V2764

REPORT NUMBER: CAL-98-17

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

FORD MOTOR COMPANY OF CANADA, LTD.
1998 FORD CROWN VICTORIA
4-DOOR SEDAN

NHTSA NUMBER: MW0202

CALSPAN TEST NUMBER: 8413-16

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

January 21, 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

Prepared by: _____

Patrick G. MacDiarmid, Jr., Project Engineer

Approved by: _____

David J. Travale, Program Manager
Transportation Science Center

Approval Date: January 28, 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-98-17	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 Ford Crown Victoria 4-Door Sedan NHTSA No. MW0202		5. *Report Date* January 21, 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.* 8413-16
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 January 1998 14. *Sponsoring Agency Code* NPS-10
15. *Supplementary Notes*		

16. *Abstract*

A frontal barrier test of a 1998 Ford Crown Victoria 4-Door Sedan was performed at Calspan Corporation crash test facility in Buffalo, New York, on January 21, 1998.

The impact velocity was 56.8 kph and the temperature at the barrier face was 20°C. The maximum post-test vehicle crush was 760.0 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 dual front next generation depowered airbags.

With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appear to comply with head, chest and femur 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* 217	22. *Price*

Form DOT F1700.7 (8-69)

TABLE OF CONTENTS

Section 1

PURPOSE AND SUMMARY OF TEST MW0202

PURPOSE

This 56.8 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 56.8 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 Ford Crown Victoria 4-Door Sedan at a velocity of 56.8 kph. The test was performed at the Calspan Corporation on January 21, 1998. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

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

Both ATDs were fully instrumented with head, chest, and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 064) was used in two previous tests (MW5107 and MW0207) where it did not exceed FMVSS 208 head, chest, and femur injury criteria. The right-front passenger (position 2) ATD (Serial No. 150) was used in one test (MW0109) previous to this test where it did not exceed FMVSS 208 head, chest, and femur injury criteria. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 97 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Load cell barrier data was not requested for this test.

The driver's HIC was 602.2. The maximum chest deceleration over 3 milliseconds was 38.990 g's and maximum chest deflection was 35.6 mm. Femur loads were -4432.0 Newtons on the left and -3517.5 Newtons on the right.

The right front passenger's HIC was 335.28. Maximum chest deceleration over 3 milliseconds was 40.486 g's and maximum chest deflection was 28.8 mm. Femur loads were -2277.1 Newtons on the left and -2570.1 Newtons on the right.

The driver and passenger spool-out potentiometers could not be used due to the location of the D-rings, thus data traces are not available, spool-out was measured mechanically and through film analysis. The standard vehicle accelerometers are not available. The data board responsible for the vehicle accelerometer channels, although it had passed a pre-trigger check, did not trigger. At the NHTSA's request, additional accelerometers had been placed at the base of the vehicle B-Pillars. Vehicle crash pulse data is available from the B-Pillar accelerometer channels.

The Position 2 Belt Elongation Transducer experienced a cut wire during the event. This data is not accurate after 50 ms. Position 2 Pelvic Y data channel did not record, the data trace is not available. The Position 2 Left Upper Tibia Mx channel did not record, the data trace is not available. The Position 2 Right Lower Tibia Fz Transducer experienced a cut wire during the event. This data is not accurate after 60 ms. The Position 2 Left Toe Z Transducer experienced a cut wire during the event. This data is not accurate after 50 ms.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MW0202 Test Mode : 56 kph Frontal Barrier

Test Date : January 21, 1998 Time: 13:15 Temperature : 20 °C

Vehicle Make/Model/Body Style : 1998 Ford Crown Victoria 4-Door Sedan

Vehicle Test Weight : 2028 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.8 kph

Maximum Static Crush : 760.0 mm

Vehicle Rebound : 543.3 mm

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

Number of Data Channels : 97

Number of Cameras : 1 Real Time

16 High Speed

DOOR OPENING DATA : Closed/Operable - Left Front

Closed/Operable - Right Front

Front Seat(s) Data :	DRIVER	PASSENGER
Seat Track Failure :(mm of shift)	0	0
Seat Back Failure :	None	None

VISIBLE DUMMY CONTACT POINTS :	DRIVER	PASSENGER
Head :	Face to top center of airbag; Back of head to the outboard side of the headrest.	Face to center of airbag; Back of head to center of headrest.
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 Ford Crown Victoria 4-Door Sedan

NHTSA No. : MW0202 ; VIN: 2FAFP73W7WX100580 ; Color : Blue

Engine Data: 8 cylinders; - CID; 4.6 Liters; - cc

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

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

Final Drive : X 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 : 01/08/98 ; Odometer Reading 132 km

Selling Dealer : West Herr Ford, Inc.

& Address: S-5025 Camp Road Hamburg, NY 14075

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Ford Motor Company of Canada, Ltd.

Date of Manufacture 10/97

GVWR : 2345 kg; GAWR: 1168 kg FRONT; 1187 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 415 kpa FRONT

415 kpa REAR

Recommended Tire Size : P225/60R16

* Recommended Cold Tire Pressure : 415 kpa FRONT; 415 kpa REAR

Size of Tires on Test Vehicle: P225/60R16 ; Manufacturer: Michelin

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) = 499 kg

No. of Occupants x 68 kg = 408 kg

Rated Cargo/Luggage Weight (RCLW) = 91 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	=	503.5 kg	Right Rear	=	399.0 kg
Left Front	=	493.5 kg	Left Rear	=	396.0 kg
TOTAL FRONT	=	997.0 kg	TOTAL REAR	=	795.0 kg

TOTAL DELIVERED WEIGHT = 1,792.0 kg

% of Total Front of Vehicle Weight = 55.6 % of Total Rear Weight = 44.4 %

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	1,792.0 kg
Rated Cargo/Luggage Weight (RCLW)	=	91.0 kg
Weight of 2 p.572 Dummies @ 76 each	=	152 kg
TARGET TEST WEIGHT	=	2,035.0 kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 84 KG OF CARGO WEIGHT:

Right Front	=	525.0 kg	Right Rear	=	489.0 kg
Left Front	=	529.0 kg	Left Rear	=	485.0 kg
TOTAL FRONT	=	1,054.0 kg	TOTAL REAR	=	974.0 kg

TOTAL TEST WEIGHT = 2,028.0 kg

% of Total Front Weight = 52.0 % % of Total Rear Weight = 48.0 %

Weight of Ballast Secured in Vehicle Trunk Area = 0 kg

Vehicle Components Removed for Weight Reduction: None

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	726	LF	739	RR	723	LR 726
FULLY LOADED :	RF	724	LF	731	RR	684	LR 684
AS TESTED :	RF	724	LF	732	RR	694	LR 694

Vehicle's Wheel Base : 2925 mm

Location of Vehicle's C.G. : 1,404.8 mm rearward of front wheel center.

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual = 71.9 liters

Usable Capacity Figure Furnished by COTR = 71.9 liters

Test Volume Range (92 to 94% of Usable Capacity) = 66.2 to 67.6 liters

ACTUAL TEST VOLUME= 66.5 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 - Center, behind rear axle, mounted vertically; Lines - Inside right frame rail.

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°

Test Date : January 21, 1998 Time: 13:15 Temperature: -2 °C

Vehicle NHTSA No. : MW0202

Required Impact Velocity Range : 55.7 to 57.1 kph

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

Trap No. 1 = 56.8 kph; Trap No. 2 = 56.8 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 =	5335	; C/L =	5390	; Left =	5330
Post-Test	Right =	4575	; C/L =	4635	; Left =	4575
Crush	Right =	760.0	; C/L =	755.0	; Left =	755.0
AVERAGE	=	756.7	mm			

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

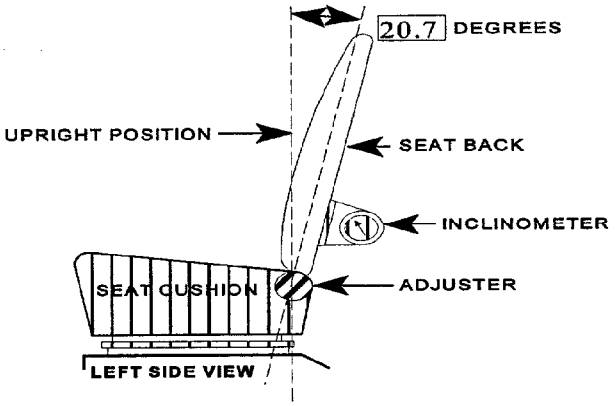
Right =	577.0	; C/L =	483.0	; Left =	570.0
AVERAGE =	543.3	mm			

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1998 Vehicle Model: Ford Crown Victoria Body Style : 4-Door Sedan

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



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat : 20.7°

Measurement instructions : Set seat in full upright position. Recline seat back until inclinometer registers 20.7° when placed on seat frame on rear seat back.

Seat back angle for passenger's seat : 20.7°

Measurement instructions : Same as driver's seat.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat : Place seat in mechanical mid-position. Seat track detents were numbered 0 to 20. The seat was placed at mechanical mid (detent number 10.)

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

3. Fuel Tank Capacity Data

3.1

A. "Usable Capacity" of the standard equipment fuel tank is 71.9 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 = 71.9 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 66.5 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.

When key is in the "ON" position.

4. STEERING COLUMN ADJUSTMENTS :

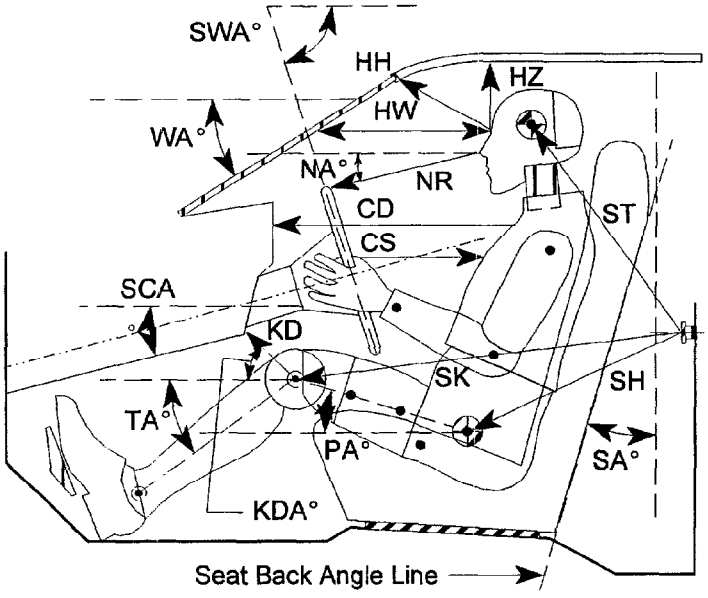
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: The steering column has 5 detents. The column was placed at detent 3, the mid-position.

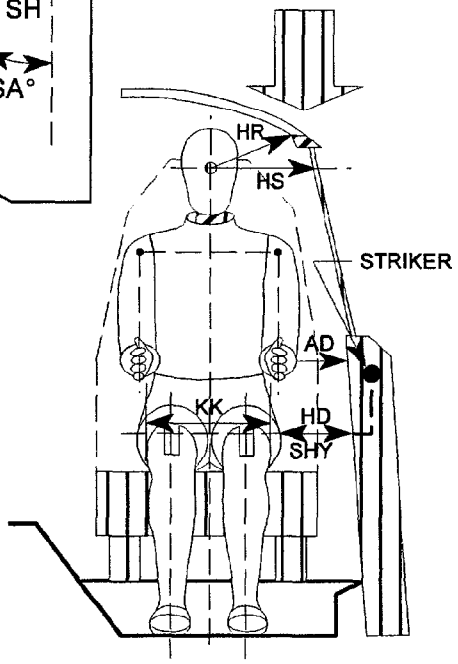
5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: Seatbelt anchorages have 5 detents. The anchorages were placed in the mid-position, detent number 3.

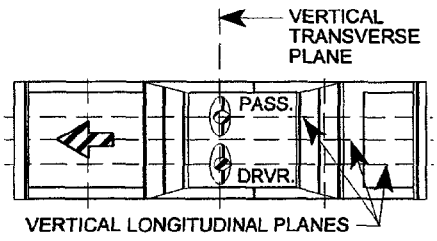
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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



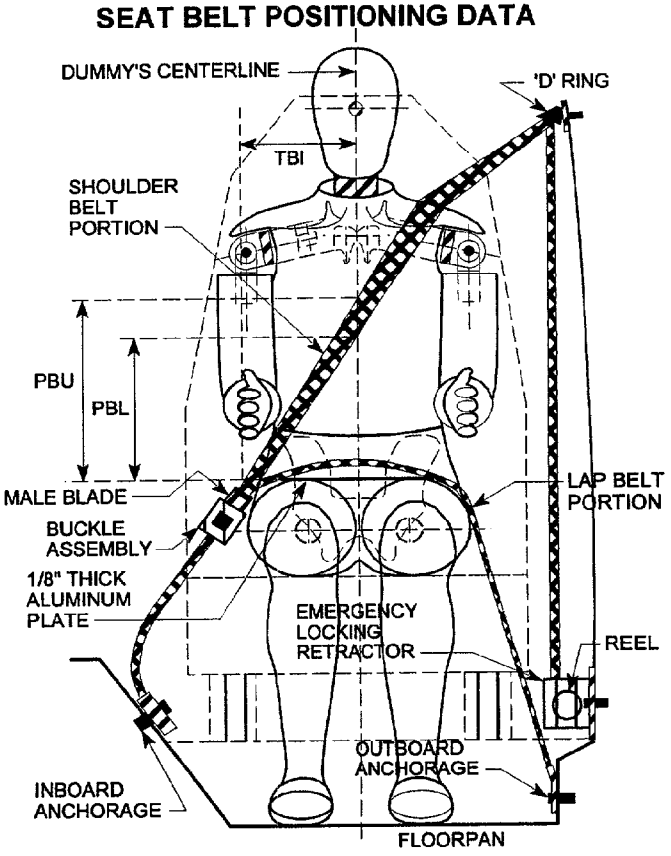
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

	DRIVER (Serial #064)			PASS. (Serial # 150)		
WA°	30 deg.			N/A		
SWA°	68 deg.			N/A		
SCA°	22 deg.			N/A		
SA°	20.7 deg.			20.7 deg.		
HZ	164			147		
HH	306			289		
HW	516			526		
HR	210			200		
NR	315	Angle	-16 deg.	N/A		
CD	488			453		
CS	226			N/A		
RA	137			N/A		
KDL	133	Angle (KDA)	39 deg.	138		
KDR	132			143	Angle (KDA)	37 deg.
PA°	21 deg.			22.5 deg.		
TA°	-38 deg.			-36 deg.		
KK	348			275		
ST	550	Angle	10 deg.	555	Angle	7 deg.
SK	580	Angle	89 deg.	580	Angle	90 deg.
SH	238	Angle	120 deg.	237	Angle	116 deg.
SHY	270			277		
HS	335			355		
HD	206			194		
AD	125			145		

Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

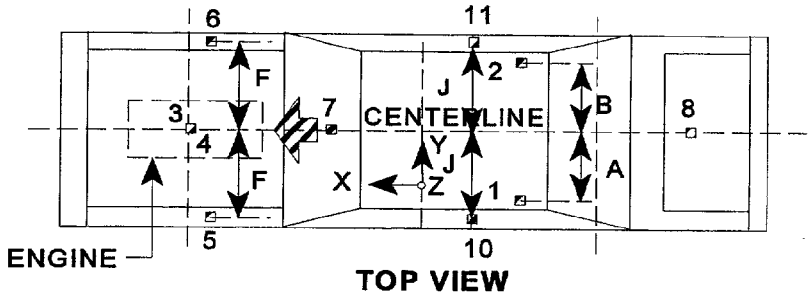
SEAT BELT POSITIONING DATA



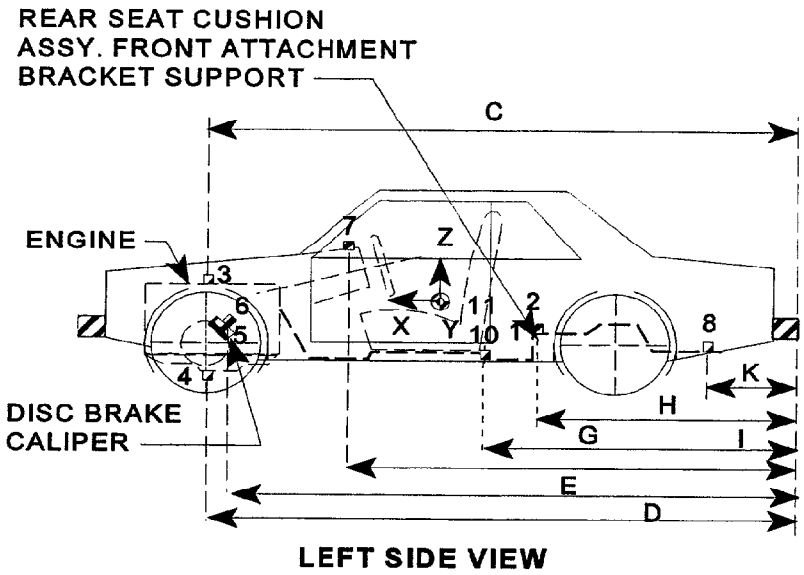
FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	325	321
PBL-- Top surface of alum. plate to belt lower edge	245	245
LAP BELT TENSION	-	-
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	650
B Right Rear Seat Crossmember Y	-650
C Top of Engine X	4410
D Bottom of Engine X	4126
E Disc Brake Calipers X	4250
F Disc Brake Calipers Y	±550
G Instrument Panel X	3372
H Rear Seat Crossmembers X	2176
I Underbody B-Pillar X	3142
J Underbody B-Pillar Y	±570

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	*	*	*	*
2	Rear Seat X-Member @ Right Side	*	*	*	*
3	Top of Engine Block	*	*	*	*
4	Bottom of Engine	*	*	*	*
5	Disc Brake Caliper @ Left Side	*	*	*	*
6	Disc Brake Caliper @ Right Side	*	*	*	*
7	Instrument Panel	*	*	*	*
8	Rear Seat X-Member @ Left-Redundant	*	*	*	*
9	Rear Seat X-Member @ Right-Redundant	*	*	*	*
10	Underbody B-Pillar X @ Left Side	3.8	144.9	-30.1	64.0
11	Underbody B-Pillar X @ Right Side	3.8	146.1	-34.0	67.3

* This data board did not trigger. Data is not available for these channels

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

NHTSA Test No.: MW0202 Vehicle: 1998 Ford Crown Victoria 4-Door Sedan

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec.	Neg.	msec.
Pos. 1 Head X	**g's**	13.4	236.4	-57.9	97.4
Pos. 1 Head Y	**g's**	2.5	208.0	-11.6	95.0
Pos. 1 Head Z	**g's**	32.3	87.2	-10.2	116.8
Pos. 1 Head Resultant	**g's**	62.7	96.6	0.1	-31.2
Pos. 2 Head X	**g's**	3.6	250.1	-34.9	99.8
Pos. 2 Head Y	**g's**	5.6	128.4	-6.9	91.7
Pos. 2 Head Z	**g's**	30.6	91.7	-4.6	127.6
Pos. 2 Head Resultant	**g's**	45.3	96.0	0.0	-22.8
Pos. 1 Chest X	**g's**	4.6	186.3	-37.8	94.0
Pos. 1 Chest Y	**g's**	2.8	139.8	-5.5	98.3
Pos. 1 Chest Z	**g's**	18.9	86.4	-16.0	114.1
Pos. 1 Chest Resultant	**g's**	40.4	87.4	0.0	-34.8
Pos. 1 Chest Displacement	**mm**	0.2	-19.3	-35.6	86.4
Pos. 2 Chest X	**g's**	1.4	348.9	-40.2	92.6
Pos. 2 Chest Y	**g's**	12.6	86.0	-2.3	36.3
Pos. 2 Chest Z	**g's**	17.0	78.5	-18.4	127.2
Pos. 2 Chest Resultant	**g's**	41.8	82.3	0.0	-35.2
Pos. 2 Chest Displacement	**mm**	0.1	6.7	-28.8	86.1
Pos. 1 Left Femur	**N**	360.6	110.7	-4432.0	56.4
Pos. 1 Right Femur	**N**	533.3	106.3	-3517.5	56.5
Pos. 2 Left Femur	**N**	214.1	112.6	-2277.1	57.5
Pos. 2 Right Femur	**N**	607.8	110.5	-2570.1	53.1
Pos. 1 Left Belt Load	**N**	2655.8	70.6	-14.8	10.3
Pos. 1 Torso Belt Load	**N**	6756.5	85.8	-9.7	13.5
Pos. 2 Right Belt Load	**N**	5740.4	83.0	-37.9	23.3
Pos. 2 Torso Belt Load	**N**	7556.8	90.8	-10.5	-23.6

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

NHTSA Test No.: MW0202 Vehicle: 1998 Ford Crown Victoria 4-Door Sedan

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t_1 (msec)	t_2 (msec)	Average Acceleration t_1 to t_2
Position #1 - Driver	602.2	73.200	109.200	48.90
Position #2 - Passenger	335.28	71.000	107.000	38.69

** 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	38.990	91.600	94.600	411.579
Position #2 - Passenger	40.486	91.1161	94.1161	407.613

* 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 Ford Crown Victoria 4-Door Sedan

NHTSA Test No.: MW0202 Test Date: January 21, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Upper Neck Fx	N	330.0	108.5	-396.9	239.1
Pos. 1 Upper Neck Fy	N	461.2	105.8	-240.2	58.8
Pos. 1 Upper Neck Fz	N	3174.5	88.4	-599.1	125.7
Pos. 1 Neck Force Result	N	3206.3	88.4	3.3	-17.5
Pos. 1 Upper Neck Mx	N-m	9.6	59.0	-27.3	106.7
Pos. 1 Upper Neck My	N-m	42.7	106.9	-17.0	248.9
Pos. 1 Upper Neck Mz	N-m	14.9	106.8	-8.3	151.1
Pos. 1 Neck Moment Result	N-m	52.7	106.8	0.0	-32.4
Pos. 2 Upper Neck Fx	N	341.9	19.0	-902.3	145.7
Pos. 2 Upper Neck Fy	N	515.5	202.0	-496.5	69.2
Pos. 2 Upper Neck Fz	N	1908.8	91.8	-375.8	19.0
Pos. 2 Neck Force Result	N	2035.9	91.8	2.4	-5.4
Pos. 2 Upper Neck Mx	N-m	10.9	92.7	-15.3	80.8
Pos. 2 Upper Neck My	N-m	54.0	153.4	-26.0	61.3
Pos. 2 Upper Neck Mz	N-m	16.2	62.5	-8.0	20.6
Pos. 2 Neck Moment Result	N-m	54.1	153.4	0.0	-19.8
Pos. 1 Pelvic (X)	g's	4.5	145.1	-39.3	45.2
Pos. 1 Pelvic (Y)	g's	6.3	113.7	-6.5	53.5
Pos. 1 Pelvic (Z)	g's	11.0	76.4	-21.2	97.0
Pos. 1 Pelvic (R)	g's	39.3	45.2	0.0	-37.2
Pos. 2 Pelvic (X)	g's	7.4	187.1	-43.4	130.8
Pos. 2 Pelvic (Y)	g's	*	*	*	*
Pos. 2 Pelvic (Z)	g's	4.2	121.6	-22.2	146.7
Pos. 2 Pelvic (R)	g's	*	*	*	*

* Data is not available for this channel

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

Vehicle Year/Make/Model/Body Style: 1998 Ford Crown Victoria 4-Door Sedan

NHTSA Test No.: MW0202 Test Date: January 21, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
P1 Lt Upper Tibia Mx	**N-m**	64.8	54.5	-15.1	97.0
P1 Lt Upper Tibia My	**N-m**	20.4	146.5	-92.2	77.9
P1 Lt Lower Tibia Fx	**N**	178.6	172.8	-743.3	76.9
P1 Lt Lower Tibia Fz	**N**	295.9	173.0	-3095.9	41.8
P1 Lt Lower Tibia My	**N-m**	76.4	76.1	-12.9	52.9
P1 Rt Upper Tibia Mx	**N-m**	77.8	57.7	-16.5	41.4
P1 Rt Upper Tibia My	**N-m**	127.5	63.4	-16.3	147.0
P1 Rt Lower Tibia Fx	**N**	213.0	155.2	-1222.6	58.5
P1 Rt Lower Tibia Fz	**N**	240.6	190.8	-1600.6	64.7
P1 Rt Lower Tibia My	**N-m**	98.8	86.9	-40.5	46.9
Pos. 2 Lt Upper Tibia Mx	**N-m**	*	*	*	*
Pos. 2 Lt Upper Tibia My	**N-m**	10.3	157.3	-91.0	60.3
Pos. 2 Lt Lower Tibia Fx	**N**	180.5	175.2	-1331.1	135.3
Pos. 2 Lt Lower Tibia Fz	**N**	512.4	120.6	-2687.1	88.1
Pos. 2 Lt Lower Tibia My	**N-m**	254.3	137.2	-58.2	109.9
Pos. 2 Rt Upper Tibia Mx	**N-m**	19.6	82.6	-21.0	65.1
Pos. 2 Rt Upper Tibia My	**N-m**	10.2	151.5	-89.2	70.9
Pos. 2 Rt Lower Tibia Fx	**N**	140.1	158.6	-1087.8	90.3
Pos. 2 Rt Lower Tibia Fz	**N**	**	**	**	**
Pos. 2 Rt Lower Tibia My	**N-m**	121.4	91.4	-15.9	26.3

* Data is not available for this channel.
** Data is not accurate after 60 ms.

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

Vehicle Year/Make/Model/Body Style: 1998 Ford Crown Victoria 4-Door Sedan

NHTSA Test No.: MW0202 Test Date: January 21, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Left Ankle X	g's	36.5	83.7	-57.4	52.8
Pos. 1 Left Ankle Z	g's	8.3	58.9	-54.3	83.8
Pos. 1 Left Toe Z	g's	38.9	42.5	-82.5	83.8
Pos. 1 Right Ankle X	g's	42.3	88.8	-272.6	62.3
Pos. 1 Right Ankle Z	g's	15.1	78.2	-70.4	56.2
Pos. 1 Right Toe Z	g's	16.2	77.9	-95.5	42.2
Pos. 2 Left Ankle X	g's	90.2	64.2	-44.3	72.0
Pos. 2 Left Ankle Z	g's	44.5	65.5	-28.3	93.2
Pos. 2 Left Toe Z	g's	*	*	*	*
Pos. 2 Right Ankle X	g's	26.5	94.5	-39.7	68.1
Pos. 2 Right Ankle Z	g's	7.6	33.3	-39.7	88.3
Pos. 2 Right Toe Z	g's	45.0	33.0	-72.8	39.4

* Data is not accurate after 50 ms.

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

NHTSA Test No.: MW0202 Vehicle: 1998 Ford Crown Victoria 4-Door Sedan

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Head X(R)	**g's**	13.3	237.1	-57.2	97.4
Pos. 1 Head Y(R)	**g's**	4.8	293.6	-14.7	92.9
Pos. 1 Head Z(R)	**g's**	29.3	86.6	-11.6	116.3
Pos. 1 Head Resultant(RR)	**g's**	62.3	96.2	0.0	-26.7
Pos. 2 Head X(R)	**g's**	2.4	285.0	-36.8	96.6
Pos. 2 Head Y(R)	**g's**	19.7	27.2	-9.2	293.4
Pos. 2 Head Z(R)	**g's**	32.6	74.7	-10.6	35.0
Pos. 2 Head Resultant(RR)	**g's**	47.1	84.8	0.1	-19.2
Pos. 1 Chest X(R)	**g's**	4.5	186.6	-35.8	93.3
Pos. 1 Chest Y(R)	**g's**	2.6	26.4	-4.9	98.0
Pos. 1 Chest Z(R)	**g's**	23.7	85.8	-17.4	114.1
Pos. 1 Chest Resultant(RR)	**g's**	41.1	86.0	0.0	-34.0
Pos. 2 Chest X(R)	**g's**	2.0	348.1	-38.1	90.1
Pos. 2 Chest Y(R)	**g's**	11.8	85.5	-2.3	135.2
Pos. 2 Chest Z(R)	**g's**	21.5	78.3	-19.5	128.1
Pos. 2 Chest Resultant(RR)	**g's**	42.3	79.1	0.0	-36.2

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

NHTSA Test No.: MW0202 Vehicle: 1998 Ford Crown Victoria 4-Door Sedan

	HEAD INJURY CRITERIA (HIC) **REDUNDANT**			
	HIC**	t_1 (msec)	t_2 (msec)	Average Acceleration t_1 to t_2
Position #1 - Driver	590.21	72.300	108.300	48.52
Position #2 - Passenger	376.32	70.400	106.400	40.52

** 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	38.452	84.8307	87.8307	408.149
Position #2 - Passenger	41.327	77.9629	82.3231	422.026

* 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.	2037	2015
Shoulder belt length as measured on Part 572 Dummy.	874	860
Lap belt length as measured on Part 572 Dummy.	918	910
SHOULDER BELT SPOOL-OFF DATA:		
As determined by film analysis.	51	76
As determined mechanically.	55	82
As determined electronically.	*	*
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring.	35.5 mm/M	**
Measured mechanically.	0 mm/M	0 mm/M

Dimensions in millimeters

* Belt spool-out potentiometers could not be used due to location of the D-rings.
** Data is not accurate after 50 ms.

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.

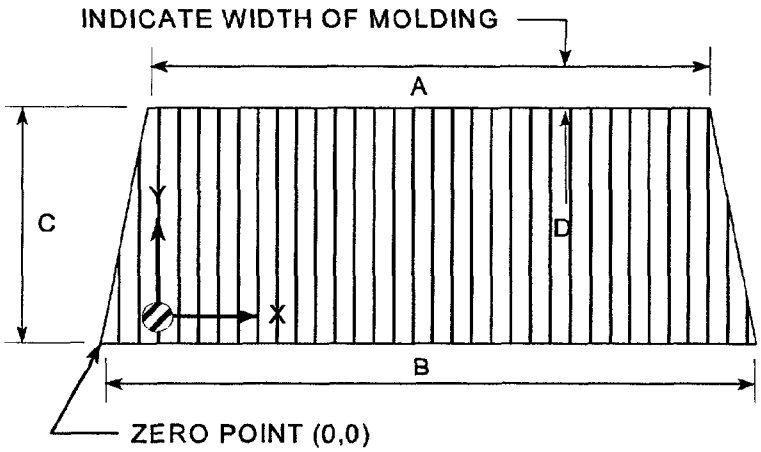
FMVSS 212 REQUIREMENTS:

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	2170	2170	100
LEFT SIDE	2170	2170	100
TOTAL	4,340	4,340	100

AREA OF RETENTION FAILURE:



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1245
B	1625
C	735
D	25

FAILURE DETAILS: None

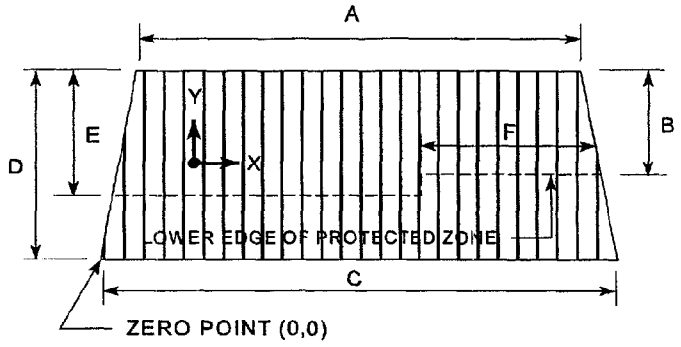
DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

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	1245
B	380
C	1625
D	735
E	415
F	1150

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.: MW0202 TEST DATE: January 21, 1998

VEHICLE MAKE/MODEL: 1998 Ford Crown Victoria

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

= =

TEST VEHICLE IMPACT TYPE:

X Frontal (56 kph)

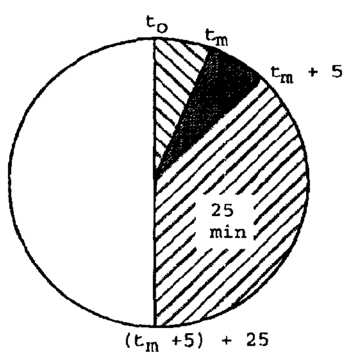
Oblique (48 kph) with ________ deg. barrier face first contacting ________________________

\- (driver/passenger) side

\- Rear Moving Barrier (48 kph)

\- Lateral Moving Barrier (32 kph)

FUEL SPILLAGE MEASUREMENT:



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

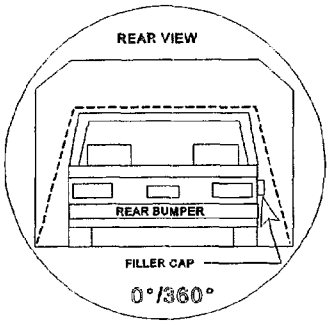
	ACTUAL	MAX ALLOWED
1.	0	28 g
2.	0	141 g
3.	0	28 g/min.

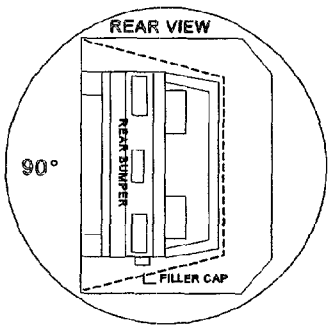
SOLVENT SPILLAGE DETAILS: None.

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

TEST PHASE:
0-90 deg.

NHTSA Test No.:
MW0202





INDETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	16	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	16	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

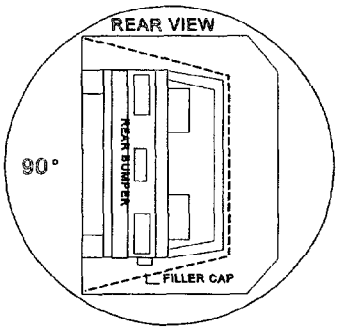
Note: Record spillage for whole minute intervals only as determined above.

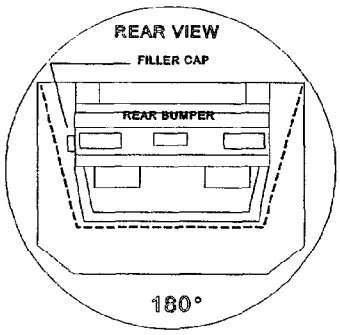
IV. SOLVENT SPILLAGE LOCATION(S): None

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

TEST PHASE:
90-180 deg.

NHTSA Test No.:
MW0202





I. DETERMINATION 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

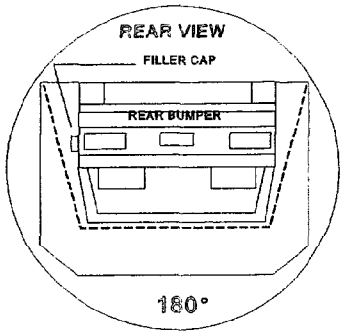
Note: Record spillage for whole minute intervals only as determined above.

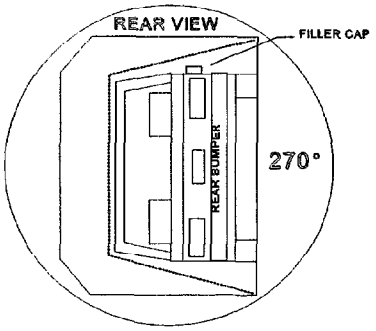
IV. SOLVENT SPILLAGE LOCATION(S): None.

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

TEST PHASE:
180-270 deg.

NHTSA Test No.:
MW0202





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	02	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	2	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

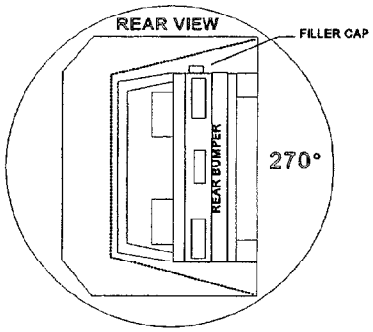
Note: Record spillage for whole minute intervals only as determined above.

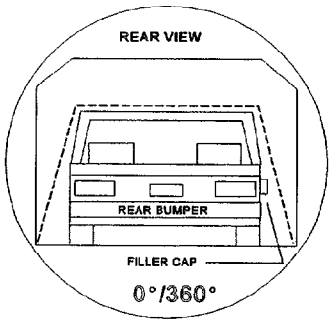
IV. SOLVENT SPILLAGE LOCATION(S): None.

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

TEST PHASE:
270-360 deg.

NHTSA Test No.:
MW0202





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	11	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	11	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

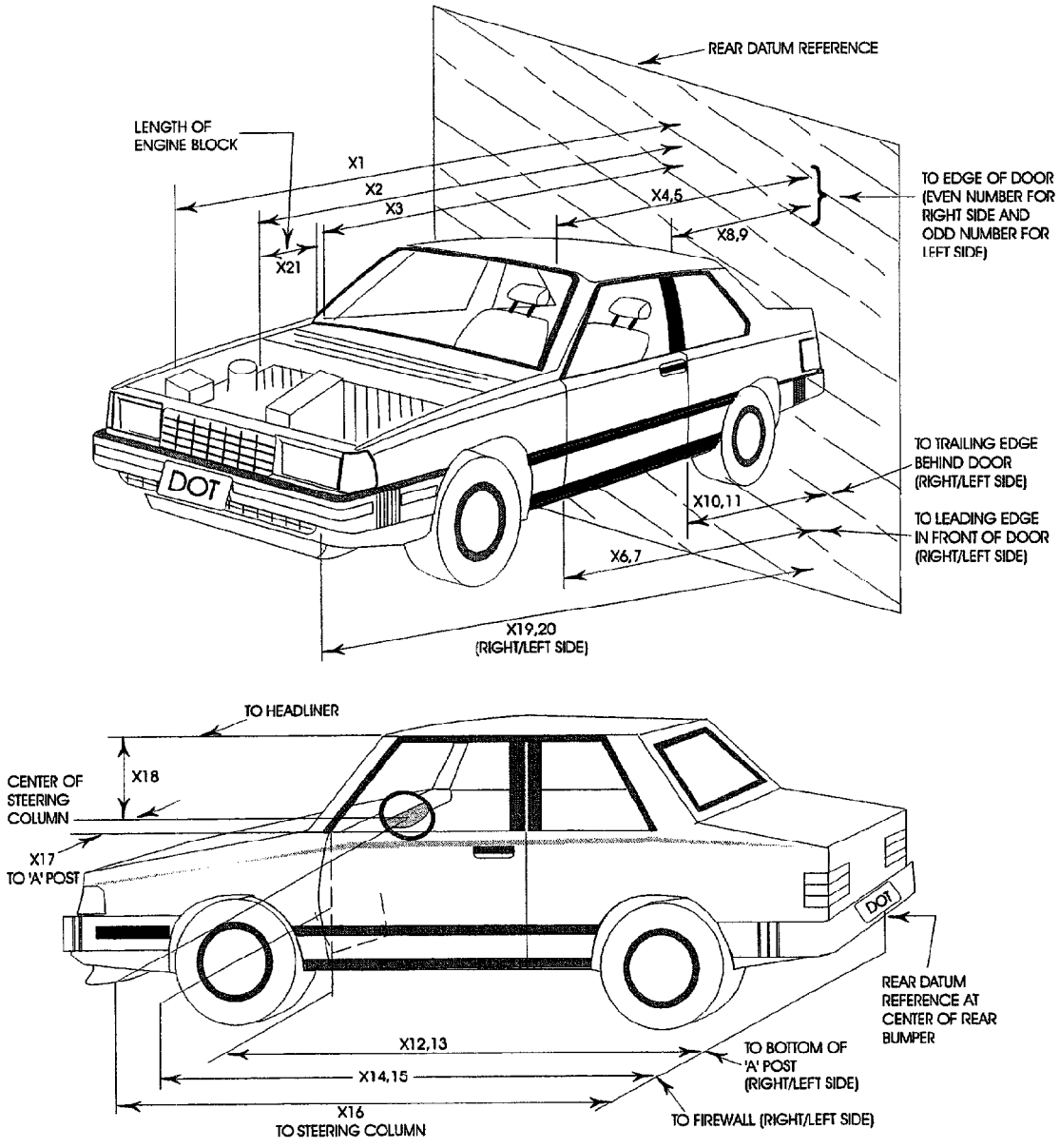
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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



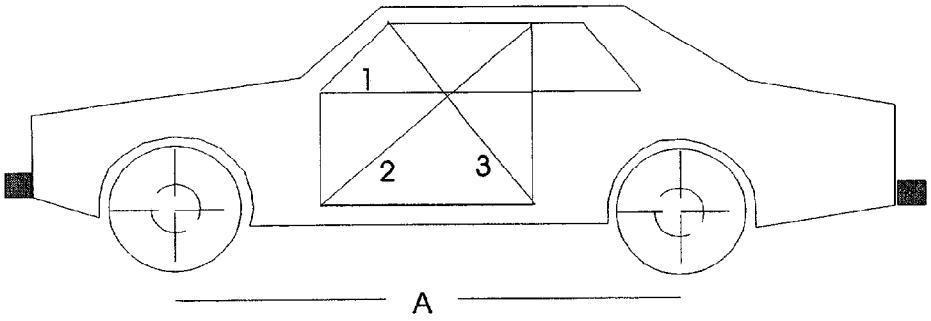
DATA SHEET NO.14 VEHICLE MEASUREMENTS

		All Dimensions in mm		
No.		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	5390	4635	755
X2	Rear Surface of Vehicle to Front of Engine	452	NA	NA
X3	Rear Surface of Vehicle to Firewall	NA	NA	0
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3689	3657	32
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3688	3658	30
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3659	3608	51
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3653	3607	46
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2566	2539	27
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2563	2533	30
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2552	2504	48
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2548	2500	48
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3780	3729	51
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3777	3732	45
X14	Rear Surface of Vehicle to Firewall, Right Side	3835	NA	NA
X15	Rear Surface of Vehicle to Firewall, Left Side	3890	3840	50
X16	Rear Surface of Vehicle to Steering Column	3130	3140	-10
X17	Center of Steering Column to "A" Post	455	490	-35
X18	Center of Steering Column to Headliner	440	420	20
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5335	4575	760
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5330	4575	755
X21	Length of Engine Block	540	540	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3355	3350	5
CD	Rear Surface of Vehicle to Center of Dash Panel	3385	3390	-5
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3365	3360	5

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

DOOR OPENING WIDTH



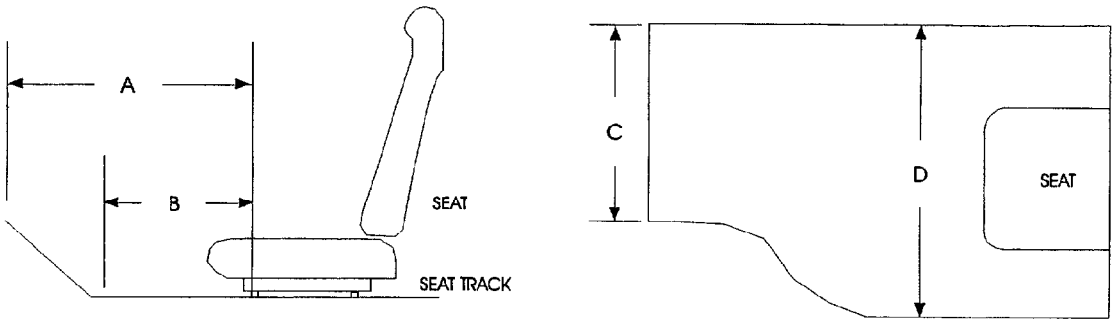
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	990	1565	1050	990	1560	1060
AFTER TEST	985	1555	1080	985	1555	1080
DIFFERENCE	5	10	-30	5	5	-20

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2925	2924
AFTER TEST	2790	2790
DIFFERENCE	135	134

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	610	565	45
B	490	490	0
C	410	420	-10
D	505	495	10

PASSENGER

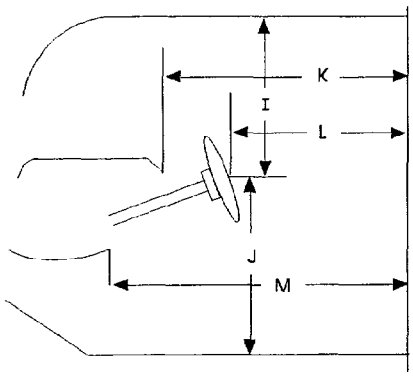
Measurement	Pre-Test	Post-Test	Difference
A	630	600	30
B	495	495	0
C	415	NA	NA
D	475	470	5

Units = mm

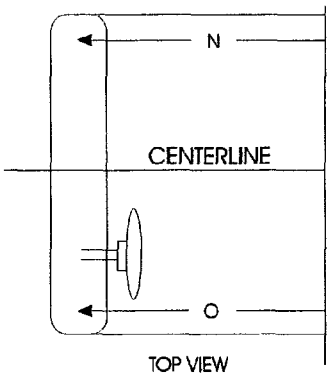
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC PASSENGER COMPARTMENT INTRUSION

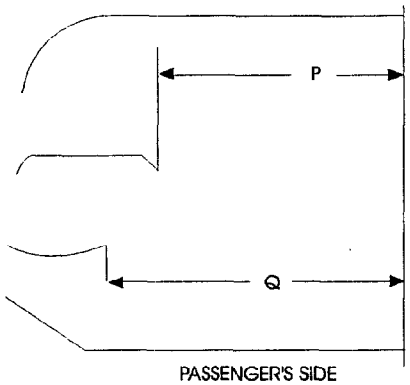


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



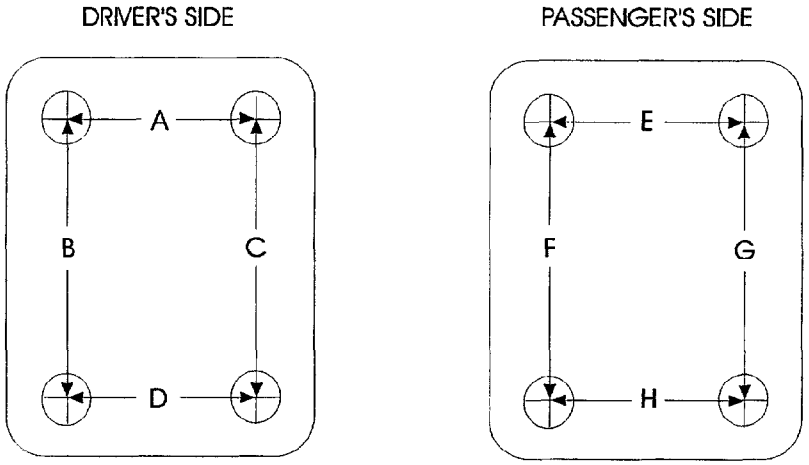
PASSENGER'S SIDE

Measurement	Pre-Test	Post-Test	Difference
I	420	400	20
J	590	610	-20
K	745	740	5
L	500	510	-10
M	680	670	10
N	725	720	5
O	735	730	5
P = K (PASS.)	840	835	5
Q = M (PASS.)	680	670	10

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

FLOORBOARD DEFORMATION



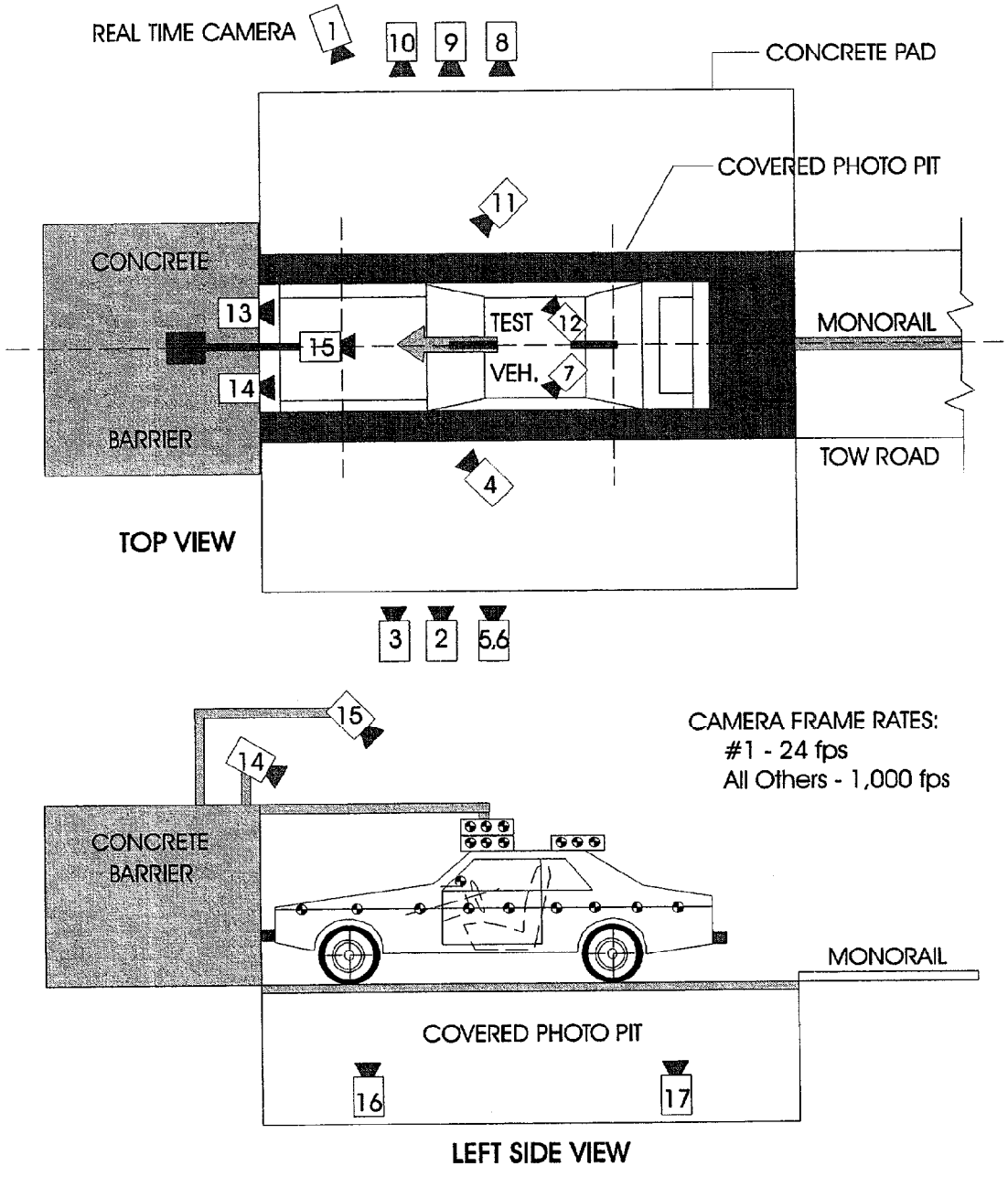
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	200	185	15
B	300	290	10
C	300	260	40
D	215	215	0
E	200	185	15
F	300	290	10
G	300	290	10
H	170	160	10

Units = mm

CAMERA POSITIONS FOR FRONTAL IMPACTS

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



DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

NHTSA Test No.: MW0202 Vehicle: 1998 Ford Crown Victoria 4-Door Sedan

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	7468	1748	1139	-5	7003	12.5	1015
3	Left Side View	8630	950	1153	-4	8165	25	1015
4	Driver and Interior View	5039	3144	1978	-15	-	25	1010
5	Steering Column (Bottom)	7878	1934	1174	-3	7413	25	1020
6	Steering Column (Top)	7878	1934	1774	-8	7413	25	825
7	Left Belt	-	-	-	-	-	13	1020
8	Overall Right Side	7075	2030	1108	-3	7540	13	1010
9	Right Side View	8708	1525	1215	-4	9173	25	1000
10	Right Passenger View	8368	2118	1586	-5	8833	35	1020
11	Passenger and Interior View	5235	3632	1986	-13	-	25	780
12	Right Belt	-	-	-	-	-	13	1020
13	Passenger Front View	-480	610	1993	-44	-	8	1010
14	Driver Front View	-480	610	1996	-42	-	8	1000
15	Windshield View	0	0	3374	-54	-	13	950
16	Pit View of Engine	0	1084	-3048	90	-	13	950
17	Pit View of Fuel Tank	0	3774	-3048	90	-	13	1010

*X = film plane to monorail centerline

Y = film plane to impact location

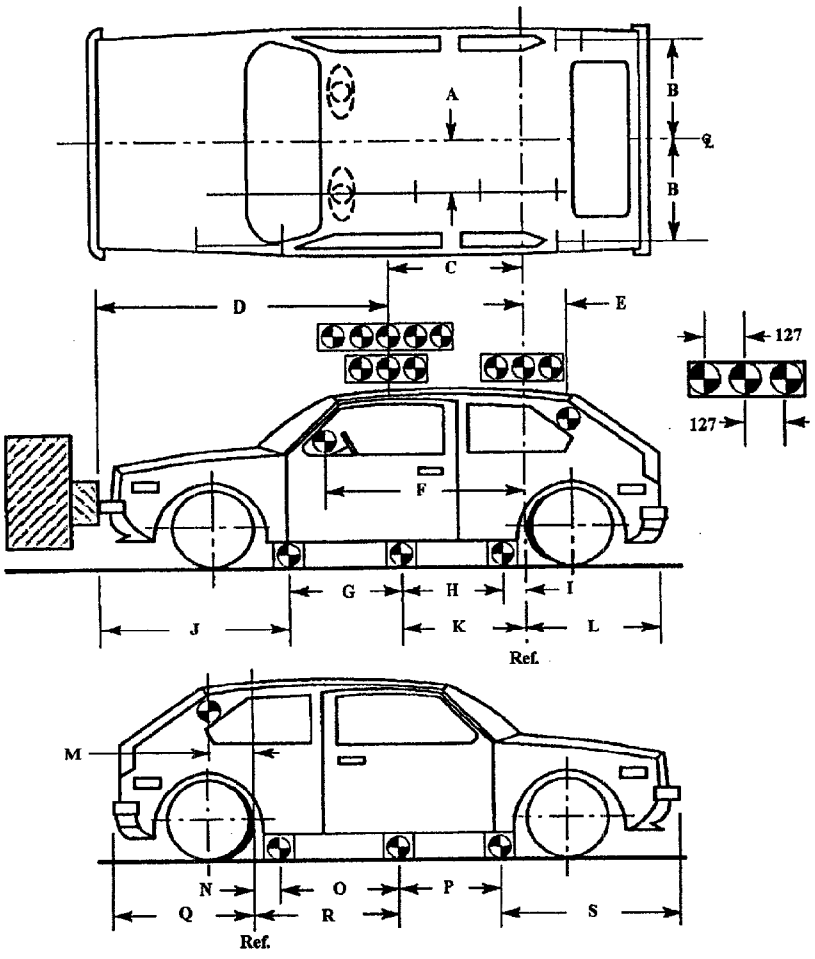
Z = film plane to ground

** = referenced to horizontal plane

N.T. indicates No Timing

(Dimensions in millimeters)

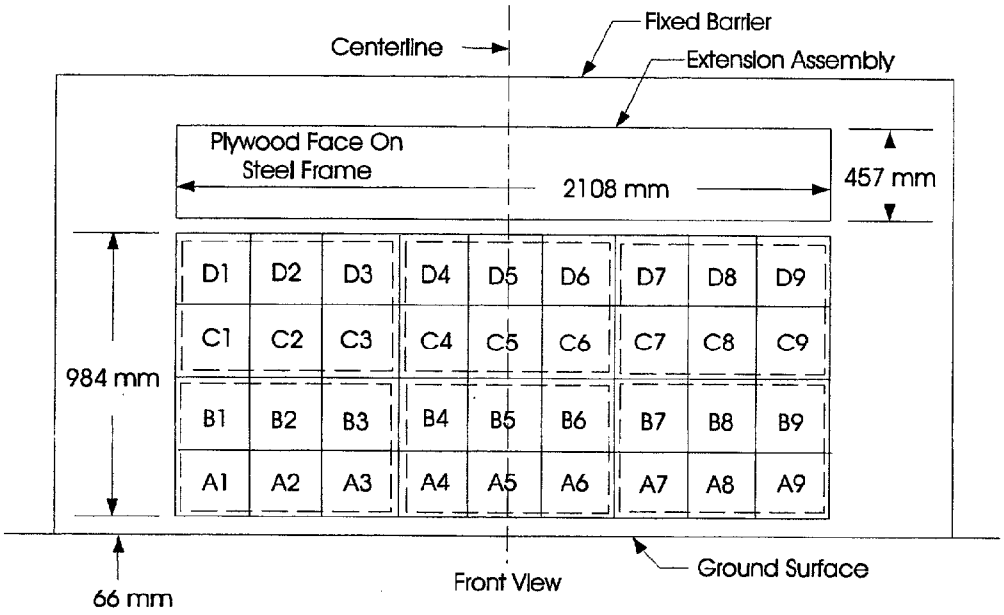
A	389
B	593
C	1217
D	2481
E	255
F	1680
G	957
H	957
I	182
J	1602
K	1139
L	1692
M	255
N	182
O	957
P	957
Q	1692
R	1139
S	1602



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. : MW0202; Test Date: January 21, 1998; Technician: P. MacDiarmid

Vehicle Model Year/Make/Model: 1998 Ford Crown Victoria

A. No. of vent holes: 2 -Driver 1 -Passenger

B. Size of vent holes: (mm^2) 176.7 -Driver 2827.4 -Passenger

C. Total vent area: (mm^2) 353.4 -Driver 2827.4 -Passenger

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

Driver: _____-Length; _____-Width; _____-Diameter

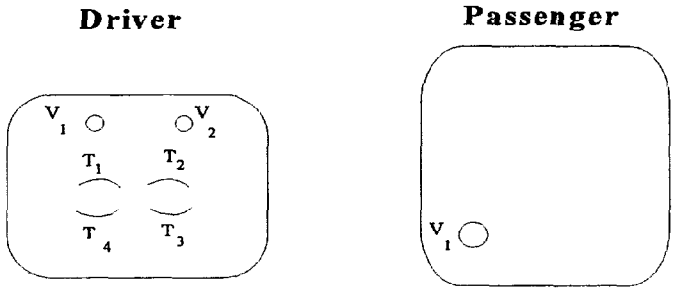
Passenger: _____-Height; _____-Width; _____-Depth

E. Is the air bag tethered?

Driver: X -Yes; - -No; If yes, record length of tether- 250

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: -

Generator: 1Z1W279K20024 DP F8ABS4D43B138AZUFF WBJK231K10312 TC010

Passenger: Air bag: -

Generator: F8AB54044A74 BBZUEF DP T728320756 2002S60A

DATA SHEET NO.19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Ford Crown Victoria 4-Door Sedan

NHTSA Test No.: MW0202 VIN: 2FAFP73W7WX100580

Model Year: 1998 Build Date: 10/97 Test Date: January 21, 1998

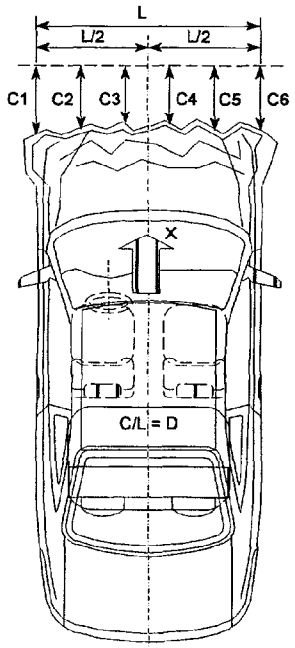
Vehicle Size Category: Full-Size Test Weight: 2028 kg

Vehicle Wheelbase: 2925 mm; Front Overhang: 1602 mm; Overall Width: 1987 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	5210	4655	-555	mm
C2 =	5345	4590	-755	mm
C3 =	5380	4635	-745	mm
C4 =	5380	4630	-750	mm
C5 =	5350	4590	-760	mm
C6 =	5225	4520	-705	mm



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region:

L1 = 1635 mm

L2 = 817.5 mm

L3 = 327 mm

PHOTOGRAPHS

PHOTOGRAPHS (continued)

PHOTOGRAPH NOT AVAILABLE

Figure A-1 LOAD CELL LOCATIONS

8413-16

Figure A-2 PRE-TEST FRONT VIEW

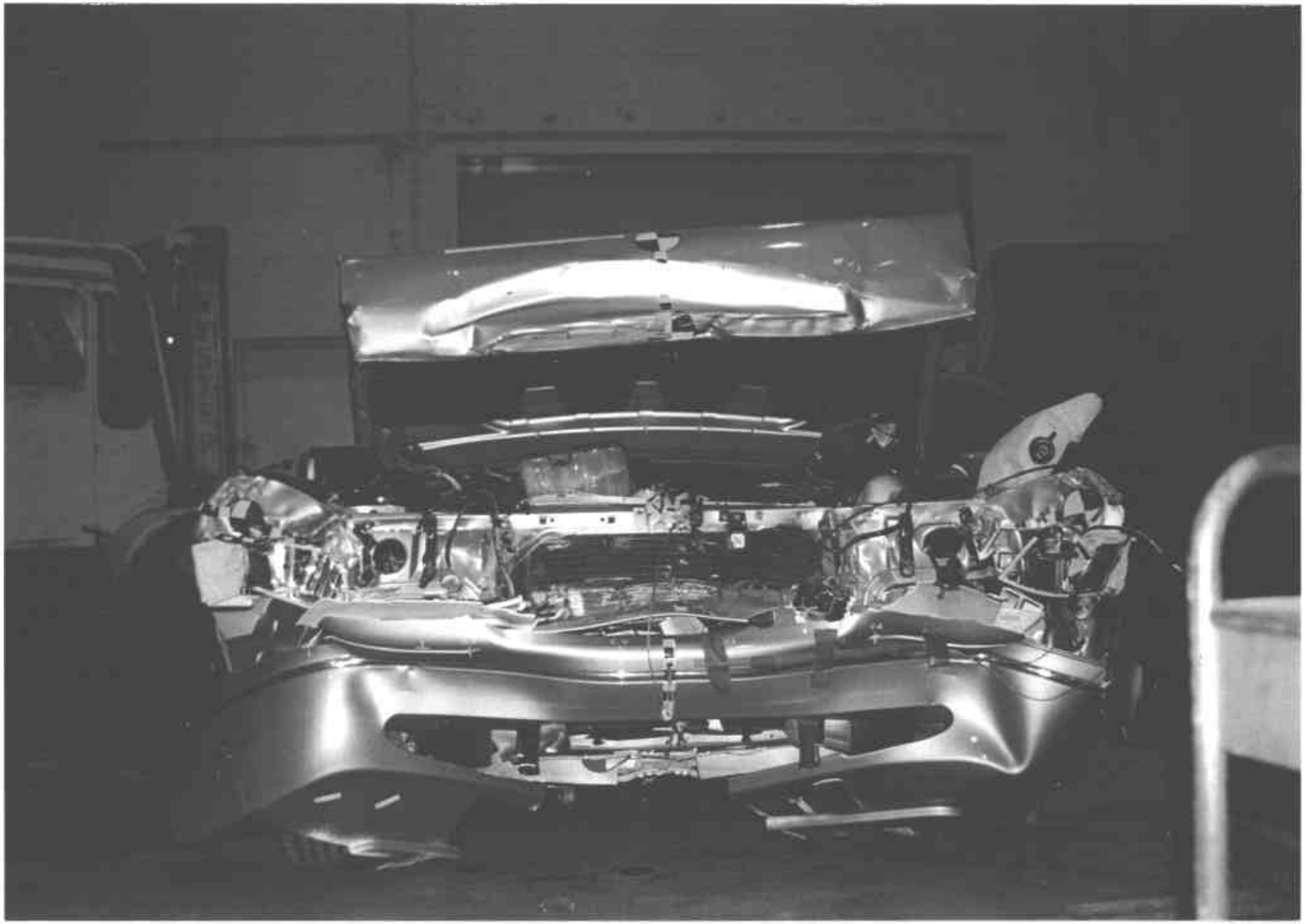


Figure A-3 POST-TEST FRONT VIEW

Figure A-4 PRE-TEST LEFT SIDE VIEW

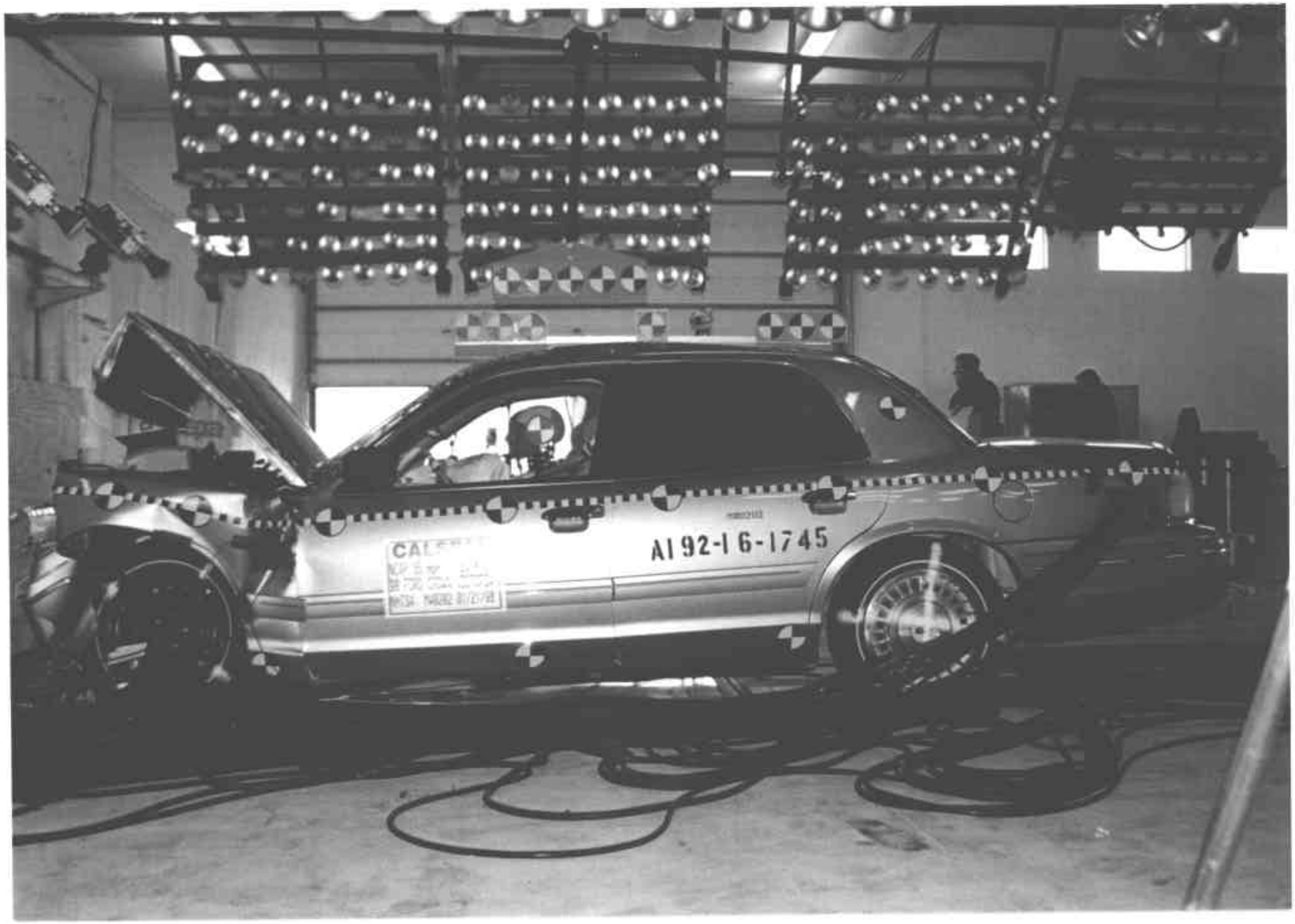


Figure A-5 POST-TEST LEFT SIDE VIEW

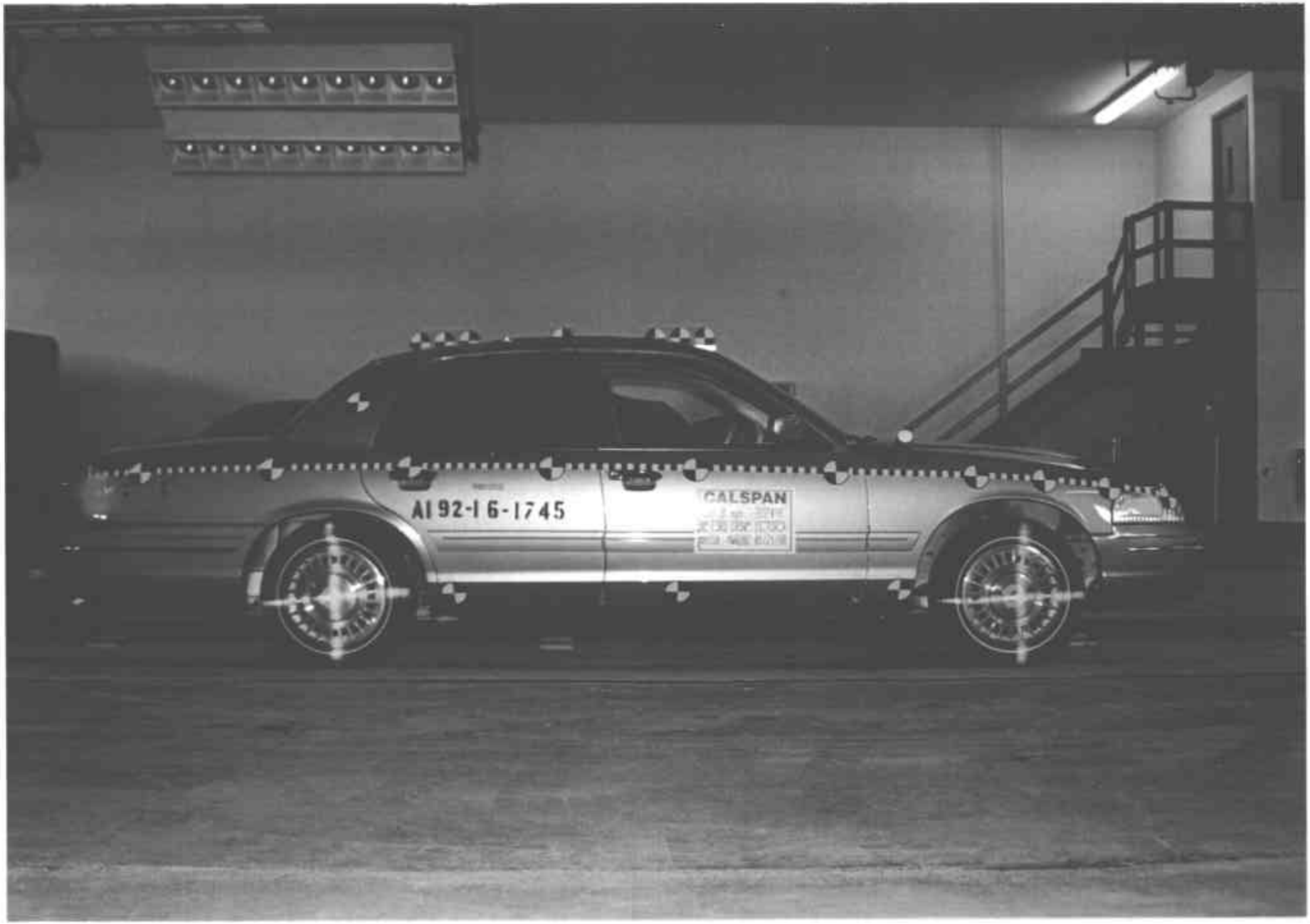


Figure A-6 PRE-TEST RIGHT SIDE VIEW

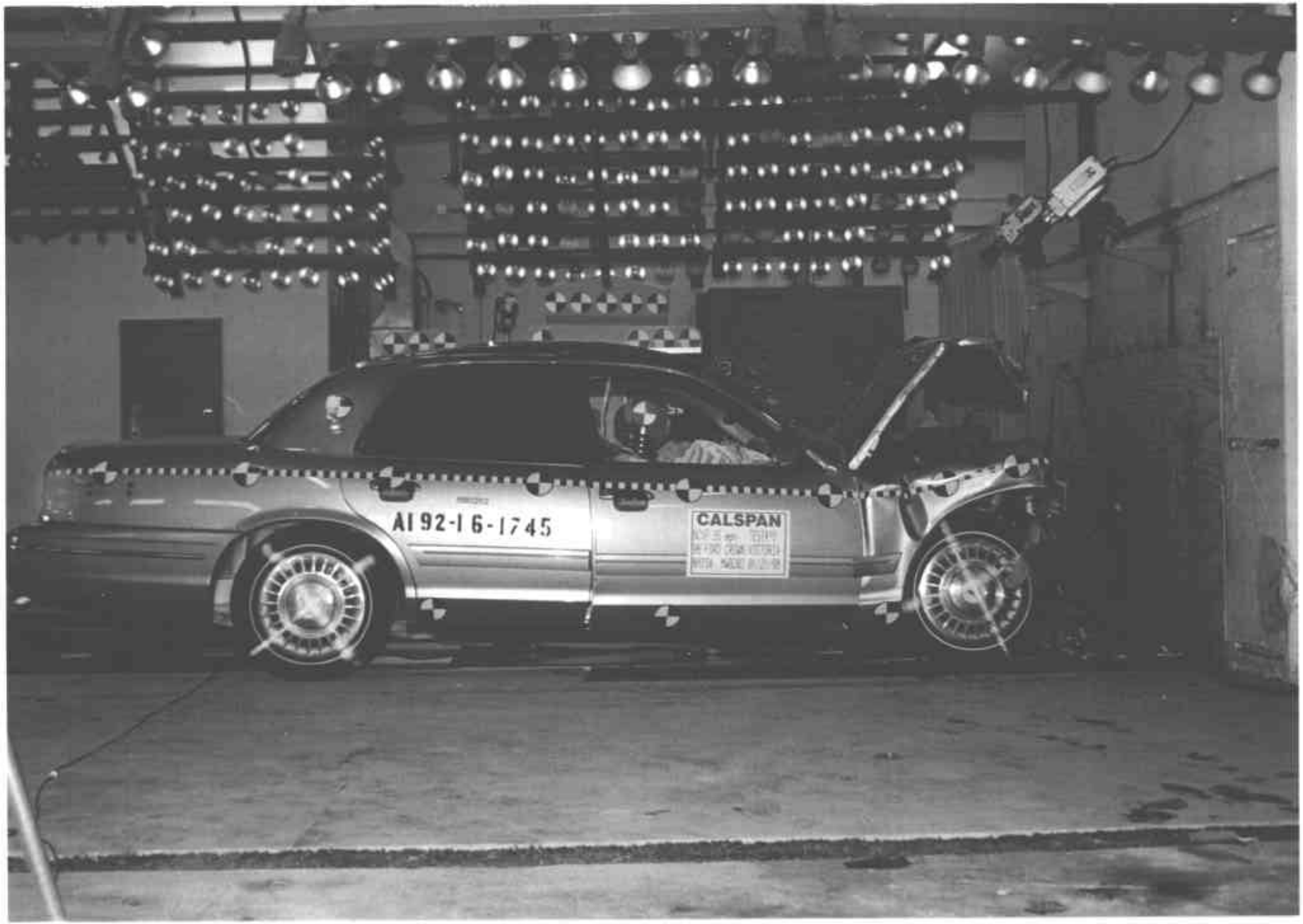


Figure A-7 POST-TEST RIGHT SIDE VIEW

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

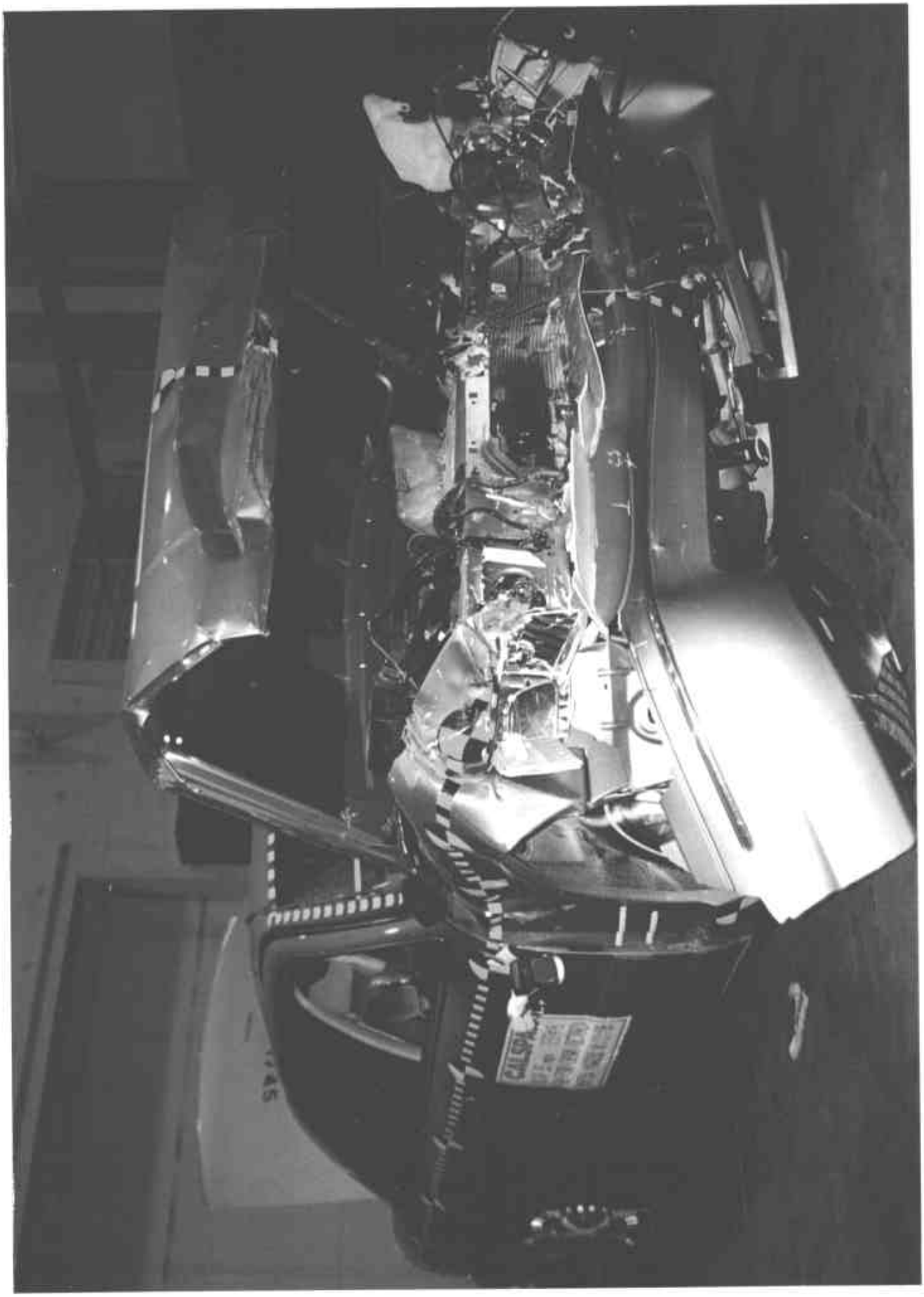


Figure A-9 POST-TEST RIGHT FRONT THREE-QUARTER VIEW

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

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

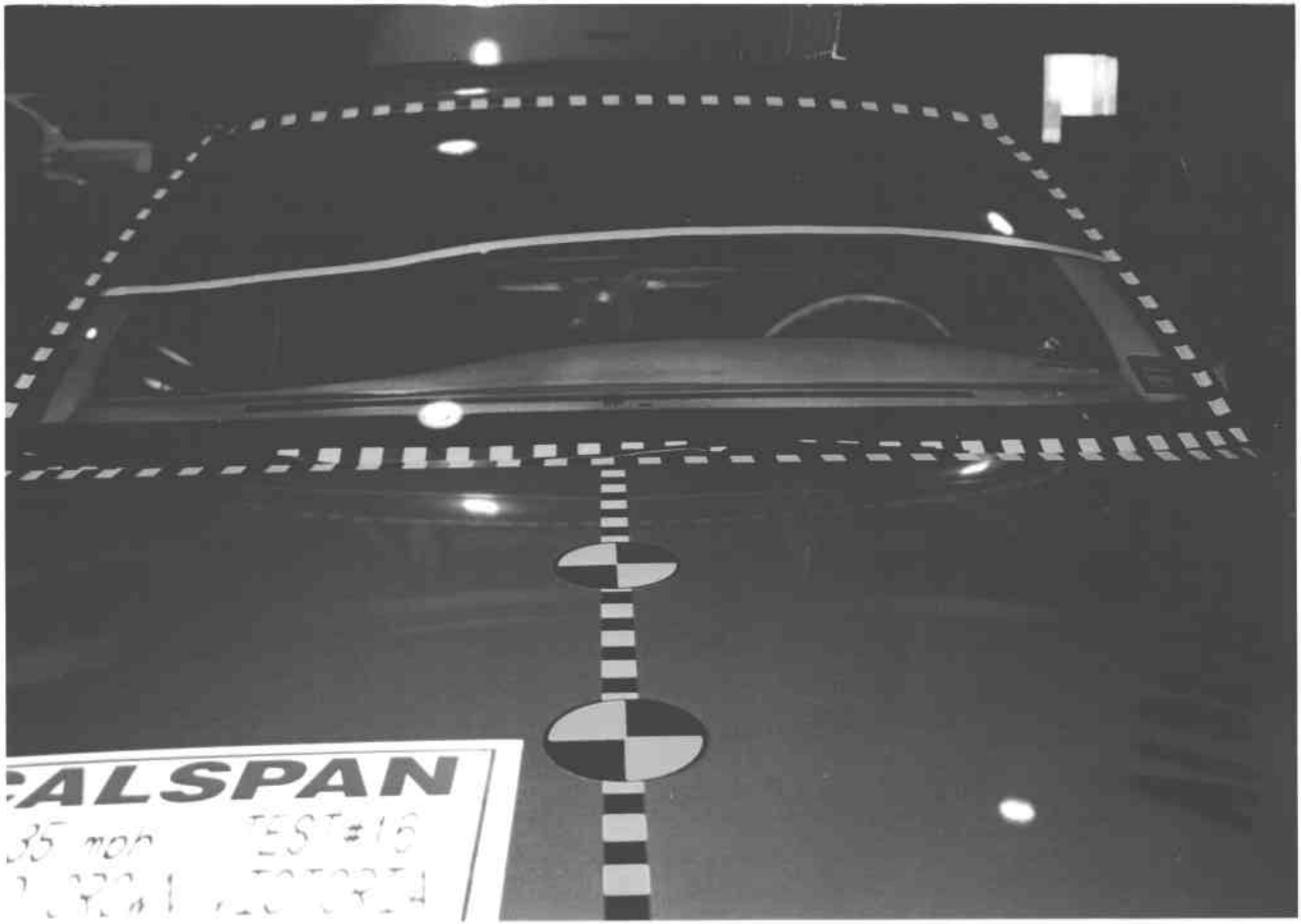


Figure A-12 PRE-TEST WINDSHIELD VIEW

Figure A-13 POST-TEST WINDSHIELD VIEW

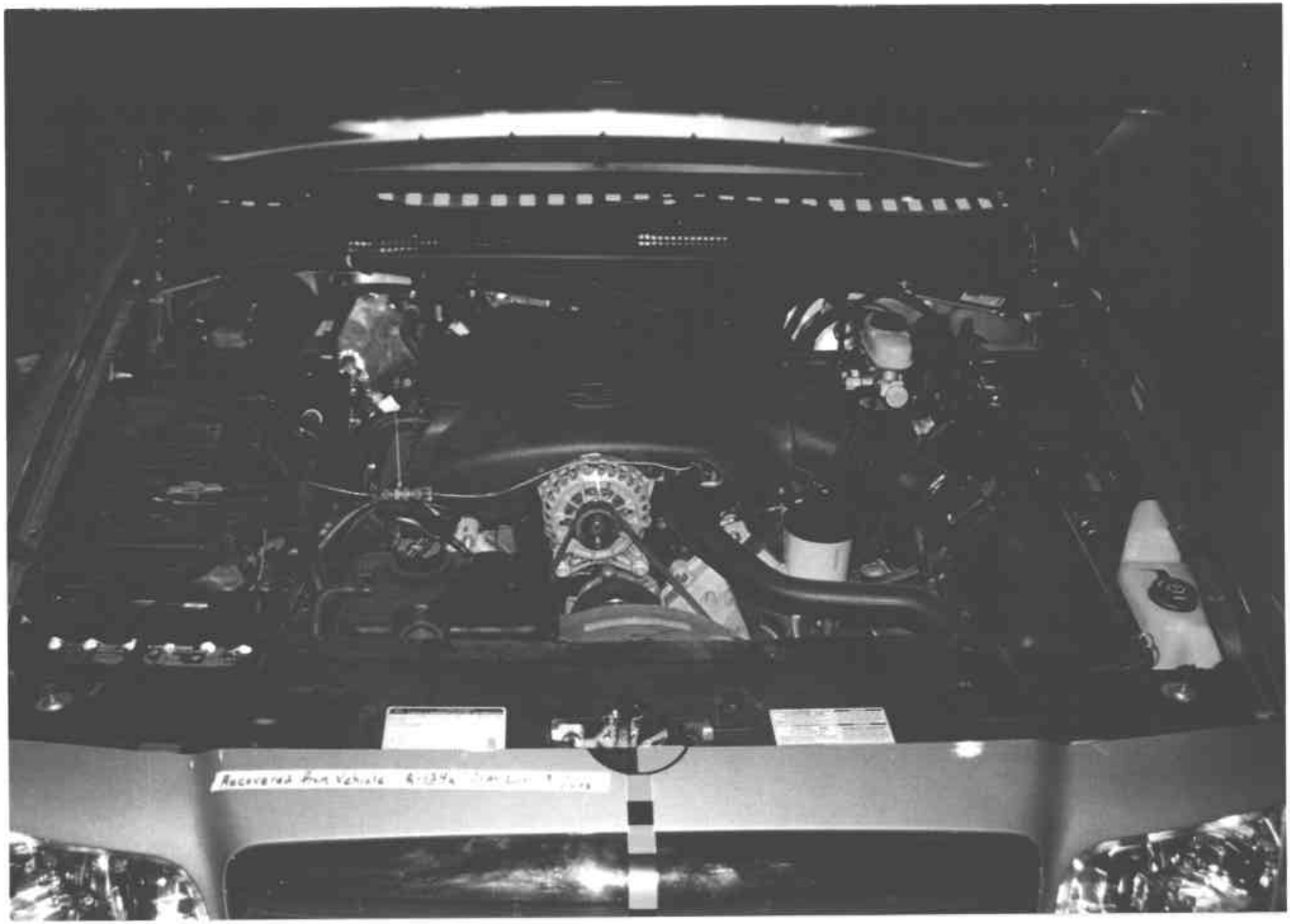


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

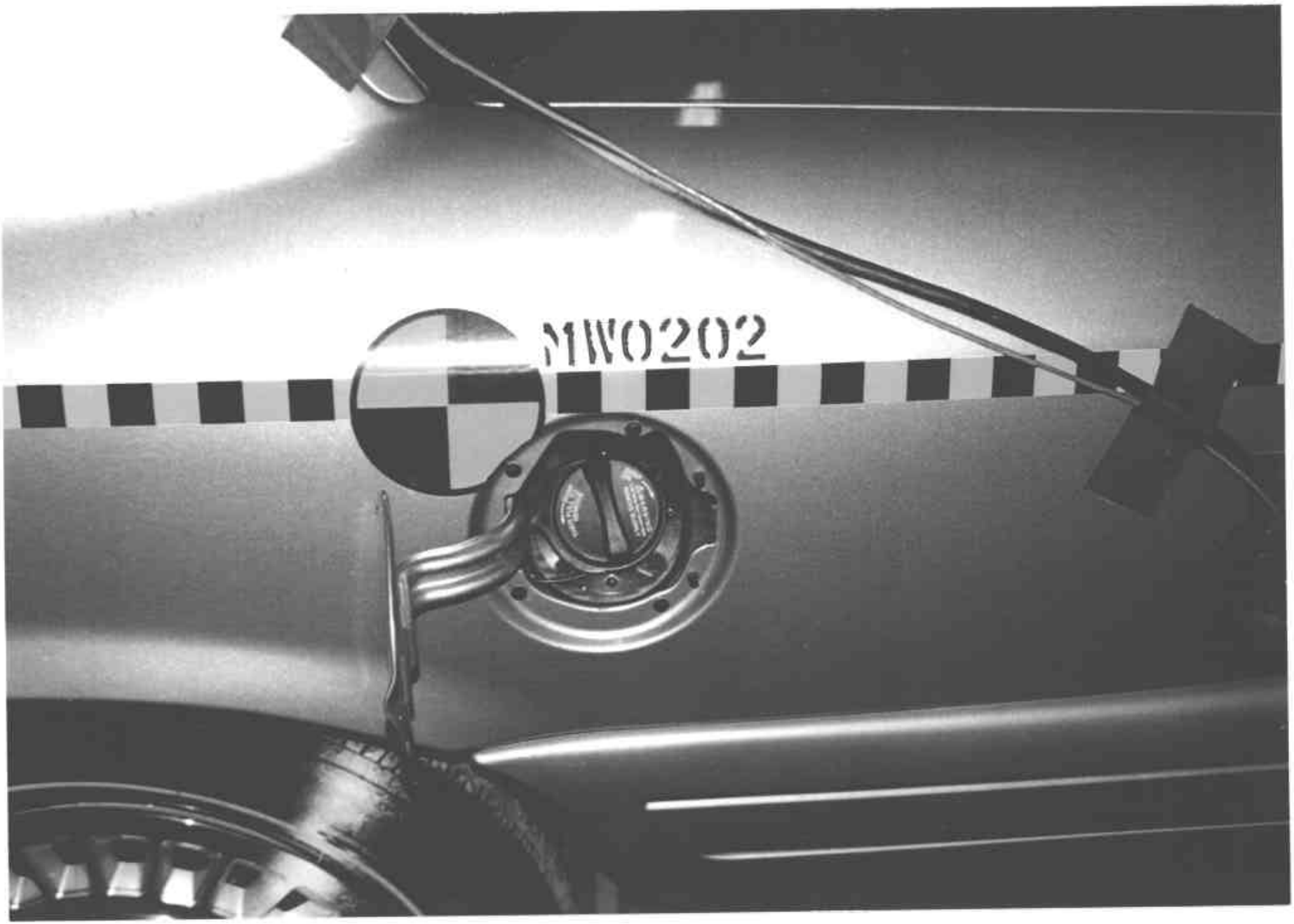


Figure A-15 FUEL CAP VIEW

Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

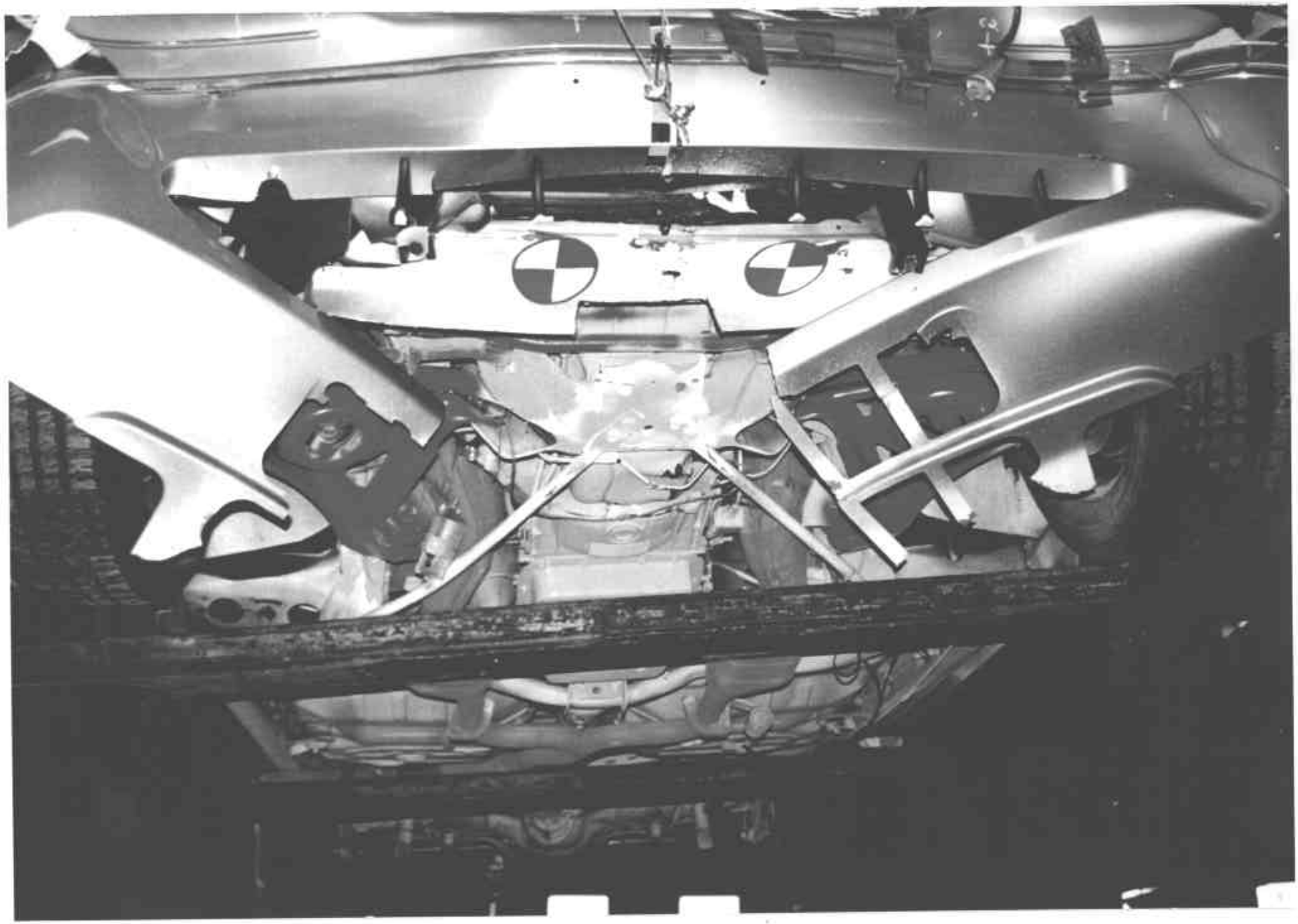


Figure A-17 POST-TEST FRONT UNDERBODY VIEW

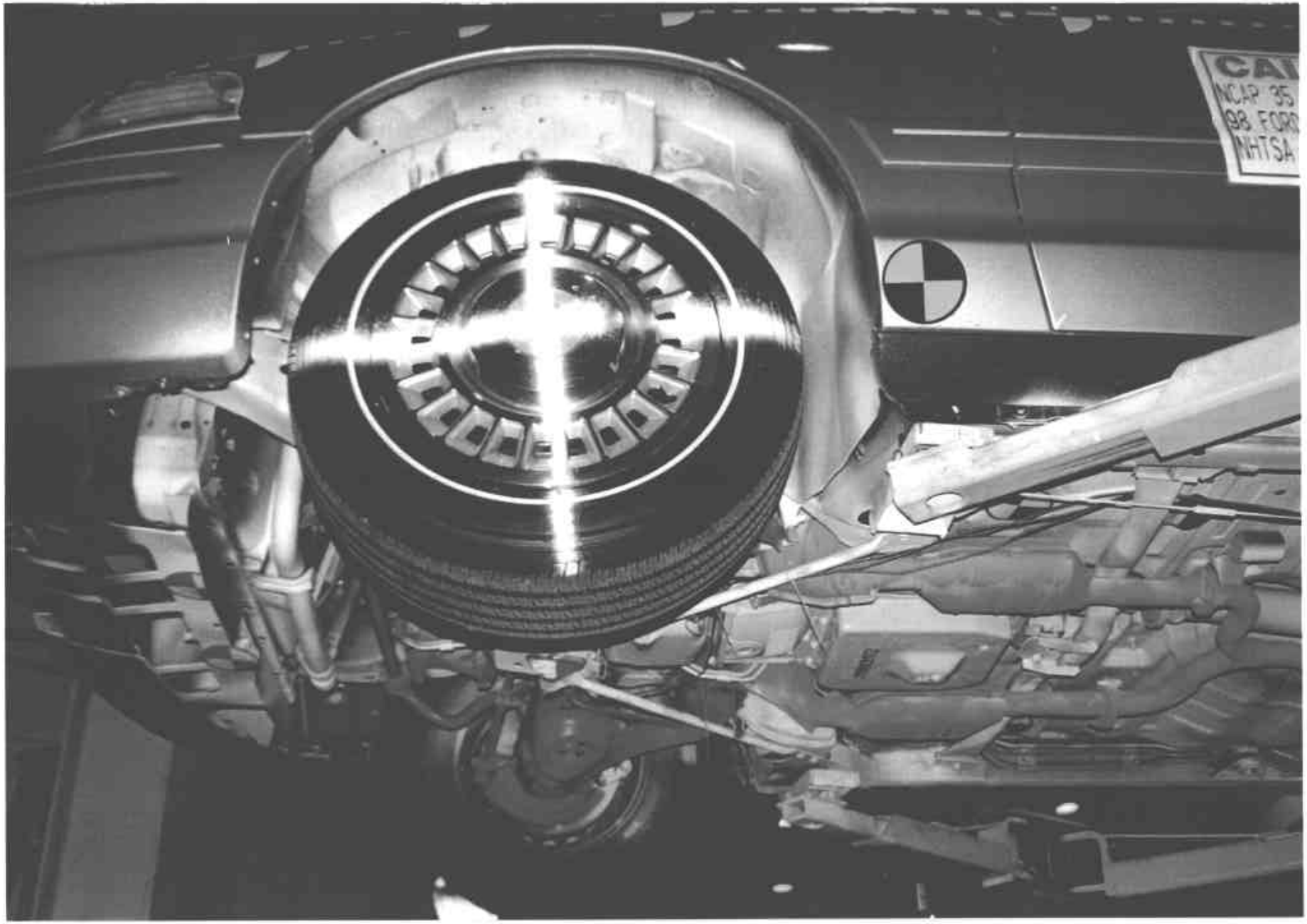


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

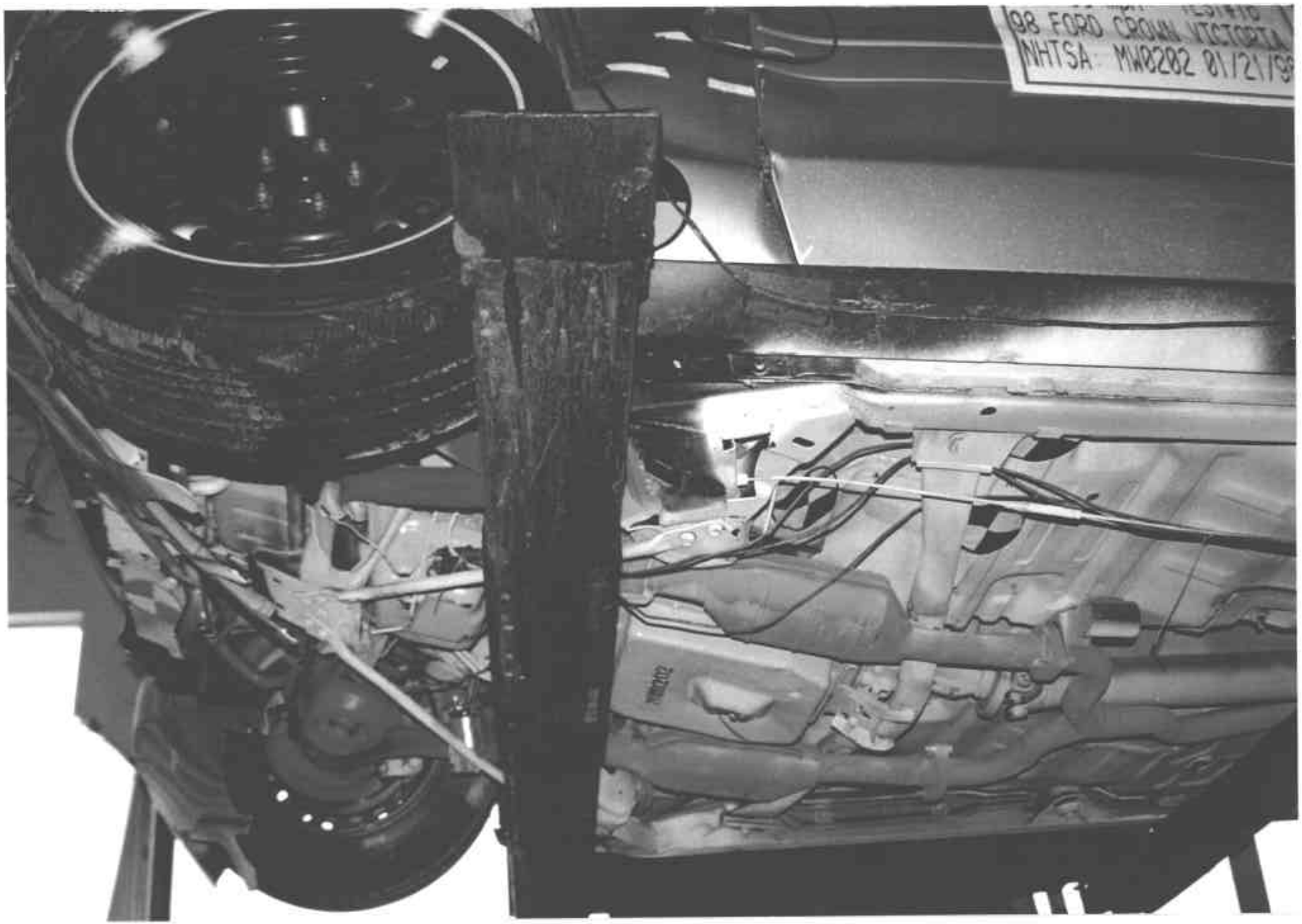


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

Figure A-20 PRE-TEST REAR UNDERBODY VIEW

Figure A-21 POST-TEST REAR UNDERBODY VIEW

Figure A-22 PRE-TEST DRIVER POSITION VIEW

Figure A-23 POST-TEST DRIVER POSITION VIEW

Figure A-24 PRE-TEST PASSENGER POSITION VIEW

Figure A-25 POST-TEST PASSENGER POSITION VIEW

Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

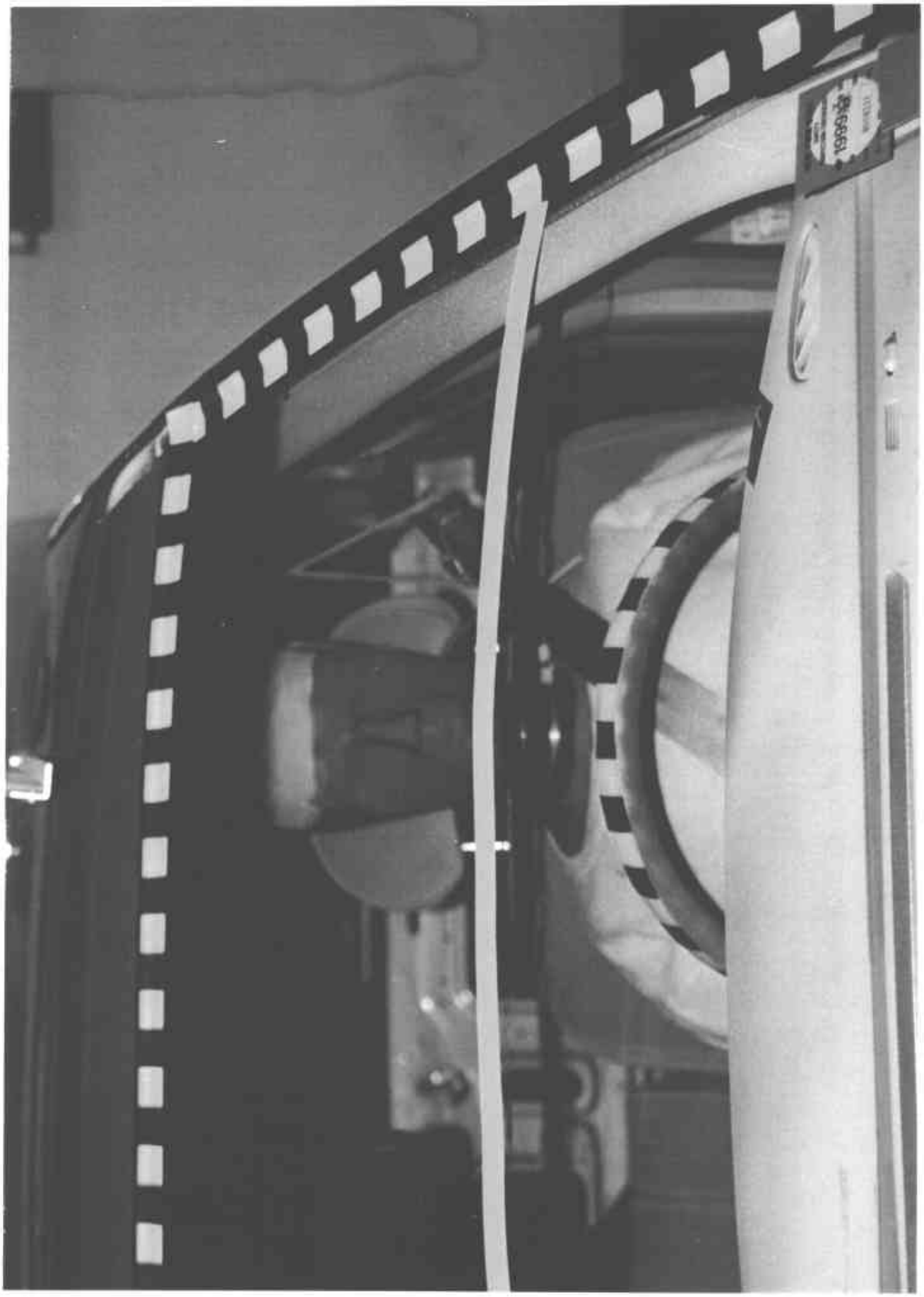


Figure A-30 PRE-TEST DRIVER HEAD LOCATION

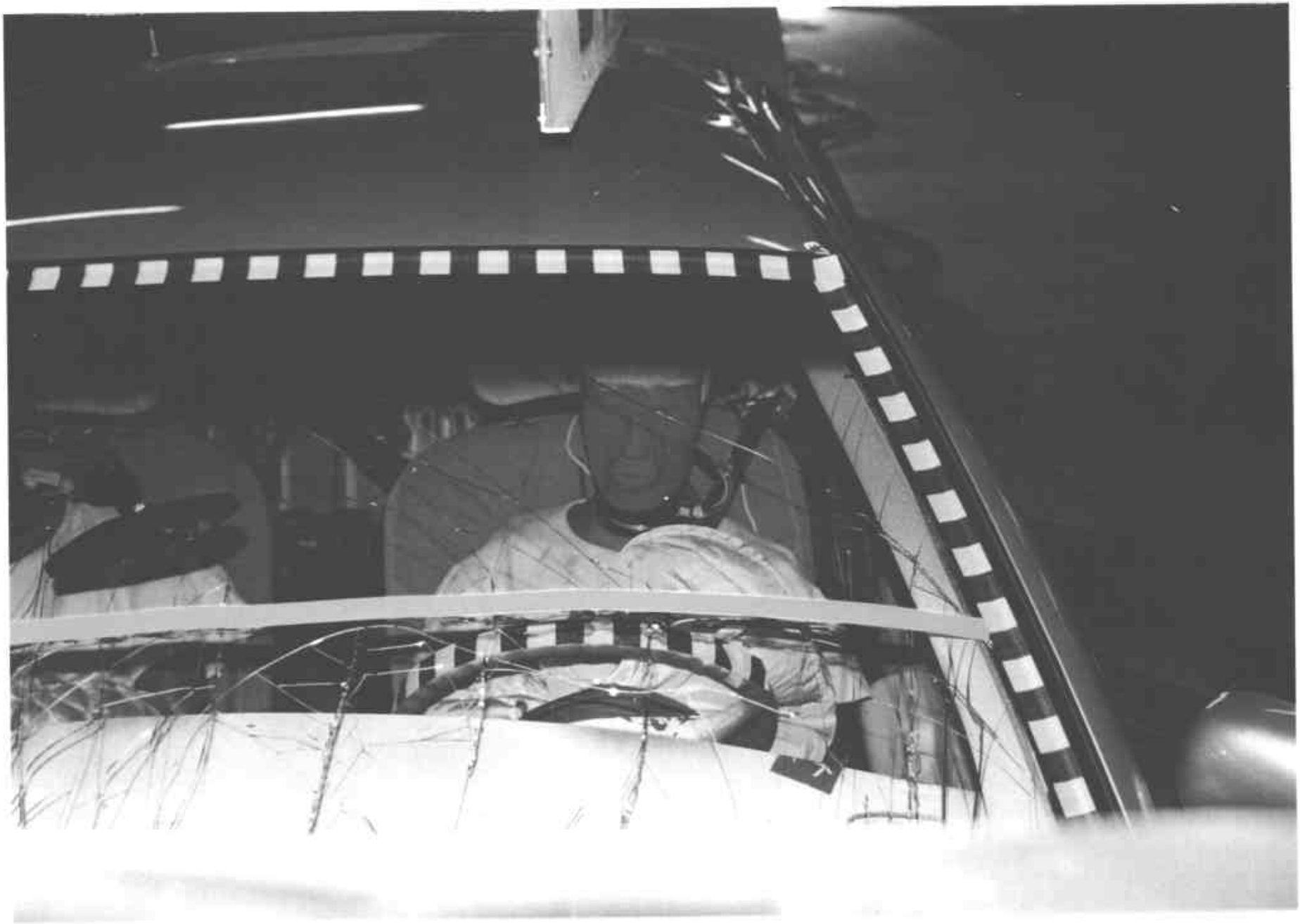


Figure A-31 POST-TEST DRIVER HEAD LOCATION

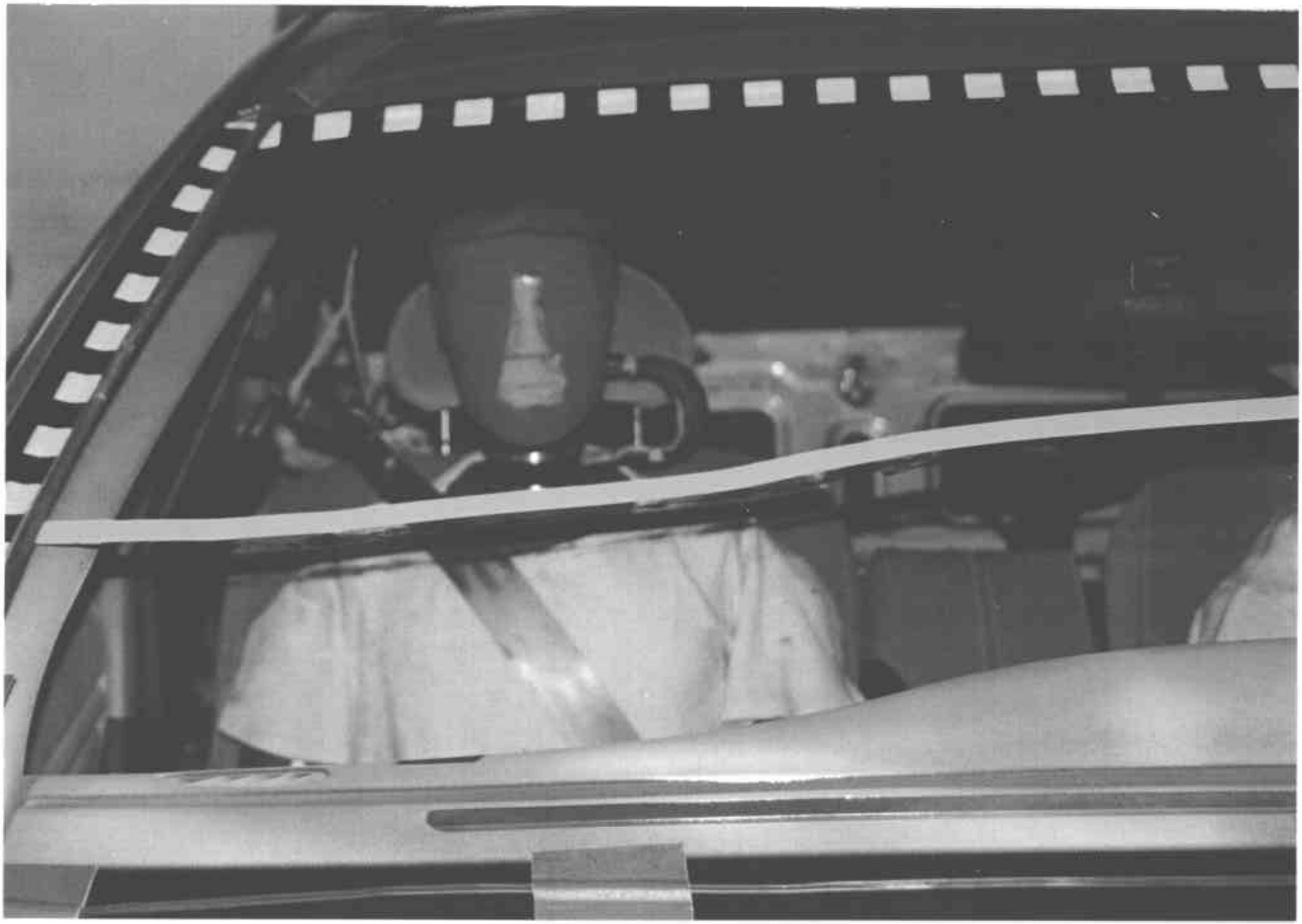


Figure A-32 PRE-TEST PASSENGER HEAD LOCATION

Figure A-33 POST-TEST PASSENGER HEAD LOCATION

Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW

Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW

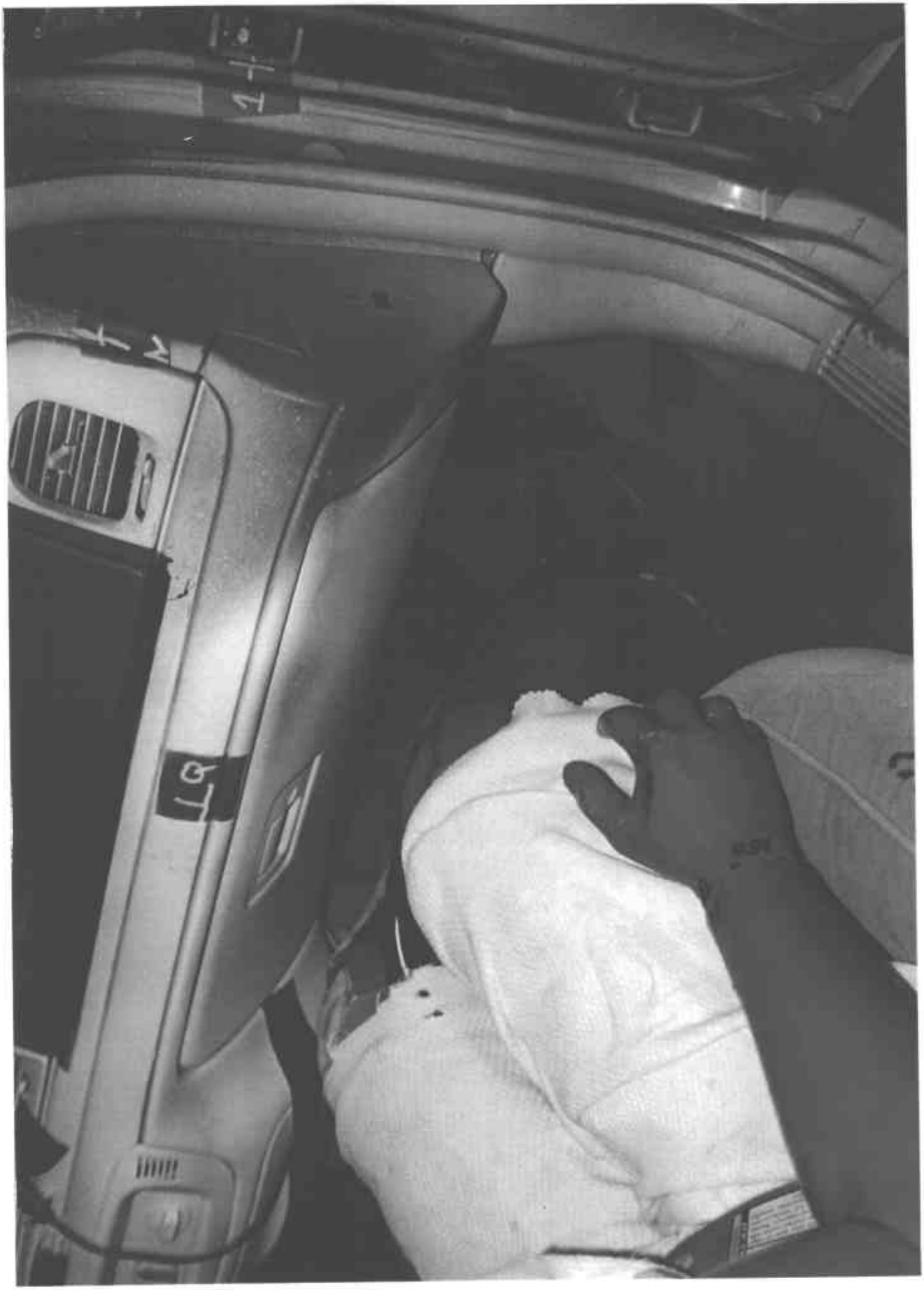


Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW

Figure A-37 POST-TEST PASSENGER FLOOR PAN VIEW

Figure A-38 ROLLOVER VIEW

Figure A-39 IMPACT VIEW

Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers

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

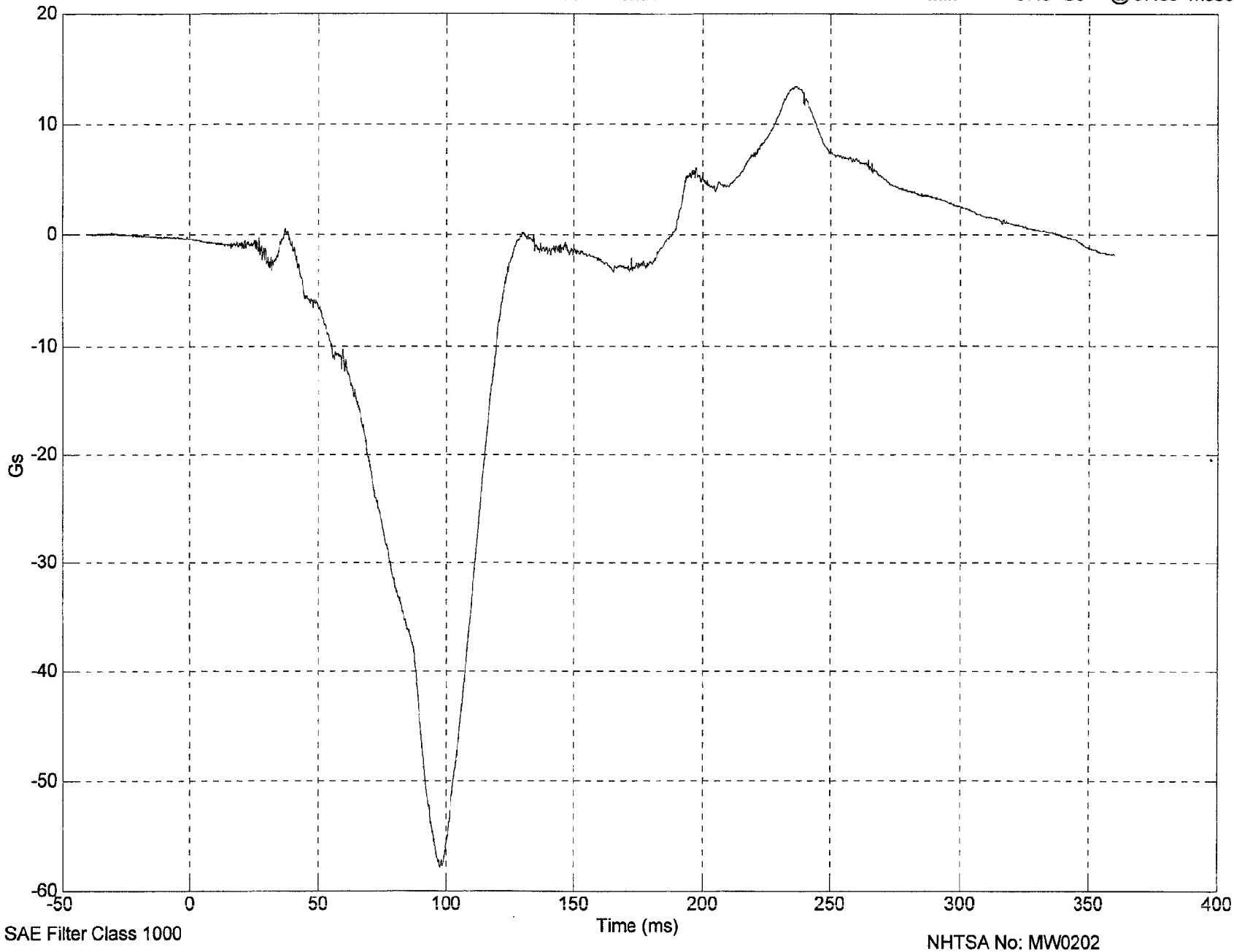
NHTSA TEST NO. MW0202

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 #16 - 1998 FORD CROWN VICTORIA

Max = 13.4 Gs @ 235.70 msec
Min = -57.9 Gs @ 97.50 msec



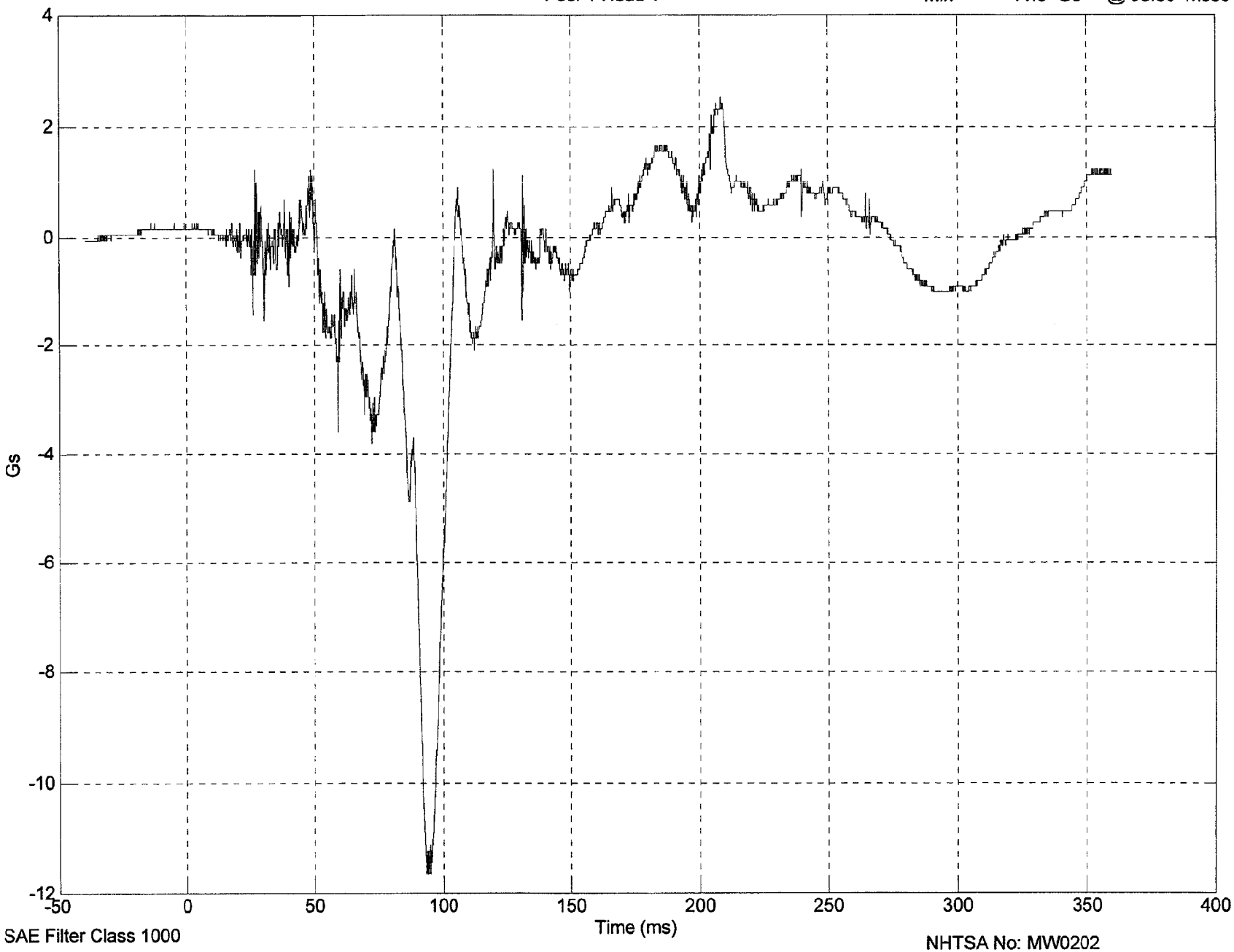
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 2.53 Gs @ 208.10 msec
Min = -11.6 Gs @ 93.30 msec



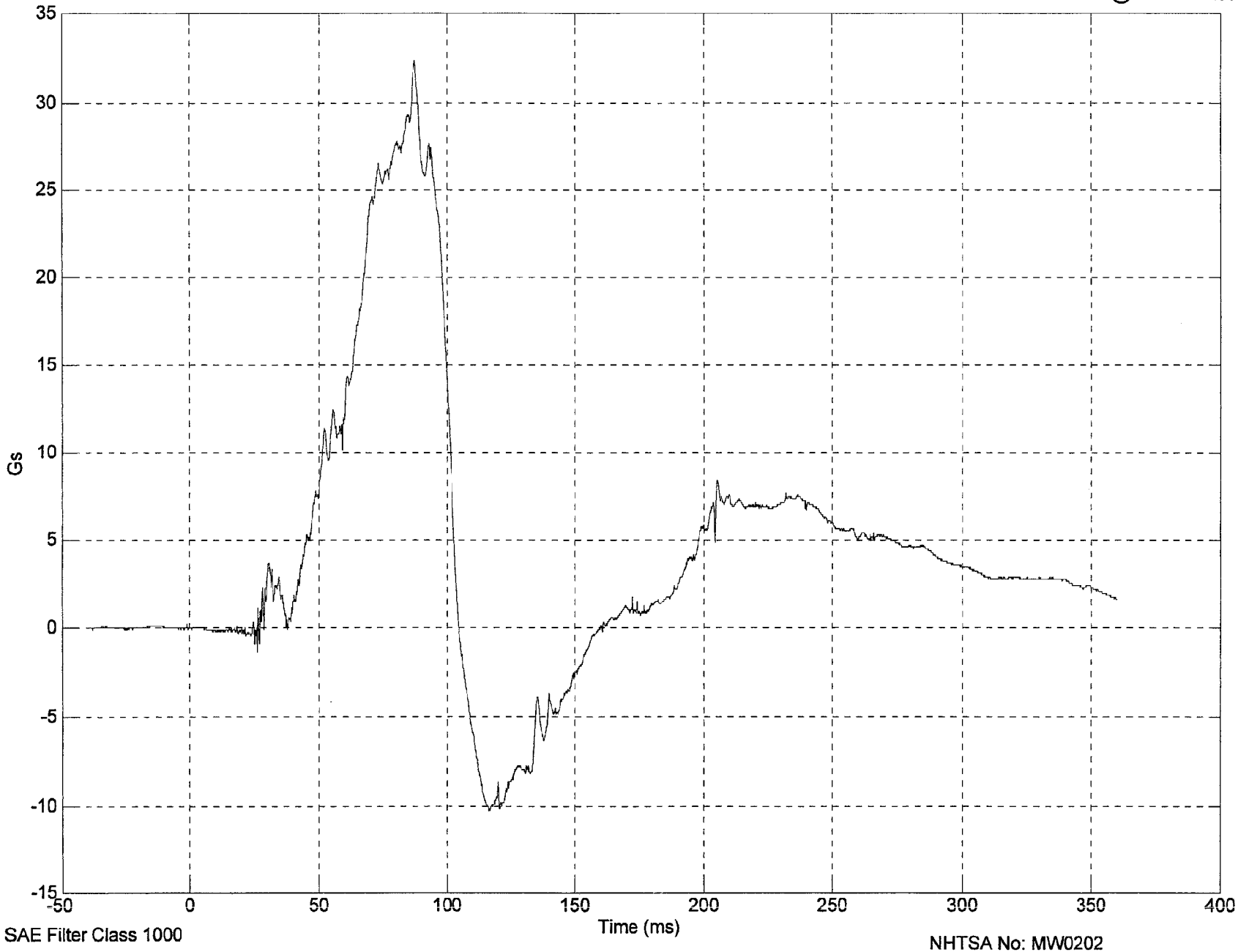
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 32.3 Gs @ 87.20 msec
Min = -10.2 Gs @ 116.30 msec



SAE Filter Class 1000

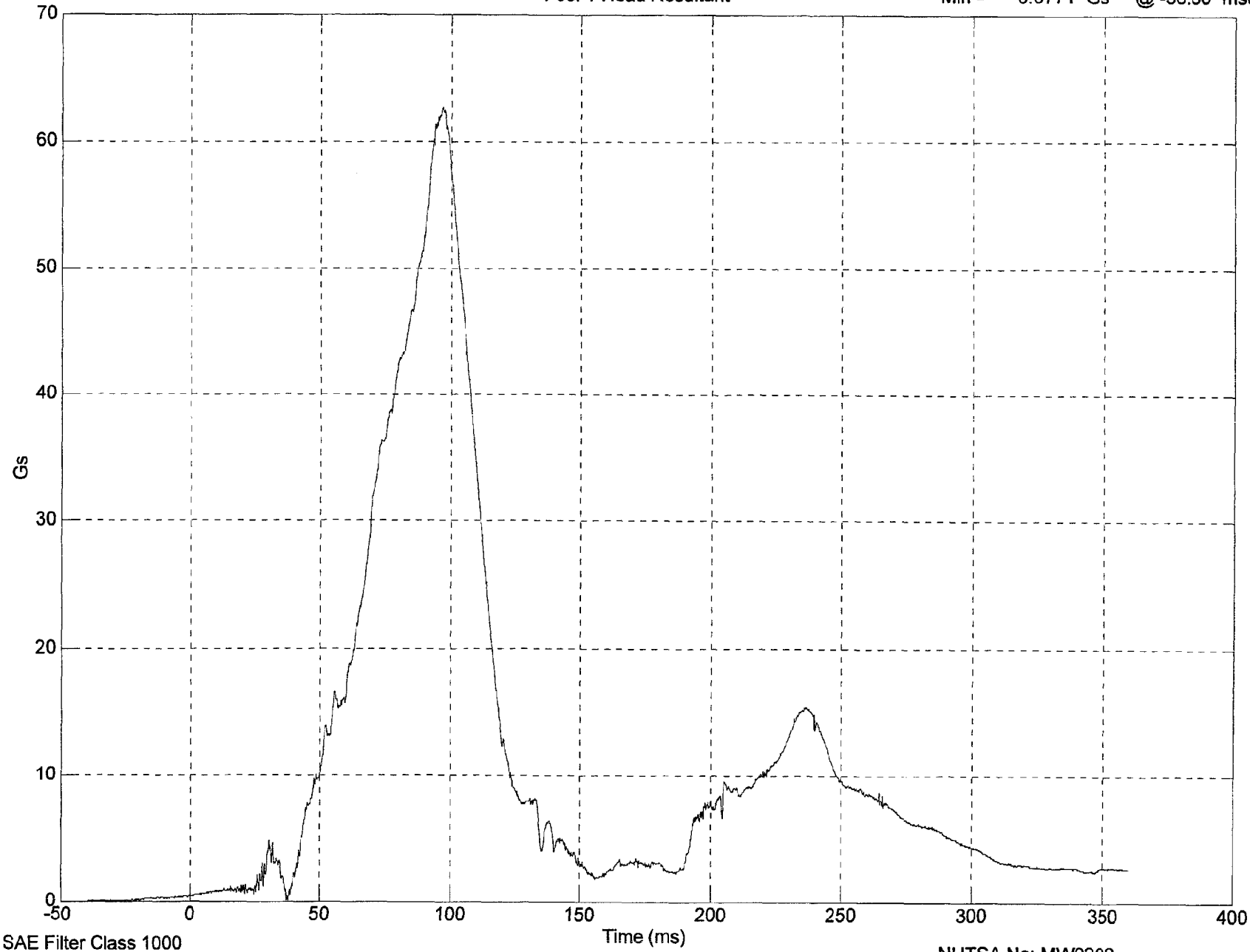
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Head Resultant

Max = 62.7 Gs @ 96.70 msec
Min = 0.0771 Gs @ -38.60 msec

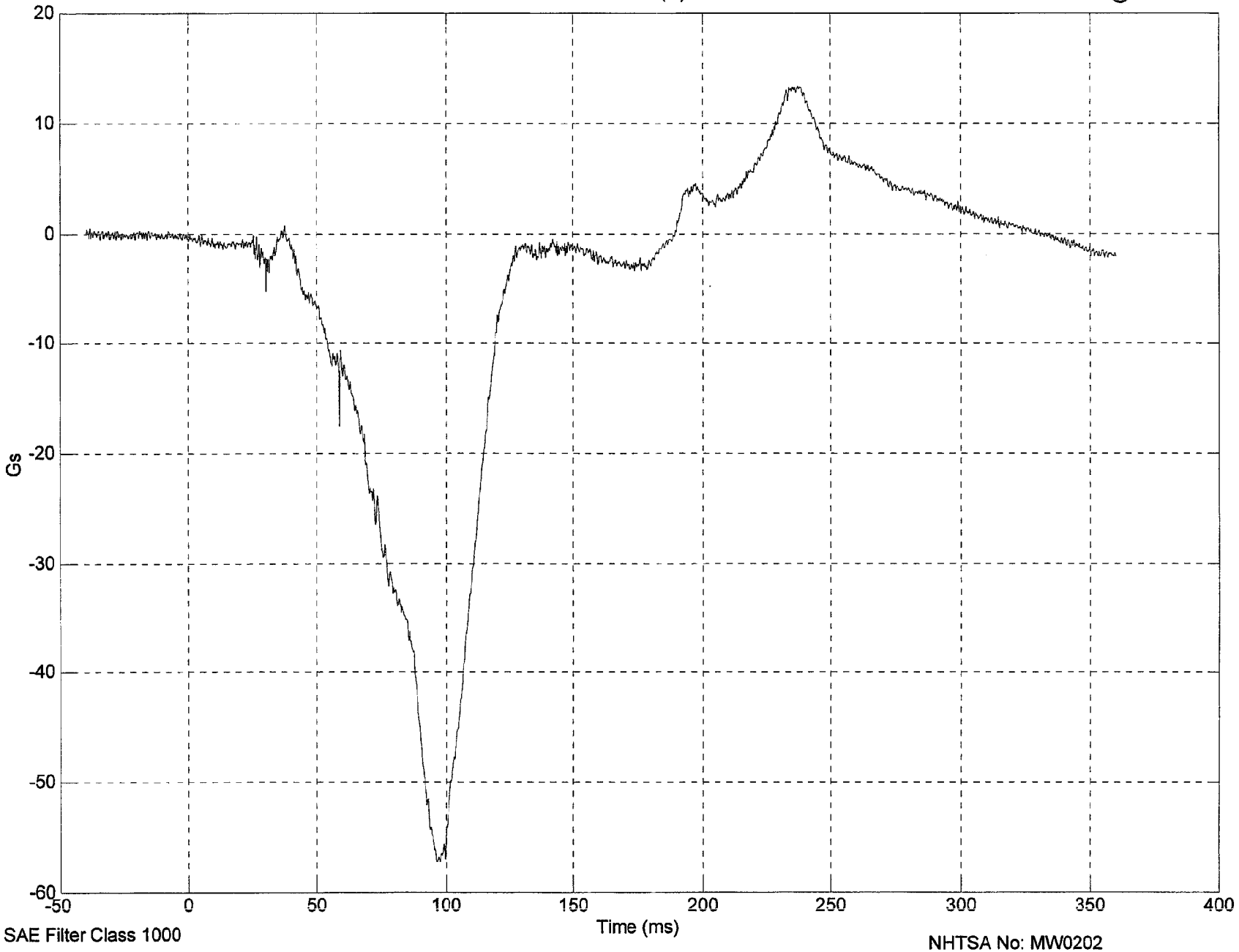


SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 13.3 Gs @ 237.10 msec
Min = -57.2 Gs @ 96.30 msec



SAE Filter Class 1000

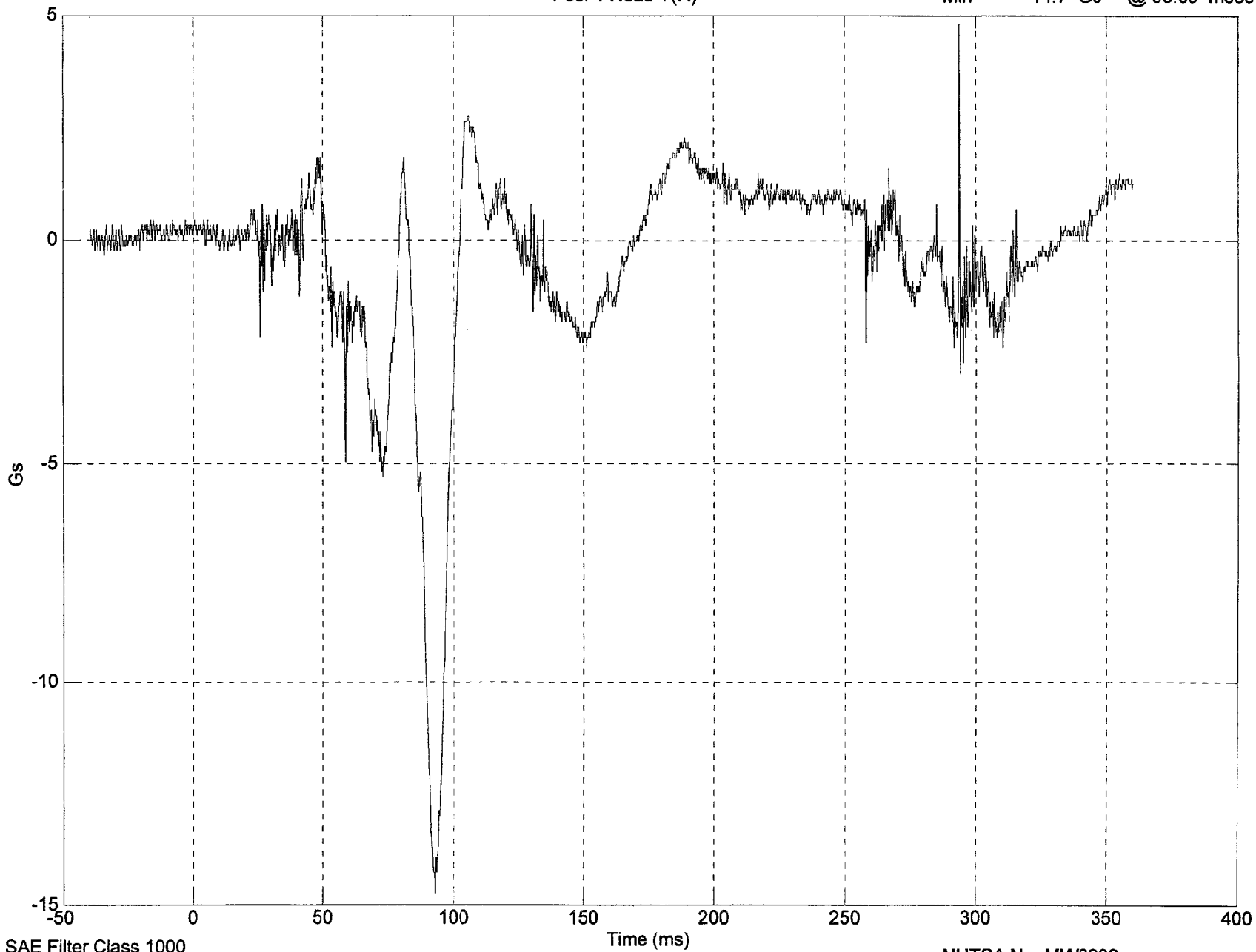
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Head Y(R)

Max = 4.82 Gs @ 293.70 msec
Min = -14.7 Gs @ 93.00 msec



SAE Filter Class 1000

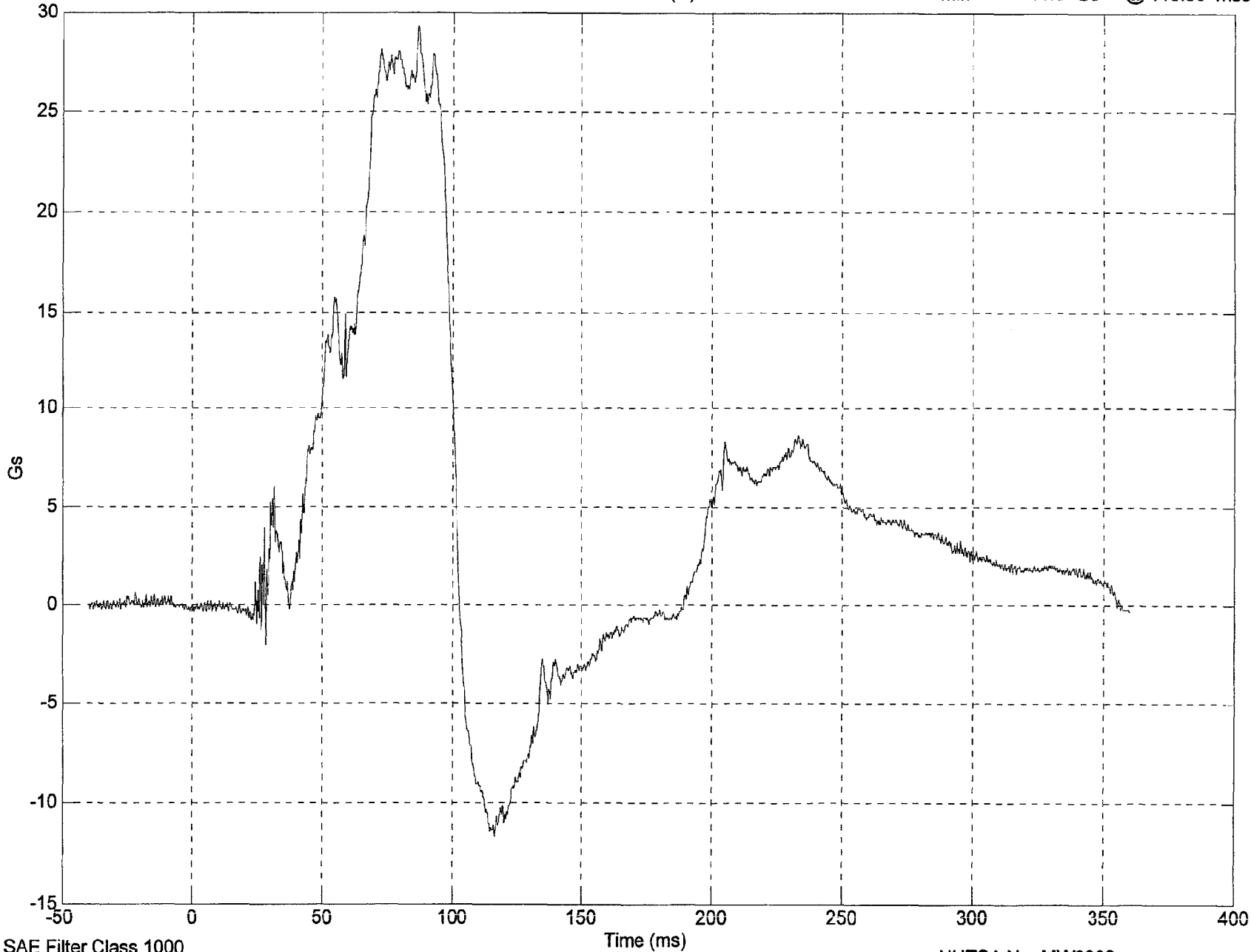
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Head Z(R)

Max = 29.3 Gs @ 86.60 msec
Min = -11.6 Gs @ 116.30 msec



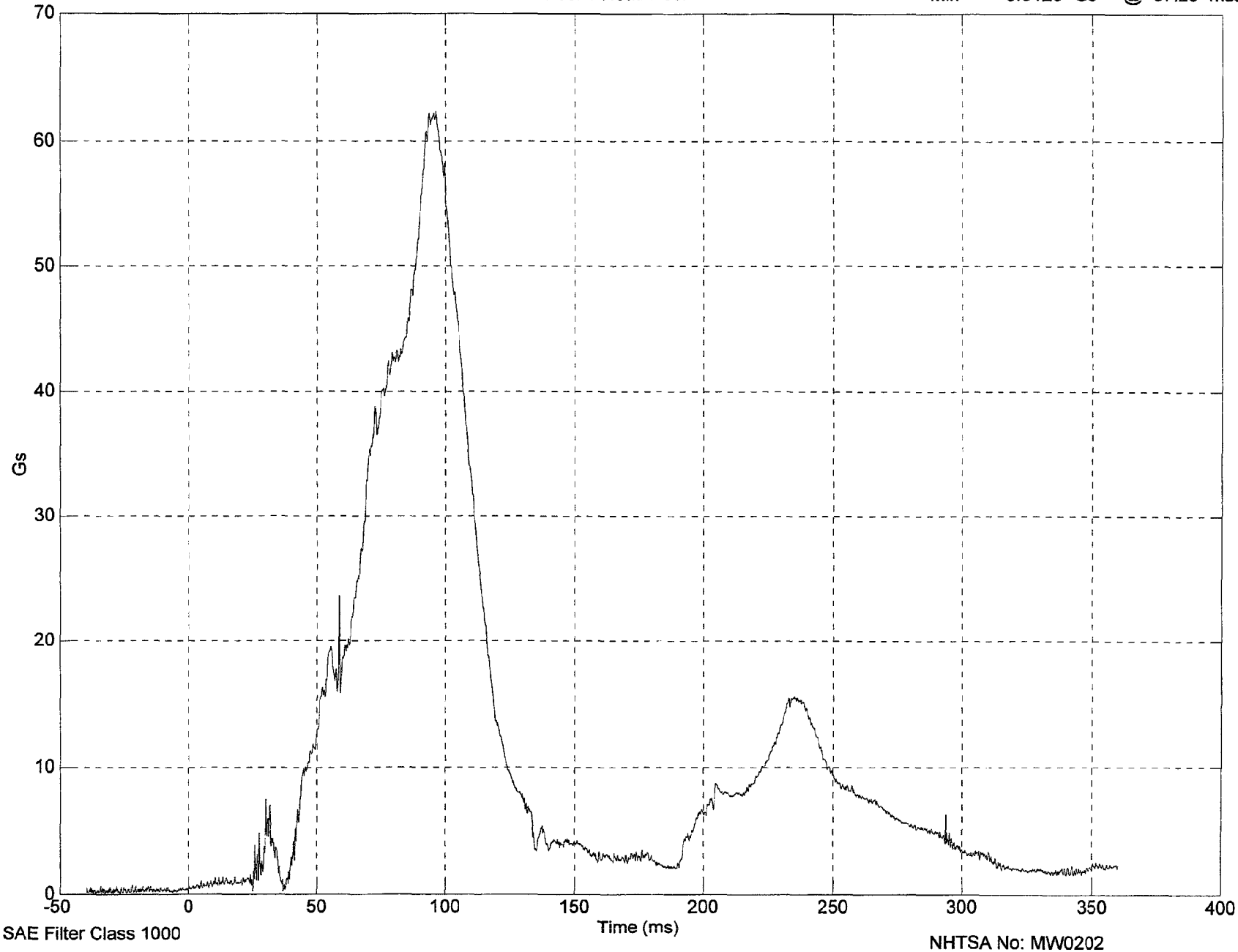
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Head Res.

Max = 62.3 Gs @ 96.30 msec
Min = 0.0129 Gs @ -37.20 msec



SAE Filter Class 1000

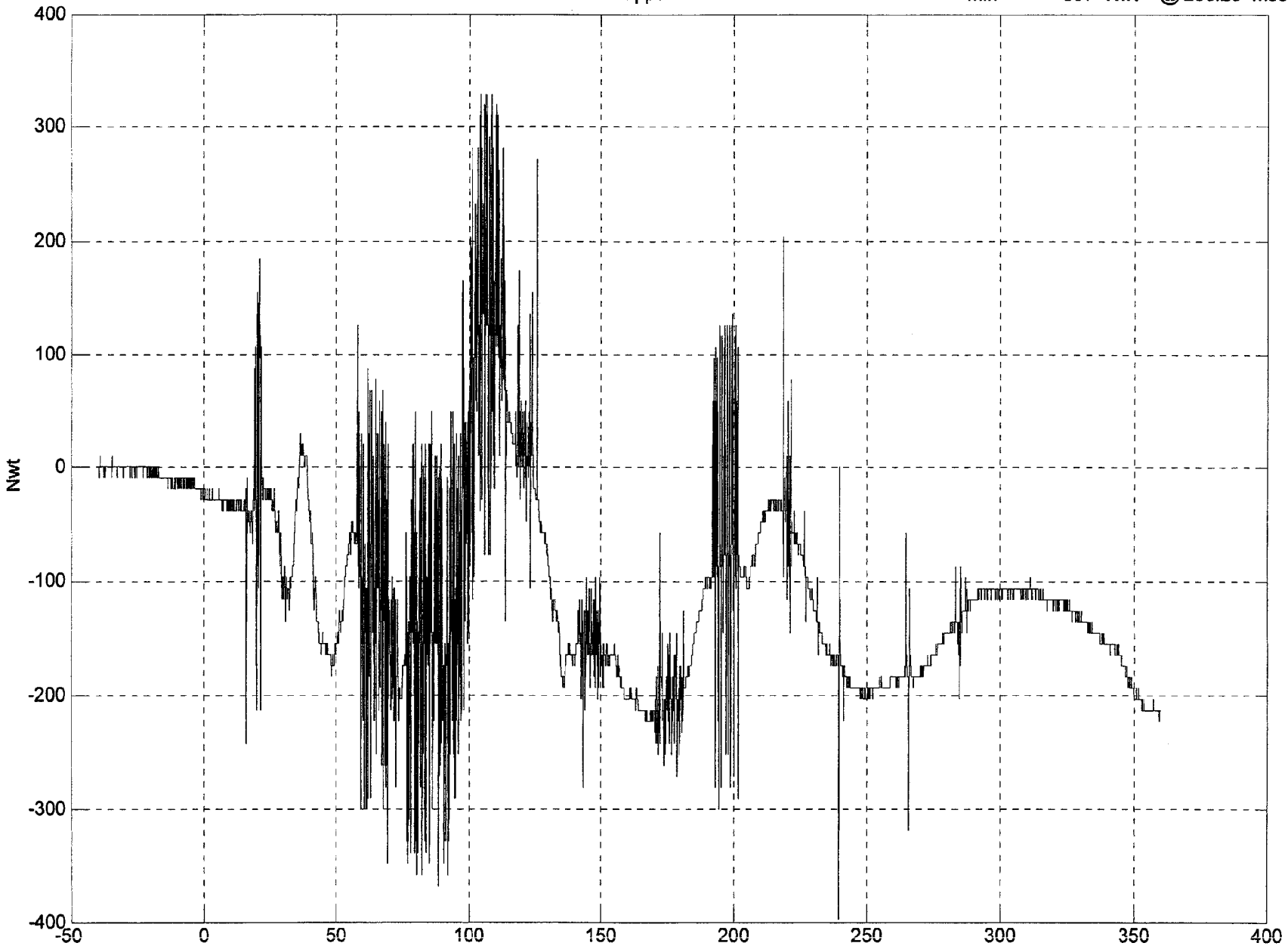
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Upper Neck Fx

Max = 330 Nwt @ 104.60 msec
Min = -397 Nwt @ 239.20 msec



SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

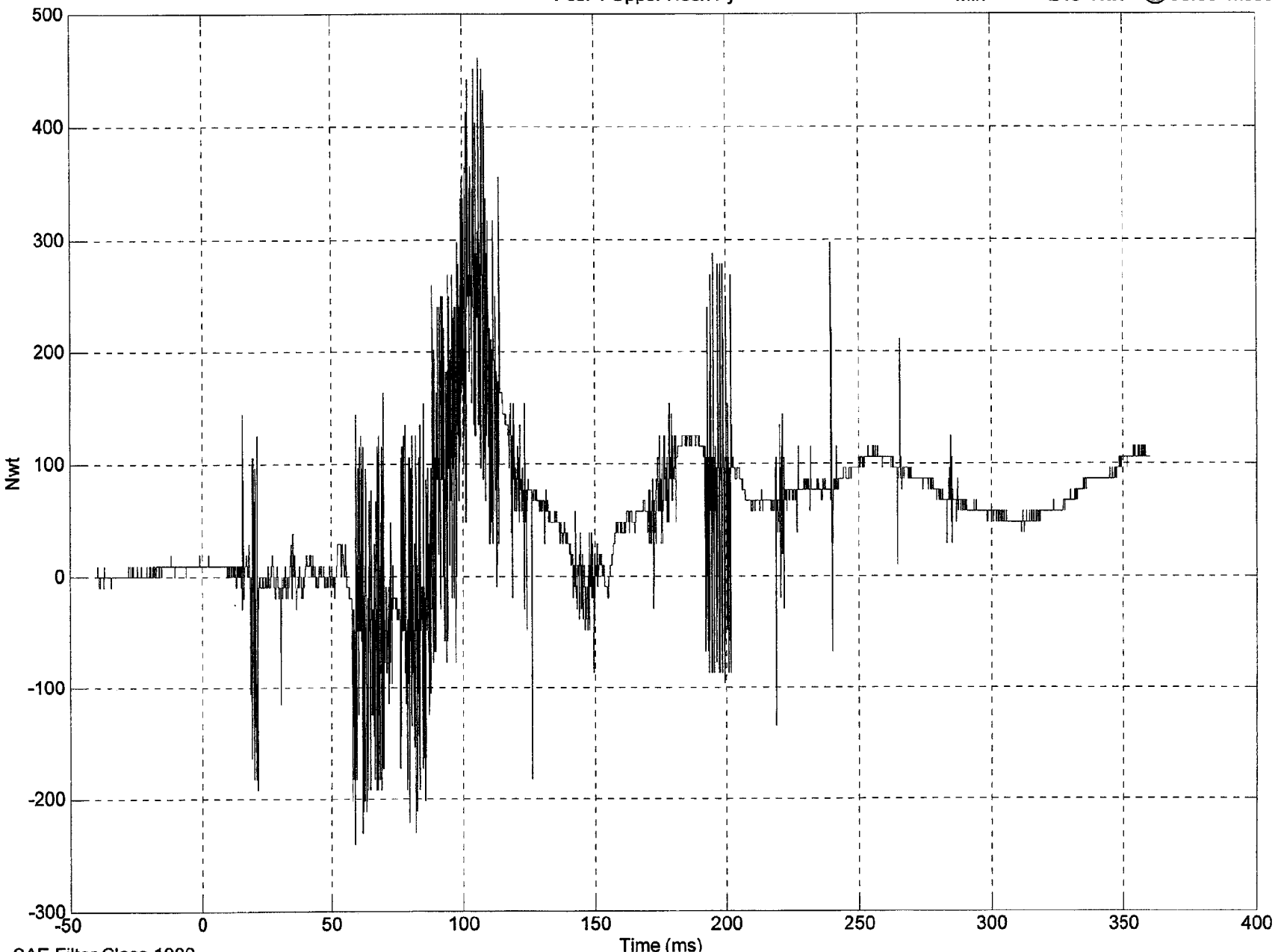
B-12

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Upper Neck Fy

Max = 461 Nwt @ 105.90 msec
Min = -240 Nwt @ 58.90 msec



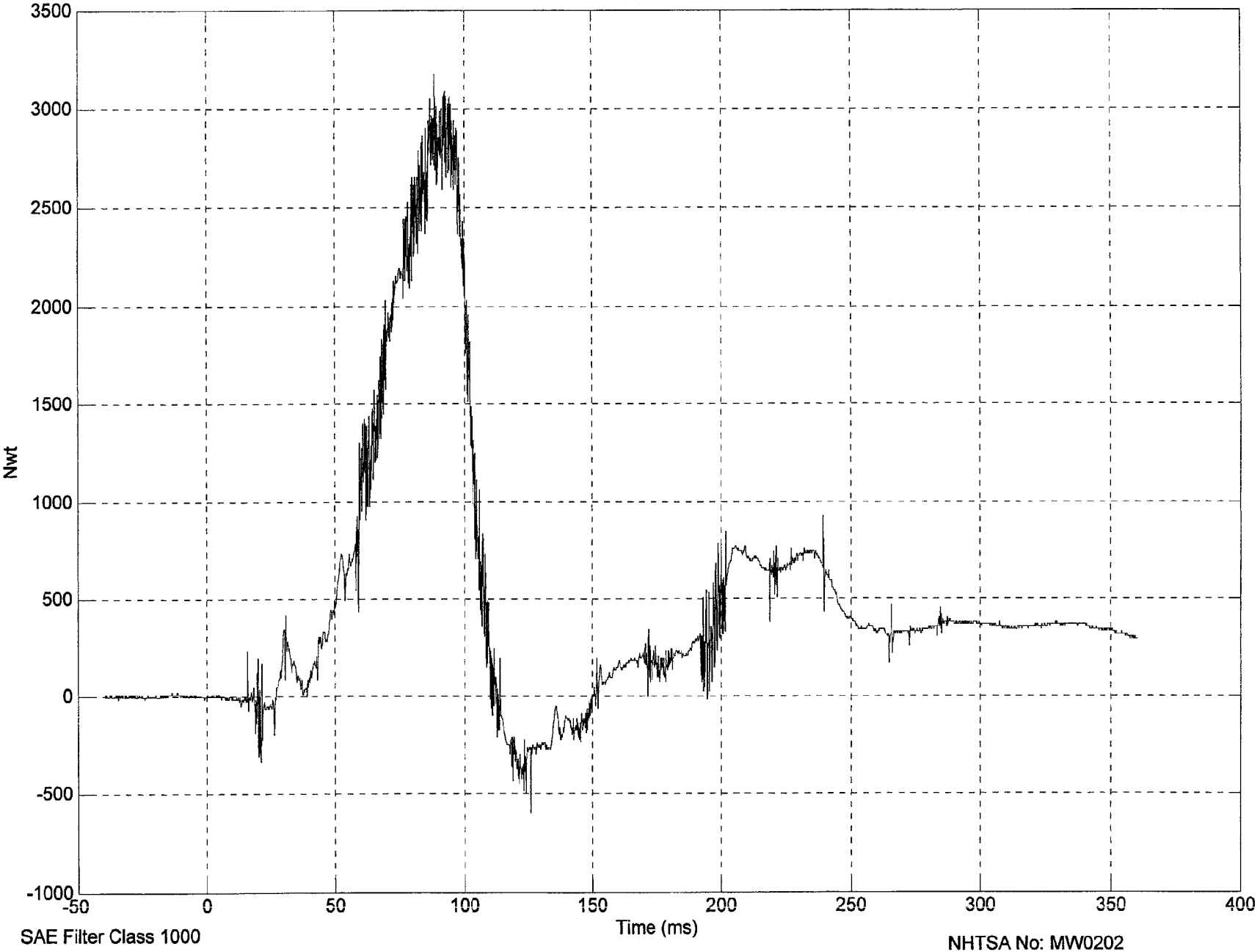
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 3.17e+003 Nwt @ 88.50 msec
Min = -599 Nwt @ 125.80 msec



B-14

8413-16

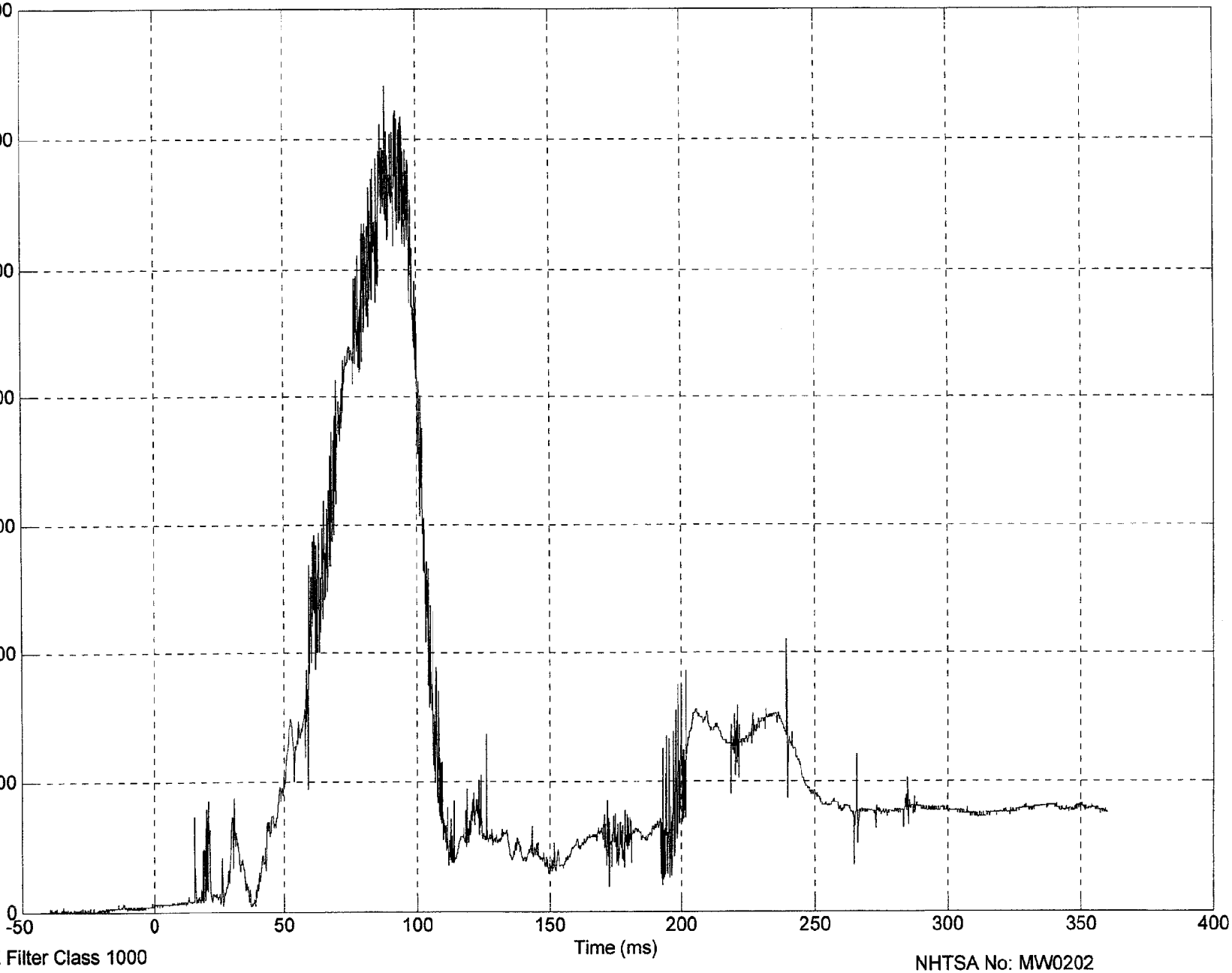
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 3.21e+003 Nwt @ 88.50 msec
Min = 3.31 Nwt @ -39.90 msec

Pos. 1 Neck Force Res.



SAE Filter Class 1000

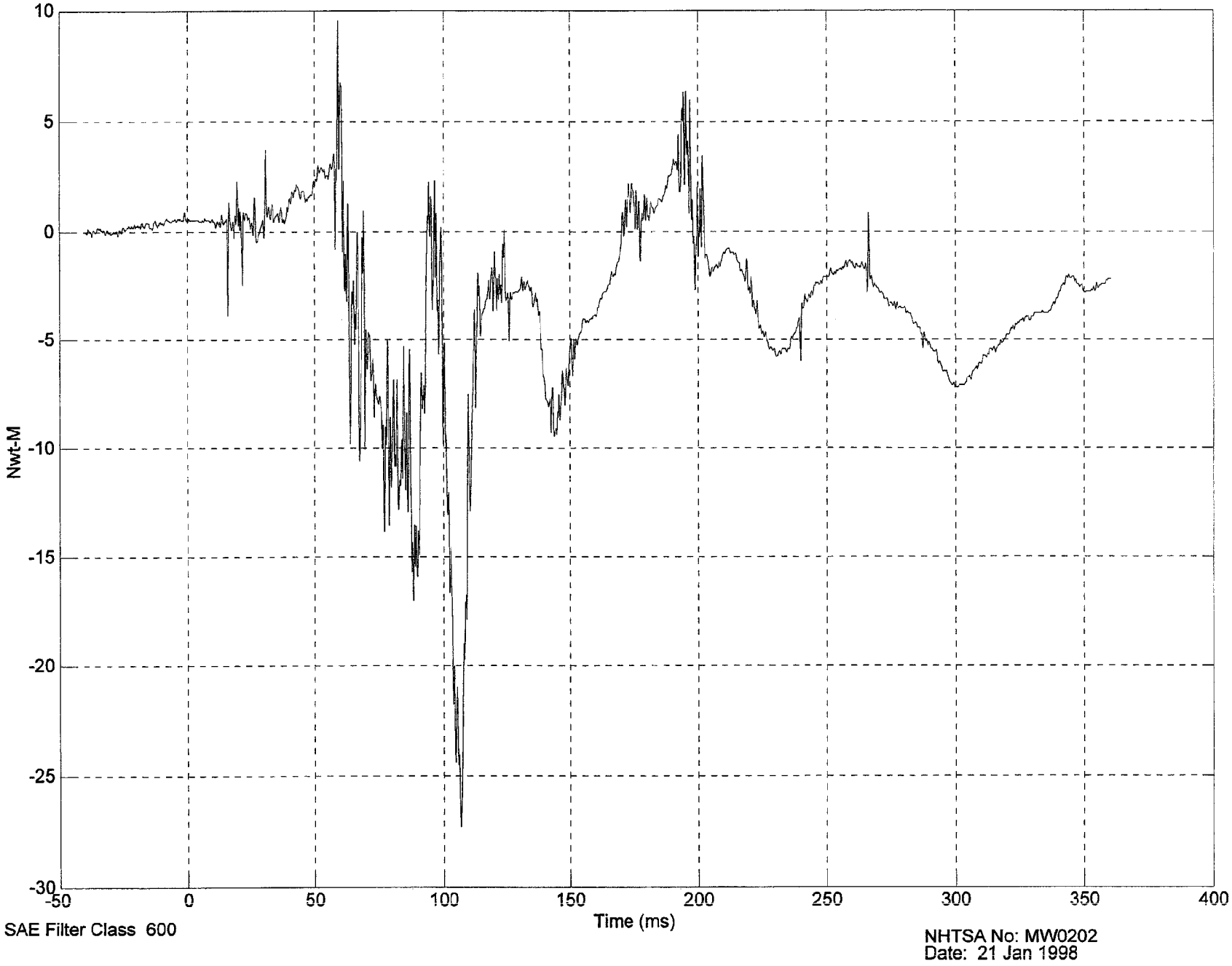
NHTSA No: MW0202
Date: 21 Jan 1998

B-15

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 9.55 Nwt-M @ 59.10 msec
Min = -27.3 Nwt-M @ 106.80 msec



SAE Filter Class 600

NHTSA No: MW0202
Date: 21 Jan 1998

B-16

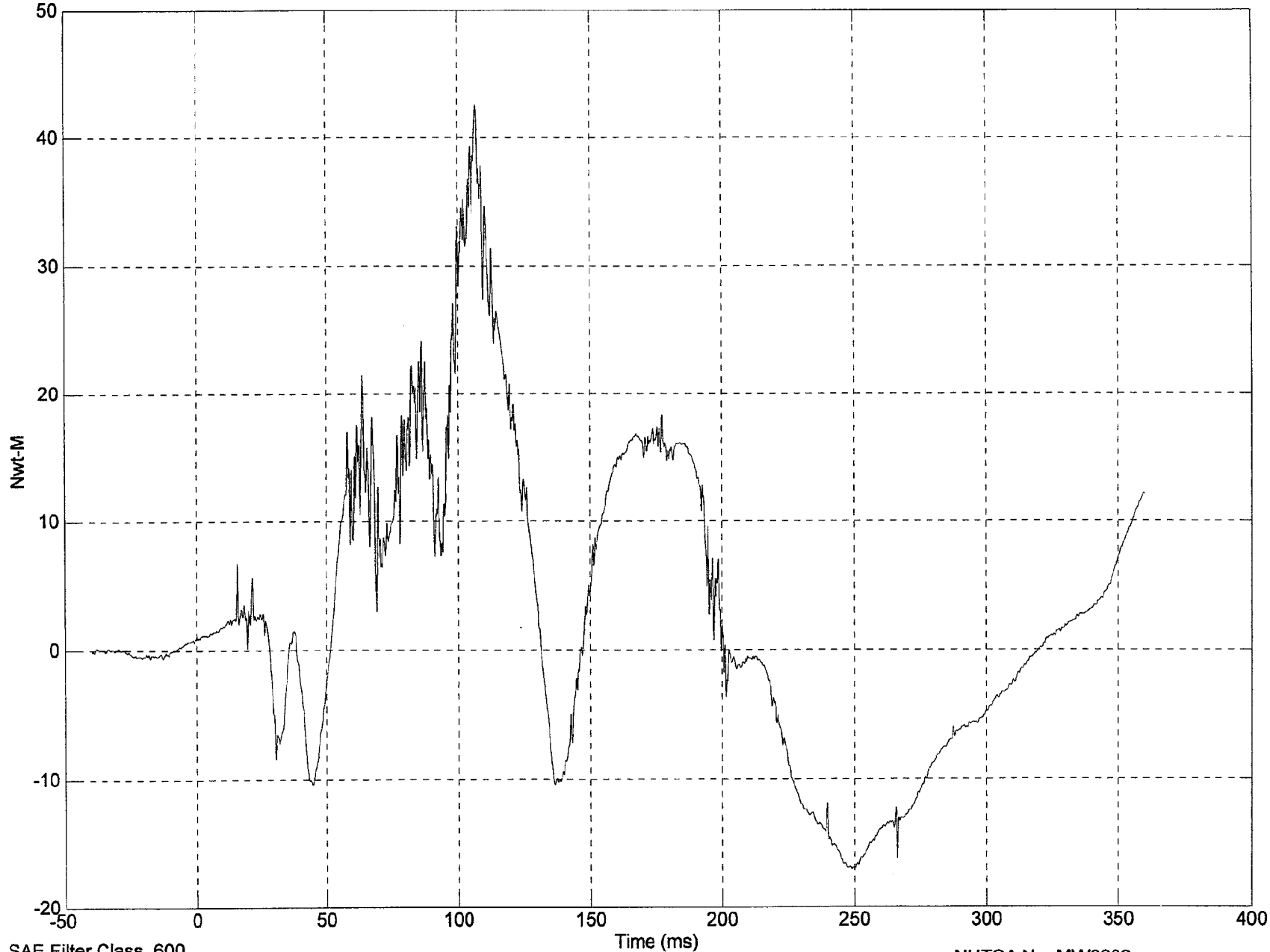
8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Upper Neck My

Max = 42.7 Nwt-M @ 107.00 msec

Min = -17 Nwt-M @ 249.00 msec



SAE Filter Class 600

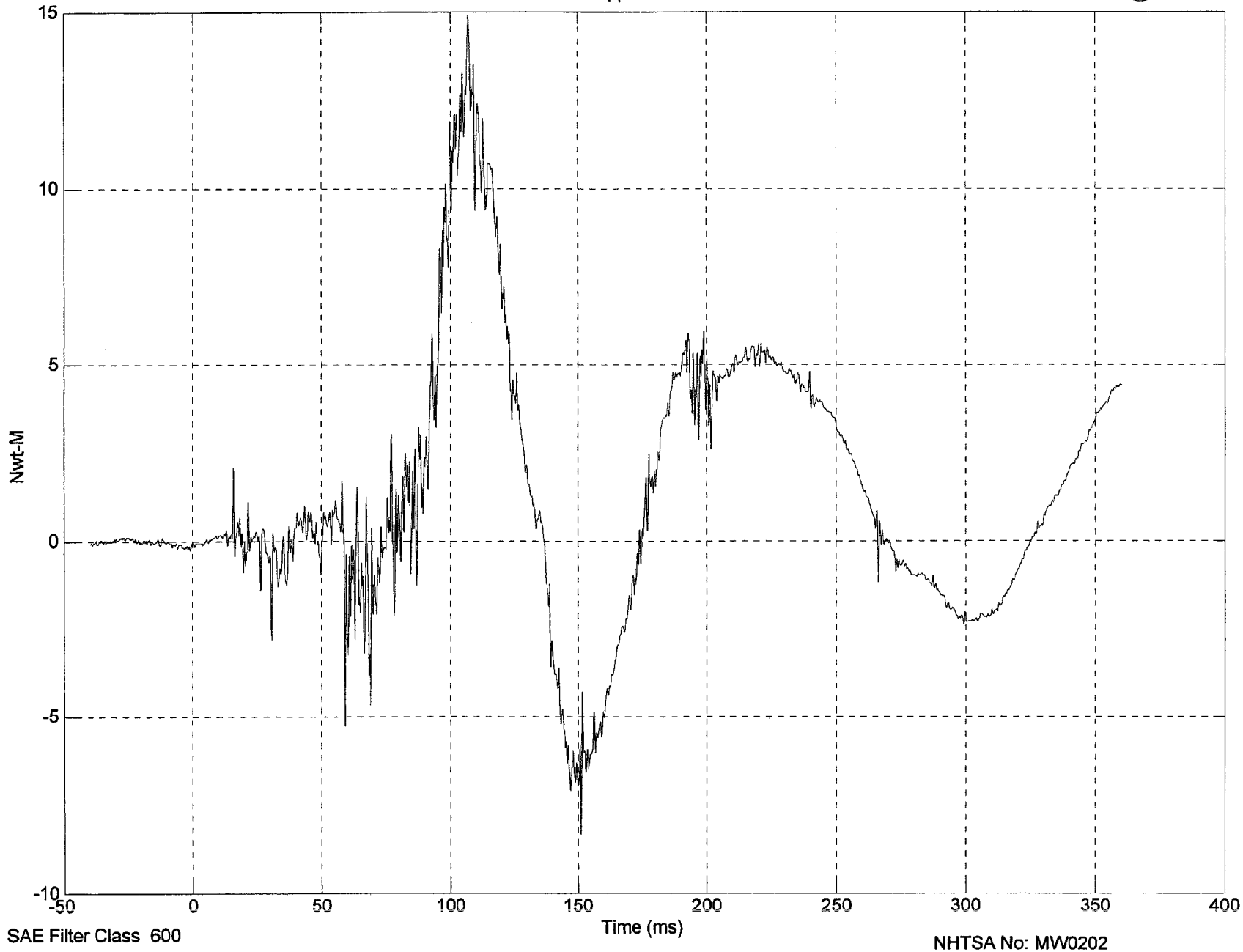
NHTSA No: MW0202

Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 14.9 Nwt-M @ 106.90 msec
Min = -8.34 Nwt-M @ 151.20 msec



SAE Filter Class 600

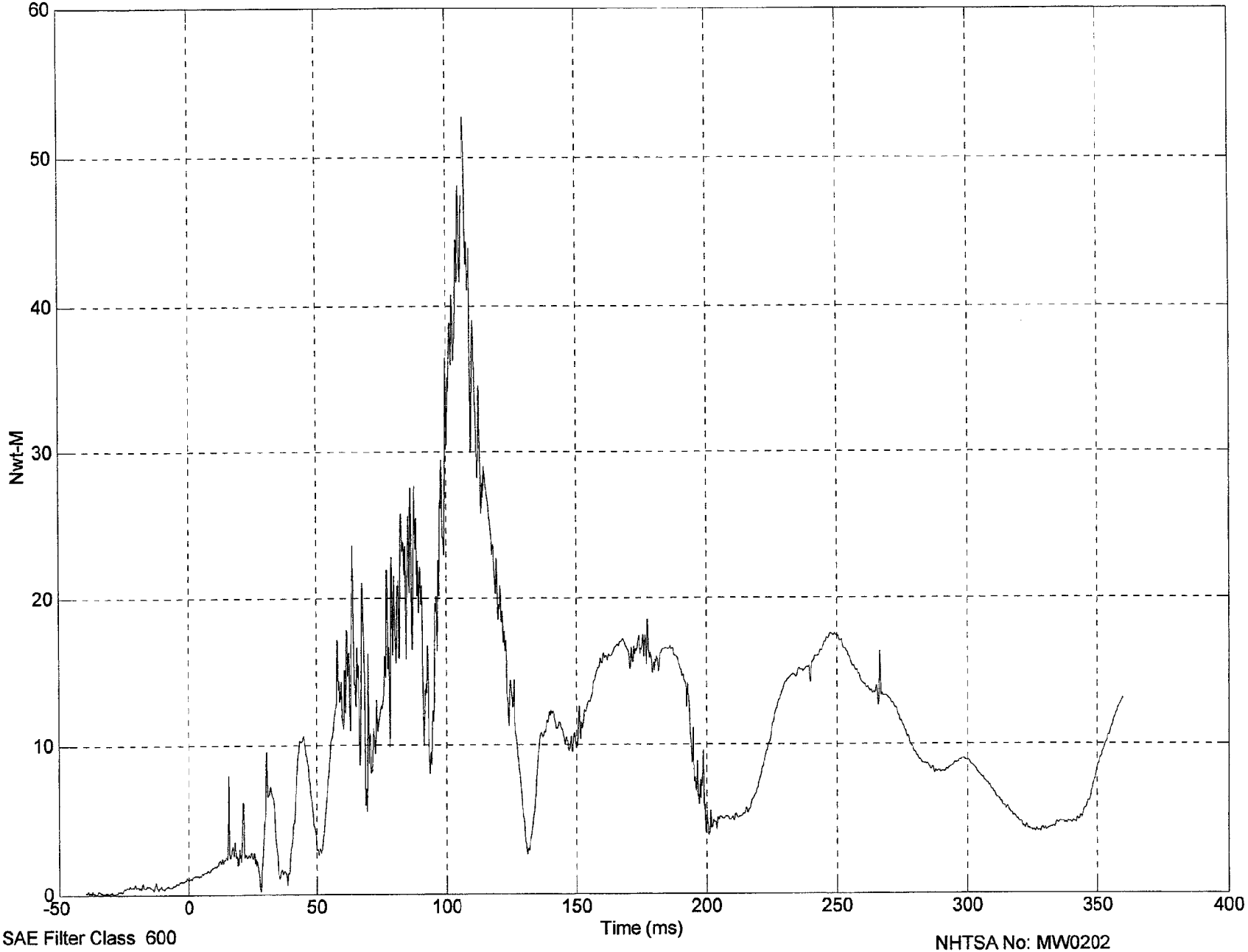
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 52.7 Nwt-M @ 106.90 msec
Min = 0.0273 Nwt-M @ -32.30 msec

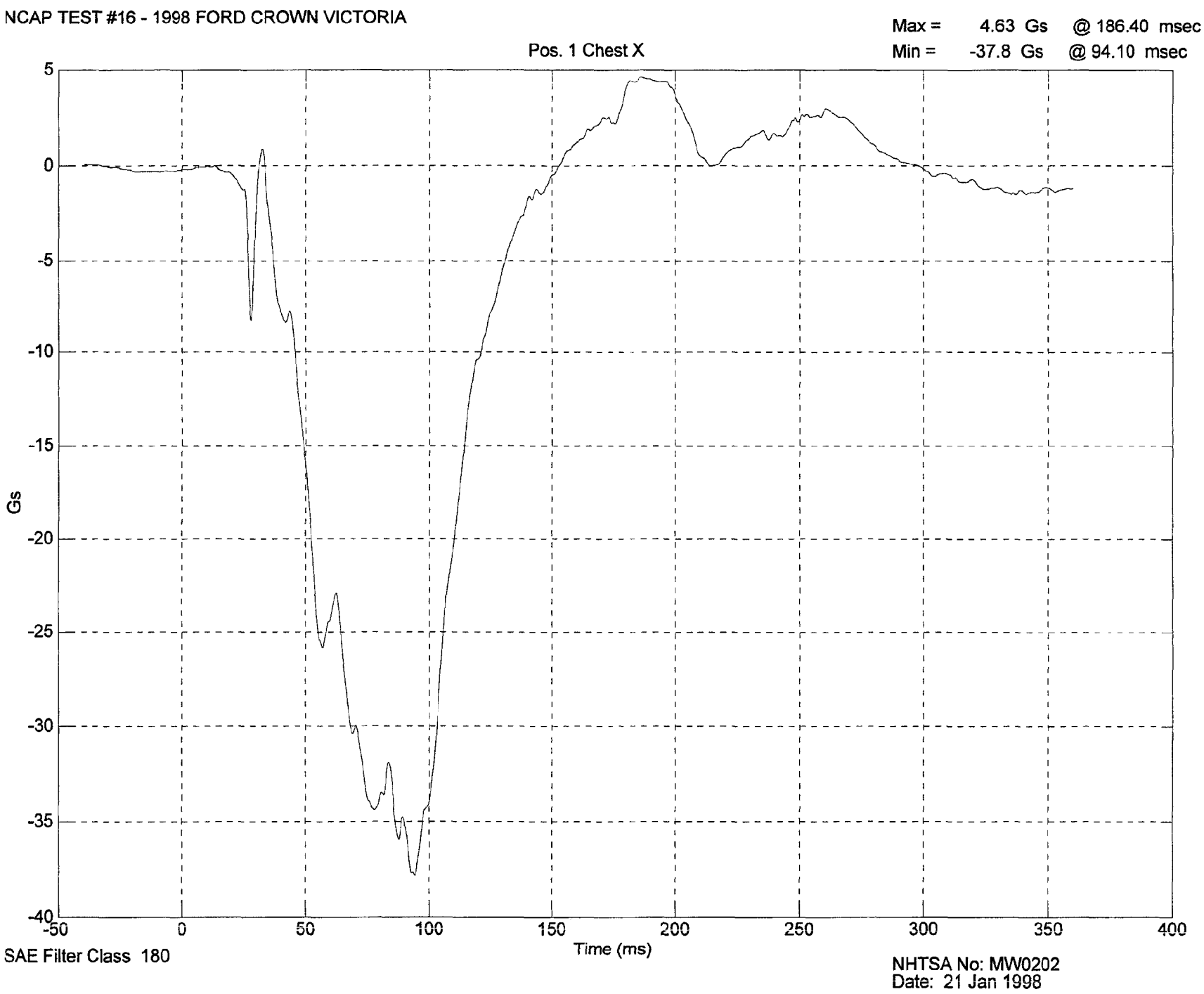
Pos. 1 Neck Moment Res.



SAE Filter Class 600

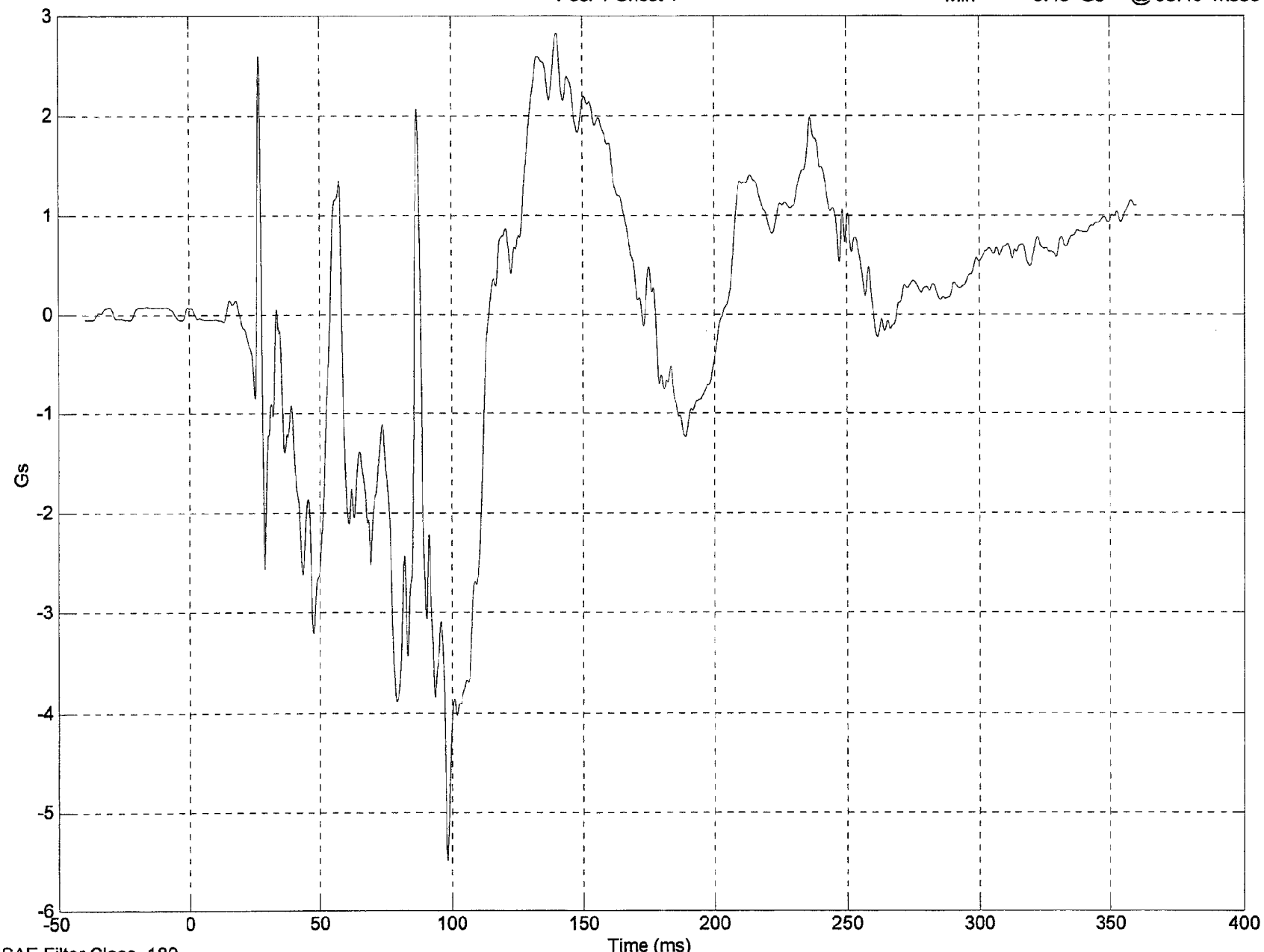
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 4.63 Gs @ 186.40 msec
Min = -37.8 Gs @ 94.10 msec
Pos. 1 Chest X
Gs
Time (ms)
SAE Filter Class 180
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 2.83 Gs @ 139.90 msec
Min = -5.48 Gs @ 98.40 msec



SAE Filter Class 180

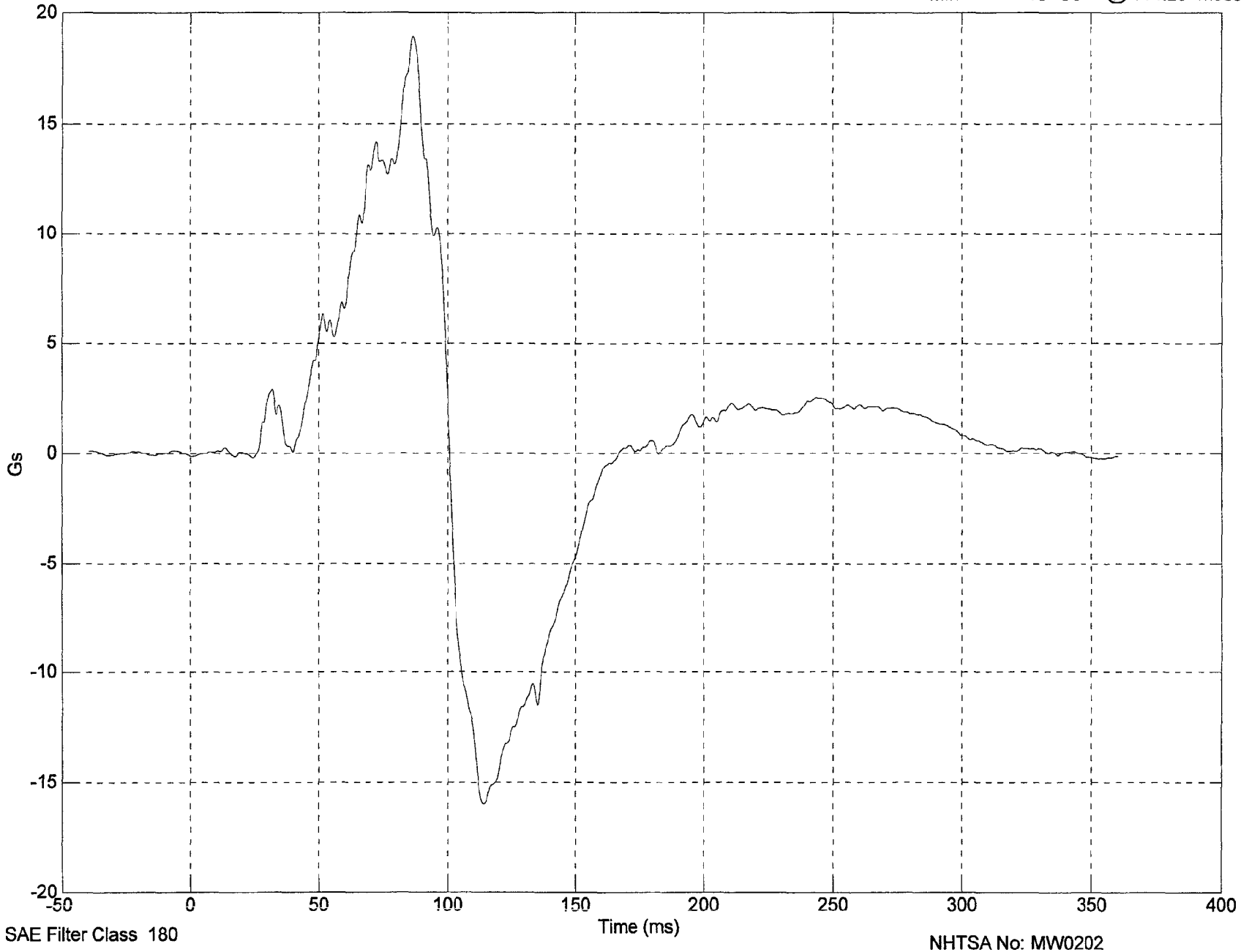
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Chest Z

Max = 18.9 Gs @ 86.50 msec
Min = -16 Gs @ 114.20 msec



SAE Filter Class 180

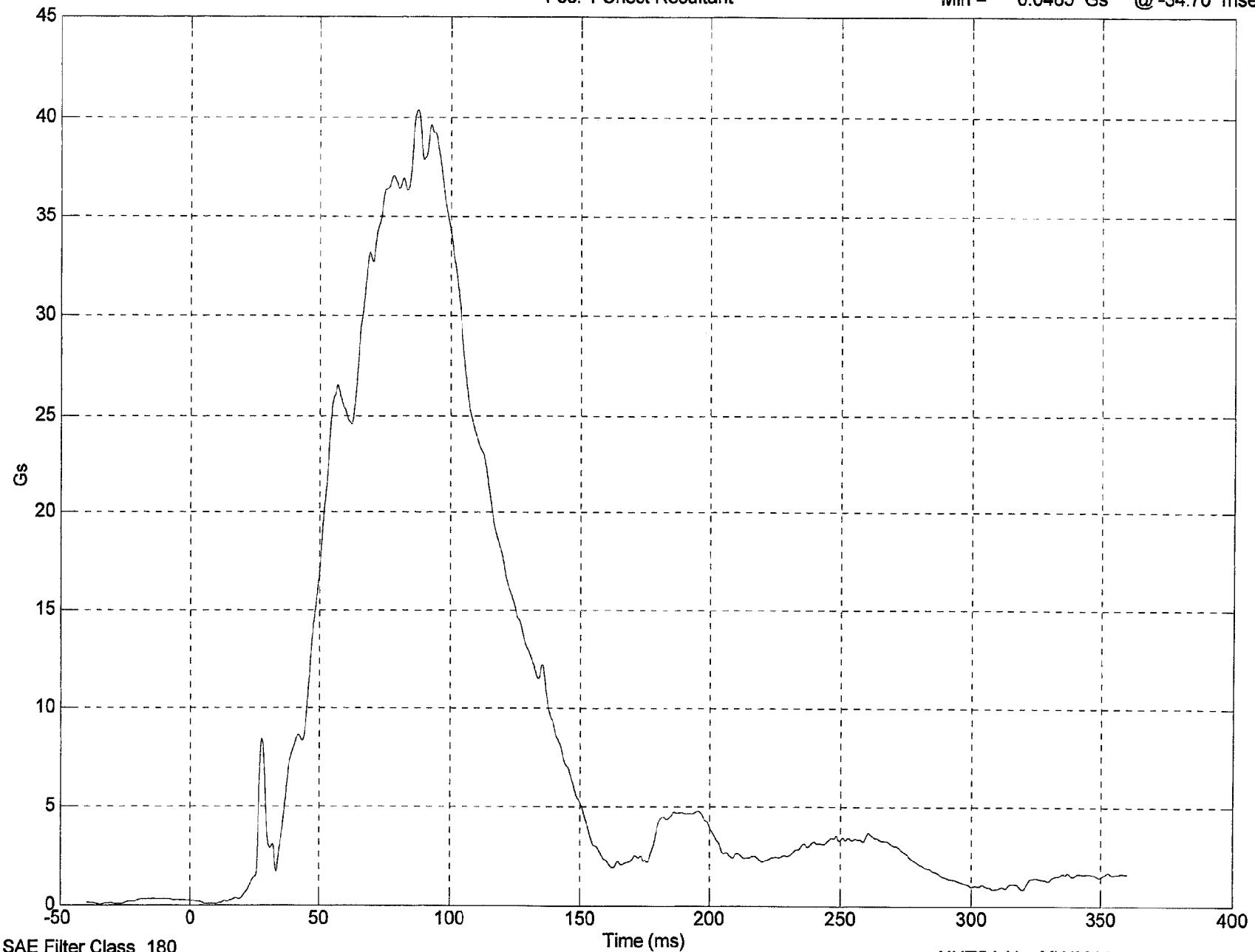
NHTSA No: MW0202
Date: 21 Jan 1998

B-22

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 40.4 Gs @ 87.50 msec
Min = 0.0485 Gs @ -34.70 msec

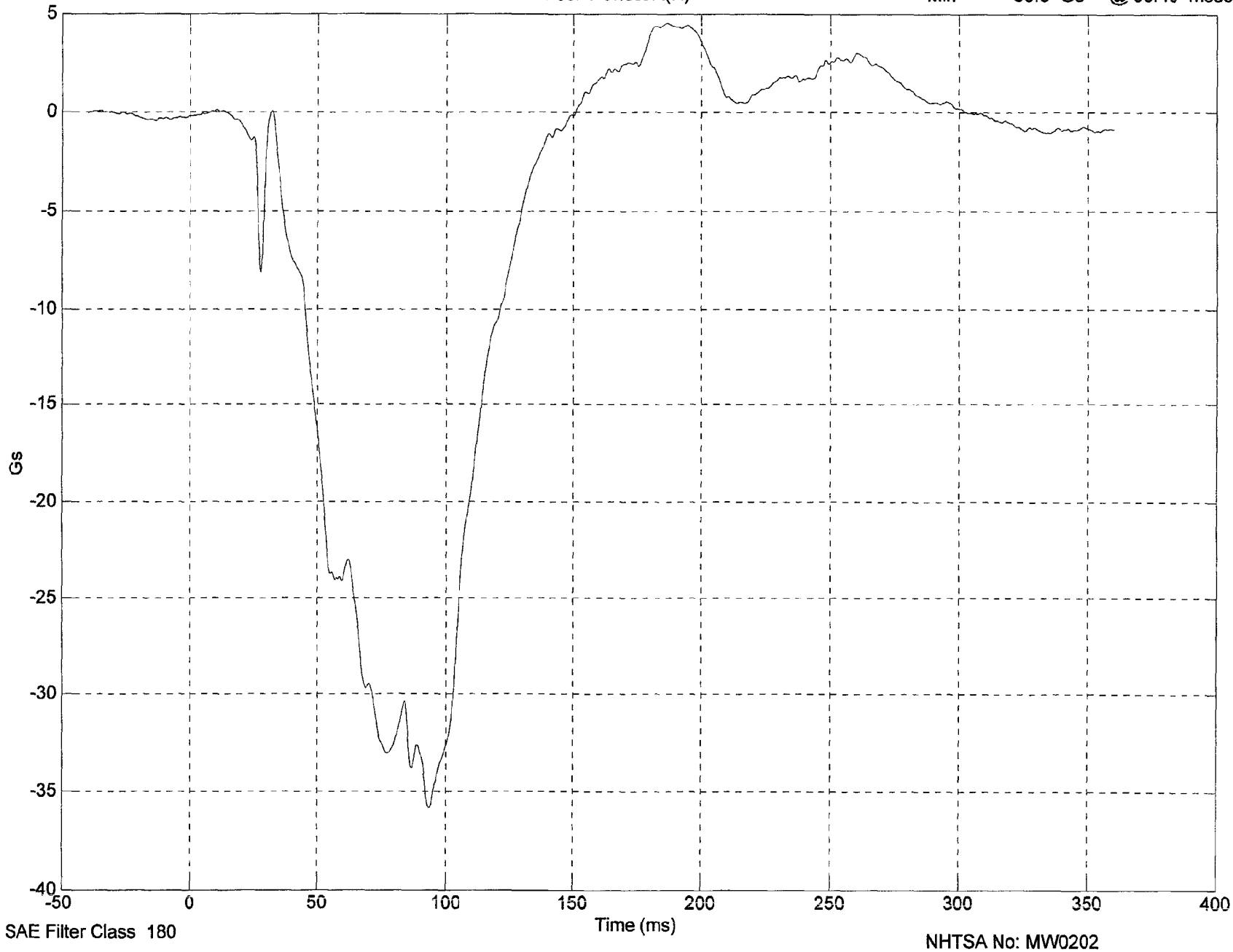


SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 4.54 Gs @ 186.70 msec
Min = -35.8 Gs @ 93.40 msec



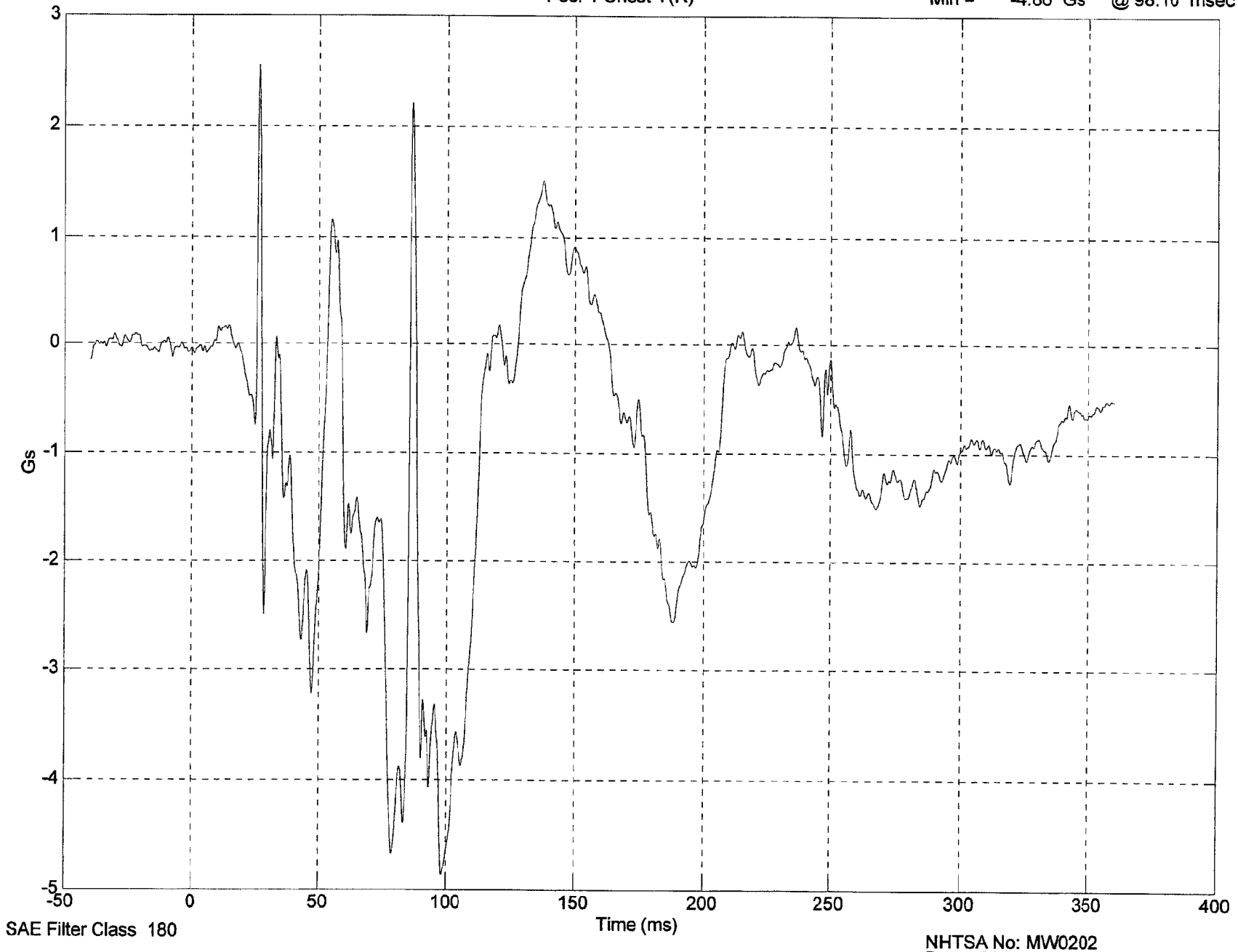
SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

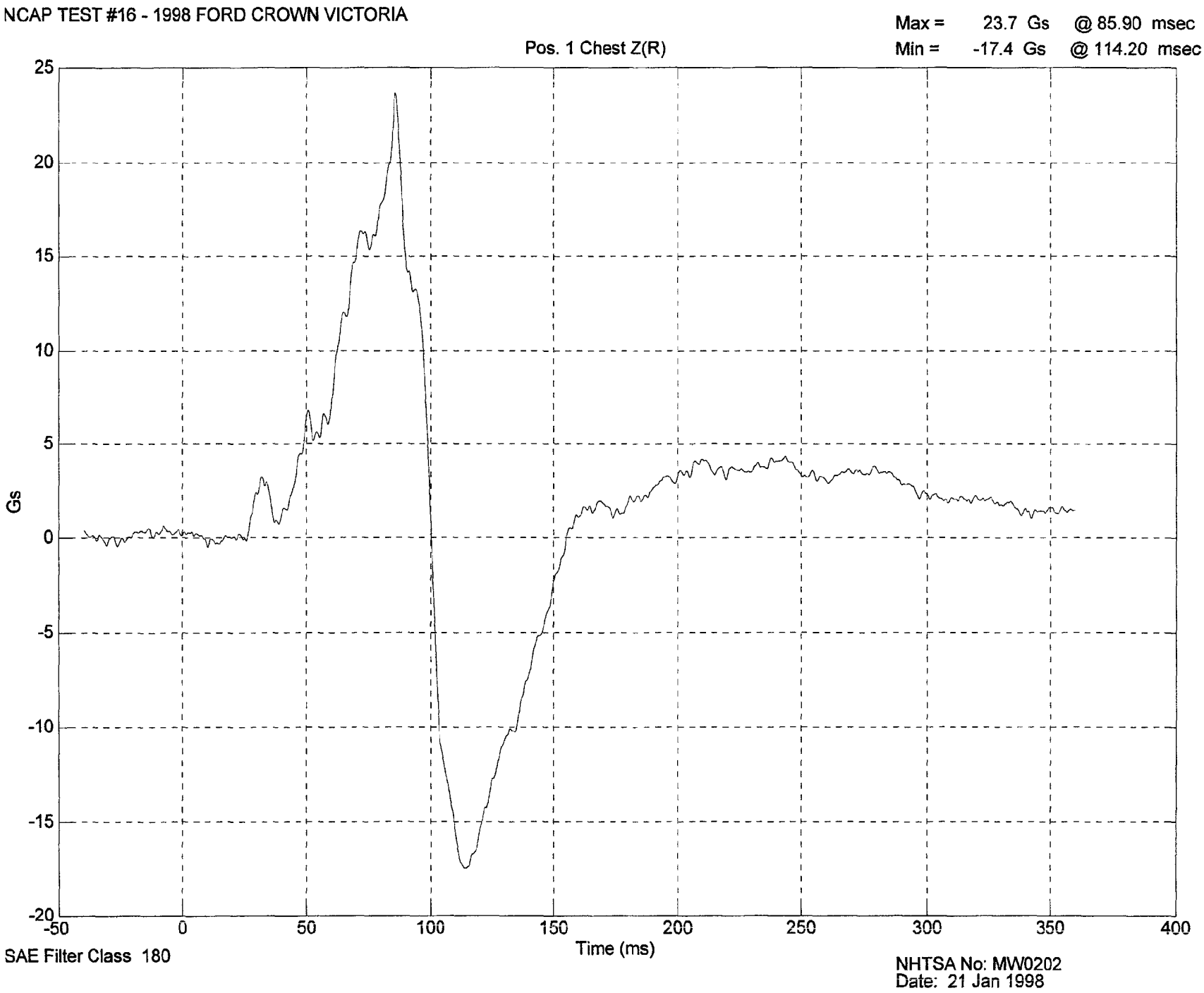
NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 2.55 Gs @ 26.50 msec
Min = -4.86 Gs @ 98.10 msec



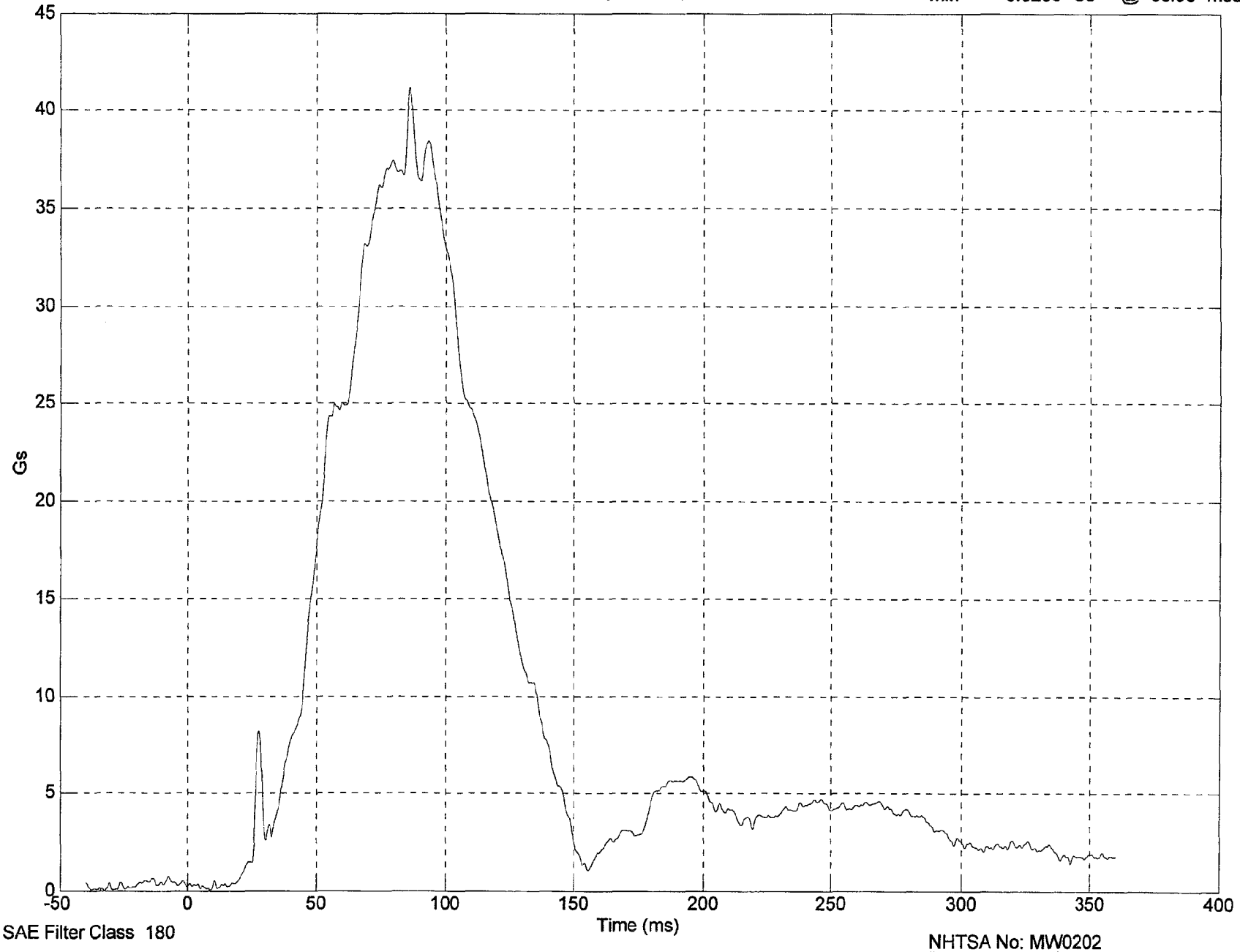
SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 23.7 Gs @ 85.90 msec
Min = -17.4 Gs @ 114.20 msec
Pos. 1 Chest Z(R)
25
20
15
10
5
0
-5
-10
-15
-20
Gs
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 180
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

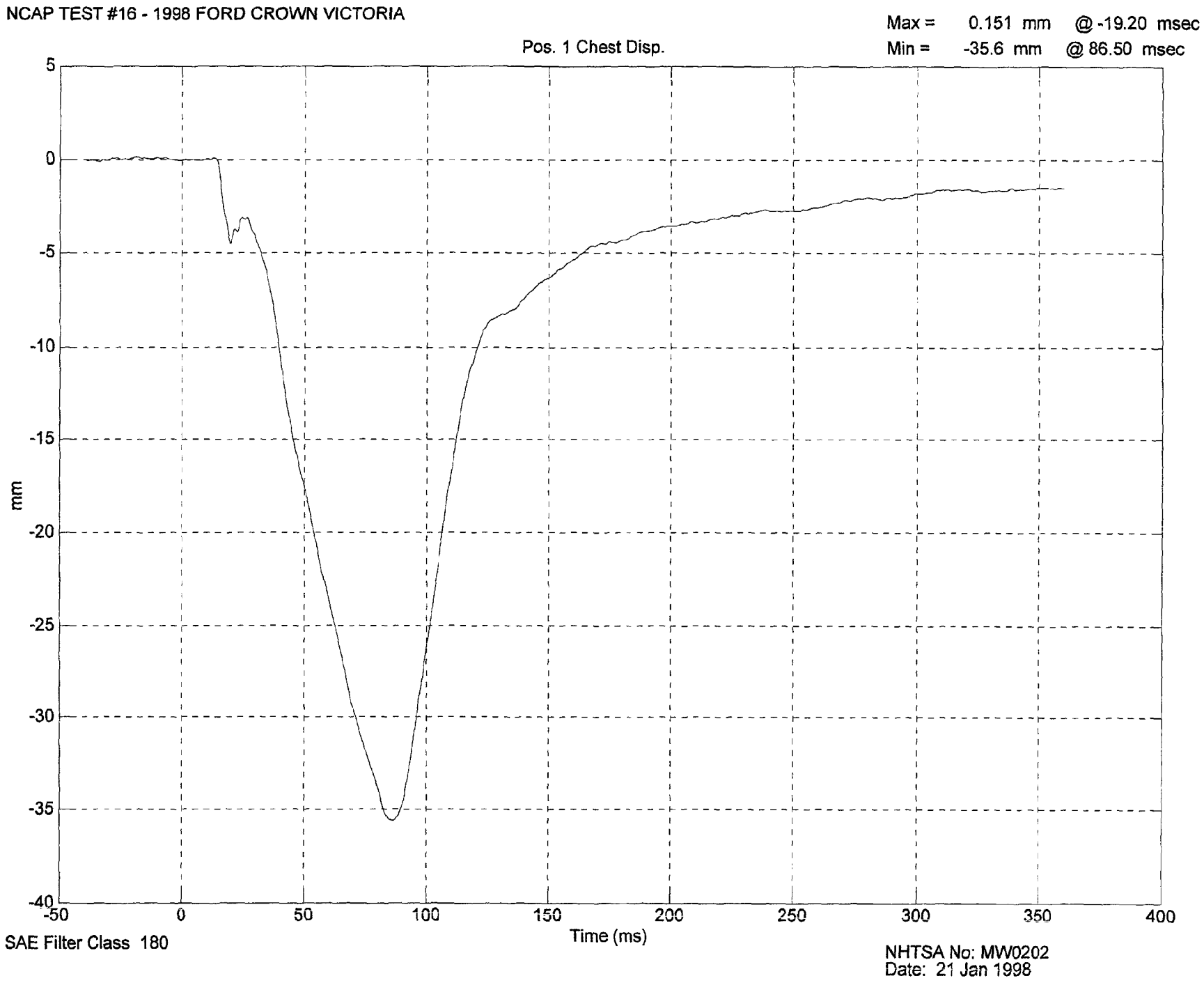
Max = 41.1 Gs @ 86.10 msec
Min = 0.0296 Gs @ -33.90 msec



SAE Filter Class 180

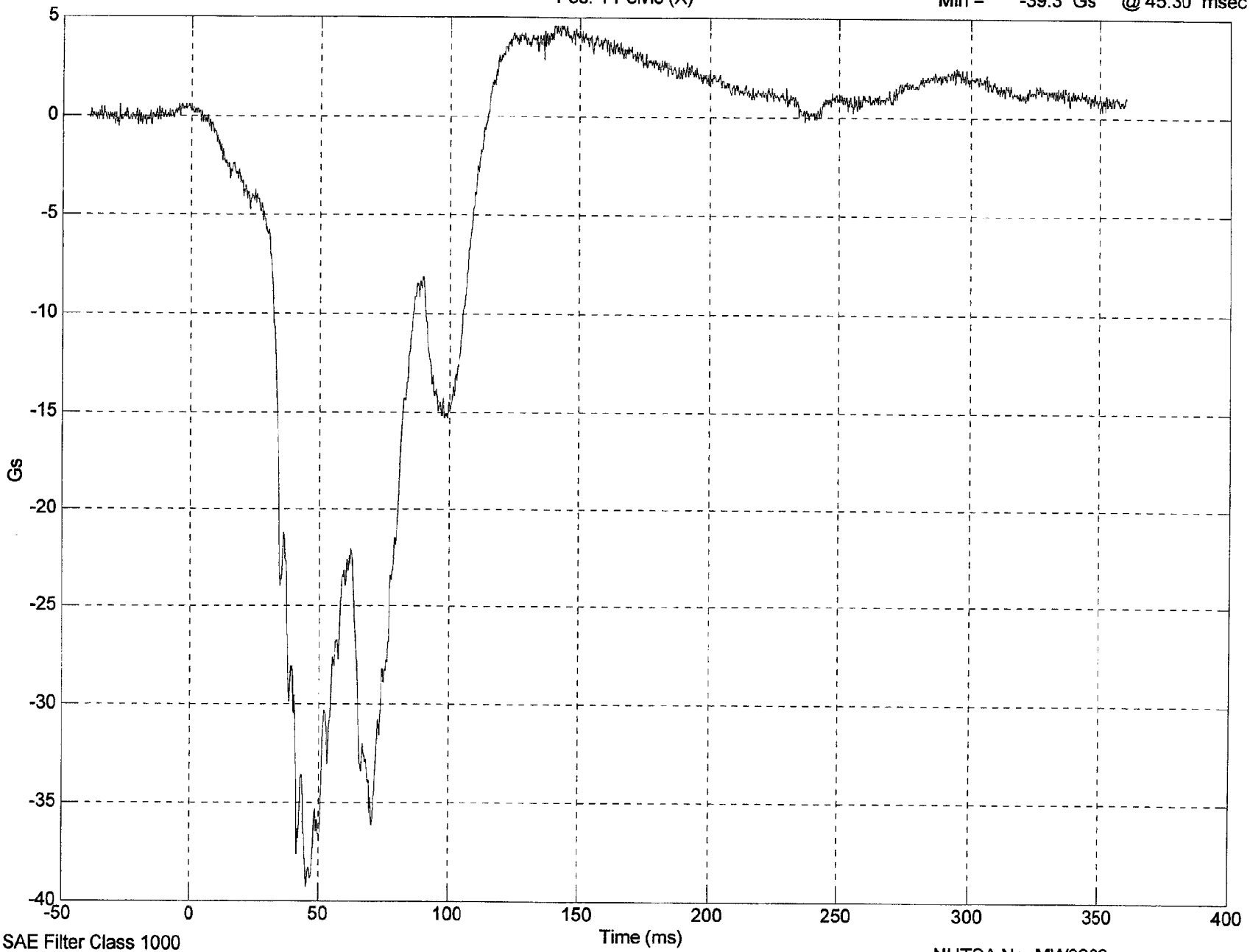
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Pos. 1 Chest Disp.
Max = 0.151 mm @ -19.20 msec
Min = -35.6 mm @ 86.50 msec
mm
Time (ms)
SAE Filter Class 180
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 4.55 Gs @ 140.20 msec
Min = -39.3 Gs @ 45.30 msec



SAE Filter Class 1000

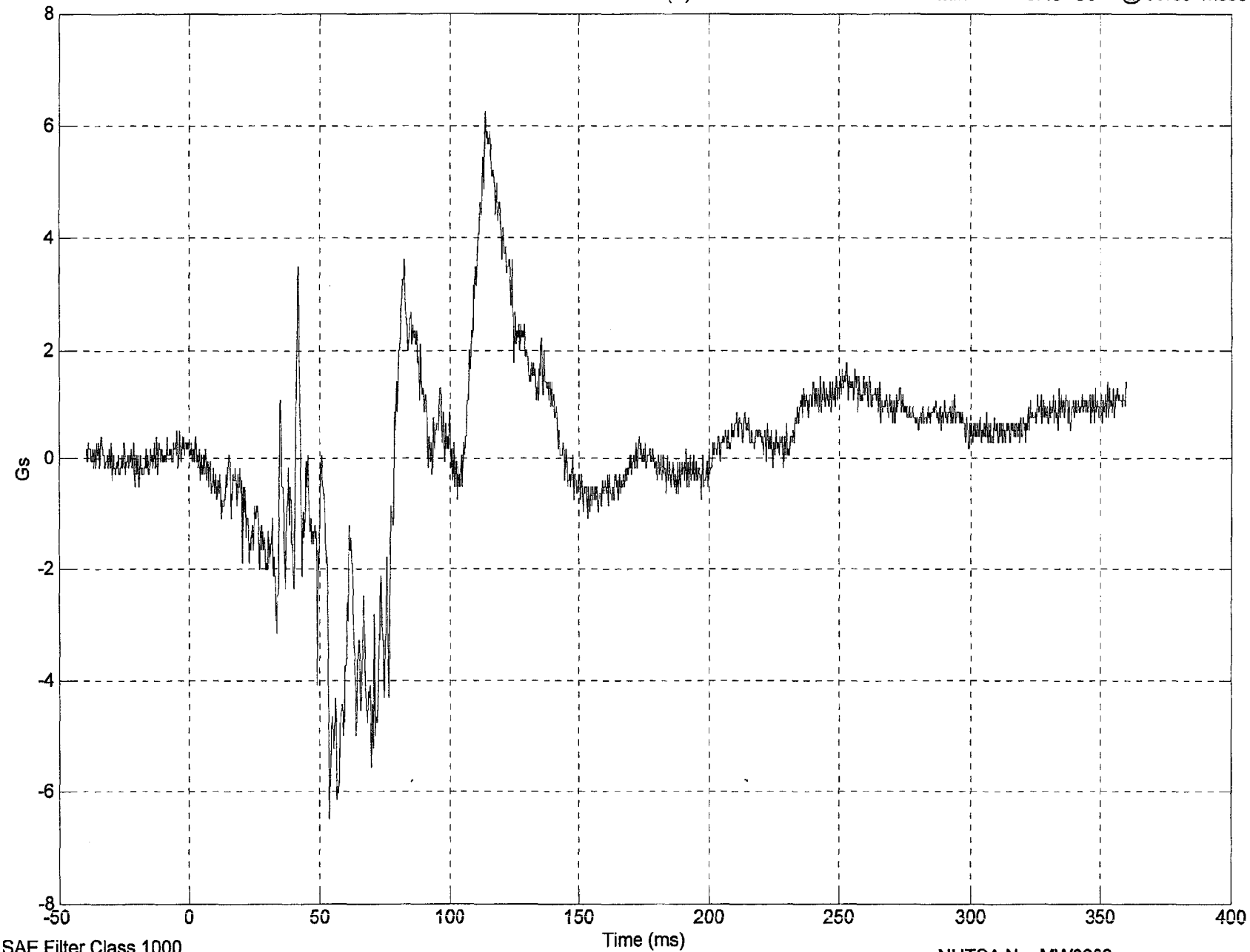
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Pelvic (Y)

Max = 6.25 Gs @ 113.80 msec
Min = -6.49 Gs @ 53.60 msec



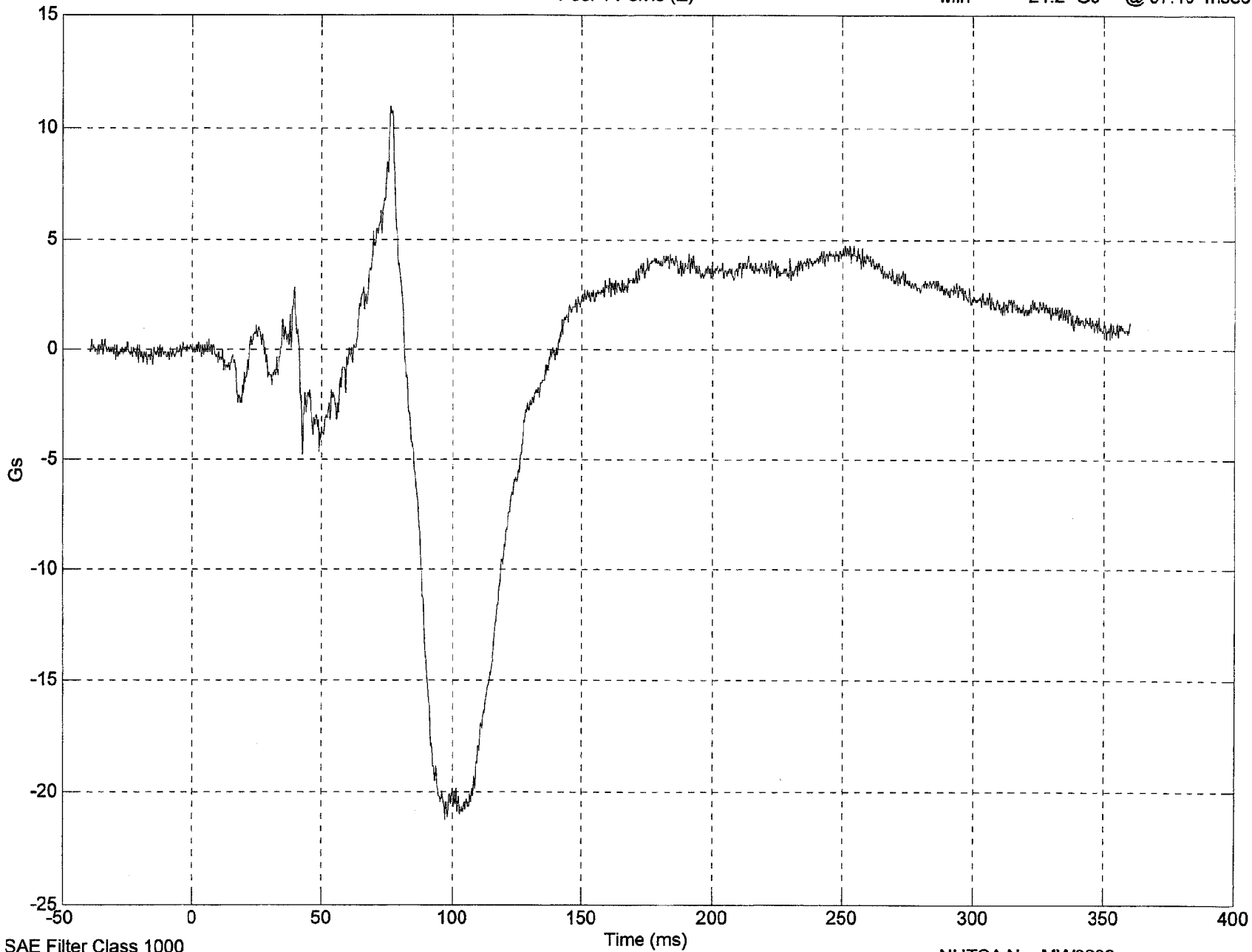
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

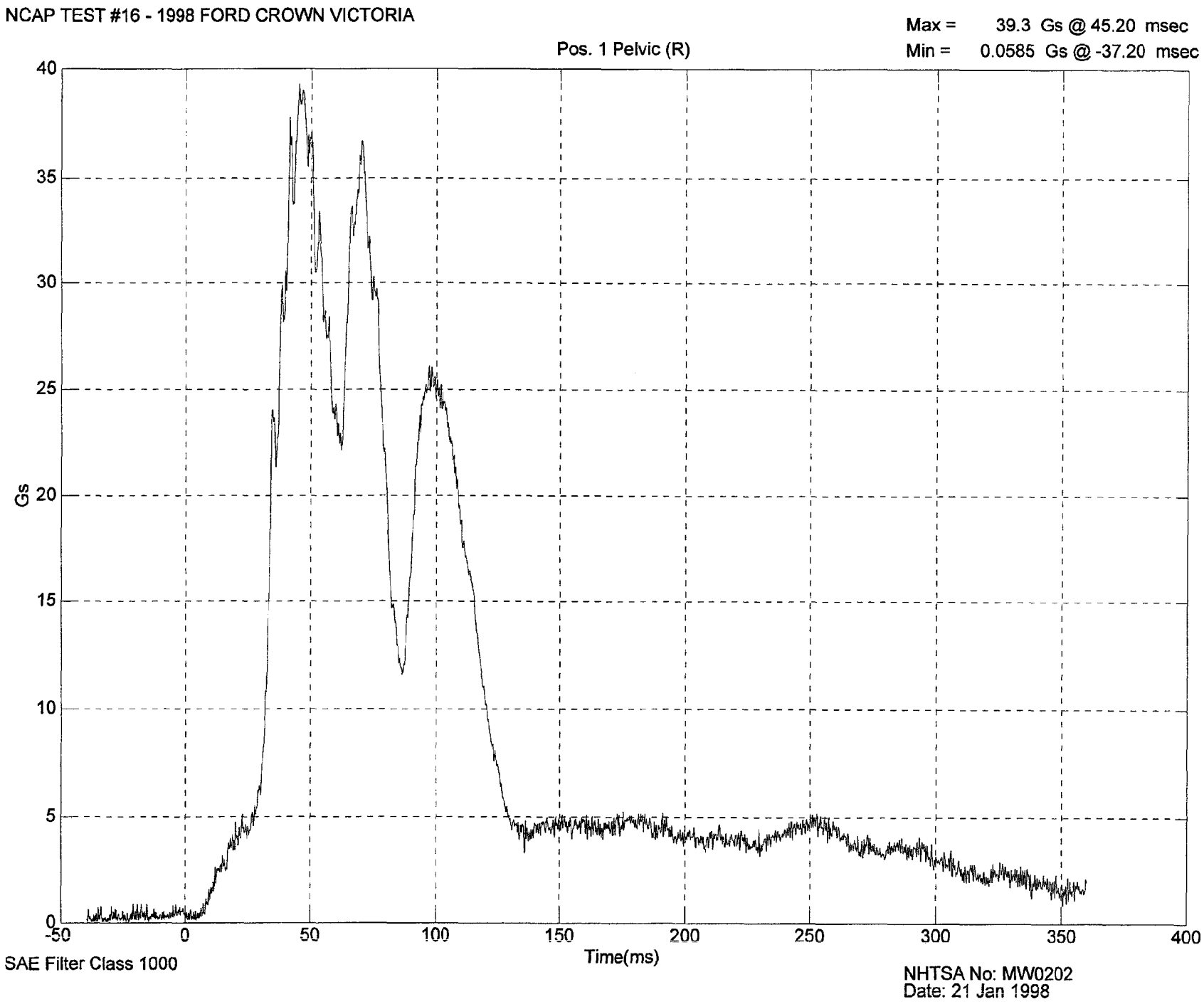
Max = 11 Gs @ 76.50 msec
Min = -21.2 Gs @ 97.10 msec



SAE Filter Class 1000

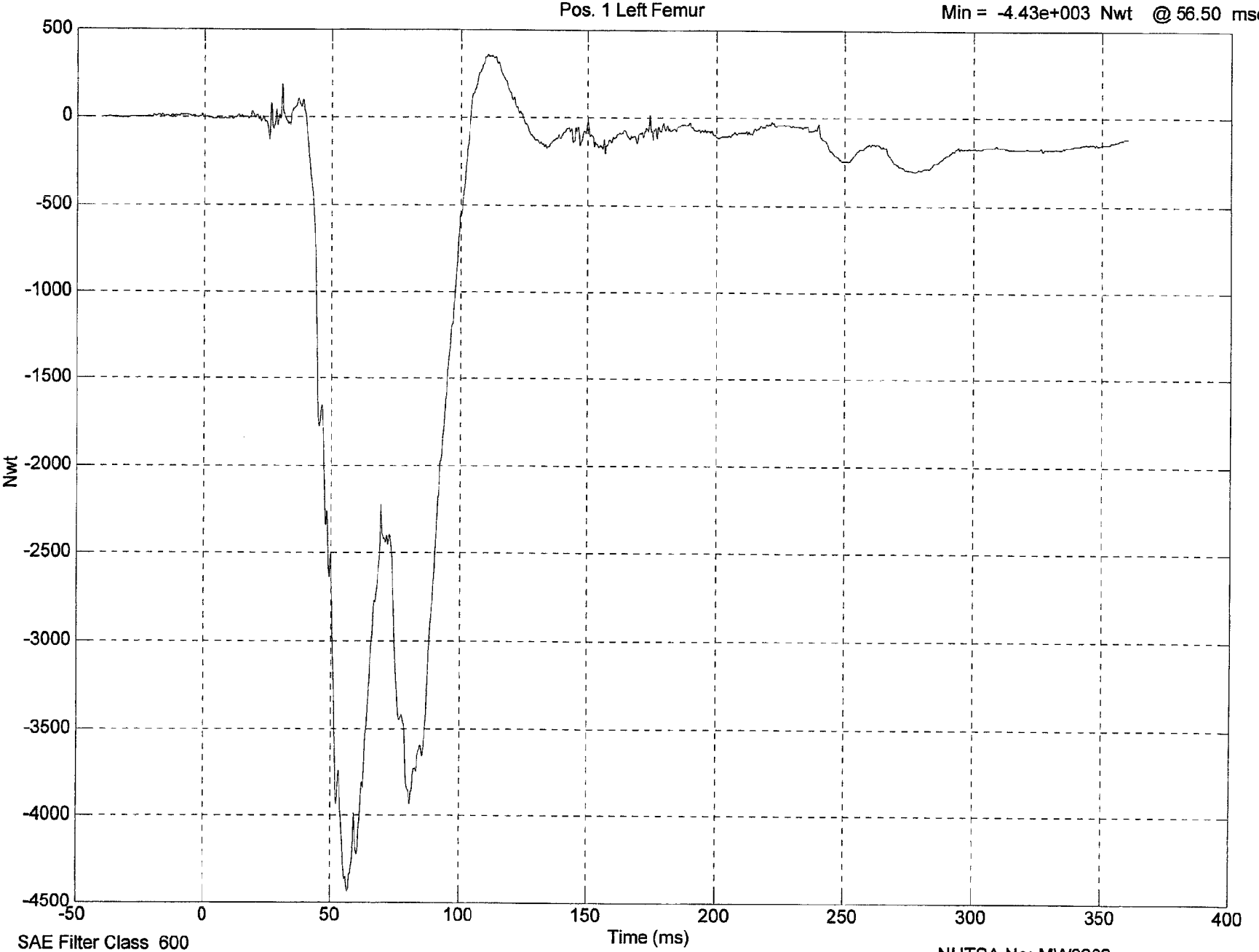
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 39.3 Gs @ 45.20 msec
Min = 0.0585 Gs @ -37.20 msec
Pos. 1 Pelvic (R)
40
35
30
25
20
15
10
5
0
Gs
-50
0
50
100
150
200
250
300
350
400
Time(ms)
SAE Filter Class 1000
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 361 Nwt @ 110.80 msec
Min = -4.43e+003 Nwt @ 56.50 msec

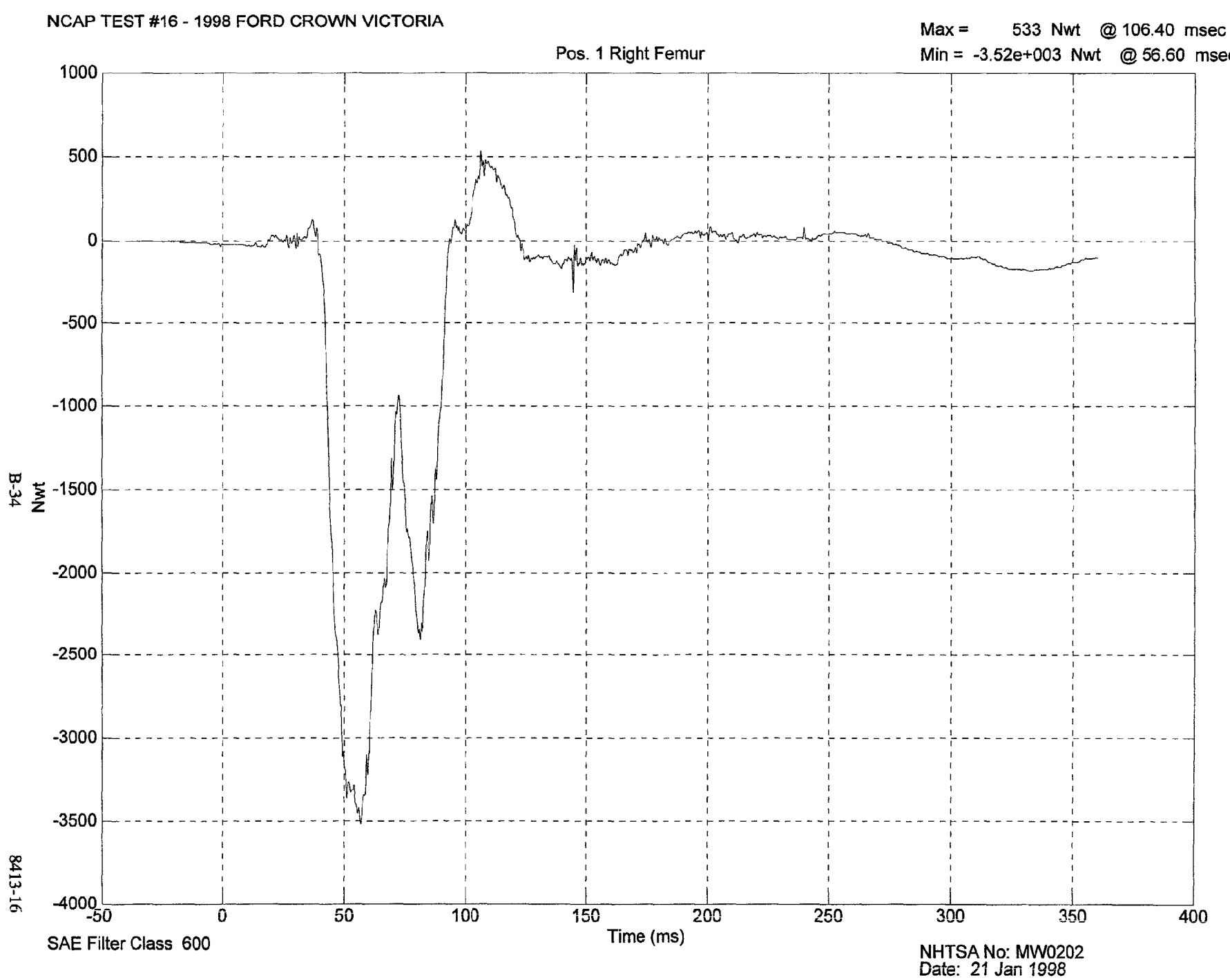


B-33

8413-16

SAE Filter Class 600

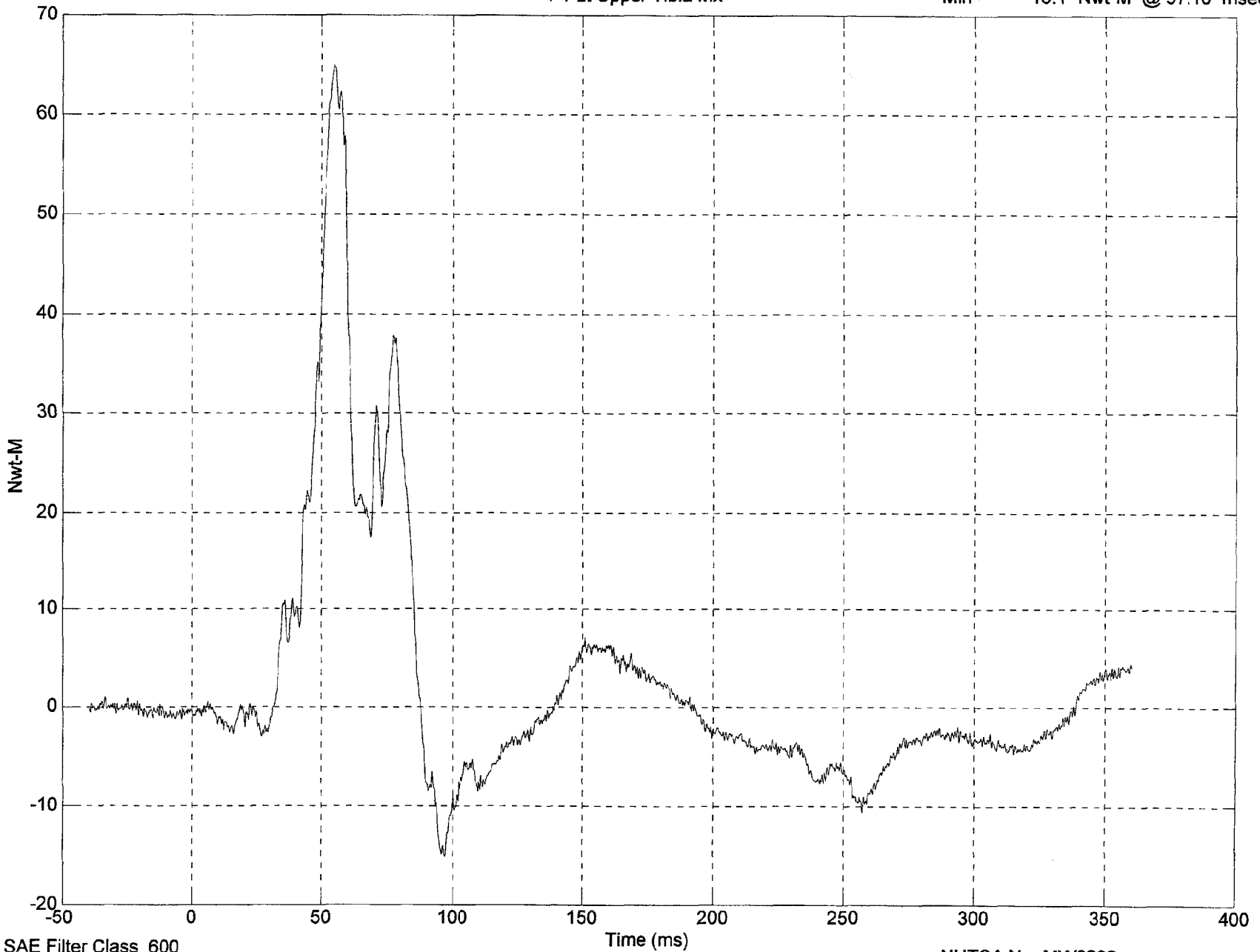
NHTSA No: MW0202
Date: 21 Jan 1998


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Pos. 1 Right Femur
Max = 533 Nwt @ 106.40 msec
Min = -3.52e+003 Nwt @ 56.60 msec
1000
500
0
-500
-1000
-1500
-2000
-2500
-3000
-3500
-4000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 600
NHTSA No: MW0202
Date: 21 Jan 1998
B-34
8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P1 Lt Upper Tibia Mx

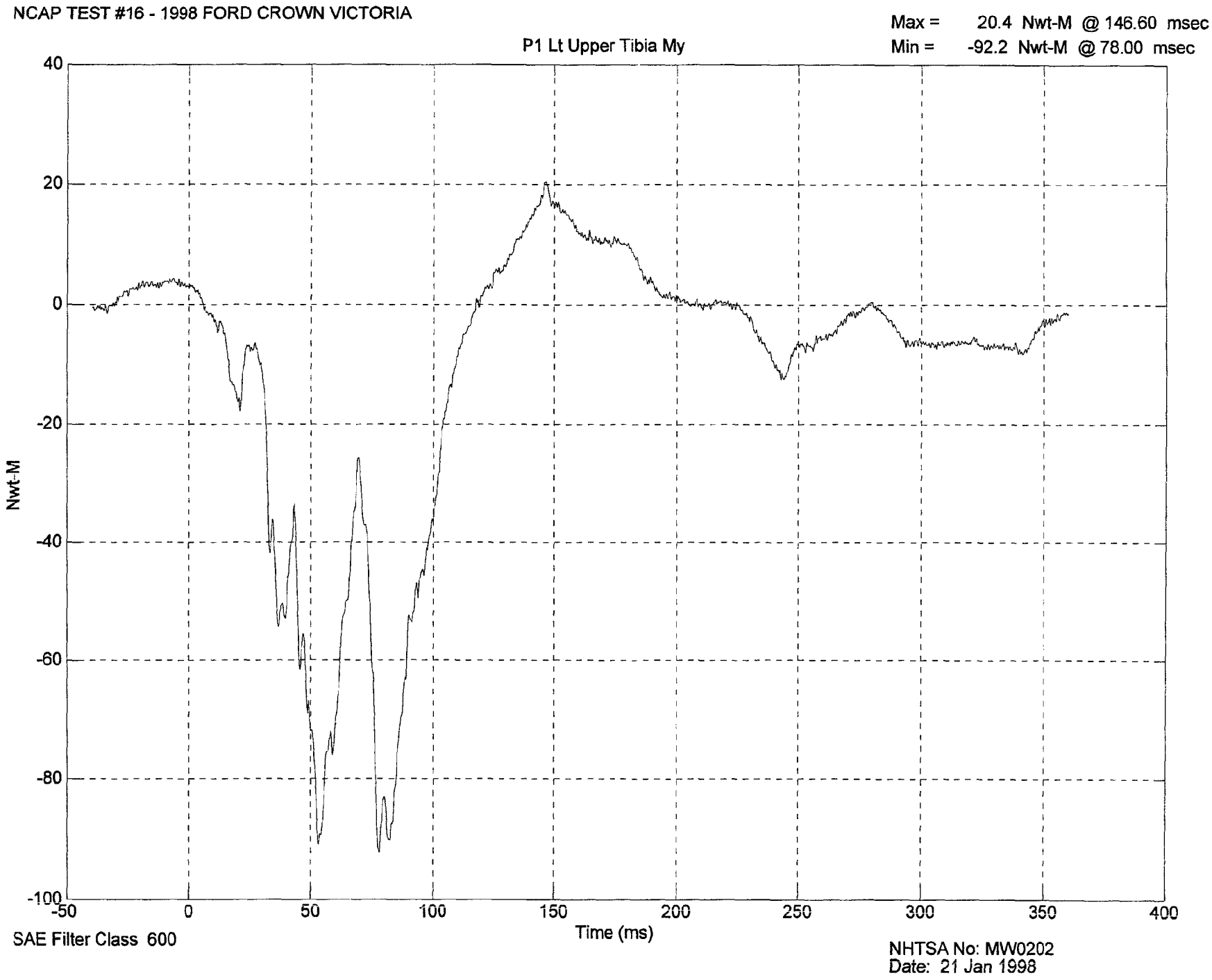
Max = 64.8 Nwt-M @ 54.60 msec
Min = -15.1 Nwt-M @ 97.10 msec



SAE Filter Class 600

NHTSA No: MW0202
Date: 21 Jan 1998

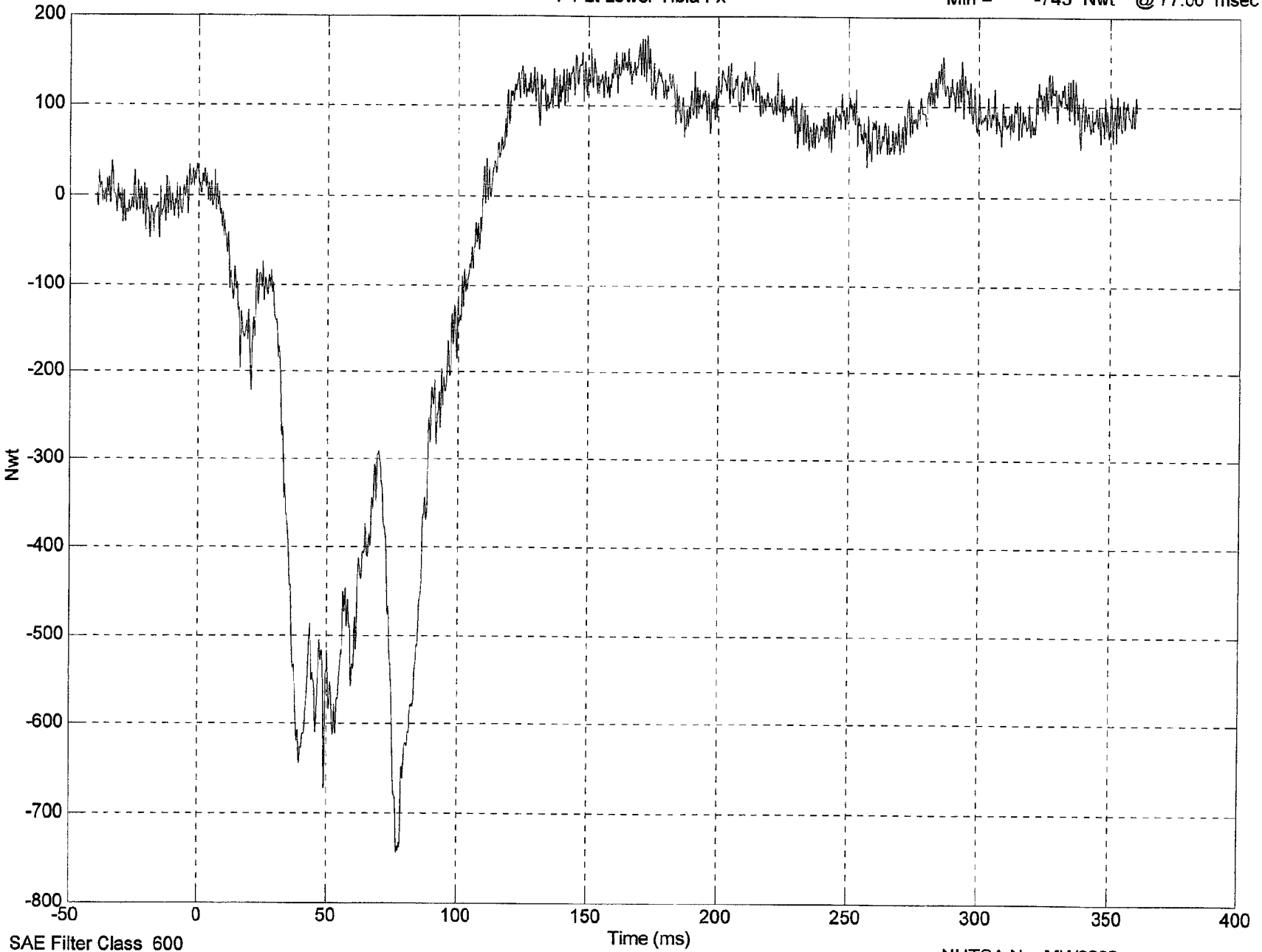
8413-16


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
P1 Lt Upper Tibia My
Max = 20.4 Nwt-M @ 146.60 msec
Min = -92.2 Nwt-M @ 78.00 msec
Nwt-M
Time (ms)
40
20
0
-20
-40
-60
-80
-100
-50
0
50
100
150
200
250
300
350
400
SAE Filter Class 600
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P1 Lt Lower Tibia Fx

Max = 179 Nwt @ 172.90 msec
Min = -743 Nwt @ 77.00 msec

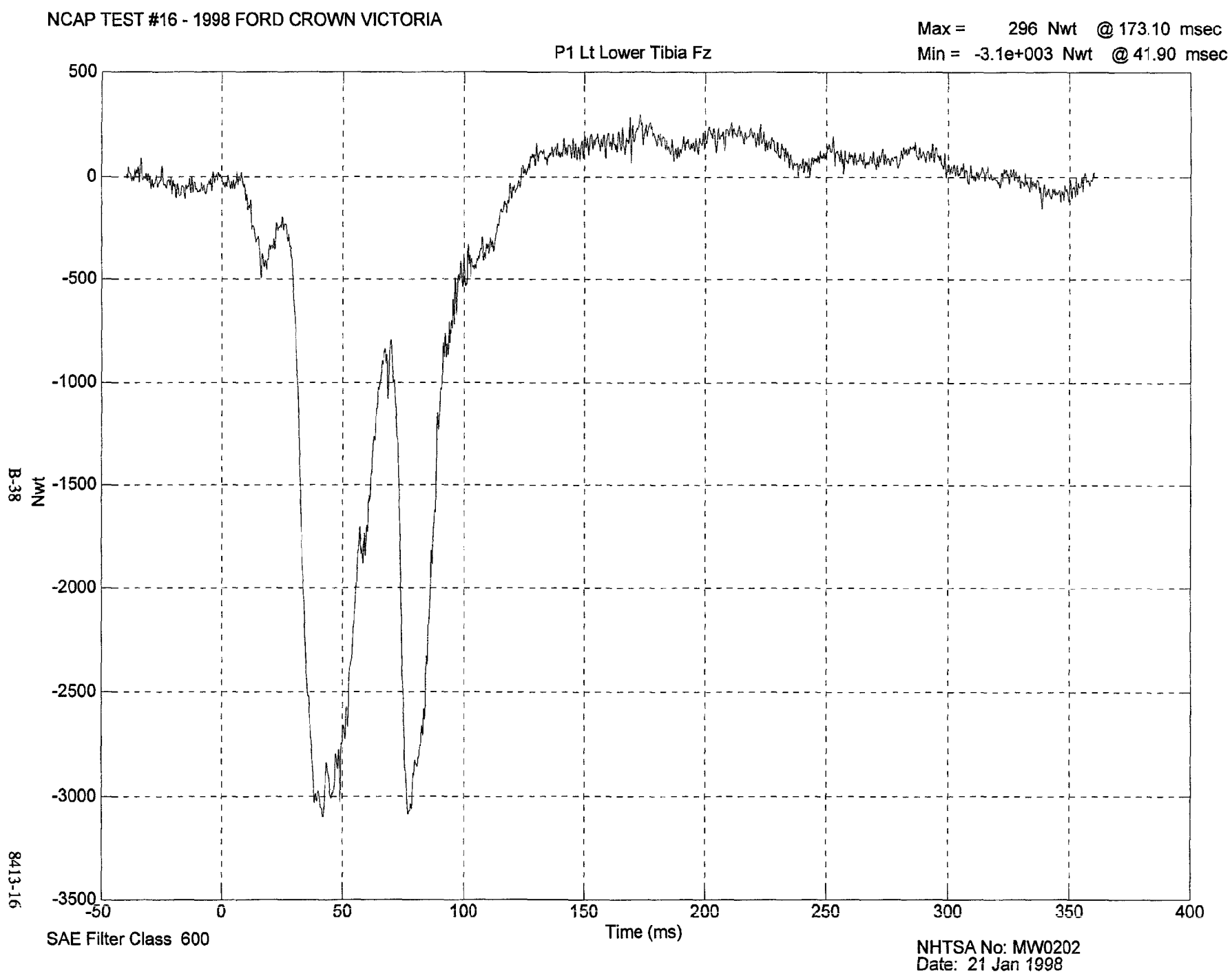


SAE Filter Class 600

NHTSA No: MW0202
Date: 21 Jan 1998

B-37

8413-16

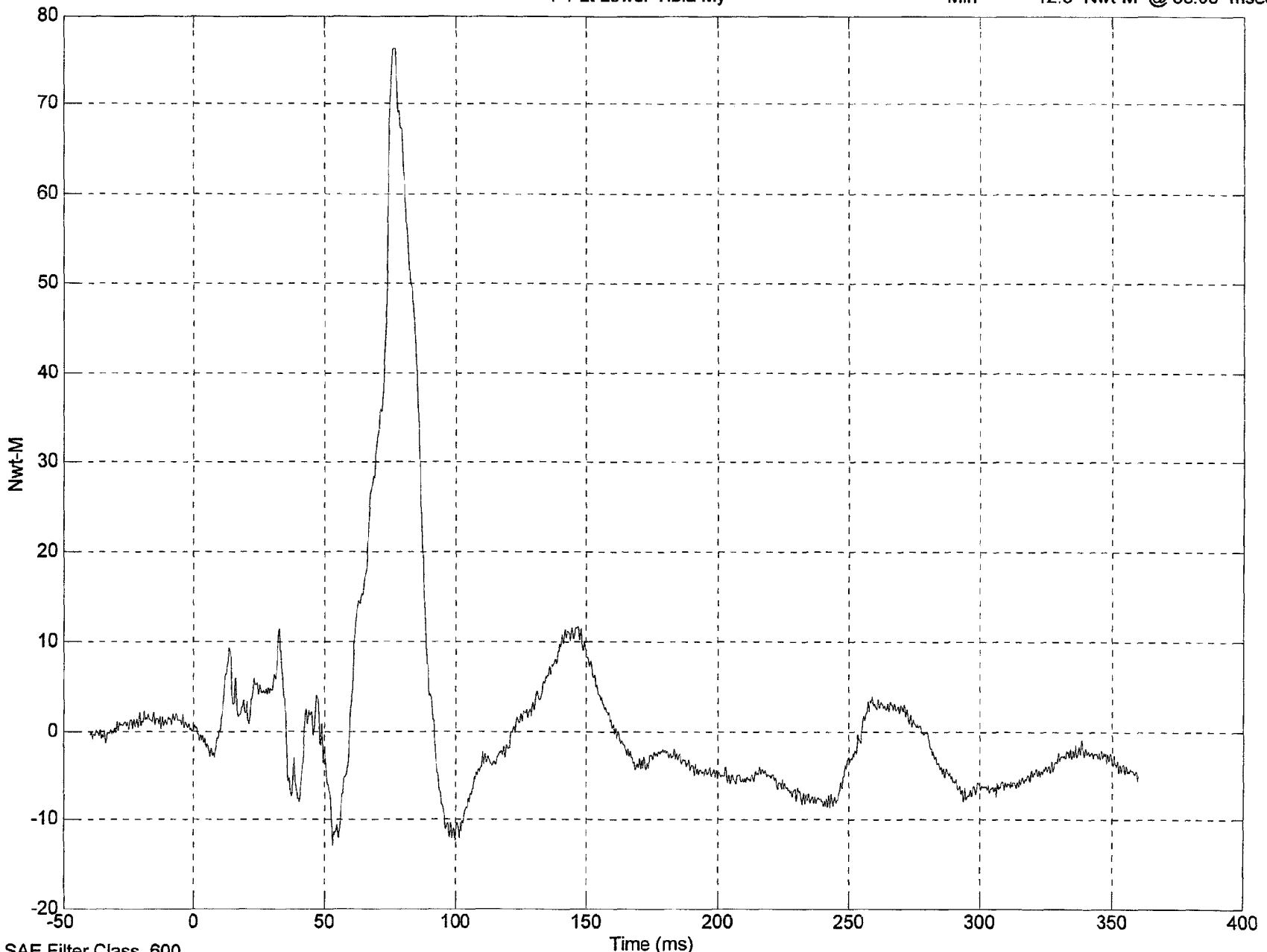

NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 296 Nwt @ 173.10 msec
Min = -3.1e+003 Nwt @ 41.90 msec
P1 Lt Lower Tibia Fz
500
0
-500
-1000
-1500
-2000
-2500
-3000
-3500
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (ms)
B-38
8413-16
SAE Filter Class 600
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P1 Lt Lower Tibia My

Max = 76.4 Nwt-M @ 76.20 msec

Min = -12.9 Nwt-M @ 53.00 msec



SAE Filter Class 600

NHTSA No: MW0202

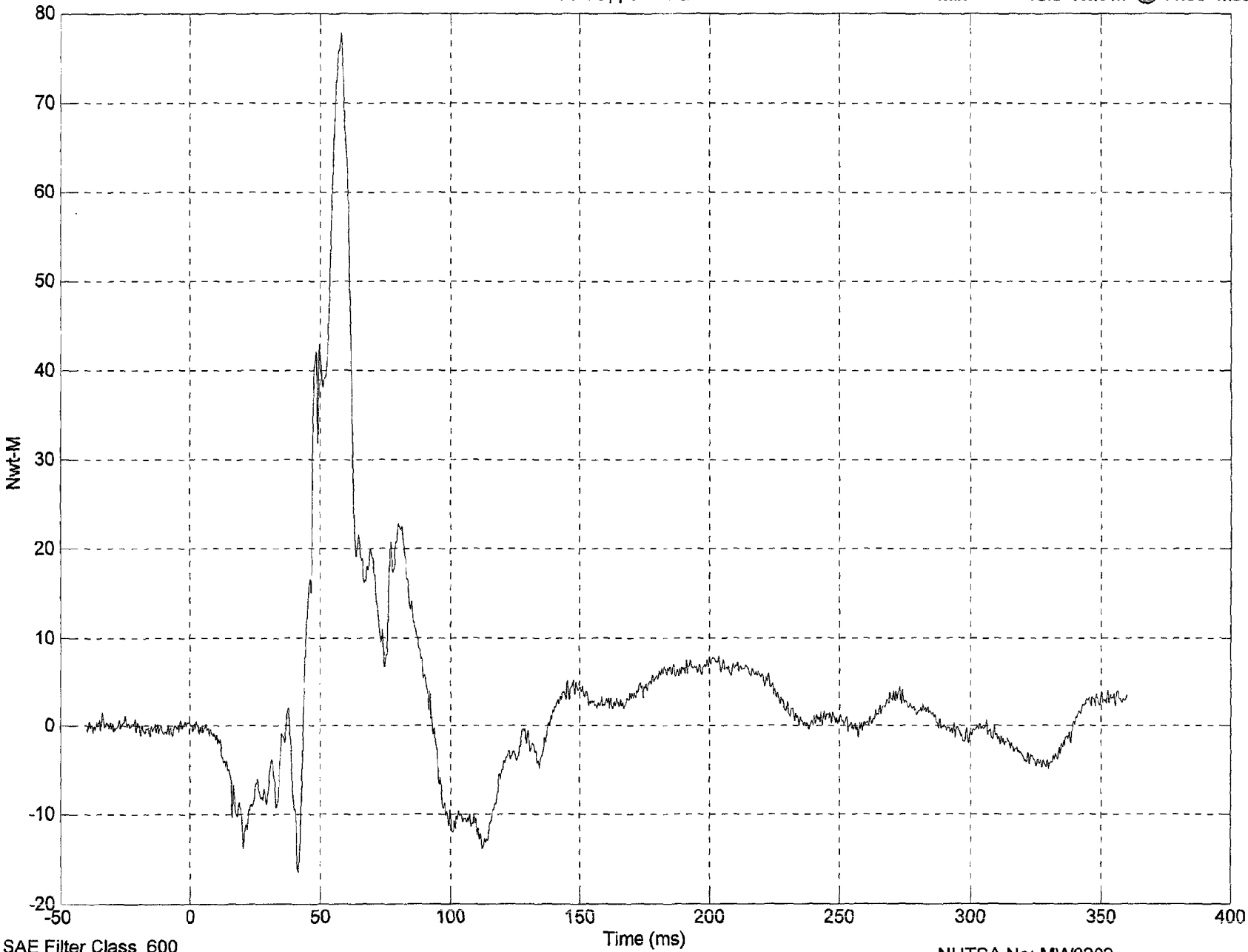
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P1 Rt Upper Tibia Mx

Max = 77.8 Nwt-M @ 57.80 msec
Min = -16.5 Nwt-M @ 41.50 msec



SAE Filter Class 600

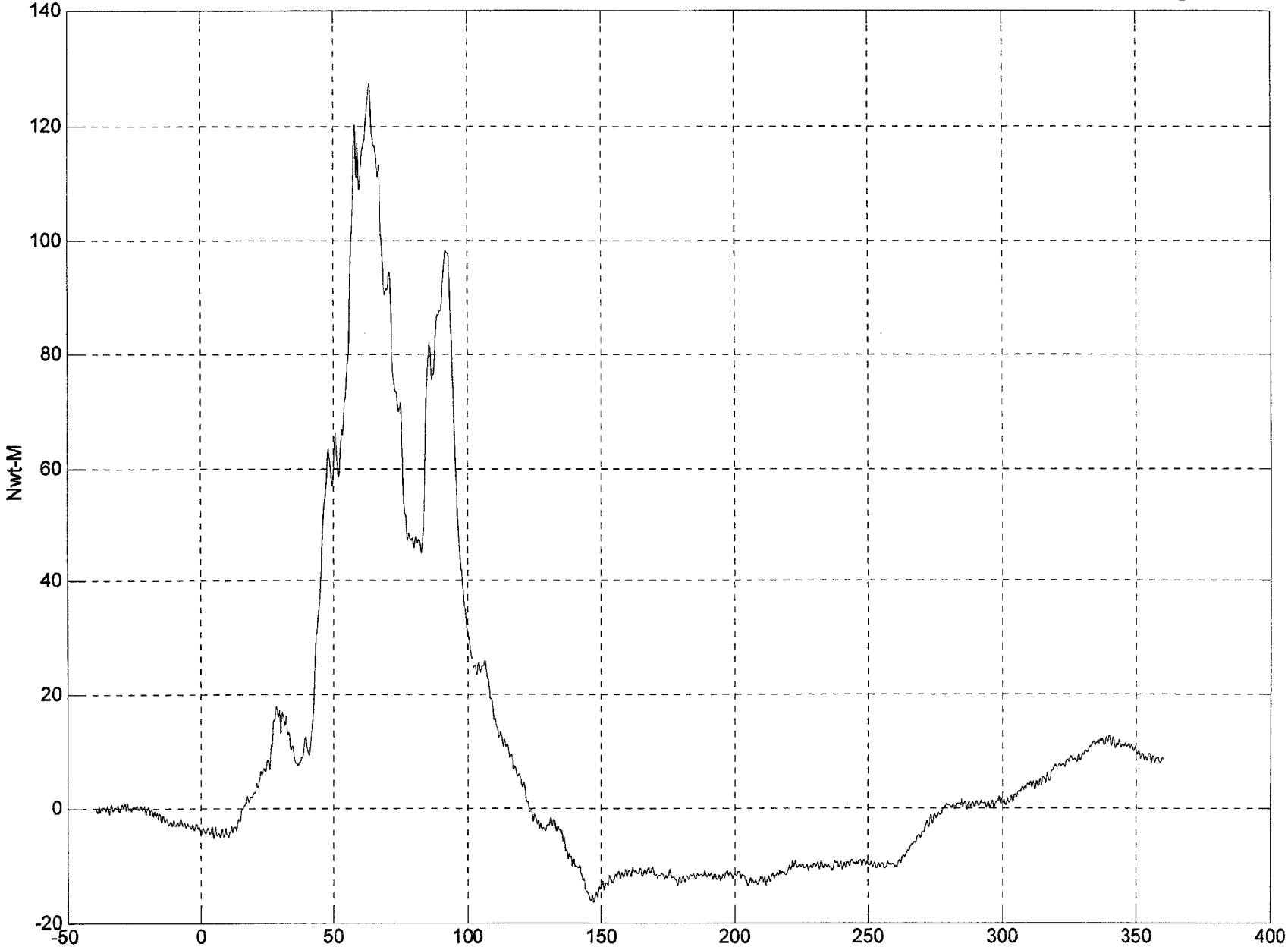
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P1 Rt Upper Tibia My

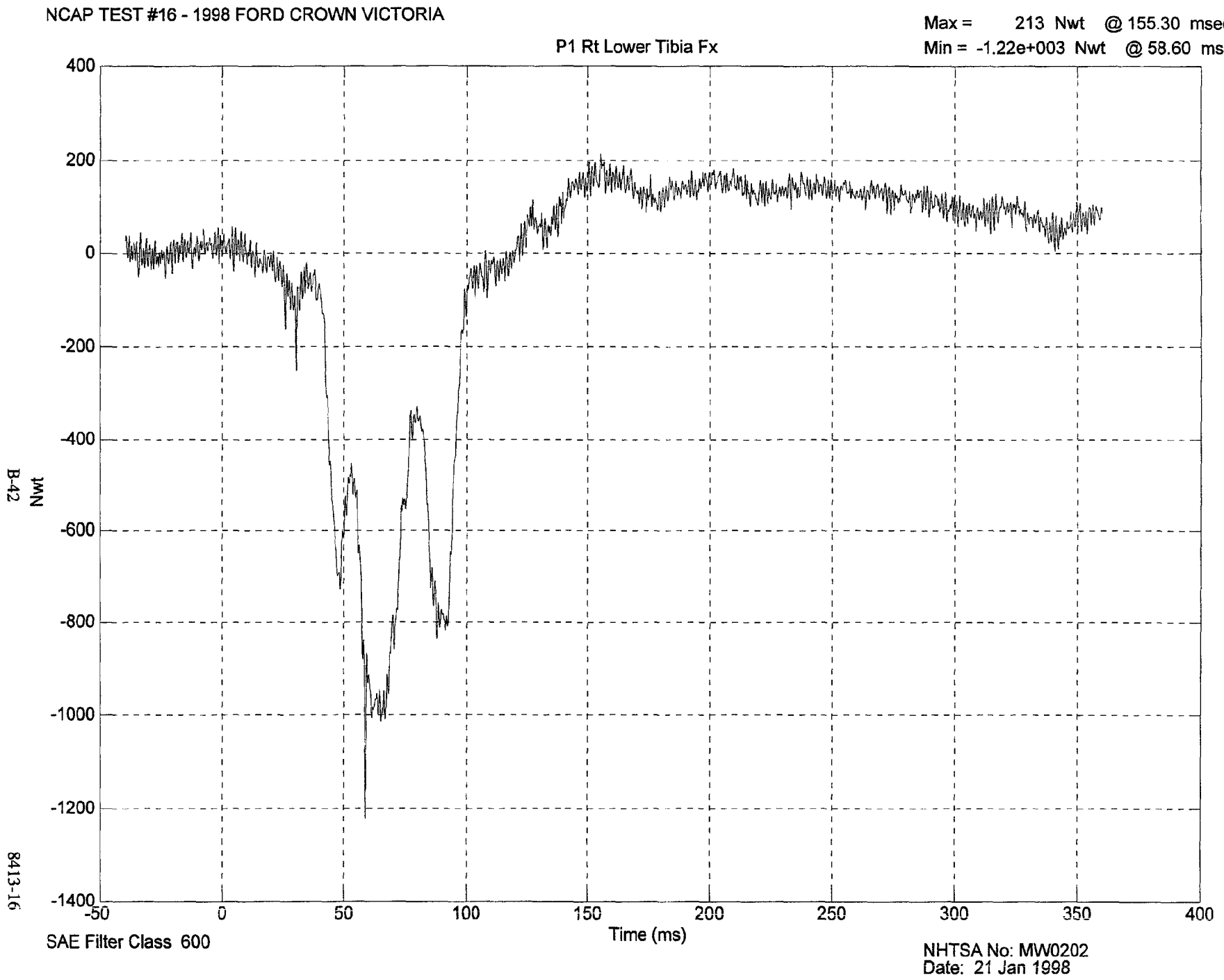
Max = 127 Nwt-M @ 63.50 msec
Min = -16.3 Nwt-M @ 147.10 msec

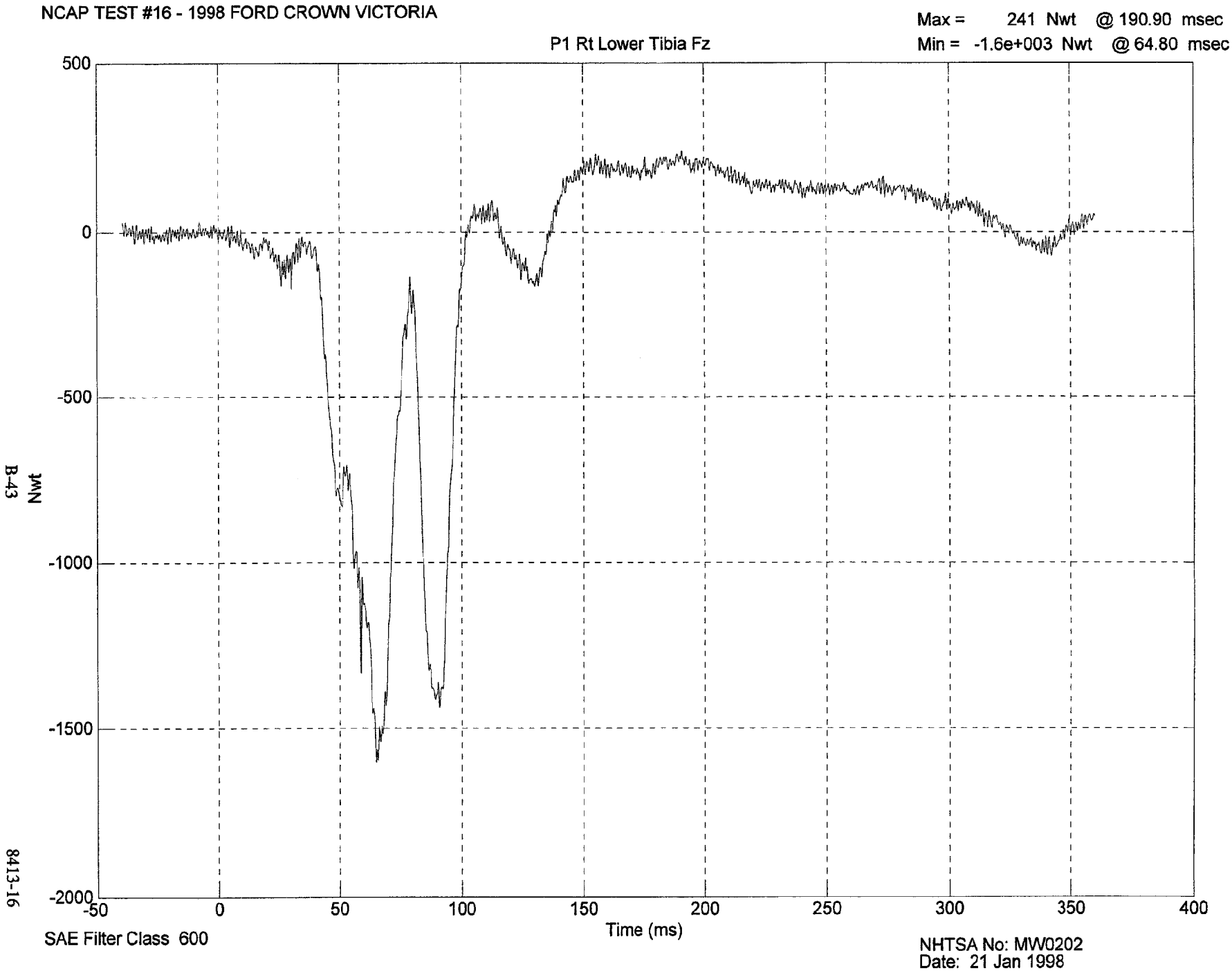


SAE Filter Class 600

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

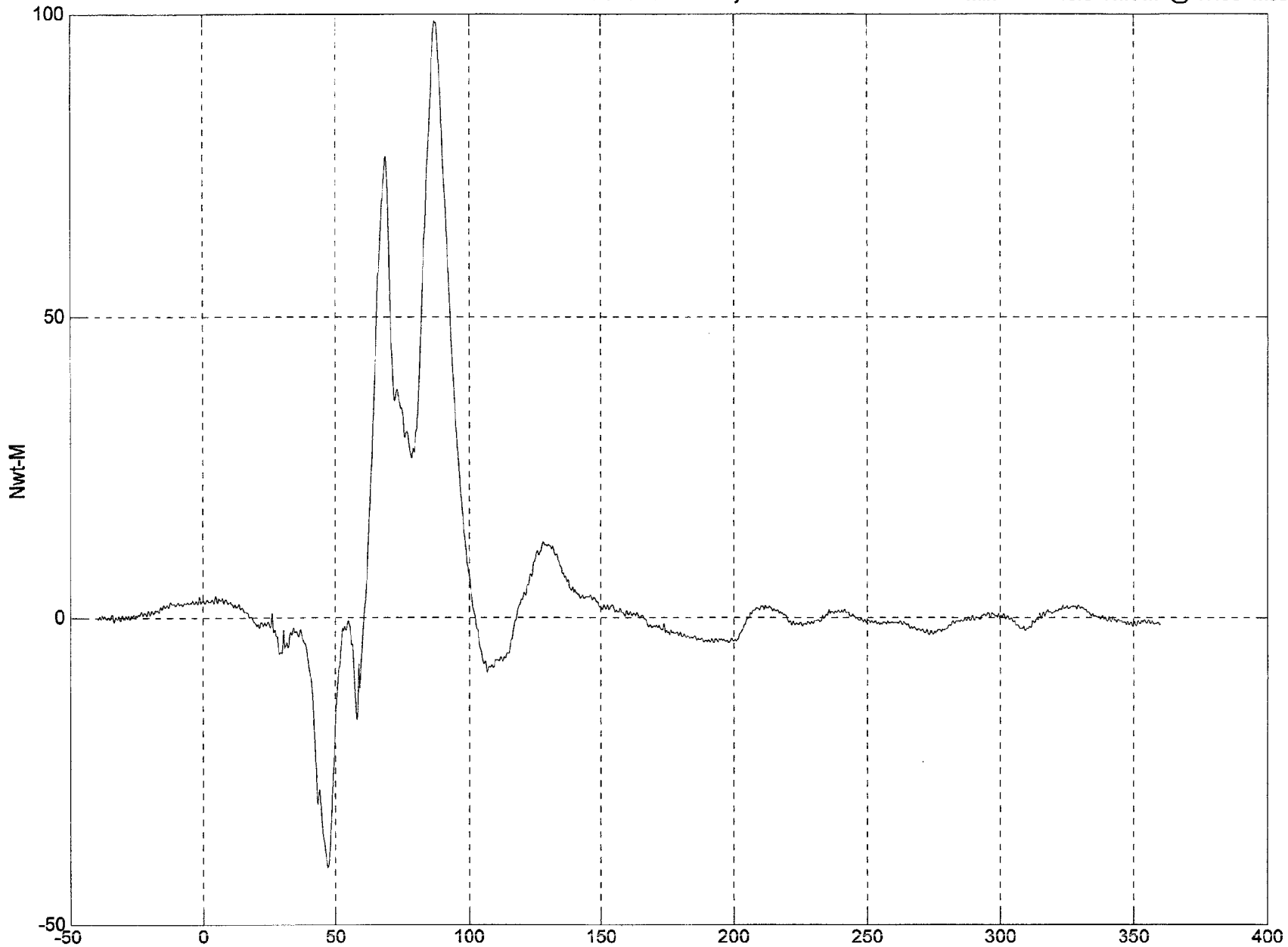

NCAP TEST #16 - 1998 FORD CROWN VICTORIA
P1 Rt Lower Tibia Fx
Max = 213 Nwt @ 155.30 msec
Min = -1.22e+003 Nwt @ 58.60 msec
400
200
0
-200
-400
-600
-800
-1000
-1200
-1400
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 600
NHTSA No: MW0202
Date: 21 Jan 1998
B-42
8413-16


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 241 Nwt @ 190.90 msec
Min = -1.6e+003 Nwt @ 64.80 msec
P1 Rt Lower Tibia Fz
500
0
-500
-1000
-1500
-2000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 600
NHTSA No: MW0202
Date: 21 Jan 1998
B-43
8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P1 Rt Lower Tibia My

Max = 98.8 Nwt-M @ 87.00 msec
Min = -40.5 Nwt-M @ 47.00 msec



SAE Filter Class 600

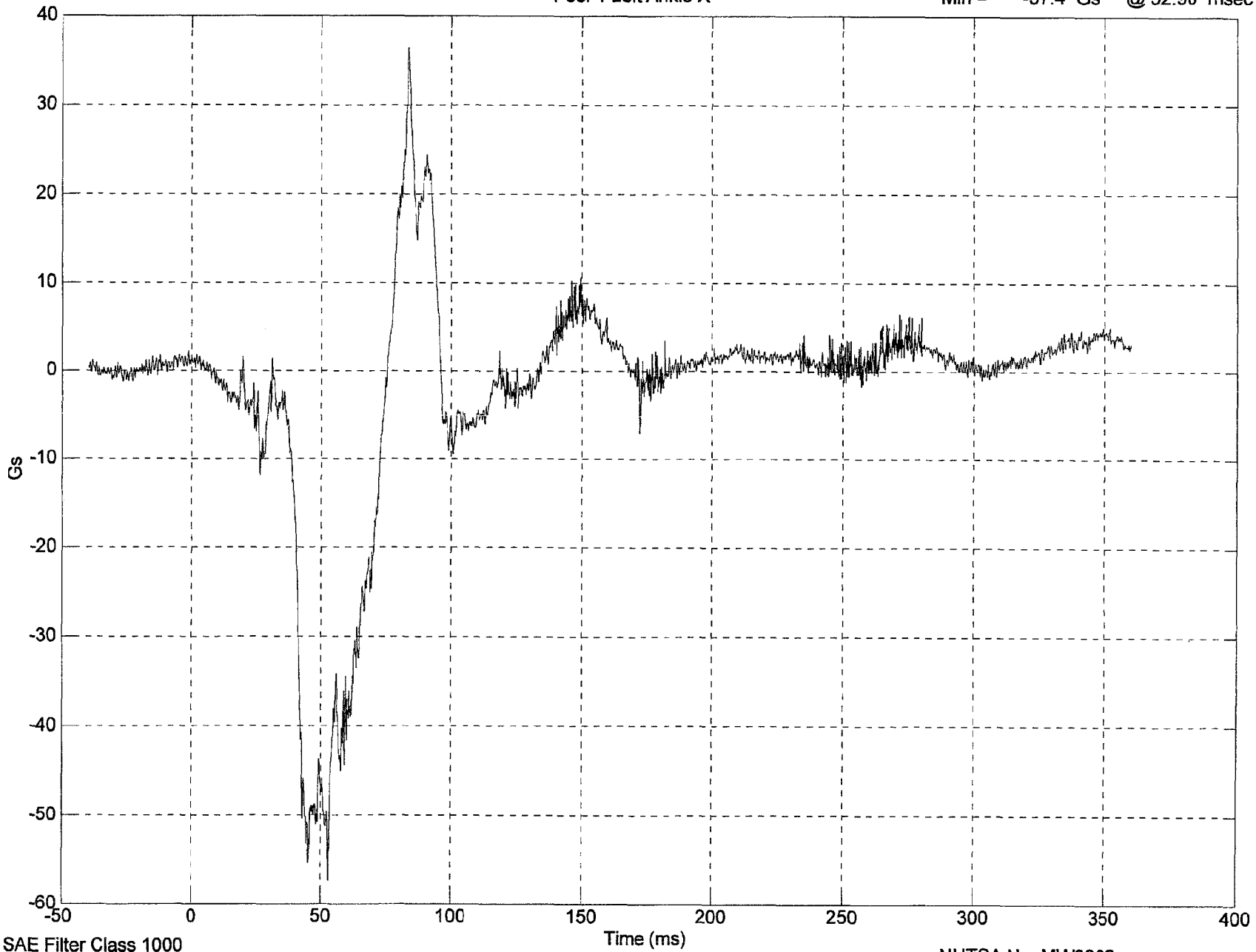
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Left Ankle X

Max = 36.5 Gs @ 83.80 msec
Min = -57.4 Gs @ 52.90 msec



SAE Filter Class 1000

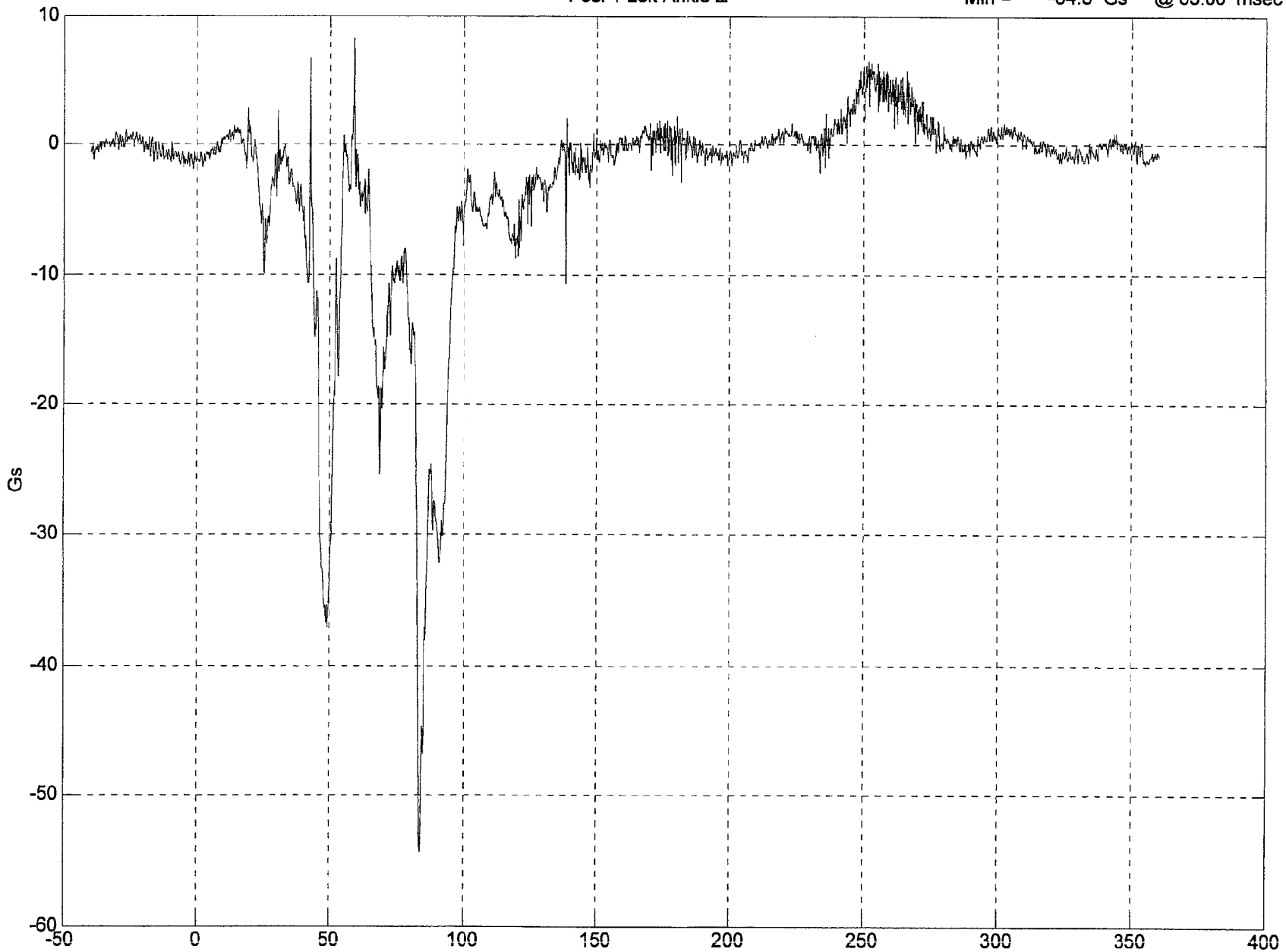
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Left Ankle Z

Max = 8.27 Gs @ 59.00 msec
Min = -54.3 Gs @ 83.80 msec



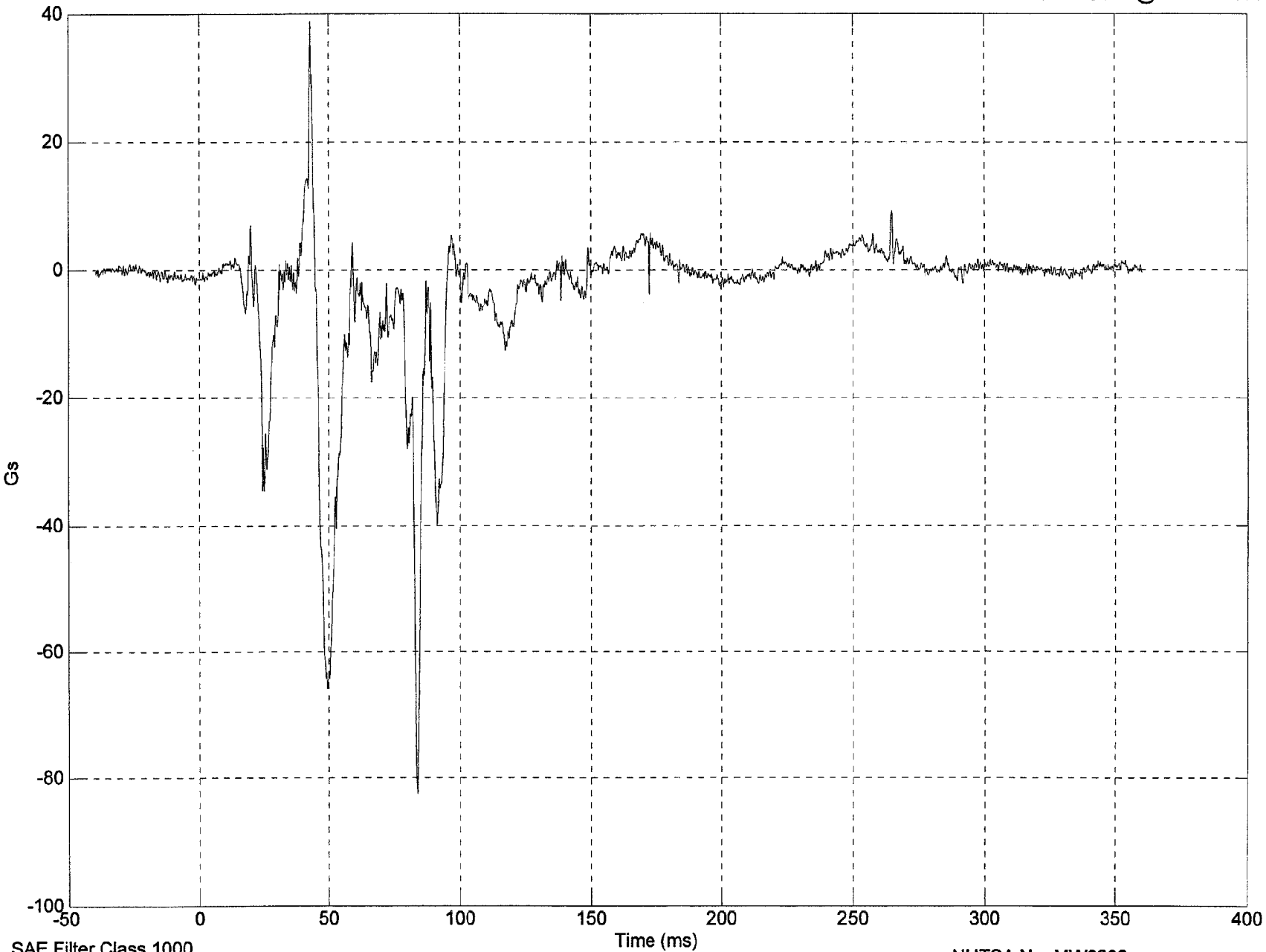
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 38.9 Gs @ 42.60 msec
Min = -82.5 Gs @ 83.90 msec



SAE Filter Class 1000

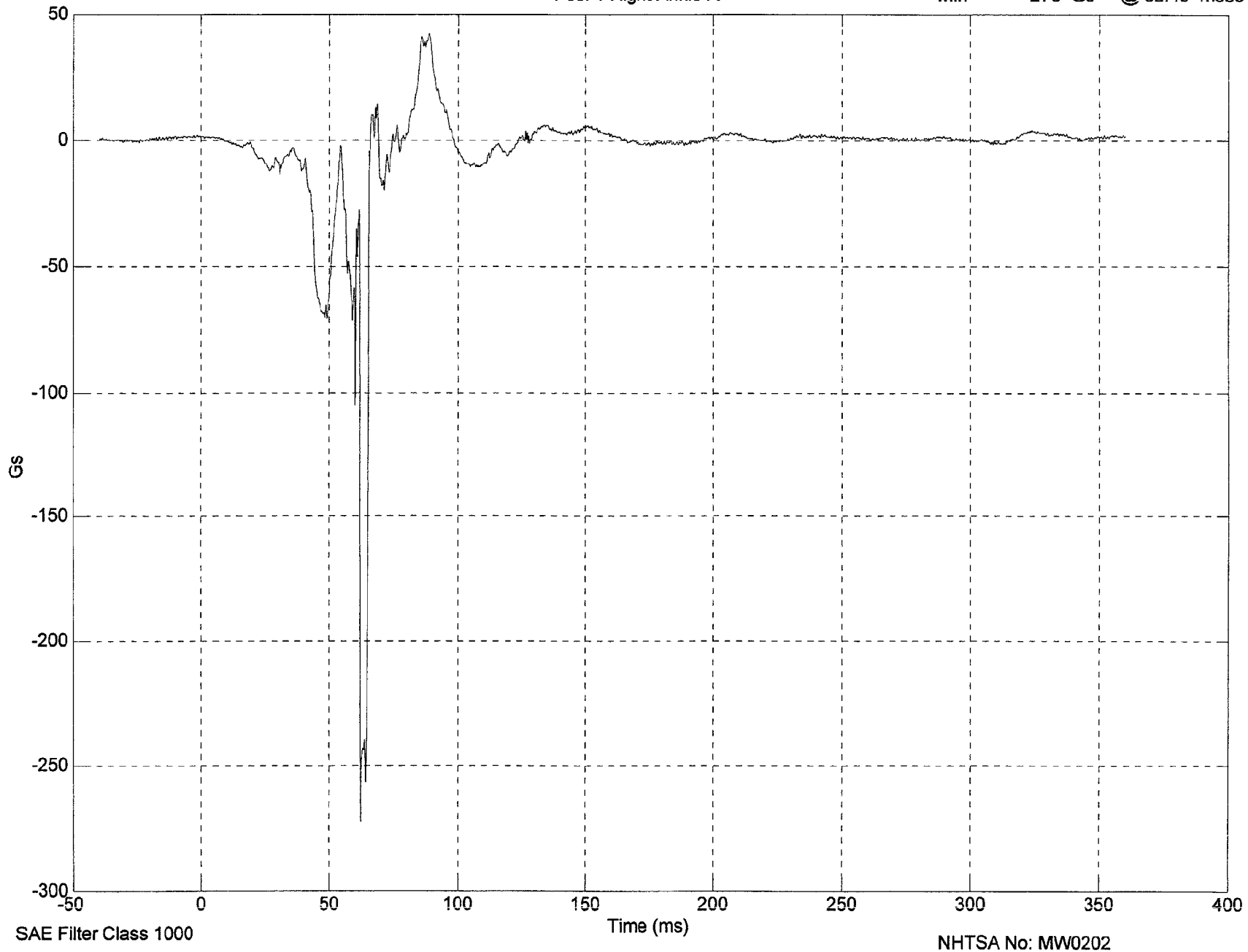
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Right Ankle X

Max = 42.3 Gs @ 88.80 msec
Min = -273 Gs @ 62.40 msec



SAE Filter Class 1000

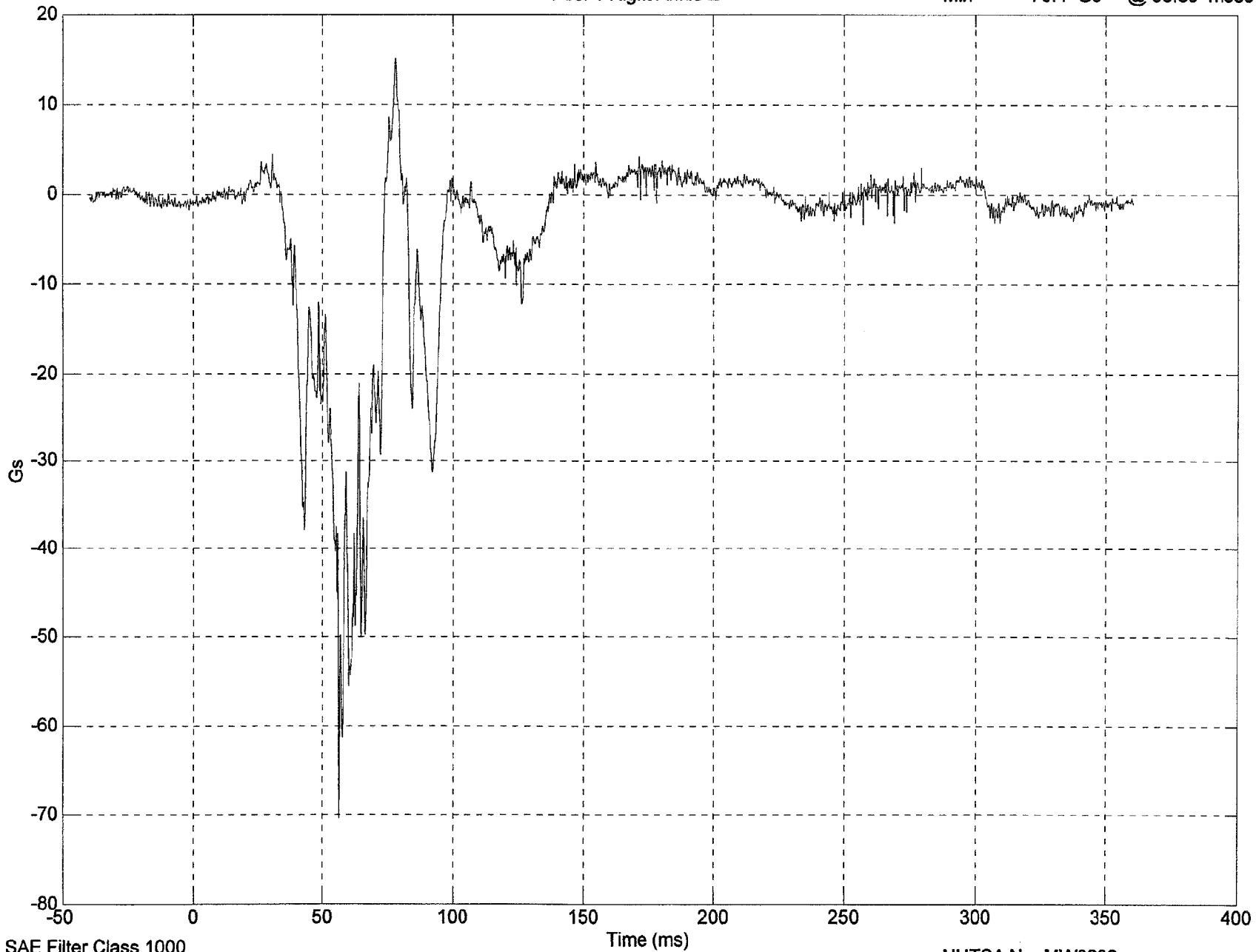
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Right Ankle Z

Max = 15.1 Gs @ 78.20 msec
Min = -70.4 Gs @ 56.30 msec



SAE Filter Class 1000

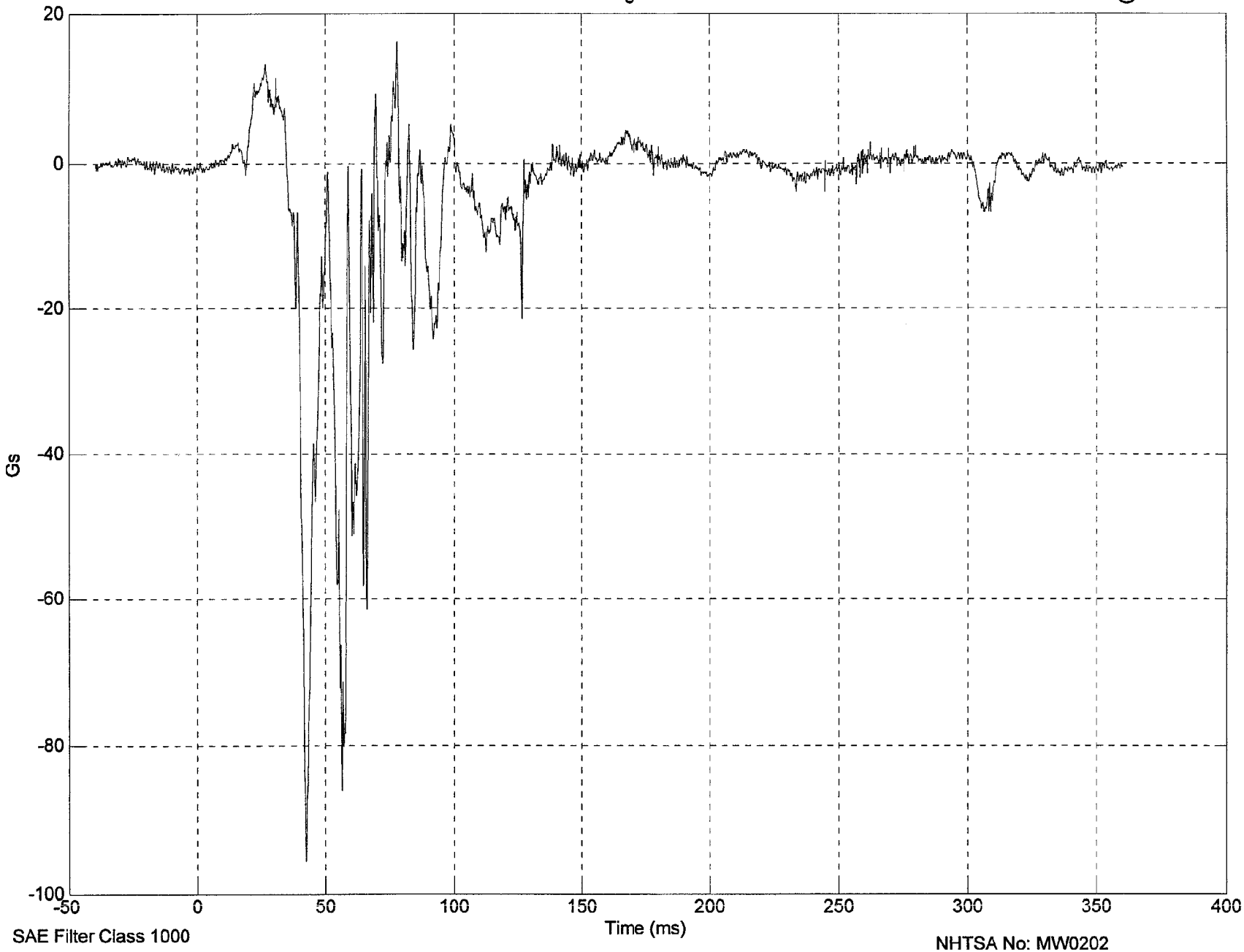
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Right Toe Z

Max = 16.2 Gs @ 78.00 msec
Min = -95.5 Gs @ 42.30 msec



B-50

8413-16

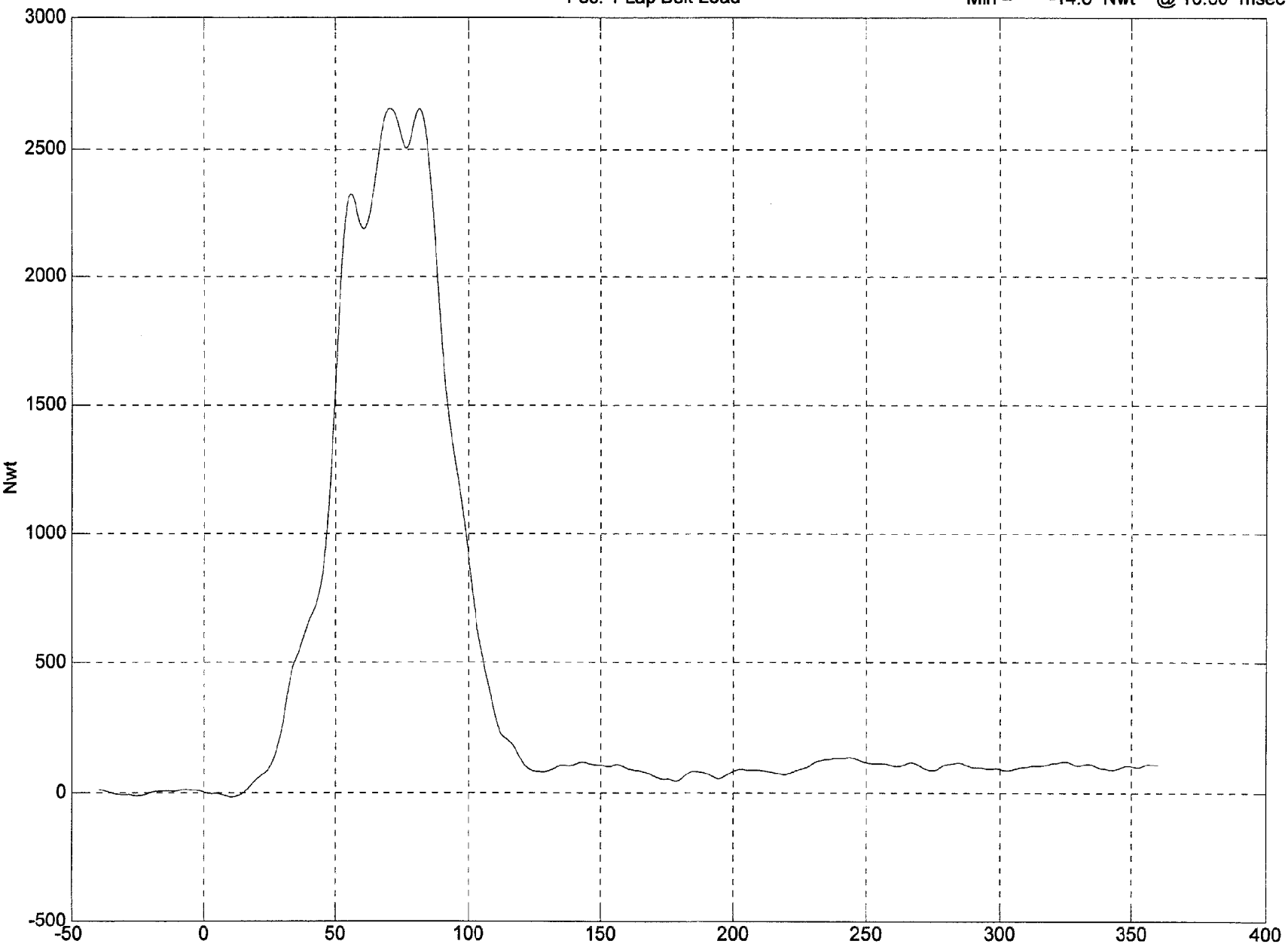
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 1 Lap Belt Load

Max = 2.66e+003 Nwt @ 70.70 msec
Min = -14.8 Nwt @ 10.30 msec



B-51

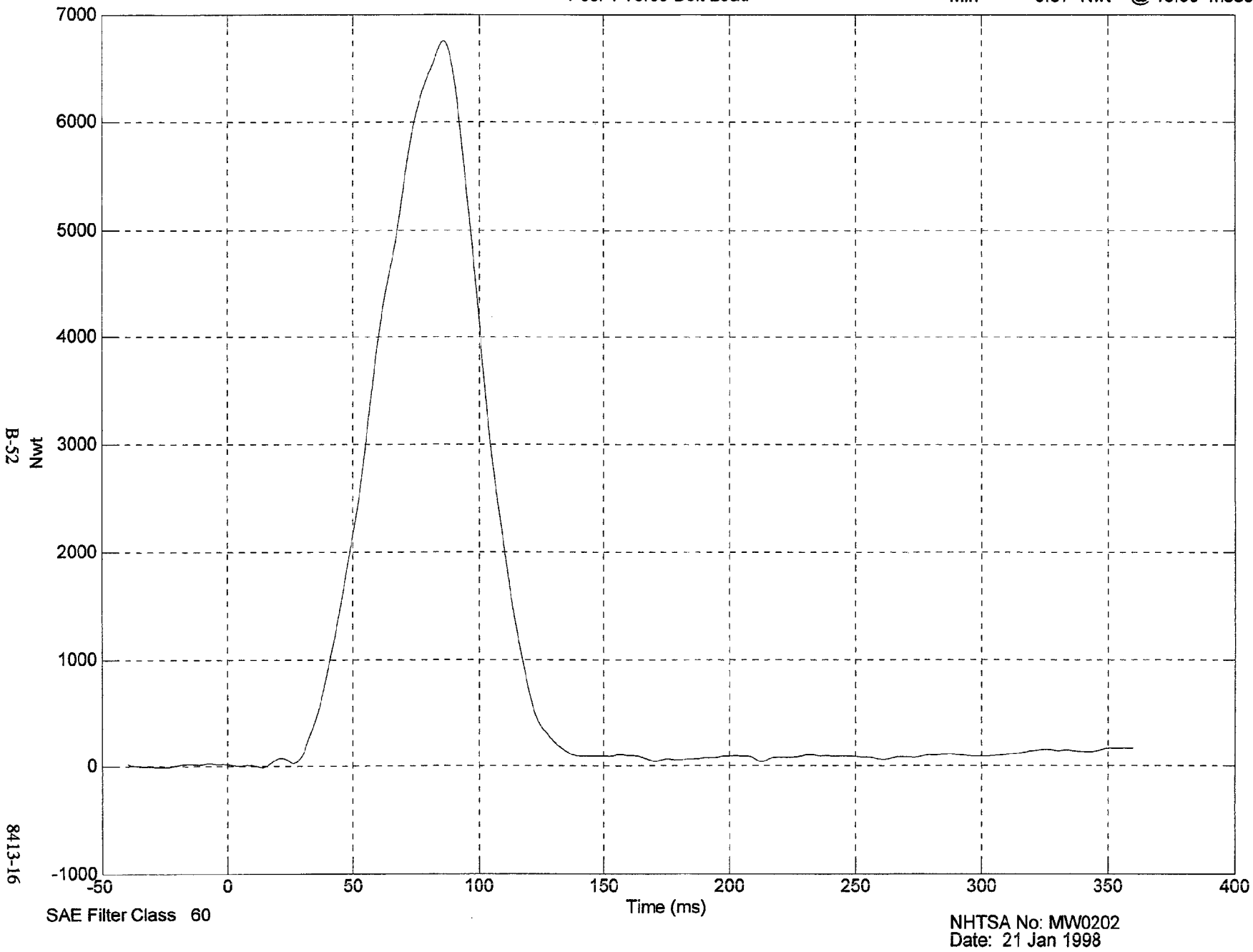
8413-16

SAE Filter Class 60

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 6.76e+003 Nwt @ 85.80 msec
Min = -9.67 Nwt @ 13.60 msec



B-52

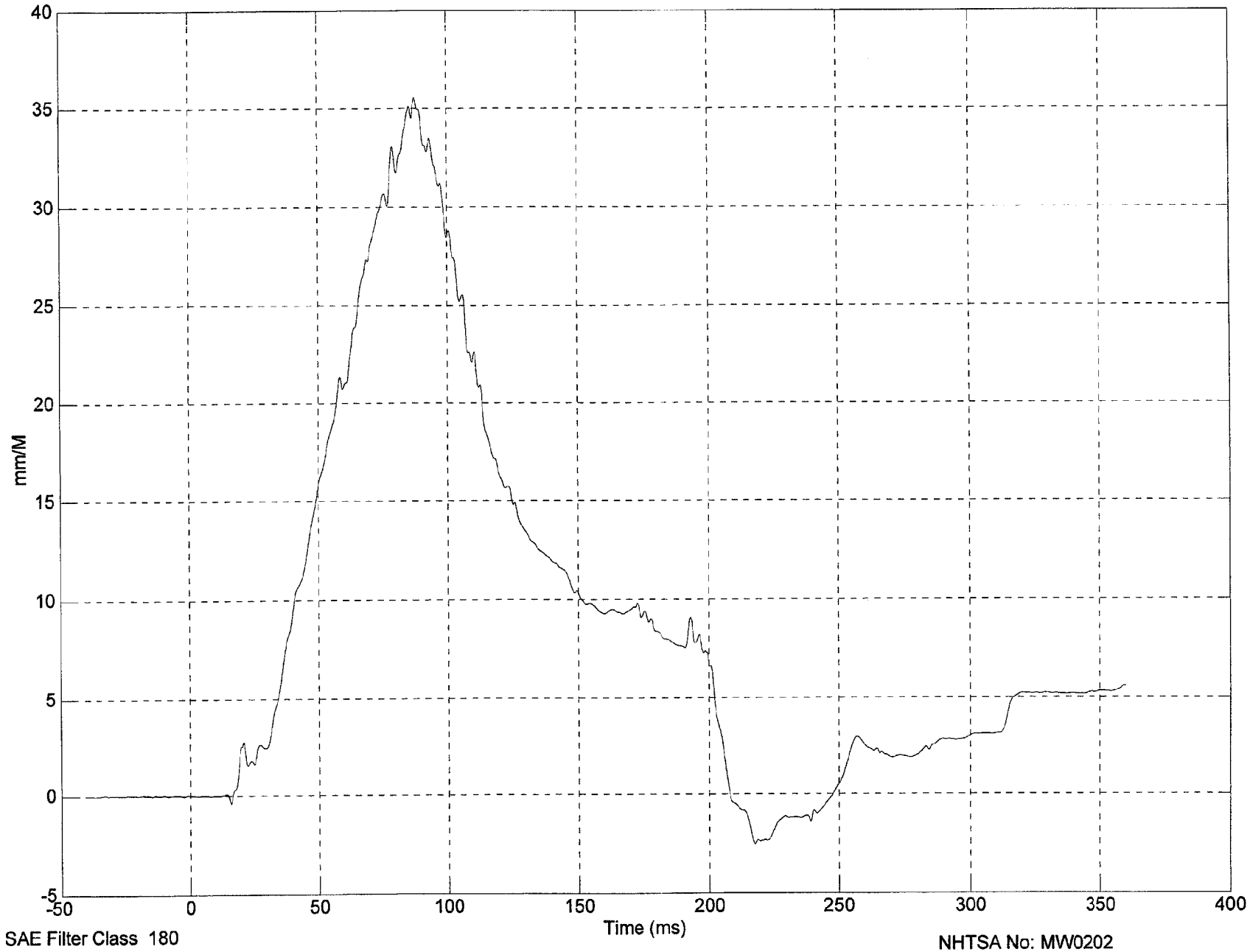
8413-16

SAE Filter Class 60

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 35.5 mm/M @ 87.60 msec
Min = -2.51 mm/M @ 217.80 msec



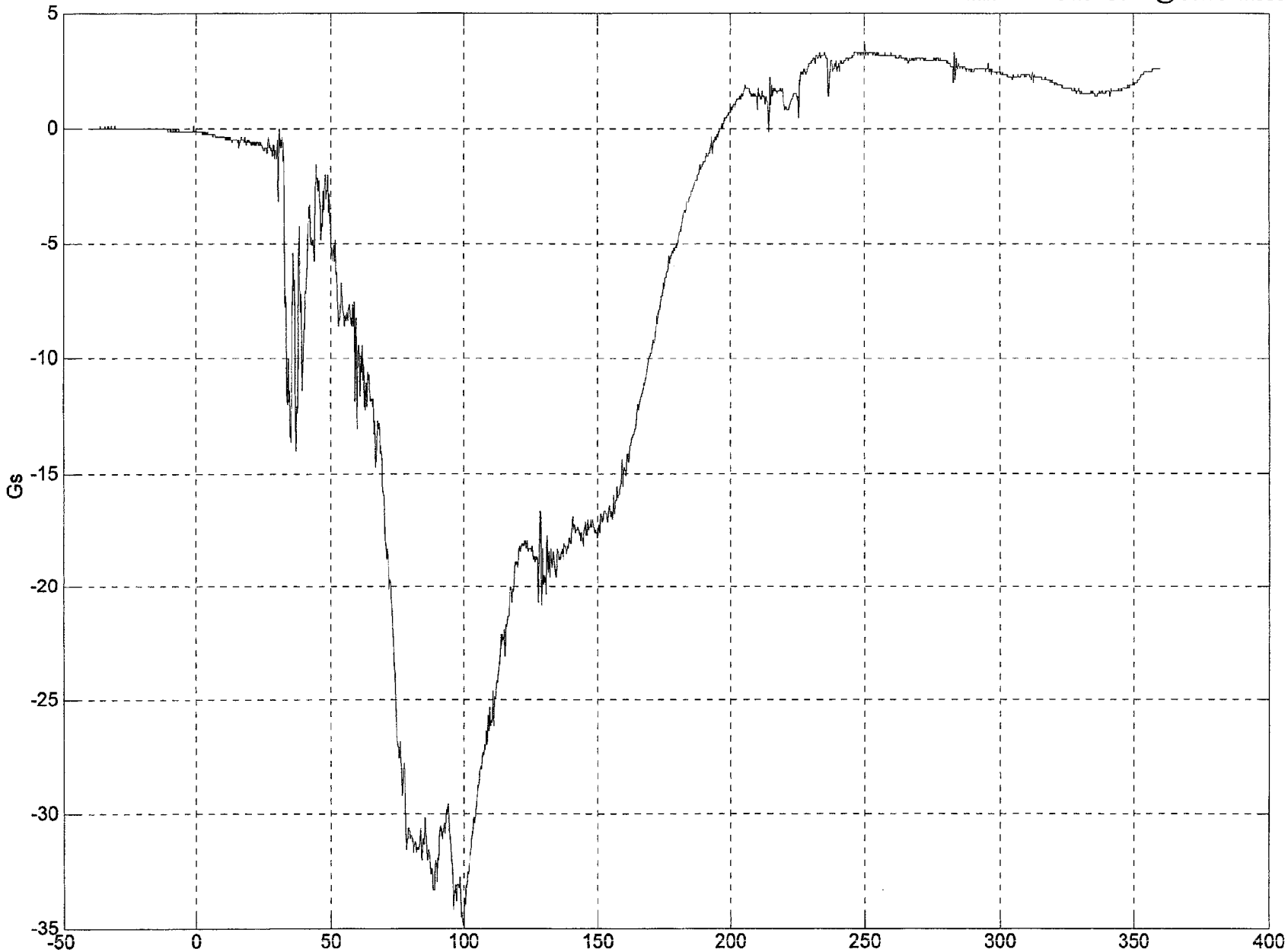
SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

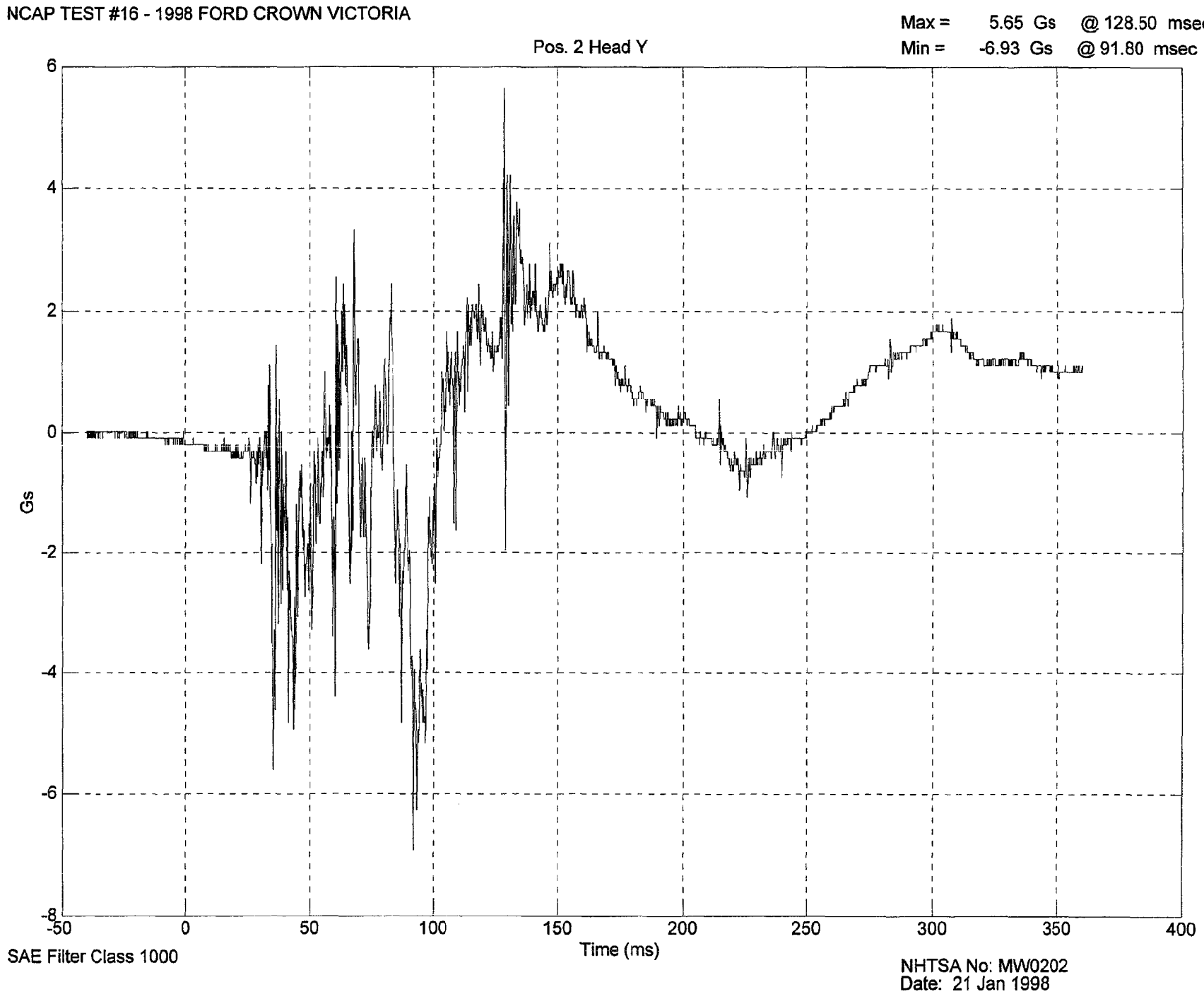
Max = 3.64 Gs @ 250.10 msec
Min = -34.9 Gs @ 99.70 msec



SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

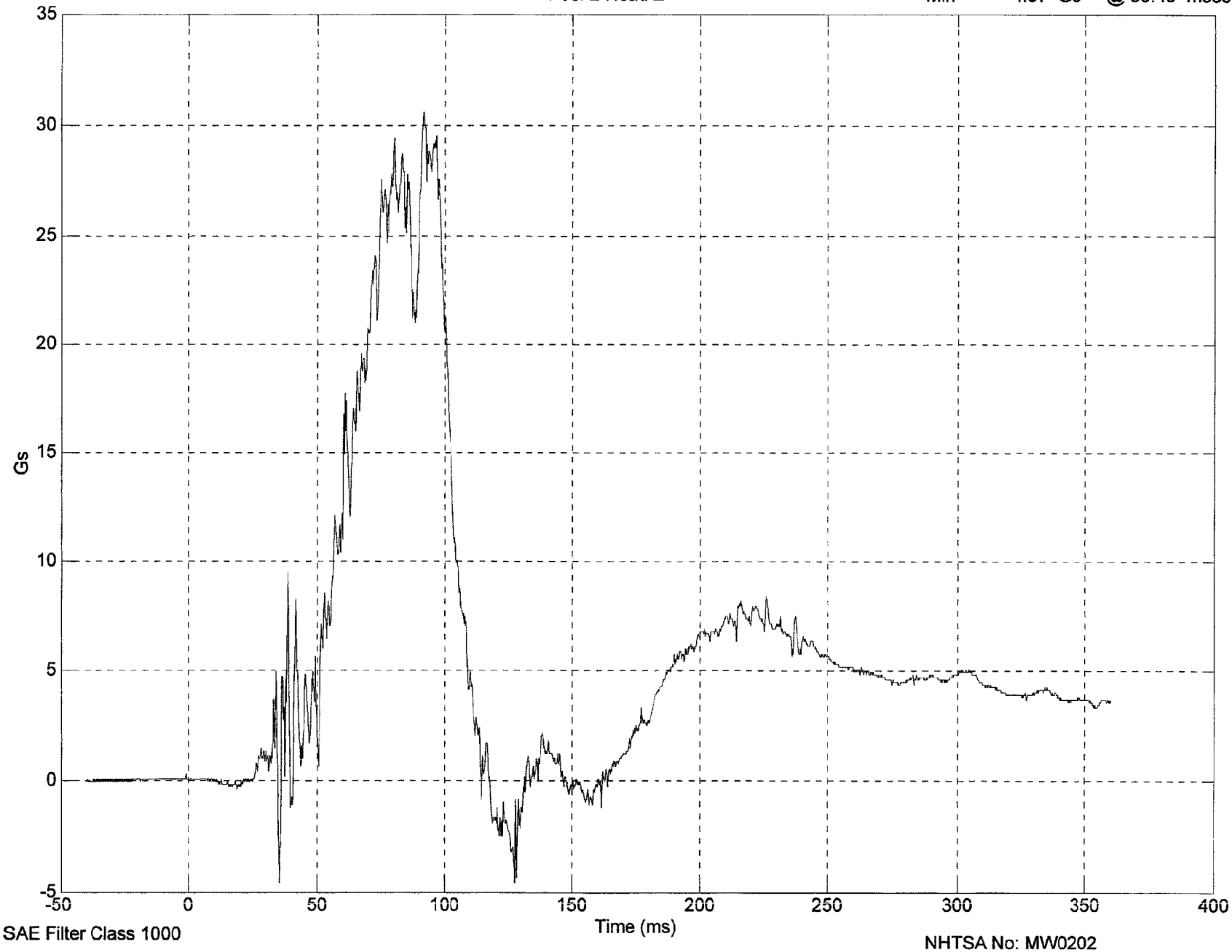
8413-16


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 5.65 Gs @ 128.50 msec
Min = -6.93 Gs @ 91.80 msec
Pos. 2 Head Y
Gs
Time (ms)
SAE Filter Class 1000
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Head Z

Max = 30.6 Gs @ 91.60 msec
Min = -4.57 Gs @ 35.40 msec



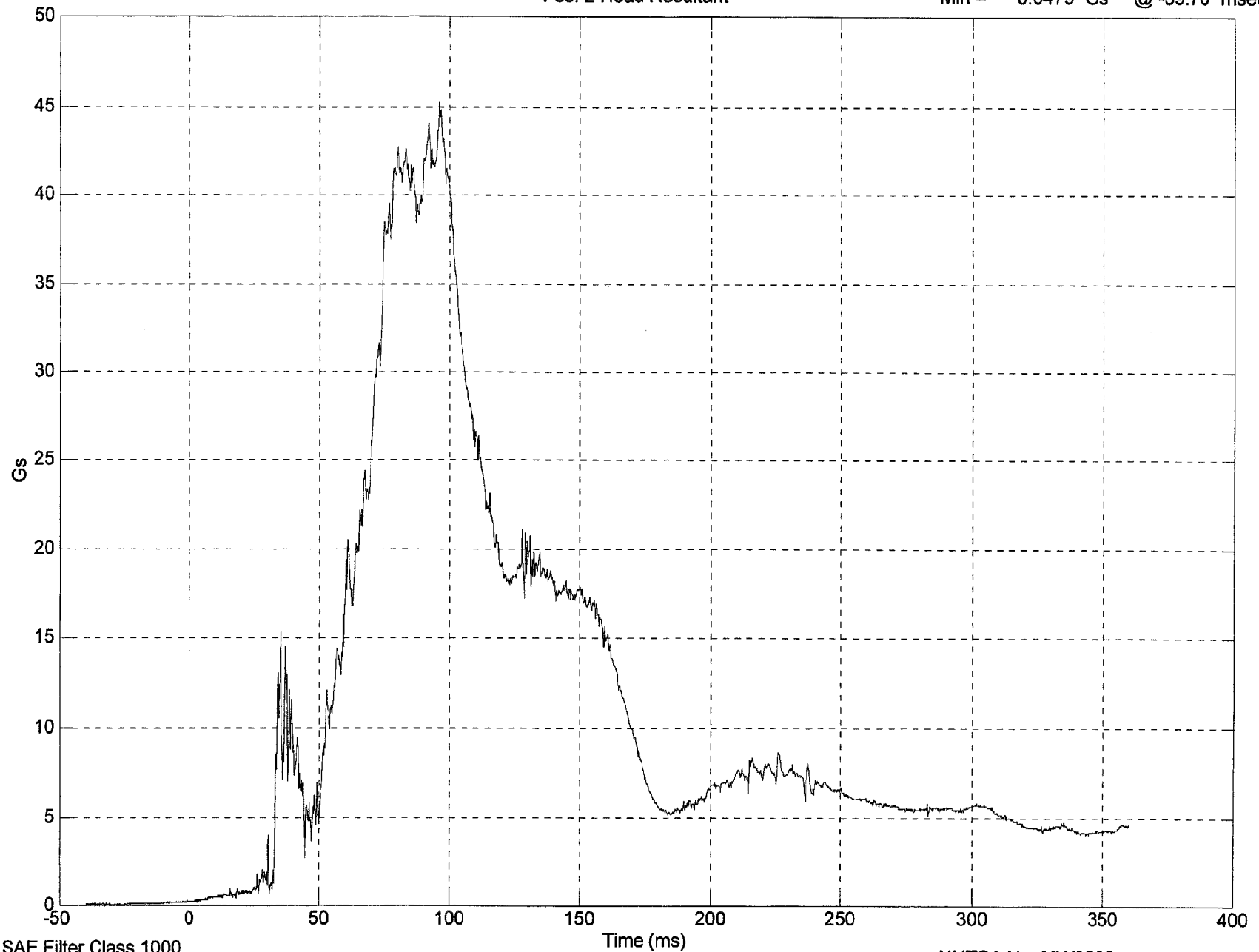
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

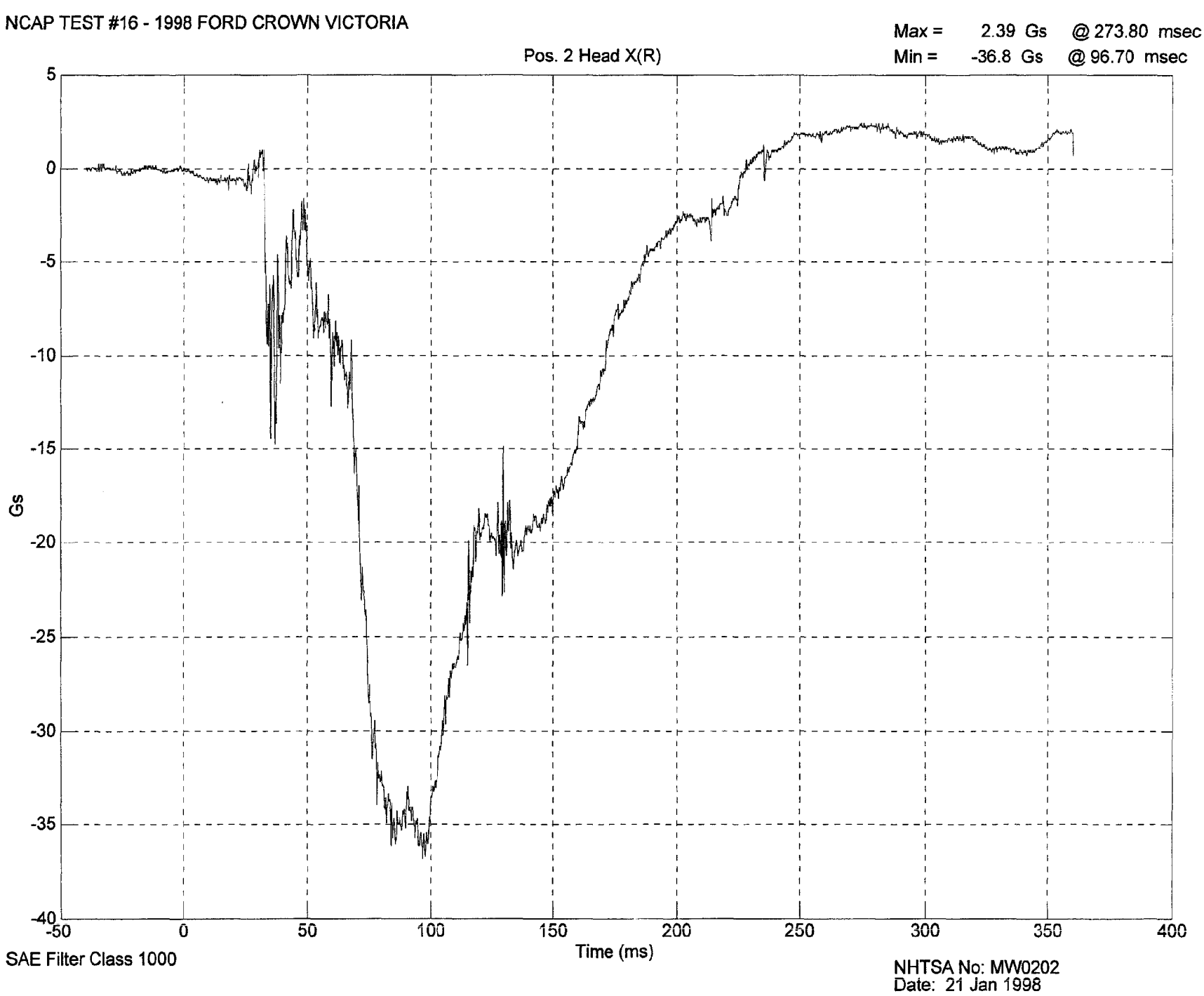
Max = 45.3 Gs @ 96.10 msec
Min = 0.0479 Gs @ -39.70 msec

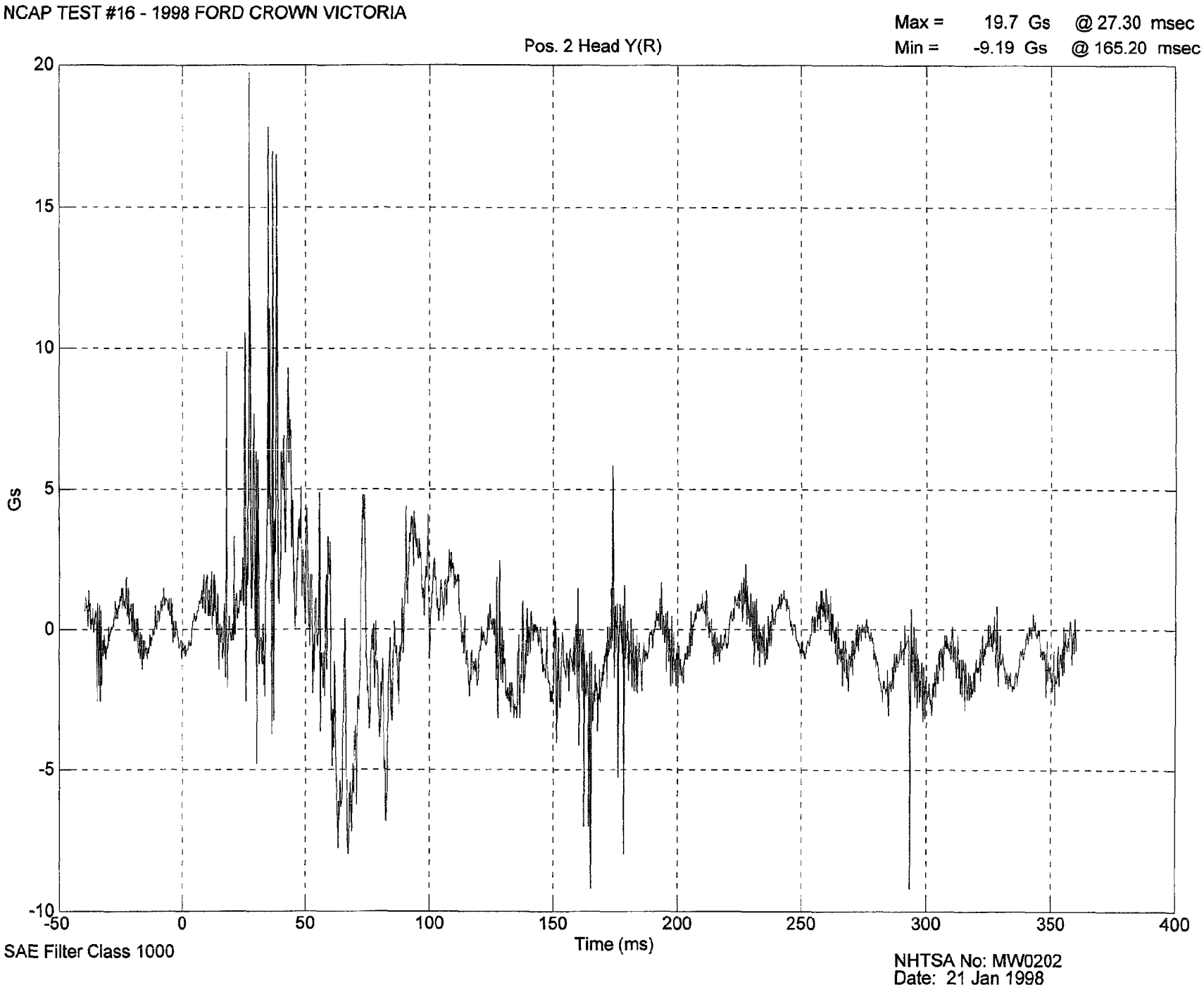


SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

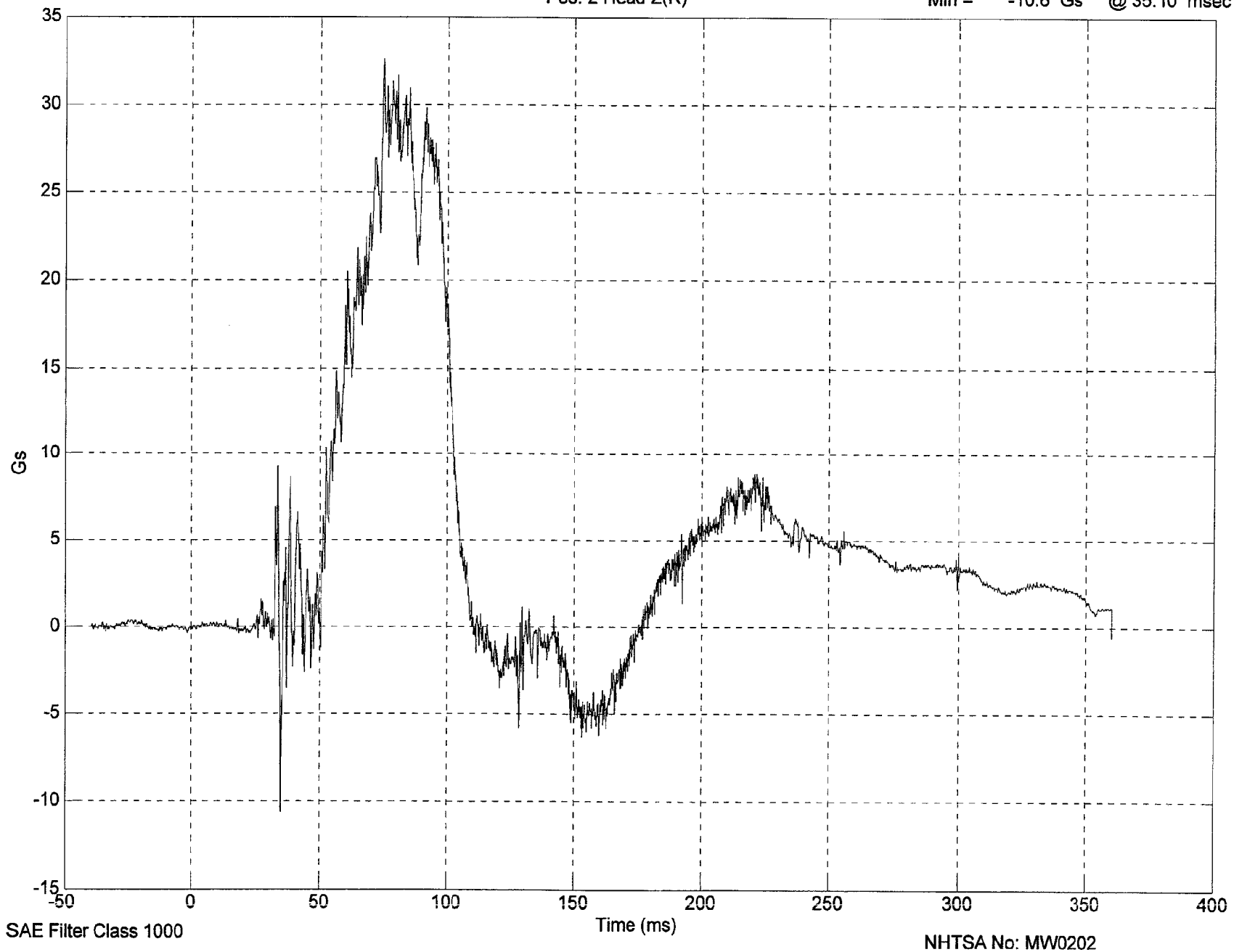
8413-16


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 2.39 Gs @ 273.80 msec
Min = -36.8 Gs @ 96.70 msec
Pos. 2 Head X(R)
Gs
Time (ms)
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-50
0
50
100
150
200
250
300
350
400
SAE Filter Class 1000
NHTSA No: MW0202
Date: 21 Jan 1998


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Pos. 2 Head Y(R)
Max = 19.7 Gs @ 27.30 msec
Min = -9.19 Gs @ 165.20 msec
Gs
Time (ms)
SAE Filter Class 1000
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 32.6 Gs @ 74.80 msec
Min = -10.6 Gs @ 35.10 msec



SAE Filter Class 1000

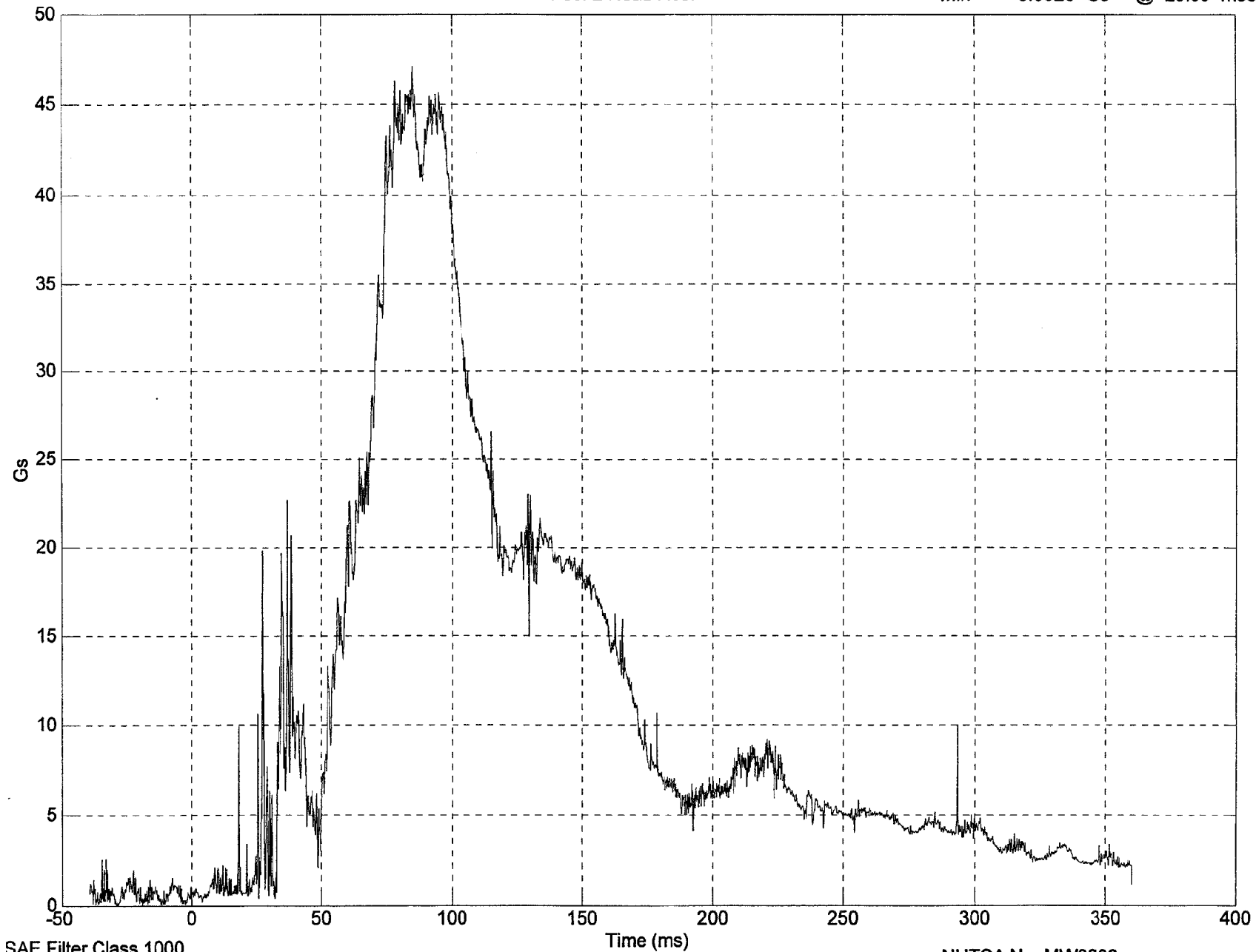
NHTSA No: MW0202
Date: 21 Jan 1998

B-60

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 47.1 Gs @ 84.90 msec
Min = 0.0526 Gs @ -29.00 msec

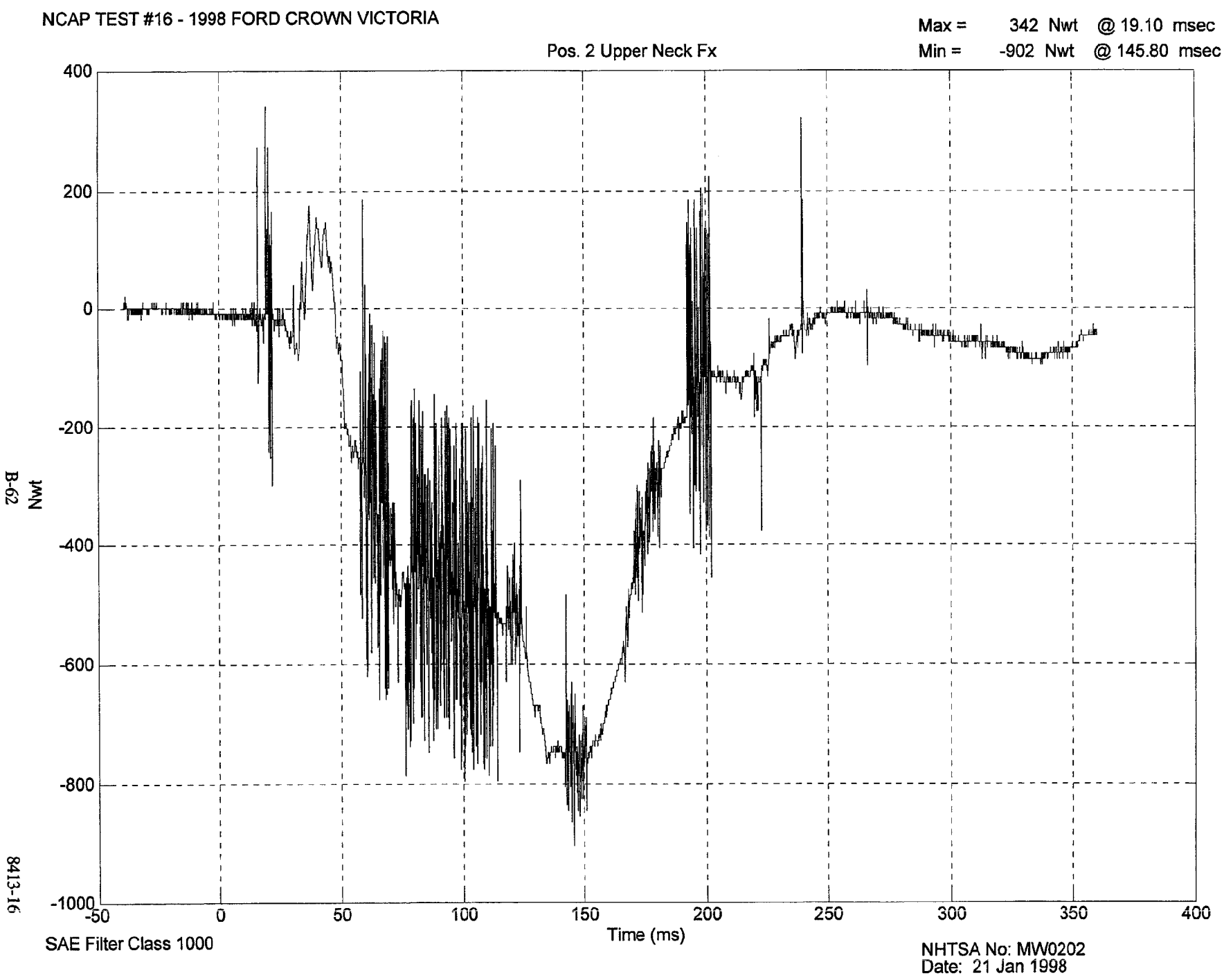


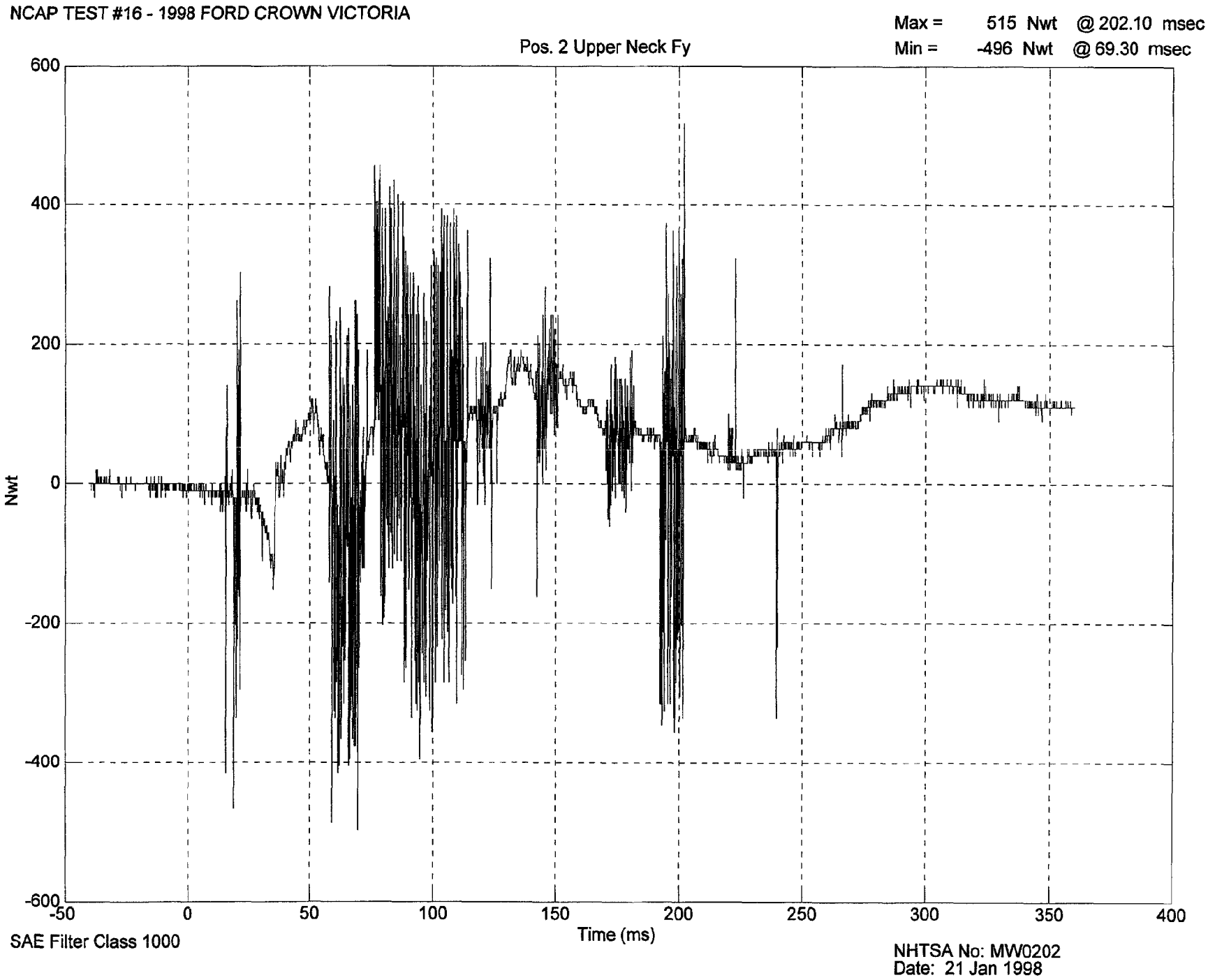
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

B-61

8413-16

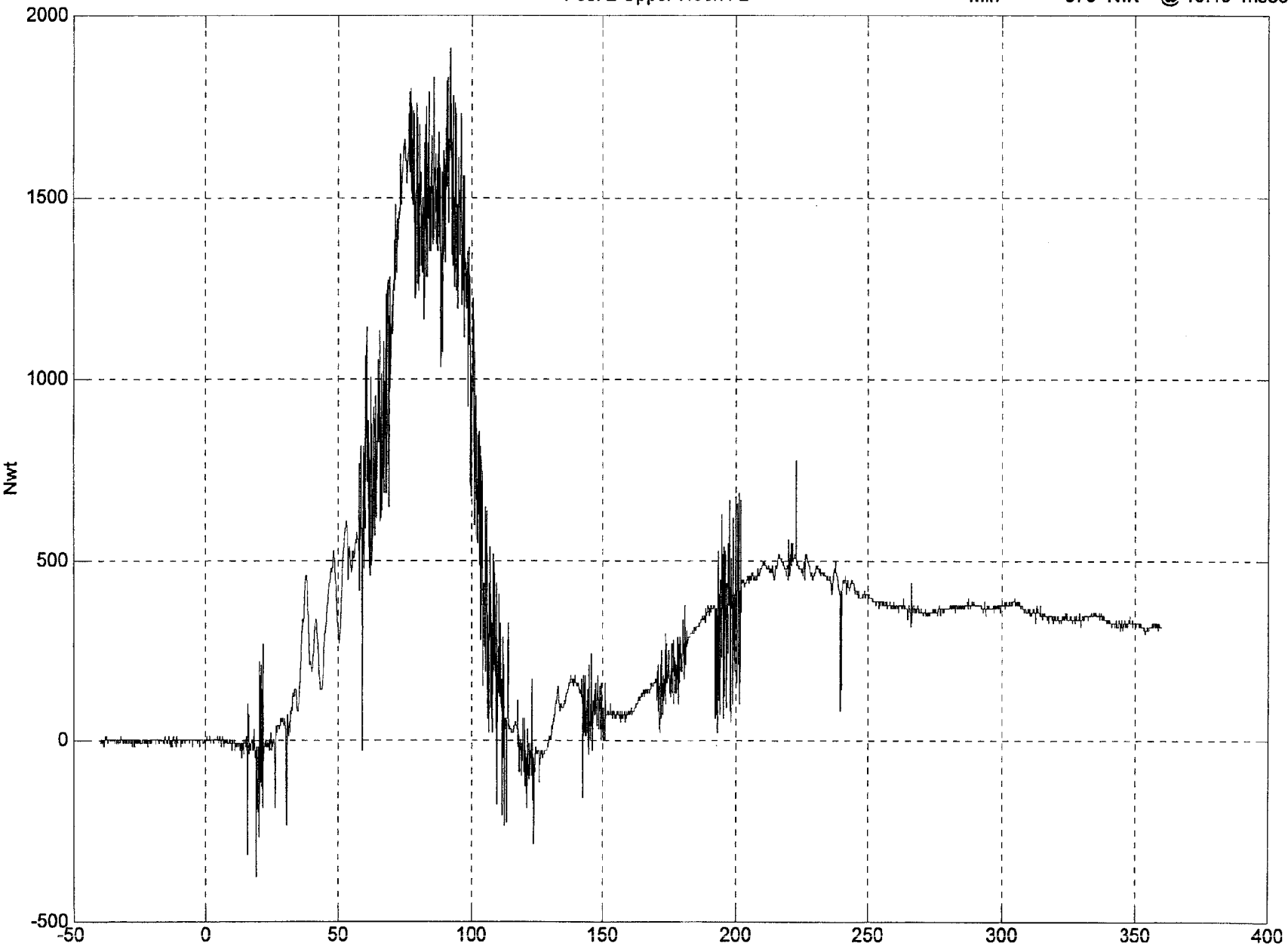

NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Pos. 2 Upper Neck Fx
Max = 342 Nwt @ 19.10 msec
Min = -902 Nwt @ 145.80 msec
400
200
0
-200
-400
-600
-800
-1000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 1000
NHTSA No: MW0202
Date: 21 Jan 1998
B-62
8413-16


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 515 Nwt @ 202.10 msec
Min = -496 Nwt @ 69.30 msec
Pos. 2 Upper Neck Fy
600
400
200
0
-200
-400
-600
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 1000
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Upper Neck Fz

Max = 1.91e+003 Nwt @ 91.90 msec
Min = -376 Nwt @ 19.10 msec



B-64

8413-16

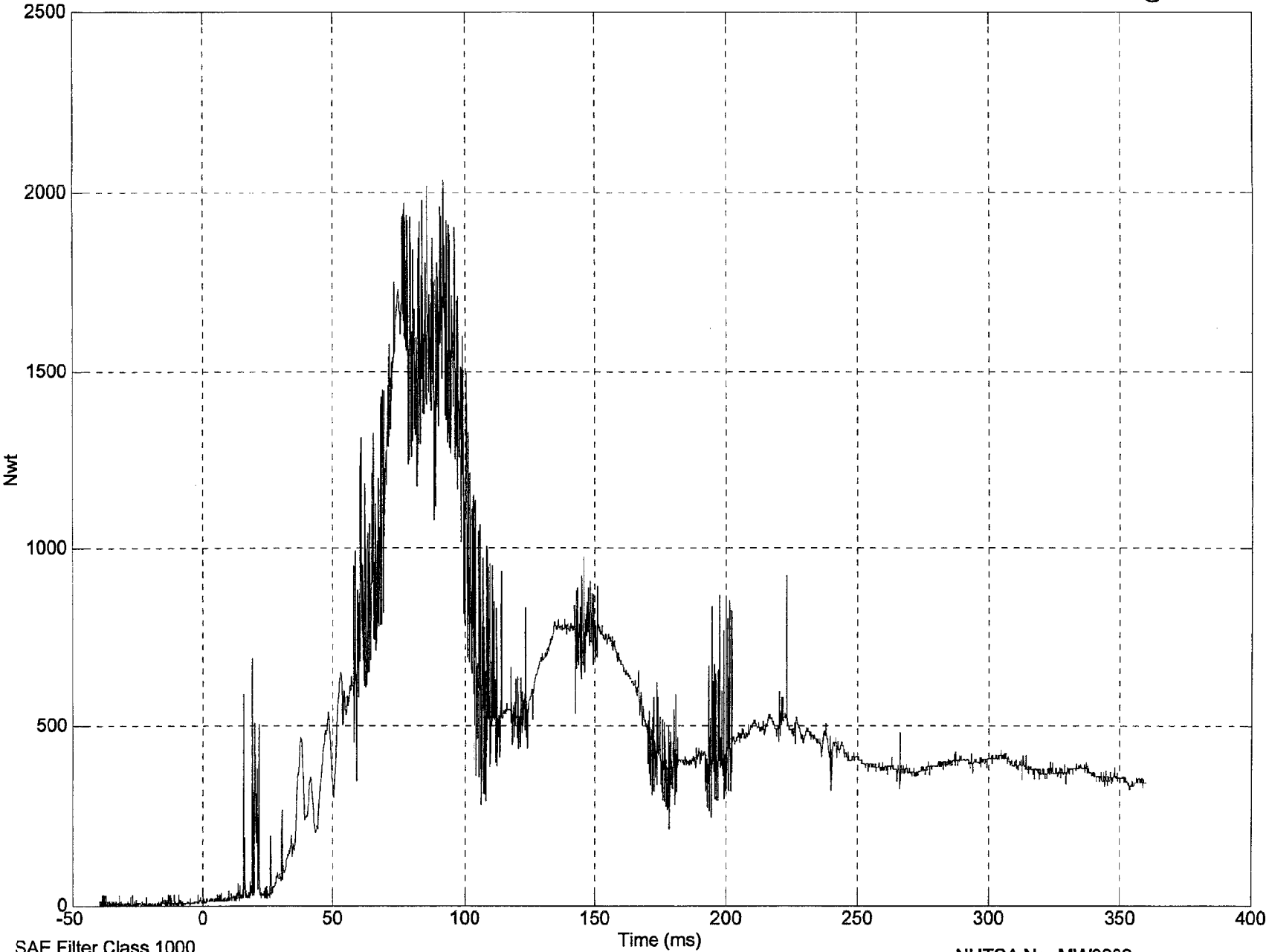
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Neck Force Res.

Max = 2.04e+003 Nwt @ 91.90 msec
Min = 2.43 Nwt @ -39.80 msec



SAE Filter Class 1000

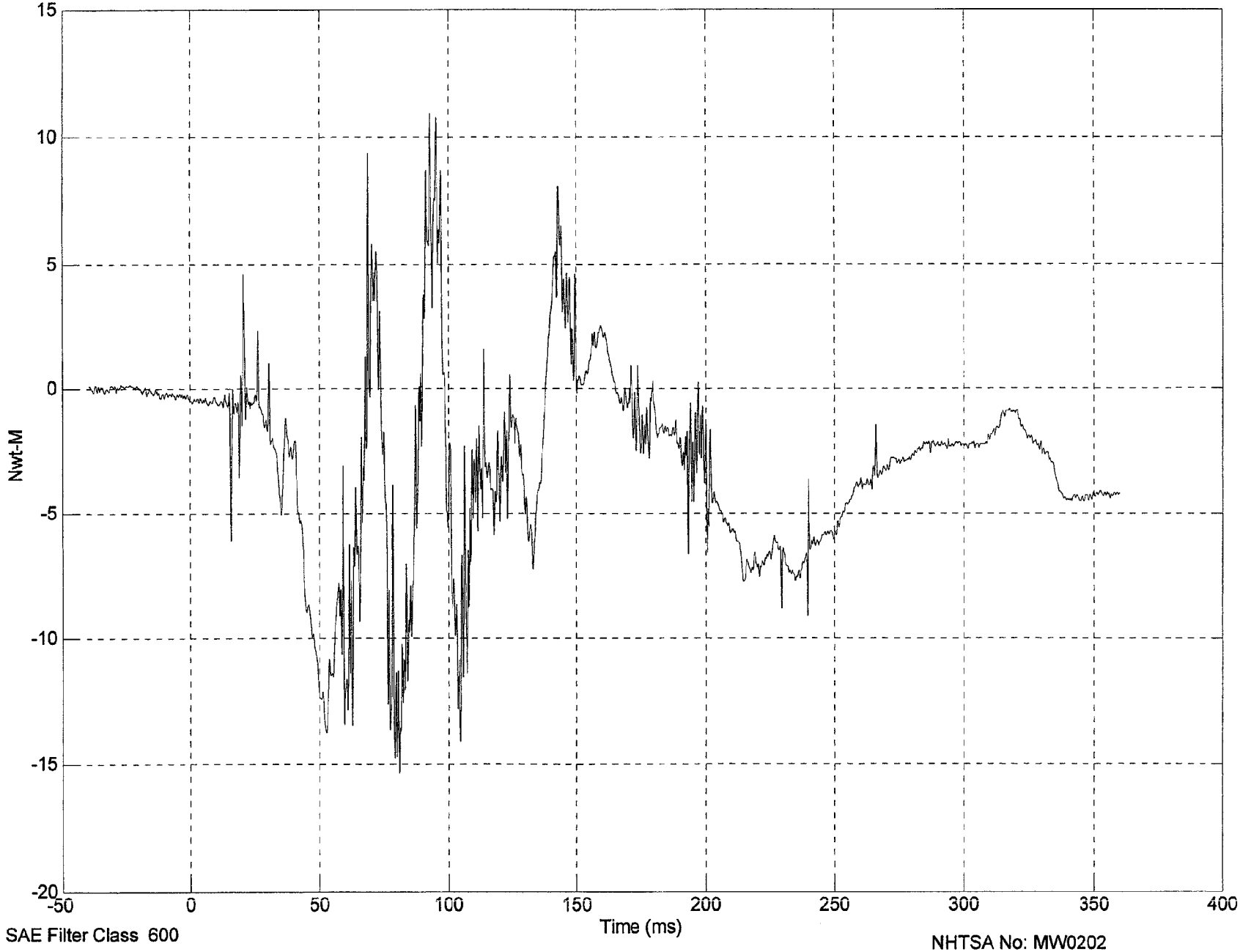
NHTSA No: MW0202
Date: 21 Jan 1998

B-65

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 10.9 Nwt-M @ 92.80 msec
Min = -15.3 Nwt-M @ 80.90 msec



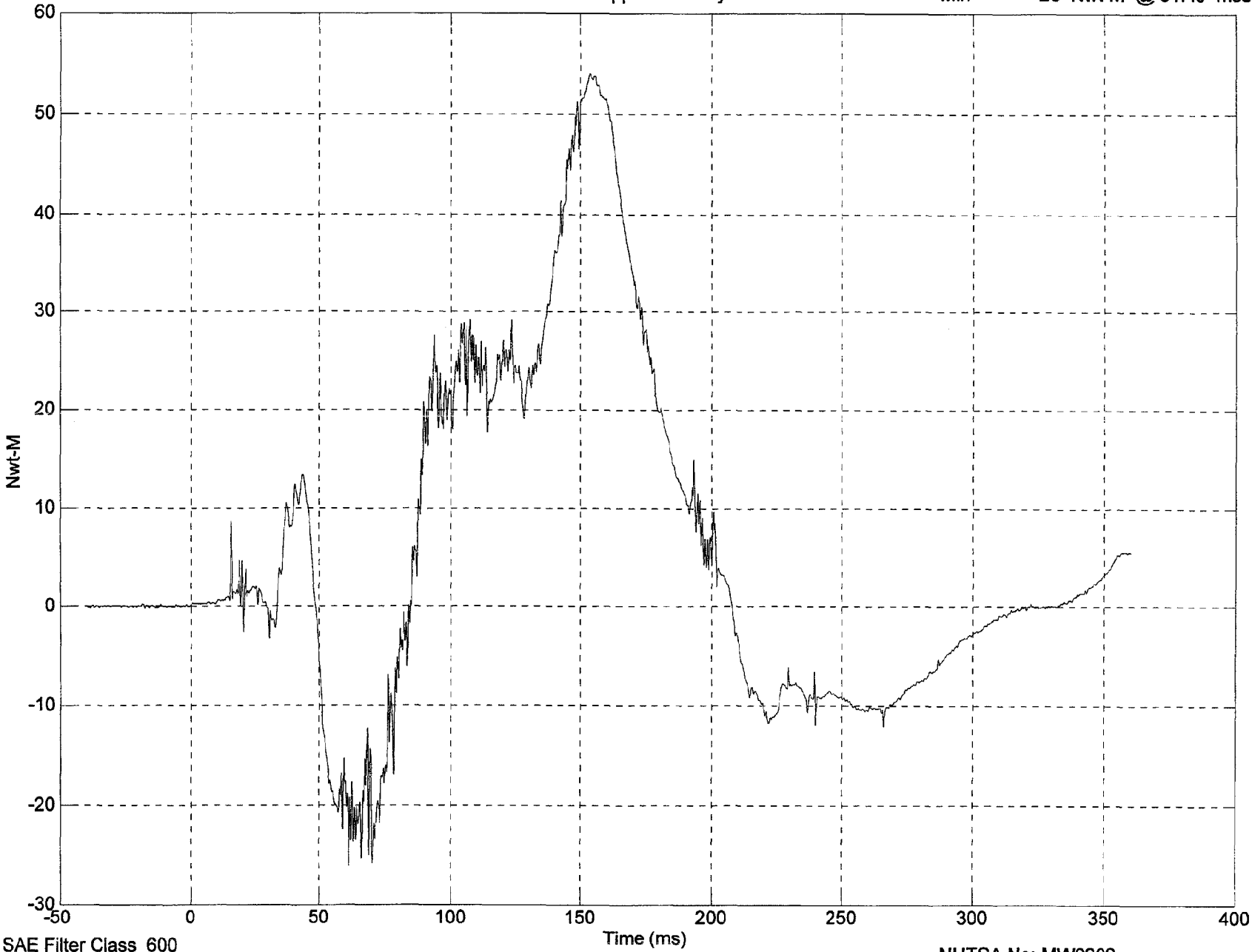
SAE Filter Class 600

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Upper Neck My

Max = 54 Nwt-M @ 153.50 msec
Min = -26 Nwt-M @ 61.40 msec



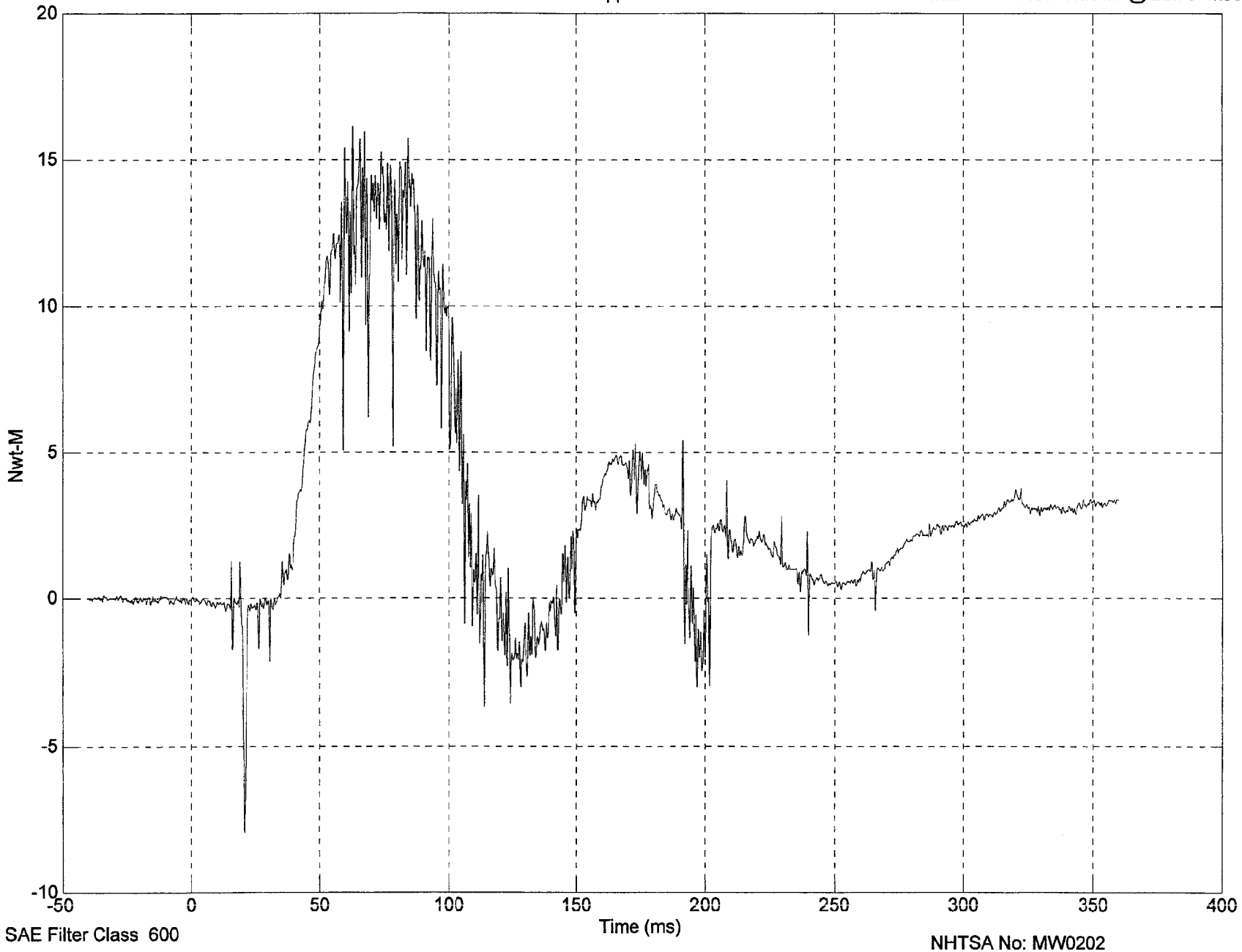
SAE Filter Class 600

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 16.2 Nwt-M @ 62.60 msec
Min = -7.97 Nwt-M @ 20.70 msec



SAE Filter Class 600

NHTSA No: MW0202
Date: 21 Jan 1998

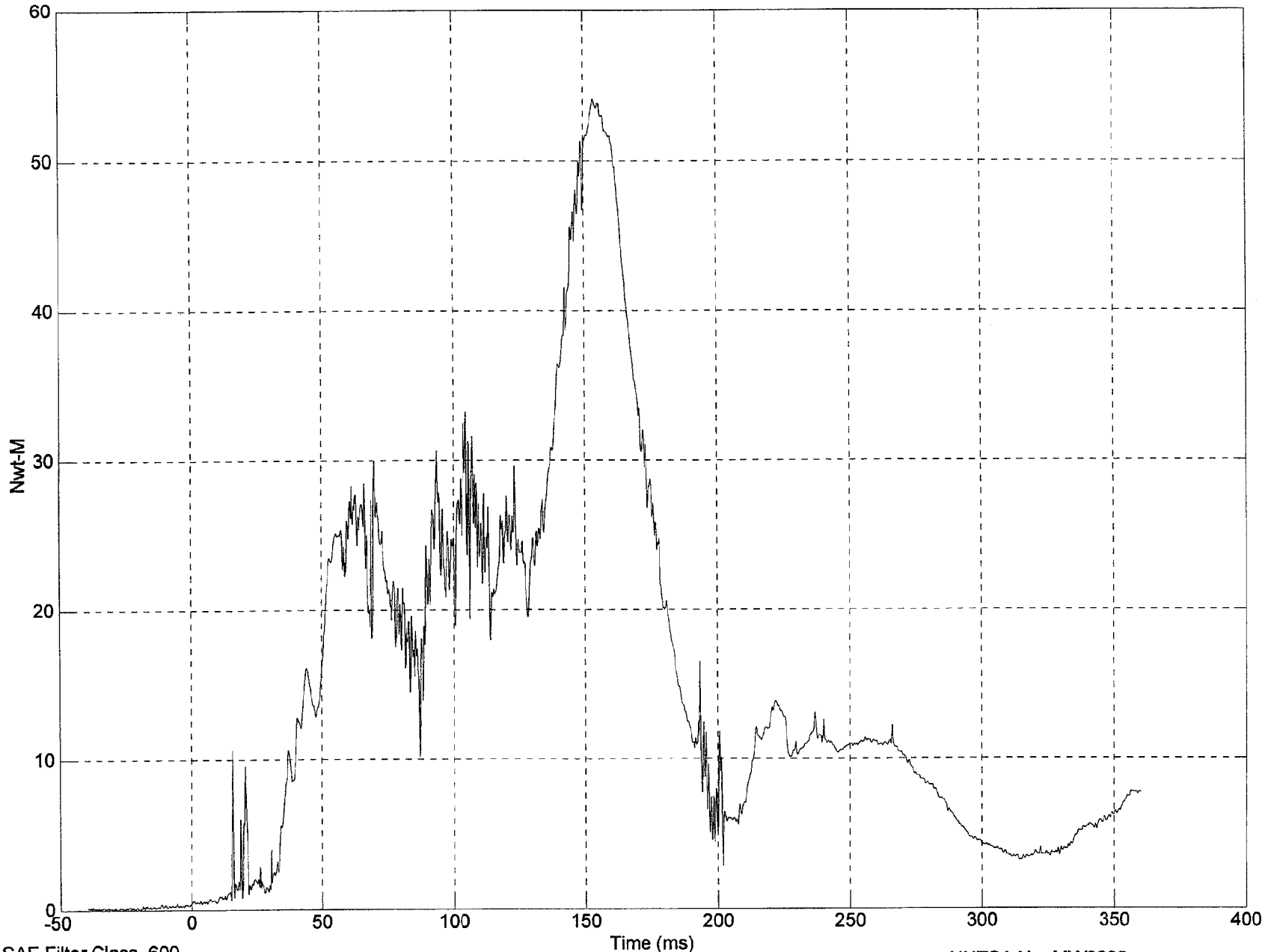
B-68

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Neck Moment Res.

Max = 54.1 Nwt-M @ 153.50 msec
Min = 0.015 Nwt-M @ -19.70 msec



SAE Filter Class 600

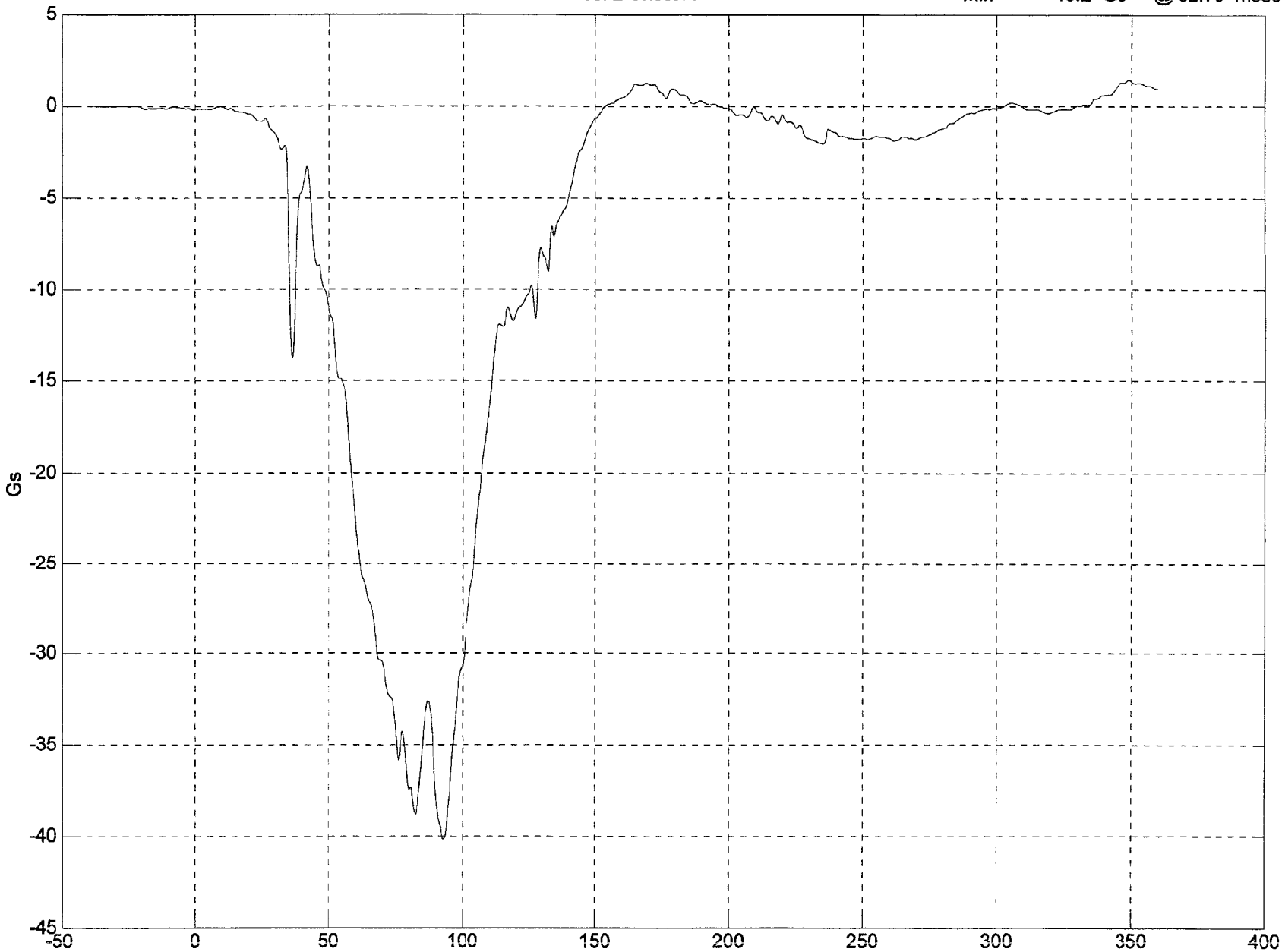
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Chest X

Max = 1.41 Gs @ 349.00 msec
Min = -40.2 Gs @ 92.70 msec



SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

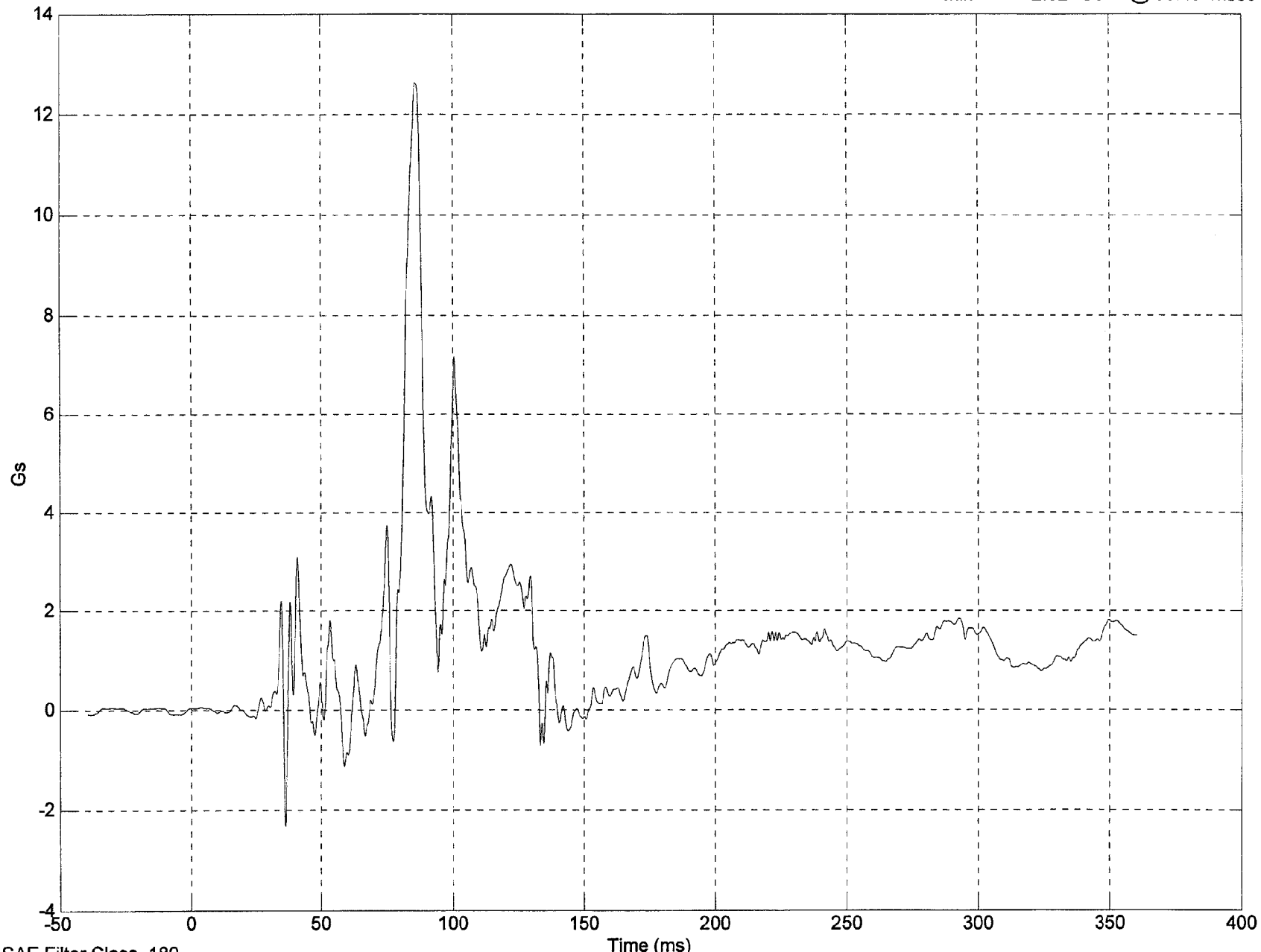
B-70

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Chest Y

Max = 12.6 Gs @ 86.10 msec
Min = -2.32 Gs @ 36.40 msec



SAE Filter Class 180

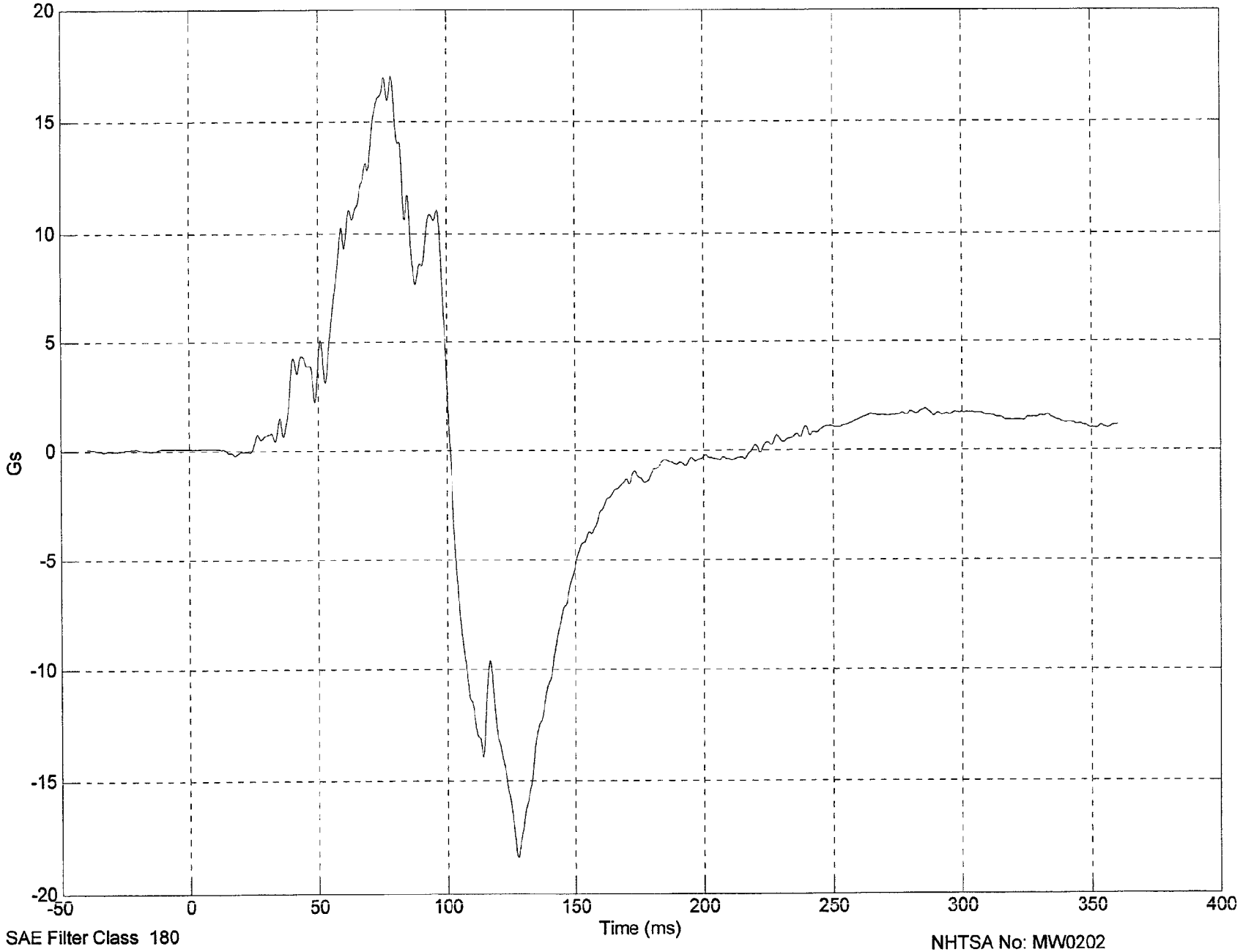
NHTSA No: MW0202
Date: 21 Jan 1998

B-71

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 17 Gs @ 78.60 msec
Min = -18.4 Gs @ 127.30 msec



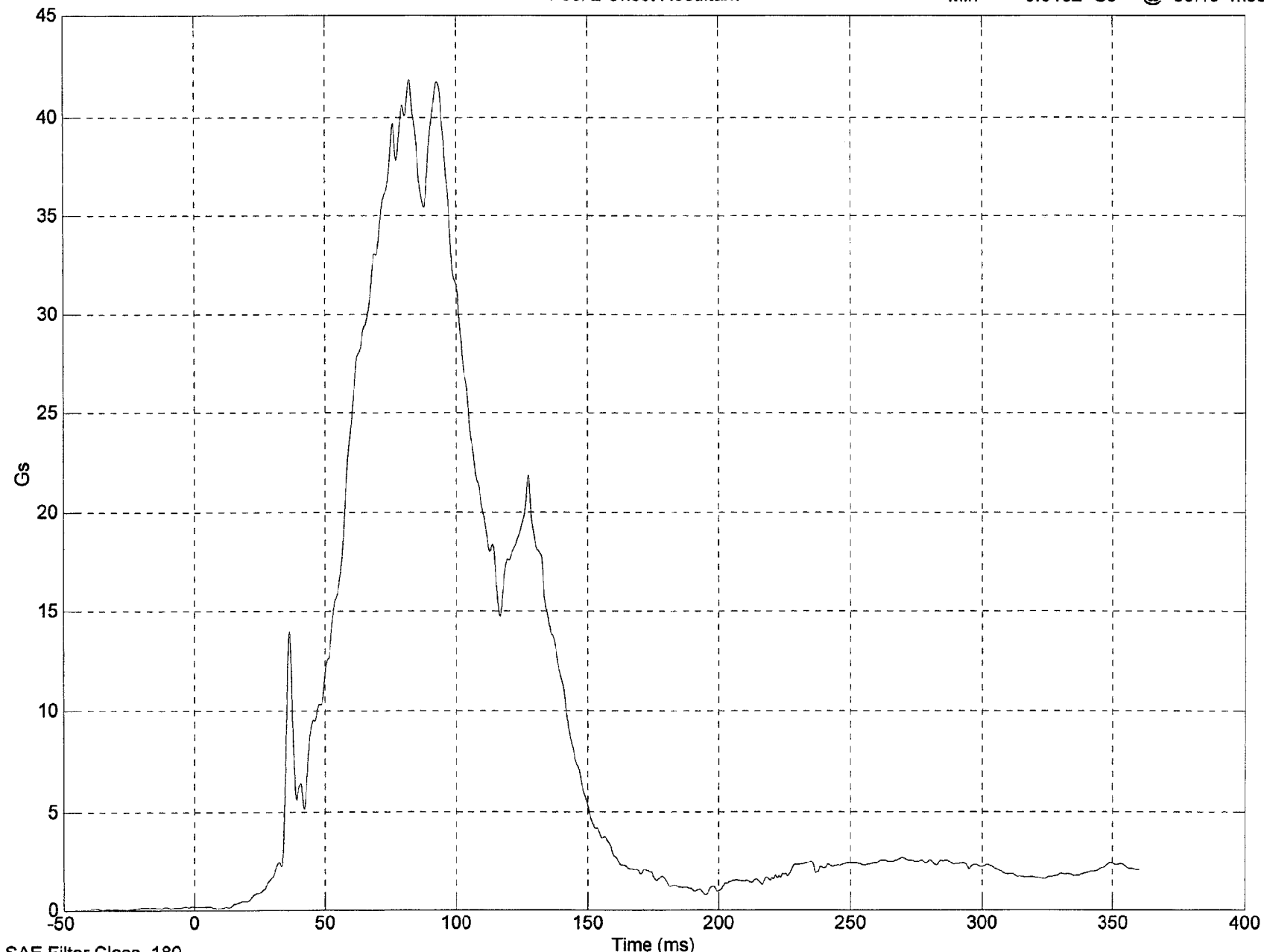
SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 41.8 Gs @ 82.40 msec
Min = 0.0182 Gs @ -35.10 msec



B-73

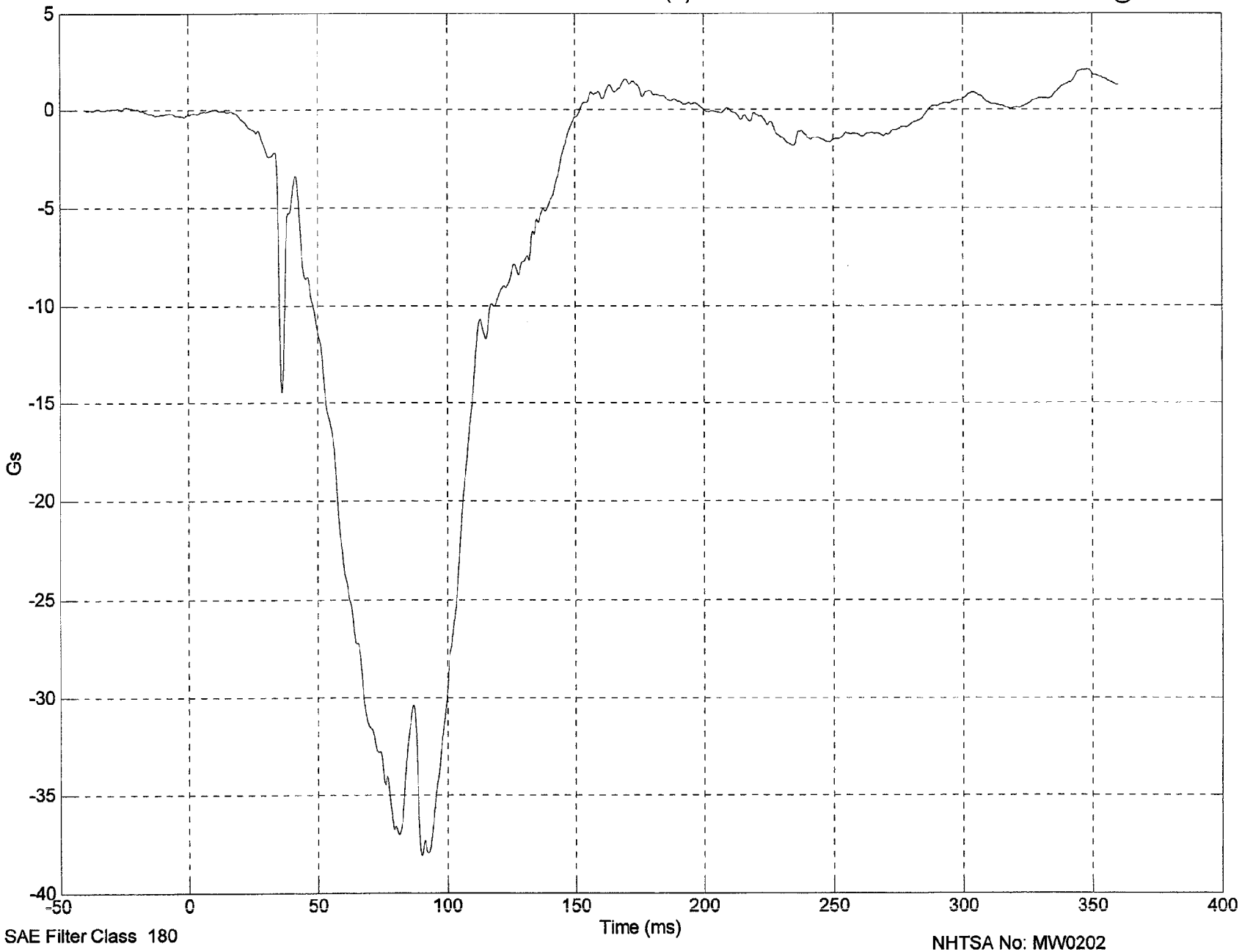
8413-16

SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 1.97 Gs @ 348.20 msec
Min = -38.1 Gs @ 90.10 msec



SAE Filter Class 180

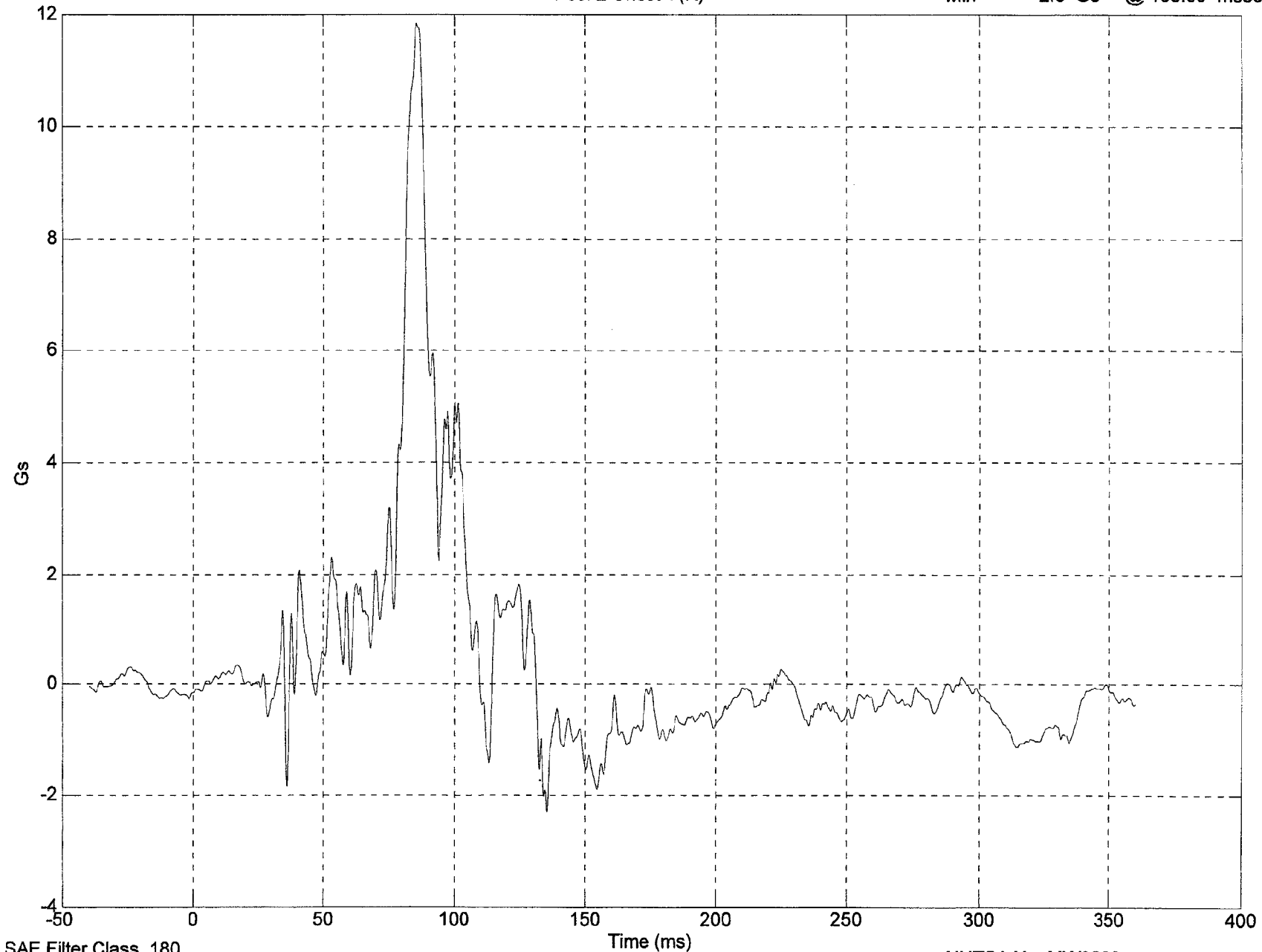
NHTSA No: MW0202
Date: 21 Jan 1998

B-74

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 11.8 Gs @ 85.60 msec
Min = -2.3 Gs @ 135.30 msec



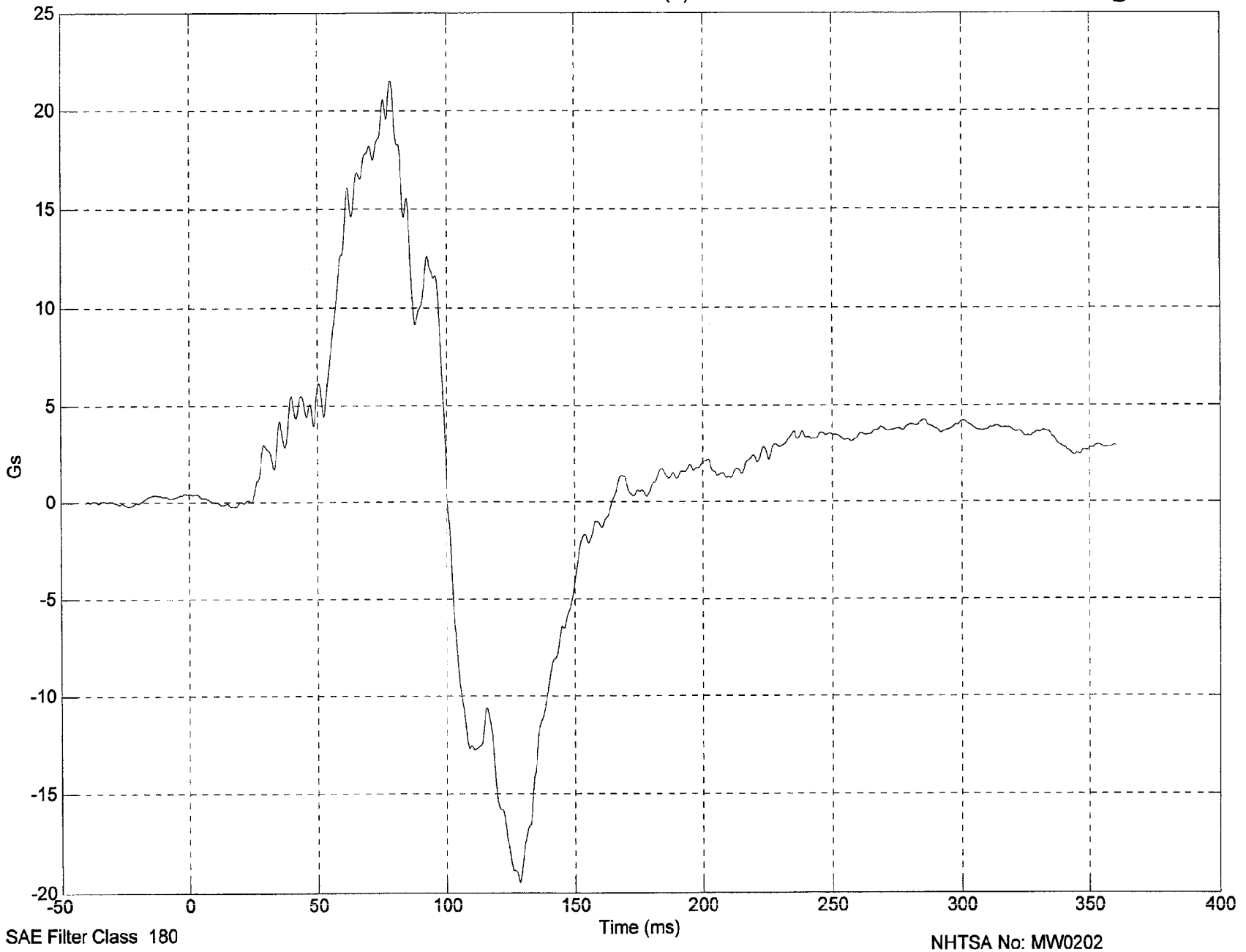
SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 21.5 Gs @ 78.30 msec
Min = -19.5 Gs @ 128.20 msec



B-76

8413-16

SAE Filter Class 180

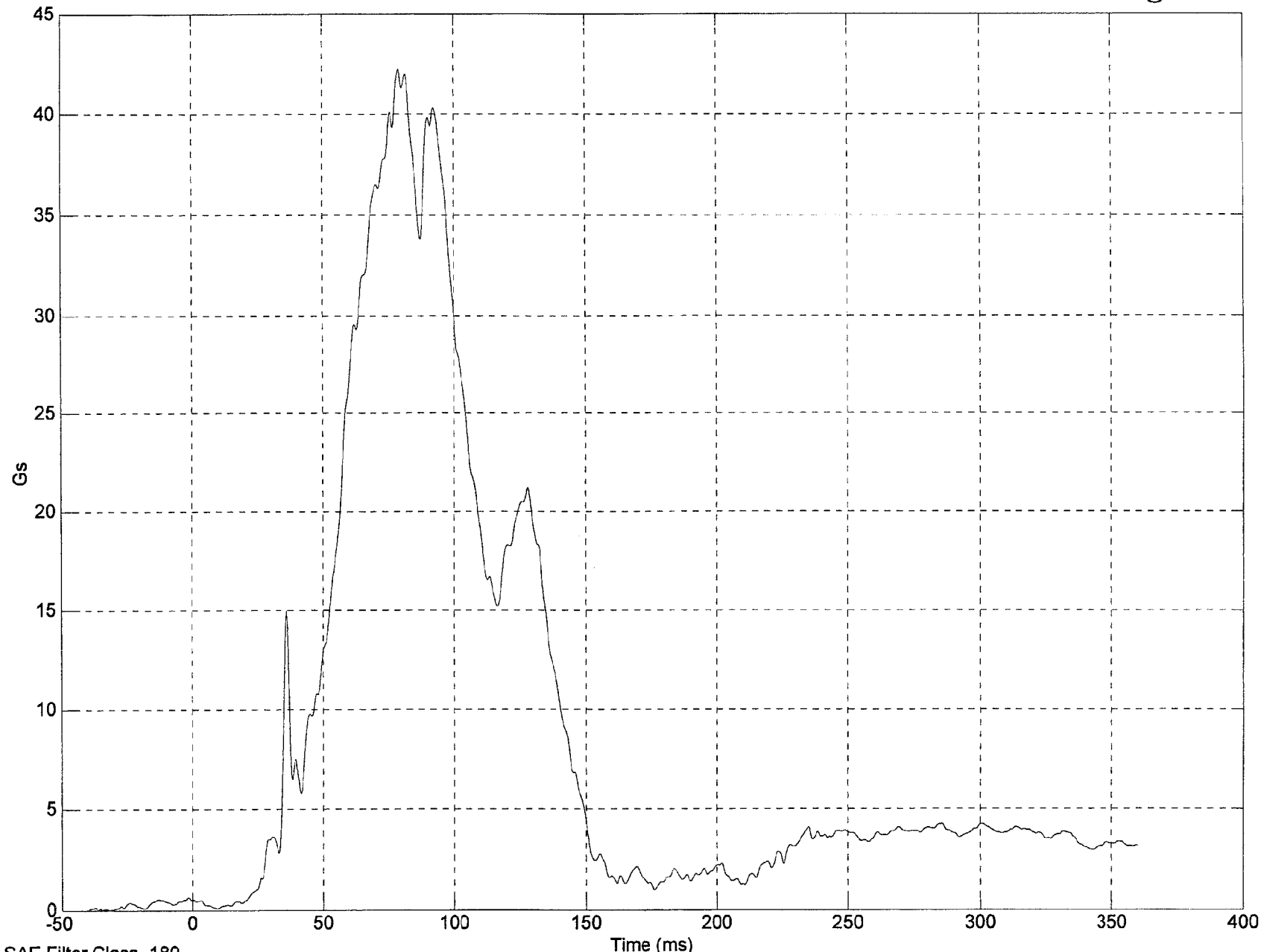
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 42.3 Gs @ 79.20 msec

Pos. 2 Chest Res.

Min = 0.00829 Gs @ -36.10 msec



SAE Filter Class 180

NHTSA No: MW0202

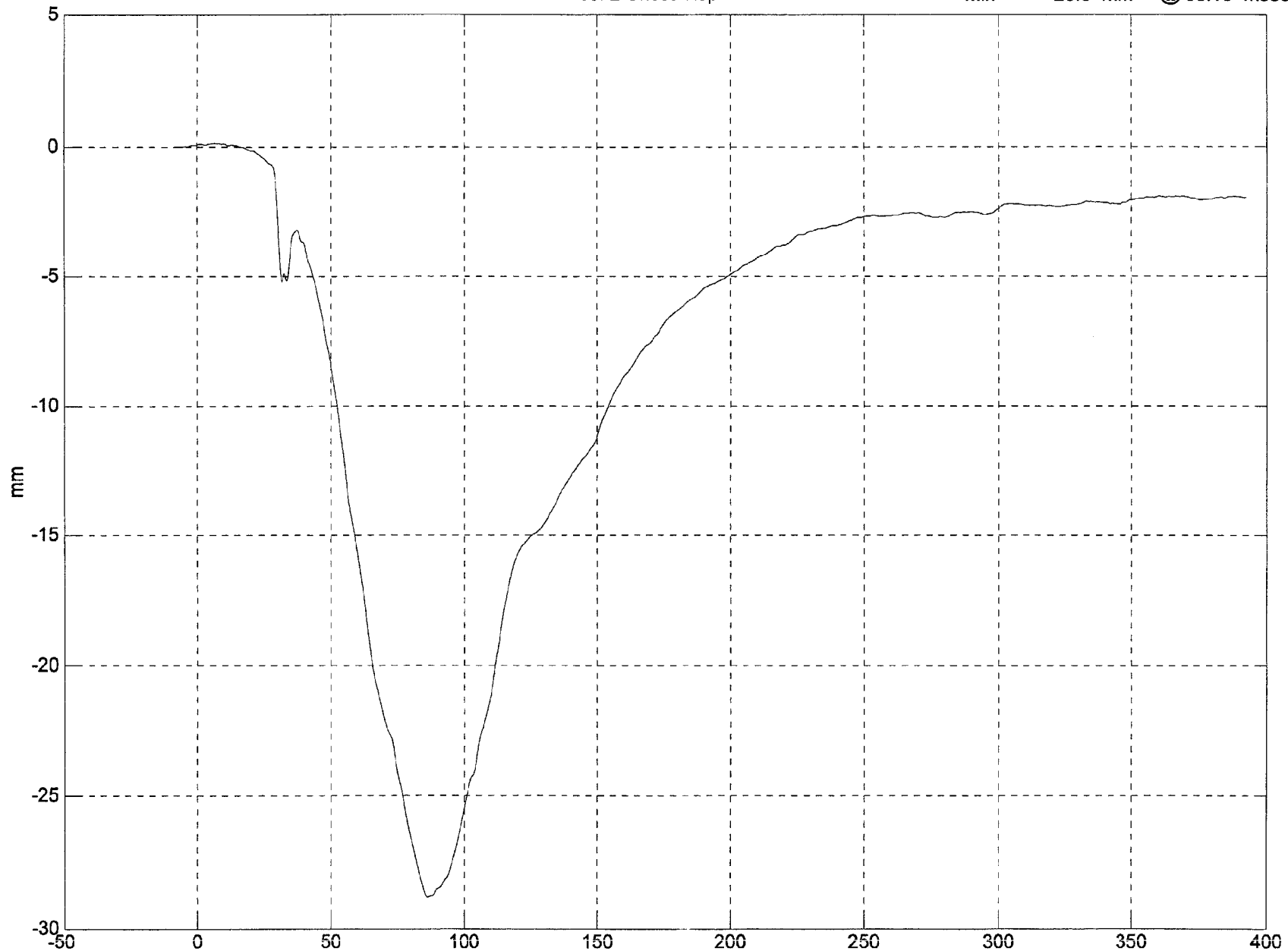
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Chest Disp.

Max = 0.133 mm @ 6.80 msec
Min = -28.8 mm @ 86.10 msec



SAE Filter Class 180

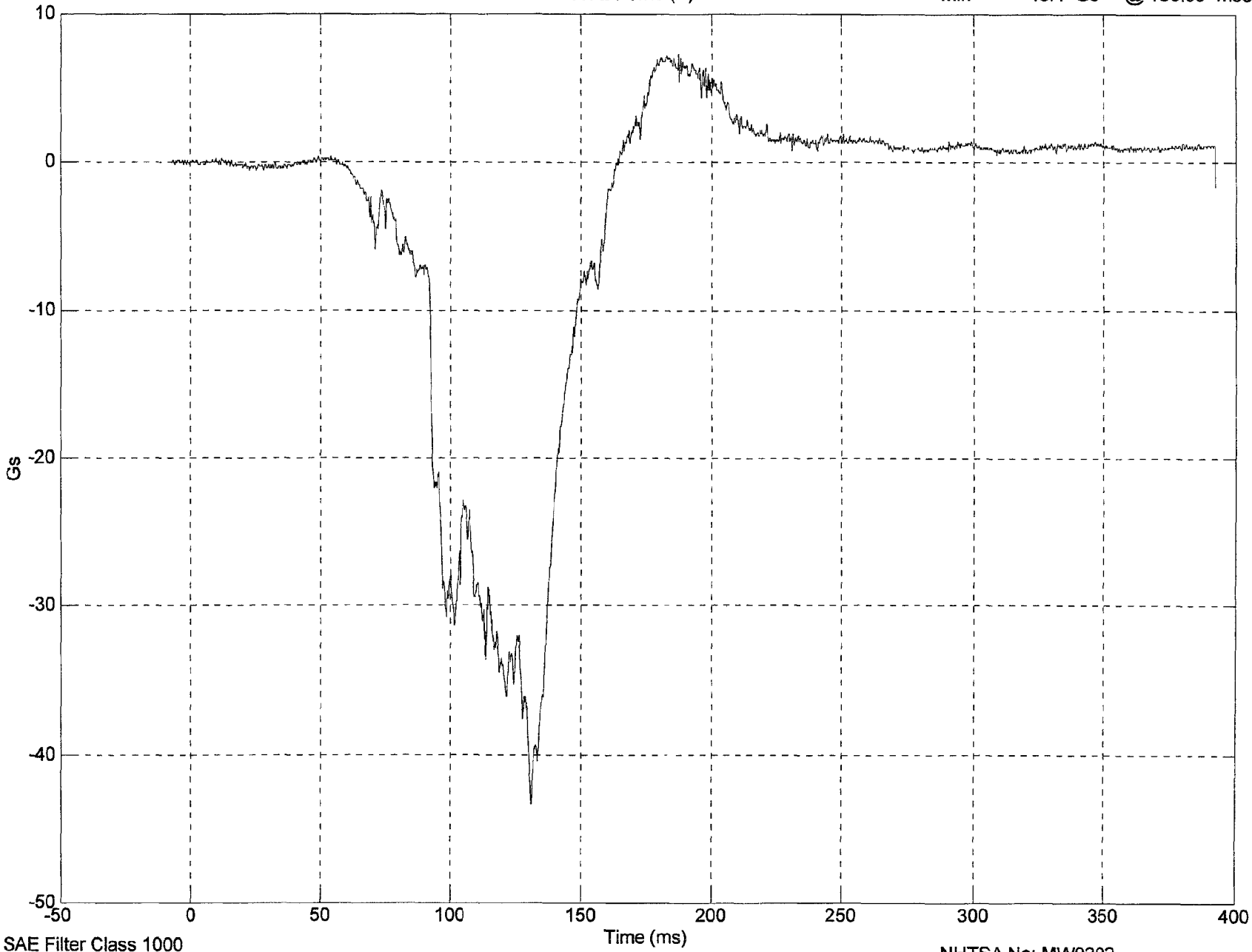
NHTSA No: MW0202
Date: 23 Jan 1998

B-78

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 7.39 Gs @ 187.20 msec
Min = -43.4 Gs @ 130.80 msec



SAE Filter Class 1000

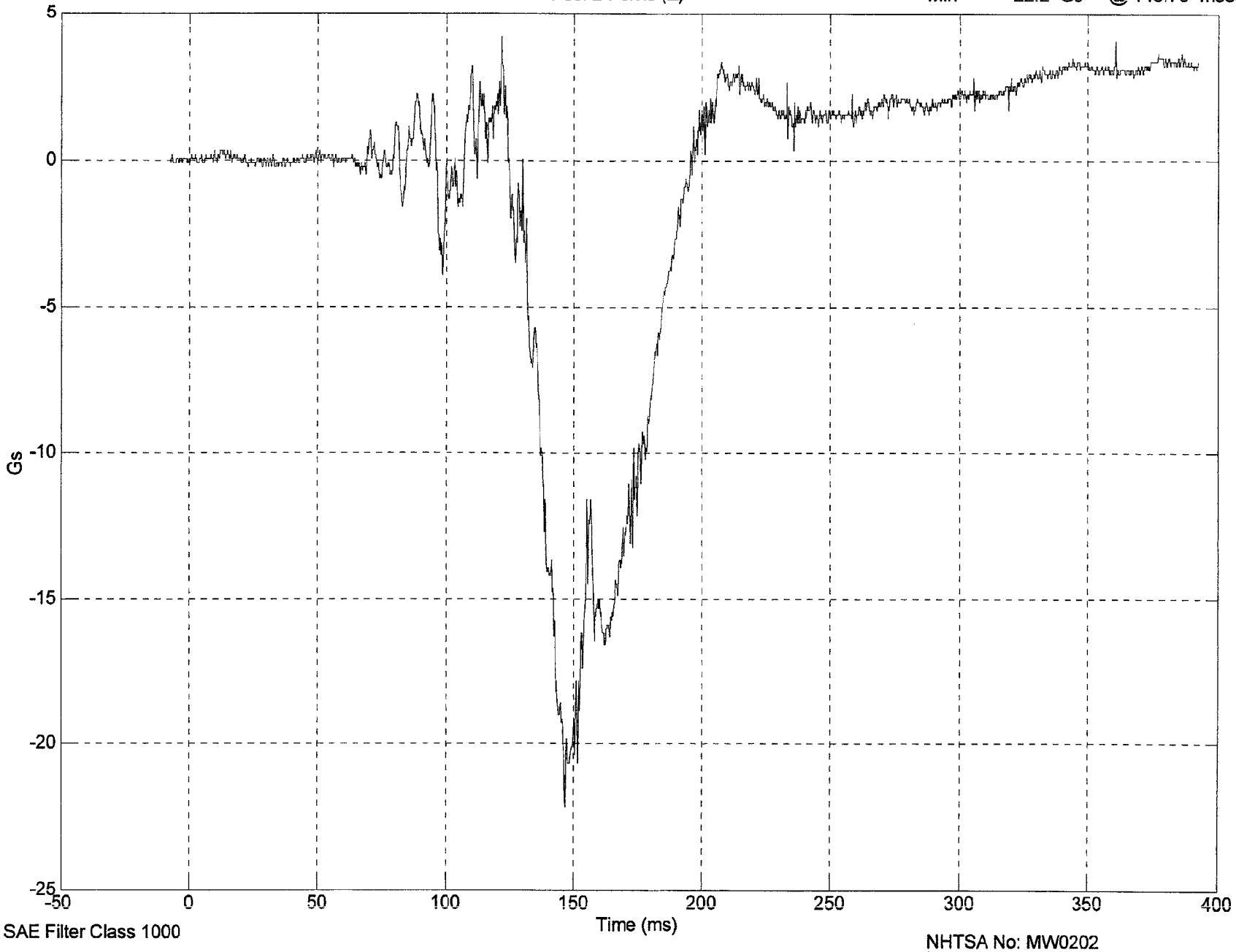
NHTSA No: MW0202
Date: 23 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Pelvic (Z)

Max = 4.18 Gs @ 121.60 msec
Min = -22.2 Gs @ 146.70 msec



SAE Filter Class 1000

NHTSA No: MW0202
Date: 23 Jan 1998

B-80

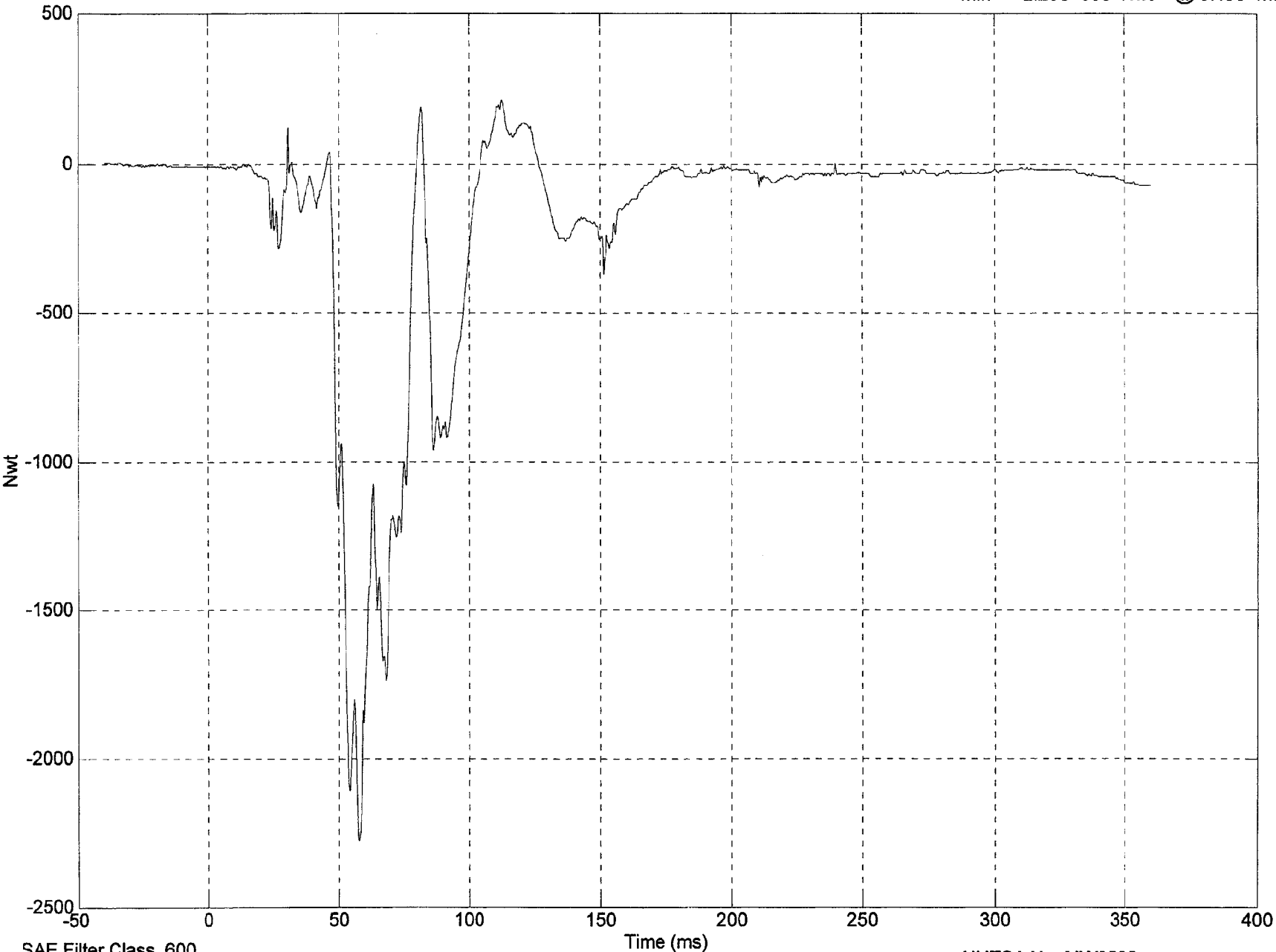
8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 214 Nwt @ 112.70 msec

Pos. 2 Left Femur

Min = -2.28e+003 Nwt @ 57.60 msec



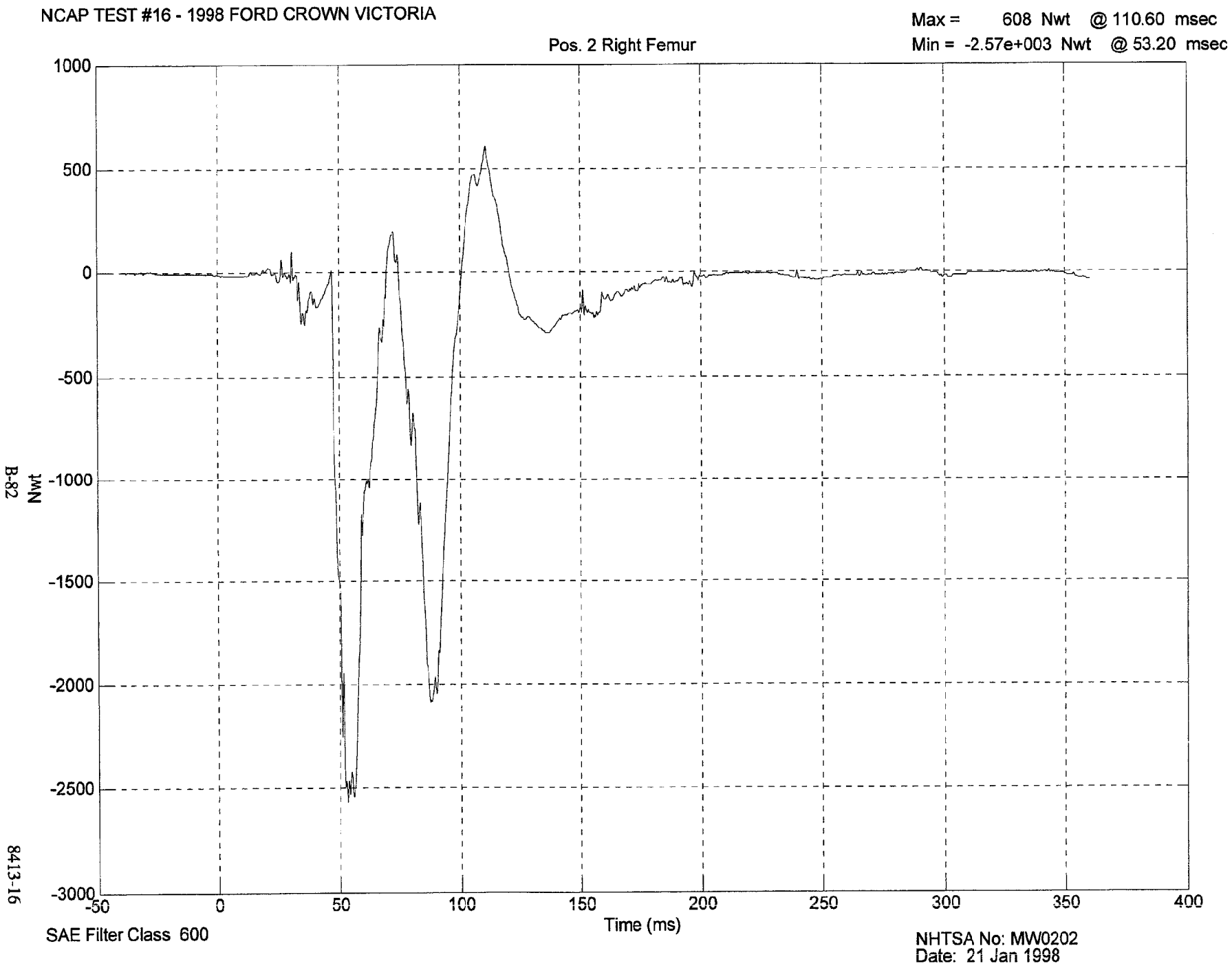
B-81

8413-16

SAE Filter Class 600

NHTSA No: MW0202

Date: 21 Jan 1998

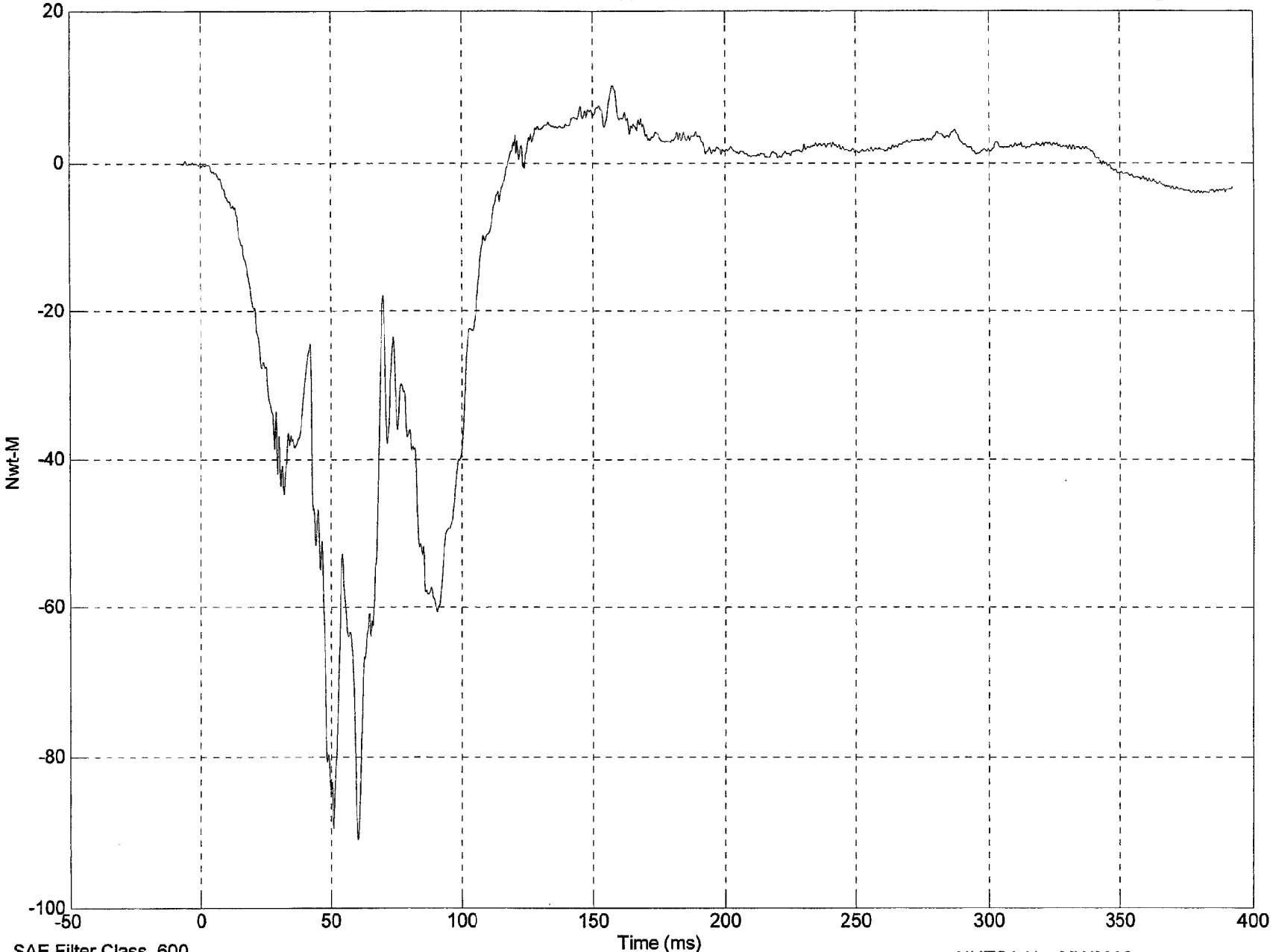

NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 608 Nwt @ 110.60 msec
Pos. 2 Right Femur
Min = -2.57e+003 Nwt @ 53.20 msec
1000
500
0
-500
-1000
-1500
-2000
-2500
-3000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (ms)
B-82
8413-16
SAE Filter Class 600
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P2 Lt Upper Tibia My

Max = 10.3 Nwt-M @ 157.40 msec

Min = -91 Nwt-M @ 60.40 msec



SAE Filter Class 600

NHTSA No: MW0202

Date: 23 Jan 1998

B-83

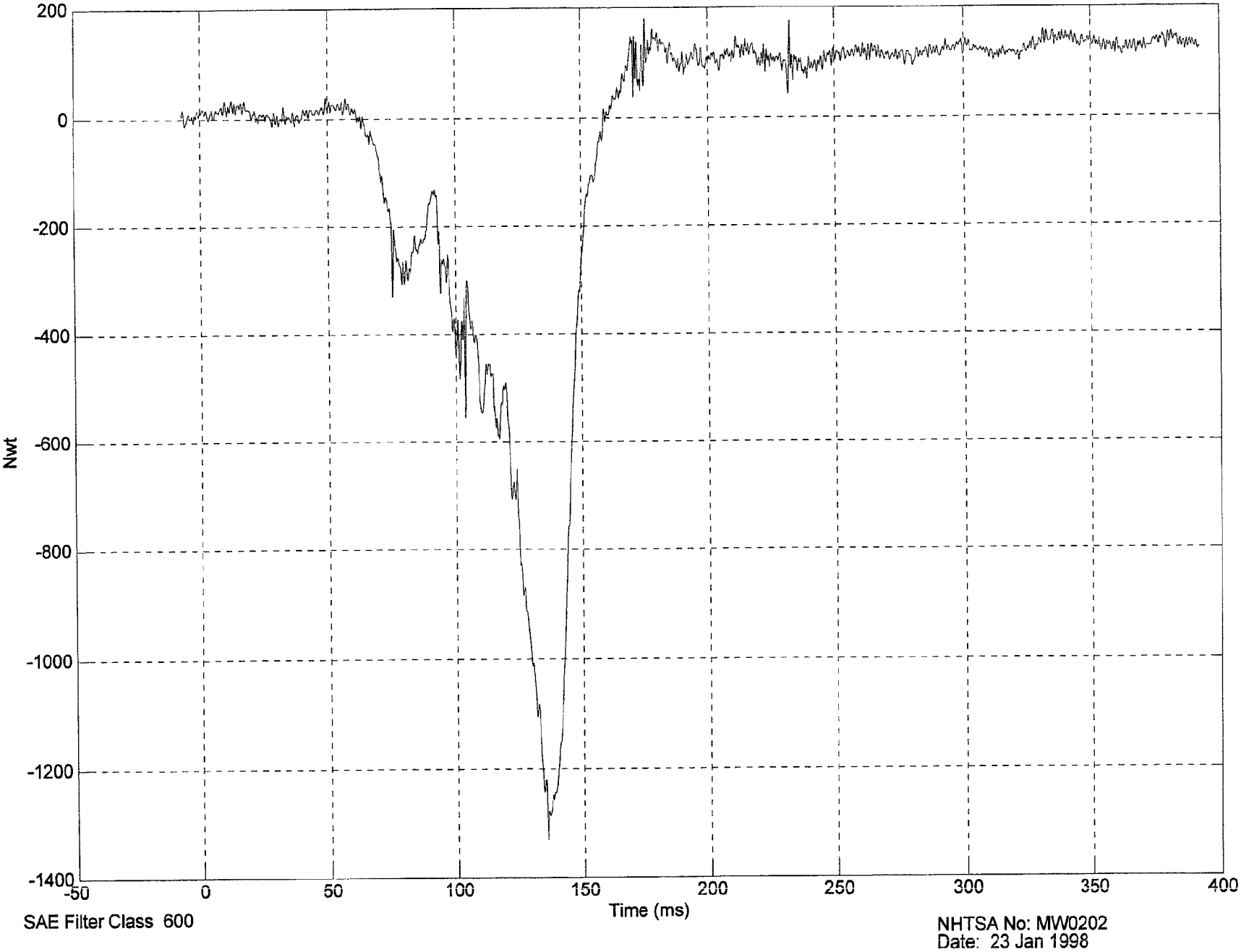
8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P2 Lt Lower Tibia Fx

Max = 180 Nwt @ 175.30 msec

Min = -1.33e+003 Nwt @ 135.40 msec



NWt

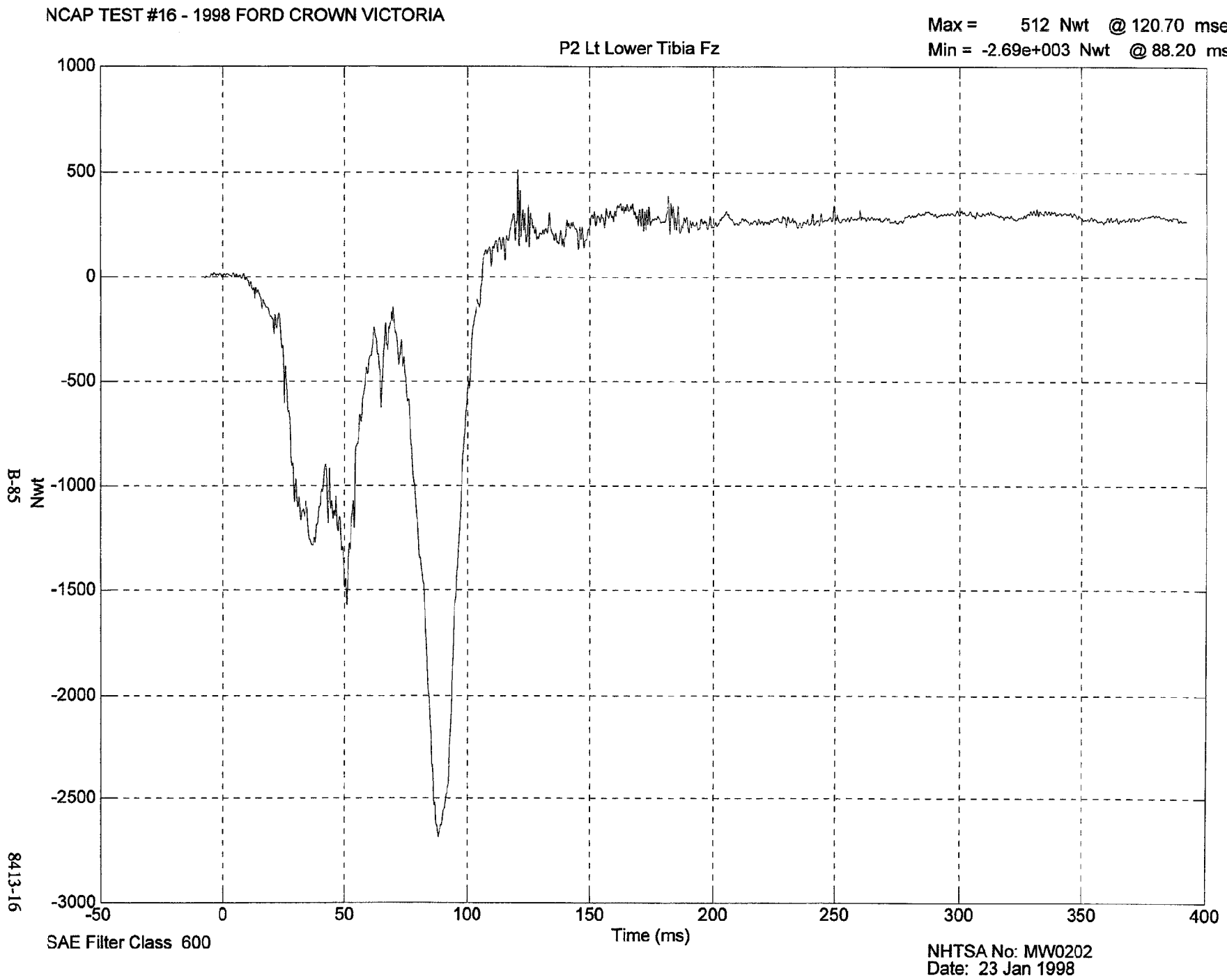
B-84

8413-16

SAE Filter Class 600

NHTSA No: MW0202

Date: 23 Jan 1998

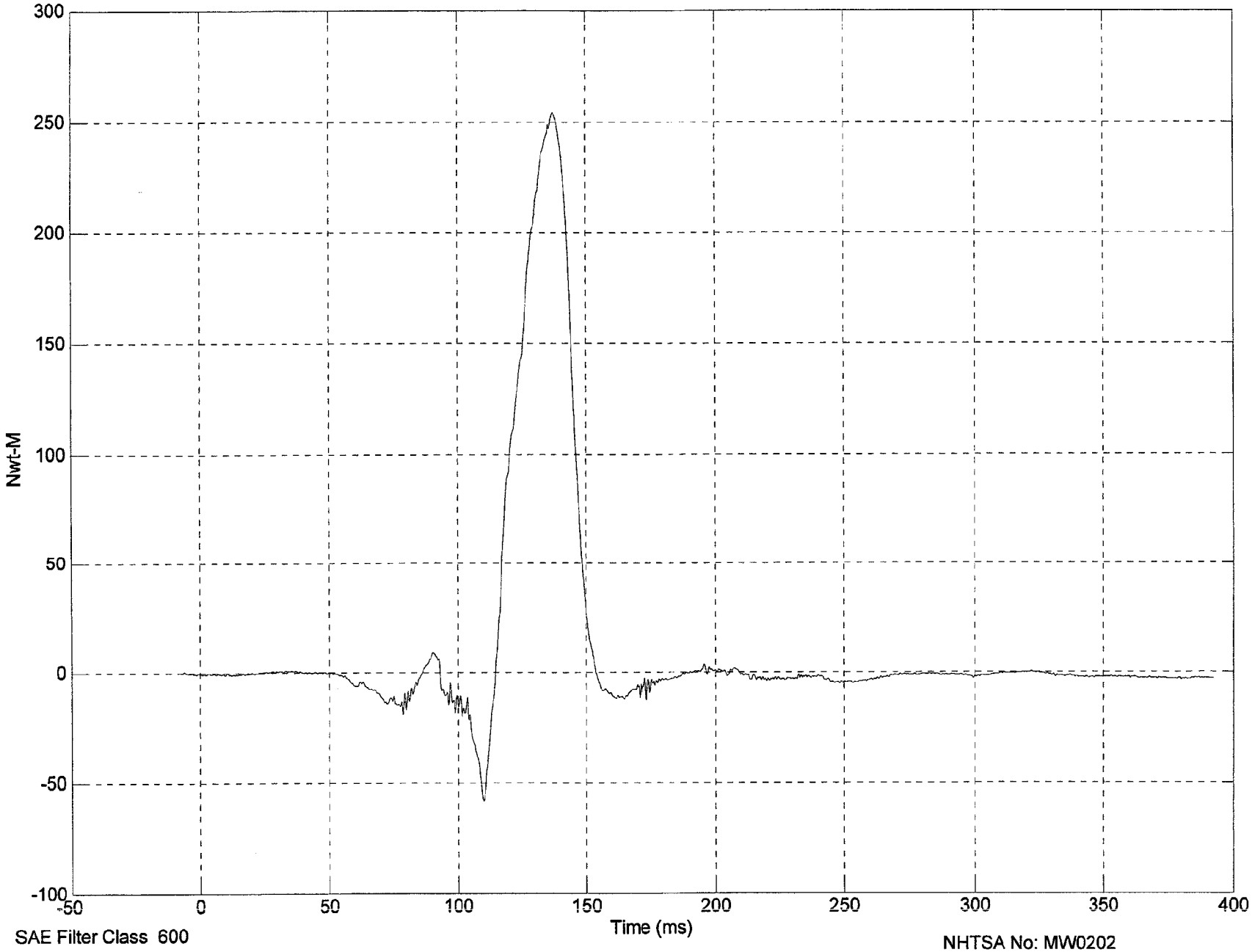

NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 512 Nwt @ 120.70 msec
P2 Lt Lower Tibia Fz
Min = -2.69e+003 Nwt @ 88.20 msec
1000
500
0
-500
-1000
-1500
-2000
-2500
-3000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (ms)
B-85
8413-16
SAE Filter Class 600
NHTSA No: MW0202
Date: 23 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P2 Lt Lower Tibia My

Max = 254 Nwt-M @ 137.30 msec

Min = -58.2 Nwt-M @ 110.00 msec



B-86

8413-16

SAE Filter Class 600

NHTSA No: MW0202

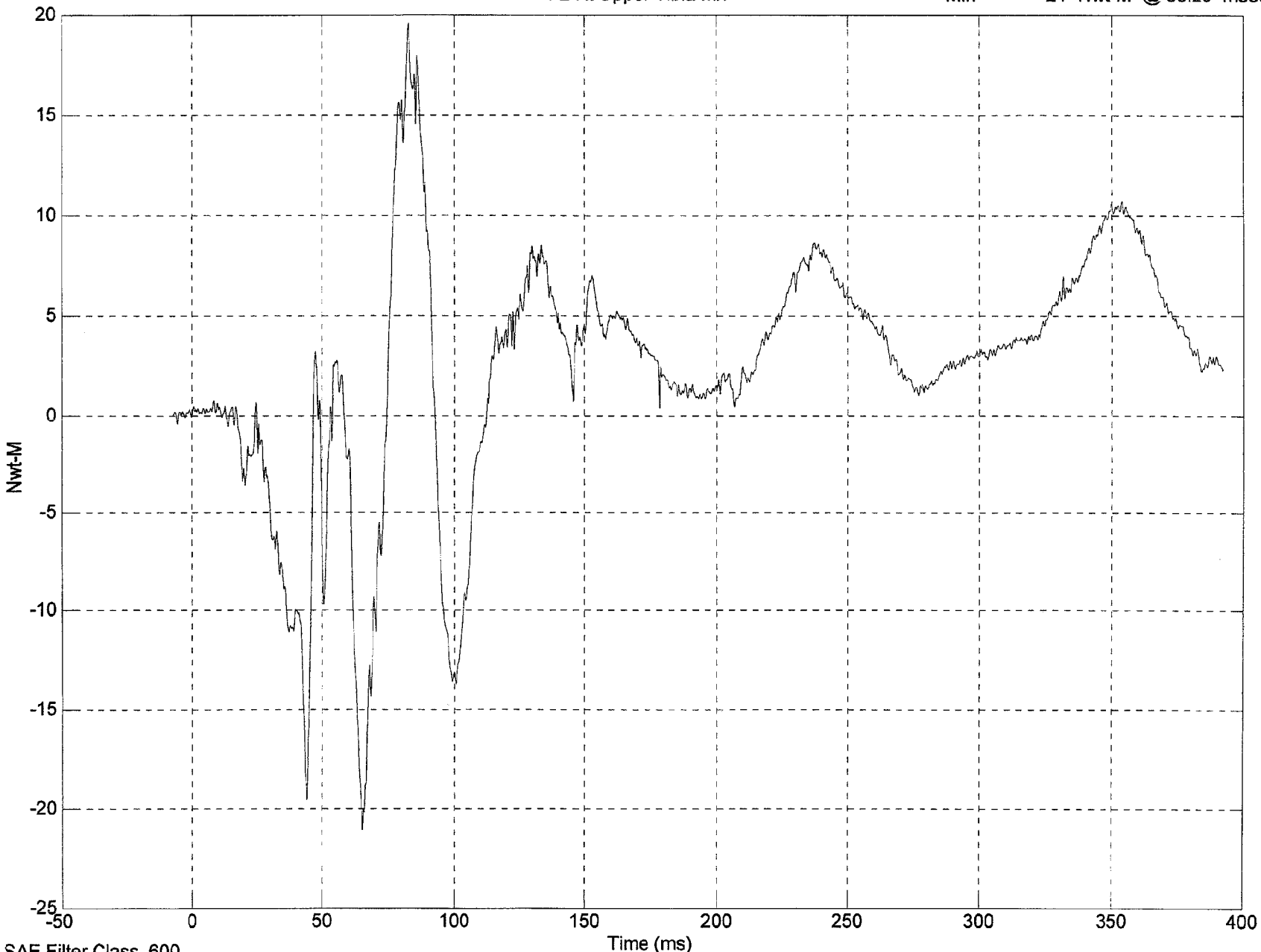
Date: 23 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P2 Rt Upper Tibia Mx

Max = 19.6 Nwt-M @ 82.70 msec

Min = -21 Nwt-M @ 65.20 msec



SAE Filter Class 600

NHTSA No: MW0202

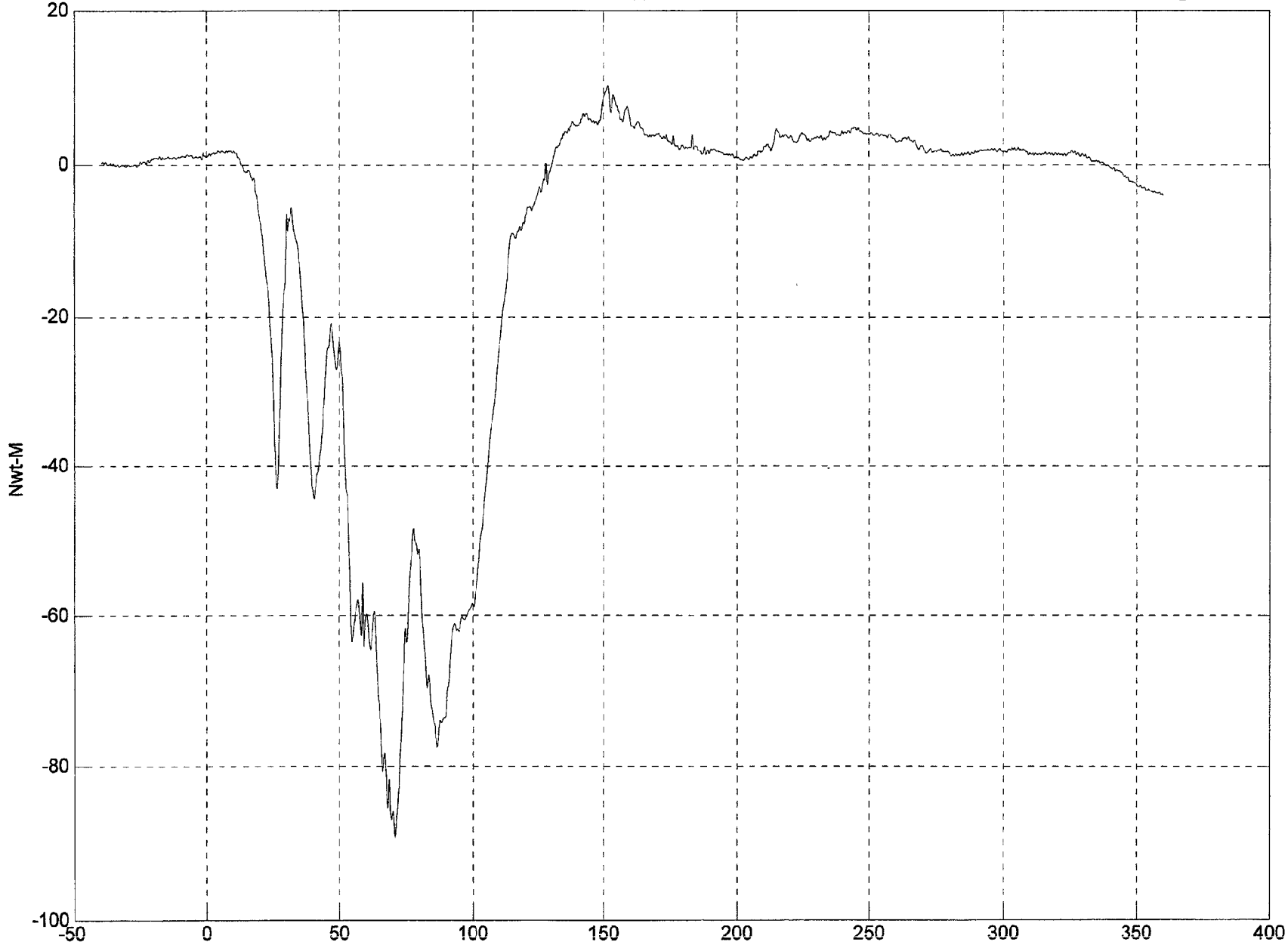
Date: 23 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P2 Rt Upper Tibia My

Max = 10.2 Nwt-M @ 151.60 msec
Min = -89.2 Nwt-M @ 71.00 msec

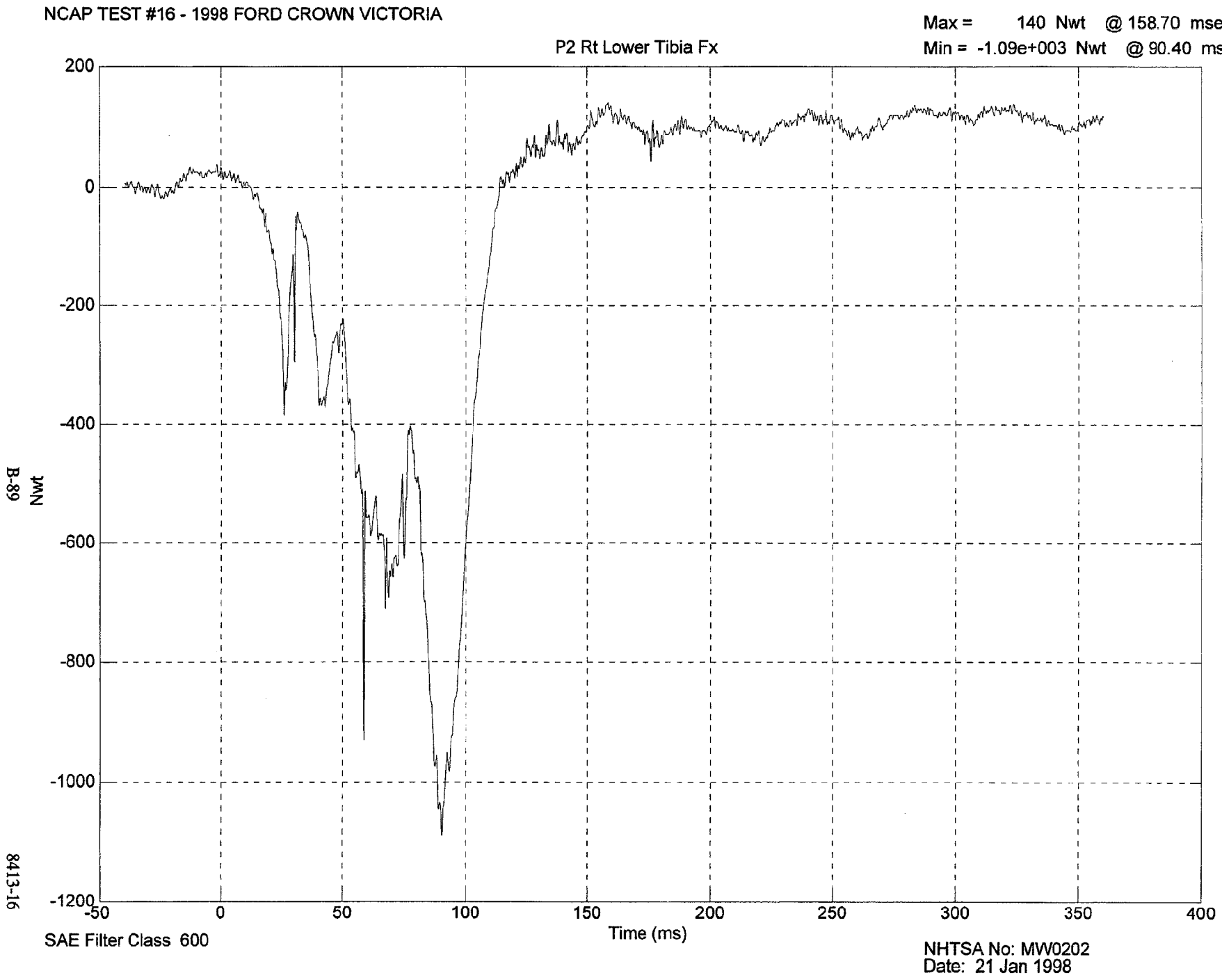


B-88

8413-16

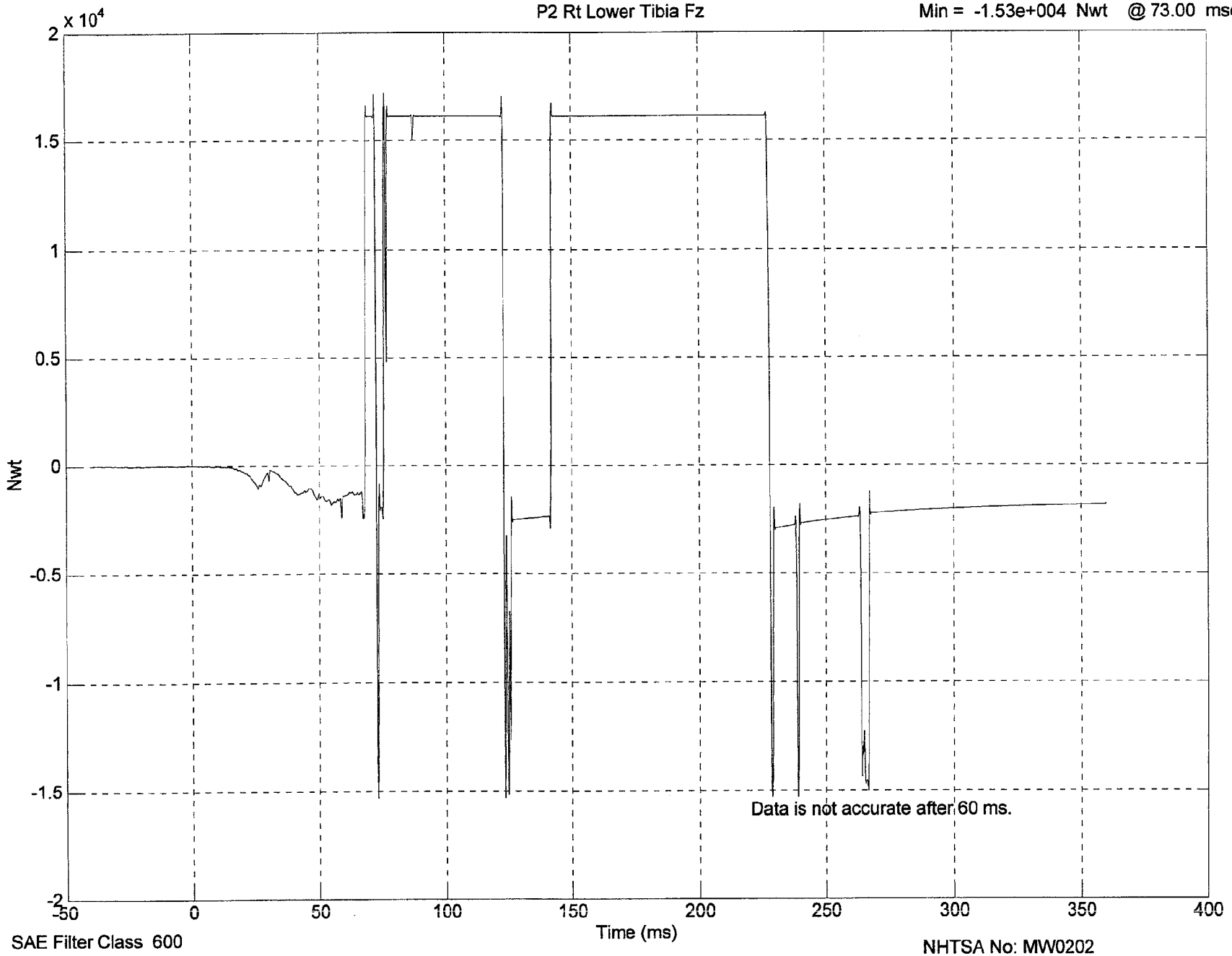
SAE Filter Class 600

NHTSA No: MW0202
Date: 21 Jan 1998


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Max = 140 Nwt @ 158.70 msec
P2 Rt Lower Tibia Fx
Min = -1.09e+003 Nwt @ 90.40 msec
200
0
-200
-400
-600
-800
-1000
-1200
Nwt
B-89
8413-16
-50
0
50
100
150
200
250
300
350
400
Time (ms)
SAE Filter Class 600
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 1.72e+004 Nwt @ 76.10 msec
Min = -1.53e+004 Nwt @ 73.00 msec



SAE Filter Class 600

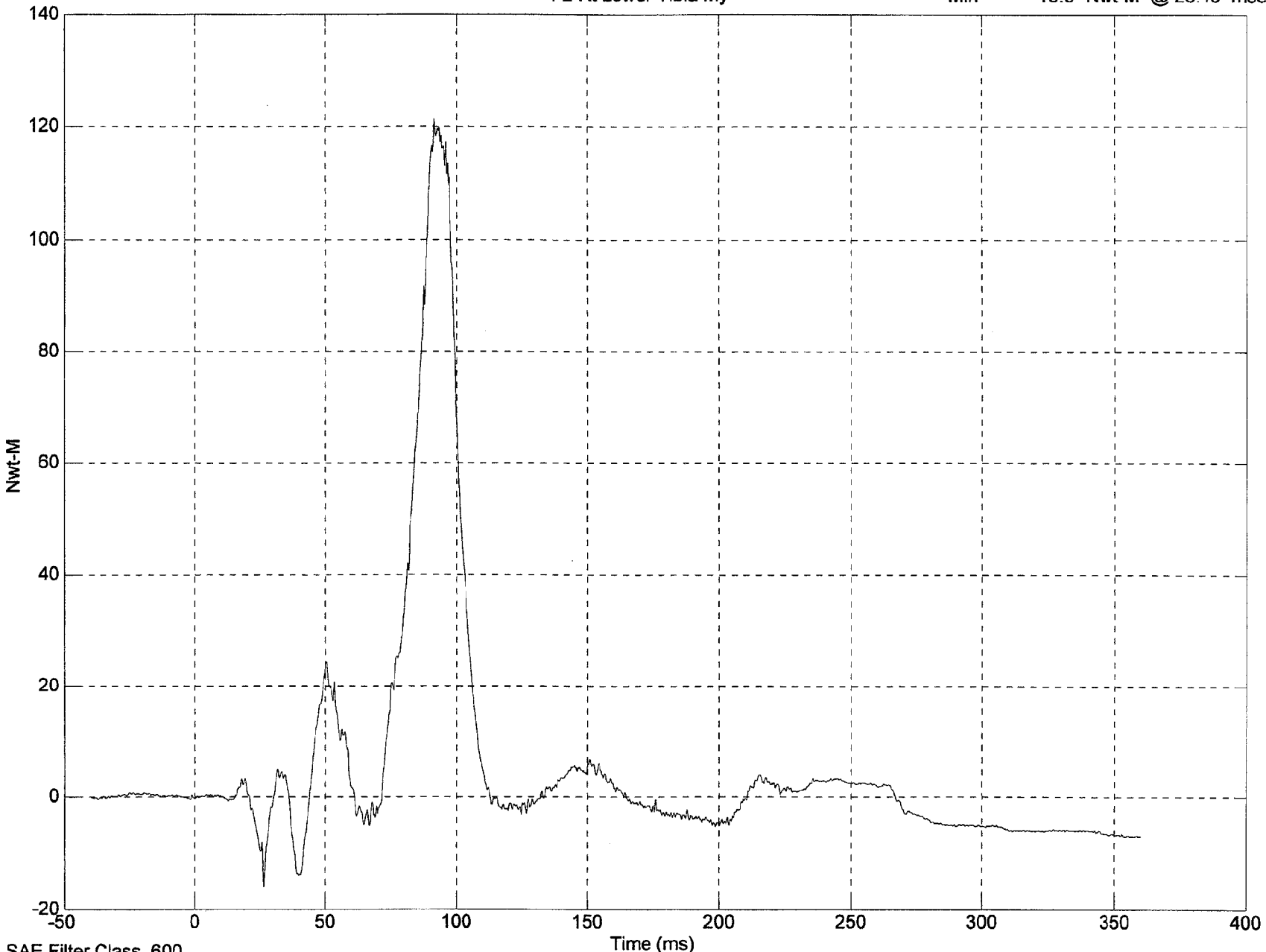
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

P2 Rt Lower Tibia My

Max = 121 Nwt-M @ 91.50 msec
Min = -15.9 Nwt-M @ 26.40 msec



SAE Filter Class 600

NHTSA No: MW0202
Date: 21 Jan 1998

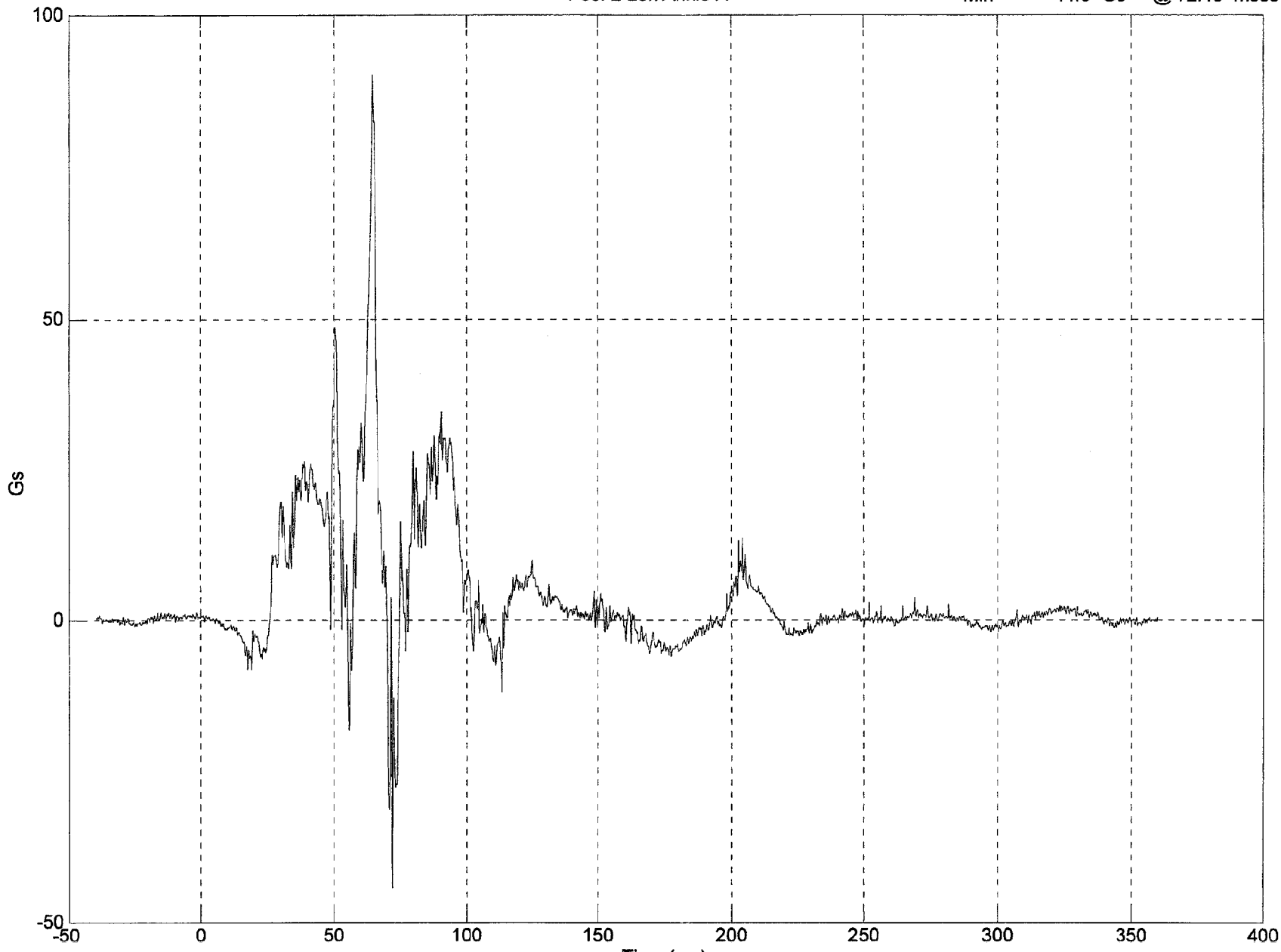
B-91

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Left Ankle X

Max = 90.2 Gs @ 64.30 msec
Min = -44.3 Gs @ 72.10 msec



B-92

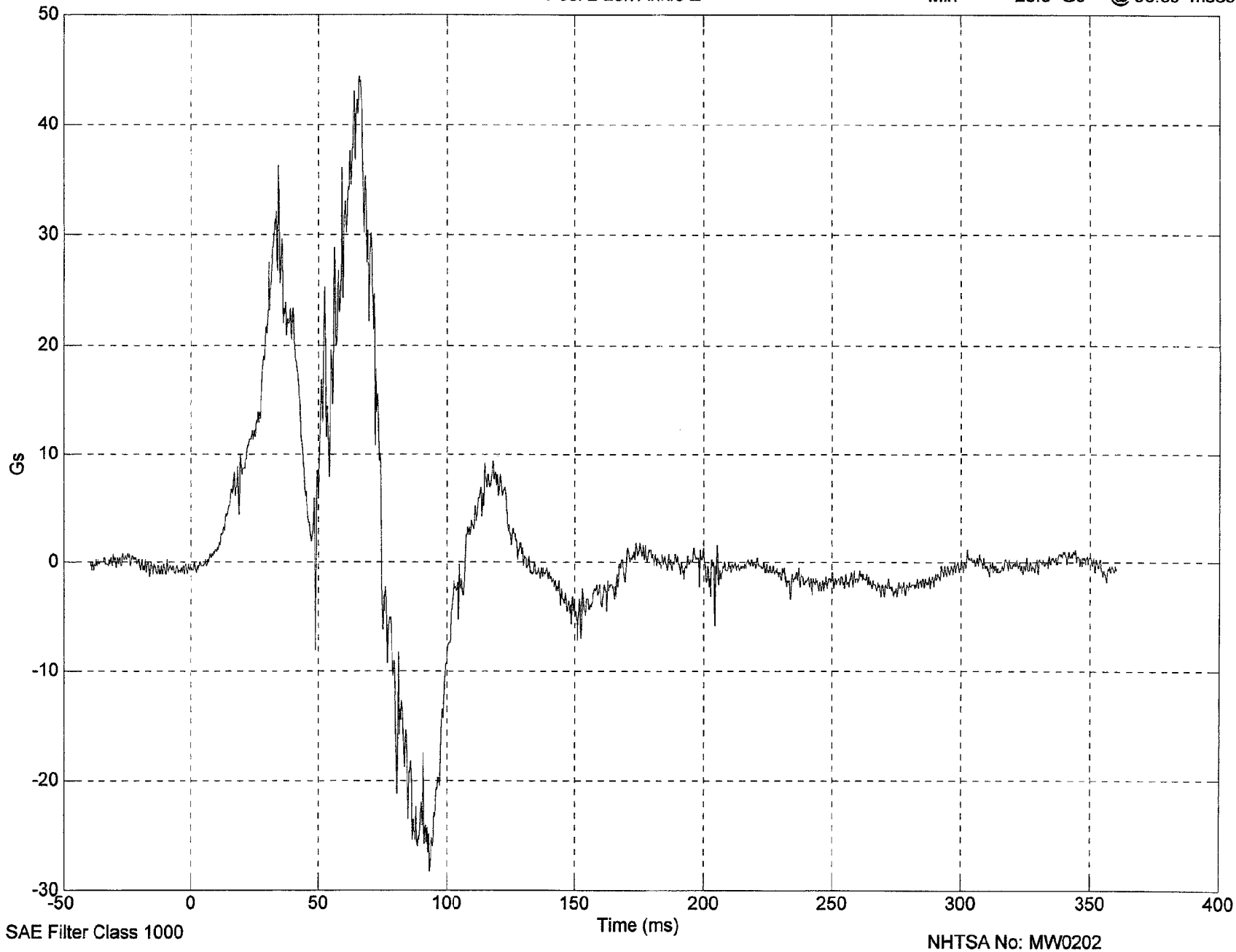
8413-16

SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 44.5 Gs @ 65.60 msec
Min = -28.3 Gs @ 93.30 msec



SAE Filter Class 1000

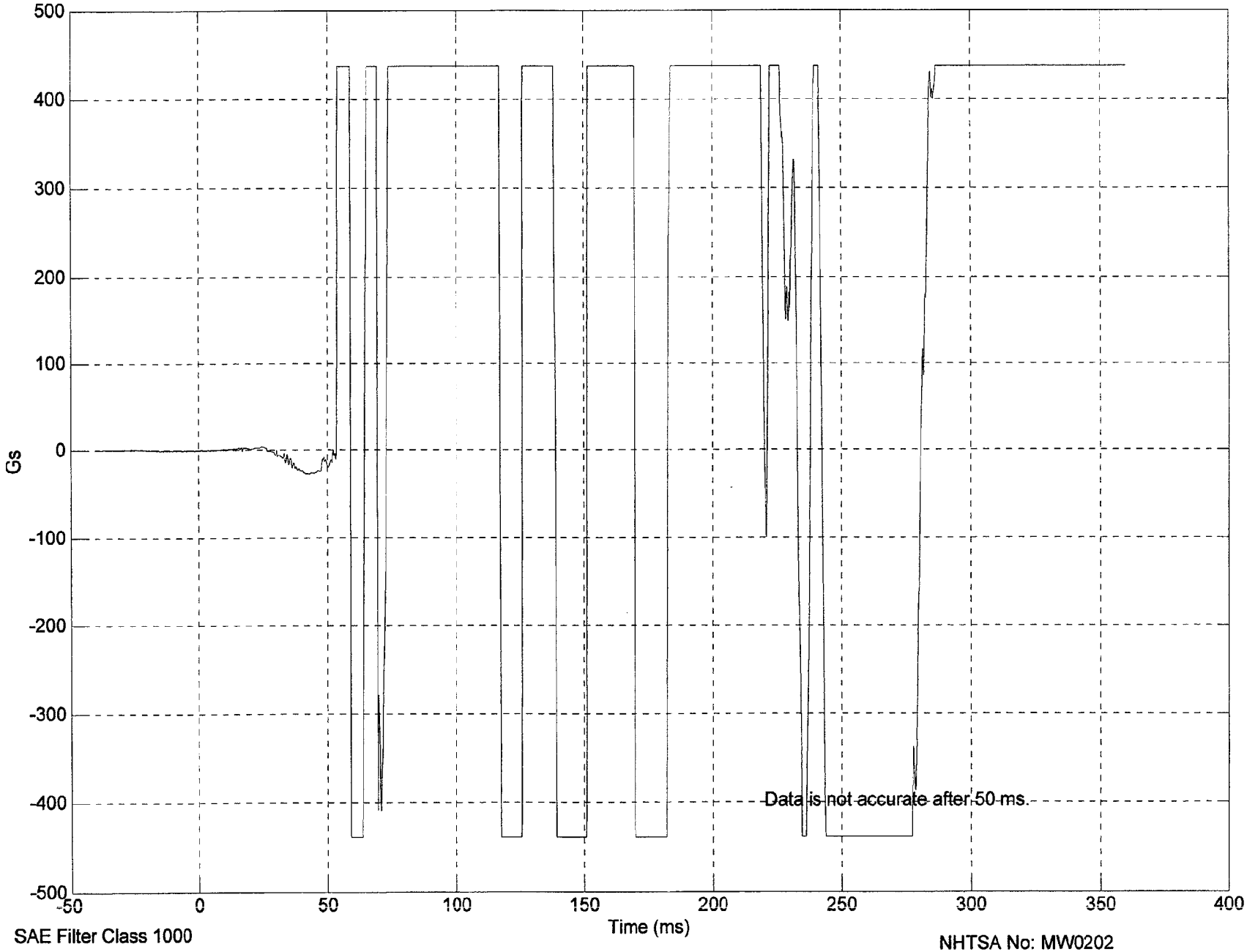
NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 438 Gs @ 53.80 msec
Min = -439 Gs @ 59.00 msec

Pos. 2 Left Toe Z



B-94

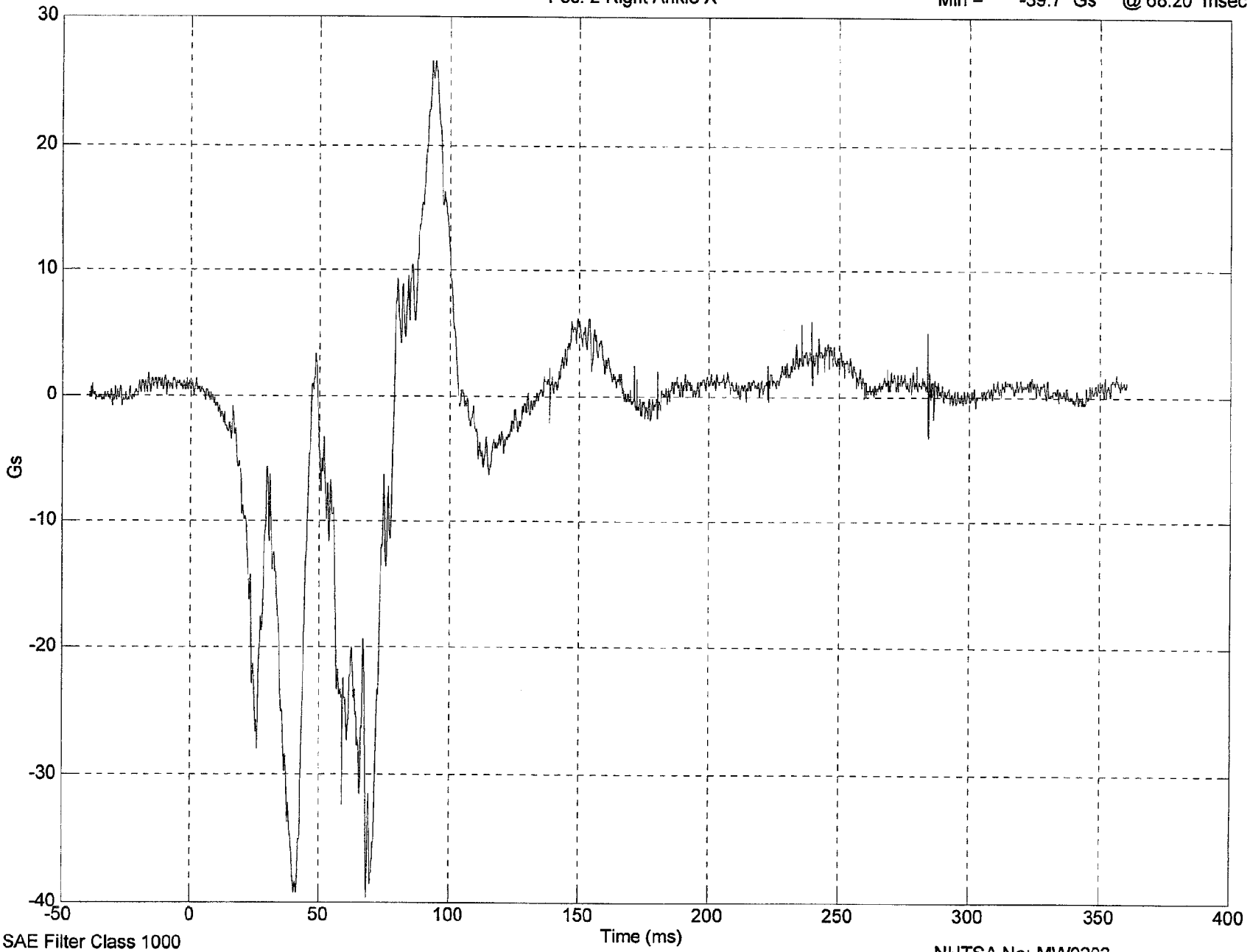
8413-16

SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 26.5 Gs @ 93.20 msec
Min = -39.7 Gs @ 68.20 msec

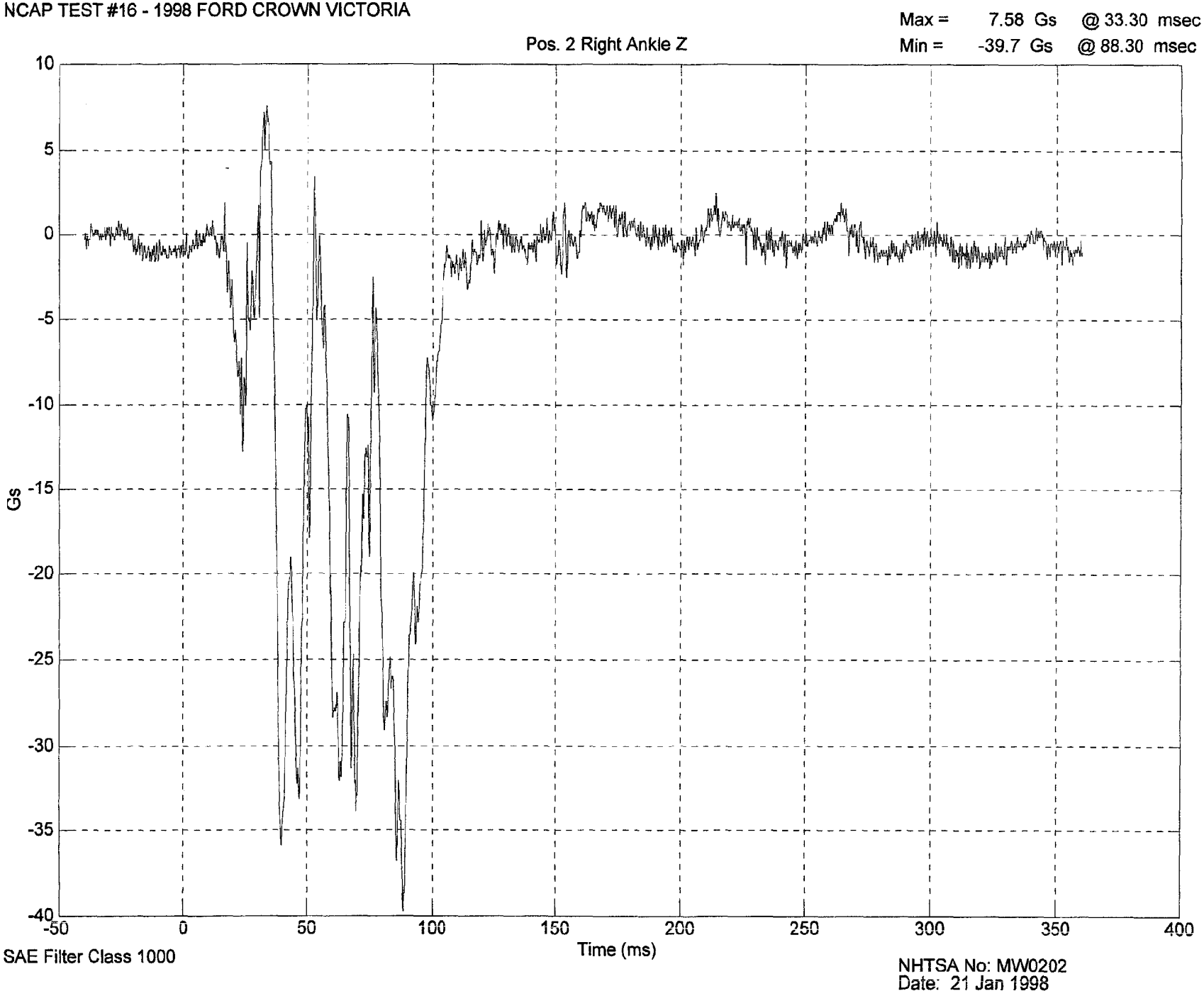


SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

B-95

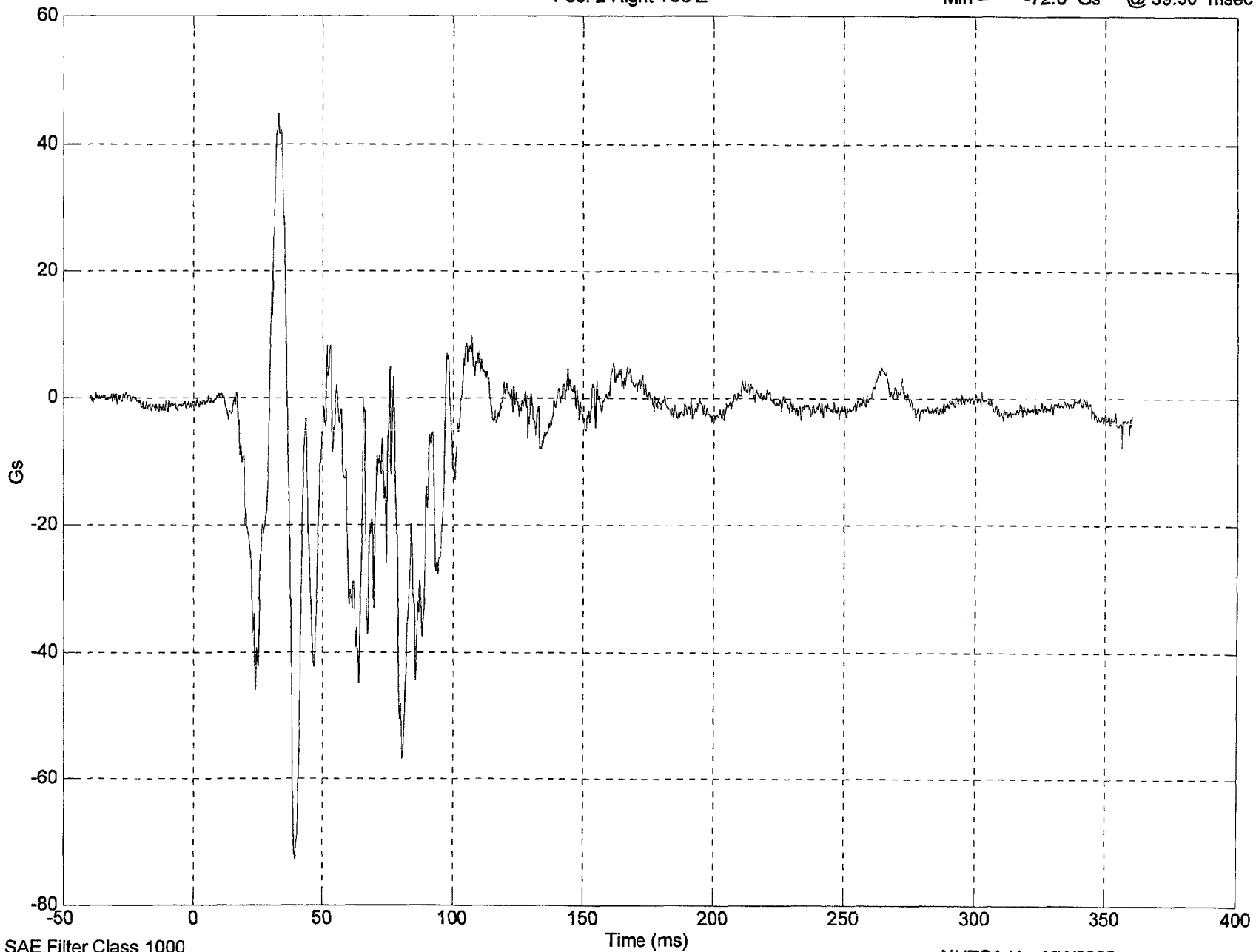
8413-16


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
Pos. 2 Right Ankle Z
Max = 7.58 Gs @ 33.30 msec
Min = -39.7 Gs @ 88.30 msec
Gs
Time (ms)
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-50
0
50
100
150
200
250
300
350
400
SAE Filter Class 1000
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Right Toe Z

Max = 45 Gs @ 33.10 msec
Min = -72.8 Gs @ 39.50 msec



B-97

8413-16

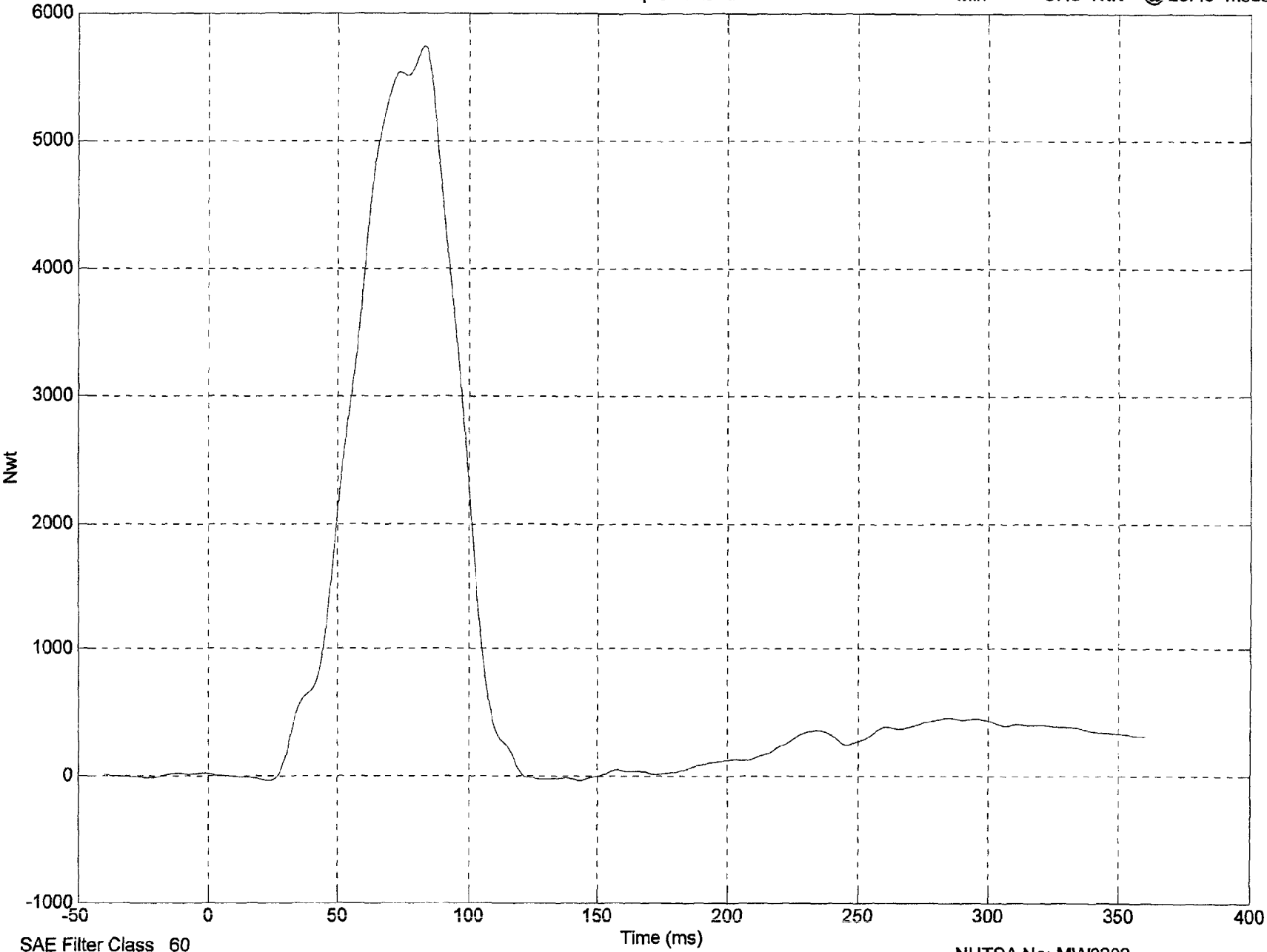
SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Lap Belt Load

Max = 5.74e+003 Nwt @ 83.10 msec
Min = -37.9 Nwt @ 23.40 msec



B-98

8413-16

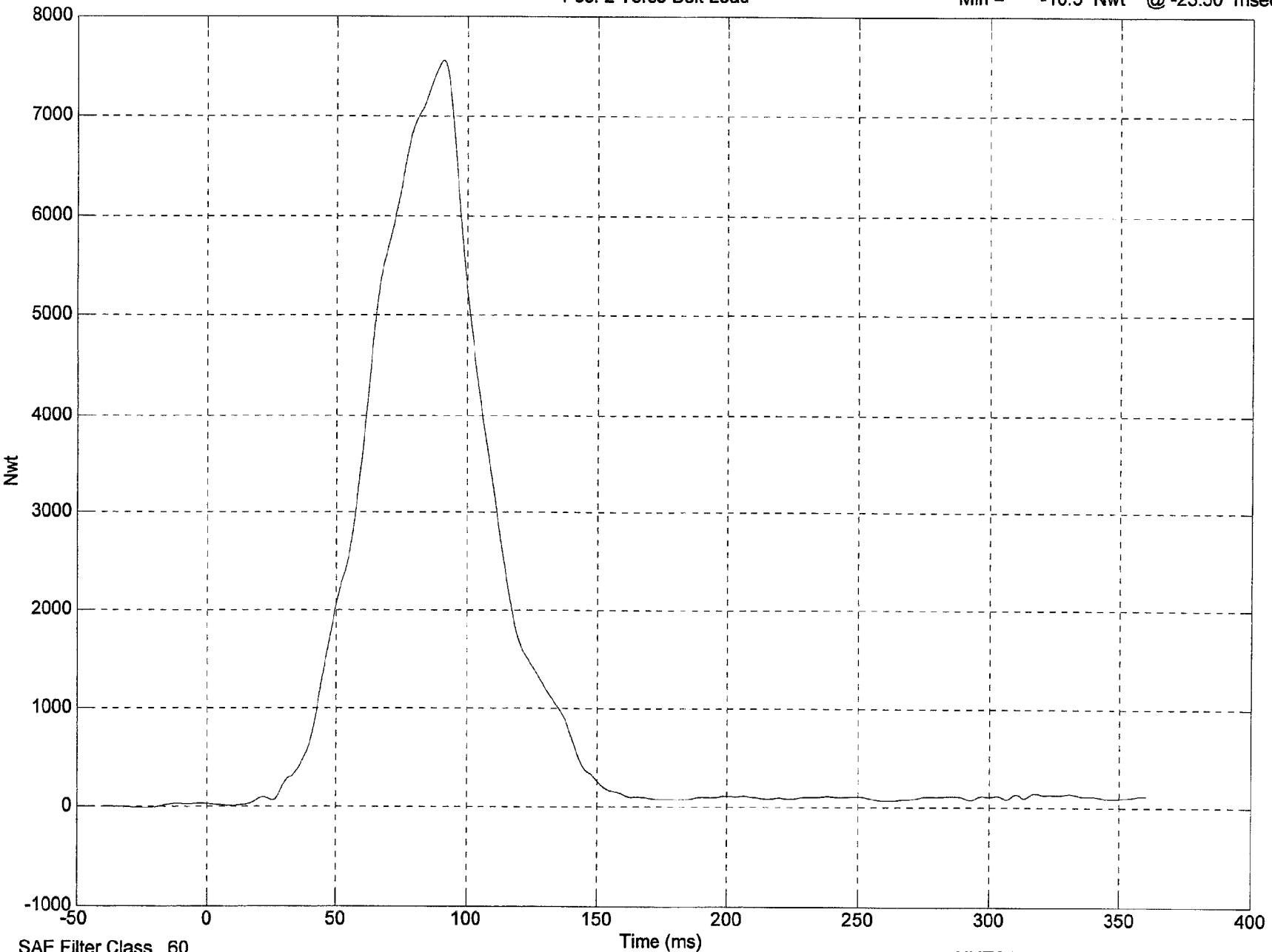
SAE Filter Class 60

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Torso Belt Load

Max = 7.56e+003 Nwt @ 90.90 msec
Min = -10.5 Nwt @ -23.50 msec



B-99

8413-16

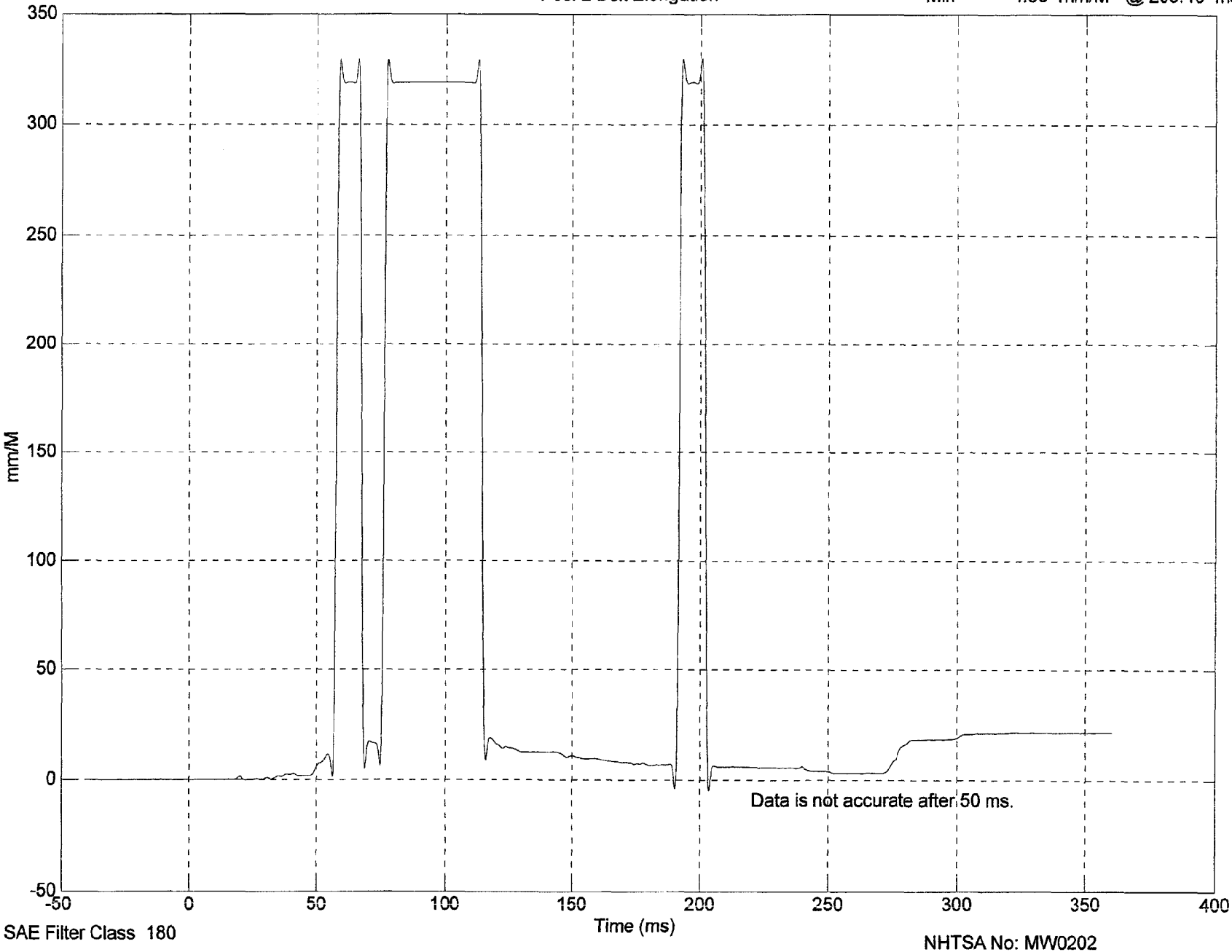
SAE Filter Class 60

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Pos. 2 Belt Elongation

Max = 330 mm/M @ 200.60 msec
Min = -4.63 mm/M @ 203.40 msec



B-100

8413-16

SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

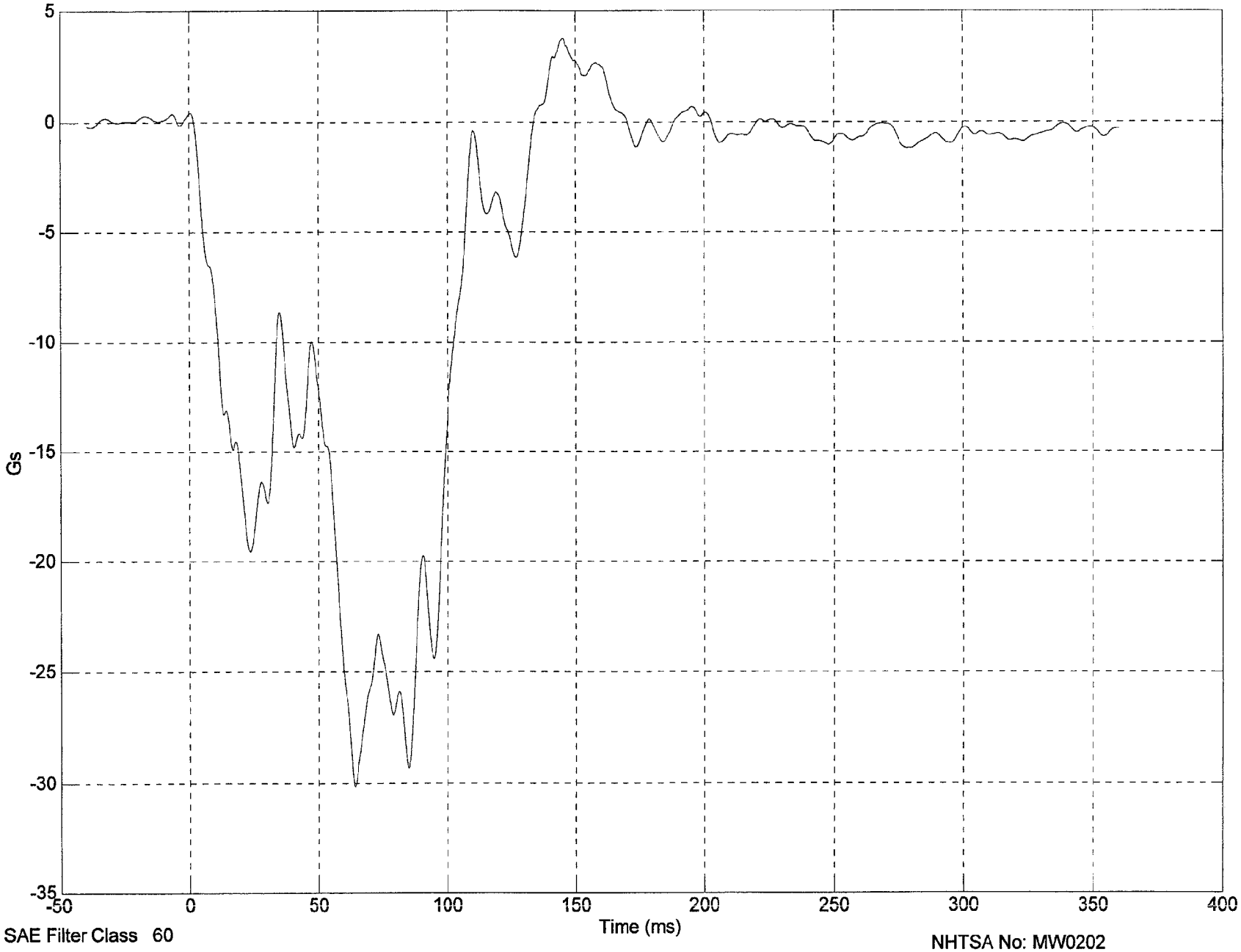
NHTSA TEST NO. MW0202

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

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Left B- Pillar

Max = 3.78 Gs @ 145.00 msec
Min = -30.1 Gs @ 64.10 msec



B-102

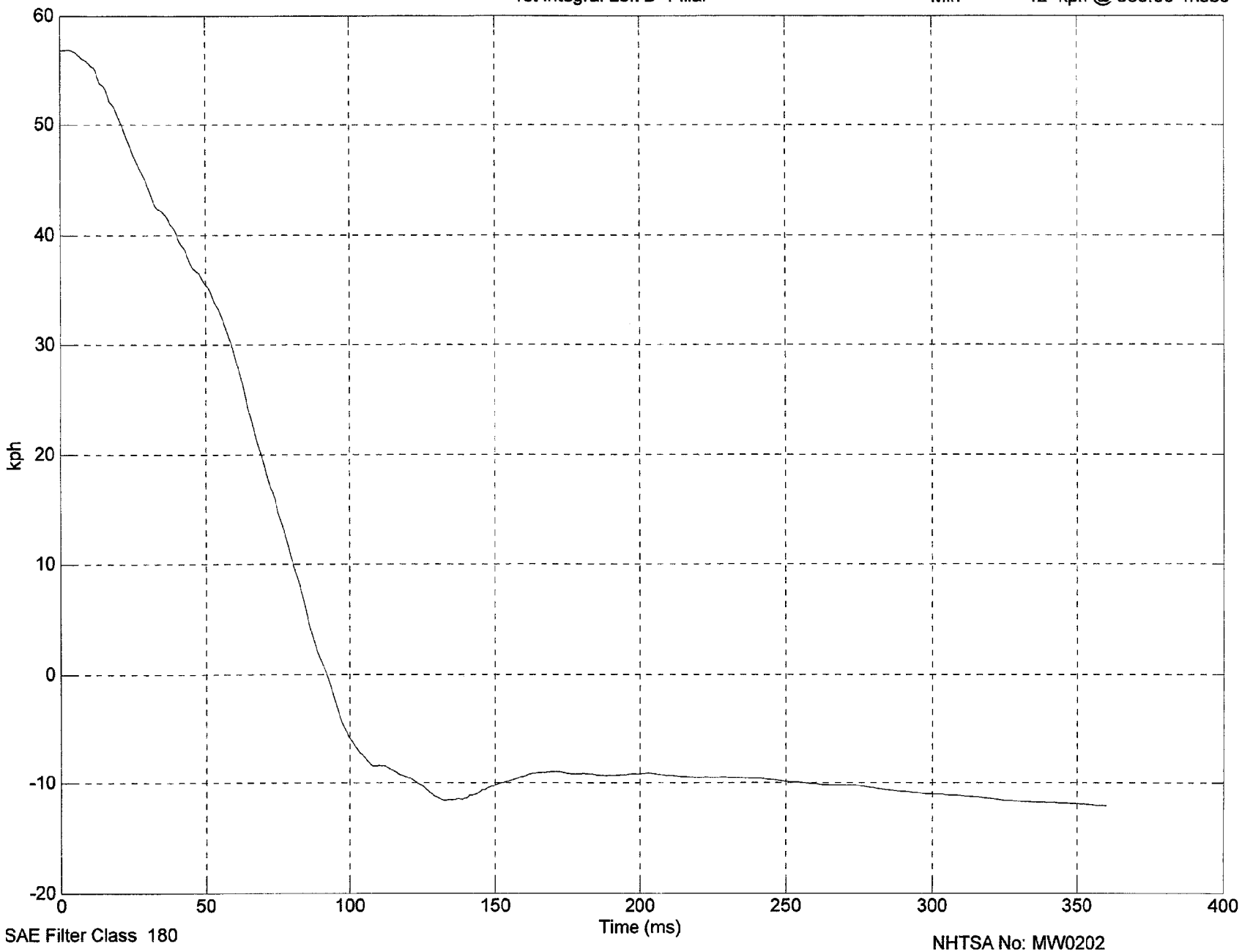
8413-16

SAE Filter Class 60

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 56.9 kph @ 2.60 msec
Min = -12 kph @ 360.00 msec



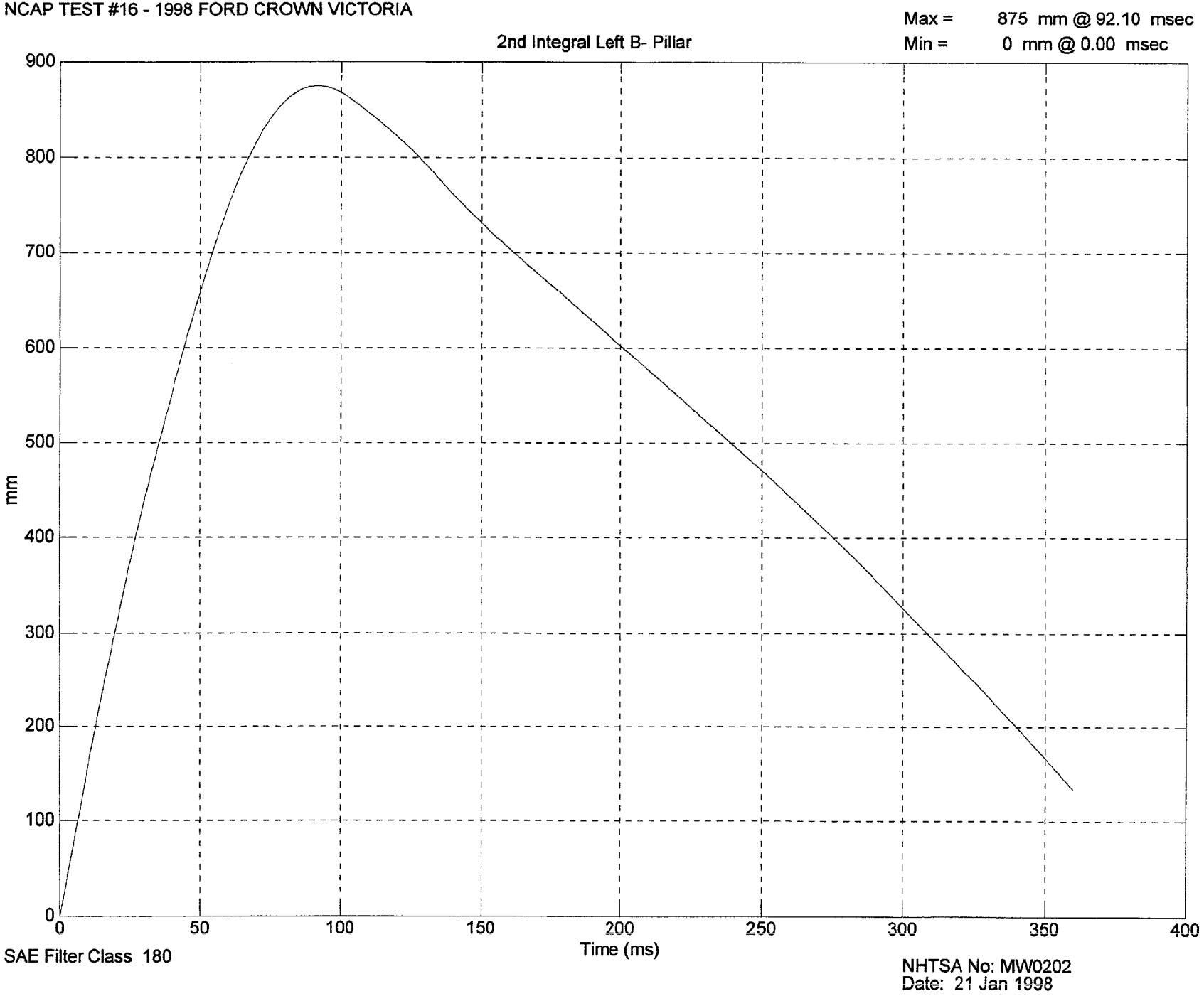
B-103

8413-16

SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA



SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998

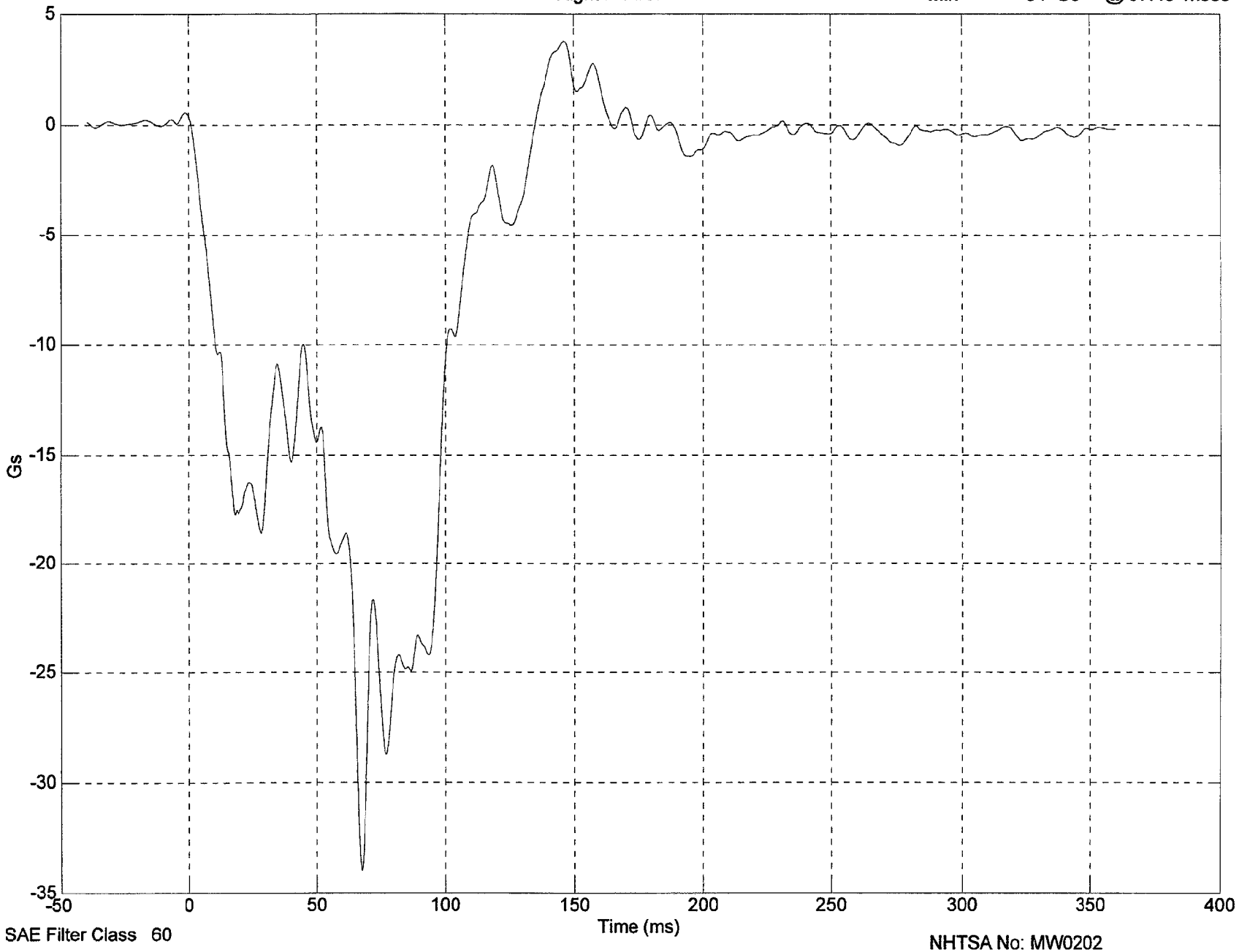
8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Right B-Pillar

Max = 3.77 Gs @ 146.20 msec

Min = -34 Gs @ 67.40 msec



SAE Filter Class 60

NHTSA No: MW0202

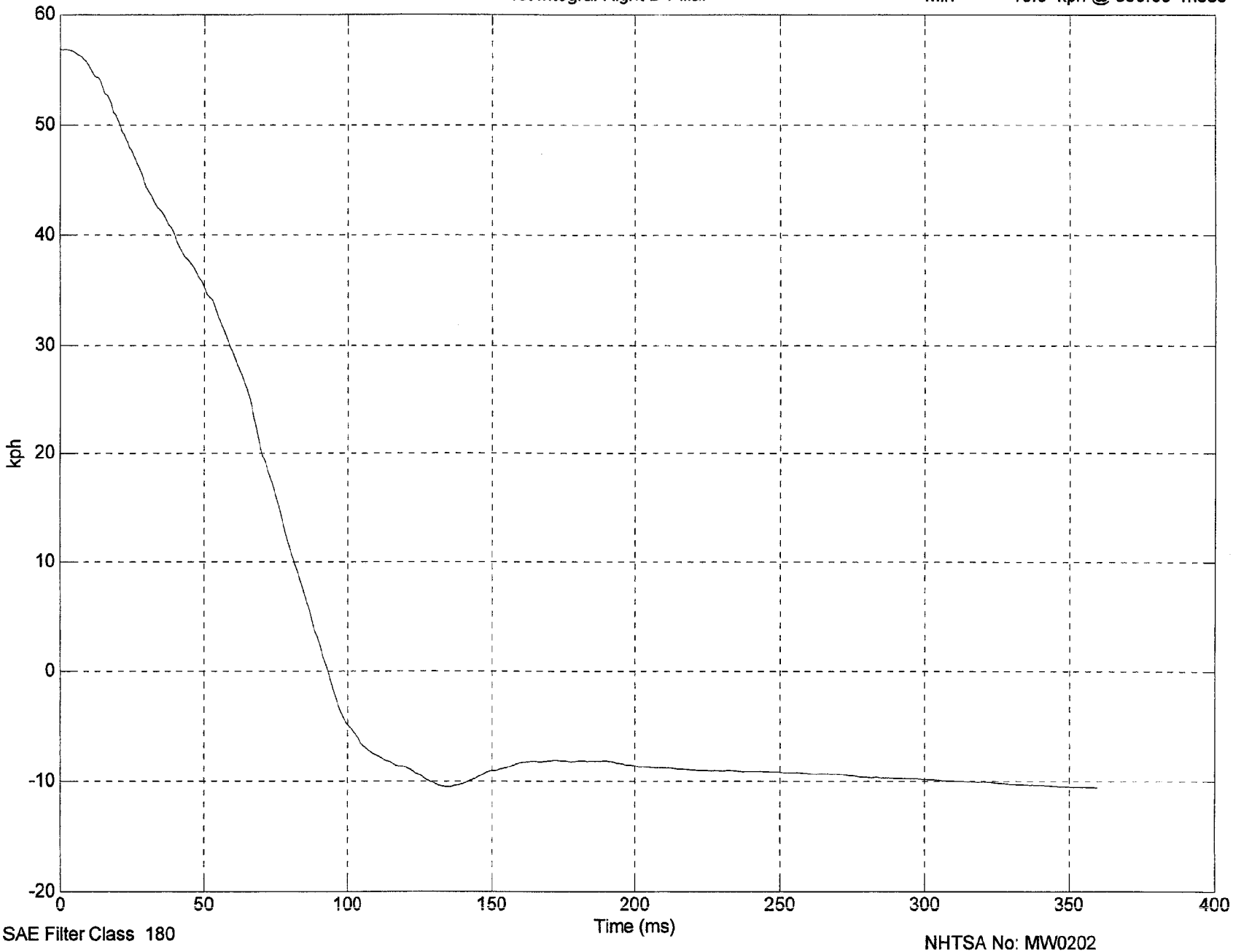
Date: 21 Jan 1998

B-105

8413-16

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 56.8 kph @ 1.80 msec
Min = -10.5 kph @ 360.00 msec

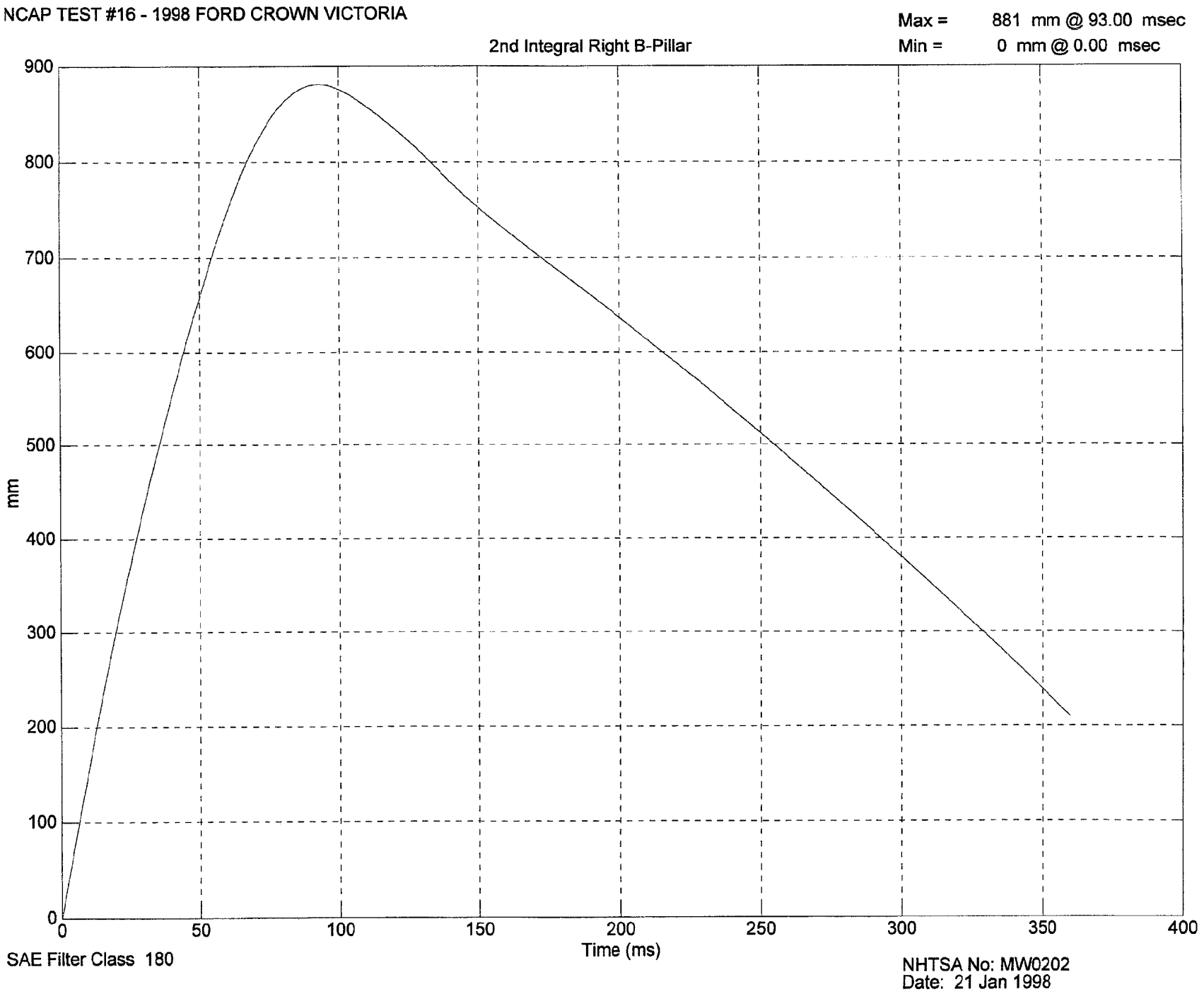


B-106

8413-16

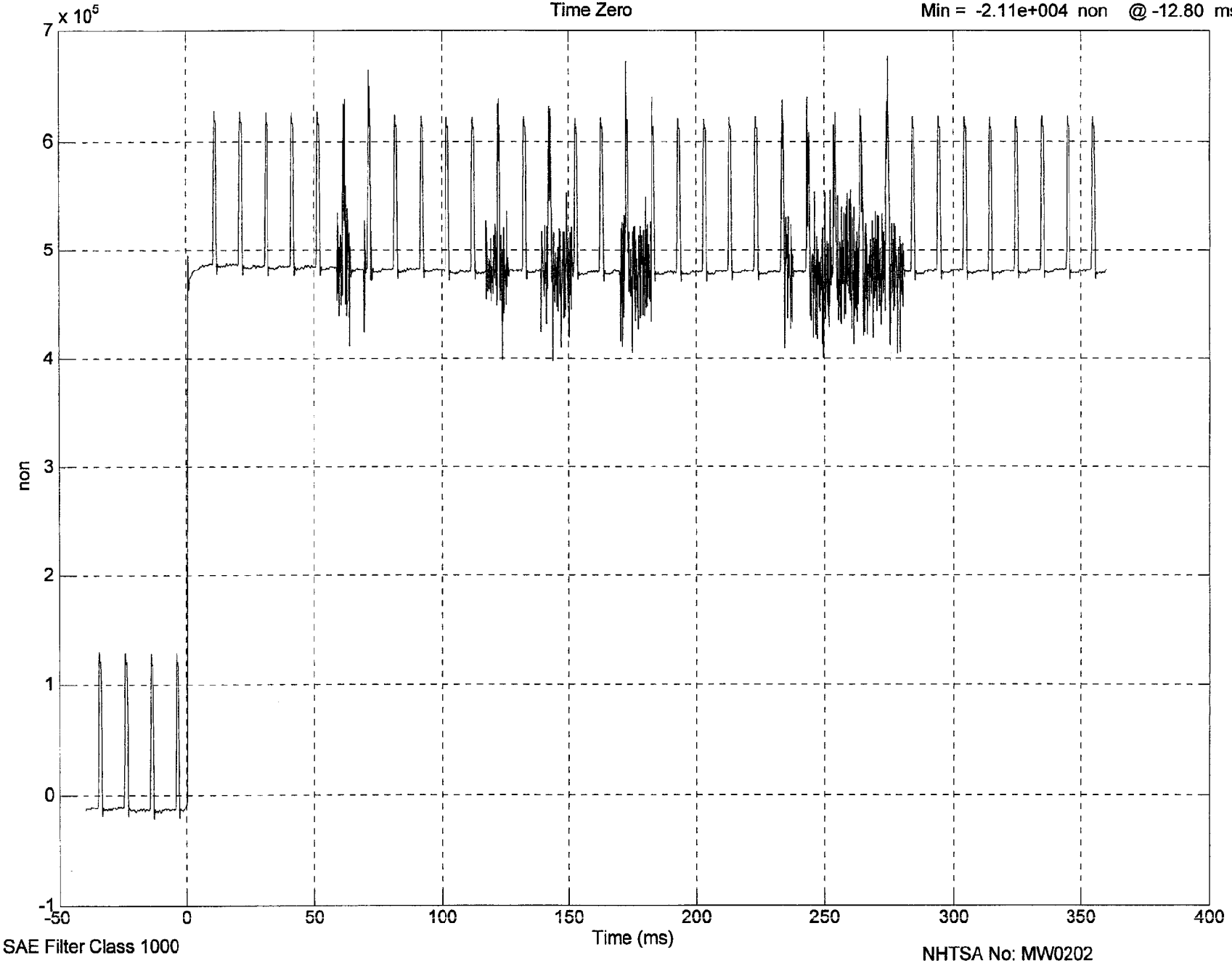
SAE Filter Class 180

NHTSA No: MW0202
Date: 21 Jan 1998


NCAP TEST #16 - 1998 FORD CROWN VICTORIA
2nd Integral Right B-Pillar
Max = 881 mm @ 93.00 msec
Min = 0 mm @ 0.00 msec
900
800
700
600
500
400
300
200
100
0
mm
0
50
100
150
200
250
300
350
400
Time (ms)
B-107
8413-16
SAE Filter Class 180
NHTSA No: MW0202
Date: 21 Jan 1998

NCAP TEST #16 - 1998 FORD CROWN VICTORIA

Max = 6.77e+005 non @ 274.10 msec
Min = -2.11e+004 non @ -12.80 msec



SAE Filter Class 1000

NHTSA No: MW0202
Date: 21 Jan 1998

8413-16

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.

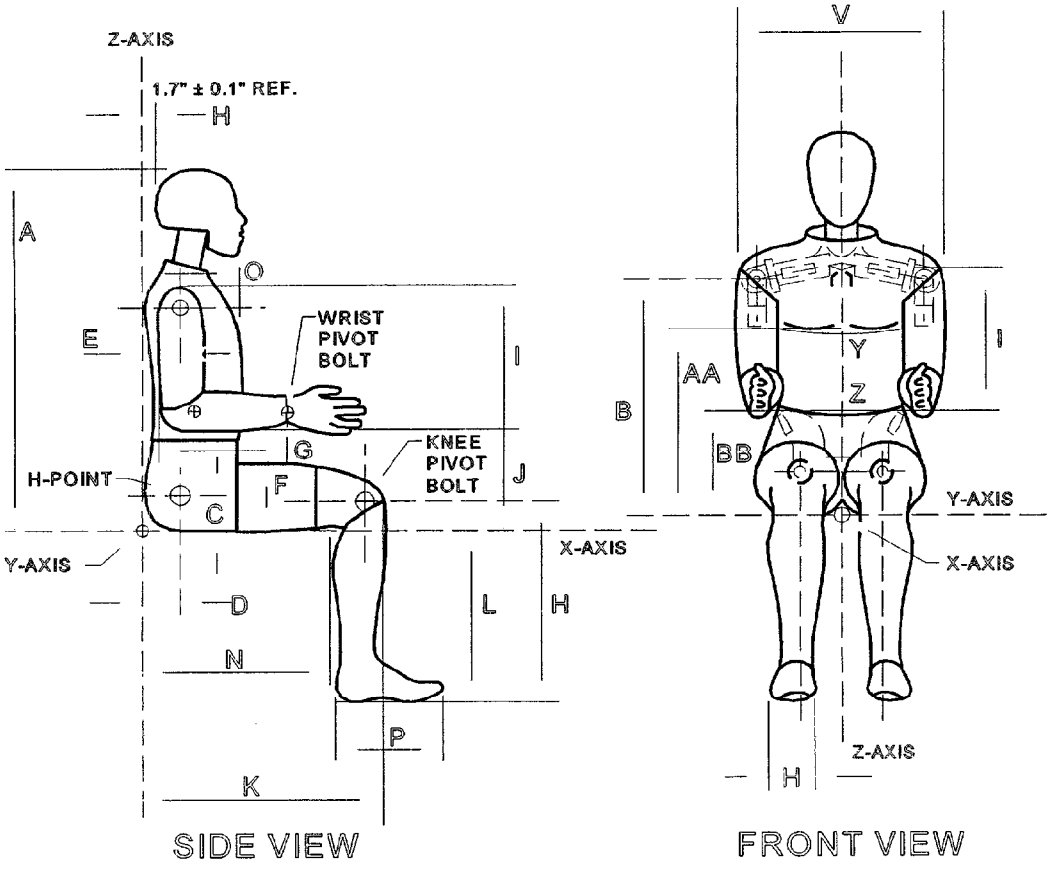
Dummy serial numbers and certification dates are:

Position No./Location	Serial No.	Completion Date
#1/Driver	064	12/08/97
#2/Right Front Passenger	150	12/01/97

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	064
Calspan Sequential Test Number	5
Date	12/04/97
Workfile	064597.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	32
Peak Resultant Acceleration	225-275 G's	244.1
Peak Lateral Acceleration	15 G's Max	10.8
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	064
Calspan Sequential Test Number	5
Date	12/04/97
Workfile	064597.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	32
Impact Velocity		22.60 - 23.40 Ft/s	23.12
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.78
	20 ms	17.60 - 22.60 G's	20.20
	30 ms	12.50 - 18.50 G's	16.67
Max Pendulum G's Above 30 ms		29 G's Max	16.67
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.13
D Plane Rotation	Max	64 - 78 Deg	66.68
	Time	57 - 64 ms	56.38
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	79.00
	Time	47 - 58 ms	52.50
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.63
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	064
Calspan Sequential Test Number	5
Date	12/04/97
Workfile	064597.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	32
Impact Velocity		19.50 - 20.30 Ft/s	19.71
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.60
	20 ms	14.00 - 19.00 G's	16.66
	30 ms	11.00 - 16.00 G's	14.45
Max Pendulum G's Above 30 ms		22 G's Max	14.45
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	43.38
D Plane Rotation	Max	81 - 106 Deg	86.29
	Time	72 - 82 ms	75.25
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-47.91
	Time	65 - 79 ms	70.50
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	149.88
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	133.75

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	064
Calspan Sequential Test Number	5
Date	12/05/97
Workfile	064597.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	30
Pendulum Velocity	21.6 - 22.4 Ft/s	21.77
Maximum Deflection	2.50 - 2.86 in	2.61
Maximum Resistive Force	1160 - 1325 Lbs	1294.03
Internal Hysteresis	69 - 85 %	72.4

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	064
Calspan Sequential Test Number	5
Date	12/08/97
Workfile	064597

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	50
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1142.0
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	50
Probe Velocity	6.8 - 7.0 Ft/s	6.95
Peak Knee Impact Force	1060 - 1300 Lbs	1238.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Calspan Sequential Test Number 5
Date 12/05/97

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			30
Location for Chest Circumference	AA	16.9 -17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.8
Waist Circumference	Z	32.9 - 34.1 in	33.0
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	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
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	7
Date	11/25/97
Workfile	150797.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	50
Peak Resultant Acceleration	225-275 G's	225.4
Peak Lateral Acceleration	15 G's Max	3.1
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150
Calspan Sequential Test Number	7
Date	11/26/97
Workfile	150797.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	50
Impact Velocity		22.60 - 23.40 Ft/s	22.68
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.52
	20 ms	17.60 - 22.60 G's	19.52
	30 ms	12.50 - 18.50 G's	16.29
Max Pendulum G's Above 30 ms		29 G's Max	16.29
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.13
D Plane Rotation	Max	64 - 78 Deg	68.63
	Time	57 - 64 ms	59.75
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	72.99
	Time	47 - 58 ms	53.50
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	118.38
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	103.38

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150	
Calspan Sequential Test Number	7	
Date	11/26/97	6 Axis Neck Transducer
Workfile	150797.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	50
Impact Velocity		19.50 - 20.30 Ft/s	19.61
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.57
	20 ms	14.00 - 19.00 G's	16.77
	30 ms	11.00 - 16.00 G's	13.44
Max Pendulum G's Above 30 ms		22 G's Max	13.44
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.00
D Plane Rotation	Max	81 - 106 Deg	90.90
	Time	72 - 82 ms	74.38
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-50.73
	Time	65 - 79 ms	68.88
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	152.00
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	138.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	150
Calspan Sequential Test Number	7
Date	12/01/97
Workfile	150797.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	50
Pendulum Velocity	21.6 - 22.4 Ft/s	21.70
Maximum Deflection	2.50 - 2.86 in	2.74
Maximum Resistive Force	1160 - 1325 Lbs	1304.14
Internal Hysteresis	69 - 85 %	73.24

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	150
Calspan Sequential Test Number	7
Date	11/24/97
Workfile	150797

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	50
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1289.0
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	50
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1241.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Calspan Sequential Test Number 7
Date 12/01/97

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			50
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	18.4
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
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 064)		Serial #	Manufacturer	Calibration	
				Last	Next
Head	X	AF5B3	ENDEVCO	1/98	7/98
	Y	AF5F7	ENDEVCO	1/98	7/98
	Z	AF5E1	ENDEVCO	1/98	7/98
Chest	X	A08A	ENDEVCO	1/98	7/98
	Y	ADL42	ENDEVCO	1/98	7/98
	Z	A28F	ENDEVCO	1/98	7/98
Right Femur Load Cell		952	GSE	1/98	7/98
Left Femur Load Cell		951	GSE	1/98	7/98
Neck Load Cell	X	076	DENTON	10/97	4/98
	Y	076	DENTON	10/97	4/98
	Z	076	DENTON	10/97	4/98
Neck Moment	X	076	DENTON	10/97	4/98
	Y	076	DENTON	10/97	4/98
	Z	076	DENTON	10/97	4/98
Chest Deflection Gauge		064	HUMANOID	10/97	4/98
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		-	MAGNETEK	-	-
Belt Stretch Transducer		E1	CALSPAN	9/97	3/98

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY		Serial #	Manufacturer	Calibration	
				Last	Next
Head	X (R)	A13942	ENDEVCO	1/98	7/98
	Y (R)	J18649	ENDEVCO	1/98	7/98
	Z (R)	J18400	ENDEVCO	1/98	7/98
Chest	X (R)	B11407	ENDEVCO	1/98	7/98
	Y (R)	B11073	ENDEVCO	1/98	7/98
	Z (R)	B11408	ENDEVCO	1/98	7/98
Pelvic	X	C14953	ENDEVCO	1/98	7/98
	Y	C14966	ENDEVCO	1/98	7/98
	Z	C14968	ENDEVCO	1/98	7/98
Left Upper Tibia	Mx	0138	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	A13929	ENDEVCO	9/97	3/98
Left Foot Rear	Z	A14150	ENDEVCO	9/97	3/98
Right Foot Front	Z	A14124	ENDEVCO	9/97	3/98
Right Foot Rear	X	A14181	ENDEVCO	9/97	3/98
Right Foot Rear	Z	A14126	ENDEVCO	9/97	3/98

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 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	205	DENTON	1/98	7/98
	Y	205	DENTON	1/98	7/98
	Z	205	DENTON	1/98	7/98
Neck Moment	X	205	DENTON	1/98	7/98
	Y	205	DENTON	1/98	7/98
	Z	205	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		-	MAGNETEK	-	-
Belt Stretch Transducer		E3	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)	APBD7	ENDEVCO	1/98	7/98
	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	8/97	2/98
Right Foot Rear	X	AEWK1	ENDEVCO	8/97	2/98
Right Foot Rear	Z	AKD92	ENDEVCO	8/97	2/98

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	Y151	ICS	9/97	3/98
Right Rear Seat Crossmember	Y17	ICS	9/97	3/98
Top of Engine	Y13	ICS	10/97	4/98
Bottom of Engine	Y112	ICS	9/97	3/98
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)	X26	ICS	9/97	3/98
Right Seat Rear Crossmember (R)	D82	ICS	9/97	3/98
Ford Left B Pillar X	Y93	ICS	8/97	2/98
Ford Right B Pillar X	D29	ICS	9/97	3/98