V2047

REPORT NUMBER: 208-CAL-94-11
212-CAL-94-11
301-CAL-94-11

VEHICLE SAFETY COMPLIANCE TESTING FOR OCCUPANT CRASH PROTECTION WINDSHIELD MOUNTING, WINDSHIELD ZONE INTRUSION (PARTIAL) AND FUEL SYSTEM INTEGRITY

FORD MOTOR COMPANY
1994 Ford Thunderbird
2-Door Sedan

NHTSA NUMBER: CR0206

CALSPAN TEST NUMBER: 8183-2

March 15, 1994

CALSPAN CORPORATION
ADVANCED TECHNOLOGY CENTER
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FINAL REPORT

PREPARED FOR:

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

Rec'd 5/2/94

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Approval Date: 4/15/94

FINAL REPORT ACCEPTANCE BY OVSC:

_____
Contracting Office's Technical Representative
(COTR), NHTSA, Office of Vehicle Safety Compliance

6/20/95
Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
208-CAL-94-11 212-CAL-94-11 301-CAL-94-11		

4. Title and Subtitle	5. Report Date
Final Report of FMVSS 208, 212, 219 (Partial), and 301 Compliance Testing of a 1994 Ford Thunderbird 2-door sedan. NHTSA No.CR0206	March 15, 1994
	6. Performing Organization Code CAL
7. Author(s) David J. Travale, Project Engineer Walter E. Levan, Program Manager	8. Performing Organization Report No. 8183-2
9. Performing Organization Name and Address Calspan Advanced Technology Center P.O. Box 400 Buffalo, New York 14225	10. Work Unit No.
	11. Contract or Grant No. DTNH22-93-D-11089
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (NEF-30) 400 Seventh St , S.W., Rm. 6115, Washington, D.C. 20590	13. Type of Report and Period Covered Final - March -April 1994
	14. Sponsoring Agency Code NEF-30
15. Supplementary Notes	

16. Abstract

A 30 mph vehicle safety compliance test was conducted on a 1994 Ford Thunderbird 2-door sedan.

This test was performed at the Calspan Advanced Technology Center in Buffalo, New York on March 15, 1994. The purpose of this test was to determine compliance with the performance requirements of the following Federal Motor Vehicle Safety Standards:

1. FMVSS No. 208, "Occupant Crash Protection"
2. FMVSS No. 212, "Windshield Mounting"
3. FMVSS No. 219 (partial), "Windshield Zone Intrusion"
4. FMVSS No. 301, "Fuel System Integrity"

The test mode was perpendicular (0°) and the impact velocity was 29.3 mph. The ambient temperature at the impact face was 70 °F.

The subject test vehicle appears to comply with the requirements of FMVSS Nos. 208, 212, 219 (partial) and 301.

Type of Restraint System: The test vehicle was equipped with a driver airbag and a passenger airbag restraint system. The manual seat belt restraints were not used for this test.

17. Key Words	18. Distribution Statement
Compliance Testing Safety Engineering FMVSS 208	Copies of this report are available from: NHTSA Technical Reference Division ; Mail Code: NAD-52 400 Seventh , S.W., Room 5108, Washington, D.C. 20590 Telephone No. (202) 366-4946 Attn: Robert Hornickle

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
UNCLASSIFIED	UNCLASSIFIED	152	

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Section 1

PURPOSE AND TEST PROCEDURE

This 30 mph frontal barrier impact test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 208, 212, 219 (partial) and 301 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by Calspan Advanced Technology Center under Contract No. DTNH22-93-D-11089. The purpose of this test was to determine if the subject vehicle, a 1994 Ford Thunderbird 2-door sedan, meets the performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS No. 212, "Windshield Mounting"; FMVSS No. 219 (partial), "Windshield Zone Intrusion"; and FMVSS No. 301, "Fuel System Integrity". This compliance test was conducted using the requirements found in the OVSC Laboratory Test Procedure No. TP-208-09 dated March 15, 1994.

Section 2

SUMMARY OF TEST NUMBER CR0206

A frontal barrier was impacted by a 1994 Ford Thunderbird 2-door sedan at a velocity of 29.3 mph. The test was performed at the Calspan Corporation Advanced Technology Center on March 15, 1994. Pre- and Post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by one real-time camera and 14 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 OVSC Laboratory Test Procedure.

Both ATDs were fully instrumented with head and chest three axis (x,y, and z) accelerometers, chest displacement potentiometers and left/right femur load cells. These ATDs had been certified prior to the test.

The 37 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle and dummy response data traces. The vehicle right rear crossmember accelerometer data is questionable after 11 msec. The integrations of this data is not included in this report. The occupant femur data contains either mechanical or electrical noise between 48 and 81 msec. The femur load cells passed inspection both prior to and after the test.

The driver's HIC was 291. The maximum chest deceleration over 3 milliseconds was 48.9g's with -0.5 inches of deflection. The maximum force on the driver's left femur was -1923.0 pounds and -1182.6 pounds on the right femur.

The right front passenger's HIC was 205. The maximum chest deceleration over 3 milliseconds was 38.7 g's with -0.5 inches of deflection. Loads of -1244.4 and -1329.5 pounds were recorded on the left and right femurs respectively.

Table 1

CRASH TEST SUMMARY

Vehicle NHTSA No. : CR0206 Test Mode : 30 mph Frontal Barrier

Test Date : March 15, 1994 Time: 11:40 Temperature : 70 °F

Vehicle Make/Model/Body Style : 1994 Ford Thunderbird 2-door sedan

Vehicle Test Weight : 4030 lbs

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 29.3 mph

Maximum Static Crush : 13.4* inches

Vehicle Rebound : 0.3 inches

DUMMIES:	DRIVER	PASSENGER
Type :	Part 572E	Part 572E
Restraint System :	Airbag	Airbag

Number of Data Channels : 37

Number of Cameras : 1 Real Time

14 High Speed

DOOR OPENING DATA : Closed/Operable - Left Front

Closed/Operable - Right Front

Front Seat(s) Data :	DRIVER	PASSENGER
Seat Track Failure :	None	None
	Inches of shift	
Seat Back Failure :	0.0	0.0

VISIBLE DUMMY CONTACT POINTS :	DRIVER	PASSENGER
Head :	Face with center of airbag, top of head with sunvisor, rear of head with head-rest.	Face with airbag, top of head with sunvisor, rear of head with head-rest.
Abdomen :	No contact	Airbag
Chest	Airbag	Airbag
Knees	Lower dash panel	Glove box door

* Post test measurements were taken without front bumper. Vehicle front bumper was separated from vehicle due to impact.

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 1994 Ford Thunderbird 2-door sedan

NHTSA No. : CR0206 ; VIN: 1FALP624XRH124874 ; Color : Indigo

Engine Data: 6 cylinders; - CID; 3.8 Liters; - cc

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

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

Final Drive : X Rear Wheel Drive; - Front Wheel Drive; - 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 : 3/1/94 ; Odometer Reading 84 miles

Selling Dealer : JIM DOYLE FORD, INC.

& Address: 3330 Delaware Ave. Kenmore, N.Y. 14217

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : FORD MOTOR COMPANY

Date of Manufacture November, 1993

GVWR : 4837 lbs.; GAWR: 2509 lbs. FRONT; 2351 lbs. REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 30 psi FRONT

30 psi REAR

Recommended Tire Size : P205/70 R15

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

Size of Tires on Test Vehicle: P205/70 R15 ; Manufacturer: Firestone

Vehicle Capacity Data :

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

Number of Occupants: 2 Front; 3 Rear; 5 Total

Vehicle Capacity Weight (VCW) = 900 lbs.

No. of Occupants x 150 lbs. = 750 lbs.

Rated Cargo/Luggage Weight (RCLW) = 150

*Tire pressure used for test

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

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

Right Front =	1040	lbs.	Right Rear =	730	lbs.
Left Front =	1030	lbs.	Left Rear =	760	lbs.
TOTAL FRONT =	2,070	lbs.	TOTAL REAR =	1,490	lbs.

TOTAL DELIVERED WEIGHT = 3,560.0 lbs.

% of Total Front of Vehicle Weight = 58 % of Total Rear Weight = 41.9 %

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight =	3,560	lbs.
Rated Cargo/Luggage Weight (RCLW) =	150	lbs.
Weight of 2 p.572 Dummies @ 167 each =	334	lbs.
TARGET TEST WEIGHT =	4,044	lbs.

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 136 POUNDS OF CARGO WEIGHT:

Right Front =	1100	lbs.	Right Rear =	900	lbs.
Left Front =	1080	lbs.	Left Rear =	950	lbs.
TOTAL FRONT =	2,180	lbs.	TOTAL REAR =	1,850	lbs.

TOTAL TEST WEIGHT = 4,030.0 lbs.

% of Total Front Weight = 54.1 % % of Total Rear Weight = 45.9 %

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

Vehicle Components Removed for Weight Reduction: None

VEHICLE ATTITUDE (all dimension in inches) :

AS DELIVERED :	RF	30.1	LF 30.0	RR	30.3	LR	30.2
FULLY LOADED :	RF	28.1	LF 28.1	RR	27.0	LR	27.0
AS TESTED :	RF	28.7	LF 28.6	RR	28.3	LR	28.2

Vehicle's Wheel Base : 113.3 in.

Location of Vehicle's C.G. : 52.0 inches rearward of front wheel center.

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual = 18.0 gallons

Usable Capacity Figure Furnished by COTR = 18.0 gallons

Test Volume Range (92 to 94% of Usable Capacity) = 16.56 to 16.92 gallons

ACTUAL TEST VOLUME= 16.7 gallons (with entire fuel system filled)

Table 3

POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°

Test Date : March 15, 1994 Time: 11:40 Temperature: 70 °F

Vehicle NHTSA No. : CR0206

Required Impact Velocity Range : 28.9 to 29.9 mph

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

Trap No. 1 = 29.3 mph; Trap No. 2 = 29.3 mph

Distance from vehicle to barrier : (1) entering trap = 52 inches

(2) exiting trap = 12 inches

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

Vehicle Length:

Pre-Test	Right =	194.2	; C/L =	198.2	;Left =	194.2
Post-Test	Right =	181.0*	; C/L =	184.8*	;Left =	181.5*
Crush	Right =	13.2*	; C/L =	13.4*	;Left =	12.7*
AVERAGE	=	13.1*	inches			

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

Right =	0.4	; C/L =	0.3	;Left =	0.0
AVERAGE =	0.2	inches			

DOOR OPENING :	Left	Right
Front	Closed/Operable	Closed/Operable
Rear	N/A	N/A
SEAT MOVEMENT :	Seat Back Failure	Seat Shift
Front	None	0.0
Rear	N/A	N/A

* Post test measurements were taken without front bumper. Vehicle front bumper was separated from vehicle due to impact.

Table 3

POST IMPACT (cont.)

GLAZING DAMAGE :

Windshield cracked throughout.

OTHER NOTABLE IMPACT FEATURES :

Steering column stroked.

Section 3

OCCUPANT AND VEHICLE DATA

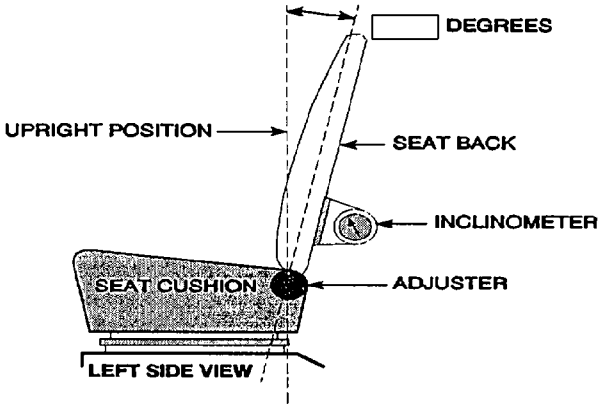
Figure 1

TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1994 Vehicle Model: Ford Thunderbird Body Style : 2-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 : 68.3 deg.

Measurement instructions : Inclinometer is placed 13 inches up seat back from pivot point. Seat back adjusted to 68.3 degrees from horizontal.

Seat back angle for passenger's seat : 68.3 deg.

Measurement instructions : Same as driver seating position.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat : Total seat travel is 218mm. Foremost and rearmost dimensions were measured and seat was set at mid position.

Positioning of the passenger's seat (if applicable) : Total seat travel is 221mm. Seat set at mid position.

3. Fuel Tank Capacity Data

A. "Usable Capacity" of the standard equipment fuel tank is 18.0 gallons

B. "Usable Capacity" of the optional equipment fuel tank is N/A gallons

4. Steering Column Position :

Steering column has 3 locking positions. Steering column set at mid locking position.

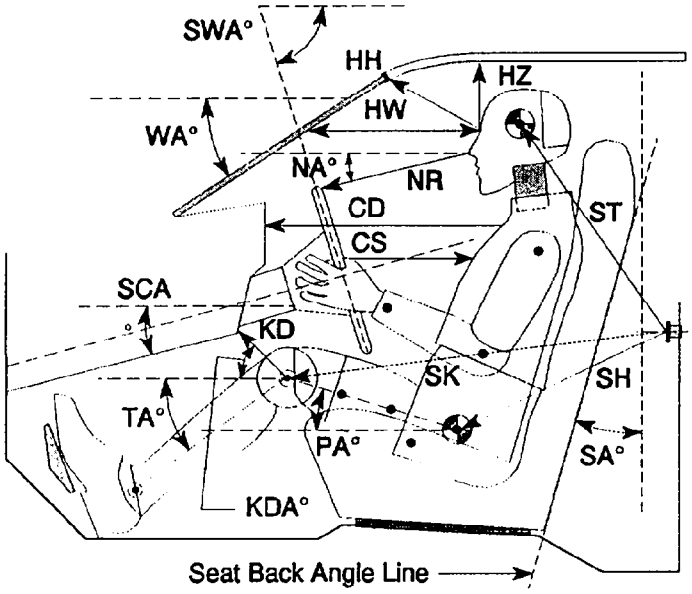
5. Other:

None

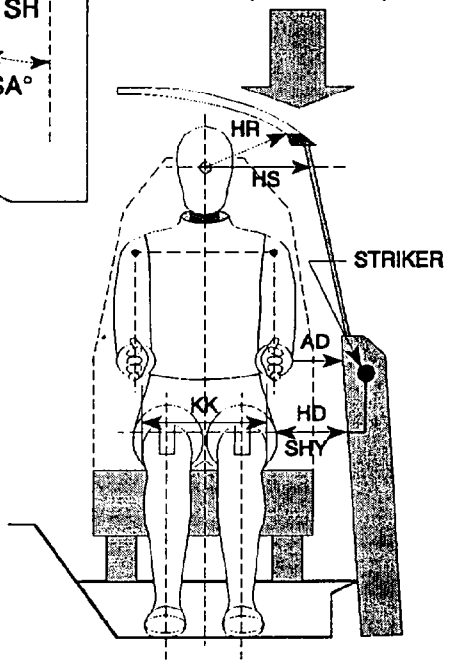
Figure 2

PART 572 DUMMY IN-VEHICLE POSITION

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

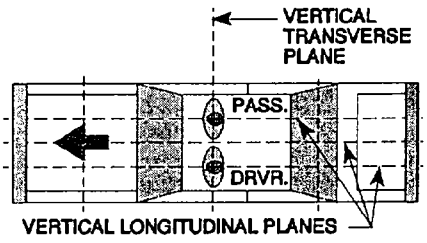


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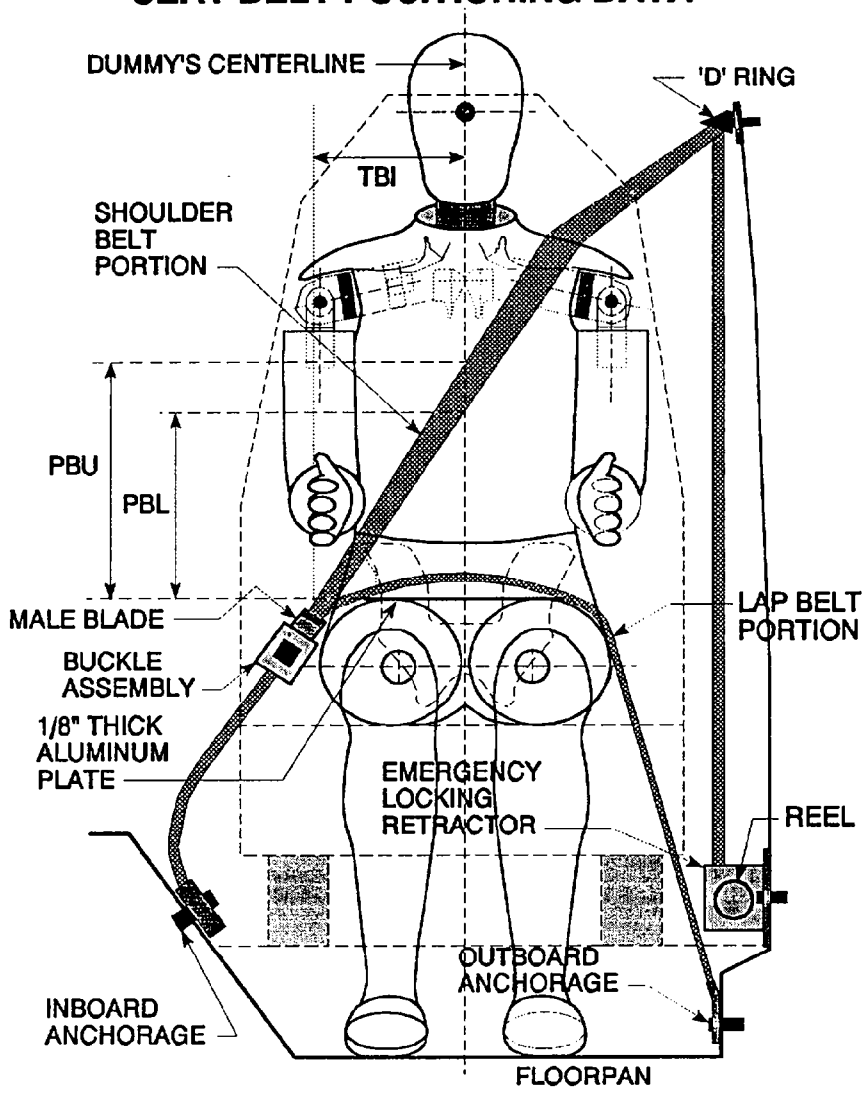
Table 4

FRONT SEAT OCCUPANT MEASUREMENTS

	DRIVER (Serial #313)	PASS. (Serial #290)
WA°	26 deg.	-
SWA°	70 deg.	-
SCA°	20 deg.	-
SA°	22	22
HZ	5.3	5.0
HH	10.1	9.2
HW	19.3	16.4
HR	7.7	7.8
NR	13.2 Angle 11 deg.	-
CD	19.7	18.2
CS	10.5	-
RA	6.9	-
KDL	6.6 Angle (KDA) 32 deg.	4.6
KDR	6.2	5.9 Angle (KDA) 36 deg.
PA°	23 deg.	22 deg.
TA°	28 deg.	33 deg.
KK	11.6	10.1
ST	25.7 Angle 44 deg.	26.8 Angle 46 deg.
SK	36.8 Angle 97 deg.	36.2 Angle 96 deg.
SH	22.6 Angle 111 deg.	21.8 Angle 112 deg.
SHY	7.6	7.4
HS	13.4	13.1
HD	5.8	5.3
AD	4.7	4.9

Figure 3

SEAT BELT POSITIONING DATA



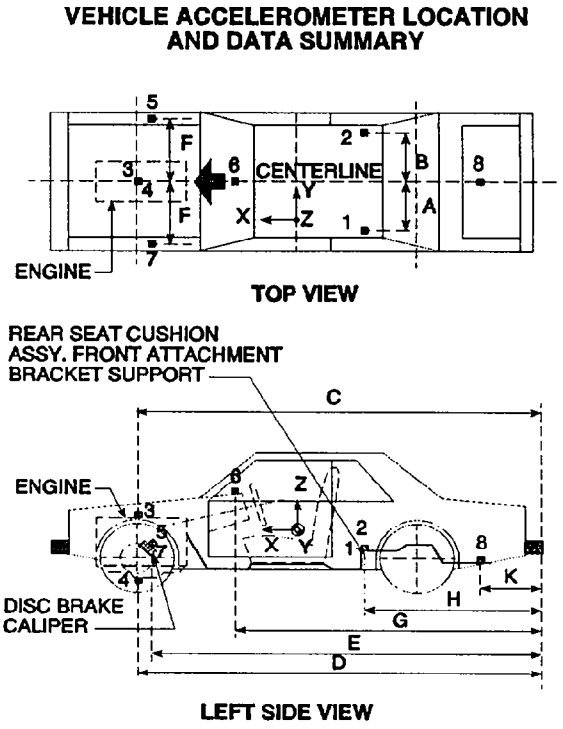
FRONT VIEW OF DUMMY

	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
PBU -- Top surface of alum. plate to upper edge	*	*
PBL -- Top surface of alum. plate to belt lower edge	*	*
TBI -- Distance from torso centerline to buckle	*	*

* Seat belts not used for this test, driver and pasenger restrained using vehicle airbags.

Figure 4

VEHICLE ACCELEROMETER LOCATIONS



ACCELEROMETER NUMBER*	ACCELEROMETER LOCATION	DIRECTION		
		X	Y	Z
1	Left Rear Seat Crossmember	X		
2	Right Rear Seat Crossmember	X		
3	Top of Engine	X		
4	Bottom of Engine	X		
5	Right Disc Brake Caliper	X		
6	Instrument Panel	X		
7	Left Disk Brake Caliper	X		
8	Trunk Z			X

*The accelerometer pack number can be correlated with the vehicle response data traces found in Appendix B.

Table 5

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

DIMENSION	LENGTH (Inches)	
	PRE-TEST VALUES	POST-TEST VALUES
A	21.3	21.3
B	21.3	21.3
C	158.9	160.3*
D	148.2	149.6*
E	153.0	149.2
F	22.5	22.3
G	120.3	119.4
H	80.0	80
K	14.0	14.0

* Post test measurements were taken without front bumper. Vehicle front bumper was separated from vehicle due to impact.

LOCATION NO.	DESCRIPTION	MAXIMUM VALUE			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	1.8	134.3	-27.4	46.0
2	Rear Seat X-Member @ Right Side	57.3	134.9	-17.4	30.7
3	Top of Engine Block	17.9	74.2	-65.0	55.0
4	Bottom of Engine	17.6	72.1	-62.8	53.6
5	Disc Brake Caliper @ Right Side	20.7	79.4	-63.7	47.9
6	Instrument Panel	18.2	83.2	-52.7	72.8
7	Disc Brake Caliper @ Left Side	22.8	81.8	-70.5	53.6
8	Trunk	-	-	-	-

Figure 5

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information shown on Table 5.

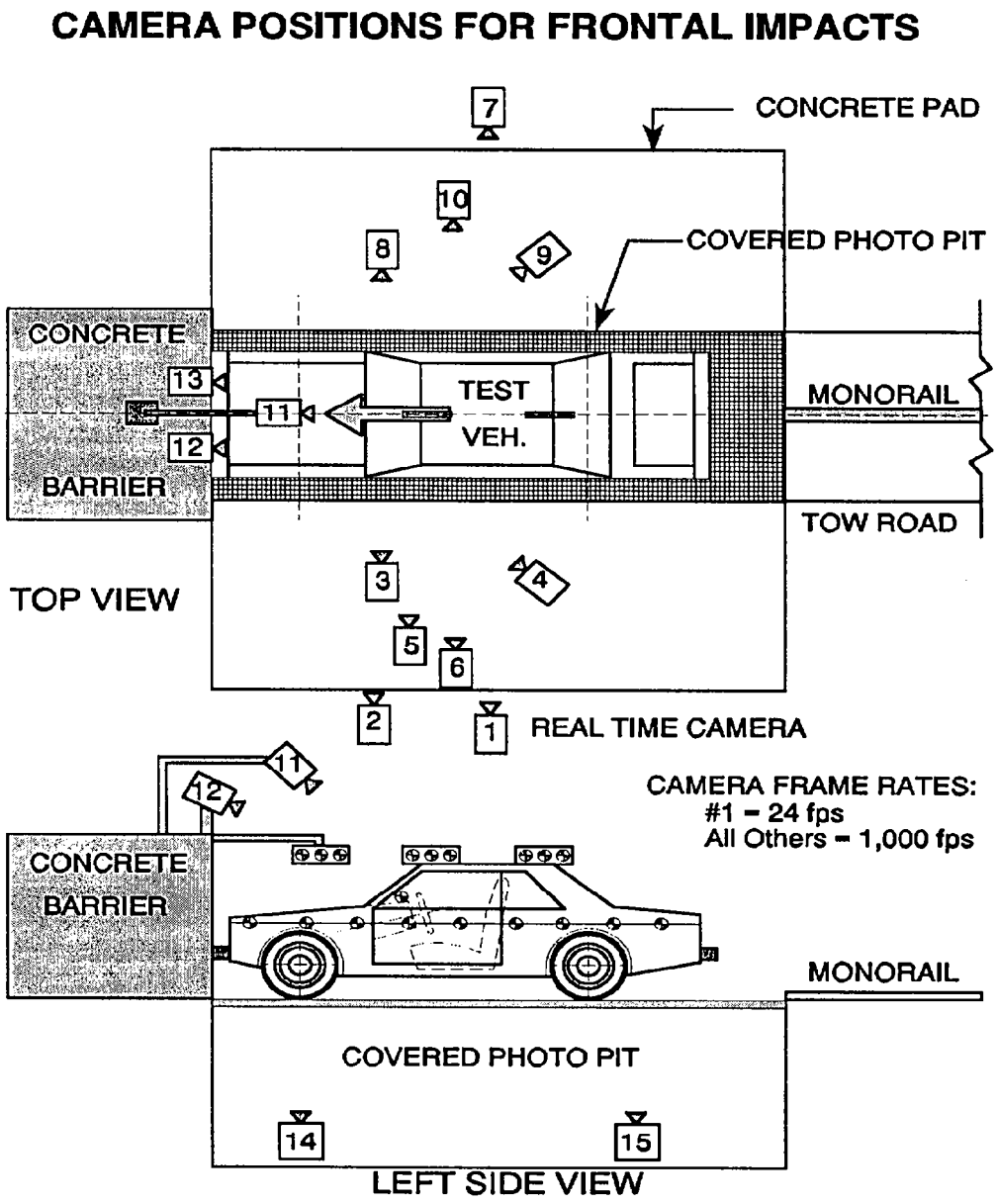


Table 6

HIGH-SPEED CAMERA LOCATIONS

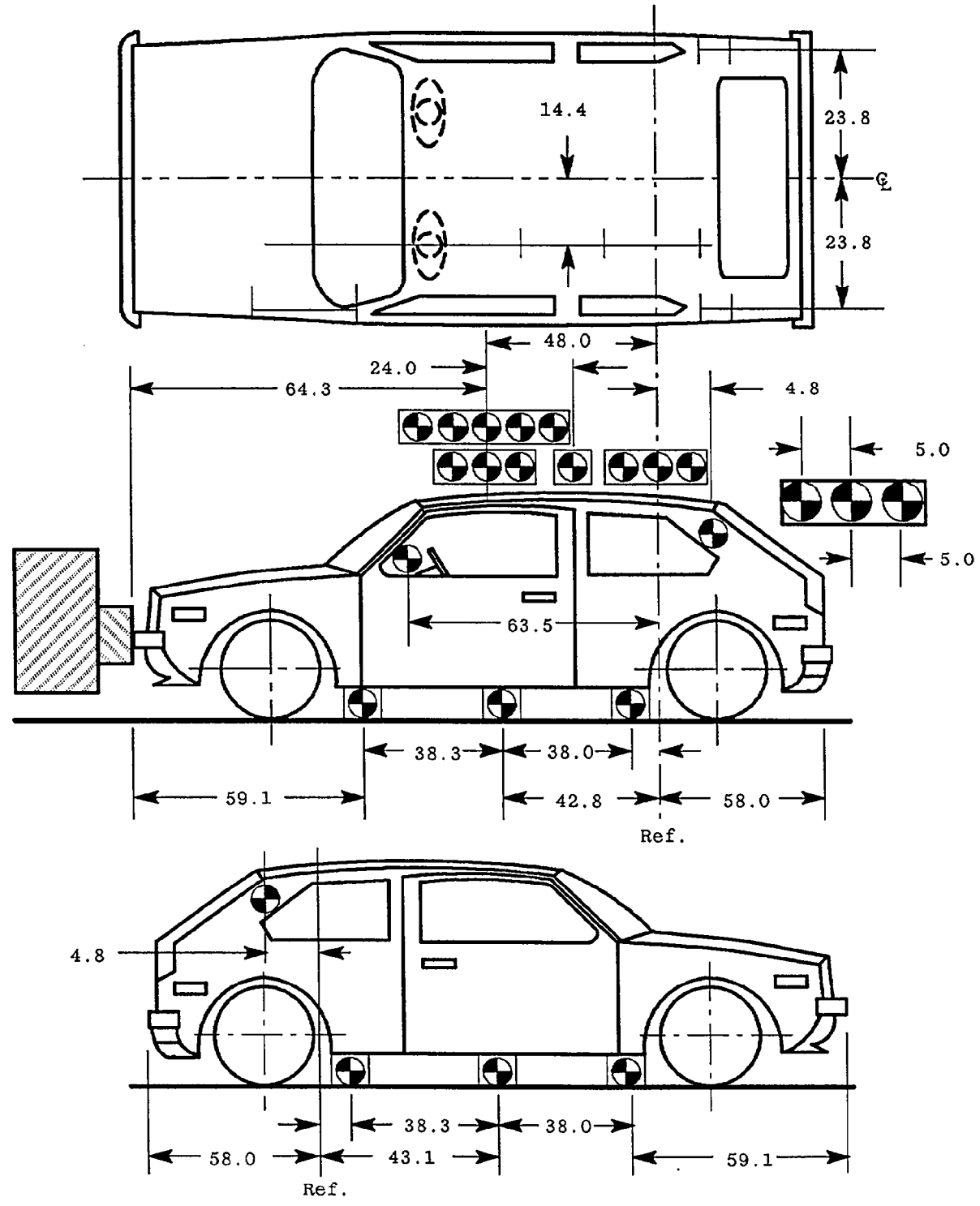
Test No. CR0206 Vehicle: 1994 Ford Thunderbird 2-door sedan

Camera No.	VIEW	CAMERA POSITIONS (In.)* X	Y	Z	ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	252	69	42	-2	234.6	13	1030
3	Left Side View	341	48	41	-4	323.6	25	950
4	Driver and Interior View	108	124	76	-23	-	13	1010
5	Steering Column (Bottom)	299	84	46	-4	281.6	25	1100
6	Steering Column (Top)	299	84	70	-9	281.6	25	1080
7	Overall Right Side	252	79	42	-4	234.6	13	925
8	Right Side View	339	58	41	-3	321.6	25	1100
9	Right Passenger View	348	90	54	-4	330.6	35	1040
10	Passenger and Interior View	113	123	74	-24	-	13	860
11	Passenger Front View	-22	21	76	-40	-	13	1025
12	Driver Front View	-22	21	76	-41	-	13	1010
13	Windshield View	0	0	127	-58	-	13	1050
14	Pit View of Engine	43	0	-86	90	-	13	680
15	Pit View of Fuel Tank	104	0	-86	90	-	13	725

*X = film plane to monorail centerline
Y = film plane to impact location
Z = film plane to ground
** = referenced to horizontal plane

Figure 6

VEHICLE TARGET LOCATIONS



(Dimensions in inches)

8183-2

Figure 7

TEST VEHICLE MEASUREMENTS

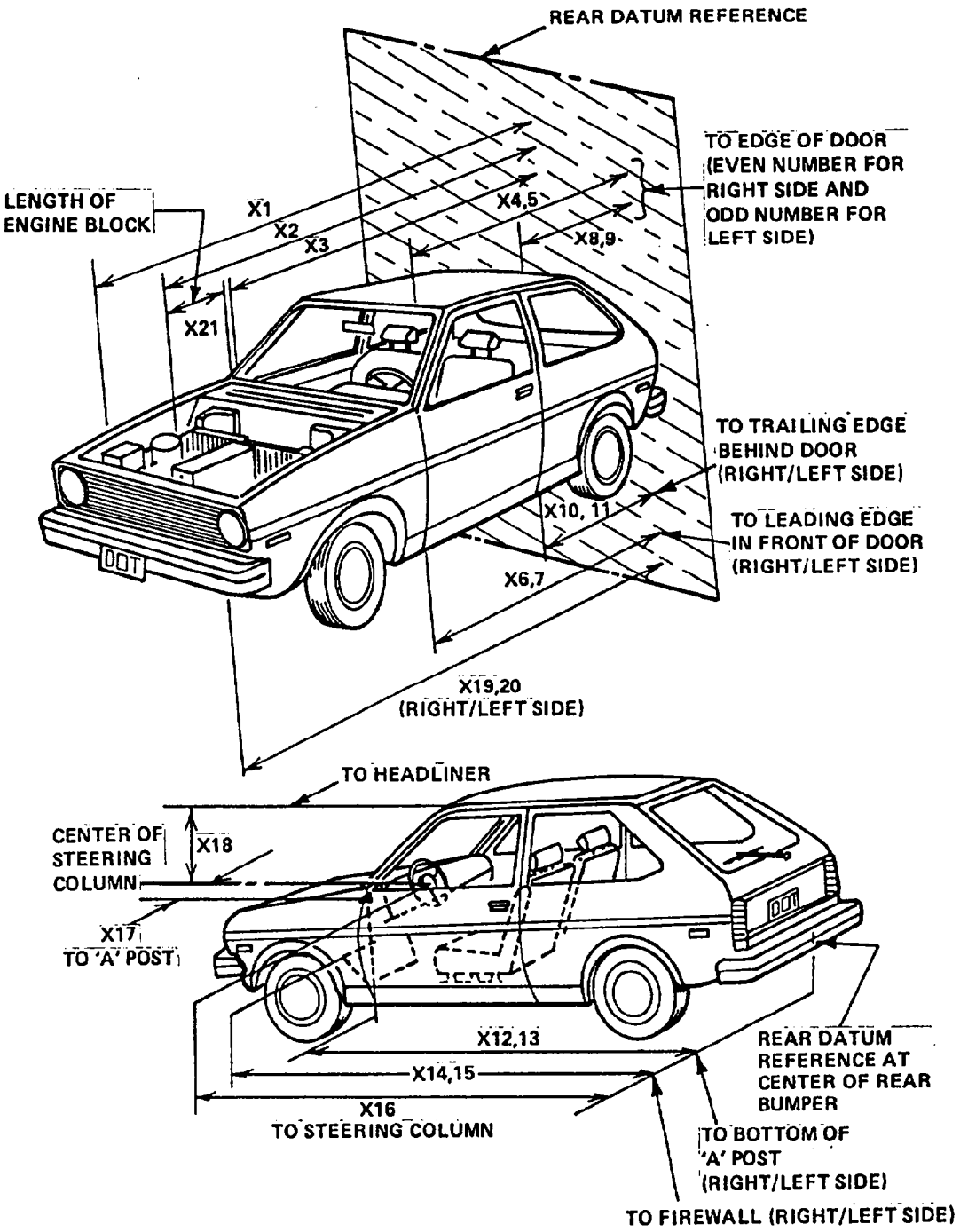


Table 7

VEHICLE MEASUREMENTS

		All Dimensions in inches		
No.		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	198.2	184.8*	13.4*
X2	Rear Surface of Vehicle to Front of Engine	160.7	157.5	3.2
X3	Rear Surface of Vehicle to Firewall	144.0	143.6	0.4
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	136.3	136.2	0.1
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	136.3	136.3	0.0
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	134.5	133.8	0.7
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	134.4	134.0	0.4
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	80.4	80.3	0.1
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	80.4	80.5	-0.1
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	80.3	79.7	0.6
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	80.2	79.9	0.3
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	133.5	132.9	0.6
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	133.6	133.3	0.3
X14	Rear Surface of Vehicle to Firewall, Right Side	144.7	143.6	1.1
X15	Rear Surface of Vehicle to Firewall, Left Side	141.7	140.7	1.0
X16	Rear Surface of Vehicle to Steering Column	113.4	116.5	-3.1
X17	Center of Steering Column to "A" Post	17.2	17.5	-0.3
X18	Center of Steering Column to Headliner	16.5	15.9	0.6
X19	Rear Surface of Vehicle to Right Side of Front Bumper	194.2	181.0*	13.2*
X20	Rear Surface of Vehicle to Left Side of Front Bumper	194.2	181.5*	12.7*
X21	Length of Engine Block	16.0	16.0	0.0

* Post test measurements were taken without front bumper. Vehicle front bumper was separated from vehicle due to impact.

Section 4

SUMMARY OF RESULTS OF FMVSS NOS. 208, 212, 219 AND 301-75

- "Occupant Crash Protection," FMVSS No. 208 Data
- "Windshield Mounting," FMVSS No. 212 Data
- "Windshield Zone Intrusion," FMVSS No. 219 (Partial) Data
- "Fuel System Integrity," FMVSS No. 301-75

Table 8

DUMMY INJURY CRITERIA VALUES

NHTSA No. : CR0206 Vehicle : 1994 Ford Thunderbird 2-door sedan

	MAXIMUM ACCELERATION (g's)								
	HEAD				CHEST				
	X	Y	Z	R	X	Y	Z	R*	Displacement
Dummy (1)	-54.2	-22.6	20.3	61.8	-48.6	-4.2	14.5	48.863	-0.5
Dummy (2)	-55.0	16.2	16.0	55.9	-38.6	-8.9	8.8	38.671	-0.5

	MAXIMUM FORCE - FEMUR LOAD (lbs.)	
	LEFT FEMUR	RIGHT FEMUR
Dummy (1)	-1923.0	-1182.6
Dummy (2)	-1244.4	-1329.5

	HEAD INJURY CRITERIA**			
		36 millisecond Maximum		Avg. Acc (g)
	HIC	t_1 (msec)	t_2 (msec)	t_1 TO t_2
Dummy (1)	291.20	69.360	105.240	36.62
Dummy (2)	205.29	51.240	68.880	42.30

* Defined as exceeding 0.003 sec. duration
**As defined in FMVSS No. 208

Table 9

FMVSS NO. 208 - SEAT BELT WARNING SYSTEM CHECK

With occupant in driver's position, the lap belt in stowed position, and ignition switch placed in "Start/On" position:

Log time duration of audible warning signal = 6 sec.

Log time duration of reminder light operation = Continuous sec.

With occupant in driver's position, lap belt in use, and the ignition switch placed in "Start/On" position :

Log time duration of audible warning signal (audible warning should not operate) = 0 sec.

Log time duration of reminder light operation = 0 sec.

Note wording of visual warning :

Fasten Seat Belt	-
Fasten Belt	-
Symbol 101	X

Table 10

FMVSS NO. 208 - LABELING AND DRIVER'S MANUAL INFORMATION

Locate label which describes manufacturers maintenance or replacement schedule for crash-deployed occupant protection system.

Describe location :

Label located on driver sunvisor.

The label states, "No SRS maintenance needed unless:

- "Airbag" lamp flashes or stays lit.
- "Airbag" lamp does not light when key is turned to on position.
- Groups of five beeps are heard.

Were appropriate instructions concerning maintenance and/or replacement of this system provided ?

YES X NO -

Was a description of the functional operation of the system provided ?

YES X NO -

Is there a reference to the instructions and description of the system on the label ?

YES X NO -

Was an owner's manual provided ? YES X NO -

Did the owner's manual contain appropriate information concerning maintenance and/or replacement and a description of the functional operation of the system ?

YES X NO -

Table 11

FMVSS NO. 208 - READINESS INDICATOR

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement.

Is the system totally mechanical ? YES - NO X

Describe the location of the readiness indicator :

Readiness indicator located at top right of instrument cluster.

Is the readiness indicator clearly visible to the driver ? YES X NO -

Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided ?

YES X NO -

Table 12

FMVSS NO. 208 - COMFORT AND CONVENIENCE TEST SUMMARY

Test Vehicle NHTSA No. :	CR0206
Make/Model :	1994 Ford Thunderbird 2-door sedan
Date of Comfort/Convenience Check :	March 14, 1994
Technician Performing Check :	D. J. T.
GVWR :	4837 lbs.

Seat belt comfort and convenience requirements cover vehicles manufactured on or after September 1, 1986, which have a gross vehicle weight rating of 10,000 pounds or less. Exemptions to this rule are belts installed in a walk-in, van-type vehicle and manual Type 2 belt systems installed in the front outboard seating positions of passenger automobiles. On or after September 1, 1989, the exemption of the type 2 manual seat belts installed in the front outboard seating positions of passenger automobiles will change depending on the states' enactment of mandatory usage laws.

Was vehicle built after or on September 1, 1986, and is it equipped with :

1. Automatic seat belts — YES - NO X

If yes, go to requirements D1, D2, and D3

2. Manual seat belts* — YES X NO -

a. The seat belts, other than Type 2 lap/shoulder belts, are located in the front outboard seating positions of a passenger automobile.

YES X NO -

(Go to requirements D3, D4, D5, and D6)

b. The seat belt system is Type 2 lap/shoulder belt in the front outboard seating positions or the seat belts are located in a walk-in van.

STOP

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Table 12 (cont.)

D1
CONVENIENCE HOOKS

A convenience hook or other device is provided to stow seat belt webbing to facilitate entering or exiting the vehicle.

YES - NO X

Check the option which applies to this test vehicle:

1. A convenience hook or other device automatically releases the webbing when the automatic belt system is operational and remains in the released mode as long as the vehicle's ignition switch is moved to the "on" or "start" position and the vehicle's drivetrain is engaged.

YES N/A NO N/A

2. A convenience hook or other device automatically releases the webbing when the automatic belt system is operational and remains in the released mode as long as the vehicle's ignition switch is moved to the "on" or "start" position and the vehicle's parking brake is in the released mode (non-engaged)

YES N/A NO N/A

D2
WEBBING TENSION - RELIEVING DEVICE

The seat belt assembly installed in the outboard designated seating position has either manual or automatic tension relieving devices permitting the introduction of slack in the webbing of the shoulder belt ("comfort clips" or "window shade" devices).

YES - NO X

Check the owner's manual and determine the maximum amount of slack recommended by the manufacturer in inches. The recommended slack is N/A inches. Introduce this slack into the shoulder belt before testing the vehicle to comply with the requirements of FMVSS 208 S5.1. A warning is included in the owner's manual that introducing slack beyond the amount specified can significantly reduce the effectiveness of the shoulder belt.

YES N/A NO N/A

(If NO, provide explanation.)

Check the option which applies to this test vehicle:

1. This vehicle is equipped with automatic seat belts and the tension relieving device is cancelled each time the adjacent door is opened.

YES N/A NO N/A

(If NO, provide explanation.)

Table 12 (cont.)

2. This vehicle is equipped with manual belts, required to meet FMVSS 208 S4.6, and the tension relieving device is cancelled each time one of the following options occurs:

a. The adjacent door is opened.	YES	N/A	NO	N/A
b. The latch plate is released from the buckle.	YES	N/A	NO	N/A

3. This is an open-body vehicle, without doors. Does the manual mean to cancel any shoulder belt slack introduced by a tension relieving device to operate properly ?

YES N/A NO N/A

(If NO, provide explanation.)

D3
BELT CONTACT FORCE

1. Do not measure the belt contact force if the manual or automatic seat belt assemblies in this vehicle incorporate a webbing tension relieving device. Does the vehicle incorporate a tension relieving device?

YES - NO X

2. Seat are adjusted according to instructions in Appendix B.

YES X NO -

3. The test dummies are positioned according to dummy position placement instructions in Appendix B and Appendix C.

YES X NO -

4. Close the vehicle's adjacent door, pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest, then fasten the latch. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point, pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. Measure the contact force exerted by the belt webbing on the dummy's chest. The contact force is 0.3 pounds. Contact the COTR if the contact force exceeds 0.7 pounds.

Table 12 (cont.)

D4
LATCHPLATE ACCESSIBILITY

1. Position the test dummy in the driver's seat or passenger's seat in its forward most adjustment position.

   YES X NO -

2. Attach the inboard and outboard reach string. YES X NO -

3. Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms. With the latchplate in the normal stowed position, check to assure that the latchplates are within the reach envelope.

   YES X NO -

4. Using the clearance test block, determine if there is sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latchplate or buckle.

   YES X NO -

D5
RETRACTION

1. Seats and seat backs are adjusted according to instructions in Appendix B "General Test Conditions" in TP-208-9.

   YES X NO -

2. Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B and restrain the dummies, using the belt systems for the positions being tested.

   YES X NO -

3. Outboard armrests which are capable of being stowed on vehicle seats shall be placed in their stowed positions.

   YES X NO -

4. Check the option which applies to this test vehicle:

   a. The torso and lap belt webbing of the seat belt system automatically retract to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.

      YES X NO -

Table 12 (cont.)

b. The torso and lap belt webbing of the seat belt system automatically retract when the seat belt latchplate is released.

YES X NO -

5. With the webbing and hardware in the stowed position, close the door to assure that the webbing and hardware are prevented from being pinched.

YES X NO -

6. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, check to assure that the belt system fully retracts when the tension-relief device is manually deactivated.

YES N/A NO -

D6
ACCESSIBILITY

The requirements for accessibility do not apply to:

1. Seats whose seat cushions are removable so that the seat back serves a function other than seating;
2. Seats which are removable;
3. Seats which are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above, then determine if:

1. Each manual seat belt assembly whose webbing is designed to pass through the seat cushion or between the seat cushion and seat back has one of the following three parts (the seat belt latchplate, the buckle, or the seat belt webbing) on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant).

YES X NO -

2. The remaining two seat belt parts are accessible under normal conditions.

YES X NO -

Table 12 (cont.)

3. The buckle and latchplate pass through the guides or conduits provided and do not fall behind the seat when the following events occur in order:
   a. The belt is completely retracted or, if the belt is non-retractable, the belt is unattached.
      YES X NO -
   b. The seat is moved to any position to which it is designed to be adjusted.
      YES X NO -
   c. The seat back, if foldable, is folded forward as far as possible and then moved backward into positions.
      YES X NO -
4. Is the inboard receptacle end of the seat belt assembly which is installed in the outboard designated seating position accessible with the center arm rest in any position to which it can be adjusted without moving the armrest?
   YES X NO -

D7
LATCH MECHANISM

A seat belt assembly installed in a passenger car, except an automatic belt assembly, shall have a latch mechanism:

1. Whose components are accessible to a seated occupant in both the stowed and operational positions.
   YES X NO -
2. That releases both the upper torso restraint and the lap belt simultaneously, if the assembly has a lap belt and an upper torso restraint that require unlatching for release of the occupant.
   YES X NO -
3. That releases at a single point by a push button action.
   YES X NO -

Figure 8

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA SHEET

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

Windshield is bonded in place with 0.9 inch trim along the top and sides. The lower portion of windshield is covered by a plastic shroud.

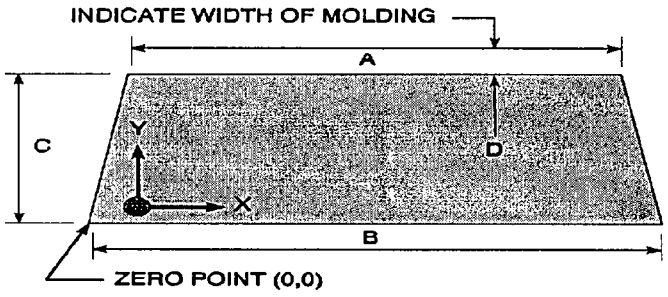
FMVSS 212 REQUIREMENTS :

The Post - Test periphery retention amount must be at least 75% of the Pre - Test periphery measurement for vehicle NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA :

	WINDSHIELD PERIPHERY		
	PRE - TEST (in.)	POST - TEST (in.)	PERCENT RETENTION
RIGHT SIDE	92.55	92.55	100.0
LEFT SIDE	92.55	92.55	100.0
TOTAL	185.1	185.1	100.0

AREA OF RETENTION FAILURE:



FRONT VIEW OF WINDSHIELD

FAILURE DETAILS :

None

Figure 9

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

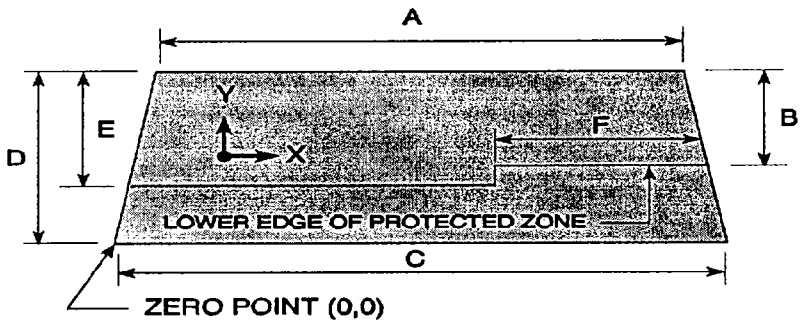
PROTECTED ZONE LOWER EDGE REQUIREMENT :

The lower edge of the protected zone is determined by placing a 6.5" dia. rigid sphere weighing 15 pounds 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, and then draw a line on the inner surface of the windshield below and 1/2" 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 inches.)

KEY:

A=51.2
B=16.7
C=66.5
D=33.7
E=19.3
F=35.5



FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4" :

(Show location of penetration on above sketch)

	COORDINATES	
	X	Y
1		
2		
3		
4		

No failure

Table 13

FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO. 301

TEST VEHICLE NHTSA NO. : CR0206 TEST DATE : March 15, 1994

Vehicle Mfgr./Make/Model : 1994 Ford Thunderbird 2-door sedan

Test vehicle fuel tank filled to 92% to 94% of manufacturer's "usable" capacity and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

****

TEST VEHICLE IMPACT TYPE :

X Frontal (30 mph)

\- Oblique (30 mph) with - °barrier face first contacting - (driver/passenger) side

\- Rear Moving Barrier (30 mph)

\- Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENT:

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

SOLVENT SPILLAGE DETAILS :

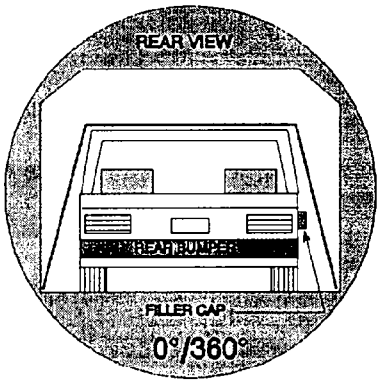
None

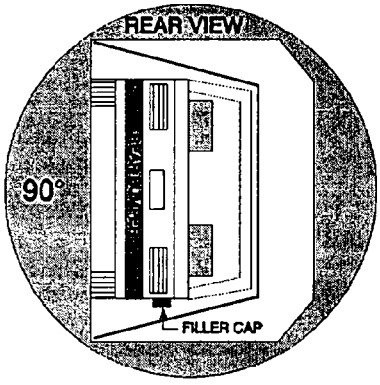
Table 14

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE :
0-90 Deg.

Vehicle NHTSA ID No. :
CR0206





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)		2	minutes	11	seconds
FMVSS 301 Position Hold Time +		5	minutes	00	seconds
	TOTAL	7	minutes	11	seconds
Next whole minute interval		8	minutes		

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

0	0	0	0

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

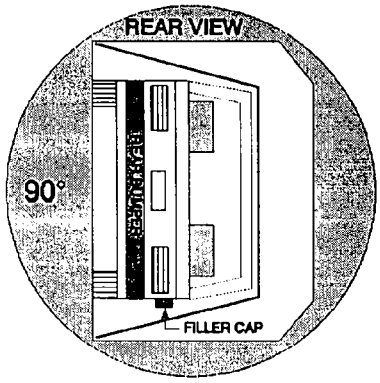
IV. SOLVENT SPILLAGE LOCATION(S) :

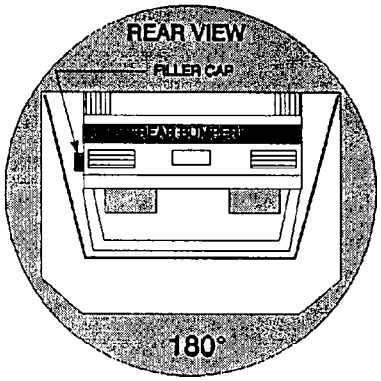
None

Table 14
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE :
90-180 Deg.

Vehicle NHTSA ID No. :
CR0206





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)		2	minutes	10	seconds
FMVSS 301 Position Hold Time +		5	minutes	00	seconds
	TOTAL	7	minutes	10	seconds
Next whole minute interval		8	minutes		

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

0	0	0	0

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

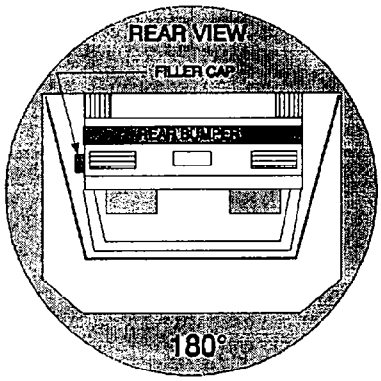
IV. SOLVENT SPILLAGE LOCATION(S) :

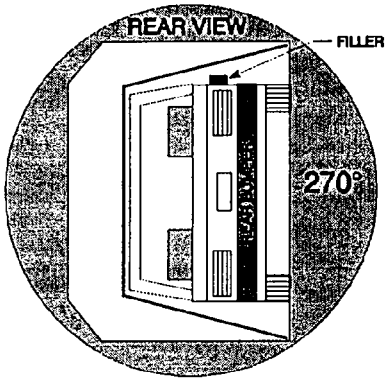
None

Table 14
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE :
180-270 Deg.

Vehicle NHTSA ID No. :
CR0206





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)		1	minutes	47	seconds
FMVSS 301 Position Hold Time +		5	minutes	00	seconds
	TOTAL	6	minutes	47	seconds
Next whole minute interval		7	minutes		

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

0	0	0	N/A

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

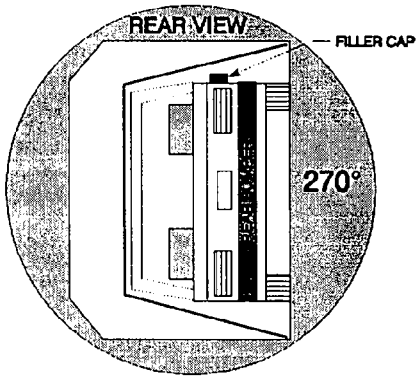
IV. SOLVENT SPILLAGE LOCATION(S) :

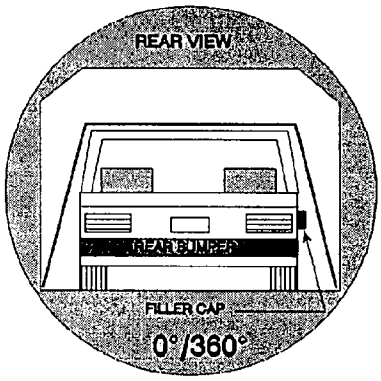
None

Table 14
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE :
270-360 Deg.

Vehicle NHTSA ID No. :
CR0206





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

0	0	0	N/A

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

Table 15

POST TEST AIR BAG DATA

NHTSA No. : CR0206; Test Date: March 15, 1994; Technician: D.J. Travale

Vehicle Model Year/Make/Model: 1994 Ford Thunderbird

A.	No. of vent holes:		2	-Driver	1	-Passenger
B.	Size of vent holes:	($In.^2$)	0.28	-Driver	2.7	-Passenger
C.	Total vent area:	($In.^2$)	0.57	-Driver	5.73	-Passenger

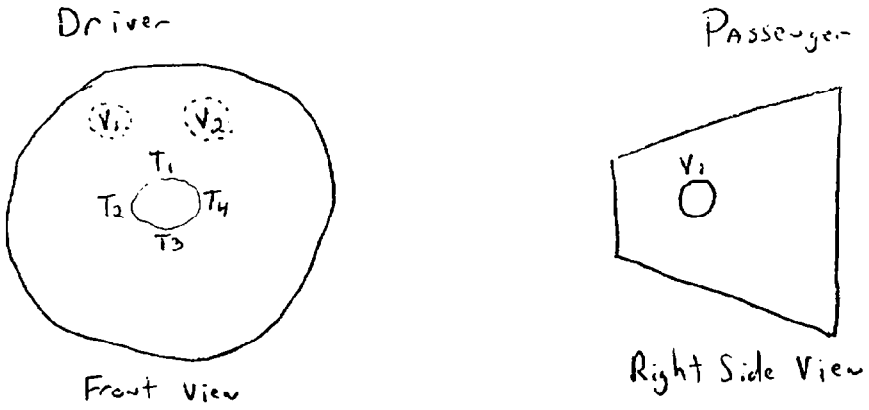
D. Deflated air bag length and width dimensions or, if round,diameter. (In inches)

Driver:	-	-Length;	-	-Width;	25.0	-Diameter
Passenger:	21.5	-Height;	34.0	-Width;	11.0	-Depth

E. Is the air bag tethered?

Driver:	X	-Yes;	-	-No;	If yes, record length of tether-	9.5
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.
(Not to Scale) (Vn = nth Vent Hole; Tn = nth tether)



F. Record part numbers and manufacturer name of the air bag and gas generator.

Driver: Airbag No. : 232364

Passenger: Number not available

G. Cut out a 6 inch by 6 inch swatch of the bag material and at least one tether from each bag, mark the vehicle's NHTSA number on the swatch, and send these parts to the COTR with the test report.

Table 16

ACCIDENT INVESTIGATION DIVISION DATA

VEHICLEYEAR/MAKE/MODEL/BODY STYLE: 1994 Ford Thunderbird 2-door sedan

VEHICLE NHTSA NO. : CR0206 VIN No. : 1FALP624XRH124874

WHEELBASE: 113.3 in. BUILD DATE: November, 1993 TEST DATE: March 15, 1994

VEH SIZE CATEGORY: full size TEST WEIGHT: 4,030 lbs.

FRONT OVERHANG: - OVERALL WIDTH: 72.7in.

COLLISION DEFORMATION (CDC) CODE: 12FDEW2

IMPACT MODE: Frontal

CRUSH DEPTH DIMENSIONS: (Inches)

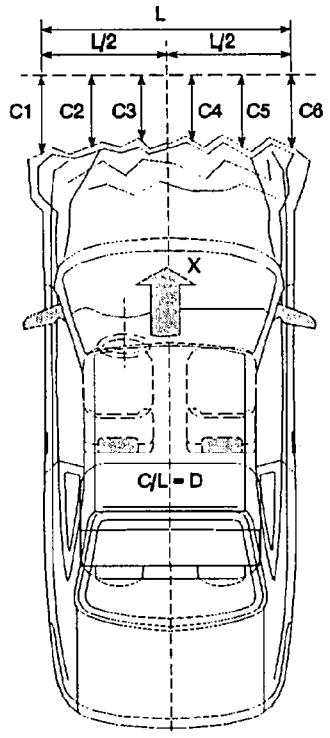
C1 = N/A* C4 = N/A*

C2 = N/A* C5 = N/A*

C3 = N/A* C6 = N/A*

MIDPOINT OF DAMAGE: D=
(Vehicle Longitudinal Centerline) -

LENGTH OF DAMAGE
REGION: L= -



Remarks: *Front bumper was separated from vehicle due to impact.

Table 17
TEST VEHICLE NONCOMPLIANCE NOTICE

NHTSA Contract Lab : Calspan Advanced Technology Center

Lab Project Manager & Telephone No. : Walter E. Levan (716) 632 - 7500

Date of Test : March 15, 1994 Vehicle NHTSA No. : CR0206

Vehicle Manufacturer : FORD MOTOR COMPANY

Model Year : 1994 VIN : 1FALP624XRH124874

Model : Thunderbird Body Style: 2-door sedan Build Date : November, 1993

Dummy Stabilized Temperature at Time of Test : 70 °F (Spec. = 69 - 72 °F)

Impact Velocity : 29.3 mph; Time of Test : 11:40

Type of Automatic Restraint System :

Driver : Airbag

Passenger : Airbag

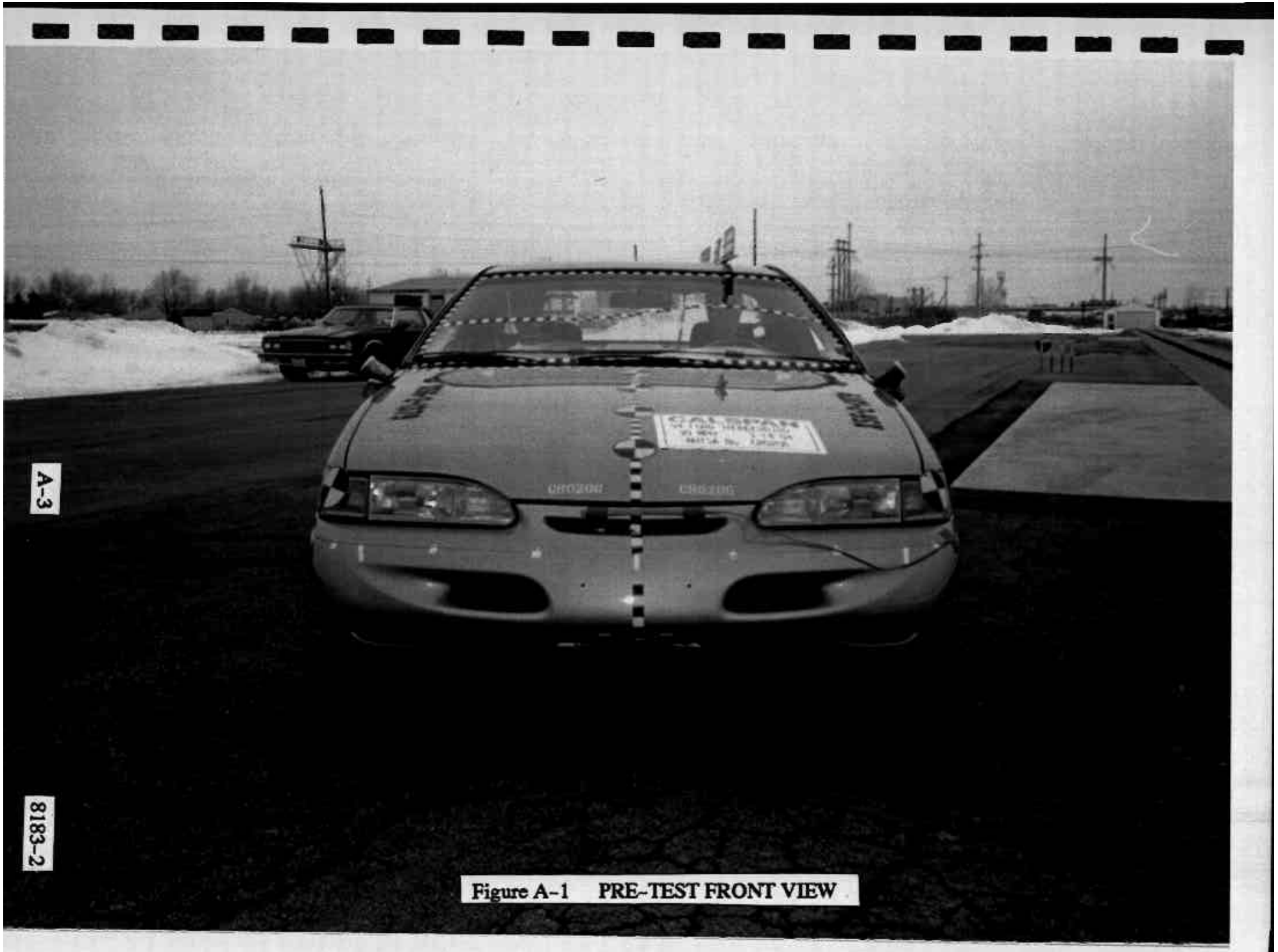
Failure Details :

The vehicle, as tested, appears to comply with the requirements of FMVSS Nos. 208, 212, 219(partial), and 301.

Appendix A

PHOTOGRAPHS

LIST OF PHOTOGRAPHS



A-3

8183-2

Figure A-1 PRE-TEST FRONT VIEW

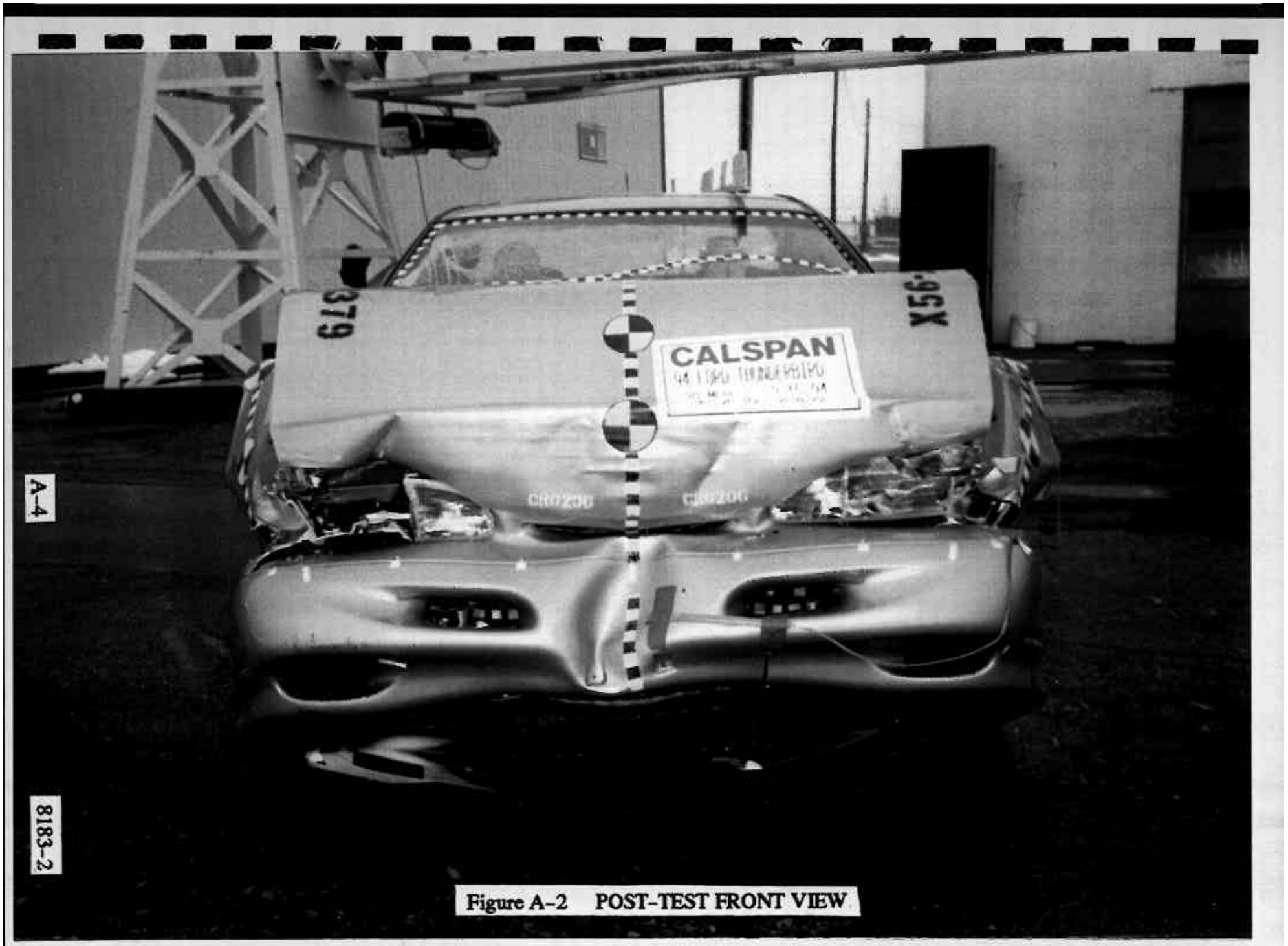


Figure A-2 POST-TEST FRONT VIEW

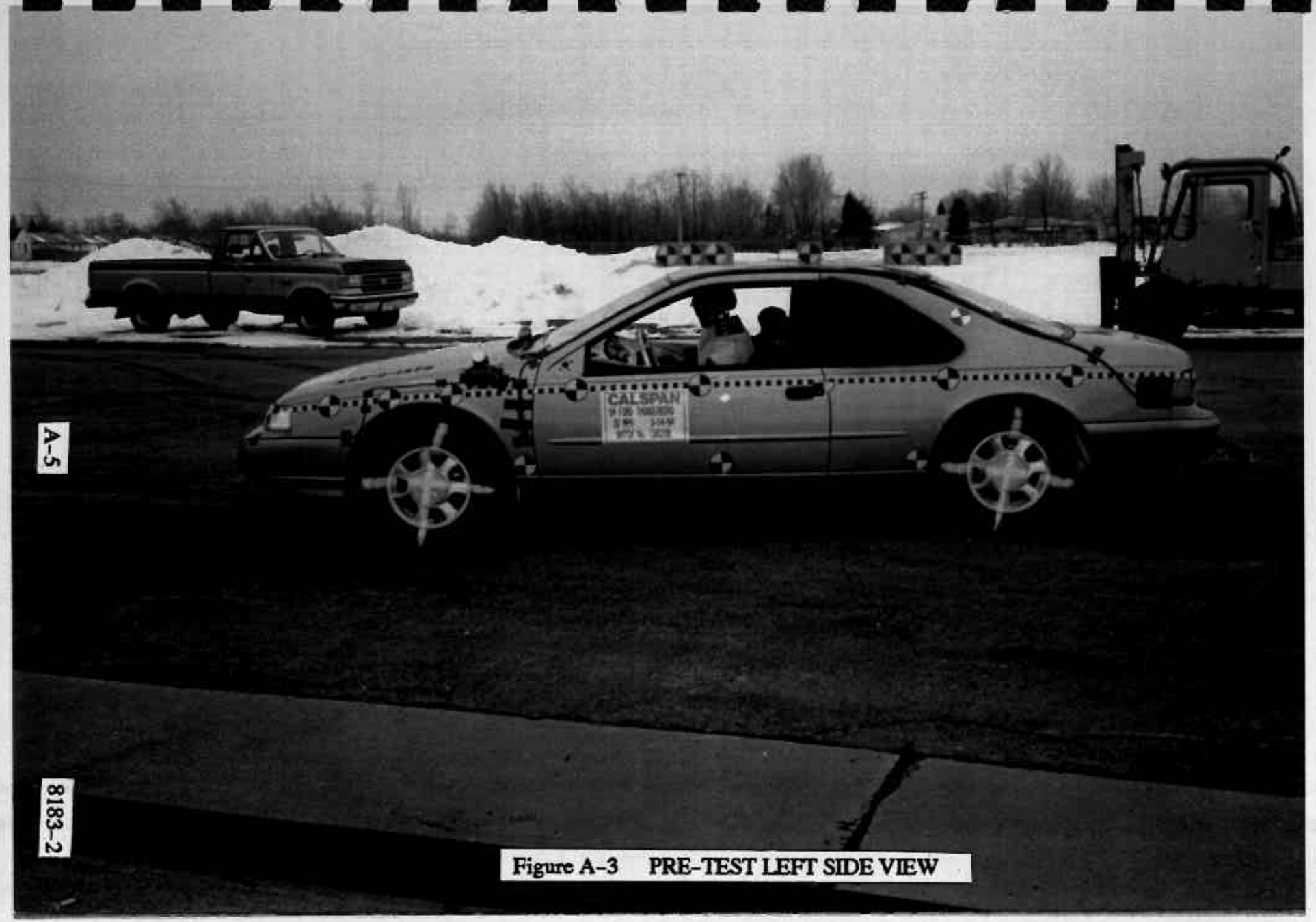


Figure A-3 PRE-TEST LEFT SIDE VIEW

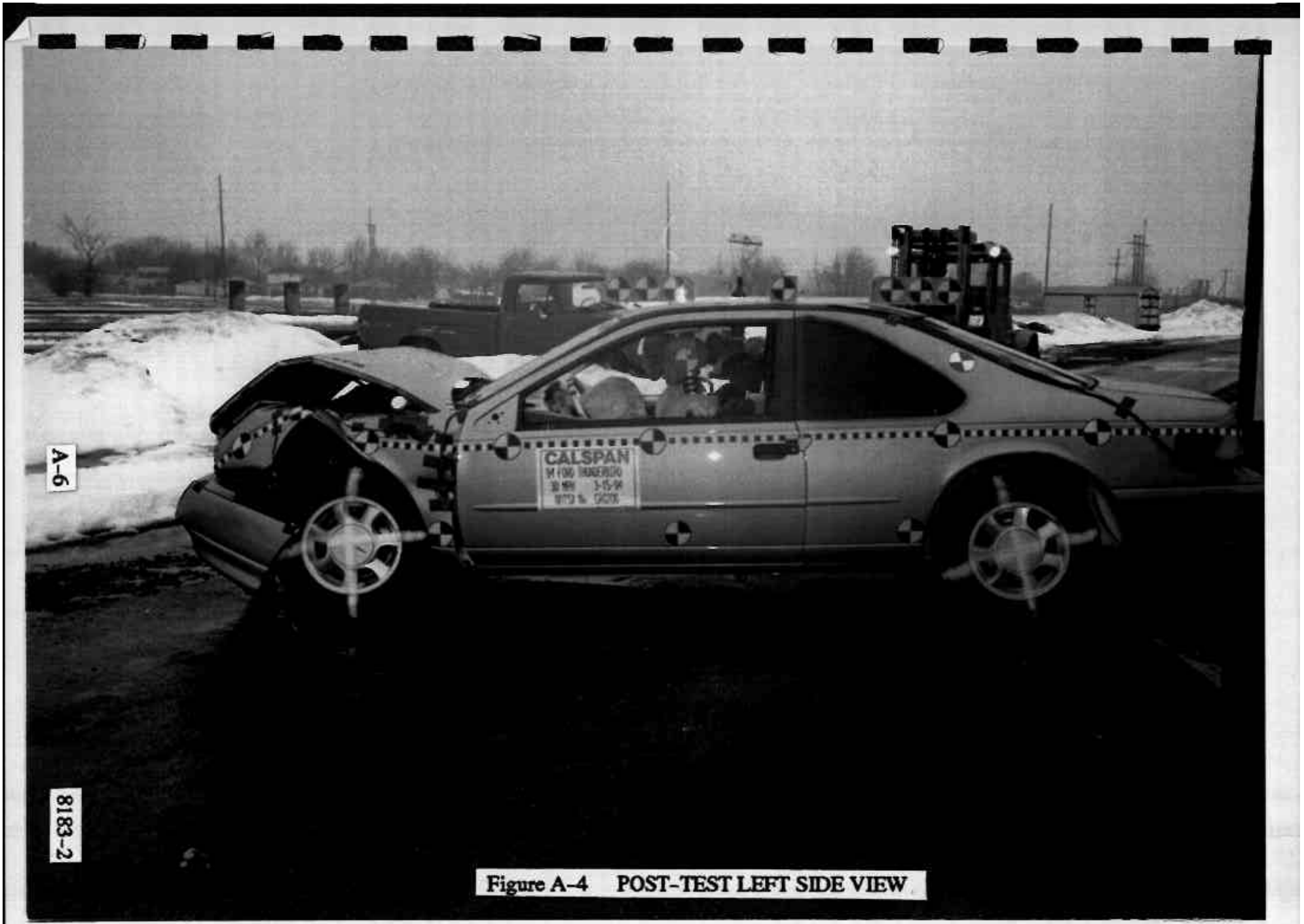


Figure A-4 POST-TEST LEFT SIDE VIEW

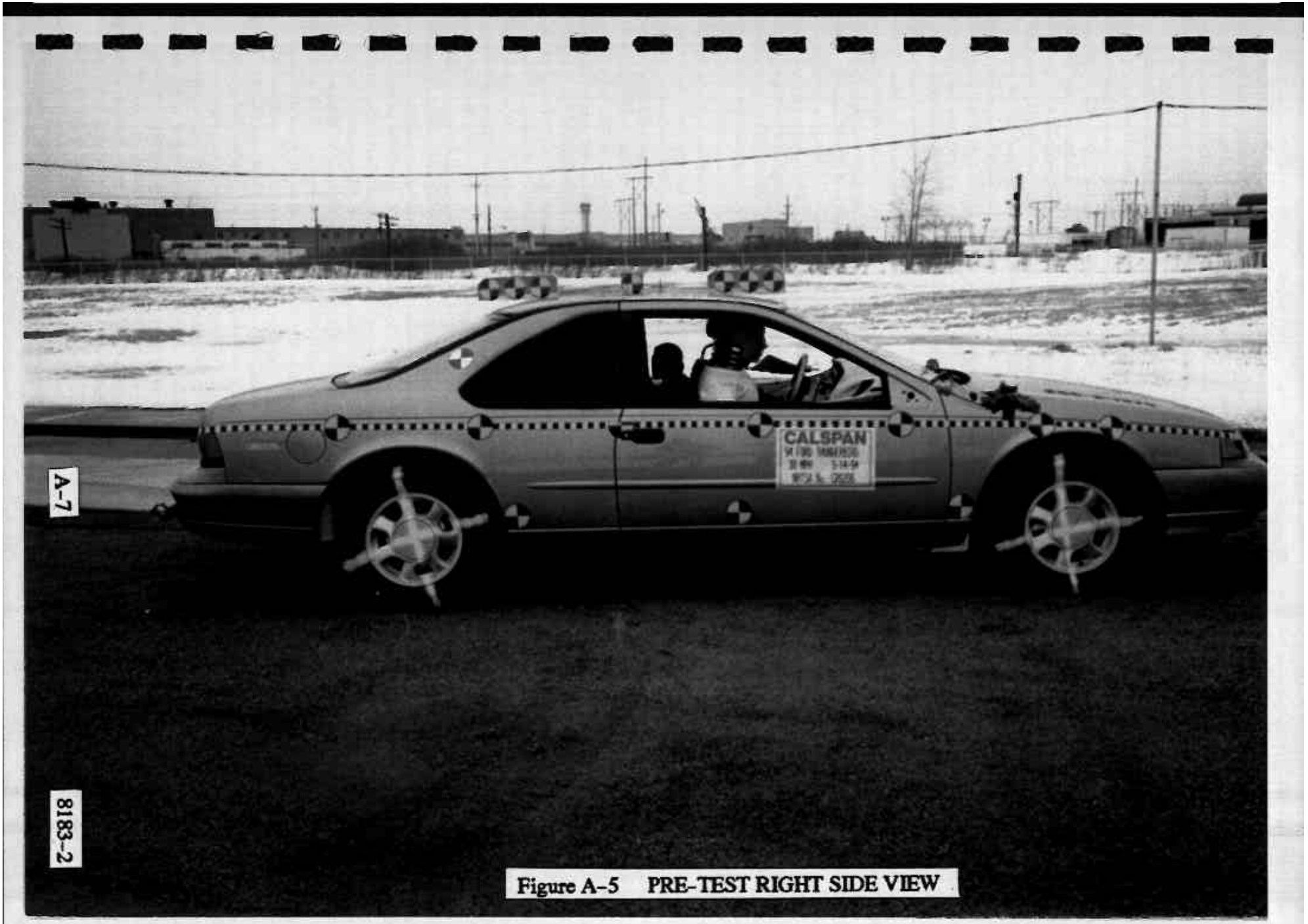


Figure A–5 PRE-TEST RIGHT SIDE VIEW

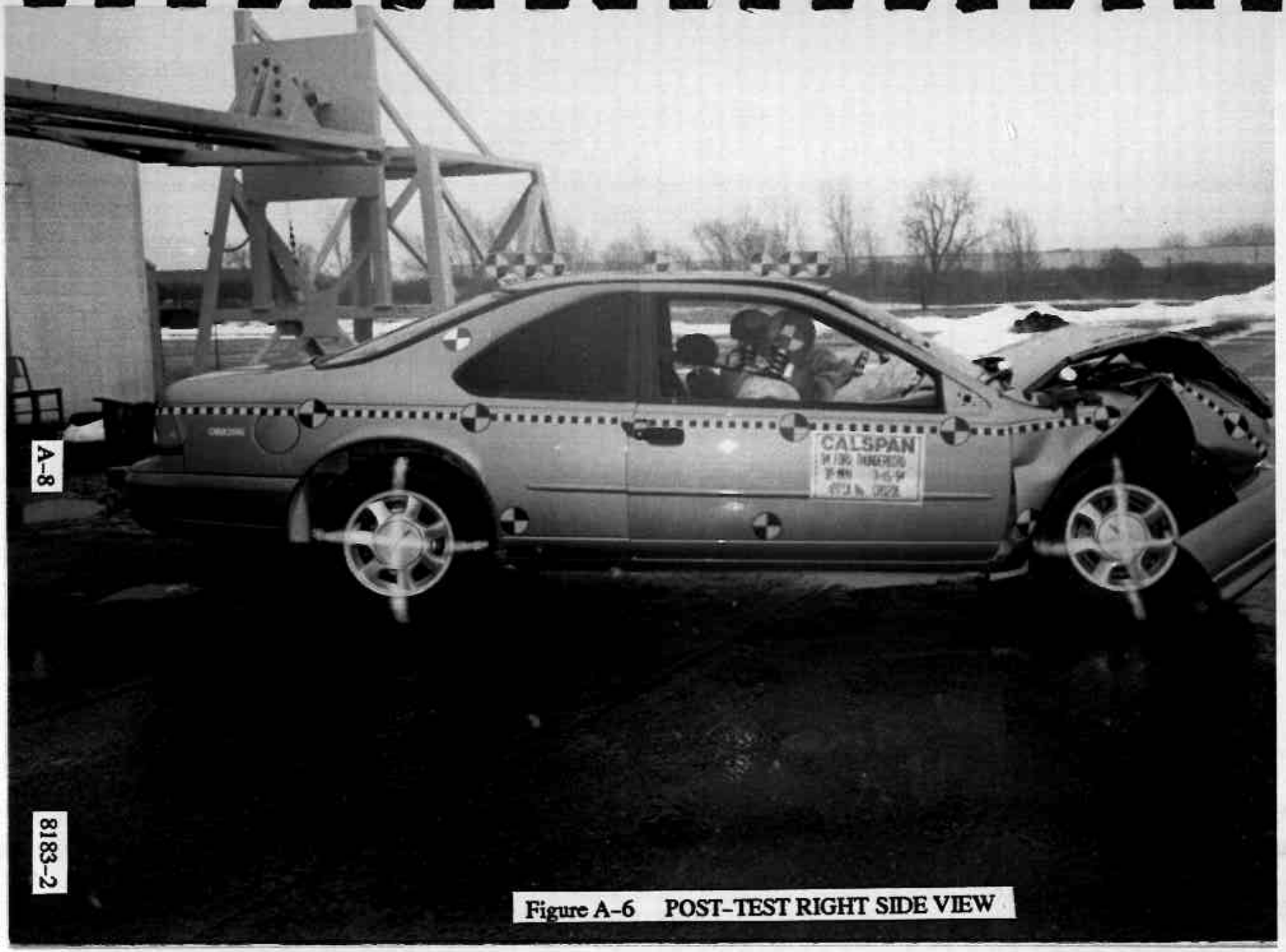
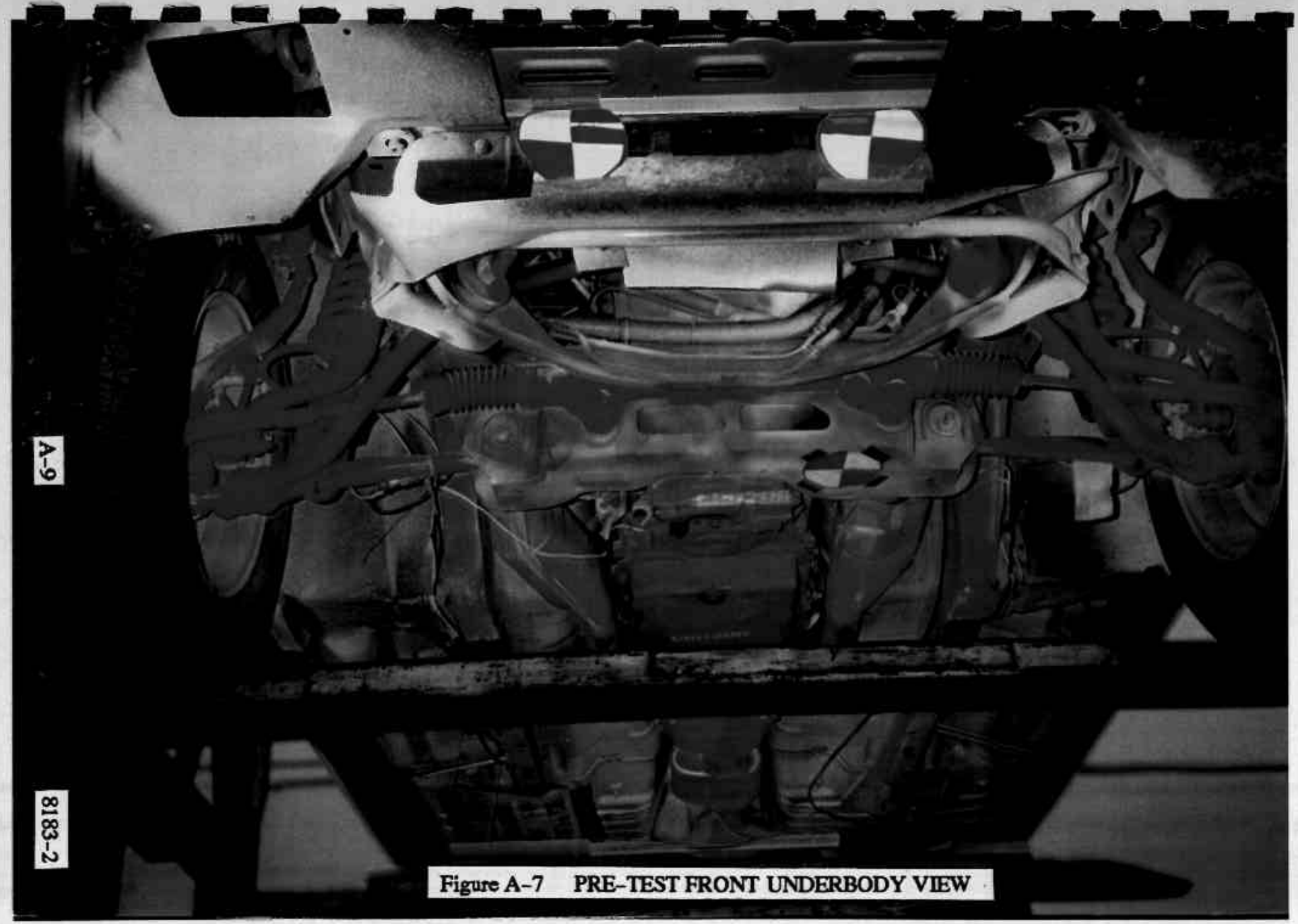


Figure A-6 POST-TEST RIGHT SIDE VIEW



A-9

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Figure A-7 PRE-TEST FRONT UNDERBODY VIEW

Figure A-8 POST-TEST FRONT UNDERBODY VIEW

Figure A-9 PRE-TEST DRIVER SIDE VIEW

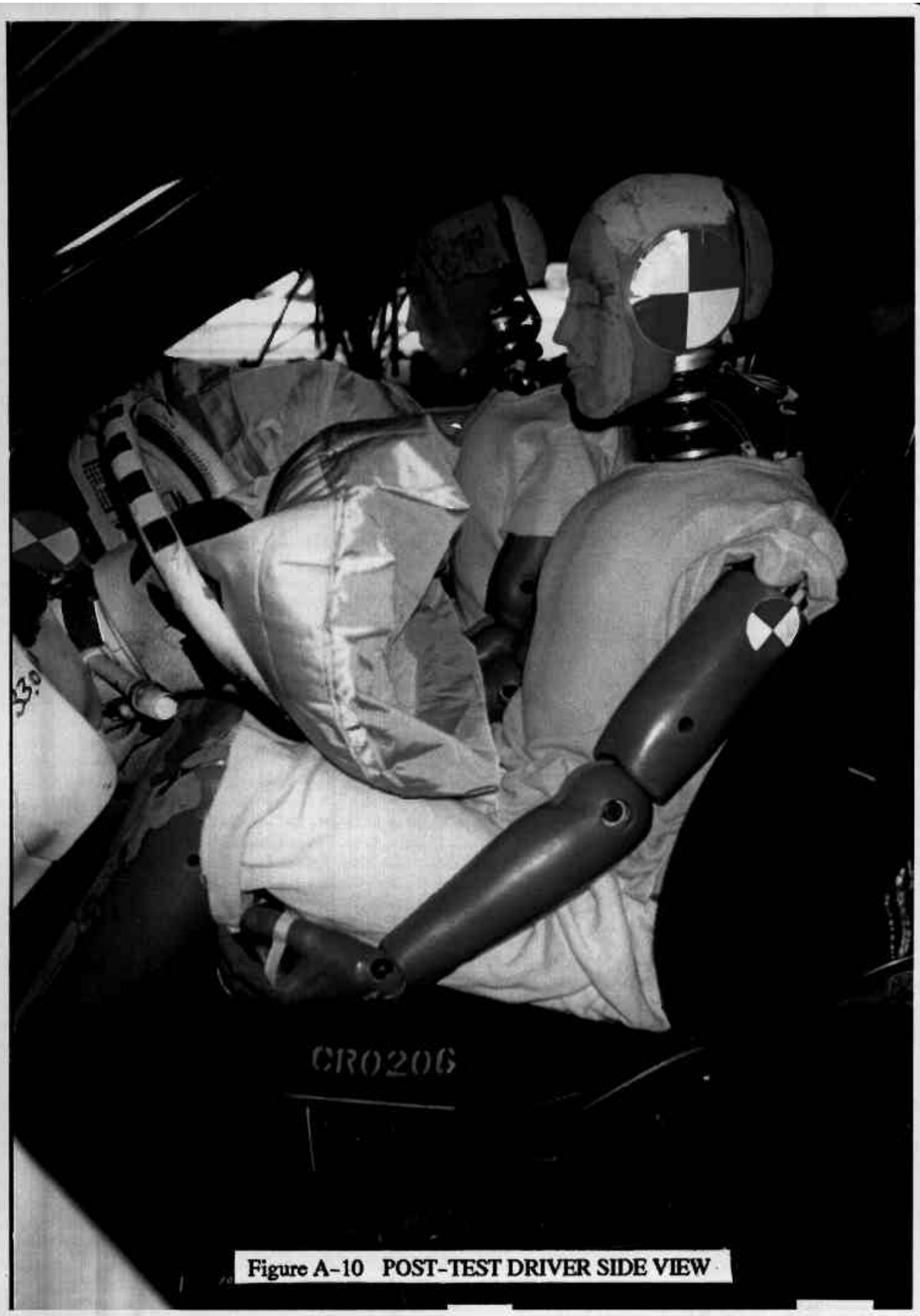

Figure A-10 POST-TEST DRIVER SIDE VIEW

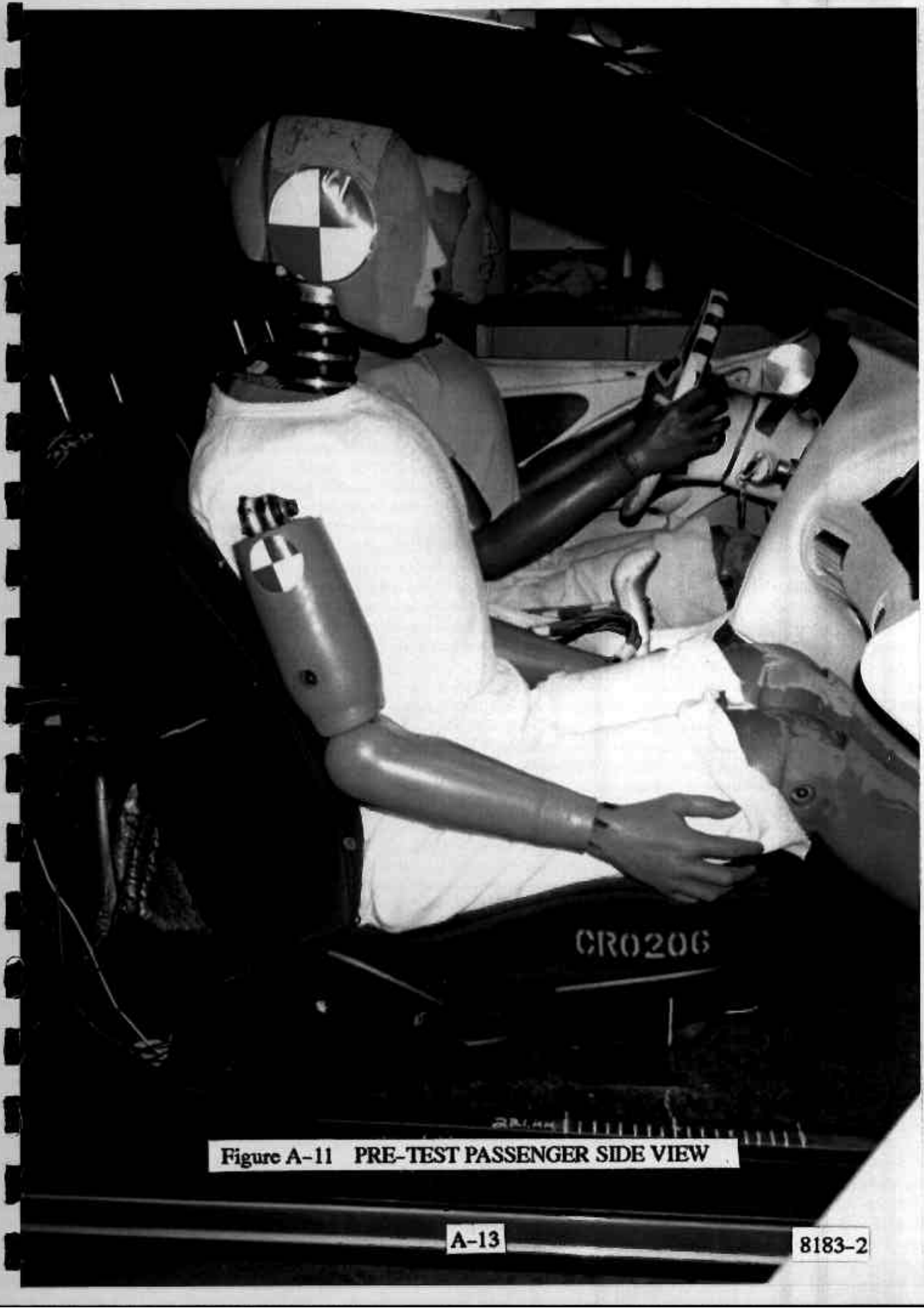

Figure A-11 PRE-TEST PASSENGER SIDE VIEW

Figure A-12 POST-TEST PASSENGER SIDE VIEW

Figure A-13 PRE-TEST UNDERBODY STEERING SHAFT

Figure A-14 POST-TEST UNDERBODY STEERING SHAFT

Figure A-15 PRE-TEST STEERING COLUMN/FIREWALL INSIDE VIEW (NOT AVAILABLE)

Figure A-16 POST-TEST STEERING COLUMN/FIREWALL INSIDE VIEW (NOT AVAILABLE)

A-19

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Figure A-17 POST-TEST DRIVER KNEE BOLSTER

Figure A-18 POST-TEST PASSENGER KNEE BOLSTER

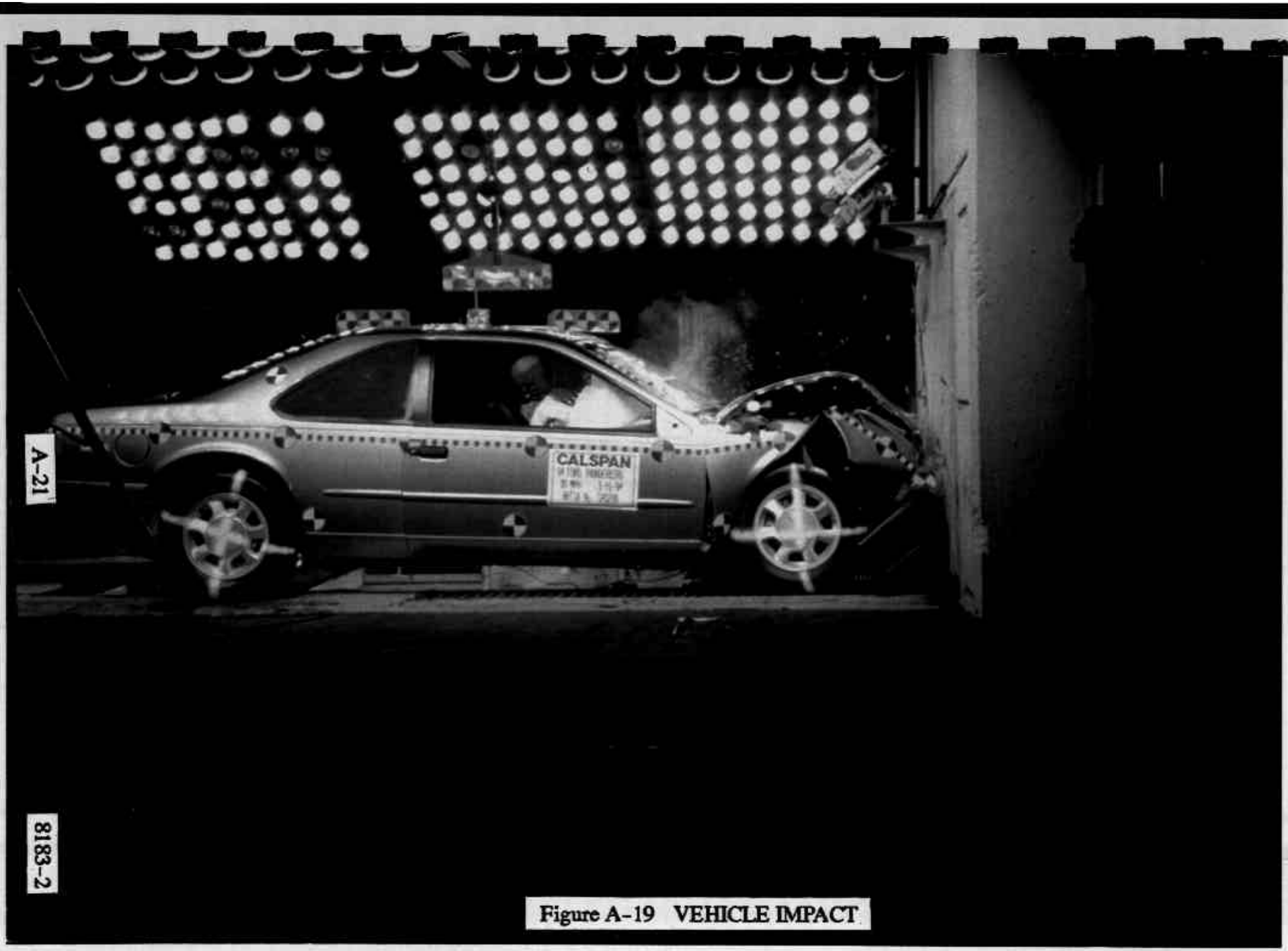


Figure A-19 VEHICLE IMPACT

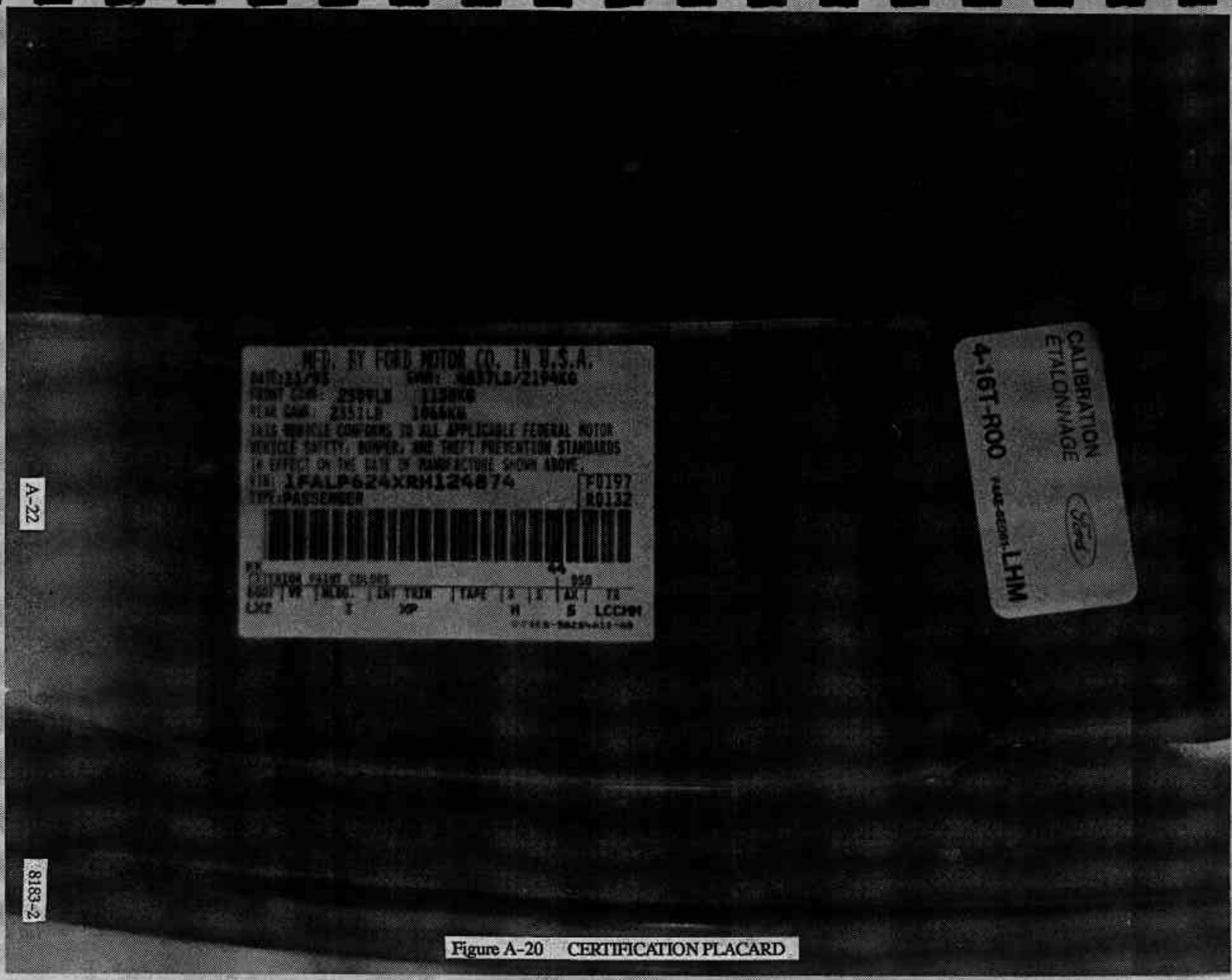


Figure A-20 CERTIFICATION PLACARD

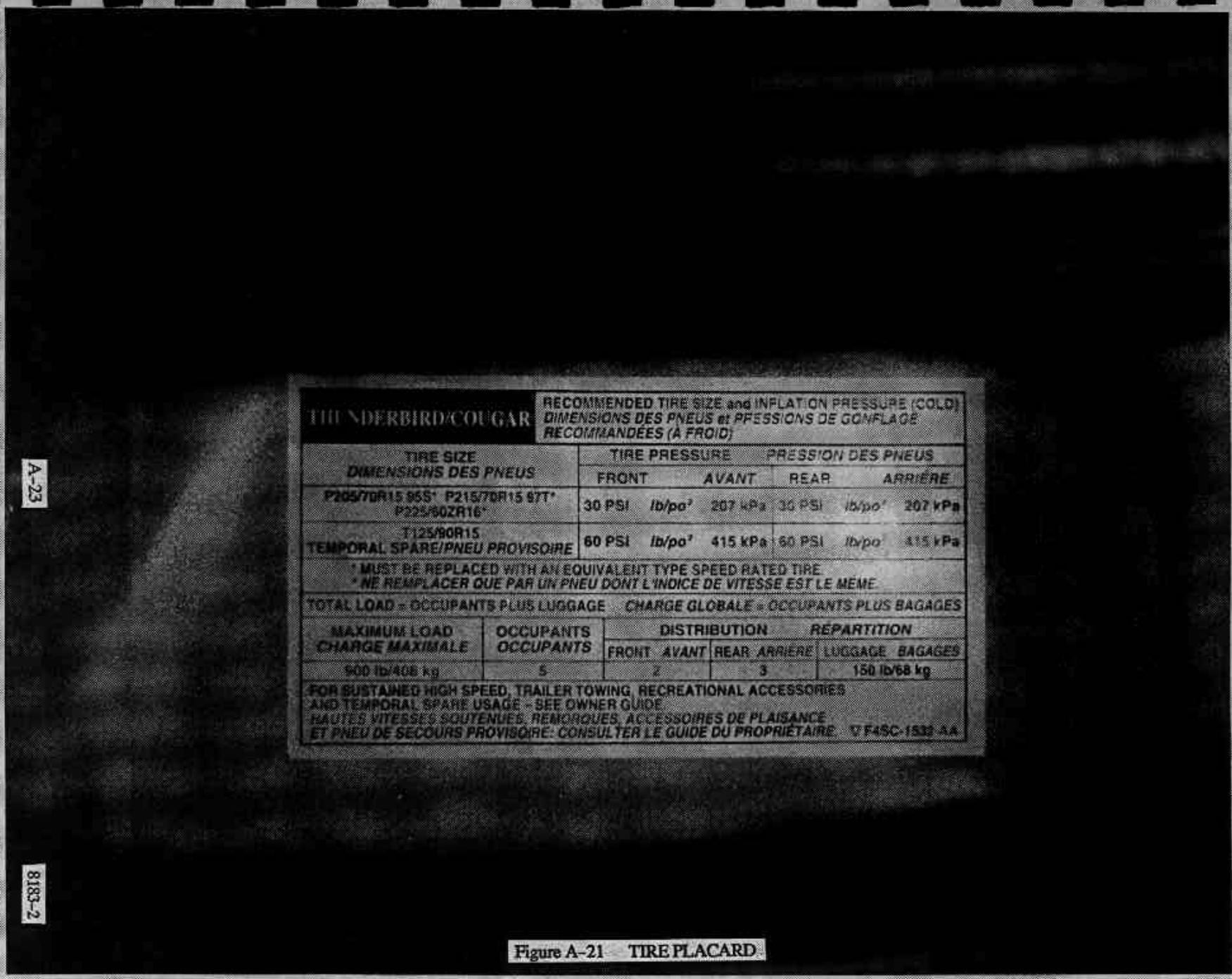


Figure A–21 TIRE PLACARD

Figure A-22 POST-TEST DRIVER AIRBAG VIEW

8183-2

Figure A-23 POST-TEST PASSENGER AIRBAG VIEW

Appendix B

VEHICLE AND DUMMY RESPONSE DATA

Note : At the request of the COTR, the data traces in appendix B are auto scaled.

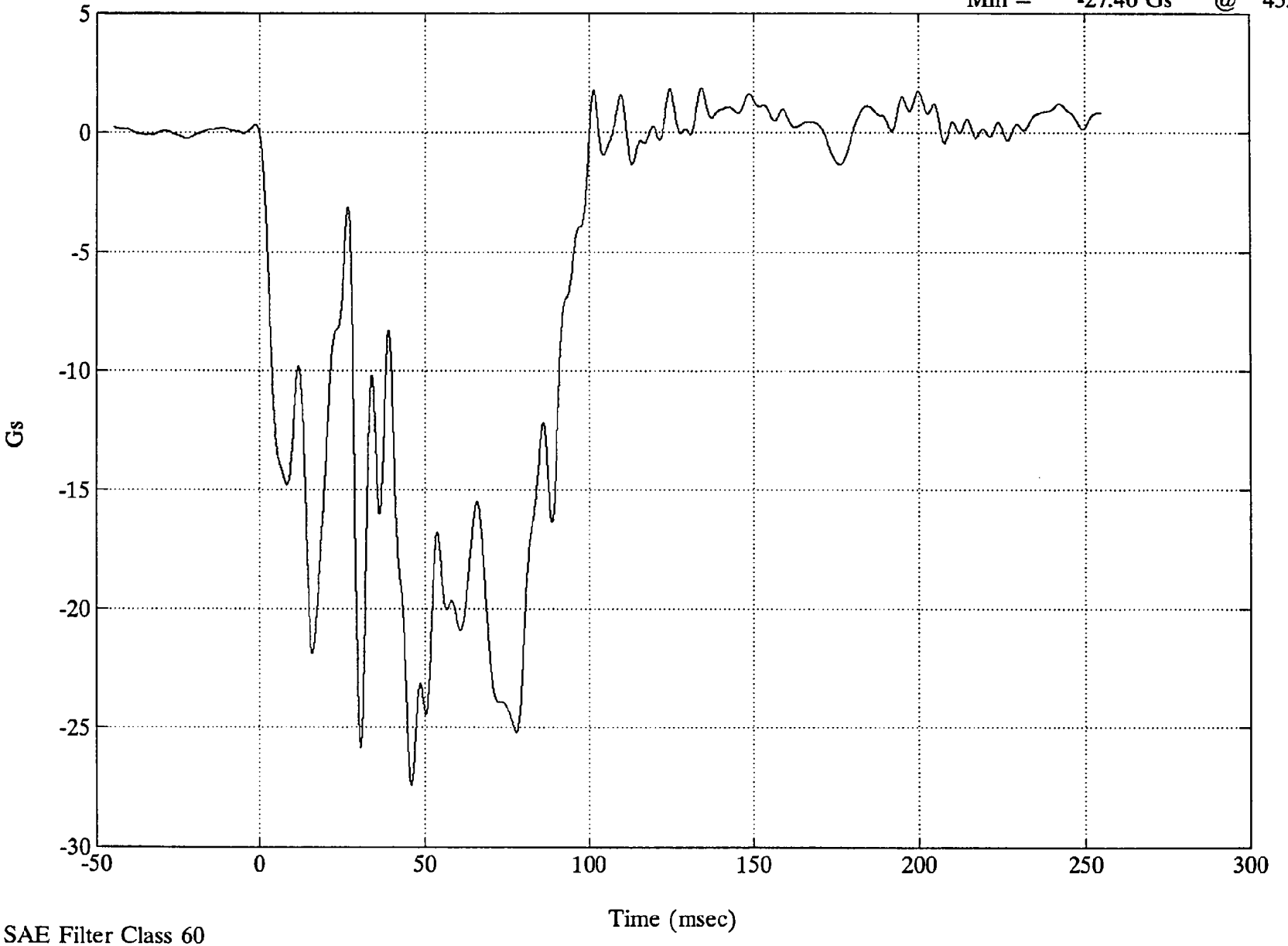
TEST NO. CR0206

VEHICLE	SAE FILTER CHANNEL CLASS
	60

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

L. Rear X-member X (#1)

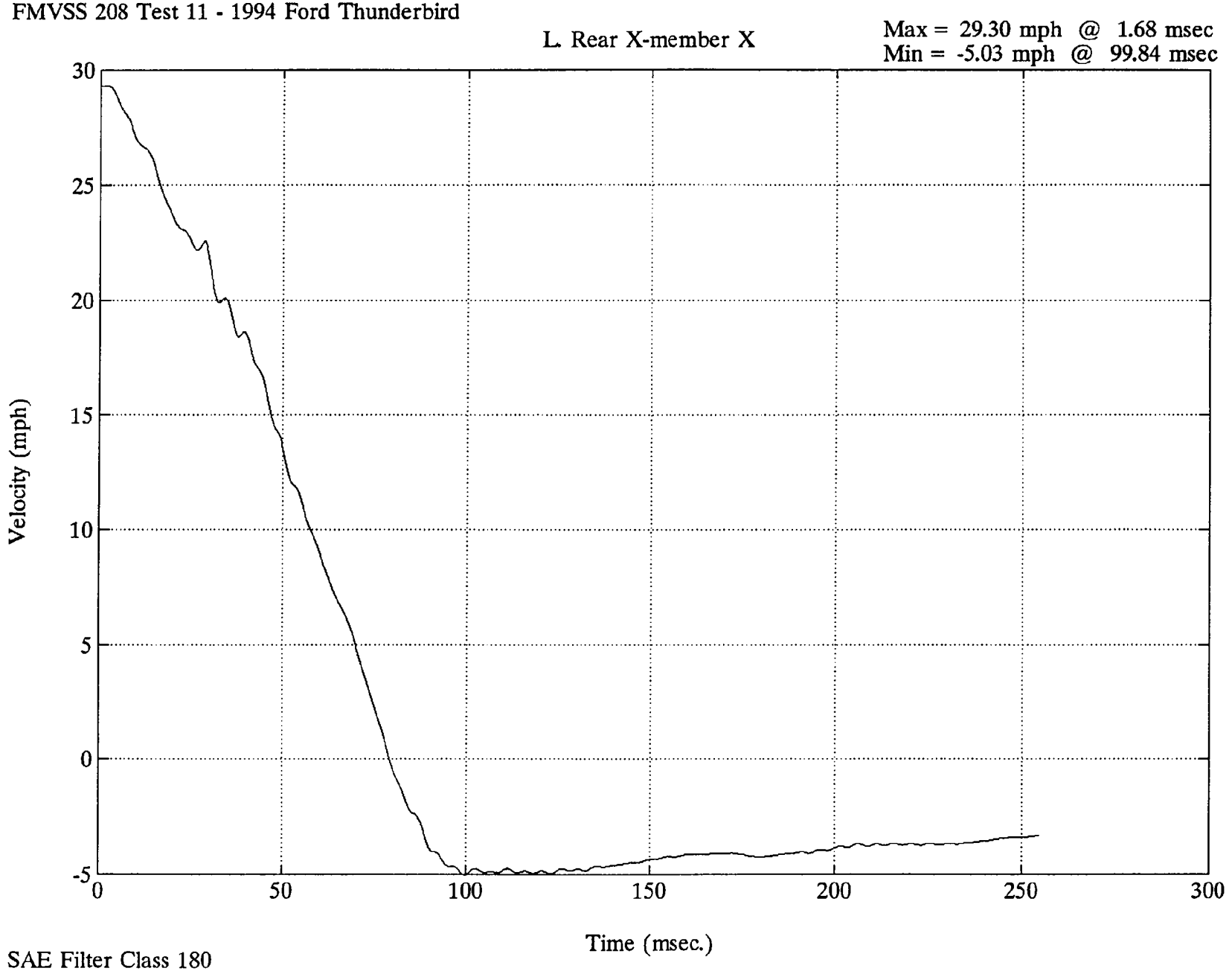
Max = 1.85 Gs @ 134.27 msec
Min = -27.40 Gs @ 45.96 msec



SAE Filter Class 60

8183-2

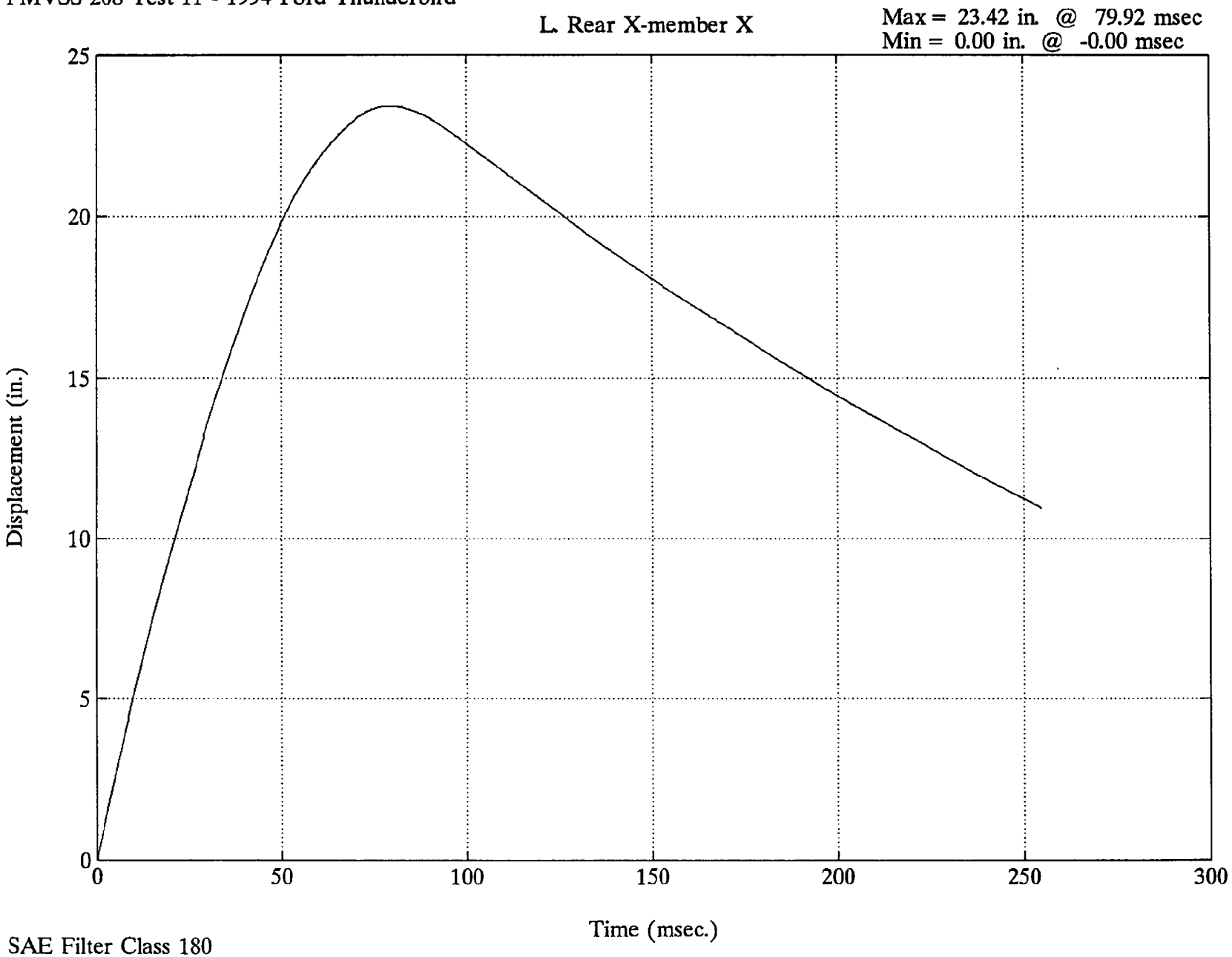
FMVSS 208 Test 11 - 1994 Ford Thunderbird



SAE Filter Class 180

8183-2

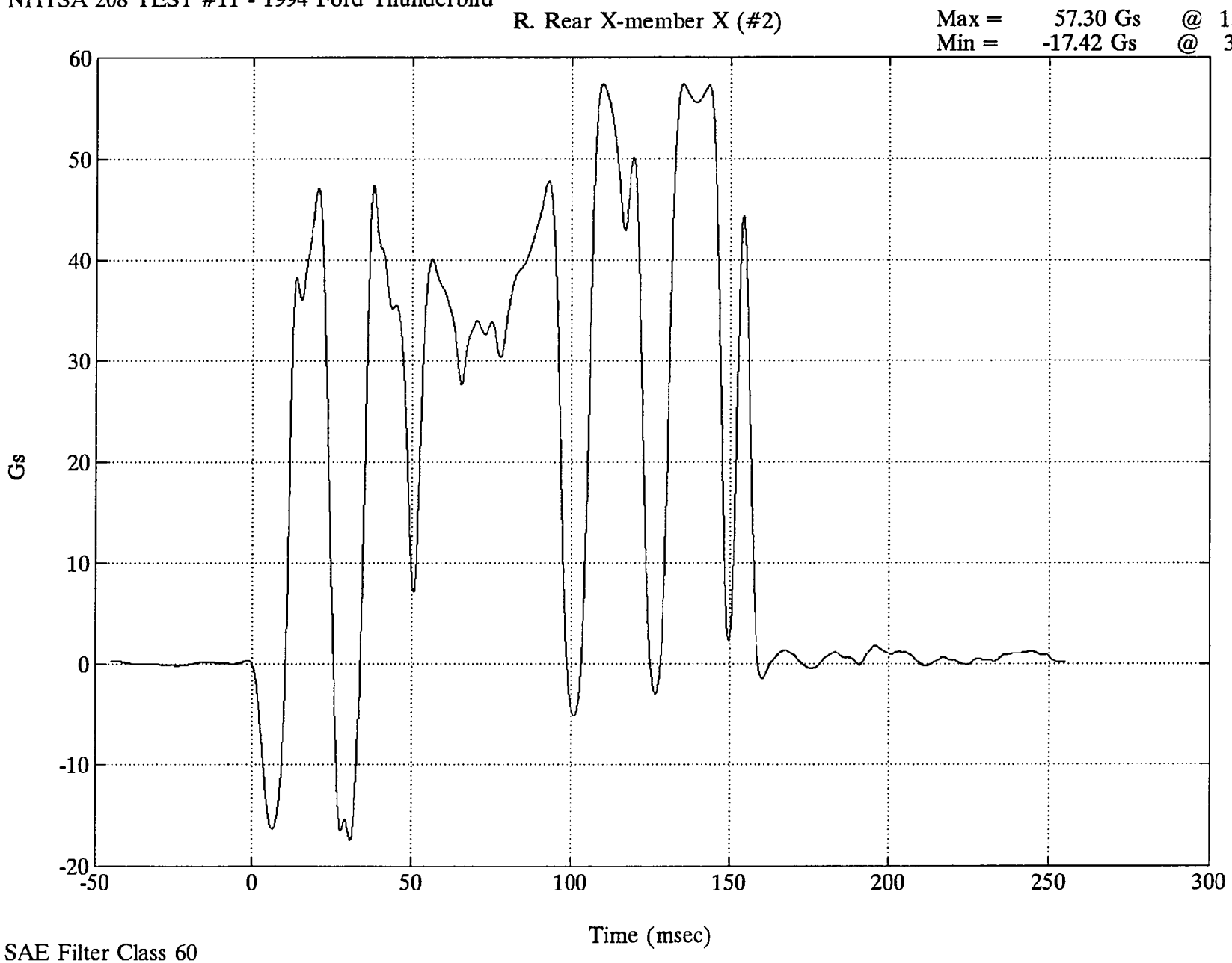
FMVSS 208 Test 11 - 1994 Ford Thunderbird



SAE Filter Class 180

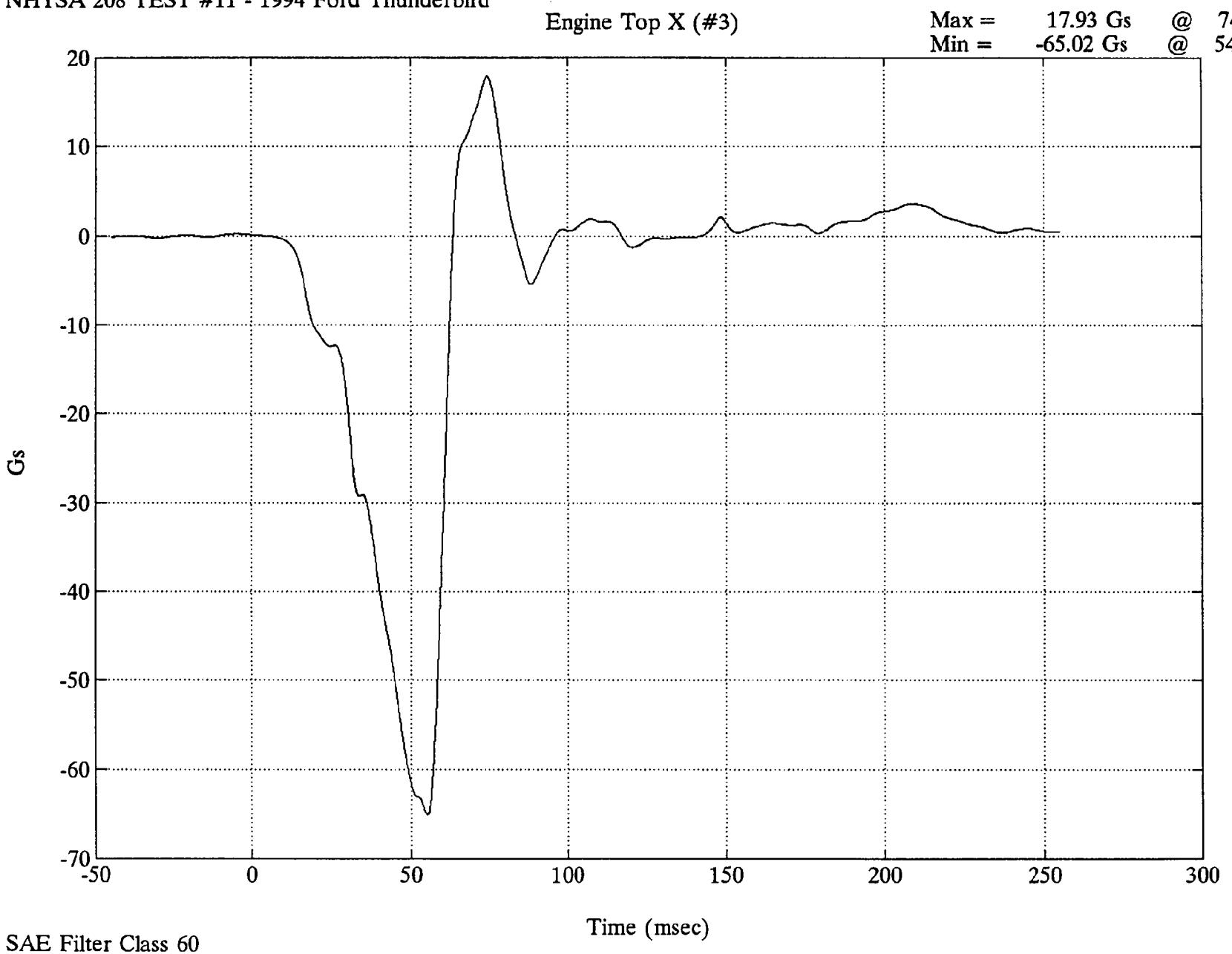
8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 60

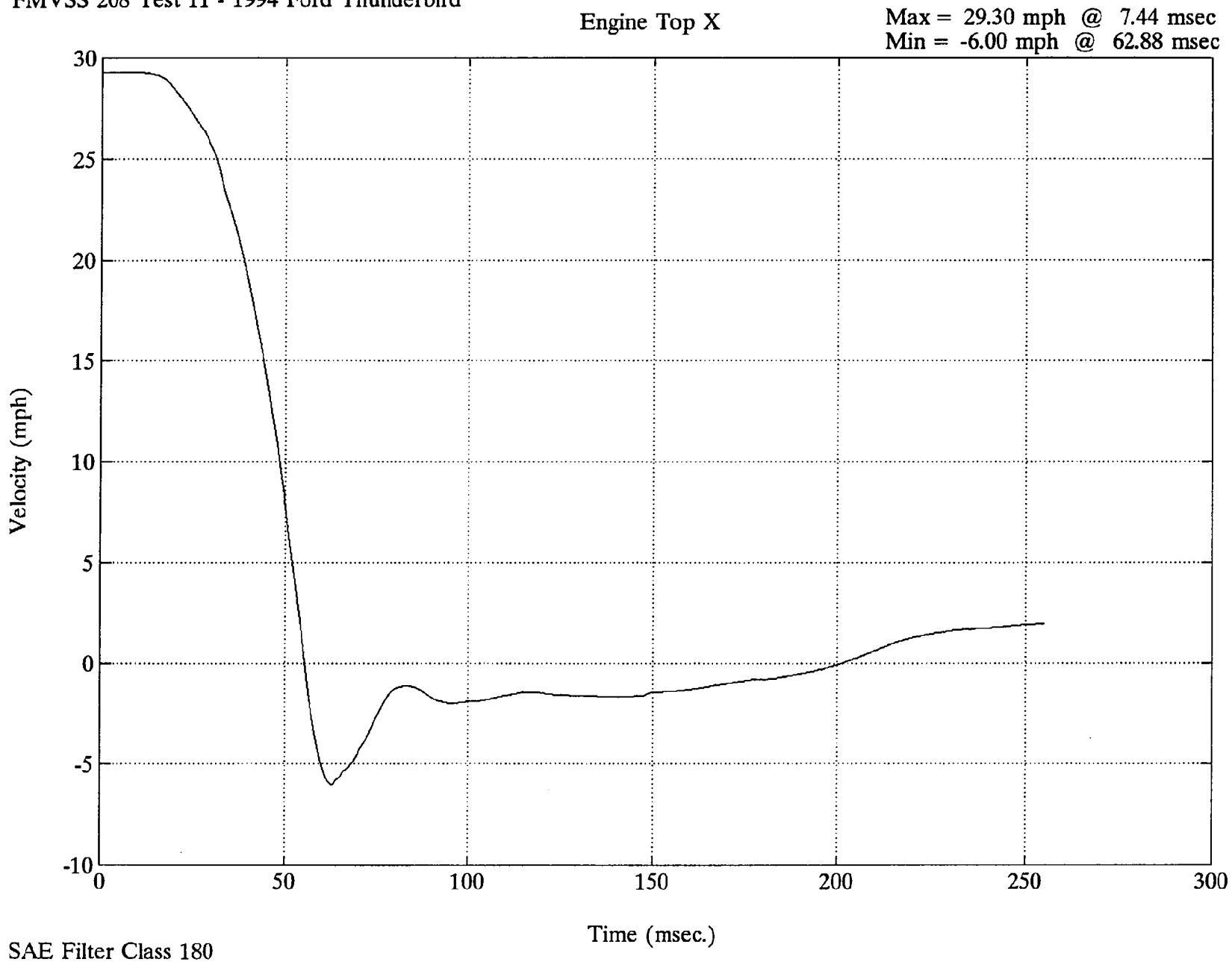
NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 60

8183-2

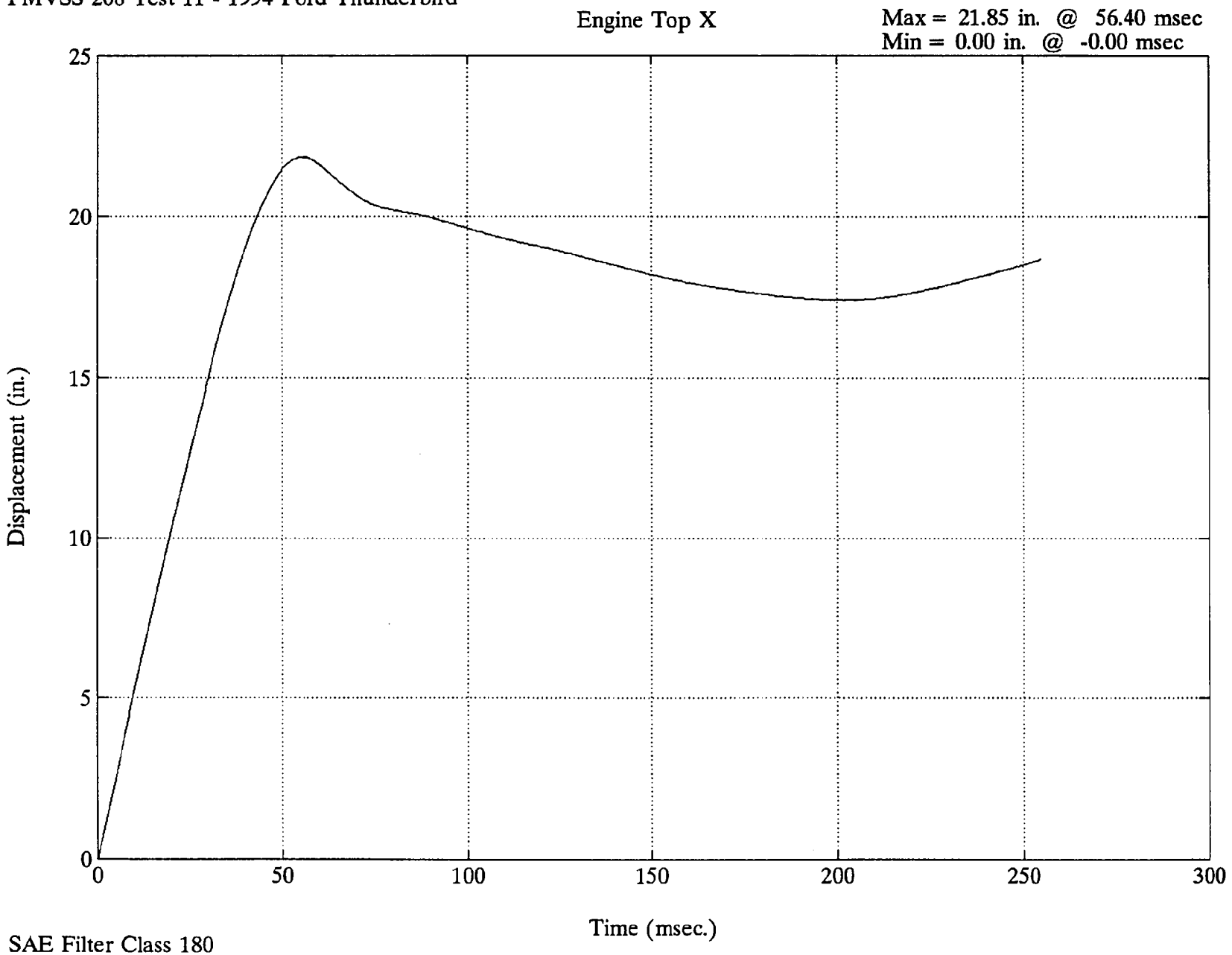
FMVSS 208 Test 11 - 1994 Ford Thunderbird



SAE Filter Class 180

8183-2

FMVSS 208 Test 11 - 1994 Ford Thunderbird



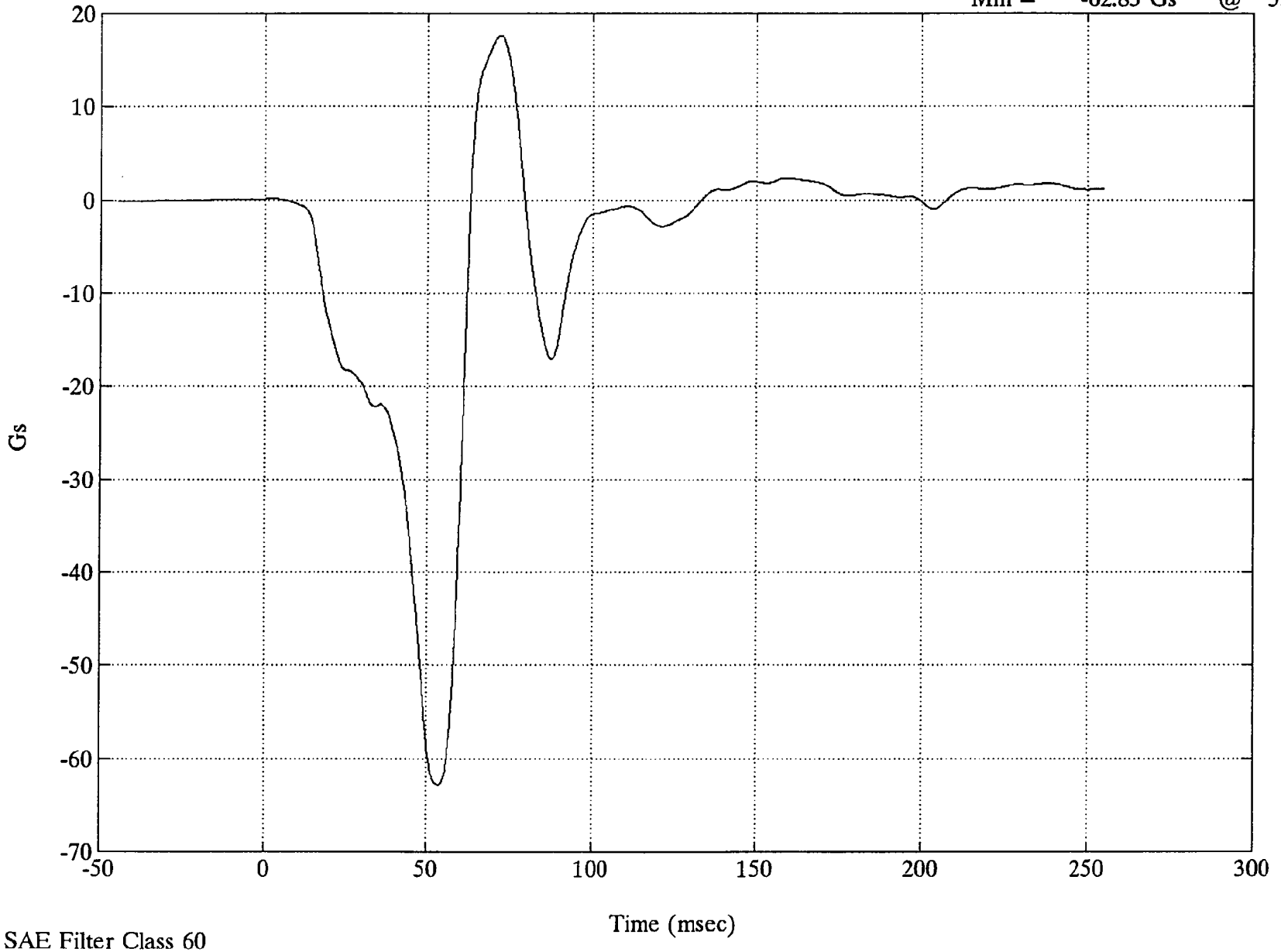
SAE Filter Class 180

8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

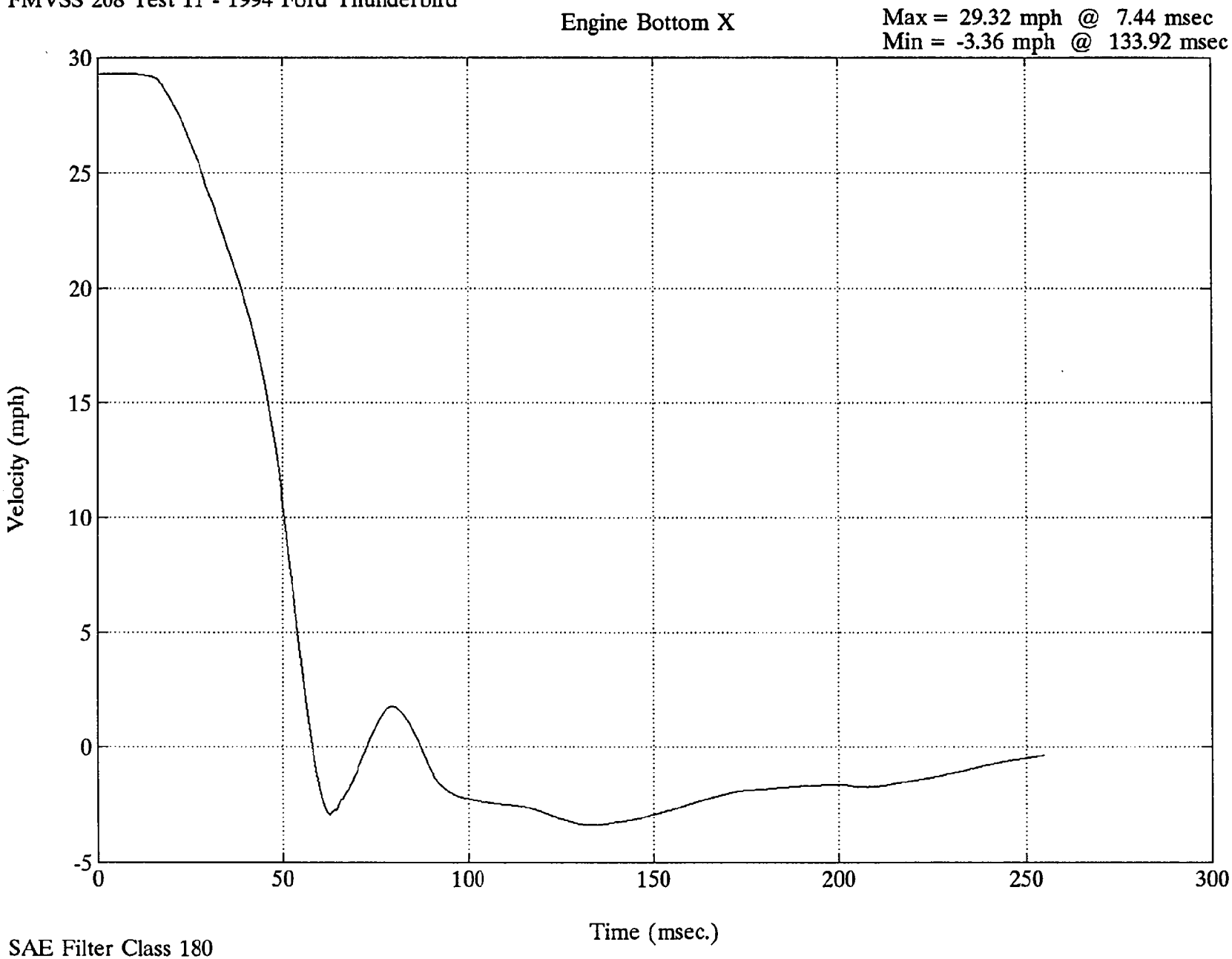
Engine Bottom X (#4)

Max = 17.65 Gs @ 72.12 msec
Min = -62.83 Gs @ 53.63 msec



SAE Filter Class 60

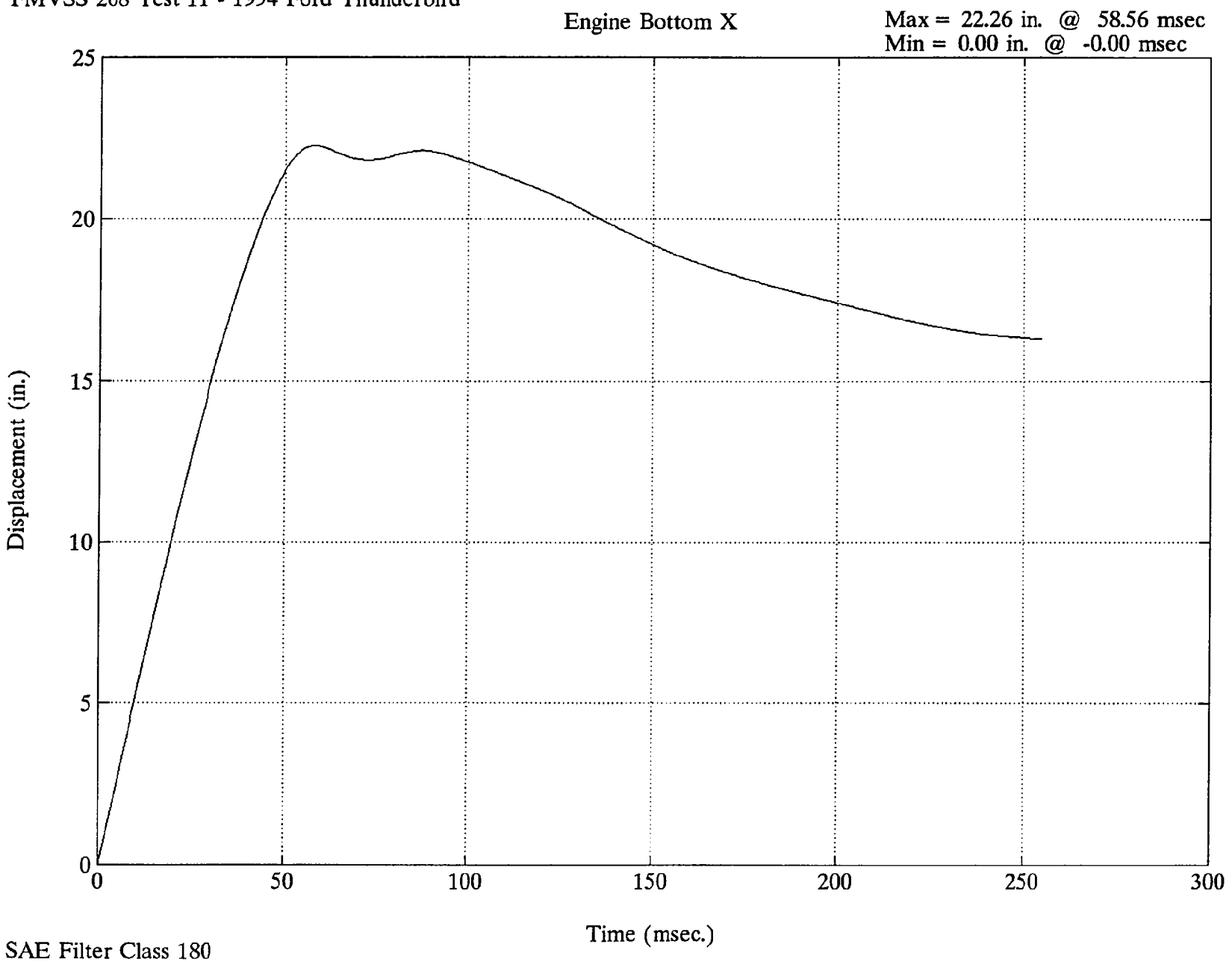
FMVSS 208 Test 11 - 1994 Ford Thunderbird



SAE Filter Class 180

8183-2

FMVSS 208 Test 11 - 1994 Ford Thunderbird

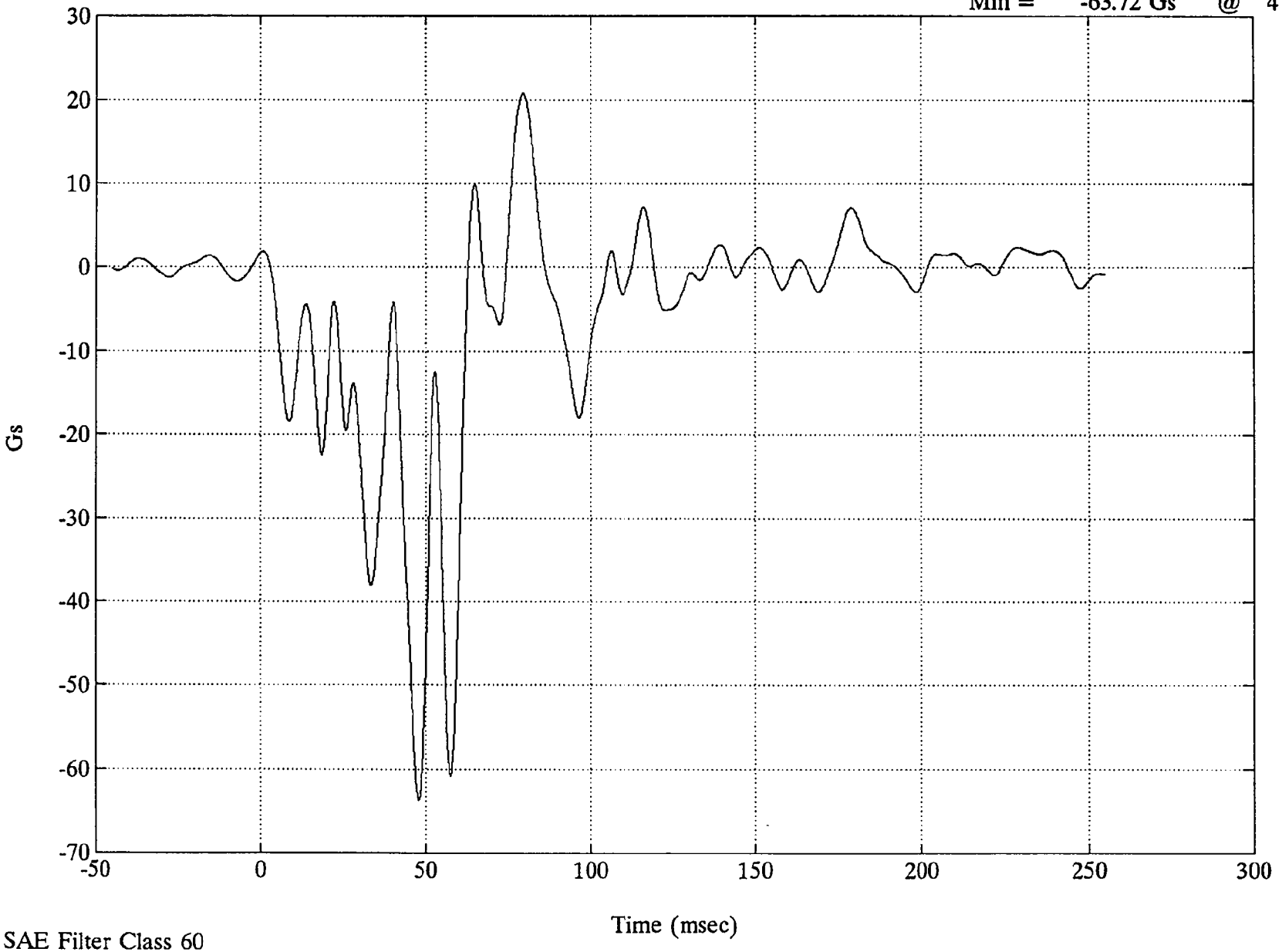


SAE Filter Class 180

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

R. Brake Caliper X (#5)

Max = 20.74 Gs @ 79.44 msec
Min = -63.72 Gs @ 47.88 msec



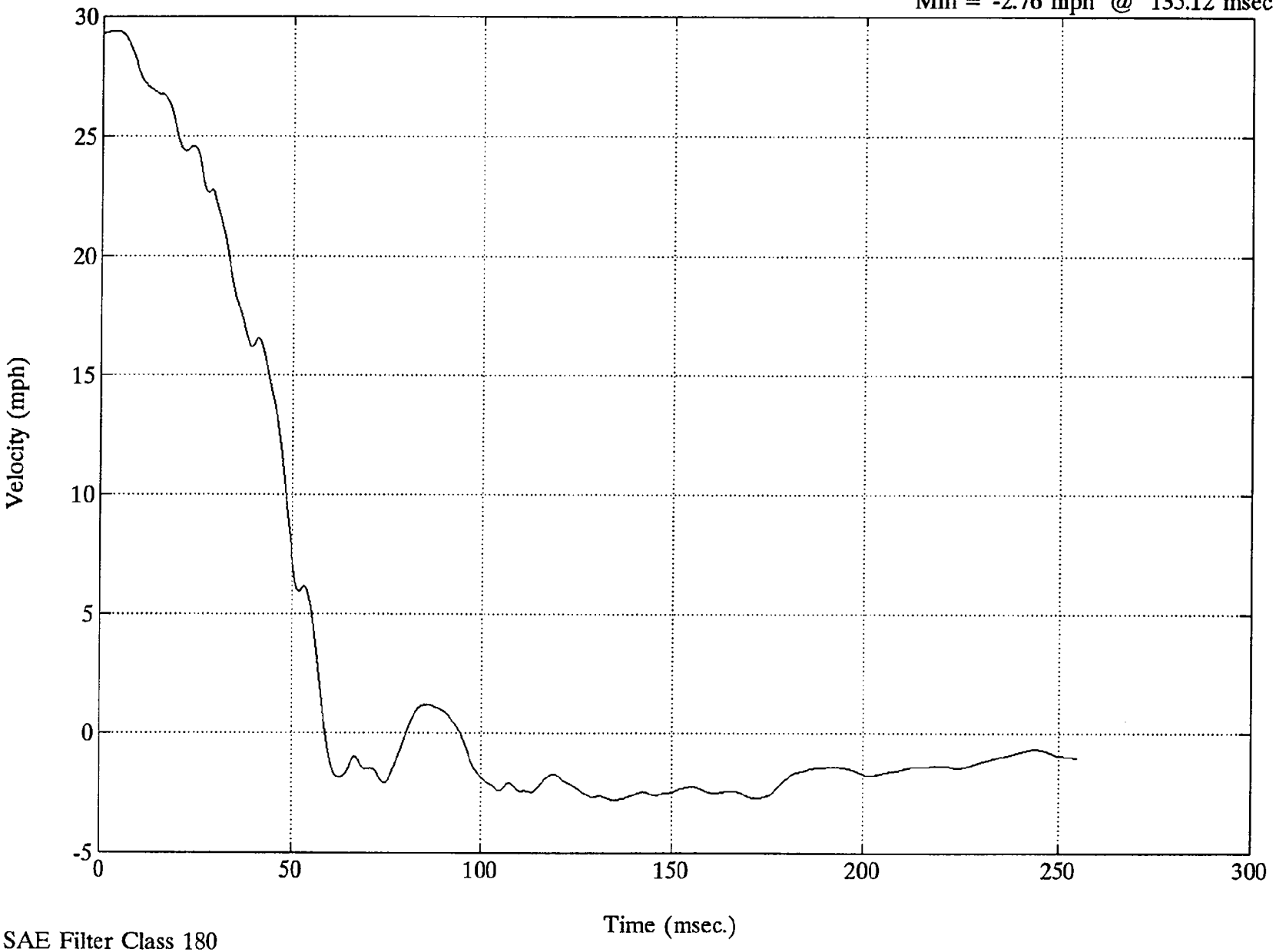
SAE Filter Class 60

8183-2

FMVSS 208 Test 11 - 1994 Ford Thunderbird

R. Brake Caliper X

Max = 29.39 mph @ 3.84 msec
Min = -2.76 mph @ 135.12 msec

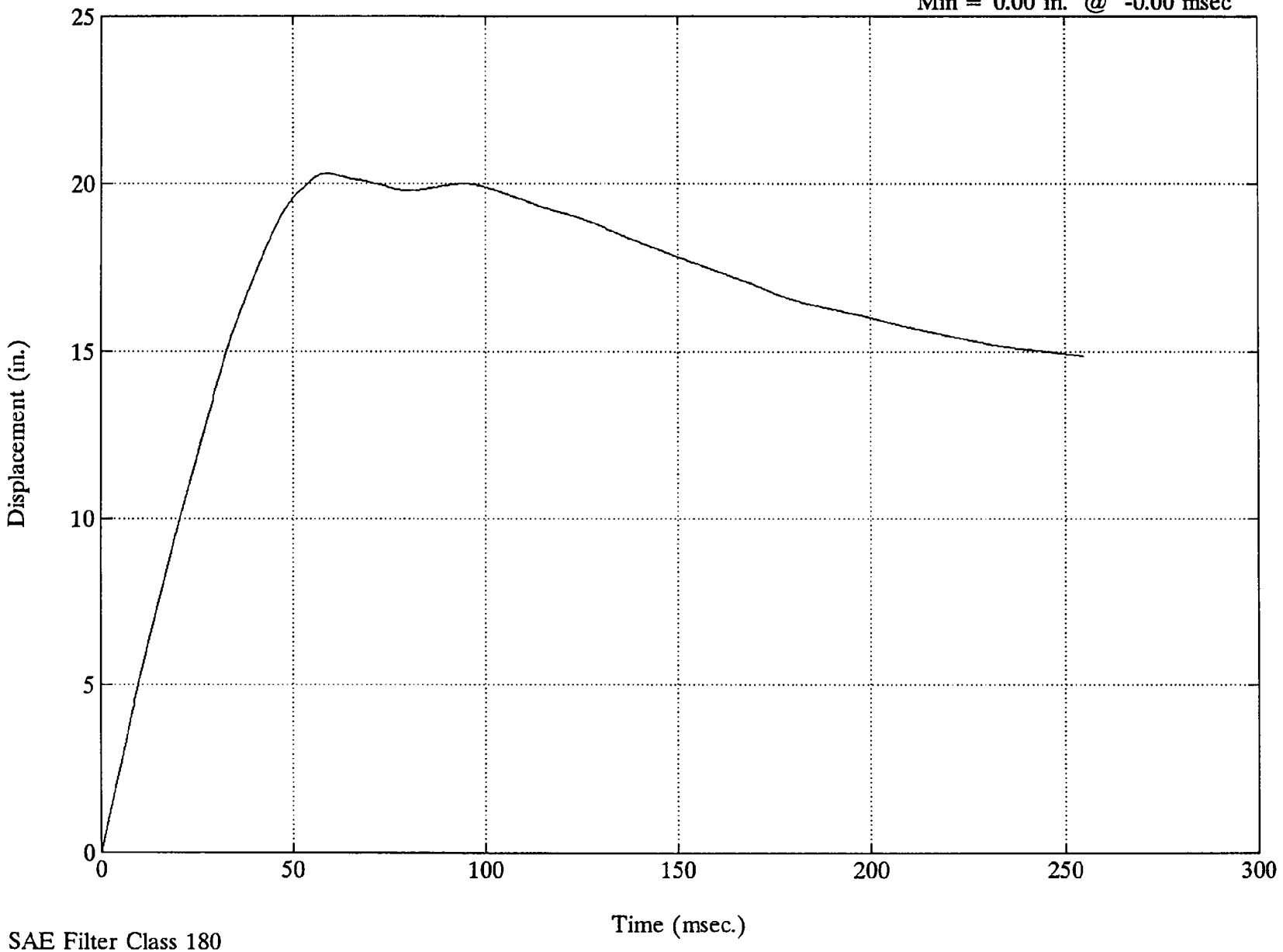


SAE Filter Class 180

FMVSS 208 Test 11 - 1994 Ford Thunderbird

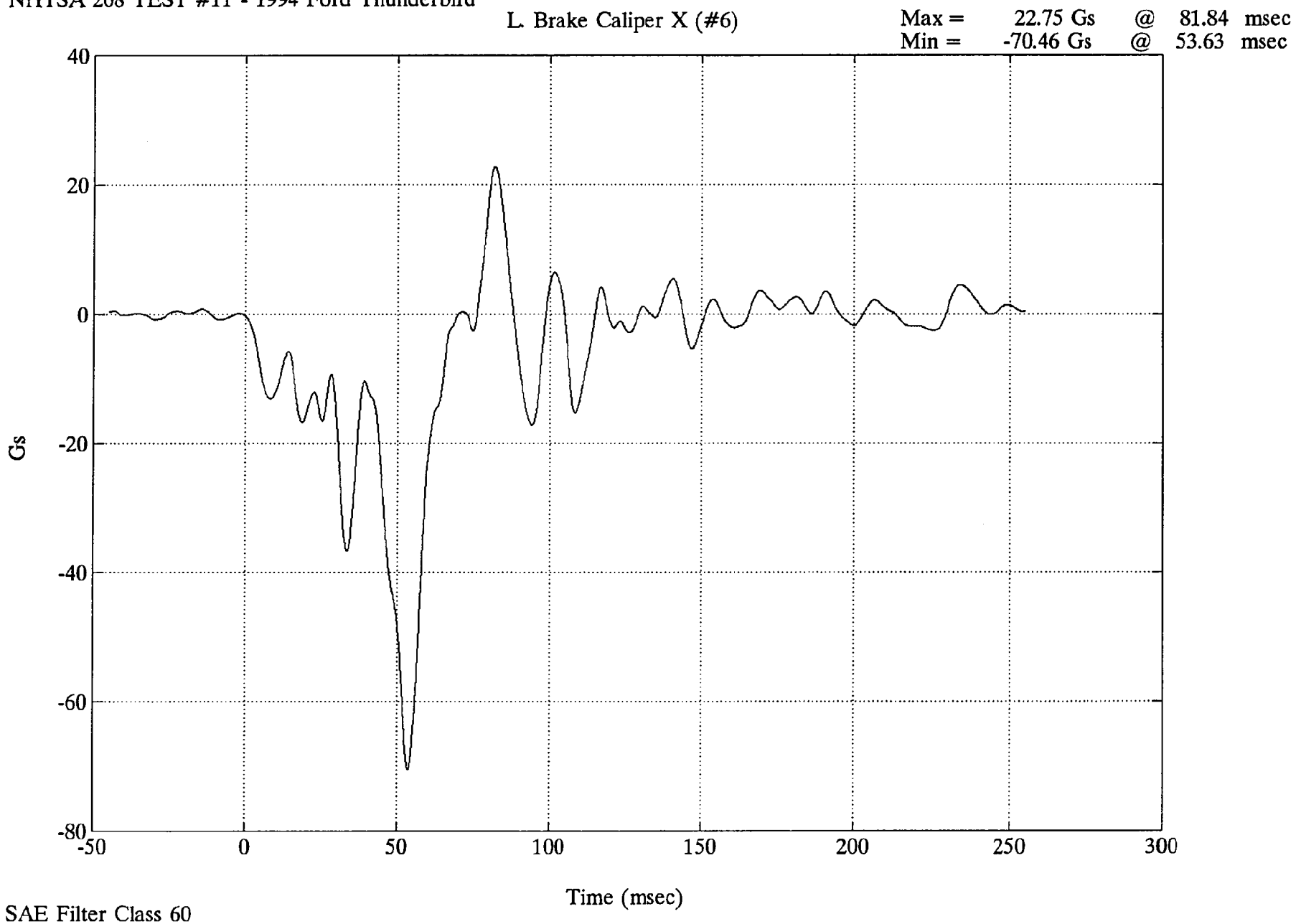
R. Brake Caliper X

Max = 20.31 in. @ 59.28 msec
Min = 0.00 in. @ -0.00 msec



SAE Filter Class 180

NHTSA 208 TEST #11 - 1994 Ford Thunderbird



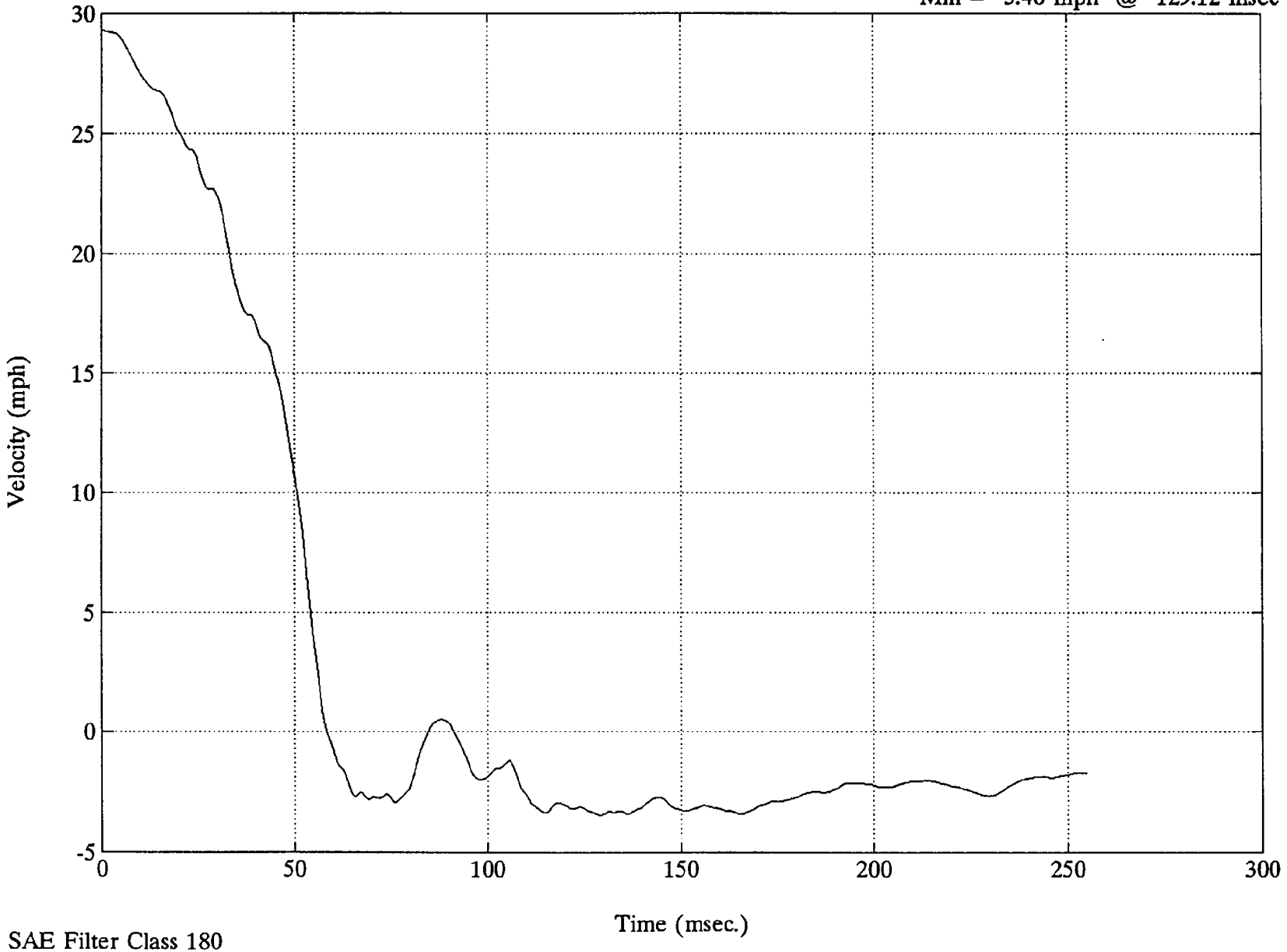
SAE Filter Class 60

8183-2

FMVSS 208 Test 11 - 1994 Ford Thunderbird

L. Brake Caliper X

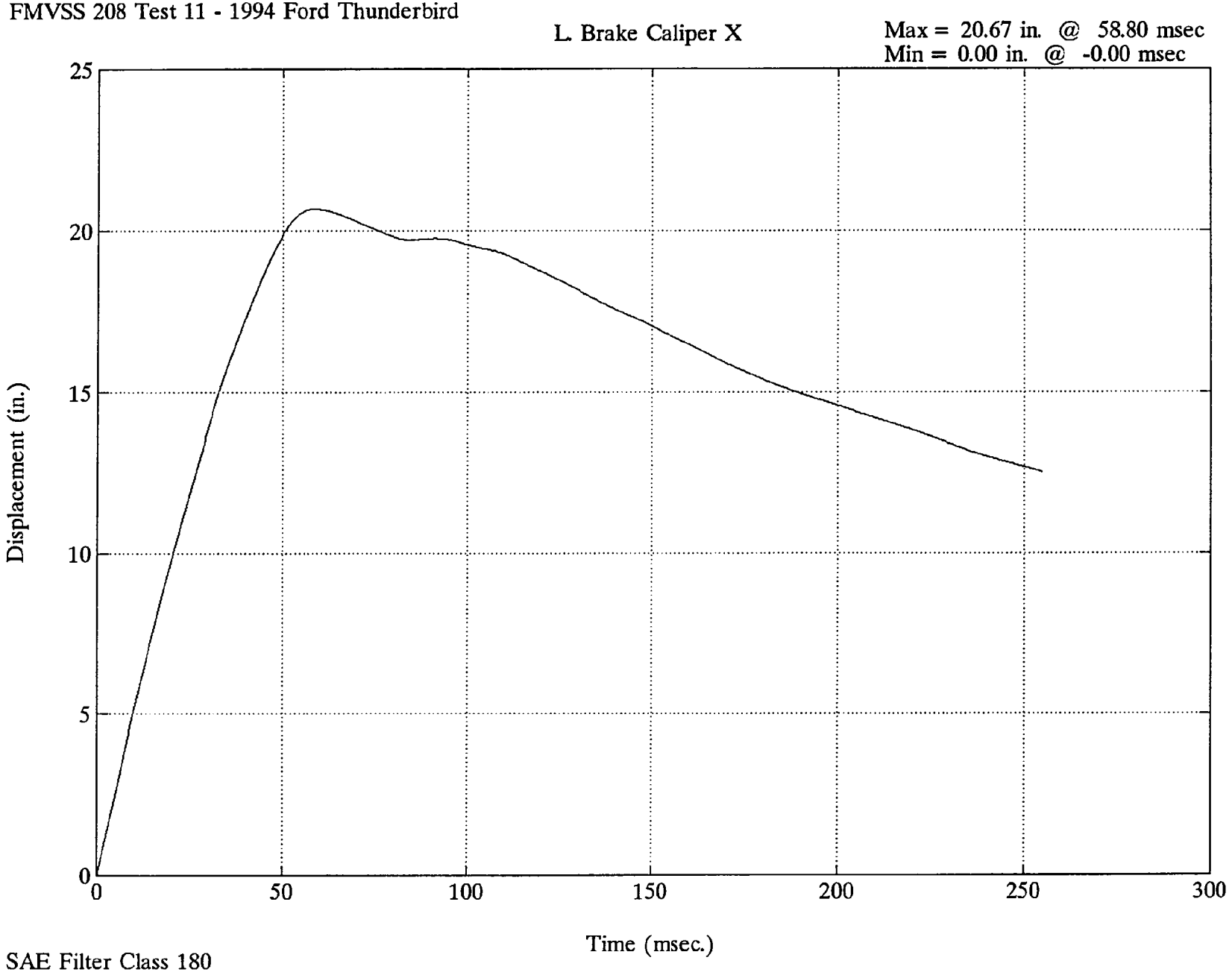
Max = 29.30 mph @ 0.24 msec
Min = -3.46 mph @ 129.12 msec



SAE Filter Class 180

8183-2

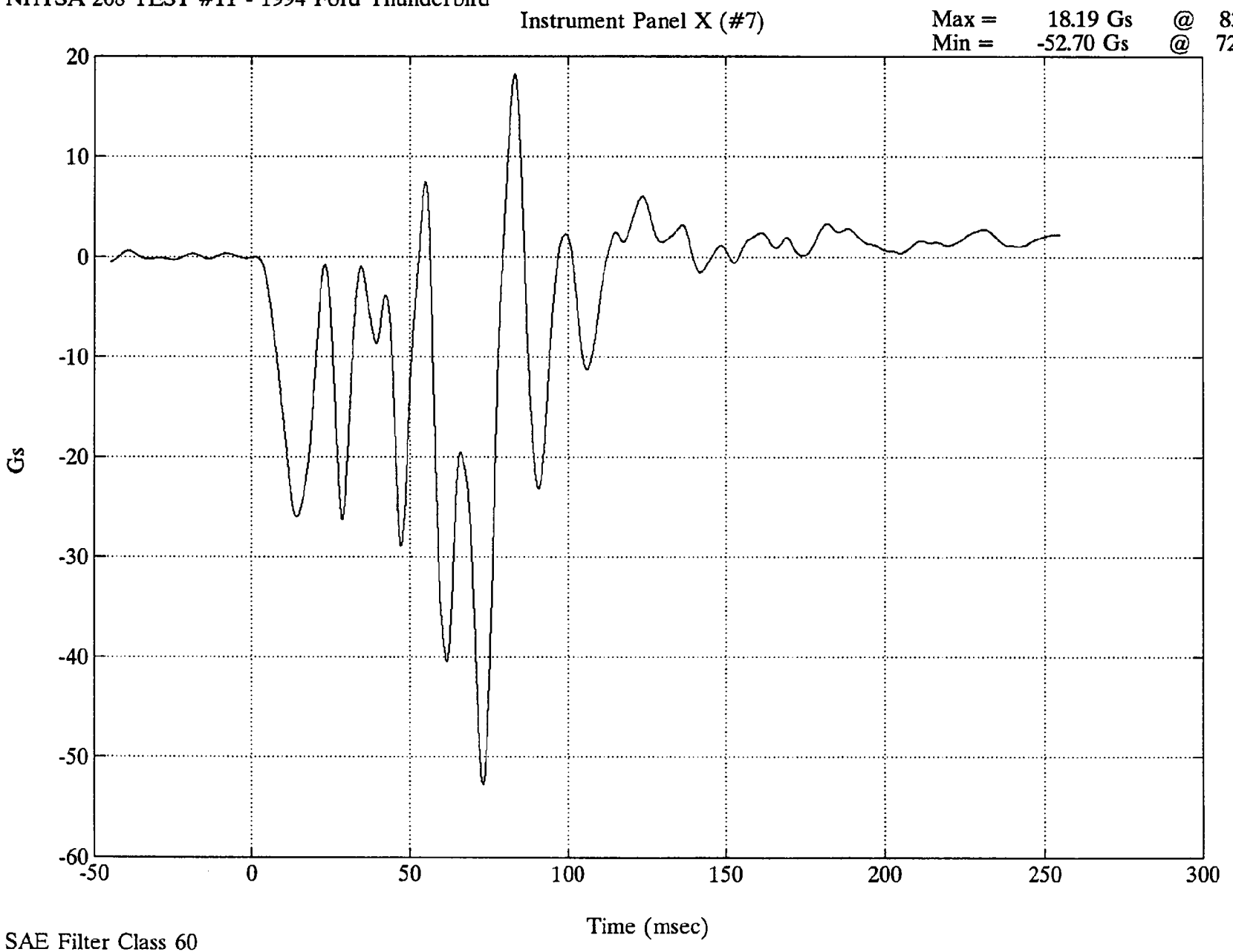
FMVSS 208 Test 11 - 1994 Ford Thunderbird



SAE Filter Class 180

8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

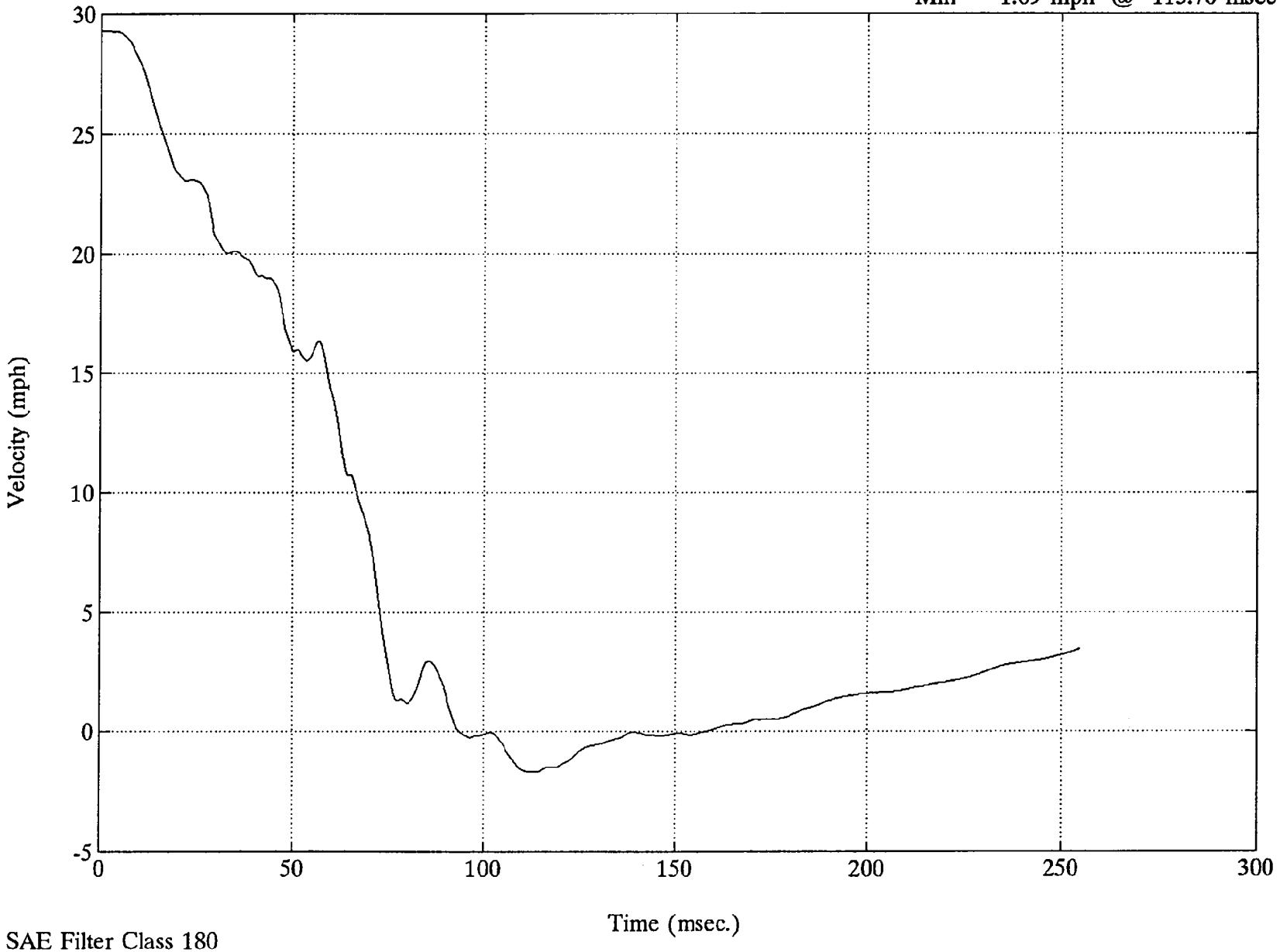


SAE Filter Class 60

FMVSS 208 Test 11 - 1994 Ford Thunderbird

Instrument Panel X

Max = 29.30 mph @ 0.96 msec
Min = -1.69 mph @ 113.76 msec



SAE Filter Class 180

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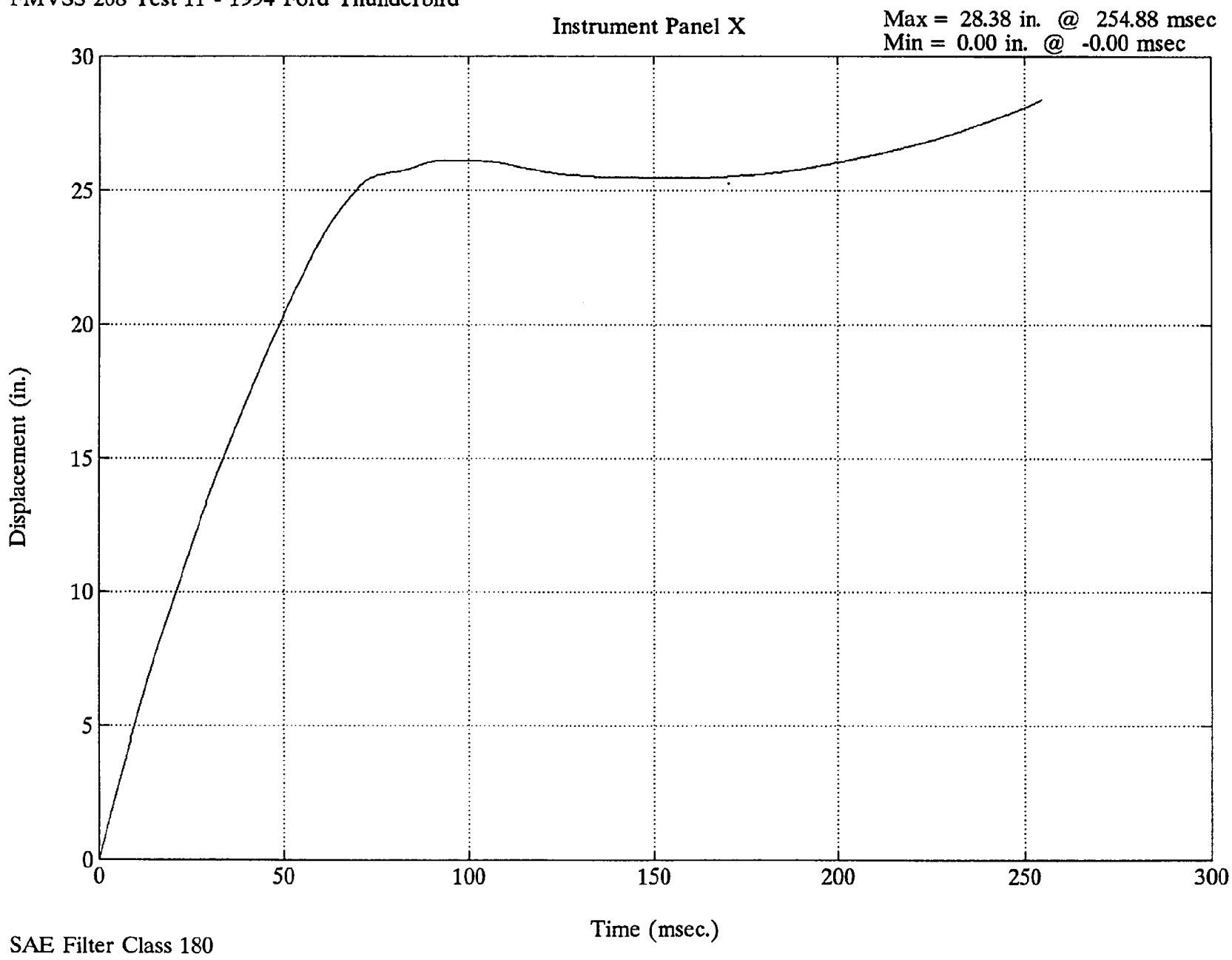
FMVSS 208 Test 11 - 1994 Ford Thunderbird



SAE Filter Class 180

8183-2

TEST NO. CR0206

DUMMY	SAE FILTER CHANNEL CLASS
Head Accelerations	1000
Chest Accelerations	180
Femur Forces	600

FACILITY: TRACK TEST DATE: 15 Mar 1994
RUN #: 1379 TEST TIME: 12:21:10
SERIES #: 1 BOARD: A

TITLE: NHTSA 208 TEST #11 - 1994 Ford Thunderbird

CHANNEL NUMBER	DESCRIPTION	ENGR UNIT	MAXIMUM AMP	MAXIMUM msec	MINIMUM AMP	MINIMUM msec	FILTER CLASS
1	Pos. 1 Head X	Gs	29.7	196.8	-54.2	86.5	1000.0
2	Pos. 1 Head Y	Gs	8.7	199.0	-22.6	86.6	1000.0
3	Pos. 1 Head Z	Gs	20.3	86.4	-5.2	46.4	1000.0
4	Pos. 1 Left Femur	lbs	60.9	25.3	-1923.0	46.4	600.0
5	Pos. 1 Chest X	Gs	11.0	198.2	-48.6	89.8	180.0
6	Pos. 1 Chest Y	Gs	4.1	51.2	-4.2	96.6	180.0
7	Pos. 1 Chest Z	Gs	14.5	87.5	-7.2	45.0	180.0
8	Pos. 1 Right Femur	lbs	79.1	26.2	-1182.6	68.0	600.0
9	Pos. 2 Head X	Gs	8.2	105.4	-55.0	63.2	1000.0
10	Pos. 2 Head Y	Gs	16.2	36.4	-11.0	53.9	1000.0
11	Pos. 2 Head Z	Gs	16.0	33.4	-12.5	40.3	1000.0
12	Pos. 2 Left Femur	lbs	70.8	243.5	-1244.4	80.6	600.0
13	Pos. 2 Chest X	Gs	4.3	183.5	-38.6	69.7	180.0
14	Pos. 2 Chest Y	Gs	7.9	32.6	-8.9	34.6	180.0
15	Pos. 2 Chest Z	Gs	8.8	63.5	-4.3	121.1	180.0
16	Pos. 2 Right Femur	lbs	63.5	243.2	-1329.5	71.6	600.0
17	Pos. 1 Head Resultant	Gs	61.8	86.5	.1	-13.4	1000.0
18	Pos. 1 Chest Resultant	Gs	49.6	89.5	.1	-3.5	180.0
19	Pos. 2 Head Resultant	Gs	55.9	63.2	.0	-24.0	1000.0
20	Pos. 2 Chest Resultant	Gs	39.4	69.6	.0	-8.2	180.0

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

hic: 291.20
t1 = 69.360 msec
t2 = 105.240 msec
Average G's Over Hic Duration = 36.62

CLIP SUMMARY: Pos. 1 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 48.863 G's
Tstart = 85.9200 ms
Tend = 88.9200 ms
CSI = 400.373

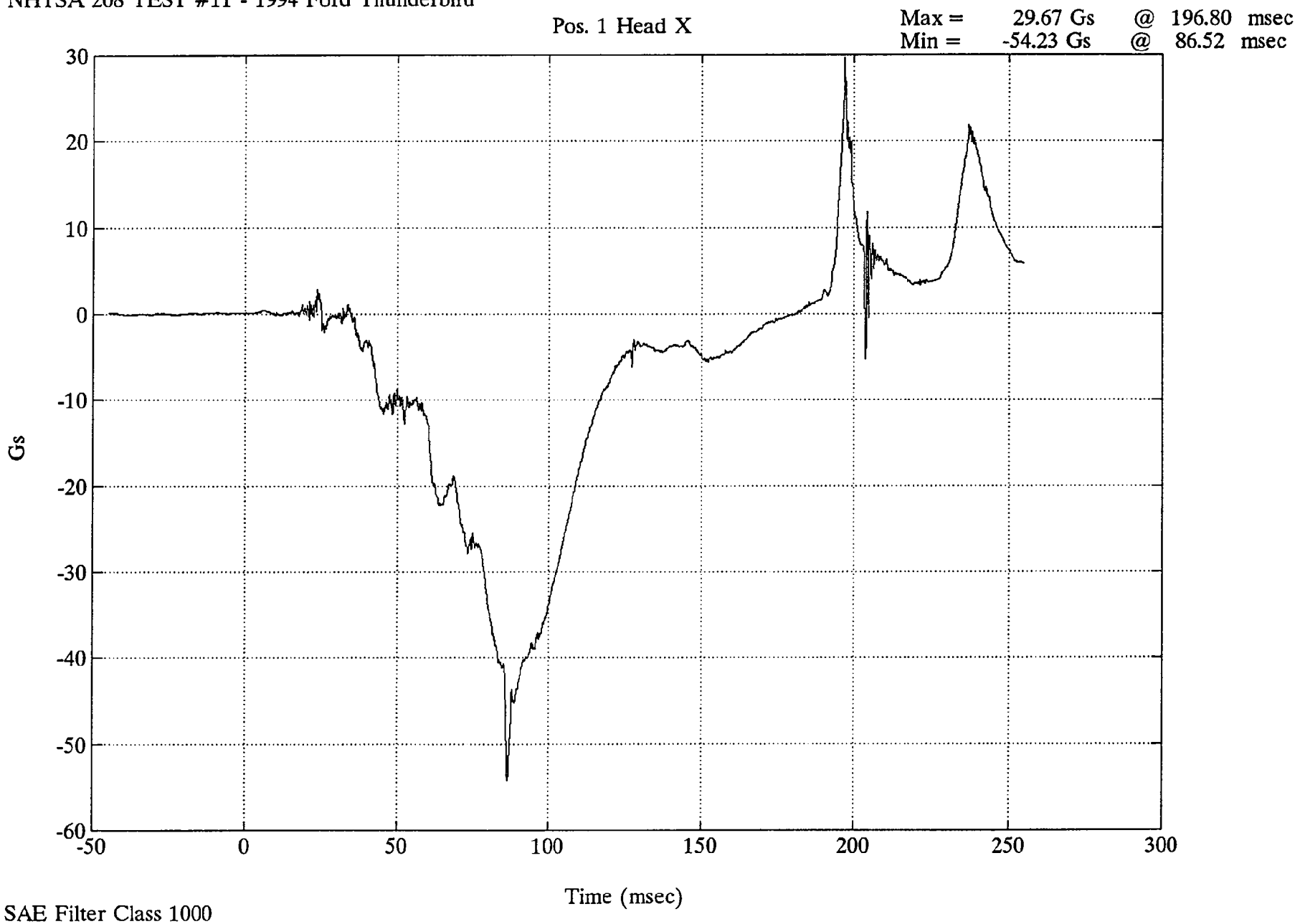
36 ms Fixed Duration HIC SUMMARY: Pos. 2 Head Resultant

hic: 205.29
t1 = 51.240 msec
t2 = 68.880 msec
Average G's Over Hic Duration = 42.30

CLIP SUMMARY: Pos. 2 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 38.671 G's
Tstart = 67.8000 ms
Tend = 70.9200 ms
CSI = 245.797

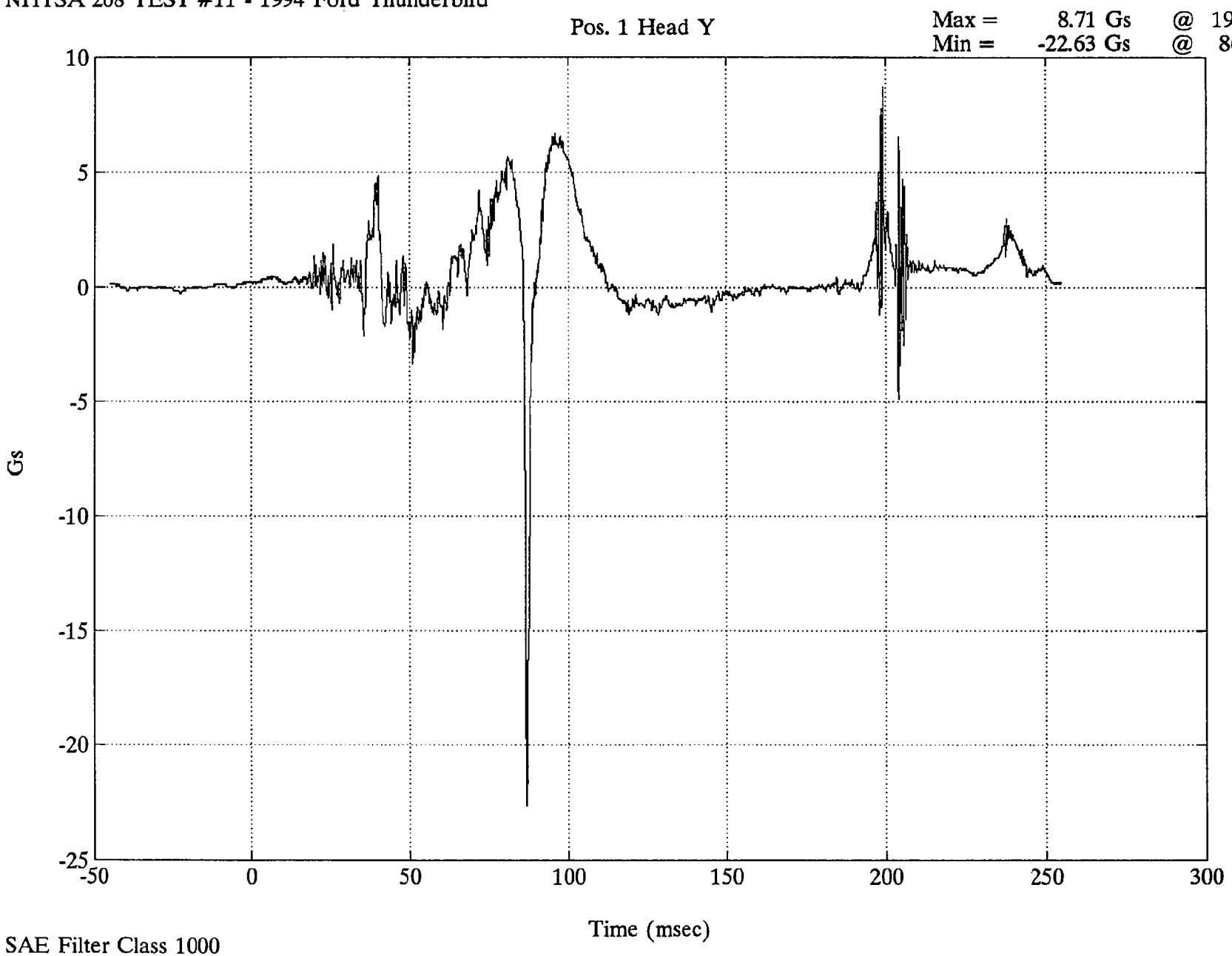
NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 1000

8183-2

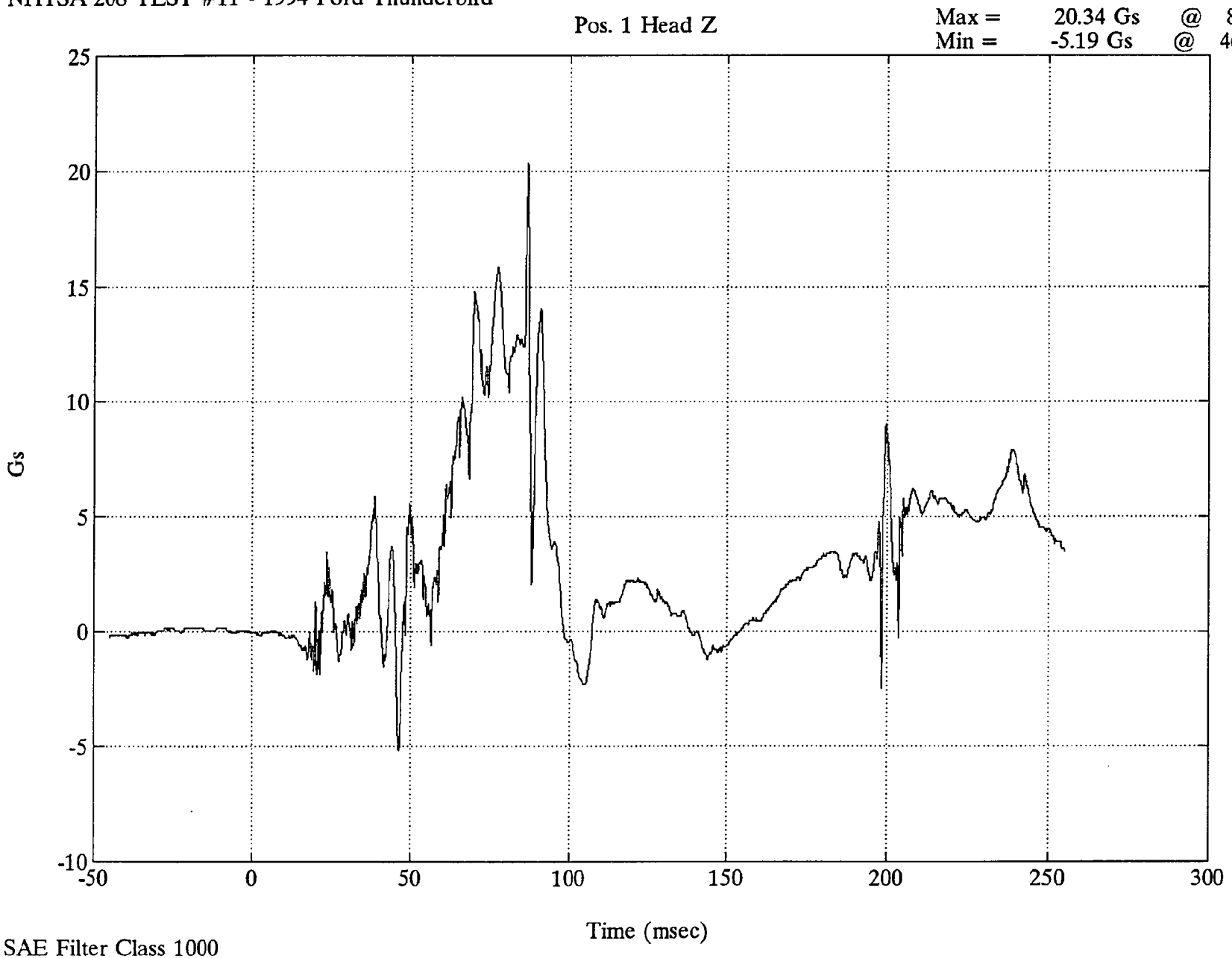
NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 1000

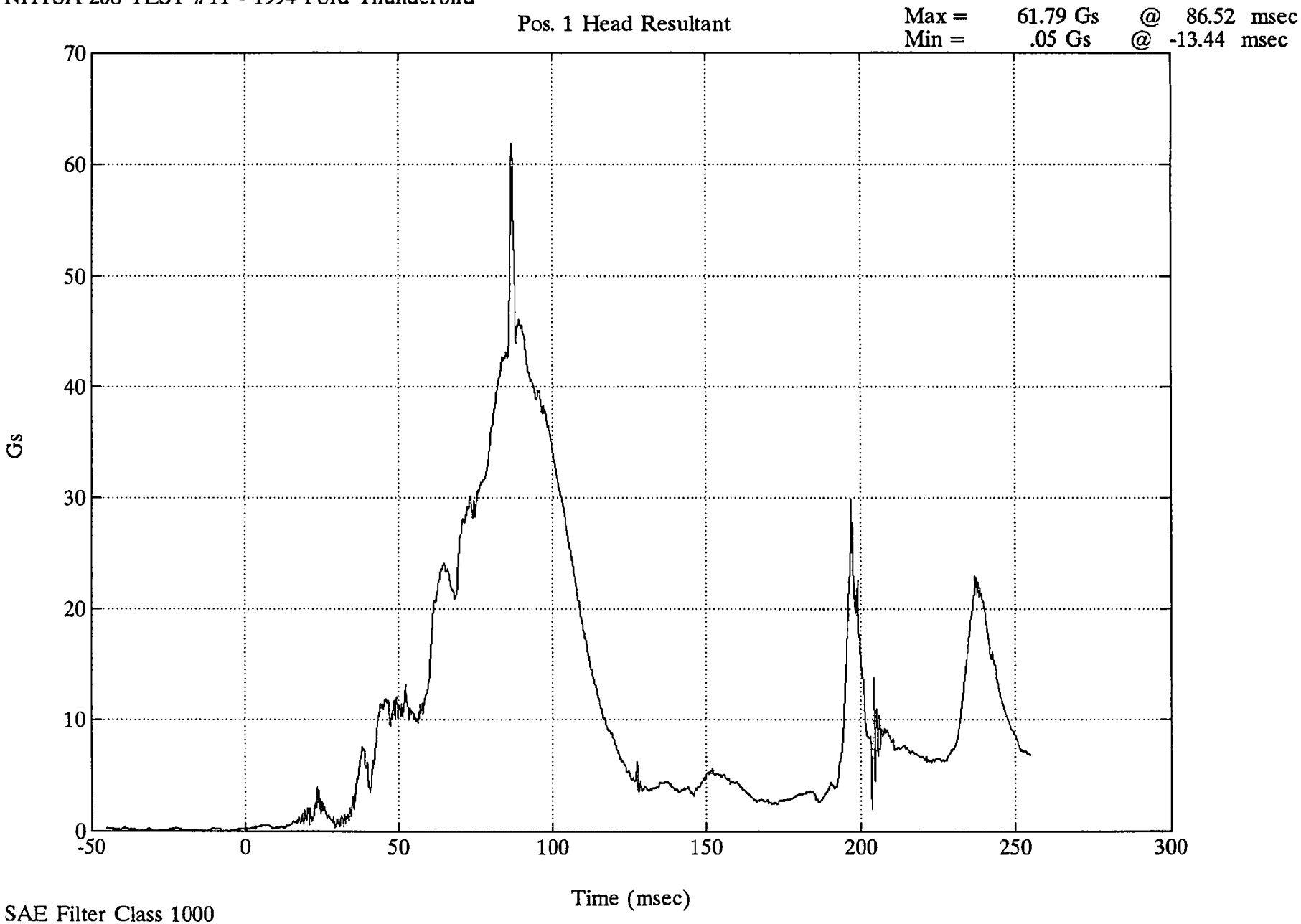
8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 1000

NHTSA 208 TEST #11 - 1994 Ford Thunderbird



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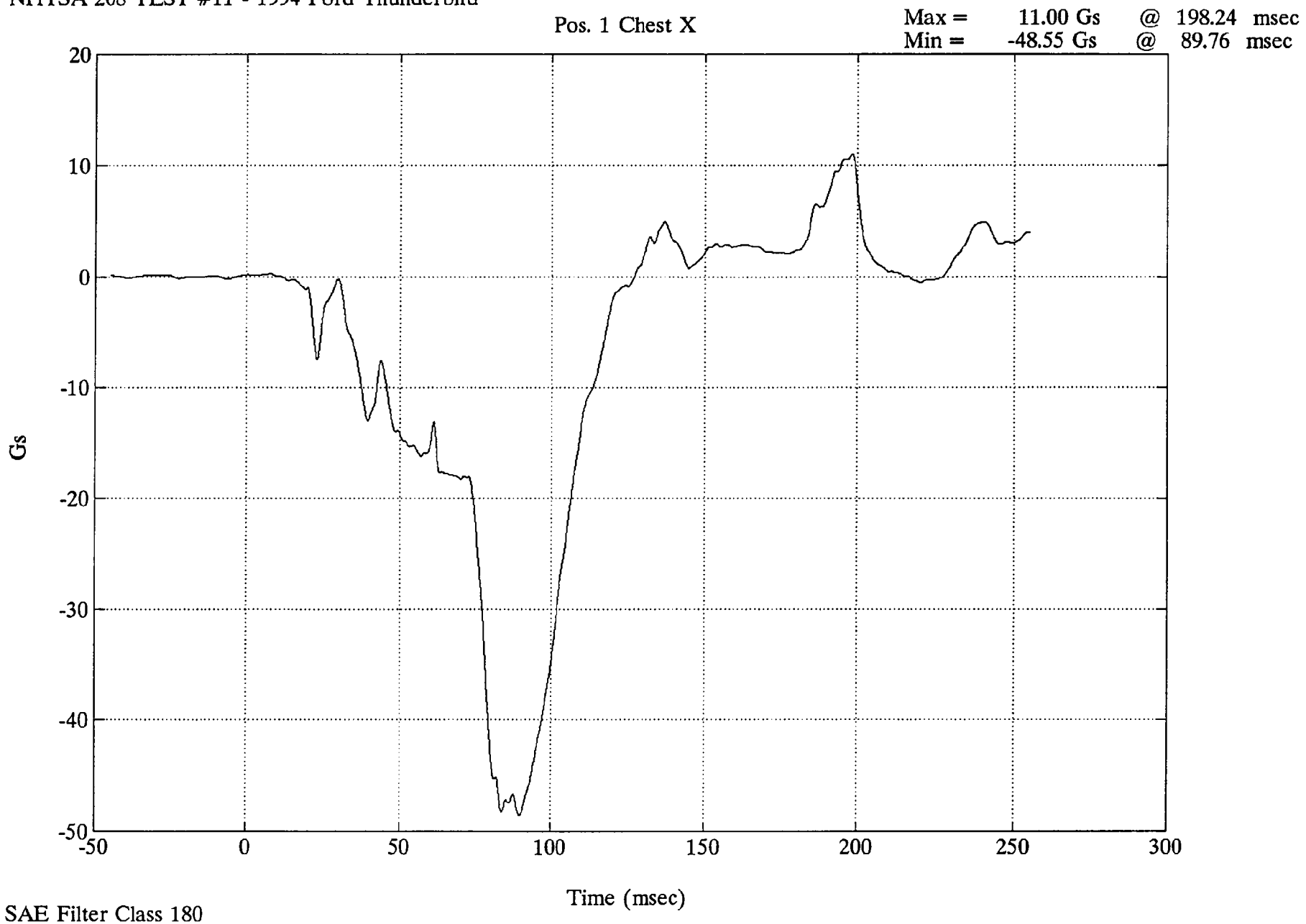
SAE Filter Class 1000

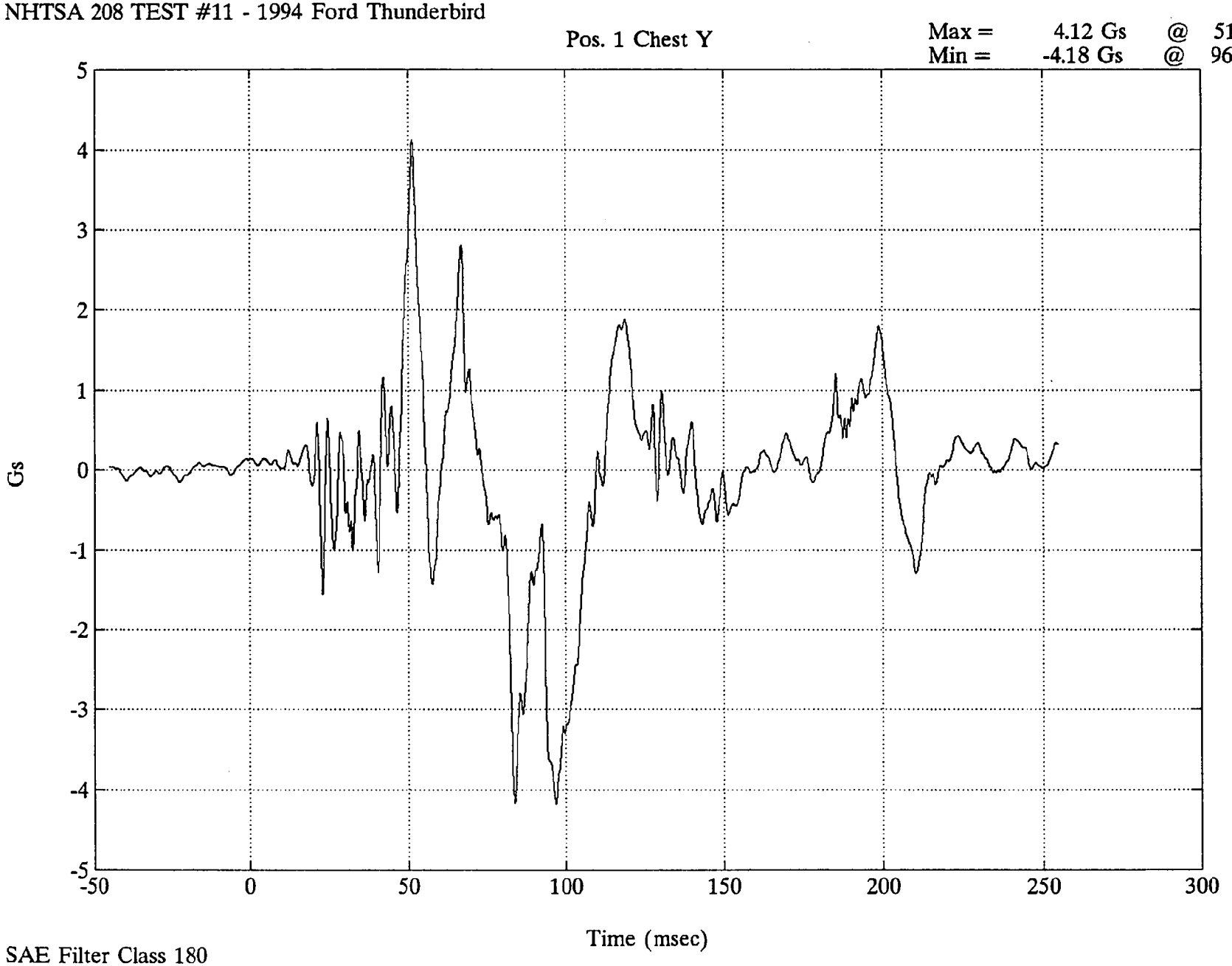
NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 180

8183-2

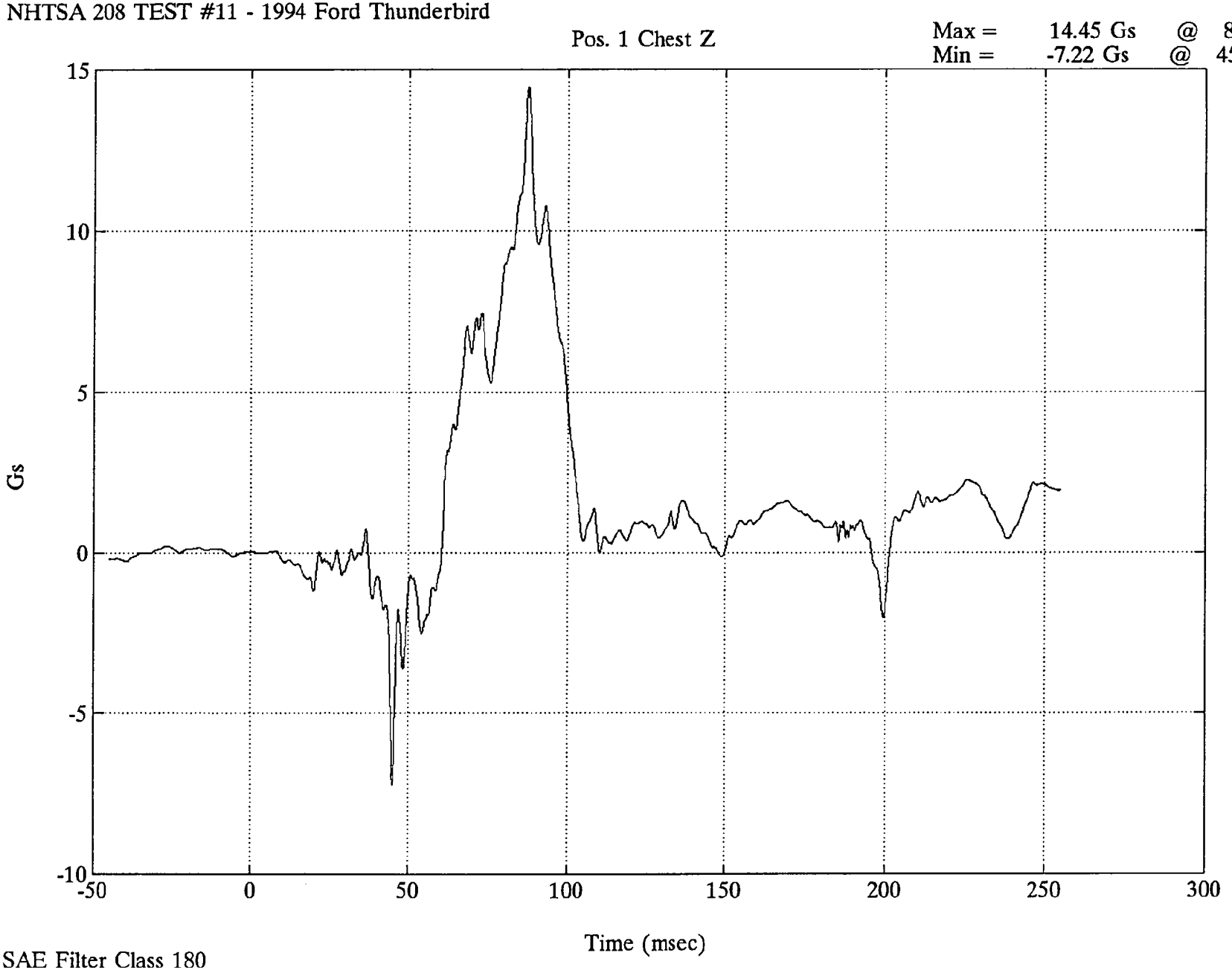
NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 180

8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

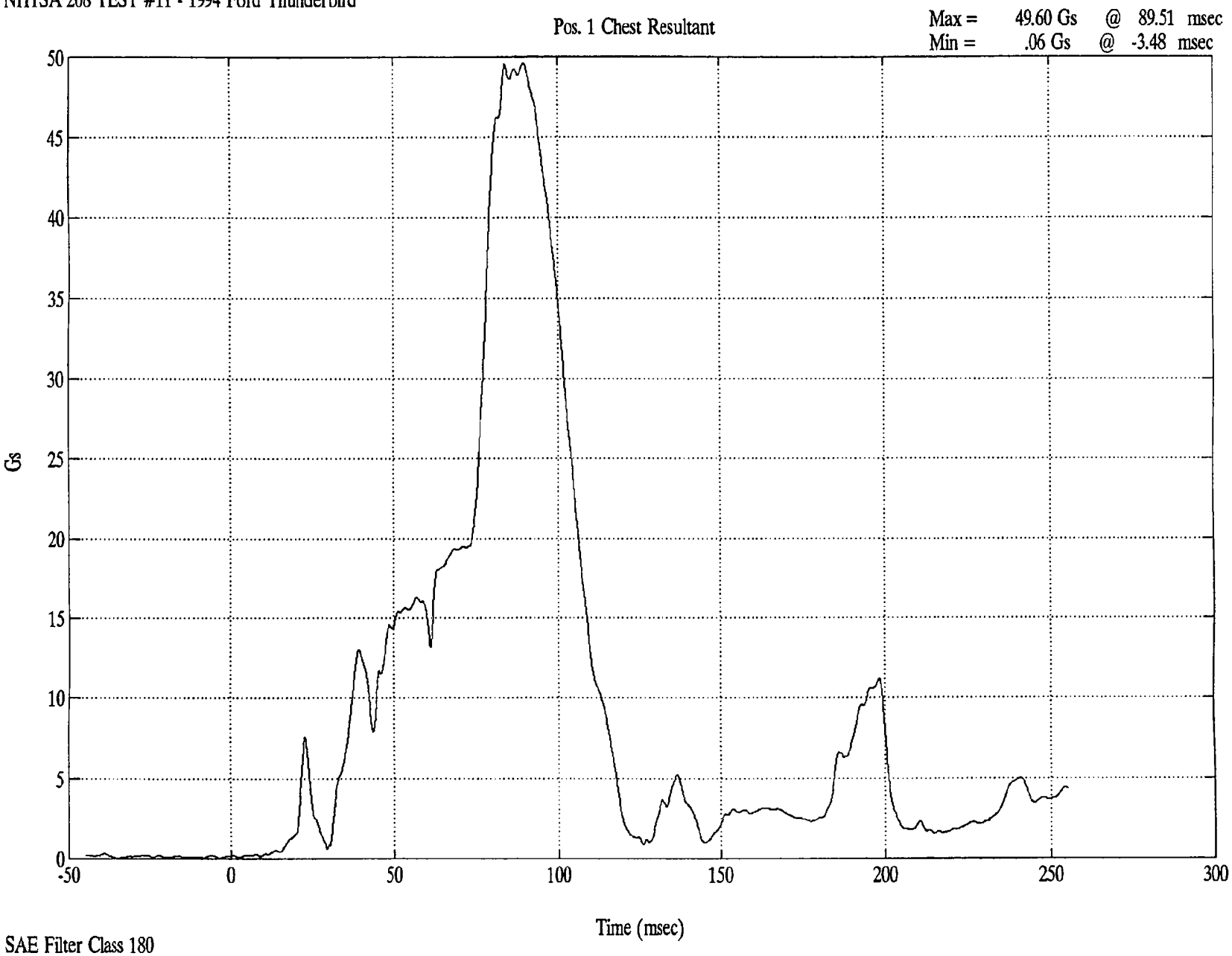


SAE Filter Class 180

B-30

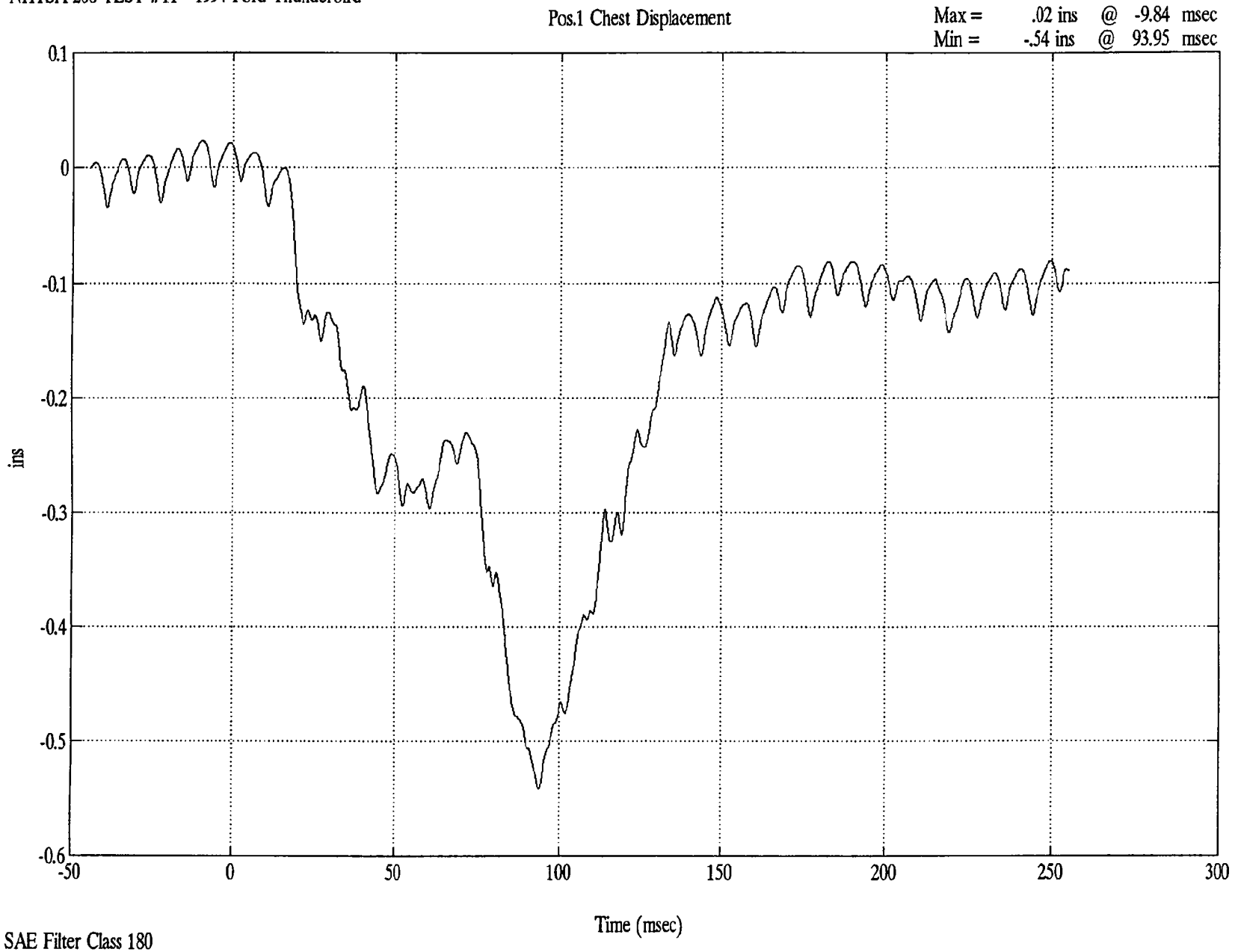
8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 180

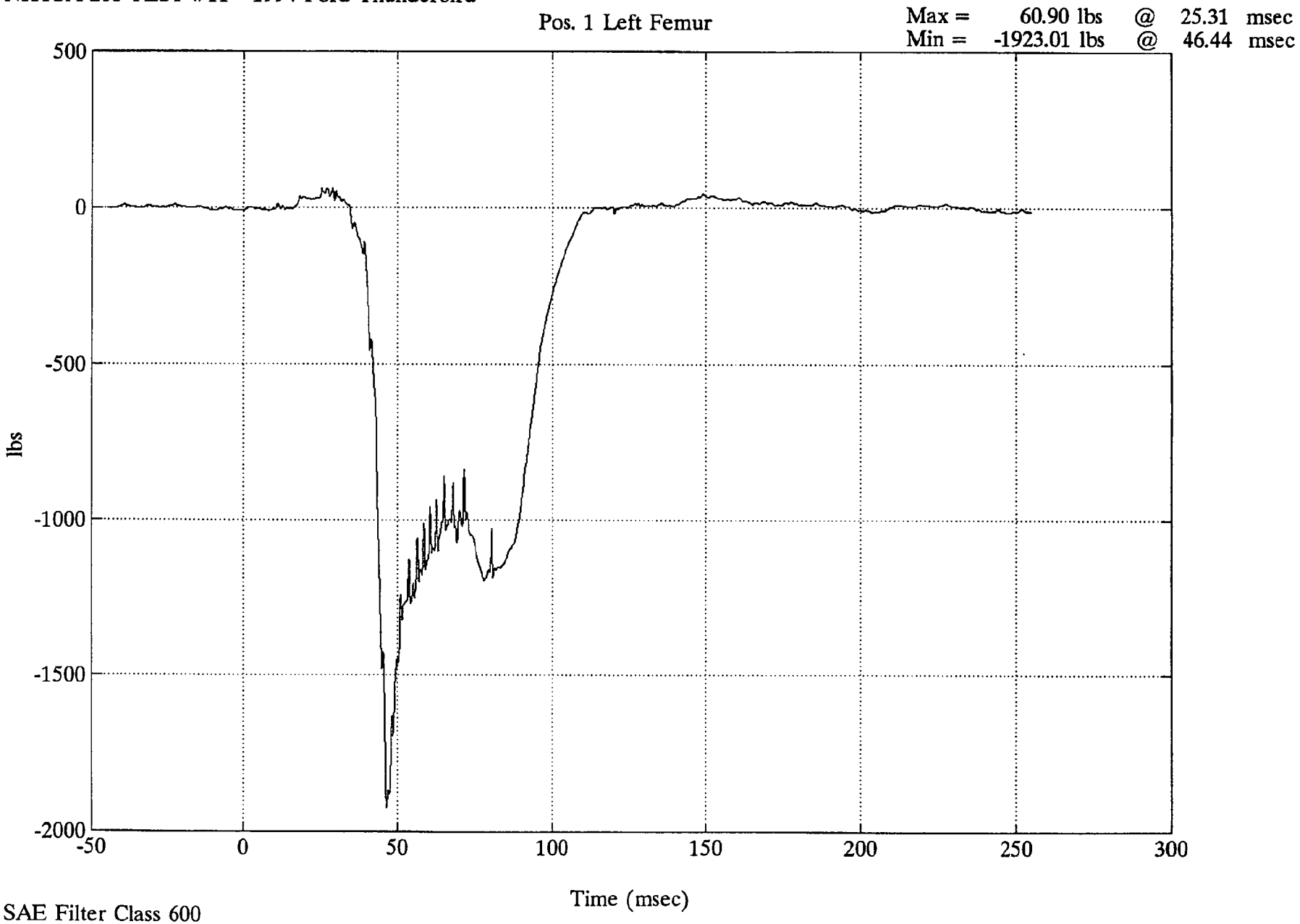
NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 180

8183-2

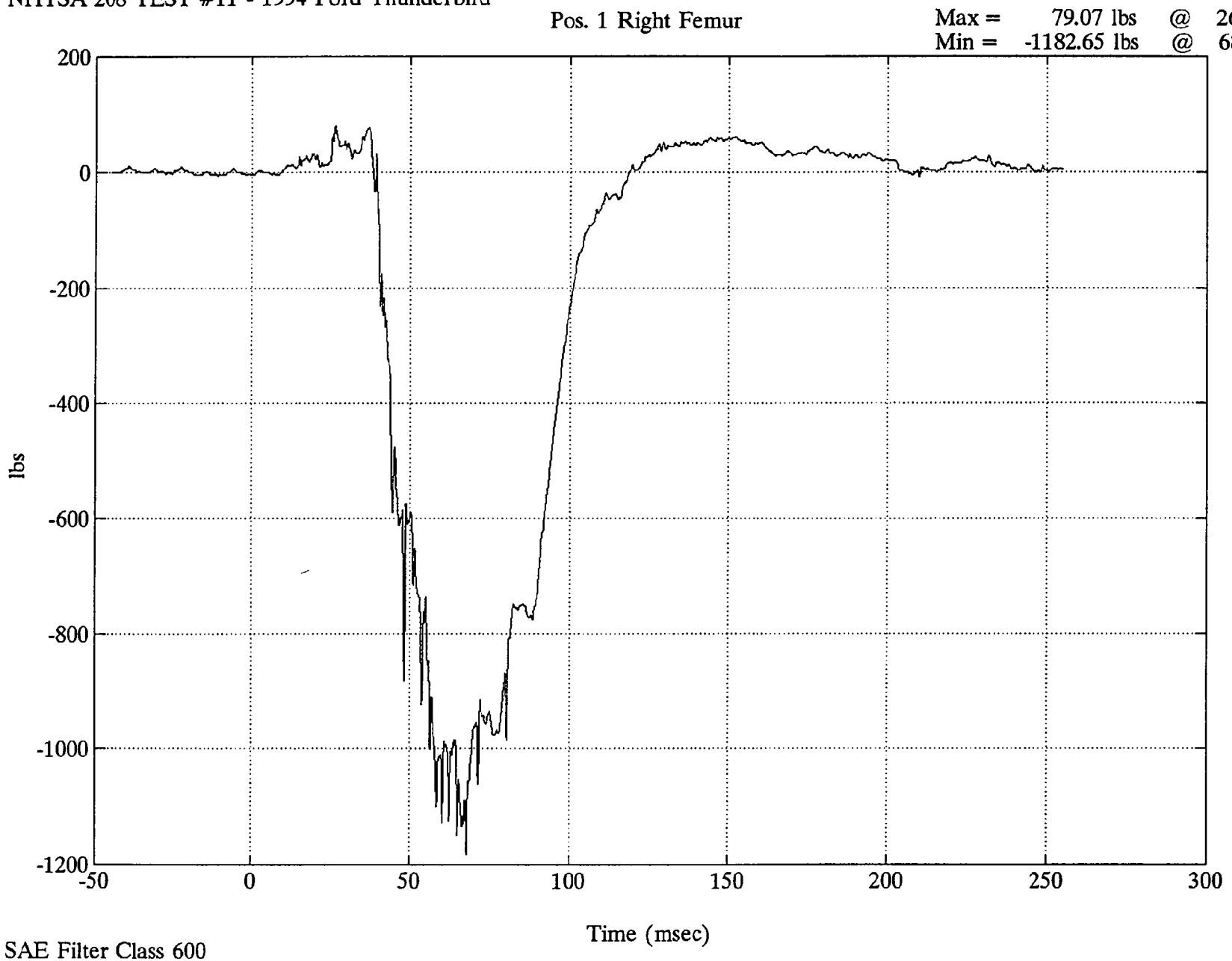
NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 600

8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

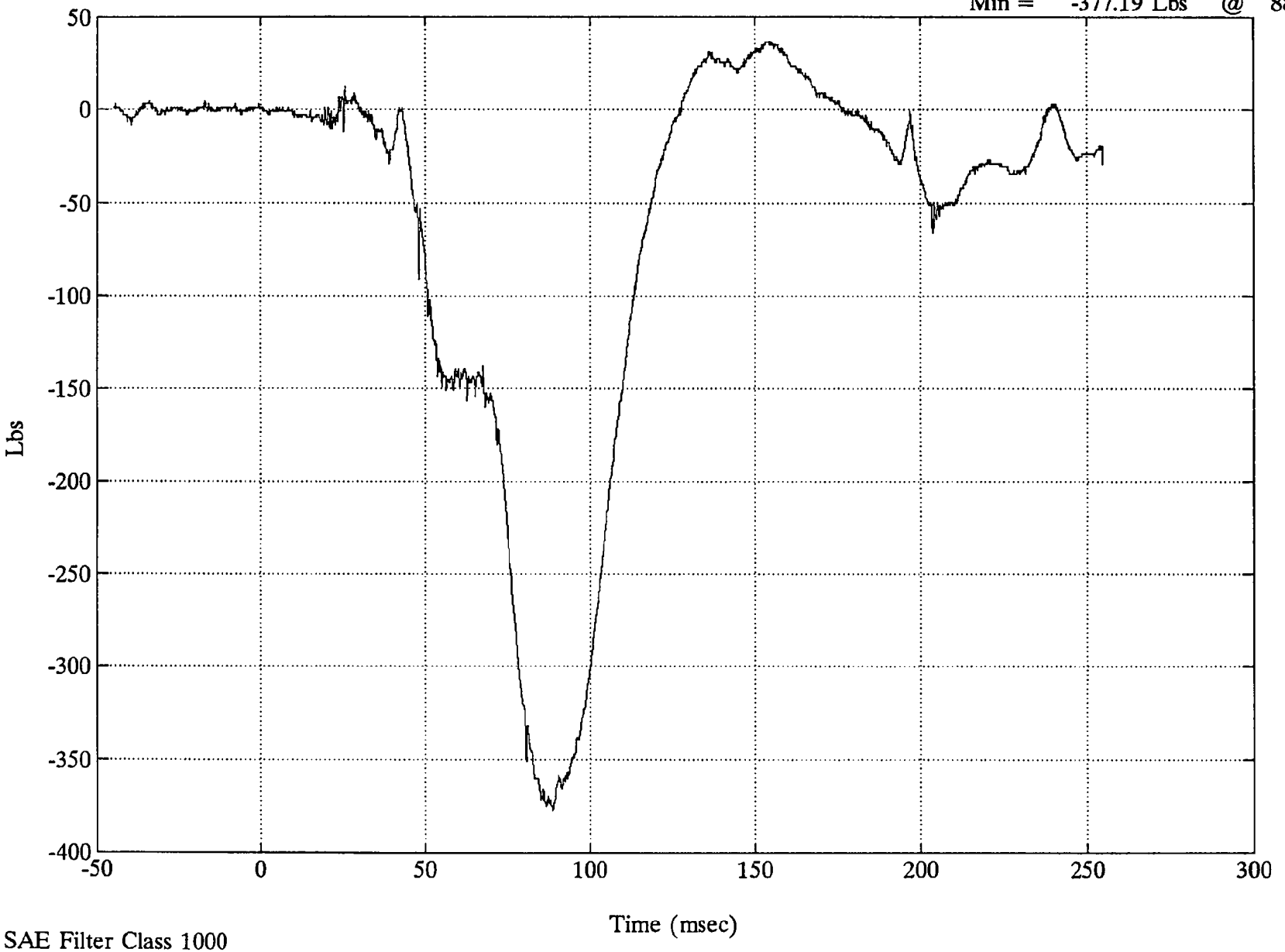


SAE Filter Class 600

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

Pos.1 Upper Neck Fx

Max = 36.73 Lbs @ 155.28 msec
Min = -377.19 Lbs @ 88.31 msec



SAE Filter Class 1000

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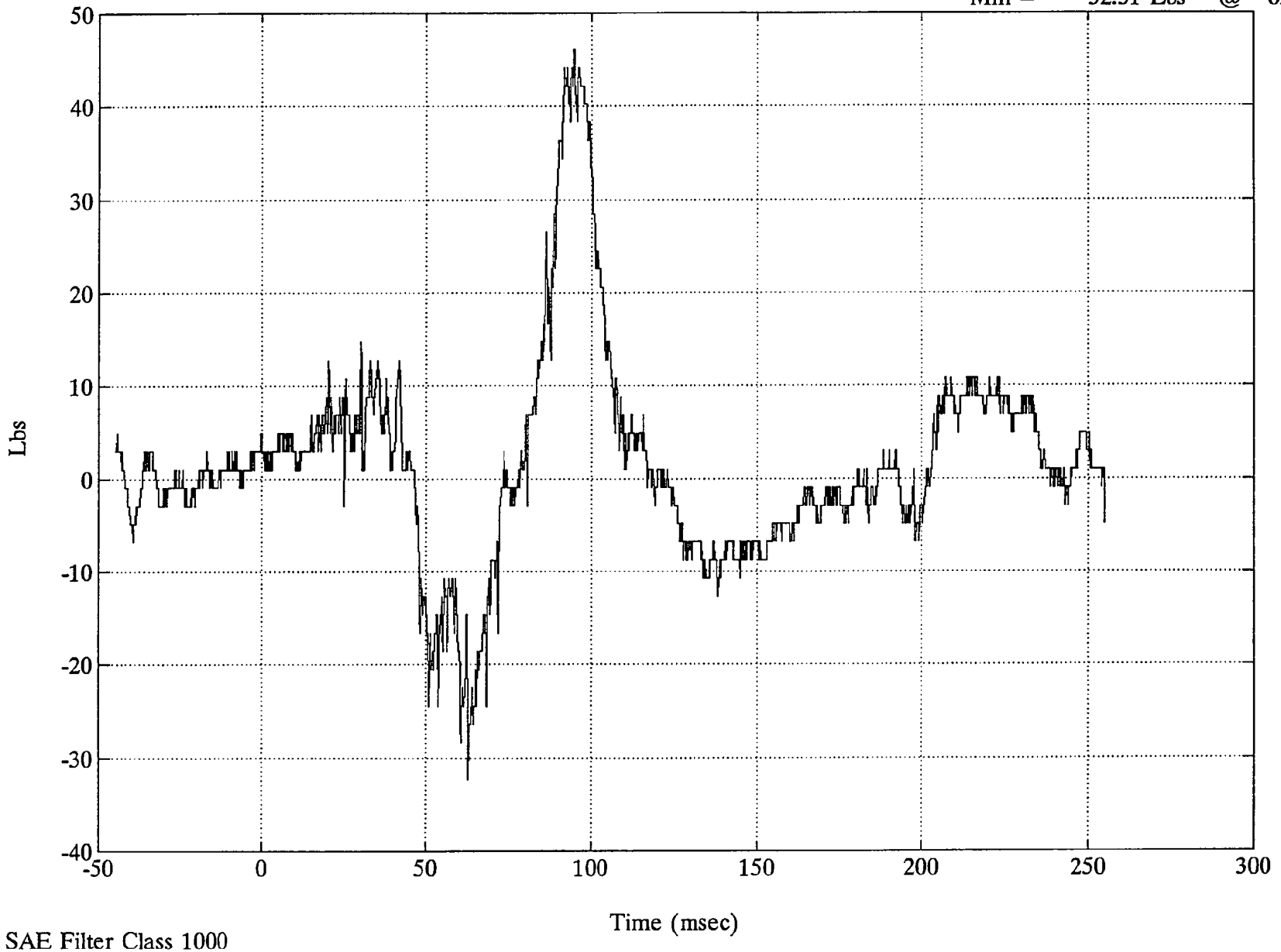
8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

Pos.1 Upper Neck Fy

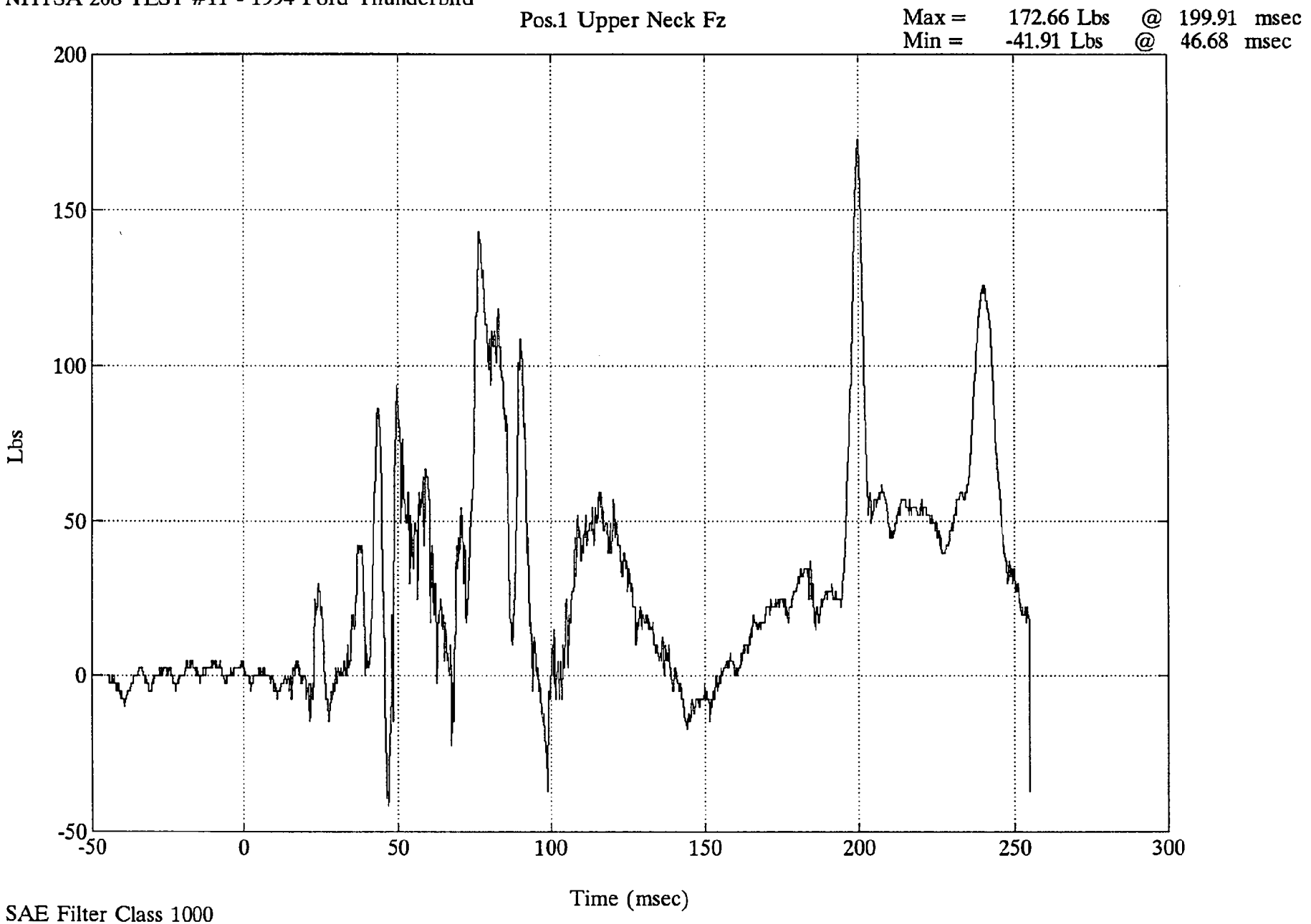
Max = 46.13 Lbs @ 94.68 msec
Min = -32.31 Lbs @ 62.64 msec



SAE Filter Class 1000

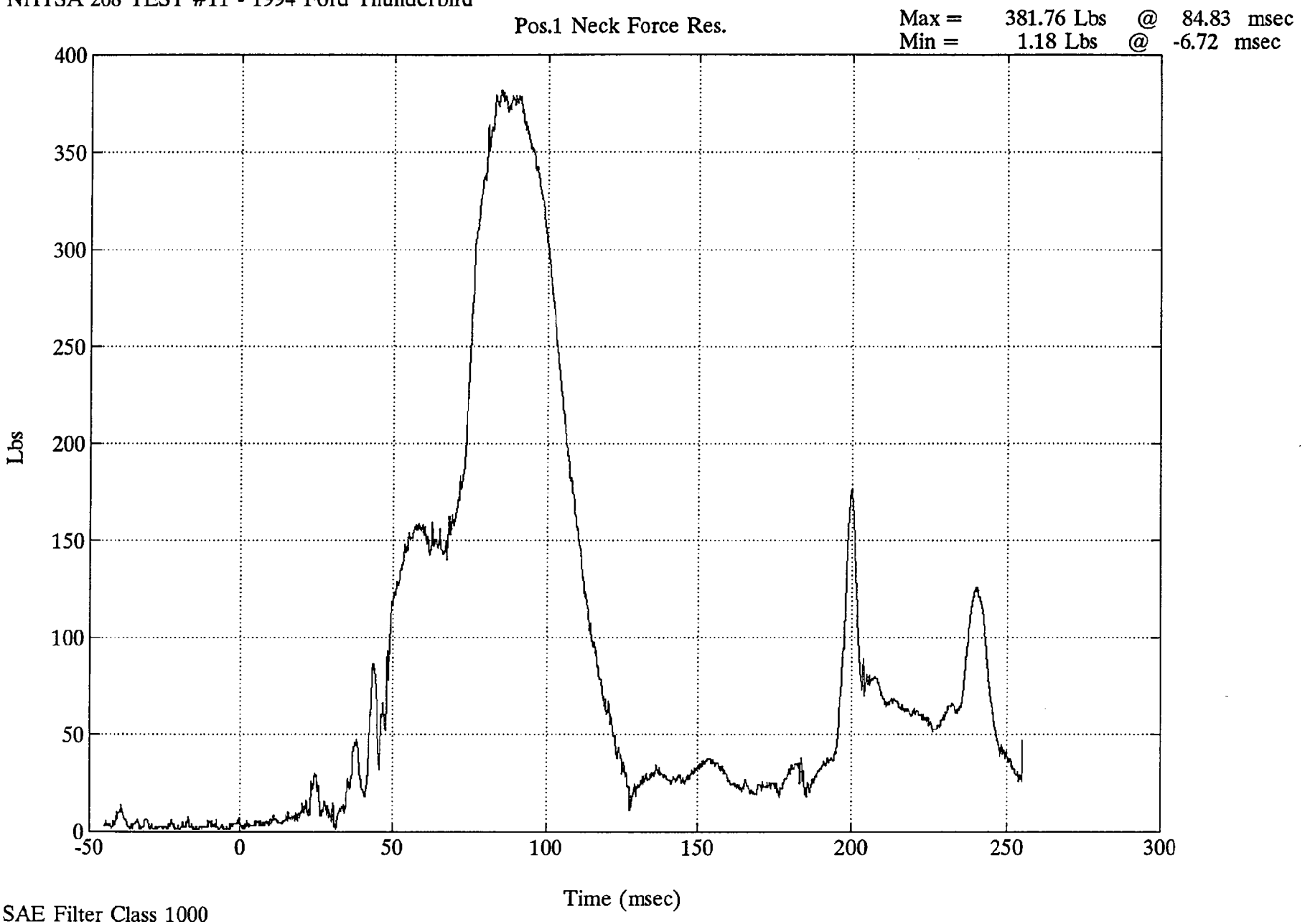
8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 1000

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

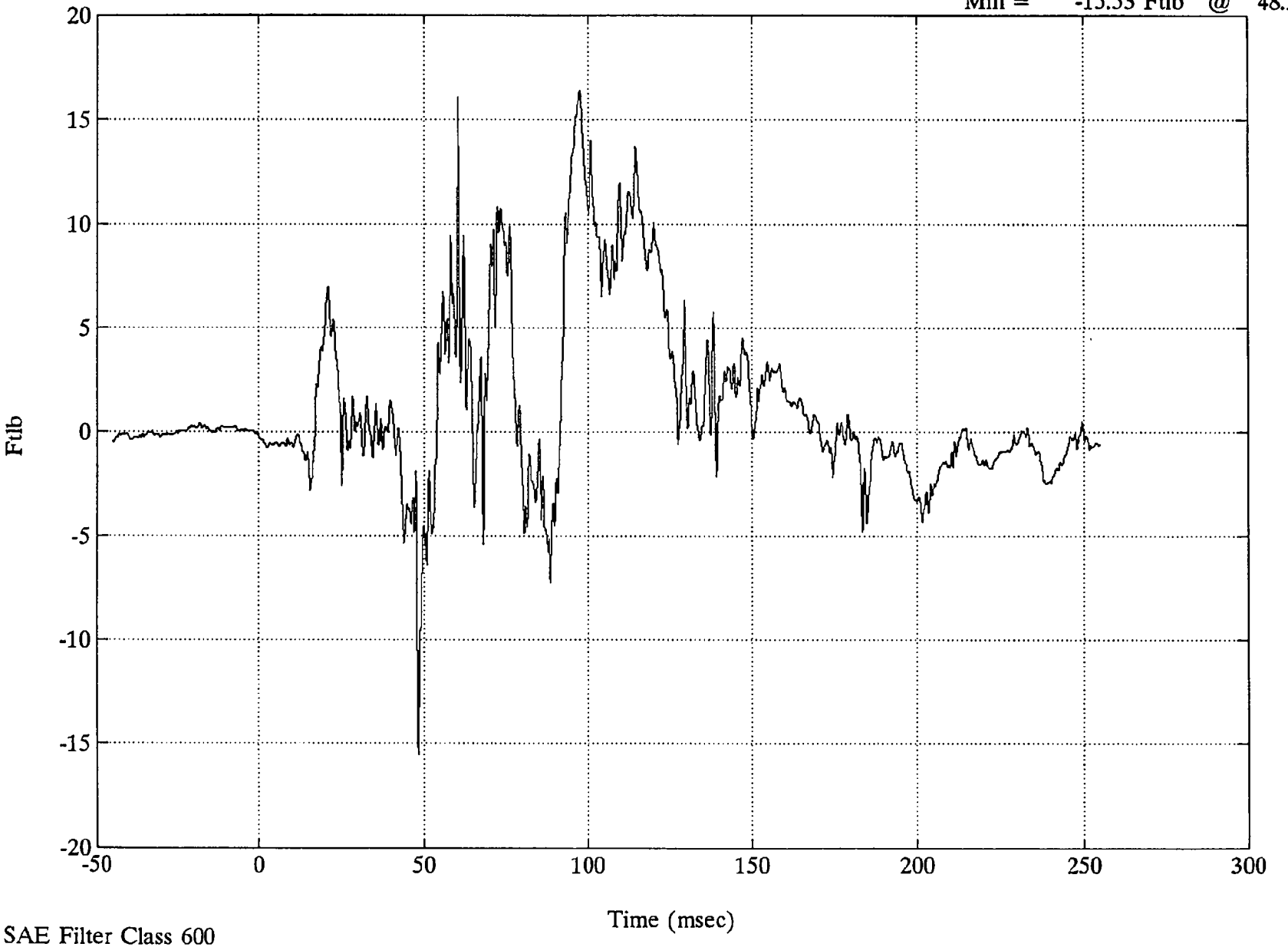


SAE Filter Class 1000

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

Pos.1 Upper Neck Mx

Max = 16.38 Ftlb @ 97.44 msec
Min = -15.53 Ftlb @ 48.24 msec



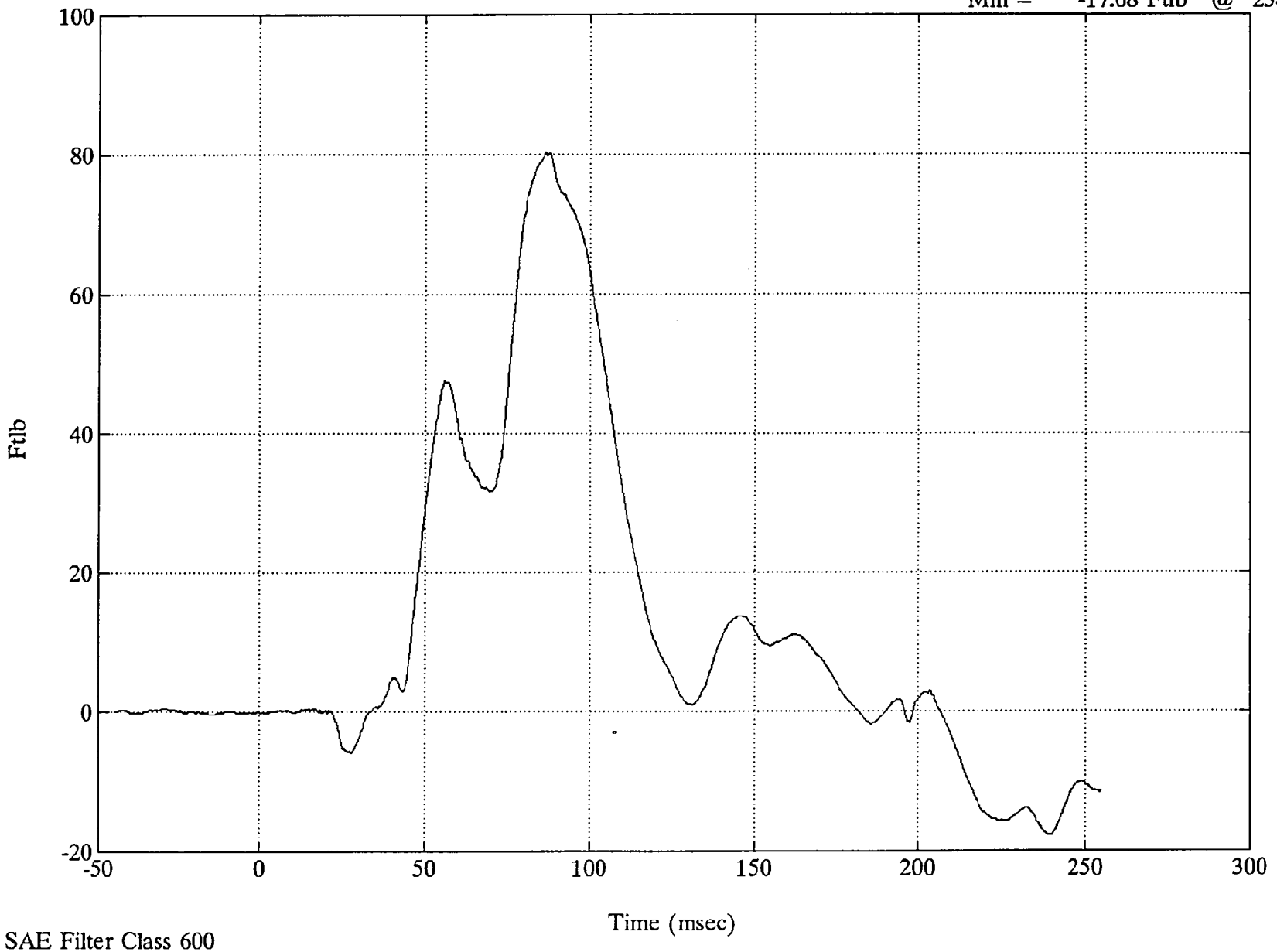
SAE Filter Class 600

8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

Pos.1 Upper Neck My

Max = 80.33 Ftlb @ 86.40 msec
Min = -17.68 Ftlb @ 238.91 msec

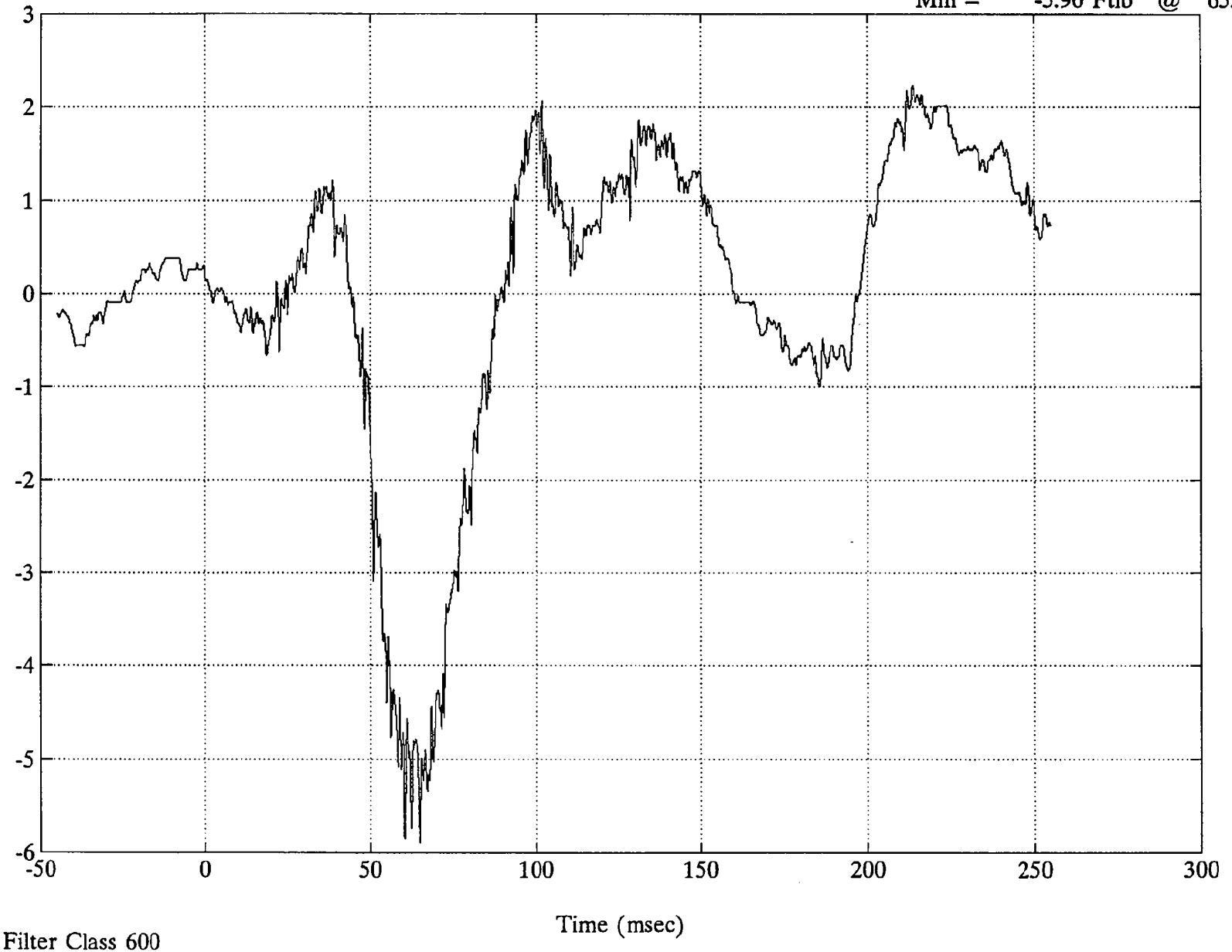


SAE Filter Class 600

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

Pos.1 Upper Neck Mz

Max = 2.23 Ftlb @ 213.48 msec
Min = -5.90 Ftlb @ 65.04 msec



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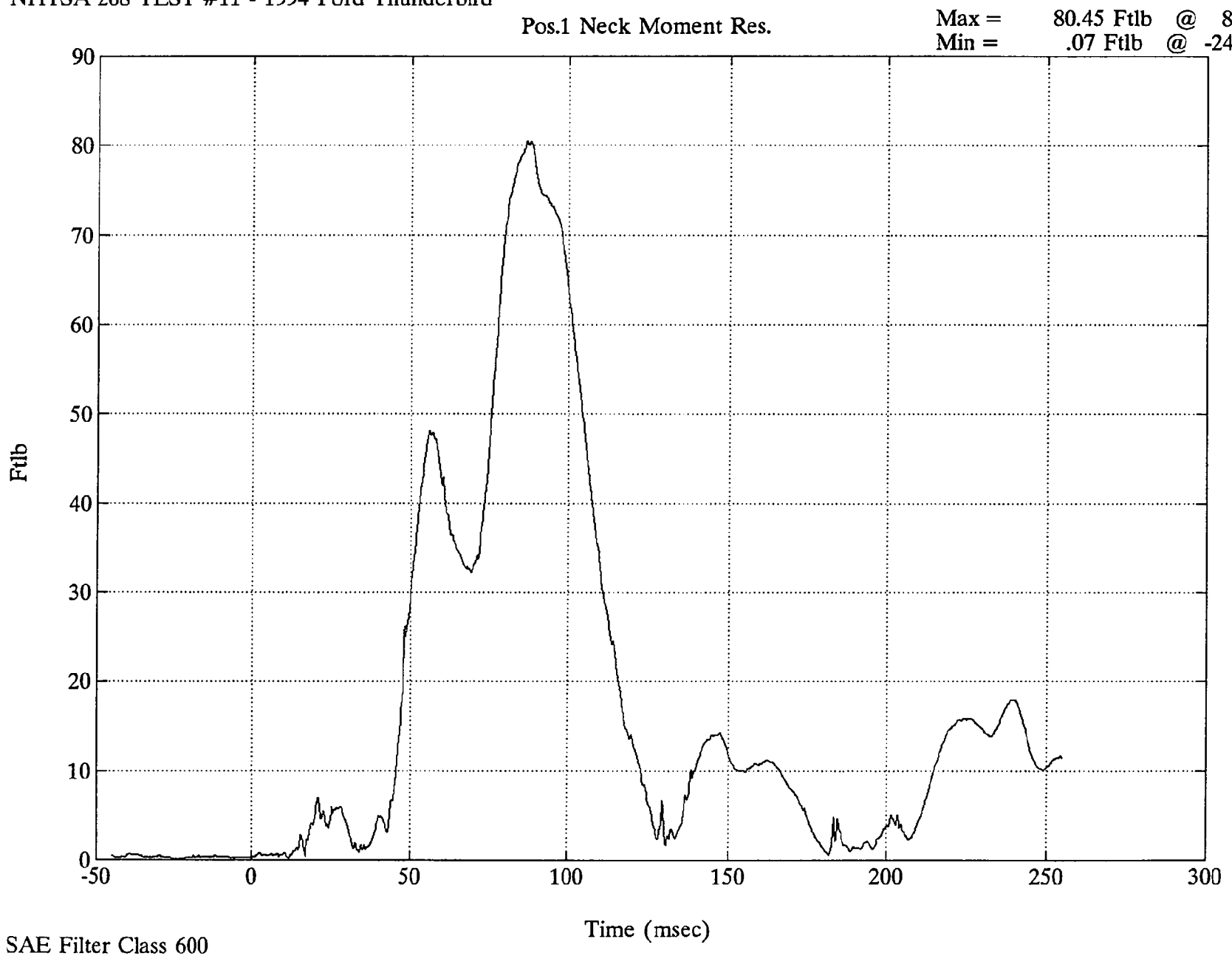

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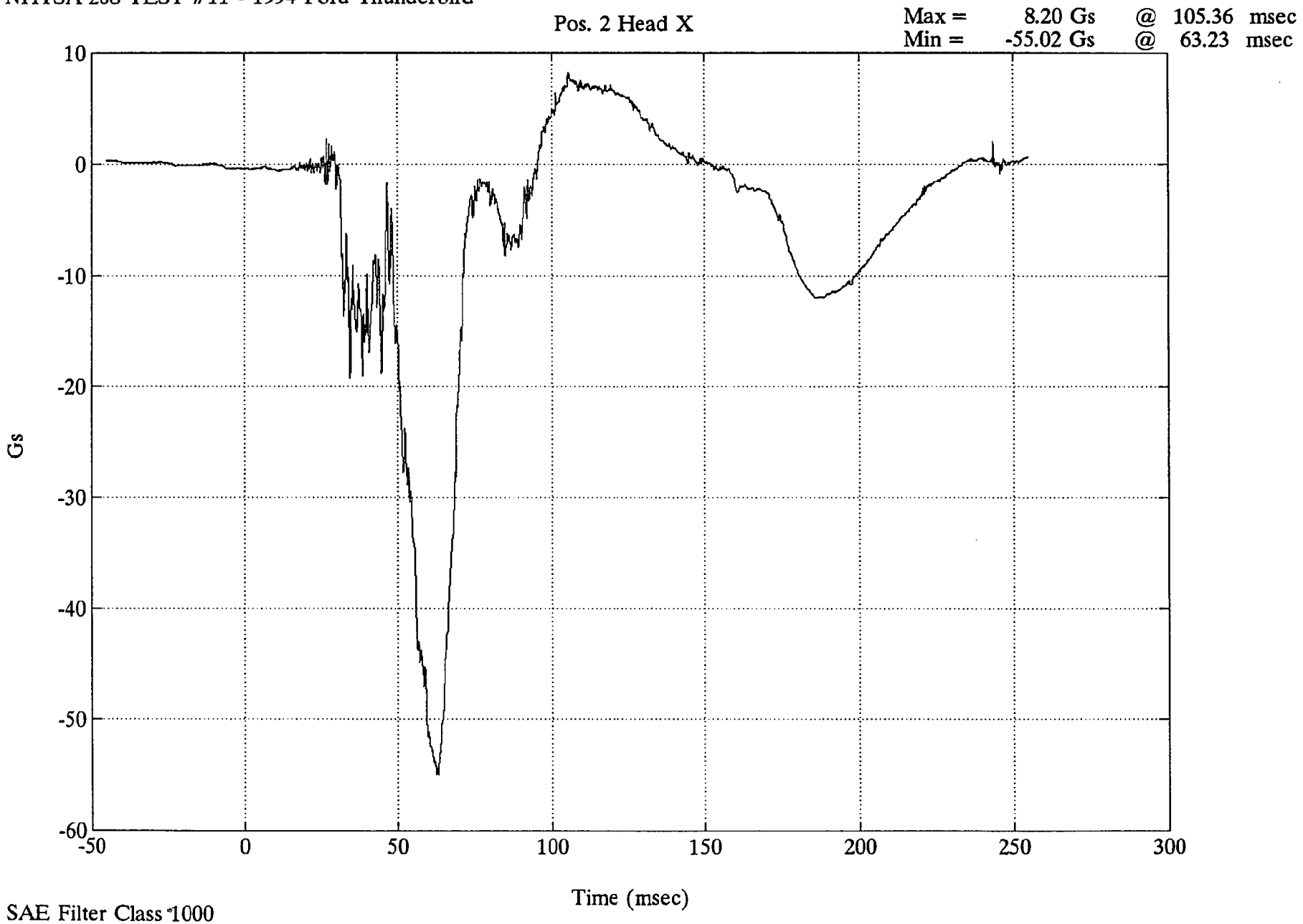

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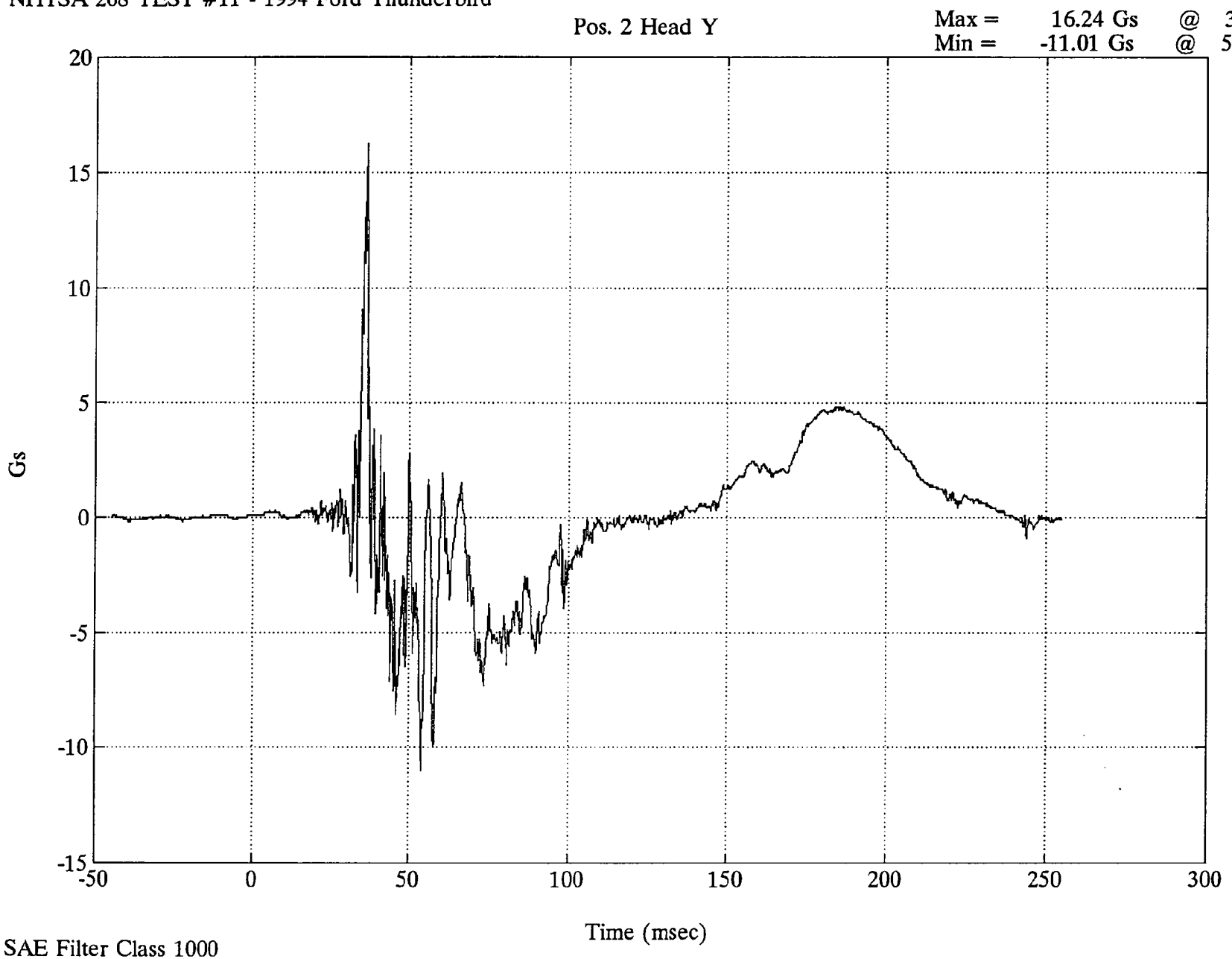

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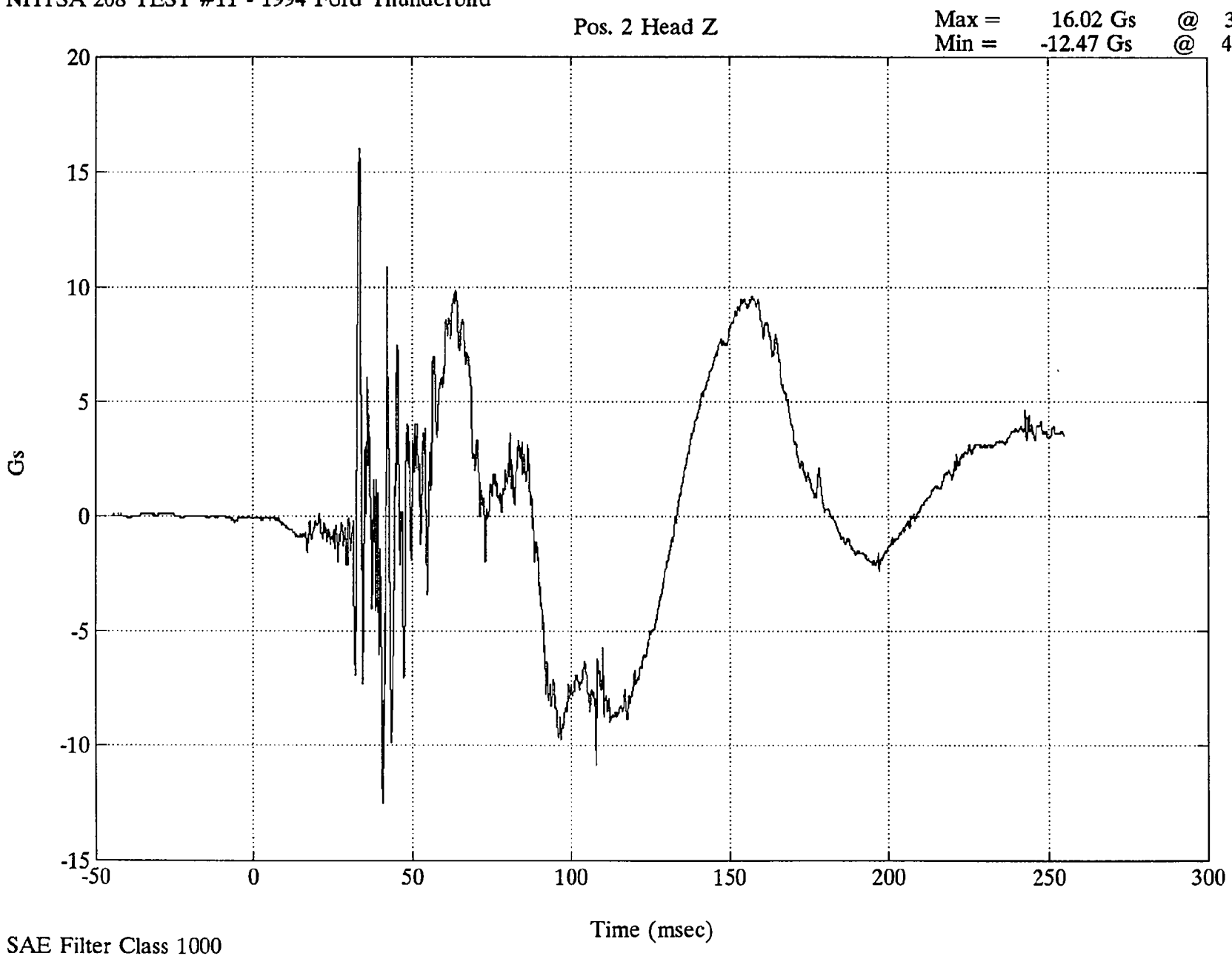

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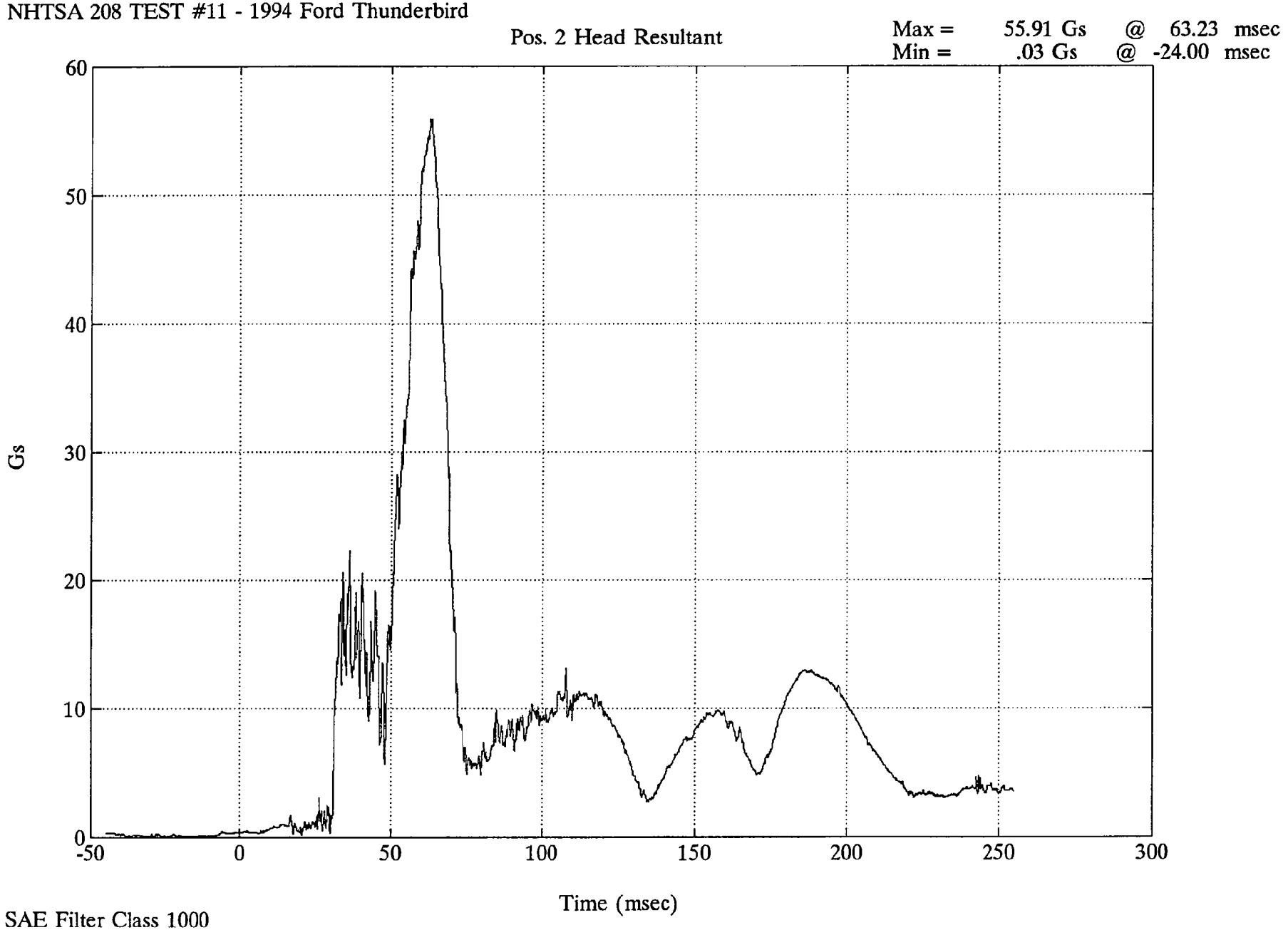

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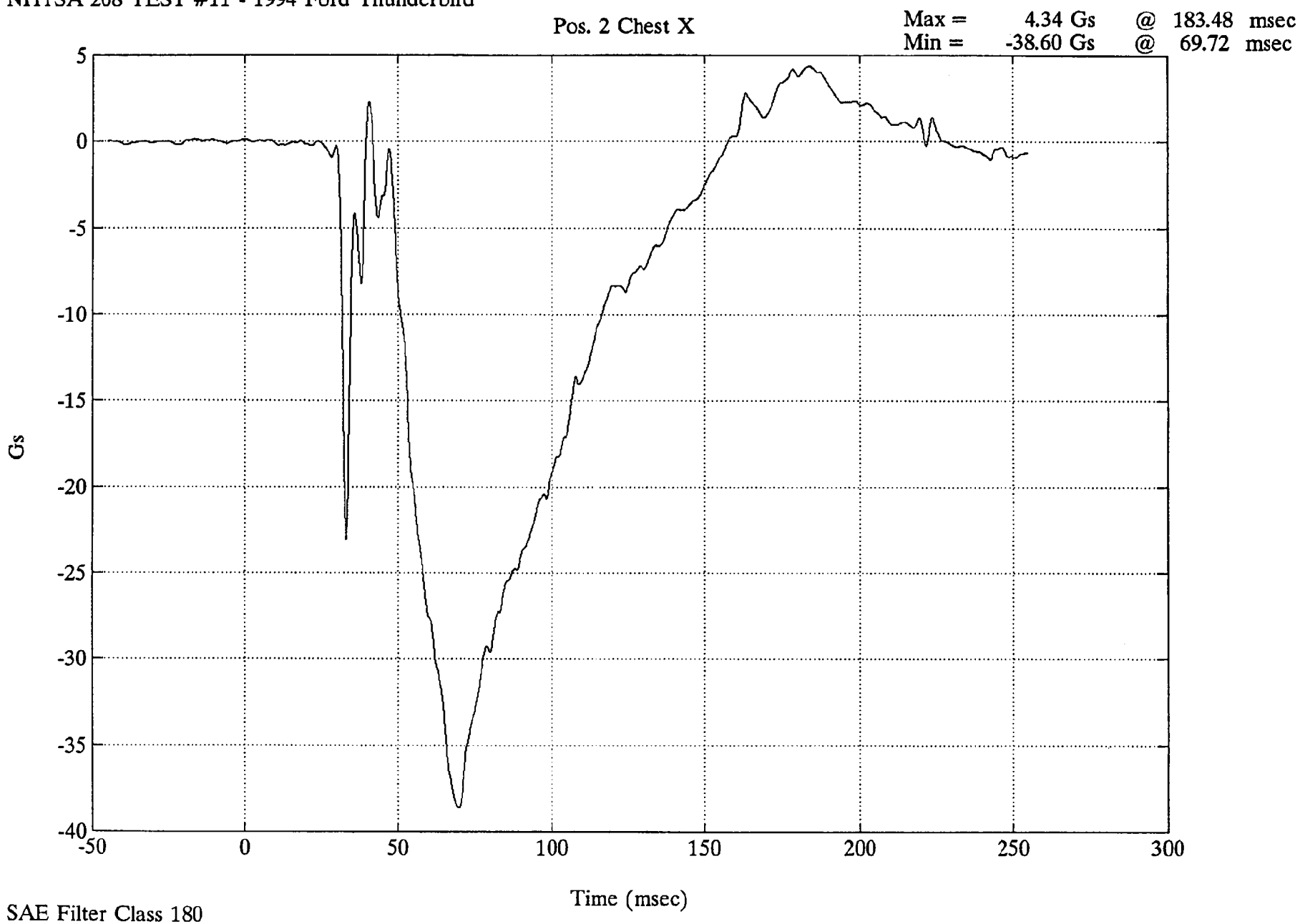

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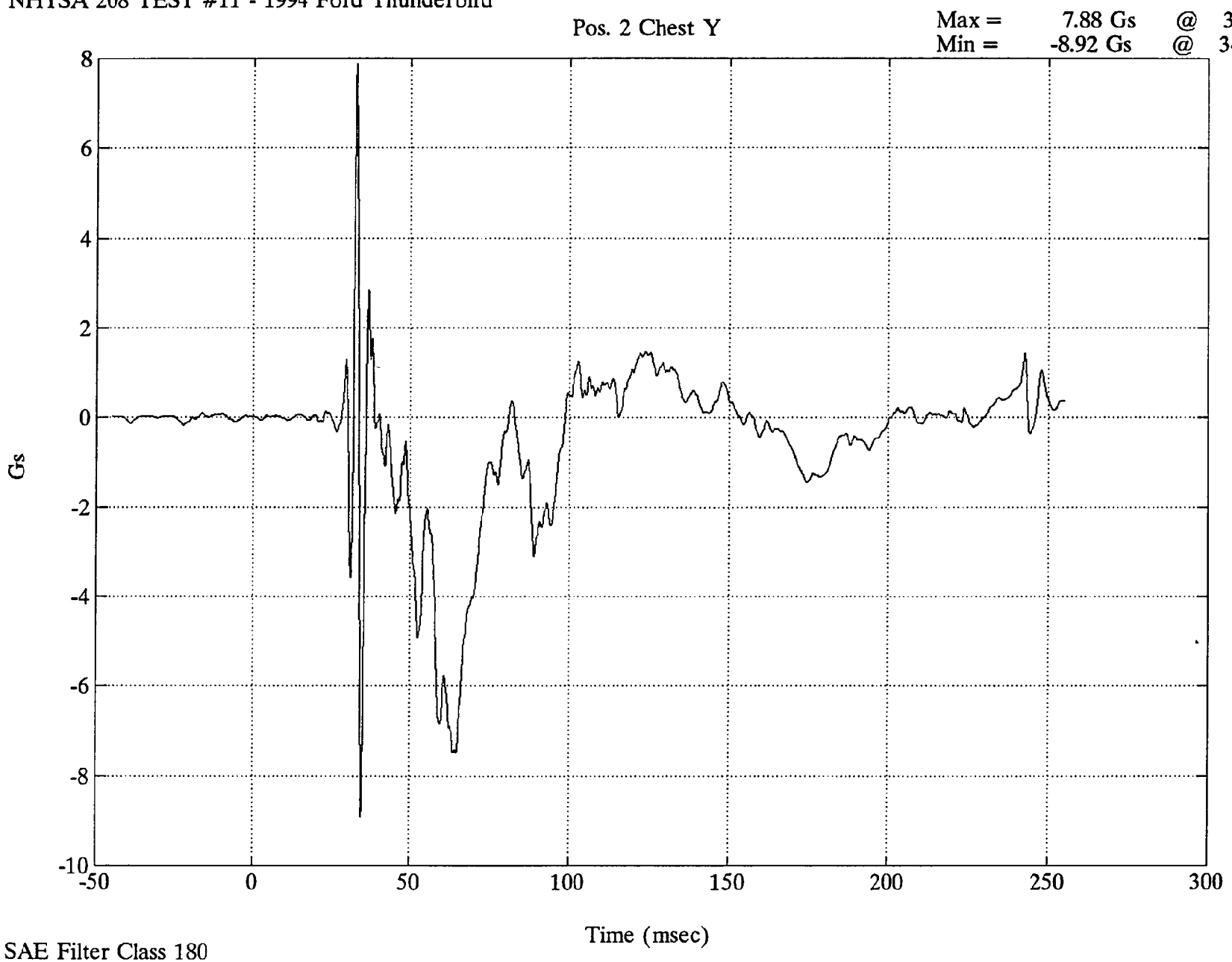

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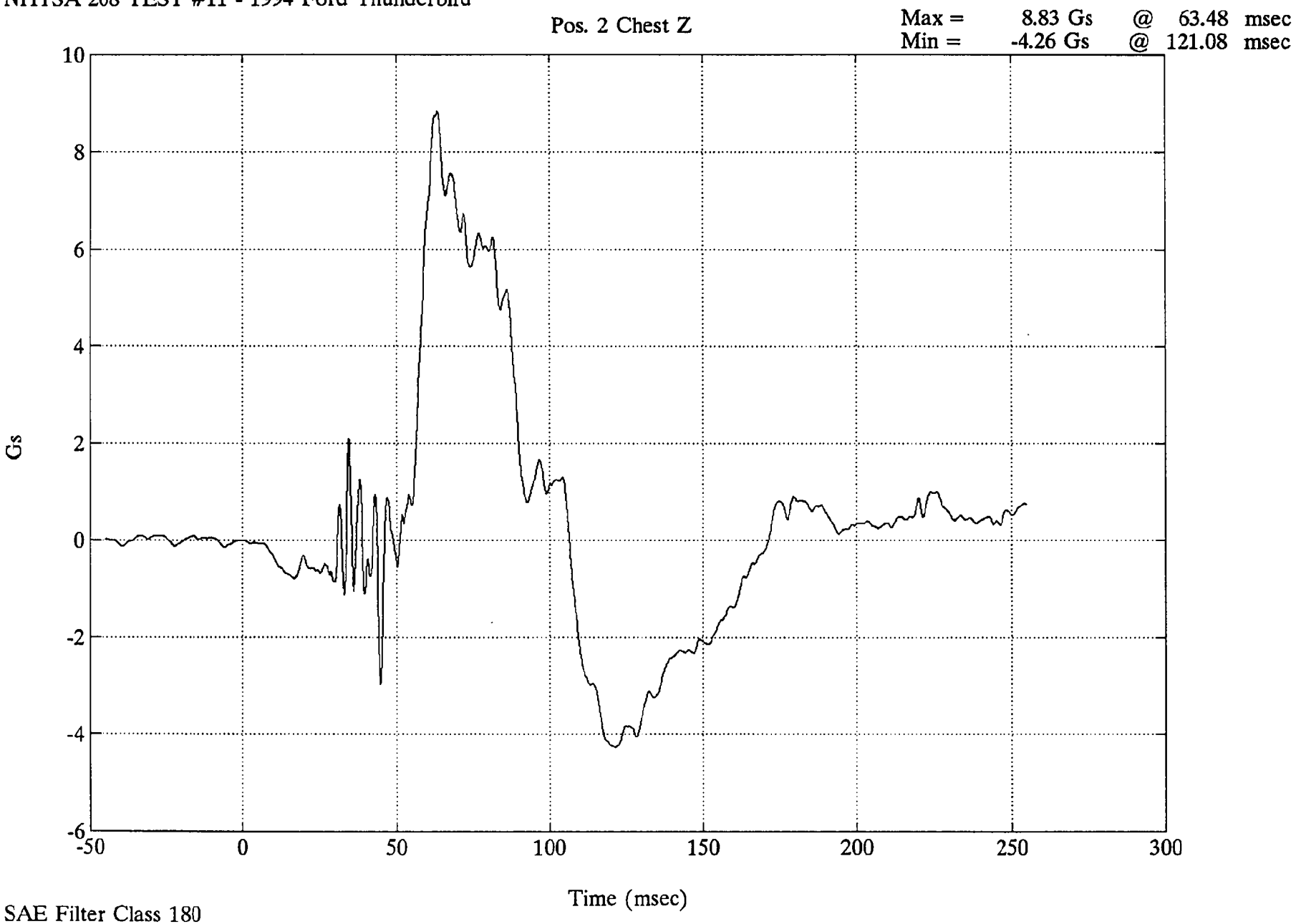

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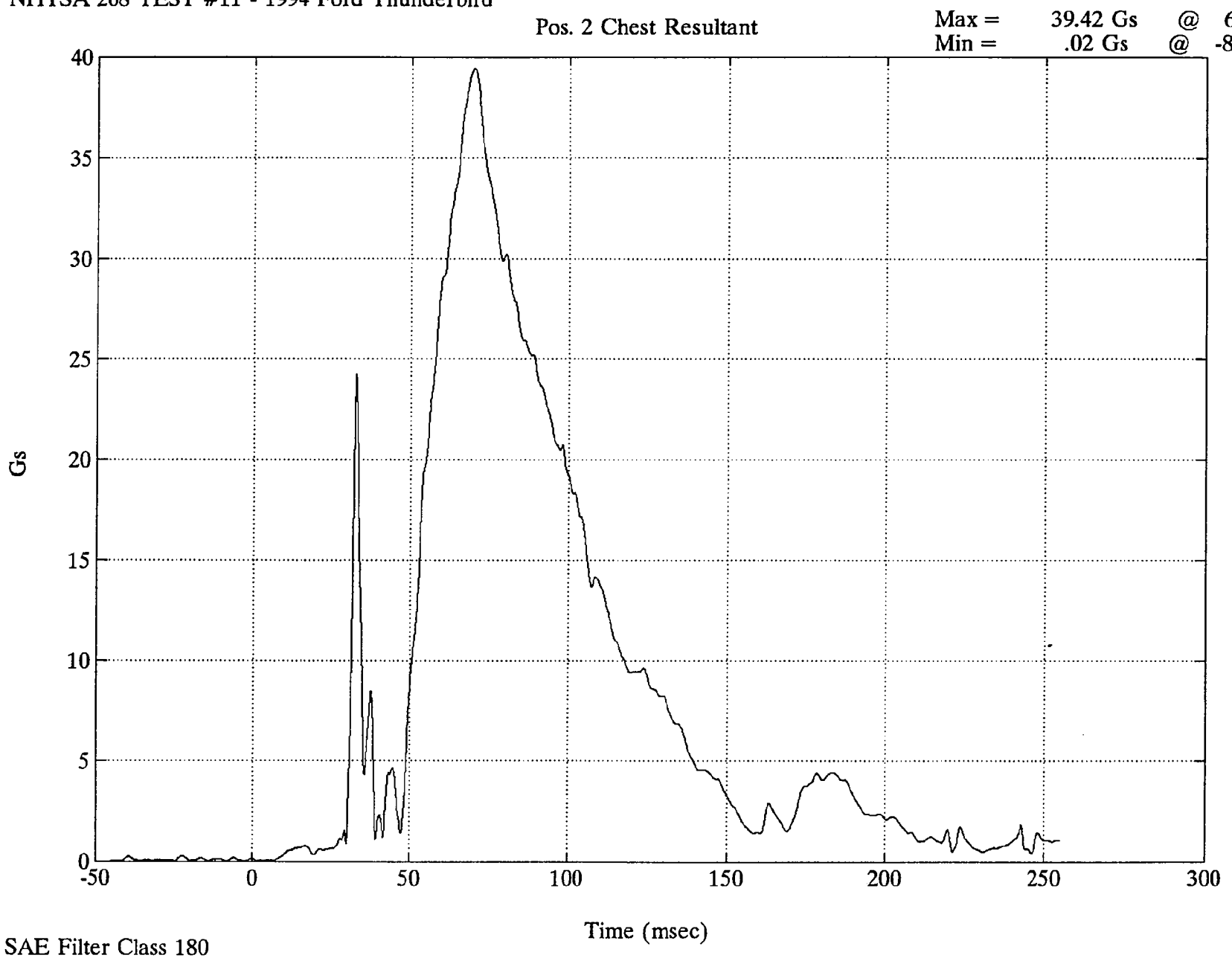

B-50

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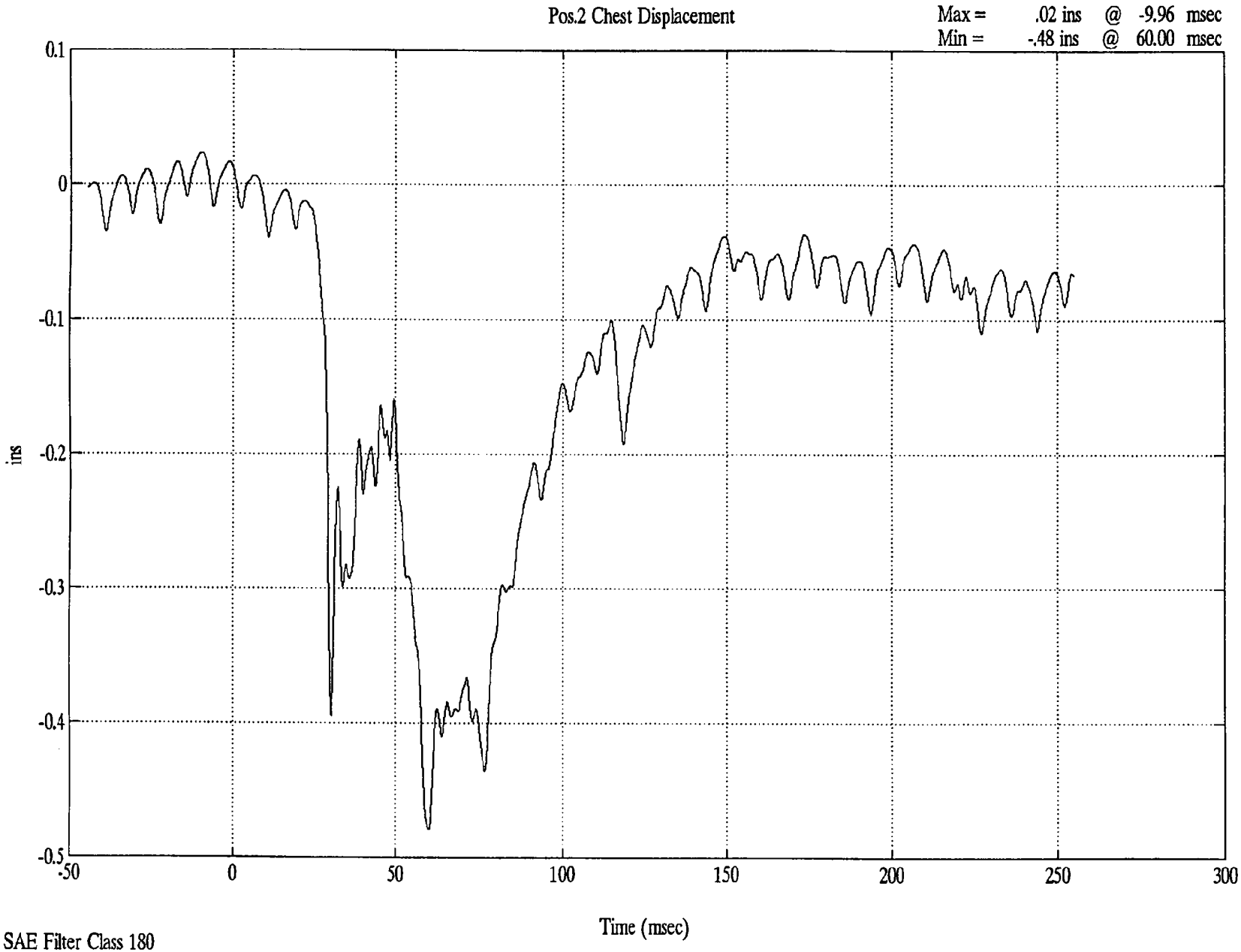
SAE Filter Class 180

NHTSA 208 TEST #11 - 1994 Ford Thunderbird



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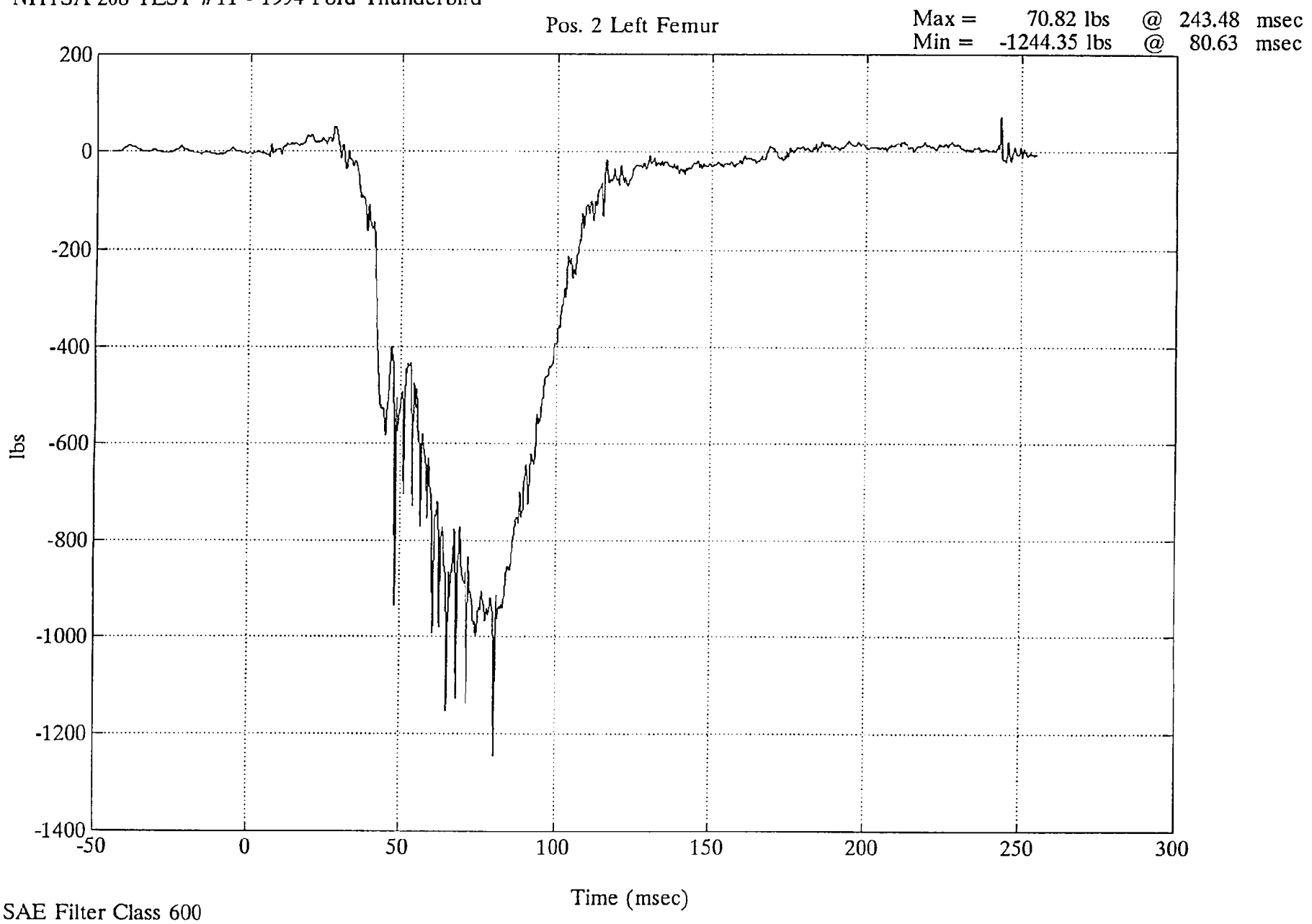
NHTSA 208 TEST #11 - 1994 Ford Thunderbird



SAE Filter Class 600

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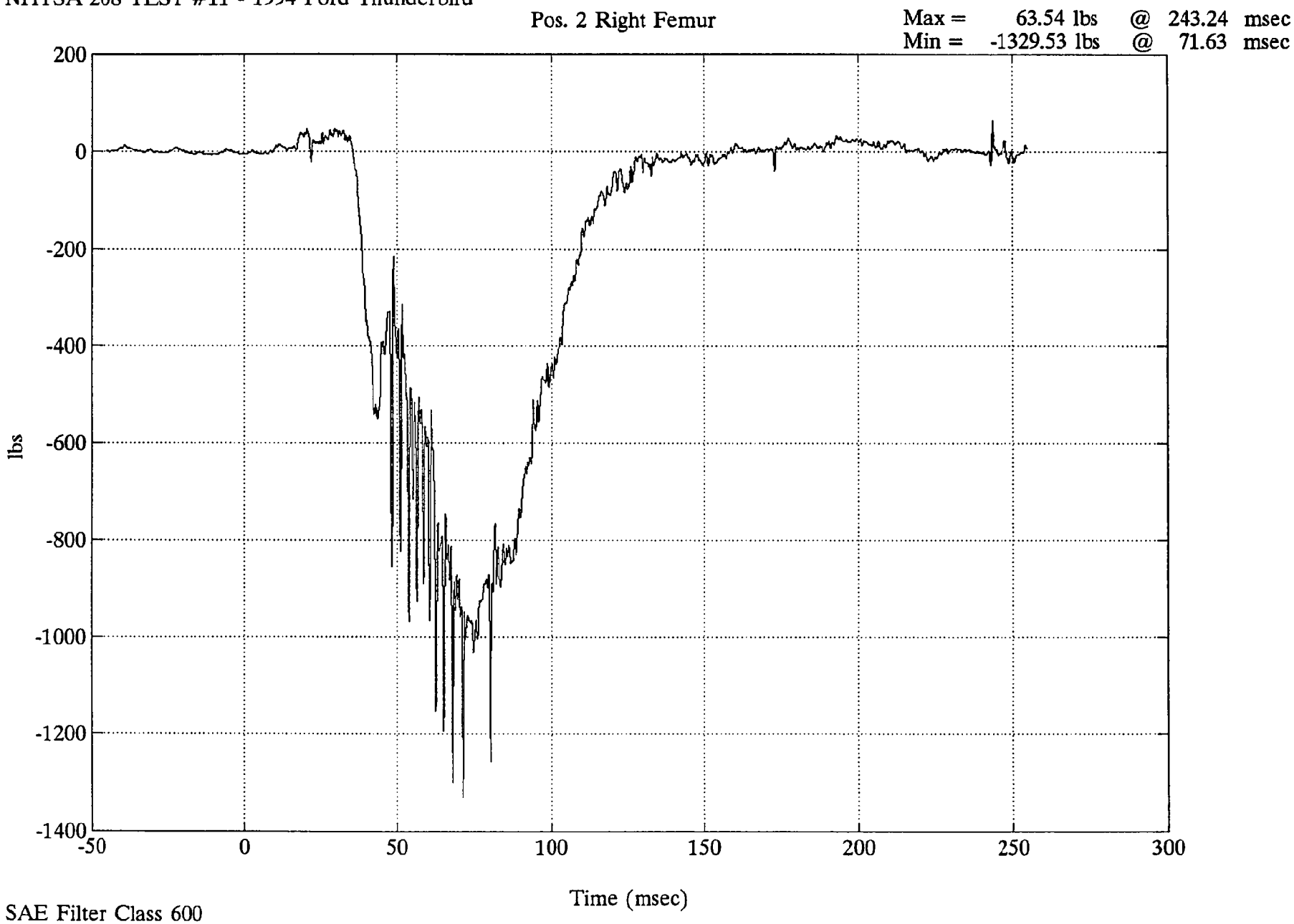


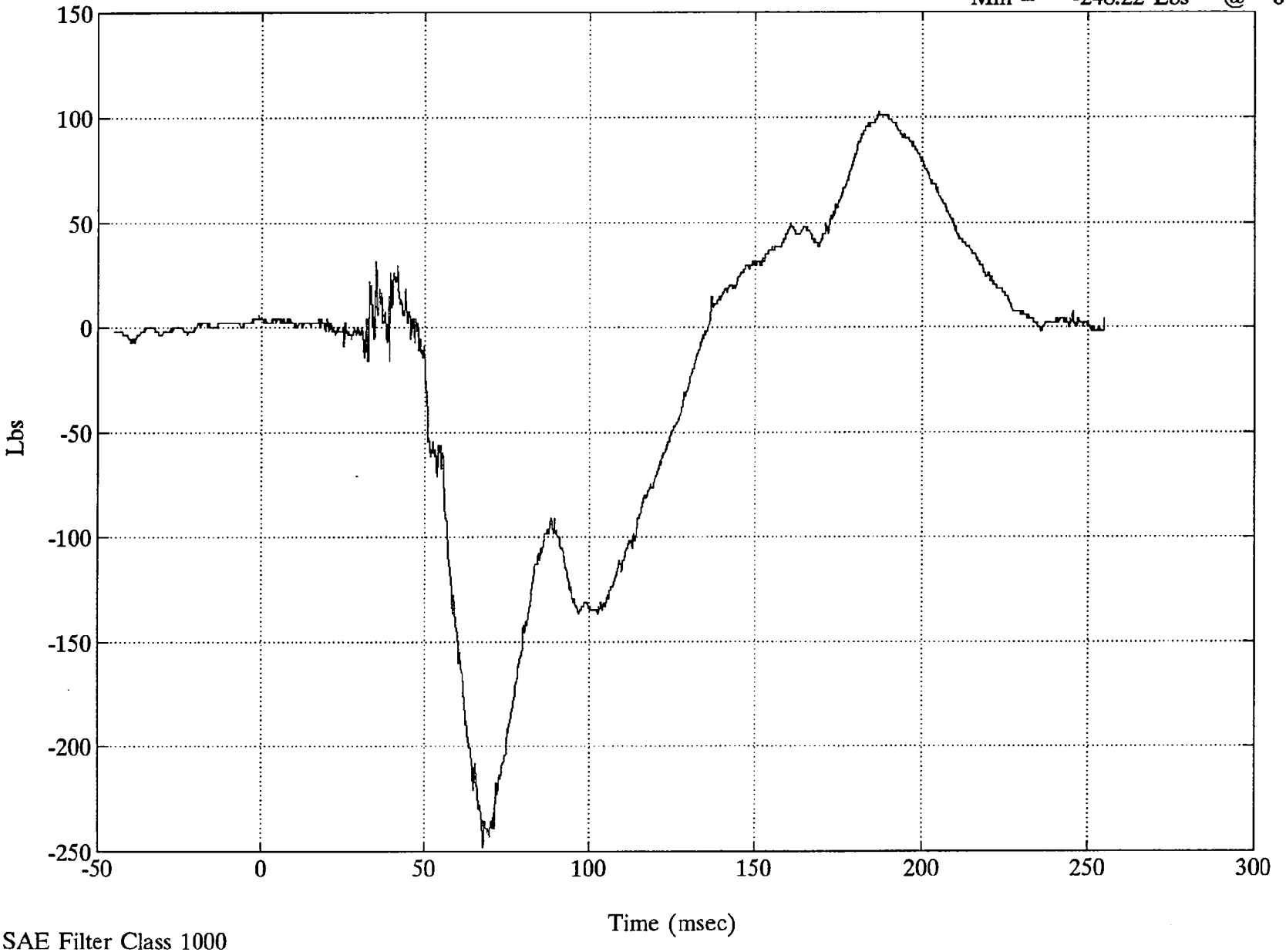
SAE Filter Class 600

8183-2

NHTSA 208 TEST #11 - 1994 Ford Thunderbird

Pos.2 Upper Neck Fx

Max = 102.74 Lbs @ 186.96 msec
Min = -248.22 Lbs @ 67.91 msec



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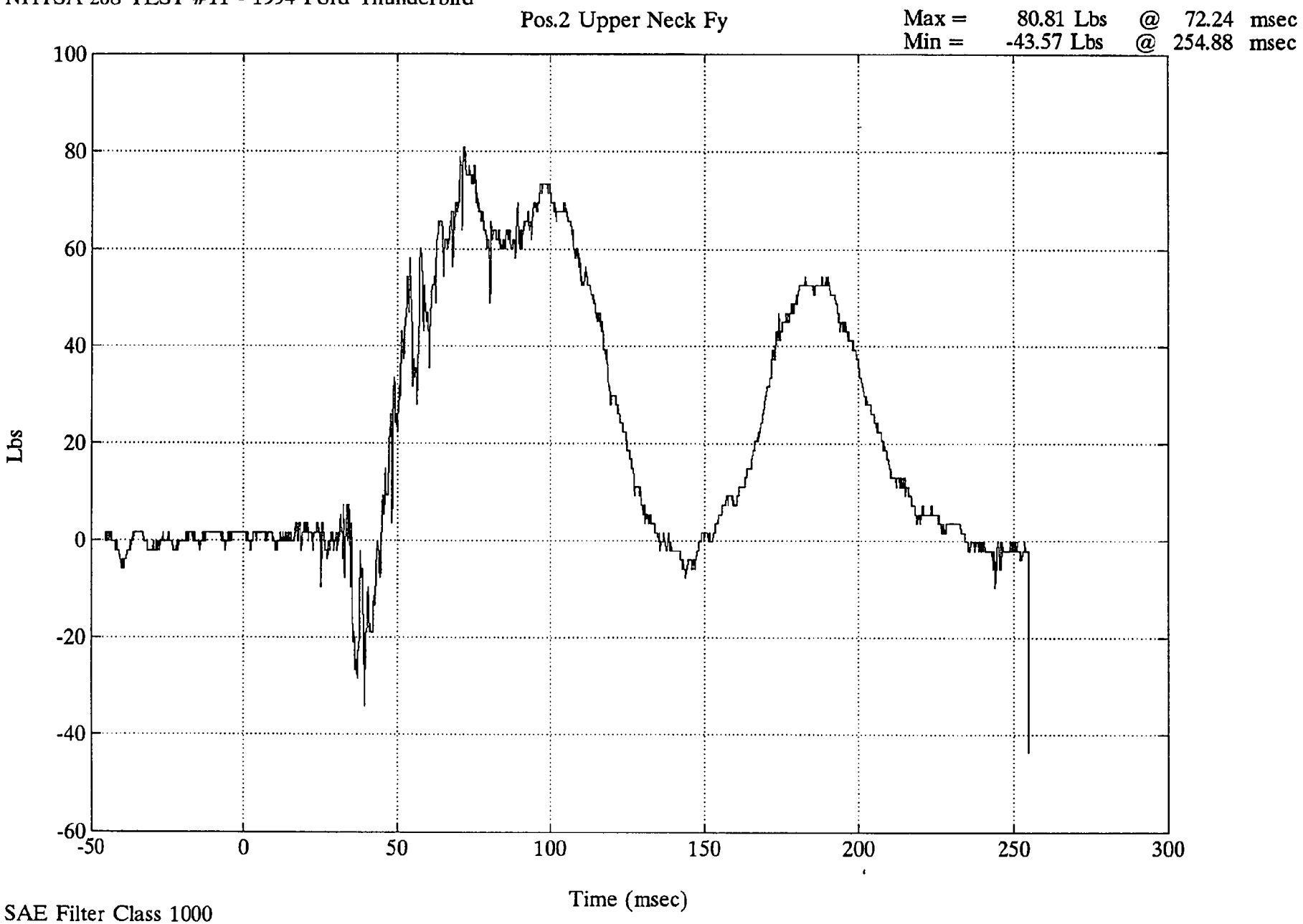

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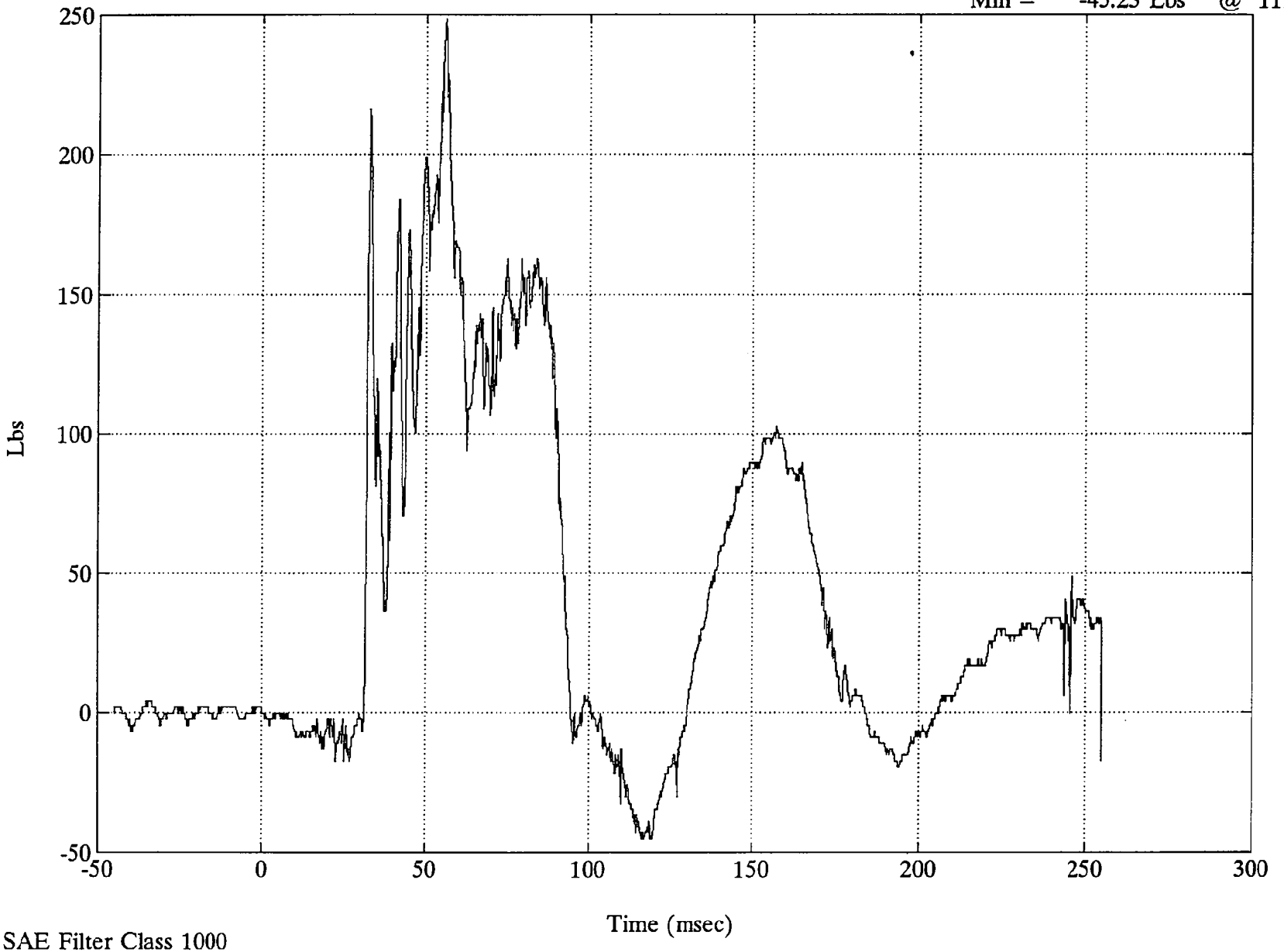
Pos.2 Upper Neck Fz

Max = 248.35 Lbs @ 56.04 msec
Min = -45.23 Lbs @ 119.28 msec



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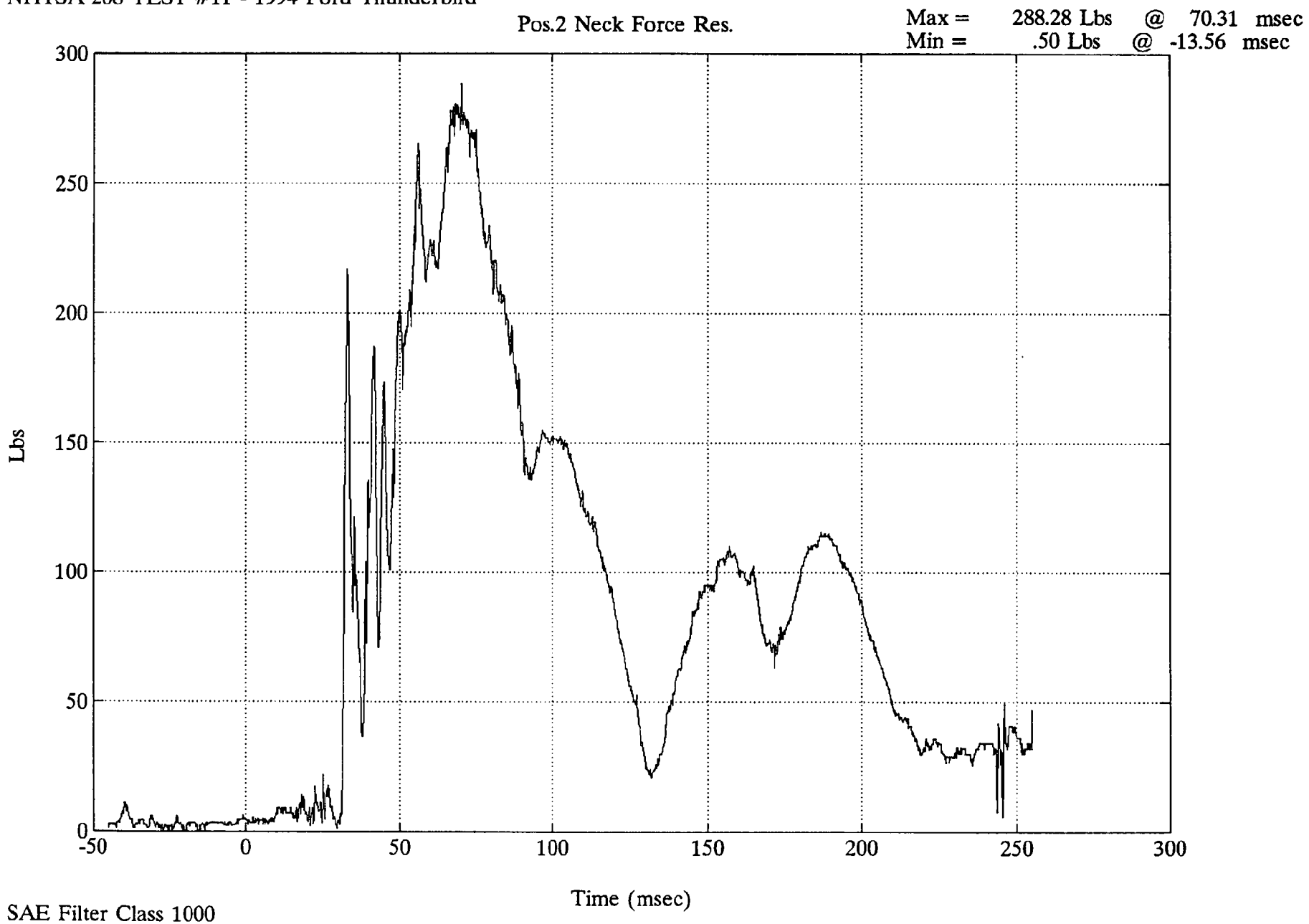

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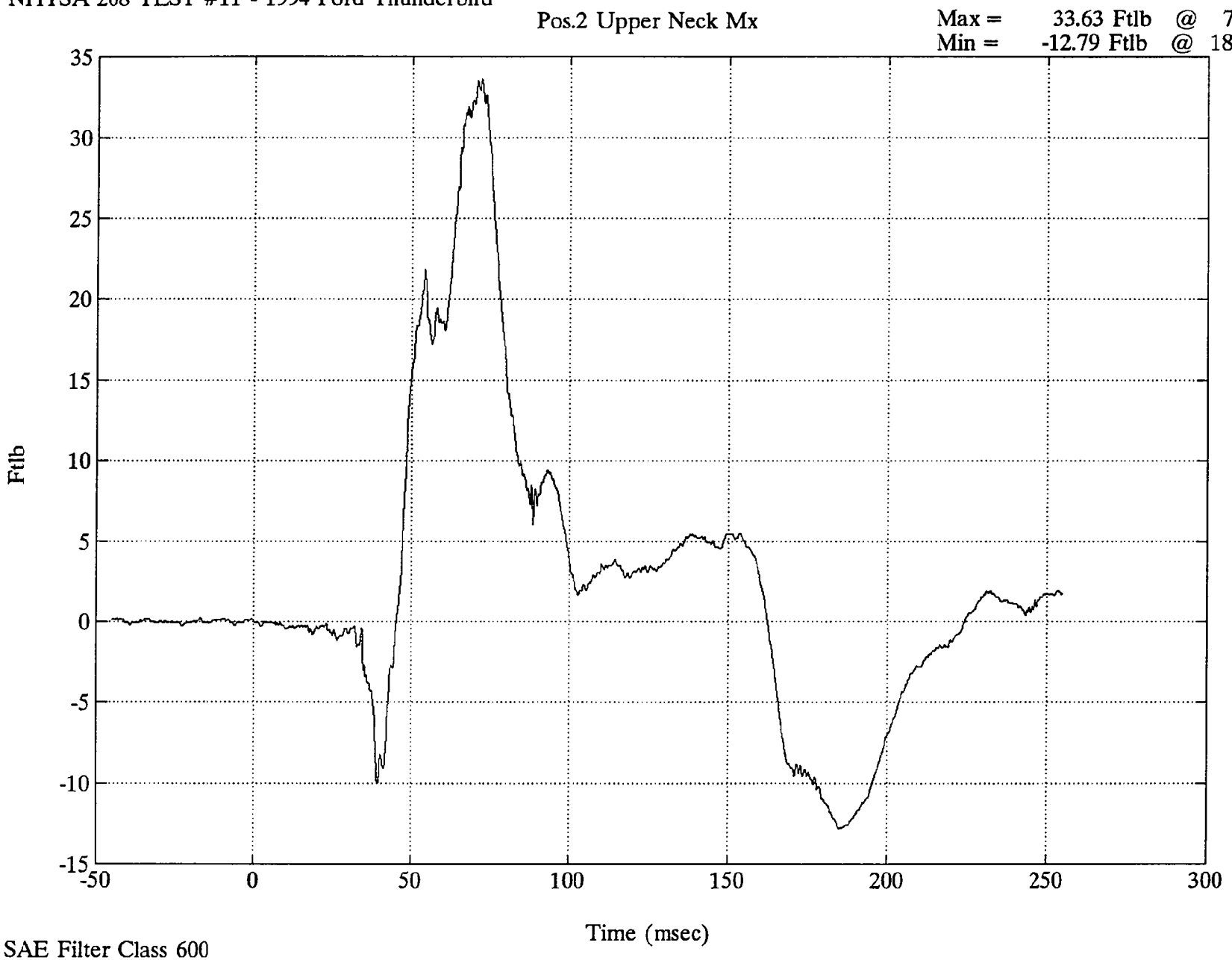

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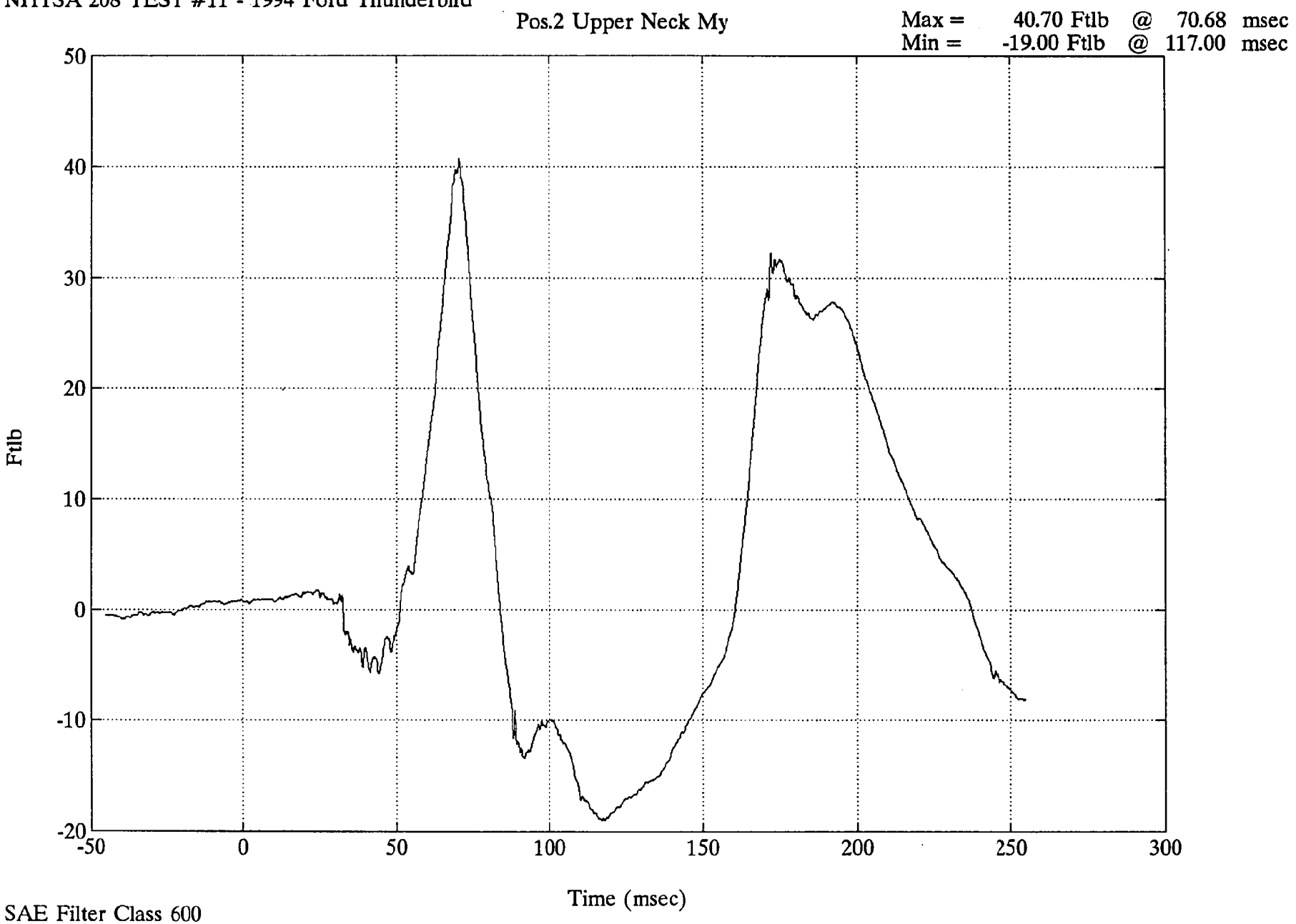

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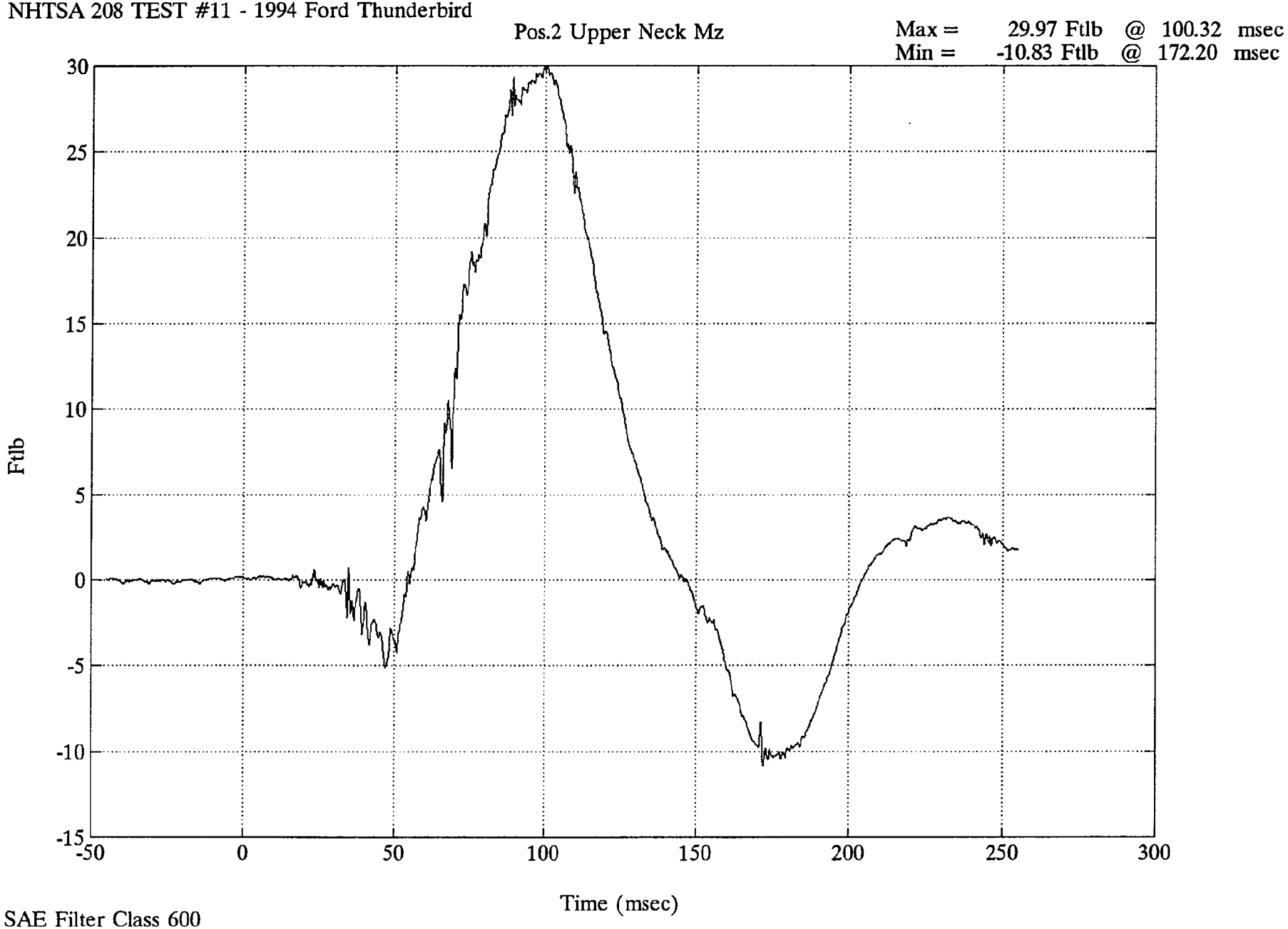

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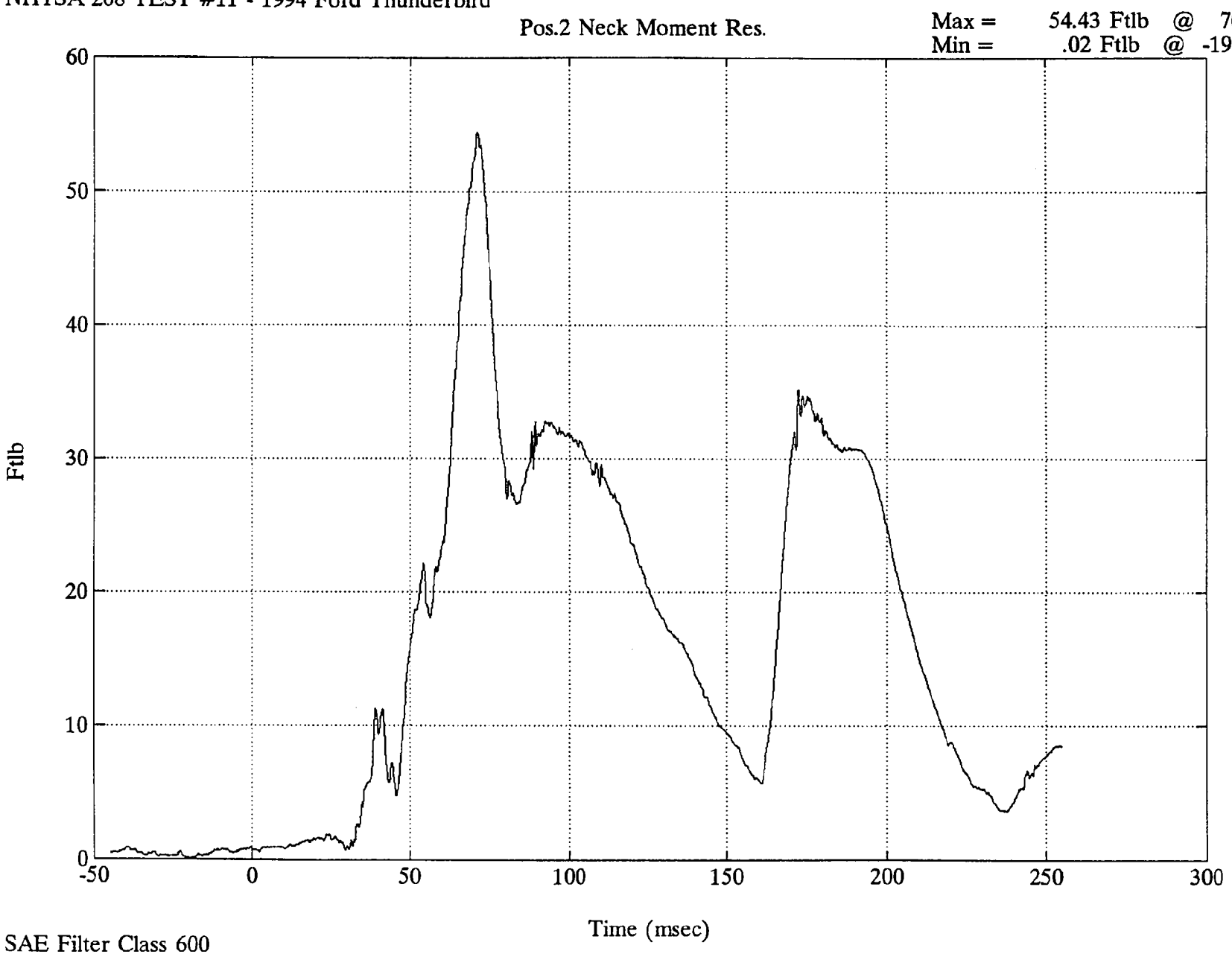

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Appendix C

VEHICLE OWNERS MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

Safety Restraints

Using Safety Restraints Properly

Safety Belts

The use of safety belts help to restrain you and your passengers in case of a collision. In most states, the law requires their use. We strongly recommend that you use them every time you travel in your vehicle.

Warning: Always drive and ride with your seatback upright and the lap belt portion of your safety belt snug and low across the hips. This will reduce the risk of serious injury to the abdomen or neck that could be caused by sliding under the safety belts in a collision.

Safety belts provide best restraint when:

- the seatback is upright
- the occupant is sitting upright (not slouched)
- the lap belt is snug and low on the hips
- the shoulder belt is snug against the chest
- the knees are straight forward

For your safety, your vehicle has different types of safety belts:

- **Lap Belts** – for people who sit in the middle seat in the front or the rear seat.
- **Lap and Shoulder Belts** – for people who sit in the front seat.

See the following sections for directions on how to properly use these safety belts. Also see *Safety Restraints for Children* in this chapter for special instructions about using safety belts for children.

Warning: Make sure that you and your passengers, including pregnant women, wear safety belts. Be sure that the lap belt portion of your safety belt fits snugly and as low as possible around the hips. If safety belts are not used properly, the risk of you or your passengers being injured in a collision greatly increases.

Warning: Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. Never swing it around the neck over the inside shoulder. Never use a single belt for more than one person. Failure to follow these precautions could increase the risk and/or severity of injury in a collision.

Do not allow any people to ride in the cargo area of your vehicle. People who are not riding in seats with their safety belts fastened are much more likely to be injured in a collision.

Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Children should always ride with the seatback in the fully upright position. When the seatback is not fully upright, there is a greater risk that the child will slide under the safety belt and be seriously injured in a collision.

Never use a single belt for more than one person or across more than one seating position. This greatly increases the risk that one or both of the people will be injured in a collision. Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair.

Warning: Lock the doors of your vehicle before driving to lessen the risk of the door coming open in a collision.

Safety Belt Maintenance

Check the safety belt systems periodically to make sure that they work properly and are not damaged.

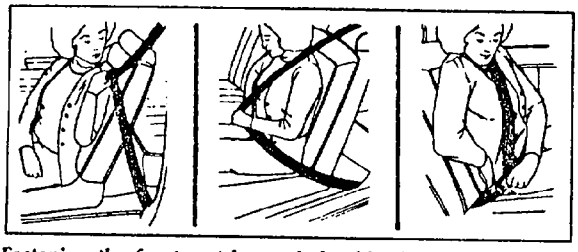
Warning: All safety belt assemblies, including retractors, buckles, front seat belt buckle support assemblies (slide bar) (if so equipped), and attaching hardware, should be inspected after any collision. Ford recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and continue to operate properly, they do not need to be replaced. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

Combination Lap and Shoulder Belts

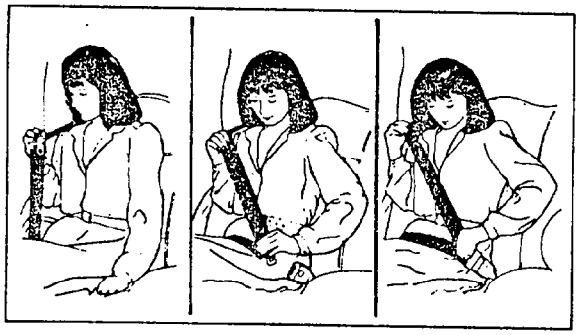
While your vehicle is in motion, the combination lap and shoulder belt adjusts to your movement. However, if you brake hard, corner hard or if your vehicle receives an impact of 5 mph (8 km/h) or more, the lap and shoulder belt locks and helps reduce your forward movement.

After you get into your vehicle, close the door and lock it. Then adjust the seat to the position that suits you best.

To fasten the belt, pull the lap/shoulder belt from the retractor so that the shoulder portion of the belt crosses your shoulder and chest. Be sure the belt is not twisted. If it is, remove the twist. Insert the belt tongue into the proper buckle until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.



Fastening the front seat lap and shoulder belt



Fastening the rear seat lap and shoulder belt

Warning: Make sure that the lap belt is as low around your hips as possible. Do not wear the lap belt around your waist. If you do not use the lap belts properly, the risk of being injured in a collision greatly increases.

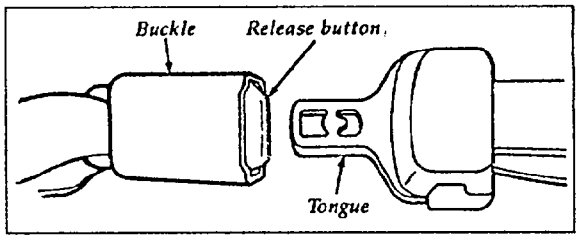
Warning: All front and rear seat outboard occupants (including pregnant women) should wear lap and shoulder belts, for optimum protection in a collision.

Warning: Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. Never swing it around your neck over the inside shoulder. Never use a single belt for more than one person. Failure to follow these precautions could increase the risk and/or severity of injury in a collision.

To adjust the lap part of the belt, pull up on the shoulder belt until the lap belt fits snugly and as low as possible around your hips.

To unfasten the belt:

1. Push the release button on the end of the buckle. This allows the tongue to unlatch from the buckle.



Unfastening the outboard lap/shoulder belts

2. While the belt retracts, guide the tongue to its original position. If you do not guide the tongue, it may strike you or part of the vehicle.

Safety Belt Light/Chime

This warning light and chime remind you to fasten your safety belt. The following conditions will take place:

- ❑ If safety belt is not buckled when the key is turned to the ON position, the light comes on for 1 to 2 minutes and the chime sounds for 4 to 8 seconds.
- ❑ If safety belt is buckled while the light is on and the chime is sounding, both the light and chime turn off.
- ❑ If safety belt is buckled before the key is turned to the ON position, both the light and chime will not turn on.

The safety belt light

How to Untwist or Unjam a Safety Belt Retractor

If you should jam the belt retractor by allowing the belt to retract when it is twisted, you can free the webbing with this procedure:

1. Pull on the belt with both hands to tighten it on the retractor spool.
2. Feed the belt back into the retractor until it is completely retracted. Repeat previous step if necessary.
3. Pull the belt out of its holder as far as it will go and untwist the belt or remove the object that is jamming the belt. Let the belt retract.

4. Then, pull the belt out and let it retract several times to be sure that the belt works properly.

Procedure to Correct a Twisted Safety Belt at the "D" Ring (if so equipped) Front and/or Rear Outboard Seating Positions

NOTE: The restraint system shown in the following figures may be different than your vehicle. However, use these figures and this procedure to correct a twisted safety belt at any outboard seating position that has a "D" ring.

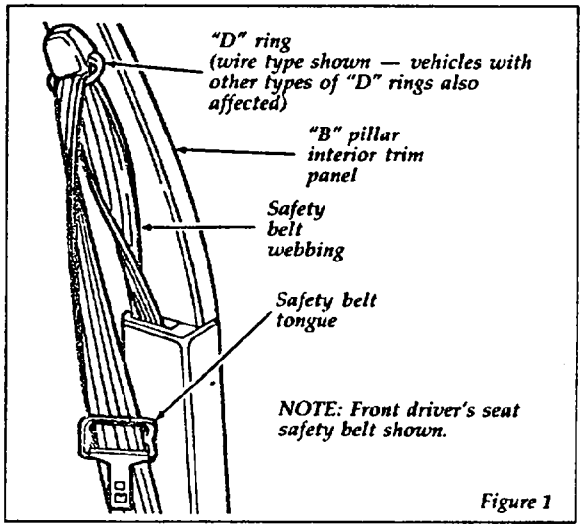


Figure 1

1. Grasp the belt webbing at the "D" ring. See Figure 2.

Warning: Use only extensions manufactured by the same supplier as the safety belt. Manufacturer identification is located at the end of the webbing on a label. Also, use the safety belt extension only if the safety belt is too short for you when fully extended. Do not use extension to change the fit of the shoulder belt across the torso. Failure to follow these instructions will affect the performance of the safety belts and increase the risk of personal injury.

Air Bag Supplemental Restraint System (SRS)

Driver and Right Front Passenger Air Bag

An air bag is a Supplemental Restraint System (SRS) designed to help reduce the risk of injury to a properly belted driver and front outboard passenger in moderate to severe frontal collisions. The supplemental air bag system does not provide restraint to the lower body.

Warning: ALWAYS WEAR THE SAFETY BELT!

The Importance of Wearing Safety Belts

There are four very important reasons to use safety belts even with an air bag system. Use your safety belts to:

- help keep you in the proper position (away from the air bag) when it inflates
- reduce the risk of harm in rollover, side or rear impact collisions, because an air bag is not designed to inflate in such situations
- reduce the risk of harm in frontal collisions that are not severe enough to activate the air bag

- reduce the risk of being thrown from your vehicle

The Importance of Being Properly Seated

In a collision, the air bag must inflate extremely fast to help provide additional protection for you. In order to do this, the air bag must inflate with considerable force. If you are not seated in a normal riding position with your back against the seatback, the air bag may not protect you properly and could possibly hurt you as it inflates.

Warning: Your vehicle is equipped with a right front passenger air bag. Front passengers, especially children and small adults, should never sit on the edge of the seat, stand near the glove compartment of the instrument panel, or lean over with their faces near the glove compartment when the vehicle is moving. All occupants should sit with their backs against the seatback and use the safety belts. Children weighing less than 40 lbs. (18 kg) should use child or infant seats. Forward-facing child seats must have the passenger seat moved as far back from the instrument panel as possible. REAR-FACING INFANT SEATS SHOULD NEVER BE USED IN THE FRONT SEAT, BECAUSE THE FORCE OF THE RAPIDLY INFLATING PASSENGER AIR BAG COULD PUSH THE TOP OF THE REAR-FACING SEAT AGAINST THE VEHICLE SEATBACK OR CENTER ARMRESTS. REAR-FACING INFANT SEATS MUST ALWAYS BE PLACED IN THE REAR SEAT.

Warning: Do not place objects or mount equipment in front of the air bag module cover or in front seat areas that may come in contact with a deploying air bag. Failure to follow this instruction could result in personal injury.

How the Air Bag Supplemental Restraint System Operates

The air bag supplemental restraint system has two main parts. One part is the air bag system with driver and passenger-side air bags and inflators. The second part is the electrical system, which has impact sensors and a diagnostic module. The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system readiness, including the impact sensors, the system wiring, the air bag system readiness light, air bag back up power, and the air bag igniters.

The driver air bag is in the center of the steering wheel. The front passenger seat air bag is in the upper right hand section of the instrument panel ledge above the glove compartment.

The air bag system uses a readiness light and a tone to indicate the condition of the system. The readiness light is in the instrument cluster. When you turn the ignition key to ON, this light will illuminate for approximately six (6) seconds and then turn off. This indicates that the system is operating normally. **NOTE:** Maintenance of the air bag system is not required.

Warning: A problem with the system is indicated by one or more of the following:

- ❑ the readiness light will either flash or stay lit,
- ❑ or it will not light immediately after the ignition is turned on,
- ❑ or a group of five beeps will be heard.

If any of these things happens, have the air bag system serviced at your Ford or Lincoln-Mercury Dealer immediately.

Tone generator

The air bag readiness light indicates the air bag system condition. However, a series of five sets of five beeps will be heard only if the readiness light doesn't work and there is a problem with the air bag system. This also means that the Air Bag Supplemental Restraint System (SRS) is in need of service. The tone pattern will repeat (five sets of five beeps) periodically until the problem and light are repaired. Unless serviced, the Air Bag Supplemental Restraint System may not function properly in the event of a collision.

Warning: Do not attempt to service, repair, or modify the Air Bag Supplemental Restraint System; tampering could cause activation of the system and increase the risk of personal injury. For servicing of the Air Bag Supplemental Restraint System, see your dealer.

The air bag system is designed to stay out of sight until it is activated. The air bag system is designed to deploy in frontal and front-angled collisions more severe than hitting a parked vehicle of similar size and weight head-on at about 28 mph (45 km/h). Because the system

senses the crash severity rather than vehicle speed, **some** frontal collisions at speeds above 28 mph (45 km/h) will not inflate the air bag.

The following four steps show how the air bag system works:

1. Sensors in the vehicle will detect the degree of severity of a frontal impact. When two sensors (one primary and one safing) close at the same time, electric current flows to the inflator and the system ignites the gas generant.
2. The propellant then rapidly burns in the metal container. The rapid burning produces nitrogen gas and small amounts of dust. The nitrogen gas and dust are cooled and filtered during inflation of the air bag.
3. The inflating air bag splits open the trim cover. The air bag then rapidly unfolds and inflates in front of the occupant.

NOTE: STEPS 1-3 TAKE PLACE IN A FRACTION OF A SECOND.

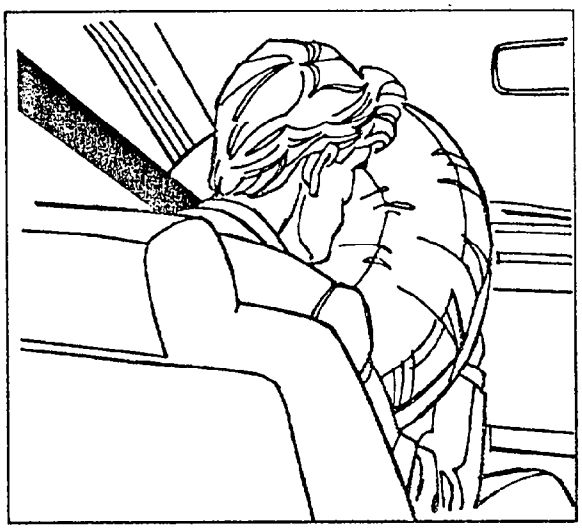
4. After inflation, the gas empties through holes in the air bag. The air bag deflates at once.

The surface of the air bags and the vehicle interior may be dusted with a powdery residue. The powder is corn starch or talcum powder, which is used to lubricate the air bag as it inflates, and sodium compounds such as sodium carbonates (e.g., baking soda), and possibly a very small amount of sodium hydroxide that may be irritating to the skin and eyes, but is not toxic.

Right after air bag inflation, you may notice smoke (from the powder and dust) and smell the burnt propellant. This is normal.

Warning: Several air bag system components get hot after inflation. Do not try to touch them after inflation.

Air bags may not inflate in certain frontal collisions, even though the vehicle may be badly damaged. The fact that your air bag did not inflate in such a collision does not mean that something is wrong with the air bag system. Rather, it means the crash forces were not severe enough to need an air bag to prevent serious injury.



Inflated driver side air bag

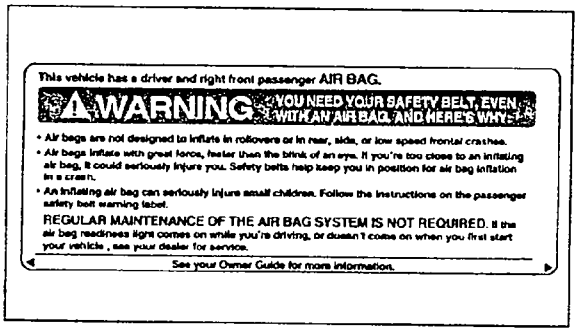
Warning: The air bag will inflate only once. The system is designed to function on a one-time-only basis. If the air bag is inflated, THE AIR BAG WILL NOT FUNCTION AGAIN AND MUST BE REPLACED IMMEDIATELY. If the air bag is not replaced, the unrepaired area will increase the risk of injury in a collision.

Disposal of air bag equipped vehicles

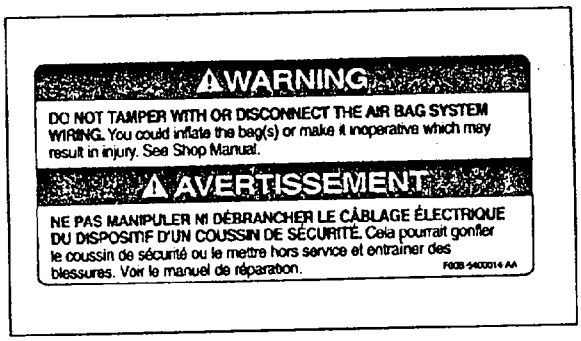
For disposal of air bags or air bag equipped vehicles, see your local Ford or Lincoln-Mercury dealer, or refer to the procedures in the 1994 Ford Service Manual. Information on how to order a service manual is available at an authorized Ford or Lincoln-Mercury Dealer. You can also order a service manual using the order form in the *Accessories* chapter of your Owner Guide.

Service and information labels

Service and information labels are attached to the sun visor (USA vehicles), on the headliner above the driver's seat (Canadian vehicles), and the radiator support in the engine compartment.



The label on the sun visors in the down position



Label on radiator support in the engine compartment

Safety Restraints for Children

In most states, you are required by law to use safety restraints for children. If small children ride in your vehicle – this generally includes children who are four years old or younger and who weigh 40 pounds (18 kg) or less – you must put them in safety seats that are made specially for children. Safety belts alone do not provide maximum protection for these children. Check your local and state laws for specific requirements.

Warning: Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Warning: Never let children or adults ride in the cargo area of your vehicle. Make sure that they sit where they can be properly restrained. If they are not restrained, the risk of their being injured in a collision greatly increases.

Appendix D

CHECKLISTS

NHTSA No. [illegible]
Date: 3/15/94
Vehicle: 94 Ford Thunderbird

CALSPAN FMVSS 208 ELECTRICAL TECHNICIAN CHECKLIST

- o All accelerometers calibrated within 6 months, have not been used for more than four FMVSS 208 tests without recalibration, or been used in an ATD which failed 208 without recalibration. ✓
- o Dummy's have passed pre-test calibration. ✓
- o Dummies attached to amplifier boxes and also grounded. ✓
- o Data umbilicals attached to vehicle. ✓
- o Event trigger switch functional. ✓
- o Data recording system functional. ✓
- o Data channels functional. ✓
- o Pre-test zero and DLR levels acceptable and recorded. ✓
- o Post-test zero and DLR levels recorded. ✓

Signed: DW Hess

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Date: 3/15/94
Vehicle: 94 Ford Thunderbird

CALSPAN FMVSS 208 TRACK MANAGER CHECKLIST

o Obtain vehicle test weight.	4030 ✓
o Set console pull force limit.	✓
o Set abort system window.	✓
o Set abort system pressures.	✓
o Verify dummies are grounded, sprayed with static elimination spray, and vehicle battery drained and disconnected.	✓
o Perform onboard light check.	✓
o Start tow system engines.	✓
o Tow system feedback is acceptable.	✓
o Velocity trap system check acceptable.	✓
o Tension tow cable.	✓
o Send track personnel to ready positions.	✓
o Receive final OK from all personnel.	✓
o Energize onboard lights and notify barrier personnel to light barrier.	✓
o Run test.	✓

Signed: Mike Ofalla

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TEST TYPE 208 Frntl
VEHICLE YEAR , MAKE AND MODEL 94 Ford Thunderbird
VIN No. _____
NHTSA No. CP0206

	Date & INITIALS
1. Seat tracks set in mid position, seat back angle set, steering column position set, seats in lowest position, and lumbarsupport off. All data recorded in test report.	DJ 7.
2. Centerline of each front seat marked. Place H-point machine in each front outboard seat following H-point machine checklist if Part 572E ATDs are used.	DJ 7.
3. Adjustable seat belt anchorages positioned per mfg. inst.	N/A
4. All dsp have at minimum type I seat belt.	DJ 7.
5. All outboard dsp have type II seat belt.	DJ 7.
6. Seat belts adjust to fit required ATDs with seat in full forward or rear position.	DJ 7.
7. Perform air bag, seat belt warning system, and belt comfort and convenience tests and record in test report.	DJ 7
8. Measure windshield for FMVSS 212, and 219 and record in test report.	DJ 7.
9. Measure accelerometer locations and record if applicable.	DJ 7.
10. Weigh vehicle with all equipment and ATD weight. Test weight is target weight (-10,-20 lbs.). Record in test report with ballast added or vehicle components removed to achieve test weight.	DJ 7

Signed: [signature] Date: 3/15/94

H-POINT MACHINE PLACEMENT CHECKLIST FOR PART 572 E - HYBRID III DUMMY

	DRIVER	PASSENGER
Place a piece of muslin cloth over seat area.	✓	✓
Place H-Point machine in center of seat. If vehicle is a bench seat, then the center is aligned with the center of the steering column. For the passenger seat, the center is found by placing the machine the same distance outboard from the vehicle centerline as for the driver seat. If the seat is a bucket, place the H-point machine on the seat centerline.	✓	✓
Attach leg assemblies. T-bar parallel to ground and perpendicular to vehicle centerline. T-bar set at 15.8, legs set at 16.3 for 50ith percentile.	✓	✓
Position right driver's foot on undepressed accelerator pedal. Insert pin in right foot to ensure angle is not less than 87 degrees. Sole on pedal and heel as far forward as possible. Left knee is place same distance from H-point machine centerline as right knee.	✓	
Passenger - position knees 10 inches apart. Place feet as far forward as possible.		✓
Apply lower leg and thigh weights.	✓	✓
Tilt back pan forward. Pull T-bar forward then release to allow machine to slide back into seat.	✓	✓
Apply a 22 pound rearward load at the intersection of hip angle and T-bar. Apply load twice.	✓	✓
Return back plane to seat back.	✓	✓
Prevent H-point machine from sliding forward for the rest of the procedure.	✓	✓
Install buttock and torso weights.	✓	✓

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	DRIVER	PASSENGER
Move back plane forward and rock 3 times over a 10 degree arc.	✓	✓
Lift each leg and allow it to fall into place. Make sure seat pan in level (i.e. no roll) and return back pan to seat back.	✓	✓
Apply force to the back pan to either: 1. Increase hip angle 3 degrees. 2. a maximum of 15 pounds.	✓	✓
Record the following:		
Hip Point X (fore/aft of striker)	20.7	20.8
Y (above/below striker)	5.35	5.05
Y (minus 0.25 inch) *	5.6 below	5.3

* - According to SAE procedures, the target H-point should be the X location above (+/- 0.5 inch) and 0.25 inches below the Y location (+/- 0.5 inch).

Signed: _____ Date: 3/14/94

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NHTSA No. CR0206
Test No.: _____ Date: 3/15/94
Vehicle: 94 Ford Thunderbird

- o Transport dummies to the temperature-controlled, preparation building at the start of the track. Day before test. DJ
- o Transport vehicle to the temperature-controlled, enclosed barrier building. Take pre-test still photographs of vehicle. DJ
- o Set up high-speed movie cameras, time-zero flash lamps and computer trigger switch. DJ
- o Record location of high-speed movie cameras. DJ
- o Check speed trap location. DJ
- o Set up ground positions for electrical trip switches. DJ
- o Locate camera start switch pad and engine kill switch pad. DJ
- o Test individual cameras for operation; load film. DJ
- o Move the vehicle to the temperature-controlled building at the start of the track. DJ
- o Attach tow cable, abort cable and guide. Align vehicle on approach lane guiderail at proper location. DJ.
- o Position dummies as specified in Laboratory Test Procedure TP-208-09 and record the measurements. DJ.
- o Monitor ambient and vehicle windshield molding temperature. 70° DJ
- o Attach instrumentation umbilical cables to vehicle. DJ
- o Record ride attitude. DJ
- o Record ATD positions in test report and chalk ATDs DJ
- o Secure all wire cables in occupant compartment. DJ
- o Record ambient and windshield mounting temperature. DJ

- o Install DLR control unit on vehicle.
- o Activate DLR calibrate control and monitor high and low voltage amplitudes on data acquisition computer.
- o After all signal levels are found to be within acceptable limits, activate DLR calibrate control and record all calibration signals on the computer.
- o Remove DLR control unit and secure all cables.
- o Take pre-test, real-time (24 fps) motion pictures of the vehicle and dummies.
- o Barrier impact trigger check performed for data acquisition system.
- o Doors fully closed but unlocked.
- o Vehicle transmission in Neutral.
- o Parking brake disengaged.
- o Perform on board light system check.
- o Test track manager has desired impact velocity.
- o Test vehicle ignition in "ON" position. SRS light operation acceptable. Observed by OVSC and mfg. representatives.
- o Fuel collectors ready at barrier.
- o High-speed cameras show green light, indicating ready.
- o Photographers ready.
- o Electrical technicians ready
- o Computer operator ready.
- o Onboard lights on.
- o Run test.

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- o Document post-test condition of the vehicle exterior, vehicle interior and dummies with a real-time movie camera.
- o Collect Stoddard solvent leakage (if any) immediately after impact. Document leakage with real-time motion picture coverage and a stop watch.
- o Record post-test condition of vehicle and ATDs.
- o Take post-test still photos of vehicle (except underside) and ATDs.
- o Record visually apparent dummy contact locations.
- o Check windshield for FMVSS 212 and record in test report.
- o Check windshield for FMVSS 219 zone intrusion and record in test report.
- o Perform static rollover test for FMVSS 301 only if "quick look" dummy data appear to have satisfied FMVSS 208 occupant injury criteria. Collect and photographically document possible Stoddard solvent spillage.
- o Take still photographs of the vehicle underside.
- o Fill in air bag data sheet.
- o Record seat movement, if any.
- o Document any other noteworthy observation(s) in test report.
- o Photograph the velocity counter.
- o Perform post-test functional DLR check.
- o Process all data gathered on computer.

Signature: _____ Date: 3/15/94

DUMMY PLACEMENT CHECKLIST

	Driver	Passenger
Place dummy knees 10.6 inches apart as measured from outer knee clevis.	✓	✓
Right foot on accelerator pedal.	✓	
Left foot on toeboard, heel on floorpan. If vehicle has a footrest that does not elevate foot, place foot ~~on footrest.~~ If feet do not reach toeboard place feet perpendicular to leg.	✓	
For vehicles with bucket seats place dummy mid-sagittal plane along seat centerline.	✓	✓
For vehicles with bench seat, driver is placed in centerline with steering wheel, passenger is placed same distance from vehicle centerline as driver.	✓ N/A	N/A
Place dummy H-point coincides with H-point machine location +/- 0.5 vertically and horizontally (per SAE J826 Apr.80) Note: H-pt machine thigh and legs set at 15.8" and 16.3". Also note vertical target H-pt. 0.25" below H-pt. machine meas.	✓	✓
Place pelvic angle gauge in pelvis and record angle. Angle must be 22.5 degrees +/- 2.5 degrees.	✓	✓
Upper torso is centered on seatback. Dummy head is level to within 0.5 degrees.	✓	✓
Manual Belt Placement		
Place belt around dummy and fasten latch.	N/A	N/A
Cycle belt retractors 4 times.	✓	✓
Apply 2-4 pounds of tension to belt near retractor and measure. Torso and lap belts should lay flat.	✓	

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	Driver	Passenger
Automatic Belt Placement		
Close doors and allow vehicle system to position belt on dummy. Torso belt should lay flat on shoulder. If not contact OVSC COTR.	N/A	N/A
Arm and Leg Placement		
Fully outstretch driver arm. Push each arm rearward until palm center contacts outer steering wheel rim. Tape thumb of each hand with 1/4 inch wide masking tape. Max 1" overlap.	✓	
Fully outstretch passenger arm. Push each arm rearward until upper arm contacts seatback. Lower forearm until palm contacts outer thigh and little finger contacts seat cushion.		✓
Dummy feet and legs may be repositioned.	✓	✓

Vehicle: 94 Ford Thunderbird

NHTSA No. CR0211

Signed: [signature] Date: 3/15/94