V 2676

REPORT NUMBER: CAL-98-1

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

Chrysler Corporation
1998 Dodge Stratus
4-Door Sedan

NHTSA NUMBER: MW0301

CALSPAN TEST NUMBER: 8406-9

CALSPAN SRL CORPORATION
TRANSPORTATION SCIENCE CENTER
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September 26,1997

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
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Date of Report Acceptance

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16. *Abstract*

A frontal barrier test of a 1998 Dodge Stratus 4-Door Sedan was performed at Calspan SRL Corporation crash test facility in Buffalo, New York, on September 26,1997.

The impact velocity was 56.3 kph and the temperature at the barrier face was 20.6°C. The maximum post-test vehicle crush was 595 mm. The test vehicle was equipped with a 3-point belt system and supplemental airbags at both front outboard seating positions.

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

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Section 1

PURPOSE AND SUMMARY OF TEST MW0301

PURPOSE

This 56.3 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-96-D-02010. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.3 kph frontal barrier impact test was conducted in accordance with the Office of Market Incentives (OMI) Laboratory Indicant Test procedure.

SUMMARY

A barrier was impacted by a 1998 Dodge Stratus 4-Door Sedan at a velocity of 56.3 kph. The test was performed at the Calspan SRL Corporation on September 26,1997. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

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

Both ATDs were fully instrumented with head, chest and pelvis triaxial accelerometers, a chest displacement potentiometer, upper neck transducers and right/left femur load cells and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 245) and the right-front passenger (position 2) ATD (Serial No. 150) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 97 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle, and dummy response data traces. Position 1 and Position 2 Belt Spool Out data did not report accurately and was left out of the report. Vehicle Accelerometer number 3 (top of engine block) and Vehicle Accelerometer number 4 (bottom of engine) data is not accurate after 50 msec and their integrations were omitted from this report. Load cell barrier data was not requested for this test.

The driver's HIC was 872.6. The maximum chest deceleration over 3 milliseconds was 54.4 g's and maximum chest deflection was 38.5 mm. Femur loads were -5720.9 Newtons on the left and -4821.1 Newtons on the right.

The right front passenger's HIC was 640.7. Maximum chest deceleration over 3 milliseconds was 53.7 g's and maximum chest deflection was 34.5 mm. Femur loads were -4050.4 Newtons on the left and -4197.4 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MW0301 Test Mode : 56 kph Frontal Barrier

Test Date : September 26,1997 Time: 14:30 Temperature : 20.6 °C

Vehicle Make/Model/Body Style : 1998 Dodge Stratus 4-Door Sedan

Vehicle Test Weight : 1580 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.3 kph

Maximum Static Crush : 595 mm

Vehicle Rebound : 377.3 mm

DUMMIES:	DRIVER	PASSENGER
Type :	572E	572E
Restraint System :	Airbag with 3-point belt system	Airbag with 3-point belt system

Number of Data Channels : 97

Number of Cameras : 1 Real Time

16 High Speed

DOOR OPENING DATA : Closed/Operable - Left Front

Closed/Operable - Right Front

Front Seat(s) Data :	DRIVER	PASSENGER
Seat Track Failure :(mm of shift)	0	5 mm
Seat Back Failure :	None	None

VISIBLE DUMMY CONTACT POINTS :	DRIVER	PASSENGER
Head :	Airbag /Back of head to headrest	Airbag /Back of head to headrest
Abdomen :	-	-
Chest	Airbag	Airbag
Knees	Knee Bolster	Knee Bolster

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 1998 Dodge Stratus 4-Door Sedan

NHTSA No. : MW0301 ; VIN: 1B3EJ46X5WN115592 ; Color : Black

Engine Data: 4 cylinders; - CID; 2.4 Liters; - cc

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

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

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

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

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

Date Received : 9/18/97 ; Odometer Reading 45 km

Selling Dealer : Delia C-P-D Dodge Truck Inc.

& Address: 741 Main St. East Aurora, N.Y. 14052

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Chrysler Corporation

Date of Manufacture 8/97

GVWR : 1819 kg; GAWR: 1010 kg FRONT; 824 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 210 kpa FRONT

210 kpa REAR

Recommended Tire Size : P195/70R14

* Recommended Cold Tire Pressure : 210 kpa FRONT; 210 kpa REAR

Size of Tires on Test Vehicle: P195/70R14 ; Manufacturer: Michelin

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) = 392 kg

No. of Occupants x 68 kg = 340 kg

Rated Cargo/Luggage Weight (RCLW) = 52 kg

*Tire pressure used for test

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

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

Right Front =	431	kg	Right Rear =	249.5	kg
Left Front =	445	kg	Left Rear =	254.5	kg
TOTAL FRONT =	876	kg	TOTAL REAR =	504	kg

TOTAL DELIVERED WEIGHT = 1,380.0 kg

% of Total Front of Vehicle Weight = 63.5 % of Total Rear Weight = 36.5 %

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW) =	1,380	kg
Rated Cargo/Luggage Weight (RCLW) =	52	kg
Weight of 2 p.572 Dummies @ 76 each =	152	kg
TARGET TEST WEIGHT =	1,584	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 49 KG OF CARGO WEIGHT:

Right Front =	465	kg	Right Rear =	315	kg
Left Front =	470	kg	Left Rear =	331	kg
TOTAL FRONT =	935	kg	TOTAL REAR =	646	kg

TOTAL TEST WEIGHT = 1,581.0 kg

% of Total Front Weight = 59.1 % % of Total Rear Weight = 40.9 %

Weight of Ballast Secured in Vehicle Trunk Area = 0 kg

Vehicle Components Removed for Weight Reduction: Taillights, speakers, mirrors, trunk lid, rear door trim

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	713	LF	713	RR	720	LR	715
FULLY LOADED :	RF	700	LF	704	RR	691	LR	689
AS TESTED :	RF	703	LF	706	RR	681	LR	680

Vehicle's Wheel Base : 2748 mm

Location of Vehicle's C.G. : 1,122.8 mm rearward of front wheel center.

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual = 60.6 liters

Usable Capacity Figure Furnished by COTR = 60.6 liters

Test Volume Range (92 to 94% of Usable Capacity) = 55.7 to 56.8 liters

ACTUAL TEST VOLUME= 56.0 liters (with entire fuel system filled)

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

Kinematic Viscosity = 0.96 centistokes; Color = Orange

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

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

Details of Fuel System Fuel tank is before and fuel filler is aft of rear axle, fuel lines run along r. frame rail.

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°

Test Date : September 26,1997 Time: 14:30 Temperature: 20.6 °C

Vehicle NHTSA No. : MW0301

Required Impact Velocity Range : 55.7 to 57.1 kph

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

Trap No. 1 = 56.3 kph; Trap No. 2 = 56.3 kph

Distance from vehicle to barrier : (1) entering trap = 1321 mm

(2) exiting trap = 305 mm

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

Vehicle Length:

Pre-Test	Right =	4545	; C/L =	4720	; Left =	4552		
Post-Test	Right =	4165	; C/L =	4125	; Left =	4220		
Crush	Right =	380.0	; C/L =	595.0	; Left =	332.0		
AVERAGE	=	435.7	mm					

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

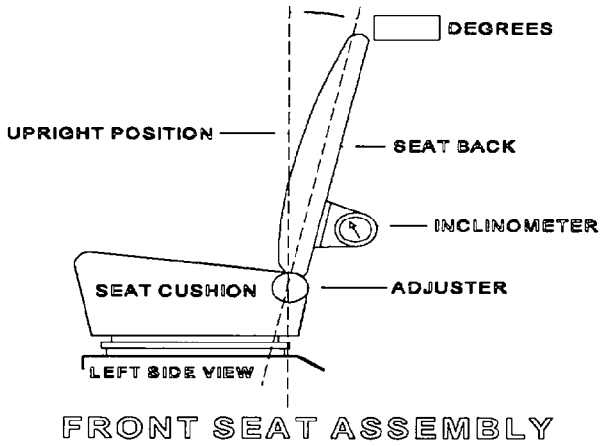
	Right =	334	; C/L =	451	; Left =	347		
AVERAGE	=	377.3	mm					

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1998 Vehicle Model: Dodge Stratus Body Style : 4-Door Sedan

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



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat : 24

Measurement instructions : Head post angle measured 10 degrees back from full upright position

Seat back angle for passenger's seat : 24

Measurement instructions : Head post angle measured 10 degrees back from full upright position

2. Seat Fore and Aft Positioning

Positioning of the driver's seat : 12th notch from full forward (1st notch being #1)

Positioning of the passenger's seat (if applicable) : 12th notch from full forward (1st notch being #1)

3. Fuel Tank Capacity Data

3.1

A. "Usable Capacity" of the standard equipment fuel tank is 60.6 liters

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

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 60.6 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 56.0 liters

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

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

With ignition turned on.

4. STEERING COLUMN ADJUSTMENTS :

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

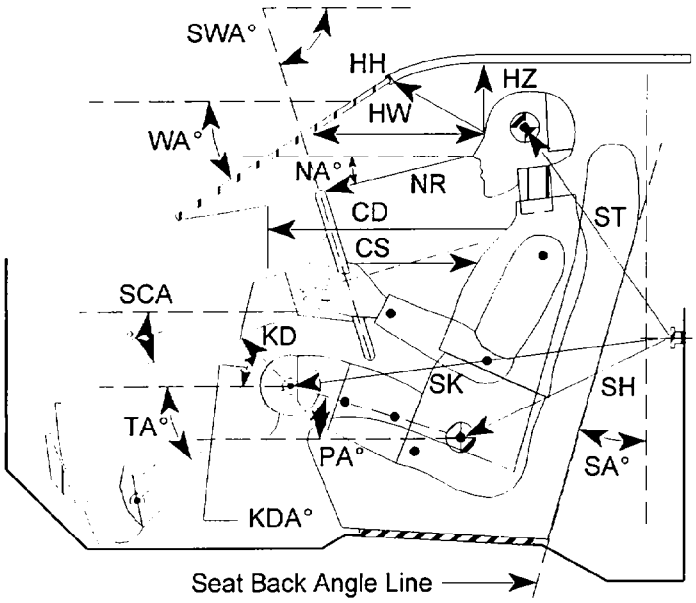
Operational Instructions:	Total steering column travel equals 6.5 degrees.

Placed in mid-position of travel.

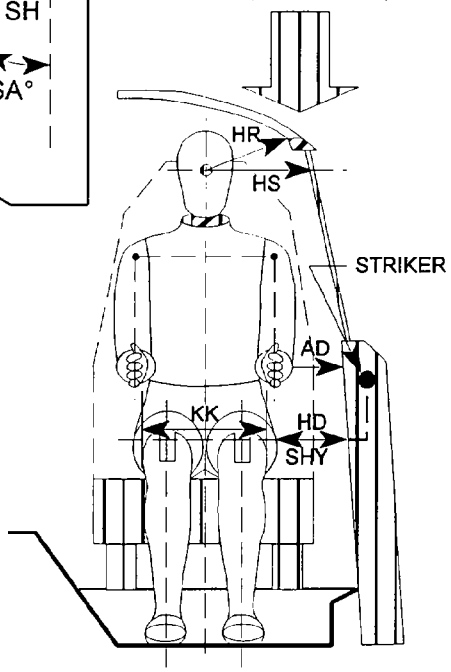
5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position:	Full-up position

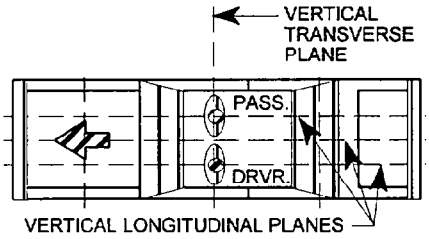
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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



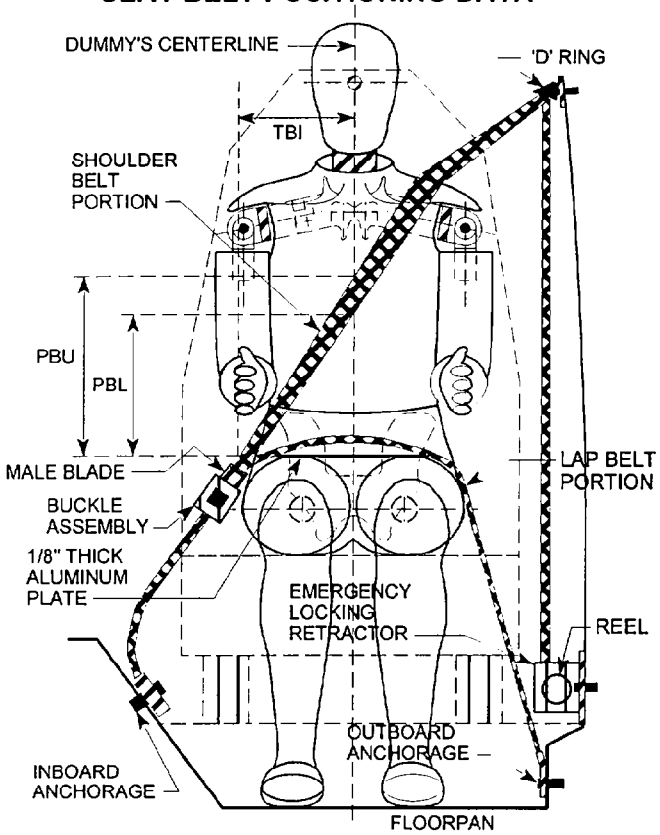
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITONING MEASUREMENTS IN VEHICLE

	DRIVER (Serial #245)			PASS. (Serial # 150)		
WA°	63 deg.			N/A		
SWA°	66 deg.			N/A		
SCA°	24 deg.			N/A		
SA°	24 deg.			24 deg.		
HZ	115			121		
HH	257			270		
HW	529			503		
HR	251			256		
NR	391	Angle	13 deg.	N/A		
CD	473			505		
CS	286			N/A		
RA	194			N/A		
KDL	153	Angle (KDA)	39 deg.	156		
KDR	137			146	Angle (KDA)	35 deg.
PA°	23 deg.			24 deg.		
TA°	45 deg.			45 deg.		
KK	266			265		
ST	563	Angle	20 deg.	579	Angle	15 deg.
SK	586	Angle	91 deg.	623	Angle	91 deg.
SH	253	Angle	120 deg.	253	Angle	142 deg.
SHY	274			250		
HS	285			294		
HD	155			129		
AD	96			84		

Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

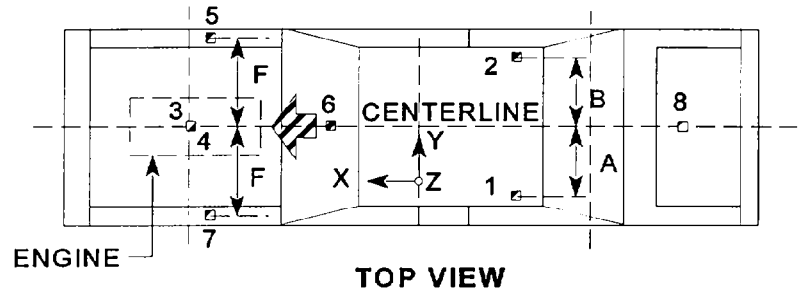
SEAT BELT POSITIONING DATA



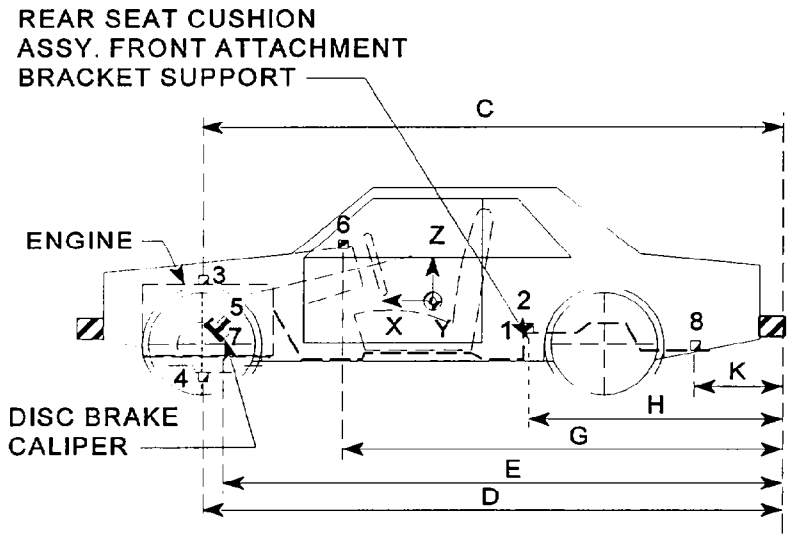
FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	329	331
PBL-- Top surface of alum. plate to belt lower edge	244	243
LAP BELT TENSION	10 nwt	10 nwt
SHOULDER BELT TENSION	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



TOP VIEW



LEFT SIDE VIEW

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

DATA SHEET NO. 7 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

DIMENSION	LENGTH (mm)	
	PRE-TEST VALUES	
A Left Rear Seat Crossmember Y	609	641 (redundant)
B Right Rear Seat Crossmember Y	622	651 (redundant)
C Top of Engine X	4167	
D Bottom of Engine X	4027	
E Disc Brake Calipers X	3722	
F Disc Brake Calipers Y	586 (right)	556 (left)
G Instrument Panel X	3024	
H Rear Seat Crossmembers X	1937	

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	6.9	148.2	-46.5	33.9
2	Rear Seat X-Member @ Right Side	4.2	165.6	-42.0	33.4
3	Top of Engine Block	143.1	78.3	-27.4	26.3
4	Bottom of Engine	224.4	49.8	-208.9	58.3
5	Disc Brake Caliper @ Right Side	77.0	57.6	-139.3	40.9
6	Instrument Panel	21.4	54.5	-144.9	35.3
7	Disc Brake Caliper @ Left Side	50.7	56.1	-93.3	42.2
8	Rear Seat X-Member @ Left-Redundant	4.9	144.5	-44.5	33.9
9	Rear Seat X-Member @ Right-Redundant	3.5	143.4	-41.7	33.5

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

TITLE: NCAP TEST #1 - 1998 DODGE STRATUS

DESCRIPTION	ENGR UNIT	MAXIMUM AMP	MAXIMUM msec	MINIMUM AMP	MINIMUM msec	FILTER CLASS
Pos. 1 Head X	Gs	22.3	162.3	-80.9	73.7	1000.0
Pos. 1 Head Y	Gs	7.6	62.3	-7.2	89.7	1000.0
Pos. 1 Head Z	Gs	22.9	59.3	-12.7	88.3	1000.0
Pos. 1 Head Resultant	Gs	81.8	73.7	.0	-27.8	1000.0
Pos. 2 Head X	Gs	13.7	222.4	-64.5	76.8	1000.0
Pos. 2 Head Y	Gs	6.5	63.7	-3.9	91.1	1000.0
Pos. 2 Head Z	Gs	21.2	65.0	-10.4	92.5	1000.0
Pos. 2 Head Resultant	Gs	64.5	76.8	.0	-30.2	1000.0
Pos. 1 Chest X	Gs	8.1	165.8	-54.1	70.6	180.0
Pos. 1 Chest Y	Gs	4.1	48.3	-8.7	64.9	180.0
Pos. 1 Chest Z	Gs	11.3	51.6	-11.5	87.7	180.0
Pos. 1 Chest Resultant	Gs	54.8	69.6	.0	-28.0	180.0
Pos. 2 Chest X	Gs	4.7	176.3	-55.1	73.2	180.0
Pos. 2 Chest Y	Gs	4.3	63.3	-3.4	100.5	180.0
Pos. 2 Chest Z	Gs	12.0	52.3	-7.5	78.5	180.0
Pos. 2 Chest Resultant	Gs	55.2	73.2	.0	-33.8	180.0
Pos. 1 Right Femur	Nwt	1038.6	165.8	-4821.1	56.7	600.0
Pos. 2 Left Femur	Nwt	530.6	42.8	-4050.4	57.0	600.0
Pos. 1 Left Femur	Nwt	1189.3	165.7	-5720.9	51.1	600.0
Pos. 2 Right Femur	Nwt	806.3	165.7	-4197.4	56.7	600.0

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

hic: 872.63
t1 = 56.500 msec
t2 = 89.900 msec
Average G's Over Hic Duration = 58.46

V2 36 ms Fixed Duration HIC SUMMARY: Pos. 2 Head Resultant

hic: 640.65
t1 = 58.700 msec
t2 = 93.300 msec
Average G's Over Hic Duration = 50.94

CLIP V2.1 SUMMARY: Pos. 1 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 54.387 G's
Tstart = 68.2706 ms
Tend = 71.2706 ms
CSI = 607.435

CLIP V2.1 SUMMARY: Pos. 2 Chest Resultant

Peak Resultant (3 ms CLIPPED DURATION) = 53.659 G's
Tstart = 71.6876 ms
Tend = 74.6876 ms
CSI = 534.856

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

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

TITLE: NCAP TEST #1 - 1998 DODGE STRATUS

	DESCRIPTION	ENGR UNIT	MAXIMUM AMP	MAXIMUM msec	MINIMUM AMP	MINIMUM msec	FILTER CLASS
	Pos. 1 Upper Neck Fx	Nwt	1114.0	77.9	-392.4	52.9	1000.0
	Pos. 1 Upper Neck Fy	Nwt	248.3	62.0	-159.5	357.3	1000.0
	Pos. 1 Upper Neck Fz	Nwt	1889.7	69.9	-1378.4	165.8	1000.0
	Pos. 1 Upper Neck Mx	Nwt-M	16.2	165.7	-20.3	61.4	600.0
	Pos. 1 Upper Neck My	Nwt-M	84.1	63.8	-17.1	110.5	600.0
	Pos. 1 Upper Neck Mz	Nwt-M	11.1	103.8	-15.8	165.7	600.0
	Pos. 2 Upper Neck Fx	Nwt	286.5	181.9	-570.6	52.8	1000.0
	Pos. 2 Upper Neck Fy	Nwt	356.6	185.8	-638.0	165.6	1000.0
	Pos. 2 Upper Neck Fz	Nwt	2401.3	69.3	-1181.9	165.6	1000.0
	Pos. 2 Upper Neck Mx	Nwt-M	6.0	165.7	-8.9	124.9	600.0
	Pos. 2 Upper Neck My	Nwt-M	23.9	130.0	-18.0	214.3	600.0
	Pos. 2 Upper Neck Mz	Nwt-M	12.5	103.7	-17.5	165.7	600.0
	Pos. 1 Left Belt Load	Nwt	5318.3	58.4	-136.8	165.5	60.0
	Pos. 1 Torso Belt Load	Nwt	5069.8	78.8	-216.7	165.6	60.0
	Pos. 2 Right Belt Load	Nwt	5477.4	61.4	-363.3	165.6	60.0
	Pos. 2 Torso Belt Load	Nwt	4655.0	85.1	-314.4	165.6	60.0
	Pos. 1 Chest Disp.	mm	.0	2.8	-38.5	82.5	180.0
*	Pos. 1 Left Ankle X	Gs	66.2	45.2	-180.3	42.0	1000.0
	Pos. 1 Left Ankle Z	Gs	80.6	61.9	-193.1	38.9	1000.0
*	Pos. 1 Left Toe Z	Gs	200.6	62.1	-265.2	39.5	1000.0
	Pos. 1 Right Ankle X	Gs	29.8	63.1	-62.6	45.3	1000.0
	Pos. 1 Pelvic (X)	Gs	5.9	359.9	-59.7	56.1	1000.0
	Pos. 1 Pelvic (Y)	Gs	8.6	88.1	-22.5	57.0	1000.0
	Pos. 1 Pelvic (Z)	Gs	7.8	46.5	-20.5	75.7	1000.0
	P1 Lt Upper Tibia Mx	Nwt-M	122.1	45.3	-101.3	50.5	600.0
	P1 Lt Upper Tibia My	Nwt-M	16.0	165.7	-272.0	40.4	600.0
	Pos. 2 Pelvic (X)	Gs	4.5	359.9	-55.7	49.4	1000.0
	Pos. 2 Pelvic (Y)	Gs	19.9	24.2	-4.8	89.9	1000.0
	Pos. 2 Pelvic (Z)	Gs	5.5	49.4	-24.5	74.1	1000.0
	P1 Lt Lower Tibia Fx	Nwt	51.0	138.1	-2114.3	40.8	600.0
	P1 Lt Lower Tibia Fz	Nwt	79.9	201.3	-6332.7	45.2	600.0
	P1 Lt Lower Tibia My	Nwt-M	176.8	62.8	-99.3	39.6	600.0
	P1 Rt Upper Tibia Mx	Nwt-M	101.4	50.5	-12.8	71.3	600.0
	P1 Rt Upper Tibia My	Nwt-M	158.8	52.3	-21.2	200.7	600.0
	P1 Rt Lower Tibia Fx	Nwt	93.7	201.4	-2125.1	53.2	600.0
	P1 Rt Lower Tibia Fz	Nwt	182.7	187.6	-5690.5	46.7	600.0
	P1 Rt Lower Tibia My	Nwt-M	300.6	57.0	-6.7	27.0	600.0
	Pos. 1 Right Ankle Z	Gs	17.0	59.2	-125.5	49.9	1000.0
	Pos. 2 Lt Upper Tibia Mx	Nwt-M	35.9	45.9	-24.6	43.9	600.0
	Pos. 2 Lt Upper Tibia My	Nwt-M	11.9	165.7	-132.5	69.3	600.0
	Pos. 2 Lt Lower Tibia Fx	Nwt	196.3	235.1	-992.4	45.3	600.0
	Pos. 2 Lt Lower Tibia Fz	Nwt	434.1	75.3	-2956.9	42.7	600.0
	Pos. 2 Lt Lower Tibia My	Nwt-M	99.5	60.7	-63.1	37.8	600.0
	Pos. 2 Rt Upper Tibia Mx	Nwt-M	16.5	197.8	-27.4	41.8	600.0
	Pos. 2 Rt Upper Tibia My	Nwt-M	38.4	56.4	-172.9	39.2	600.0
	Pos. 2 Rt Lower Tibia Fx	Nwt	9095.7	95.6	-15702.4	28.4	600.0
	Pos. 2 Rt Lower Tibia Fz	Nwt	296.4	60.5	-3066.8	39.7	600.0
	Pos. 2 Rt Lower Tibia My	Nwt-M	194.9	54.8	-101.7	38.8	600.0
	Pos. 1 Right Toe Z	Gs	16.2	65.7	-175.9	50.0	1000.0
	Pos. 2 Left Ankle X	Gs	18.2	65.3	-142.0	38.6	1000.0
	Pos. 2 Left Ankle Z	Gs	75.7	42.6	-92.6	47.1	1000.0
	Pos. 2 Left Toe Z	Gs	184.9	42.8	-177.3	36.4	1000.0
	Pos. 2 Right Ankle X	Gs	67.8	45.0	-240.7	40.3	1000.0
	Pos. 2 Right Ankle Z	Gs	80.3	61.7	-192.3	38.7	1000.0
*	Pos. 2 Right Toe Z	Gs	197.5	61.8	-211.8	39.3	1000.0
	Pos. 2 Chest Disp.	mm	.2	10.9	-34.5	84.3	180.0

* DATA CHANNEL SATURATED

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

TITLE: NCAP TEST #1 - 1998 DODGE STRATUS

DESCRIPTION	ENGR UNIT	MAXIMUM AMP	MAXIMUM msec	MINIMUM AMP	MINIMUM msec	FILTER CLASS
Pos. 1 Head X(R)	Gs	22.2	163.3	-82.2	74.3	1000.0
Pos. 1 Head Y(R)	Gs	9.6	28.2	-7.9	85.0	1000.0
Pos. 1 Head Z(R)	Gs	27.5	55.3	-12.1	88.6	1000.0
Pos. 1 Head Resultant(RR)	Gs	82.9	73.7	.1	-33.3	1000.0
Pos. 2 Head X(R)	Gs	13.9	223.3	-63.0	74.2	1000.0
Pos. 2 Head Z(R)	Gs	21.4	51.5	-10.0	92.7	1000.0
Pos. 2 Head Resultant(RR)	Gs	63.1	74.1	.0	-3.9	1000.0
Pos. 1 Chest X(R)	Gs	6.9	167.3	-55.6	69.9	180.0
Pos. 1 Chest Y(R)	Gs	5.1	49.0	-8.0	66.5	180.0
Pos. 1 Chest Z(R)	Gs	8.6	48.5	-22.3	165.7	180.0
Pos. 1 Chest Res(RR)	Gs	56.1	69.7	.0	-29.1	180.0
Pos. 2 Chest X(R)	Gs	4.3	254.6	-54.7	72.7	180.0
Pos. 2 Chest Y(R)	Gs	4.1	62.9	-3.6	98.5	180.0
Pos. 2 Chest Z(R)	Gs	18.9	40.7	-7.0	96.0	180.0
Pos. 2 Chest Res(RR)	Gs	54.7	72.7	.0	-34.3	180.0

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

hic: 933.02
t1 = 55.000 msec
t2 = 90.400 msec
Average G's Over Hic Duration = 58.66

V2 36 ms Fixed Duration HIC SUMMARY: Pos. 2 Head Resultant(RR)

hic: 607.21
t1 = 59.300 msec
t2 = 93.200 msec
Average G's Over Hic Duration = 50.26

CLIP V2.1 SUMMARY: Pos. 1 Chest Res(RR)

Peak Resultant (3 ms CLIPPED DURATION) = 55.646 G's
Tstart = 68.1343 ms
Tend = 71.1343 ms
CSI = 628.536

CLIP V2.1 SUMMARY: Pos. 2 Chest Res(RR)

Peak Resultant (3 ms CLIPPED DURATION) = 53.593 G's
Tstart = 71.4256 ms
Tend = 74.4256 ms
CSI = 538.502

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:	Driver	Passenger
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	2386	2395
Shoulder belt length as measured on Part 572 Dummy.	902	903
Lap belt length as measured on Part 572 Dummy.	881	889
SHOULDER BELT SPOOL-OFF DATA:		
As determined by film analysis.	152.4	165.1
As determined mechanically.	153	171
As determined electronically.	n/a	n/a
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring.	35.3 mm/M	34.7 mm/M
Measured mechanically.	0	0

Dimensions in millimeters

Shoulder Spool Out Data did not record accurately.

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

Windshield is bonded in place and covered with 22 mm molding.

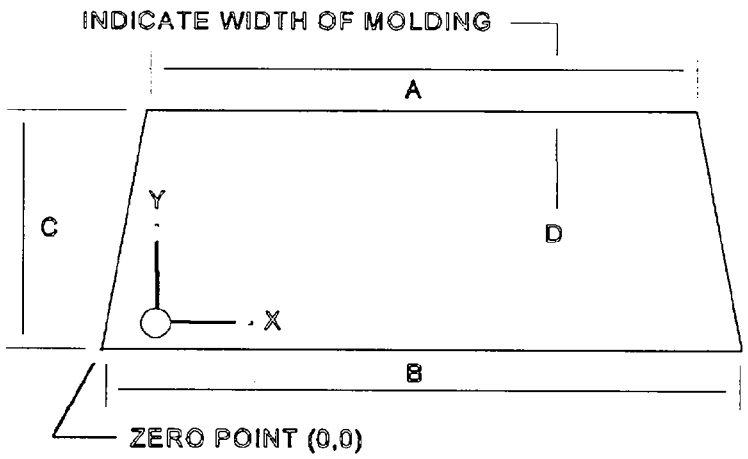
FMVSS 212 REQUIREMENTS:

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

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		
	PRE-TEST (mm)	POST-TEST(mm)	% OF RETENTION
RIGHT SIDE	2226.5	2226.5	100
LEFT SIDE	2226.5	2226.5	100
TOTAL	4,453	4,453	100

AREA OF RETENTION FAILURE:



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1214
B	1679
C	780
D	22

FAILURE DETAILS: None

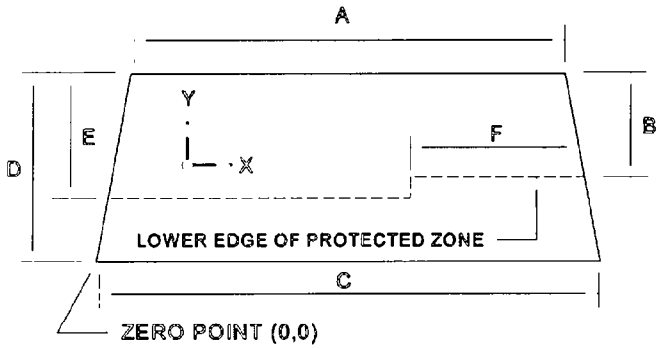
DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 165 mm diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. The locus of points is drawn on the inner surface of the windshield contacted by the sphere across the width of the instrument panel. From the outermost contactable points extend the locus line horizontally to the edges of the windshield, then draw a line on the inner surface of the windshield below and 13 mm distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection of this line onto the outer surface of the windshield.

FMVSS 219 TEST DATA:

(Dimensions in mm)



FRONT VIEW OF WINDSHIELD

DIMENSIONS	
A	1214
B	500
C	1679
D	780
E	550
F	623

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

	COORDINATES	
	X	Y
1.		
2.		
3.		
4.		

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

NHTSA TEST No.: MW0301 TEST DATE: September 26,1997

VEHICLE MAKE/MODEL: 1998 Dodge Stratus

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

= =

TEST VEHICLE IMPACT TYPE:

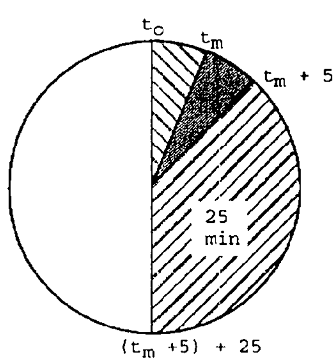
X Frontal (56 kph)

\- Oblique (48 kph) with ________ deg. barrier face first contacting ______________________________ (driver/passenger) side

\- Rear Moving Barrier (48 kph)

\- Lateral Moving Barrier (32 kph)

FUEL SPILLAGE MEASUREMENT:



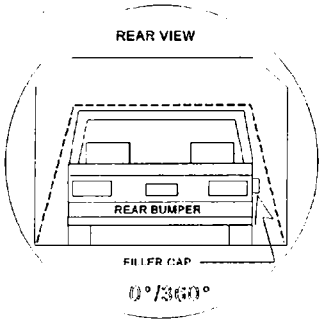
	ACTUAL	MAX ALLOWED
1. From impact until vehicle motion ceases	0	28 g
2. For 5 minute period after vehicle motion ceases	0	141 g
3. For next 25 minutes	0	28 g/min.

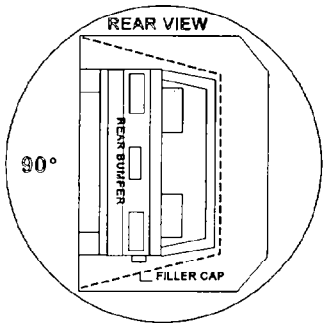
SOLVENT SPILLAGE DETAILS: None

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

TEST PHASE:
0-90 deg.

NHTSA Test No.:
MW0301





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a

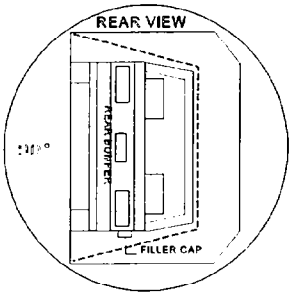
Note: Record spillage for whole minute intervals only as determined above.

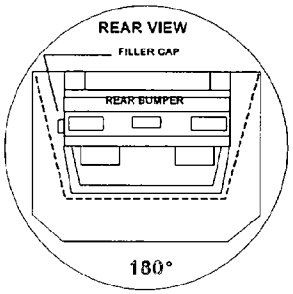
IV. SOLVENT SPILLAGE LOCATION(S): None

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

TEST PHASE:
90-180 deg.

NHTSA Test No.:
MW0301





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	4	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	4	seconds
Next whole minute interval	7	minutes	00	seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a

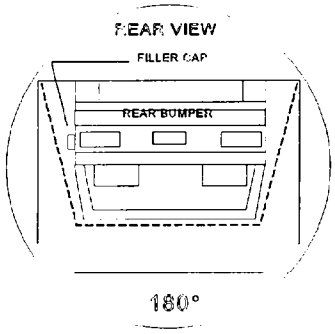
Note: Record spillage for whole minute intervals only as determined above.

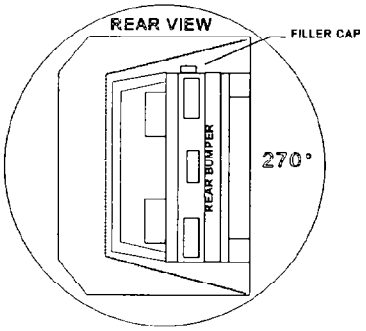
IV. SOLVENT SPILLAGE LOCATION(S): None

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

TEST PHASE:
180-270 deg.

NHTSA Test No.:
MW0301





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	2	seconds
FMVSS 301 Position Hold Time +	5	minutes	00	seconds
TOTAL	6	minutes	2	seconds
Next whole minute interval	7	minutes	00	seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a

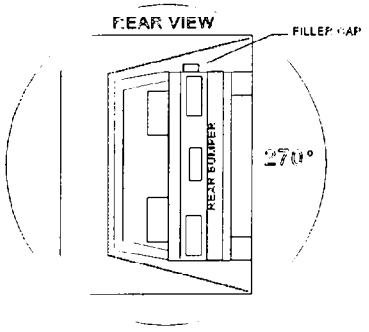
Note: Record spillage for whole minute intervals only as determined above.

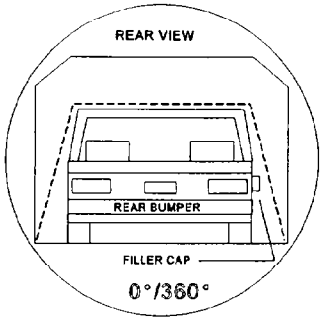
IV. SOLVENT SPILLAGE LOCATION(S): None

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

TEST PHASE:
270-360 deg.

NHTSA Test No.:
MW0301





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g

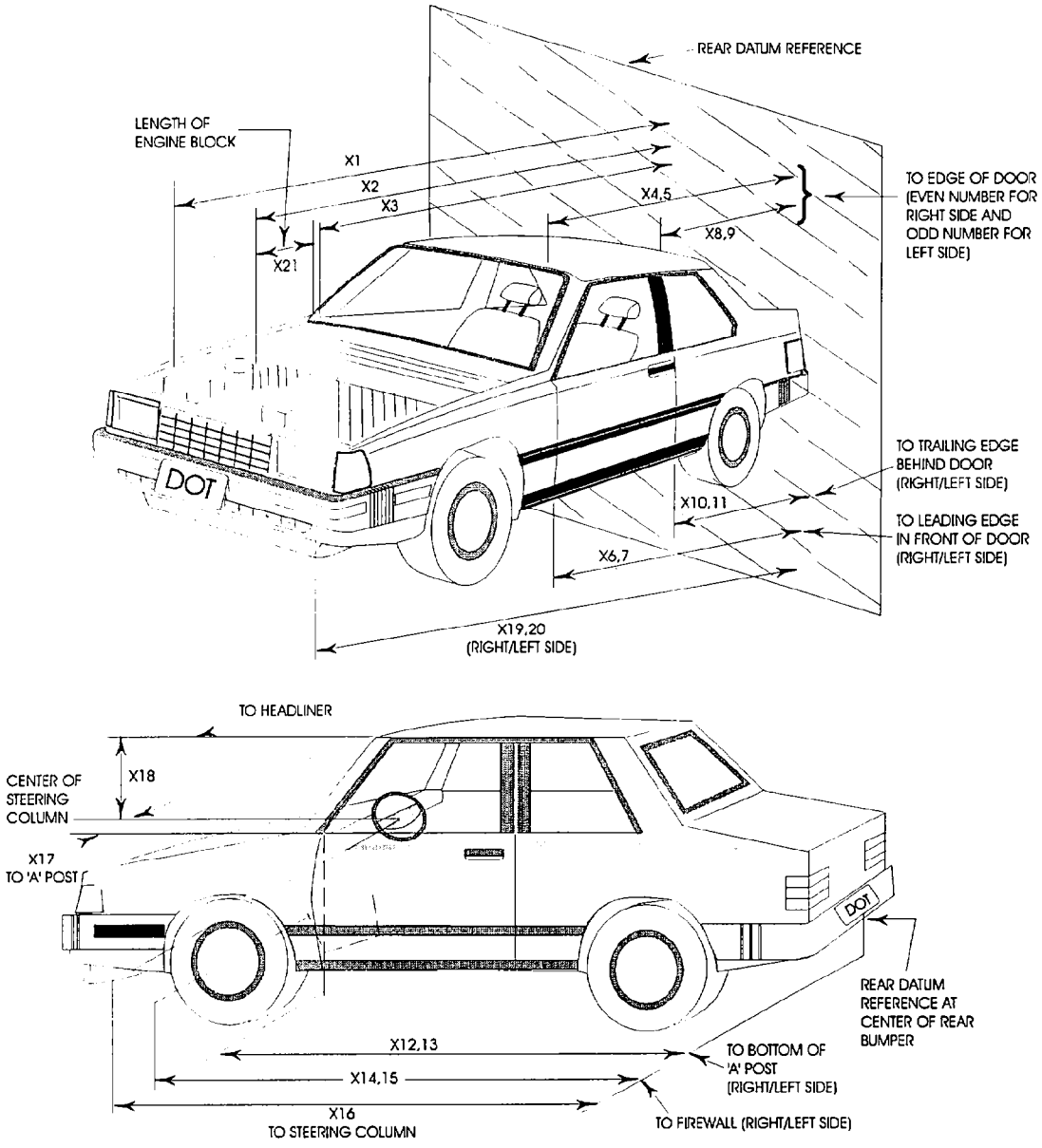
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a

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

IV. SOLVENT SPILLAGE LOCATION(S): None

TEST VEHICLE MEASUREMENTS



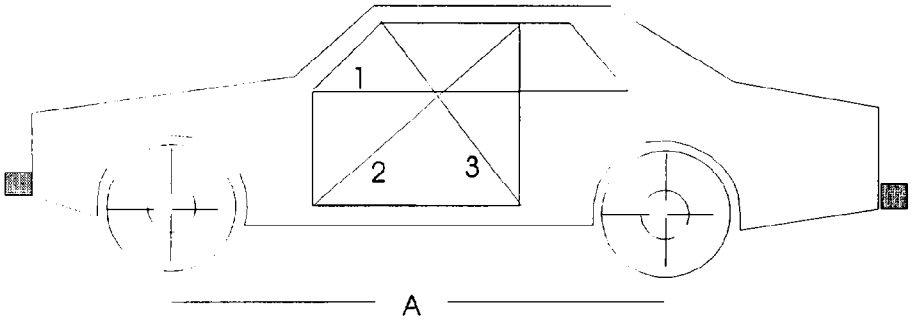
DATA SHEET NO.14 VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4720	4125	595
X2	Rear Surface of Vehicle to Front of Engine	4000	3745	255
X3	Rear Surface of Vehicle to Firewall	3695	3605	90
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3365	3345	20
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3363	3335	28
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3311	3300	11
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3304	3288	16
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2210	2193	17
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2205	2183	22
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2200	2189	11
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2190	2172	18
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3290	3286	4
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3280	3269	11
X14	Rear Surface of Vehicle to Firewall, Right Side	3715	3505	210
X15	Rear Surface of Vehicle to Firewall, Left Side	3740	3585	155
X16	Rear Surface of Vehicle to Steering Column	2800	2800	0
X17	Center of Steering Column to "A" Post	425	415	10
X18	Center of Steering Column to Headliner	430	360	70
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4545	4165	380
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4552	4220	332
X21	Length of Engine Block	465	465	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3000	2970	30
CD	Rear Surface of Vehicle to Center of Dash Panel	3020	2980	40
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2975	2960	15

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

DOOR OPENING WIDTH



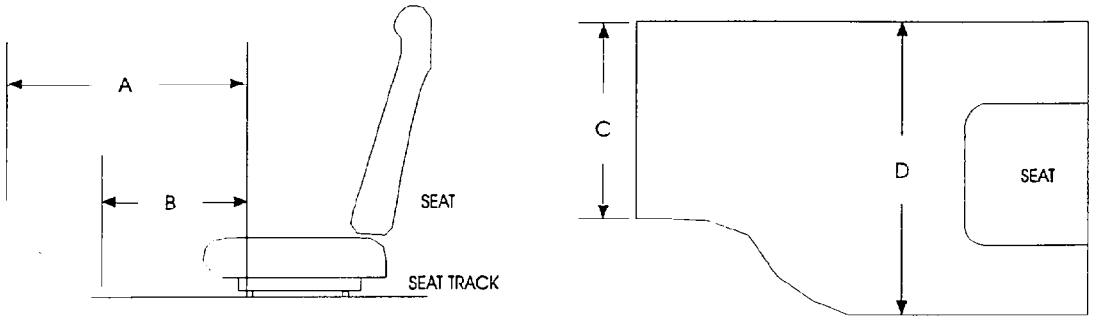
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1030	1555	980	1045	1555	985
AFTER TEST	1025	1550	975	1025	1560	985
DIFFERENCE	5	5	5	20	-5	0

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2748	2748
AFTER TEST	2585	2635
DIFFERENCE	163	113

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	635	600	35
B	530	525	5
C	520	510	10
D	540	530	10

PASSENGER

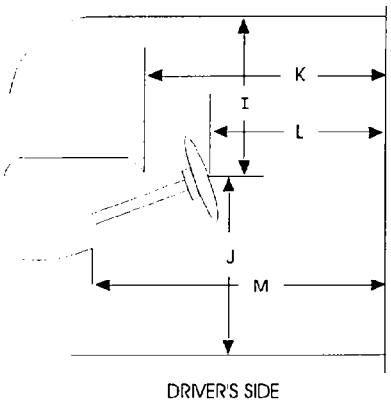
Measurement	Pre-Test	Post-Test	Difference
A	625	585	40
B	600	585	15
C	475	475	0
D	520	520	0

Units = mm

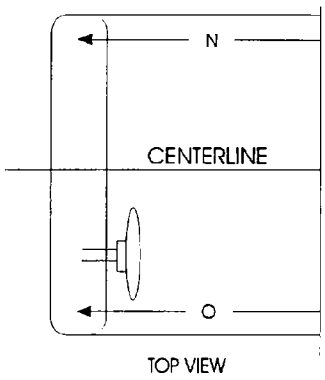
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC PASSENGER COMPARTMENT INTRUSION

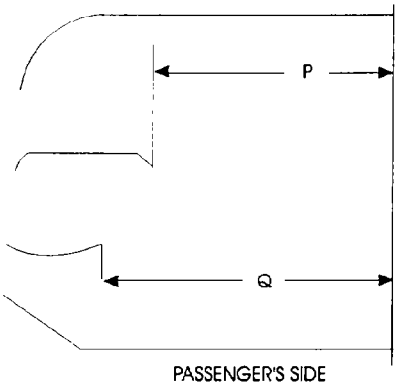


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



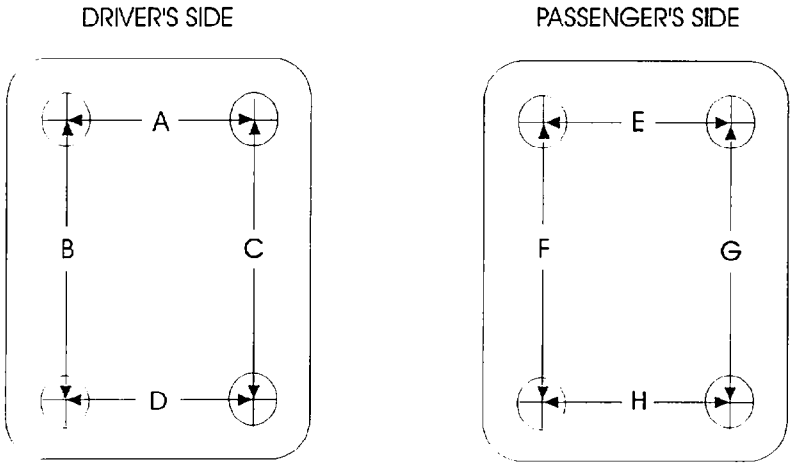
PASSENGER'S SIDE

Measurement	Pre-Test	Post-Test	Difference
I	410	345	65
J	600	665	-65
K	760	750	10
L	560	575	-15
M	755	750	5
N	735	745	-10
O	735	735	0
P = K (PASS.)	785	760	25
Q = M (PASS.)	795	780	15

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

FLOORBOARD DEFORMATION



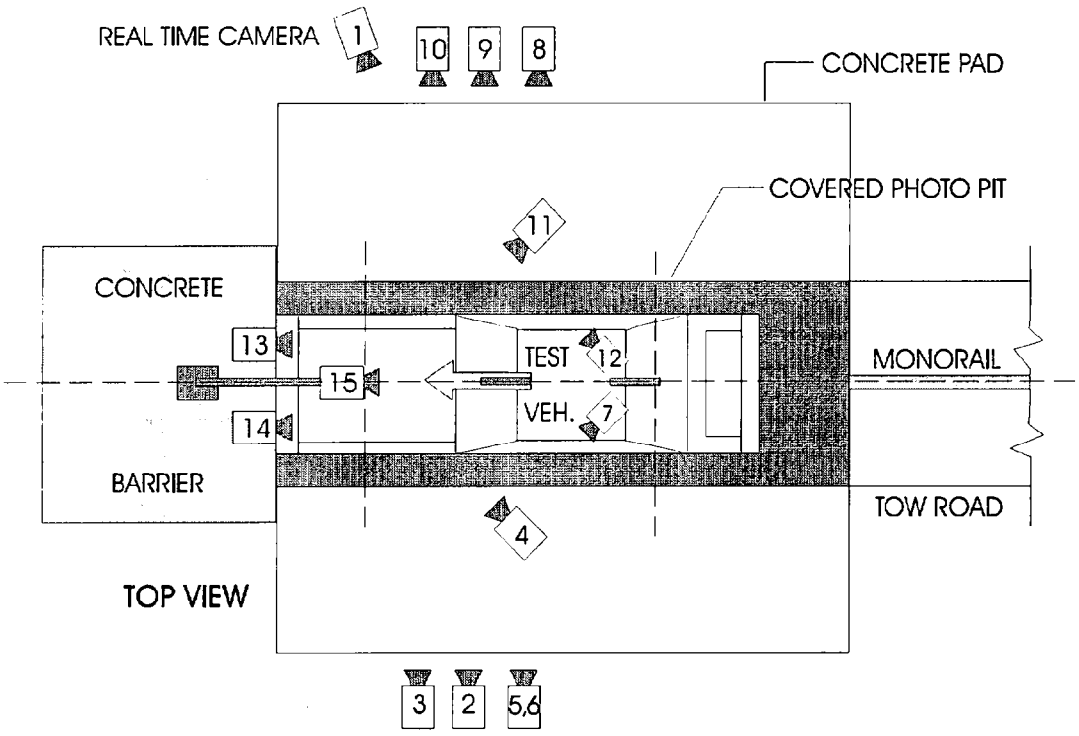
TOP VIEW THROUGH FLOOR PAN

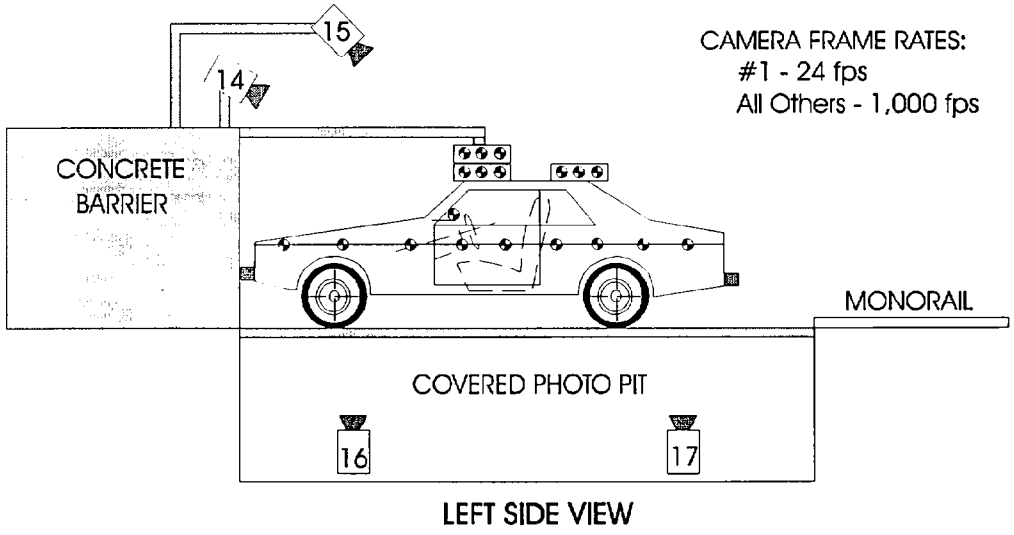
Measurement	Pre-Test	Post-Test	Difference
A	530	510	20
B	575	580	-5
C	585	580	5
D	540	530	10
E	530	520	10
F	565	560	5
G	575	580	-5
H	545	550	-5

Units = mm

CAMERA POSITIONS FOR FRONTAL IMPACTS

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





DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

NHTSA Test No.: MW0301 Vehicle: 1998 Dodge Stratus 4-Door Sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)* X	Y	Z	ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	6486	1683	1089	-4	6198	12.5	1000
3	Left Side View	7993	1034	1094	-3.5	7705	25	1000
4	Driver and Interior View	5134	3002	1903	-16	-	25	1010
5	Steering Column (Bottom)	7510	1981	1171	-4.5	7222	25	1000
6	Steering Column (Top)	7510	1981	1774	-10	7222	25	1000
7	Left Belt	-	-	-	-	-	8	800
8	Overall Right Side	6300	2042	1091	-3	6012	13	990
9	Right Side View	7656	1389	1141	-2	7368	25	1015
10	Right Passenger View	6292	1865	1394	-4	6004	35	1000
11	Passenger and Interior View	4978	3104	1879	-11	-	25	1000
12	Right Belt	-	-	-	-	-	8	610
13	Passenger Front View	580	0	2000	-40	-	8	1010
14	Driver Front View	580	0	2000	-40	-	8	1010
15	Windshield View	0	530	3048	-53	-	8	n.t.
16	Pit View of Engine	0	505	-3048	90	-	13	920
17	Pit View of Fuel Tank	0	3432	-3048	90	-	13	n.t.

*X = film plane to monorail centerline

Y = film plane to impact location

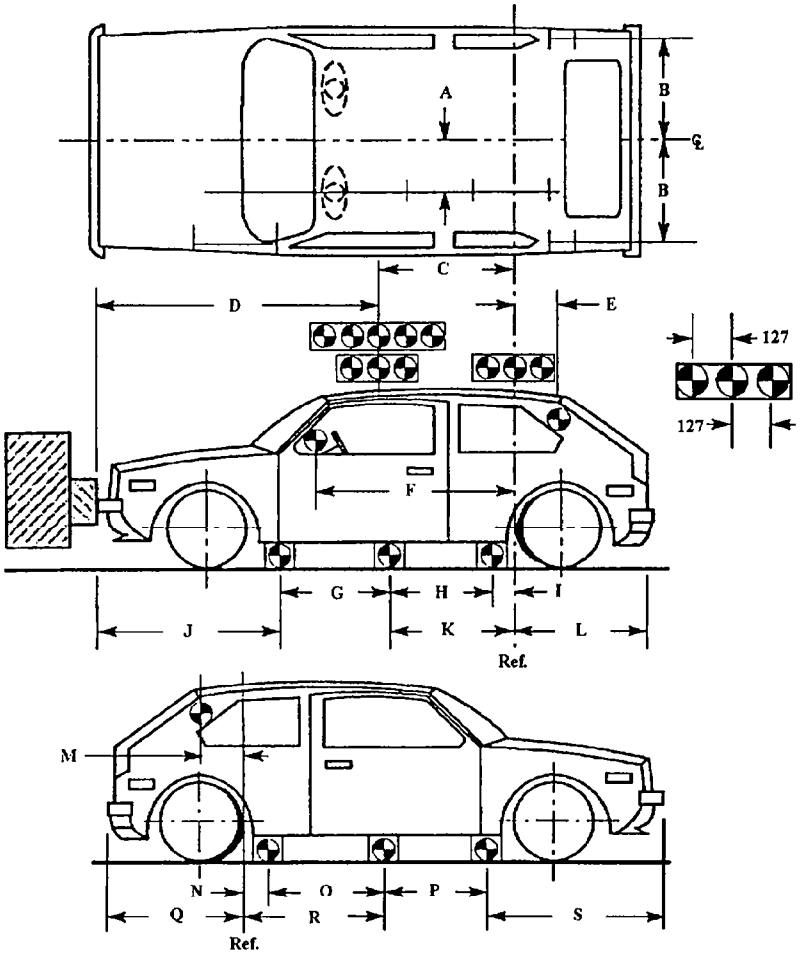
Z = film plane to ground

** = referenced to horizontal plane

N.T. indicates No Timing

(Dimensions in millimeters)

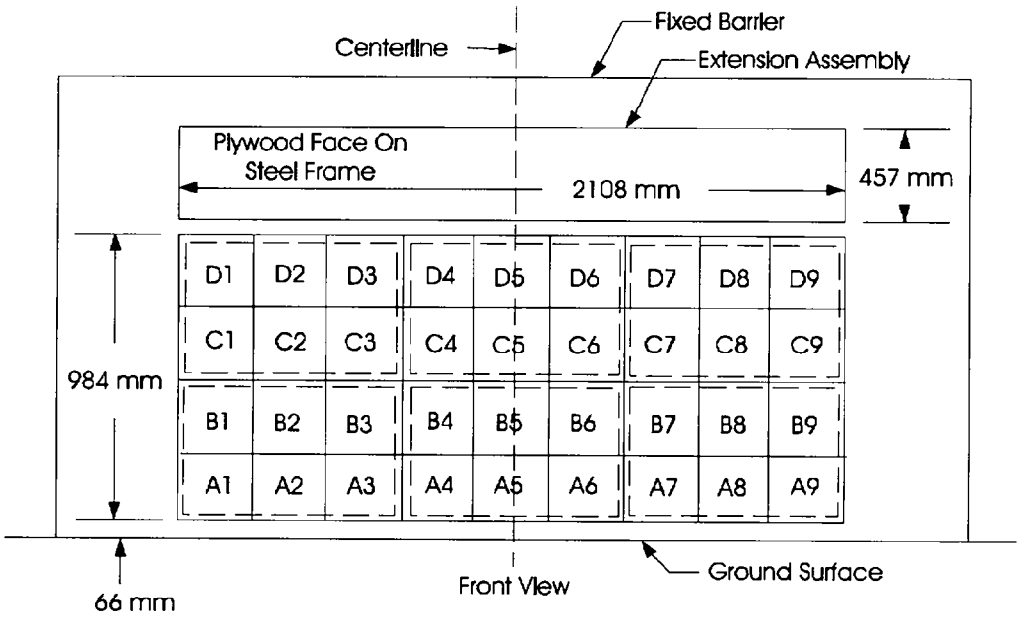
A	364
B	1082
C	1221
D	2112
E	320
F	1615
G	906
H	908
I	1436
J	120
K	1028
L	1351
M	320
N	120
O	908
P	906
Q	1351
R	1028
S	1436



DATA SHEET NO. 17 LOAD CELL LOCATIONS ON FIXED BARRIER

LOAD CELL BARRIER NOT REQUESTED FOR THIS TEST

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



6 GROUPS OF 6 LOAD CELLS EACH

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

The following data is presented in Appendix B:

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

DATA SHEET NO. 18 POST TEST AIR BAG DATA

NHTSA No. : MW0301; Test Date: September 26,1997; Technician: J. Cz.

Vehicle Model Year/Make/Model: 1998 Dodge Stratus

A. No. of vent holes: 1 -Driver 0 -Passenger

B. Size of vent holes: (mm^2) 30 -Driver - -Passenger

C. Total vent area: (mm^2) 30 -Driver - -Passenger

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

Driver: - -Length; - -Width; 600 -Diameter

Passenger: 550 -Height; 540 -Width; 520 -Depth

E. Is the air bag tethered?

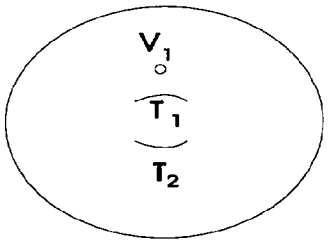
Driver: x -Yes; ____ -No; If yes, record length of tether- 200

Passenger: x -Yes; ____ -No; If yes, record length of tether- 440

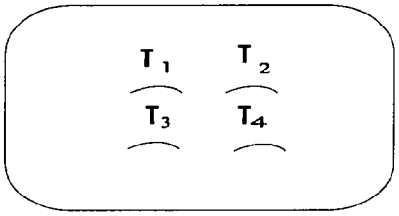
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

(Note: Not to scale; V_n = Vent hole$_n$, T_n = Tether$_n$).

DRIVER
vents underneath bag



PASSENGER
vents underneath bag



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

Driver: Air bag: ZT1DT2277J0161

Generator: P0PK4LLAZAD 04649062

Passenger: Air bag: T1CQ186K10047

Generator: POFL98LAZAL 04595382

DATA SHEET NO.19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Dodge Stratus 4-Door Sedan

NHTSA Test No.: MW0301 VIN: 1B3EJ46X5WN115592

Model Year: 1998 Build Date: 8/97 Test Date: September 26,1997

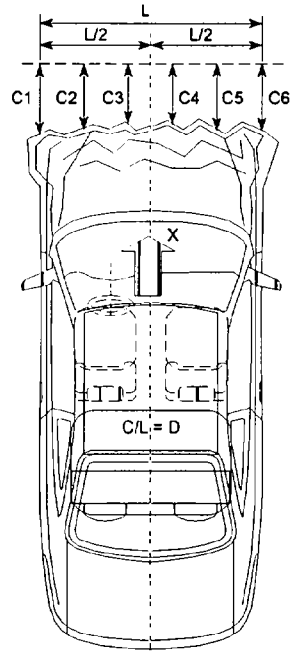
Vehicle Size Category: Sedan Test Weight: 1580 kg

Vehicle Wheelbase: 2748 mm; Front Overhang: 1436 mm; Overall Width: 1827 mm

Collision Deformation Classification (CDC) Code: 12FDEW2

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4440	4180	-260	mm
C2 =	4635	4225	-410	mm
C3 =	4715	4155	-560	mm
C4 =	4720	4155	-565	mm
C5 =	4645	4200	-445	mm
C6 =	4470	4125	-345	mm



Midpoint of Damage: D = Vehicle Centerline (Longitud.)

Longitude Length of Damaged Region:

L1 = 1640 mm

L2 = 820 mm

L3 = 328 mm

Appendix A

PHOTOGRAPHS

PHOTOGRAPHS

PHOTOGRAPHS (continued)

PHOTOGRAPH NOT AVAILABLE

Figure A-1 LOAD CELL LOCATIONS

Figure A-2 PRE-TEST FRONT VIEW

Figure A-3 POST-TEST FRONT VIEW

Figure A-4 PRE-TEST LEFT SIDE VIEW

Figure A-5 POST-TEST LEFT SIDE VIEW

Figure A-6 PRE-TEST RIGHT SIDE VIEW

Figure A-7 POST-TEST RIGHT SIDE VIEW

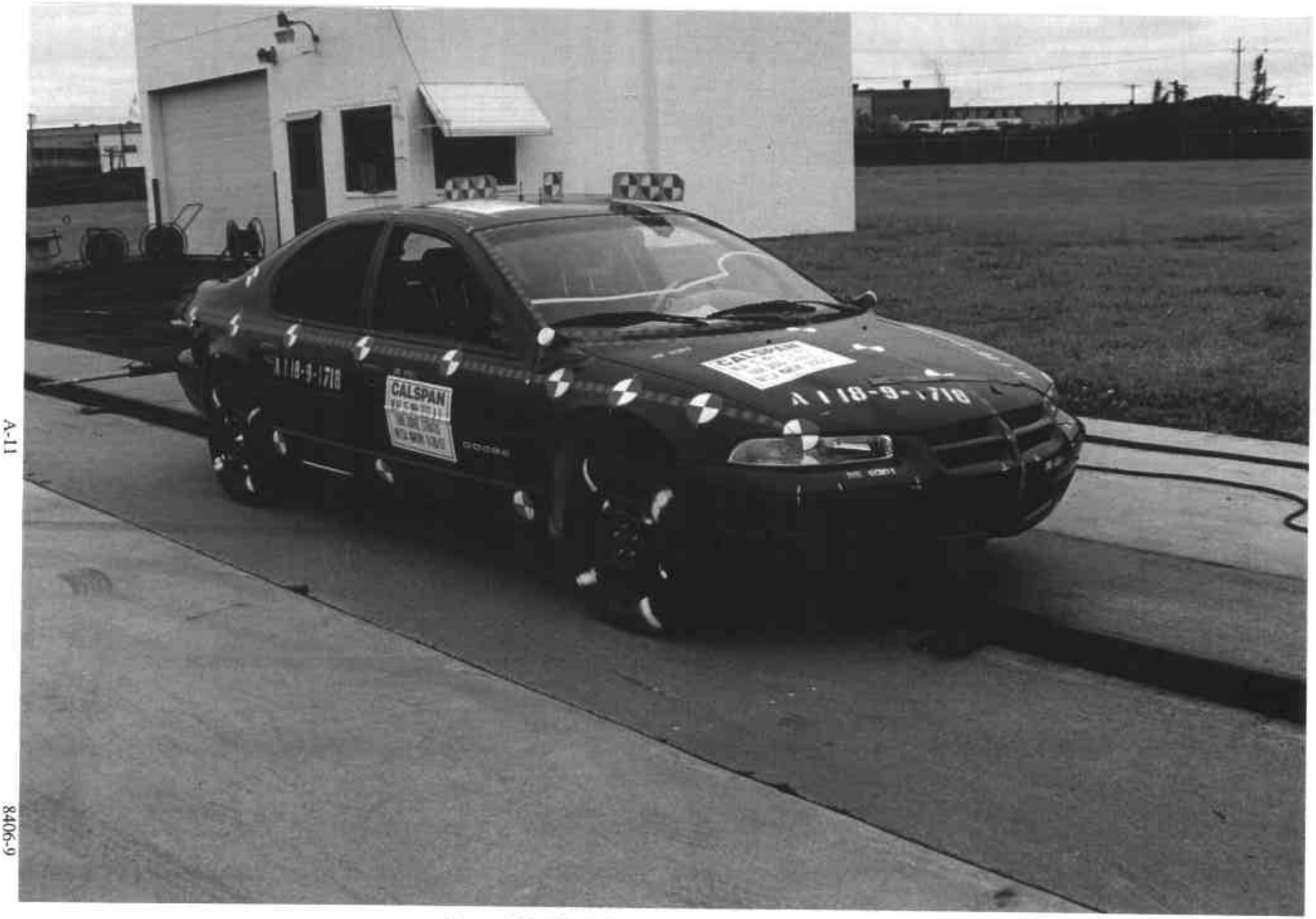


Figure A-8 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

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

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

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

Figure A-12 PRE-TEST WINDSHIELD VIEW

Figure A-13 POST-TEST WINDSHIELD VIEW

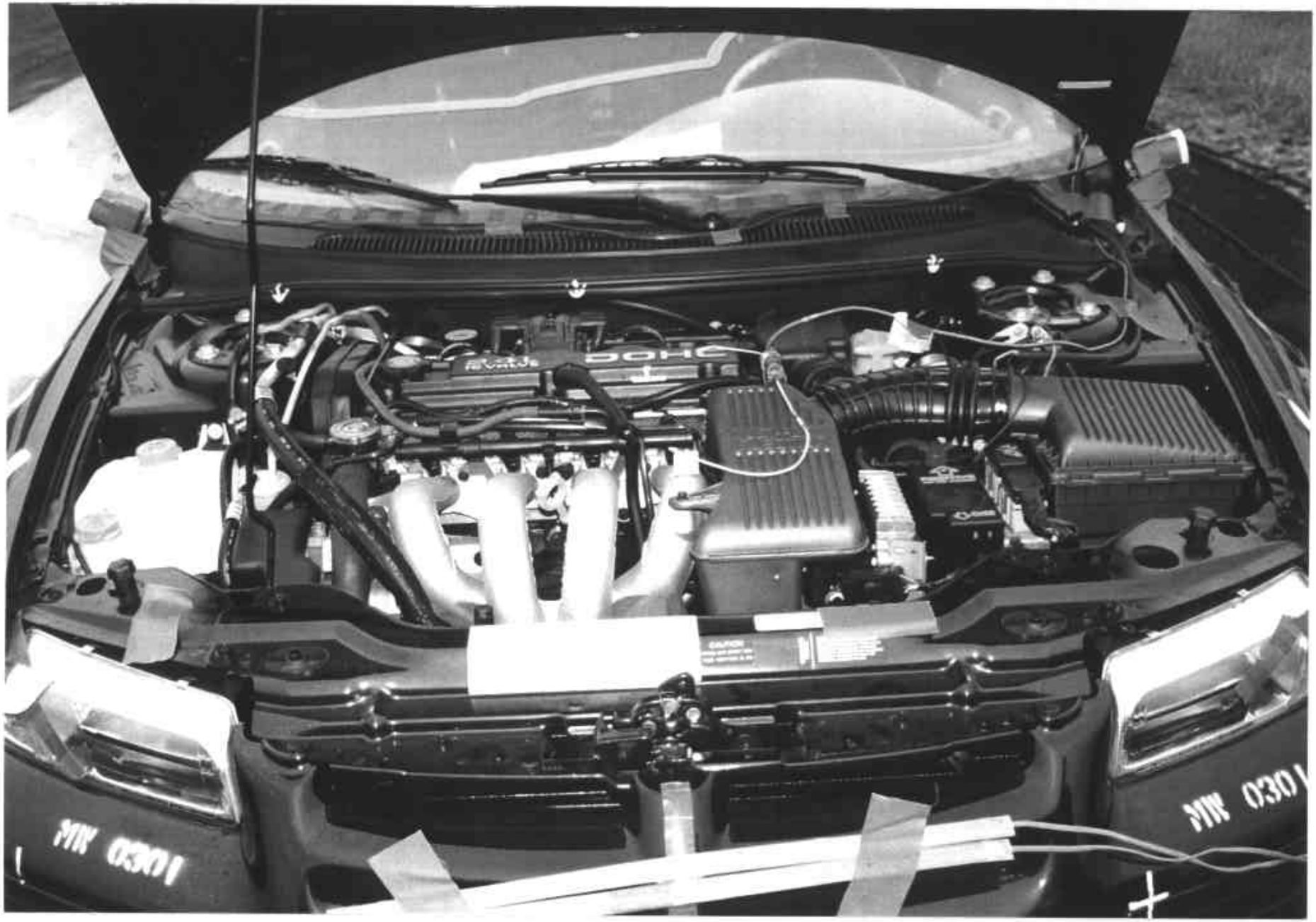


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

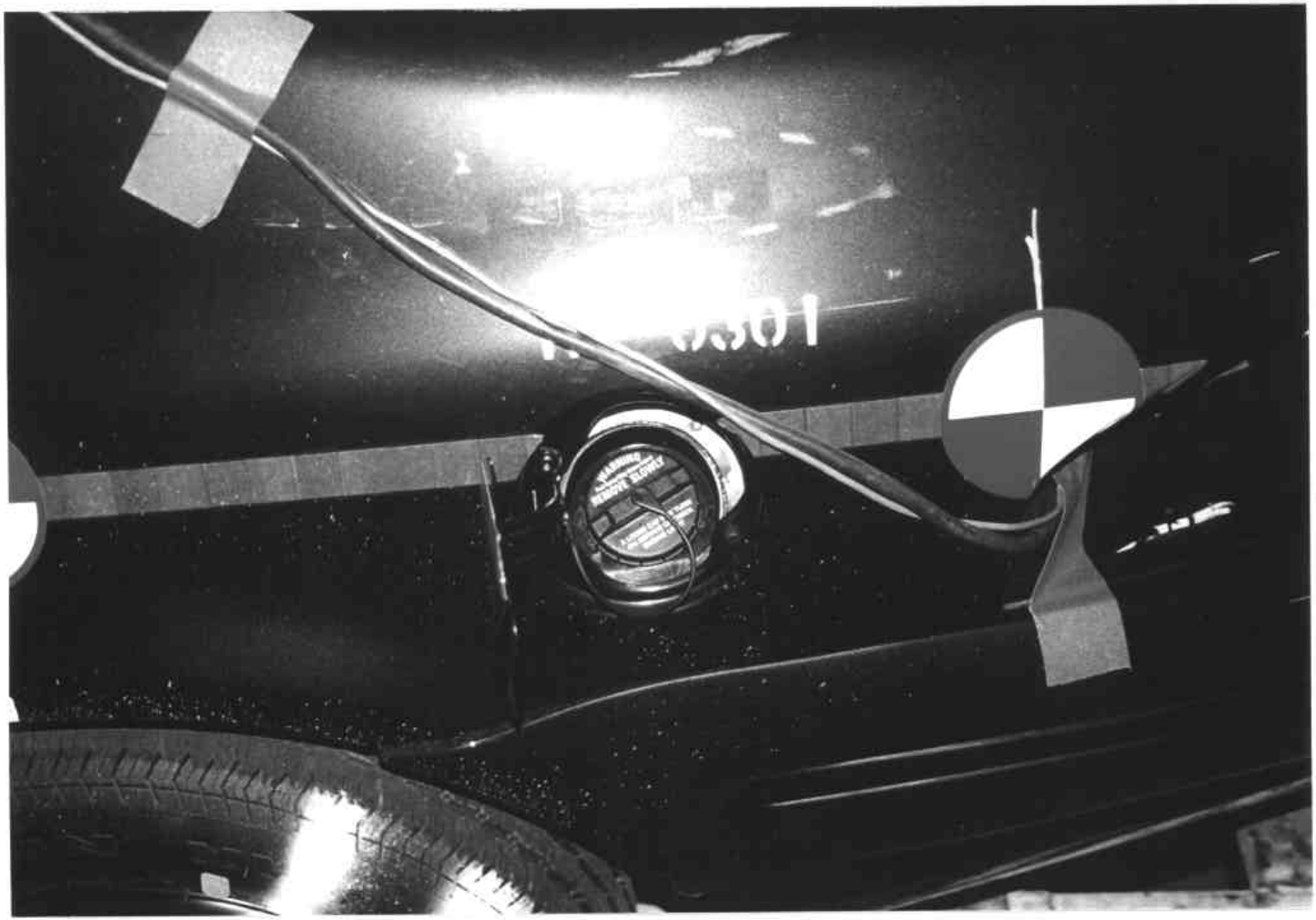


Figure A-15 FUEL CAP VIEW

Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

Figure A-17 POST-TEST FRONT UNDERBODY VIEW

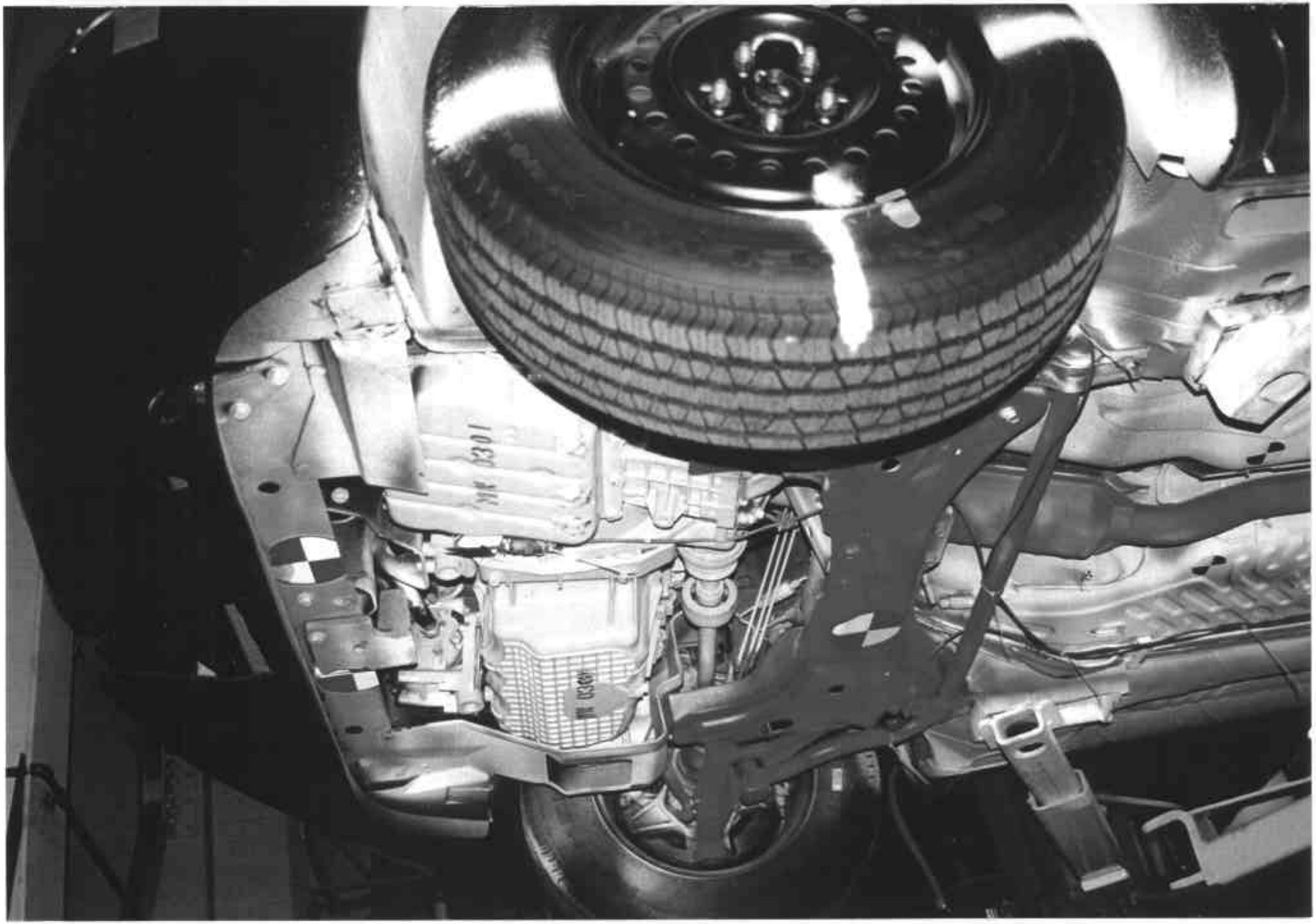


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

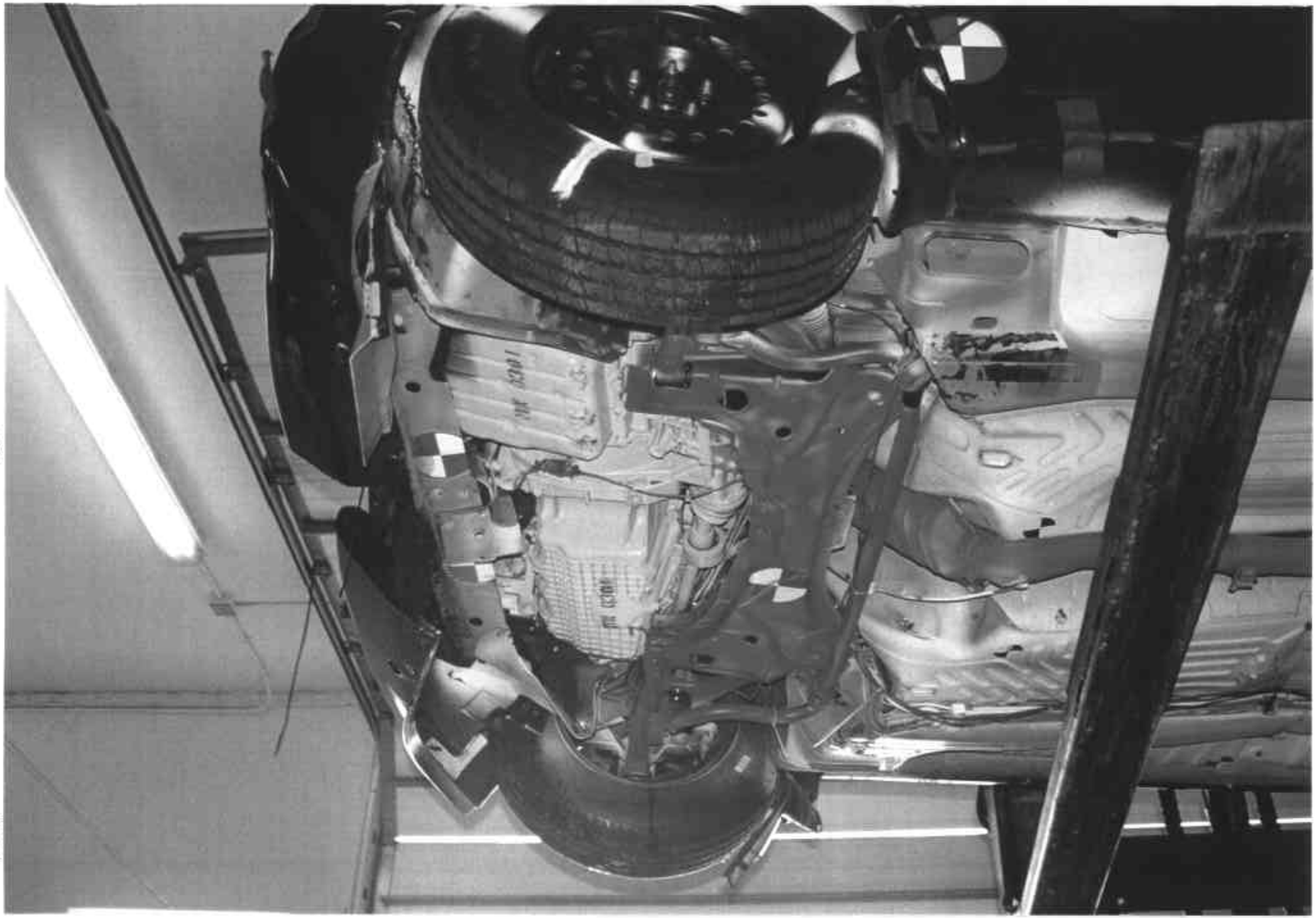


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

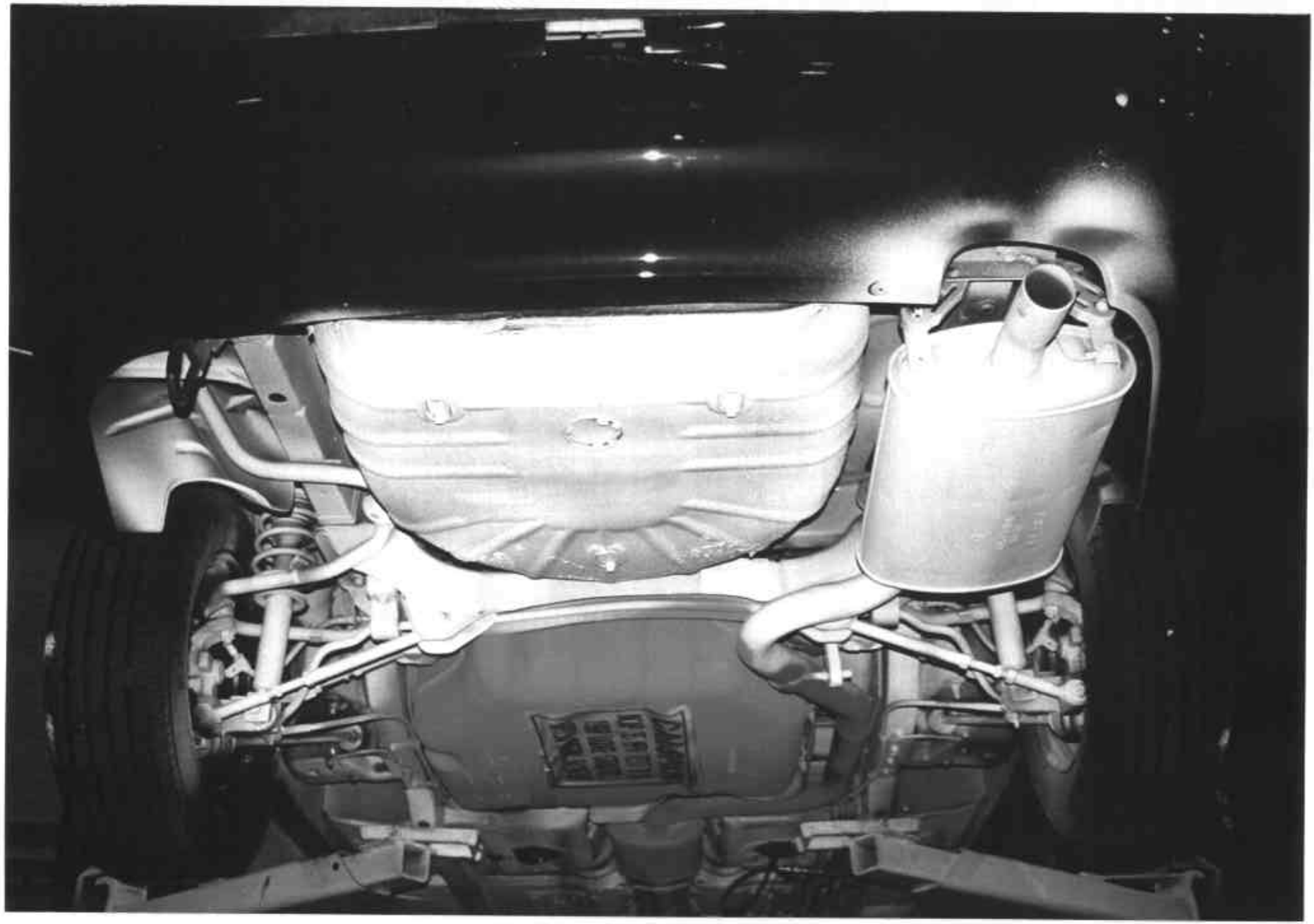


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

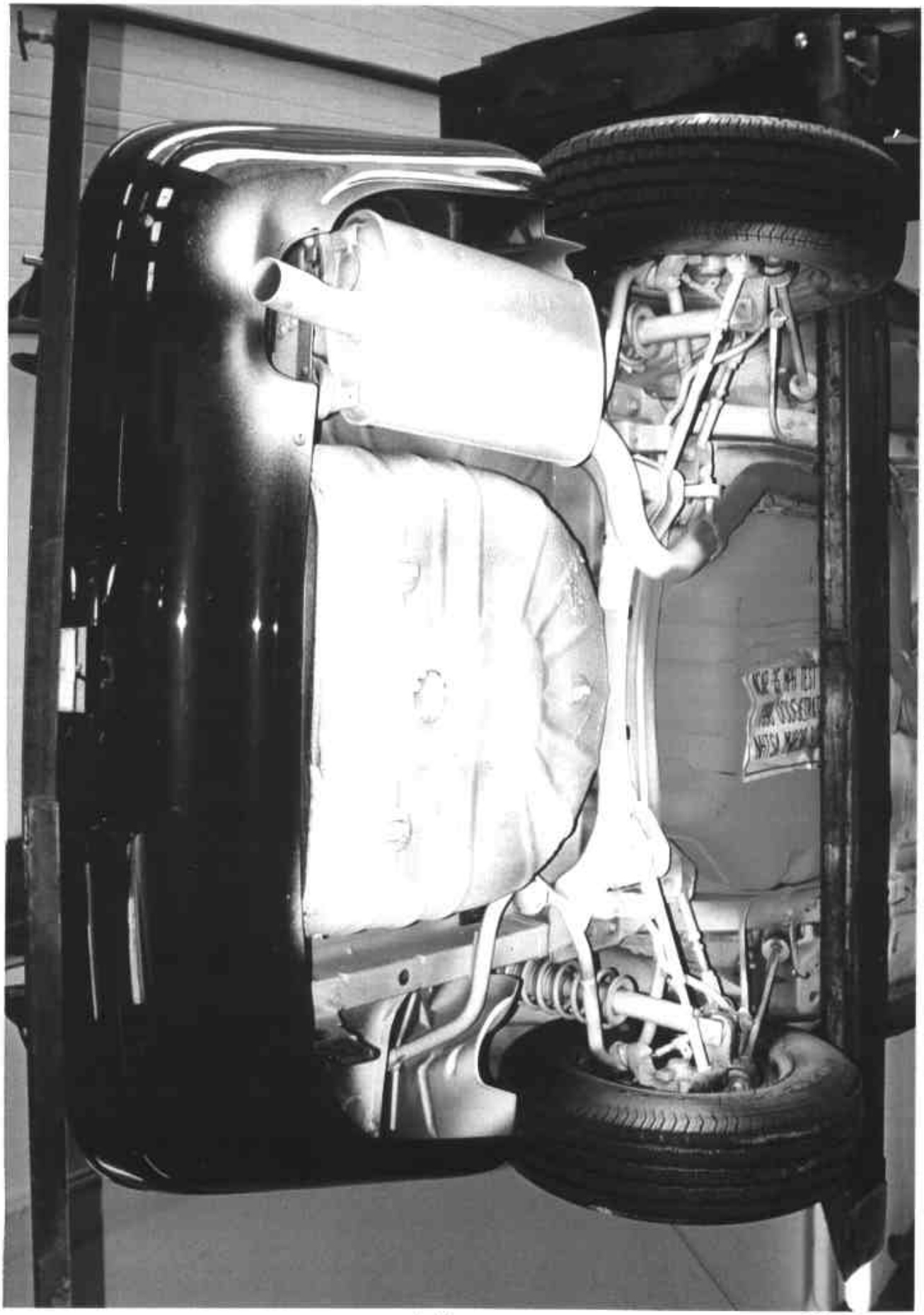


Figure A-21 POST-TEST REAR UNDERBODY VIEW

Figure A-22 PRE-TEST DRIVER POSITION VIEW

Figure A-23 POST-TEST DRIVER POSITION VIEW

8406-9

Figure A-24 PRE-TEST PASSENGER POSITION VIEW

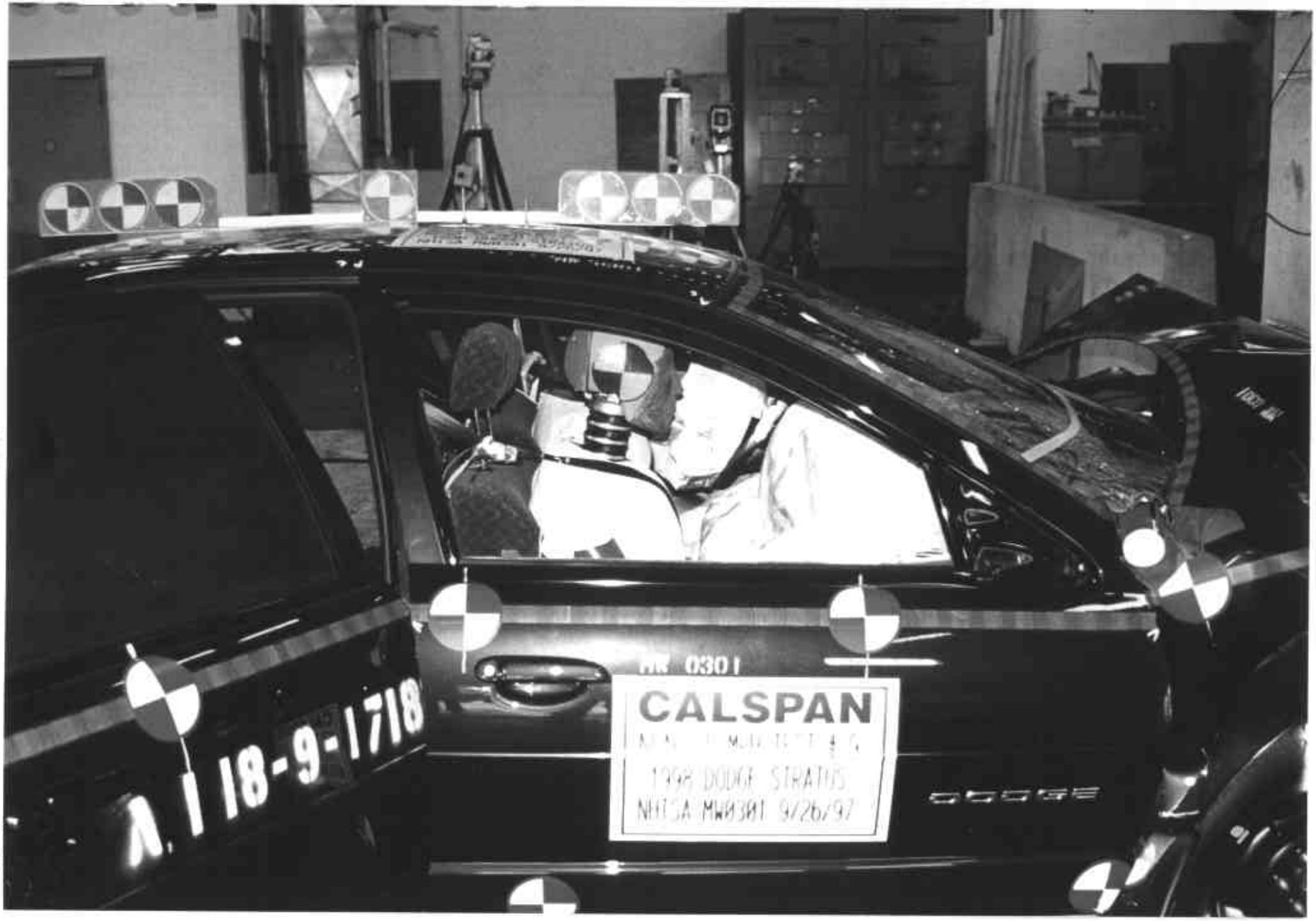


Figure A-25 POST-TEST PASSENGER POSITION VIEW

Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

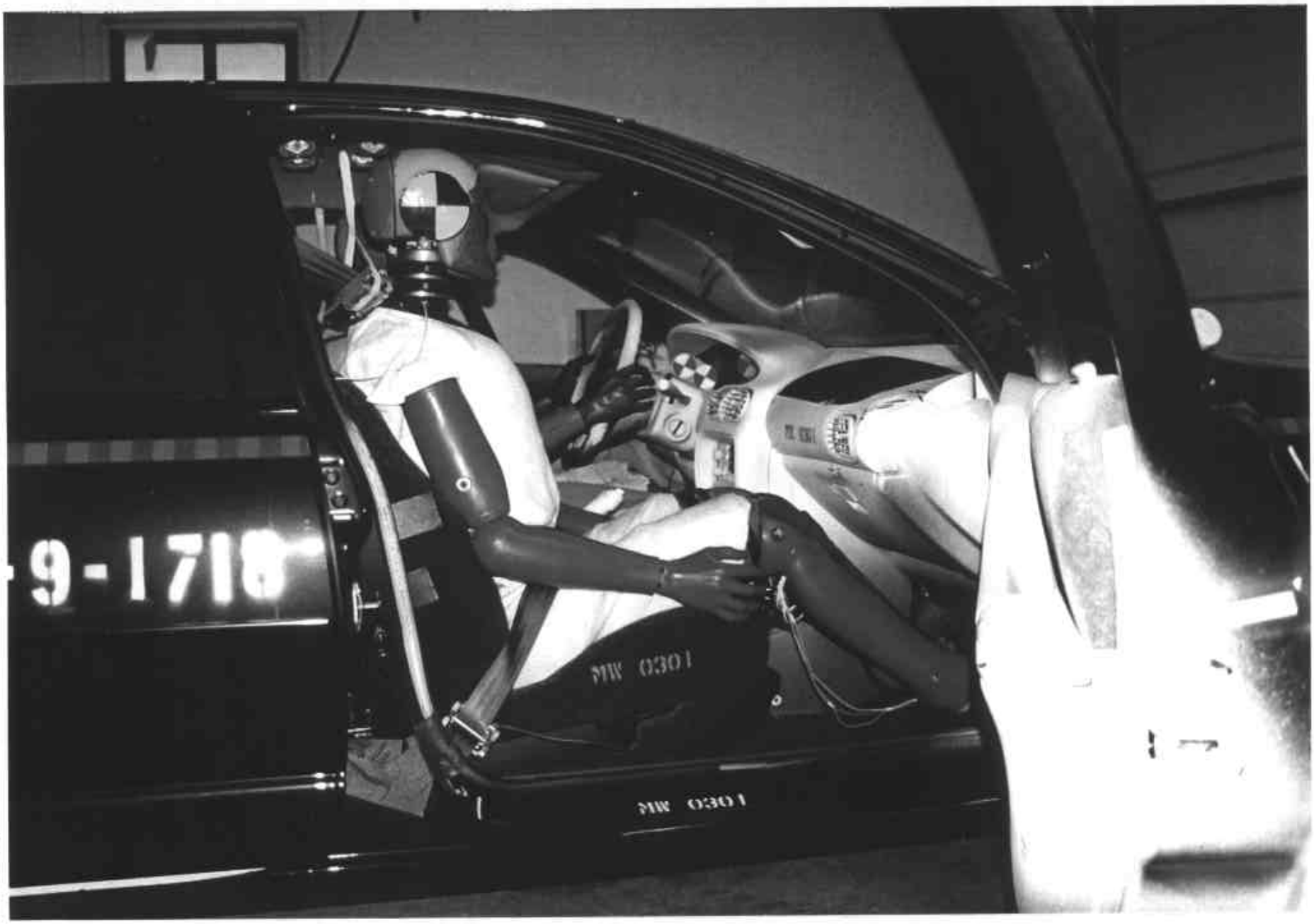


Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

Figure A-30 PRE-TEST DRIVER HEAD LOCATION

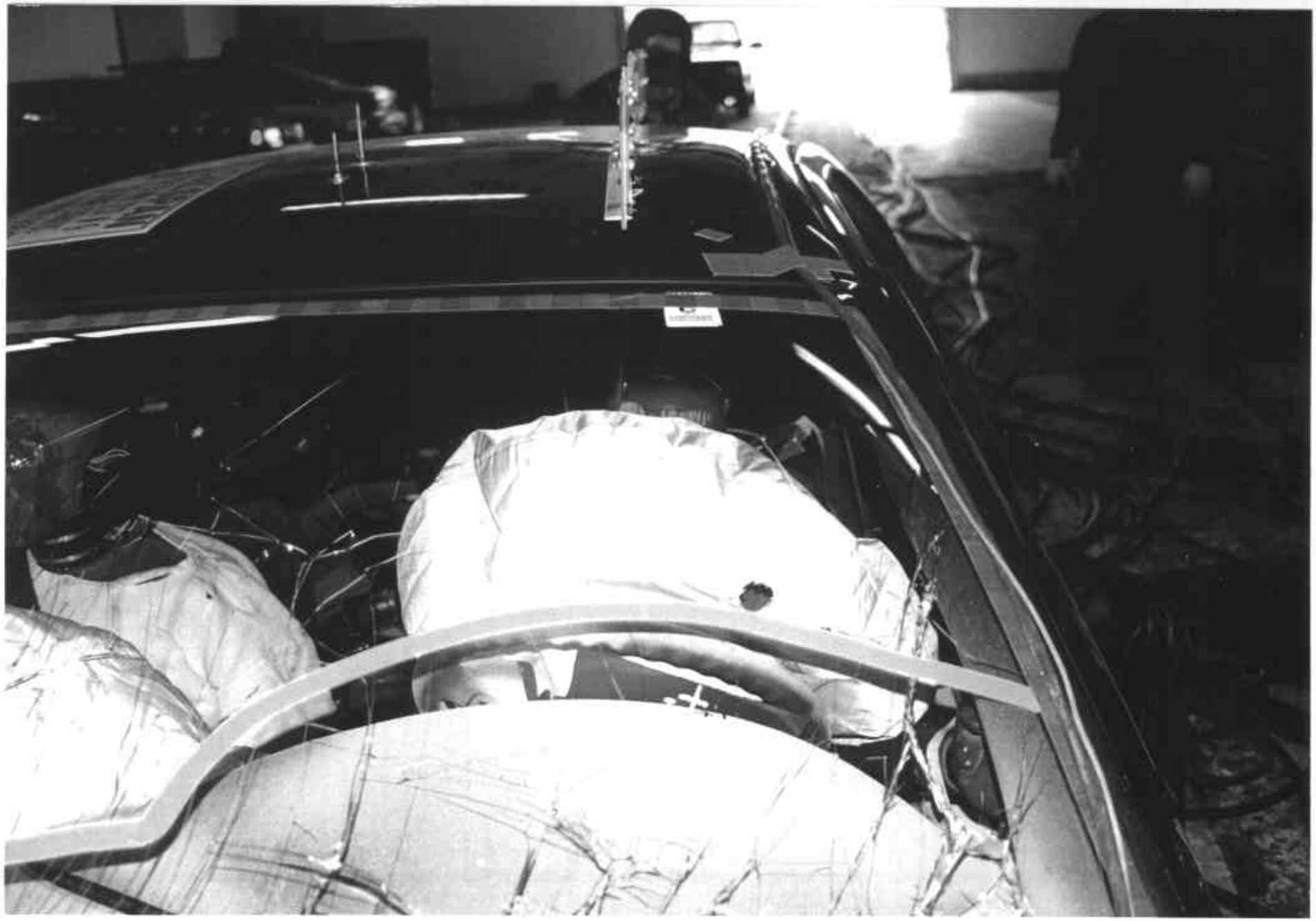


Figure A-31 POST-TEST DRIVER HEAD LOCATION

Figure A-32 PRE-TEST PASSENGER HEAD LOCATION

Figure A-33 POST-TEST PASSENGER HEAD LOCATION

Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW

Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW

Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW

A-40

8406-9

Figure A-37 POST-TEST PASSENGER FLOOR PAN VIEW

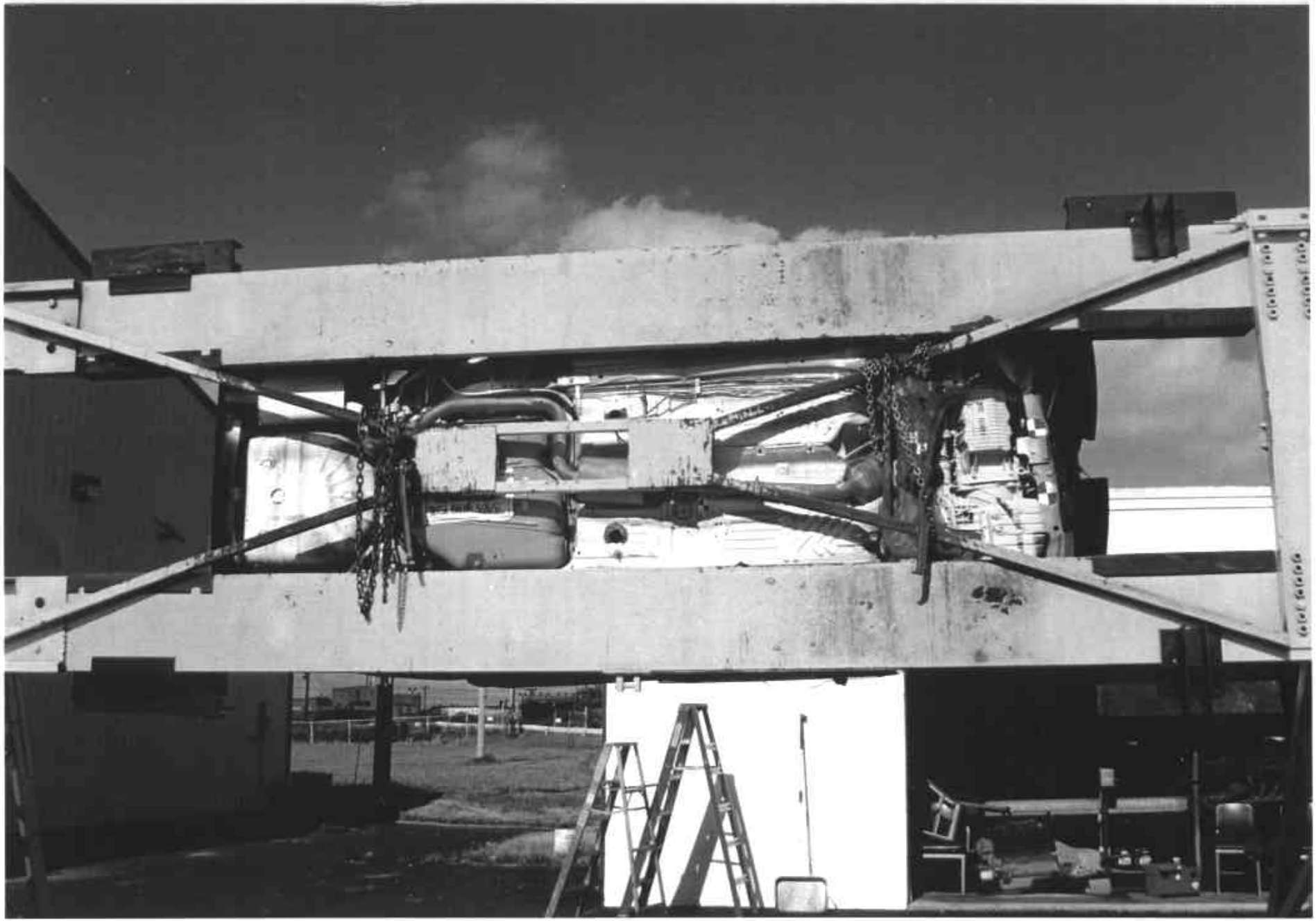


Figure A-38 ROLLOVER VIEW

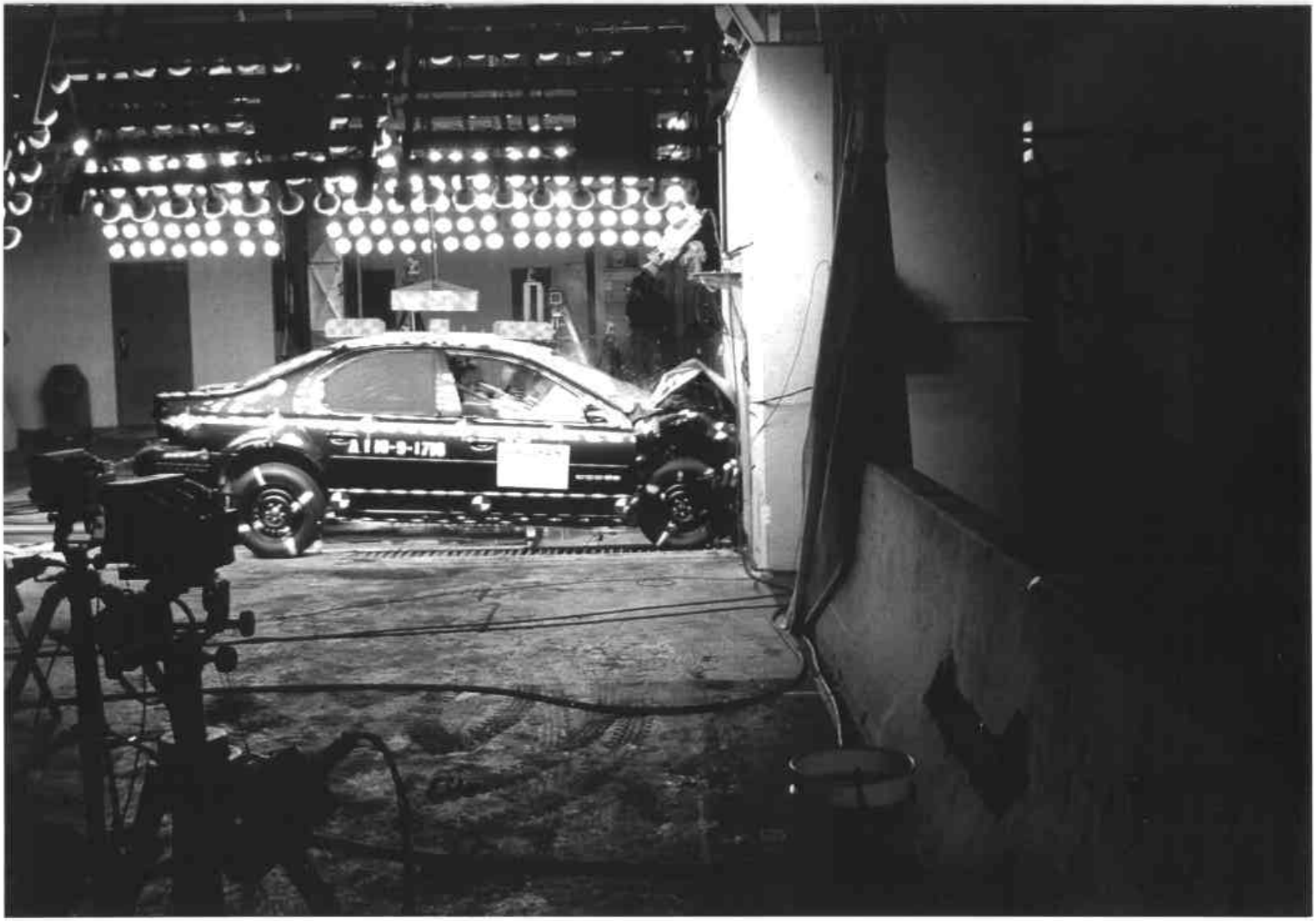


Figure A-39 IMPACT VIEW

Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

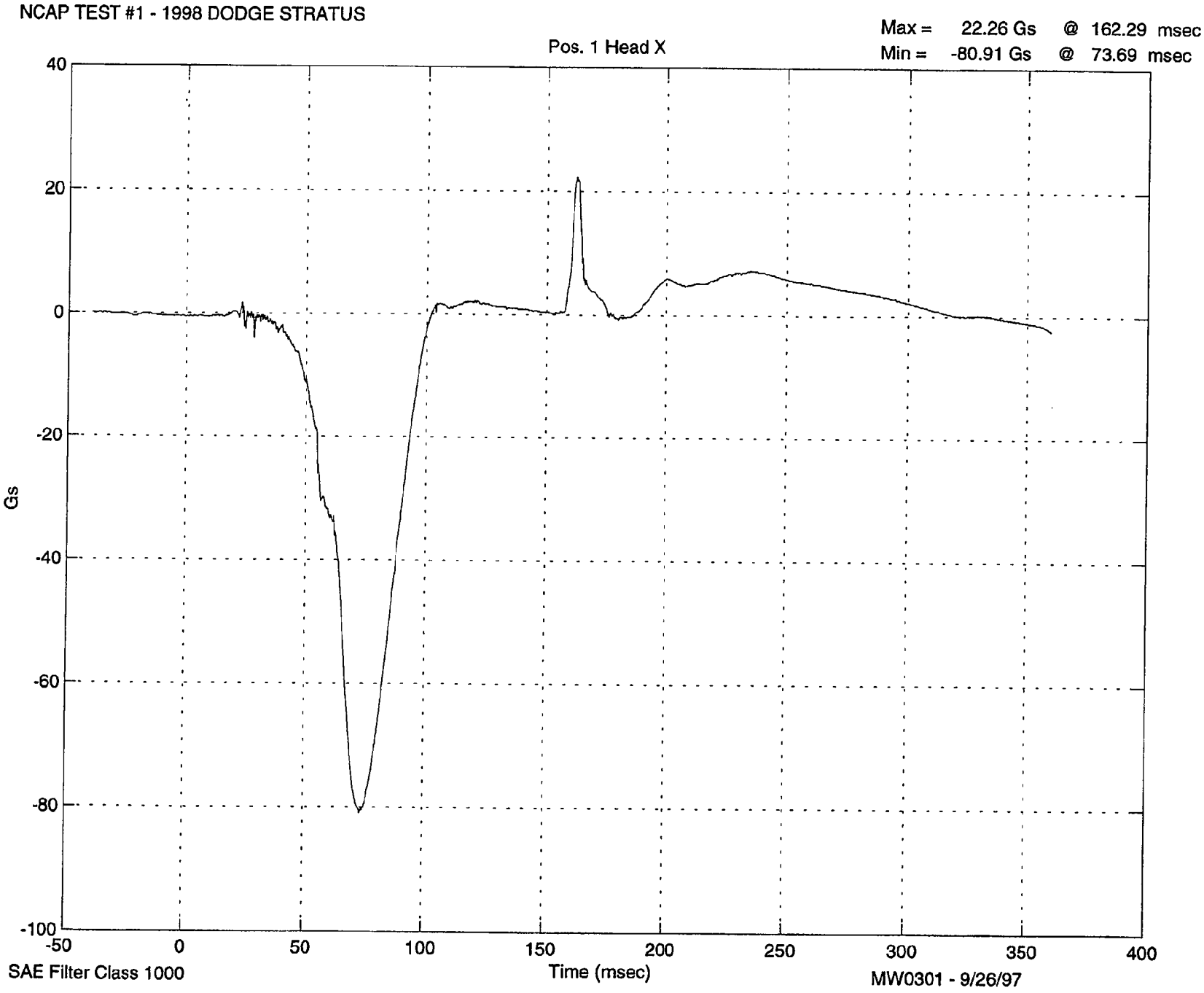
NHTSA TEST NO. MW0301

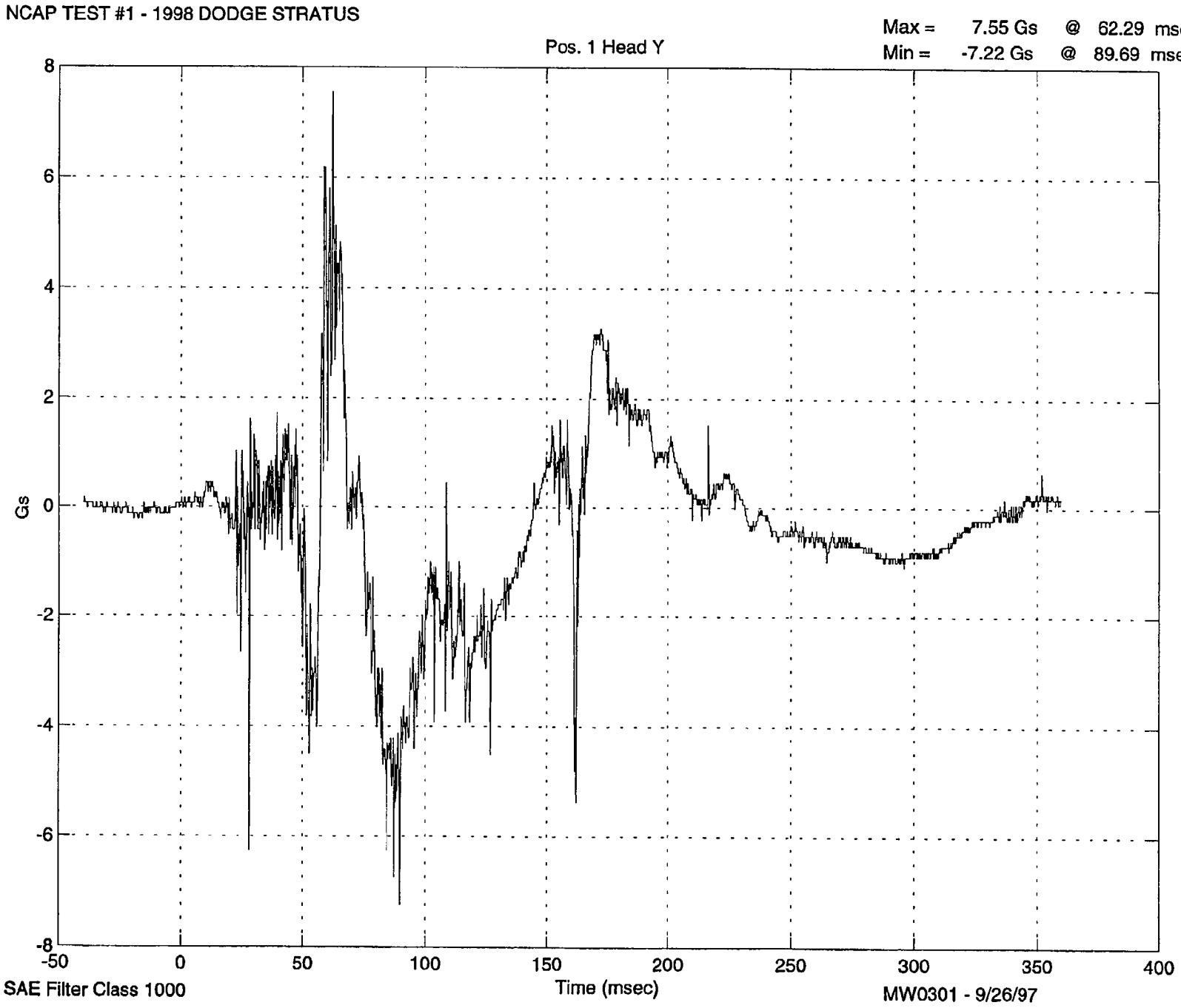
DUMMY DATA

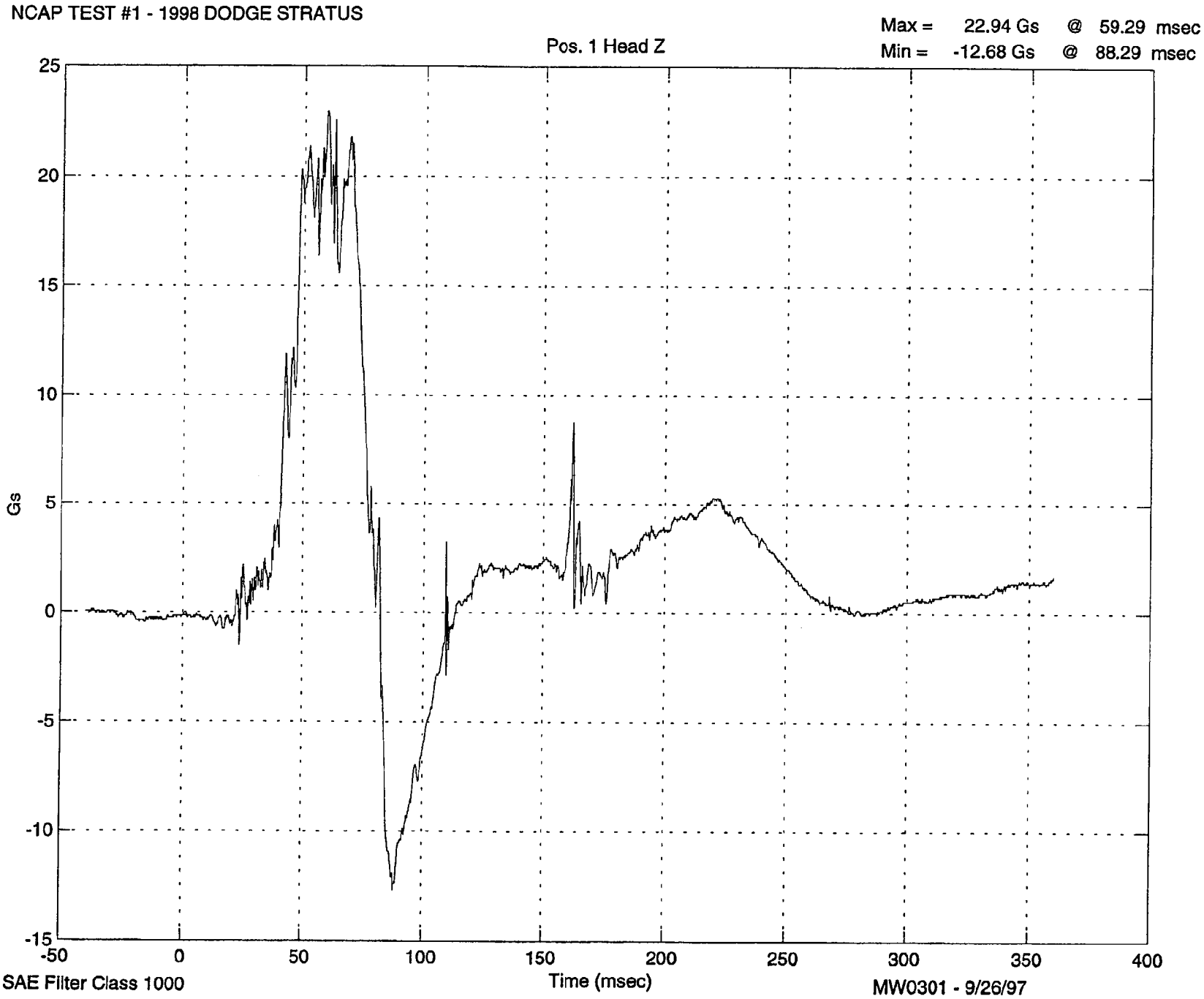
CLASS	FILTER CHANNEL
Head Accelerations	1000
Chest Accelerations	180
Chest Displacements	60
Femur Forces	600
Belt Loads	60
Belt Displacements	180
Neck Forces	1000
Neck Moments	600

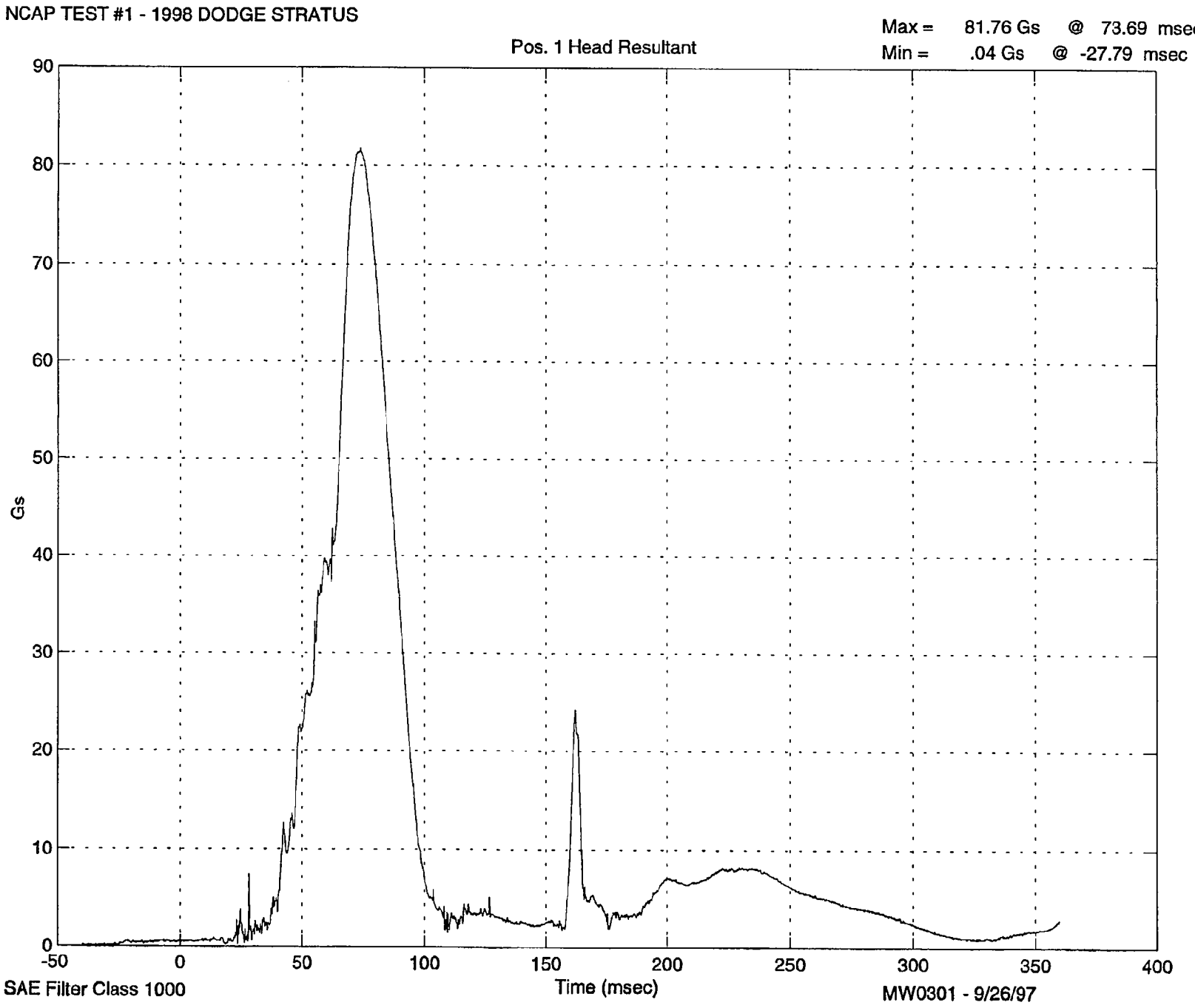
Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers

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


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Head X
Max = 22.26 Gs @ 162.29 msec
Min = -80.91 Gs @ 73.69 msec
Gs
40
20
0
-20
-40
-60
-80
-100
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Head Y
Max = 7.55 Gs @ 62.29 msec
Min = -7.22 Gs @ 89.69 msec
Gs
8
6
4
2
0
-2
-4
-6
-8
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

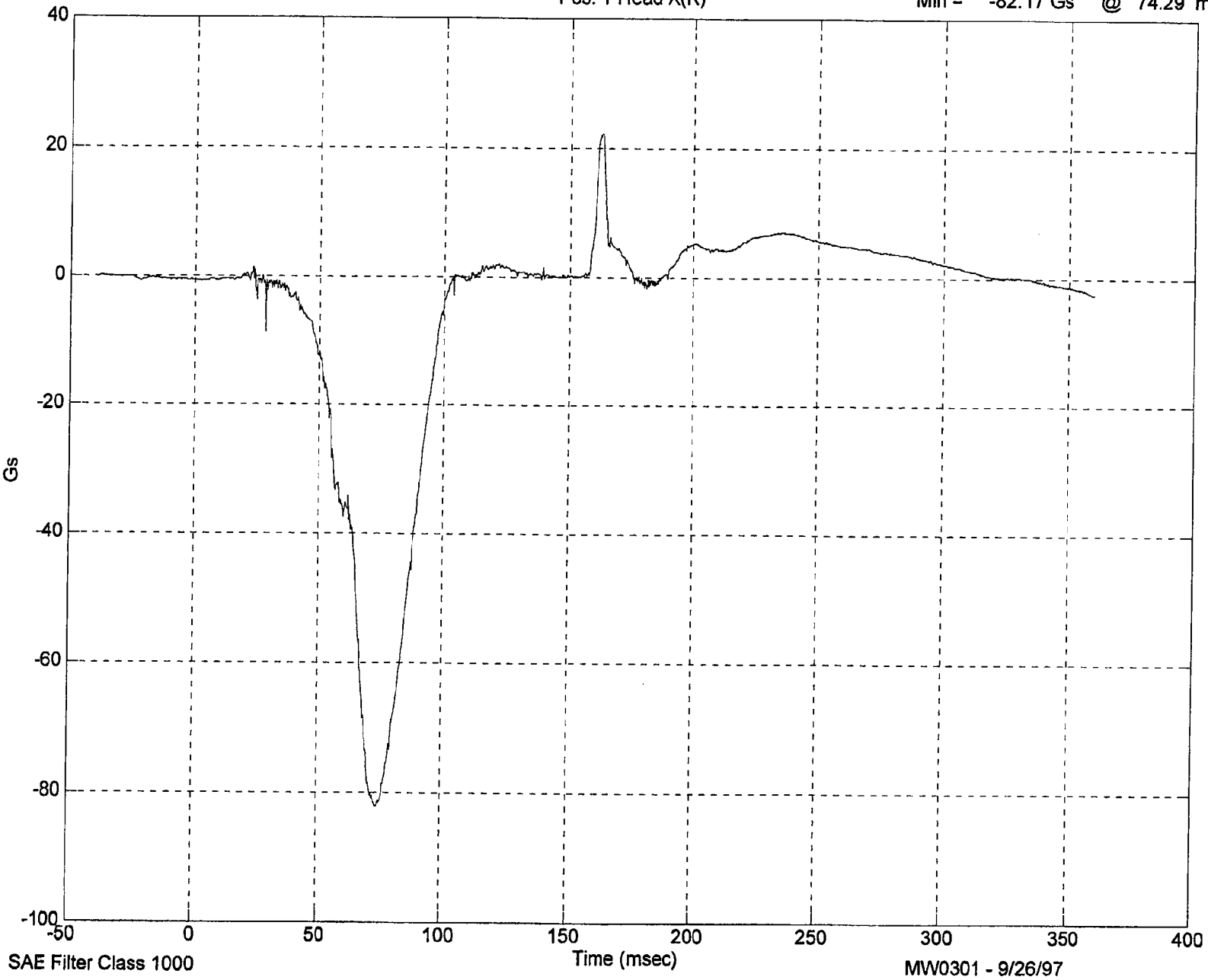

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Head Z
Max = 22.94 Gs @ 59.29 msec
Min = -12.68 Gs @ 88.29 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Head Resultant
Max = 81.76 Gs @ 73.69 msec
Min = .04 Gs @ -27.79 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

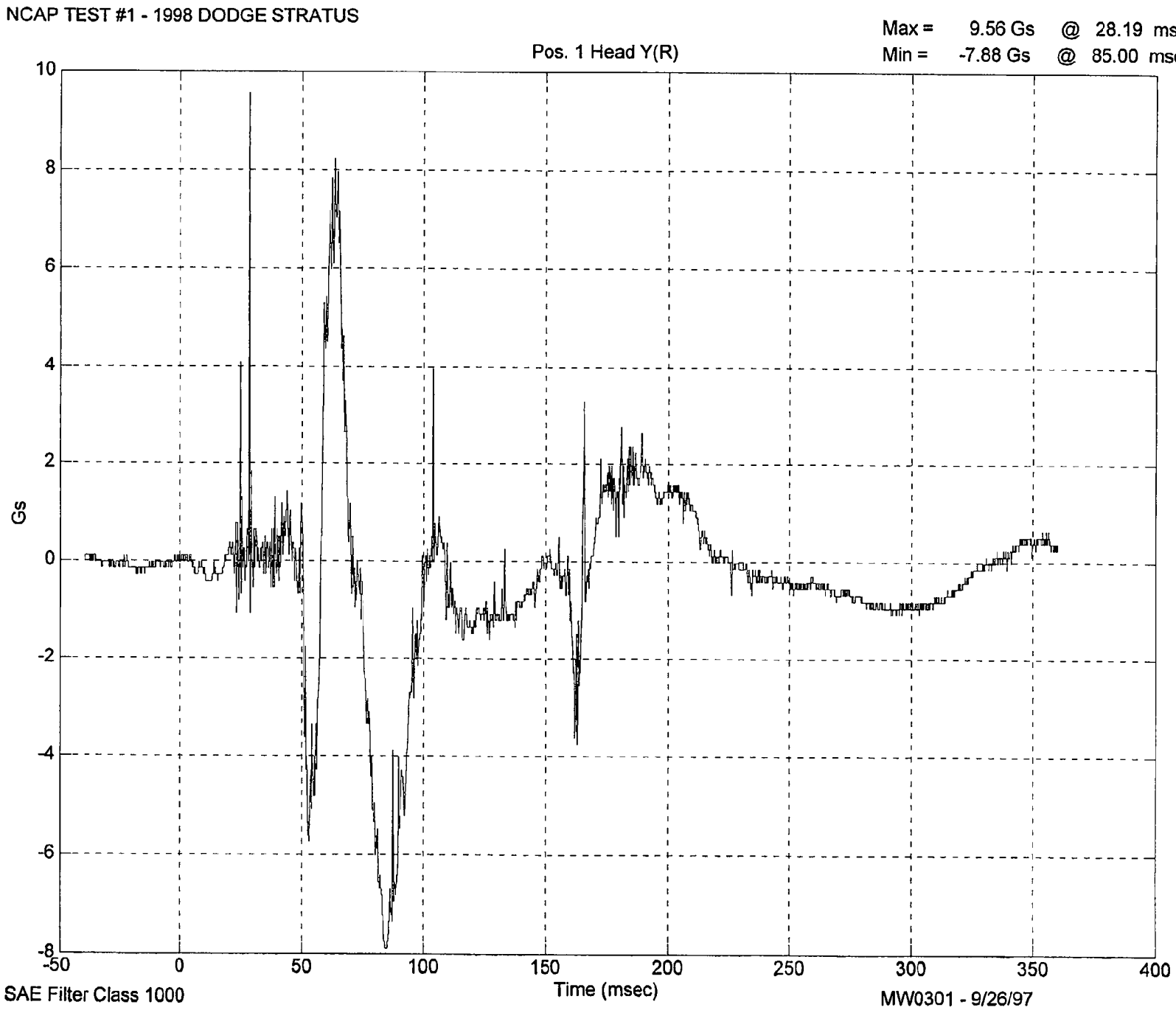
Pos. 1 Head X(R)

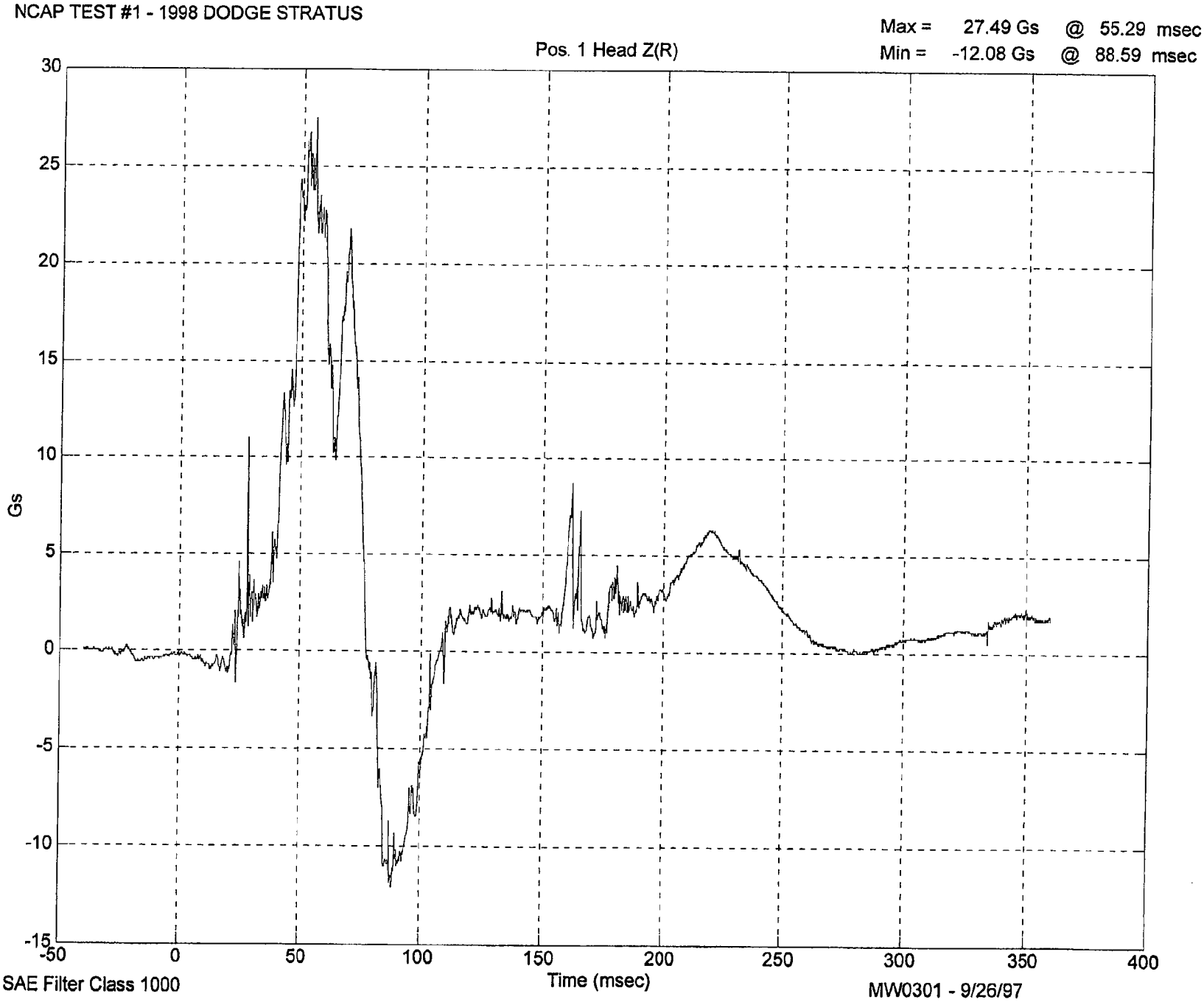
Max = 22.24 Gs @ 163.29 msec
Min = -82.17 Gs @ 74.29 msec

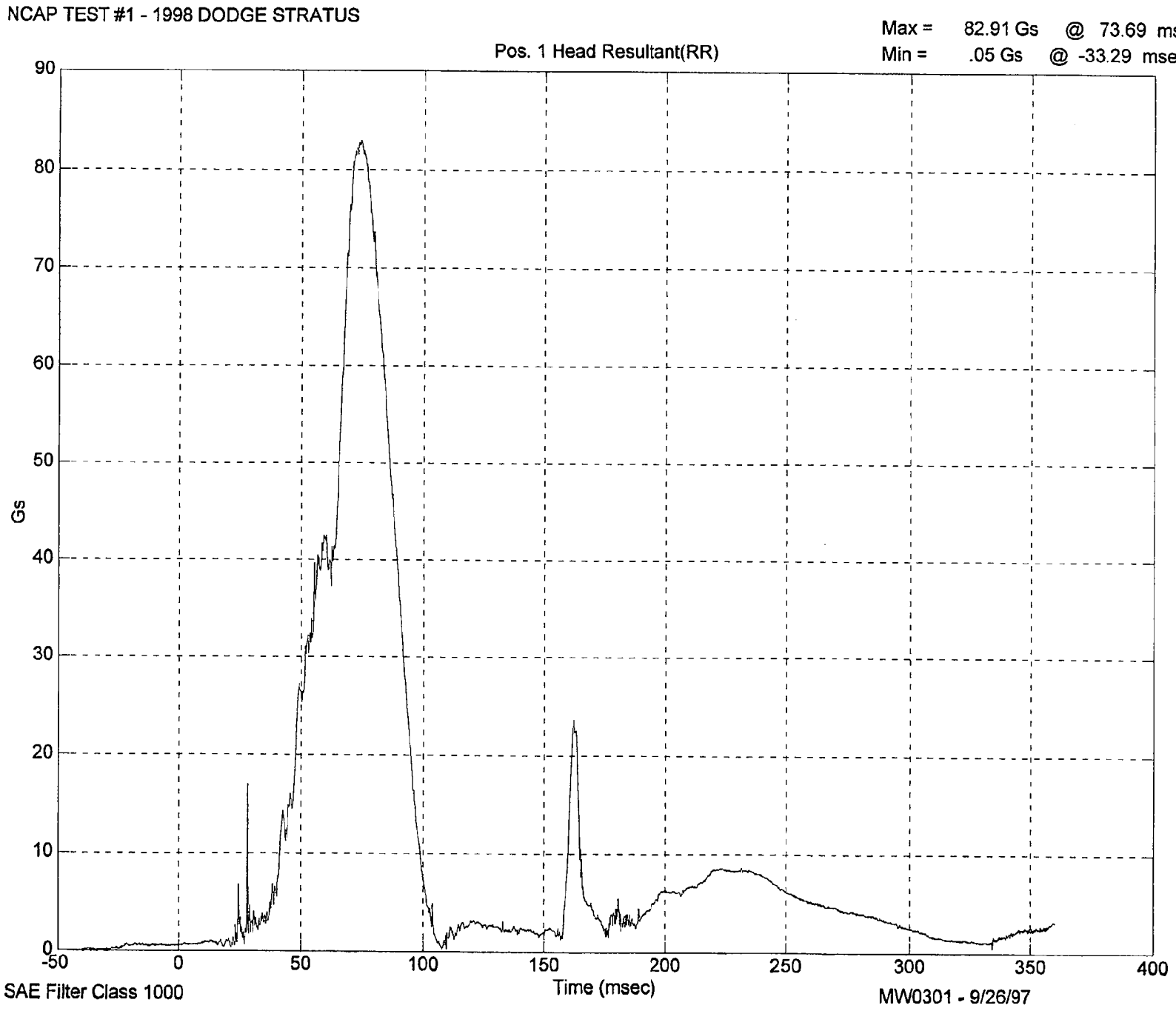


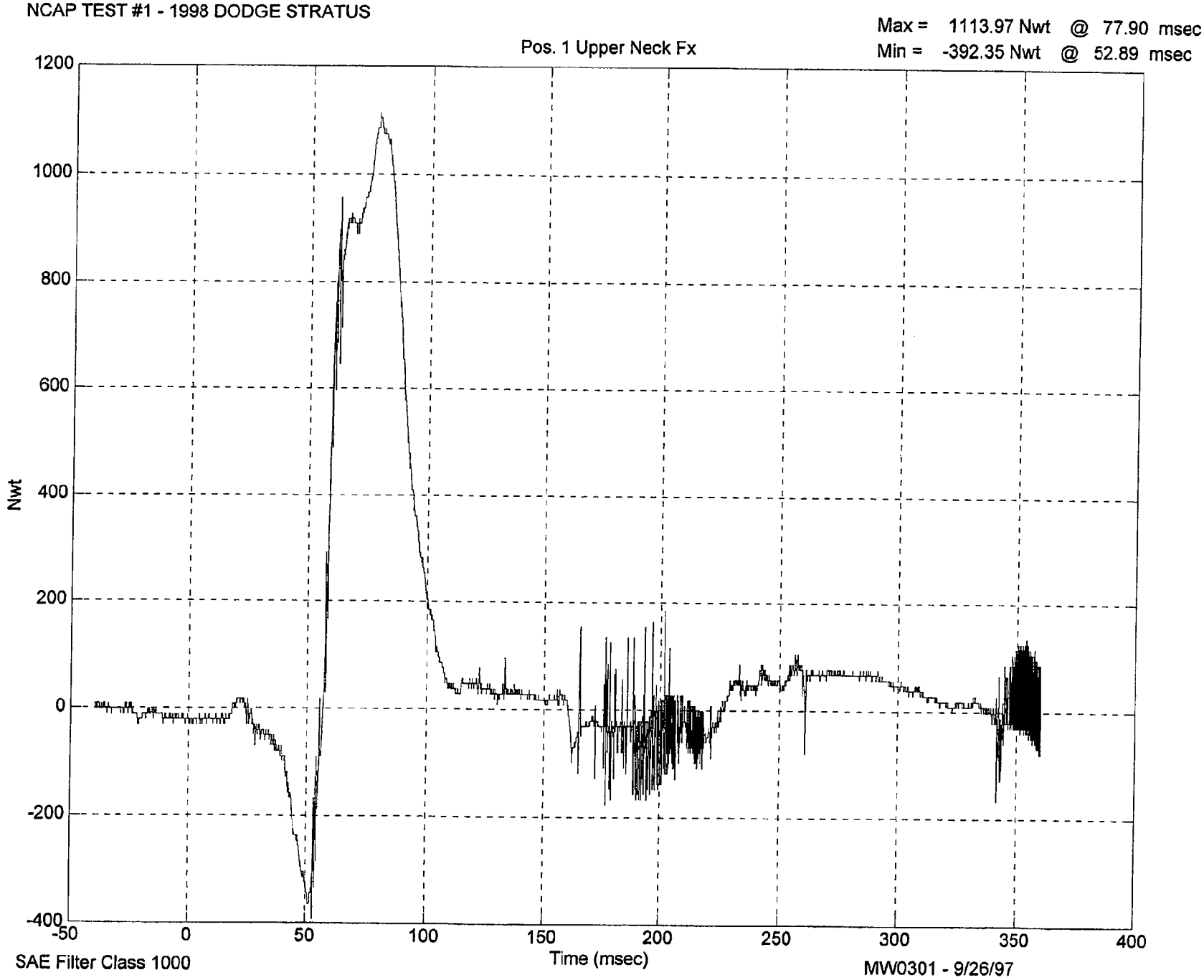
SAE Filter Class 1000

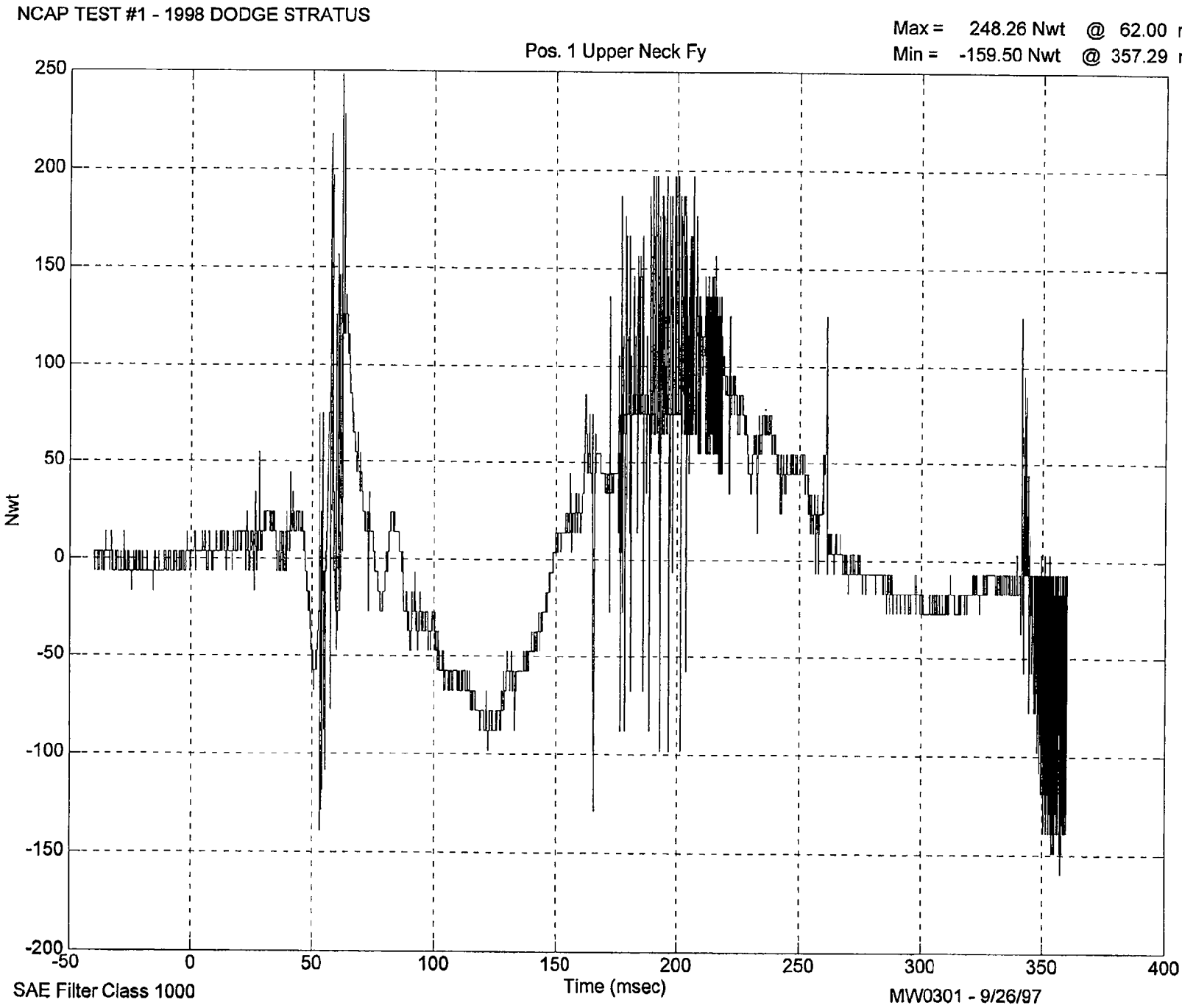
MW0301 - 9/26/97

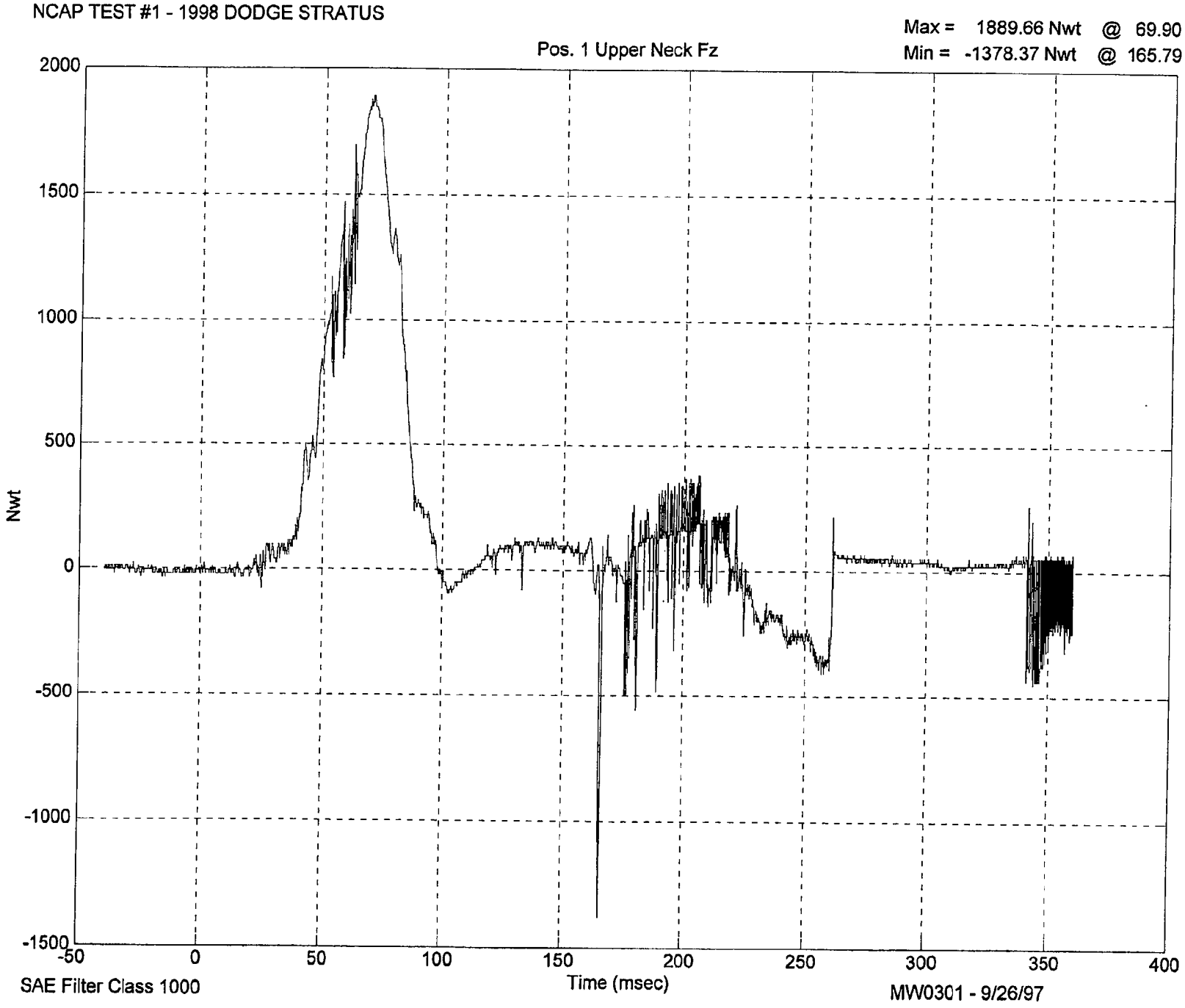

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Head Y(R)
Max = 9.56 Gs @ 28.19 msec
Min = -7.88 Gs @ 85.00 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

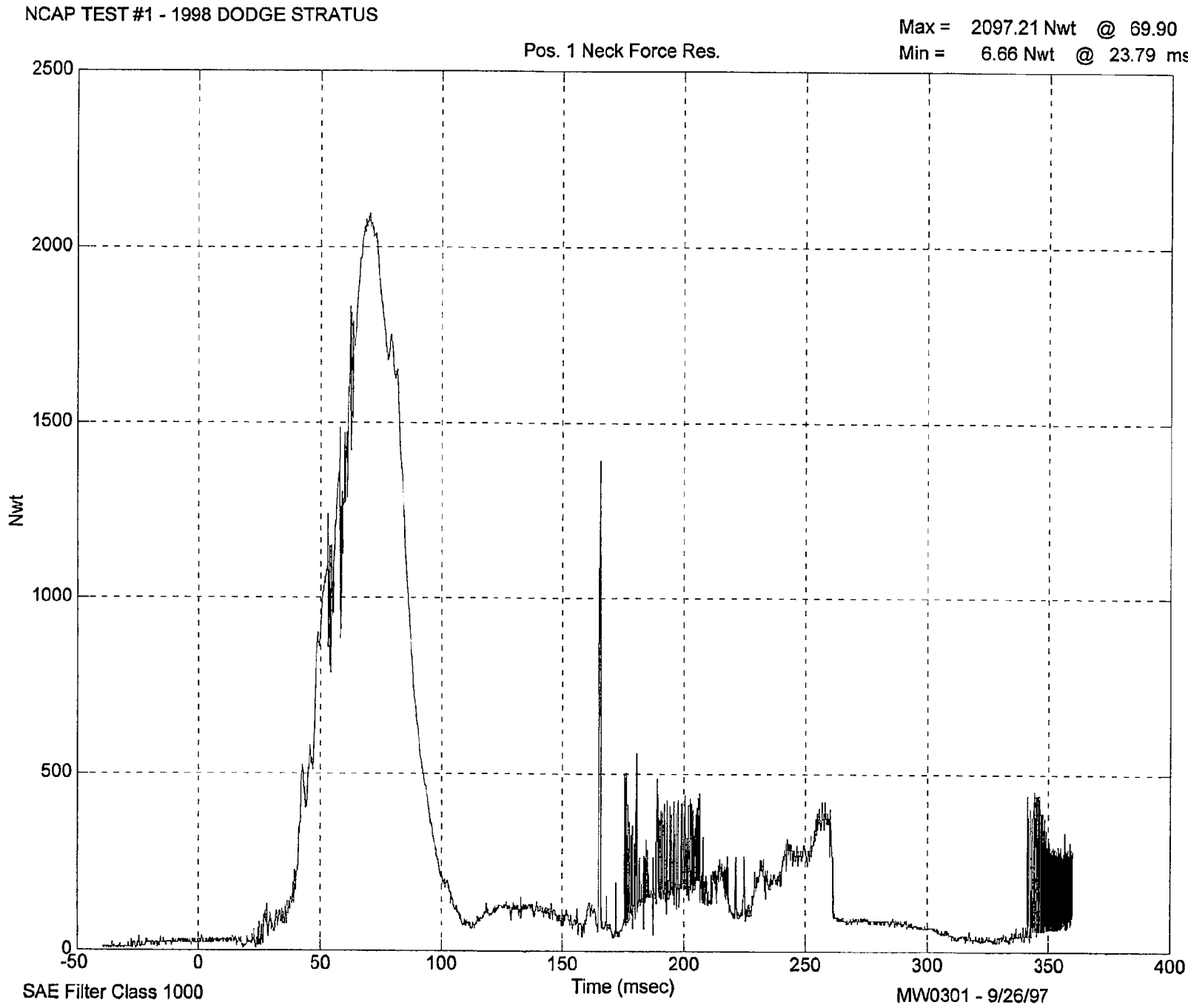

NCAP TEST #1 - 1998 DODGE STRATUS
Max = 27.49 Gs @ 55.29 msec
Min = -12.08 Gs @ 88.59 msec
Pos. 1 Head Z(R)
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

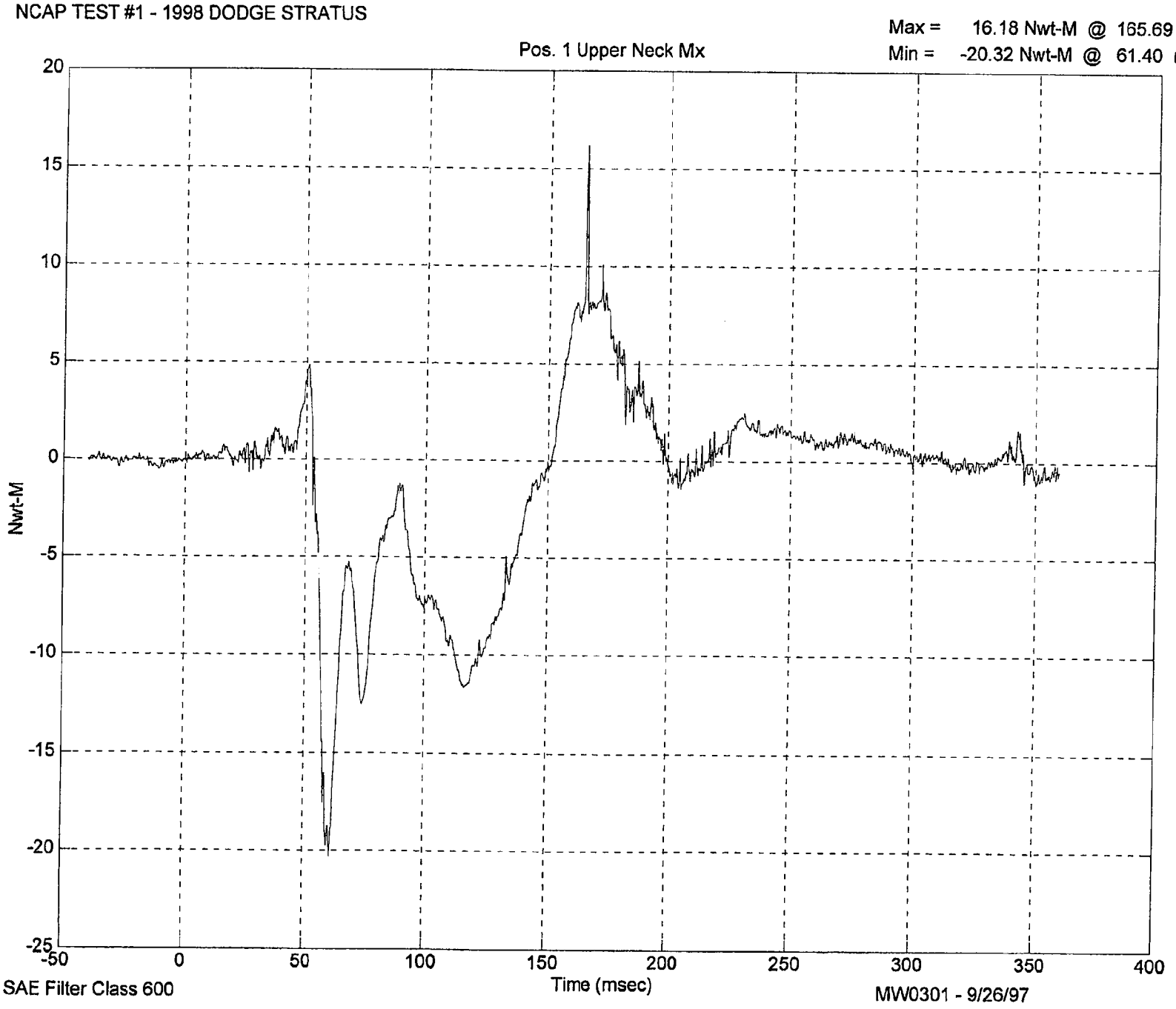

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Head Resultant(RR)
Max = 82.91 Gs @ 73.69 msec
Min = .05 Gs @ -33.29 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Upper Neck Fx
Max = 1113.97 Nwt @ 77.90 msec
Min = -392.35 Nwt @ 52.89 msec
1200
1000
800
600
400
200
0
-200
-400
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Max = 248.26 Nwt @ 62.00 msec
Min = -159.50 Nwt @ 357.29 msec
Pos. 1 Upper Neck Fy
Nwt
250
200
150
100
50
0
-50
-100
-150
-200
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Upper Neck Fz
Max = 1889.66 Nwt @ 69.90 msec
Min = -1378.37 Nwt @ 165.79 msec
Nwt
2000
1500
1000
500
0
-500
-1000
-1500
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

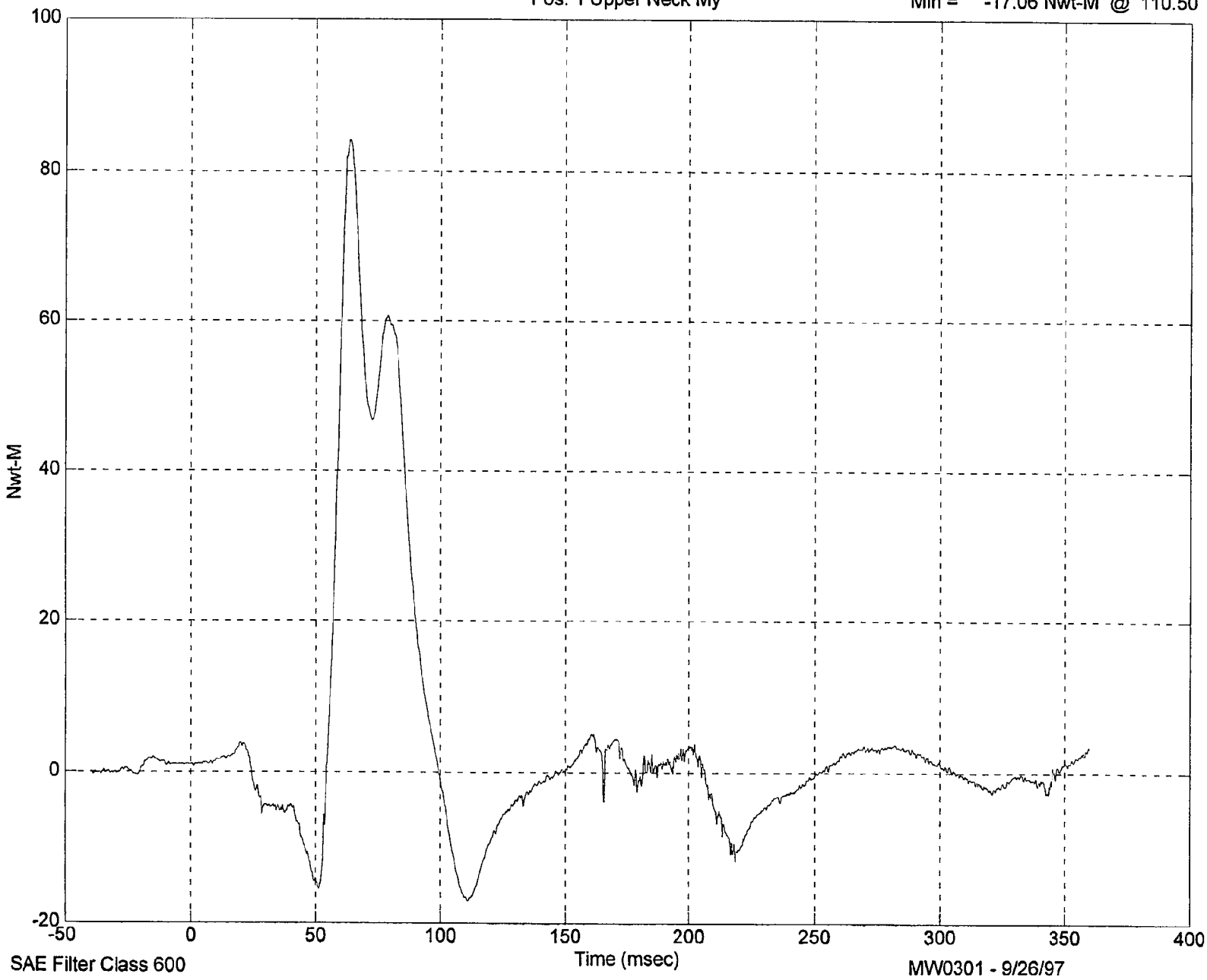

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Neck Force Res.
Max = 2097.21 Nwt @ 69.90 msec
Min = 6.66 Nwt @ 23.79 msec
2500
2000
1500
1000
500
0
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Upper Neck Mx
Max = 16.18 Nwt-M @ 165.69 msec
Min = -20.32 Nwt-M @ 61.40 msec
Nwt-M
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 1 Upper Neck My

Max = 84.12 Nwt-M @ 63.79 msec
Min = -17.06 Nwt-M @ 110.50 msec



SAE Filter Class 600

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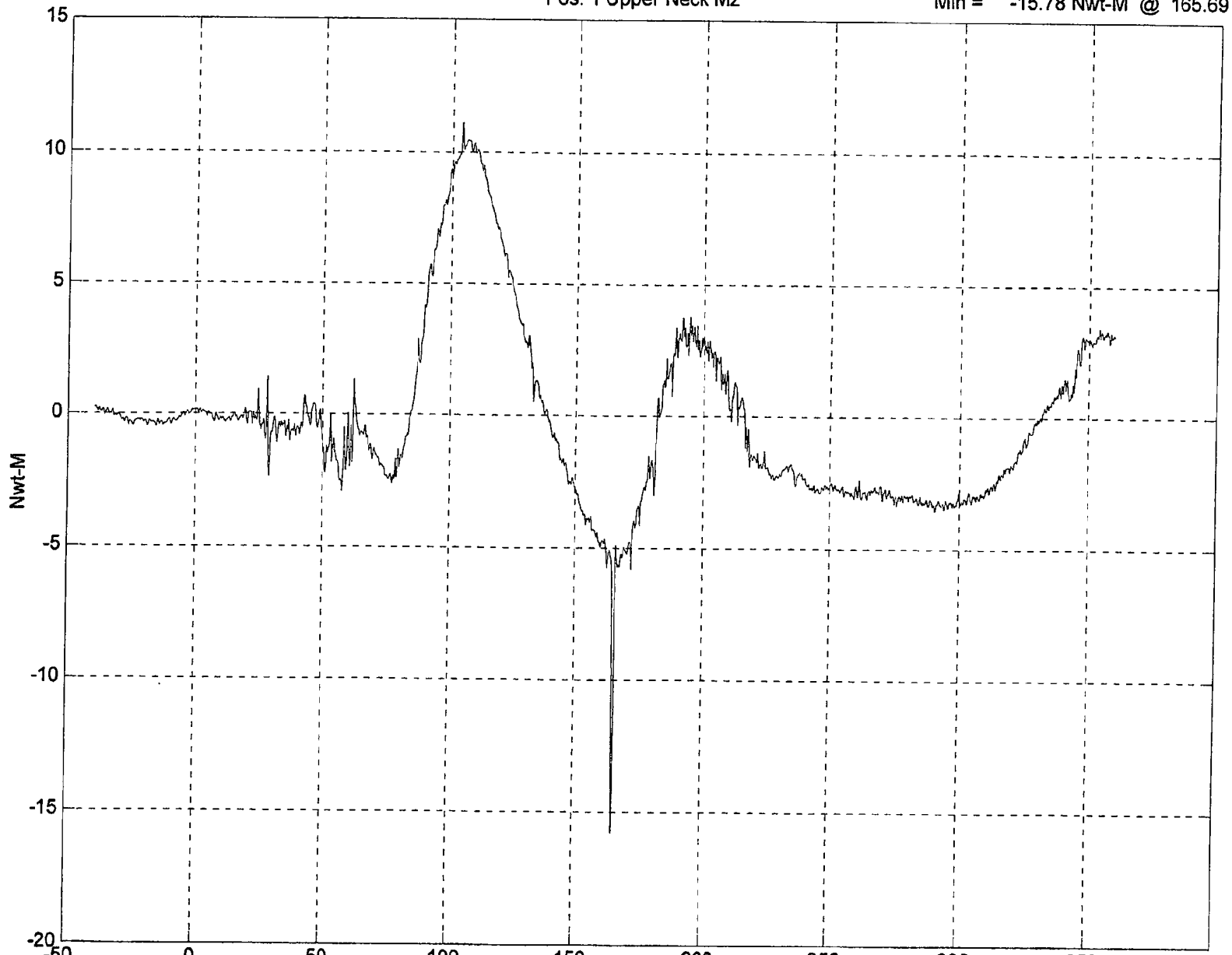
NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 1 Upper Neck Mz

Max = 11.10 Nwt-M @ 103.79 msec
Min = -15.78 Nwt-M @ 165.69 msec



SAE Filter Class 600

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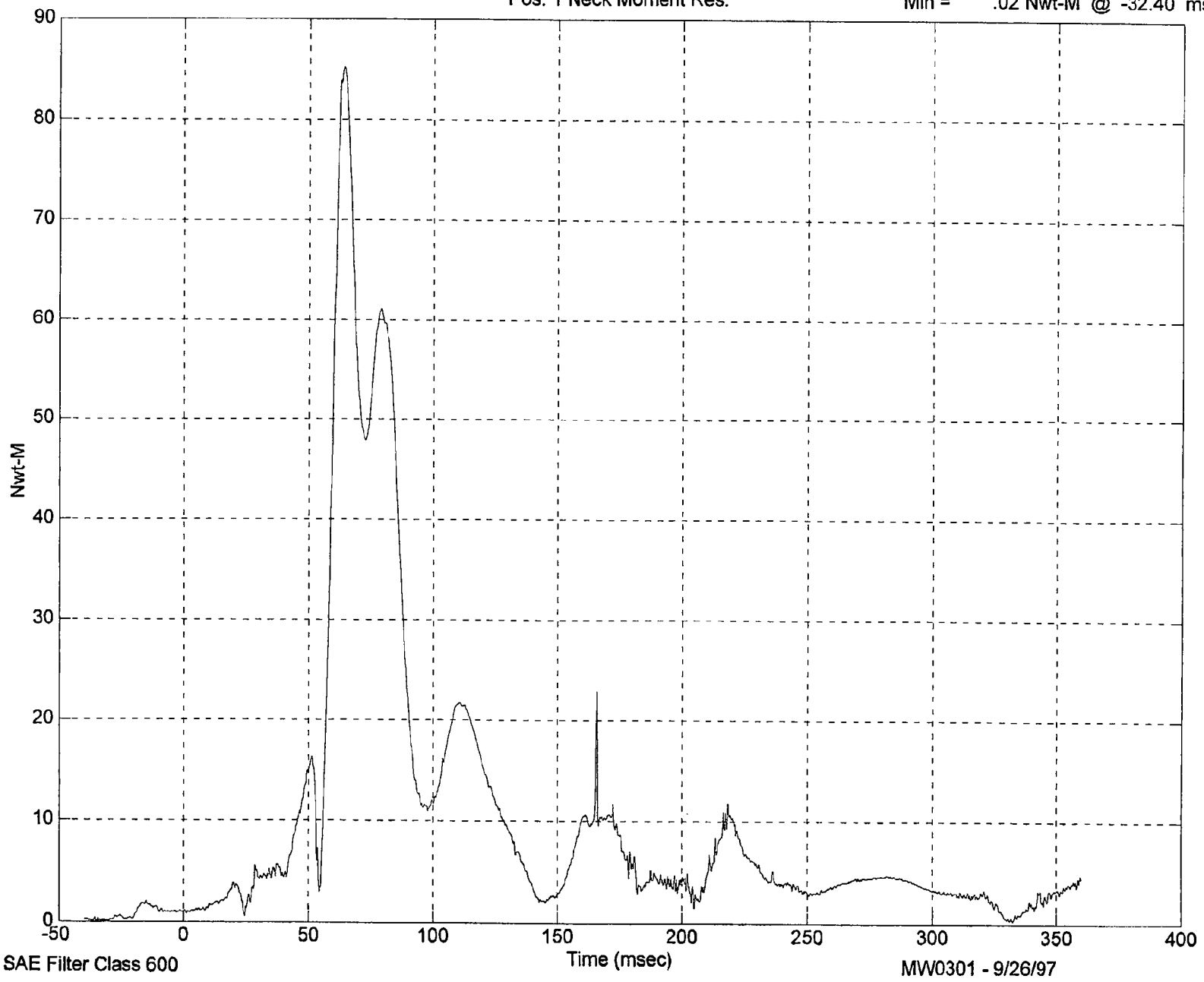
NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 1 Neck Moment Res.

Max = 85.17 Nwt-M @ 63.69 msec
Min = .02 Nwt-M @ -32.40 msec



SAE Filter Class 600

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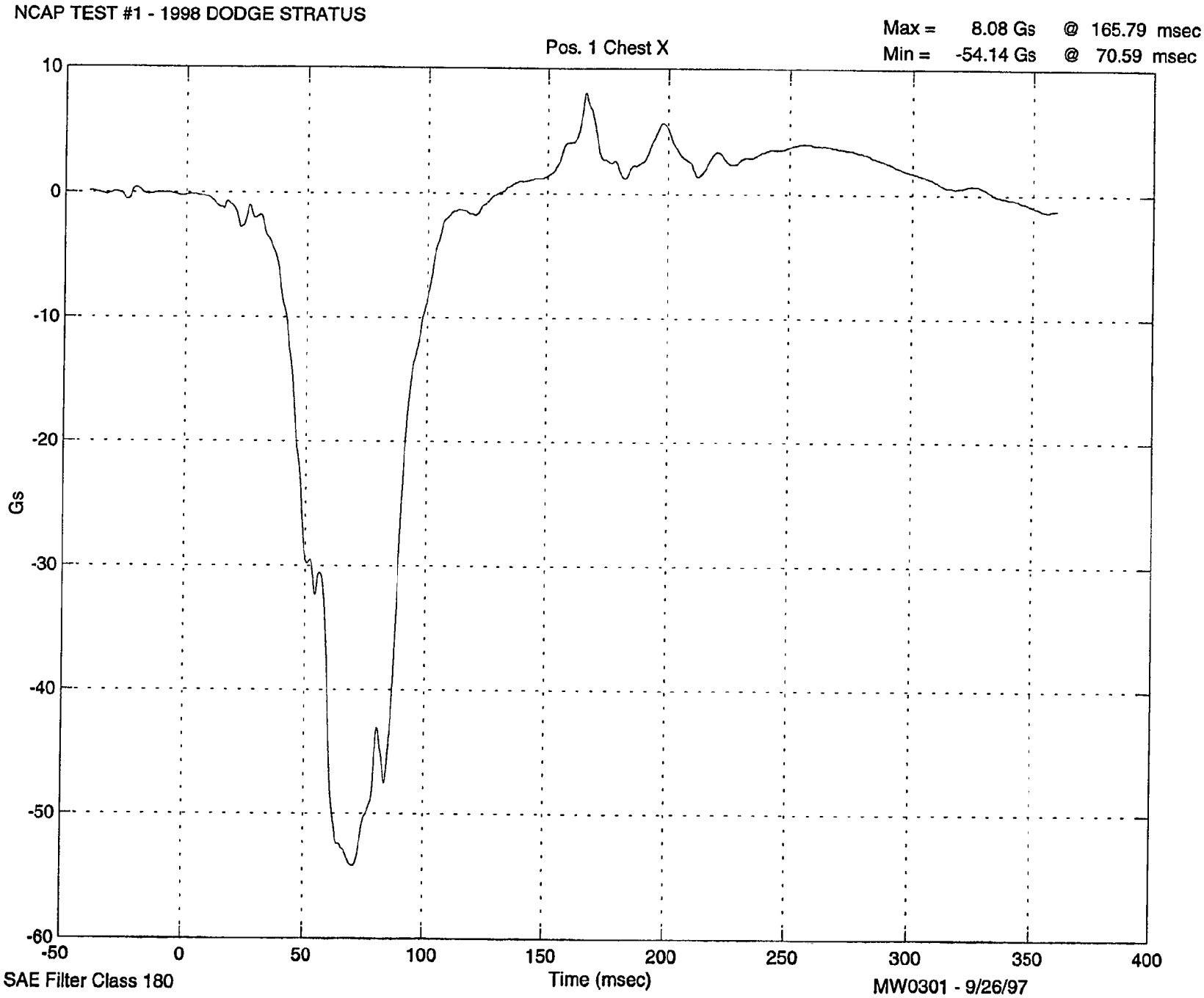
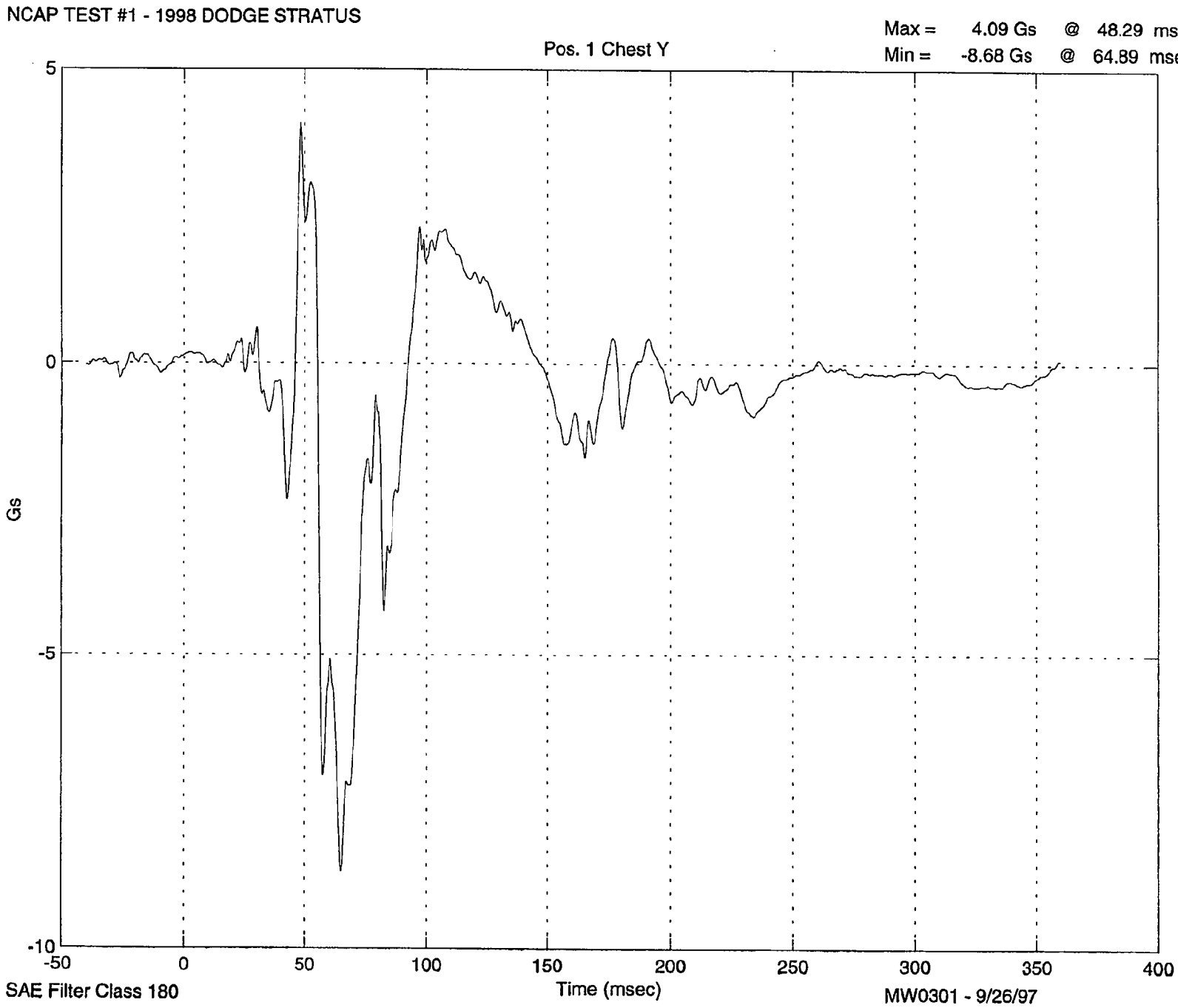
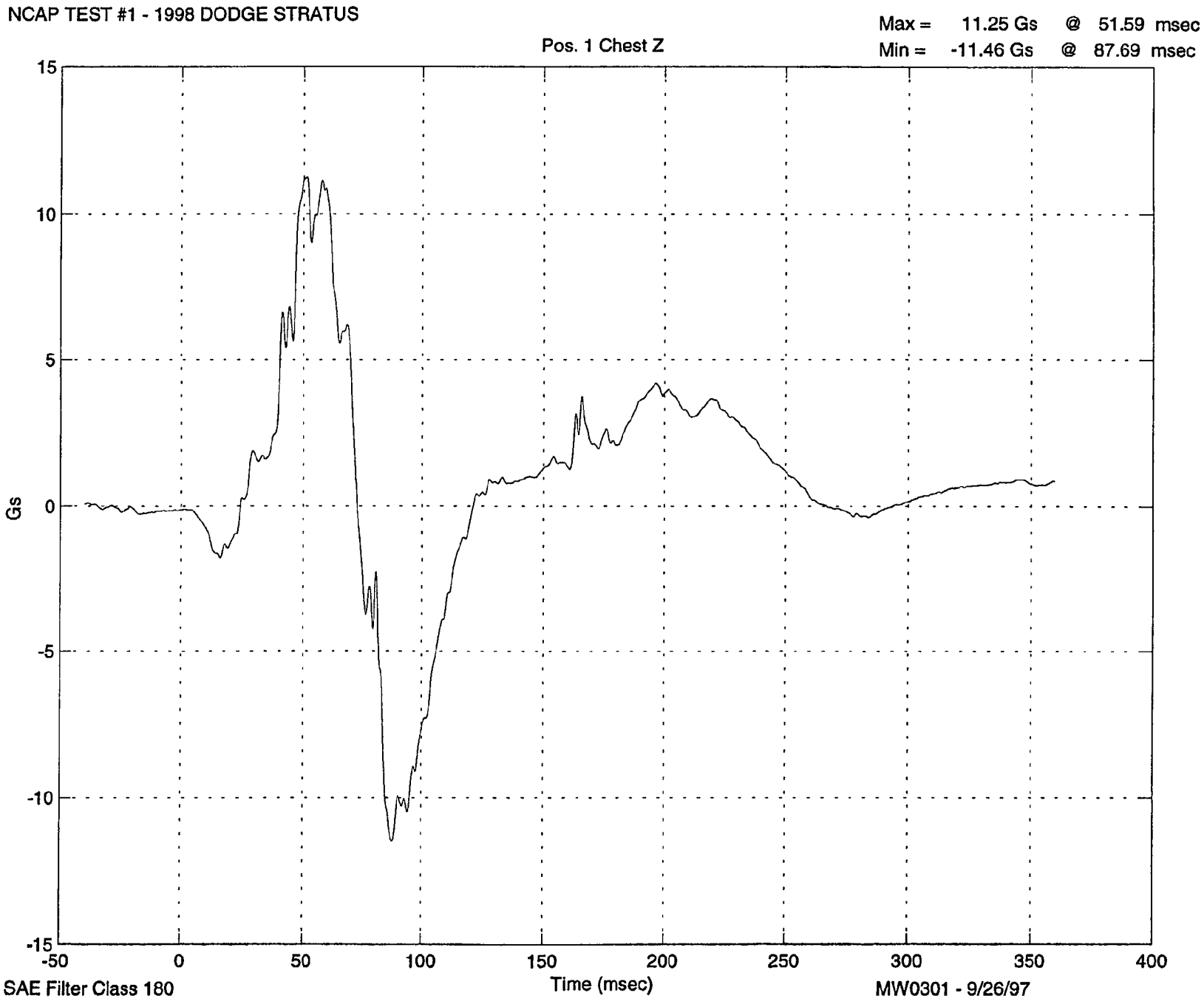

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Chest X
Max = 8.08 Gs @ 165.79 msec
Min = -54.14 Gs @ 70.59 msec
10
0
-10
-20
-30
-40
-50
-60
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97

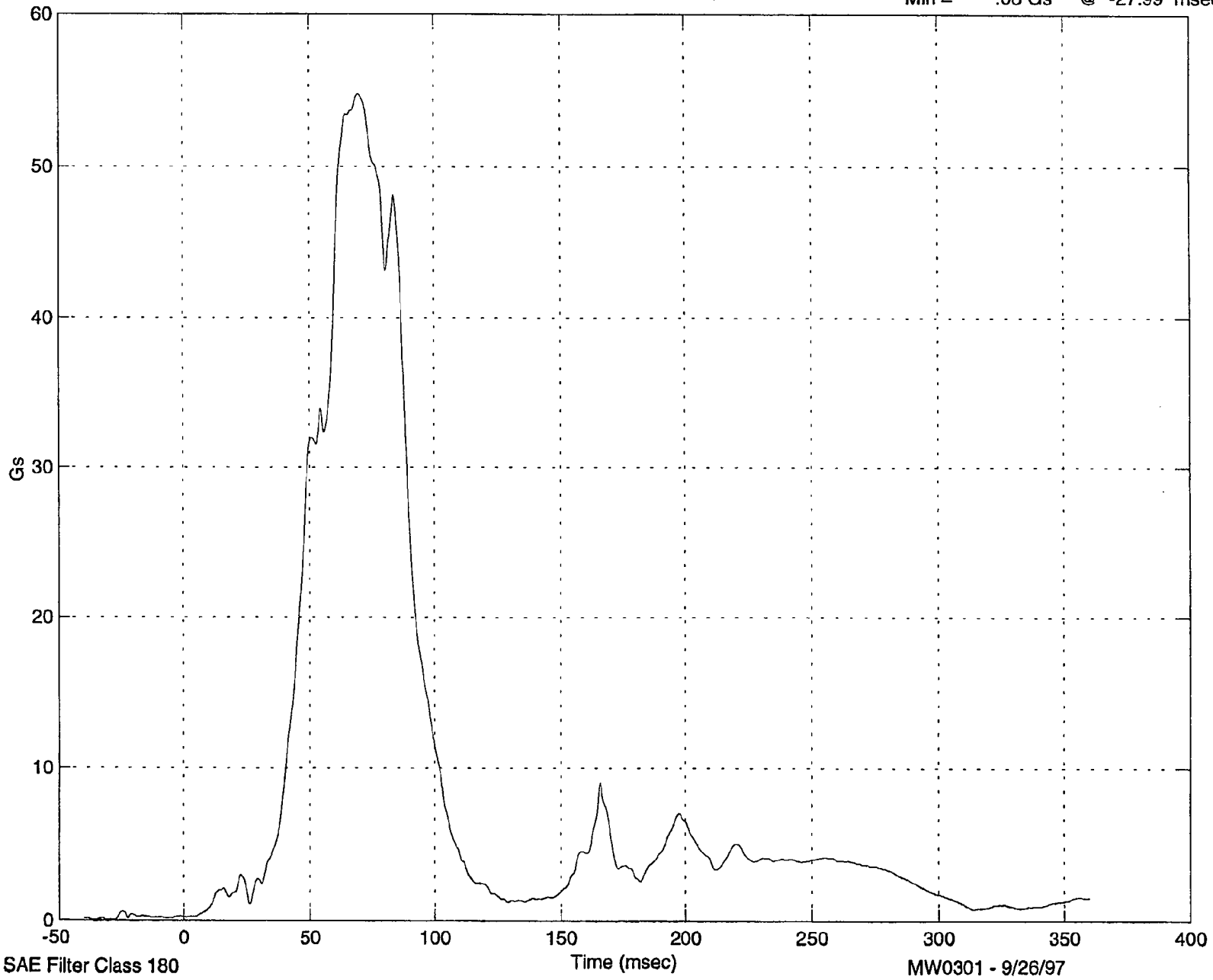

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Chest Y
Max = 4.09 Gs @ 48.29 msec
Min = -8.68 Gs @ 64.89 msec
5
0
-5
-10
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Chest Z
Max = 11.25 Gs @ 51.59 msec
Min = -11.46 Gs @ 87.69 msec
Gs
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 1 Chest Resultant

Max = 54.75 Gs @ 69.59 msec
Min = .03 Gs @ -27.99 msec



SAE Filter Class 180

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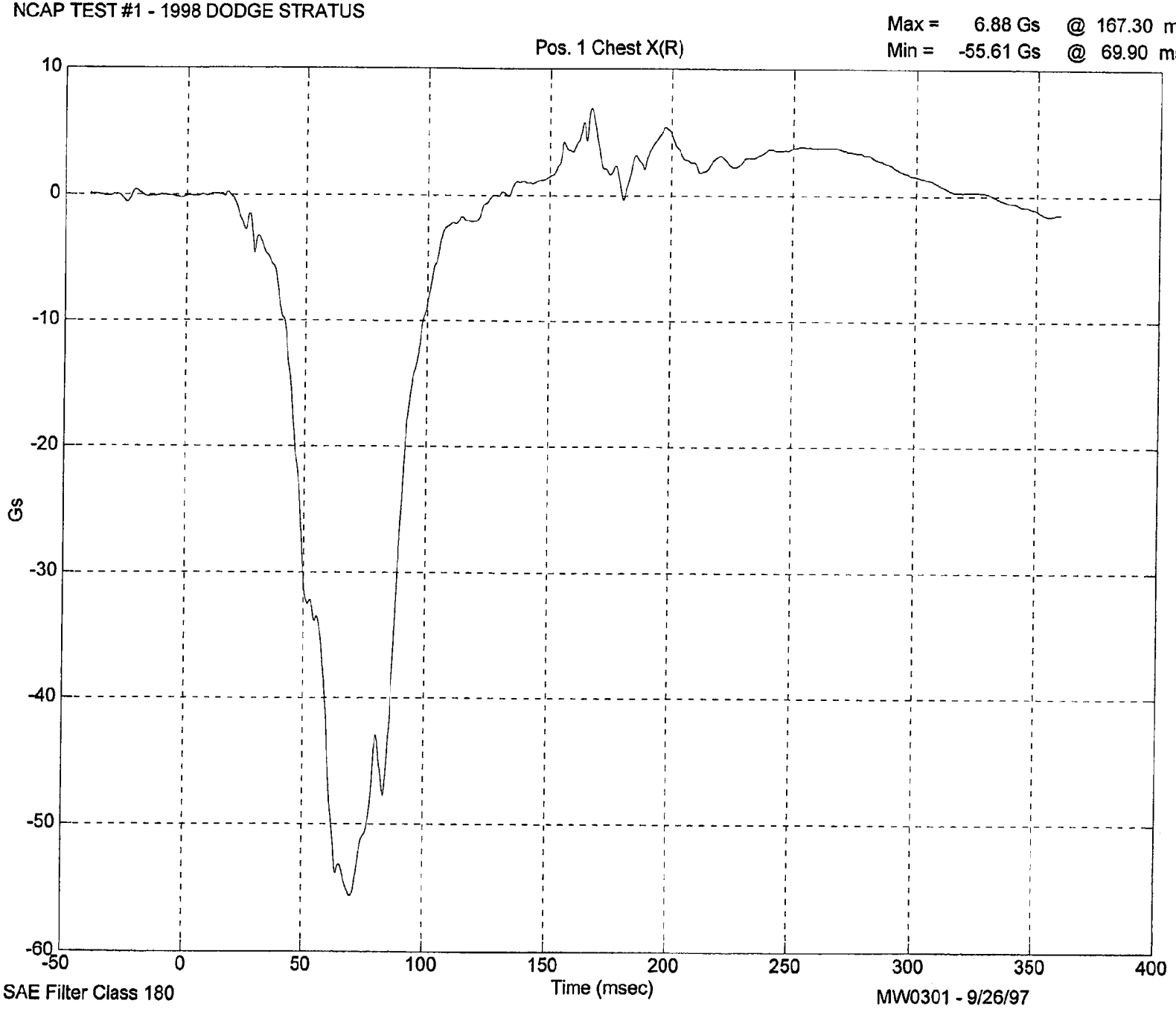
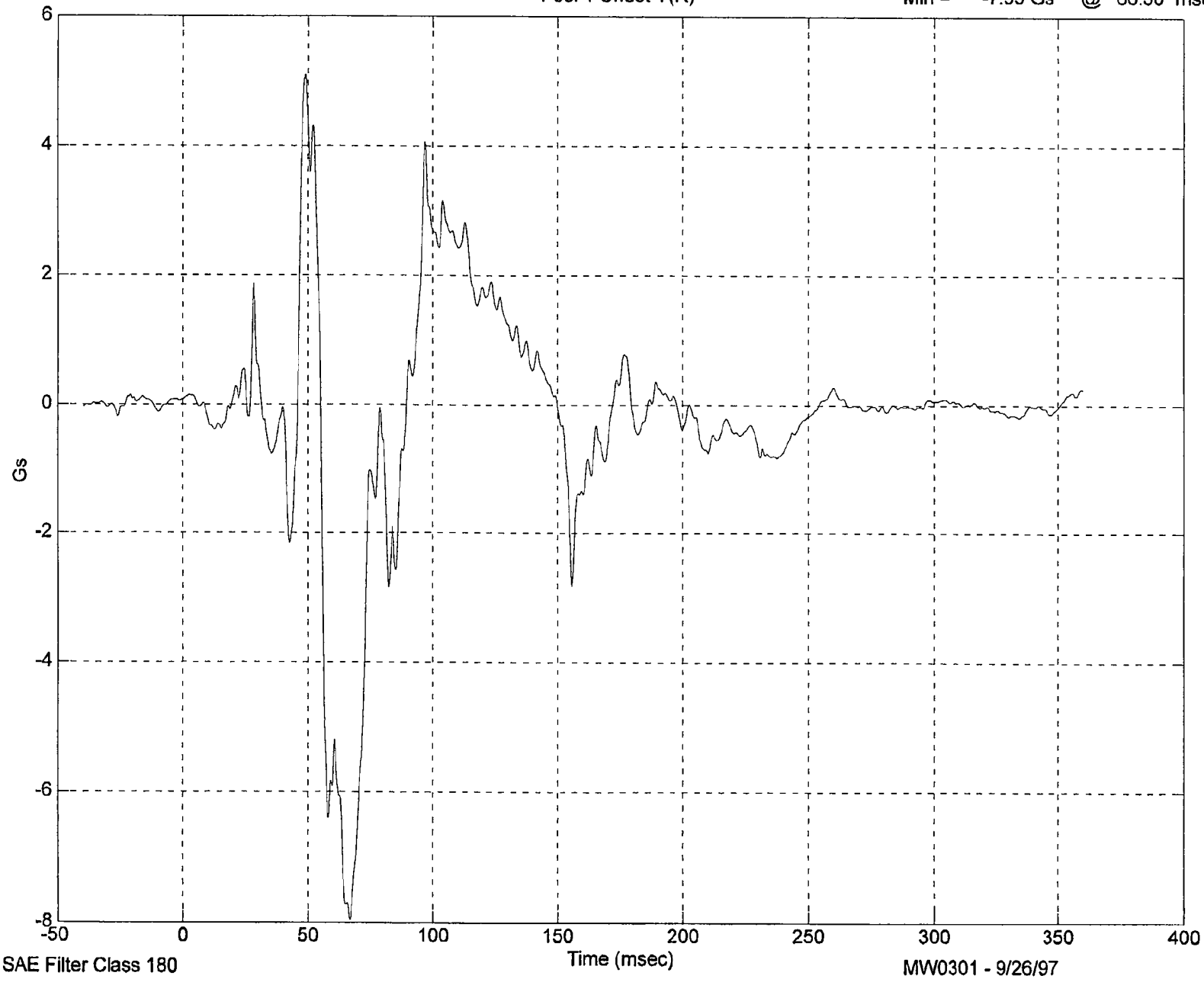
NCAP TEST #1 - 1998 DODGE STRATUS



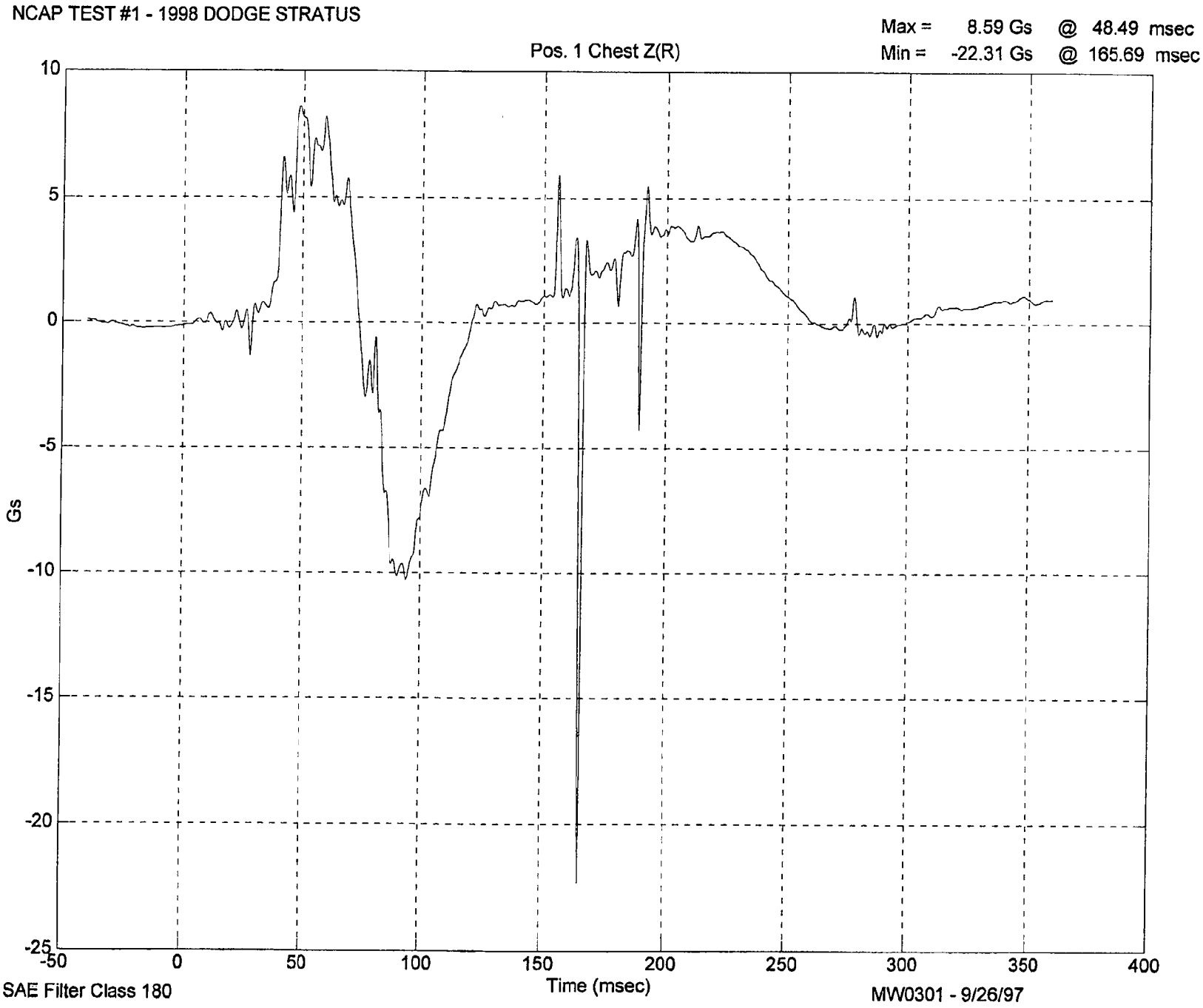
NCAP TEST #1 - 1998 DODGE STRATUS

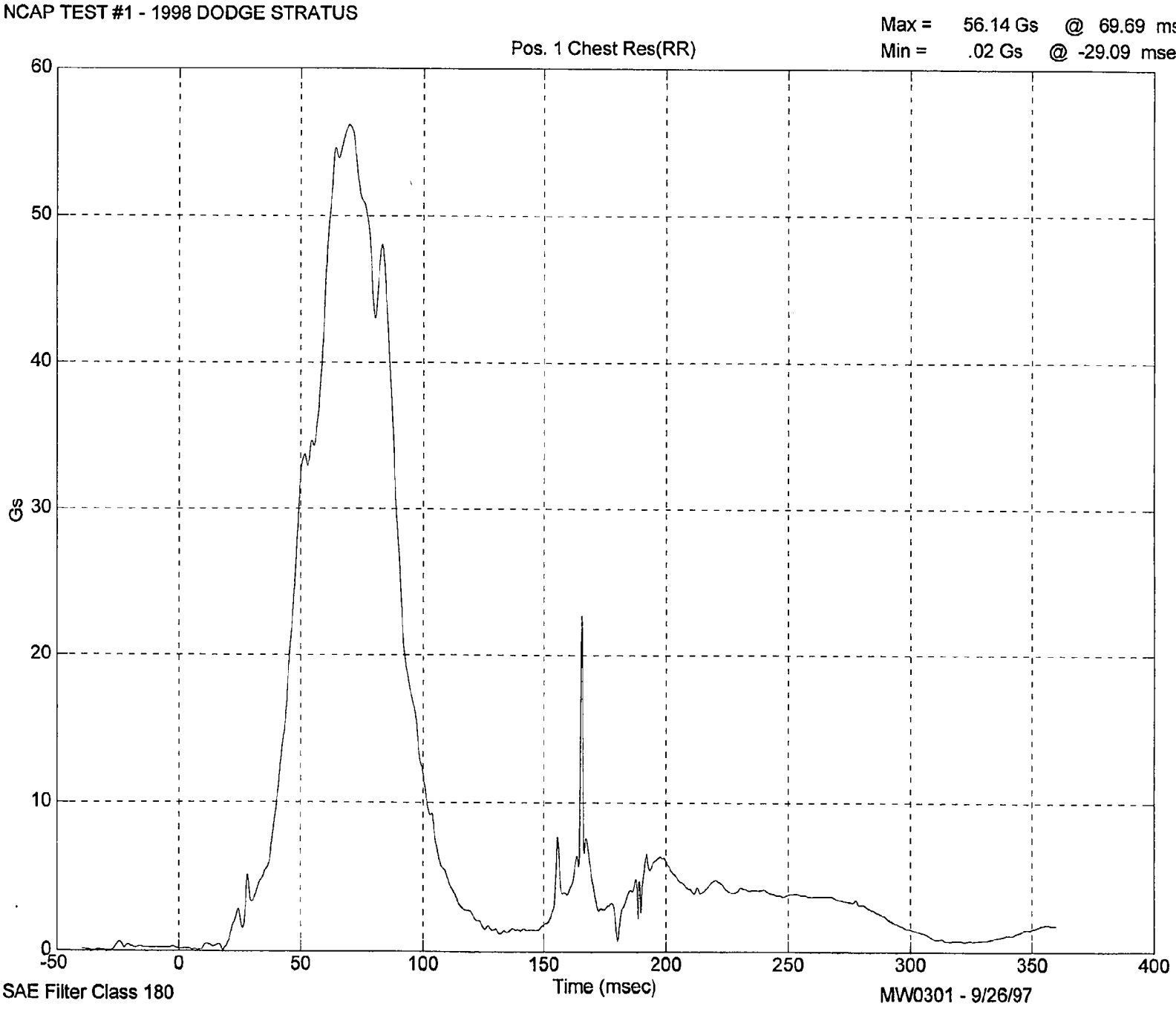
Max = 5.10 Gs @ 49.00 msec
Min = -7.95 Gs @ 66.50 msec



SAE Filter Class 180

MW0301 - 9/26/97

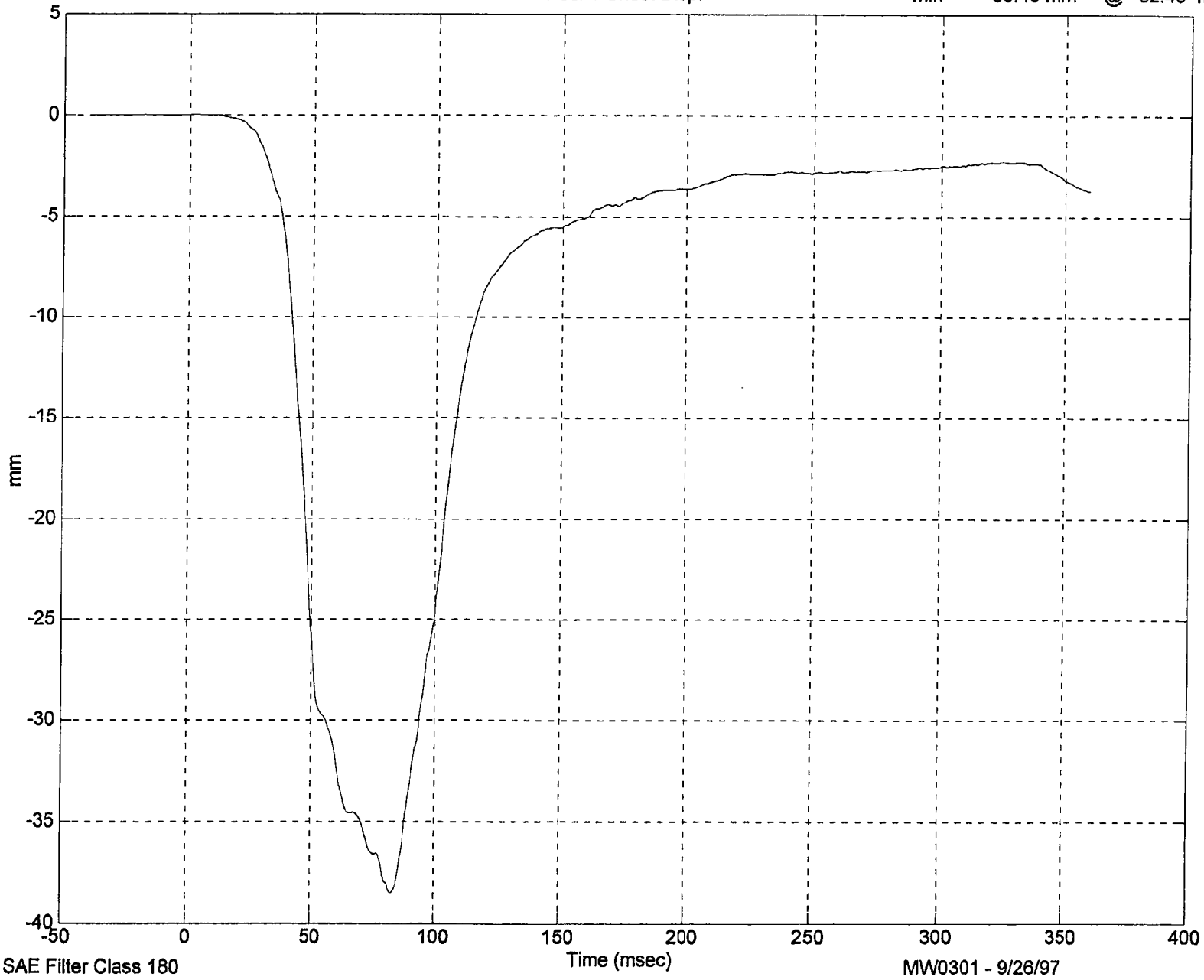

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Chest Z(R)
Max = 8.59 Gs @ 48.49 msec
Min = -22.31 Gs @ 165.69 msec
Gs
10
5
0
-5
-10
-15
-20
-25
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Max = 56.14 Gs @ 69.69 msec
Min = .02 Gs @ -29.09 msec
Pos. 1 Chest Res(RR)
60
50
40
30
20
10
0
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

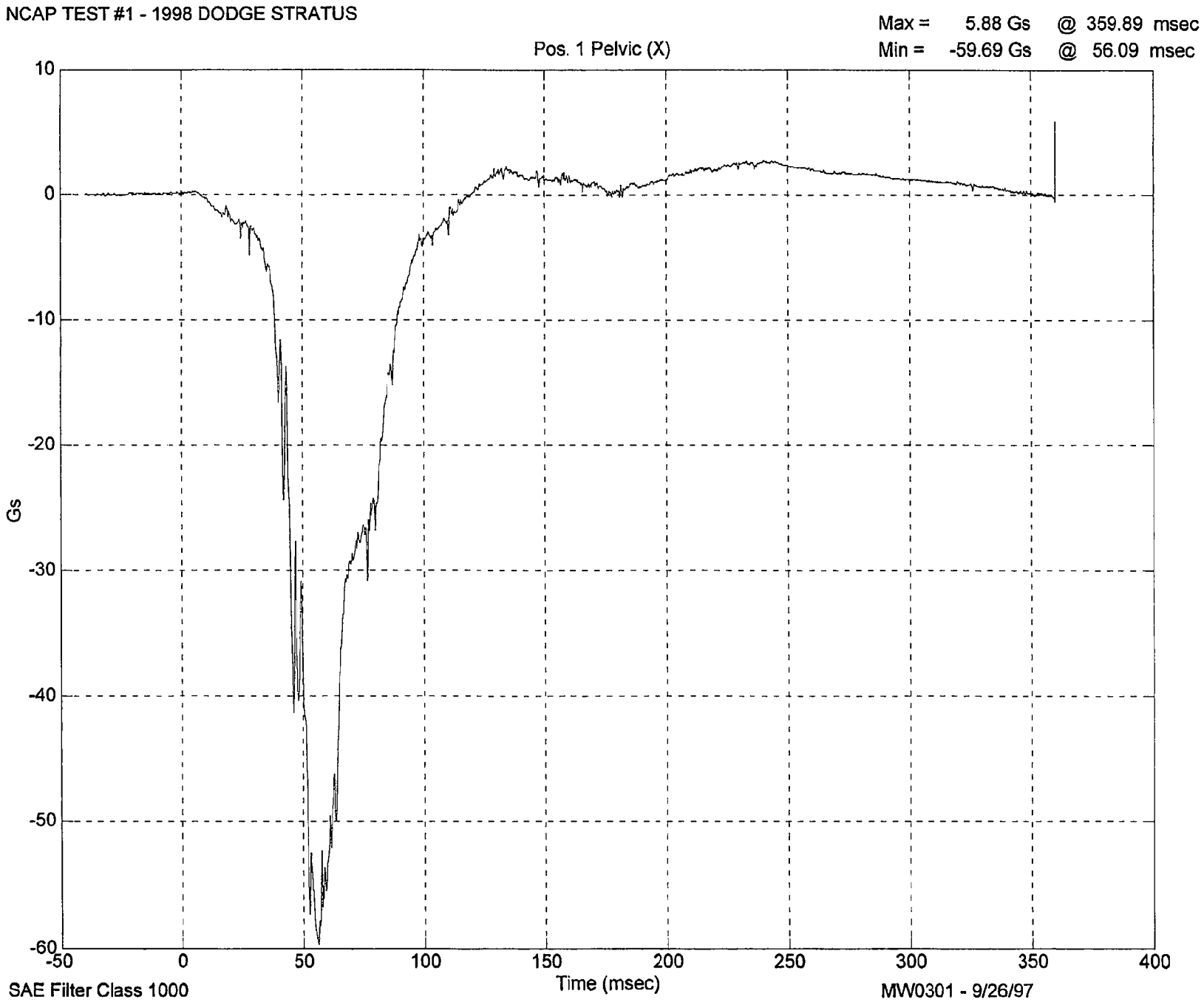
Pos. 1 Chest Disp.

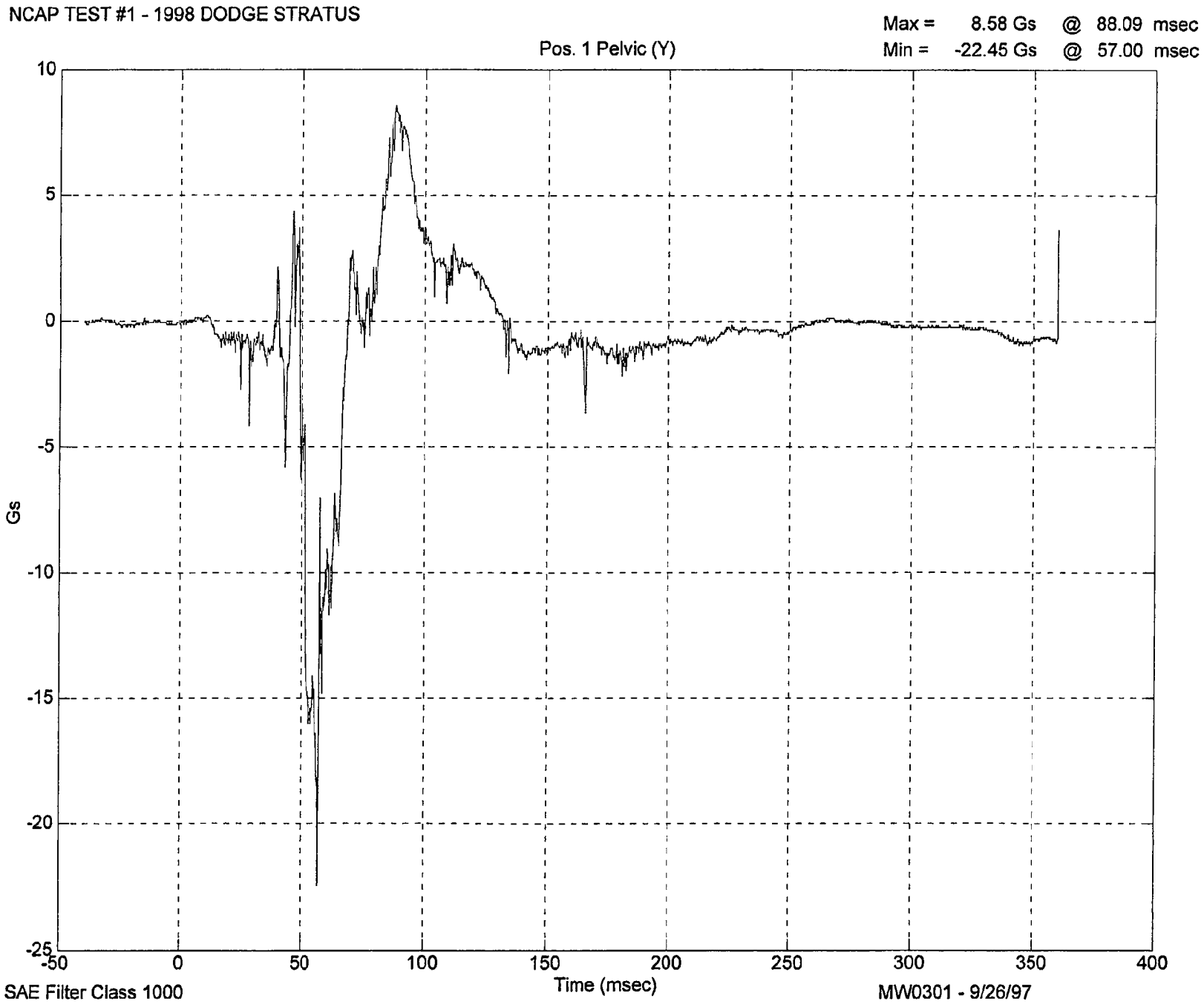
Max = .03 mm @ 2.79 msec
Min = -38.49 mm @ 82.49 msec

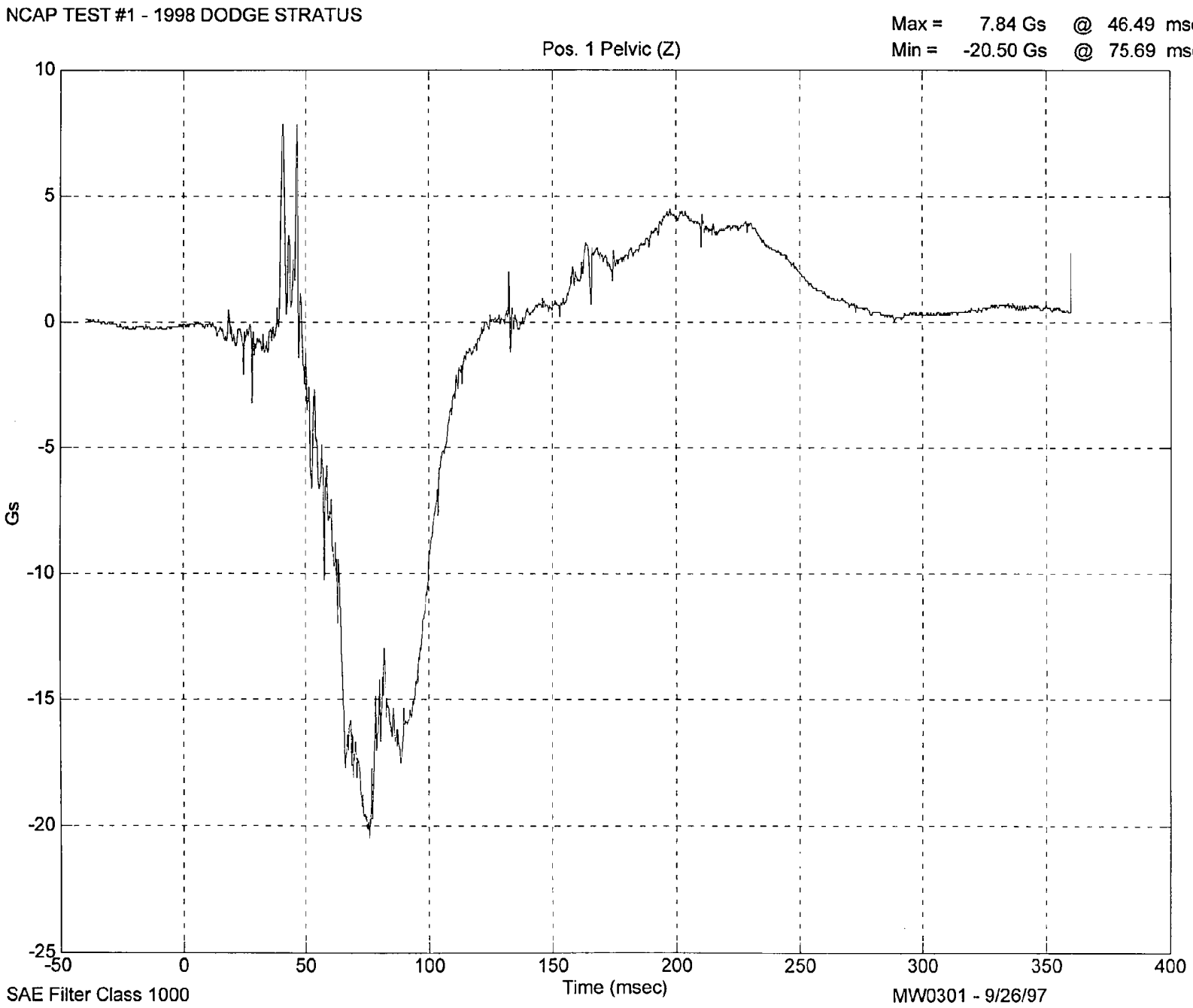


SAE Filter Class 180

MW0301 - 9/26/97

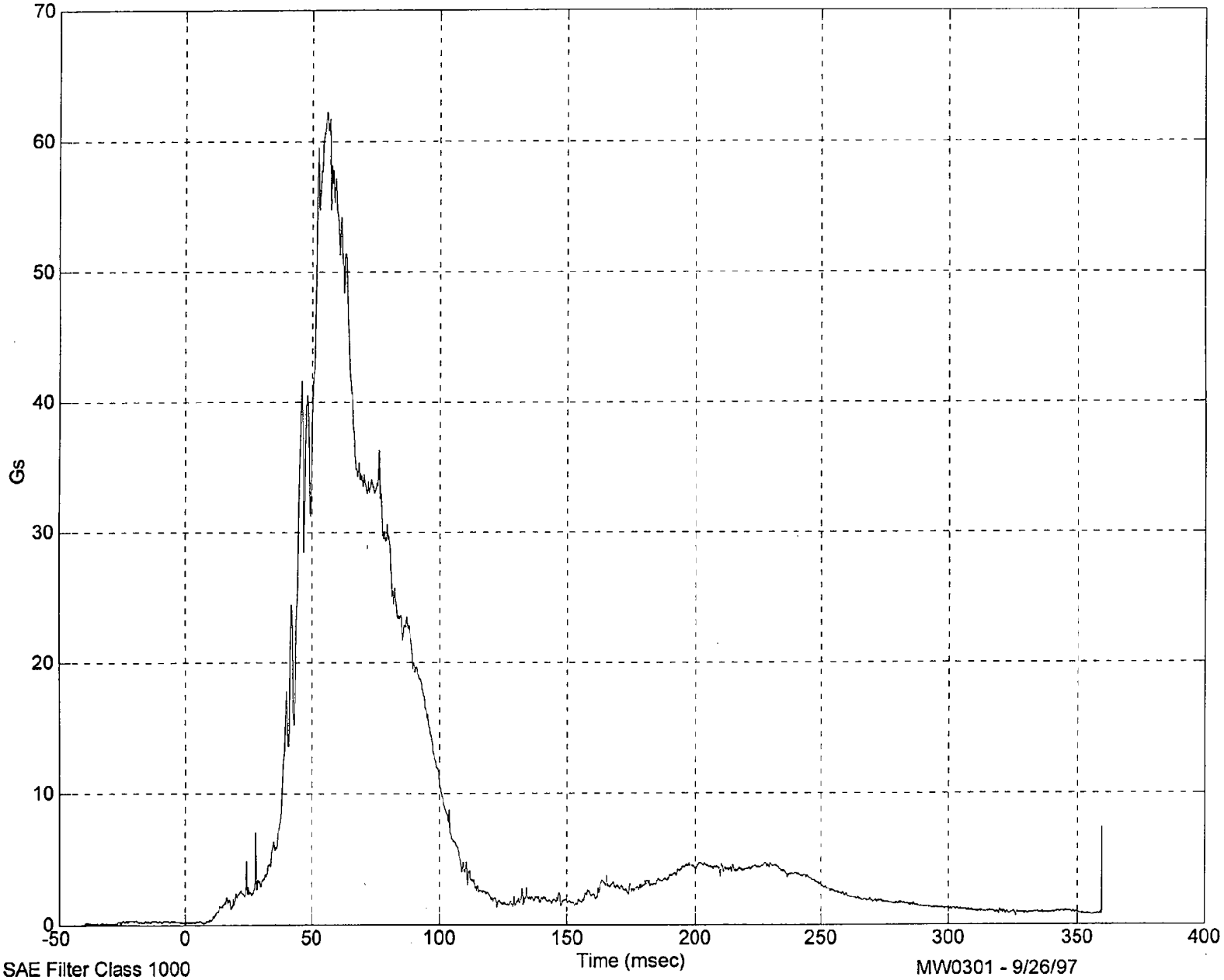

NCAP TEST #1 - 1998 DODGE STRATUS
Max = 5.88 Gs @ 359.89 msec
Pos. 1 Pelvic (X)
Min = -59.69 Gs @ 56.09 msec
10
0
-10
-20
-30
-40
-50
-60
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Pelvic (Y)
Max = 8.58 Gs @ 88.09 msec
Min = -22.45 Gs @ 57.00 msec
10
5
0
-5
-10
-15
-20
-25
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Pelvic (Z)
Max = 7.84 Gs @ 46.49 msec
Min = -20.50 Gs @ 75.69 msec
10
5
0
-5
-10
-15
-20
-25
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

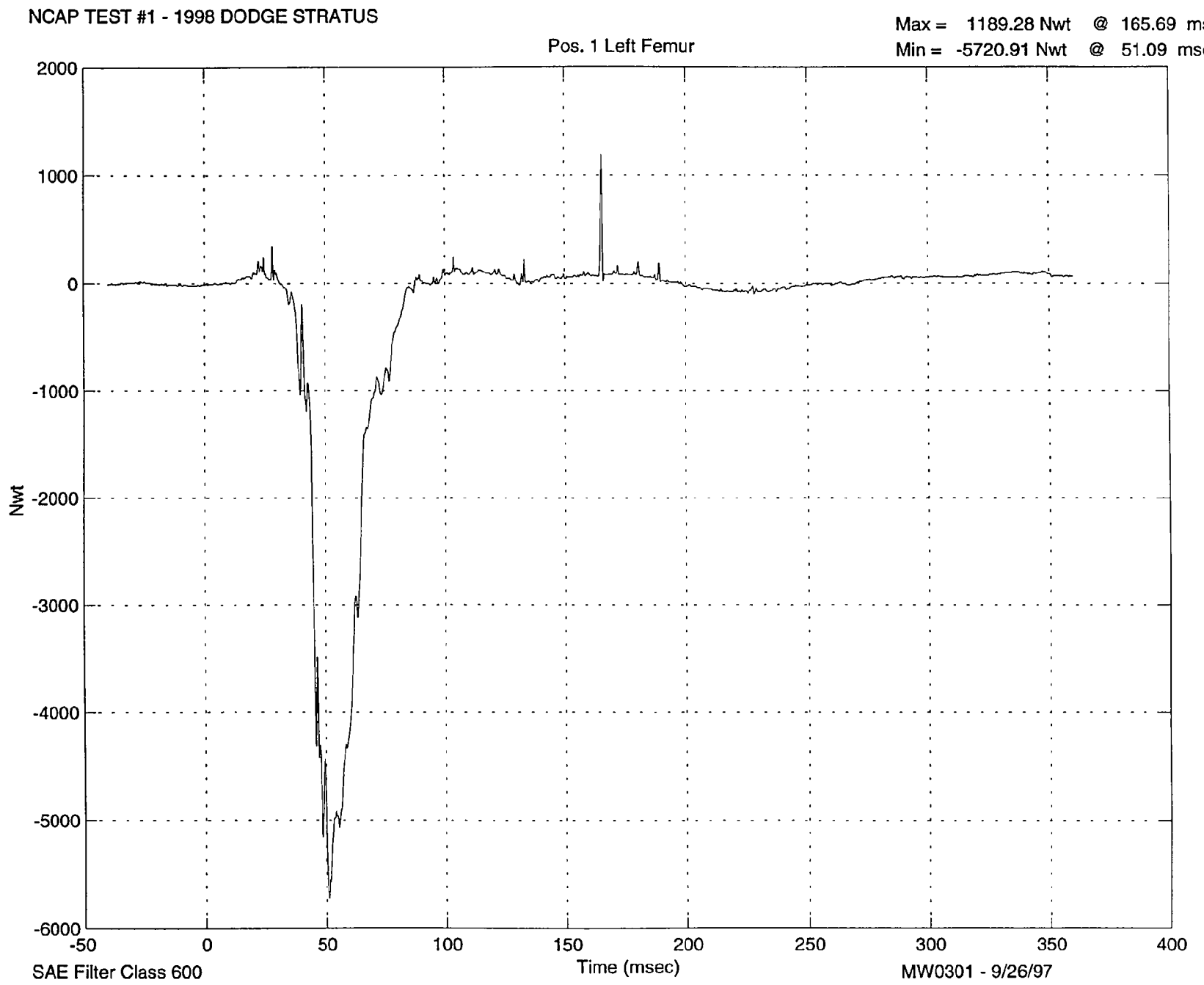
NCAP TEST #1 - 1998 DODGE STRATUS

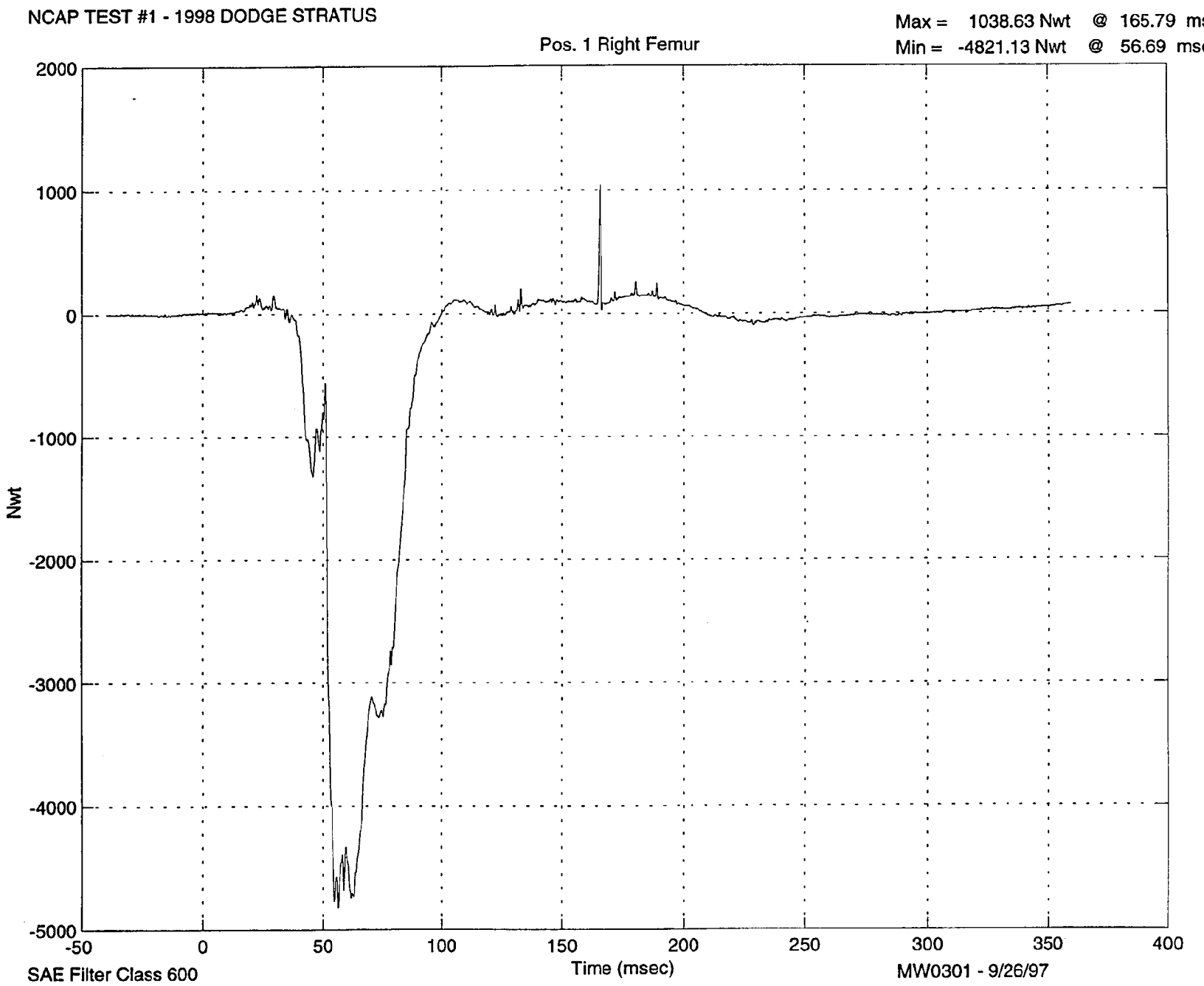
Max = 62.28 Gs @ 55.99 msec
Min = .04 Gs @ -28.89 msec

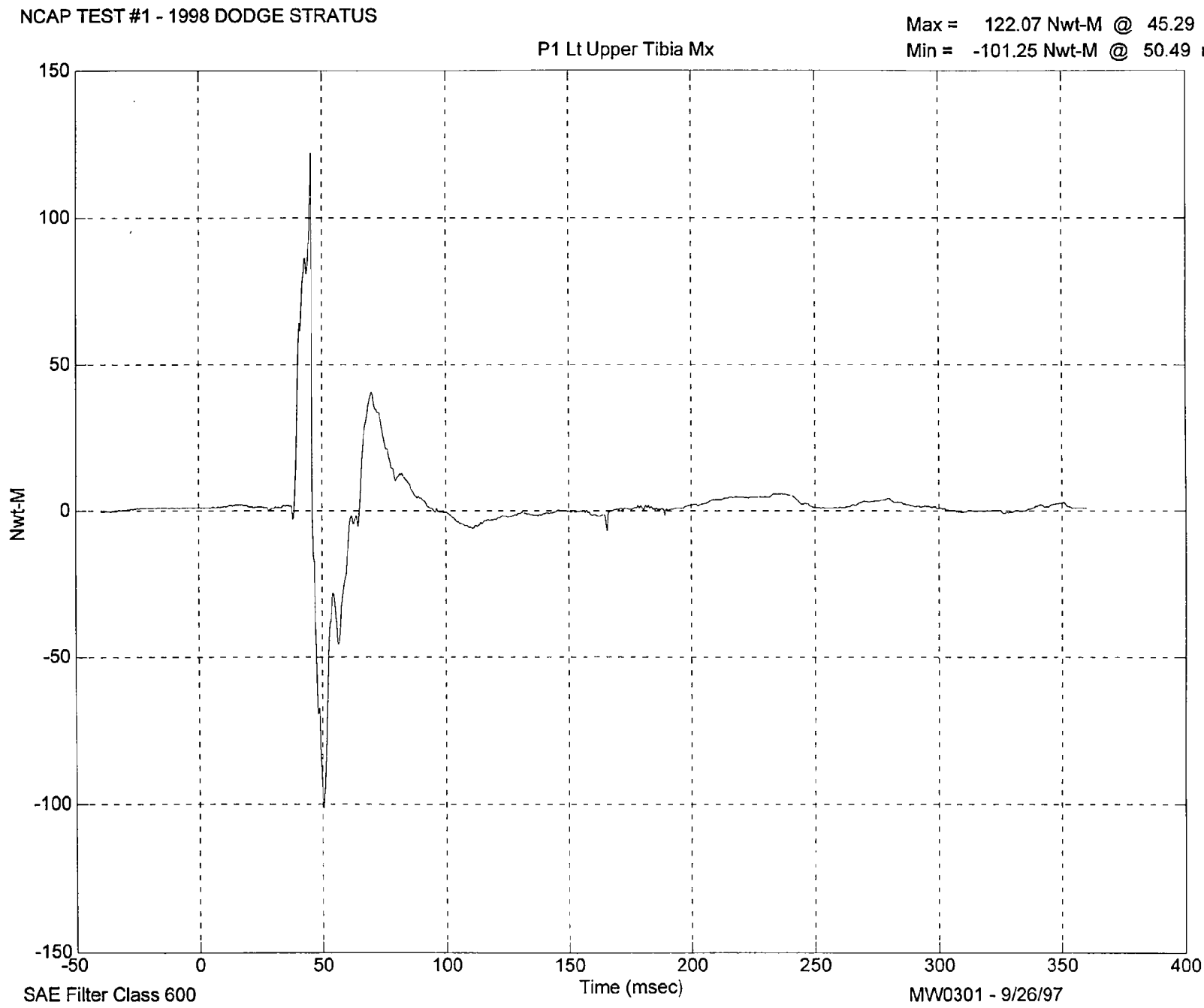


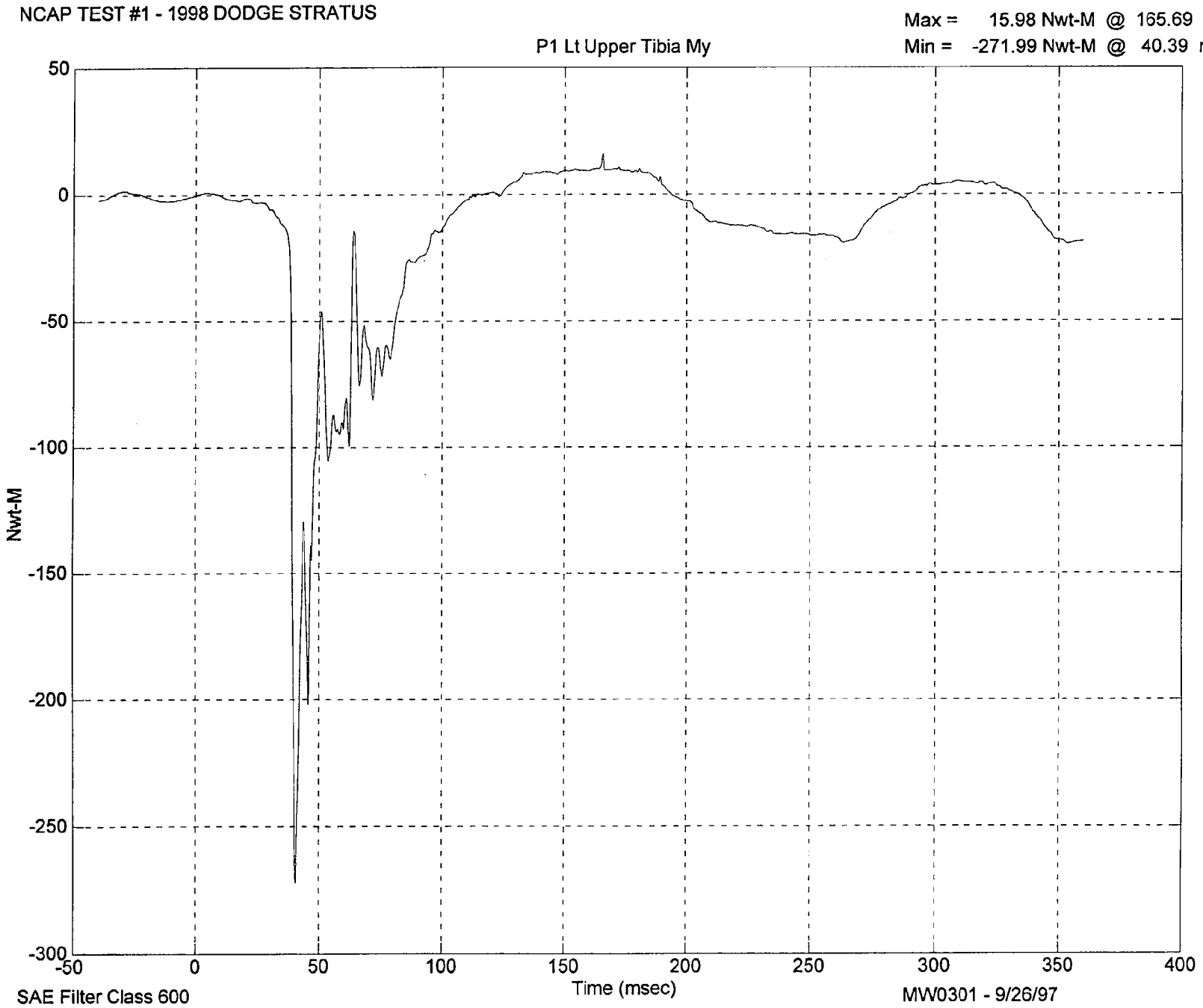
SAE Filter Class 1000

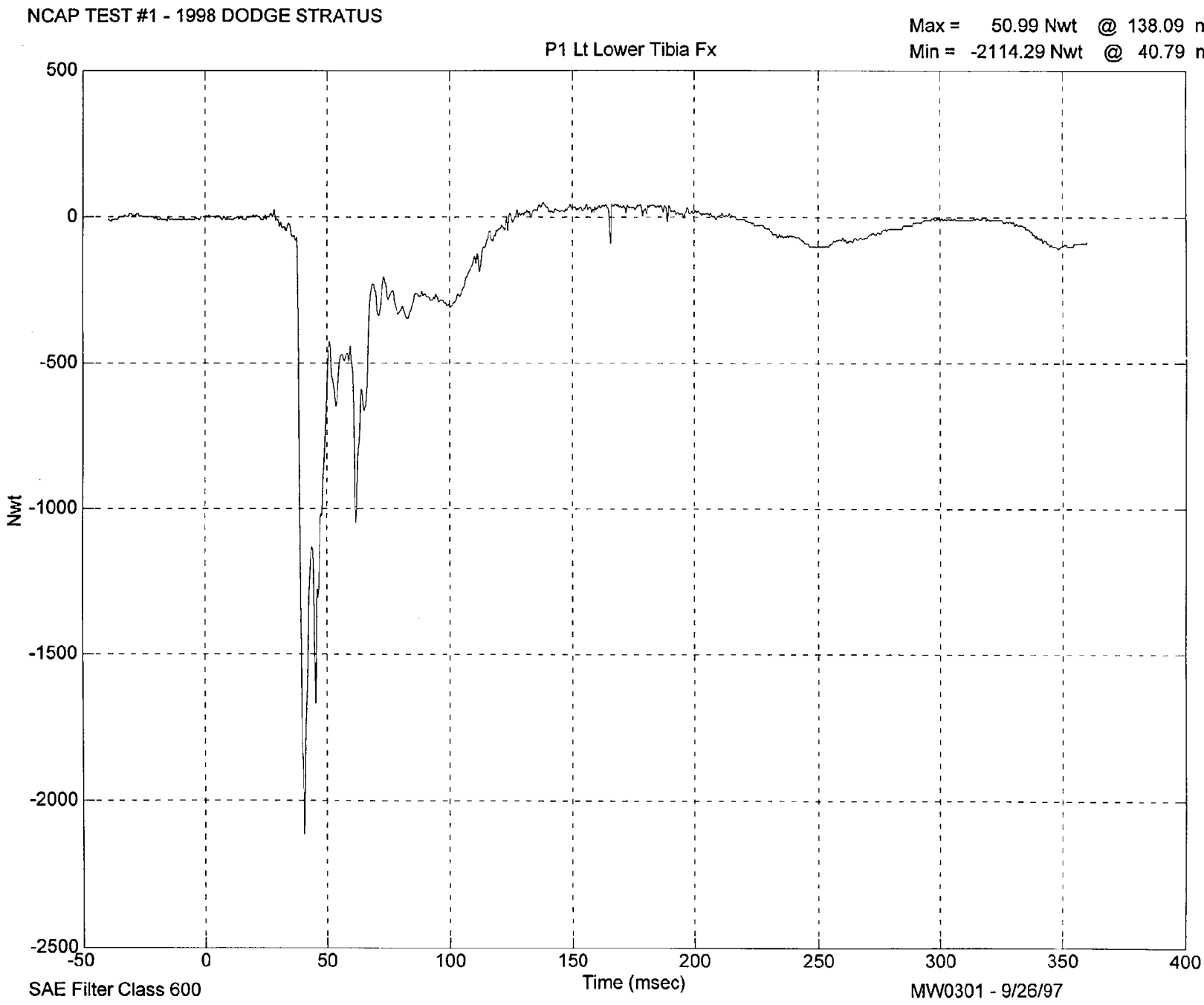
MW0301 - 9/26/97

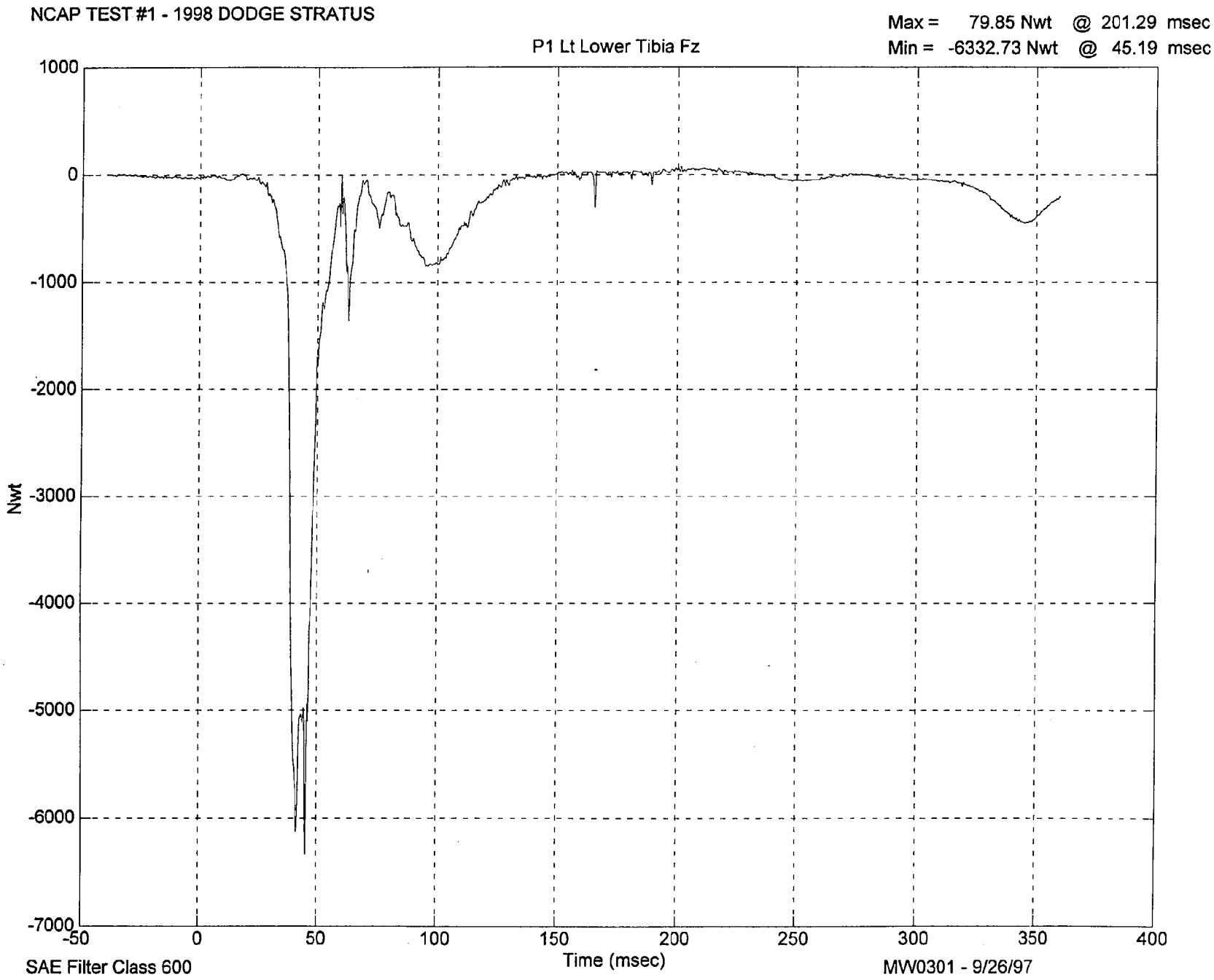

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Left Femur
Max = 1189.28 Nwt @ 165.69 msec
Min = -5720.91 Nwt @ 51.09 msec
Nwt
2000
1000
0
-1000
-2000
-3000
-4000
-5000
-6000
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

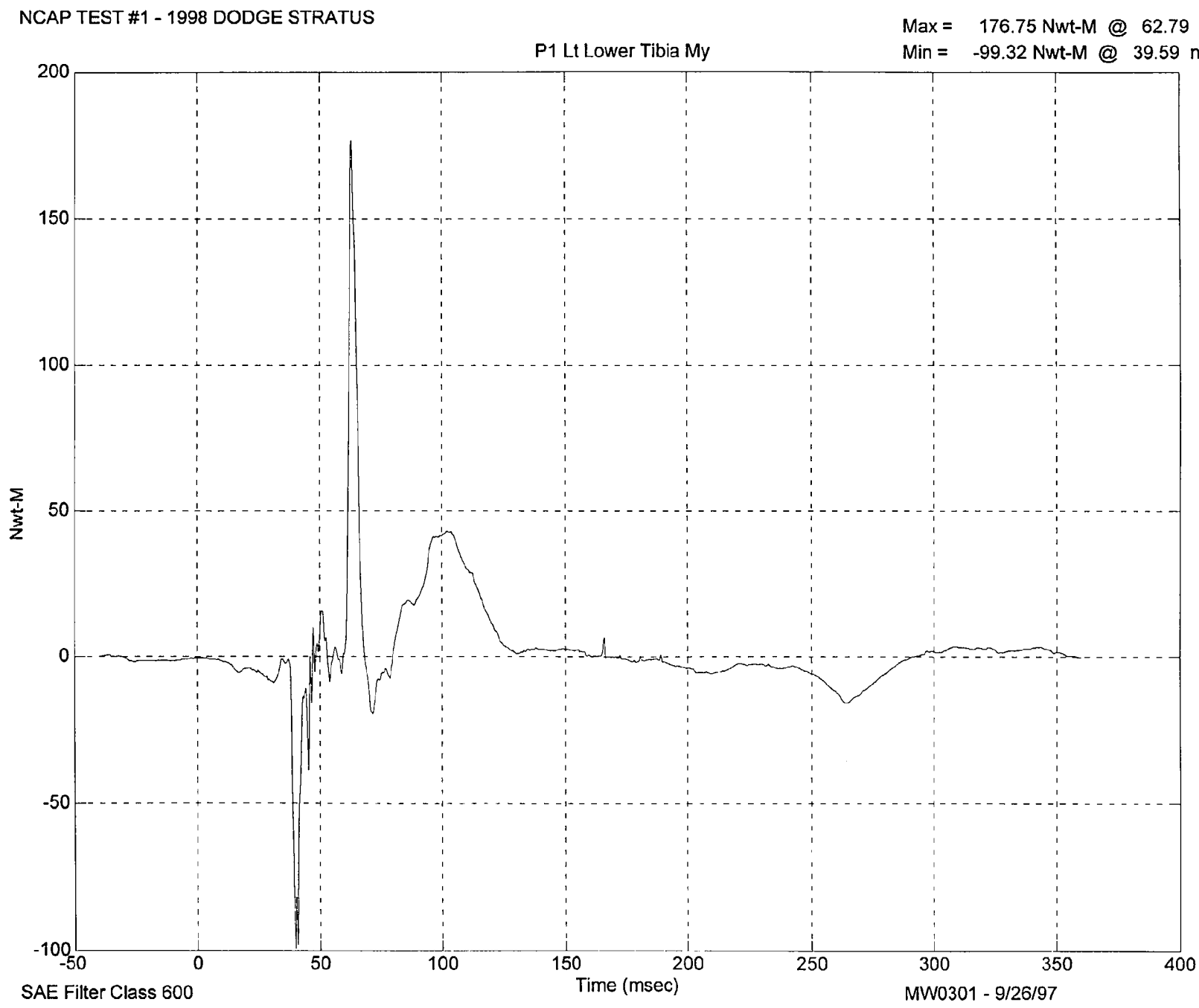

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Right Femur
Max = 1038.63 Nwt @ 165.79 msec
Min = -4821.13 Nwt @ 56.69 msec
2000
1000
0
-1000
-2000
-3000
-4000
-5000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
P1 Lt Upper Tibia Mx
Max = 122.07 Nwt-M @ 45.29 msec
Min = -101.25 Nwt-M @ 50.49 msec
Nwt-M
150
100
50
0
-50
-100
-150
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
P1 Lt Upper Tibia My
Max = 15.98 Nwt-M @ 165.69 msec
Min = -271.99 Nwt-M @ 40.39 msec
50
0
-50
-100
-150
-200
-250
-300
Nwt-M
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
P1 Lt Lower Tibia Fx
Max = 50.99 Nwt @ 138.09 msec
Min = -2114.29 Nwt @ 40.79 msec
500
0
-500
-1000
-1500
-2000
-2500
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

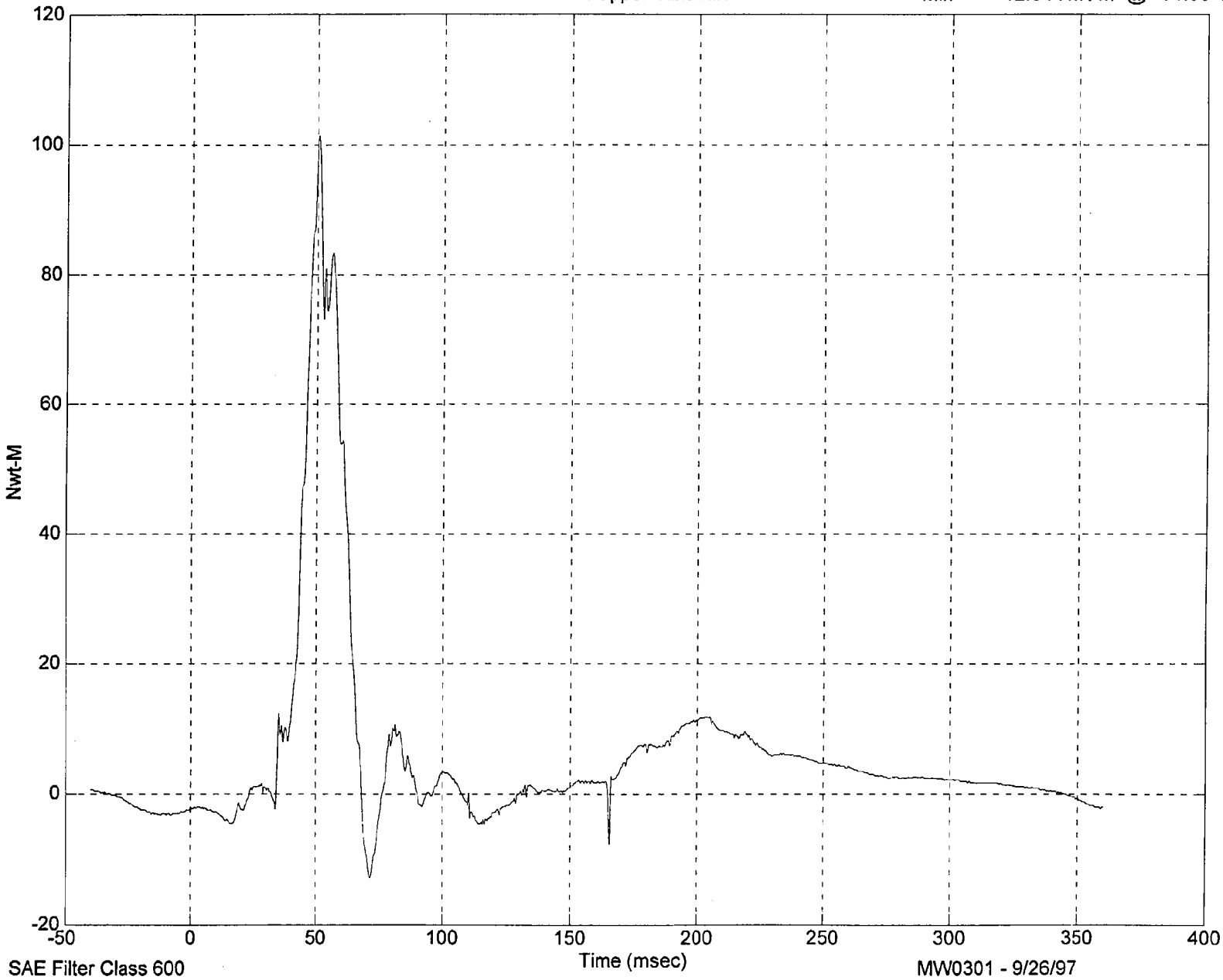

NCAP TEST #1 - 1998 DODGE STRATUS
P1 Lt Lower Tibia Fz
Max = 79.85 Nwt @ 201.29 msec
Min = -6332.73 Nwt @ 45.19 msec
1000
0
-1000
-2000
-3000
-4000
-5000
-6000
-7000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
P1 Lt Lower Tibia My
Max = 176.75 Nwt-M @ 62.79 msec
Min = -99.32 Nwt-M @ 39.59 msec
Nwt-M
200
150
100
50
0
-50
-100
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

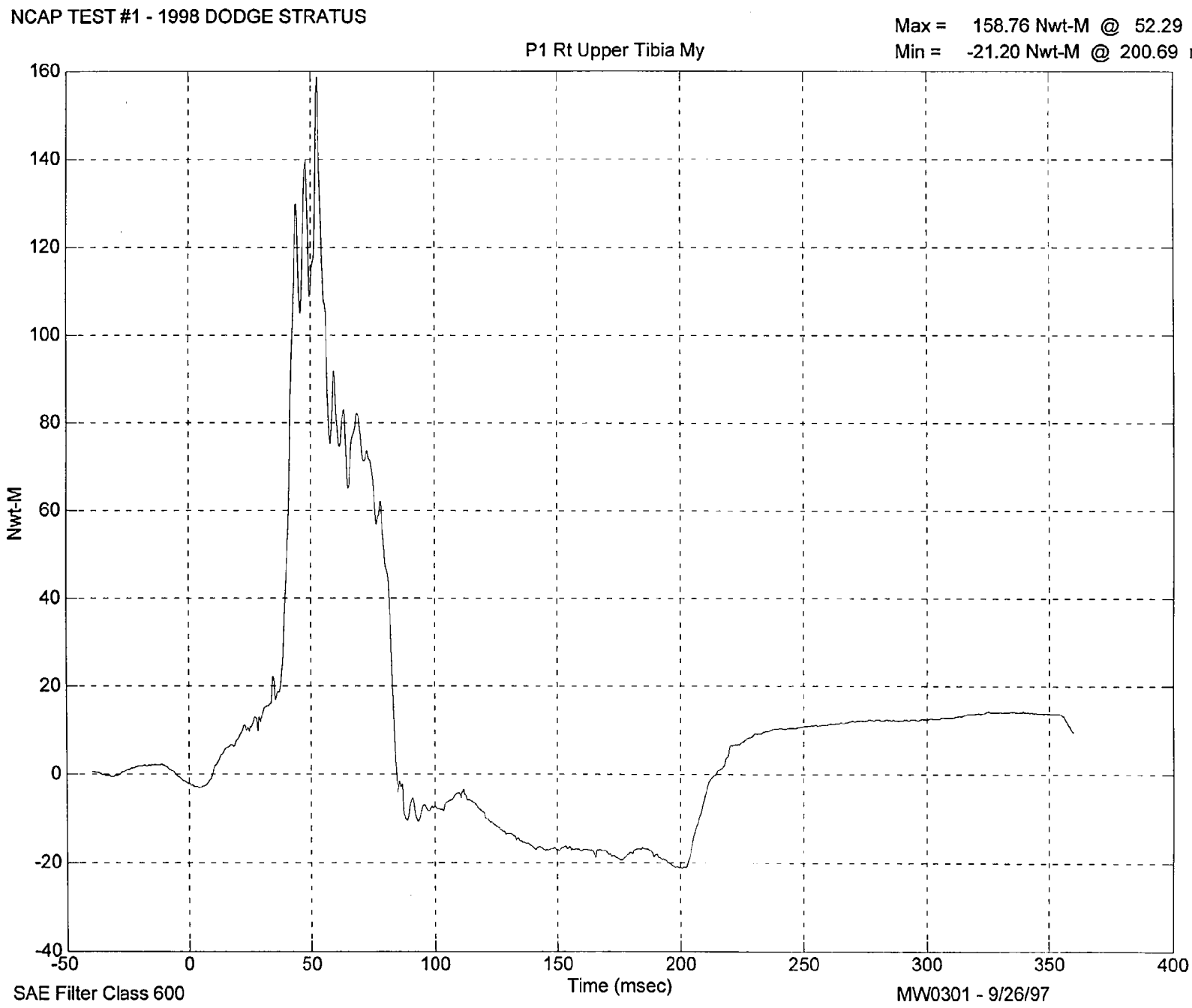
P1 Rt Upper Tibia Mx

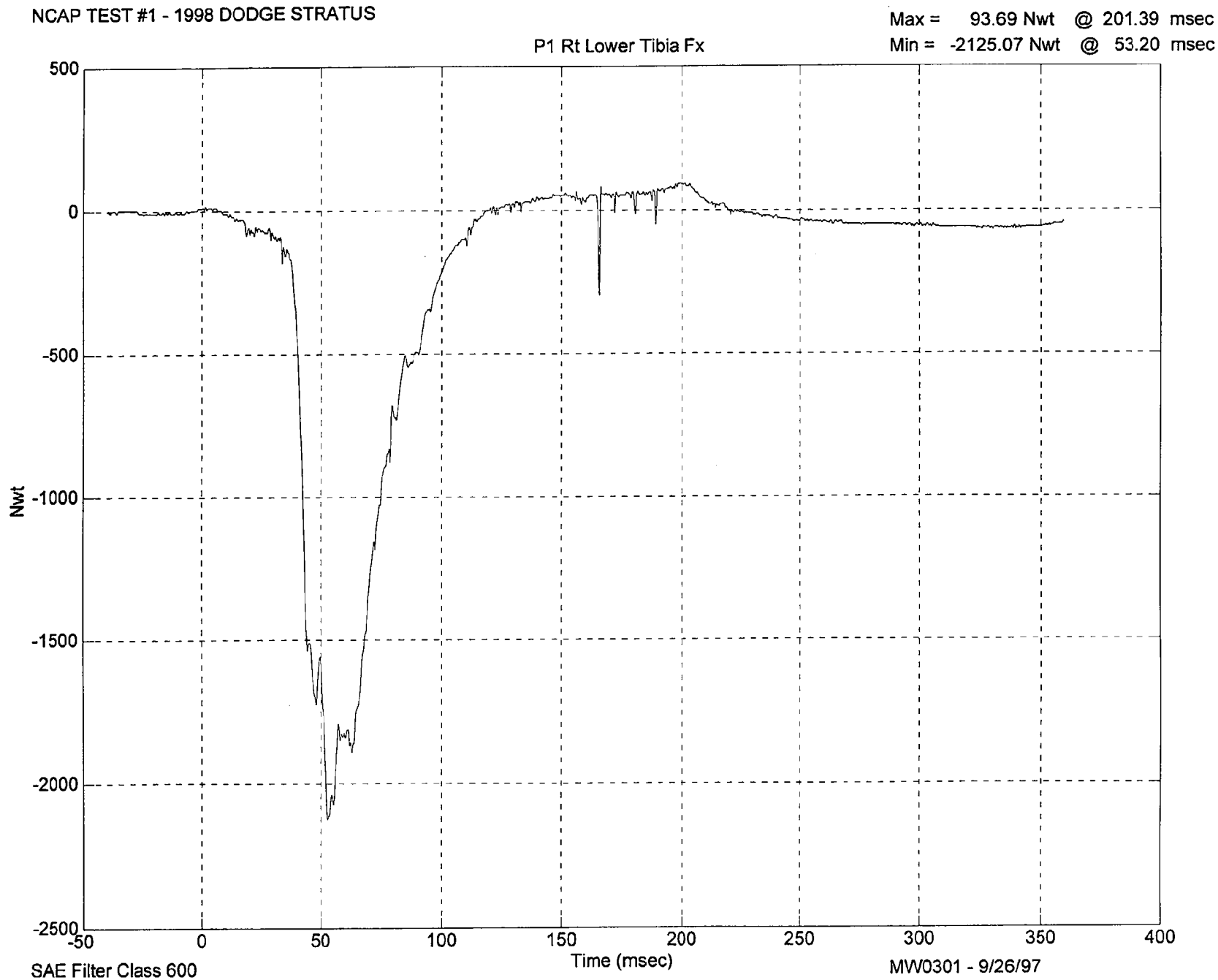
Max = 101.41 Nwt-M @ 50.49 msec
Min = -12.84 Nwt-M @ 71.30 msec

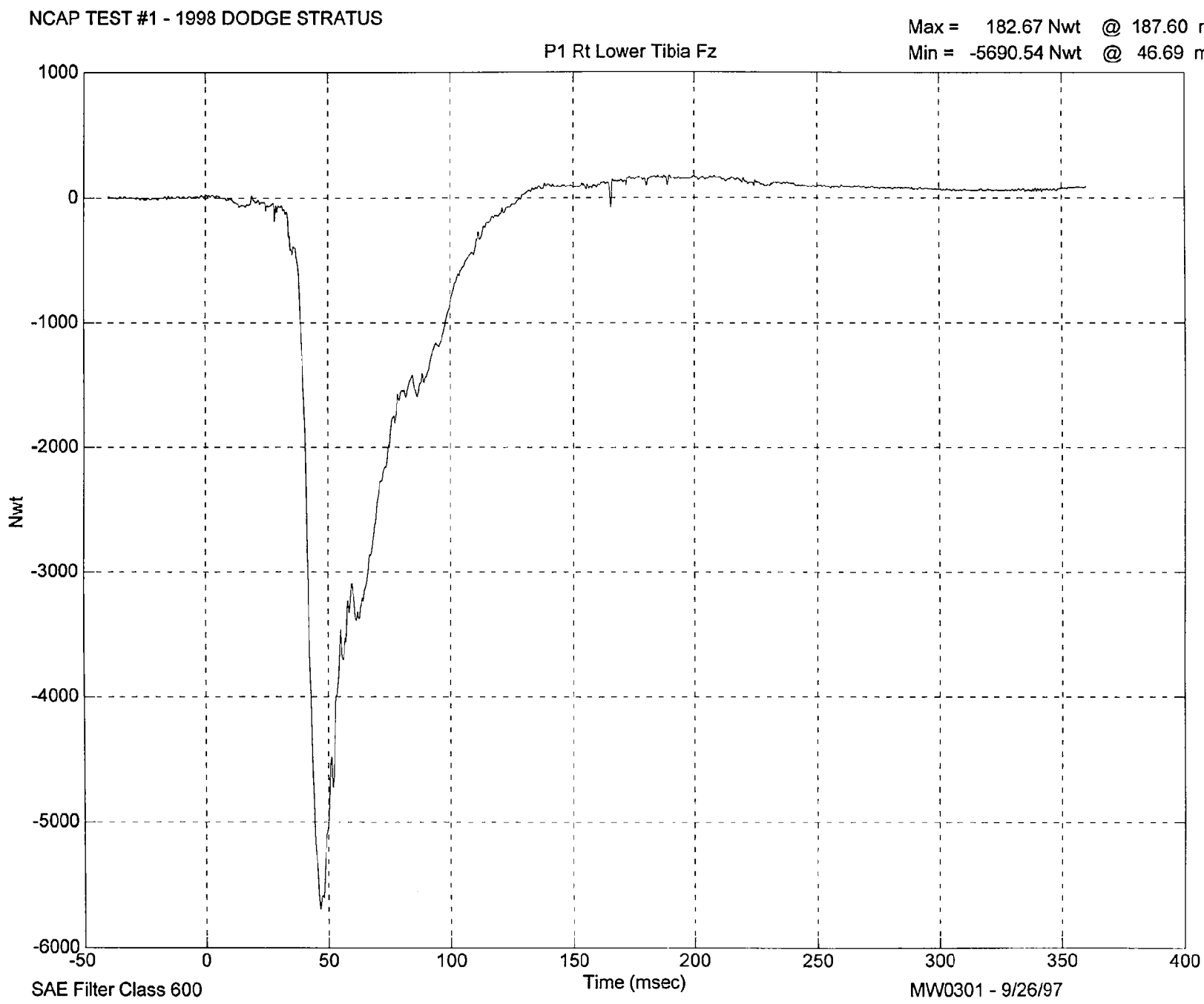


SAE Filter Class 600

MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
P1 Rt Upper Tibia My
Max = 158.76 Nwt-M @ 52.29 msec
Min = -21.20 Nwt-M @ 200.69 msec
Nwt-M
160
140
120
100
80
60
40
20
0
-20
-40
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

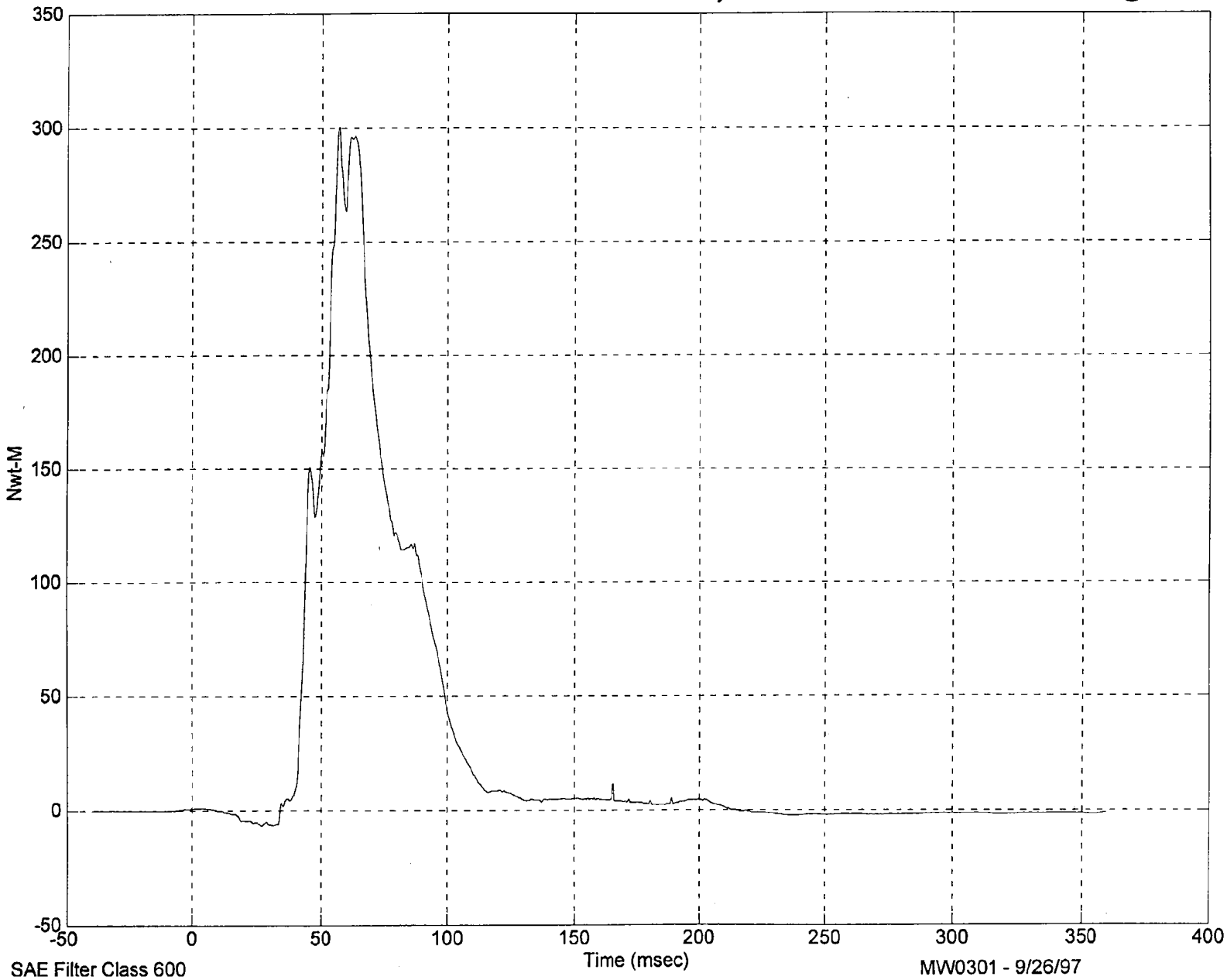

NCAP TEST #1 - 1998 DODGE STRATUS
P1 Rt Lower Tibia Fx
Max = 93.69 Nwt @ 201.39 msec
Min = -2125.07 Nwt @ 53.20 msec
500
0
-500
-1000
-1500
-2000
-2500
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
P1 Rt Lower Tibia Fz
Max = 182.67 Nwt @ 187.60 msec
Min = -5690.54 Nwt @ 46.69 msec
1000
0
-1000
-2000
-3000
-4000
-5000
-6000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

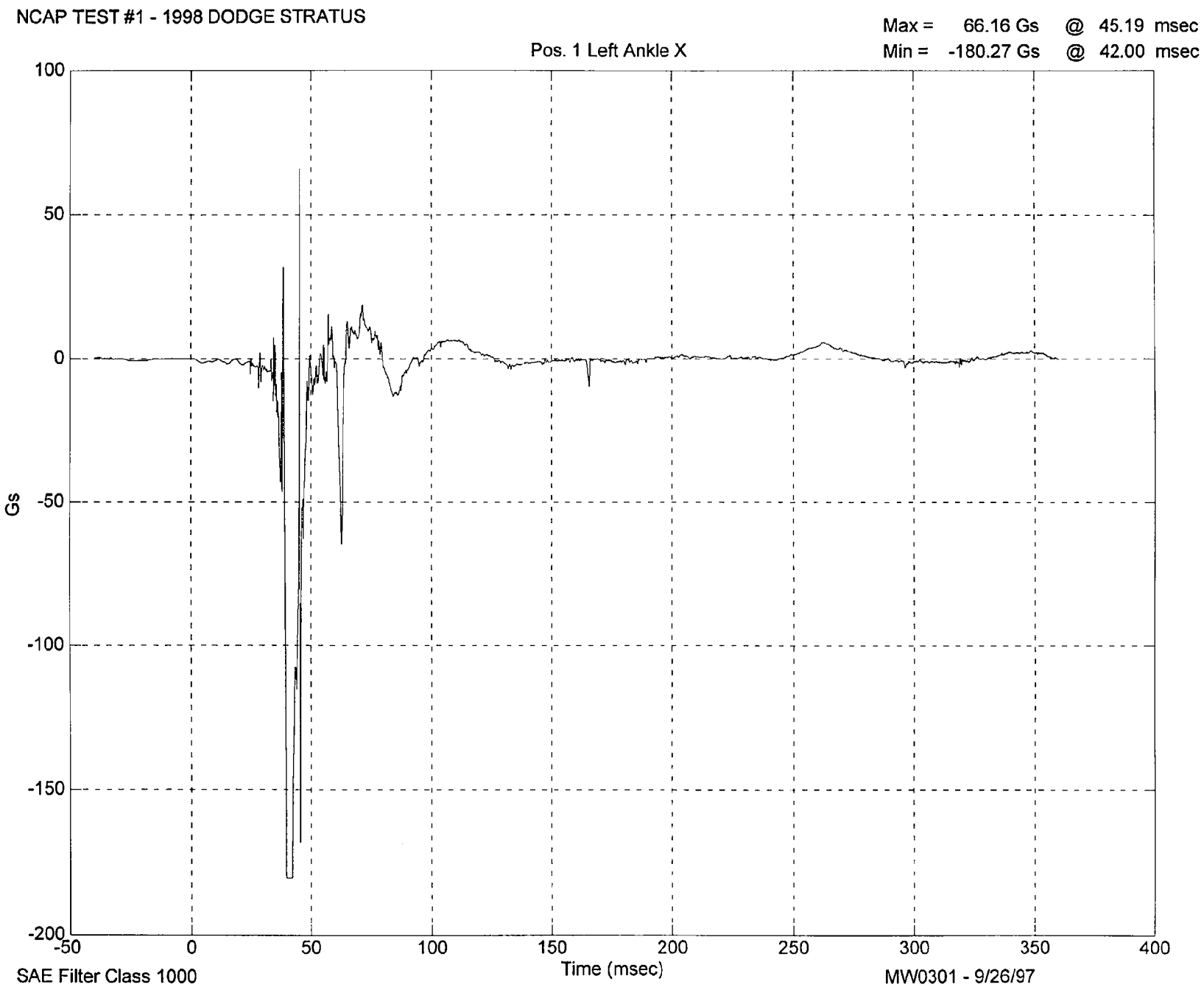
P1 Rt Lower Tibia My

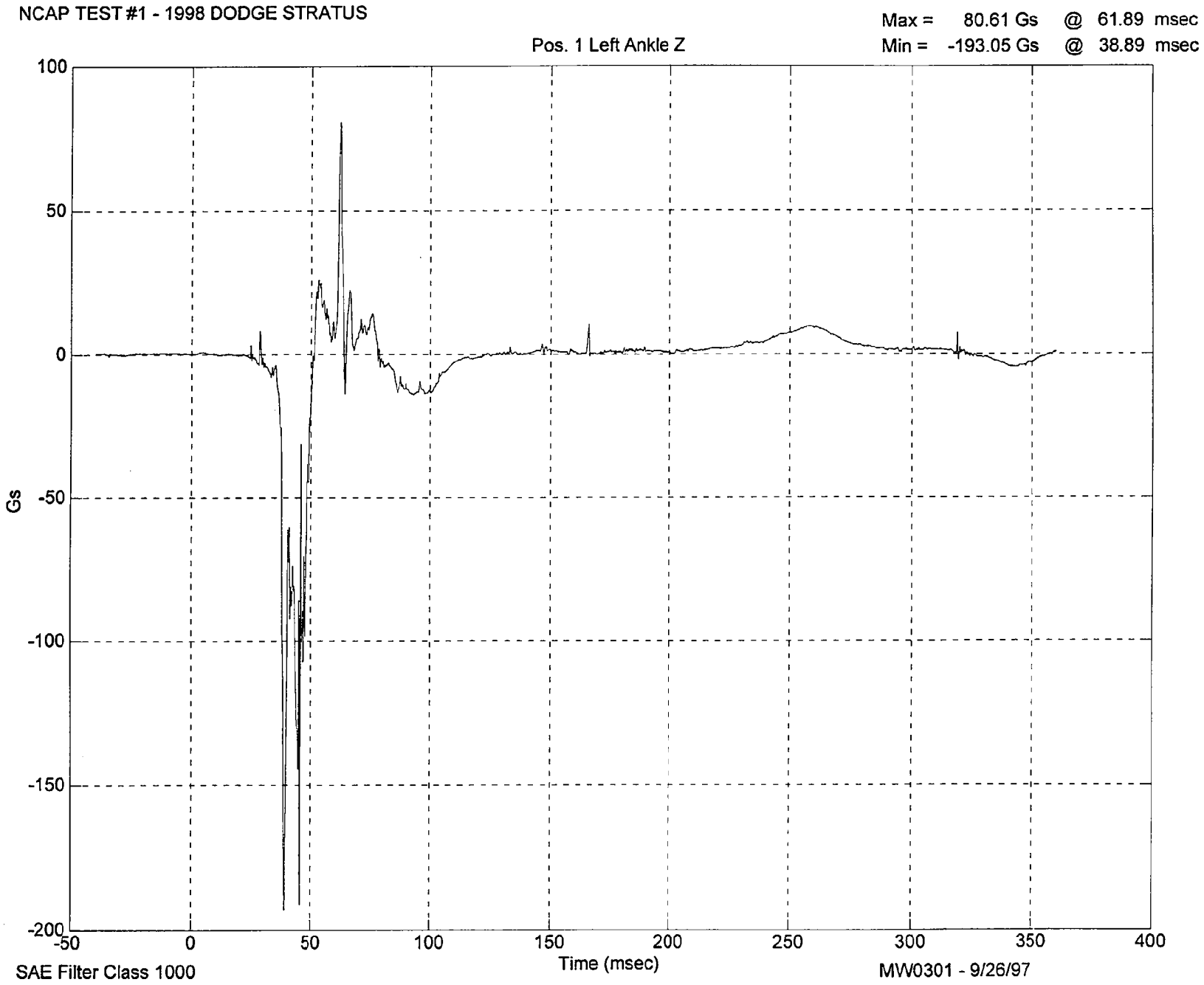
Max = 300.61 Nwt-M @ 57.00 msec
Min = -6.73 Nwt-M @ 26.99 msec

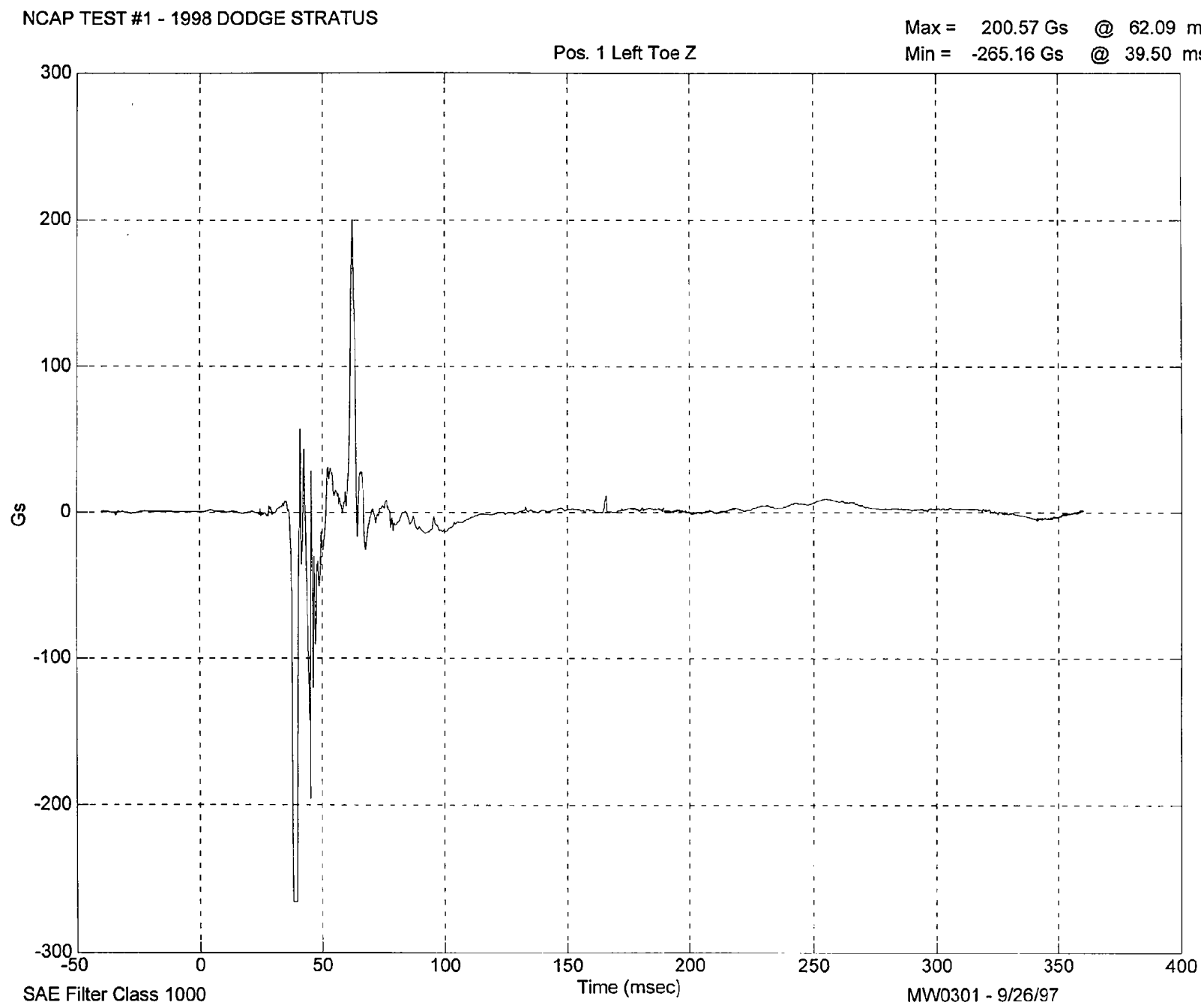


SAE Filter Class 600

MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Left Ankle X
Max = 66.16 Gs @ 45.19 msec
Min = -180.27 Gs @ 42.00 msec
100
50
0
-50
-100
-150
-200
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

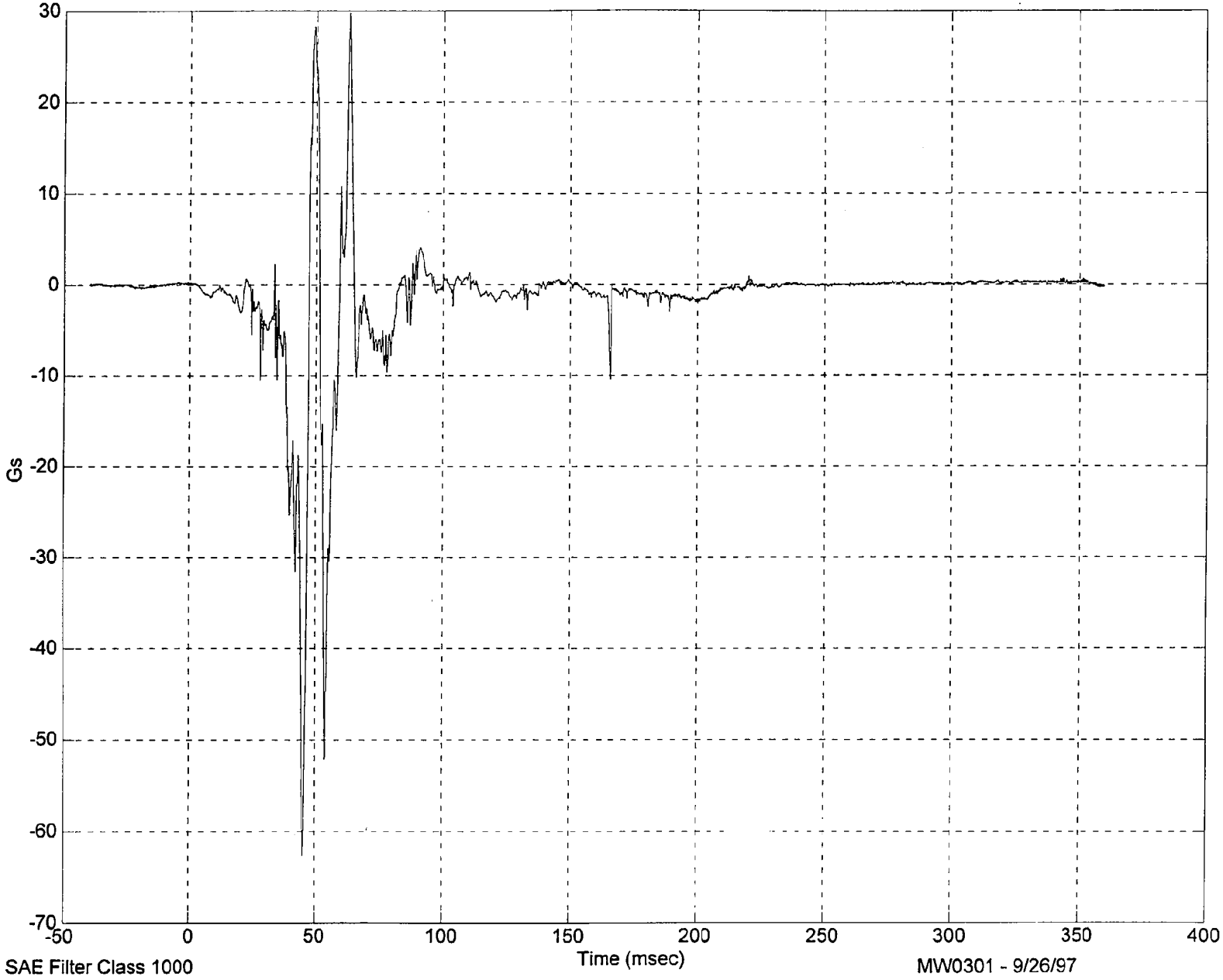

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Left Ankle Z
Max = 80.61 Gs @ 61.89 msec
Min = -193.05 Gs @ 38.89 msec
100
50
0
-50
-100
-150
-200
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MVV0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Left Toe Z
Max = 200.57 Gs @ 62.09 msec
Min = -265.16 Gs @ 39.50 msec
300
200
100
0
-100
-200
-300
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

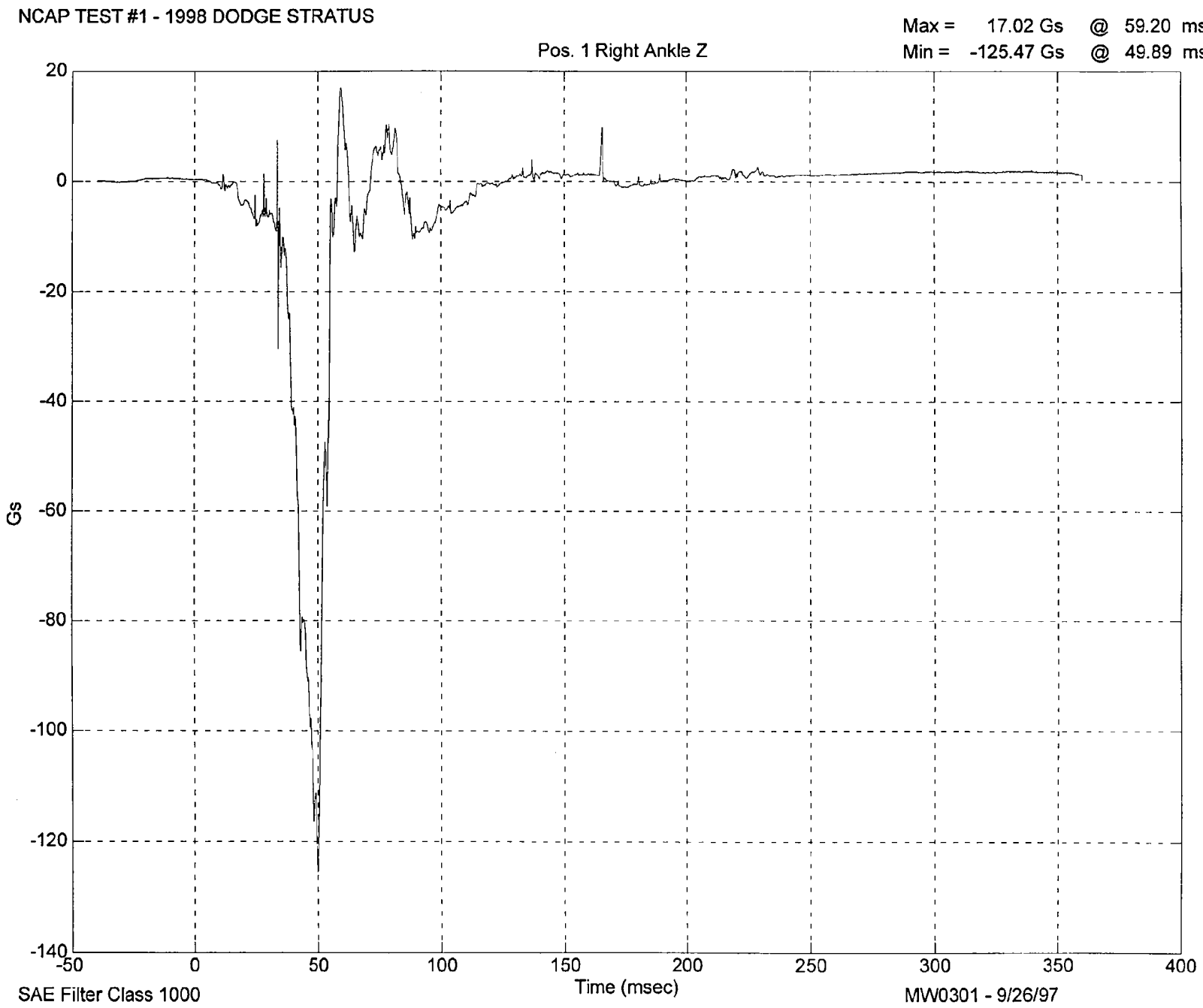
Pos. 1 Right Ankle X

Max = 29.76 Gs @ 63.09 msec
Min = -62.58 Gs @ 45.29 msec



SAE Filter Class 1000

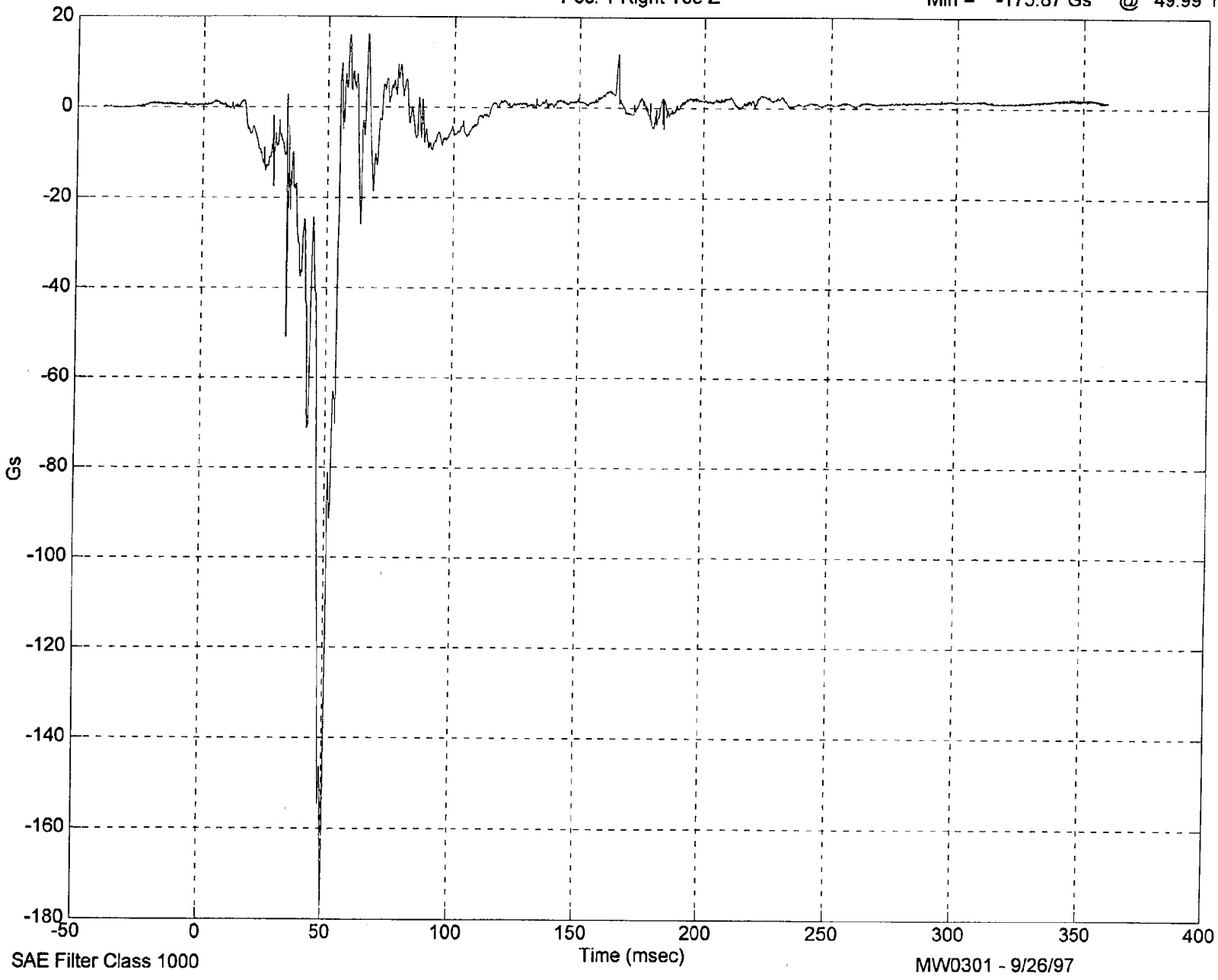
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 1 Right Ankle Z
Max = 17.02 Gs @ 59.20 msec
Min = -125.47 Gs @ 49.89 msec
Gs
20
0
-20
-40
-60
-80
-100
-120
-140
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 1 Right Toe Z

Max = 16.20 Gs @ 65.69 msec
Min = -175.87 Gs @ 49.99 msec



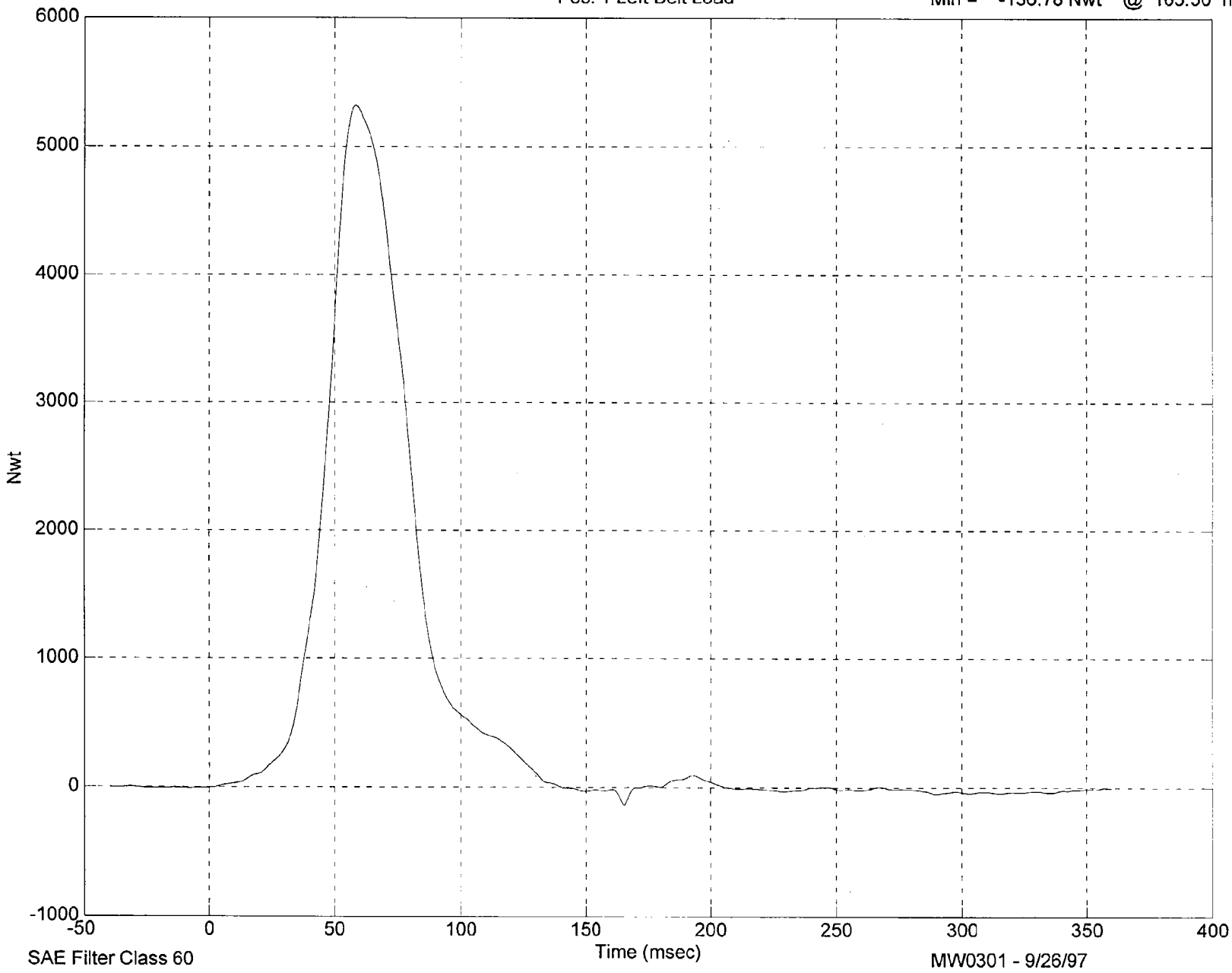
SAE Filter Class 1000

MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 1 Left Belt Load

Max = 5318.29 Nwt @ 58.39 msec
Min = -136.78 Nwt @ 165.50 msec



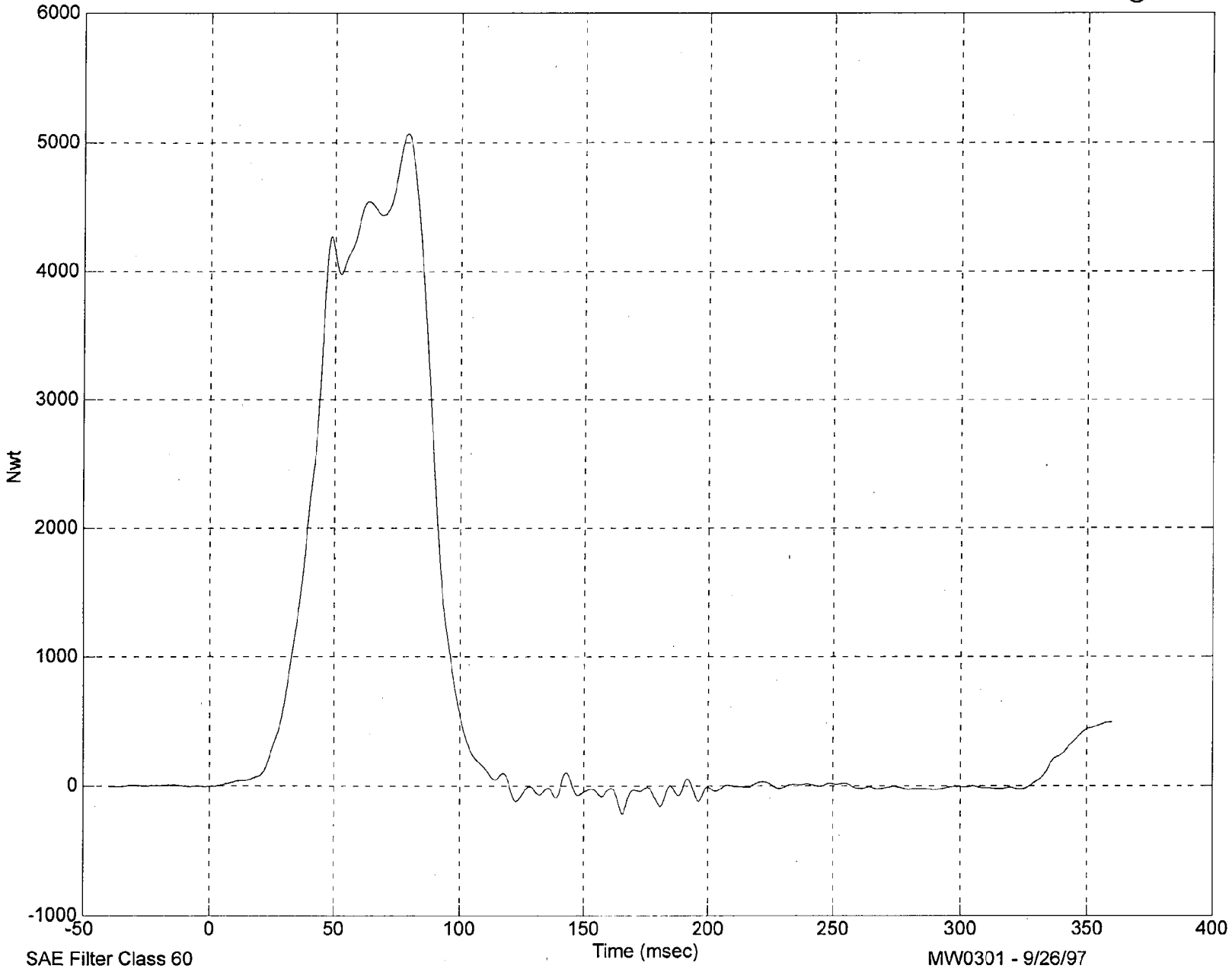
SAE Filter Class 60

MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 1 Torso Belt Load

Max = 5069.82 Nwt @ 78.80 msec
Min = -216.68 Nwt @ 165.60 msec



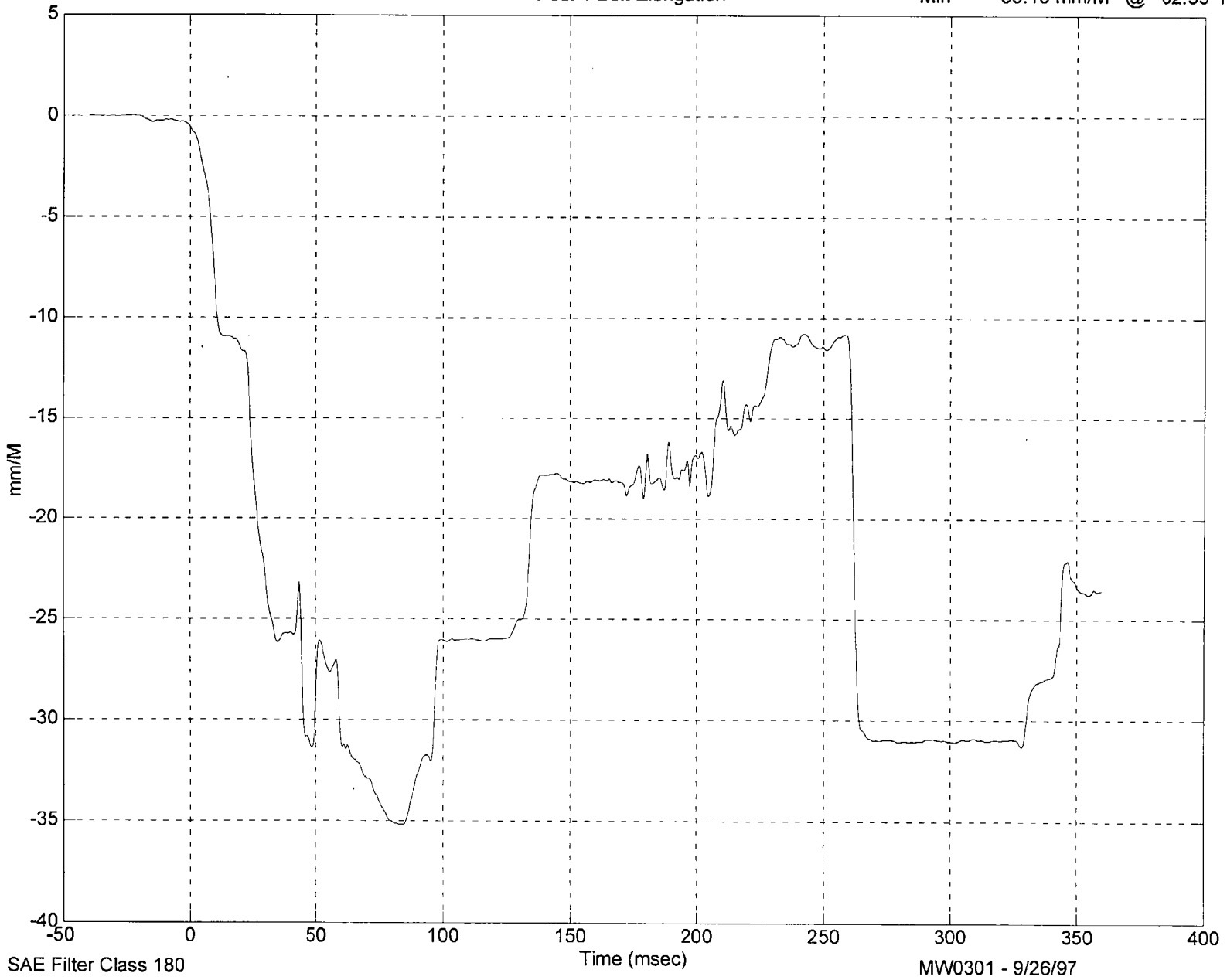
SAE Filter Class 60

MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

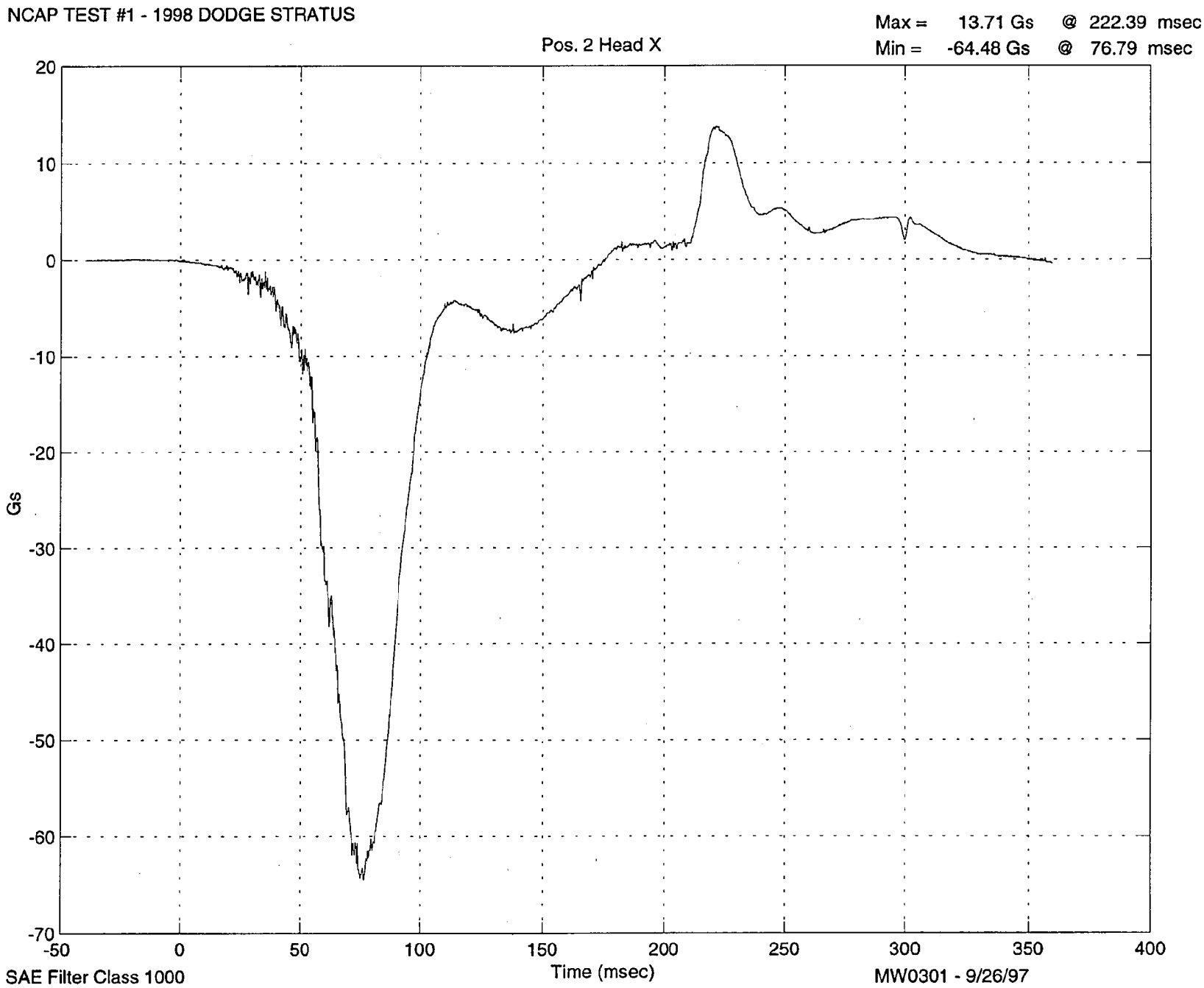
Pos. 1 Belt Elongation

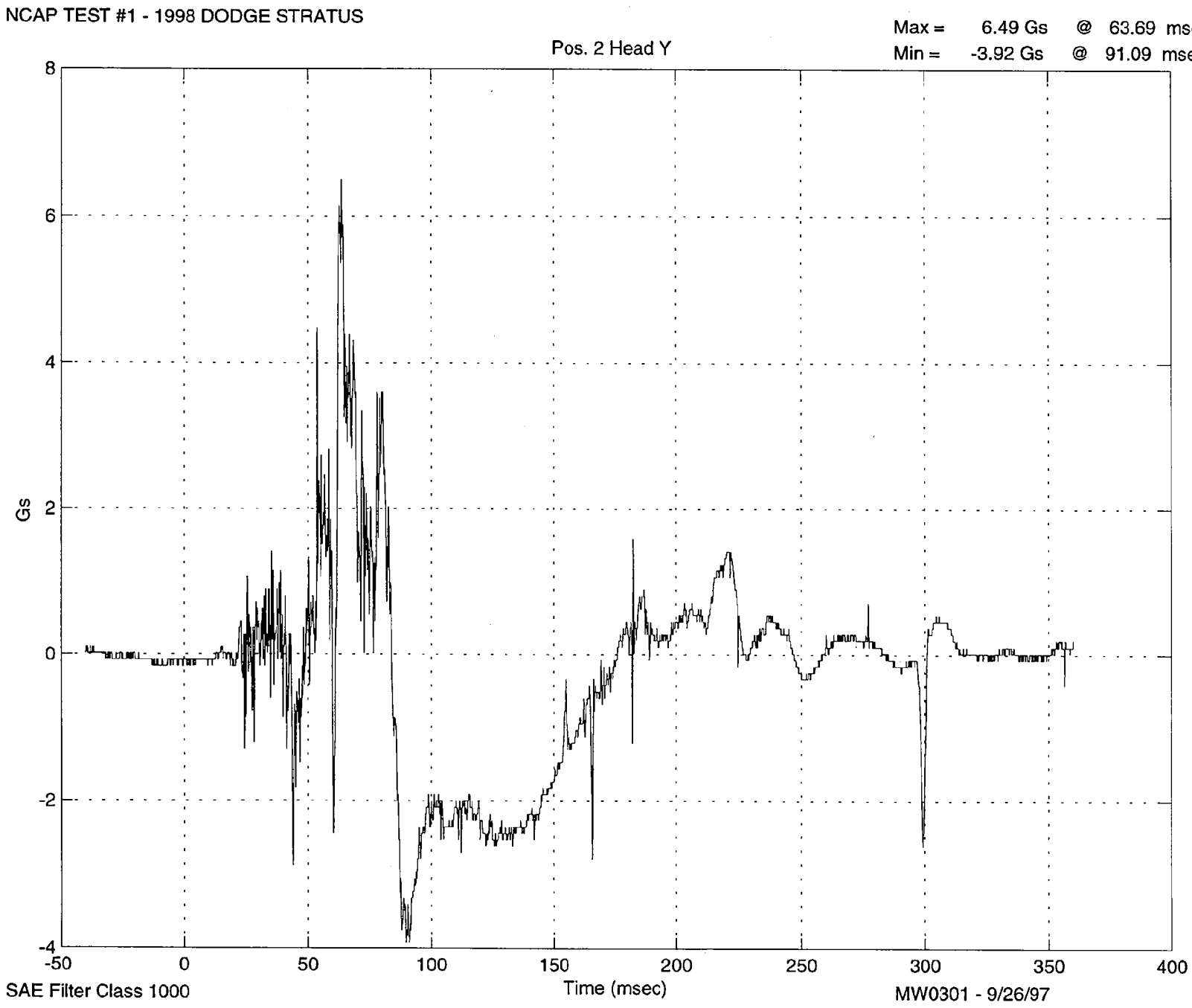
Max = .06 mm/M @ -22.29 msec
Min = -35.15 mm/M @ 82.59 msec

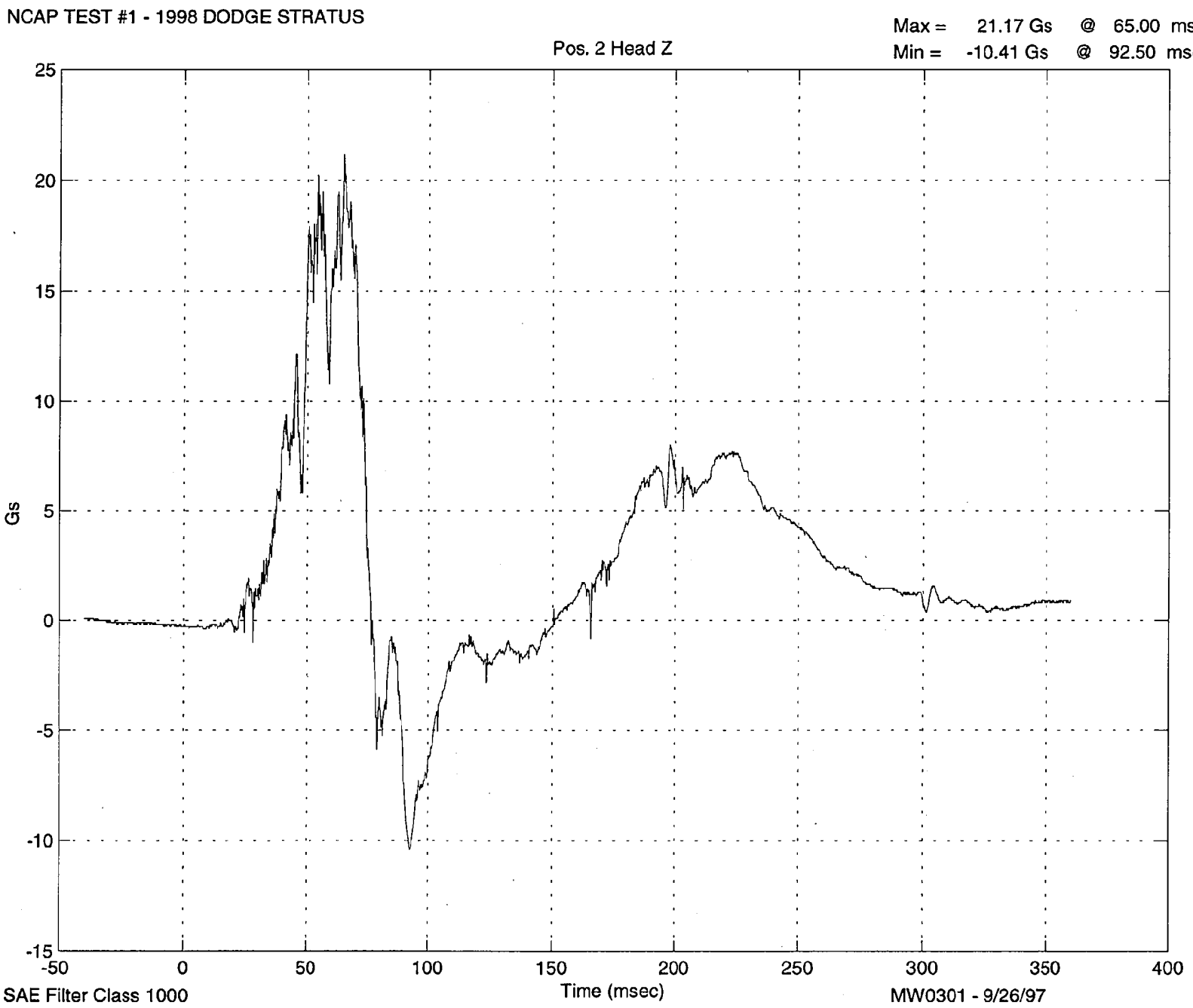


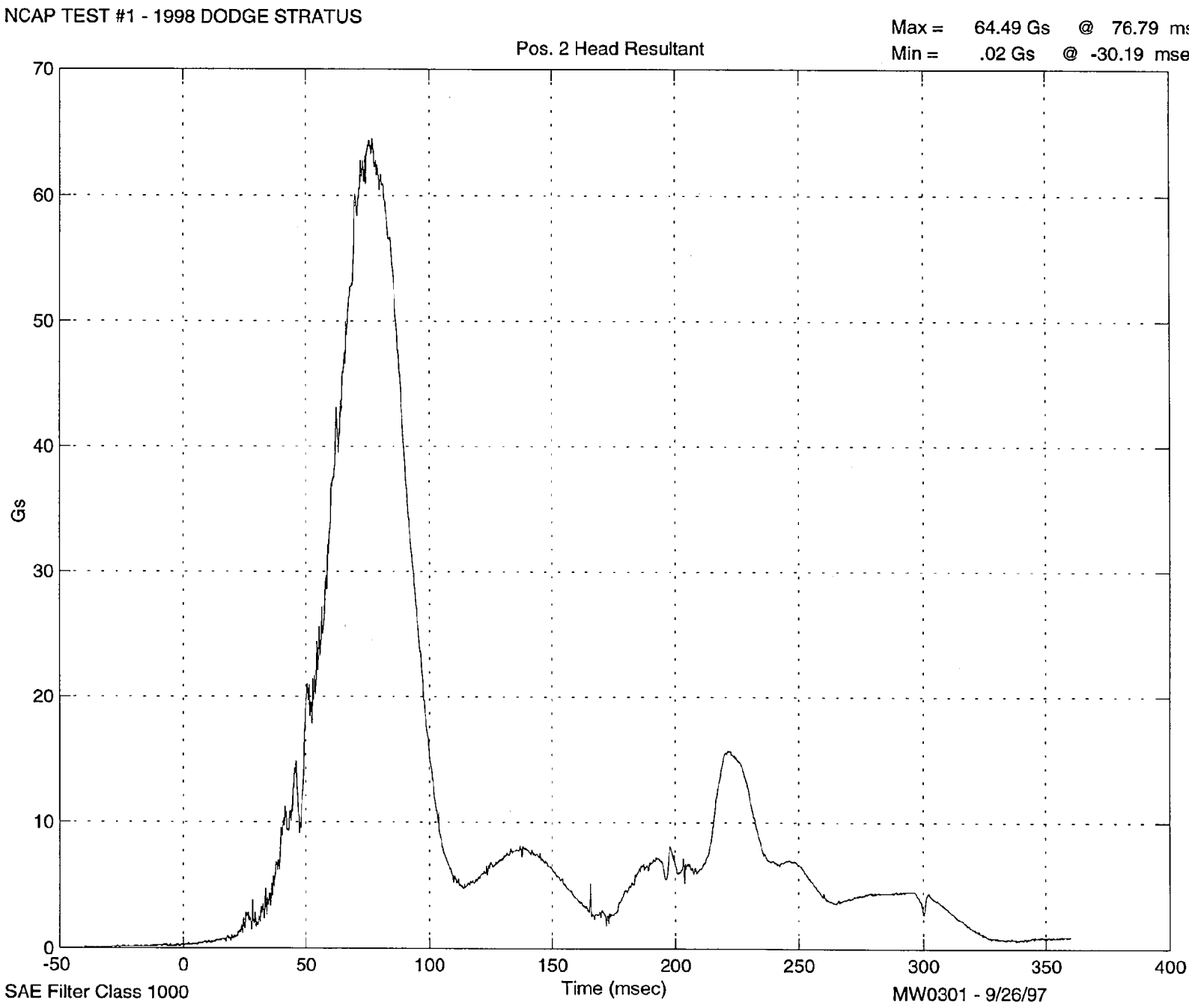
SAE Filter Class 180

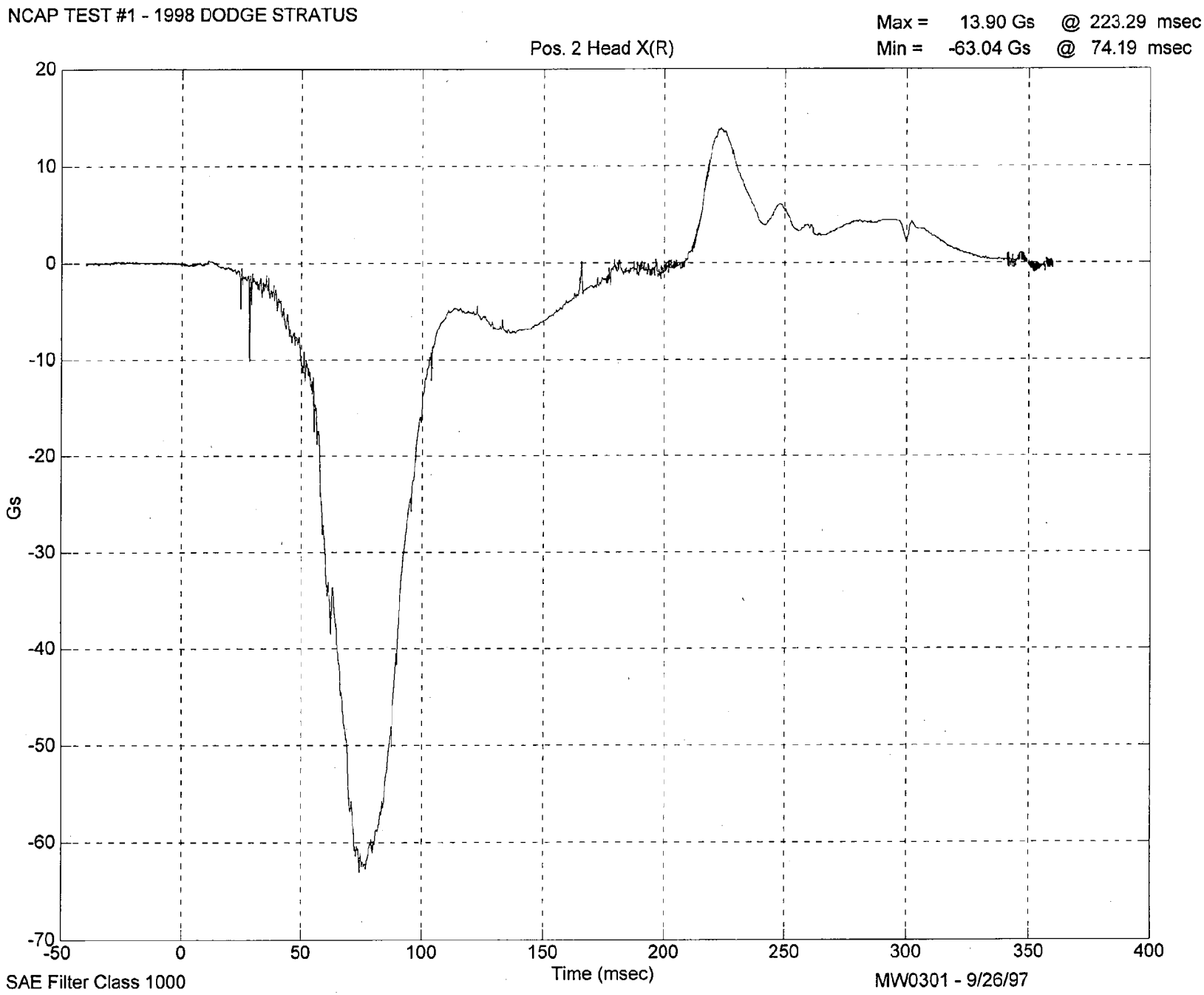
MW0301 - 9/26/97

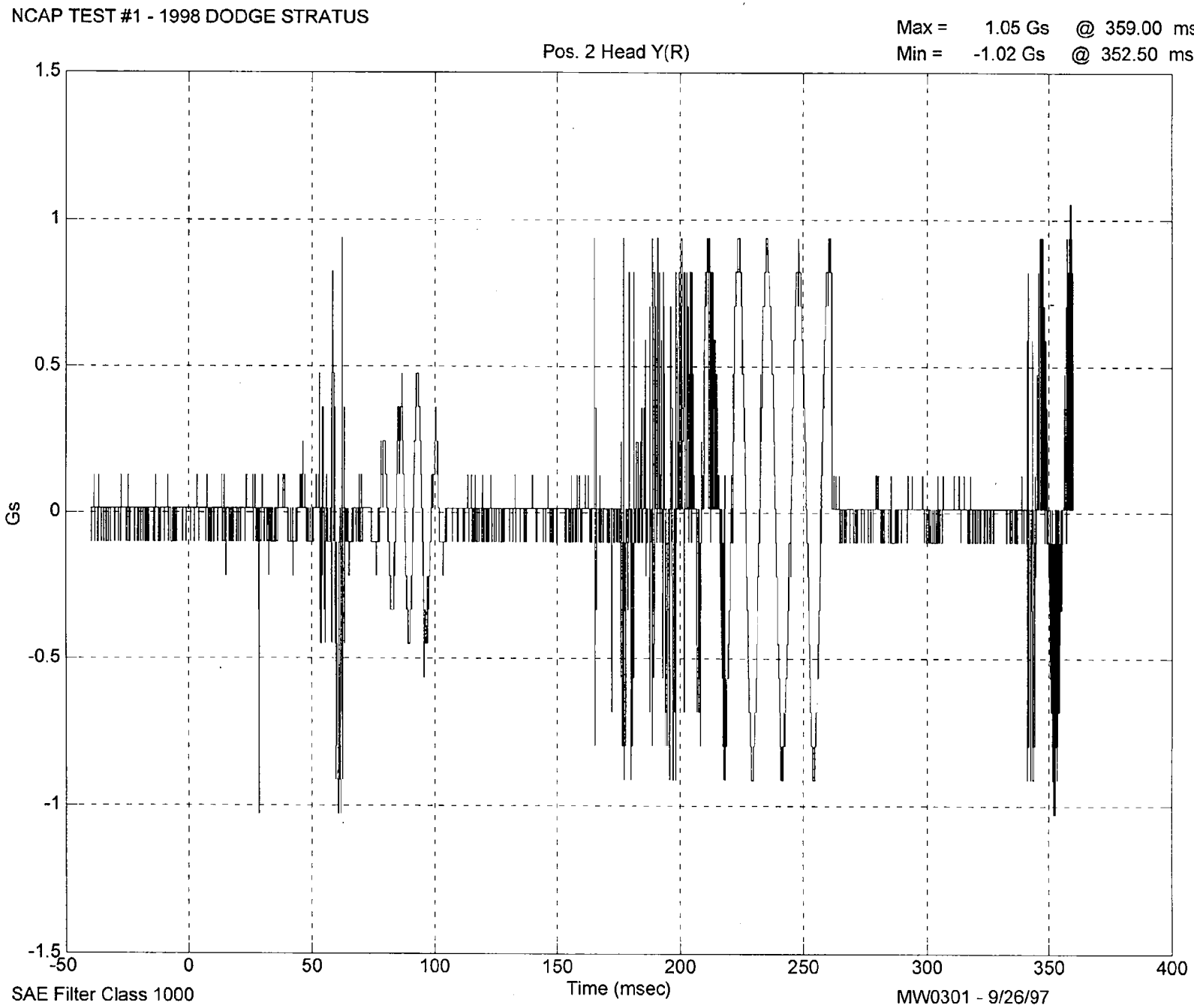

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Head X
Max = 13.71 Gs @ 222.39 msec
Min = -64.48 Gs @ 76.79 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

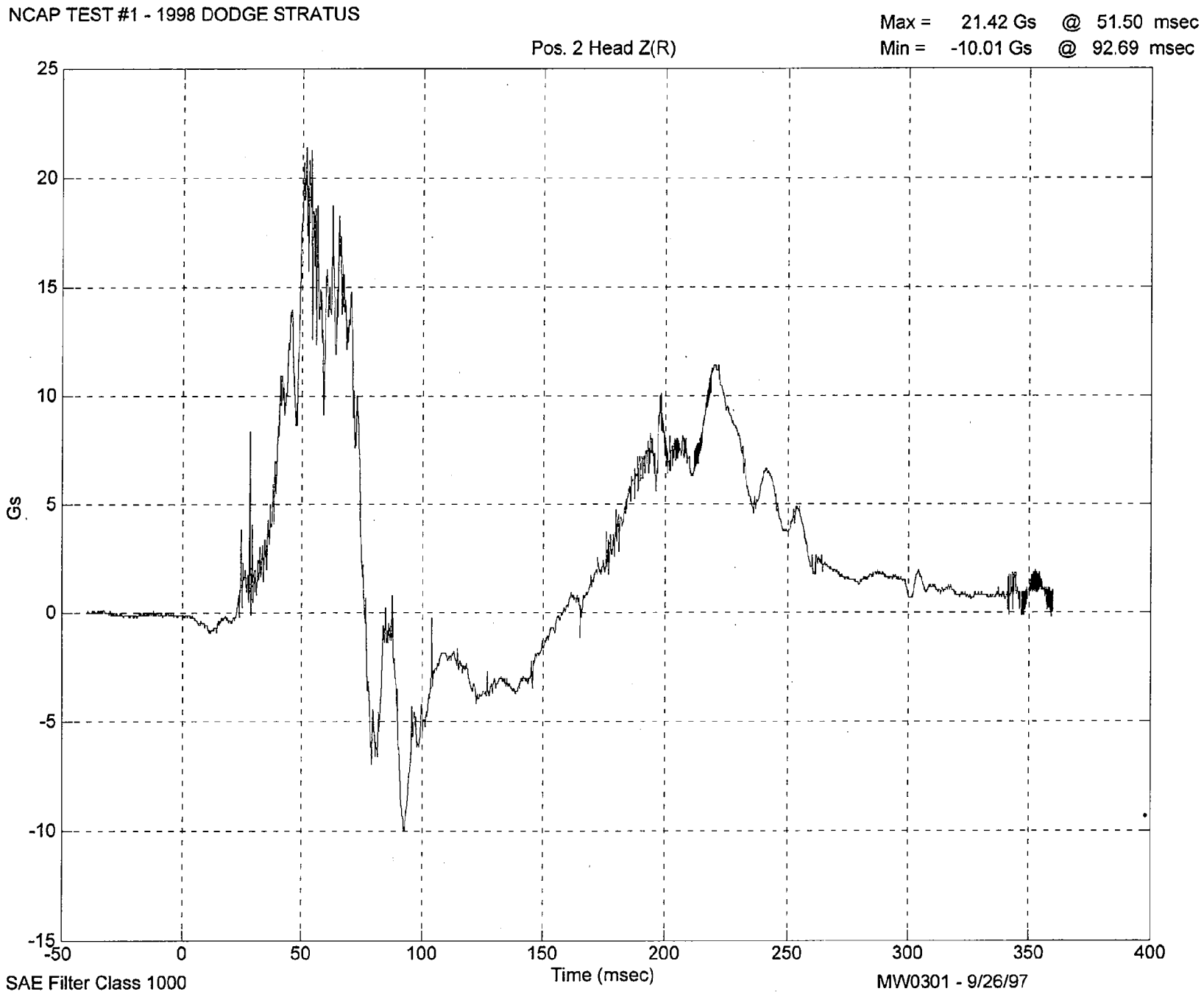

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Head Y
Max = 6.49 Gs @ 63.69 msec
Min = -3.92 Gs @ 91.09 msec
Gs
8
6
4
2
0
-2
-4
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Head Z
Max = 21.17 Gs @ 65.00 msec
Min = -10.41 Gs @ 92.50 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Head Resultant
Max = 64.49 Gs @ 76.79 msec
Min = .02 Gs @ -30.19 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Head X(R)
Max = 13.90 Gs @ 223.29 msec
Min = -63.04 Gs @ 74.19 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

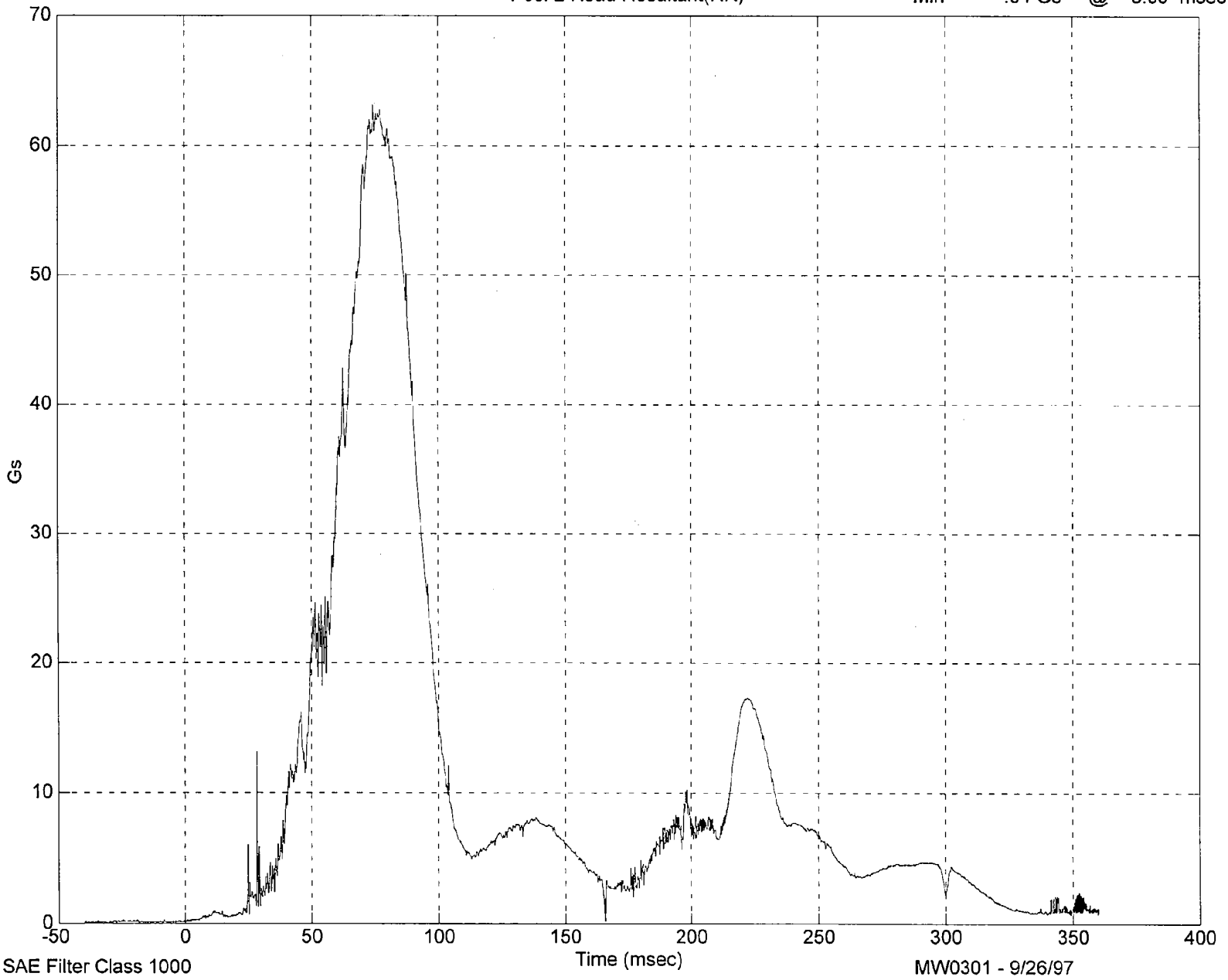

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Head Y(R)
Max = 1.05 Gs @ 359.00 msec
Min = -1.02 Gs @ 352.50 msec
Gs
1.5
1
0.5
0
-0.5
-1
-1.5
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Head Z(R)
Max = 21.42 Gs @ 51.50 msec
Min = -10.01 Gs @ 92.69 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

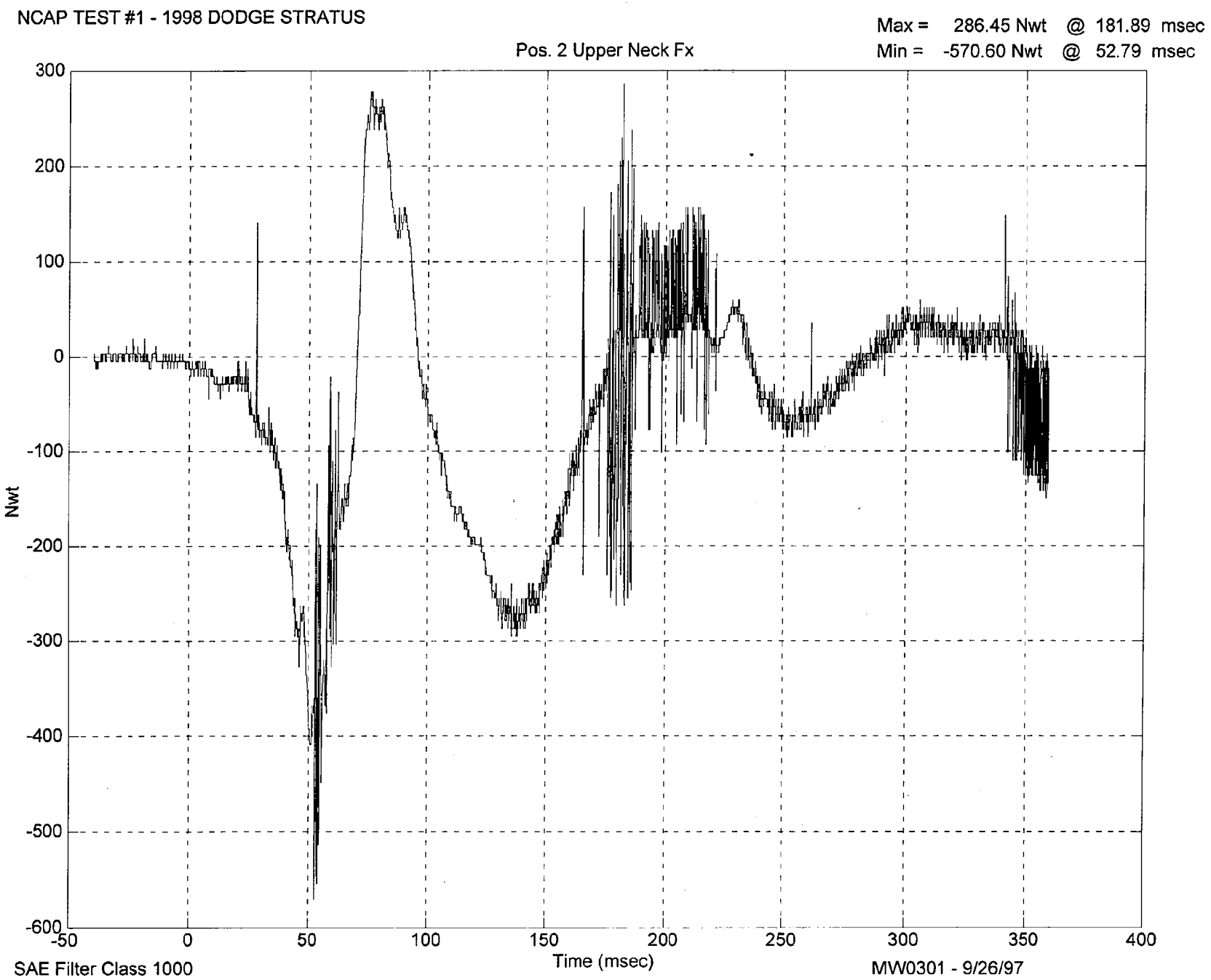
Max = 63.14 Gs @ 74.09 msec
Min = .04 Gs @ -3.90 msec

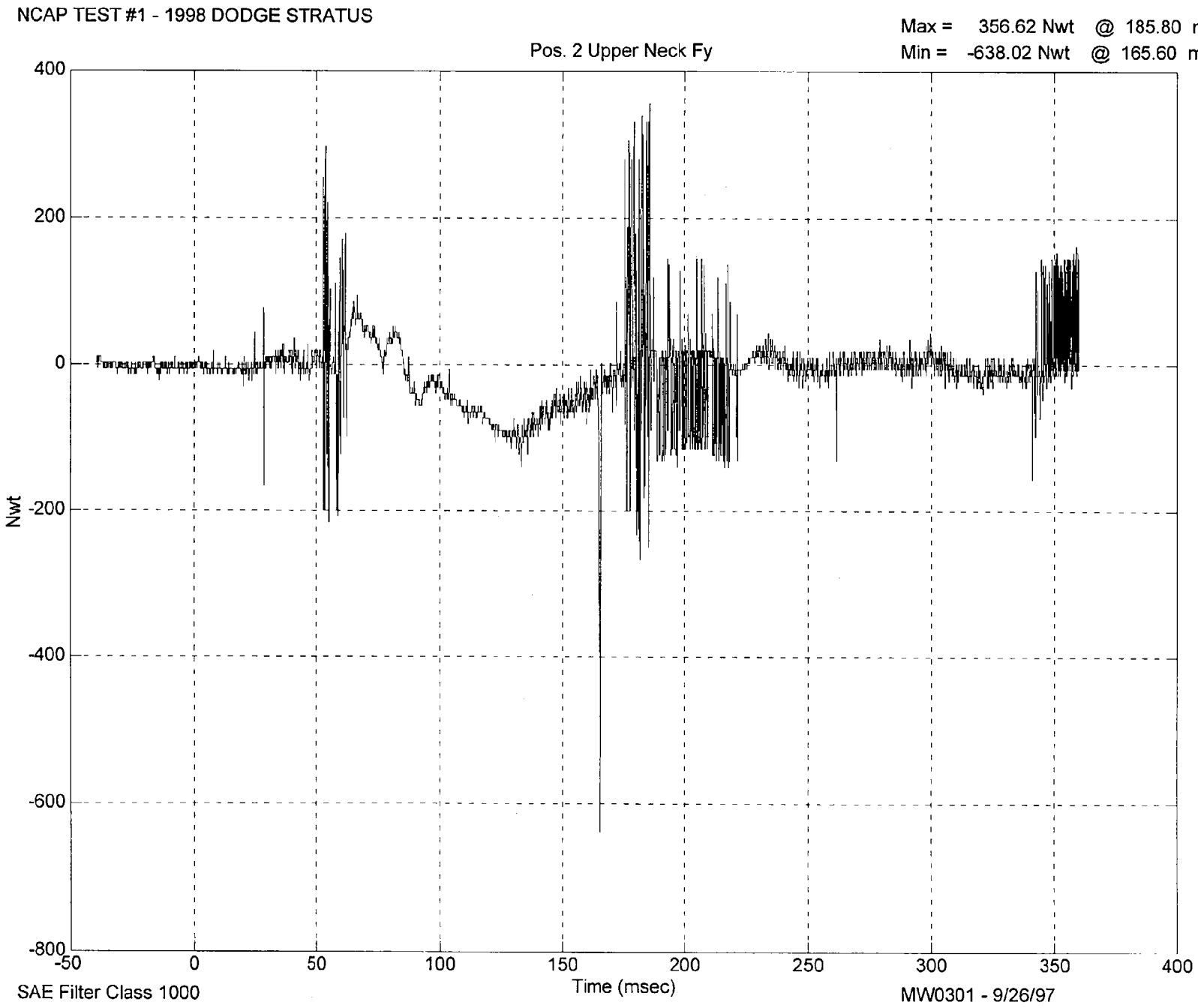
Pos. 2 Head Resultant(RR)



SAE Filter Class 1000

MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Upper Neck Fx
Max = 286.45 Nwt @ 181.89 msec
Min = -570.60 Nwt @ 52.79 msec
300
200
100
0
-100
-200
-300
-400
-500
-600
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

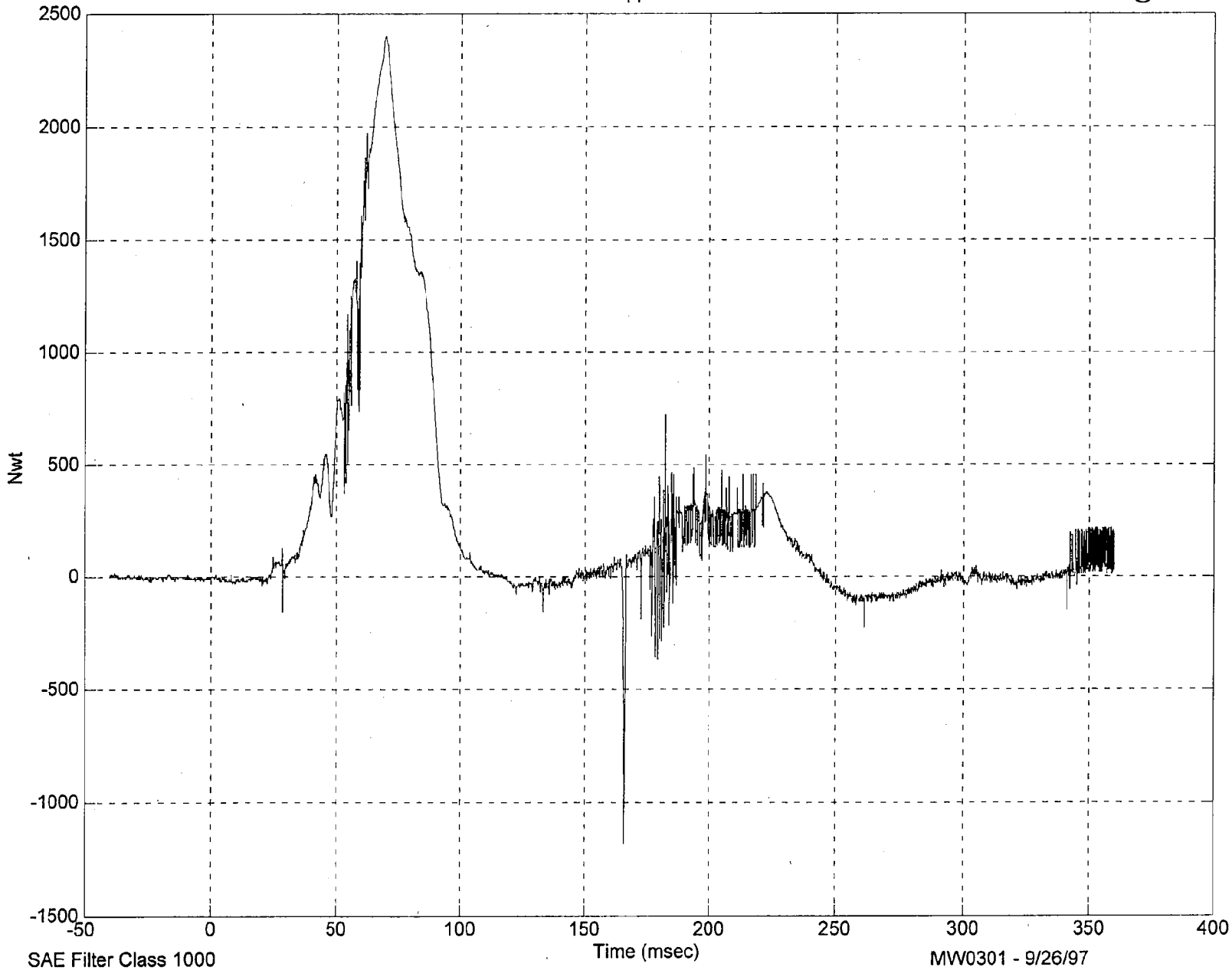

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Upper Neck Fy
Max = 356.62 Nwt @ 185.80 msec
Min = -638.02 Nwt @ 165.60 msec
Nwt
400
200
0
-200
-400
-600
-800
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Max = 2401.25 Nwt @ 69.29 msec

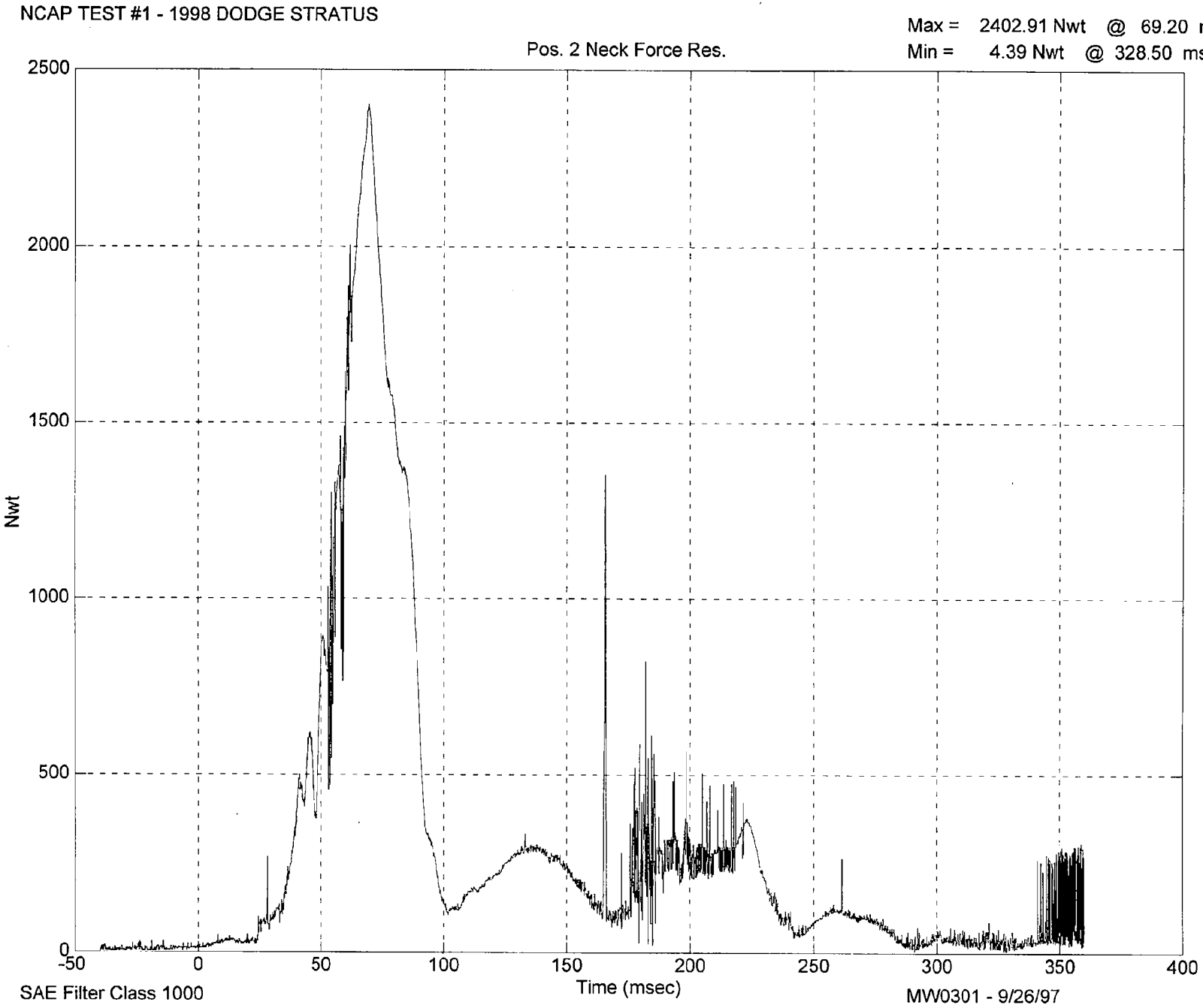
Pos. 2 Upper Neck Fz

Min = -1181.89 Nwt @ 165.60 msec



SAE Filter Class 1000

MW0301 - 9/26/97

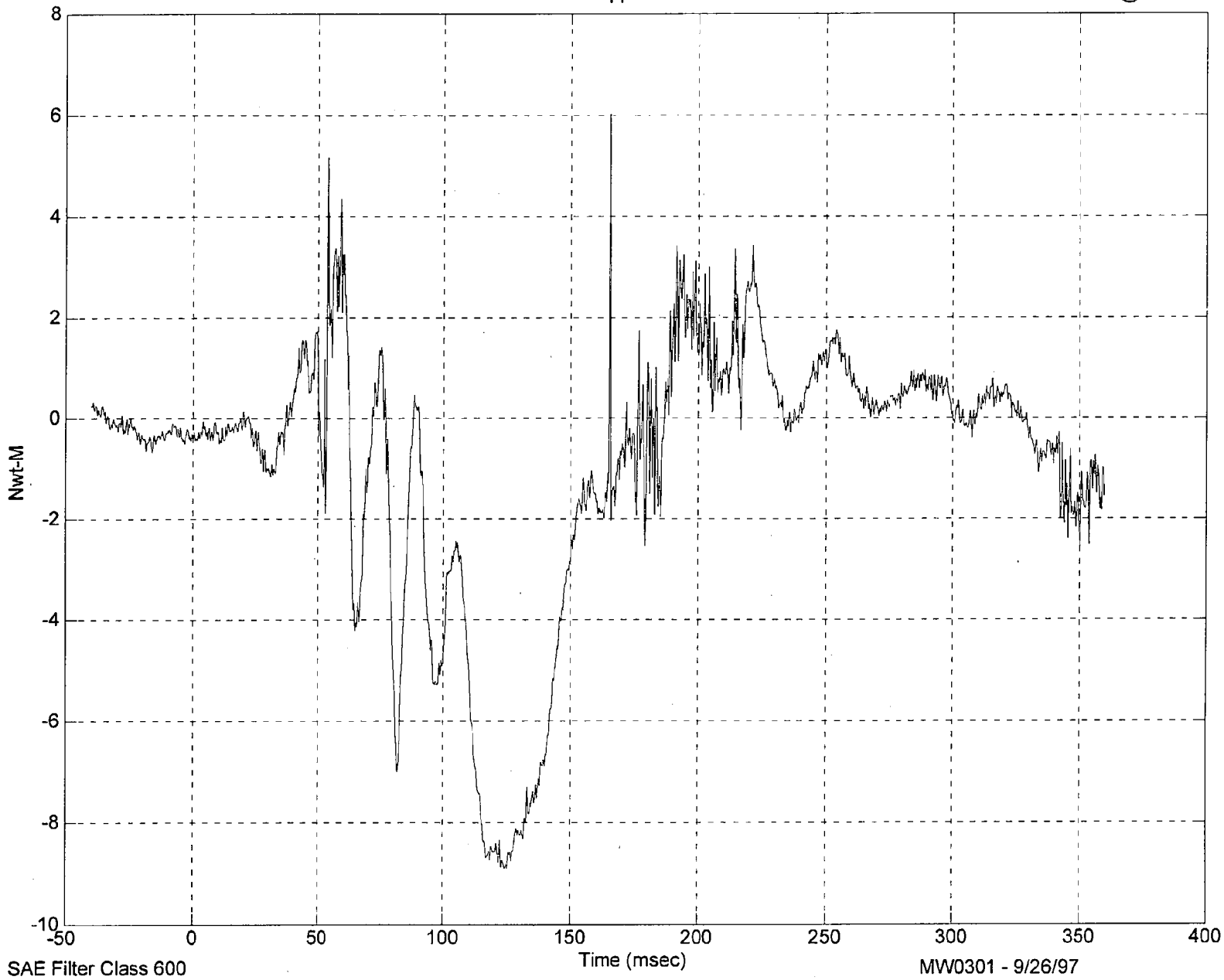

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Neck Force Res.
Max = 2402.91 Nwt @ 69.20 msec
Min = 4.39 Nwt @ 328.50 msec
2500
2000
1500
1000
500
0
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MVV0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 2 Upper Neck Mx

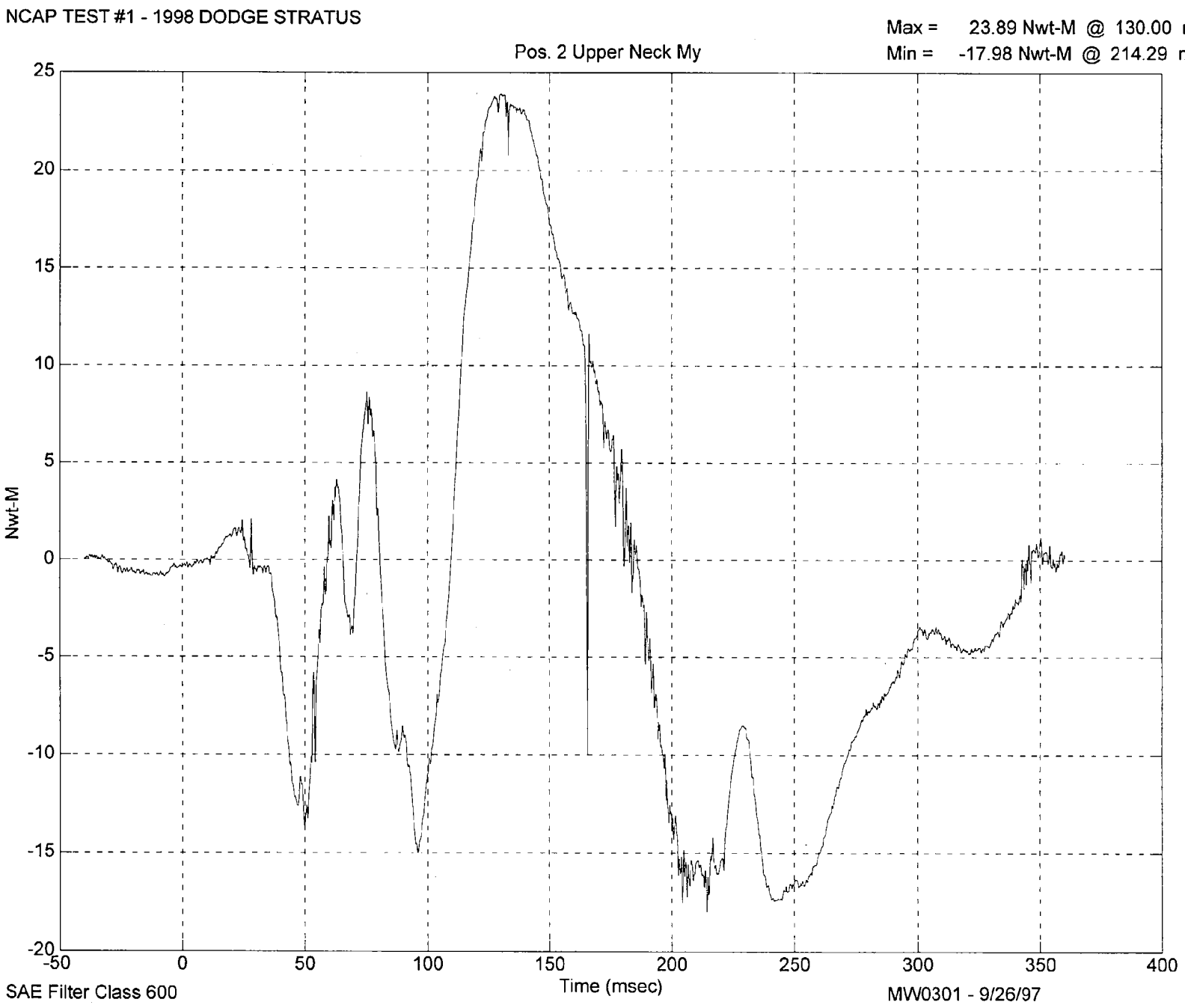
Max = 6.02 Nwt-M @ 165.69 msec

Min = -8.89 Nwt-M @ 124.90 msec



SAE Filter Class 600

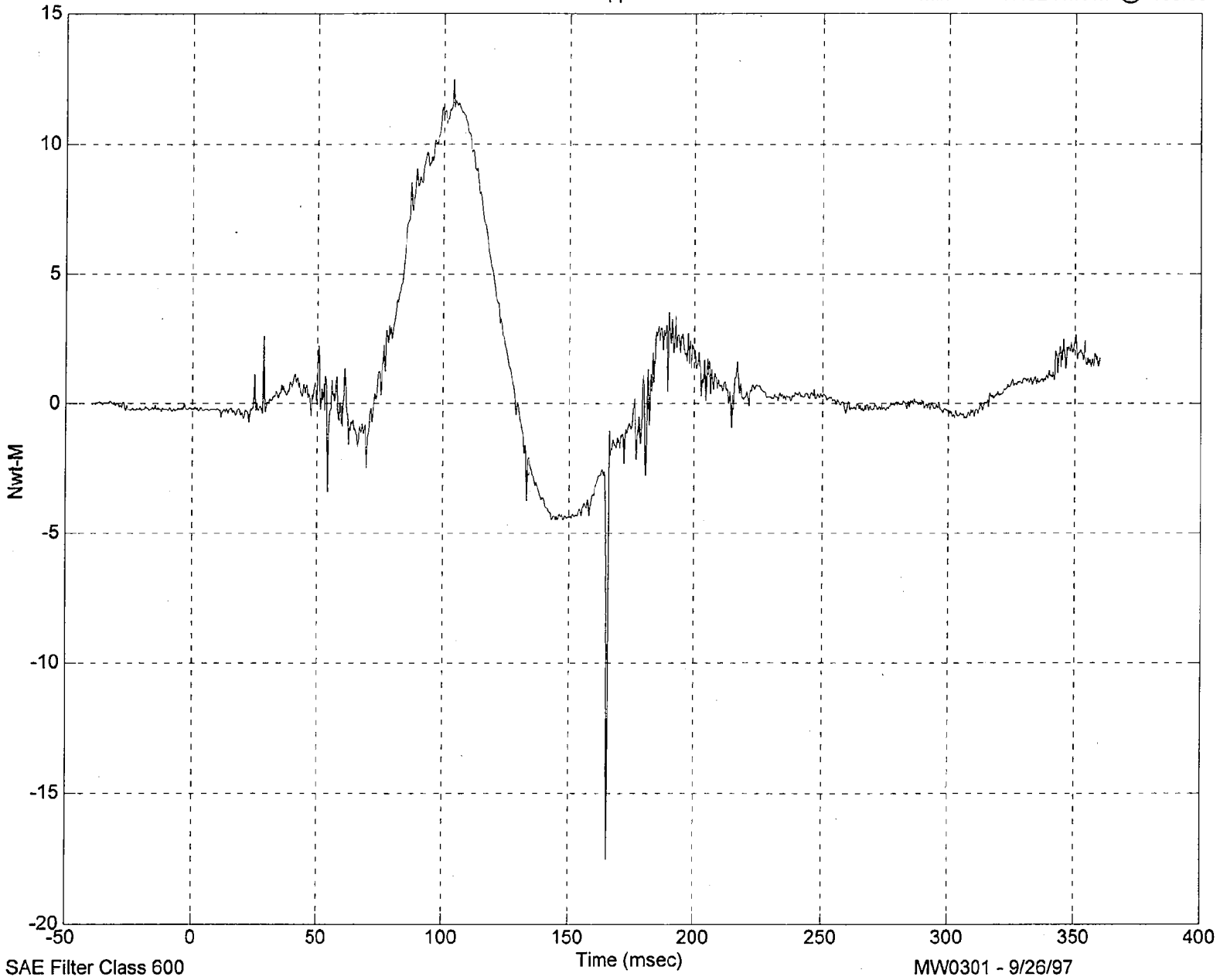
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Upper Neck My
Max = 23.89 Nwt-M @ 130.00 msec
Min = -17.98 Nwt-M @ 214.29 msec
Nwt-M
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

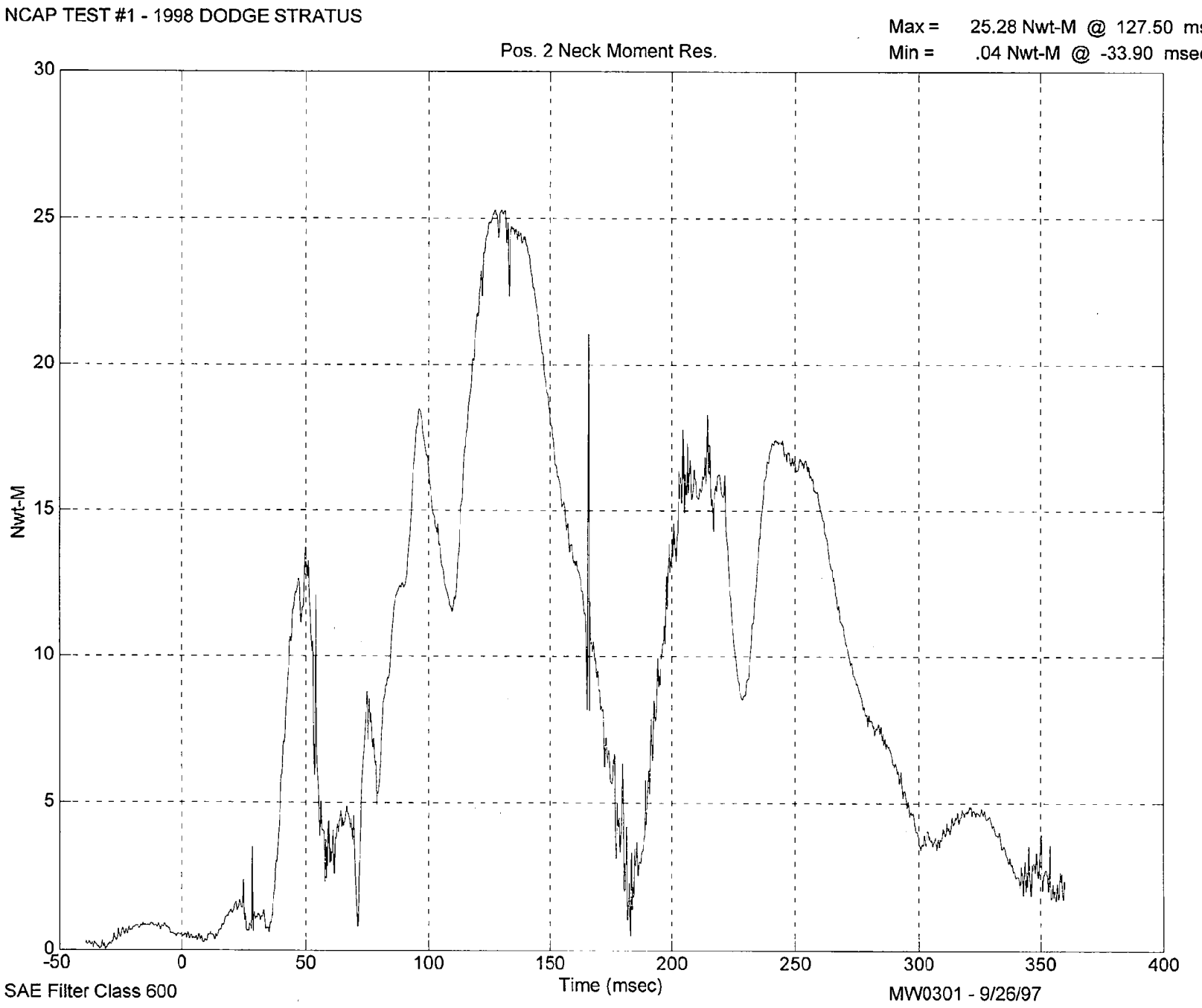
Pos. 2 Upper Neck Mz

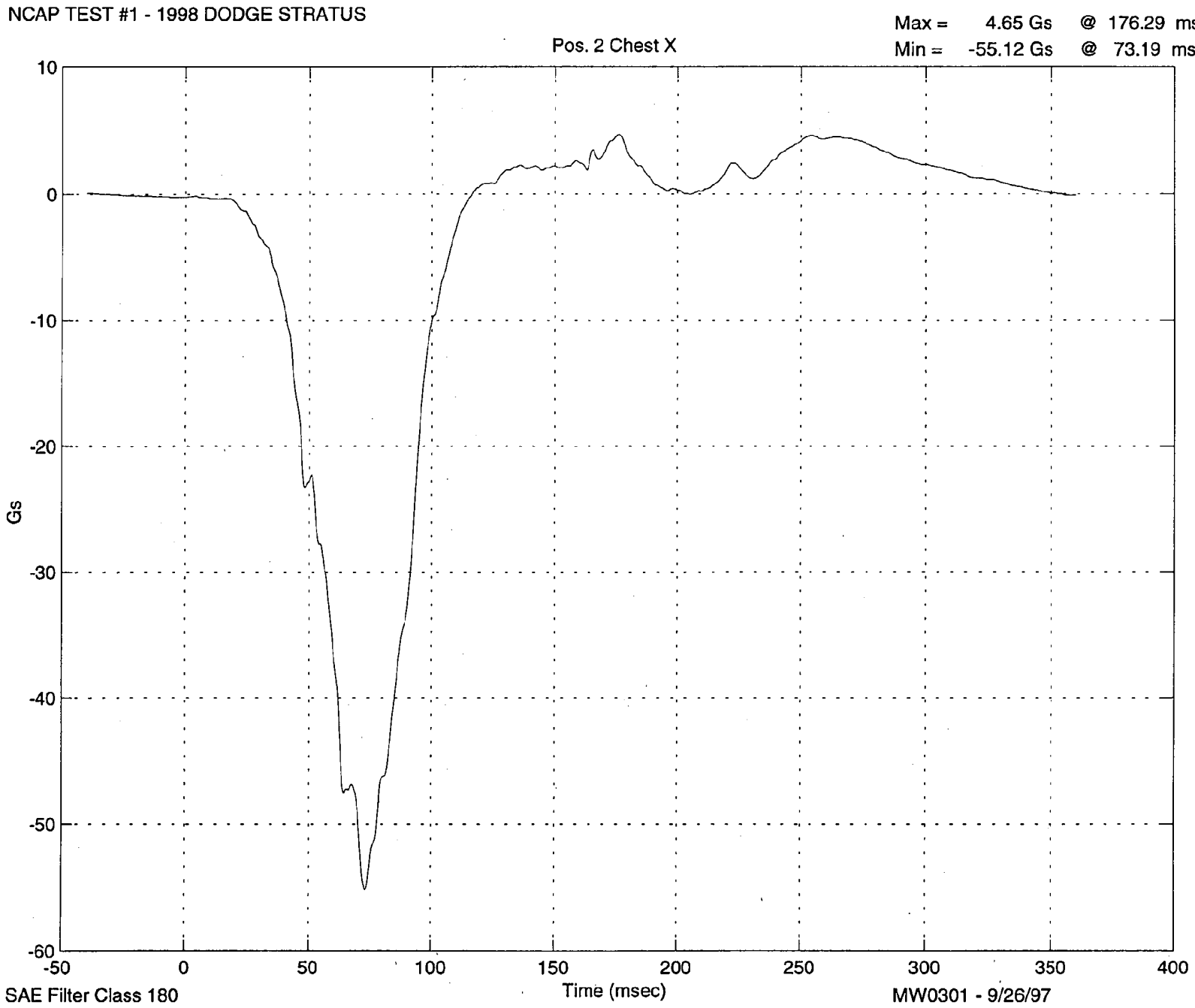
Max = 12.47 Nwt-M @ 103.69 msec
Min = -17.52 Nwt-M @ 165.69 msec

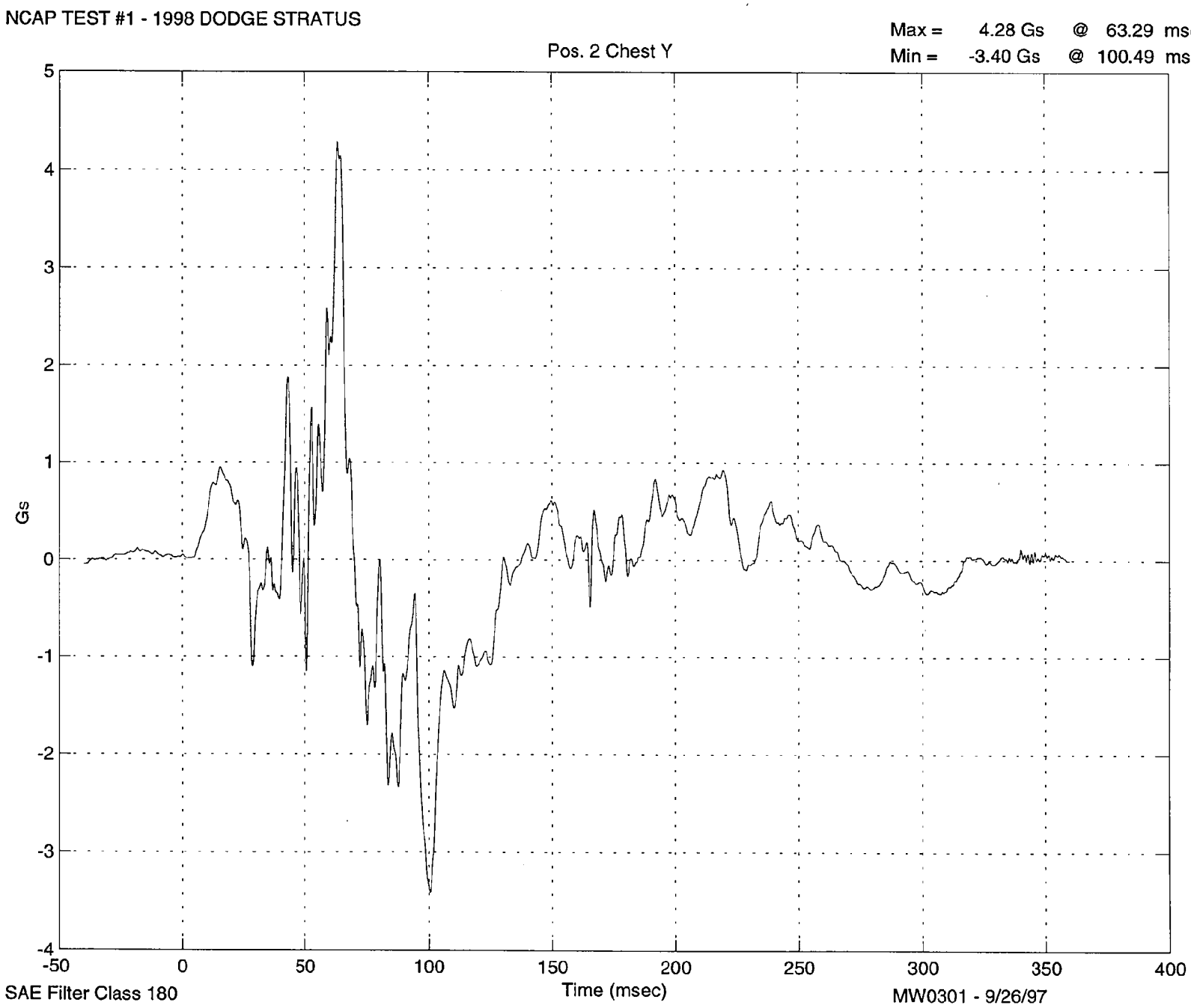


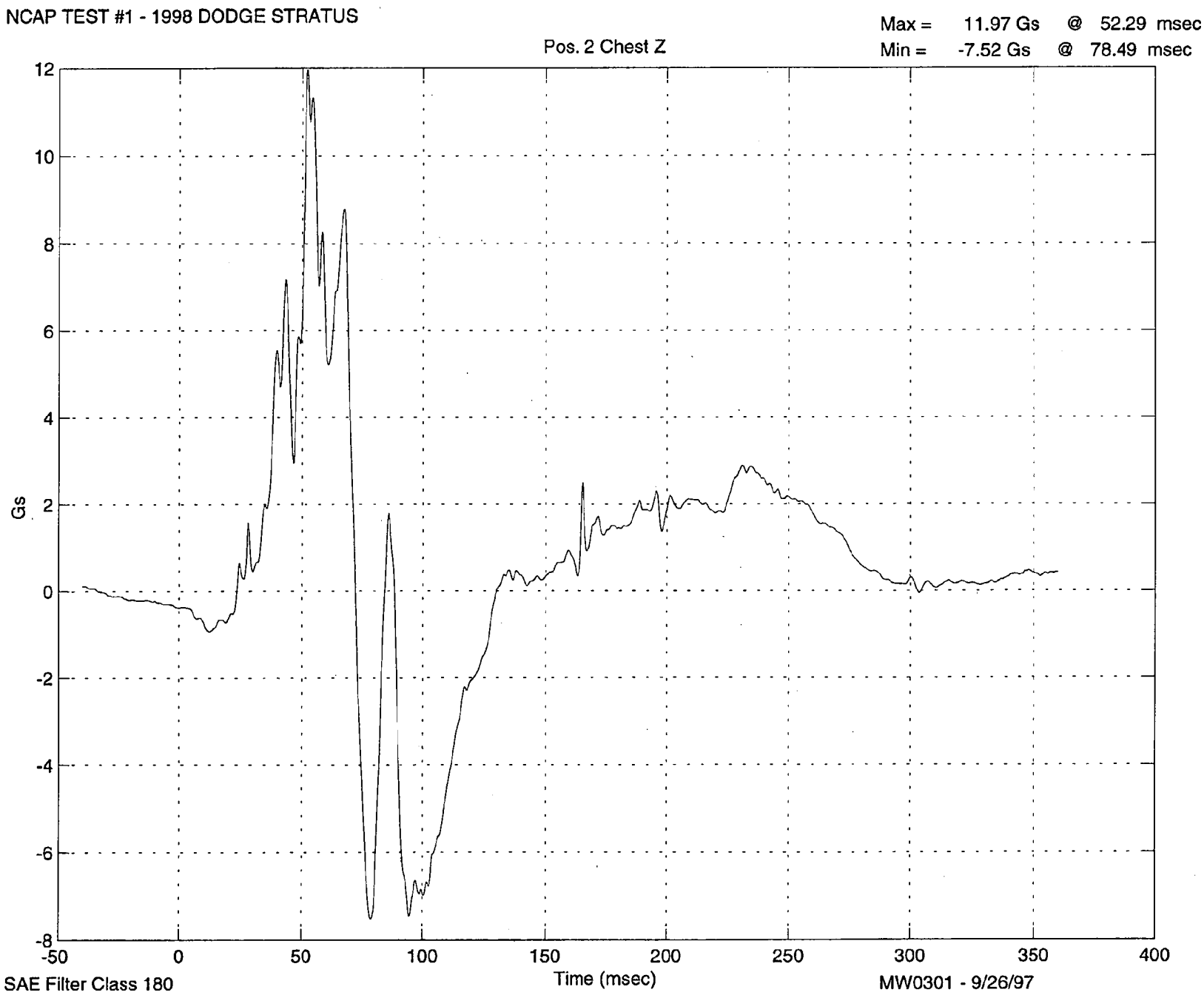
SAE Filter Class 600

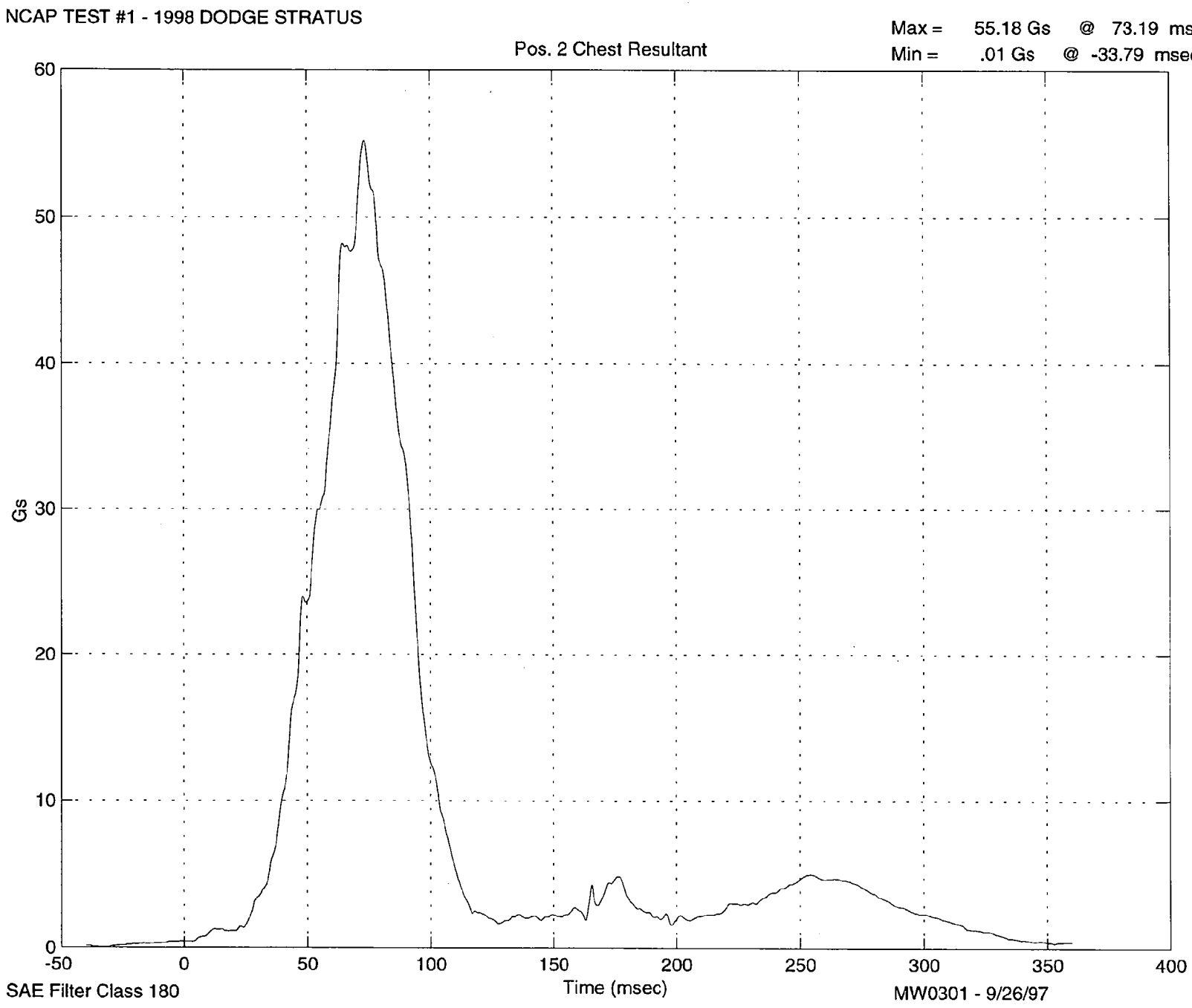
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Neck Moment Res.
Max = 25.28 Nwt-M @ 127.50 msec
Min = .04 Nwt-M @ -33.90 msec
Nwt-M
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Chest X
Max = 4.65 Gs @ 176.29 msec
Min = -55.12 Gs @ 73.19 msec
10
0
-10
-20
-30
-40
-50
-60
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97

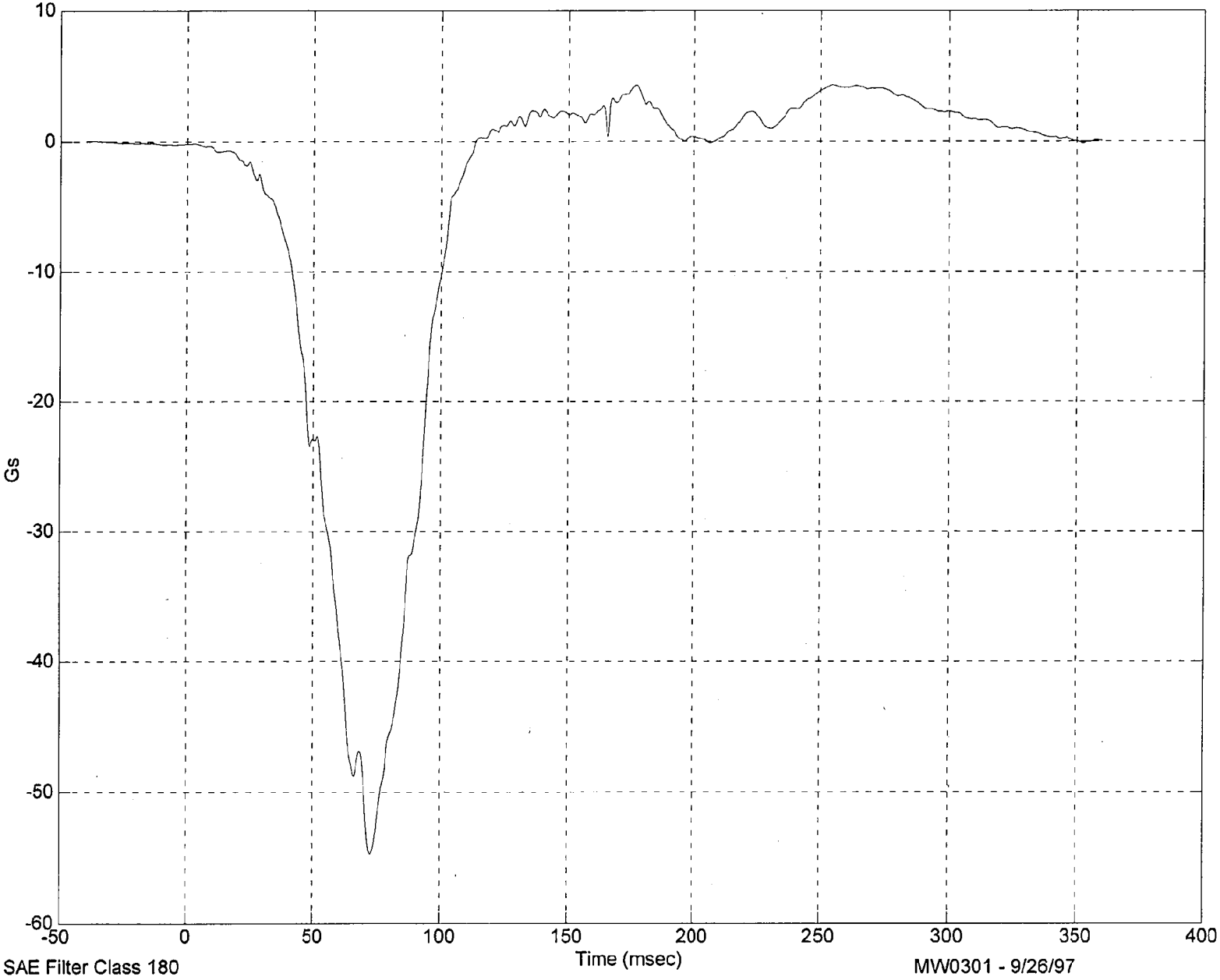

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Chest Y
Max = 4.28 Gs @ 63.29 msec
Min = -3.40 Gs @ 100.49 msec
Gs
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Chest Z
Max = 11.97 Gs @ 52.29 msec
Min = -7.52 Gs @ 78.49 msec
Gs
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Chest Resultant
Max = 55.18 Gs @ 73.19 msec
Min = .01 Gs @ -33.79 msec
Gs
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Max = 4.30 Gs @ 254.59 msec
Min = -54.71 Gs @ 72.70 msec



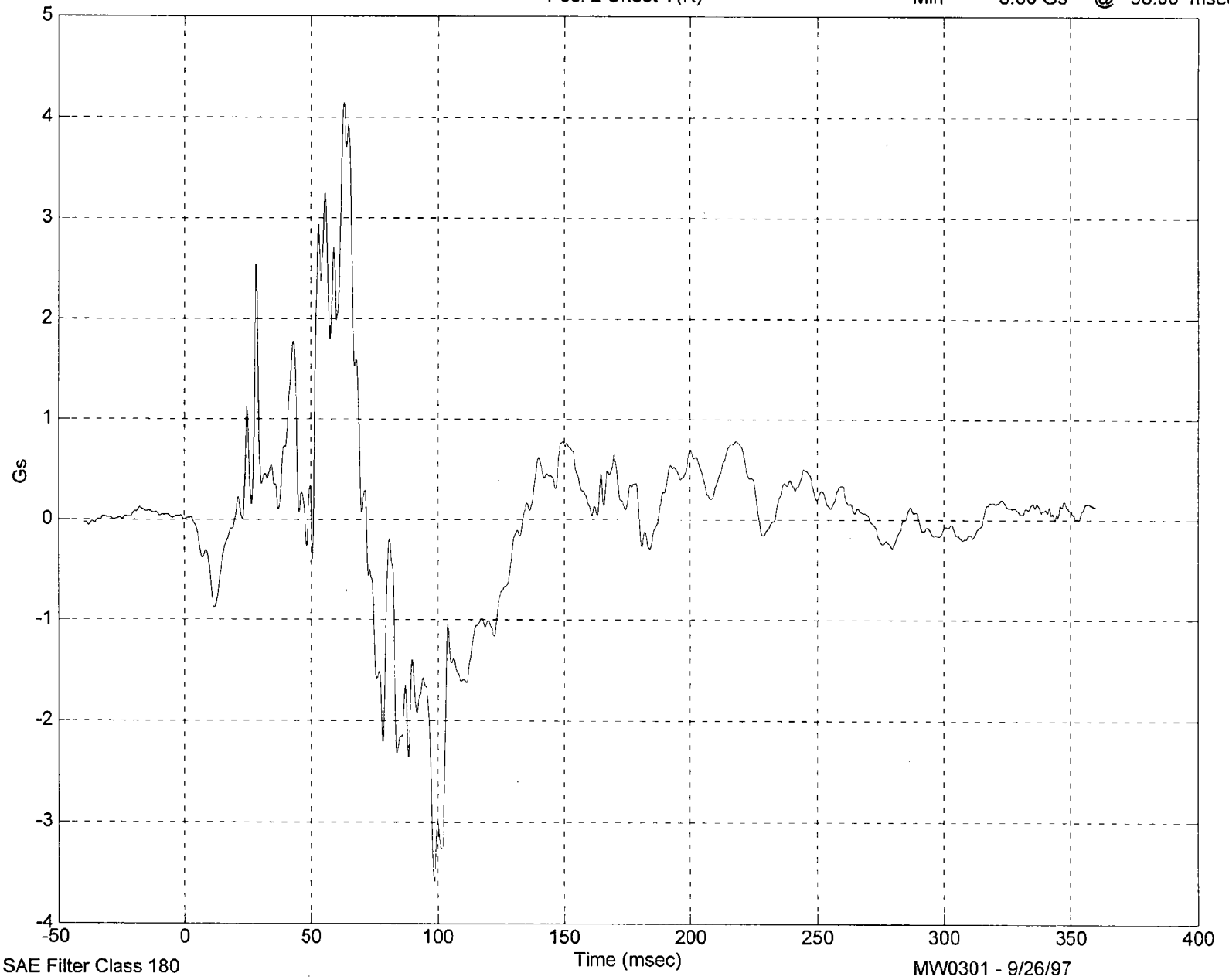
SAE Filter Class 180

MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 2 Chest Y(R)

Max = 4.14 Gs @ 62.89 msec
Min = -3.58 Gs @ 98.50 msec



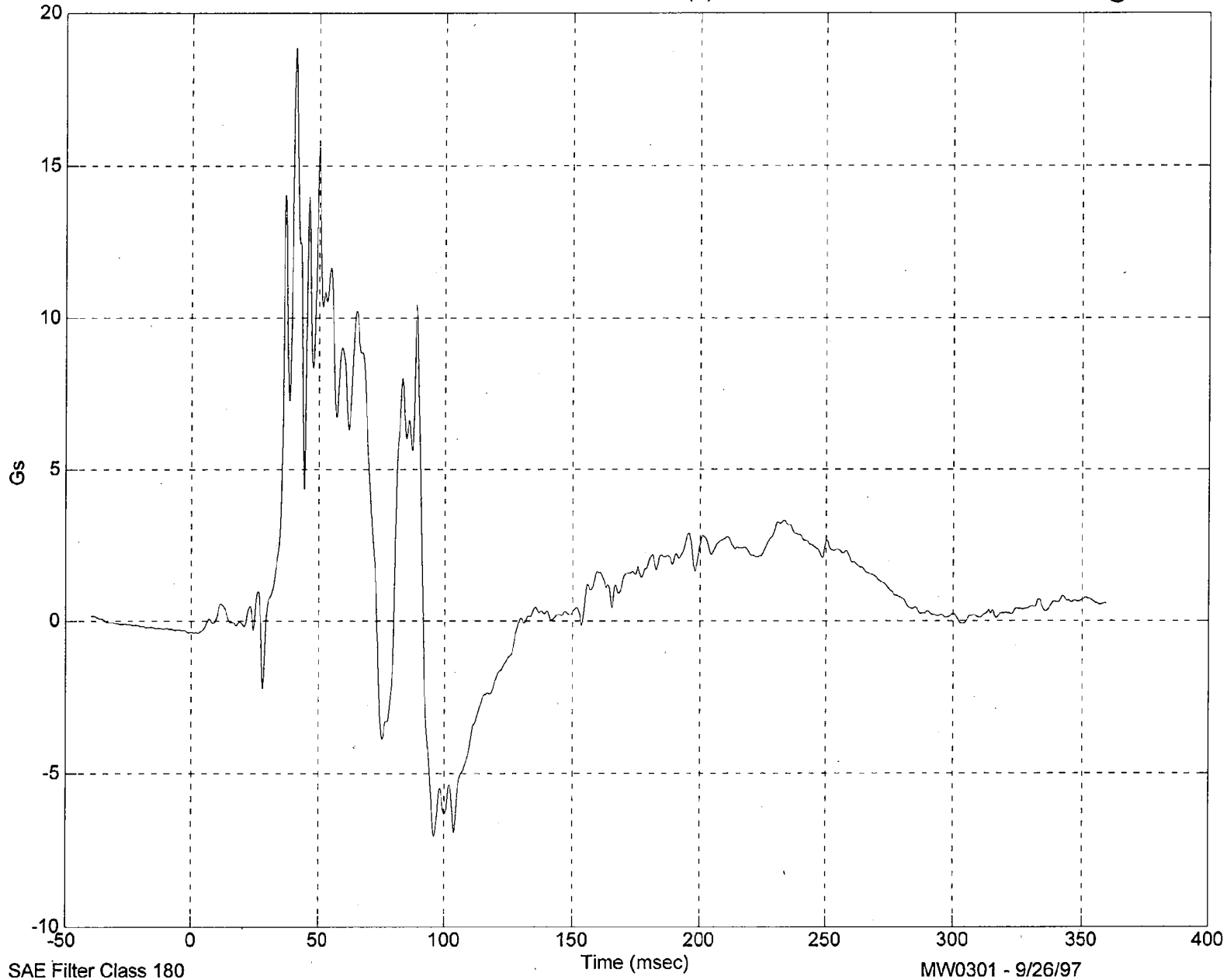
SAE Filter Class 180

MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 2 Chest Z(R)

Max = 18.85 Gs @ 40.70 msec
Min = -7.03 Gs @ 96.00 msec

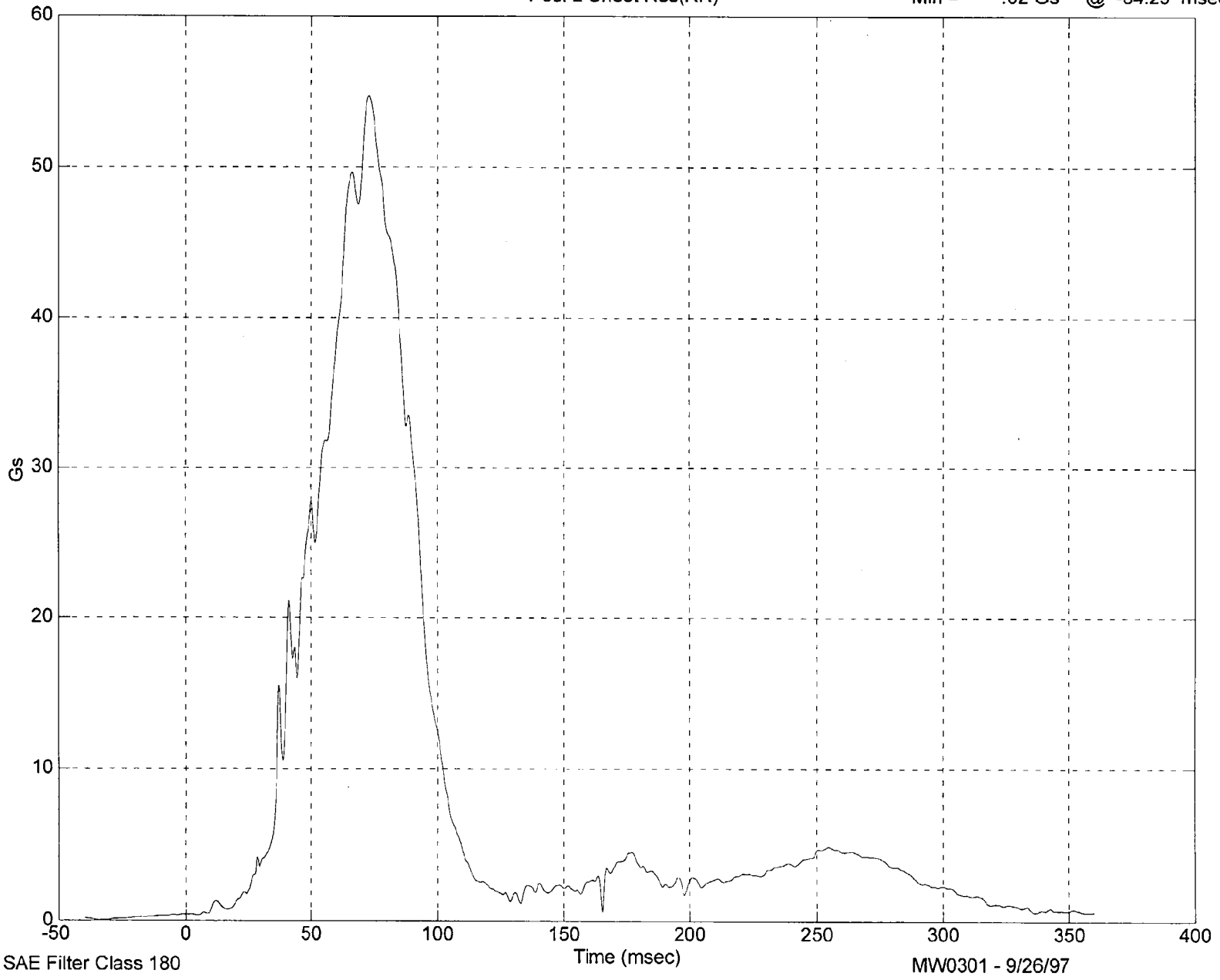


SAE Filter Class 180

MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Max = 54.73 Gs @ 72.70 msec
Min = .02 Gs @ -34.29 msec



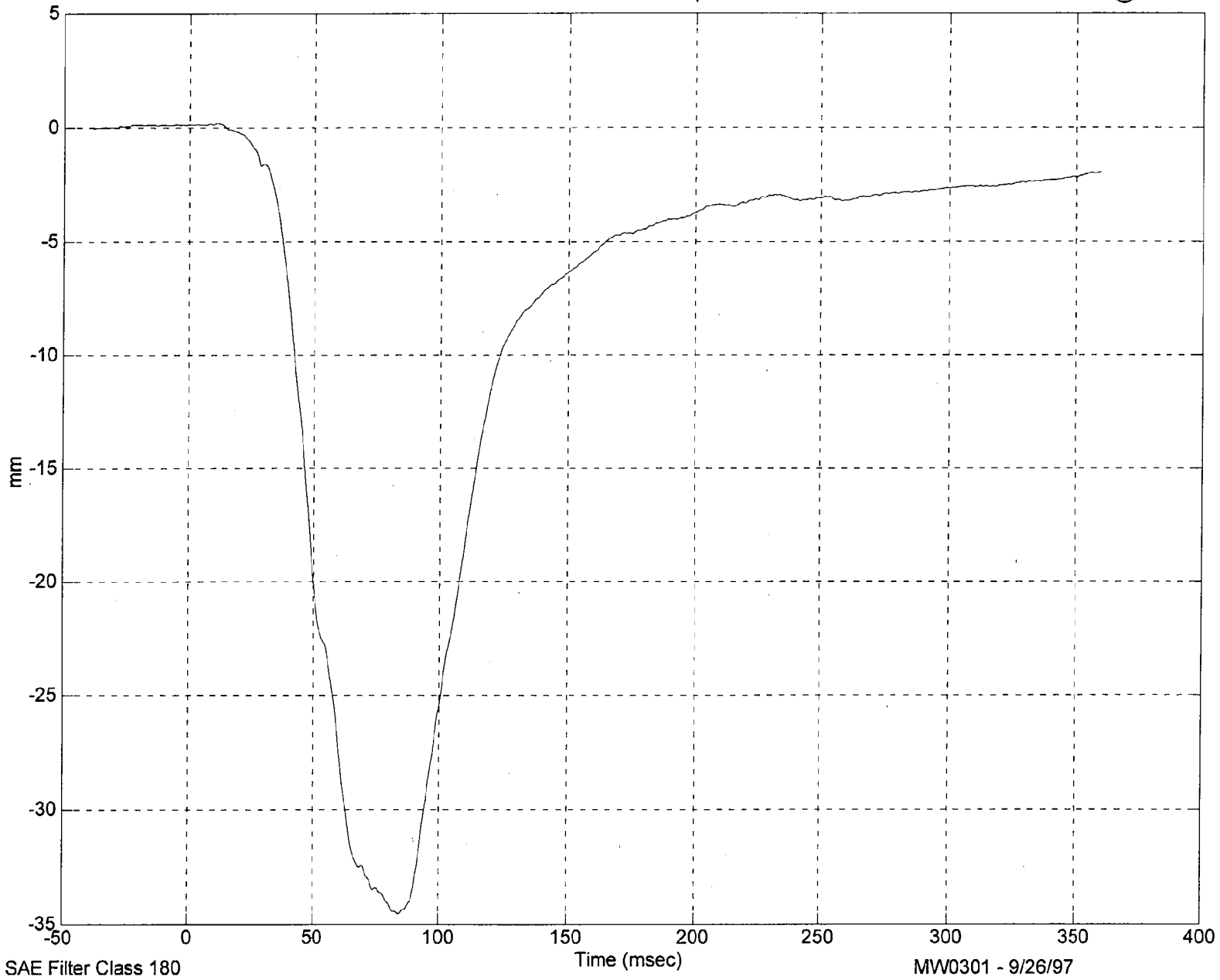
SAE Filter Class 180

MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

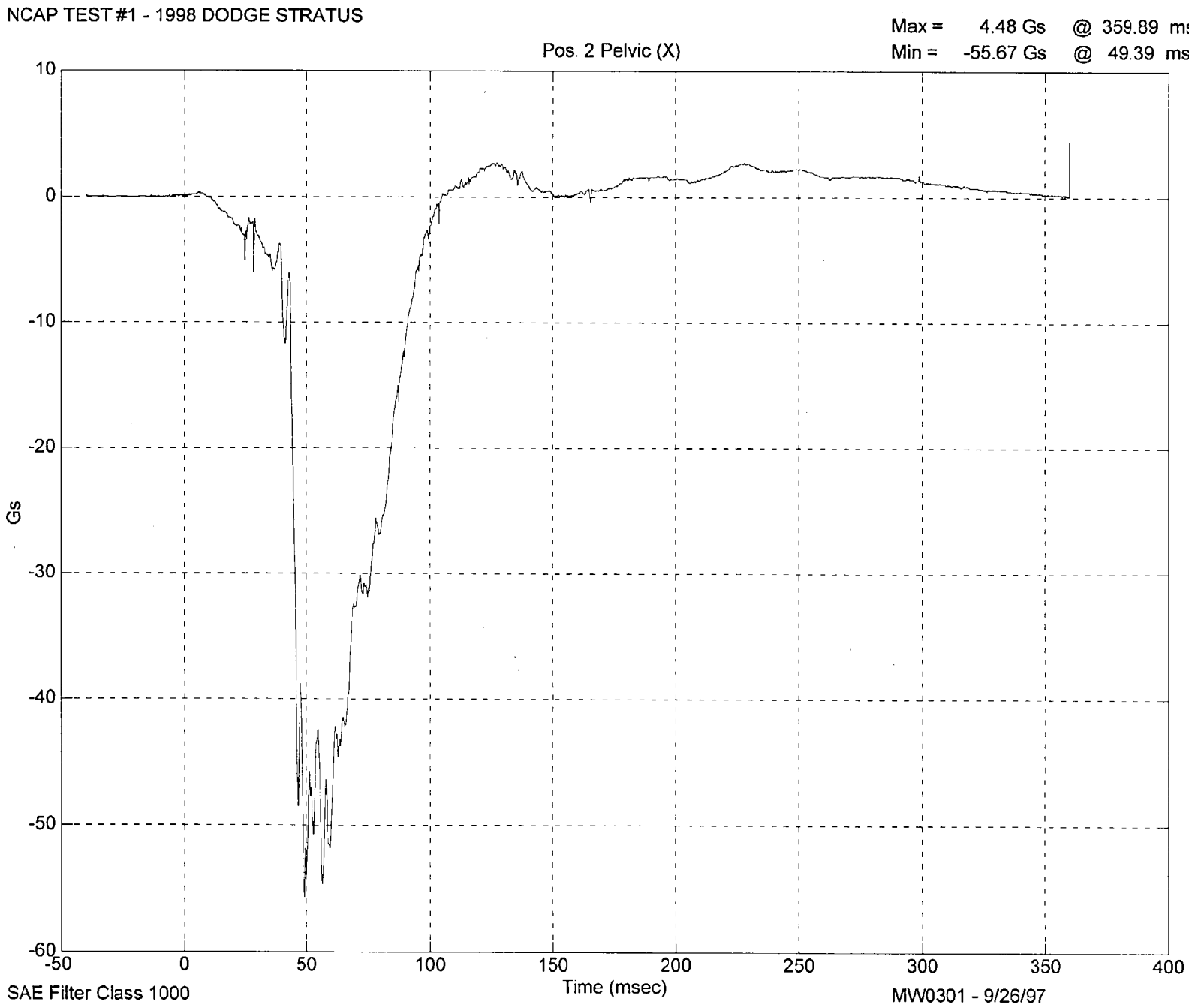
Pos. 2 Chest Disp.

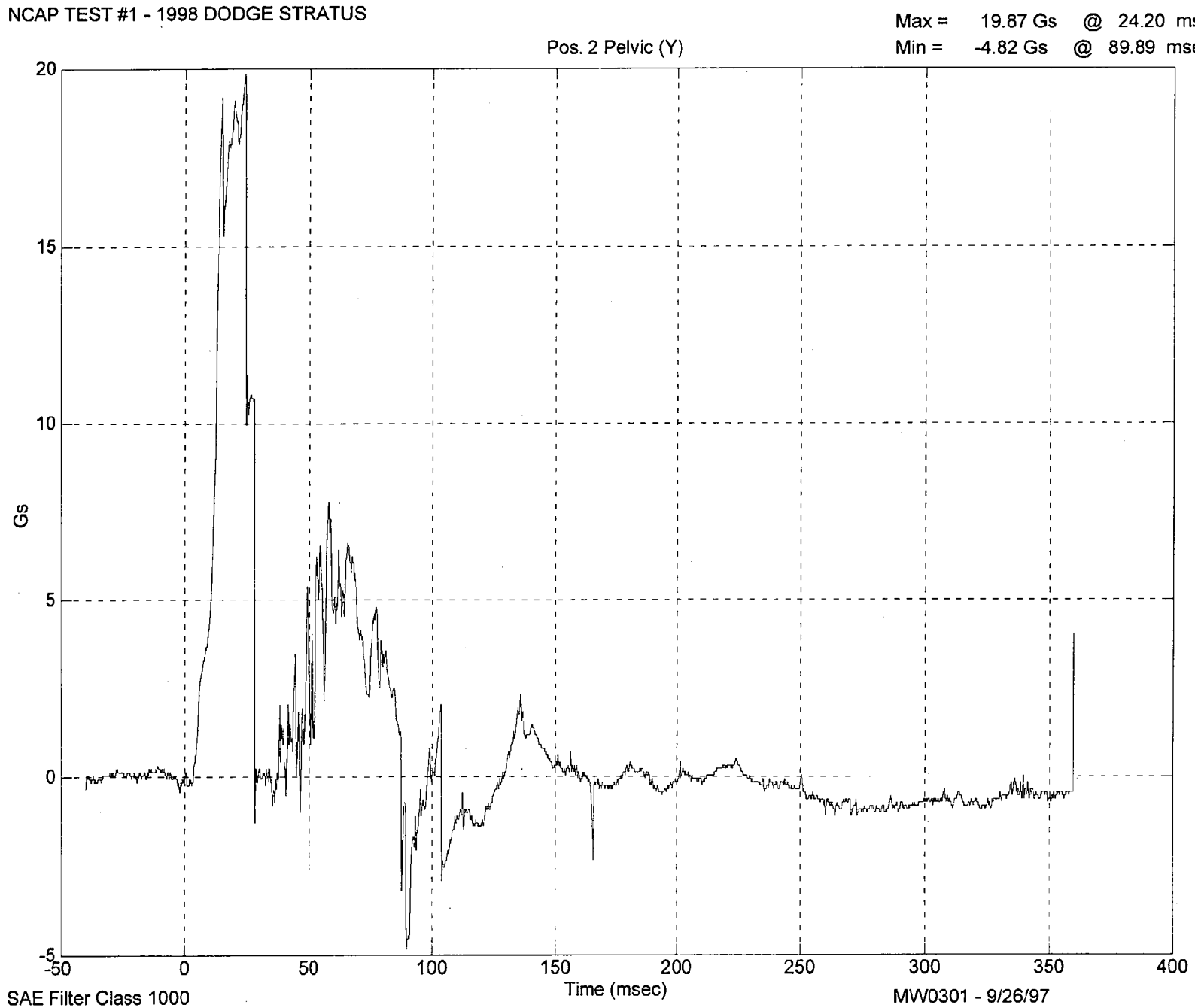
Max = .20 mm @ 10.89 msec
Min = -34.54 mm @ 84.29 msec



SAE Filter Class 180

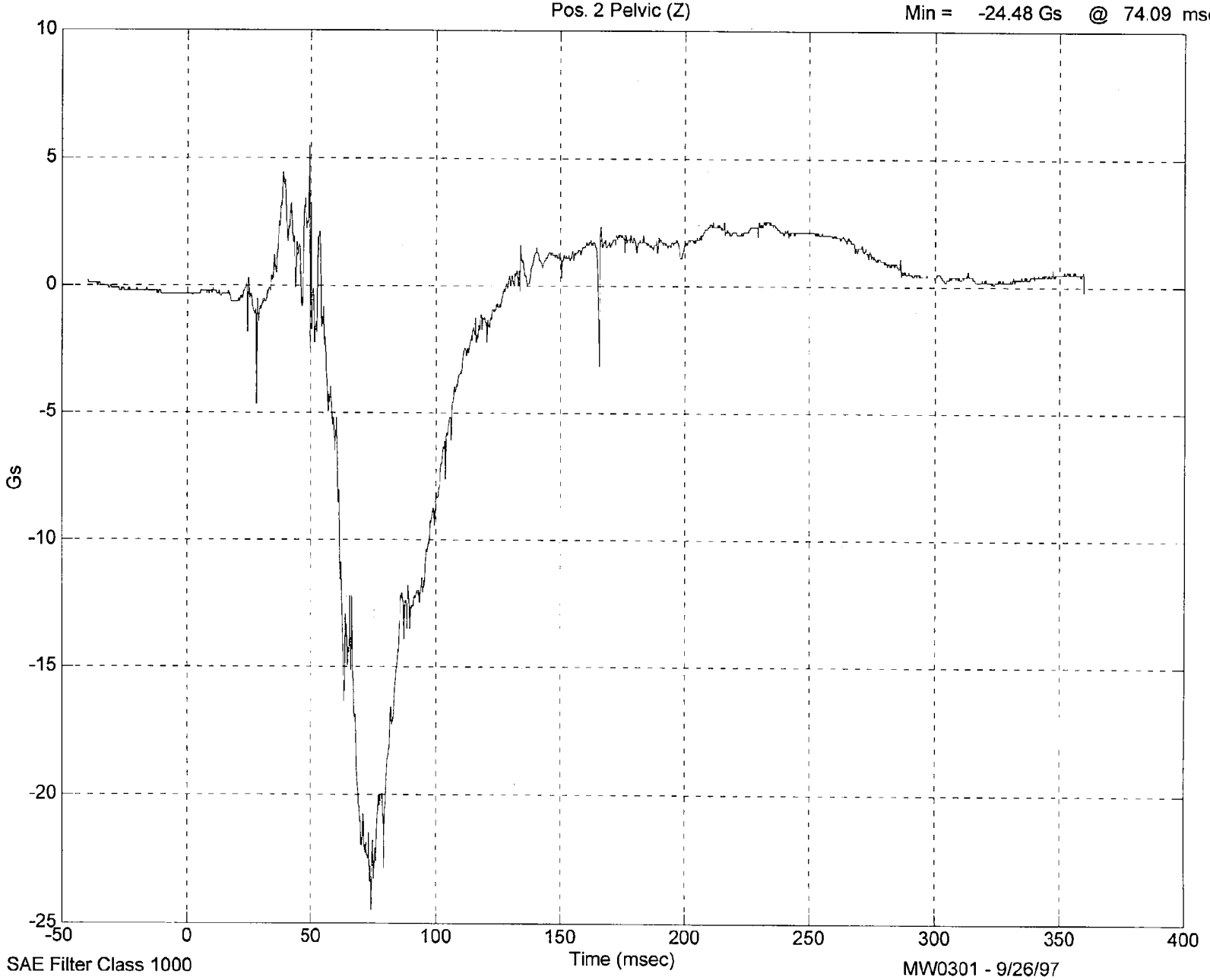
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Max = 4.48 Gs @ 359.89 msec
Min = -55.67 Gs @ 49.39 msec
Pos. 2 Pelvic (X)
10
0
-10
-20
-30
-40
-50
-60
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Max = 19.87 Gs @ 24.20 msec
Min = -4.82 Gs @ 89.89 msec
Pos. 2 Pelvic (Y)
20
15
10
5
0
-5
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

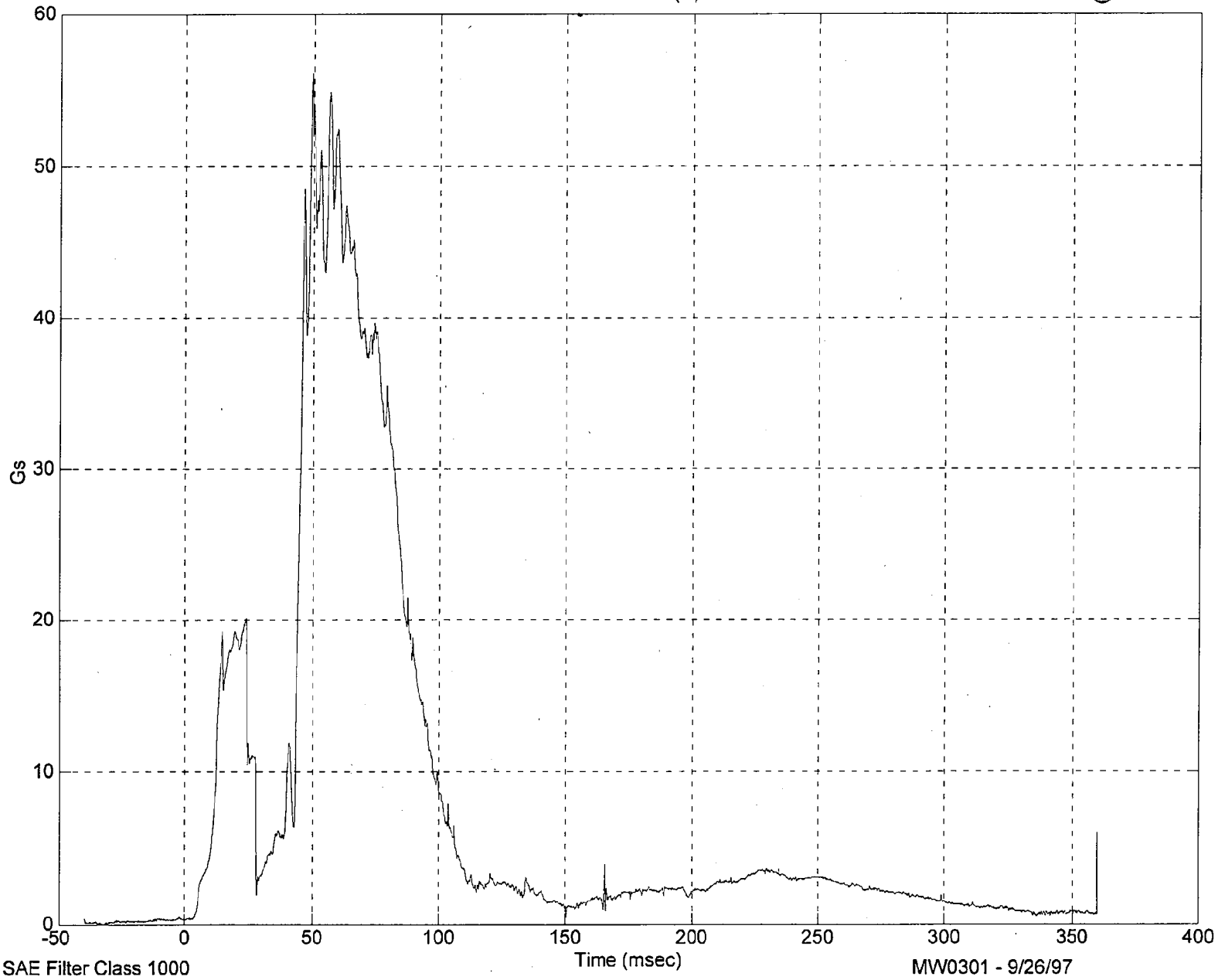
NCAP TEST #1 - 1998 DODGE STRATUS

Max = 5.48 Gs @ 49.39 msec
Min = -24.48 Gs @ 74.09 msec



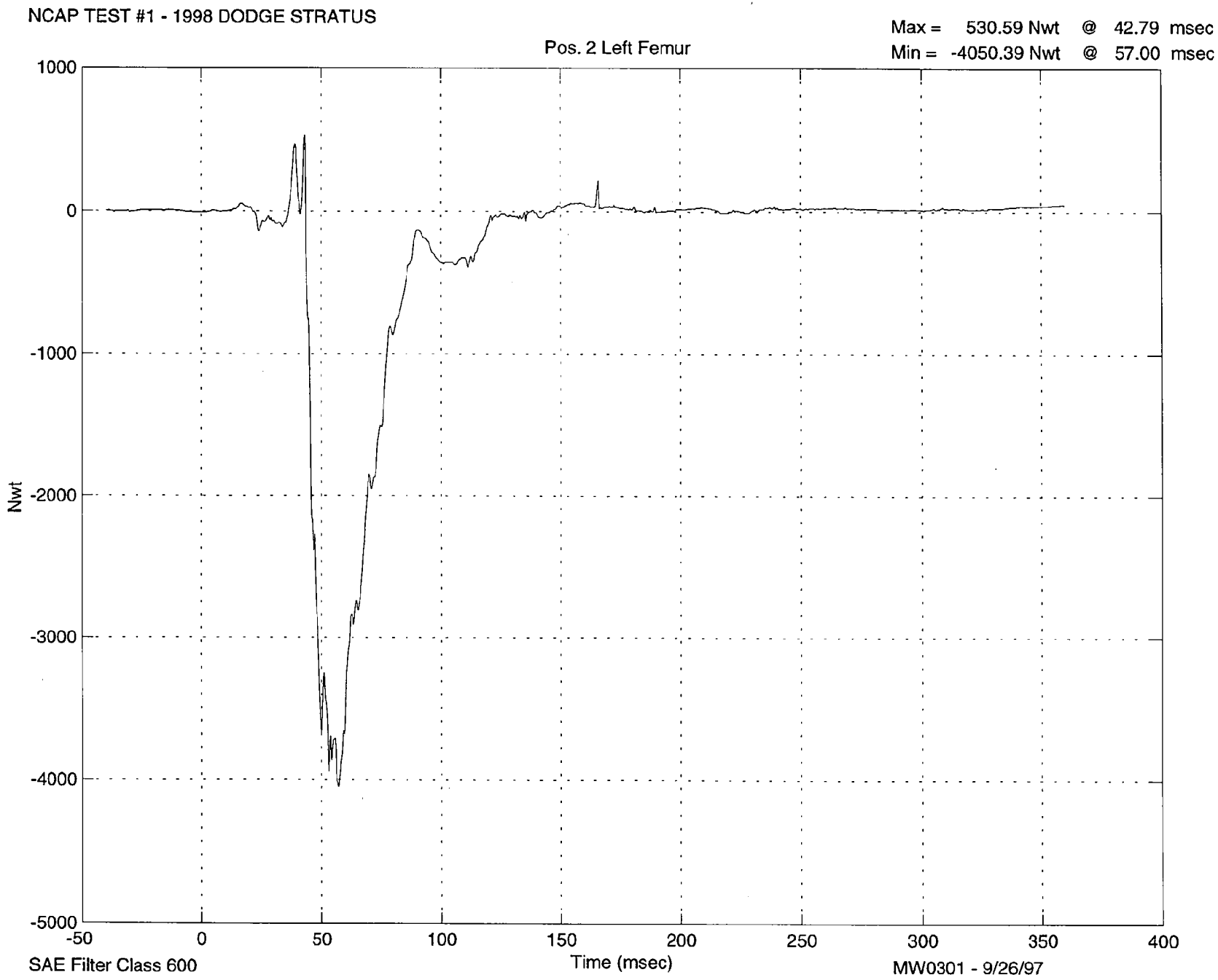
NCAP TEST #1 - 1998 DODGE STRATUS

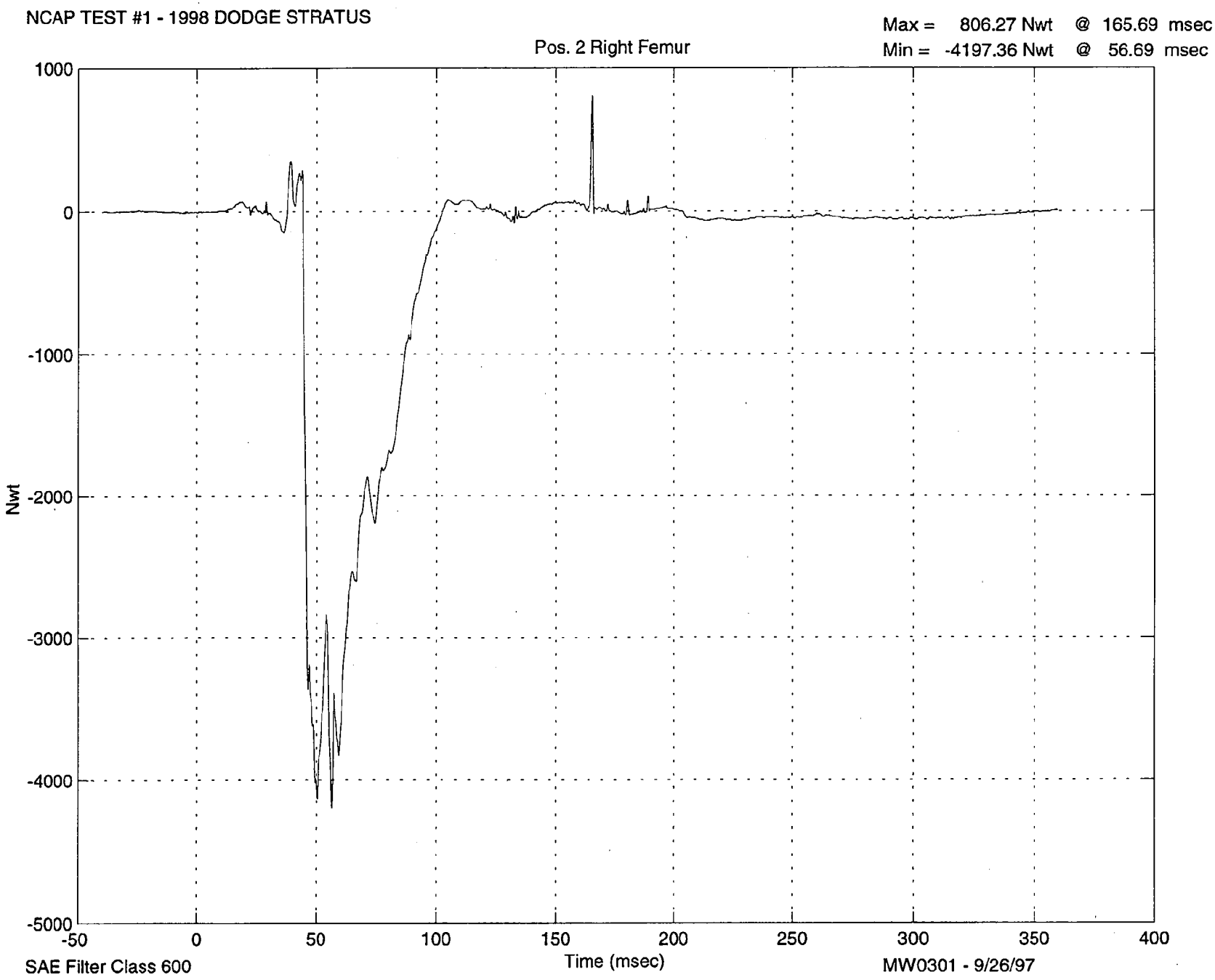
Max = 56.13 Gs @ 49.39 msec
Min = .03 Gs @ -30.60 msec



SAE Filter Class 1000

MW0301 - 9/26/97

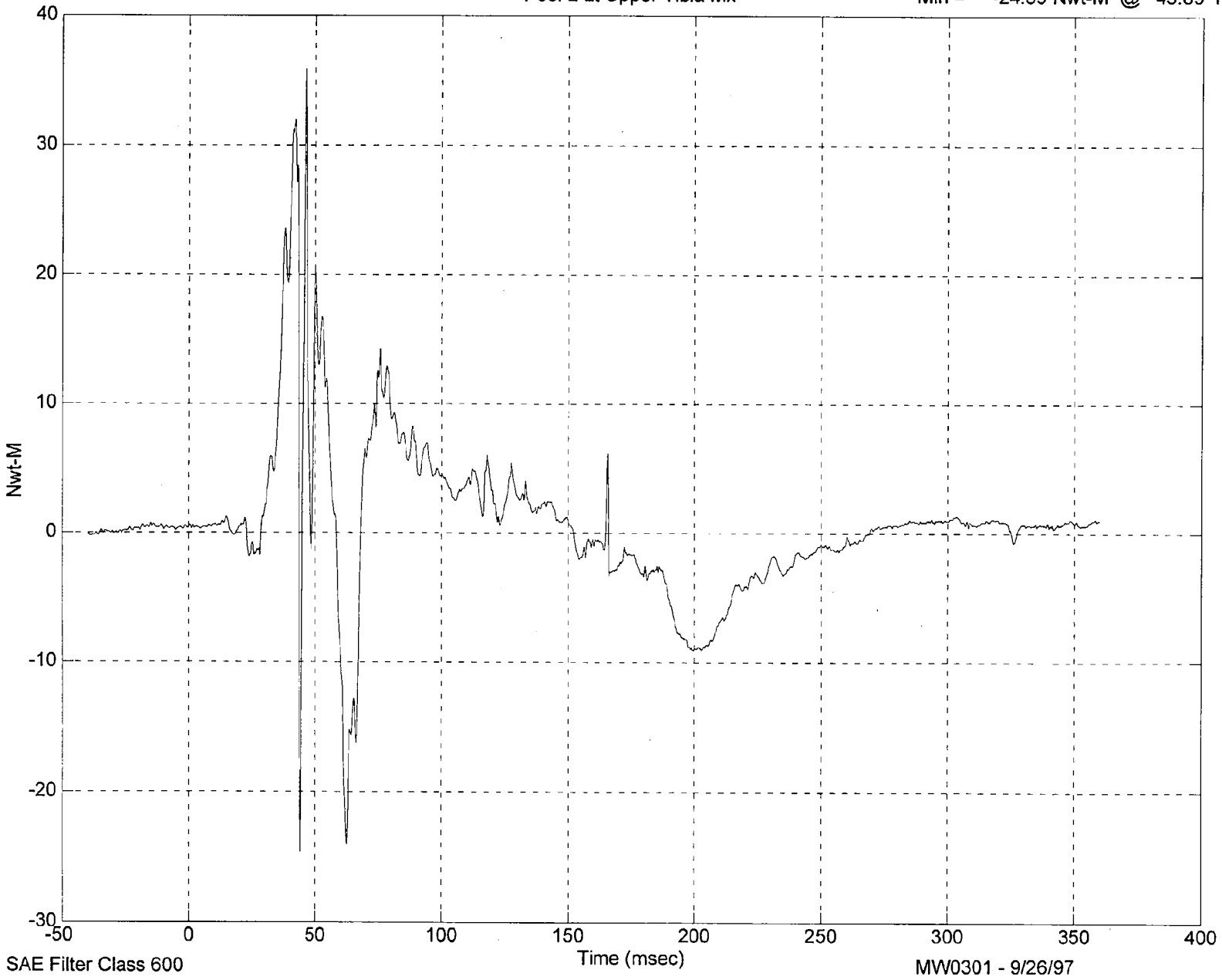

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Left Femur
Max = 530.59 Nwt @ 42.79 msec
Min = -4050.39 Nwt @ 57.00 msec
1000
0
-1000
-2000
-3000
-4000
-5000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Right Femur
Max = 806.27 Nwt @ 165.69 msec
Min = -4197.36 Nwt @ 56.69 msec
1000
0
-1000
-2000
-3000
-4000
-5000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

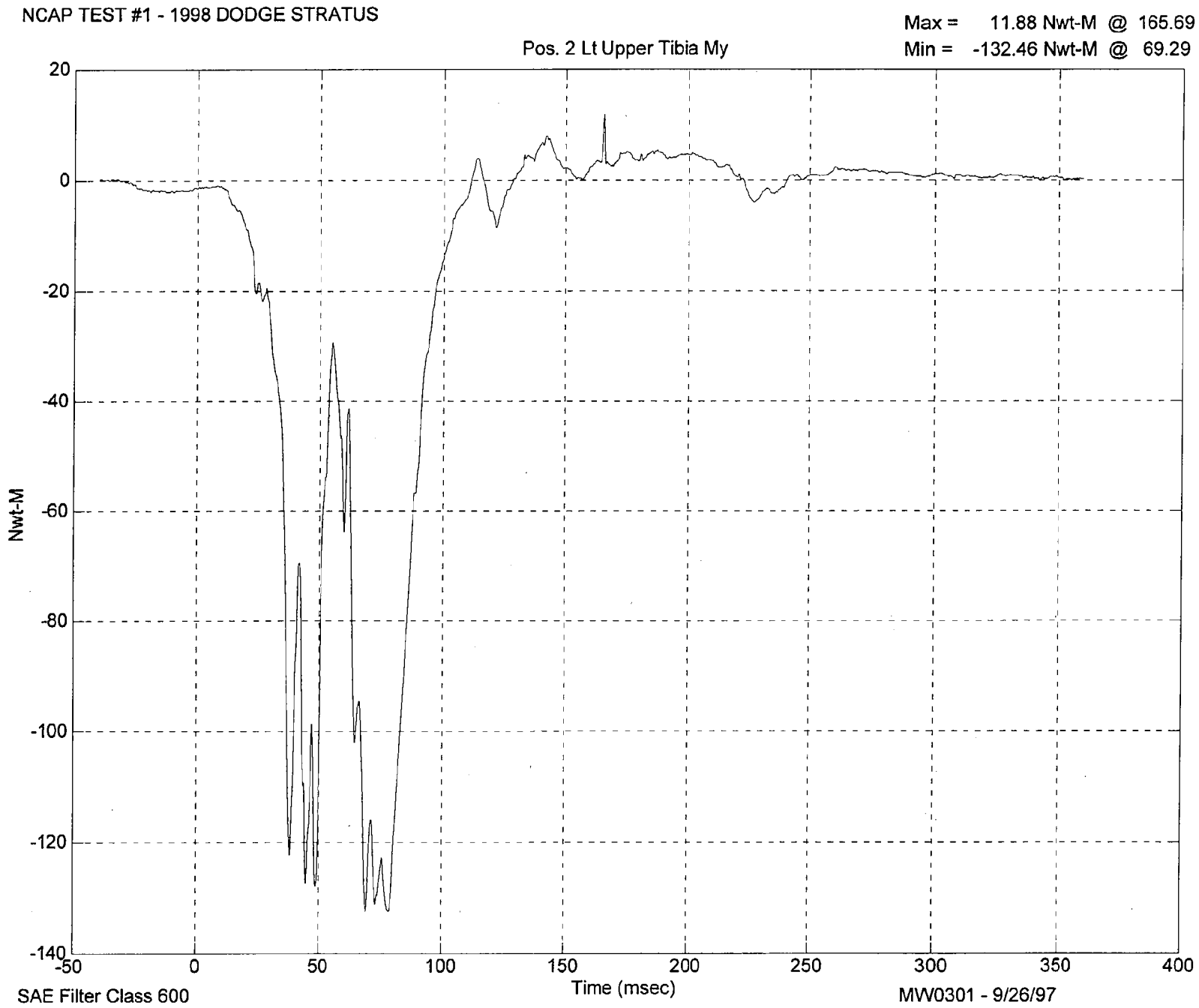
Pos. 2 Lt Upper Tibia Mx

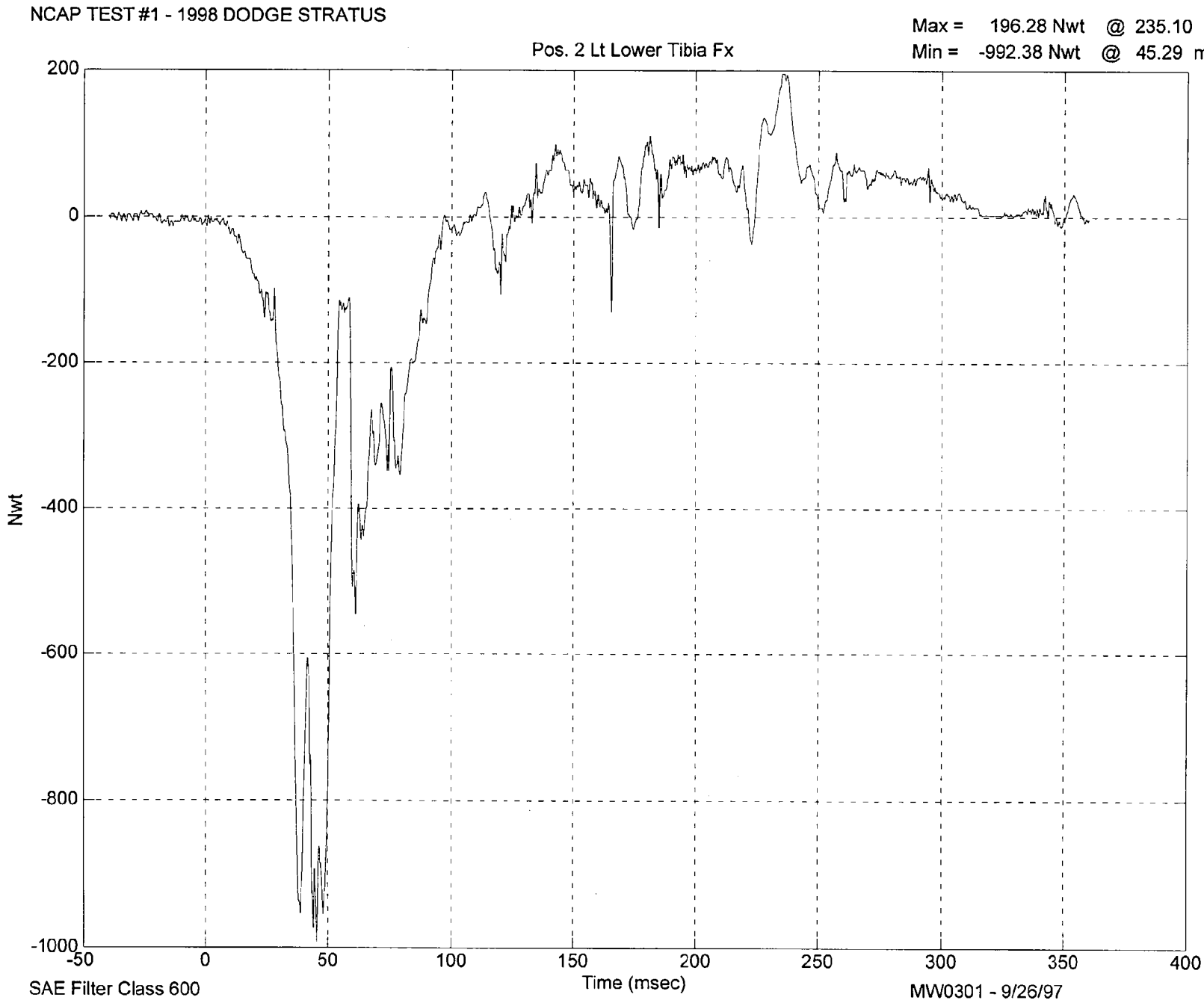
Max = 35.90 Nwt-M @ 45.89 msec
Min = -24.59 Nwt-M @ 43.89 msec

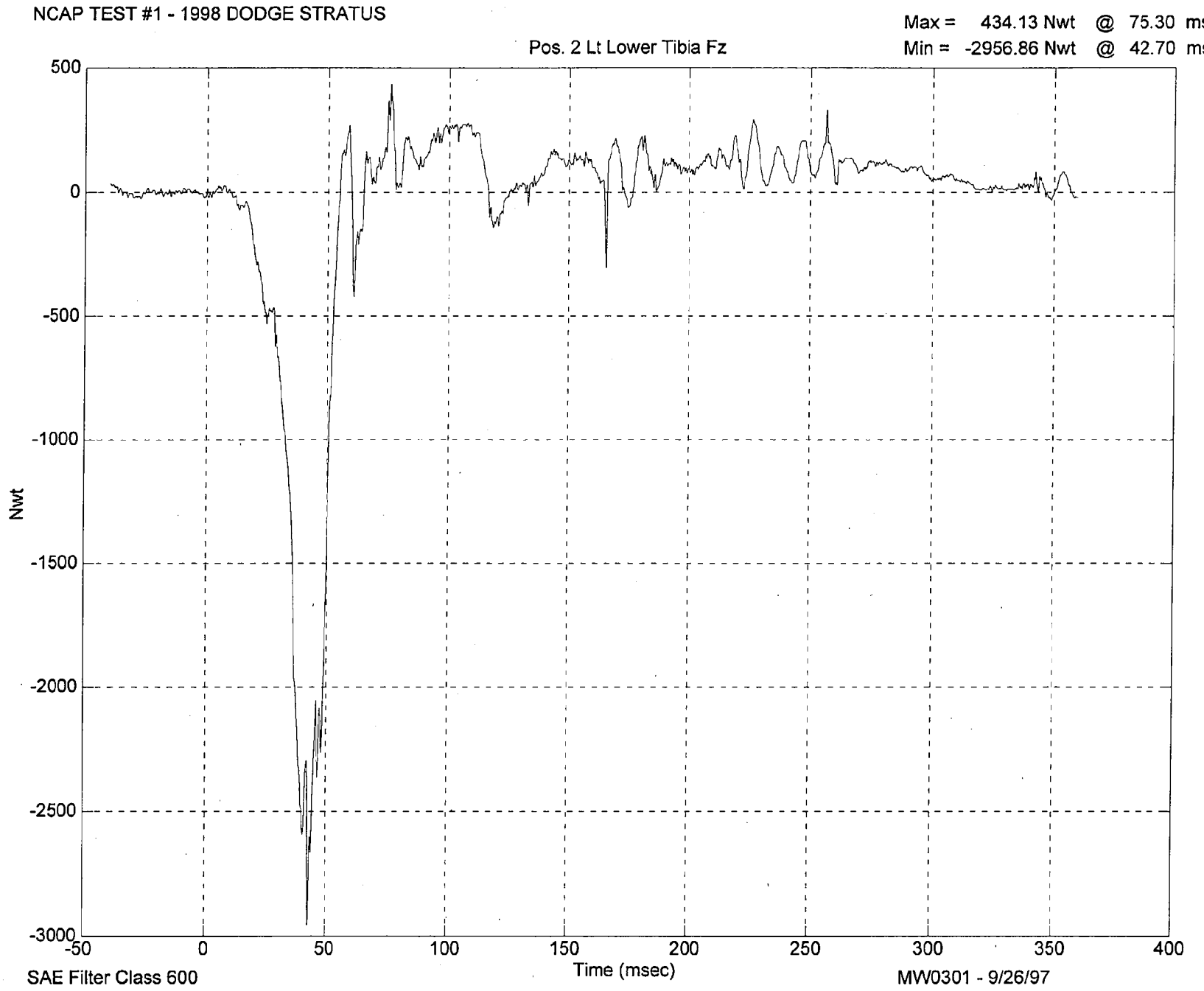


SAE Filter Class 600

MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Lt Upper Tibia My
Max = 11.88 Nwt-M @ 165.69 msec
Min = -132.46 Nwt-M @ 69.29 msec
Nwt-M
20
0
-20
-40
-60
-80
-100
-120
-140
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MVV0301 - 9/26/97

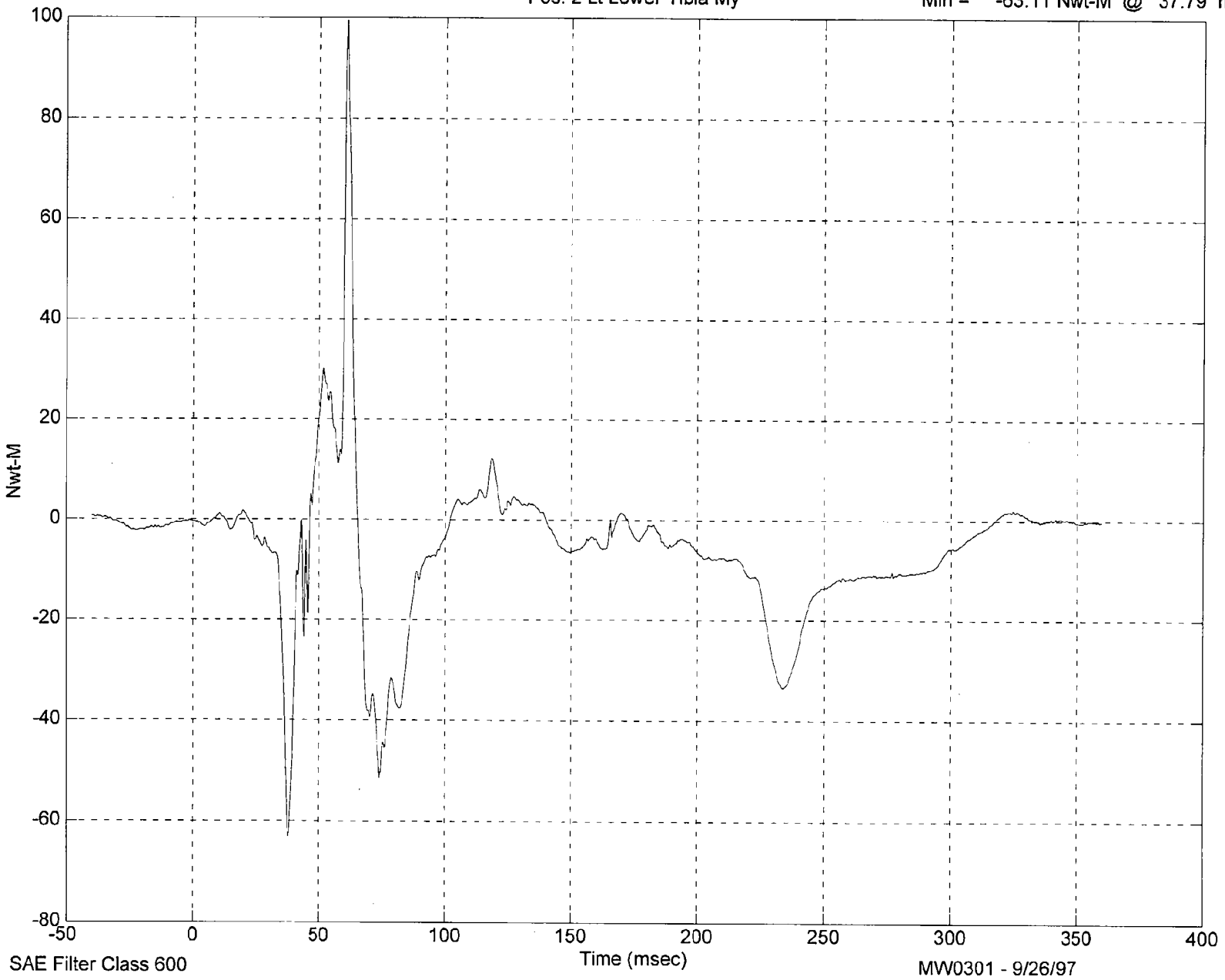

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Lt Lower Tibia Fx
Max = 196.28 Nwt @ 235.10 msec
Min = -992.38 Nwt @ 45.29 msec
200
0
-200
-400
-600
-800
-1000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Lt Lower Tibia Fz
Max = 434.13 Nwt @ 75.30 msec
Min = -2956.86 Nwt @ 42.70 msec
500
0
-500
-1000
-1500
-2000
-2500
-3000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 2 Lt Lower Tibia My

Max = 99.50 Nwt-M @ 60.70 msec
Min = -63.11 Nwt-M @ 37.79 msec



SAE Filter Class 600

MVV0301 - 9/26/97

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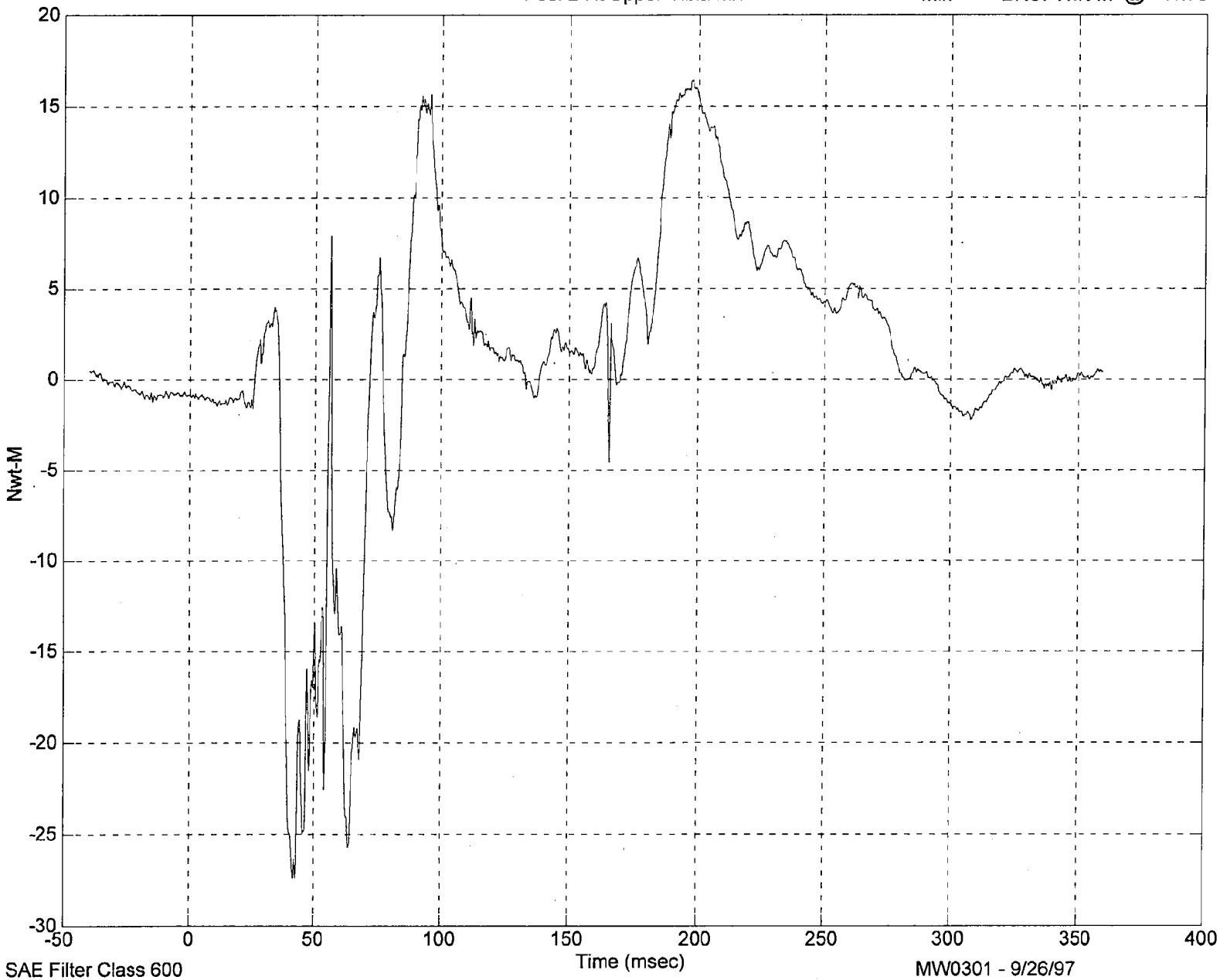
NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 2 Rt Upper Tibia Mx

Max = 16.46 Nwt-M @ 197.80 msec

Min = -27.37 Nwt-M @ 41.79 msec



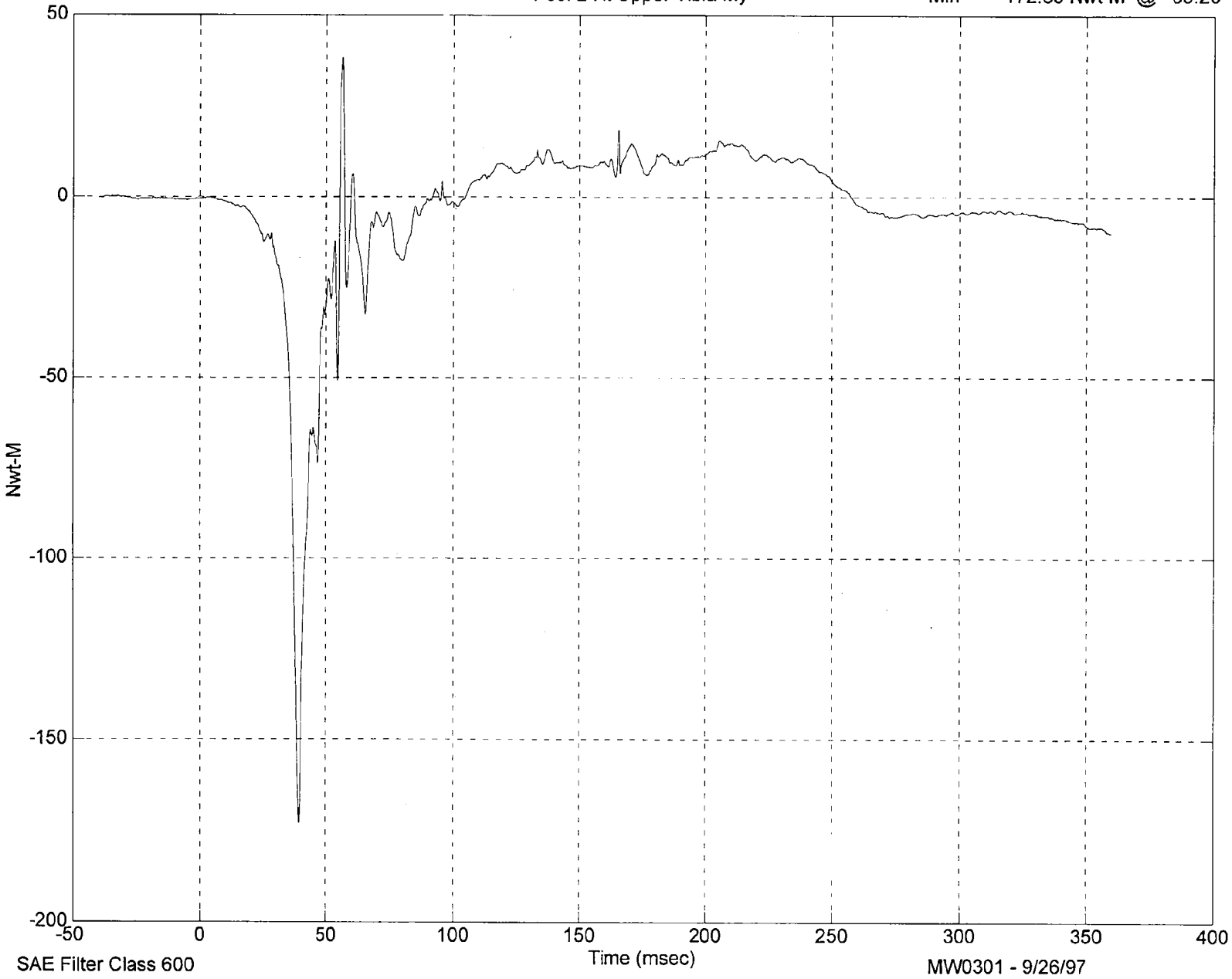
SAE Filter Class 600

MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

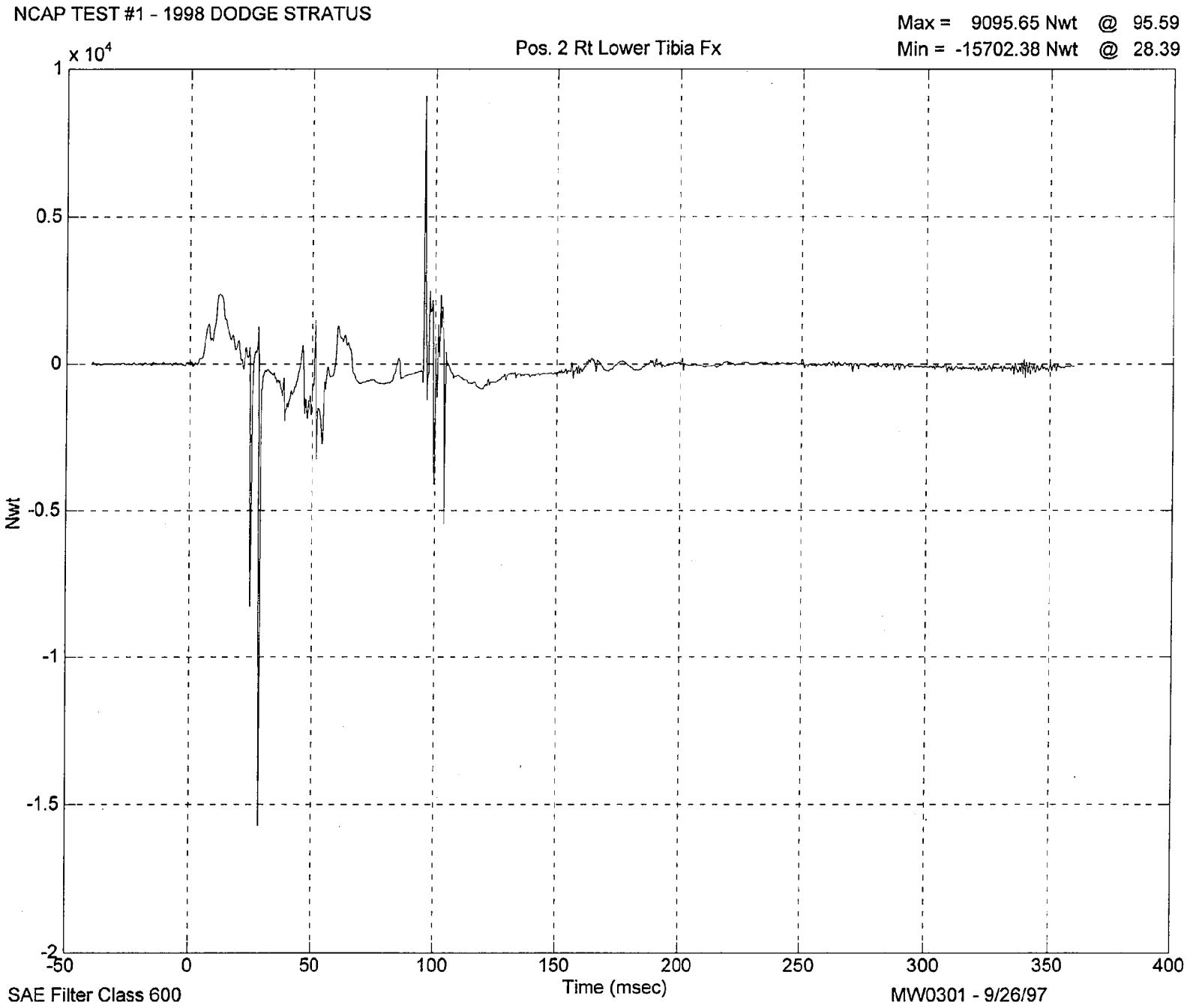
Pos. 2 Rt Upper Tibia My

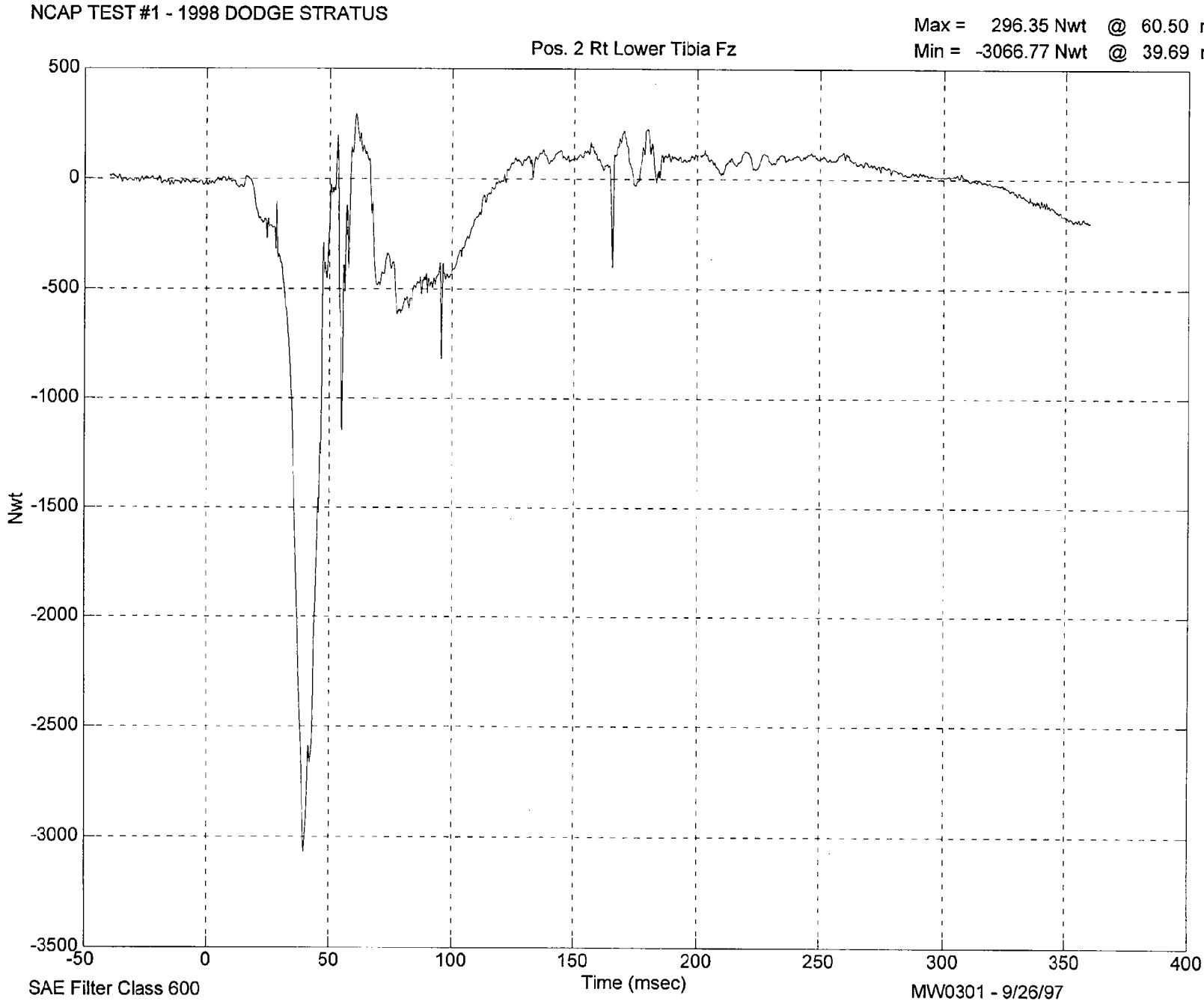
Max = 38.37 Nwt-M @ 56.39 msec
Min = -172.89 Nwt-M @ 39.20 msec



SAE Filter Class 600

MW0301 - 9/26/97

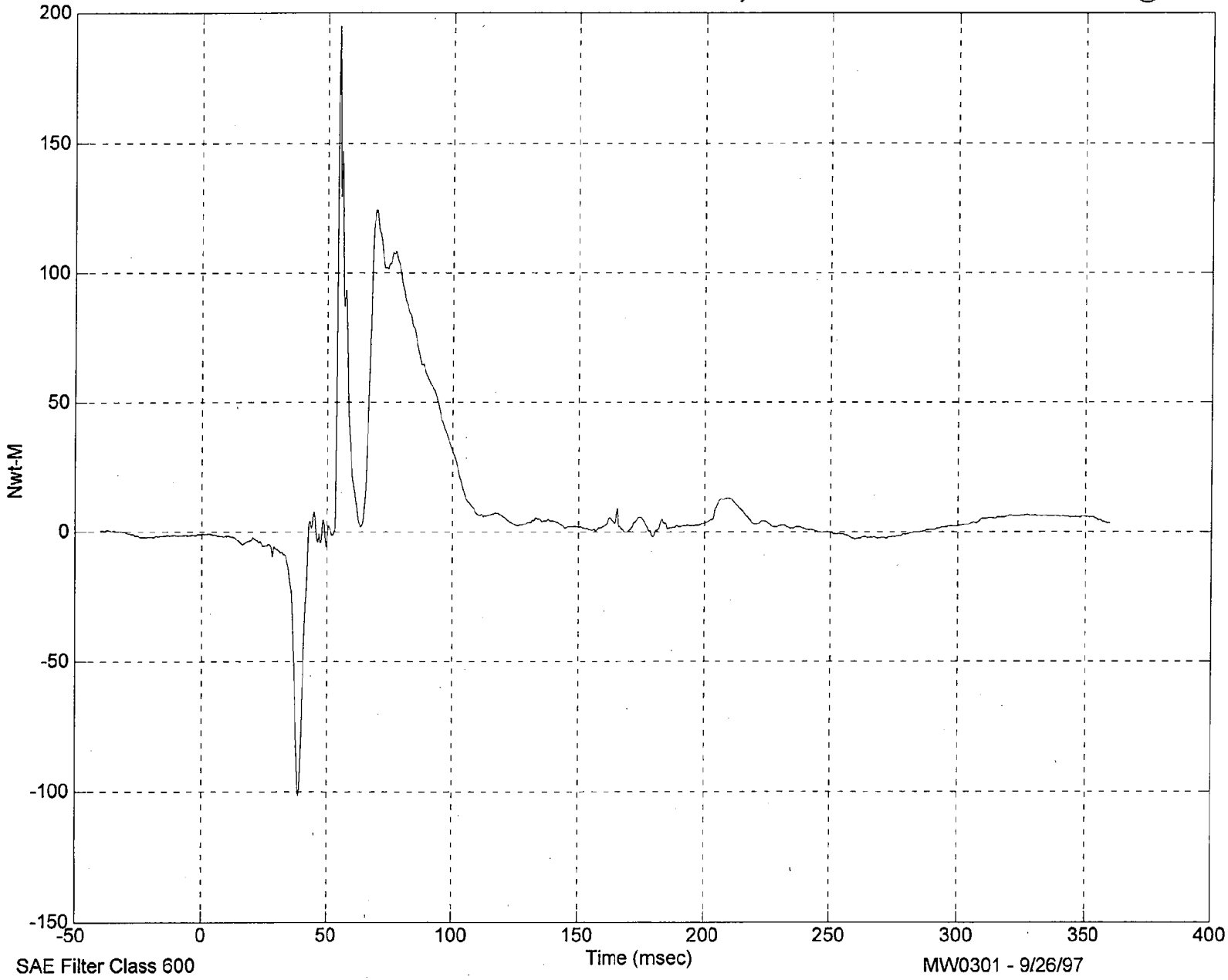

NCAP TEST #1 - 1998 DODGE STRATUS
Max = 9095.65 Nwt @ 95.59 msec
Min = -15702.38 Nwt @ 28.39 msec
Pos. 2 Rt Lower Tibia Fx
x 10^4
1
0.5
0
-0.5
-1
-1.5
-2
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Rt Lower Tibia Fz
Max = 296.35 Nwt @ 60.50 msec
Min = -3066.77 Nwt @ 39.69 msec
500
0
-500
-1000
-1500
-2000
-2500
-3000
-3500
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 600
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

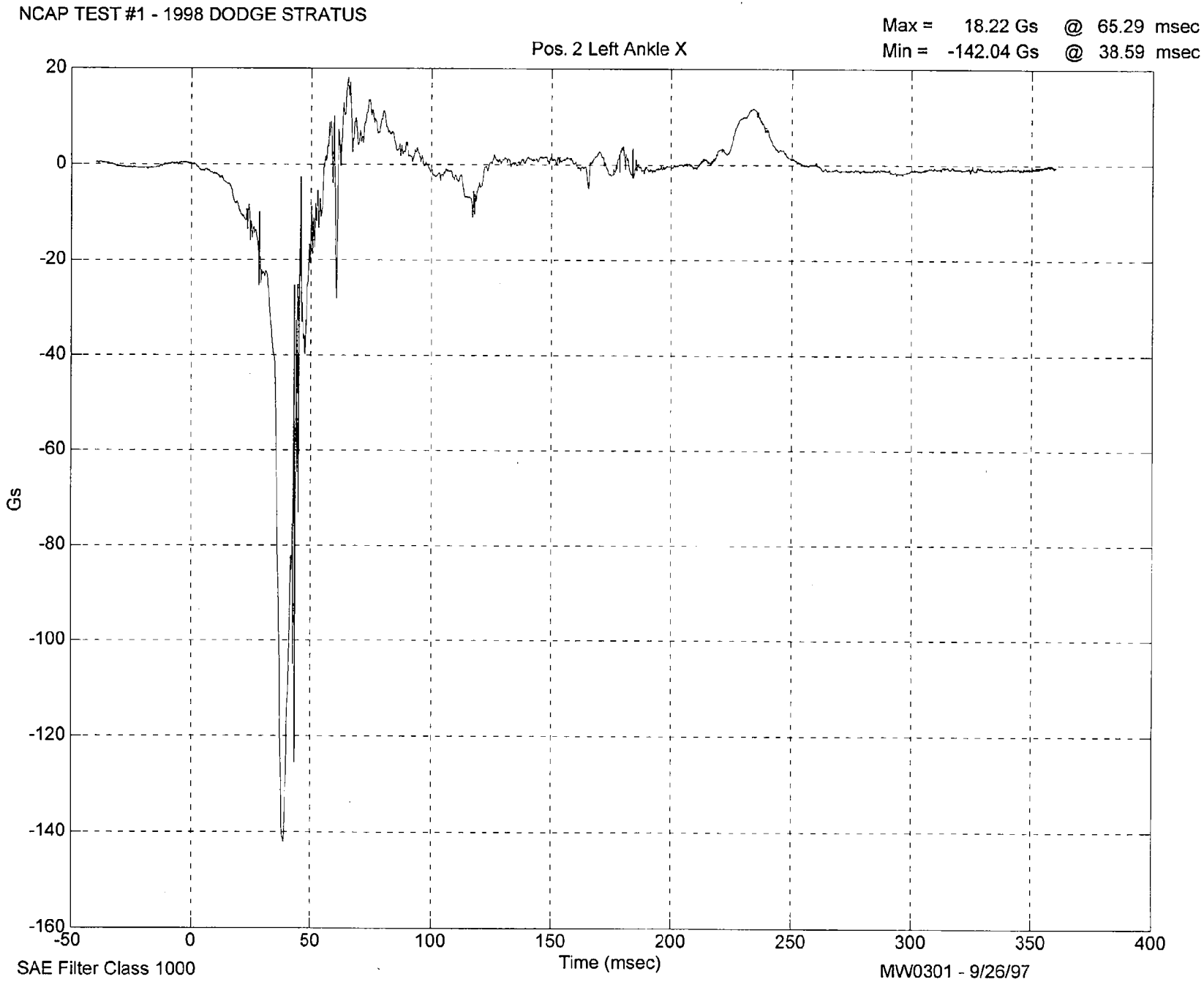
Pos. 2 Rt Lower Tibia My

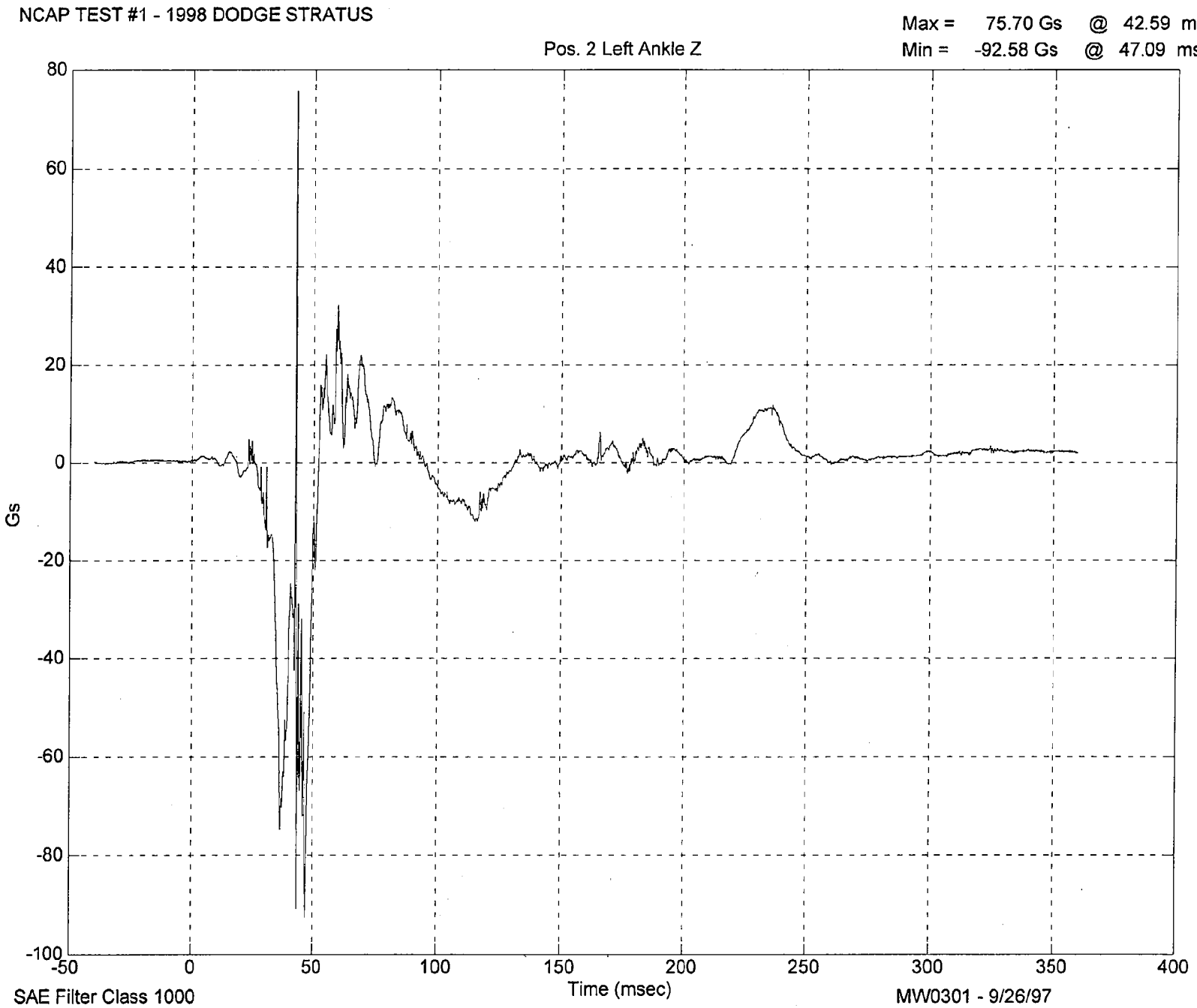
Max = 194.88 Nwt-M @ 54.79 msec
Min = -101.70 Nwt-M @ 38.79 msec

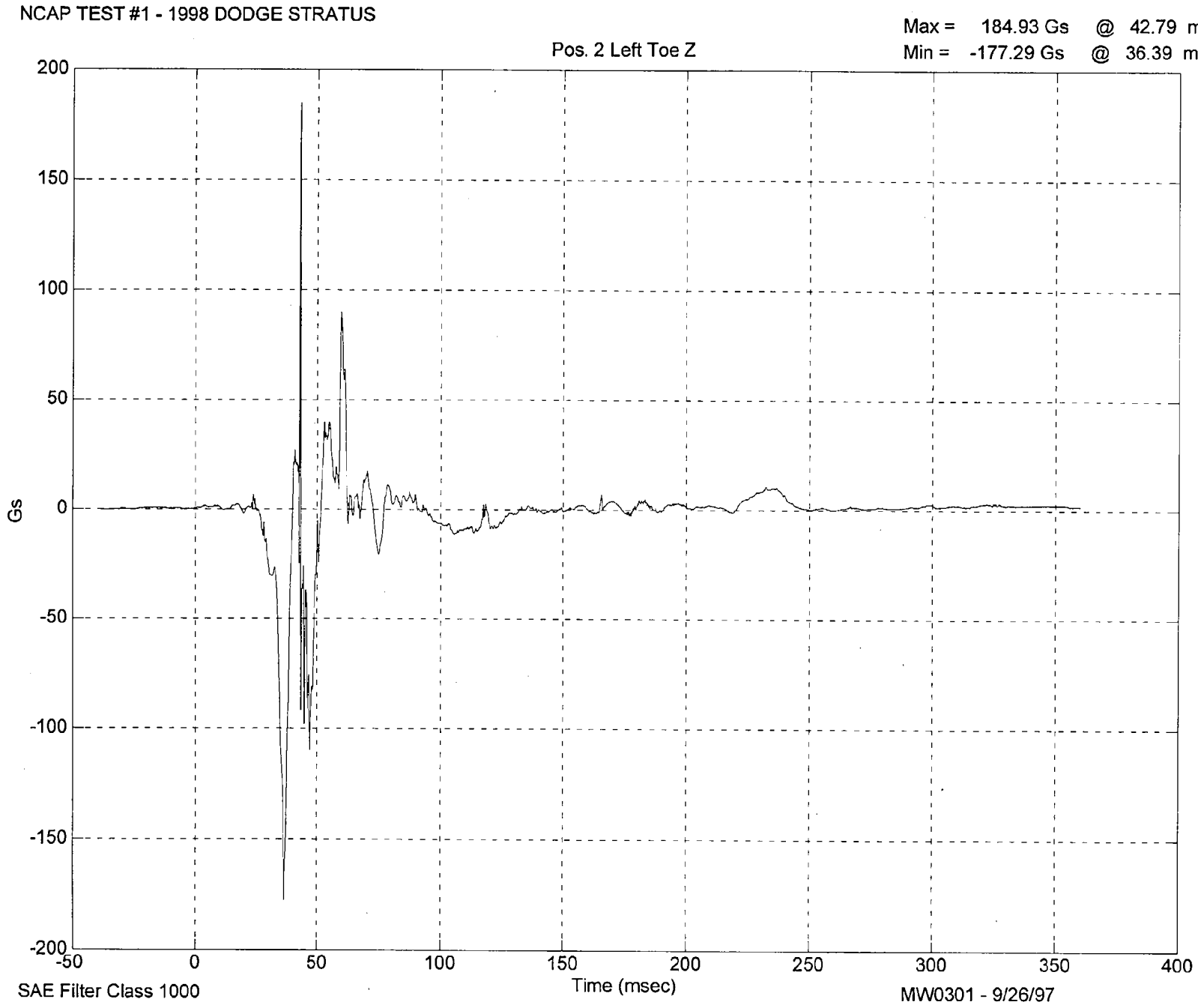


SAE Filter Class 600

MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Left Ankle X
Max = 18.22 Gs @ 65.29 msec
Min = -142.04 Gs @ 38.59 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

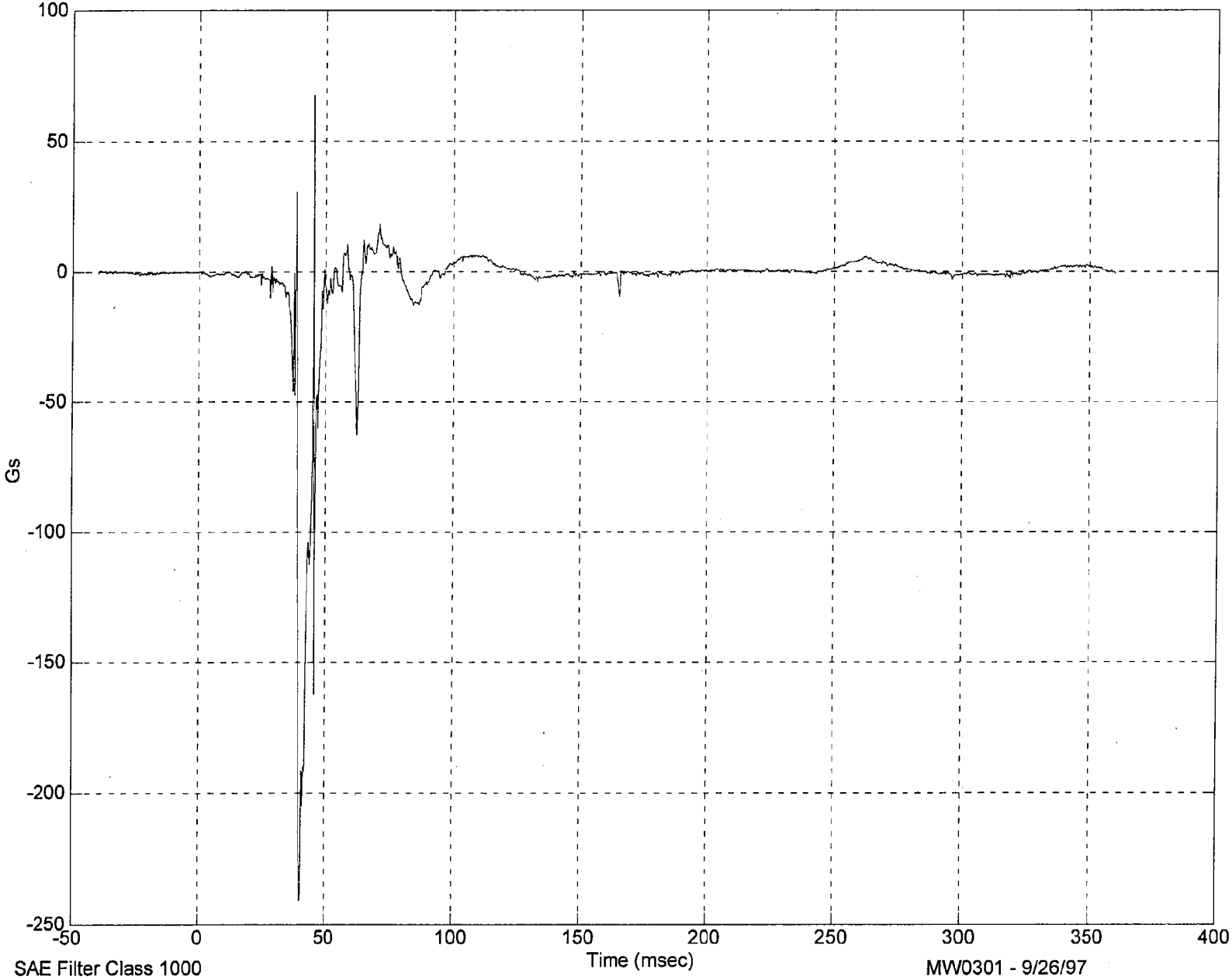

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Left Ankle Z
Max = 75.70 Gs @ 42.59 msec
Min = -92.58 Gs @ 47.09 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Left Toe Z
Max = 184.93 Gs @ 42.79 msec
Min = -177.29 Gs @ 36.39 msec
Gs
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

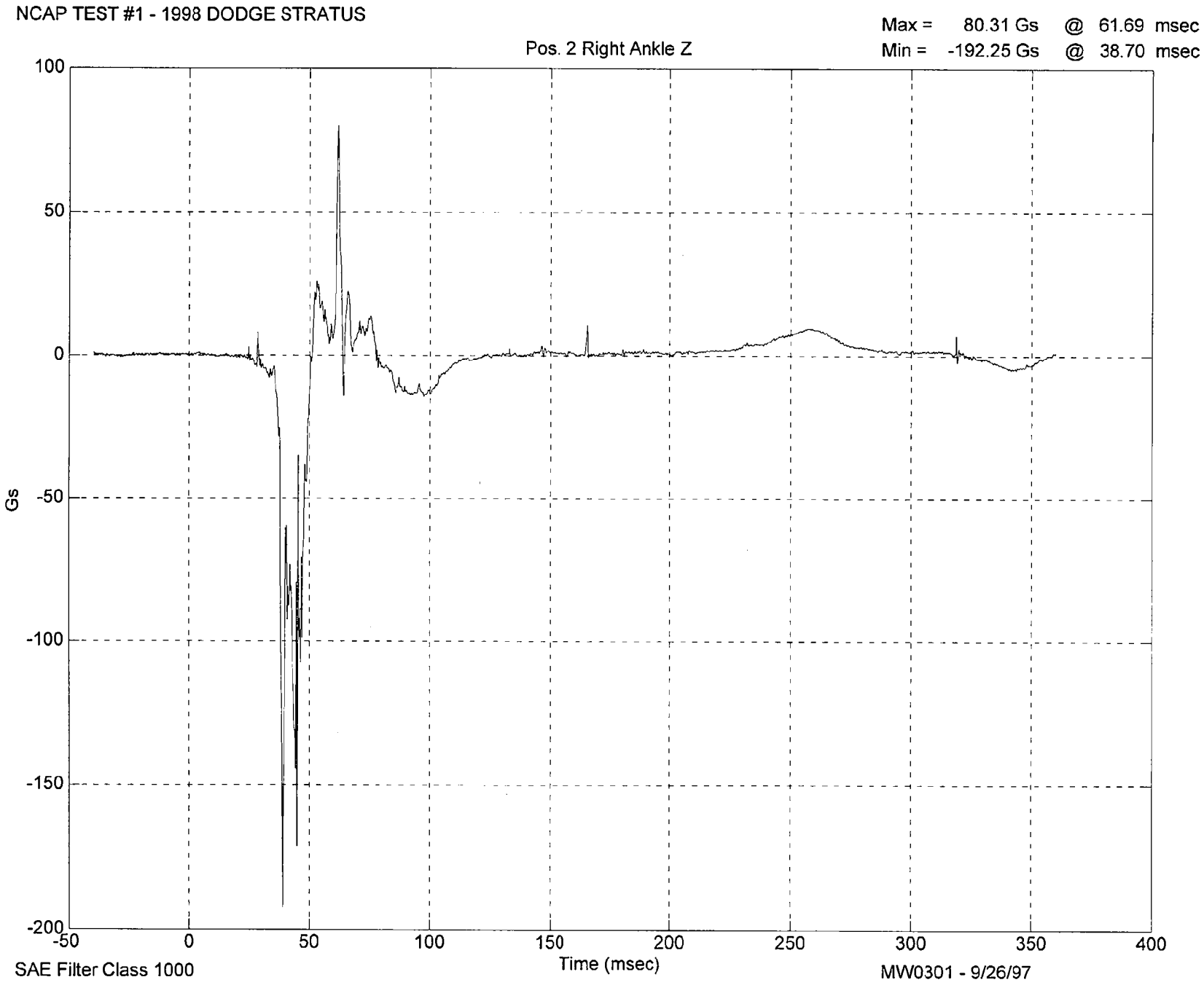
Pos. 2 Right Ankle X

Max = 67.78 Gs @ 44.99 msec
Min = -240.67 Gs @ 40.29 msec



SAE Filter Class 1000

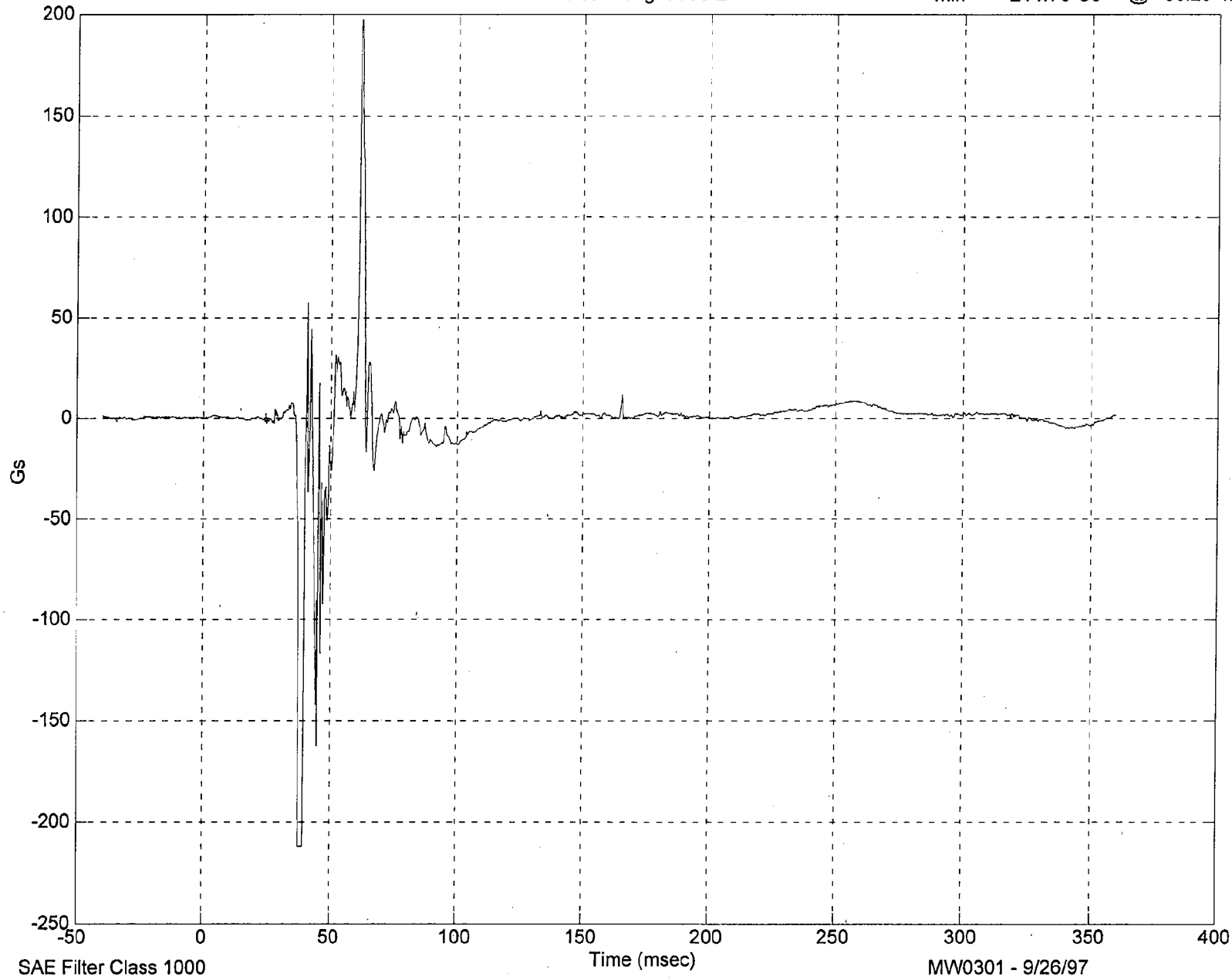
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Right Ankle Z
Max = 80.31 Gs @ 61.69 msec
Min = -192.25 Gs @ 38.70 msec
Gs
100
50
0
-50
-100
-150
-200
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 1000
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

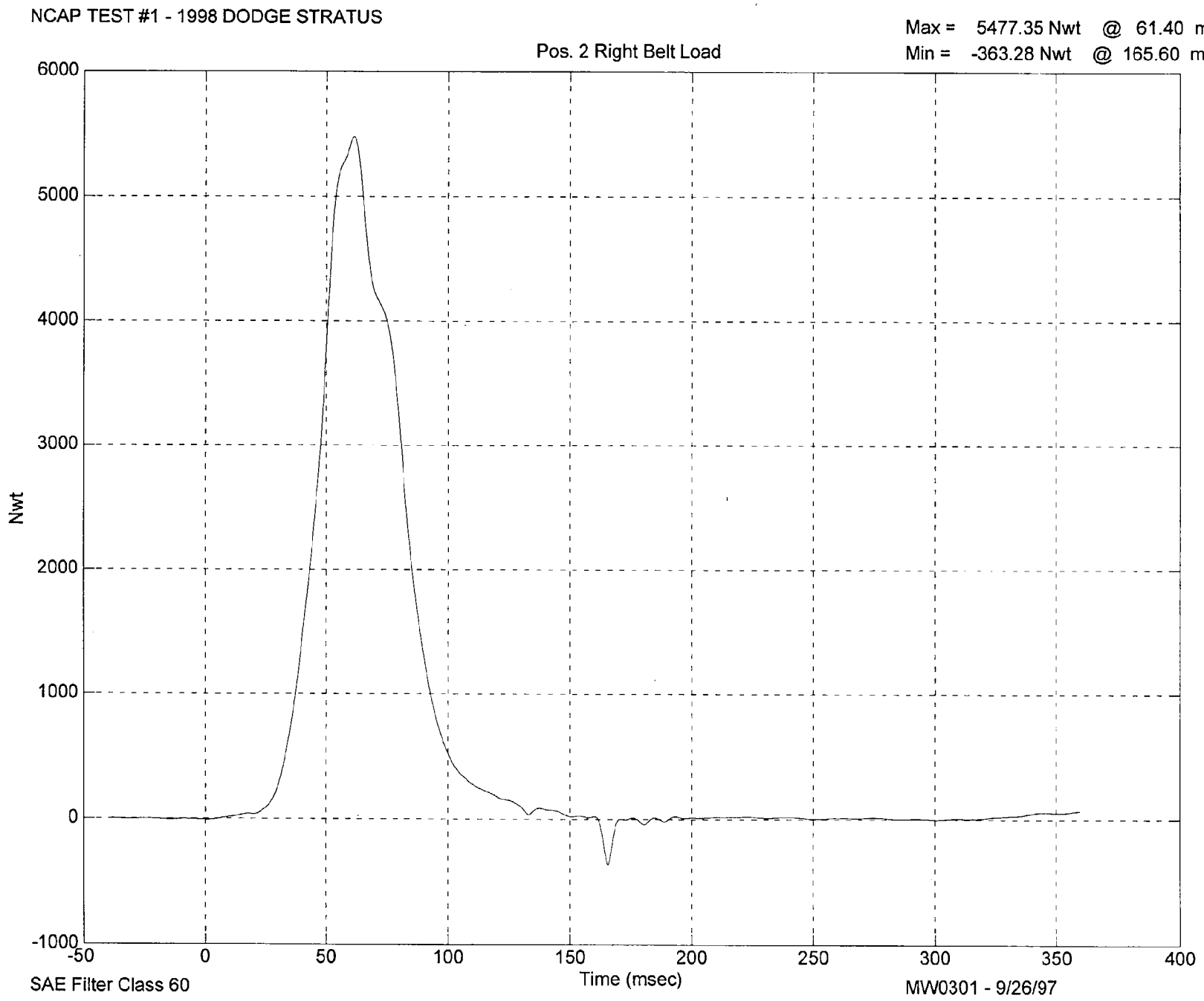
Pos. 2 Right Toe Z

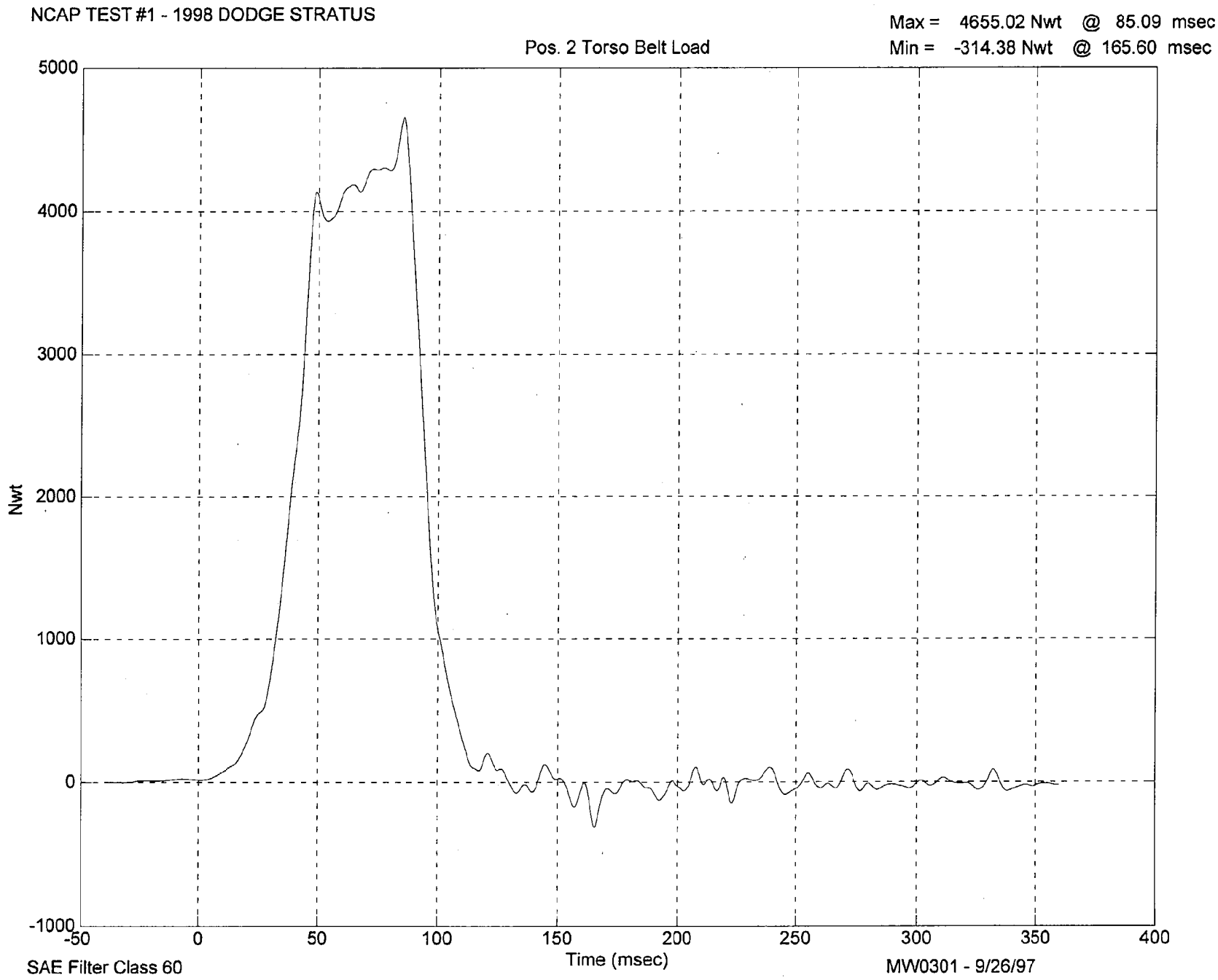
Max = 197.53 Gs @ 61.79 msec
Min = -211.76 Gs @ 39.29 msec



SAE Filter Class 1000

MW0301 - 9/26/97

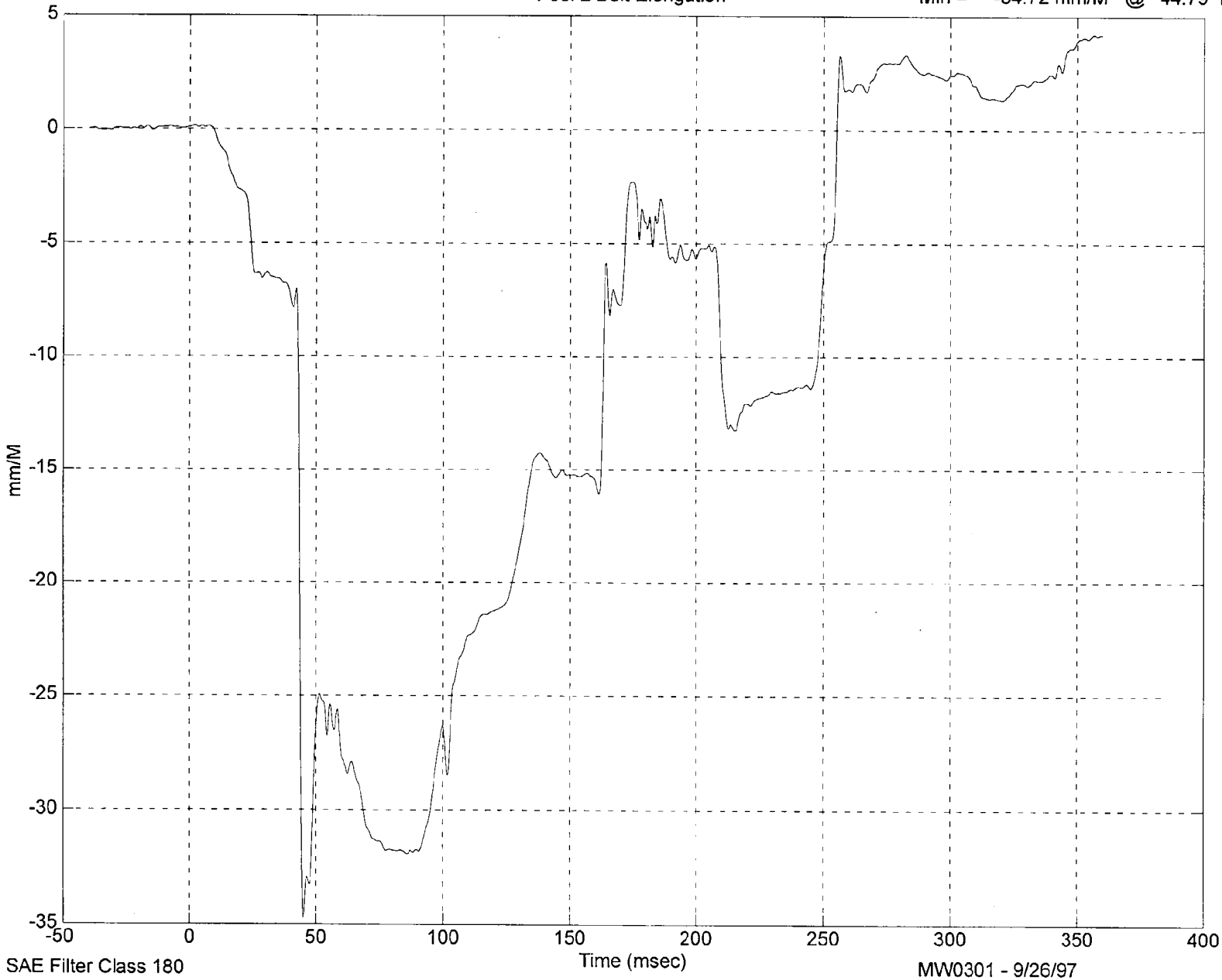

NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Right Belt Load
Max = 5477.35 Nwt @ 61.40 msec
Min = -363.28 Nwt @ 165.60 msec
Nwt
6000
5000
4000
3000
2000
1000
0
-1000
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Pos. 2 Torso Belt Load
Max = 4655.02 Nwt @ 85.09 msec
Min = -314.38 Nwt @ 165.60 msec
5000
4000
3000
2000
1000
0
-1000
Nwt
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Pos. 2 Belt Elongation

Max = 4.19 mm/M @ 356.50 msec
Min = -34.72 mm/M @ 44.79 msec

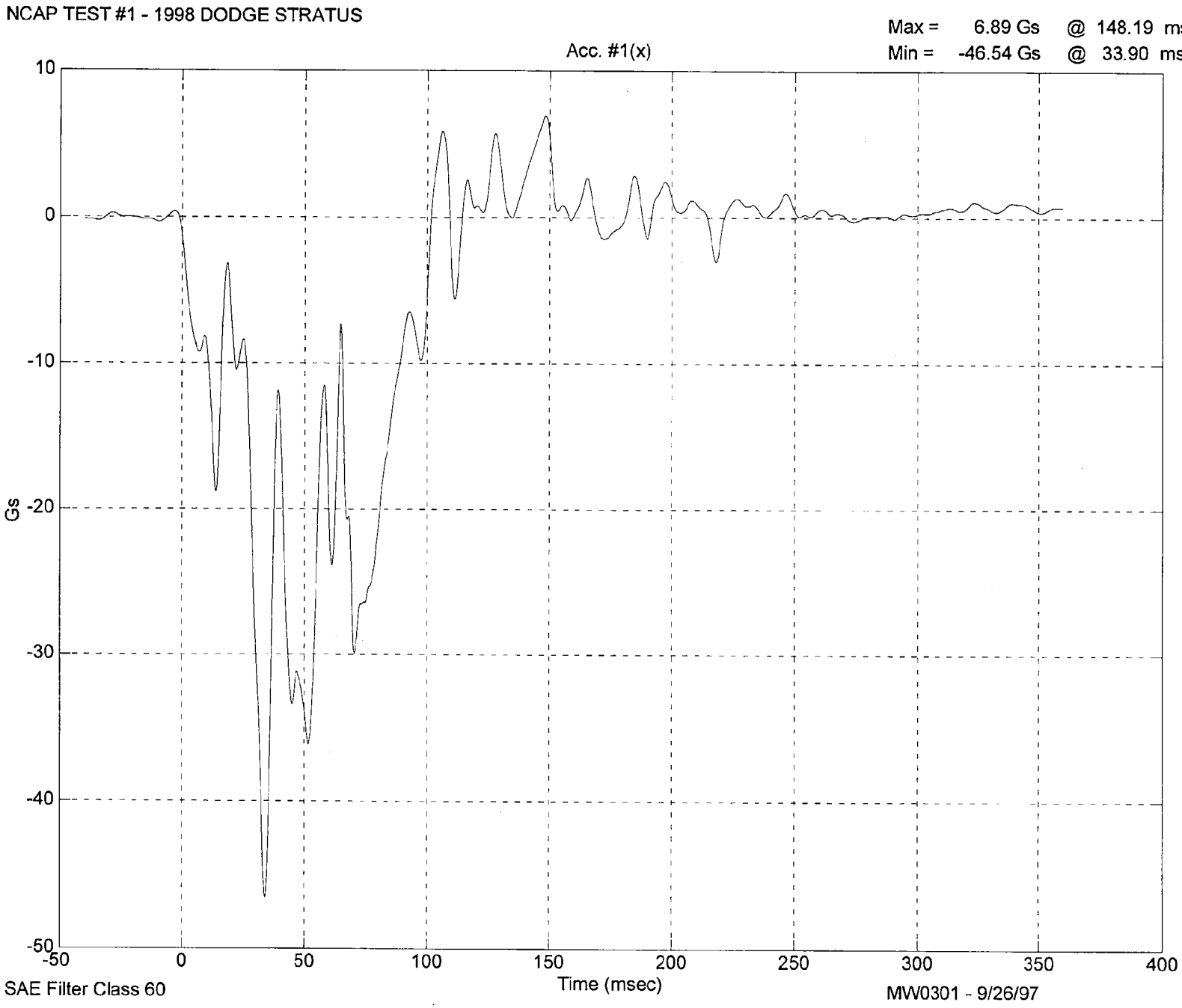


SAE Filter Class 180

MW0301 - 9/26/97

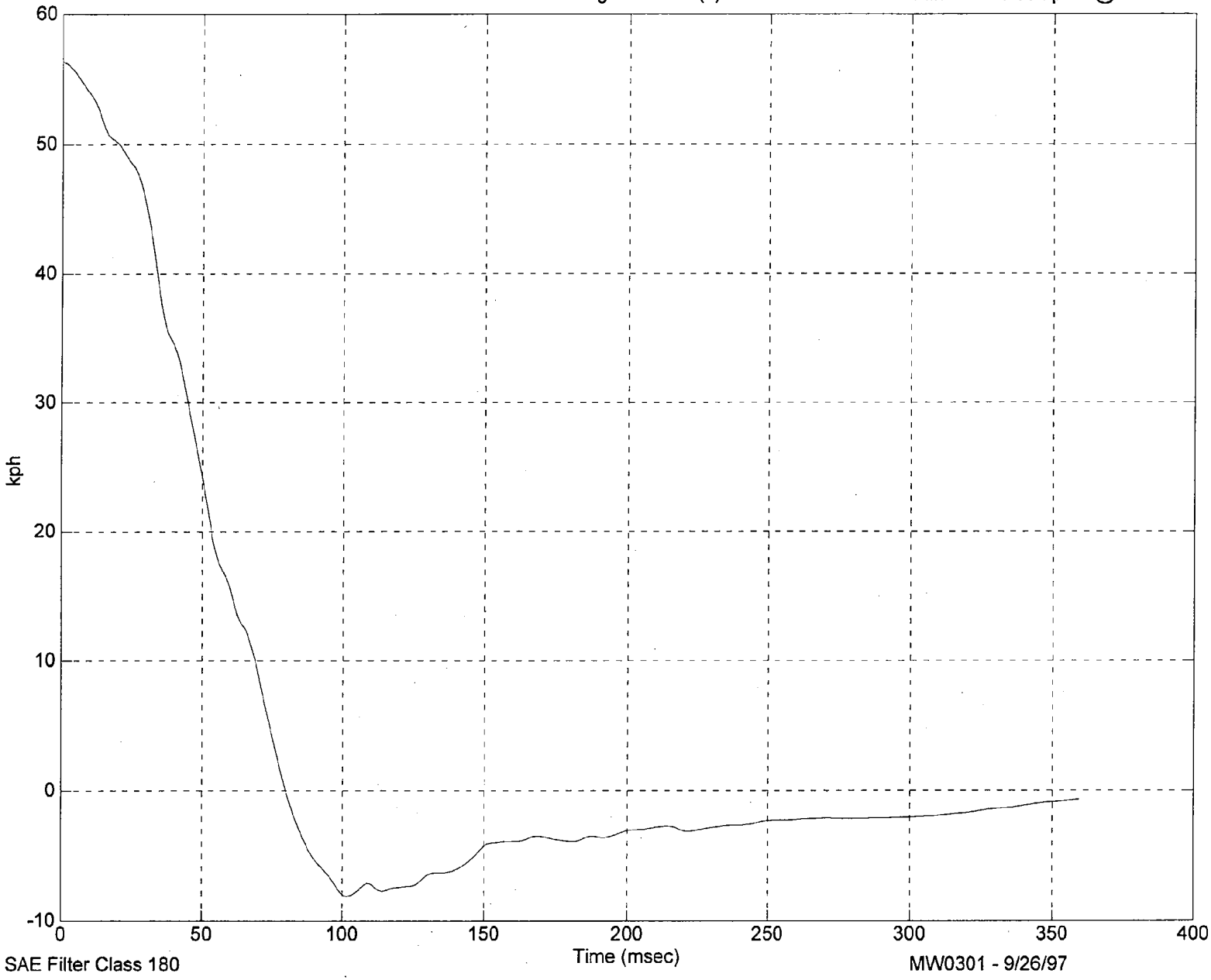
NHTSA TEST NO. MW0301

VEHICLE DATA	FILTER CHANNEL CLASS
Acceleration	60
Velocity	180
Displacement	180


NCAP TEST #1 - 1998 DODGE STRATUS
Max = 6.89 Gs @ 148.19 msec
Min = -46.54 Gs @ 33.90 msec
Acc. #1(x)
10
0
-10
-20
-30
-40
-50
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Max = 56.32 kph @ 0.00 msec
Min = -8.09 kph @ 101.50 msec



SAE Filter Class 180

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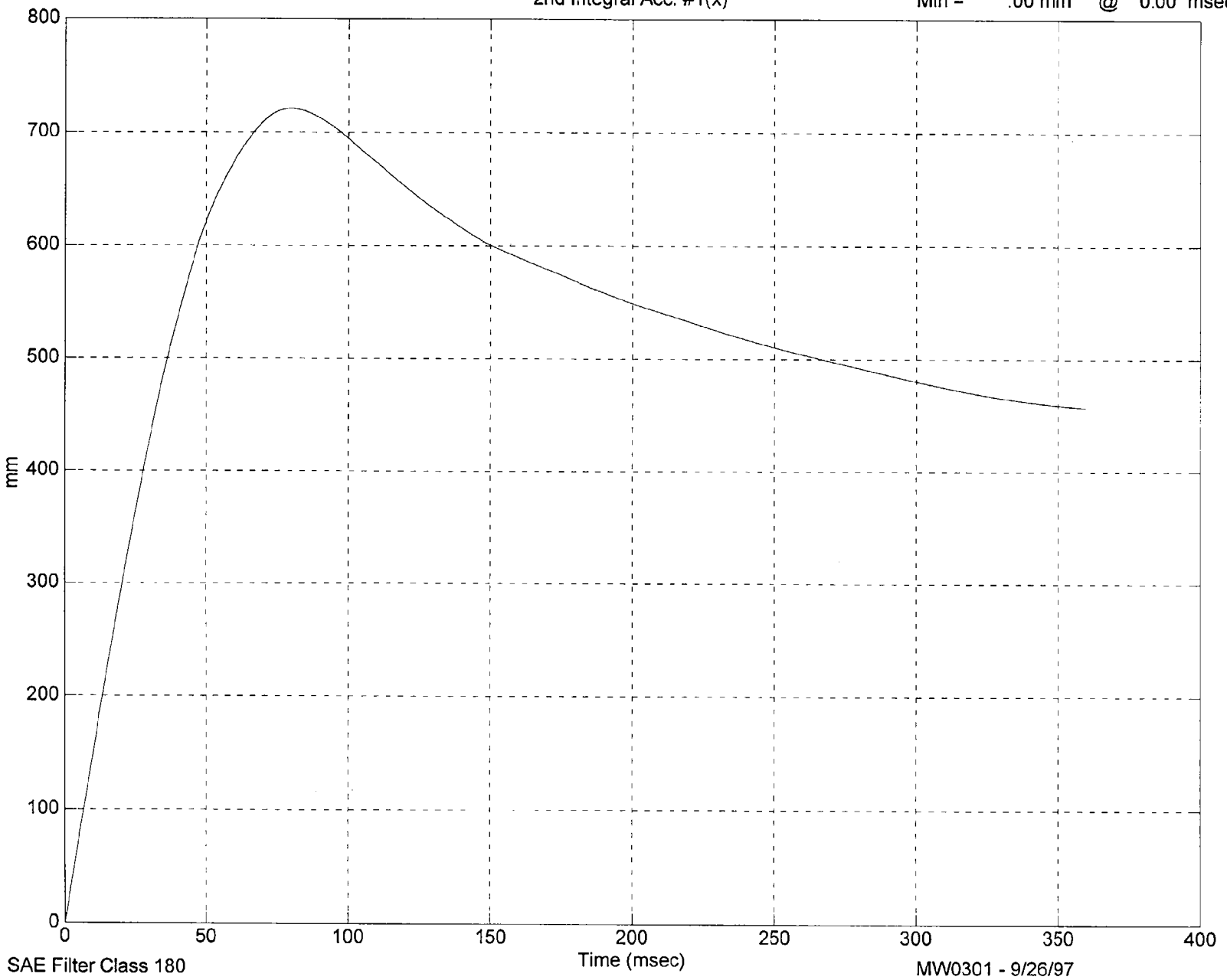
NCAP TEST #1 - 1998 DODGE STRATUS

Max = 721.02 mm @ 79.80 msec
Min = .00 mm @ 0.00 msec



SAE Filter Class 180

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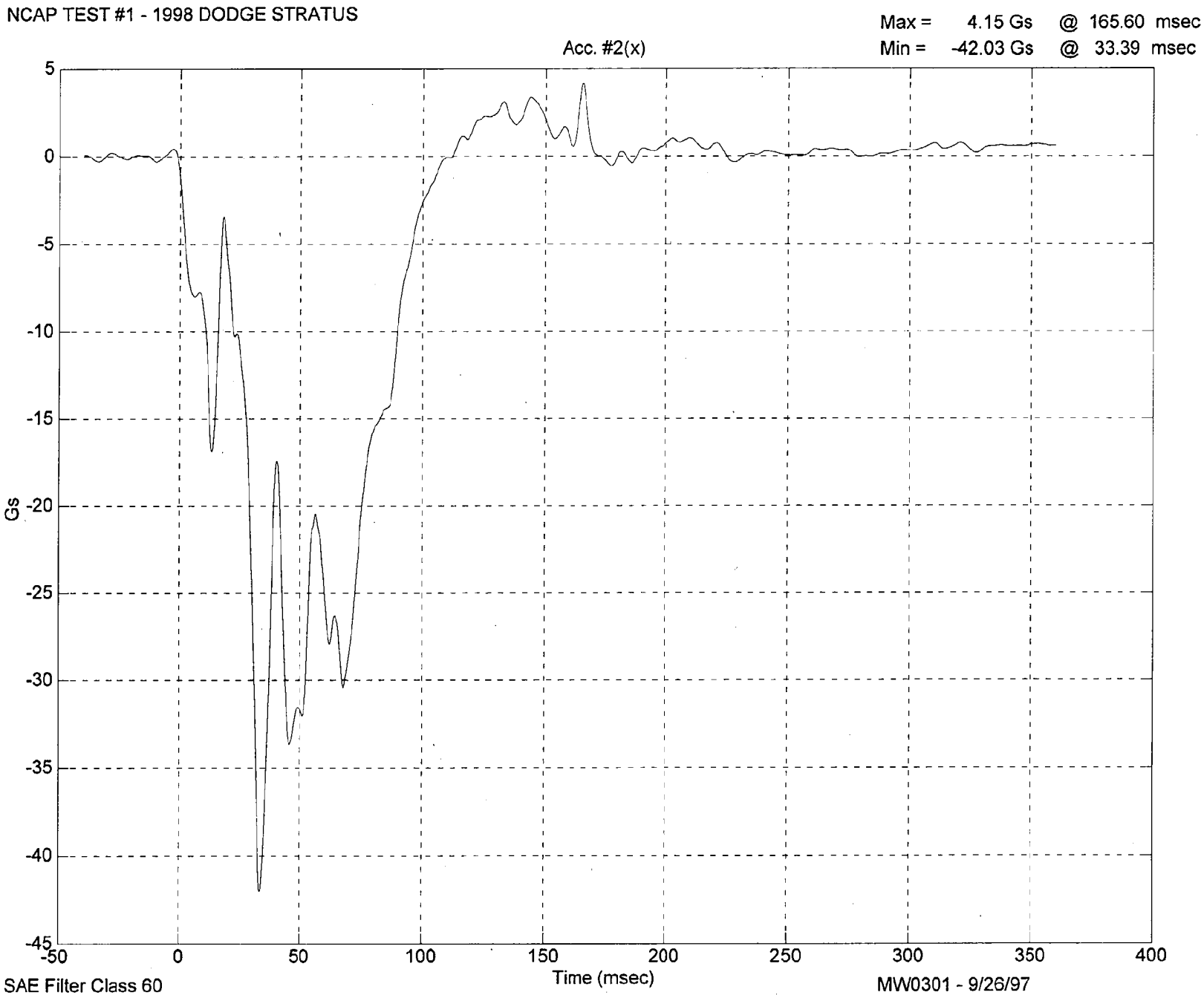
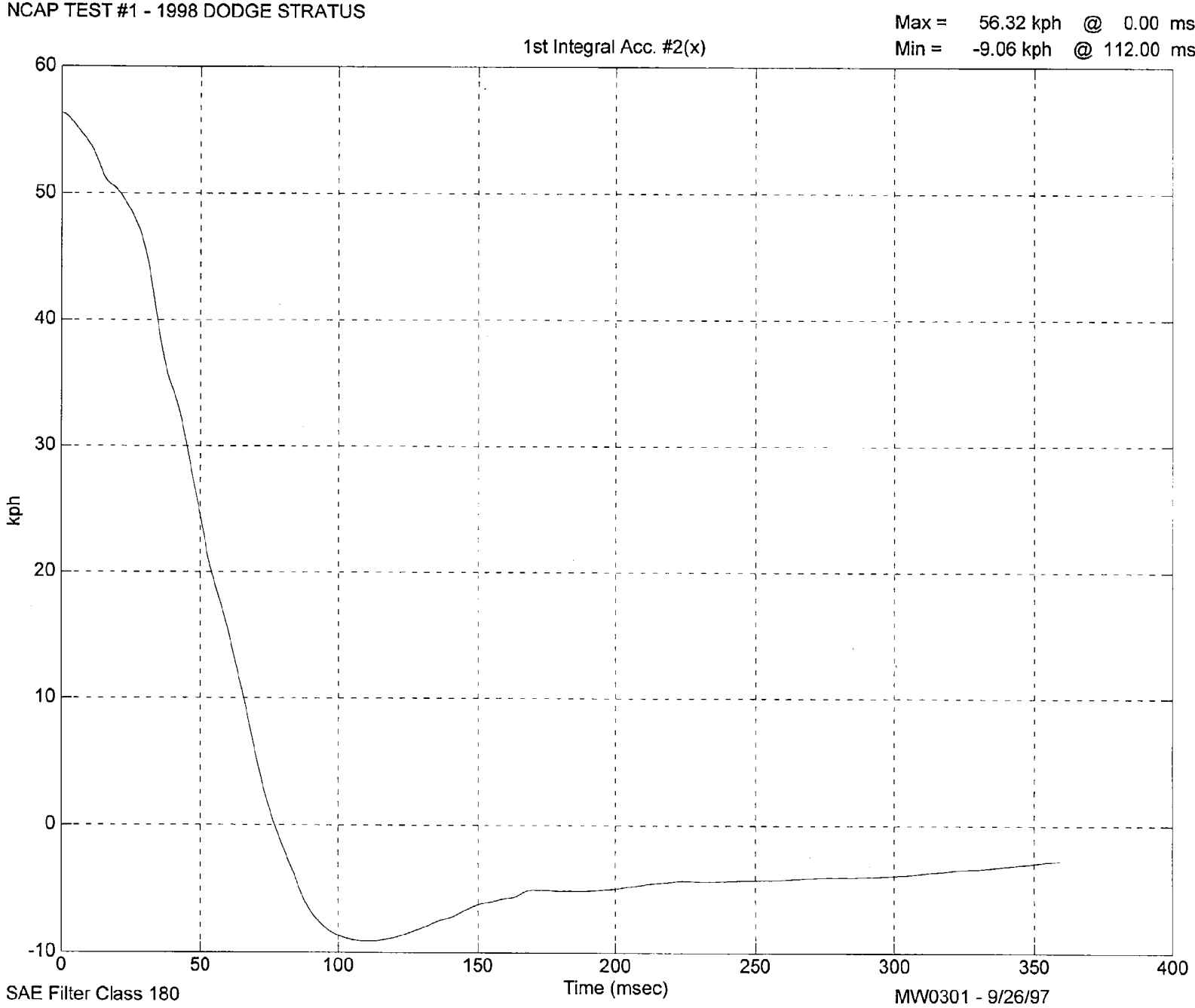
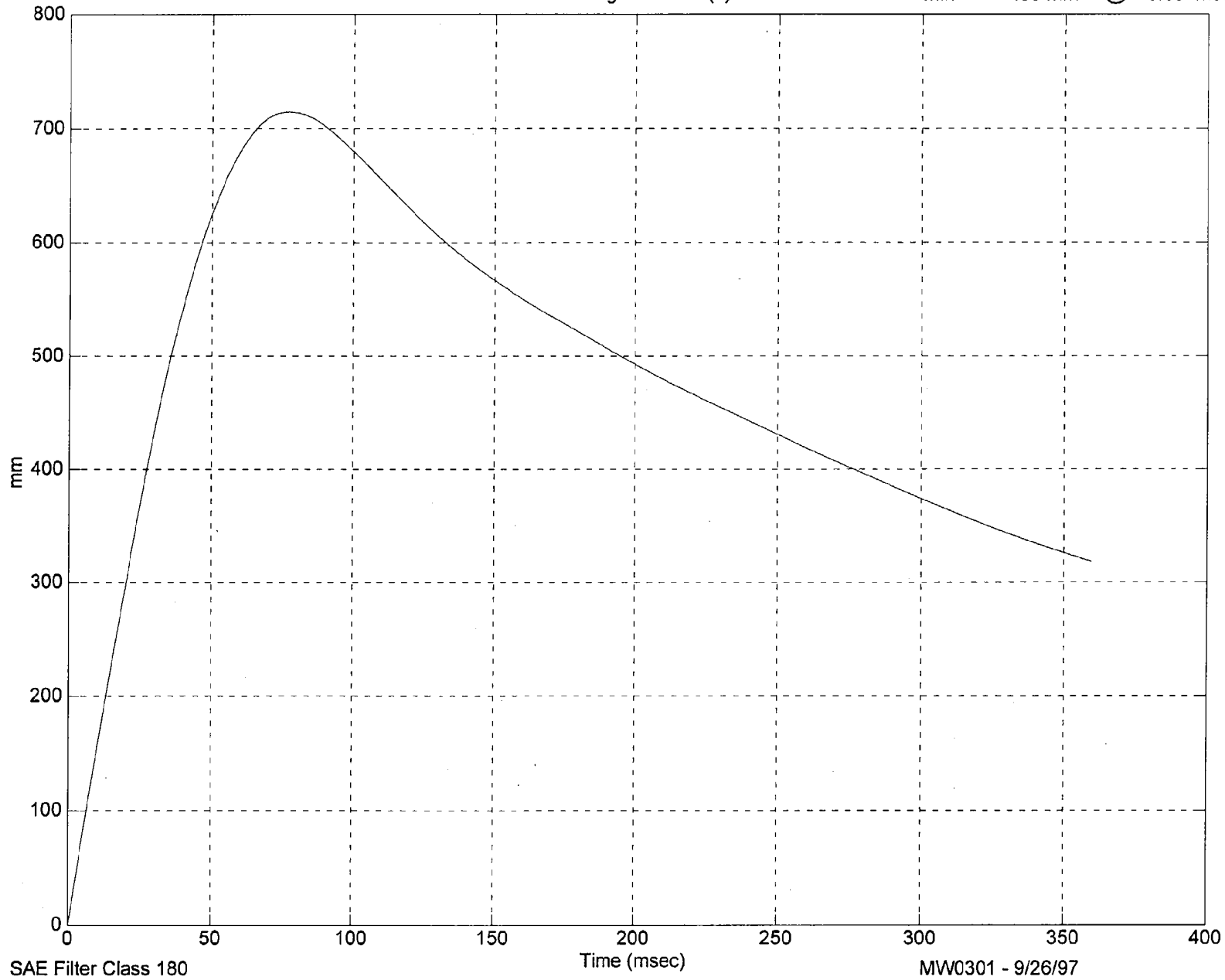

NCAP TEST #1 - 1998 DODGE STRATUS
Max = 4.15 Gs @ 165.60 msec
Min = -42.03 Gs @ 33.39 msec
Acc. #2(x)
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS



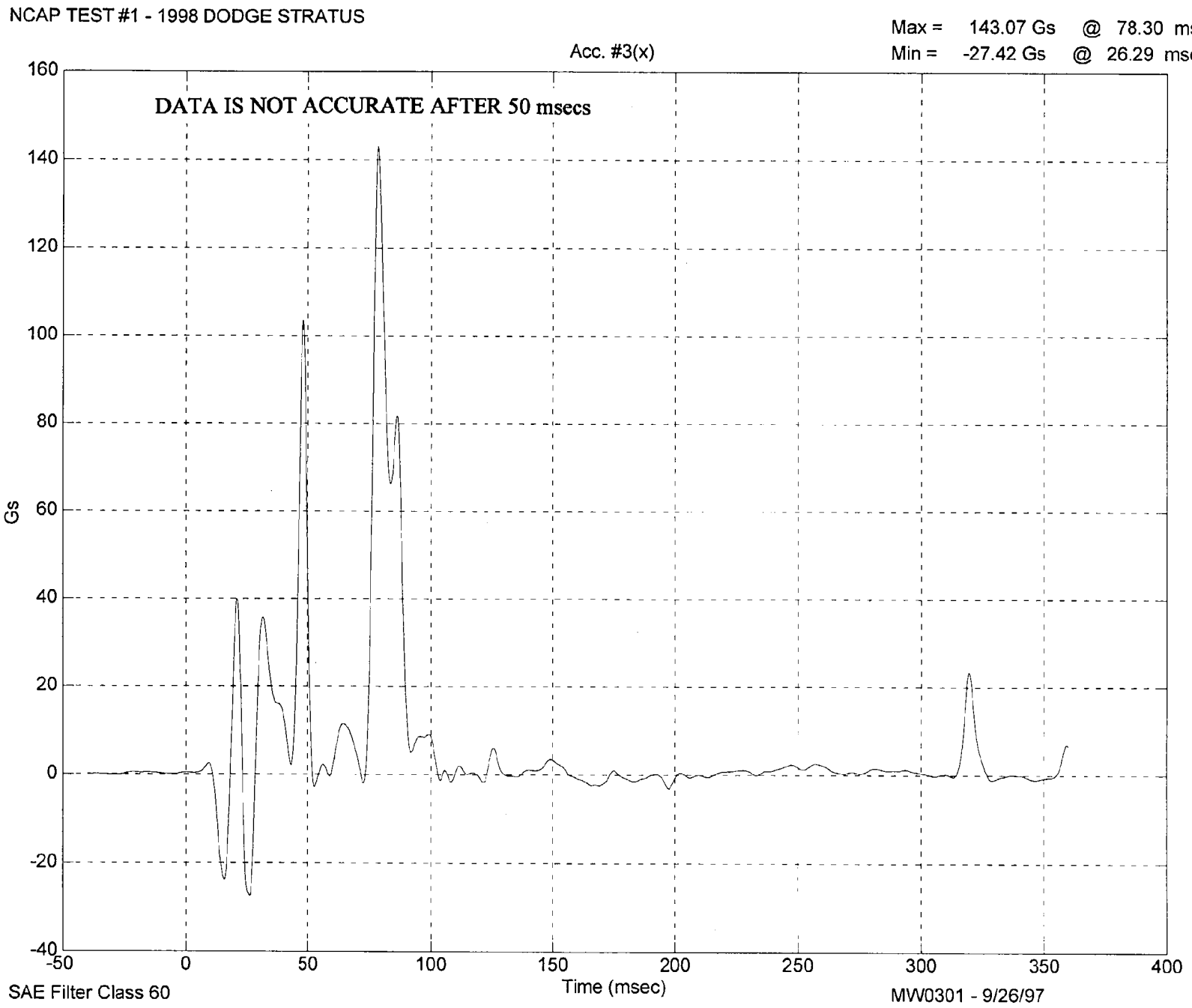
NCAP TEST #1 - 1998 DODGE STRATUS

Max = 714.51 mm @ 76.89 msec
Min = .00 mm @ 0.00 msec



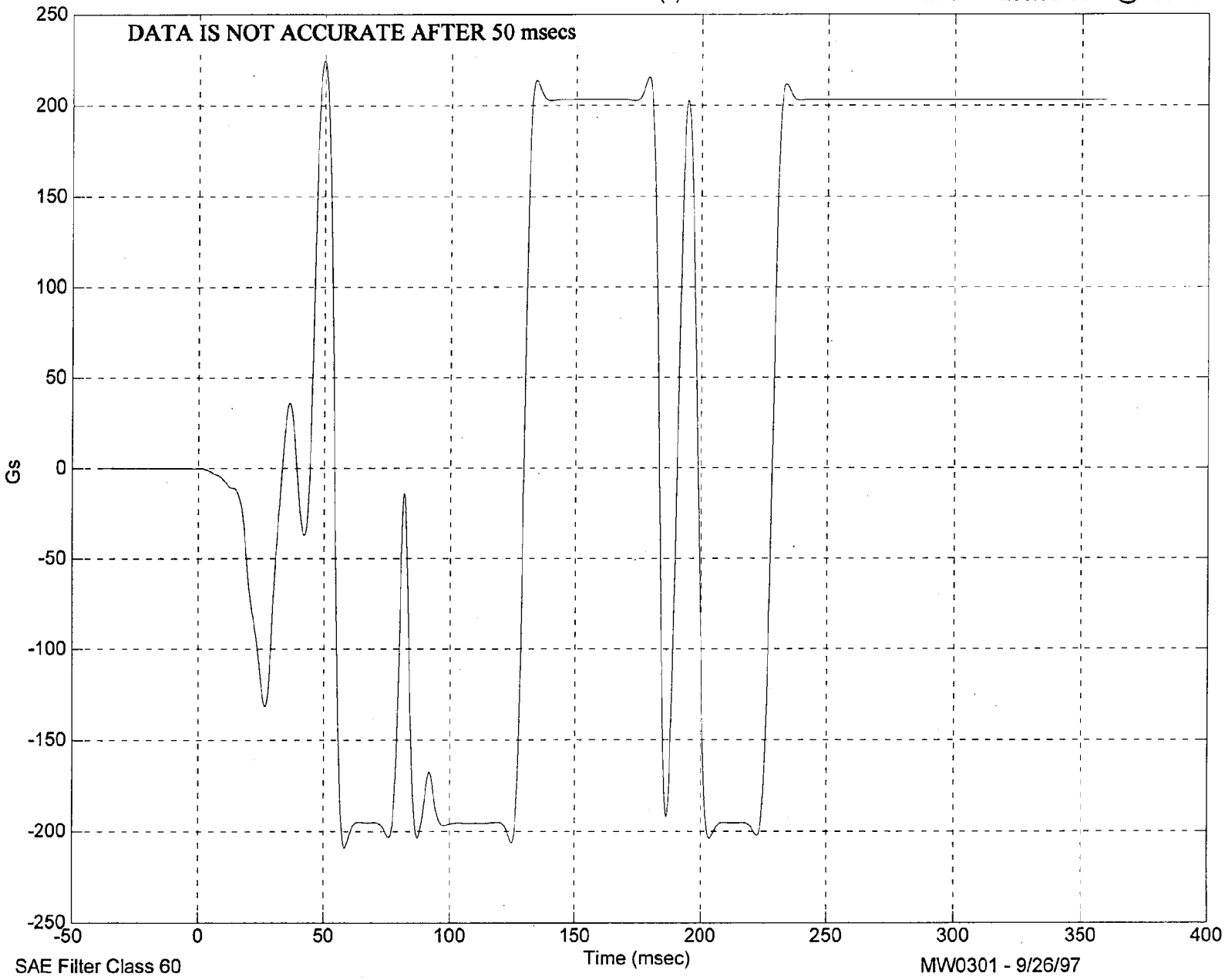
SAE Filter Class 180

MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Max = 143.07 Gs @ 78.30 msec
Min = -27.42 Gs @ 26.29 msec
Acc. #3(x)
DATA IS NOT ACCURATE AFTER 50 msecs
160
140
120
100
80
60
40
20
0
-20
-40
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97

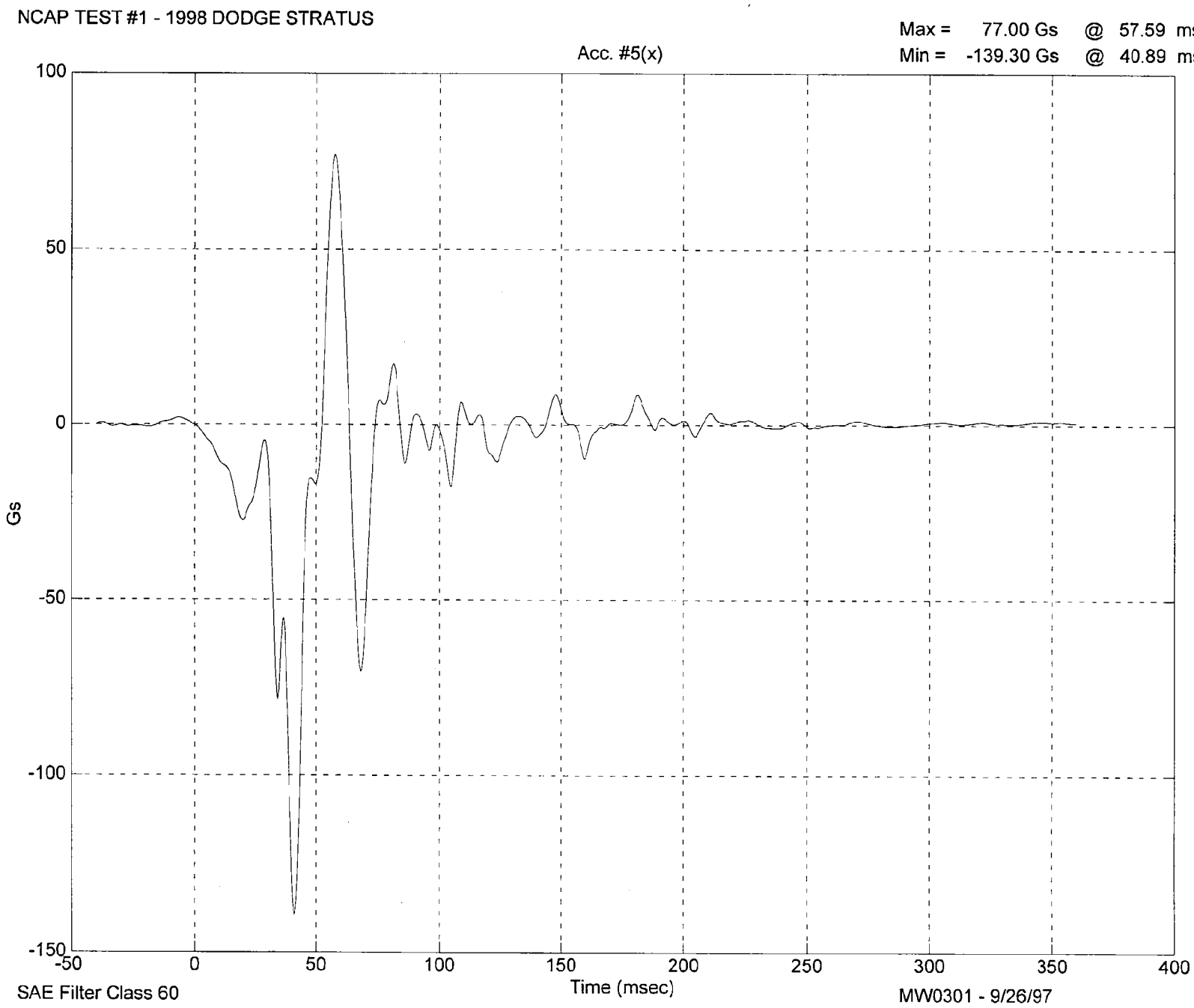
NCAP TEST #1 - 1998 DODGE STRATUS

Max = 224.41 Gs @ 49.79 msec
Min = -208.92 Gs @ 58.29 msec



SAE Filter Class 60

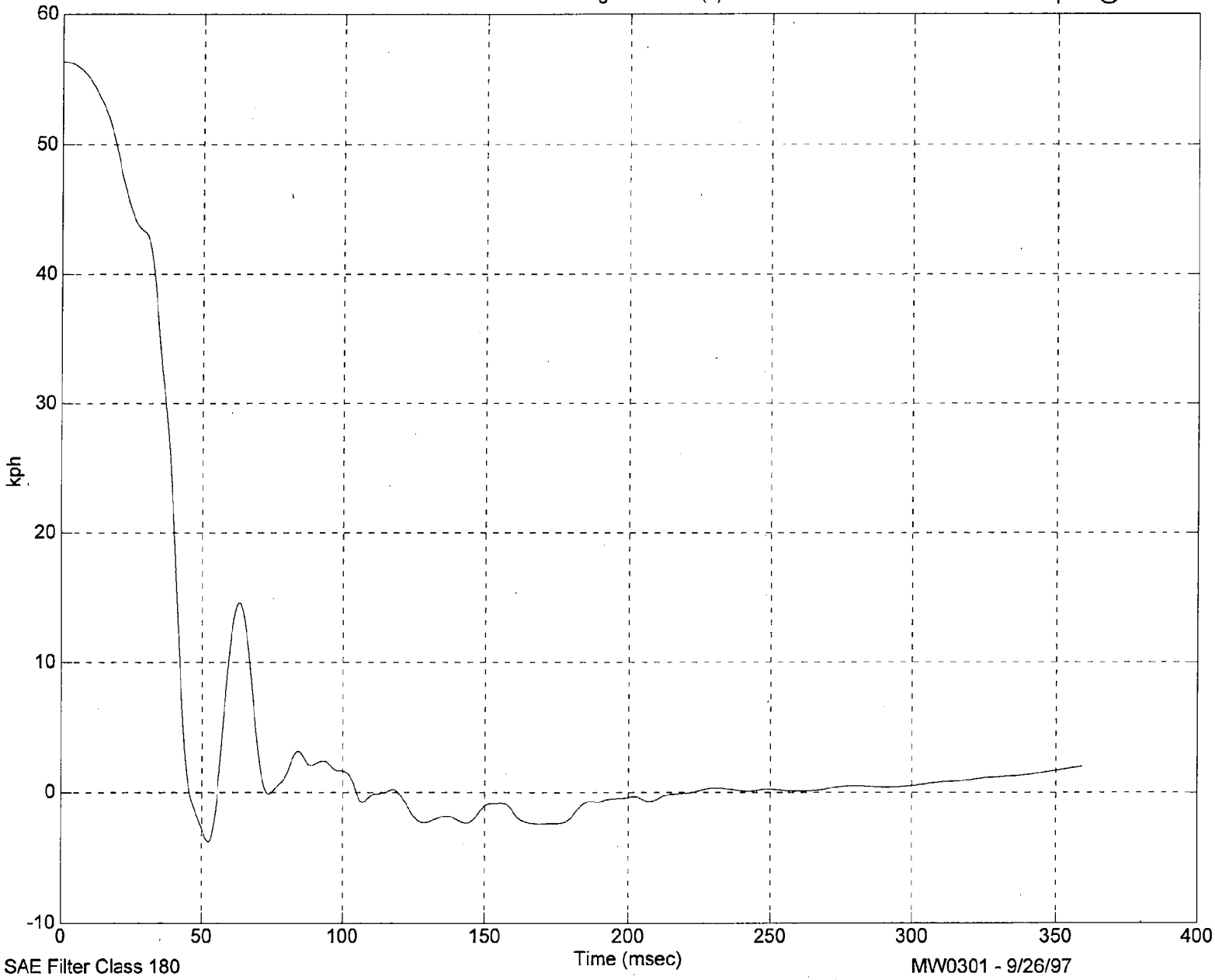
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Acc. #5(x)
Max = 77.00 Gs @ 57.59 msec
Min = -139.30 Gs @ 40.89 msec
100
50
0
-50
-100
-150
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

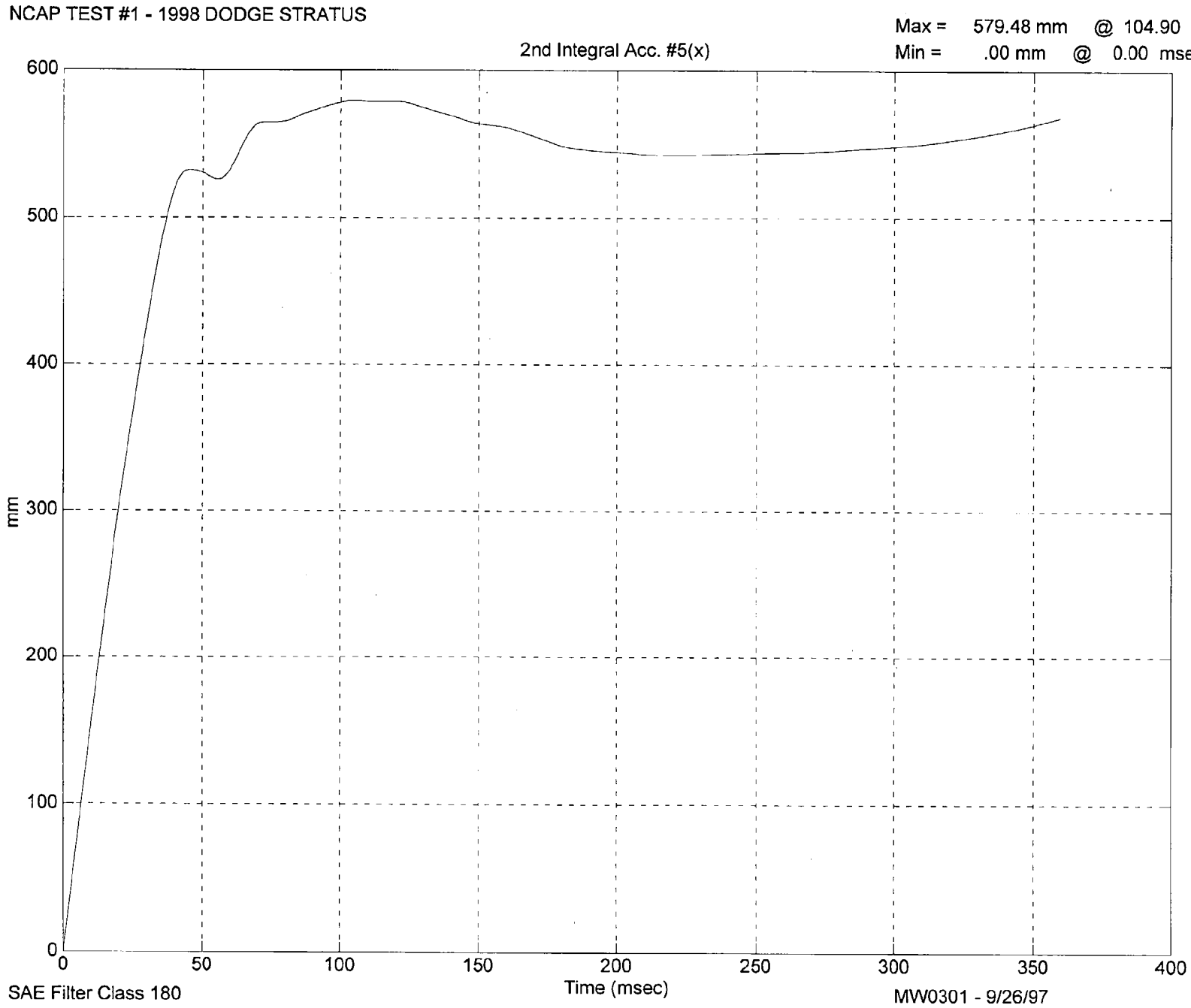
1st Integral Acc. #5(x)

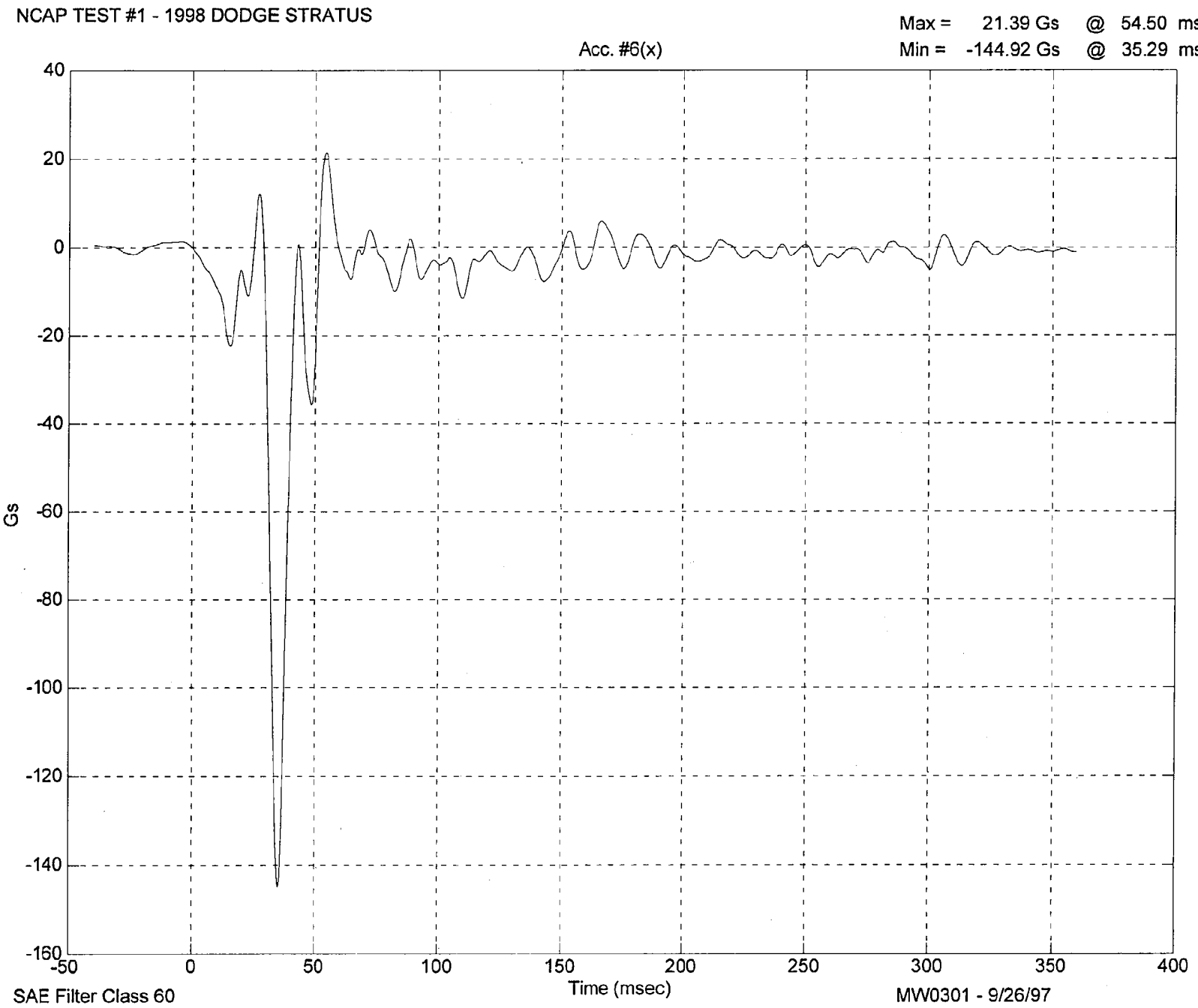
Max = 56.32 kph @ 0.00 msec
Min = -3.76 kph @ 52.30 msec

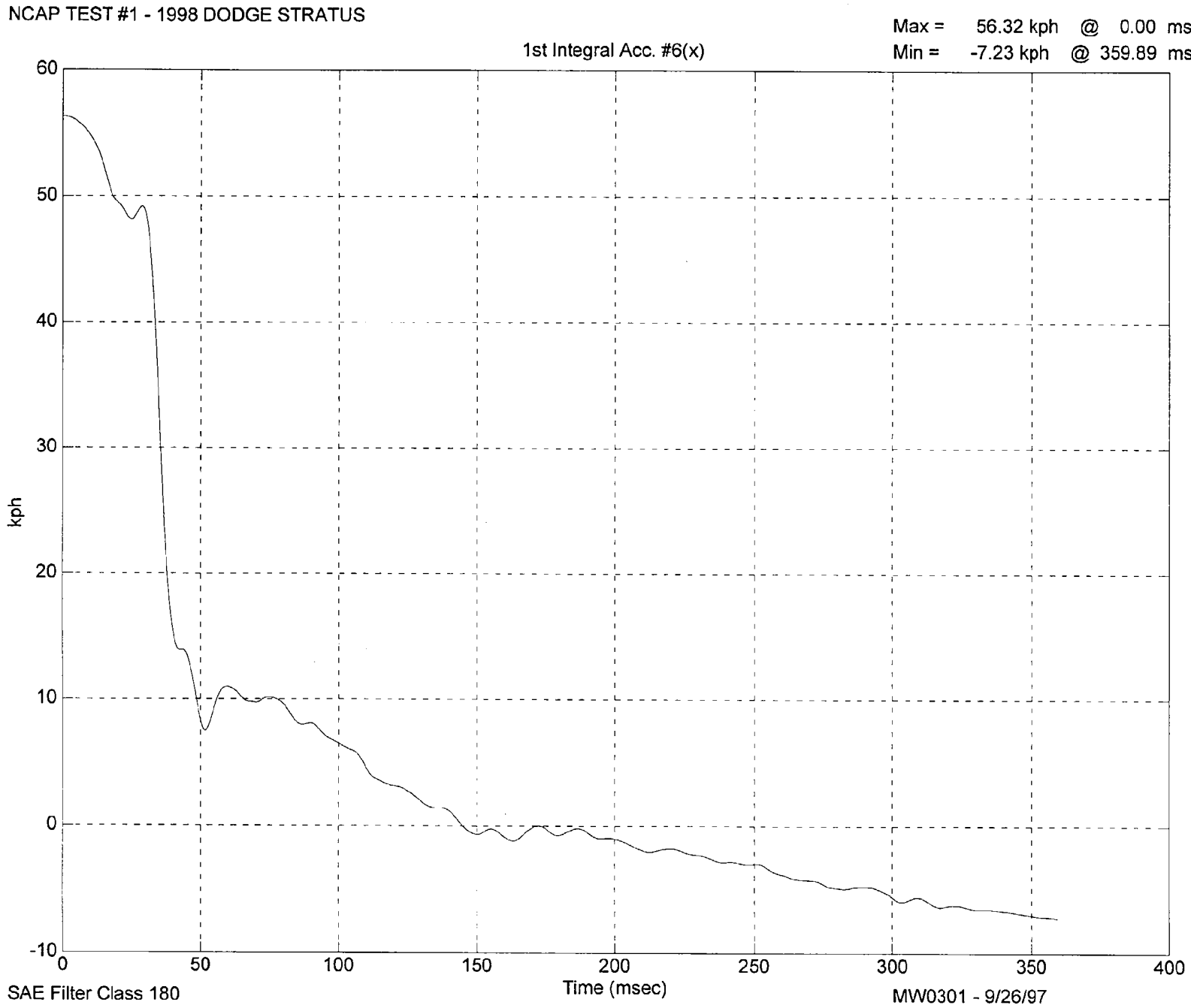


SAE Filter Class 180

MW0301 - 9/26/97

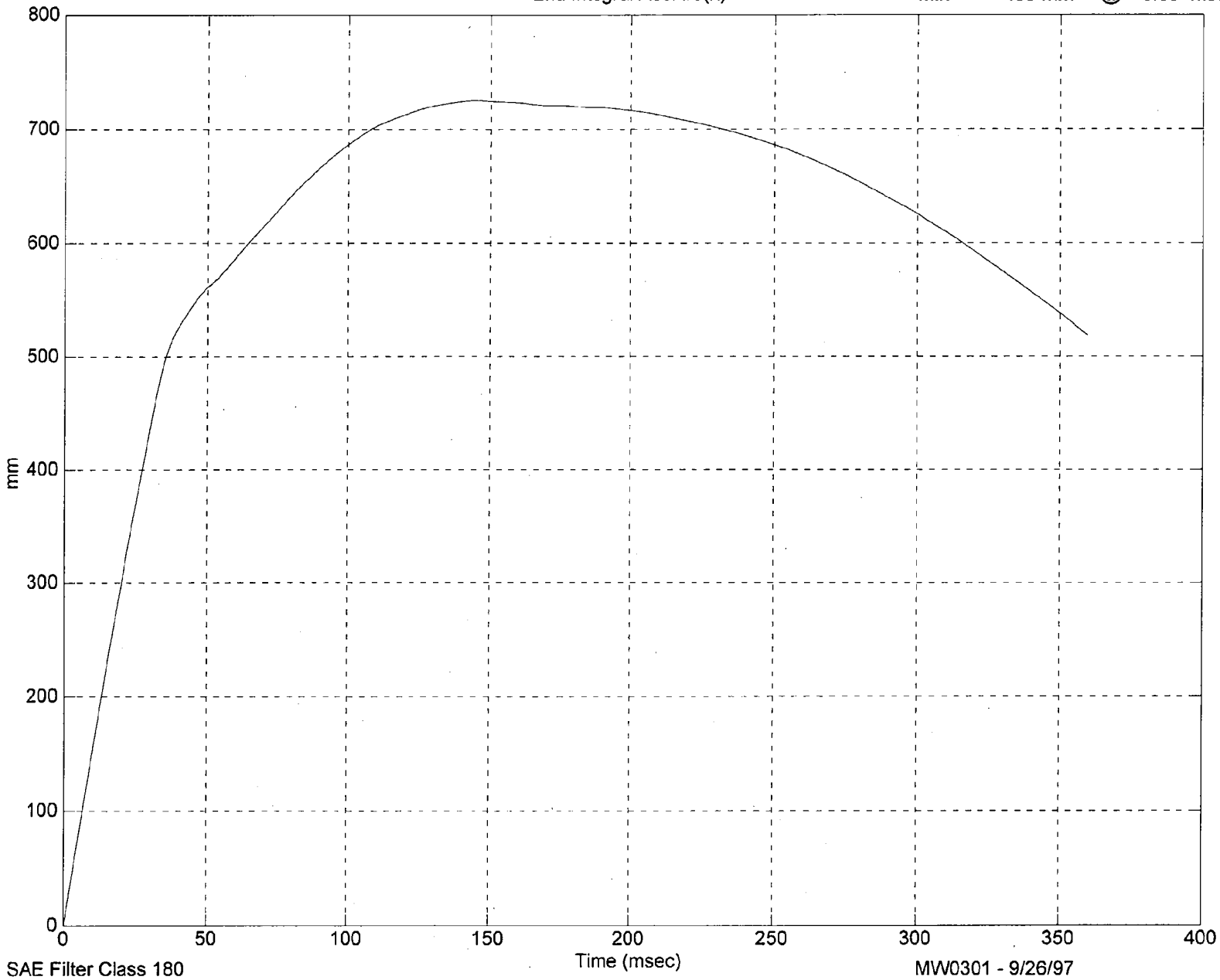

NCAP TEST #1 - 1998 DODGE STRATUS
2nd Integral Acc. #5(x)
Max = 579.48 mm @ 104.90 msec
Min = .00 mm @ 0.00 msec
600
500
400
300
200
100
0
mm
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Max = 21.39 Gs @ 54.50 msec
Min = -144.92 Gs @ 35.29 msec
Acc. #6(x)
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
1st Integral Acc. #6(x)
Max = 56.32 kph @ 0.00 msec
Min = -7.23 kph @ 359.89 msec
60
50
40
30
20
10
0
-10
kph
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97

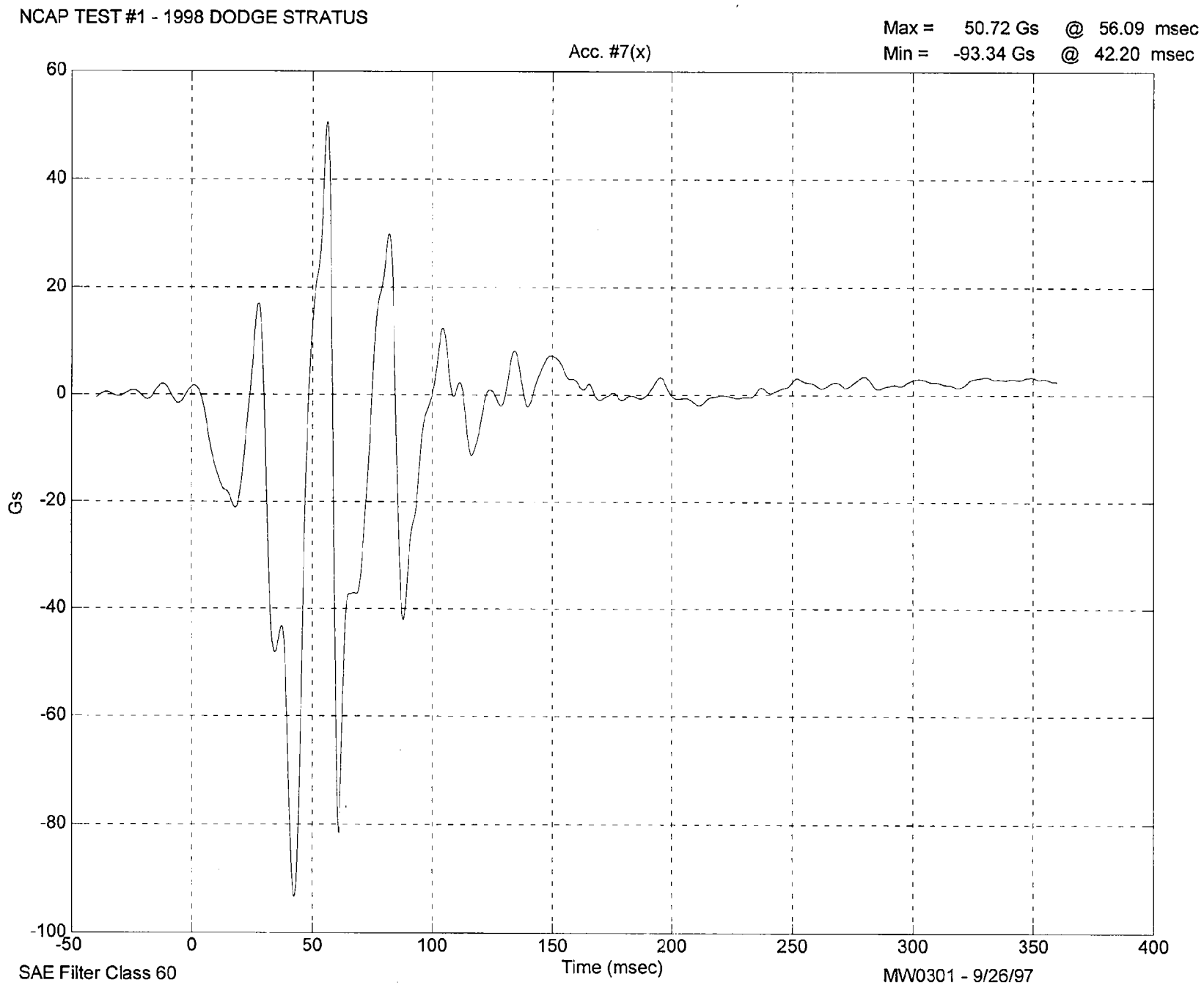
NCAP TEST #1 - 1998 DODGE STRATUS

Max = 724.97 mm @ 144.80 msec
Min = .00 mm @ 0.00 msec



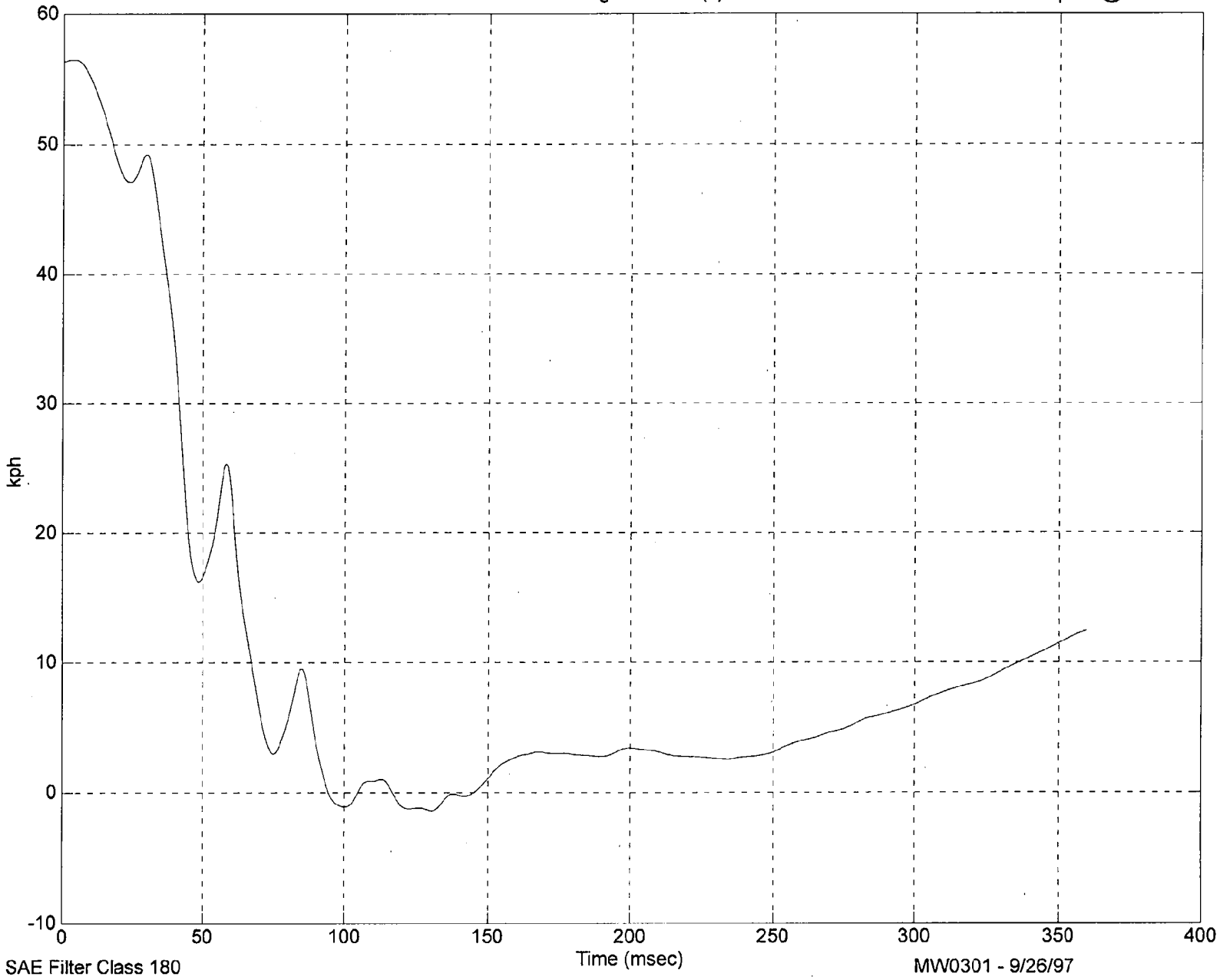
SAE Filter Class 180

MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Acc. #7(x)
Max = 50.72 Gs @ 56.09 msec
Min = -93.34 Gs @ 42.20 msec
60
40
20
0
-20
-40
-60
-80
-100
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97

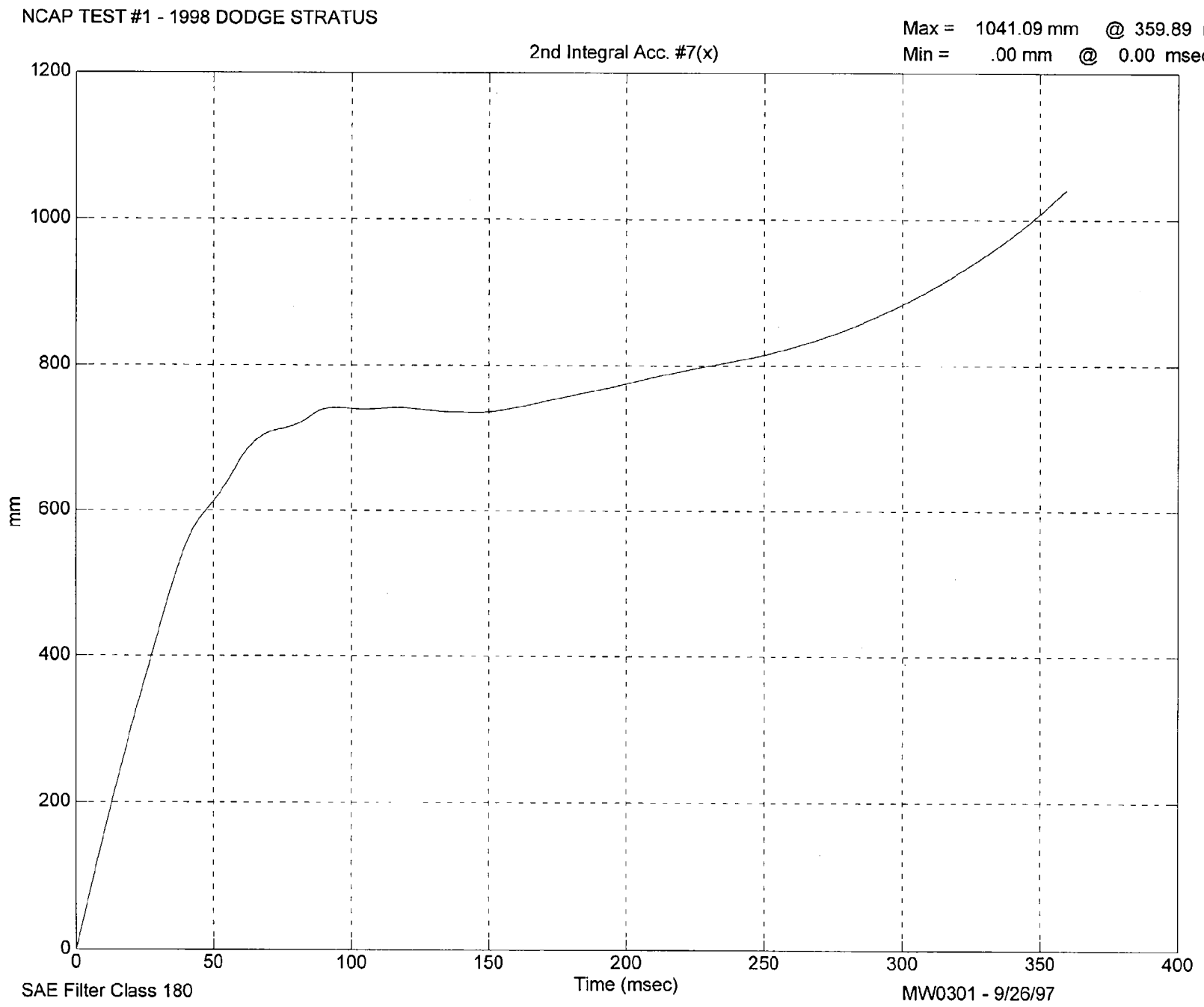
NCAP TEST #1 - 1998 DODGE STRATUS

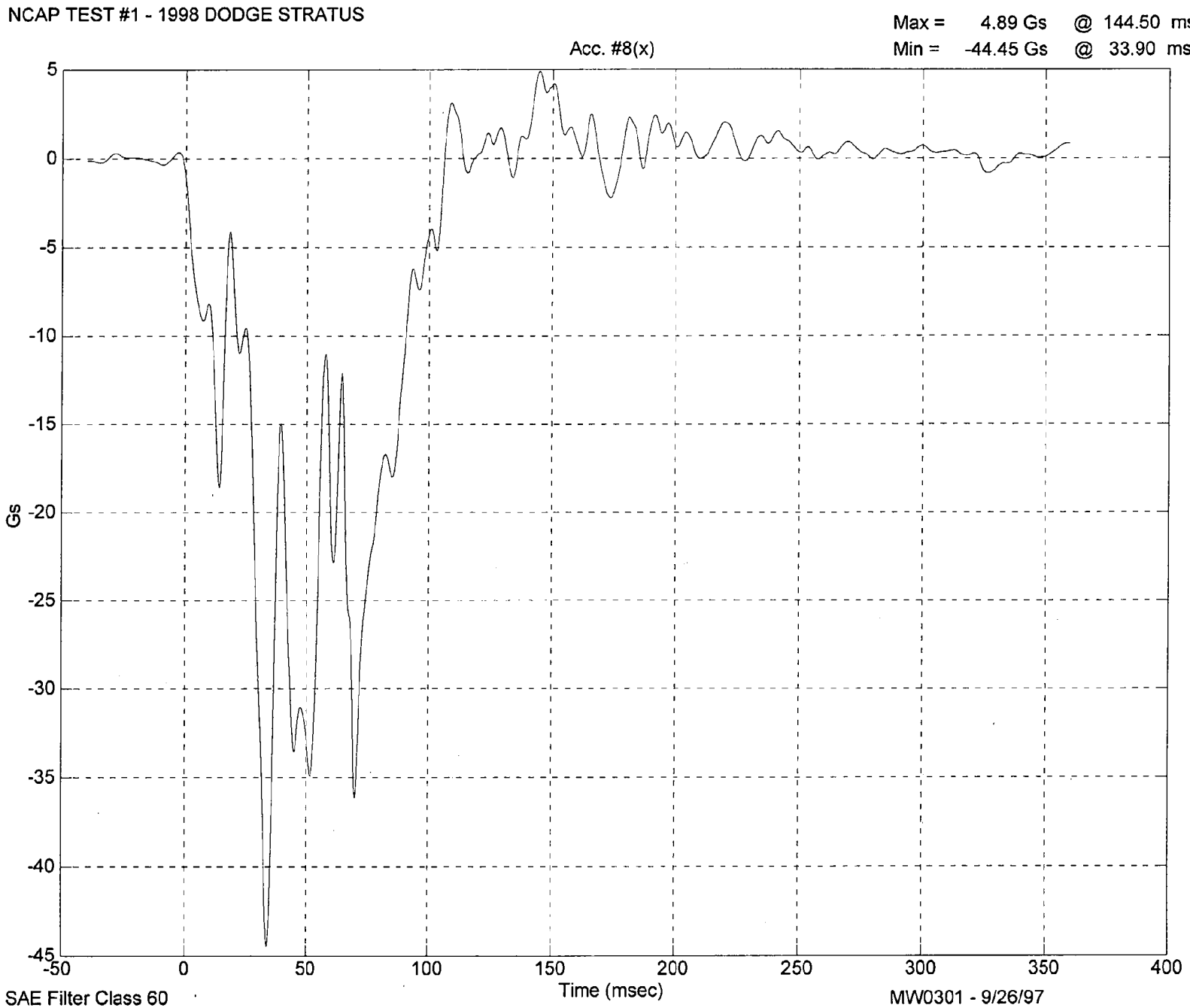
Max = 56.48 kph @ 3.60 msec
Min = -1.38 kph @ 130.50 msec

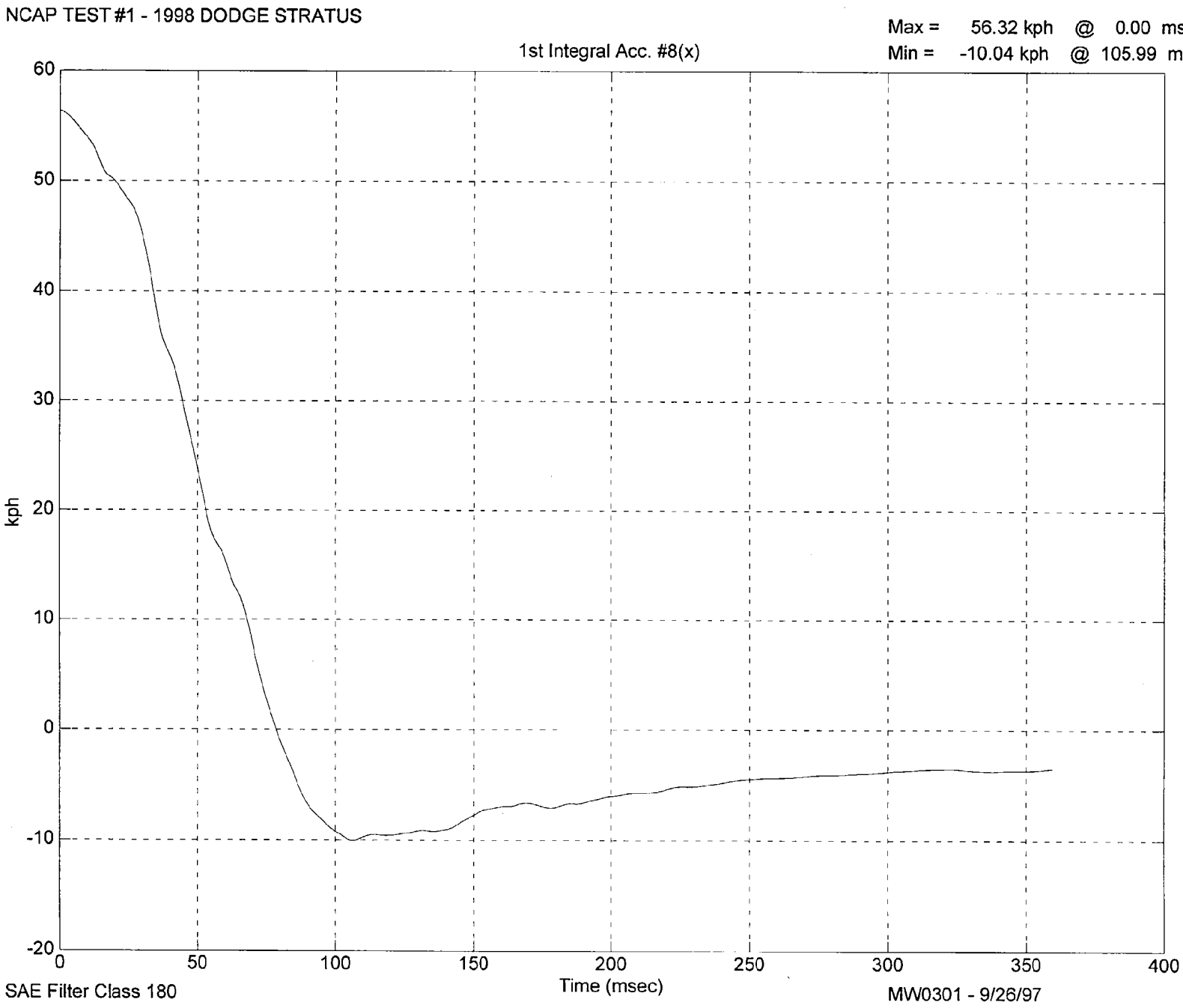


SAE Filter Class 180

MW0301 - 9/26/97

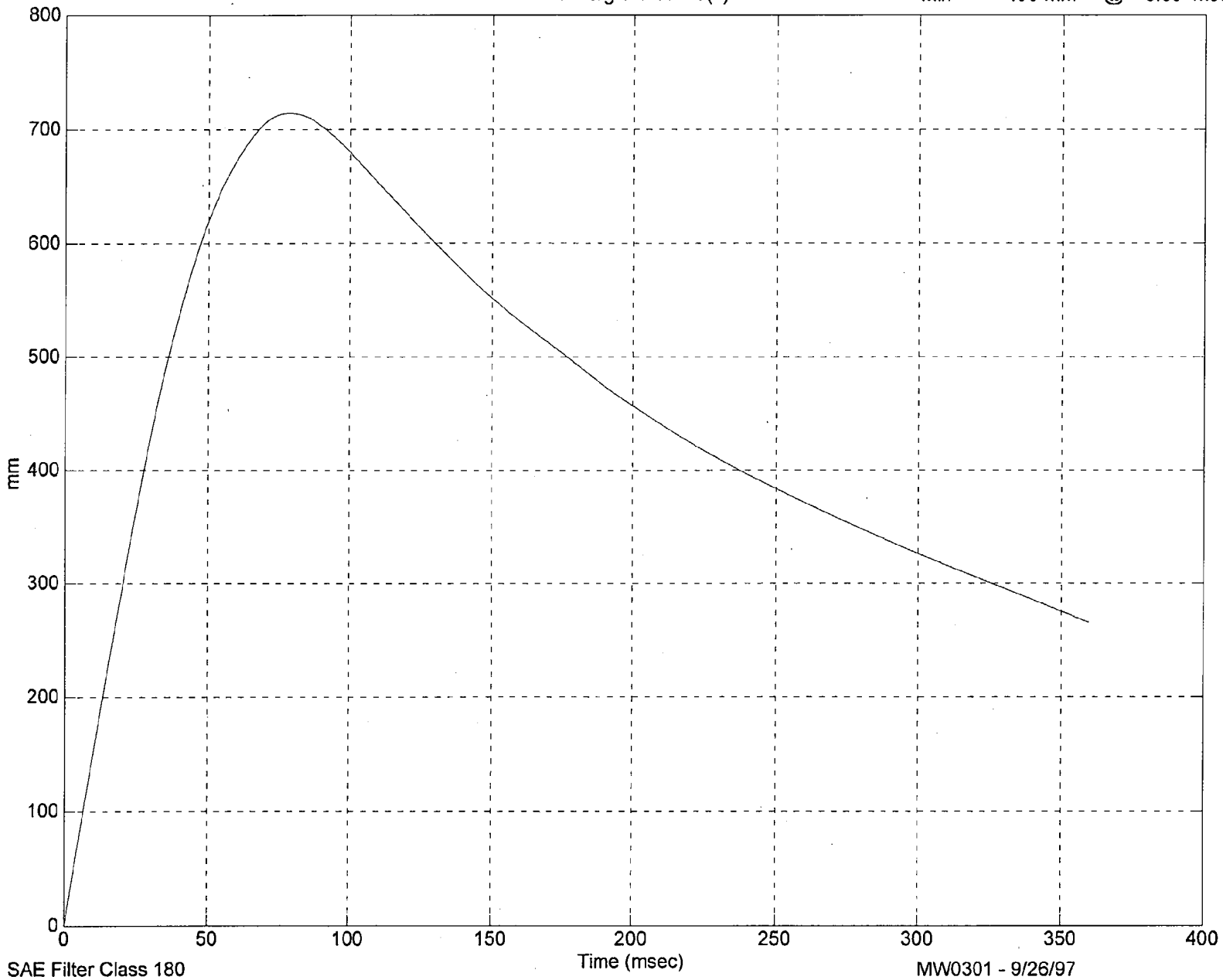

NCAP TEST #1 - 1998 DODGE STRATUS
2nd Integral Acc. #7(x)
Max = 1041.09 mm @ 359.89 msec
Min = .00 mm @ 0.00 msec
1200
1000
800
600
400
200
0
mm
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Max = 4.89 Gs @ 144.50 msec
Min = -44.45 Gs @ 33.90 msec
Acc. #8(x)
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
Gs
-50
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
1st Integral Acc. #8(x)
Max = 56.32 kph @ 0.00 msec
Min = -10.04 kph @ 105.99 msec
60
50
40
30
20
10
0
-10
-20
kph
0
50
100
150
200
250
300
350
400
Time (msec)
SAE Filter Class 180
MW0301 - 9/26/97

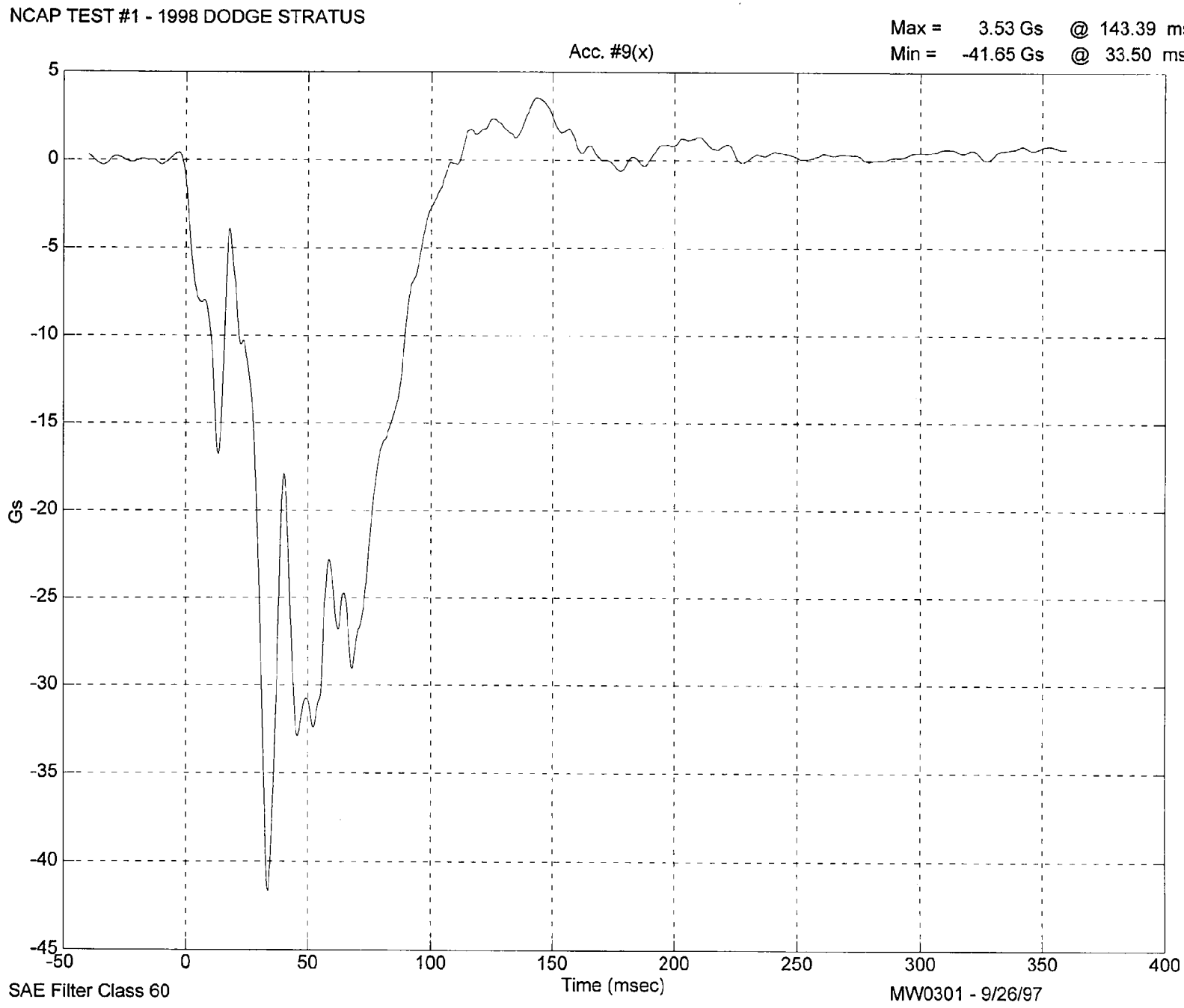
NCAP TEST #1 - 1998 DODGE STRATUS

Max = 714.26 mm @ 78.40 msec
Min = .00 mm @ 0.00 msec



SAE Filter Class 180

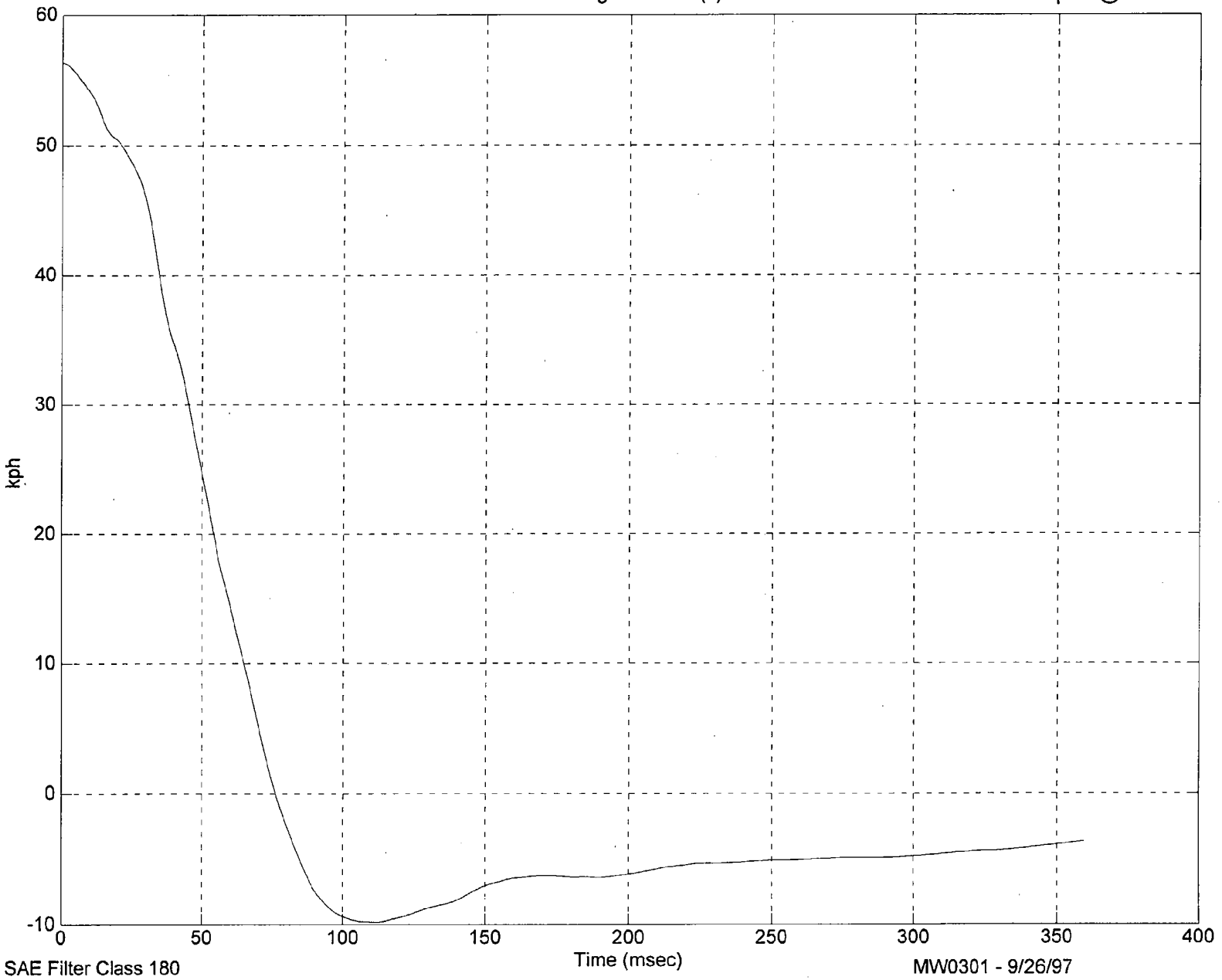
MW0301 - 9/26/97


NCAP TEST #1 - 1998 DODGE STRATUS
Max = 3.53 Gs @ 143.39 msec
Min = -41.65 Gs @ 33.50 msec
Acc. #9(x)
Gs
Time (msec)
SAE Filter Class 60
MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

1st Integral Acc. #9(x)

Max = 56.32 kph @ 0.00 msec
Min = -9.81 kph @ 112.00 msec

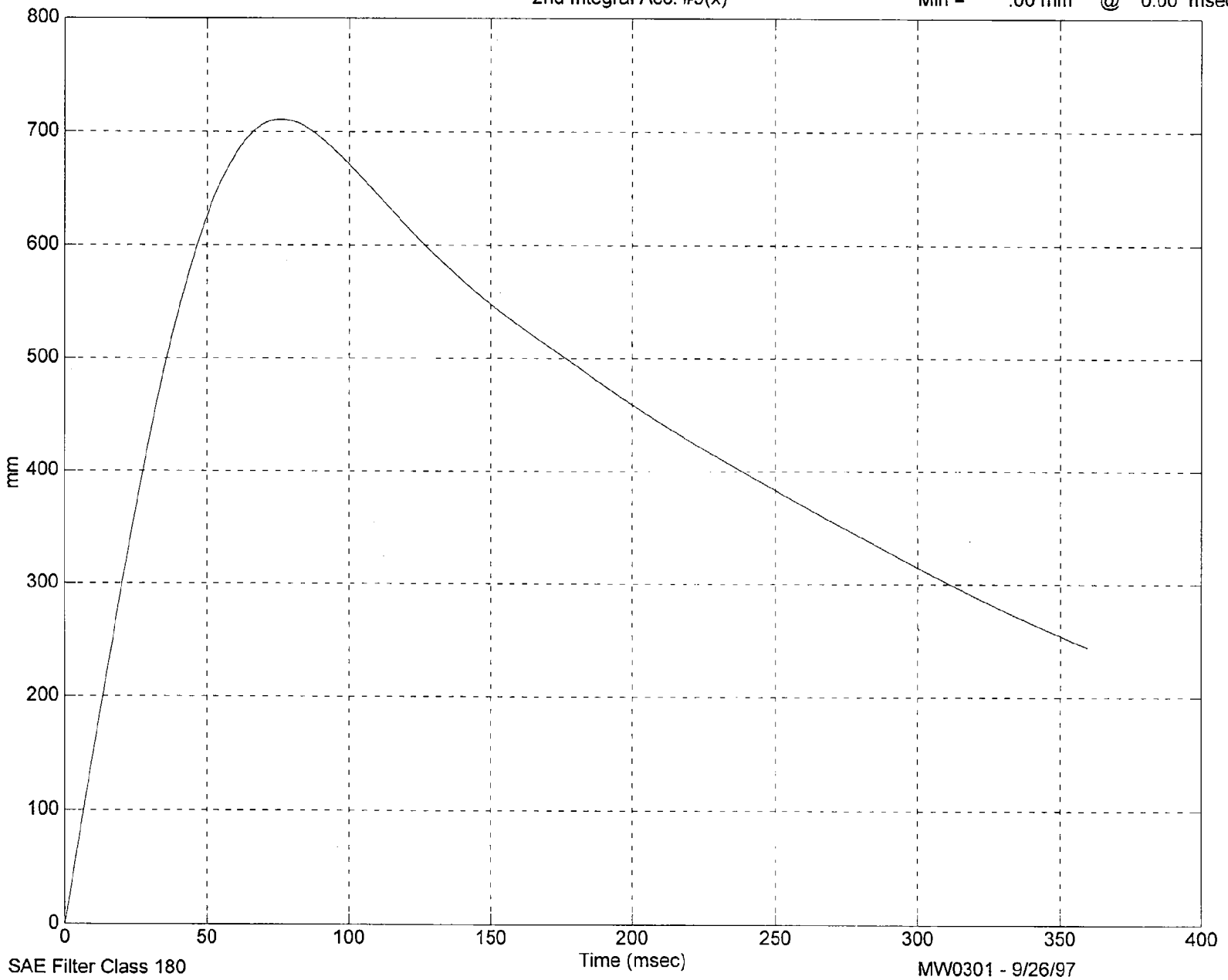


SAE Filter Class 180

MW0301 - 9/26/97

NCAP TEST #1 - 1998 DODGE STRATUS

Max = 710.87 mm @ 75.99 msec
Min = .00 mm @ 0.00 msec



SAE Filter Class 180

MW0301 - 9/26/97

Appendix C

PART 572B/E DUMMY CONFIGURATION

AND PERFORMANCE VERIFICATION DATA SHEETS

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

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

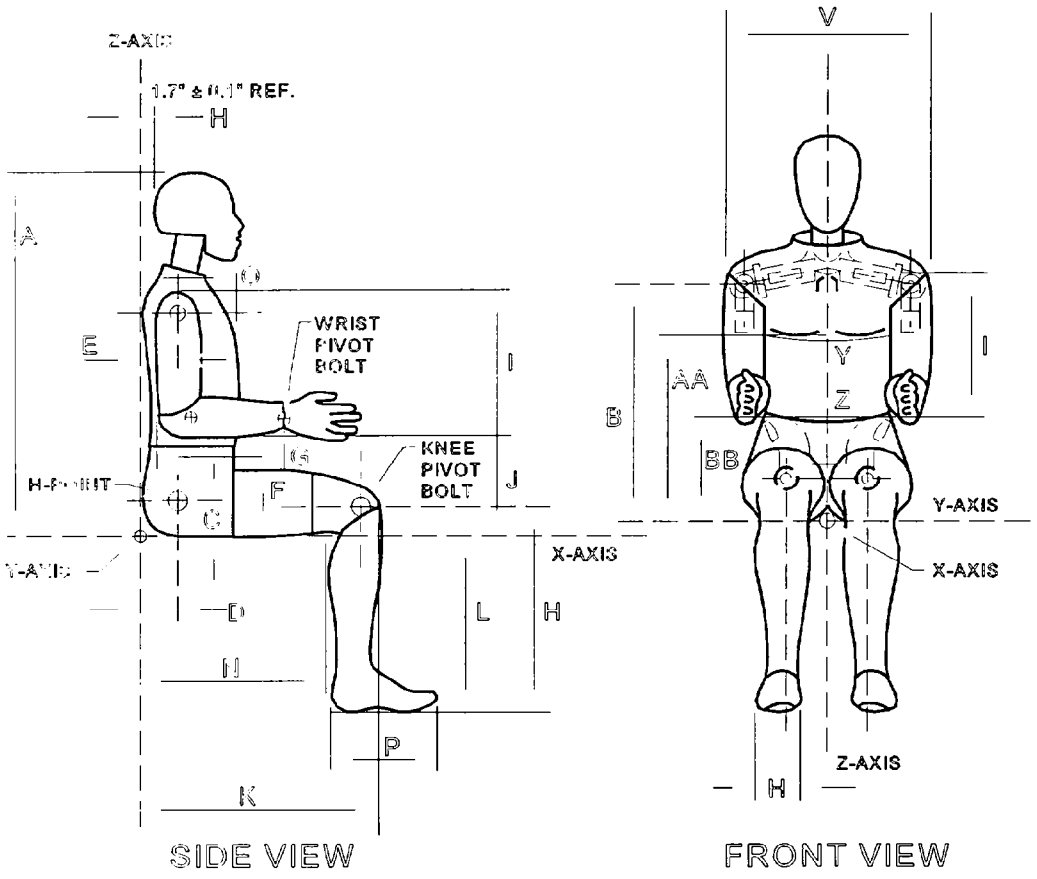
Dummy serial numbers and certification dates are:

Position No./Location	Serial No.	Completion Date
#1/Driver	245	9/24/97
#2/Right Front Passenger	150	9/24/97

Electronic Test Equipment

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

EXTERNAL DIMENSIONS SPECIFICATIONS



NOTE: Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude. (REF: 572.31(A)(6))

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E
HEAD DROP TEST

Dummy Serial Number	245
Calspan Sequential Test Number	3
Date	9/23/97
Workfile	245397.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Peak Resultant Acceleration	225-275 G's	268.0
Peak Lateral Acceleration	15 G's Max	4.4
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E
NECK FLEXION TEST

Dummy Serial Number	245	
Calspan Sequential Test Number	3	
Date	9/23/97	6 Axis Neck Transducer
Workfile	245397.nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	30
Impact Velocity		22.60 - 23.40 Ft/s	22.61
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.27
	20 ms	17.60 - 22.60 G's	20.05
	30 ms	12.50 - 18.50 G's	16.88
Max Pendulum G's Above 30 ms		29 G's Max	16.88
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.00
D Plane Rotation	Max	64 - 78 Deg	64.29
	Time	57 - 64 ms	60.88
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	72.47
	Time	47 - 58 ms	52.38
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	119.38
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.63

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	245	
Calspan Sequential Test Number	3	
Date	9/23/97	6 Axis Neck Transducer
Workfile	245397.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	30
Impact Velocity		19.50 - 20.30 Ft/s	19.70
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.84
	20 ms	14.00 - 19.00 G's	16.35
	30 ms	11.00 - 16.00 G's	13.87
Max Pendulum G's Above 30 ms		22 G's Max	13.87
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	40.88
D Plane Rotation	Max	81 - 106 Deg	96.94
	Time	72 - 82 ms	76.88
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-52.49
	Time	65 - 79 ms	73.13
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	154.00
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	141.25

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	245
Calspan Sequential Test Number	3
Date	9/24/97
Workfile	245397.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	30
Pendulum Velocity	21.6 - 22.4 Ft/s	21.70
Maximun Deflection	2.50 - 2.86 in	2.51
Maximum Resistive Force	1160 - 1325 Lbs	1310.92
Internal Hysteresis	69 - 85 %	71.3

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	245
Calspan Sequential Test Number	3
Date	9/24/97
Workfile	245397

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 -1300 Lbs	10966.0
RIGHT KNEE		
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 -1300 Lbs	1114.0

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number	150
Calspan Sequential Test Number	3
Date	9/24/97

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			30
Location for Chest Circumference	AA	16.9 -17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	34.0
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	5.7
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.5
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E
HEAD DROP TEST

Dummy Serial Number	150
Calspan Sequential Test Number	3
Date	9/23/97
Workfile	150397.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Peak Resultant Acceleration	225-275 G's	267.8
Peak Lateral Acceleration	15 G's Max	11.5
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150	
Calspan Sequential Test Number	3	
Date	9/23/97	6 Axis Neck Transducer
Workfile	150397.nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	30
Impact Velocity		22.60 - 23.40 Ft/s	22.70
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.90
	20 ms	17.60 - 22.60 G's	20.19
	30 ms	12.50 - 18.50 G's	14.66
Max Pendulum G's Above 30 ms		29 G's Max	14.66
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.38
D Plane Rotation	Max	64 - 78 Deg	70.99
	Time	57 - 64 ms	60.63
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	76.36
	Time	47 - 58 ms	53.88
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	121.13
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.00

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150	
Calspan Sequential Test Number	3	
Date	9/23/97	6 Axis Neck Transducer
Workfile	150397.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	30
Impact Velocity		19.50 - 20.30 Ft/s	19.70
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	20.13
	20 ms	14.00 - 19.00 G's	17.55
	30 ms	11.00 - 16.00 G's	14.23
Max Pendulum G's Above 30 ms		22 G's Max	14.23
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	38.25
D Plane Rotation	Max	81 - 106 Deg	96.03
	Time	72 - 82 ms	74.75
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-51.89
	Time	65 - 79 ms	71.75
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	152.75
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	140.38

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	150
Calspan Sequential Test Number	3
Date	9/24/97
Workfile	150397.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	30
Pendulum Velocity	21.6 - 22.4 Ft/s	21.70
Maximun Deflection	2.50 - 2.86 in	2.57
Maximum Resistive Force	1160 - 1325 Lbs	1211.84
Internal Hysteresis	69 - 85 %	69.8

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	150
Calspan Sequential Test Number	3
Date	9/24/97
Workfile	150397

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 -1300 Lbs	1131.0
RIGHT KNEE		
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 -1300 Lbs	1152.0

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Calspan Sequential Test Number 3
Date 9/24/97

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			30
Location for Chest Circumference	AA	16.9 -17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	34.0
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	5.7
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.5
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5

Remarks:

Laboratory Technician: B. Swiecicki

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 245)		Serial #	Manufacturer	Calibration	
				Last	Next
Head	X	ADL98	ENDEVCO	8/97	2/98
	Y	AE8K0	ENDEVCO	8/97	2/98
	Z	ADMB6	ENDEVCO	8/97	2/98
Chest	X	A26A	ENDEVCO	8/97	2/98
	Y	A27A	ENDEVCO	8/97	2/98
	Z	A51A	ENDEVCO	8/97	2/98
Right Femur Load Cell		951	GSE	9/97	3/98
Left Femur Load Cell		952	GSE	9/97	3/98
Neck Load Cell	X	440	DENTON	8/97	2/98
	Y	440	DENTON	8/97	2/98
	Z	440	DENTON	8/97	2/98
Neck Moment	X	440	DENTON	8/97	2/98
	Y	440	DENTON	8/97	2/98
	Z	440	DENTON	8/97	2/98
Chest Deflection Gauge		245	HUMANOID	5/97	11/97
Hybrid III Use Only					
Lap Belt Load Cells		706	LEBOW	6/97	12/97
Shoulder Belt Load Cells		707	LEBOW	6/97	12/97
Spool-Out Potentiometer		M7	MAGNETEK	9/97	3/98
Belt Stretch Transducer		E1	CALSPAN	9/97	3/98

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY		Serial #	Manufacturer	Calibration	
				Last	Next
Head	X (R)	AP1A0	ENDEVCO	8/97	2/98
	Y (R)	AC8F6	ENDEVCO	8/97	2/98
	Z (R)	ACCW0	ENDEVCO	8/97	2/98
Chest	X (R)	AHRC9	ENDEVCO	8/97	2/98
	Y (R)	AC7W8	ENDEVCO	8/97	2/98
	Z (R)	ACC06	ENDEVCO	8/97	2/98
Pelvic	X	AL6N5	ENDEVCO	8/97	2/98
	Y	AL6R7	ENDEVCO	8/97	2/98
	Z	A12C	ENDEVCO	8/97	2/98
Left Upper Tibia	Mx	038	DENTON	4/97	10/97
Left Upper Tibia	My	038	DENTON	4/97	10/97
Left Lower Tibia	Fy	032	DENTON	4/97	10/97
Left Lower Tibia	Fz	032	DENTON	4/97	10/97
Left Lower Tibia	Mx	032	DENTON	4/97	10/97
Right Upper Tibia	Mx	045	DENTON	4/97	10/97
Right Upper Tibia	My	045	DENTON	4/97	10/97
Right Lower Tibia	Fy	041	DENTON	4/97	10/97
Right Lower Tibia	Fz	041	DENTON	4/97	10/97
Right Lower Tibia	Mx	041	DENTON	4/97	10/97

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY		Serial #	Manufacture	Calibration	
				Last	Next
Left Foot Front	Z	A13929	ENDEVCO	9/97	3/98
Left Foot Rear	X	A14150	ENDEVCO	9/97	3/98
Left Foot Rear	Z	A14058	ENDEVCO	9/97	3/98
Right Foot Front	Z	A14181	ENDEVCO	9/97	3/98
Right Foot Rear	X	A14126	ENDEVCO	9/97	3/98
Right Foot Rear	Z	A14124	ENDEVCO	9/97	3/98

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 150)		Serial #	Manufacturer	Calibration	
				Last	Next
Head	X	AH5M9	ENDEVCO	8/97	2/98
	Y	AGHF5	ENDEVCO	8/97	2/98
	Z	AL6K2	ENDEVCO	8/97	2/98
Chest	X	A33A	ENDEVCO	8/97	2/98
	Y	FB32L	ENDEVCO	8/97	2/98
	Z	AD395	ENDEVCO	8/97	2/98
Right Femur Load Cell		231	GSE	9/97	3/98
Left Femur Load Cell		232	GSE	9/97	3/98
Neck Load Cell	X	205	DENTON	8/97	2/98
	Y	205	DENTON	8/97	2/98
	Z	205	DENTON	8/97	2/98
Neck Moment	X	205	DENTON	8/97	2/98
	Y	205	DENTON	8/97	2/98
	Z	205	DENTON	8/97	2/98
Chest Deflection Gauge		064	HUMANOID	5/97	11/97
Hybrid III Use Only					
Lap Belt Load Cells		635	LEBOW	6/97	12/97
Shoulder Belt Load Cells		711	LEBOW	6/97	12/97
Spool-Out Potentiometer		M10	MAGNETEK	9/97	3/98
Belt Stretch Transducer		E2	CALSPAN	9/97	3/98

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY		Serial #	Manufacturer	Calibration	
				Last	Next
Head	X (R)	APBF4	ENDEVCO	8/97	2/98
	Y (R)	APBD7	ENDEVCO	8/97	2/98
	Z (R)	AN967	ENDEVCO	8/97	2/98
Chest	X (R)	APA30	ENDEVCO	8/97	2/98
	Y (R)	AP1B5	ENDEVCO	8/97	2/98
	Z (R)	AP057	ENDEVCO	8/97	2/98
Pelvic	X	AF480	ENDEVCO	8/97	2/98
	Y	AL508	ENDEVCO	8/97	2/98
	Z	AF5C1	ENDEVCO	8/97	2/98
Left Upper Tibia	Mx	015	DENTON	4/97	10/97
Left Upper Tibia	My	015	DENTON	4/97	10/97
Left Lower Tibia	Fy	011	DENTON	4/97	10/97
Left Lower Tibia	Fz	011	DENTON	4/97	10/97
Left Lower Tibia	Mx	011	DENTON	4/97	10/97
Right Upper Tibia	Mx	016	DENTON	4/97	10/97
Right Upper Tibia	My	016	DENTON	4/97	10/97
Right Lower Tibia	Fy	012	DENTON	4/97	10/97
Right Lower Tibia	Fz	012	DENTON	4/97	10/97
Right Lower Tibia	Mx	012	DENTON	4/97	10/97

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY		Serial #	Manufacture	Calibration	
				Last	Next
Left Foot Front	Z	A13506	ENDEVCO	9/97	3/98
Left Foot Rear	X	A12268	ENDEVCO	9/97	3/98
Left Foot Rear	Z	A13011	ENDEVCO	9/97	3/98
Right Foot Front	Z	AEWK1	ENDEVCO	8/97	2/98
Right Foot Rear	X	AKD92	ENDEVCO	8/97	2/98
Right Foot Rear	Z	J18418	ENDEVCO	8/97	2/98

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	Y95	ICS	4/97	10/97
Right Rear Seat Crossmember	X91	ICS	8/97	2/98
Top of Engine	D74	ICS	9/97	3/98
Bottom of Engine	X84	ICS	8/97	2/98
Left Disc Brake Caliper	A56	CEC	9/97	3/98
Right Disc Brake Caliper	A145	CEC	8/97	2/98
Instrument Panel	A129	CEC	5/97	11/97
Left Seat Rear Crossmember (R)	D75	ICS	9/97	3/98
Right Seat Rear Crossmember (R)	Y13	ICS	4/97	10/97