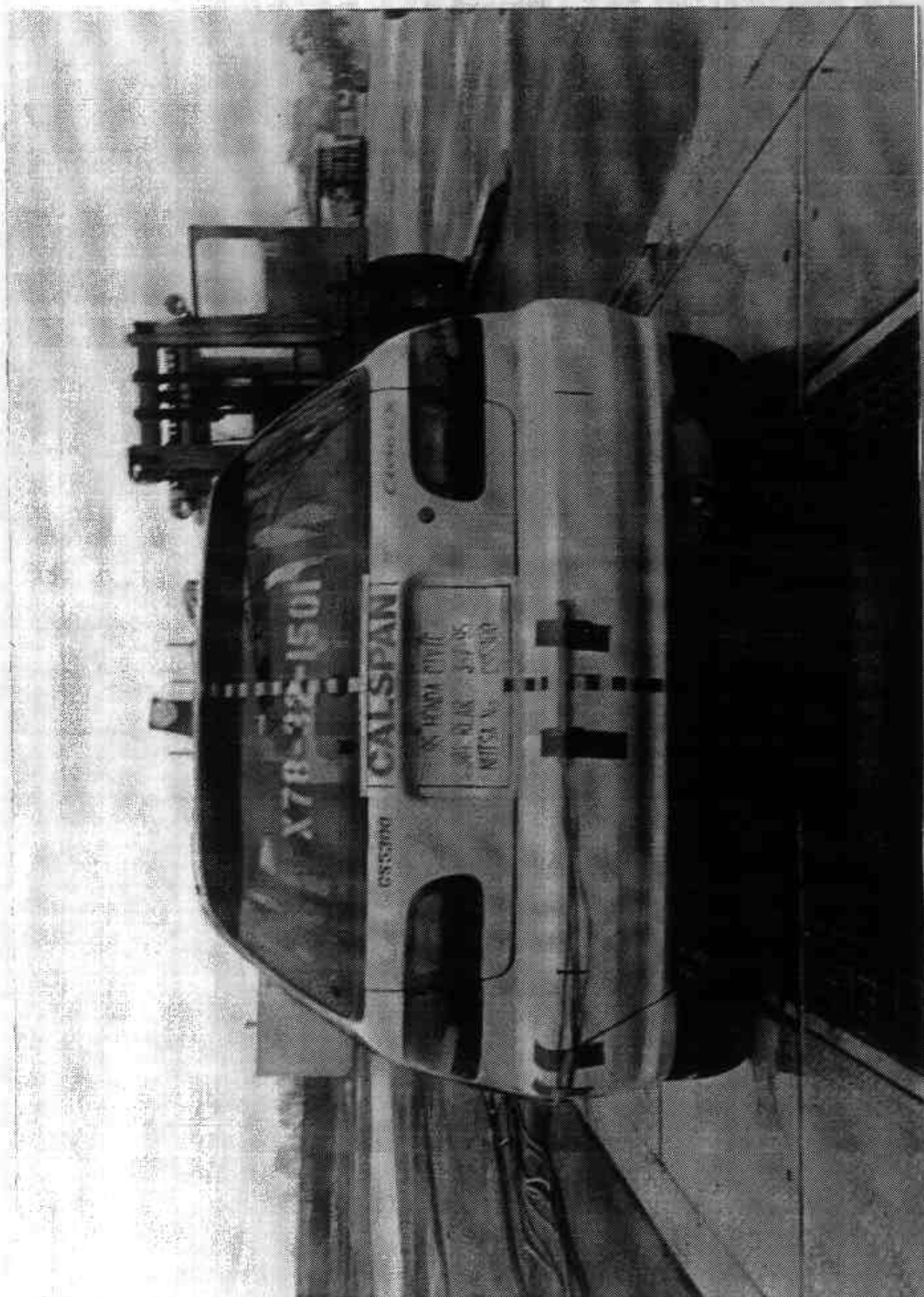


Figure A-7 PRE-TEST REAR VIEW

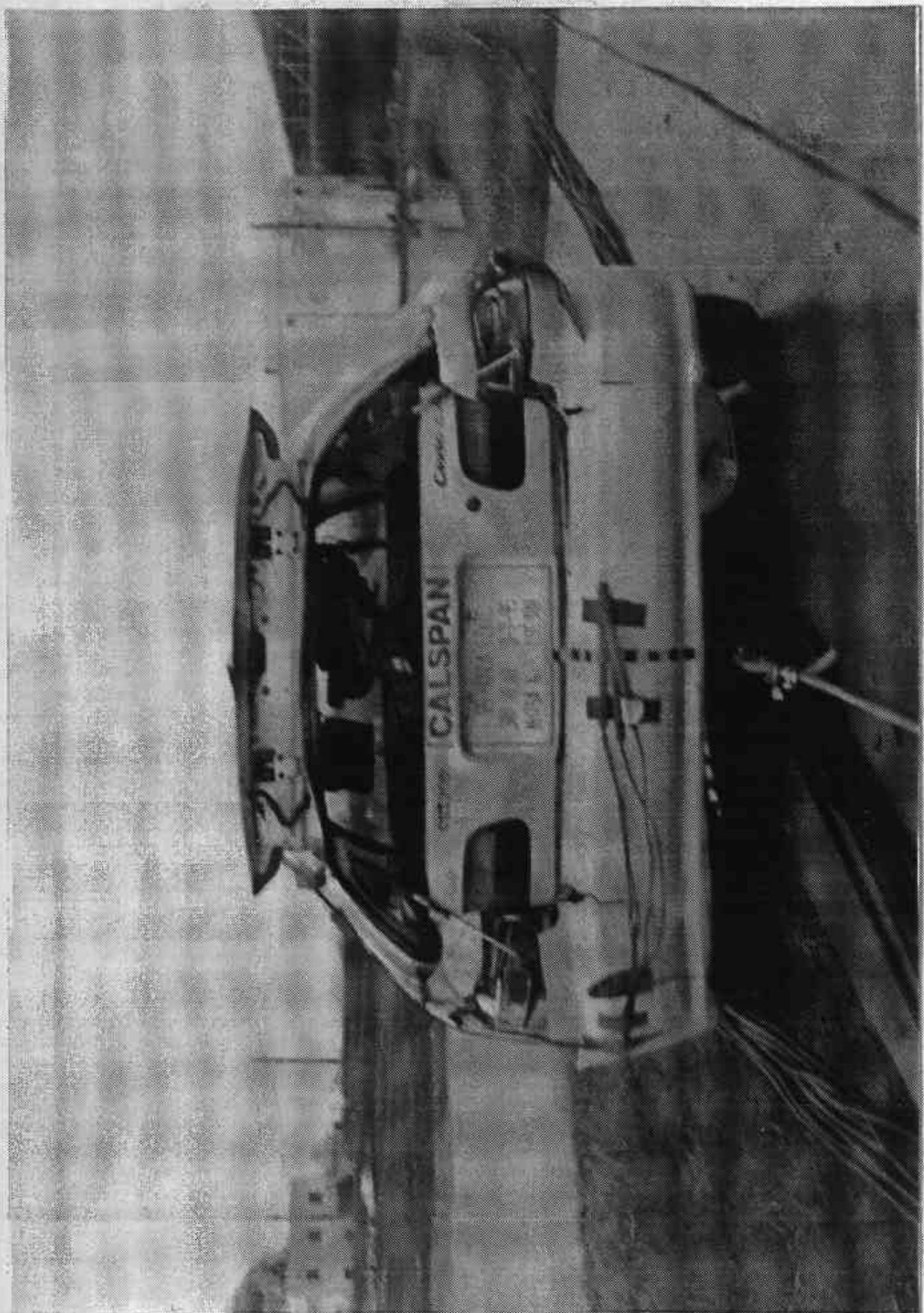


Figure A-8 POST-TEST REAR VIEW

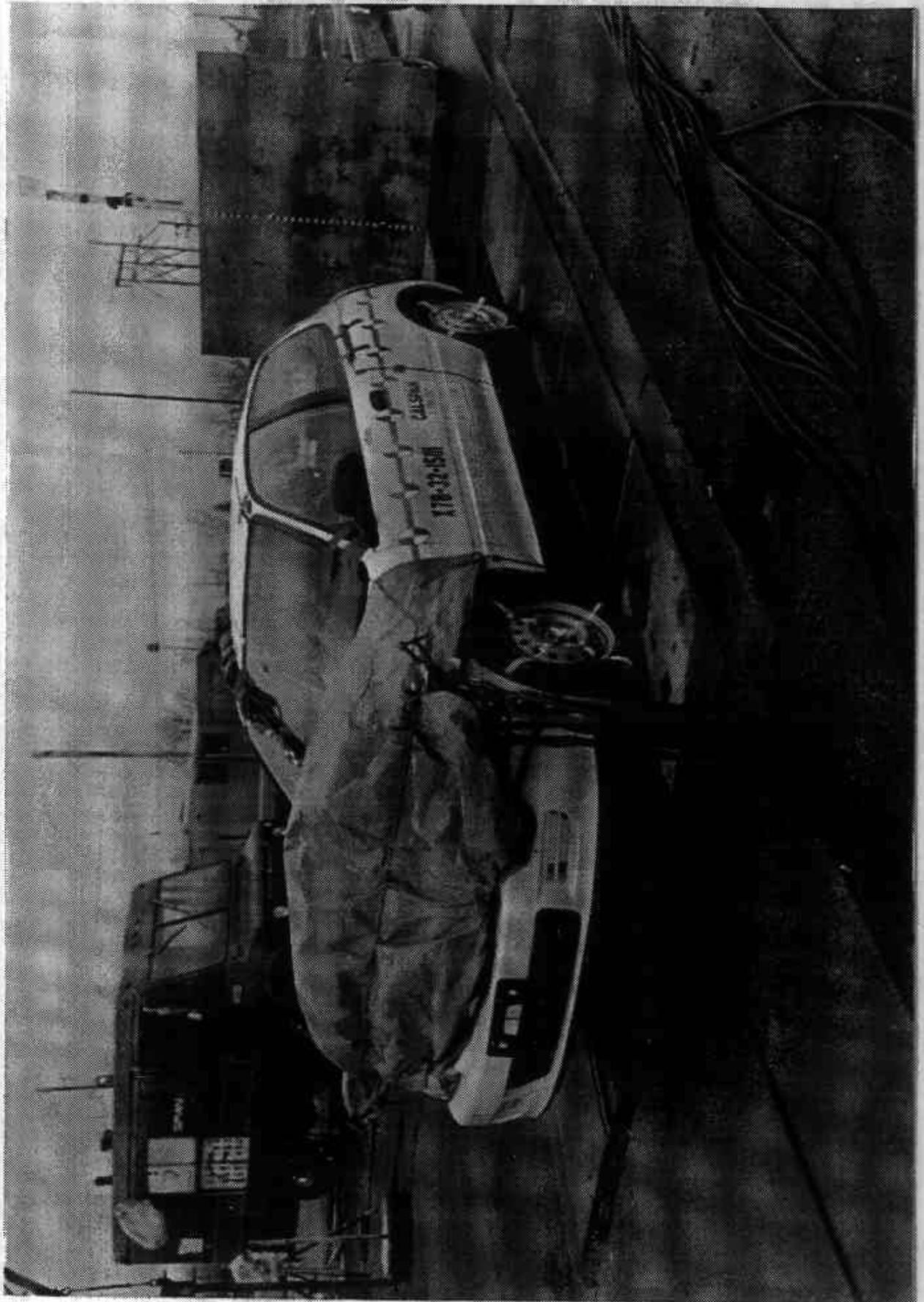


Figure A-9 PRE-TEST LEFT FRONT THREE-QUARTER VIEW

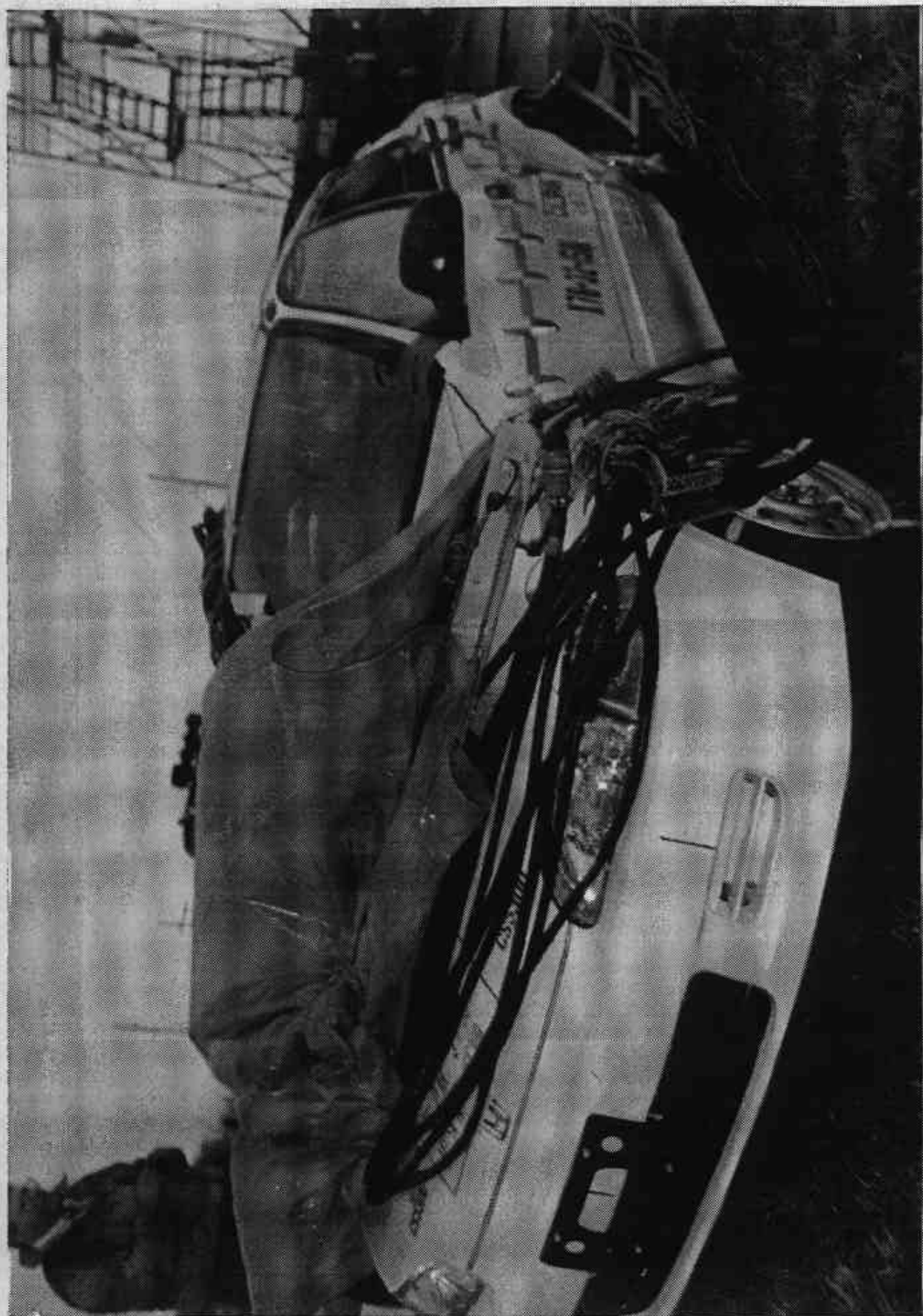


Figure A-10 POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-11 PRE-TEST RIGHT REAR THREE-QUARTER VIEW

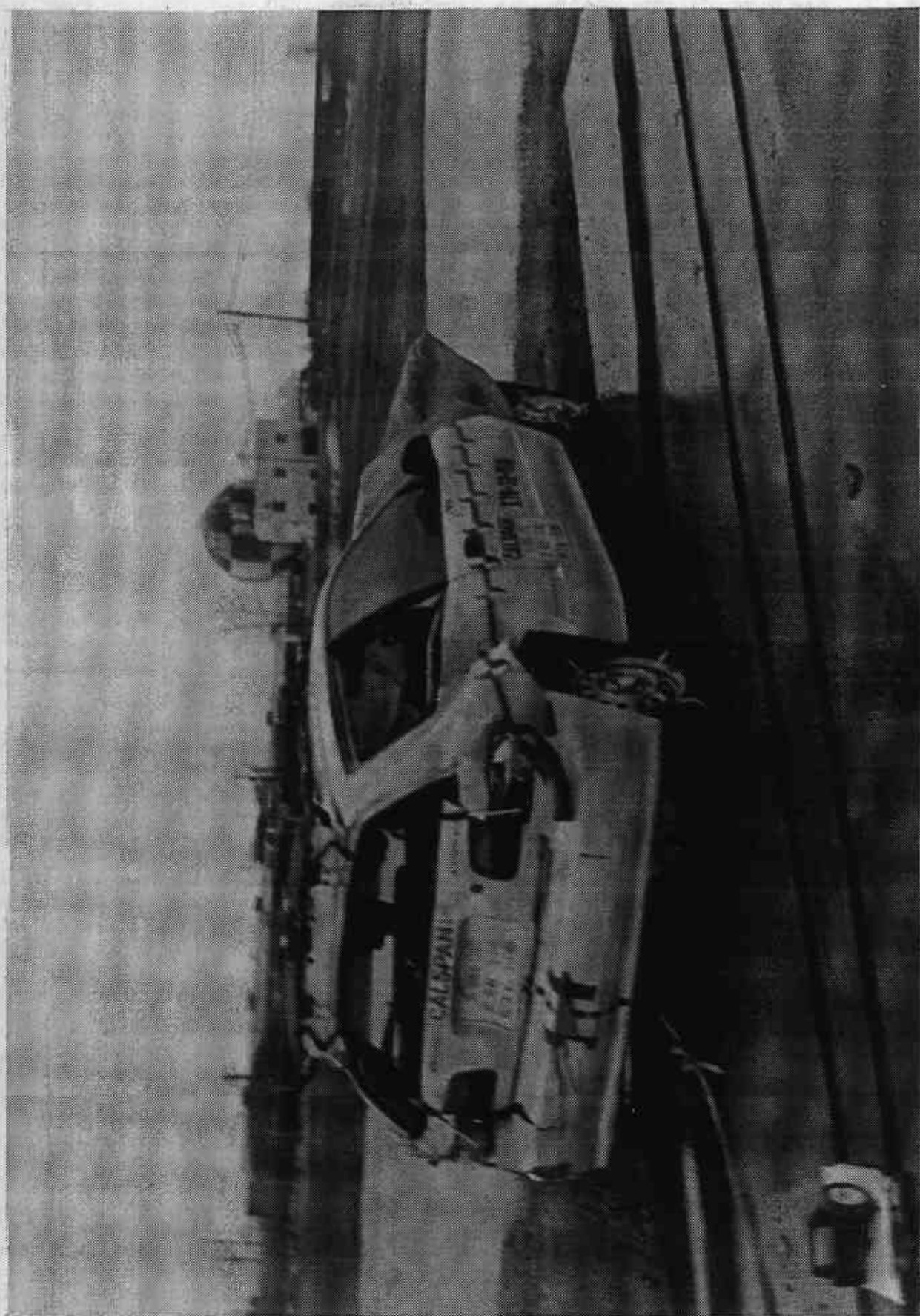


Figure A-12 POST-TEST RIGHT REAR THREE-QUARTER VIEW

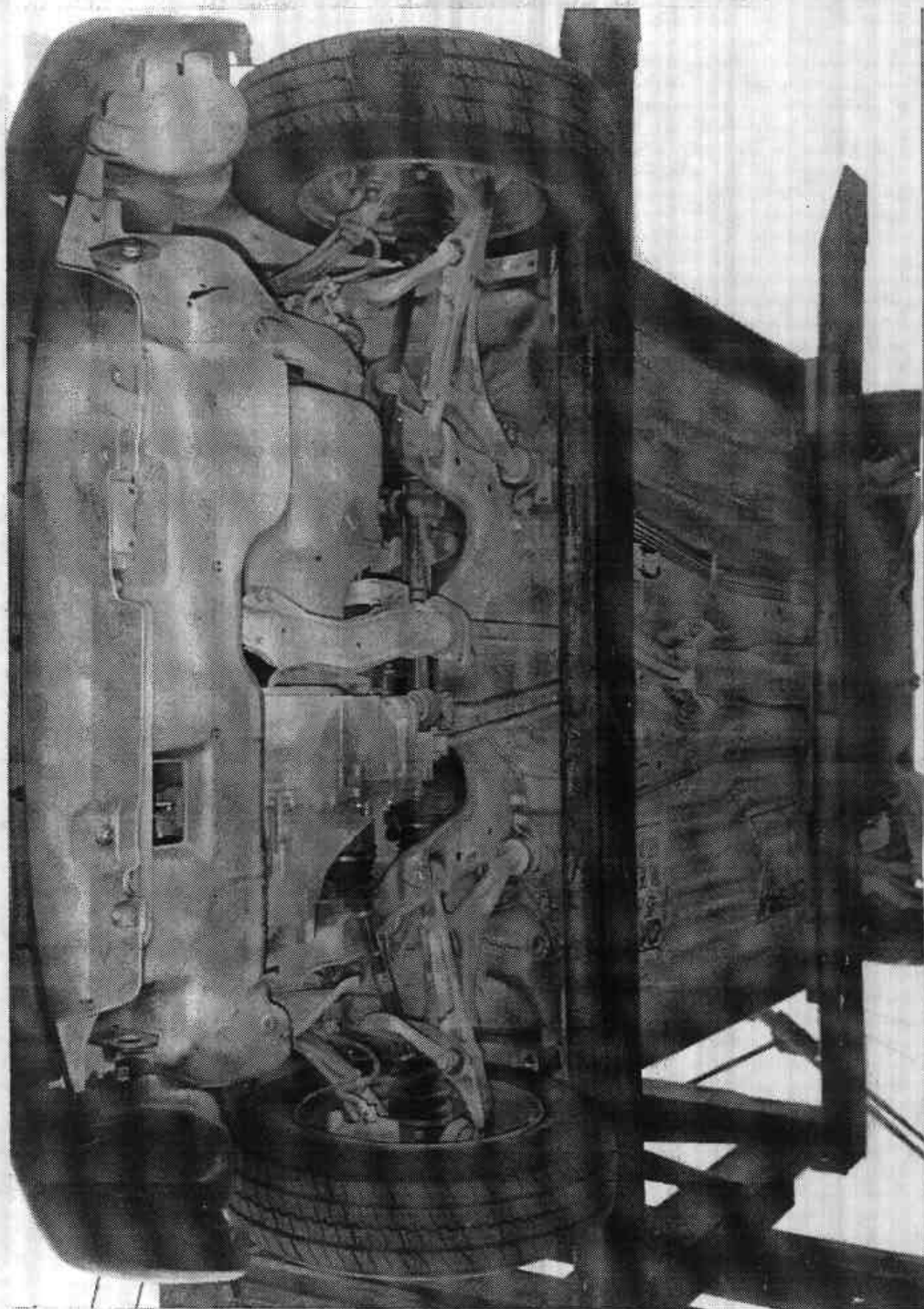


Figure A-13 PRE-TEST FRONT UNDERBODY VIEW



Figure A-14 POST-TEST FRONT UNDERBODY VIEW



Figure A-15 PRE-TEST REAR UNDERBODY VIEW

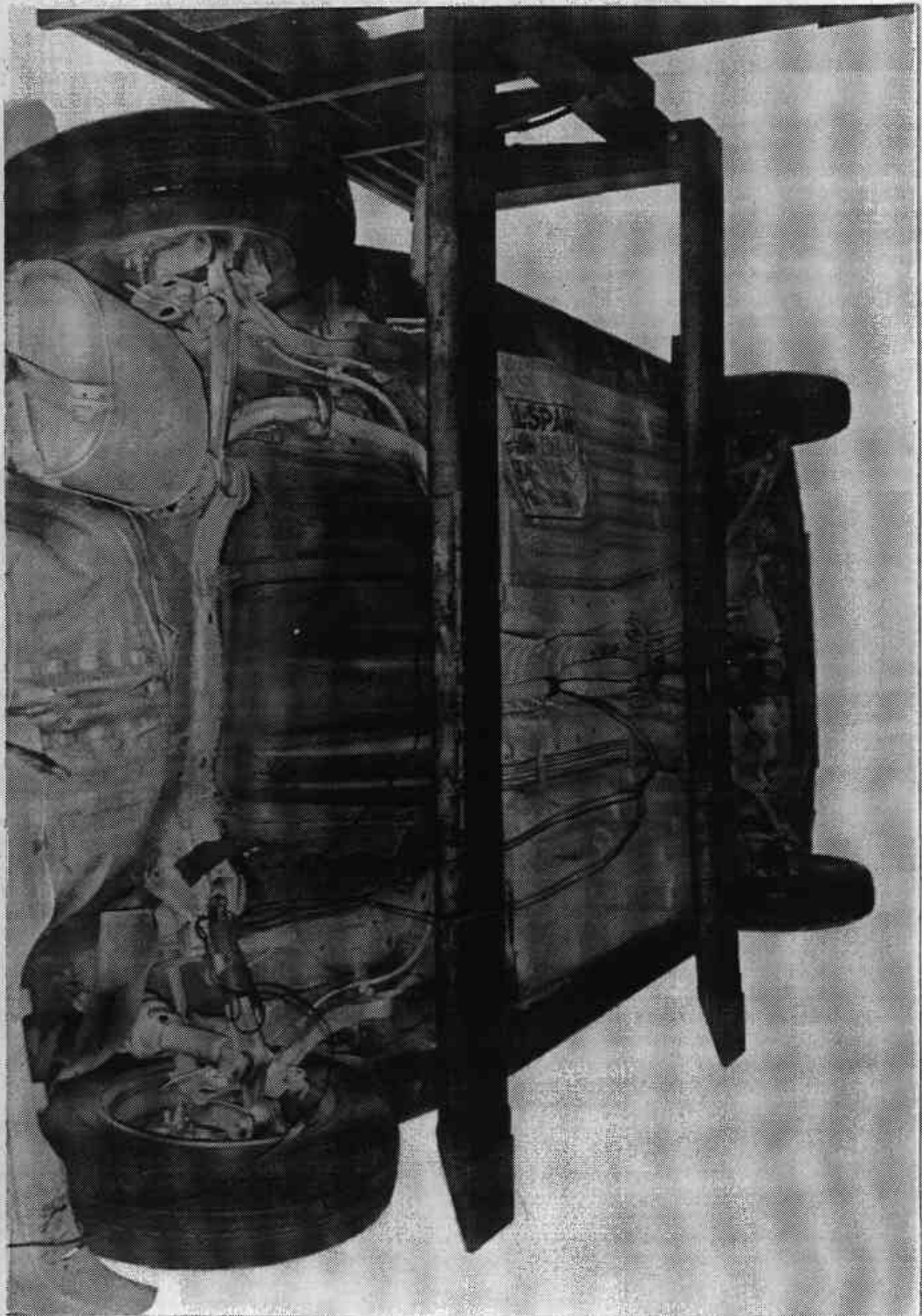


Figure A-16 POST-TEST REAR UNDERBODY VIEW

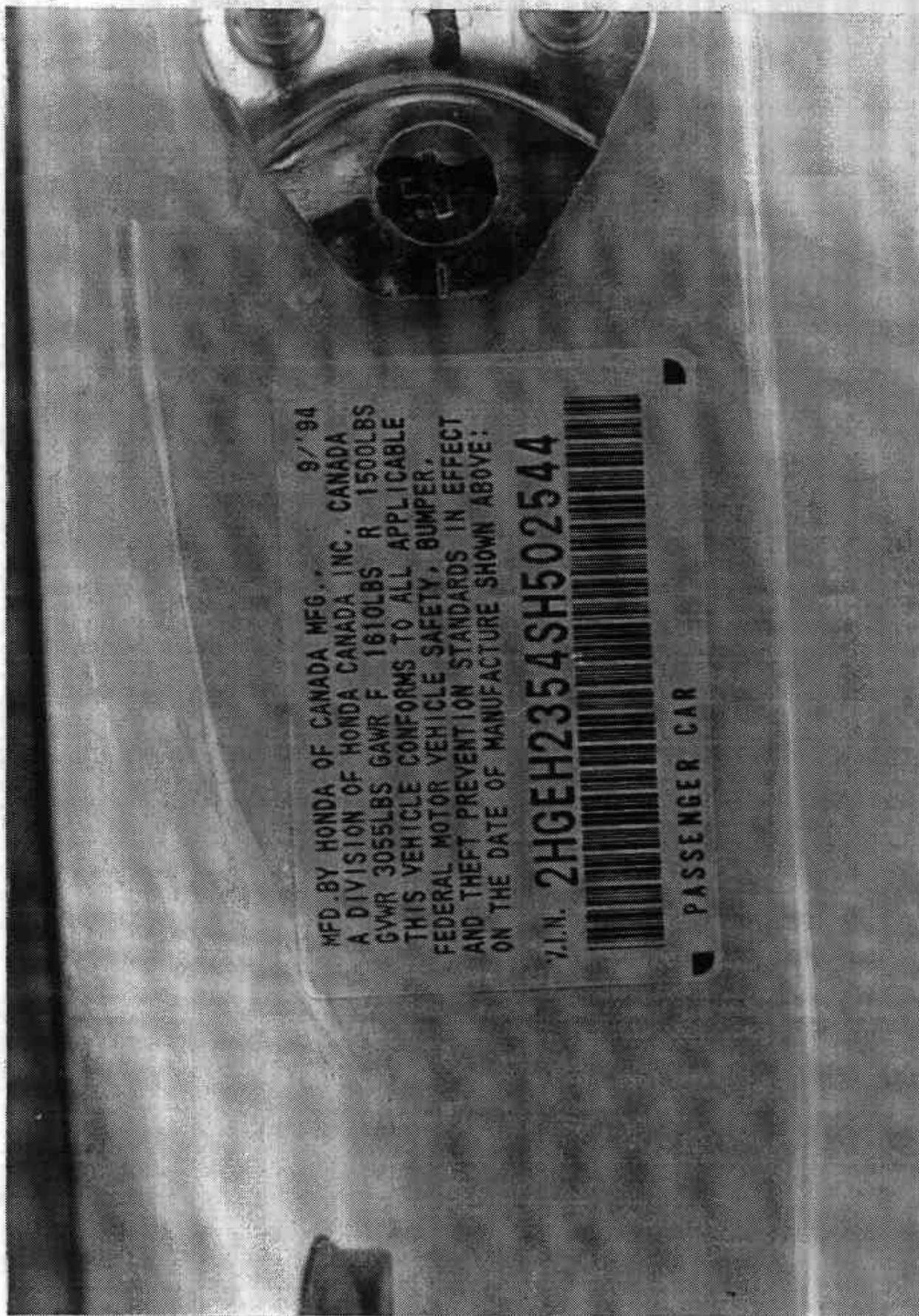
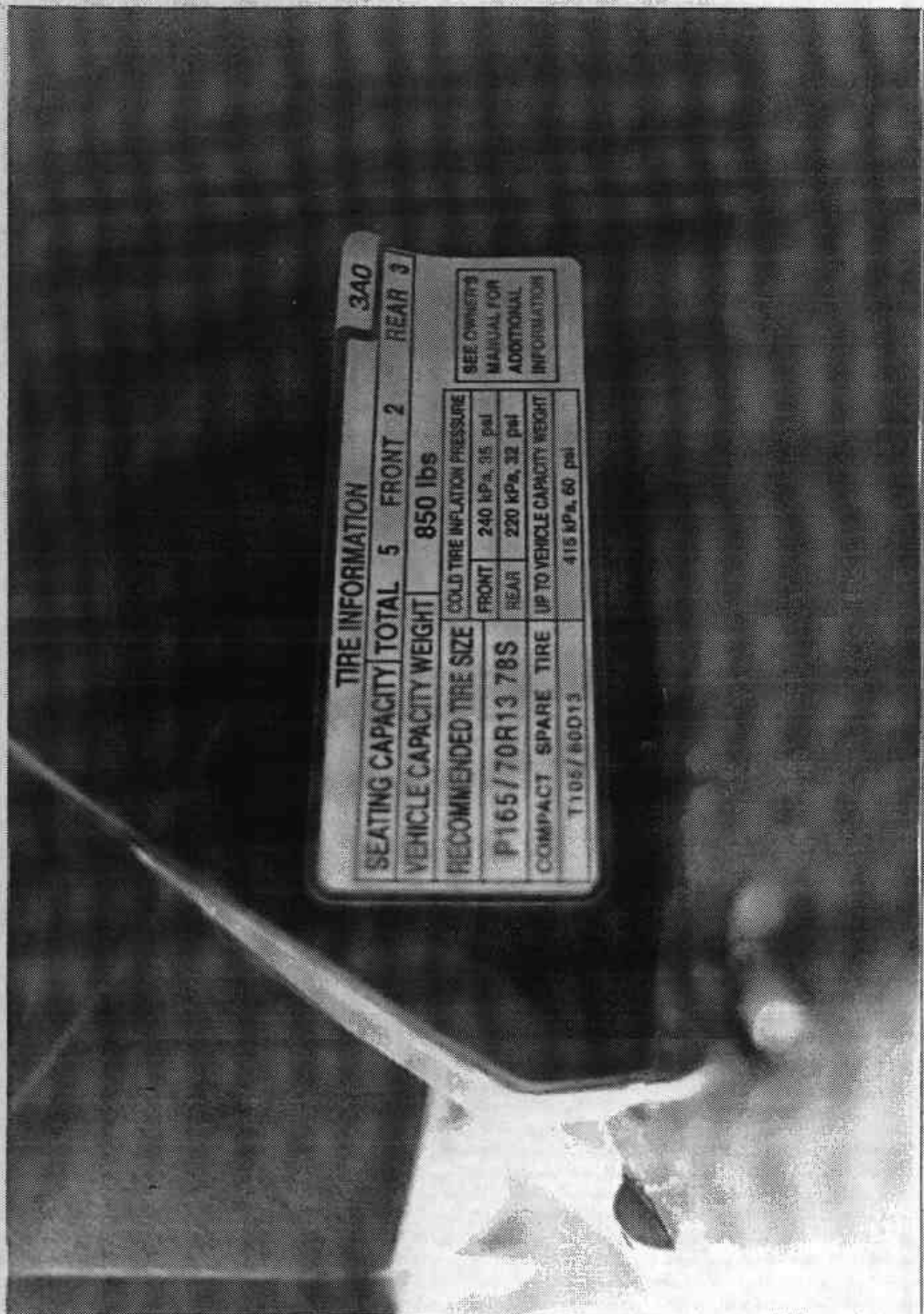


Figure A-17 CERTIFICATION PLACARD



TIRE INFORMATION				340
SEATING CAPACITY	TOTAL	5	FRONT	2
VEHICLE CAPACITY WEIGHT		850 lbs	REAR	3
RECOMMENDED TIRE SIZE		COLD TIRE INFLATION PRESSURE		
P165/70R13 78S	COMPACT	SPARE	TIRE	UP TO VEHICLE CAPACITY WEIGHT
	T105/80D13			415 kPa, 60 psi
		SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION		

Figure A-18 TIRE PLACARD

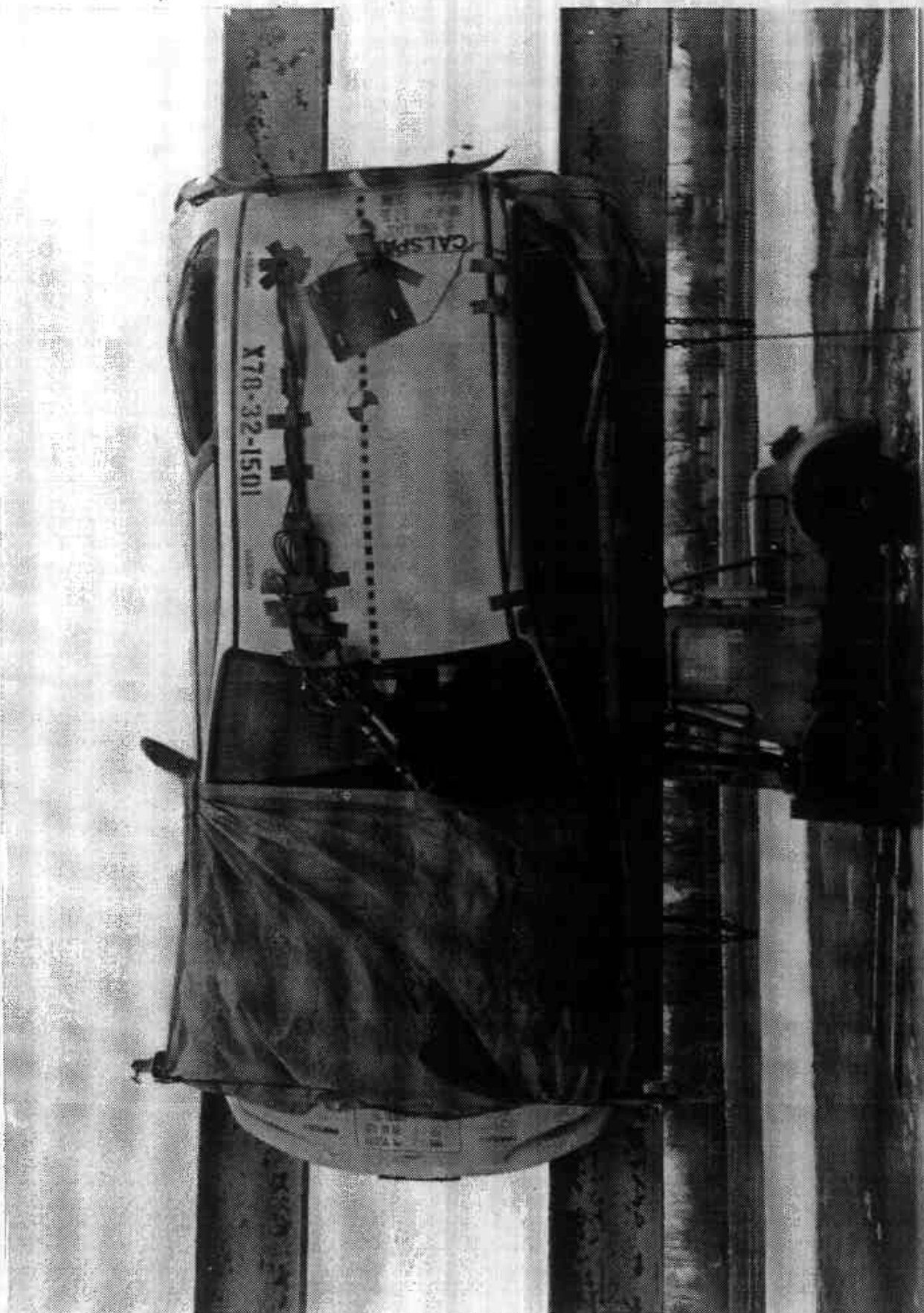


Figure A-19 ROLLOVER 90°



Figure A-20 ROLLOVER 180°

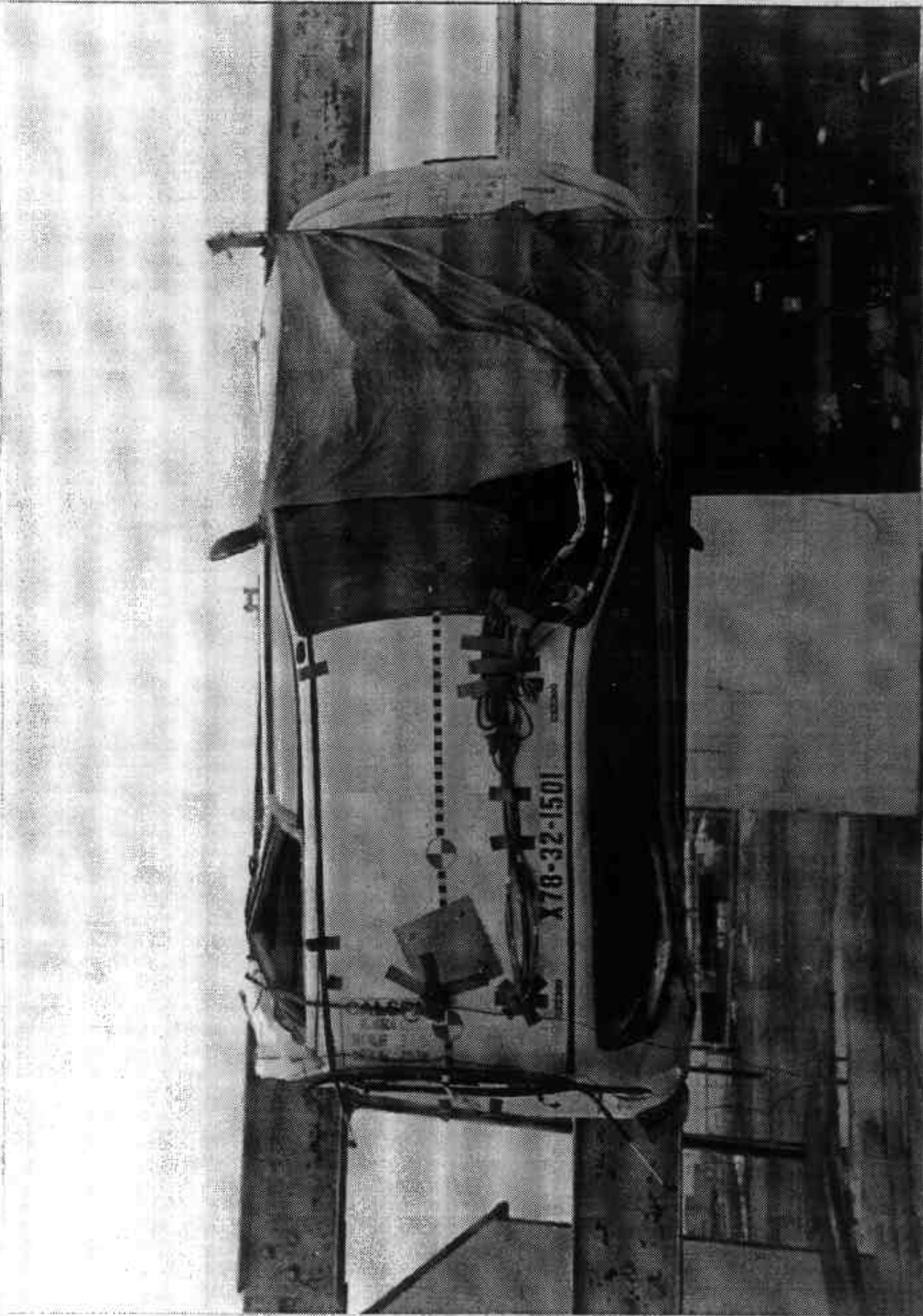


Figure A-21 ROLLOVER 270°

PHOTOGRAPH NOT AVAILABLE

Appendix B

VEHICLE AND DUMMY RESPONSE DATA

(REAR IMPACT ONLY)

RUN #: 1501 TEST TIME: 15:15:53
 SERIES #: 1 BOARD: a

TITLE: 301 Rear 30 MPH-1995 Honda Civic

CHANNEL NUMBER	DESCRIPTION	ENGR UNIT	MAXIMUM		MINIMUM		FILTER CLASS
			AMP	msec	AMP	msec	
1	Pos. 1 Head X	Gs	58.4	136.1	-3.6	52.7	1000.0
2	Pos. 1 Head Y	Gs	4.2	73.2	-34.4	132.4	1000.0
3	Pos. 1 Head Z	Gs	29.3	129.6	-3.2	157.1	1000.0
4	Pos. 1 Chest Disp.	Ins	N/A	N/A	N/A	N/A	180.0
5	Pos. 1 Chest X	Gs	14.0	64.3	-.4	355.7	180.0
6	Pos. 1 Chest Y	Gs	.9	66.4	-7.3	125.3	180.0
7	Pos. 1 Chest Z	Gs	9.4	74.6	-1.2	211.4	180.0
8	Pos. 1 Lap Belt	lbs	130.4	144.4	-23.7	49.6	60.0
9	Pos. 1 Pelvic X	Gs	16.2	59.5	-6.9	155.5	1000.0
10	Pos. 1 Pelvic Y	Gs	4.6	359.9	-5.2	90.0	1000.0
11	Pos. 1 Pelvic Z	Gs	11.0	53.5	-7.6	241.7	1000.0
12	Pos. 1 Belt Spoolout	Ins	.1	1.2	-4.7	58.1	60.0
13	Pos. 1 Upper Neck Fx	lbs	85.0	241.6	-55.0	31.8	1000.0
14	Pos. 1 Upper Neck Fy	lbs	33.5	72.2	-80.8	132.7	1000.0
15	Pos. 1 Upper Neck Fz	lbs	209.1	118.0	-151.7	137.9	1000.0
16	Left Rear Crossmember X	Gs	78.3	16.1	-31.7	7.3	60.0
17	Pos. 1 Head Resultant	Gs	70.7	133.3	.0	1.6	1000.0
18	Pos. 1 Chest Resultant	Gs	16.1	64.2	.0	-46.4	180.0
19	Pos. 1 Pelvic Resultant	Gs	19.5	52.0	.0	1.7	1000.0
20	Pos. 1 Neck Force Res.	lbs	214.0	118.0	.8	4.1	1000.0

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

hic: 437.82
 t1 = 124.320 msec
 t2 = 141.720 msec
 Average G's Over Hic Duration = 57.58

CLIP SUMMARY: Pos. 1 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 15.038 G's
 Tstart = 62.7600 ms
 Tend = 65.8800 ms
 CSI = 45.764

RUN #: 1501 TEST TIME: 15:15:53
SERIES #: 1 BOARD: b

TITLE: 301 Rear 30 MPH-1995 Honda Civic

CHANNEL NUMBER	DESCRIPTION	ENGR UNIT	MAXIMUM		MINIMUM		FILTER CLASS
			AMP	msec	AMP	msec	
1	Pos. 1 Upper Neck Mx	ft-lbs	24.4	133.7	-3.3	112.2	600.0
2	Pos. 1 Upper Neck My	ft-lbs	23.7	137.5	-13.7	119.2	600.0
3	Pos. 1 Upper Neck Mz	ft-lbs	7.3	75.4	-5.2	119.2	600.0
4	Right Rear Crossmember X	Gs	107.2	17.3	-45.2	9.6	60.0
5	Upper Seatback X	Gs	45.9	33.8	-26.0	64.6	60.0
6	Lower Seatback X	Gs	30.2	32.9	-13.0	132.6	60.0
17	Pos. 1 Neck Moment Res.	ft-lbs	31.4	136.3	.0	-77.8	600.0

TEST NO. CS5300

VEHICLE

SAE FILTER CHANNEL CLASS

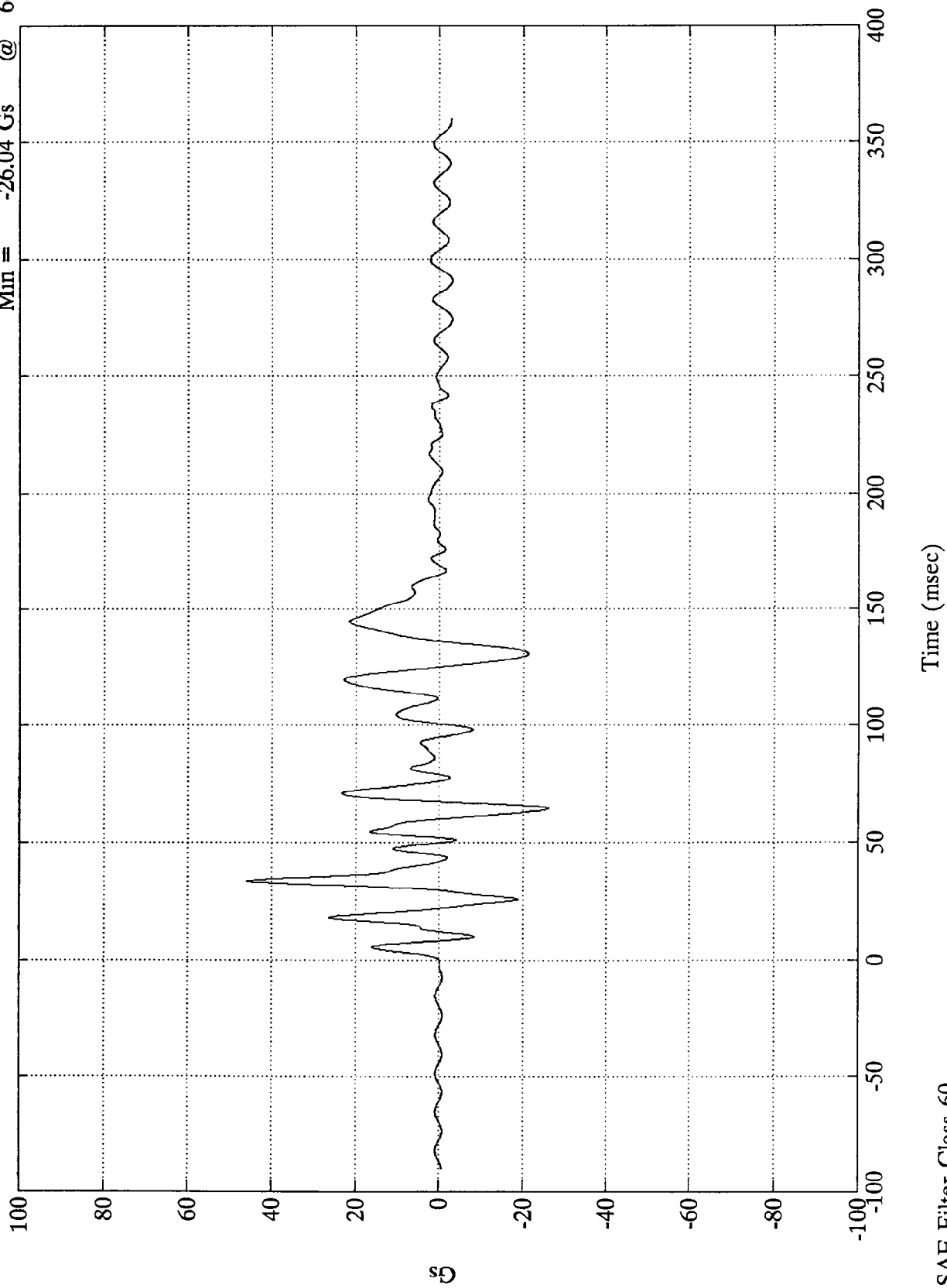
60

Note: Angular seatback position is measured in degrees of rotation from the initial (design) position.

301 Rear 30 MPH-1995 Honda Civic

Upper Seatback X

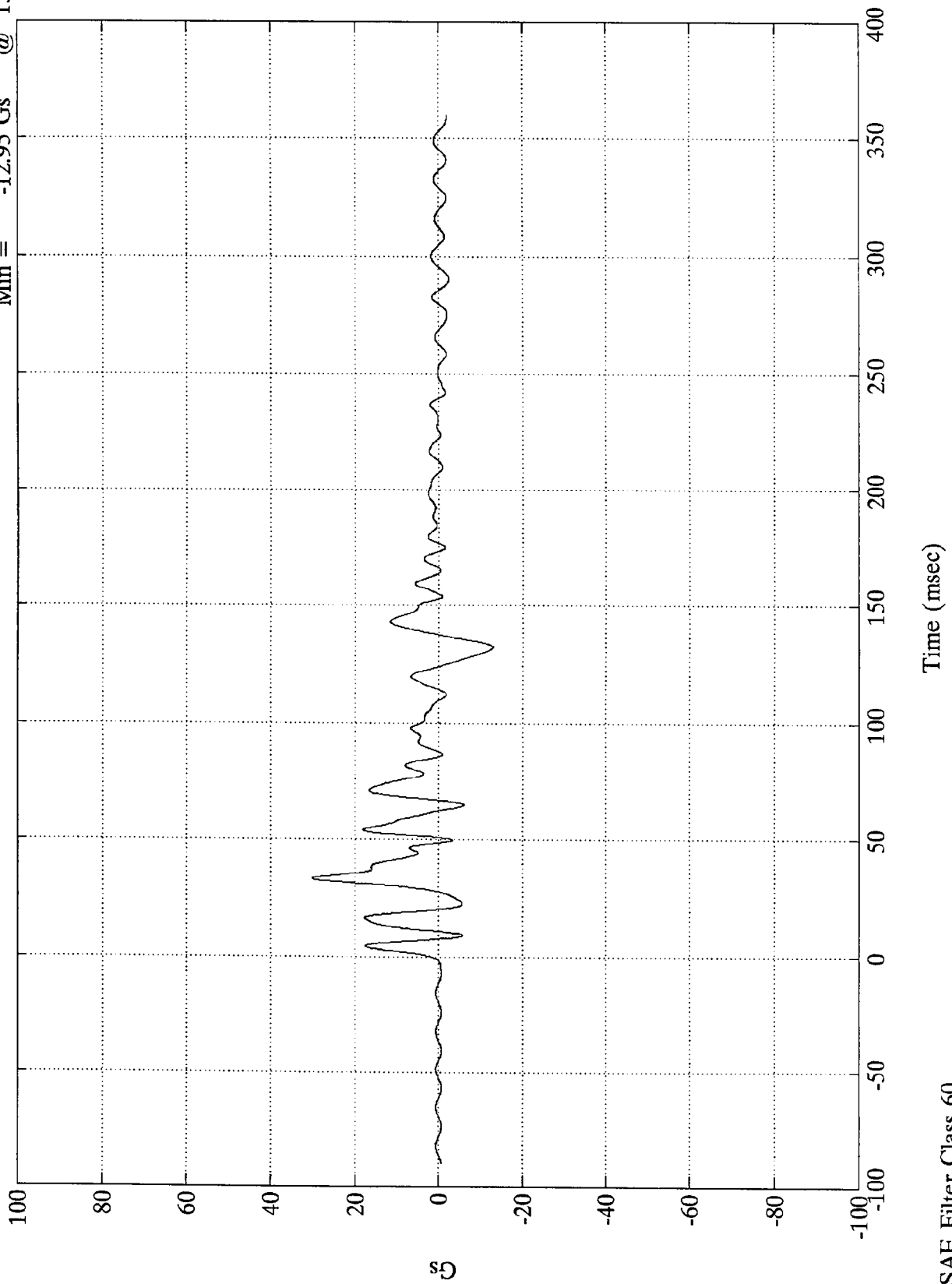
Max = 45.86 Gs @ 33.84 msec
Min = -26.04 Gs @ 64.56 msec



301 Rear 30 MPH-1995 Honda Civic

Max = 30.22 Gs @ 32.88 msec
Min = -12.95 Gs @ 132.60 msec

Lower Seatback X

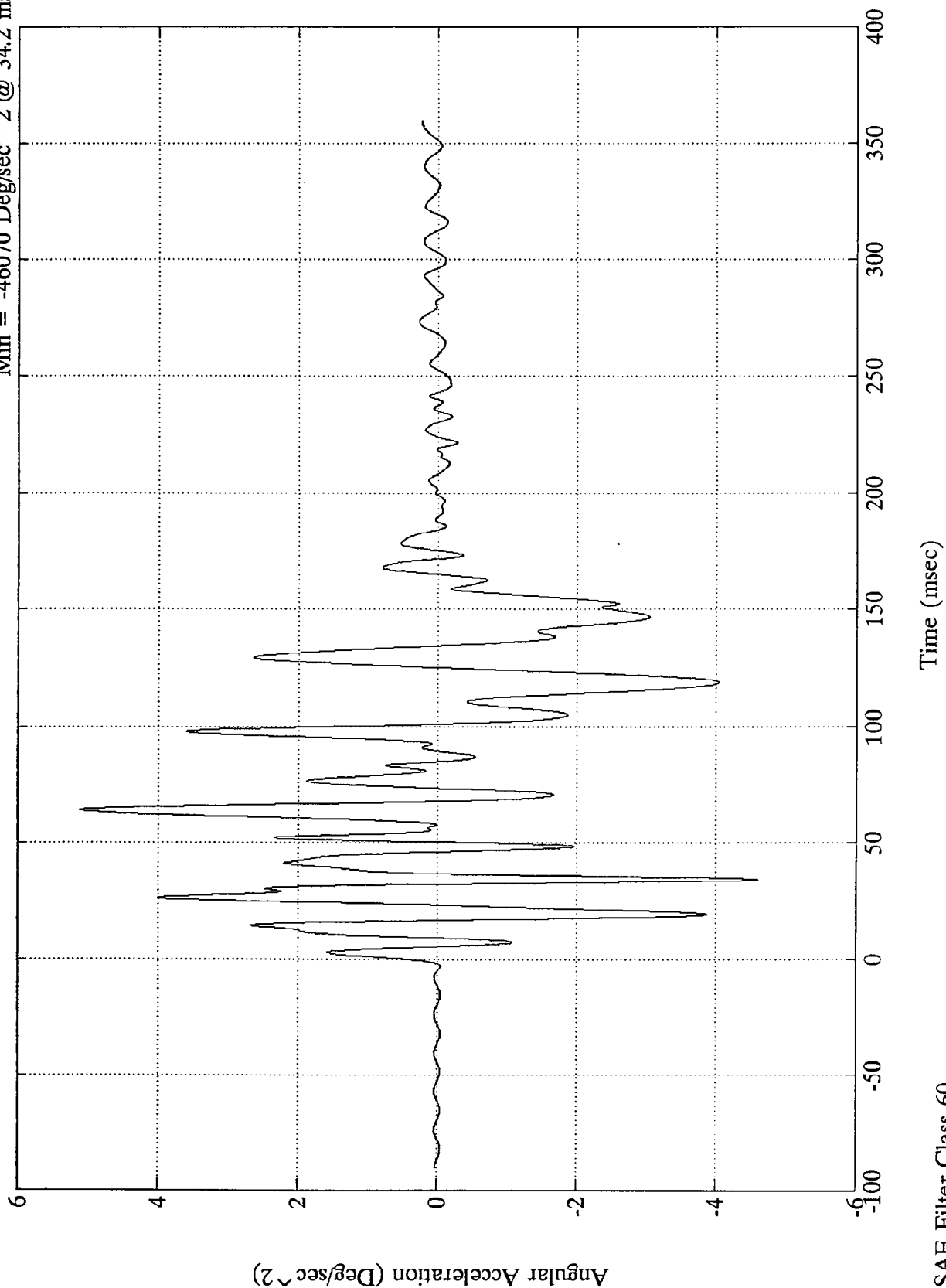


301 Rear 30 MPH-1995 Honda Civic

Max = 51140 Deg/sec² @ 64.08 msec
Min = -46070 Deg/sec² @ 34.2 msec

Seaback Angular Acceleration

x10⁴

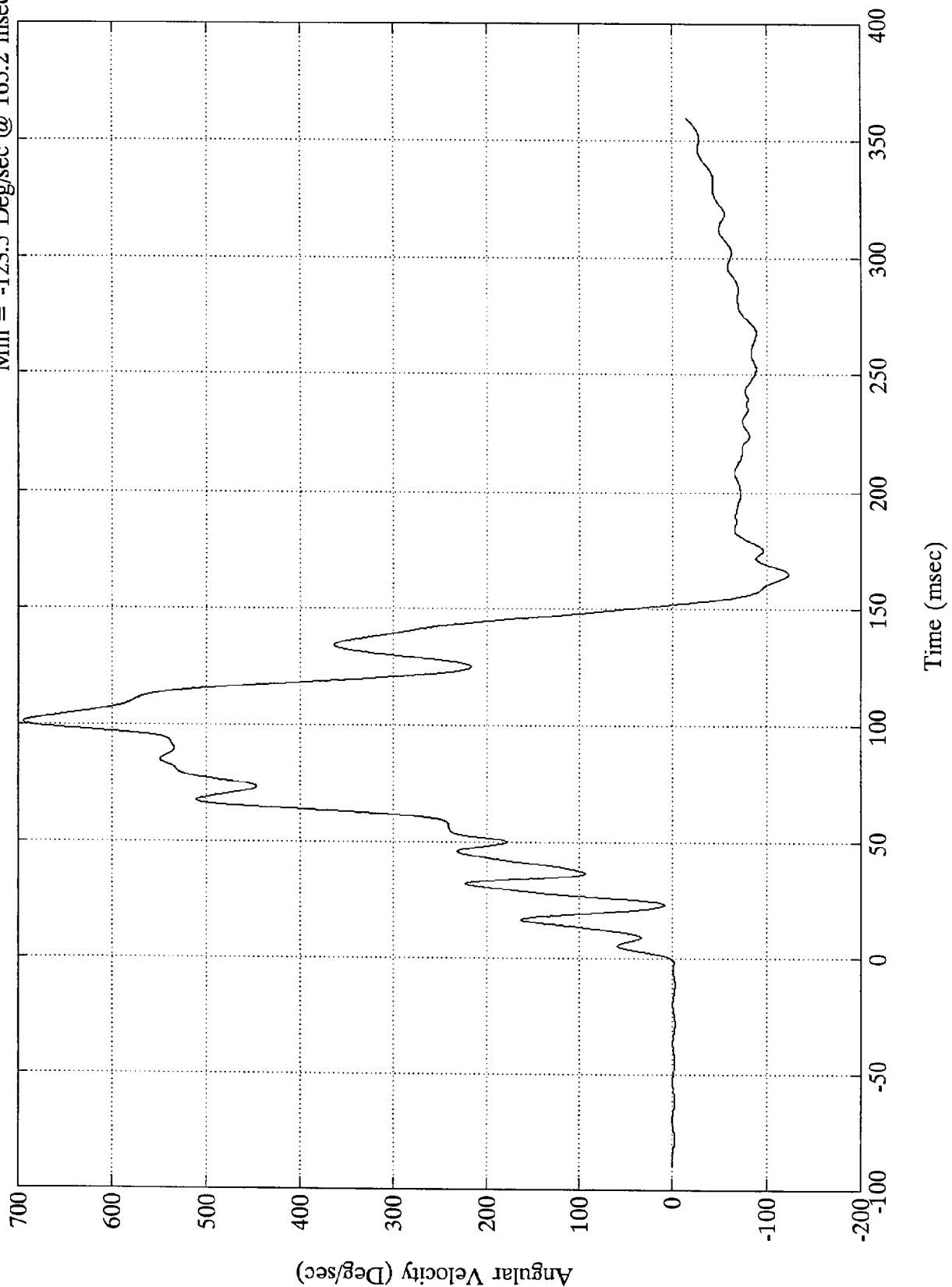


SAE Filter Class 60

301 Rear 30 MPH-1995 Honda Civic

Max = 695 Deg/sec @ 101 msec
Min = -123.5 Deg/sec @ 165.2 msec

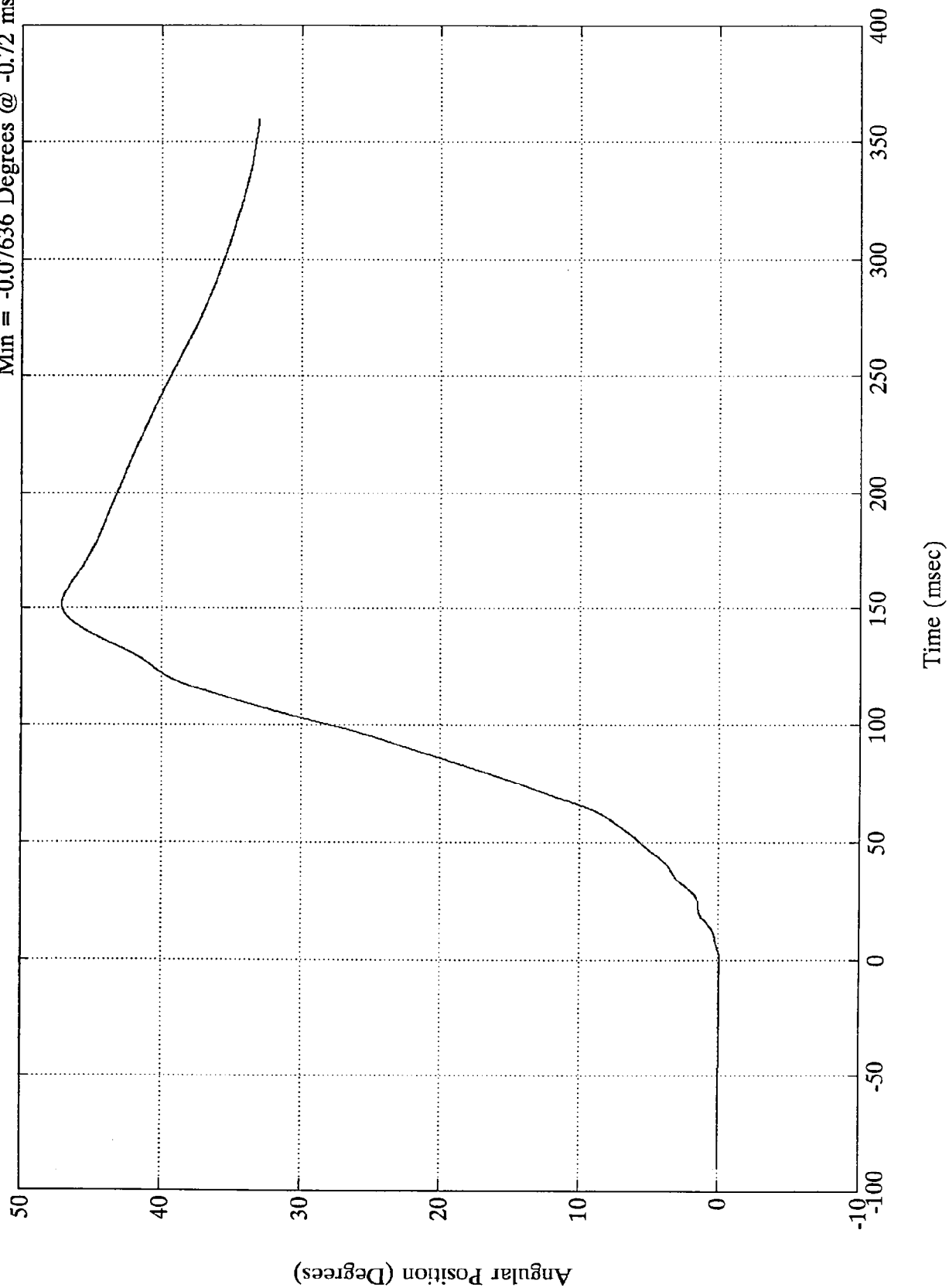
Seatback Angular Velocity



301 Rear 30 MPH-1995 Honda Civic

Max = 47.12 Degrees @ 152 msec
Min = -0.07636 Degrees @ -0.72 msec

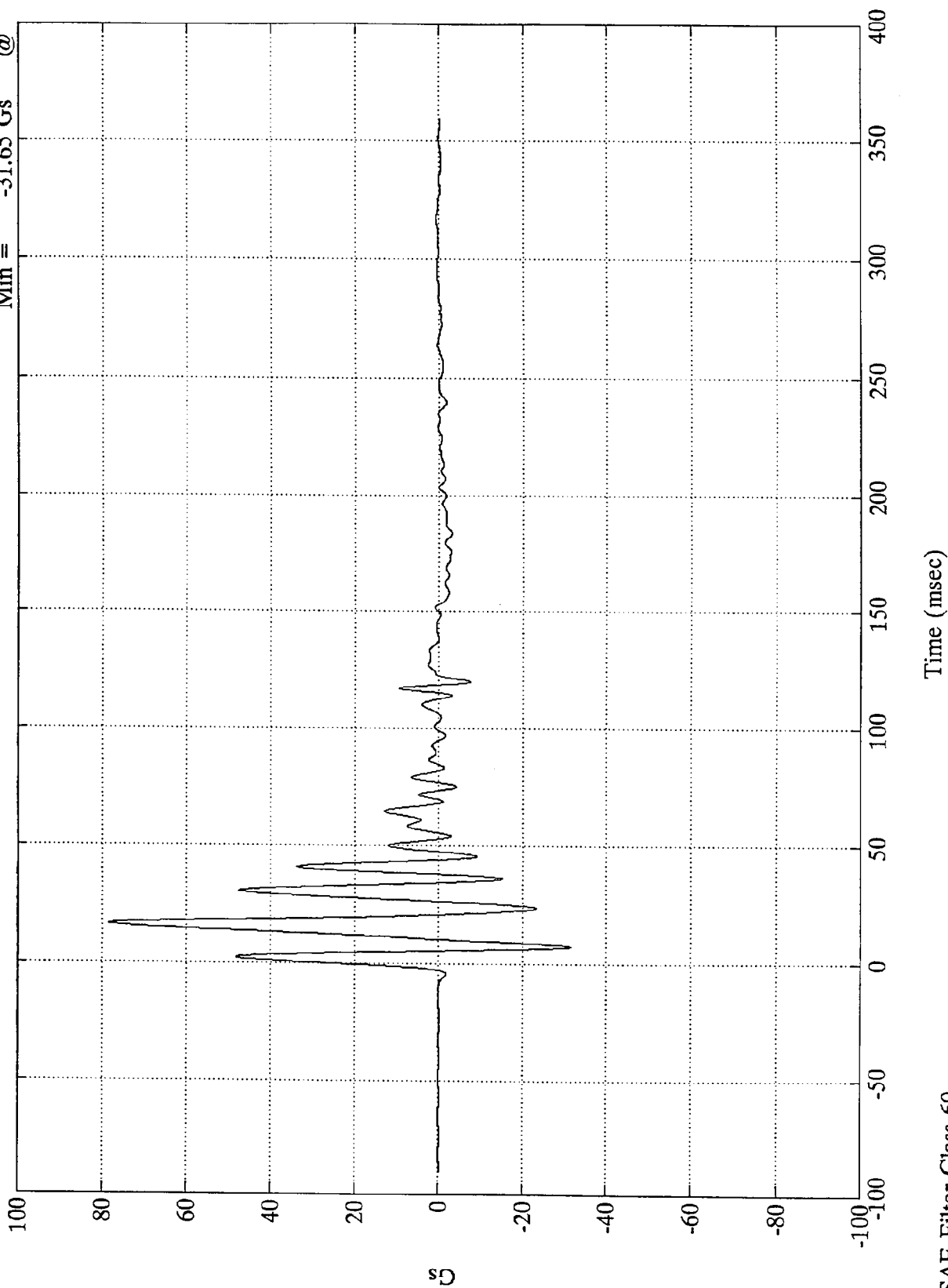
Seaback Angular Position



301 Rear 30 MPH-1995 Honda Civic

Left Rear Crossmember X

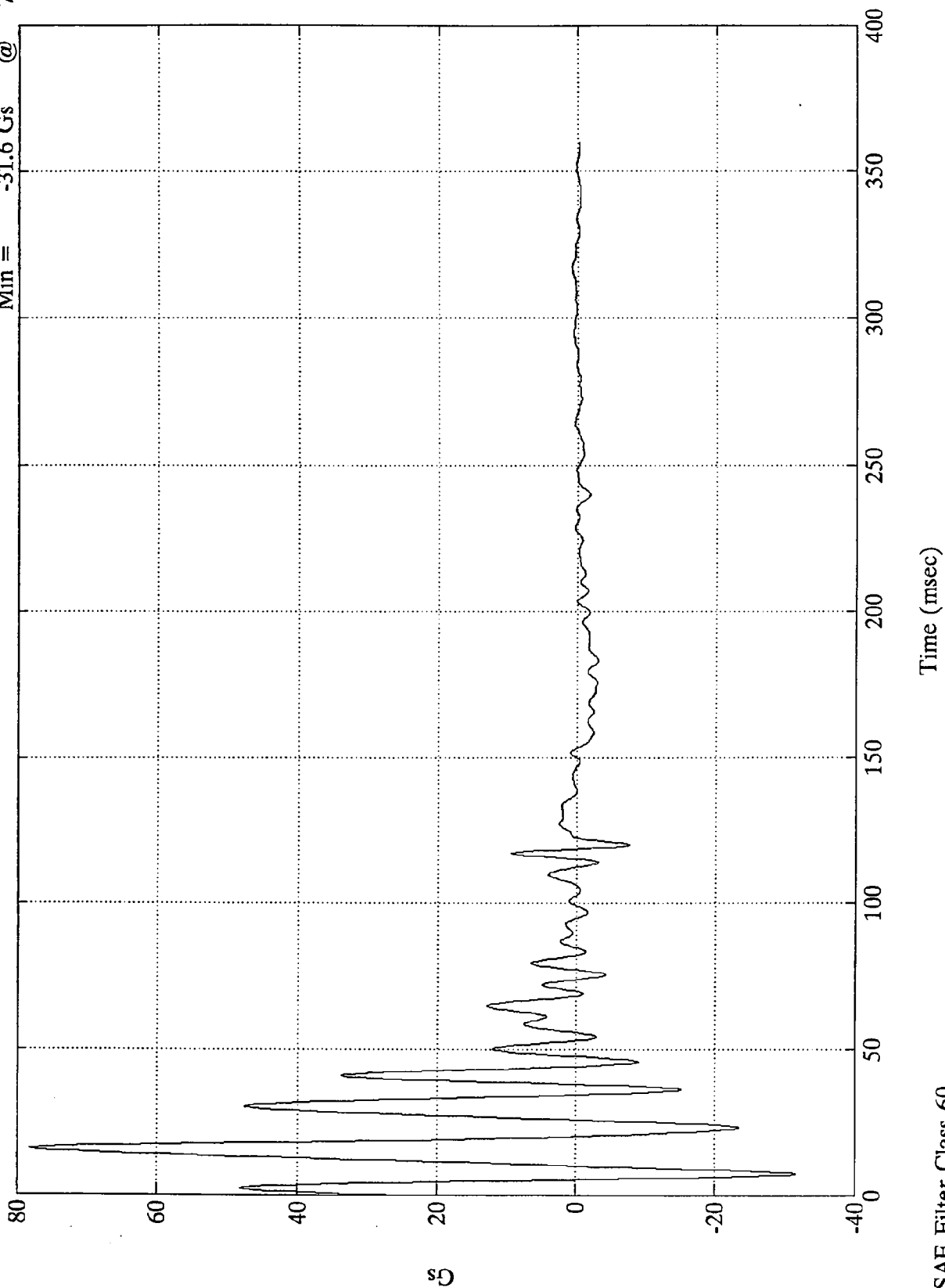
Max = 78.34 Gs @ 16.07 msec
Min = -31.65 Gs @ 7.31 msec



301 Rear 30 MPH-1995 Honda Civic

Left Rear Crossmember X

Max = 78.3 Gs @ 16.07 msec
Min = -31.6 Gs @ 7.31 msec

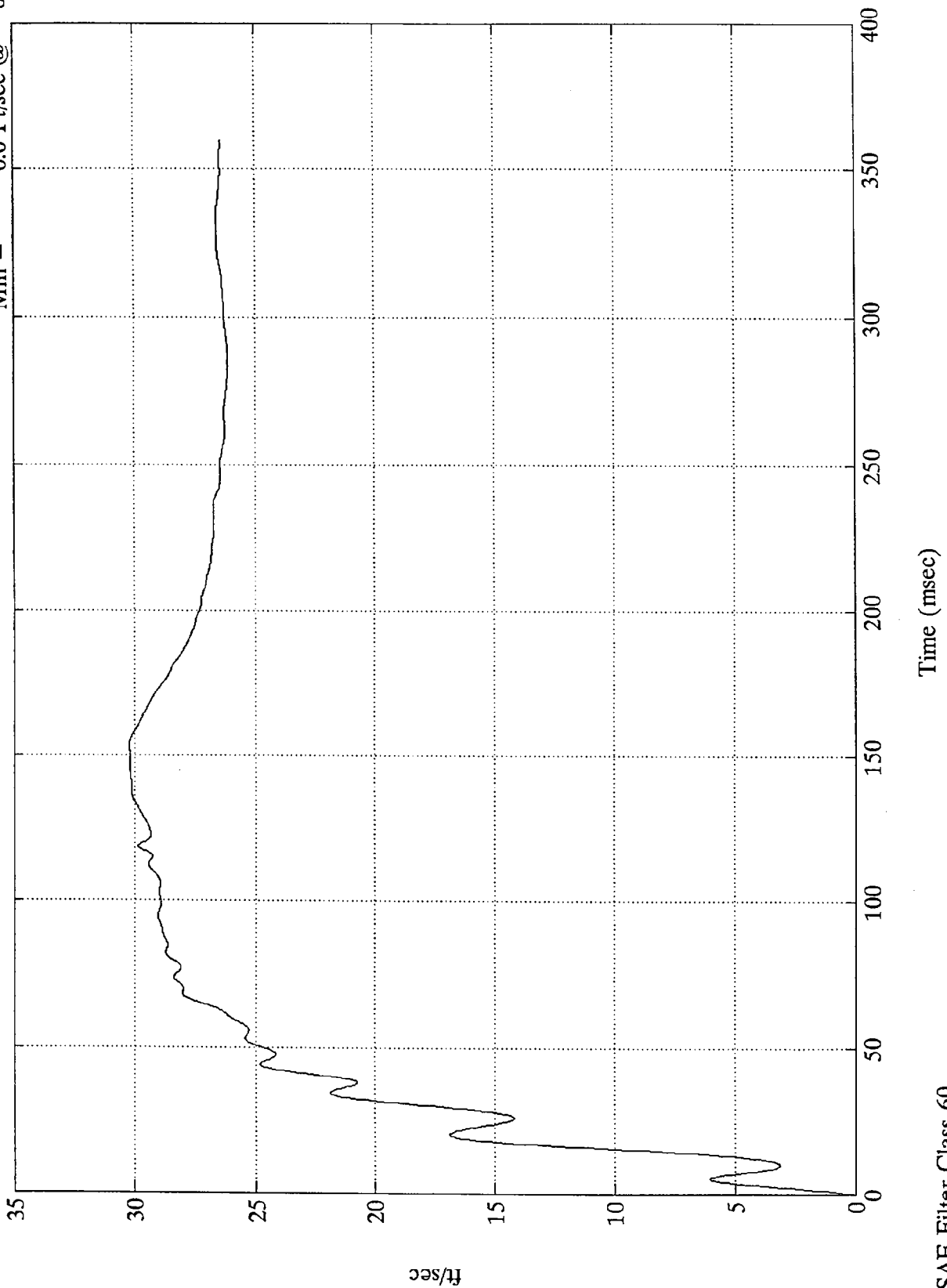


SAE Filter Class 60

301 Rear 30 MPH-1995 Honda Civic

1st Integral Left Rear Crossmember X

Max = 30.2 Ft/sec @ 153.24 msec
Min = 0.0 Ft/sec @ -0.00 msec

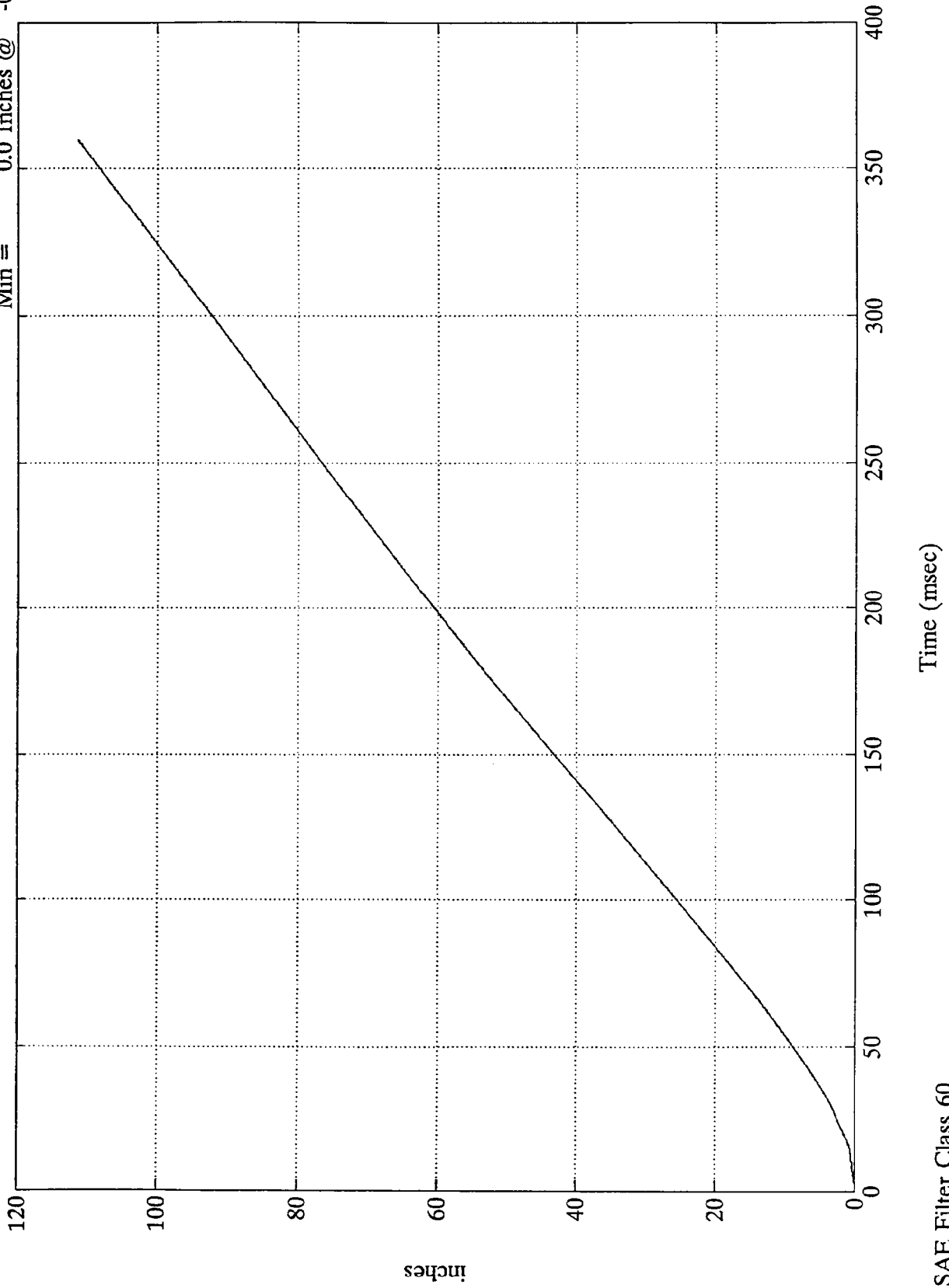


SAE Filter Class 60

301 Rear 30 MPH-1995 Honda Civic

2nd Integral Left Rear Crossmember X

Max = 111.3 Inches @ 359.88 msec
Min = 0.0 Inches @ -0.00 msec

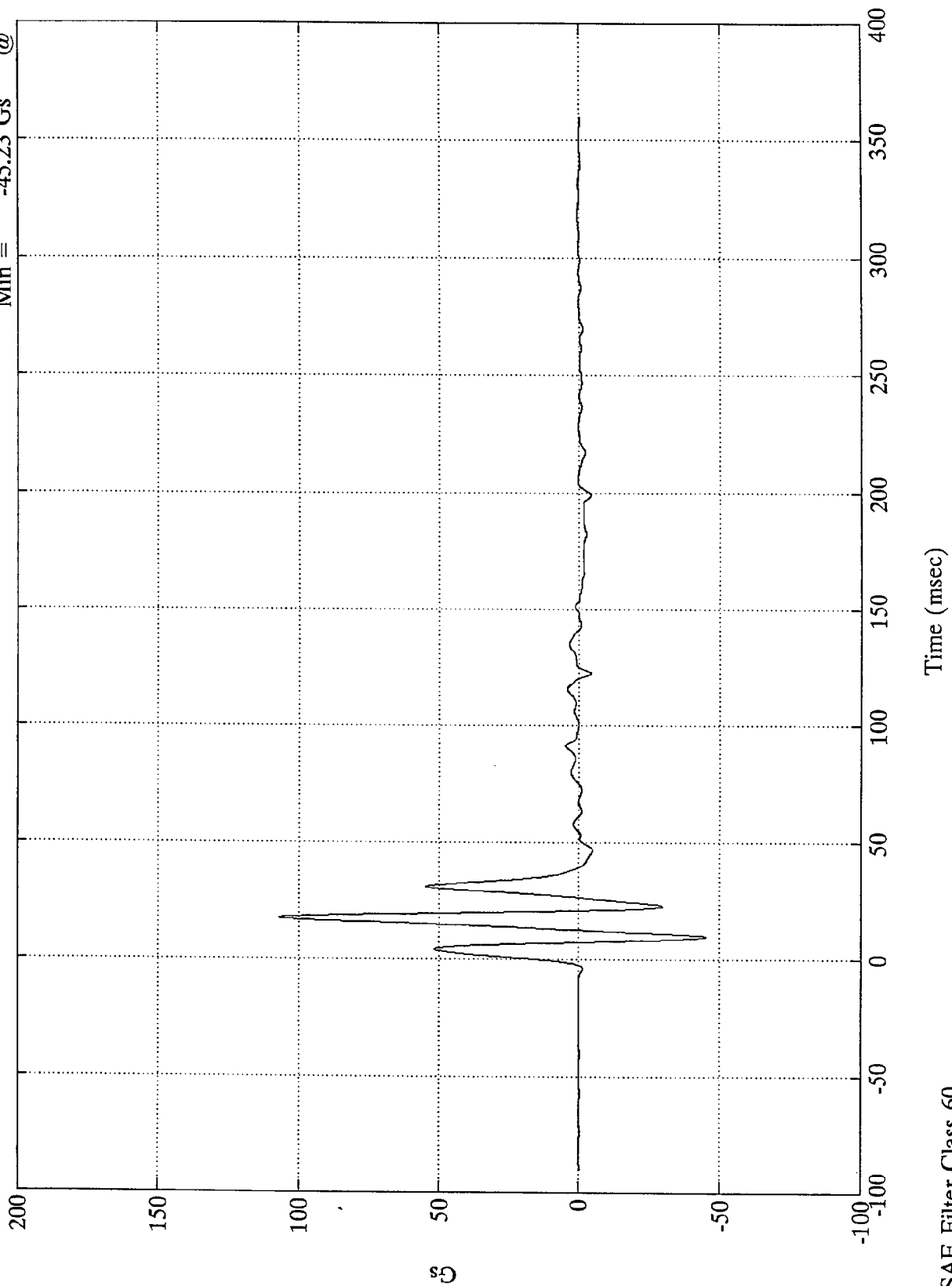


SAE Filter Class 60

301 Rear 30 MPH-1995 Honda Civic

Right Rear Crossmember X

Max = 107.24 Gs @ 17.27 msec
Min = -45.23 Gs @ 9.59 msec

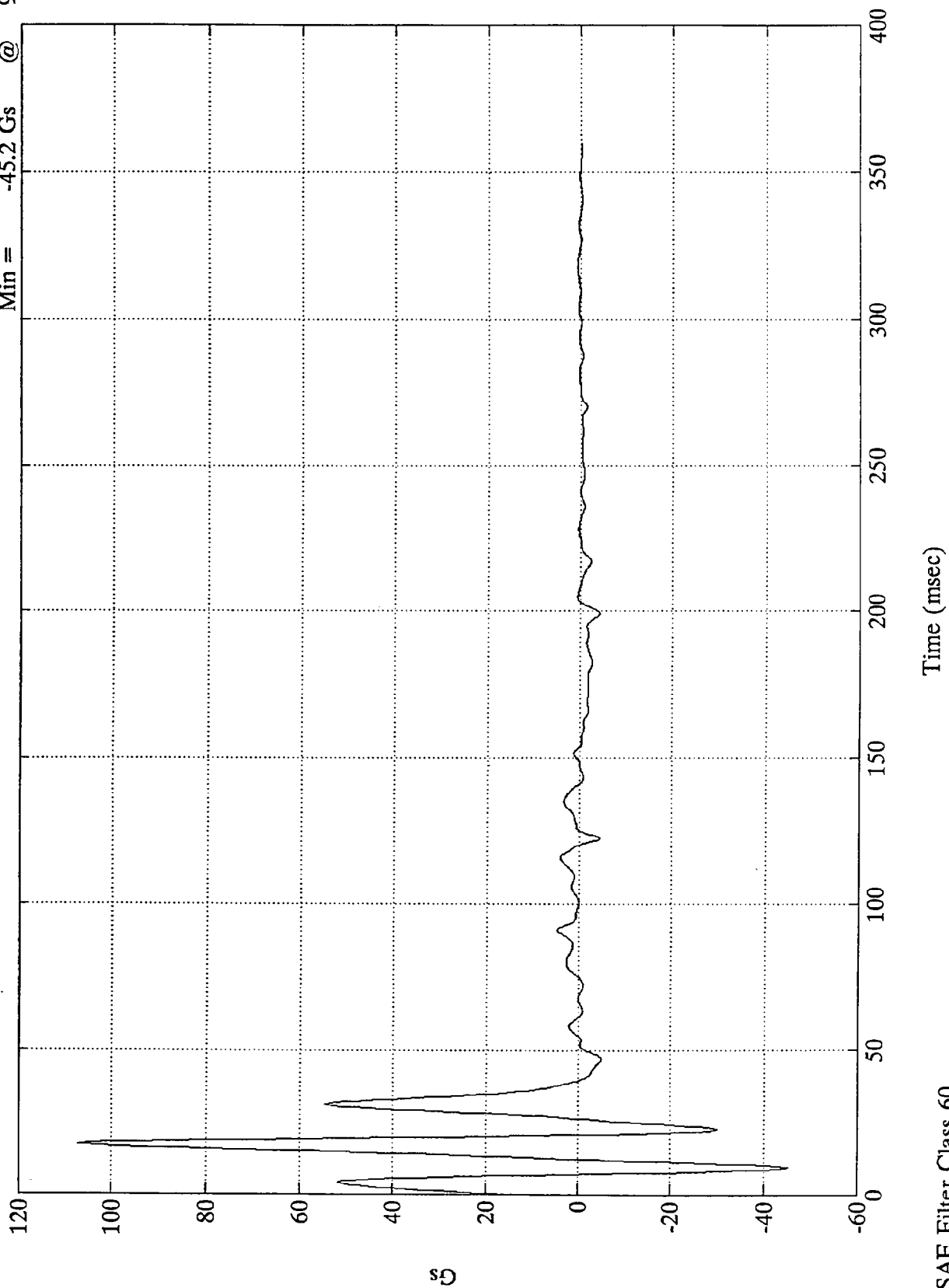


SAE Filter Class 60

301 Rear 30 MPH-1995 Honda Civic

Right Rear Crossmember X

Max = 107.2 Gs @ 17.40 msec
Min = -45.2 Gs @ 9.59 msec



SAE Filter Class 60

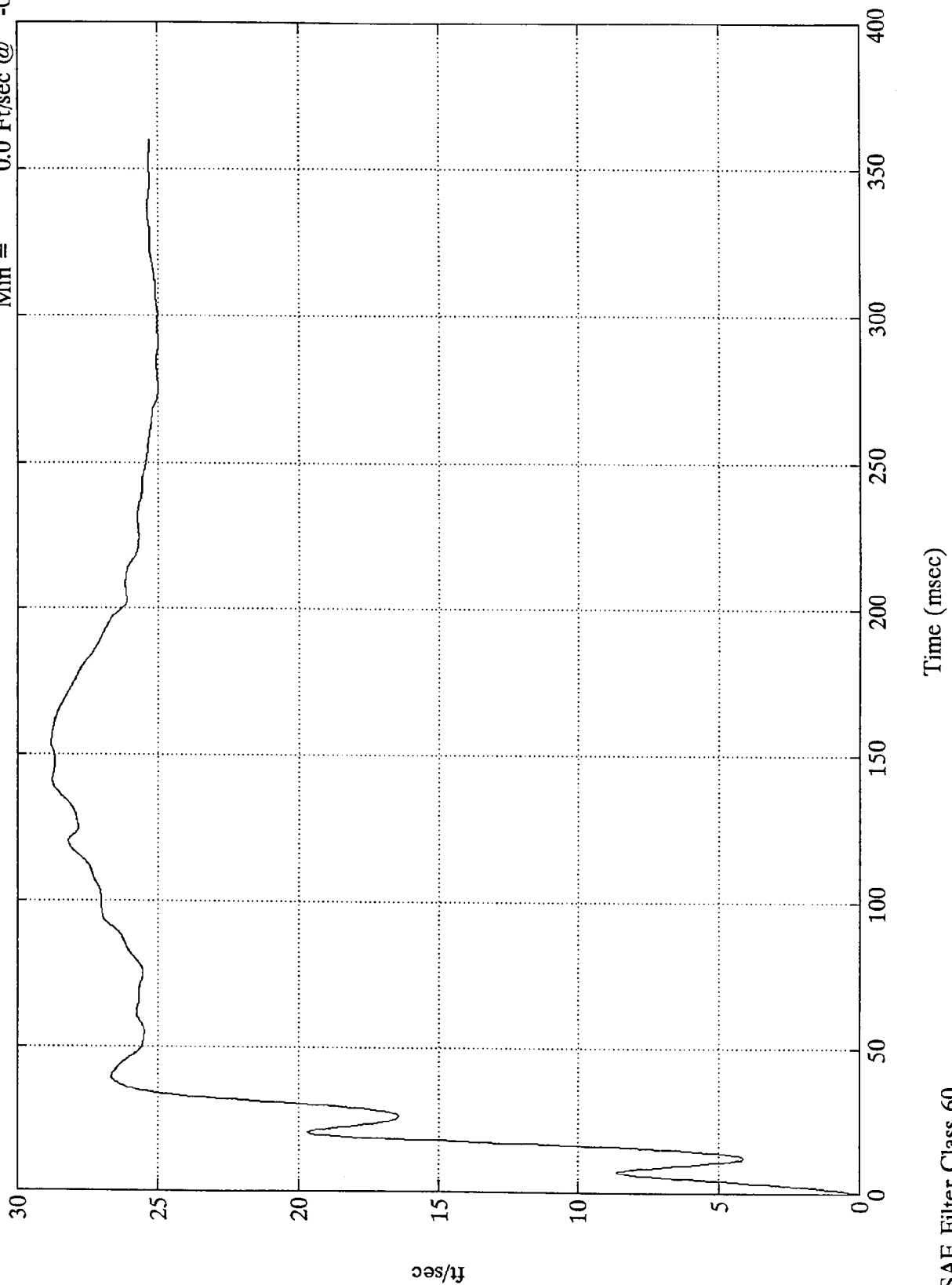
Gs

Time (msec)

301 Rear 30 MPH-1995 Honda Civic

1st Integral Right Rear Crossmember X

Max = 28.7 Ft/sec @ 153.72 msec
Min = 0.0 Ft/sec @ -0.00 msec

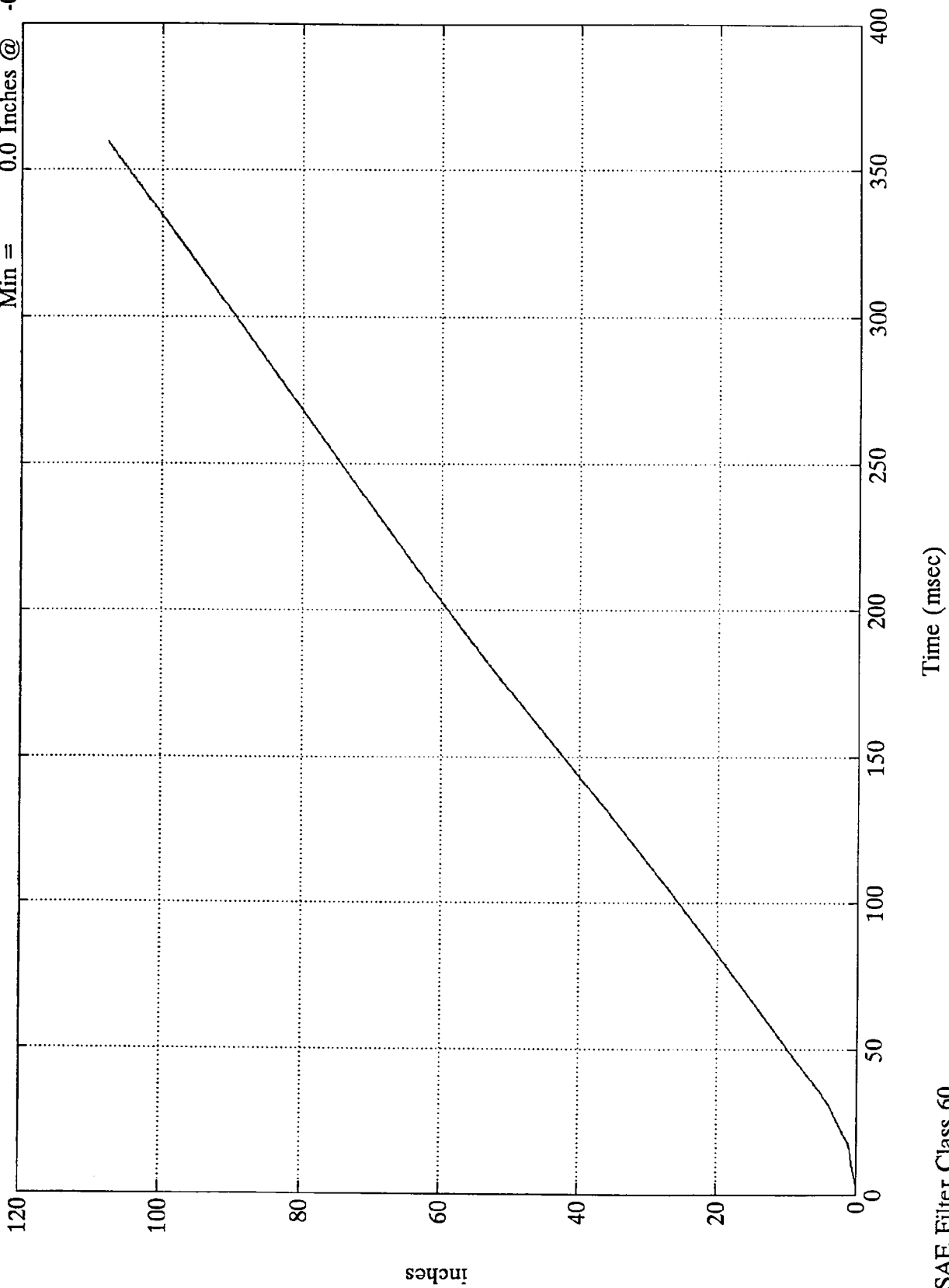


SAE Filter Class 60

301 Rear 30 MPH-1995 Honda Civic

2nd Integral Right Rear Crossmember X

Max = 107.7 Inches @ 359.88 msec
Min = 0.0 Inches @ -0.00 msec



TEST NO. CS5300

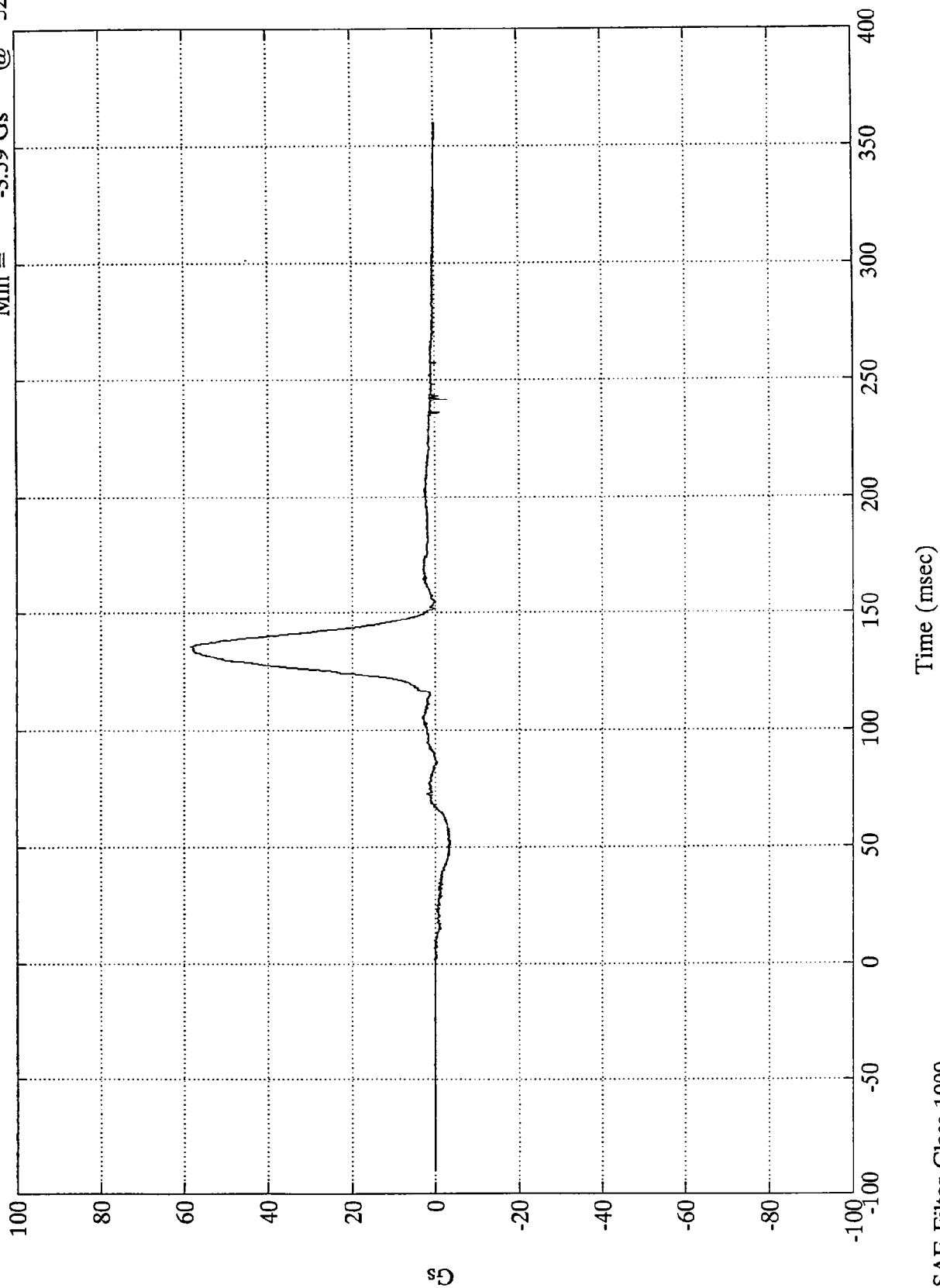
DRIVER DUMMY (Pos. 1)	SAE FILTER CHANNEL CLASS
Head Accelerations	1000
Chest Accelerations	180
Pelvic Accelerations	1000
Upper Neck Forces	1000
Upper Neck Moments	600
Belt Forces	60
Belt Spoolout	60

Note: Pos. #1 ATD Pelvic Z data and Pelvic Resultant are questionable after 45 milliseconds.

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Head X

Max = 58.43 Gs @ 136.08 msec
Min = -3.59 Gs @ 52.68 msec

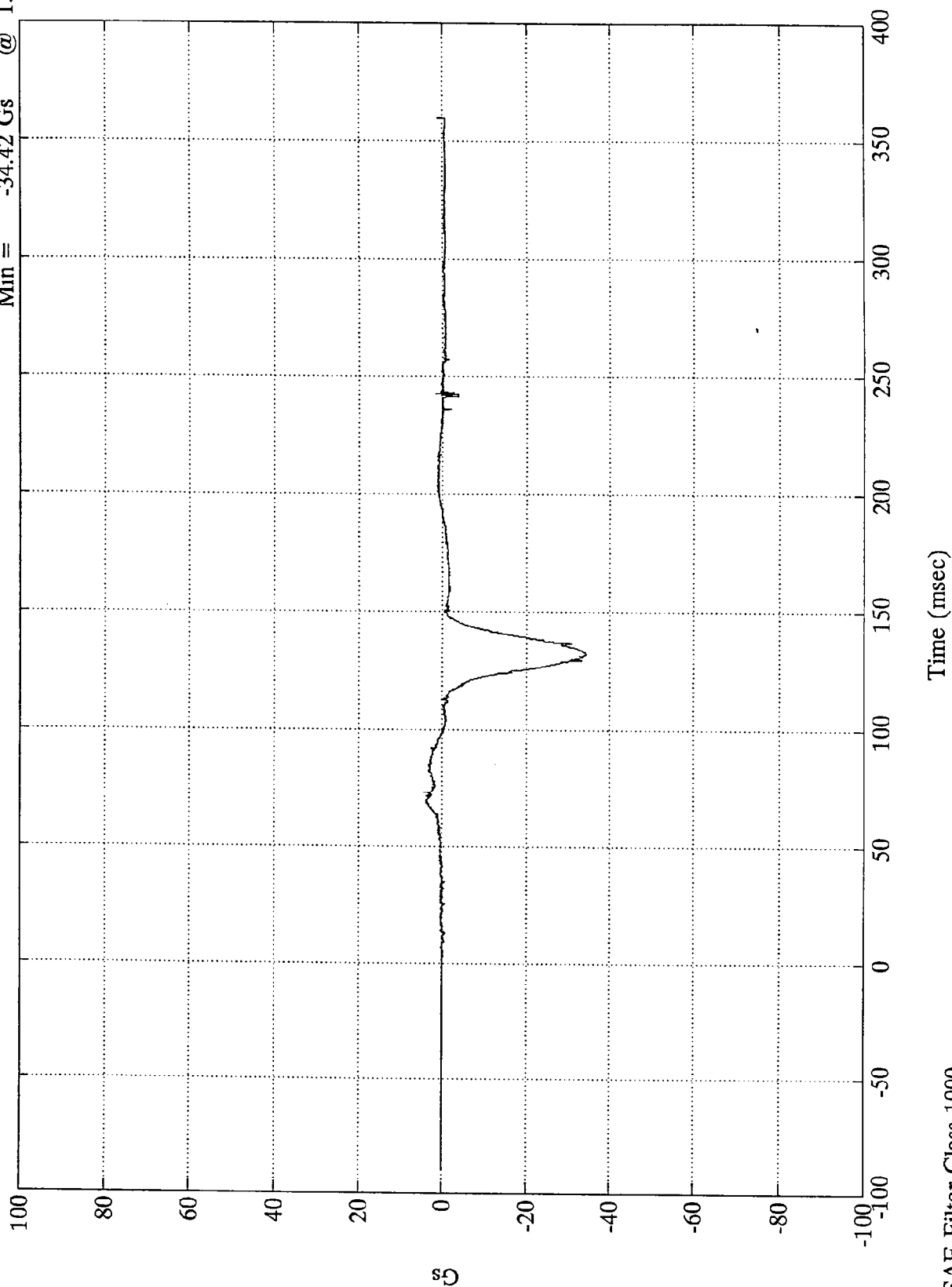


SAE Filter Class 1000

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Head Y

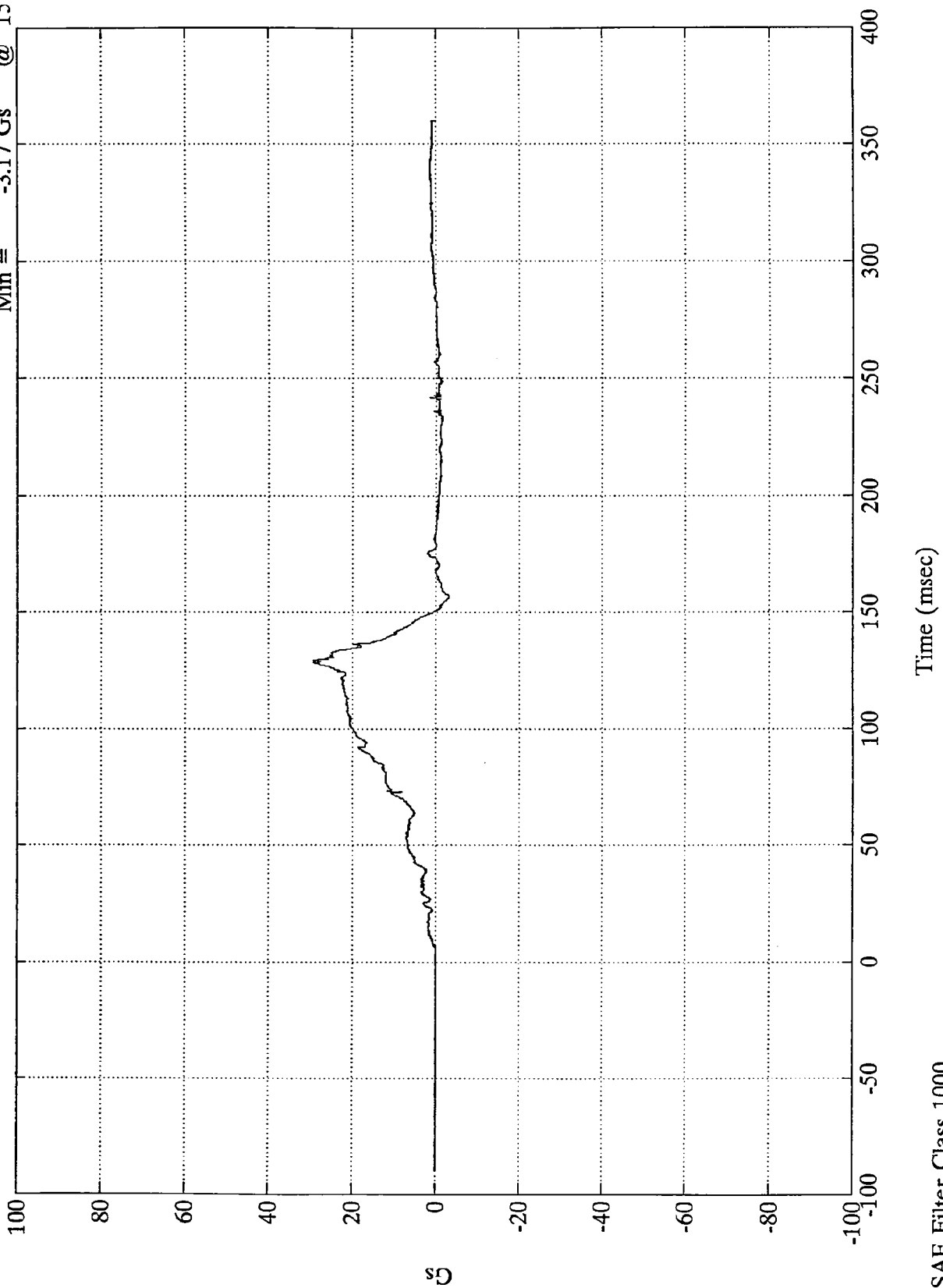
Max = 4.20 Gs @ 73.20 msec
Min = -34.42 Gs @ 132.36 msec



301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Head Z

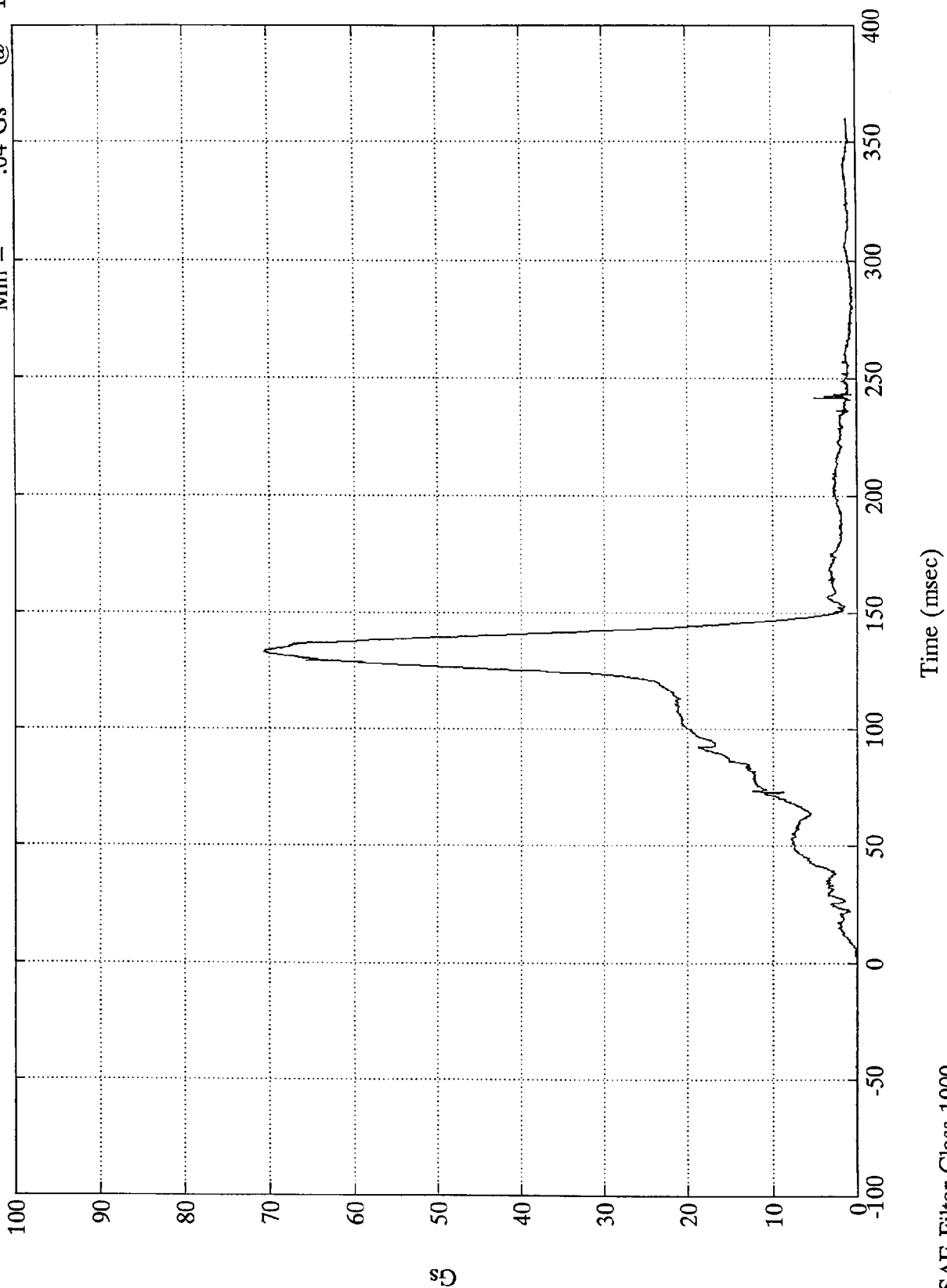
Max = 29.27 Gs @ 129.60 msec
Min = -3.17 Gs @ 157.08 msec



301 Rear 30 MPH-1995 Honda Civic

Max = 70.73 Gs @ 133.32 msec
Min = .04 Gs @ 1.55 msec

Pos. 1 Head Resultant

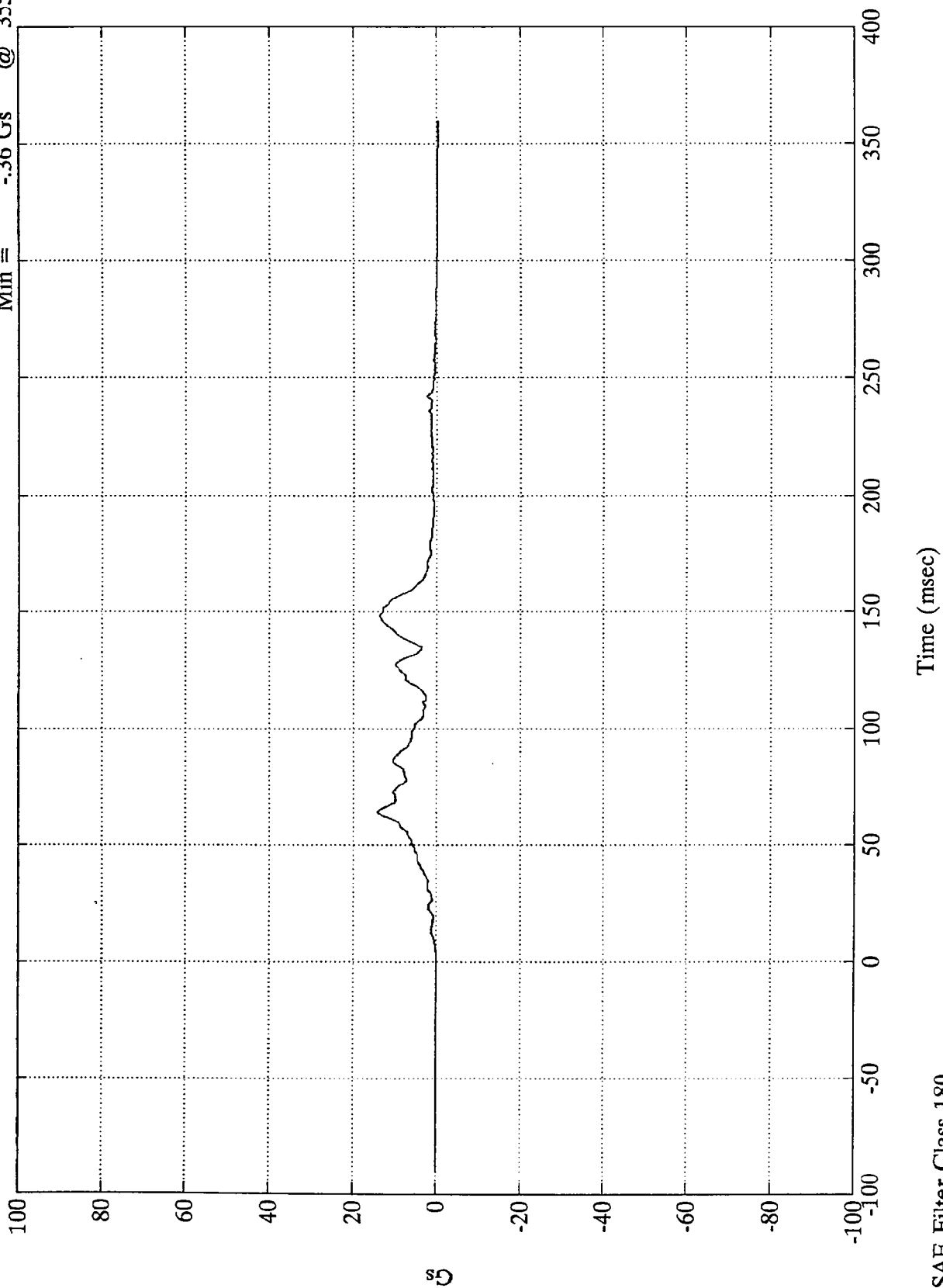


SAE Filter Class 1000

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Chest X

Max = 14.04 Gs @ 64.31 msec
Min = -3.36 Gs @ 355.68 msec

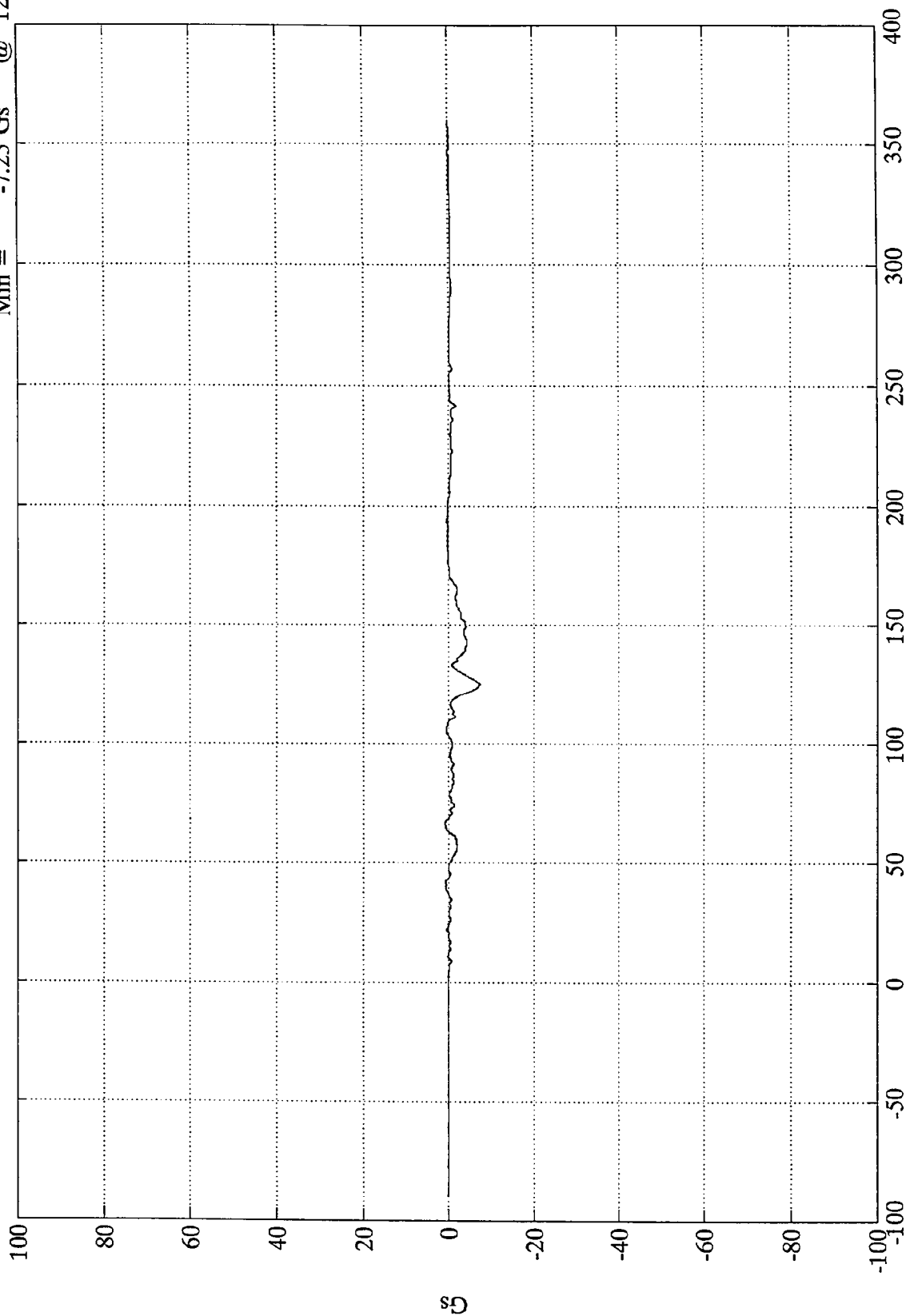


SAE Filter Class 180

301 Rear 30 MPH-1995 Honda Civic

Max = .88 Gs @ 66.36 msec
Min = -7.25 Gs @ 125.28 msec

Pos. 1 Chest Y



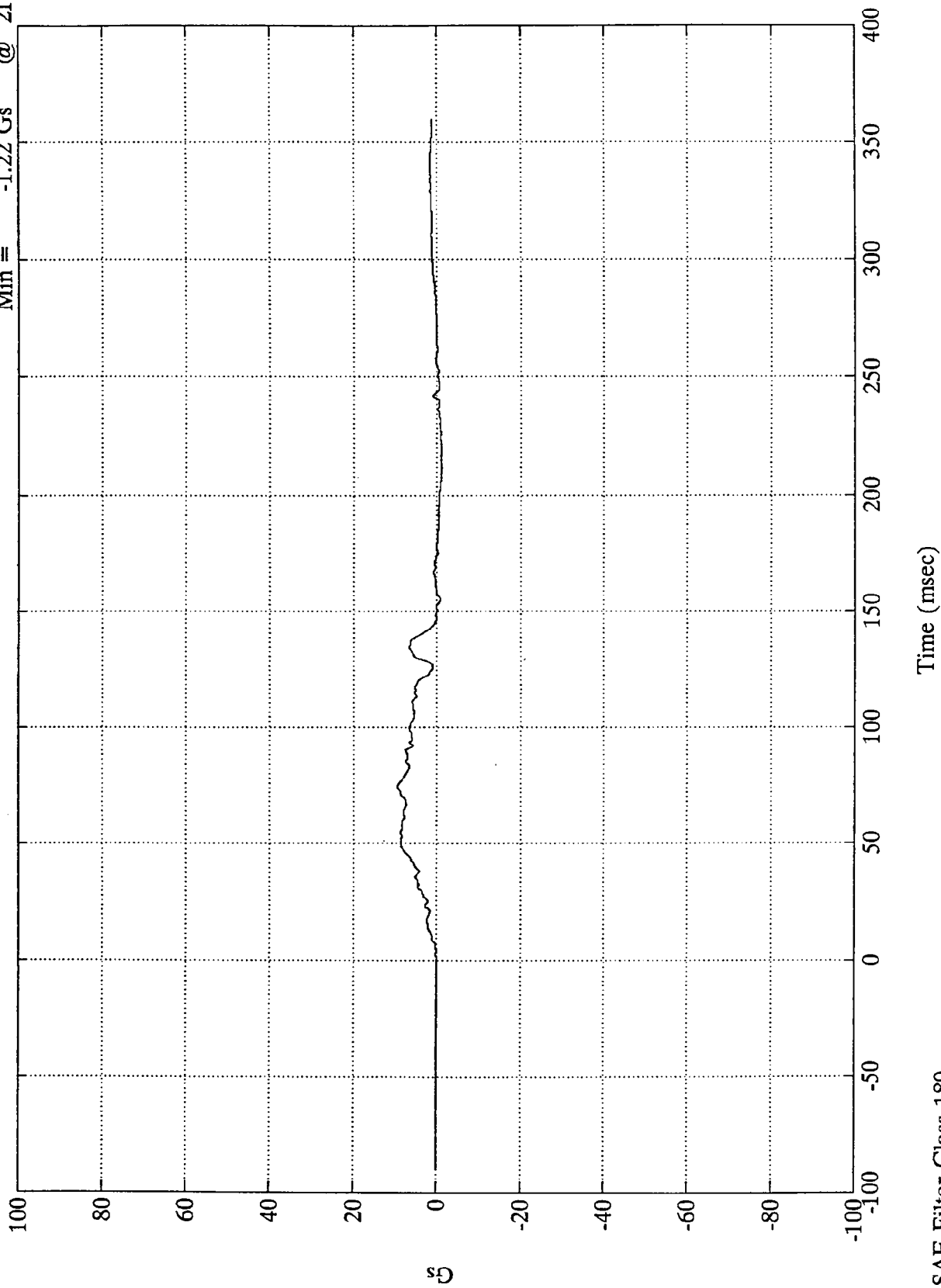
Time (msec)

SAE Filter Class 180

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Chest Z

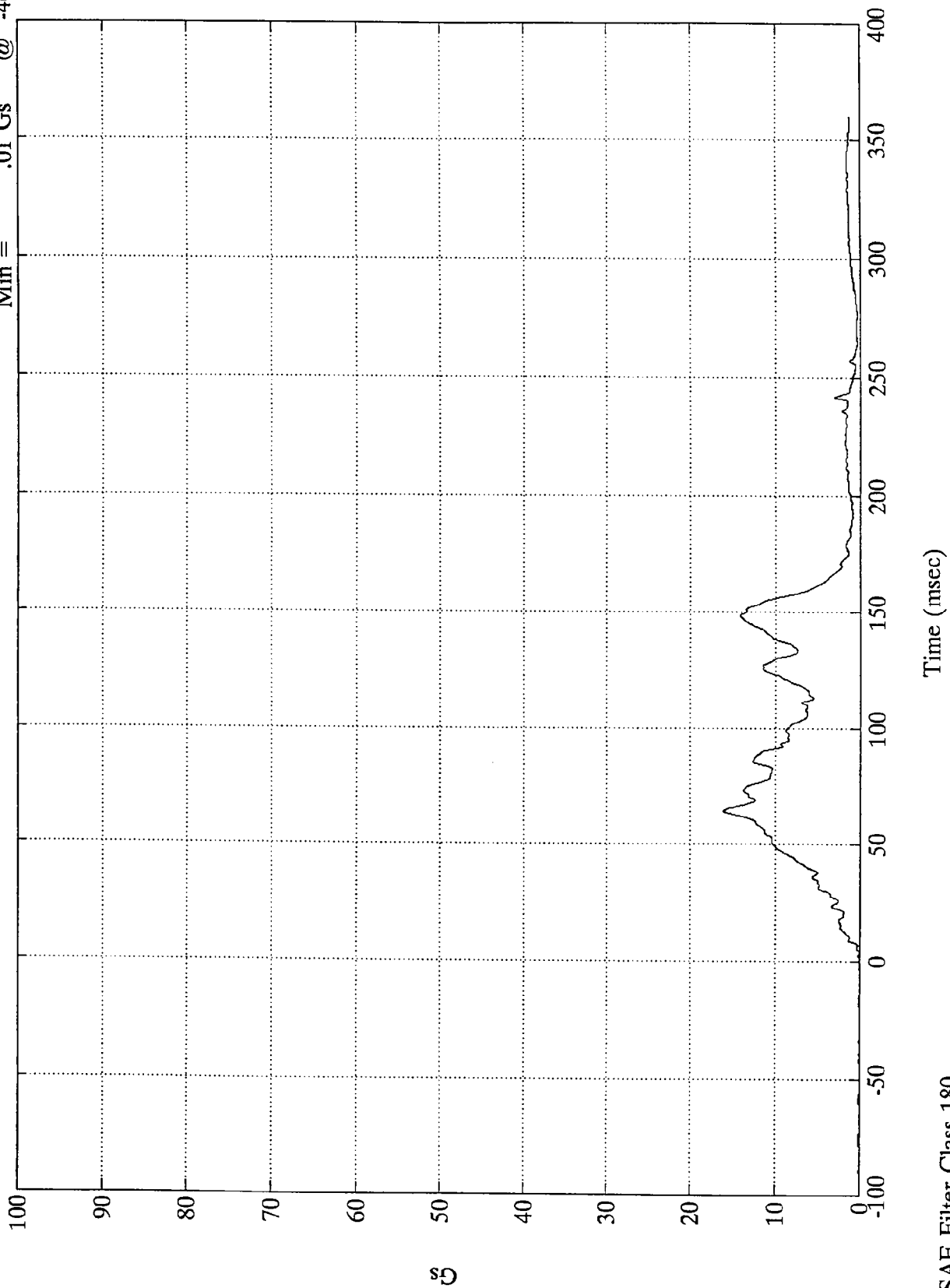
Max = 9.38 Gs @ 74.63 msec
Min = -1.22 Gs @ 211.44 msec



301 Rear 30 MPH-1995 Honda Civic

Max = 16.08 Gs @ 64.19 msec
Min = .01 Gs @ -46.44 msec

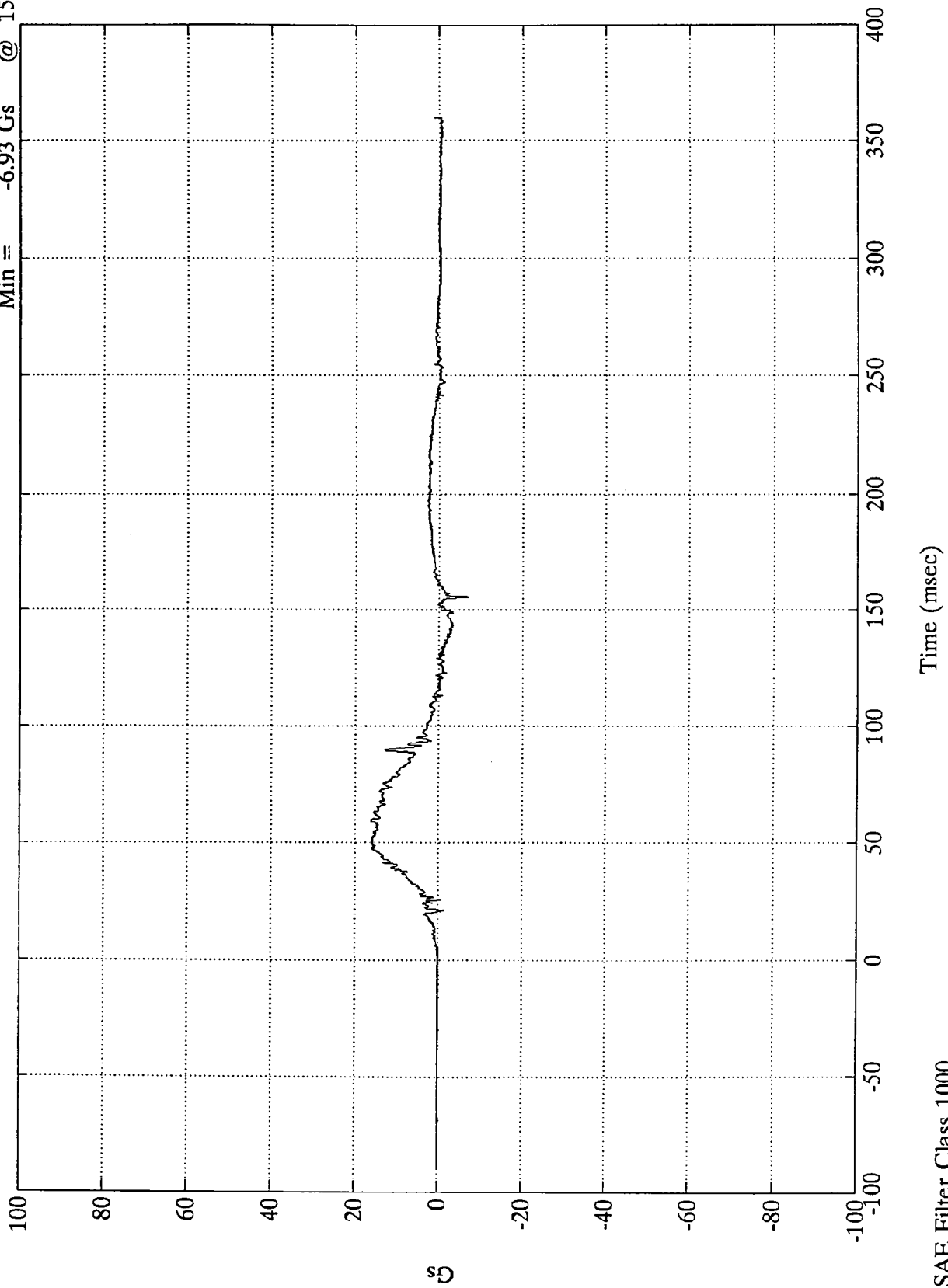
Pos. 1 Chest Resultant



SAE Filter Class 180

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Pelvic X
Max = 16.24 Gs @ 59.52 msec
Min = -6.93 Gs @ 155.52 msec

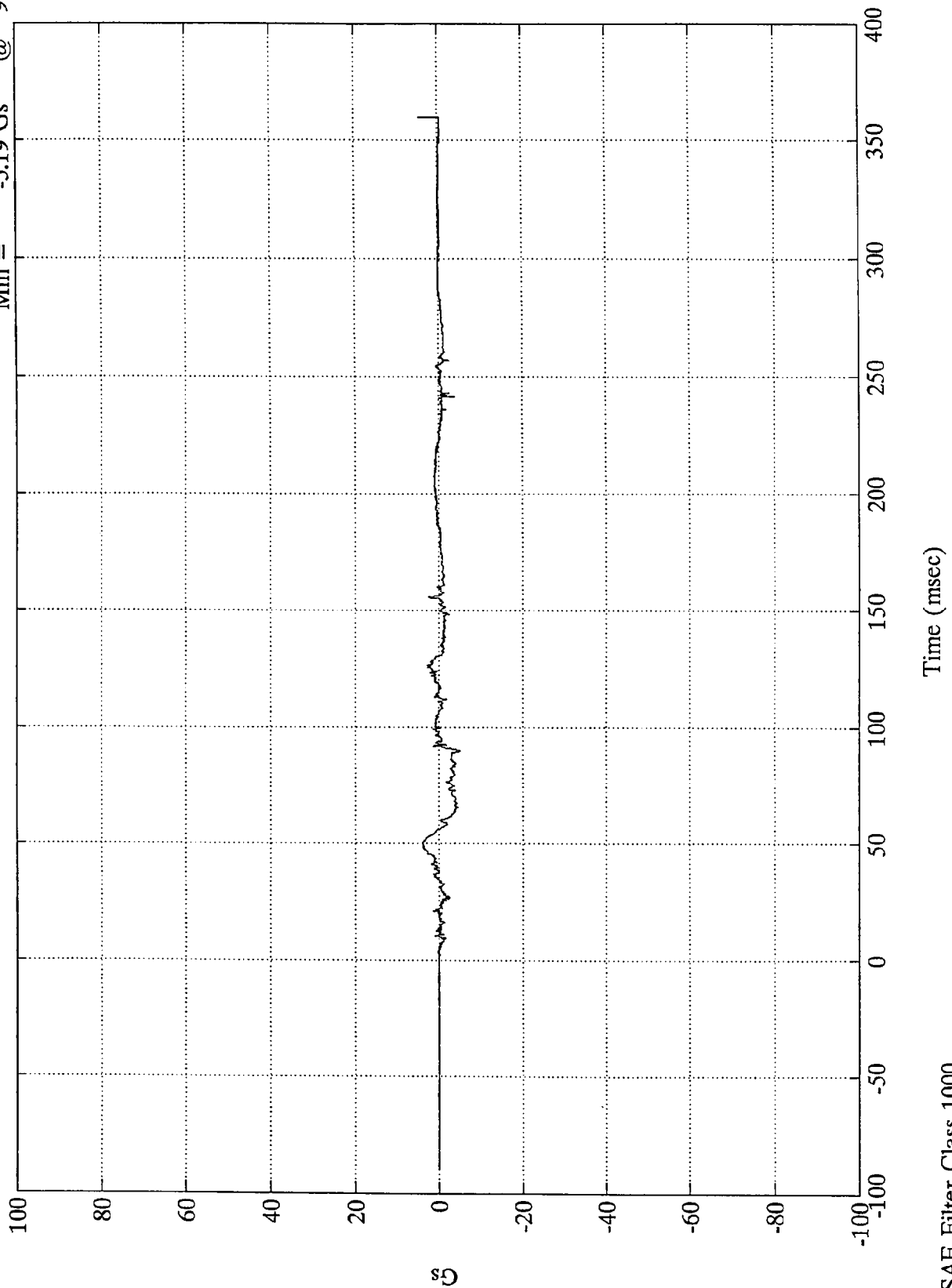


SAE Filter Class 1000

301 Rear 30 MPH-1995 Honda Civic

Max = 4.61 Gs @ 359.88 msec
Min = -5.19 Gs @ 90.00 msec

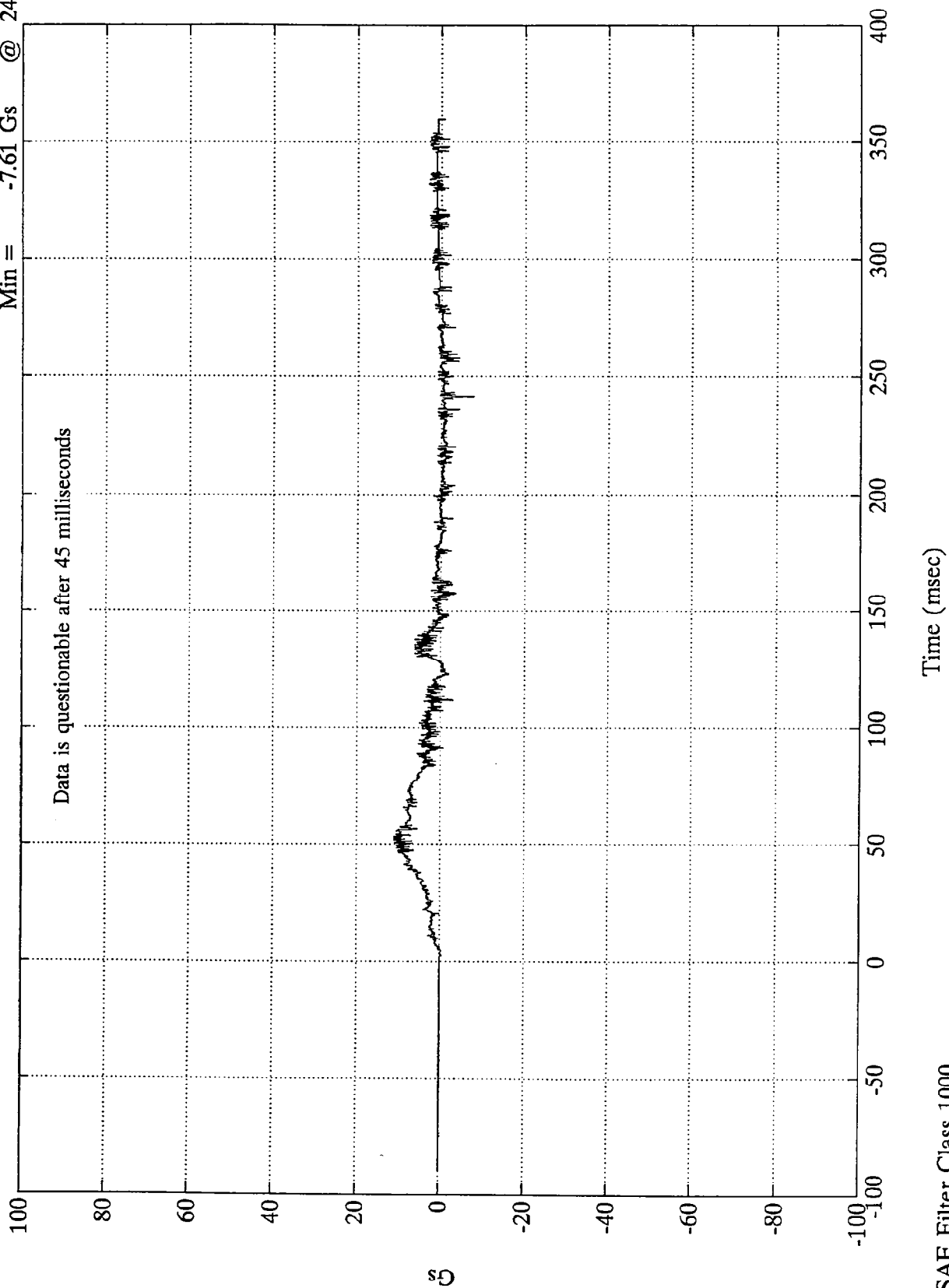
Pos. 1 Pelvic Y



301 Rear 30 MPH-1995 Honda Civic

Max = 10.97 Gs @ 53.52 msec
Min = -7.61 Gs @ 241.68 msec

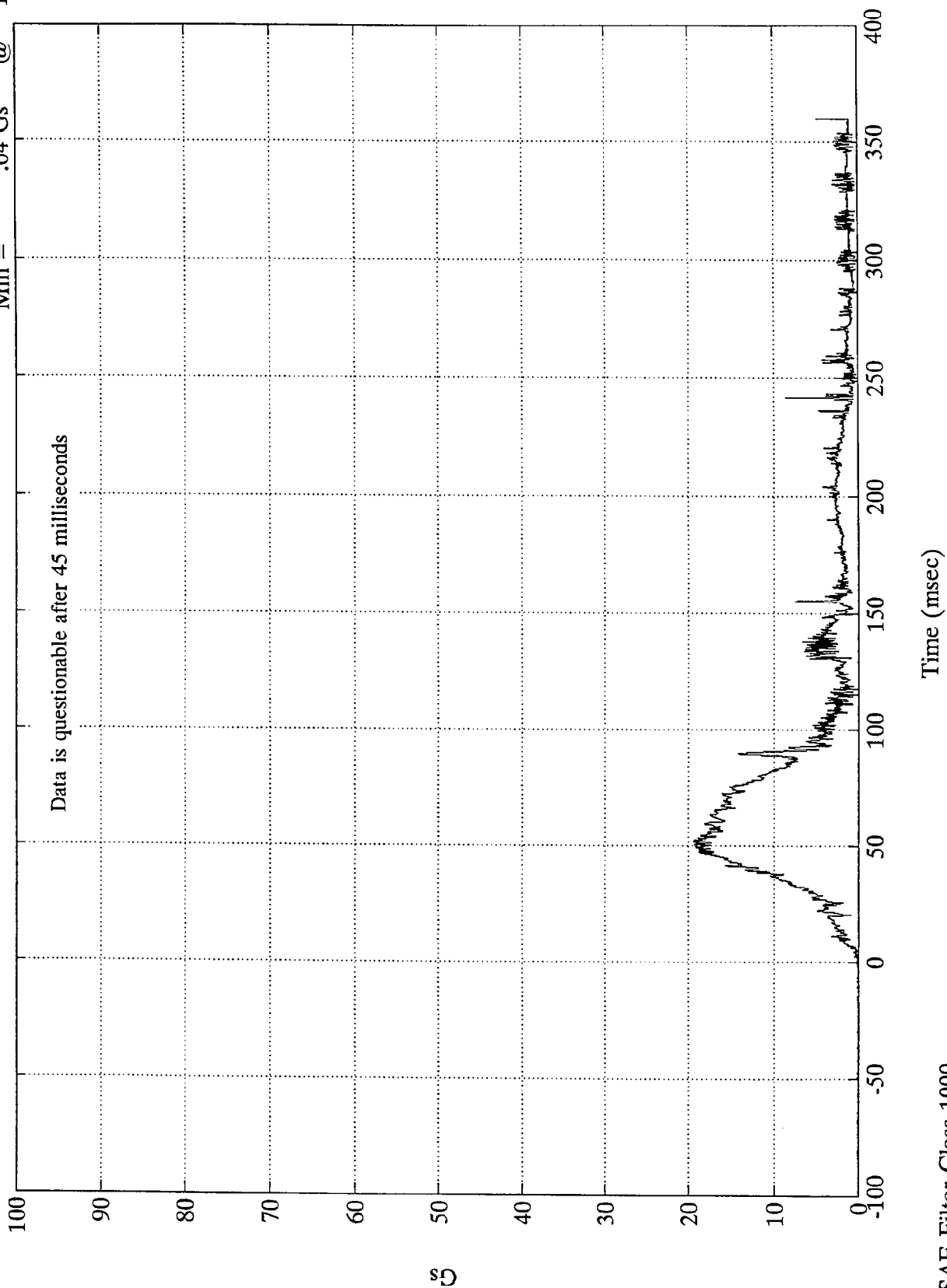
Pos. 1 Pelvic Z



301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Pelvic Resultant

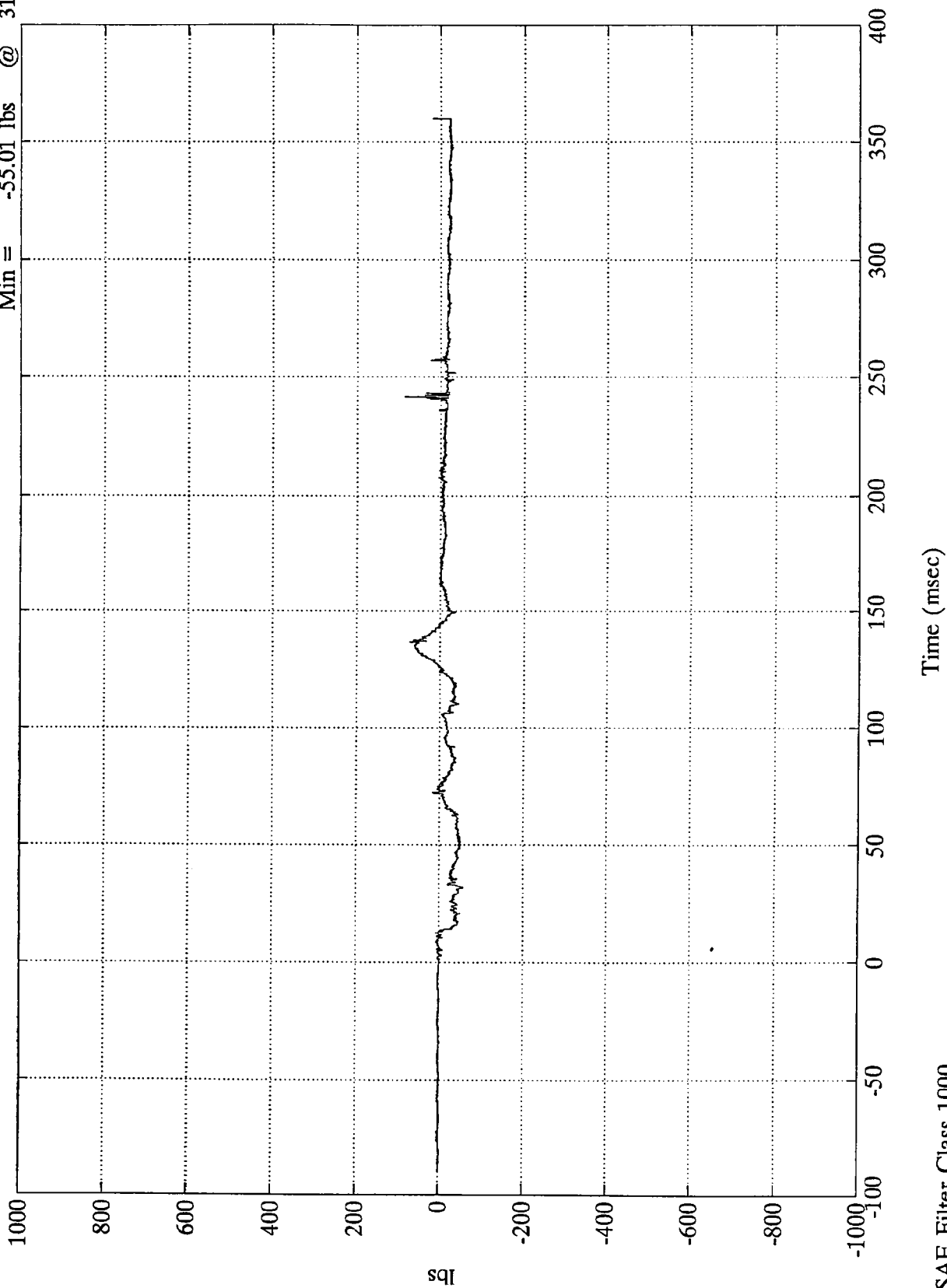
Max = 19.47 Gs @ 51.95 msec
Min = .04 Gs @ 1.67 msec



301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Upper Neck Fx

Max = 85.02 lbs @ 241.56 msec
Min = -55.01 lbs @ 31.79 msec

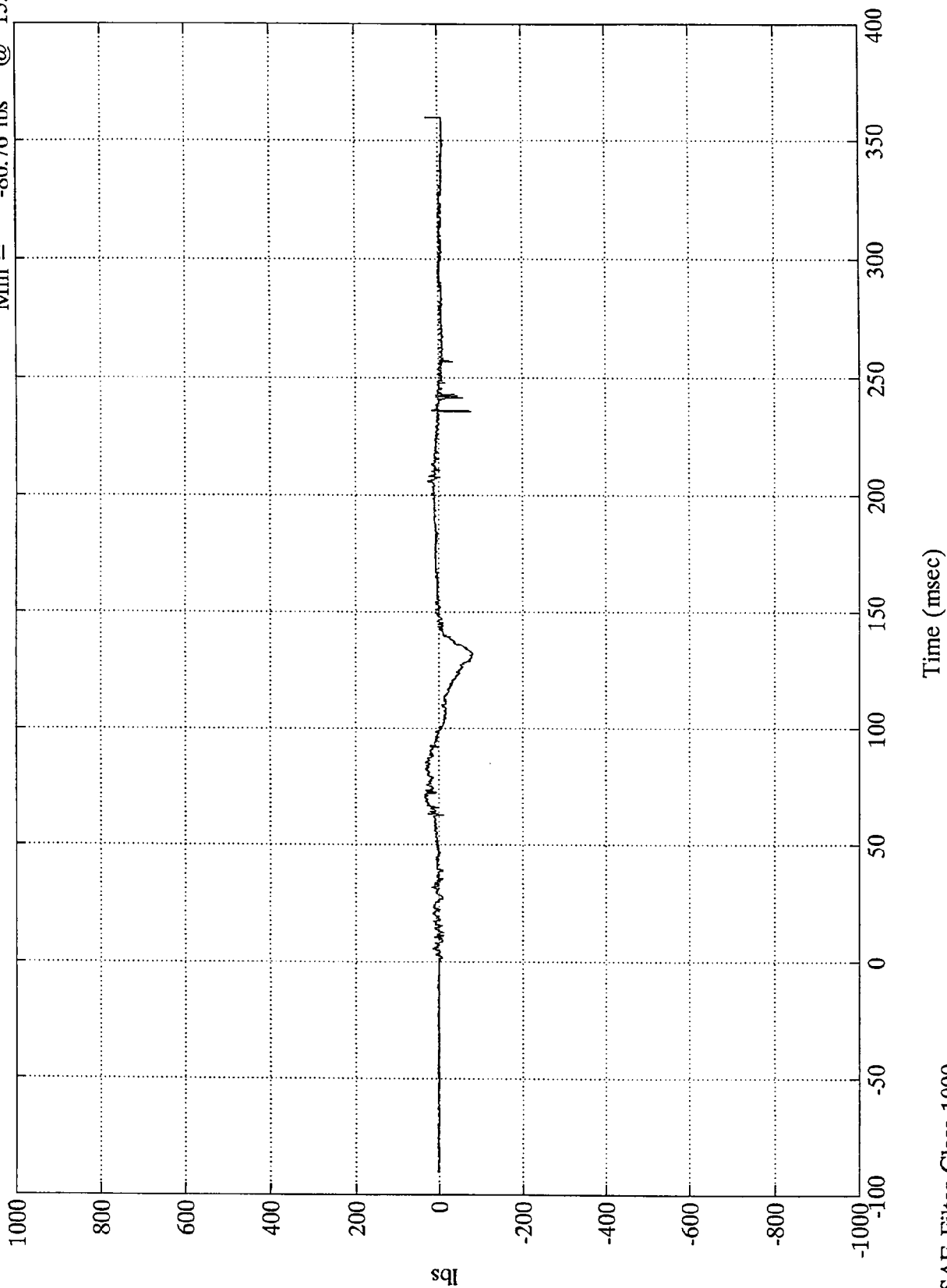


SAE Filter Class 1000

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Upper Neck Fy

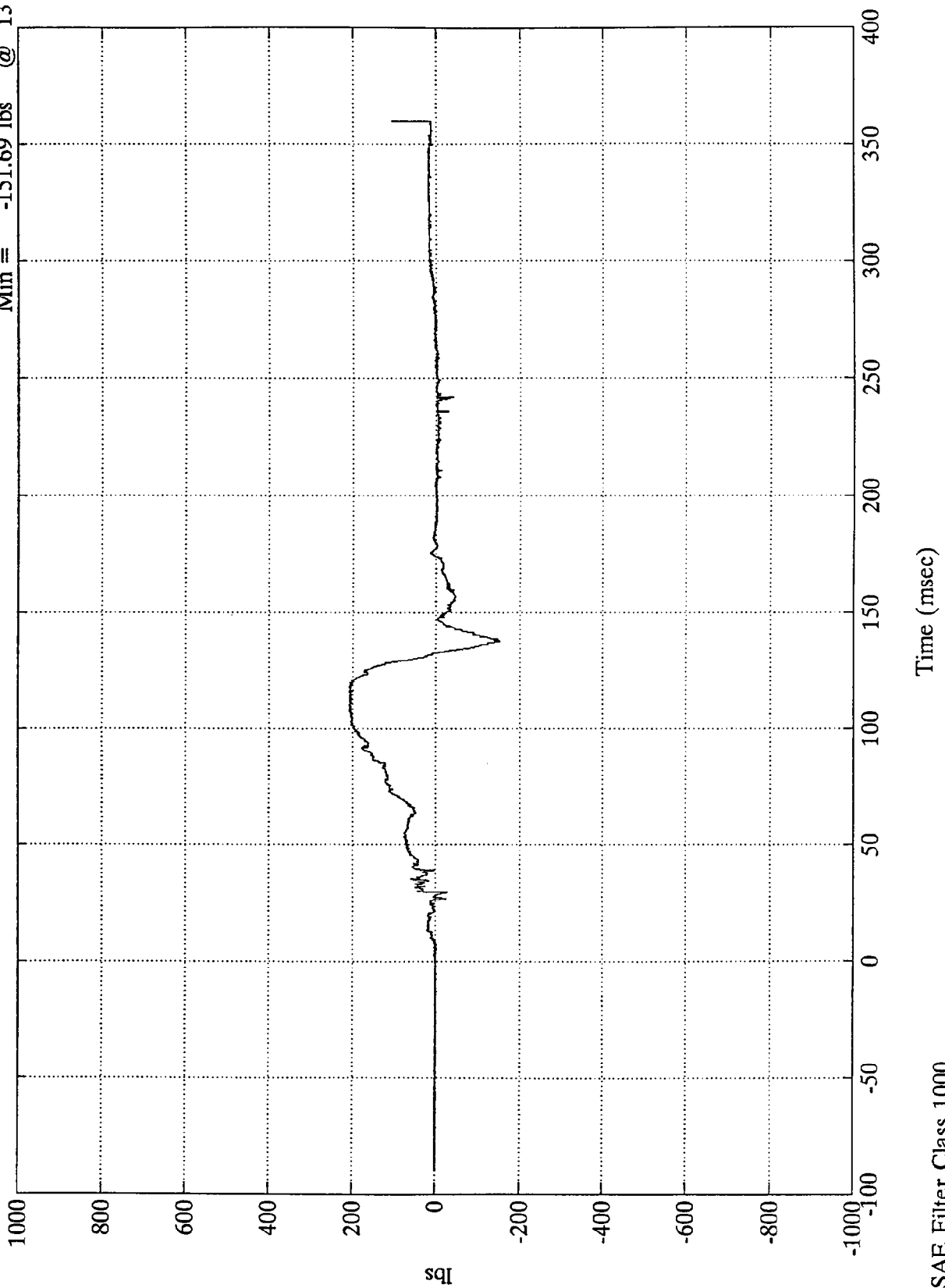
Max = 33.52 lbs @ 72.24 msec
Min = -80.76 lbs @ 132.72 msec



301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Upper Neck Fz

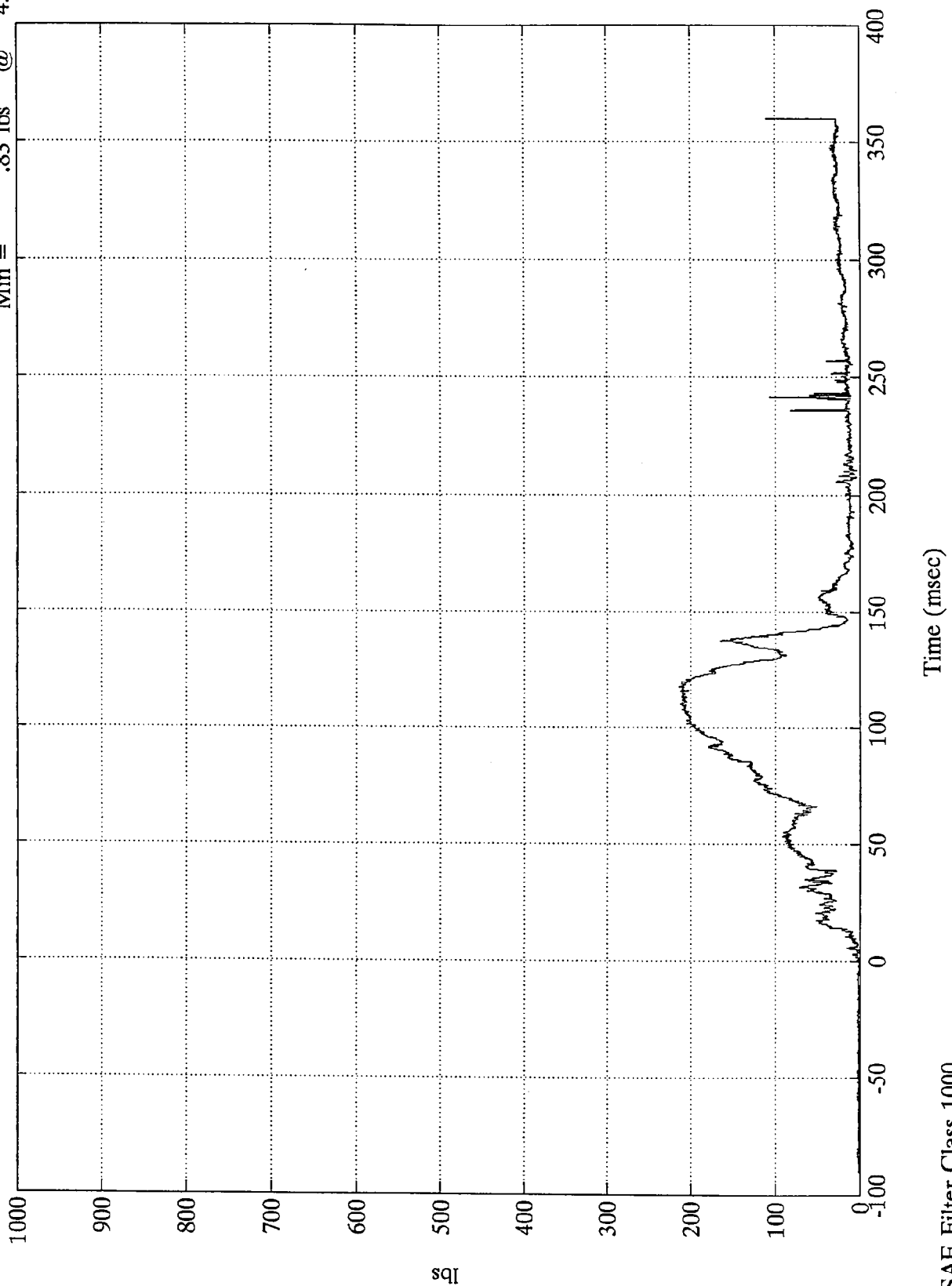
Max = 209.14 lbs @ 117.96 msec
Min = -151.69 lbs @ 137.88 msec



301 Rear 30 MPH-1995 Honda Civic

Max = 214.05 lbs @ 117.96 msec
Min = .83 lbs @ 4.07 msec

Pos. 1 Neck Force Res.

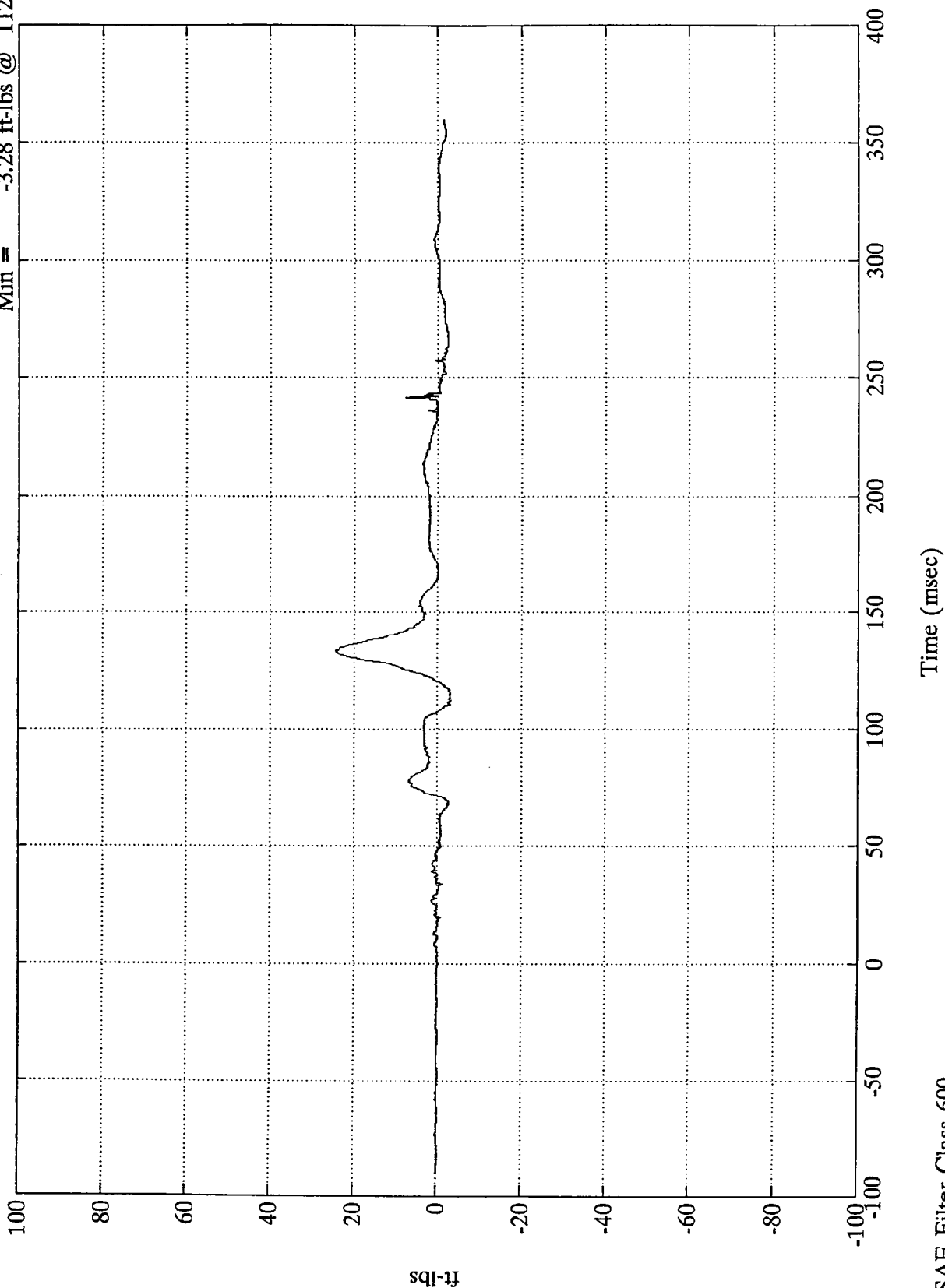


SAE Filter Class 1000

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Upper Neck Mx

Max = 24.44 ft-lbs @ 133.68 msec
Min = -3.28 ft-lbs @ 112.19 msec

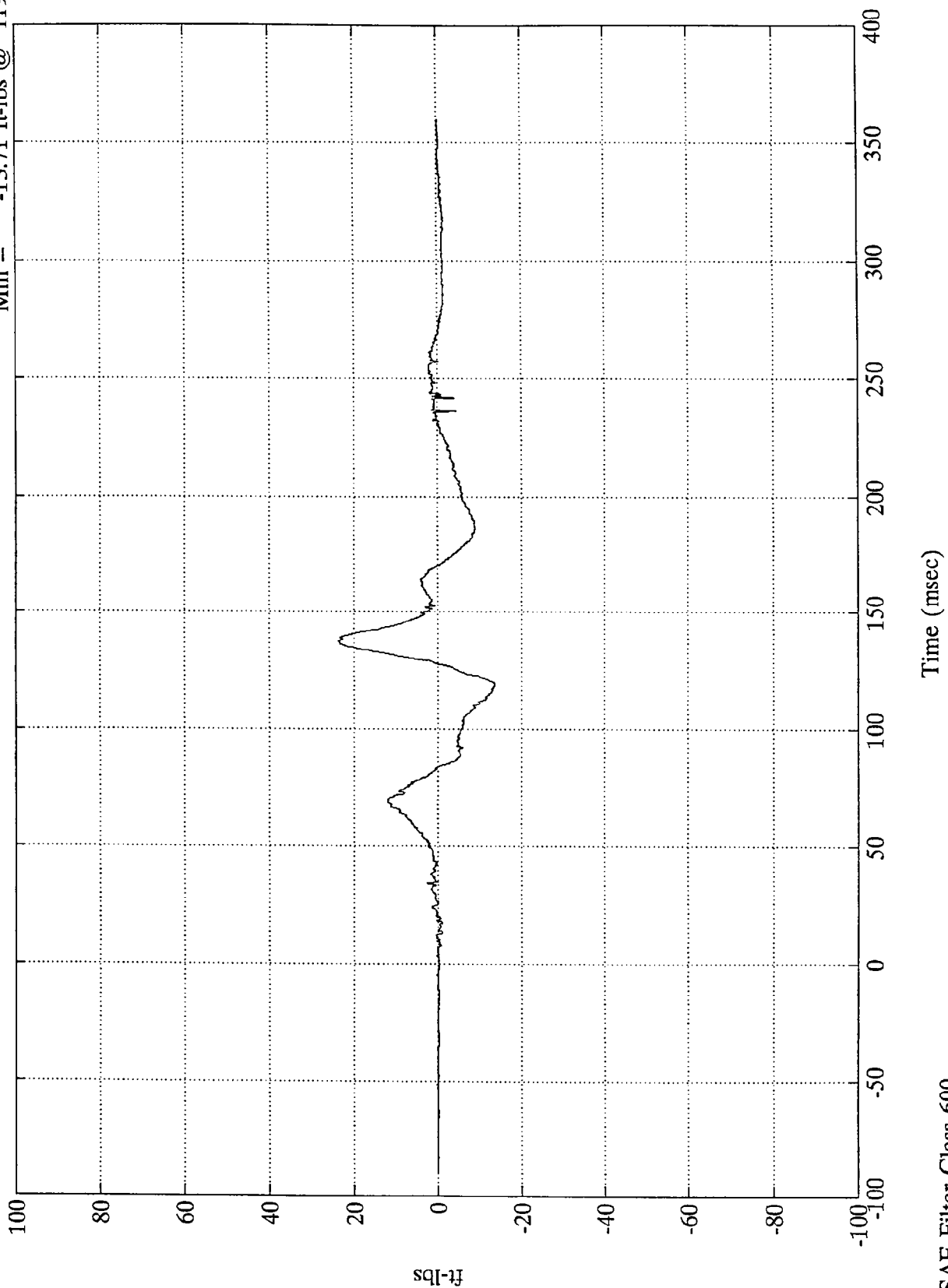


SAE Filter Class 600

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Upper Neck My

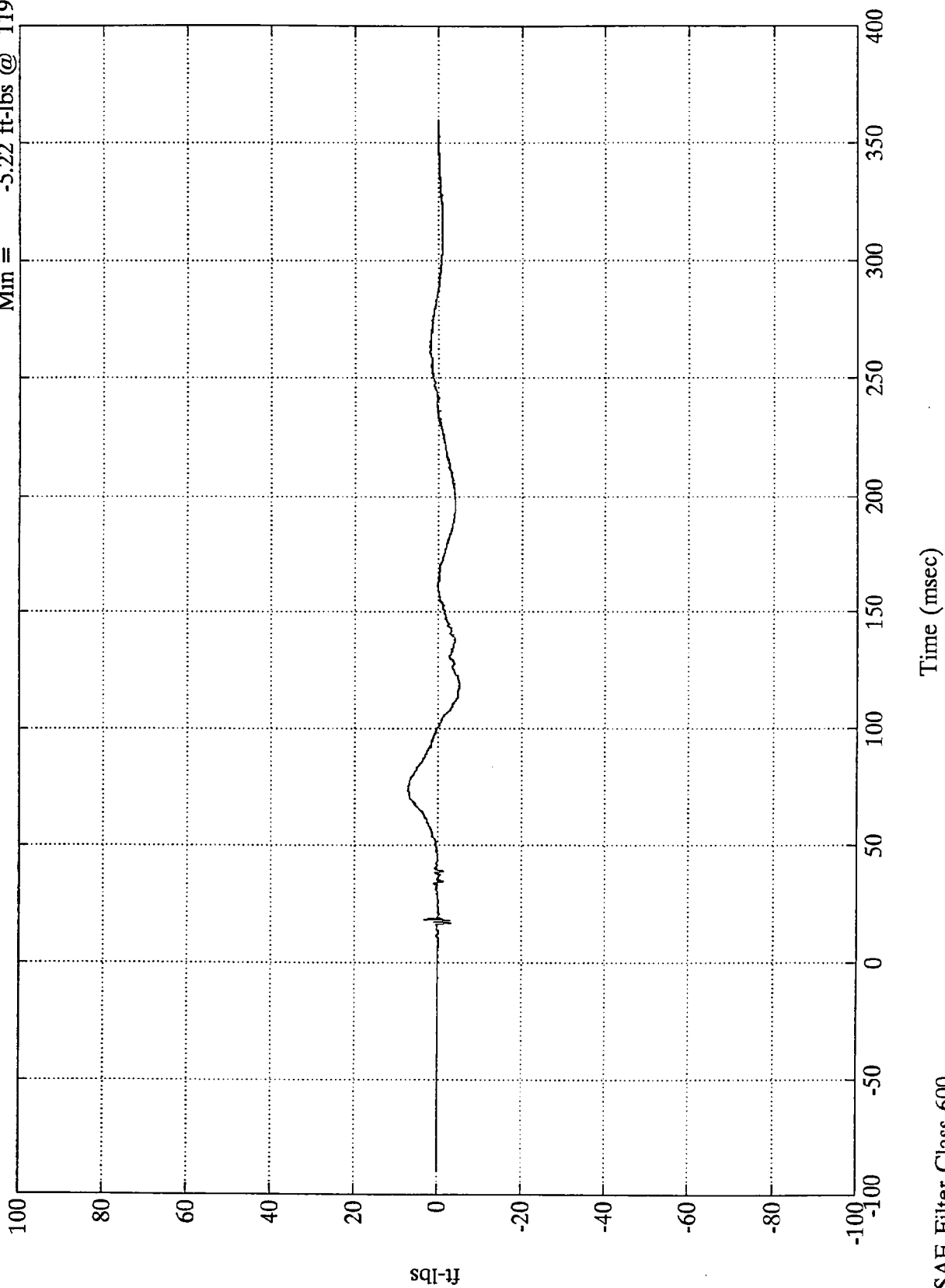
Max = 23.70 ft-lbs @ 137.52 msec
Min = -13.71 ft-lbs @ 119.16 msec



301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Upper Neck Mz

Max = 7.27 ft-lbs @ 75.36 msec
Min = -5.22 ft-lbs @ 119.16 msec

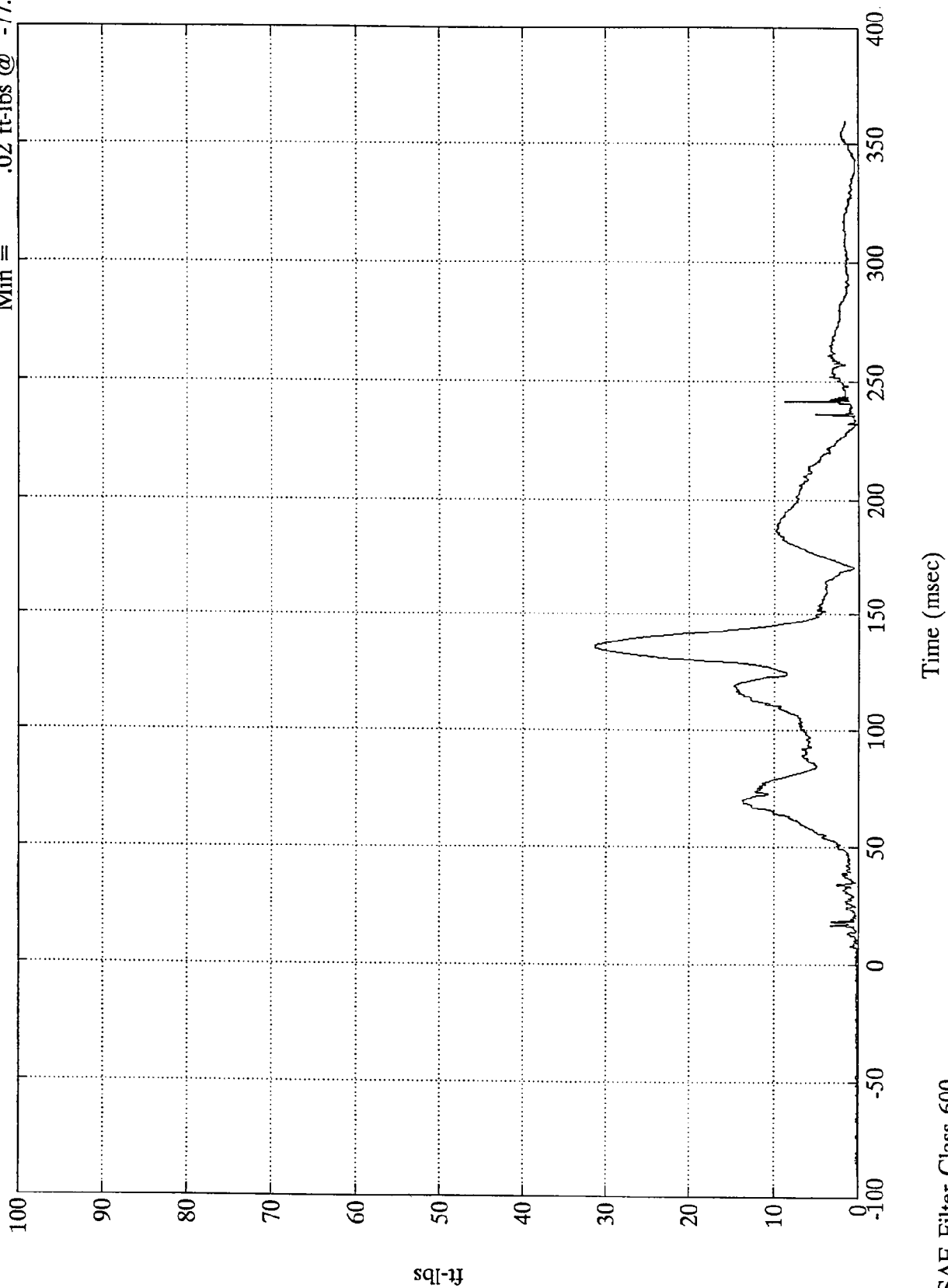


SAE Filter Class 600

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Neck Moment Res.

Max = 31.35 ft-lbs @ 136.32 msec
Min = .02 ft-lbs @ -77.76 msec

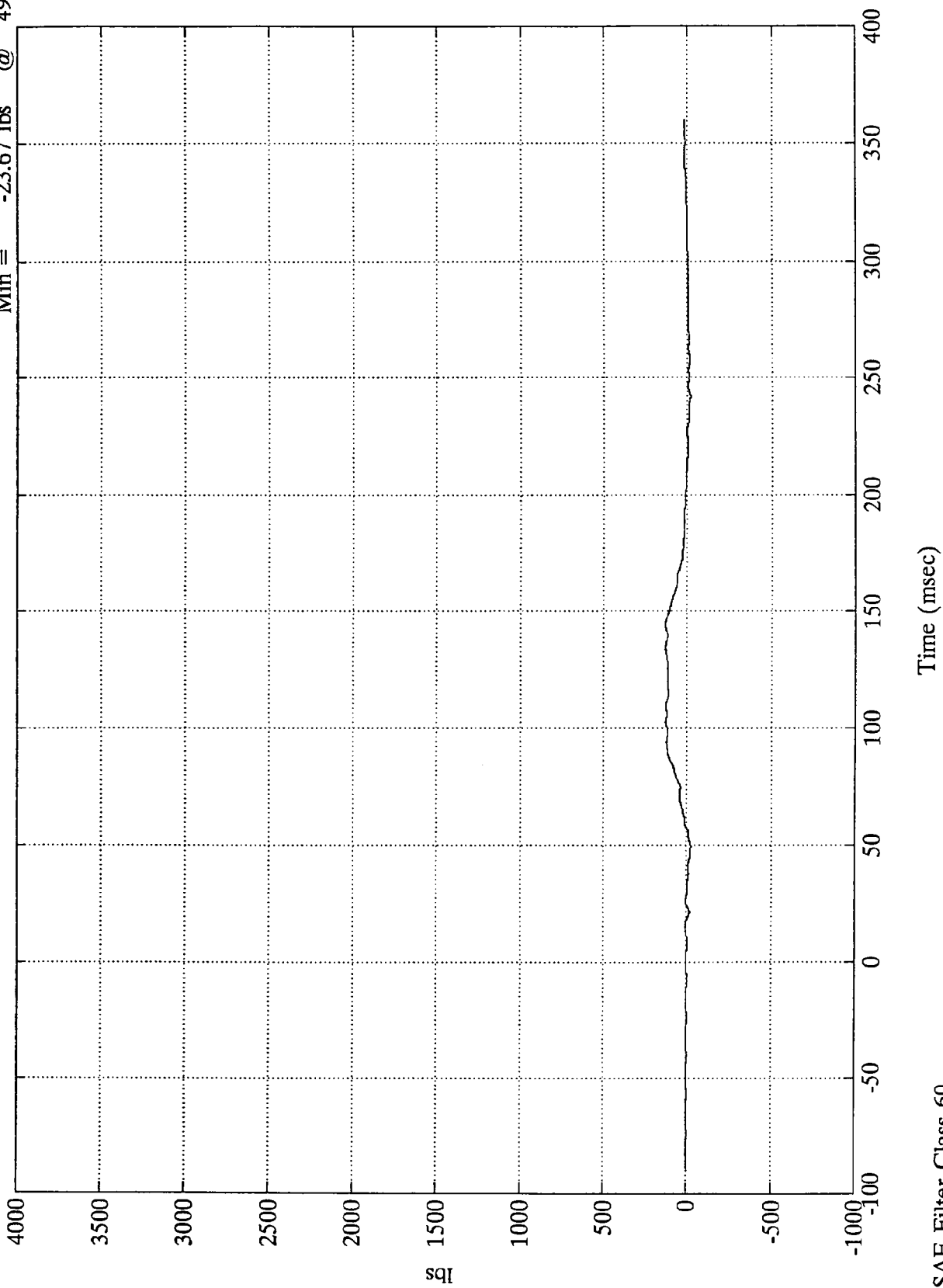


SAE Filter Class 600

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Lap Belt

Max = 130.42 lbs @ 144.36 msec
Min = -23.67 lbs @ 49.55 msec

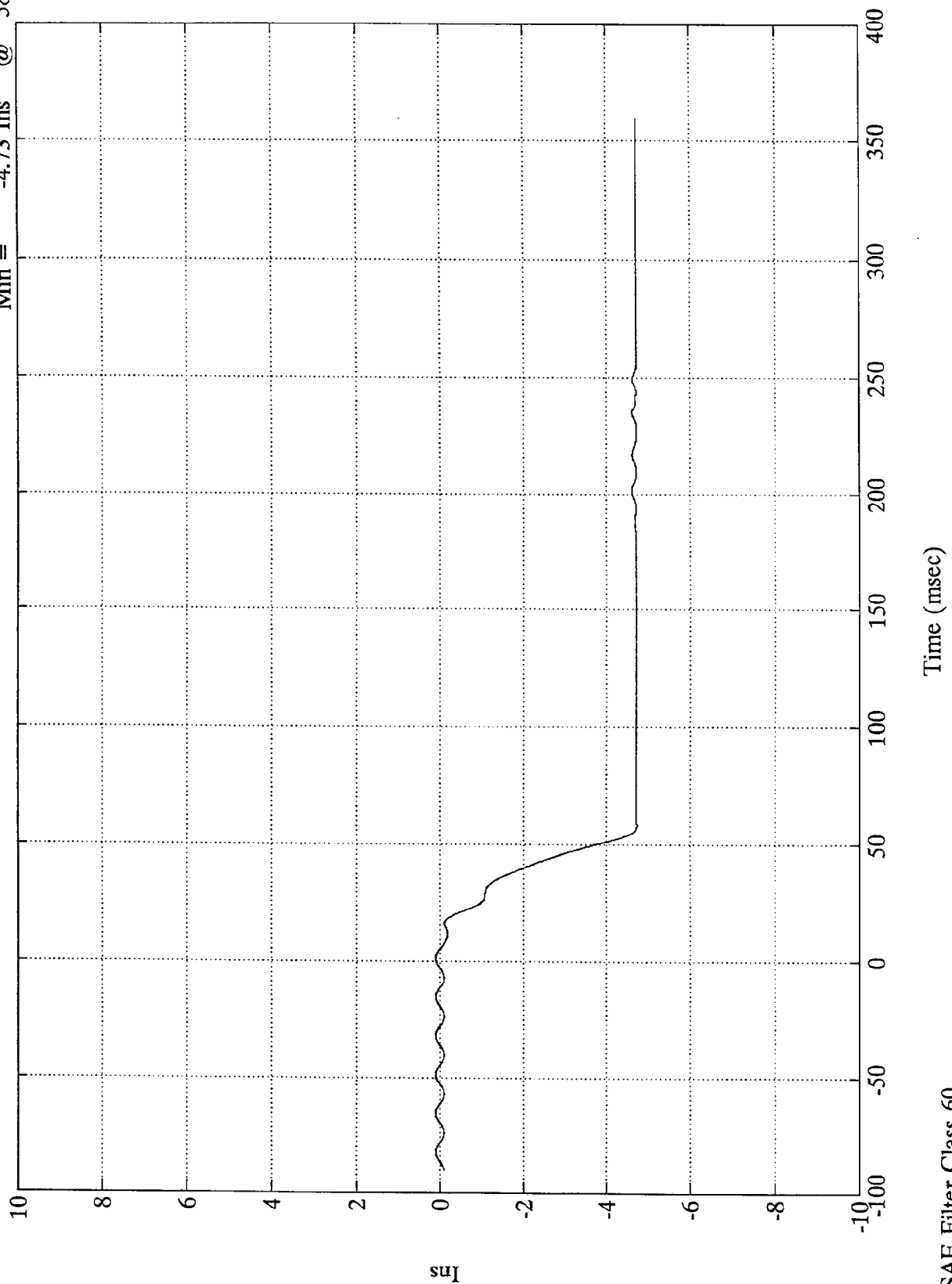


SAE Filter Class 60

301 Rear 30 MPH-1995 Honda Civic

Pos. 1 Belt Spoolout

Max = .10 Ins @ 1.19 msec
Min = -4.73 Ins @ 58.07 msec



SAE Filter Class 60