

REPORT NUMBER: 301-CAL-98-08

633272

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

TOYOTA MOTOR CORPORATION
1998 TOYOTA COROLLA VE
4-DOOR SEDAN

NHTSA NUMBER: CW5107

CALSPAN TEST NUMBER: 8412-8

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



June 9, 1998

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

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 301-CAL-98-08		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 301 Compliance Testing of a 1998 Toyota Corolla VE 4-door Sedan NHTSA No. CW5107				5. Report Date June 9, 1998	
				6. Performing Organization Code CAL	
7. Author(s) James A. Czarnecki, Project Engineer David J. Travale, Program Manager				8. Performing Organization Report No. 8412-8	
9. Performing Organization Name and Address Calspan Corporation 4455 Genesee Street Buffalo, New York 14225				10. Work Unit No.	
				11. Contract or Grant No. DTNH22-95-D-11000	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (NEF-30) 400 Seventh St., S.W., Rm. 6115, Washington, D.C. 20590				13. Type of Report and Period Covered Final Test Report June 1998	
				14. Sponsoring Agency Code NEF-30	
15. Supplementary Notes					
16. Abstract Compliance tests were conducted on the subject 1998 Toyota Corolla VE 4-door Sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-301-01 for the determination of FMVSS 301 compliance. The test vehicle appeared to comply with all requirements of FMVSS 301 "Fuel System Integrity."					
17. Key Words Compliance Testing Safety Engineering FMVSS 301			18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division Room 5108 (NAD-52), 400 Seventh, S.W., Washington, D.C. 20590 Telephone No. (202) 366-4946		
19. Security Classif. (of this report) UNCLASSIFIED		20. Security Classif. (of this page) UNCLASSIFIED		21. No. of Pages	
				22. Price	

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Section I

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 Corporation under Contract No. DTNH22-95-D-11000. The purpose of this test was to determine if the subject vehicle, a 1998 Toyota Corolla VE 4-door Sedan, 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 2768 pound 1998 Toyota Corolla VE 4-door Sedan was impacted from the rear by a 3961 pound moving barrier at a velocity of 29.7 mph. The test was performed by the Calspan Corporation on June 9, 1998.

One instrumented Part 572 E and non-instrumented Part 572 B, 50th percentile male Anthropomorphic Test Device (ATD) were placed in the driver and right-front passenger seating positions respectively.

Average longitudinal crush was 15.1 inches. Pre- and post-test photographs of the vehicle can be found in appendix A.

The 13.2 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.: CW5107 Test Mode: 30 mph Rear Barrier
 Test Date: June 9, 1998 Time: 13:18 Temperature: 70 °F
 Vehicle Make/Model/Body Style: 1998 Toyota Corolla VE 4-door Sedan
 Vehicle Test Weight: 2768 lbs Impact Velocity: 29.7 mph
 Static Crush: Left Side = 14.95 inches
 Right Side = 15.6 inches
 Centerline = 14.8 inches
 Average Crush: 15.1 inches

TYPE OF FRONT OCCUPANT RESTRAINT SYSTEM INSTALLED IN TEST VEHICLE:

Driver's DSP: Airbag with 3-point belt system
 Right Passenger's DSP: Airbag with 3-point belt system

VISIBLE DUMMY CONTACT POINTS:

Driver: Back to seat back and back of head to head rest

 Passenger: Back to seat back and back of head to head rest

DOOR OPENING DATA:

Closed/ Operable - Left Front
Closed/ Operable - Right Front

Stoddard Solvent Spillage from Vehicle's Fuel System: None

Remarks: None

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATATEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1998 Toyota Corolla VE 4-door Sedan

NHTSA No.: CW5107; VIN: 2T1BR12E6WC029336; Color: Black

Engine Data: 4 cylinders; - CID; 1.8 Liters; - cc

Placement: x Longitudinal or In-Line; - Transverse or 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; x Pwr.Steering; x Pwr. Brakes

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

Date Received: 1/13/98; Odometer Reading 37 miles

Selling Dealer: Jon Maroone Toyota

& Address: S-4141 Southwestern Blvd. Orchard Park, N.Y. 14127

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Toyota Motor Corporation

Date of Manufacture: 12/97

GVWR: 3515 lbs.; GAWR: 1815 lbs. FRONT; 1720 lbs. REAR

DATA FROM TIRE PLACARD:

Location of Placard on Vehicle: Left side door pillar

Tire Pressure with Maximum Capacity Vehicle Load: 44 psi FRONT 44 psi REAR

Recommended Tire Size: P175/65R14

* Recommended Cold Tire Pressure: 30 psi FRONT; 30 psi REAR

Size of Tires on Test Vehicle: 175/65R14

Type of Spare Tire: Temp.

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	=	678	lbs.	Right Rear	=	486	lbs.
Left Front	=	703	lbs.	Left Rear	=	484	lbs.
TOTAL FRONT	=	1,381	lbs.	TOTAL REAR	=	970	lbs.
TOTAL DELIVERED WEIGHT	=	2,351	lbs.				
% of Total Front of Vehicle Weight	=	59	%	% of Total Rear Weight	=	41	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight	=	2,351	lbs.
Rated Cargo/Luggage Weight (RCLW)	=	100	lbs.
Weight of 2 p.572 Dummies, 167 & 164 lbs	=	331	lbs.
TARGET TEST WEIGHT	=	2,782	lbs.

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 86 POUNDS OF CARGO WEIGHT:

Right Front	=	811	lbs.	Right Rear	=	562	lbs.
Left Front	=	825	lbs.	Left Rear	=	570	lbs.
TOTAL FRONT	=	1,636	lbs.	TOTAL REAR	=	1,132	lbs.
TOTAL TEST WEIGHT	=	2,768.0	lbs.				
% of Total Front Weight	=	59.1	%	% of Total Rear Weight	=	40.9	%

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

Type of Ballast: None

Method of Securing Ballast: None

Vehicle Components Removed for Weight Reduction: Battery

VEHICLE ATTITUDE (all dimension in inches):

AS DELIVERED:	RF	25.7	LF	25.5	RR	24.9	LR	24.9
AS TESTED:	RF	25.0	LF	25.0	RR	24.4	LR	24.1
Vehicle's Wheel Base:		97.0	in.					
Location of Vehicle's C.G.:		39.7	inches rearward of front wheel center.					

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual	=	13.2	gallons
Usable Capacity Figure Furnished by COTR	=	13.2	gallons
Test Volume Range (91 to 94% of Usable Capacity)	=	12.1	to 12.4 gallons
ACTUAL TEST VOLUME=		12.2	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 operated.		
Details of Fuel System:	Fuel filler is on left side aft of rear axle, fuel tank is centered fore of rear axle and fuel lines run along left frame rail.	

Table 3

MOVING BARRIER PARAMETER DATAWEIGHT OF MOVING BARRIER:

Right Front	=	<u>1113</u>	lbs.	Right Rear	=	<u>868</u>	lbs.
Left Front	=	<u>1102</u>	lbs.	Left Rear	=	<u>878</u>	lbs.
TOTAL FRONT	=	<u>2,215</u>	lbs.	TOTAL REAR	=	<u>1,746</u>	lbs.
TOTAL BARRIER WEIGHT	=	<u>3,961</u>	lbs.				

MOVING BARRIER DIMENSIONS:

Barrier Face Height:	<u>60.0</u>	in.
Barrier Face Width:	<u>78.0</u>	in.
Barrier Face		
Ground Clearance:	<u>5.0</u>	in.
Tread Width:	<u>59.5</u>	in.
Wheel Base:	<u>120.0</u>	in.
Location of C.G.:	X: <u>52.9</u>	inches rearward of front wheel center,
	Y: <u>0.0</u>	inches from longitudinal-vertical plane of symmetry.
	Z: <u>16.3</u>	inches above ground.

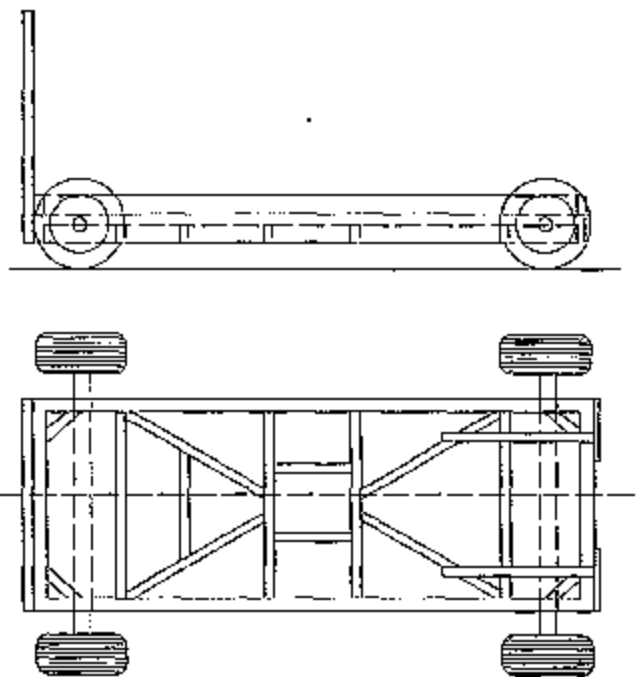


Table 4

POST IMPACT DATATYPE OF TEST:

Type of Test: Rear Barrier Impact Angle: 0°
 Test Date: June 9, 1998 Time: 13:18 Temperature: 70 °F
 Vehicle NHTSA No.: CW5107
 Required Impact Velocity Range: 28.9 to 29.9 mph

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

Trap No. 1 = 29.7 mph; Trap No. 2 = 29.7 mph
 Average Impact Speed = 29.7 mph

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

Vehicle Length:

Pre-Test	Right =	<u>170.75</u>	; C/L =	<u>174.1</u>	; Left =	<u>170.5</u>
Post-Test	Right =	<u>155.8</u>	; C/L =	<u>158.5</u>	; Left =	<u>155.7</u>
Crush	Right =	<u>15.0</u>	; C/L =	<u>15.6</u>	; Left =	<u>14.8</u>
AVERAGE	=	<u>15.1</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

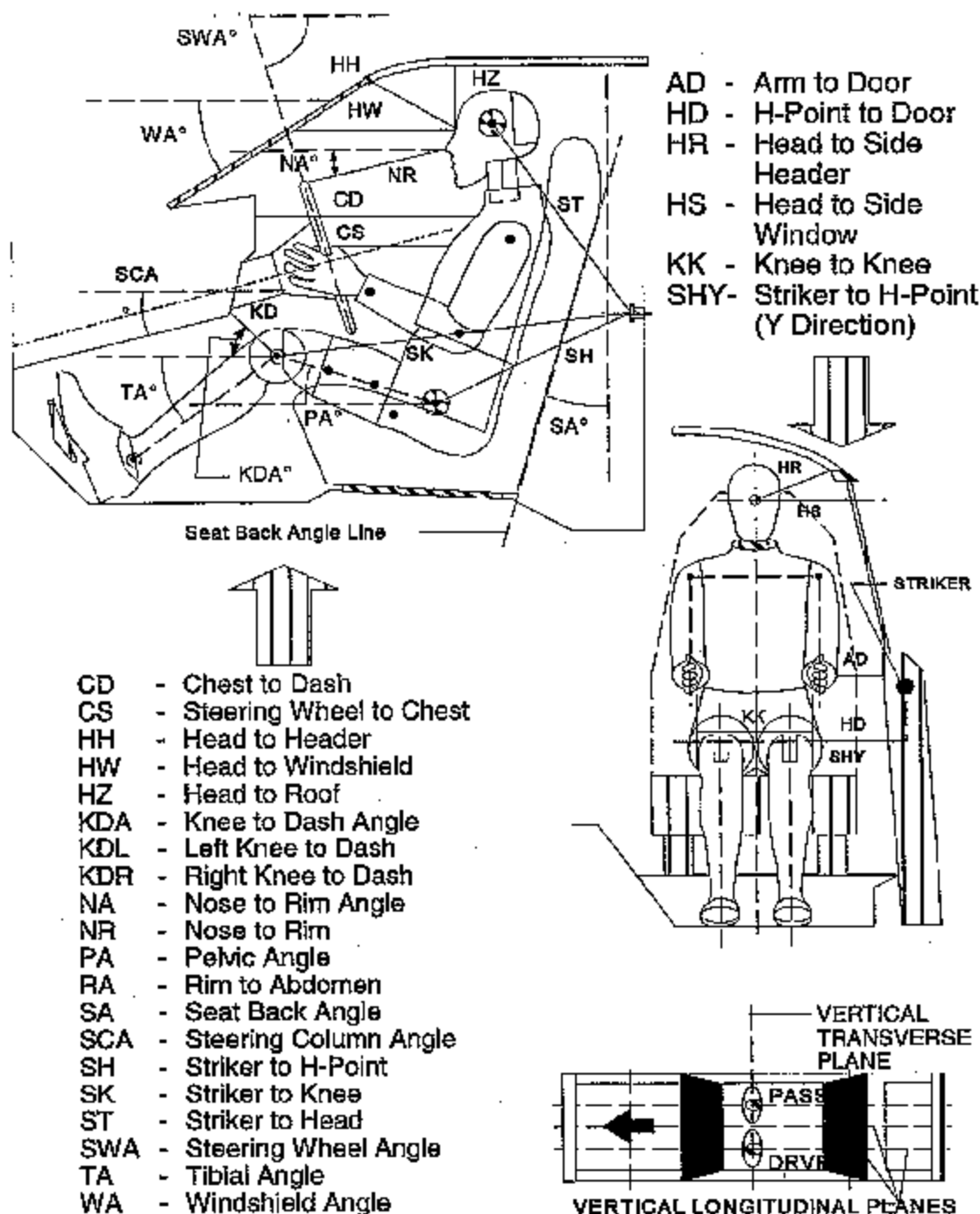


Table 5

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

	DRIVER (Serial #152)		
WA°	32 deg.		
SWA°	65 deg.		
SCA°	25 deg.		
SA°	21 deg.		
HZ	7.2		
HH	9.5		
HW	18.6		
HR	10.1		
NR	14.6	Angle	14 deg.
CD	18.9		
CS	11.6		
RA	6.0		
KDL	6.8	Angle (KDA)	34 deg.
KDR	6.5		
PA°	21 deg.		
TA°	46 deg.		
KK	11.1		
ST	20.7	Angle	-8 deg.
SK	23.3	Angle	91 deg.
SH	9.1	Angle	136 deg.
SHY	10.1		
HS	11.9		
HD	4.7		
AD	3.7		

Table 6
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO. 301

TEST VEHICLE NHTSA NO.: CW5107 TEST DATE: June 9, 1998

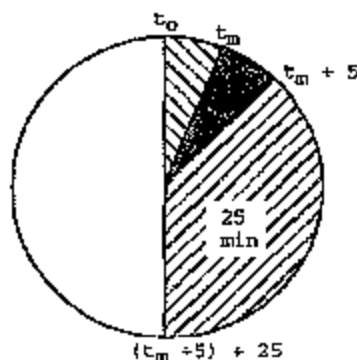
Vehicle Mfg./Make/Model: 1998 Toyota Corolla VE 4-door Sedan

Test vehicle fuel tank filled to 91% 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

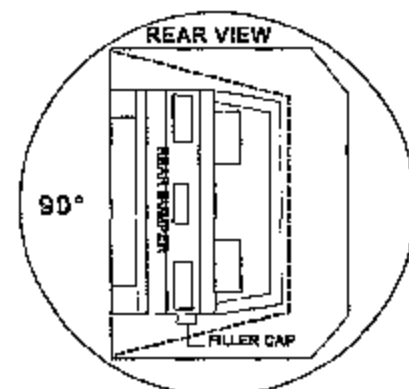
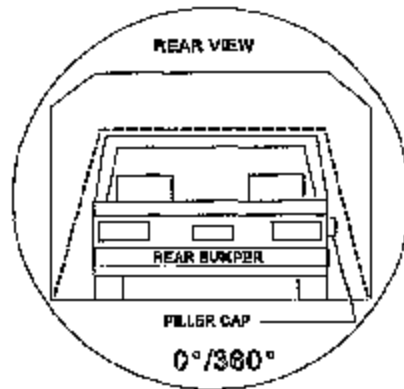
Table 7

FMVSS NO. 301 STATIC ROLLOVER DATA SHEETTEST PHASE:

0-90 Deg.

Vehicle NHTSA ID No.:

CW5107

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 5 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 5 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):

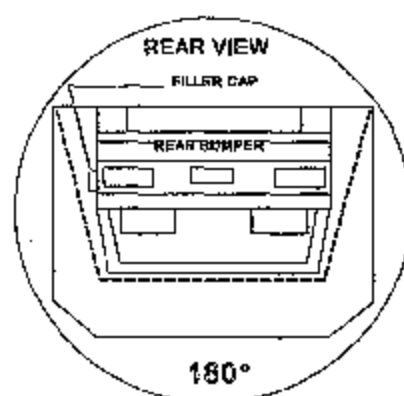
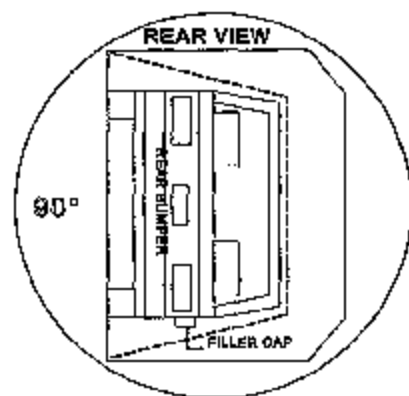
None

Table 7

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

TEST PHASE :
90-180 Deg.

Vehicle NHTSA ID No. :
CW5107



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 3 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 3 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):

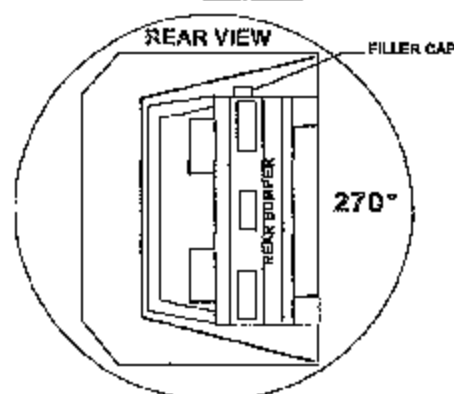
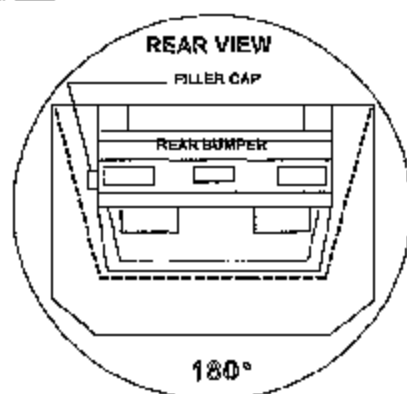
None

Table 7

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

TEST PHASE :
180-270 Deg.

Vehicle NHTSA ID No.:
CW5107



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 1 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 1 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):

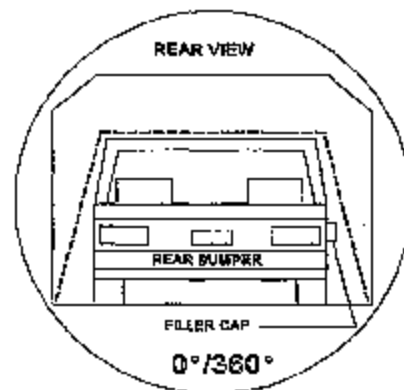
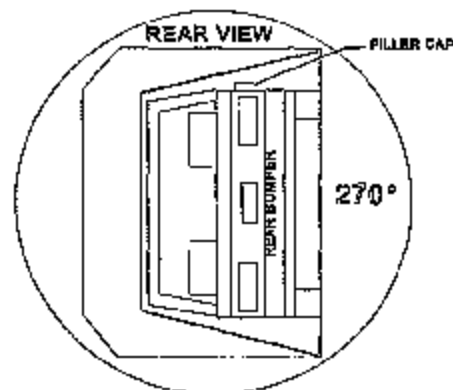
None

Table 7

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

TEST PHASE:
270-360 Deg.

Vehicle NHTSA ID. No.:
CW5107



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 6 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 6 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

Figure 2

CAMERA POSITIONS FOR REAR IMPACTS

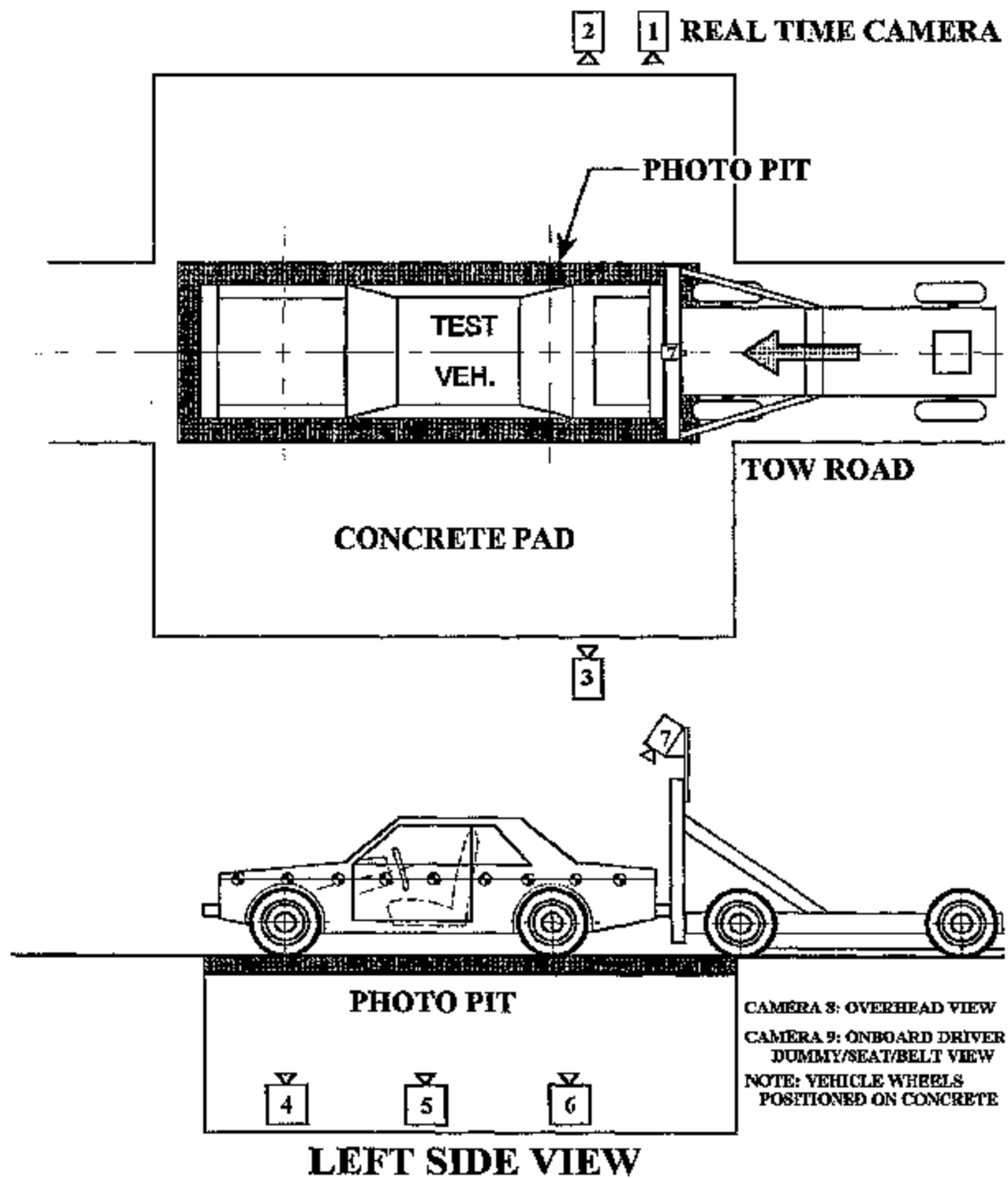


Table 8

HIGH-SPEED CAMERA LOCATIONSNHTSA No. : CW5107 Vehicle : 1998 Toyota Corolla VE 4-door Sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (inches)*			ANGLE** (degrees)	LENS (mm)	SPEED (fps)
		X	Y	Z			
1	Real-Time Camera	-	-	-	-	-	24
2	Right Side View	485.5	61.0	43.3	-1	25	1000
3	Left Side View	470.0	96.5	53.0	-2	25	1000
4	Vehicle Front Underbody View	0	135.3	-77	90	13	510
5	Vehicle Mid-Section Underbody View	0	75.6	-77	90	13	625
6	Vehicle Rear Underbody View	0	34	-77	90	13	620
7	Moving Barrier View	0	0	99	-105	7.5	1000
8	Overhead Overall View	10	102	386	-90	25	1000
9	Onboard Driver Dummy/Seat/Belt View	-	-	-	-	12.5	750

* X = film plane 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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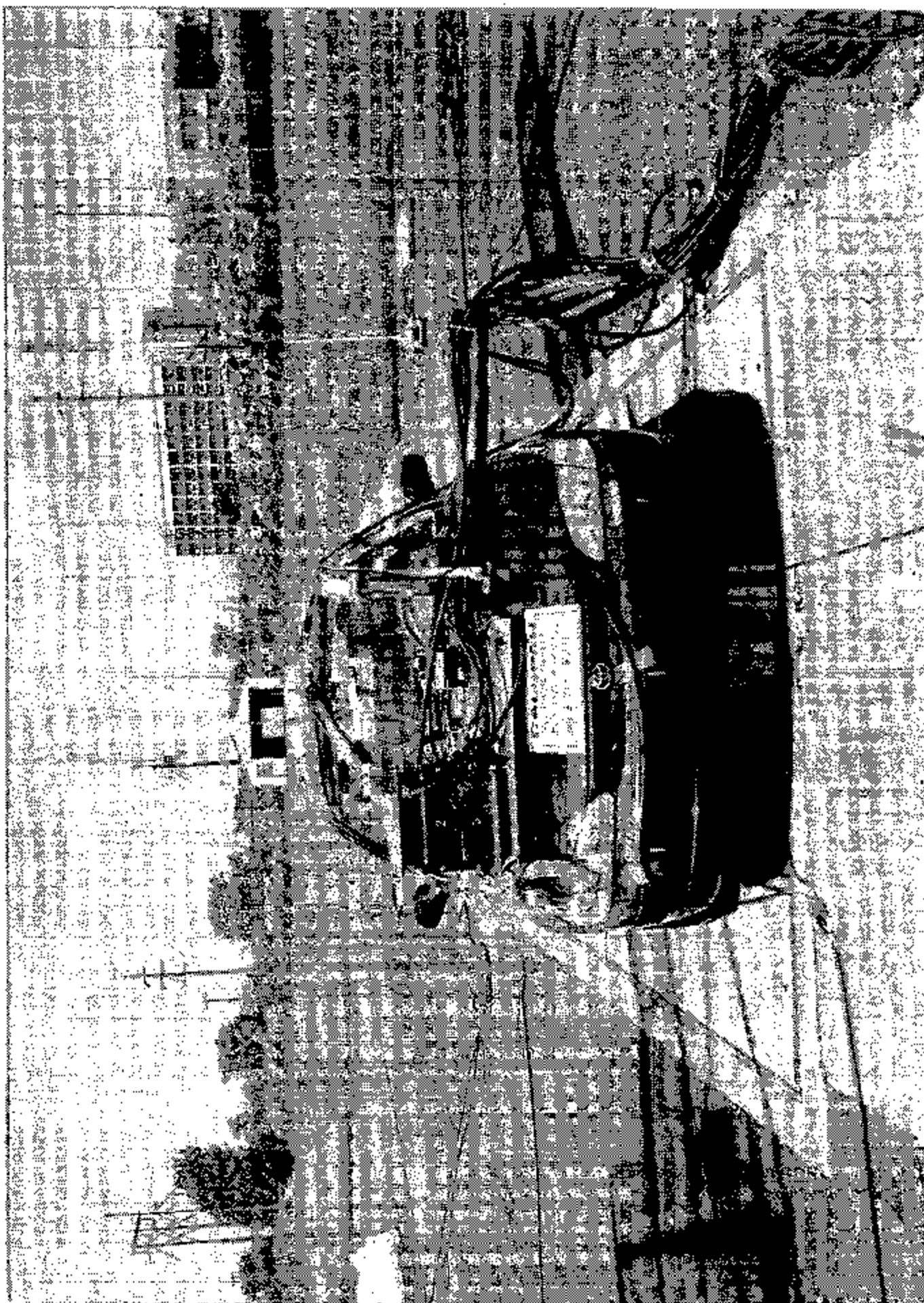


Figure A-1 PRE-TEST FRONT VIEW

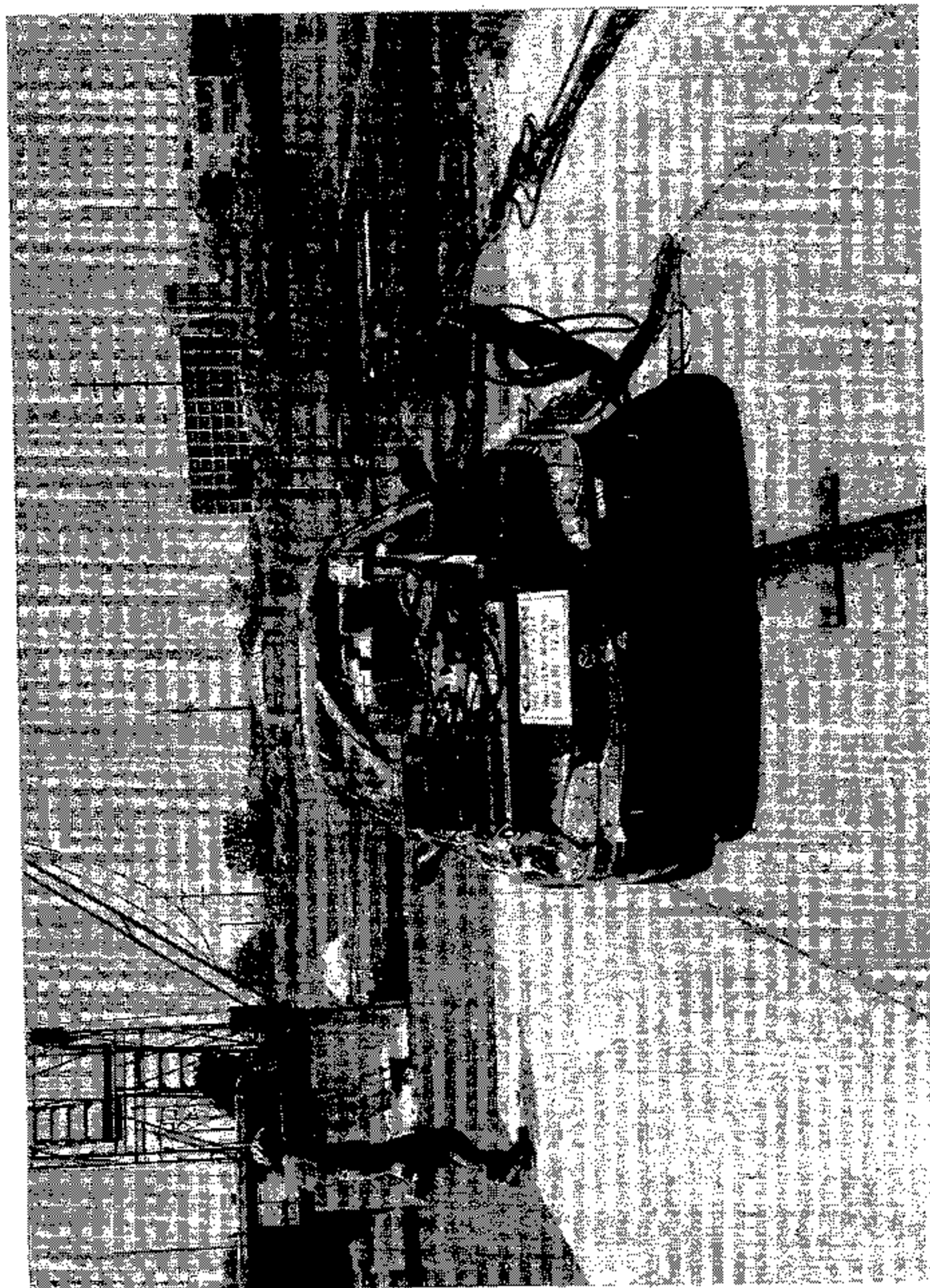


Figure A-2 POST-TEST FRONT VIEW

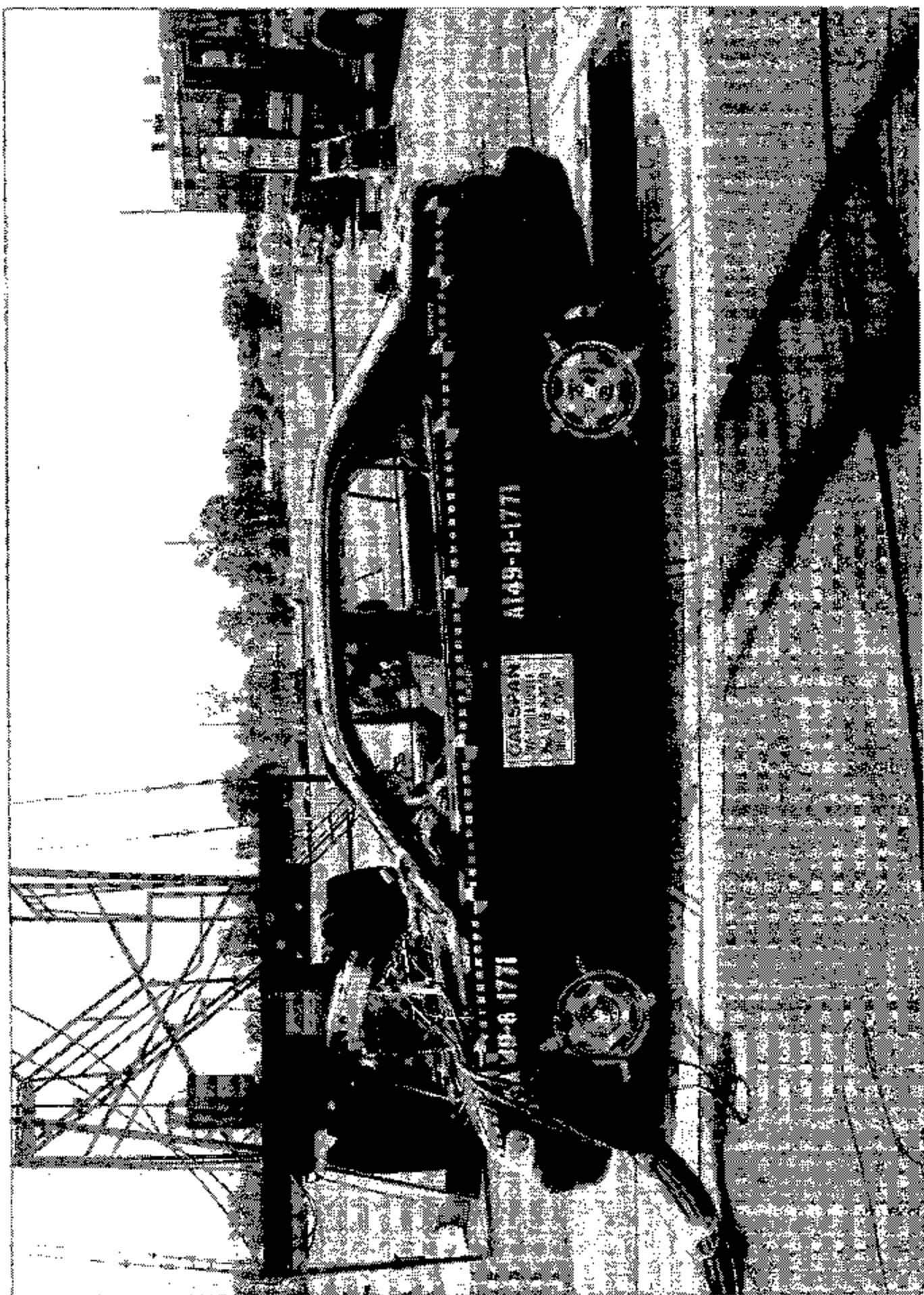


Figure A-3 PRE-TEST LEFT SIDE VIEW

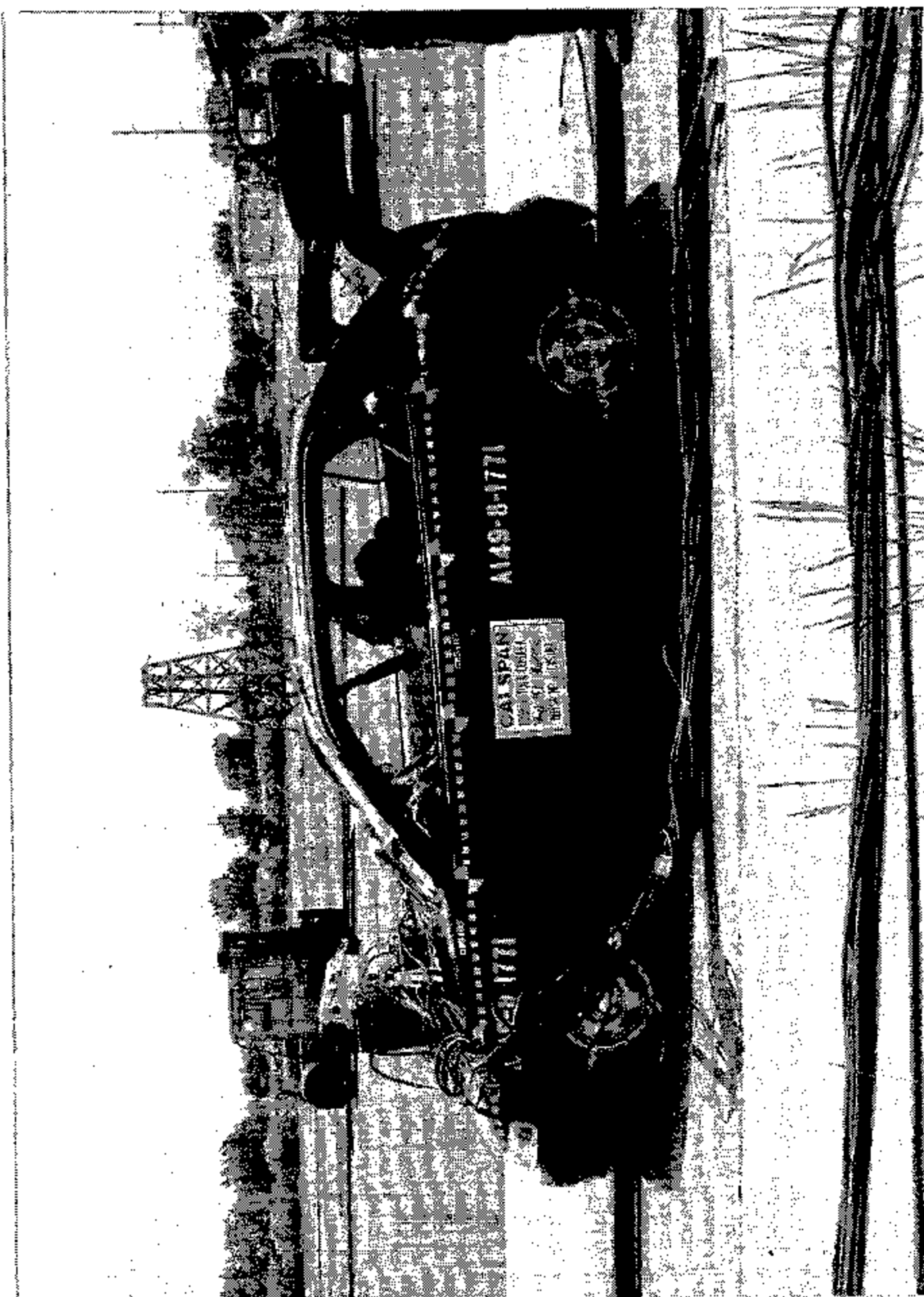


Figure A-4 POST-TEST LEFT SIDE VIEW

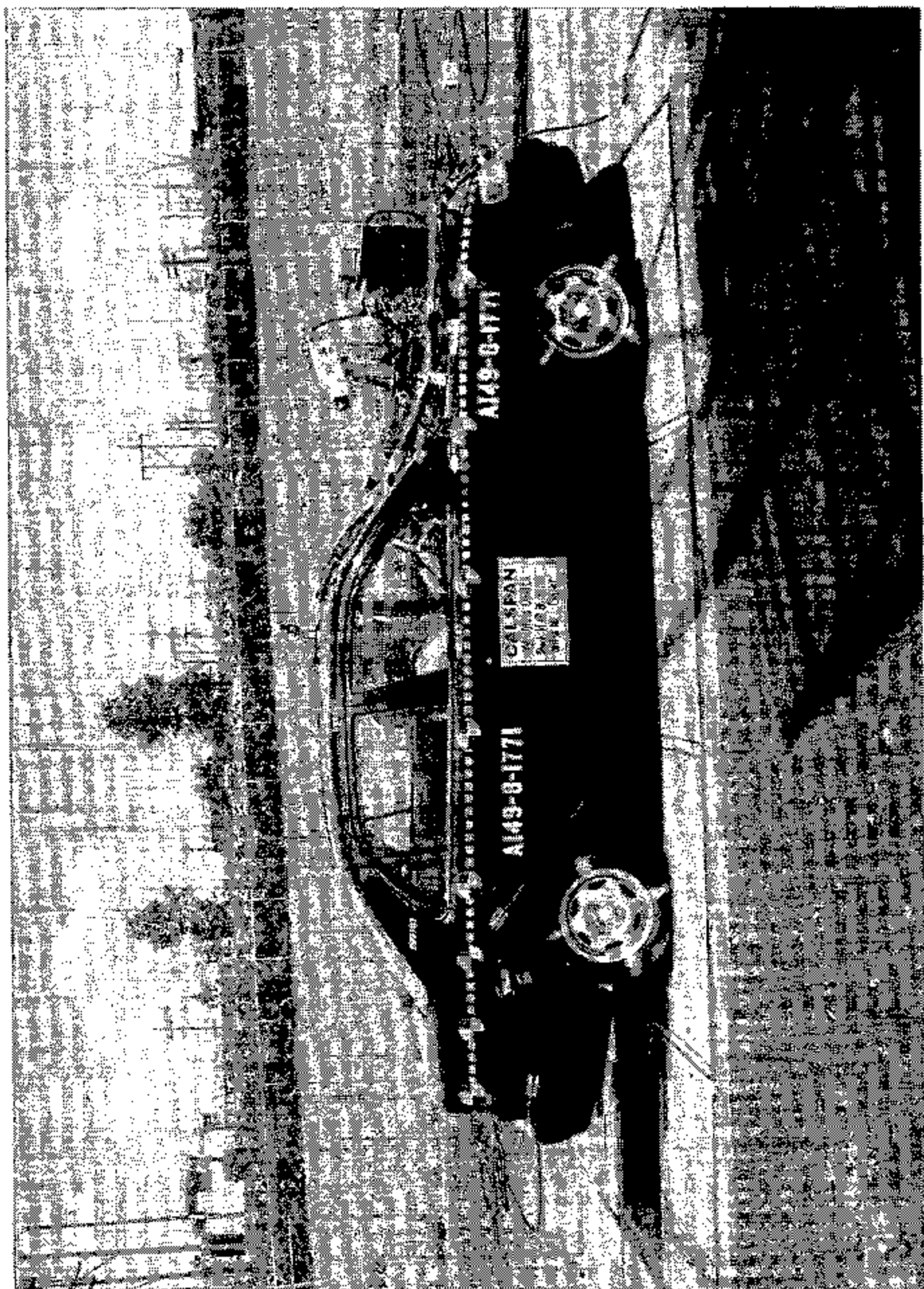


Figure A-5 PRE-TEST RIGHT SIDE VIEW

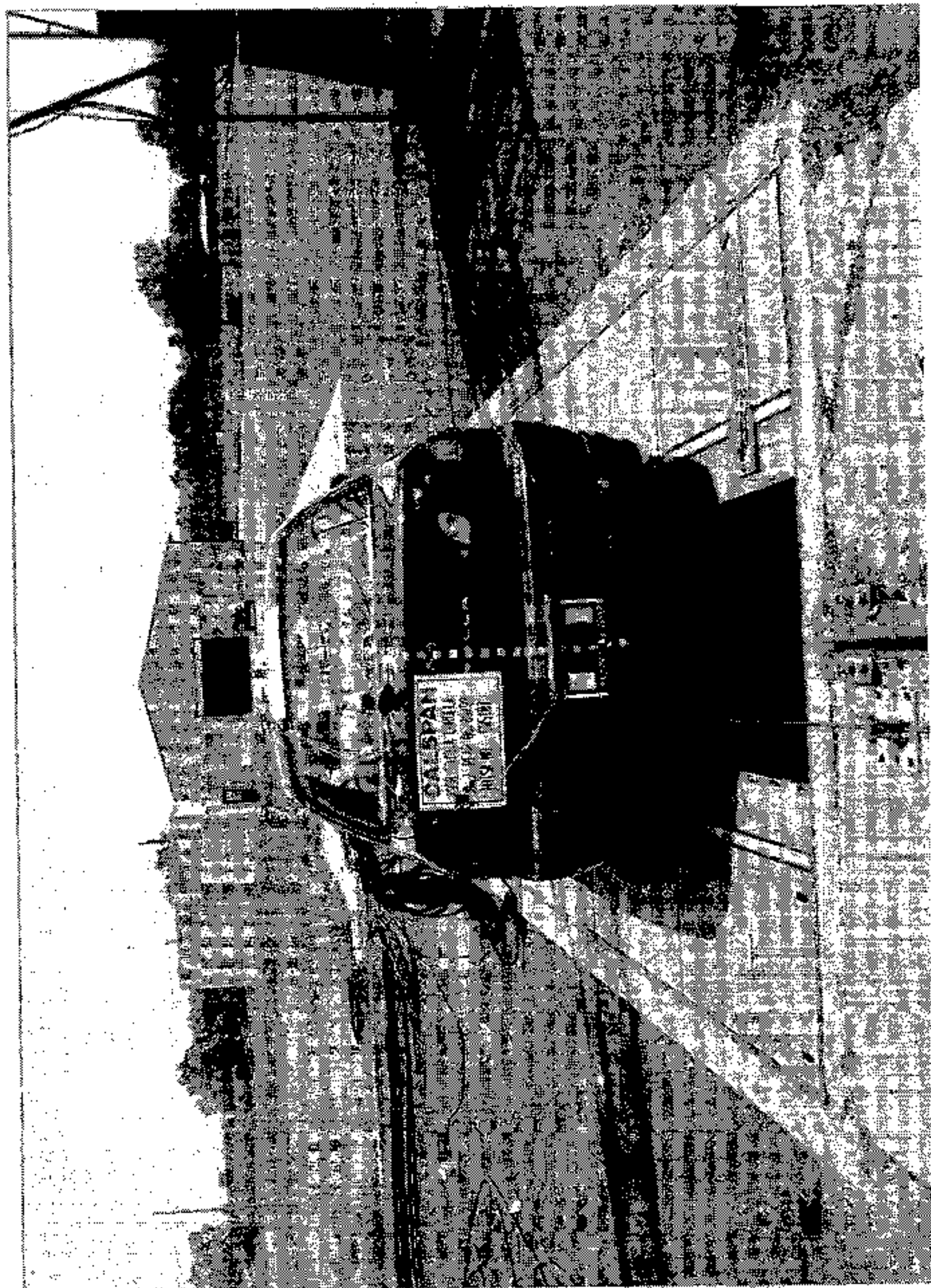


Figure A-7 PRE-TEST REAR VIEW

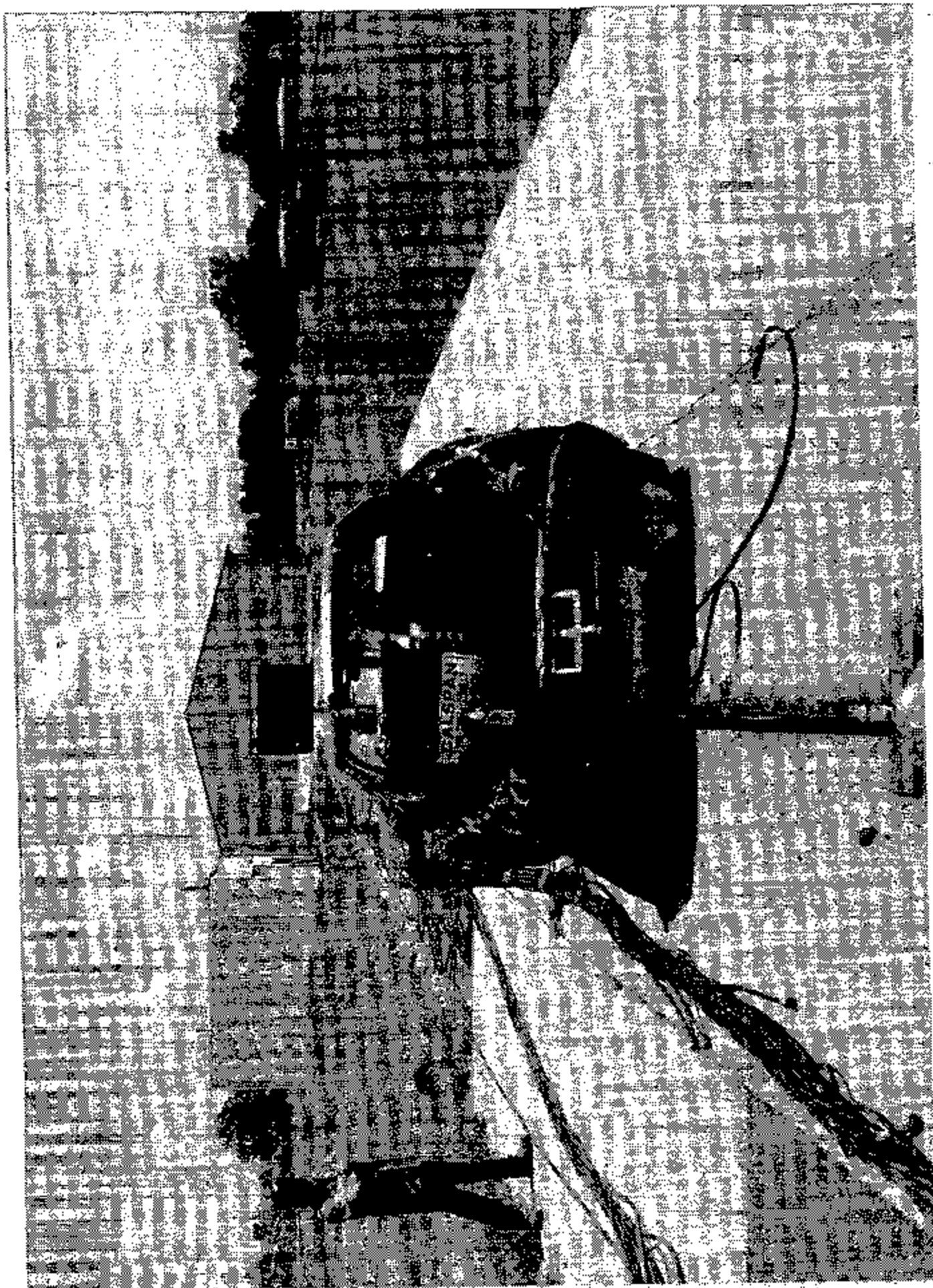


Figure A-8 POST-TEST REAR VIEW



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

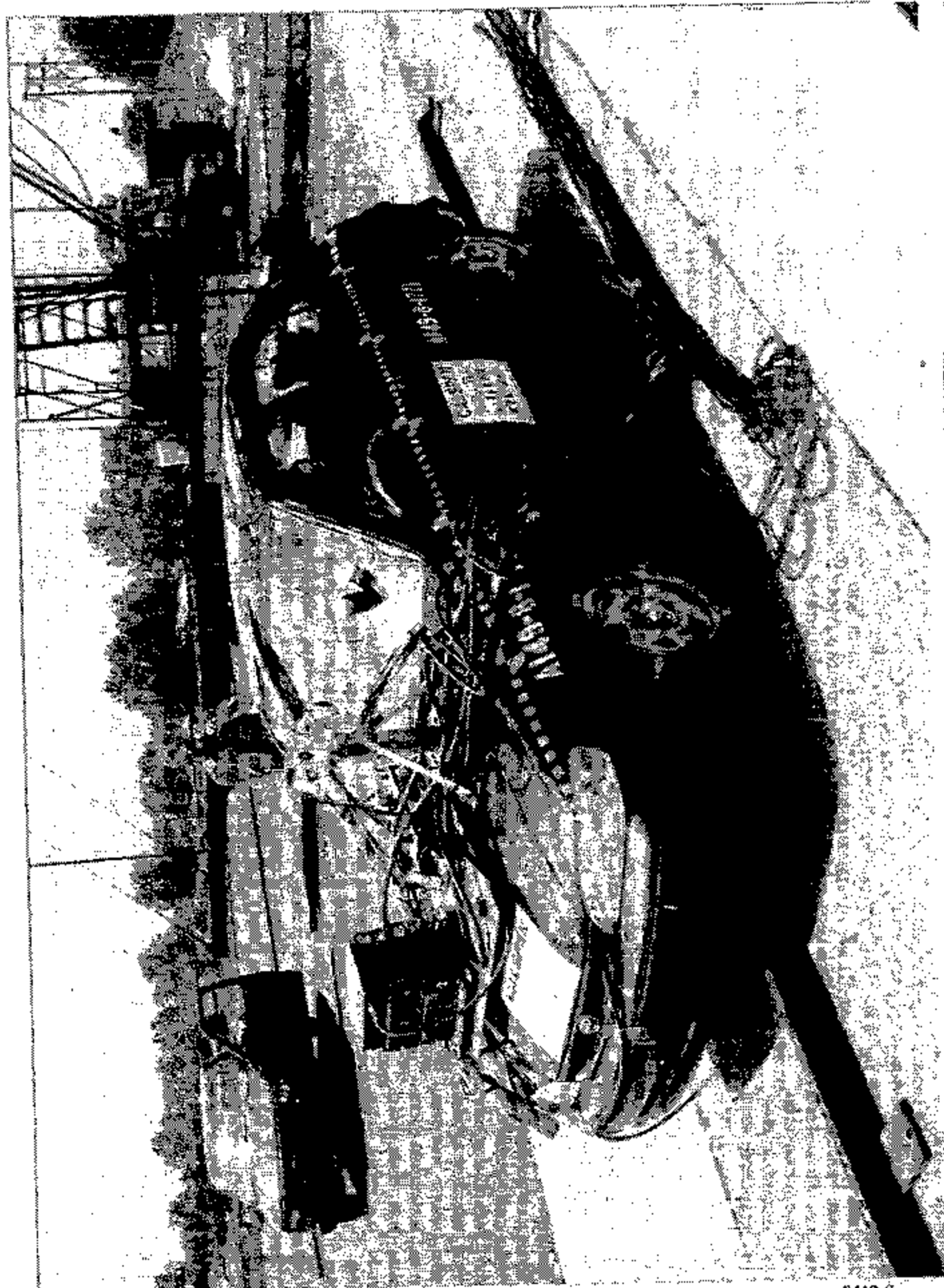


Figure A-10 POST-TEST LEFT FRONT THREE-QUARTER VIEW

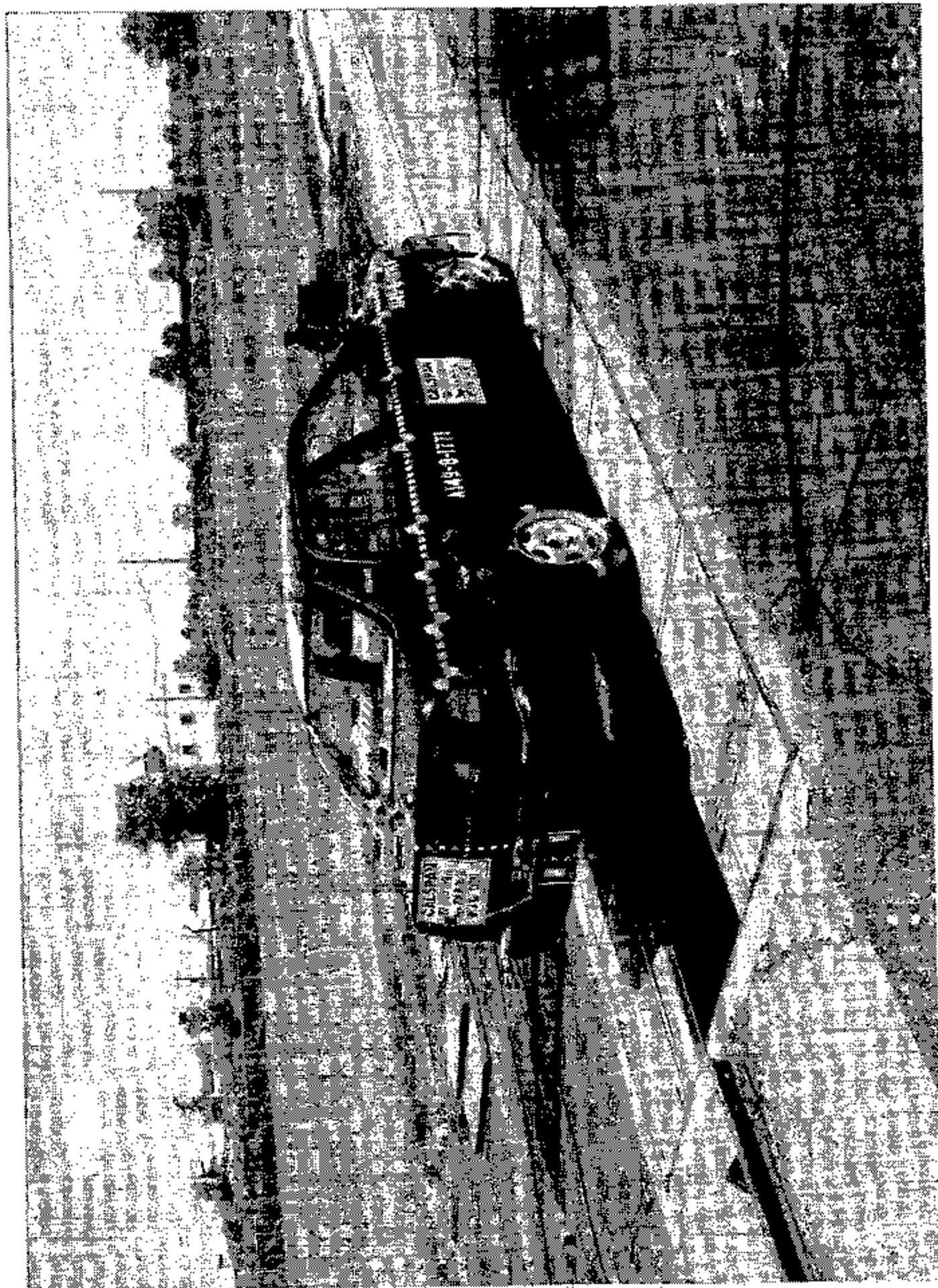


Figure A-11 PRE-TEST RIGHT REAR THREE-QUARTER VIEW

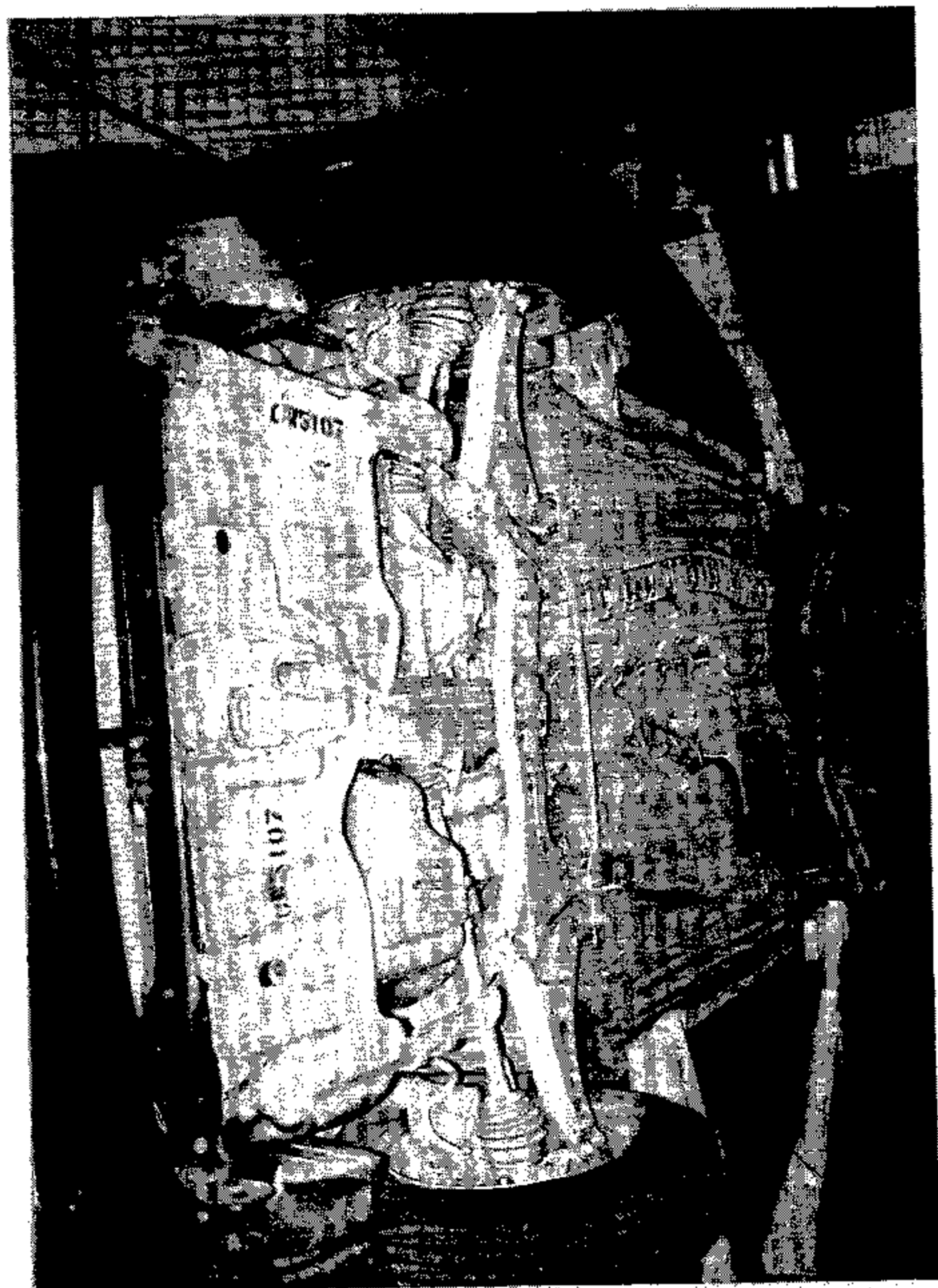


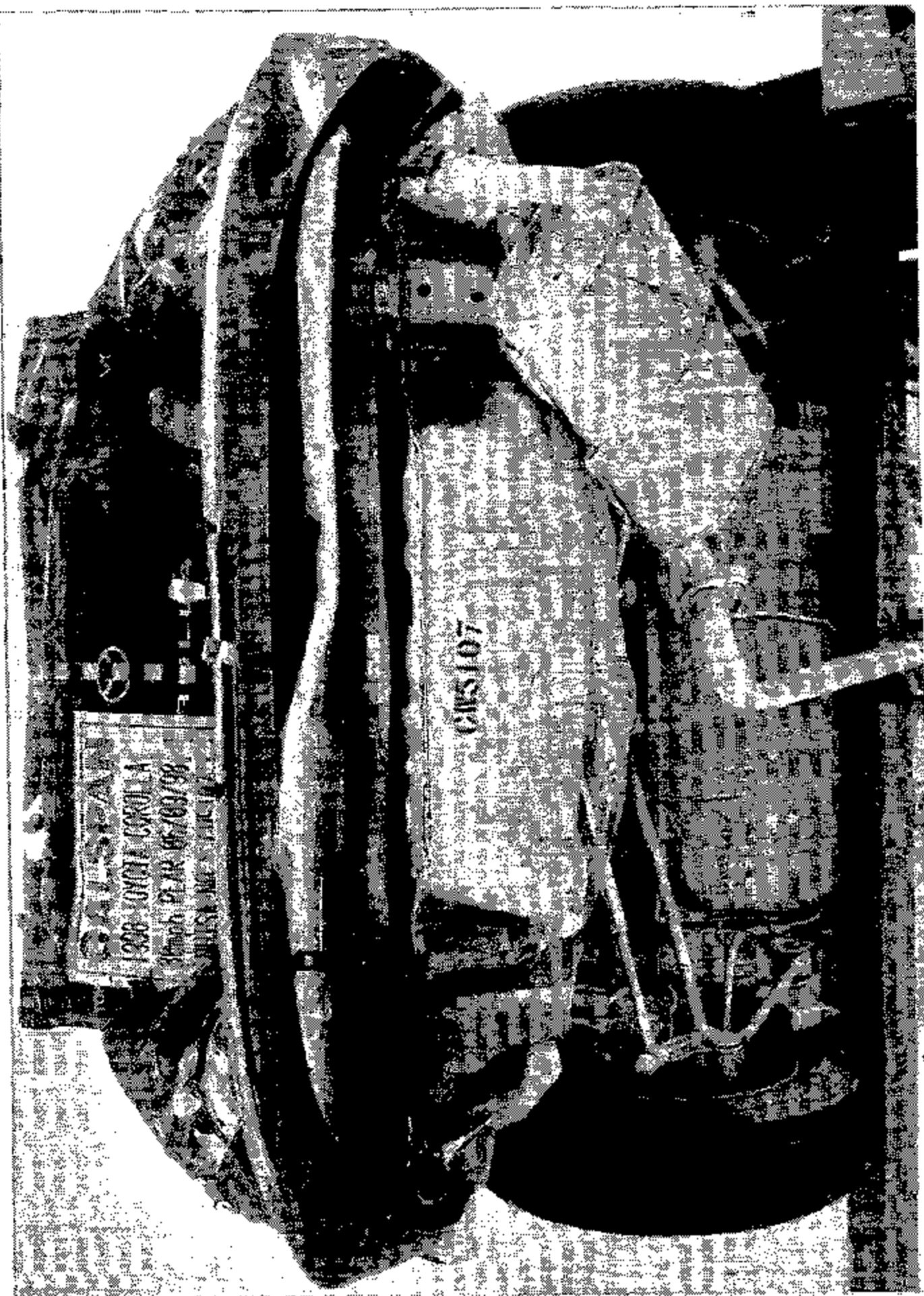
Figure A-13 PRE-TEST FRONT UNDERBODY VIEW



Figure A-14 POST-TEST FRONT UNDERBODY VIEW



Figure A-15 PRE-TEST REAR UNDERBODY VIEW



1338 10/01/11 CORP A
10/01/11 CORP A
10/01/11 CORP A
10/01/11 CORP A

CRS107

Figure A-16 POST-TEST REAR UNDERBODY VIEW

MADE BY TOYOTA MOTOR MANUFACTURING
CANADA INC. 12/97

OWN 3015LB CANWR FR 1815LB RR 1120LB
THIS VEHICLE CONFORMS TO ALL APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY, BUMPER, AND
THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE

211B712E6W6C029326 PASS CAR



DATE 2003/04/01 MODEL ZZE110L - DEMRKA
VIN 02A000000 MADE IN CANADA

49B



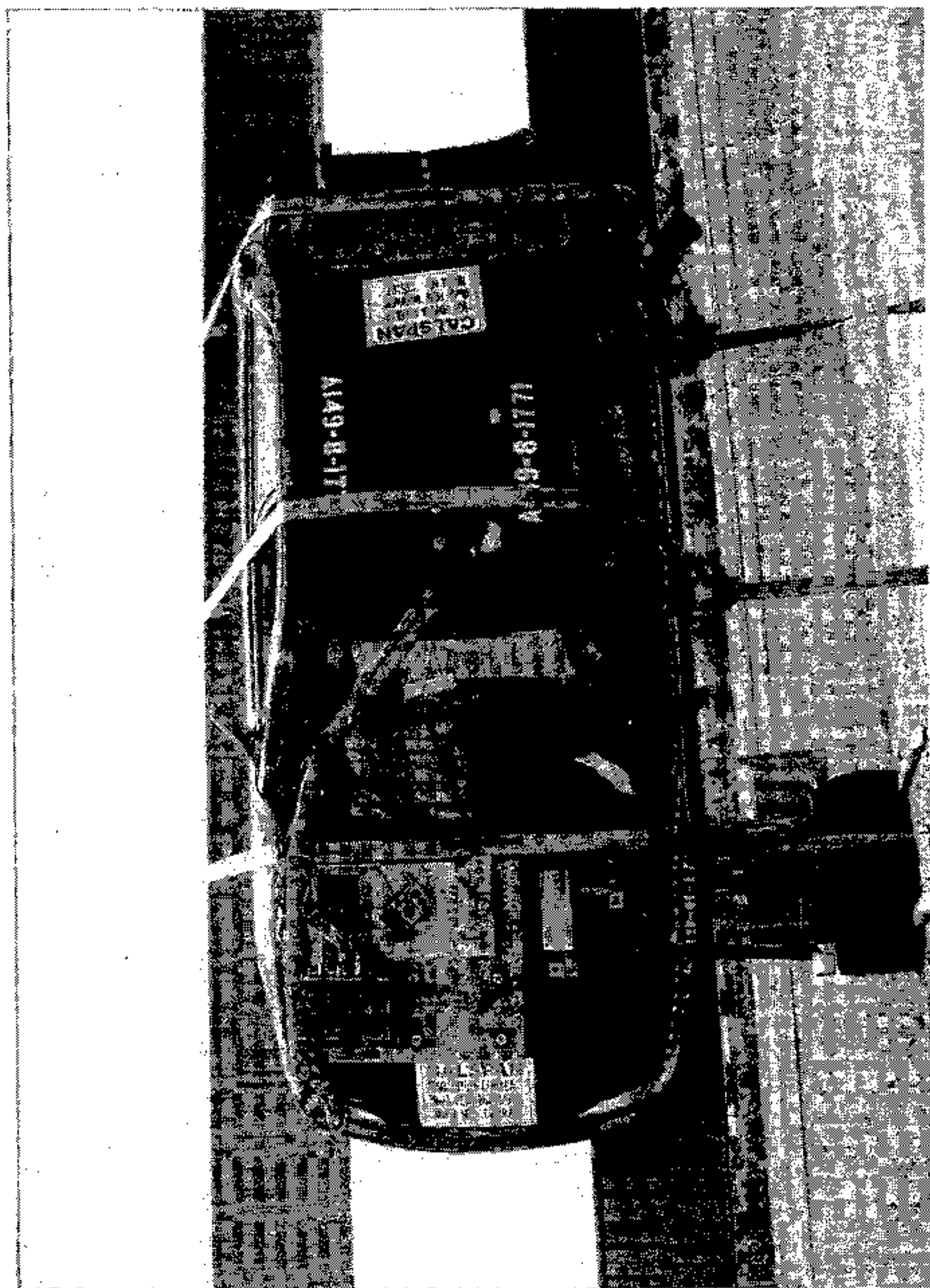


Figure A-19 ROLLOVER 90°



PHOTOGRAPH NOT AVAILABLE

PHOTOGRAPH NOT AVAILABLE

Appendix B
VEHICLE AND DUMMY RESPONSE DATA
(REAR IMPACT ONLY)

FACILITY: track TEST DATE: 09 Jun 1998
 RUN #: 1771 TEST TIME: 12:18:06
 SERIES #: 1 BOARD: a

TITLE: 301 Rear 30 MPH-1998 Toyota Corolla

CHANNEL NUMBER	DESCRIPTION	MMGR UNIT	MAXIMUM		MINIMUM		FILTER CLASS
			AMP	msec	AMP	msec	
1	Pos. 1 Head X	Gs	21.9	119.2	-4.1	351.3	1000.0
2	Pos. 1 Head Y	Gs	2.0	347.7	-2.4	110.3	1000.0
3	Pos. 1 Head Z	Gs	16.4	111.4	-1.7	27.1	1000.0
4	Pos. 1 Chest Disp	ins	.1	346.3	.0	57.4	60.0
5	Pos. 1 Chest X	Gs	13.6	83.0	-2.7	333.5	180.0
6	Pos. 1 Chest Y	Gs	1.6	105.3	-1.7	80.0	180.0
7	Pos. 1 Chest Z	Gs	5.3	69.4	-.6	339.7	180.0
8	Pos. 1 Lap Belt Load	lbs	50.0	343.9	-19.6	60.6	60.0
9	Pos. 1 Pelvic X	Gs	15.1	70.8	-2.9	128.2	1000.0
10	Pos. 1 Pelvic Y	Gs	2.6	69.4	-4.3	104.5	1000.0
11	Pos. 1 Pelvic Z	Gs	6.7	73.4	-3.9	349.4	1000.0
12	Pos. 1 Belt Spoolout	ins	.1	-36.9	-4.3	253.9	60.0
13	Pos. 1 Upper Neck Fx	lbs	54.1	107.3	-47.0	134.5	1000.0
14	Pos. 1 Upper Neck Fy	lbs	21.1	347.9	-29.4	134.5	1000.0
15	Pos. 1 Upper Neck Fz	lbs	266.0	111.5	-31.4	27.2	1000.0
16	Left Rear Xmember X	Gs	31.1	6.4	-19.6	14.4	60.0
17	Pos. 1 Head Resultant	Gs	24.6	119.1	.1	6.0	1000.0
18	Pos. 1 Chest Resultant	Gs	13.9	82.9	.0	-32.5	180.0
19	Pos. 1 Pelvic Res.	Gs	16.3	70.8	.0	5.3	1000.0
20	Pos. 1 Upper Neck F(Res)	lbs	266.2	111.5	1.0	8.9	1000.0

V2 36 ms Fixed Duration HIC SUMMARY: Pos. 1 Head Resultant

hic: 74.93
 t1 = 101.500 msec
 t2 = 137.500 msec
 Average G's Over Hic Duration = 21.25

CLIP V2.1 SUMMARY: Pos. 1 Chest Resultant

FACILITY: track
RUN #: 1771
SERIES #: 1

TEST DATE: 09 Jun 1998
TEST TIME: 12:18:06
BOARD: b

TITLE: 301 Rear 30 MPH-1998 Toyota Corolla

CHANNEL NUMBER	DESCRIPTION	ENGR UNIT	MAXIMUM		MINIMUM		FILTER CLASS
			AMP	msec	AMP	msec	
1	Pos. 1 Upper Neck Mx	Ft-Lbs	5.5	357.9	-3.6	109.5	600.0
2	Pos. 1 Upper Neck My	Ft-Lbs	9.0	92.2	-15.7	147.0	600.0
3	Pos. 1 Upper Neck Mz	Ft-Lbs	2.5	194.2	-4.3	107.2	600.0
4	Right Rear Xmember X	Ina	30.4	6.6	-20.9	15.0	60.0
5	Upper Seatback X	Ina	36.3	24.5	-25.3	17.3	60.0
6	Lower Seatback X	Ina	35.0	8.0	-26.3	16.8	60.0
7	NULL		.0	359.9	.0	359.9	1000.0
8	NULL		.0	359.9	.0	359.9	1000.0
17	Pos. 1 Neck Moment Res.	Ft-Lbs	15.8	147.0	.0	-17.3	600.0

TEST NO. CW5107

VEHICLE

SAE FILTER CHANNEL CLASS

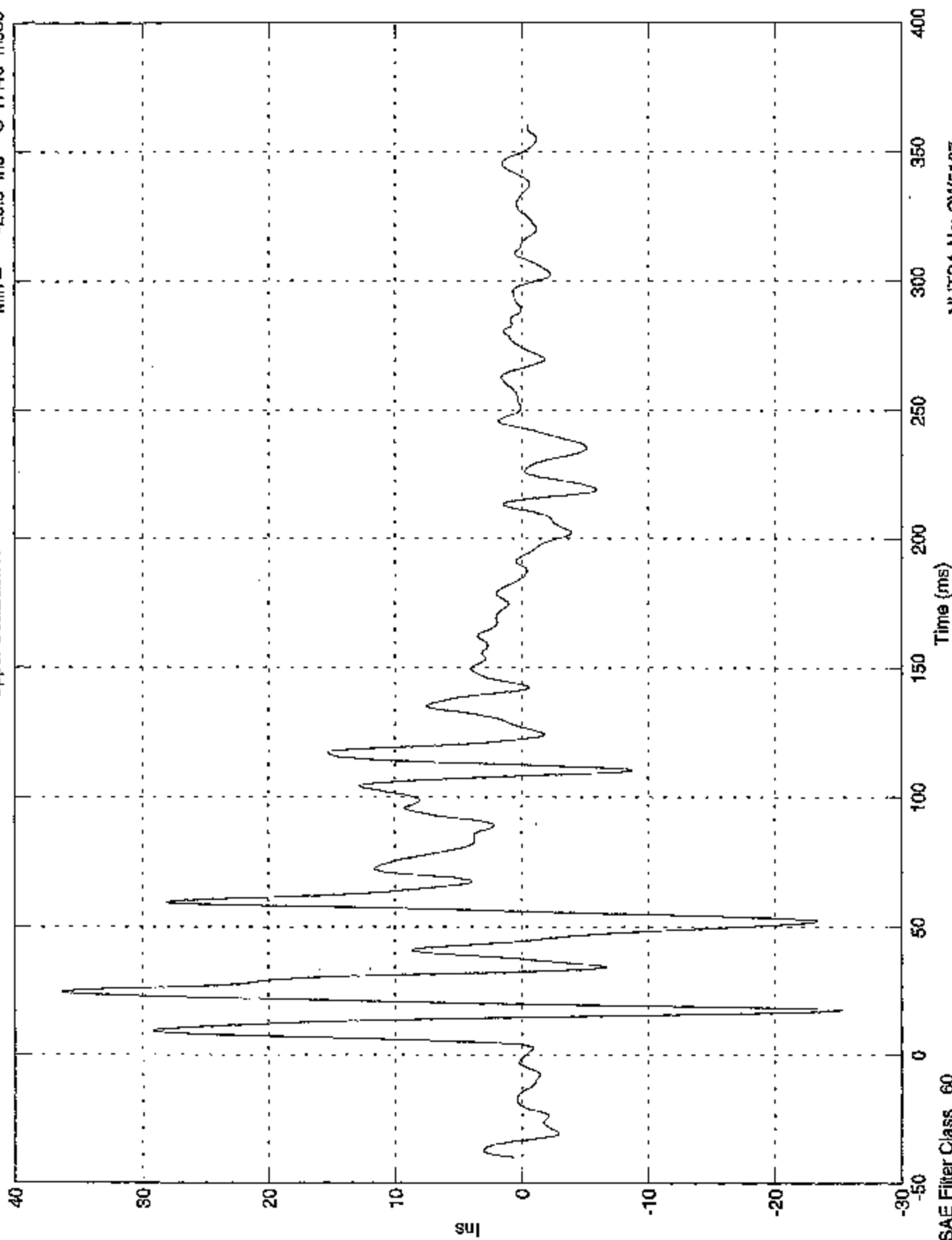
60

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

301 Rear 30 MPH-1998 Toyota Corolla

Max = 36.3 Ins @ 24.60 msec
Min = -25.3 Ins @ 17.40 msec

Upper Seatback X



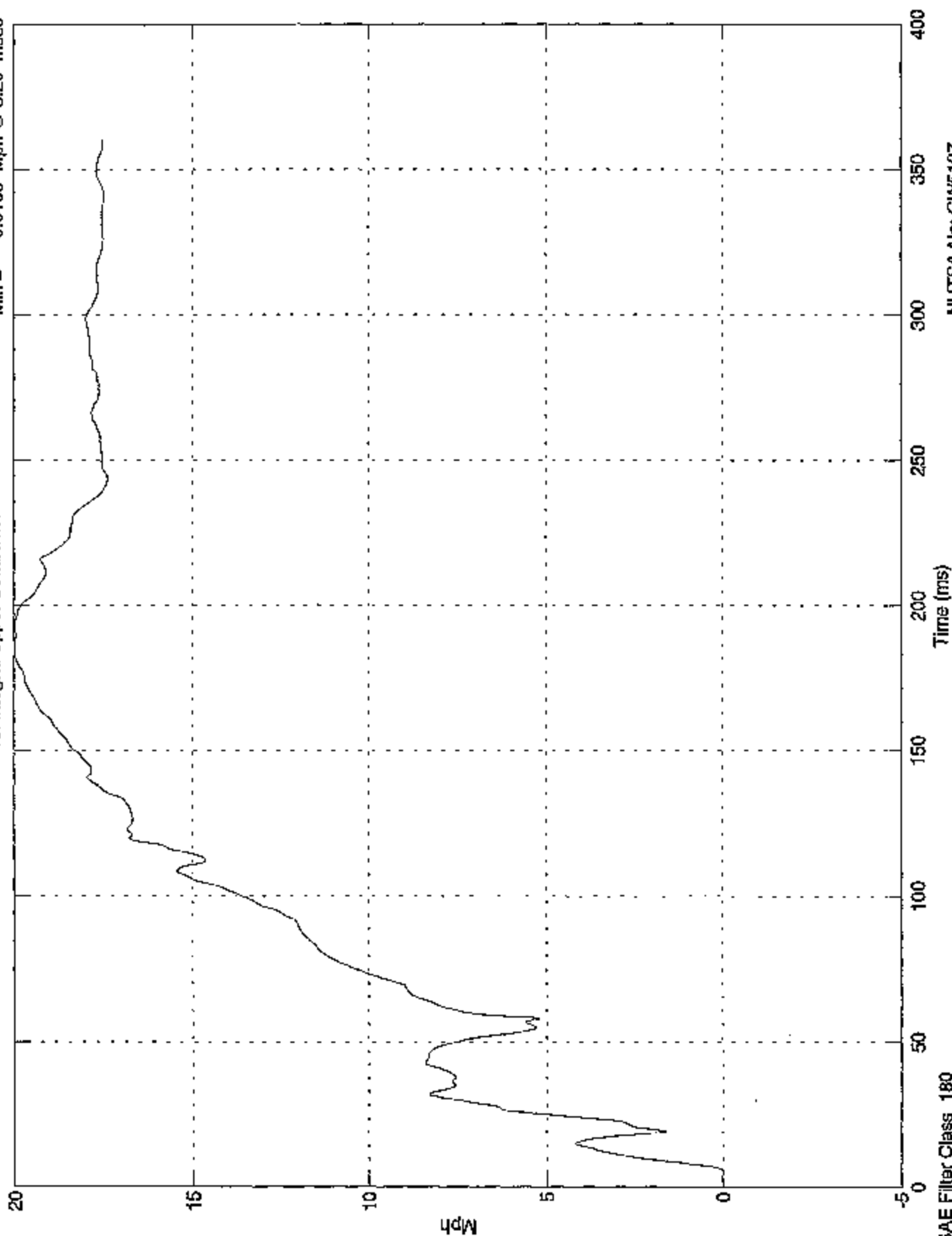
SAE Filter Class 60

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1998 Toyota Corolla

Max = 20 Mph @ 184.20 msec
Min = -0.0169 Mph @ 5.20 msec

1st Integral Upper Seatback X



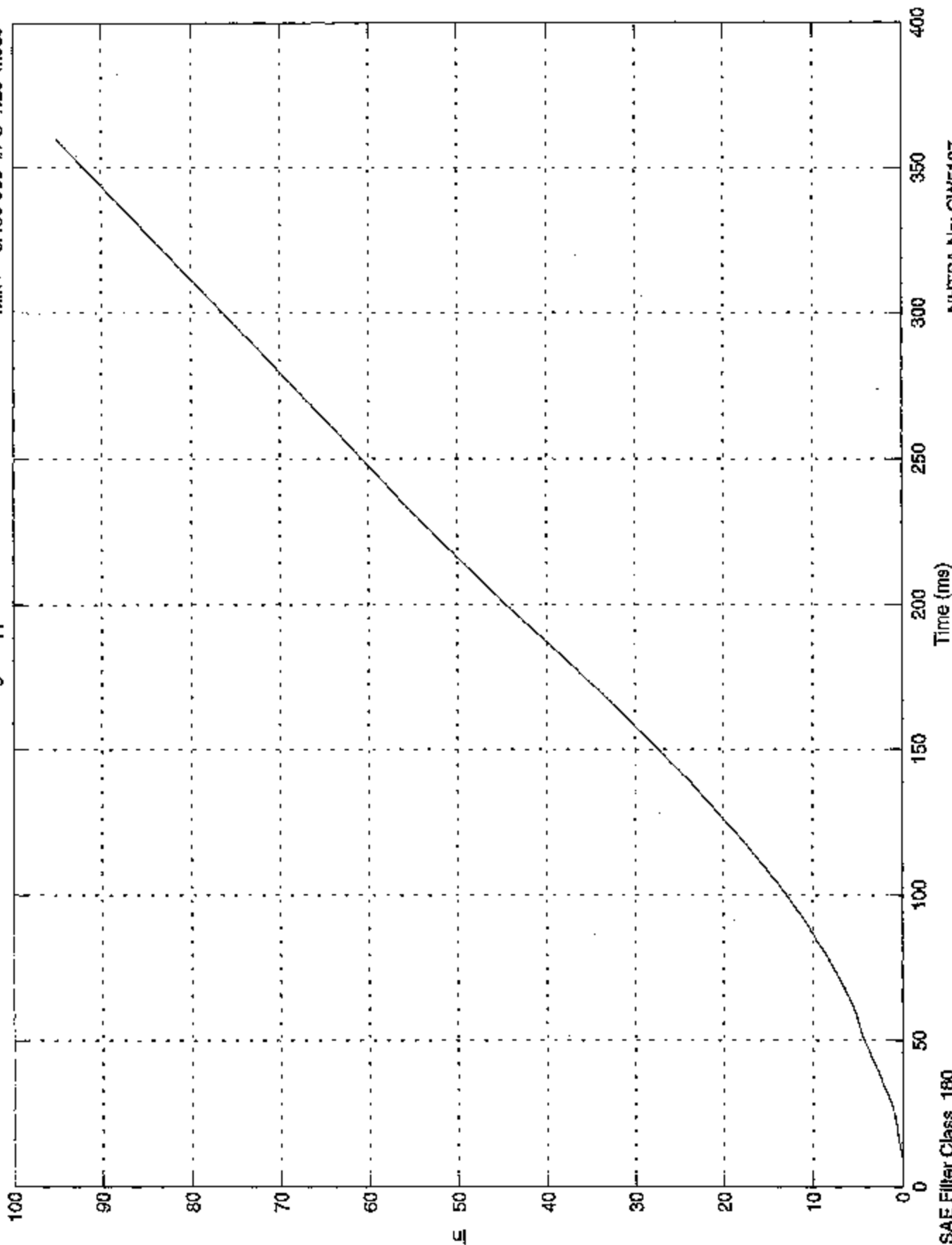
SAE Filter Class 180

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1998 Toyota Corolla

Max = 95 in @ 360.00 msec
Min = -6.43e-005 in @ 1.20 msec

2nd Integral Upper Seatback X



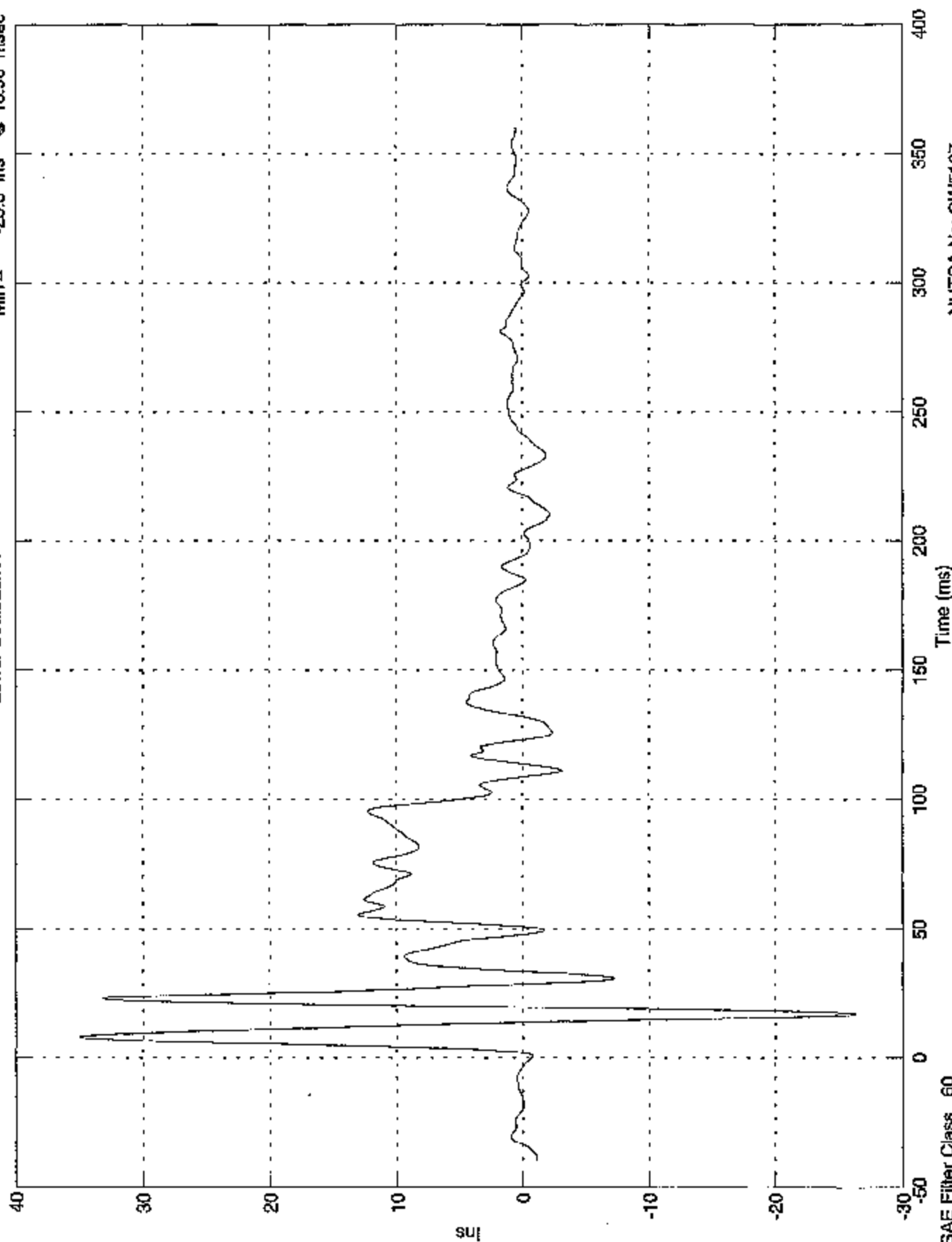
SAE Filter Class 180

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1988 Toyota Corolla

Max = 35 Ins @ 8.10 msec
Min = -26.3 Ins @ 16.90 msec

Lower Seatback X



SAE Filter Class 60

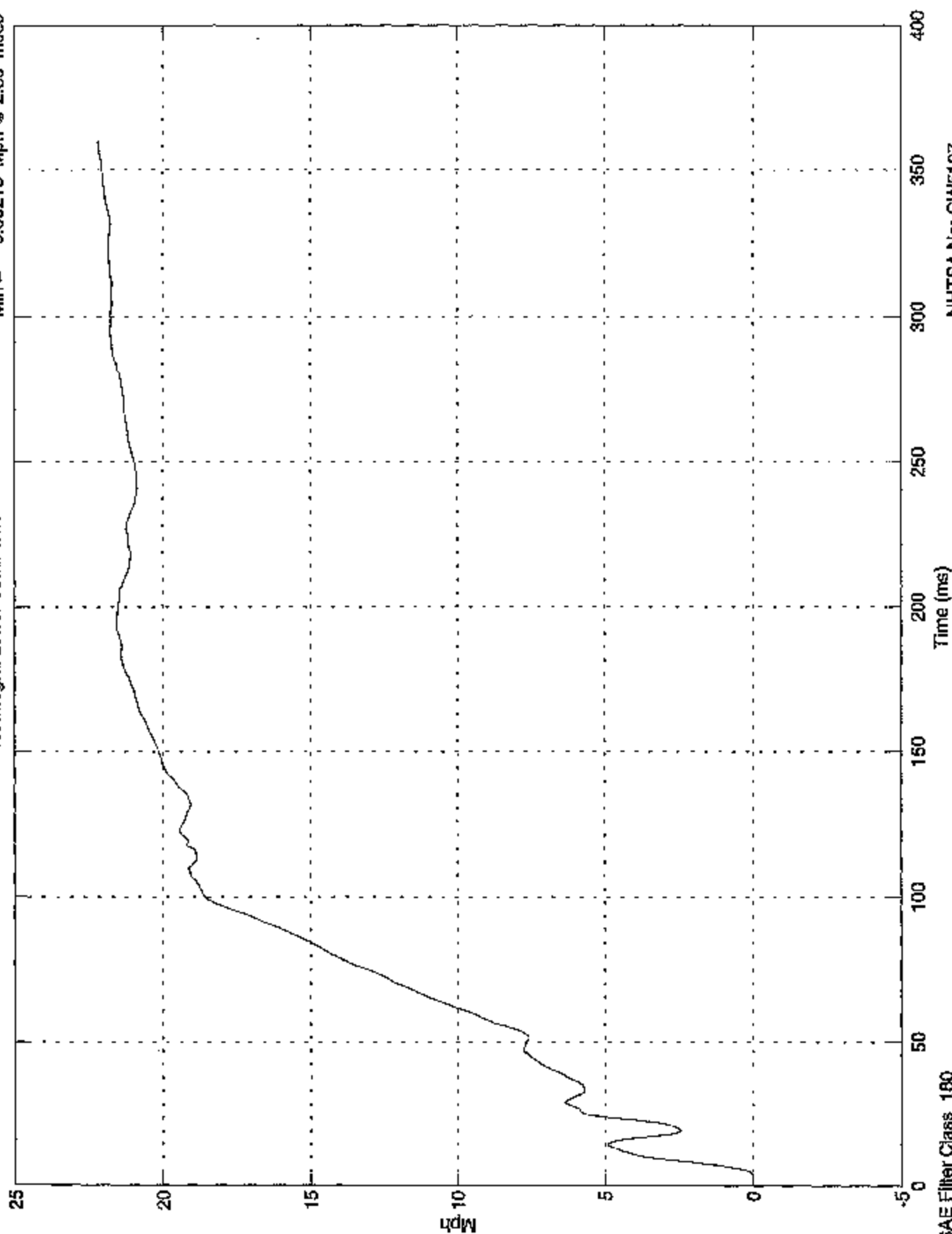
Time (ms)

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1998 Toyota Corolla

Max = 22.2 Mph @ 360.00 msec
Min = -0.00218 Mph @ 2.30 msec

1st Integral Lower Seatback X



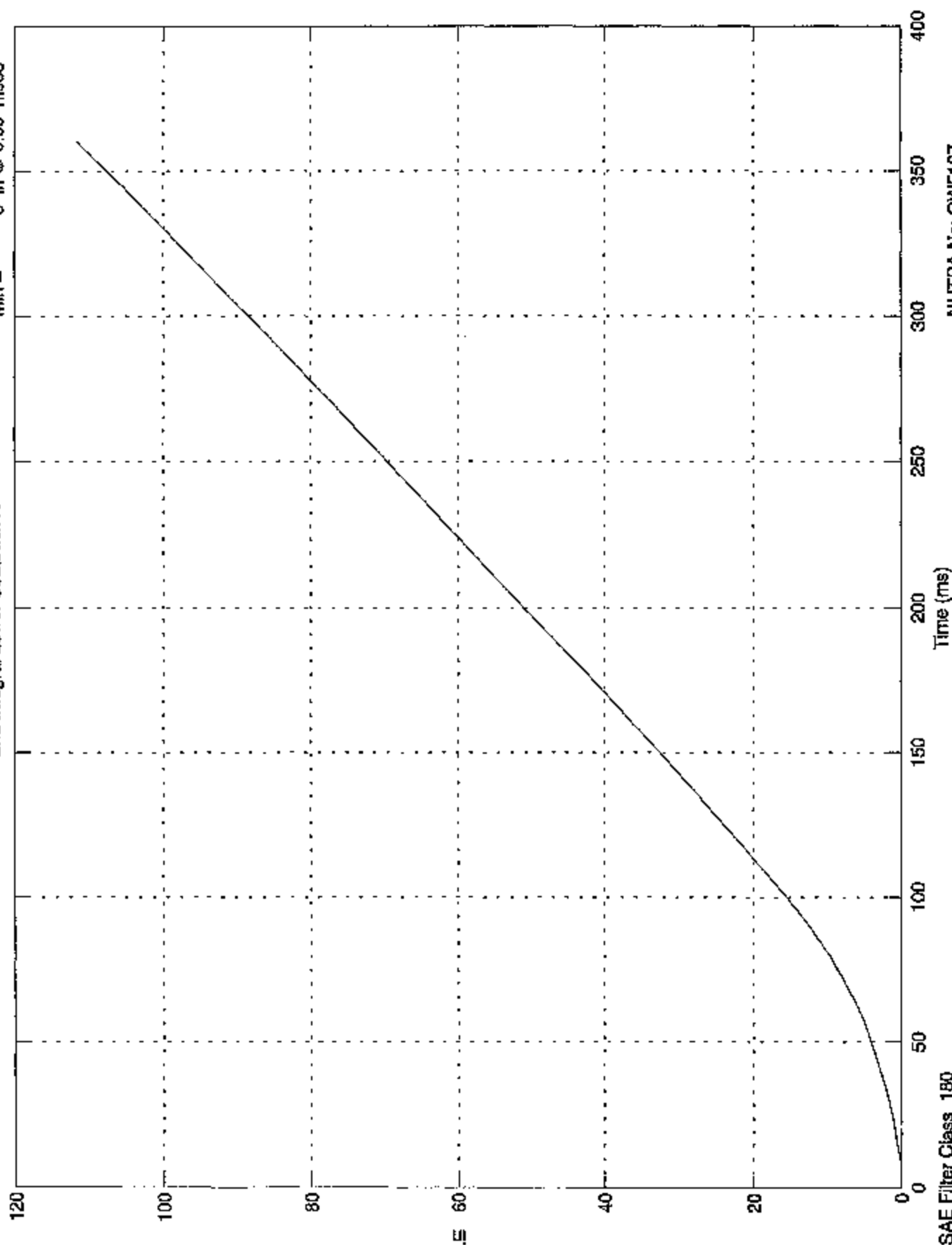
SAE Filter Class 180

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1998 Toyota Corolla

2nd Integral Lower Seatback X

Max = 112 in @ 360.00 msec
Min = 0 in @ 0.00 msec



SAE Filter Class 180

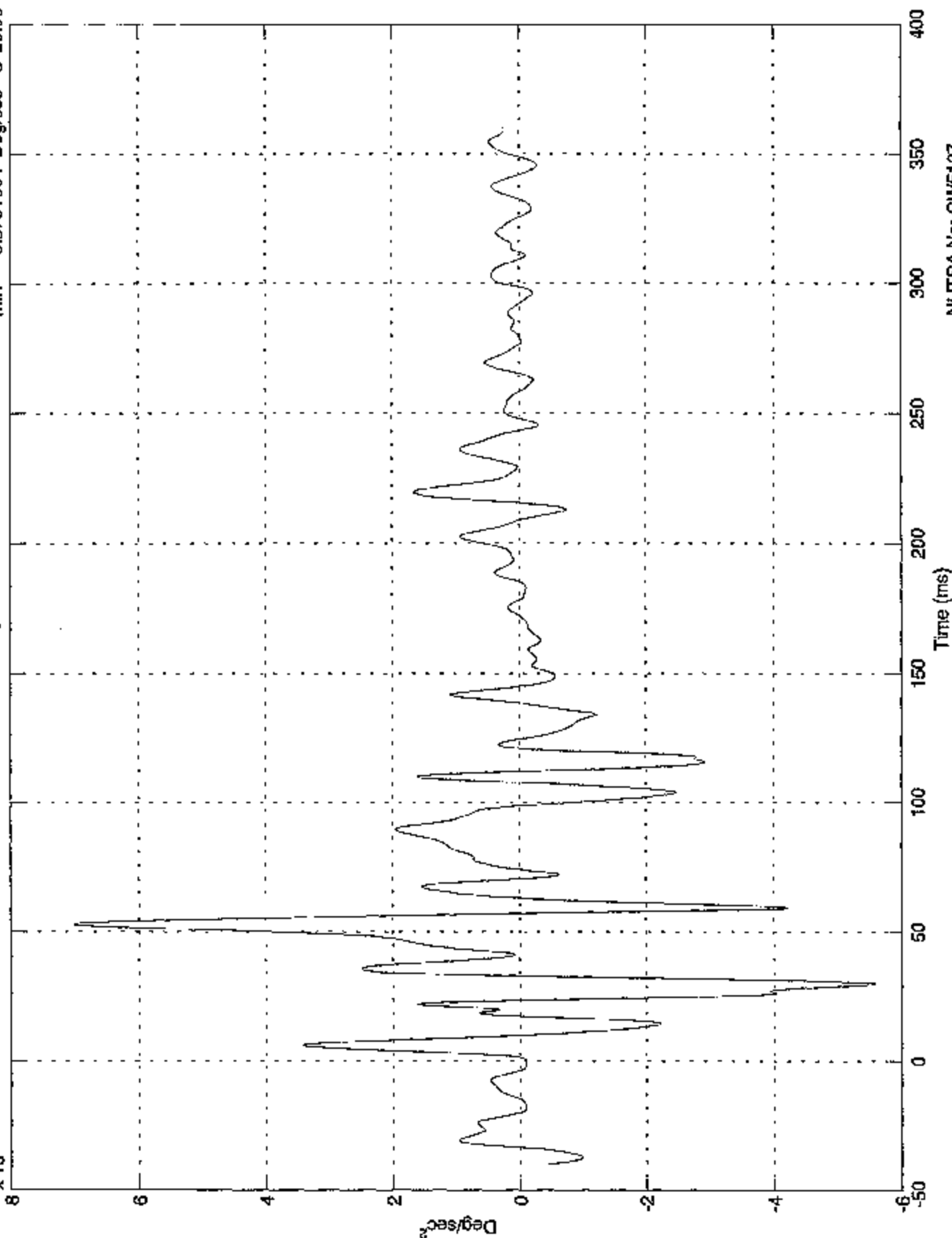
NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1998 Toyota Corolla

Max = 7.01×10^4 Deg/sec² @ 52.90 msec
Min = -5.57×10^4 Deg/sec² @ 29.90 msec

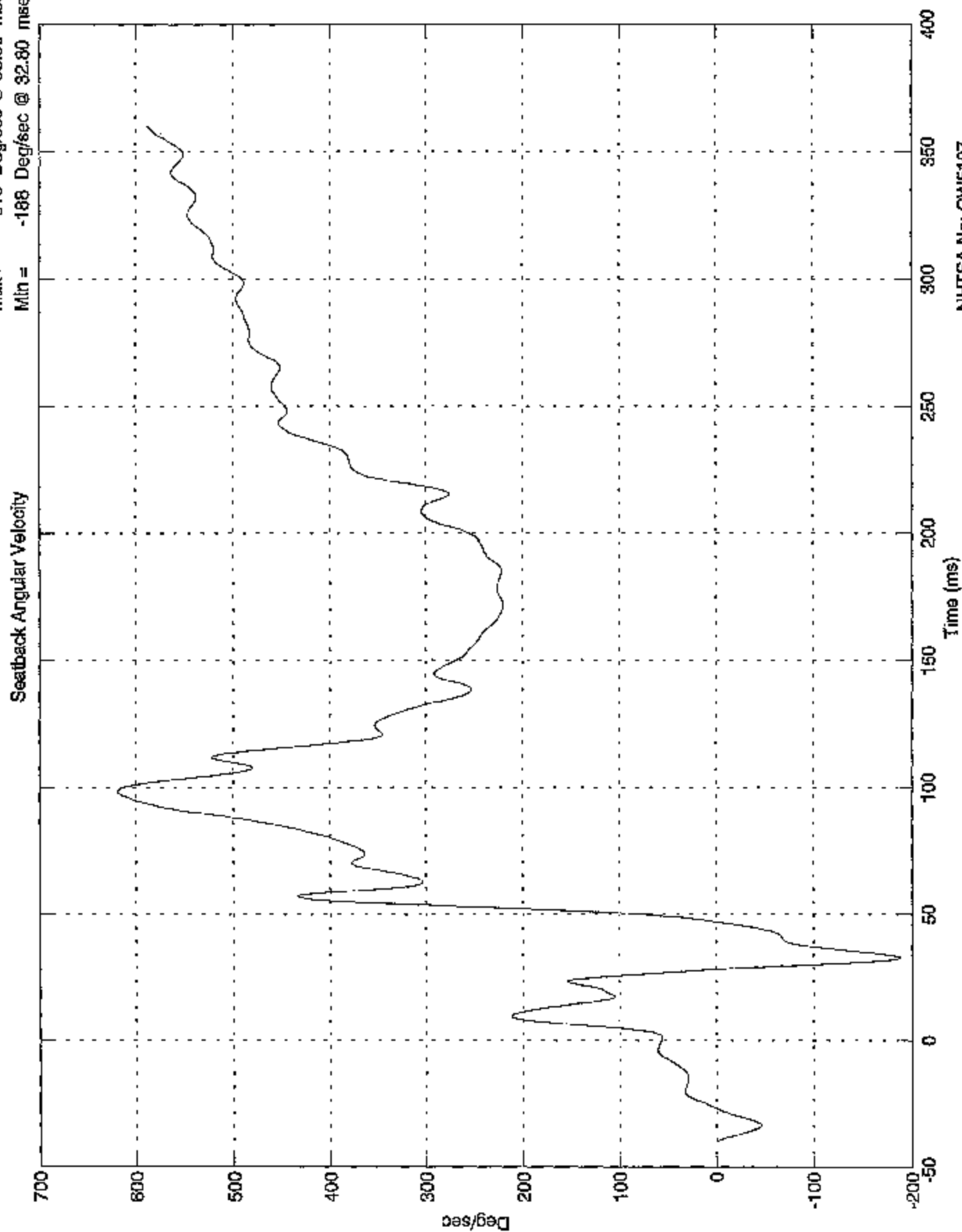
Seatack Angular Acceleration

$\times 10^4$



301 Rear 30 MPH-1998 Toyota Corolla

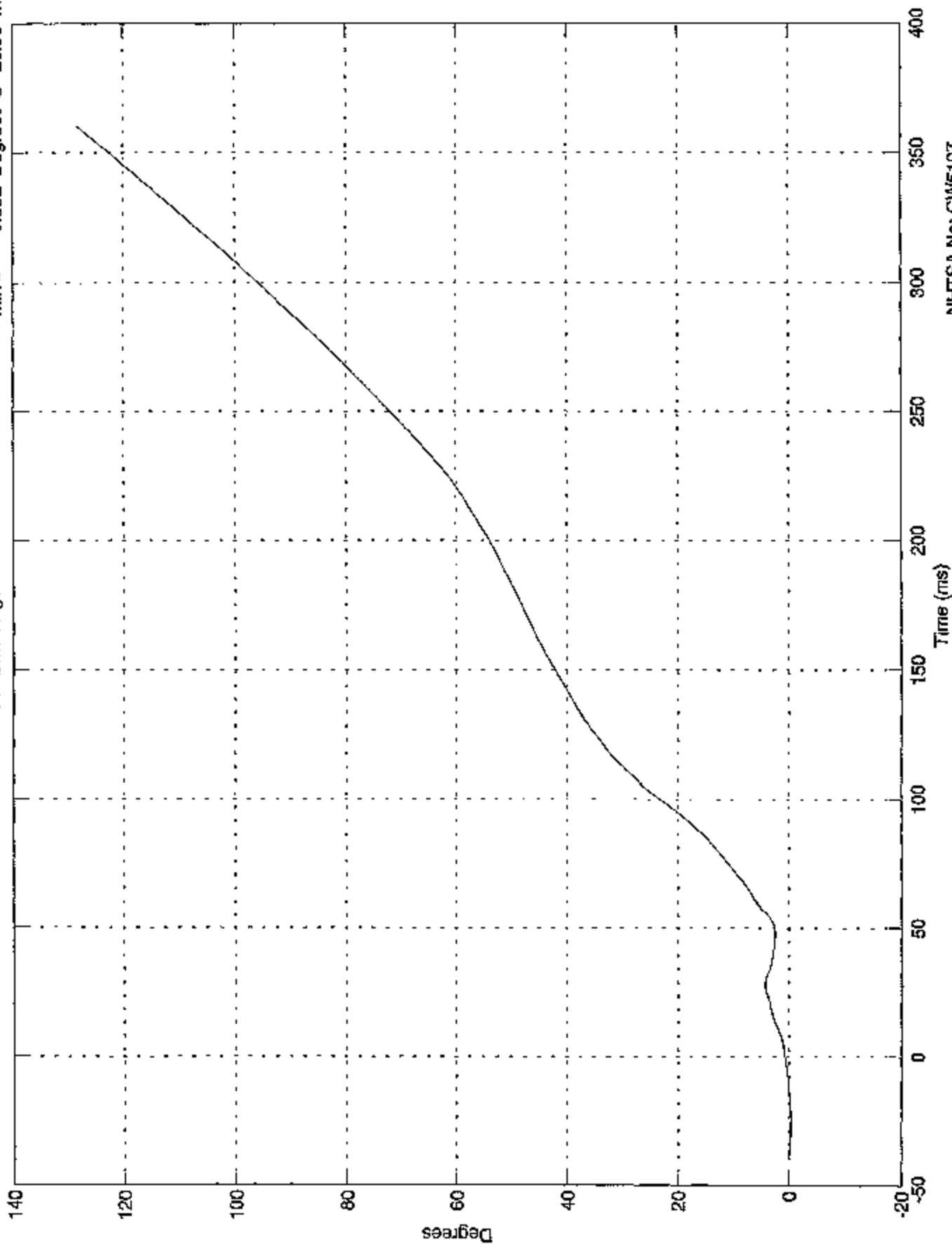
Max = 619 Deg/sec @ 98.50 msec
Min = -188 Deg/sec @ 32.80 msec



301 Rear 30 MPH-1998 Toyota Corolla

Max = 128 Degrees @ 360.00 msec
Min = -0.332 Degrees @ -26.80 msec

Seatback Angular Position



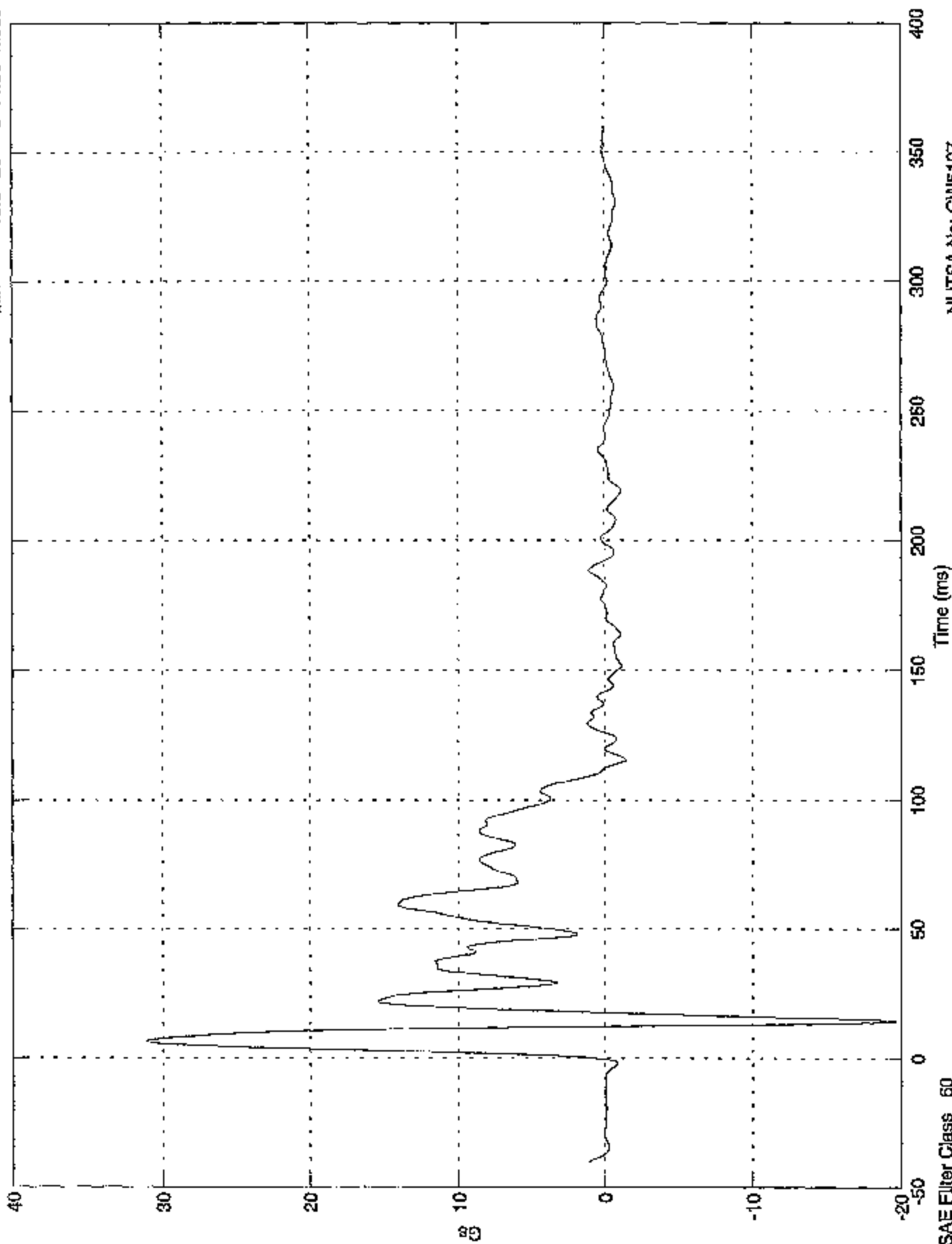
TEST NO. CW5107

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

301 Rear 30 MPH-1999 Toyota Corolla

Max = 31.1 Gs @ 6.50 msec
Min = -19.6 Gs @ 14.50 msec

Left Rear Xmember X



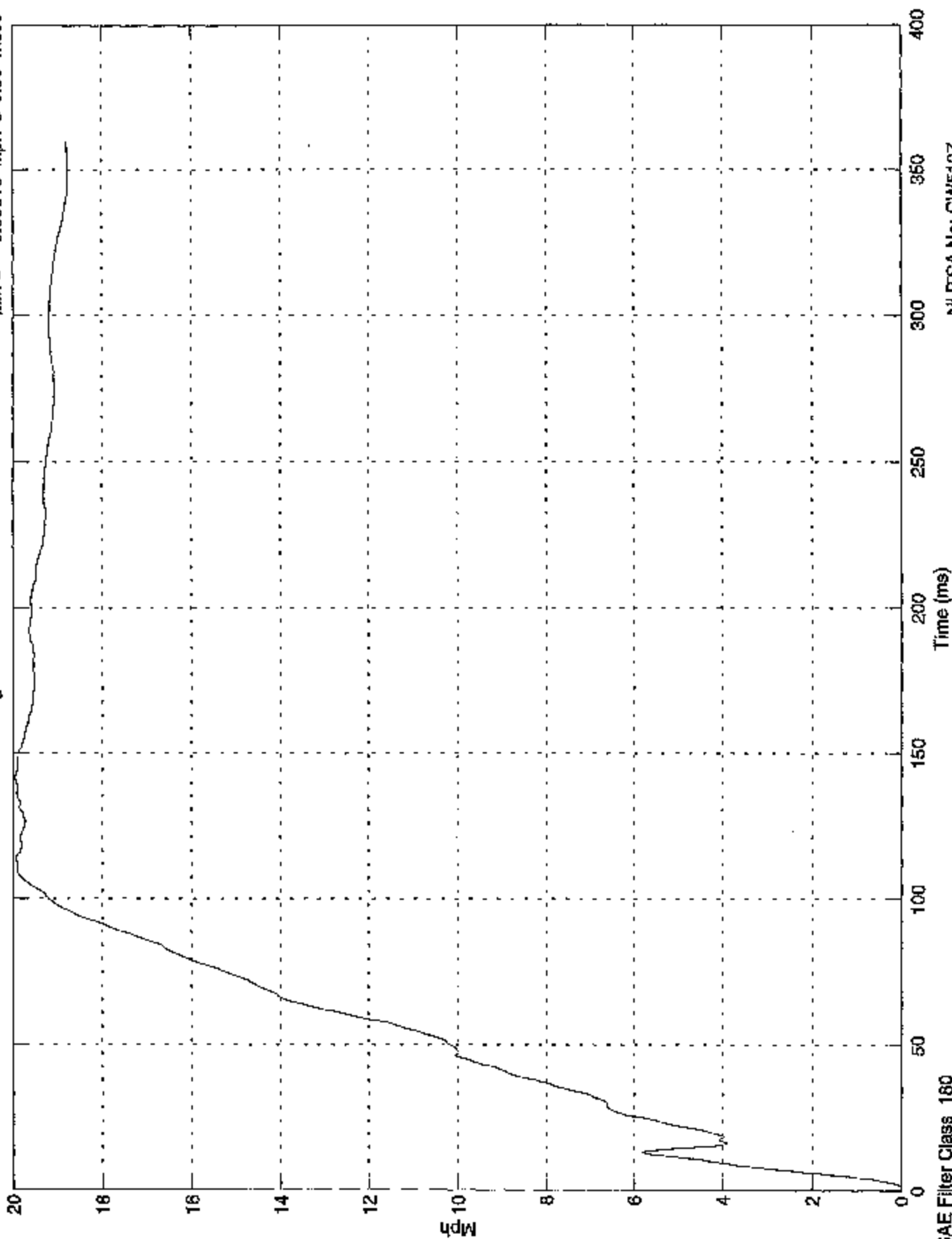
SAE Filter Class 60

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1998 Toyota Corolla

Max = 20 Mph @ 141.80 msec
Min = -0.00618 Mph @ 0.90 msec

1st Integral Left Rear Xmember X



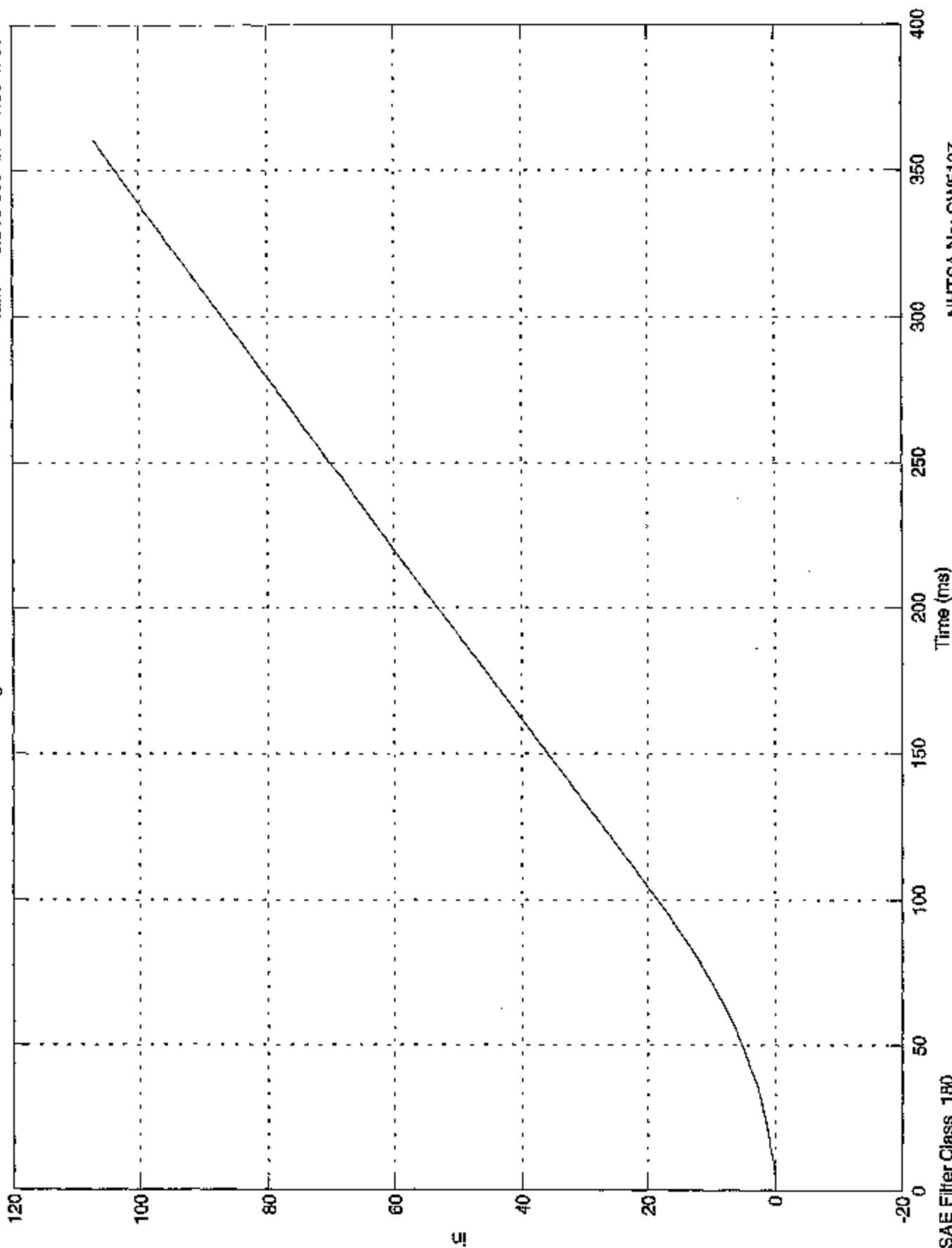
SAE Filter Class 180

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1998 Toyota Corolla

Max = 107 in @ 360.00 msec
Min = -8.51e-005 in @ 1.30 msec

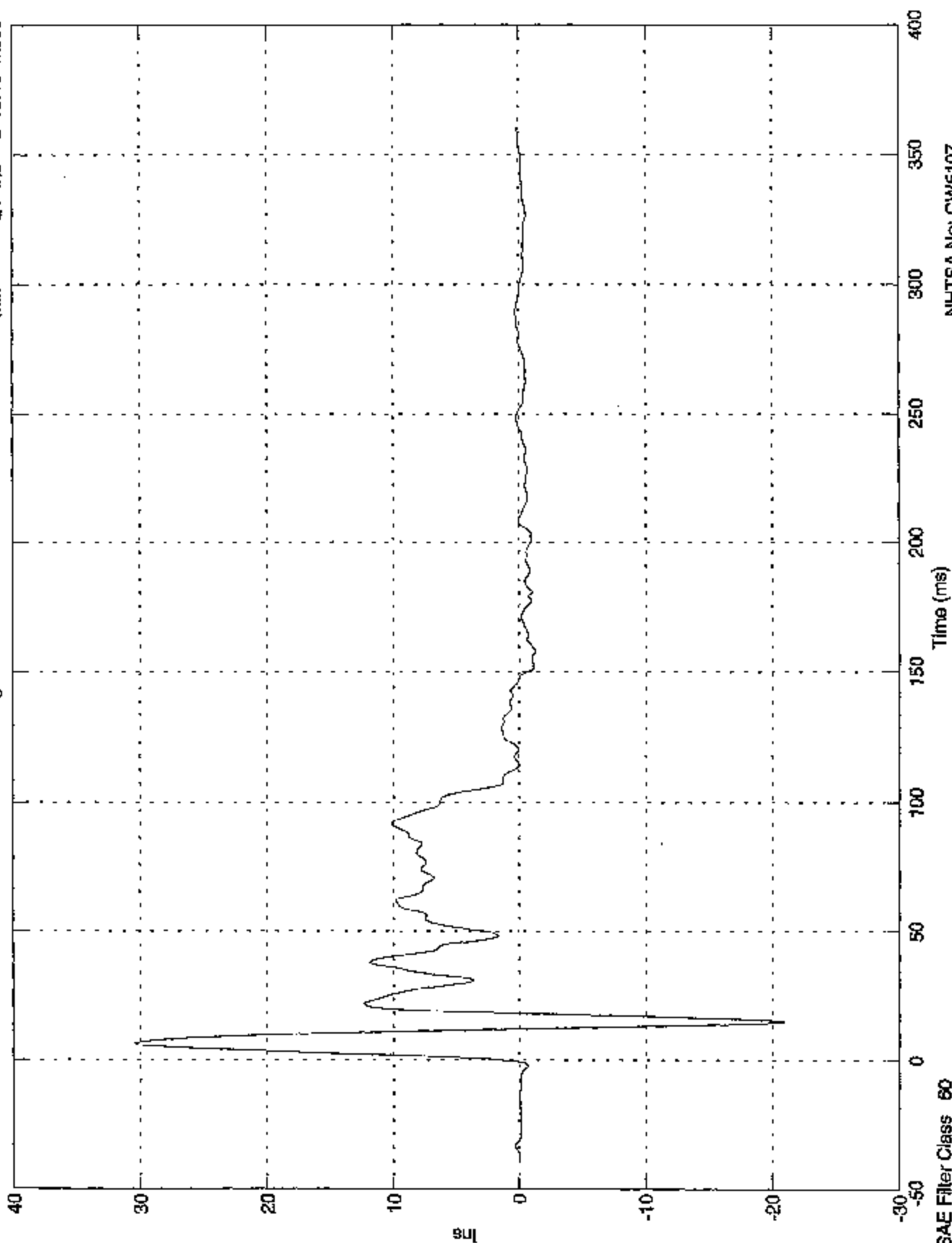
2nd Integral Left Rear Xmember X



301 Rear 30 MPH-1998 Toyota Corolla

Max = 30.4 Ins @ 6.70 msec
Min = -21 Ins @ 15.10 msec

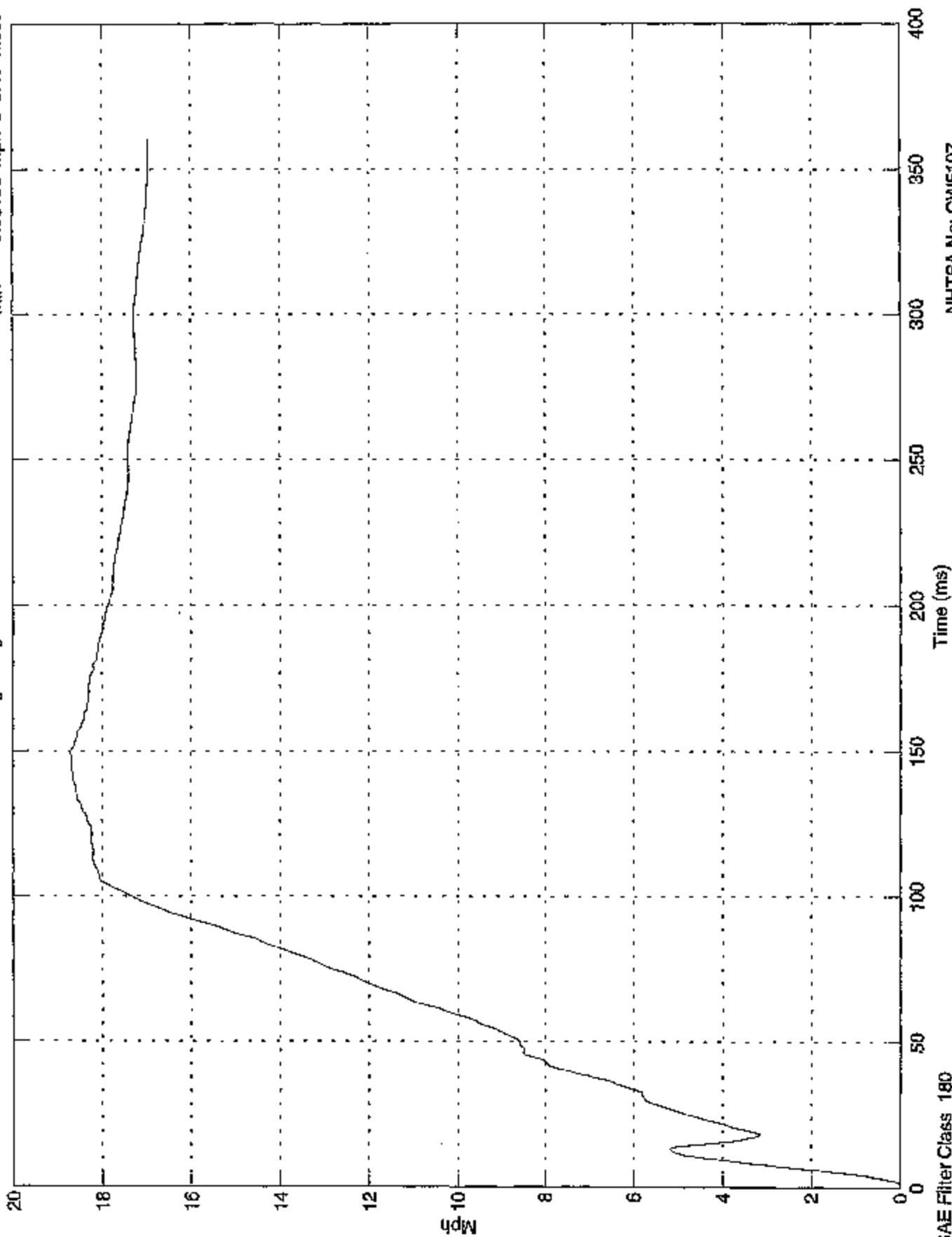
Right Rear Xmember X



301 Rear 30 MPH-1998 Toyota Corolla

Max = 18.7 Mph @ 149.40 msec
Min = -0.00158 Mph @ 0.40 msec

1st Integral Right Rear Xmember X



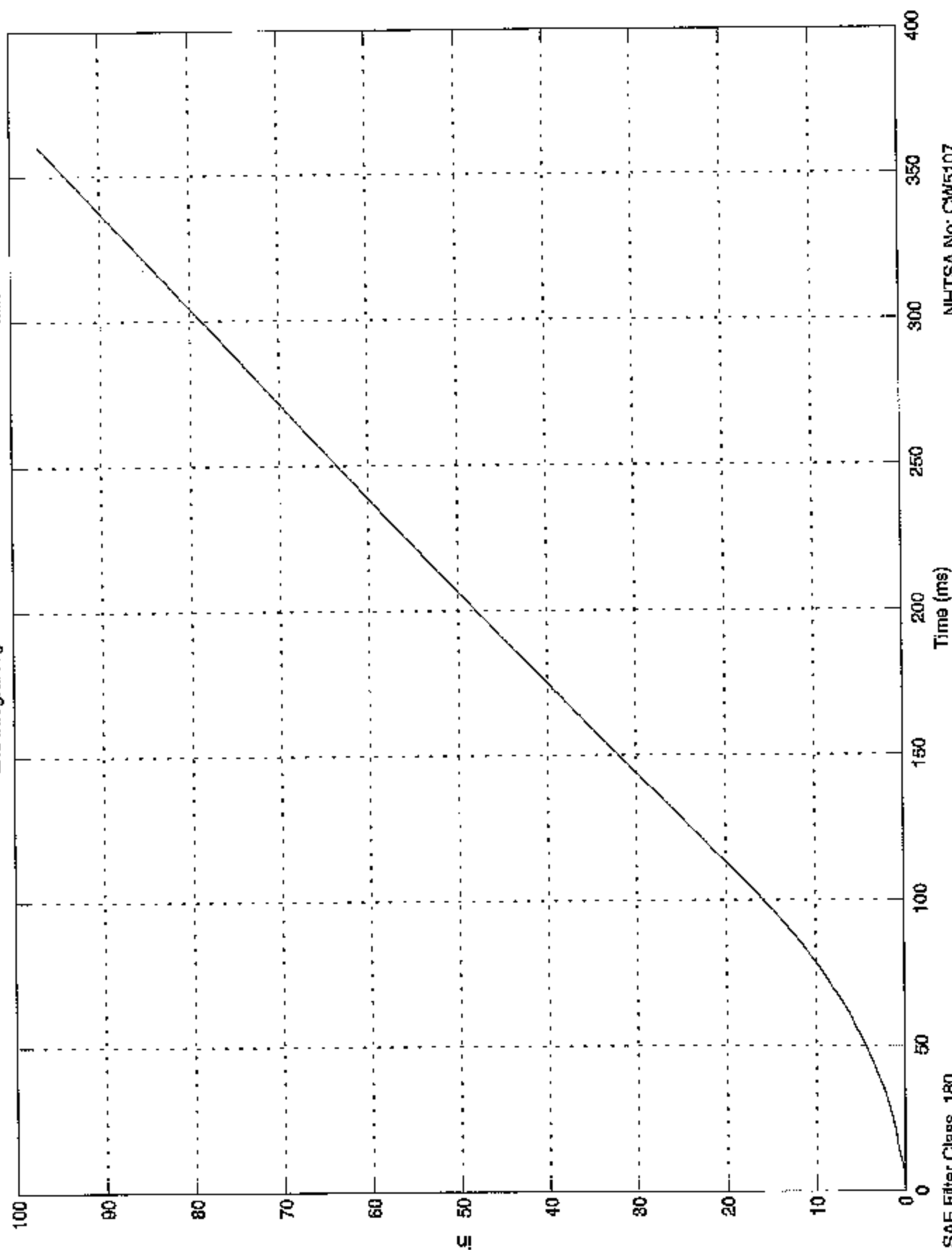
SAE Filter Class 180

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1998 Toyota Corolla

Max = 96.7 in @ 360.00 msec
Min = -1.31e-005 in @ 0.70 msec

2nd Integral Right Rear Xmember X



SAE Filter Class 180

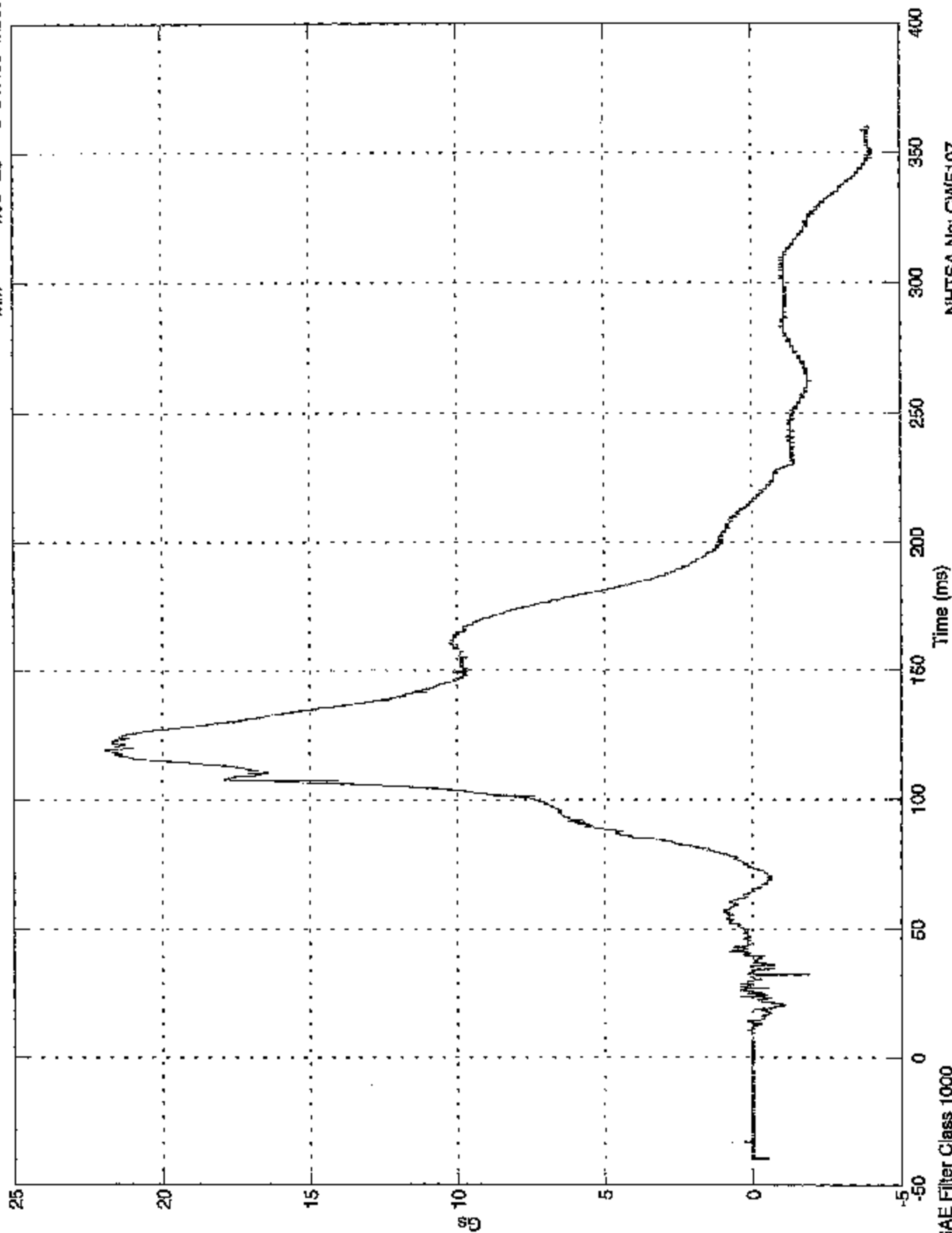
Time (ms)

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1988 Toyota Corolla

Max = 21.9 Gs @ 118.90 msec
Min = -4.05 Gs @ 347.60 msec

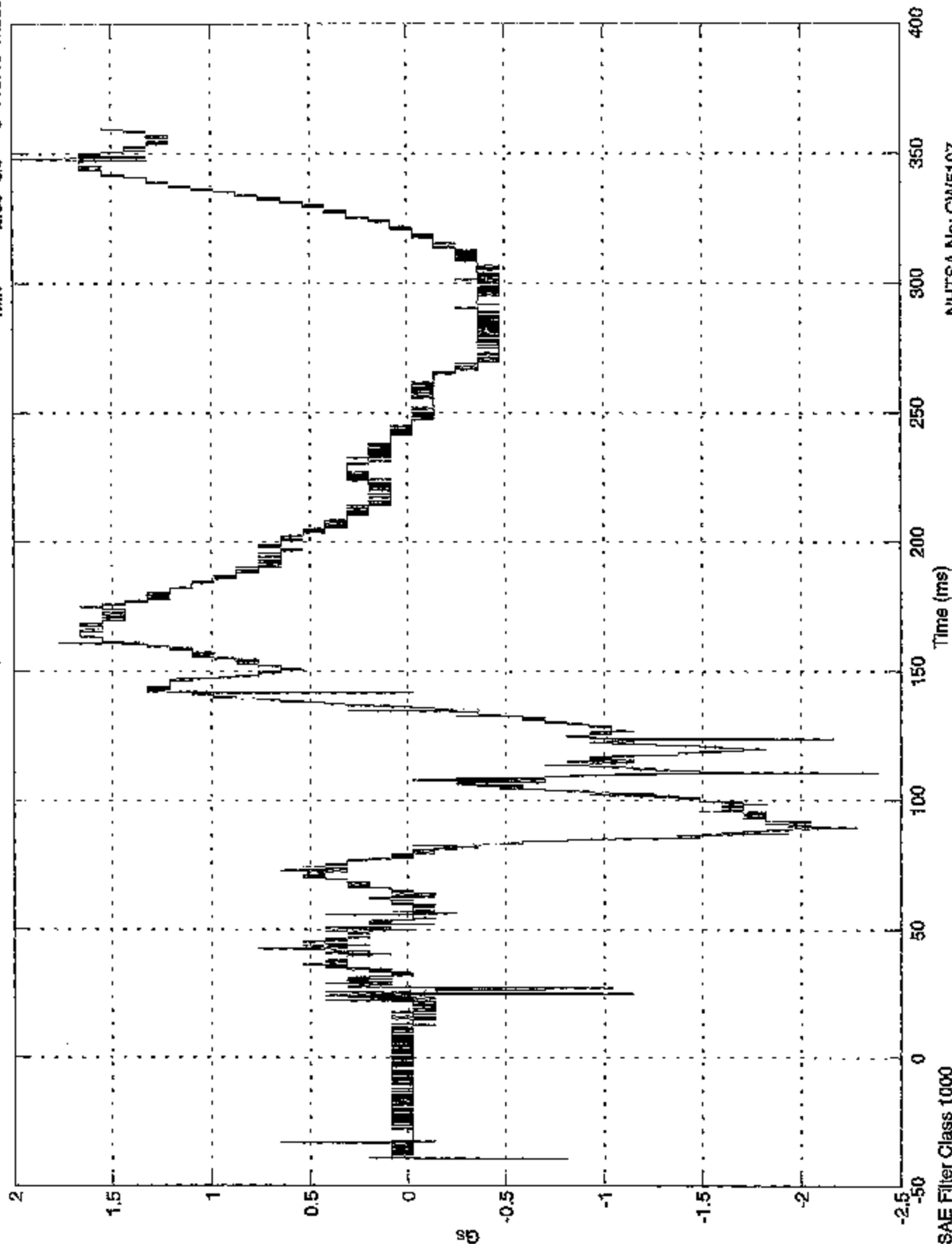
Pos. 1 Head X



301 Rear 30 MPH-1998 Toyota Corolla

Max = 2 Gs @ 347.80 msec
Min = -2.39 Gs @ 110.40 msec

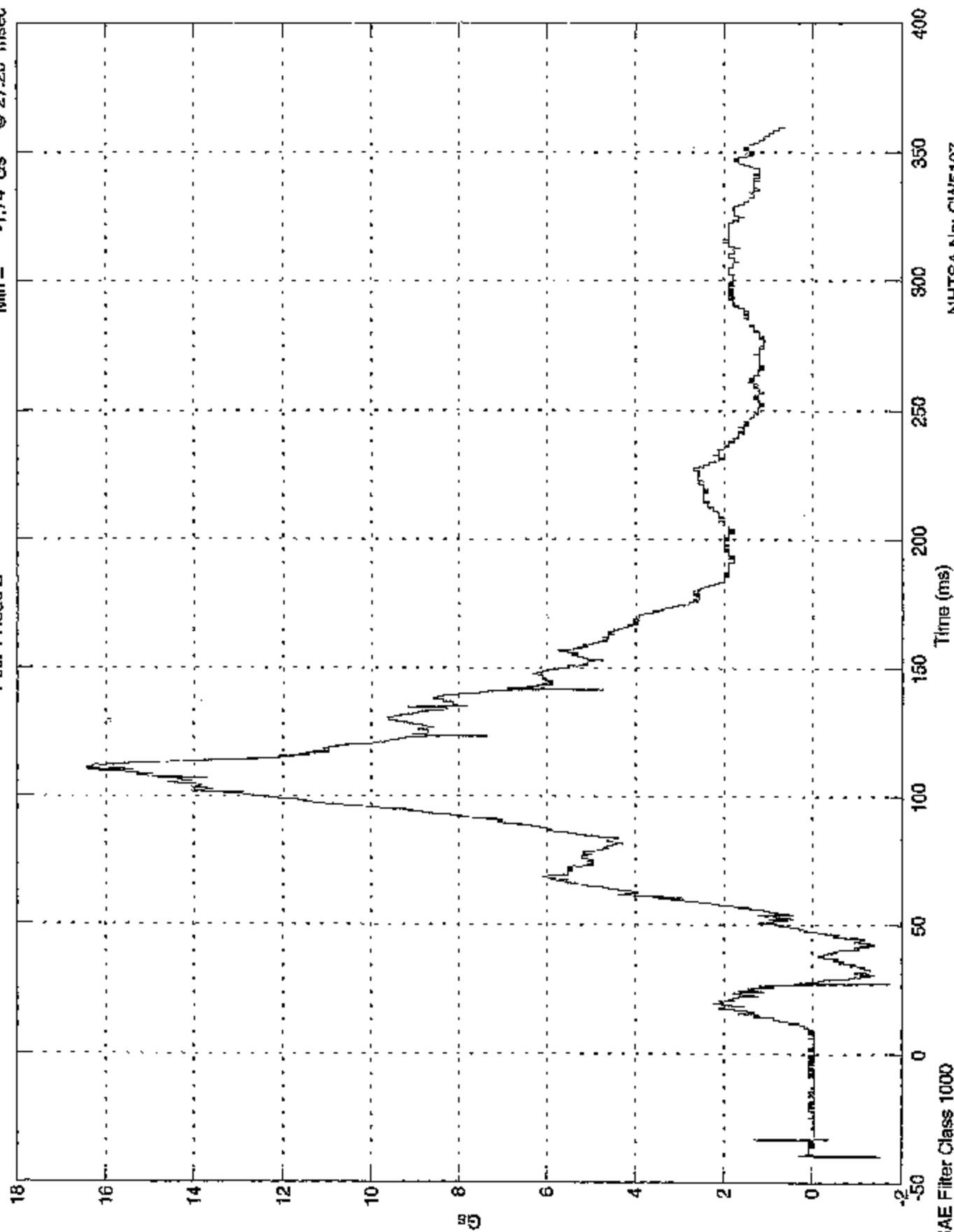
Pos. 1 Head Y



301 Rear 30 MPH-1998 Toyota Corolla

Pos. 1 Head Z

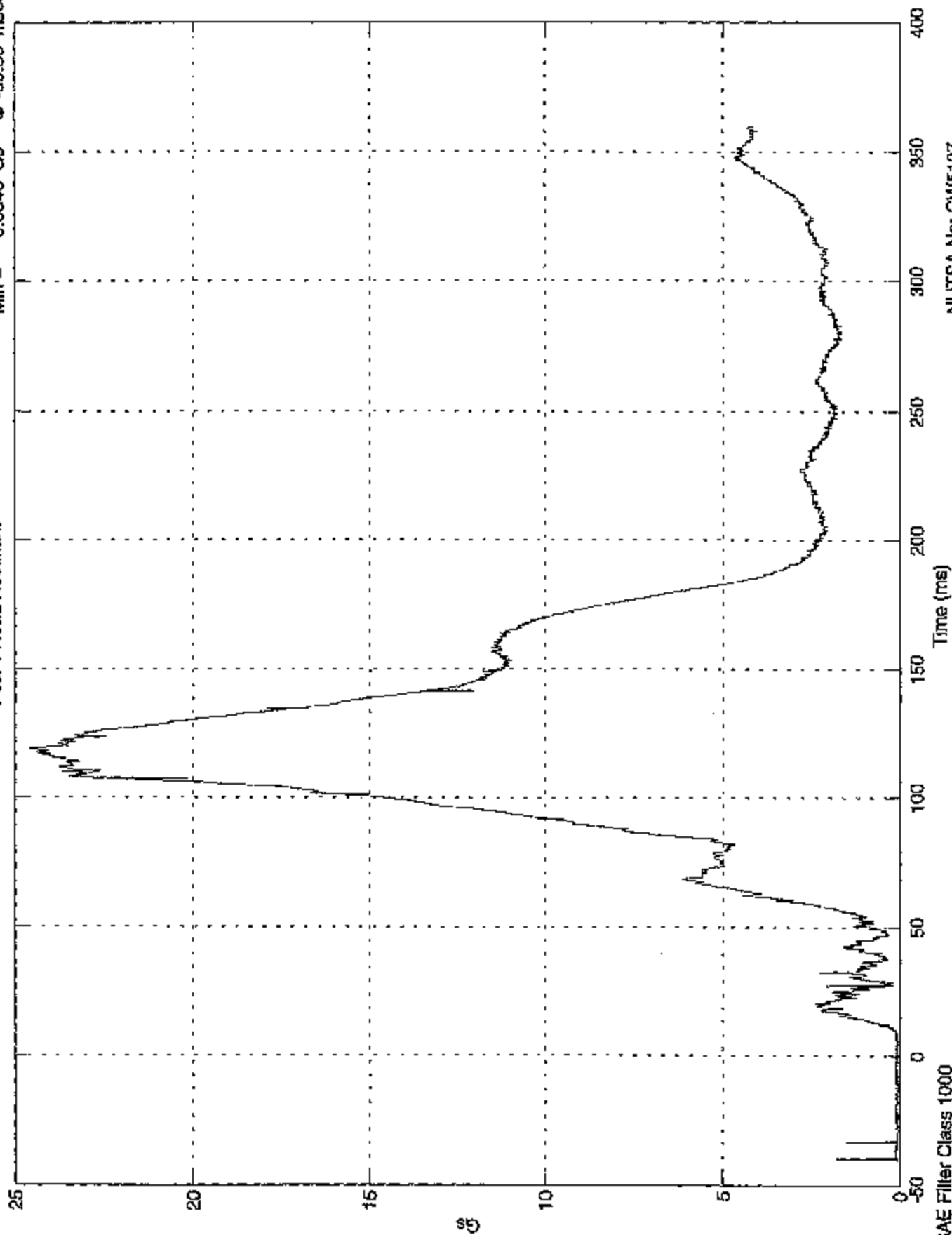
Max = 16.4 Gs @ 110.10 msec
Min = -1.74 Gs @ 27.20 msec



301 Rear 30 MPH-1998 Toyota Corolla

Pos. 1 Head Resultant

Max = 24.6 Gs @ 119.20 msec
Min = 0.0646 Gs @ -39.80 msec



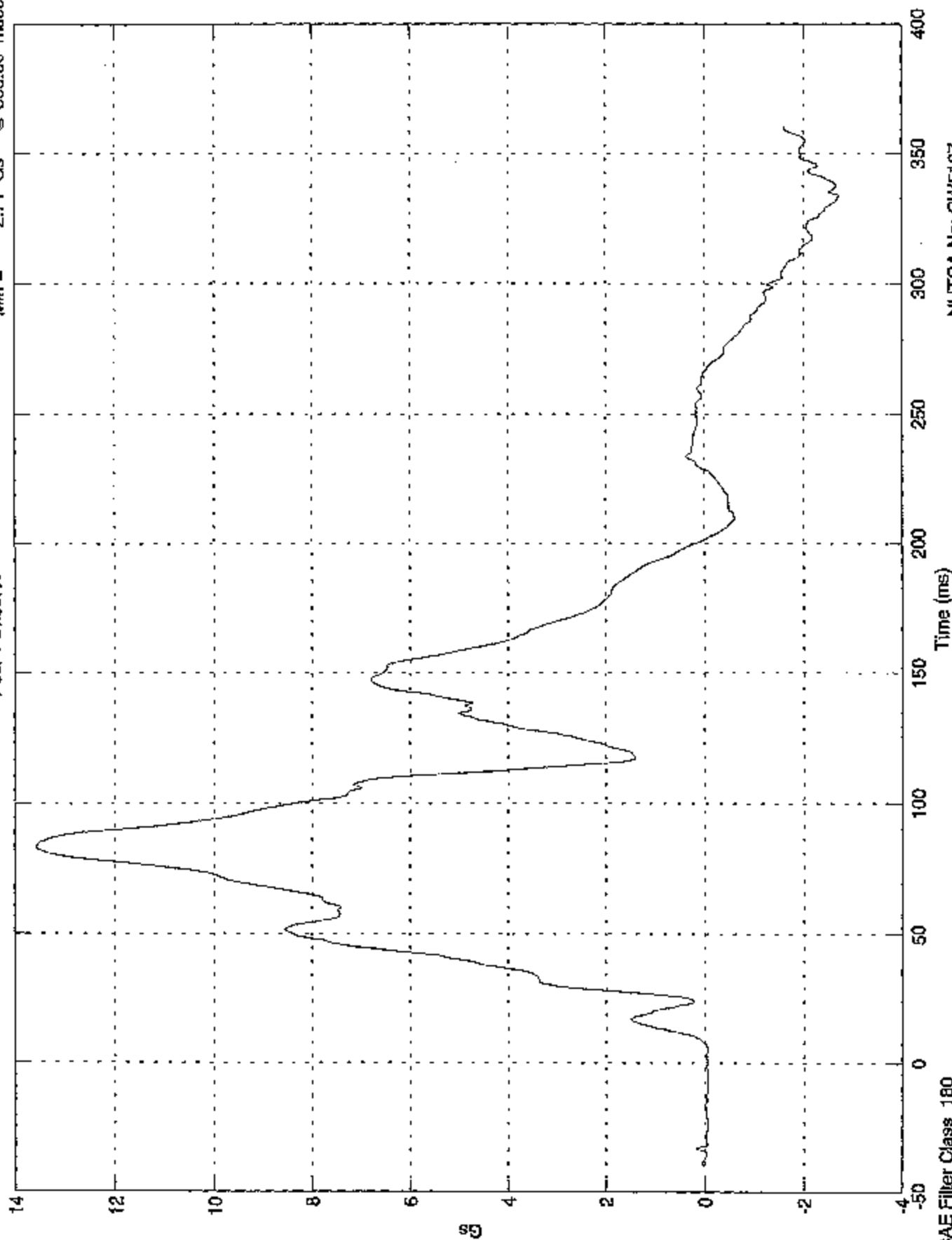
SAE Filter Class 1000

NHTSA No: CW5107

301 Rear 30 MPH-1998 Toyota Corolla

Pos. 1 Chest X

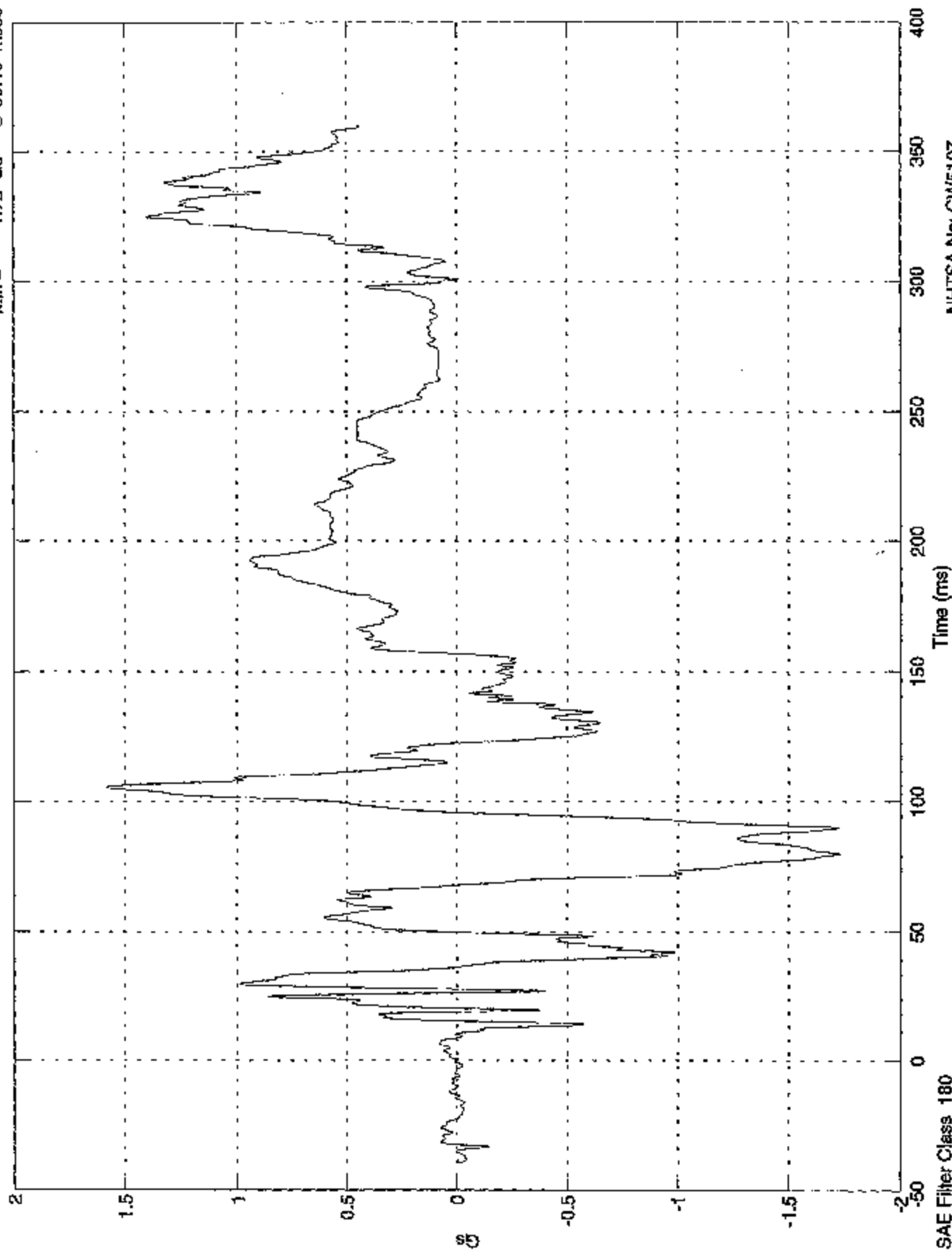
Max = 13.6 Gs @ 83.00 msec
Min = -2.71 Gs @ 333.60 msec



301 Rear 30 MPH-1998 Toyota Corolla

Pos. 1 Chest Y

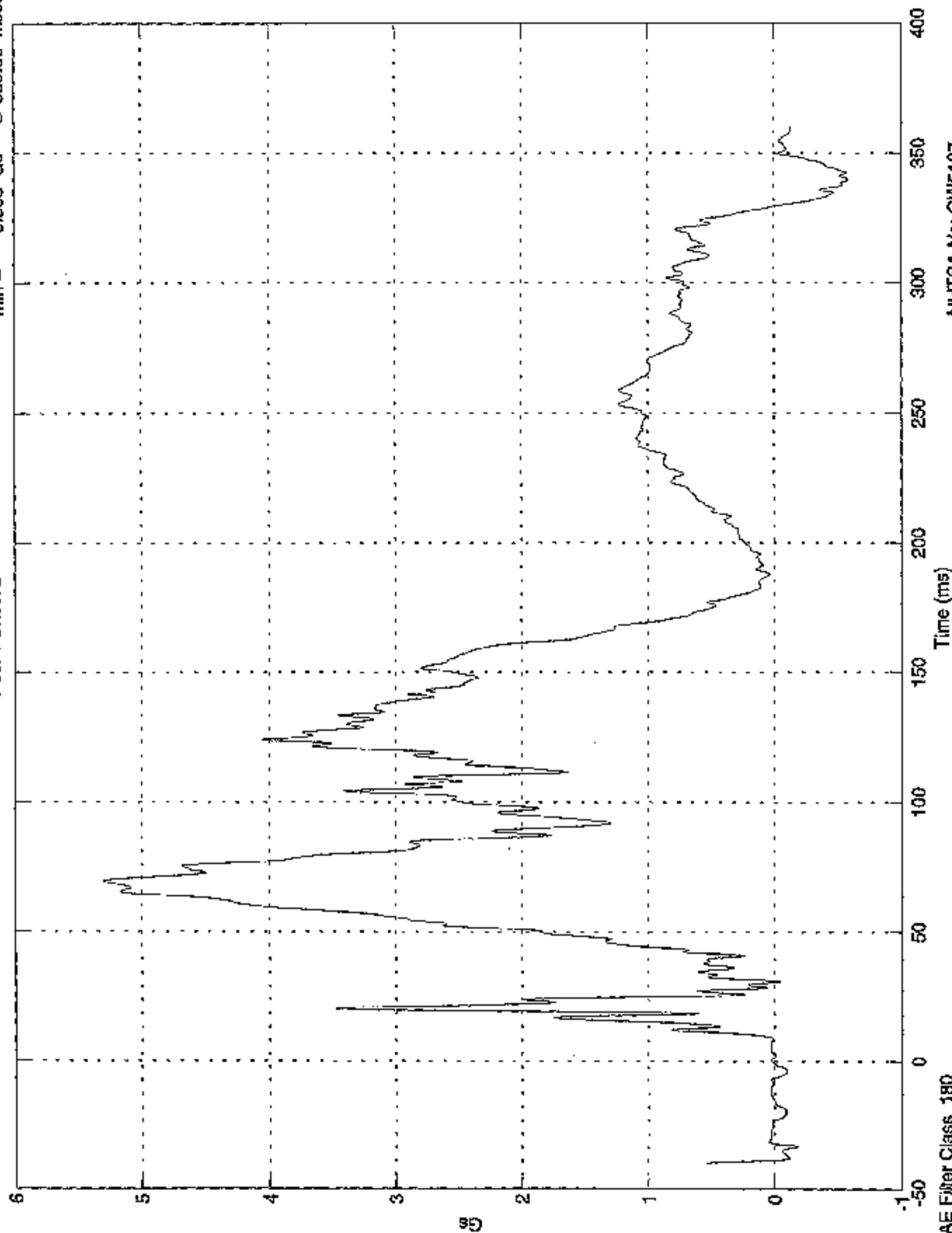
Max = 1.58 Gs @ 105.40 msec
Min = -1.72 Gs @ 80.10 msec



301 Rear 30 MPH-1998 Toyota Corolla

Max = 5.3 Gs @ 69.50 msec
Min = -0.583 Gs @ 339.60 msec

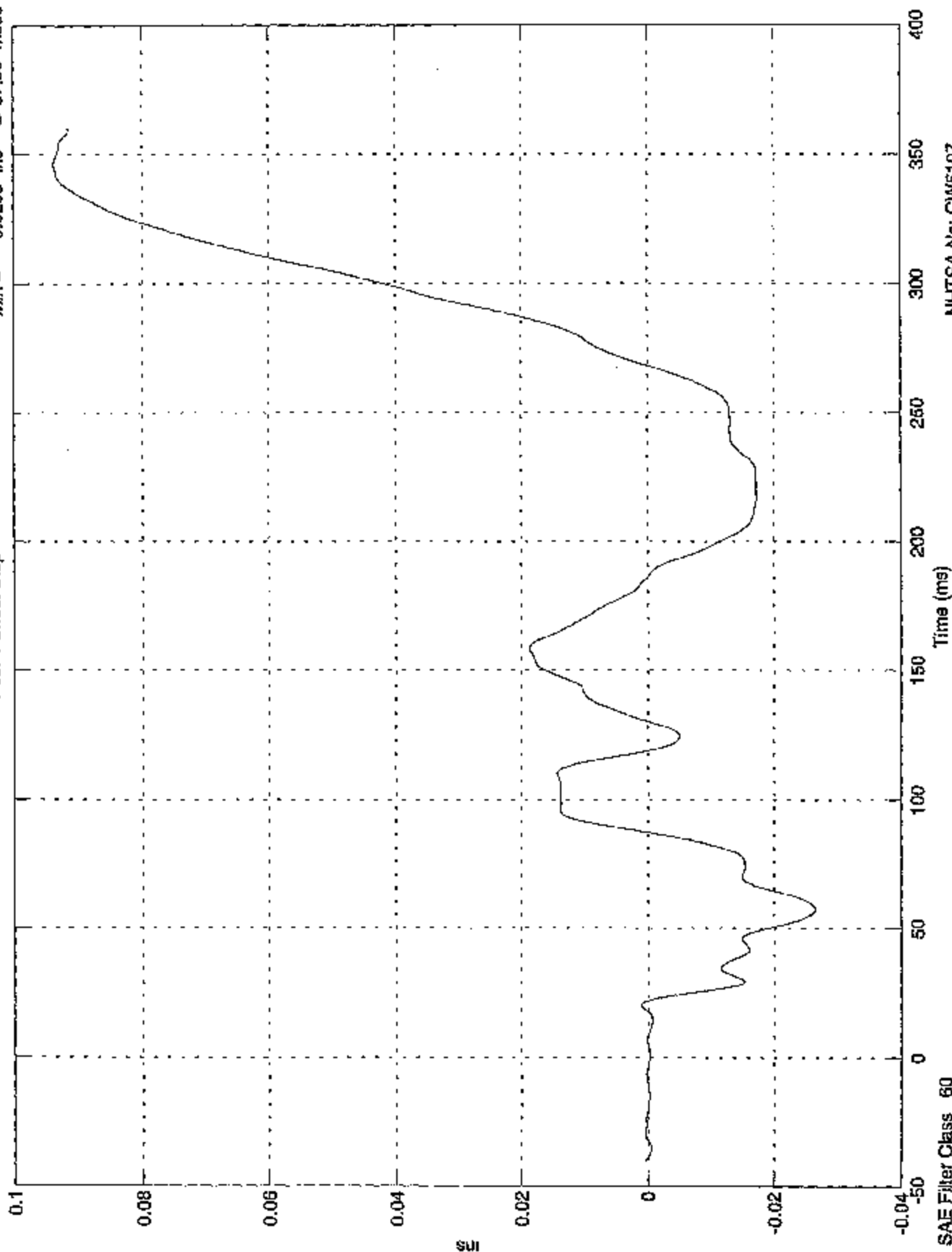
Pos. 1 Chest Z



301 Rear 30 MPH-1998 Toyota Corolla

Max = 0.0938 ins @ 346.40 msec
Min = -0.0265 ins @ 57.50 msec

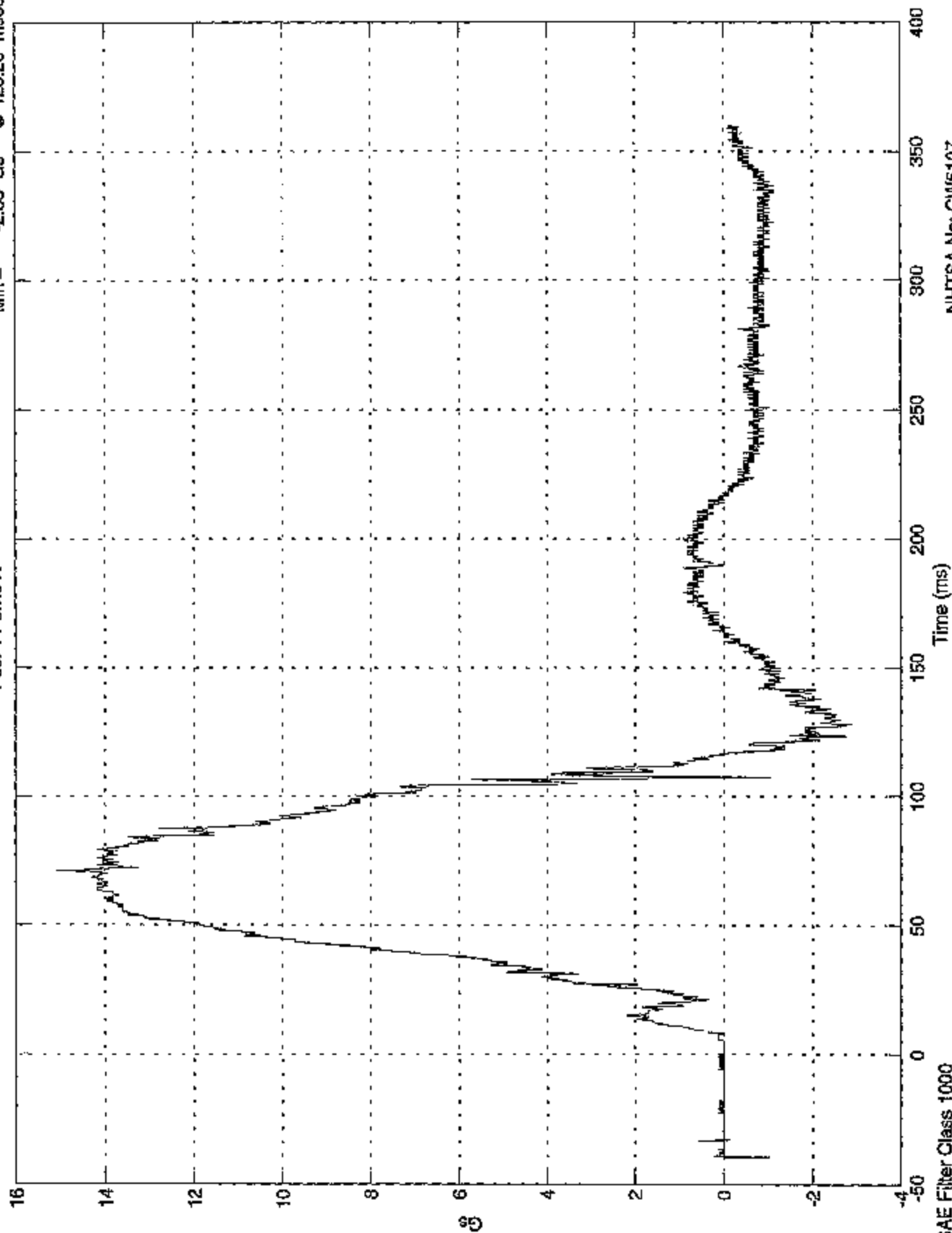
Pos. 1 Chest Disp



301 Rear 30 MPH-1998 Toyota Corolla

Max = 15.1 Gs @ 70.90 msec
Min = -2.85 Gs @ 128.20 msec

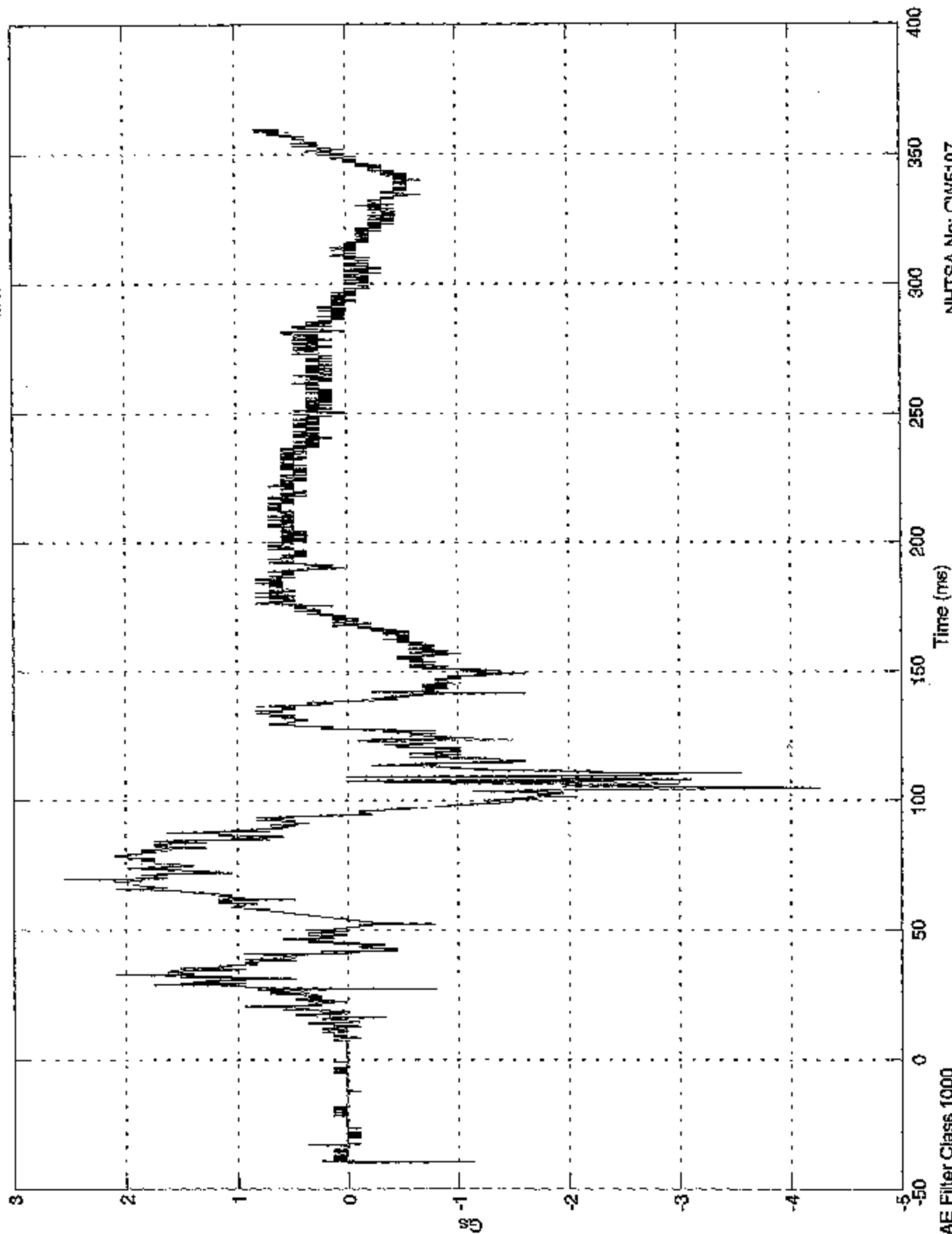
Pos. 1 Pelvic X



301 Rear 30 MPH-1998 Toyota Corolla

Max = 2.55 Gs @ 69.50 msec
Min = -4.26 Gs @ 104.60 msec

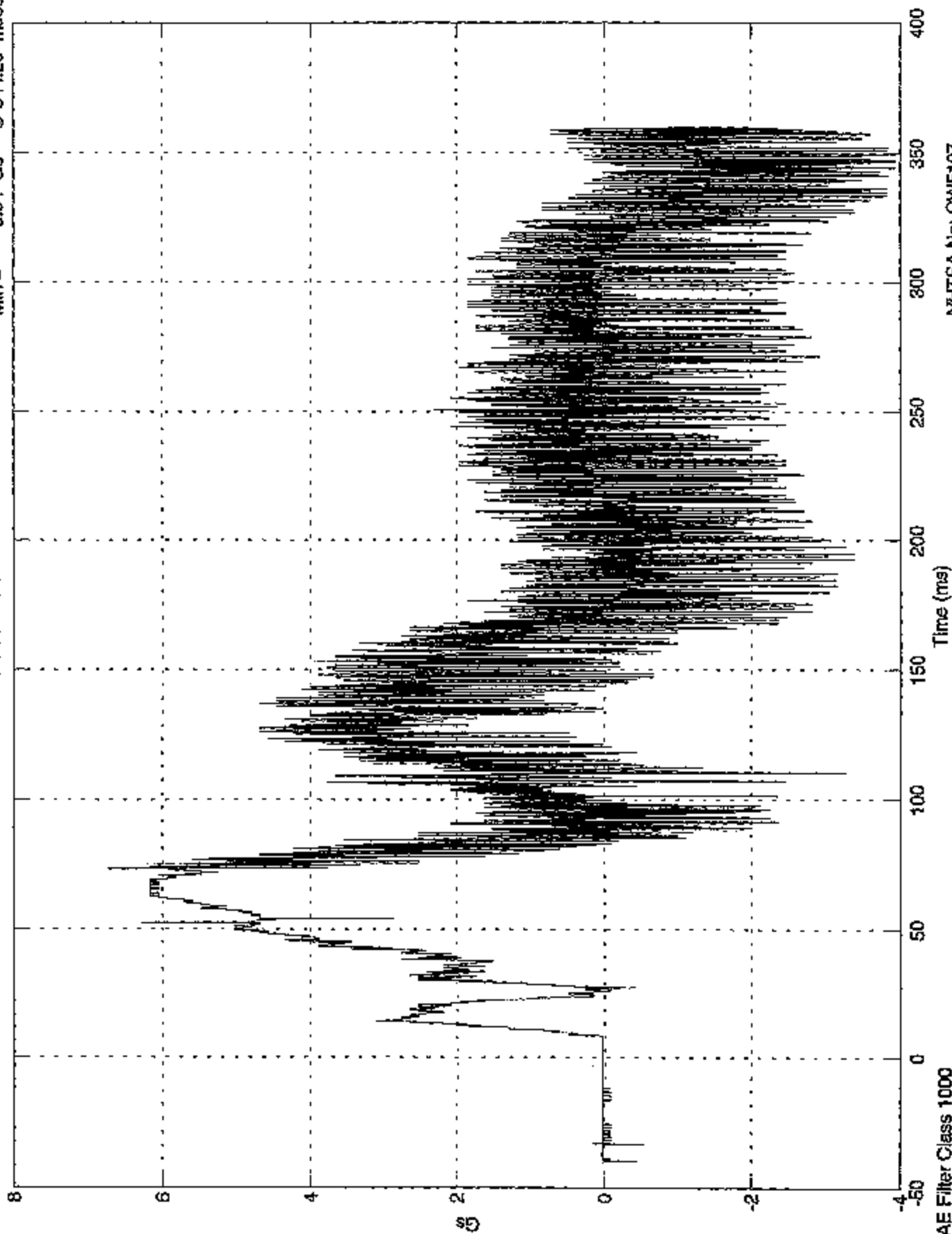
Pos. 1 Pelvic Y



301 Rear 30 MPH-1998 Toyota Corolla

Max = 6.72 Gs @ 73.50 msec
Min = -3.94 Gs @ 344.20 msec

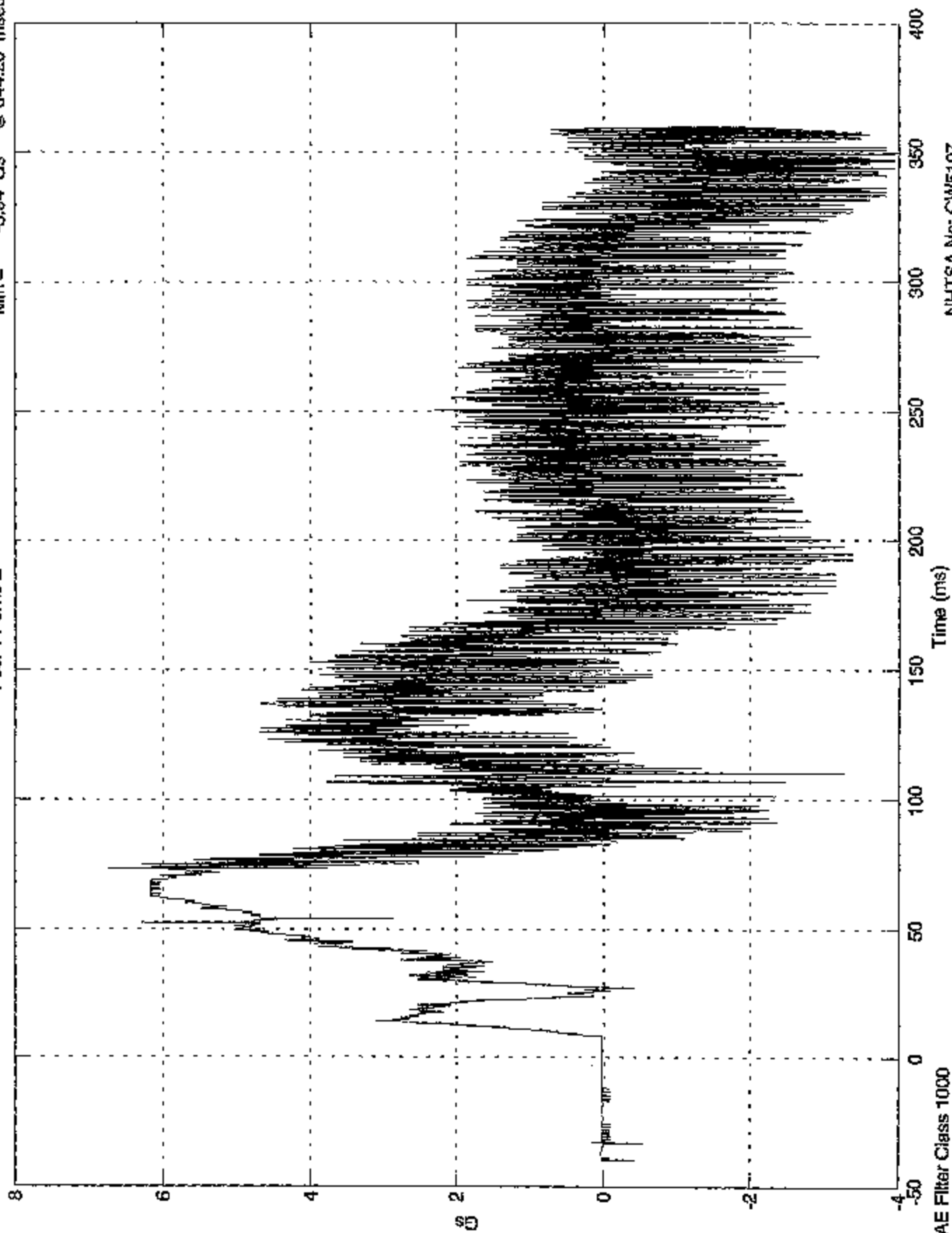
Pos. 1 Pelvic Z



301 Rear 30 MPH-1996 Toyota Corolla

Max = 6.72 Gs @ 73.50 msec
Min = -3.94 Gs @ 344.20 msec

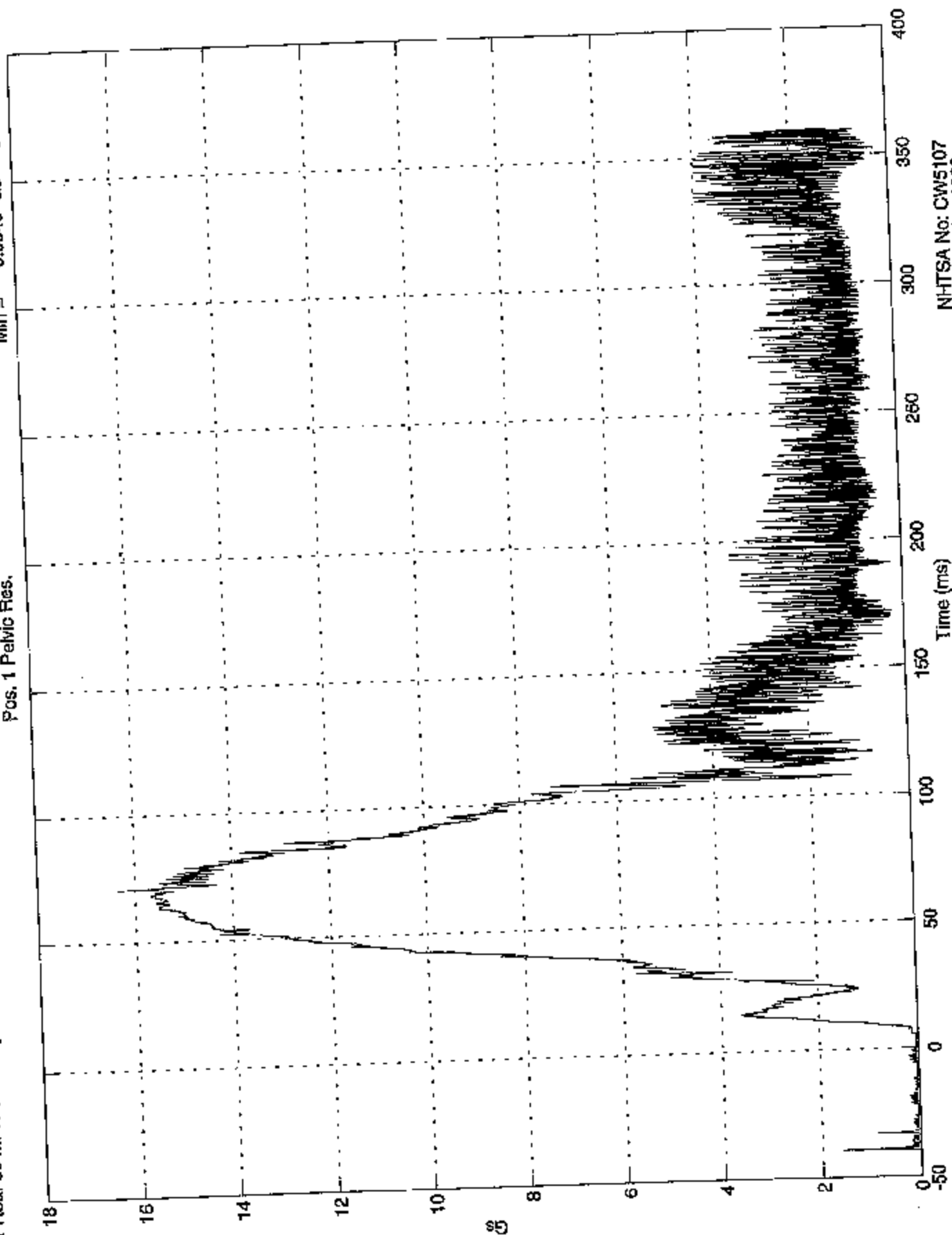
Pos. 1 Pelvic Z



301 Rear 30 MPH-1998 Toyota Corolla

Pos. 1 Pelvic Res.

Max = 16.3 Gs @ 70.90 msec
Min = 0.0349 Gs @ -38.90 msec



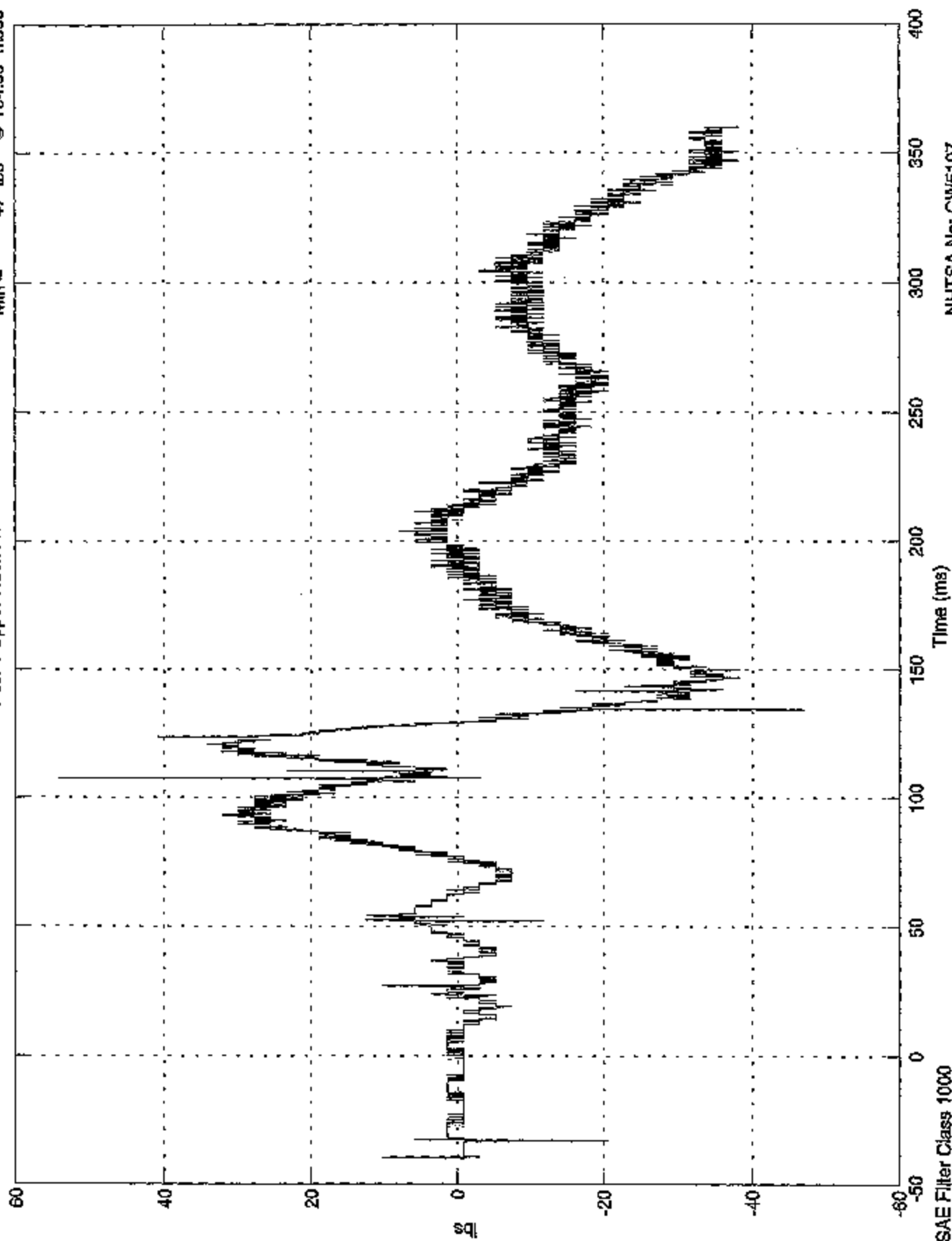
SAE Filter Class 1000

NHTSA No: CW5107
Date: 09 Jun 1998

301 Rear 30 MPH-1998 Toyota Corolla

Max = 54.1 lbs @ 107.40 msec
Min = -47 lbs @ 134.60 msec

Pos. 1 Upper Neck Fx

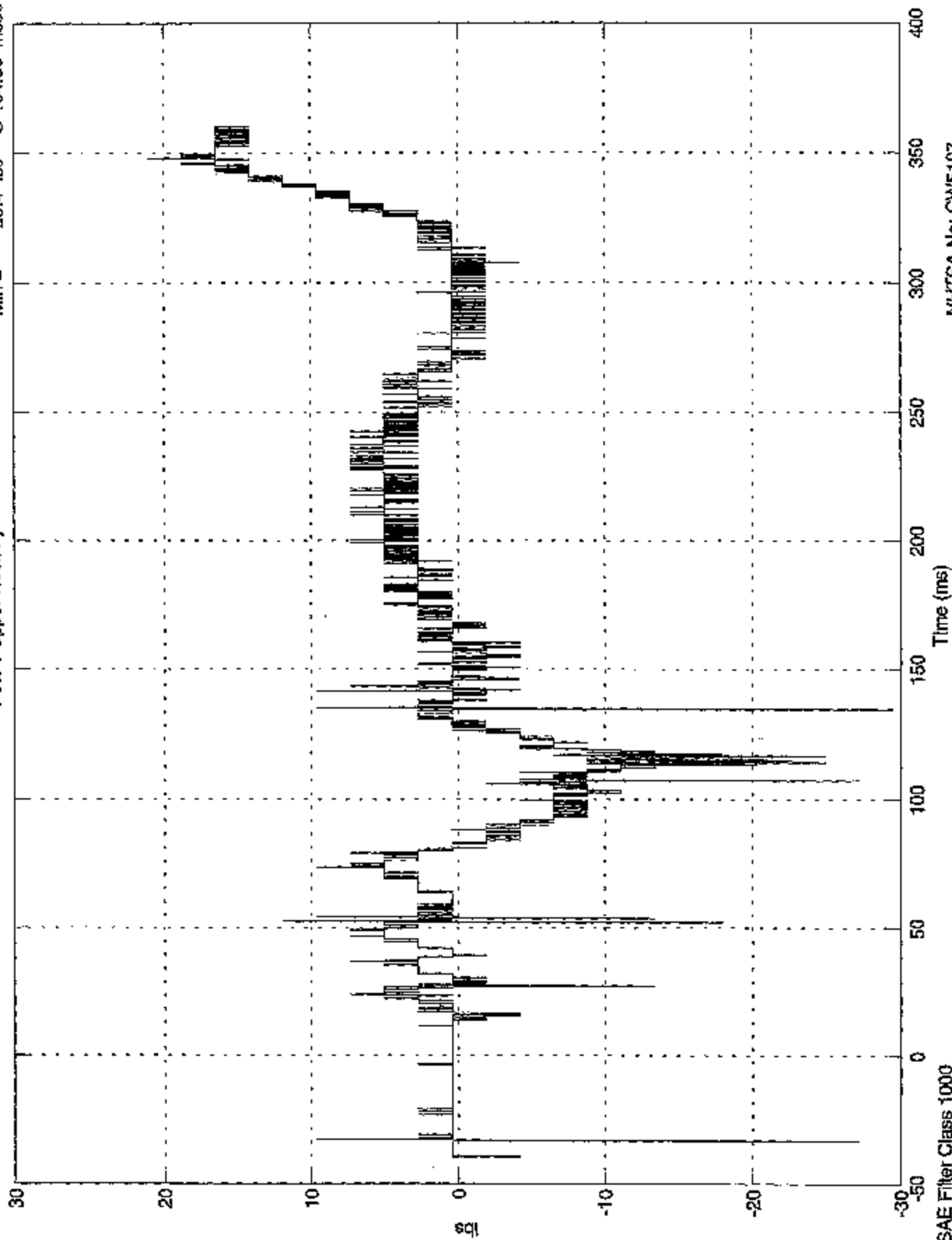


NHTSA No: CW5107

301 Rear 30 MPH-1998 Toyota Corolla

Max = 21.1 lbs @ 348.00 msec
Min = -28.4 lbs @ 134.60 msec

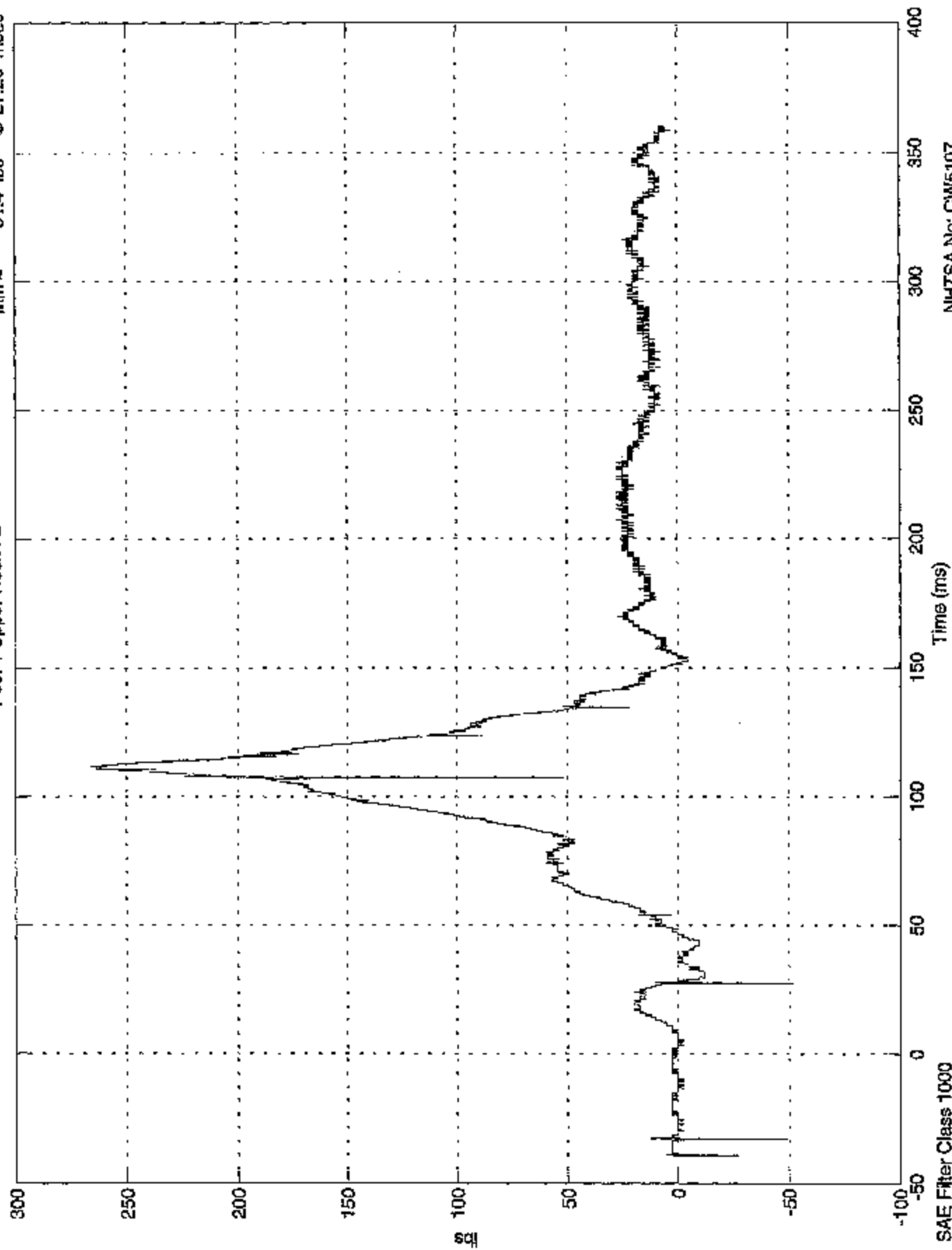
Pos. 1 Upper Neck Fy



301 Rear 30 MPH-1998 Toyota Corolla

Max = 266 lbs @ 111.60 msec
Min = -51.4 lbs @ 27.20 msec

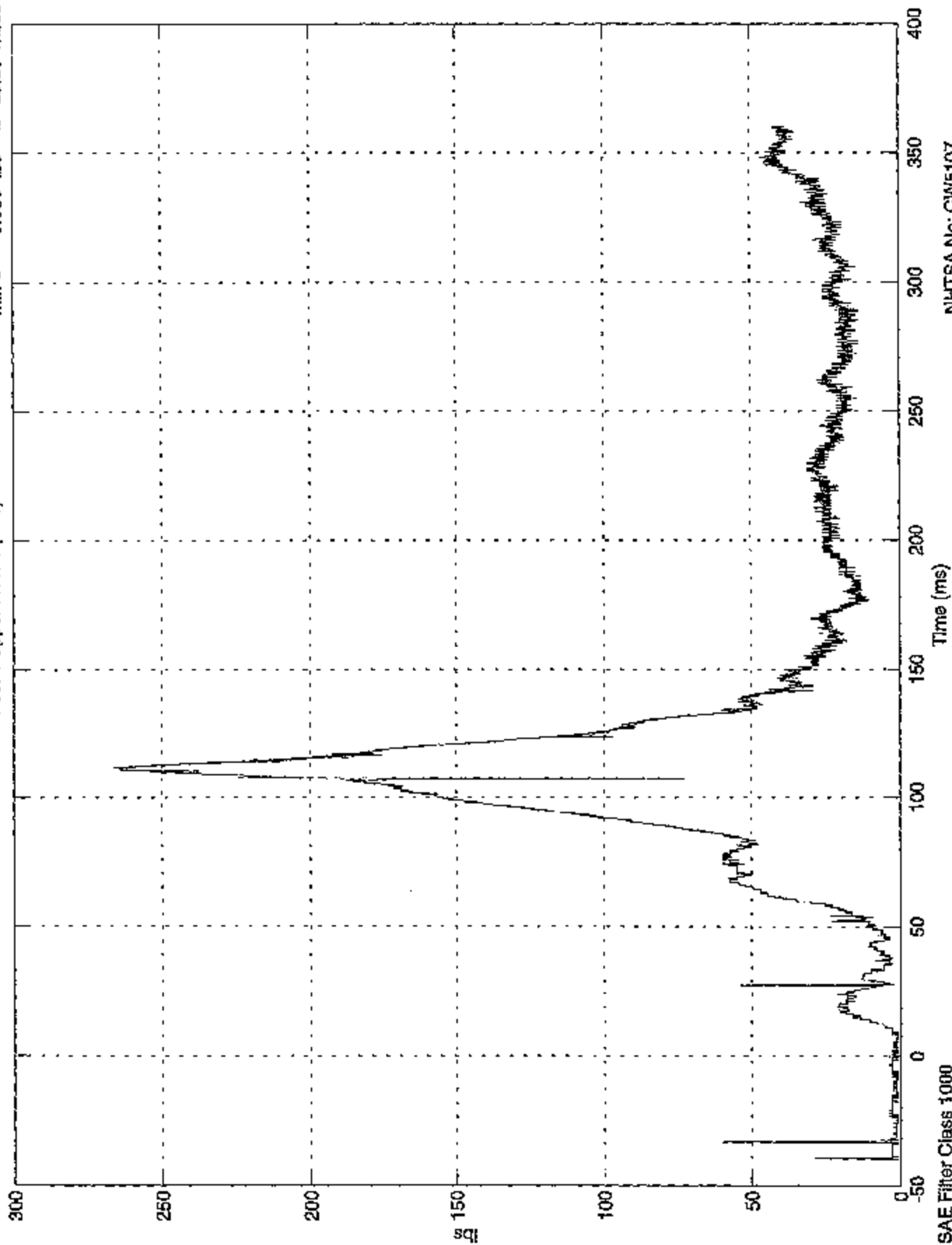
Pos. 1 Upper Neck Fz



301 Rear 30 MPH-1998 Toyota Corolla

Max = 266 lbs @ 111.60 msec
Min = 0.963 lbs @ -39.80 msec

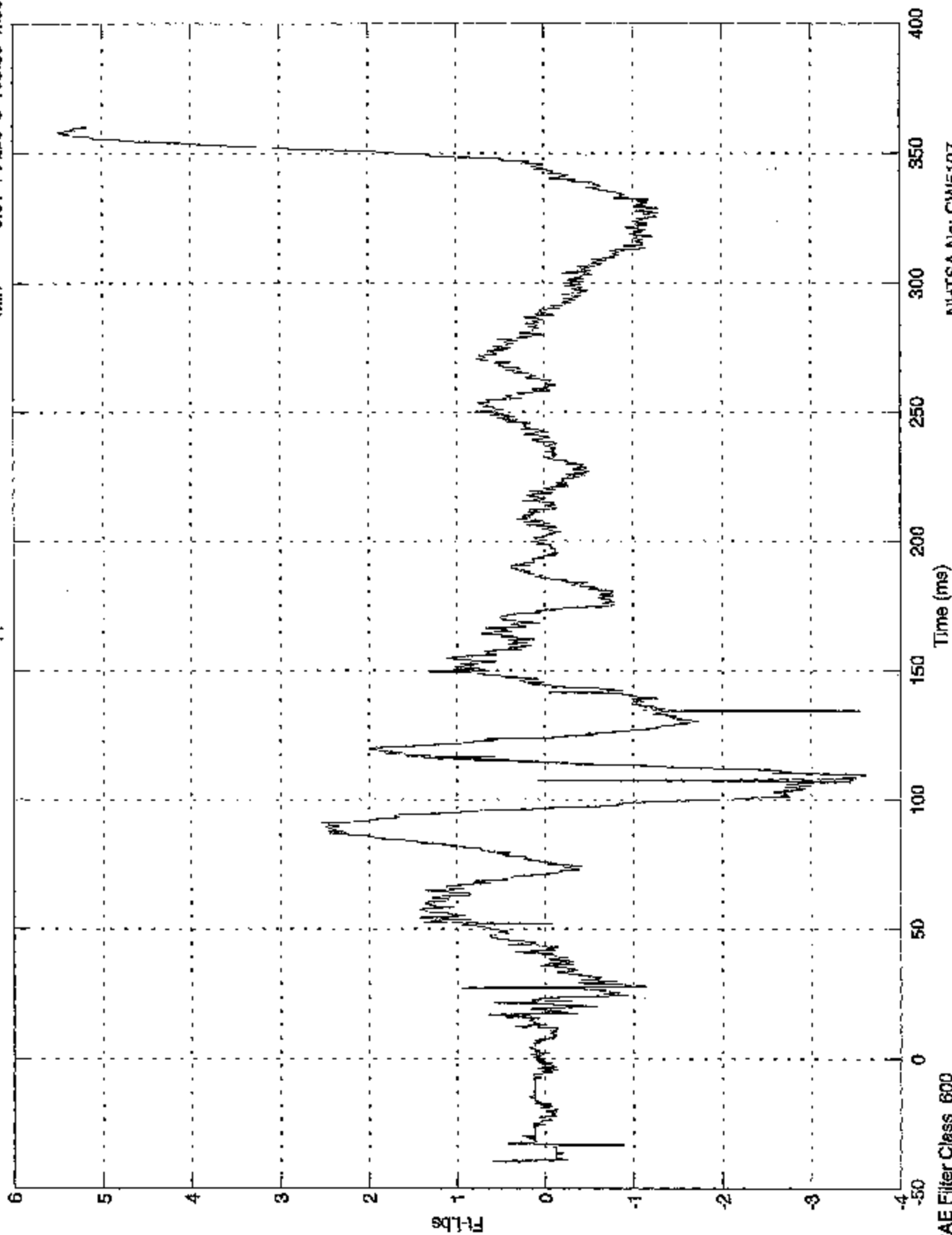
Pos. 1 Upper Neck F(Res)



301 Rear 30 MPH-1996 Toyota Corolla

Pos. 1 Upper Neck Mx

Max = 5.49 Ft-Lbs @ 358.00 msec
Min = -3.61 Ft-Lbs @ 109.60 msec

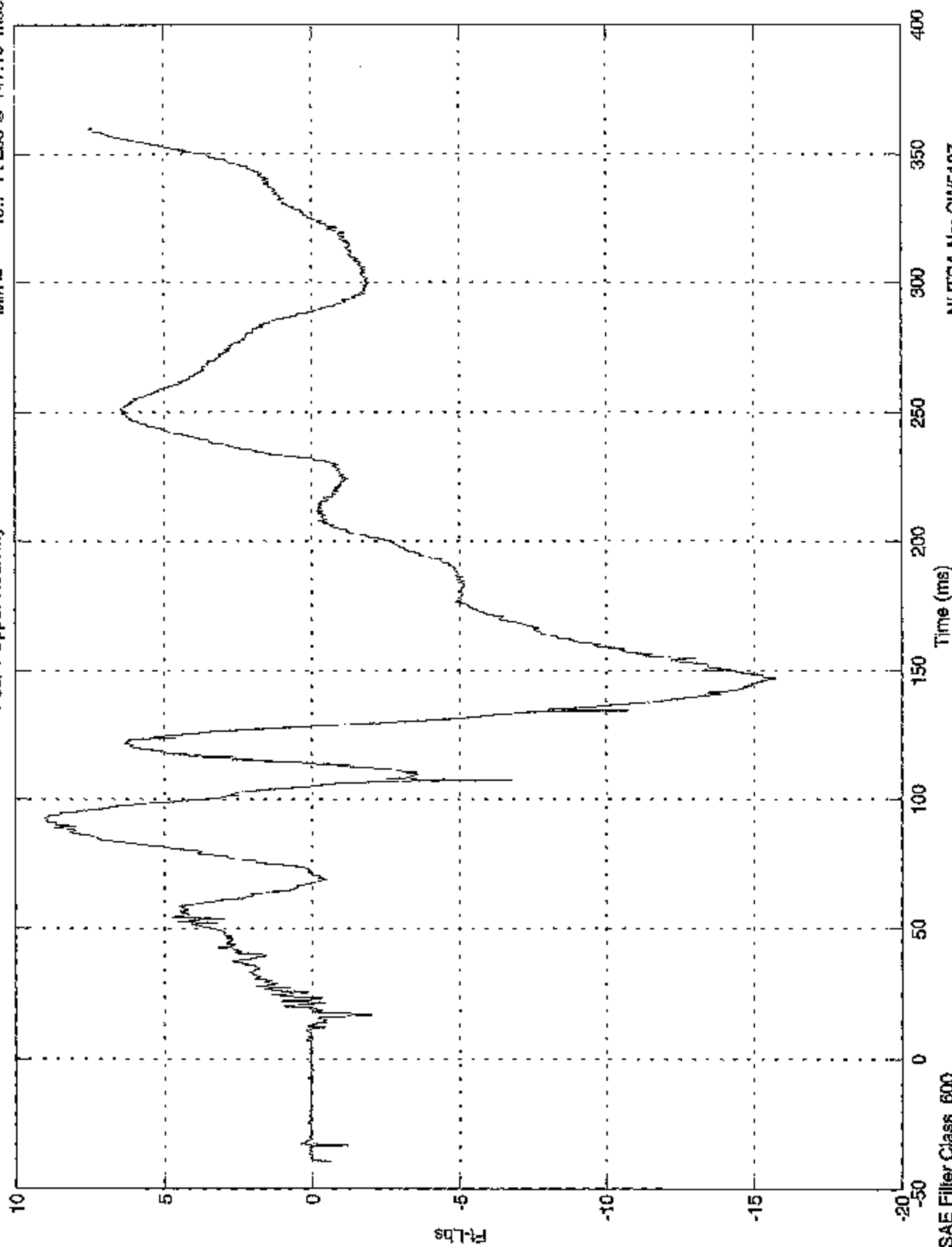


301 Rear 30 MPH-1998 Toyota Corolla

Max = 9.03 Ft-Lbs @ 92.30 msec

Min = -15.7 Ft-Lbs @ 147.10 msec

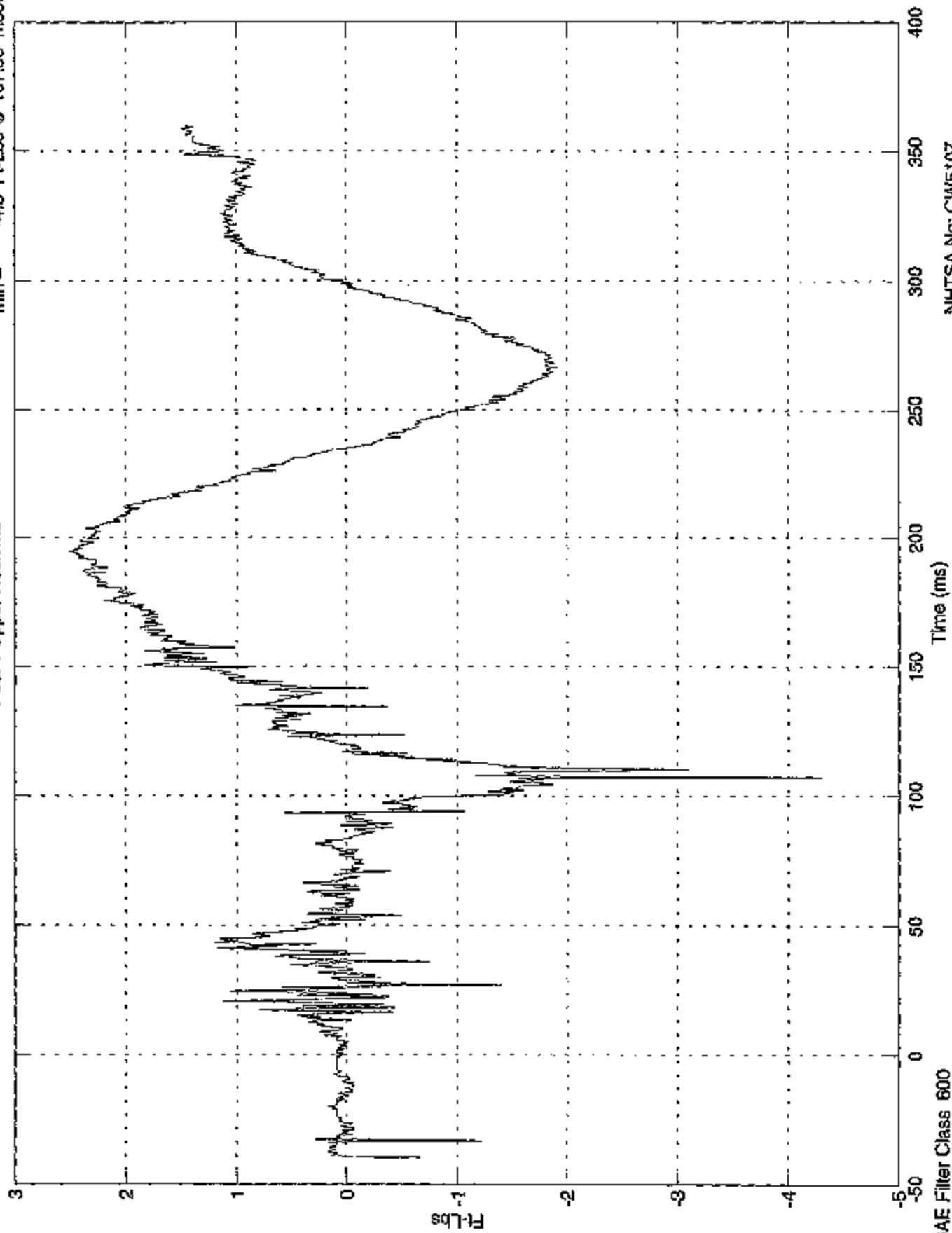
Pos. 1 Upper Neck My



301 Rear 30 MPH-1998 Toyota Corolla

Max = 2.5 Ft-Lbs @ 194.30 msec
Min = -4.3 Ft-Lbs @ 107.30 msec

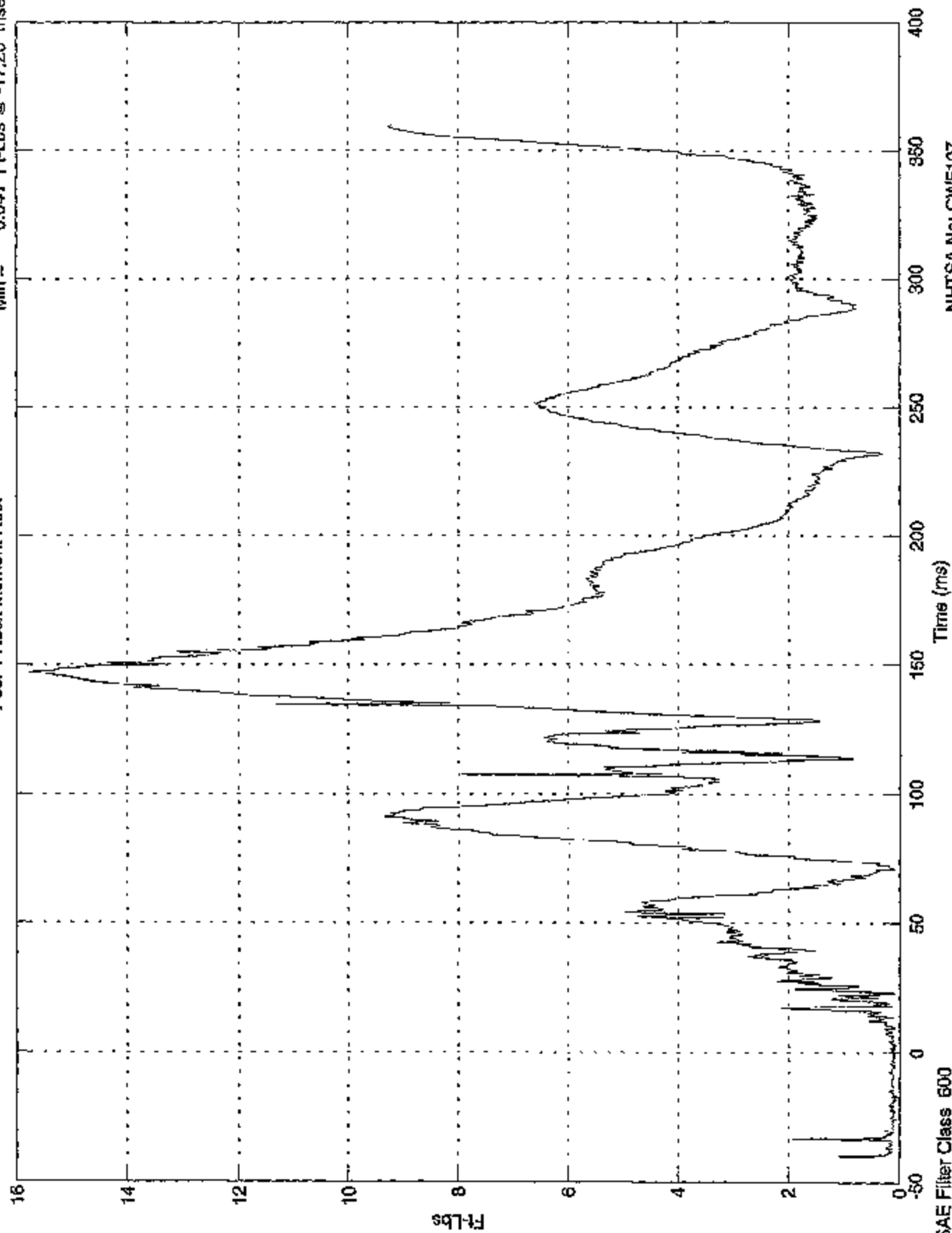
Pos. 1 Upper Neck Mz



301 Rear 30 MPH-1998 Toyota Corolla

Max = 15.8 Ft-Lbs @ 147.10 msec
Min = 0.041 Ft-Lbs @ -17.20 msec

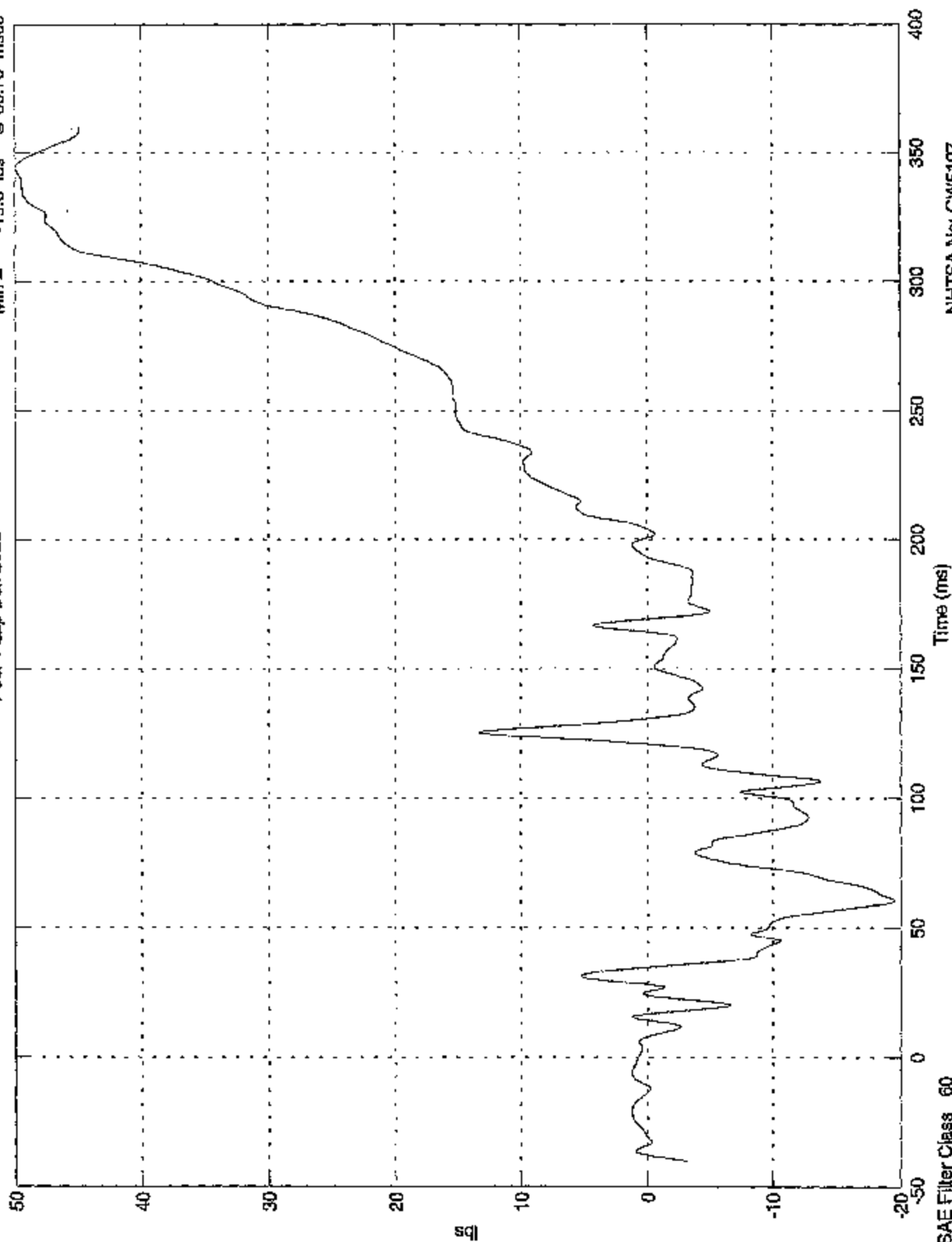
Pos. 1 Neck Moment Res.



301 Rear 30 MPH-1998 Toyota Corolla

Pos. 1 Lap Belt Load

Max = 50 lbs @ 344.00 msec
Min = -19.6 lbs @ 60.70 msec



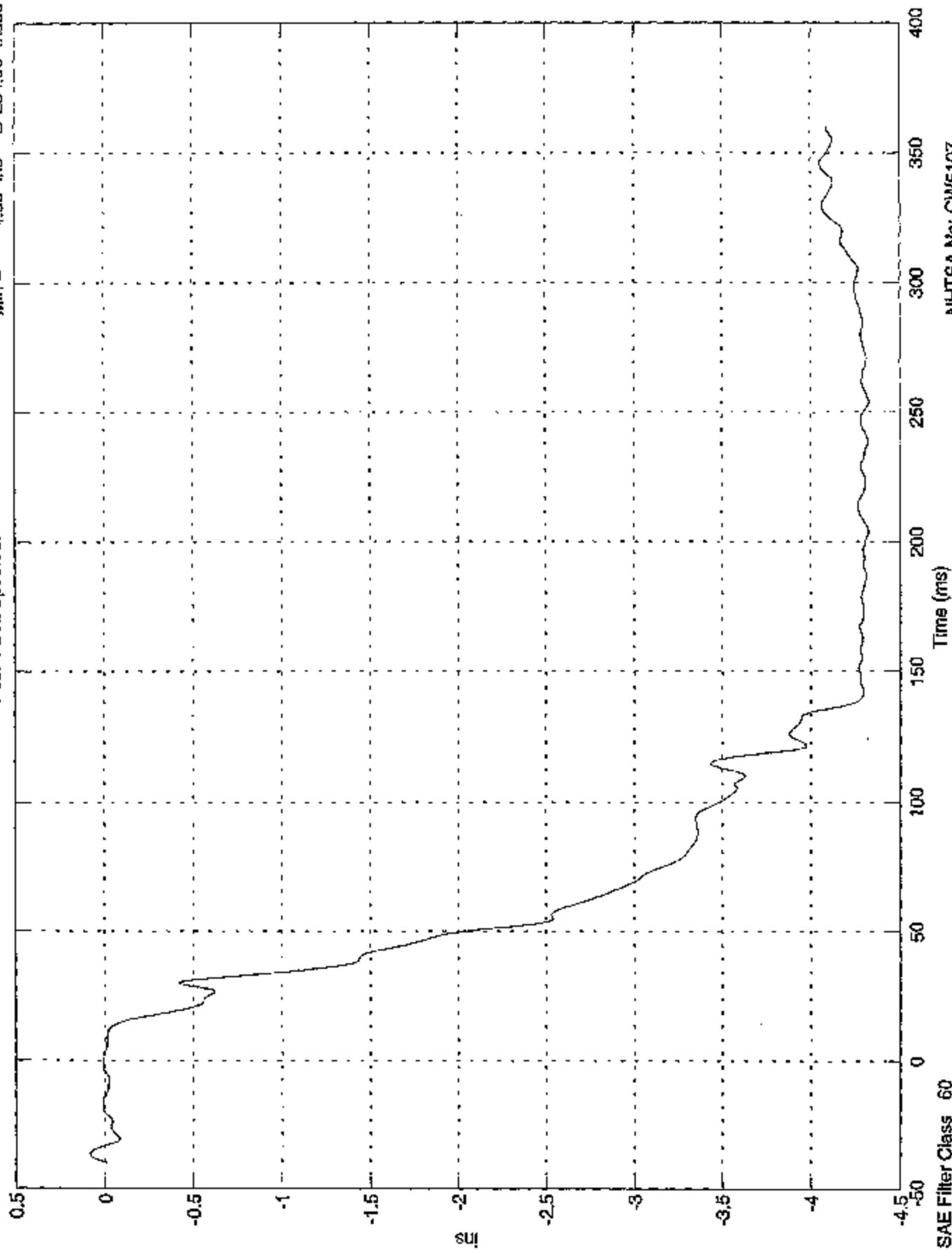
SAE Filter Class 60

NHTSA No: CW5107

301 Rear 30 MPH-1988 Toyota Corolla

Max = 0.0849 ins @ -36.80 msec
Min = -4.33 ins @ 254.00 msec

Pos. 1 Belt Spoolout



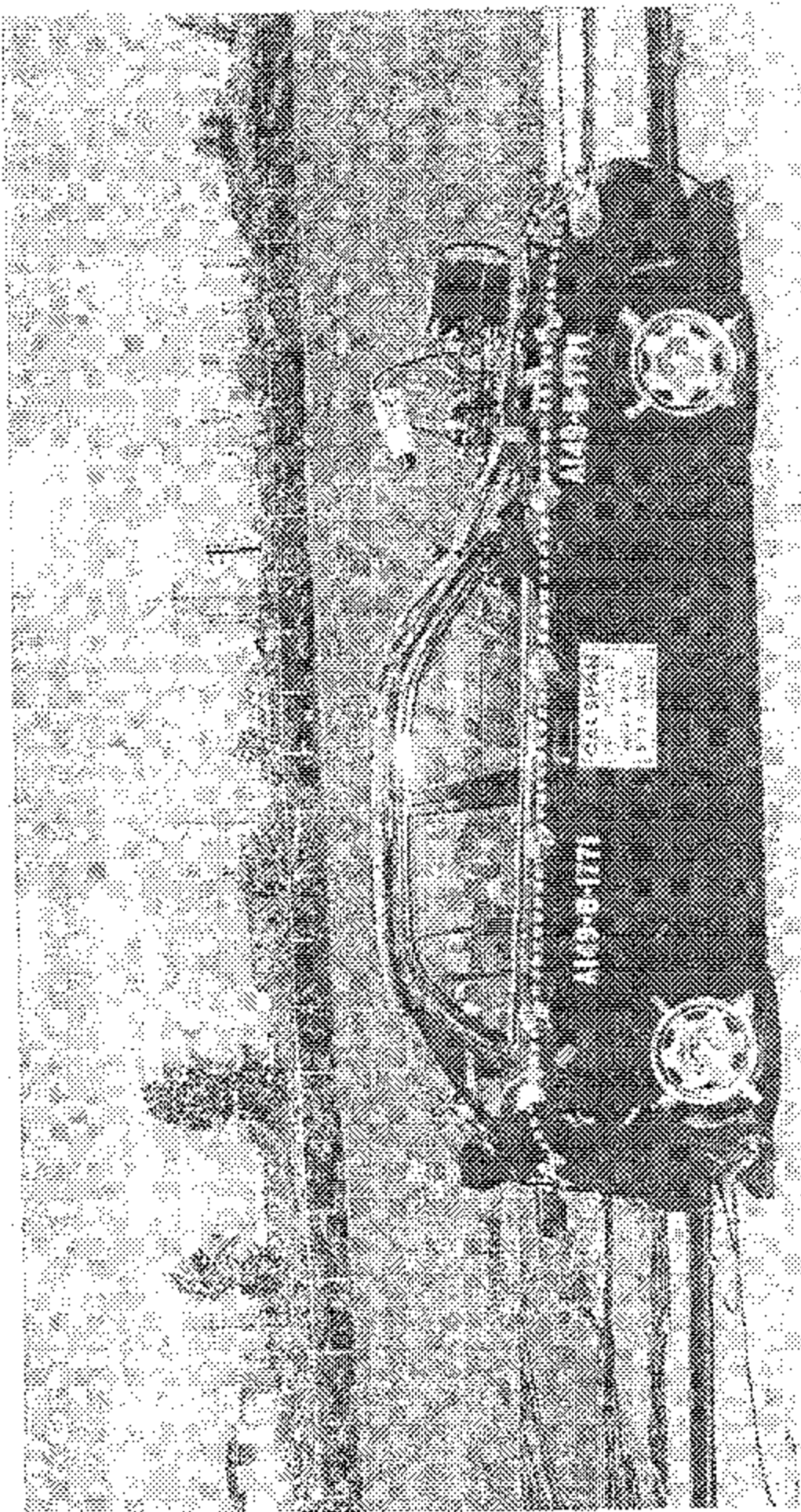


Figure A-6. POST-TEST RIGHT SIDE VIEW

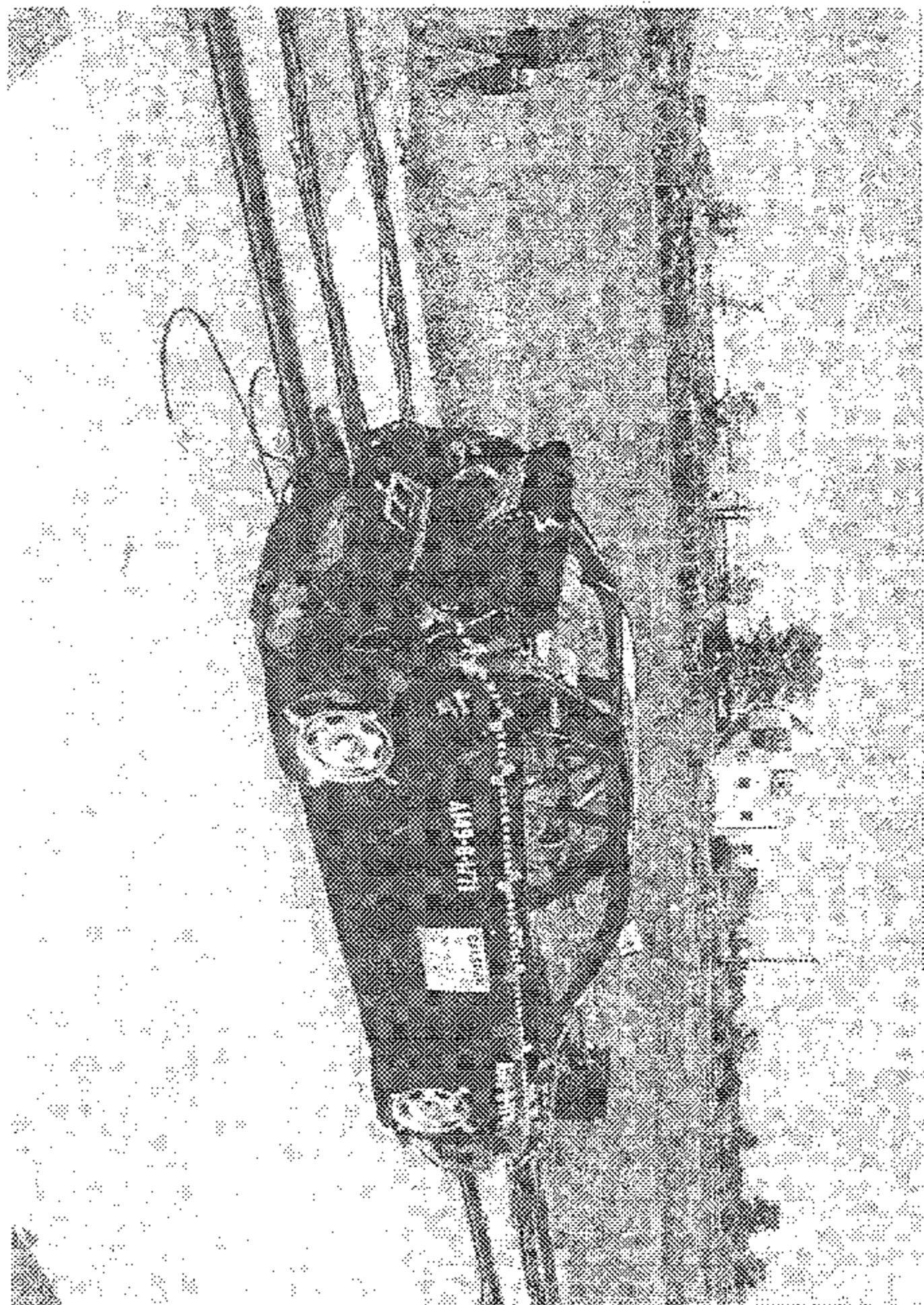


Figure 4-12. FRONT-LEFT VIEW OF THE TRUCK