V2792
2098

REPORT NUMBER: CAL-98-23

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

CHRYSLER CORPORATION
1998 DODGE DURANGO
4-DOOR SUV

NHTSA NUMBER: MW0304

CALSPAN TEST NUMBER: 8413-22

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

February 10, 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
400 Seventh Street, SW, Room No. 5313
Washington, DC 20590

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Approval Date: Mar 24, 1998

FINAL REPORT ACCEPTANCE BY OCS:

_____

Manager, New Car Assessment Program (NCAP)
NHTSA, Office of Crashworthiness Standards

_____

Date of Report Acceptance

_____

COTR, New Car Assessment Program (NCAP)
NHTSA, Office of Crashworthiness Standards

_____

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. *Report No.* CAL-98-23	2. *Government Accession No.*	3. *Recipient's Catalog No.*
4. *Title and Subtitle* Final Report of NEW CAR ASSESSMENT PROGRAM (NCAP) Testing of a 1998 Dodge Durango 4-Door SUV NHTSA No. MW0304		5. *Report Date* February 10, 1998 6. *Performing Organization Code* CAL
7. *Author(s)* David J. Travale, Program Manager Patrick G. MacDiarmid, Jr., Project Engineer		8. *Performing Organization Report No.* 8413-22
9. *Performing Organization Name and Address* Calspan Corporation 4455 Genesee Street Buffalo, New York 14225		10. *Work Unit No.* 11. *Contract or Grant No.* DTNH22-96-D-02010
12. *Sponsoring Agency Name and Address* U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NPS-10 400 Seventh , SW, Room 5313 Washington, D.C. 20590		13. *Type of Report and Period Covered* Final Report February 1998 - March 1998 14. *Sponsoring Agency Code* NPS-10
15. *Supplementary Notes*		

16. *Abstract*

A frontal barrier test of a 1998 Dodge Durango 4-Door SUV was performed at Calspan Corporation crash test facility in Buffalo, New York, on February 10, 1998.

The impact velocity was 56.2 kph and the temperature at the barrier face was 20°C. The maximum post-test vehicle crush was 625.0 mm. The test vehicle was equipped with a 3-point restraint system and supplemental airbags at each outboard seating position. This vehicle was equipped with next generation type depowered airbags.

With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" the driver and passenger appear to comply with head and femur requirements and appear to exceed chest requirements.

17. *Key Words* 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)	18. *Distribution Statement* Copies of this report are available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590		
19. *Security Classif. (of this report)* UNCLASSIFIED	20. *Security Classif. (of this page)* UNCLASSIFIED	21. *No. of Pages* 243	22. *Price*

Form DOT F1700.7 (8-69)

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Section 1

PURPOSE AND SUMMARY OF TEST MW0304

PURPOSE

This 56.2 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 56.2 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 Dodge Durango 4-Door SUV at a velocity of 56.2 kph. The test was performed at the Calspan Corporation on February 10, 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. 061) and the right-front passenger (position 2) ATD (Serial No. 150) were used in two previous tests (MW0108 and MW5205) where they did not exceed FMVSS 208 Injury Criteria. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 96 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle,

load cell barrier and dummy response data traces. Load Cell Barrier data was not requested for this test.

The driver's HIC was 997.14. The maximum chest deceleration over 3 milliseconds was 62.29 g's and maximum chest deflection was -48.6 mm. Femur loads were -6192.4 Newtons on the left and -4138.5 Newtons on the right.

The right front passenger's HIC was 627.84. Maximum chest deceleration over 3 milliseconds was 62.09 g's and maximum chest deflection was -33.8 mm. Femur loads were -5288.7 Newtons on the left and -4603.3 Newtons on the right.

Position #1 Belt Elongation did not record accurately. The data trace is not available. Position 1 belt spoolout contains data spikes after 100 ms, the actual spoolout was approximately 105 mm. Position #2 Right Lower Tibia Fx did not record. The data trace is not available. Position #2 Left Ankle Z data is not accurate after 90 ms. A wire was cut during the impact. Position #2 Left Toe Z data is not accurate after 30 ms. A wire was cut during the impact.

The lower portion of the steering wheel rim was deformed during the impact. The vehicle windshield cracked during the impact. The vehicle front driver and passenger doors could not be opened before the rollover was performed, as a result, the post-test driver and interior view and passenger and interior view still photographs are not available.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MW0304 Test Mode : 56 kph Frontal Barrier

Test Date : February 10, 1998 Time: 13:50 Temperature : 13 °C

Vehicle Make/Model/Body Style : 1998 Dodge Durango 4-Door SUV

Vehicle Test Weight : 2408 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.2 kph

Maximum Static Crush : 625.0 mm

Vehicle Rebound : 414.3 mm

DUMMIES:	DRIVER	PASSENGER
Type :	572E	572E
Restraint System :	Airbag, Seatbelt, Knee Bolster	Airbag, Seatbelt, Knee Bolster

Number of Data Channels : 96

Number of Cameras : 1 Real Time

16 High Speed

DOOR OPENING DATA : Closed/Inoperable - Left Front

Closed/Inoperable - 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 the center of airbag; Top and back of head to right outboard side of the headrest; Top of head to the sun visor.	Face to the center of the airbag; Top of the head to the back edge of the sun visor.
Abdomen :	None	None
Chest	Airbag	Airbag
Knees	Knee Bolster	Knee Bolster

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 1998 Dodge Durango 4-Door SUV

NHTSA No. : MW0304 ; VIN: 1B4HS28Y0WF116904 ; Color : Green

Engine Data: 8 cylinders; - CID; 5.2 Liters; - cc

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

Transmission Data : 4 speeds; - Manual; X Automatic; X Overdrive

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

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

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

Date Received : 01/29/98 ; Odometer Reading 290 km

Selling Dealer : Best Dodge, Inc.

& Address: 3551 Southwestern Boulevard Orchard Park, NY 14127

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Chrysler Corporation

Date of Manufacture 11/97

GVWR : 2903 kg; GAWR: 1543 kg FRONT; 1747 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 240 kpa FRONT

276 kpa REAR

Recommended Tire Size : P235/75R15

* Recommended Cold Tire Pressure : 240 kpa FRONT; 276 kpa REAR

Size of Tires on Test Vehicle: 31x10.5R15LT ; Manufacturer: Goodyear

Vehicle Capacity Data :

Type of Front Seats: - Bench; - Bucket; X Split Bench

Number of Occupants: 3 Front; 3 Rear; 6 Total

Vehicle Capacity Weight (VCW) = 774 kg

No. of Occupants x 68 kg = 408 kg

Rated Cargo/Luggage Weight (RCLW) = 366 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	=	596.5 kg	Right Rear	=	455.5 kg
Left Front	=	608.0 kg	Left Rear	=	469.0 kg
TOTAL FRONT	=	1,204.5 kg	TOTAL REAR	=	924.5 kg

TOTAL DELIVERED WEIGHT = 2,129.0 kg

% of Total Front of Vehicle Weight = 56.6 % of Total Rear Weight = 43.4 %

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	2,129.0 kg
Rated Cargo/Luggage Weight (RCLW)	=	136.0 kg
Weight of 2 p.572 Dummies @ 76 each	=	152 kg
TARGET TEST WEIGHT	=	2,417.0 kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 127 KG OF CARGO WEIGHT:

Right Front	=	624.0 kg	Right Rear	=	559.0 kg
Left Front	=	649.5 kg	Left Rear	=	575.5 kg
TOTAL FRONT	=	1,273.5 kg	TOTAL REAR	=	1,134.5 kg

TOTAL TEST WEIGHT = 2,408.0 kg

% of Total Front Weight = 52.9 % % of Total Rear Weight = 47.1 %

Weight of Ballast Secured in Vehicle Trunk Area = 58.7 kg

Vehicle Components Removed for Weight Reduction: None

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	919	LF	915	RR	941	LR 938
FULLY LOADED :	RF	908	LF	908	RR	910	LR 910
AS TESTED :	RF	910	LF	909	RR	911	LR 912

Vehicle's Wheel Base : 2940 mm

Location of Vehicle's C.G. : 1,385.1 mm rearward of front wheel center.

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual = 94.6 liters

Usable Capacity Figure Furnished by COTR = 94.6 liters

Test Volume Range (92 to 94% of Usable Capacity) = 87.1 to 88.9 liters

ACTUAL TEST VOLUME= 87.5 liters (with entire fuel system filled)

Test Fluid Type: Stoddard Solution ; Spec. Grav. = 0.764

Kinematic Viscosity = 0.96 centistokes; Color = Orange

Type of Fuel Pump: Electric- X ; Mechanical- -

Does Electric Pump operate with ignition switch "ON" & engine "OFF" Yes- X No- -

Details of Fuel System Filler - Left side, behind rear axle; Tank - Left of center, inside left frame rail, ahead of the rear axle; Lines - Inside left frame rail.

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°

Test Date : February 10, 1998 Time: 13:50 Temperature: 13 °C

Vehicle NHTSA No. : MW0304

Required Impact Velocity Range : 55.7 to 57.1 kph

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

Trap No. 1 = 56.2 kph; Trap No. 2 = 56.2 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 =	4800	; C/L =	4900	; Left =	4790
Post-Test	Right =	4295	; C/L =	4275	; Left =	4270
Crush	Right =	505.0	; C/L =	625.0	; Left =	520.0
AVERAGE	=	550.0	mm			

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

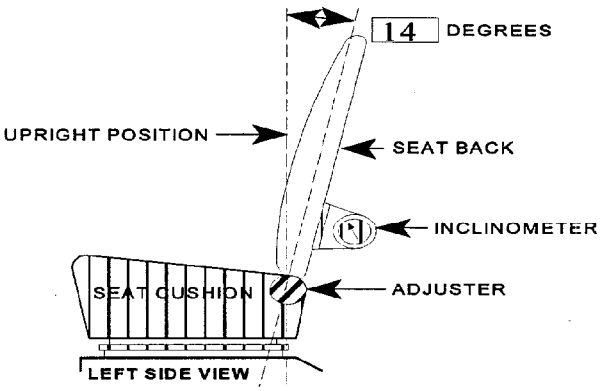
	Right =	425.0	; C/L =	416.0	; Left =	402.0
AVERAGE	=	414.3	mm			

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1998 Vehicle Model: Dodge Durango Body Style : 4-Door SUV

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 : 14°

Measurement instructions : Lift recliner to dump seat full forward. Push seat back to full up position. Cut away seat covering on rear of seatback to expose the seat frame tube. Hold inclinometer on lower seat frame tube and recline seat back to 14 degrees. This should result in a torso angle of 22°.

Seat back angle for passenger's seat : 14°

Measurement instructions : Same as the driver's seat.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat : There are 23 total seat detents. The detents were numbered from 0 to 22. The seat tracks were placed in the mid-position, detent number 11.

Positioning of the passenger's seat (if applicable) : Same as the driver's seat.

3. Fuel Tank Capacity Data

3.1

A. "Usable Capacity" of the standard equipment fuel tank is 94.6 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 = 94.6 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 87.5 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.

The fuel pump operates when the vehicle's electrical system is activated.

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.

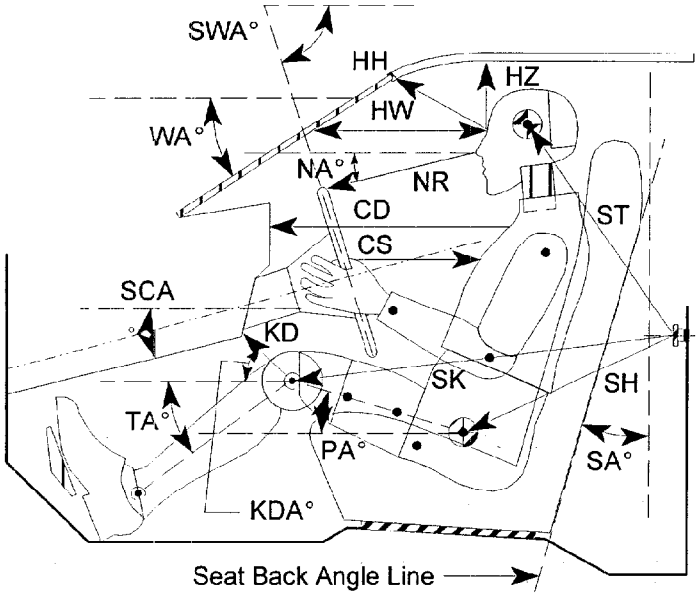
Operational Instructions: There are 5 total positions. Mid-position is position number 3.

The column was set at position number 3.

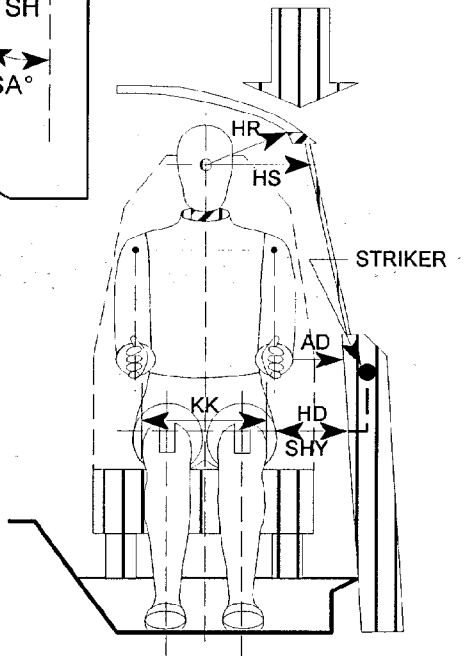
5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: There are 6 total positions. The uppermost position is detent number 1. The anchorages were placed at detent number 3.

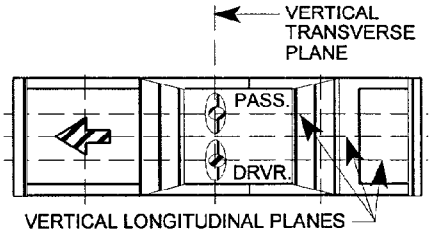
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



AD - Arm to Door
HD - H-Point to Door
HR - Head to Side Header
HS - Head to Side Window
KK - Knee to Knee
SHY- Striker to H-Point (Y Direction)



CD - Chest to Dash
CS - Steering Wheel to Chest
HH - Head to Header
HW - Head to Windshield
HZ - Head to Roof
KDA- Knee to Dash Angle
KDL - Left Knee to Dash
KDR- Right Knee to Dash
NA - Nose to Rim Angle
NR - Nose to Rim
PA - Pelvic Angle
RA - Rim to Abdomen
SA - Seat Back Angle
SCA- Steering Column Angle
SH - Striker to H-Point
SK - Striker to Knee
ST - Striker to Head
SWA- Steering Wheel Angle
TA - Tibial Angle
WA - Windshield Angle



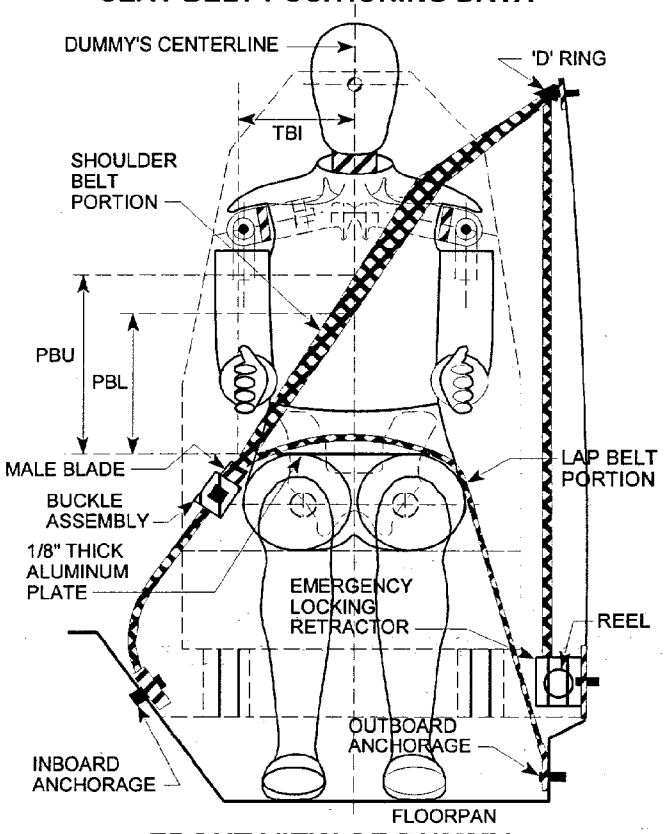
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

	DRIVER (Serial #061)			PASS. (Serial # 150)		
WA°	33.2 deg.			N/A		
SWA°	63.8 deg.			N/A		
SCA°	26.2 deg.			N/A		
SA°	14 deg.			14 deg.		
HZ	199			206		
HH	406			352		
HW	614			652		
HR	209			195		
NR	371	Angle	-17 deg.	N/A		
CD	503			550		
CS	264			N/A		
RA	168			N/A		
KDL	141	Angle (KDA)	33 deg.	160		
KDR	132			167	Angle (KDA)	37 deg.
PA°	21.1 deg.			23.4 deg.		
TA°	-45.3 deg.			-40.4 deg.		
KK	271			266		
ST	615	Angle	54 deg.	585	Angle	10.9 deg.
SK	616	Angle	88 deg.	616	Angle	95.4 deg.
SH	210	Angle	105 deg.	215	Angle	118 deg.
SHY	224			219		
HS	332			305		
HD	169			167		
AD	109			86		

Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

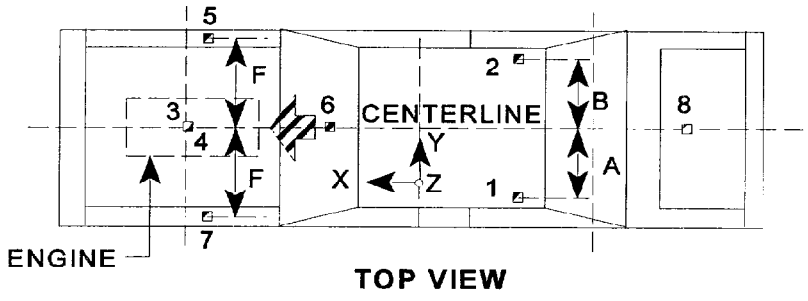
SEAT BELT POSITIONING DATA



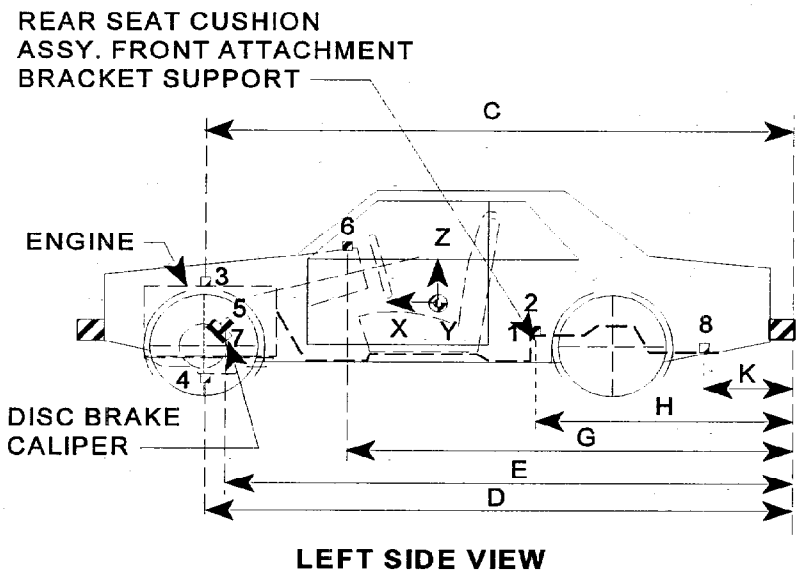
FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	350	348
PBL-- Top surface of alum. plate to belt lower edge	272	262
LAP BELT TENSION	10 Newtons	10 Newtons
SHOULDER BELT TENSION	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



TOP VIEW



LEFT SIDE VIEW

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	640
B Right Rear Seat Crossmember Y	-640
C Top of Engine X	4192
D Bottom of Engine X	3354
E Disc Brake Calipers X	3943
F Disc Brake Calipers Y	±470
G Instrument Panel X	3179
H Rear Seat Crossmembers X	2018

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	2.5	166.9	-37.2	37.0
2	Rear Seat X-Member @ Right Side	6.4	168.8	-41.2	36.3
3	Top of Engine Block	15.9	202.0	-118.3	24.0
4	Bottom of Engine	19.0	39.6	-63.2	23.5
5	Disc Brake Caliper @ Right Side	13.2	56.9	-103.1	39.8
6	Instrument Panel	68.2	74.1	-66.7	68.9
7	Disc Brake Caliper @Left Side	9.9	33.9	-67.4	28.0
8	Rear Seat X-Member @ Left-Redundant	2.6	166.9	-38.9	36.2
9	Rear Seat X-Member @ Right-Redundant	4.5	177.0	-36.1	36.8

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

NHTSA Test No.: MW0304 Vehicle: 1998 Dodge Durango 4-Door SUV

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec.	Neg.	msec.
Pos. 1 Head X	**g's**	14.4	129.3	-68.4	85.4
Pos. 1 Head Y	**g's**	15.0	150.9	-28.9	91.3
Pos. 1 Head Z	**g's**	39.5	64.7	-19.1	116.4
Pos. 1 Head Resultant	**g's**	72.8	88.0	0.1	-31.2
Pos. 2 Head X	**g's**	2.9	258.2	-44.6	83.9
Pos. 2 Head Y	**g's**	3.5	258.9	-15.9	100.2
Pos. 2 Head Z	**g's**	49.6	69.8	-12.8	121.0
Pos. 2 Head Resultant	**g's**	60.8	72.2	0.1	-26.0
Pos. 1 Chest X	**g's**	6.6	188.4	-63.8	65.2
Pos. 1 Chest Y	**g's**	3.8	119.4	-15.9	77.6
Pos. 1 Chest Z	**g's**	28.9	65.0	-22.7	119.2
Pos. 1 Chest Resultant	**g's**	71.2	65.2	0.0	-32.0
Pos. 1 Chest Displacement	**mm**	0.0	16.4	-48.6	68.3
Pos. 2 Chest X	**g's**	4.2	338.9	-60.8	69.7
Pos. 2 Chest Y	**g's**	2.5	38.8	-5.6	73.4
Pos. 2 Chest Z	**g's**	29.4	65.9	-30.5	121.3
Pos. 2 Chest Resultant	**g's**	66.3	69.6	0.0	-34.5
Pos. 2 Chest Displacement	**mm**	0.0	-2.7	-33.8	70.4
Pos. 1 Left Femur	**N**	360.0	38.8	-6192.4	50.1
Pos. 1 Right Femur	**N**	209.8	35.8	-4138.5	72.3
Pos. 2 Left Femur	**N**	362.7	44.0	-5288.7	61.8
Pos. 2 Right Femur	**N**	386.5	39.8	-4603.3	52.3
Pos. 1 Left Belt Load	**N**	8230.7	67.4	-35.3	128.4
Pos. 1 Torso Belt Load	**N**	6454.2	54.3	-83.9	171.9
Pos. 2 Right Belt Load	**N**	7722.9	58.4	-83.0	140.3
Pos. 2 Torso Belt Load	**N**	8435.2	68.9	-8.0	176.7

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

NHTSA Test No.: MW0304 Vehicle: 1998 Dodge Durango 4-Door SUV

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t_1 (msec)	t_2 (msec)	Average Acceleration t_1 to t_2
Position #1 - Driver	997.14	59.700	95.700	59.84
Position #2 - Passenger	627.84	60.000	96.000	49.73

** HIC is as defined in FMVSS 208. The maximum time interval from t_1 to t_2 is 36 milliseconds.

	CLIP SUMMARY*			
	CLIP (g's)	t_1 (msec)	t_2 (msec)	CSI
Position #1 - Driver	62.290	63.2850	66.2850	740.920
Position #2 - Passenger	62.093	68.5094	71.8606	757.401

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

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

Vehicle Year/Make/Model/Body Style: 1998 Dodge Durango 4-Door SUV

NHTSA Test No.: MW0304 Test Date: February 10, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Upper Neck Fx	**N**	567.3	122.3	-848.4	84.3
Pos. 1 Upper Neck Fy	**N**	349.3	96.9	-374.0	153.4
Pos. 1 Upper Neck Fz	**N**	4448.1	77.1	-763.2	47.6
Pos. 1 Neck Force Result	**N**	4453.2	77.1	2.3	-22.7
Pos. 1 Upper Neck Mx	**N-m**	57.4	97.0	-15.9	171.9
Pos. 1 Upper Neck My	**N-m**	15.8	347.6	-65.6	85.1
Pos. 1 Upper Neck Mz	**N-m**	51.4	110.7	-4.9	339.2
Pos. 1 Neck Moment Result	**N-m**	68.9	85.2	0.0	-35.4
Pos. 2 Upper Neck Fx	**N**	232.7	308.0	-1001.6	152.2
Pos. 2 Upper Neck Fy	**N**	447.0	83.9	-170.9	129.5
Pos. 2 Upper Neck Fz	**N**	2594.7	70.2	-631.8	121.2
Pos. 2 Neck Force Result	**N**	2650.3	70.2	5.2	-13.0
Pos. 2 Upper Neck Mx	**N-m**	11.0	254.9	-18.9	77.2
Pos. 2 Upper Neck My	**N-m**	74.0	153.9	-36.2	70.2
Pos. 2 Upper Neck Mz	**N-m**	31.9	93.6	-16.2	147.5
Pos. 2 Neck Moment Result	**N-m**	75.7	153.9	0.0	-31.2
Pos. 1 Pelvic (X)	**g's**	6.8	139.8	-72.1	53.5
Pos. 1 Pelvic (Y)	**g's**	6.3	43.1	-9.6	58.9
Pos. 1 Pelvic (Z)	**g's**	11.7	71.9	-22.6	112.8
Pos. 1 Pelvic (R)	**g's**	72.4	50.6	0.1	-30.8
Pos. 2 Pelvic (X)	**g's**	9.0	133.5	-75.9	50.6
Pos. 2 Pelvic (Y)	**g's**	14.8	42.3	-20.1	47.4
Pos. 2 Pelvic (Z)	**g's**	17.2	42.7	-29.1	117.5
Pos. 2 Pelvic (R)	**g's**	76.1	50.6	0.1	-31.5

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

Vehicle Year/Make/Model/Body Style: 1998 Dodge Durango 4-Door SUV

NHTSA Test No.: MW0304 Test Date: February 10, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
P1 Lt Upper Tibia Mx	N-m	83.1	62.2	-48.1	114.1
P1 Lt Upper Tibia My	N-m	80.8	43.5	-198.7	54.2
P1 Lt Lower Tibia Fx	N	374.7	43.7	-1509.0	54.0
P1 Lt Lower Tibia Fz	N	316.3	43.5	-5592.1	73.1
P1 Lt Lower Tibia My	N-m	95.4	73.0	-148.0	52.0
P1 Rt Upper Tibia Mx	N-m	49.2	50.1	-46.6	40.8
P1 Rt Upper Tibia My	N-m	132.3	45.5	-18.2	124.0
P1 Rt Lower Tibia Fx	N	107.8	124.9	-1278.7	45.8
P1 Rt Lower Tibia Fz	N	330.7	48.3	-932.7	89.0
P1 Rt Lower Tibia My	N-m	152.6	69.1	-130.5	45.8
Pos. 2 Lt Upper Tibia Mx	N-m	29.4	42.2	-38.9	40.4
Pos. 2 Lt Upper Tibia My	N-m	17.7	59.8	-310.5	40.9
Pos. 2 Lt Lower Tibia Fx	N	82.9	68.7	-2294.1	40.9
Pos. 2 Lt Lower Tibia Fz	N	514.6	70.2	-6004.5	41.5
Pos. 2 Lt Lower Tibia My	N-m	67.8	93.7	-165.1	40.7
Pos. 2 Rt Upper Tibia Mx	N-m	33.7	118.8	-117.3	74.1
Pos. 2 Rt Upper Tibia My	N-m	59.3	45.7	-85.1	72.2
Pos. 2 Rt Lower Tibia Fx	N	*	*	*	*
Pos. 2 Rt Lower Tibia Fz	N	132.3	247.7	-5163.5	73.8
Pos. 2 Rt Lower Tibia My	N-m	78.5	68.4	-61.8	48.7

* Data is not available for this channel.

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

Vehicle Year/Make/Model/Body Style: 1998 Dodge Durango 4-Door SUV

NHTSA Test No.: MW0304 Test Date: February 10, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Left Ankle X	**g's**	85.4	71.5	-262.5	50.6
Pos. 1 Left Ankle Z	**g's**	54.5	49.9	-53.0	69.9
Pos. 1 Left Toe Z	**g's**	110.4	49.7	-160.5	52.9
Pos. 1 Right Ankle X	**g's**	24.9	72.7	-168.9	39.1
Pos. 1 Right Ankle Z	**g's**	71.7	48.6	-212.2	48.2
Pos. 1 Right Toe Z	**g's**	259.1	38.9	-278.8	42.9
Pos. 2 Left Ankle X	**g's**	58.2	52.9	-307.6	39.4
Pos. 2 Left Ankle Z	**g's**	*	*	*	*
Pos. 2 Left Toe Z	**g's**	**	**	**	**
Pos. 2 Right Ankle X	**g's**	43.9	68.2	-170.4	46.2
Pos. 2 Right Ankle Z	**g's**	14.5	46.7	-54.9	70.0
Pos. 2 Right Toe Z	**g's**	86.4	46.8	-68.9	41.4

* This data is not accurate after 90 ms.
** This data is not accurate after 30 ms.

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

NHTSA Test No.: MW0304 Vehicle: 1998 Dodge Durango 4-Door SUV

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Head X(R)	**g's**	13.4	128.1	-72.7	88.3
Pos. 1 Head Y(R)	**g's**	10.0	114.1	-36.0	90.9
Pos. 1 Head Z(R)	**g's**	43.7	65.1	-20.2	95.4
Pos. 1 Head Resultant(RR)	**g's**	78.5	88.3	0.1	-25.8
Pos. 2 Head X(R)	**g's**	2.9	260.5	-50.3	81.7
Pos. 2 Head Y(R)	**g's**	4.1	255.0	-12.9	100.2
Pos. 2 Head Z(R)	**g's**	59.2	69.9	-11.9	114.1
Pos. 2 Head Resultant(RR)	**g's**	69.6	69.8	0.1	-25.7
Pos. 1 Chest X(R)	**g's**	6.1	187.4	-60.8	65.4
Pos. 1 Chest Y(R)	**g's**	3.8	111.5	-13.2	77.8
Pos. 1 Chest Z(R)	**g's**	29.4	65.1	-20.9	118.9
Pos. 1 Chest Resultant(RR)	**g's**	68.2	65.3	0.0	-33.6
Pos. 2 Chest X(R)	**g's**	4.2	339.2	-63.5	69.4
Pos. 2 Chest Y(R)	**g's**	4.1	50.0	-5.4	112.7
Pos. 2 Chest Z(R)	**g's**	31.8	65.8	-29.2	121.6
Pos. 2 Chest Resultant(RR)	**g's**	70.2	69.3	0.0	-36.2

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

NHTSA Test No.: MW0304 Vehicle: 1998 Dodge Durango 4-Door SUV

	HEAD INJURY CRITERIA (HIC) **REDUNDANT**			
	HIC**	t_1 (msec)	t_2 (msec)	Average Acceleration t_1 to t_2
Position #1 - Driver	1238.47	61.700	97.700	65.26
Position #2 - Passenger	756.18	60.100	96.100	53.57

** HIC is as defined in FMVSS 208. The maximum time interval from t_1 to t_2 is 36 milliseconds.

	CLIP SUMMARY* **REDUNDANT**			
	CLIP (g's)	t_1 (msec)	t_2 (msec)	CSI
Position #1 - Driver	61.113	63.6139	66.6139	704.644
Position #2 - Passenger	66.082	65.9823	70.2268	797.817

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:	Driver	Passenger
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	1812	1822
Shoulder belt length as measured on Part 572 Dummy.	835	825
Lap belt length as measured on Part 572 Dummy.	725	745
SHOULDER BELT SPOOL-OFF DATA:		
As determined by film analysis.	102	102
As determined mechanically.	86	114
As determined electronically.	105*	107.0
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring.	**	26.4 mm/M
Measured mechanically.	0 mm/M	0 mm/M

Dimensions in millimeters

* Estimated
** Data is not available for this channel.

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 25 mm molding.

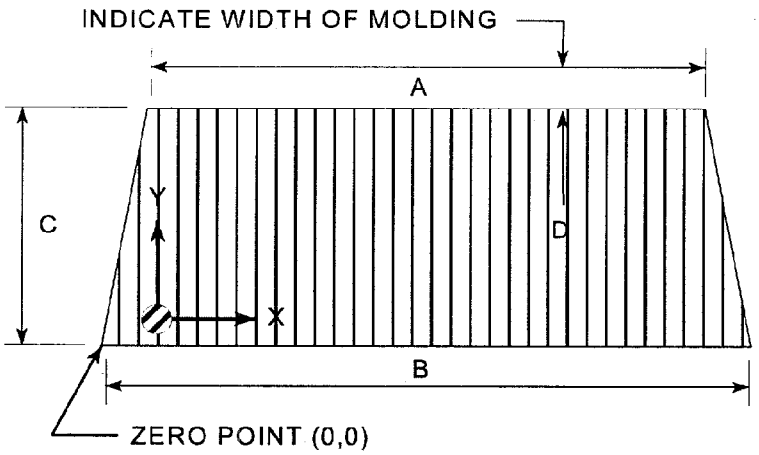
FMVSS 212 REQUIREMENTS:

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		
	PRE-TEST (mm)	POST-TEST(mm)	% OF RETENTION
RIGHT SIDE	2081	2081	100
LEFT SIDE	2081	2081	100
TOTAL	4,162	4,162	100

AREA OF RETENTION FAILURE:



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1240
B	1614
C	654
D	25

FAILURE DETAILS: None.

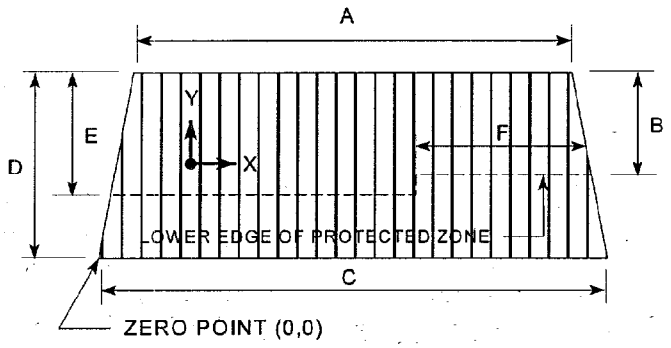
DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

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	1240
B	370
C	1614
D	654
E	450
F	956

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.:	MW0304	TEST DATE:	February 10, 1998
VEHICLE MAKE/MODEL:	1998 Dodge Durango		

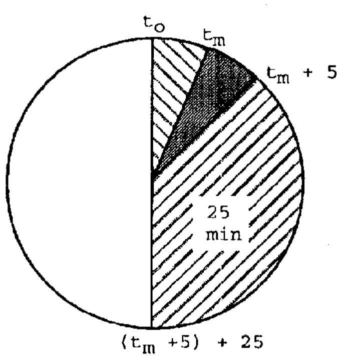
The test vehicle was filled from 92% to 94% of the manufacture's "usable" capacity. The electric fuel pump was operating if it will operate without engine operation. Two Part 572 anthropomorphic test devices were located at each of the front designated seating positions.

= =

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:



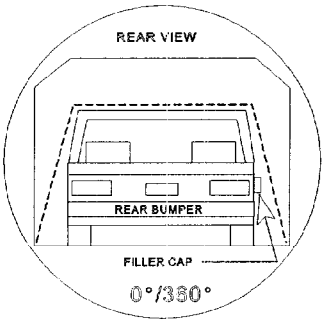
	ACTUAL	MAX ALLOWED
1. From impact until vehicle motion ceases	0	28 g
2. For 5 minute period after vehicle motion ceases	0	141 g
3. For next 25 minutes	0	28 g/min.

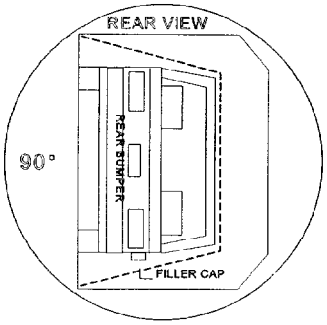
SOLVENT SPILLAGE DETAILS: None.

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

TEST PHASE:
0-90 deg.

NHTSA Test No.:
MW0304





INDETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	10	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	10	seconds
Next whole minute interval	7	minutes	00	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	0	0	N/A

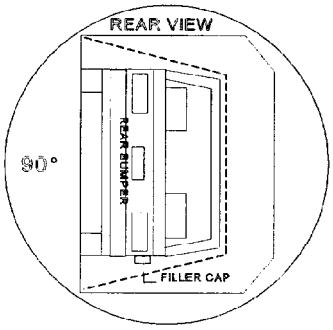
Note: Record spillage for whole minute intervals only as determined above.

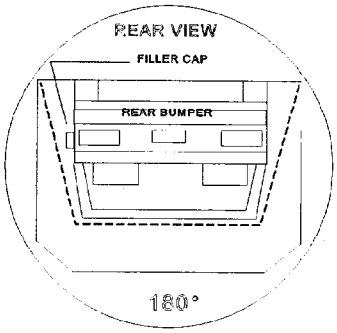
IV. SOLVENT SPILLAGE LOCATION(S): None.

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

TEST PHASE:
90-180 deg.

NHTSA Test No.:
MW0304





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	07	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	7	seconds
Next whole minute interval	7	minutes	00	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	0	0	N/A

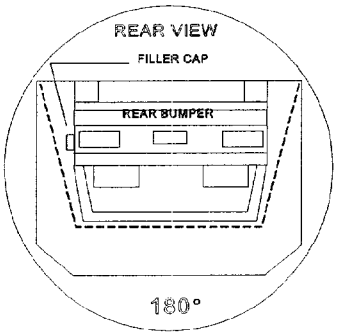
Note: Record spillage for whole minute intervals only as determined above.

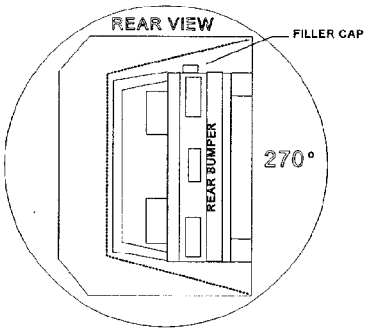
IV. SOLVENT SPILLAGE LOCATION(S): None.

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

TEST PHASE:
180-270 deg.

NHTSA Test No.:
MW0304





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	08	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	8	seconds
Next whole minute interval	7	minutes	00	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	0	0	N/A

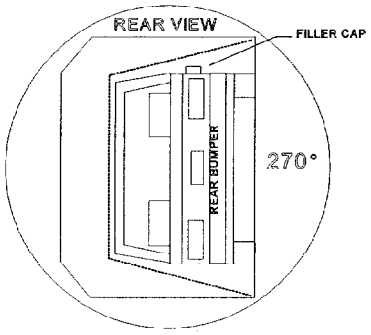
Note: Record spillage for whole minute intervals only as determined above.

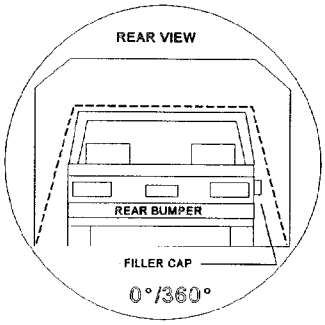
IV. SOLVENT SPILLAGE LOCATION(S): None.

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

TEST PHASE:
270-360 deg.

NHTSA Test No.:
MW0304





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	08	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	8	seconds
Next whole minute interval	7	minutes	00	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

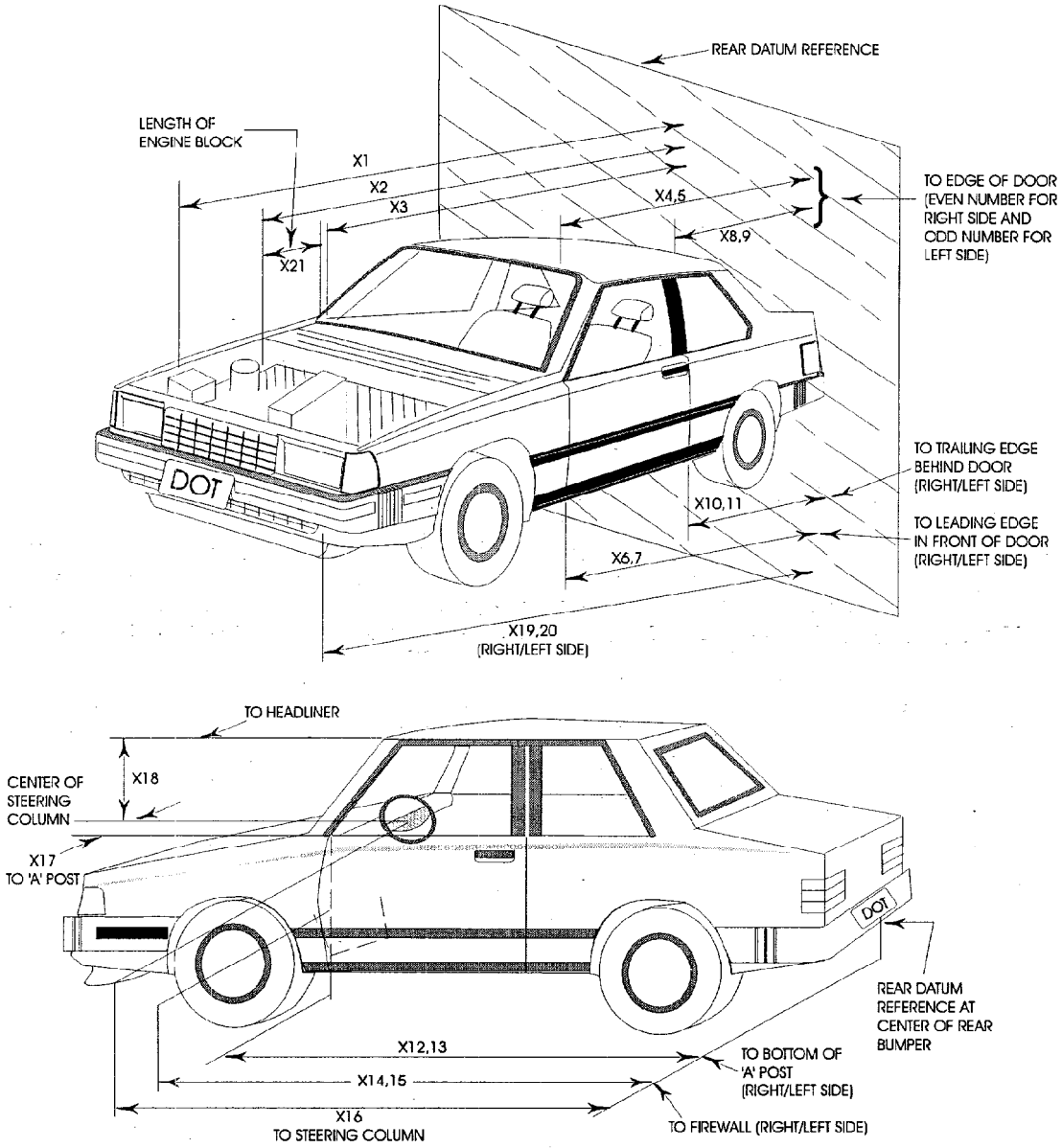
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	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

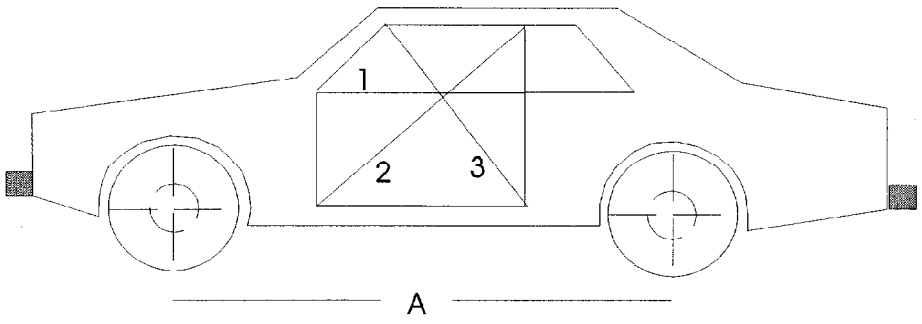
No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4900	4275	625
X2	Rear Surface of Vehicle to Front of Engine	4265	3930	335
X3	Rear Surface of Vehicle to Firewall	3850	3675 *	175
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3555	3509 *	46
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3547	3515	32
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3484	3441	43
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3470	3437	33
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2393	2336	57
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2382	2345	37
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2397	2340	57
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2386	2351	35
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3473	3412	61
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3460	3415	45
X14	Rear Surface of Vehicle to Firewall, Right Side	3845	3700 *	145
X15	Rear Surface of Vehicle to Firewall, Left Side	3830	3700 *	130
X16	Rear Surface of Vehicle to Steering Column	2960	2885	75
X17	Center of Steering Column to "A" Post	450	415	35
X18	Center of Steering Column to Headliner	420	410	10
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4800	4295	505
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4790	4270	520
X21	Length of Engine Block	570	570	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3240	3195	45
CD	Rear Surface of Vehicle to Center of Dash Panel	3175	3110	65
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3200	3115	85

* Estimated

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

DOOR OPENING WIDTH



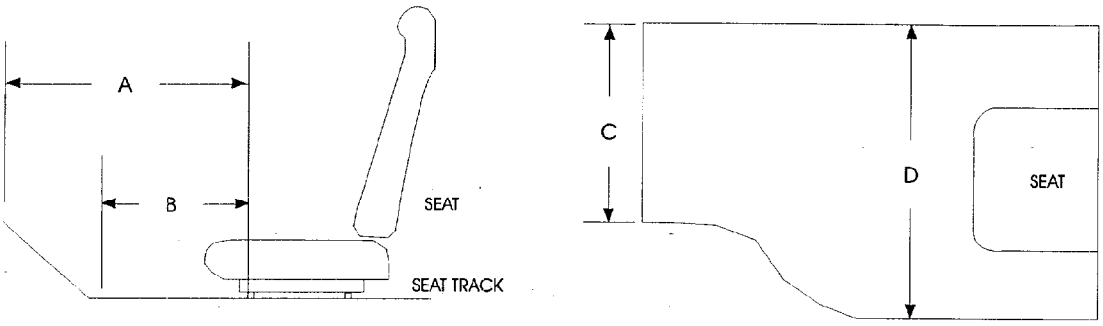
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1075	1495	1160	1085	1840	1150
AFTER TEST	1055	1435	1240	1055	1425	1240
DIFFERENCE	20	60	-80	30	415	-90

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2940	2925
AFTER TEST	2935	2870
DIFFERENCE	5	55

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	680	645	35
B	540	530	10
C	460	455	5
D	470	470	0

PASSENGER

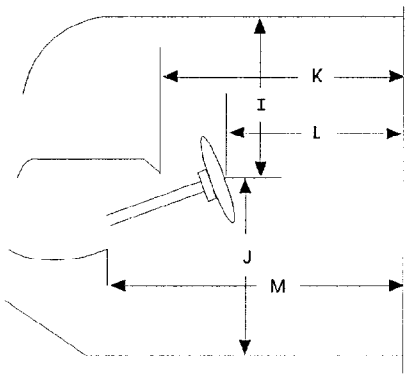
Measurement	Pre-Test	Post-Test	Difference
A	650	625	25
B	525	520	5
C	405	395	10
D	435	420	15

Units = mm

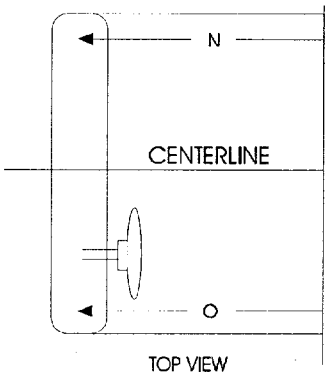
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC PASSENGER COMPARTMENT INTRUSION

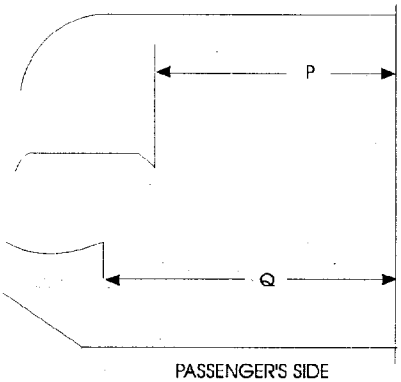


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS FROM C-PILLAR BELT ANCHORAGE



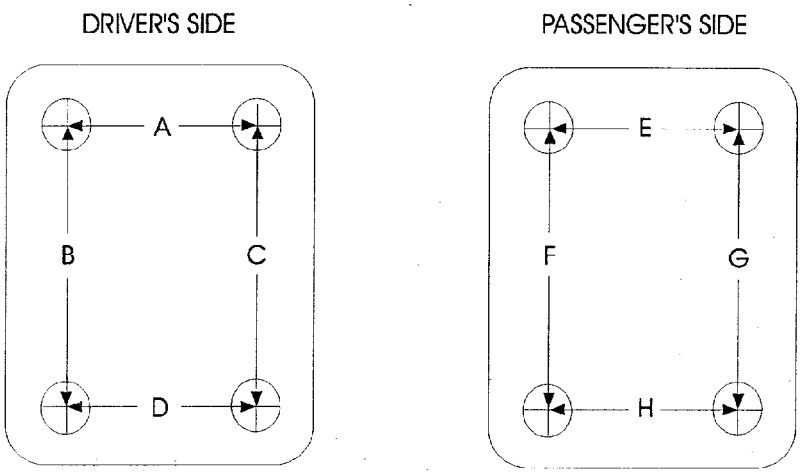
PASSENGER'S SIDE

Measurement	Pre-Test	Post-Test	Difference
I	425	390	35
J	640	675	-35
K	710	630	80
L	505	430	75
M	720	665	55
N	785	740	45
O	745	660	85
P = K (PASS.)	865	820	45
Q = M (PASS.)	755	710	45

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

FLOORBOARD DEFORMATION



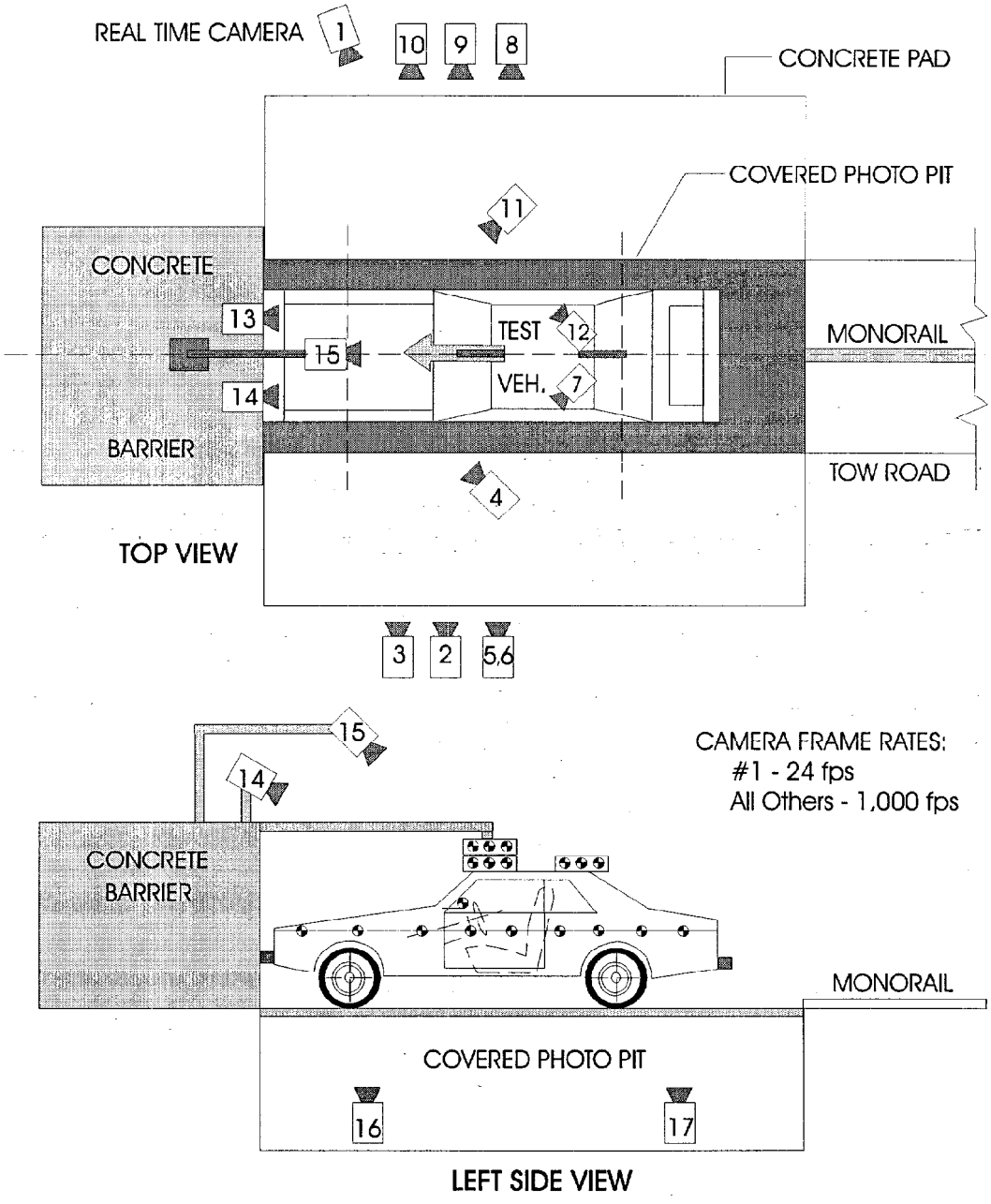
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	160	157	3
B	300	287	13
C	300	287	13
D	155	152	3
E	170	164	6
F	260	262	-2
G	300	296	4
H	170	164	6

Units = mm

CAMERA POSITIONS FOR FRONTAL IMPACTS

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



DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

NHTSA Test No.: MW0304 Vehicle: 1998 Dodge Durango 4-Door SUV

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)* X	Y	Z	ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	6923	1618	1124	-3	6515	12.5	1020
3	Left Side View	8008	887	1245	-4	7600	25	1020
4	Driver and Interior View	4750	3054	1974	-11	-	25	1020
5	Steering Column (Bottom)	7483	1978	1174	-3	7435	25	1020
6	Steering Column (Top)	7483	1978	1774	-8	7435	25	1025
7	Left Belt	-	-	-	-	-	13	1110
8	Overall Right Side	6943	2110	1100	-3	7351	13	1025
9	Right Side View	8000	1515	1195	-2	8408	25	N.T.
10	Right Passenger View	8035	1948	1516	-3	8443	35	1000
11	Passenger and Interior View	4885	3024	1977	-12	-	25	1020
12	Right Belt	-	-	-	-	-	13	1045
13	Passenger Front View	610	-445	1987	-40	-	8	1020
14	Driver Front View	610	-445	1965	-42	-	8	1010
15	Windshield View	0	0	3374	-61	-	13	1005
16	Pit View of Engine	0	857	-3048	90	-	13	910
17	Pit View of Fuel Tank	0	2462	-3048	90	-	13	1010

*X = film plane to monorail centerline

Y = film plane to impact location

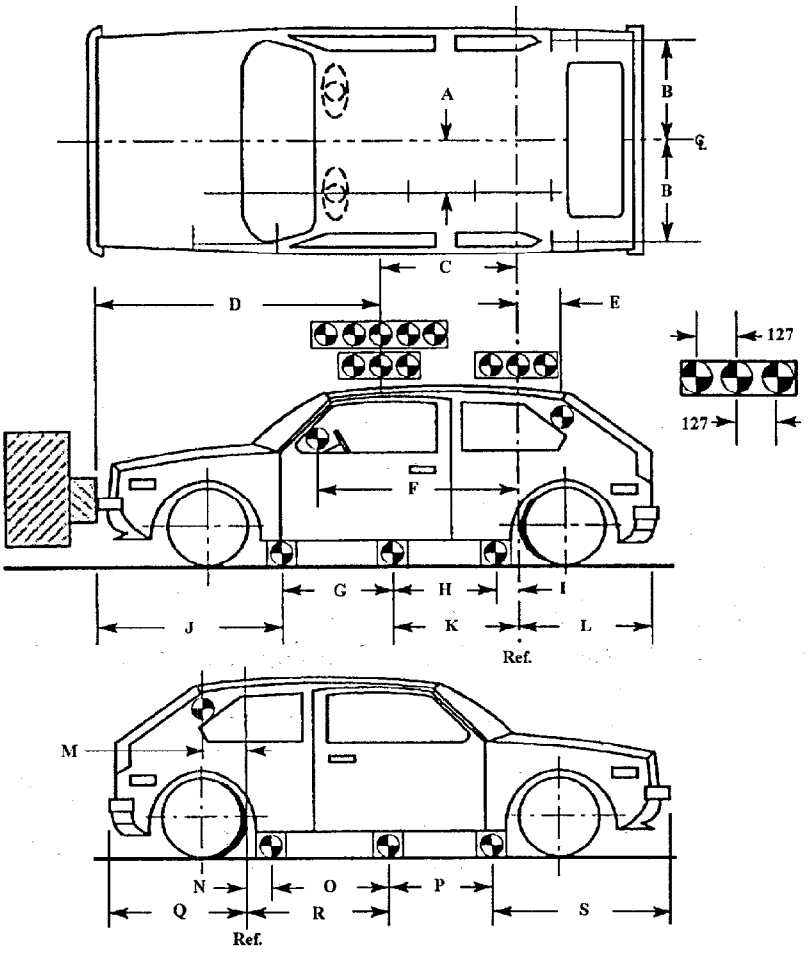
Z = film plane to ground

** = referenced to horizontal plane

N.T. indicates No Timing

(Dimensions in millimeters)

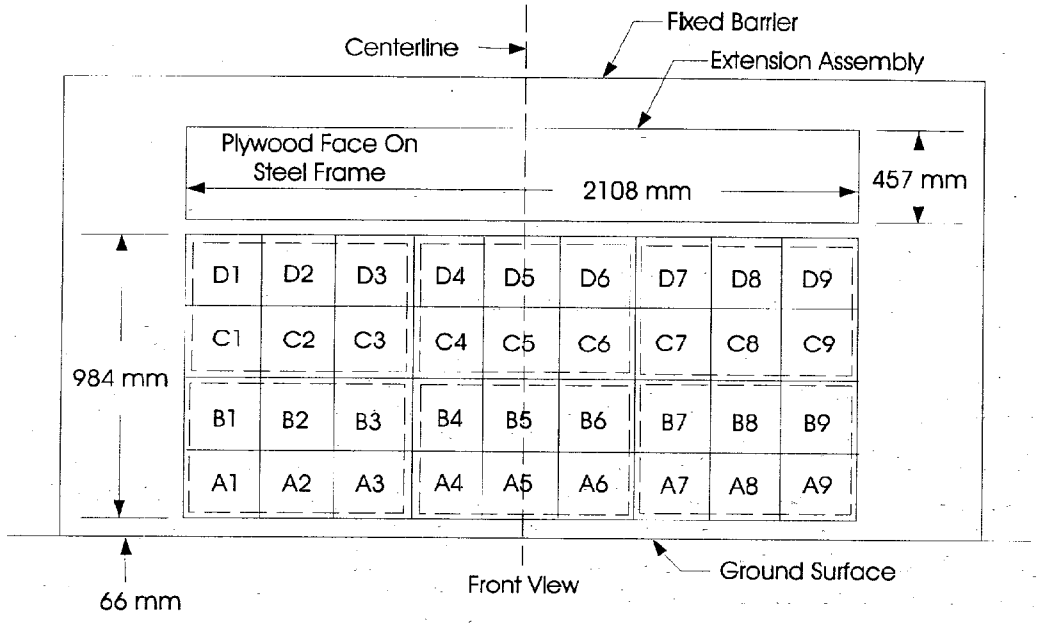
A	332
B	552
C	1219
D	2225
E	385
F	1712
G	884
H	884
I	190
J	1486
K	1074
L	1456
M	385
N	190
O	884
P	884
Q	1456
R	1074
S	1486



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. : MW0304; Test Date: February 10, 1998; Technician: P. MacDiarmid

Vehicle Model Year/Make/Model: 1998 Dodge Durango

A. No. of vent holes: 0 -Driver 0 -Passenger

B. Size of vent holes: (mm^2) - -Driver - -Passenger

C. Total vent area: (mm^2) - -Driver - -Passenger

D. Deflated air bag length and width dimensions or, if round, diameter. (mm)

Driver: 545 -Height; 835 -Width; 310 -Depth

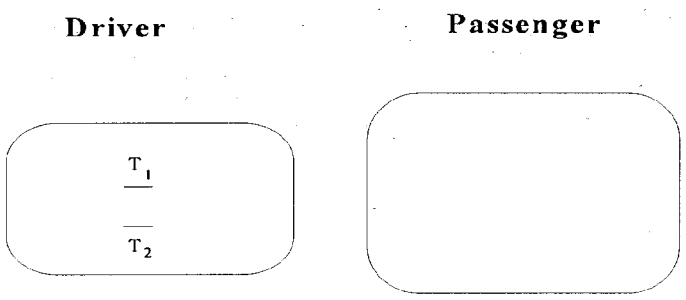
Passenger: 600 -Height; 550 -Width; 820 -Depth

E. Is the air bag tethered?

Driver: X -Yes; - -No; If yes, record length of tether- 215

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: TX972970145 P115052-01K

Generator: CBKHY43ZCIN TCDDM3087B1426 P5GD13JX8AA

Passenger: Air bag: TMHZ958G8832

Generator: CAE HXR 4S CAD 55314816

DATA SHEET NO.19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Dodge Durango 4-Door SUV

NHTSA Test No.: MW0304 VIN: 1B4HS28Y0WF116904

Model Year: 1998 Build Date: 11/97 Test Date: February 10, 1998

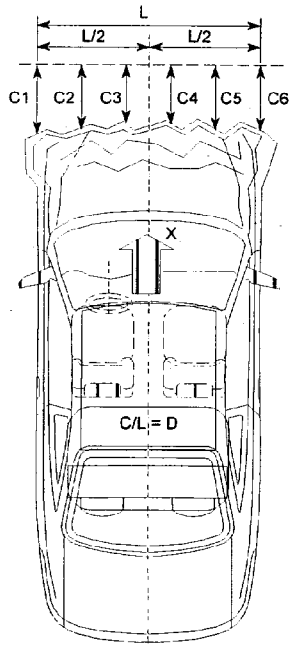
Vehicle Size Category: Mid-Size SUV Test Weight: 2408 kg

Vehicle Wheelbase: 2940 mm; Front Overhang: 1486 mm; Overall Width: 1816 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4720	4230	-490	mm
C2 =	4865	4290	-575	mm
C3 =	4895	4280	-615	mm
C4 =	4900	4275	-625	mm
C5 =	4875	4265	-610	mm
C6 =	4735	4200	-535	mm



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region:

L1 = 1730 mm

L2 = 865 mm

L3 = 346 mm

Appendix A

PHOTOGRAPHS

PHOTOGRAPHS

PHOTOGRAPHS (continued)

PHOTOGRAPH NOT AVAILABLE

Figure A-1 LOAD CELL LOCATIONS

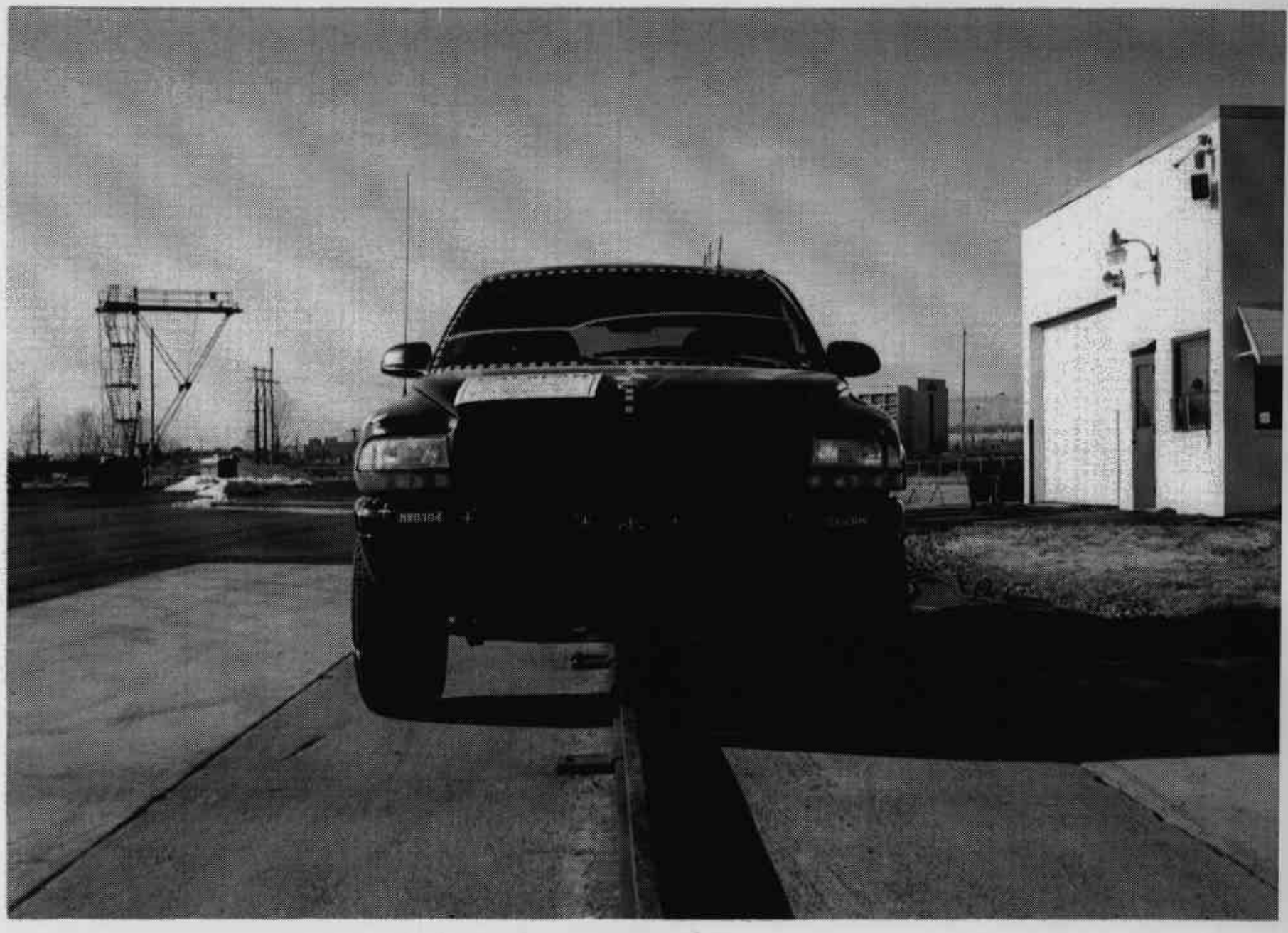


Figure A-2 PRE-TEST FRONT VIEW

Figure A-3 POST-TEST FRONT VIEW

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Figure A-4 PRE-TEST LEFT SIDE VIEW

Figure A-5 POST-TEST LEFT SIDE VIEW

Figure A-6 PRE-TEST RIGHT SIDE VIEW

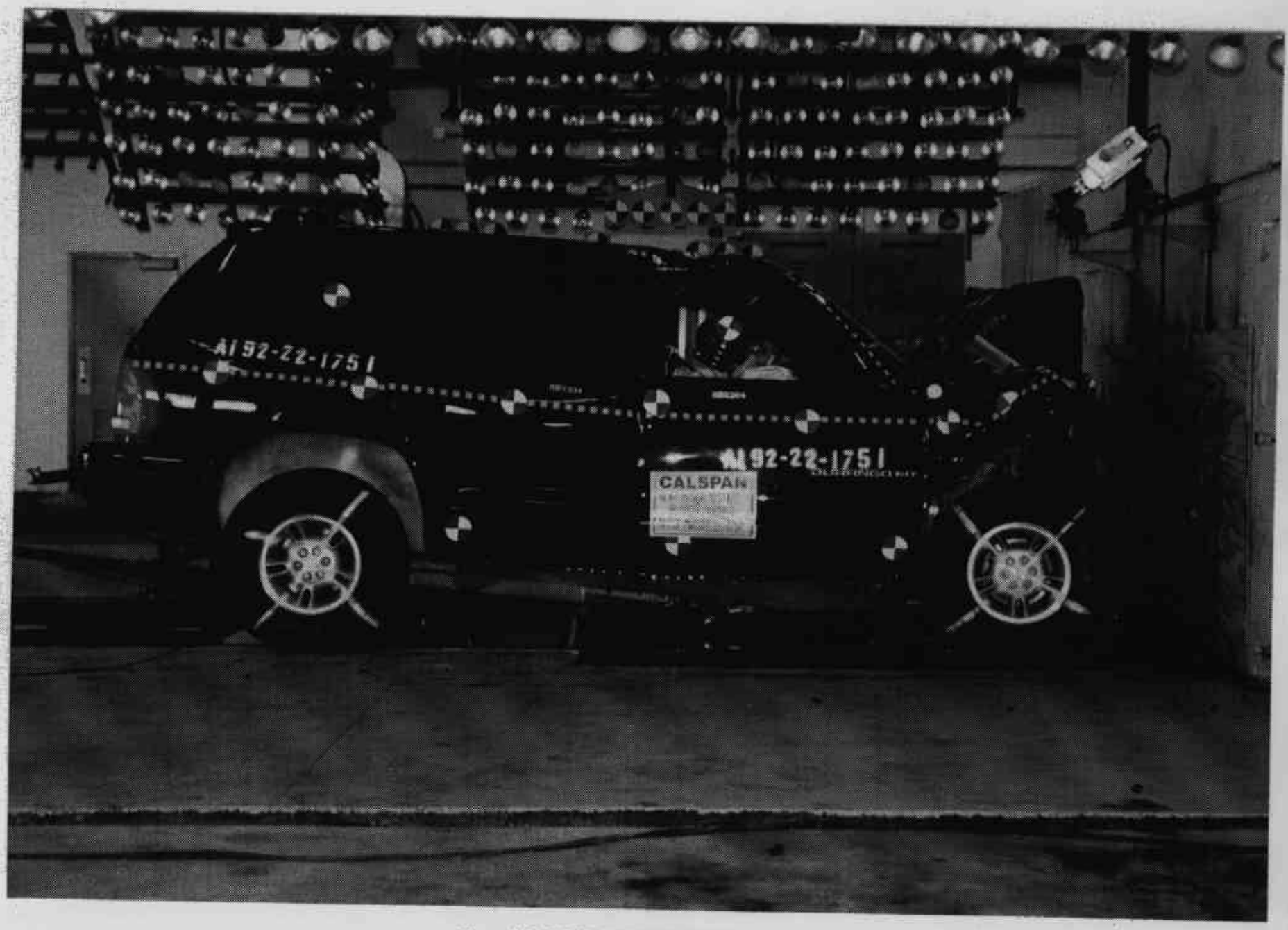

Figure A-7 POST-TEST RIGHT SIDE VIEW

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

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

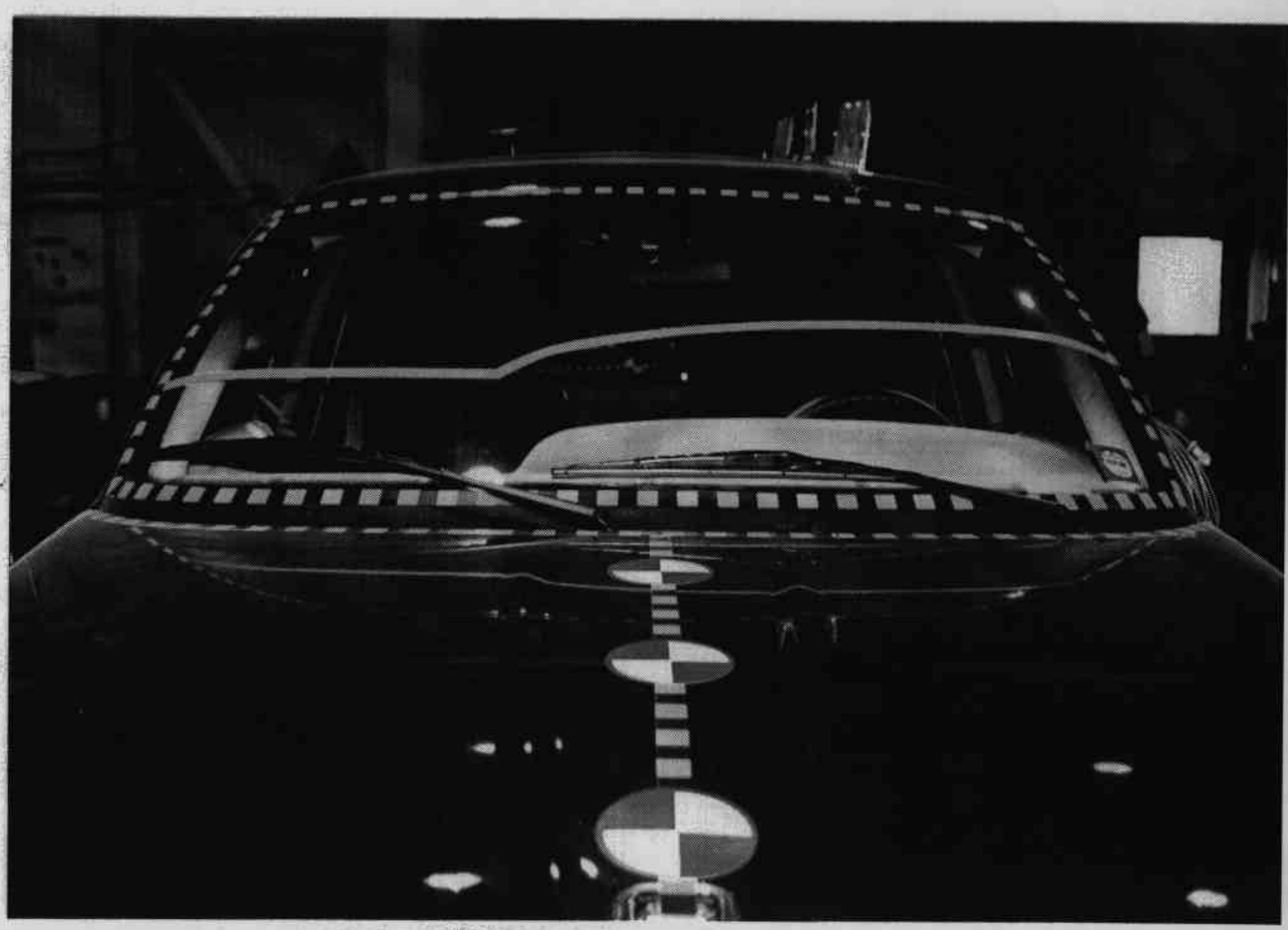

Figure A-12 PRE-TEST WINDSHIELD VIEW

Figure A-13 POST-TEST WINDSHIELD VIEW

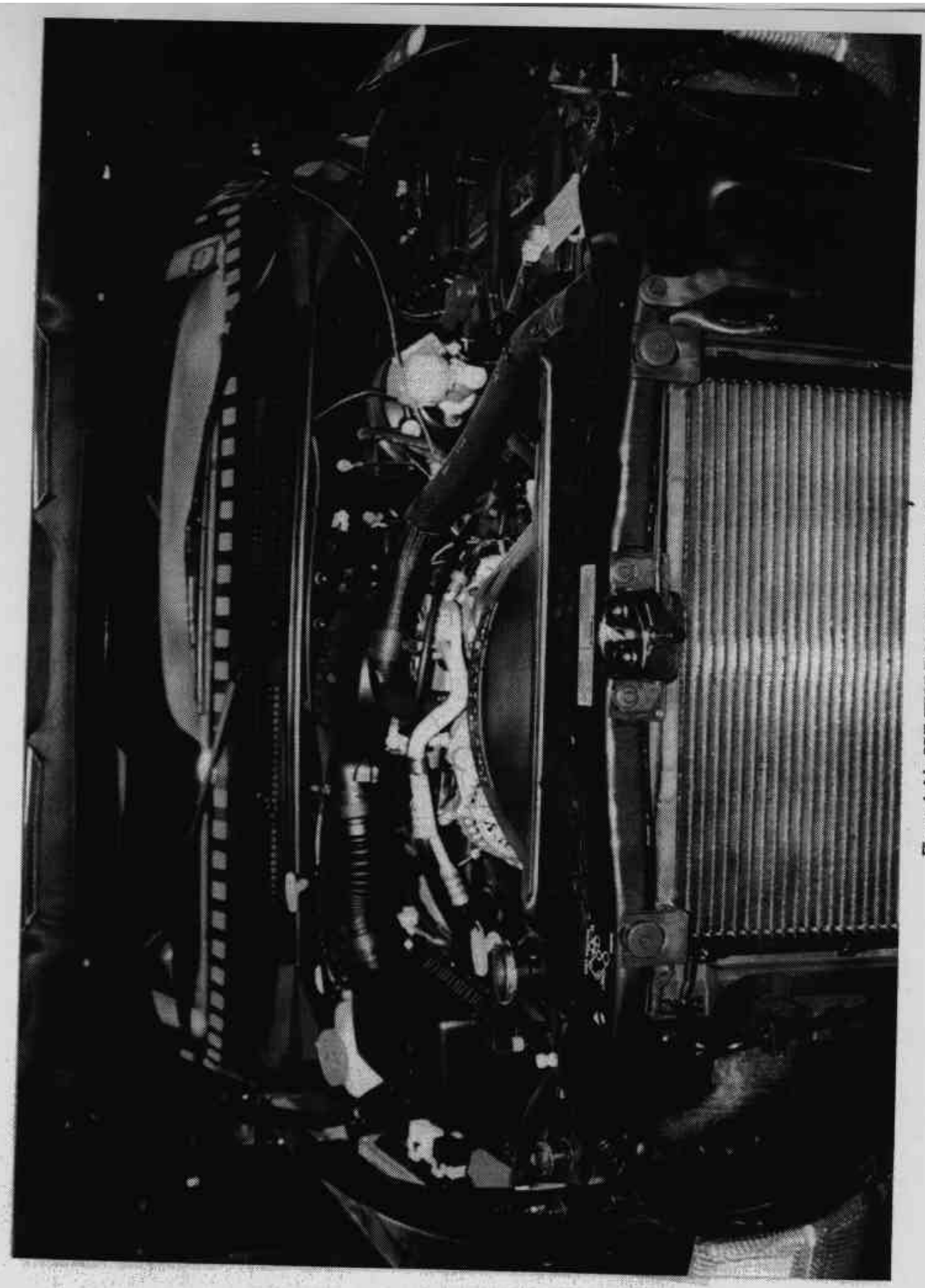

Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

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Figure A-15 FUEL CAP VIEW

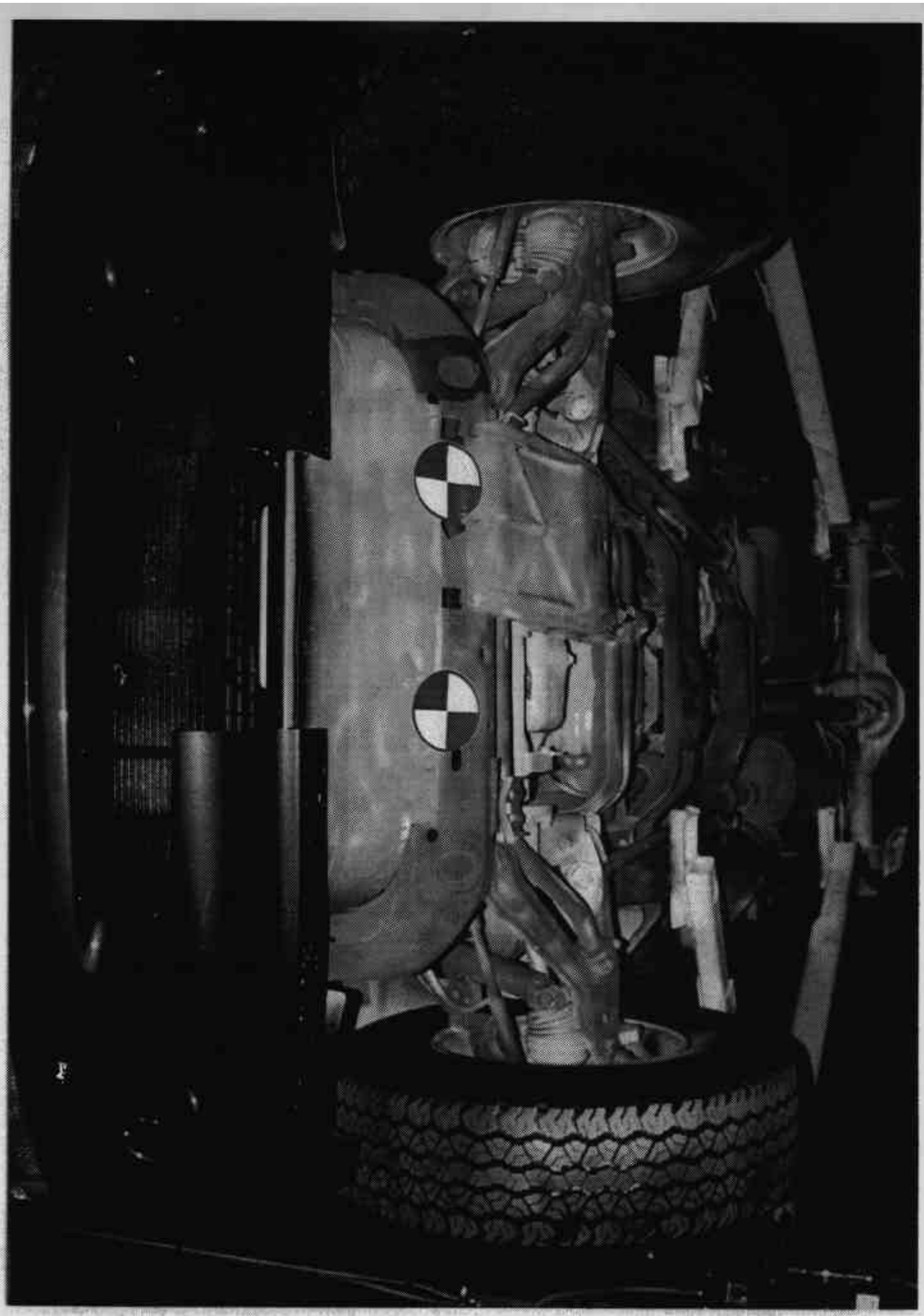

Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

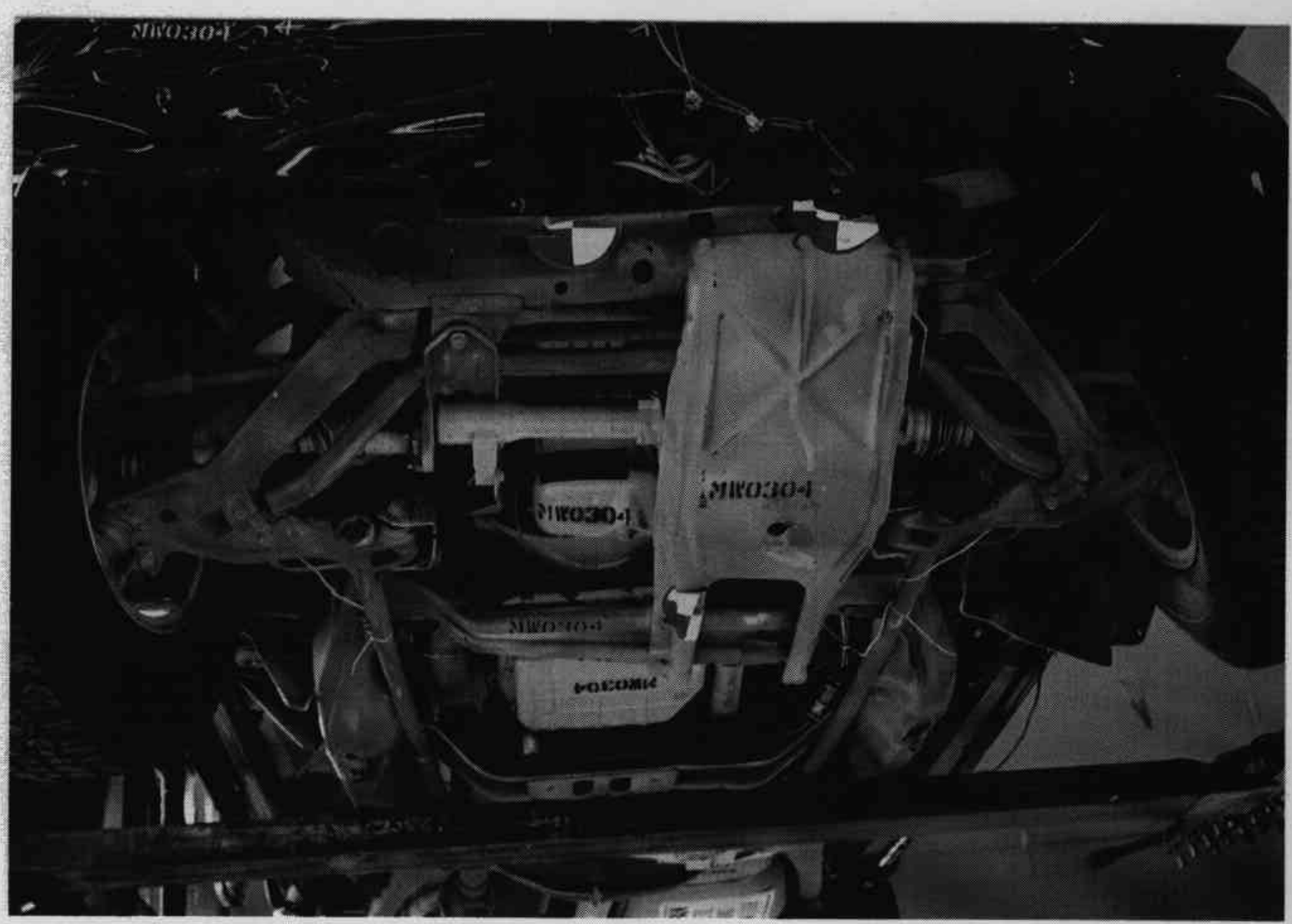

Figure A-17 POST-TEST FRONT UNDERBODY VIEW

Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

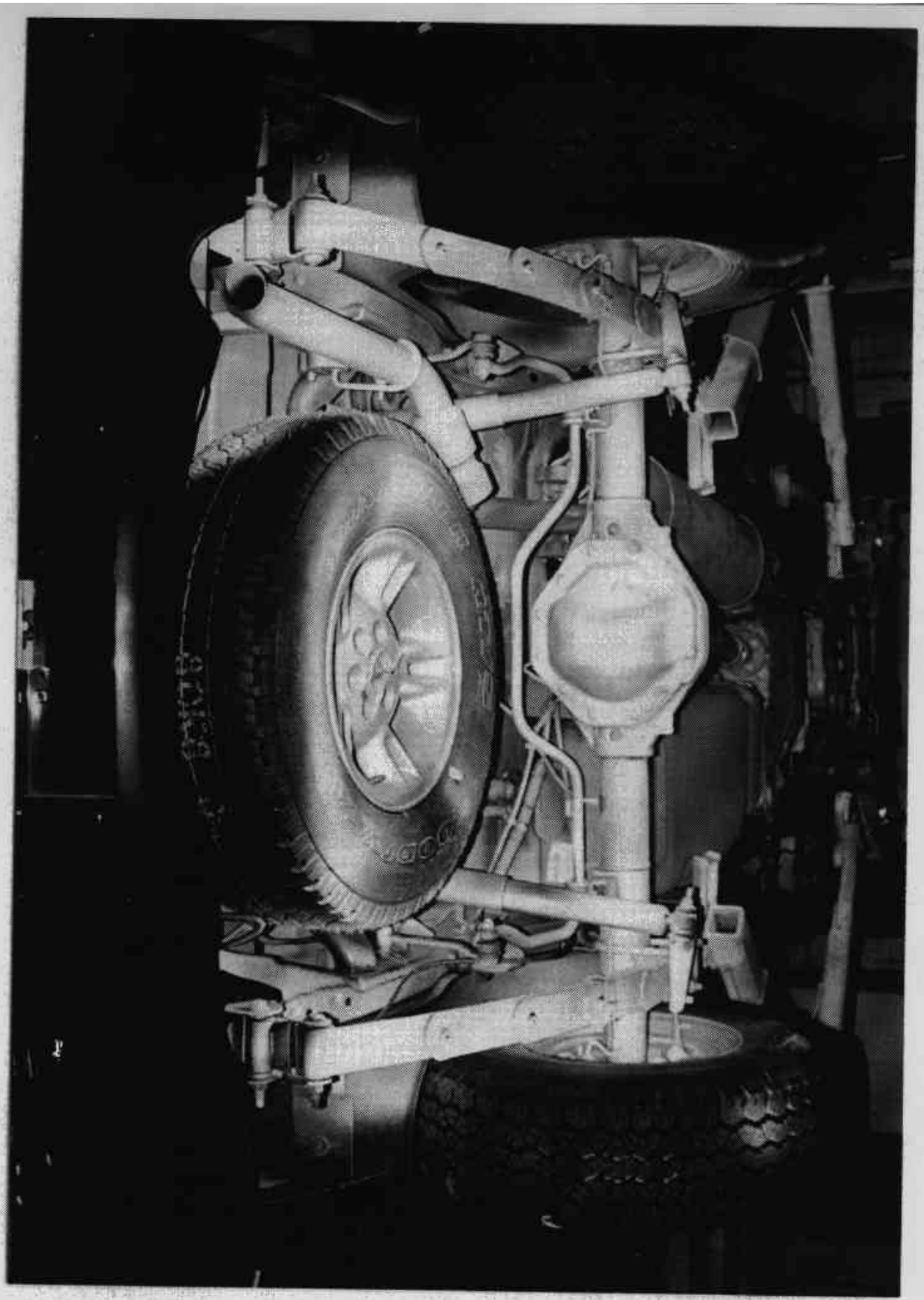

Figure A-20 PRE-TEST REAR UNDERBODY VIEW

Figure A-21 POST-TEST REAR UNDERBODY VIEW

Figure A-22 PRE-TEST DRIVER POSITION VIEW

Figure A-23 POST-TEST DRIVER POSITION VIEW

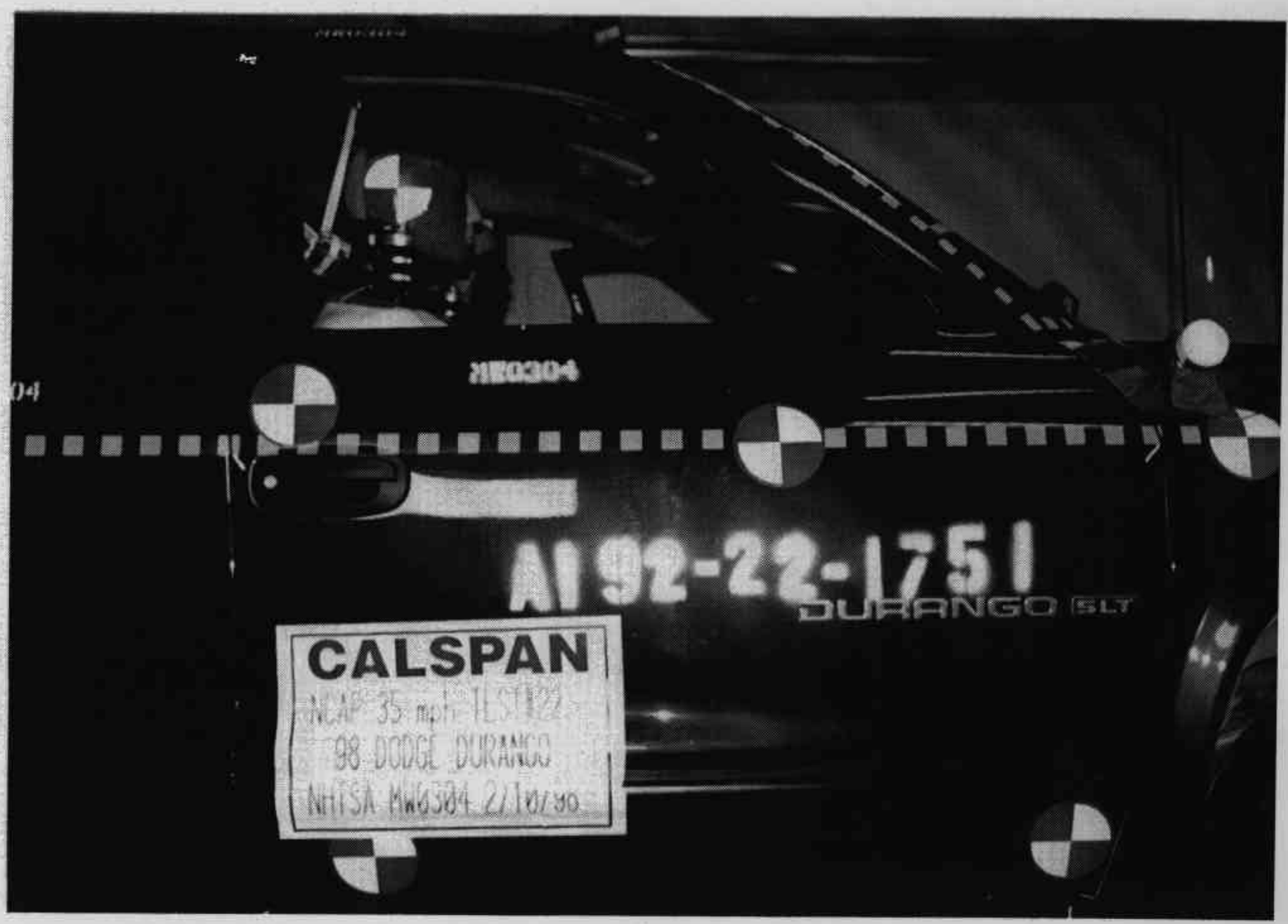

Figure A-24 PRE-TEST PASSENGER POSITION VIEW

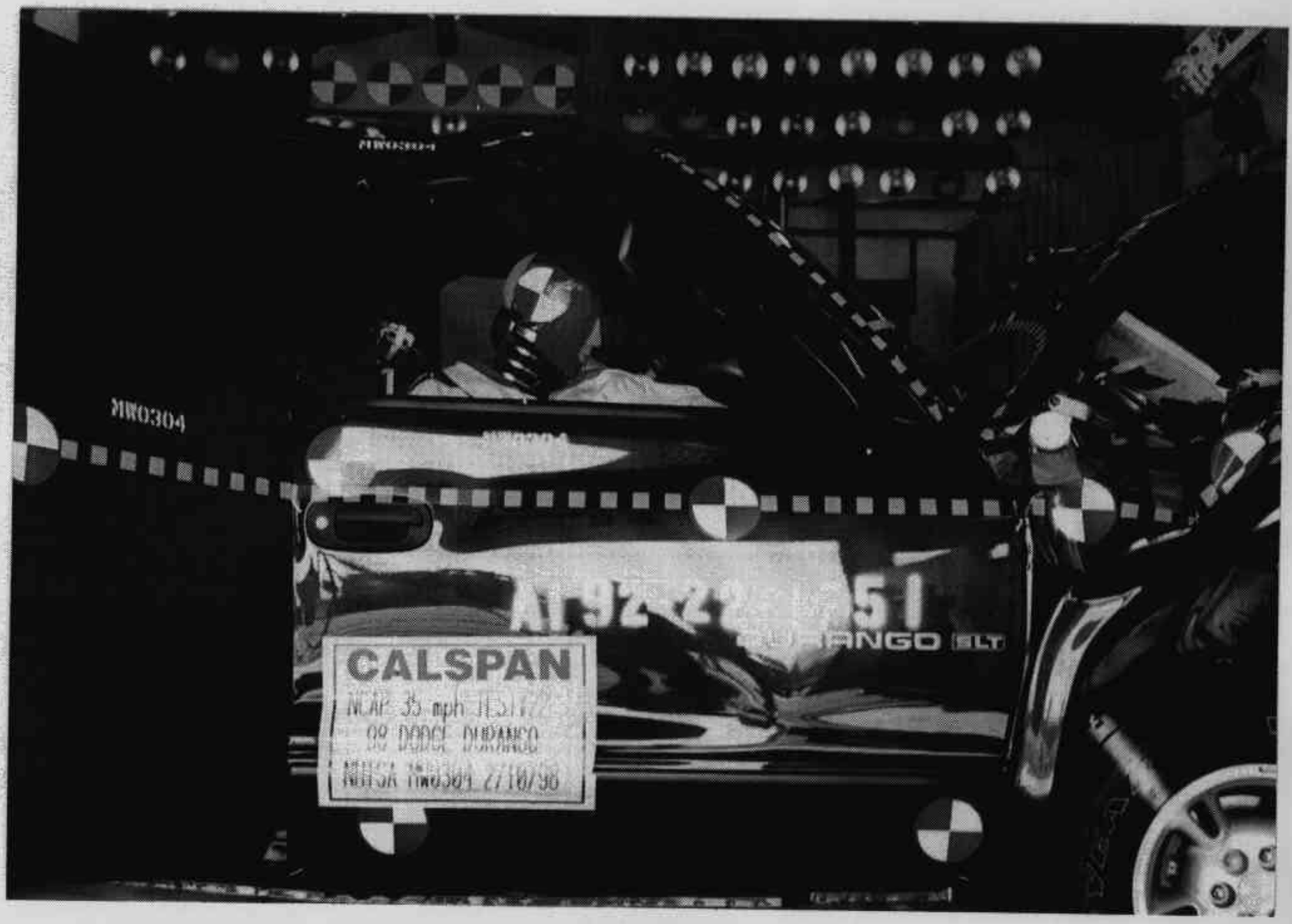

Figure A-25 POST-TEST PASSENGER POSITION VIEW

Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

PHOTOGRAPH NOT AVAILABLE

Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

PHOTOGRAPH NOT AVAILABLE

Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

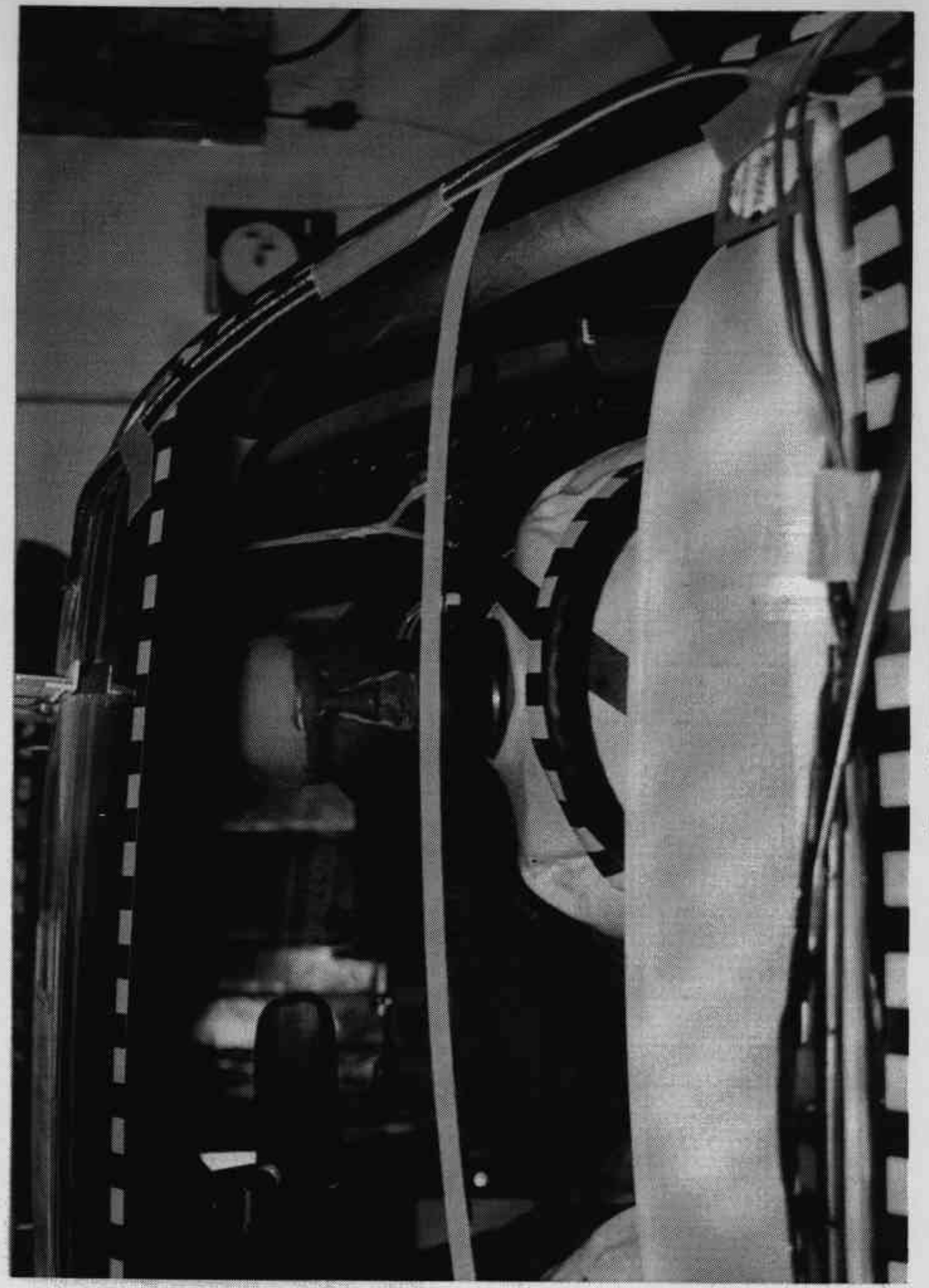

Figure A-30 PRE-TEST DRIVER HEAD LOCATION

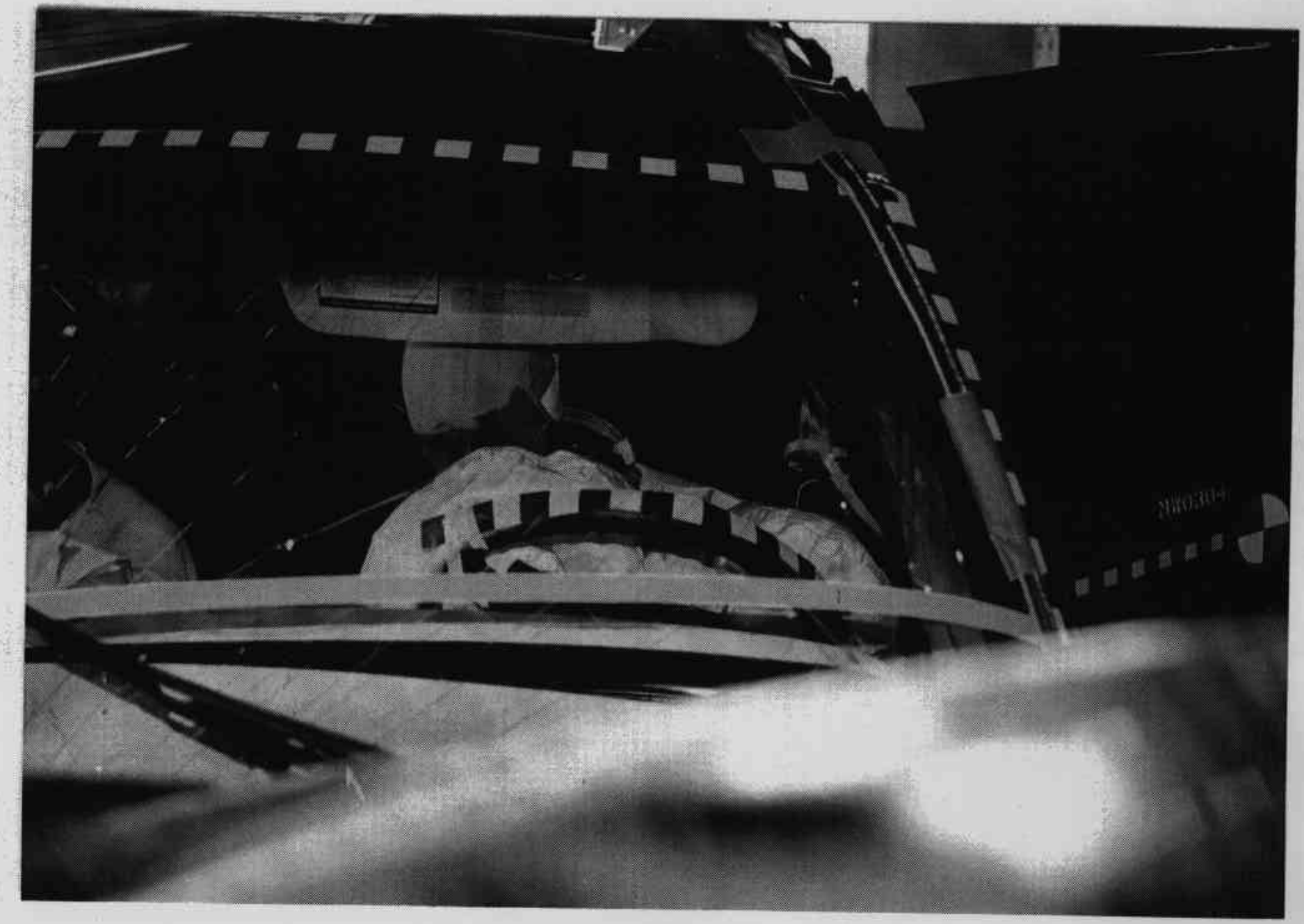

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Figure A-31 POST-TEST DRIVER HEAD LOCATION

Figure A-32 PRE-TEST PASSENGER HEAD LOCATION

Figure A-33 POST-TEST PASSENGER HEAD LOCATION

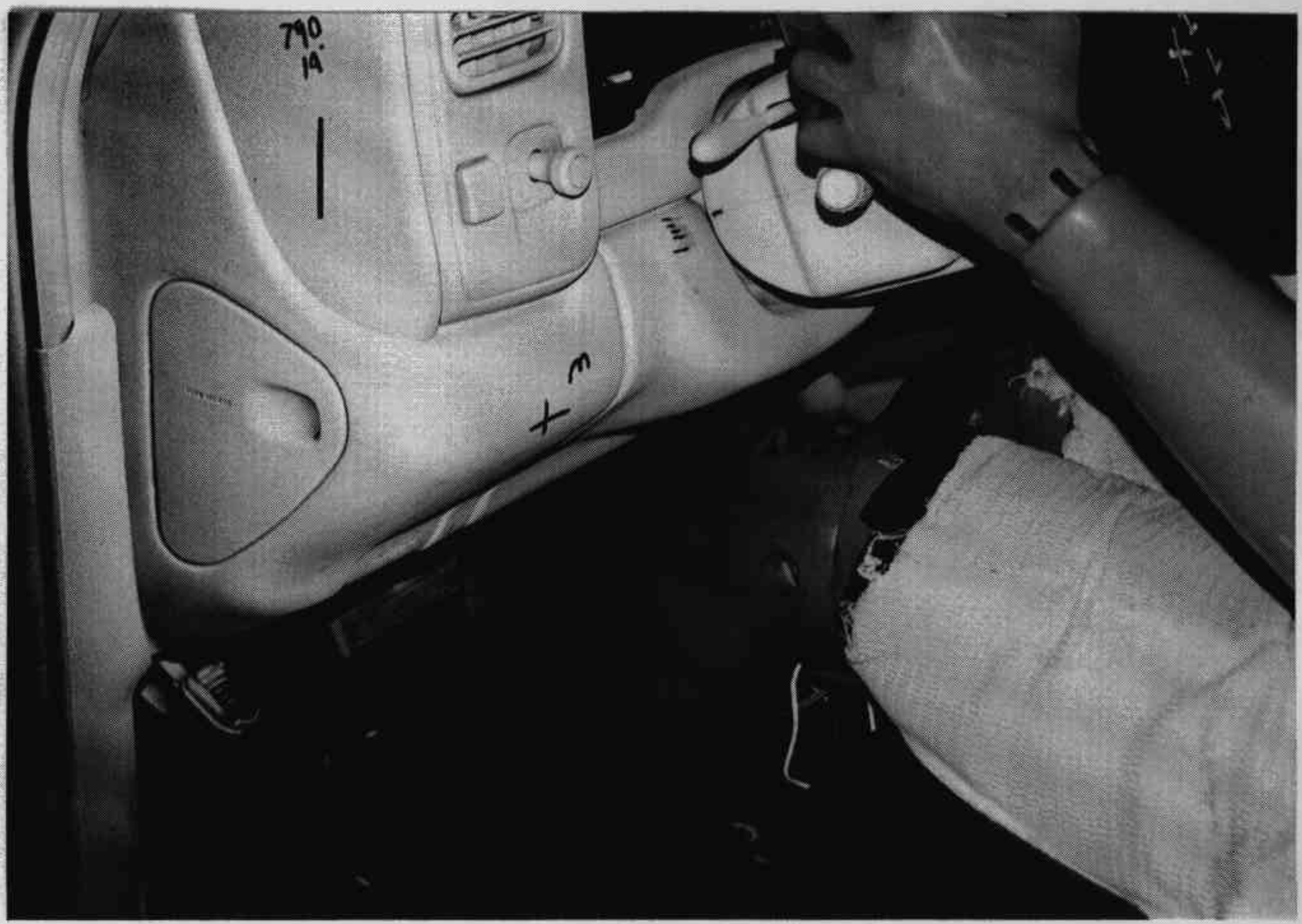


Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW

8413-22

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

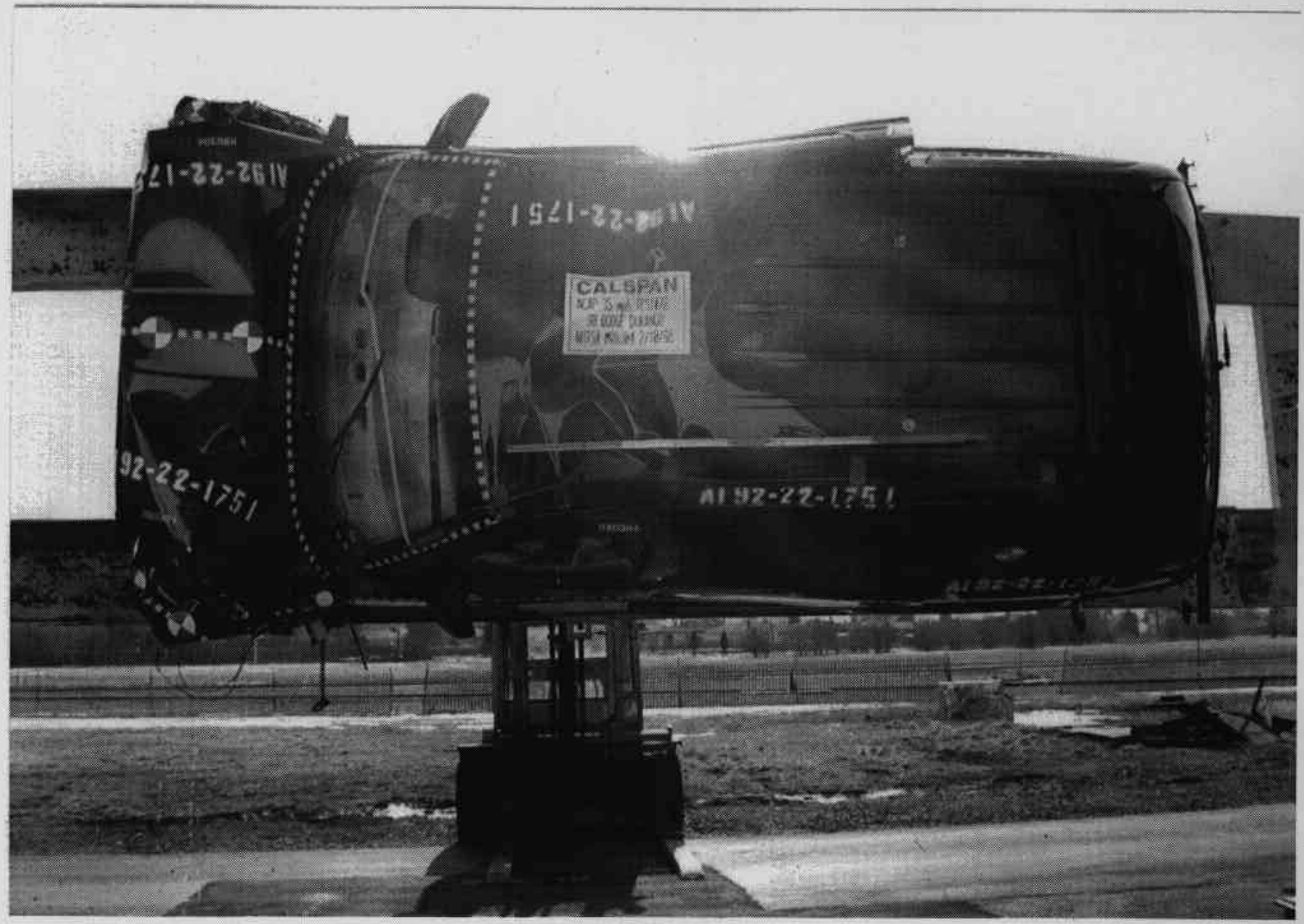


Figure A-38 ROLLOVER VIEW

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. MW0304

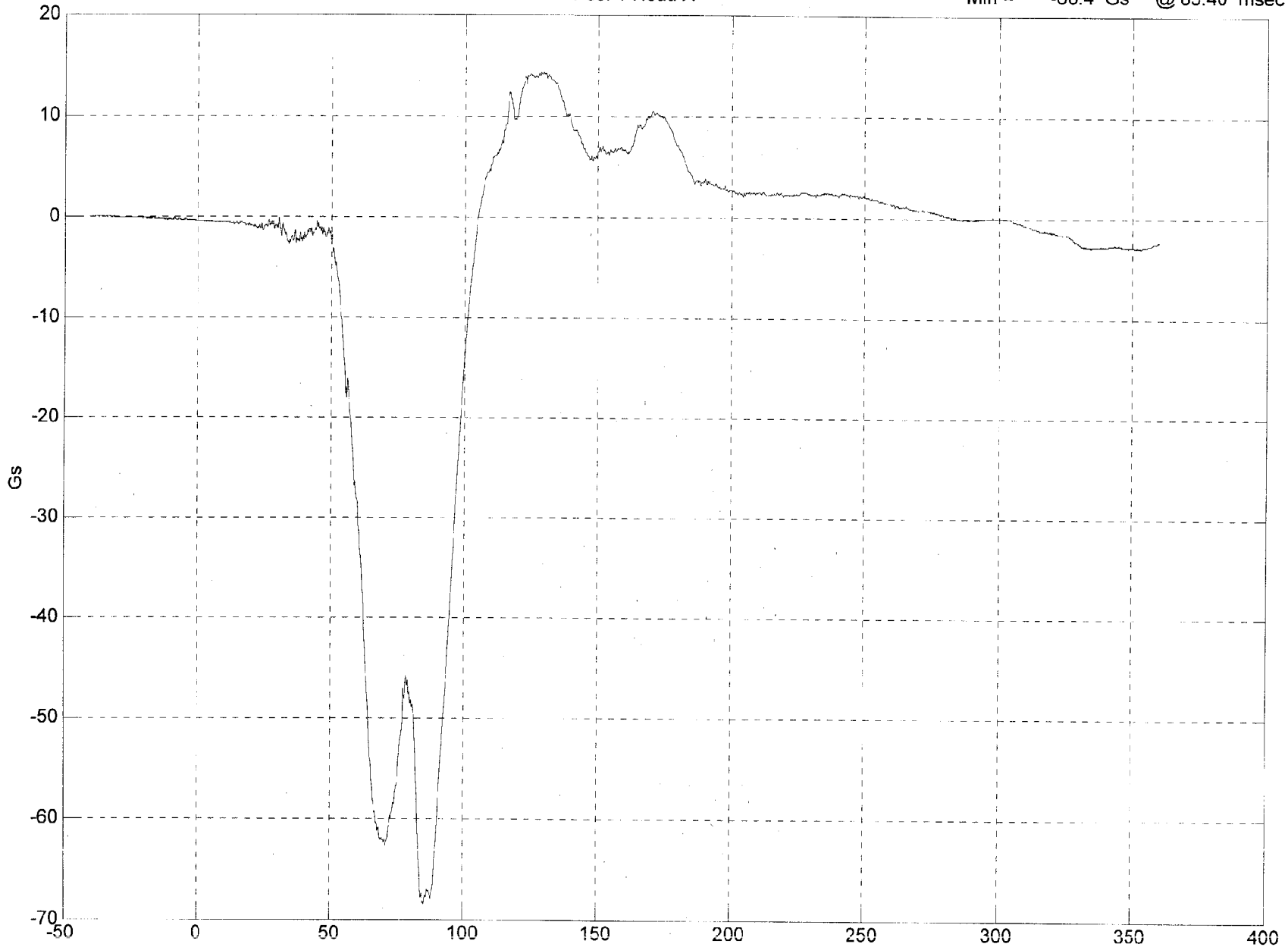
DUMMY DATA

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 #22 - 1998 DODGE DURANGO

Pos. 1 Head X

Max = 14.4 Gs @ 128.40 msec
Min = -68.4 Gs @ 85.40 msec



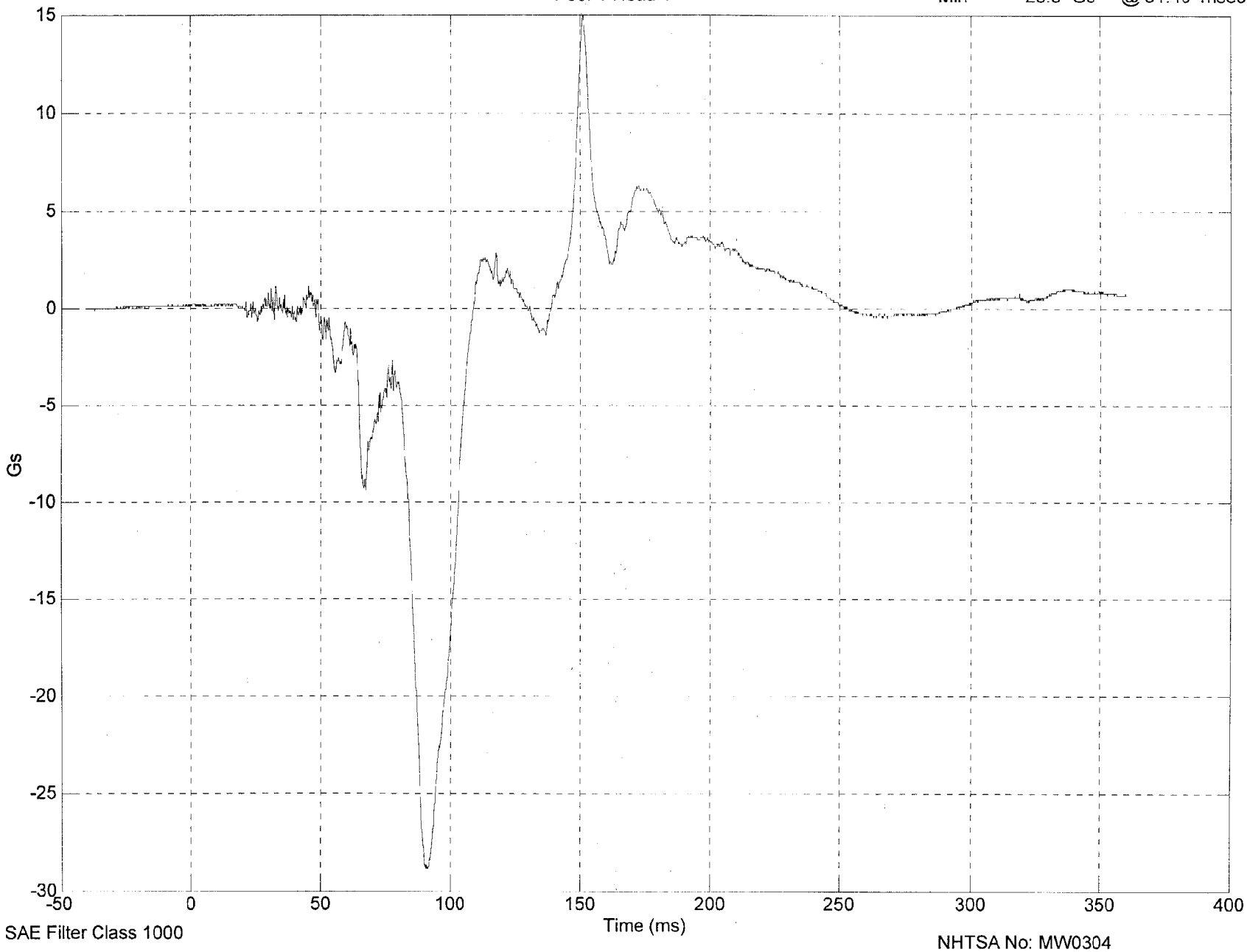
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 15 Gs @ 150.80 msec
Min = -28.9 Gs @ 91.40 msec



SAE Filter Class 1000

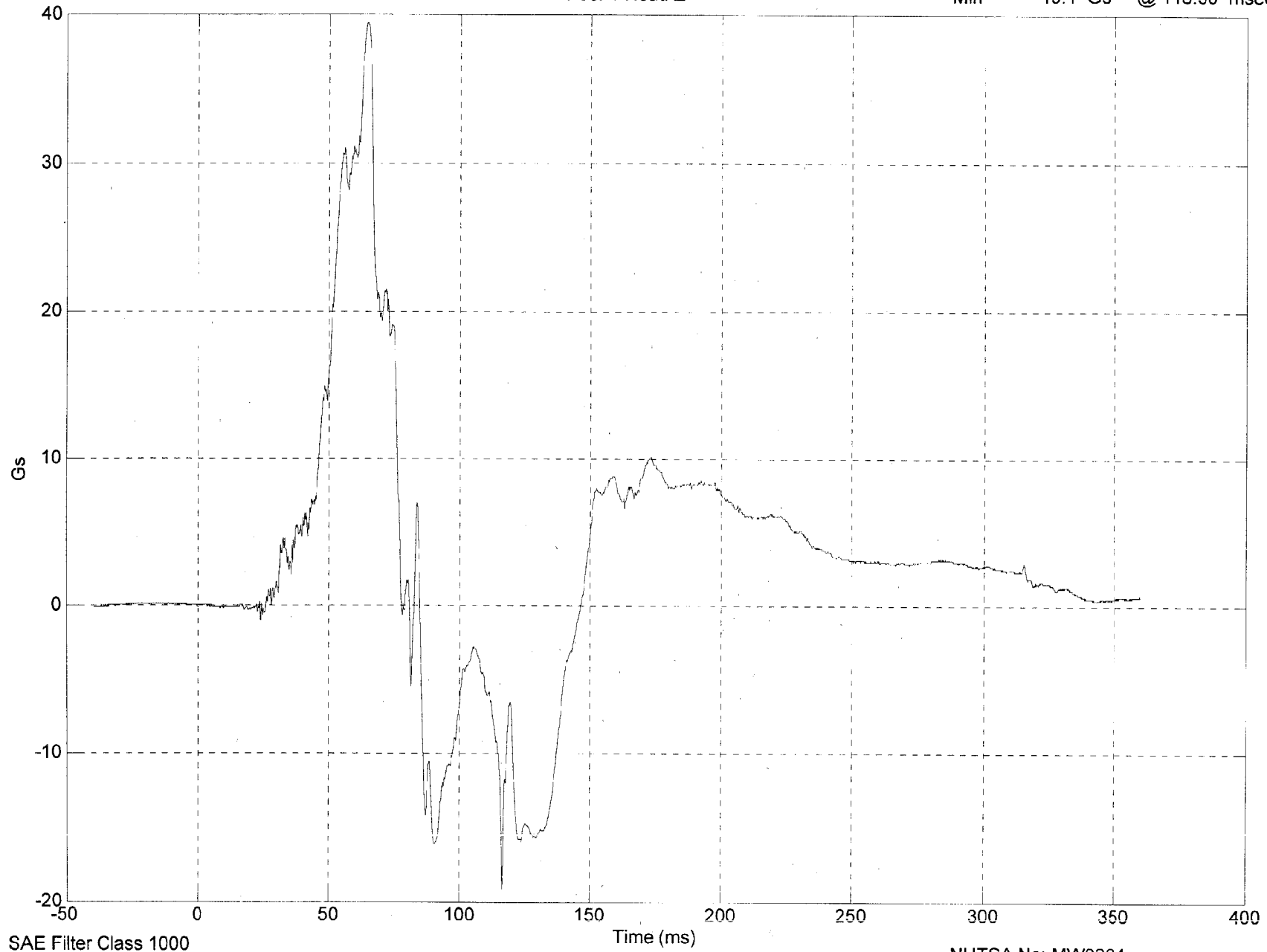
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Head Z

Max = 39.5 Gs @ 64.50 msec
Min = -19.1 Gs @ 116.50 msec



SAE Filter Class 1000

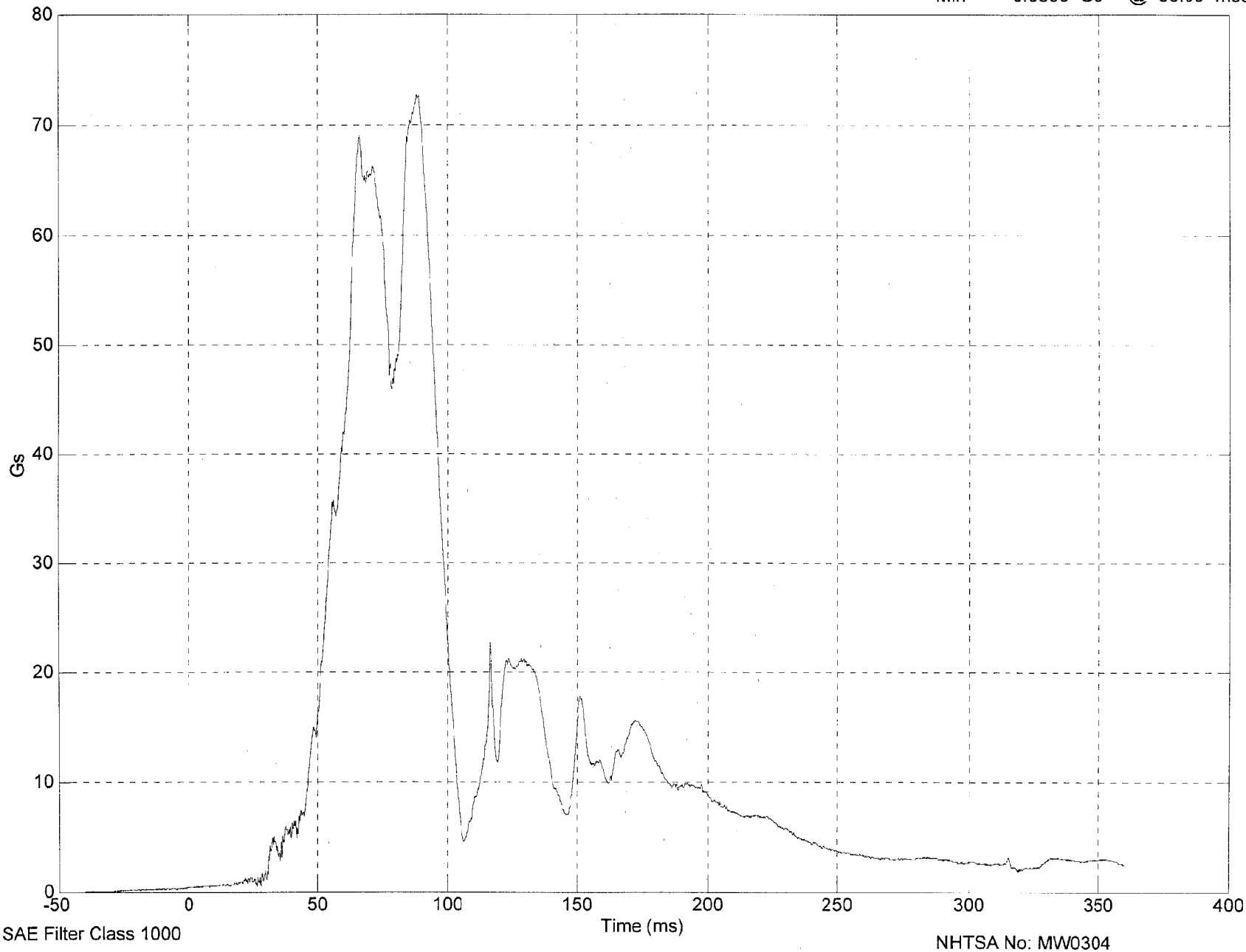
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Head Resultant

Max = 72.8 Gs @ 88.10 msec
Min = 0.0635 Gs @ -36.90 msec



SAE Filter Class 1000

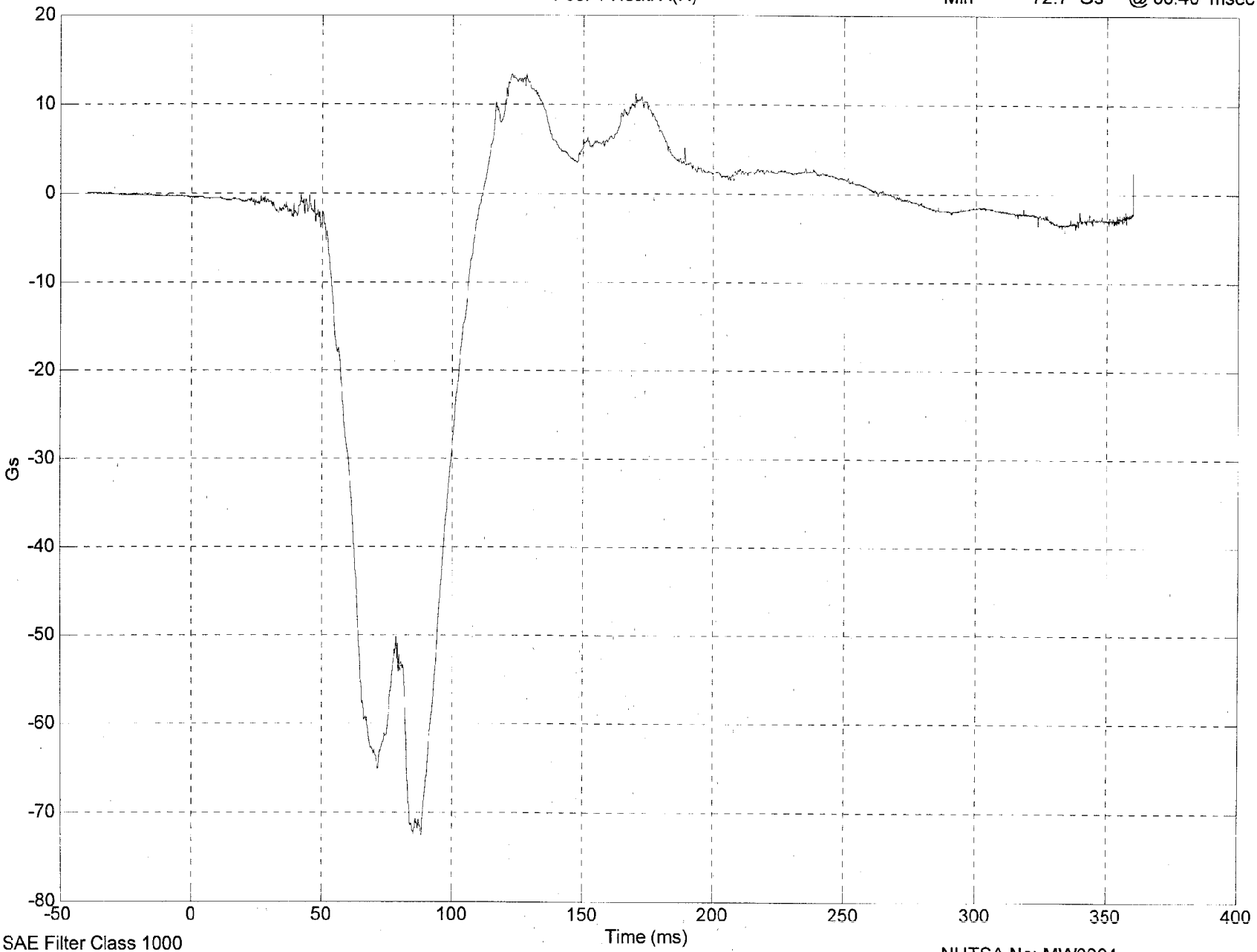
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Head X(R)

Max = 13.4 Gs @ 122.40 msec
Min = -72.7 Gs @ 88.40 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

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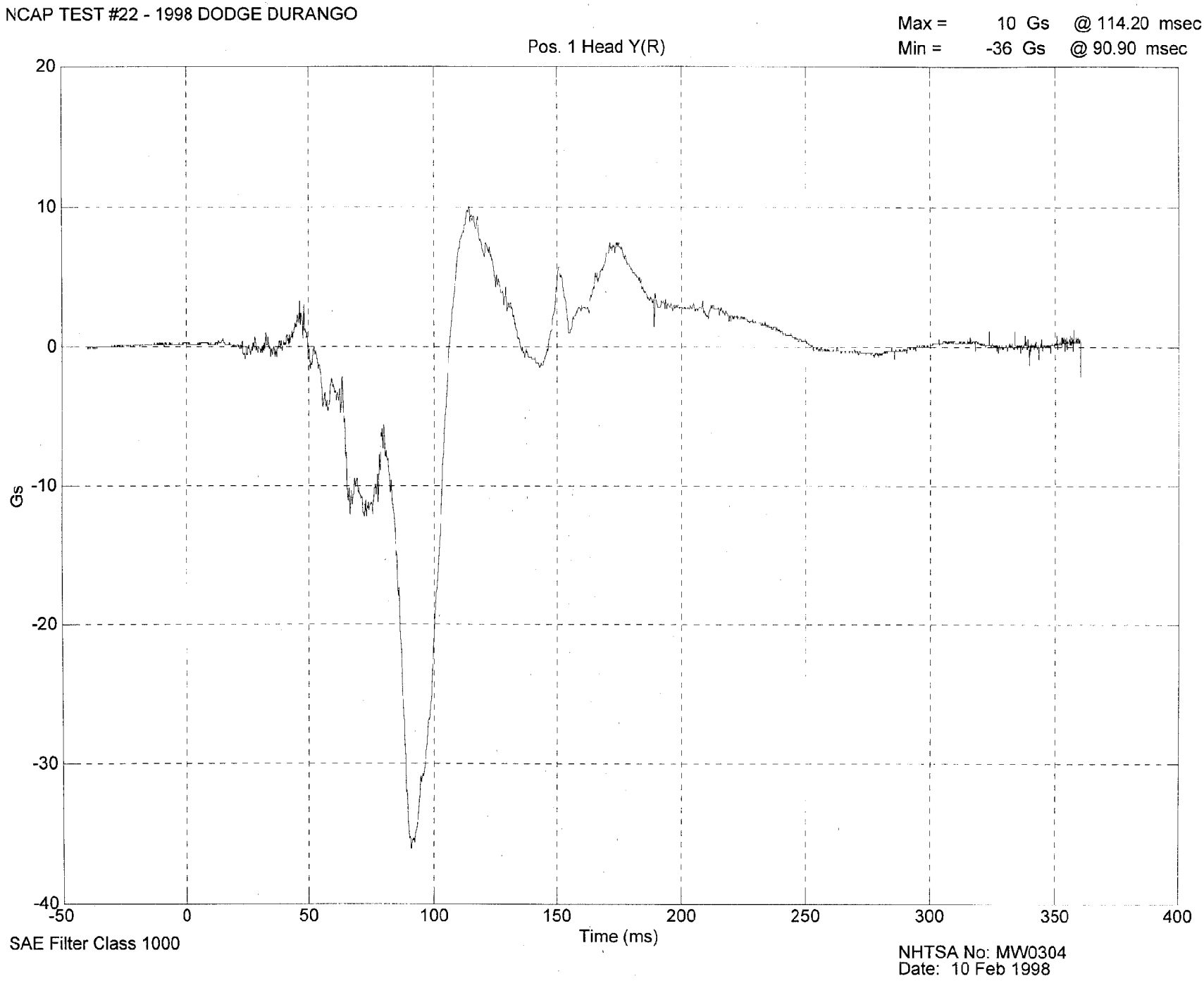
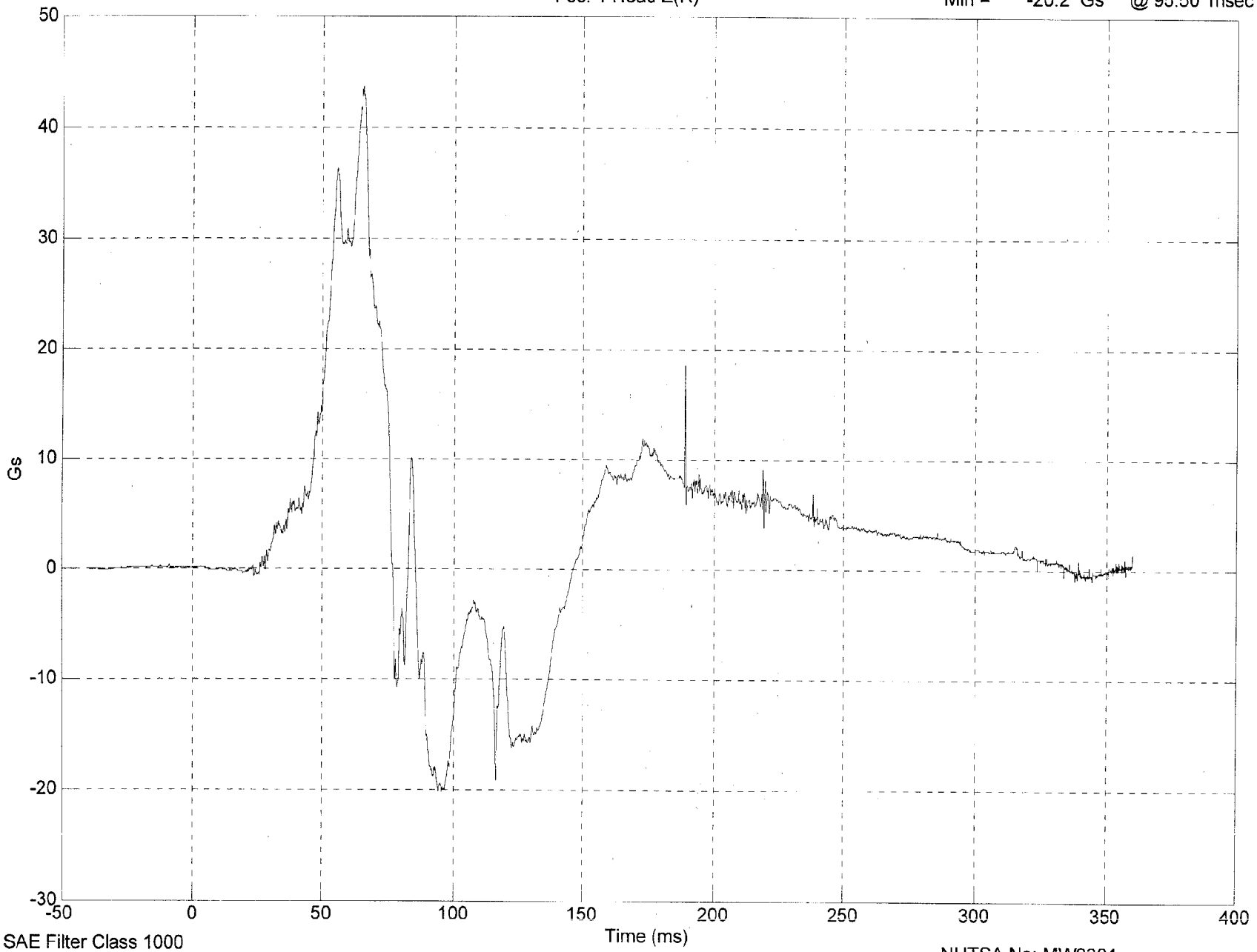

NCAP TEST #22 - 1998 DODGE DURANGO
Pos. 1 Head Y(R)
Max = 10 Gs @ 114.20 msec
Min = -36 Gs @ 90.90 msec
20
10
0
-10
-20
-30
-40
Gs
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 1000
NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Head Z(R)

Max = 43.7 Gs @ 65.20 msec
Min = -20.2 Gs @ 95.50 msec



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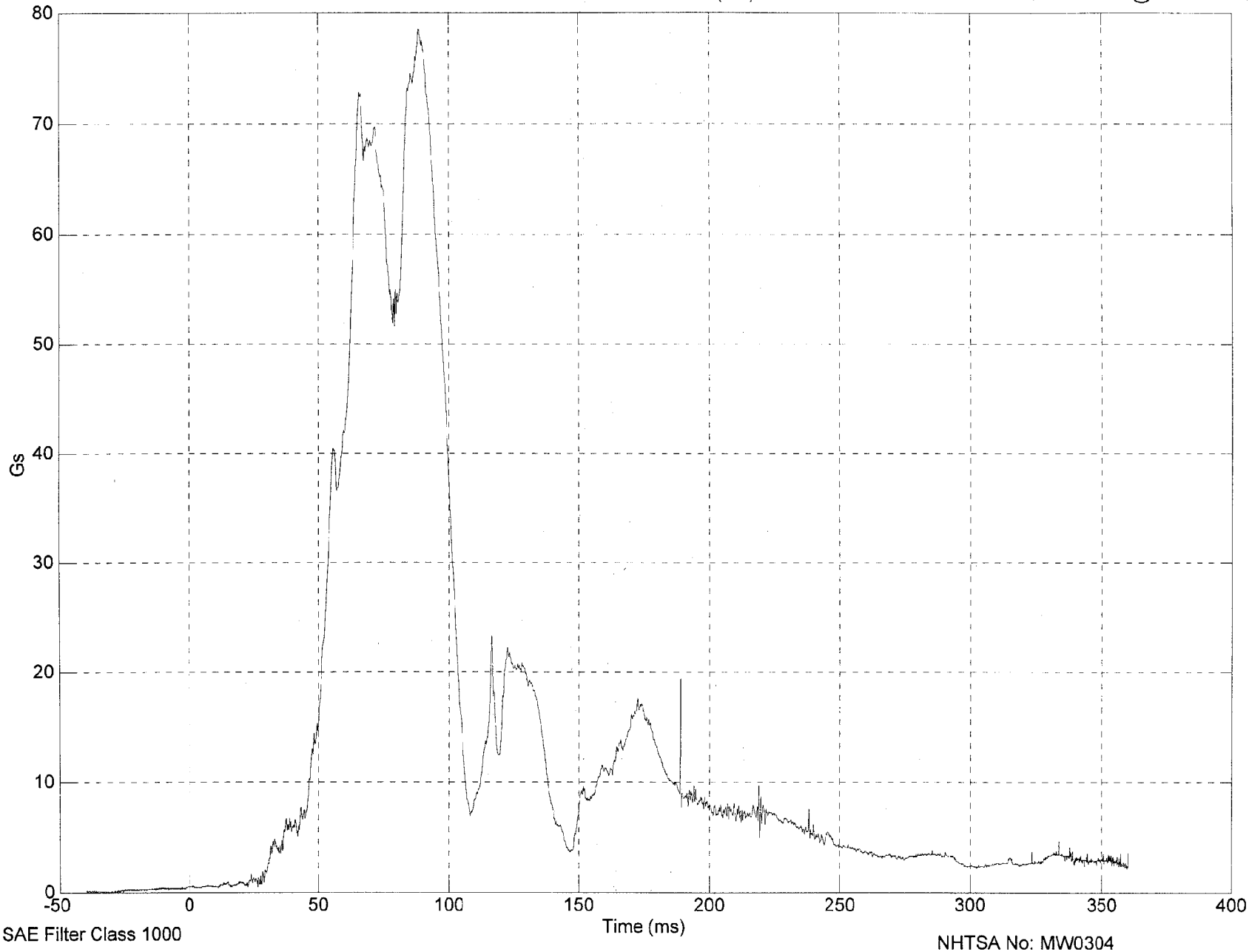
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 78.5 Gs @ 88.40 msec
Min = 0.0695 Gs @ -33.80 msec



SAE Filter Class 1000

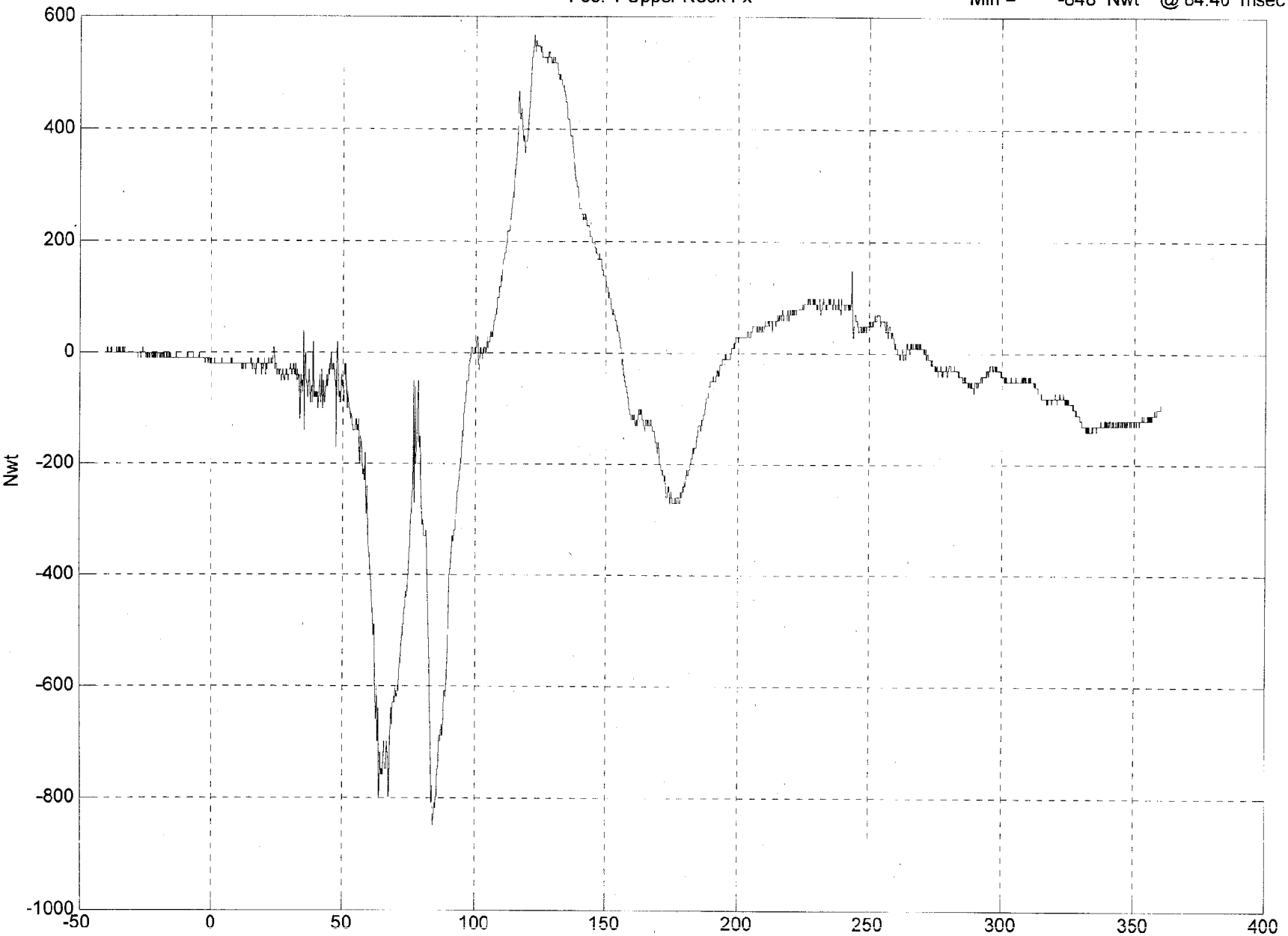
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Upper Neck Fx

Max = 567 Nwt @ 122.20 msec
Min = -848 Nwt @ 84.40 msec



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8413-22

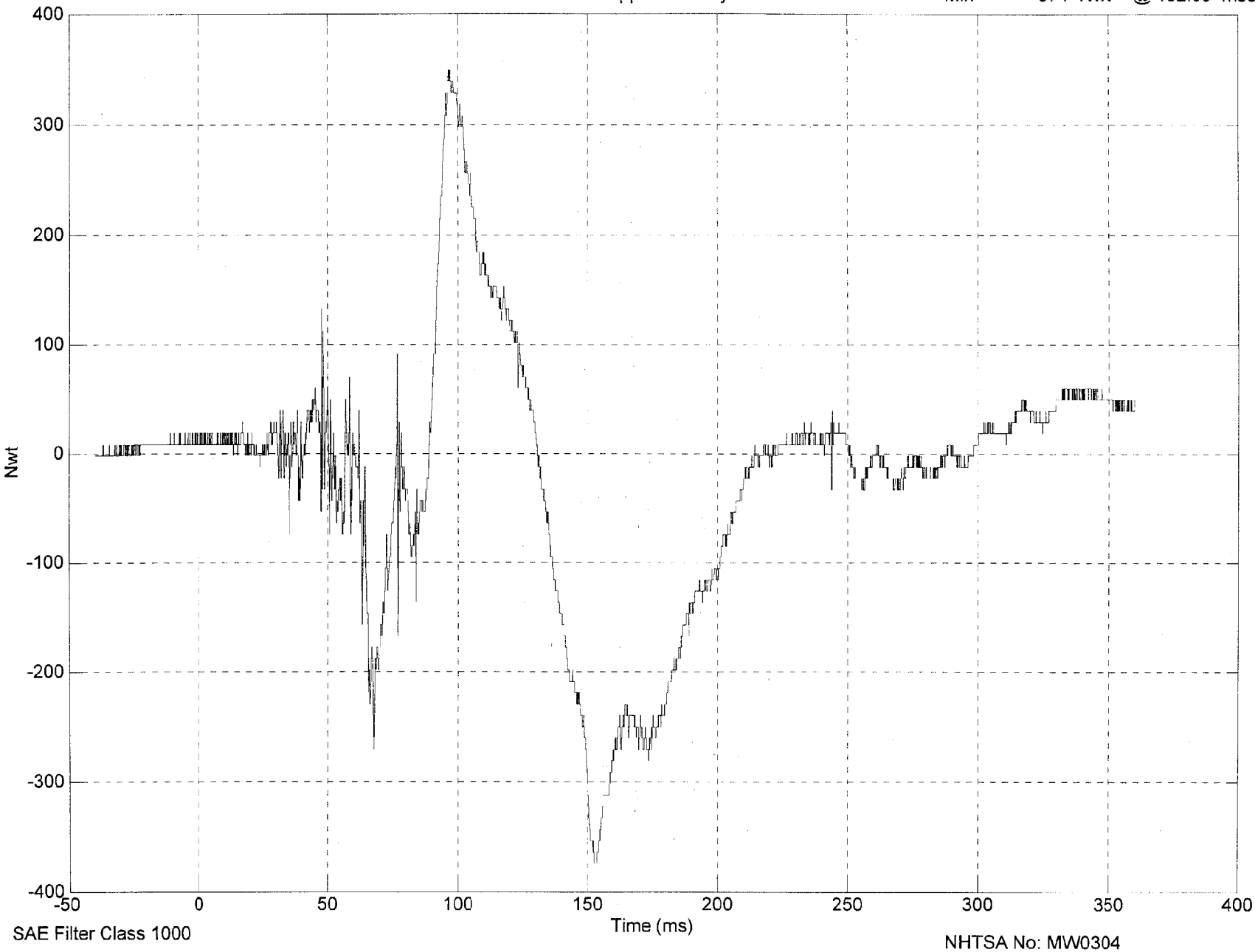
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Upper Neck Fy

Max = 349 Nwt @ 96.40 msec
Min = -374 Nwt @ 152.50 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

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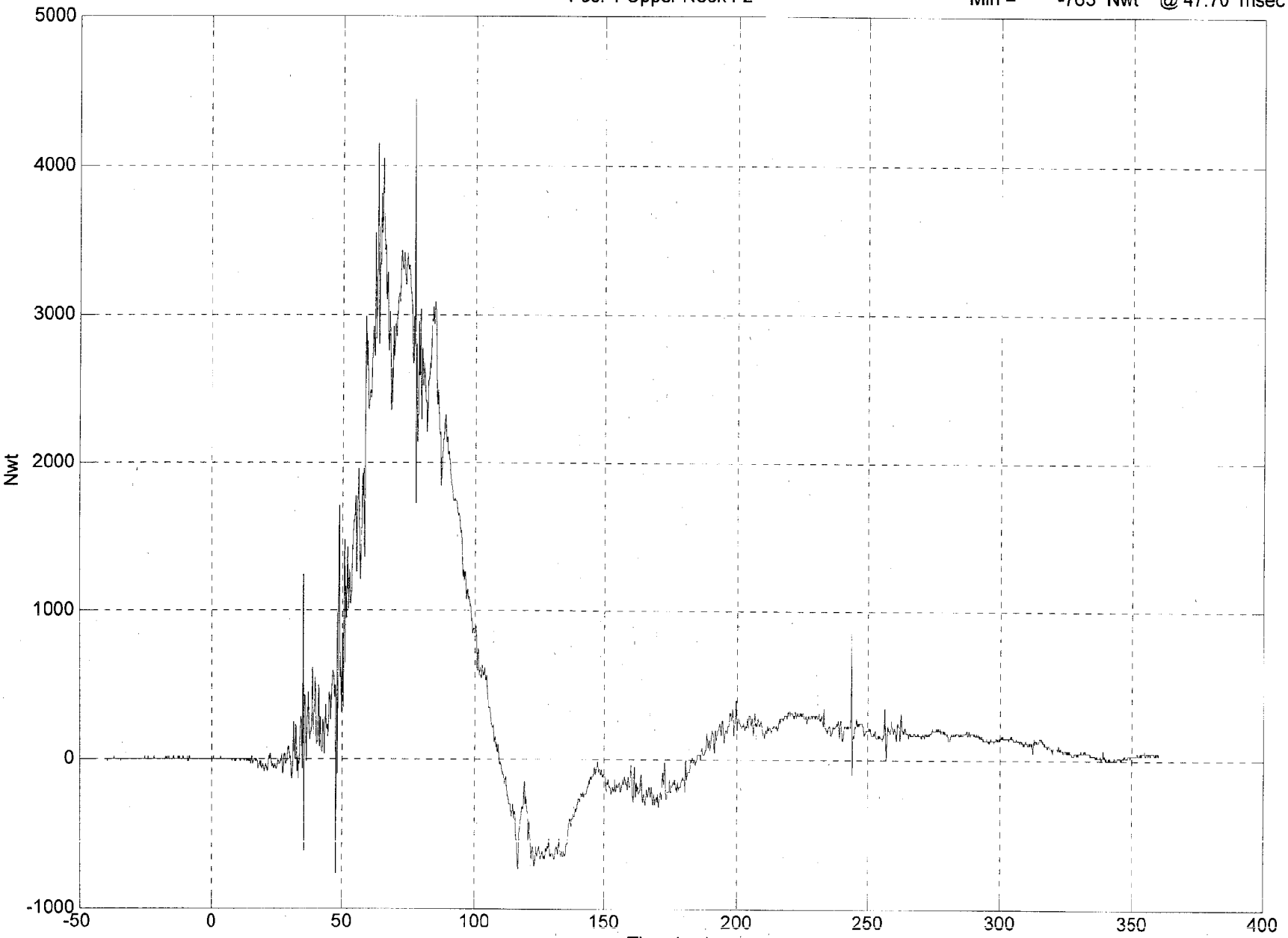
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Upper Neck Fz

Max = 4.45e+003 Nwt @ 77.20 msec
Min = -763 Nwt @ 47.70 msec



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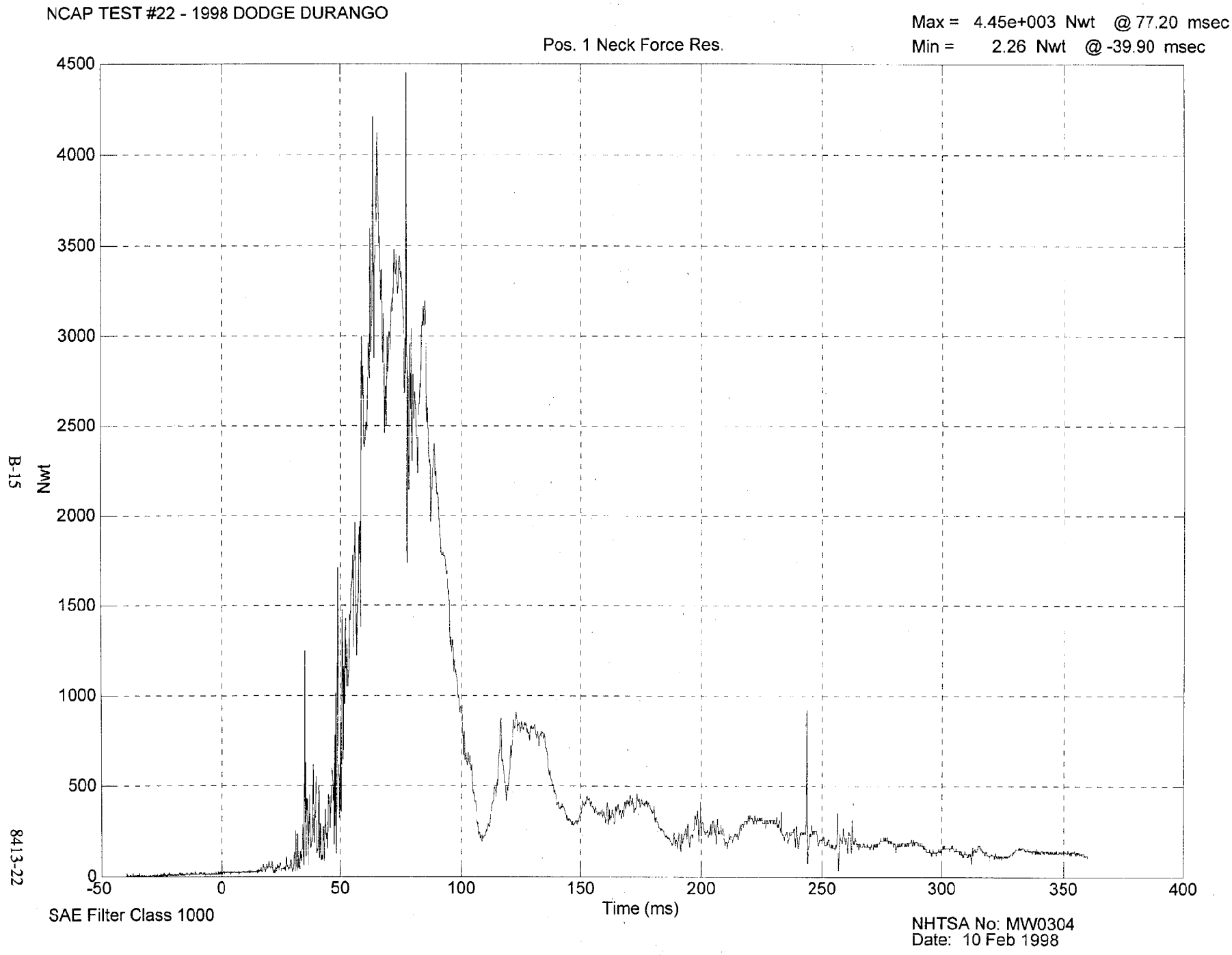
8413-22

SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998


NCAP TEST #22 - 1998 DODGE DURANGO
Max = 4.45e+003 Nwt @ 77.20 msec
Min = 2.26 Nwt @ -39.90 msec
Pos. 1 Neck Force Res.
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 1000
NHTSA No: MW0304
Date: 10 Feb 1998

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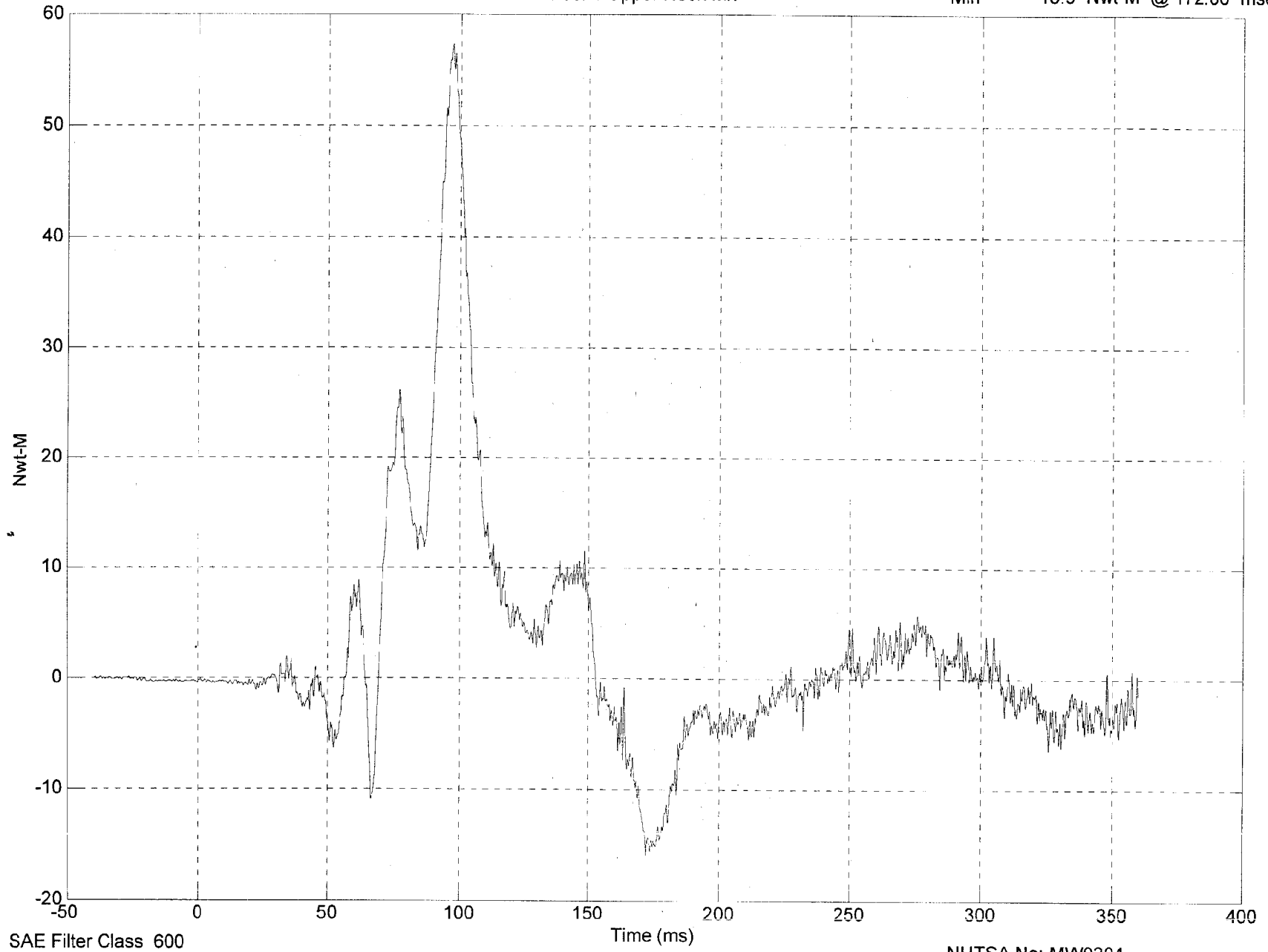
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Upper Neck Mx

Max = 57.4 Nwt-M @ 97.10 msec
Min = -15.9 Nwt-M @ 172.00 msec



SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

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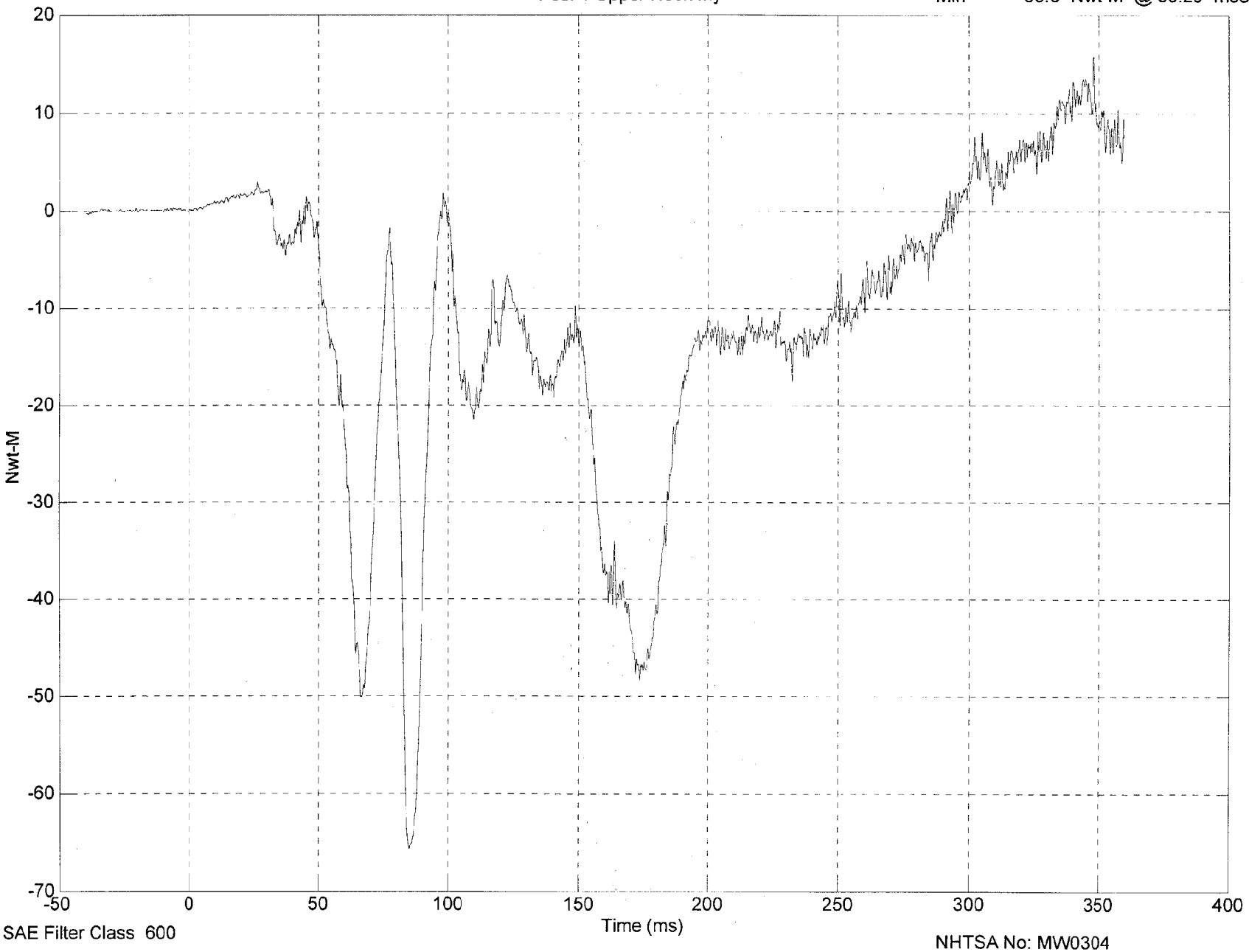
NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Upper Neck My

Max = 15.8 Nwt-M @ 347.70 msec

Min = -65.6 Nwt-M @ 85.20 msec



SAE Filter Class 600

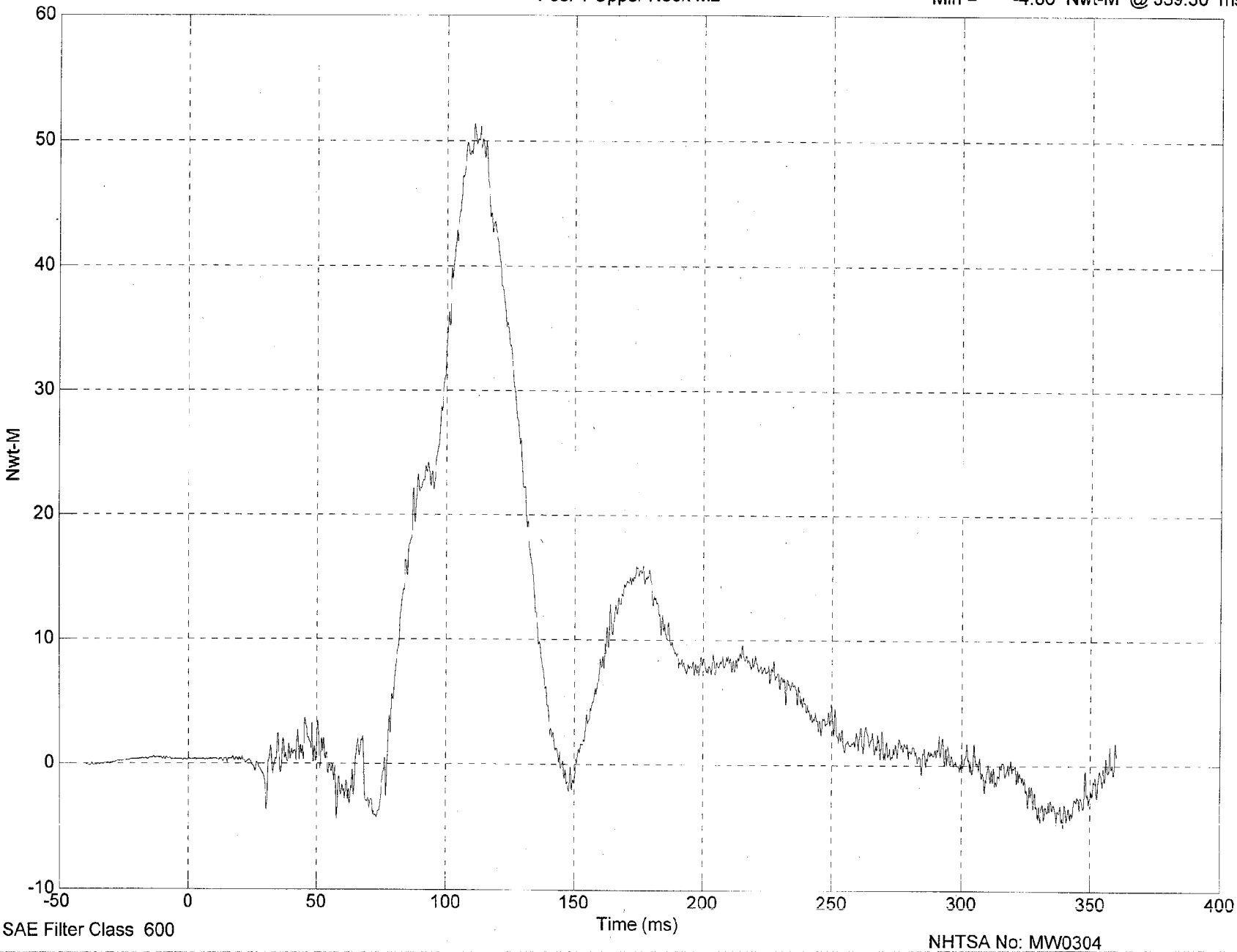
NHTSA No: MW0304

Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Upper Neck Mz

Max = 51.4 Nwt-M @ 110.80 msec
Min = -4.86 Nwt-M @ 339.30 msec



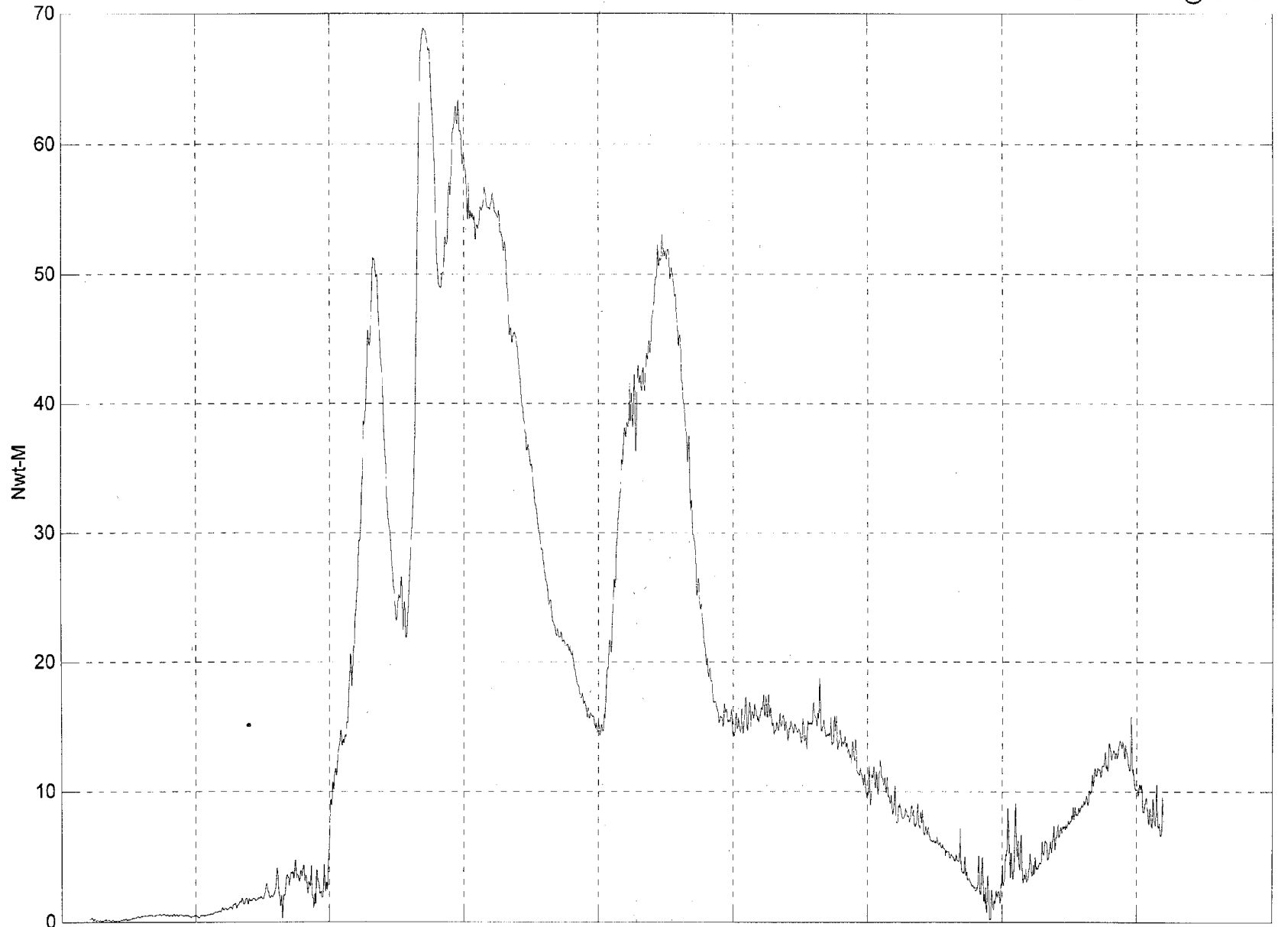
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 68.9 Nwt-M @ 85.30 msec
Min = 0.0288 Nwt-M @ -35.30 msec



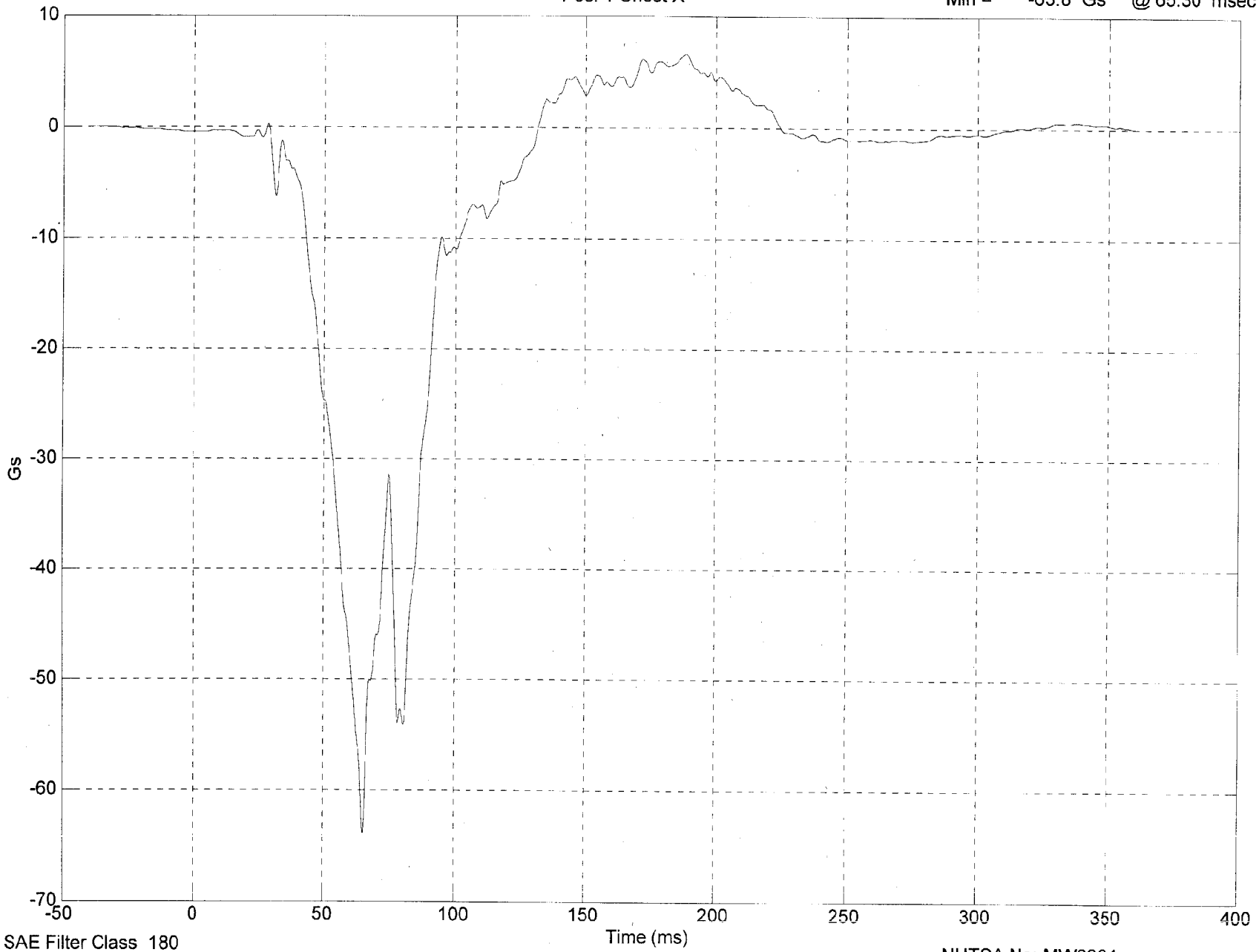
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Chest X

Max = 6.65 Gs @ 188.50 msec
Min = -63.8 Gs @ 65.30 msec



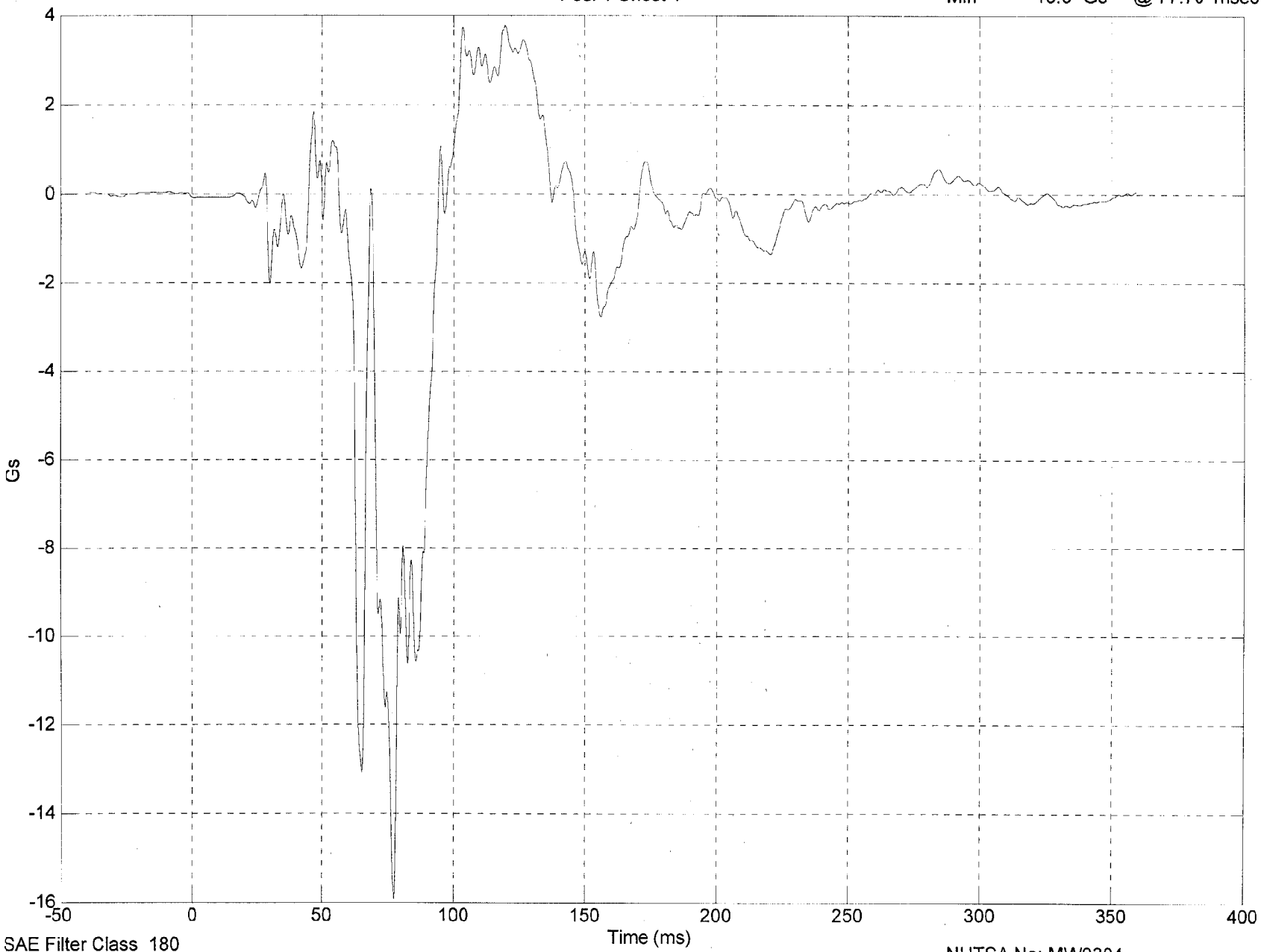
SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 3.78 Gs @ 119.50 msec
Min = -15.9 Gs @ 77.70 msec



SAE Filter Class 180

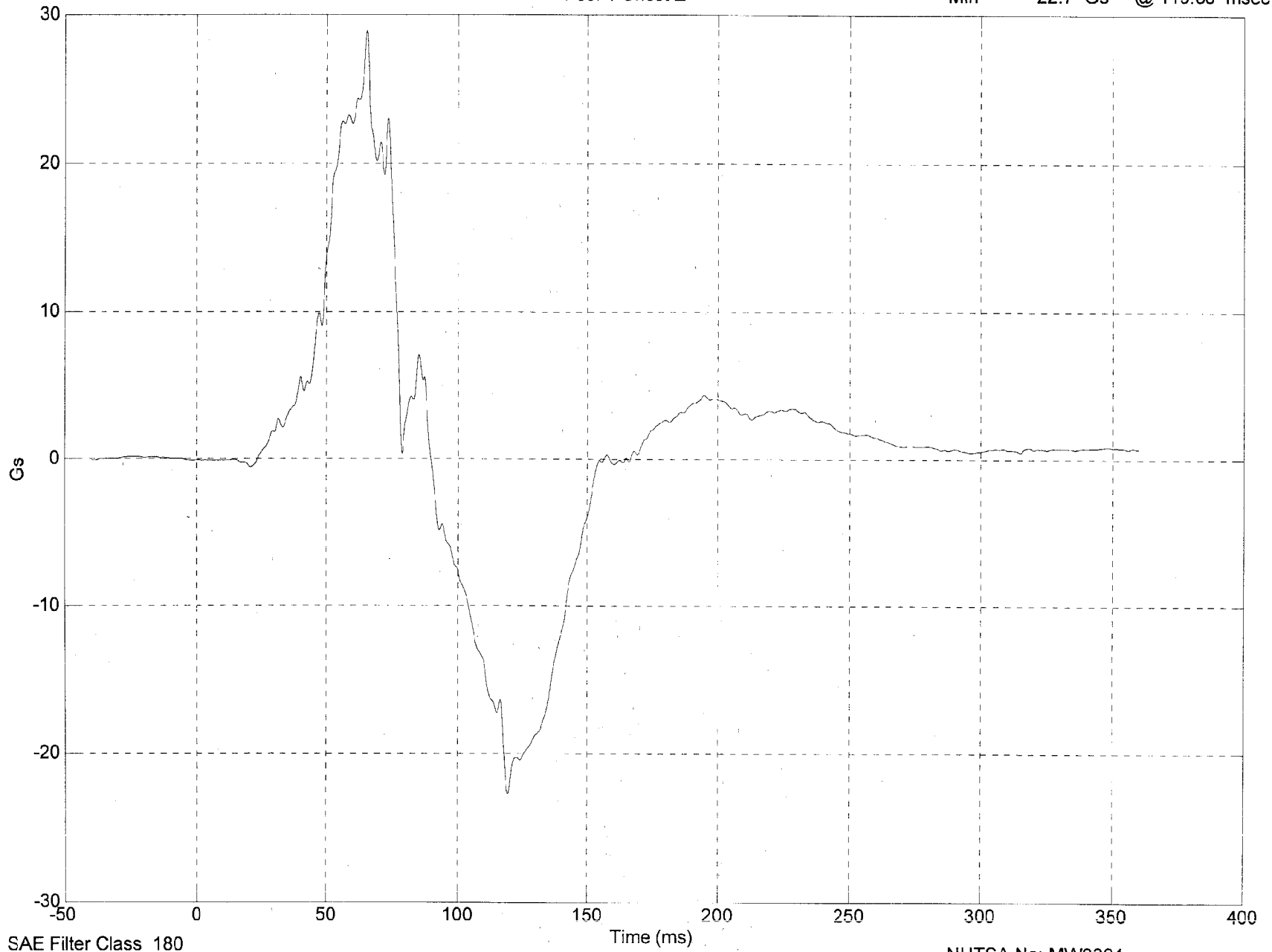
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Chest Z

Max = 28.9 Gs @ 65.10 msec
Min = -22.7 Gs @ 119.30 msec



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

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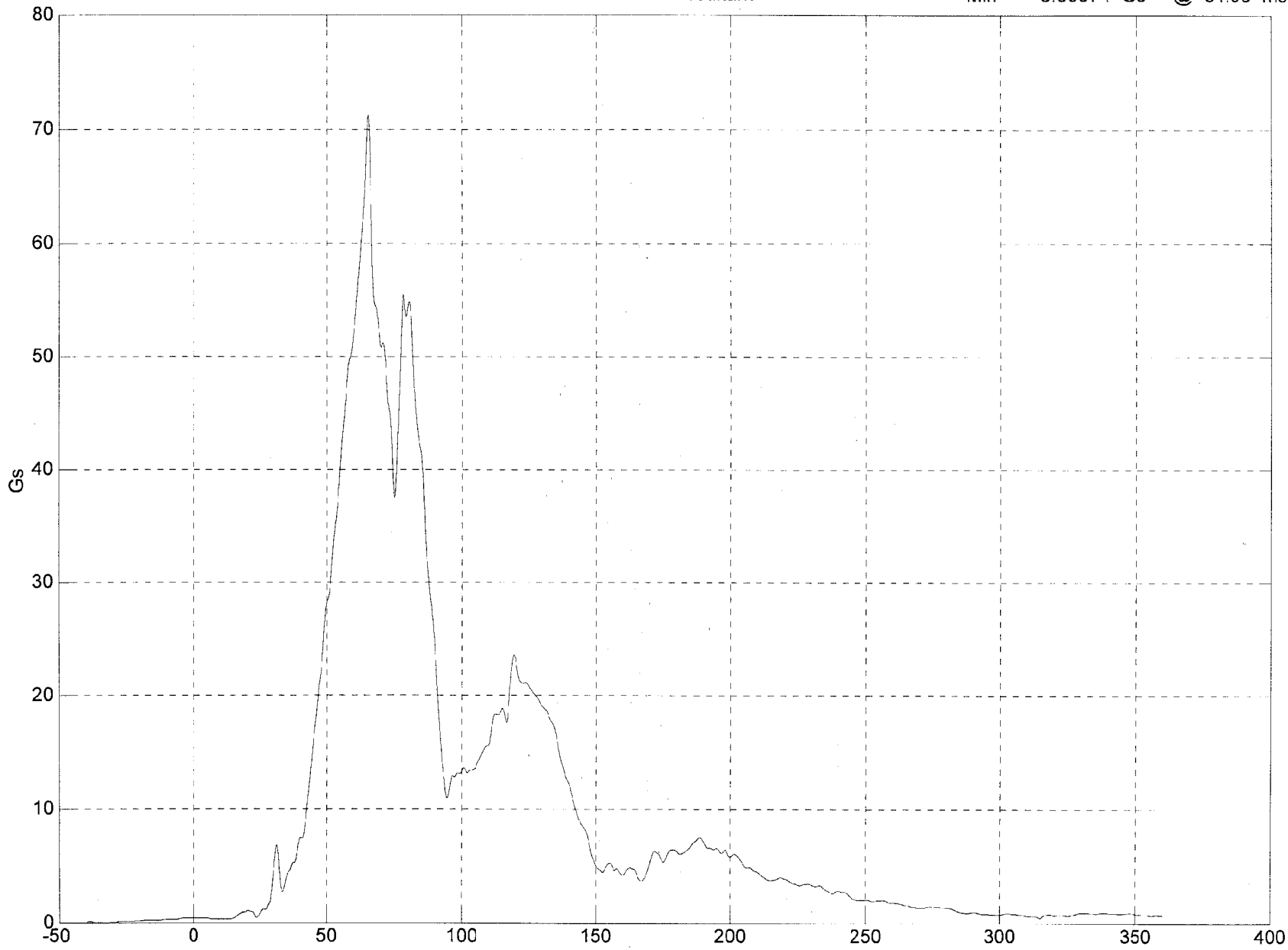
NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Chest Resultant

Max = 71.2 Gs @ 65.30 msec
Min = 0.00574 Gs @ -31.90 msec



SAE Filter Class 180

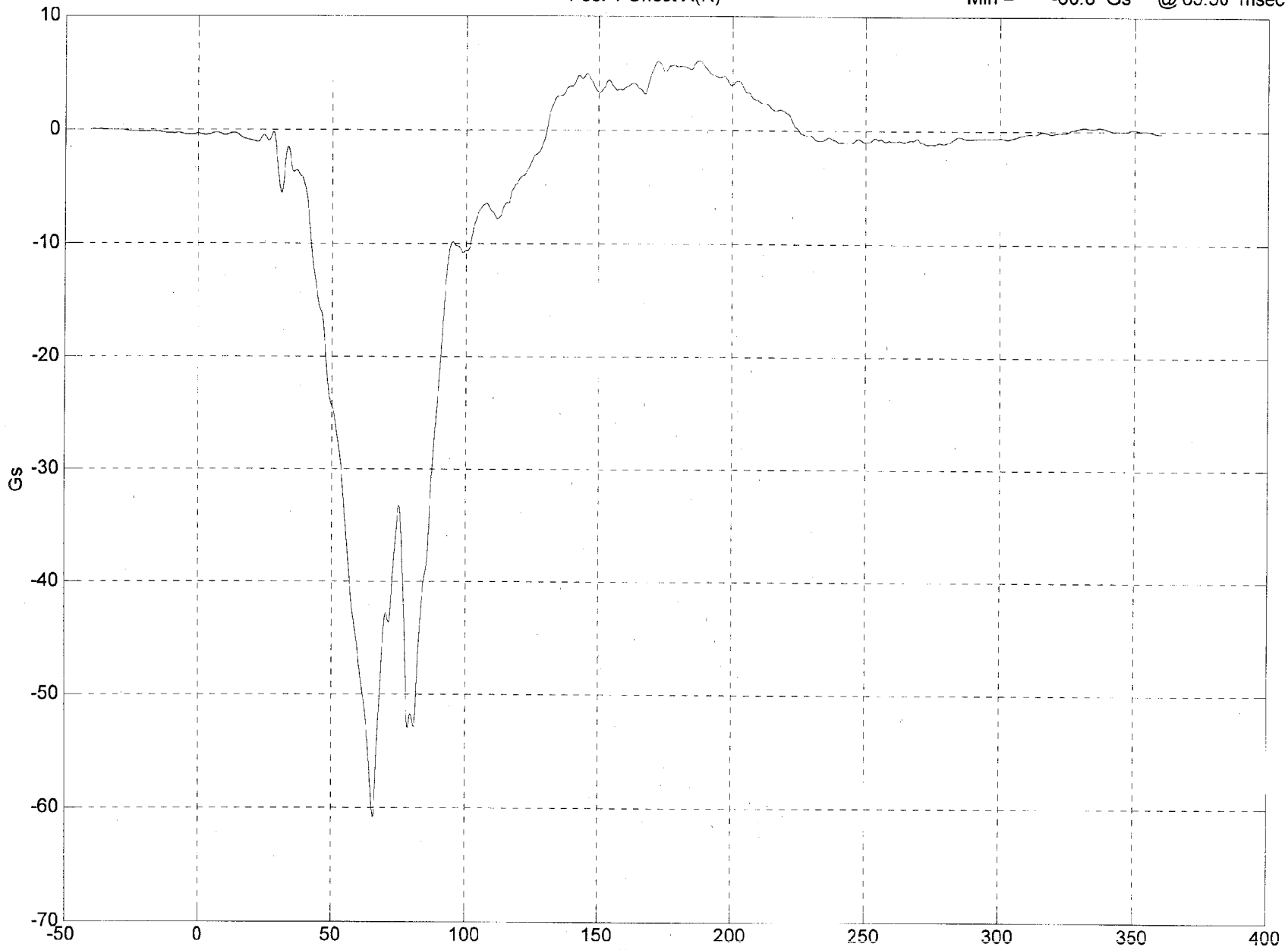
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Chest X(R)

Max = 6.11 Gs @ 187.50 msec
Min = -60.8 Gs @ 65.50 msec



SAE Filter Class 180

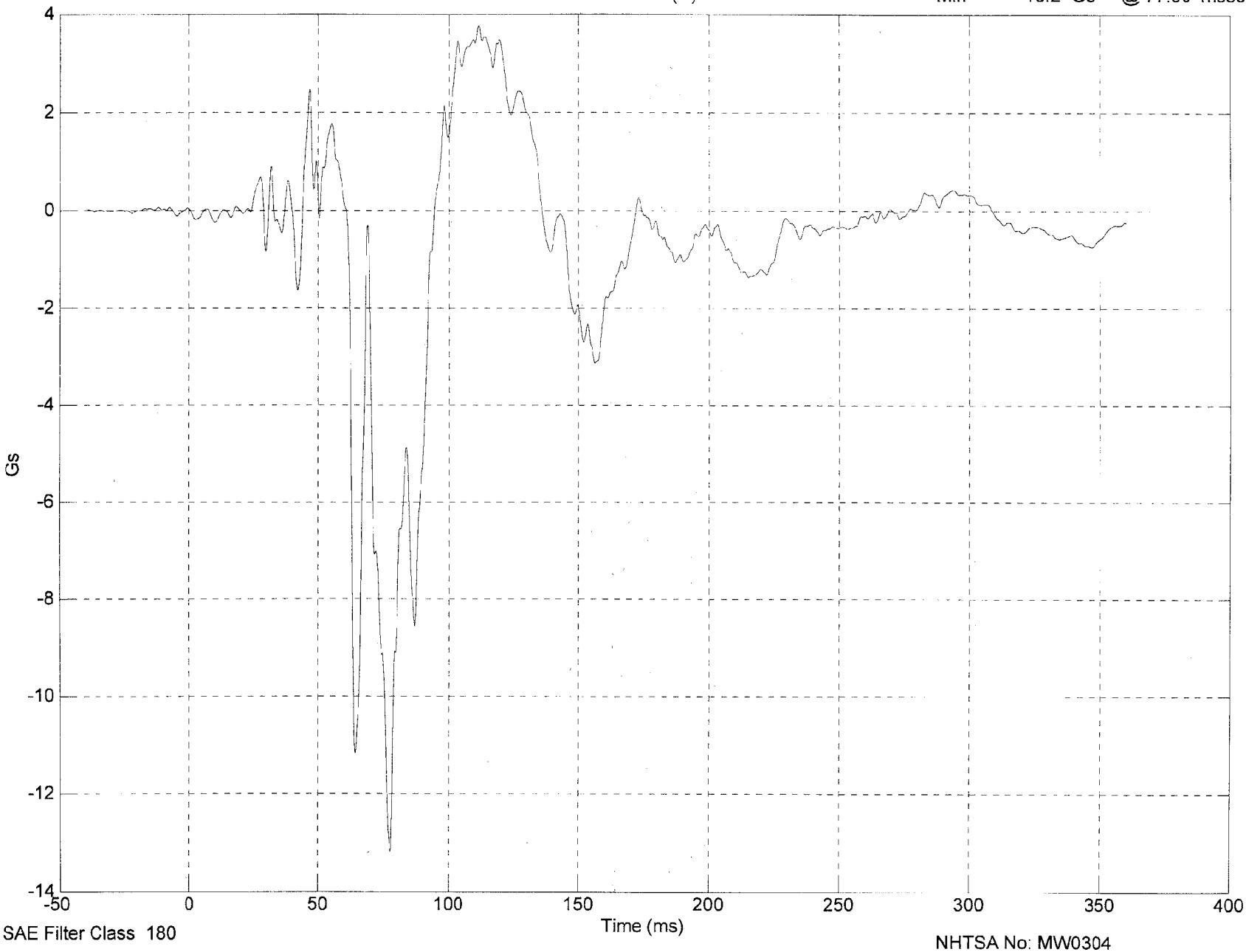
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Chest Y(R)

Max = 3.76 Gs @ 111.60 msec
Min = -13.2 Gs @ 77.90 msec



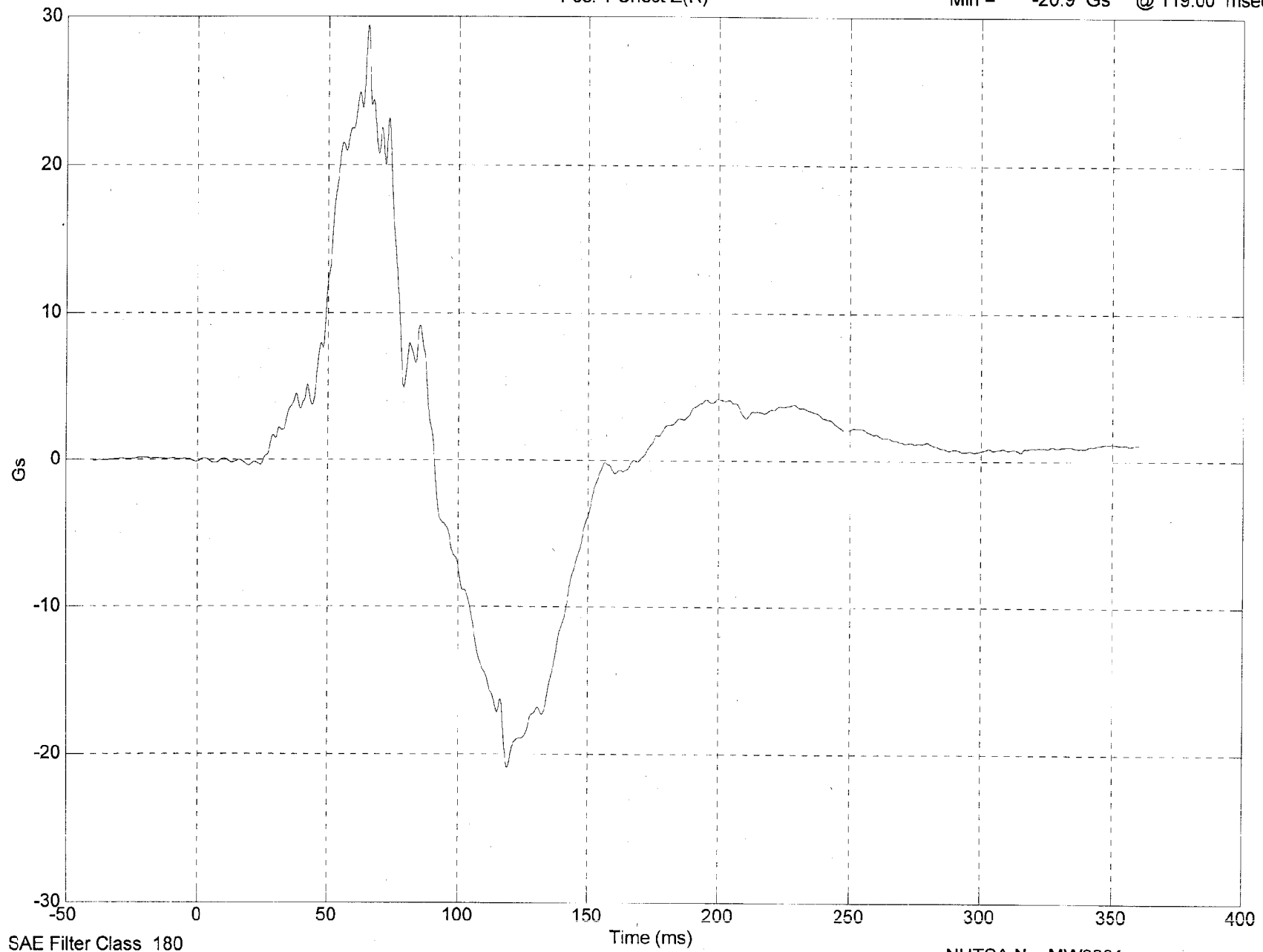
SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Chest Z(R)

Max = 29.4 Gs @ 65.20 msec
Min = -20.9 Gs @ 119.00 msec



SAE Filter Class 180

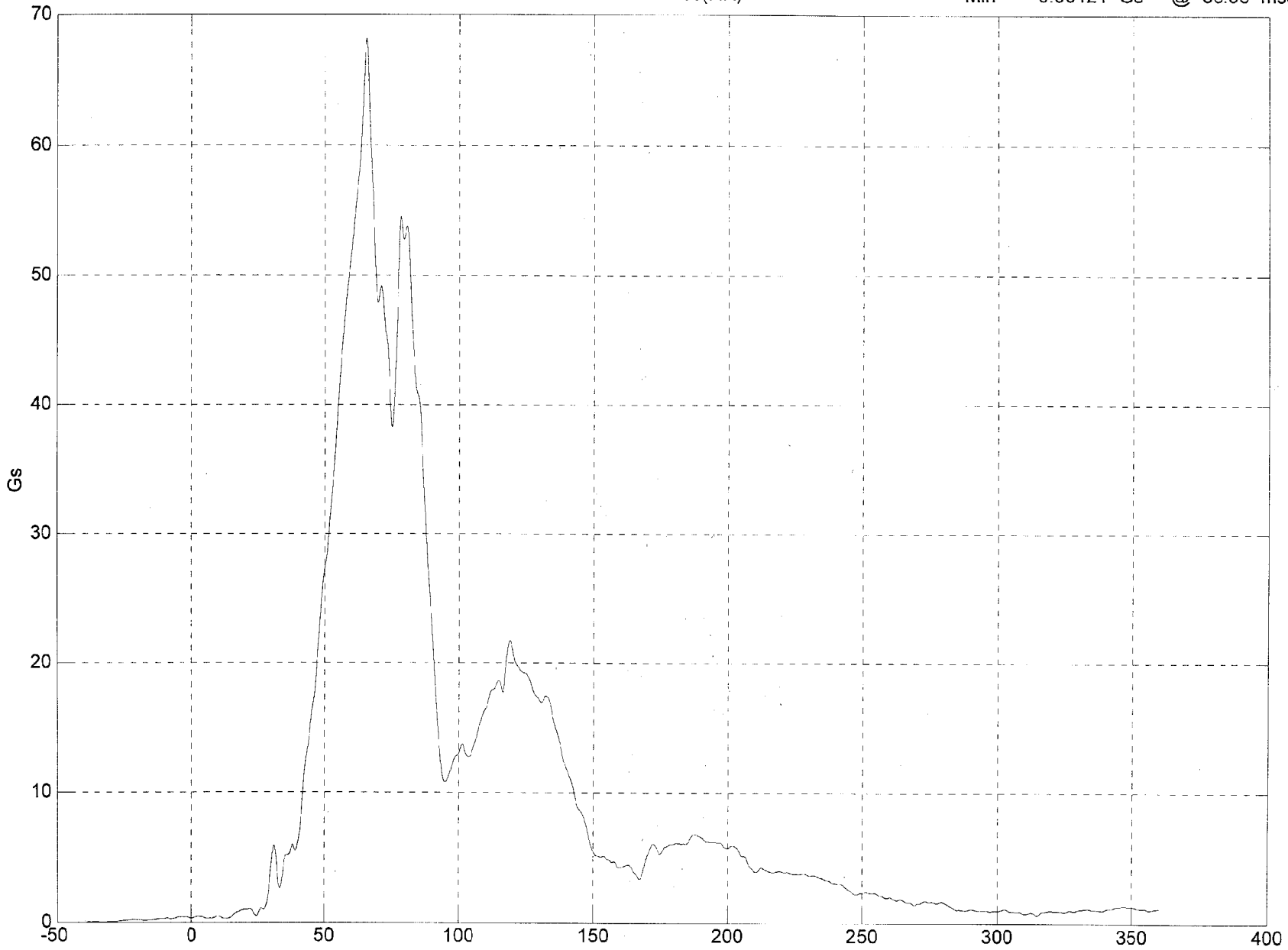
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Chest Res(RR)

Max = 68.2 Gs @ 65.40 msec
Min = 0.00121 Gs @ -33.50 msec



SAE Filter Class 180

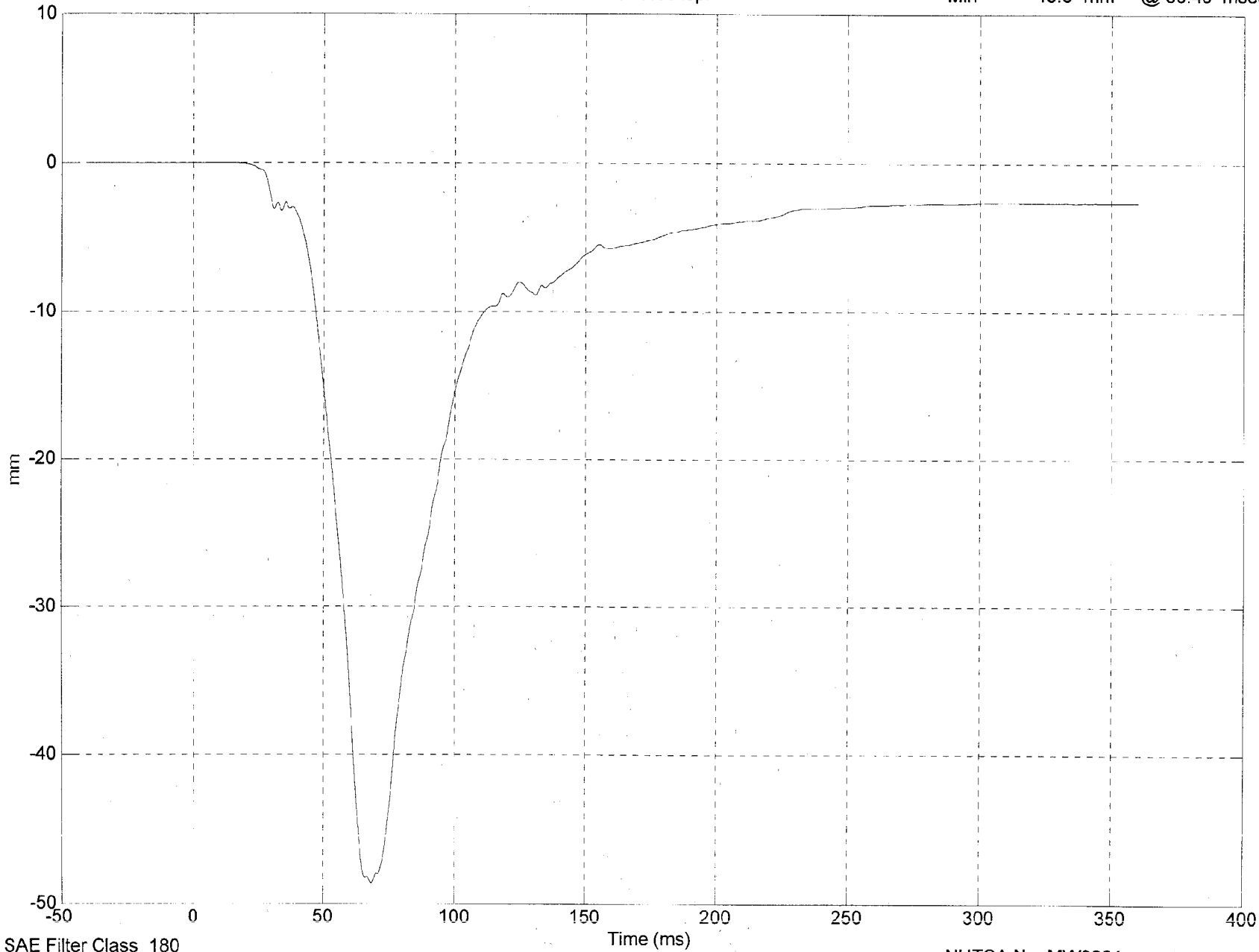
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Chest Disp.

Max = 0.00234 mm @ 16.50 msec
Min = -48.6 mm @ 68.40 msec



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

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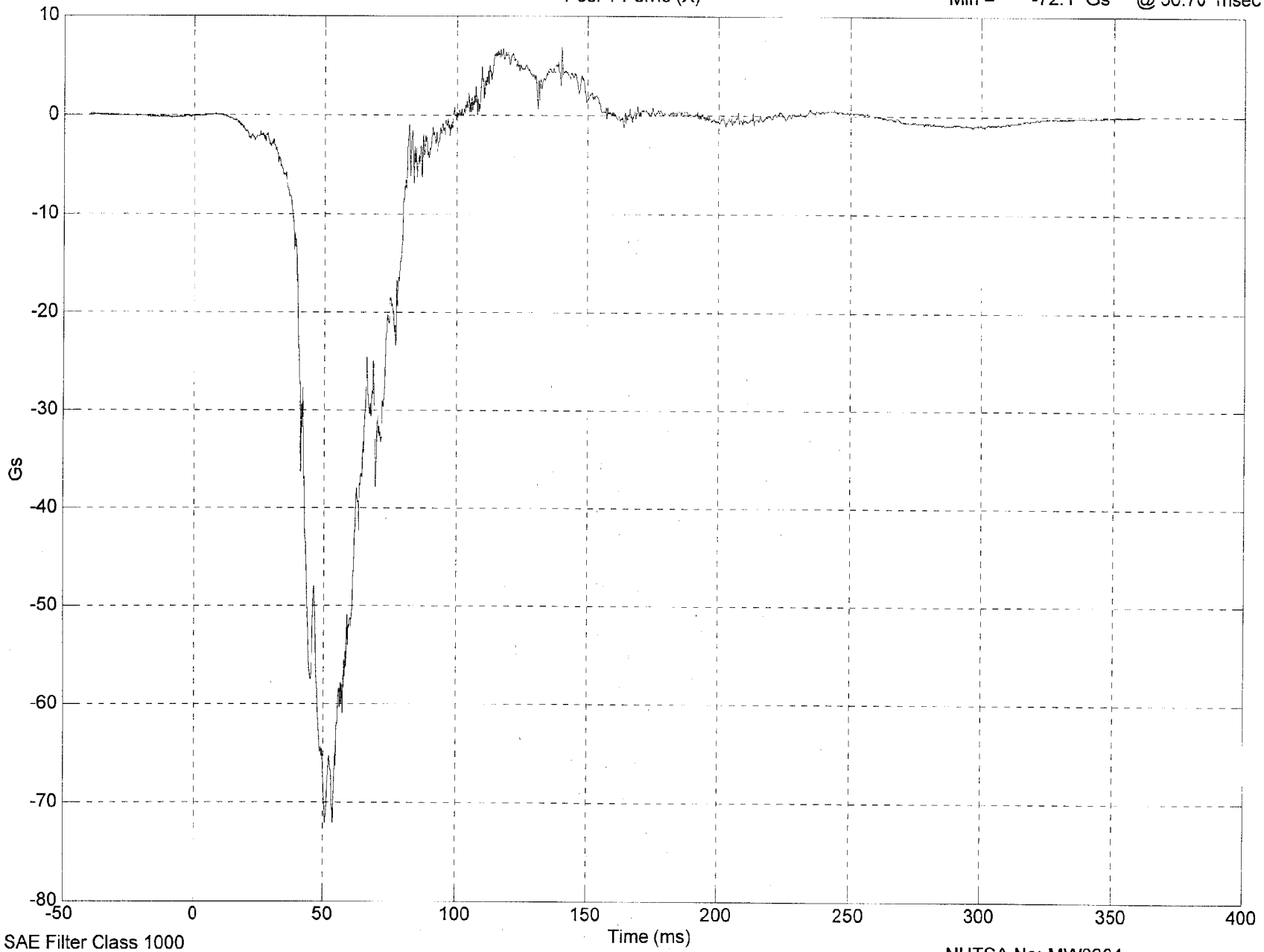
NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Pelvic (X)

Max = 6.84 Gs @ 139.90 msec
Min = -72.1 Gs @ 50.70 msec



SAE Filter Class 1000

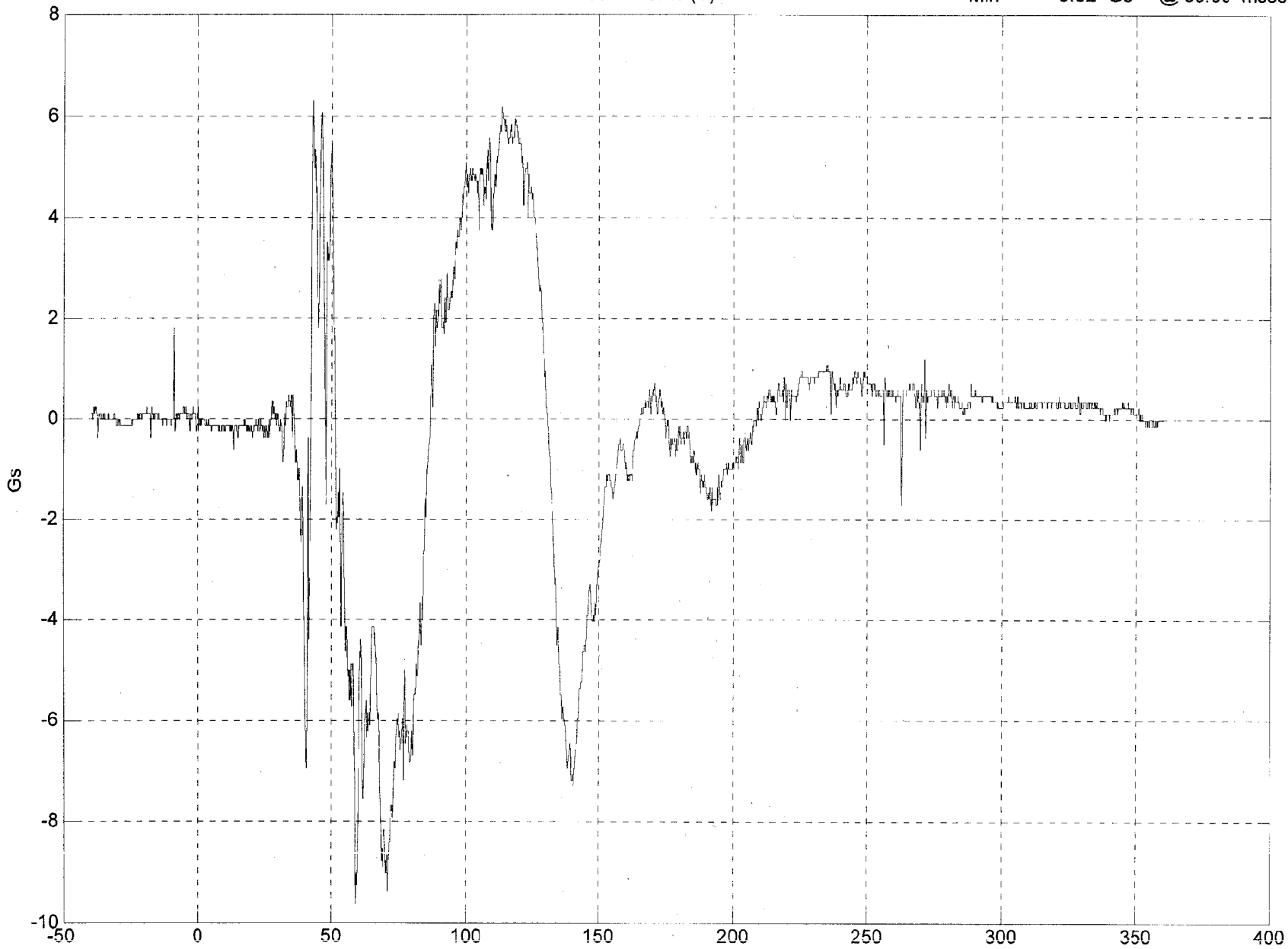
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

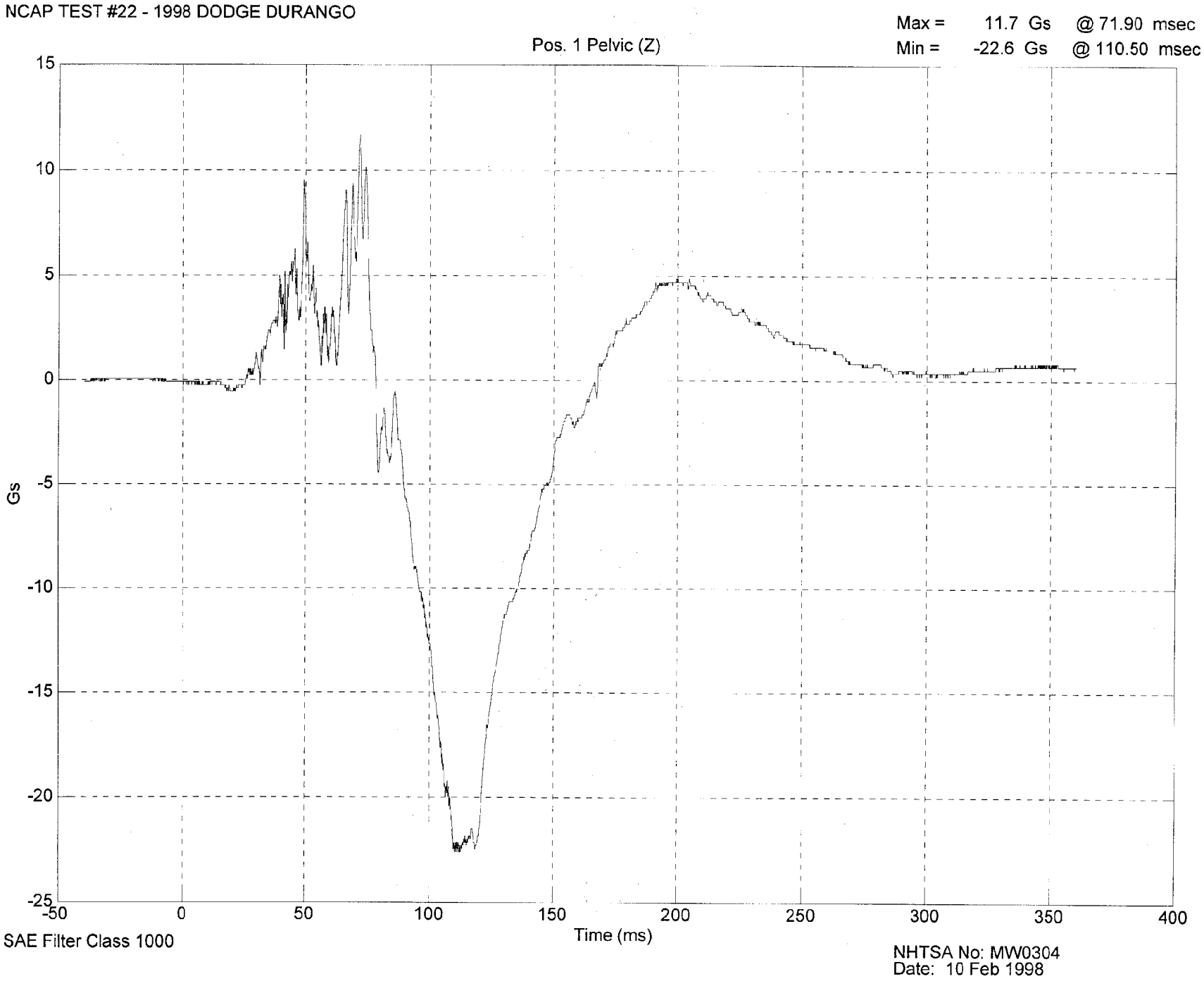
Pos. 1 Pelvic (Y)

Max = 6.31 Gs @ 43.20 msec
Min = -9.62 Gs @ 59.00 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

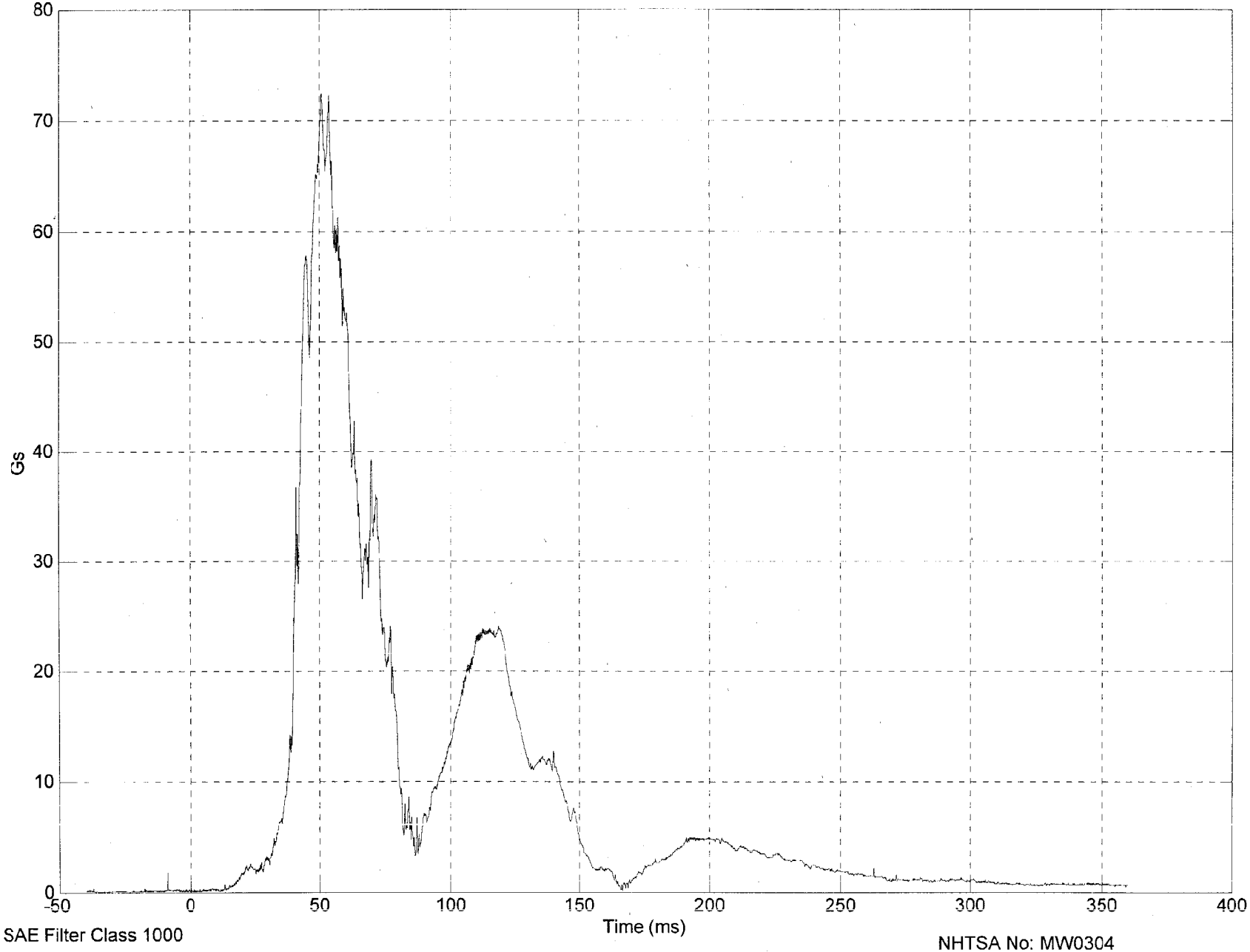

NCAP TEST #22 - 1998 DODGE DURANGO
Pos. 1 Pelvic (Z)
Max = 11.7 Gs @ 71.90 msec
Min = -22.6 Gs @ 110.50 msec
15
10
5
0
-5
-10
-15
-20
-25
Gs
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 1000
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Pelvic (R)

Max = 72.4 Gs @ 50.70 msec
Min = 0.0638 Gs @ -36.70 msec



SAE Filter Class 1000

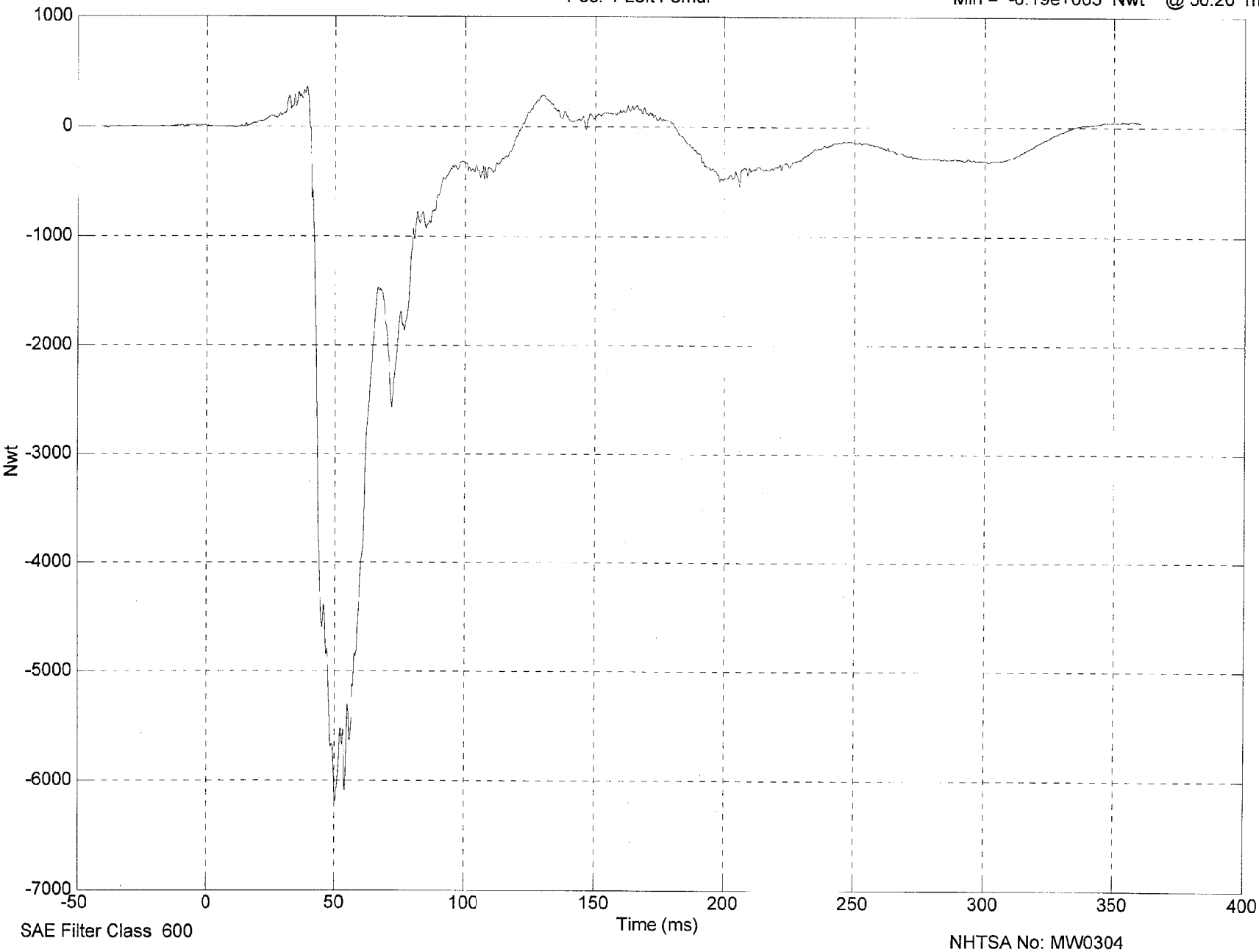
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Left Femur

Max = 360 Nwt @ 38.90 msec
Min = -6.19e+003 Nwt @ 50.20 msec



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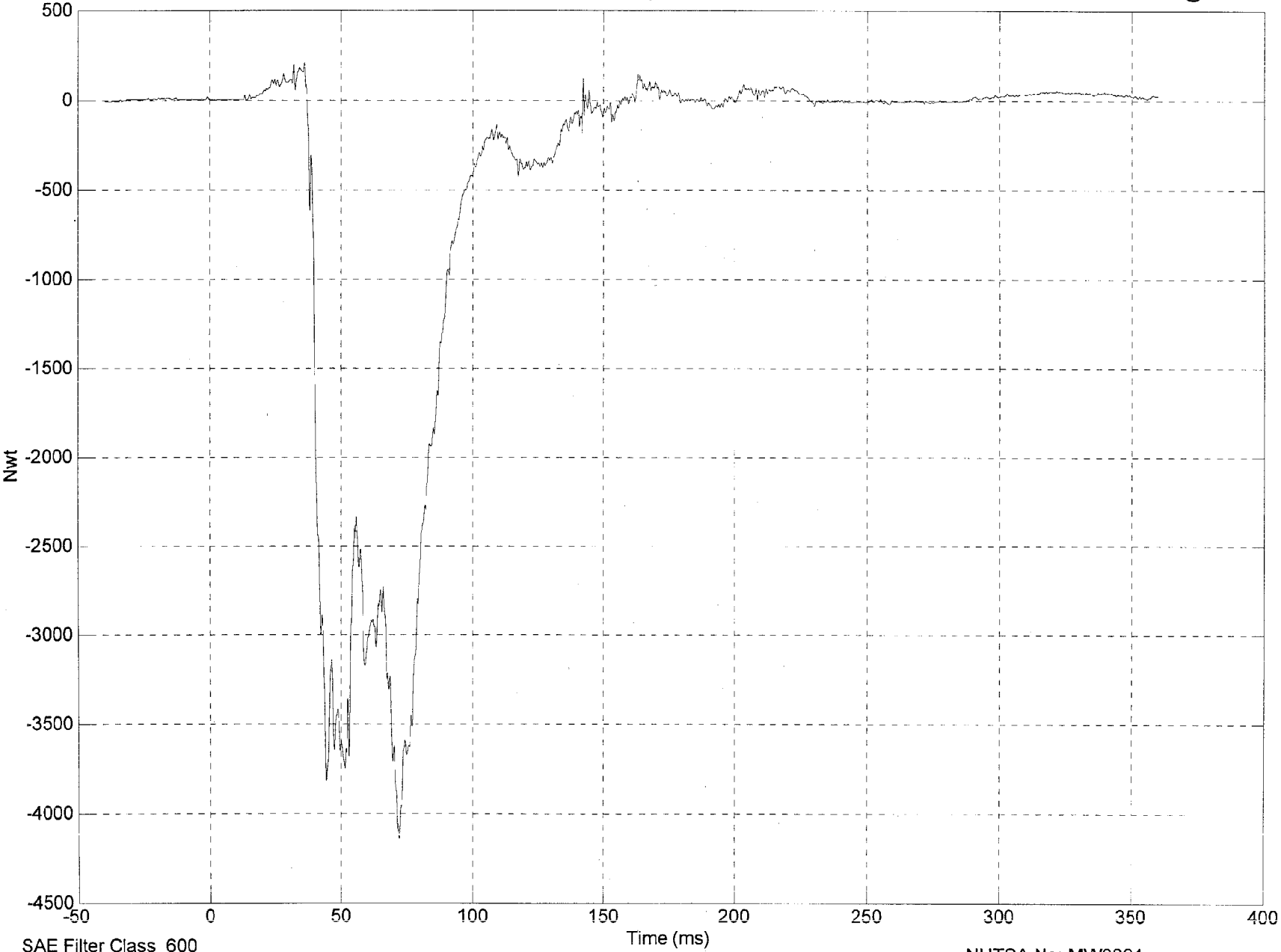
8413-22

SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 210 Nwt @ 35.90 msec
Min = -4.14e+003 Nwt @ 72.40 msec



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8413-22

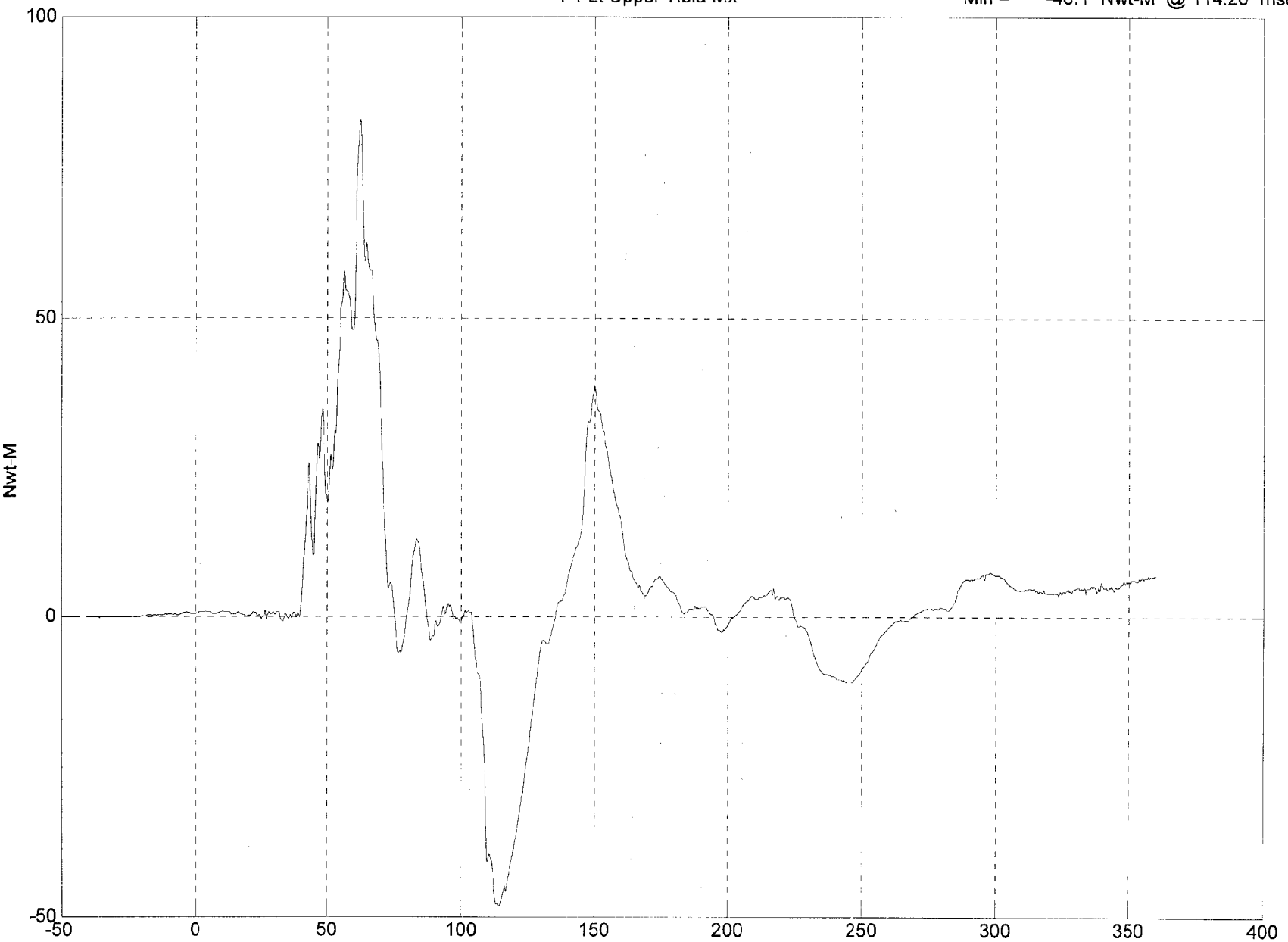
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Lt Upper Tibia Mx

Max = 83.1 Nwt-M @ 62.30 msec
Min = -48.1 Nwt-M @ 114.20 msec



SAE Filter Class 600

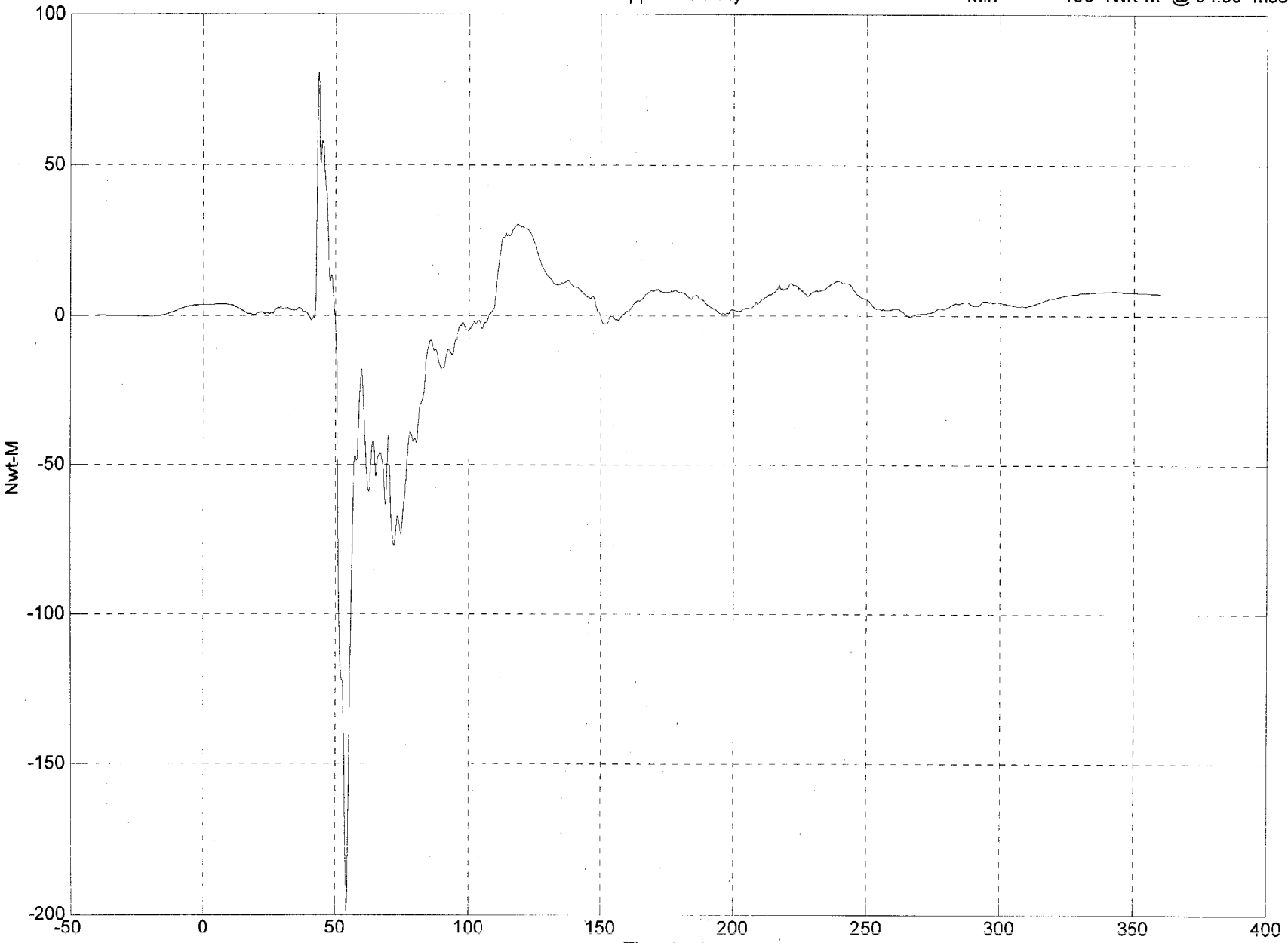
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Lt Upper Tibia My

Max = 80.8 Nwt-M @ 43.60 msec
Min = -199 Nwt-M @ 54.30 msec



SAE Filter Class 600

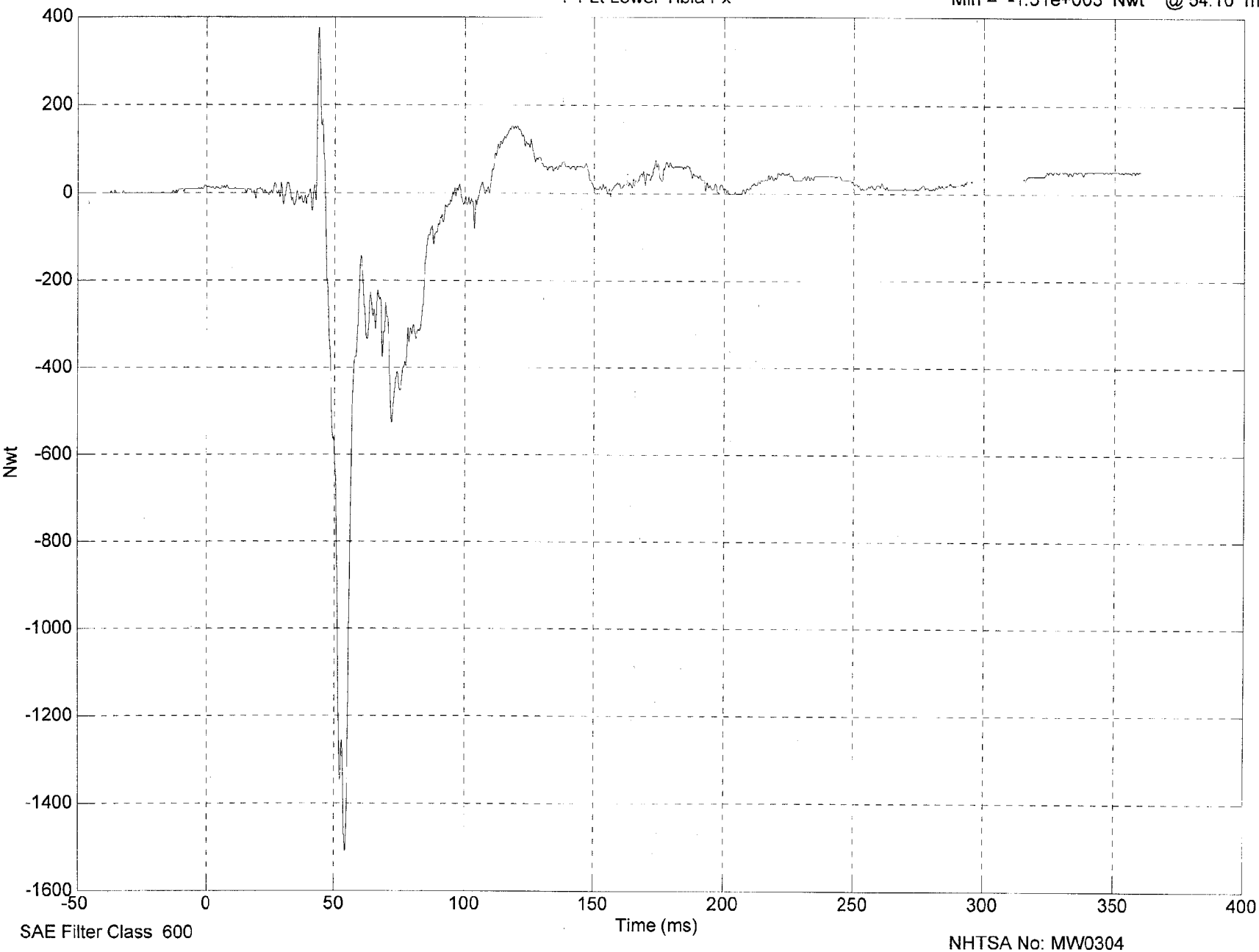
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Lt Lower Tibia Fx

Max = 375 Nwt @ 43.80 msec
Min = -1.51e+003 Nwt @ 54.10 msec



SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

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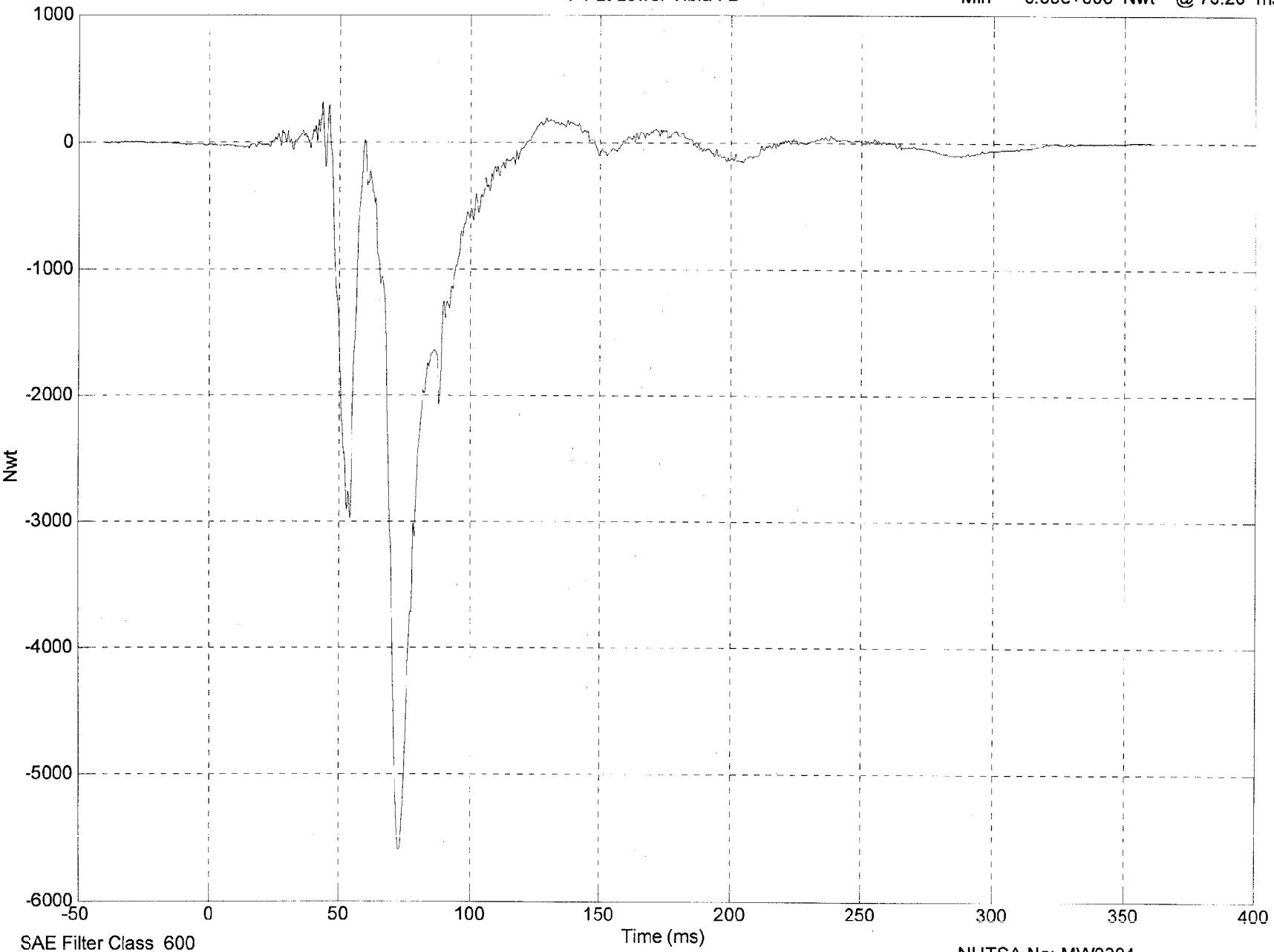
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Lt Lower Tibia Fz

Max = 316 Nwt @ 43.60 msec
Min = -5.59e+003 Nwt @ 73.20 msec



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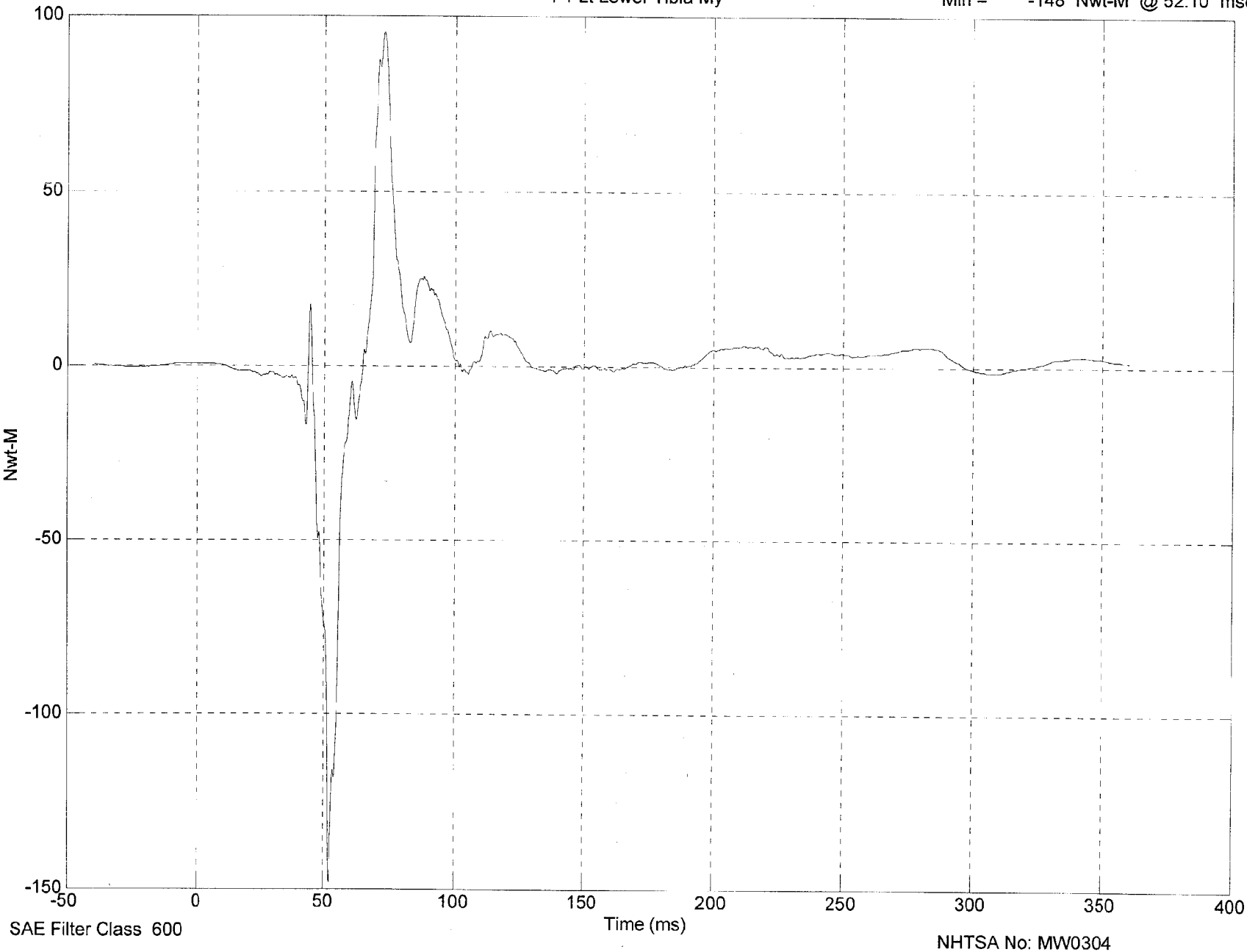
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Lt Lower Tibia My

Max = 95.4 Nwt-M @ 73.10 msec
Min = -148 Nwt-M @ 52.10 msec



SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

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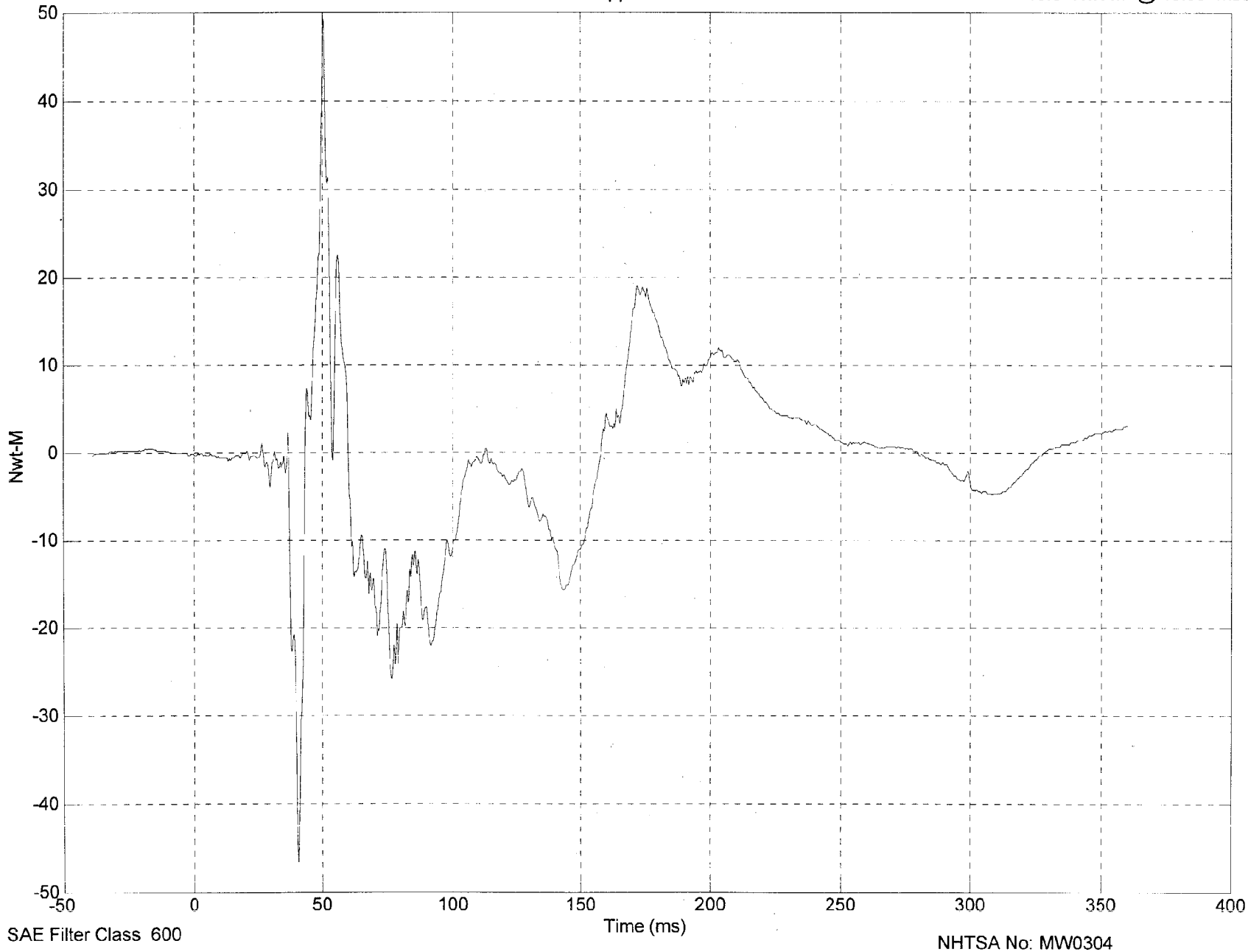
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Rt Upper Tibia Mx

Max = 49.2 Nwt-M @ 50.20 msec
Min = -46.6 Nwt-M @ 40.90 msec



SAE Filter Class 600

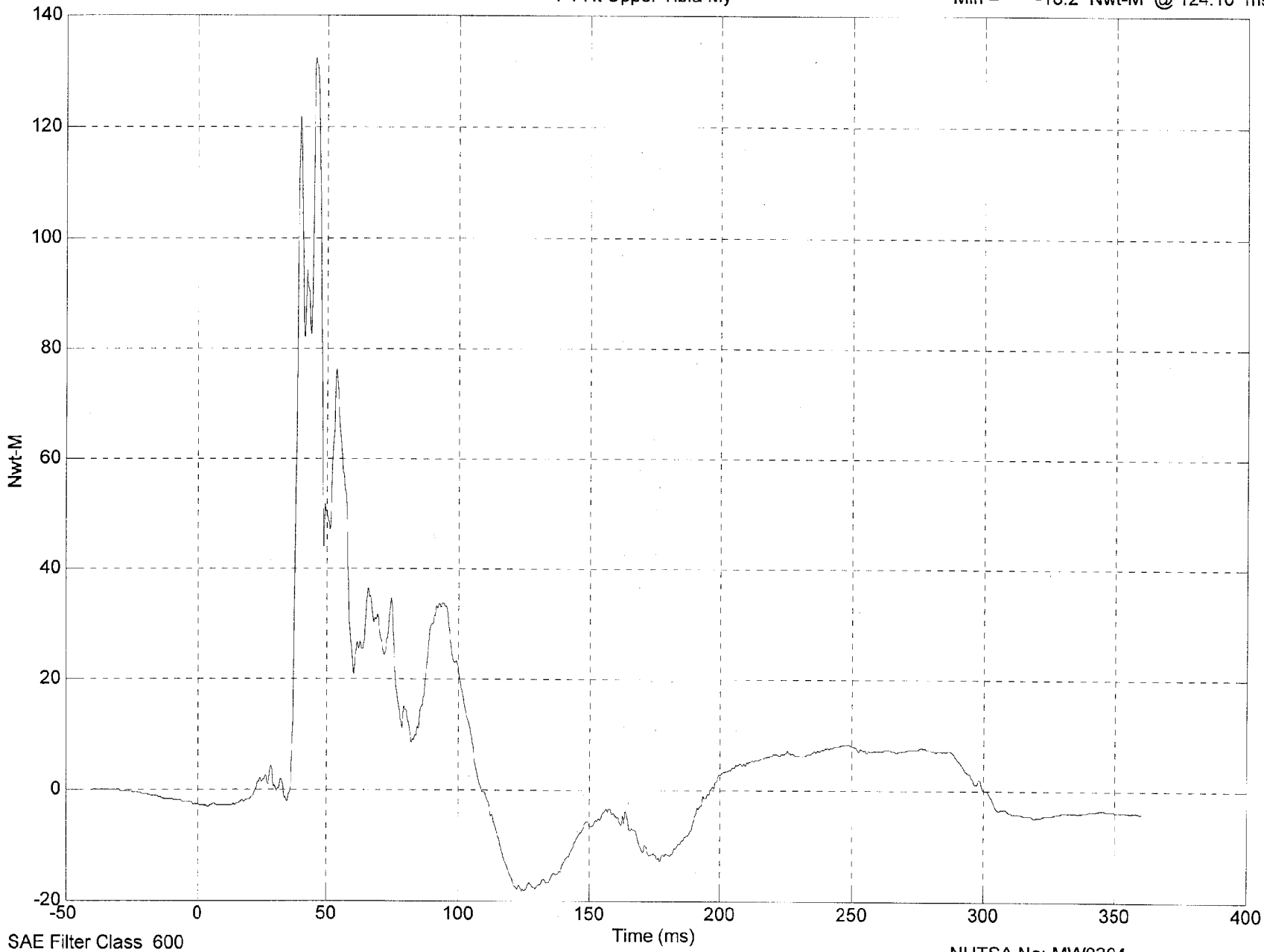
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Rt Upper Tibia My

Max = 132 Nwt-M @ 45.60 msec
Min = -18.2 Nwt-M @ 124.10 msec



SAE Filter Class 600

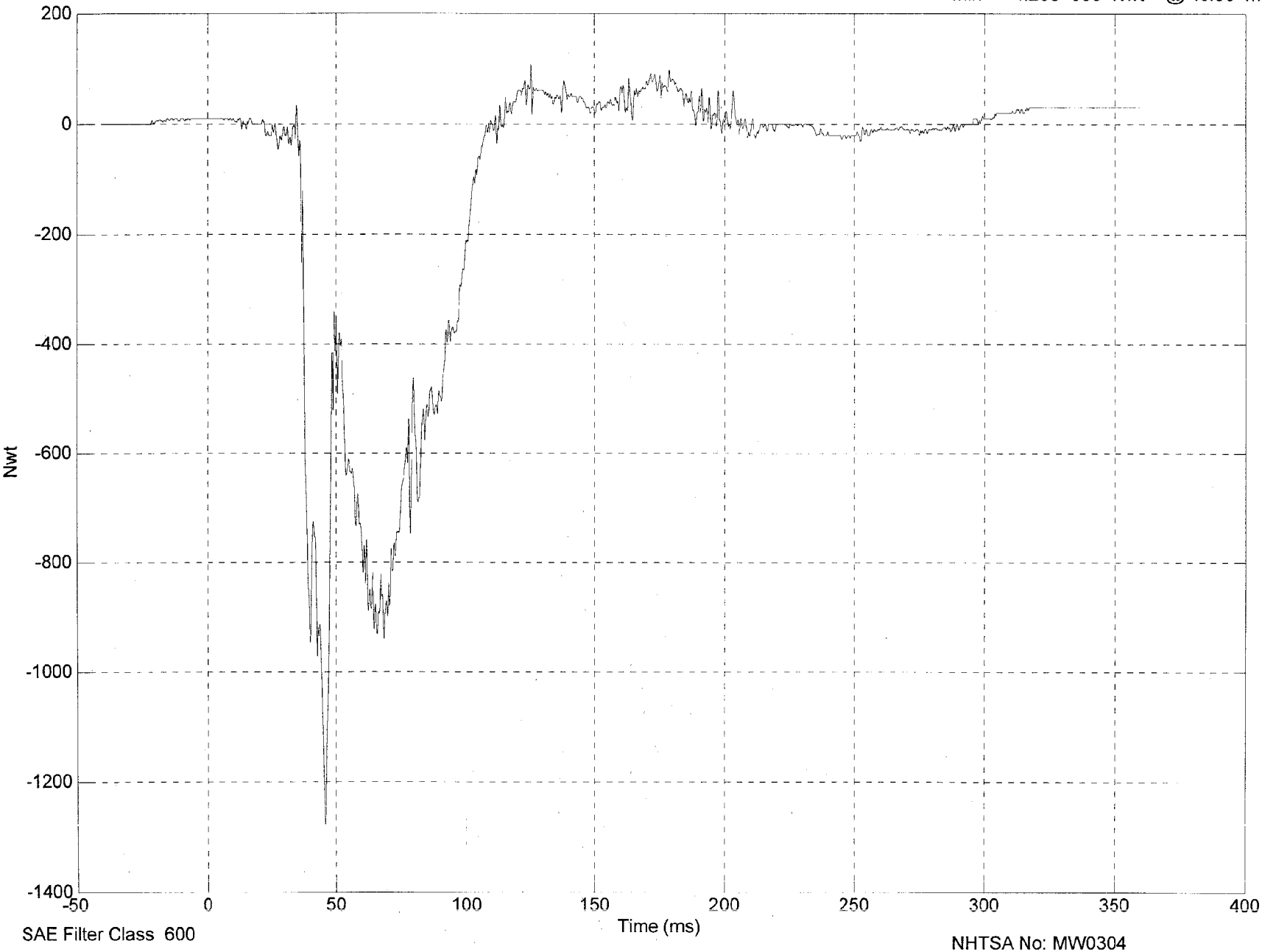
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Rt Lower Tibia Fx

Max = 108 Nwt @ 125.00 msec
Min = -1.28e+003 Nwt @ 45.90 msec



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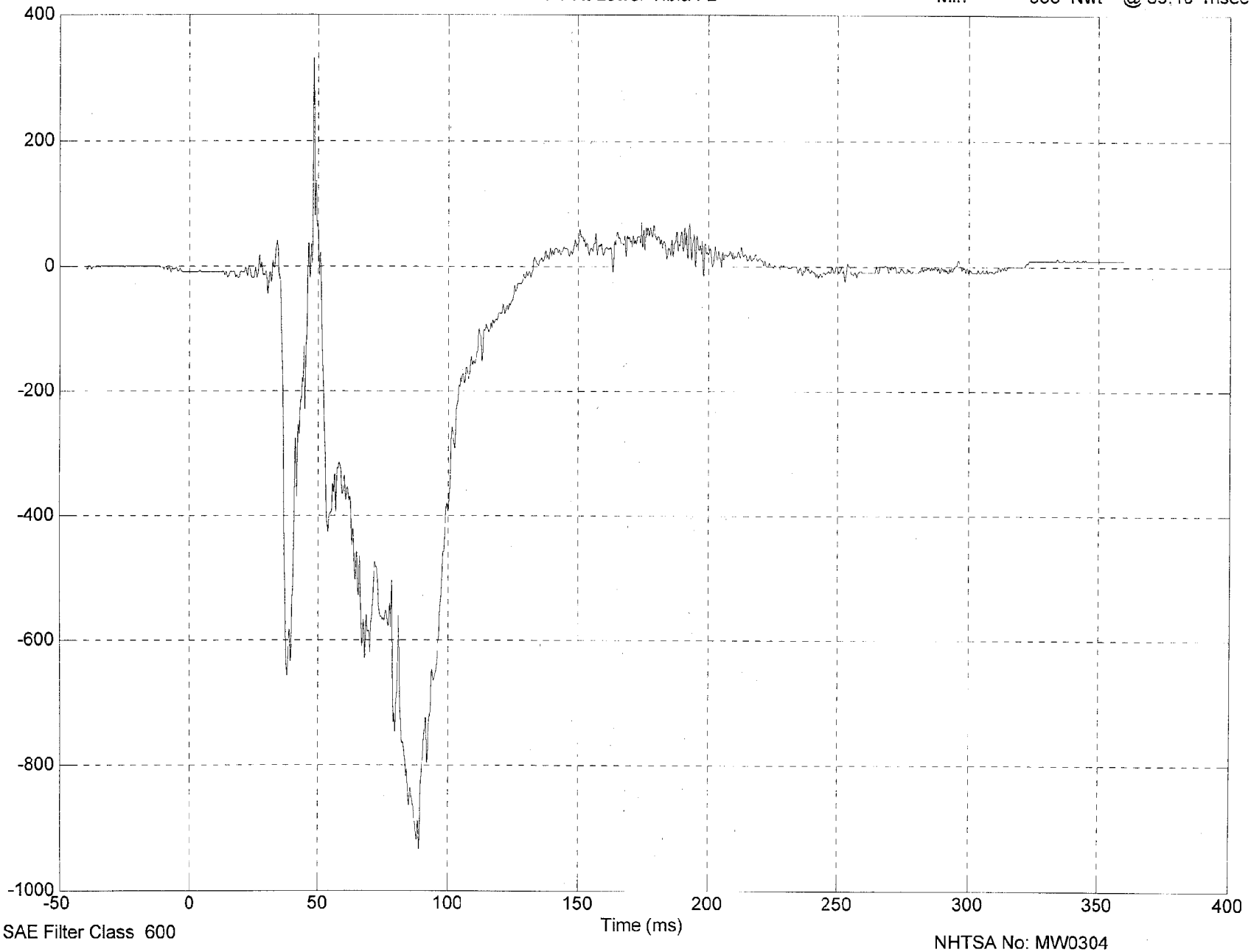
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Rt Lower Tibia Fz

Max = 331 Nwt @ 48.40 msec
Min = -933 Nwt @ 89.10 msec



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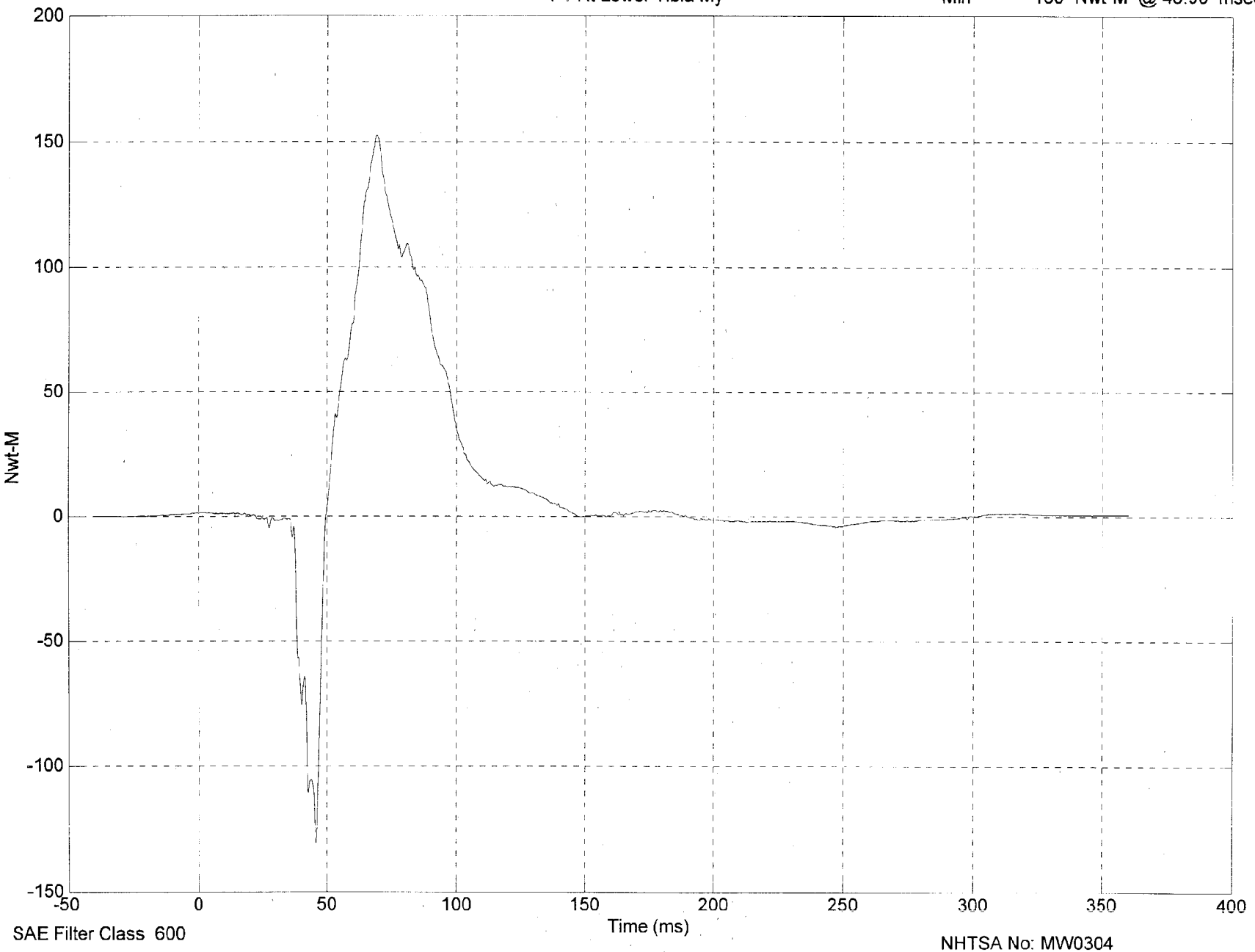
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

P1 Rt Lower Tibia My

Max = 153 Nwt-M @ 69.20 msec
Min = -130 Nwt-M @ 45.90 msec



SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

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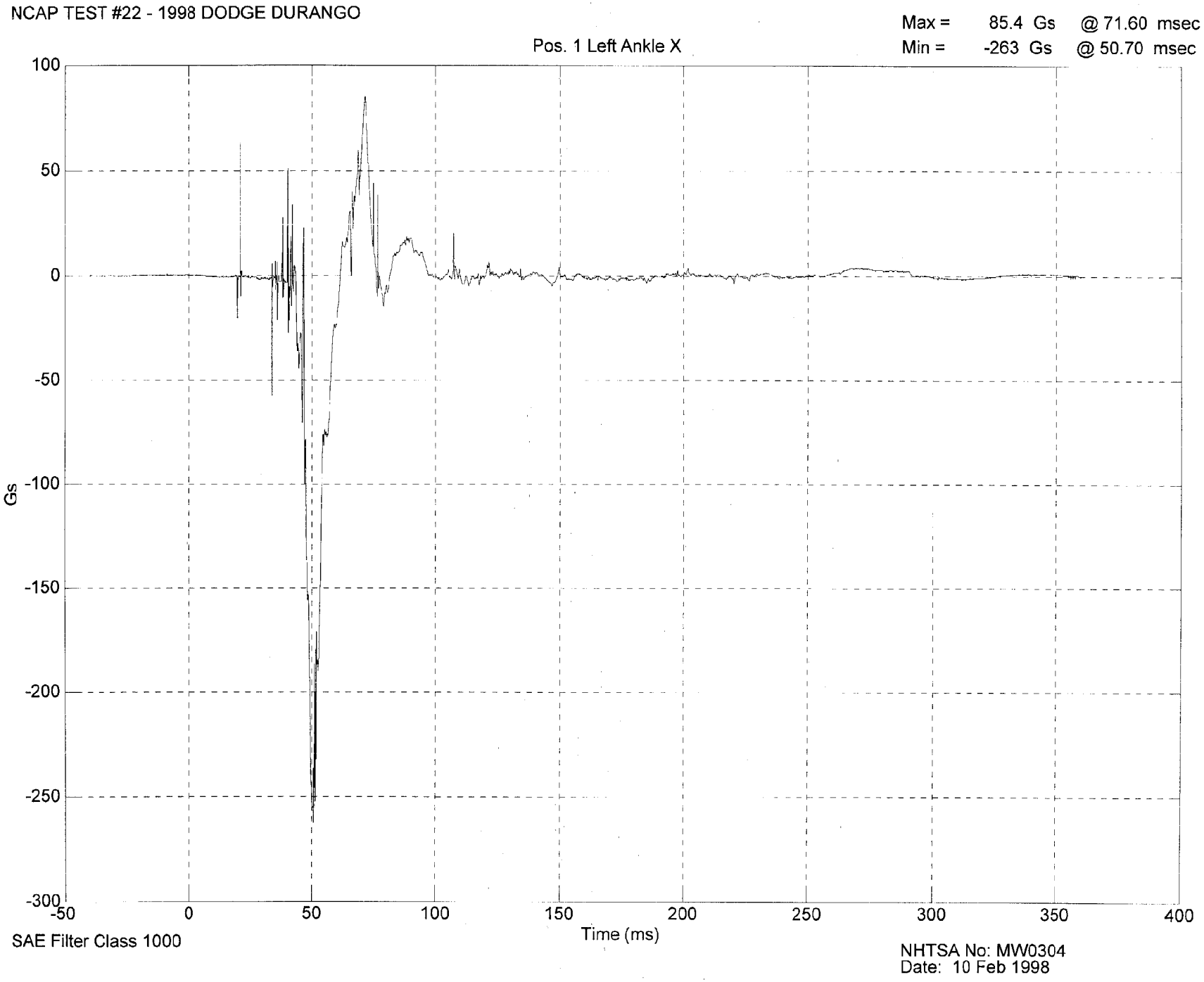
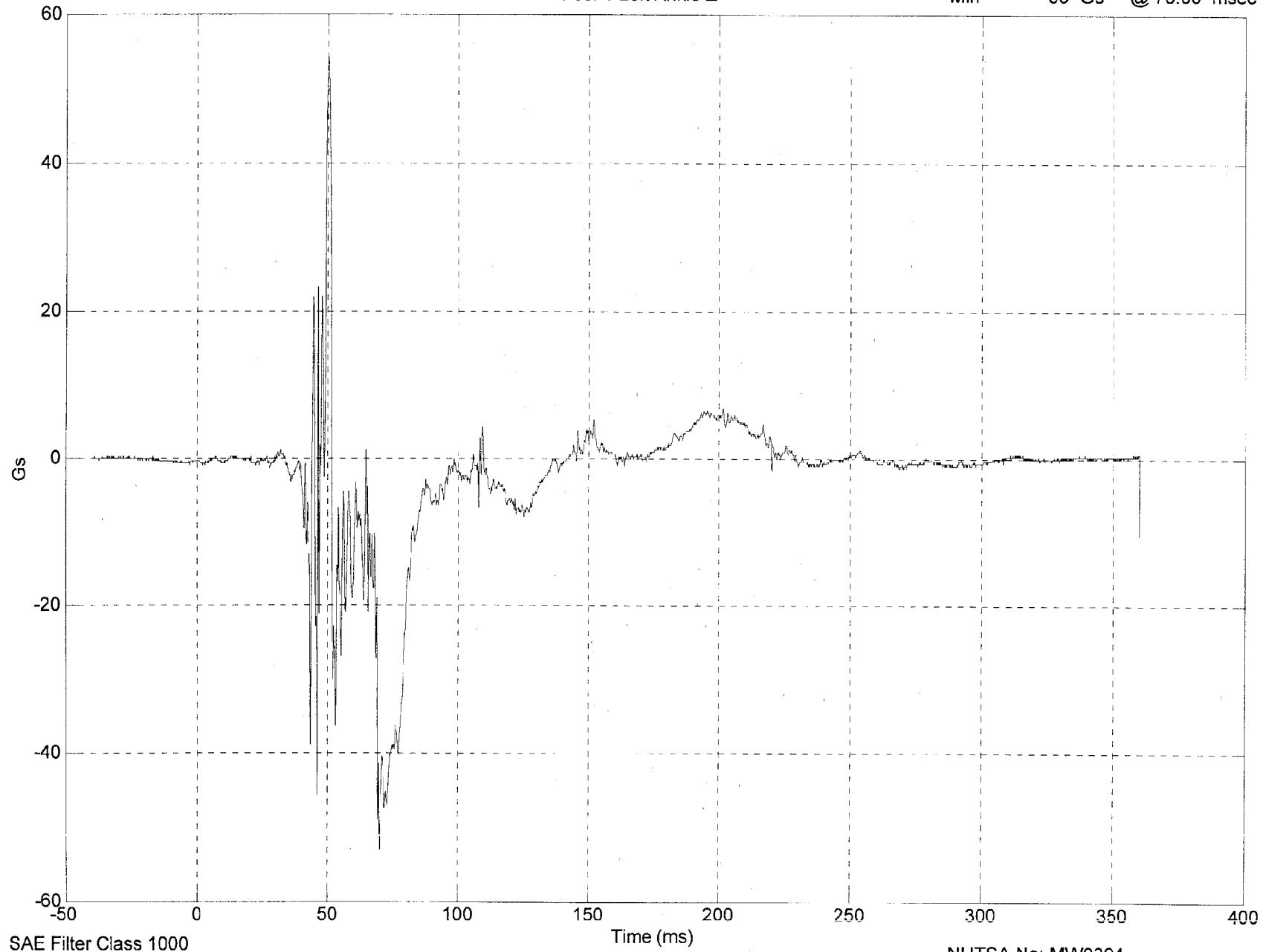

NCAP TEST #22 - 1998 DODGE DURANGO
Pos. 1 Left Ankle X
Max = 85.4 Gs @ 71.60 msec
Min = -263 Gs @ 50.70 msec
100
50
0
-50
-100
-150
-200
-250
-300
Gs
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 1000
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Left Ankle Z

Max = 54.5 Gs @ 50.00 msec
Min = -53 Gs @ 70.00 msec



SAE Filter Class 1000

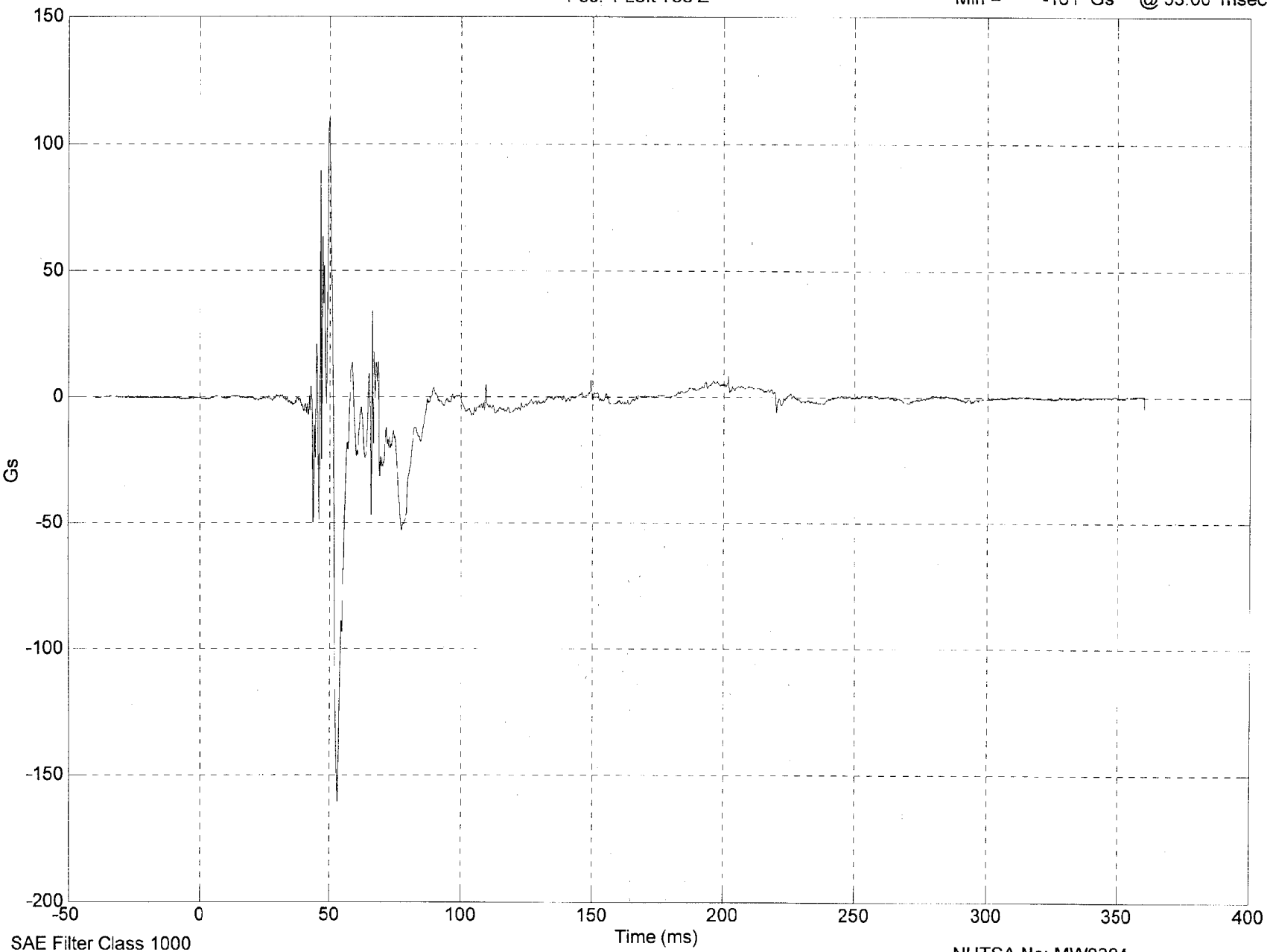
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Left Toe Z

Max = 110 Gs @ 49.80 msec
Min = -161 Gs @ 53.00 msec



SAE Filter Class 1000

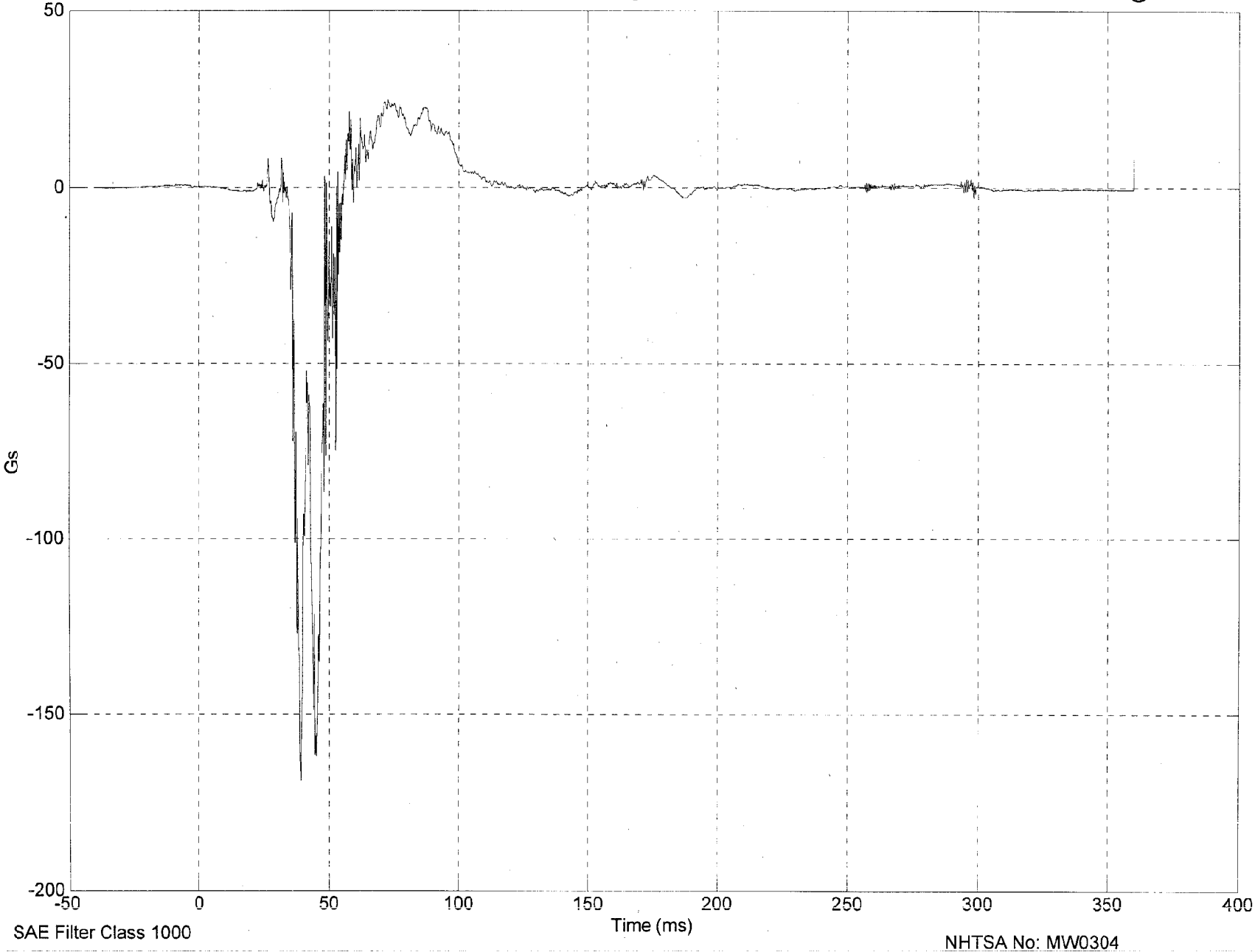
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Right Ankle X

Max = 24.9 Gs @ 72.80 msec
Min = -169 Gs @ 39.20 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

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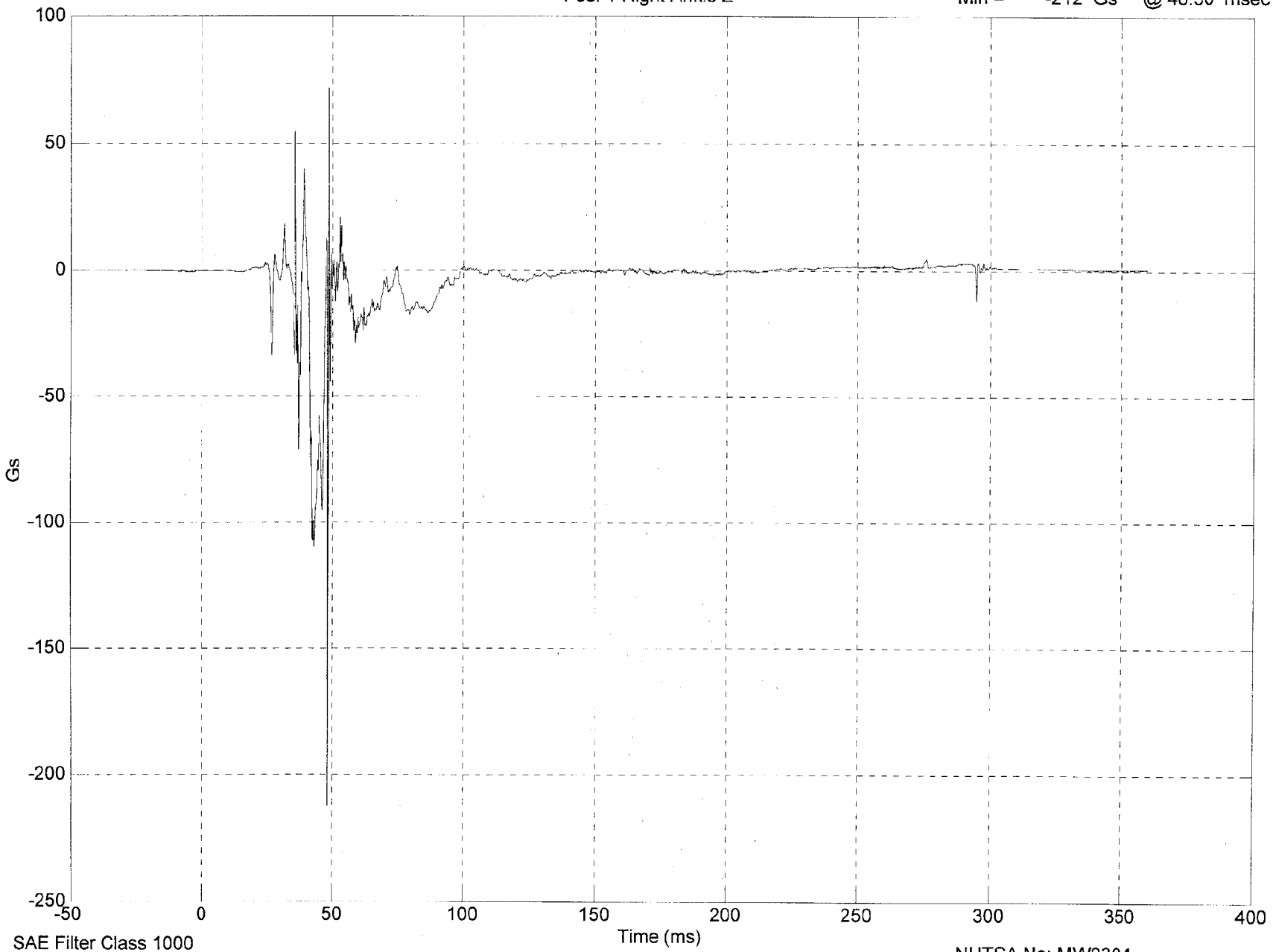
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Right Ankle Z

Max = 71.7 Gs @ 48.70 msec
Min = -212 Gs @ 48.30 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

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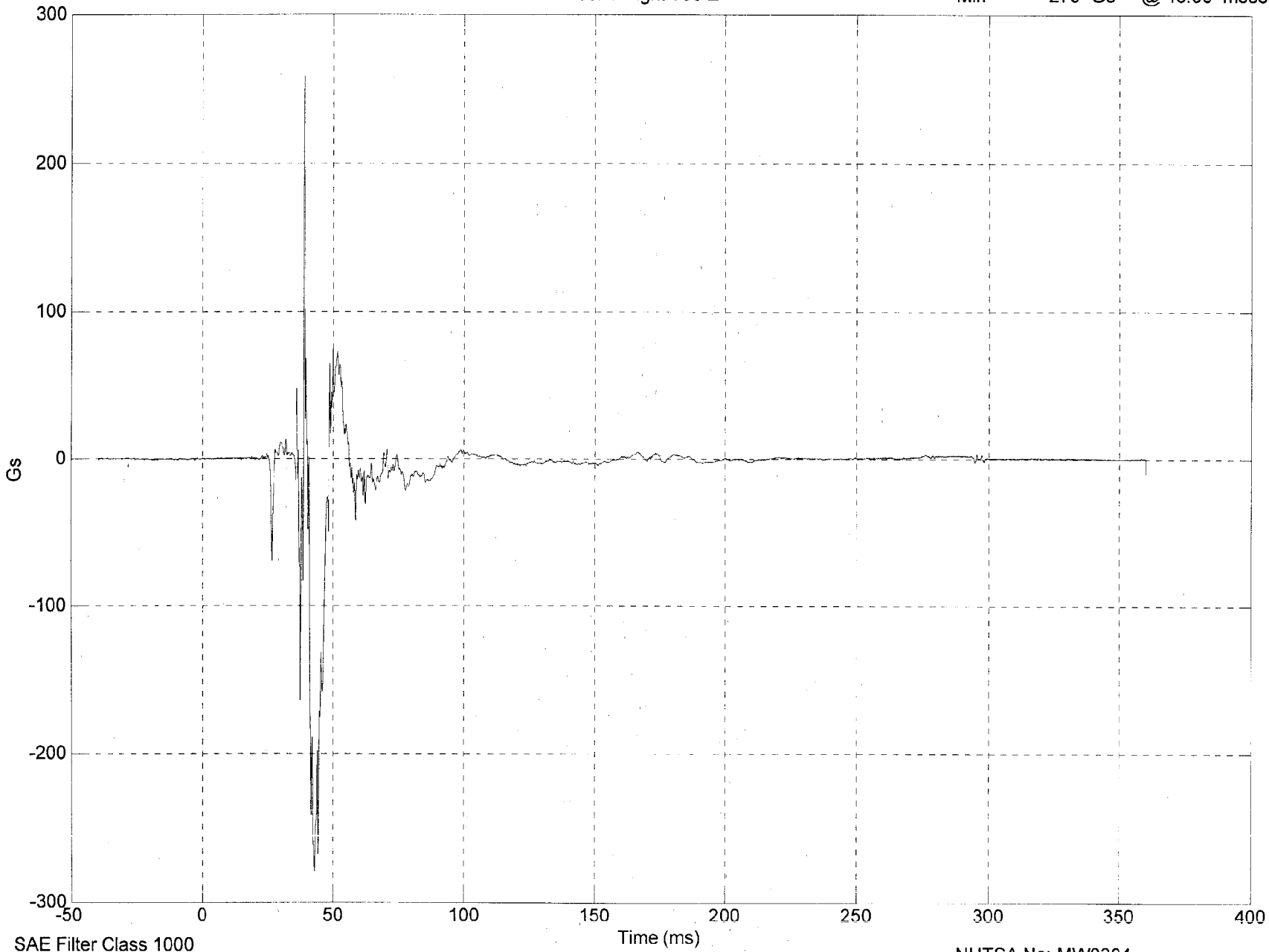
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Right Toe Z

Max = 259 Gs @ 39.00 msec
Min = -279 Gs @ 43.00 msec



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8413-22

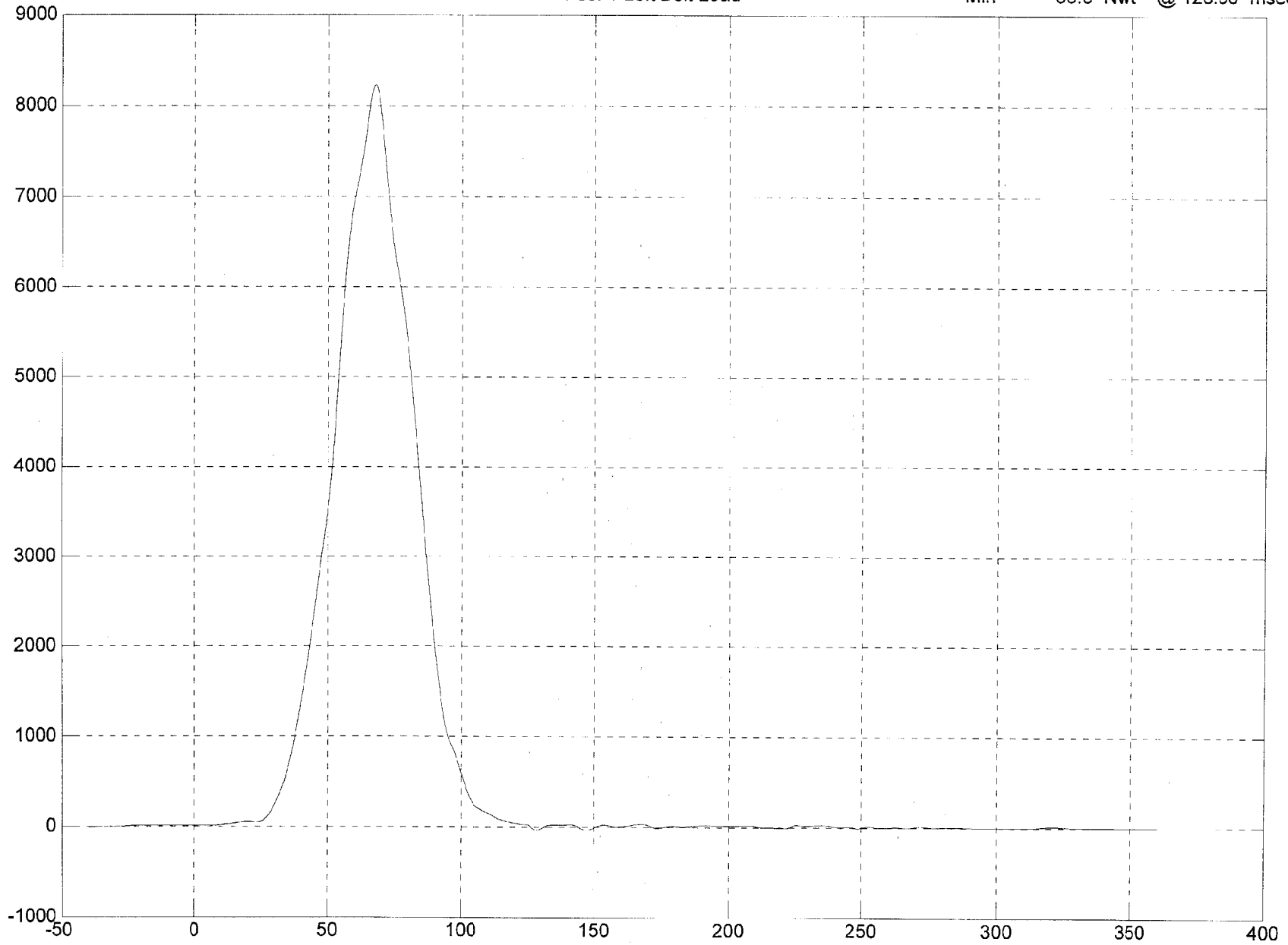
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Left Belt Load

Max = 8.23e+003 Nwt @ 67.50 msec
Min = -35.3 Nwt @ 128.50 msec



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8413-22

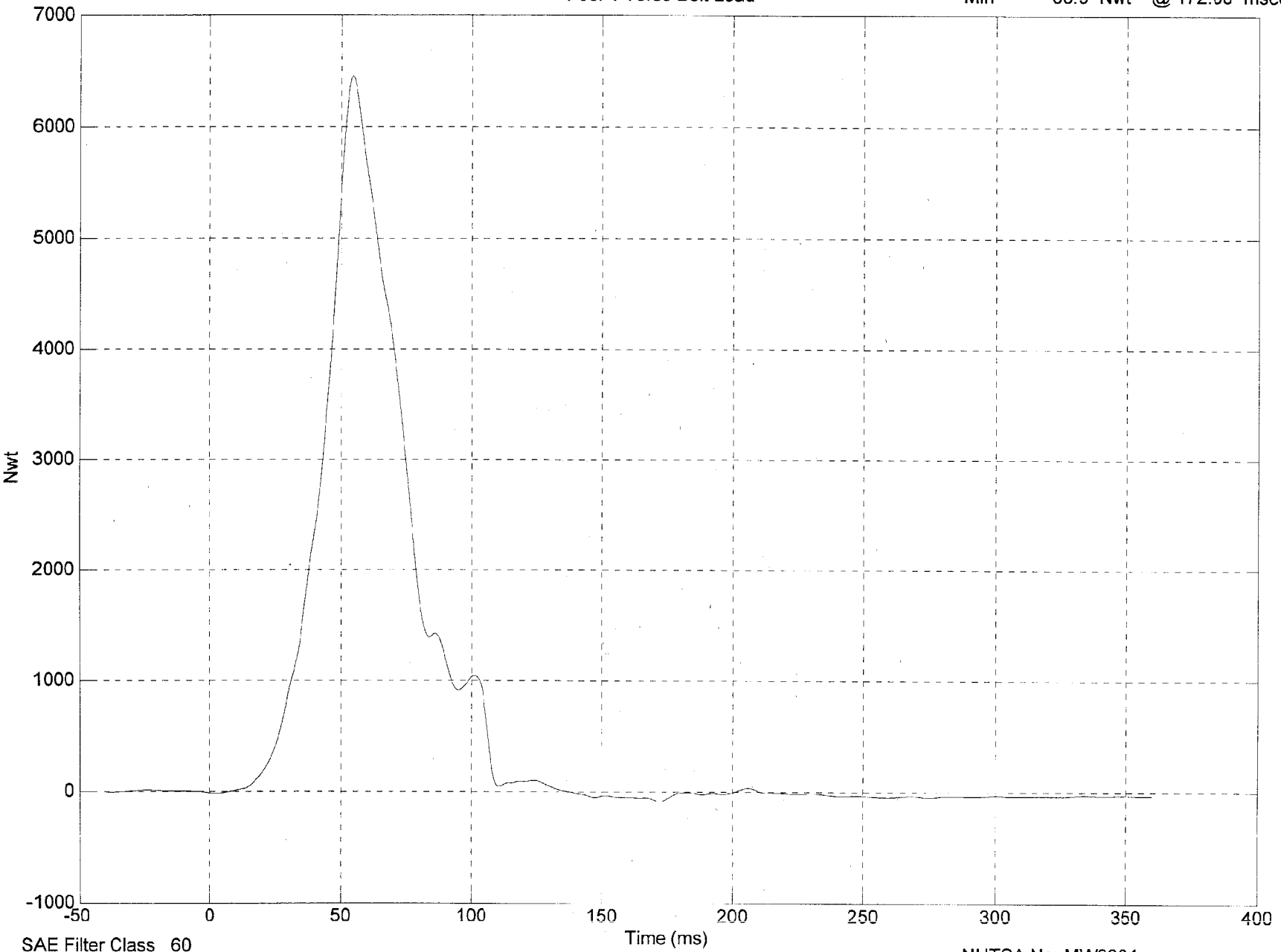
SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 1 Torso Belt Load

Max = 6.45e+003 Nwt @ 54.40 msec
Min = -83.9 Nwt @ 172.00 msec



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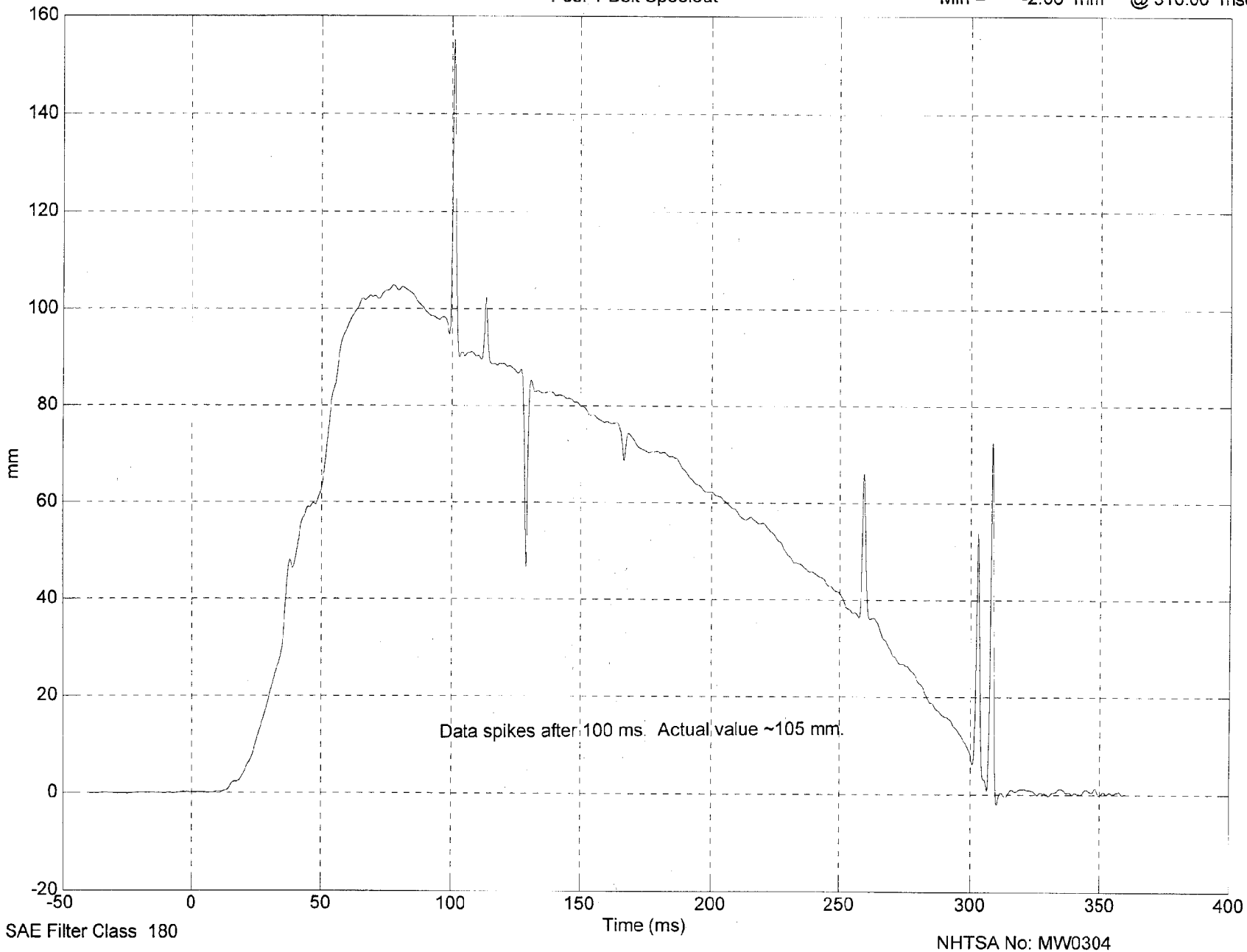
8413-22

SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 155 mm @ 100.80 msec
Min = -2.06 mm @ 310.00 msec



SAE Filter Class 180

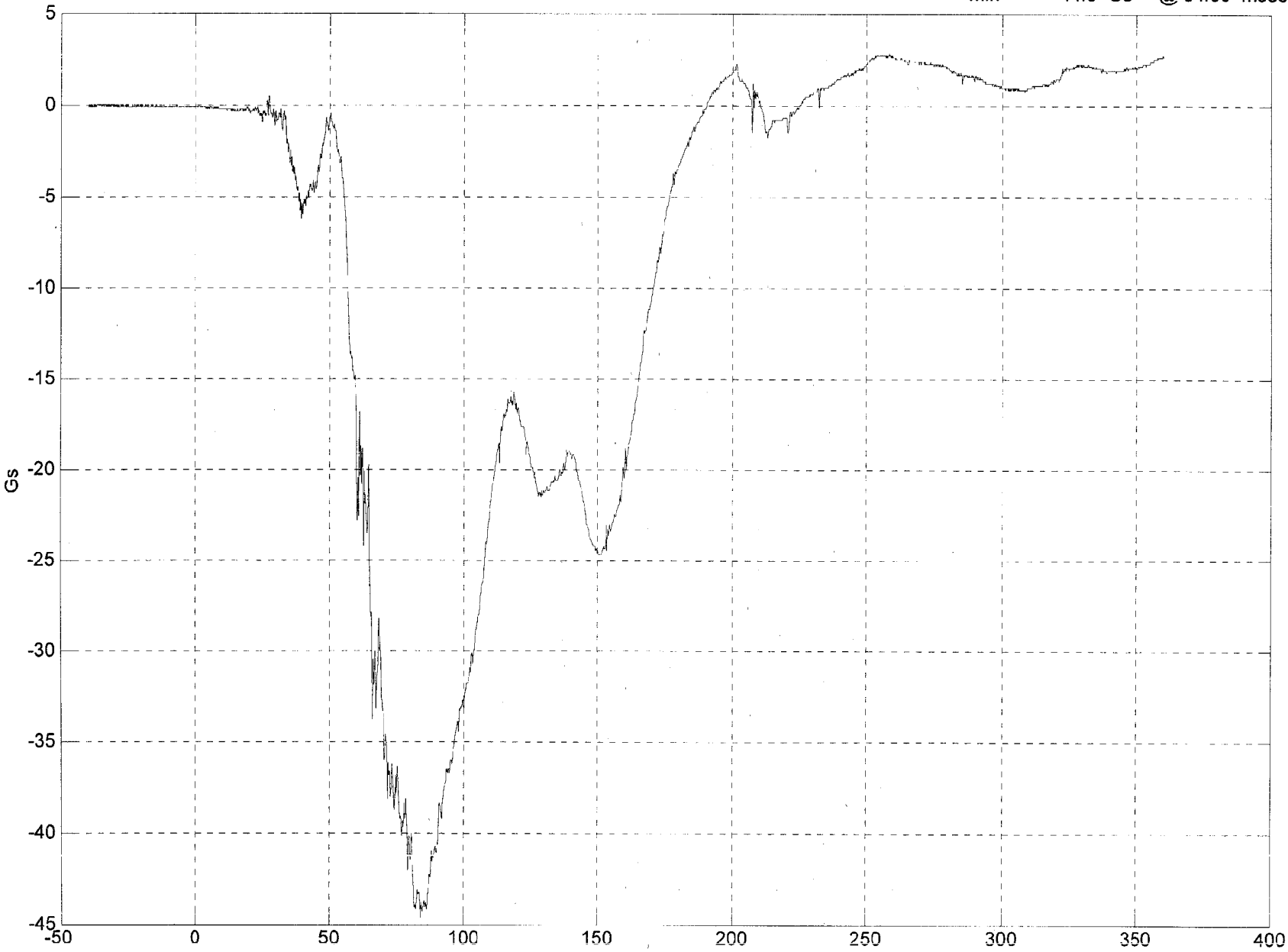
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Head X

Max = 2.87 Gs @ 258.30 msec
Min = -44.6 Gs @ 84.00 msec



SAE Filter Class 1000

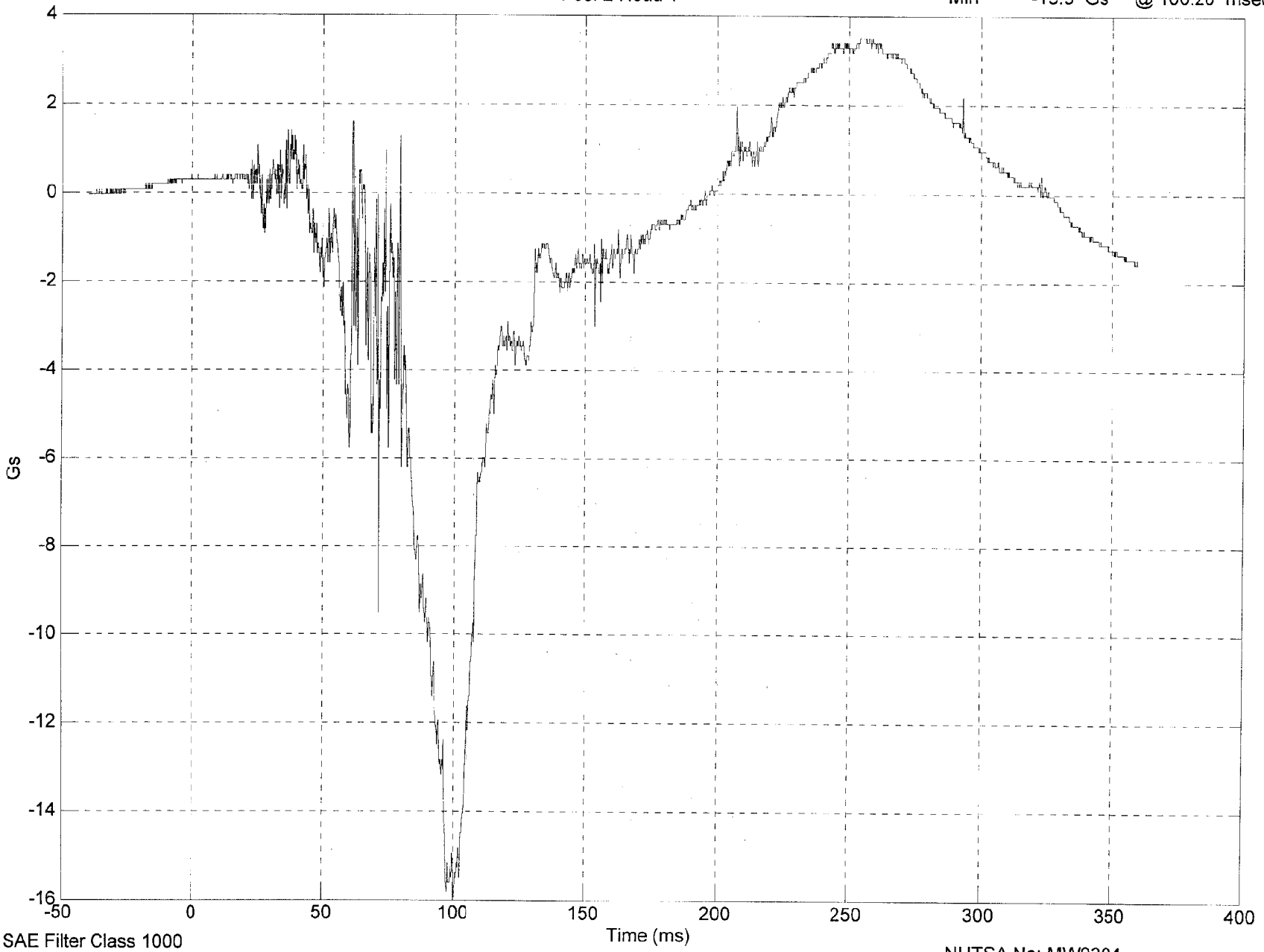
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Head Y

Max = 3.5 Gs @ 254.20 msec
Min = -15.9 Gs @ 100.20 msec



SAE Filter Class 1000

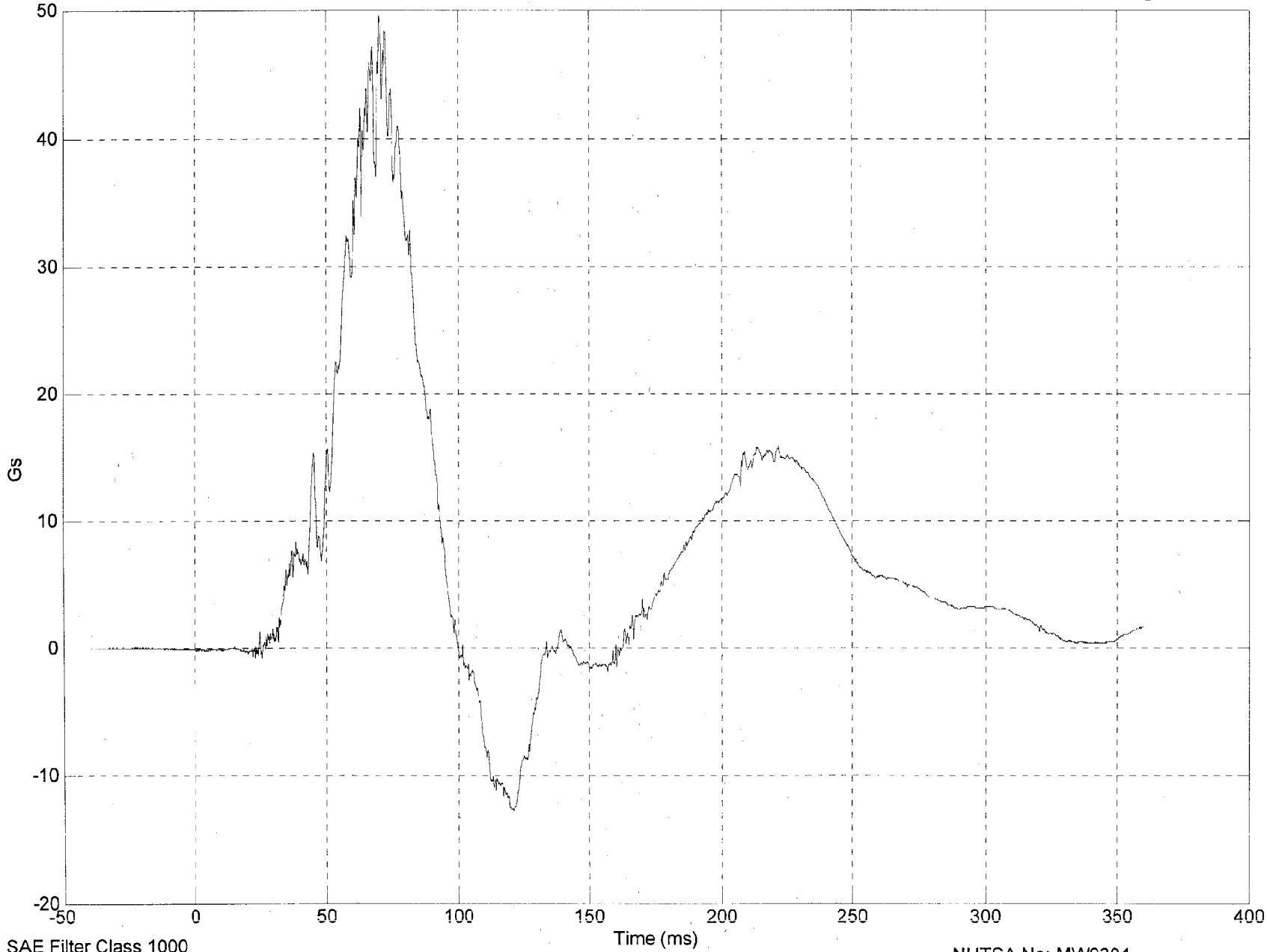
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Head Z

Max = 49.6 Gs @ 69.90 msec
Min = -12.8 Gs @ 121.10 msec



SAE Filter Class 1000

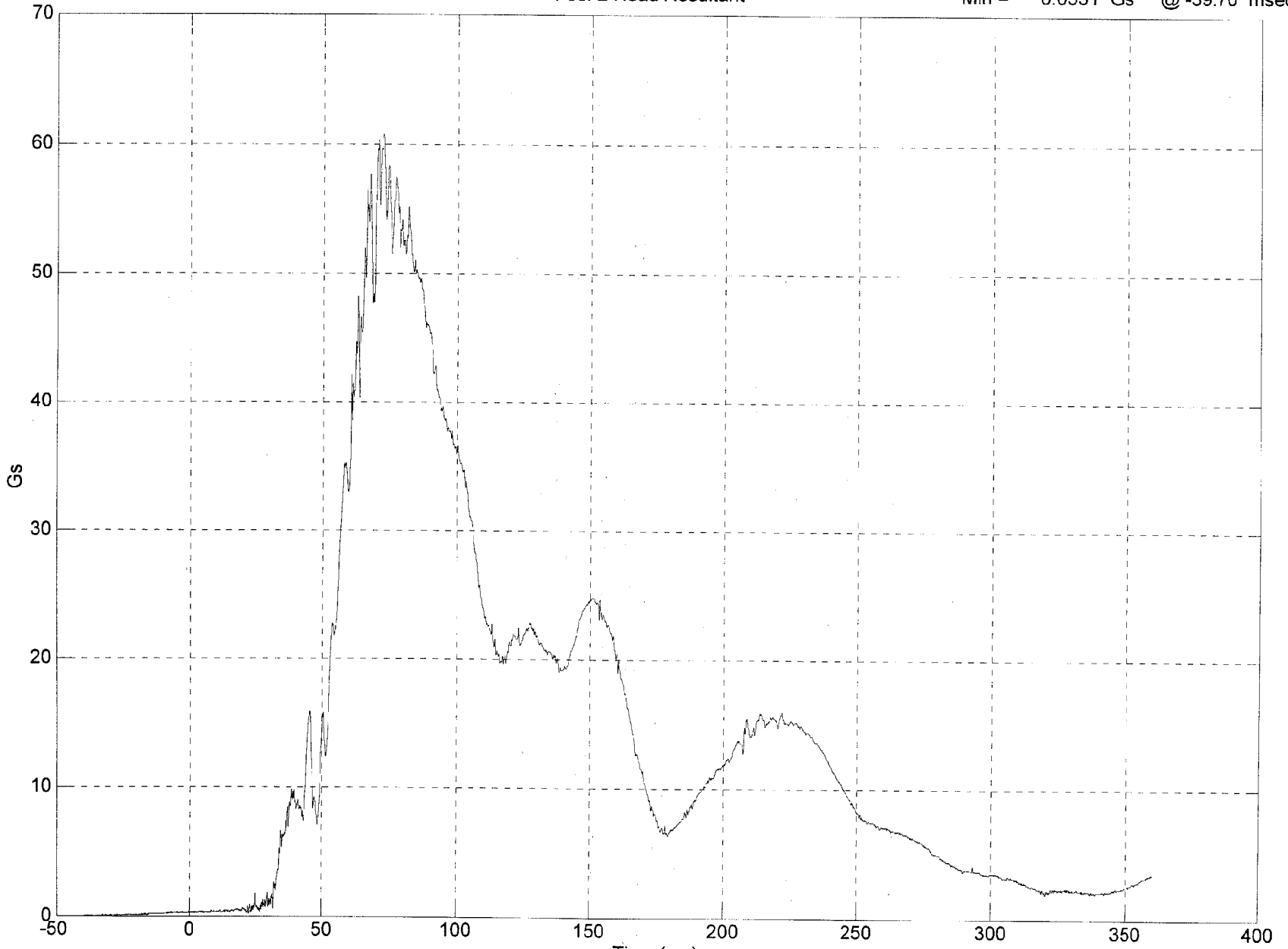
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Head Resultant

Max = 60.8 Gs @ 72.30 msec
Min = 0.0531 Gs @ -39.70 msec



SAE Filter Class 1000

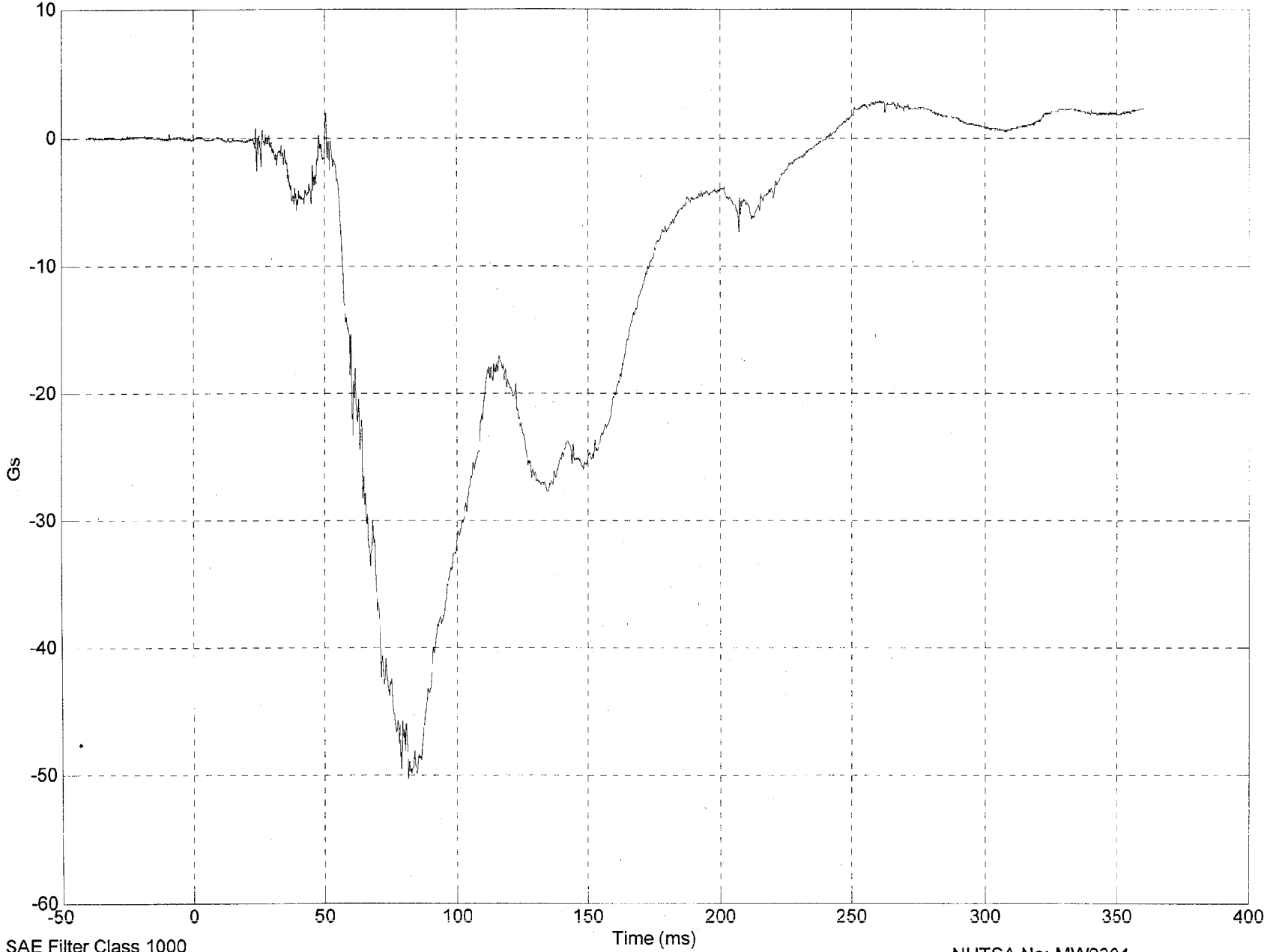
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Head X(R)

Max = 2.95 Gs @ 260.60 msec
Min = -50.3 Gs @ 81.80 msec



SAE Filter Class 1000

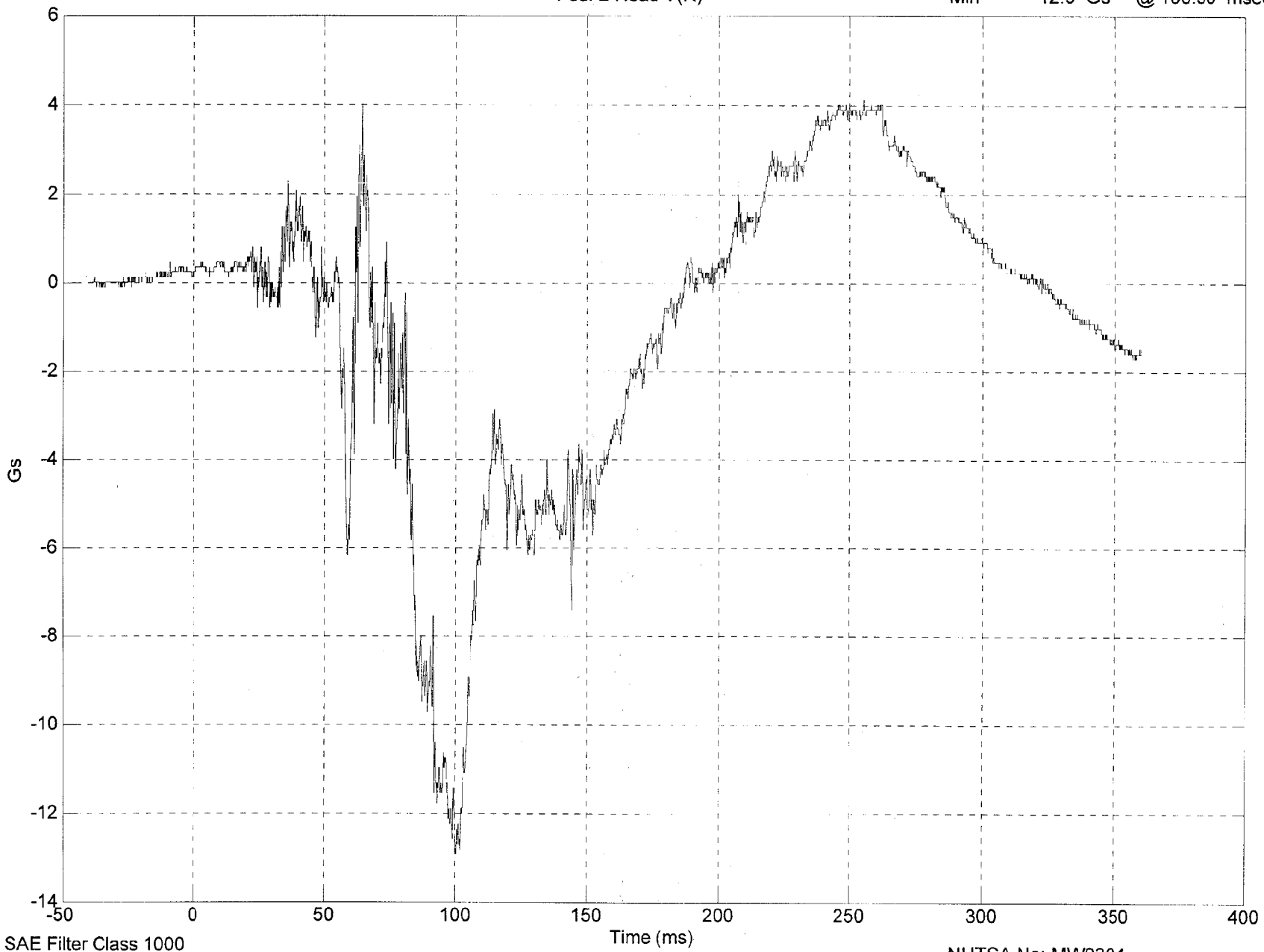
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Head Y(R)

Max = 4.14 Gs @ 255.10 msec
Min = -12.9 Gs @ 100.30 msec



SAE Filter Class 1000

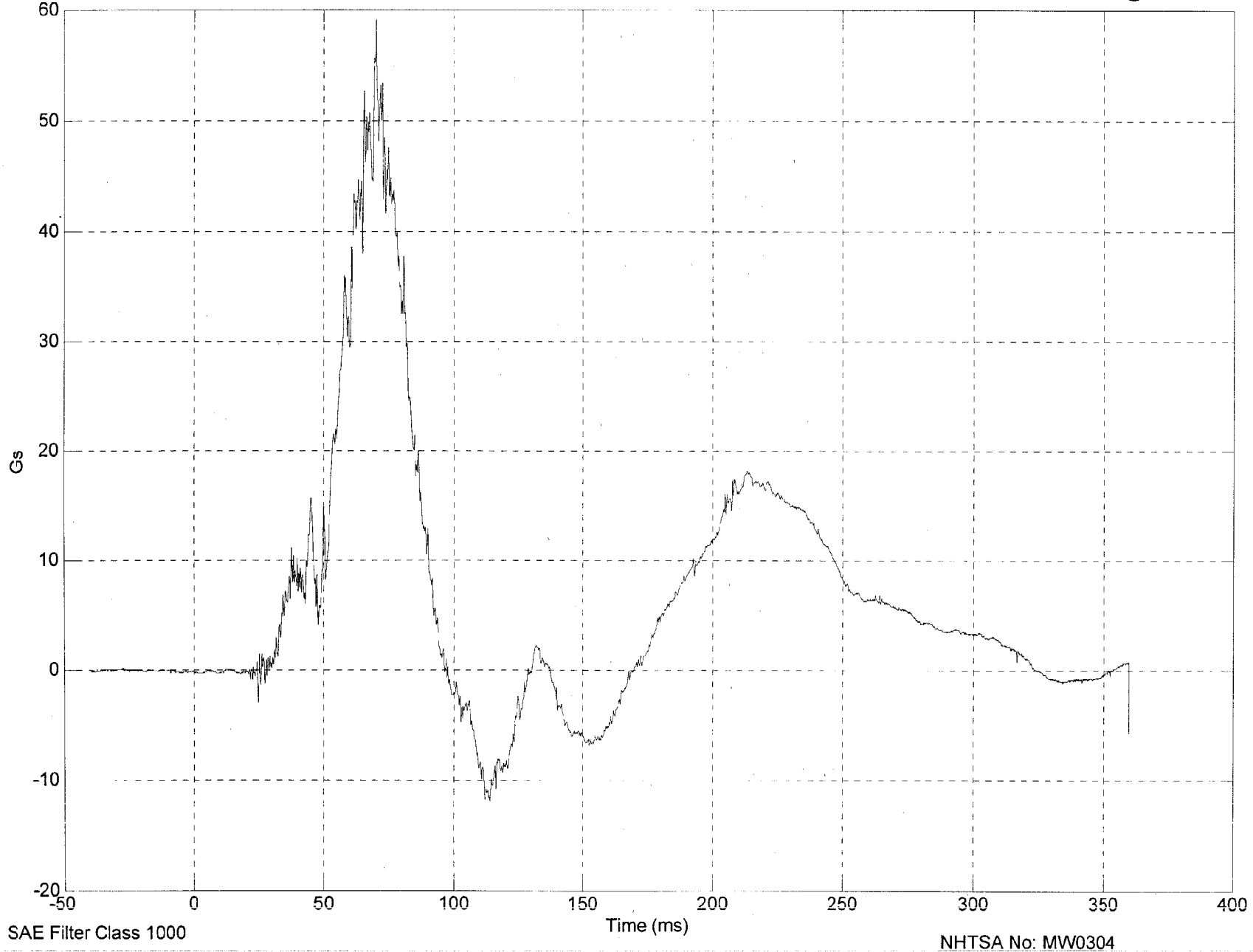
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Head Z(R)

Max = 59.2 Gs @ 70.00 msec
Min = -11.9 Gs @ 114.20 msec



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8413-22

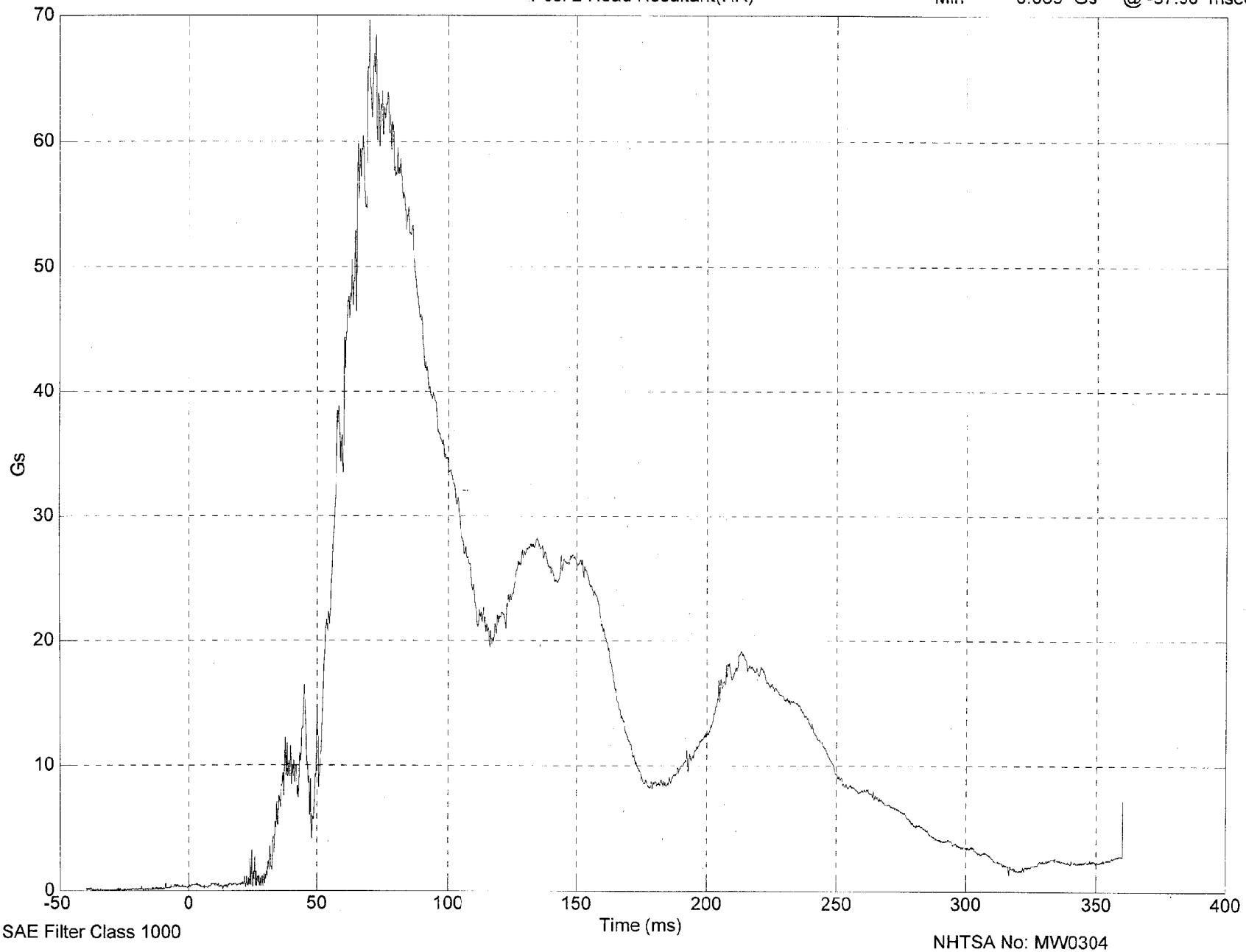
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Head Resultant(RR)

Max = 69.6 Gs @ 69.90 msec
Min = 0.069 Gs @ -37.90 msec



SAE Filter Class 1000

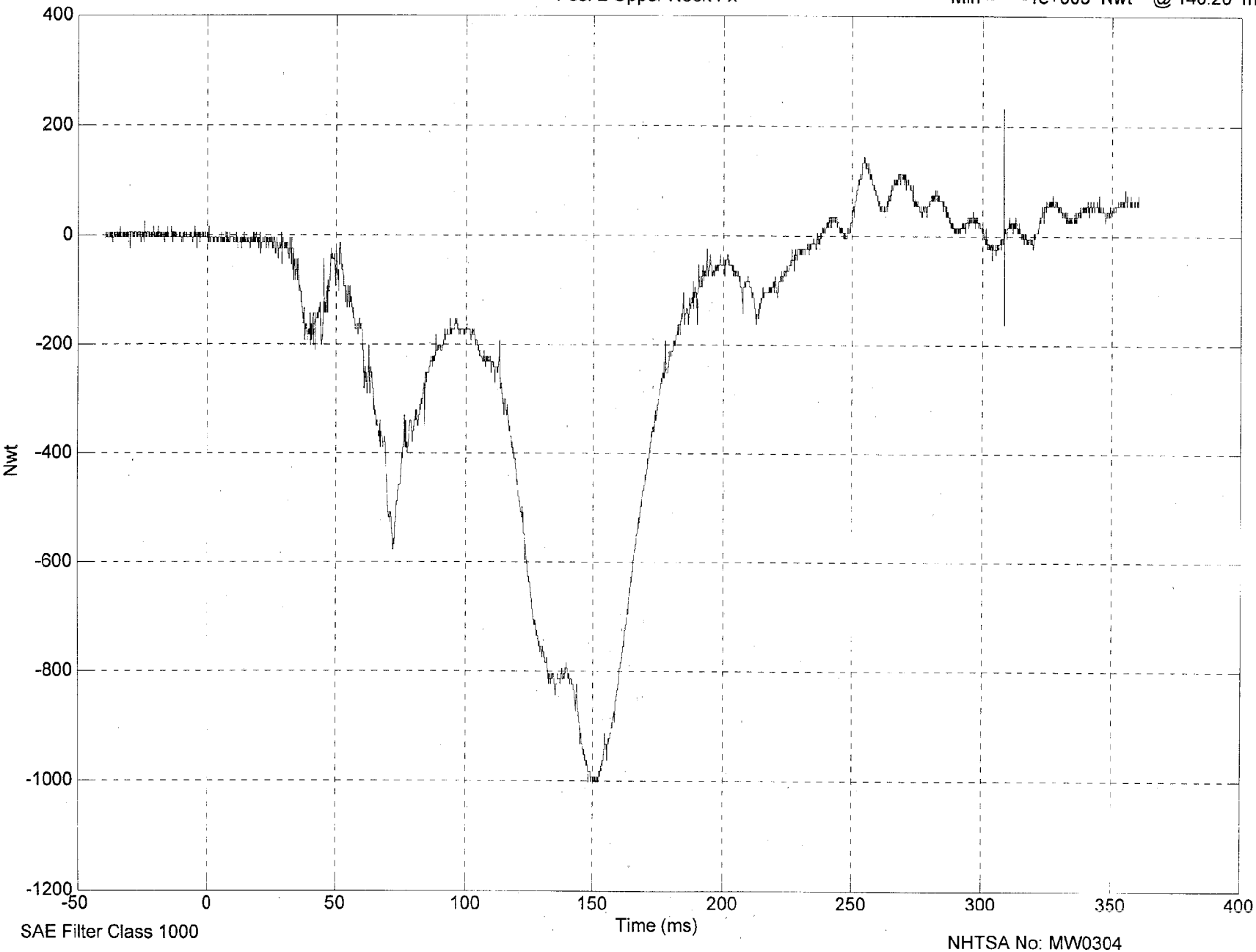
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Upper Neck Fx

Max = 233 Nwt @ 308.10 msec
Min = -1e+003 Nwt @ 148.20 msec



B-62

8413-22

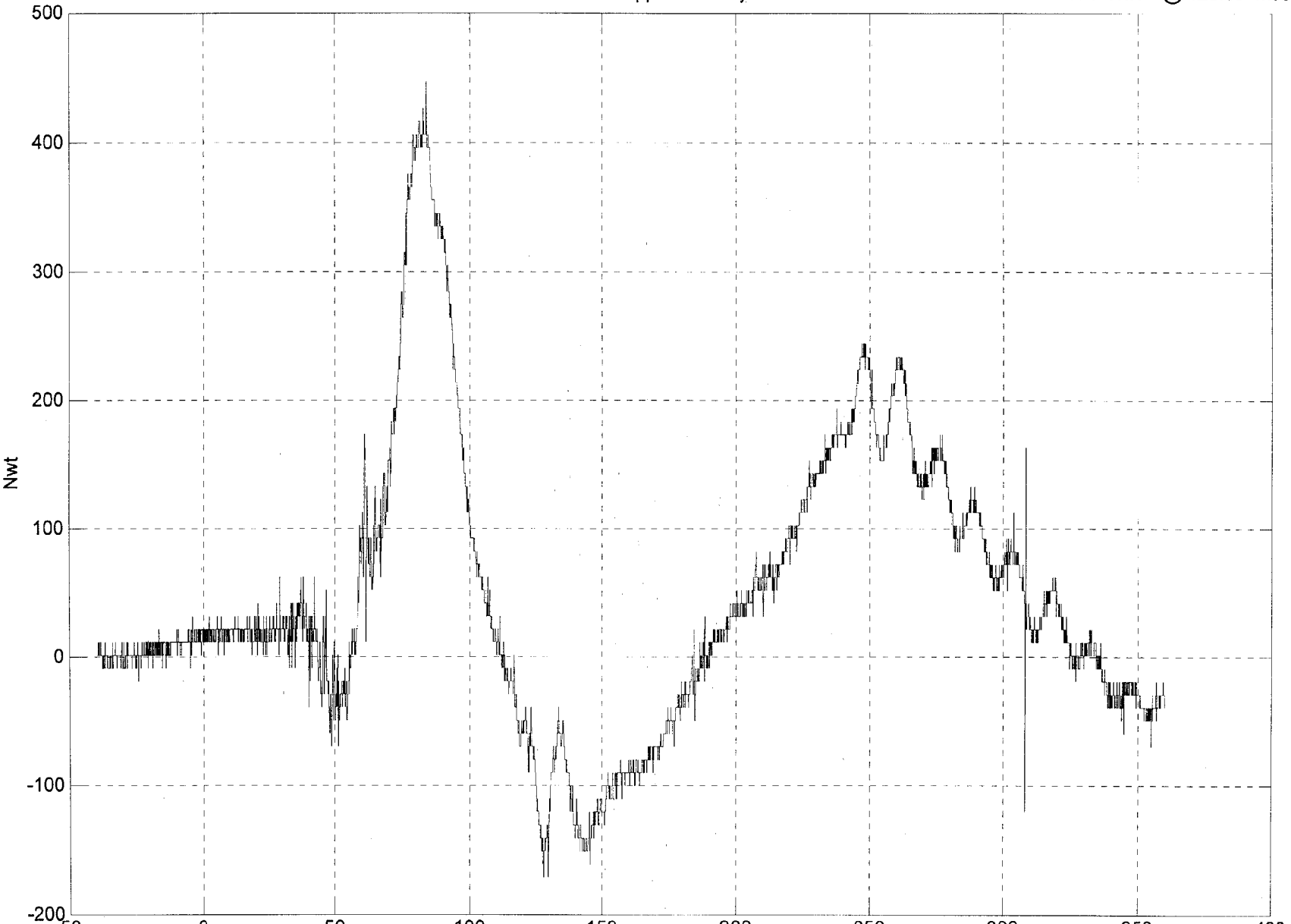
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Upper Neck Fy

Max = 447 Nwt @ 84.00 msec
Min = -171 Nwt @ 128.00 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

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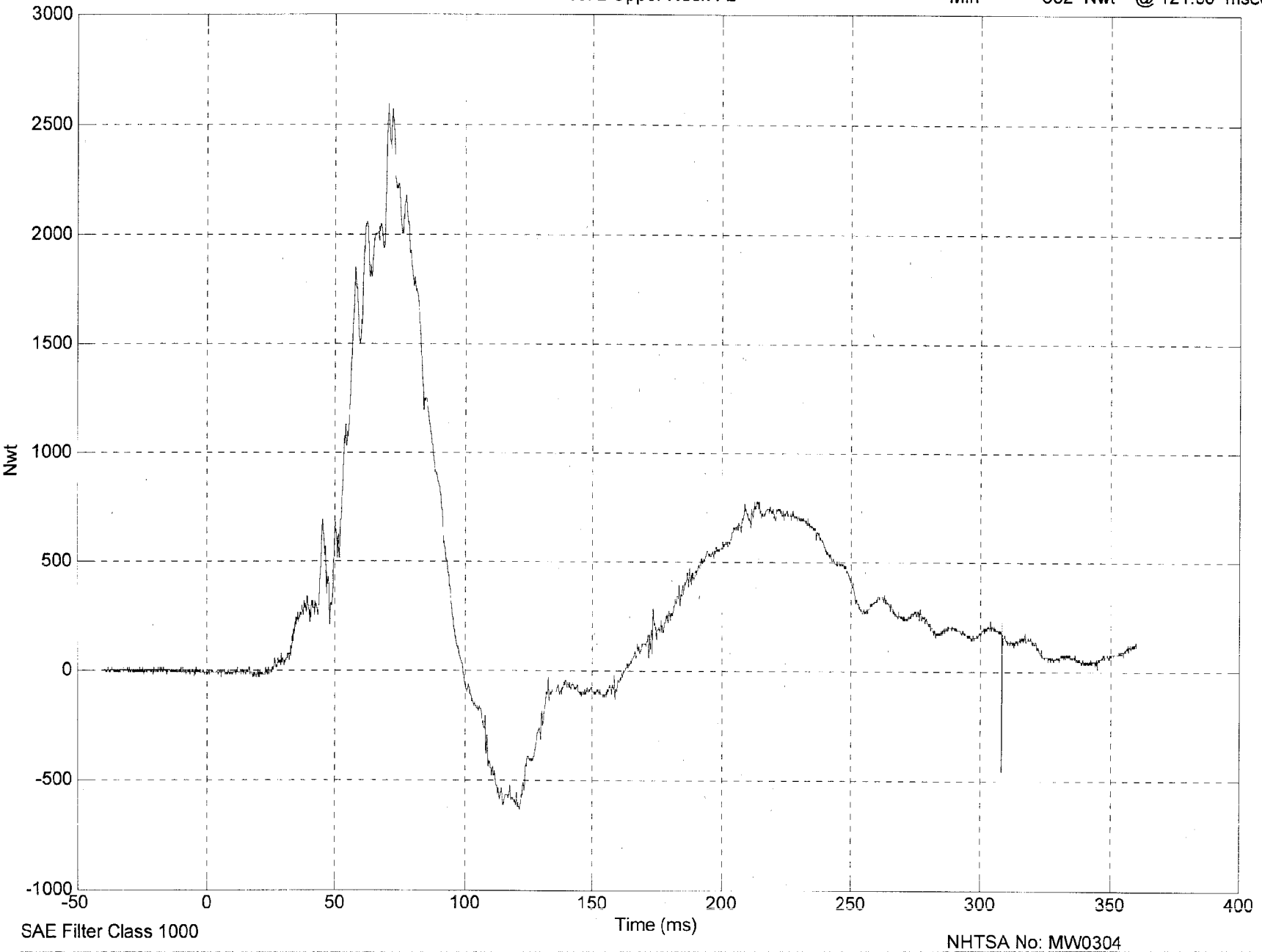
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Upper Neck Fz

Max = 2.59e+003 Nwt @ 70.30 msec
Min = -632 Nwt @ 121.30 msec



B-64

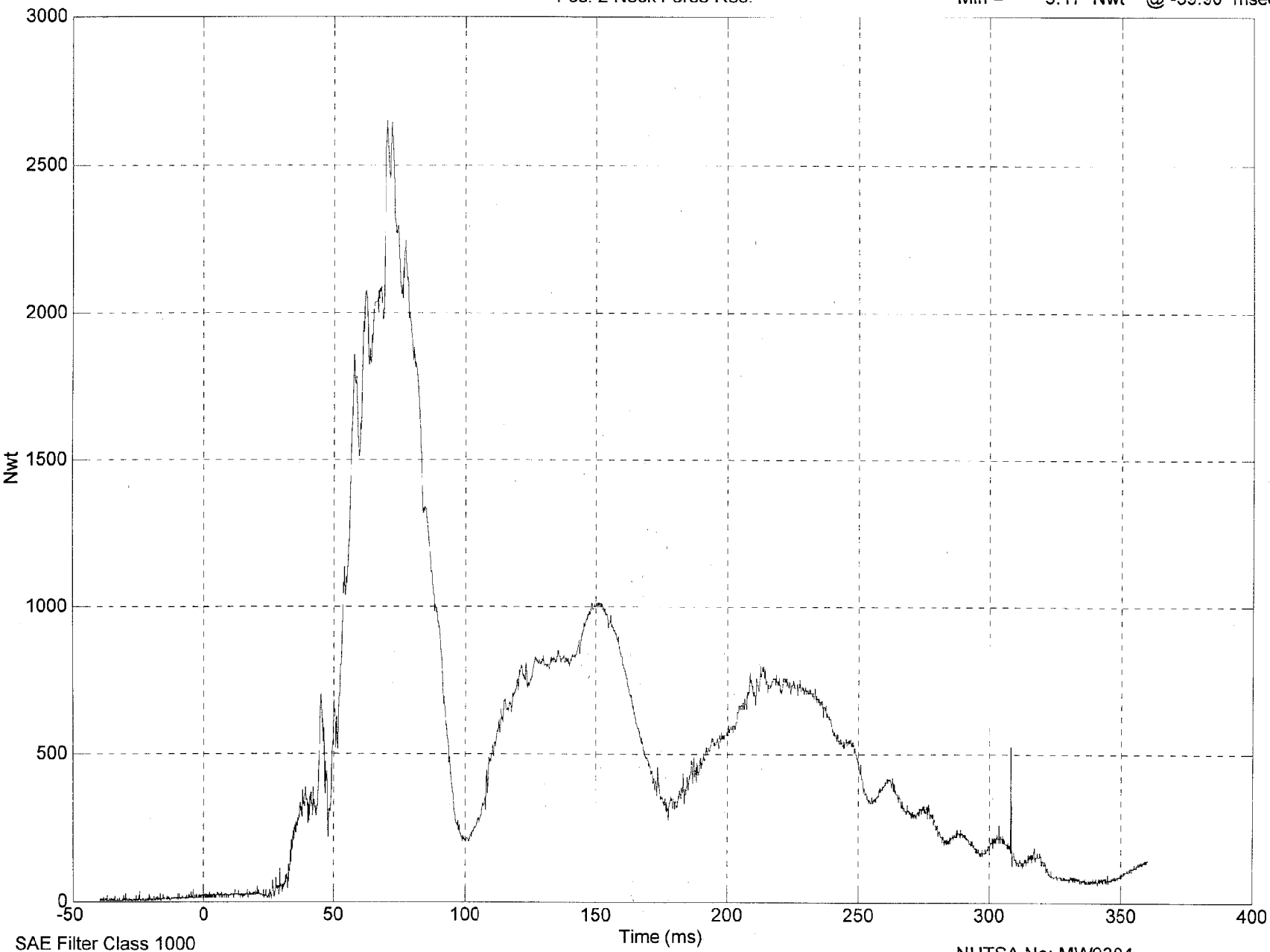
8413-22

SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 2.65e+003 Nwt @ 70.30 msec
Min = 5.17 Nwt @ -39.90 msec



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8413-22

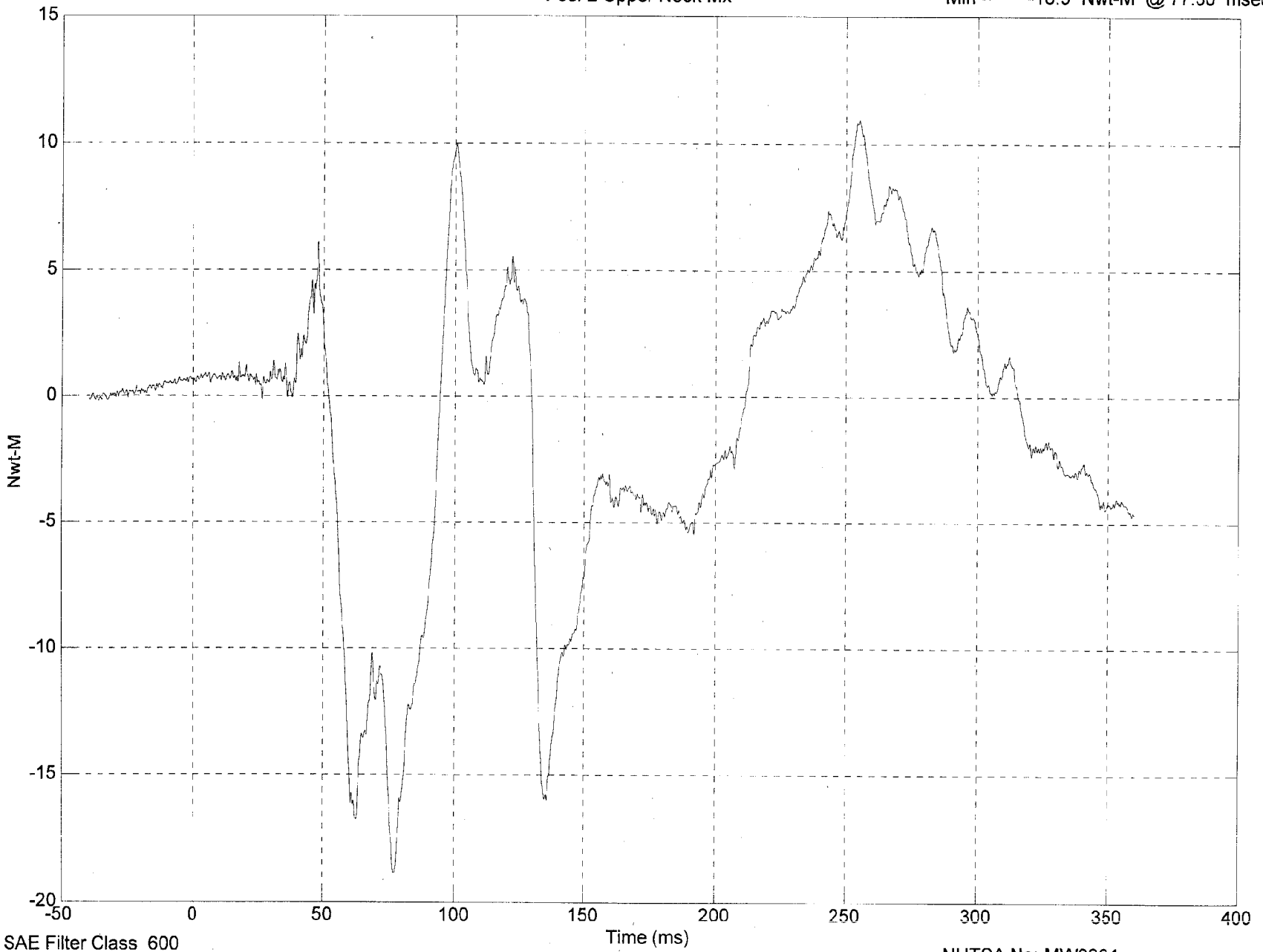
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Upper Neck Mx

Max = 11 Nwt-M @ 255.00 msec
Min = -18.9 Nwt-M @ 77.30 msec



SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

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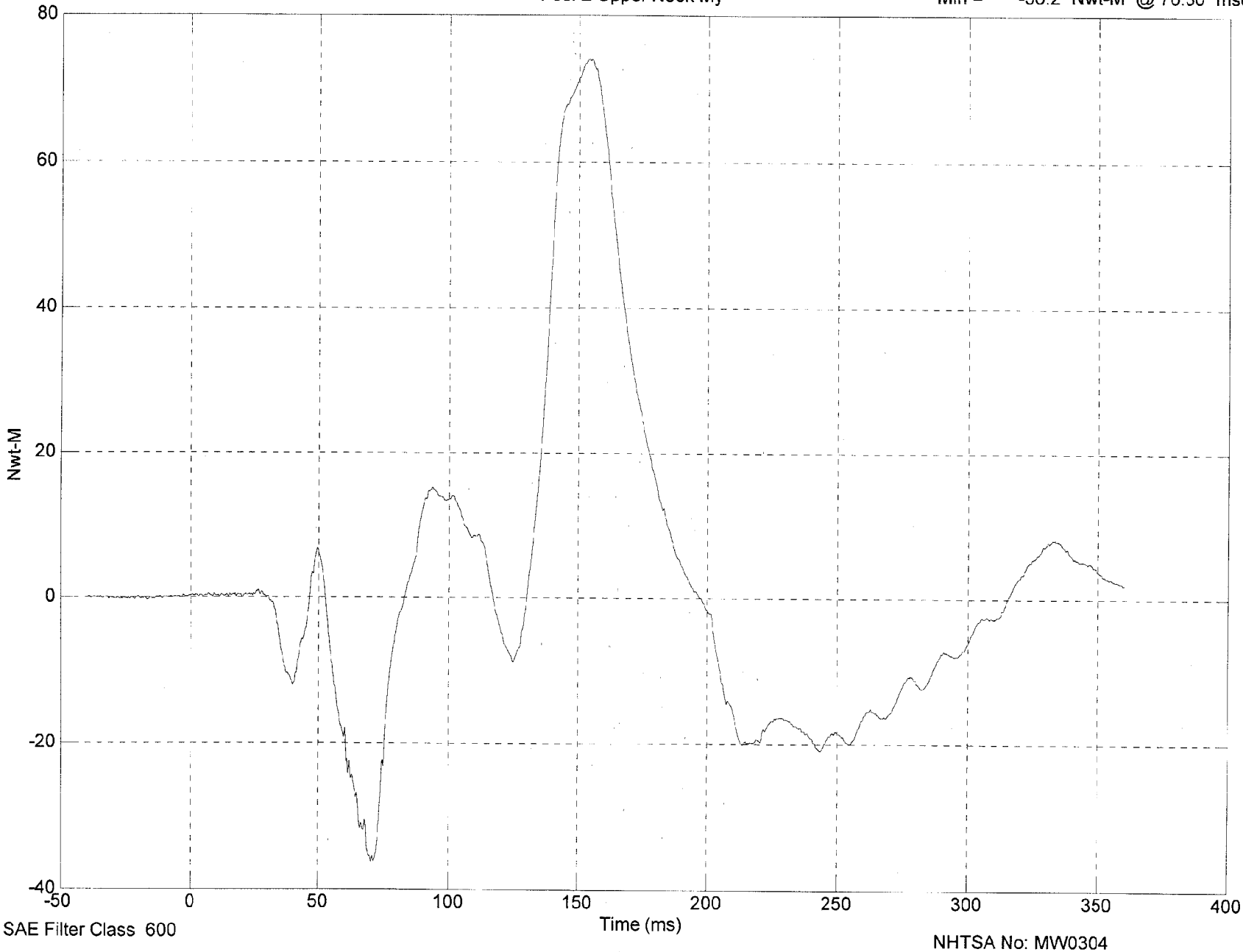
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Upper Neck My

Max = 74 Nwt-M @ 154.00 msec
Min = -36.2 Nwt-M @ 70.30 msec



SAE Filter Class 600

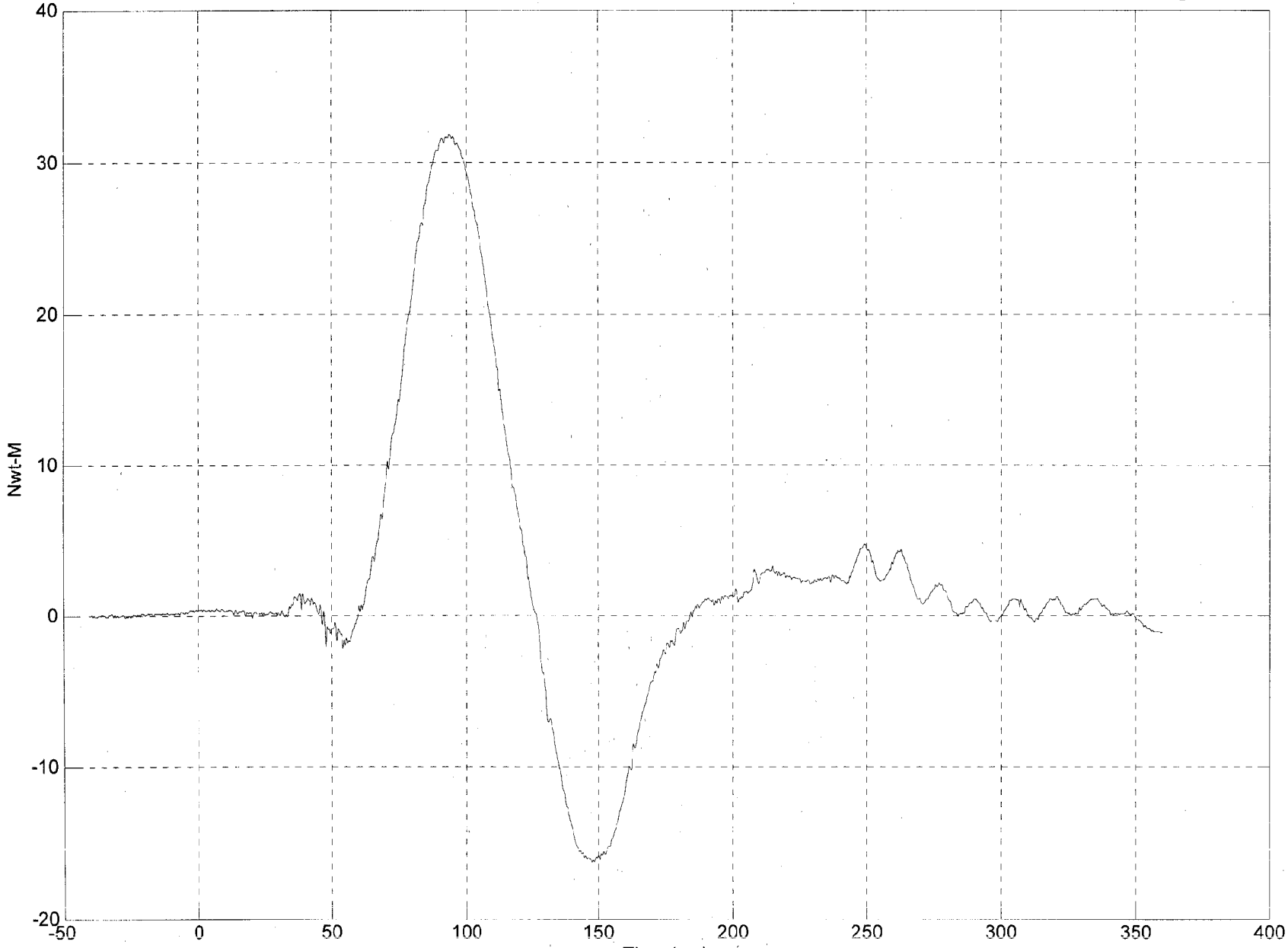
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Upper Neck Mz

Max = 31.9 Nwt-M @ 93.70 msec
Min = -16.2 Nwt-M @ 147.60 msec



SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

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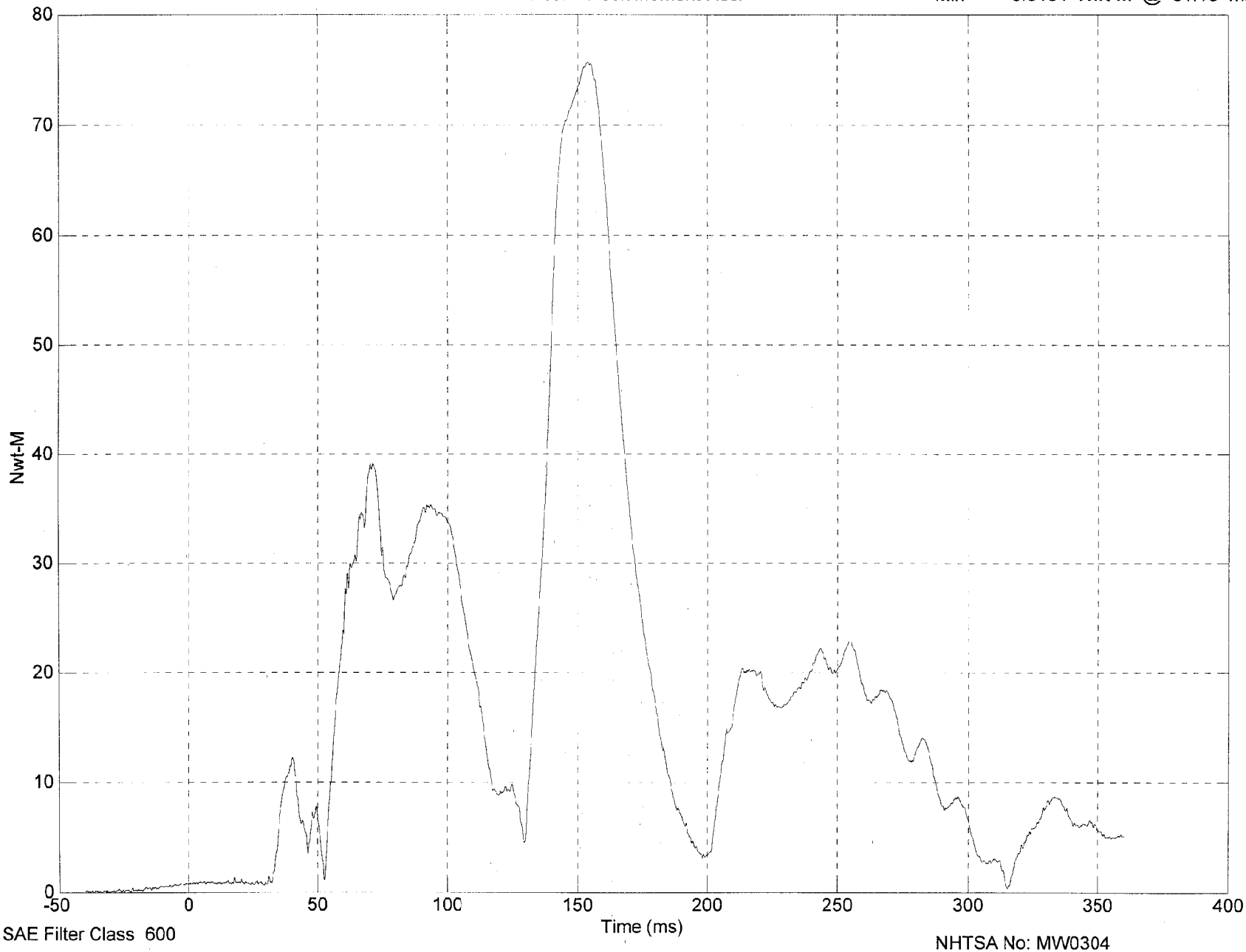
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 75.7 Nwt-M @ 154.00 msec
Min = 0.0161 Nwt-M @ -31.10 msec



SAE Filter Class 600

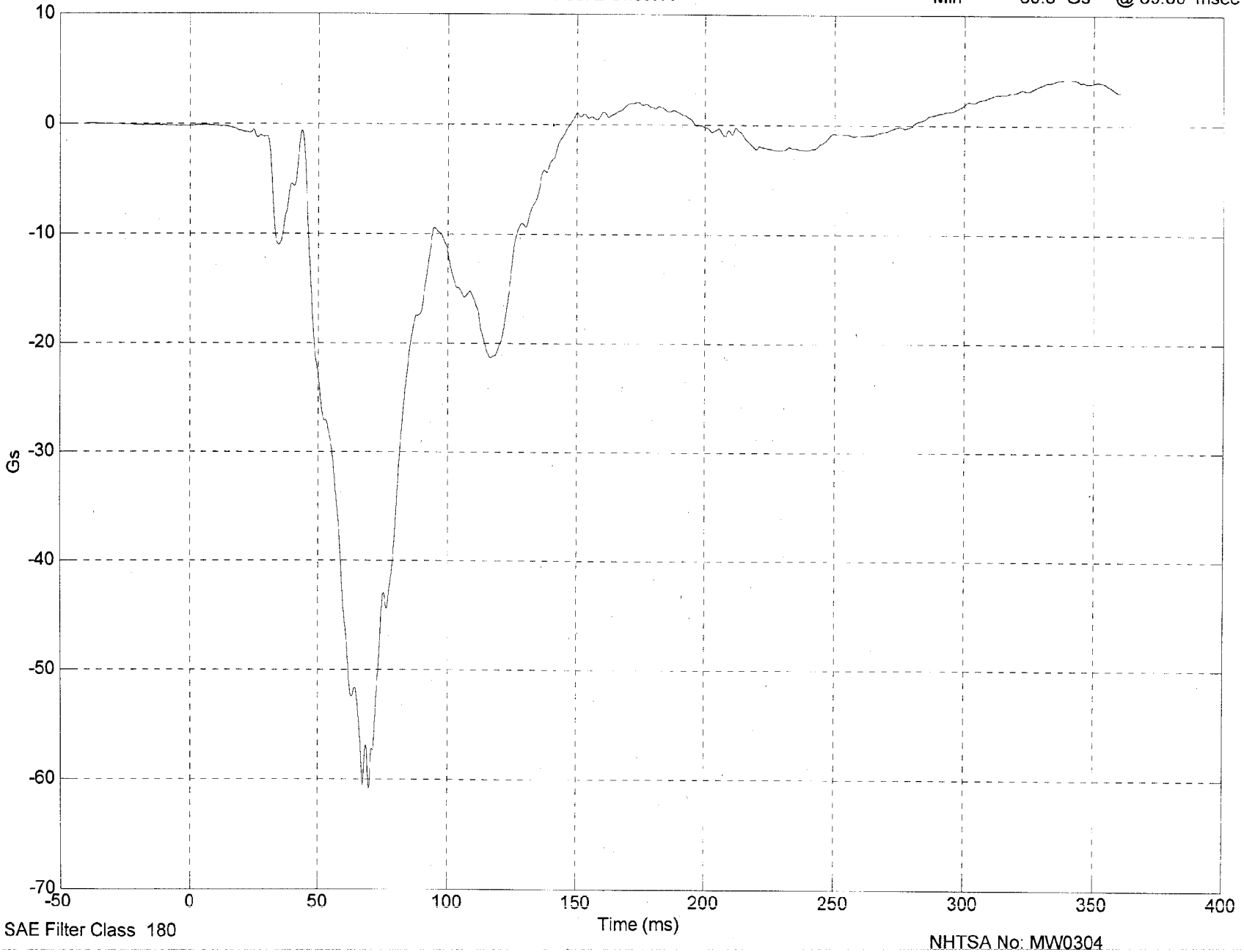
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Chest X

Max = 4.2 Gs @ 339.00 msec
Min = -60.8 Gs @ 69.80 msec



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

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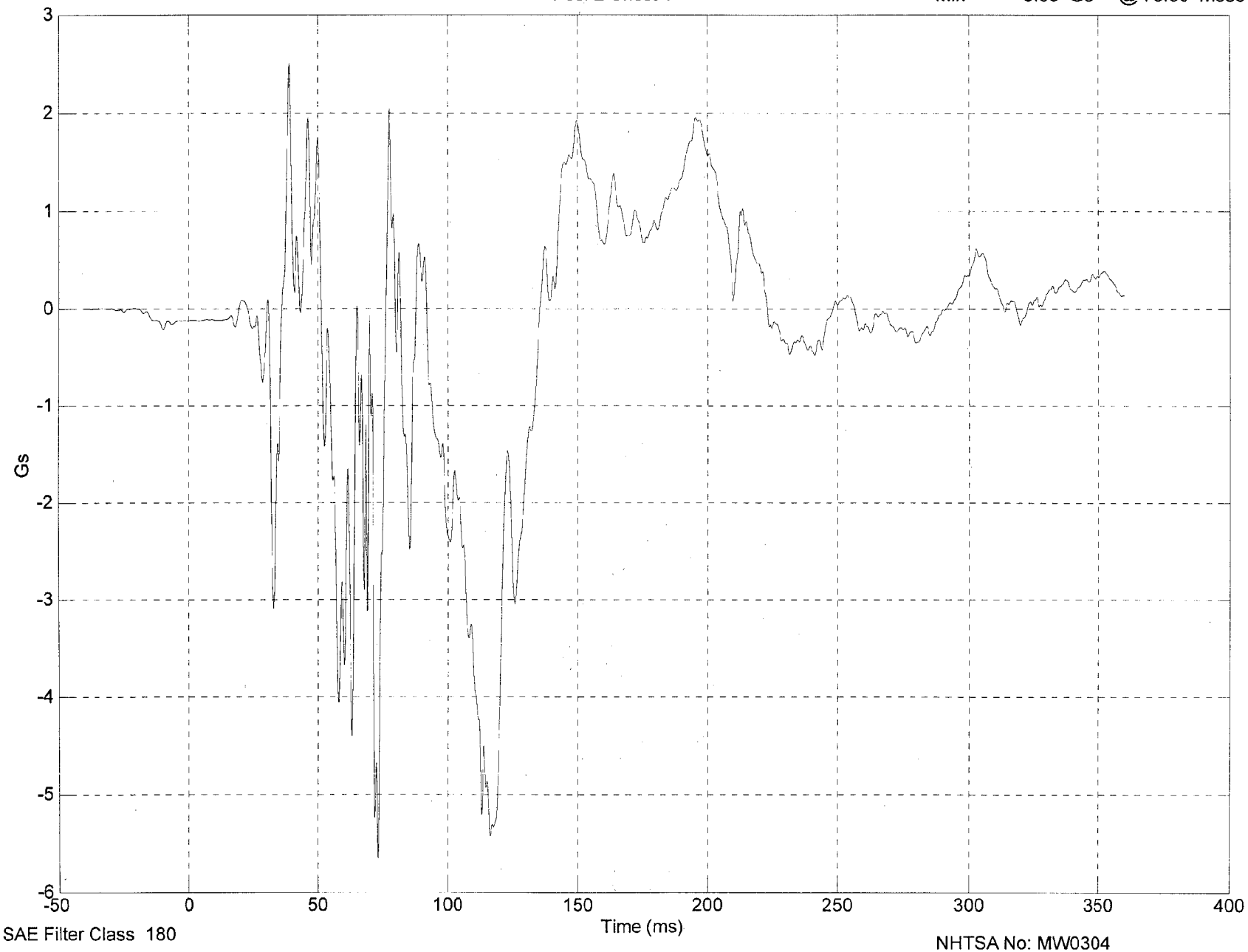
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Chest Y

Max = 2.5 Gs @ 38.90 msec
Min = -5.65 Gs @ 73.50 msec



SAE Filter Class 180

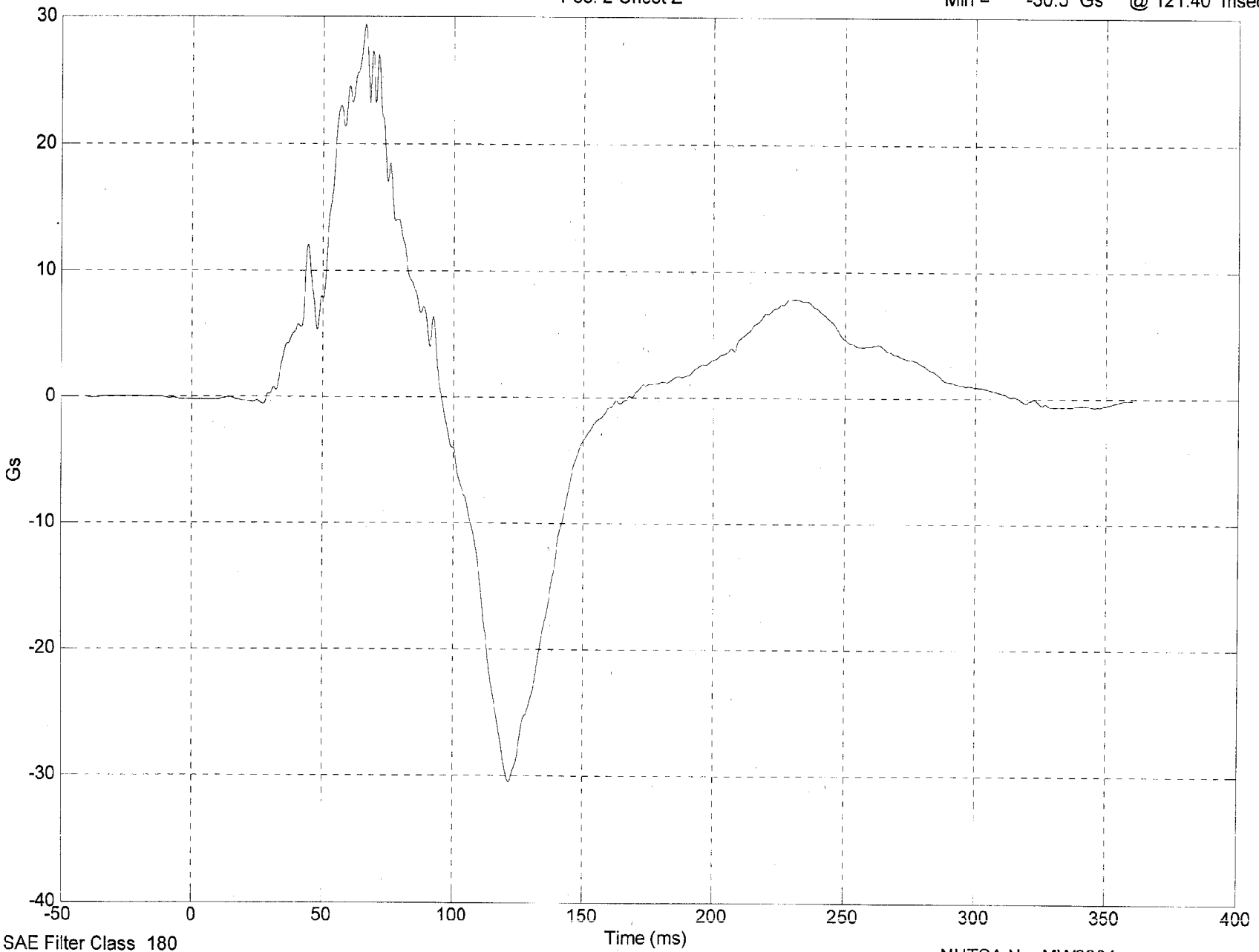
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Chest Z

Max = 29.4 Gs @ 66.00 msec
Min = -30.5 Gs @ 121.40 msec



SAE Filter Class 180

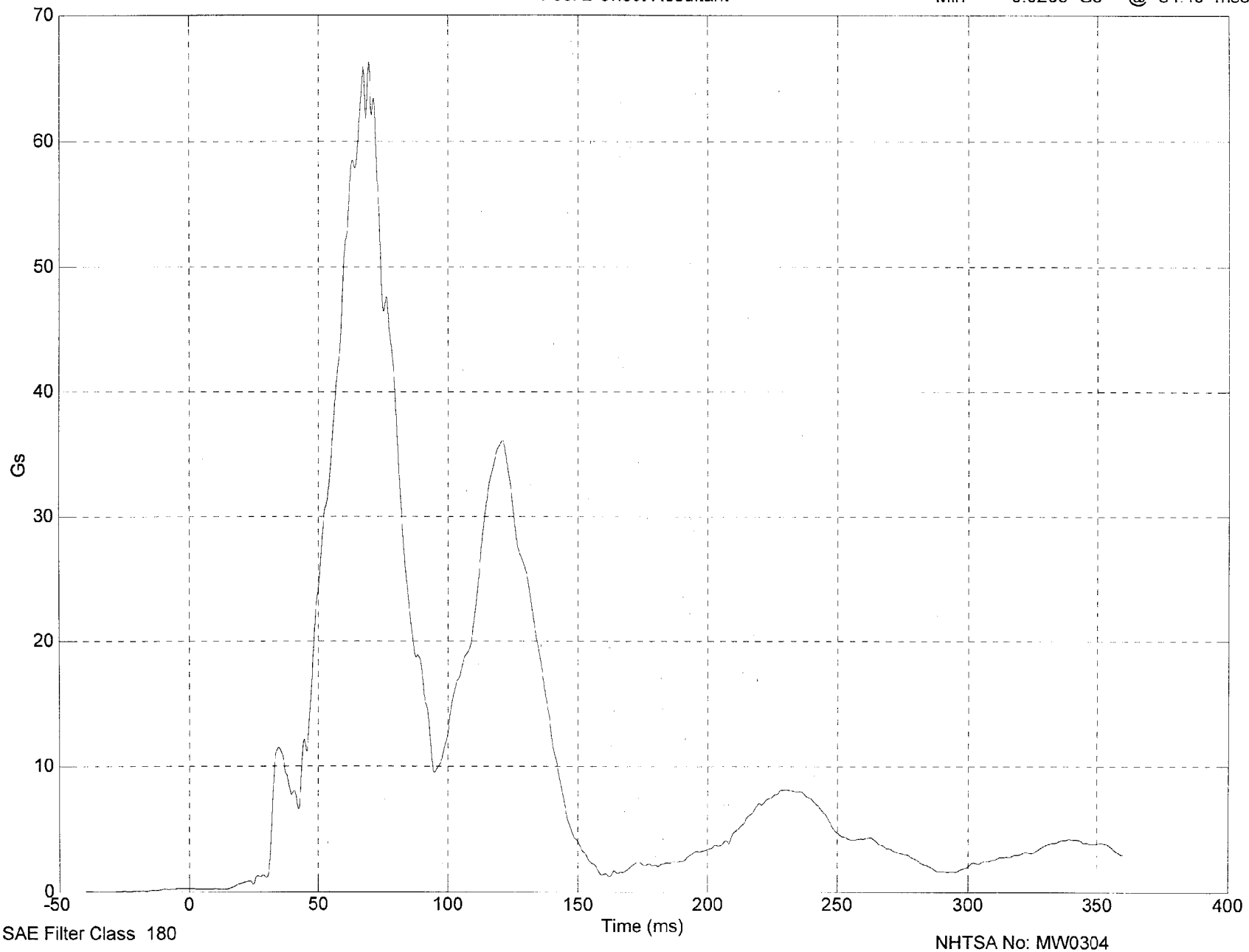
NHTSA No: MW0304
Date: 10 Feb 1998

B-72

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 66.3 Gs @ 69.70 msec
Min = 0.0208 Gs @ -34.40 msec



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8413-22

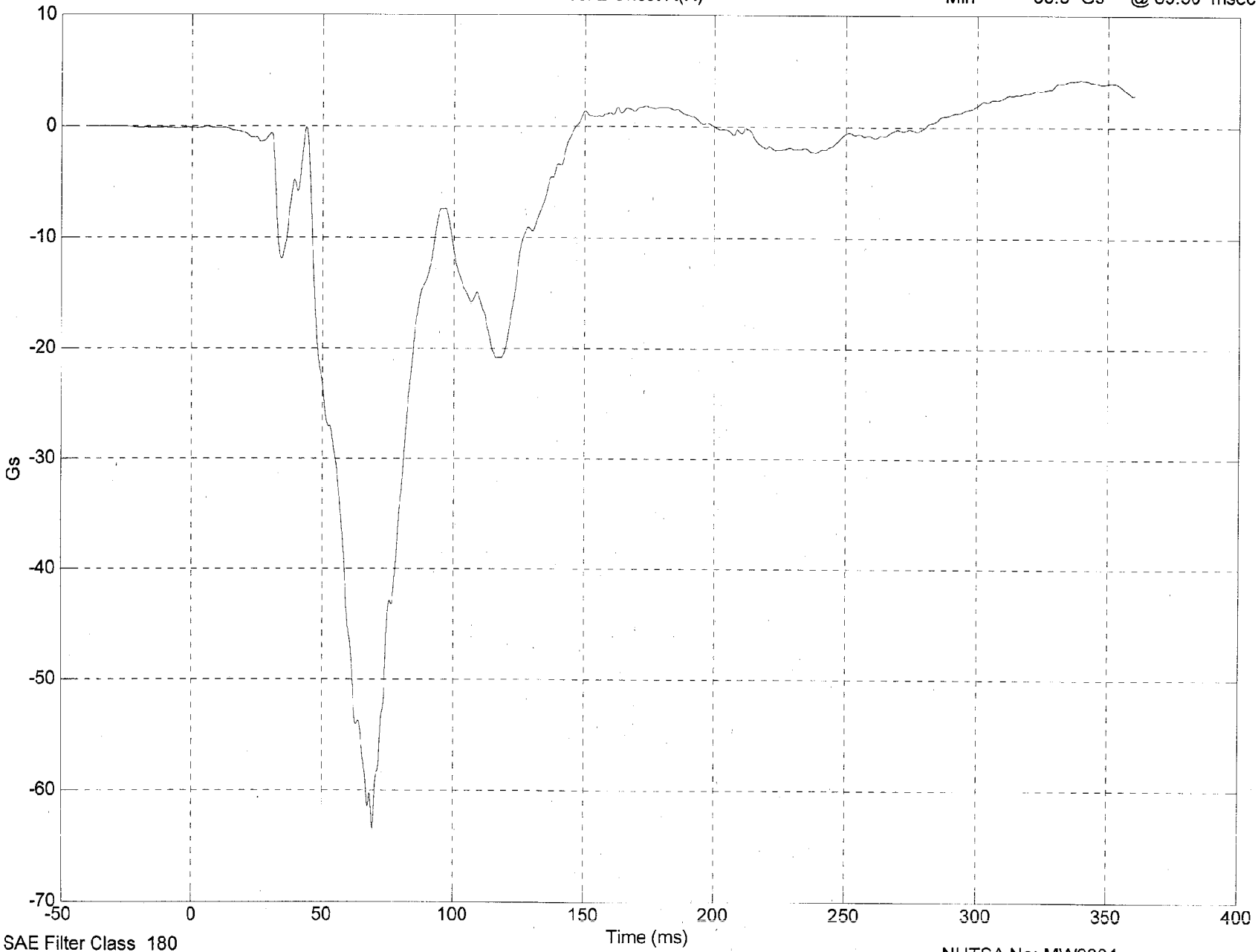
SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Chest X(R)

Max = 4.25 Gs @ 339.30 msec
Min = -63.5 Gs @ 69.50 msec



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

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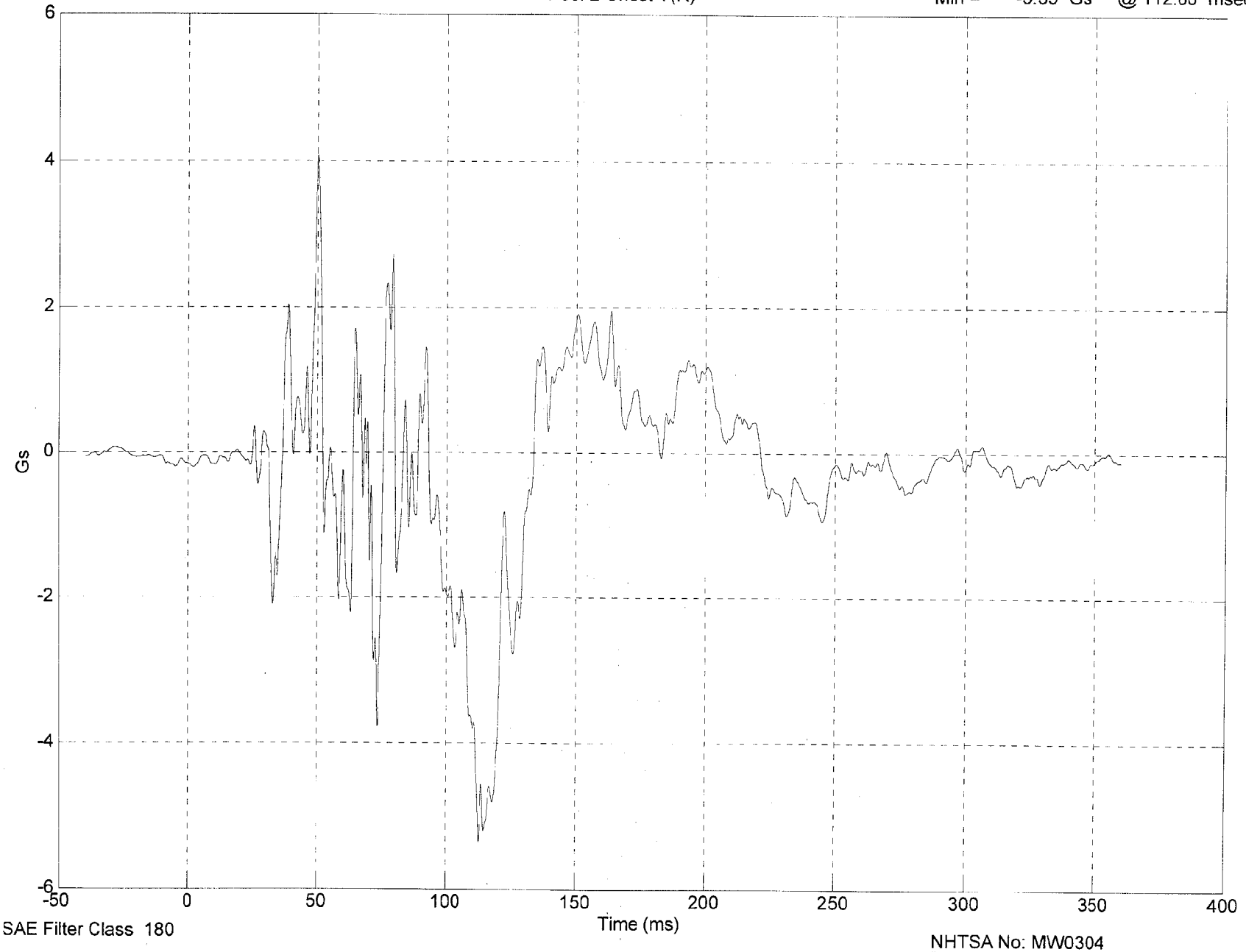
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Chest Y(R)

Max = 4.08 Gs @ 50.10 msec
Min = -5.35 Gs @ 112.80 msec



SAE Filter Class 180

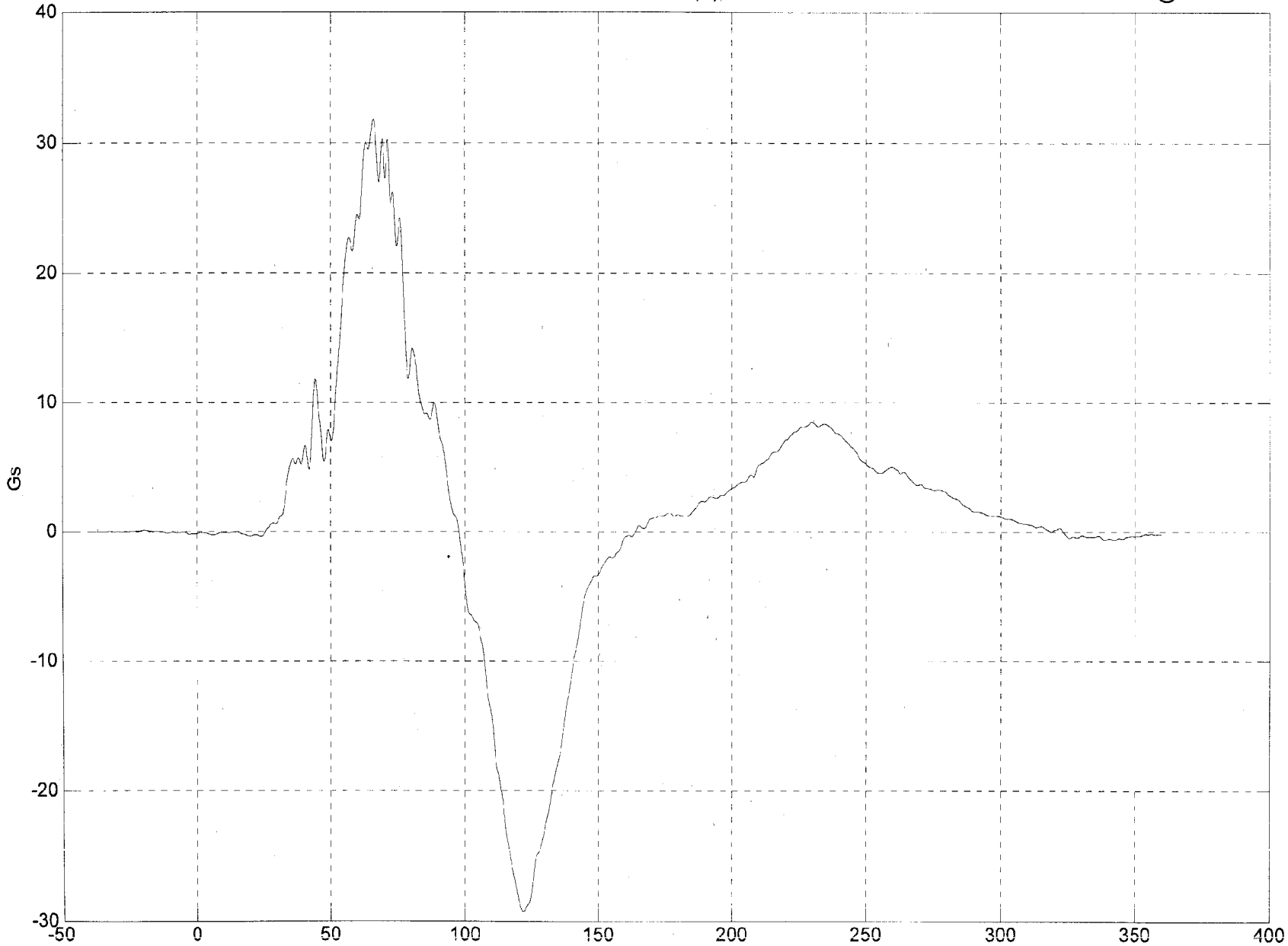
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Chest Z(R)

Max = 31.8 Gs @ 65.90 msec
Min = -29.2 Gs @ 121.70 msec



SAE Filter Class 180

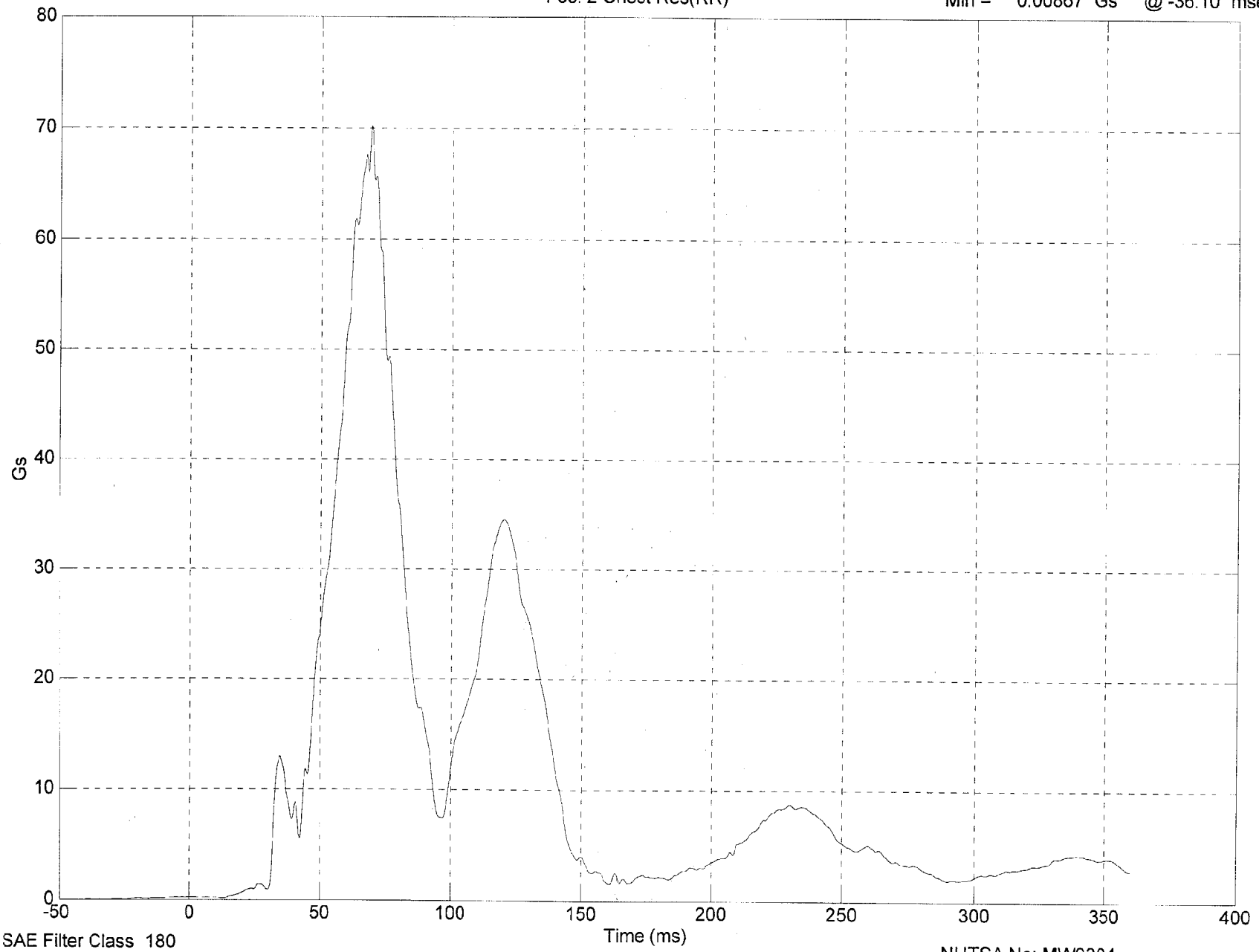
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Chest Res(RR)

Max = 70.2 Gs @ 69.40 msec
Min = 0.00867 Gs @ -36.10 msec



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

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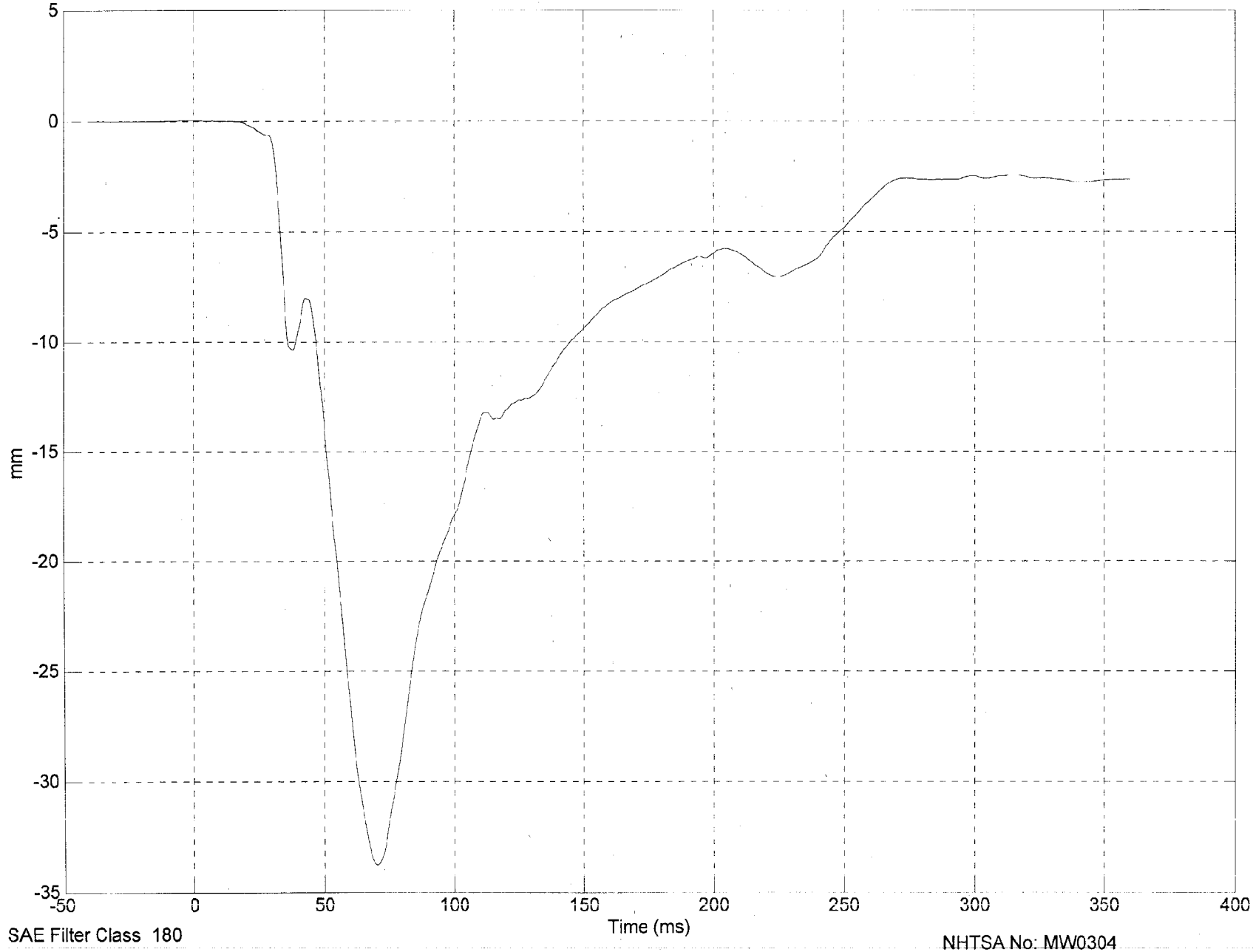
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Chest Disp.

Max = 0.044 mm @ -2.60 msec
Min = -33.8 mm @ 70.50 msec



SAE Filter Class 180

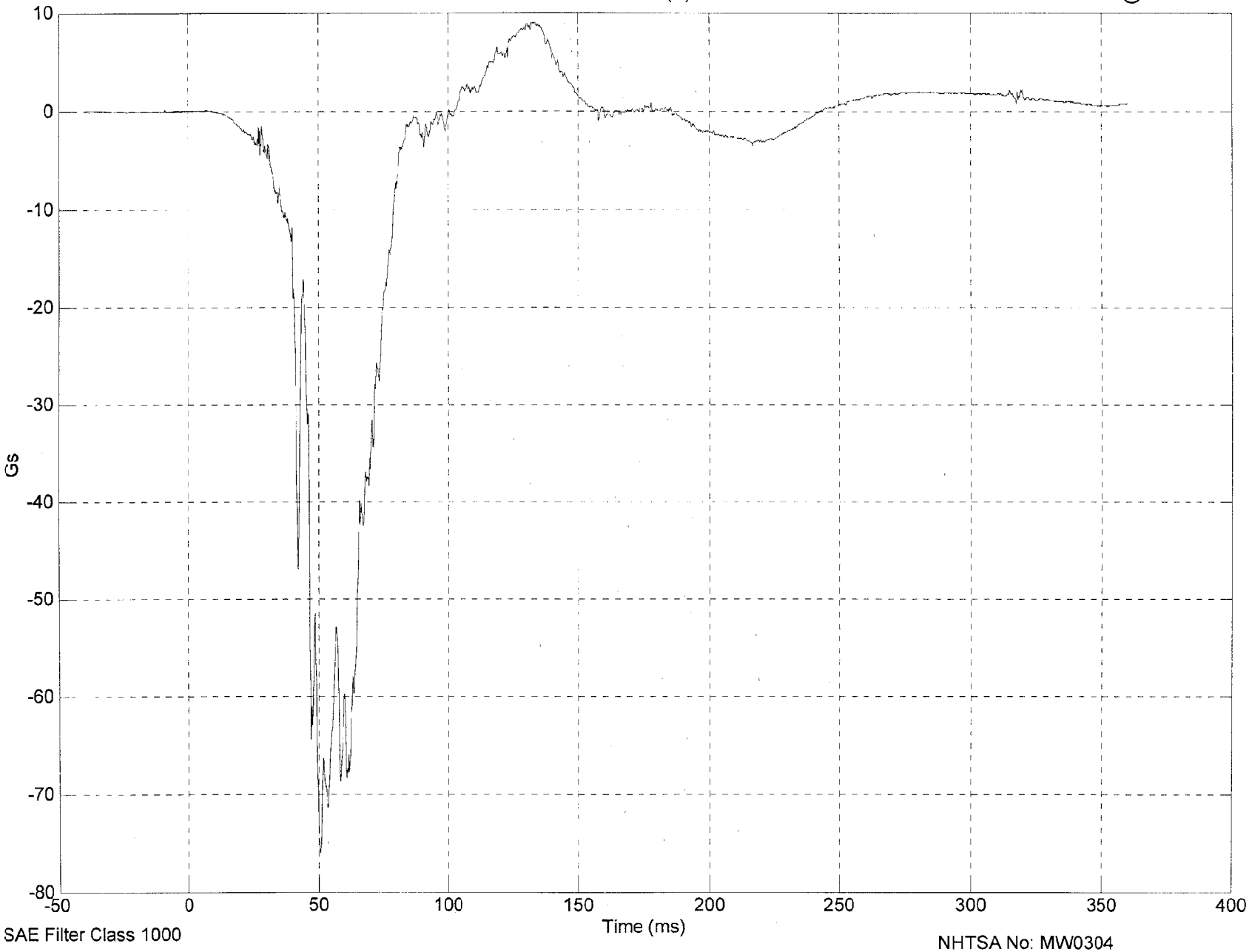
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Pelvic (X)

Max = 8.98 Gs @ 132.10 msec
Min = -75.9 Gs @ 50.70 msec



SAE Filter Class 1000

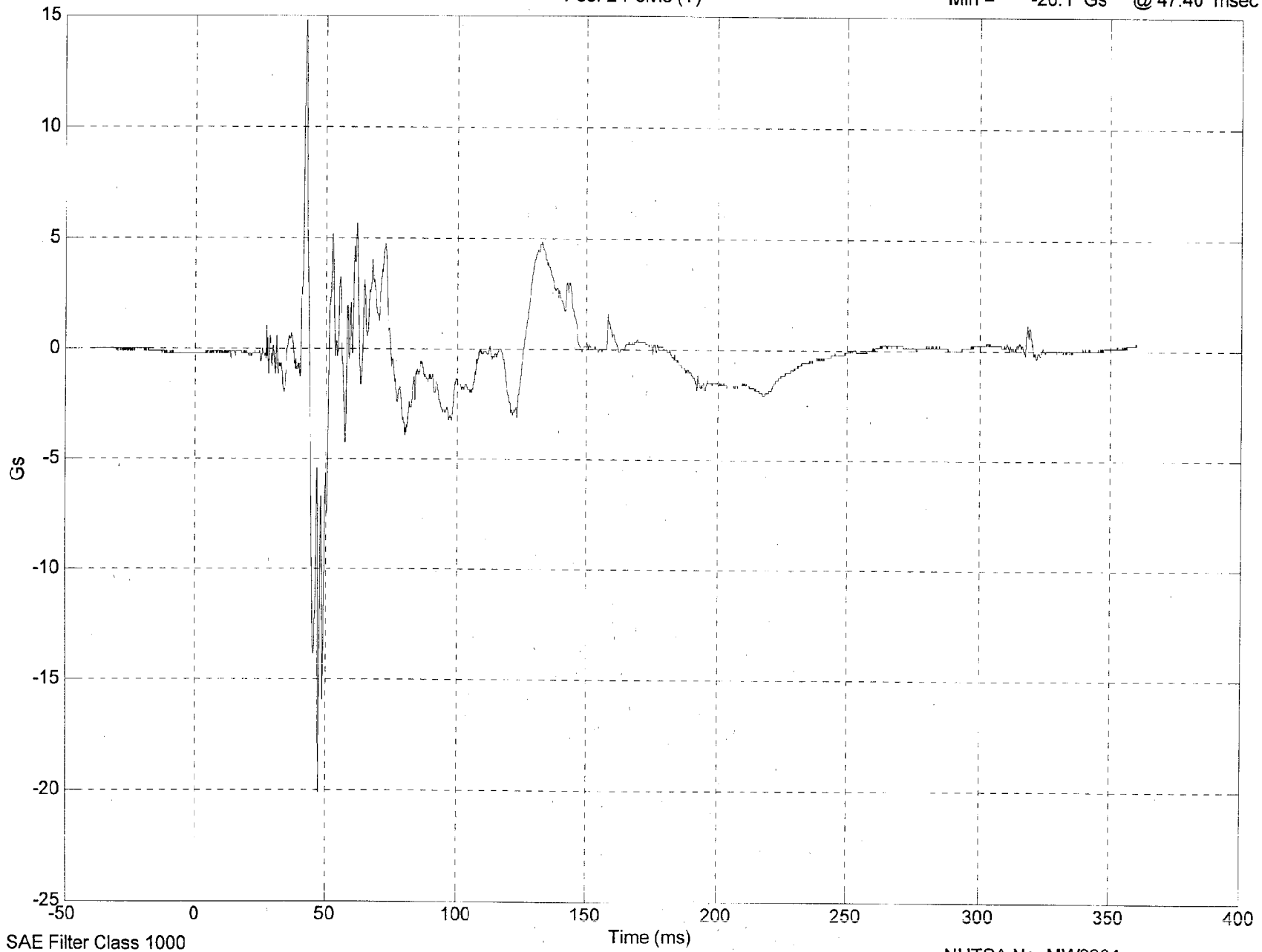
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Pelvic (Y)

Max = 14.8 Gs @ 42.40 msec
Min = -20.1 Gs @ 47.40 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

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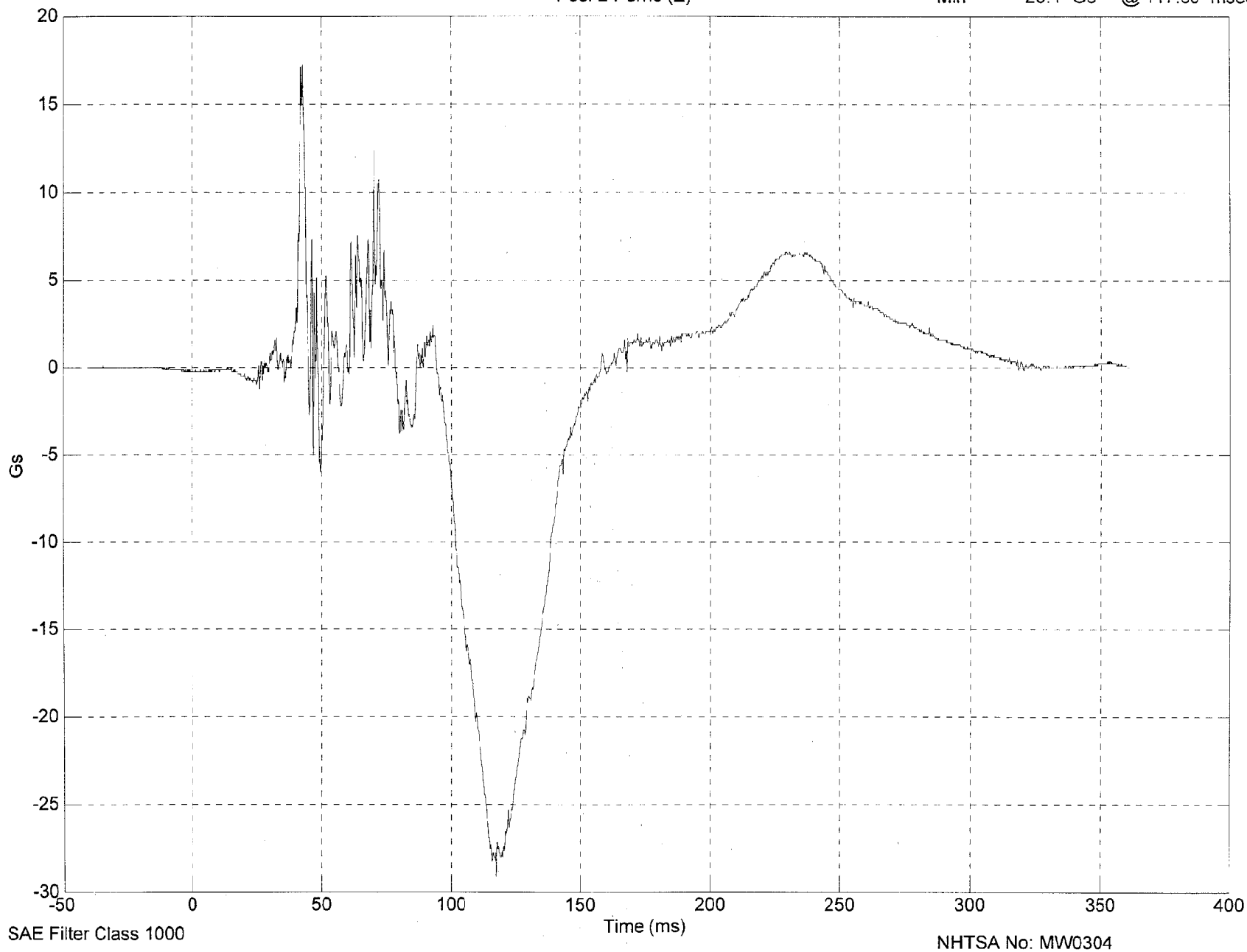
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 17.2 Gs @ 42.80 msec
Min = -29.1 Gs @ 117.60 msec



SAE Filter Class 1000

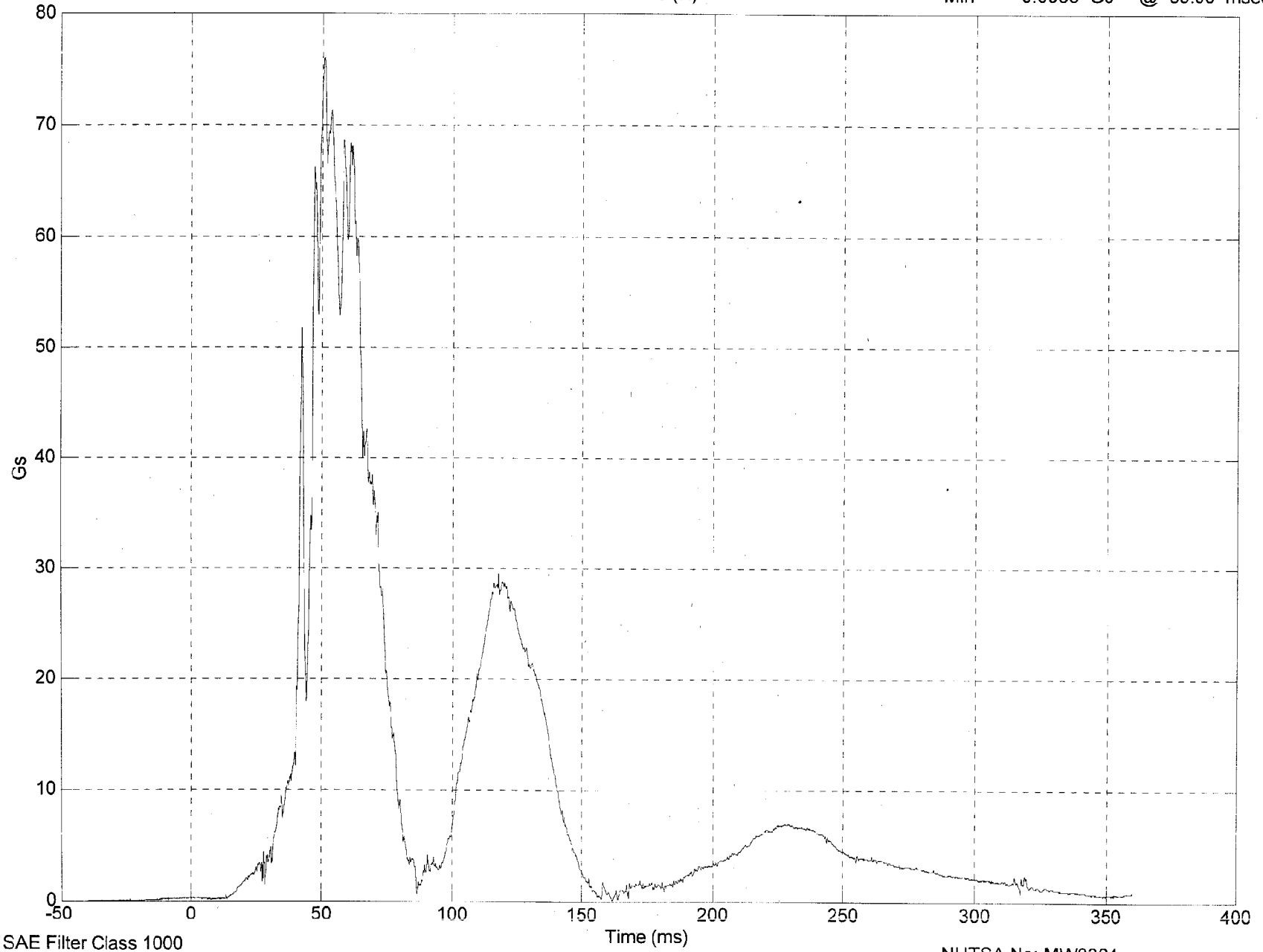
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Pelvic (R)

Max = 76.1 Gs @ 50.70 msec
Min = 0.0538 Gs @ -39.90 msec



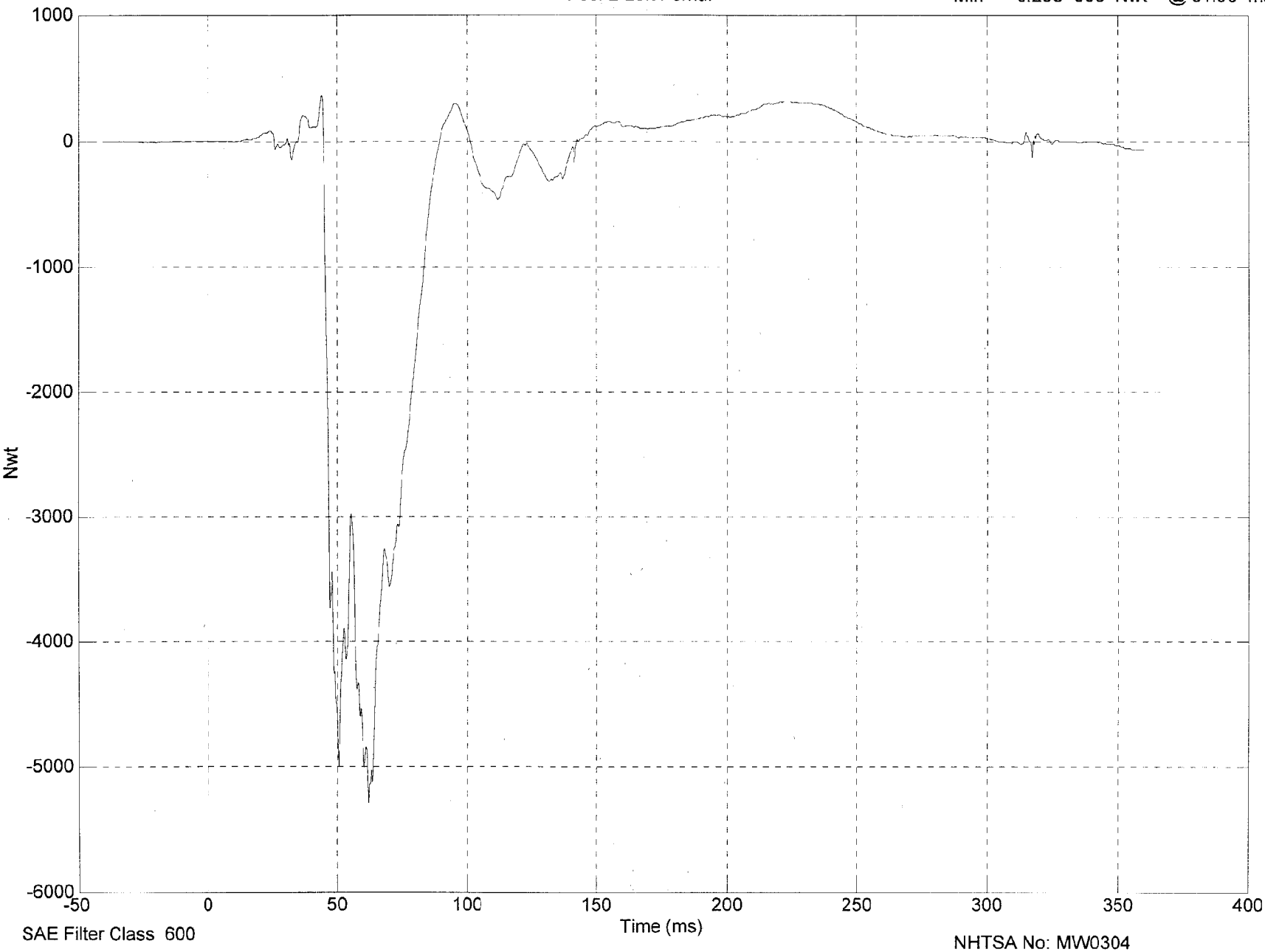
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 363 Nwt @ 44.10 msec
Min = -5.29e+003 Nwt @ 61.90 msec



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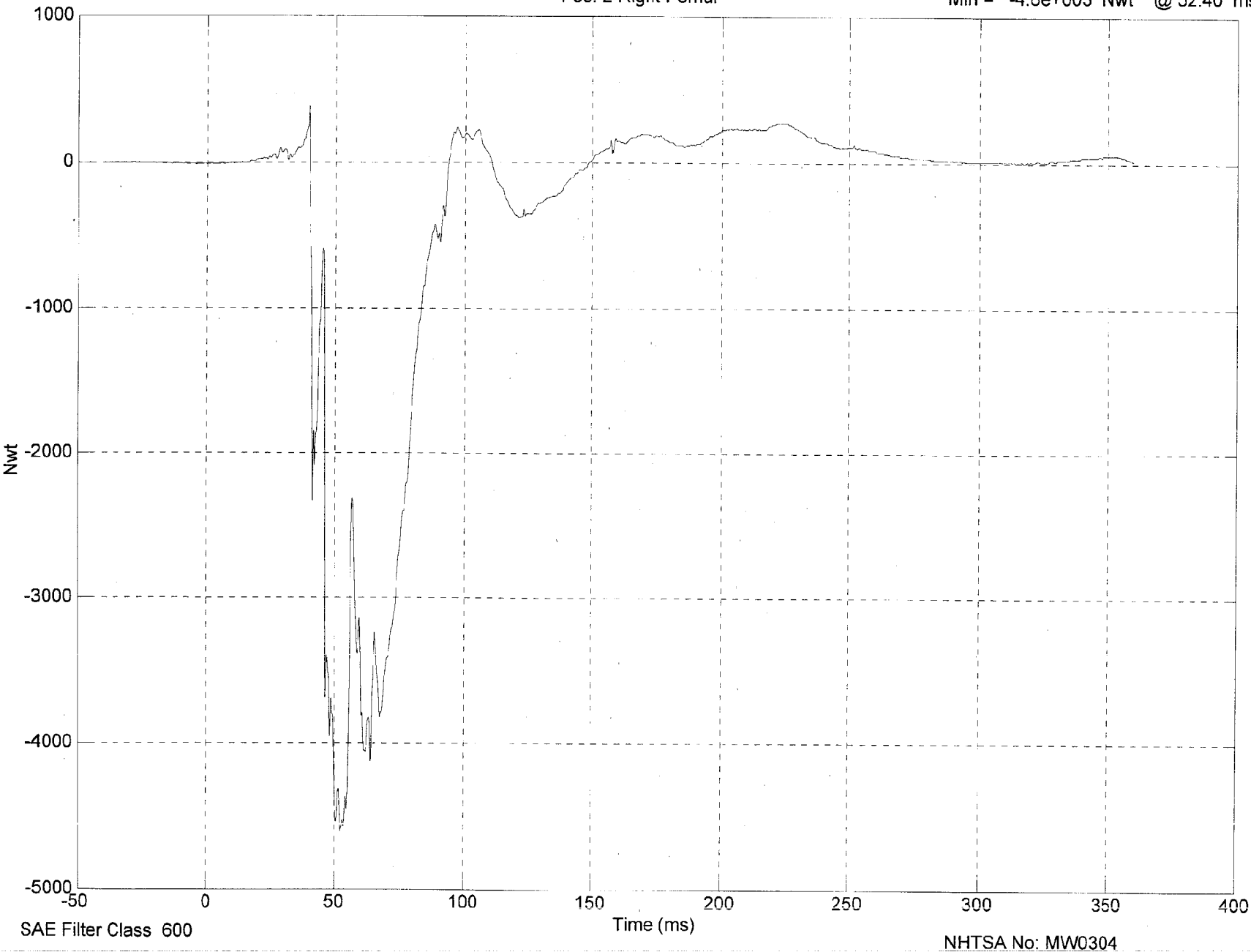
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Right Femur

Max = 387 Nwt @ 39.90 msec
Min = -4.6e+003 Nwt @ 52.40 msec



B-84

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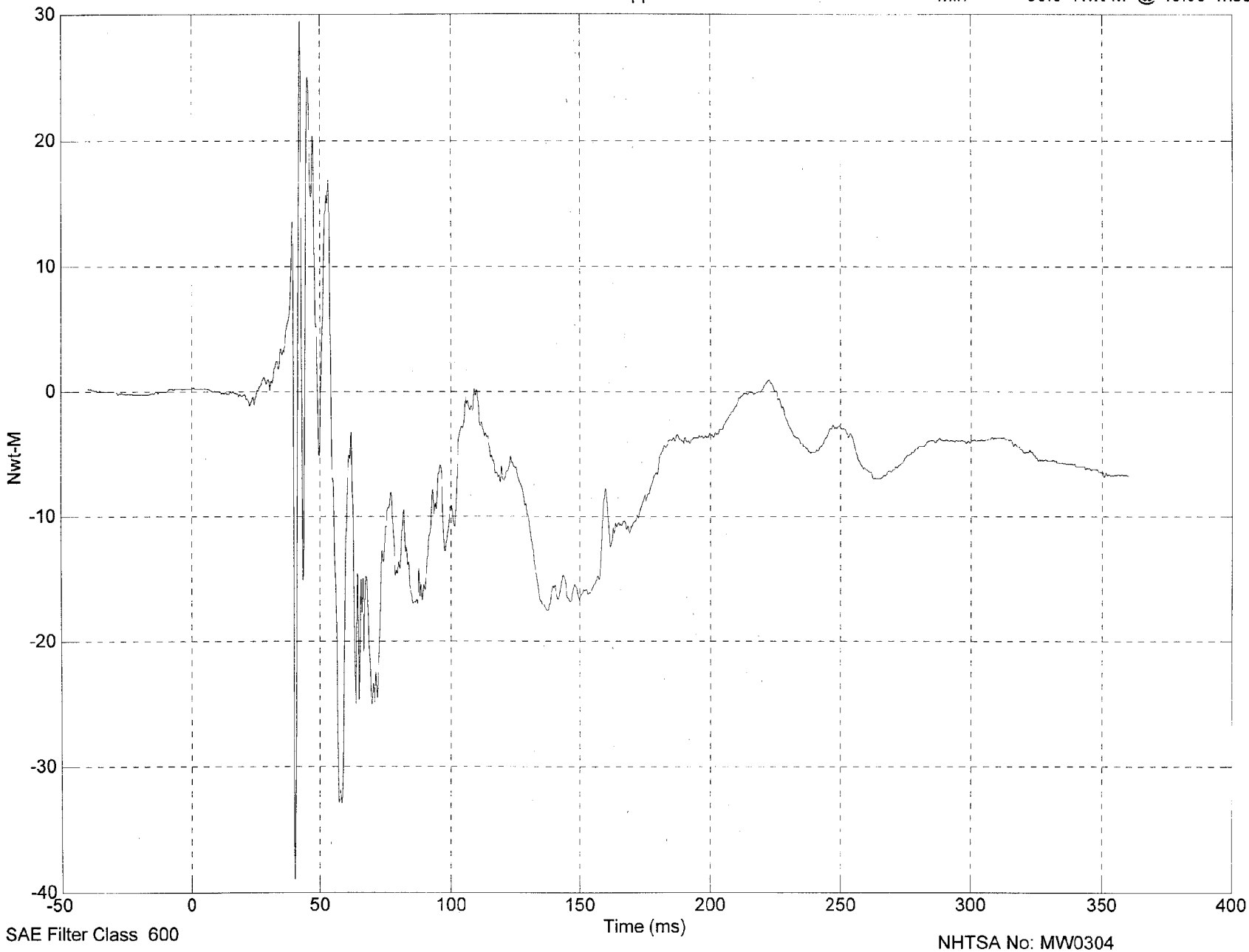
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Lt Upper Tibia Mx

Max = 29.4 Nwt-M @ 42.30 msec
Min = -38.9 Nwt-M @ 40.50 msec



SAE Filter Class 600

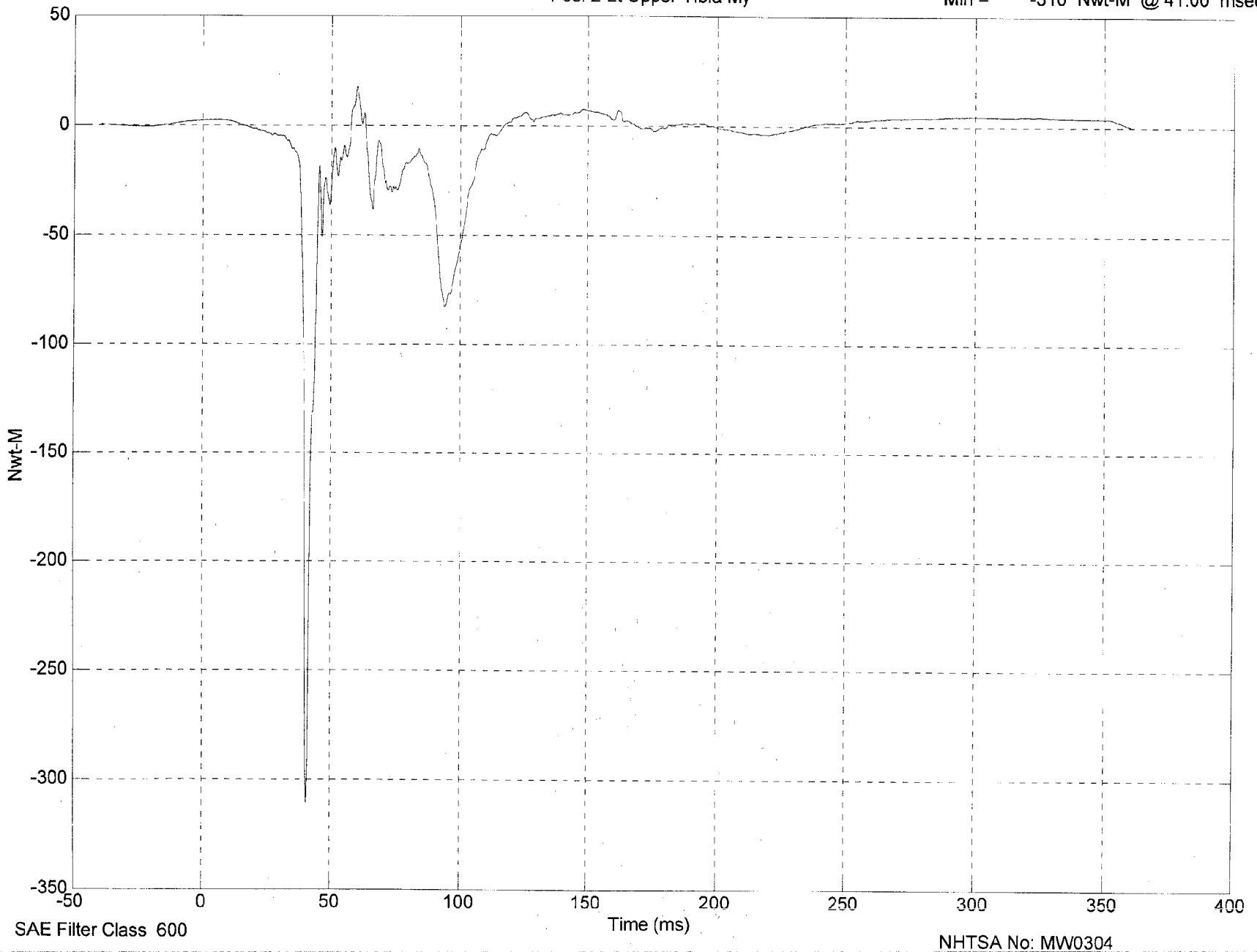
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Lt Upper Tibia My

Max = 17.7 Nwt-M @ 59.90 msec
Min = -310 Nwt-M @ 41.00 msec



SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

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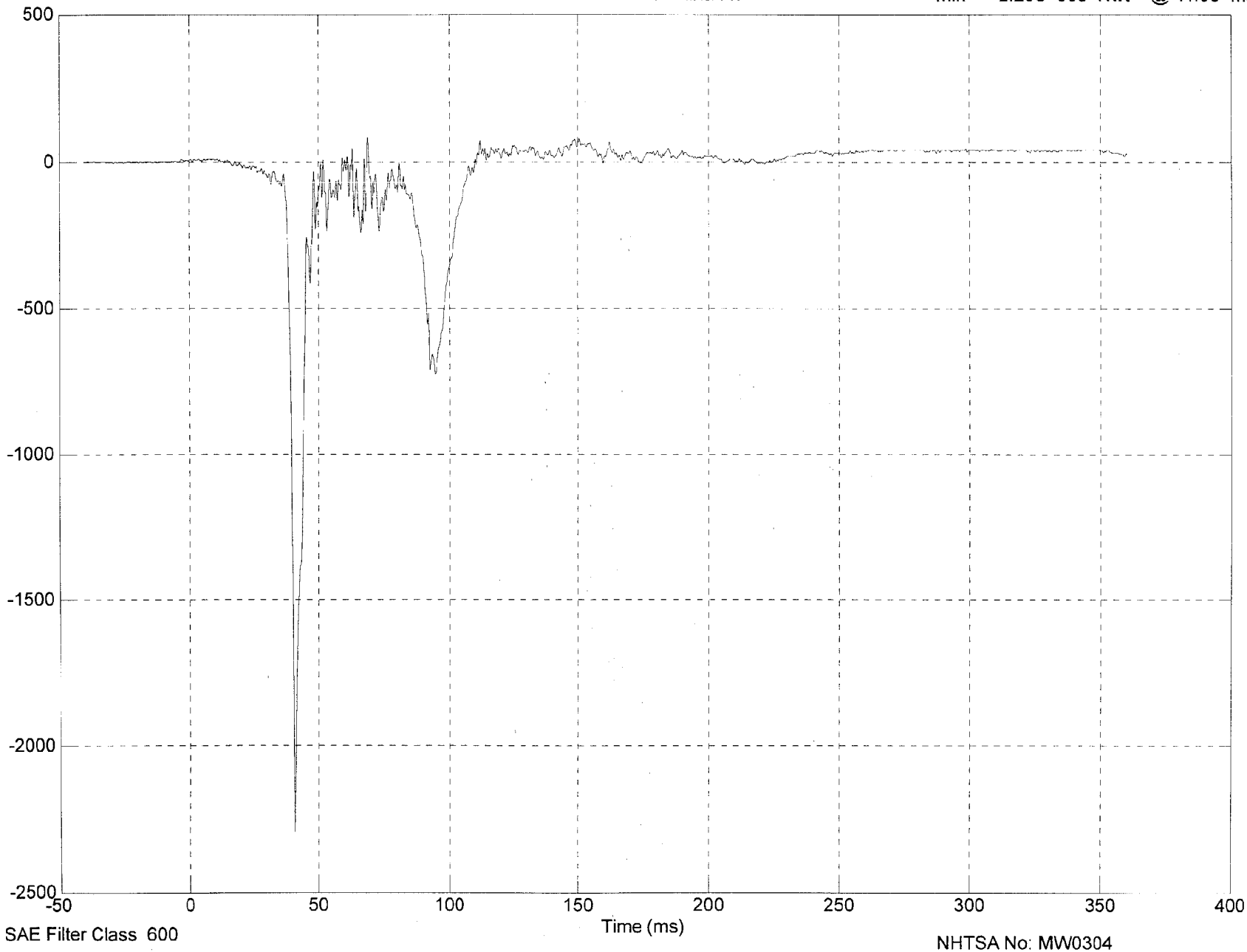
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Lt Lower Tibia Fx

Max = 82.9 Nwt @ 68.80 msec
Min = -2.29e+003 Nwt @ 41.00 msec



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Nwt

8413-22

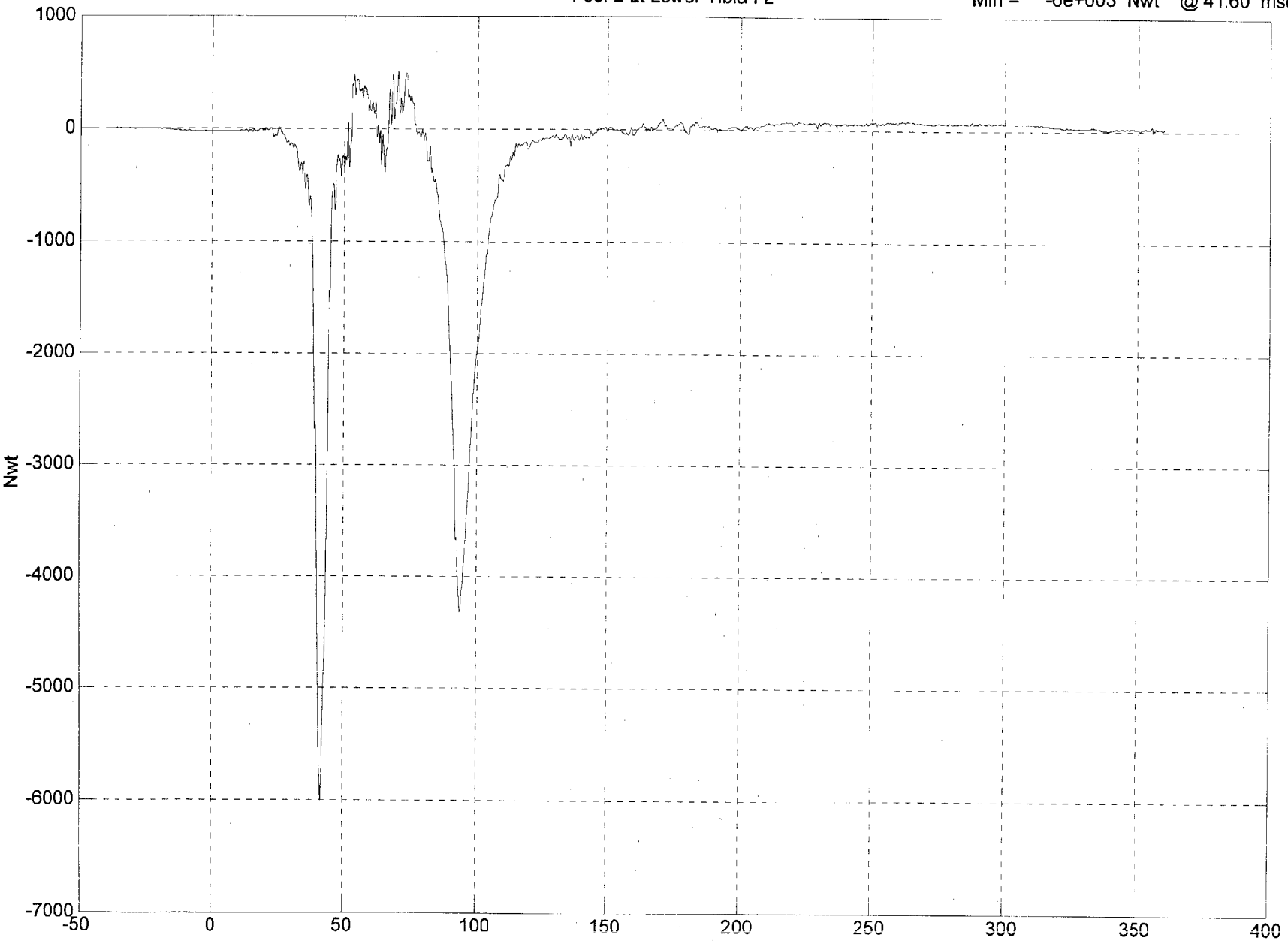
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Lt Lower Tibia Fz

Max = 515 Nwt @ 70.30 msec
Min = -6e+003 Nwt @ 41.60 msec



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8413-22

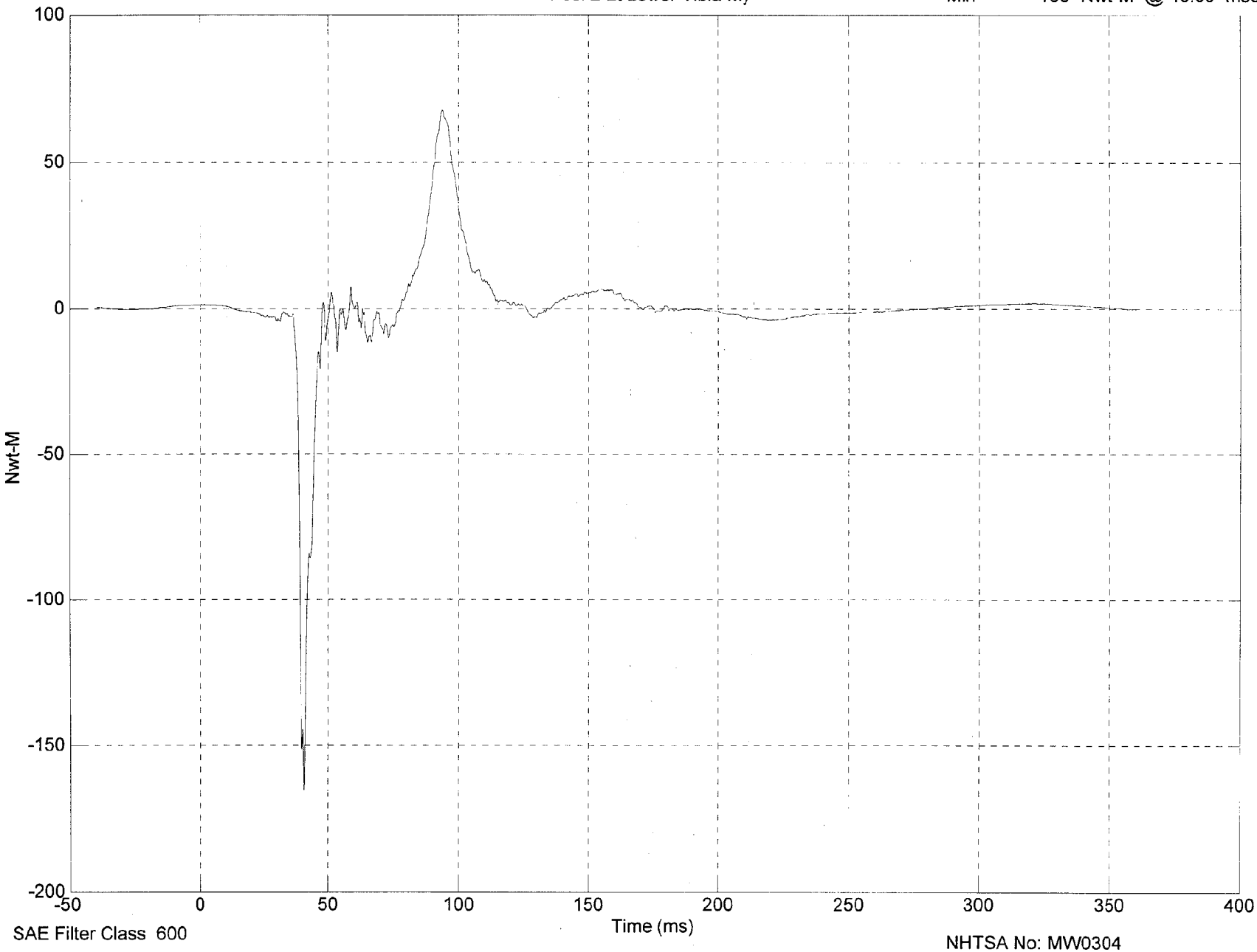
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Lt Lower Tibia My

Max = 67.8 Nwt-M @ 93.80 msec
Min = -165 Nwt-M @ 40.80 msec



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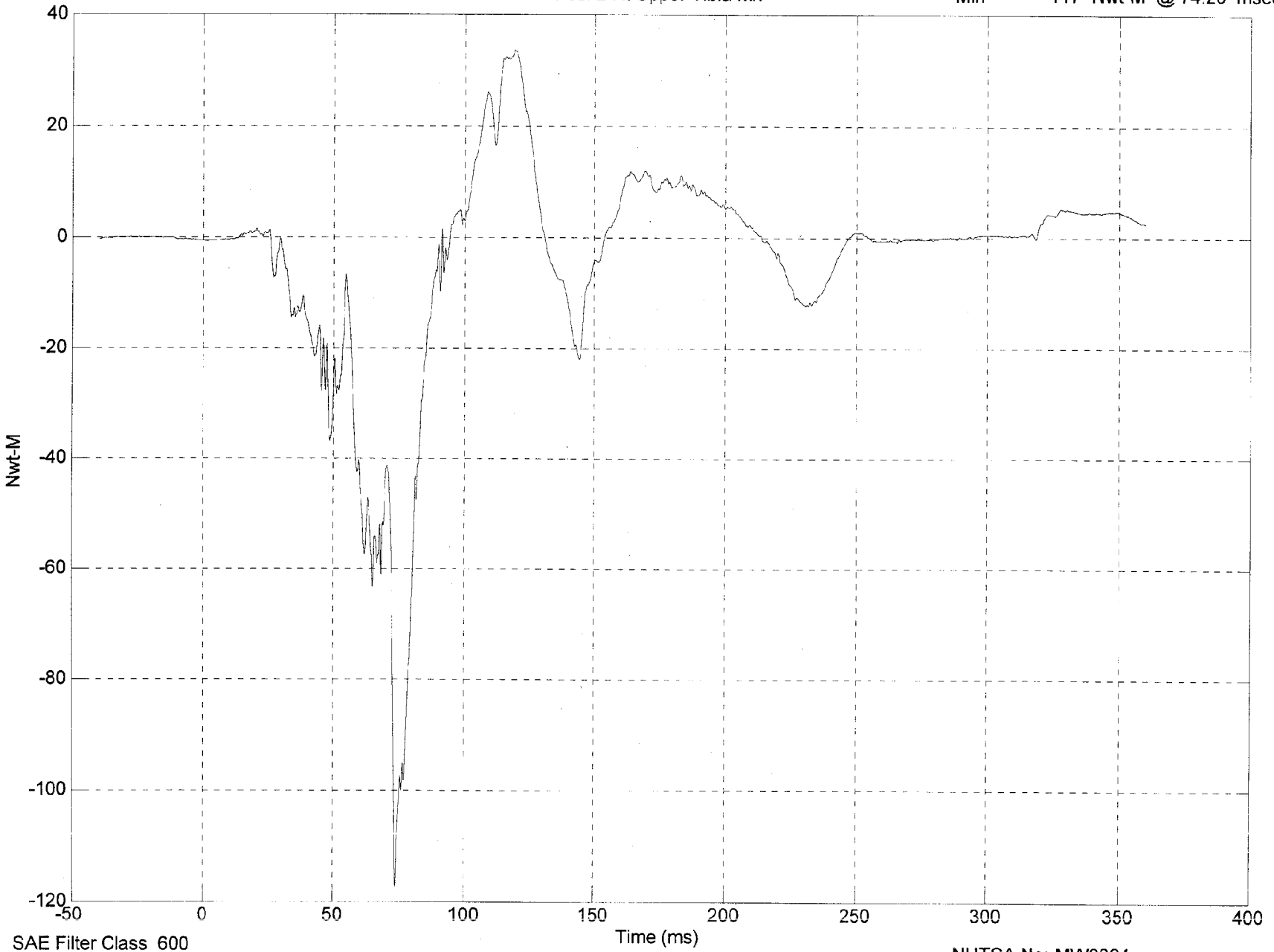
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 33.7 Nwt-M @ 118.90 msec
Min = -117 Nwt-M @ 74.20 msec



B-90

8413-22

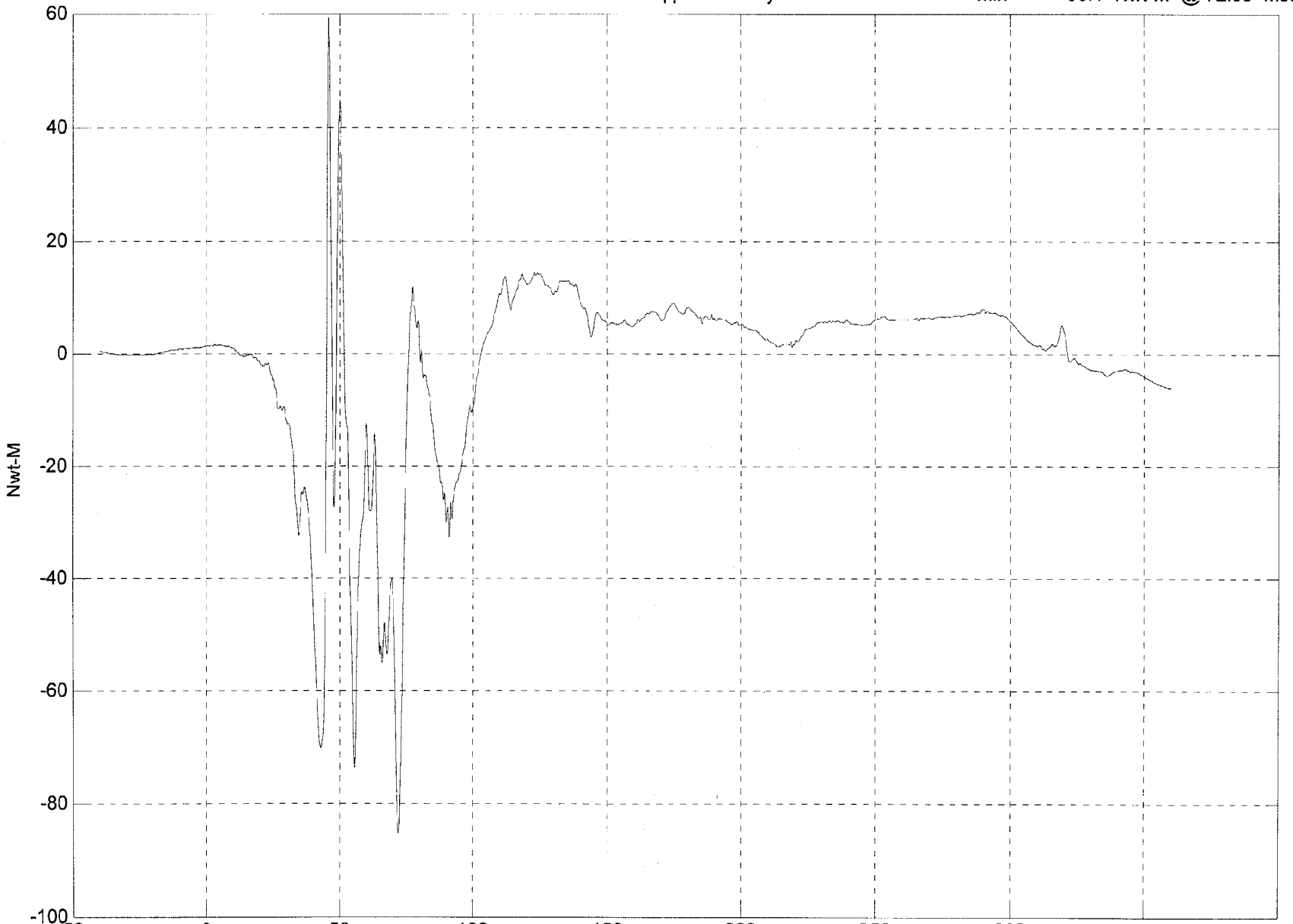
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Rt Upper Tibia My

Max = 59.3 Nwt-M @ 45.80 msec
Min = -85.1 Nwt-M @ 72.30 msec



SAE Filter Class 600

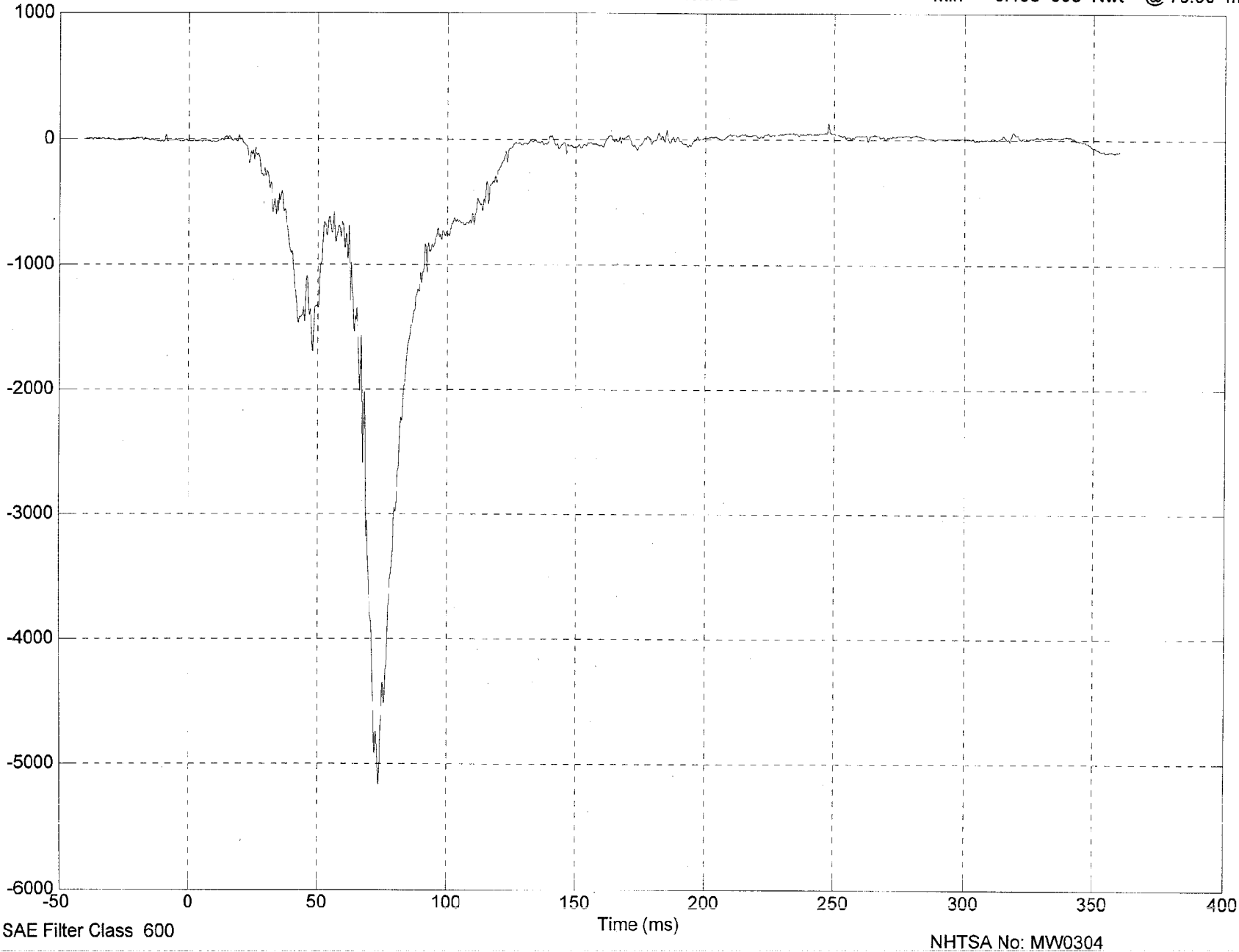
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Rt Lower Tibia Fz

Max = 132 Nwt @ 247.80 msec
Min = -5.16e+003 Nwt @ 73.90 msec



B-92

8413-22

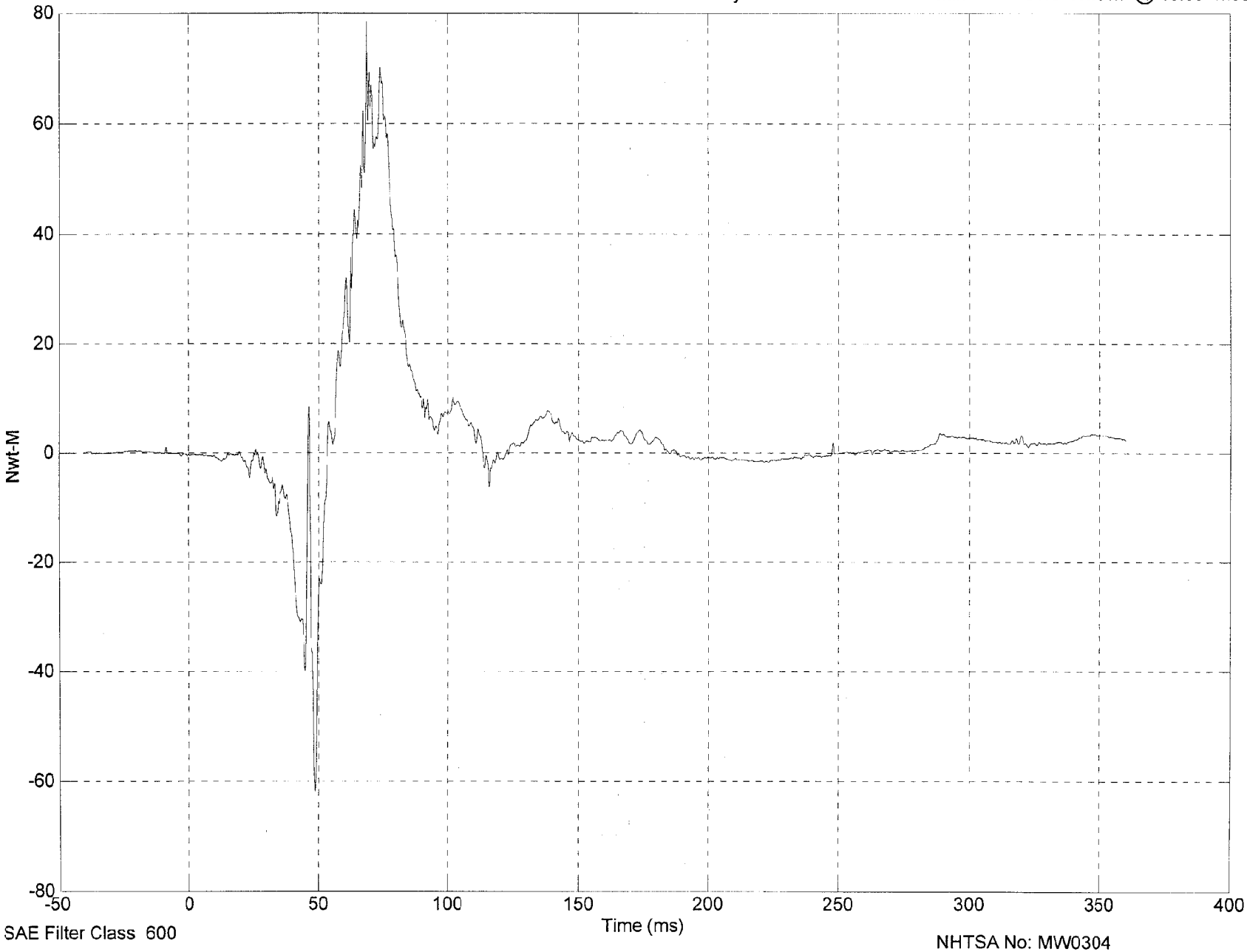
SAE Filter Class 600

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Rt Lower Tibia My

Max = 78.5 Nwt-M @ 68.50 msec
Min = -61.8 Nwt-M @ 48.80 msec



SAE Filter Class 600

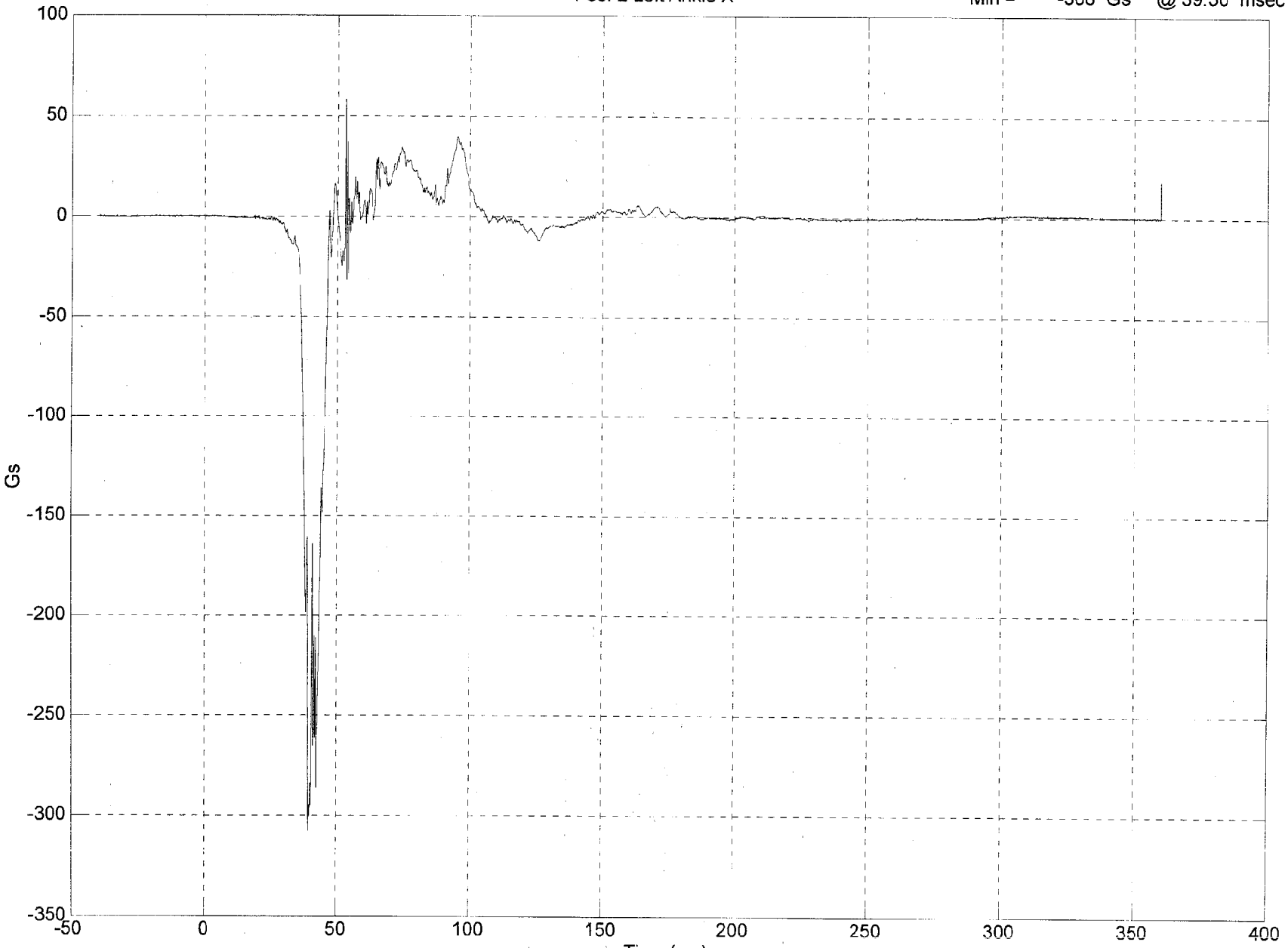
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Left Ankle X

Max = 58.2 Gs @ 53.00 msec
Min = -308 Gs @ 39.50 msec

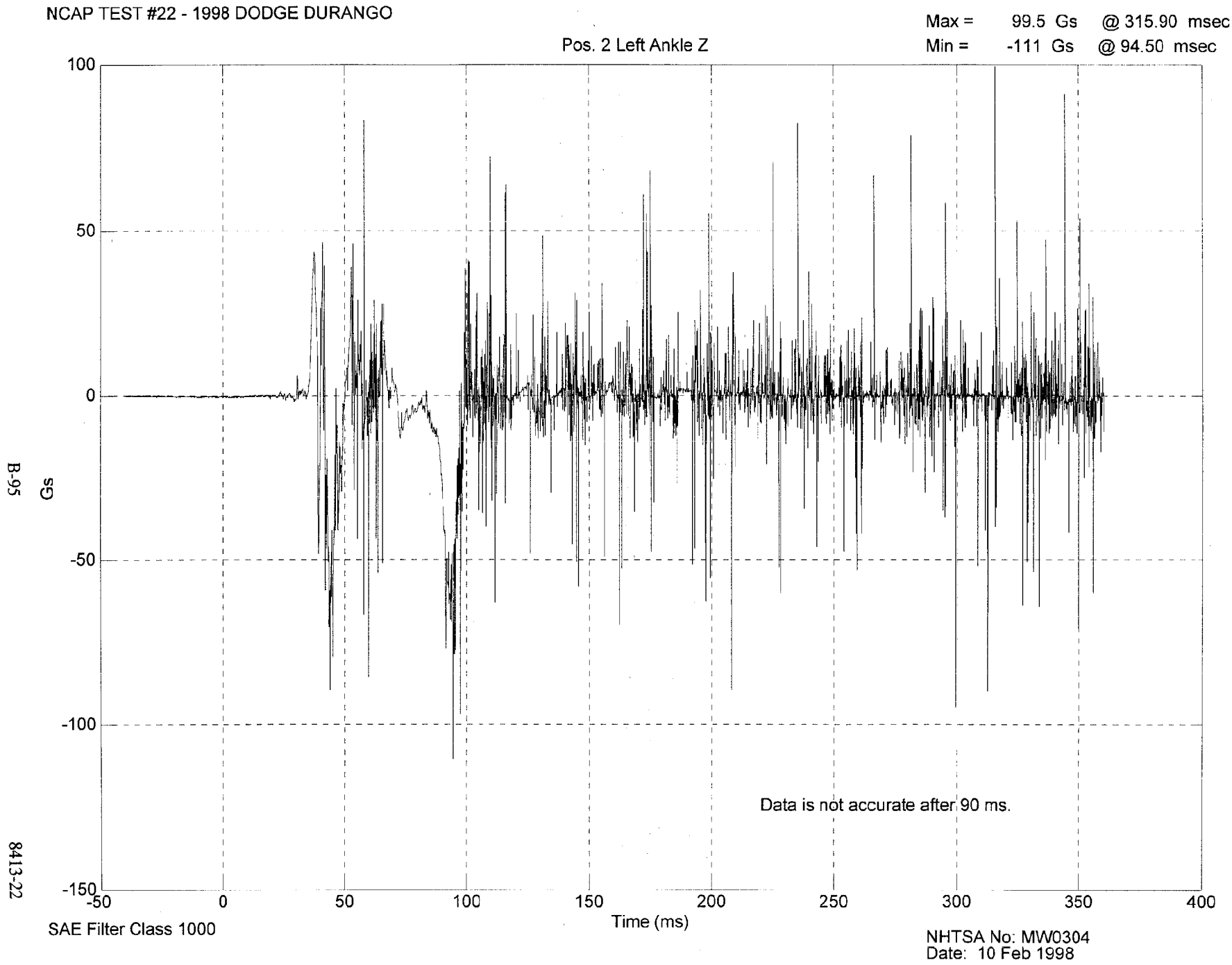


B-94

8413-22

SAE Filter Class 1000

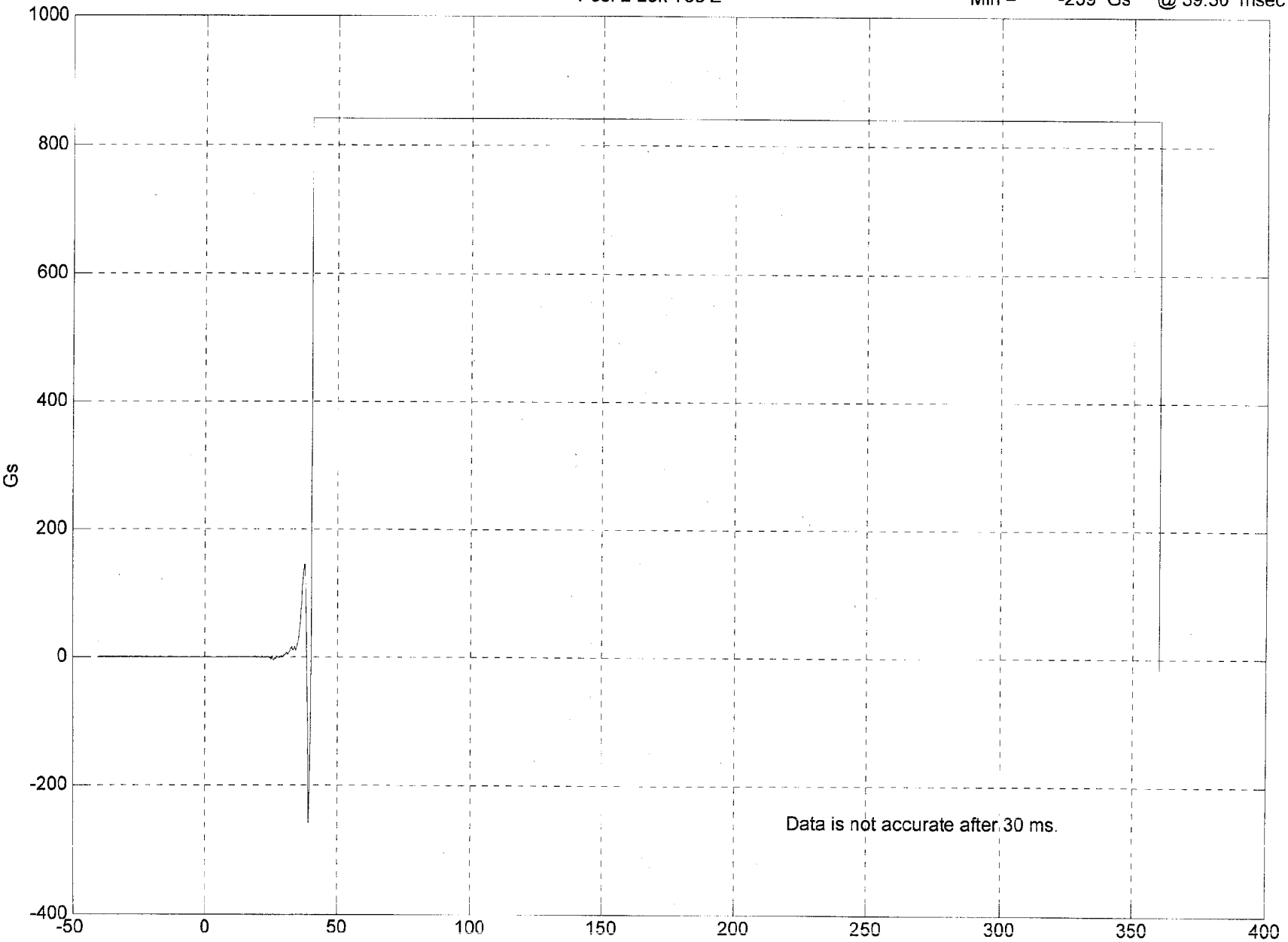
NHTSA No: MW0304
Date: 10 Feb 1998


NCAP TEST #22 - 1998 DODGE DURANGO
Pos. 2 Left Ankle Z
Max = 99.5 Gs @ 315.90 msec
Min = -111 Gs @ 94.50 msec
100
50
0
-50
-100
-150
Gs
-50
0
50
100
150
200
250
300
350
400
Time (ms)
Data is not accurate after 90 ms.
B-95
8413-22
SAE Filter Class 1000
NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Left Toe Z

Max = 841 Gs @ 40.40 msec
Min = -259 Gs @ 39.30 msec



B-96

8413-22

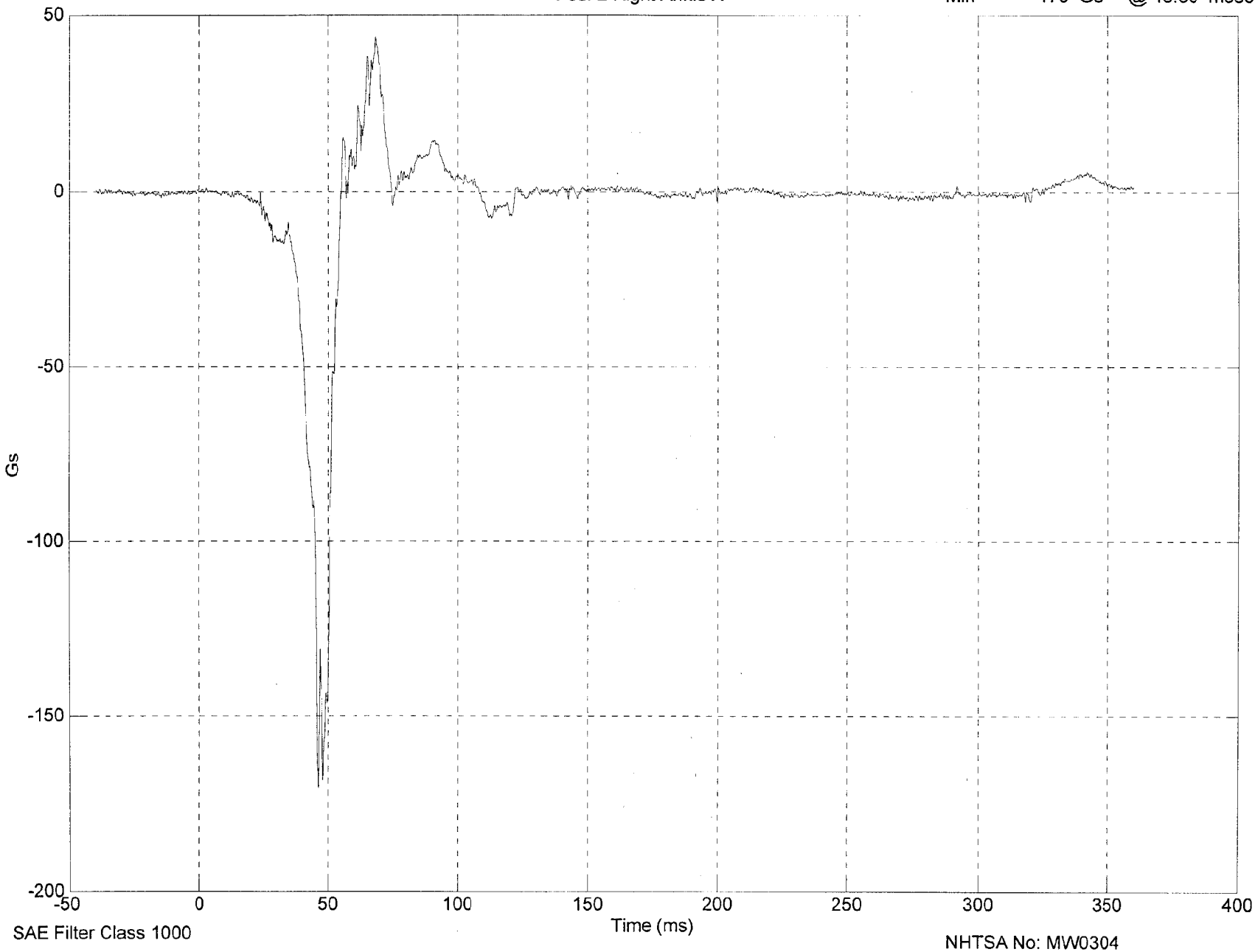
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Right Ankle X

Max = 43.9 Gs @ 68.30 msec
Min = -170 Gs @ 46.30 msec



B-97

8413-22

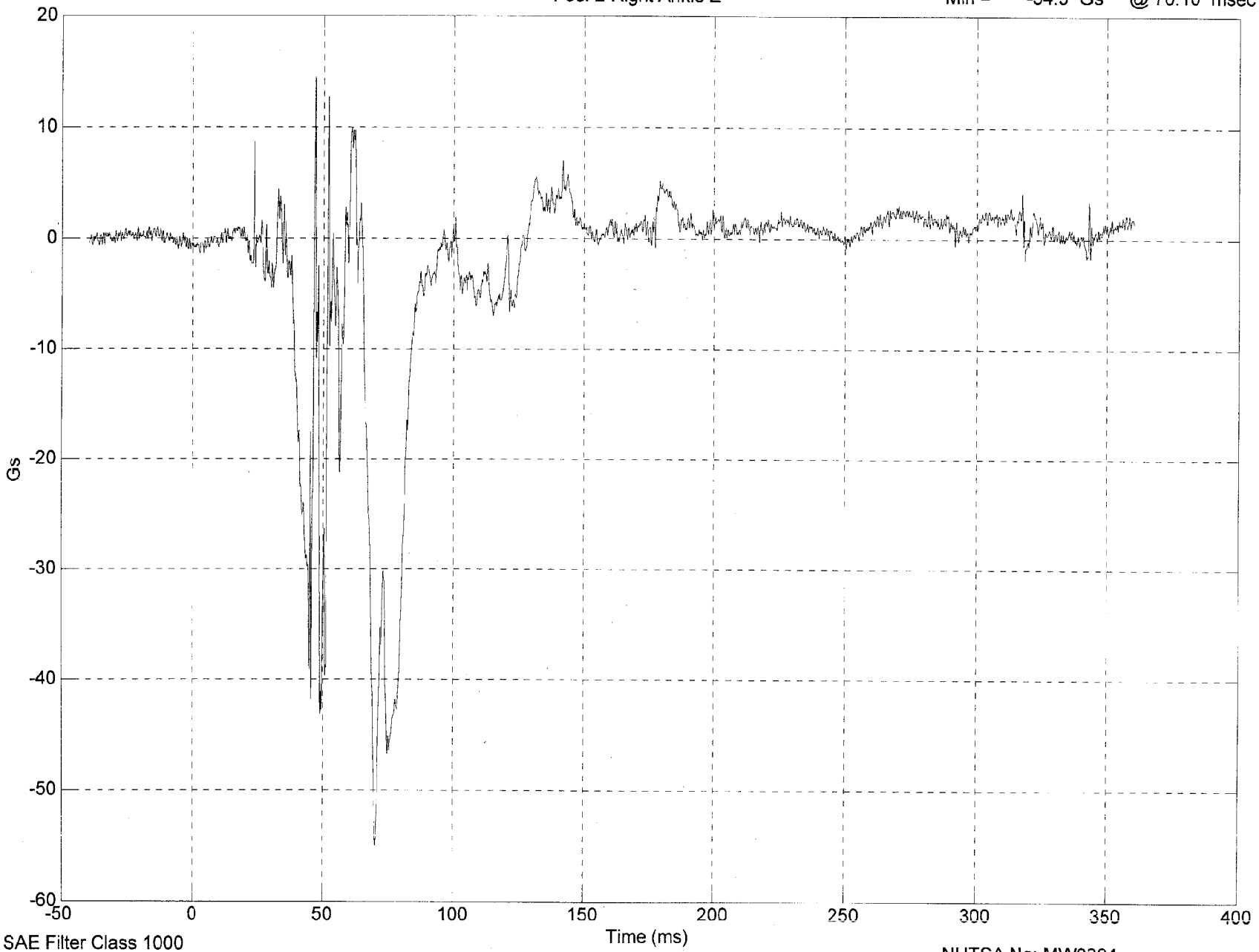
SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Right Ankle Z

Max = 14.5 Gs @ 46.80 msec
Min = -54.9 Gs @ 70.10 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

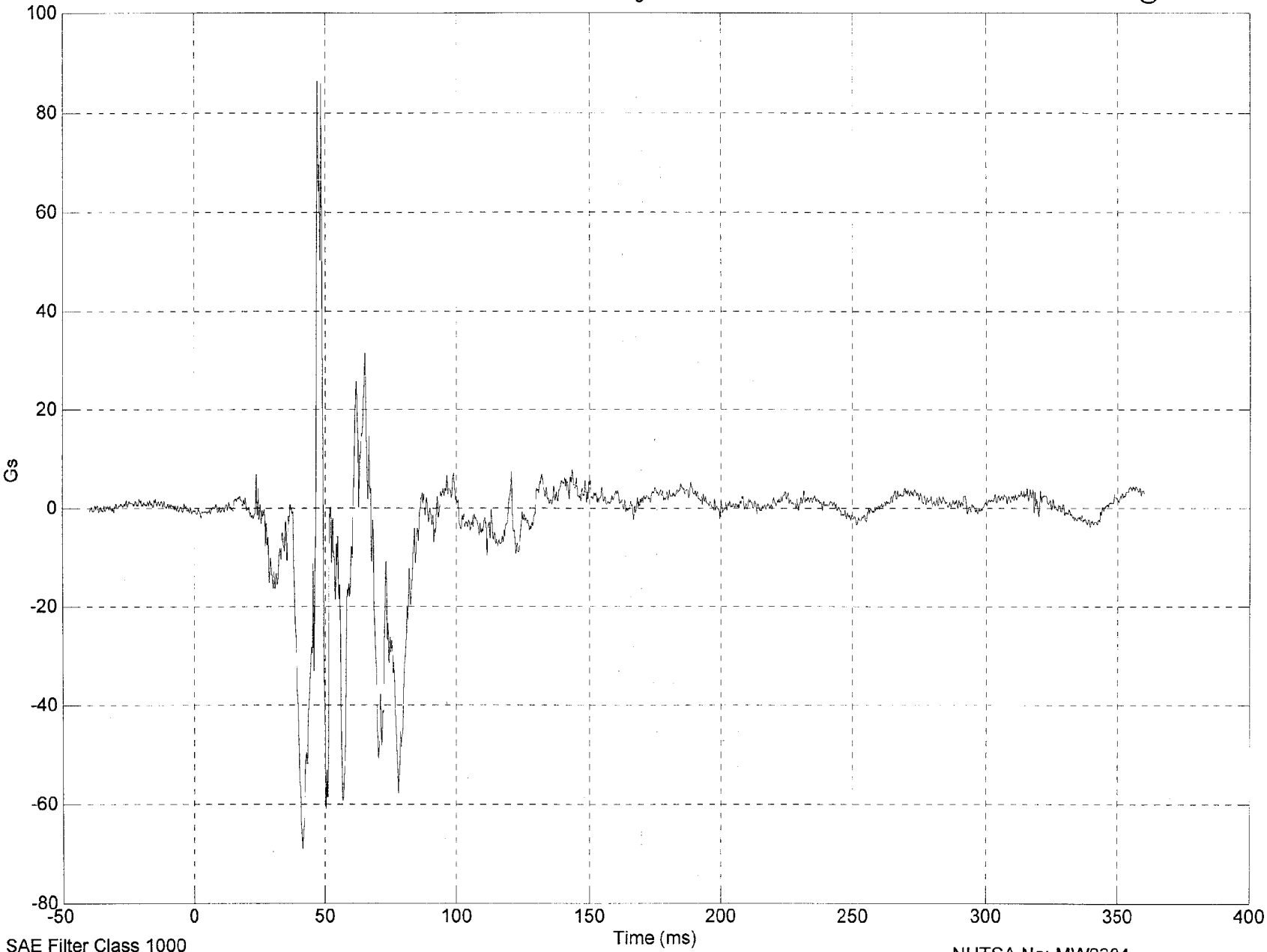
B-98

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Right Toe Z

Max = 86.4 Gs @ 46.90 msec
Min = -68.9 Gs @ 41.50 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

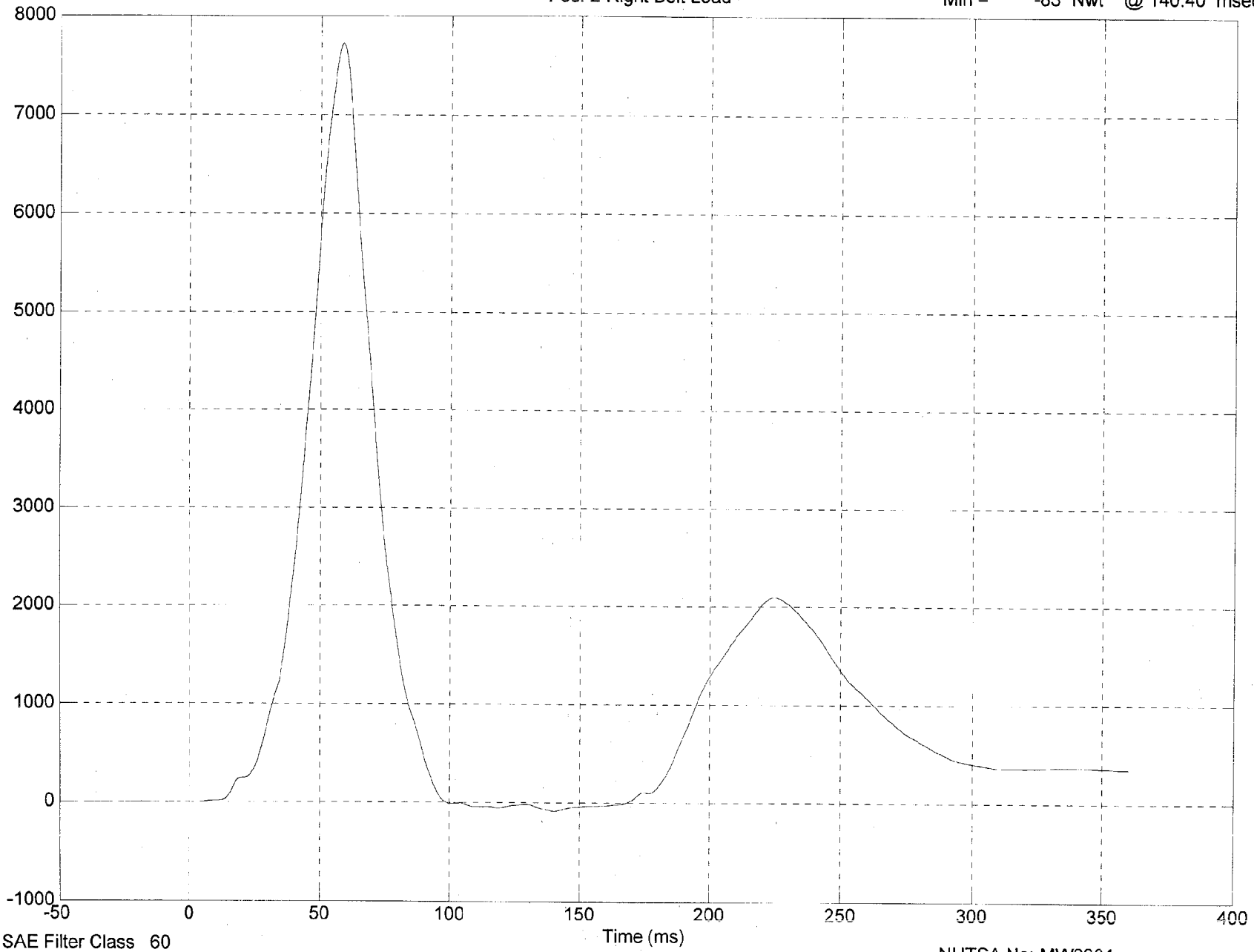
B-99

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Right Belt Load

Max = 7.72e+003 Nwt @ 58.50 msec
Min = -83 Nwt @ 140.40 msec



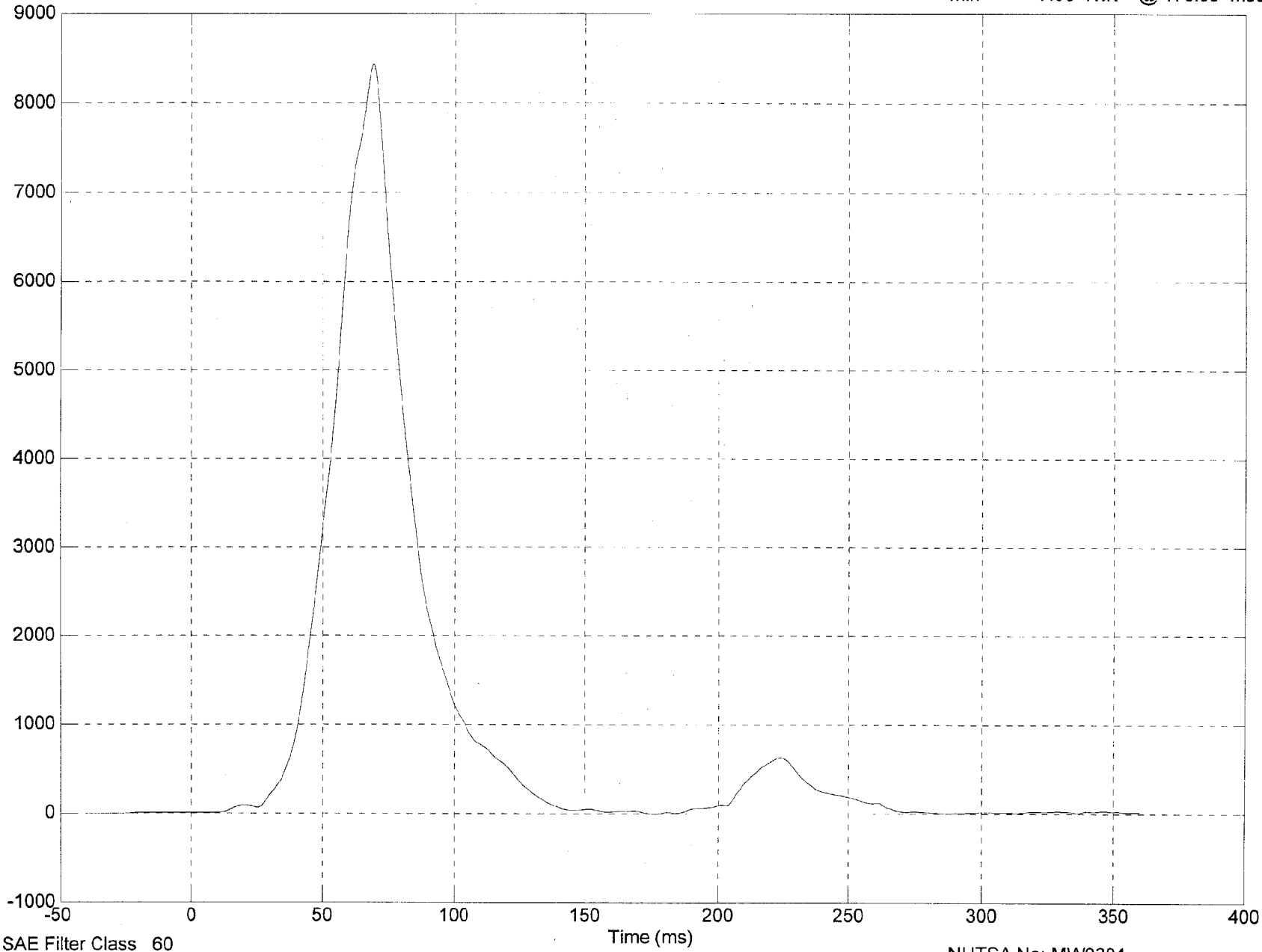
SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Torso Belt Load

Max = 8.44e+003 Nwt @ 69.00 msec
Min = -7.98 Nwt @ 176.80 msec



B-101

8413-22

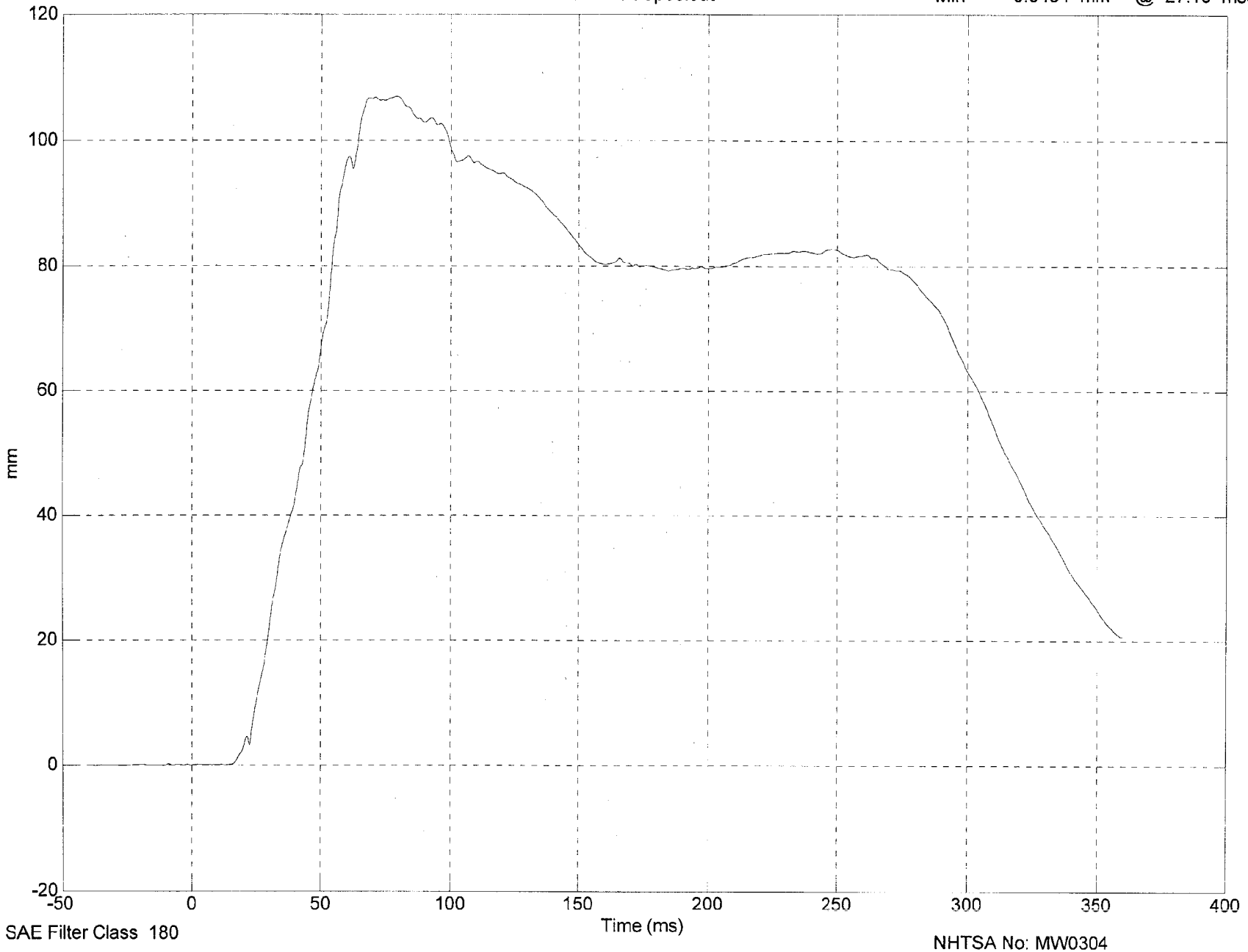
SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Belt Spoolout

Max = 107 mm @ 79.00 msec
Min = -0.0494 mm @ -27.10 msec



B-102

8413-22

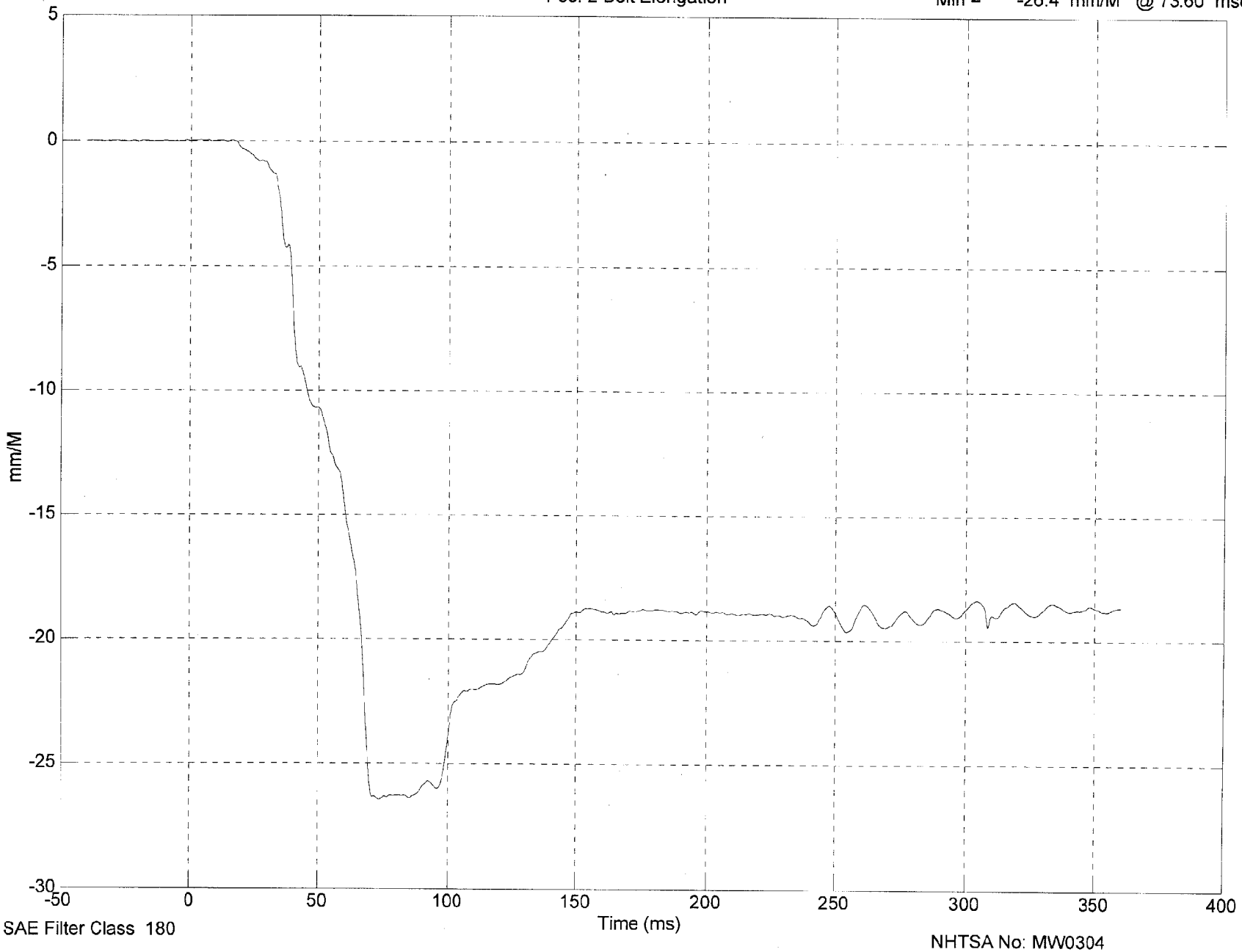
SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Pos. 2 Belt Elongation

Max = 0.0426 mm/M @ 6.60 msec
Min = -26.4 mm/M @ 73.60 msec



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

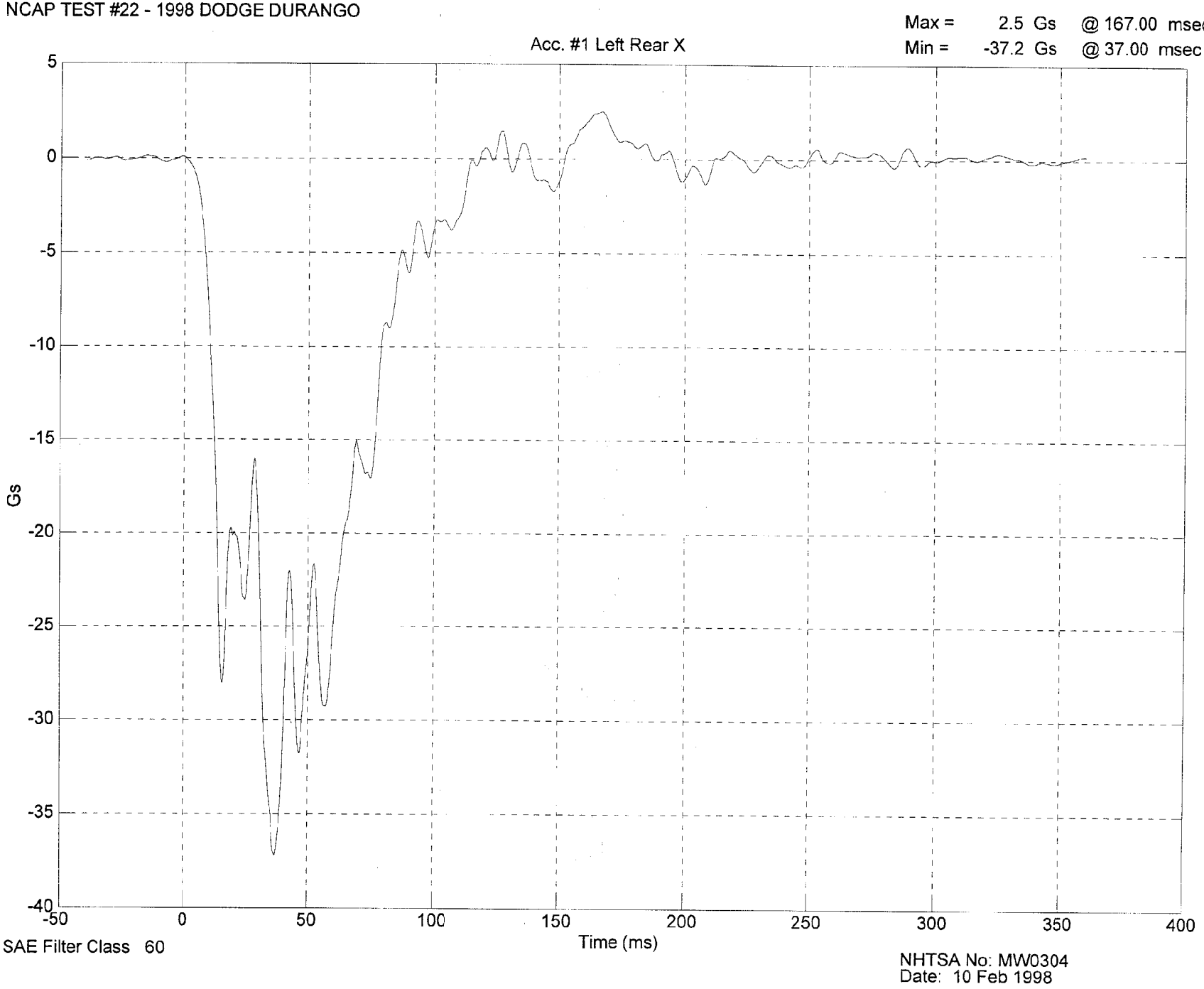
B-103

8413-22

NHTSA TEST NO. MW0304

VEHICLE DATA	FILTER CHANNEL CLASS
Acceleration	60
Velocity	180
Displacement	180
Time Zero	1000

NCAP TEST #22 - 1998 DODGE DURANGO



SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

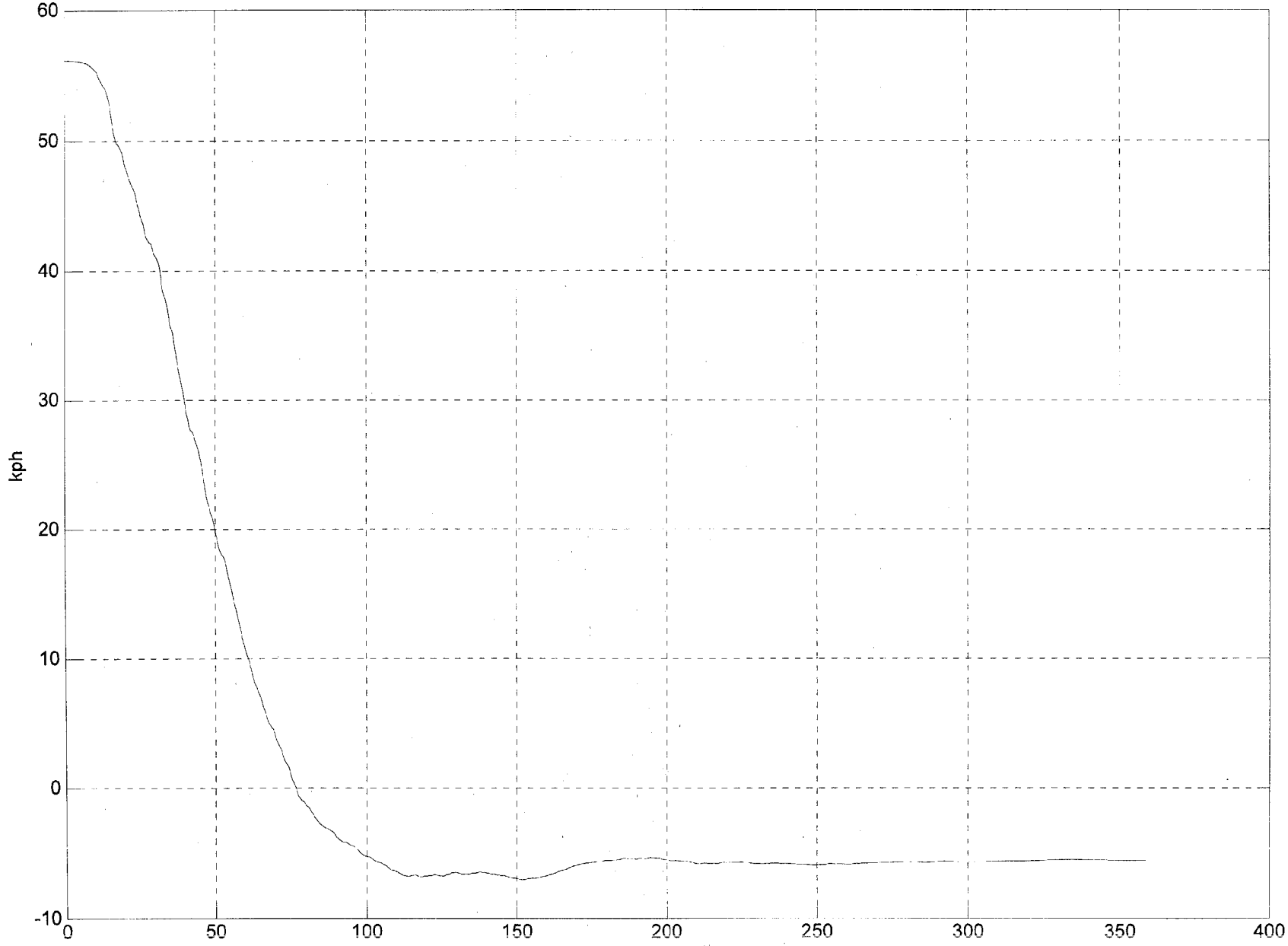
B-105

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

1st Integral Acc. #1 Left Rear X

Max = 56.2 kph @ 0.80 msec
Min = -7.02 kph @ 152.30 msec



SAE Filter Class 180

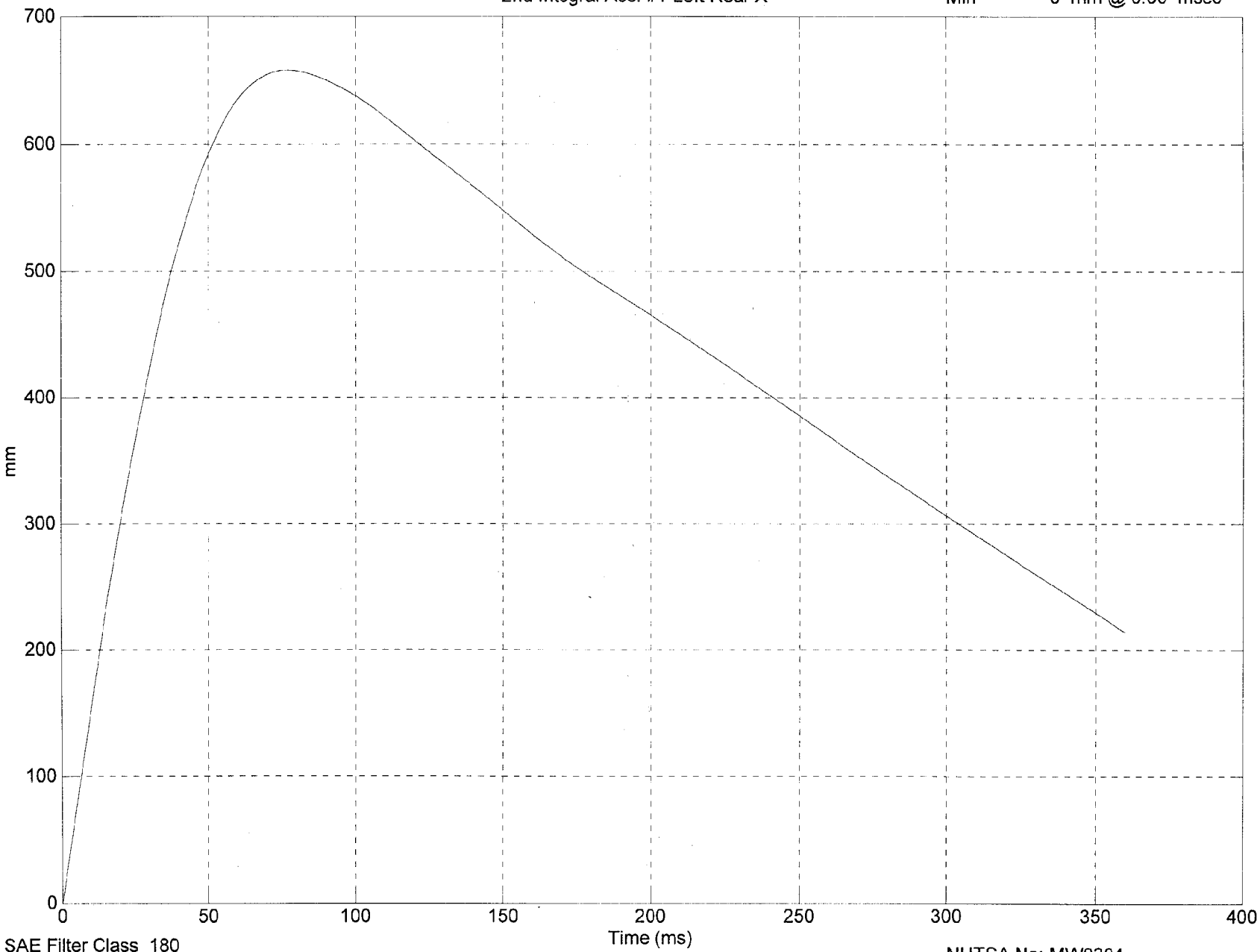
NHTSA No: MW0304
Date: 10 Feb 1998

B-106

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 658 mm @ 76.70 msec
Min = 0 mm @ 0.00 msec



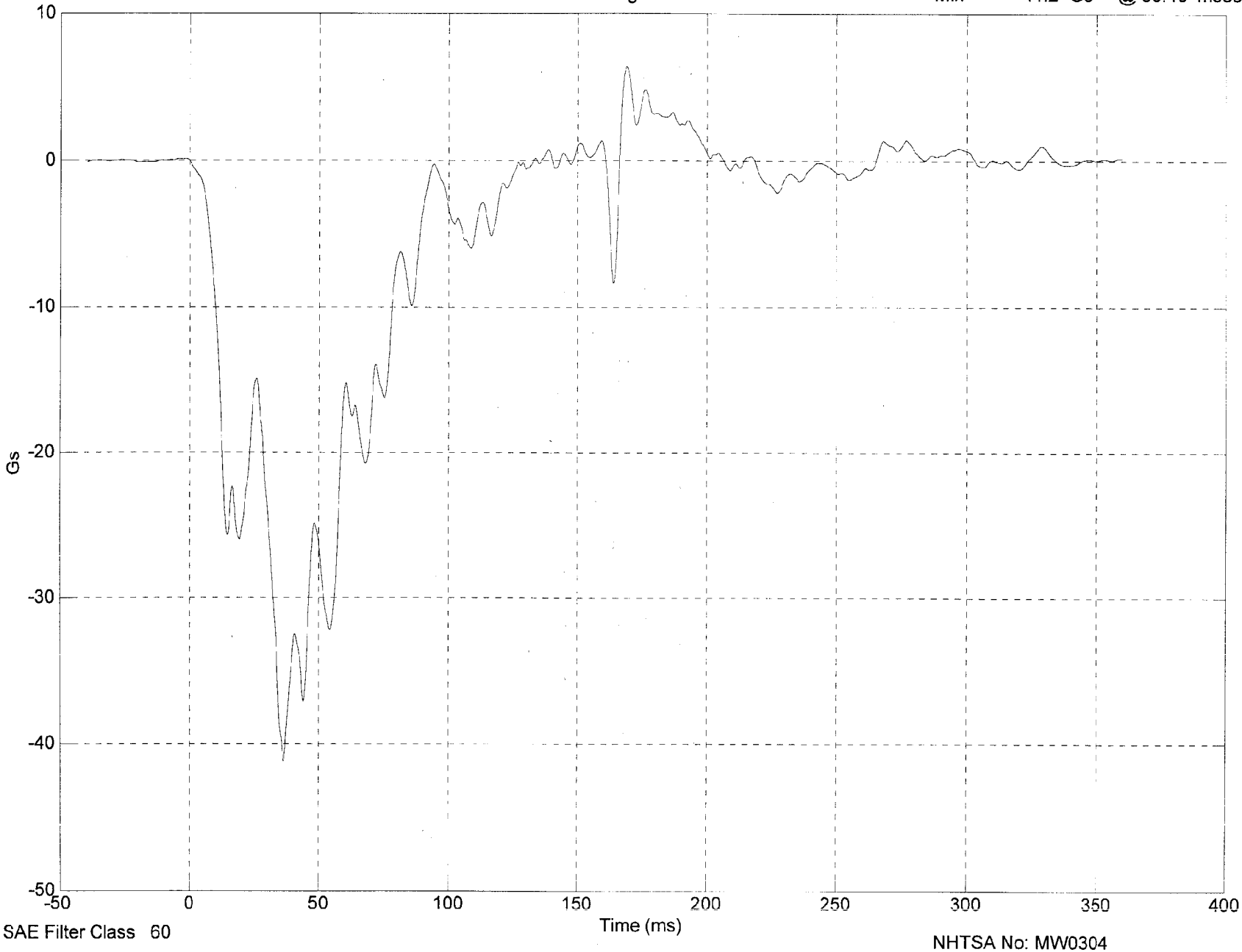
SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Acc. #2 Right Rear X

Max = 6.39 Gs @ 168.90 msec
Min = -41.2 Gs @ 36.40 msec



SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

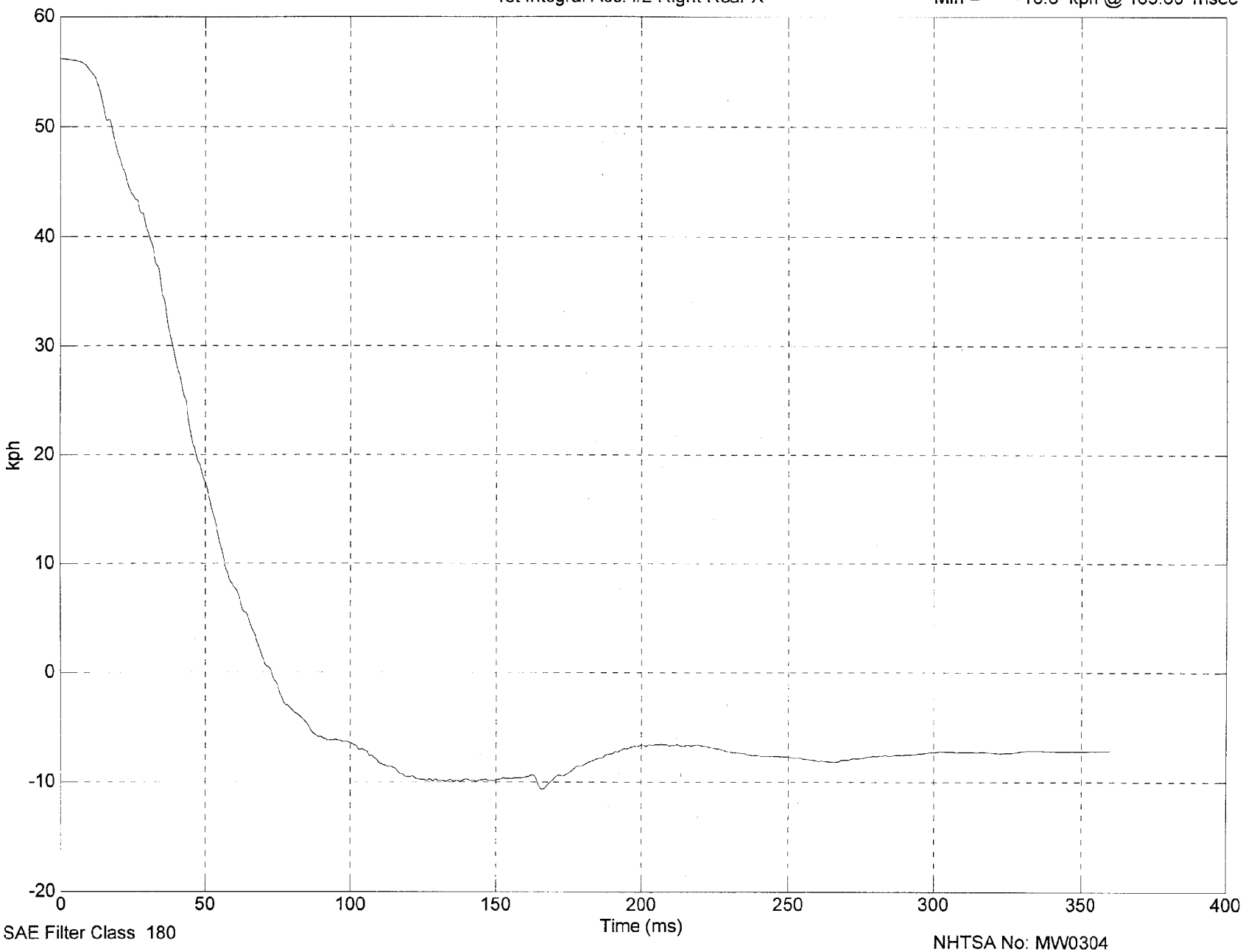
B-108

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

1st Integral Acc. #2 Right Rear X

Max = 56.2 kph @ 0.50 msec
Min = -10.6 kph @ 165.60 msec



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

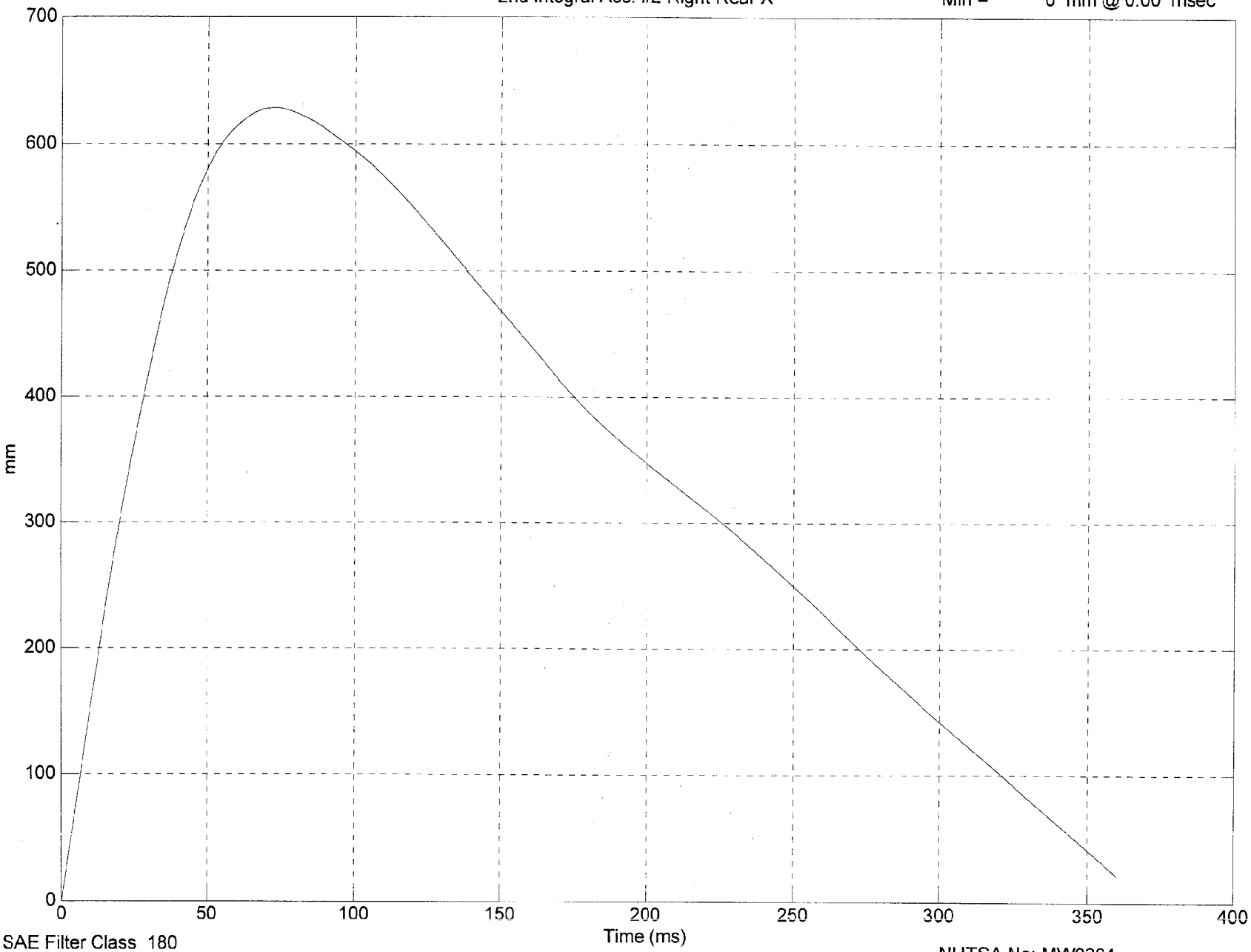
B-109

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

2nd Integral Acc. #2 Right Rear X

Max = 628 mm @ 73.00 msec
Min = 0 mm @ 0.00 msec



SAE Filter Class 180

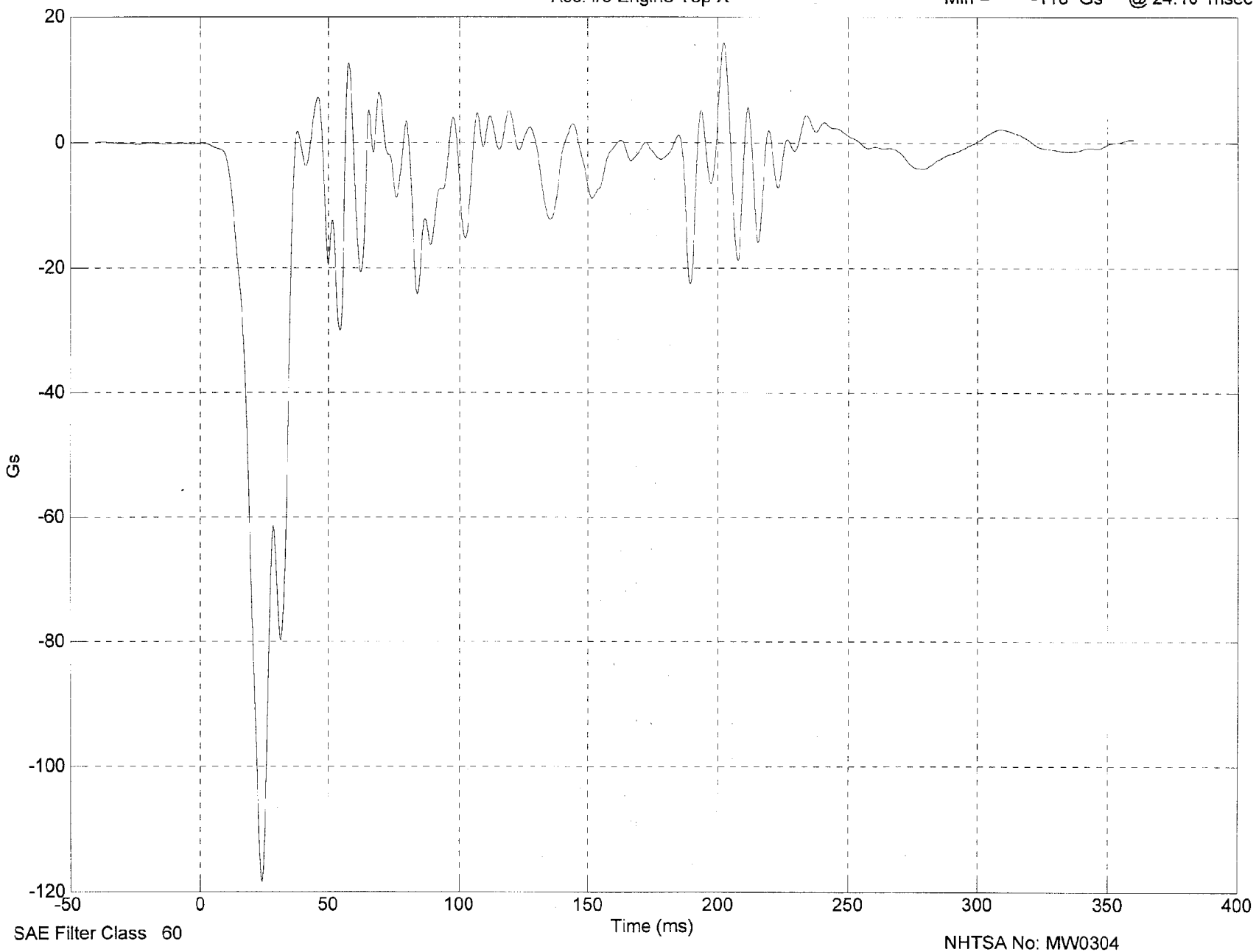
NHTSA No: MW0304
Date: 10 Feb 1998

B-110

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 15.9 Gs @ 202.10 msec
Min = -118 Gs @ 24.10 msec



B-111

8413-22

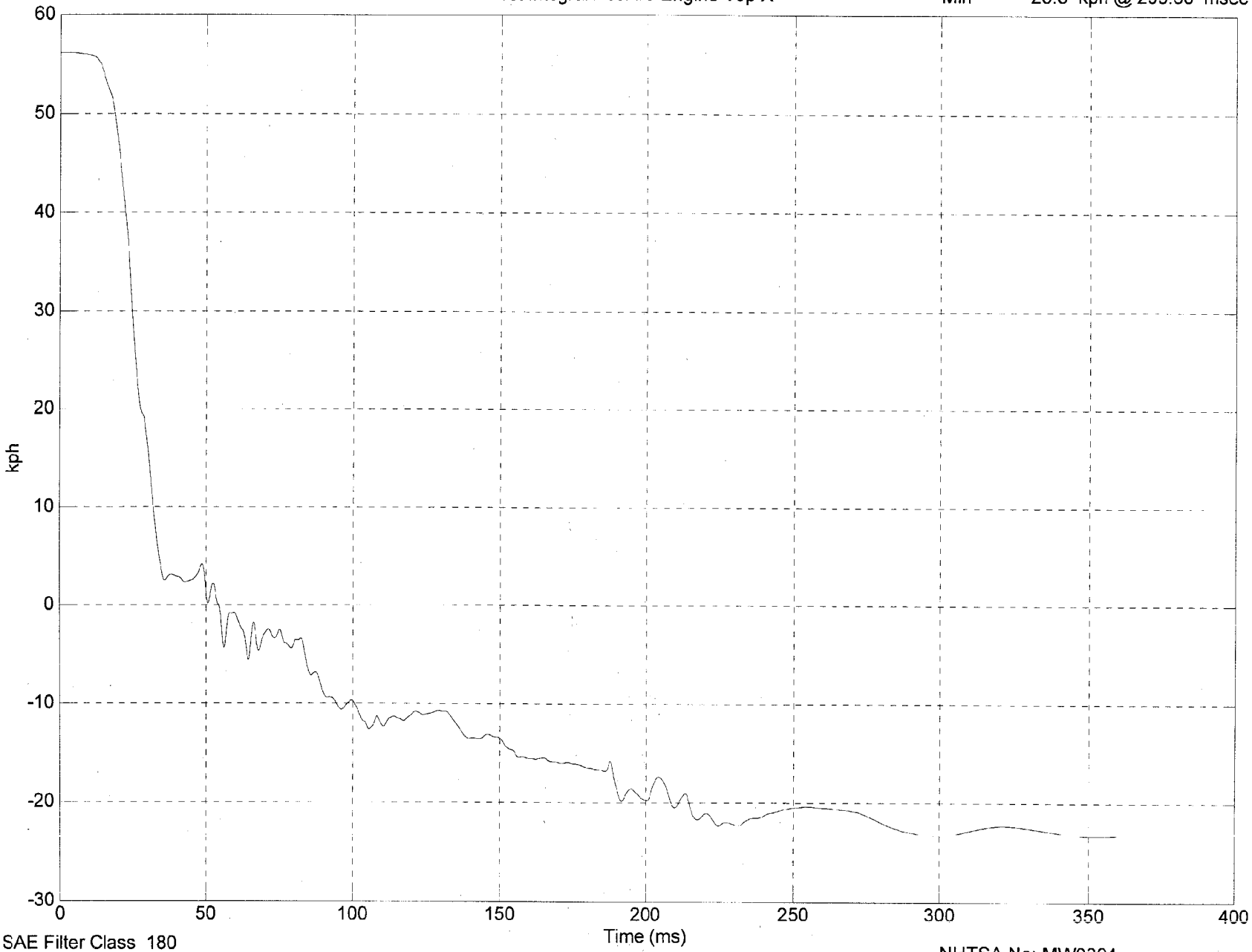
SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

1st Integral Acc. #3 Engine Top X

Max = 56.2 kph @ 0.00 msec
Min = -23.3 kph @ 299.80 msec



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

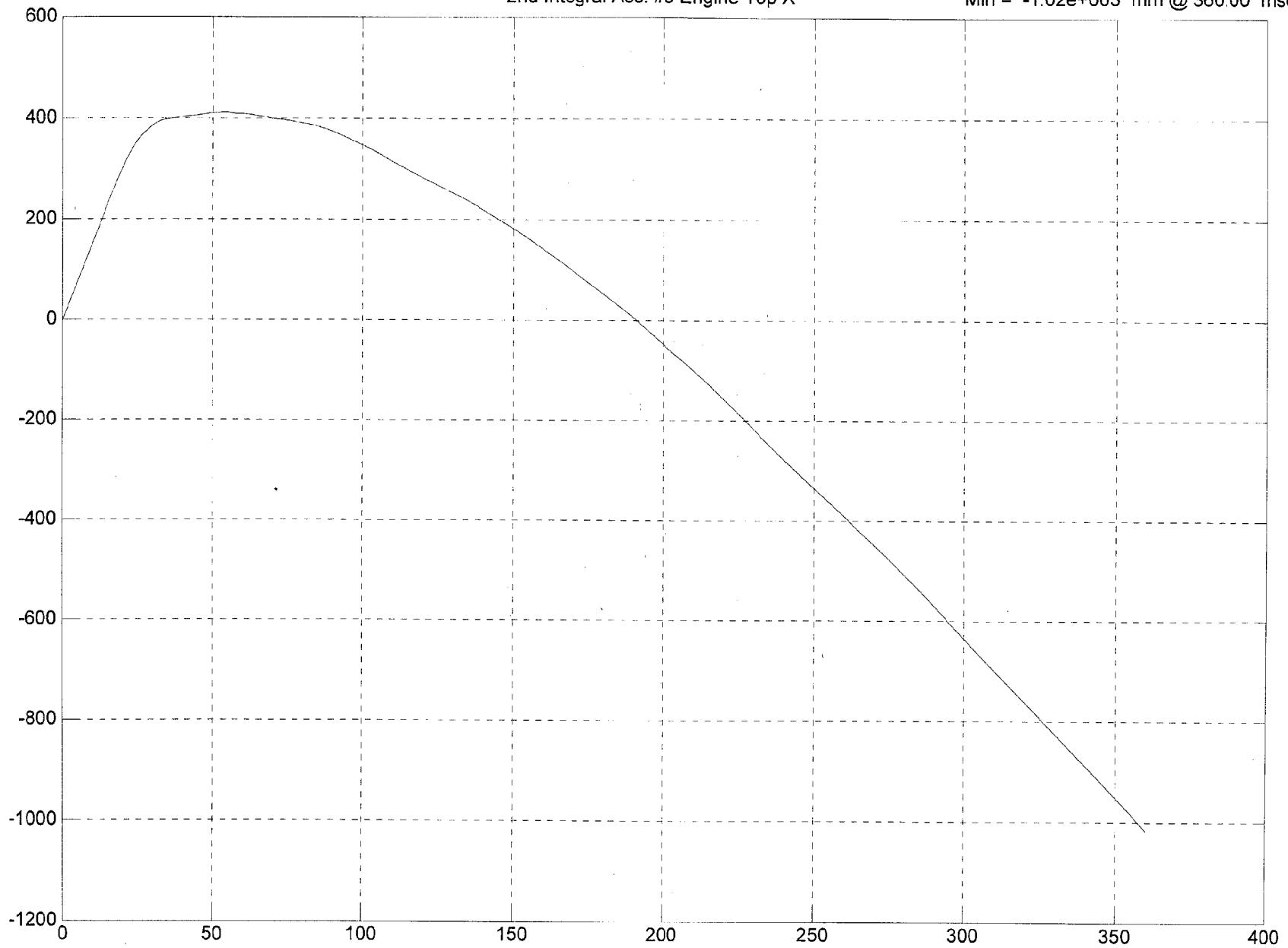
B-112

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

2nd Integral Acc. #3 Engine Top X

Max = 412 mm @ 54.30 msec
Min = -1.02e+003 mm @ 360.00 msec



B-113

8413-22

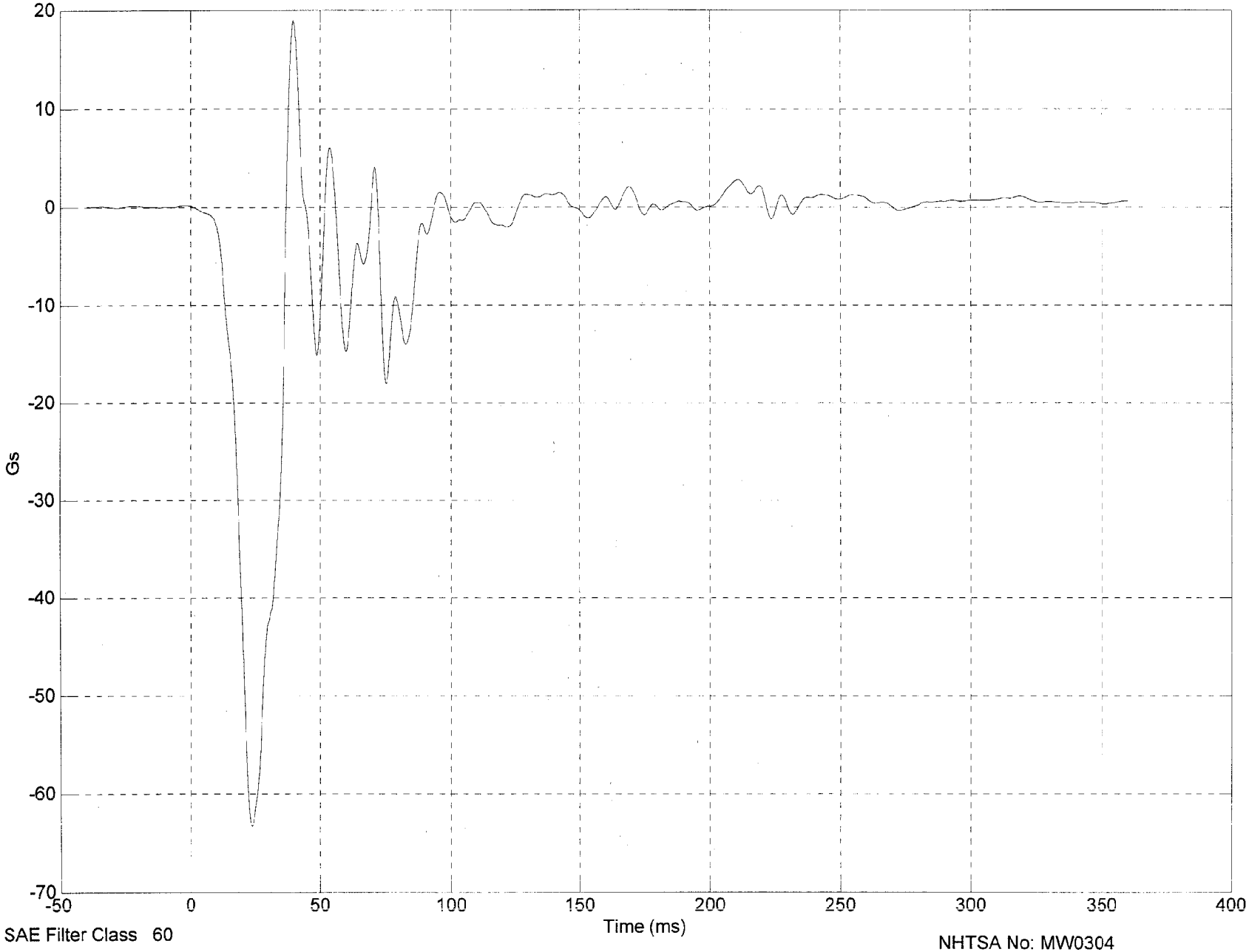
SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Acc. #4 Eng. Bottom X

Max = 19 Gs @ 39.70 msec
Min = -63.2 Gs @ 23.60 msec



B-114

8413-22

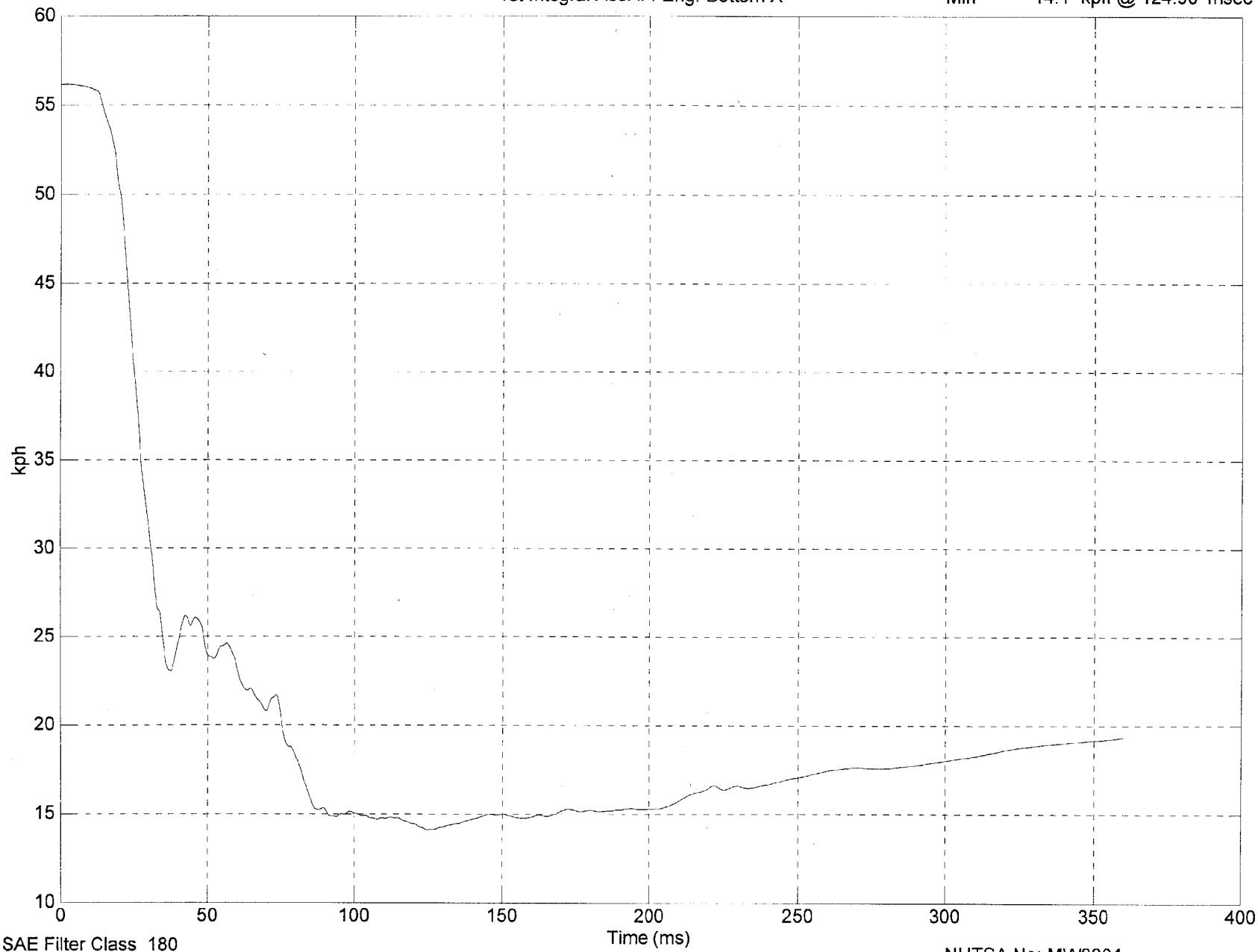
SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

1st Integral Acc. #4 Eng. Bottom X

Max = 56.2 kph @ 3.00 msec
Min = 14.1 kph @ 124.90 msec

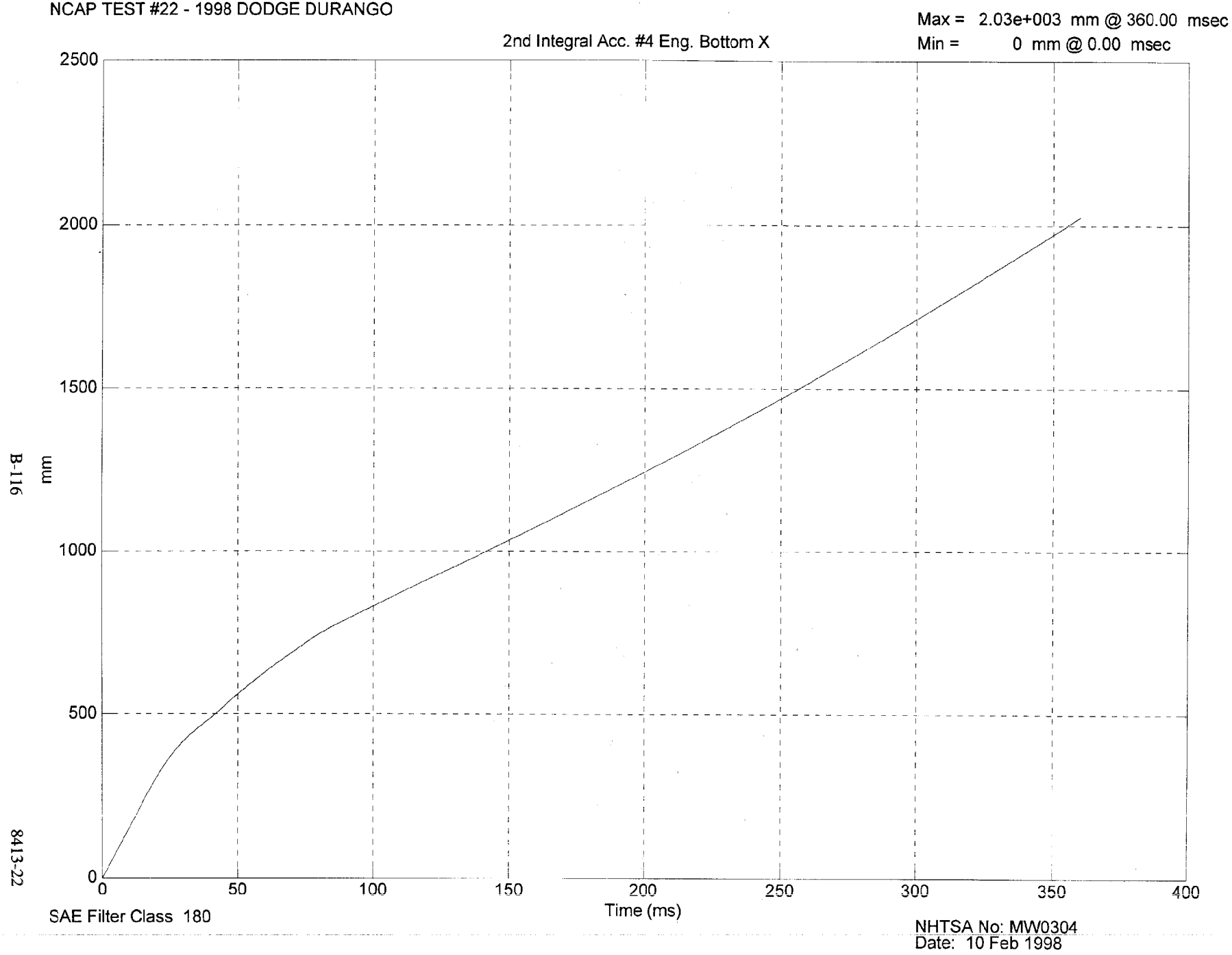


SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO



B-116

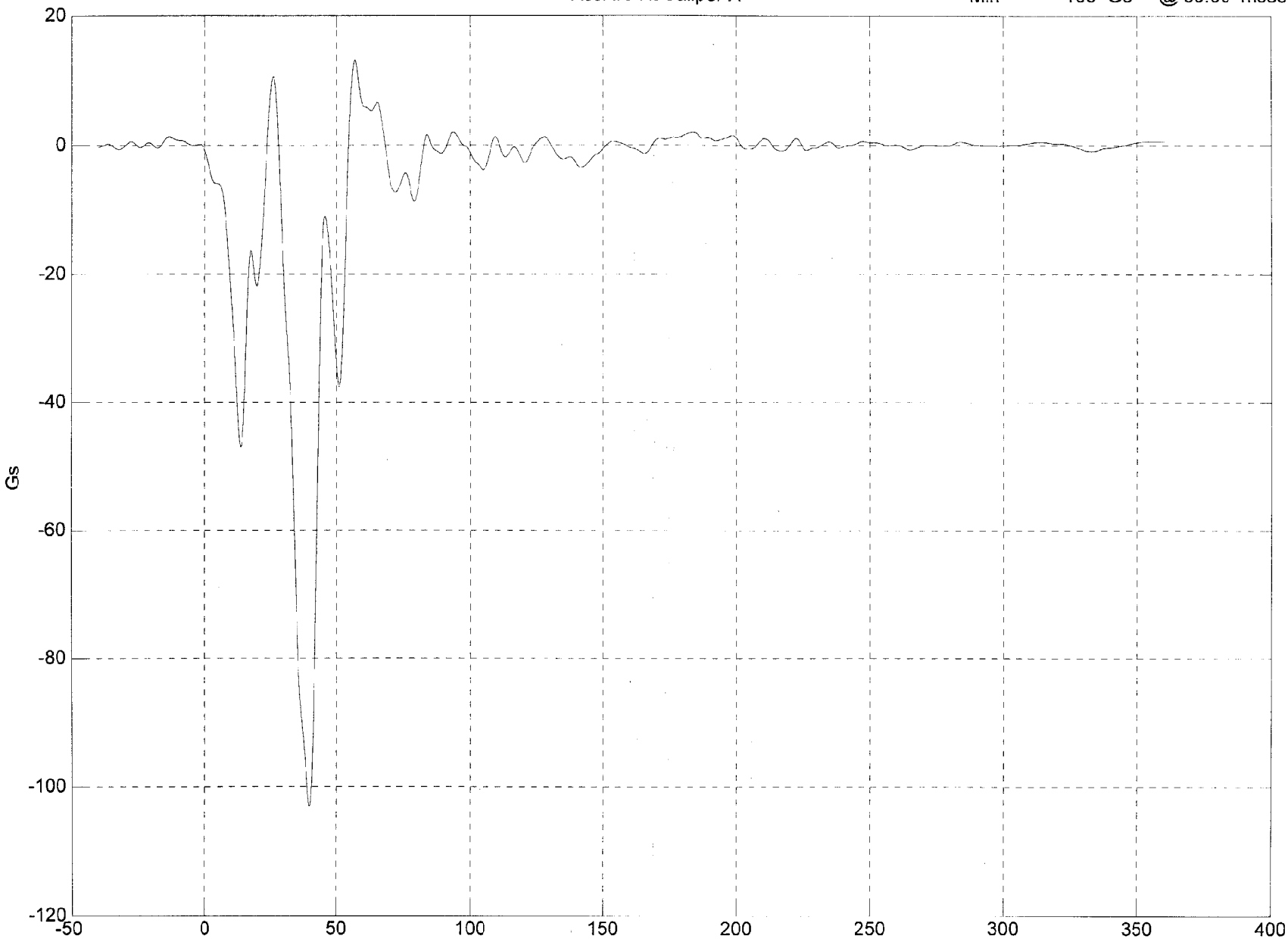
8413-22

SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 13.2 Gs @ 57.00 msec
Min = -103 Gs @ 39.90 msec



B-117

8413-22

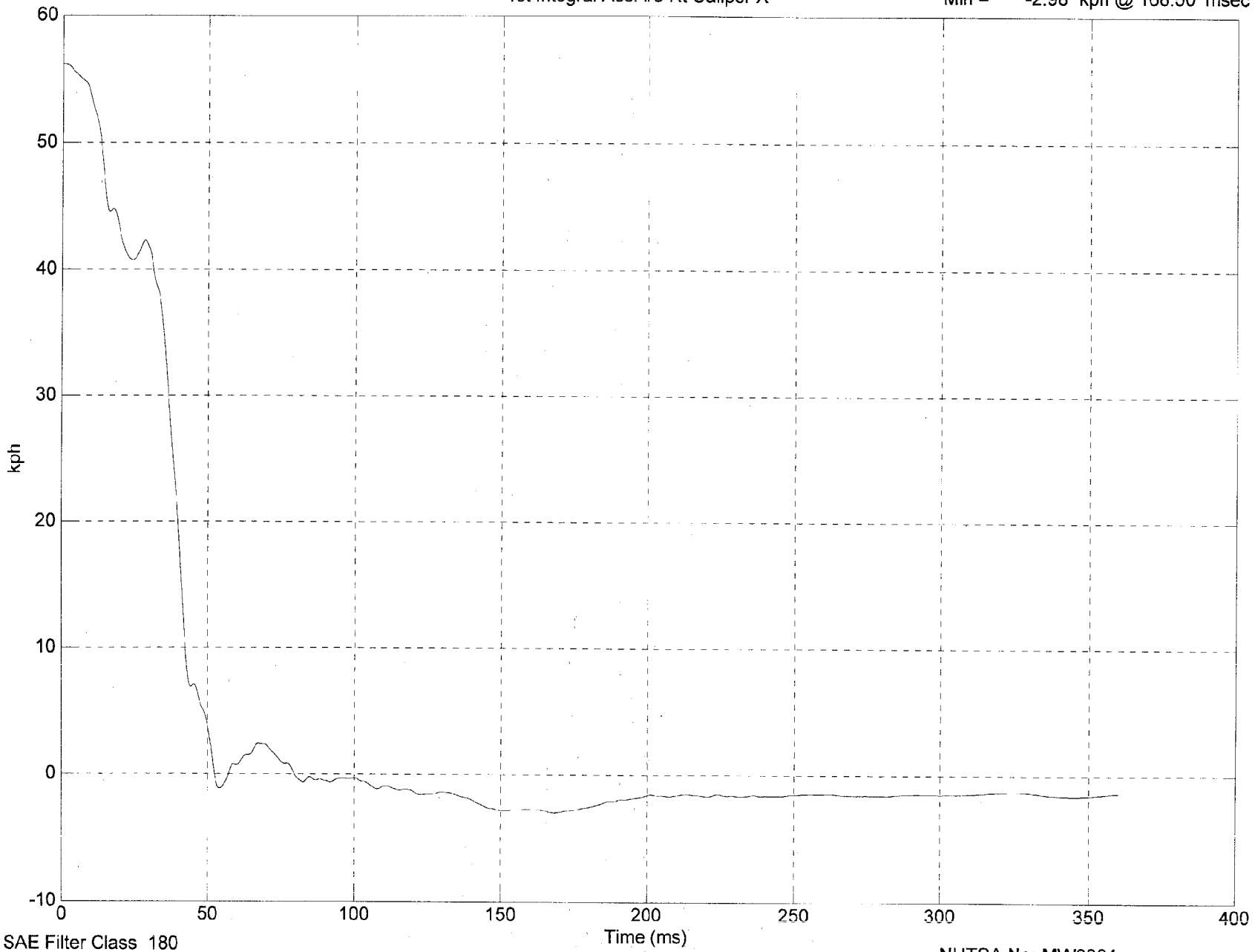
SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

1st Integral Acc. #5 Rt Caliper X

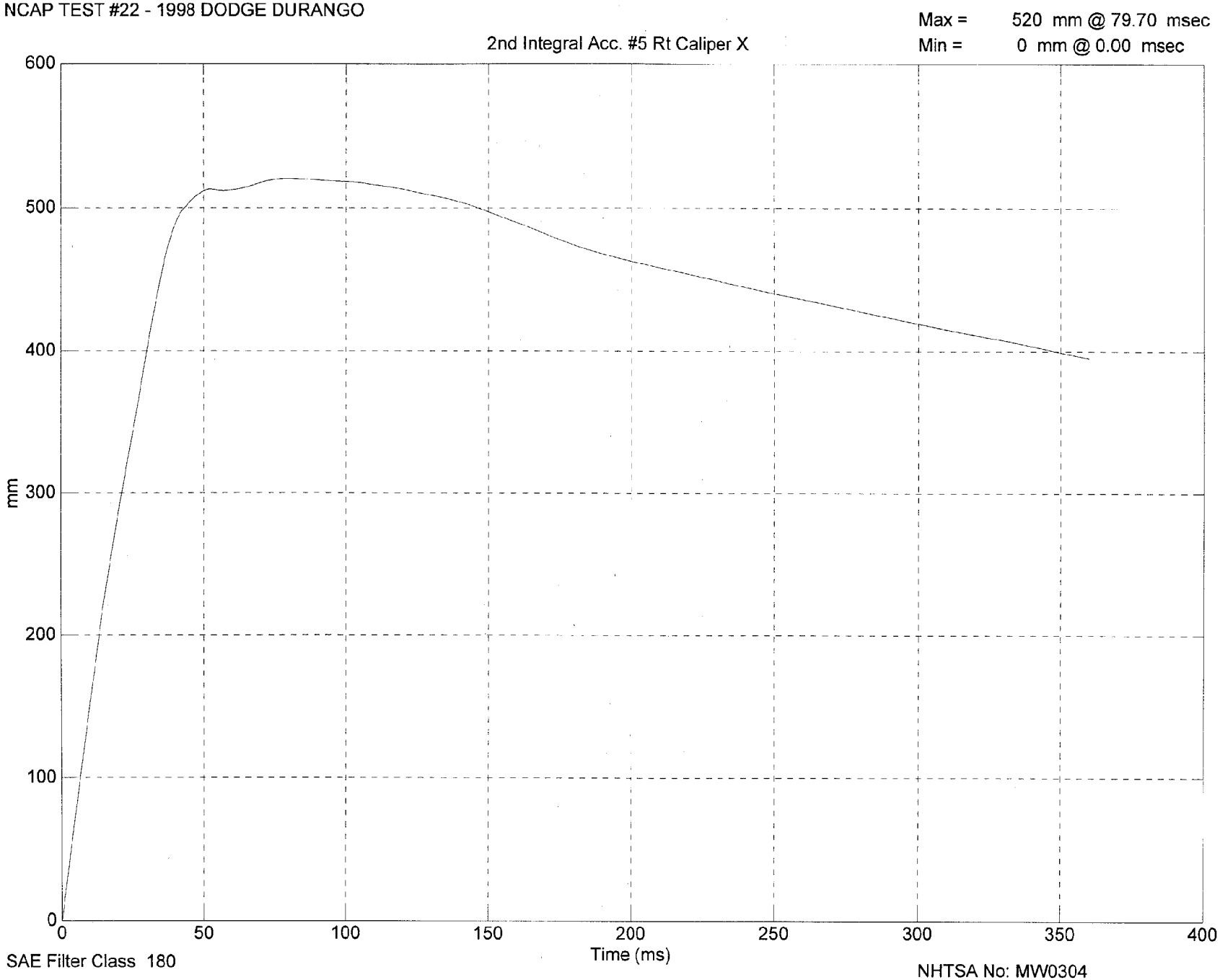
Max = 56.2 kph @ 0.60 msec
Min = -2.98 kph @ 168.50 msec



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

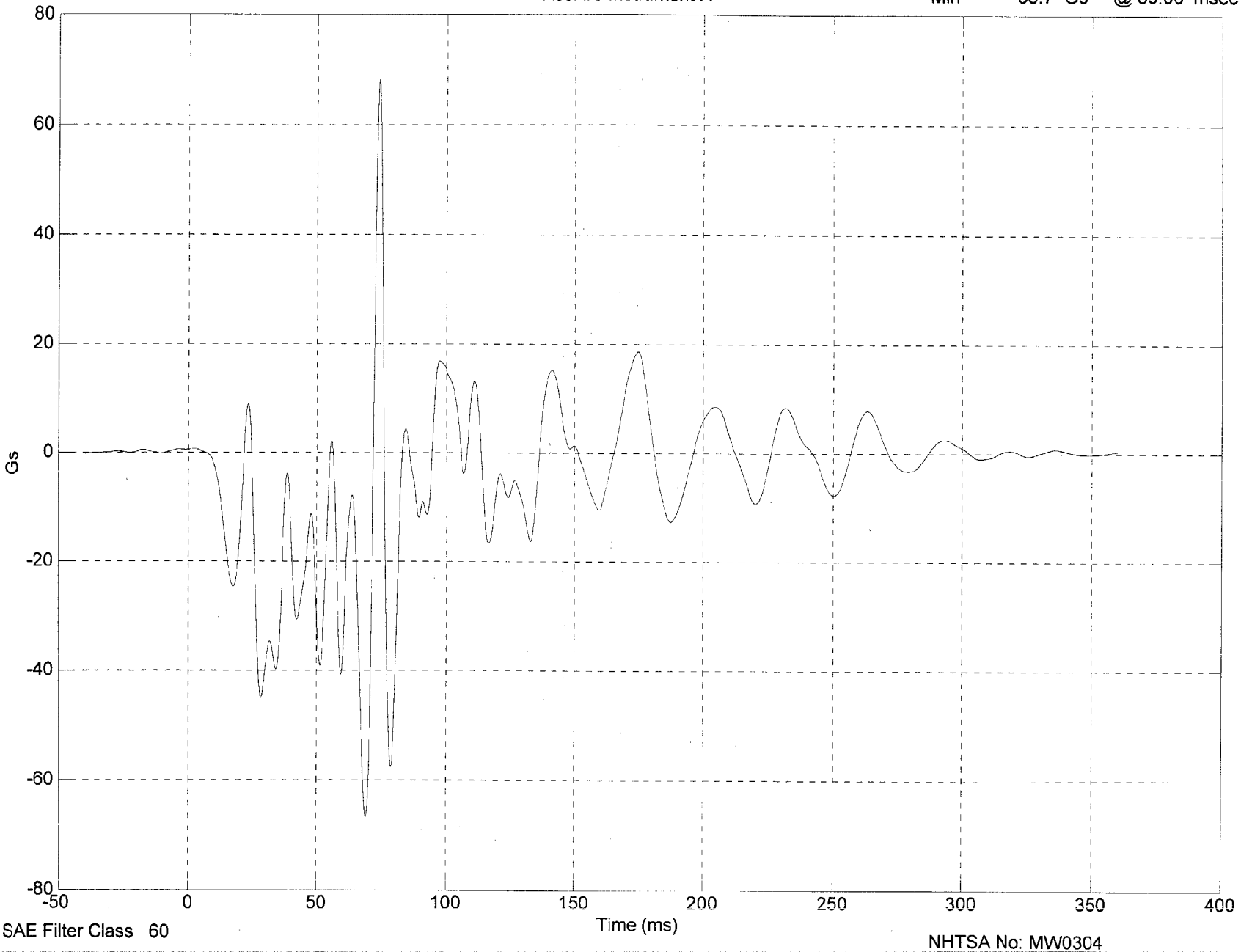
B-119

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Acc. #6 Instrument X

Max = 68.2 Gs @ 74.20 msec
Min = -66.7 Gs @ 69.00 msec



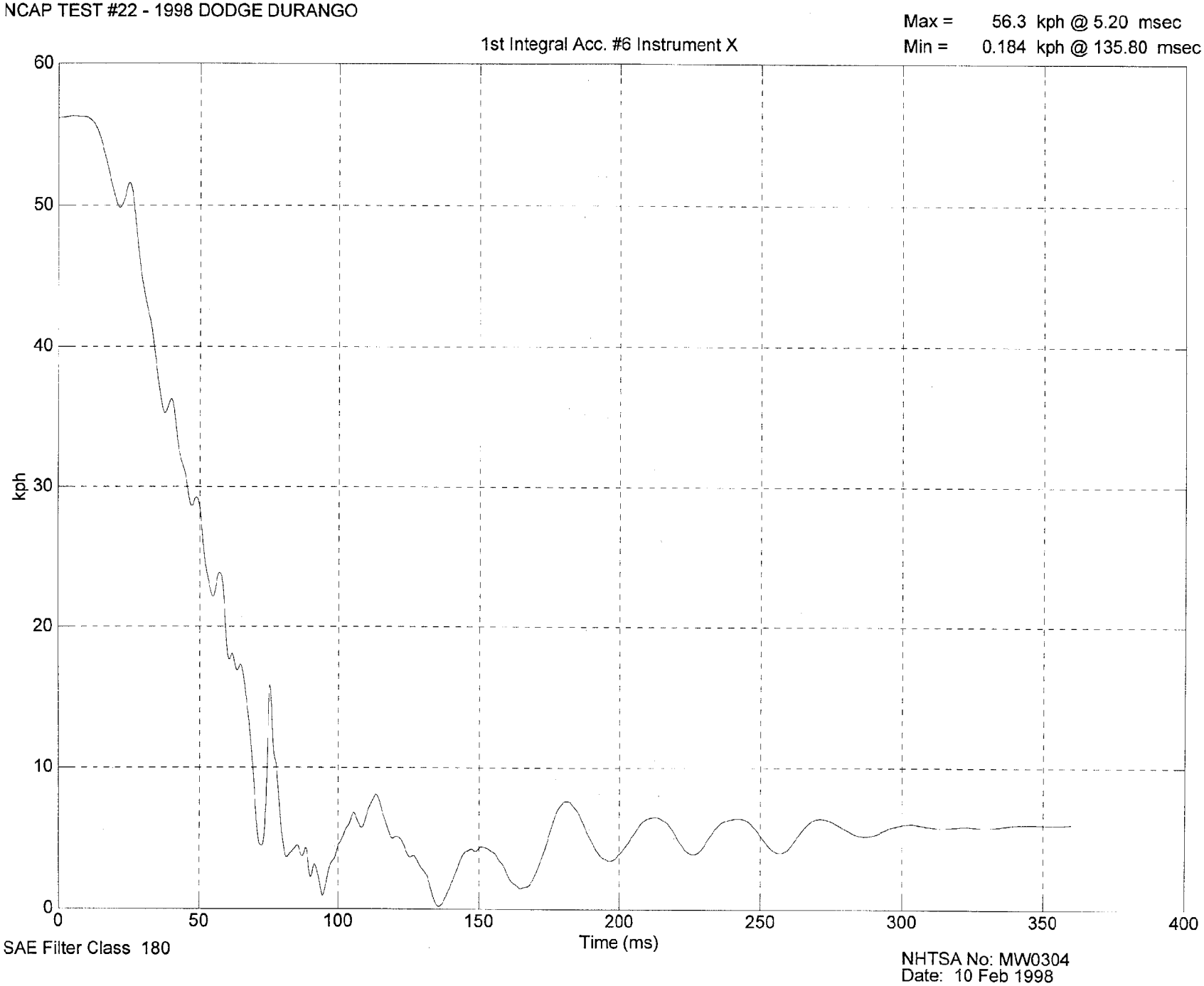
SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

B-120

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO



SAE Filter Class 180

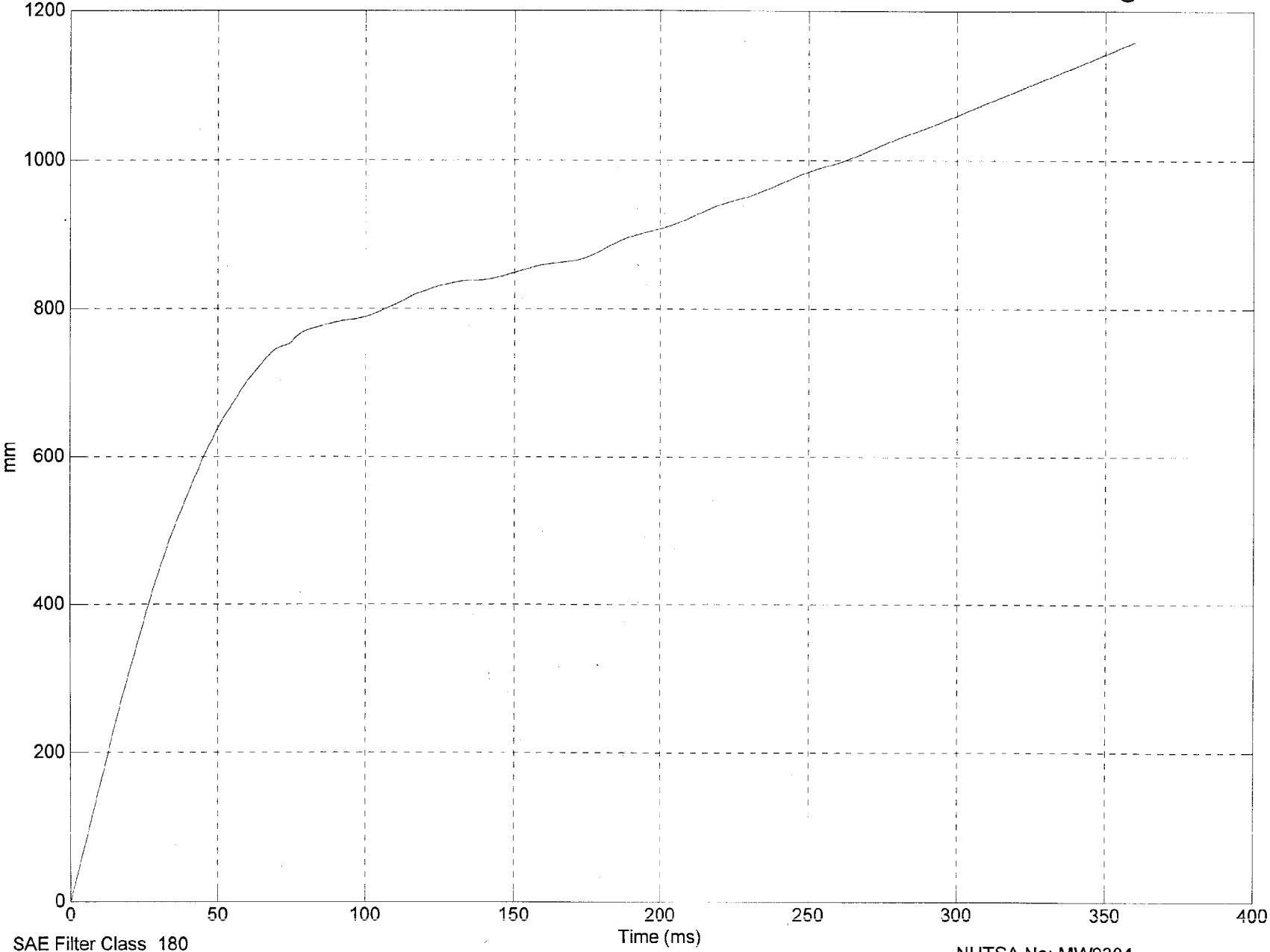
NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

2nd Integral Acc. #6 Instrument X

Max = 1.16e+003 mm @ 360.00 msec
Min = 0 mm @ 0.00 msec



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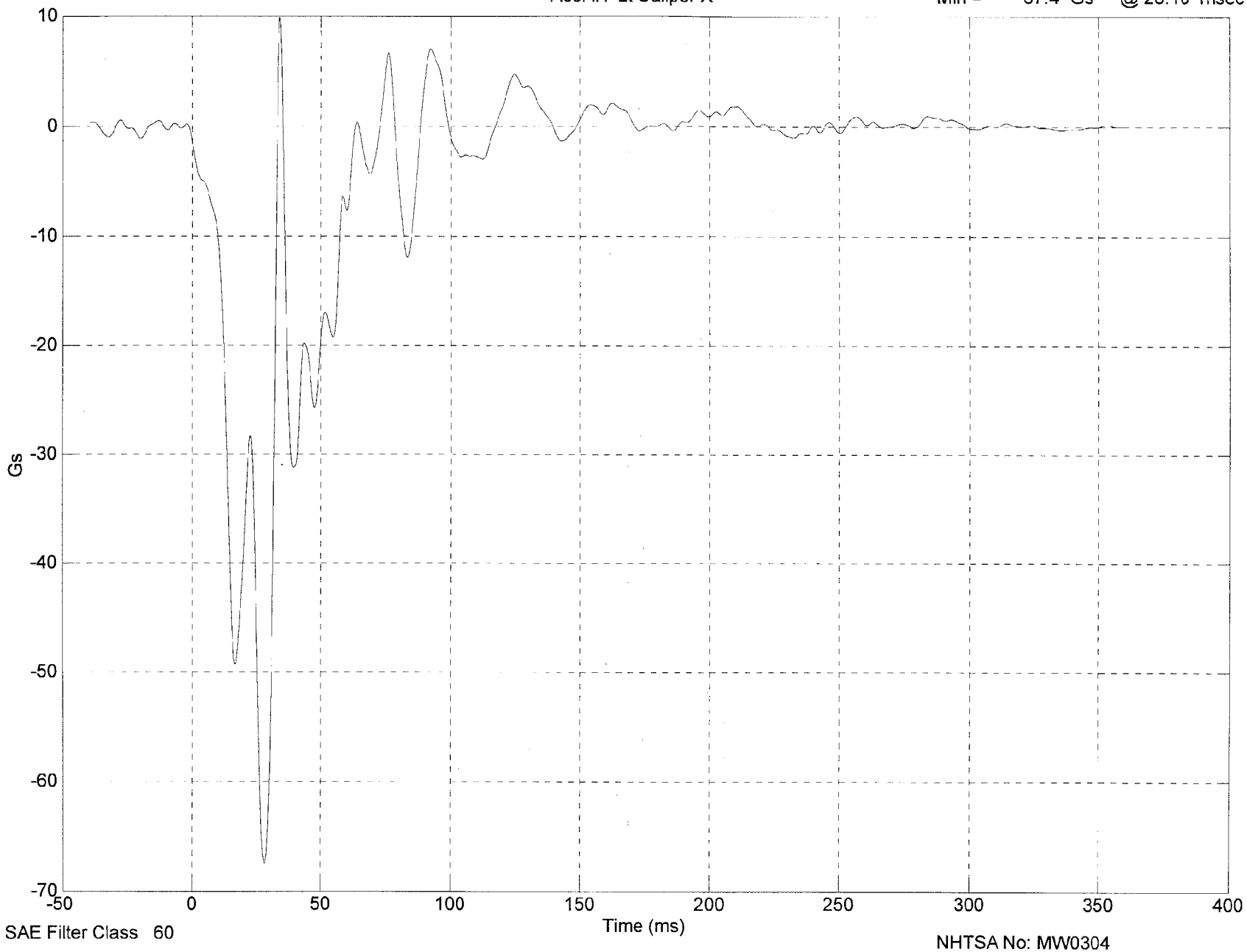
8413-22

SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 9.9 Gs @ 34.00 msec
Min = -67.4 Gs @ 28.10 msec



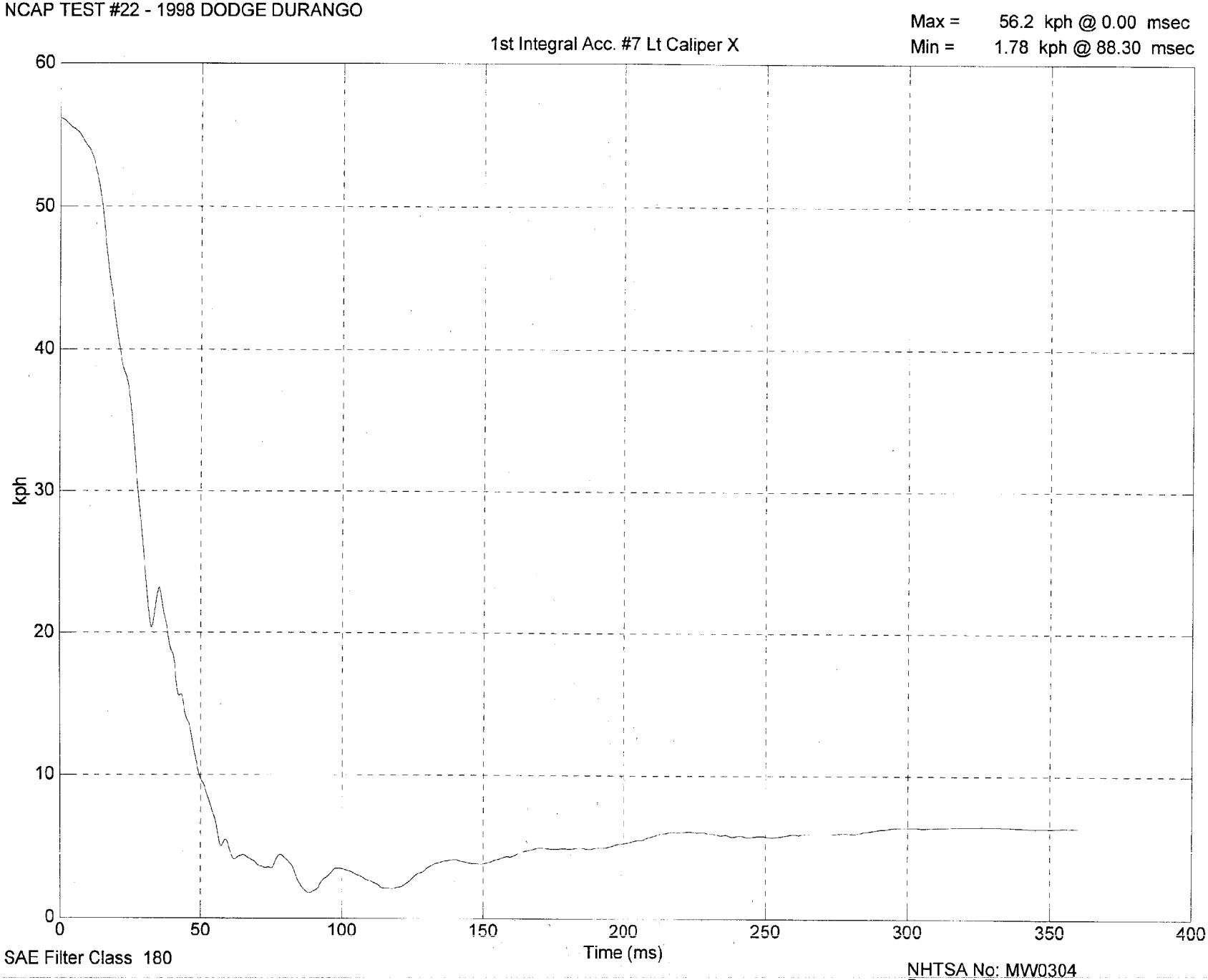
SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

B-123

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO



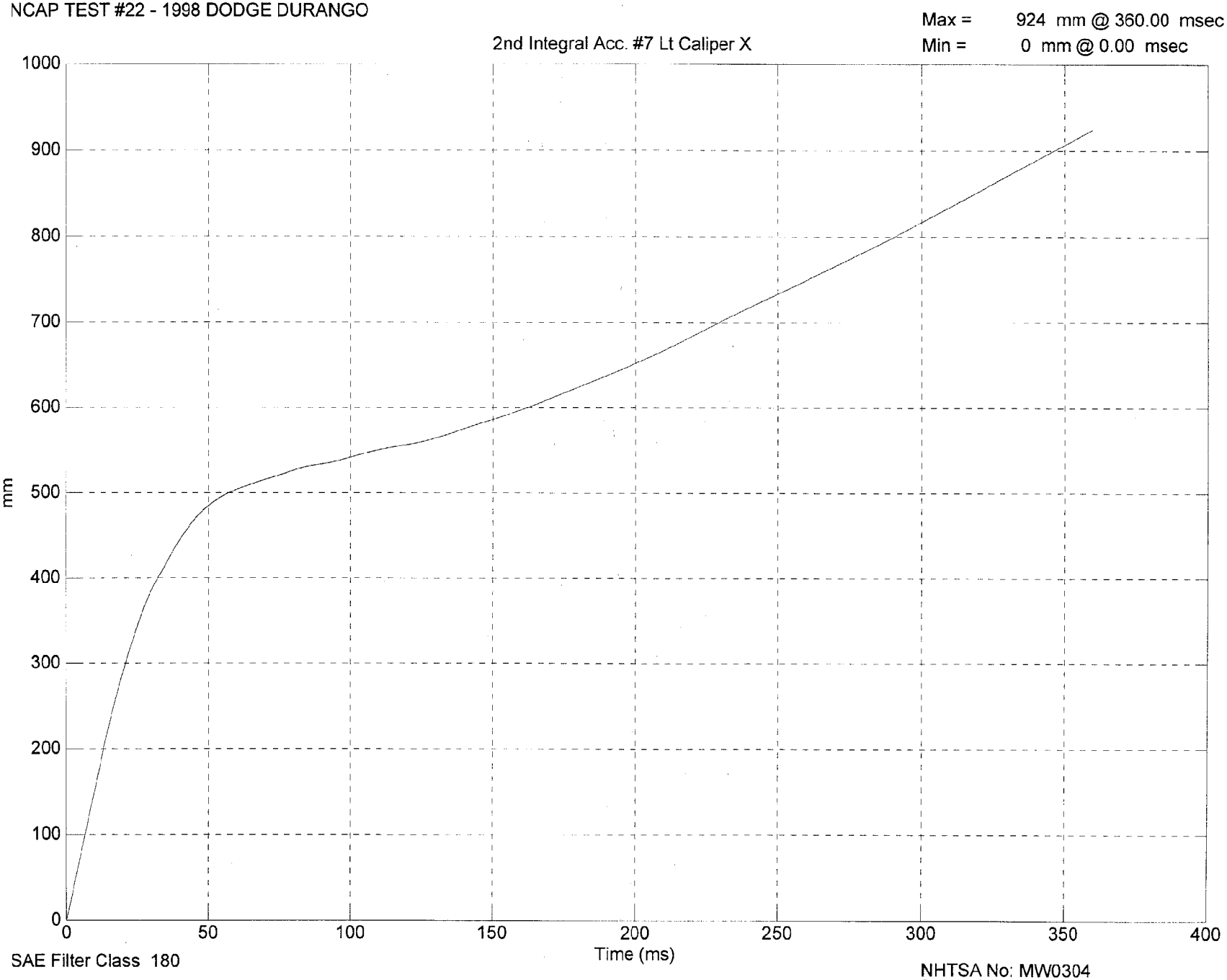
SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

B-124

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO



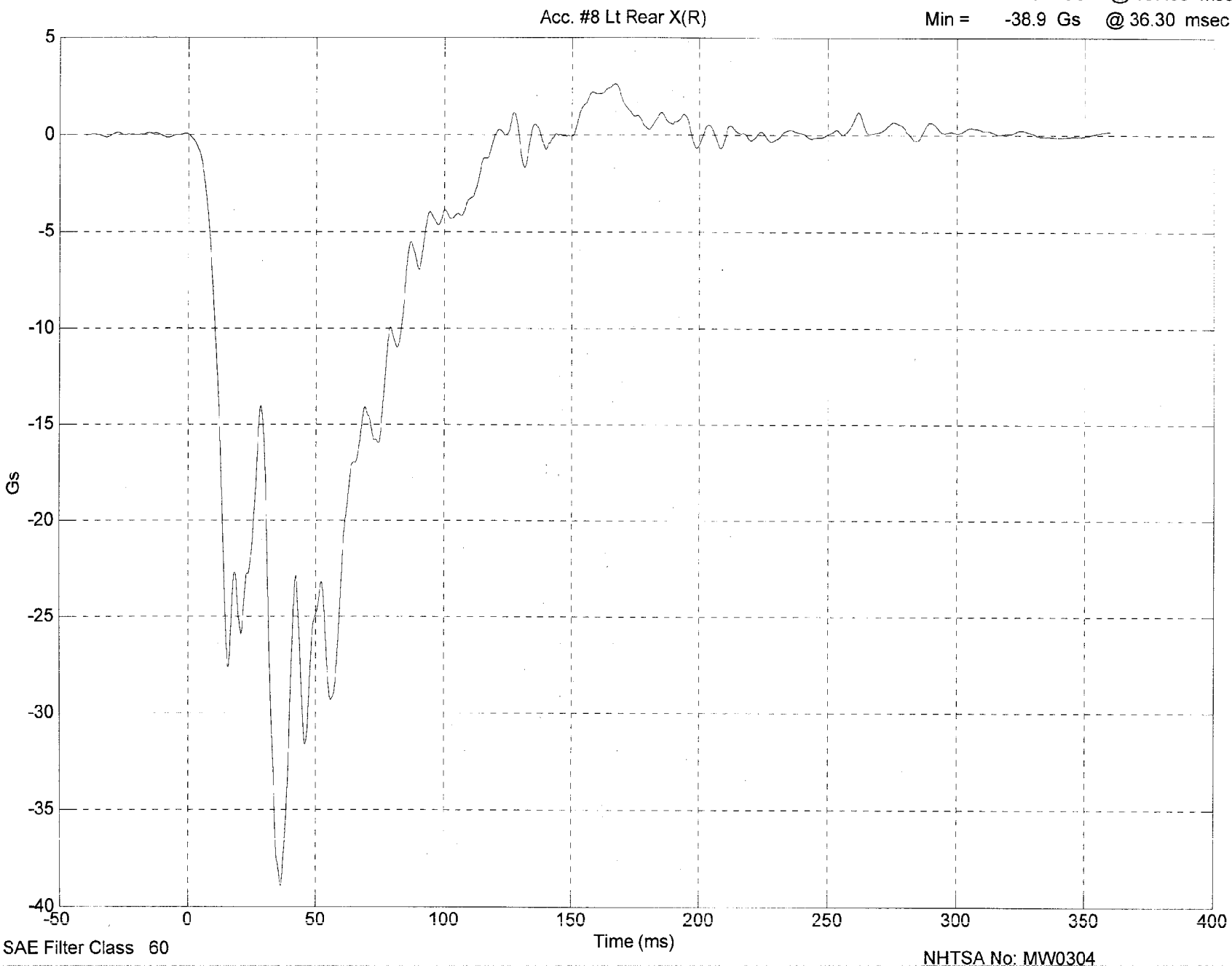
B-125

8413-22

SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO



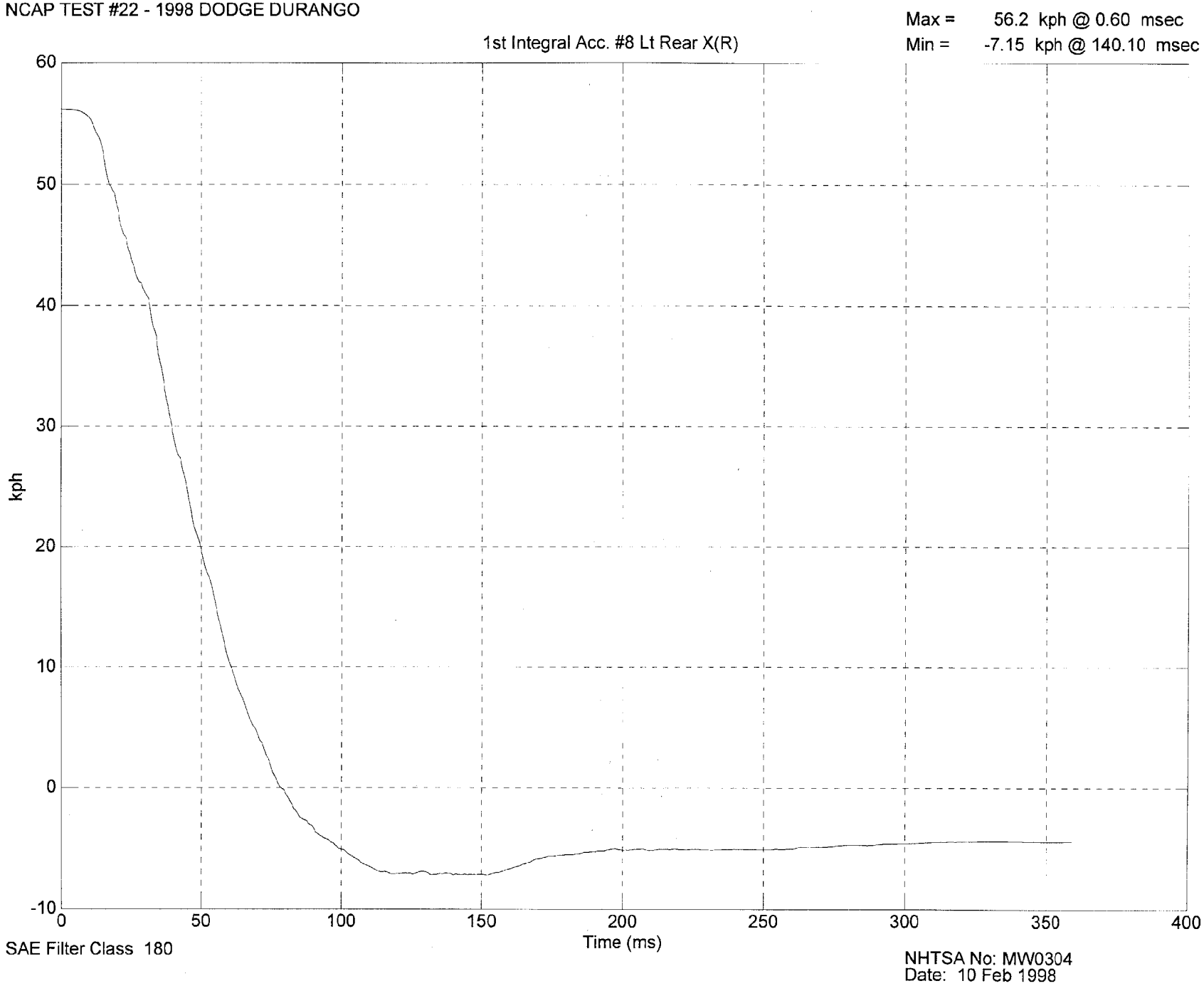
SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

B-126

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO



SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

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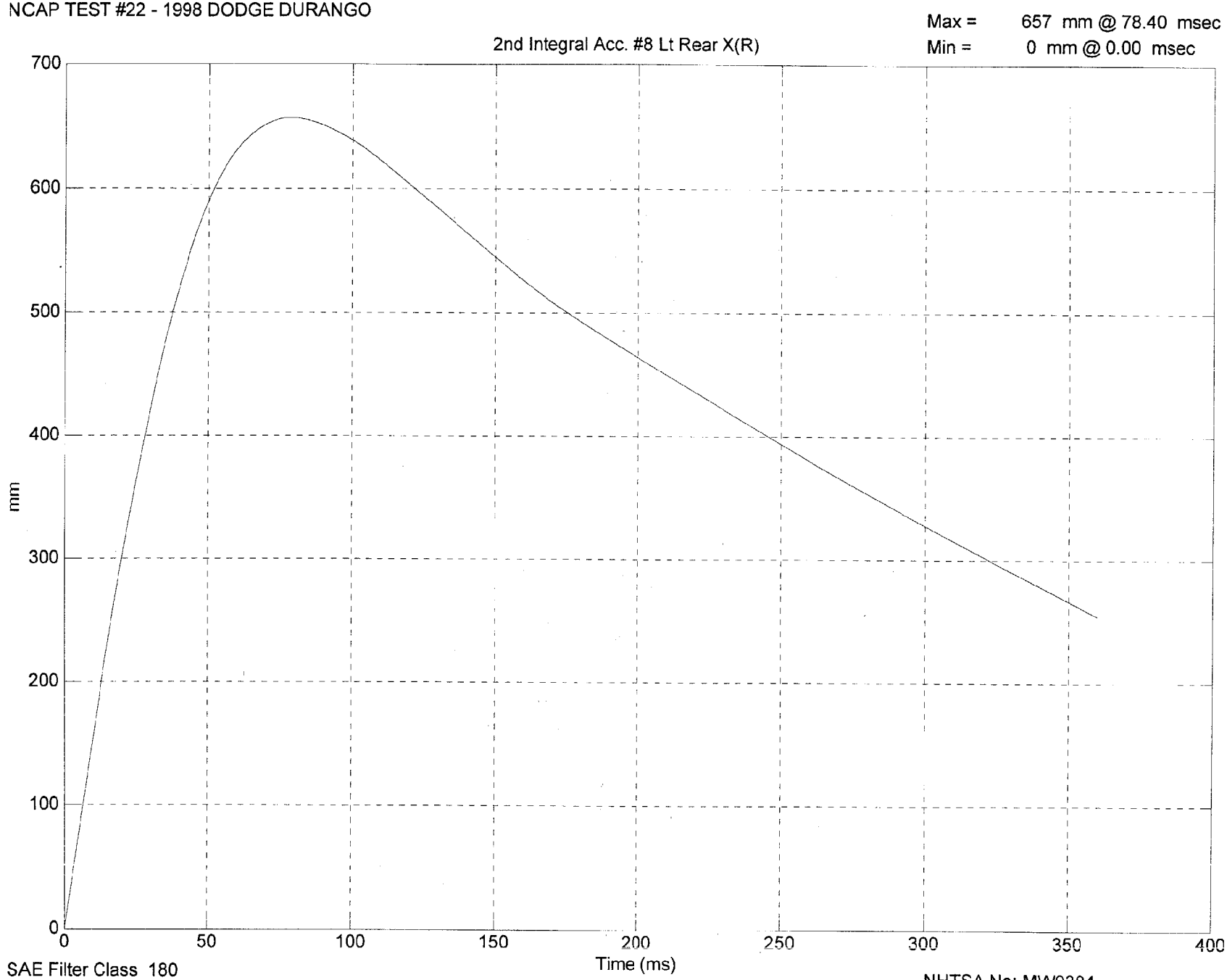
8413-22

NCAP TEST #22 - 1998 DODGE DURANGO



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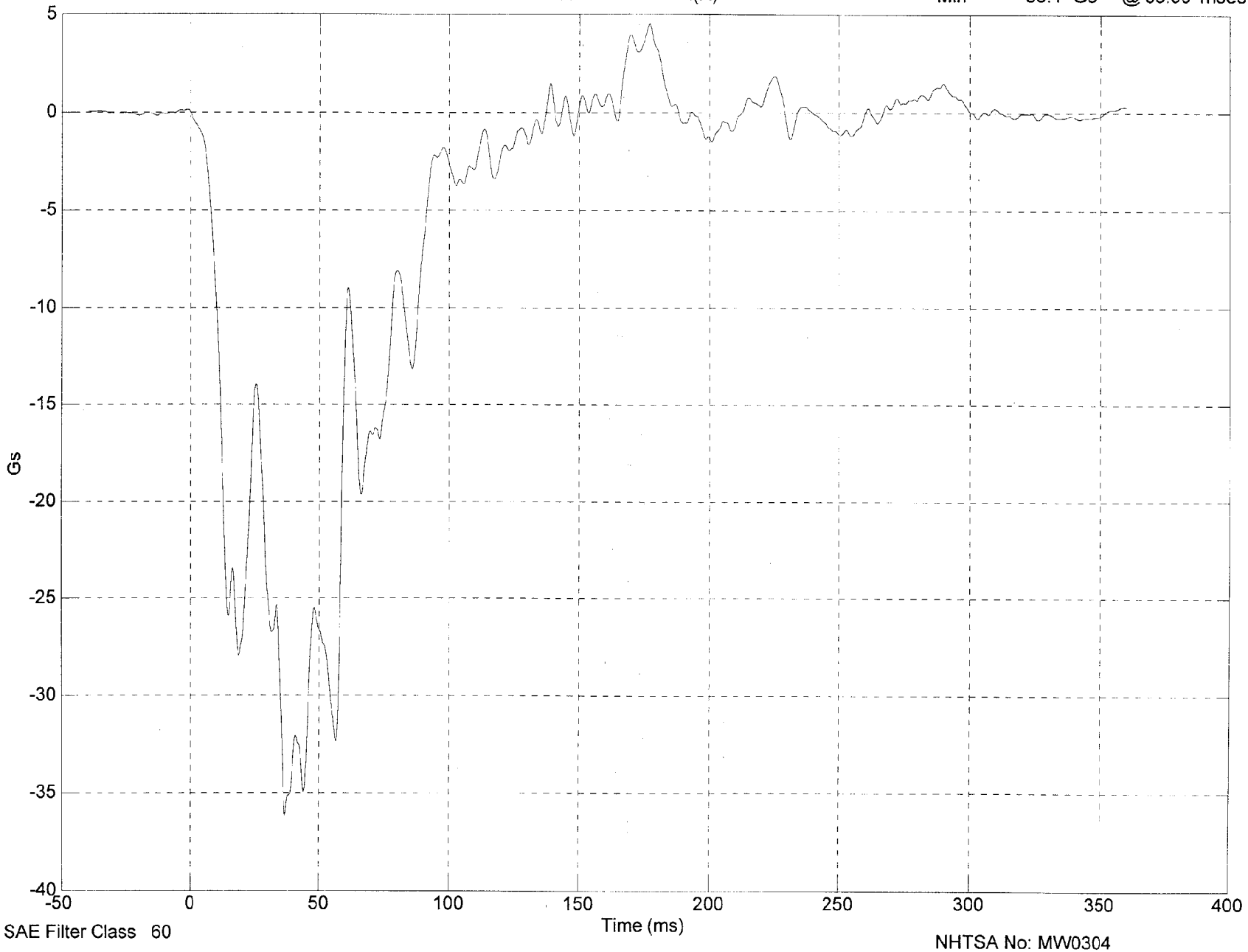
8413-22

SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 4.5 Gs @ 177.10 msec
Min = -36.1 Gs @ 36.90 msec



SAE Filter Class 60

NHTSA No: MW0304
Date: 10 Feb 1998

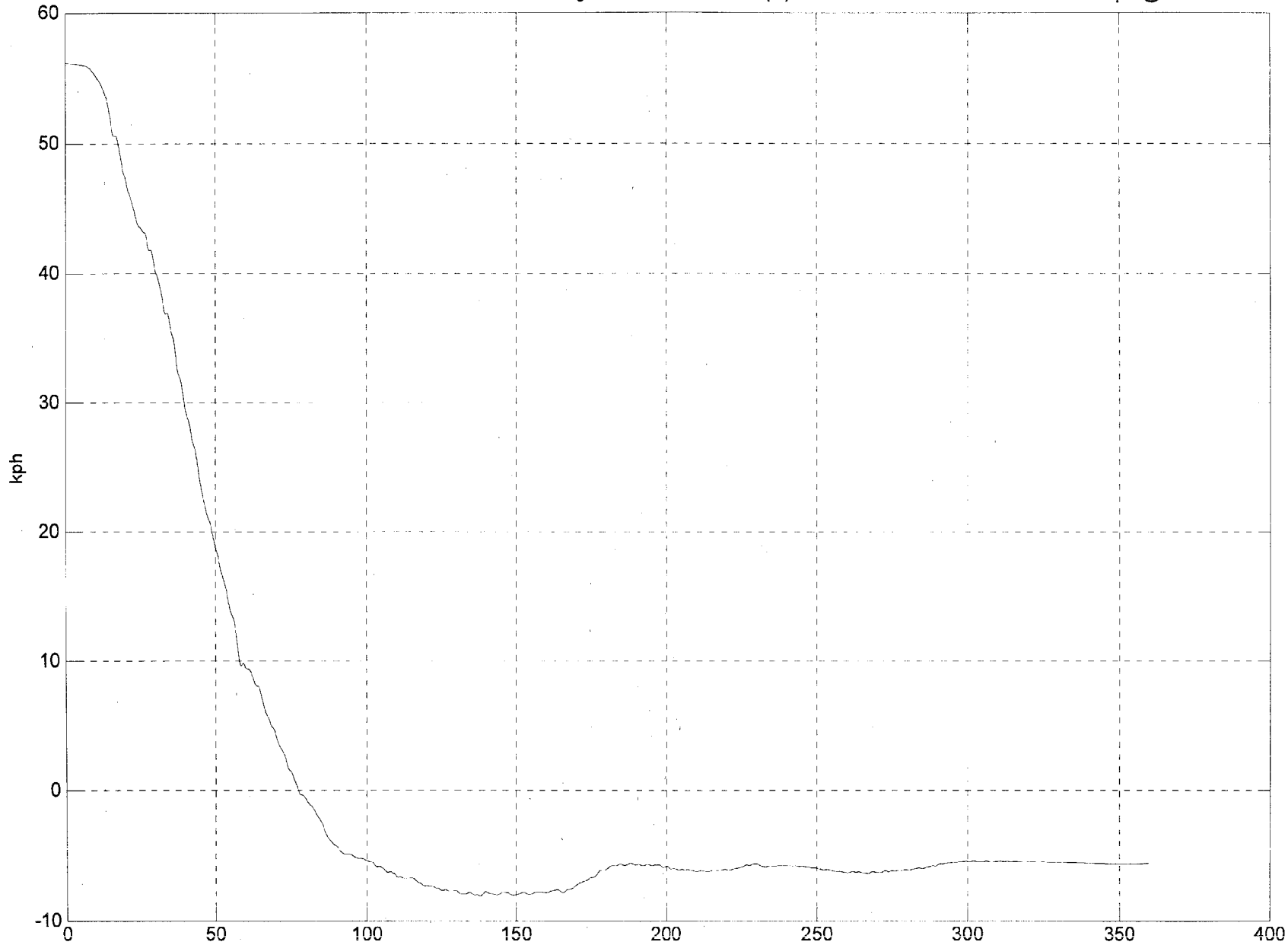
B-129

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

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

Max = 56.2 kph @ 0.30 msec
Min = -8.08 kph @ 137.90 msec



B-130

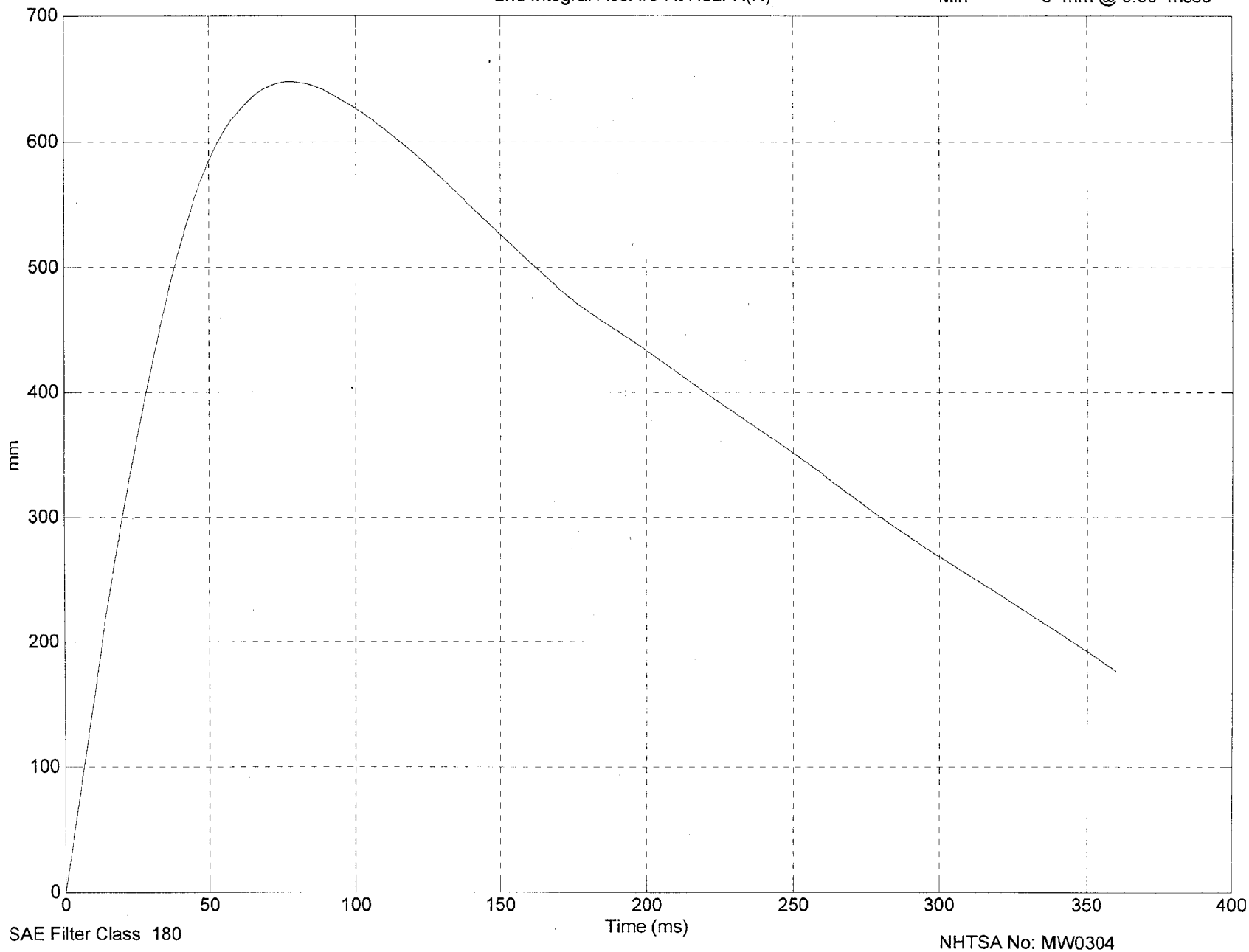
8413-22

SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 648 mm @ 77.40 msec
Min = 0 mm @ 0.00 msec



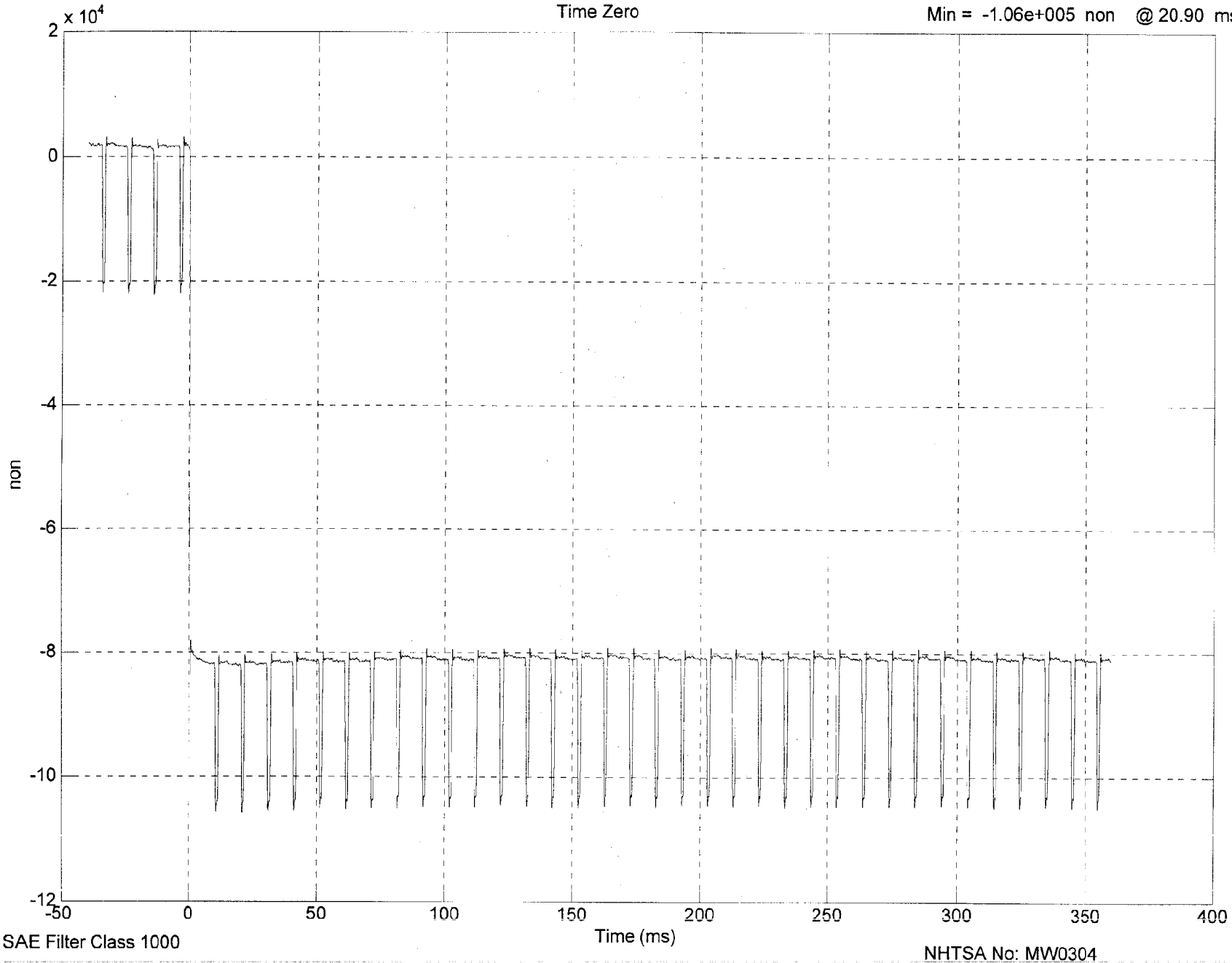
SAE Filter Class 180

NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

NCAP TEST #22 - 1998 DODGE DURANGO

Max = 3.2e+003 non @ -32.80 msec
Min = -1.06e+005 non @ 20.90 msec



SAE Filter Class 1000

NHTSA No: MW0304
Date: 10 Feb 1998

8413-22

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.

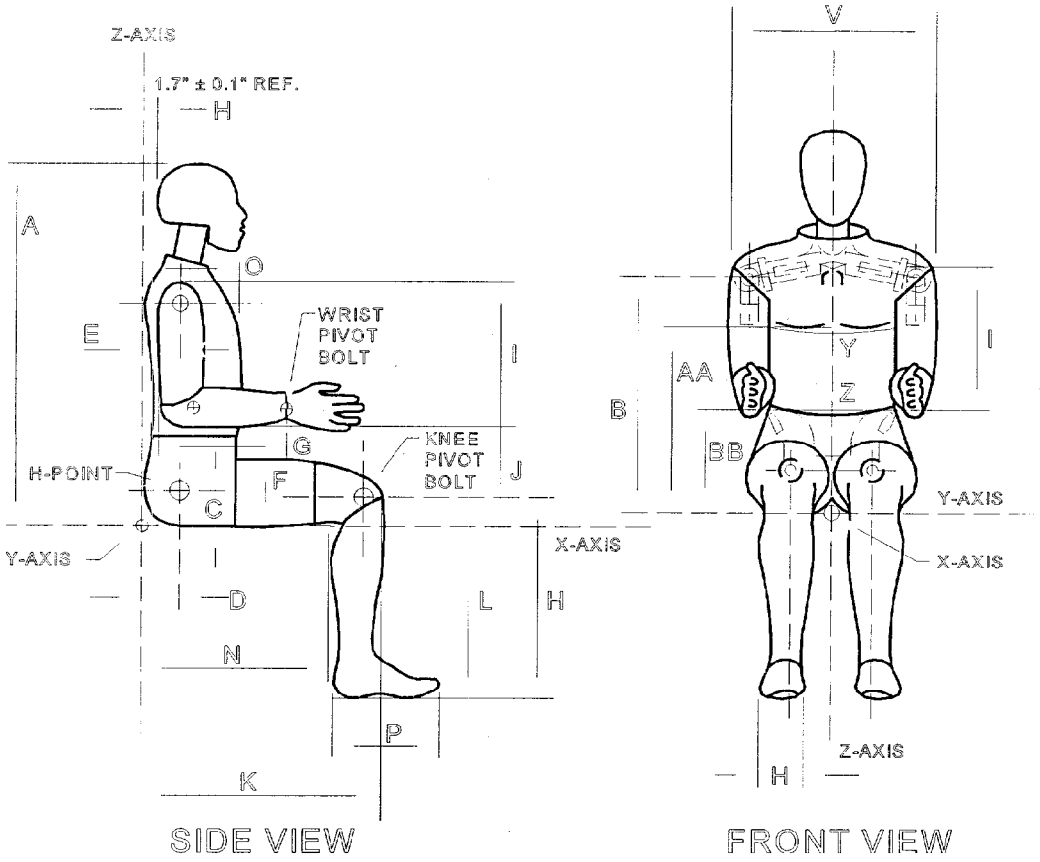
Dummy serial numbers and certification dates are:

Position No./Location	Serial No.	Completion Date
#1/Driver	061	01/30/98
#2/Right Front Passenger	150	01/29/98

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.

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	061
Calspan Sequential Test Number	2
Date	01/28/98
Workfile	061298.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	32
Peak Resultant Acceleration	225-275 G's	259.2
Peak Lateral Acceleration	15 G's Max	10.5
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	061
Calspan Sequential Test Number	2
Date	01/30/98
Workfile	061298.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	39
Impact Velocity		22.60 - 23.40 Ft/s	22.93
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.18
	20 ms	17.60 - 22.60 G's	20.22
	30 ms	12.50 - 18.50 G's	17.16
Max Pendulum G's Above 30 ms		29 G's Max	17.16
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.38
D Plane Rotation	Max	64 - 78 Deg	68.04
	Time	57 - 64 ms	59.00
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	72.81
	Time	47 - 58 ms	52.50
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	118.63
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	99.25

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	061
Calspan Sequential Test Number	2
Date	01/30/98
Workfile	061298.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	39
Impact Velocity		19.50 - 20.30 Ft/s	20.09
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.46
	20 ms	14.00 - 19.00 G's	06.58
	30 ms	11.00 - 16.00 G's	13.90
Max Pendulum G's Above 30 ms		22 G's Max	13.90
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	43.13
D Plane Rotation	Max	81 - 106 Deg	94.16
	Time	72 - 82 ms	76.63
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-51.97
	Time	65 - 79 ms	71.25
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	158.25
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	138.38

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	061
Calspan Sequential Test Number	2
Date	01/29/98
Workfile	061298.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	37
Pendulum Velocity	21.6 - 22.4 Ft/s	21.68
Maximum Deflection	2.50 - 2.86 in	2.52
Maximum Resistive Force	1160 - 1325 Lbs	1316.91
Internal Hysteresis	69 - 85 %	73.2

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	061
Calspan Sequential Test Number	2
Date	01/29/98
Workfile	061298

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	1181.0
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	39
Probe Velocity	6.8 - 7.0 Ft/s	6.89
Peak Knee Impact Force	1060 - 1300 Lbs	1187.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Calspan Sequential Test Number 2
Date 01/29/98

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			39
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	39.4
Waist Circumference	Z	32.9 - 34.1 in	33.5
Chest Depth	O	8.4 - 9.0 in	8.5
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	6.1
Buttock Knee Length	K	22.8 - 23.8 in	23.3
Buttock Popliteal Length	N	17.8 - 18.8 in	18.3
Popliteal Height	L	16.9 - 17.9 in	17.7
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	3.5
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
Elbow Rest Height	J	7.5 - 8.3 in	7.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
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	150
Calspan Sequential Test Number	1
Date	01/28/98
Workfile	150198.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	32
Peak Resultant Acceleration	225-275 G's	258.5
Peak Lateral Acceleration	15 G's Max	6.9
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150
Calspan Sequential Test Number	1
Date	01/28/98
Workfile	150198.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	39
Impact Velocity		22.60 - 23.40 Ft/s	23.25
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.13
	20 ms	17.60 - 22.60 G's	19.63
	30 ms	12.50 - 18.50 G's	17.12
Max Pendulum G's Above 30 ms		29 G's Max	17.12
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	41.50
D Plane Rotation	Max	64 - 78 Deg	70.23
	Time	57 - 64 ms	60.00
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	78.23
	Time	47 - 58 ms	54.50
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	118.00
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	103.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150
Calspan Sequential Test Number	1
Date	01/28/98
Workfile	150198.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	39
Impact Velocity		19.50 - 20.30 Ft/s	20.14
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.54
	20 ms	14.00 - 19.00 G's	16.46
	30 ms	11.00 - 16.00 G's	14.38
Max Pendulum G's Above 30 ms		22 G's Max	14.38
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.75
D Plane Rotation	Max	81 - 106 Deg	92.74
	Time	72 - 82 ms	75.13
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-58.90
	Time	65 - 79 ms	69.63
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	148.88
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	137.13

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	150
Calspan Sequential Test Number	1
Date	01/29/98
Workfile	150198.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	39
Pendulum Velocity	21.6 - 22.4 Ft/s	21.61
Maximum Deflection	2.50 - 2.86 in	2.7.
Maximum Resistive Force	1160 - 1325 Lbs	1223.12
Internal Hysteresis	69 - 85 %	72.5

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	150
Calspan Sequential Test Number	1
Date	01/29/98
Workfile	150198

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	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1167.0
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	39
Probe Velocity	6.8 - 7.0 Ft/s	6.98
Peak Knee Impact Force	1060 - 1300 Lbs	1180.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Calspan Sequential Test Number 1
Date 01/29/98

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			39
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	39.2
Waist Circumference	Z	32.9 - 34.1 in	34.0
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	34.8
Thigh Clearance	F	5.5 - 6.1 in	5.7
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	1835
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
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	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5

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 061)		Serial #	Manufacturer	Calibration	
				Last	Next
Head	X	C14883	ENDEVCO	8/97	2/98
	Y	C14972	ENDEVCO	8/97	2/98
	Z	C15018	ENDEVCO	8/97	2/98
Chest	X	AL6C4	ENDEVCO	8/97	2/98
	Y	AE8W7	ENDEVCO	8/97	2/98
	Z	A57G	ENDEVCO	8/97	2/98
Right Femur Load Cell		952	GSE	1/98	7/98
Left Femur Load Cell		951	GSE	1/98	7/98
Neck Load Cell	X	446	DENTON	10/97	4/98
	Y	446	DENTON	10/97	4/98
	Z	446	DENTON	10/97	4/98
Neck Moment	X	446	DENTON	10/97	4/98
	Y	446	DENTON	10/97	4/98
	Z	446	DENTON	10/97	4/98
Chest Deflection Gauge		061	HUMANOID	11/97	5/98
Hybrid III Use Only					
Lap Belt Load Cells		706	LEBOW	1/98	7/98
Shoulder Belt Load Cells		707	LEBOW	1/98	7/98
Spool-Out Potentiometer		M5	MAGNETEK	9/97	3/98
Belt Stretch Transducer		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)	A13937	ENDEVCO	10/97	4/98
	Y (R)	A13517	ENDEVCO	10/97	4/98
	Z (R)	A13941	ENDEVCO	10/97	4/98
Chest	X (R)	A1381	ENDEVCO	10/97	4/98
	Y (R)	A13828	ENDEVCO	10/97	4/98
	Z (R)	A13883	ENDEVCO	10/97	4/98
Pelvic	X	AC2P5	ENDEVCO	8/97	2/98
	Y	ADL50	ENDEVCO	8/97	2/98
	Z	A59J	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	10/97	4/98
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 150)		Serial #	Manufacturer	Calibration	
				Last	Next
Head	X	AH5M9	ENDEVCO	1/98	7/98
	Y	AGHF5	ENDEVCO	1/98	7/98
	Z	AL6K2	ENDEVCO	1/98	7/98
Chest	X	A33A	ENDEVCO	1/98	7/98
	Y	FB32L	ENDEVCO	1/98	7/98
	Z	AD395	ENDEVCO	1/98	7/98
Right Femur Load Cell		232	GSE	1/98	7/98
Left Femur Load Cell		231	GSE	1/98	7/98
Neck Load Cell	X	576	DENTON	1/98	7/98
	Y	576	DENTON	1/98	7/98
	Z	576	DENTON	1/98	7/98
Neck Moment	X	576	DENTON	1/98	7/98
	Y	576	DENTON	1/98	7/98
	Z	576	DENTON	1/98	7/98
Chest Deflection Gauge		150	HUMANOID	10/97	4/98
Hybrid III Use Only					
Lap Belt Load Cells		635	LEBOW	1/98	7/98
Shoulder Belt Load Cells		711	LEBOW	1/98	7/98
Spool-Out Potentiometer		M7	MAGNETEK	9/97	3/98
Belt Stretch Transducer		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)	APBF4	ENDEVCO	1/98	7/98
	Y (R)	A13938	ENDEVCO	11/97	5/98
	Z (R)	AN967	ENDEVCO	1/98	7/98
Chest	X (R)	J18406	ENDEVCO	1/98	7/98
	Y (R)	AP1B5	ENDEVCO	1/98	7/98
	Z (R)	AY60	ENDEVCO	1/98	7/98
Pelvic	X	AF480	ENDEVCO	1/98	7/98
	Y	AL508	ENDEVCO	1/98	7/98
	Z	AF5C1	ENDEVCO	1/98	7/98
Left Upper Tibia	Mx	015	DENTON	10/97	4/98
Left Upper Tibia	My	015	DENTON	10/97	4/98
Left Lower Tibia	Fy	011	DENTON	10/97	4/98
Left Lower Tibia	Fz	011	DENTON	10/97	4/98
Left Lower Tibia	Mx	011	DENTON	10/97	4/98
Right Upper Tibia	Mx	016	DENTON	10/97	4/98
Right Upper Tibia	My	016	DENTON	10/97	4/98
Right Lower Tibia	Fy	012	DENTON	10/97	4/98
Right Lower Tibia	Fz	012	DENTON	10/97	4/98
Right Lower Tibia	Mx	012	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	A13011	ENDEVCO	9/97	3/98
Left Foot Rear	X	A13506	ENDEVCO	9/97	3/98
Left Foot Rear	Z	A12268	ENDEVCO	9/97	3/98
Right Foot Front	Z	AC814	ENDEVCO	10/97	4/98
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	D32	ICS	9/97	3/98
Right Rear Seat Crossmember	Y151	ICS	9/97	3/98
Top of Engine	D72	ICS	9/97	3/98
Bottom of Engine	BA98	ICS	10/97	4/98
Left Disc Brake Caliper	D19	CEC	10/97	4/98
Right Disc Brake Caliper	E03	CEC	10/97	4/98
Instrument Panel	A86	CEC	10/97	4/98
Left Seat Rear Crossmember (R)	D74	ICS	10/97	4/98
Right Seat Rear Crossmember (R)	D79	ICS	9/97	3/98