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REPORT NUMBER: CAL-98-24

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

**NISSAN MOTOR CO., LTD.
1998 NISSAN FRONTIER
PICKUP**

NHTSA NUMBER: MW5202

CALSPAN TEST NUMBER: 8413-23

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



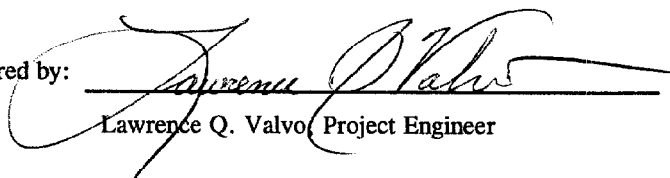
February 17, 1998

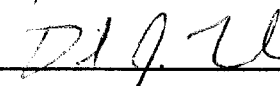
FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
Mail Code: NPS-10
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NHTSA, Office of Crashworthiness Standards

Date of Report Acceptance

COTR, New Car Assessment Program (NCAP)
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16. <i>Abstract</i> A frontal barrier test of a 1998 Nissan Frontier Pickup was performed at Calspan Corporation crash test facility in Buffalo, New York, on February 17, 1998. The impact velocity was 56.6 kph and the temperature at the barrier face was 21.7°C. The maximum post-test vehicle crush was 590 mm. The test vehicle was equipped with second generation dual front airbags. The test vehicle's performance is given below:					
		<u>Driver</u>		<u>Passenger</u>	
	Head (HIC)	1000.41		521.14	
	Chest (CLIP)	46.49 g		53.99 g	
	Chest Displacement	-45.4 mm		-30.0 mm	
	Left Femur Force	-1812.7 N		-2133.9 N	
	Right Femur Force	-4309.5 N		-4406.4 N	
17. <i>Key Words</i> 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)			18. <i>Distribution Statement</i> <u>Copies of this report are available from:</u> NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590		
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Section 1

PURPOSE AND SUMMARY OF TEST MW5202

PURPOSE

This 56.6 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-96-D-02010. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.6 kph frontal barrier impact test was conducted in accordance with the Office of Market Incentives (OMI) Laboratory Indicant Test procedure.

SUMMARY

A frontal barrier was impacted by a 1998 Nissan Frontier Pickup at a velocity of 56.6 kph. The test was performed at the Calspan Corporation on February 17, 1998. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by 1 real-time camera and 16 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

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

Both ATDs were fully instrumented with head, chest, and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 064) was calibrated prior to this test. The right-front passenger (position 2) ATD (Serial No. 245) was used in two prior tests. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 97 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle and dummy response data traces. The Engine Bottom X accelerometer data is questionable after 22 ms and the Right Caliper X accelerometer data is questionable after 55 ms.

The driver's HIC was 1000.41. The maximum chest deceleration over 3 milliseconds was 46.49 g's and maximum chest deflection was -45.4 mm. Femur loads were -1812.7 Newtons on the left and -4309.5 Newtons on the right. During the post-test vehicle inspection, the driver seat belt was observed to be partially torn where it contacted the seat back recline lever.

The right front passenger's HIC was 521.14. Maximum chest deceleration over 3 milliseconds was 53.99 g's and maximum chest deflection was -30.0 mm. Femur loads were -2133.9 Newtons on the left and -4406.4 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MW5202 Test Mode : 56 kph Frontal Barrier

Test Date : February 17, 1998 Time: 11:10 Temperature : 21.7 °C

Vehicle Make/Model/Body Style : 1998 Nissan Frontier Pickup

Vehicle Test Weight : 1954.0 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.6 kph

Maximum Static Crush : 590 mm

Vehicle Rebound : 222 mm

DUMMIES:

DRIVER

PASSENGER

Type : 572E 572E

Restraint System : Airbag, 3-Point Seat Belt, Knee Bolster Airbag, 3-Point Seat Belt, Knee Bolster

Number of Data Channels : 97

Number of Cameras : 1 Real Time

 16 High Speed

DOOR OPENING DATA : Closed/Operable - Left Front

 Closed/Operable - Right Front

Front Seat(s) Data :

DRIVER

PASSENGER

Seat Track Failure :(mm of shift) 0 0

Seat Back Failure : None None

VISIBLE DUMMY CONTACT POINTS :

DRIVER

PASSENGER

Head : Face to center of airbag, back of head to outboard side of head rest. Face to center of airbag, back of head to outboard side of head rest.

Abdomen : None None

Chest Airbag Airbag

Knees Left knee to fuse box cover, right knee to knee bolster/parking brake. Left and right knee to knee bolster/glove compartment door.

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 1998 Nissan Frontier Pickup
NHTSA No. : MW5202 ; VIN: 1N6DD26Y0WC338095 ; Color : Black
Engine Data: 4 cylinders; - CID; 2.4 Liters; - cc
Placement : X Longitudinal or In-Line; - Transverse or Lateral
Transmission Data : 5 speeds; X Manual; - Automatic; - Overdrive
Final Drive : - Rear Wheel Drive; - Front Wheel Drive; X Four Wheel Drive
Major Options : X A/C; X Pwr.Strg.; X Pwr. Brakes
- Pwr. Windows; - Pwr. Door Locks; - Tilt Wheel
Date Received : 02/03/98 ; Odometer Reading 16 km
Selling Dealer : Autoplace Nissan
& Address: 8137 Main Street, Williamsville, NY 14221

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Nissan Motor Co., Ltd.
Date of Manufacture 01/98
GVWR : 2358.7 kg; GAWR: 1242.9 kg FRONT; 1292.8 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 240 kpa FRONT
240 kpa REAR
Recommended Tire Size : 235/70R15
* Recommended Cold Tire Pressure : 180 kpa FRONT; 180 kpa REAR
Size of Tires on Test Vehicle: 235/70R15 ; Manufacturer: B.F.Goodrich
Vehicle Capacity Data :
Type of Front Seats: - Bench; X Bucket; - Split Bench
Number of Occupants: 2 Front; 2 Rear; 4 Total
Vehicle Capacity Weight (VCW) = 684.7 kg
No. of Occupants x 68 kg = 272.2 kg
Rated Cargo/Luggage Weight (RCLW) = 136.1 kg

*Tire pressure used for test

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with maximum fluids) = UDW:

Right Front	=	<u>490.5</u>	kg	Right Rear	=	<u>357.5</u>	kg
Left Front	=	<u>485.0</u>	kg	Left Rear	=	<u>341.0</u>	kg
TOTAL FRONT	=	<u>975.5</u>	kg	TOTAL REAR	=	<u>698.5</u>	kg
TOTAL DELIVERED WEIGHT	=	<u>1,674.0</u>	kg				
% of Total Front of Vehicle Weight	=	<u>58.3</u>	%	% of Total Rear Weight	=	<u>41.7</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	<u>1,674.0</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>136.1</u>	kg
Weight of 2 p.572 Dummies @ 76 each	=	<u>152</u>	kg
TARGET TEST WEIGHT	=	<u>1,962.1</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 128 KG OF CARGO WEIGHT:

Right Front	=	<u>515.5</u>	kg	Right Rear	=	<u>465.0</u>	kg
Left Front	=	<u>526.0</u>	kg	Left Rear	=	<u>447.5</u>	kg
TOTAL FRONT	=	<u>1,041.5</u>	kg	TOTAL REAR	=	<u>912.5</u>	kg
TOTAL TEST WEIGHT	=	<u>1,954.0</u>	kg				
% of Total Front Weight	=	<u>53.3</u>	%	% of Total Rear Weight	=	<u>46.7</u>	%
Weight of Ballast Secured in Vehicle Trunk Area	=	<u>26.5</u>	kg				
Vehicle Components Removed for Weight Reduction:		<u>None</u>					

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>840</u>	LF	<u>856</u>	RR	<u>855</u>	LR	<u>875</u>
FULLY LOADED :	RF	<u>832</u>	LF	<u>849</u>	RR	<u>825</u>	LR	<u>841</u>
AS TESTED :	RF	<u>839</u>	LF	<u>850</u>	RR	<u>825</u>	LR	<u>844</u>
Vehicle's Wheel Base :		<u>2948</u>	mm					
Location of Vehicle's C.G. :		<u>1,377</u>	mm rearward of front wheel center.					

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual	=	<u>60</u>	liters
Usable Capacity Figure Furnished by COTR	=	<u>60.0</u>	liters
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>55.2</u>	to <u>56.4</u> liters
ACTUAL TEST VOLUME	=	<u>55.7</u>	liters (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u> ;	Spec. Grav. =	<u>0.764</u>
	Kinematic Viscosity =	<u>0.96</u>	centistokes; Color = <u>Orange</u>
Type of Fuel Pump:	Electric- <u>X</u> ;	Mechanical-	<u>-</u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"		Yes- <u>X</u>	No- <u>-</u>
Details of Fuel System	<u>Fuel filler - right side forward of rear axle; Tank - forward of rear axle;</u>		
	<u>Lines - Inboard of right frame rail.</u>		

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°
Test Date : February 17, 1998 Time: 11:10 Temperature: 21.7 °C
Vehicle NHTSA No. : MW5202
Required Impact Velocity Range : 55.7 to 57.1 kph

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

Trap No. 1 = 56.6 kph; Trap No. 2 = 56.6 kph
Distance from vehicle to barrier : (1) entering trap = 813 mm
(2) exiting trap = 305 mm

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

Vehicle Length:
Pre-Test Right = 5040 ; C/L = 5125 ; Left = 5040
Post-Test Right = 4480 ; C/L = 4535 ; Left = 4510
Crush Right = 560 ; C/L = 590 ; Left = 530
AVERAGE = 560 mm

VEHICLE REBOUND: (From rigid barrier only.)

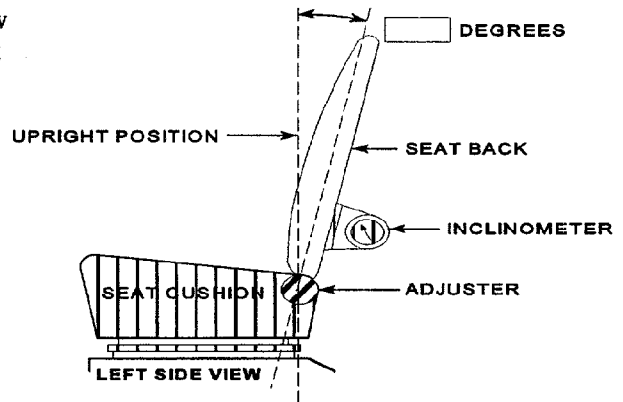
Distance from front of test vehicle to impact point :
Right = 245 ; C/L = 206 ; Left = 215
AVERAGE = 222 mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1998 Vehicle Model: Nissan Frontier Body Style : Pickup

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.



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat : 25°

Measurement instructions : With seat back in the full upright position (detent 0), recline the seat back to detent 6 (head rest posts will be 7.7° from vertical).

Seat back angle for passenger's seat : 25°

Measurement instructions : With seat back in the full upright position (detent 0), recline the seat back to detent 5 (head rest posts will be 9.0° from vertical).

2. **Seat Fore and Aft Positioning**

Positioning of the driver's seat : With the seat in the full forward position (detent 0), slide the seat rearward to detent 6. (Note: rearmost detent is detent 12).

Positioning of the passenger's seat (if applicable) : With the seat in the full forward position (detent 0), slide the seat rearward to detent 10. (Note: rearmost detent is detent 19).

3. **Fuel Tank Capacity Data**

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 60.0 liters

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

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 60.0 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 55.7 liters

3.3 Is vehicle equipped with electric fuel pump? Yes- X ; No- -

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

Fuel pump operates when the ignition switch is initially activated or while the engine is running.

DATA SHEET NO. 4 TEST VEHICLE INFORMATION (cont.)

4. STEERING COLUMN ADJUSTMENTS :

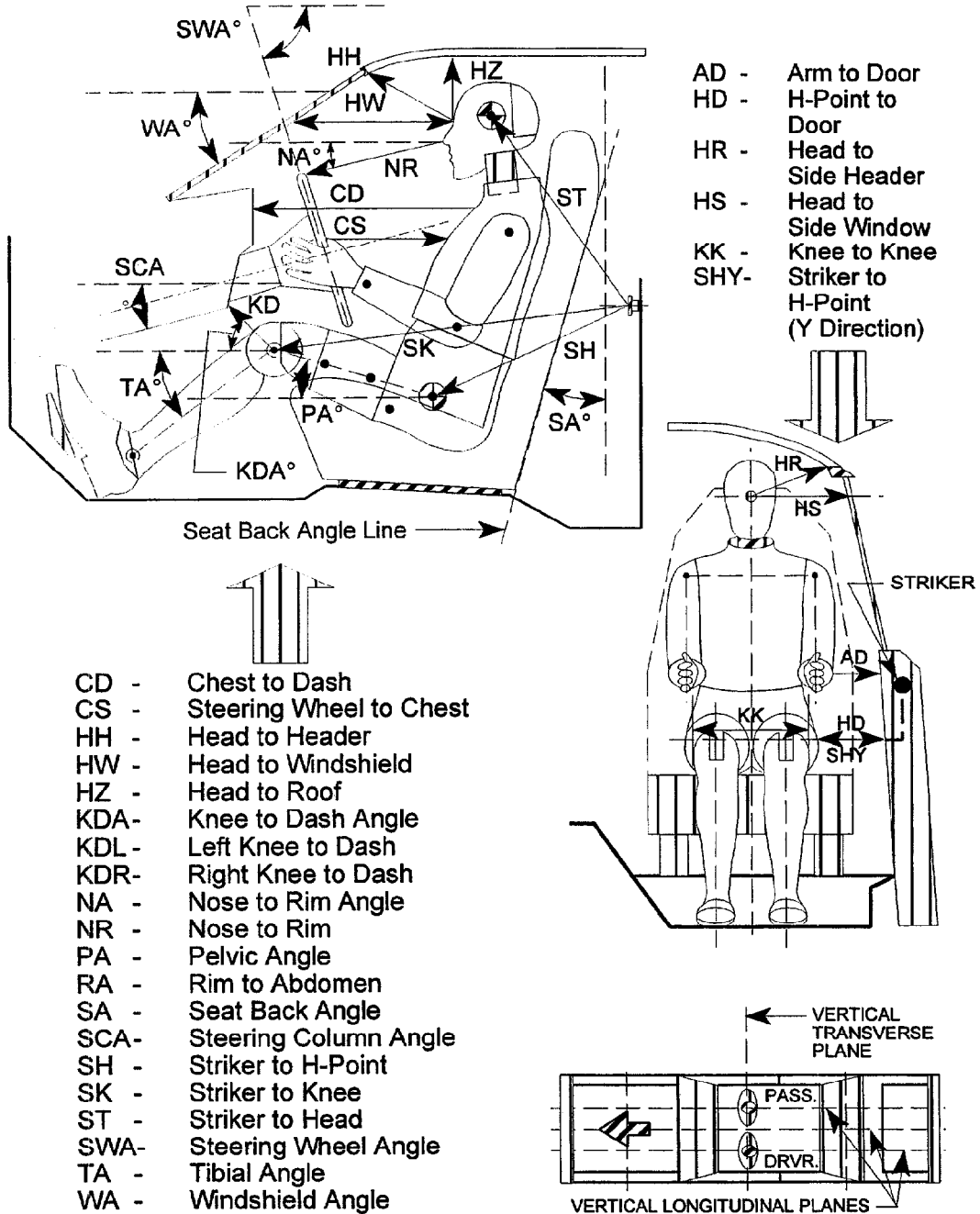
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions: Steering column is not adjustable.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: Anchorage is not adjustable.

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



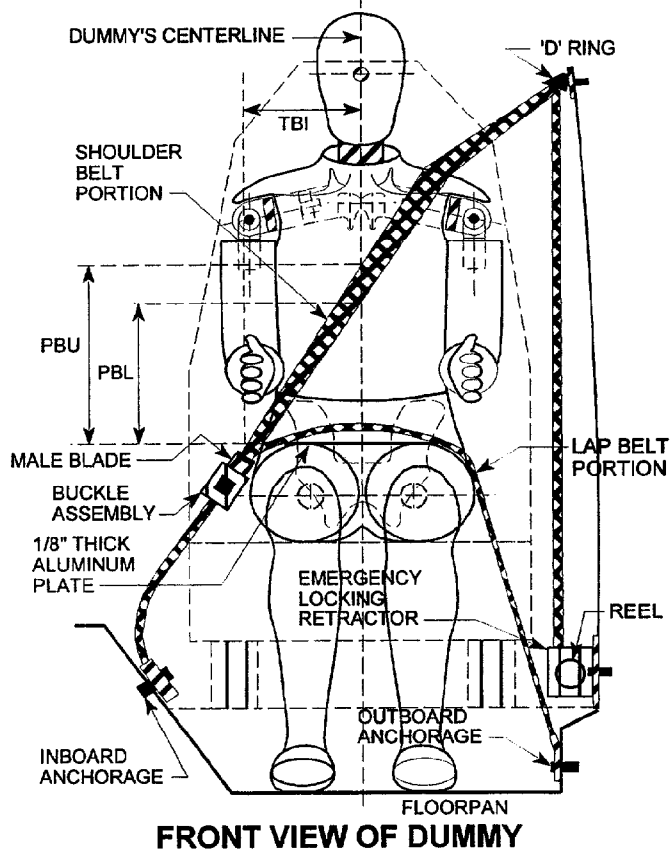
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

	DRIVER (Serial #064)			PASS. (Serial # 245)		
WA°	36 deg.			N/A		
SWA°	66 deg.			N/A		
SCA°	24 deg.			N/A		
SA°	25 deg.			25 deg.		
HZ	190			181		
HH	466			416		
HW	626			570		
HR	248			244		
NR	430	Angle	13 deg.	N/A		
CD	605			540		
CS	318			N/A		
RA	215			N/A		
KDL	222	Angle (KDA)	23 deg.	199		
KDR	222			194	Angle (KDA)	23 deg.
PA°	24.5 deg.			25.0 deg.		
TA°	40 deg.			48 deg.		
KK	344			270		
ST	589	Angle	9 deg.	563	Angle	13 deg.
SK	622	Angle	89 deg.	667	Angle	89 deg.
SH	241	Angle	109 deg.	285	Angle	107 deg.
SHY	205			212		
HS	145			139		
HD	328			322		
AD	78			108		

Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

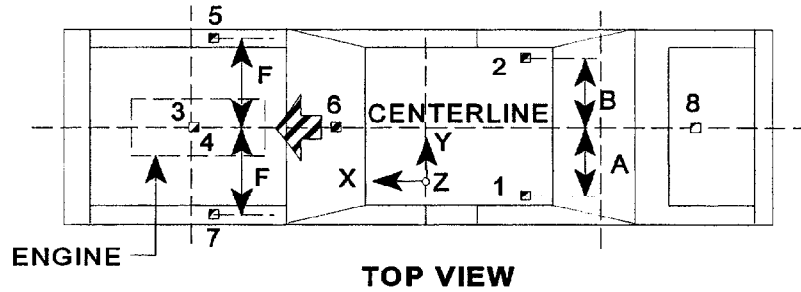
SEAT BELT POSITIONING DATA



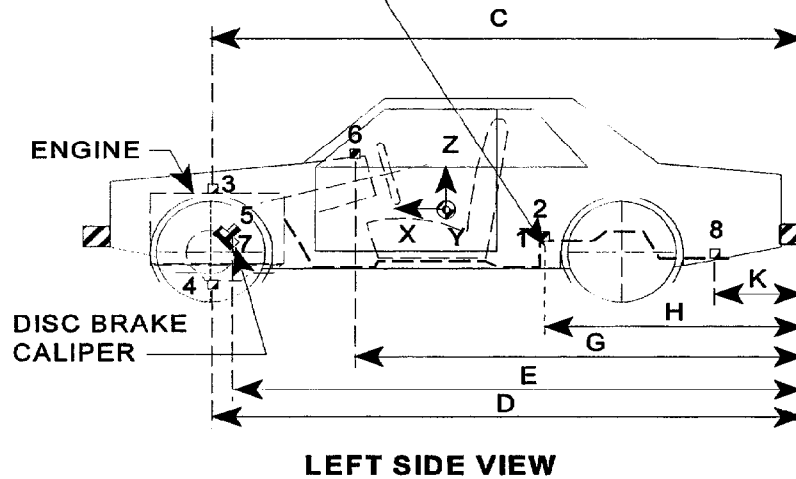
FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	315	325
PBL-- Top surface of alum. plate to belt lower edge	235	241
LAP BELT TENSION	10 Newtons	10 Newtons
SHOULDER BELT TENSION	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



Note: Vehicle accelerometer location and data summary shown in DATA SHEET NO. 7

DATA SHEET NO. 7 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

DIMENSION	LENGTH (mm)
	PRE-TEST VALUES
A Left Rear Seat Crossmember Y	405
B Right Rear Seat Crossmember Y	-425
C Top of Engine X	4427
D Bottom of Engine X	4220
E Disc Brake Calipers X	4115
F Disc Brake Calipers Y	±390
G Instrument Panel X	3467
H Rear Seat Crossmembers X	2609

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	5.2	30.0	-45.5	36.3
2	Rear Seat X-Member @ Right Side	5.9	28.6	-41.8	33.8
3	Top of Engine Block	25.9	42.2	-131.1	33.4
4	Bottom of Engine	†	†	†	†
5	Disc Brake Caliper @ Right Side	††	††	-108.5	20.3
6	Instrument Panel	71.3	52.0	-76.0	43.9
7	Disc Brake Caliper @ Left Side	23.9	43.7	-96.7	23.0
8	Rear Seat X-Member @ Left-Redundant	10.3	30.1	-44.2	36.4
9	Rear Seat X-Member @ Right-Redundant	6.4	28.6	-41.7	33.8

† Data is questionable after 22 ms.

†† Data is questionable after 55 ms.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

NHTSA Test No.: MW5202 Vehicle: 1998 Nissan Frontier Pickup

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec.	Neg.	msec.
Pos. 1 Head X	g's	41.2	177.6	-75.1	77.2
Pos. 1 Head Y	g's	5.3	156.6	-24.6	85.2
Pos. 1 Head Z	g's	27.7	49.9	-7.6	119.1
Pos. 1 Head Resultant	g's	77.5	78.9	0.1	-5.1
Pos. 2 Head X	g's	21.0	196.5	-48.2	73.4
Pos. 2 Head Y	g's	10.4	51.5	-25.9	77.3
Pos. 2 Head Z	g's	33.7	48.1	-9.0	107.9
Pos. 2 Head Resultant	g's	56.6	77.2	0.1	-18.8
Pos. 1 Chest X	g's	10.3	152.7	-44.6	63.4
Pos. 1 Chest Y	g's	2.3	200.6	-7.4	46.8
Pos. 1 Chest Z	g's	15.6	44.9	-8.4	115.0
Pos. 1 Chest Resultant	g's	46.9	63.4	0.0	-33.5
Pos. 1 Chest Displacement	mm	0.0	-30.9	-45.4	78.8
Pos. 2 Chest X	g's	7.7	159.4	-53.9	72.2
Pos. 2 Chest Y	g's	8.7	50.9	-18.0	72.8
Pos. 2 Chest Z	g's	19.5	65.6	-12.6	109.4
Pos. 2 Chest Resultant	g's	57.5	72.2	0.0	-32.3
Pos. 2 Chest Displacement	mm	0.0	18.4	-30.0	52.1
Pos. 1 Left Femur	N	1134.3	46.8	-1812.7	55.3
Pos. 1 Right Femur	N	1340.4	40.6	-4309.5	54.6
Pos. 2 Left Femur	N	823.3	42.8	-2133.9	53.2
Pos. 2 Right Femur	N	814.9	40.3	-4406.4	49.7
Pos. 1 Left Belt Load	N	9915.2	54.2	-29.1	172.7
Pos. 1 Torso Belt Load	N	6964.5	77.2	-88.7	153.4
Pos. 2 Right Belt Load	N	8883.1	51.5	-360.4	95.8
Pos. 2 Torso Belt Load	N	6680.6	48.9	-252.1	98.1

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)
HYBRID III NECK AND PELVIC DATA SHEET

Vehicle Year/Make/Model/Body Style: 1998 Nissan Frontier Pickup

NHTSA Test No.: MW5202 Test Date: February 17, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Upper Neck Fx	N	350.4	89.6	-558.9	53.8
Pos. 1 Upper Neck Fy	N	223.1	159.1	-286.2	106.1
Pos. 1 Upper Neck Fz	N	3192.8	69.0	-691.5	113.8
Pos. 1 Neck Force Result	N	3195.1	69.0	7.1	-5.9
Pos. 1 Upper Neck Mx	N-m	19.8	163.6	-15.2	99.2
Pos. 1 Upper Neck My	N-m	28.5	151.4	-36.9	51.0
Pos. 1 Upper Neck Mz	N-m	18.7	93.3	-10.4	142.9
Pos. 1 Neck Moment Result	N-m	38.7	211.1	0.0	-34.4
Pos. 2 Upper Neck Fx	N	1456.5	64.3	-585.0	138.1
Pos. 2 Upper Neck Fy	N	386.7	67.4	-173.3	113.8
Pos. 2 Upper Neck Fz	N	1188.4	44.4	-723.6	91.6
Pos. 2 Neck Force Result	N	1615.8	64.3	5.8	-32.2
Pos. 2 Upper Neck Mx	N-m	12.3	79.3	-33.9	67.2
Pos. 2 Upper Neck My	N-m	138.1	64.6	-25.2	236.0
Pos. 2 Upper Neck Mz	N-m	28.3	91.6	-17.9	144.3
Pos. 2 Neck Moment Result	N-m	142.0	64.7	0.1	-33.0
Pos. 1 Pelvic (X)	g's	6.6	118.7	-73.8	54.0
Pos. 1 Pelvic (Y)	g's	5.4	80.0	-11.7	47.5
Pos. 1 Pelvic (Z)	g's	5.9	40.9	-17.0	57.7
Pos. 1 Pelvic (R)	g's	74.9	54.0	0.1	-29.6
Pos. 2 Pelvic (X)	g's	8.0	128.9	-81.9	49.6
Pos. 2 Pelvic (Y)	g's	8.4	38.2	-13.8	81.7
Pos. 2 Pelvic (Z)	g's	4.9	39.8	-20.0	56.7
Pos. 2 Pelvic (R)	g's	82.5	49.6	0.0	-26.3

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)
HYBRID III LOWER LEG DATA SHEET

Vehicle Year/Make/Model/Body Style: 1998 Nissan Frontier Pickup

NHTSA Test No.: MW5202 Test Date: February 17, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
P1 Lt Upper Tibia Mx	N-m	22.2	168.1	-35.3	42.8
P1 Lt Upper Tibia My	N-m	78.7	57.9	-95.9	38.2
P1 Lt Lower Tibia Fx	N	44.6	353.2	-767.6	38.4
P1 Lt Lower Tibia Fz	N	84.2	177.3	-2041.3	42.7
P1 Lt Lower Tibia My	N-m	41.4	92.3	-48.5	38.6
P1 Rt Upper Tibia Mx	N-m	96.9	45.1	-38.9	49.2
P1 Rt Upper Tibia My	N-m	241.5	45.2	-92.8	55.0
P1 Rt Lower Tibia Fx	N	58.2	168.5	-1942.5	45.1
P1 Rt Lower Tibia Fz	N	104.4	31.4	-2155.5	45.2
P1 Rt Lower Tibia My	N-m	252.8	55.0	-114.7	40.8
Pos. 2 Lt Upper Tibia Mx	N-m	62.3	55.2	-14.0	137.0
Pos. 2 Lt Upper Tibia My	N-m	78.8	56.5	-111.9	41.5
Pos. 2 Lt Lower Tibia Fx	N	157.1	56.7	-835.8	41.8
Pos. 2 Lt Lower Tibia Fz	N	141.3	146.4	-2379.0	79.3
Pos. 2 Lt Lower Tibia My	N-m	49.8	78.8	-50.7	40.0
Pos. 2 Rt Upper Tibia Mx	N-m	31.5	47.1	-22.3	85.2
Pos. 2 Rt Upper Tibia My	N-m	65.7	62.7	-77.2	30.7
Pos. 2 Rt Lower Tibia Fx	N	400.2	68.6	-740.1	158.3
Pos. 2 Rt Lower Tibia Fz	N	99.0	162.3	-2616.4	80.9
Pos. 2 Rt Lower Tibia My	N-m	53.5	81.6	-26.5	31.4

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)
HYBRID III ANKLE DATA SHEET

Vehicle Year/Make/Model/Body Style: 1998 Nissan Frontier Pickup
 NHTSA Test No.: MW5202 Test Date: February 17, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Left Ankle X	g's	67.9	67.6	-107.8	38.5
Pos. 1 Left Ankle Z	g's	3.3	248.6	-64.5	40.7
Pos. 1 Left Toe Z	g's	31.7	32.8	-85.3	40.5
Pos. 1 Right Ankle X	g's	77.7	47.4	-227.4	43.2
Pos. 1 Right Ankle Z	g's	56.6	53.9	-187.6	40.3
Pos. 1 Right Toe Z	g's	142.0	47.9	-339.0	40.2
Pos. 2 Left Ankle X	g's	62.5	50.8	-134.7	40.6
Pos. 2 Left Ankle Z	g's	17.3	59.2	-38.2	47.3
Pos. 2 Left Toe Z	g's	34.8	59.0	-89.2	38.5
Pos. 2 Right Ankle X	g's	17.8	82.8	-71.7	29.7
Pos. 2 Right Ankle Z	g's	10.5	70.4	-42.9	48.5
Pos. 2 Right Toe Z	g's	22.2	41.9	-66.4	38.6

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)
REDUNDANT DUMMY DATA

NHTSA Test No.: MW5202 Vehicle: 1998 Nissan Frontier Pickup

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Head X(R)	g's	38.9	177.6	-77.9	78.8
Pos. 1 Head Y(R)	g's	5.8	52.0	-25.5	84.6
Pos. 1 Head Z(R)	g's	34.4	49.9	-6.9	149.4
Pos. 1 Head Resultant(RR)	g's	81.0	78.8	0.1	-33.3
Pos. 2 Head X(R)	g's	19.5	214.8	-54.6	73.4
Pos. 2 Head Y(R)	g's	9.6	196.7	-23.1	56.4
Pos. 2 Head Z(R)	g's	43.3	55.5	-8.2	146.3
Pos. 2 Head Resultant(RR)	g's	63.8	73.4	0.1	-22.3
Pos. 1 Chest X(R)	g's	9.3	152.7	-44.1	63.8
Pos. 1 Chest Y(R)	g's	4.9	97.4	-7.5	45.8
Pos. 1 Chest Z(R)	g's	17.5	46.4	-9.8	114.6
Pos. 1 Chest Resultant(RR)	g's	45.3	63.7	0.0	-34.8
Pos. 2 Chest X(R)	g's	6.7	158.8	-59.6	72.2
Pos. 2 Chest Y(R)	g's	8.5	51.6	-17.4	72.9
Pos. 2 Chest Z(R)	g's	21.2	65.8	-12.4	110.7
Pos. 2 Chest Resultant(RR)	g's	63.4	72.2	0.0	-31.0

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

Windshield is bonded in place and covered with 18 mm molding.

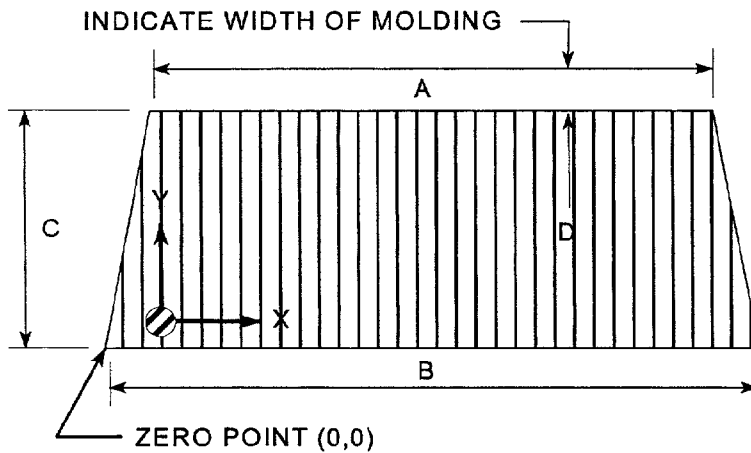
FMVSS 212 REQUIREMENTS:

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 the windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST(mm)	
RIGHT SIDE	1991	1991	100
LEFT SIDE	1991	1991	100
TOTAL	3,982	3,982	100

AREA OF RETENTION FAILURE:



DIMENSIONS (mm)	
A	1218
B	1464
C	650
D	18

FRONT VIEW OF WINDSHIELD

FAILURE DETAILS: None

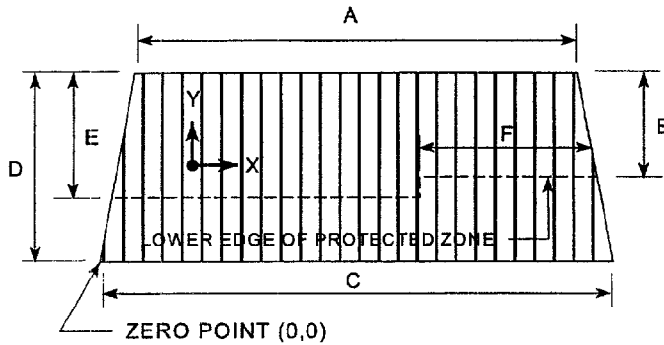
DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 165 mm diameter rigid sphere weighing 6.8 kg 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, then draw a line on the inner surface of the windshield below and 13 mm 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 mm)



FRONT VIEW OF WINDSHIELD

DIMENSIONS	
A	1218
B	356
C	1464
D	650
E	410
F	886

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

	COORDINATES	
	X	Y
1.	-	-
2.	-	-
3.	-	-
4.	-	-

DATA SHEET NO. 12 FMVSS NO. 301-75 "FUEL SYSTEM INTEGRITY" POST IMPACT TEST DATA

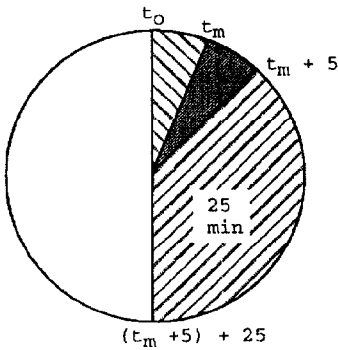
NHTSA TEST No.: MW5202 TEST DATE: February 17, 1998
VEHICLE MAKE/MODEL: 1998 Nissan Frontier

The test vehicle was filled from 92% to 94% of the manufacture's "usable" capacity. The electric fuel pump was operating if it will operate without engine operation. Two Part 572 anthropomorphic test devices were located at each of the front designated seating positions.

=====

TEST VEHICLE IMPACT TYPE: X Frontal (56 kph)
 - Oblique (48 kph) with _____ deg. barrier face first contacting _____ (driver/passenger) side
 - Rear Moving Barrier (48 kph)
 - Lateral Moving Barrier (32 kph)

FUEL SPILLAGE MEASUREMENT:



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

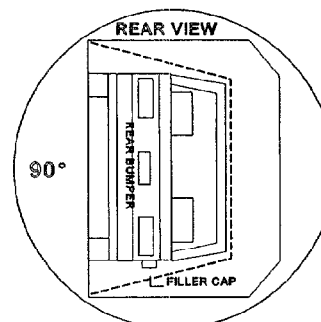
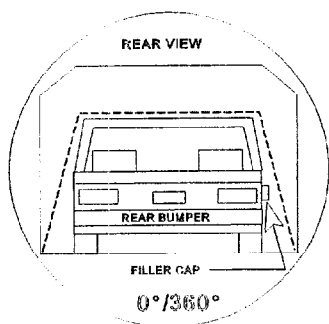
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

DATA SHEET NO. 13 FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:
0-90 deg.

NHTSA Test No.:
MW5202



INDETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u> minutes	<u>14</u> seconds
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>00</u> seconds
TOTAL	<u>6</u> minutes	<u>14</u> seconds
Next whole minute interval	<u>7</u> minutes	<u>00</u> seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min. from onset of rotation	6th min.	7th min.	8th min. if reqd.
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(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g
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III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

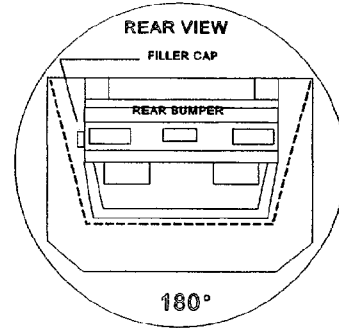
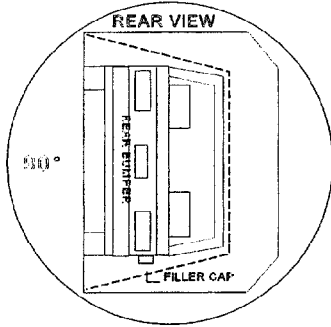
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

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

TEST PHASE:
90-180 deg.

NHTSA Test No.:
MW5202



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u> minutes	<u>8</u> seconds
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>00</u> seconds
TOTAL	<u>6</u> minutes	<u>8</u> seconds
Next whole minute interval	<u>7</u> minutes	<u>00</u> seconds

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

141 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

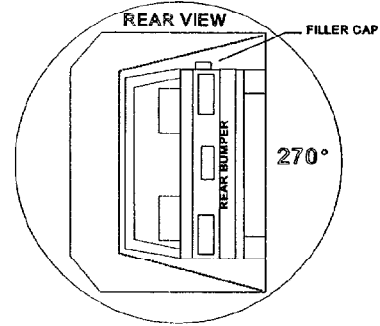
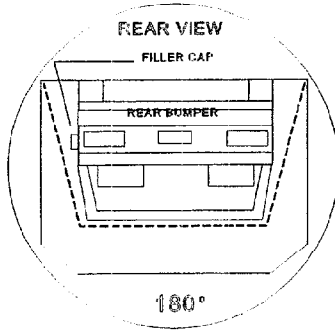
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

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

TEST PHASE:
180-270 deg.

NHTSA Test No.:
MW5202



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

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

141 g	28 g	28 g	28 g
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III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

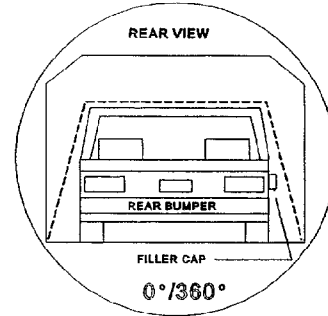
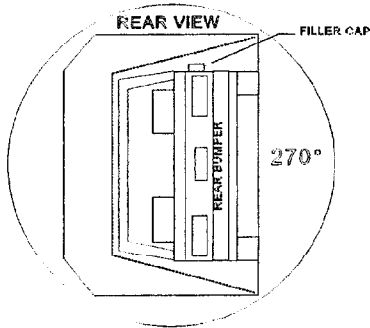
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

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

TEST PHASE:
270-360 deg.

NHTSA Test No.:
MW5202



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u> minutes	<u>14</u> seconds
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>00</u> seconds
TOTAL	<u>6</u> minutes	<u>14</u> seconds
Next whole minute interval	<u>7</u> minutes	<u>00</u> seconds

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

141 g	28 g	28 g	28 g
-------	------	------	------

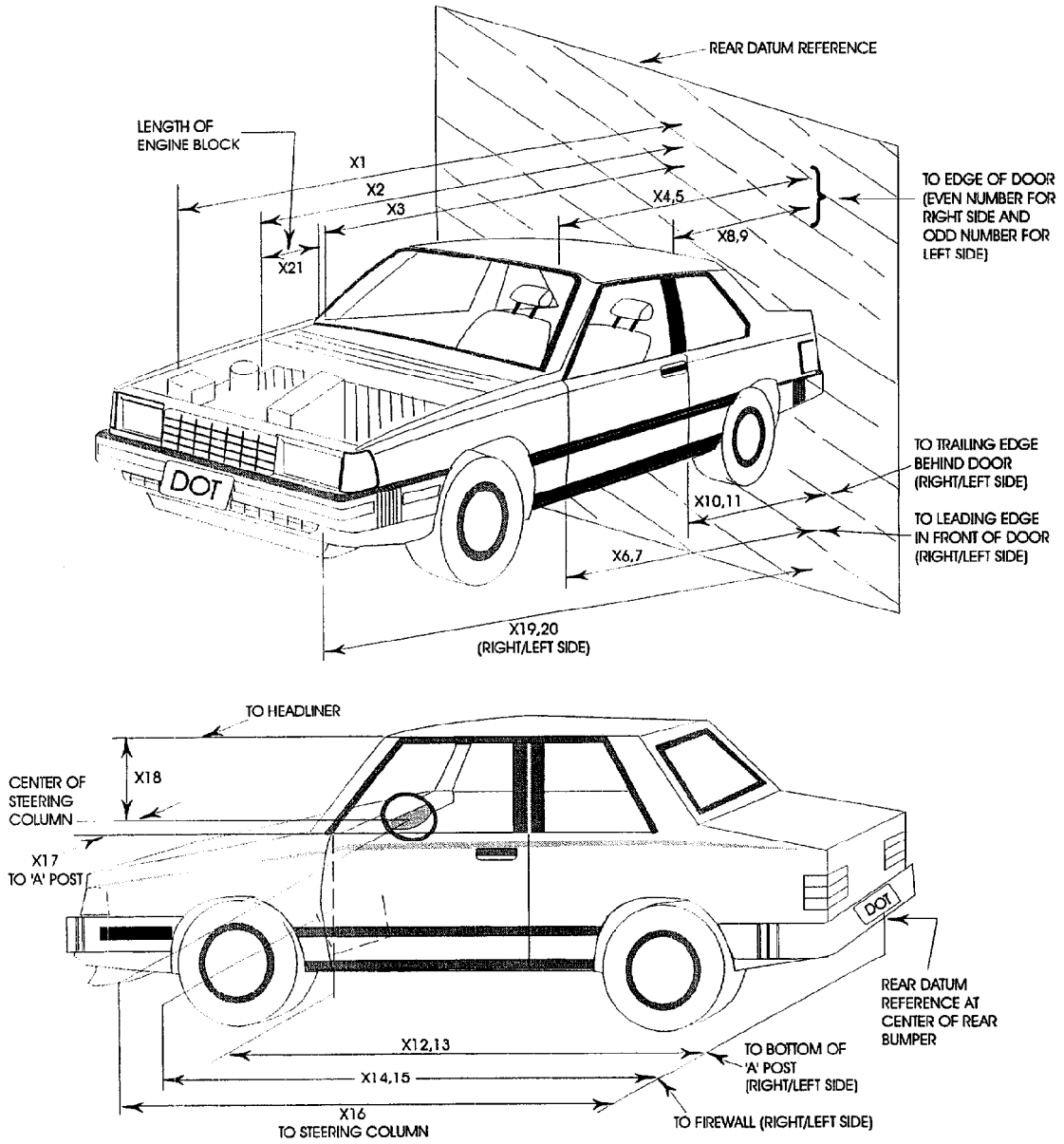
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S): None

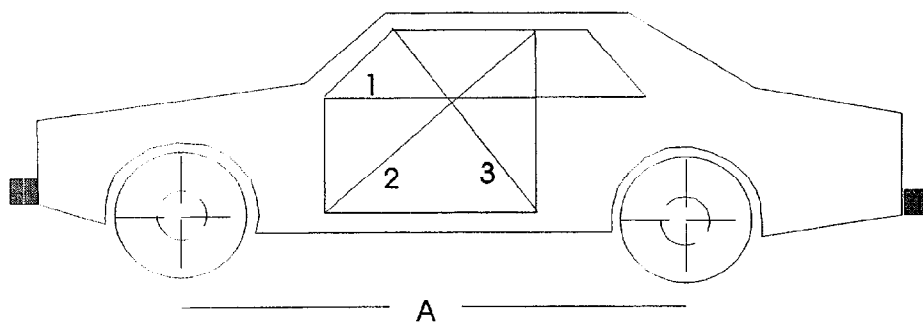
TEST VEHICLE MEASUREMENTS



DATA SHEET NO.14 VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	5125	4535	590
X2	Rear Surface of Vehicle to Front of Engine	4510	4305	205
X3	Rear Surface of Vehicle to Firewall	4015	3960	55
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3800	3800	0
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3786	3804	-18
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3725	3709	16
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3719	3710	9
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2632	2624	8
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2628	2627	1
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2623	2606	17
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2618	2604	14
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3682	3657	25
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3676	3657	19
X14	Rear Surface of Vehicle to Firewall, Right Side	4010	3990	20
X15	Rear Surface of Vehicle to Firewall, Left Side	4010	3990	20
X16	Rear Surface of Vehicle to Steering Column	3260	3270	-10
X17	Center of Steering Column to "A" Post	380	360	20
X18	Center of Steering Column to Headliner	445	420	25
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5040	4480	560
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5040	4510	530
X21	Length of Engine Block	500	500	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3535	3525	10
CD	Rear Surface of Vehicle to Center of Dash Panel	3505	3475	30
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3490	3470	20

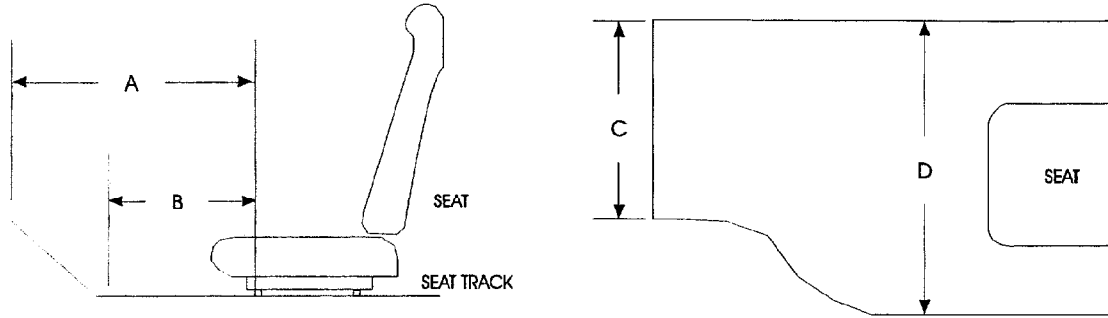
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
VEHICLE INTRUSION MEASUREMENTS
DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
	1	2	3	1	2	3
BEFORE TEST	1100	1450	1165	1110	1450	1160
AFTER TEST	1085	1420	1195	1095	1435	1195
DIFFERENCE	15	30	-30	15	15	-35

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2945	2950
AFTER TEST	2915	2920
DIFFERENCE	30	30

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
VEHICLE INTRUSION MEASUREMENTS
STATIC FOOTWELL DEFORMATION



DRIVER

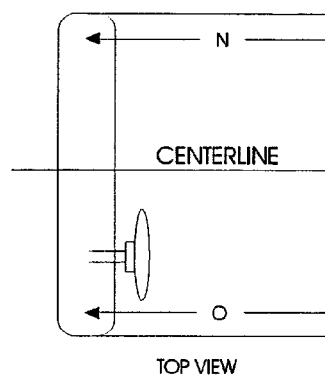
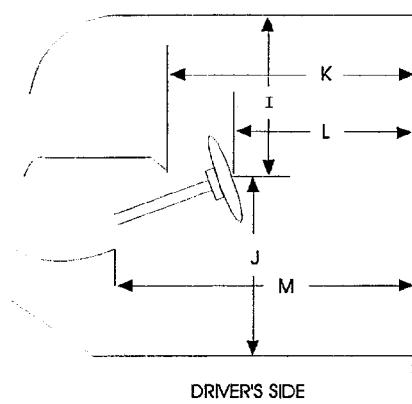
Measurement	Pre-Test	Post-Test	Difference
A	635	620	15
B	535	530	5
C	460	420	40
D	455	425	30

PASSENGER

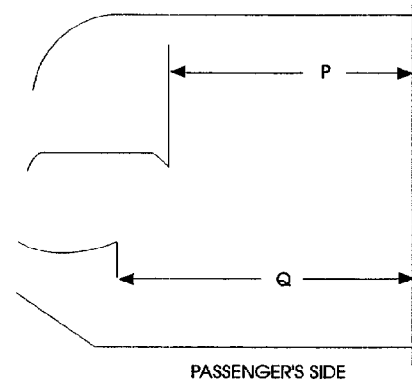
Measurement	Pre-Test	Post-Test	Difference
A	640	640	0
B	530	530	0
C	380	350	30
D	435	420	15

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
VEHICLE INTRUSION MEASUREMENTS
STATIC PASSENGER COMPARTMENT INTRUSION



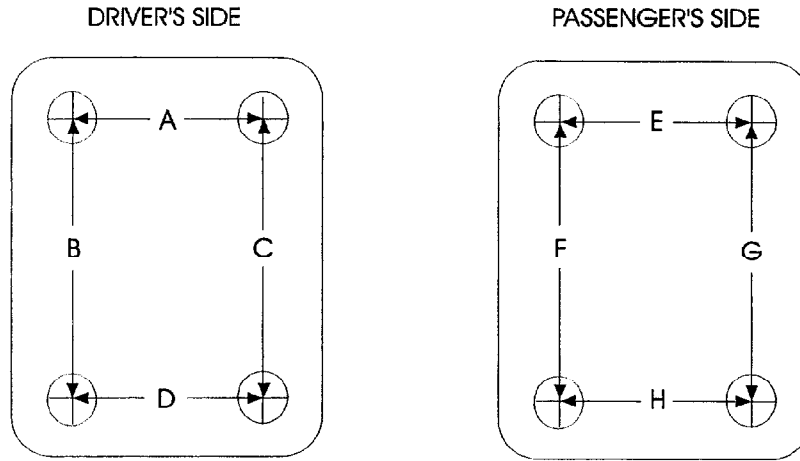
MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	435	415	20
J	615	635	-20
K	860	845	15
L	585	595	-10
M	845	815	30
N	860	850	10
O	815	795	20
P = K (PASS.)	845	835	10
Q = M (PASS.)	835	1010	-175

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
FLOORBOARD DEFORMATION



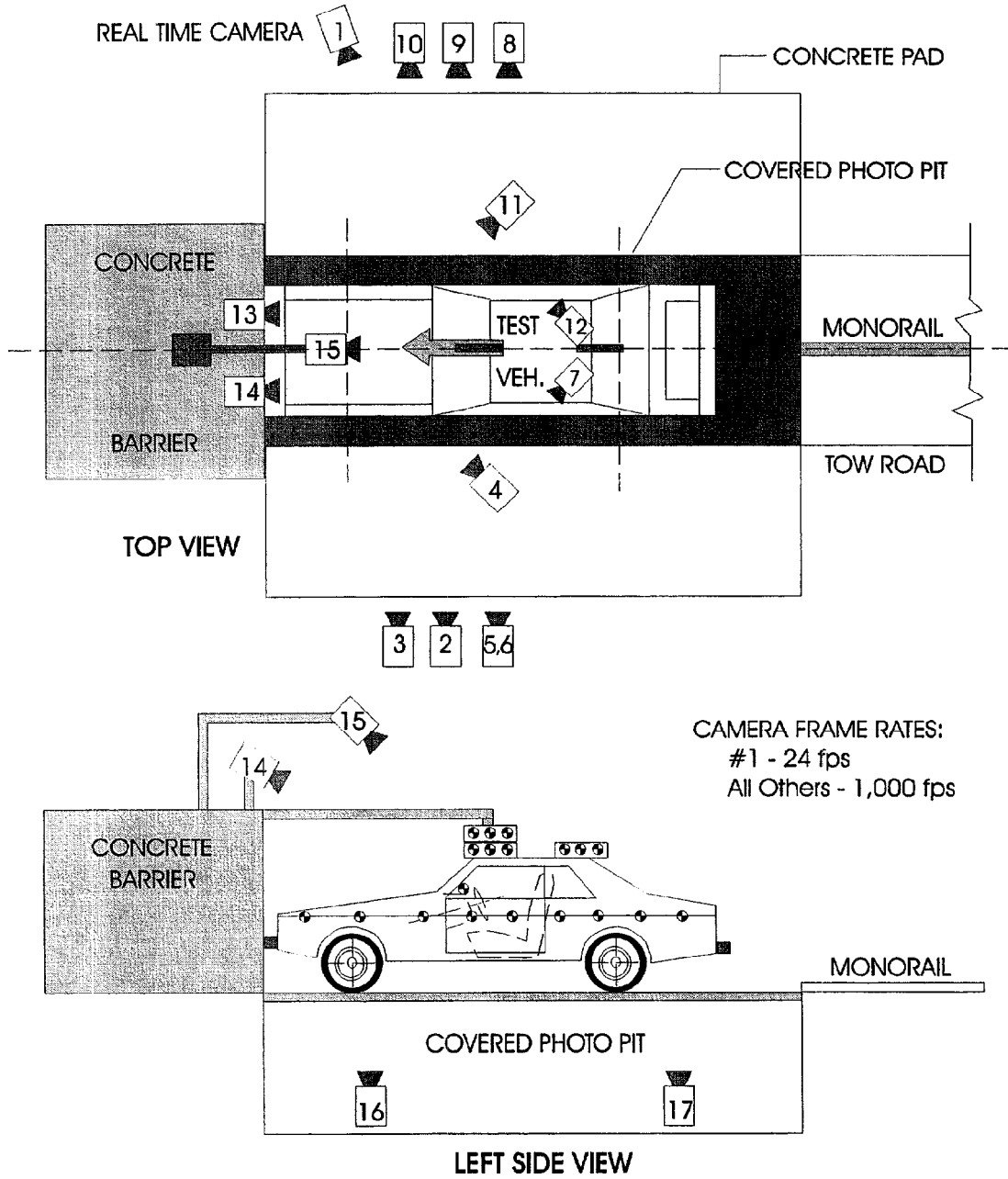
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	310	310	0
B	310	313	-3
C	310	300	10
D	310	290	20
E	310	305	5
F	310	310	0
G	310	310	0
H	310	300	10

Units = mm

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera information shown in DATA SHEET NO. 15.



DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

1998 Nissan Frontier Pickup

MW5202

NHTSA Test No.:

Vehicle:

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	24	
2	Overall Left Side	7109	1740	1130	-3	6693	1020	
3	Left Side View	8029	844	1240	-4	7613	1020	
4	Driver and Interior View	4930	2943	1975	-10	-	1020	
5	Steering Column (Bottom)	7594	2025	1165	-3	7178	1025	
6	Steering Column (Top)	7594	2025	1775	-7	7178	1025	
7	Left Belt	-	-	-	-	-	720	
8	Overall Right Side	7044	2044	1095	-2	6628	1025	
9	Right Side View	7966	1470	1195	-2	7550	1005	
10	Right Passenger View	7694	1885	1515	-3	7278	1000	
11	Passenger and Interior View	4800	3051	1978	-11	-	1020	
12	Right Belt	-	-	-	-	-	850	
13	Passenger Front View	580	490	1975	-43	-	1020	
14	Driver Front View	580	490	1975	-45	-	1020	
15	Windshield View	0	-130	3558	-62	-	1005	
16	Pit View of Engine	0	875	-3048	90	-	920	
17	Pit View of Fuel Tank	0	2758	-3048	90	-	1015	

*X = film plane to monorail centerline

Y = film plane to impact location

Z = film plane to ground

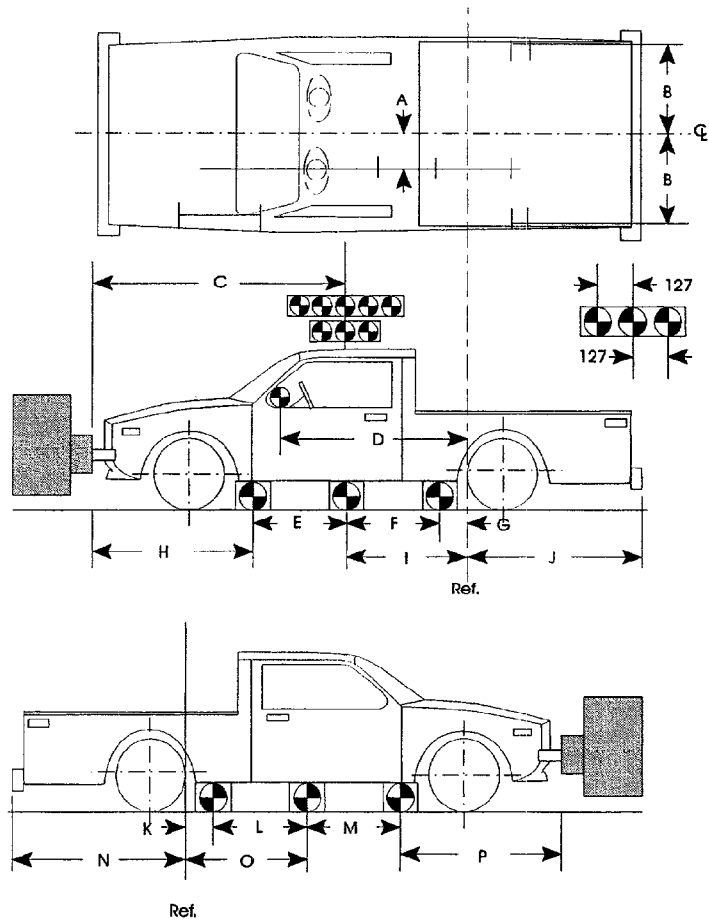
** = referenced to horizontal plane

N.T. indicates No Timing

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

(Dimensions in millimeters)

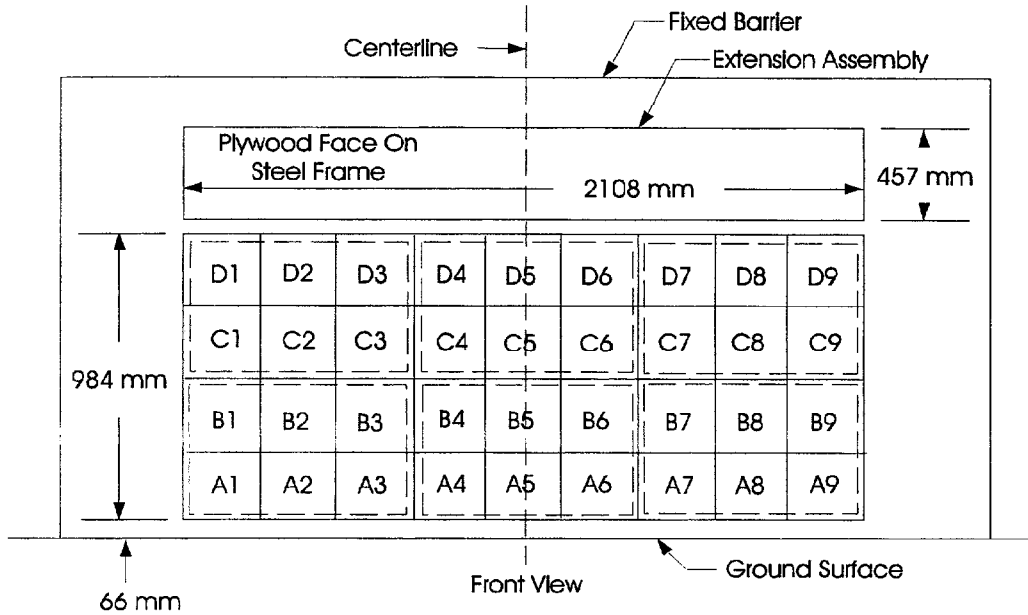
A	340
B	694
C	1926
D	1773
E	909
F	906
G	195
H	1445
I	1101
J	1670
K	193
L	902
M	916
N	1669
O	1095
P	1445



DATA SHEET NO. 17 LOAD CELL LOCATIONS ON FIXED BARRIER

Load Cell Barrier data was not requested for this test.

- 36 Load Cells
- 4 Rows
- 9 Columns
- 6 Groupings (6 cells/group)



6 GROUPS OF 6 LOAD CELLS EACH

Group 4 C1 thru D3	Group 5 C4 thru D6	Group 6 C7 thru D9
Group 1 A1 thru B3	Group 2 A4 thru B6	Group 3 A7 thru B9

The following data is presented in Appendix B:

- (1) Data from 36 individual load cells
- (2) Total or Sum of 36 individual load cells
- (3) Data from 6 Groupings shown above (6 cells/group)

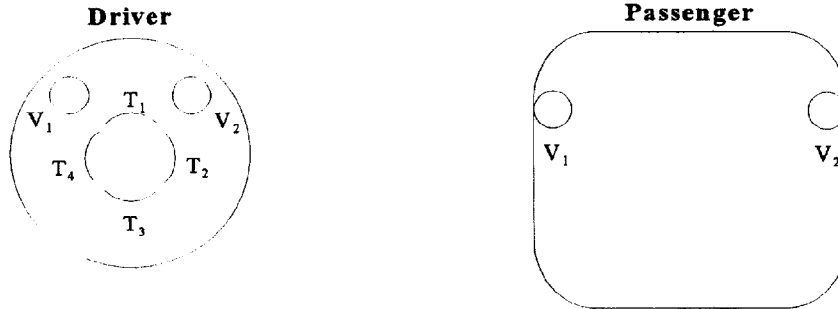
DATA SHEET NO. 18 POST TEST AIR BAG DATA

NHTSA No. : MW5202; Test Date: February 17, 1998; Technician: Lawrence Q. Valvo

Vehicle Model Year/Make/Model: 1998 Nissan Frontier

- A. No. of vent holes: 2 -Driver 2 -Passenger
- B. Size of vent holes: (mm²) 804 -Driver 2376 -Passenger
- C. Total vent area: (mm²) 1608 -Driver 4752 -Passenger
- D. Deflated air bag length and width dimensions or, if round, diameter. (mm)
- Driver: - -Length; - -Width; 664 -Diameter
- Passenger: 515 -Height; 400 -Width; 610 -Depth
- E. Is the air bag tethered?
- Driver: X -Yes; - -No; If yes, record length of tether- 203
- Passenger: - -Yes; X -No; If yes, record length of tether- -

Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.
 (Note: Not to scale; V_n = Vent hole_n, T_n = Tether_n).



- F. Record part numbers and manufacturer name of the air bag and gas generator.
- Driver: Air bag: N/A
- Generator: 1105336K2A2F4; 1301420AWA
- Passenger: Air bag: N/A
- Generator: WP2S4981142324; 2003352C

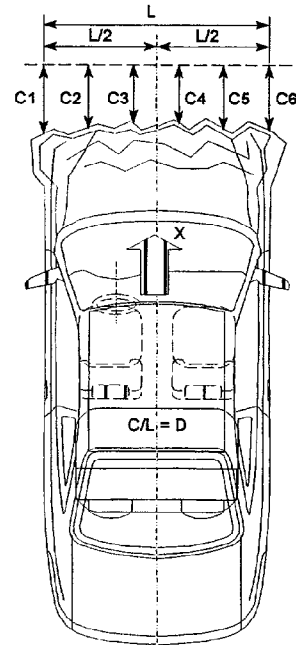
DATA SHEET NO.19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Nissan Frontier Pickup
 NHTSA Test No.: MW5202 VIN: 1N6DD26Y0WC338095
 Model Year: 1998 Build Date: 01/98 Test Date: February 17, 1998
 Vehicle Size Category: Pickup Truck Test Weight: 1954.0 kg
 Vehicle Wheelbase: 2948 mm; Front Overhang: 1445 mm; Overall Width: 1826 mm
 Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4935	4430	-505	mm
C2 =	5090	4550	-540	mm
C3 =	5120	4540	-580	mm
C4 =	5120	4535	-585	mm
C5 =	5095	4525	-570	mm
C6 =	4940	4395	-545	mm



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region:
 L1 = 1660 mm
 L2 = 830 mm
 L3 = 332 mm

Appendix A
PHOTOGRAPHS

PHOTOGRAPHS

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PHOTOGRAPH NOT AVAILABLE

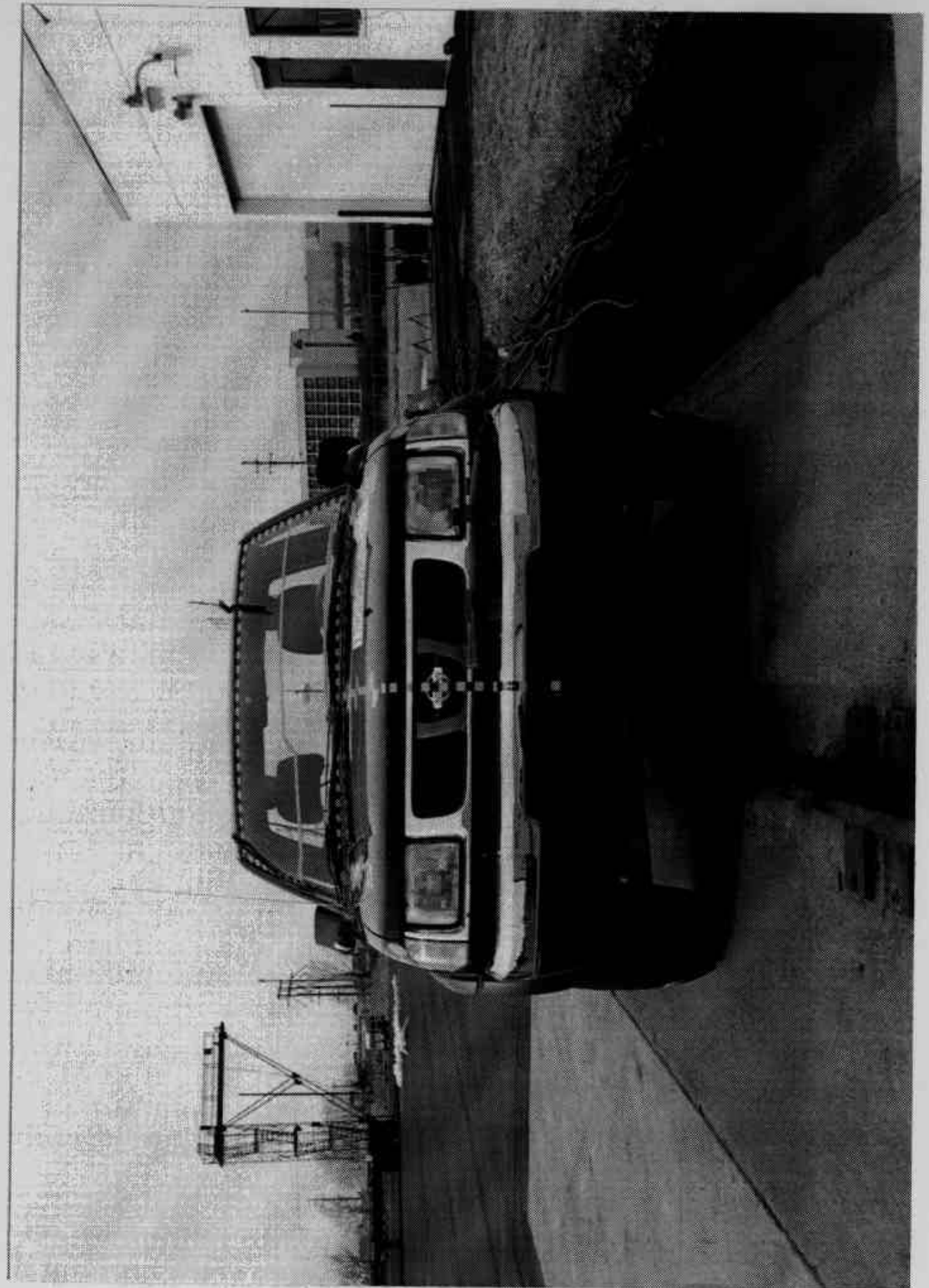


Figure A-2 PRE-TEST FRONT VIEW



Figure A-3 POST-TEST FRONT VIEW

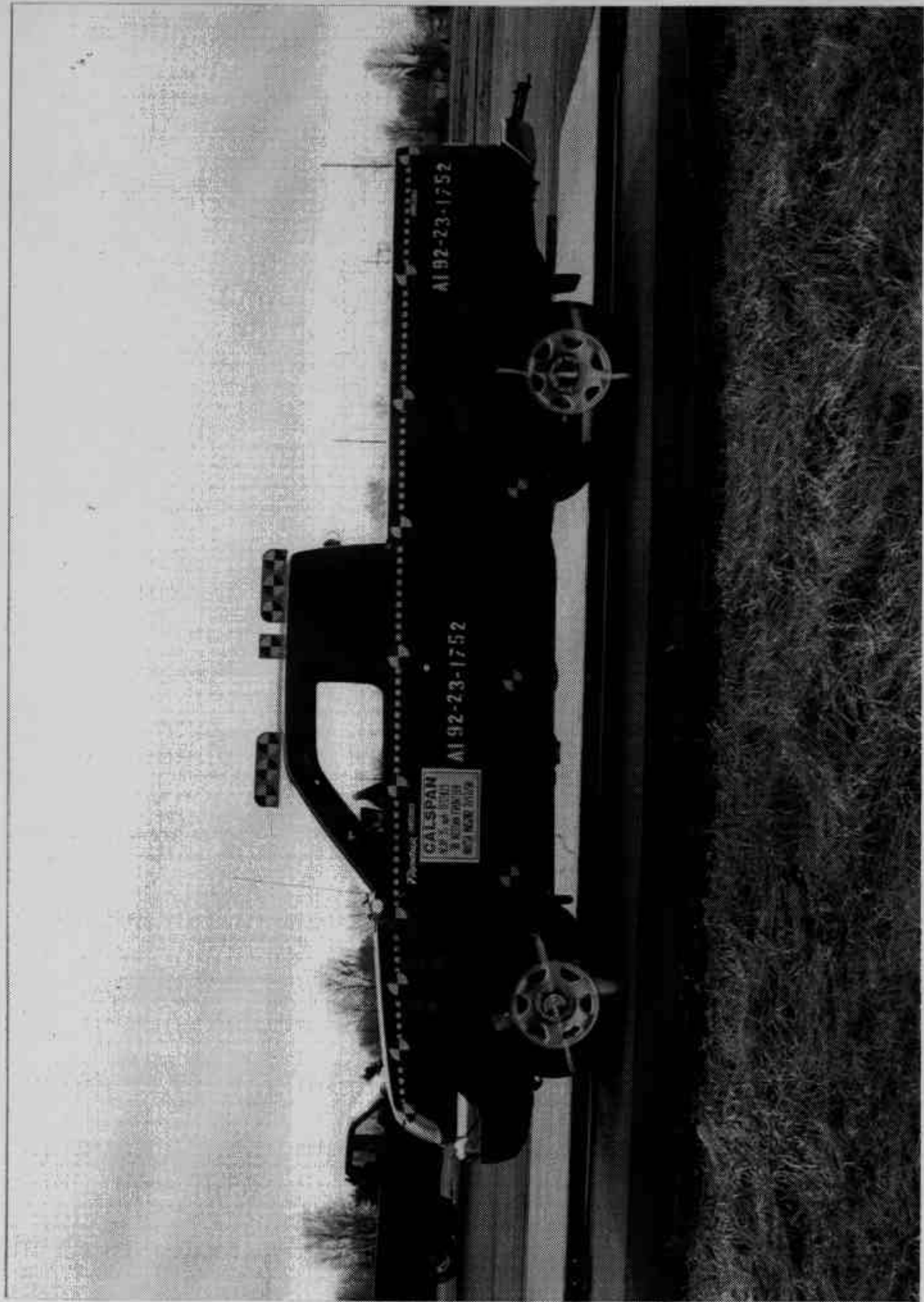


Figure A-4 PRE-TEST LEFT SIDE VIEW

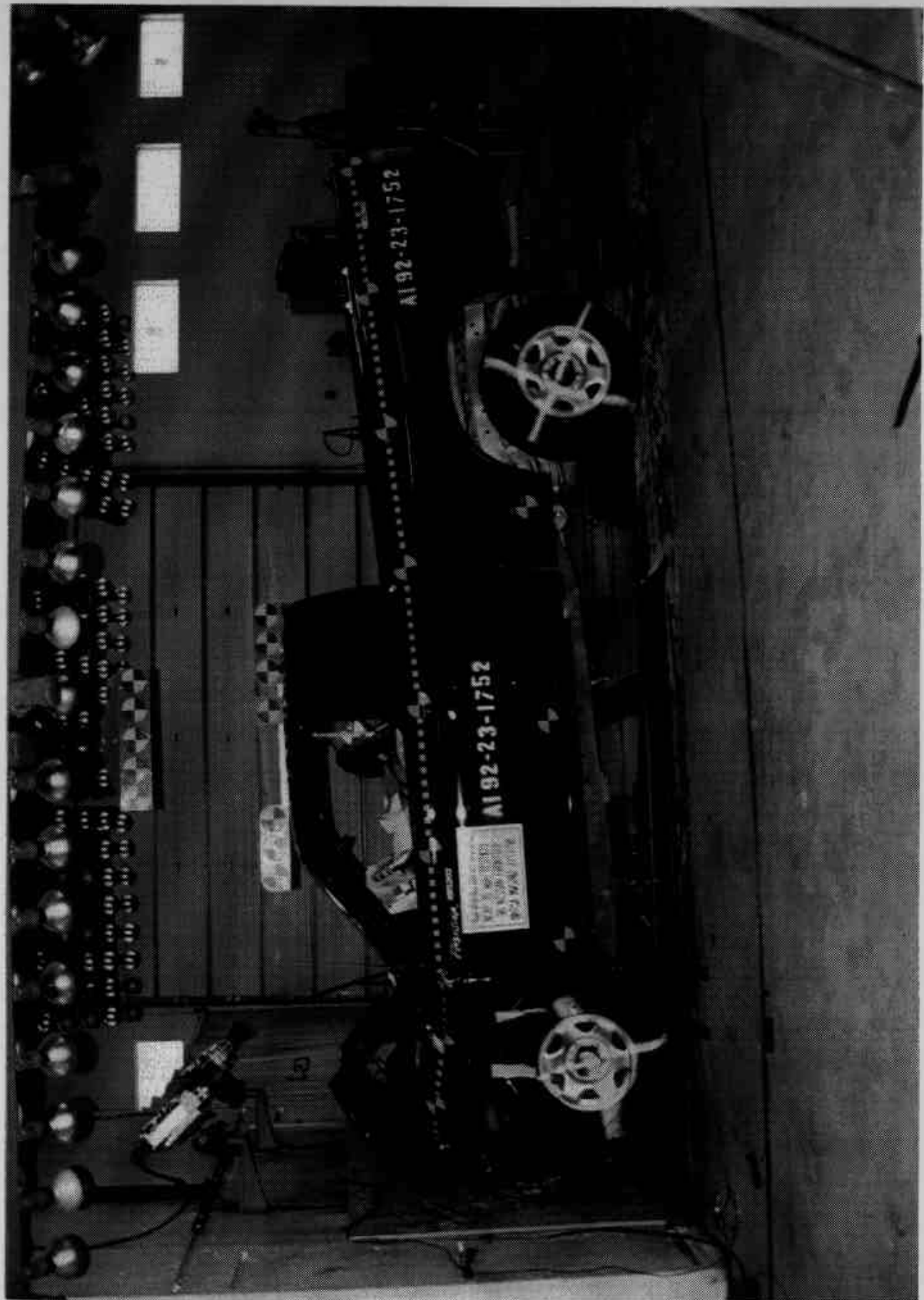


Figure A-5 POST-TEST LEFT SIDE VIEW

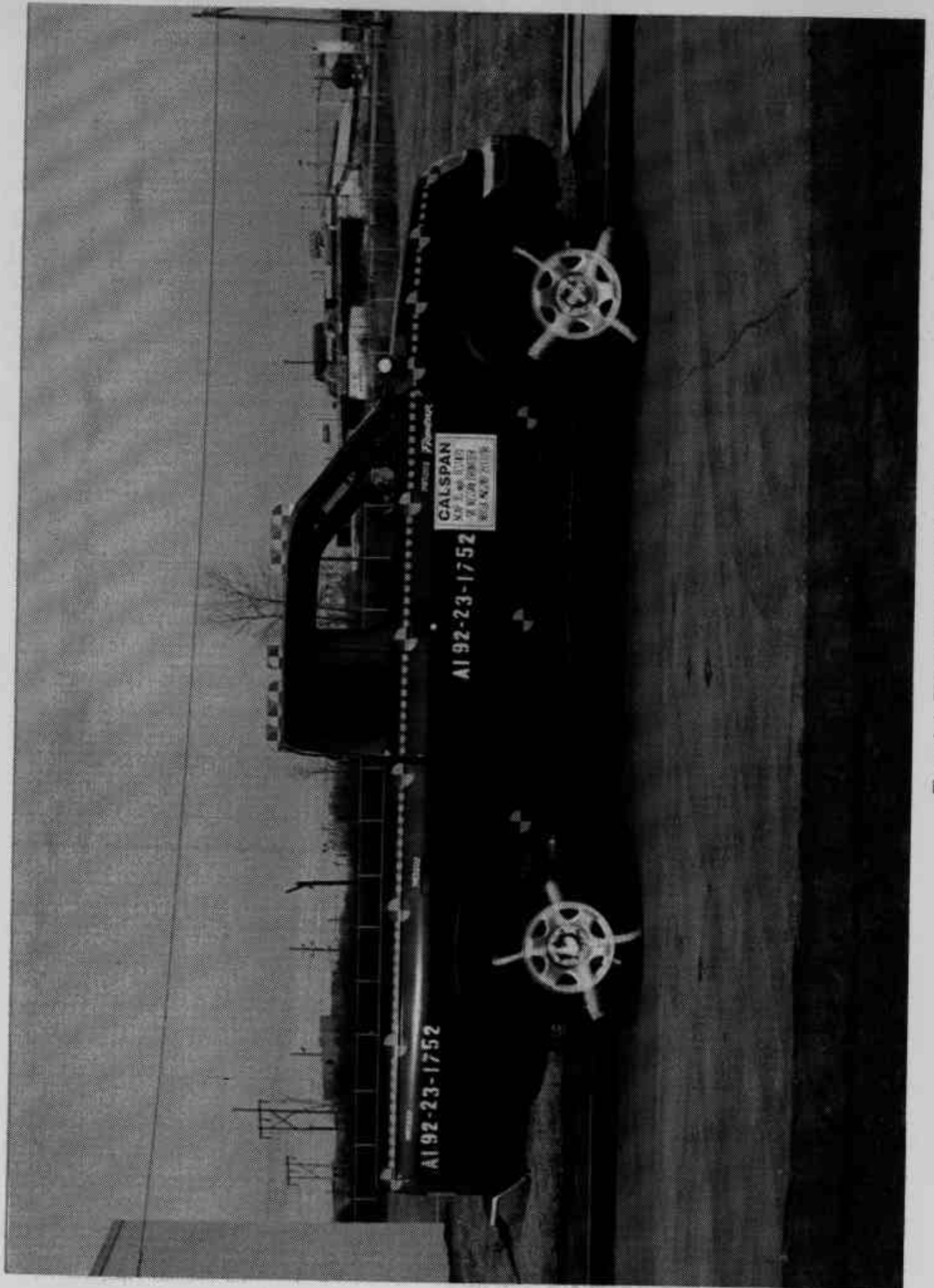


Figure A-6 PRE-TEST RIGHT SIDE VIEW

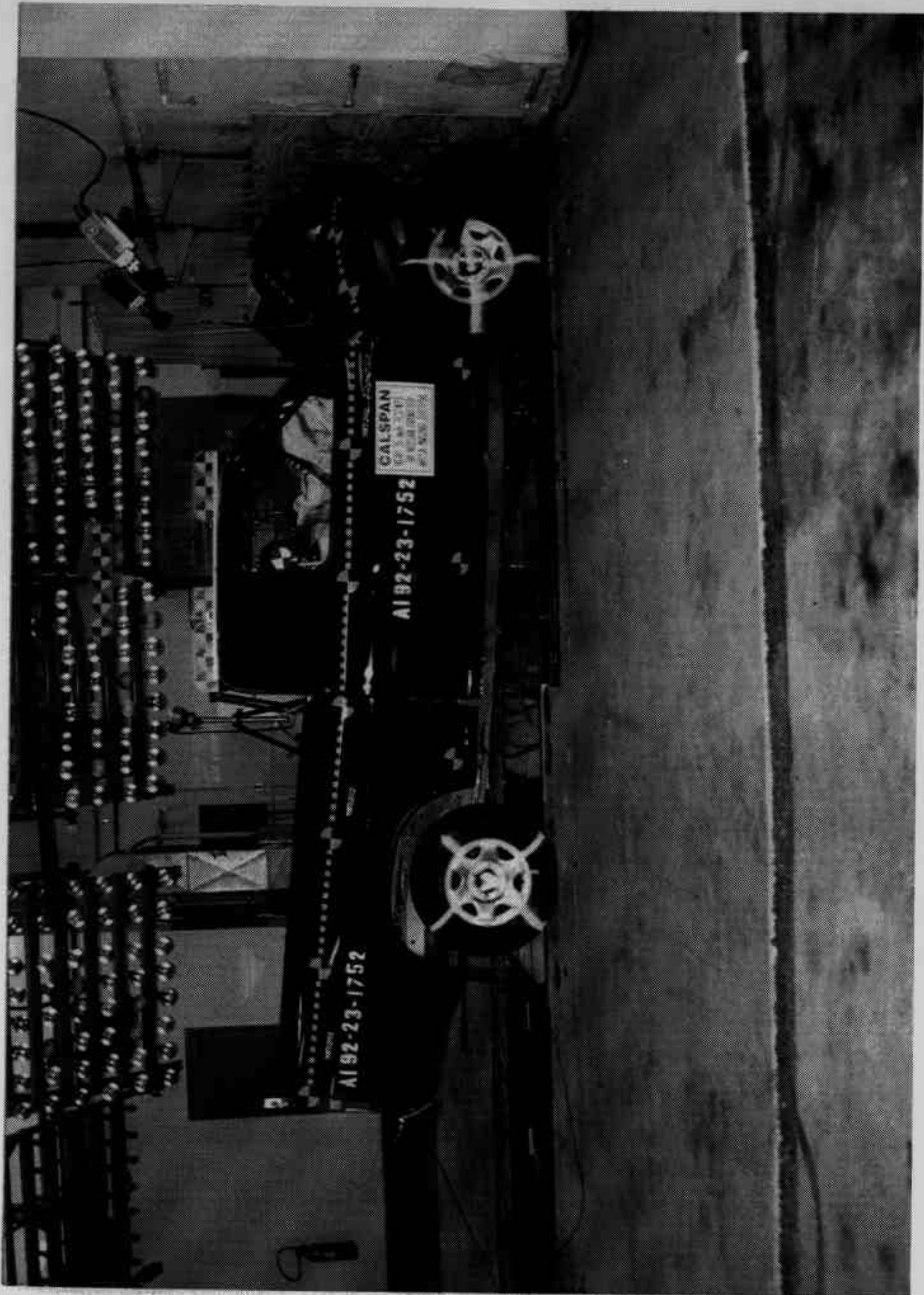


Figure A-7 POST-TEST RIGHT SIDE VIEW

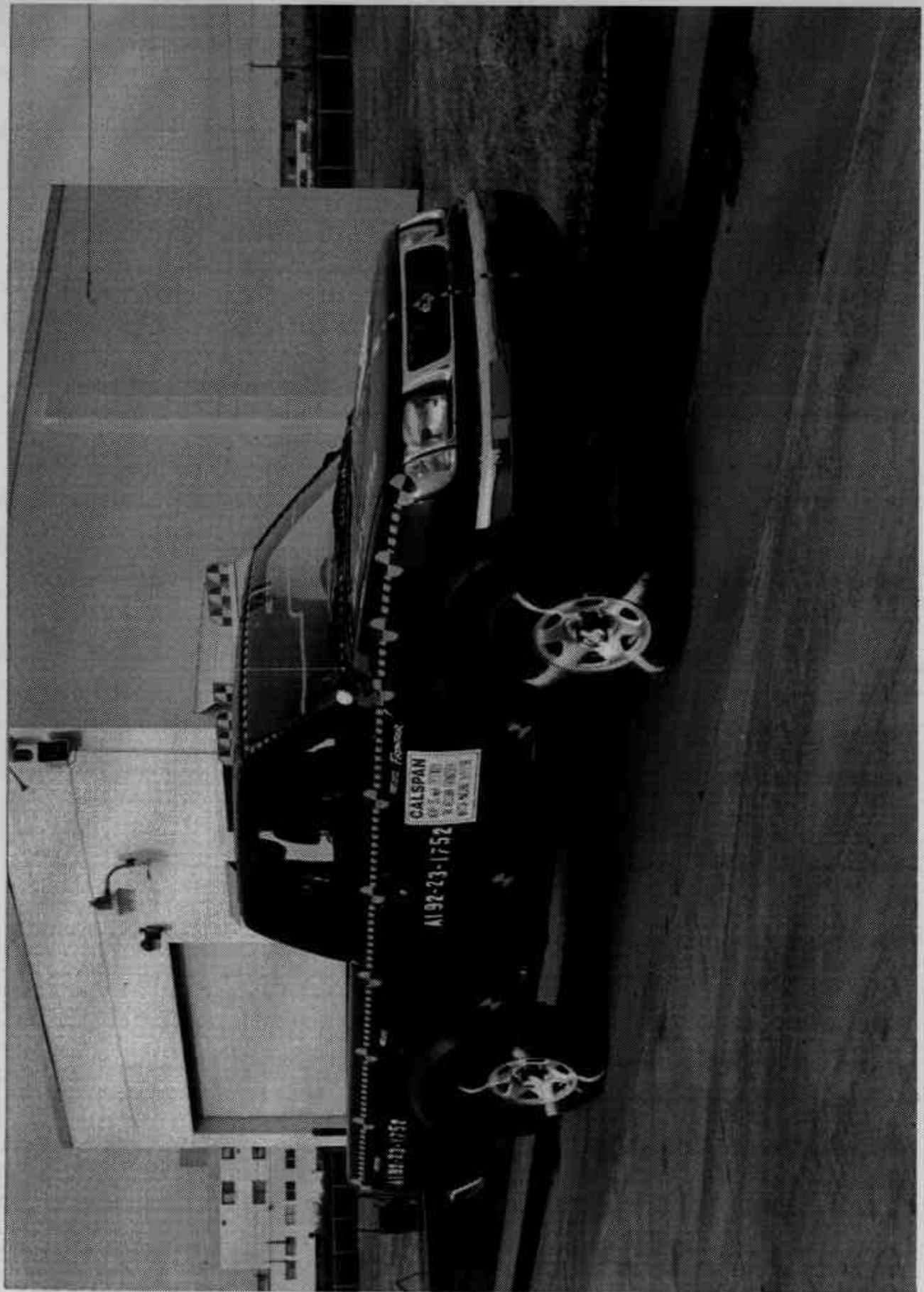


Figure A-8 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

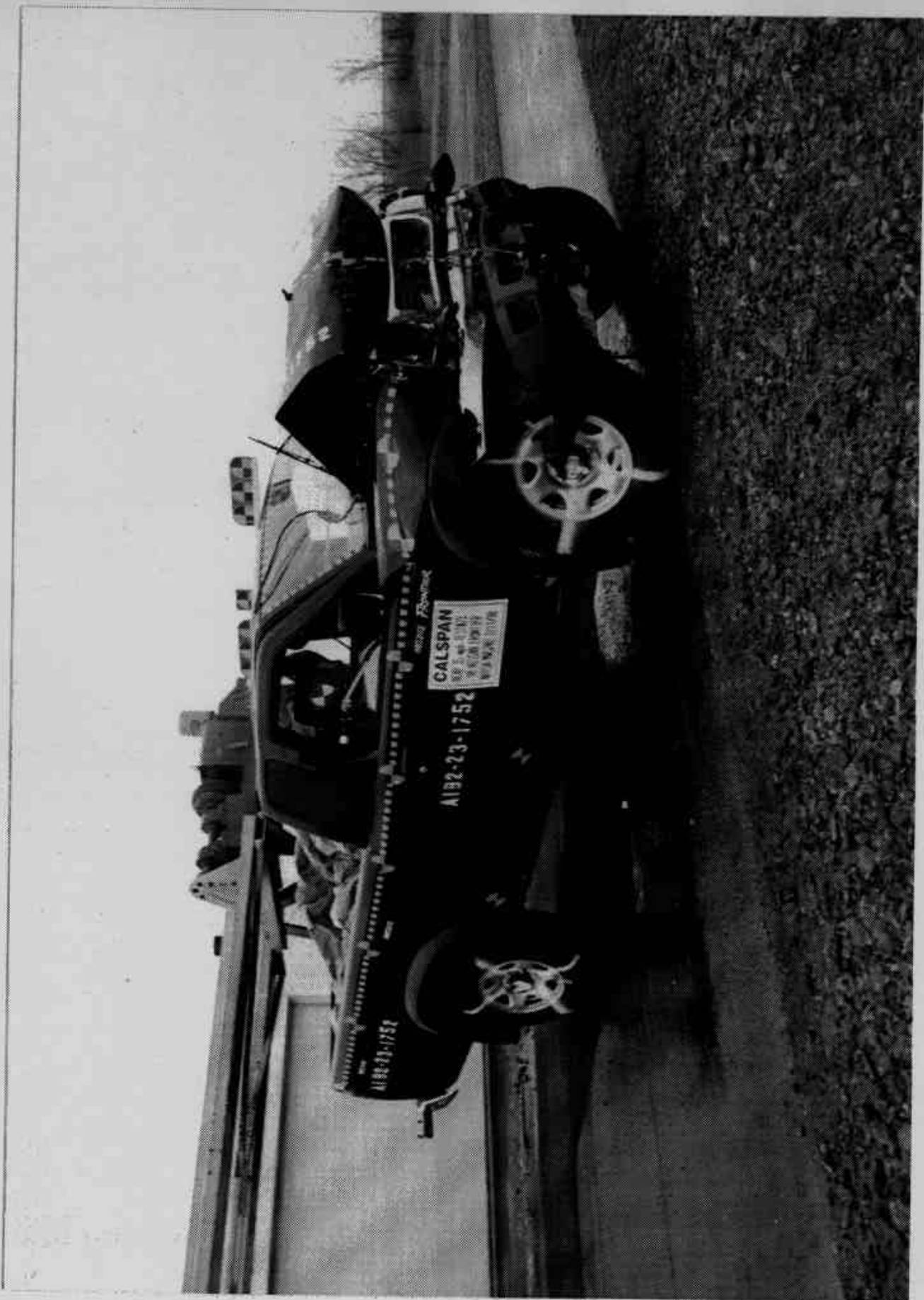


Figure A-9 POST-TEST RIGHT FRONT THREE-QUARTER VIEW



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

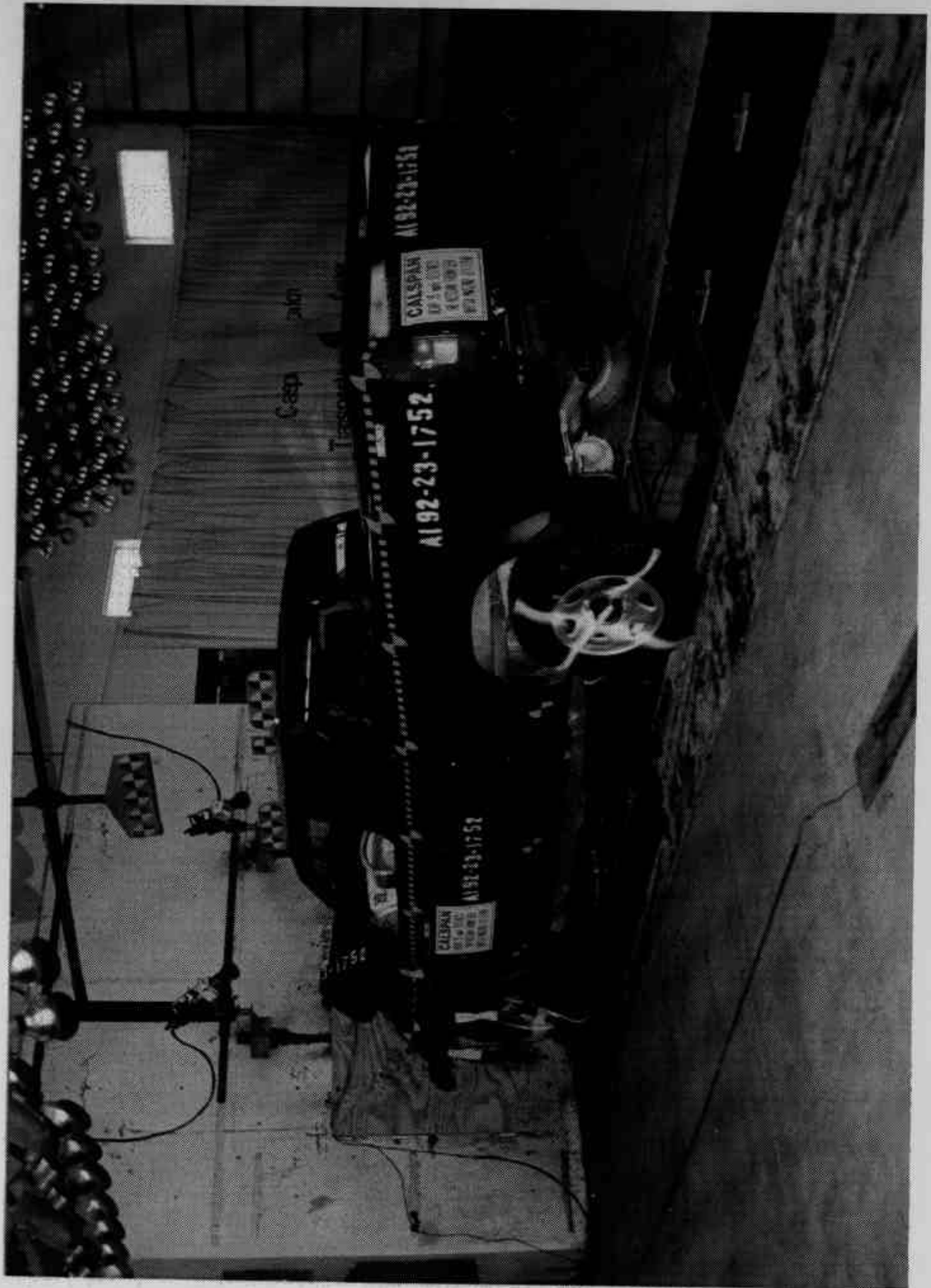


Figure A-11 POST-TEST LEFT REAR THREE-QUARTER VIEW

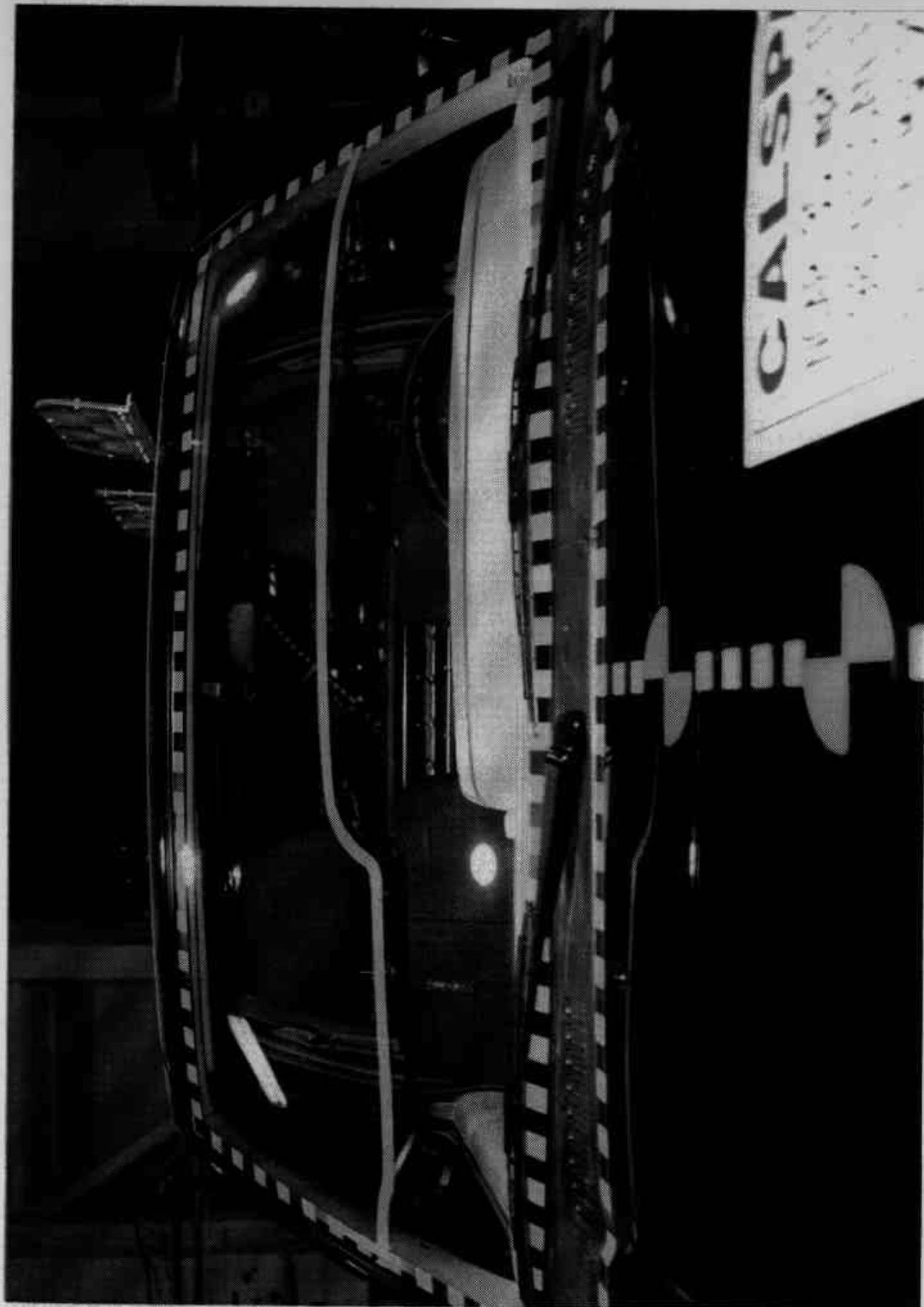


Figure A-12 PRE-TEST WINDSHIELD VIEW

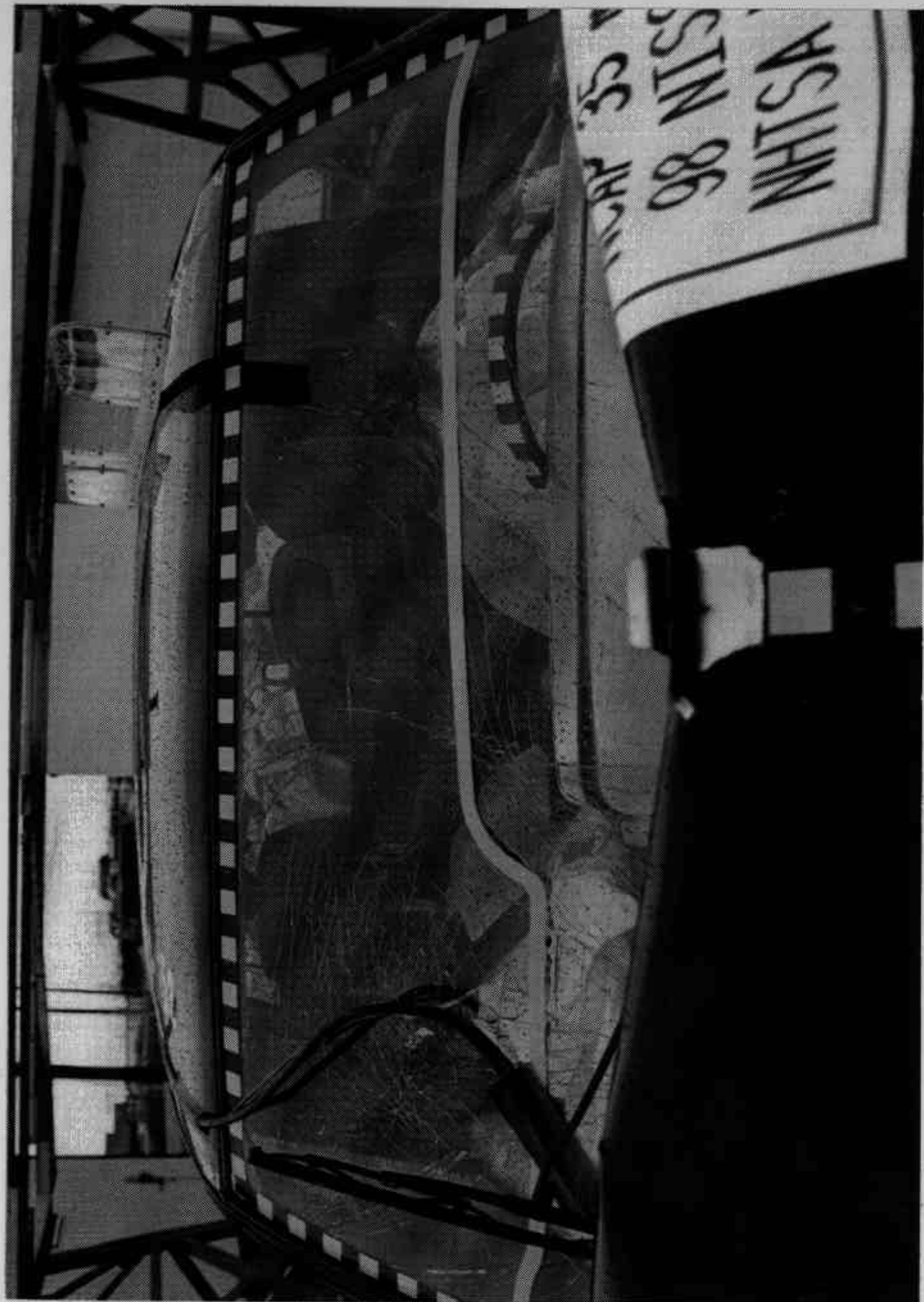


Figure A-13 POST-TEST WINDSHIELD VIEW



Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW
A-17

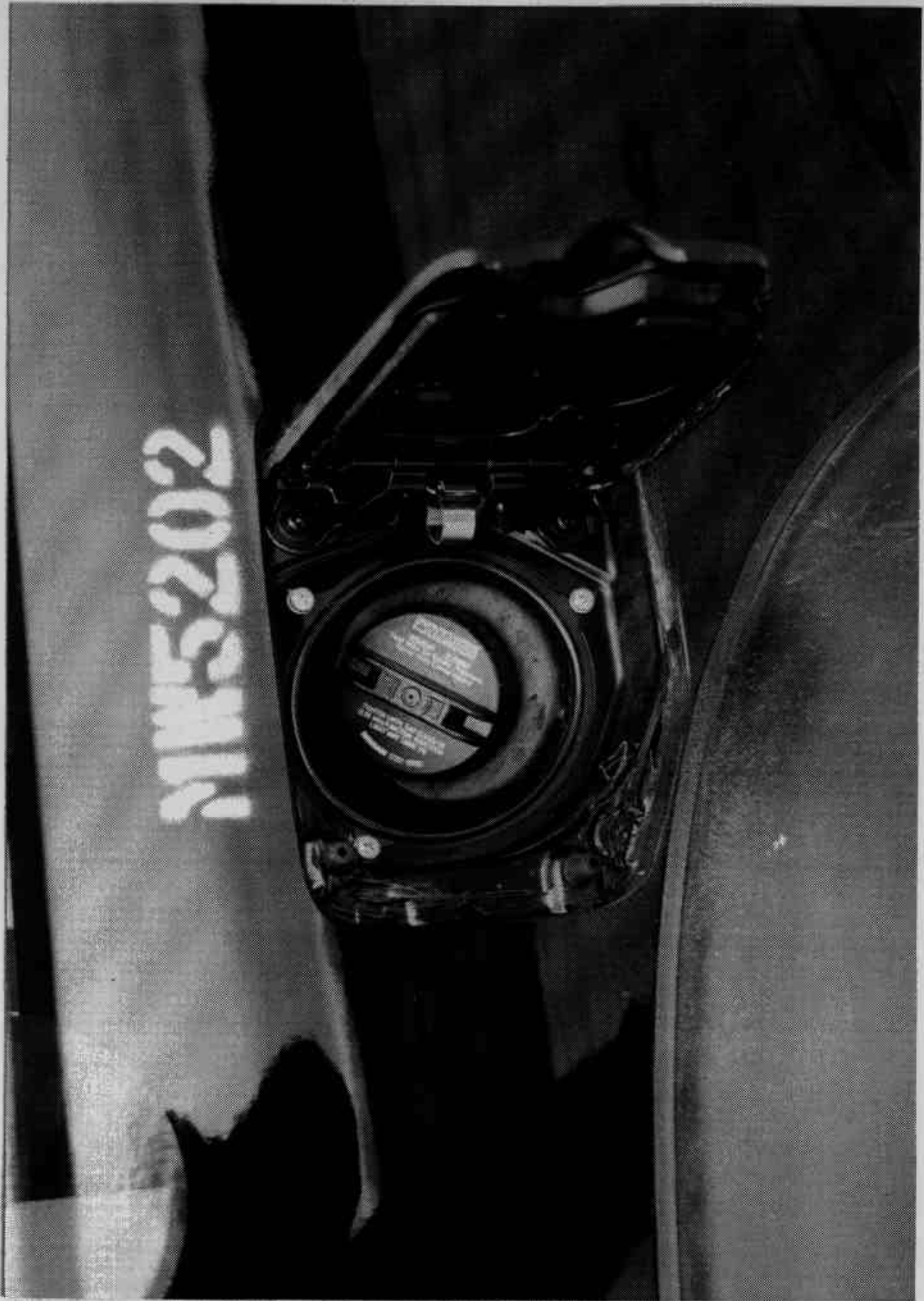


Figure A-15 FUEL CAP VIEW

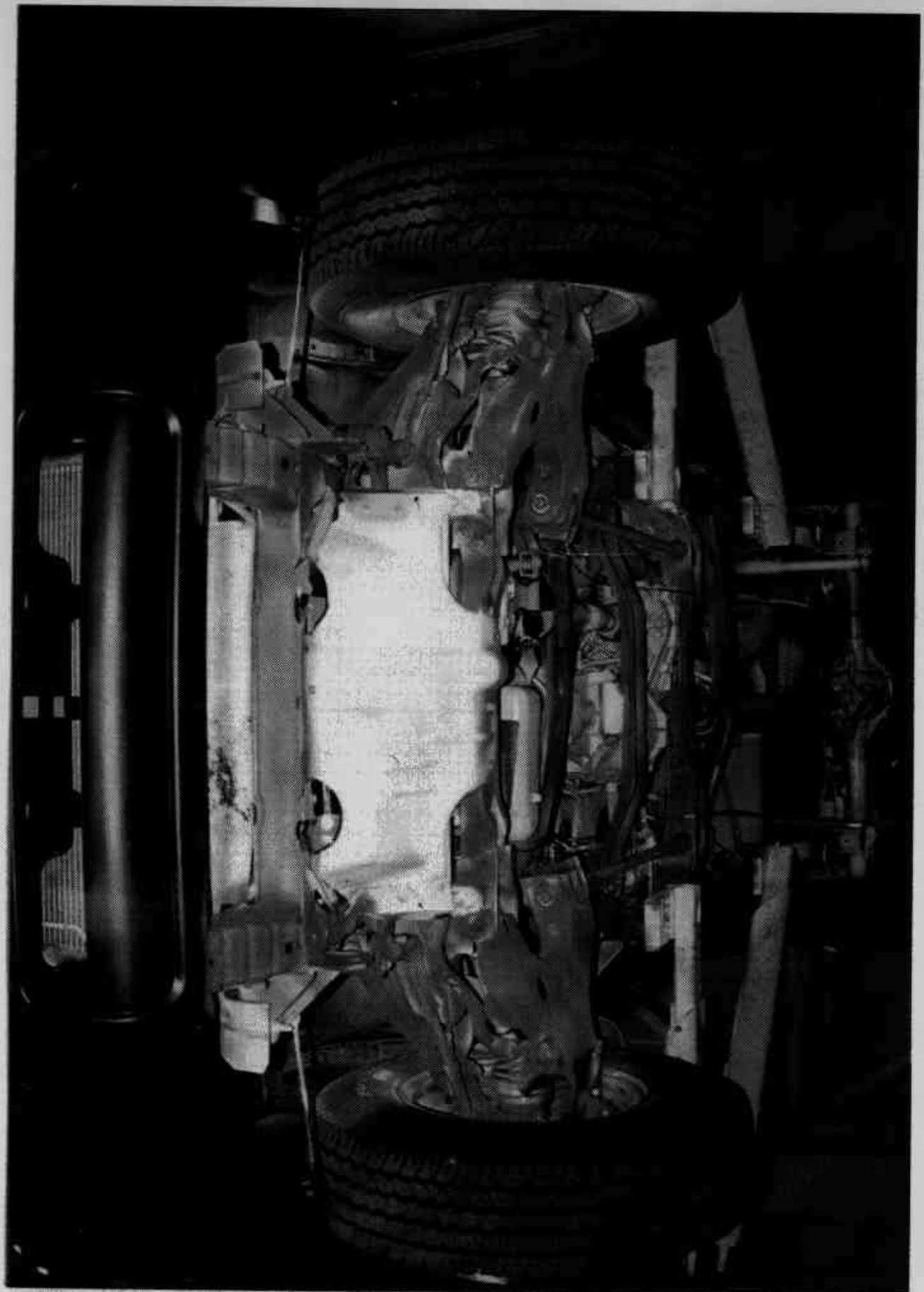


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

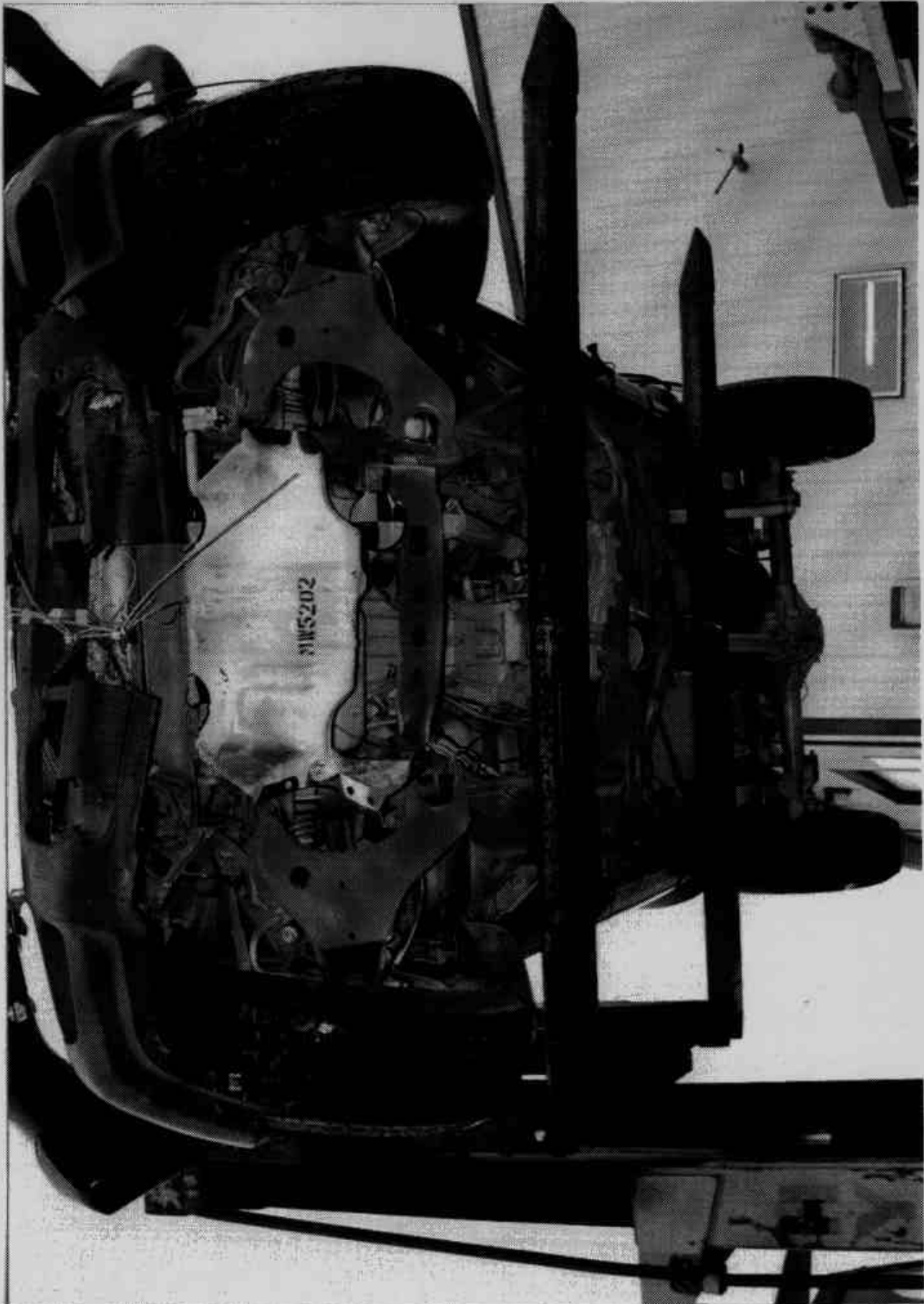


Figure A-17 POST-TEST FRONT UNDERBODY VIEW

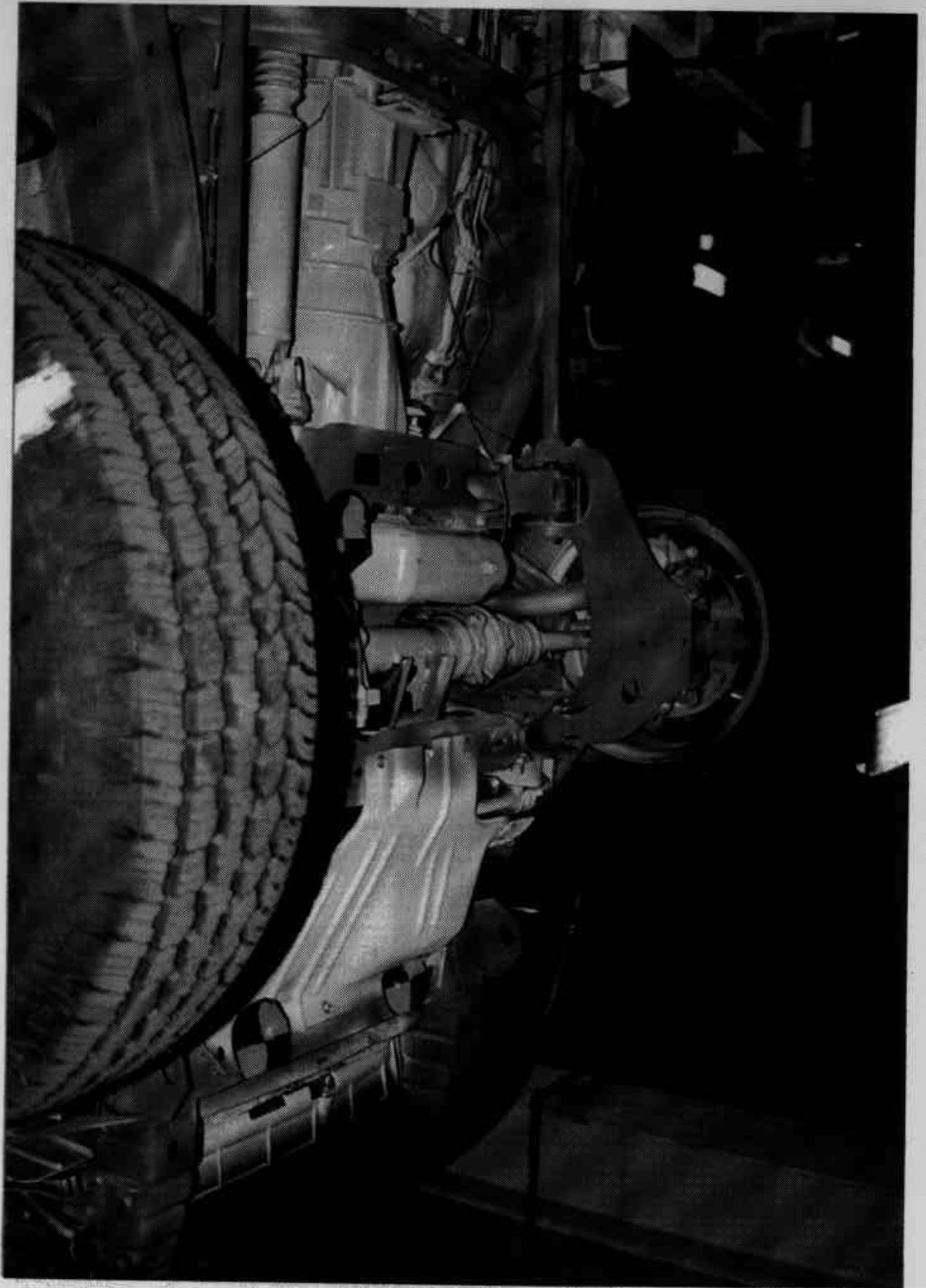


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

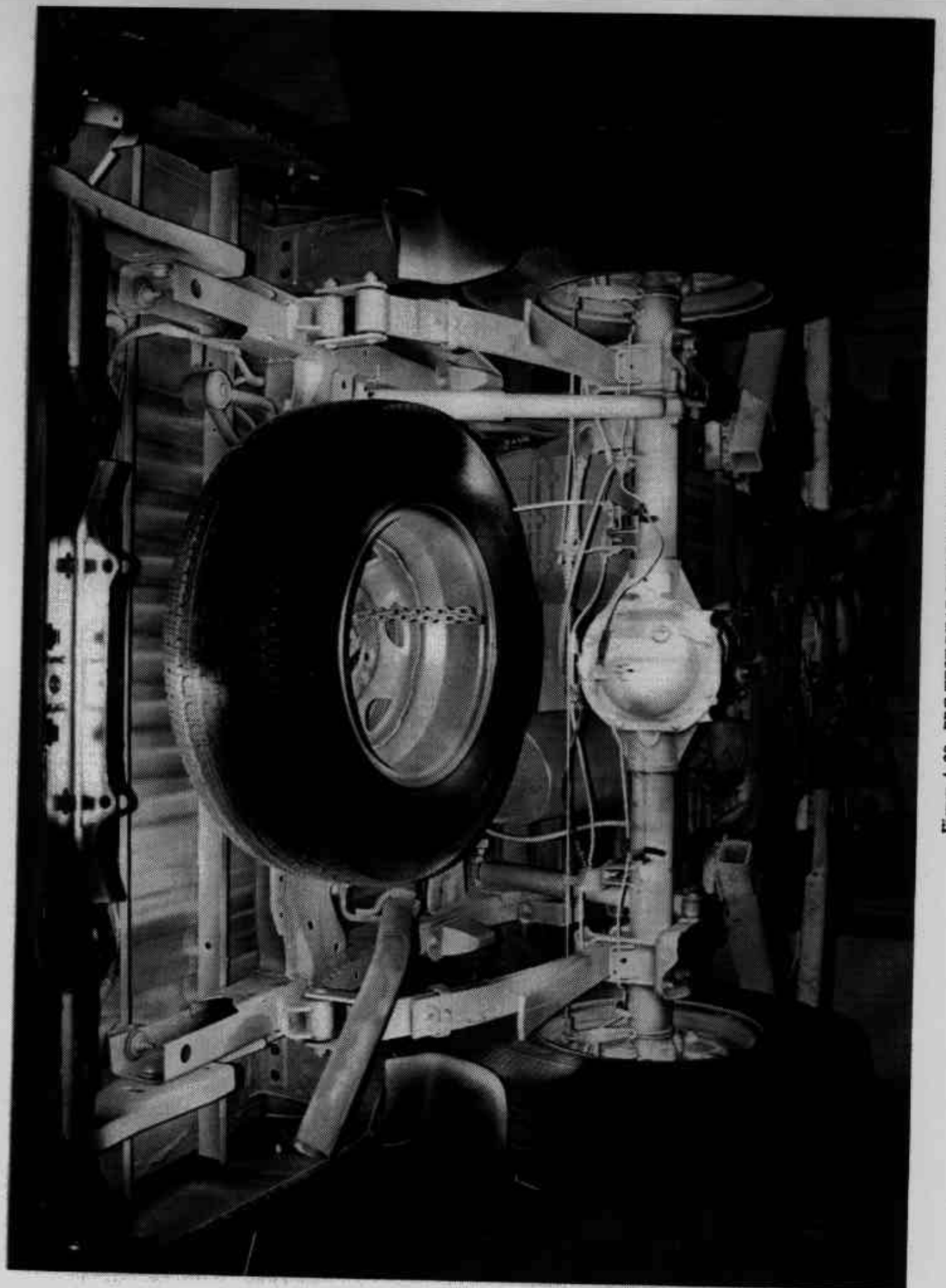


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

Figure A-21 POST-TEST REAR UNDERBODY VIEW

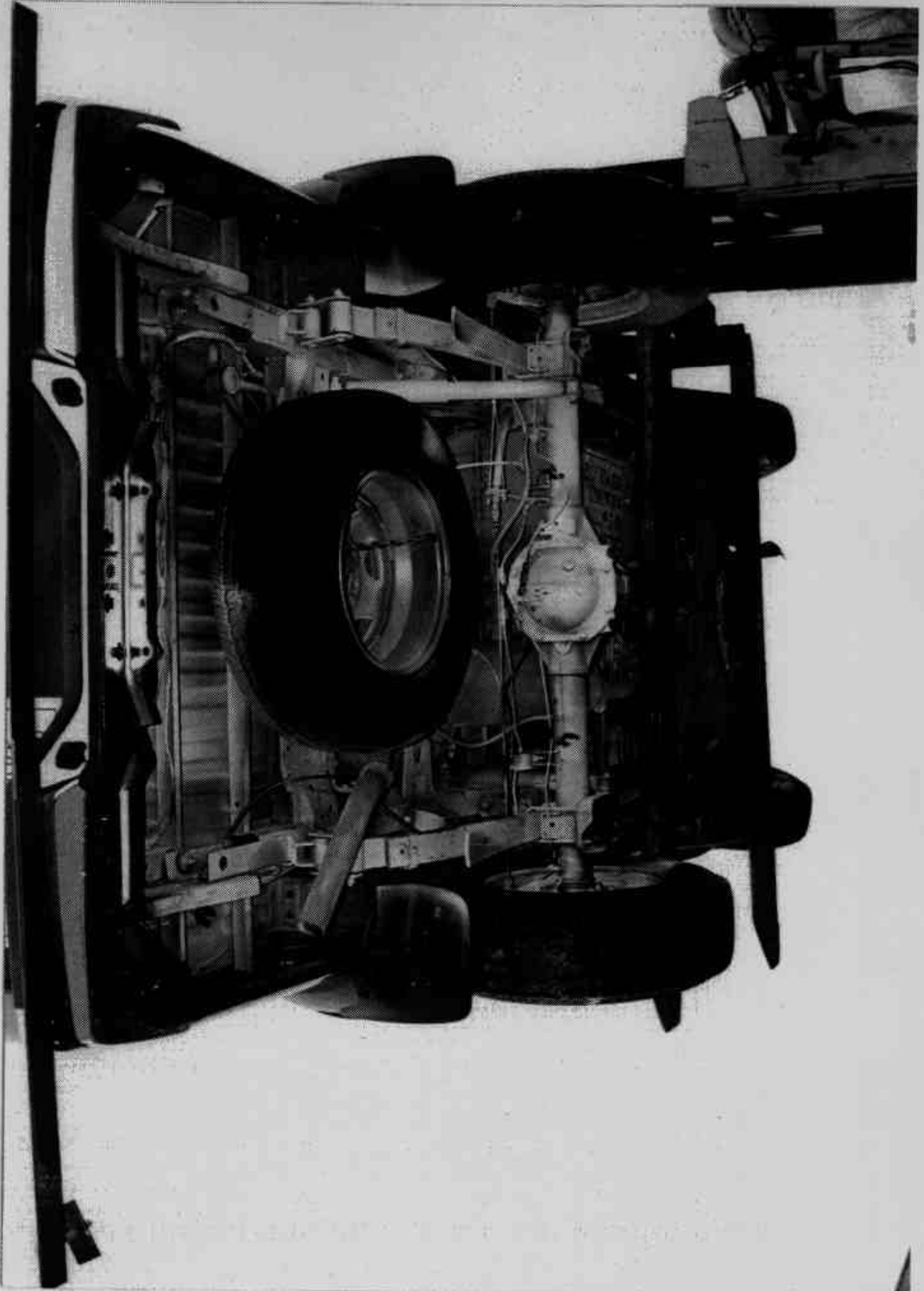




Figure A-22 PRE-TEST DRIVER POSITION VIEW



Figure A-23 POST-TEST DRIVER POSITION VIEW



Figure A-24 PRE-TEST PASSENGER POSITION VIEW



Figure A-25 POST-TEST PASSENGER POSITION VIEW



Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

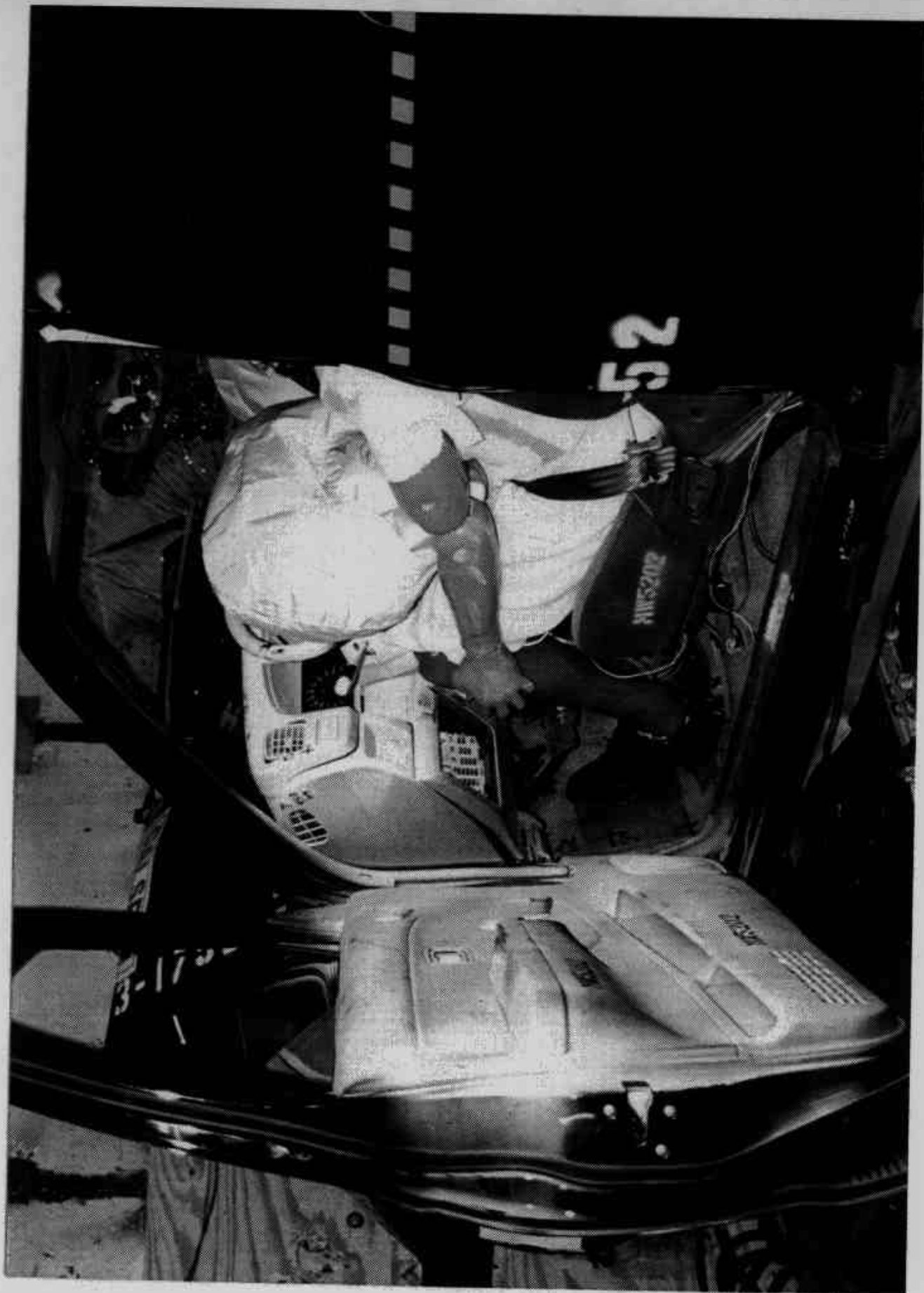


Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

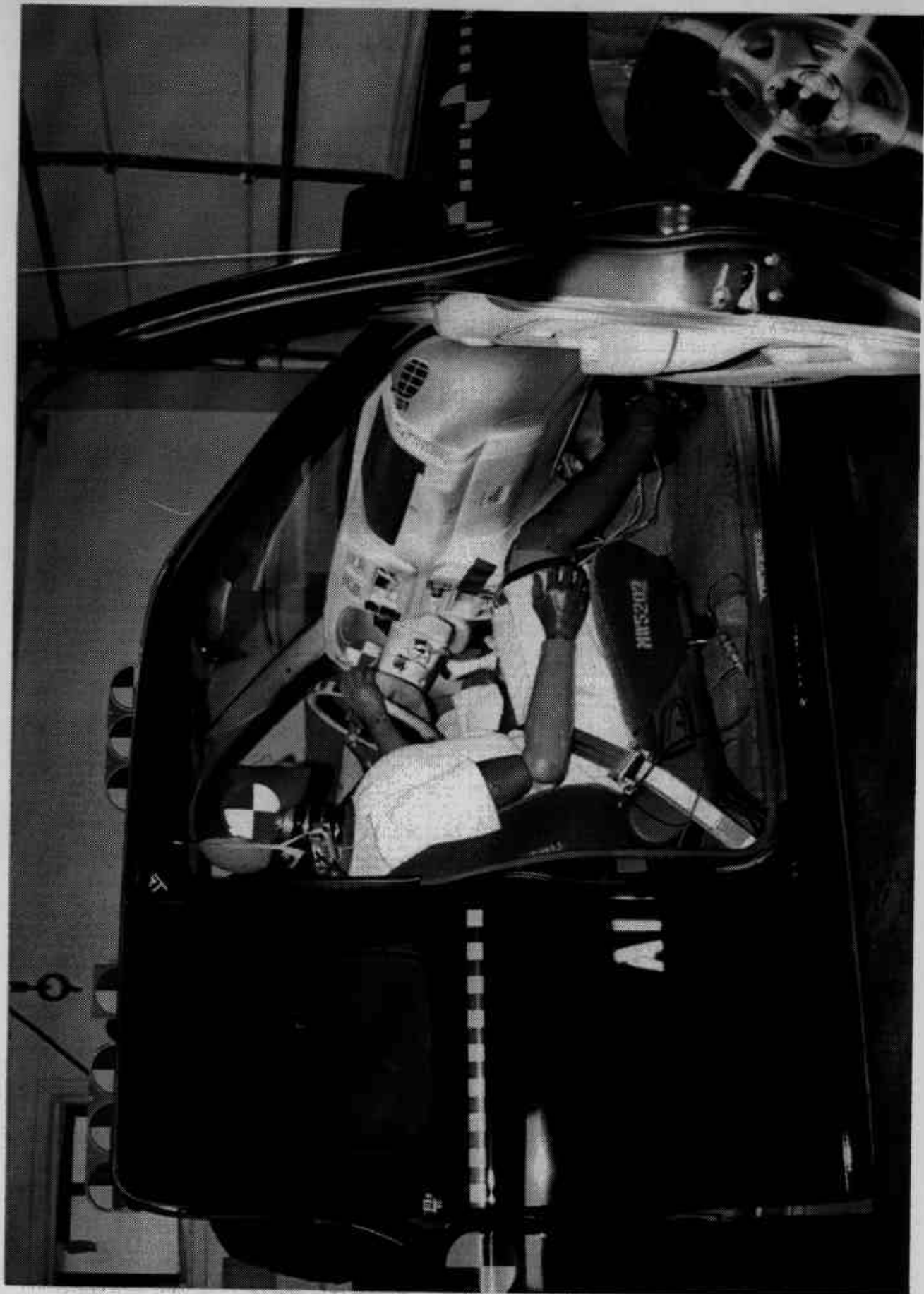


Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

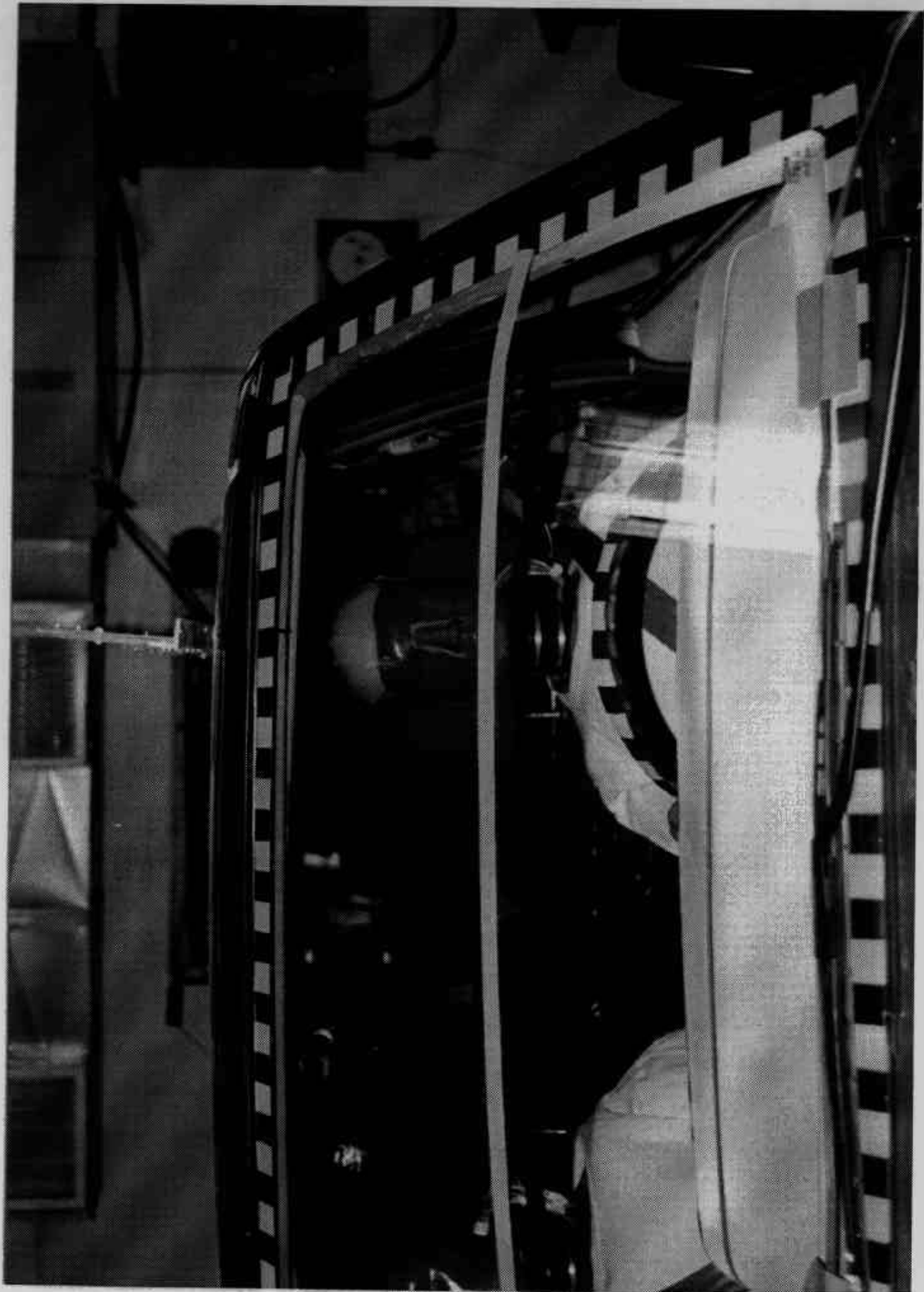


Figure A-30 PRE-TEST DRIVER HEAD LOCATION



Figure A-31 POST-TEST DRIVER HEAD LOCATION

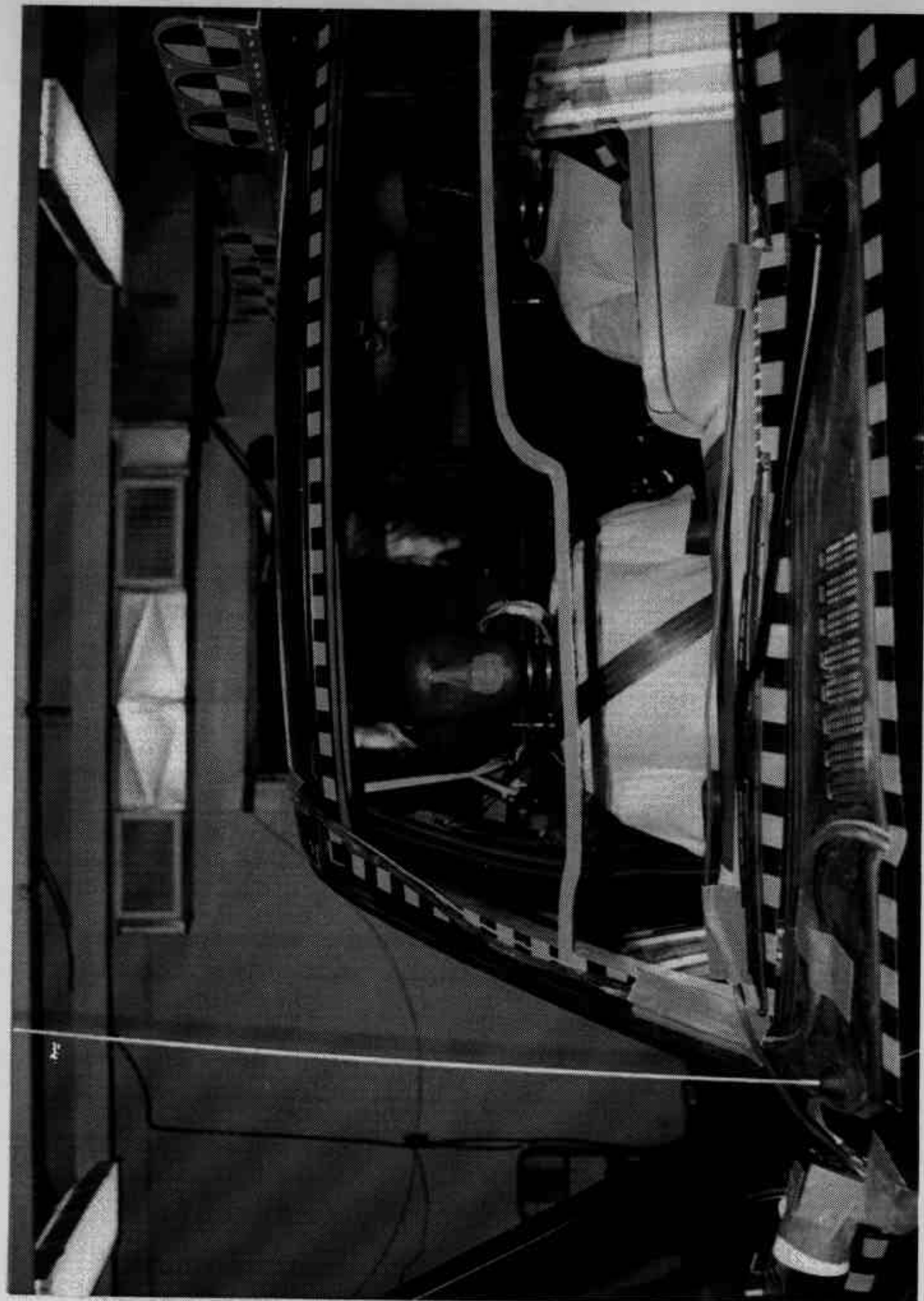


Figure A-32 PRE-TEST PASSENGER HEAD LOCATION



Figure A-33 POST-TEST PASSENGER HEAD LOCATION



Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW



Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW

Figure A-37 POST-TEST PASSENGER FLOOR PAN VIEW



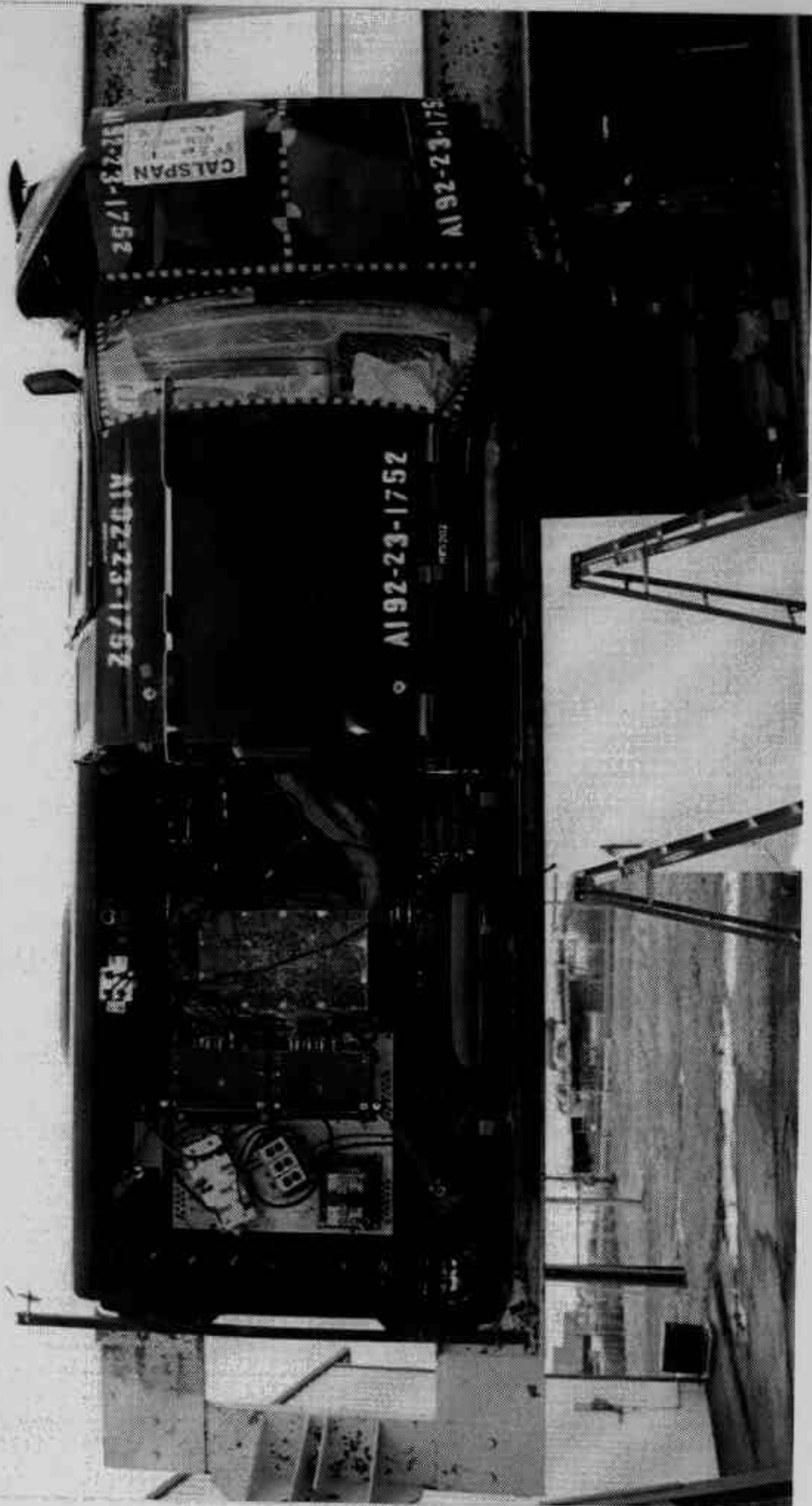


Figure A-38 ROLLOVER VIEW

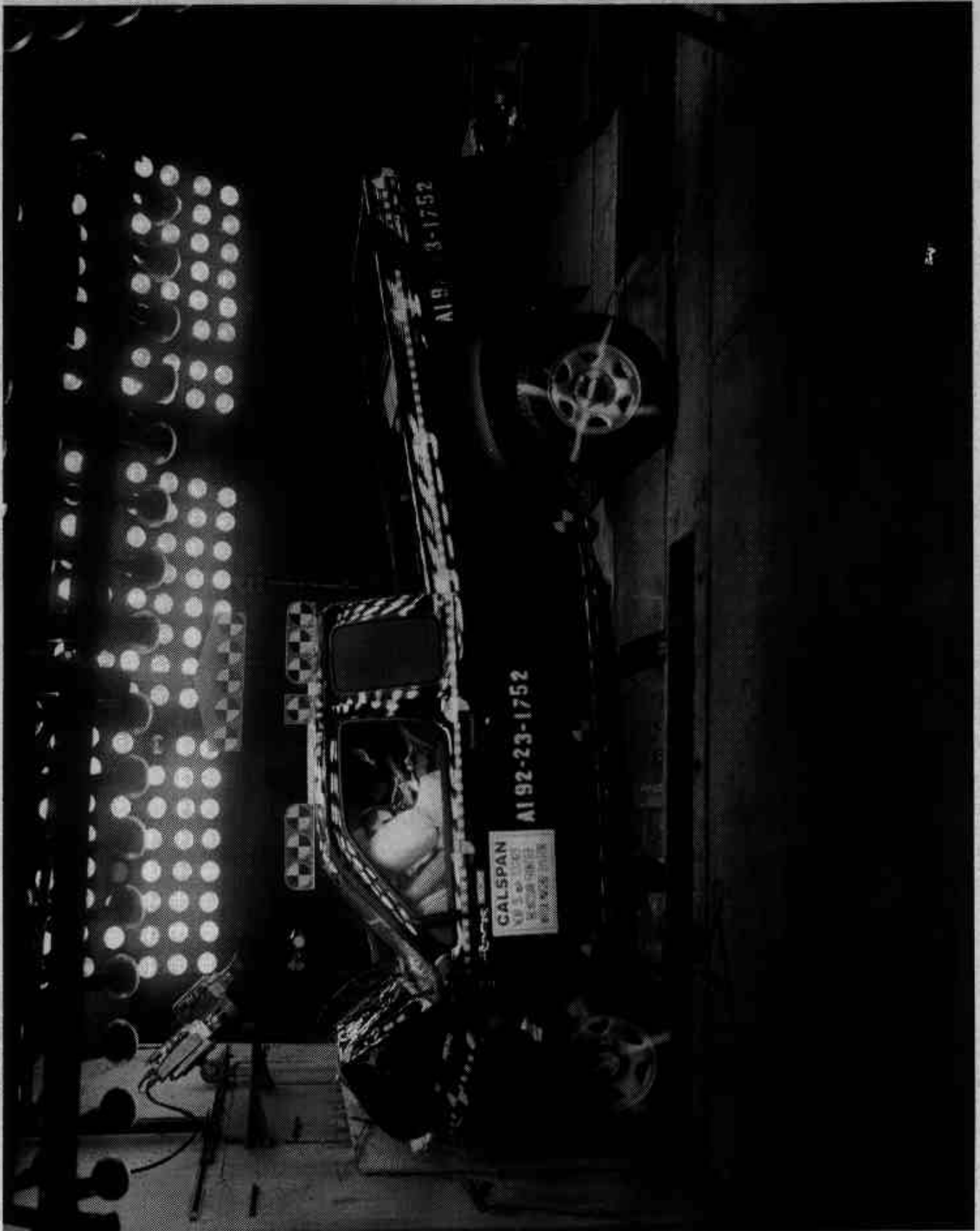


Figure A-39 IMPACT VIEW

Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

**Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers**

Transducer	DOT/NHTSA Sign Convention (positive unless noted)
Upper Neck Load Cell	Fx Head forward Fy Head left Fz Neck in tension Mx Right ear to right shoulder My Chin to chest (flexion) Mz Chin to left shoulder (look left)
Chest Displacement Potentiometer	Compression is negative
Pelvic Load Cell (Lower Lumbar)	Fx Chest forward Fy Chest left Fz Spine in tension
Femur Load Cell	Compression is negative
Upper Tibia Load Cell (right and left leg)	Mx Support tibia, load right side center My Support tibia, load front (shin) center
Lower Tibia Load Cell (right and left leg)	Fy Foot right w/r to left Fz Tibia in tension Mx Support tibia, press right side center

NHTSA TEST NO. MW5202

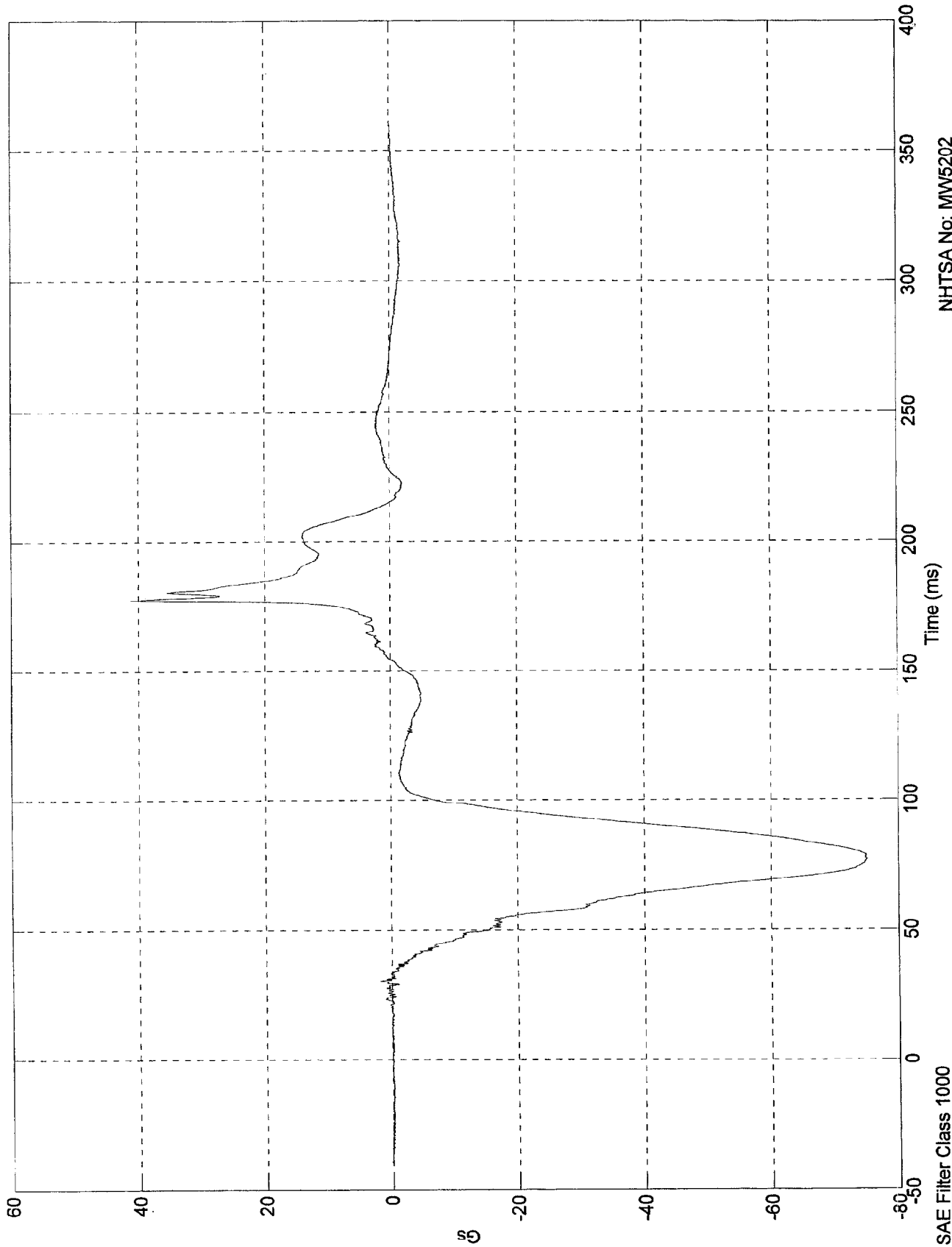
DUMMY DATA

CLASS	FILTER CHANNEL
Head Accelerations	1000
Chest Accelerations	180
Chest Displacements	60
Femur Forces	600
Belt Loads	60
Belt Displacements	180
Neck Forces	1000
Neck Moments	600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 41.2 Gs @ 177.70 msec
Min = -75.1 Gs @ 77.20 msec

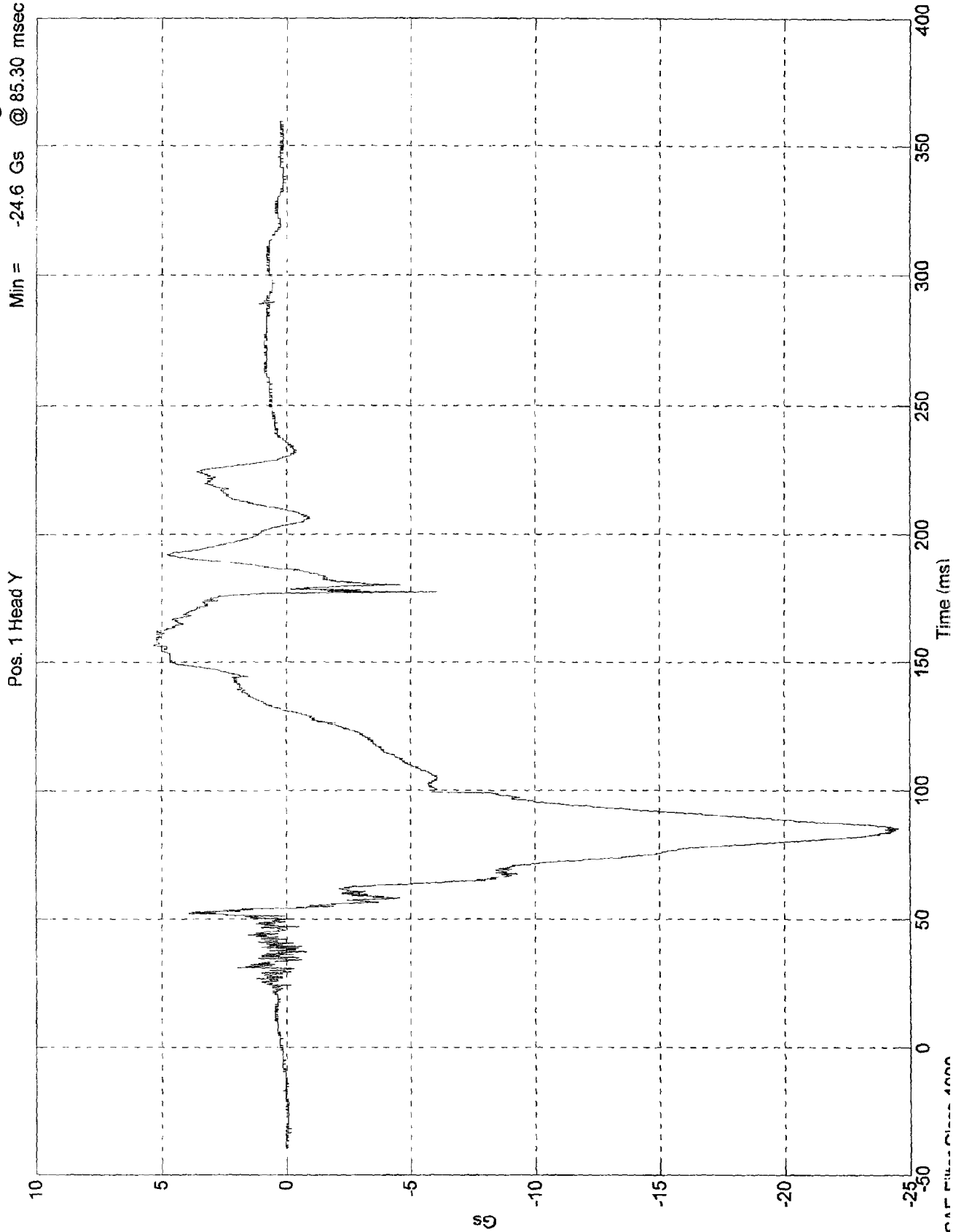
Pos. 1 Head X



NHTSA No: MW5202
Date: 17 Feb 1998

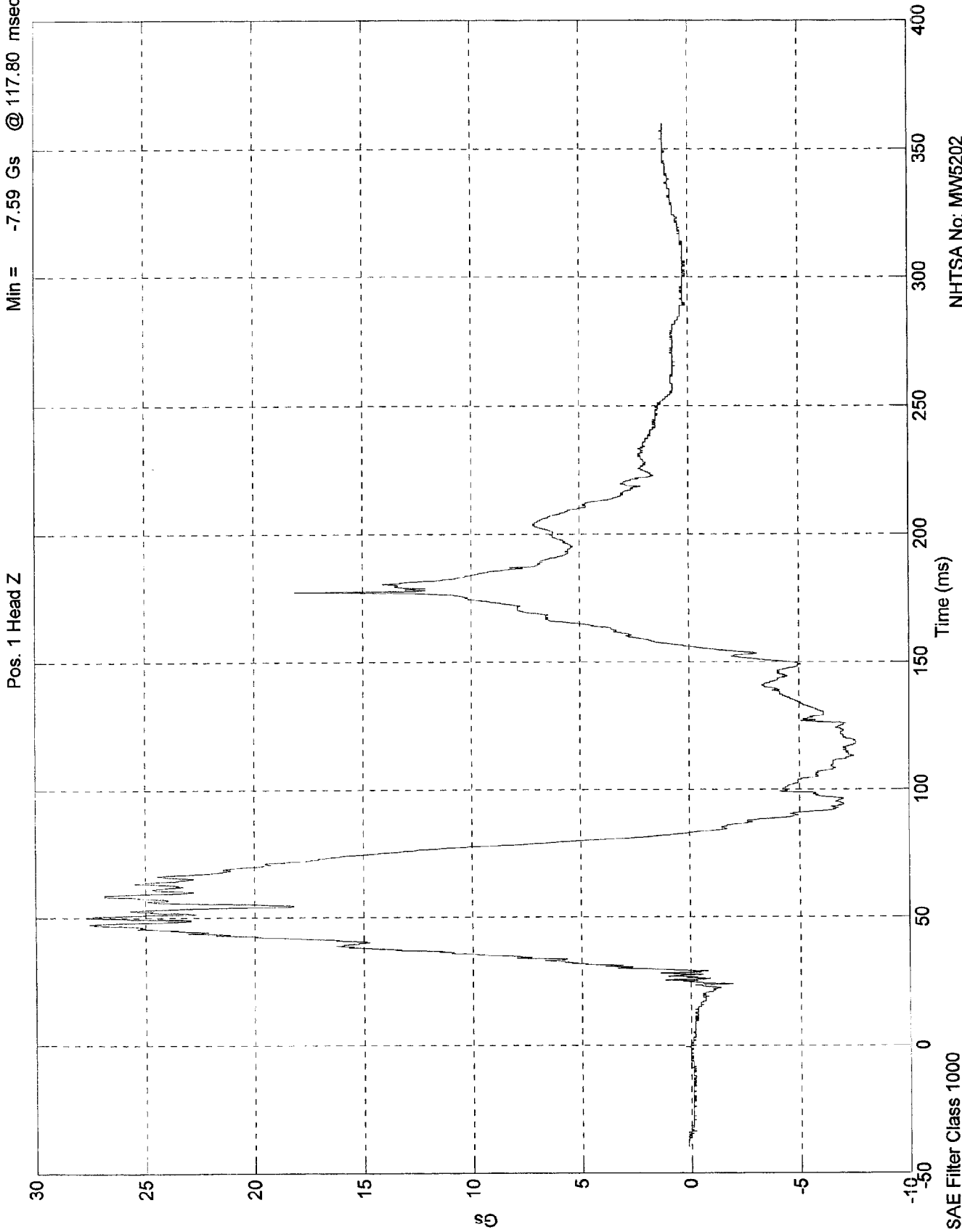
NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 5.32 Gs @ 156.40 msec
Min = -24.6 Gs @ 85.30 msec



NCAP TEST #23 - 1998 NISSAN FRONTIER

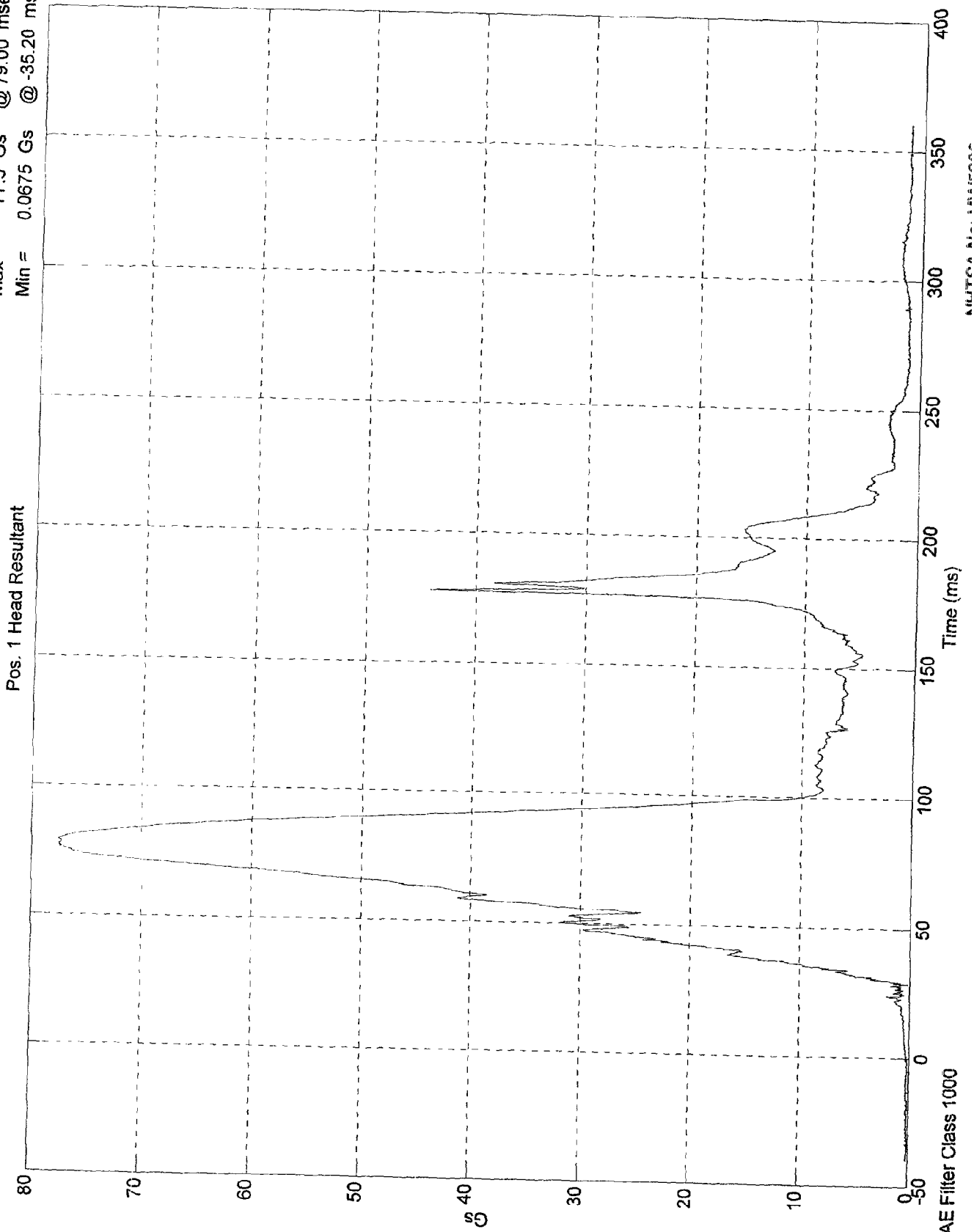
Max = 27.7 Gs @ 50.00 msec
Min = -7.59 Gs @ 117.80 msec



NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

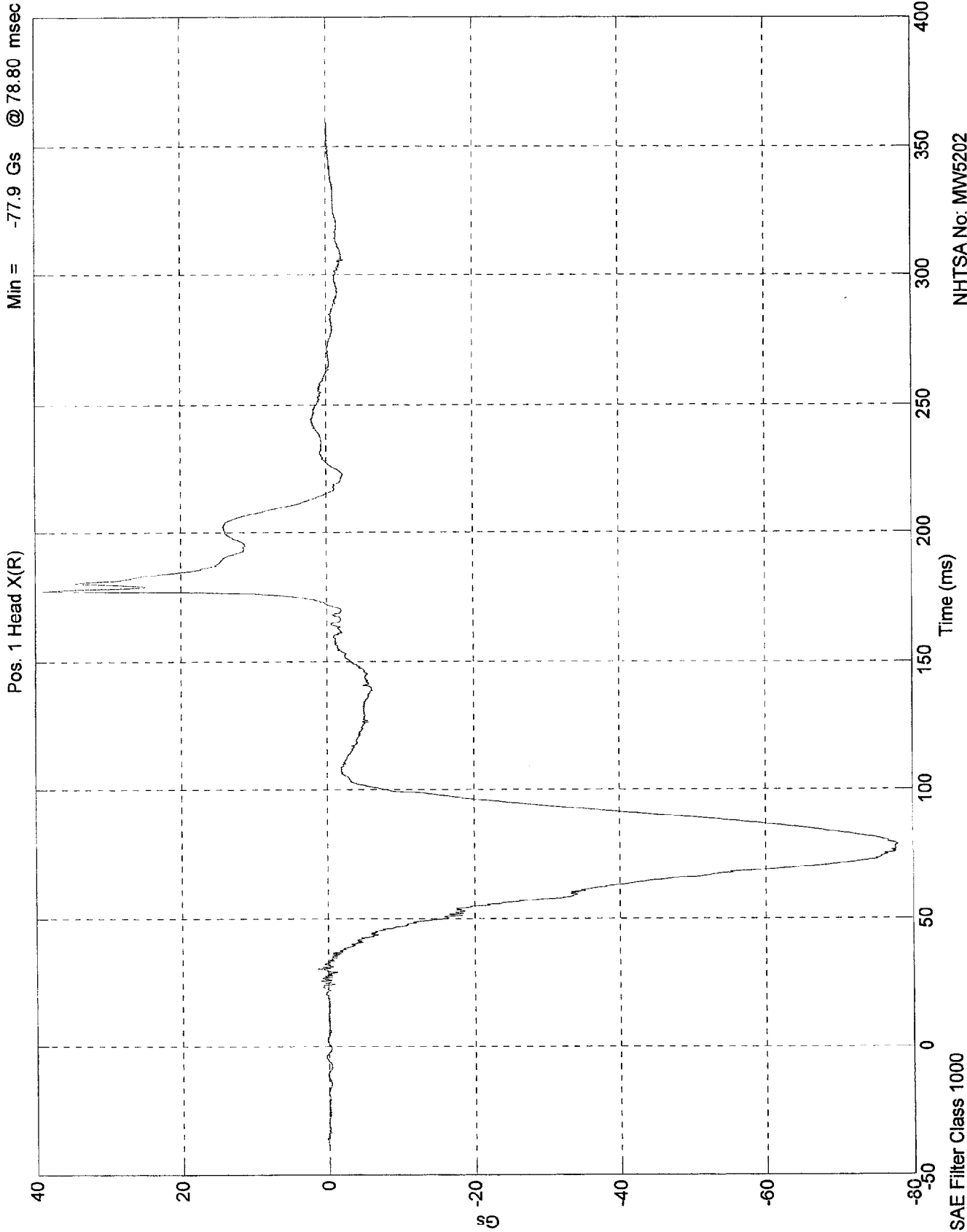
Max = 77.5 Gs @ 79.00 msec
Min = 0.0675 Gs @ -35.20 msec



MULTI-MEDIA CORPORATION

NCAP TEST #23 - 1998 NISSAN FRONTIER

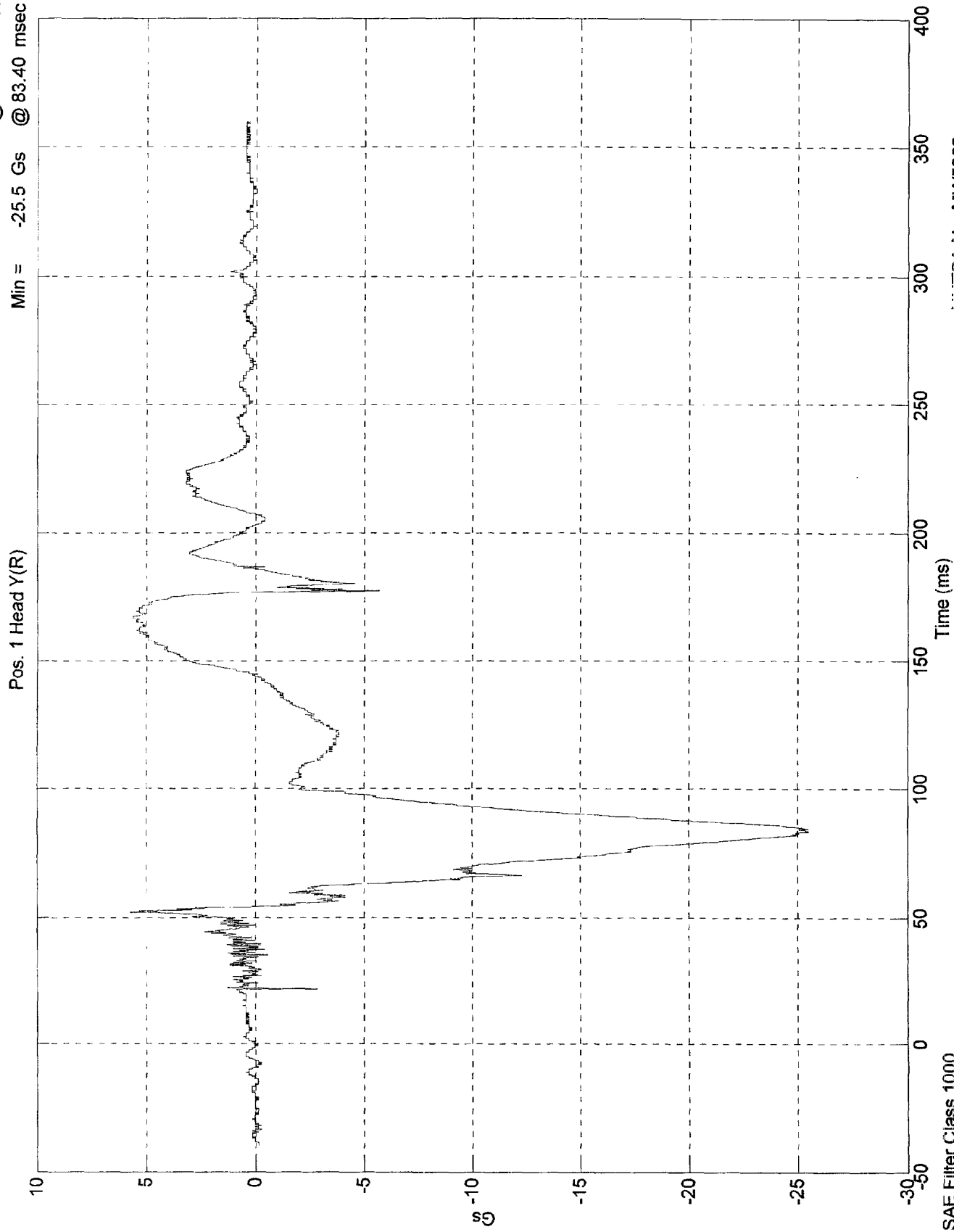
Max = 38.9 Gs @ 177.70 msec
Min = -77.9 Gs @ 78.80 msec



NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 5.77 Gs @ 52.10 msec
Min = -25.5 Gs @ 83.40 msec

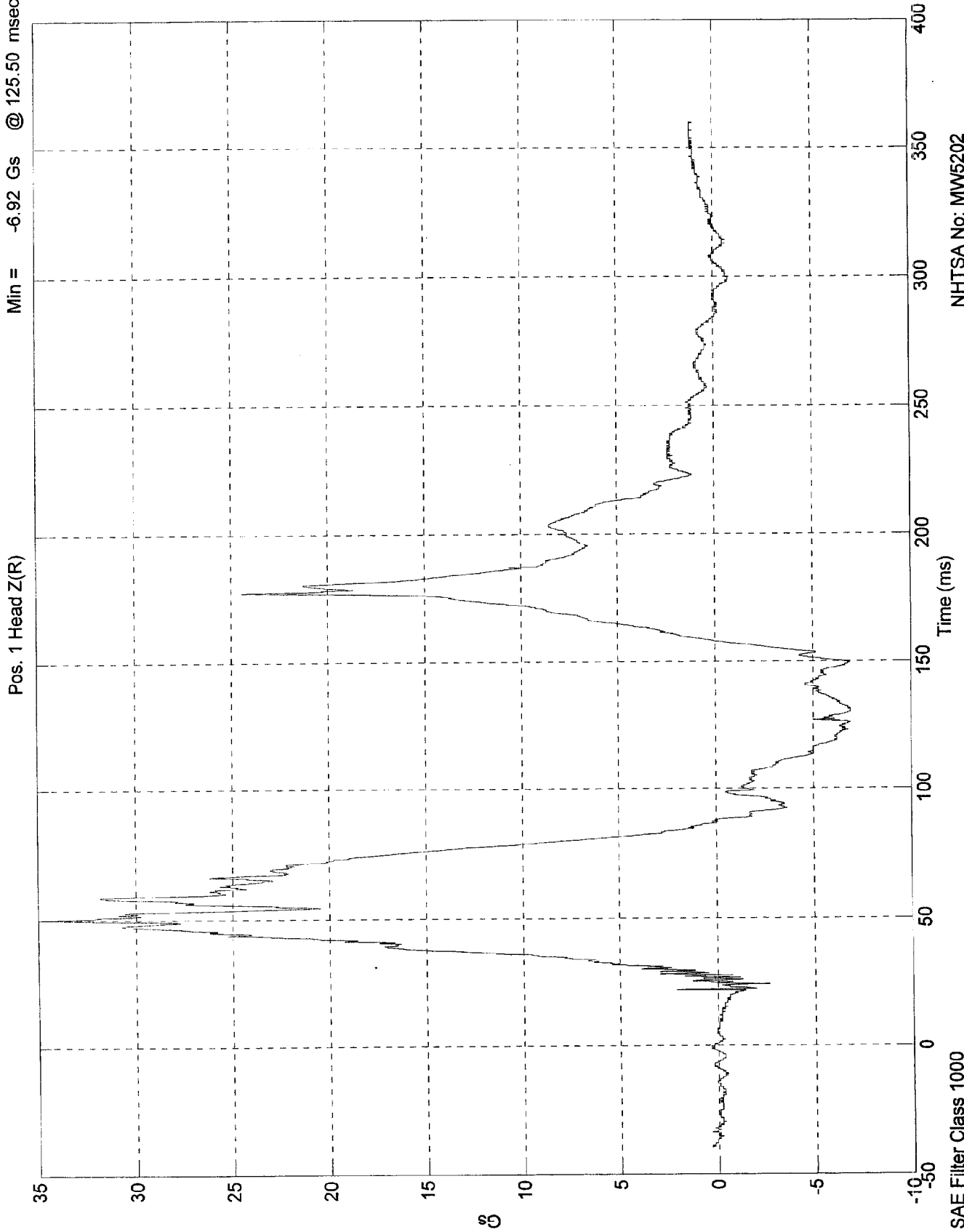


SAE Filter Class 1000

NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 34.4 Gs @ 50.00 msec
Min = -6.92 Gs @ 125.50 msec

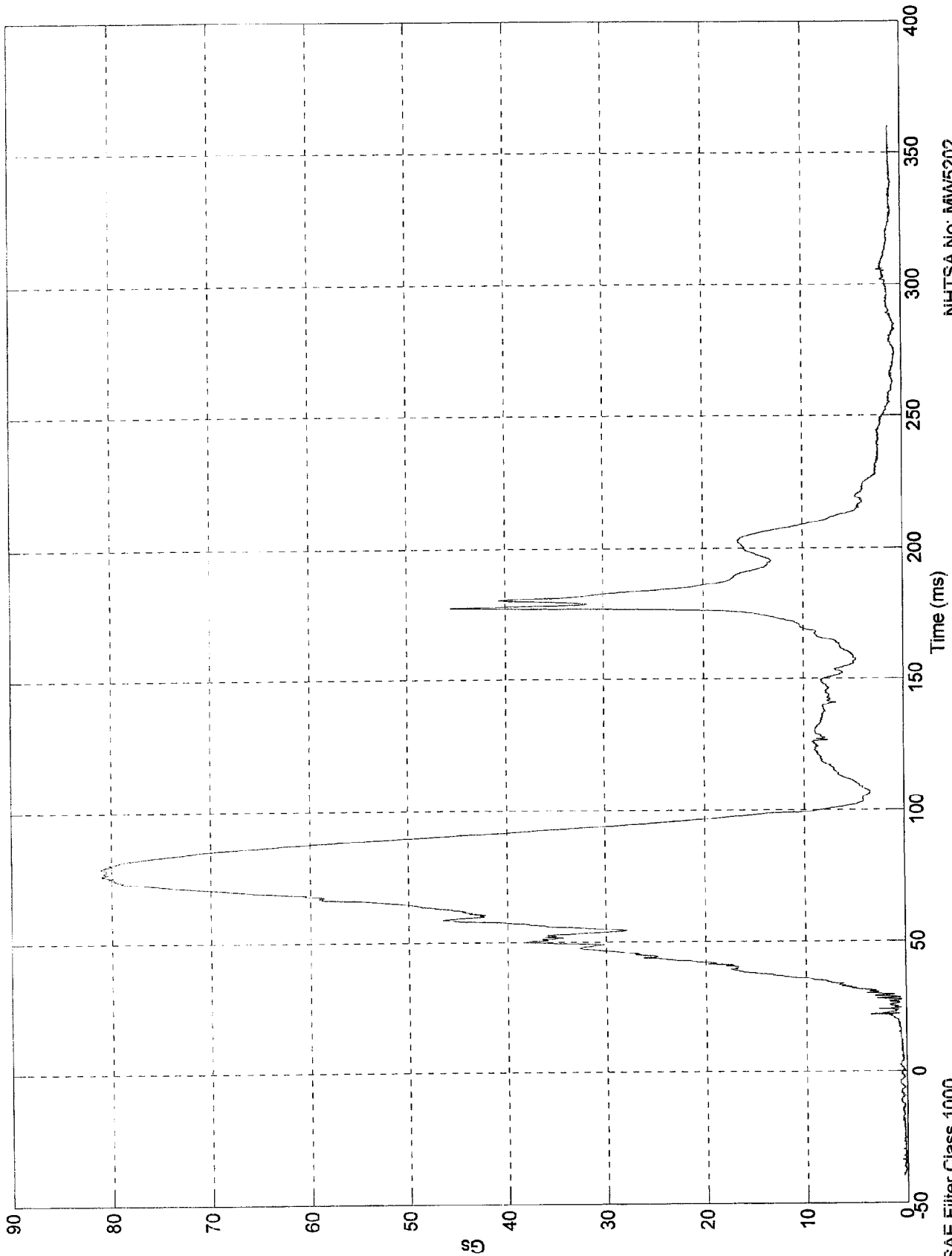


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 81 Gs @ 78.90 msec
Min = 0.0733 Gs @ -35.10 msec

Pos. 1 Head Resultant(RR)



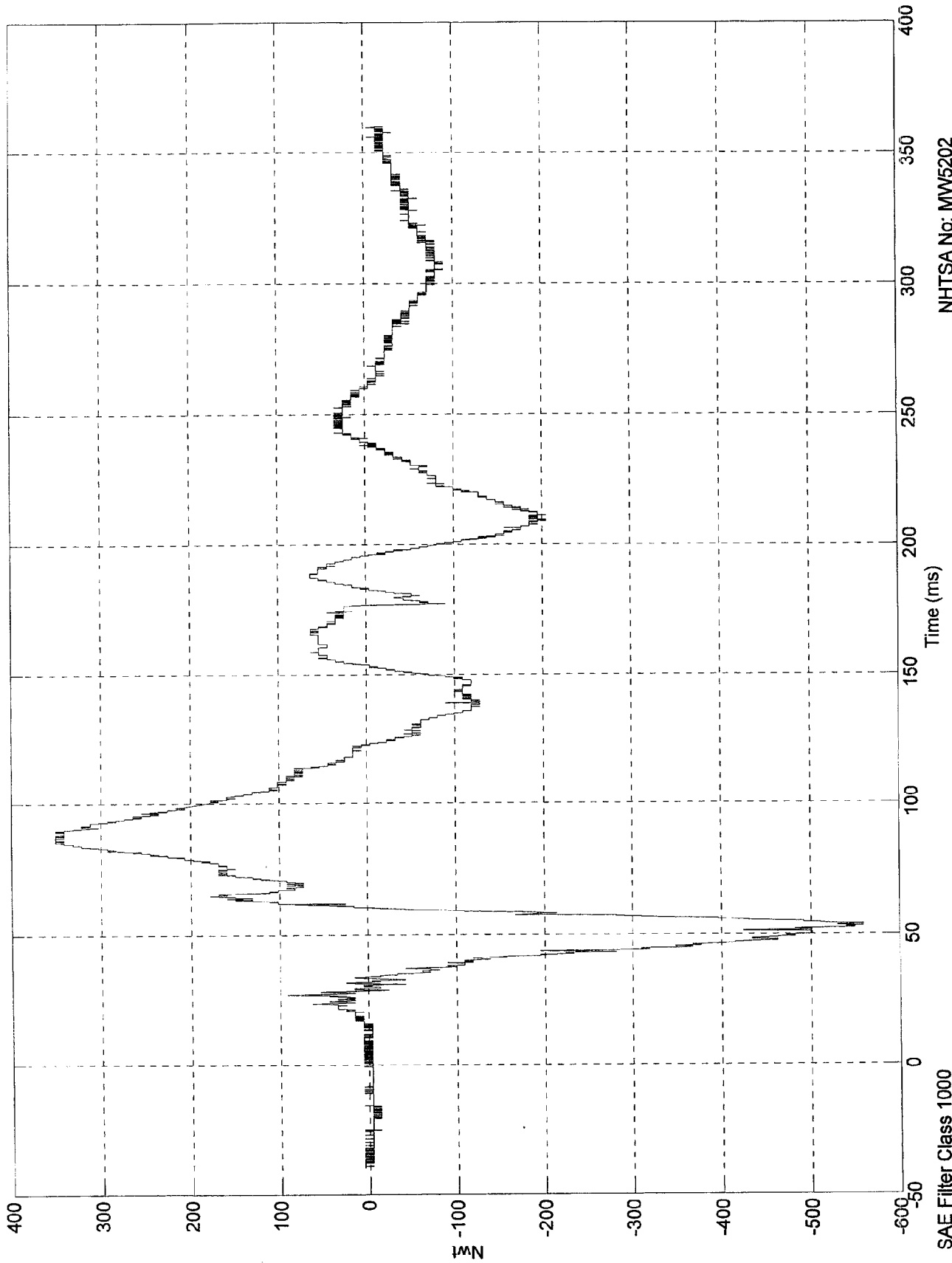
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 350 Nwt @ 85.40 msec
Min = -559 Nwt @ 53.20 msec

Pos. 1 Upper Neck Fx



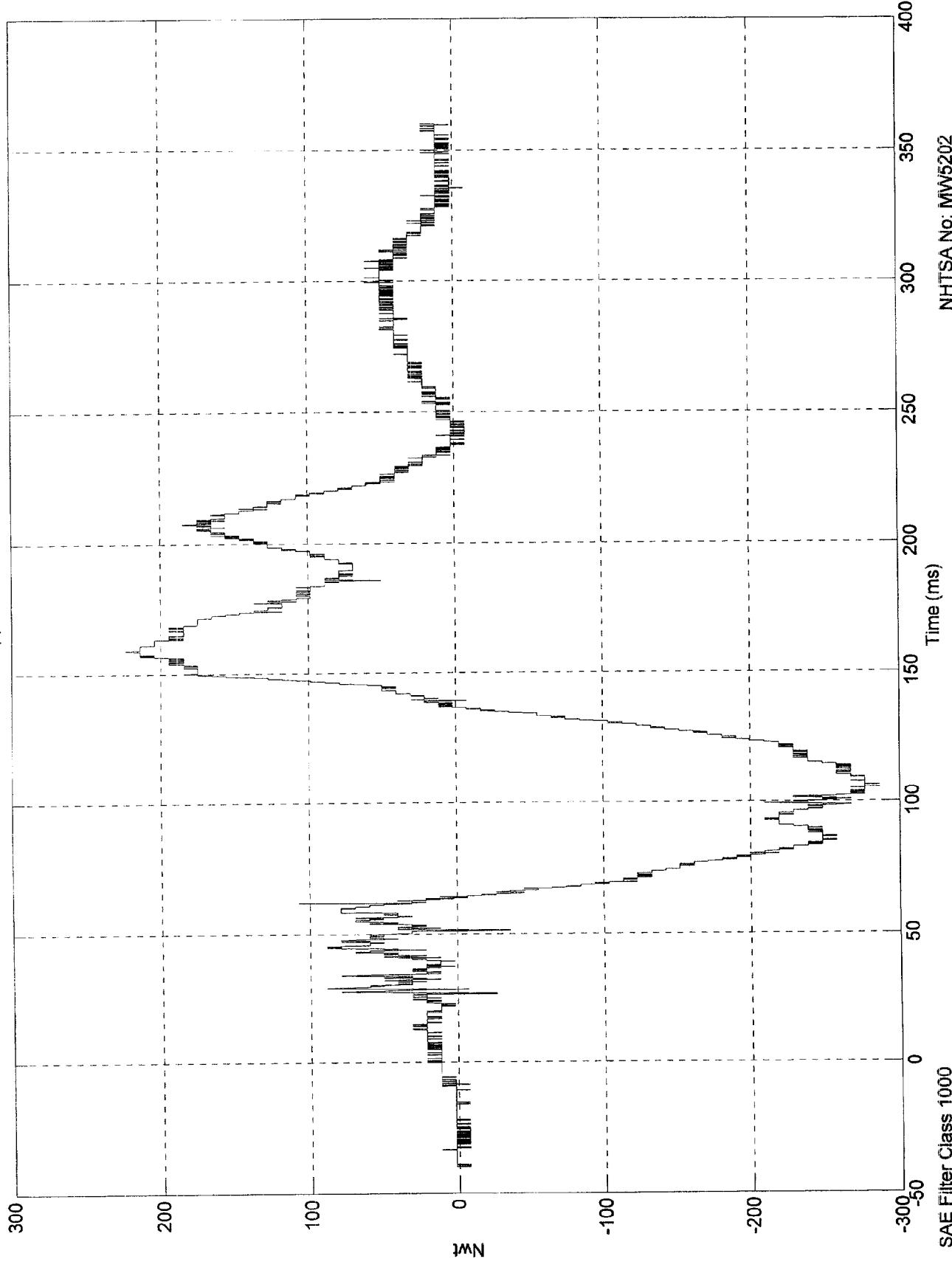
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 223 Nwt @ 158.90 msec
Min = -286 Nwt @ 105.30 msec

Pos. 1 Upper Neck Fy

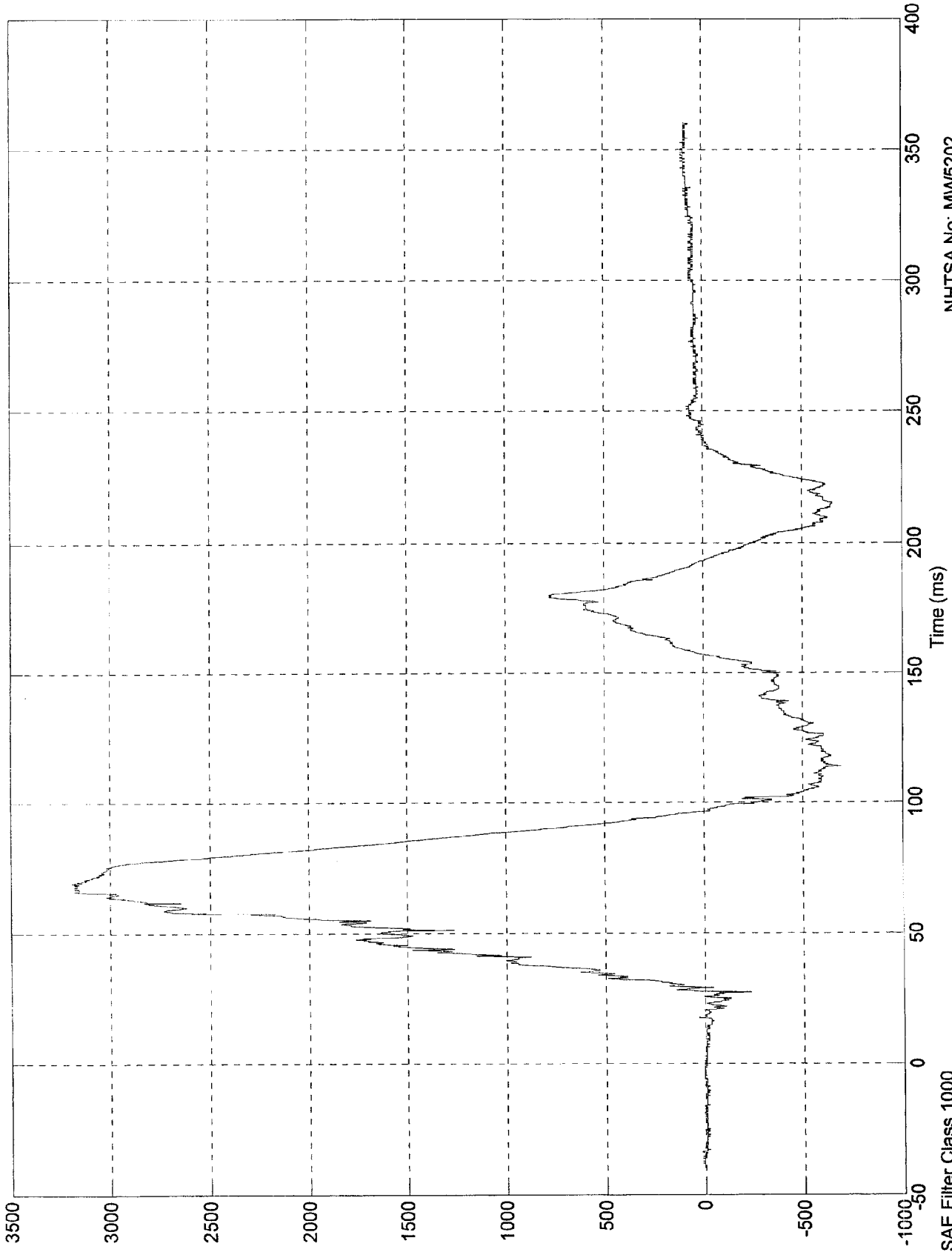


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 3.19e+003 Nwt @ 69.10 msec
Min = -691 Nwt @ 113.90 msec

Pos. 1 Upper Neck Fz

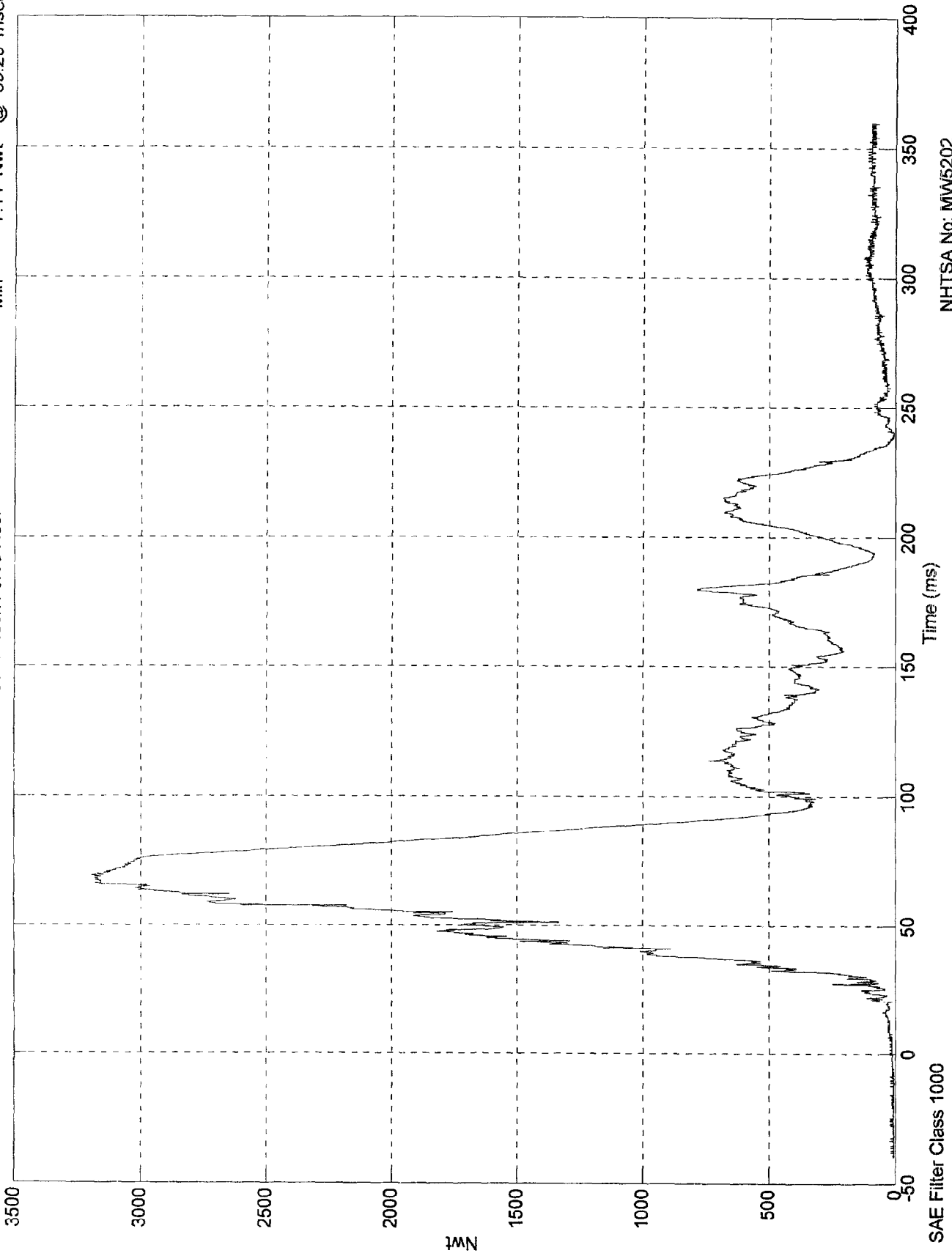


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 3.2e+003 Nwt @ 69.10 msec
Min = 7.14 Nwt @ -39.20 msec

Pos. 1 Neck Force Res.



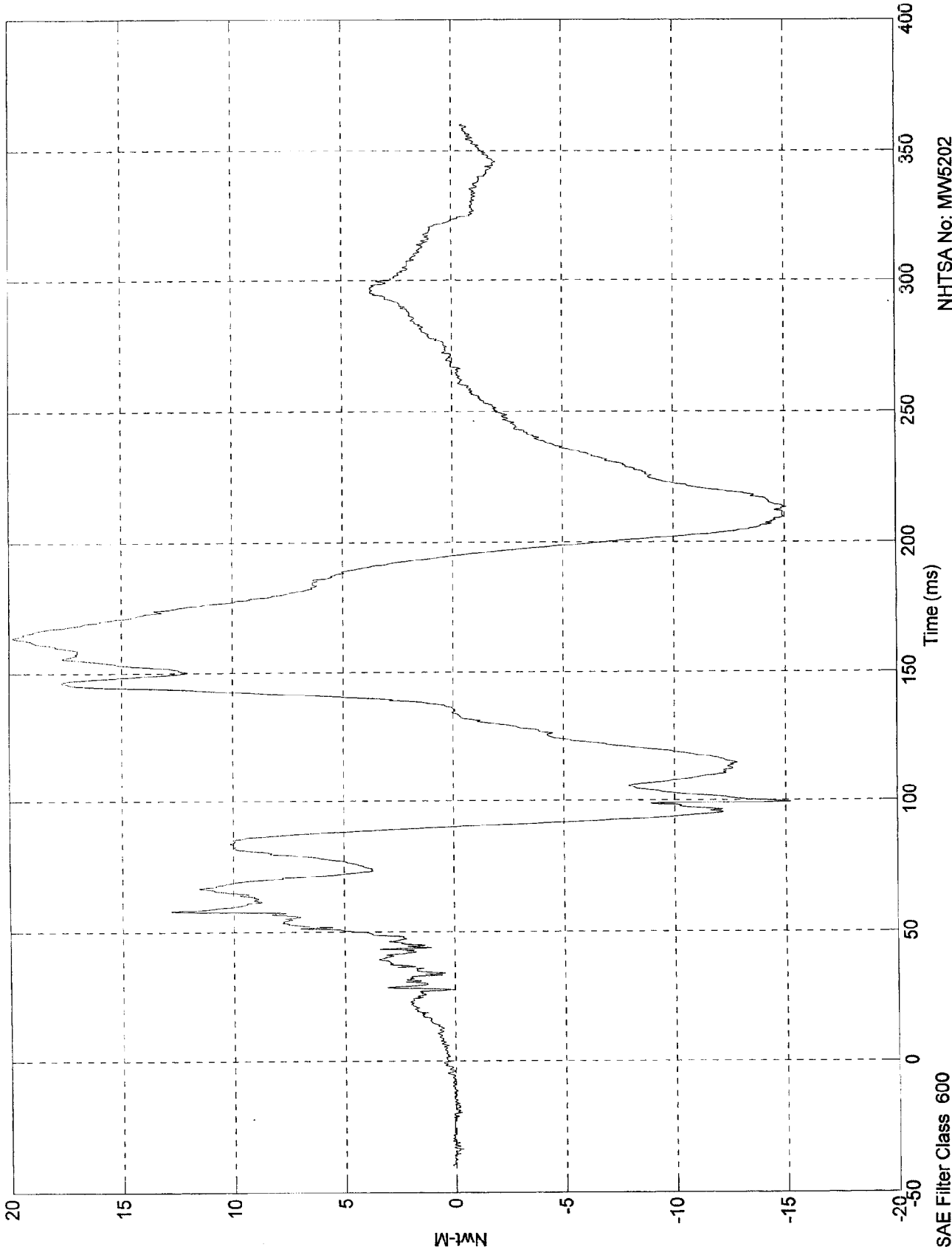
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 19.8 Nwt-M @ 163.70 msec
Min = -15.2 Nwt-M @ 99.30 msec

Pos. 1 Upper Neck Mx



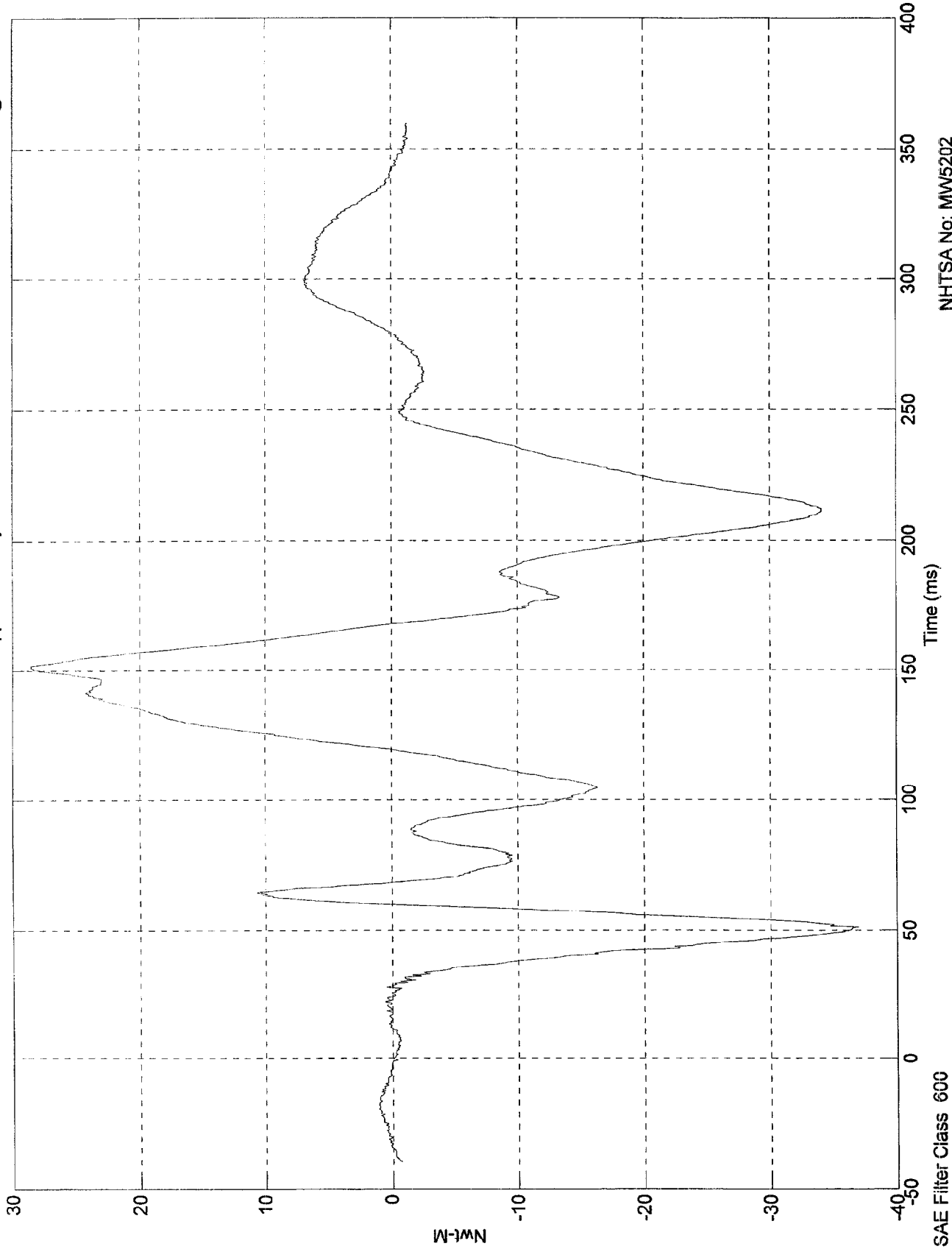
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 28.5 Nwt-M @ 151.50 msec
Min = -36.9 Nwt-M @ 51.10 msec

Pos. 1 Upper Neck My



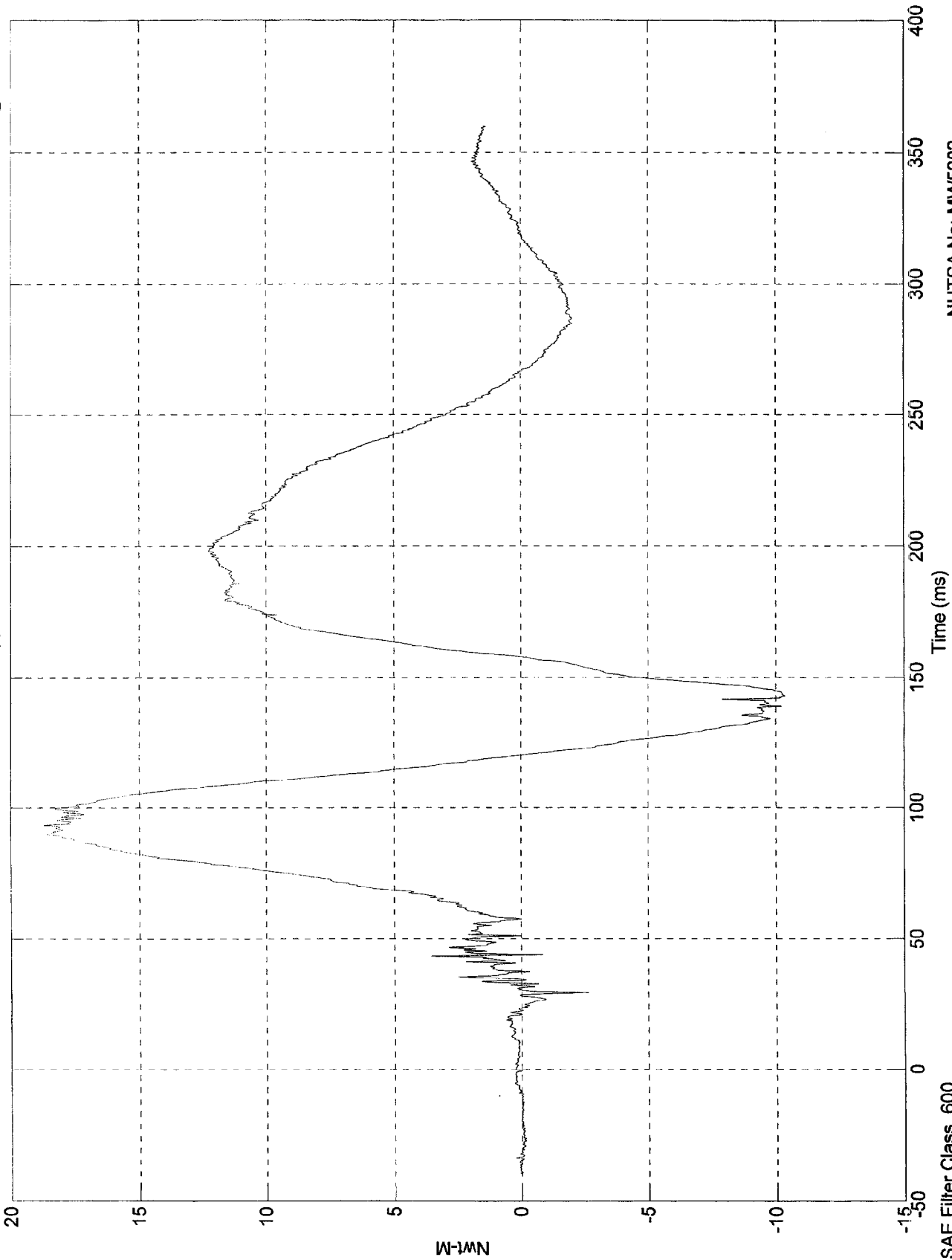
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 18.7 Nwt-M @ 93.40 msec
Min = -10.4 Nwt-M @ 143.00 msec

Pos. 1 Upper Neck Mz



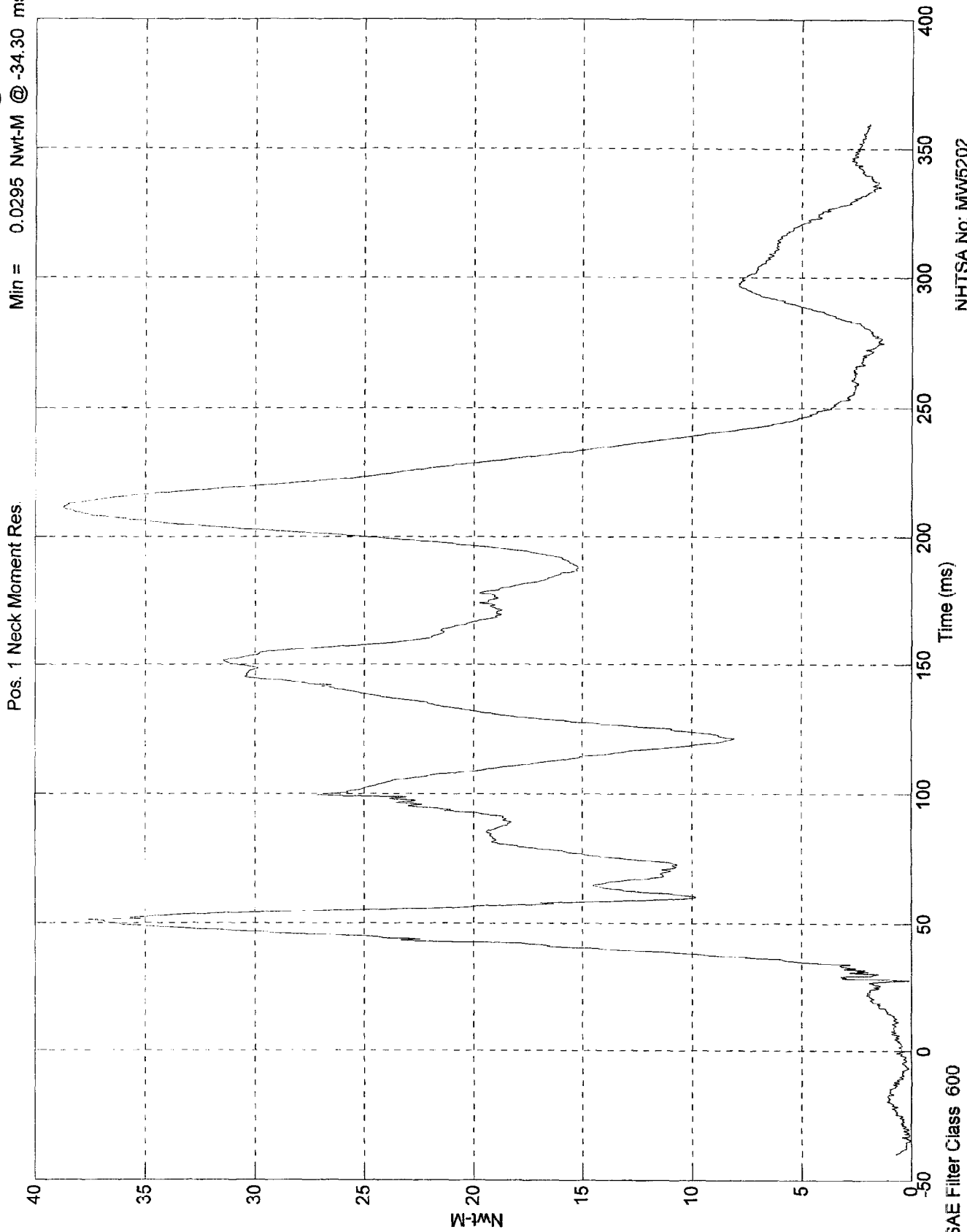
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

W-MN

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 38.7 Nwt-M @ 211.20 msec
Min = 0.0295 Nwt-M @ -34.30 msec

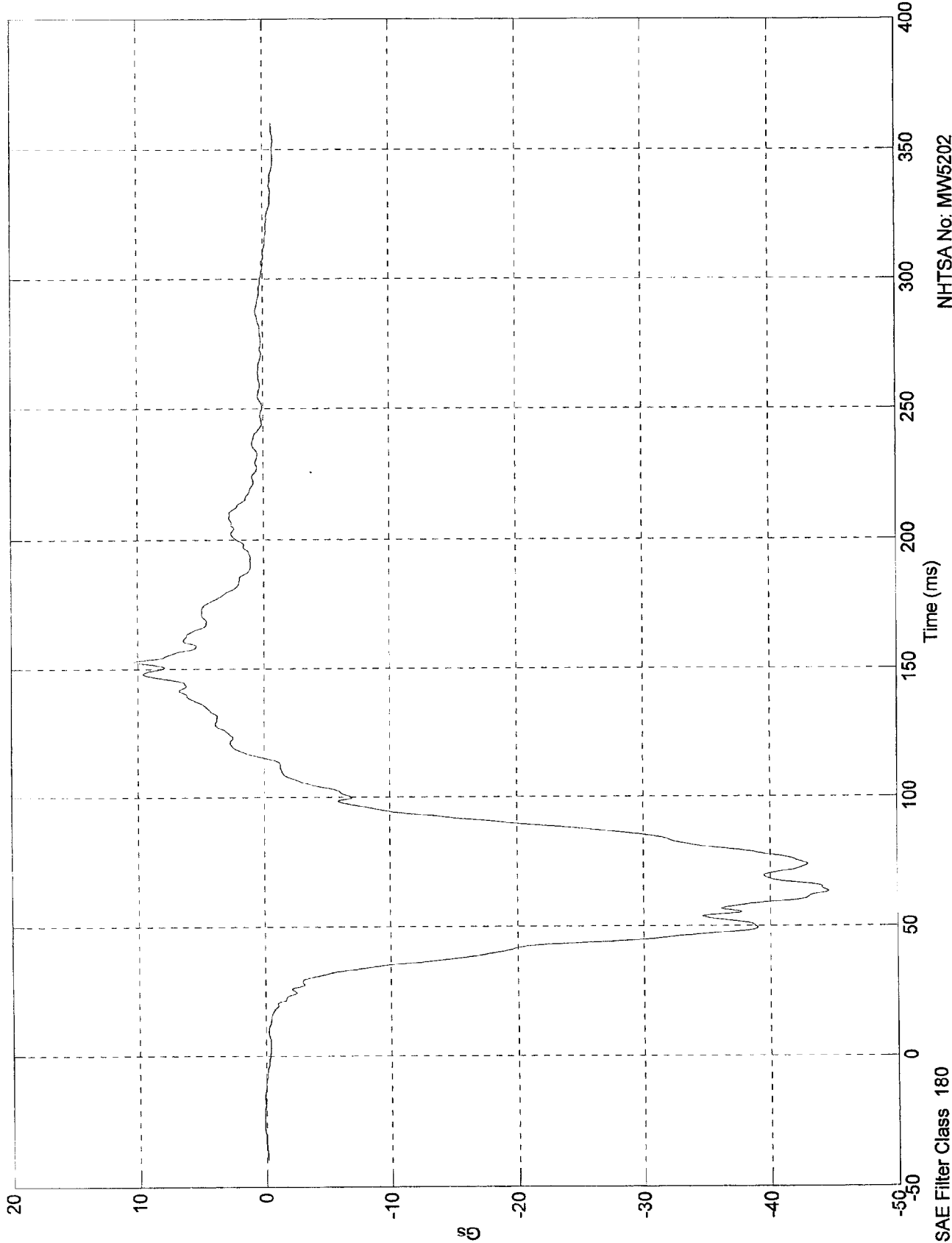


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 10.3 Gs @ 152.80 msec
Min = -44.6 Gs @ 63.50 msec

Pos. 1 Chest X

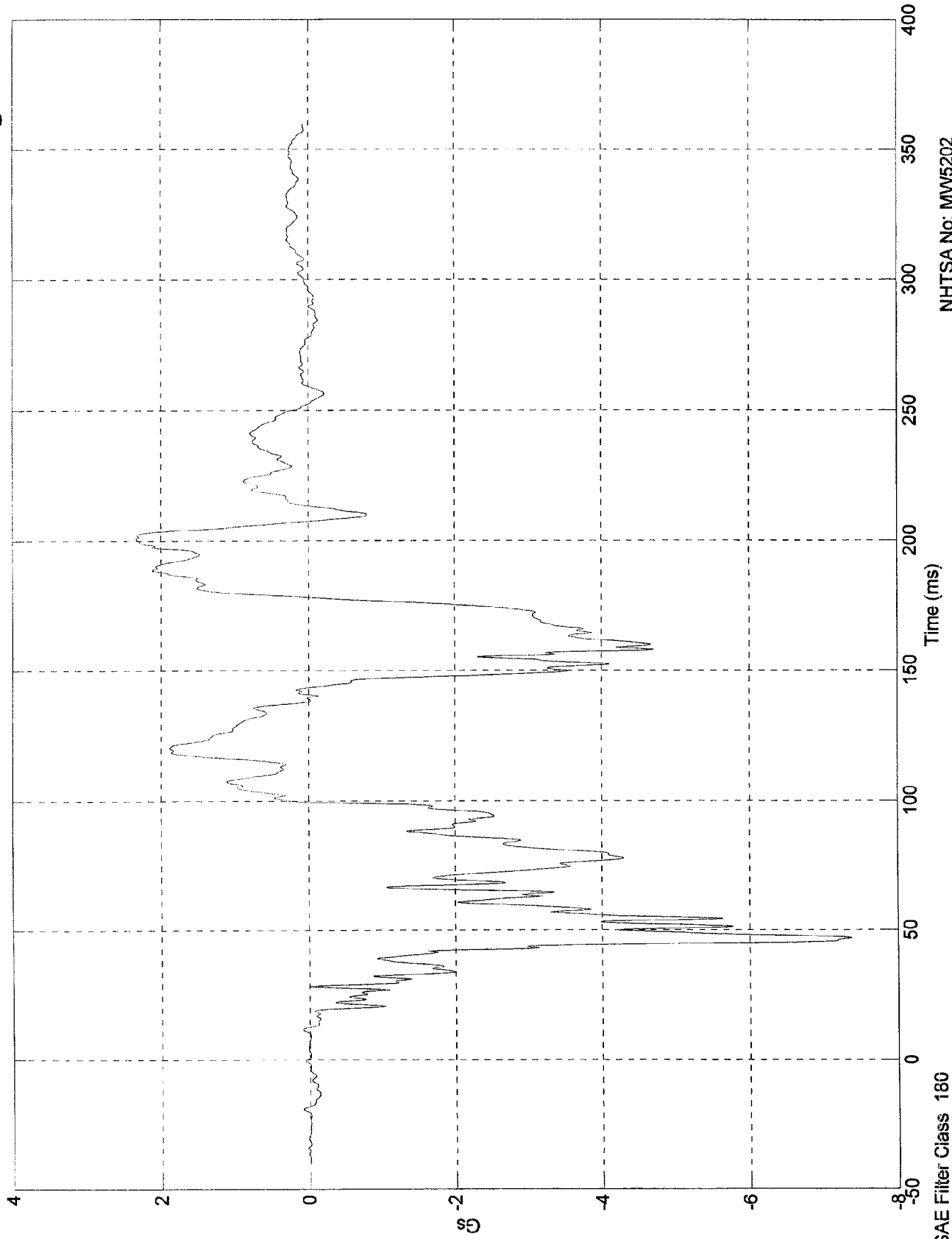


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 2.33 Gs @ 200.70 msec
Min = -7.37 Gs @ 46.90 msec

Pos. 1 Chest Y



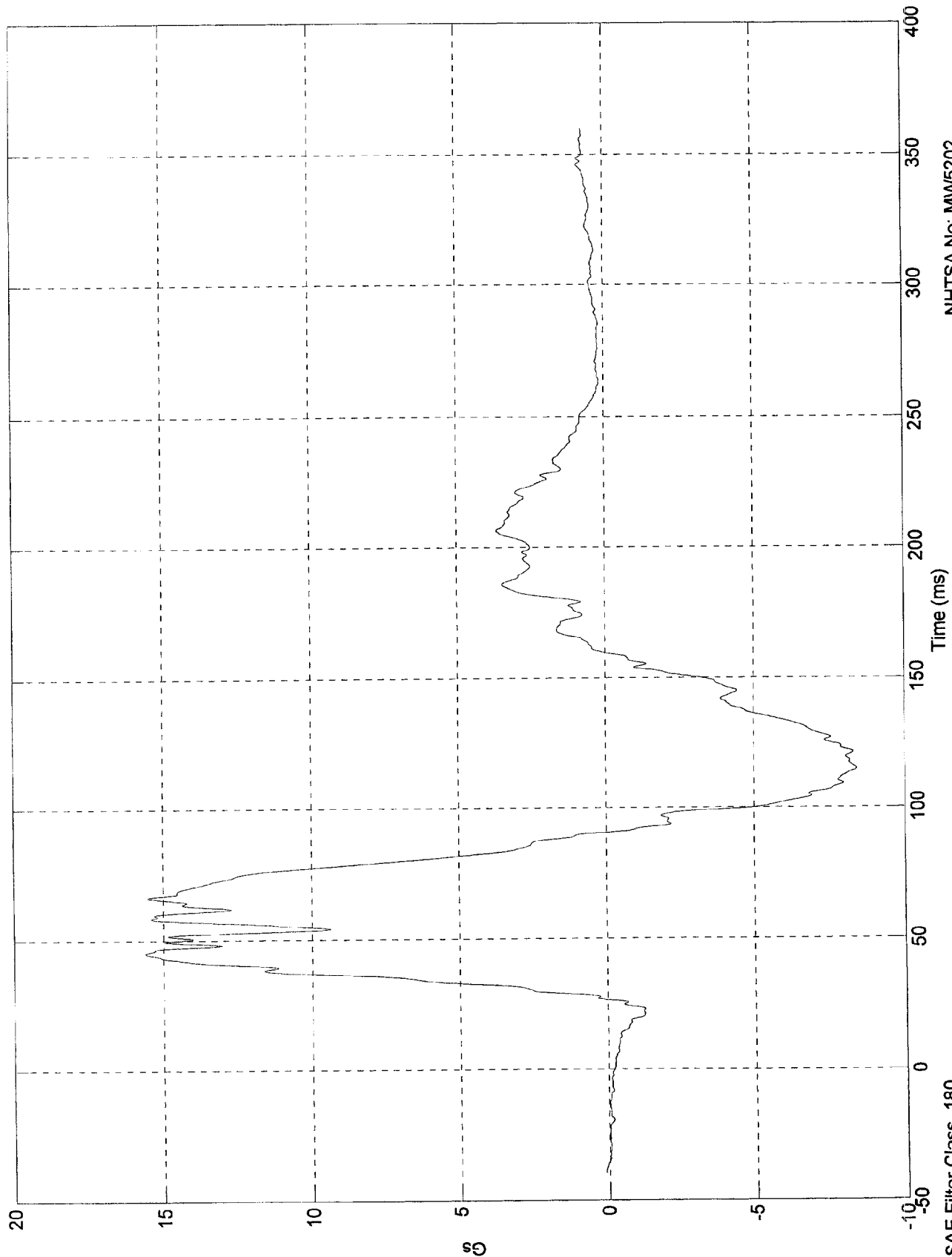
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 15.6 Gs @ 45.00 msec
Min = -8.41 Gs @ 115.10 msec

Pos. 1 Chest Z

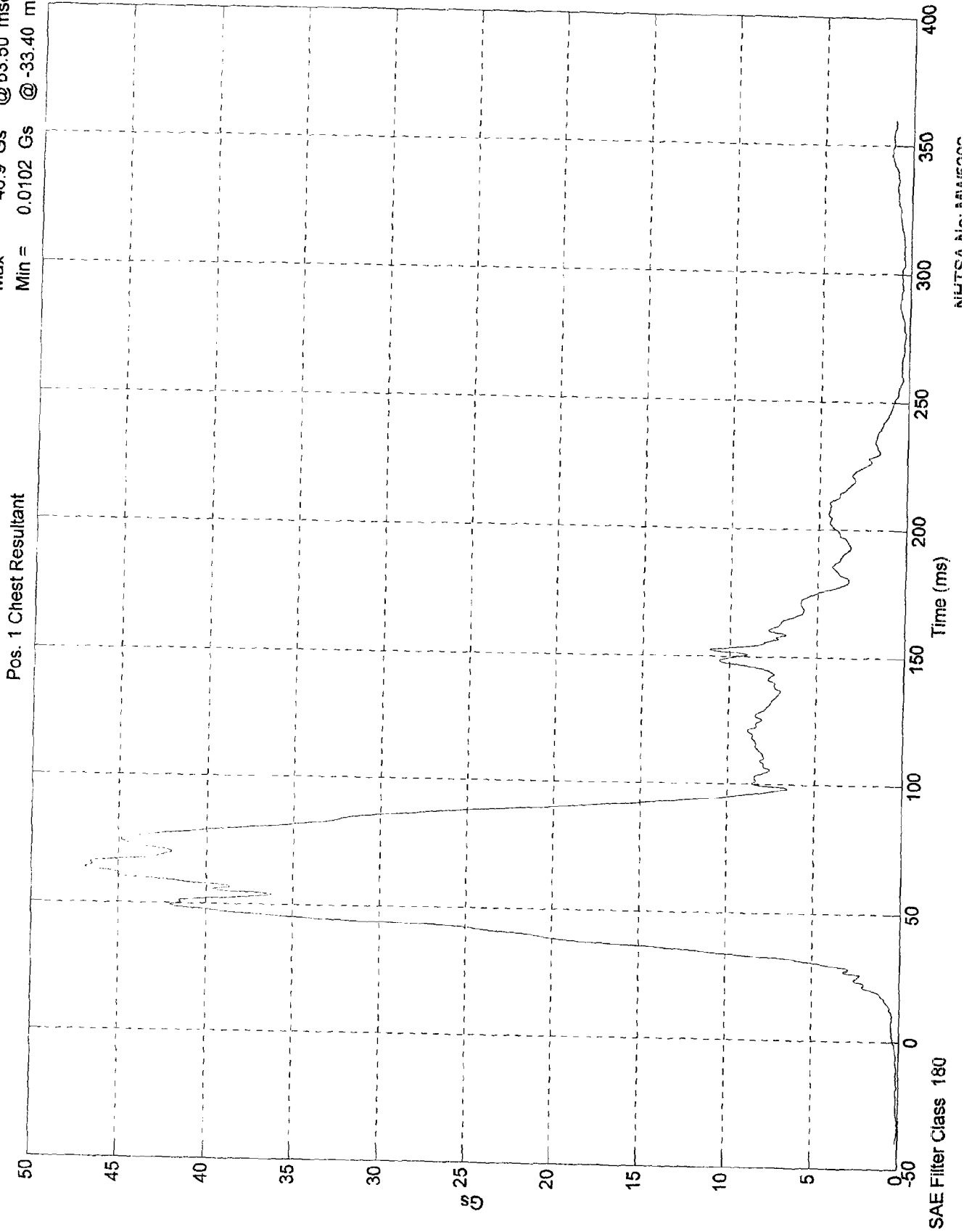


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

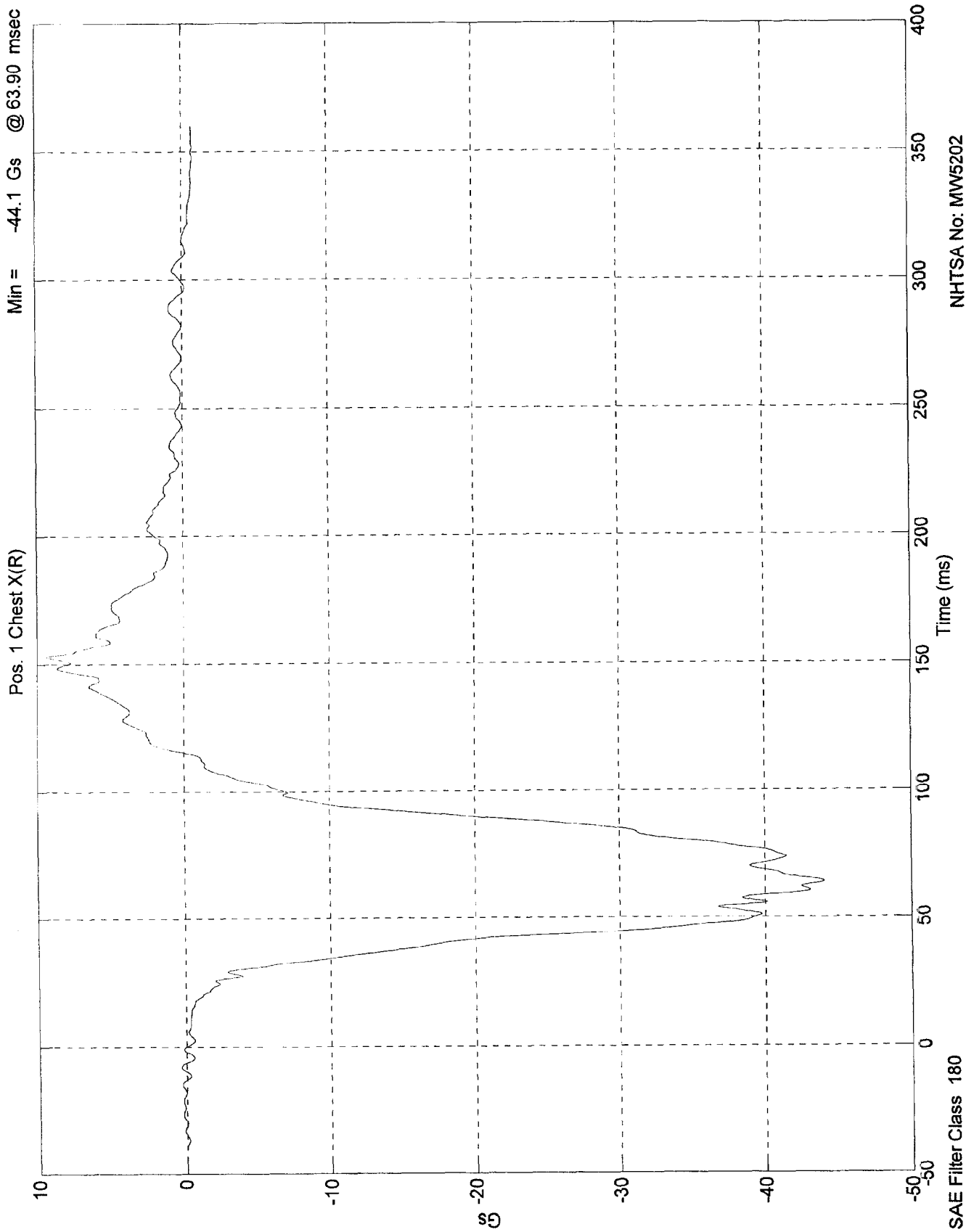
Max = 46.9 Gs @ 63.50 msec
Min = 0.0102 Gs @ -33.40 msec



NIJTCO NIA-2141000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 9.35 Gs @ 152.80 msec
Min = -44.1 Gs @ 63.90 msec

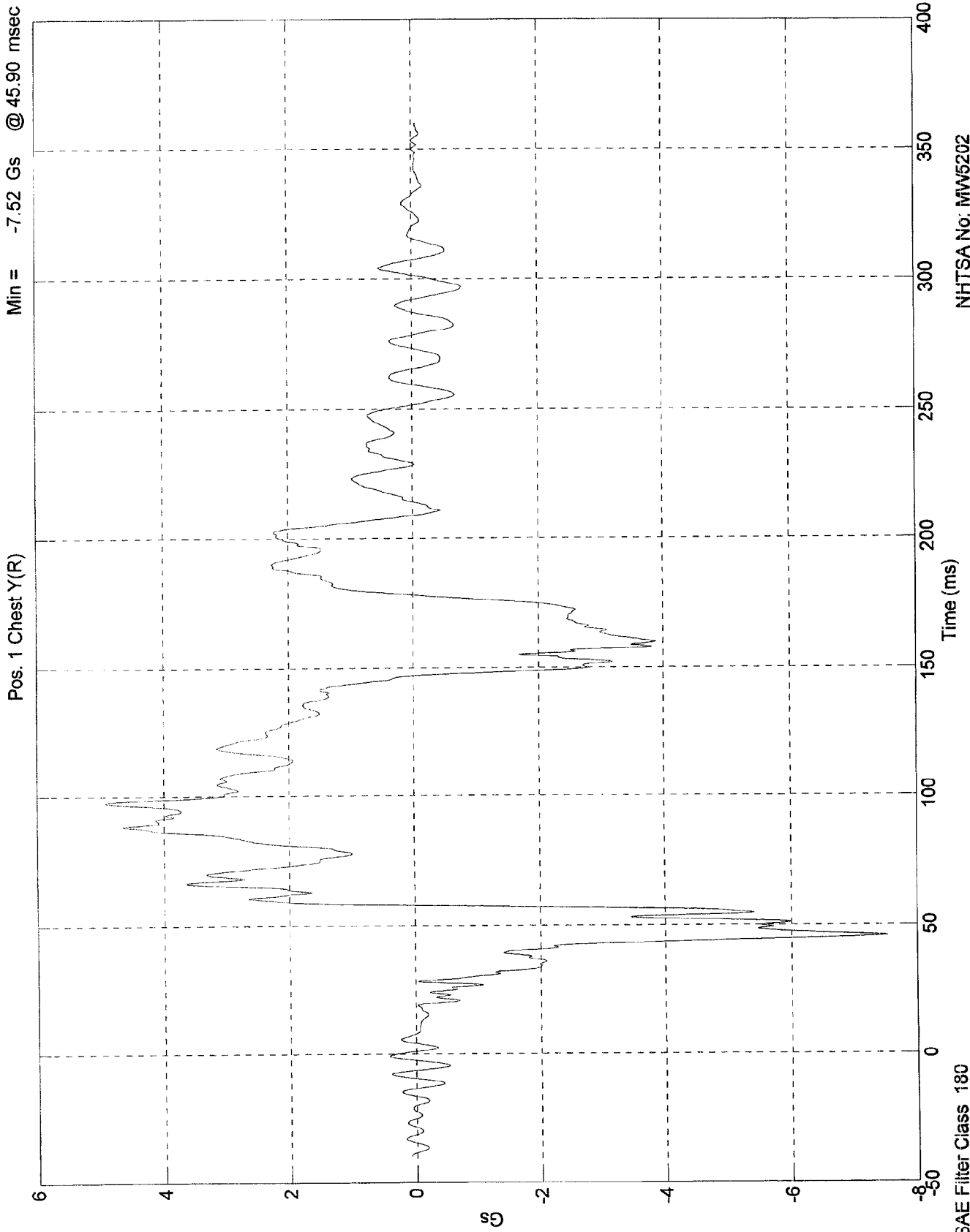


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 4.92 Gs @ 97.50 msec
Min = -7.52 Gs @ 45.90 msec



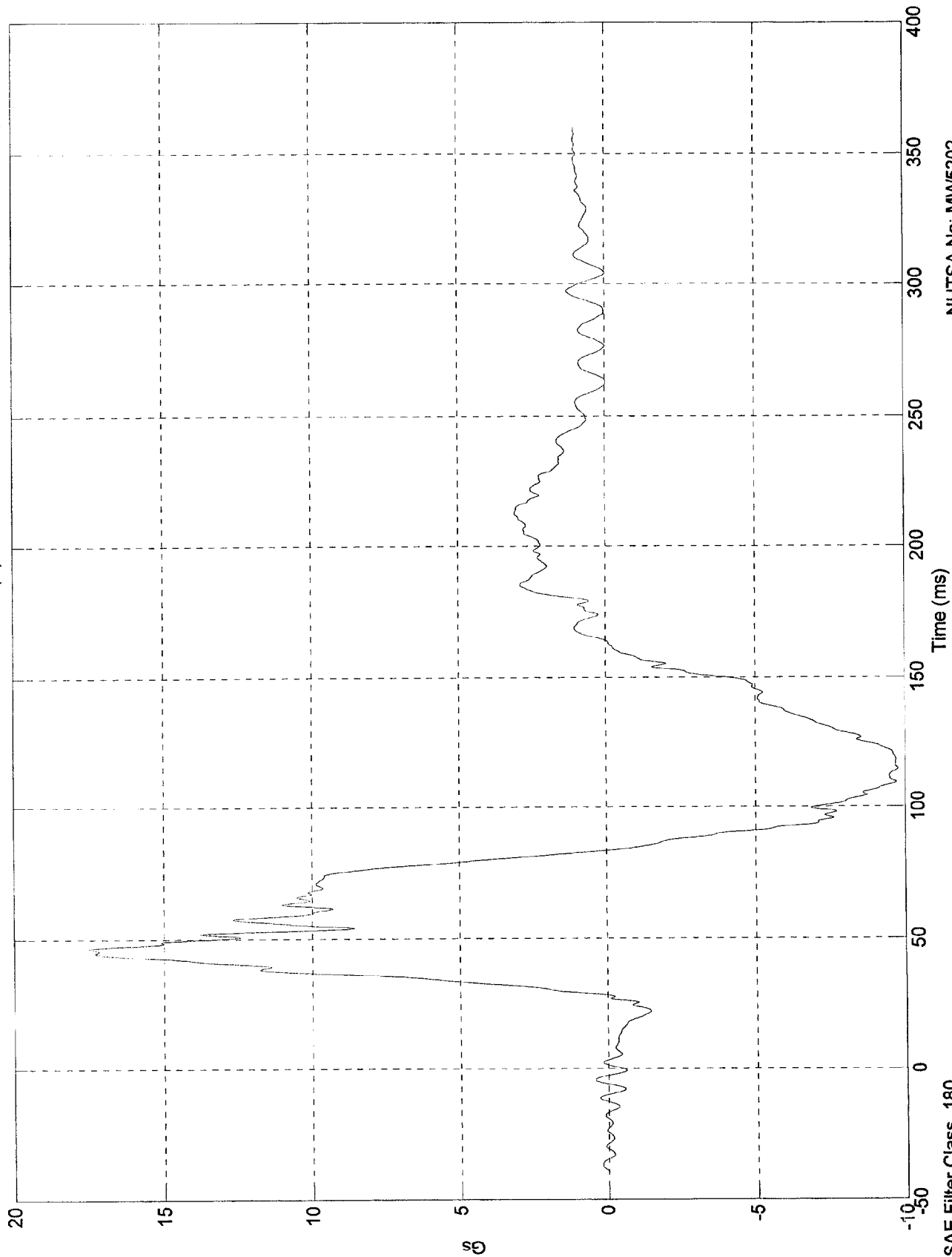
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 17.5 Gs @ 46.50 msec
Min = -9.77 Gs @ 114.70 msec

Pos. 1 Chest Z(R)



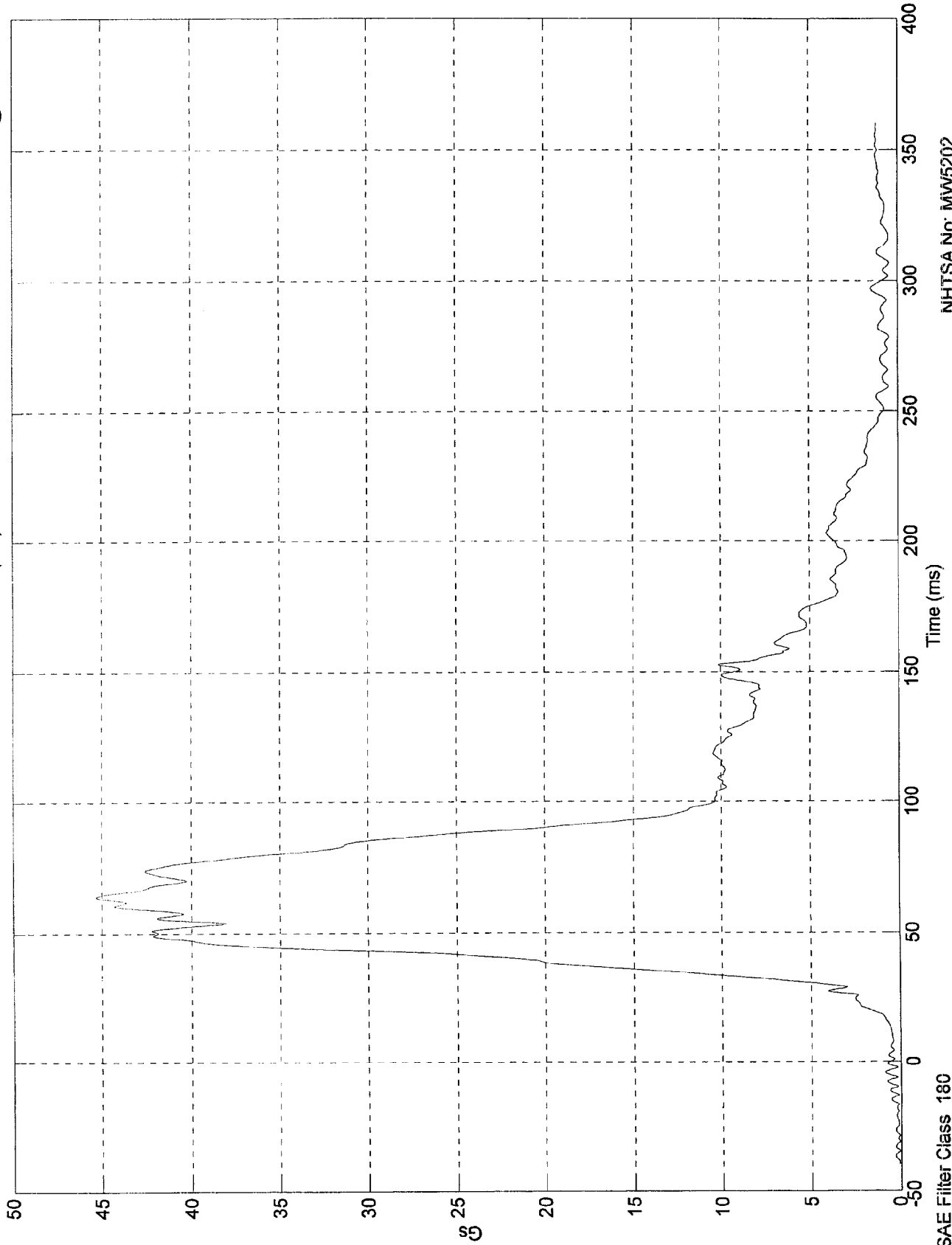
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 45.3 Gs @ 63.80 msec
Min = 0.021 Gs @ -34.70 msec

Pos. 1 Chest Res(RR)

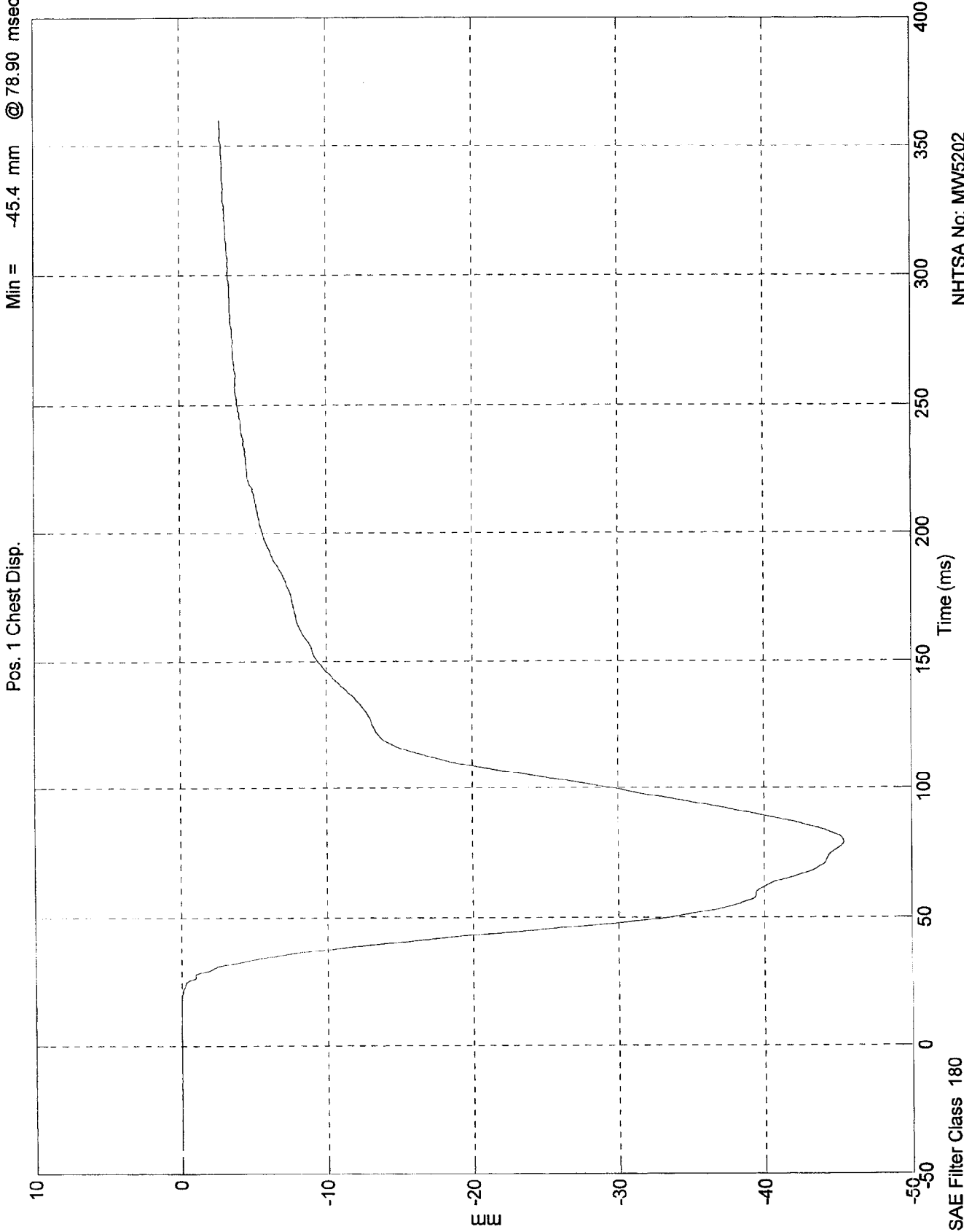


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 0.015 mm @ 30.80 msec
Min = -45.4 mm @ 78.90 msec

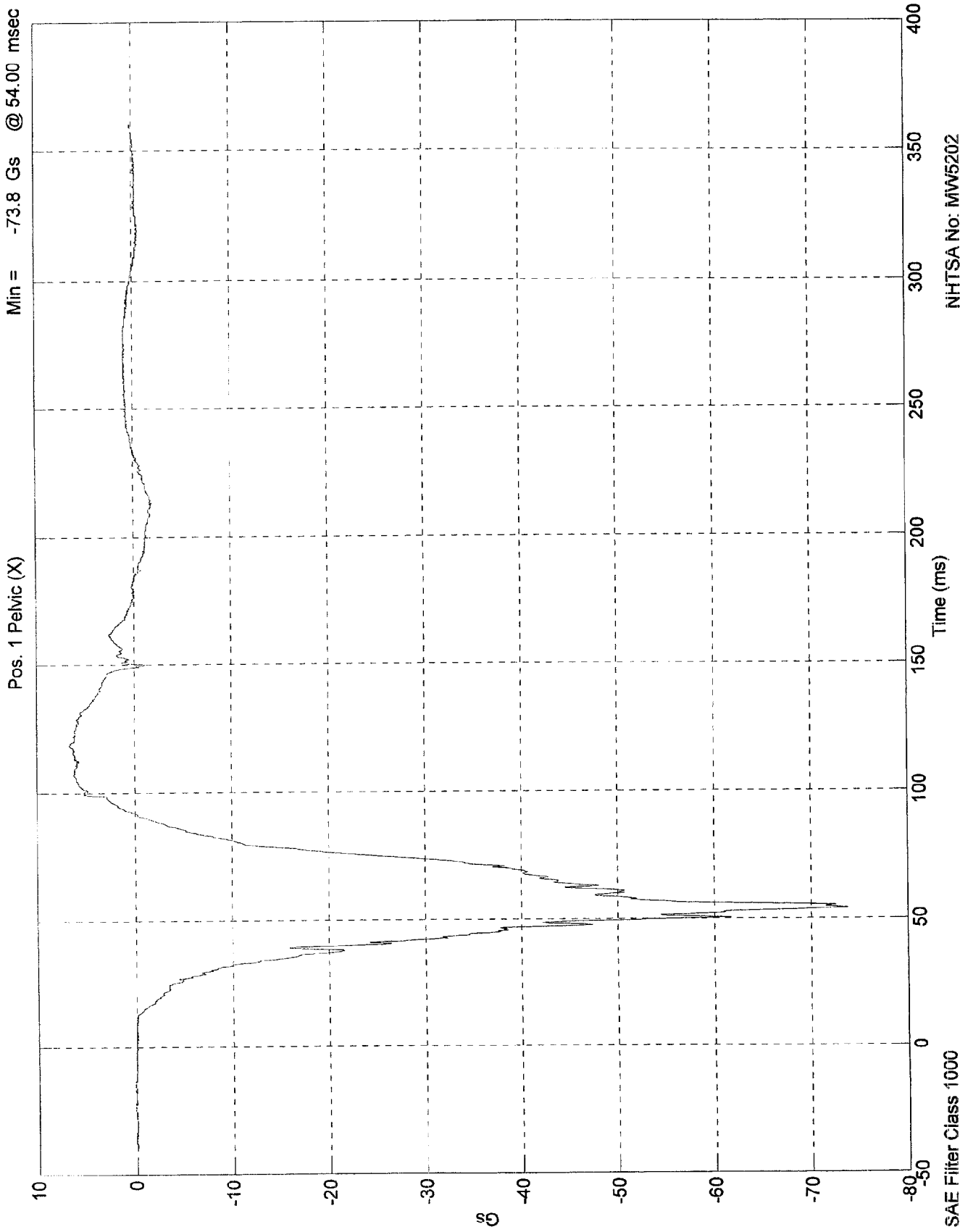


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 6.59 Gs @ 118.20 msec
Min = -73.8 Gs @ 54.00 msec

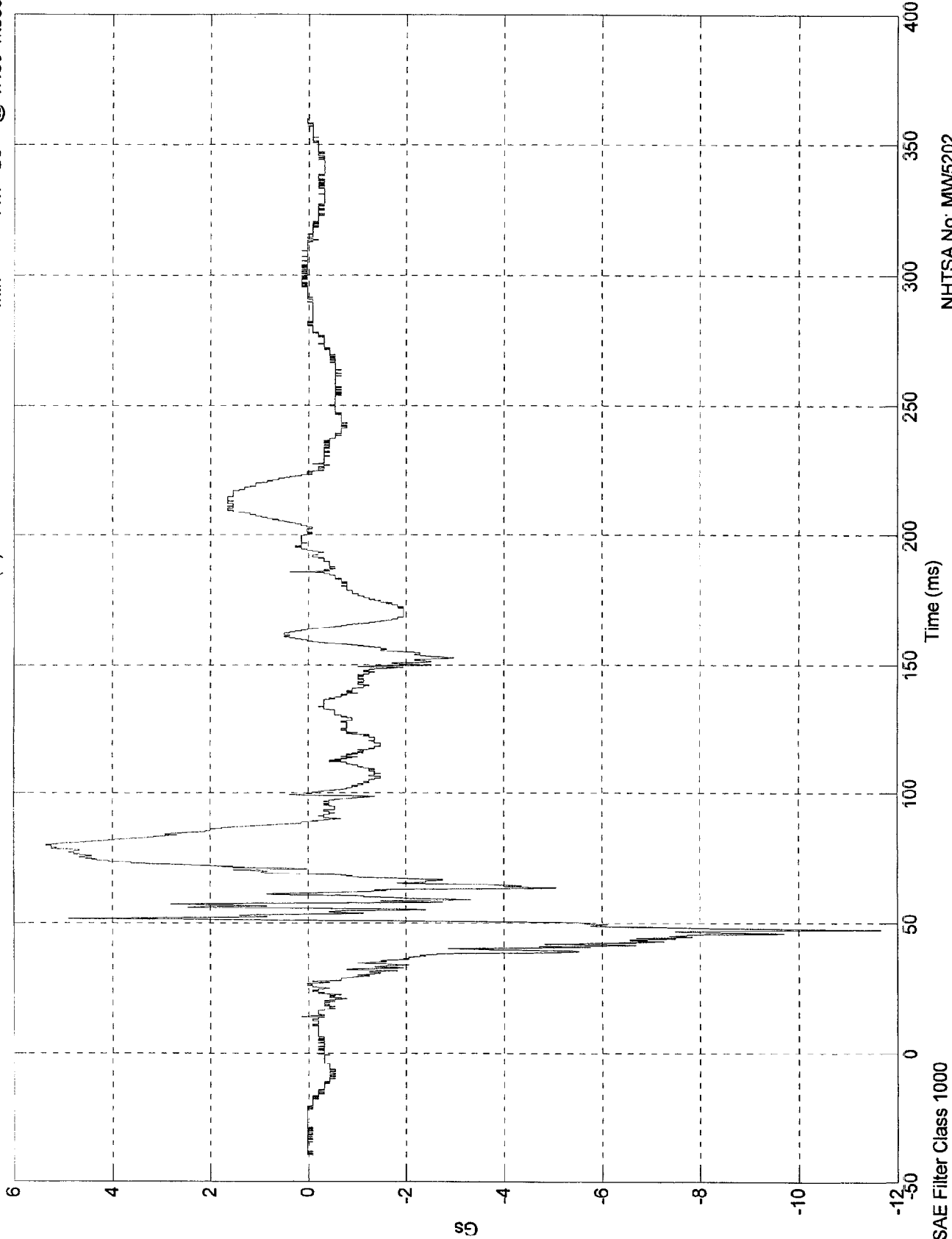


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 5.35 Gs @ 79.80 msec
Min = -11.7 Gs @ 47.60 msec

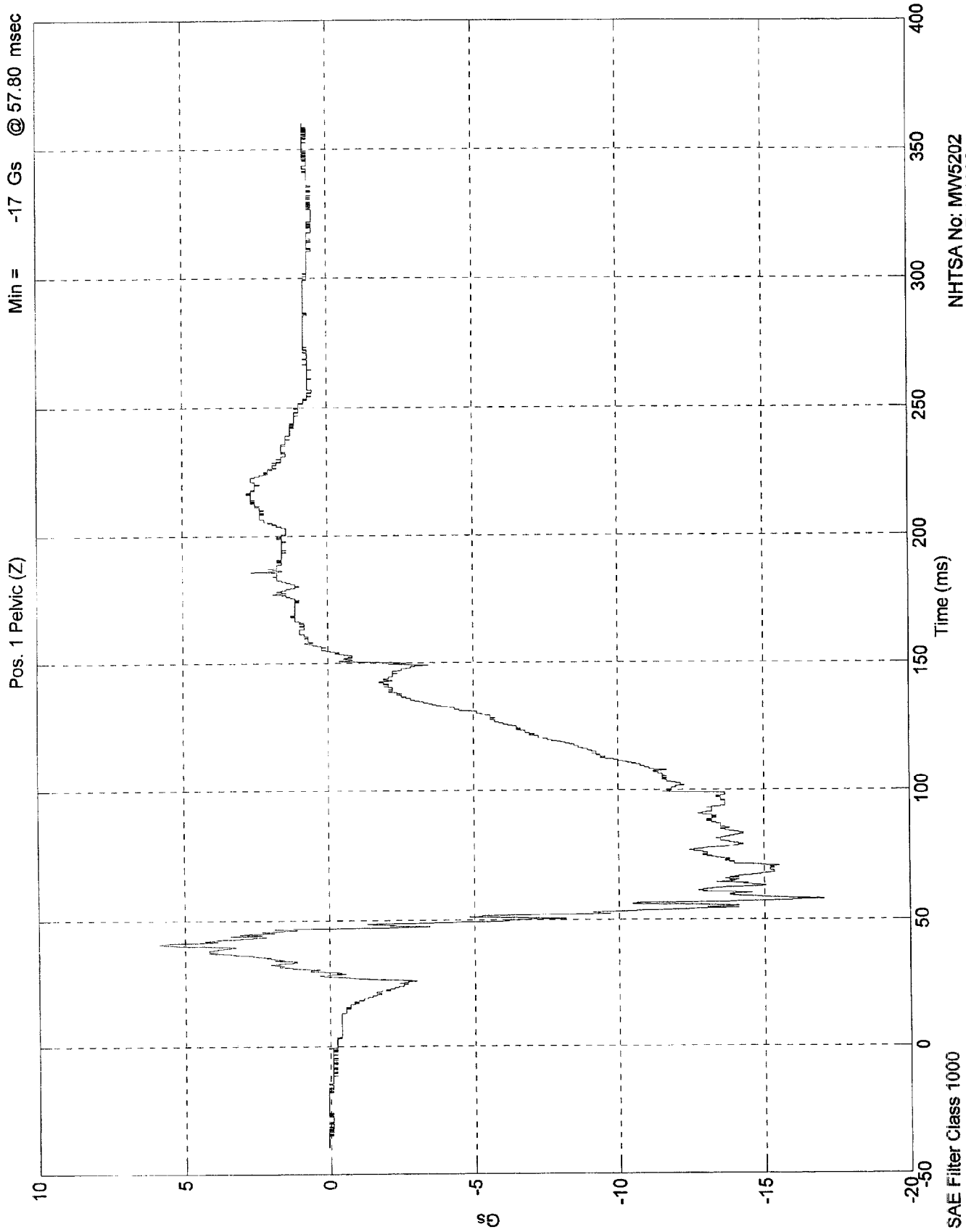
Pos. 1 Pelvic (Y)



NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 5.86 Gs @ 40.70 msec
Min = -17 Gs @ 57.80 msec

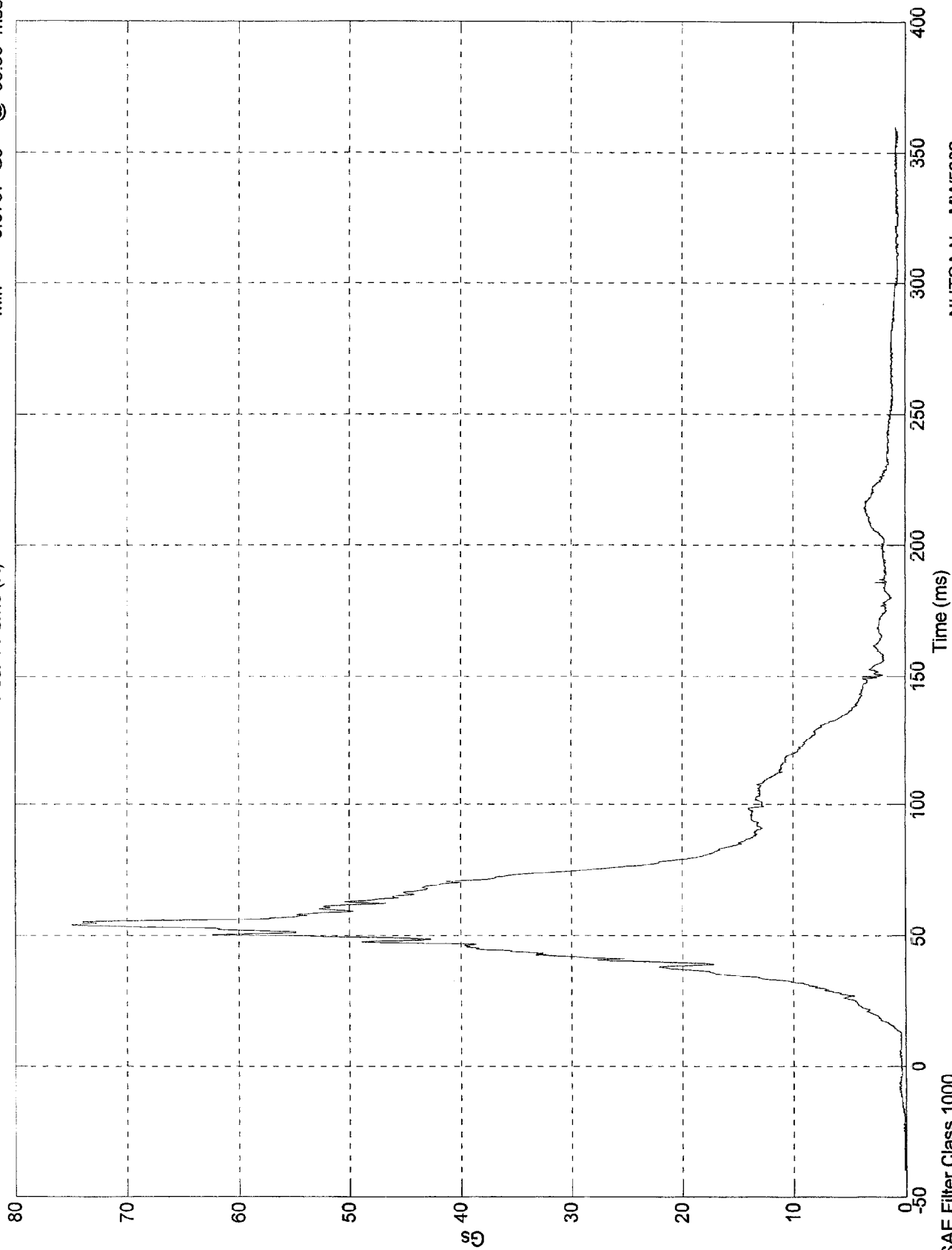


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 74.9 Gs @ 54.10 msec
Min = 0.0757 Gs @ -39.60 msec

Pos. 1 Pelvic (R)



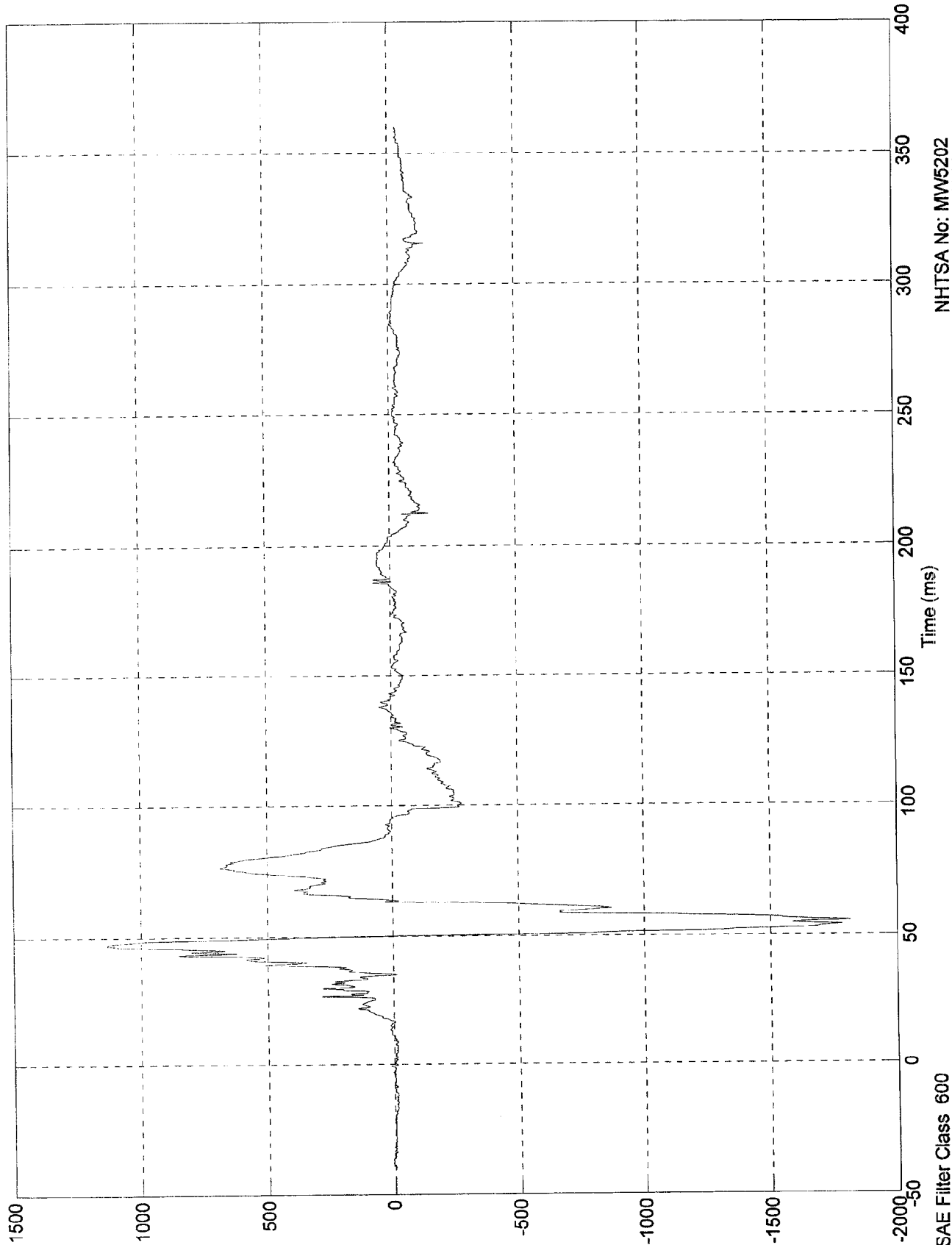
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 1.13e+003 Nwt @ 46.90 msec
Min = -1.81e+003 Nwt @ 55.40 msec

Pos. 1 Left Femur



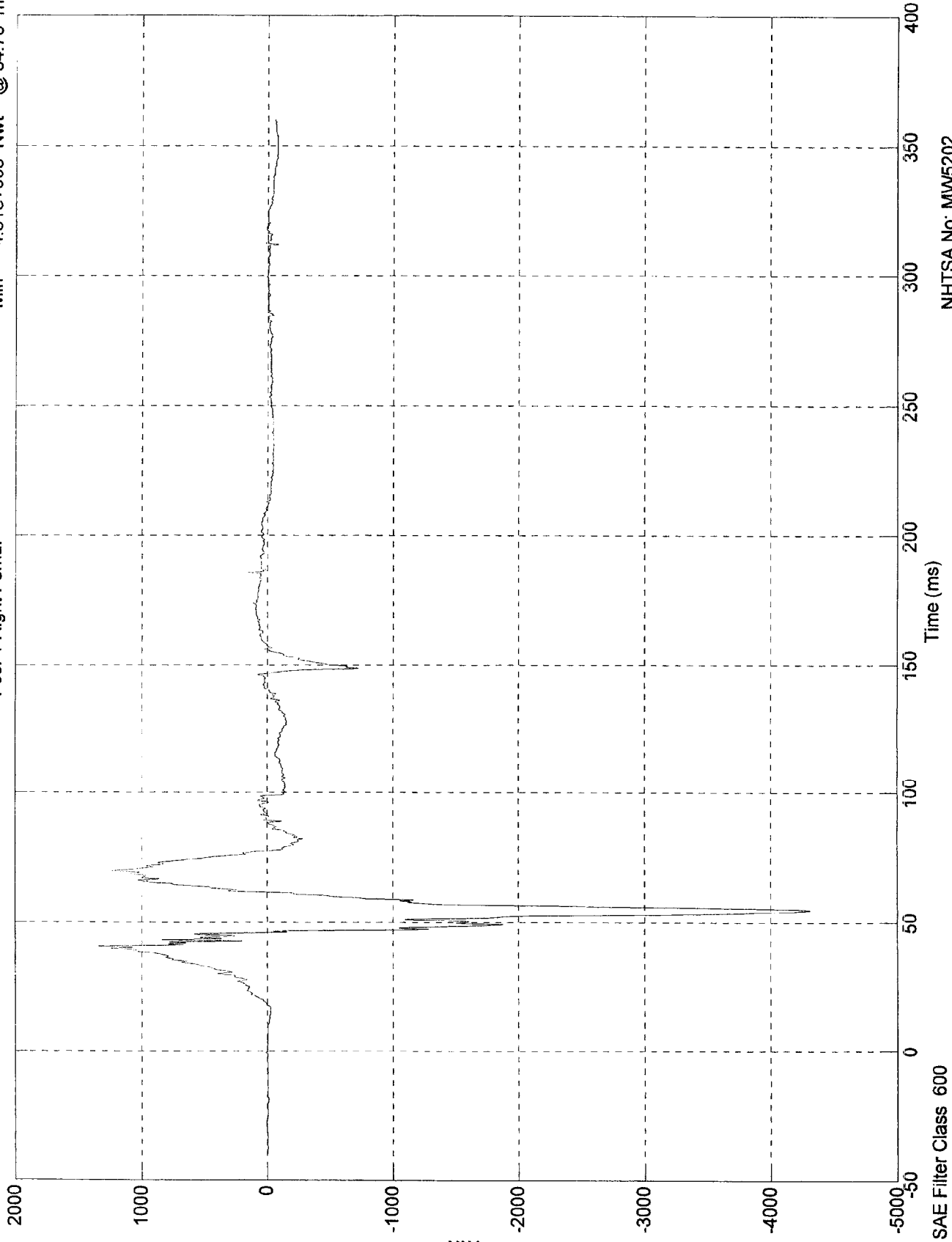
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 1.34e+003 Nwt @ 40.70 msec
Min = -4.31e+003 Nwt @ 54.70 msec

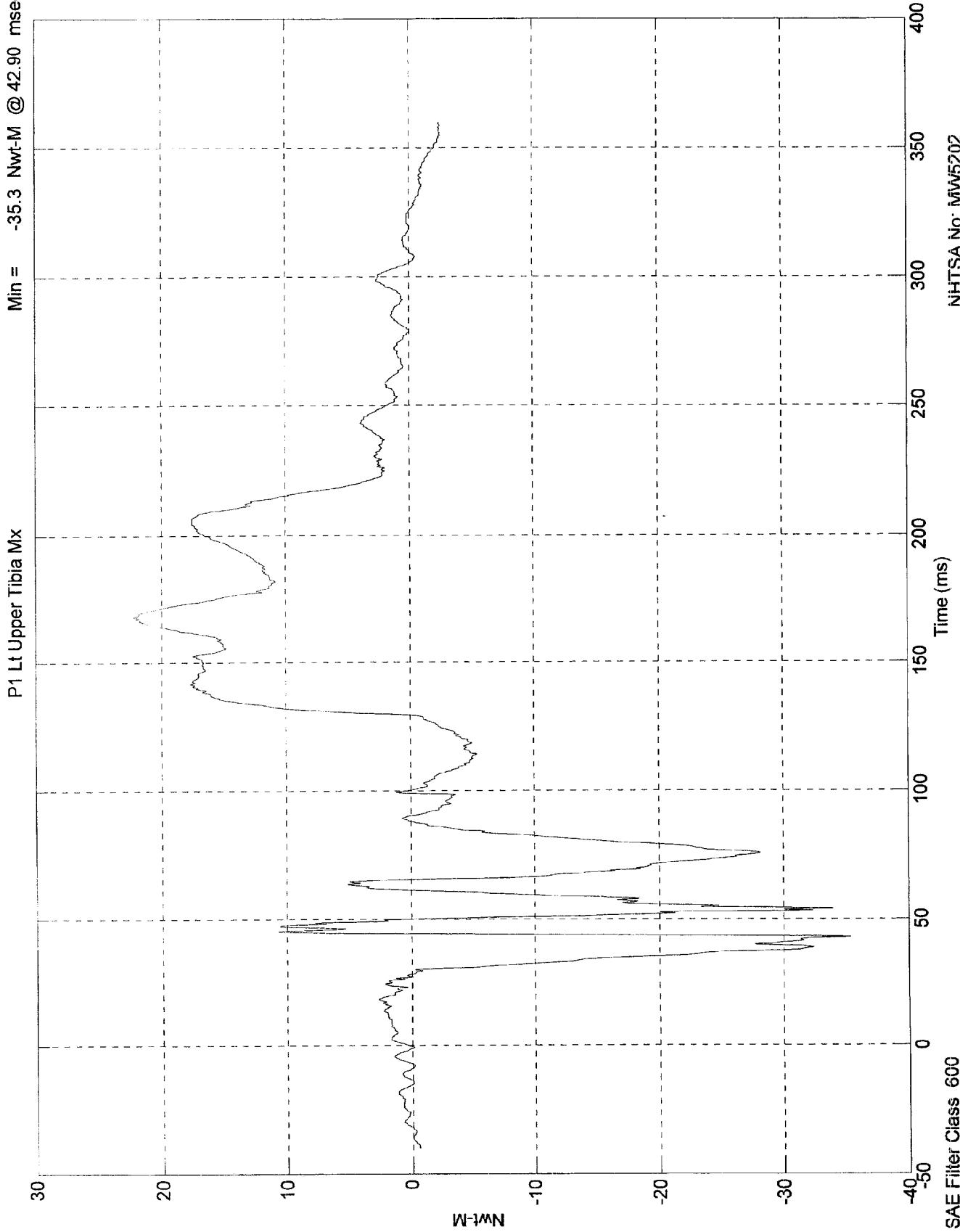
Pos. 1 Right Femur



NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 22.2 Nwt-M @ 168.20 msec
Min = -35.3 Nwt-M @ 42.90 msec



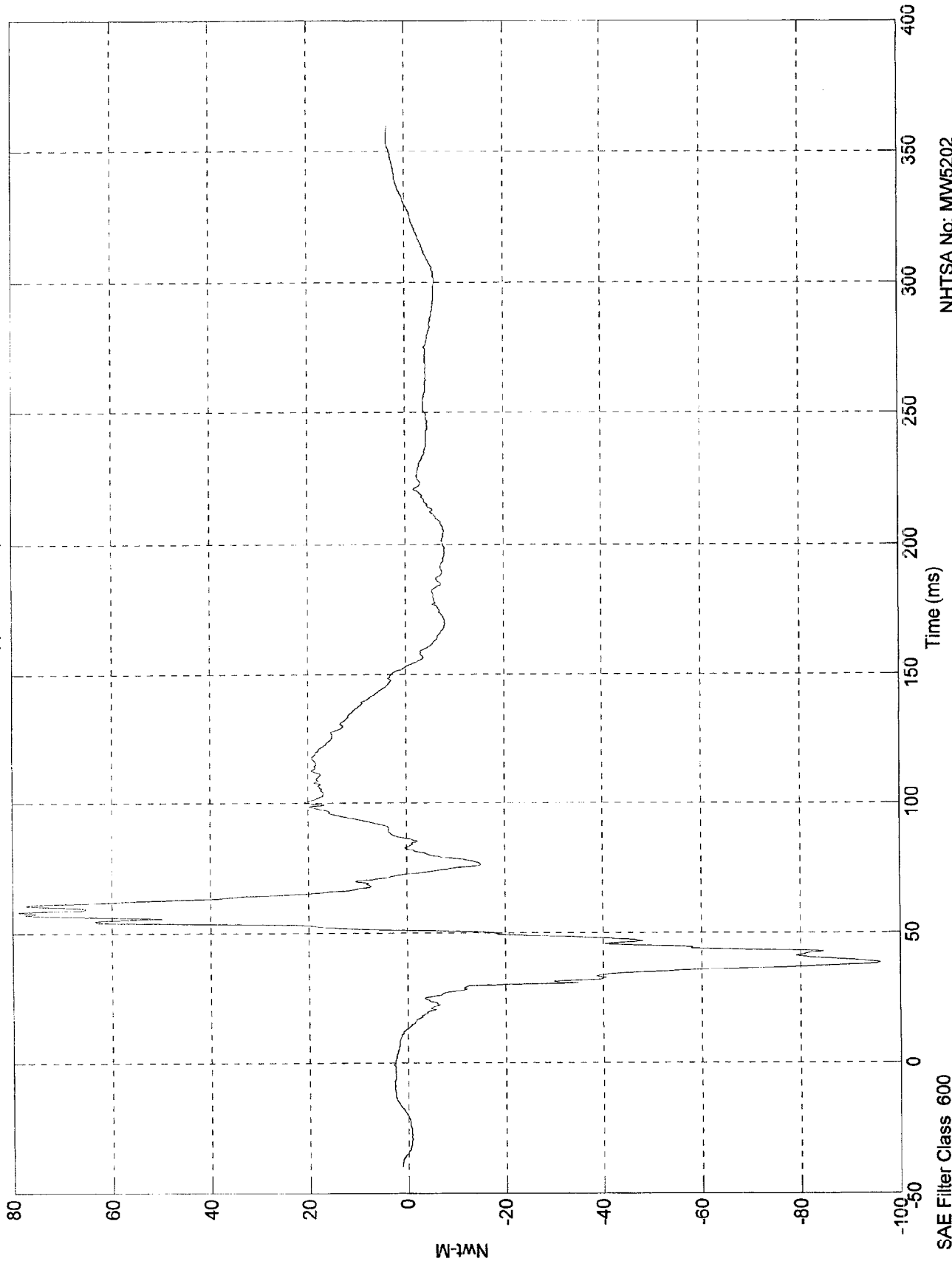
NHTSA No: MW5202
Date: 17 Feb 1998

W-M

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 78.7 Nwt-M @ 58.00 msec
Min = -95.9 Nwt-M @ 38.30 msec

P1 Lt Upper Tibia My



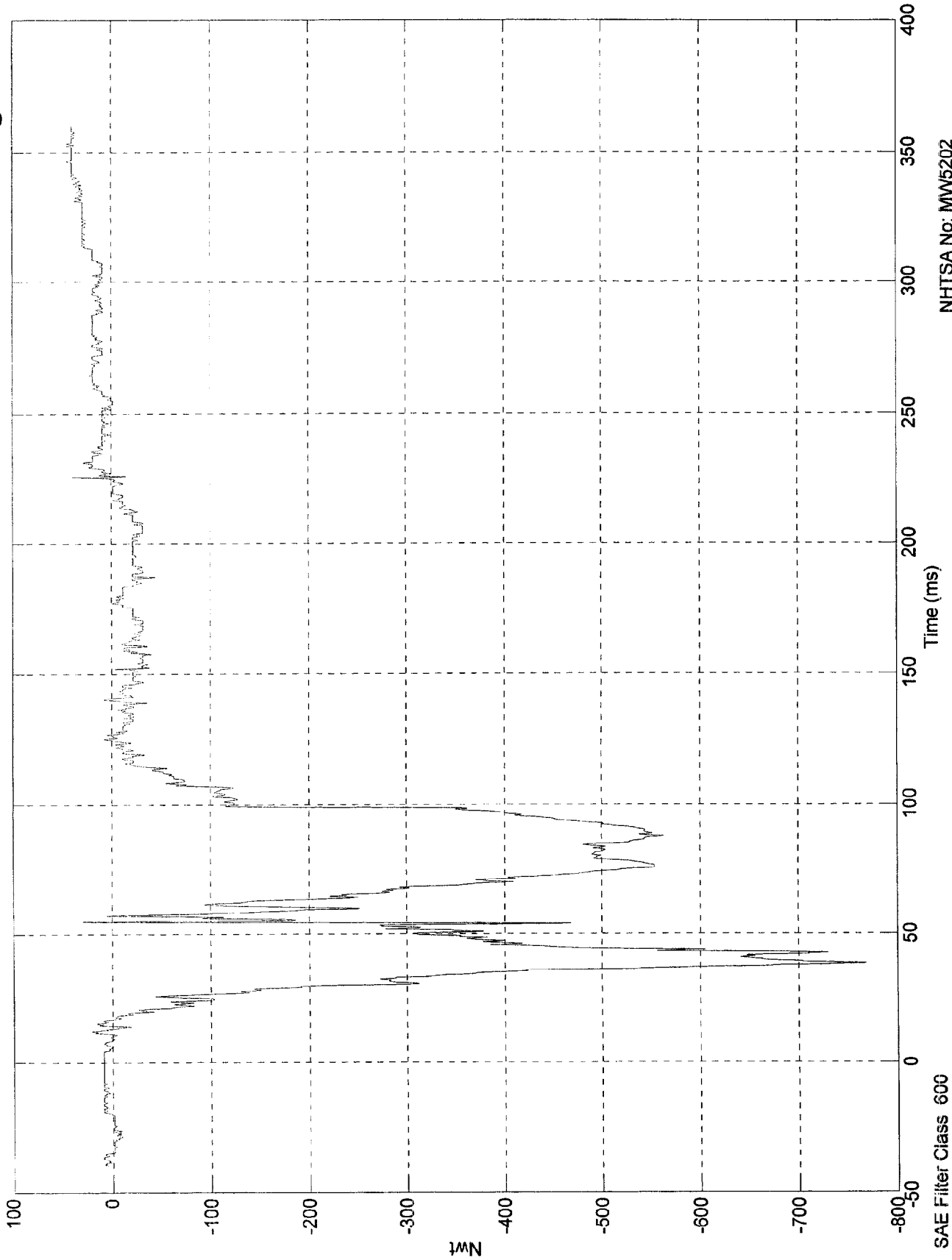
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 44.6 Nwt @ 353.30 msec
Min = -768 Nwt @ 38.50 msec

P1 Lt Lower Tibia Fx

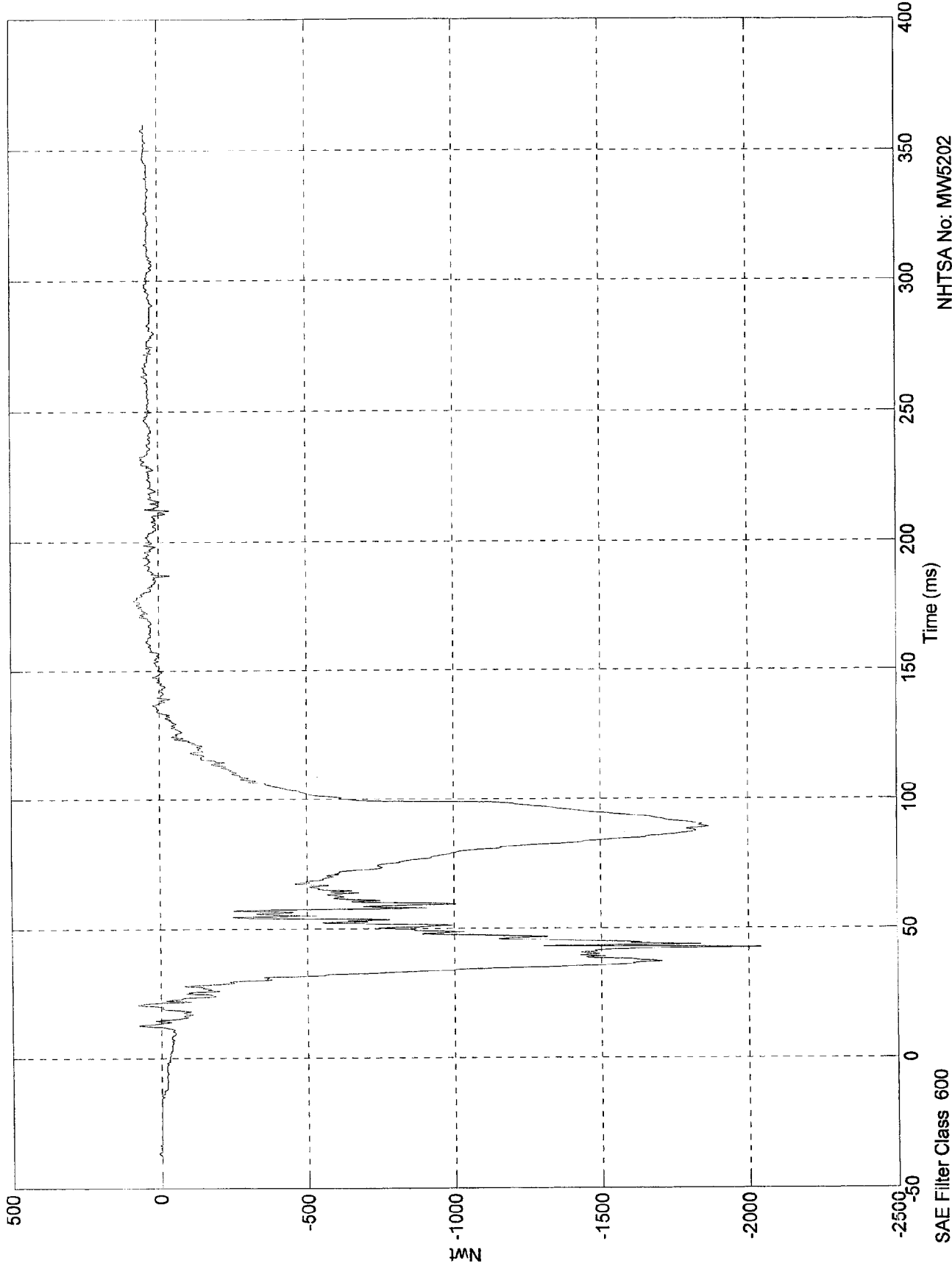


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 84.2 Nwt @ 177.40 msec
Min = -2.04e+003 Nwt @ 42.80 msec

P1 Lt Lower Tibia Fz

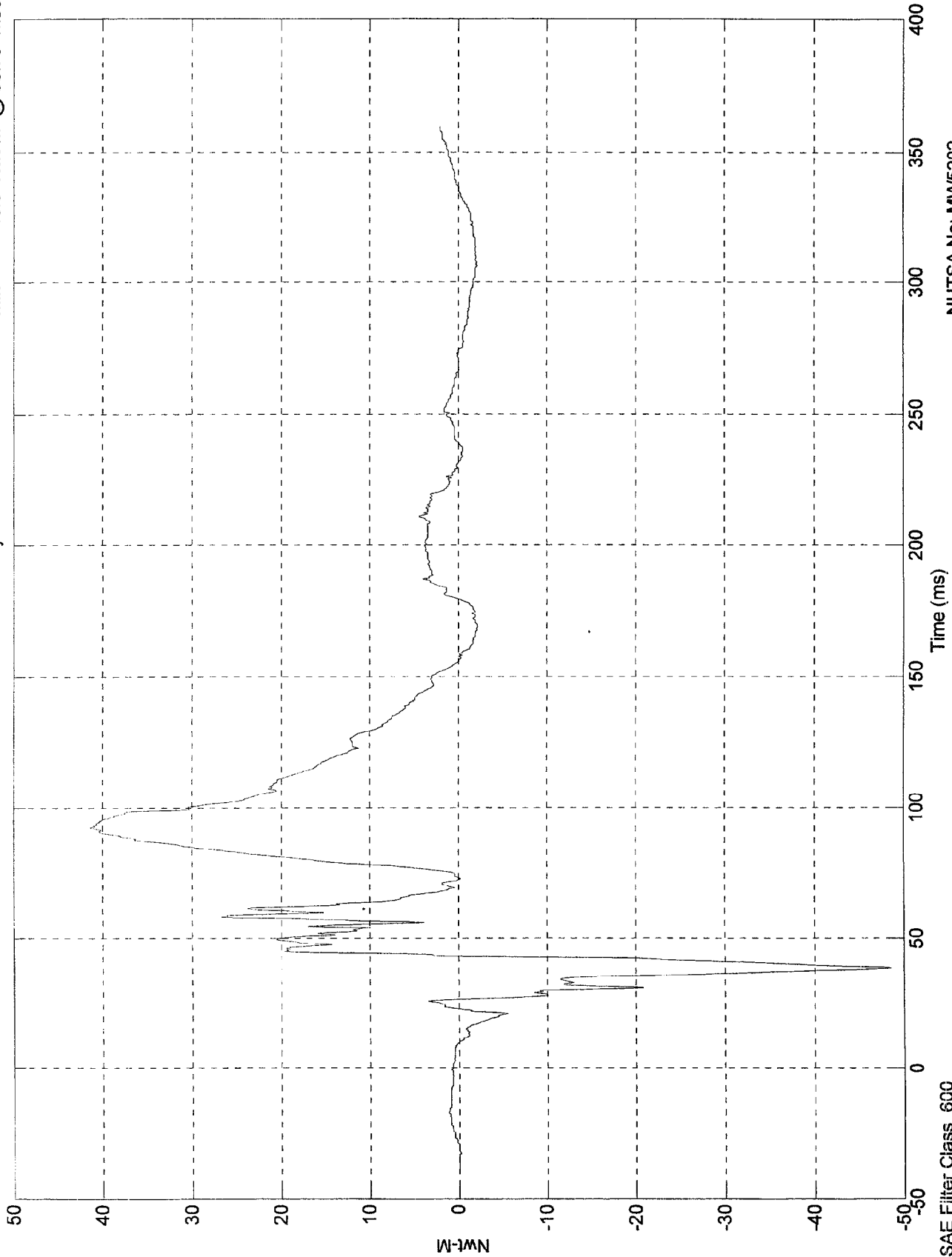


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 41.4 Nwt-M @ 92.40 msec
Min = -48.5 Nwt-M @ 38.70 msec

P1 Lt Lower Tibia My

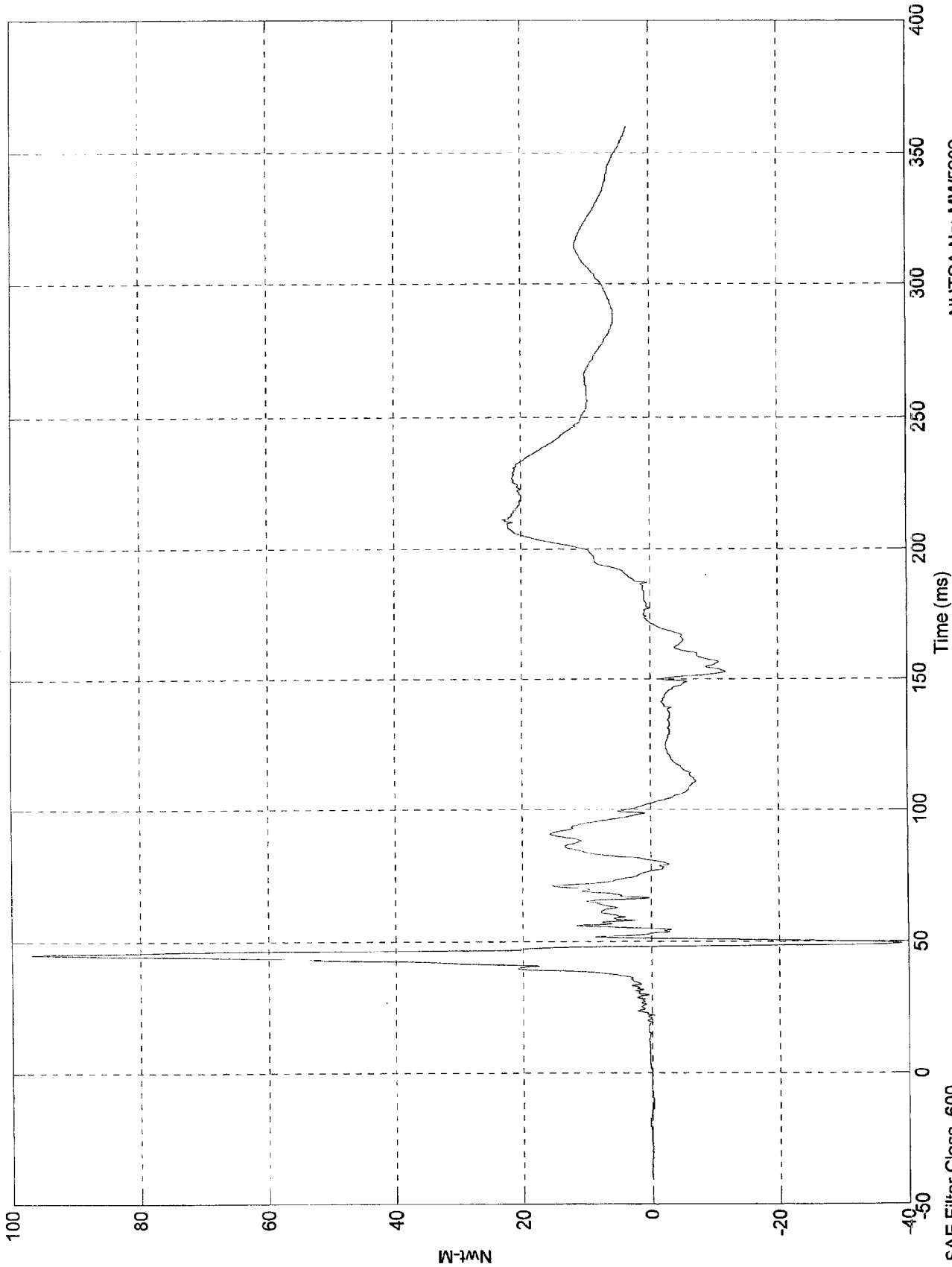


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 96.9 Nwt-M @ 45.20 msec
Min = -38.9 Nwt-M @ 49.30 msec

P1 Rt Upper Tibia Mx



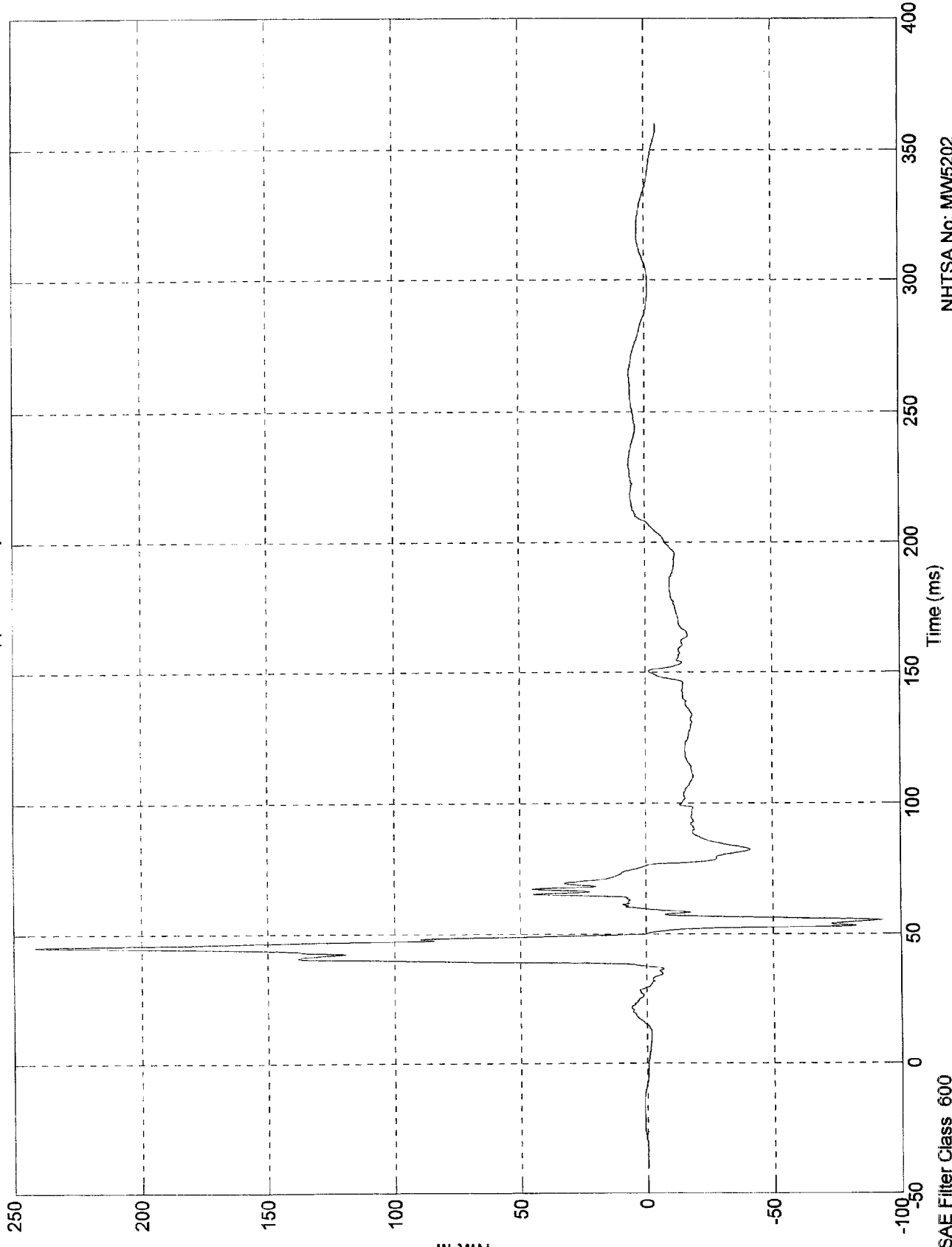
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 241 Nwt-M @ 45.30 msec
Min = -92.8 Nwt-M @ 55.10 msec

P1 Rt Upper Tibia My



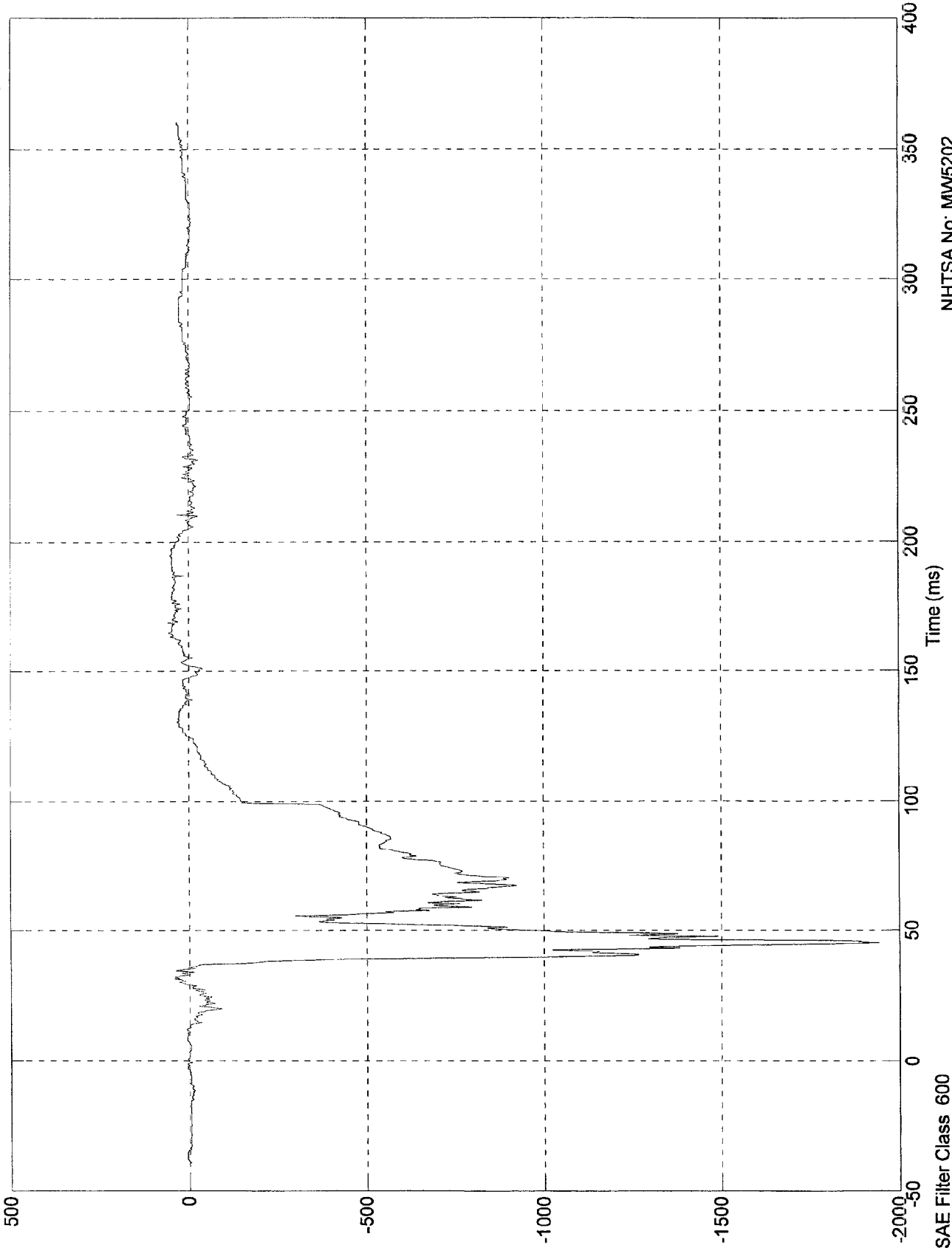
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 58.2 Nwt @ 168.60 msec
Min = -1.94e+003 Nwt @ 45.20 msec

P1 Rt Lower Tibia Fx



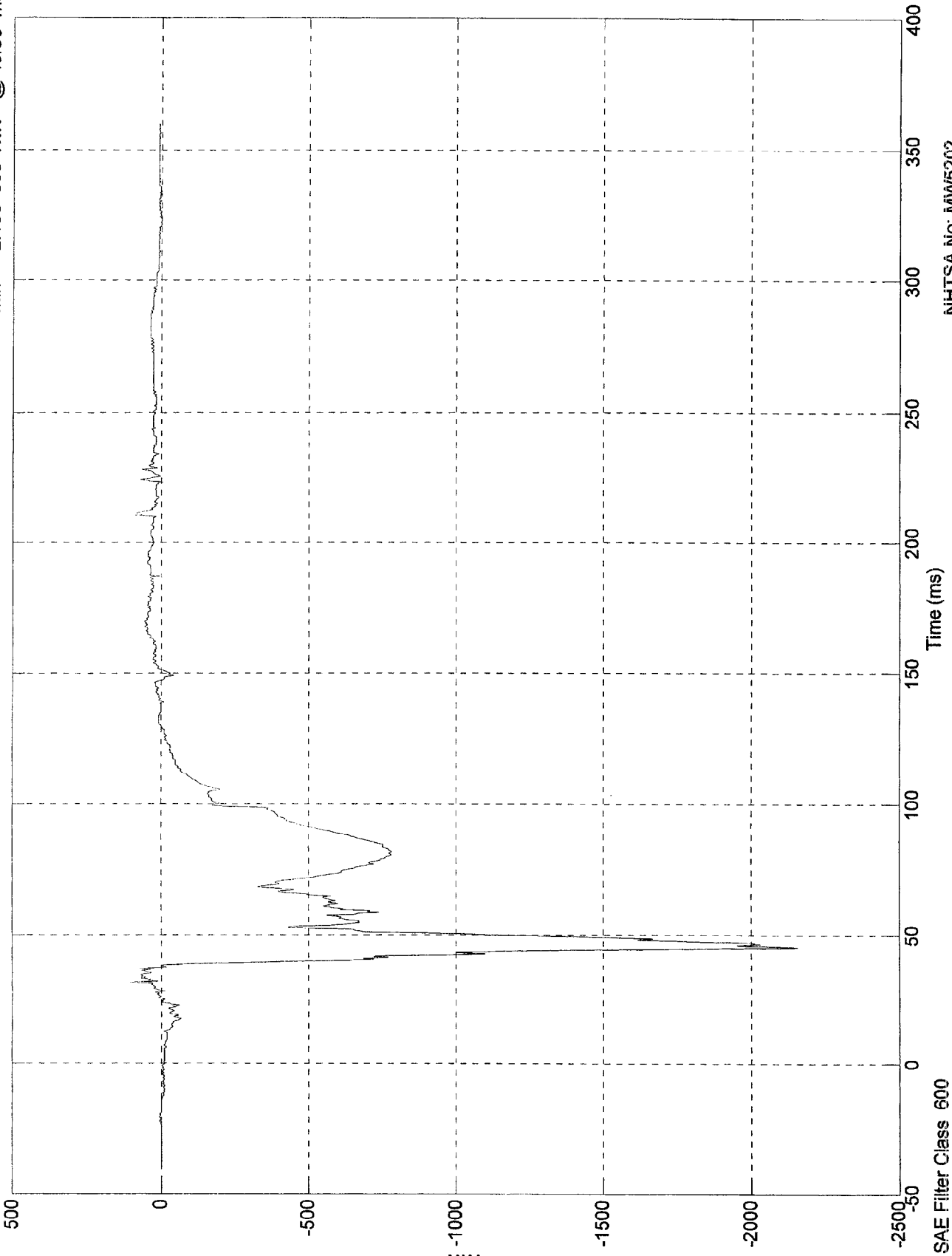
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 104 Nwt @ 31.50 msec
Min = -2.16e+003 Nwt @ 45.30 msec

P1 Rt Lower Tibia Fz



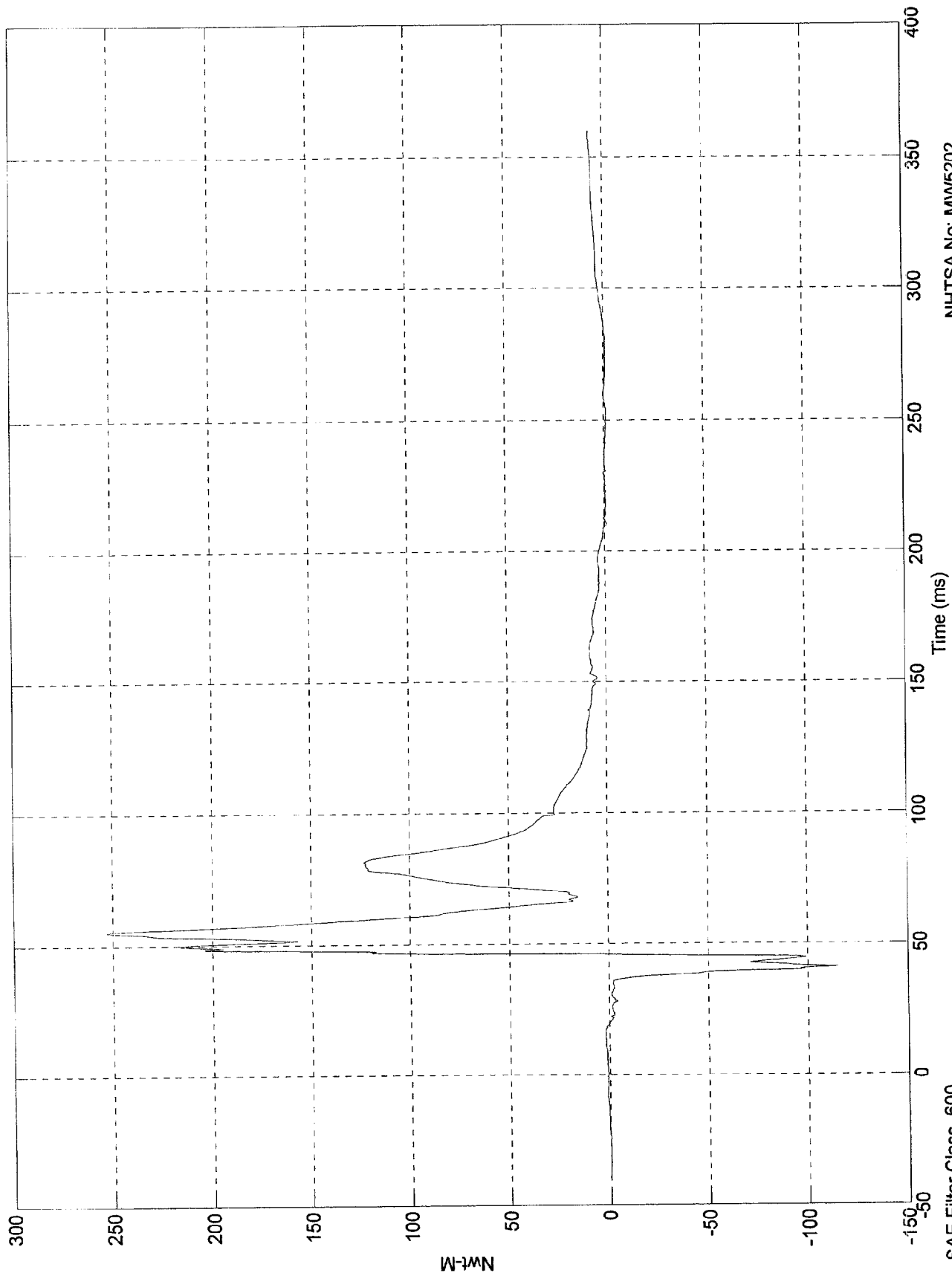
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 253 Nwt-M @ 55.10 msec
Min = -115 Nwt-M @ 40.90 msec

P1 Rt Lower Tibia My



NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

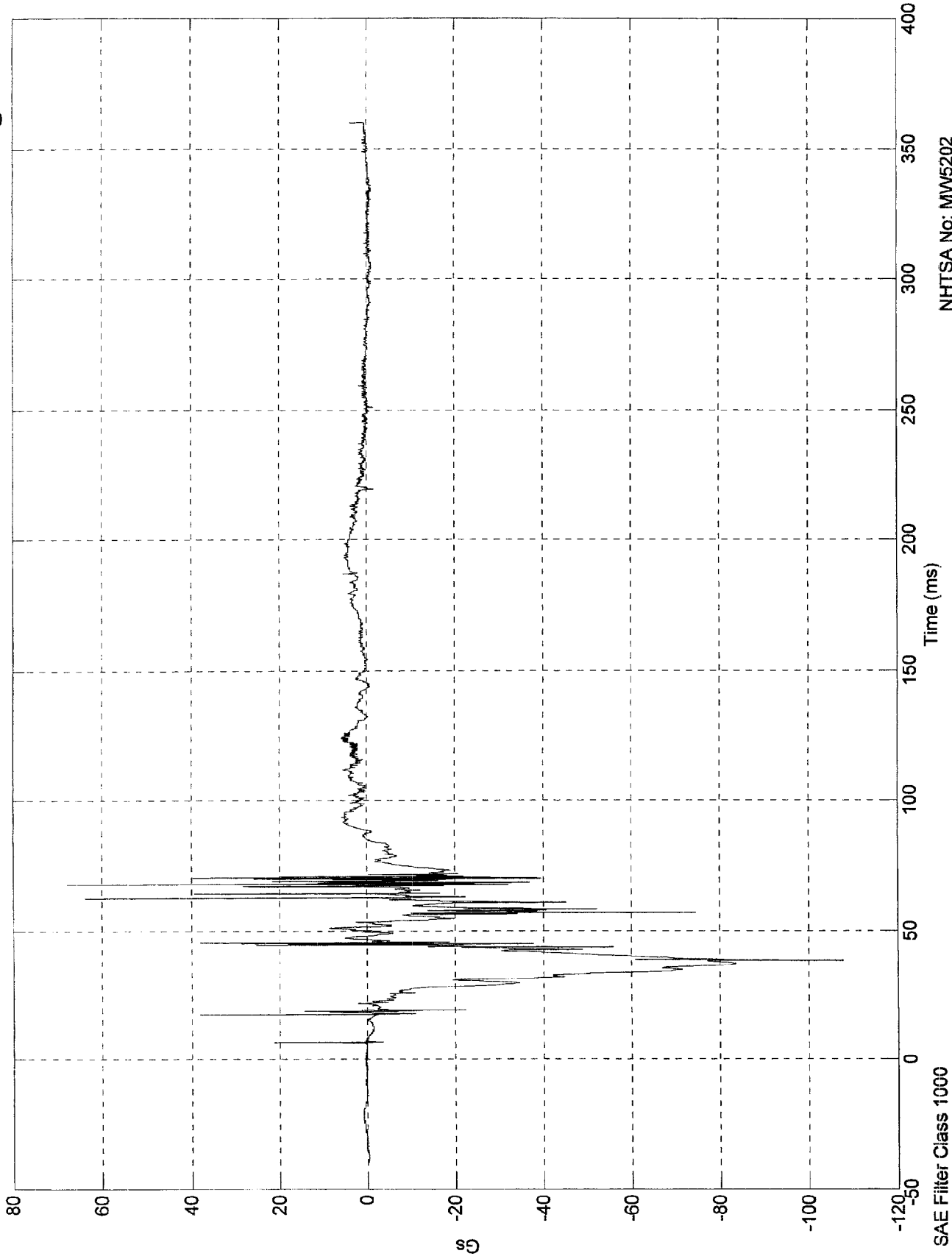
B-44

8413-23

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 67.9 Gs @ 67.70 msec
Min = -108 Gs @ 38.60 msec

Pos. 1 Left Ankle X

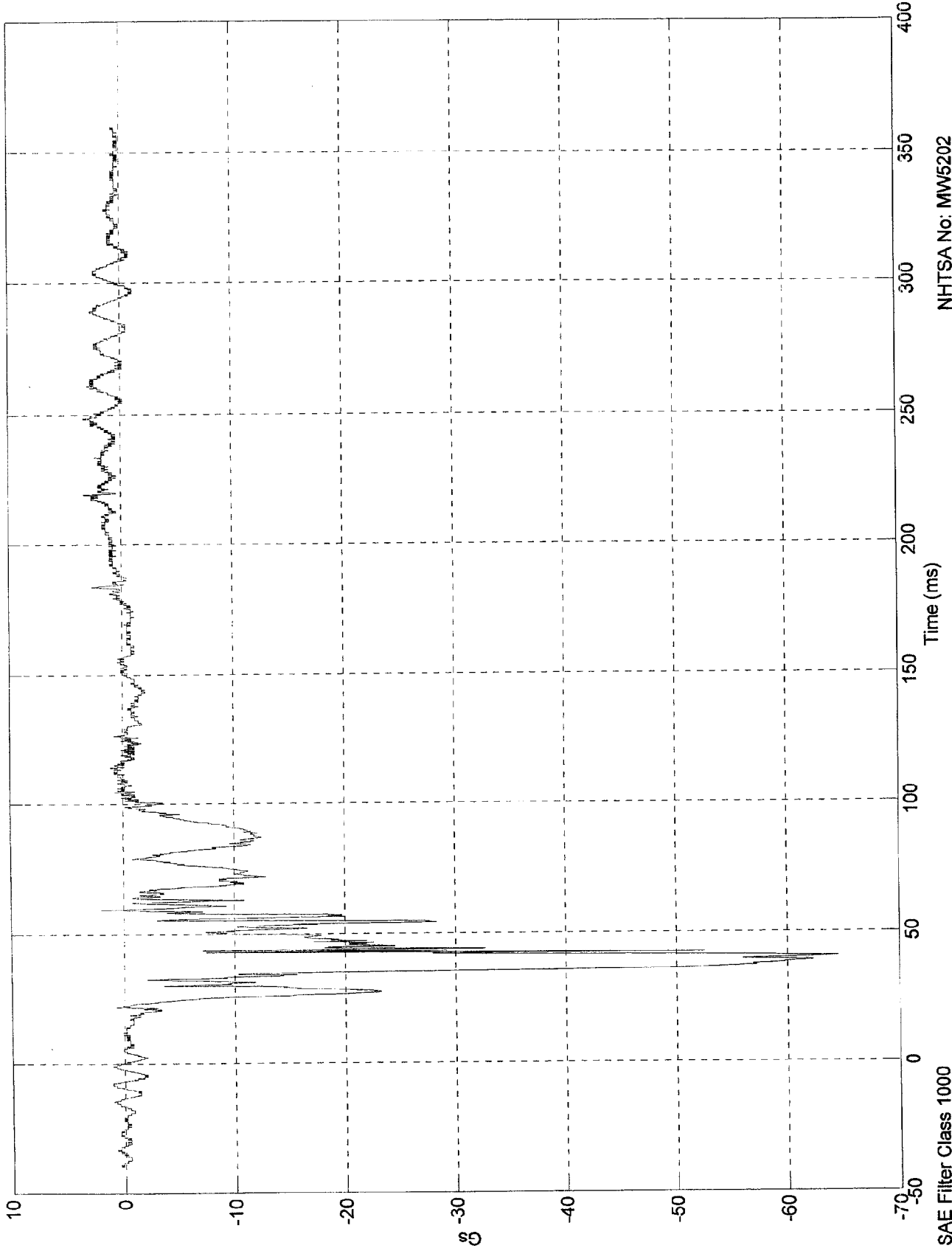


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 3.29 Gs @ 219.20 msec
Min = -64.5 Gs @ 40.80 msec

Pos. 1 Left Ankle Z

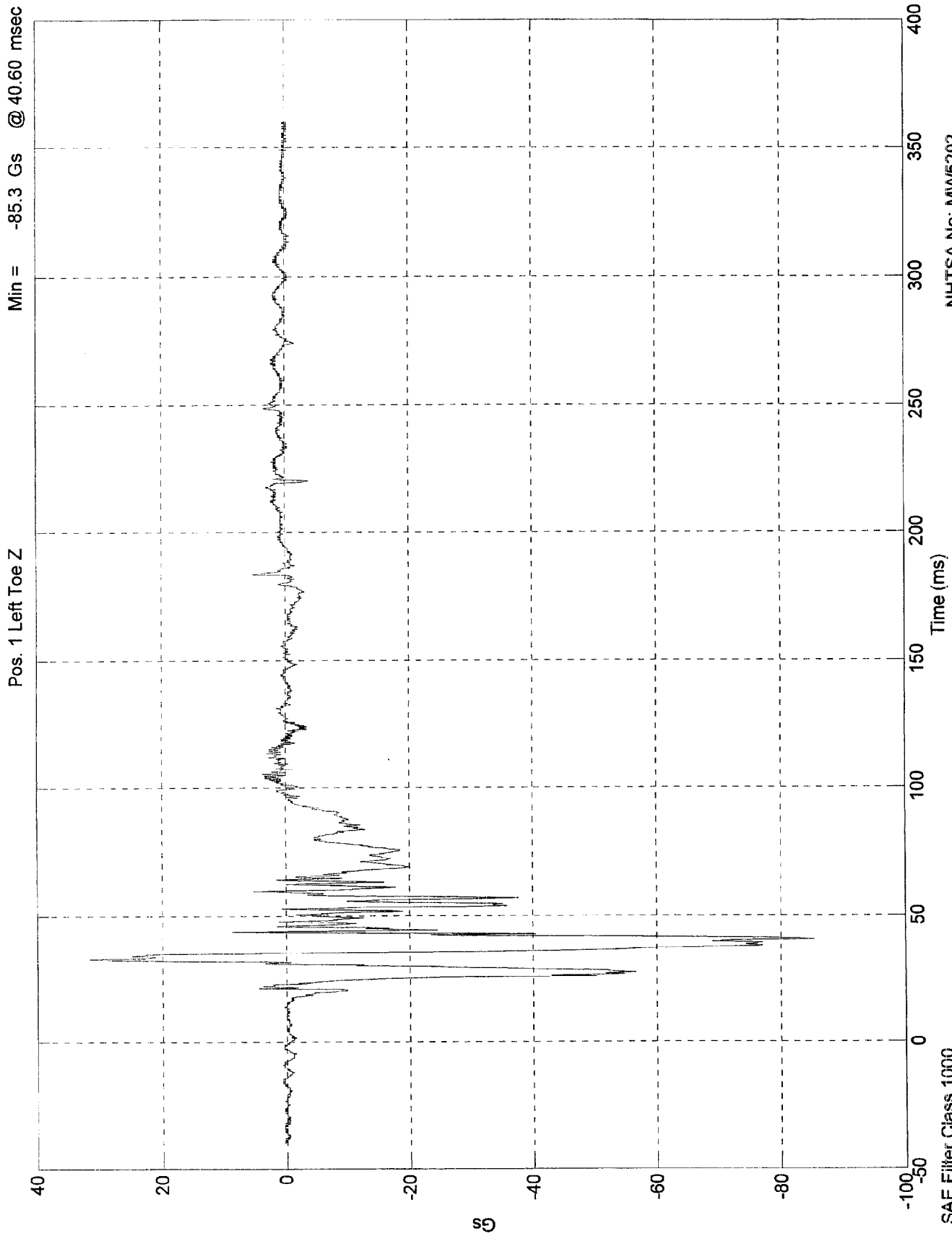


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 31.7 Gs @ 32.90 msec
Min = -85.3 Gs @ 40.60 msec

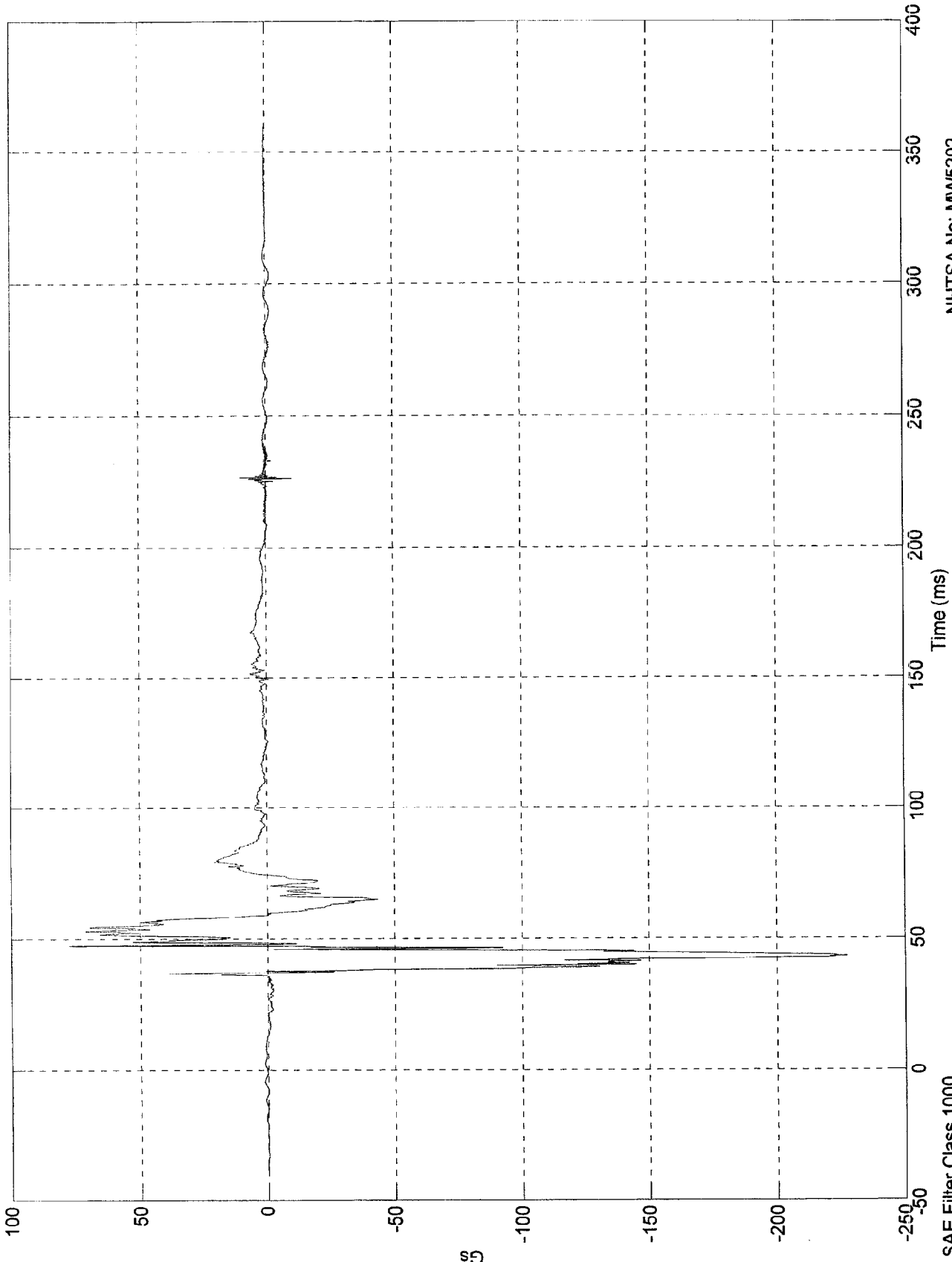


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 77.7 Gs @ 47.50 msec
Min = -227 Gs @ 43.30 msec

Pos. 1 Right Ankle X



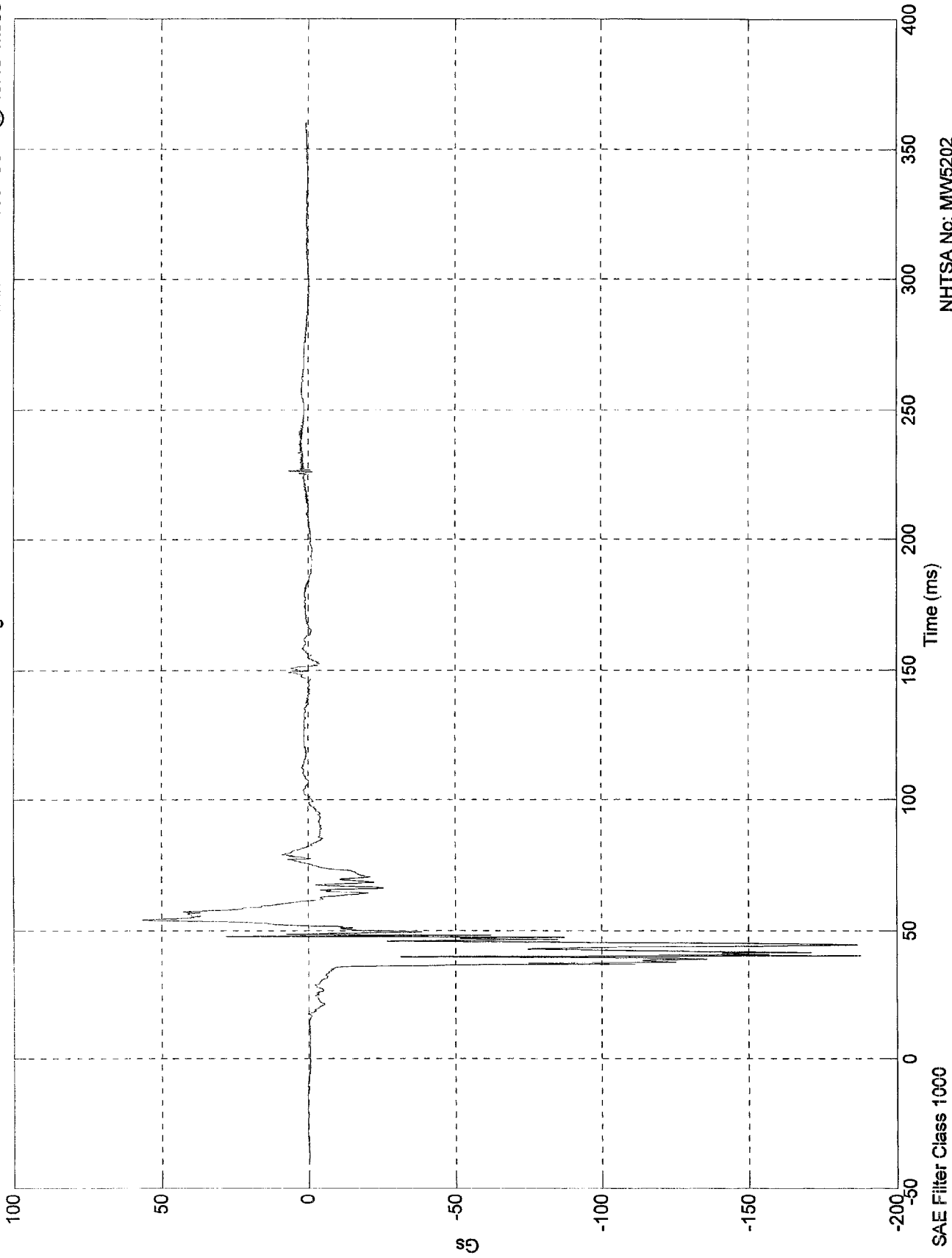
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 56.6 Gs @ 54.00 msec
Min = -188 Gs @ 40.40 msec

Pos. 1 Right Ankle Z

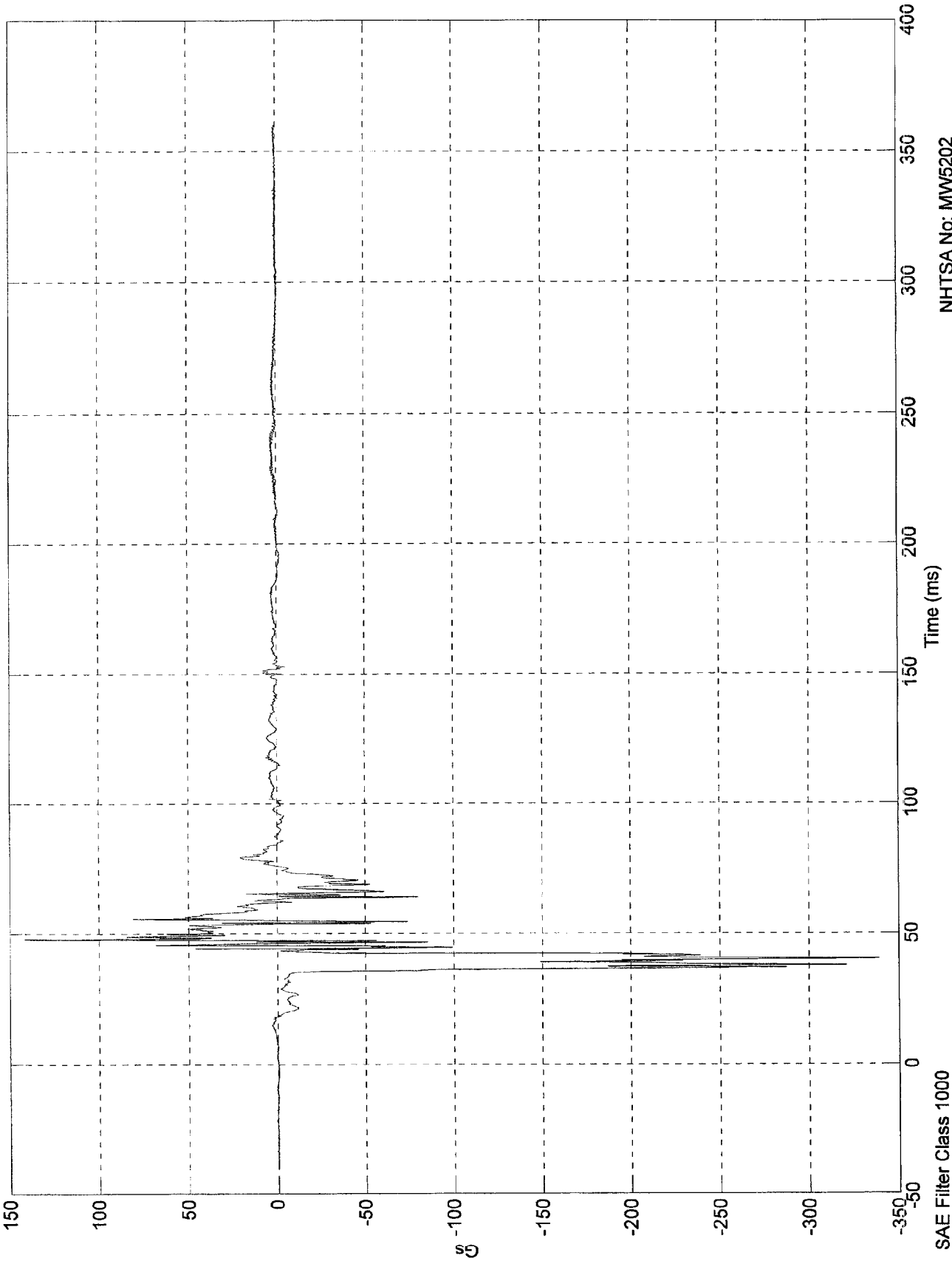


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 142 Gs @ 48.00 msec
Min = -339 Gs @ 40.30 msec

Pos. 1 Right Toe Z

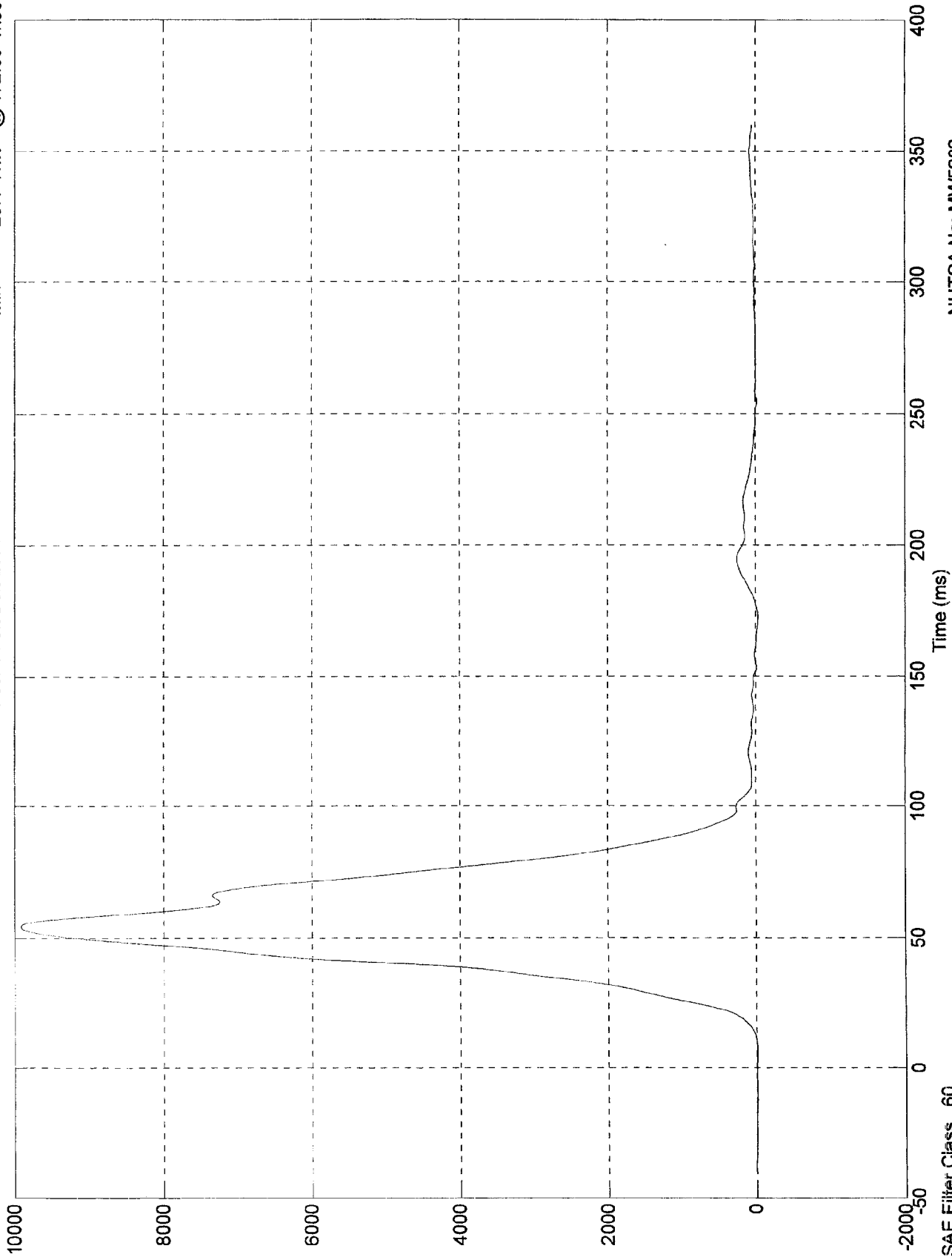


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 9.92e+003 Nwt @ 54.30 msec
Min = -29.1 Nwt @ 172.80 msec

Pos. 1 Left Belt Load



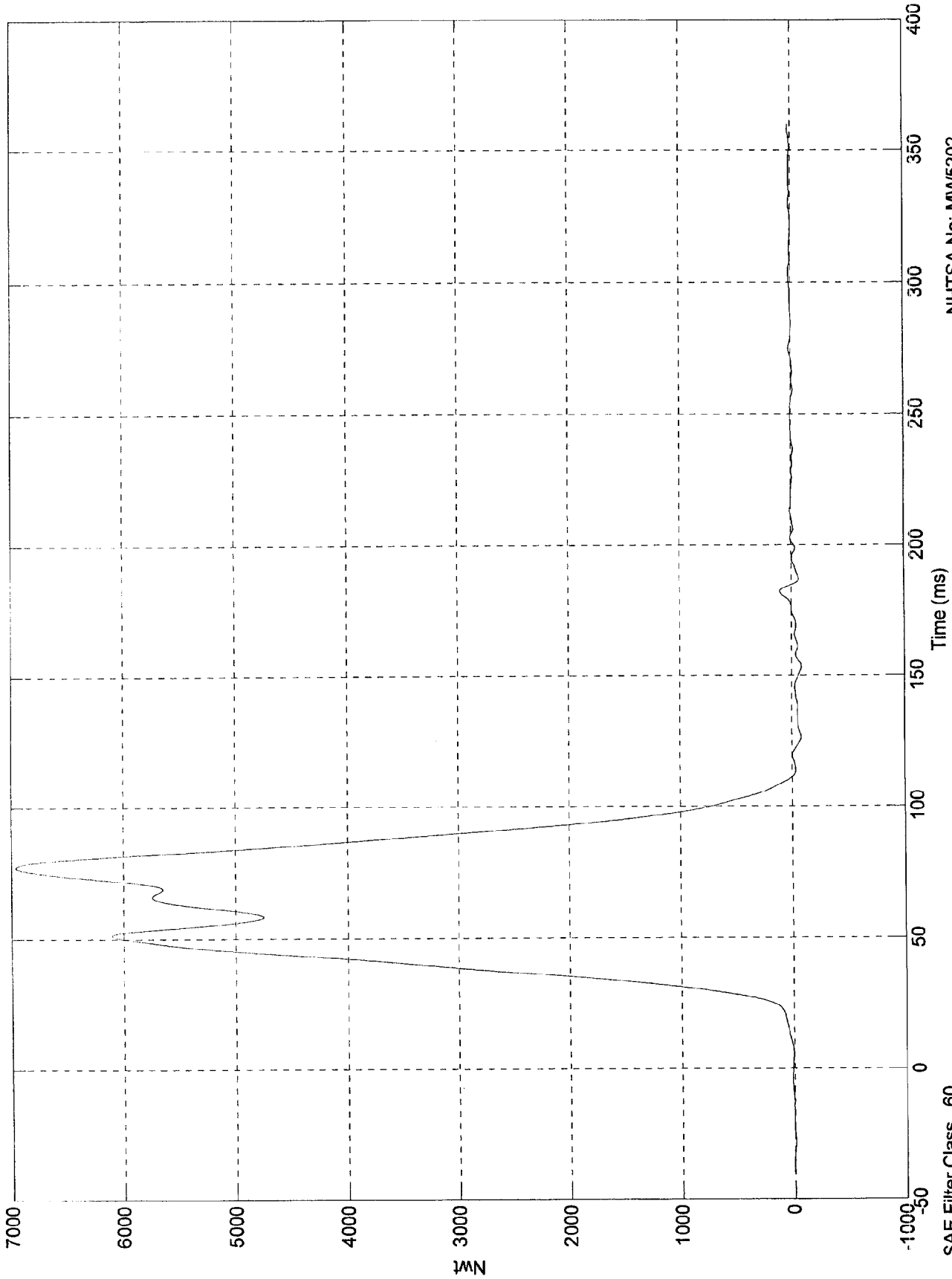
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 6.96e+003 Nwt @ 77.30 msec
Min = -88.7 Nwt @ 153.50 msec

Pos. 1 Torso Belt Load



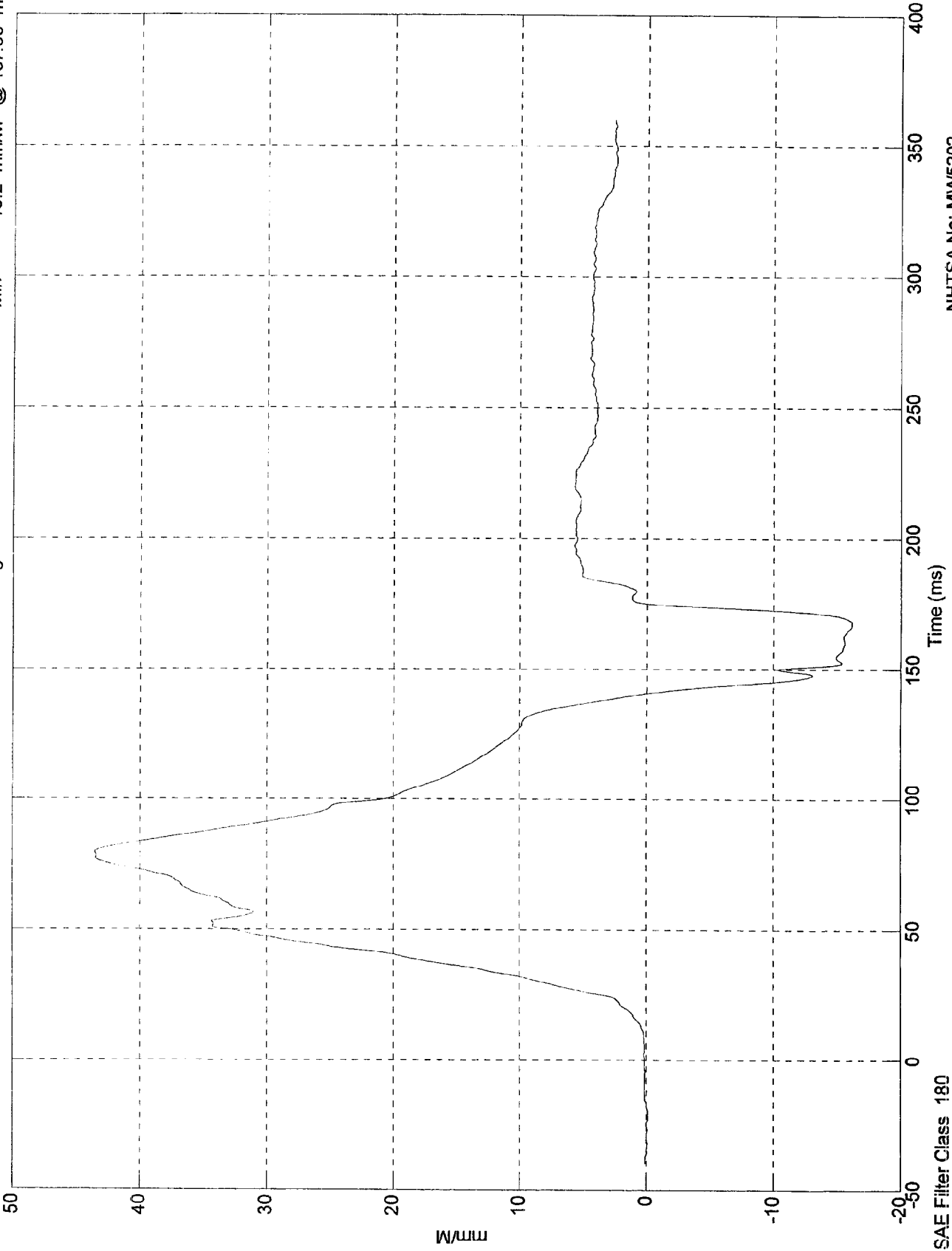
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 43.5 mm/M @ 79.60 msec
Min = -16.2 mm/M @ 167.90 msec

Pos. 1 Belt Elongation



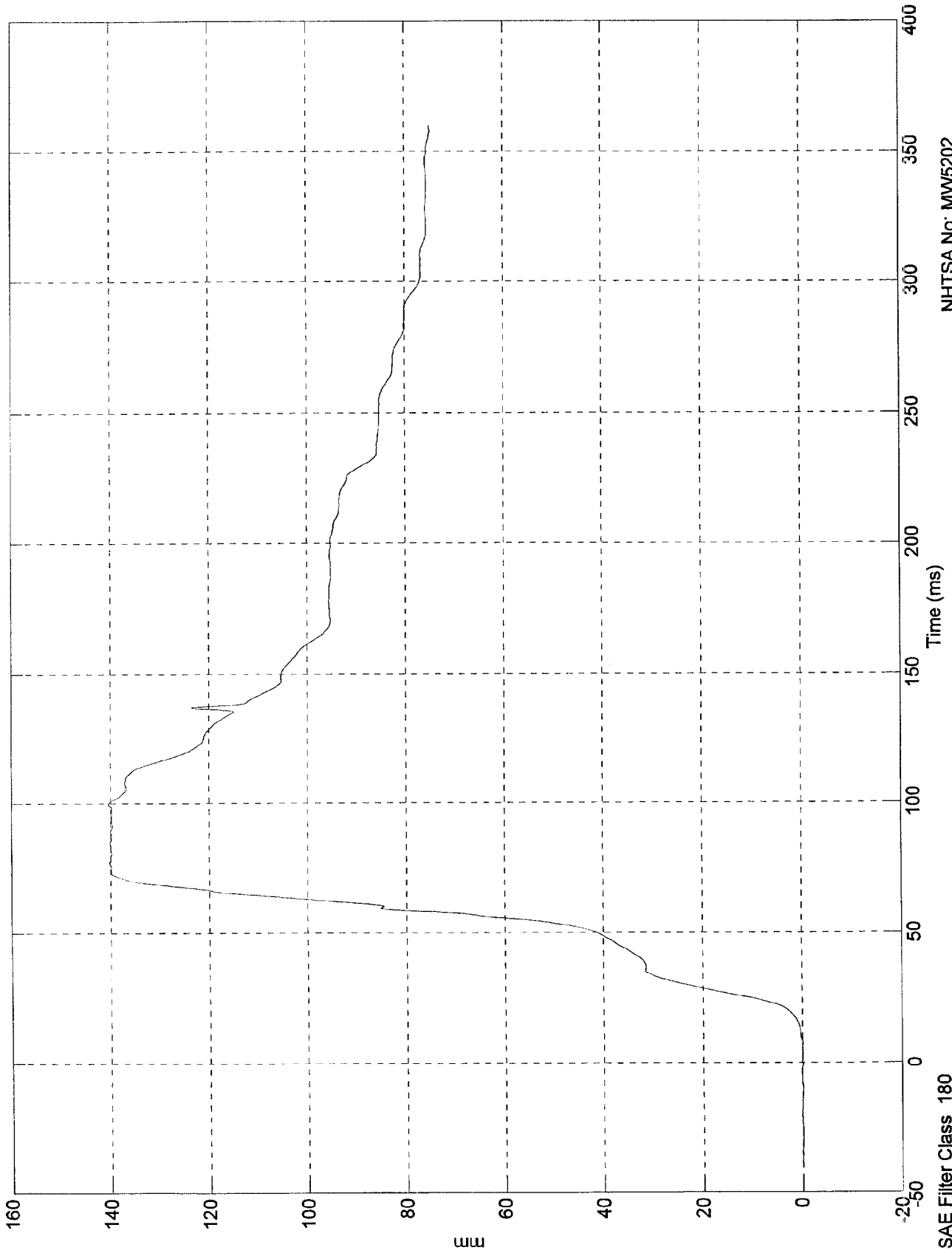
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 140 mm @ 99.60 msec
Min = -0.116 mm @ -29.10 msec

Pos. 1 Belt Spoolout

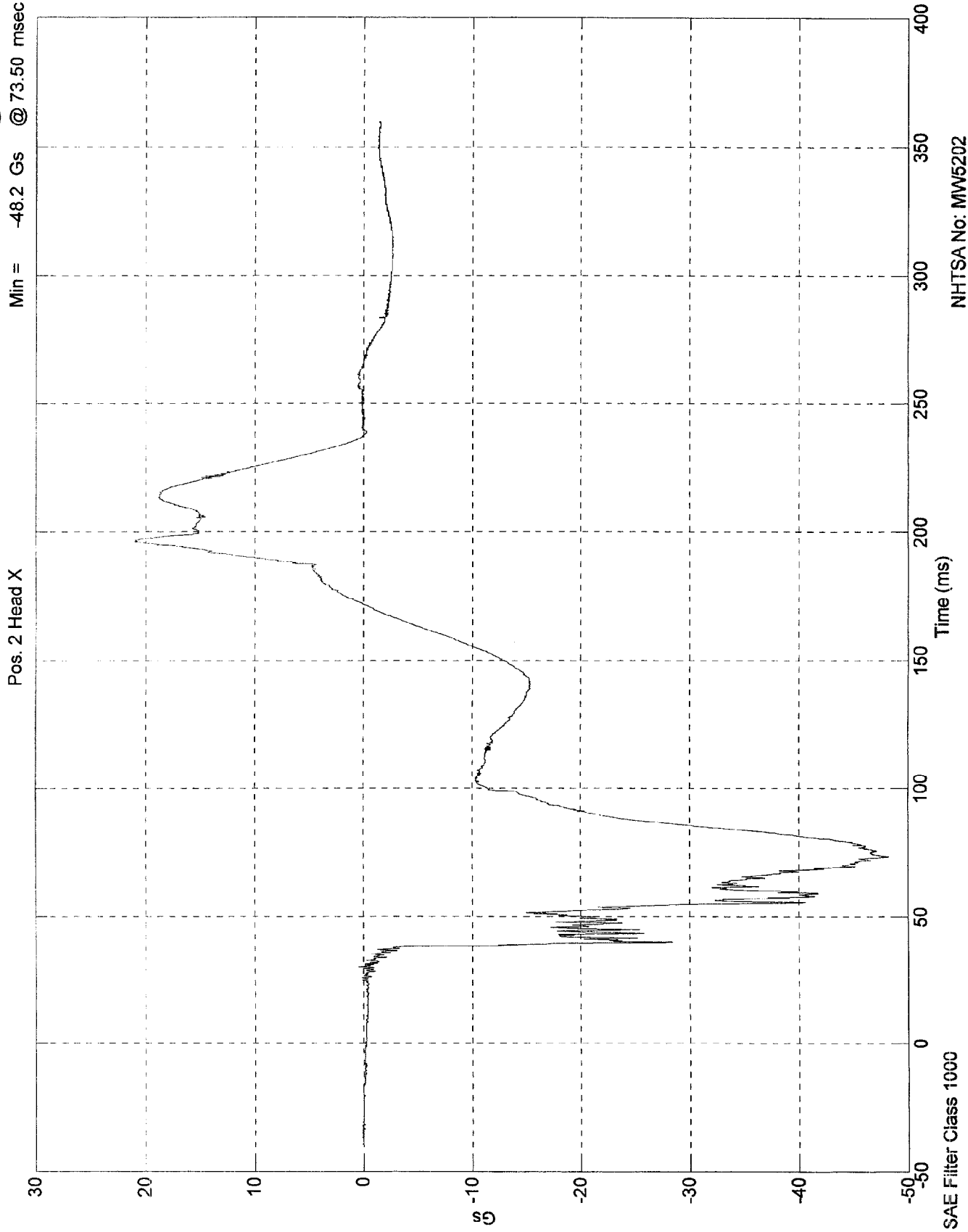


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 21 Gs @ 196.10 msec
Min = -48.2 Gs @ 73.50 msec

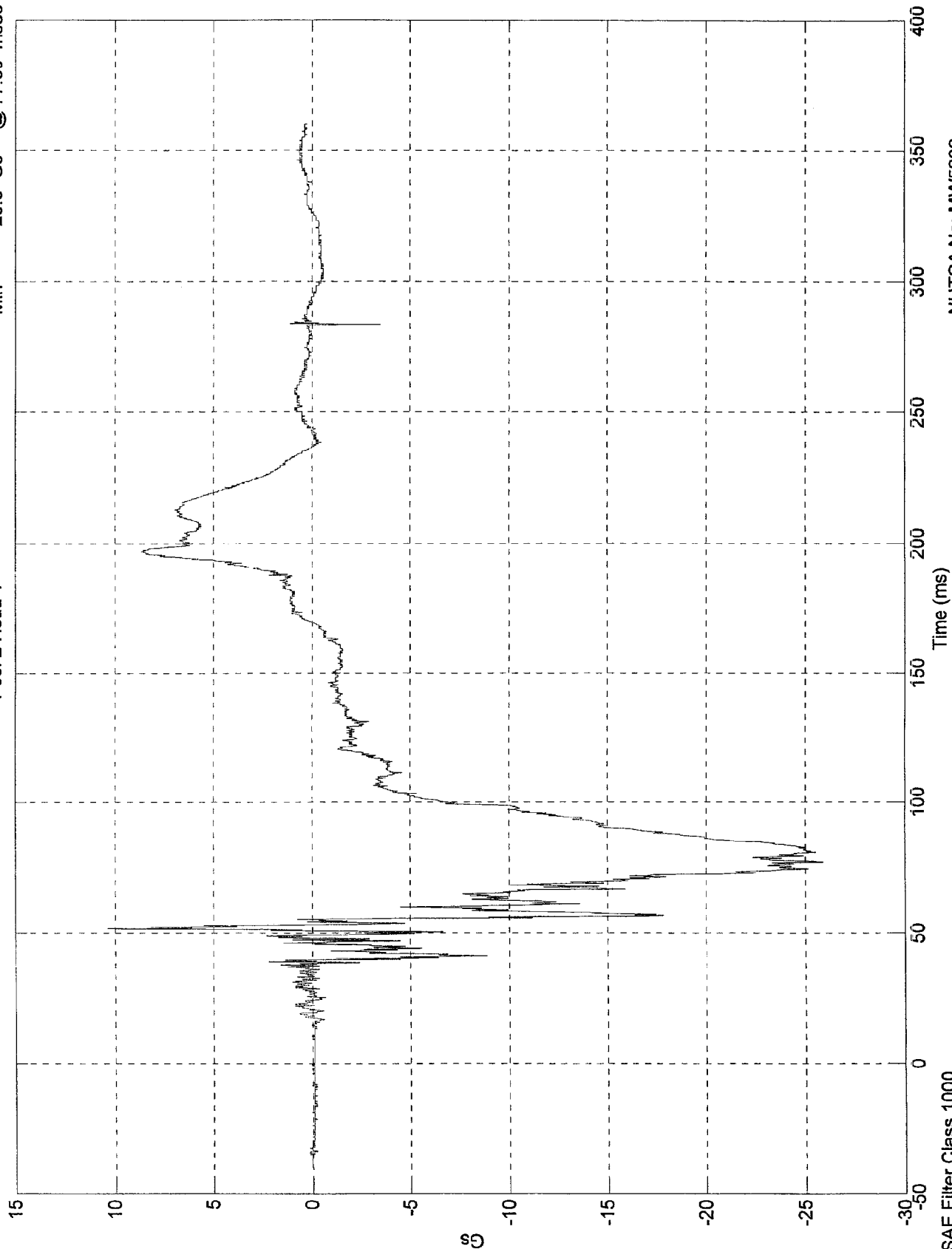


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 10.4 Gs @ 51.60 msec
Min = -25.9 Gs @ 77.30 msec

Pos. 2 Head Y

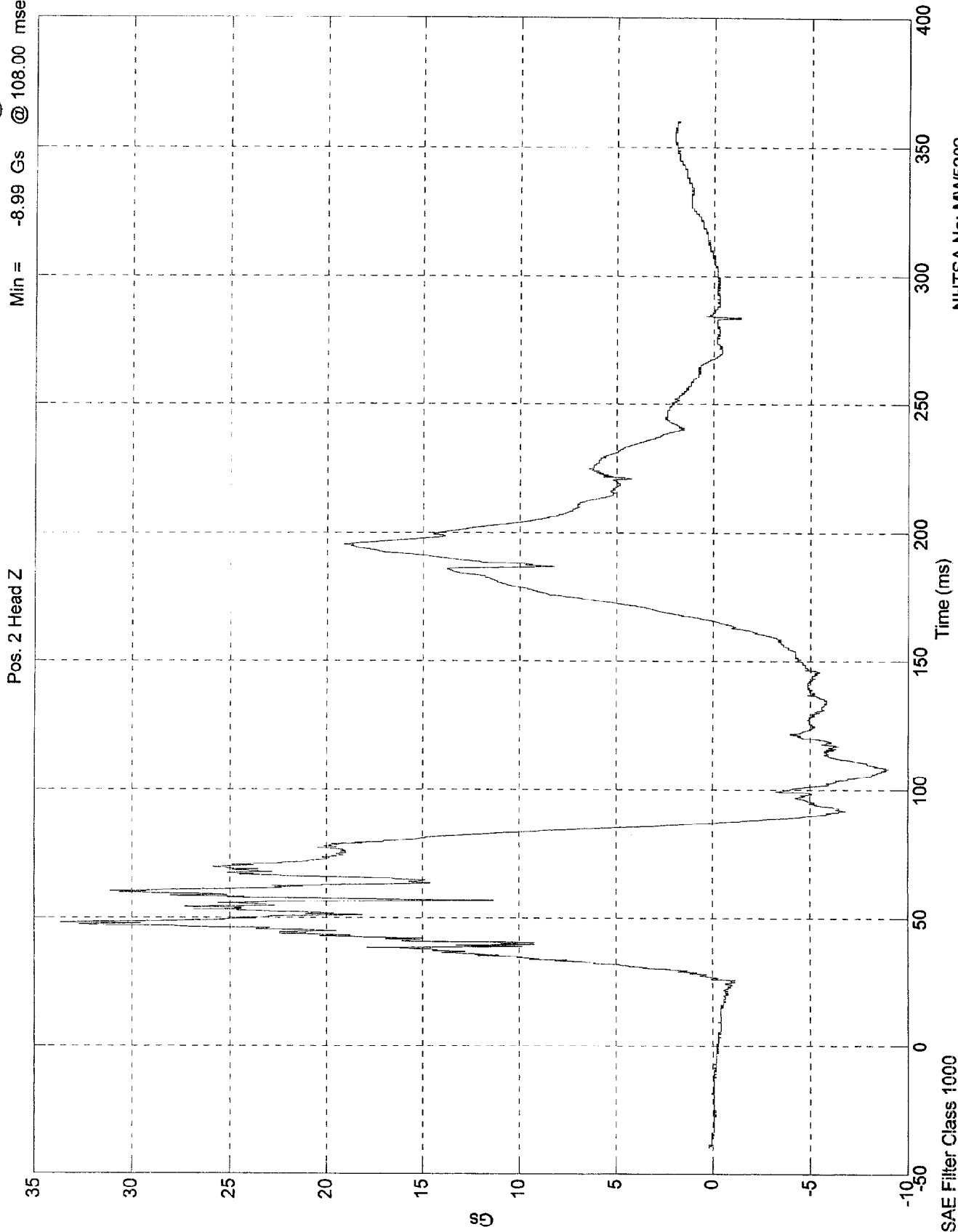


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 33.7 Gs @ 48.20 msec
Min = -8.99 Gs @ 108.00 msec

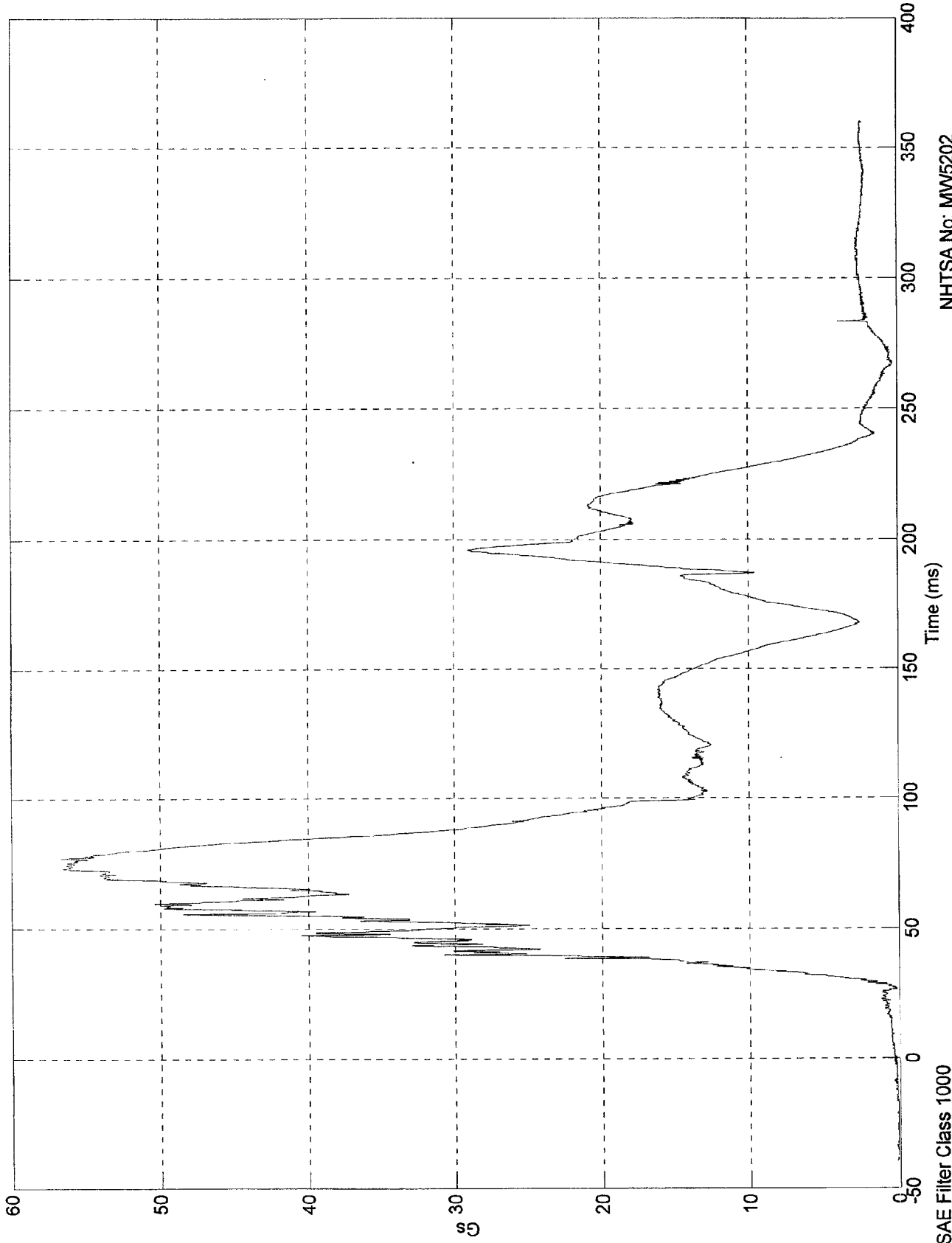


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 56.6 Gs @ 77.30 msec
Min = 0.0704 Gs @ -39.10 msec

Pos. 2 Head Resultant

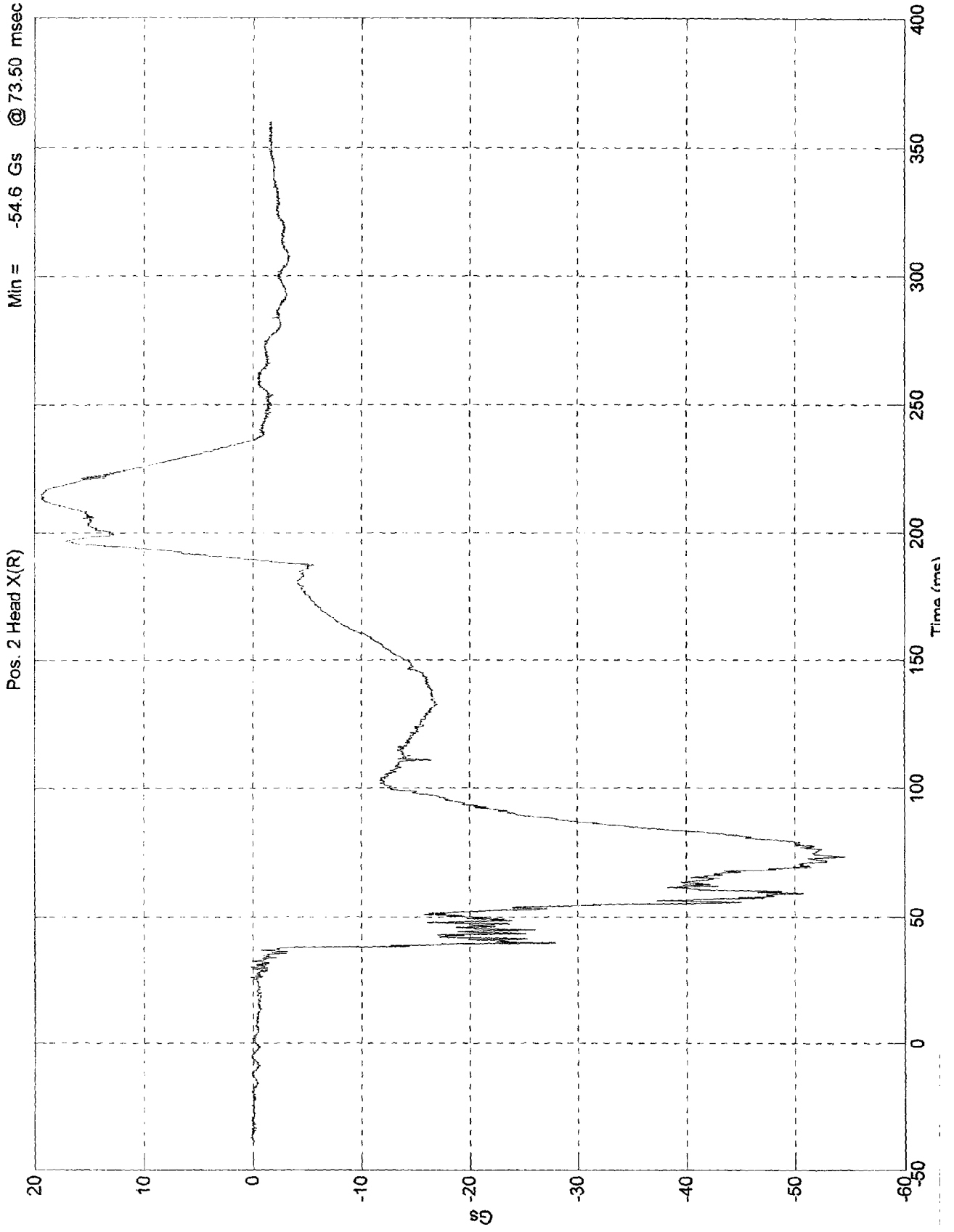


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

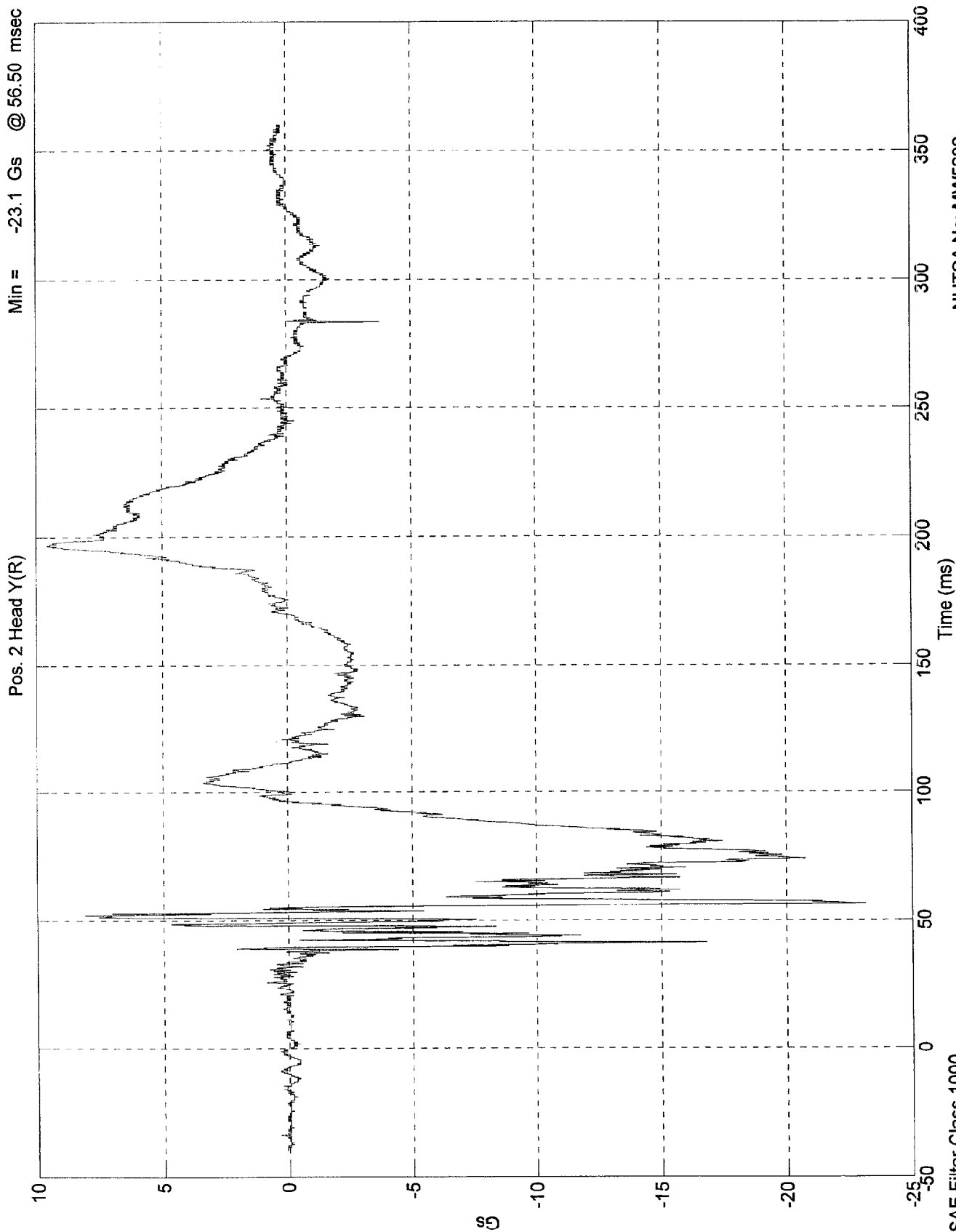
NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 19.5 Gs @ 213.70 msec
Min = -54.6 Gs @ 73.50 msec



NCAP TEST #23 - 1998 NISSAN FRONTIER

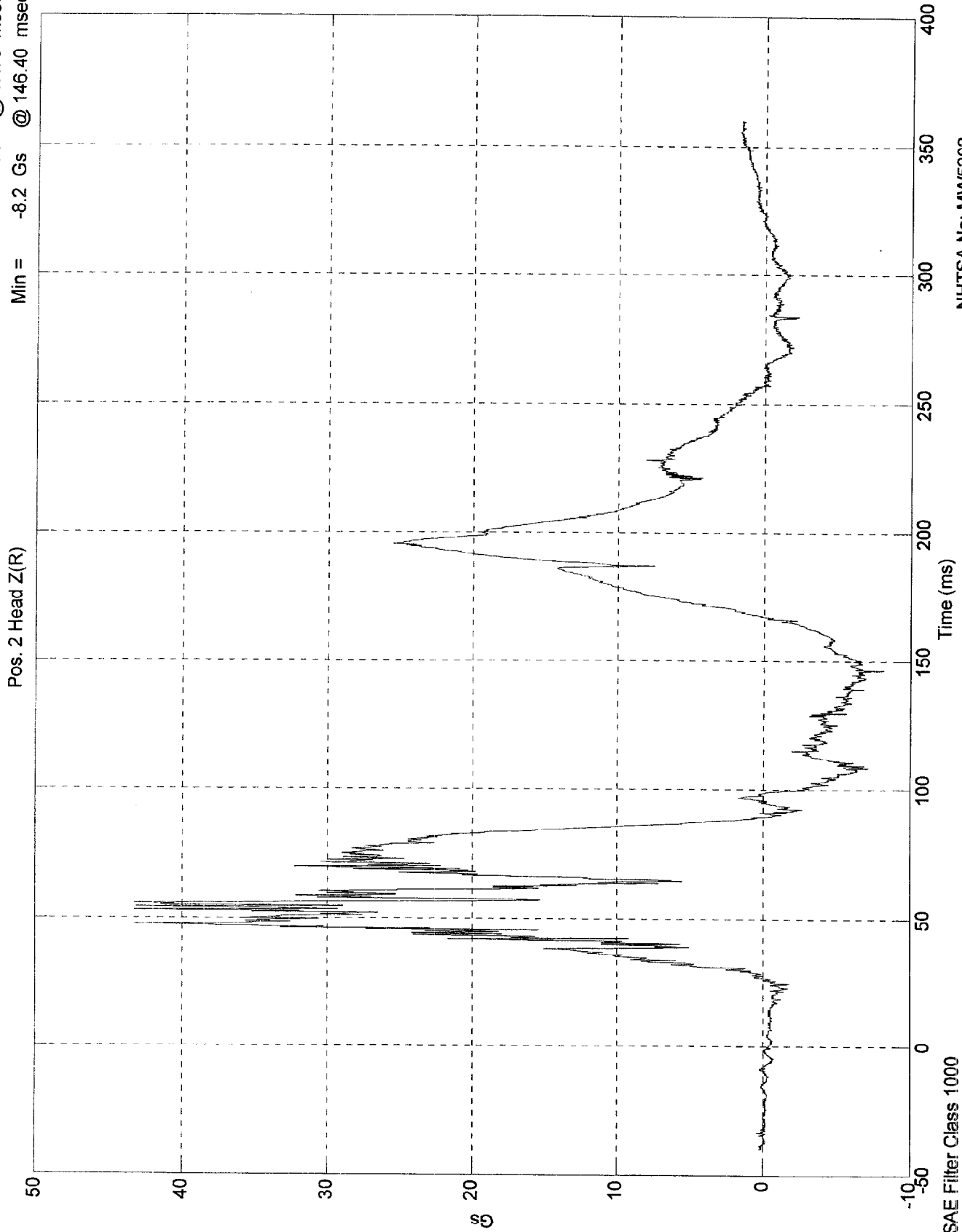
Max = 9.58 Gs @ 196.80 msec
Min = -23.1 Gs @ 56.50 msec



NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 43.3 Gs @ 47.70 msec
Min = -8.2 Gs @ 146.40 msec

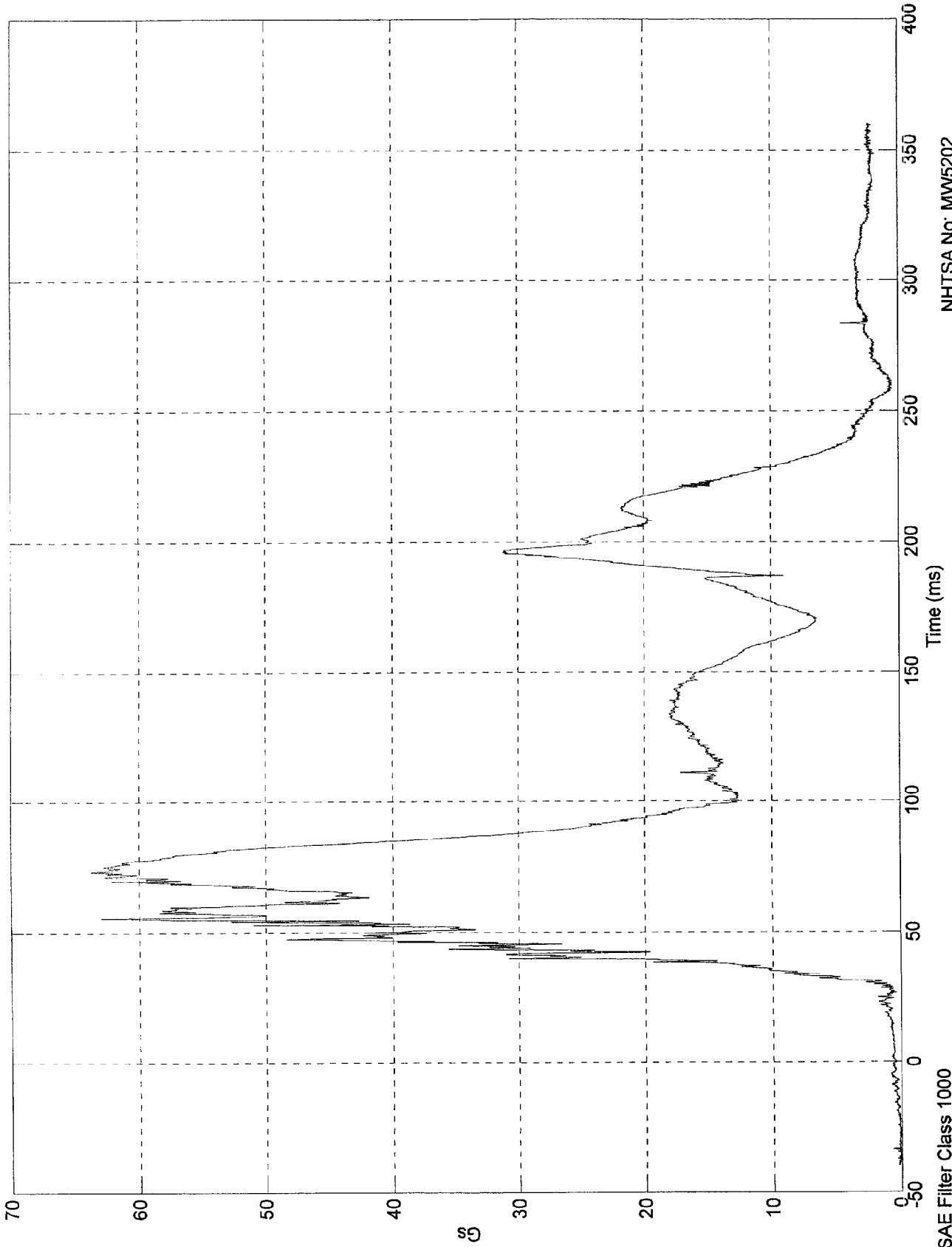


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 63.8 Gs @ 73.50 msec
Min = 0.0682 Gs @ -35.60 msec

Pos. 2 Head Resultant(RR)



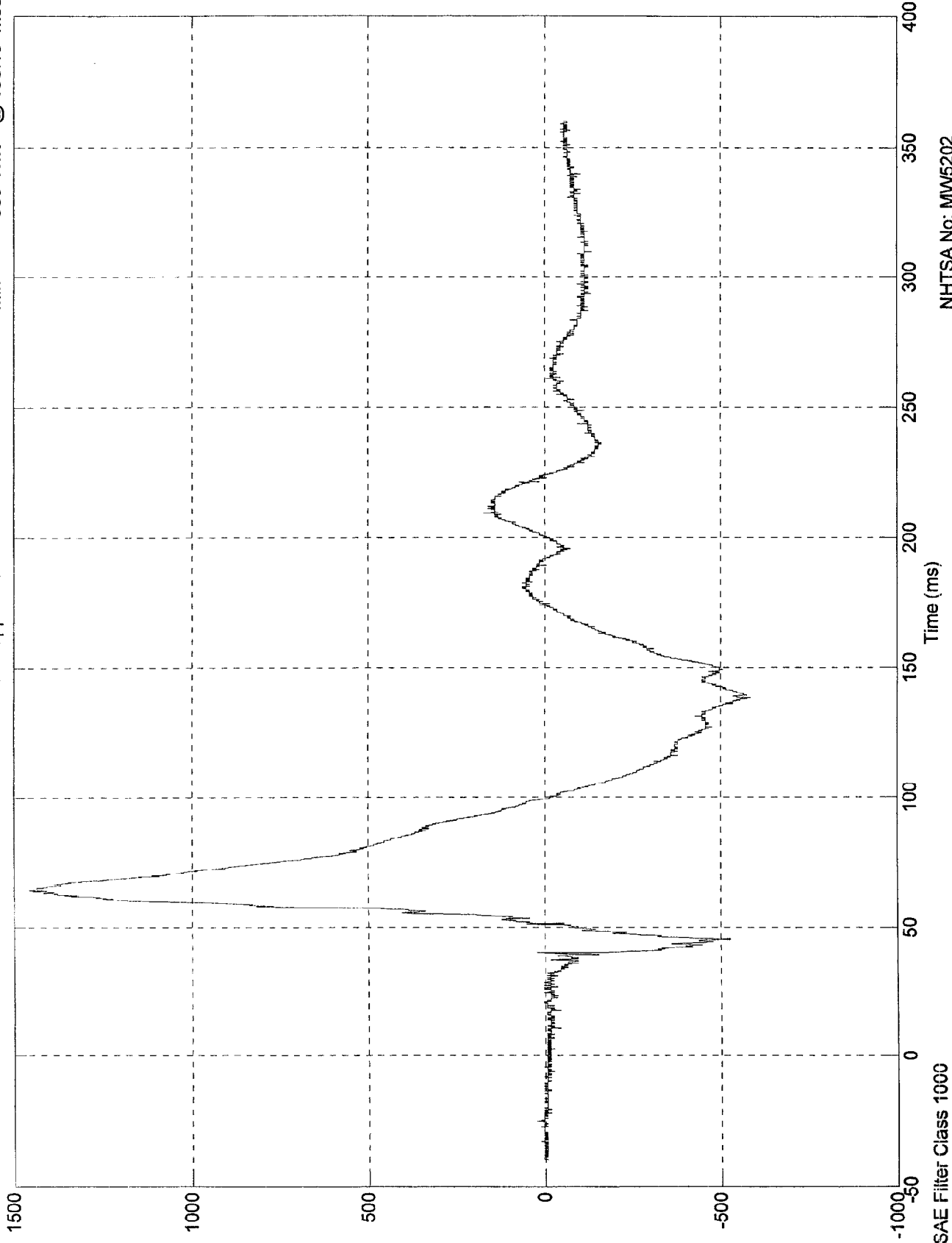
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 1.46e+003 Nwt @ 64.40 msec
Min = -585 Nwt @ 138.10 msec

Pos. 2 Upper Neck Fx

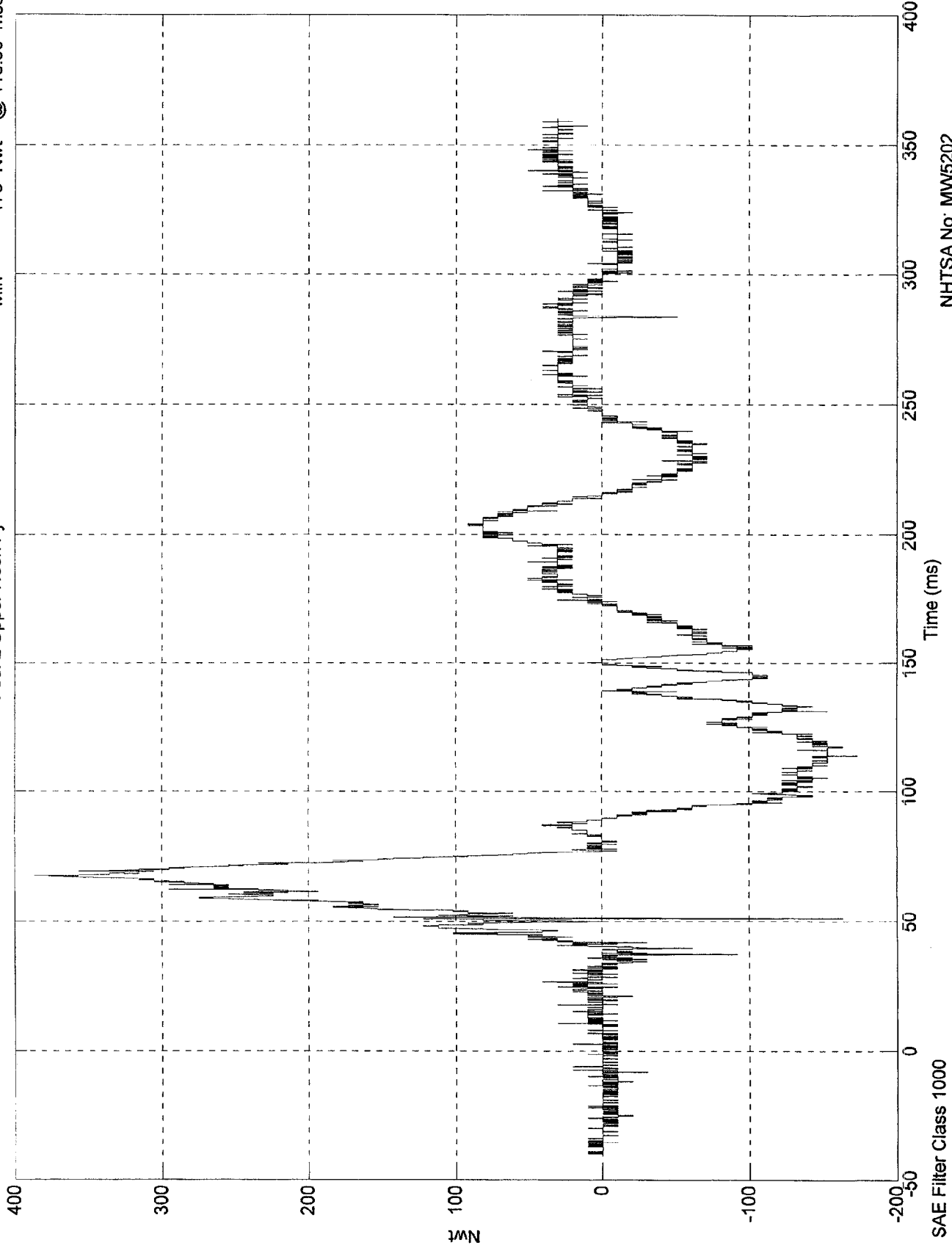


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 387 Nwt @ 67.50 msec
Min = -173 Nwt @ 113.90 msec

Pos. 2 Upper Neck Fy

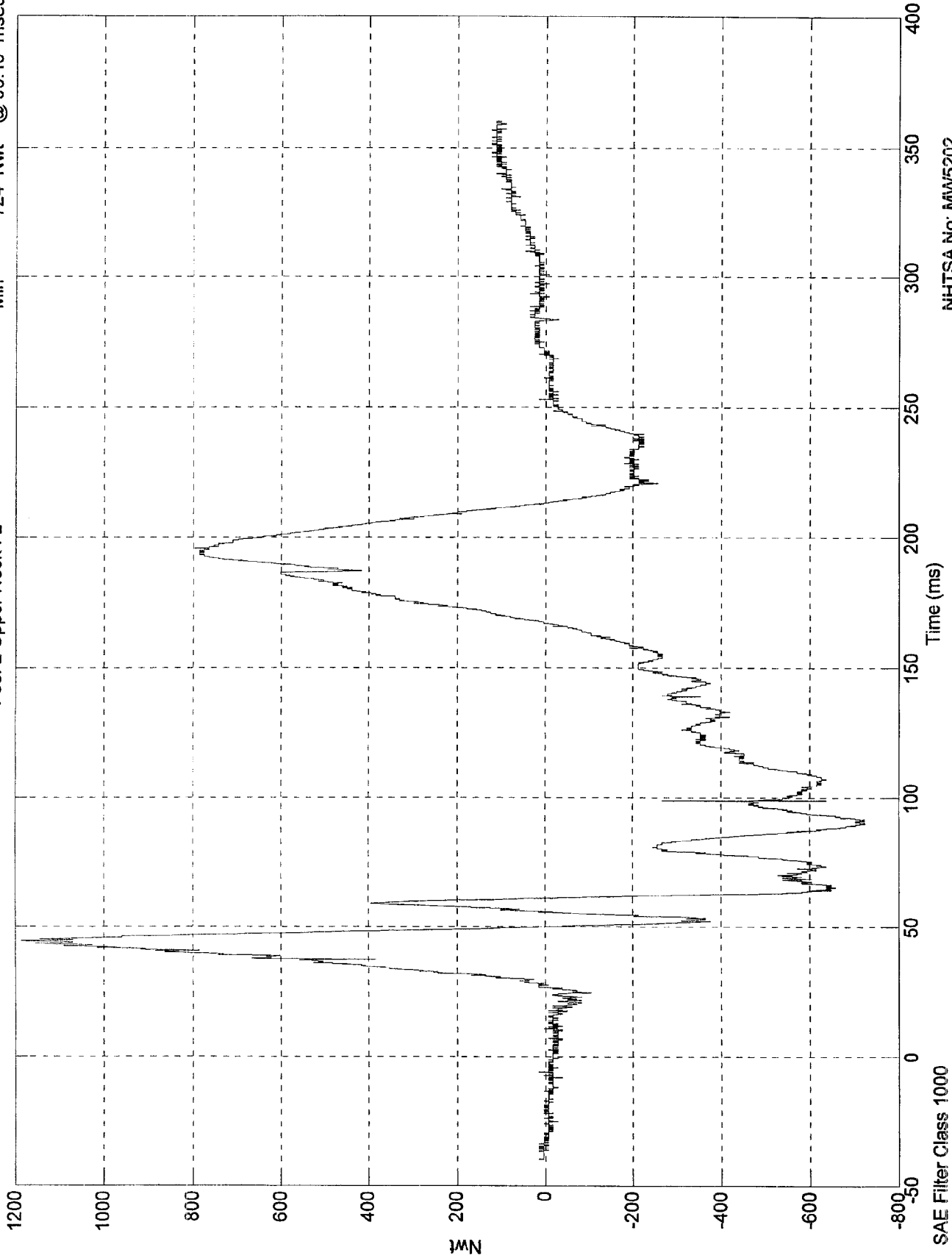


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 1.19e+003 Nwt @ 44.50 msec
Min = -724 Nwt @ 90.10 msec

Pos. 2 Upper Neck Fz

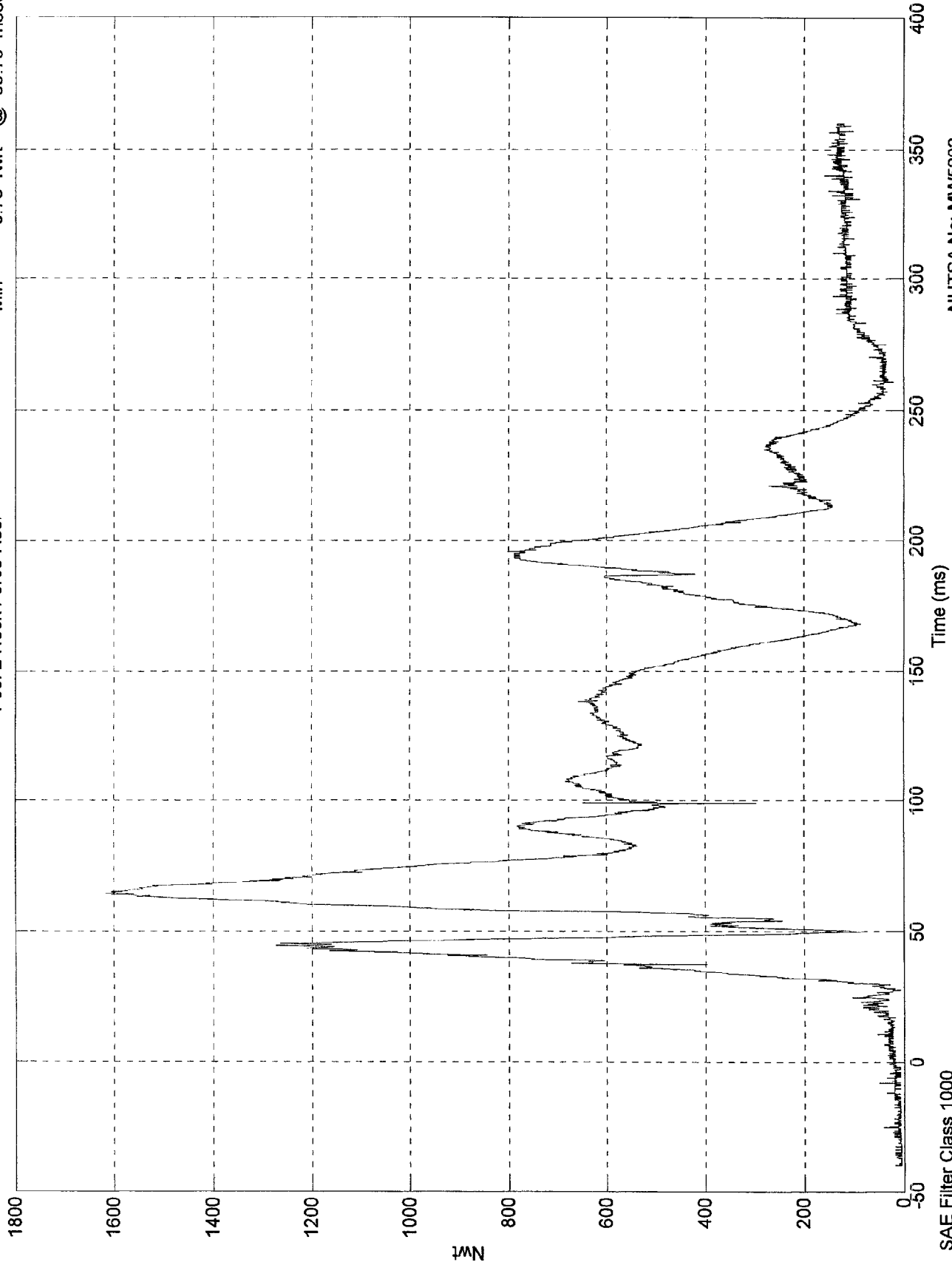


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 1.62e+003 Nwt @ 64.40 msec
Min = 5.78 Nwt @ -39.70 msec

Pos. 2 Neck Force Res.



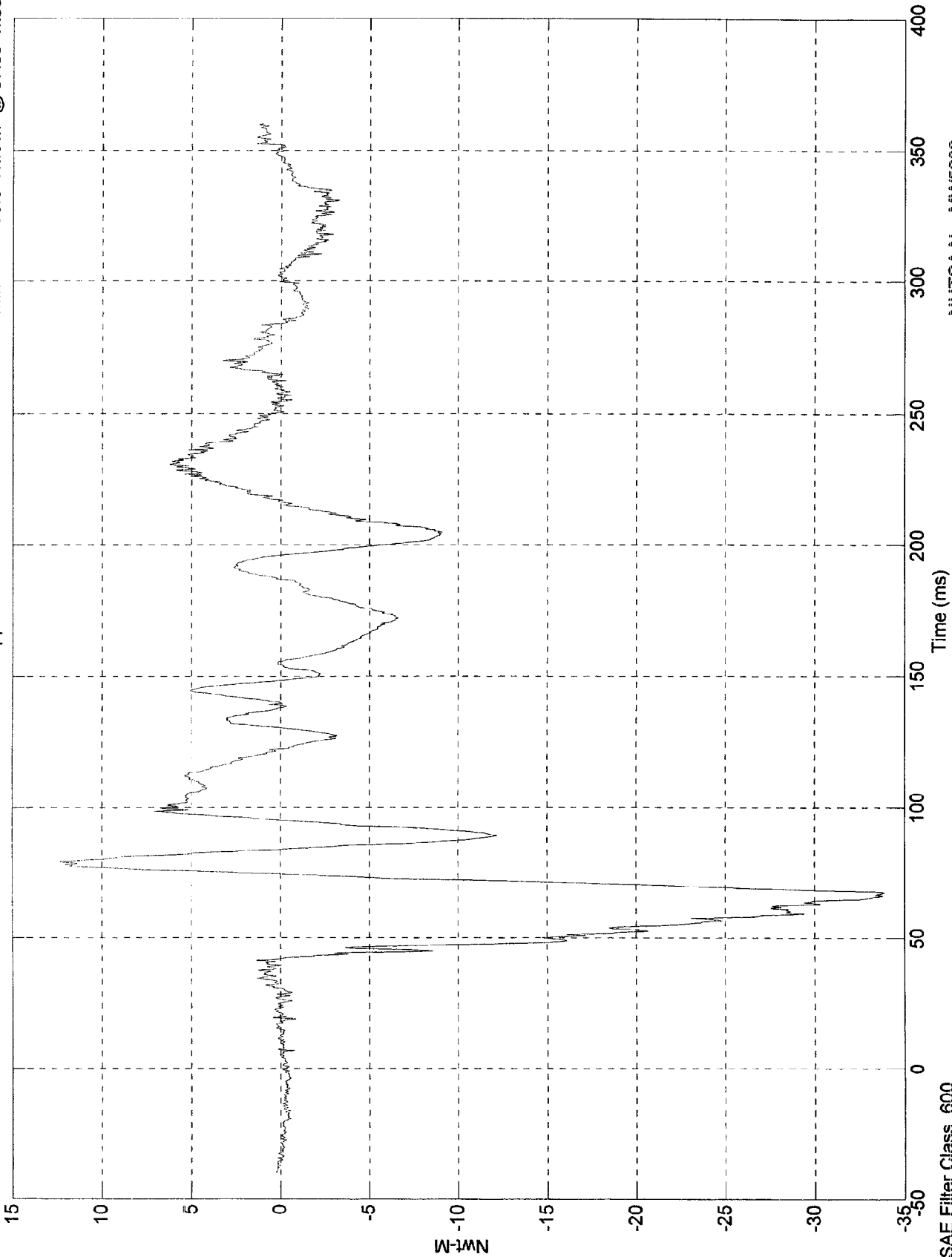
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 12.3 Nwt-M @ 79.40 msec
Min = -33.9 Nwt-M @ 67.30 msec

Pos. 2 Upper Neck Mx



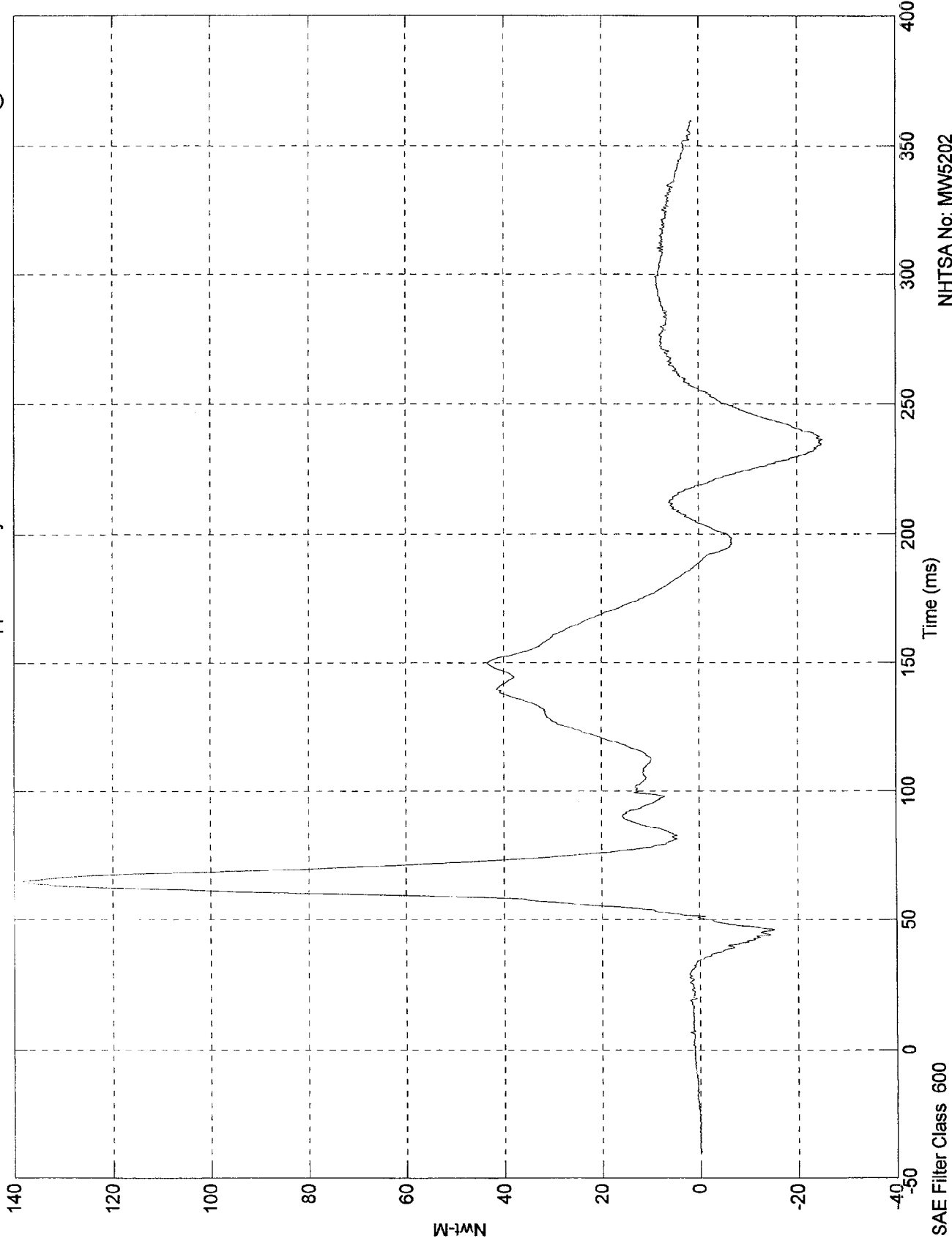
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 138 Nwt-M @ 64.70 msec
Min = -25.2 Nwt-M @ 236.10 msec

Pos. 2 Upper Neck My



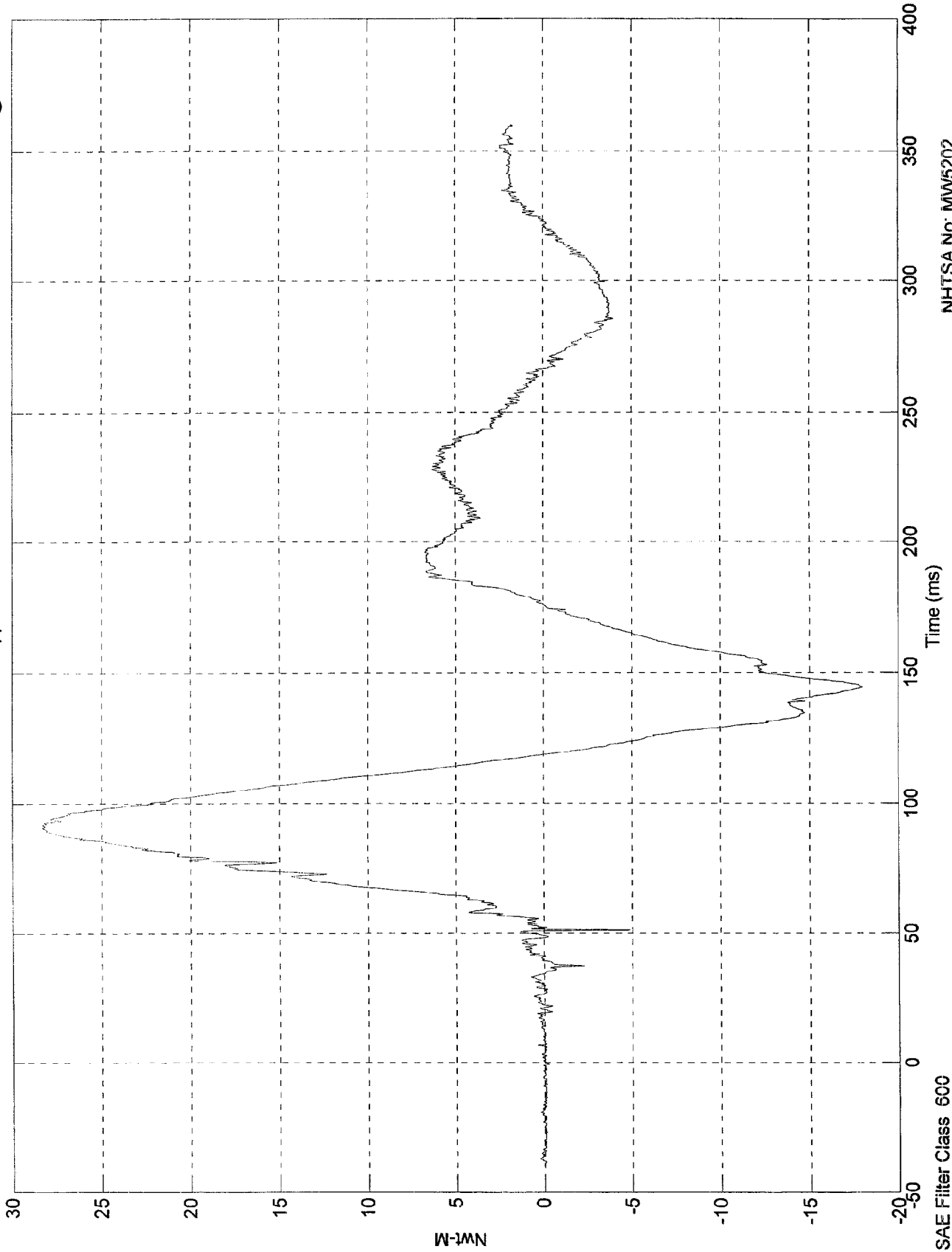
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 28.3 Nwt-M @ 91.70 msec
Min = -17.9 Nwt-M @ 144.40 msec

Pos. 2 Upper Neck Mz

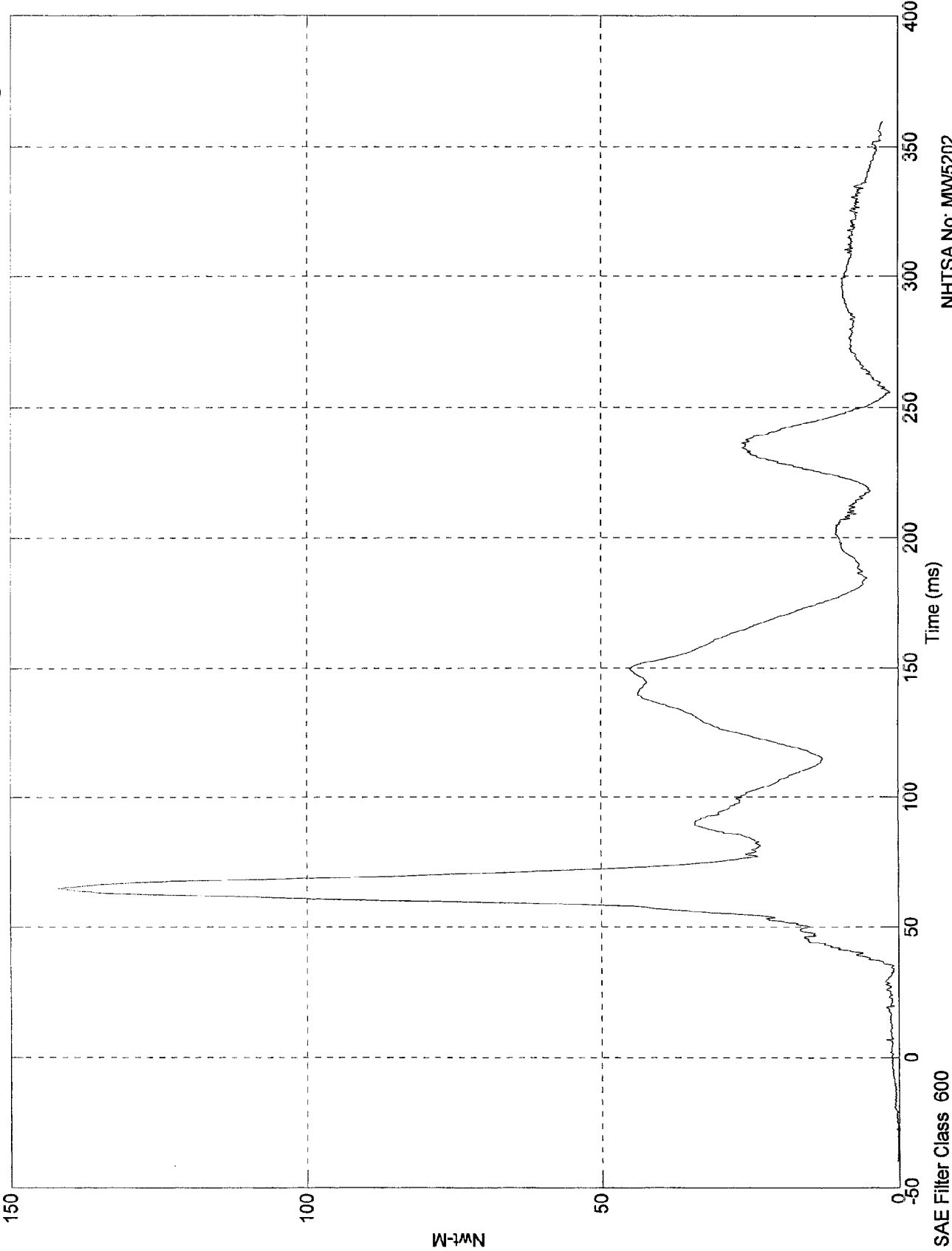


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 142 Nwt-M @ 64.80 msec
Min = 0.0579 Nwt-M @ -32.90 msec

Pos. 2 Neck Moment Res.



NHTSA No: MW5202
Date: 17 Feb 1998

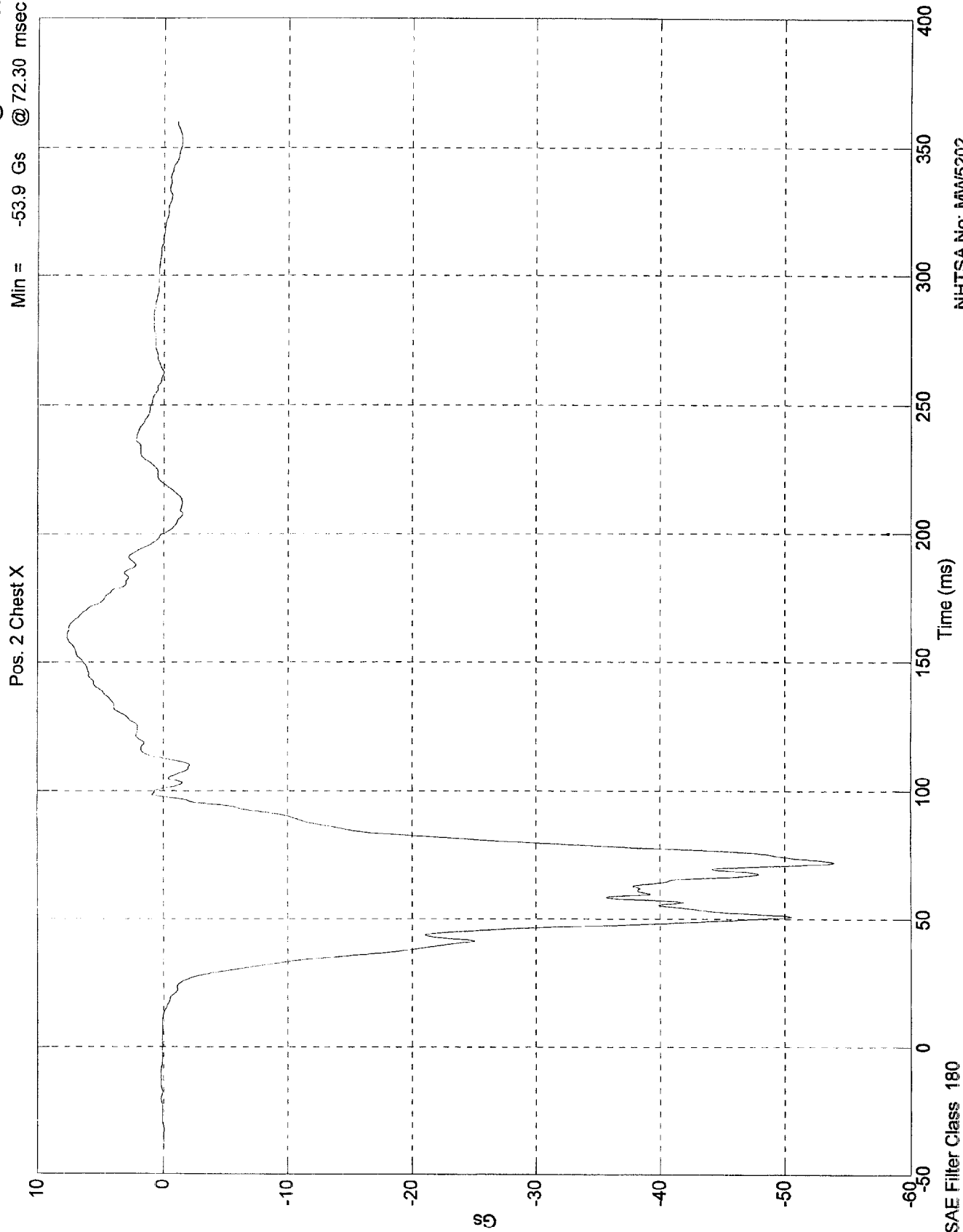
SAE Filter Class 600

Nwt-M

Time (ms)

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 7.71 Gs @ 159.50 msec
Min = -53.9 Gs @ 72.30 msec



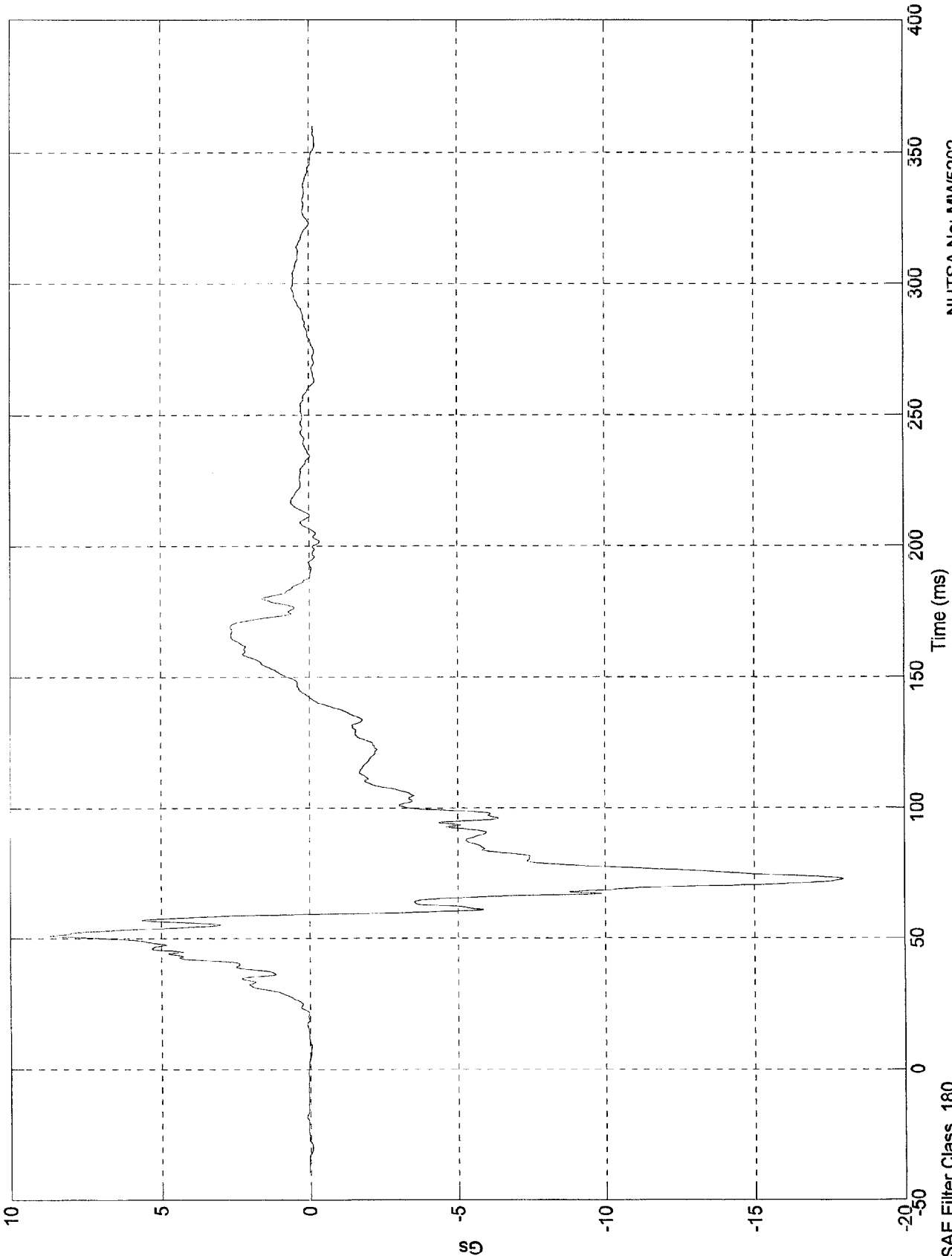
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 8.69 Gs @ 51.00 msec
Min = -18 Gs @ 72.90 msec

Pos. 2 Chest Y

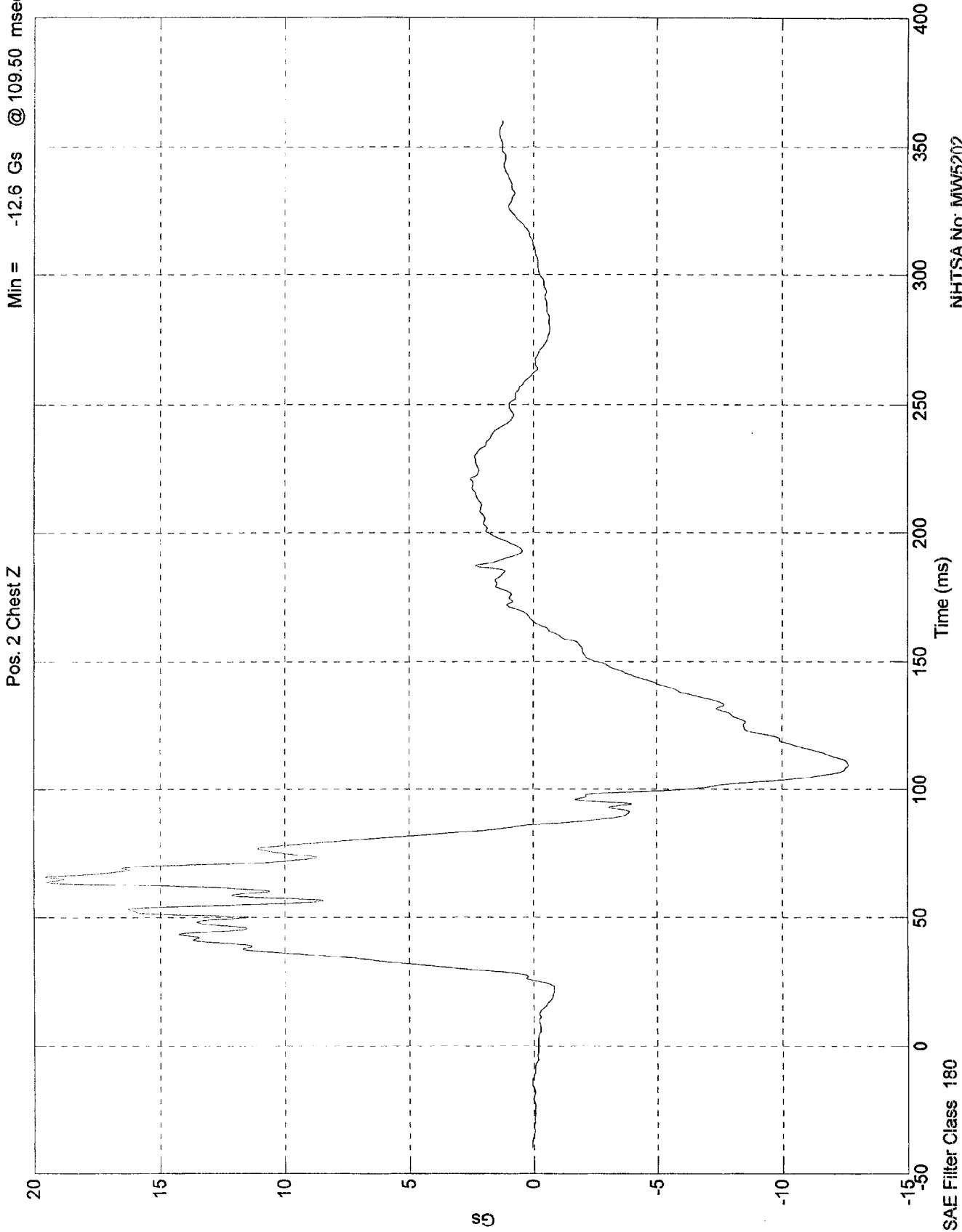


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 19.5 Gs @ 65.70 msec
Min = -12.6 Gs @ 109.50 msec

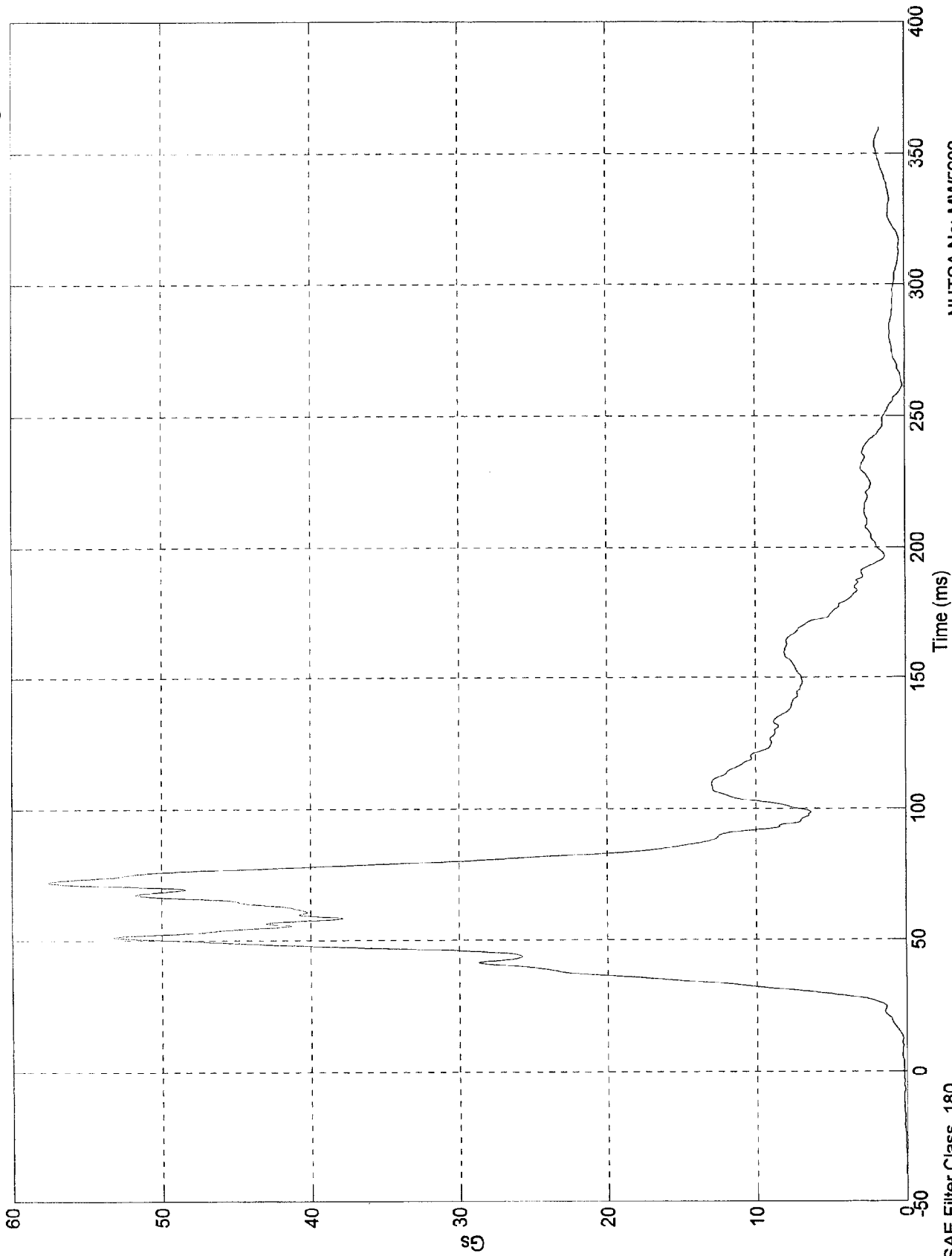


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 57.5 Gs @ 72.30 msec
Min = 0.0461 Gs @ -32.20 msec

Pos. 2 Chest Resultant

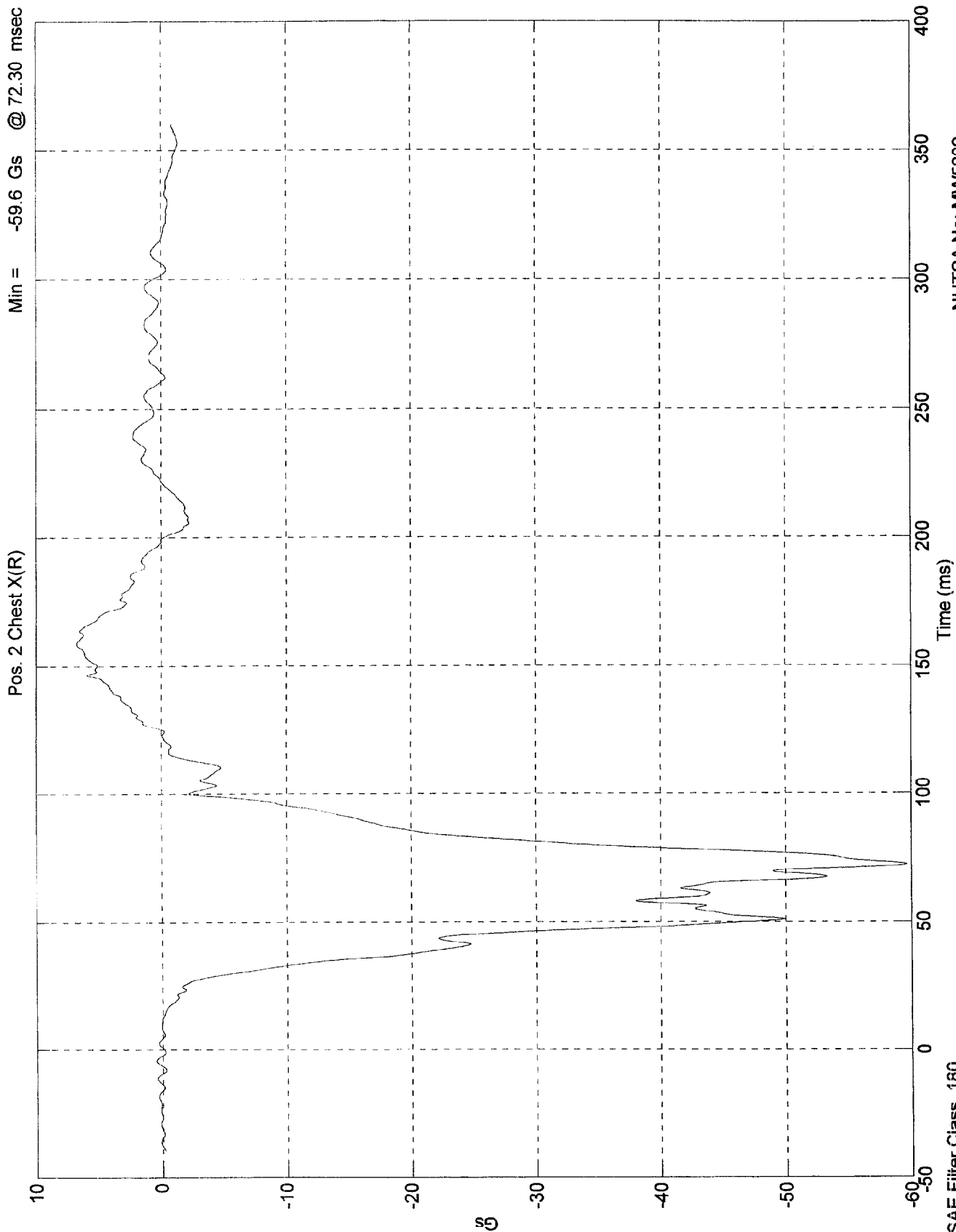


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

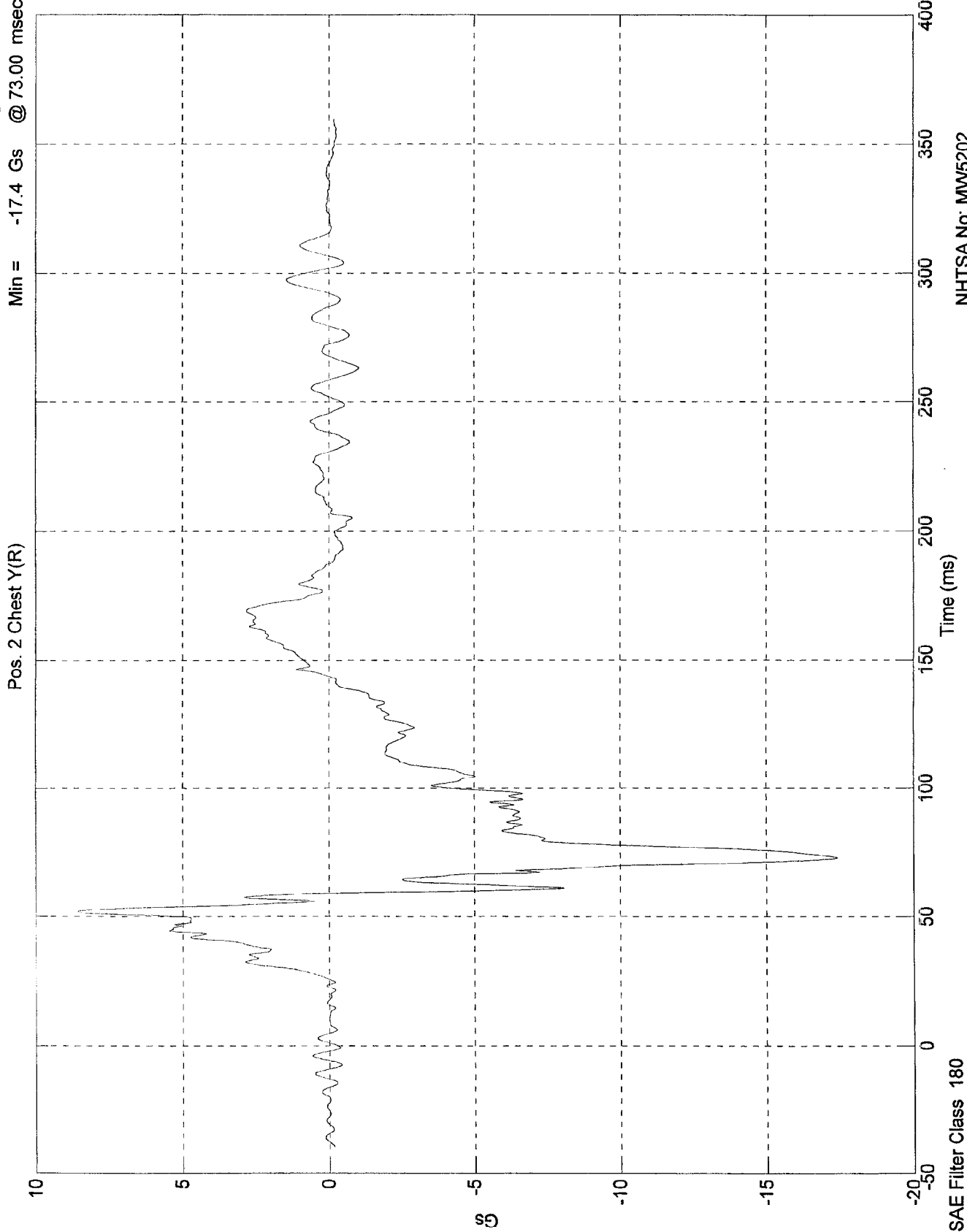
Max = 6.74 Gs @ 158.90 msec
Min = -59.6 Gs @ 72.30 msec



NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 8.55 Gs @ 51.70 msec
Min = -17.4 Gs @ 73.00 msec



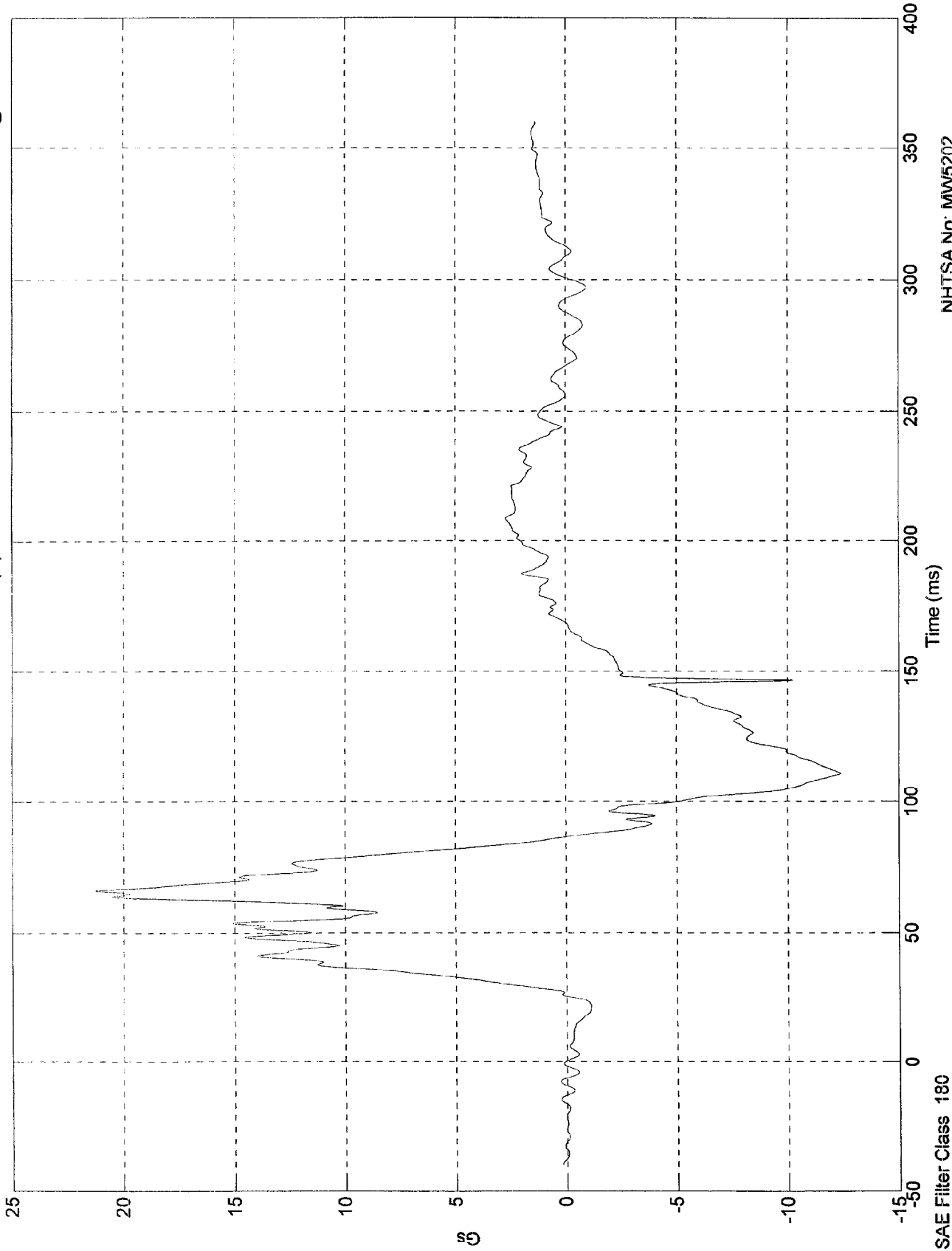
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 21.2 Gs @ 65.90 msec
Min = -12.4 Gs @ 110.80 msec

Pos. 2 Chest Z(R)



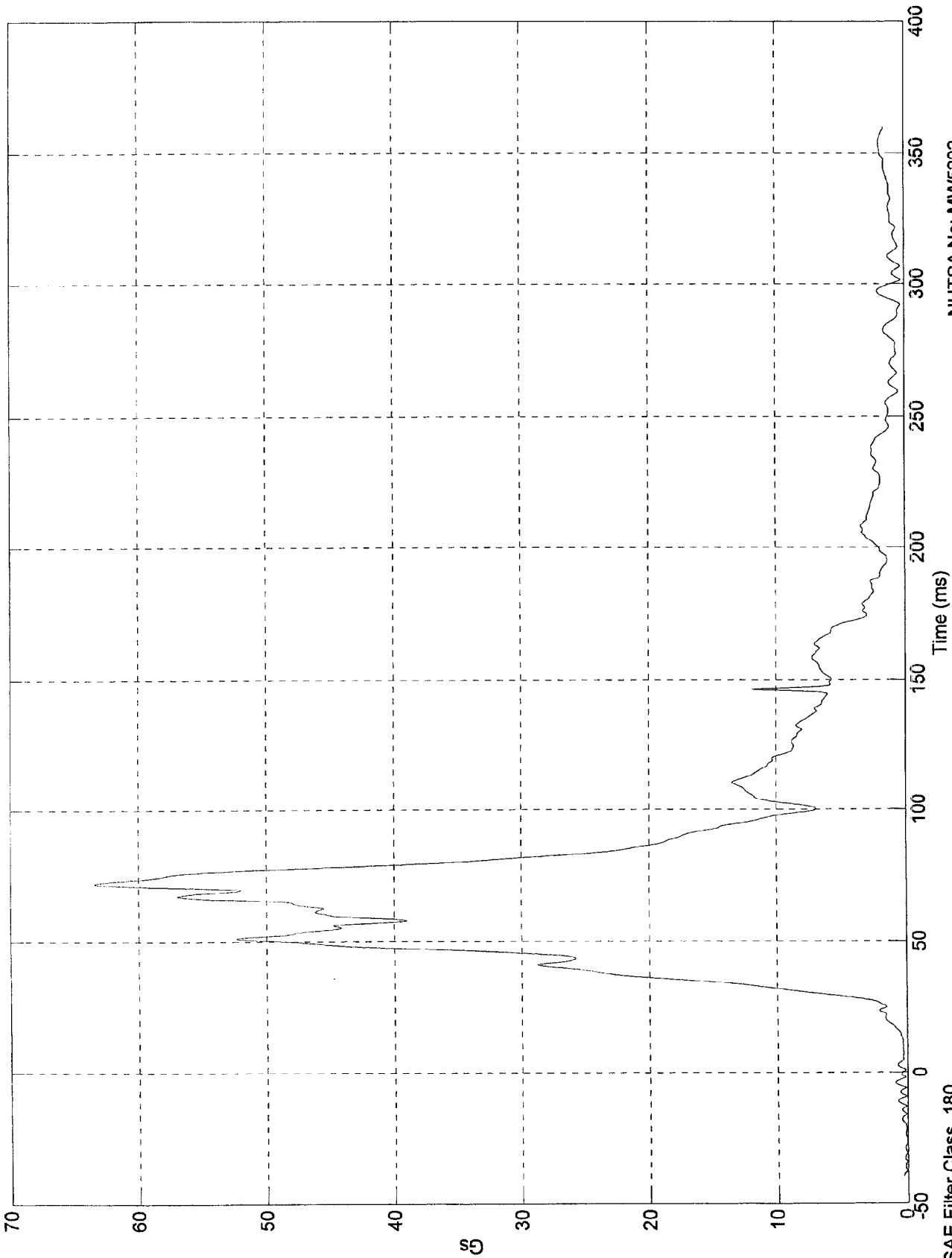
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 63.4 Gs @ 72.30 msec
Min = 0.0166 Gs @ -30.90 msec

Pos. 2 Chest Res(RR)



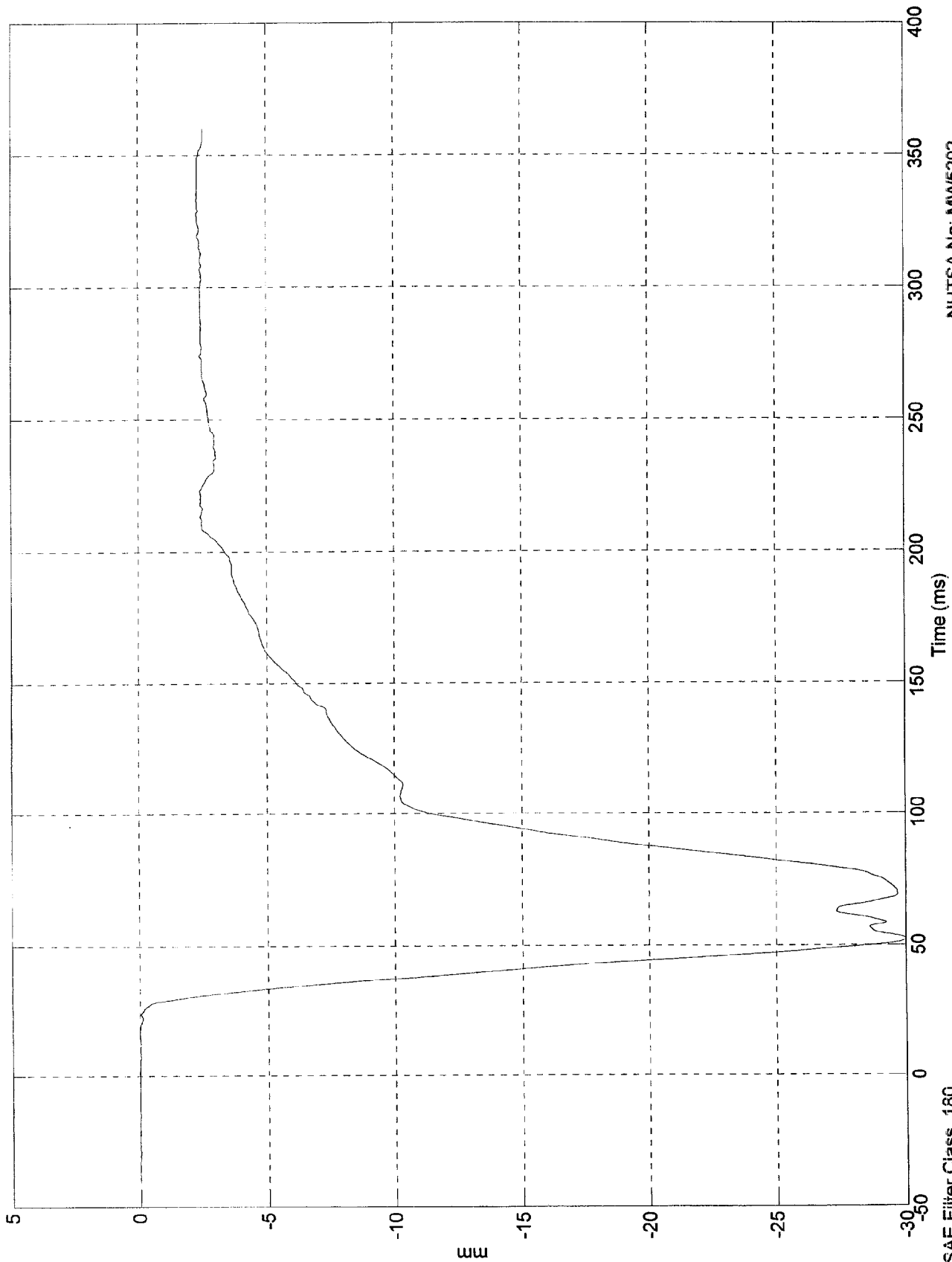
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 0.0151 mm @ 18.50 msec
Min = -30 mm @ 52.20 msec

Pos. 2 Chest Disp.



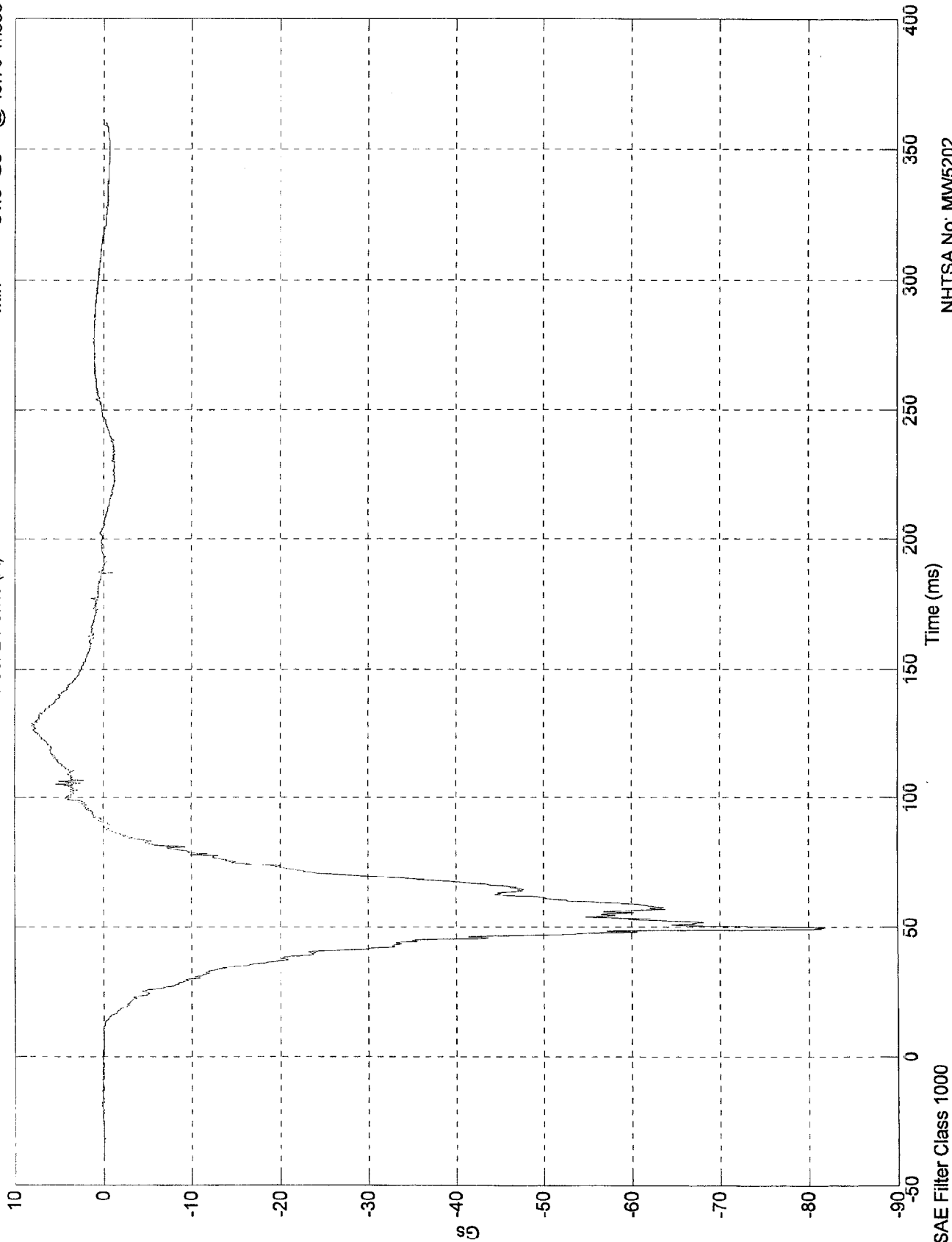
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 8.04 Gs @ 127.80 msec
Min = -81.9 Gs @ 49.70 msec

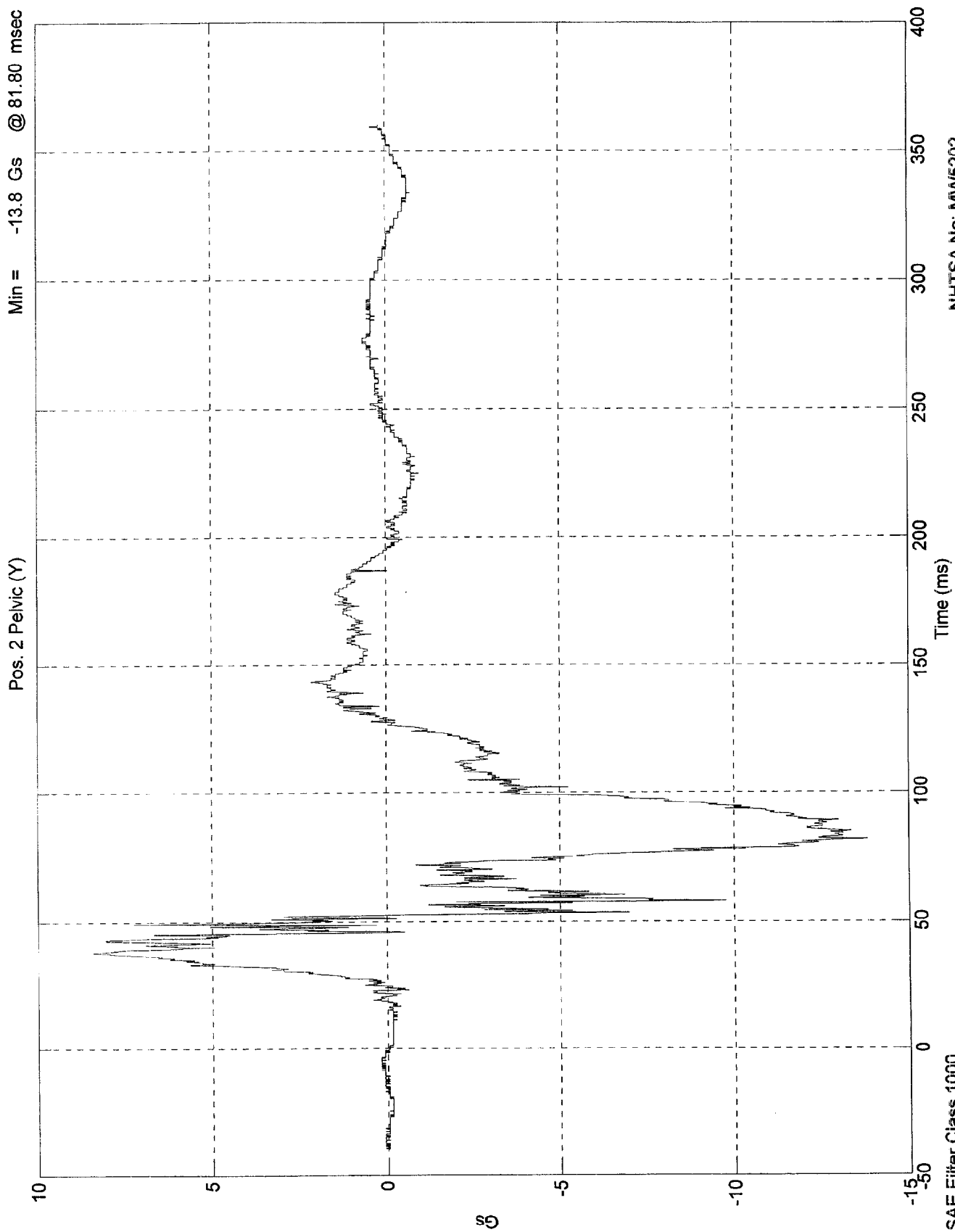
Pos. 2 Pelvic (X)



NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

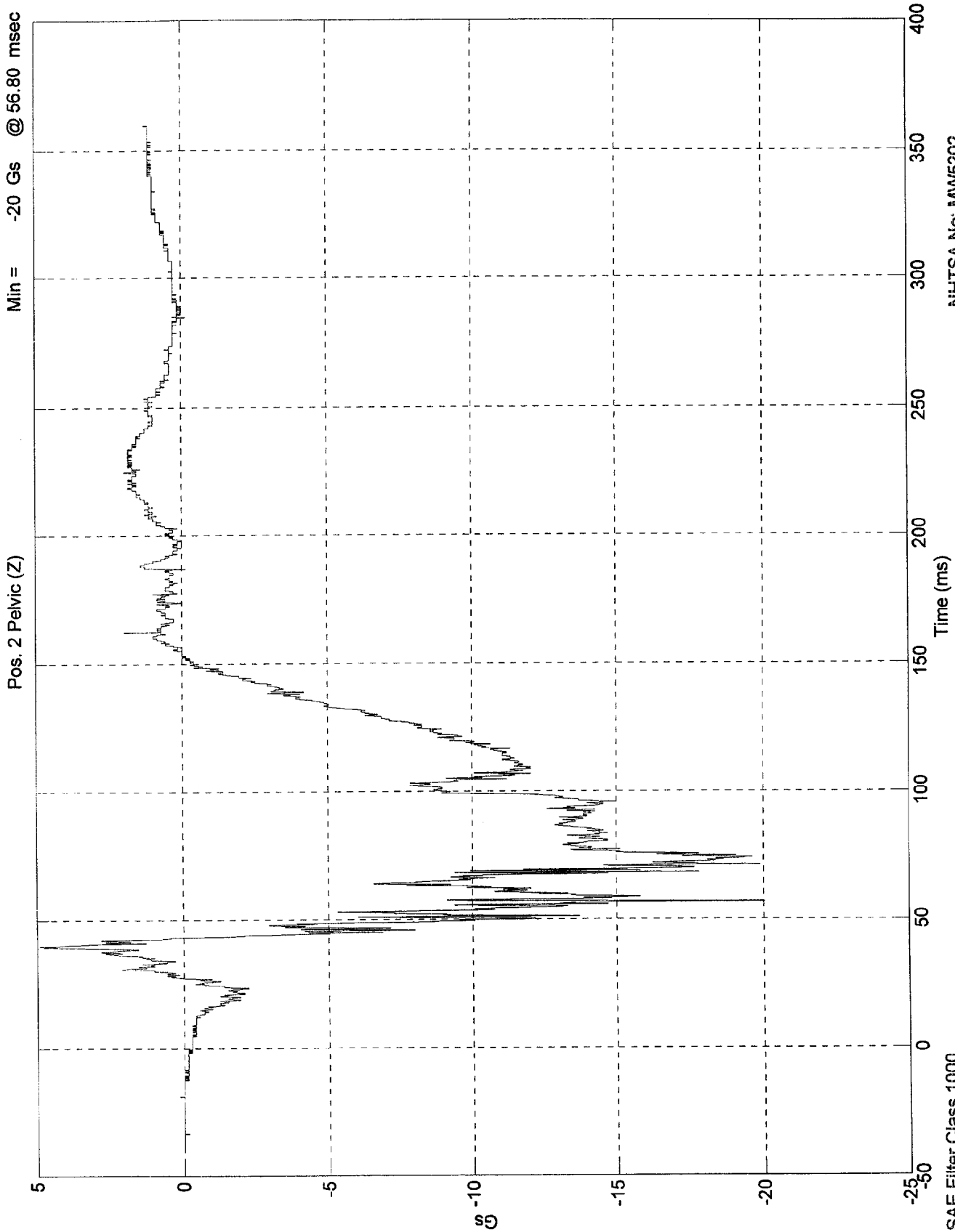
Max = 8.42 Gs @ 38.30 msec
Min = -13.8 Gs @ 81.80 msec



NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 4.9 Gs @ 39.90 msec
Min = -20 Gs @ 56.80 msec

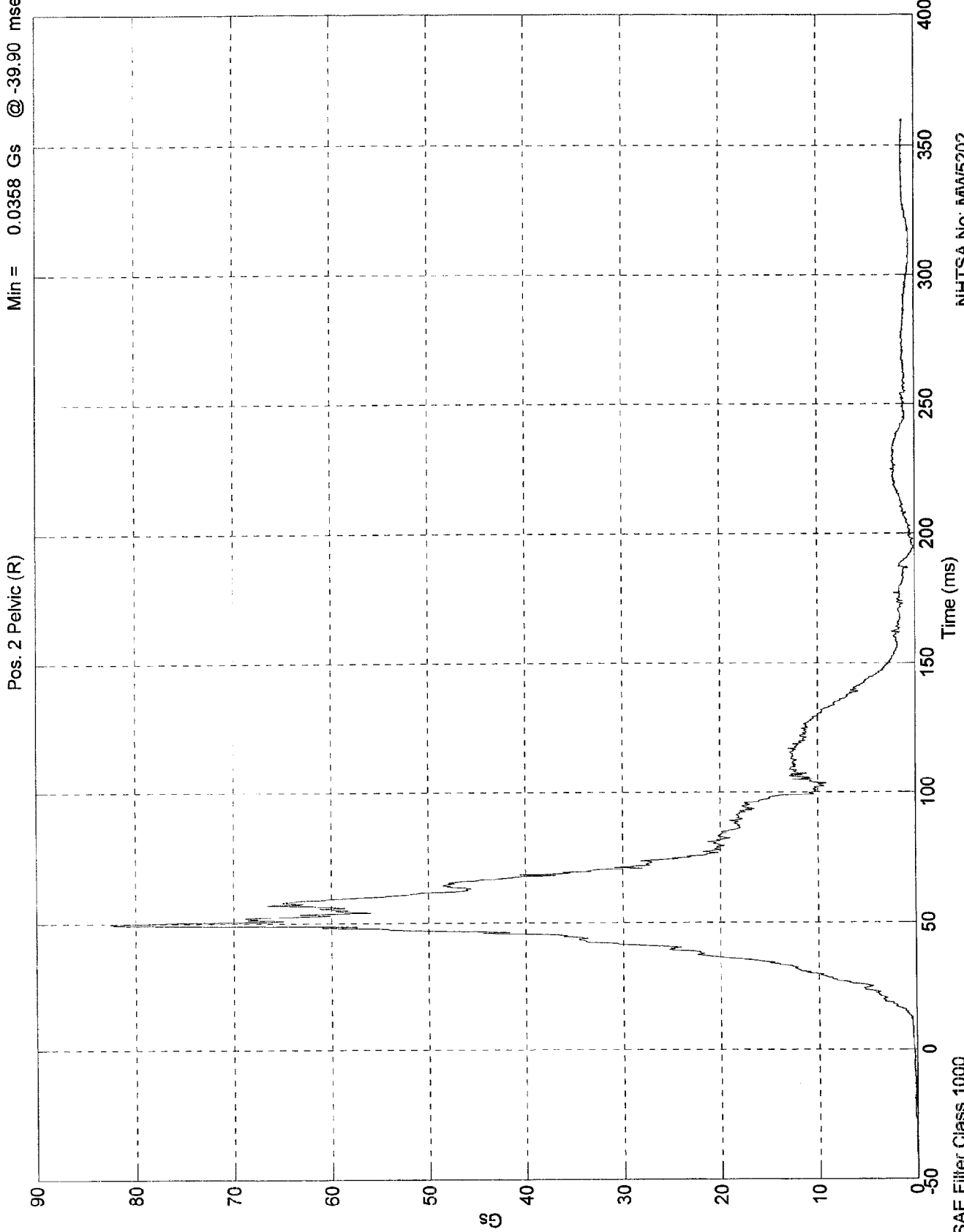


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 82.5 Gs @ 49.70 msec
Min = 0.0358 Gs @ -39.90 msec

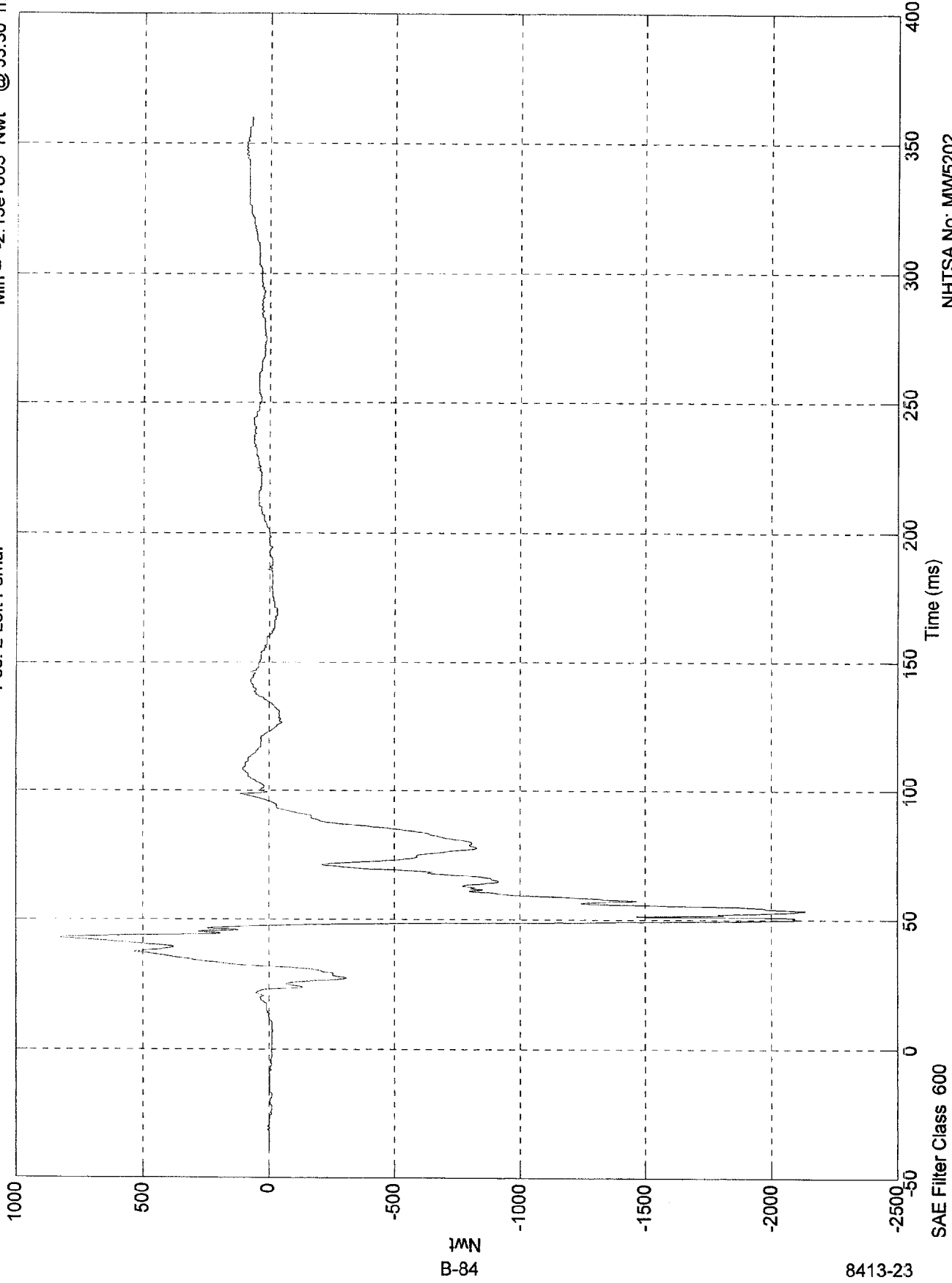


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 823 Nwt @ 42.90 msec
Min = -2.13e+003 Nwt @ 53.30 msec

Pos. 2 Left Femur

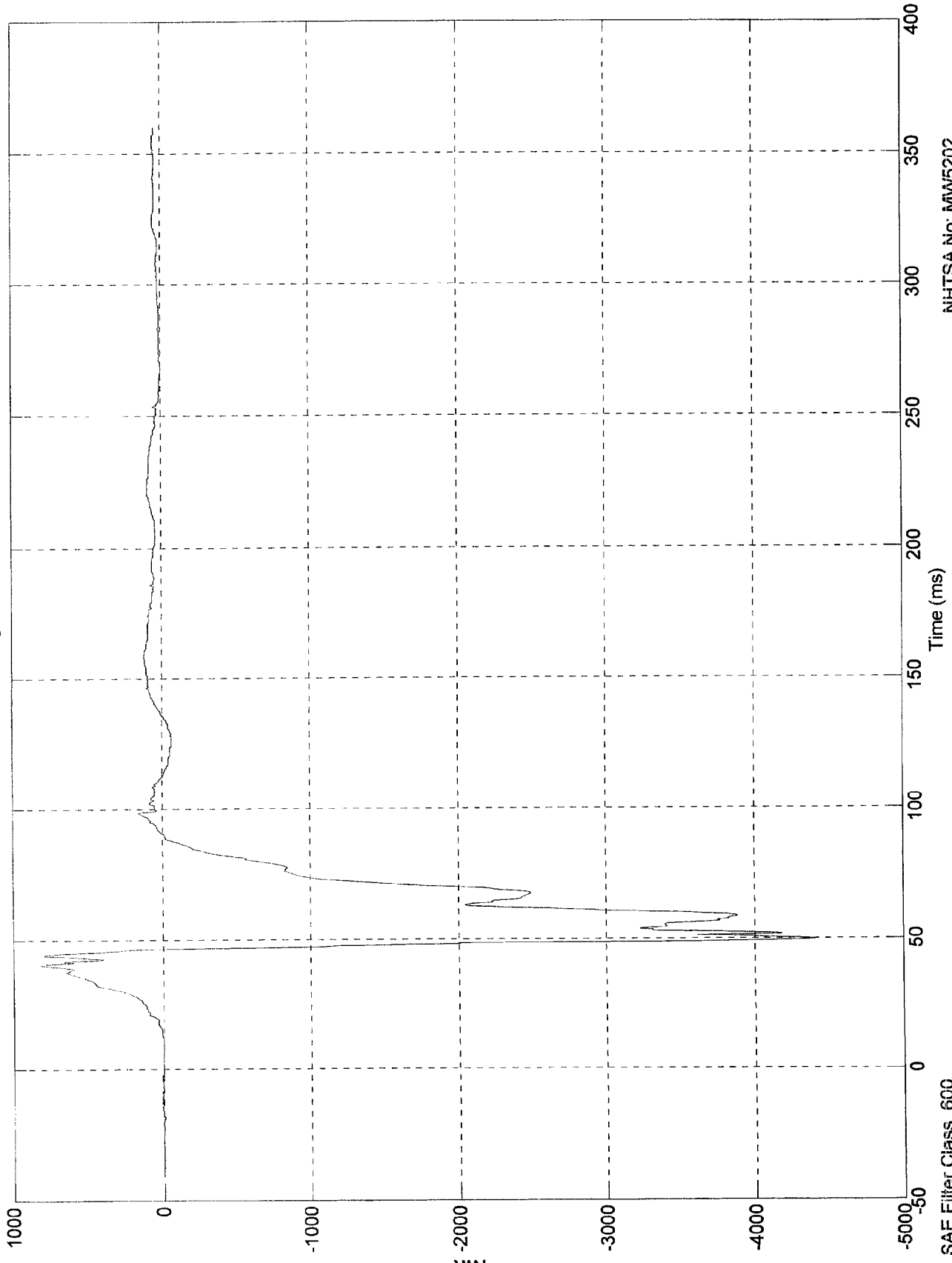


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 815 Nwt @ 40.40 msec
Min = -4.41e+003 Nwt @ 49.80 msec

Pos. 2 Right Femur

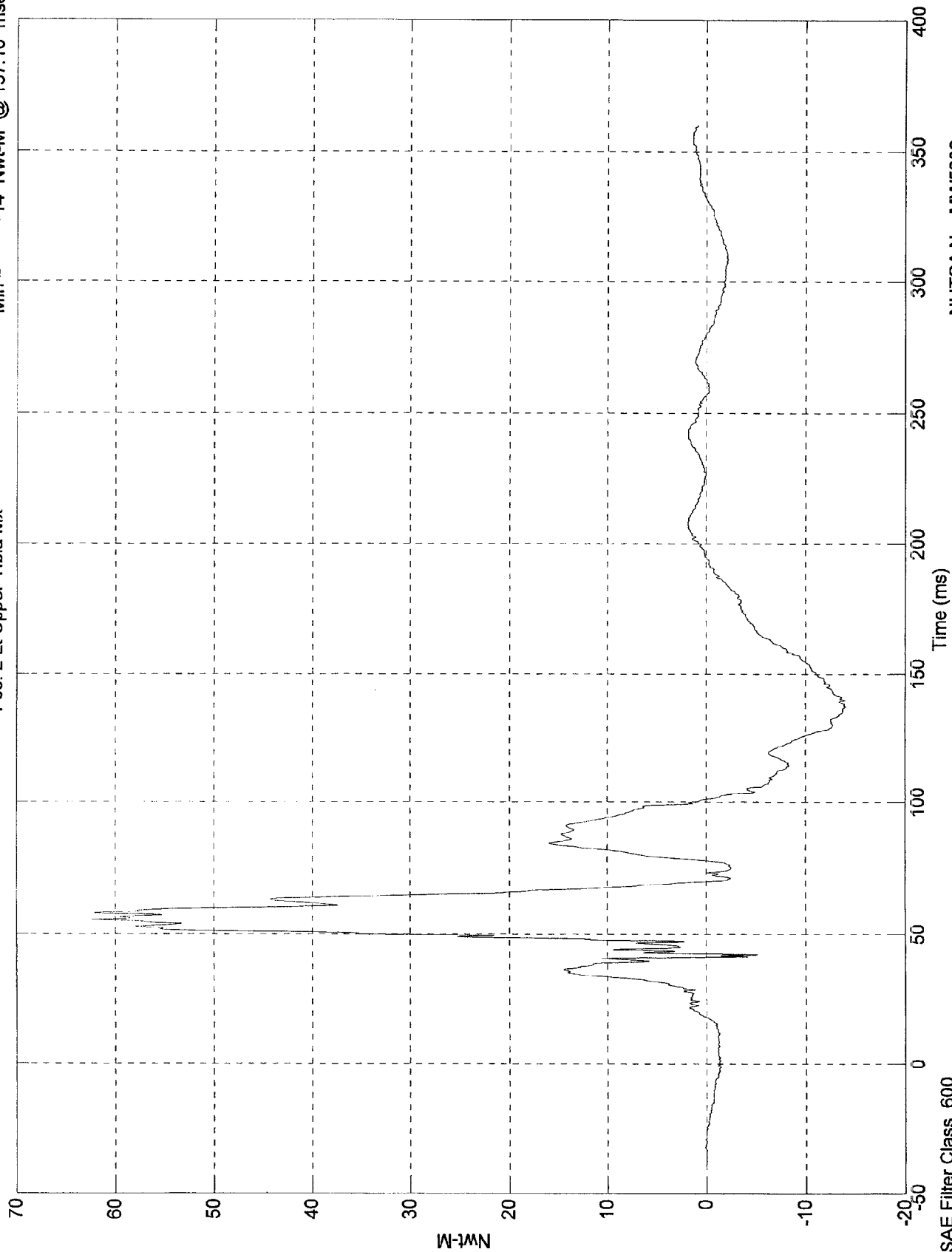


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 62.3 Nwt-M @ 55.30 msec
Min = -14 Nwt-M @ 137.10 msec

Pos. 2 Lt Upper Tibia Mx



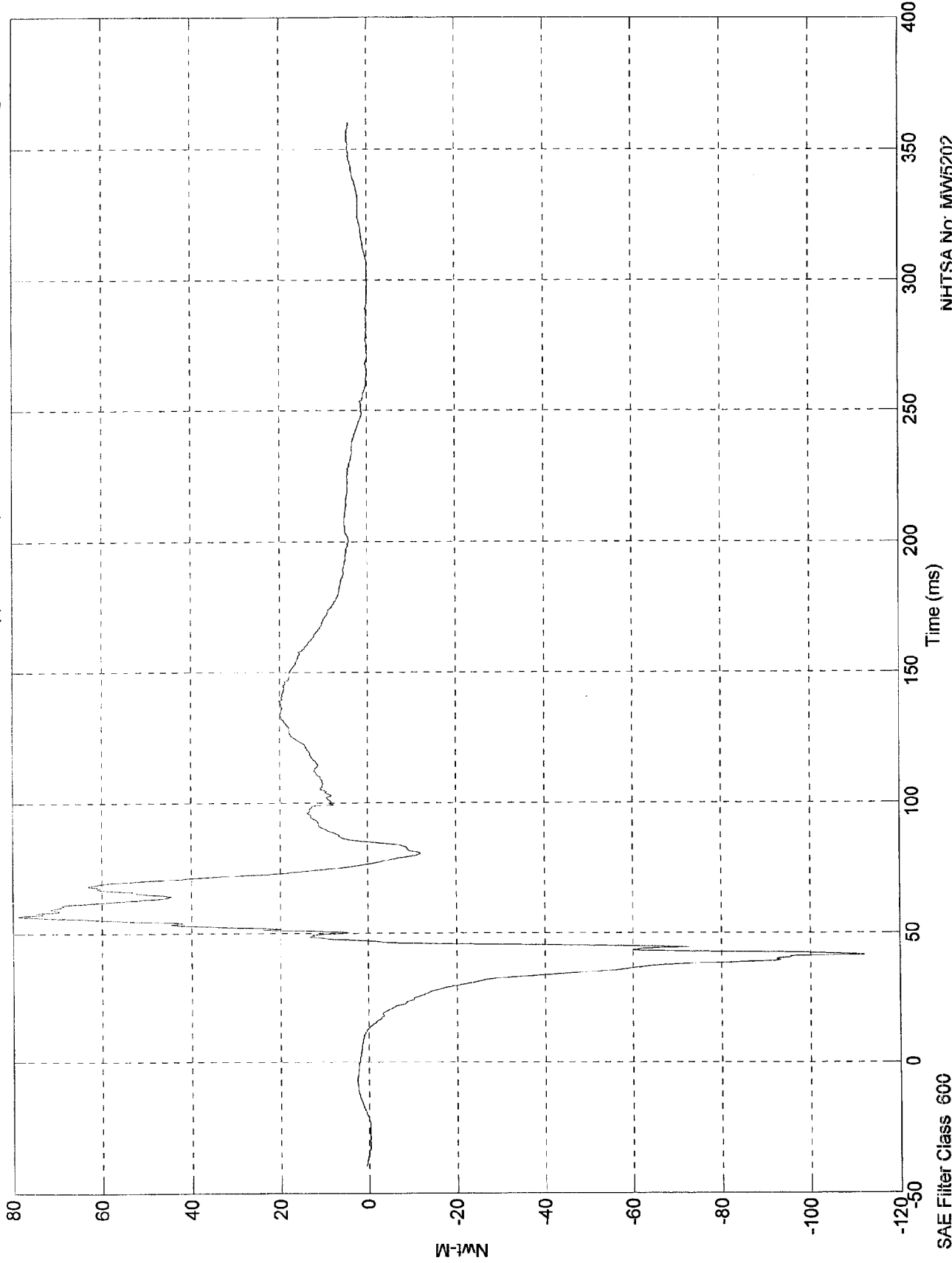
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 78.8 Nwt-M @ 56.60 msec
Min = -112 Nwt-M @ 41.60 msec

Pos. 2 Lt Upper Tibia My

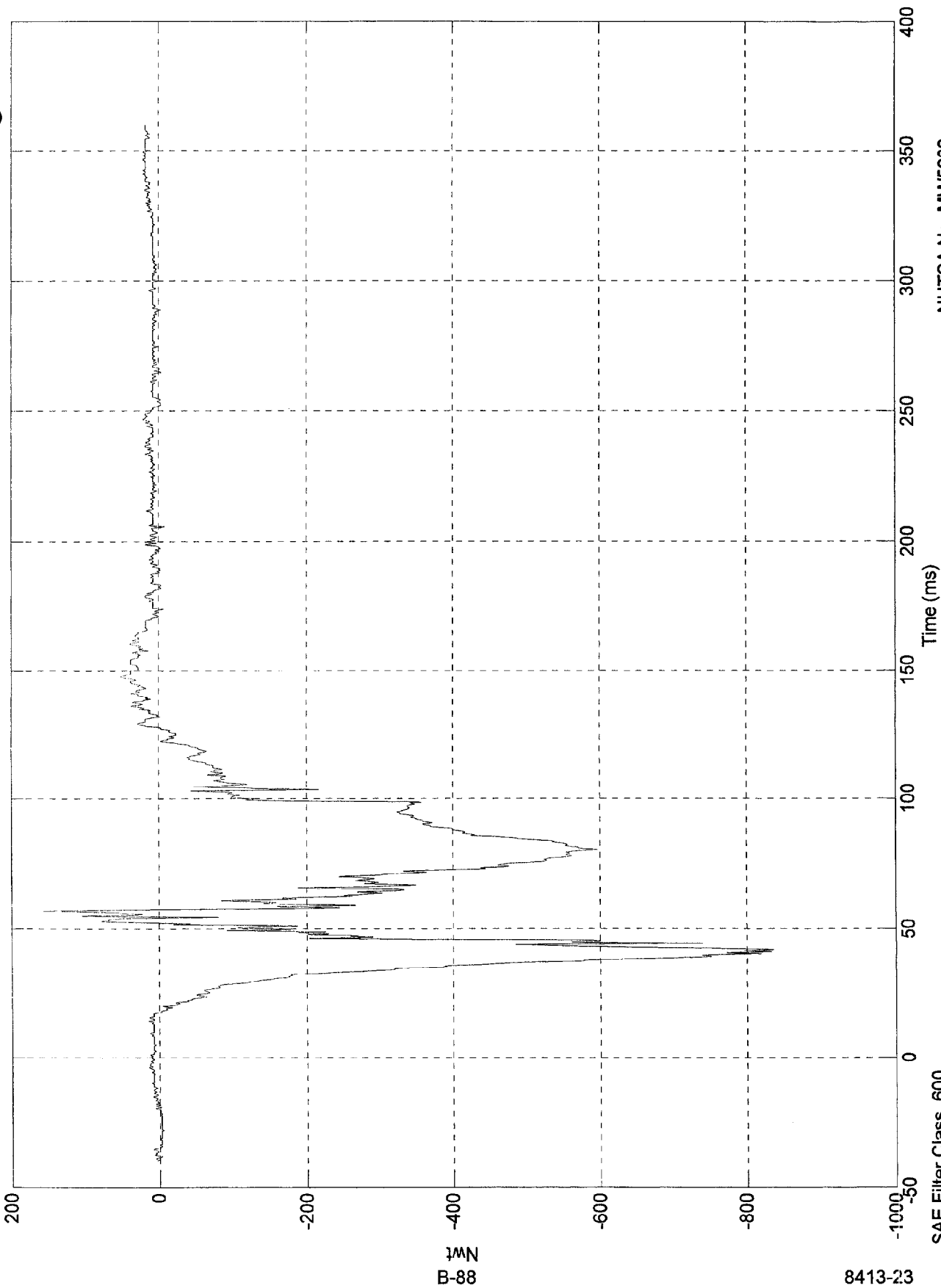


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 157 Nwt @ 56.80 msec
Min = -836 Nwt @ 41.90 msec

Pos. 2 Lt Lower Tibia Fx



NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

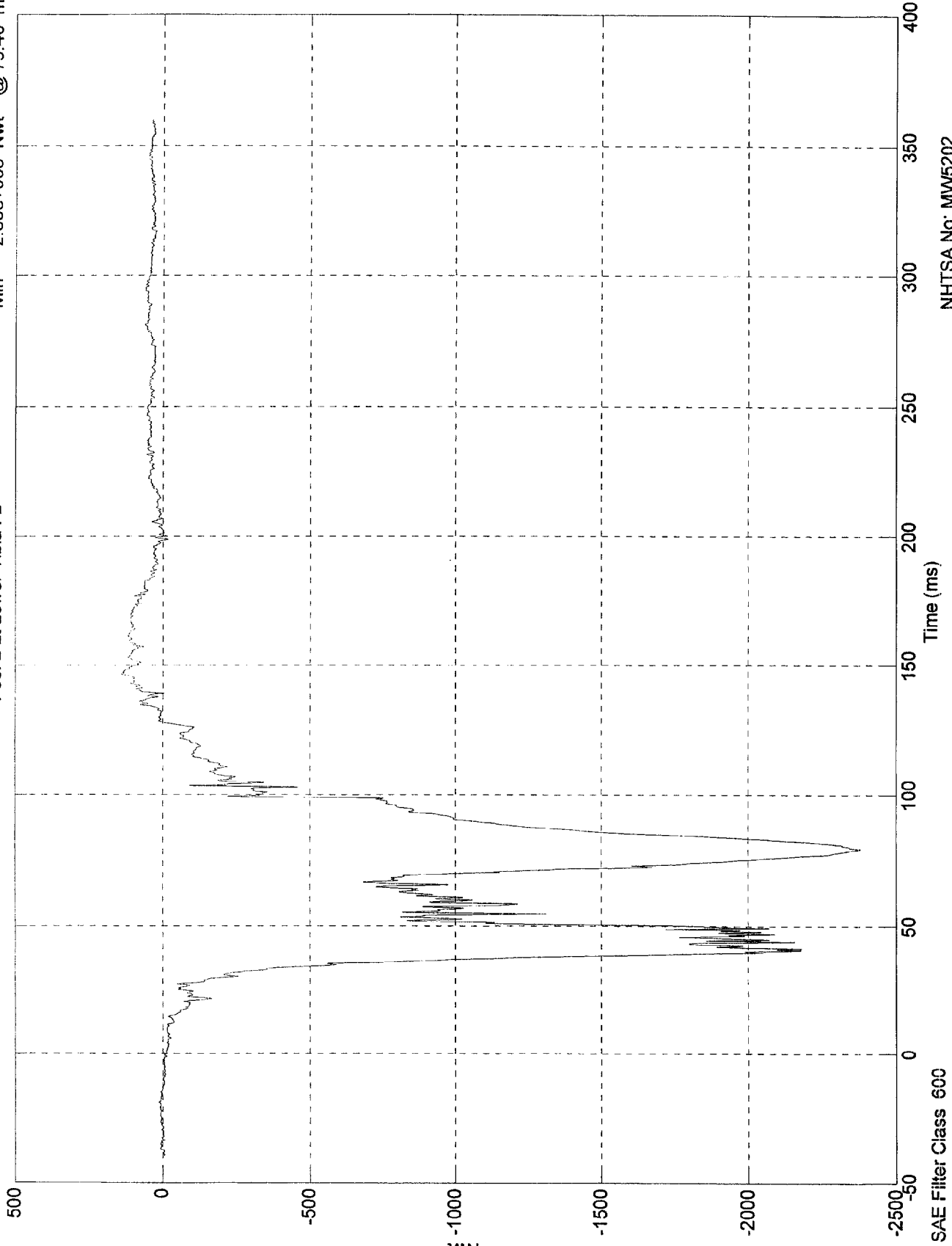
B-88

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NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 141 Nwt @ 146.50 msec
Min = -2.38e+003 Nwt @ 79.40 msec

Pos. 2 Lt Lower Tibia Fz

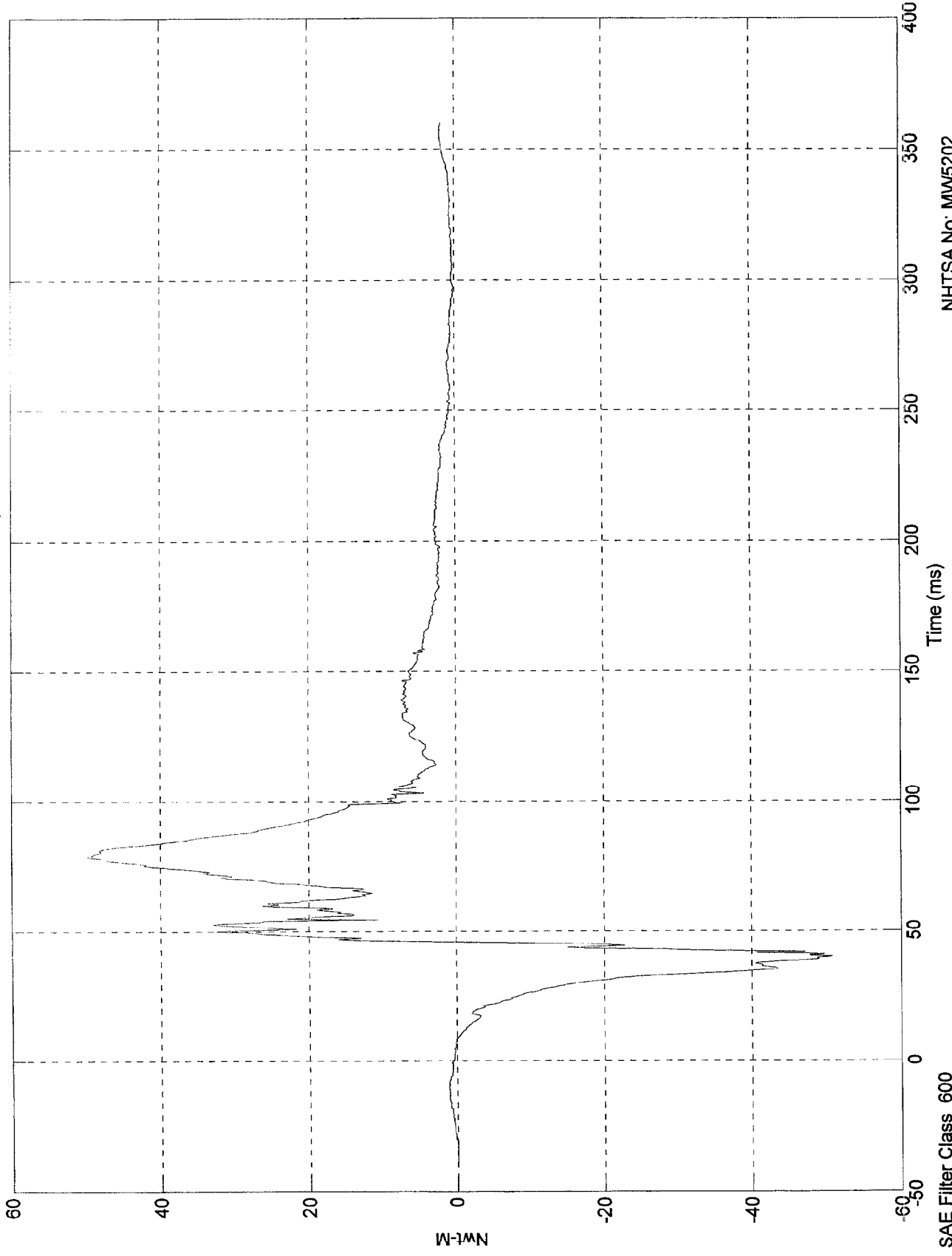


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 49.8 Nwt-M @ 78.90 msec
Min = -50.7 Nwt-M @ 40.10 msec

Pos. 2 Lt Lower Tibia My

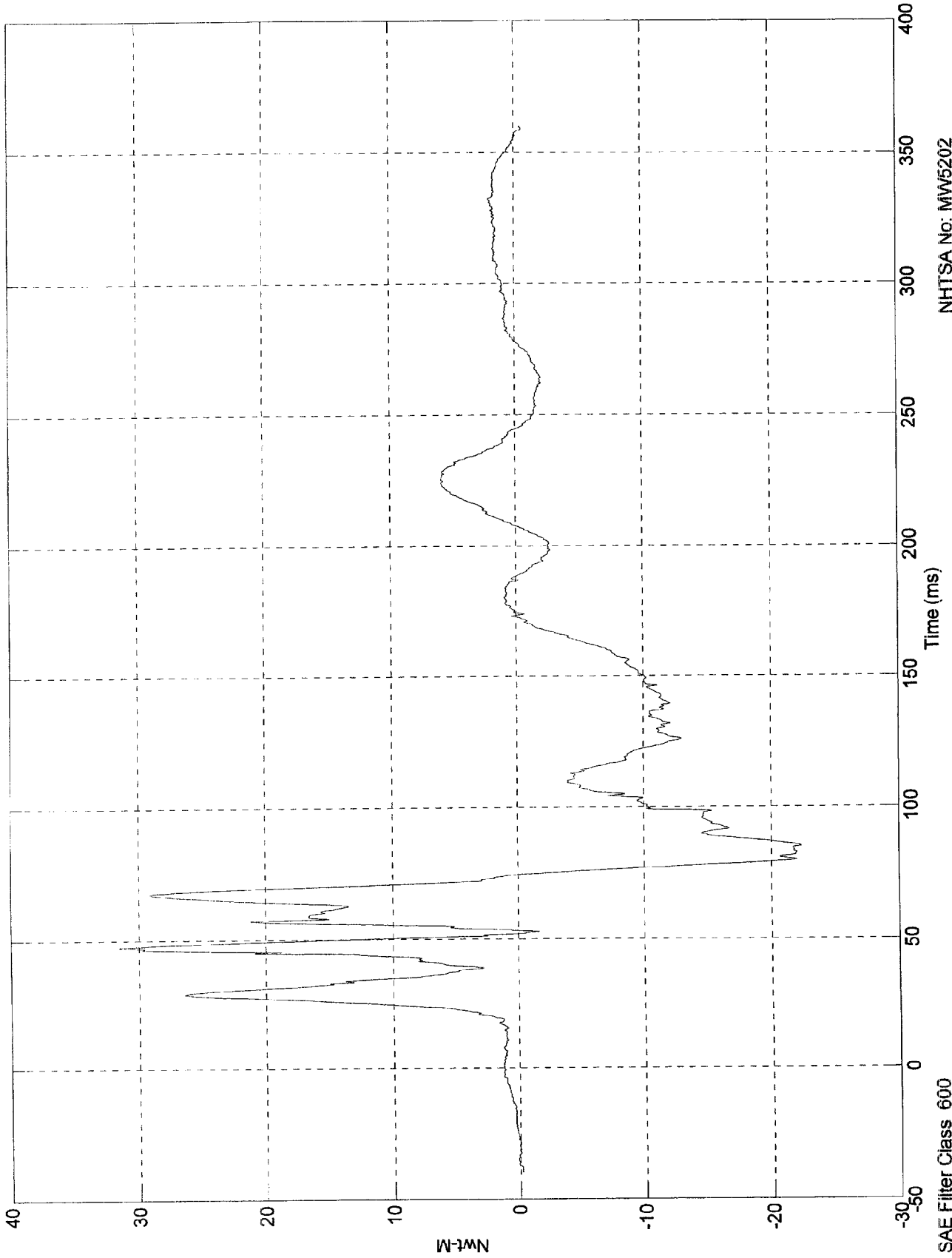


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 31.5 Nwt-M @ 47.20 msec
Min = -22.3 Nwt-M @ 85.30 msec

Pos. 2 Rt Upper Tibia Mx



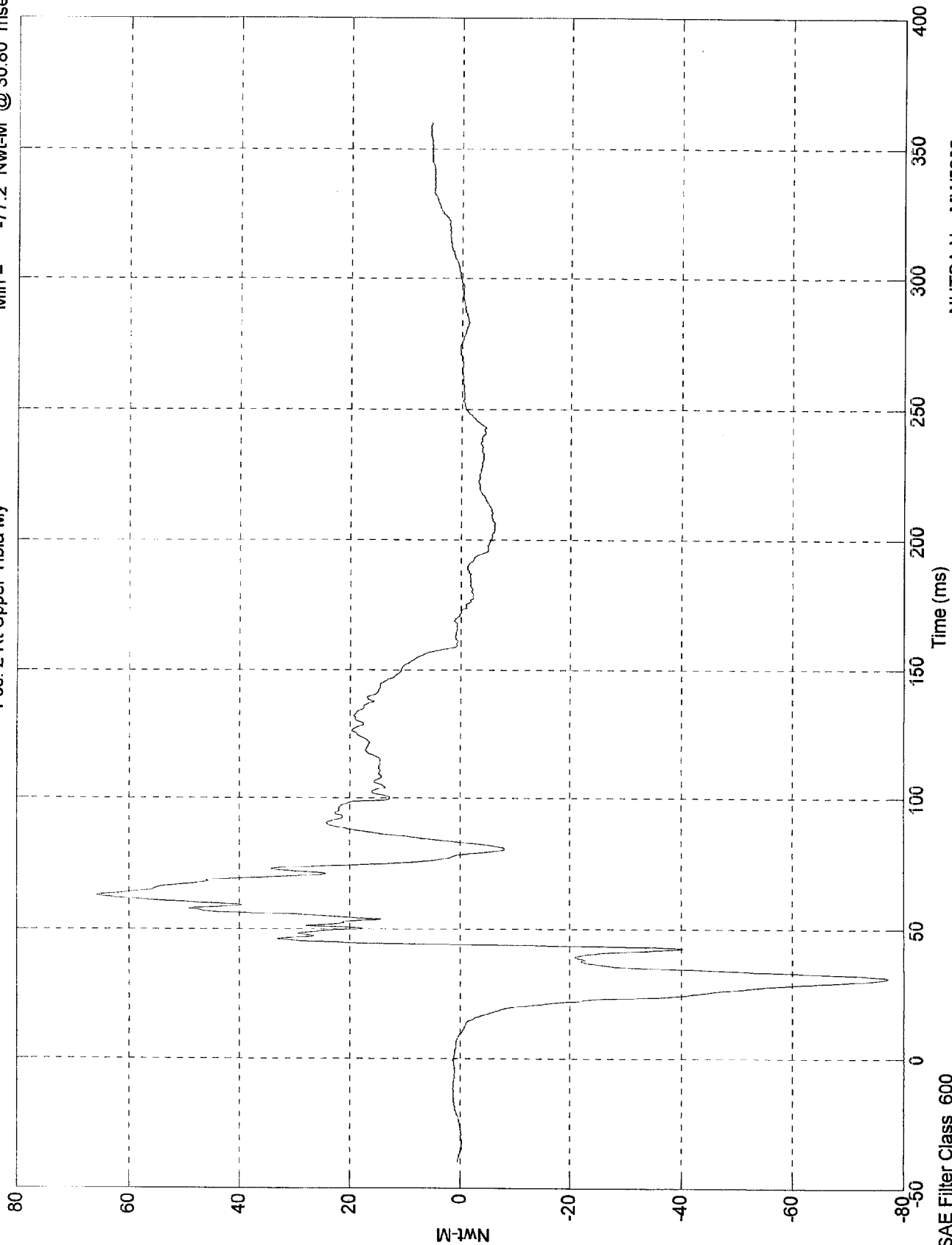
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 65.7 Nwt-M @ 62.80 msec
Min = -77.2 Nwt-M @ 30.80 msec

Pos. 2 Rt Upper Tibia My



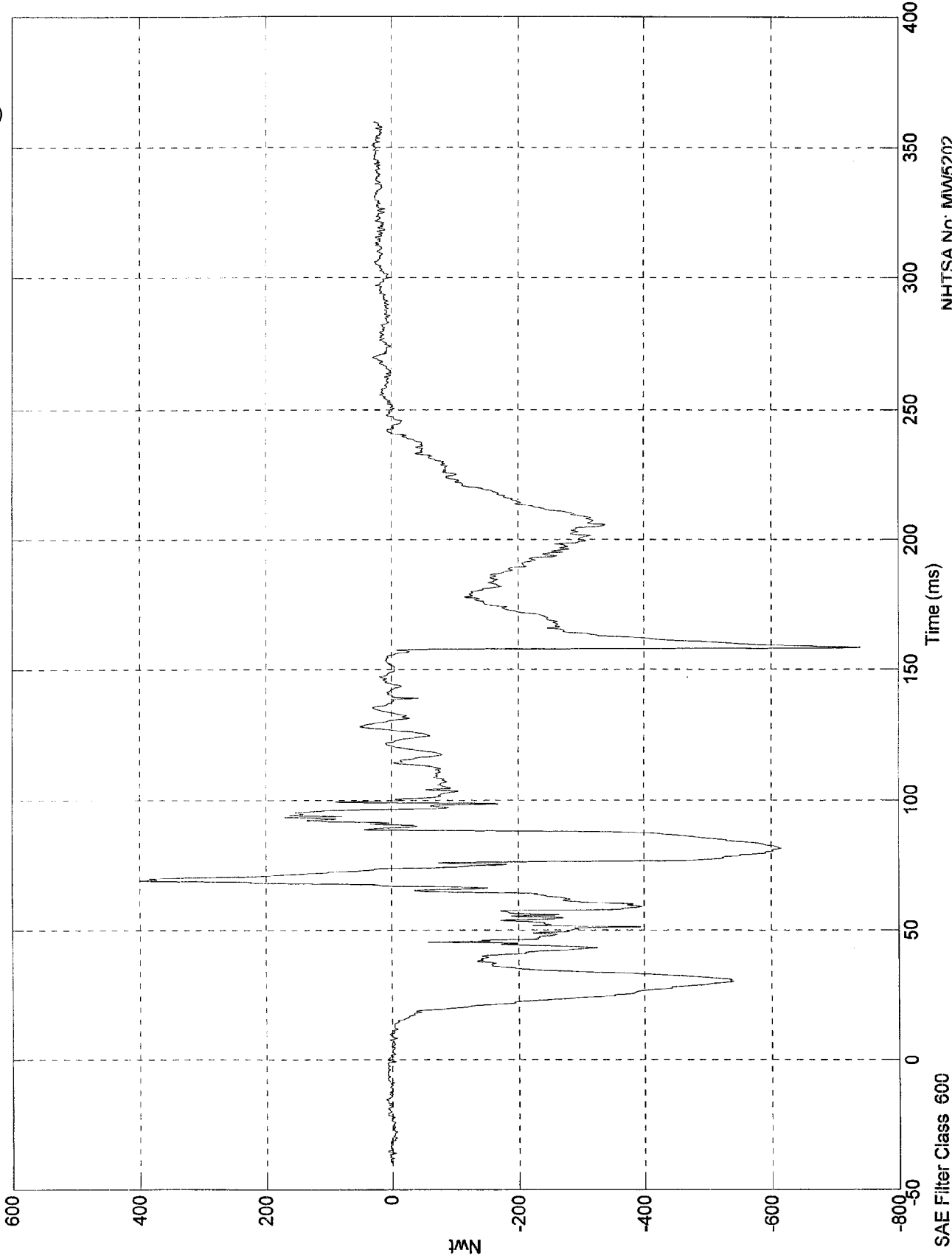
SAE Filter Class 600

NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 400 Nwt @ 68.70 msec
Min = -740 Nwt @ 158.40 msec

Pos. 2 Rt Lower Tibia Fx

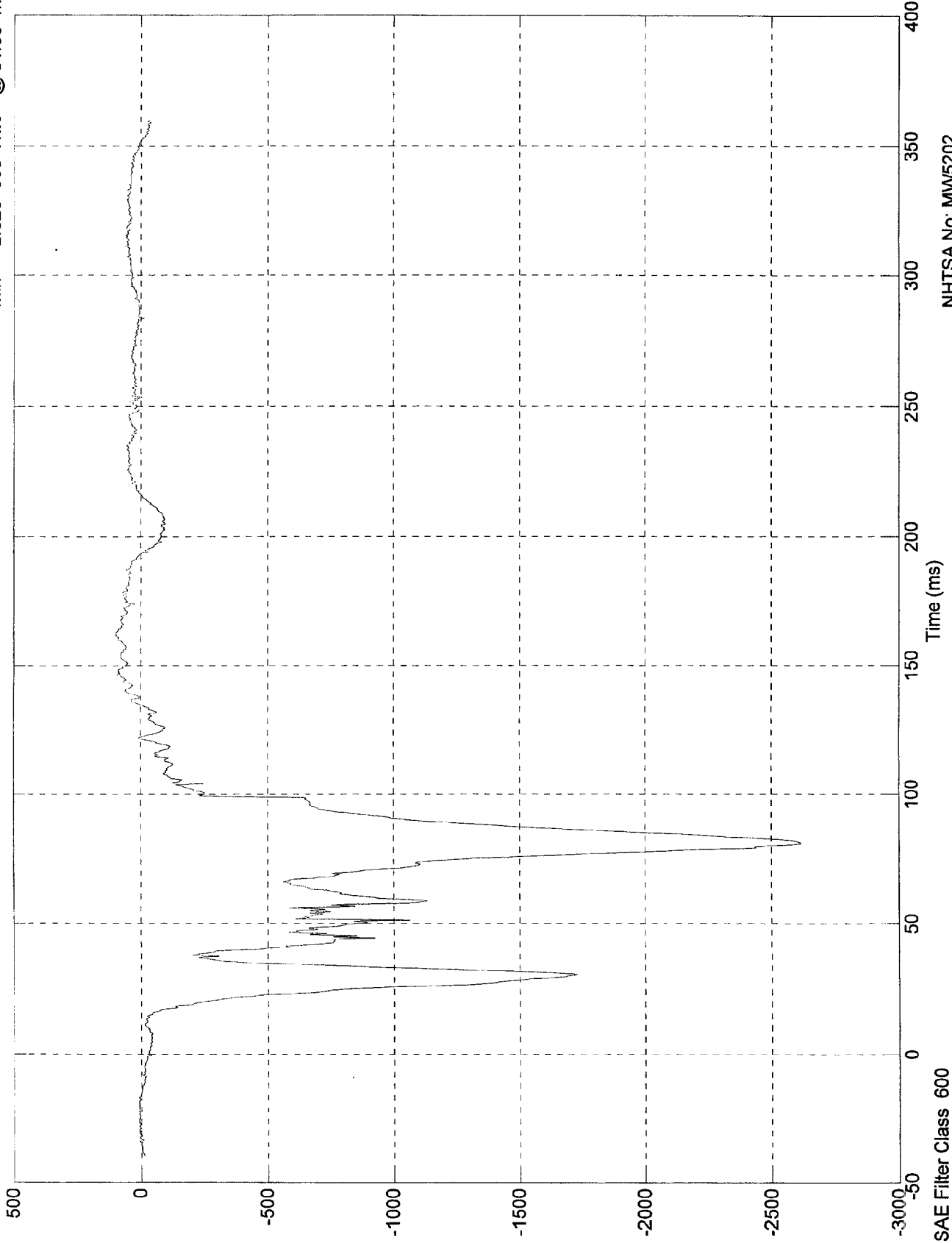


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 99 Nwt @ 162.40 msec
Min = -2.62e+003 Nwt @ 81.00 msec

Pos. 2 Rt Lower Tibia Fz



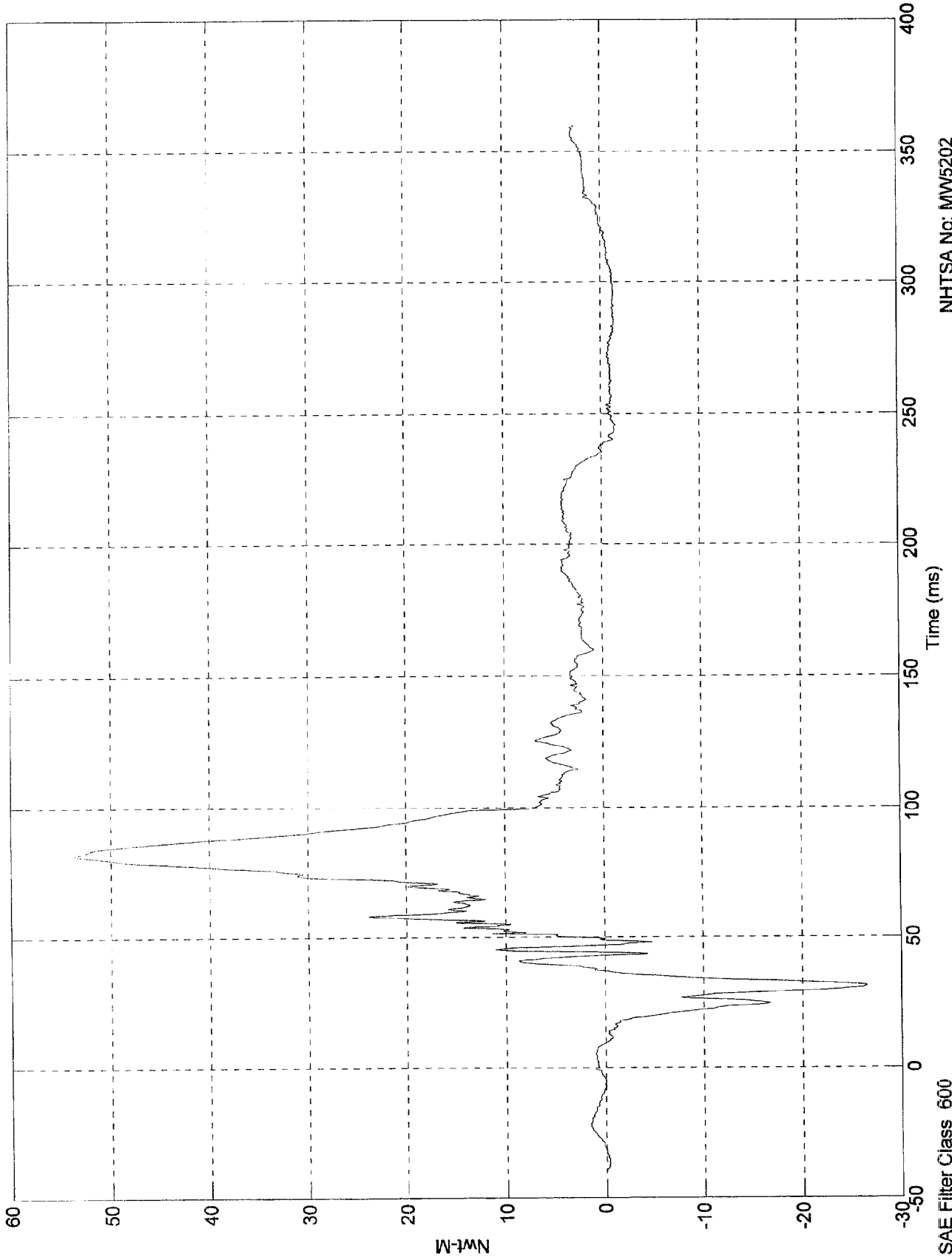
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 53.5 Nwt-M @ 81.70 msec
Min = -26.5 Nwt-M @ 31.50 msec

Pos. 2 Rt Lower Tibia My



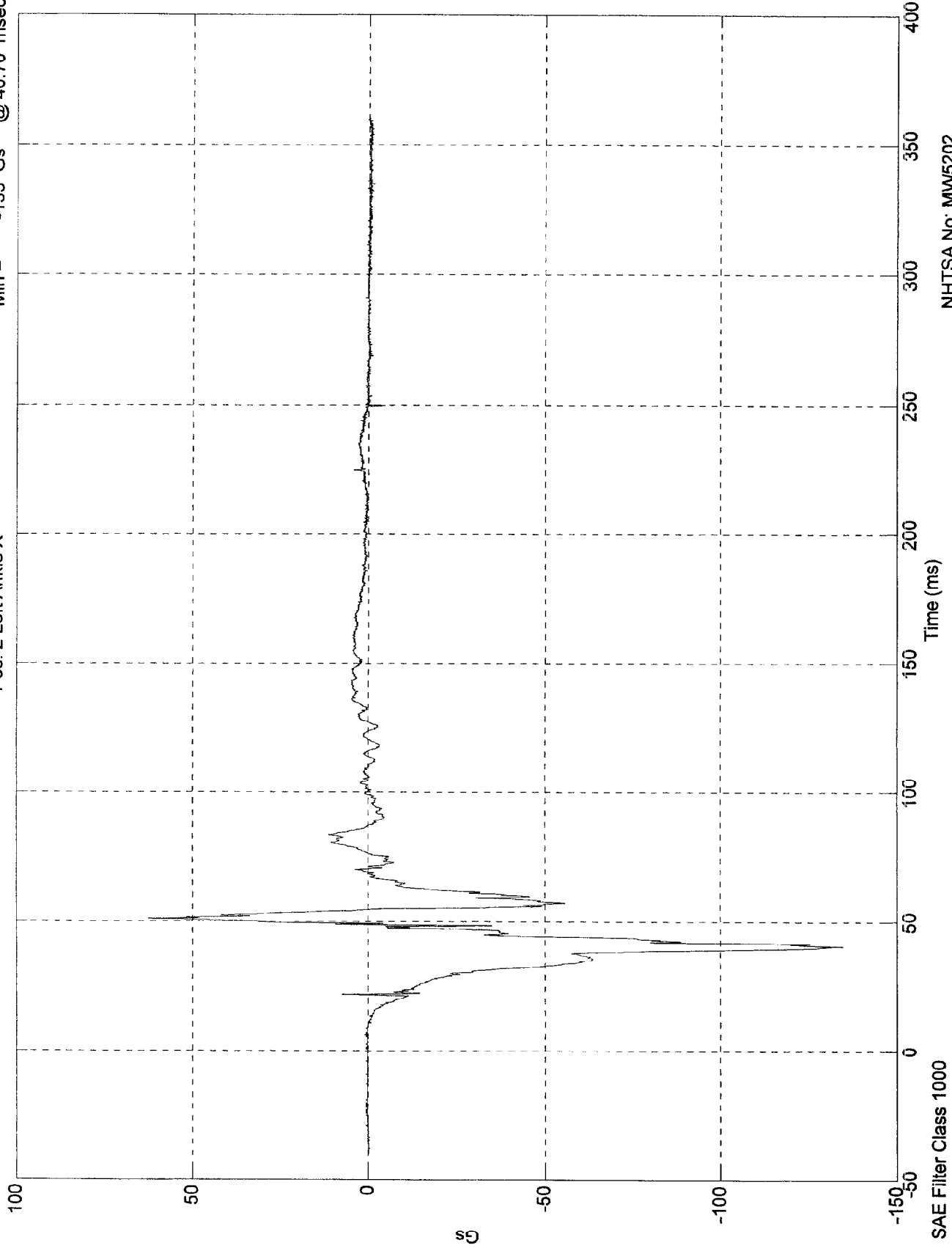
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 600

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 62.5 Gs @ 50.90 msec
Min = -135 Gs @ 40.70 msec

Pos. 2 Left Ankle X



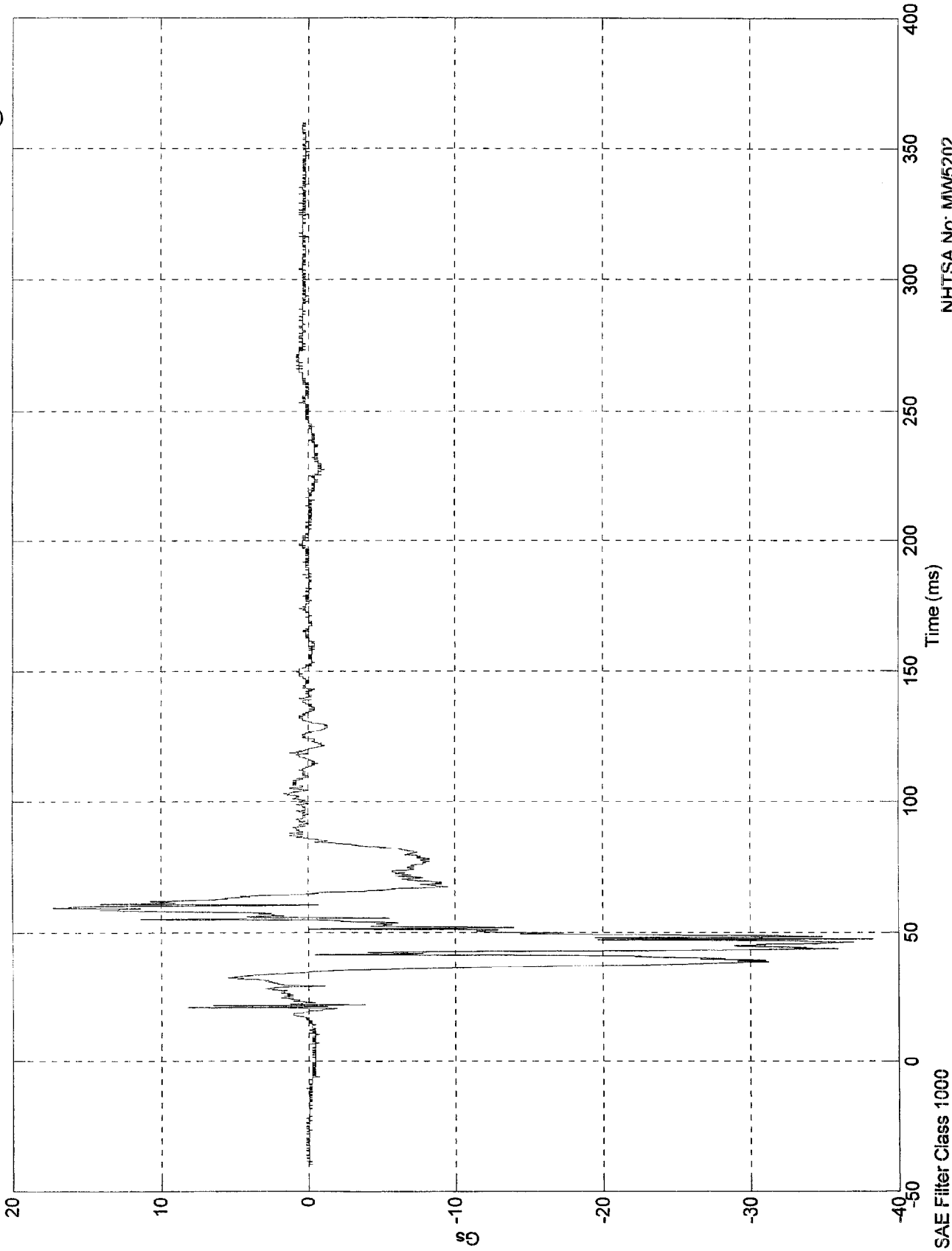
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 17.3 Gs @ 59.30 msec
Min = -38.2 Gs @ 47.40 msec

Pos. 2 Left Ankle Z

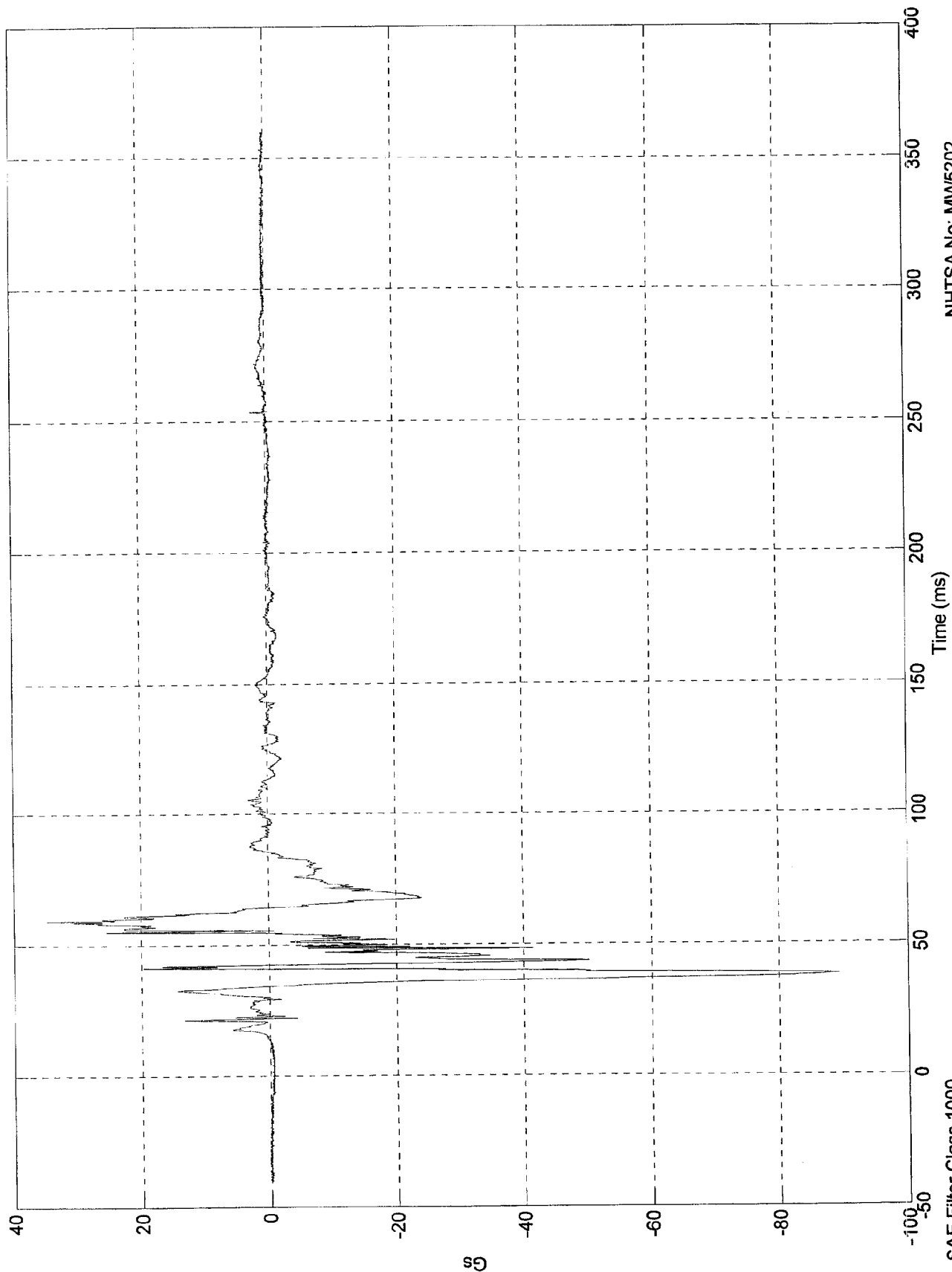


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 34.8 Gs @ 59.10 msec
Min = -89.2 Gs @ 38.60 msec

Pos. 2 Left Toe Z

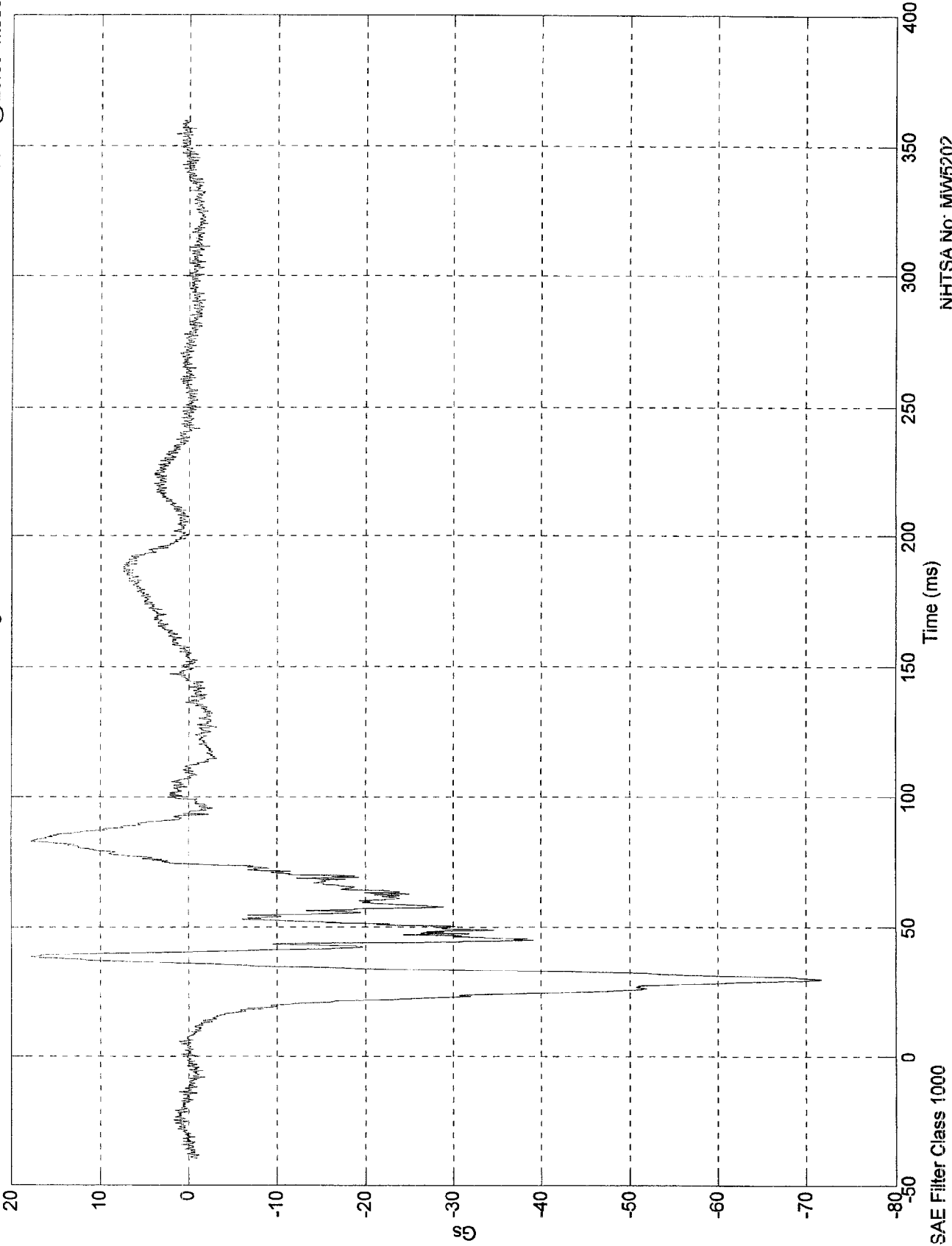


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 17.8 Gs @ 38.70 msec
Min = -71.7 Gs @ 29.80 msec

Pos. 2 Right Ankle X

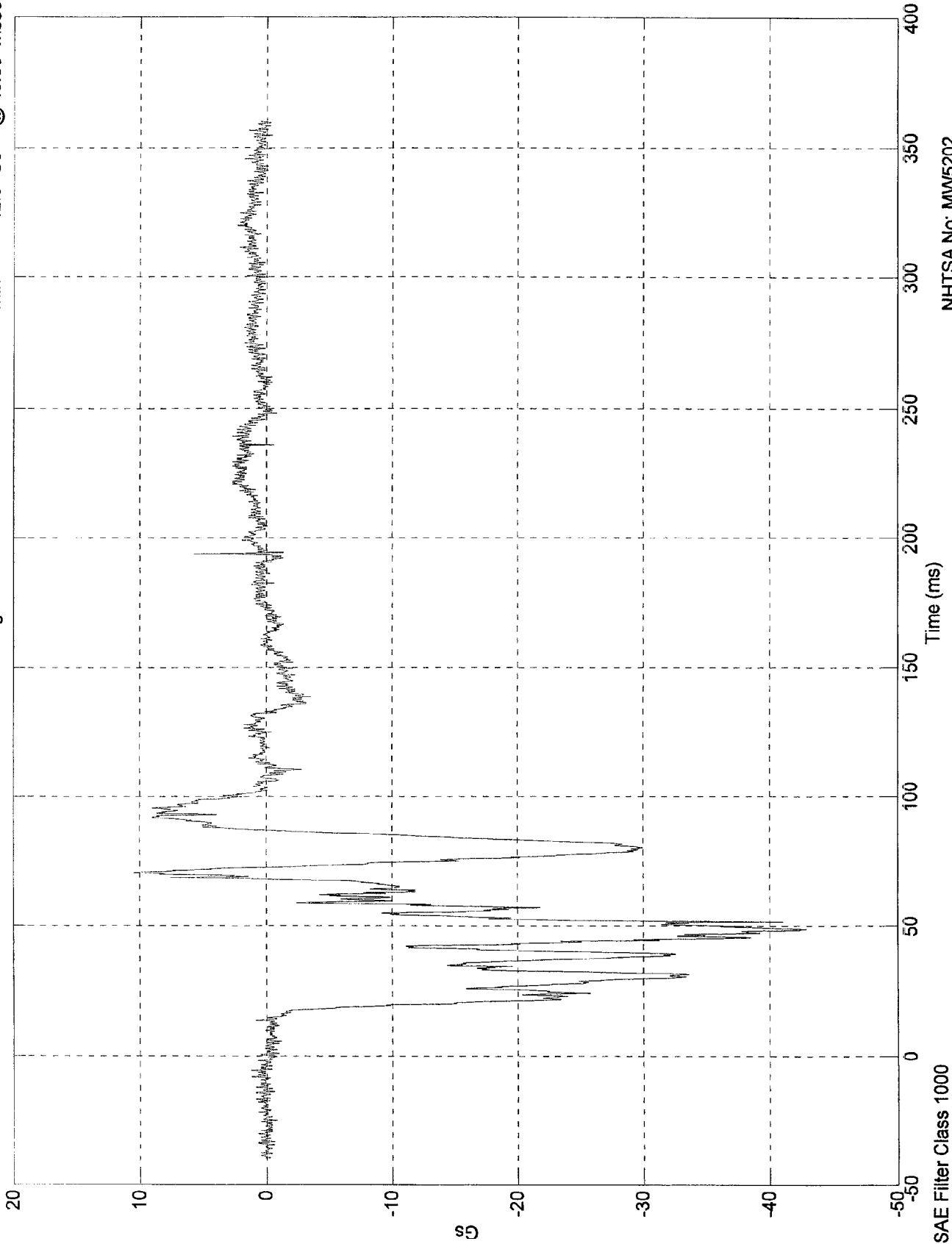


NHTSA No: MW5202
Date: 19 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 10.5 Gs @ 70.50 msec
Min = -42.9 Gs @ 48.60 msec

Pos. 2 Right Ankle Z

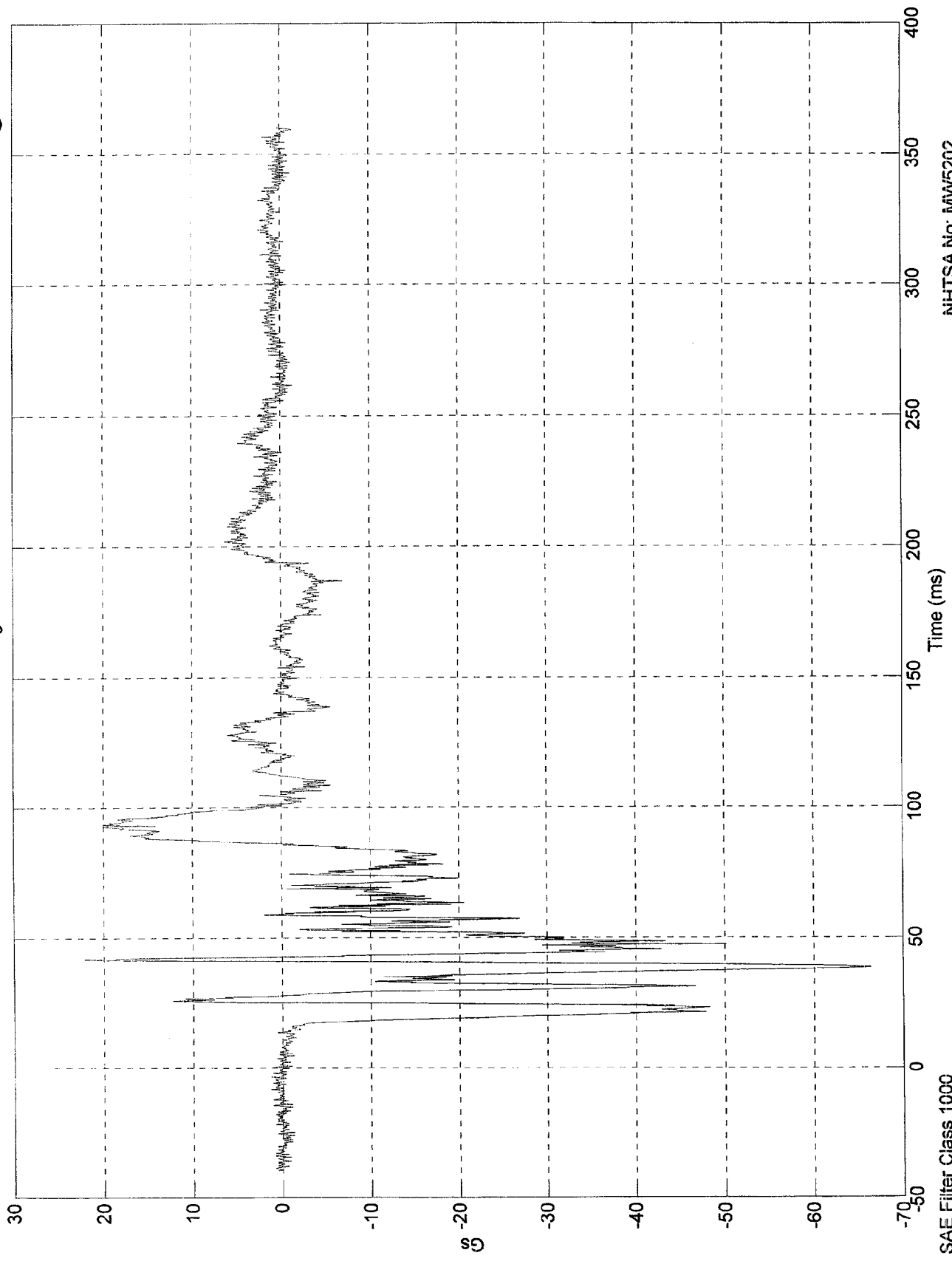


NHTSA No: MW5202
Date: 19 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 22.2 Gs @ 41.90 msec
Min = -66.4 Gs @ 38.70 msec

Pos. 2 Right Toe Z



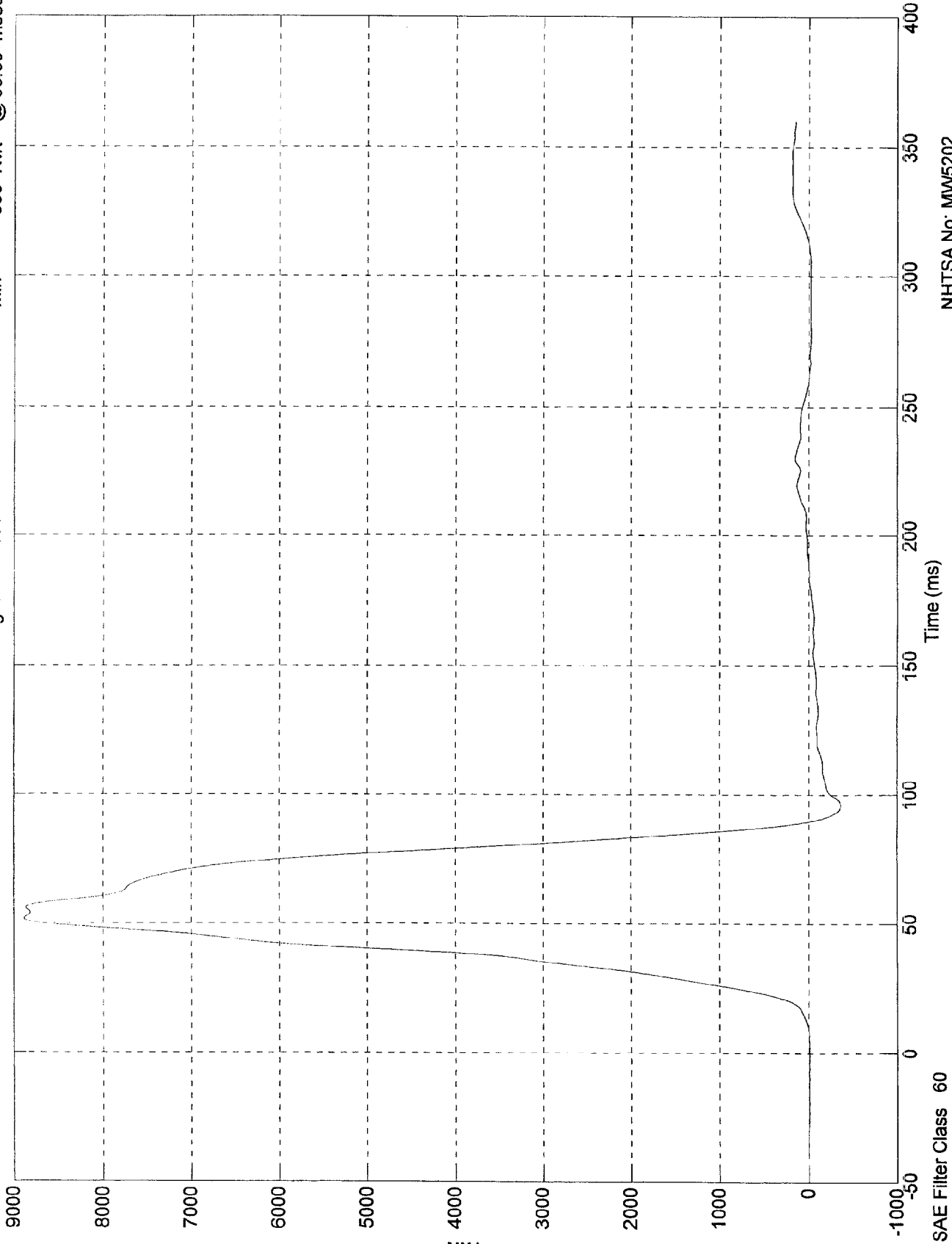
NHTSA No: MW5202
Date: 19 Feb 1998

SAE Filter Class 1000

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 8.88e+003 Nwt @ 51.60 msec
Min = -360 Nwt @ 95.90 msec

Pos. 2 Right Belt Load

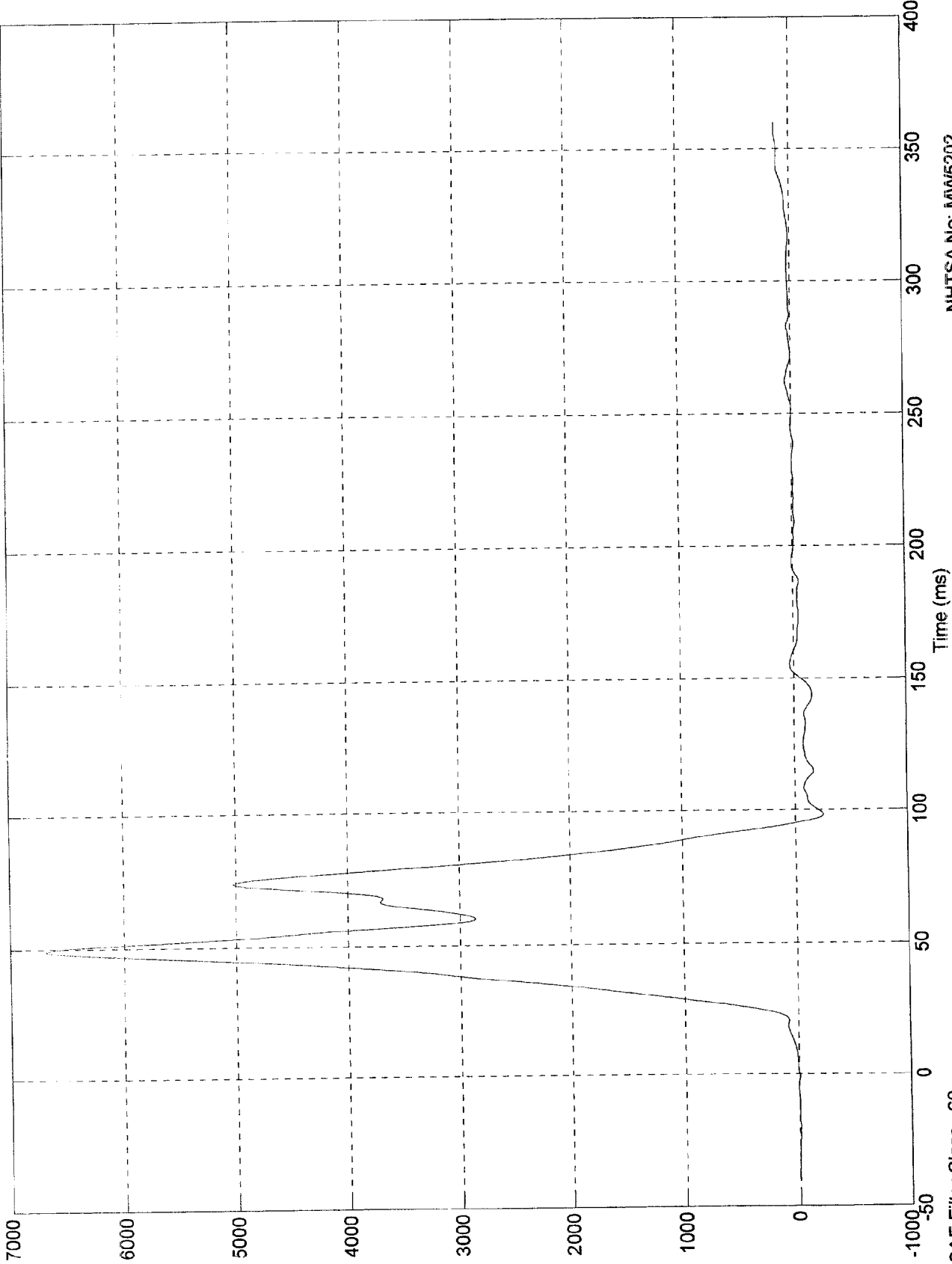


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 6.68e+003 Nwt @ 49.00 msec
Min = -252 Nwt @ 98.20 msec

Pos. 2 Torso Belt Load



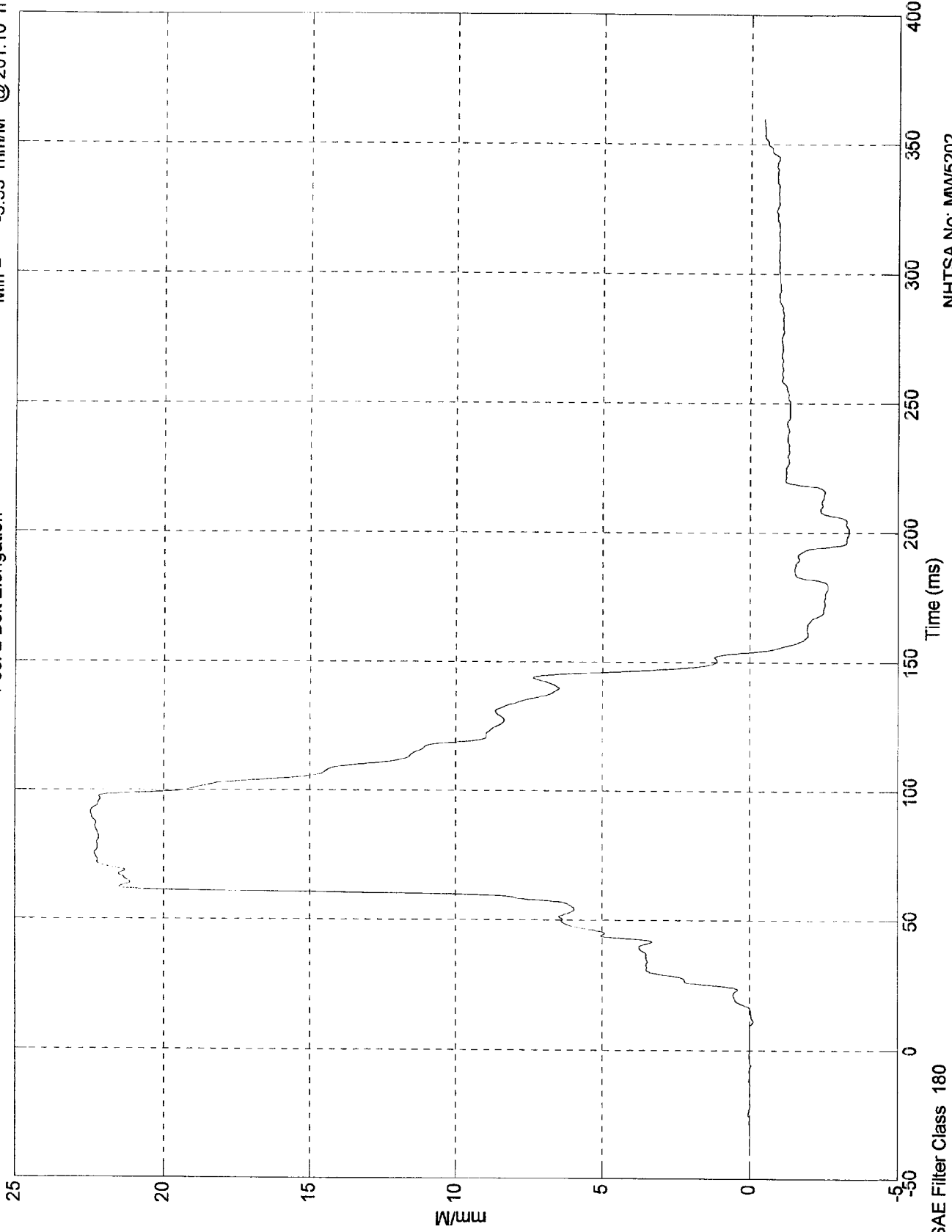
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 22.5 mm/M @ 91.50 msec
Min = -3.33 mm/M @ 201.10 msec

Pos. 2 Belt Elongation



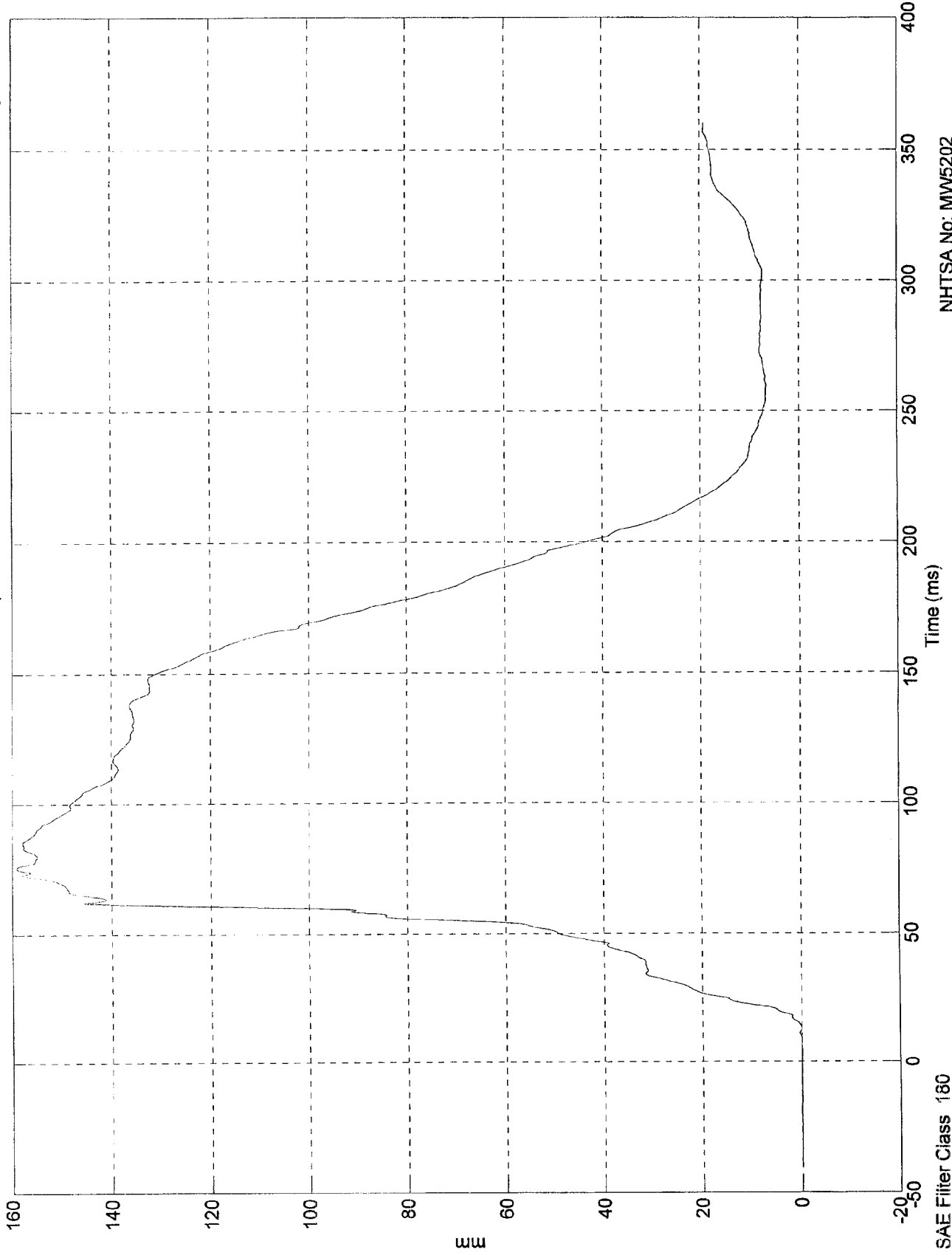
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 159 mm @ 75.60 msec
Min = -0.0567 mm @ -13.70 msec

Pos. 2 Belt Spoolout



NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NHTSA TEST NO. MW5202

VEHICLE DATA

FILTER CHANNEL CLASS

Acceleration

60

Velocity

180

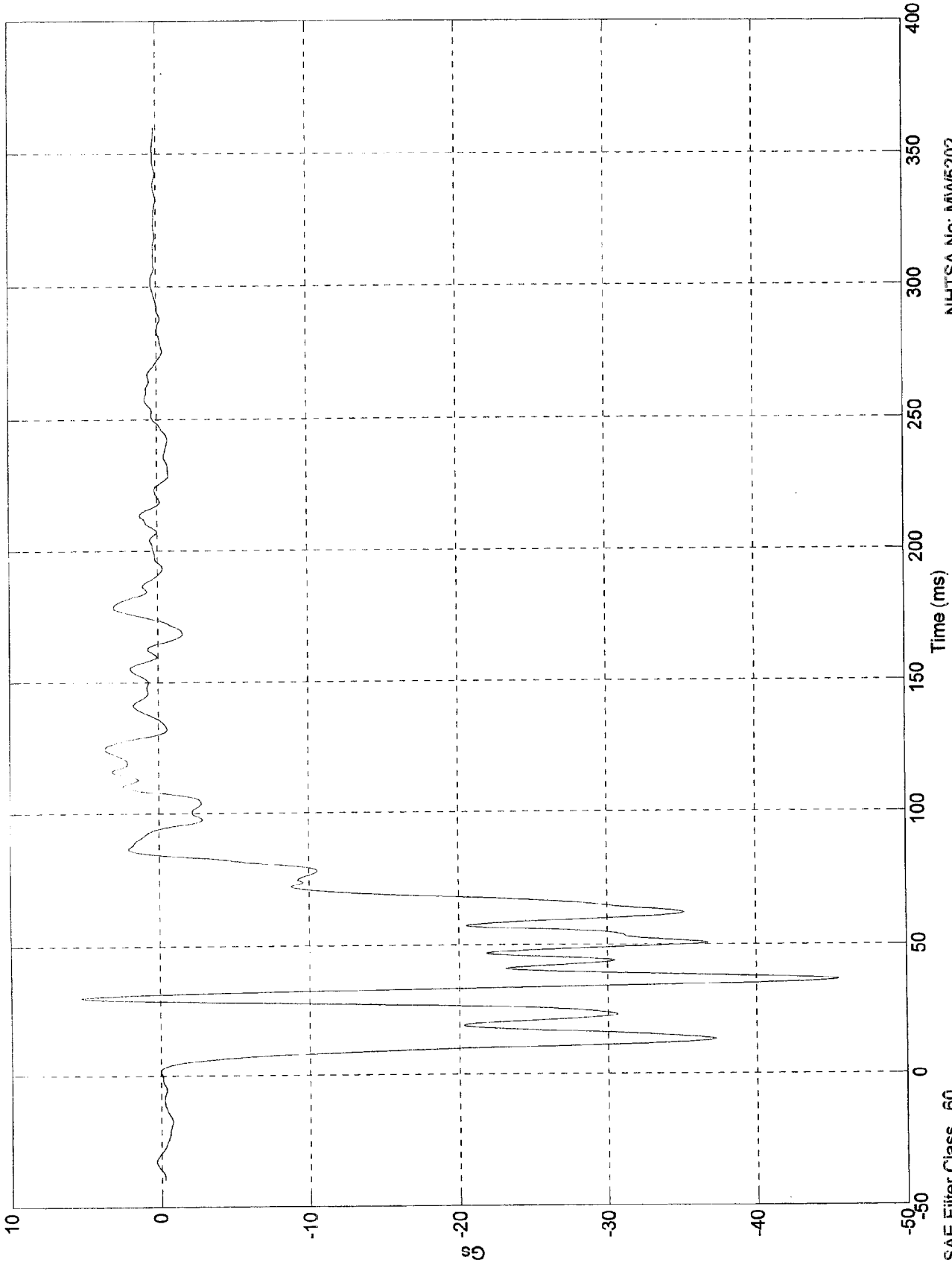
Displacement

180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 5.23 Gs @ 30.10 msec
Min = -45.5 Gs @ 36.40 msec

Acc. #1 Left Rear X



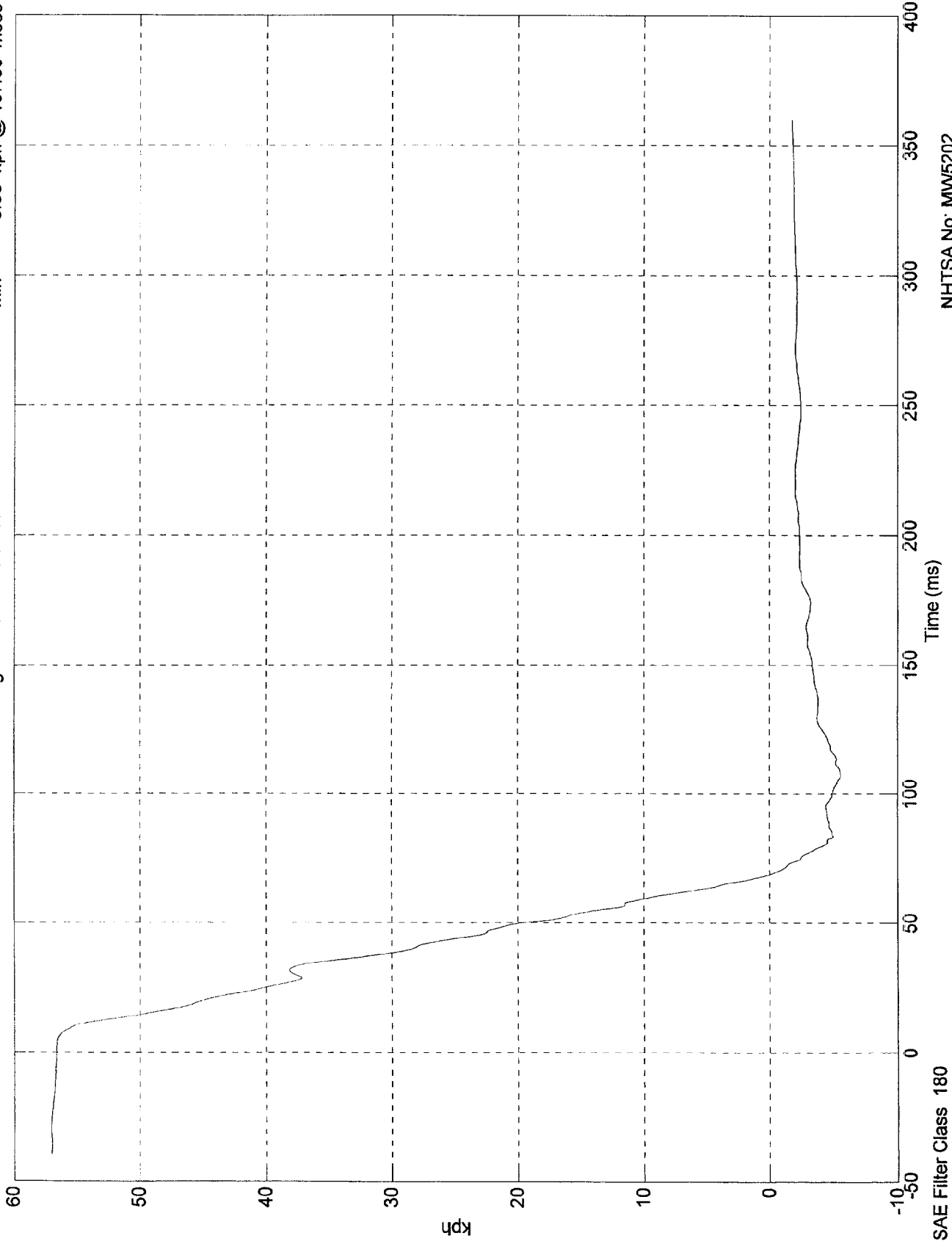
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 57 kph @ -29.70 msec
Min = -5.55 kph @ 107.00 msec

1st Integral Acc. #1 Left Rear X

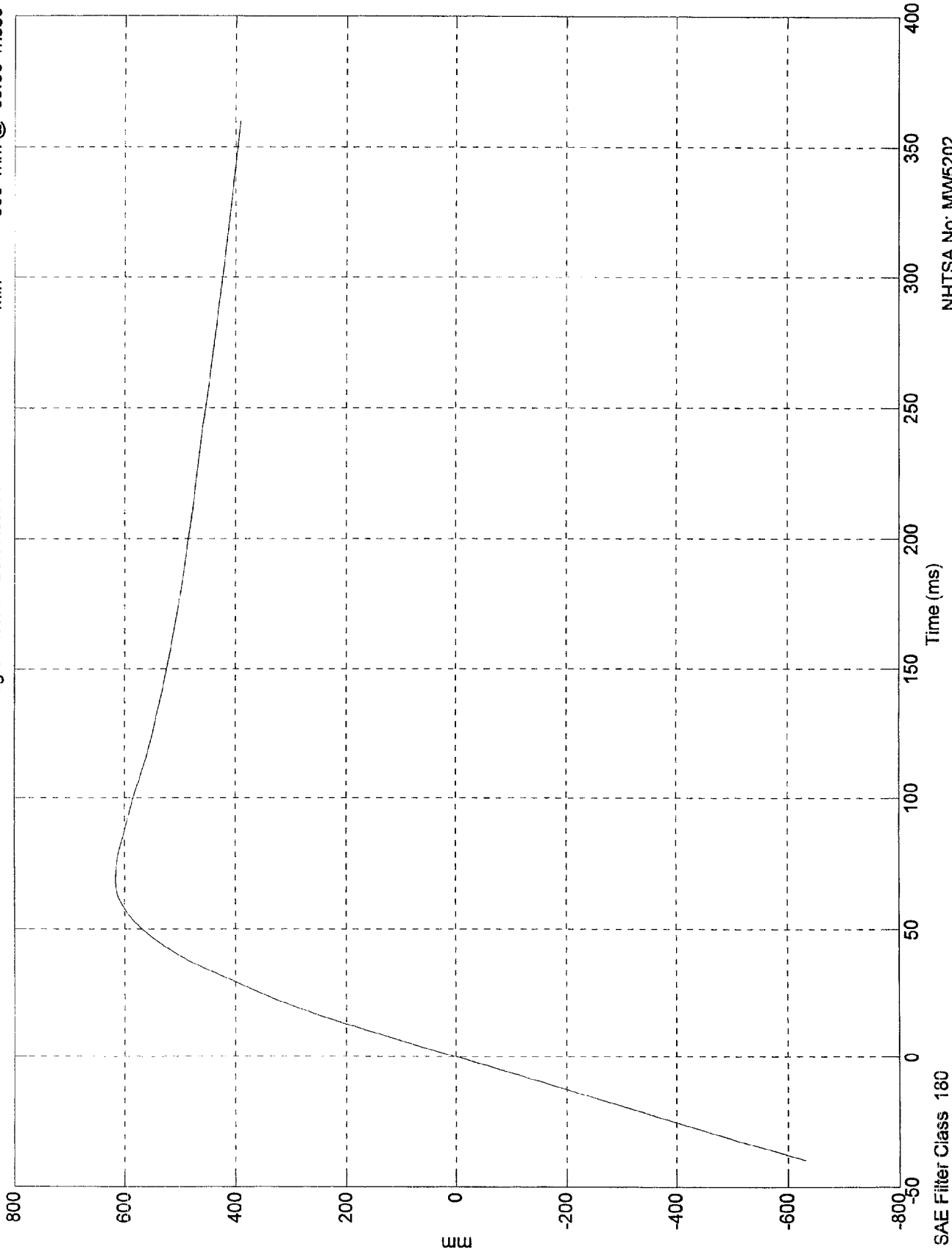


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 617 mm @ 68.50 msec
Min = -630 mm @ -39.90 msec

2nd Integral Acc. #1 Left Rear X

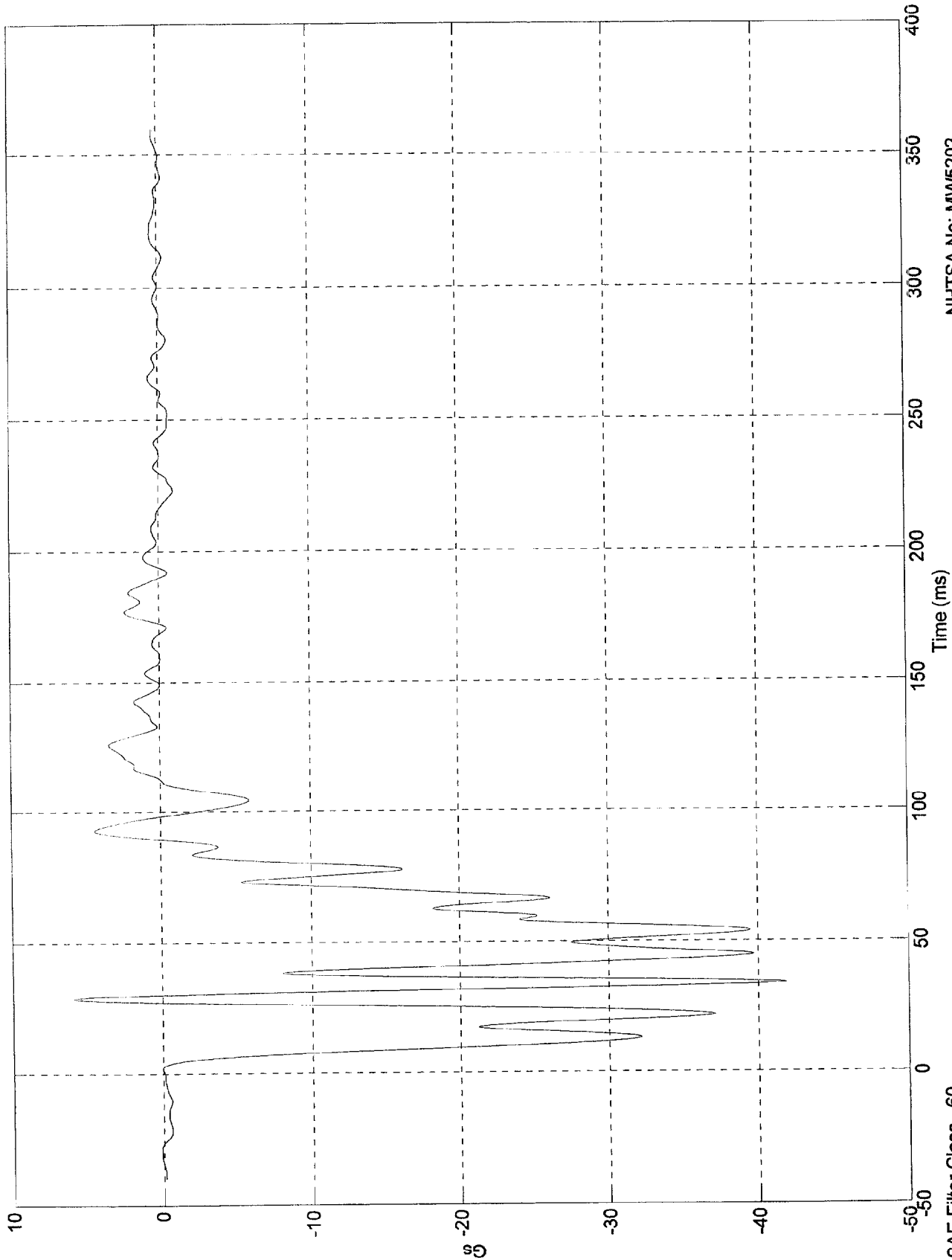


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 5.9 Gs @ 28.70 msec
Min = -41.8 Gs @ 33.90 msec

Acc. #2 Right Rear X



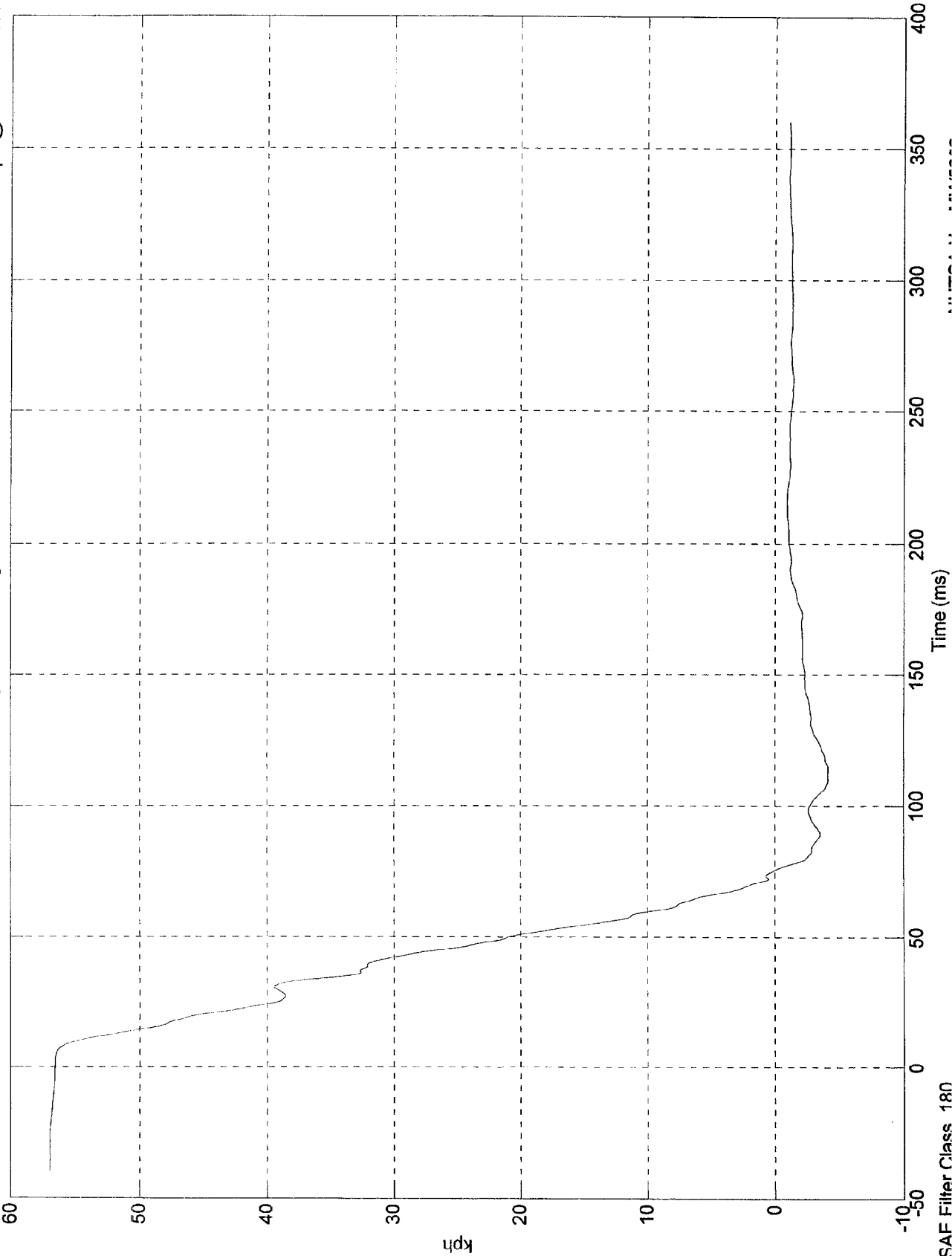
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 57 kph @ -25.90 msec
Min = -4.15 kph @ 114.50 msec

1st Integral Acc. #2 Right Rear X



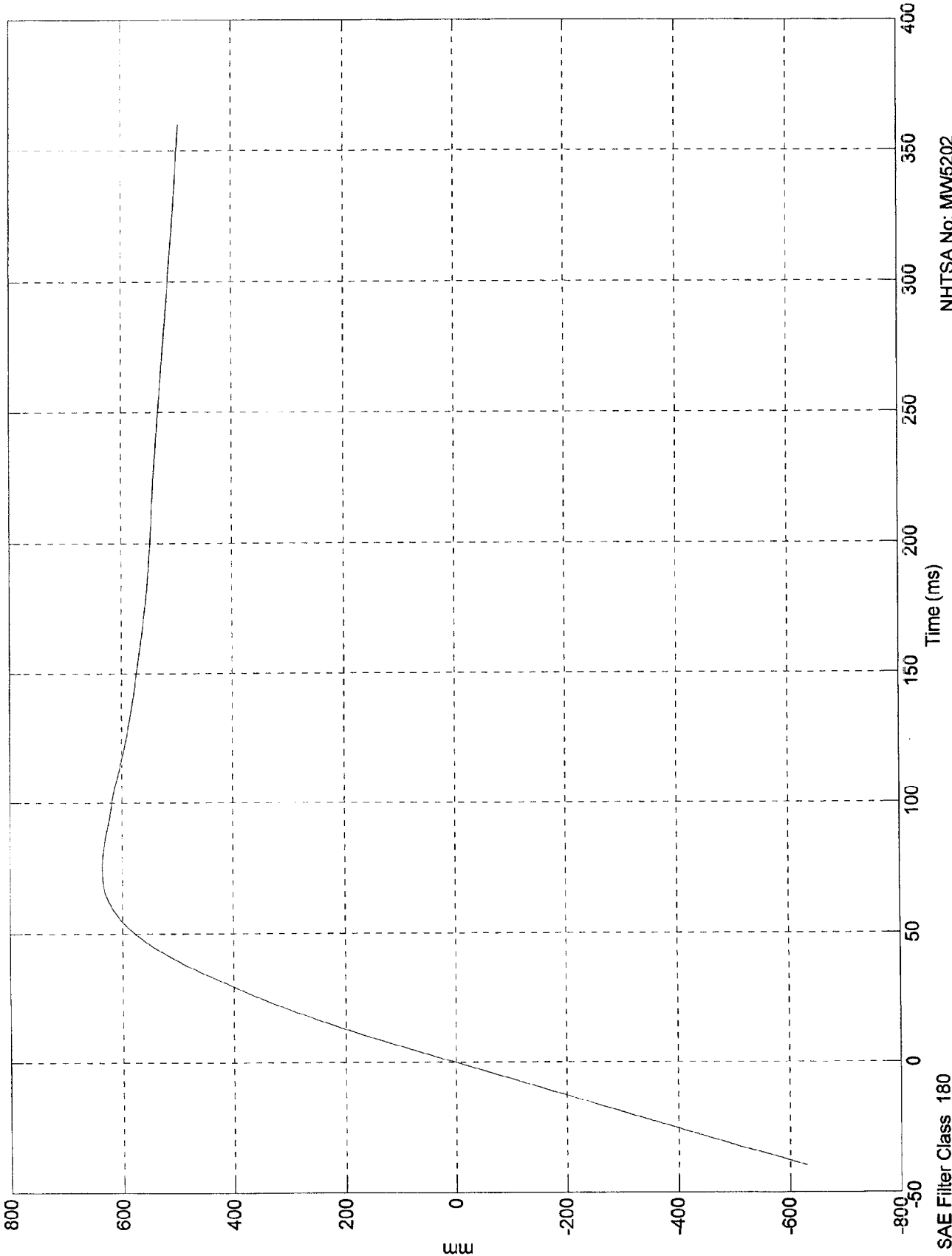
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 635 mm @ 75.80 msec
Min = -630 mm @ -39.90 msec

2nd Integral Acc. #2 Right Rear X



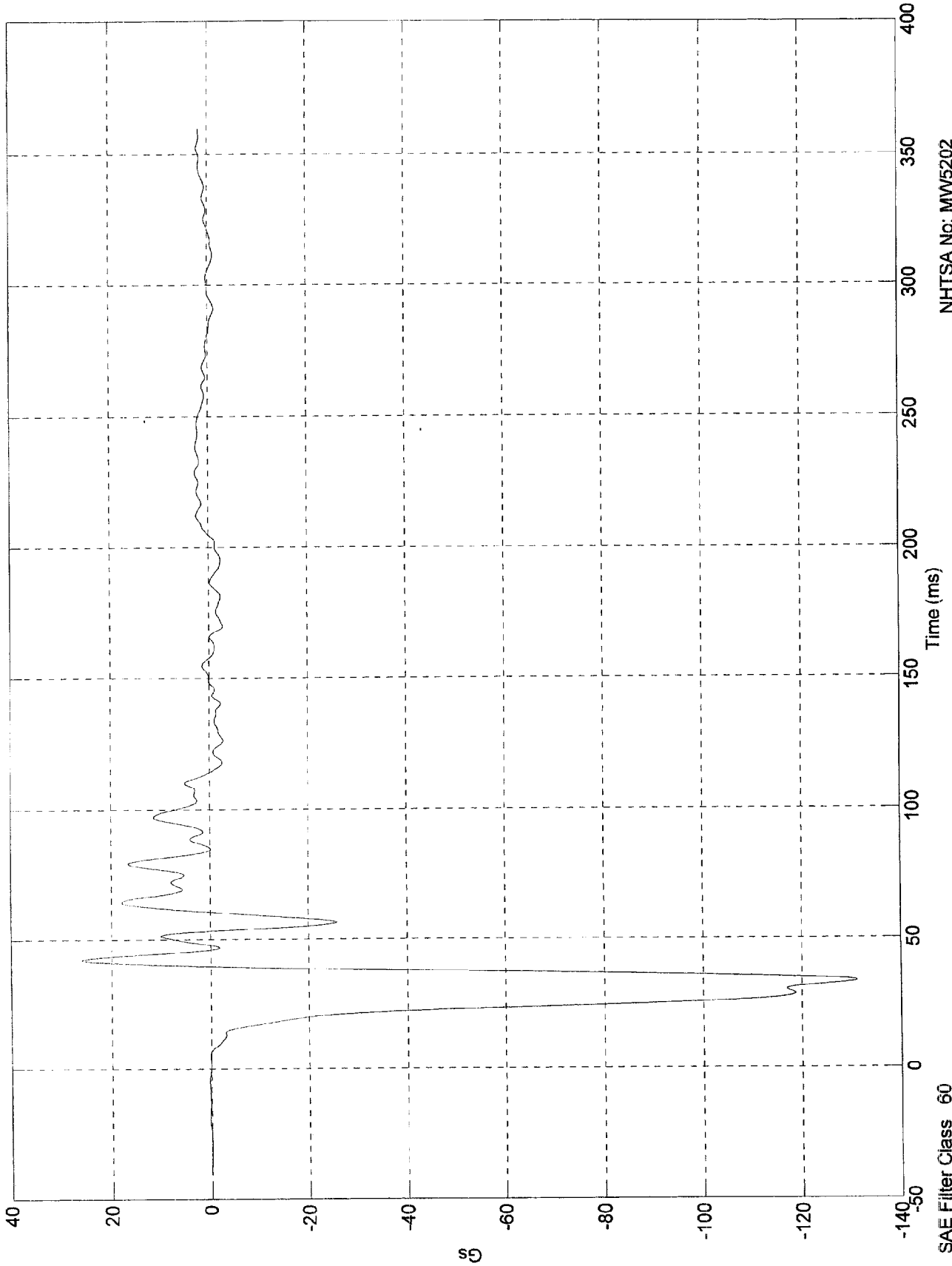
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 25.9 Gs @ 42.30 msec
Min = -131 Gs @ 33.50 msec

Acc. #3 Engine Top X

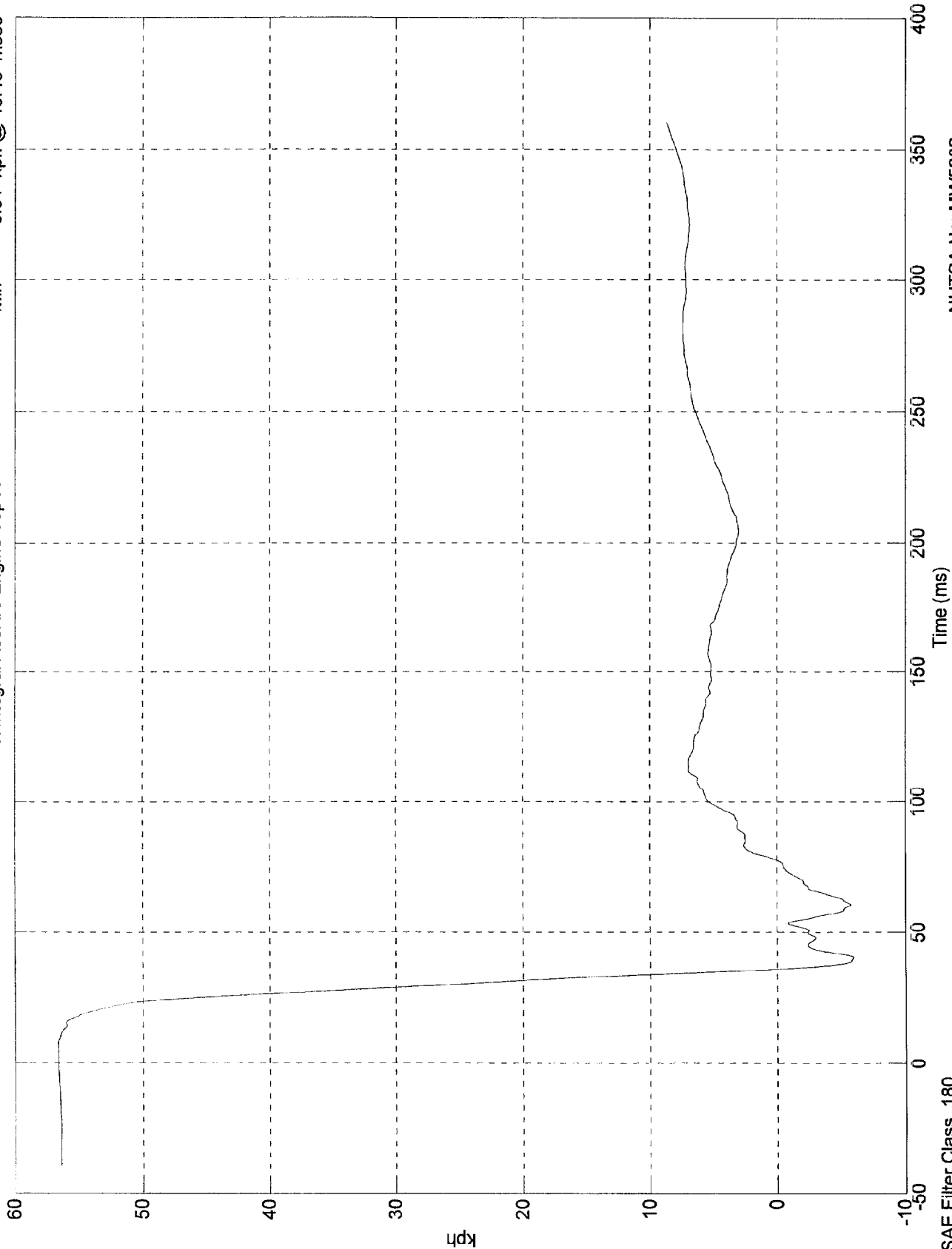


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 56.6 kph @ 7.80 msec
Min = -5.91 kph @ 40.40 msec

1st Integral Acc. #3 Engine Top X



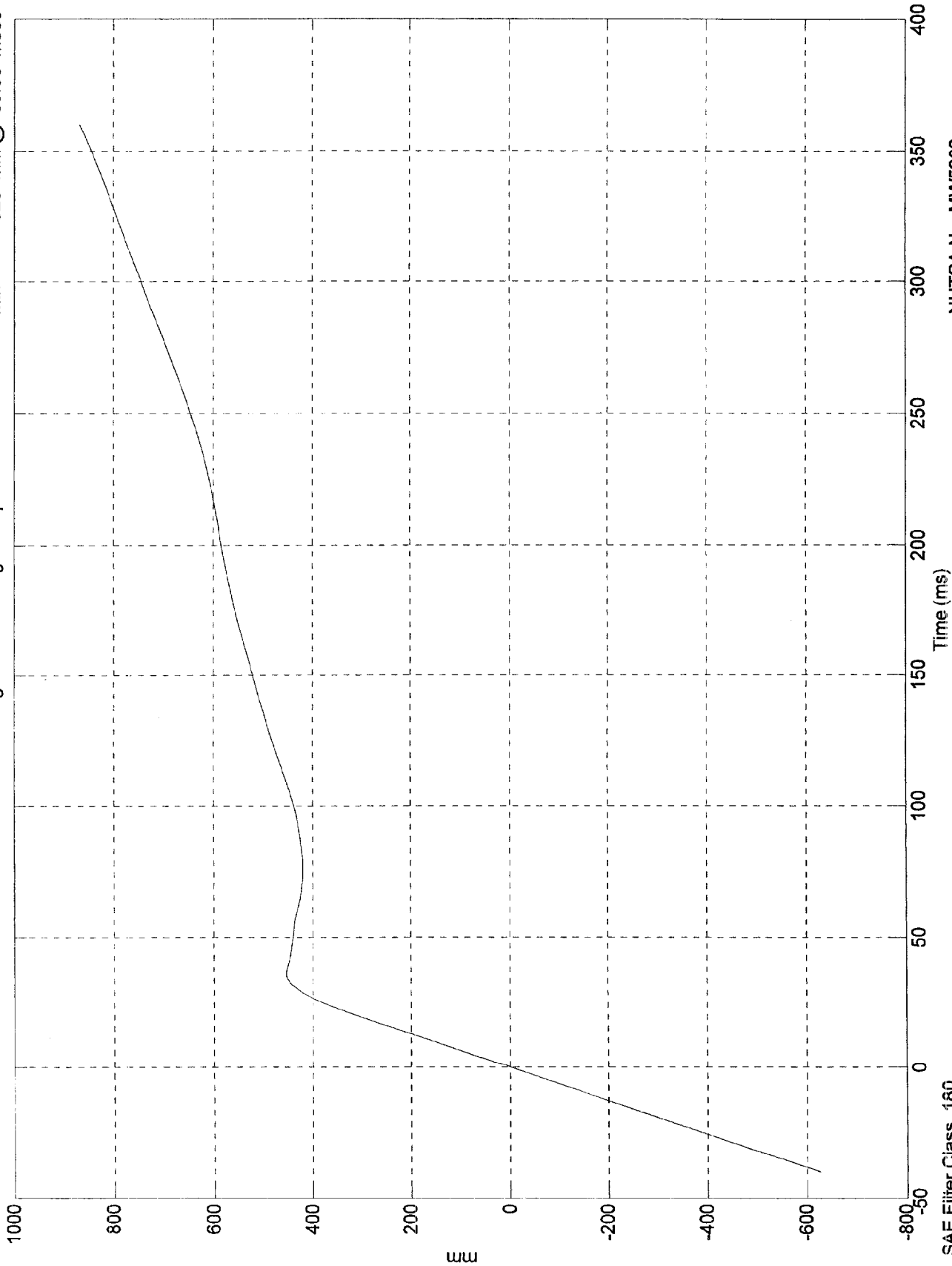
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 868 mm @ 360.00 msec
Min = -626 mm @ -39.90 msec

2nd Integral Acc. #3 Engine Top X



NHTSA No: MW5202
Date: 17 Feb 1998

mm

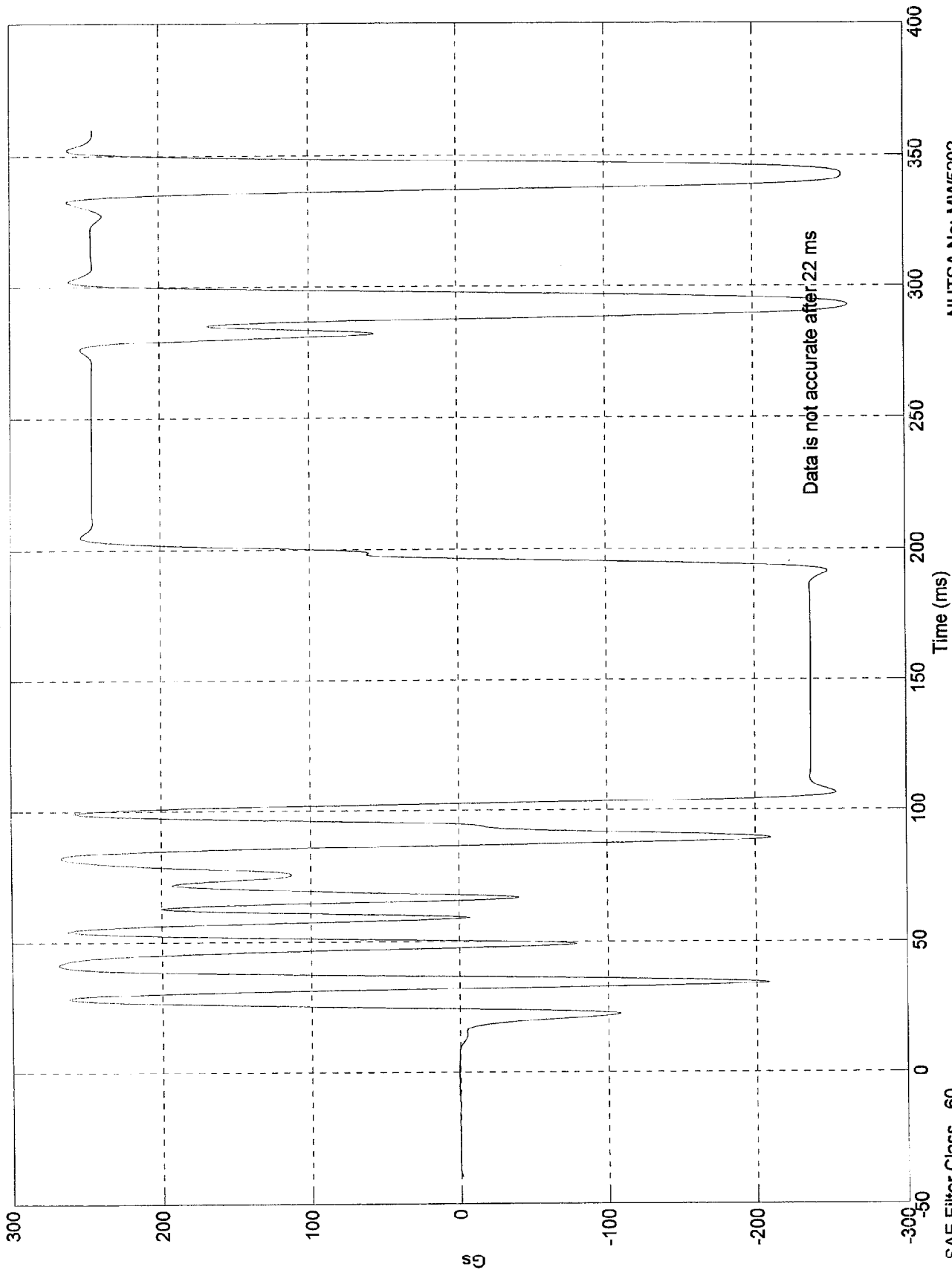
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NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 269 Gs @ 41.20 msec
Min = -263 Gs @ 292.70 msec

Acc. #4 Eng. Bottom X



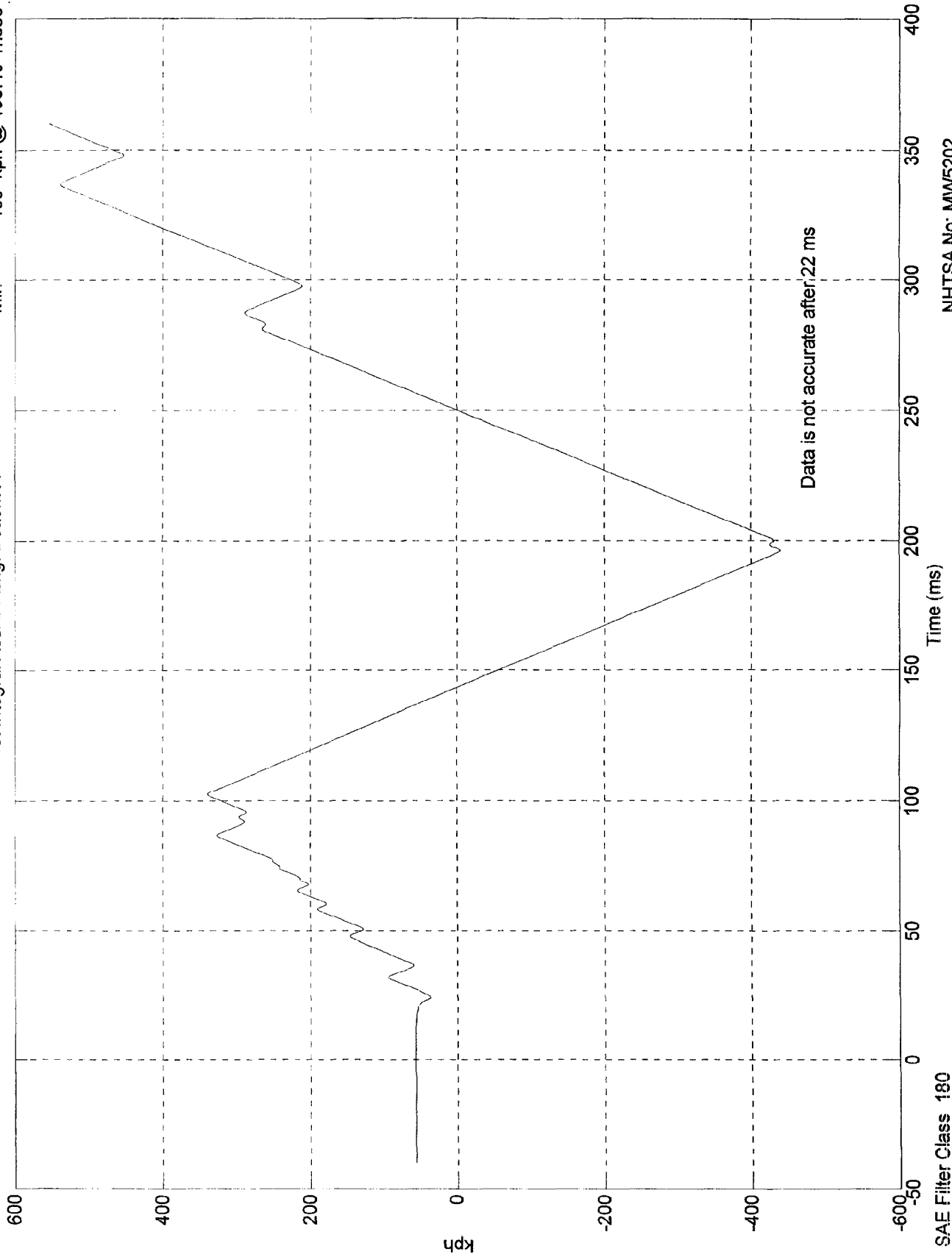
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

1st Integral Acc. #4 Eng. Bottom X

Max = 555 kph @ 360.00 msec
Min = -439 kph @ 196.10 msec



Data is not accurate after 22 ms

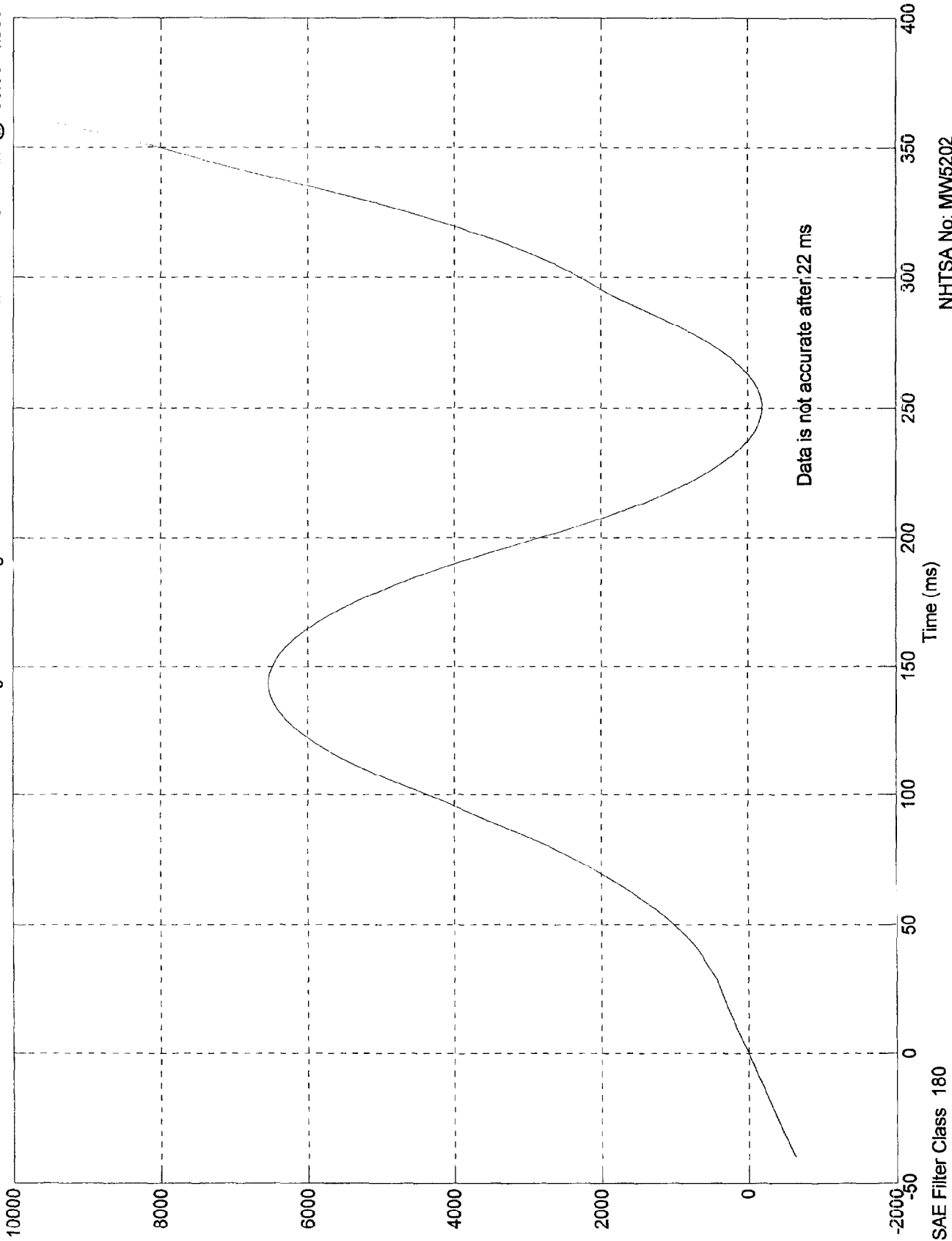
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 9.45e+003 mm @ 360.00 msec
Min = -624 mm @ -39.90 msec

2nd Integral Acc. #4 Eng. Bottom X



Data is not accurate after 22 ms

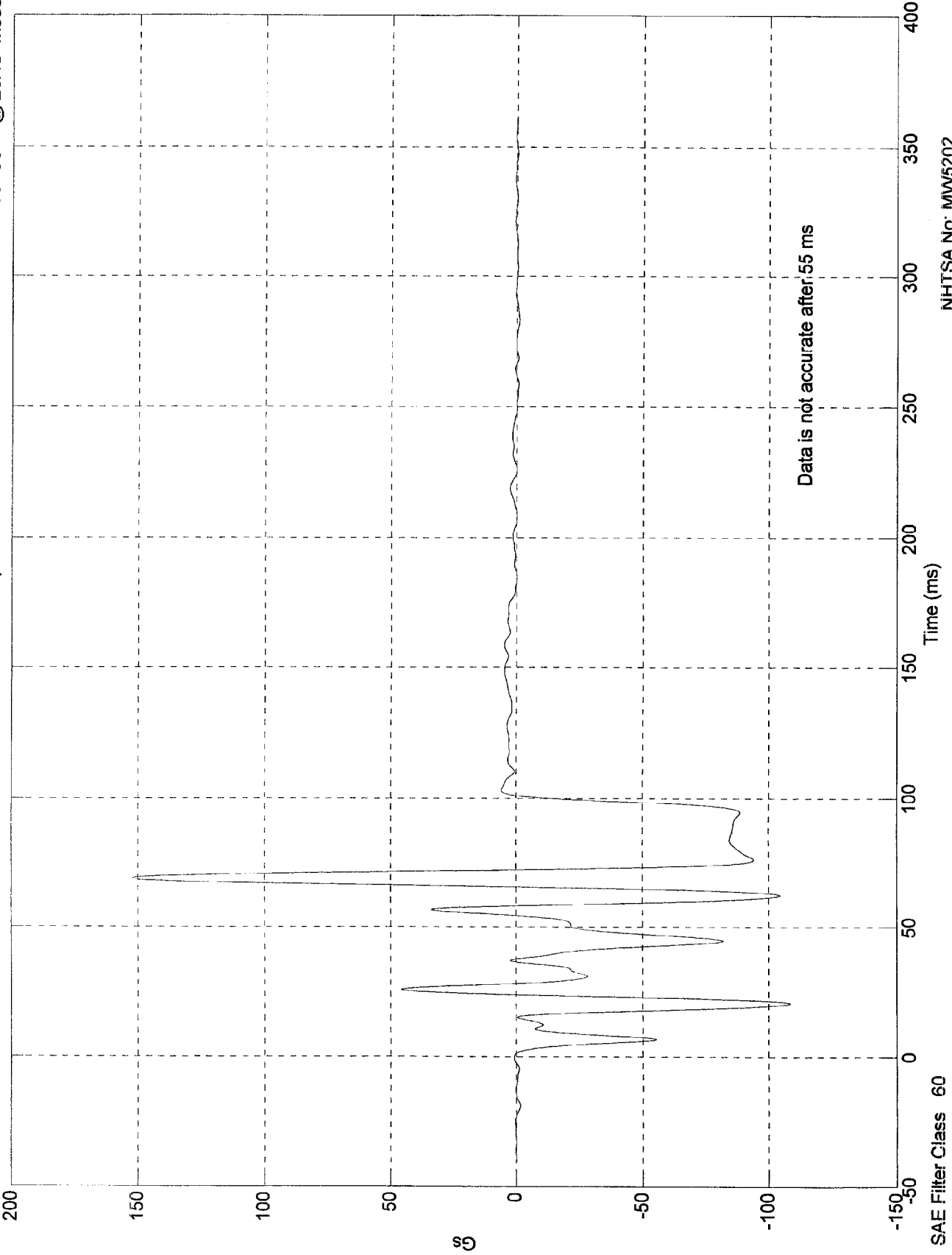
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 152 Gs @ 69.00 msec
Min = -108 Gs @ 20.40 msec

Acc. #5 Rt Caliper X



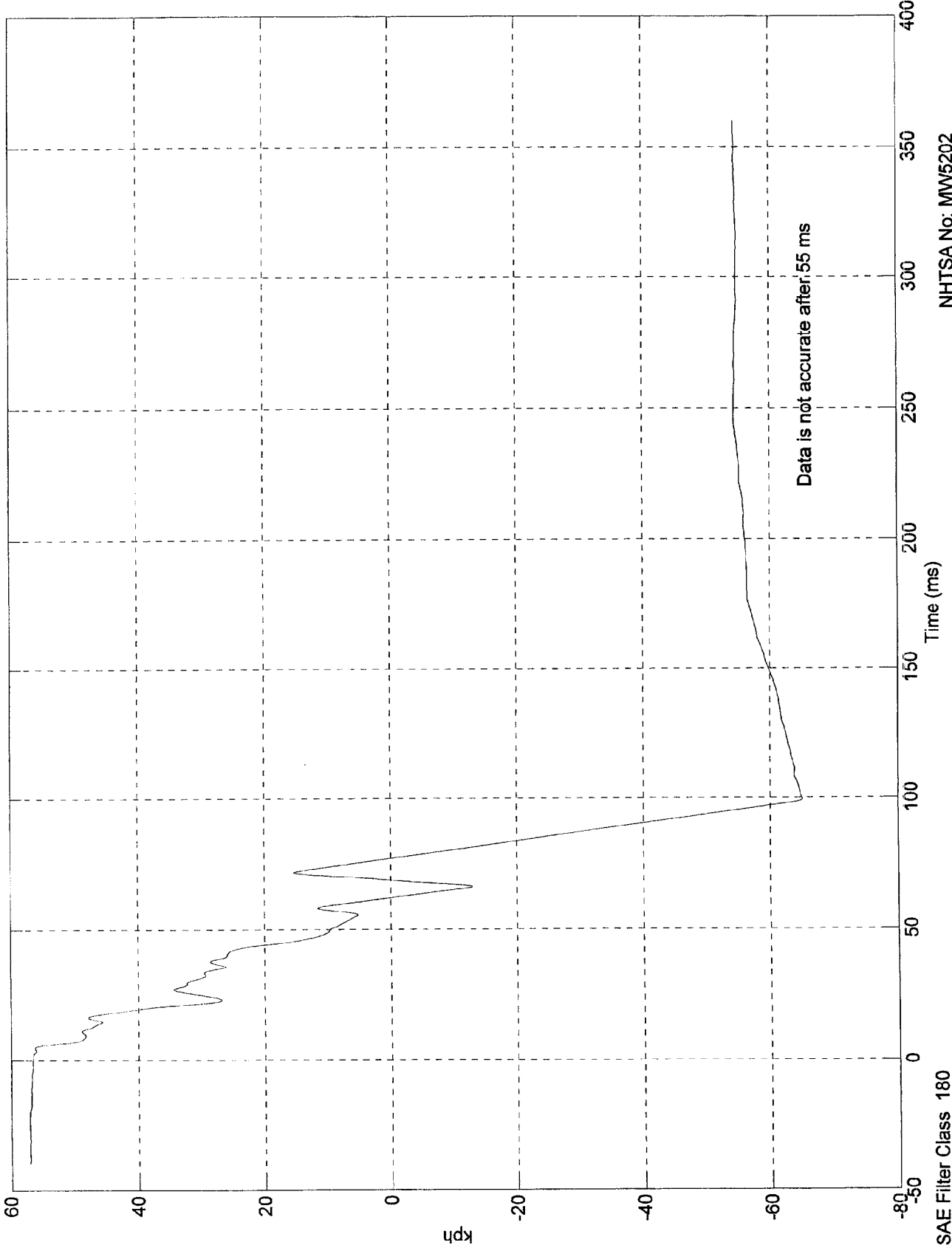
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 57.1 kph @ -22.50 msec
Min = -65 kph @ 99.40 msec

1st Integral Acc. #5 Rt Caliper X



Data is not accurate after 55 ms

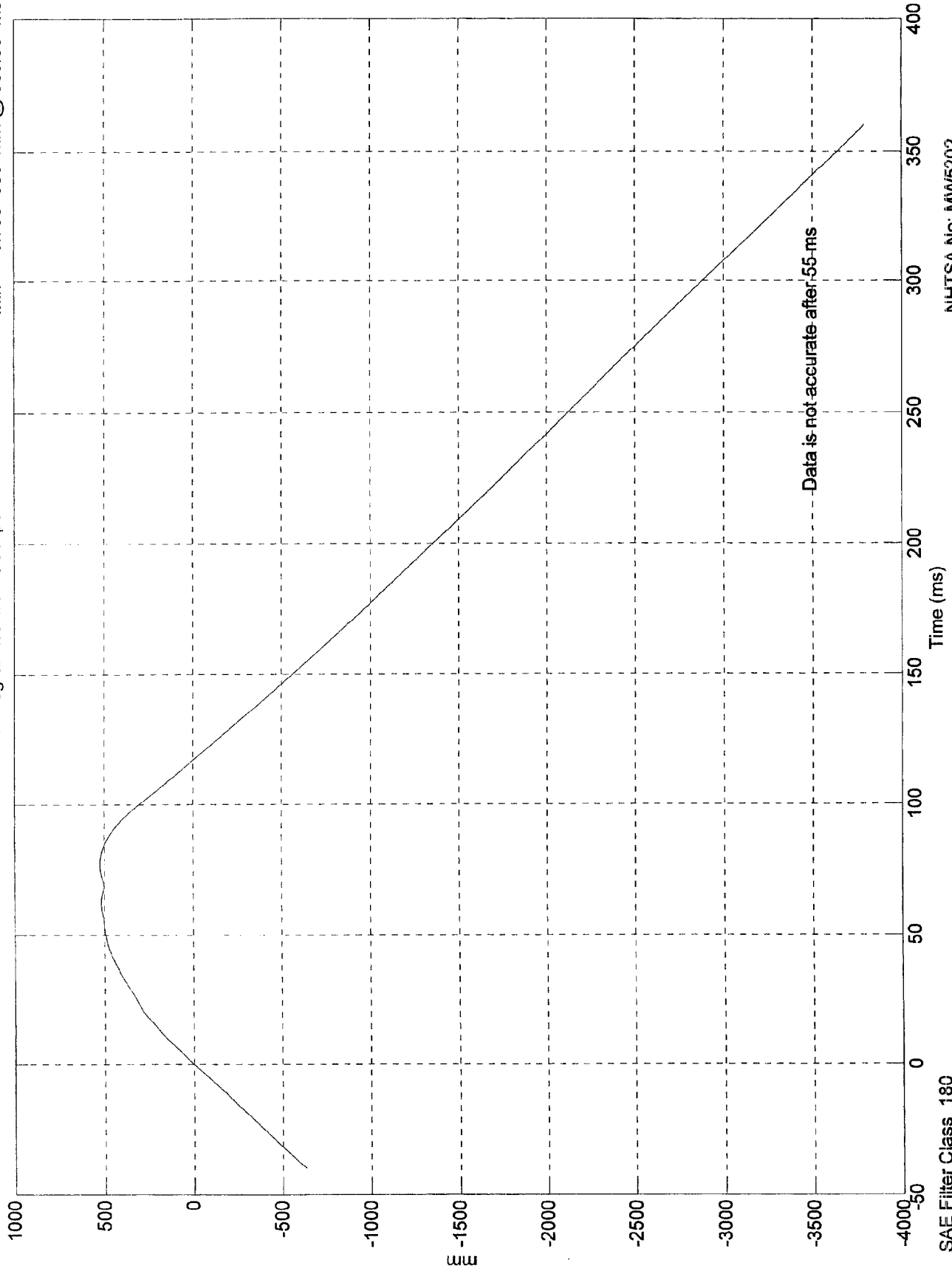
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 524 mm @ 77.20 msec
Min = -3.79e+003 mm @ 360.00 msec

2nd Integral Acc. #5 Rt Caliper X



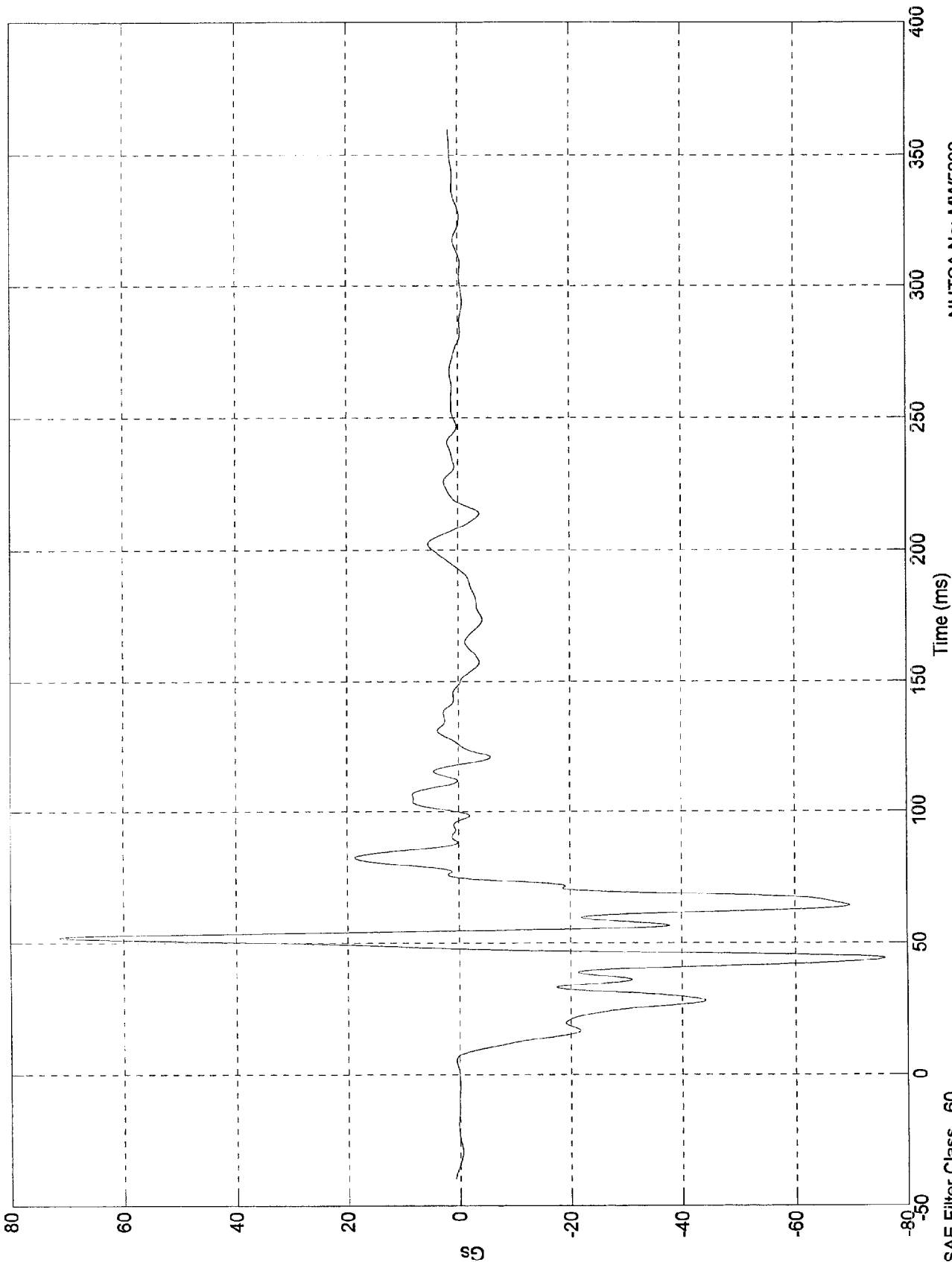
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 71.3 Gs @ 52.10 msec
Min = -76 Gs @ 44.00 msec

Acc. #6 Instrument X



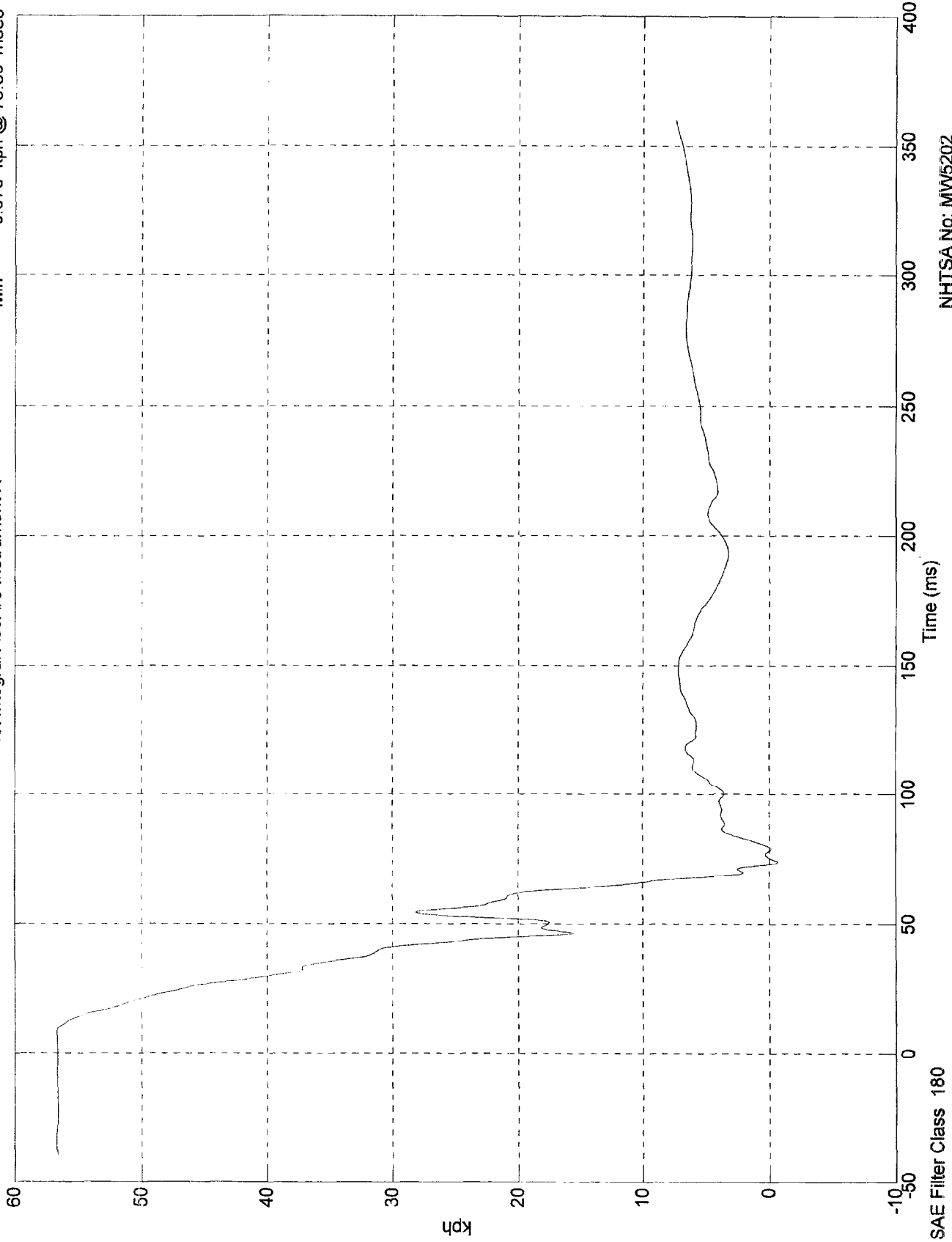
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 56.7 kph @ -34.00 msec
Min = -0.678 kph @ 73.80 msec

1st Integral Acc. #6 Instrument X



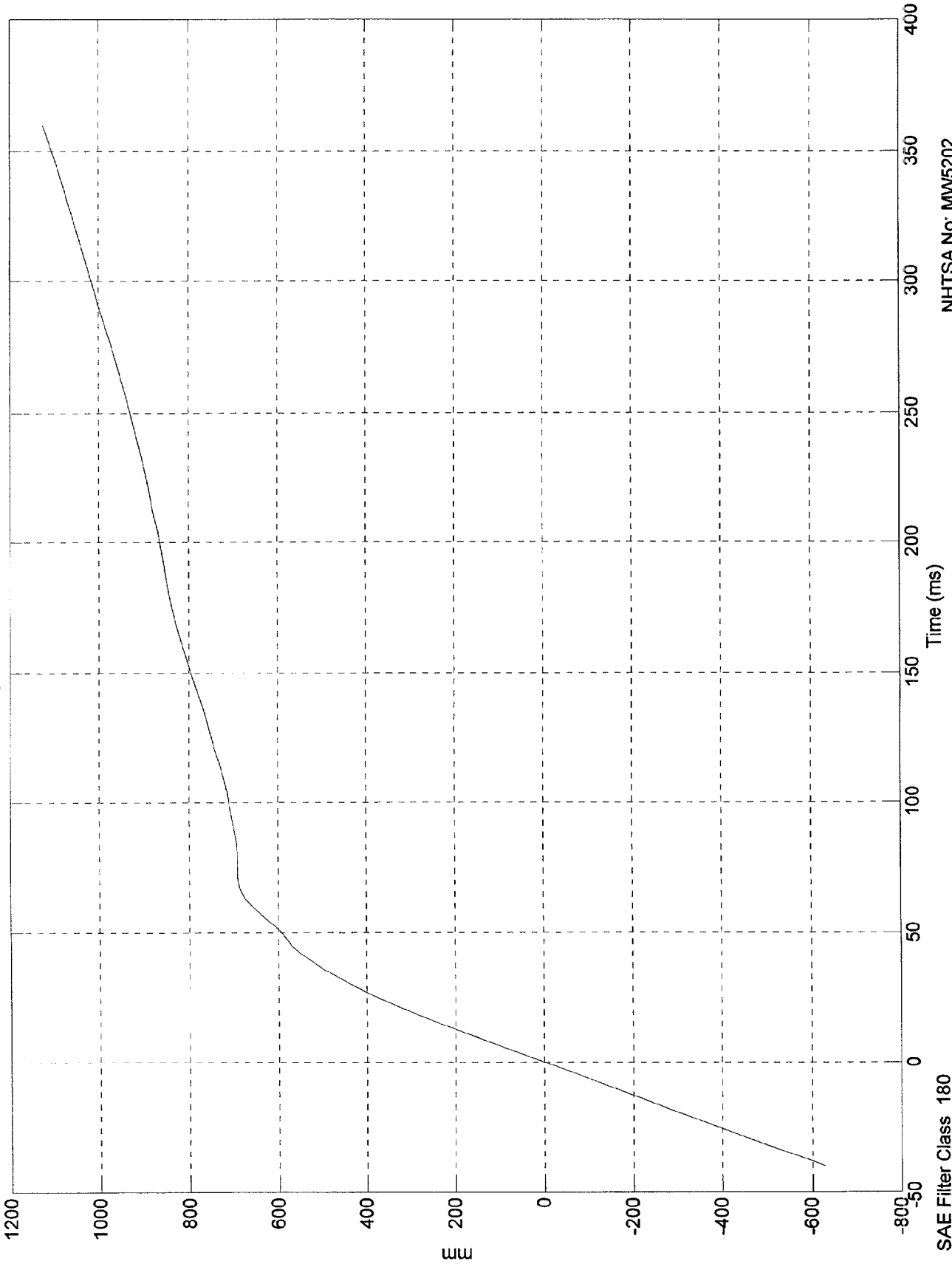
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 1.12e+003 mm @ 360.00 msec
Min = -627 mm @ -39.90 msec

2nd Integral Acc. #6 Instrument X



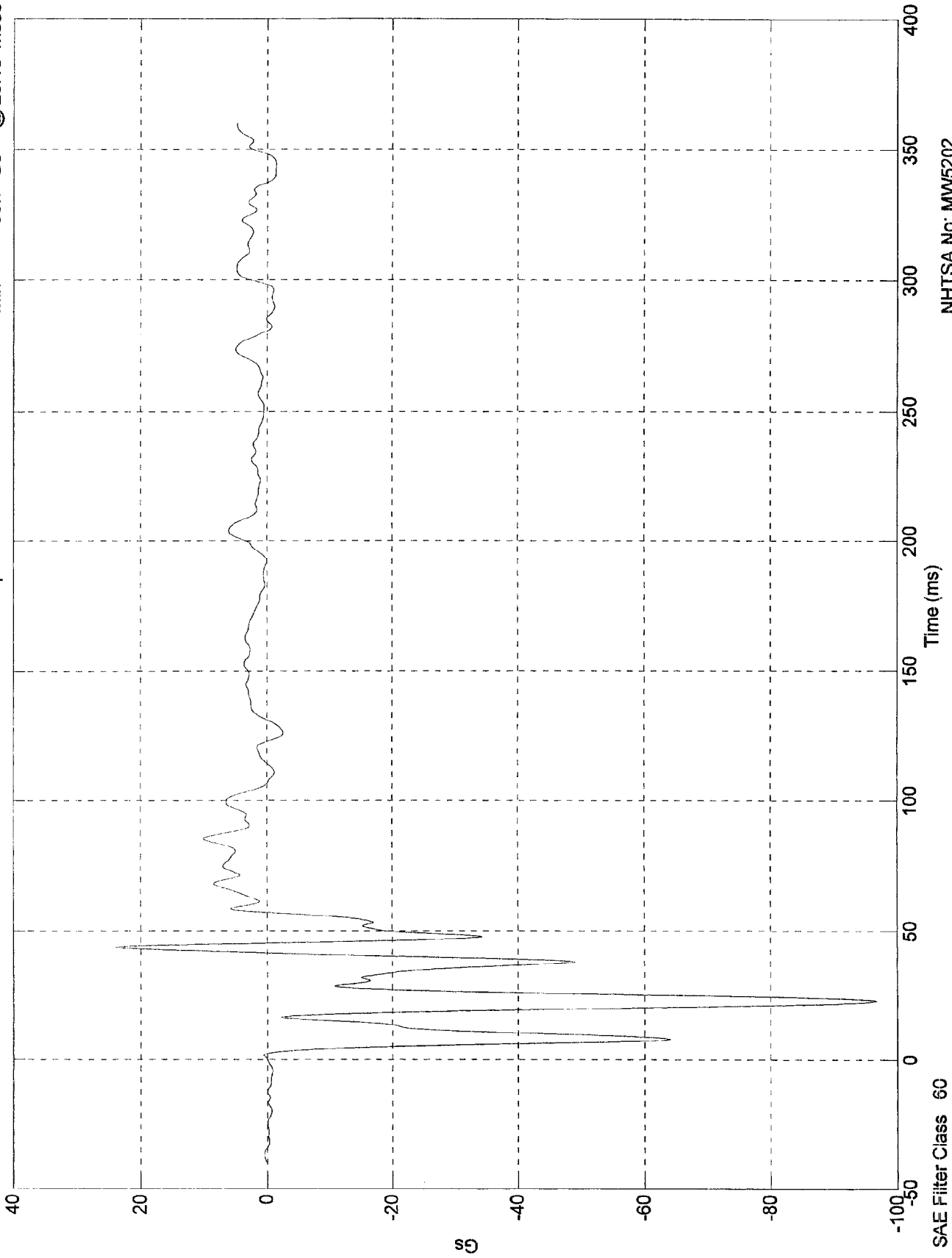
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 23.9 Gs @ 43.80 msec
Min = -96.7 Gs @ 23.10 msec

Acc. #7 Lt Caliper X

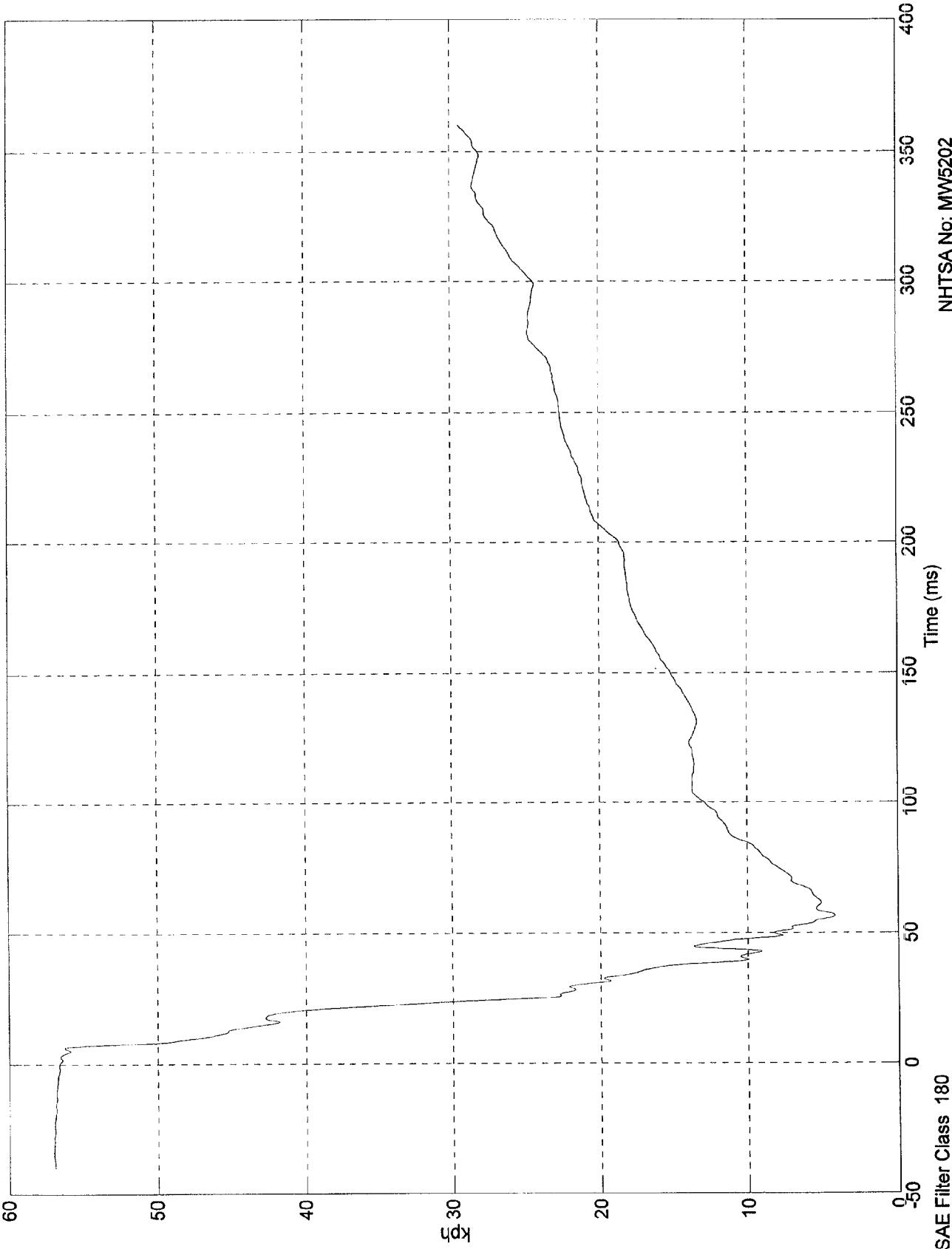


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 57 kph @ -34.20 msec
Min = 4.2 kph @ 56.60 msec

1st Integral Acc. #7 Lt Caliper X



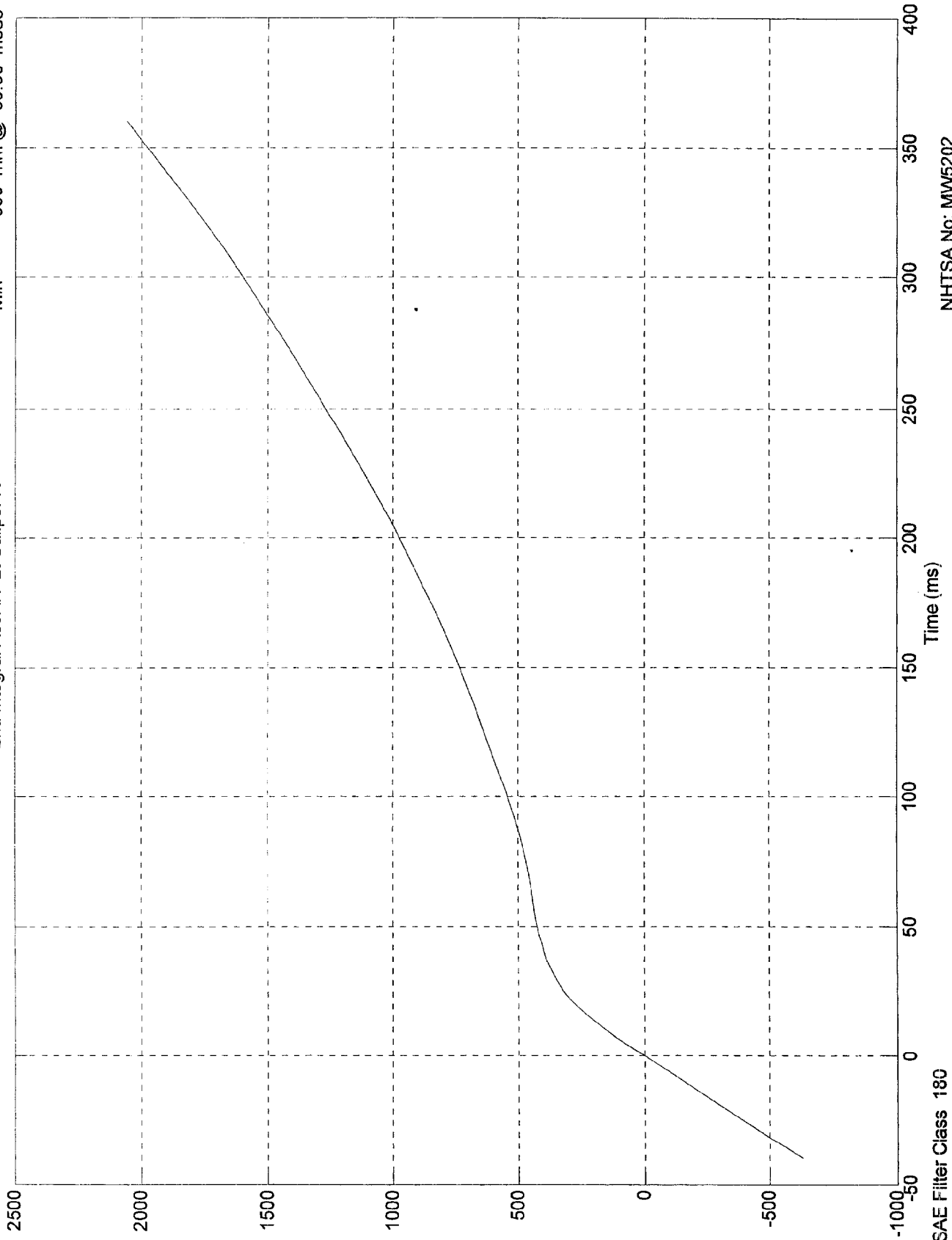
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 2.06e+003 mm @ 360.00 msec
Min = -630 mm @ -39.90 msec

2nd Integral Acc. #7 Lt Caliper X

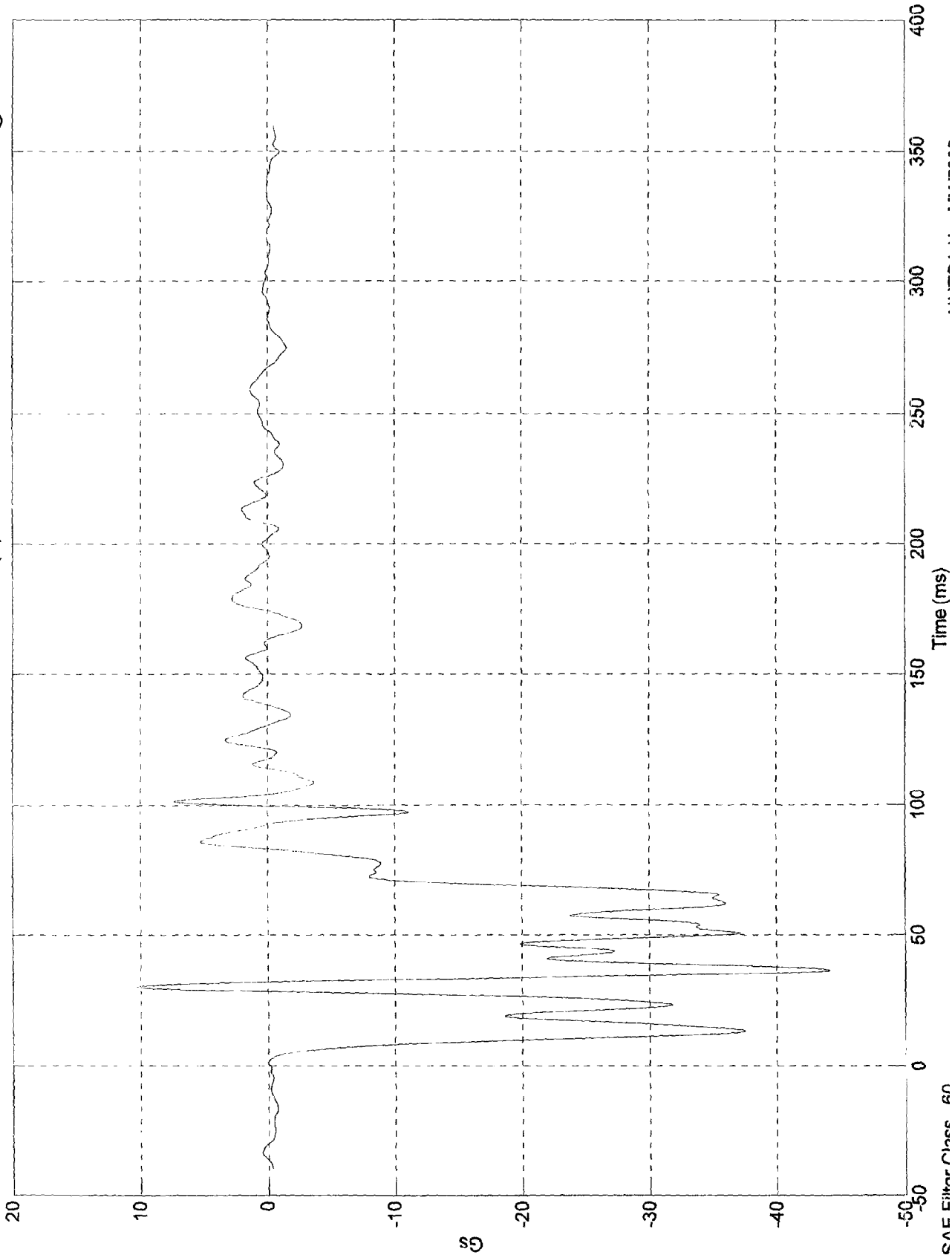


NHTSA No: MW5202
Date: 17 Feb 1998

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 10.3 Gs @ 30.20 msec
Min = -44.2 Gs @ 36.50 msec

Acc. #8 Lt Rear X(R)

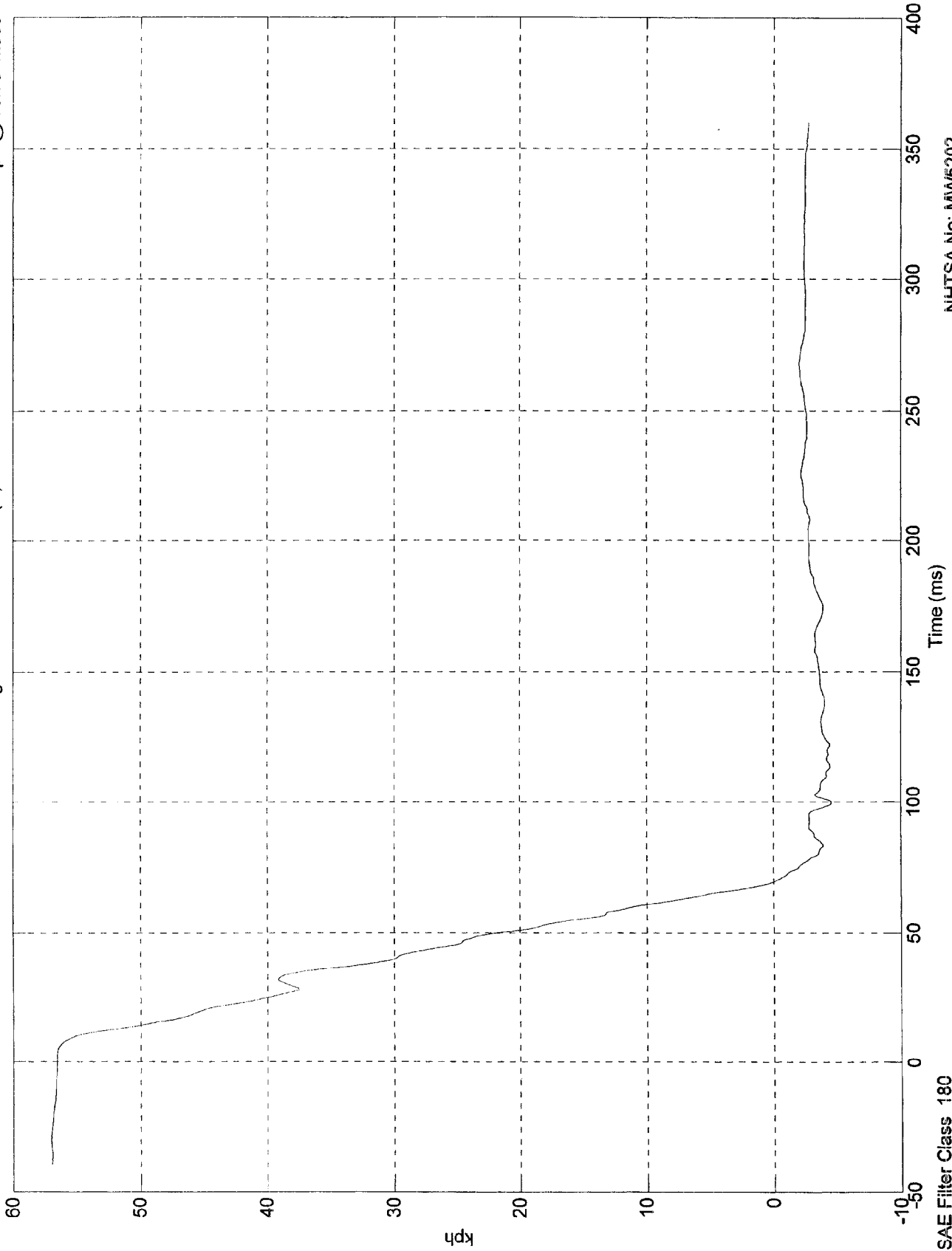


SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 57 kph @ -29.90 msec
Min = -4.55 kph @ 99.70 msec

1st Integral Acc. #8 Lt Rear X(R)



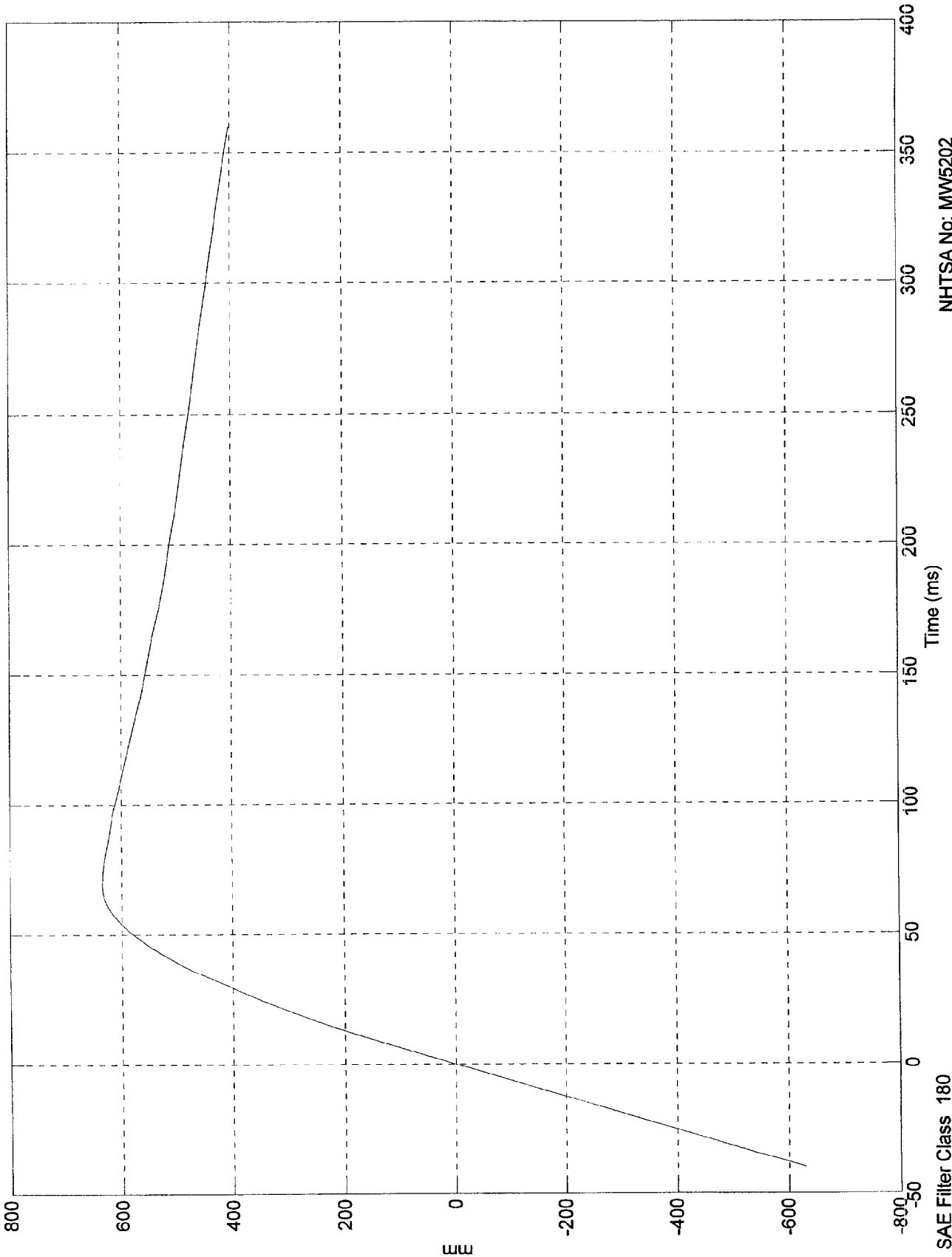
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 635 mm @ 69.10 msec
Min = -630 mm @ -39.90 msec

2nd Integral Acc. #8 Lt Rear X(R)

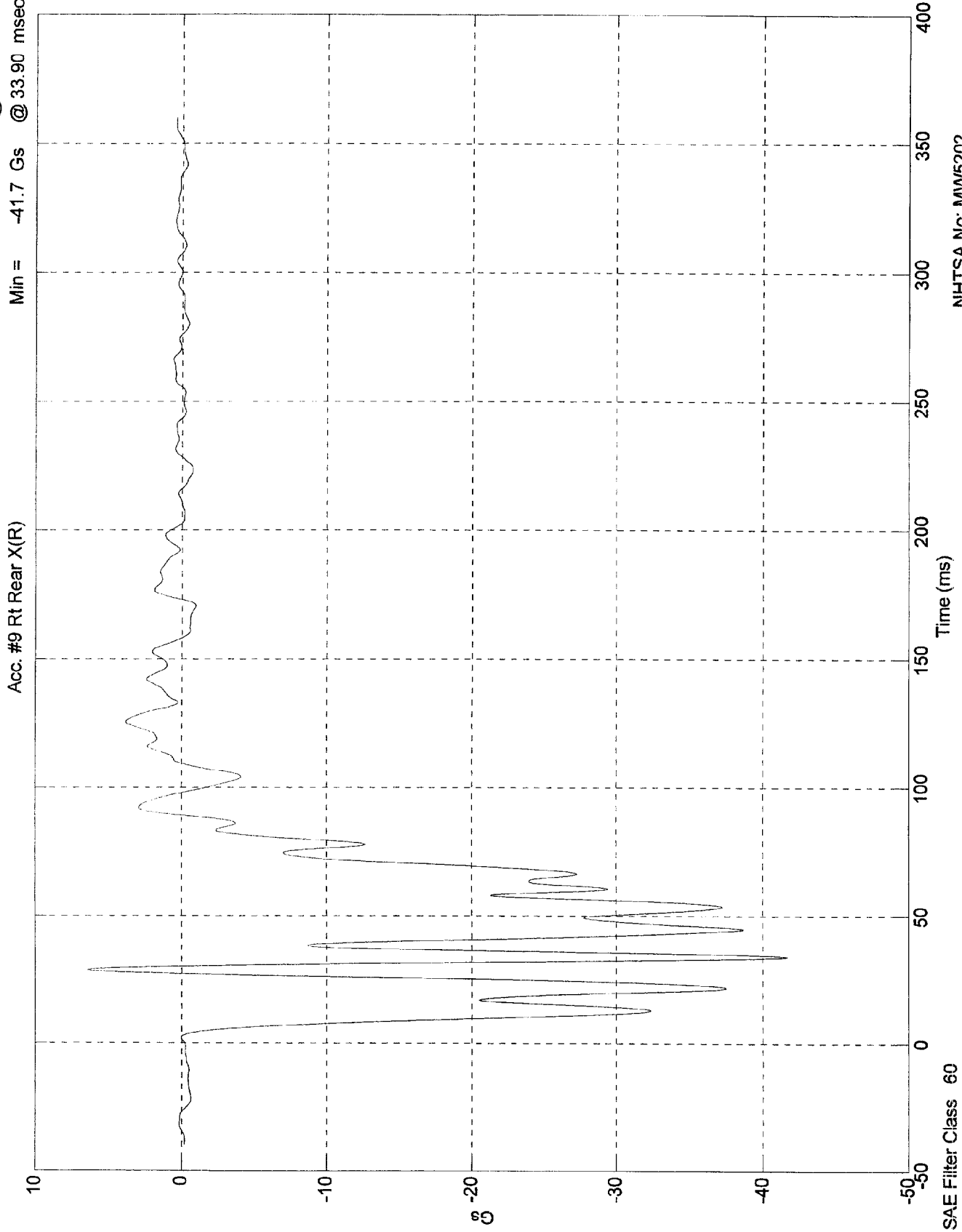


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 6.41 Gs @ 28.70 msec
Min = -41.7 Gs @ 33.90 msec



Acc. #9 Rt Rear X(R)

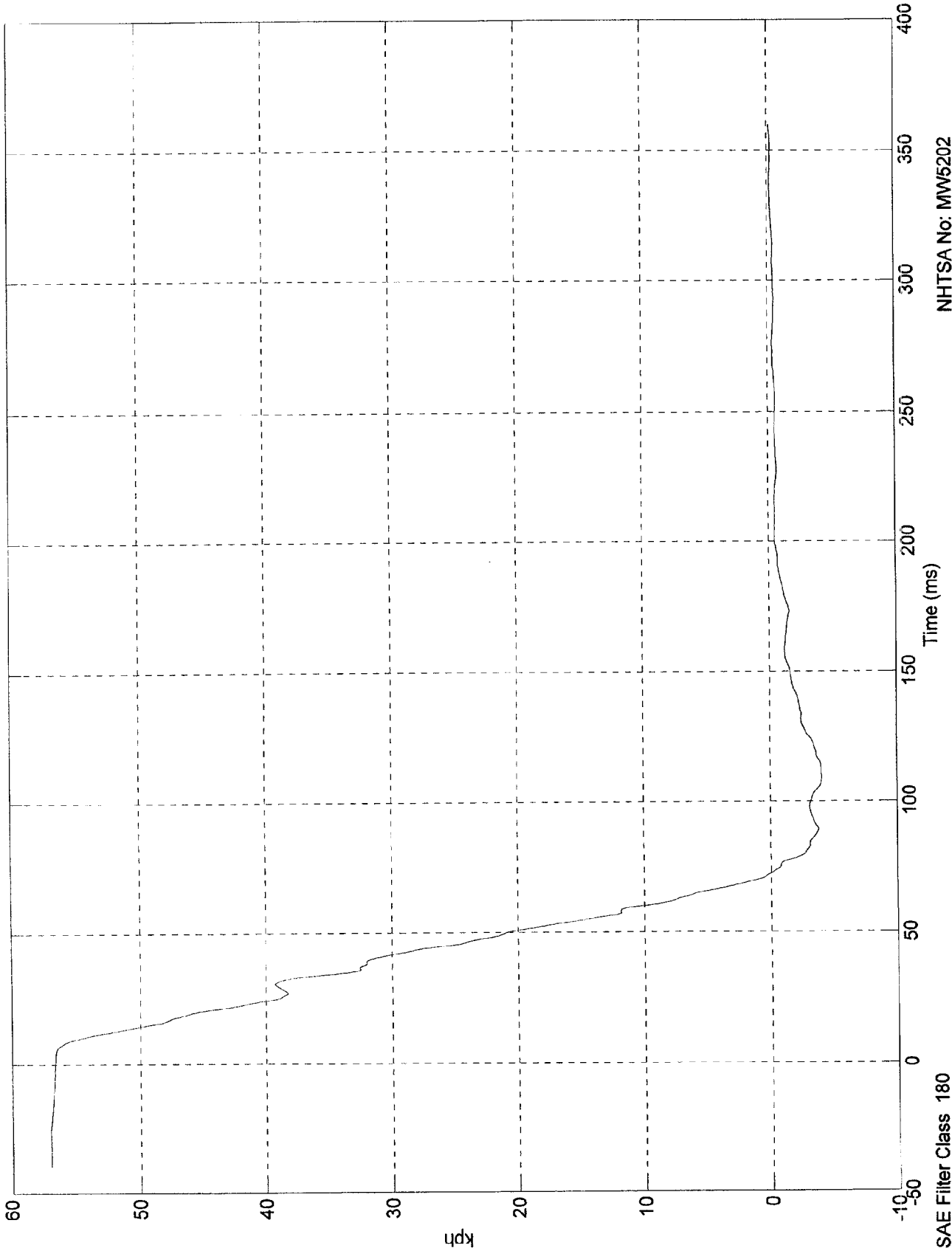
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 60

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 57 kph @ -26.10 msec
Min = -4.05 kph @ 109.90 msec

1st Integral Acc. #9 Rt Rear X(R)



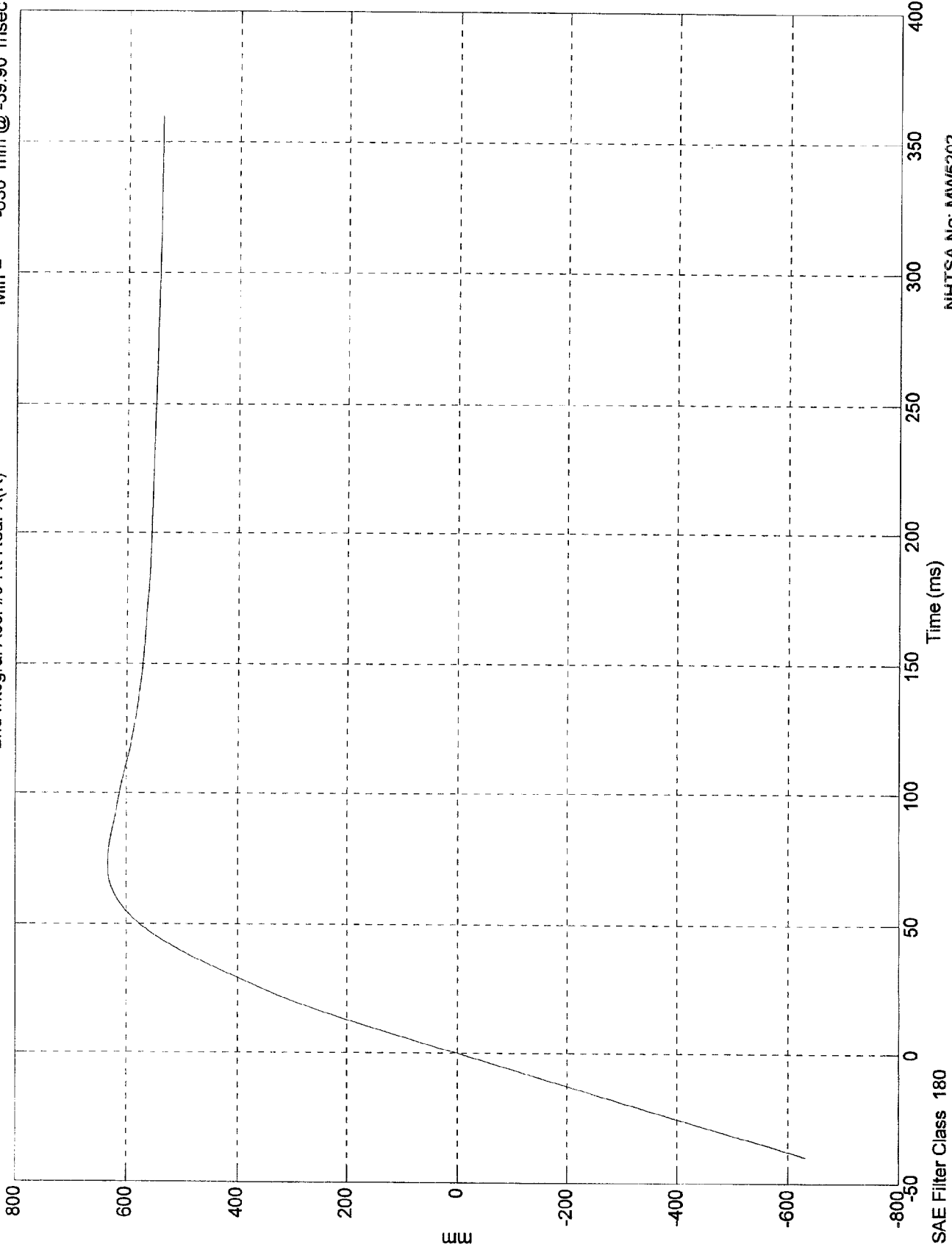
NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 633 mm @ 72.40 msec
Min = -630 mm @ -39.90 msec

2nd Integral Acc. #9 Rt Rear X(R)

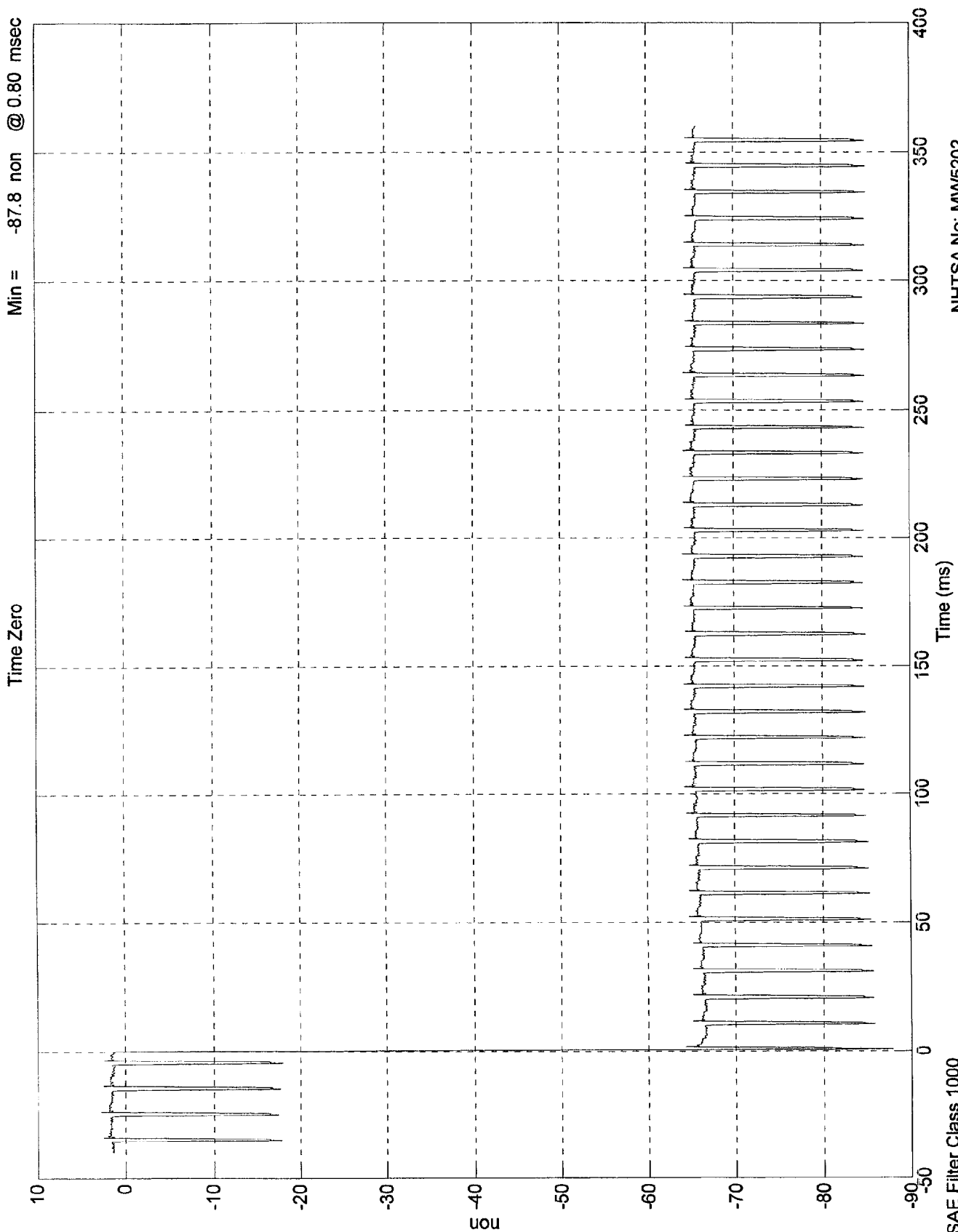


NHTSA No: MW5202
Date: 17 Feb 1998

SAE Filter Class 180

NCAP TEST #23 - 1998 NISSAN FRONTIER

Max = 2.76 non @ -23.70 msec
Min = -87.8 non @ 0.80 msec



NHTSA No: MW5202
Date: 19 Feb 1998

SAE Filter Class 1000

Appendix C

PART 572B/E DUMMY CONFIGURATION
AND PERFORMANCE VERIFICATION DATA SHEETS

Appendix C contains the results from certification tests performed on the 50th percentile male anthropomorphic test devices utilized for this crash test. The results indicate that the dummies meet all of the performance requirements of the six standard tests as specified in 49 CFR Part 572, Federal Register, Volume 42, No. 25, dated February 7, 1977.

The tests were conducted at the Dummy Certification Test Facility of Calspan Corporation. A summary of the test results, and Part 572 specifications are included in this Appendix.

Dummy serial numbers and certification dates are:

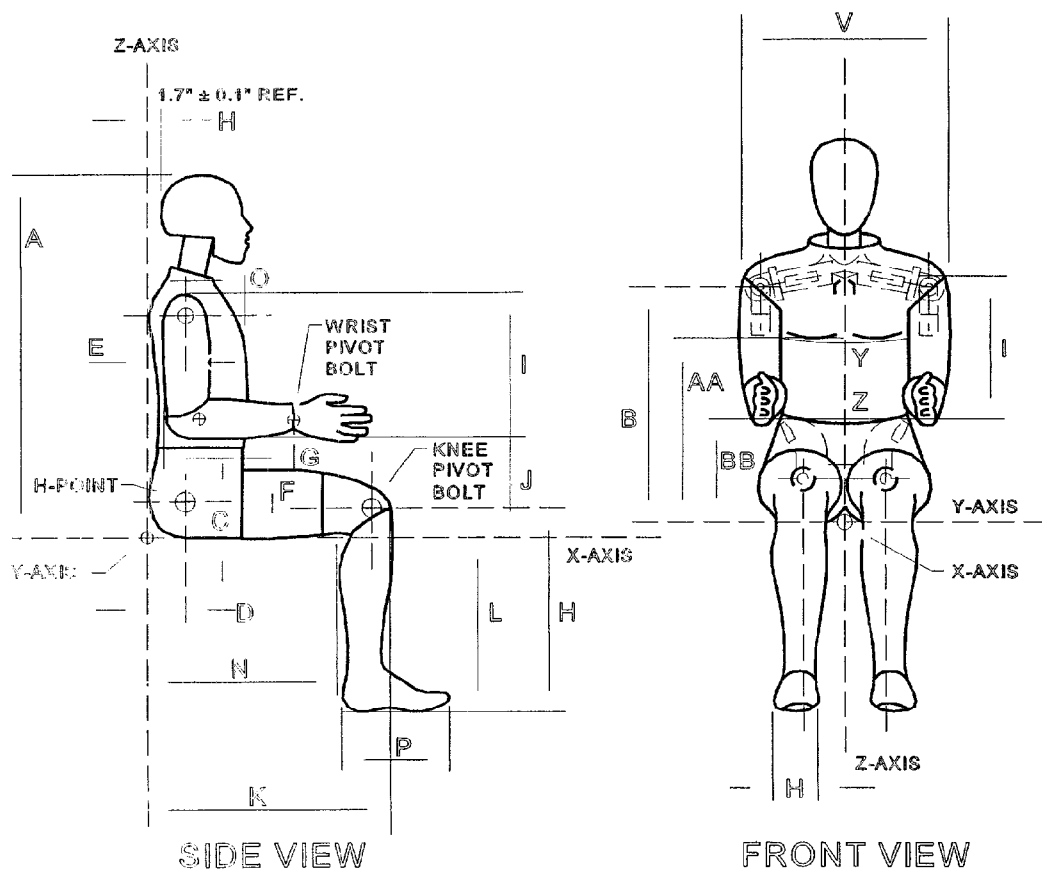
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	064	02/03/98
#2/Right Front Passenger	245	01/21/98

Electronic Test Equipment

The complement of signal conditioning, recording and display equipment, in conjunction with dummy certification testing, can be found in New Car Assessment and Standards Indicant Testing Final Report No. 6525-V-1.

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS
SPECIFICATIONS



NOTE: Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude. (REF: S572.31(A)(6))

PART 572E
HEAD DROP TEST

Dummy Serial Number 064
Calspan Sequential Test Number 1
Date 02/02/98
Workfile 064198.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	34
Peak Resultant Acceleration	225-275 G's	271.4
Peak Lateral Acceleration	15 G's Max	4.5
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number 064
 Calspan Sequential Test Number 1
 Date 02/03/98
 Workfile 064198.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	34
Impact Velocity		22.60 - 23.40 Ft/s	23.13
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.60
	20 ms	17.60 - 22.60 G's	20.44
	30 ms	12.50 - 18.50 G's	17.52
Max Pendulum G's Above 30 ms		29 G's Max	17.52
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.63
D Plane Rotation	Max	64 - 78 Deg	68.02
	Time	57 - 64 ms	58.38
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	79.69
	Time	47 - 58 ms	52.25
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.88
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 064
 Calspan Sequential Test Number 1
 Date 02/03/98
 Workfile 064198.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	35
Impact Velocity		19.50 - 20.30 Ft/s	19.99
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.12
	20 ms	14.00 - 19.00 G's	16.50
	30 ms	11.00 - 16.00 G's	14.06
Max Pendulum G's Above 30 ms		22 G's Max	14.06
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	43.38
D Plane Rotation	Max	81 - 106 Deg	88.73
	Time	72 - 82 ms	73.13
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-53.97
	Time	65 - 79 ms	69.13
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	148.25
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	133.63

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 064
Calspan Sequential Test Number 1
Date 02/03/98
Workfile 064198.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	34
Pendulum Velocity	21.6 - 22.4 Ft/s	21.68
Maximum Deflection	2.50 - 2.86 in	2.50
Maximum Resistive Force	1160 - 1325 Lbs	1319.57
Internal Hysteresis	69 - 85 %	73.4

Remarks:

Laboratory Technician: B. Swiecicki

**PART 572E
KNEE IMPACT TEST**

Dummy Serial Number 064
 Calspan Sequential Test Number 1
 Date 01/29/98
 Workfile 064198

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	39
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1227.0
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	39
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1118.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
 Calspan Sequential Test Number 1
 Date 02/03/98

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			34
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.8
Waist Circumference	Z	32.9 - 34.1 in	33.3
Chest Depth	O	8.4 - 9.0 in	8.6
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 245
Calspan Sequential Test Number 1
Date 01/16/98
Workfile 245198.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	33
Peak Resultant Acceleration	225-275 G's	260.9
Peak Lateral Acceleration	15 G's Max	11.4
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number 245
 Calspan Sequential Test Number 1
 Date 01/19/98
 Workfile 245198.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	40
Impact Velocity		22.60 - 23.40 Ft/s	23.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.66
	20 ms	17.60 - 22.60 G's	20.53
	30 ms	12.50 - 18.50 G's	17.56
Max Pendulum G's Above 30 ms		29 G's Max	17.56
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.13
D Plane Rotation	Max	64 - 78 Deg	66.12
	Time	57 - 64 ms	58.88
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	66.03
	Time	47 - 58 ms	51.75
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	117.88
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.75

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 245
 Calspan Sequential Test Number 1
 Date 01/16/98
 Workfile 245198.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	34
Impact Velocity		19.50 - 20.30 Ft/s	19.90
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.68
	20 ms	14.00 - 19.00 G's	17.03
	30 ms	11.00 - 16.00 G's	14.47
Max Pendulum G's Above 30 ms		22 G's Max	14.47
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	42.13
D Plane Rotation	Max	81 - 106 Deg	90.10
	Time	72 - 82 ms	76.63
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-44.32
	Time	65 - 79 ms	71.63
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	156.75
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	137.75

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 245
Calspan Sequential Test Number 1
Date 01/20/98
Workfile 245198.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	40
Pendulum Velocity	21.6 - 22.4 Ft/s	21.63
Maximum Deflection	2.50 - 2.86 in	2.55
Maximum Resistive Force	1160 - 1325 Lbs	1279.49
Internal Hysteresis	69 - 85 %	73.8

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 245
 Calspan Sequential Test Number 1
 Date 01/21/98
 Workfile 245198

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	40
Probe Velocity	6.8 - 7.0 Ft/s	6.91
Peak Knee Impact Force	1060 - 1300 Lbs	1184.0
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	40
Probe Velocity	6.8 - 7.0 Ft/s	6.93
Peak Knee Impact Force	1060 - 1300 Lbs	1188.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 245
 Calspan Sequential Test Number 1
 Date 01-19-98

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			40
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.0
Waist Circumference	Z	32.9 - 34.1 in	33.6
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.9
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.2
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.2
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 064)	Serial #	Manufacturer	Calibration	
			Last	Next
Head	X	ENDEVCO	8/97	2/98
	Y	ENDEVCO	8/97	2/98
	Z	ENDEVCO	8/97	2/98
Chest	X	ENDEVCO	8/97	2/98
	Y	ENDEVCO	8/97	2/98
	Z	ENDEVCO	8/97	2/98
Right Femur Load Cell	952	GSE	1/98	7/98
	951	GSE	1/98	7/98
Left Femur Load Cell	076	DENTON	10/97	4/98
	076	DENTON	10/97	4/98
	076	DENTON	10/97	4/98
Neck Load Cell	X	DENTON	10/97	4/98
	Y	DENTON	10/97	4/98
	Z	DENTON	10/97	4/98
Neck Moment	X	DENTON	10/97	4/98
	Y	DENTON	10/97	4/98
	Z	DENTON	10/97	4/98
Chest Deflection Gauge	064	HUMANOID	10/97	4/98
Lap Belt Load Cells	706	LEBOW	1/98	7/98
	707	LEBOW	1/98	7/98
Shoulder Belt Load Cells	M5	MAGNETEK	9/97	3/98
	E2	CALSPAN	9/97	3/98

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	A13942	ENDEVCO	11/97	5/98
Y (R)	J18649	ENDEVCO	8/97	2/98
Z (R)	J18400	ENDEVCO	8/97	2/98
Chest				
X (R)	B11407	ENDEVCO	8/97	2/98
Y (R)	B11073	ENDEVCO	8/97	2/98
Z (R)	B11408	ENDEVCO	8/97	2/98
Pelvic				
X	C14953	ENDEVCO	8/97	2/98
Y	C14966	ENDEVCO	8/97	2/98
Z	C14968	ENDEVCO	8/97	2/98
Left Upper Tibia				
Mx	038	DENTON	10/97	4/98
Left Upper Tibia				
My	038	DENTON	10/97	4/98
Left Lower Tibia				
Fy	032	DENTON	10/97	4/98
Left Lower Tibia				
Fz	032	DENTON	10/97	4/98
Left Lower Tibia				
Mx	032	DENTON	10/97	4/98
Right Upper Tibia				
Mx	045	DENTON	10/97	4/98
Right Upper Tibia				
My	045	DENTON	10/97	4/98
Right Lower Tibia				
Fy	041	DENTON	10/97	4/98
Right Lower Tibia				
Fz	041	DENTON	10/97	4/98
Right Lower Tibia				
Mx	041	DENTON	10/97	4/98

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacture	Calibration	
			Last	Next
Left Foot Front Z	A14058	ENDEVCO	9/97	3/98
Left Foot Rear X	APA58	ENDEVCO	9/97	3/98
Left Foot Rear Z	A14150	ENDEVCO	9/97	3/98
Right Foot Front Z	A14124	ENDEVCO	9/97	3/98
Right Foot Rear X	A14181	ENDEVCO	9/97	3/98
Right Foot Rear Z	A14126	ENDEVCO	9/97	3/98

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 245)	Serial #	Manufacturer	Calibration	
			Last	Next
Head	X	ENDEVCO	8/97	2/98
	Y	ENDEVCO	8/97	2/98
	Z	ENDEVCO	8/97	2/98
Chest	X	ENDEVCO	8/97	2/98
	Y	ENDEVCO	8/97	2/98
	Z	ENDEVCO	8/97	2/98
Right Femur Load Cell	232	GSE	1/98	7/98
	231	GSE	1/98	7/98
Neck Load Cell	X	DENTON	1/98	7/98
	Y	DENTON	1/98	7/98
	Z	DENTON	1/98	7/98
Neck Moment	X	DENTON	1/98	7/98
	Y	DENTON	1/98	7/98
	Z	DENTON	1/98	7/98
Chest Deflection Gauge	245	HUMANOID	10/97	4/98
Lap Belt Load Cells	635	LEBOW	1/98	7/98
	711	LEBOW	1/98	7/98
Shoulder Belt Load Cells	M6	MAGNETEK	9/97	3/98
	E4	CALSPAN	9/97	3/98

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head	X (R)	ENDEVCO	11/97	5/98
	Y (R)	ENDEVCO	11/97	5/98
	Z (R)	ENDEVCO	10/97	4/98
Chest	X (R)	ENDEVCO	8/97	2/98
	Y (R)	ENDEVCO	8/97	2/98
	Z (R)	ENDEVCO	8/97	2/98
Pelvic	X	ENDEVCO	1/98	7/98
	Y	ENDEVCO	1/98	7/98
	Z	ENDEVCO	1/98	7/98
Left Upper Tibia	Mx	DENTON	10/97	4/98
	My	DENTON	10/97	4/98
Left Lower Tibia	Fy	DENTON	10/97	4/98
	Fz	DENTON	10/97	4/98
Right Upper Tibia	Mx	DENTON	10/97	4/98
	My	DENTON	10/97	4/98
Right Lower Tibia	Fy	DENTON	10/97	4/98
	Fz	DENTON	10/97	4/98
Right Lower Tibia	Mx	DENTON	10/97	4/98

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacture	Calibration	
			Last	Next
Left Foot Front Z	AP061	ENDEVCO	9/97	3/98
Left Foot Rear X	A13506	ENDEVCO	9/97	3/98
Left Foot Rear Z	AP1B7	ENDEVCO	10/97	4/98
Right Foot Front Z	AC814	ENDEVCO	8/97	2/98
Right Foot Rear X	AEWK1	ENDEVCO	8/97	2/98
Right Foot Rear Z	AKD92	ENDEVCO	8/97	2/98

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	D33	ICS	9/97	3/98
Right Rear Seat Crossmember	X26	ICS	9/97	3/98
Top of Engine	D25	ICS	10/97	4/98
Bottom of Engine	AL53	ENDEVCO	8/97	2/98
Left Disc Brake Caliper	EO2	ENTRAN	2/98	8/98
Right Disc Brake Caliper	BC48	ENDEVCO	8/97	2/98
Instrument Panel	A86	CEC	10/97	4/98
Left Seat Rear Crossmember (R)	D31	ICS	10/97	4/98
Right Seat Rear Crossmember (R)	Y17	ICS	9/97	3/98