

NEW CAR ASSESSMENT PROGRAM

FRONTAL BARRIER IMPACT TEST

CHRYSLER CORPORATION
1994 DODGE DAKOTA PICKUP
NHTSA No. MR0302

MOBILITY SYSTEMS AND EQUIPMENT COMPANY
9920 LaCienega Boulevard, Suite 708
Inglewood, California 90301



14 March, 1994

FINAL REPORT

Prepared For:

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF MARKET INCENTIVES
400 Seventh Street, S. W.
Room No. 5313 (NRM-22)
Washington, D. C. 20590

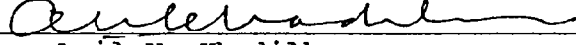
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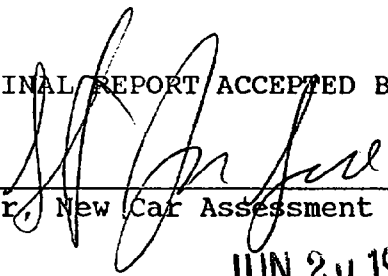
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MOBILITY SYSTEMS AND EQUIPMENT COMPANY

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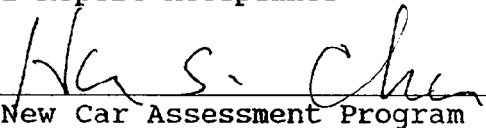
Date: 14 March 1994

FINAL REPORT ACCEPTED BY:


Manager, New Car Assessment Program

JUN 20 1994

Date of Report Acceptance


COTR, New Car Assessment Program

JUN 20 1994

Date of Report Acceptance

Technical Report Documentation Page

1. Report No. MSE-94-N02		2. Government Accession No.		3. Recipient's Catalog No.													
4. Title and Subtitle New Car Assessment Program Frontal Barrier Impact Test 1994 Dodge Dakota Pickup NHTSA No. MR0302				5. Report Date March 14, 1994													
				6. Performing Organization Code MSE													
7. Author(s) Dr. A. V. Khadilkar / Mr. Gary Fladmark / Mr. Patrick Puzzuto / Mr. Jerry Kratzke				8. Performing Organization Report No. R93030-02													
9. Performing Organization Name and Address Mobility Systems and Equipment Company 9920 La Cienega Boulevard, Suite 708 Inglewood, California, 90301				10. Work unit No.													
				11. Contract or Grant No. DTNH22-90-D-32121, D.O.#8													
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Market Incentives (NRM-20) 400 Seventh Street, S.W., Room 5313 Washington, D.C., 20590				13. Type of Report and Period Covered FINAL													
				14. Sponsoring Agency Code DOT/NHTSA/RM/OMI													
15. Supplementary Notes																	
16. Abstract A 56 kph Frontal barrier impact test using a load cell barrier was conducted on a 1994 Dodge Dakota Pickup at the Mobility Systems and Equipment Company (MSE) crash test facility in San Bernardino, CA, on February 10, 1994. The impact velocity was 56.2 km/h, and the ambient temperature at the barrier face at the time of impact was 18 degrees C. The vehicle's maximum post-test static crush was 643 mm. The test vehicle satisfied the requirements of FMVSS No.'s 212, 219 and 301-75. Occupant injury response data summary is as follows: <table border="1"> <thead> <tr> <th>Injury Criteria Threshold Value</th> <th>Driver Dummy</th> <th>Passenger Dummy</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criterion HIC = 1000</td> <td>328.8</td> <td>857.4</td> </tr> <tr> <td>Chest Resultant Peak 60 G's (3 msec clip)</td> <td>36.6</td> <td>43.6</td> </tr> <tr> <td>Femur Force Left 10000 N Right</td> <td>2020.5 2156.2</td> <td>1351.1 1601.7</td> </tr> </tbody> </table> Type of occupant restraint system: A 3 point continuous webbing belt system and an airbag at the driver seating position. A 3 point continuous webbing belt system at the outboard passenger seating position.						Injury Criteria Threshold Value	Driver Dummy	Passenger Dummy	Head Injury Criterion HIC = 1000	328.8	857.4	Chest Resultant Peak 60 G's (3 msec clip)	36.6	43.6	Femur Force Left 10000 N Right	2020.5 2156.2	1351.1 1601.7
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17. Key Words 35 MPH Frontal Barrier Impact Test New Car Assessment Program (NCAP) 1994 Dodge Dakota Pickup			18. Distribution Statement Copies of this report are available from: Technical Reference Division Nat'l Highway Traffic Safety Admin. Room 5108, Nassif Building 400 7th St., S.W., Wash. D.C. 20590														
19. Security Classif.(of this report) UNCLASSIFIED		20. Security Classif.(of this page) UNCLASSIFIED		21. No. of Pages 40													
				22. Price													

Form DOT F1700-7 (8-72)

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SECTION 1

PURPOSE AND TEST PROCEDURE

This 56.32 km/h (35 mph) frontal barrier impact test is a part of the FY'94 Vehicle Barrier Impact and Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-90-D-32121. 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 48.27 km/h (30 mph) FMVSS 208/212/219/301-75 requirements.

This 56.32 km/h (35 mph) frontal barrier impact test was conducted in accordance with the Office of Marketing Incentives (OMI) Laboratory Indicant Test Procedure, dated 01 January 1990.

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SECTION 2

SUMMARY OF FRONTAL BARRIER IMPACT TEST

A load cell barrier was impacted by a 1994 Dodge Dakota Pickup, NHTSA No. MR0302, at a velocity of 56.2 km/h. The frontal impact test was conducted by Mobility Systems and Equipment Company (MSE) on 10 February 1994. The general test and vehicle description information are presented in Tables 1 and 2. Pretest and posttest photographs of the test vehicle and dummies are shown in Appendix A.

Two (2) Hybrid III, Part 572, Subparts B and E, 50th percentile adult male Anthropomorphic Test Devices (ATD's) were placed in the driver and front outboard passenger designated seating positions (DSP's) according to the NHTSA test requirements.

The ATD's, serial No.s 34 and 35, were previously used on the 1994 Toyota Corolla NCAP test. The ATD's were instrumented with head, neck and chest triaxial accelerometers, chest displacement gauge, upper neck load/moment sensors and right and left femur load cells. In addition, load cells were placed on both lap and shoulder seat belts to measure ATD upper torso and pelvic section belt loading. Displacement transducers were attached to the shoulder belts to measure seat belt elongation and belt spoolout. A summary of ATD data is presented in Table 3. A summary of ATD configuration and performance verification test data is presented in Appendix C.

The frontal impact event was documented by one (1) real time camera and sixteen (16) high-speed cameras. Camera location data and film speeds are presented in Table 7.

Eighty-three (83) channels of crash parameters were recorded using three (3) FM tape recorders and three (3) data acquisition computers with direct analog to digital acquisition units. Time history plots of all recorded data channels are presented in Appendix B. Data channels not used were Nos. 19 and 38. Channels that failed were Nos. 15, 18, 27, 34, and 37. The reason for the failure is unknown.

2.1 GENERAL COMMENTS

The 1994 Dodge Dakota Pickup was equipped with a 3902 cc, 6 cylinder engine and a 3 speed automatic transmission. The test weight of the 1994 Dodge Dakota Pickup with two (2) 50th percentile male ATD's, instrumentation and cameras was 2057 kg.

The 1994 Dodge Dakota Pickup was involved in a frontal barrier crash at a velocity of 56.2 km/h.

The maximum static crush for the vehicle of 643 mm occurred 165 mm to the left of the centerline of the bumper. The windshield was cracked, but otherwise the vehicle glazing remained intact. All doors were opened without the aid of tools.

The driver ATD's face hit the airbag. The driver's left and right knees hit the dash panel. The driver ATD had a Head Injury Criteria (HIC) value of 328.8, the maximum chest acceleration (resultant clipped) was 36.6 g's and the maximum femur loads were -2020.5 newtons (left) and -2156.2 newtons (right).

Both of the passenger ATD's knees hit the glove box door and the dash panel. The passenger ATD had a HIC value of 857.4, the maximum chest acceleration (resultant clipped) was 43.6 g's and the maximum femur loads were -1351.1 newtons (left) and -1601.7 newtons (right).

Shoulder seat belt spoolout, measured by mechanical analysis, due to the belt position was 115 mm for the driver and 148 mm for the passenger. Seat belt spoolout and strain data are presented in Table 6.

The 1994 Dodge Dakota Pickup passed the requirements of FMVSS 212, FMVSS 219 and FMVSS 301-75. Data pertaining to these standards are presented in Section 4, in Tables 13, 14 and 15, respectively.

Appendix D contains the manufacturer's occupant restraint system instructions as presented in the owner's manual. Appendix E contains the instrumentation calibration data.

DATA TABLE No. 1
TEST VEHICLE DATA

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1994/Dodge/Dakota/Pickup

VEHICLE NHTSA No.: M R 0 3 0 2 ; VIN: 1 B 7 G L 2 6 X 5 R S 5 4 1 3 7 4

VEHICLE BODY COLOR: Maroon ; MONTH AND YEAR OF MANUFACTURE: 11/93

ENGINE: 6 Cylinders; 238.0 cu in; 3.9 Liters; 3902 cc
X Gas; Diesel; Turbocharged
PLACEMENT: X Longitudinal; Transverse (Lateral)

TRANSMISSION: 3 Speed; Manual; X Automatic; X Overdrive

FINAL DRIVE: Front Wheel Drive; X Rear Wheel Drive; Four Wheel Drive

DATE VEHICLE AVAILABLE FOR 35 MPH CRASH TESTING: 12/10/93

ODOMETER READING: 165.8 km; OPTIONS : A/C; X P/S; P/Window;
 Tilt Whl.; Cruise Control

DATA RECORD FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): 240 kPa Front; 240 kPa Rear

Recommended Tire Size: P205/75R15

Tires on Vehicle: P205/75R15 ; Manufacturer: Goodyear

Number of Occupants: 3 Front; Rear; Third Seat; TOTAL

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

Type of Front Seat Back: X Fixed; Adj. Lever; Adj. Rotating Knob

Vehicle Maximum Capacity Loading: -- kg

No. of Occupants x 68 kg: -- kg

Cargo Capacity (Max - Occupants): 136 kg

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Right Front: 481 kg

Left Front: 539 kg

Total Front: 1020 kg (57% of Total)

Right Rear: 374 kg

Left Rear: 386 kg

Total Rear: 760 kg (43% of Total)

Total Weight: 1780 kg

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids: 1780 kg

Maximum Cargo Carrying Capacity of Test Vehicle: 136 kg*

Weight of Two Part 572 ATD;s (2*75.8 kg): 151 kg

TEST VEHICLE TARGET WEIGHT: 2067 kg

* 136 kg for light trucks and MPV's

DATA TABLE No. 1 (Cont.)
TEST VEHICLE DATA

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 ATD's AND CARGO:

Right Front:	<u>563</u> kg		
Left Front:	<u>548</u> kg	Total Front:	<u>1111</u> kg (54% of Total)
Right Rear:	<u>471</u> kg		
Left Rear:	<u>474</u> kg	Total Rear:	<u>945</u> kg (46% of Total)

Total Weight: 2057 kg (includes 45 kg of ballast secured in the cargo / luggage area)

VEHICLE COMPONENTS REMOVED TO MEET TARGET WEIGHT:

1. Jack

2. Side Mirror

TEST VEHICLE ATTITUDE:

As Delivered - Right Front:	<u>790</u> mm	Ready for Test - Right Front:	<u>770</u> mm
Left Front:	<u>790</u> mm	Left Front:	<u>770</u> mm
Right Rear:	<u>850</u> mm	Right Rear:	<u>815</u> mm
Left Rear:	<u>845</u> mm	Left Rear:	<u>807</u> mm

TEST VEHICLE DIMENSIONS:

Total Vehicle Length:	Right Side:	<u>5235</u> mm
	Left Side:	<u>5235</u> mm
	Centerline:	<u>5410</u> mm

Wheelbase: 3145 mm

C. G. is 1445 mm rearward of front axle centerline.

DATA TABLE No. 2
POST CRASH TEST DATA

DATE OF 35 MPH FRONTAL BARRIER IMPACT RATING TEST: 02/10/94

TIME OF TEST: 1630 Hrs; AMBIENT TEMPERATURE AT BARRIER FACE: 18.0° C

VEHICLE OCCUPANT COMPARTMENT TEMPERATURE: 19.0° C (Req. Range 19° C to 26° C)

VEHICLE WINDSHIELD MOLDING TEMPERATURE: 19.0° C

VEHICLE IMPACT VELOCITY: (Req. Range 55.52 to 57.13 km/h)
Primary Speed Trap: 56.2 km/h
Secondary Speed Trap: 56.20 km/h
Distance from vehicle leading edge to barrier face when:
Entering Speed Trap: 1524 mm
Exiting Speed Trap: 305 mm

VEHICLE STATIC CRUSH:	Pretest	Posttest	Static Crush
Right Side (mm)	<u>5235</u>	<u>4740</u>	<u>495</u>
Centerline (mm)	<u>5410</u>	<u>4815</u>	<u>595</u>
Left Side (mm)	<u>5235</u>	<u>4740</u>	<u>495</u>

VEHICLE REBOUND FROM BARRIER: Right Side: 510 mm
Centerline: 475 mm
Left Side: 440 mm

ATD CONTACT POINTS:

	Driver ATD (ID# 34)	Pass. ATD (ID# 35)
Head	Airbag	No Contact
Chest	Airbag	No Contact
Abdomen	No Contact	No Contact
Right Knee	Instrument Panel	Glove Box Door
Left Knee	Instrument Panel	Glove Box Door

VEHICLE DOOR OPENING INFORMATION:

Door	Opened	Jammed
Right Front	Yes	No
Left Front	Yes	No
Right Rear	N/A	N/A
Left Rear	N/A	N/A

VEHICLE FRONT SEAT MOVEMENT DURING IMPACT EVENT:

Seat Cushion Shift - Driver = 0 mm Passenger = 0 mm
Seat Adjustor Failure - Driver: No Passenger: No
Details of Any Failure: None

OTHER NOTABLE IMPACT EFFECTS: None

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SECTION 3

OCCUPANT AND VEHICLE INFORMATION

I. OMI DATA

Dummy Injury Criteria Data Summary
Dummy Positioning Data
Seat Belt Positioning Data
Seat Belt Performance Assessment Data
Camera Locations

II. OVR DATA

Load Cell Barrier Data
Vehicle Accelerometer Data

TABLE No. 3
FMVSS No. 208 OCCUPANT CRASH PROTECTION DATA SHEET

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1994/Dodge Dakota/Pickup

VEH. NHTSA NO.: MR0302

TEST DATE: 02/10/94

MAXIMUM ACCELERATION VALUES:	DRIVER ATD No. 34	PASSENGER ATD No. 35
Head X	-45.8	-25.3
Head Y	-17.4	8.8
Head Z	-24.0	68.6
HEAD RESULTANT	50.6	70.6
Chest X	-37.1	-45.6
Chest Y	6.1	-3.9
Chest Z	-21.2	12.2
CHEST RESULTANT (3msec clip)	36.6	43.6
TIME INTERVAL (msec)	88.8 to 91.8	77.1 to 80.1

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	328.8	857.4
t ¹ (msec)	69.1	67.2
t ² (msec)	105.1	103.2
Avg. Acceleration t ¹ to t ²	38.4	56.3

MAXIMUM FEMUR FORCES:

Left Femur (N)	-2020.5	-1351.1
Right Femur (N)	-2156.2	-1601.7

MAXIMUM SEAT BELT FORCES:

Lap Belt (N)	5334.9	6833.3
Shoulder Belt (N)	5642.3	8218.7

MAXIMUM SEAT BELT WEBBING SPOOLOUT:

Lap/Shoulder Belt Combination	N/D	N/D
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TABLE No. 3 (Continued)
FMVSS No. 208 OCCUPANT CRASH PROTECTION DATA SHEET

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1994/Dodge/Dakota/Pickup

VEH. NHTSA NO.: MR0302

TEST DATE: 02/10/94

MAXIMUM ACCELERATION VALUES:

	DRIVER ATD No. 34	PASSENGER ATD No. 35
Neck Force X (N)	525.9	1715.8
Neck Force Y (N)	355.2	N/D
Neck Force Z (N)	2349.0	2684.1
Neck Moment X (JOULES)	48.7	15.9
Neck Moment Y (JOULES)	31.7	97.1
Neck Moment Z (JOULES)	18.4	7.0
Neck Moment Resultant (JOULES)	54.0	97.6
Chest Displacement (mm)	N/D	N/D
Time of Max. Occurrence (msec)	0	0

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DATA TABLE No. 4
TEST ATD POSITIONING DATA

PRE - IMPACT DATA:

Make / Model: Dodge Dakota
Body Style: Pickup
Model Year: 1994
Color: Maroon
NHTSA No.: MR0302

DATA FROM CERTIFICATION LABEL:

Vehicle Manufacturer: Chrysler Corporation
Date of Manufacture: 11/93
VIN: 1B7GL26X5RS541374
GVWR: 2405 kg
GAWR Front: 1271 kg
GAWR Rear: 1318 kg

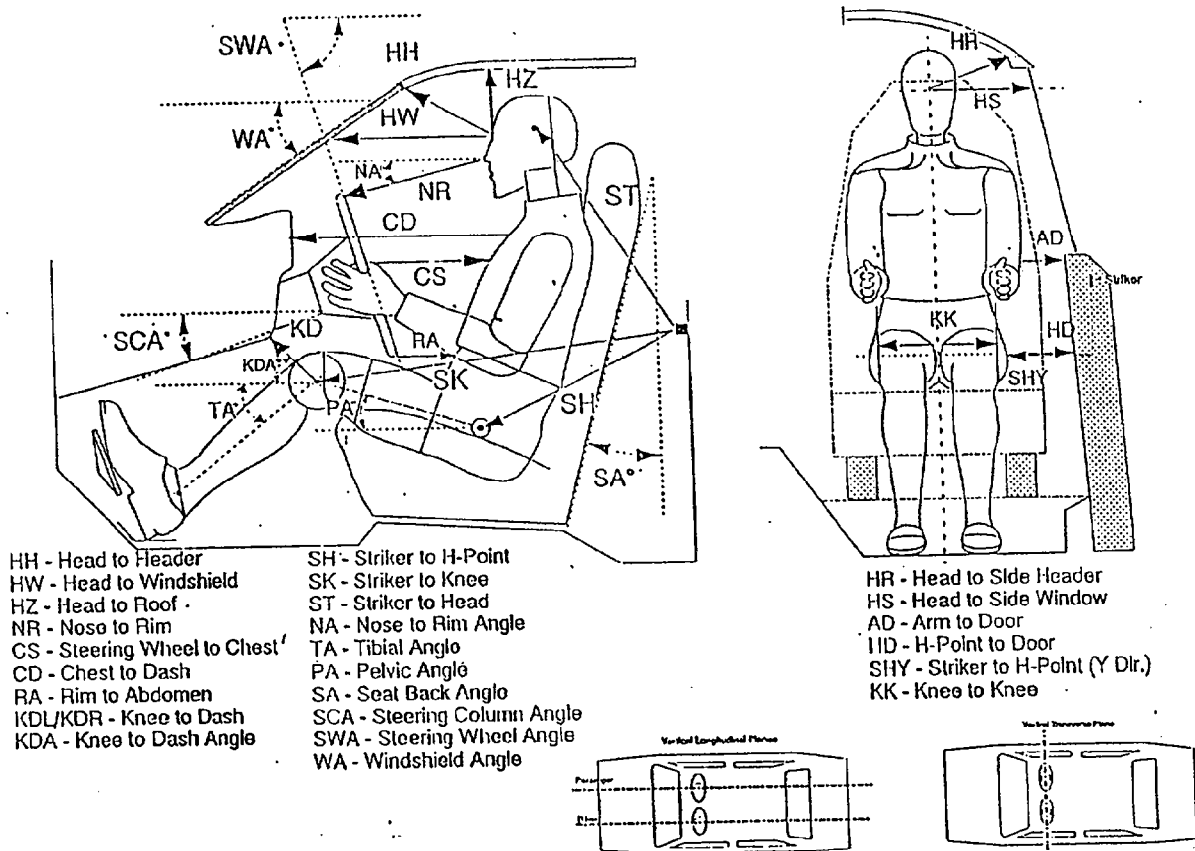
POST IMPACT DATA:

Date of Test: 02/10/94
Time: 1630 Hrs.
Temperature: 18.0°C
Required Impact Velocity Range: 55.52 to 57.13 km/h
Impact Velocity - Primary: 56.2 km/h
Secondary: 56.2 km/h
Seat Type: Bench
Adjustor Type: None
Bucket Seat Back Type: Adjustable head restraint

ATD POSITIONING TECHNICIANS: Brian O'Keefe

DATA TABLE No. 4 (Cont.)
TEST ATD POSTIONING DATA

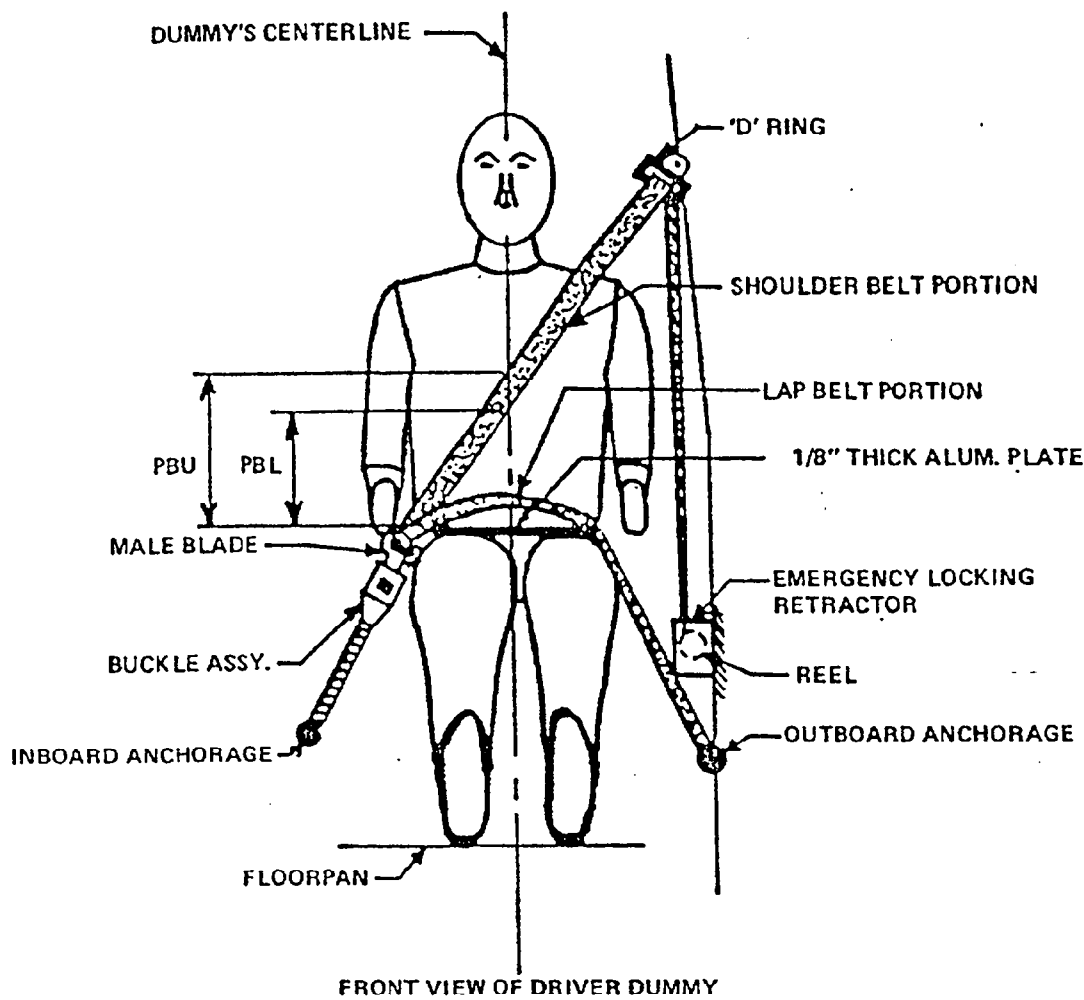
DUMMY MEASUREMENTS FOR FRONT SEAT PASSENGERS



DATA TABLE No. 4 (Cont.)
TEST ATD POSITIONING DATA

Measurement	Driver (Serial No. 34)		Passenger (Serial No. 35)	
	Length (mm)	Angle (Degrees)	Length (mm)	Angle (Degrees)
WA	---	-41	---	---
SWA	---	64	---	---
SCA	---	-24	---	---
HZ	205	90	210	90
HH	370	---	395	---
HW	500	---	520	0
HR	235	---	255	---
NR	325	-19	---	---
CD	450	---	535	---
CS	235	0	---	---
RA	110	0	---	---
KDL	145	46	140	---
KDR	175	---	150	39
PA	---	23	---	18
TA	---	-40	---	-41
KK	270	---	245	---
ST	586	66	557	66
SK	750	-5	750	-5
SH	362	-25	385	-25
SHY	230	0	225	0
HS	100	0	315	0
HD	155	0	150	0
AD	70	0	30	0

DATA TABLE No. 5
SEAT BELT POSITIONING DATA



Measurement	Driver ATD	Passenger ATD
PBU - Top Surface of alum. plate to belt upper edge (mm)	370	375
PBL - Top Surface of alum. plate to belt lower edge (mm)	285	280
Lap Belt Tension (N)	N/D	N/D
Shoulder Belt Tension (N)	N/D	N/D

DATA TABLE 6
SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

REV

BELT LENGTH DATA:

Total belt length from retractor reel to bolt hole anchor point for continuous webbing systems (mm) _____

Retractor reel to 'D' ring as measured on Part 572 ATD (mm) _____

Shoulder belt length as measured on Part 572 ATD (mm) _____

Lap belt length as measured on Part 572 ATD (mm) _____

Remainder of belt webbing left on the retractor reel (mm) _____

DRIVER SIDE		PASSENGER SIDE	
PRETEST	POSTTEST	PRETEST	POSTTEST
2275	2340	2250	2265
645	645	640	640
870	950	850	875
760	745	760	750
770	705	820	805

BELT SPOOL-OFF DATA:

As determined by film analysis (mm) _____

As determined electronically (mm) _____

As determined mechanically (mm) _____

N/D	N/D
N/D	N/D
115	148

BELT STRAIN DATA: Measured on the shoulder belt

As determined electronically (%) _____

As determined mechanically (%) _____

N/D	N/D
0	0

DATA TABLE No. 7
FMVSS No. 208 CAMERA LOCATION DATA

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1994/Dodge/Dakota/Pickup

VEH. NHTSA NO.: MR0302

TEST DATE: 02/10/94

TIME: 1630 Hrs.

CAMERA NO.	VIEW	CAMERA POS. (mm)			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Left Side View	5900	14350	3400	-20	14576	15-70 Zoom	24
2	Right Side View	3460	10720	3700	-10	10728	28	**
3	Left Side View	3770	13120	3700	-9	13097	28	**
4	Overhead	-410	0	5190	-77	4262	13	620
5	Pit - Engine	770	40	-1600	80	3076	13	**
6	Pit - Fuel Tank	5000	-10	-1640	90	4692	13	**
7	Front - Passenger	-530	370	2510	-48	2271	13	**
8	Front - Driver	-530	330	2510	-47	2273	13	1110
9	Left Side - Driver	3310	2405	1610	-5	2723	13	**
10	Right Side - Pass.	3370	2440	1810	-14	2814	13	**
11	Right Side - A-Post	1530	5760	1120	4	5322	19	1112
12	Left Side - A-Post	1825	9510	2160	-5	9108	13	**
13	Onboard - Left Side	3080	-325	1320	13	1651	35	**
14	Onboard - Right Side	3080	325	1320	15	1651	13	**
15	Left Side - St. Col.	2205	9960	3710	-10	9828	28	**
16	Left Side - St. Col.	2265	9960	2390	-16	9605	28	**
17	Right Side - Pass.	1960	5900	1100	-3	5488	19	1110

REFERENCE: X - Film plane to barrier face

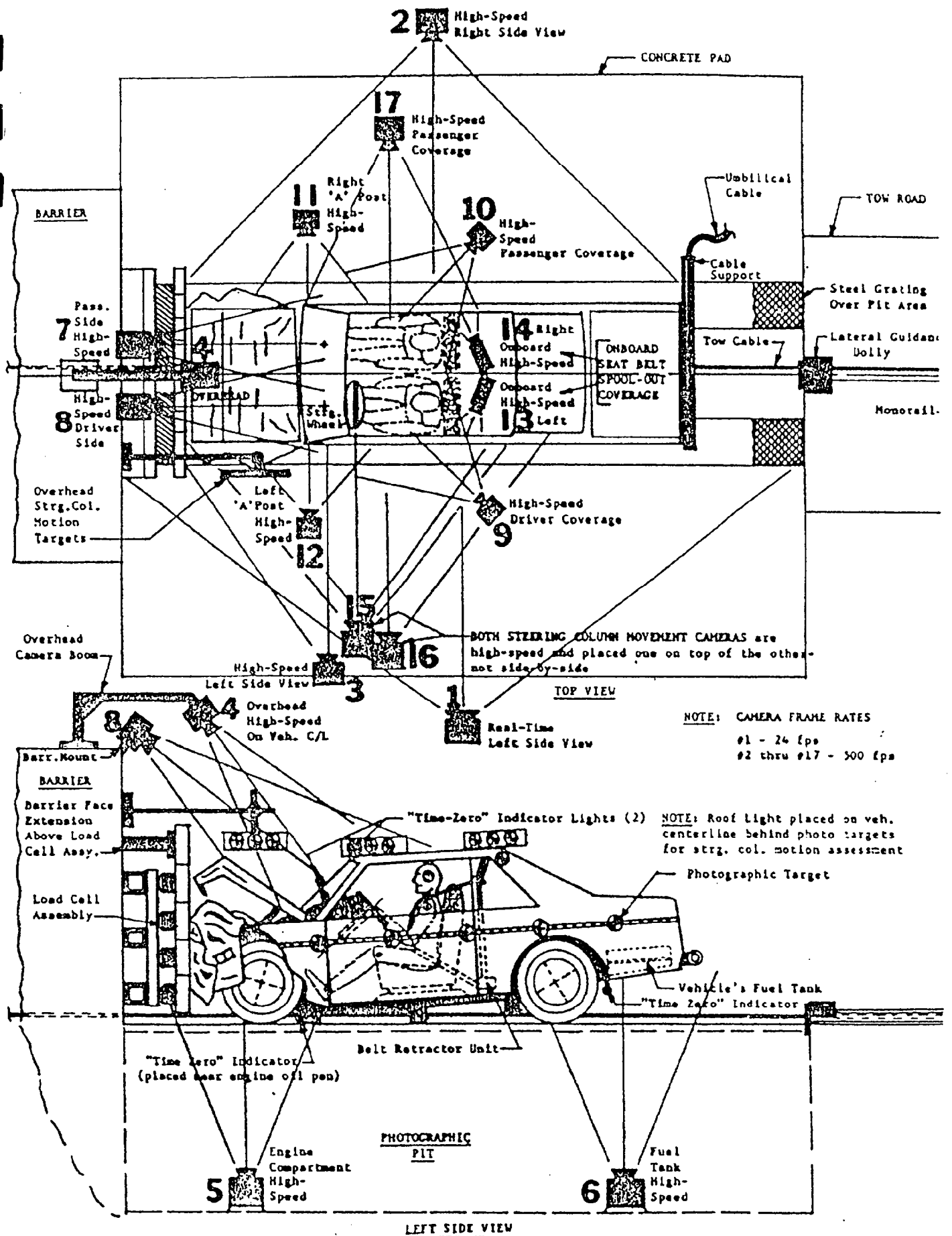
Y - Film plane to monorail centerline

Z - Film plane to ground

NOTES: * Film is good but film speed could not be determined.

** Camera was lost during test

*** Film was destroyed during processing



DATA TABLE No. 8
VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

No.	Description	Location			Maximum Value (g's)			
		X	Y	Z	-X	msec	+X	msec
1	Left rear seat cross member	4000	-700	945	43.3	51.3	5.3	30.8
2	Right rear seat cross member	4000	700	945	43.9	51.9	7.5	30.9
3	Top of engine block	890	325	830	110.0	38.3	37.2	47.2
4	Bottom of engine	1430	-15	260	131.9	38.0	78.6	47.3
5	Right brake caliper	930	640	310	130.1	38.9	25.3	56.1
6	Instrument panel	1625	35	1200	33.4	39.2	5.9	104.7
7	Left brake caliper	930	640	310	82.5	45.5	31.8	61.8
8	Left rear seat cross member Redun.	4000	-700	945	40.7	51.3	5.2	30.7
9	Right rear seat cross member Redun.	4000	700	945	46.0	51.9	7.7	30.8

REFERENCE: X - Front bumper leading edge
Y - Vehicle centerline (Right Pos., Left Neg.)
Z - Ground level

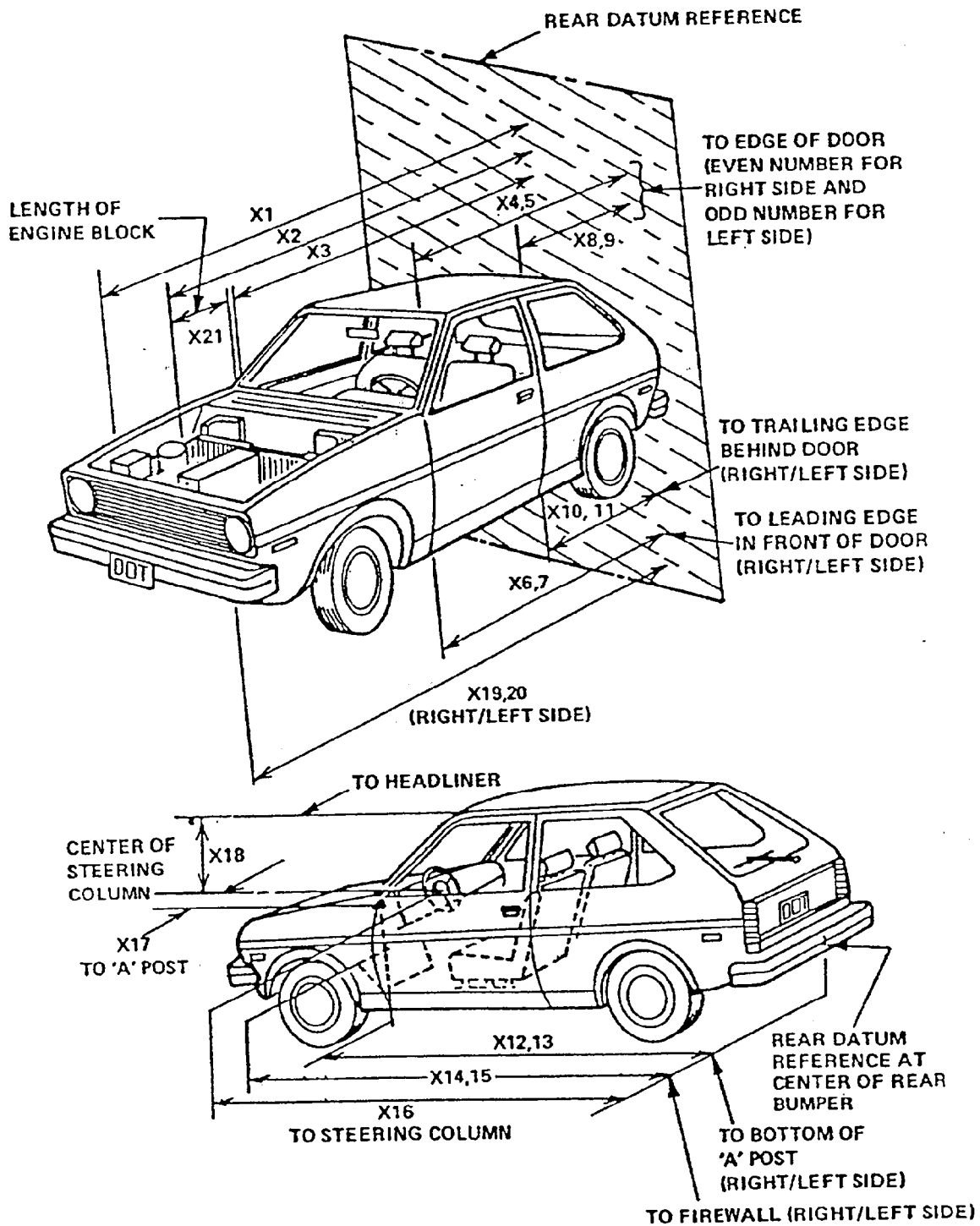
All dimensions in mm

DATA TABLE No. 9
TEST VEHICLE MEASUREMENTS

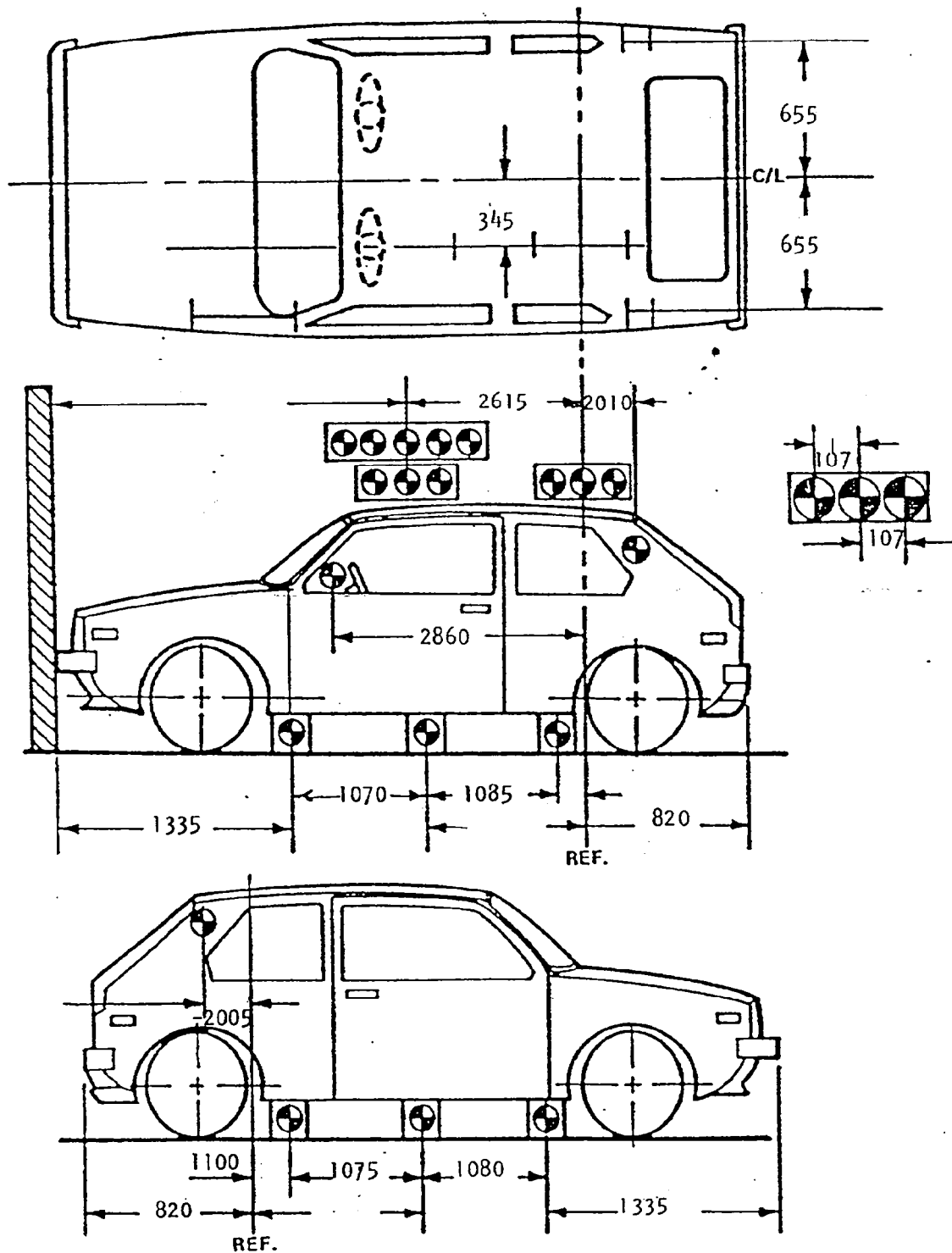
No.	Measurement Description	Pretest	Posttest	Change
1	Length of test vehicle at centerline	5410	4815	595
2	Rear surface of vehicle to front of engine	4860	4510	350
3	Rear of vehicle to firewall centerline	4260	4064	196
4	Rear to upper leading edge of right door	3490	3505	-15
5	Rear to upper leading edge of left door	3485	3420	65
6	Rear to lower leading edge of right door	3930	3910	20
7	Rear to lower leading edge of left door	3940	3910	30
8	Rear to upper trailing edge of right door	2885	2905	-20
9	Rear to upper trailing edge of left door	2885	2845	40
10	Rear to lower trailing edge of right door	2845	2845	0
11	Rear to lower trailing edge of left door	2850	2840	10
12	Rear to bottom of right 'A' pillar	4000	3990	10
13	Rear to bottom of left 'A' pillar	4020	3980	40
14	Rear surface to firewall on right side	4260	4225	35
15	Rear surface to firewall on left side	4260	4245	15
16	Rear surface to steering column	3465	3400	65
17	Center of steering column to left 'A' pillar	400	415	-15
18	Center of steering column to headlining	510	560	-50
19	Rear surface to right side of front bumper	5235	4740	495
20	Rear surface to left side of front bumper	5235	4740	4985
21	Length of engine block	3705	370	0

All measurements in mm

DATA TABLE No. 9 (Continued)
TEST VEHICLE MEASUREMENTS



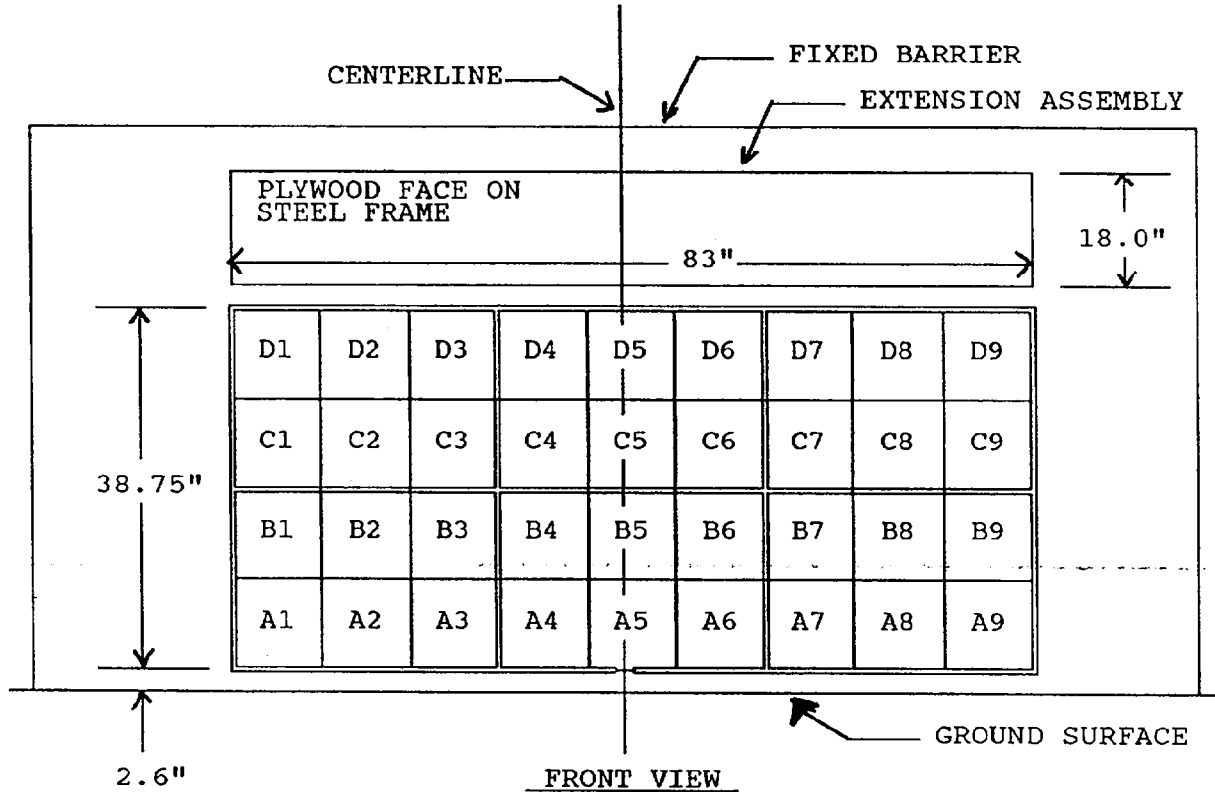
DATA TABLE No. 10
VEHICLE TARGET LOCATIONS



all measurements in mm

DATA TABLE No. 11
LOAD CELL LOCATIONS ON FIXED BARRIER

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



6 GROUPS OF 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

DATA REQUIREMENTS:

- (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)
- (4) Total load vs. vehicle dynamic crush

DATA TABLE No. 12
ACCIDENT INVESTIGATION DIVISION DATA FOR 35 MPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Dodge/Dakota/Pickup

Veh. NHTSA No.: MR0302 ; VIN: 1B7GL26X5RS541374

Model Year: 1994 ; Build Date: 11/93 ; Test Date: 02/10/94

Veh. Size Category: N/A ; Test Weight: 2057 kg

Veh. Wheelbase: 3145 mm ; Front Overhang: 850 mm ; Overall Width: 1822 mm

ACCELEROMETER DATA:

Location: Left and right side passenger compartment

Calibration Procedure: 6 months / Drop test

Linearity: Good ; Integration Algorithm: NHTSA Standard

Veh. Impact Speed: 56.20 km/h ; Time of separation: 95.3 msec

Velocity Change: 65.4 km/h (Left) ; 63.6 km/h (Right)

Collision Deformation Classification (CDC) Code: F (Frontal)

Crush Depth Dimensions:

C1 = 466 mm

C2 = 607 mm

C3 = 643 mm

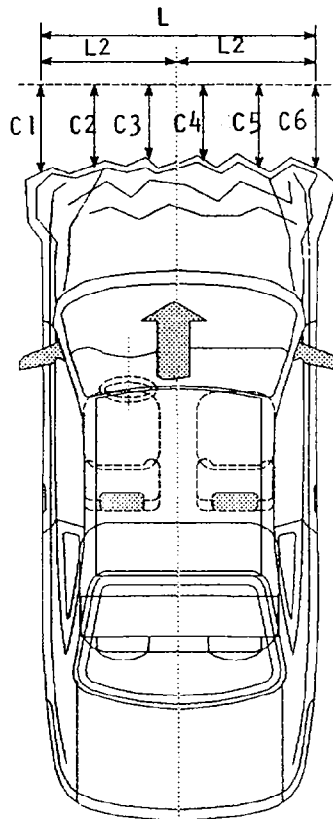
C4 = 640 mm

C5 = 595 mm

C6 = 475 mm

Midpoint of Damage: Vehicle Centerline

Length of Damaged Region: L = 1650 mm



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SECTION 4

SUMMARY OF RESULTS FOR:

FMVSS 212, "Windshield Mounting"
FMVSS 219, "Windshield Zone Intrusion"
FMVSS 301-75, "Fuel System Integrity"

DATA TABLE No. 13
FMVSS No. 212, WINDSHIELD MOUNTING

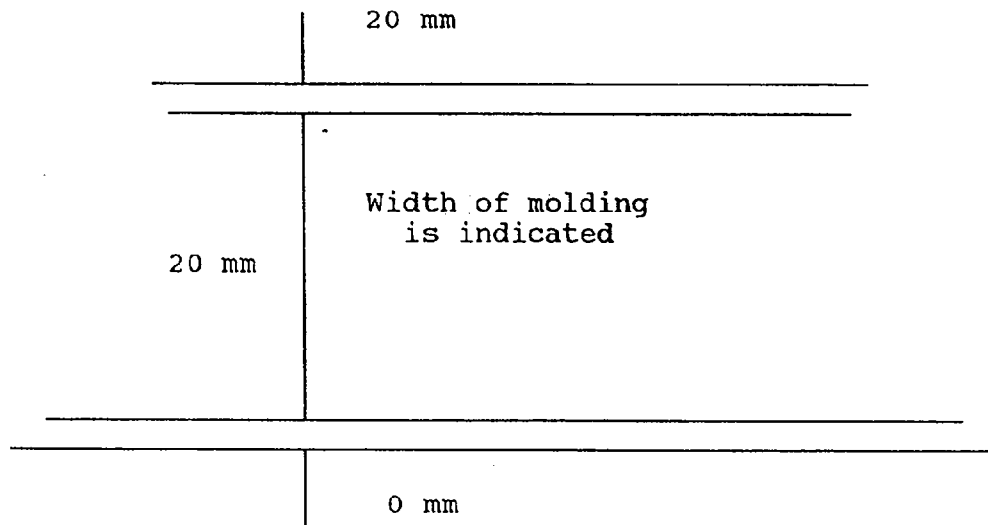
Details of windshield mounting: Glass is secured to the vehicle frame with a rubber type adhesive with rubber molding along the top and sides and rubber and plastic molding along the bottom.

FMVSS 212 Requirements: The post-test periphery retention amount must be at least 75% of the pretest 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 Retention		
	Pretest (mm)	Posttest (mm)	Percent Retention
Right Side	2000	2000	100
Left Side	2000	2000	100
Total	4000	4000	100

AREA OF RETENTION FAILURE:



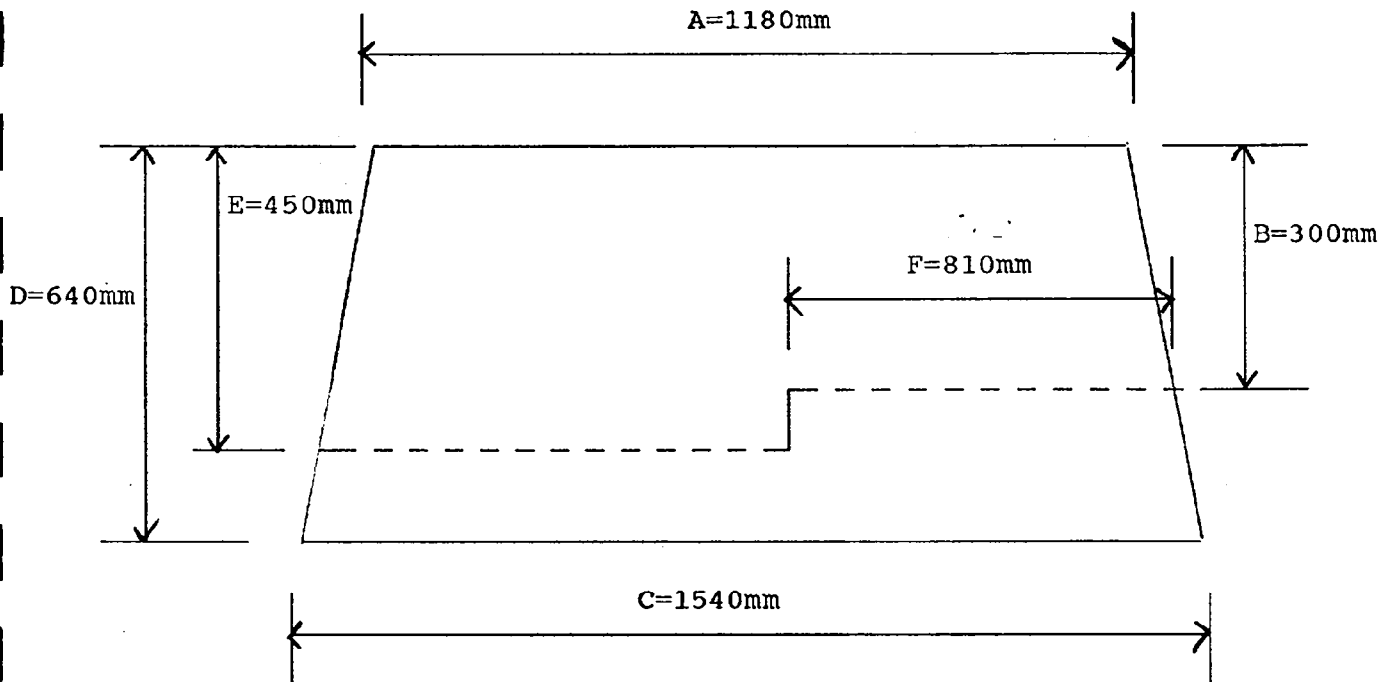
FAILURE DETAILS: None

DATA TABLE No. 14
FMVSS No. 219 WINDSHIELD ZONE INTRUSION

PROTECTED ZONE LOWER EDGE REQUIREMENT

The lower edge of the protected zone is determined by placing a 6.5 inch diameter rigid sphere weighing 15 pounds in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. Draw the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield and then draw a line on the inner surface of the windshield below and 1/2 inch distant from the locus line. The lower edge of the protected zone is the longitudinal projection onto the outer surface of the windshield of this line.

FMVSS 219 TEST DATA:



DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4": None
(Location shown on above sketch)

Data Table No. 15
FMVSS No. 301-75, Fuel System Integrity

VEH. YEAR/MAKE/MODEL/BODY STYLE: 19 94/Dodge/Dakota/Pickup

VEH. NHTSA NO.: MR0302 TEST DATE: 02/10/94

USABLE CAPACITY OF VEHICLE'S FUEL TANK: 83 Liters (furnished by Mfr.)

TEST REQUIREMENTS:

Vehicle's engine operated to "run dry" condition and a small amount of Stoddard solvent, dyed red, was added to the vehicle's fuel tank. Fuel pump was operated to fill the fuel system ahead of the fuel tank, then added 92% to 94% of the stated usable capacity to the fuel tank.

AMOUNT OF STODDARD SOLVENT ADDED TO THE VEHICLE'S FUEL TANK:

77.6 Liters, which is 93.5% of the stated usable capacity

SOLVENT SPILLAGE MEASUREMENT AFTER 35 MPH FRONTAL BARRIER IMPACT TEST:

	Actual	Max. Allowed
From impact until vehicle motion ceases	<u>0 oz.</u>	1 oz.
For 5 min. period after vehicle motion ceases	<u>0 oz.</u>	5 oz.
For next 25 min. at barrier face	<u>0 oz.</u>	1 oz./min.

SOLVENT SPILLAGE DETAILS: None

STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. range = 1 to 3 min)

Time reqd. for machine to rotate 90°	<u>1</u> minutes, <u>20</u> seconds
FMVSS 301-75 position hold time	<u>5</u> minutes, <u>00</u> seconds
Total	<u>6</u> minutes, <u>20</u> seconds
Next whole minute interval	<u>7</u> minutes

VEHICLE STATIC ROLLOVER DATA:

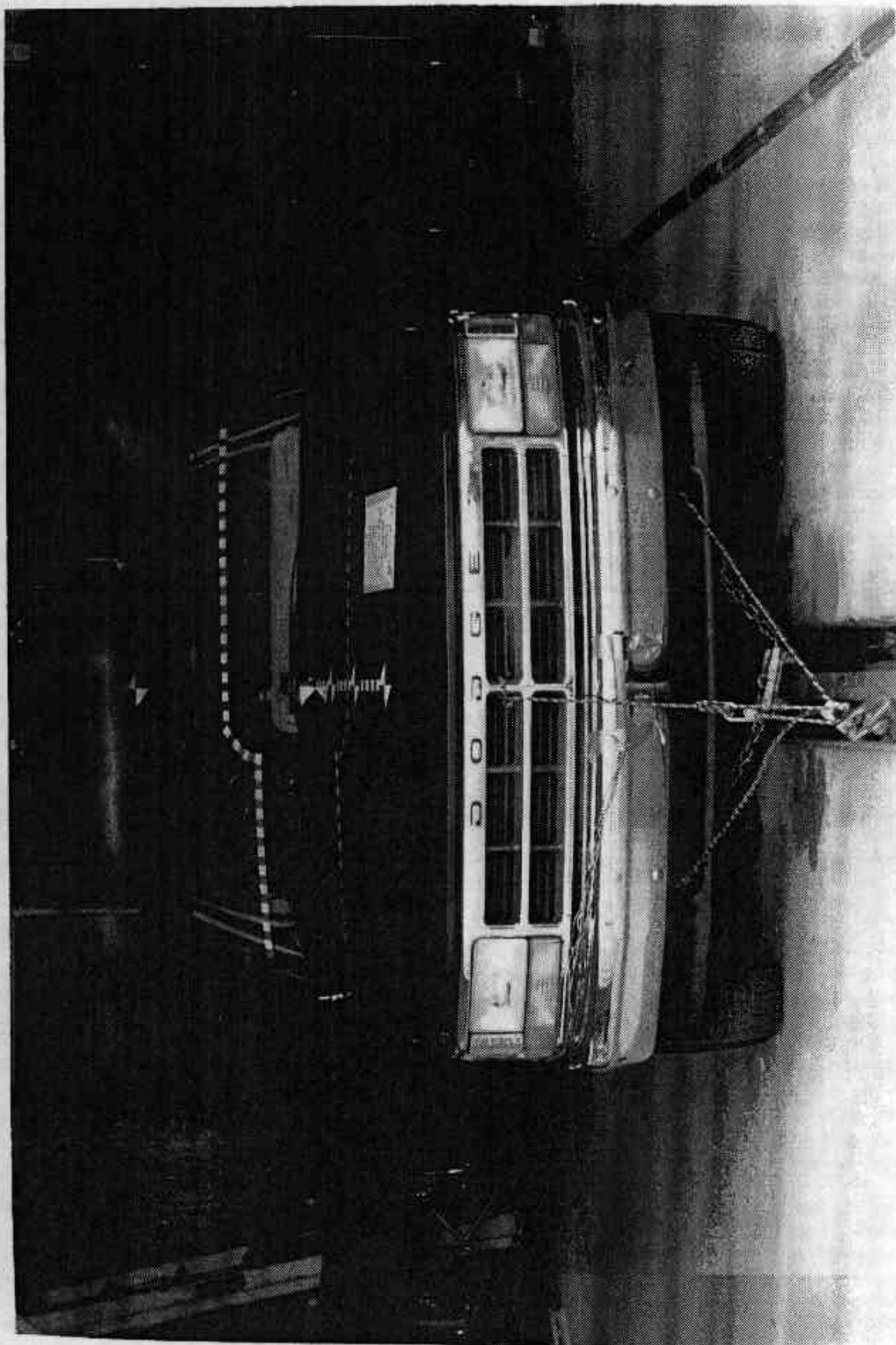
	1st 5 Min.	6th min.	7th min.	8th min.
Max allowable solvent spillage	5 oz.	1 oz.	1 oz.	1 oz.
0° to 90° (filler cap down)	0 oz.	0 oz.	0 oz.	N/A
90° to 180°	0 oz.	0 oz.	0 oz.	N/A
180° to 270°	0 oz.	0 oz.	0 oz.	N/A
270° to 360°	0 oz.	0 oz.	0 oz.	N/A

SOLVENT SPILLAGE LOCATIONS: None

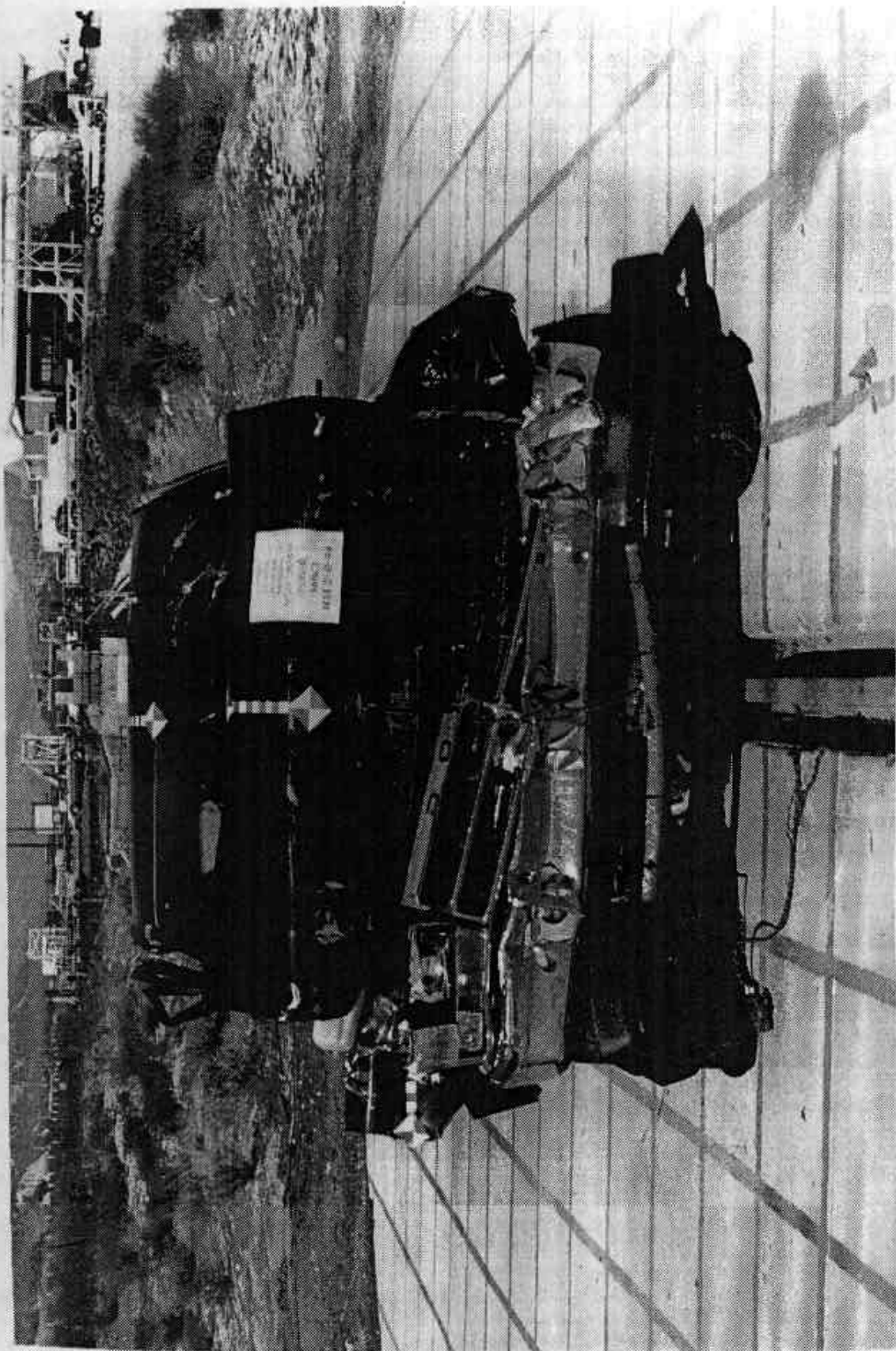
APPENDIX A

PHOTOGRAPHS

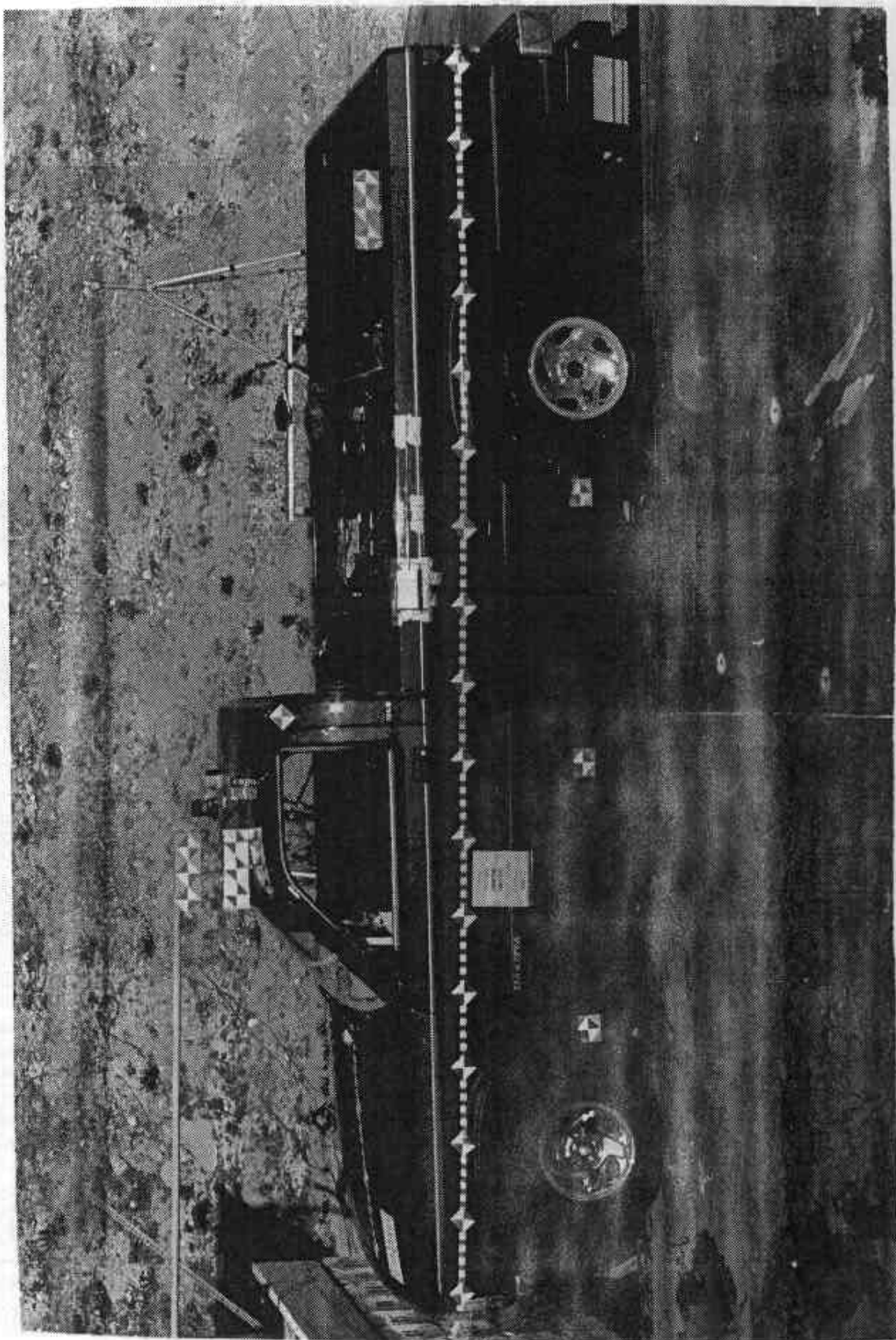
Pretest Front View
Posttest Front View
Pretest Left Side View
Posttest Left Side View
Pretest Right Side View
Posttest Right Side View
Pretest Right Front 3/4 View
Posttest Right Front 3/4 View
Pretest Left Rear 3/4 View
Posttest Left Rear 3/4 View
Pretest Windshield View
Posttest Windshield View
Pretest Engine Compartment View
Posttest Engine Compartment View
Pretest Front Underbody View
Posttest Front Underbody View
Pretest Rear Underbody View
Posttest Rear Underbody View
Pretest Driver Dummy Position View
Posttest Driver Dummy Position View
Pretest Passenger Dummy Position View
Posttest Passenger Dummy Position View
Pretest Driver Dummy and Vehicle Interior View (Door Open)
Posttest Driver Dummy and Vehicle Interior View (Door Open)
Pretest Passenger Dummy and Vehicle Interior View (Door Open)
Posttest Passenger Dummy and Vehicle Interior View (Door Open)
Posttest Driver Dummy Knee Contact Area
Posttest Passenger Dummy Knee Contact Area



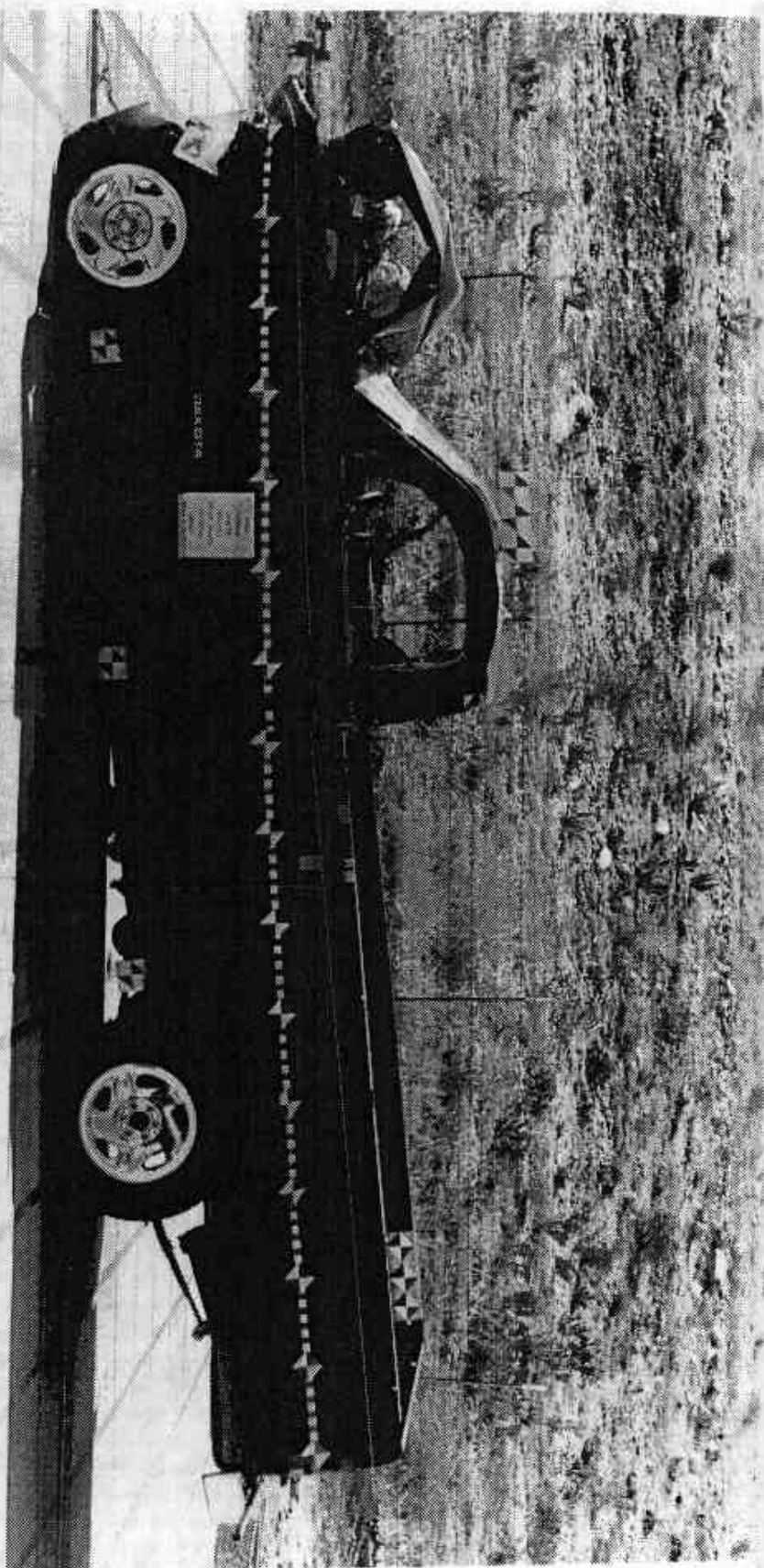
PRETEST FRONT VIEW



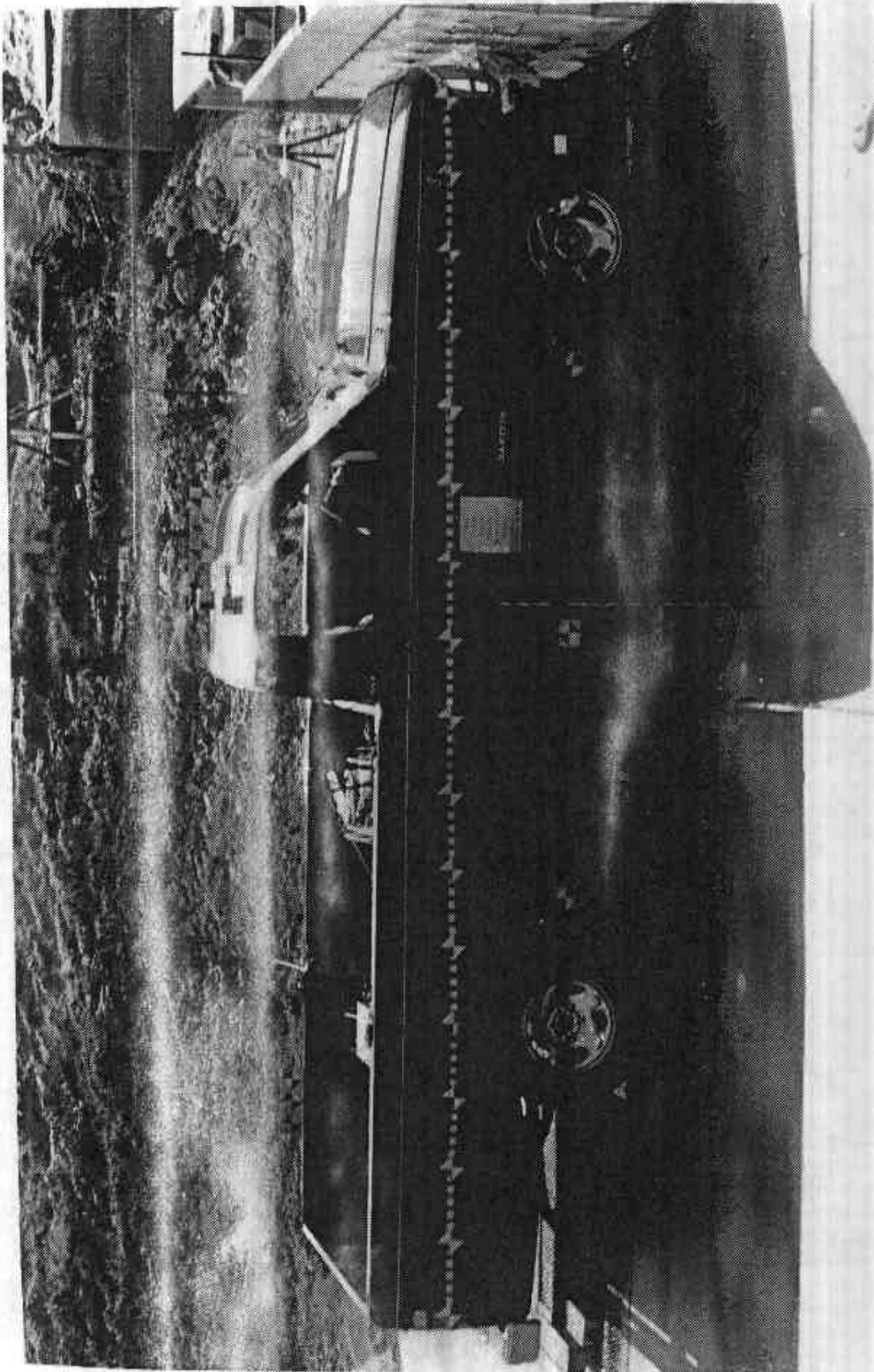
POSTTEST FRONT VIEW



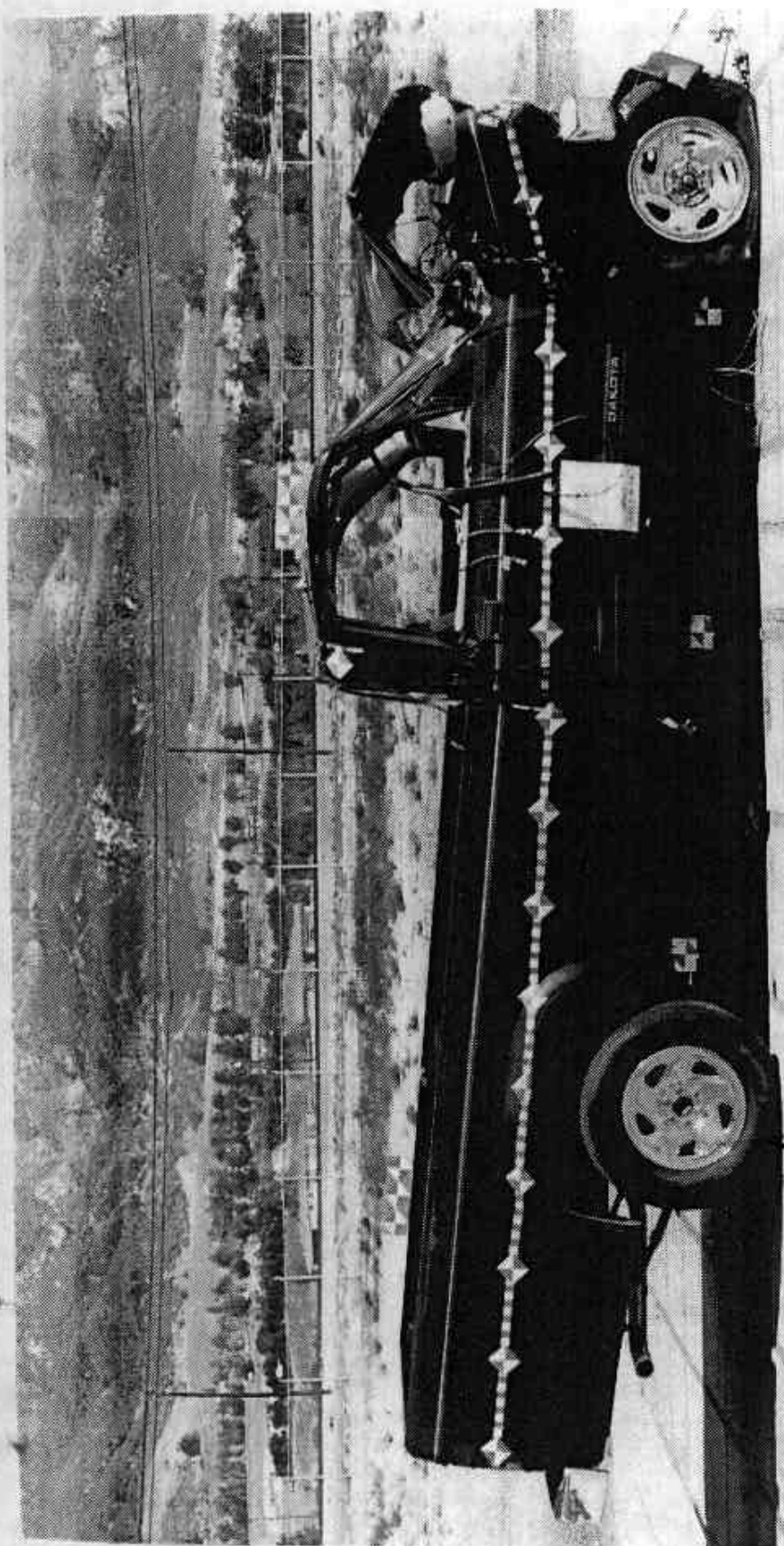
PRETEST LEFT SIDE VIEW



POSTTEST LEFT SIDE VIEW



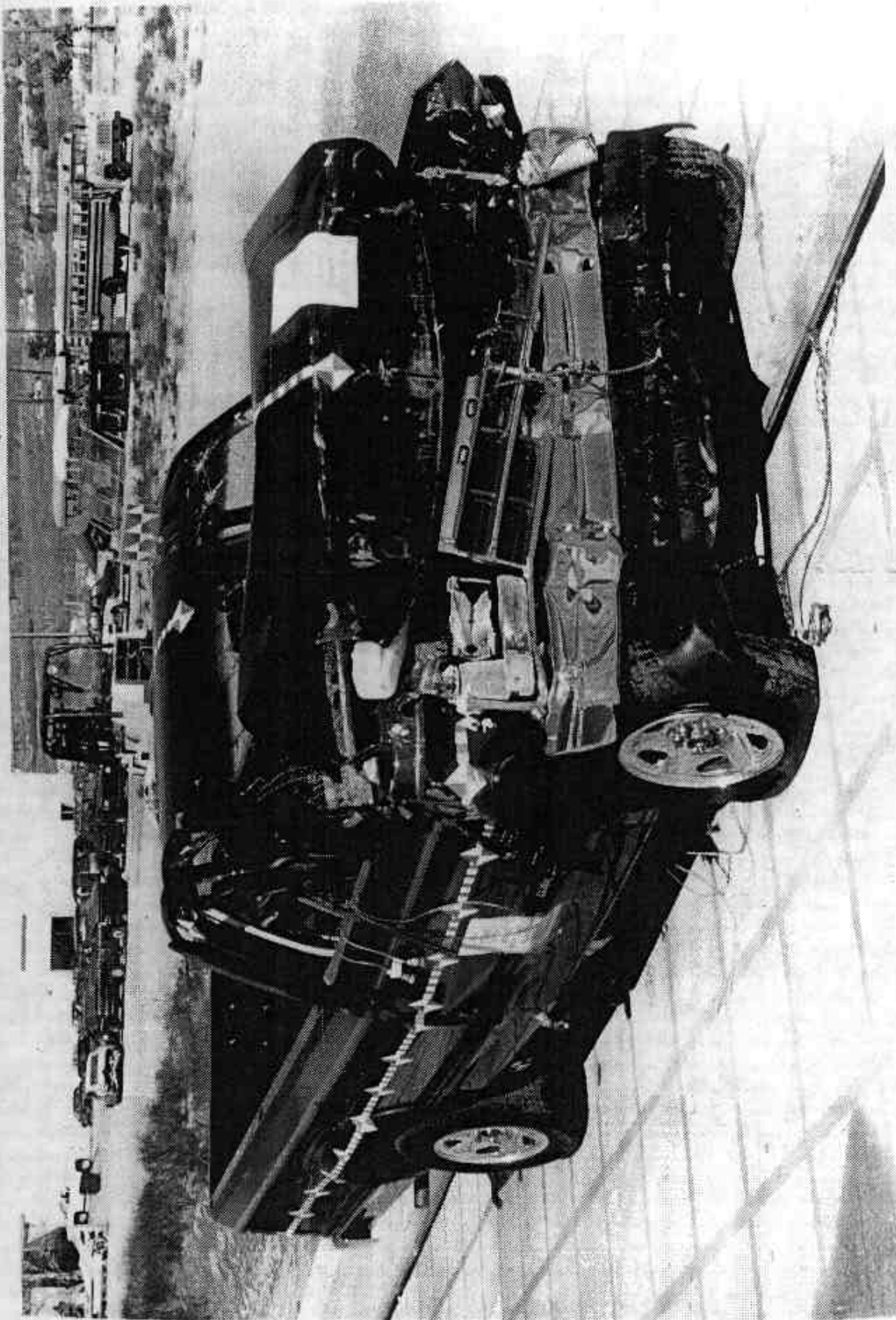
PRETEST RIGHT SIDE VIEW



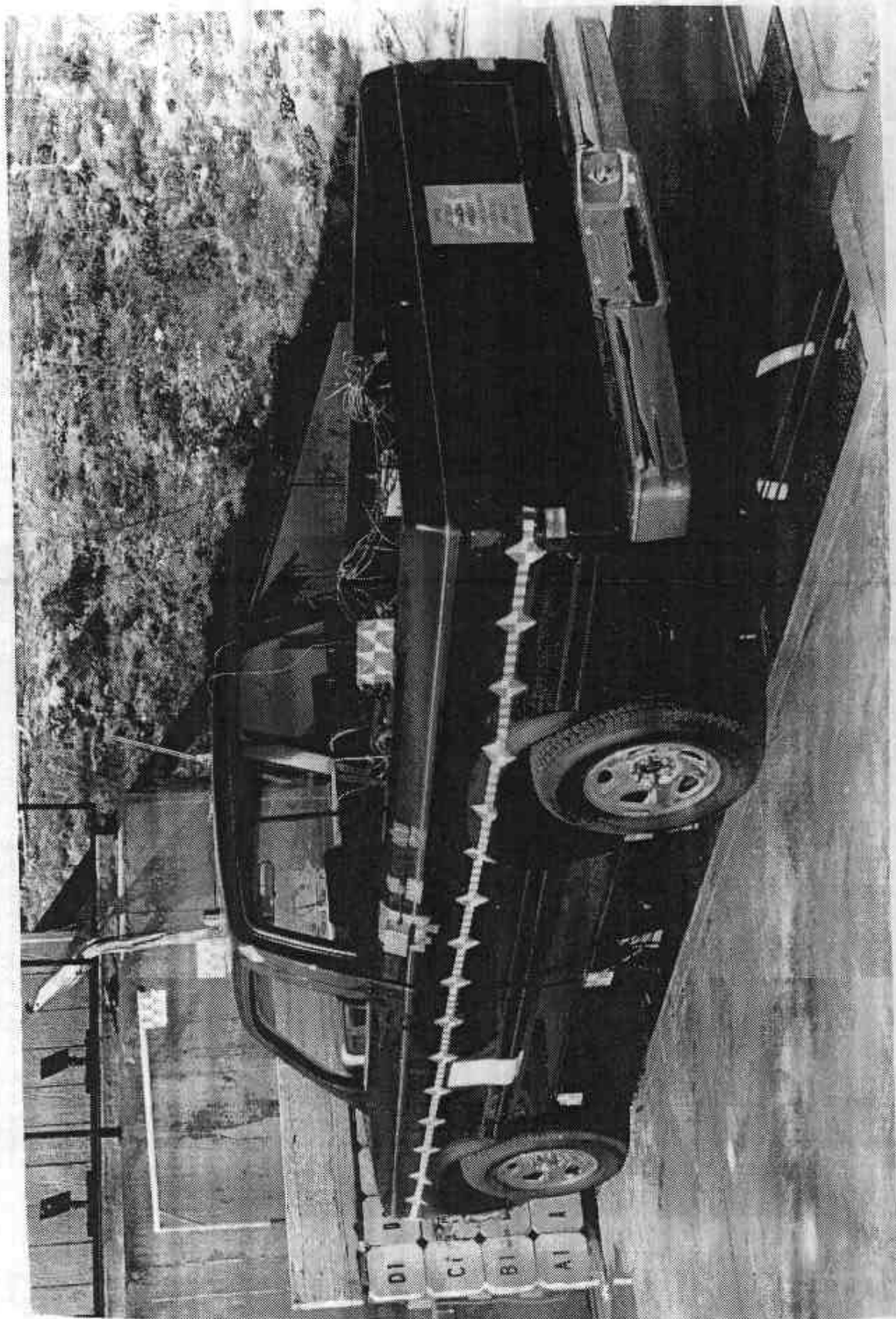
POSTTEST RIGHT SIDE VIEW



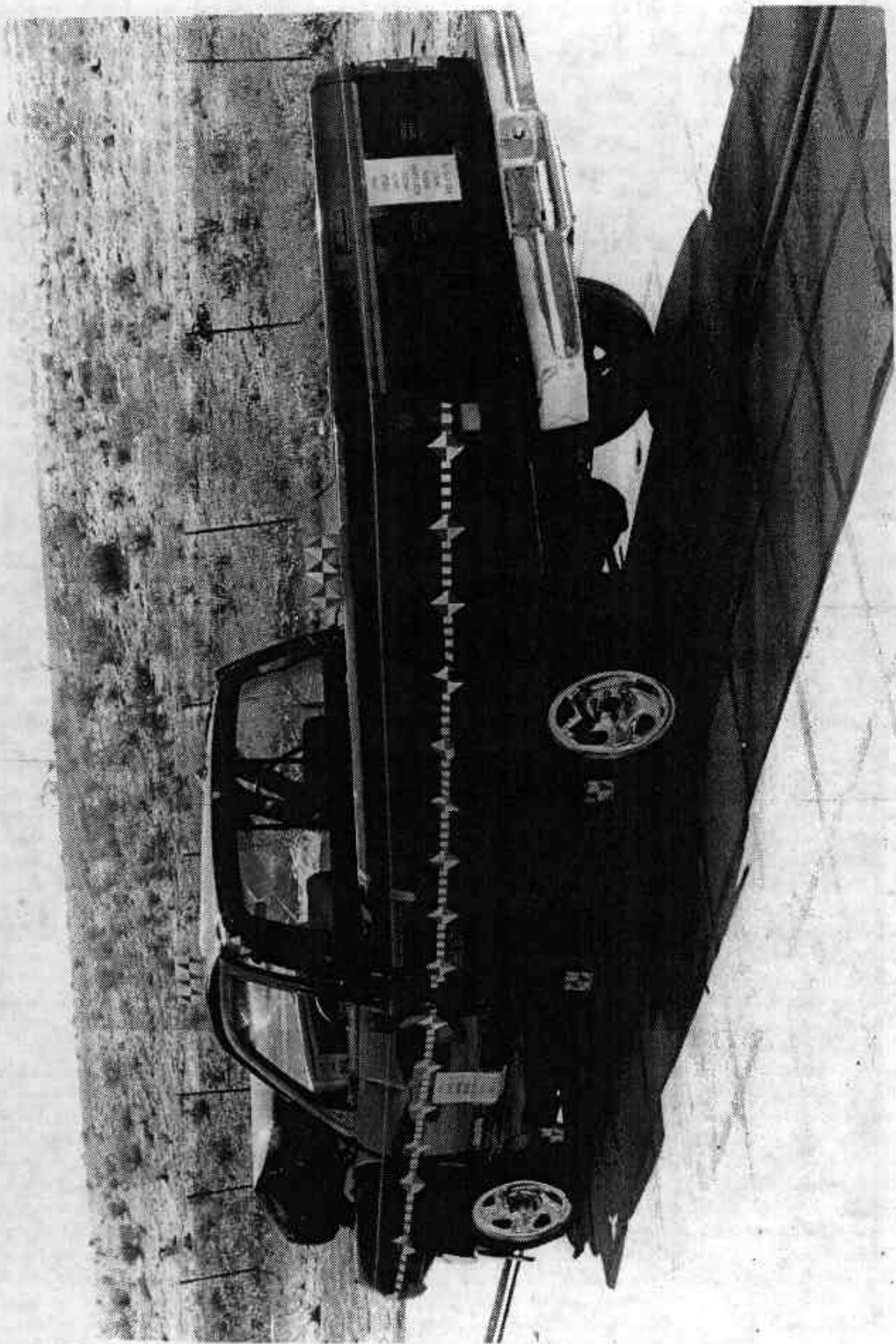
PRETEST RIGHT FRONT 3/4 VIEW



POSTTEST RIGHT FRONT 3/4 VIEW



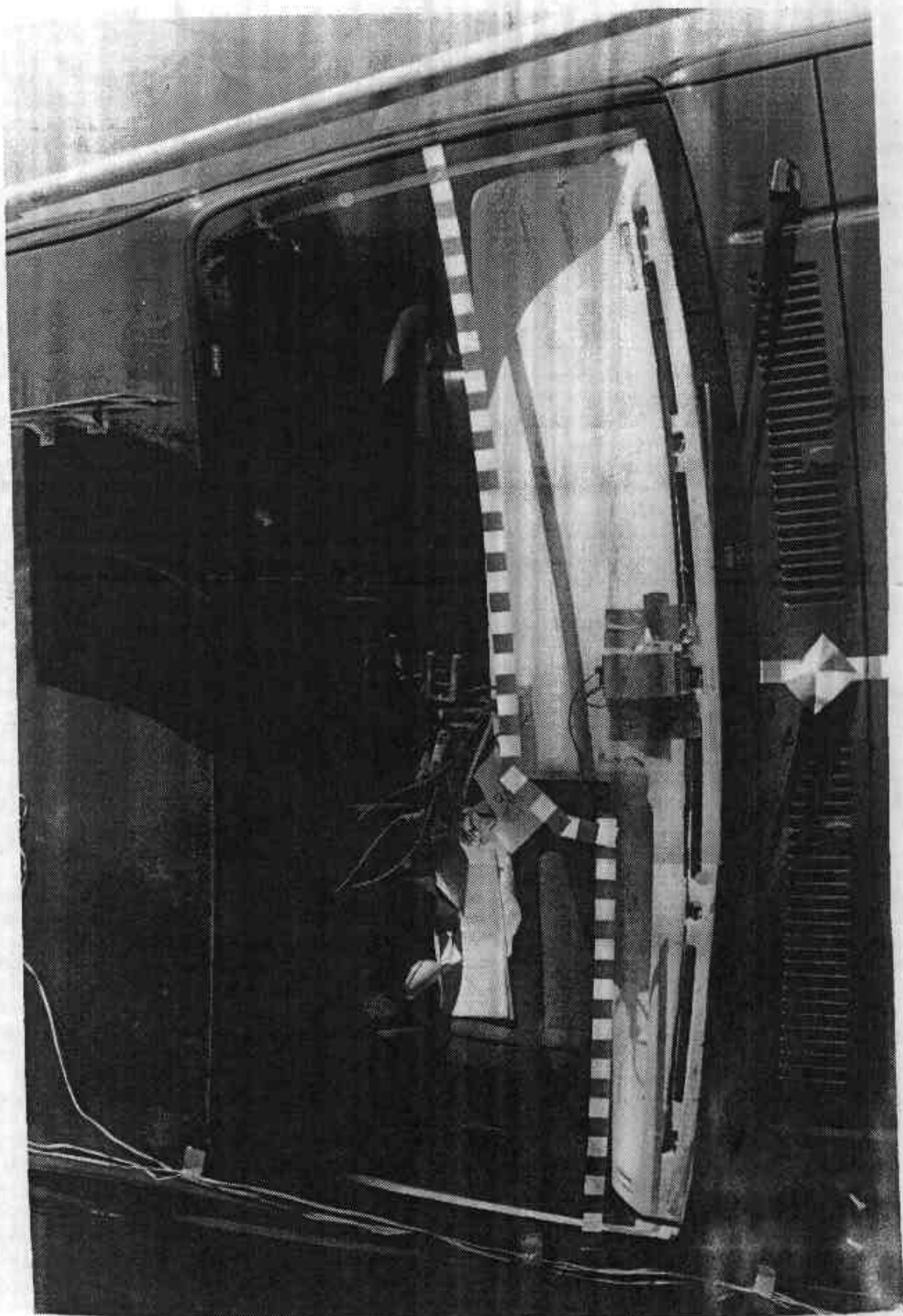
PRETEST LEFT REAR 3/4 VIEW



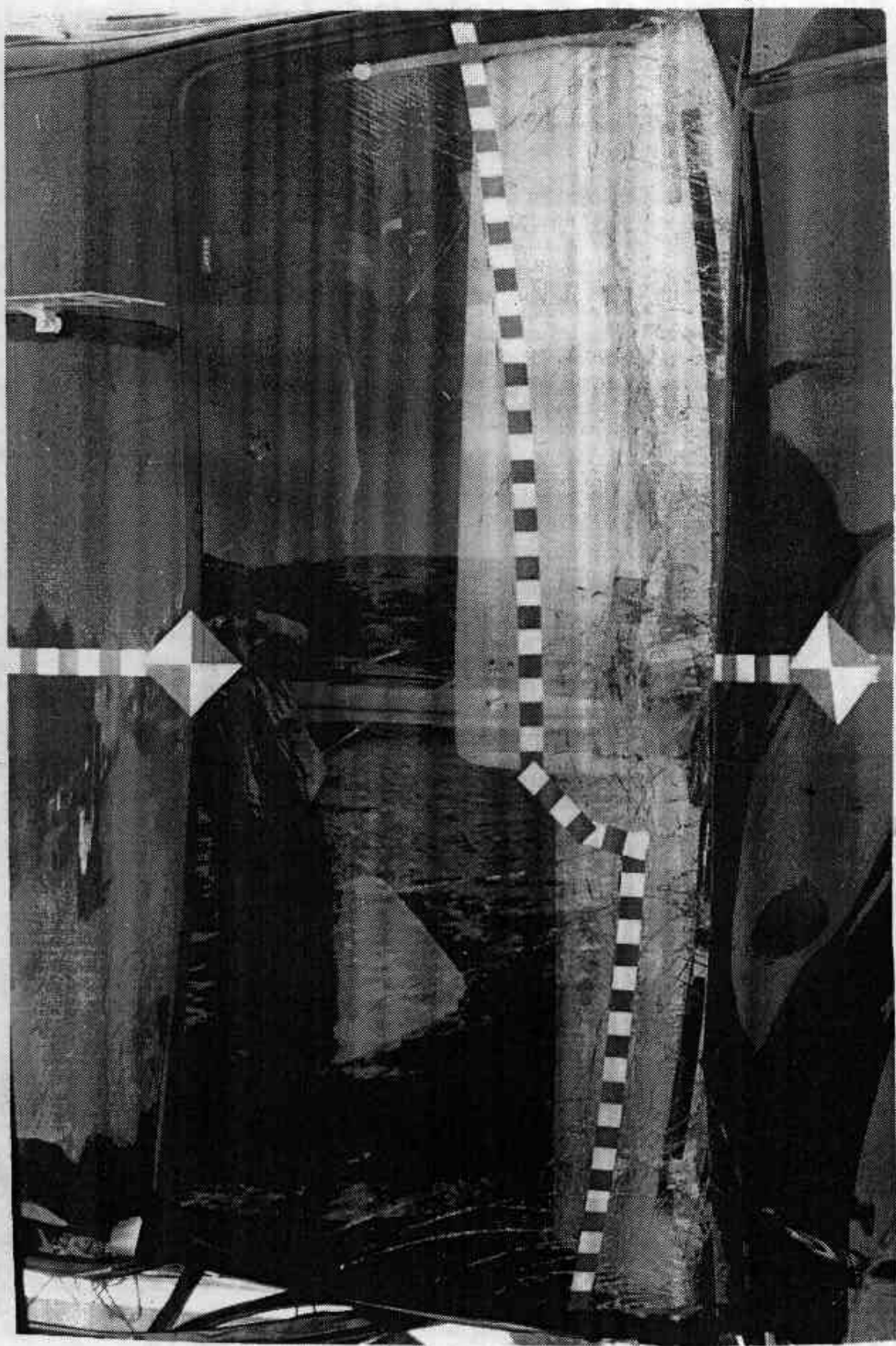
POSTTEST LEFT REAR 3/4 VIEW

A10

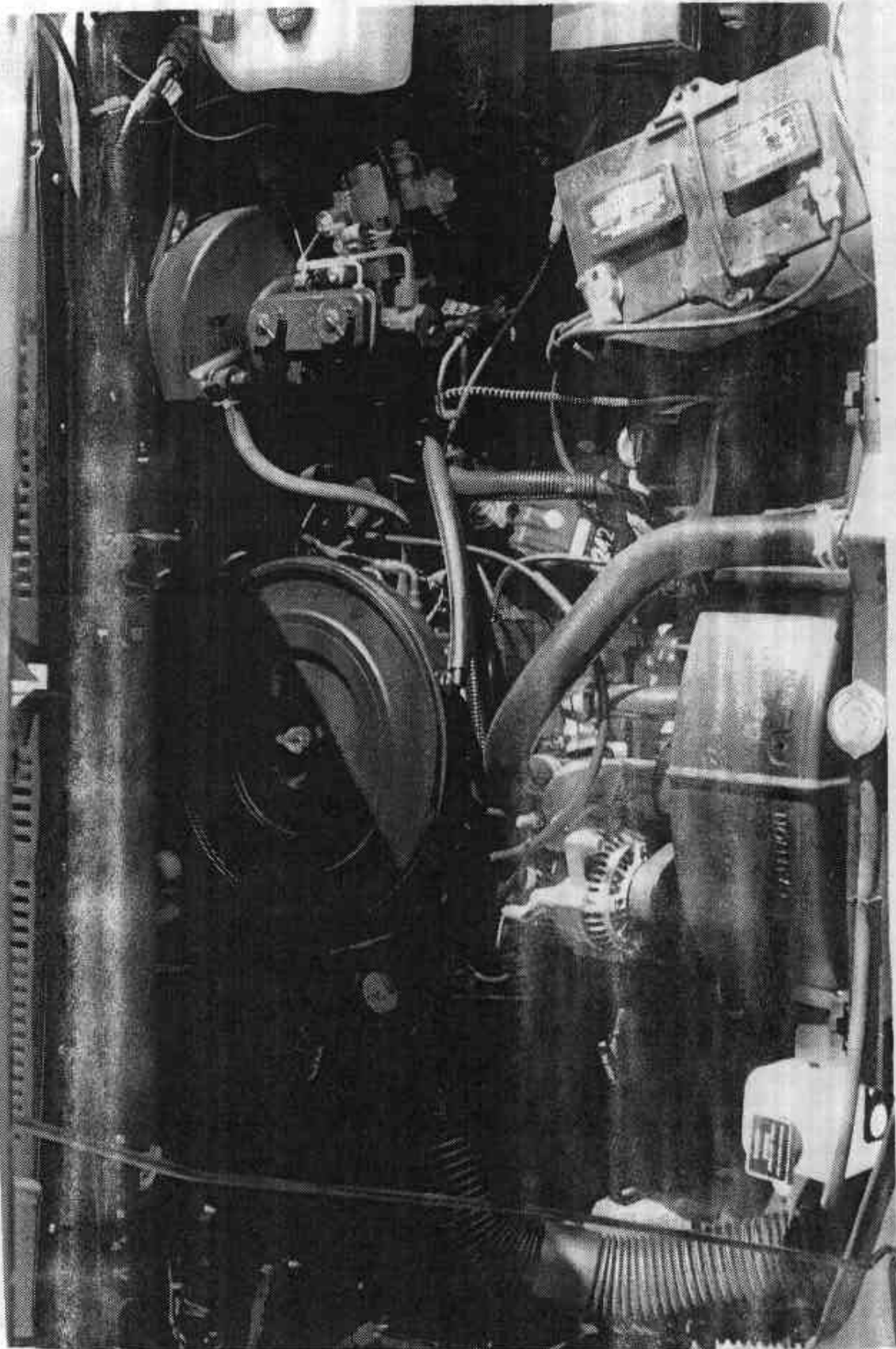
MSE-R93030-02



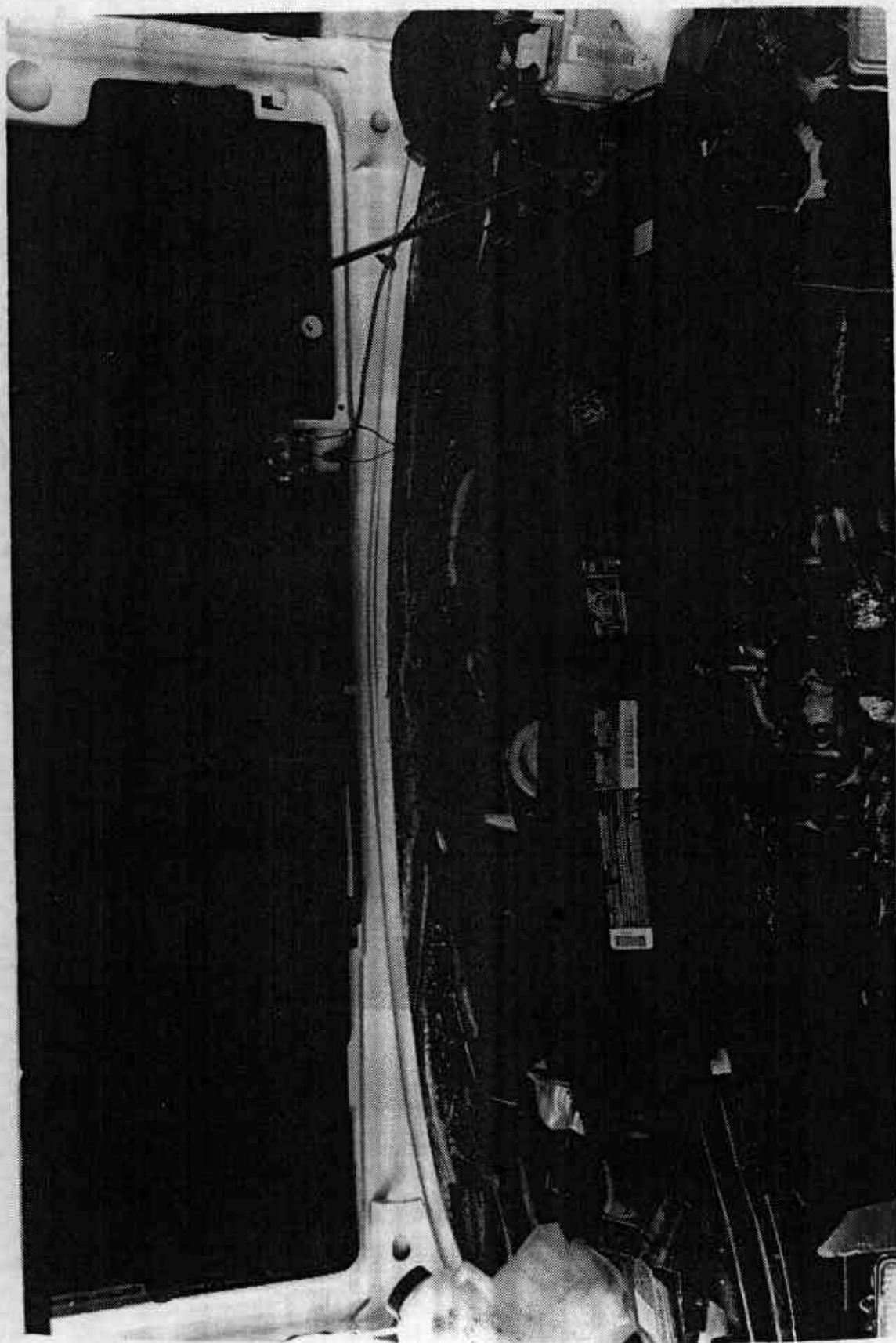
PRETEST WINDSHIELD VIEW



POSTTEST WINDSHIELD VIEW



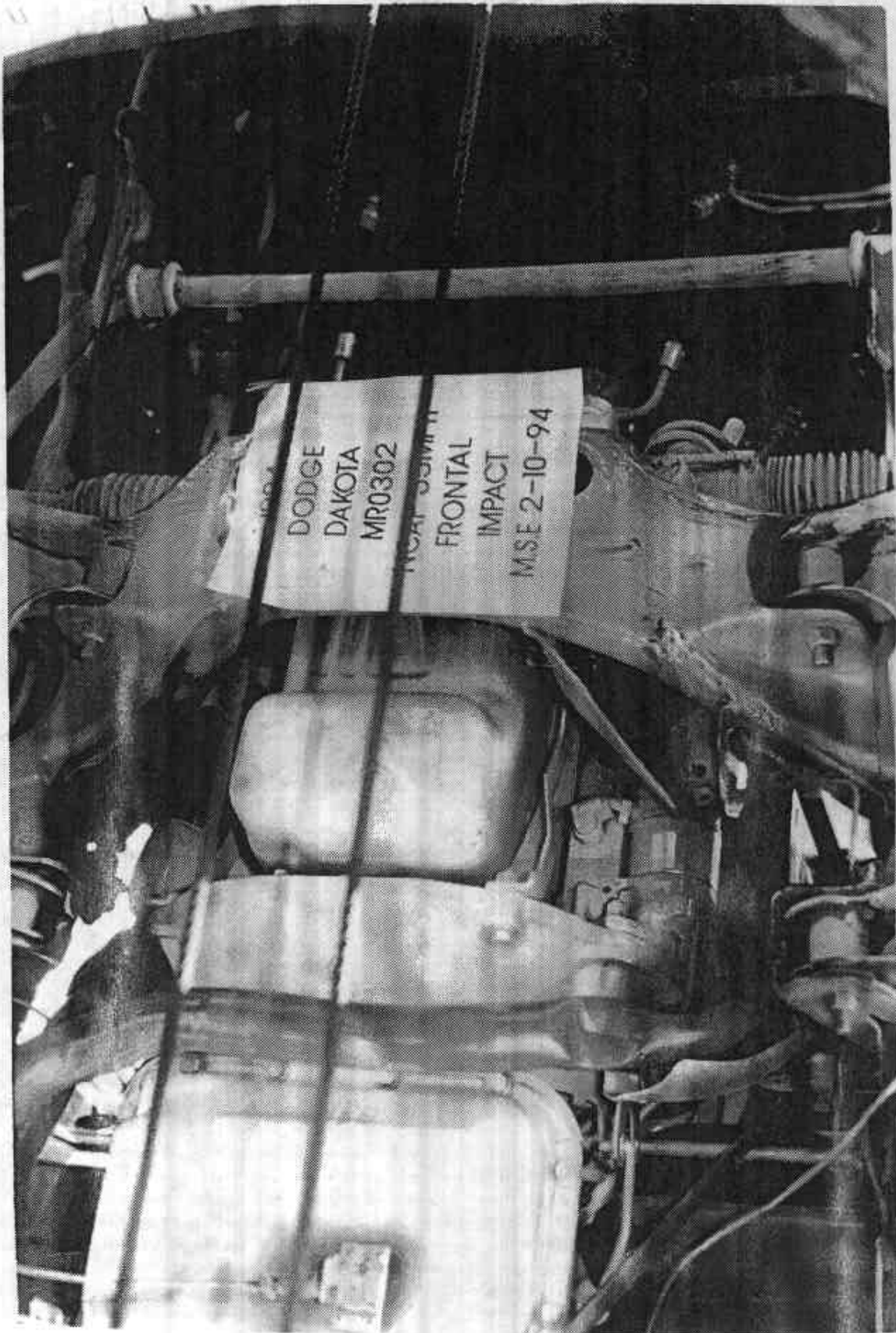
PRETEST ENGINE COMPARTMENT VIEW



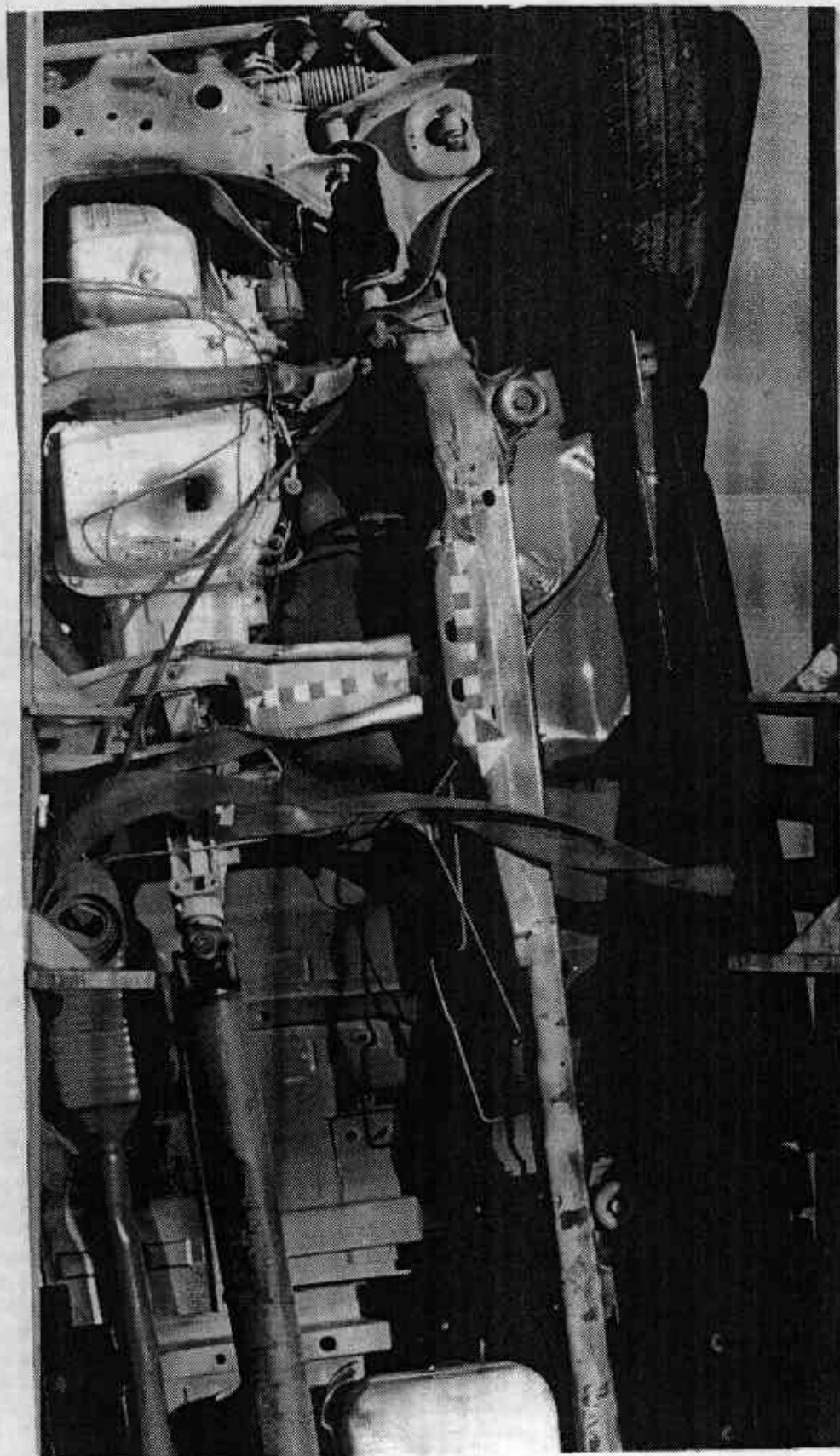
POSTTEST ENGINE COMPARTMENT VIEW

A14

MSE-R93030-02



PRETEST FRONT UNDERBODY VIEW



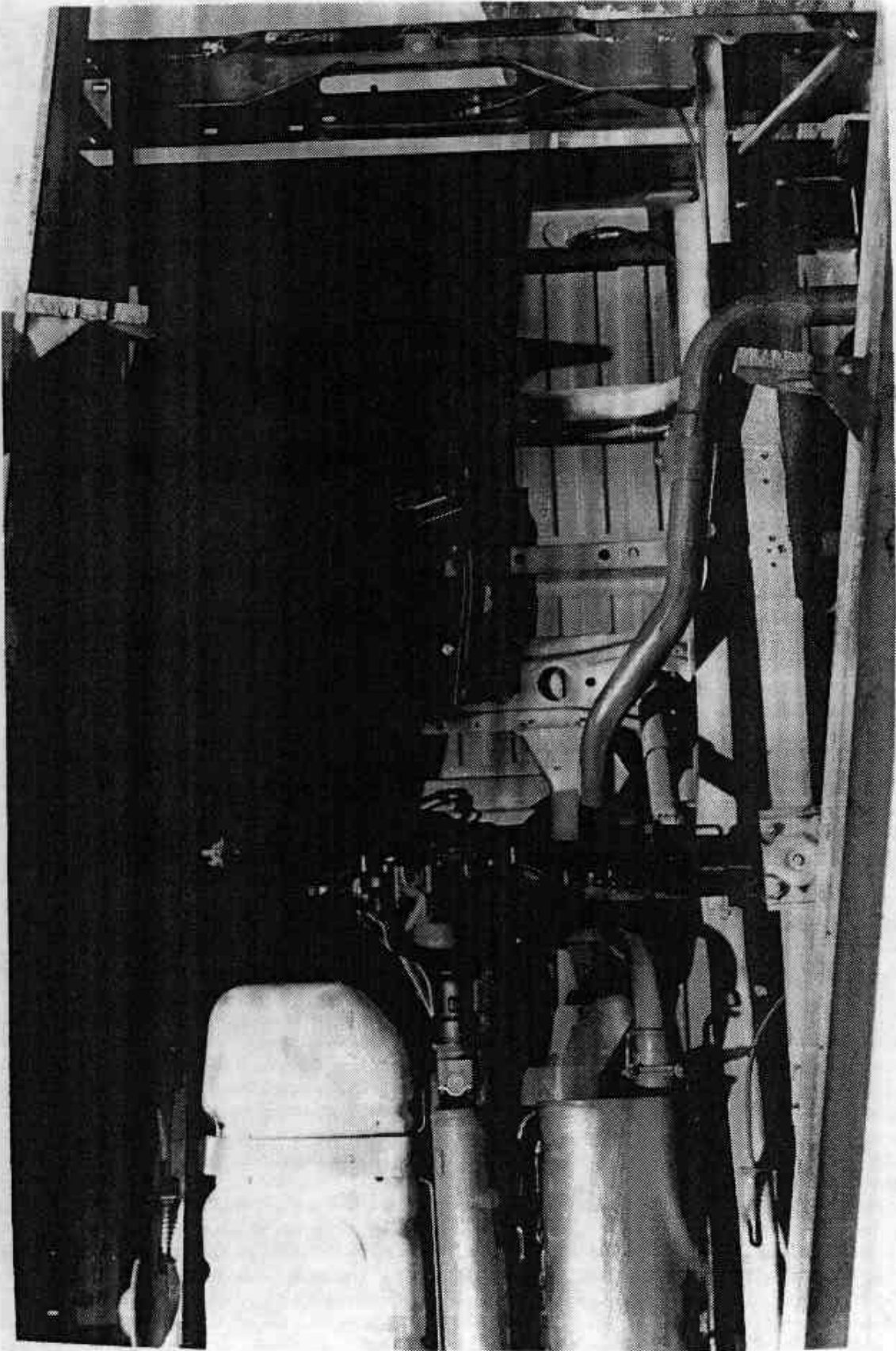
POSTTEST FRONT UNDERBODY VIEW

A16

MSE-R93030-02



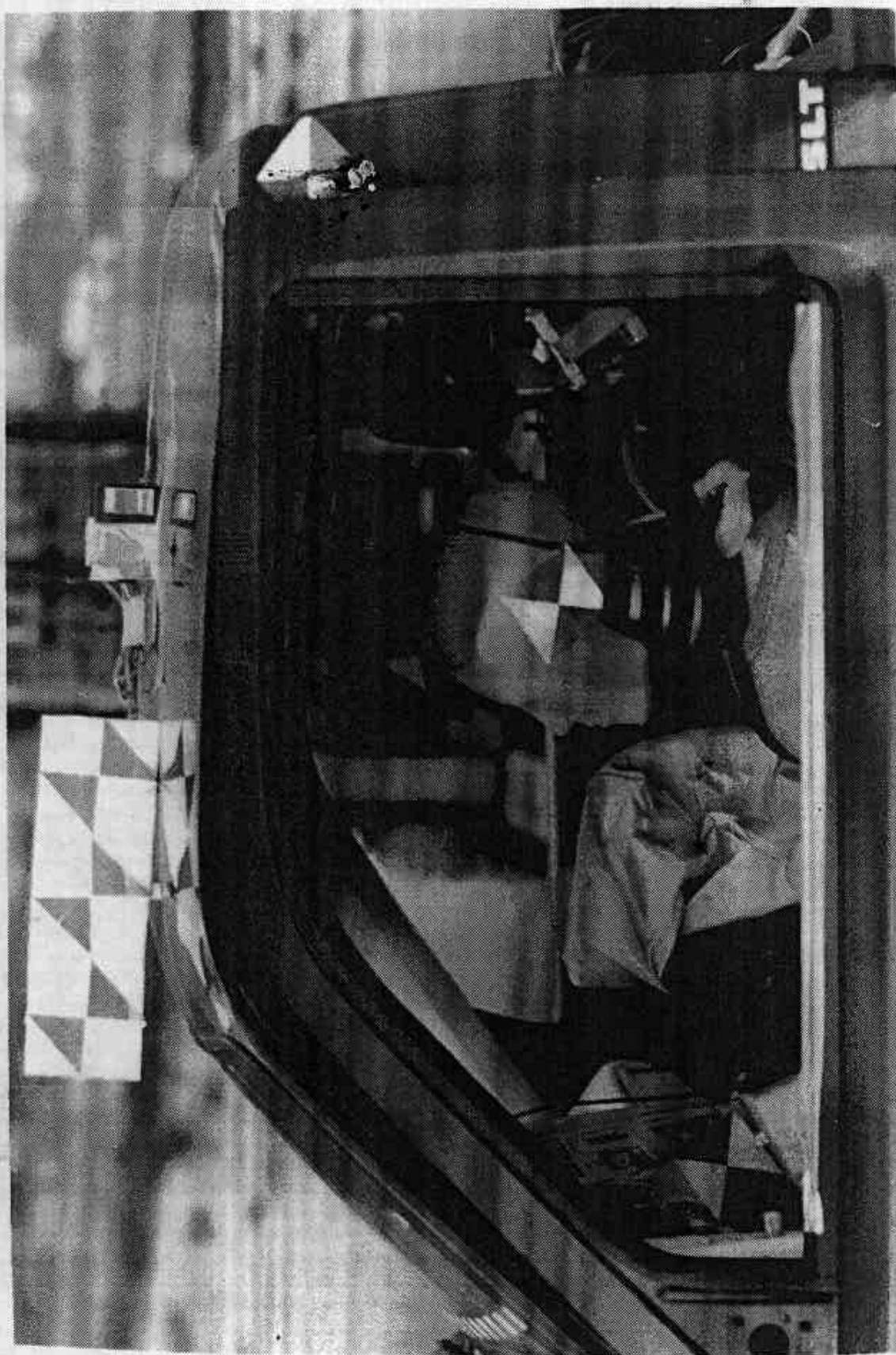
PRETEST REAR UNDERBODY VIEW



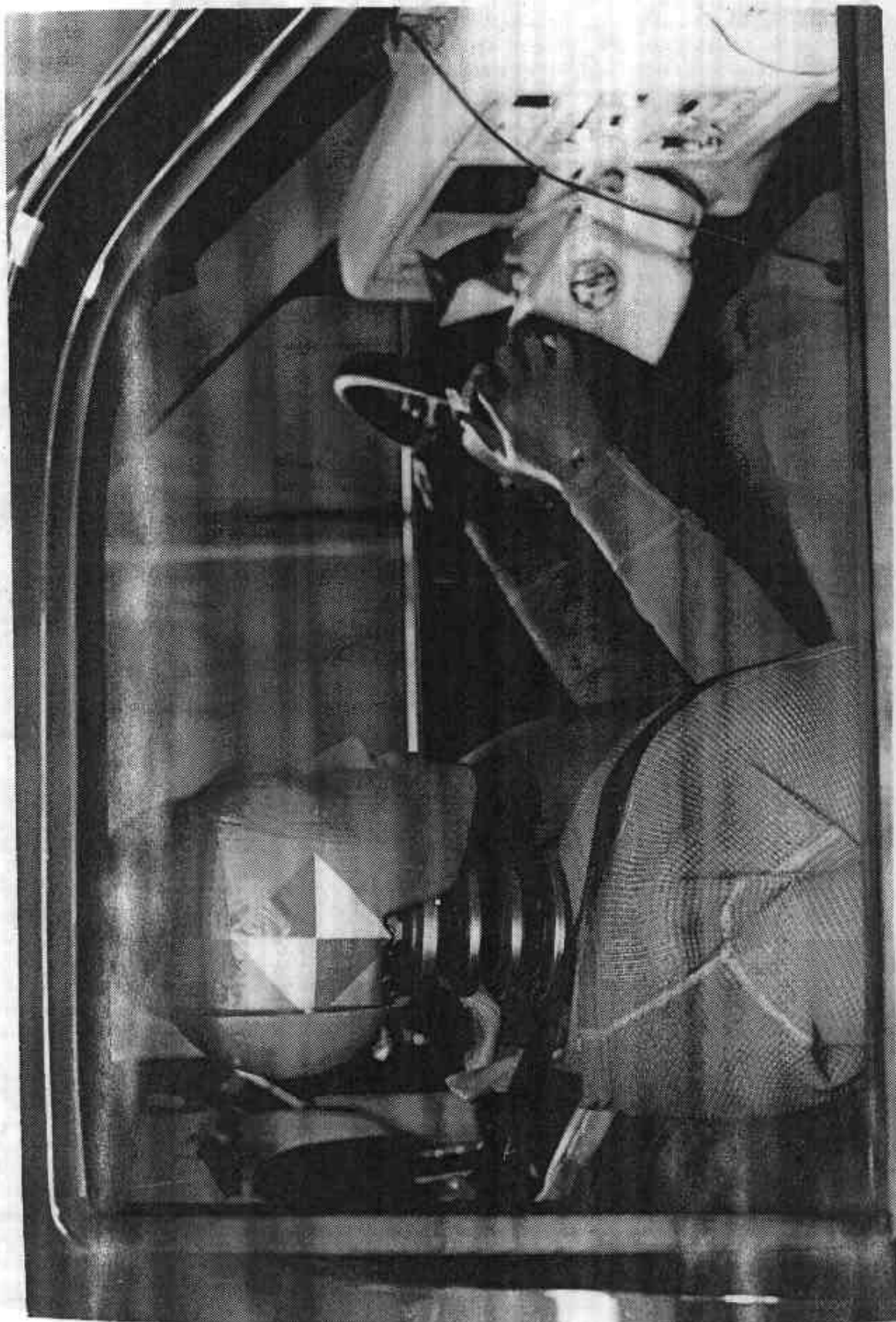
POSTTEST REAR UNDERBODY VIEW



PRETEST DRIVER DUMMY POSITION VIEW



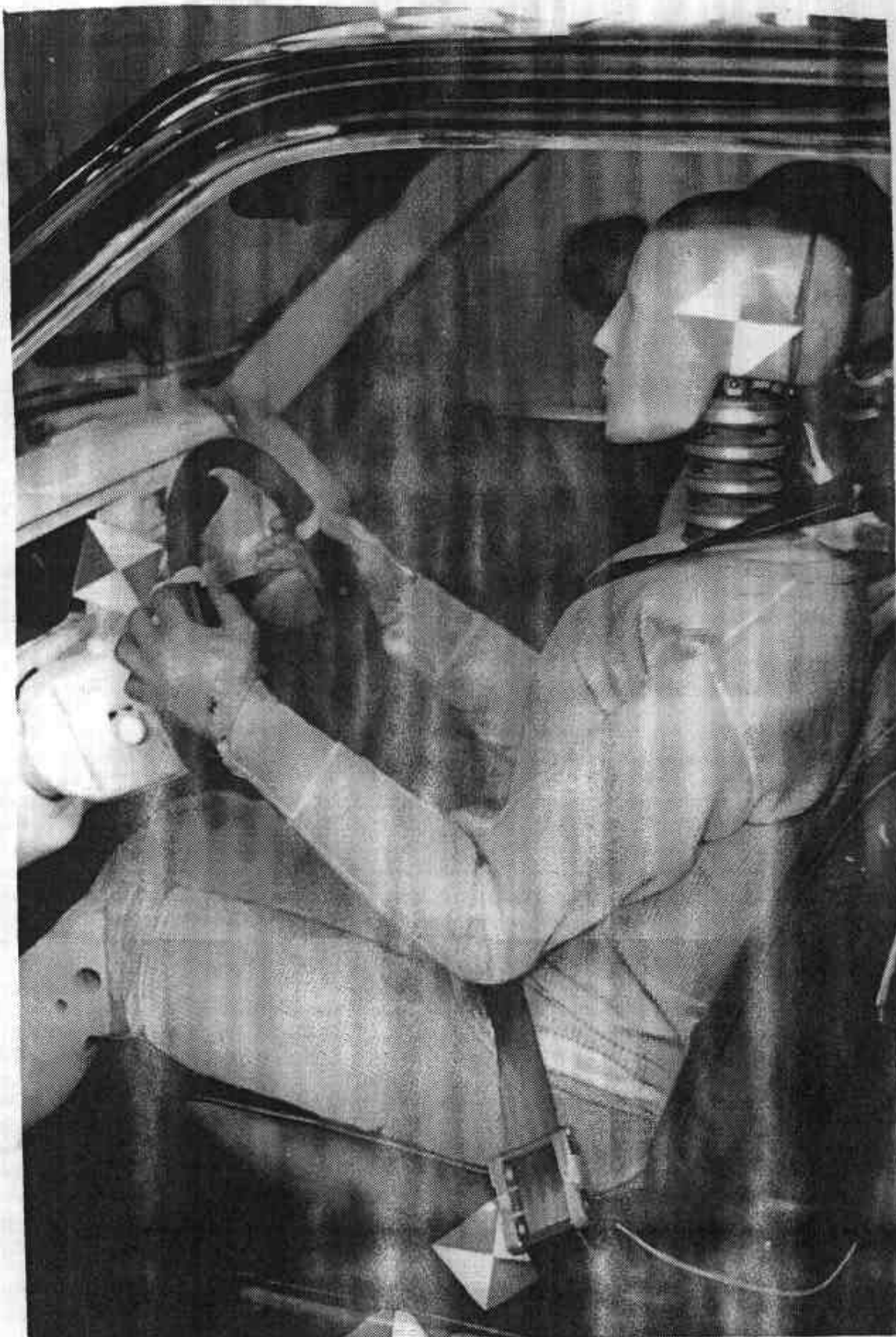
POSTTEST DRIVER DUMMY POSITION VIEW



PRETEST PASSENGER DUMMY POSITION VIEW

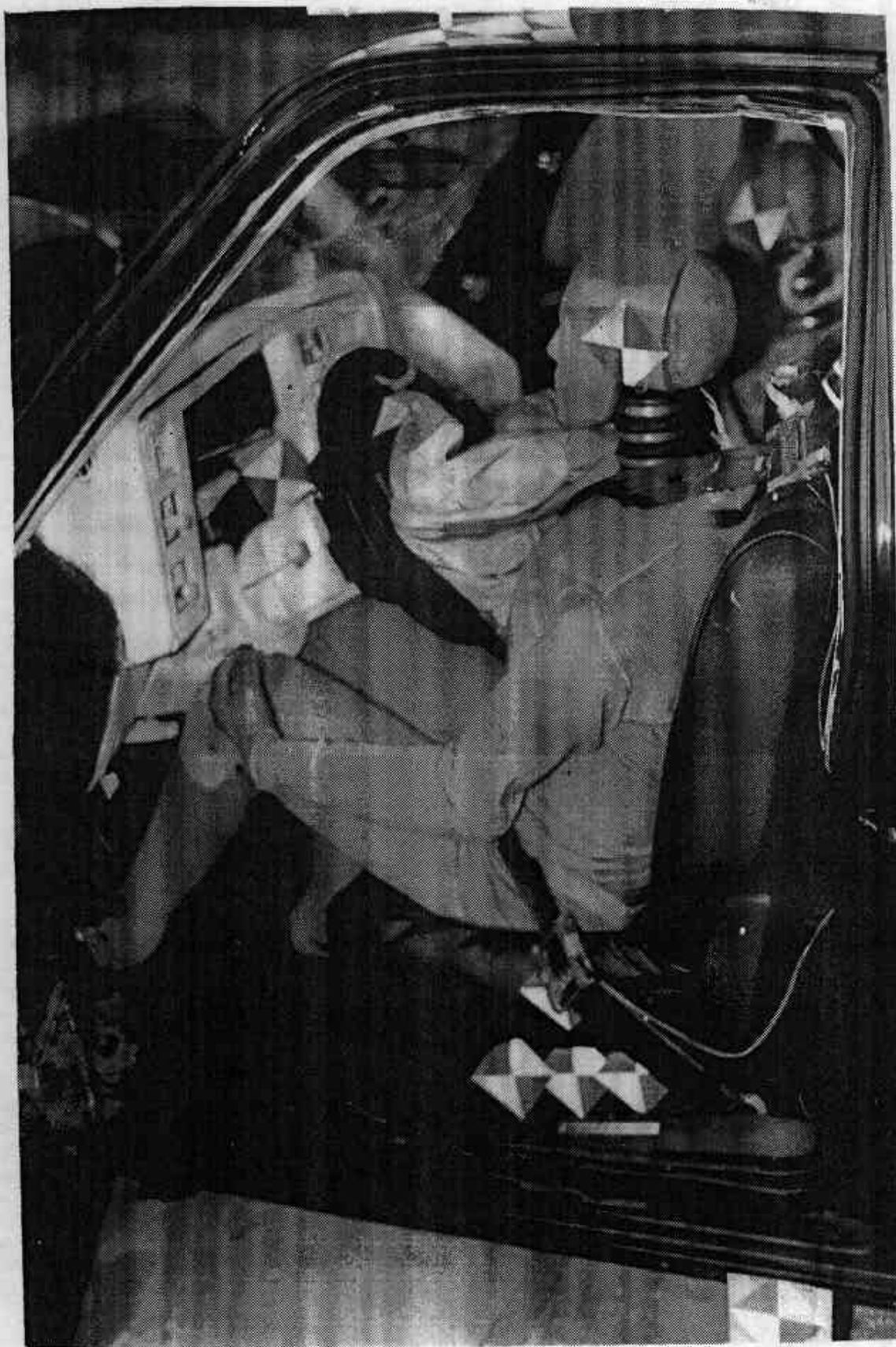


POSTTEST PASSENGER DUMMY POSITION VIEW



PRETEST DRIVER DUMMY AND VEHICLE

INTERIOR VIEW (DOOR OPEN)



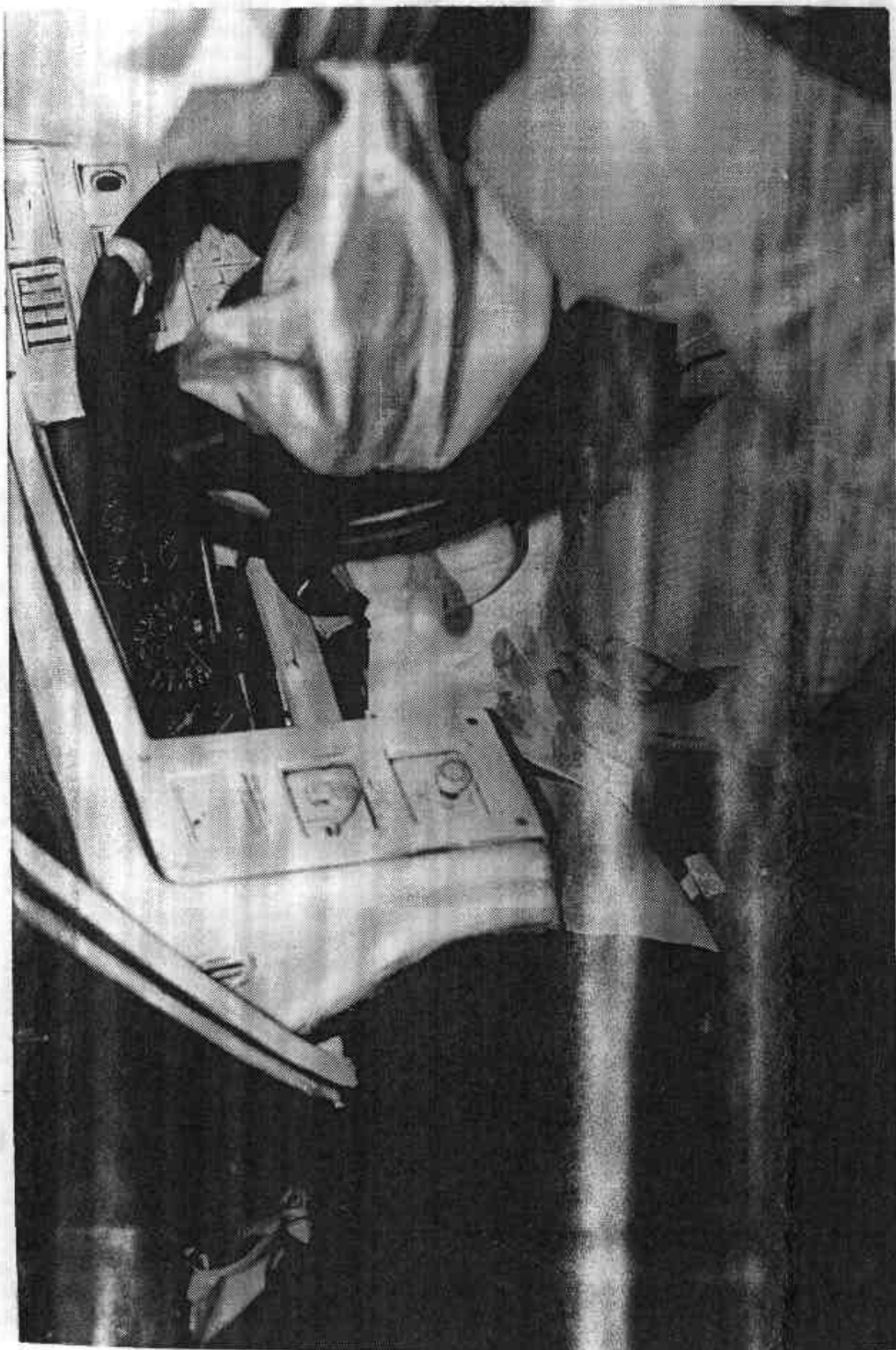
POSTTEST DRIVER DUMMY AND VEHICLE
INTERIOR VIEW (DOOR OPEN)



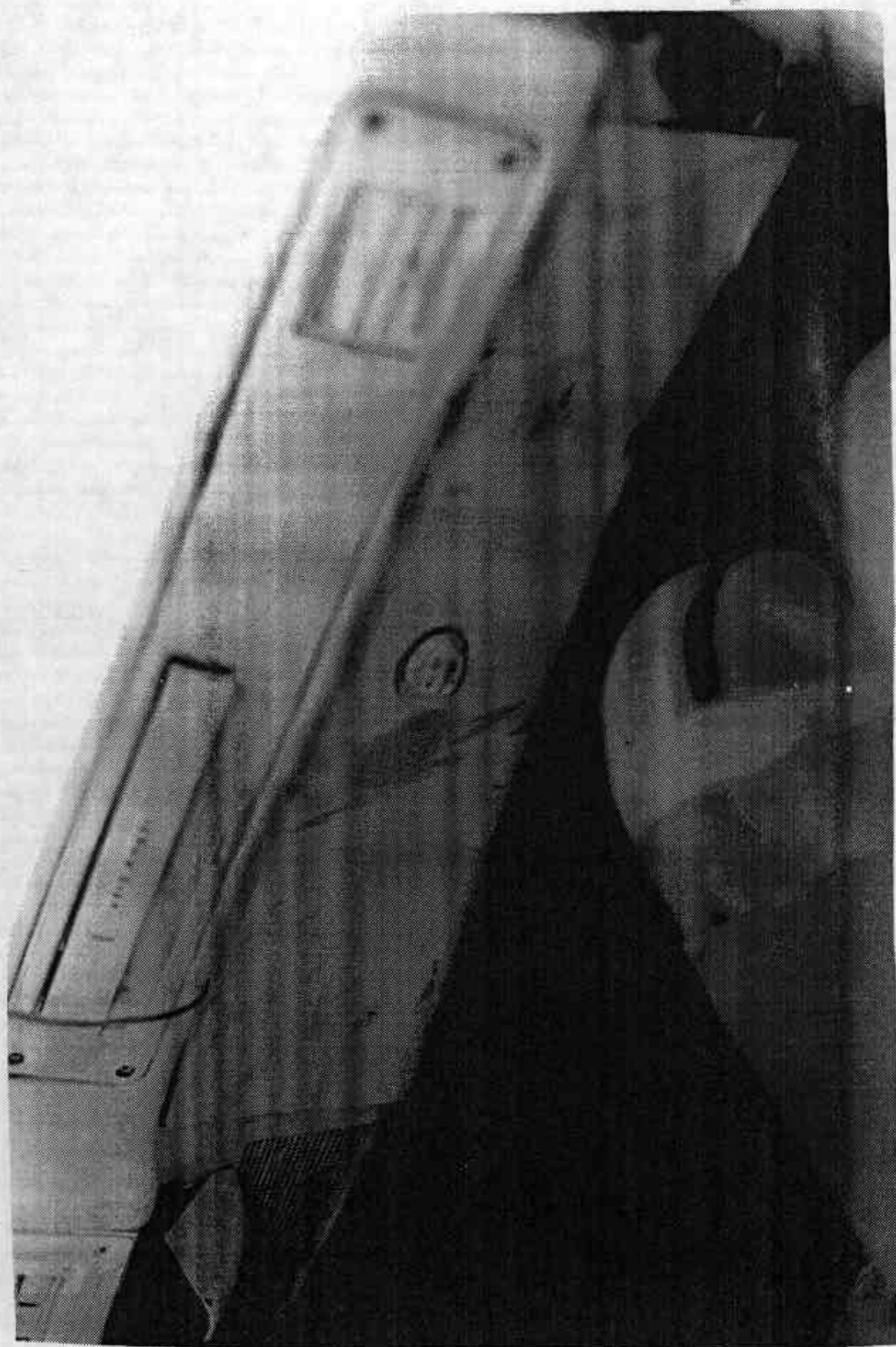
PRETEST PASSENGER DUMMY AND
VEHICLE INTERIOR VIEW (DOOR OPEN)



POSTTEST PASSENGER DUMMY AND
VEHICLE INTERIOR VIEW (DOOR OPEN)



POSTTEST DRIVER DUMMY
KNEE CONTACT AREA



POSTTEST PASSENGER DUMMY
KNEE CONTACT AREA

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APPENDIX B - 1

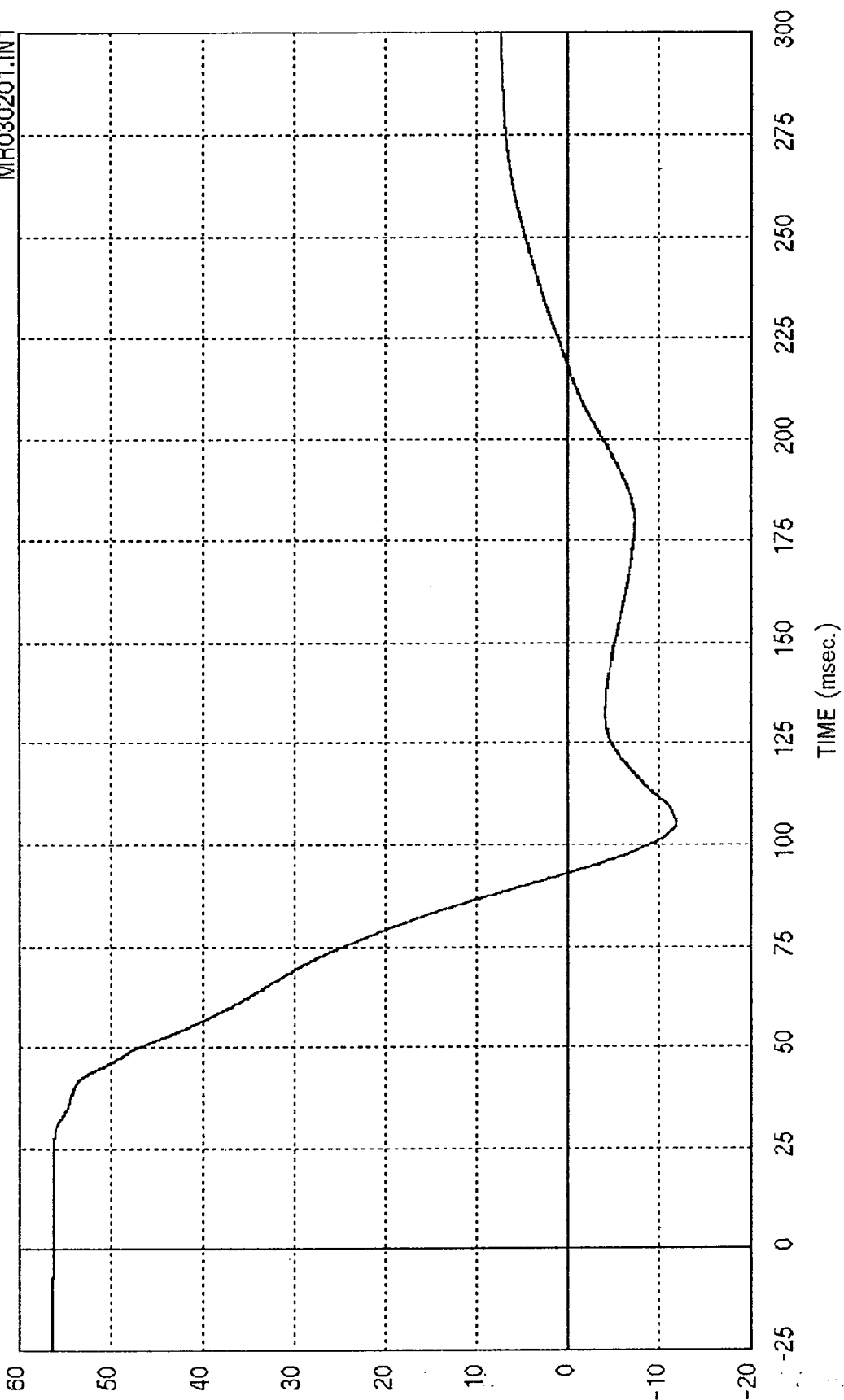
VEHICLE AND DUMMY (ATD) RESPONSE DATA

DATA FILTERING:

ATD Head Channels	-Class 1000
ATD Chest Channels	-Class 180
ATD Femur Channels	-Class 600
Vehicle Channels	-Class 60

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MR030201.IN1



Curve: Driver head delta V -- X axis Filter: SAE CLASS 180 Max = 56.253 Min = -11.911

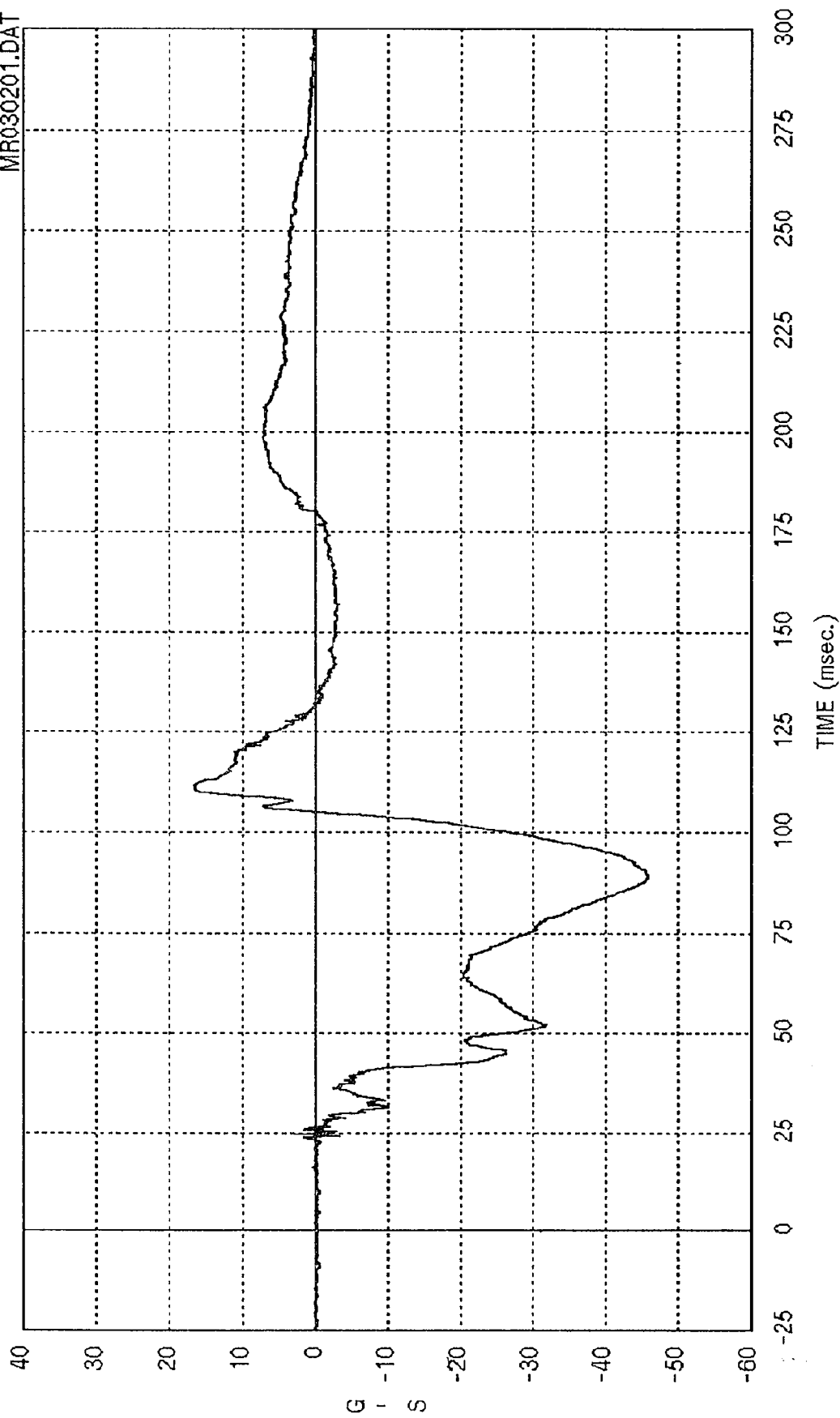
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

K M H
B1

2

MSE-R93030-02

MR030201.DAT



Curve: Driver head acceleration -- X axis Filter: SAE CLASS 1000 Max = 16.704 Min = -45.781

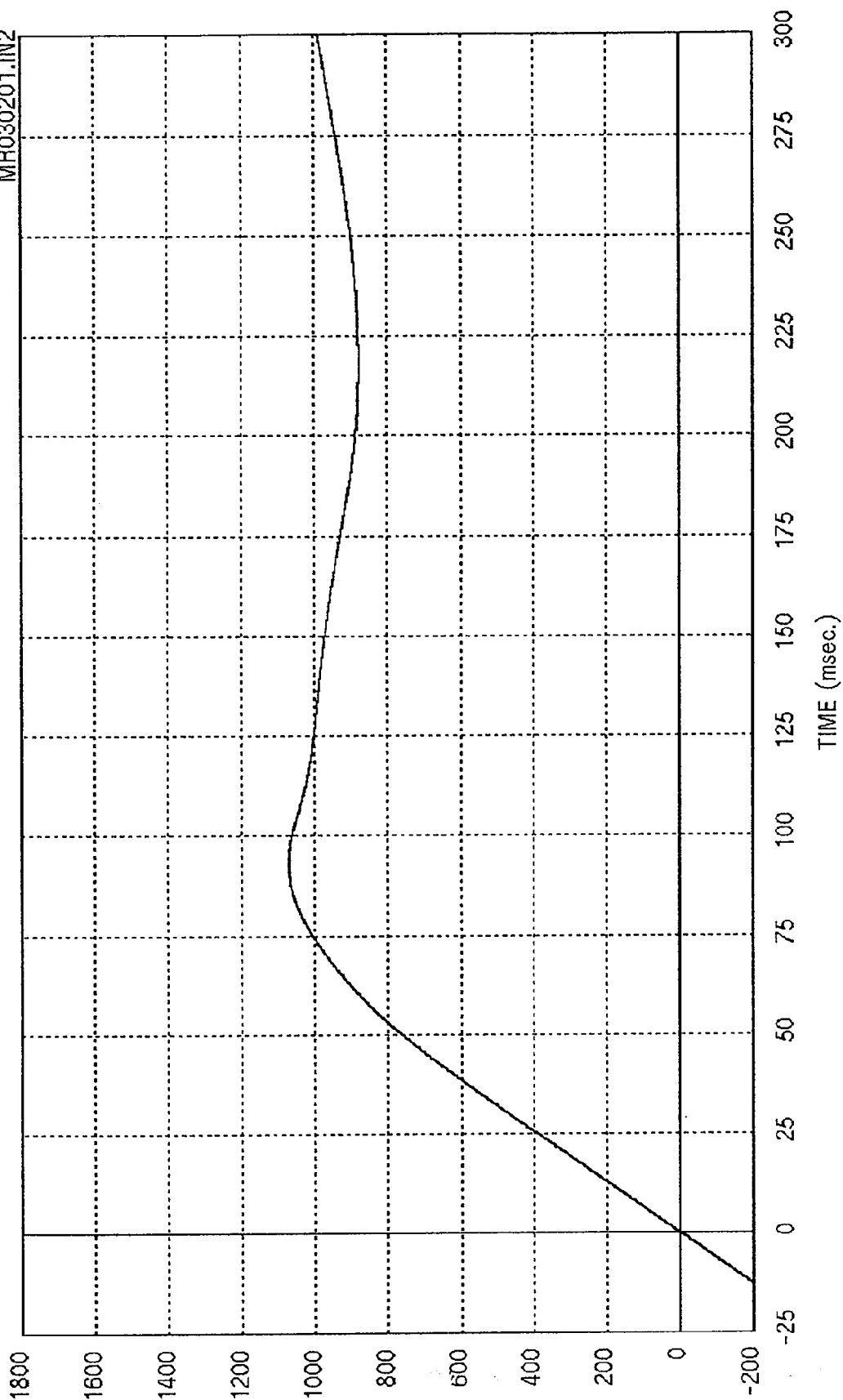
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MSE-R93030-02

G - S
B1

1

MR030201.IN2



Curve: Driver head displacement --- X axis Filter: SAE CLASS 180 Max = 1074.0 Min = 877.75

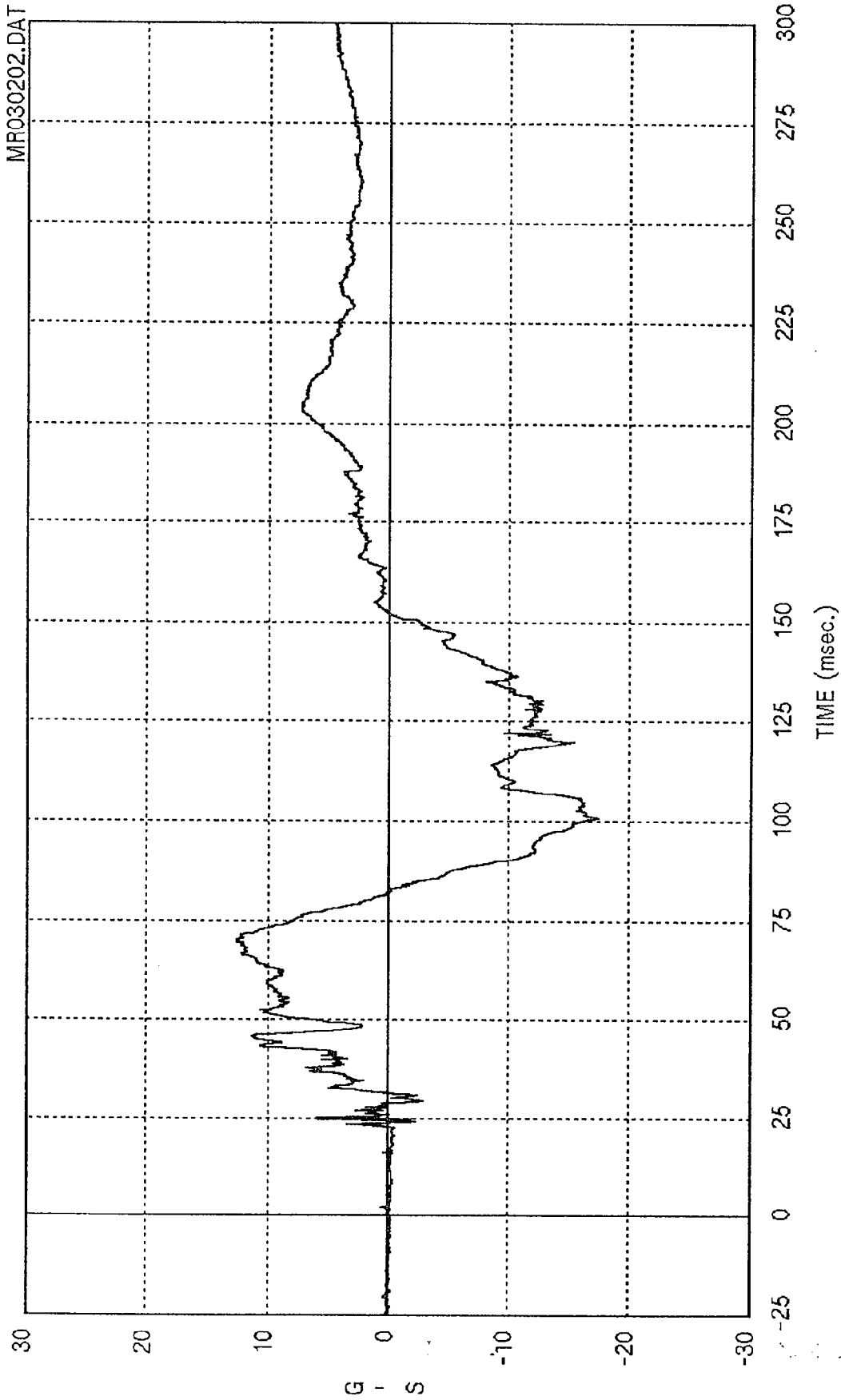
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

B1

3

MSE-R93030-02

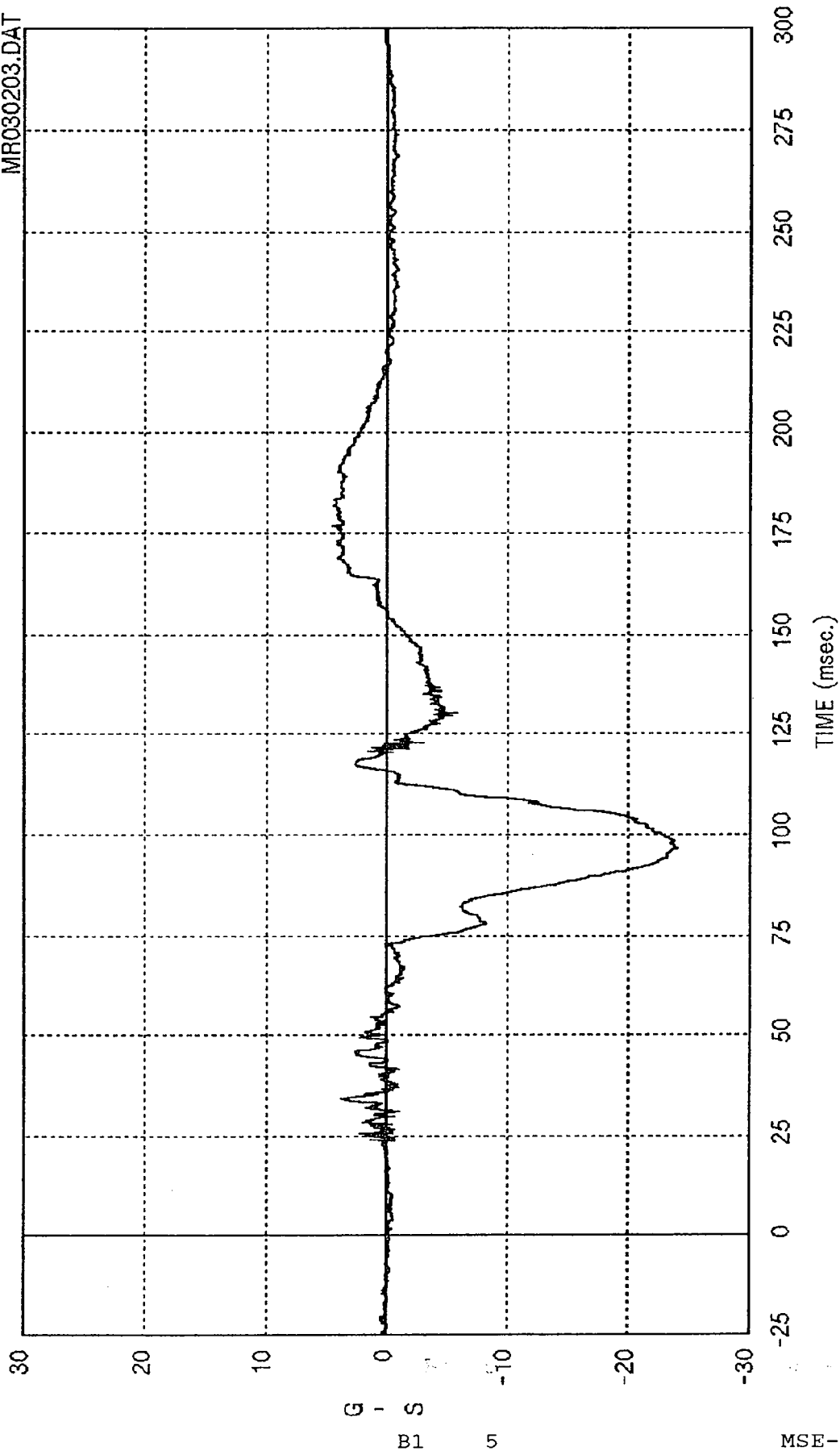
MR030202.DAT



Curve: Driver head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 12.789 Min = -17.398

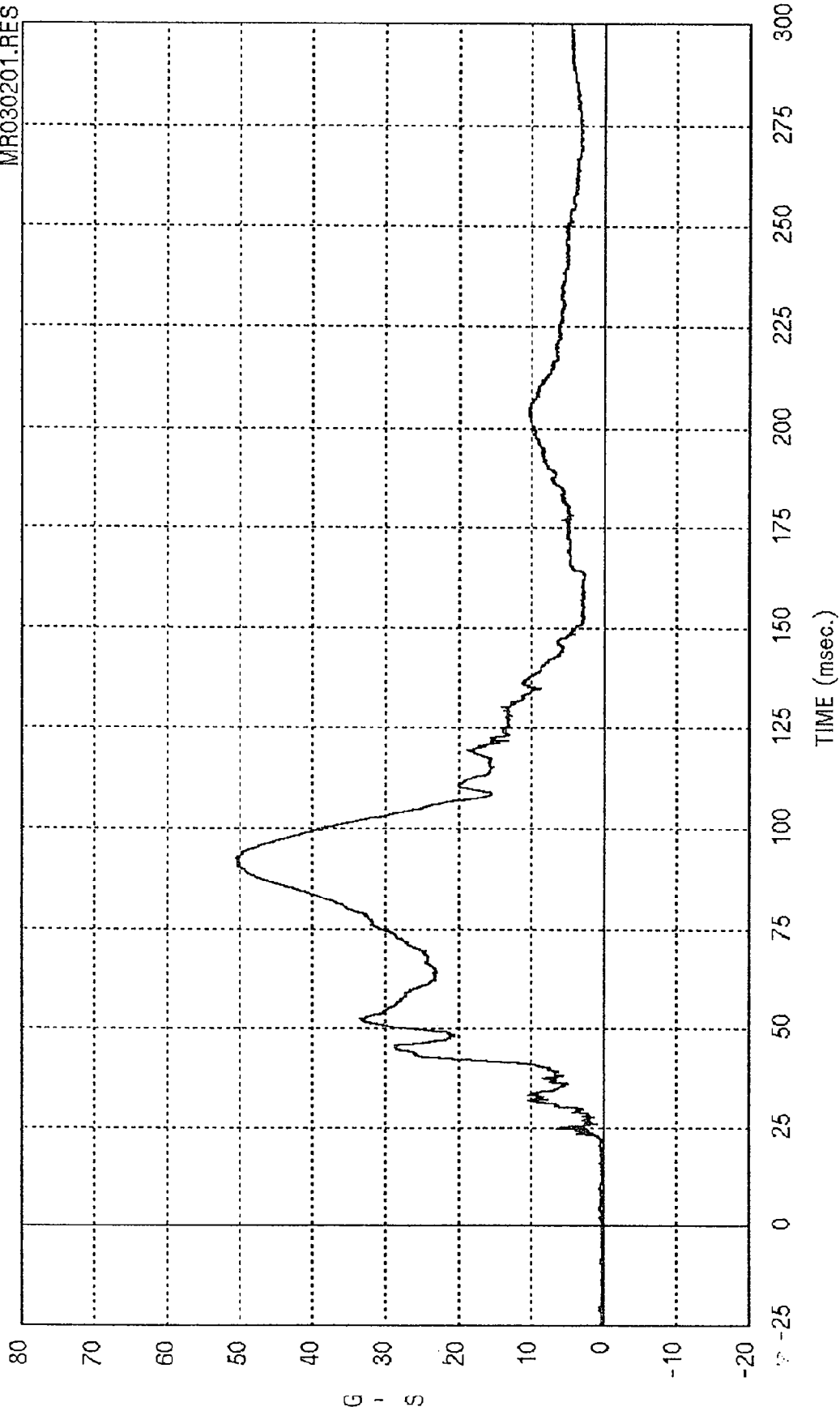
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030203.DAT



MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030201.RES

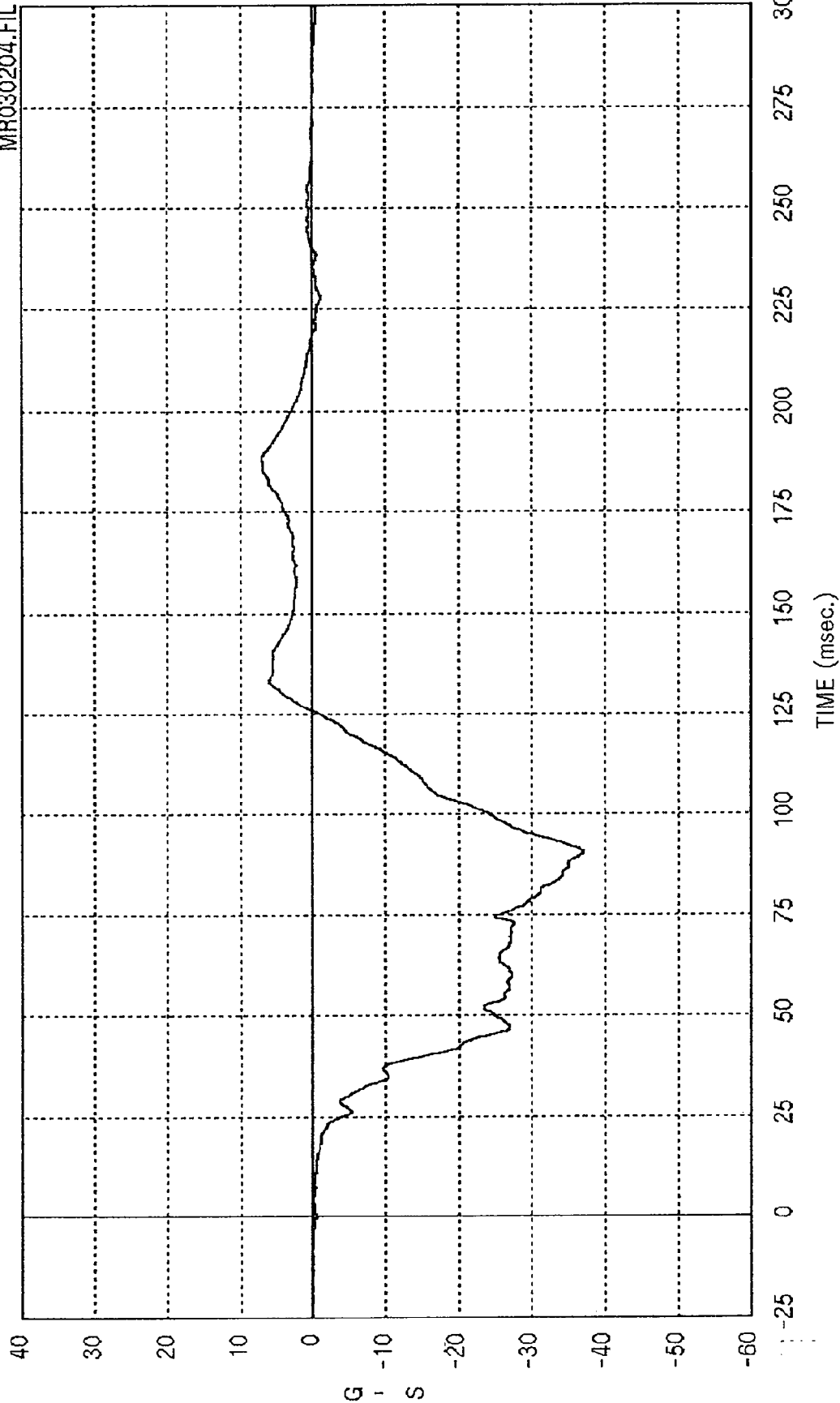


Curve: Driver head acceleration -- Resultant Filter: SAE CLASS 1000 Max. = 50.619 Min = .80362E-04

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

G - S
B1

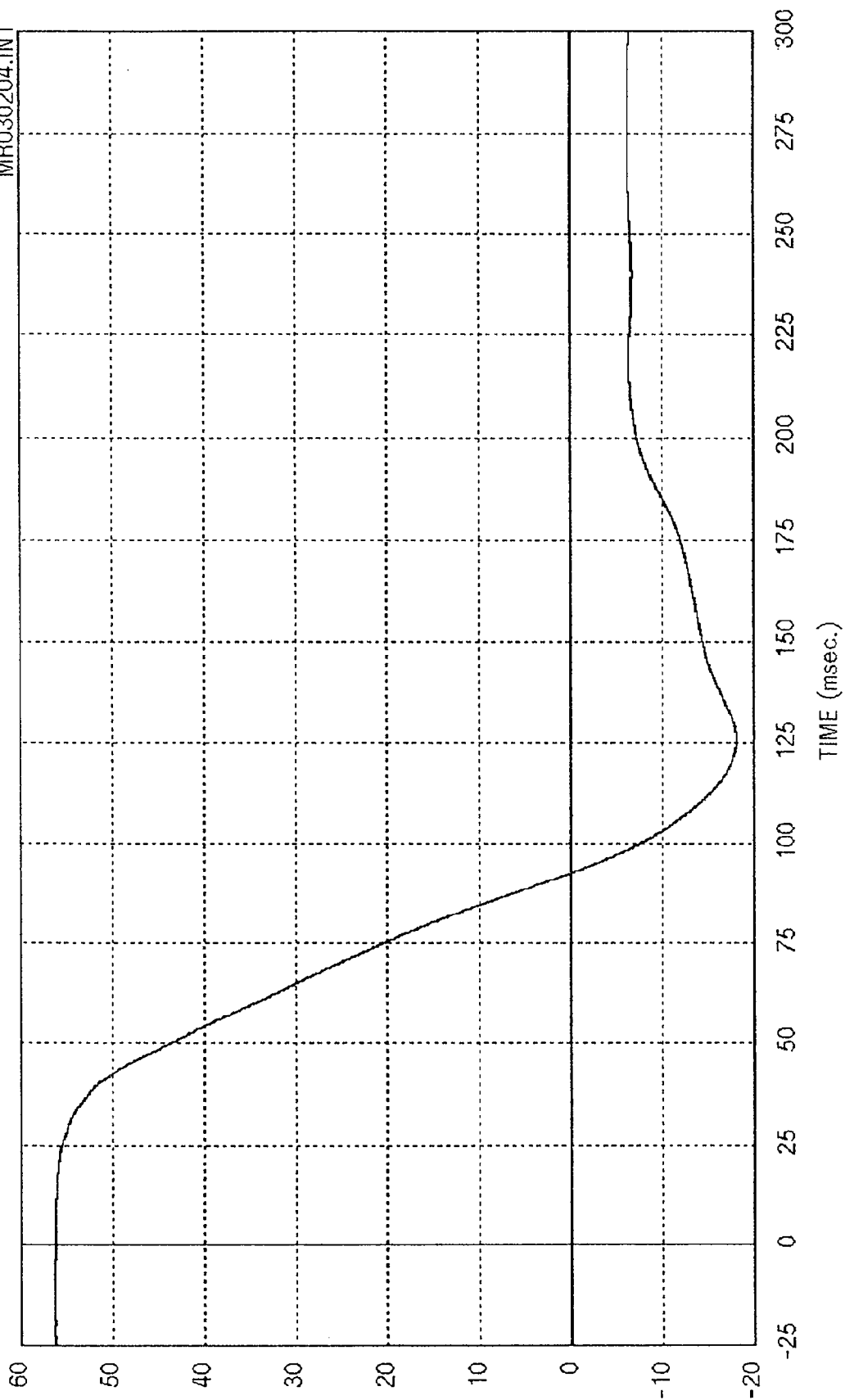
MR030204.FIL



MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

G S
B1

MR030204.IN1

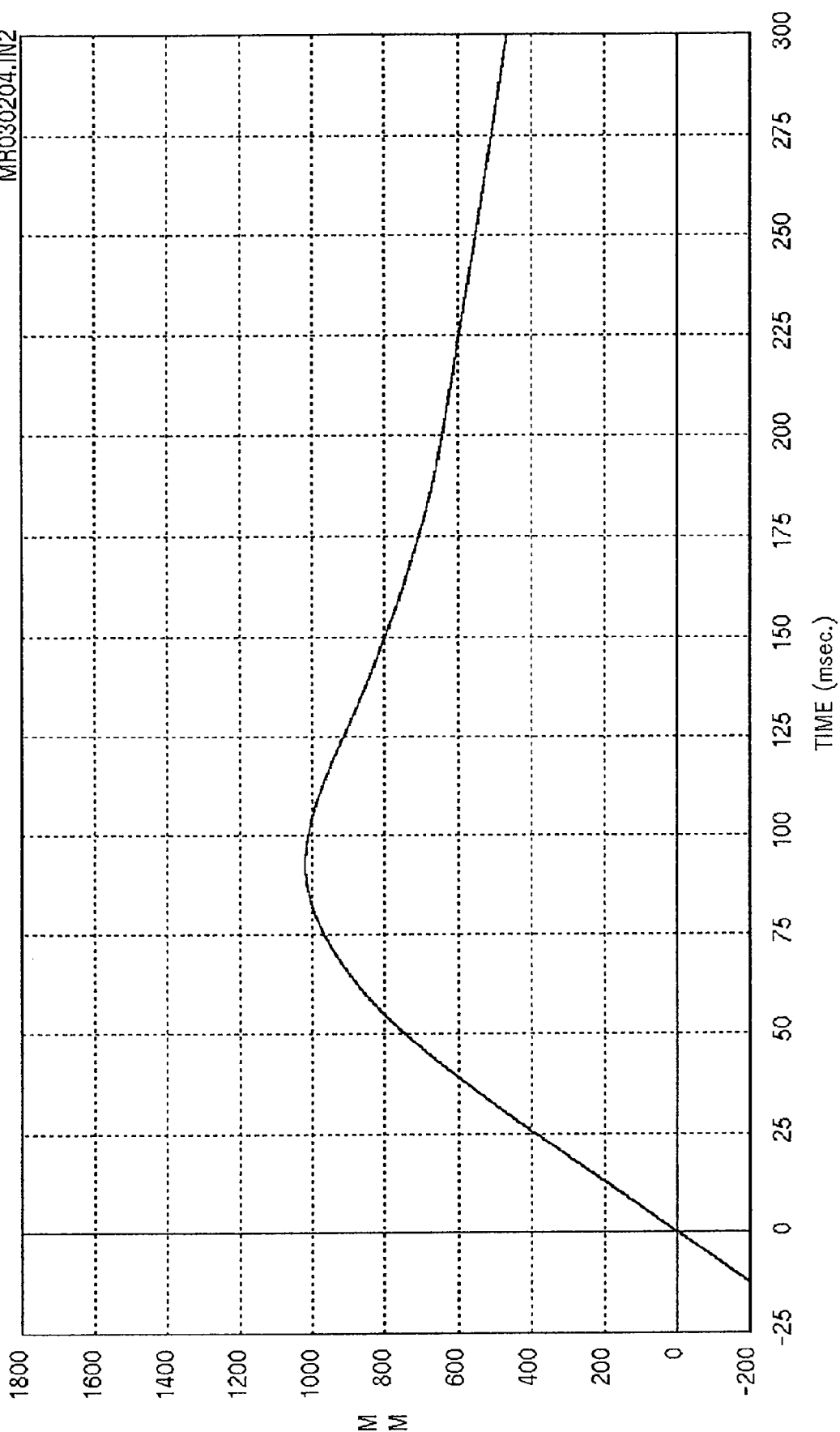


Curve: Driver chest delta V -- X axis Filter: SAE CLASS 180 Max = 56.252 Min = -18.089

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

K M H
B1

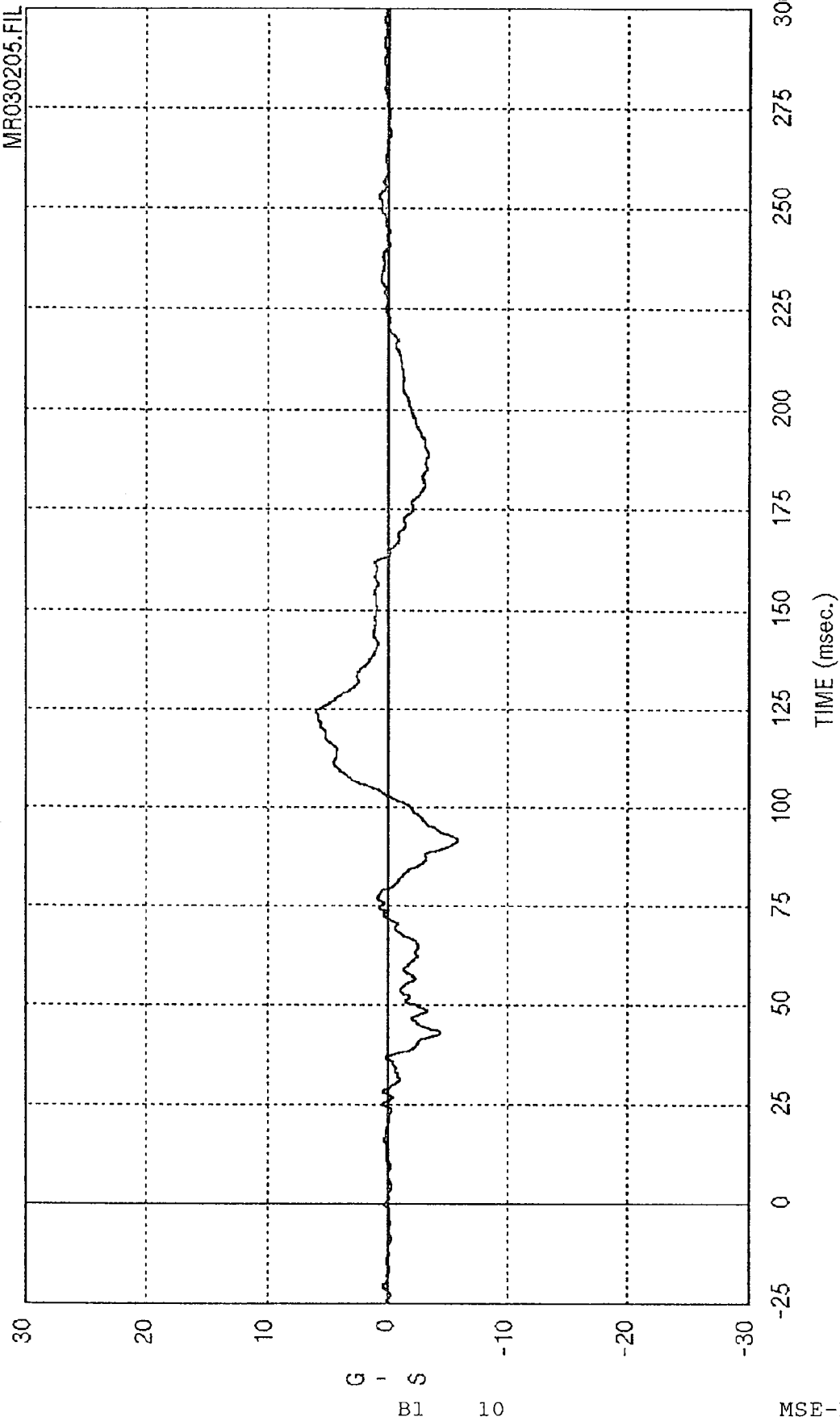
MR030204.IN2



Curve: Driver chest displacement -- X axis Filter: SAE CLASS 180 Max = 1021.5 Min = 465.51

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

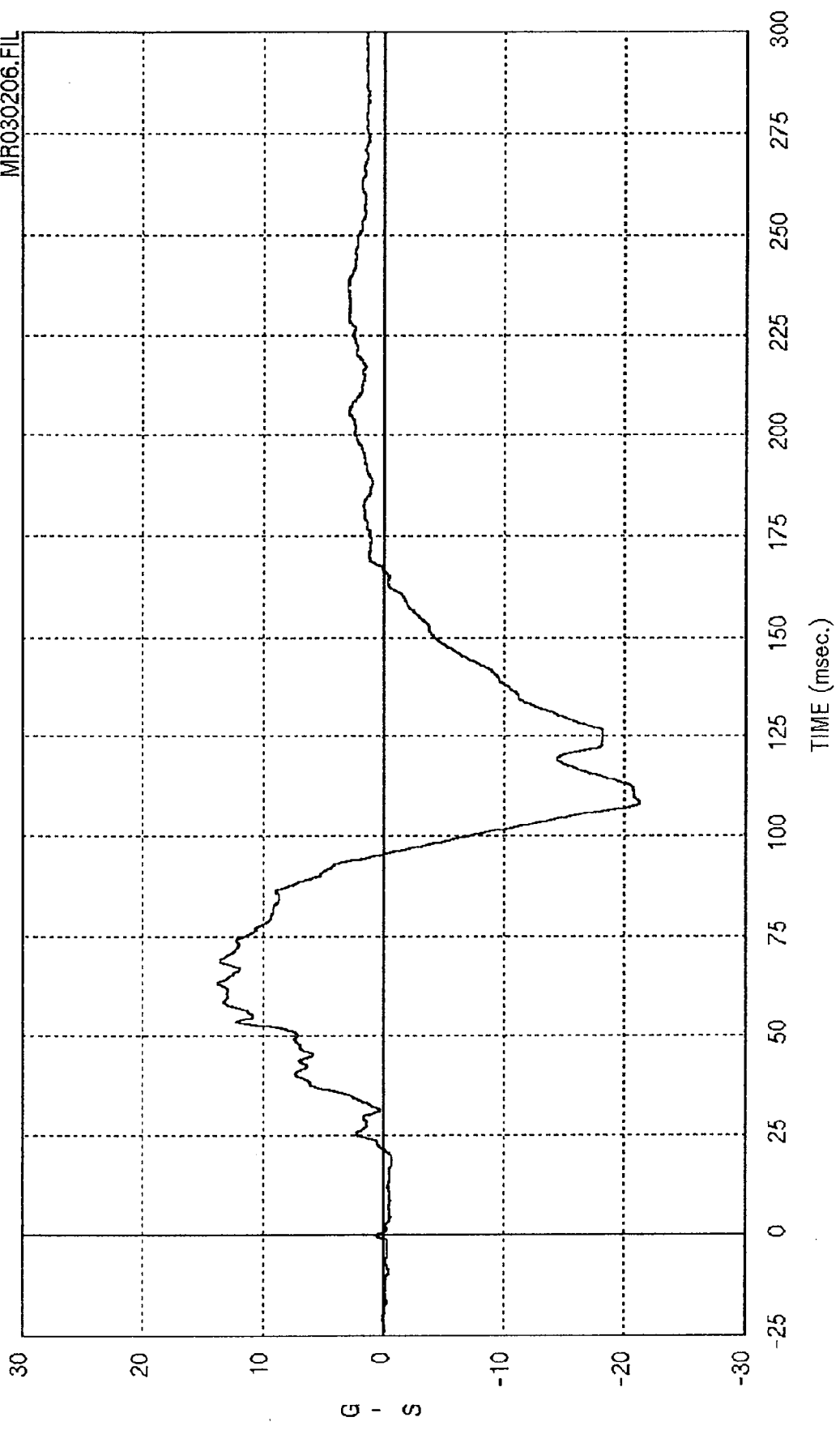
MR030205.FIL



Curve: Driver chest acceleration -- Y axis Filter: SAE CLASS 180 Max = 6.0696 Min = -5.7254

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

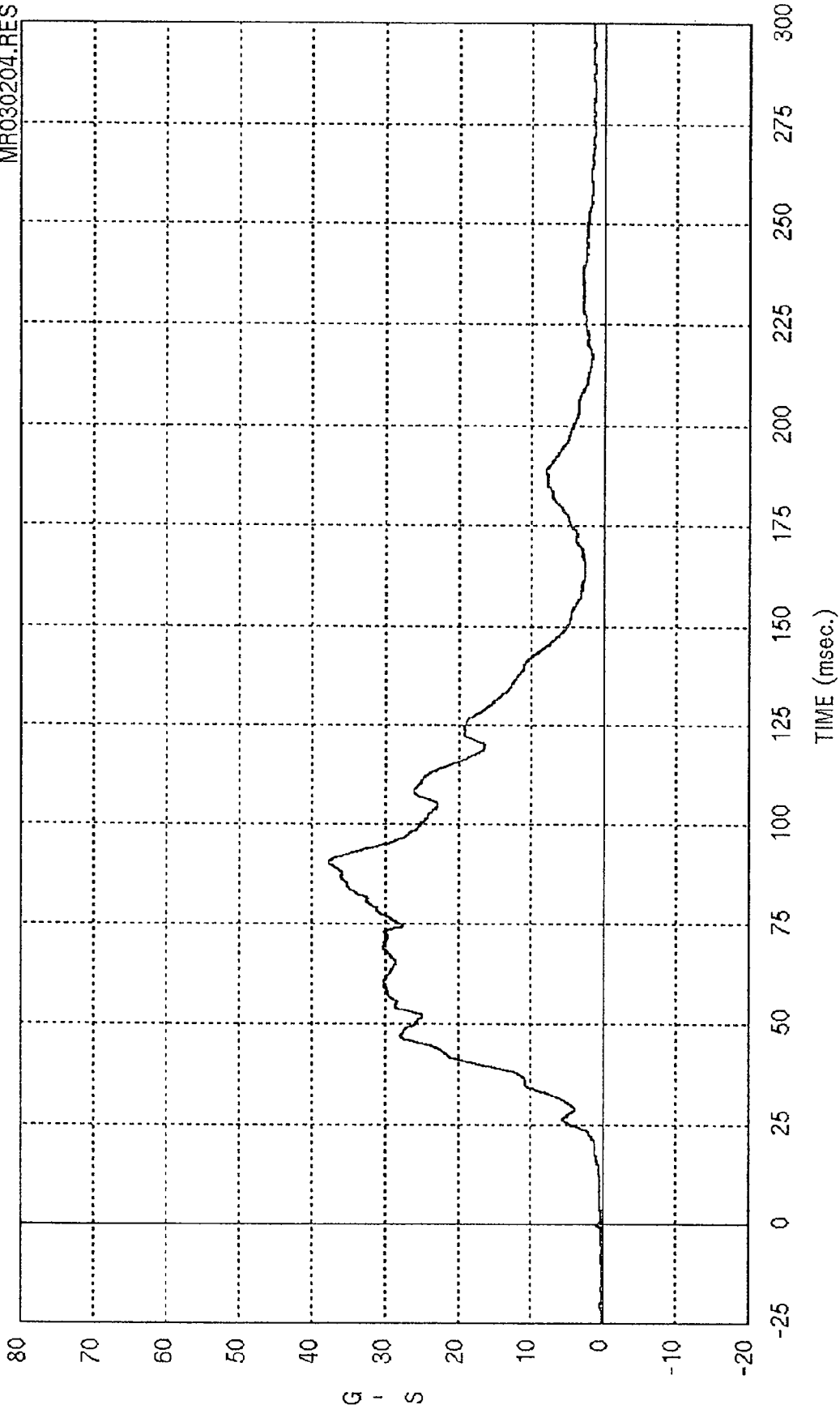
MR030206.FIL



Curve: Driver chest acceleration -- Z axis Filter: SAE CLASS 180 Max = 13.868 Min = -21.242

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030204.RES



Curve: Driver chest acceleration -- Resultant

Filter: SAE CLASS 180

Max = 37.888

Min = 26.738

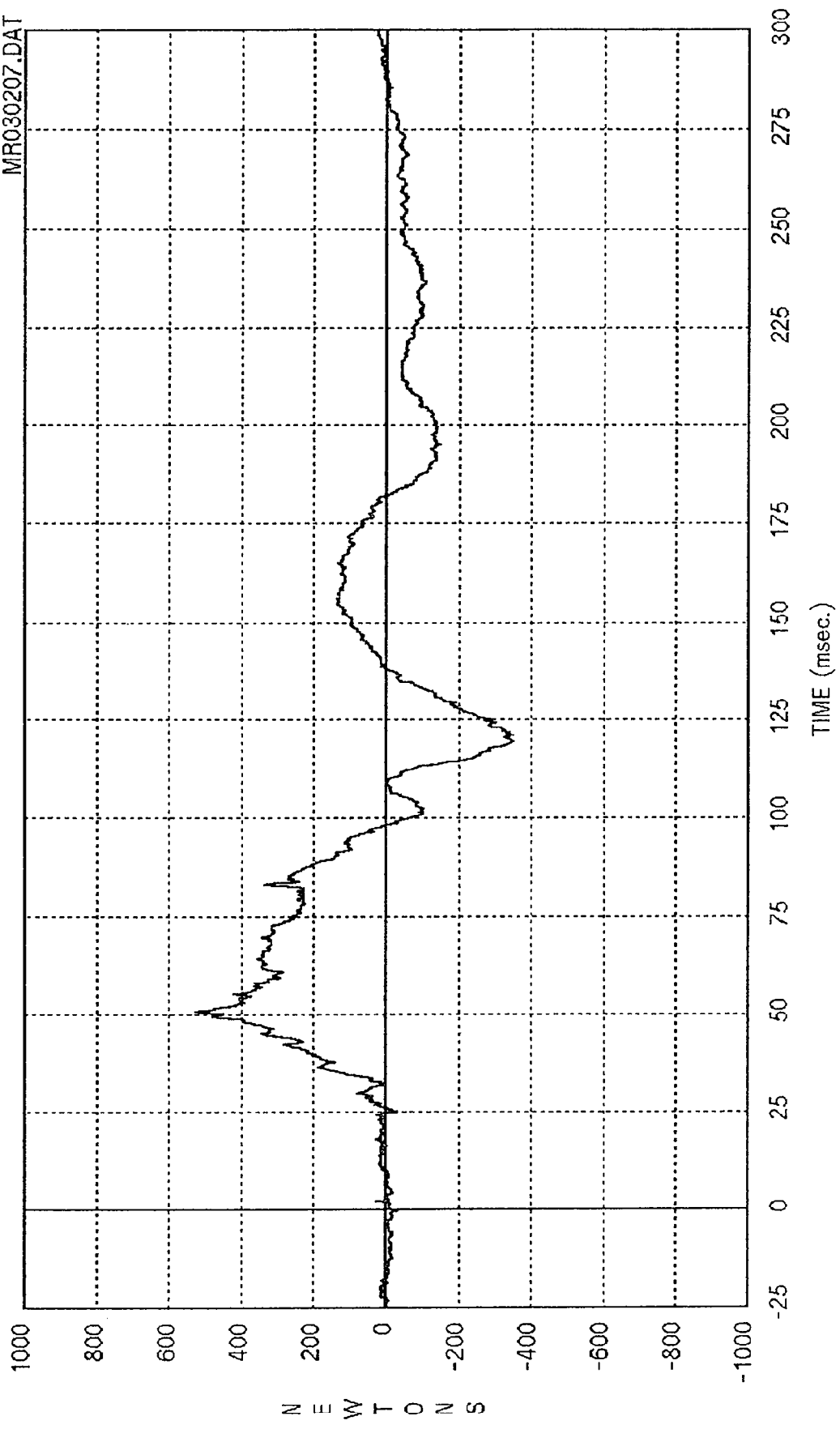
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

G - S

B1 12

MSE-R93030-02

MR030207.DAT

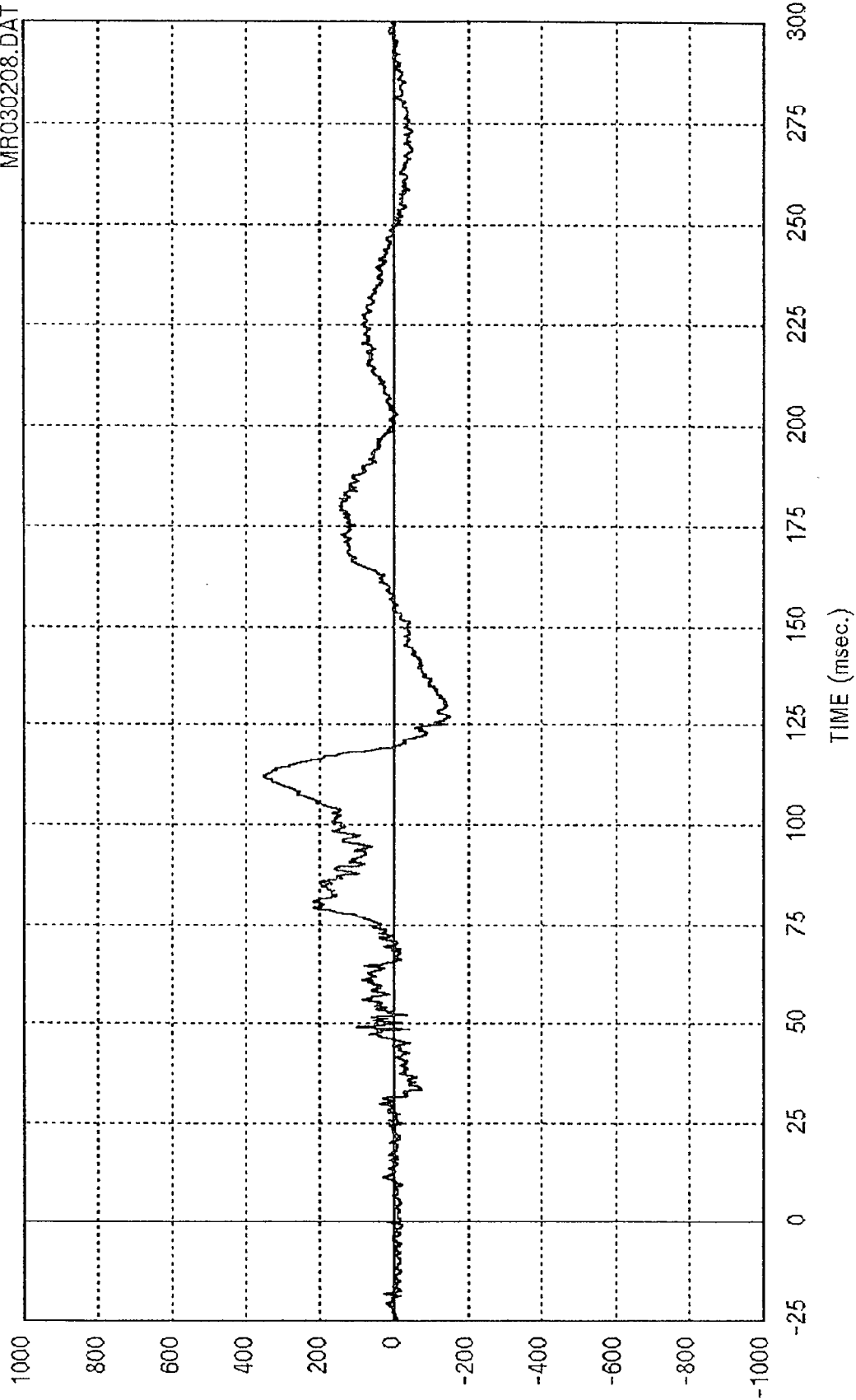


B1 13

Curve: Driver neck force -- X axis Filter: SAE CLASS 1000 Max = 525.93 Min = -348.52

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030208.DAT



Curve: Driver neck force -- Y axis Filter: SAE CLASS 1000 Max = 355.22 Min = -149.53

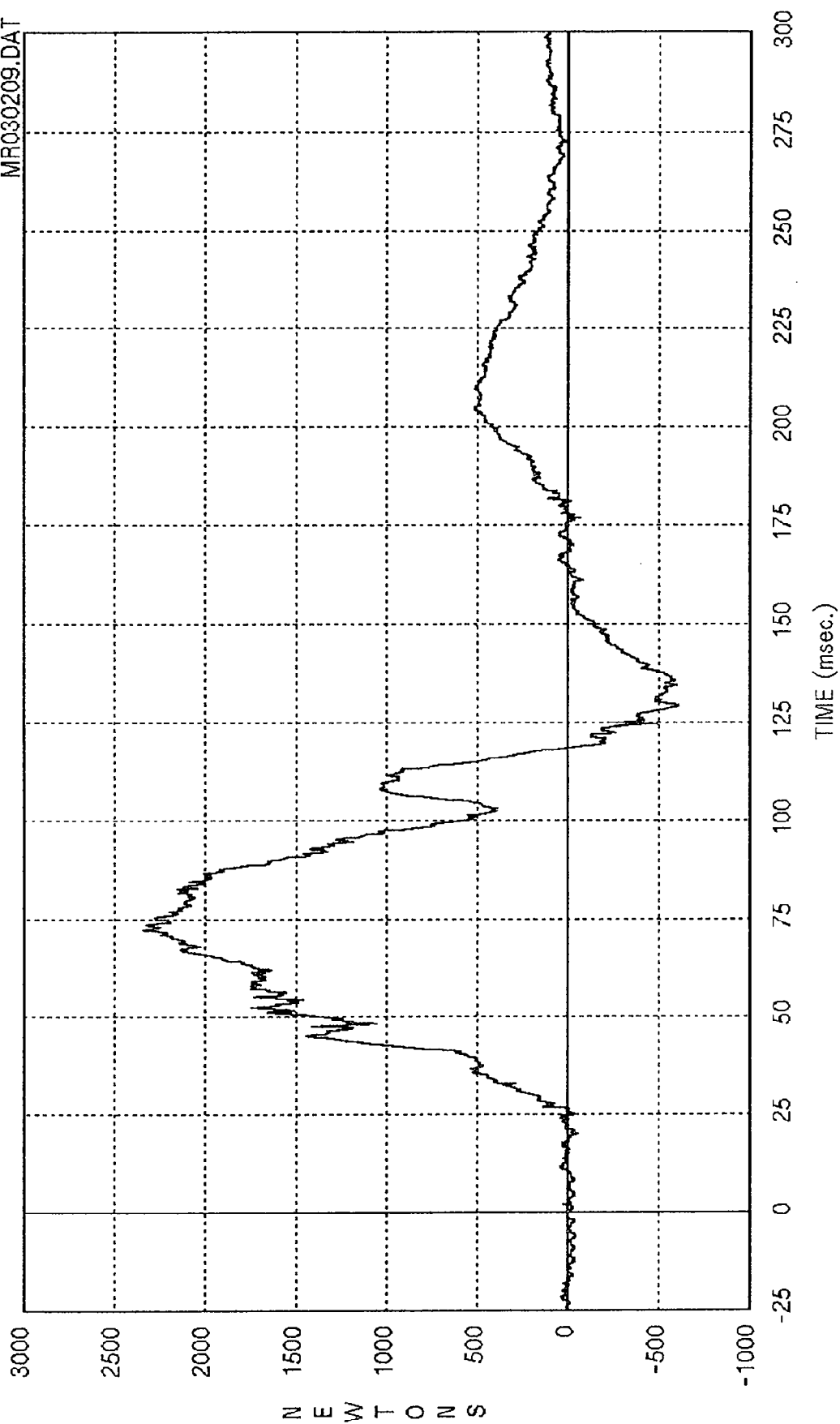
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

NEWTONS

B1 14

MSE-R93030-02

MR030209.DAT

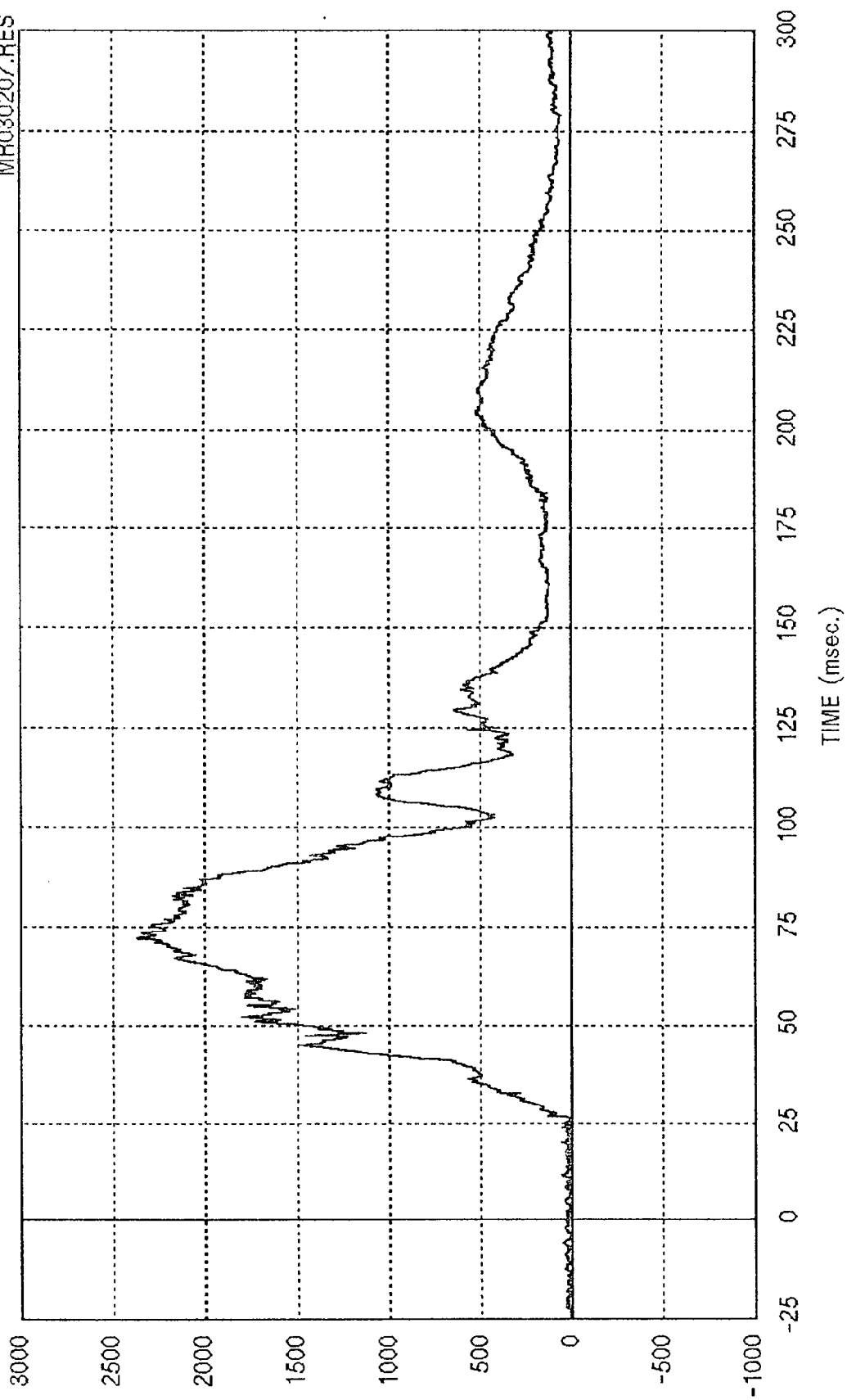


Curve: Driver neck force -- Z axis

Filter: SAE CLASS 1000 Max = 2349.0 Min = -606.04

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030207.RES

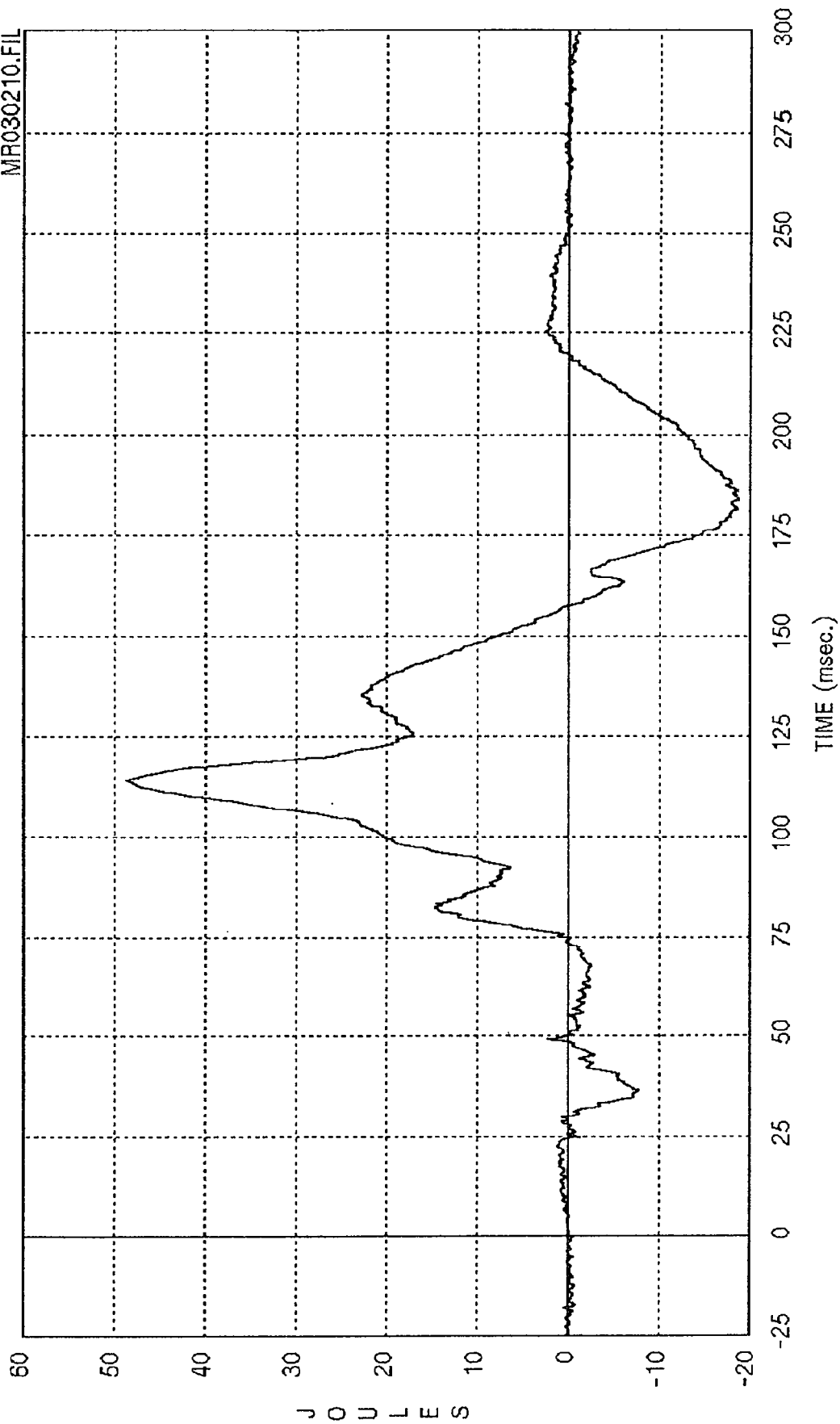


Curve: Driver neck force -- Resultant

Filter: SAE CLASS 1000 Max = 2370.2 Min = 1.6377

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

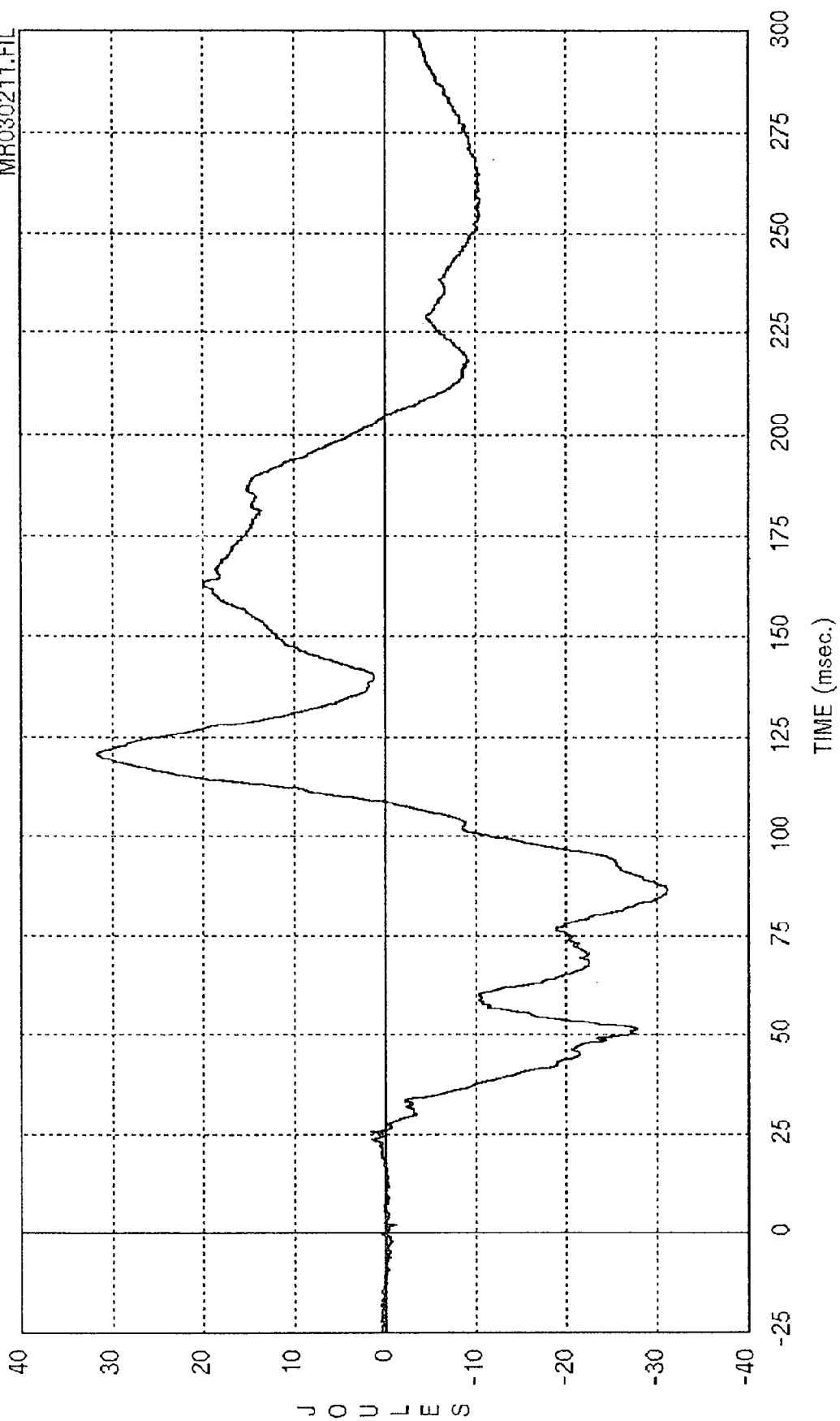
MR030210.FIL



Curve: Driver neck moment -- X axis Filter: SAE CLASS 600 Max = 48.733 Min = -18.753

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

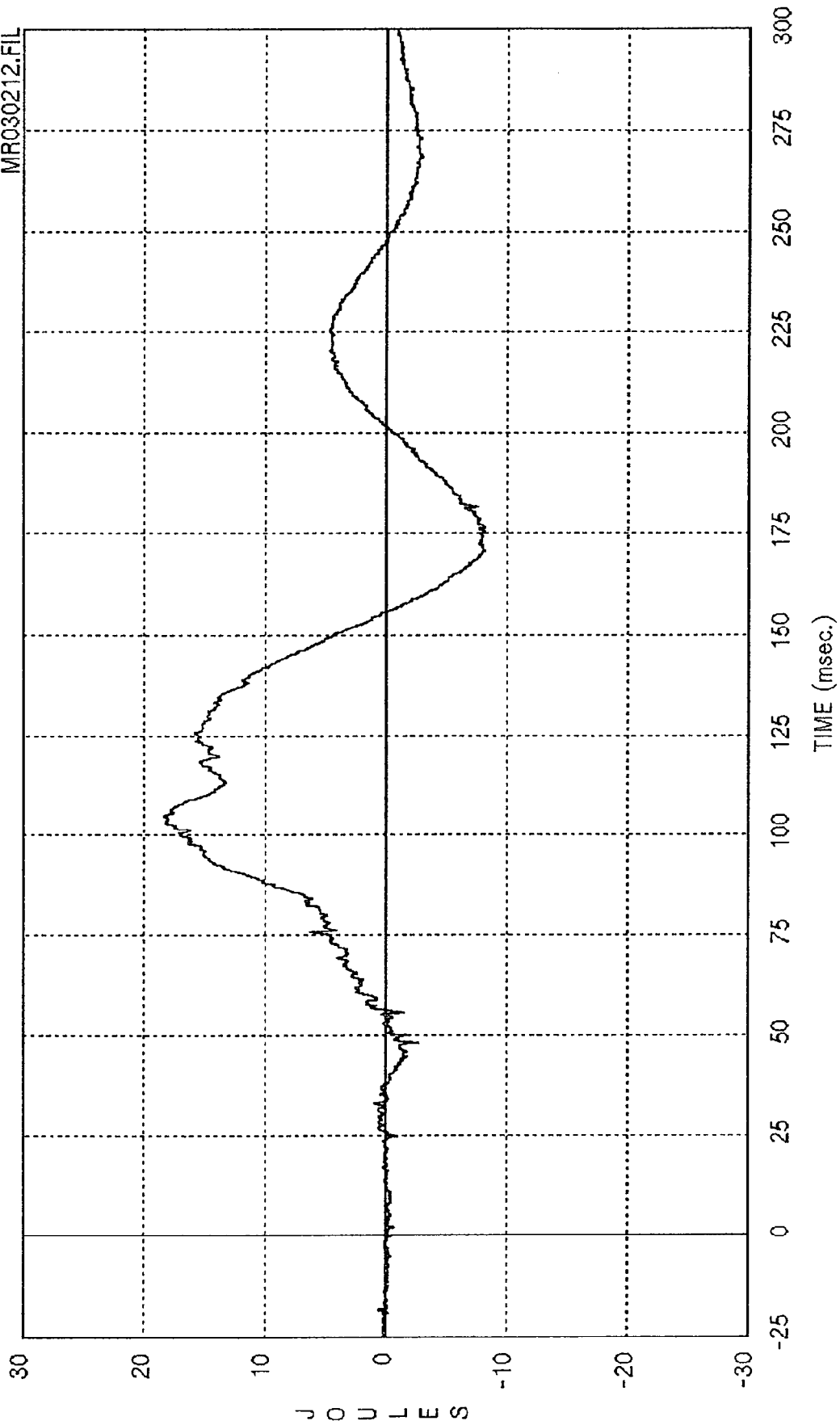
MR030211.FIL



Curve: Driver neck moment -- Y axis Filter: SAE CLASS 600 Max = 31.738 Min = -31.154

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

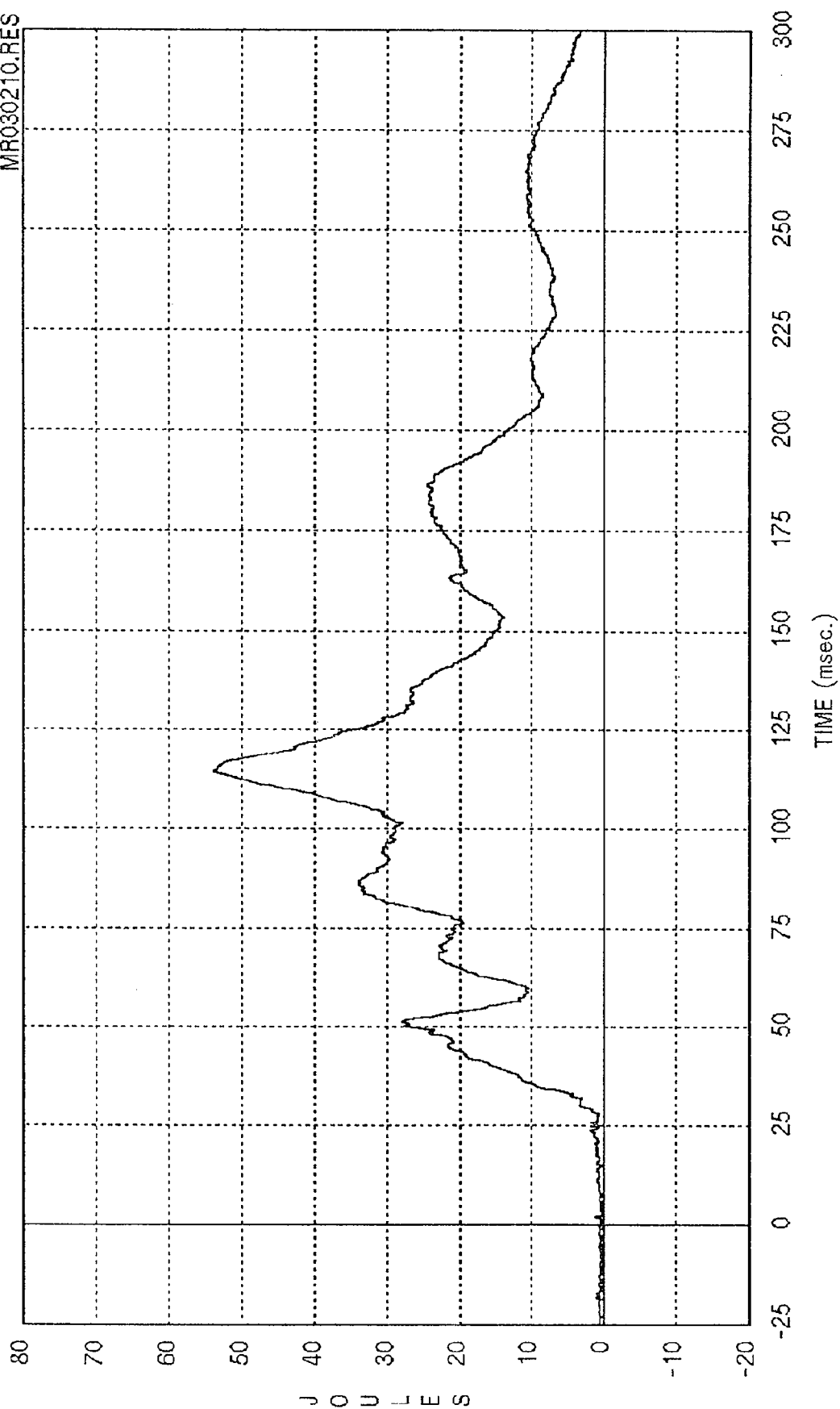
MR030212.FIL



Curve: Driver neck moment -- Z axis Filter: SAE CLASS 600 Max = 18.393 Min = -8.0954

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

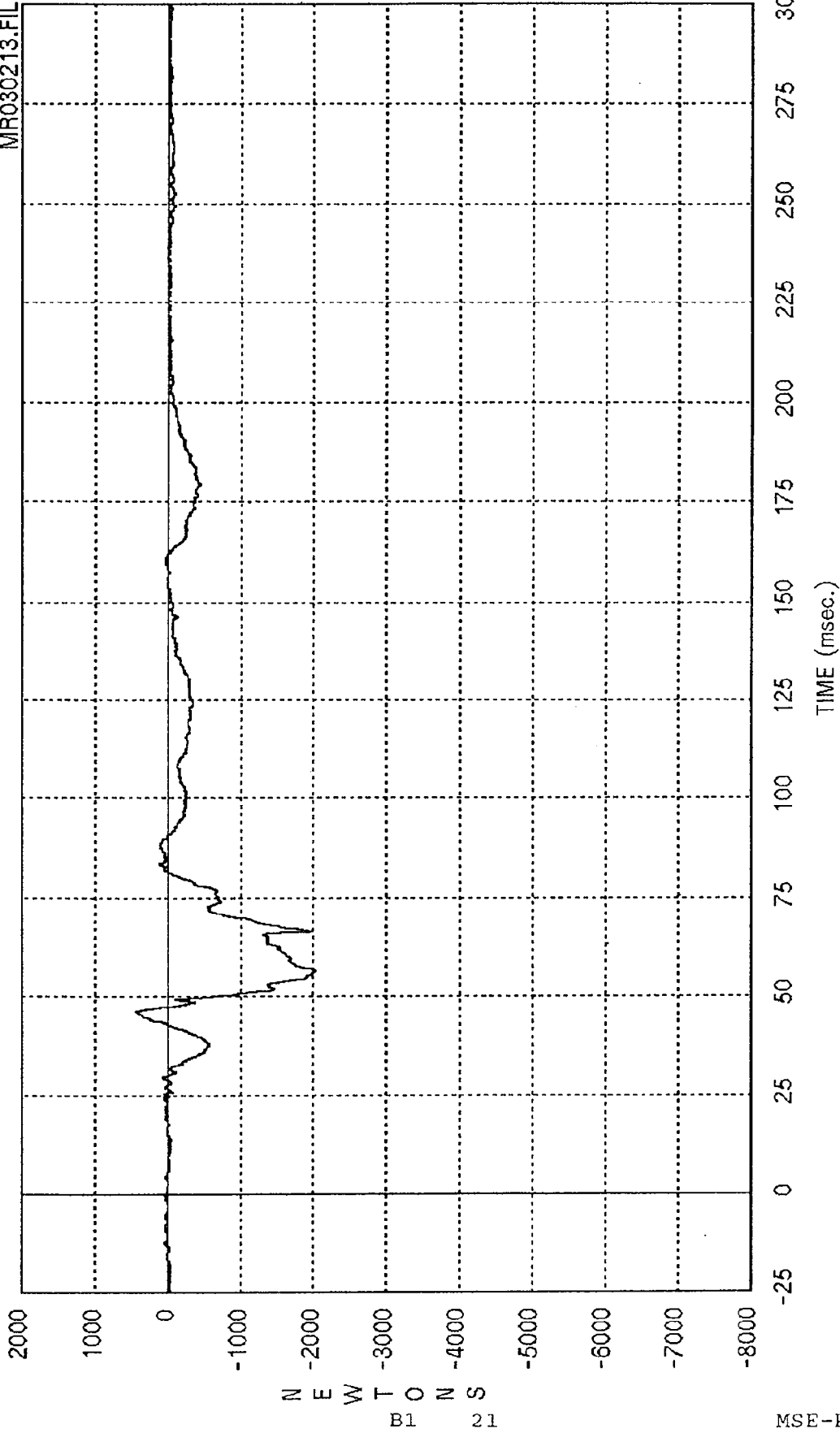
MR030210.RES



Filter: SAE CLASS 600 Max = 54.009 Min = .11651

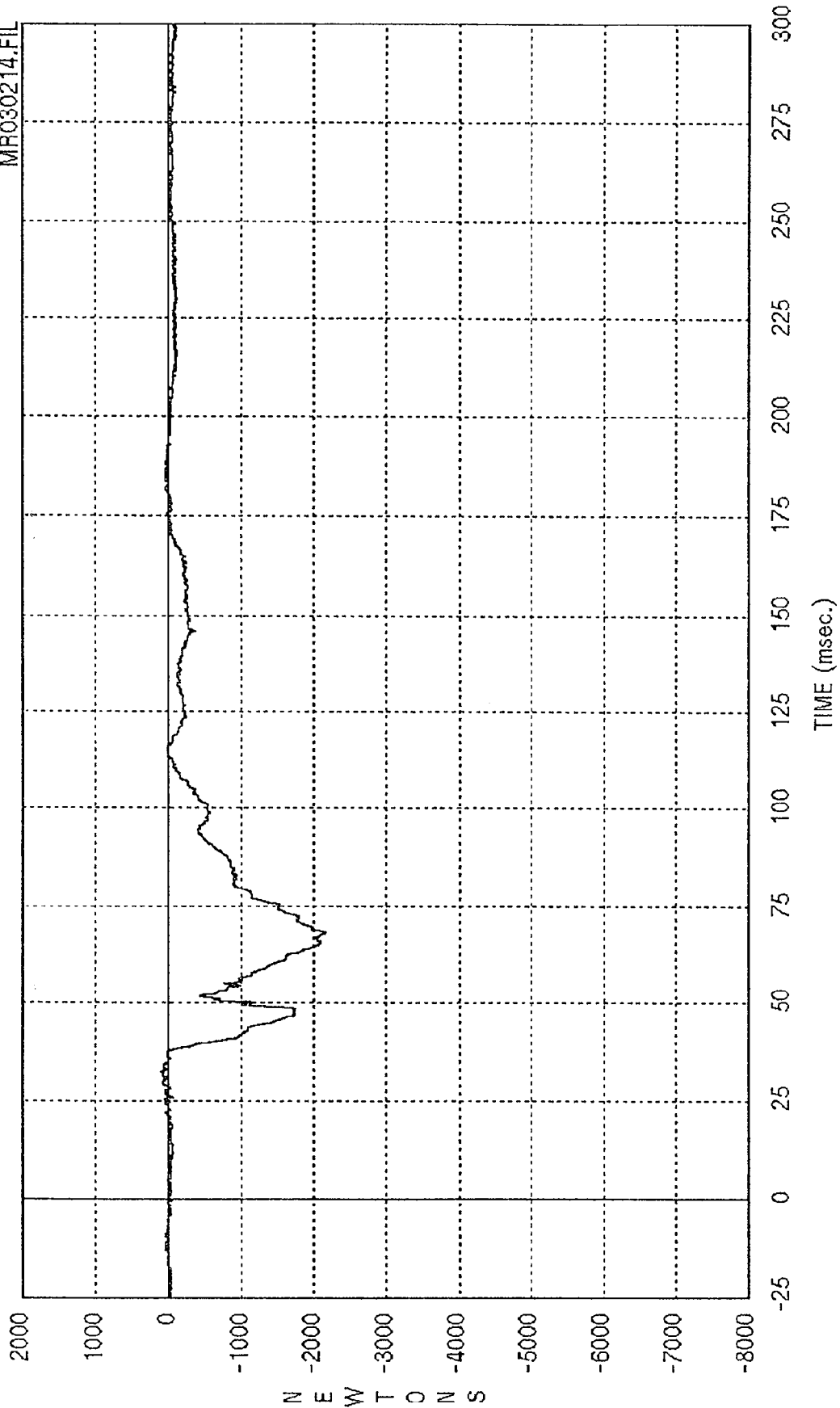
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030213.FIL



Curve: Driver left femur
Filter: SAE CLASS 600
Max = 448.90
Min = -2020.5
MSE Date: 02/10/94
Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

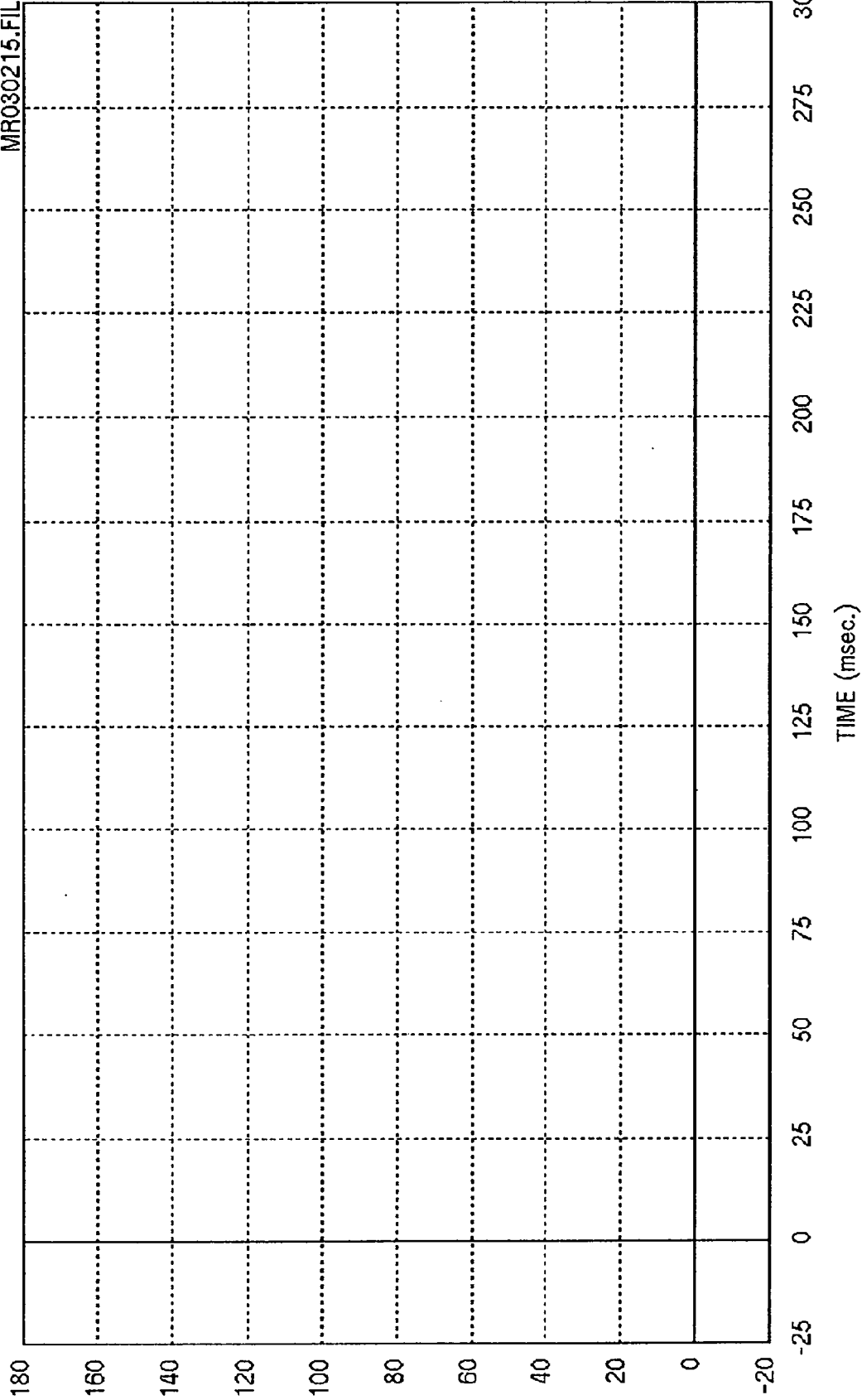
MR030214.FIL



Curve: Driver right femur Filter: SAE CLASS 600 Max = 109.56 Min = -2156.2

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030215.FIL



Curve: Driver chest displacement (No data)

Filter: SAE-CLASS-180 Max = .00000 Min = .000000

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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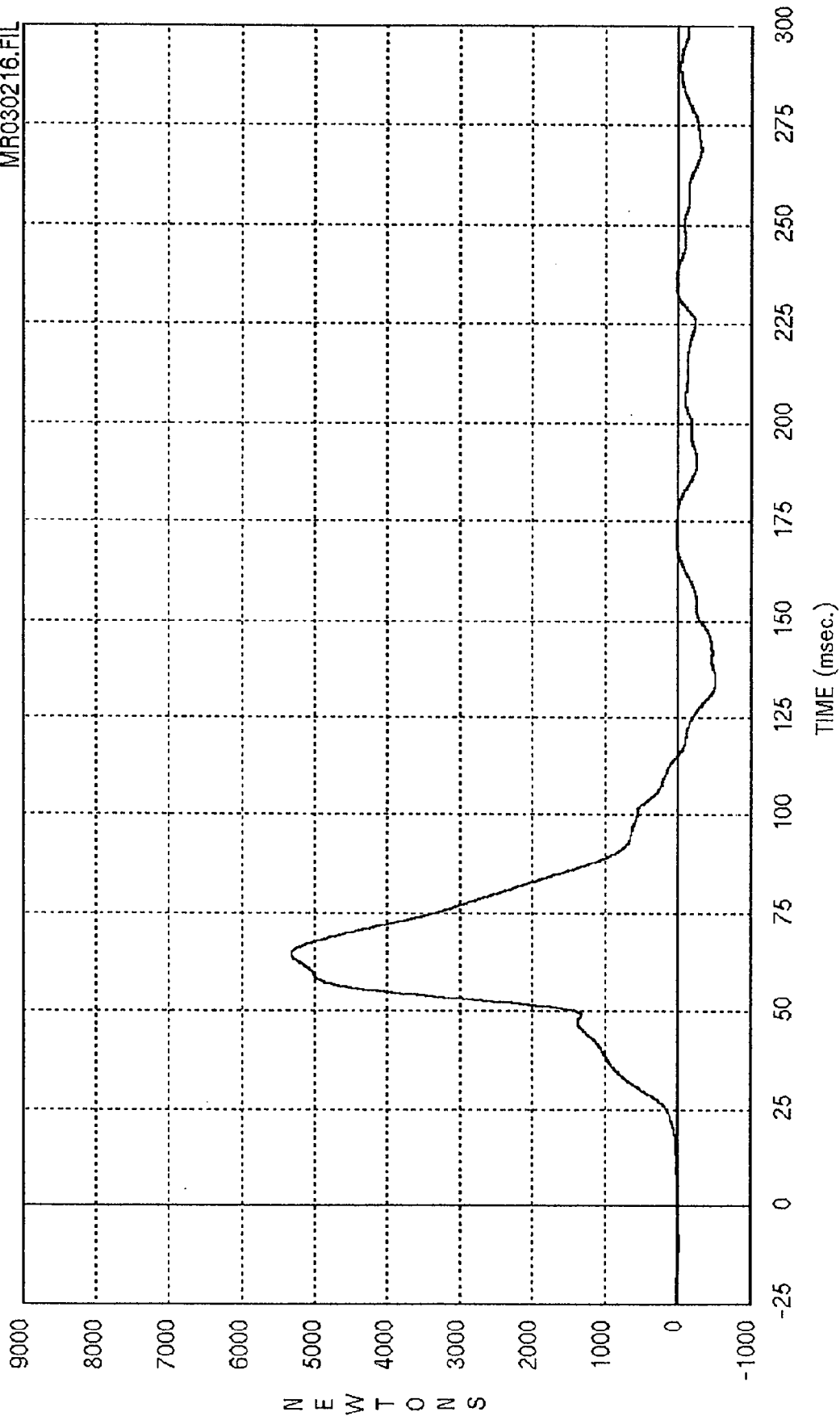
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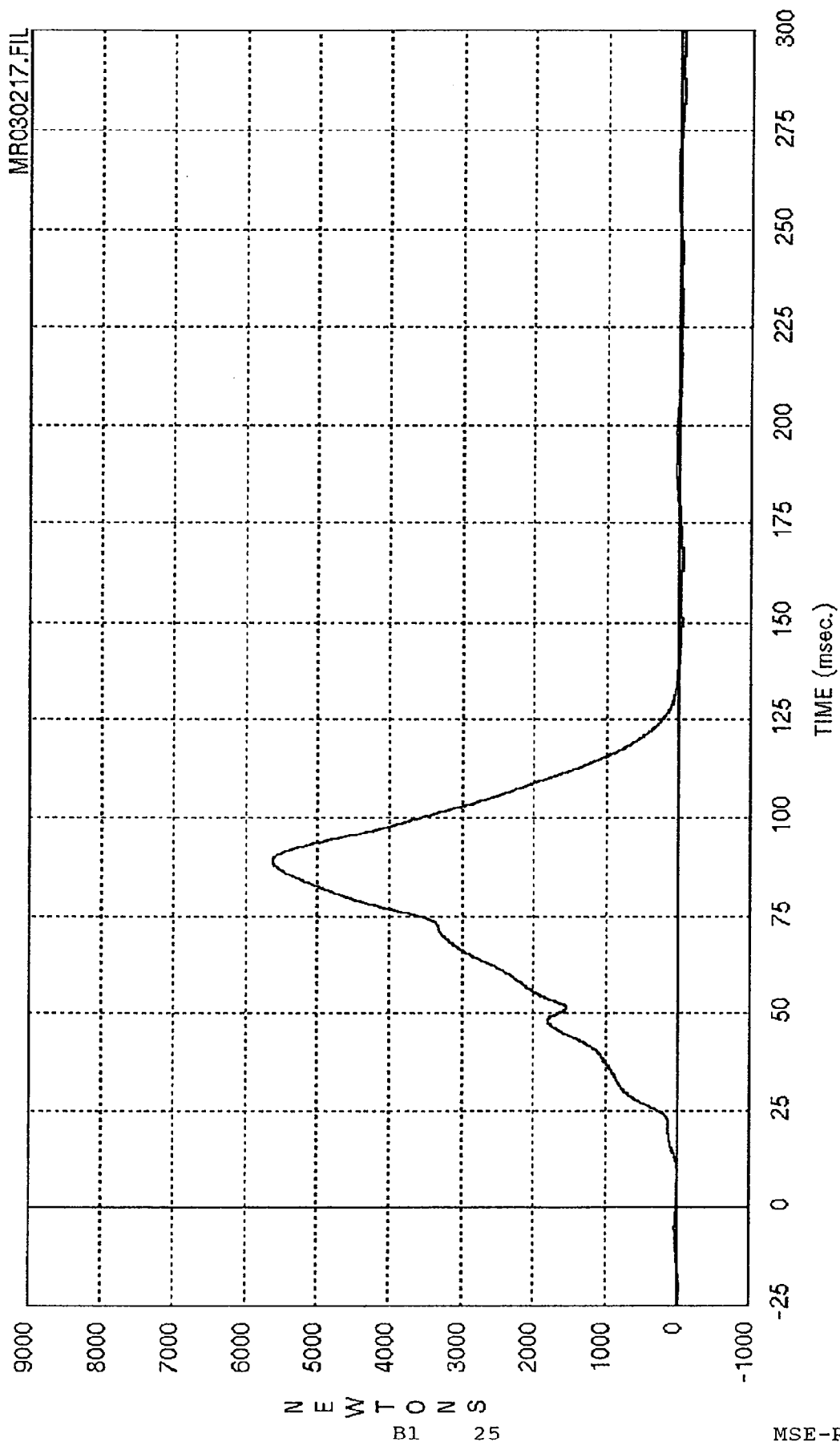
MR030216.FIL



Curve: Driver lap belt load Filter: SAE CLASS 60 Max = 5334.9 Min = -511.66

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030217.FIL



Curve: Driver shoulder belt load

Filter: SAE CLASS 60

Max = 5642.3

Min = -52.560

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030218.FIL

0.1

0.08

0.06

0.04

0.02

0

-0.02

-0.04

-0.06

-0.08

-0.1

P E R C E N T

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-25 0 25 50 75 100 125 150 175 200 225 250 275 300

TIME (msec.)

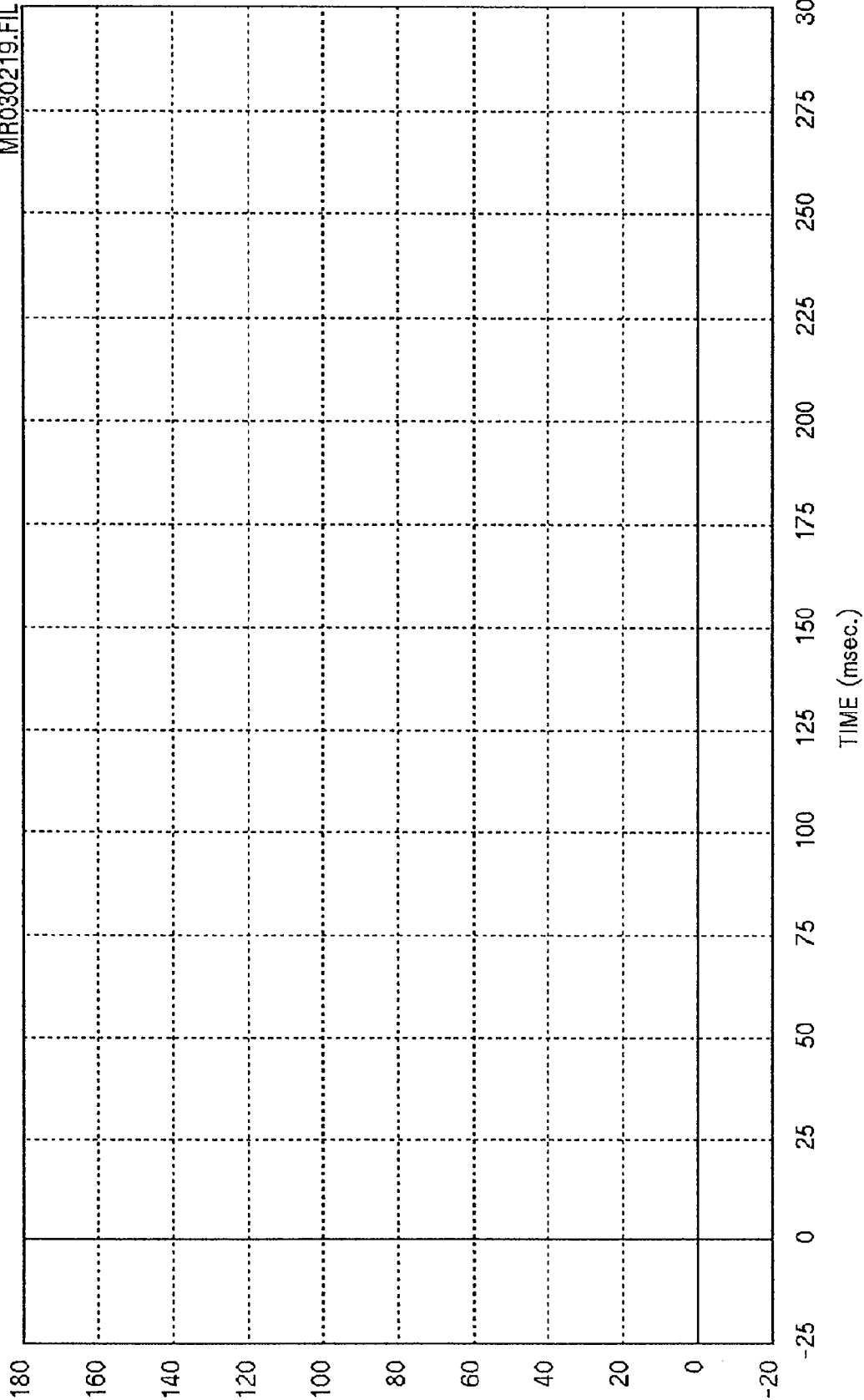
Curve: Driver shoulder belt elongation (No data) Filter: SAE CLASS 60 Max = 0.00000 Min = .00000

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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MR030219.FIL



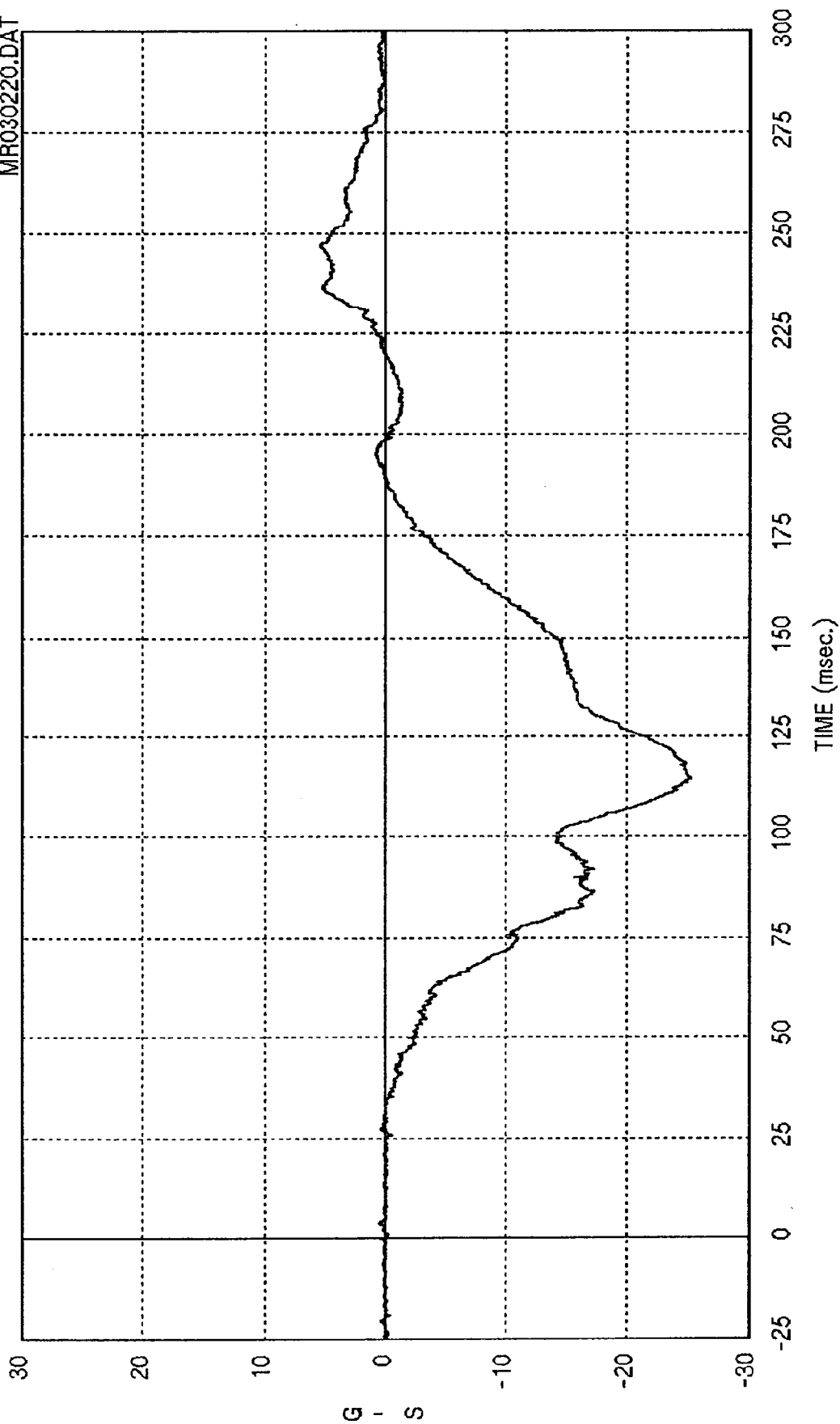
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Curve: Driver seat belt pullout (Not used)

Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

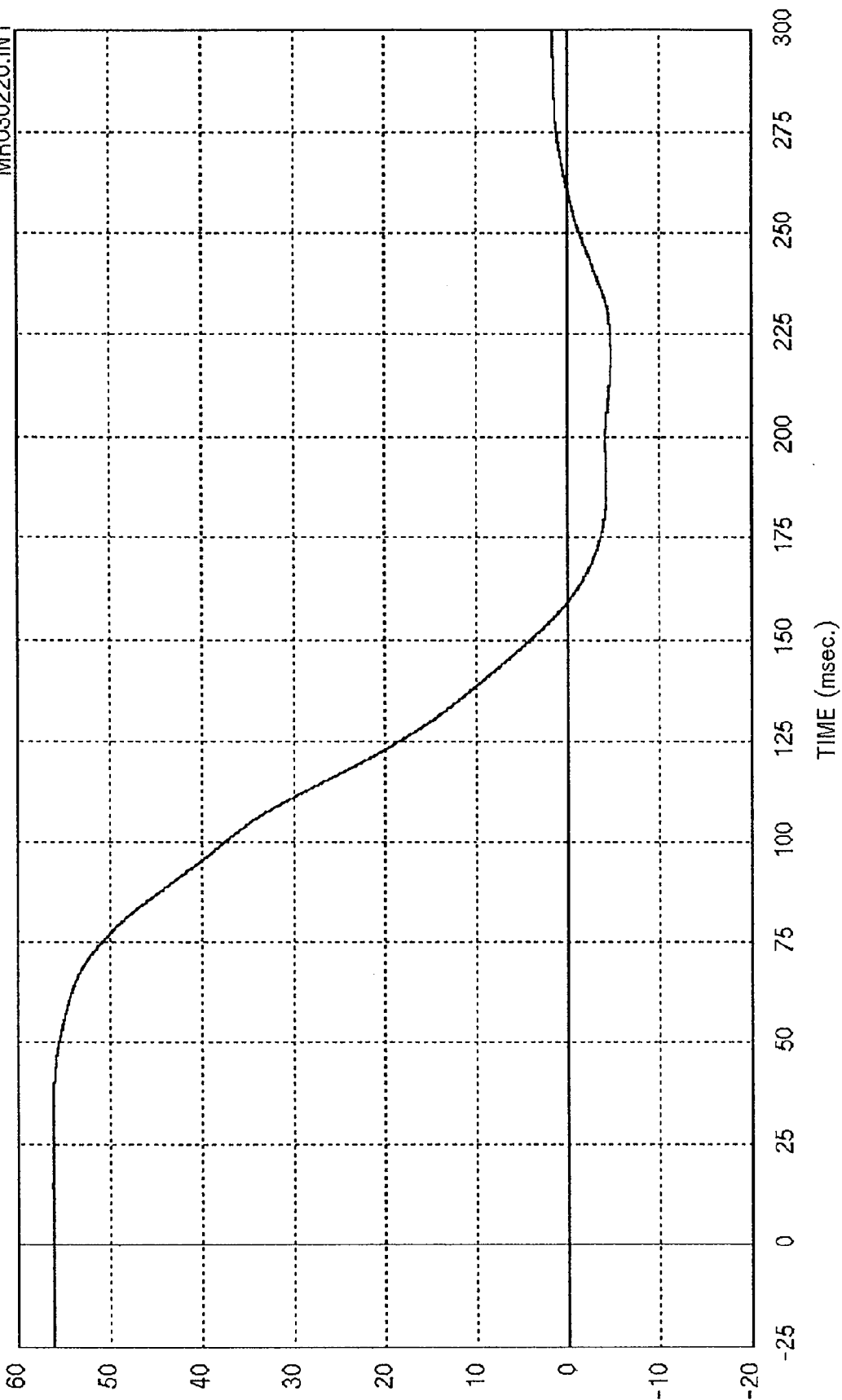
MR030220.DAT



Curve: Passenger head acceleration -- X axis Filter: SAE CLASS 1000 Max = 5.4834 Min = -25.255

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MRO30220.IN1



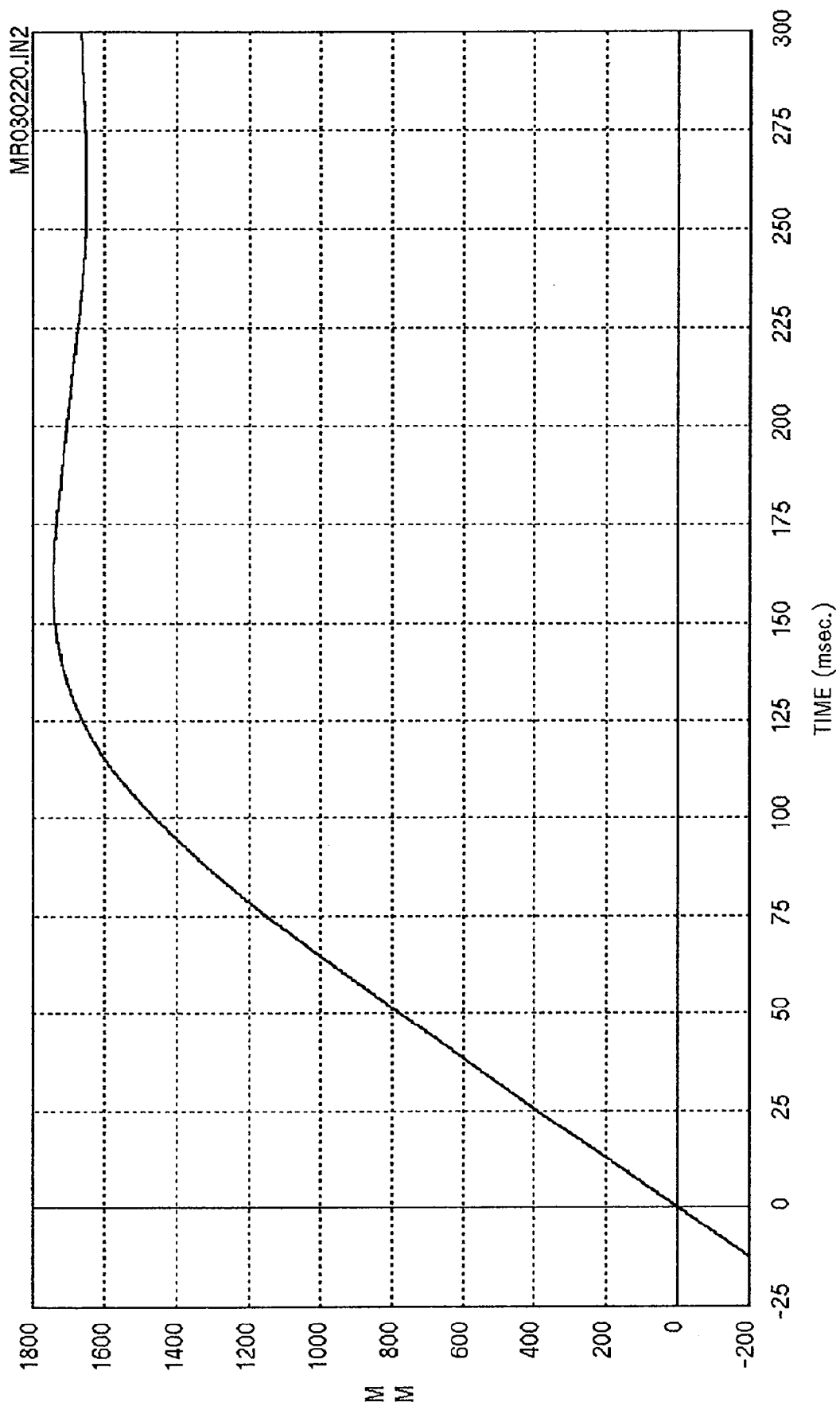
Curve: Passenger head delta V -- X axis Filter: SAE CLASS 180 Max = 56.286 Min = -4.6359

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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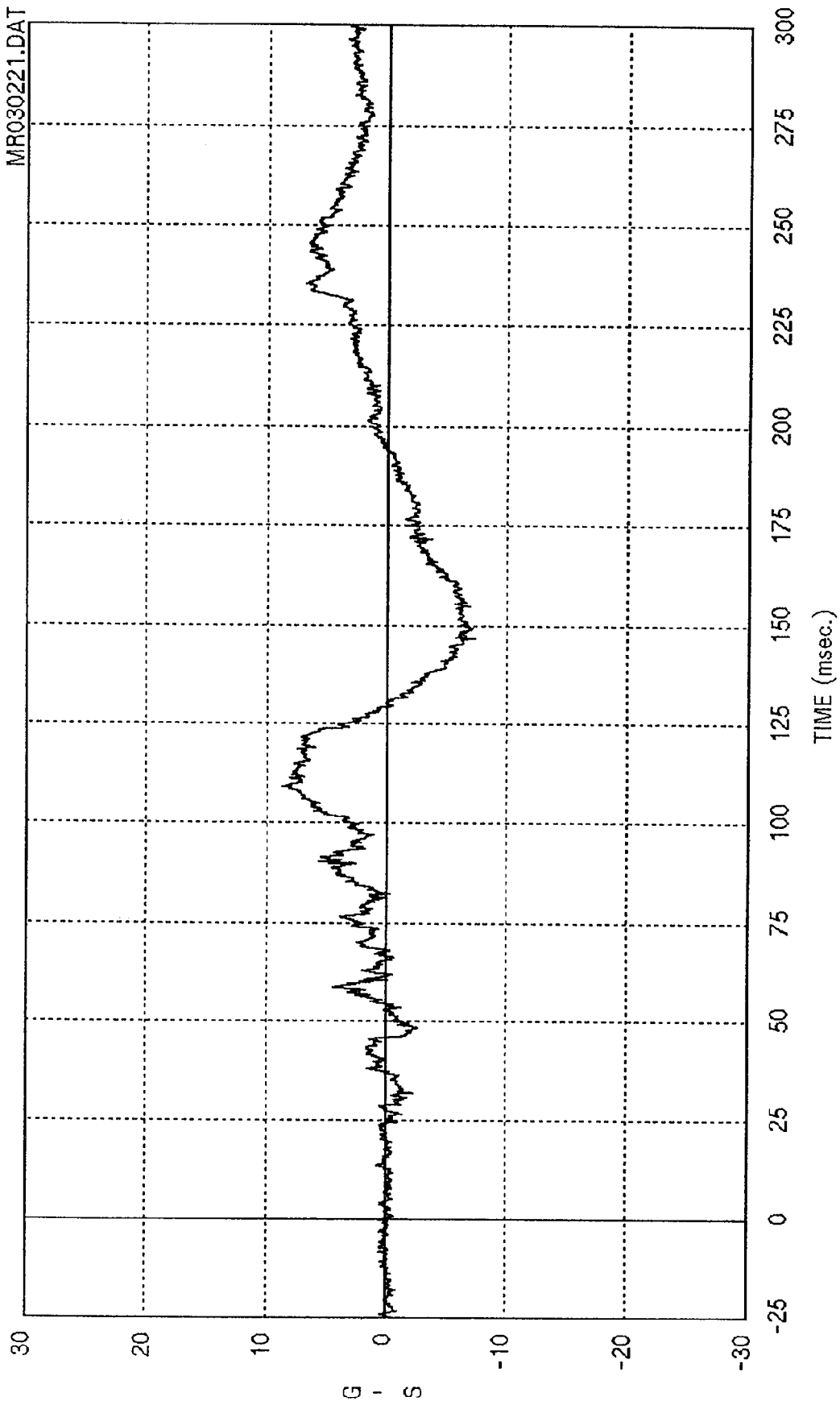
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Curve: Passenger head displacement -- X axis Filter: SAE CLASS 180 Max = 1743.0 Min = 1651.0

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

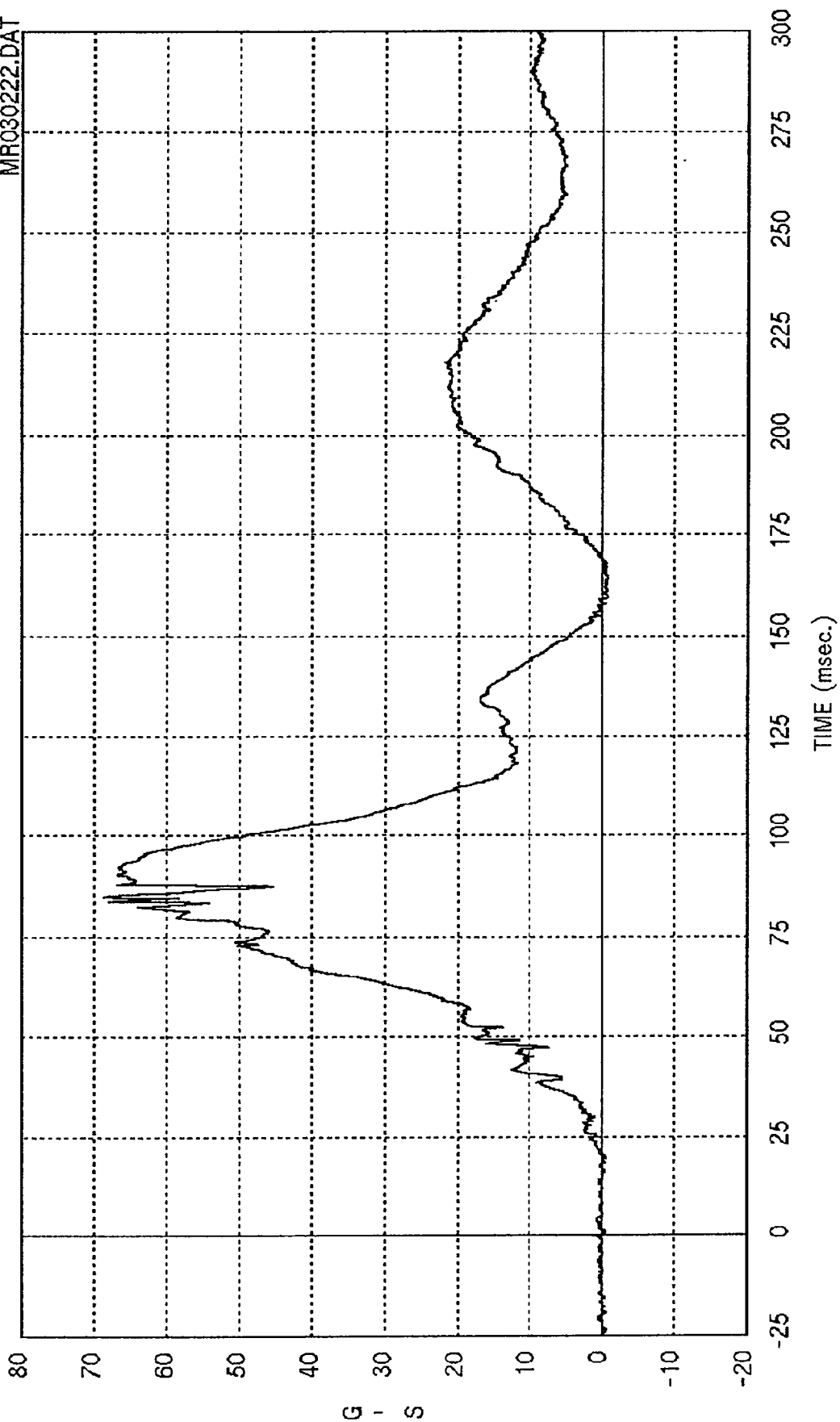
MR030221.DAT



Curve: Passenger head acceleration -- Y axis: Filter: SAE CLASS 1000 Max = 8.7911 Min = -7.2314

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030222.DAT



Curve: Passenger head acceleration -- Z axis Filter: SAE CLASS 1000 Max = 68.613 Min = -.93904

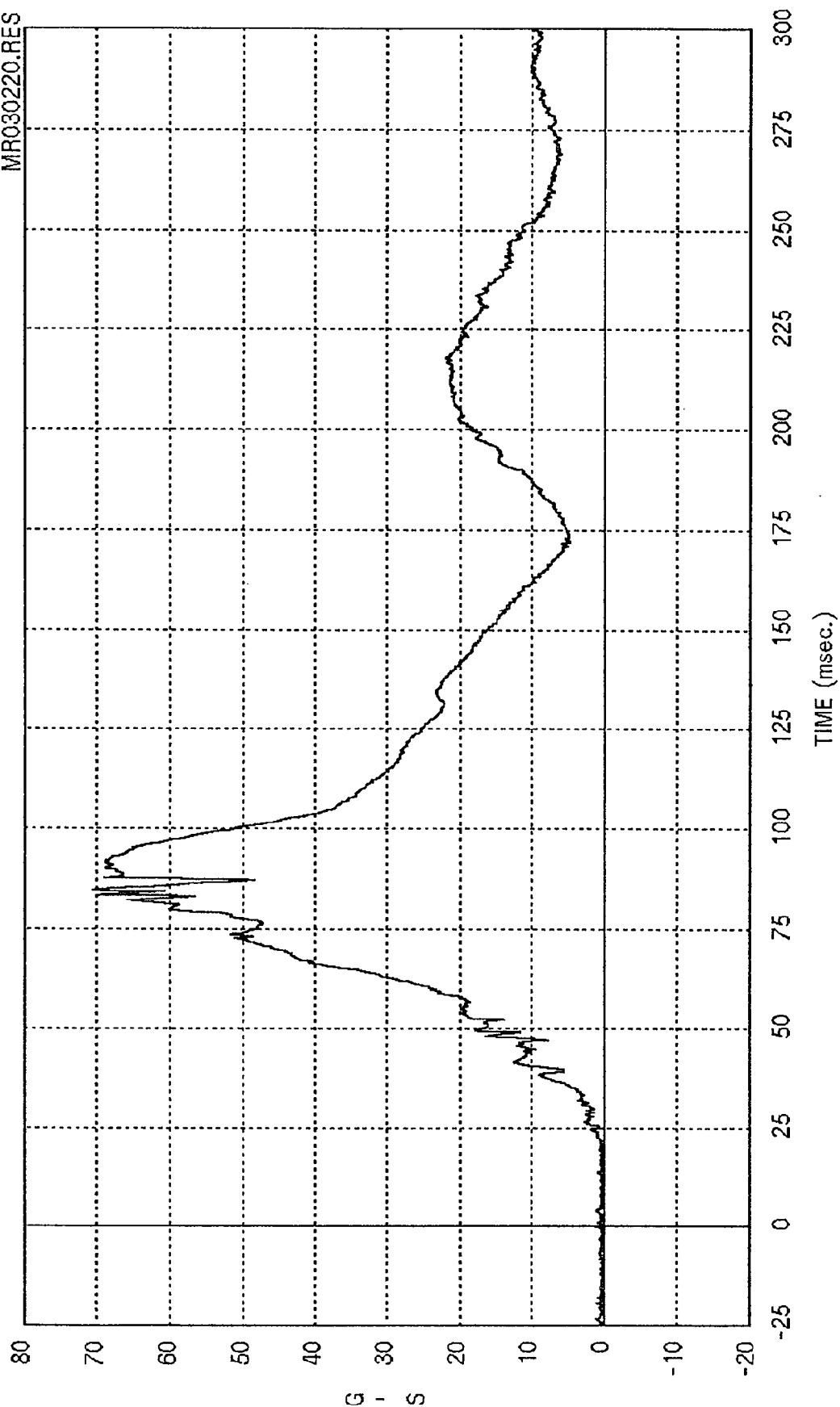
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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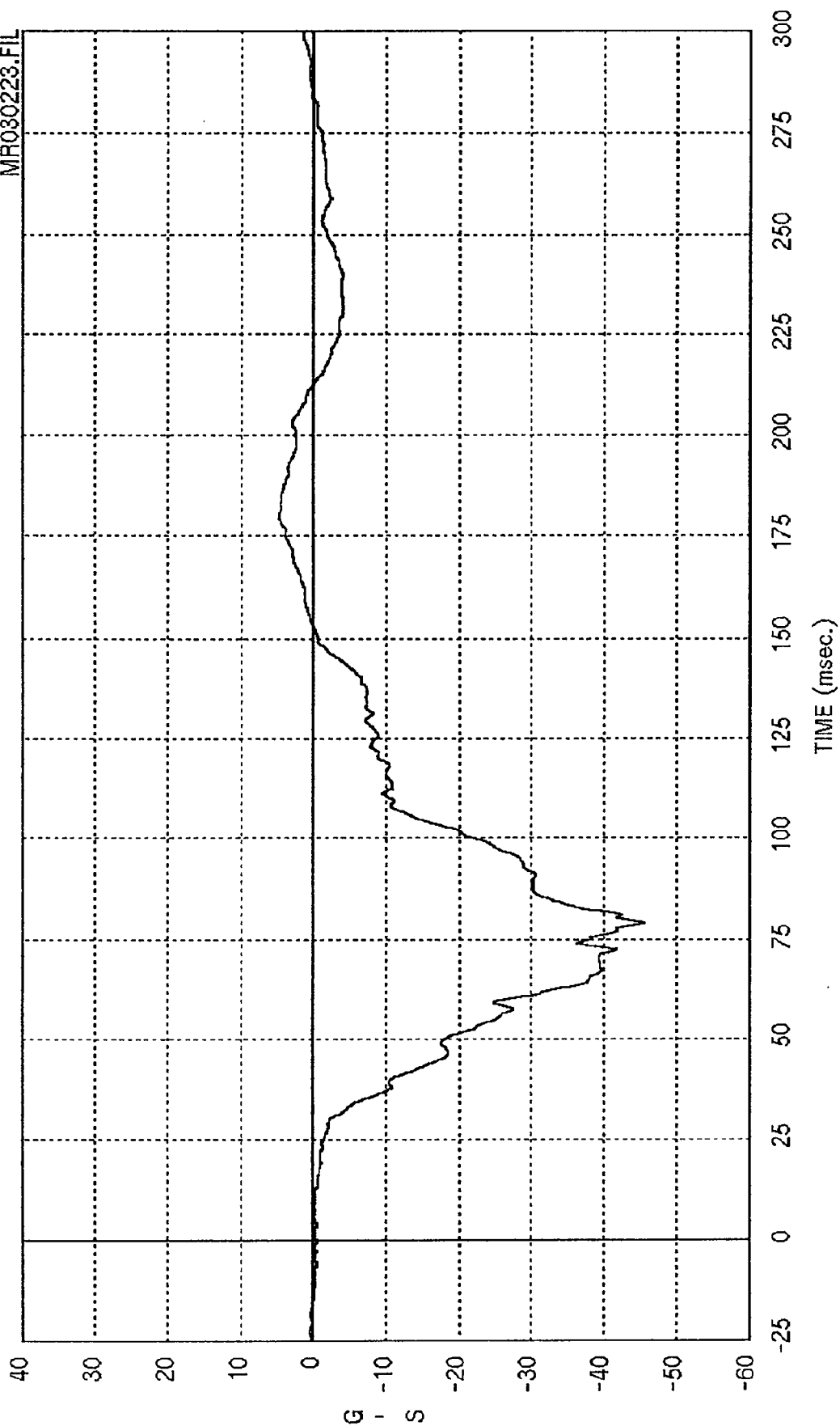
MR030220.RES



Curve: Passenger head acceleration -- Resultant Filter: SAE CLASS 1000 Max. = 70.590 Min = .00000

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

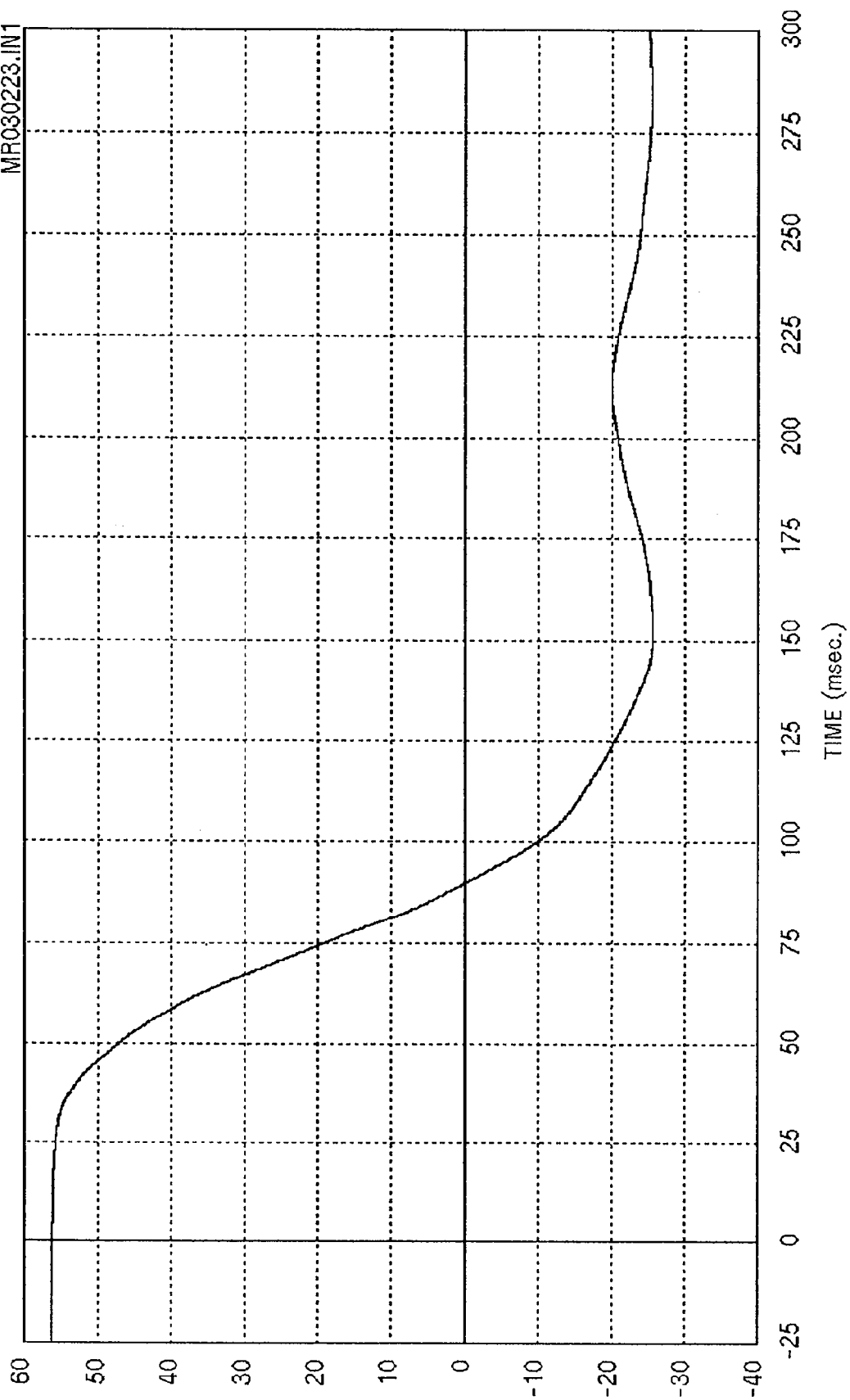
MR030223.FIL



Curve: Passenger chest acceleration -- X axis Filter: SAE CLASS 180 Max = 4.7839 Min = -45.628

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030223.IN1



Curve: Passenger chest delta V -- X axis Filter: SAE CLASS 180 Max = 56.252 Min = -25.595

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

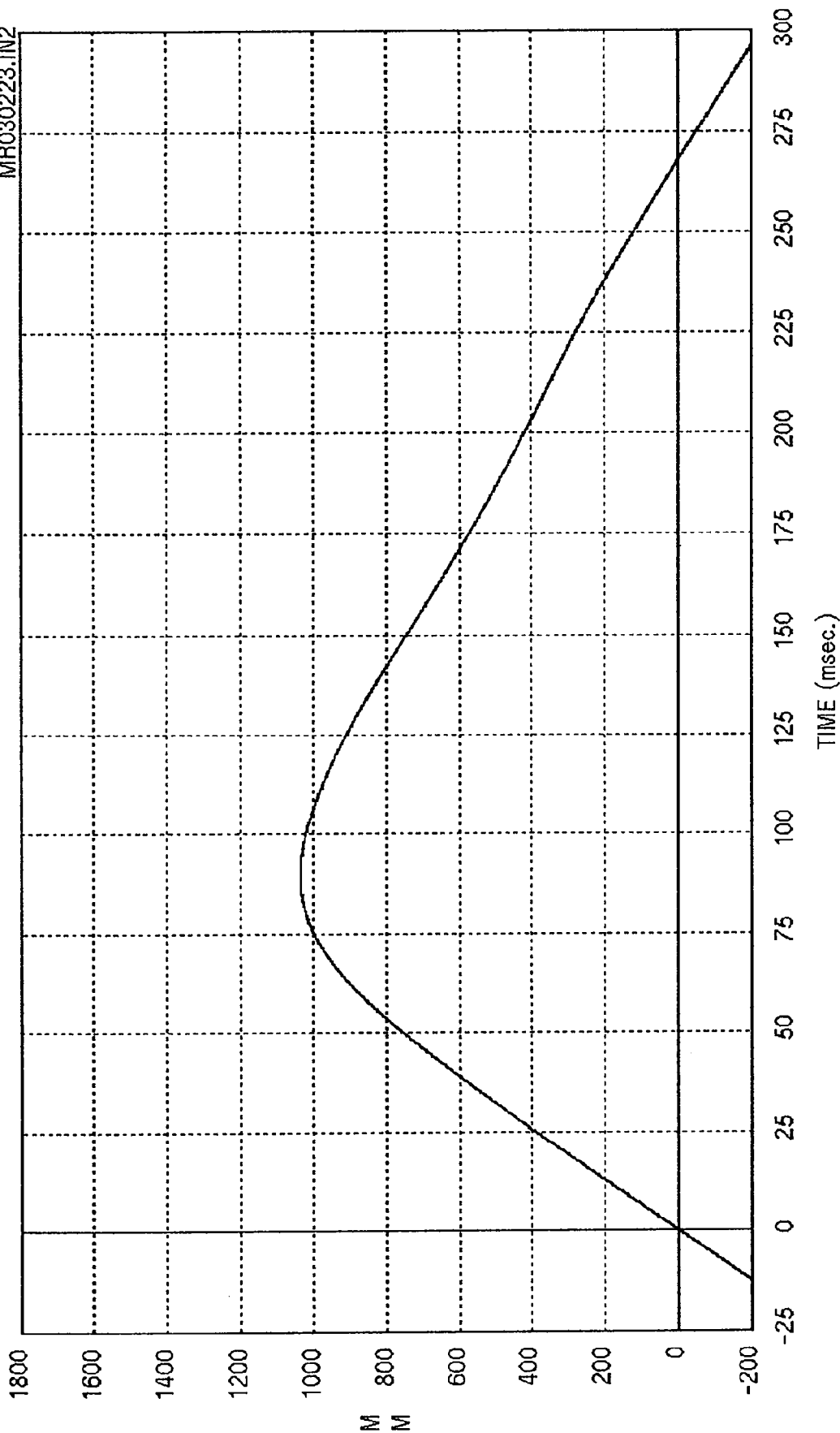
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MR030223.IN2



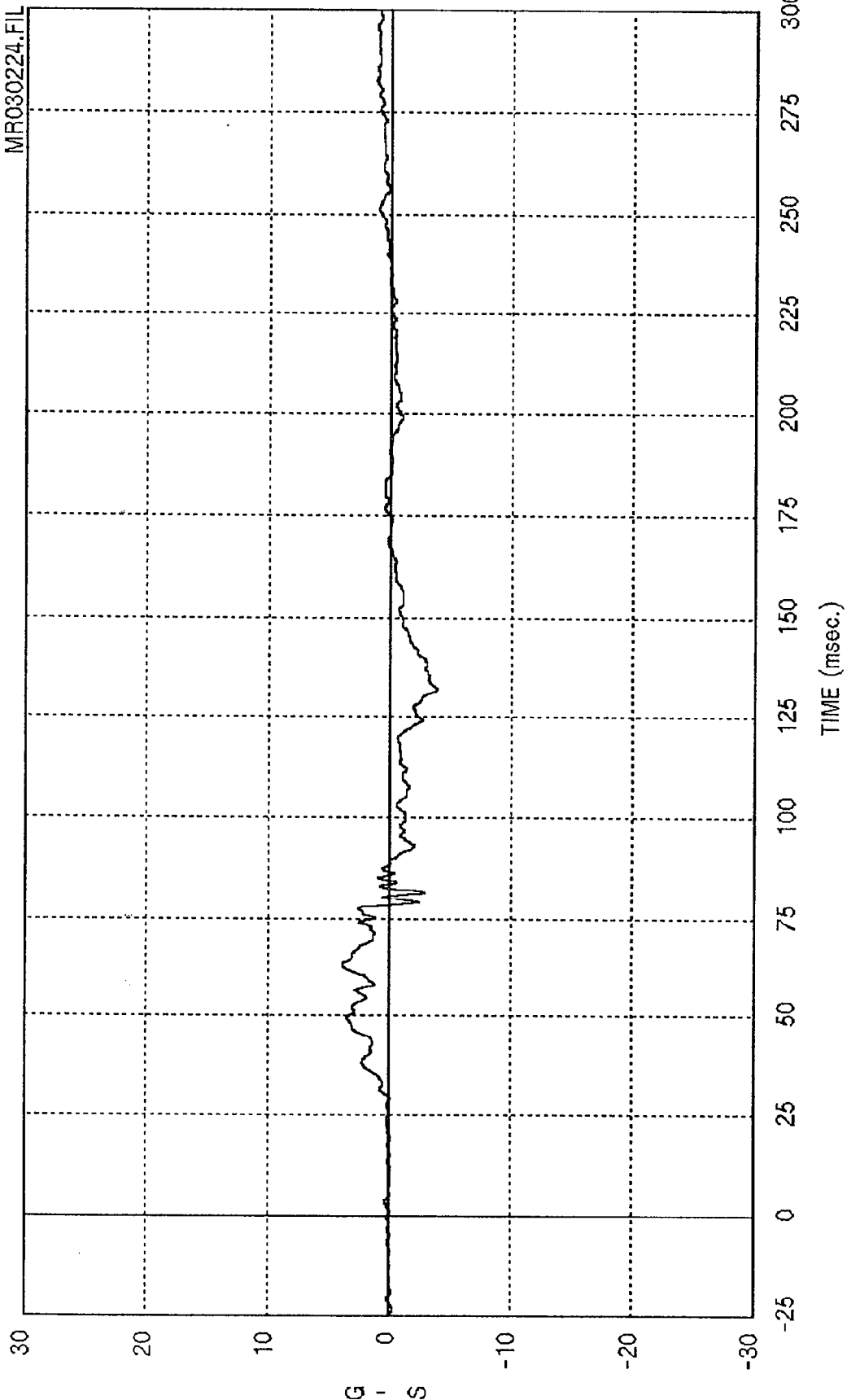
Curve: Passenger chest displacement -- X axis

Filter: SAE CLASS-180 Max = 1037.0

Min = -224.70

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030224.FIL



Curve: Passenger chest acceleration -- Y axis Filter: SAE-CLASS 180 Max = 3.8275 Min = -3.8903

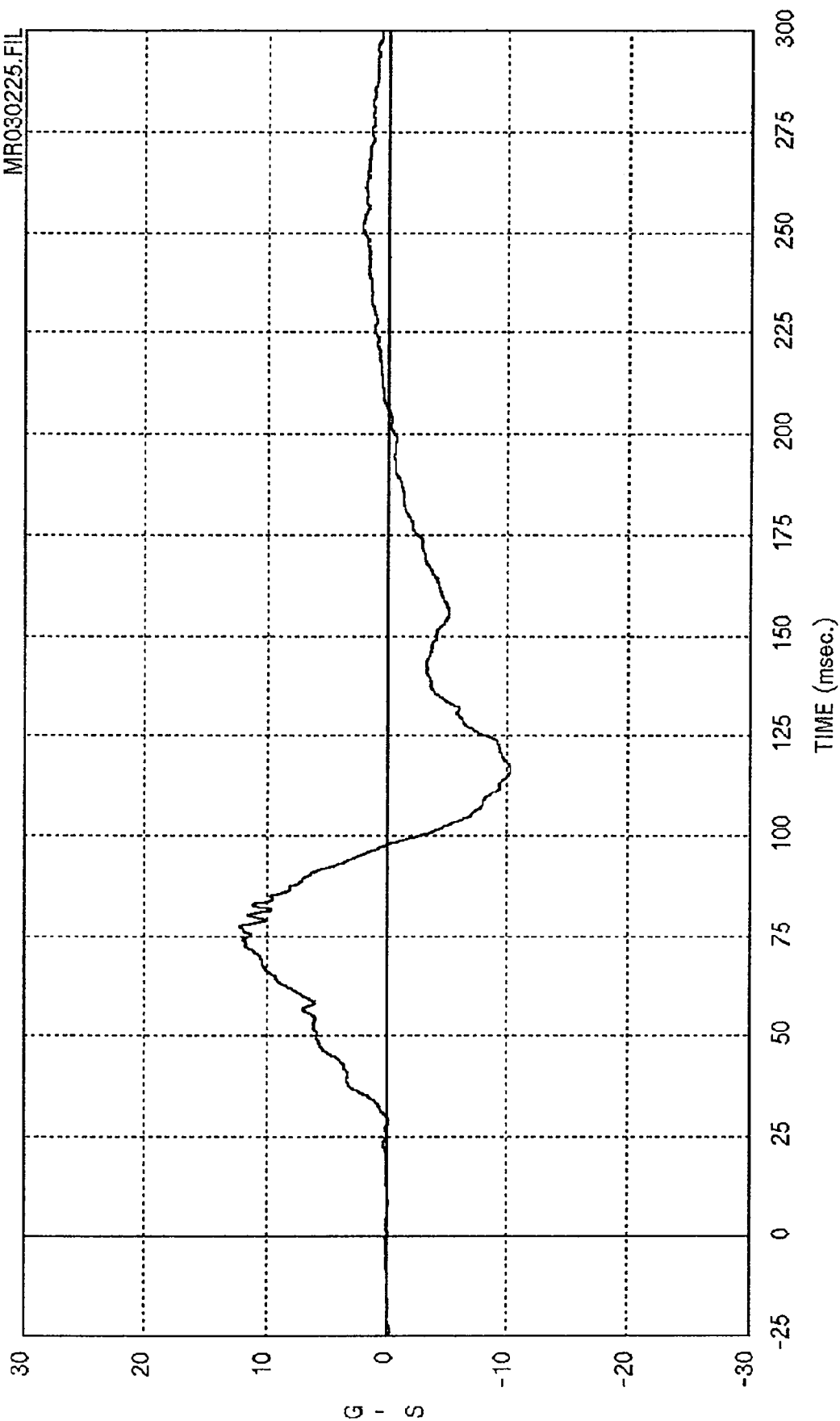
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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MSE-R93030-02

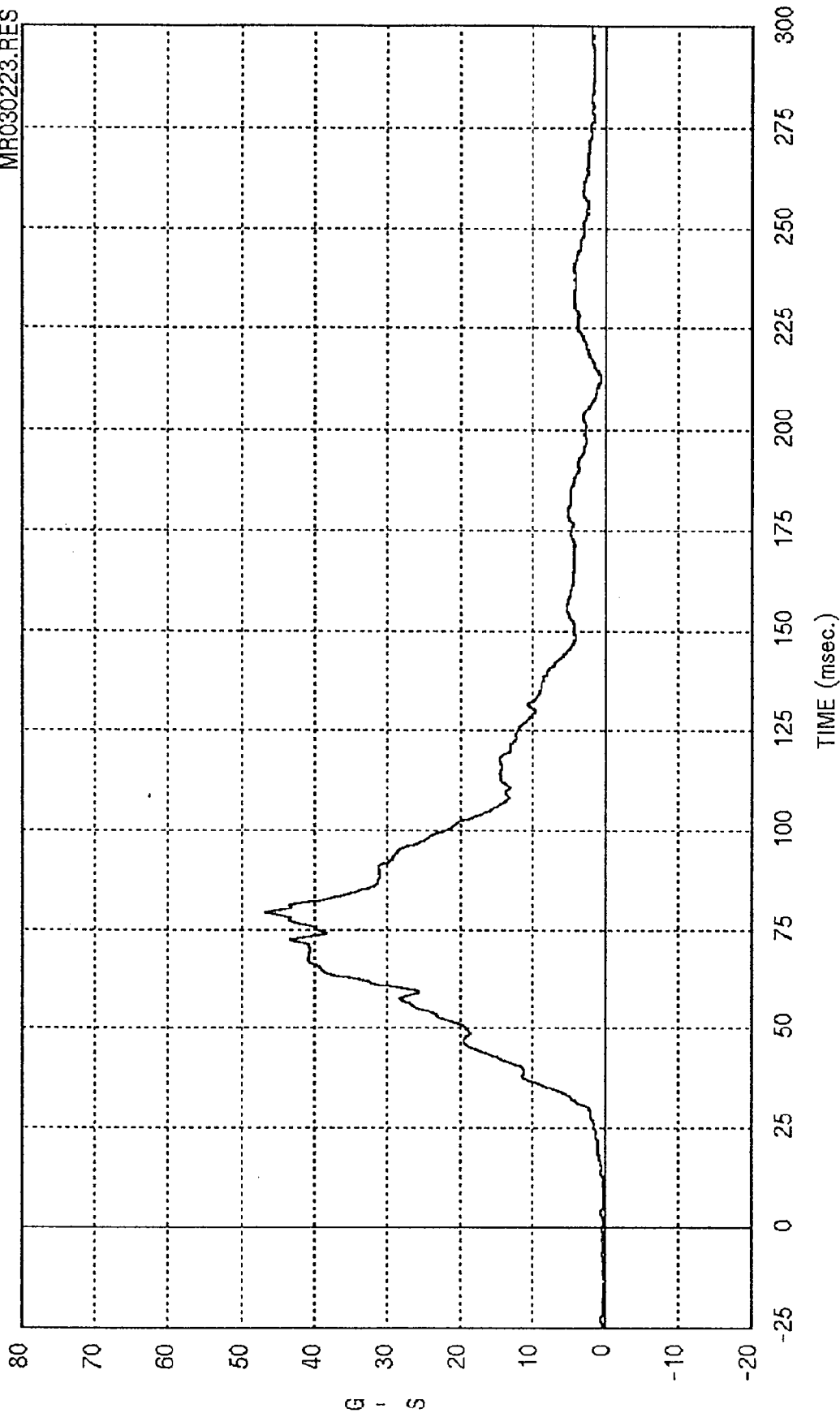
MR030225.FIL



Curve: Passenger chest acceleration -- Z axis Filter: SAE CLASS 180 Max = 12.222 Min = -10.267

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030223.RES



Curve: Passenger chest acceleration -- Resultant Filter: SAE CLASS 180 -- Max = 46.785 Min = .10759

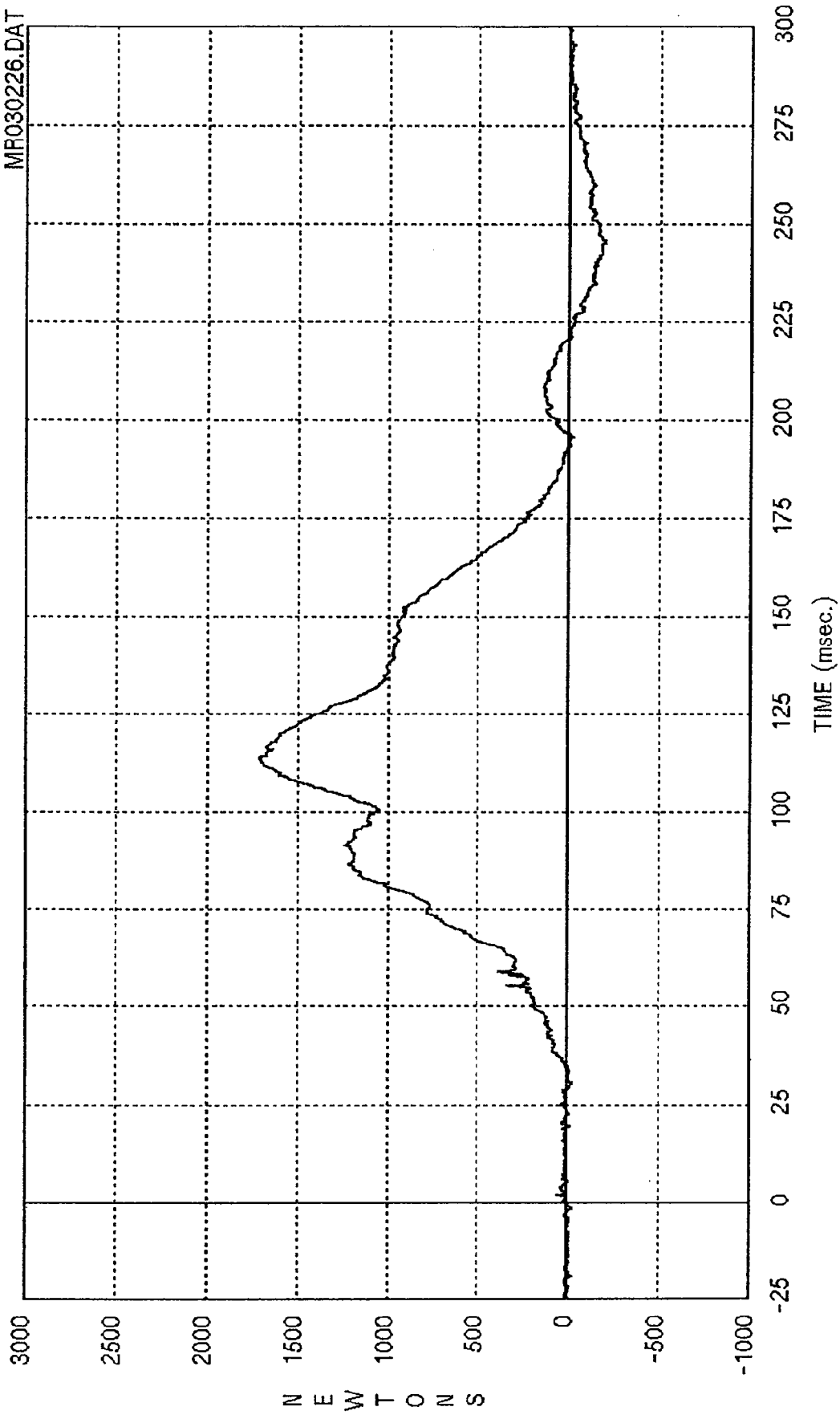
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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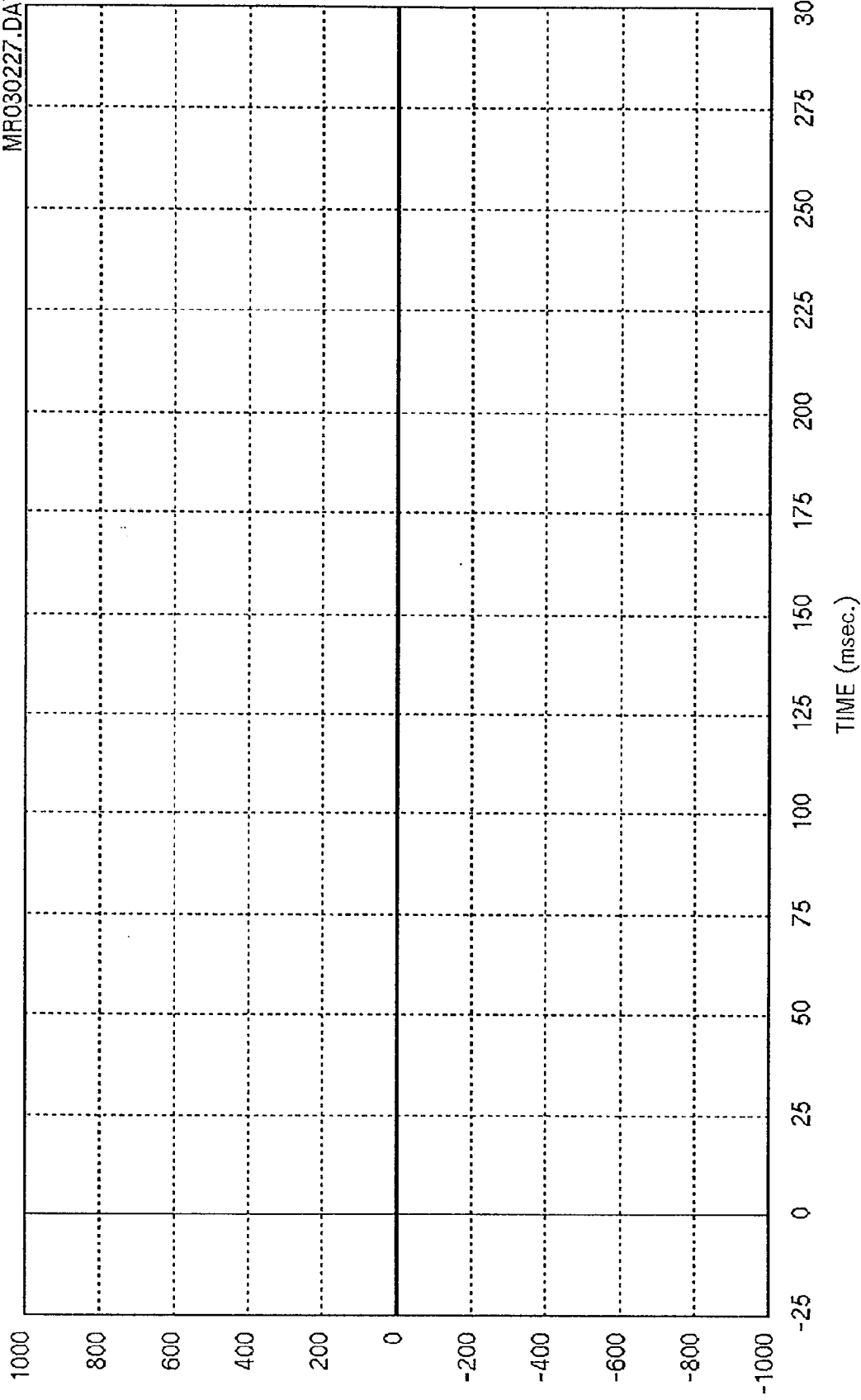
MF030226.DAT



Curve: Passenger neck force -- X axis Filter: SAE CLASS 1000 Max = 1715.8 Min = -196.26

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

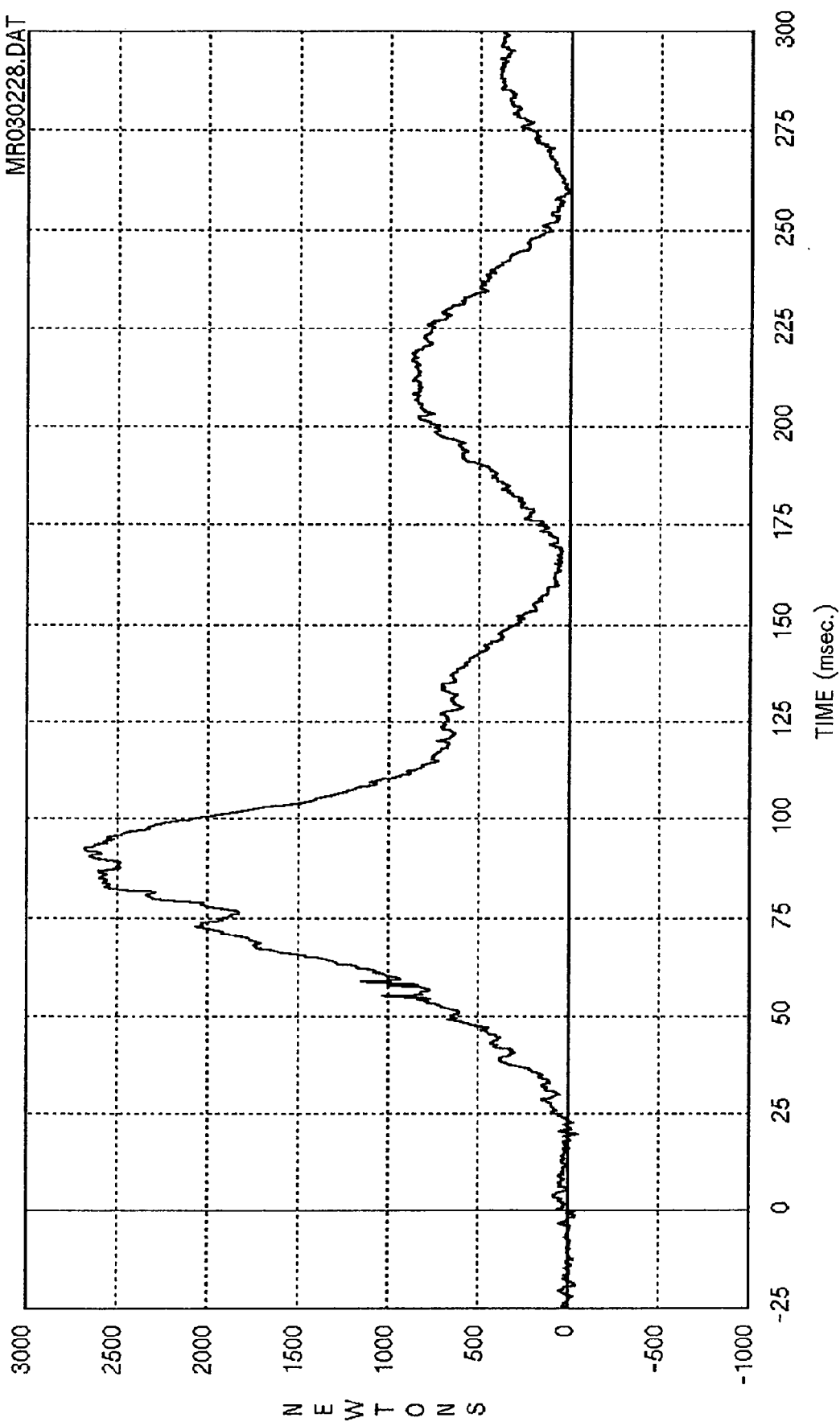
MR030227.DAT



Curve: Passenger neck force -- Y axis (No data) Filter: SAE CLASS 1000 Max = .00000 Min = .00000

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030228.DAT

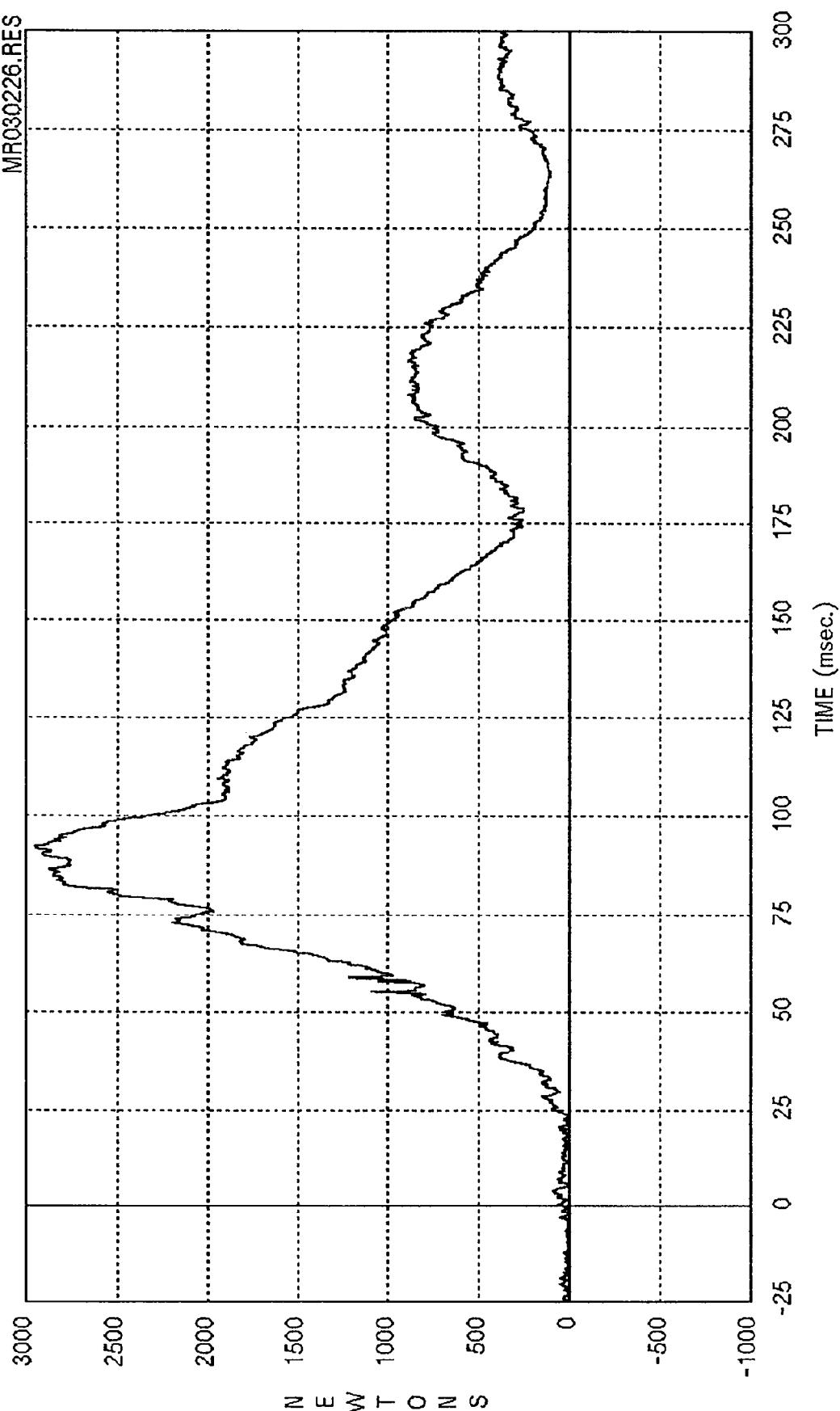


Curve: Passenger neck force -- Z axis

Filter: SAE CLASS 1000 Max = 2684.1 Min = -49.352

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030226.RES

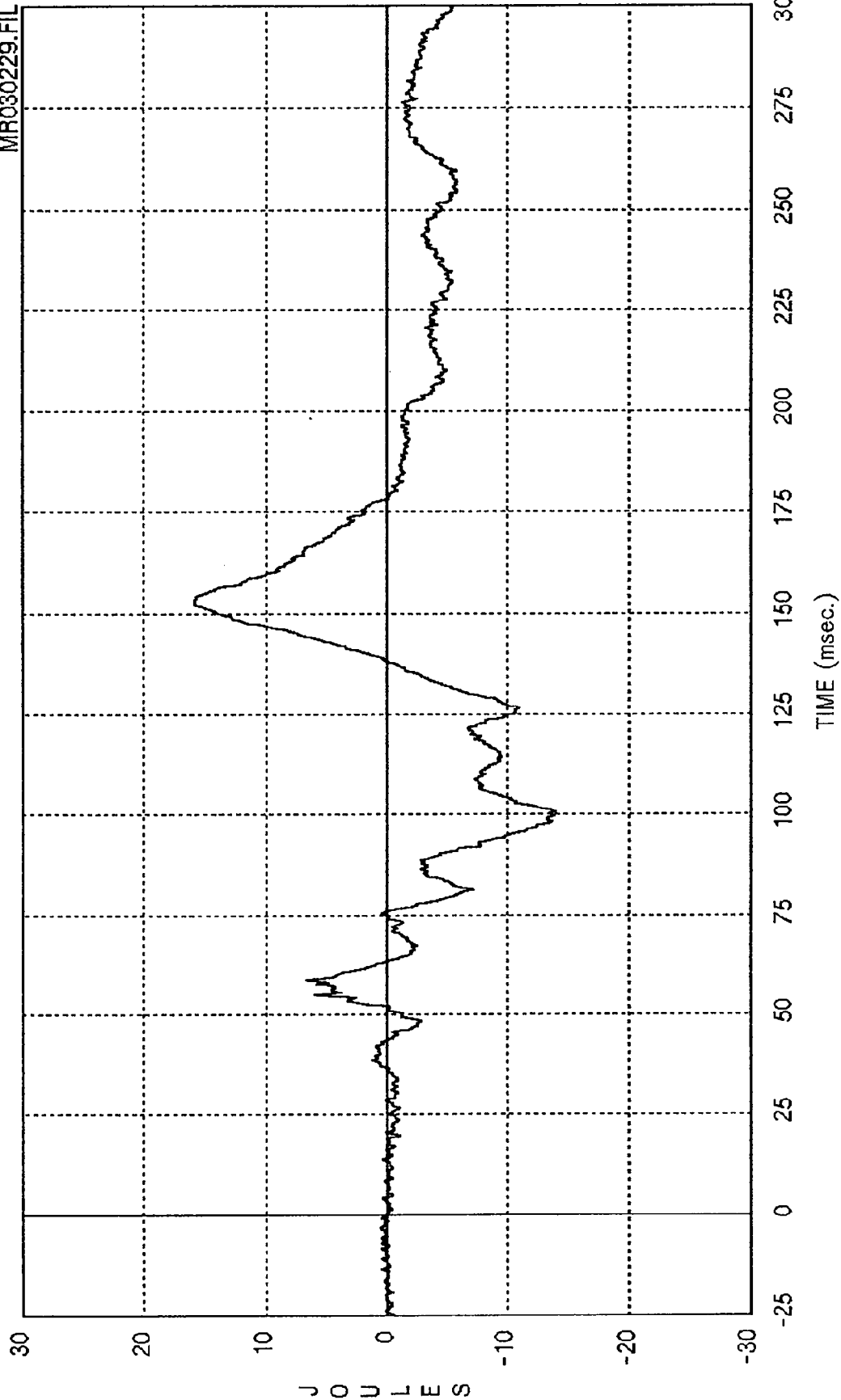


Curve: Passenger neck force --- Resultant

Filter: SAE CLASS 1000 Max = 2949.9 Min = 2.2304

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

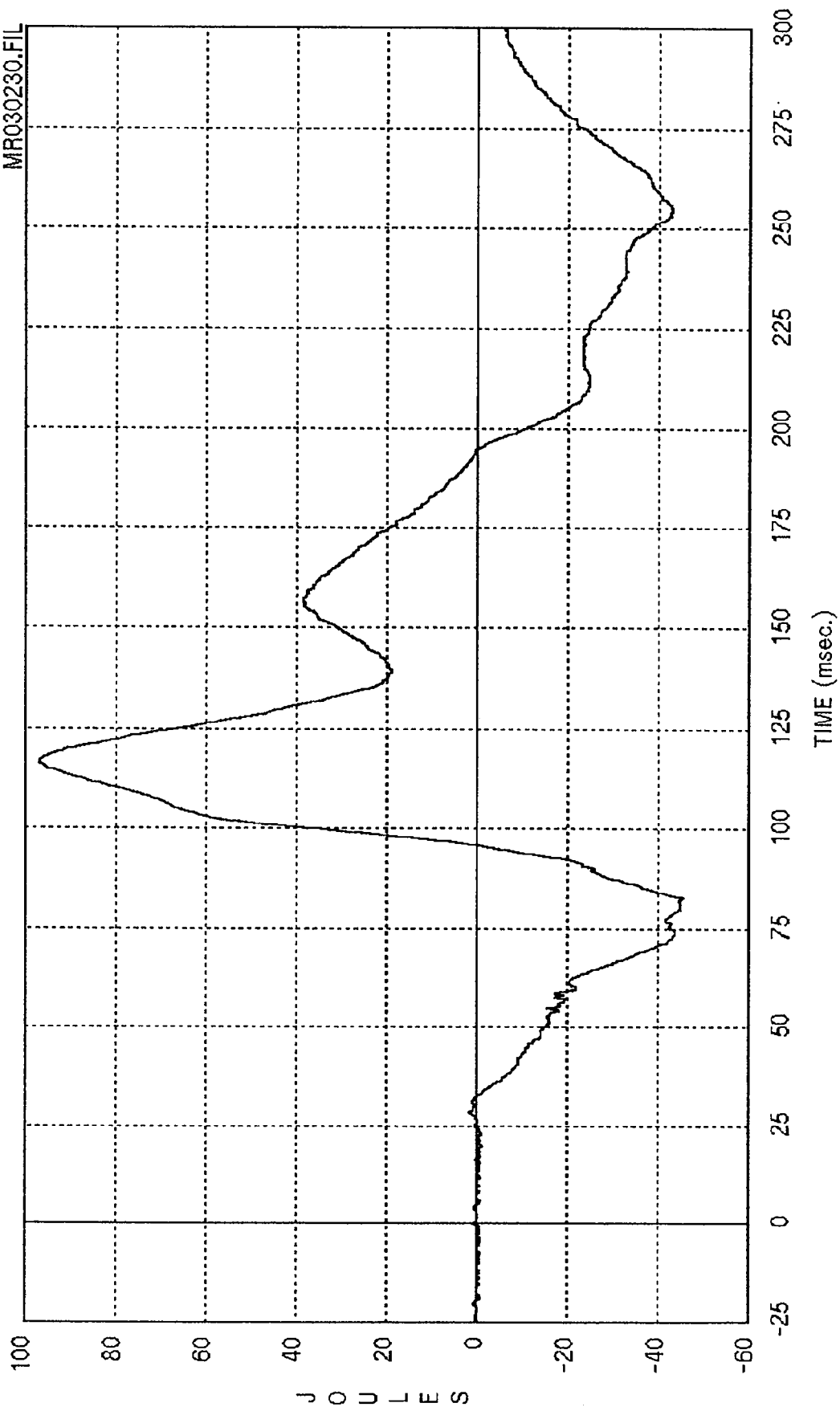
MR030229.FIL



Curve: Passenger neck moment -- X axis Filter: SAE CLASS 600 Max = 15.943 Min = -13.968

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

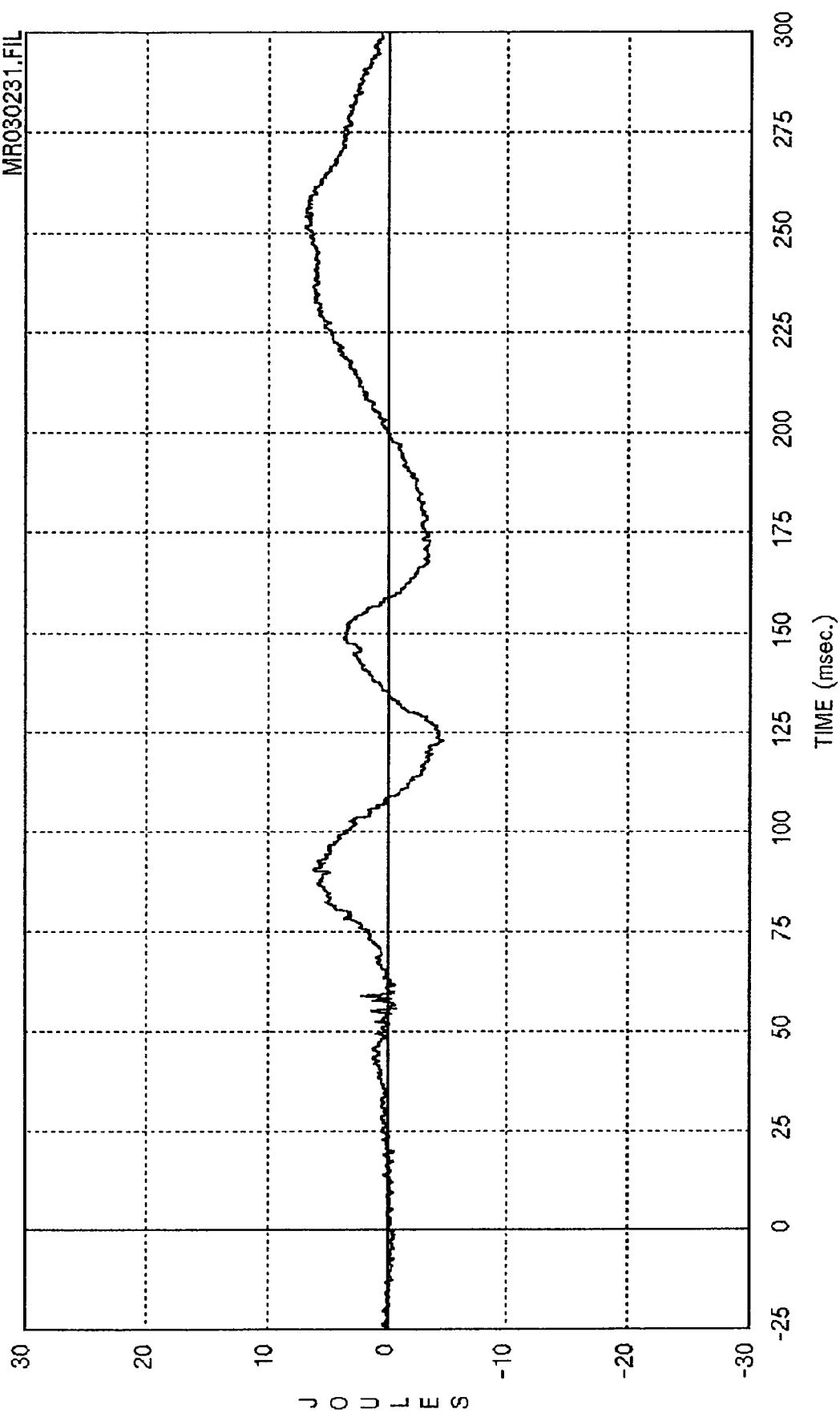
MR030230.FIL



Curve: Passenger neck moment -- Y axis Filter: SAE CLASS 600 Max = 97.145 Min = -45.488

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030231.FIL



Curve: Passenger neck moment -- Z axis

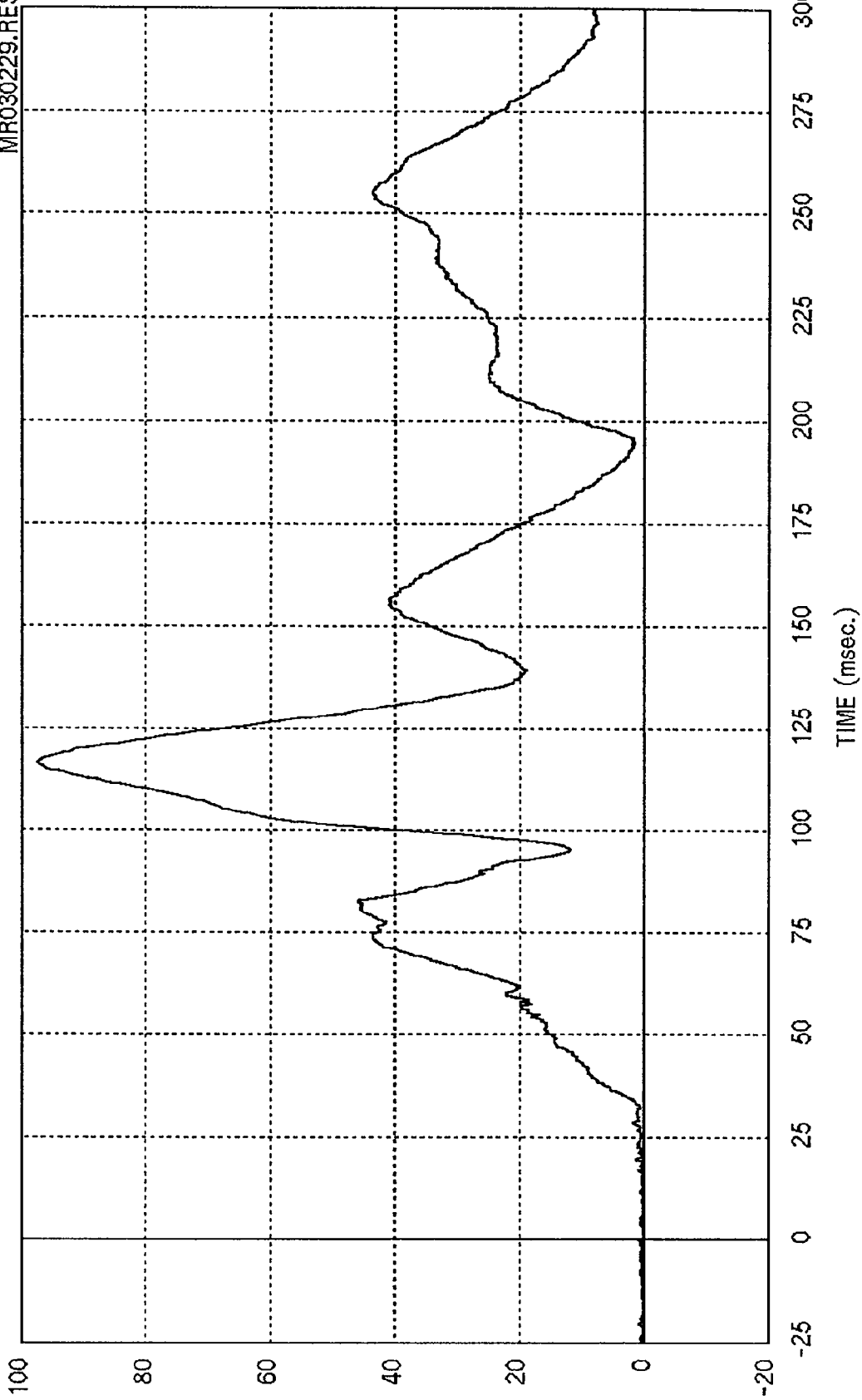
Filter: SAE CLASS 600

Max = 6.9973

Min = -4.5766

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030229.RES



Curve: Passenger neck moment -- Resultant Filter: SAE CLASS 600 Max = 97.574 Min = .48449E-01

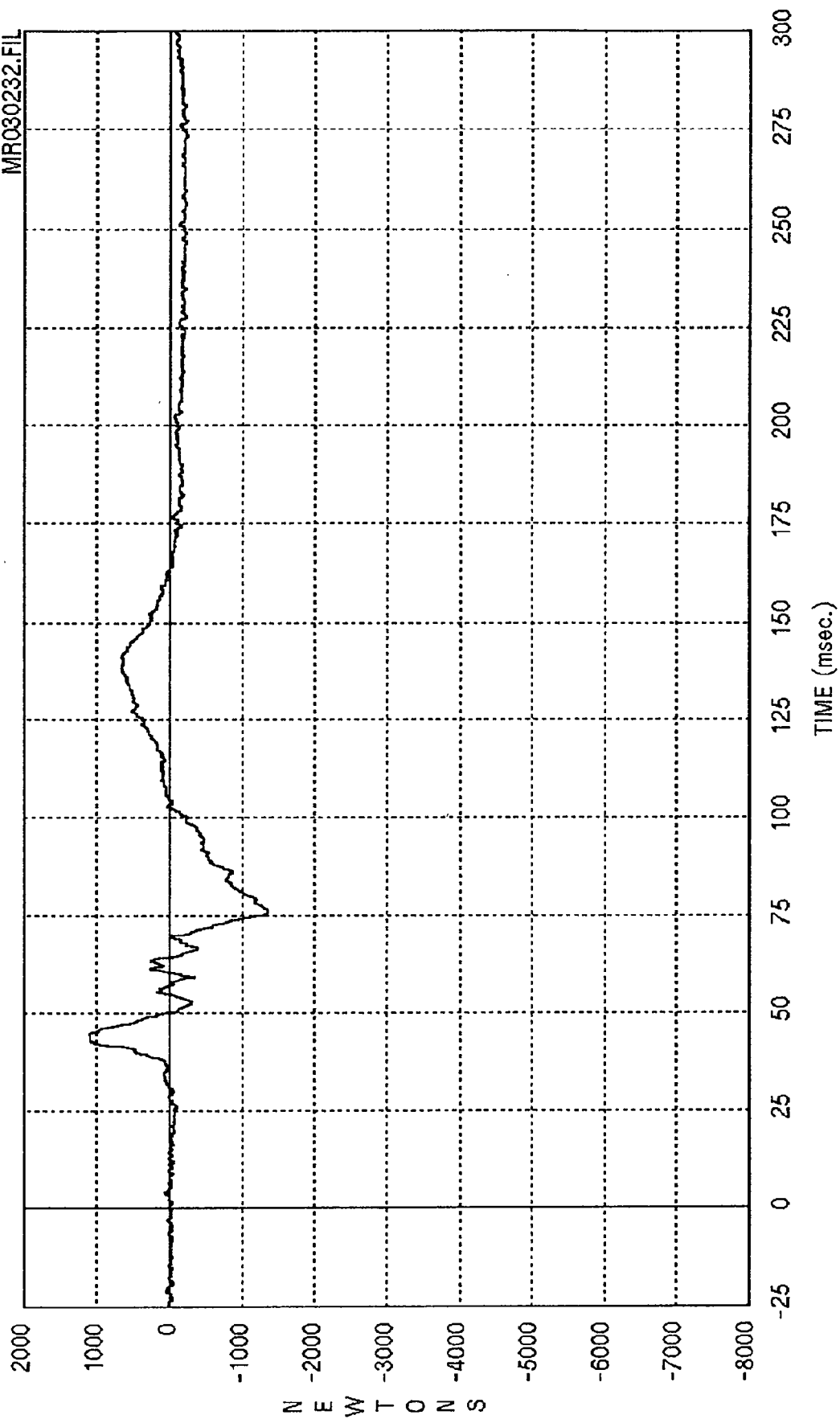
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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MR030232.FIL



Curve: Passenger left femur

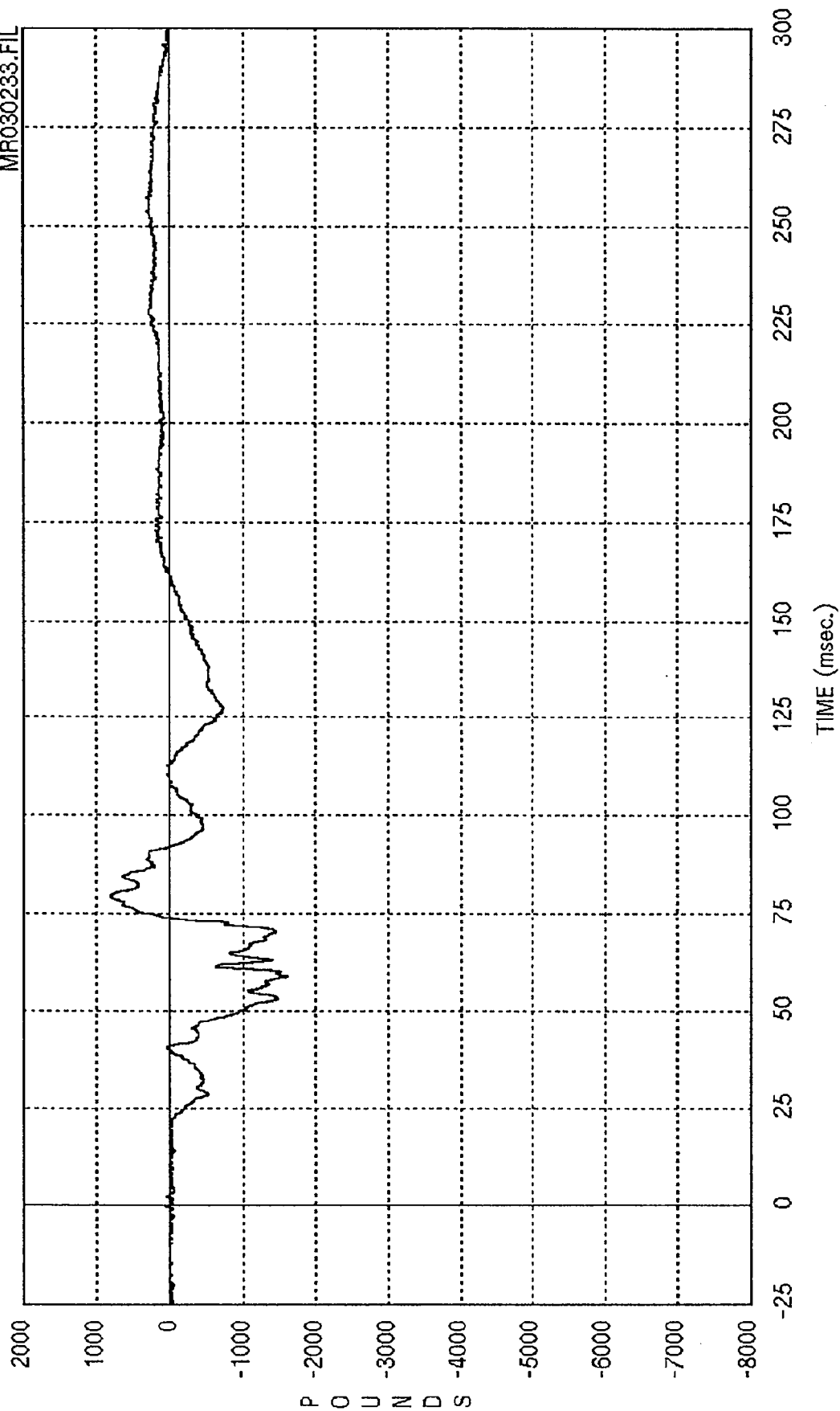
Filter: SAE CLASS-600

Max = 1100.4

Min = -1351.1

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MP030233.FIL

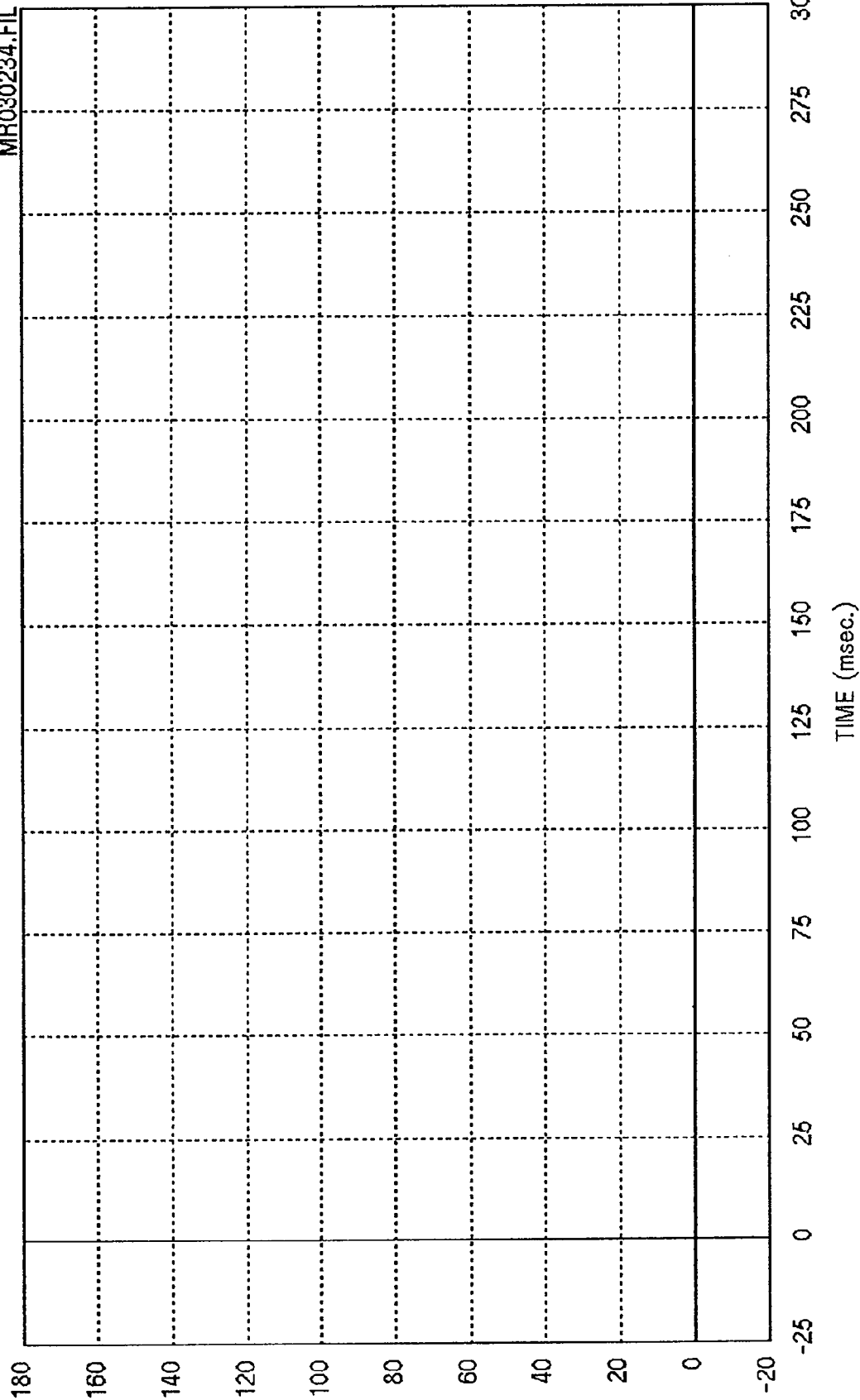


Curve: Passenger right femur

Filter: SAE CLASS 600 Max = 818.16 Min = 1601.7

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030234.FIL



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Curve: Passenger chest displacement (No data)

Filter: SAE CLASS 180

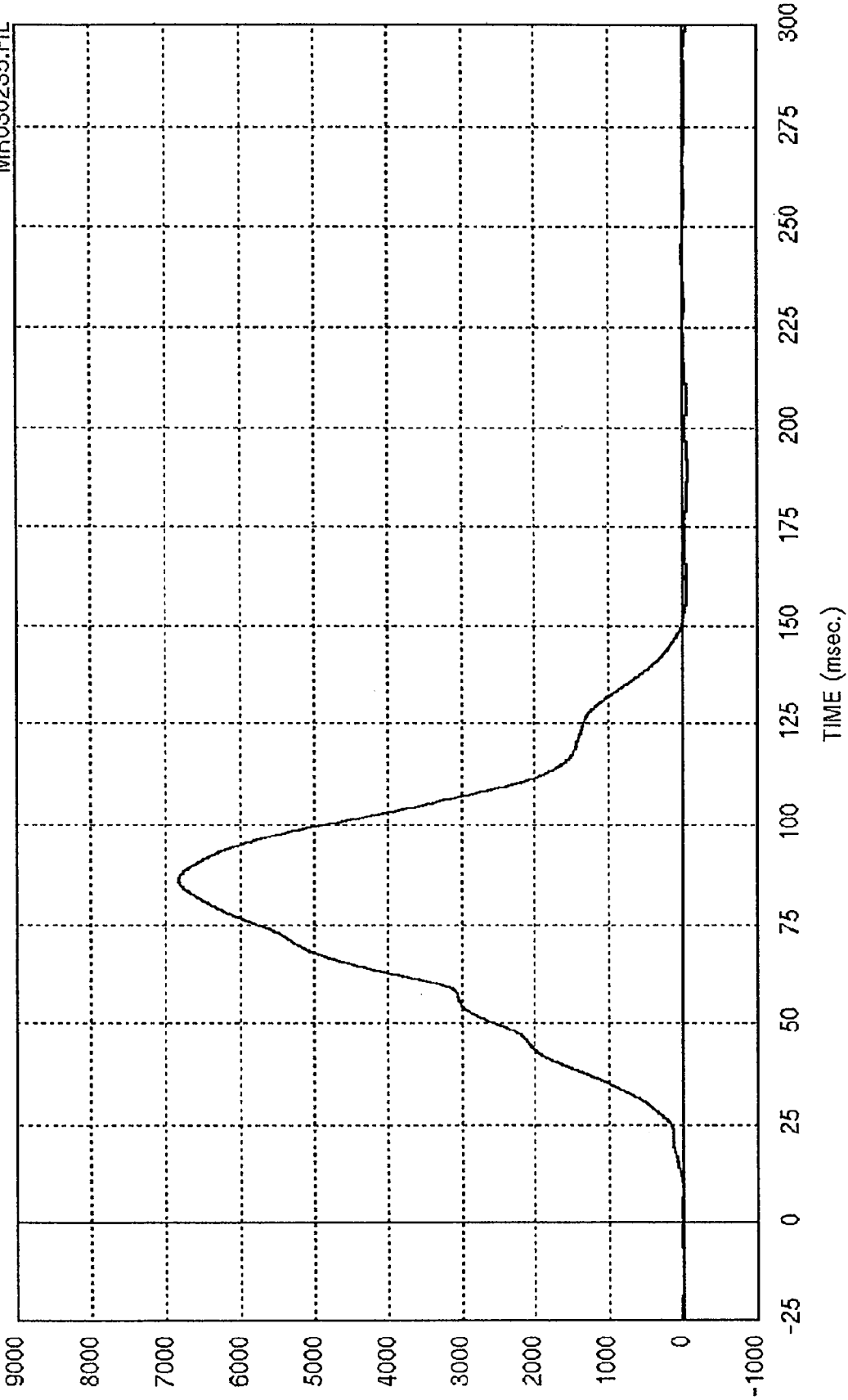
Max = .00000

Min = .00000

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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MR030235.FIL



Curve: Passenger lap belt load Filter: SAE CLASS 60 Max = 6833.3 Min = -71.297

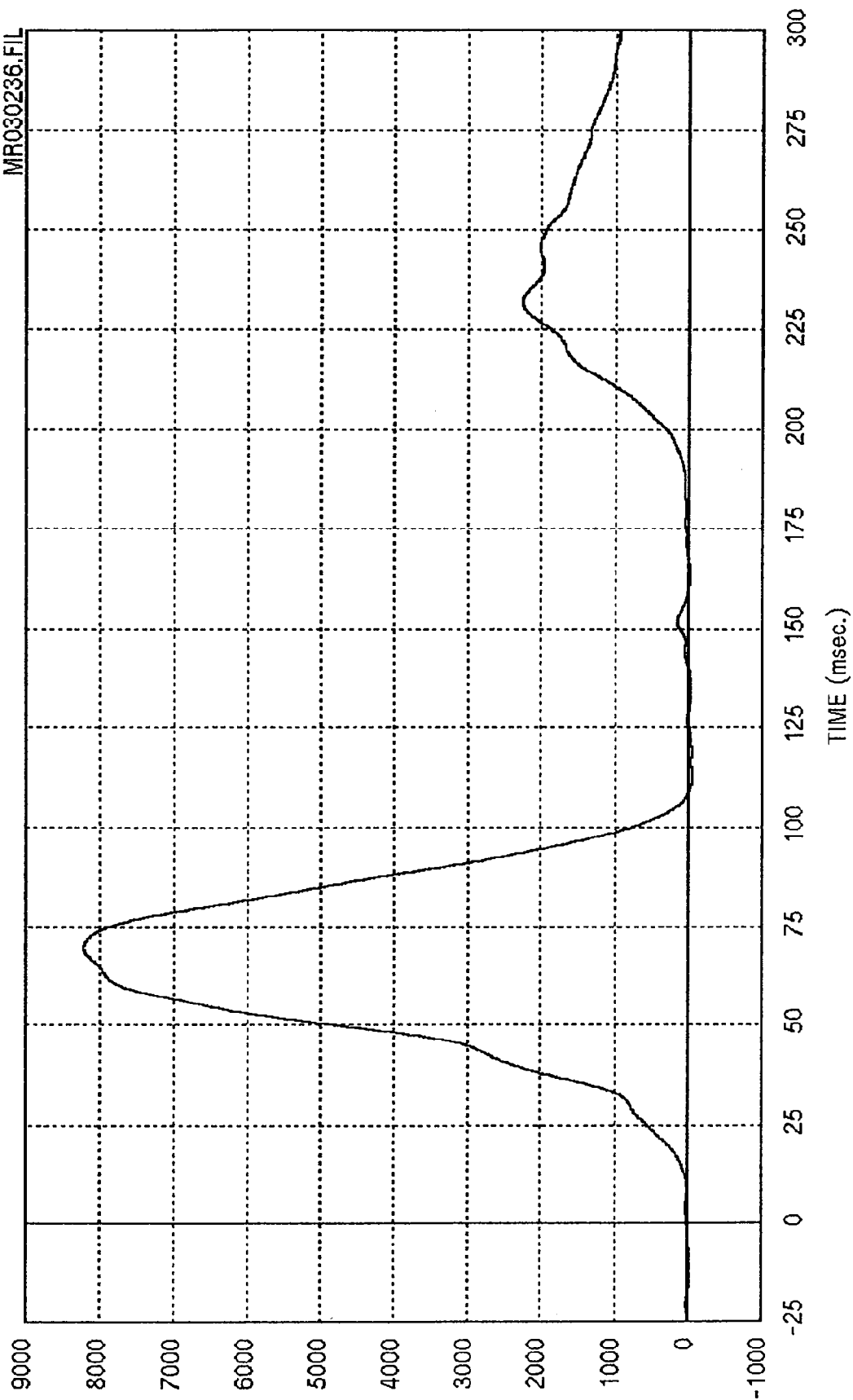
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

NEWTONS

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MR030236.FIL



Curve: Passenger shoulder belt load Filter: SAE CLASS 60 Max = 8218.7 Min = -51.864

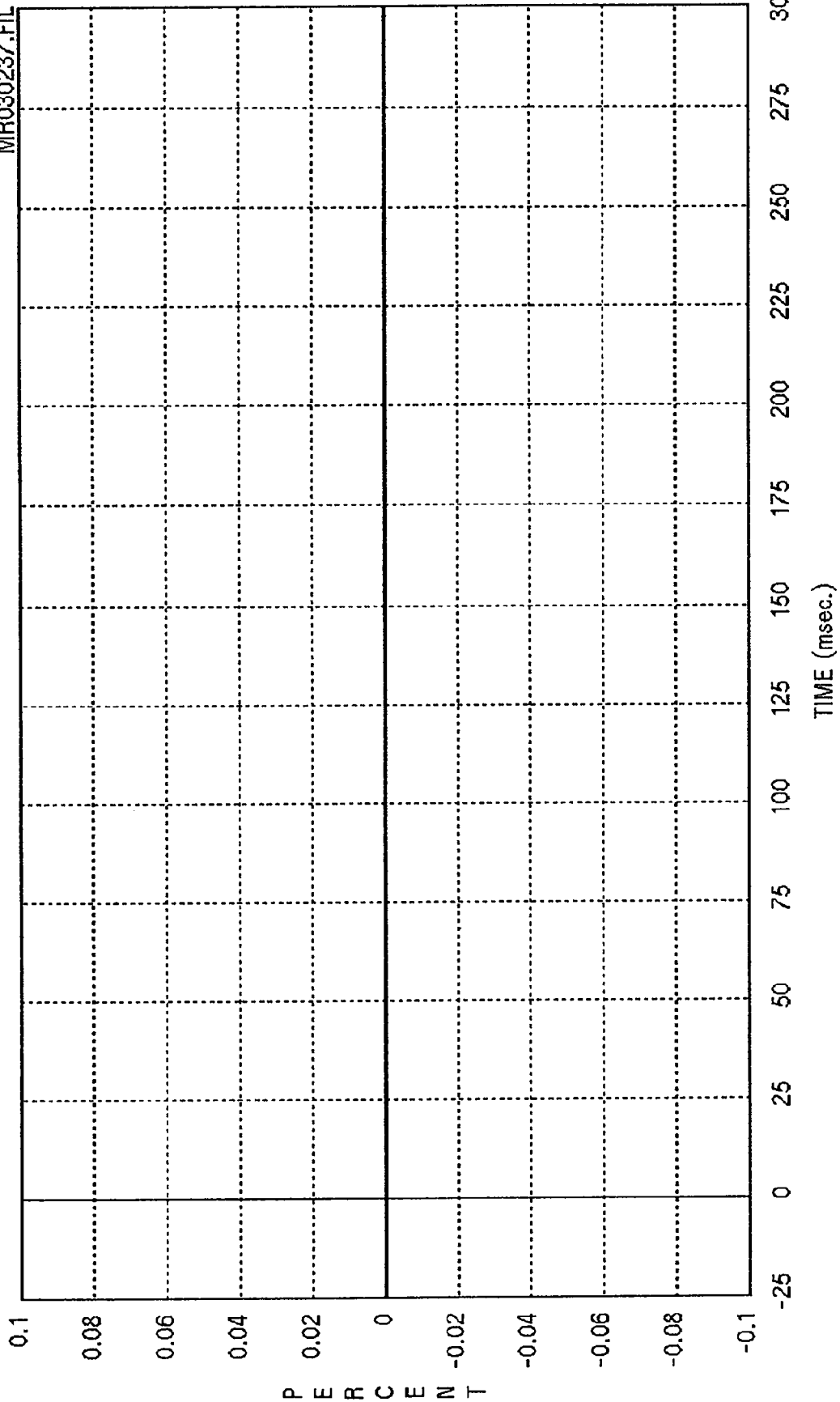
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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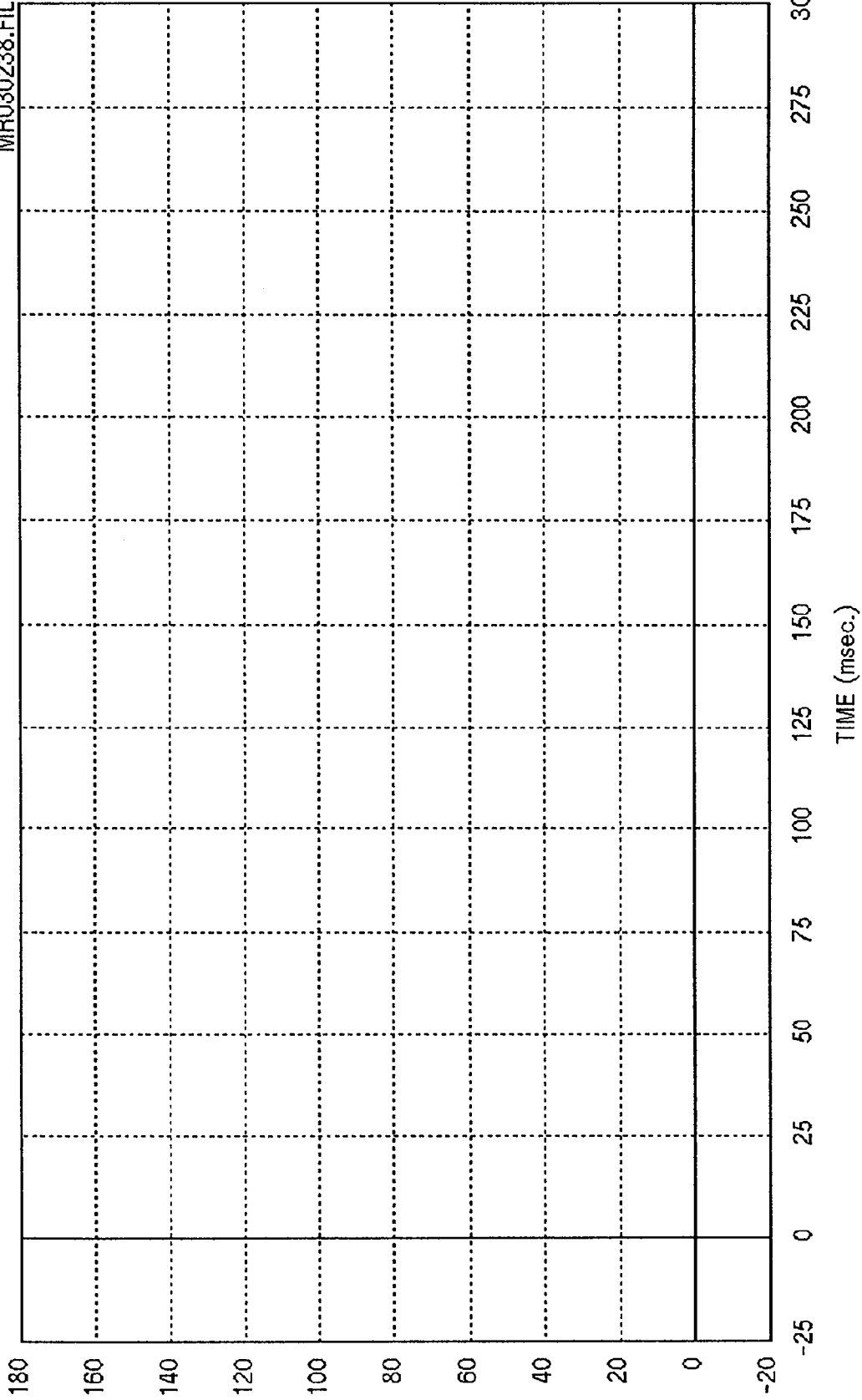
MR030237.FIL



Curve: Passenger shoulder belt elongation (No data) Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030238.FIL



Curve: Passenger seat belt pullout (Not used)

Filter: SAE-CLASS 60

Max = .00000

Min = .00000

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

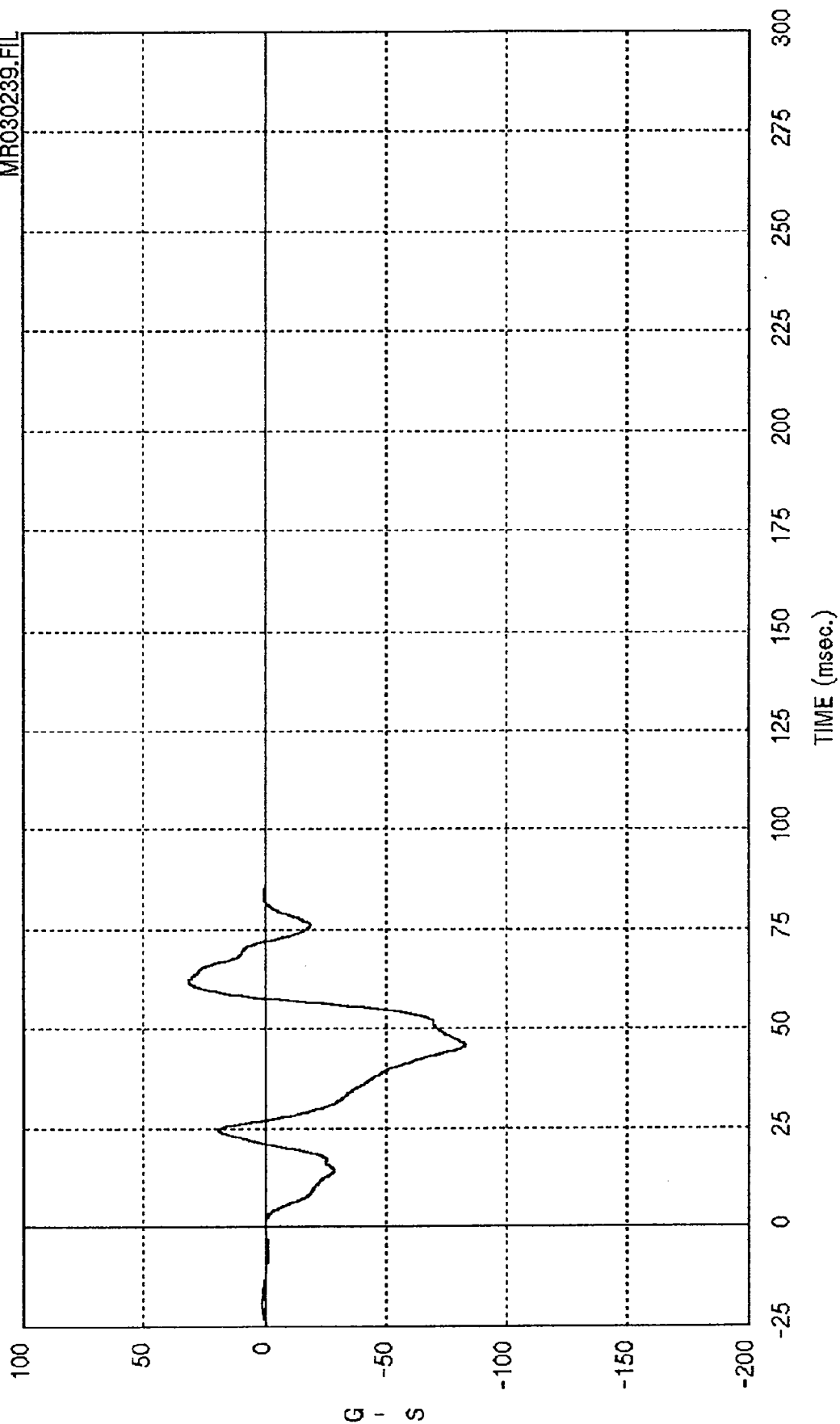
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MSE-R93030-02

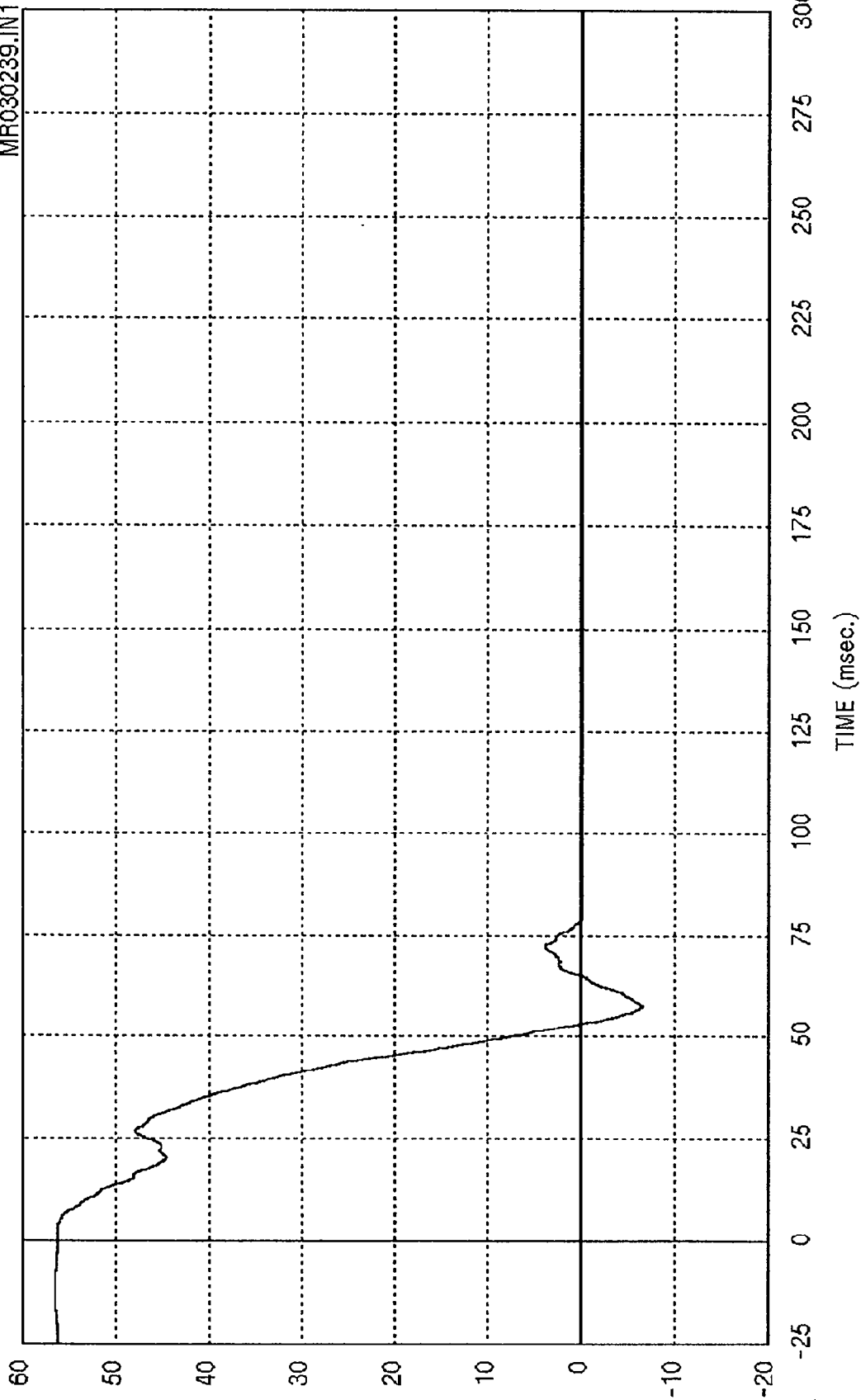
MR030239.FIL



Curve: Vehicle left front calliper acceleration Filter: SAE CLASS 60 Max = 31.759 Min = -82.503

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030239.IN 1



Curve: Vehicle left front caliper -- delta V

Filter: SAE CLASS 180 Max = 56.270

Min = -6.5114

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

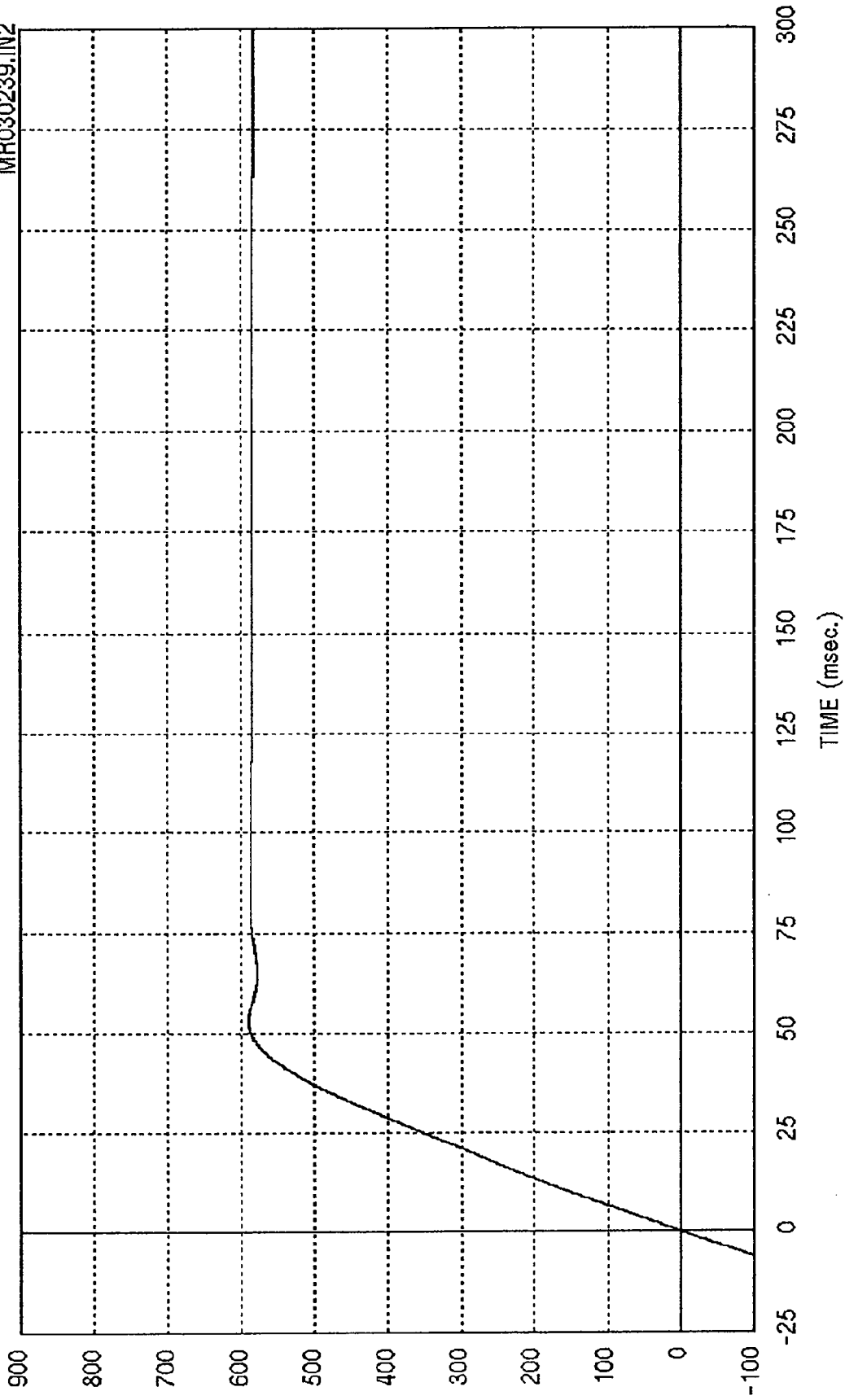
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MR030239.IN2



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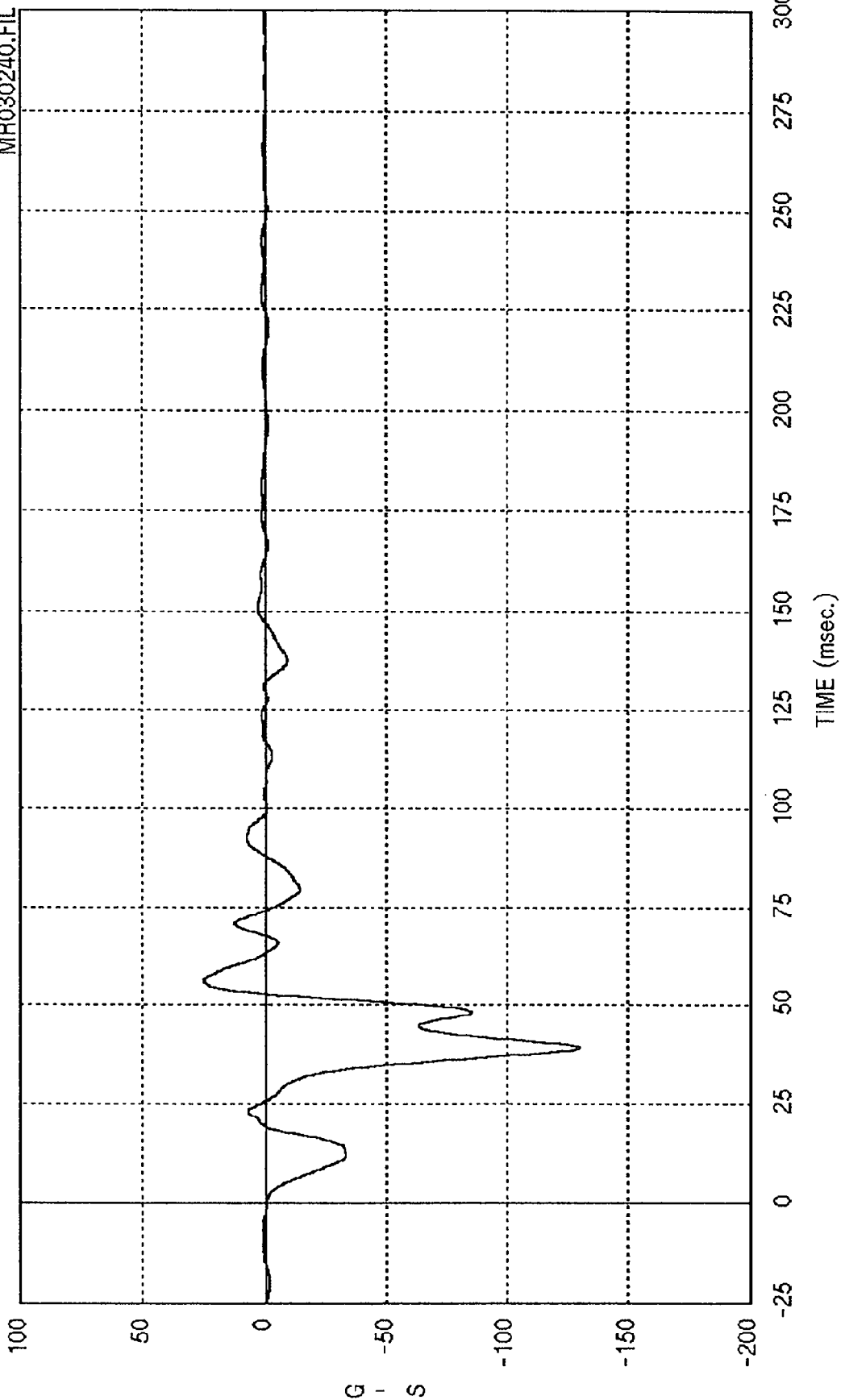
57

MSE-R93030-02

Curve: Vehicle left front caliper -- displacement Filter: SAE CLASS 180 Max = 590.57 Min = 578.56

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030240.FIL

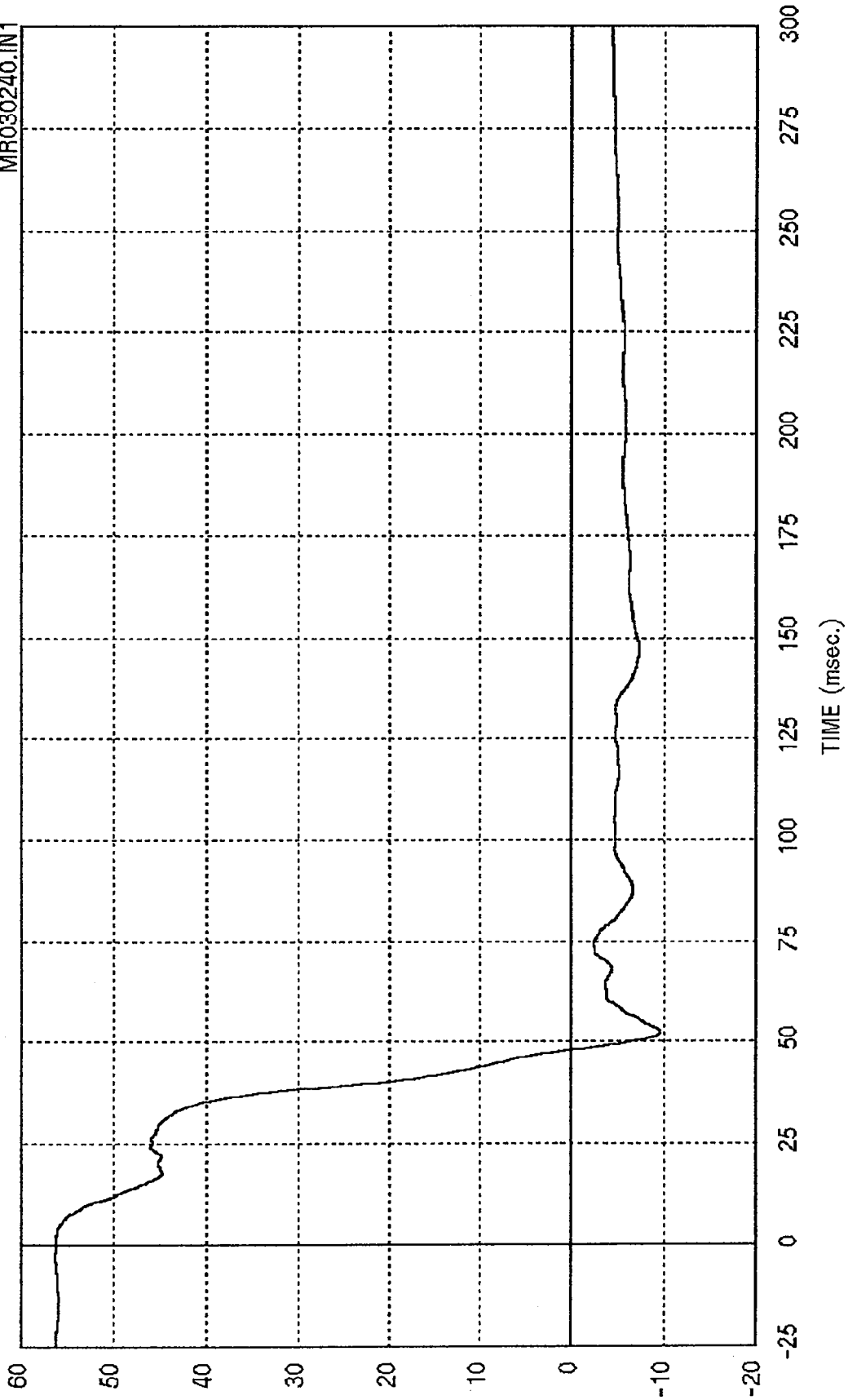


Curve: Vehicle right front caliper acceleration Filter: SAE CLASS 60 Max = 25.291 Min = -130.10

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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MR030240.IN1



Curve: Vehicle right front callper -- delta V Filter: SAE CLASS 180 Max = 56.252 Min = 9.5795

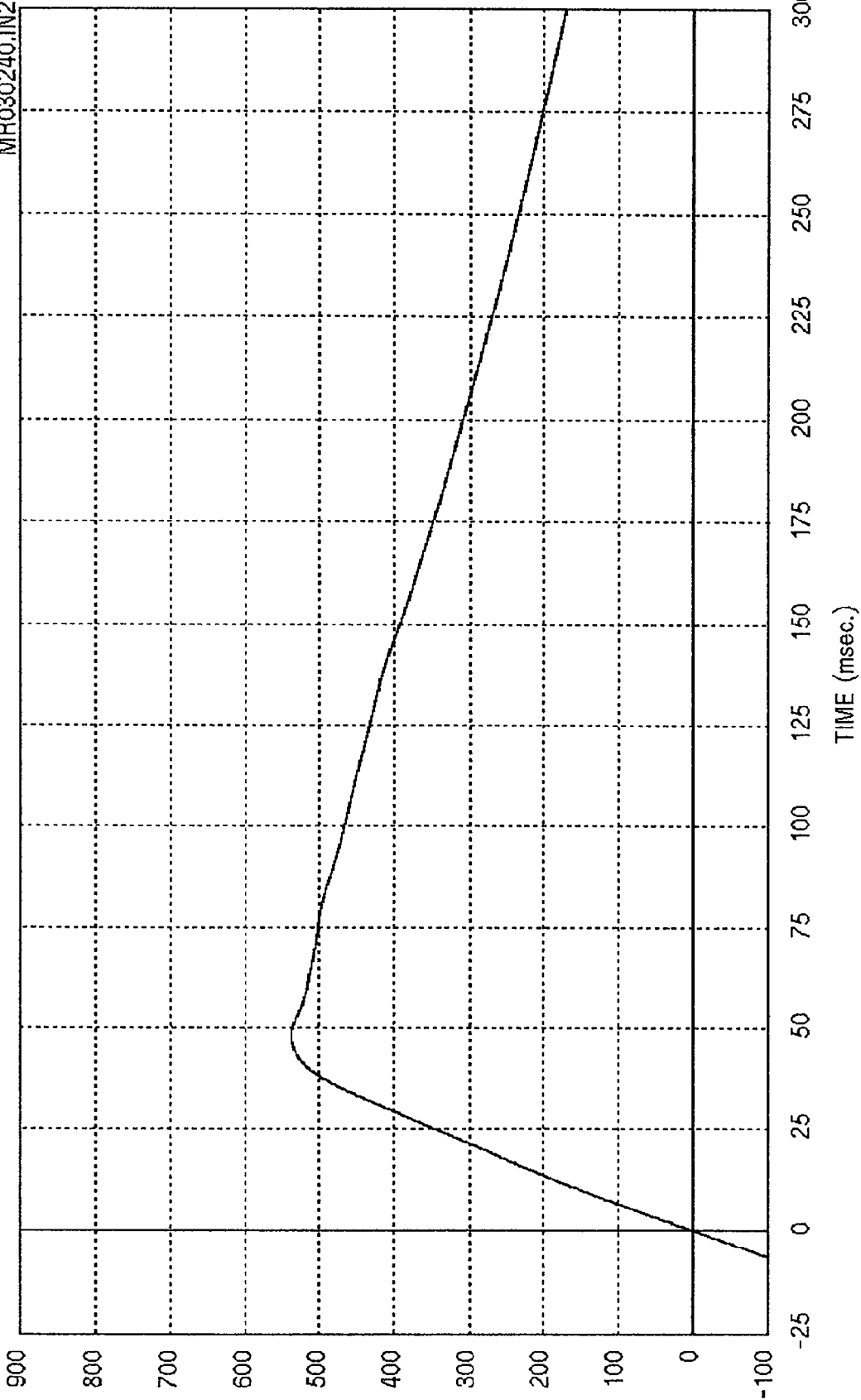
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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MR030240.IN2



Curve: Vehicle right front caliper displacement Filter: SAE CLASS 180 Max = 538.93 Min = 170.38

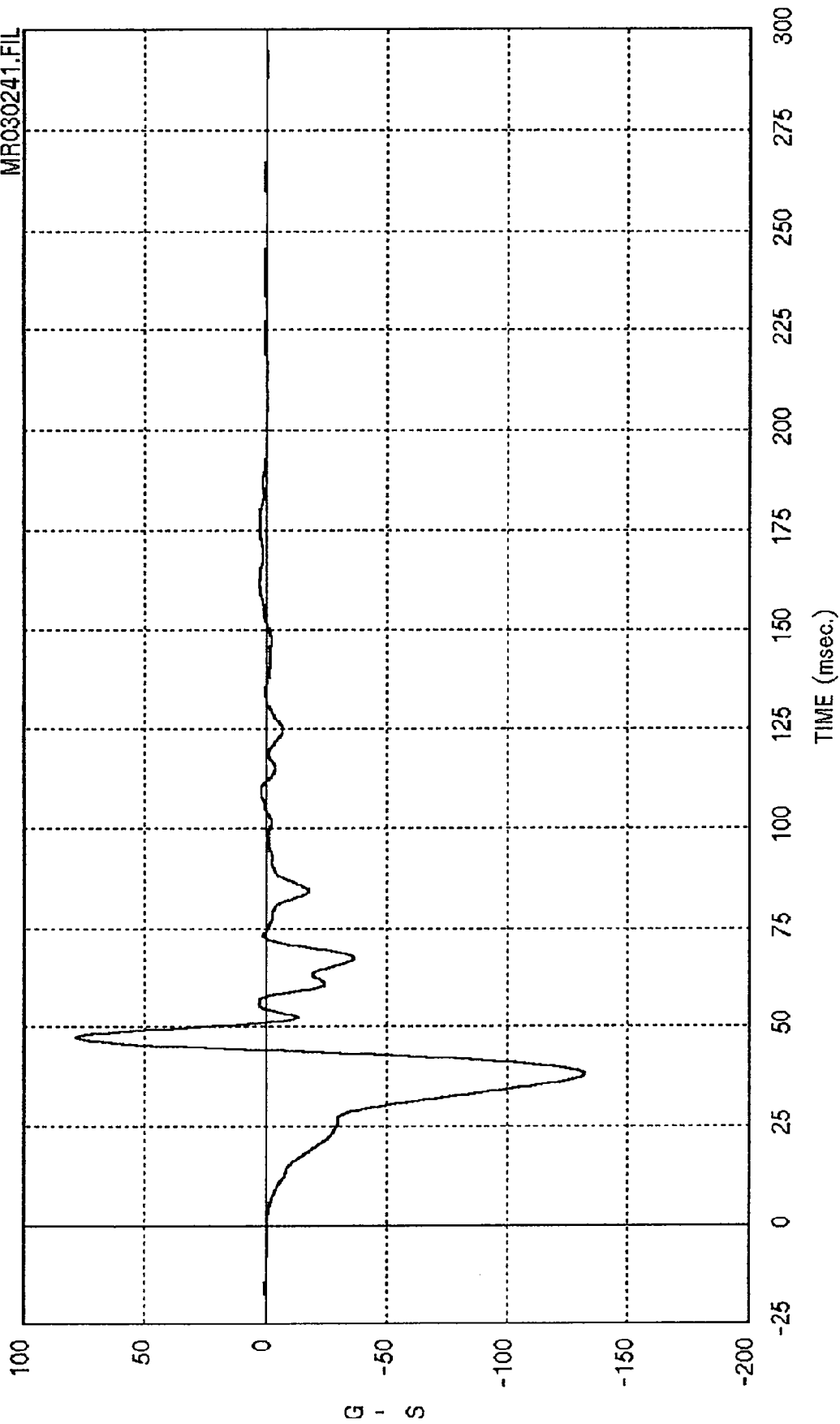
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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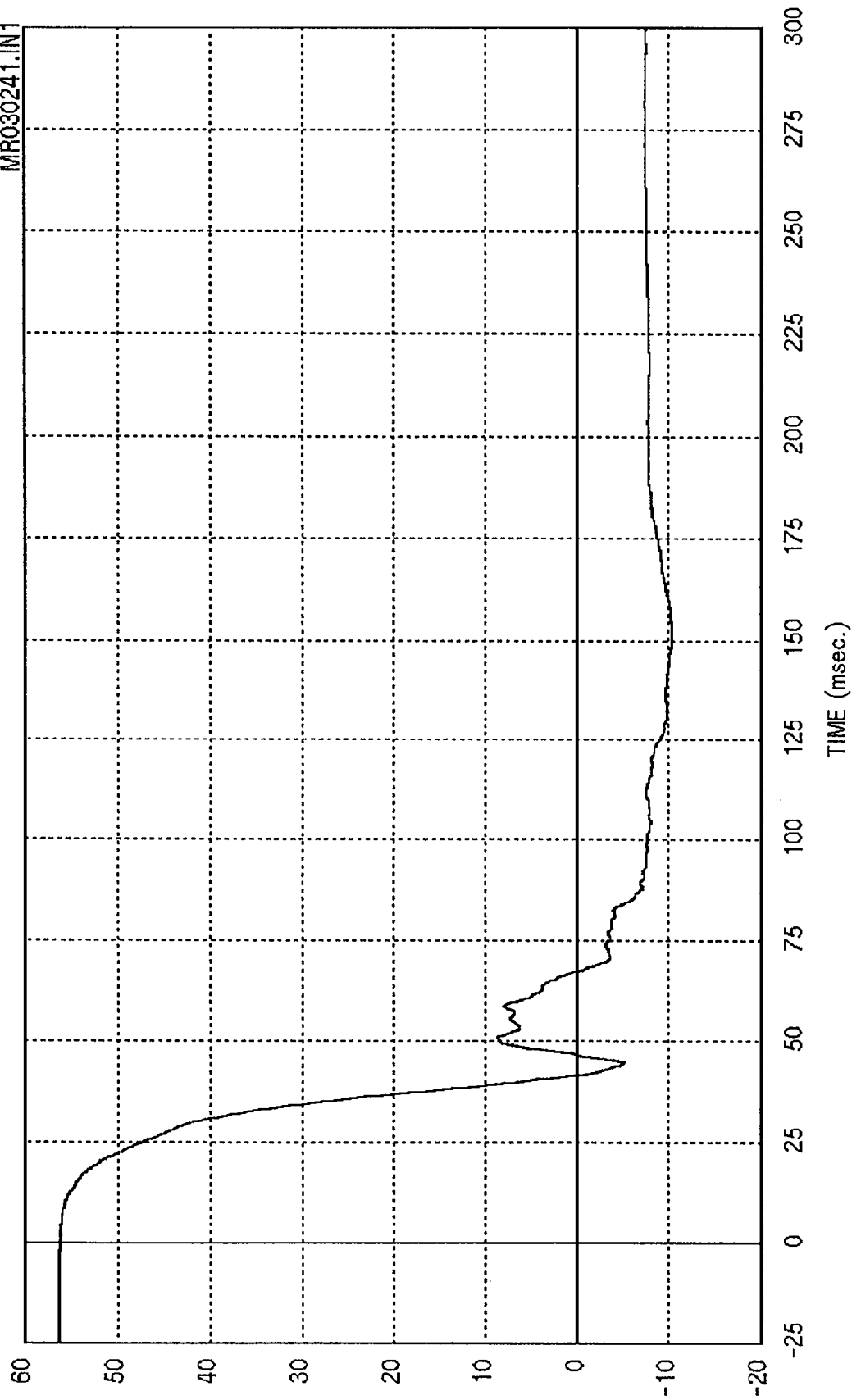
MR030241.FIL



Curve: Vehicle engine bottom acceleration Filter: SAE CLASS 60 Max = 78.636 Min = -131.94

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

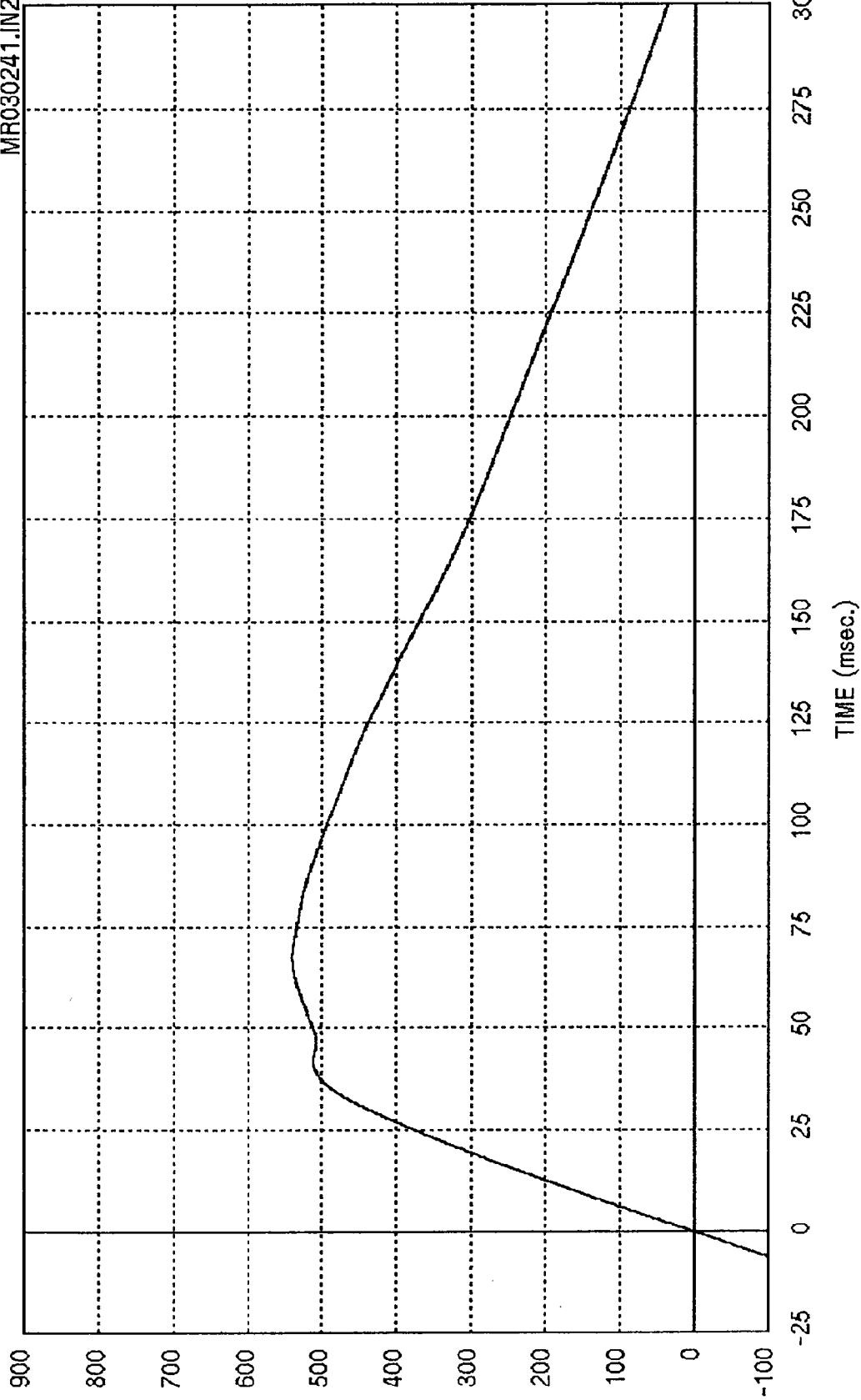
MR030241.IN1



Curve: Vehicle engine bottom -- delta V Filter: SAE CLASS 180 Max = 56.251 Min = -10.413

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030241.IN2

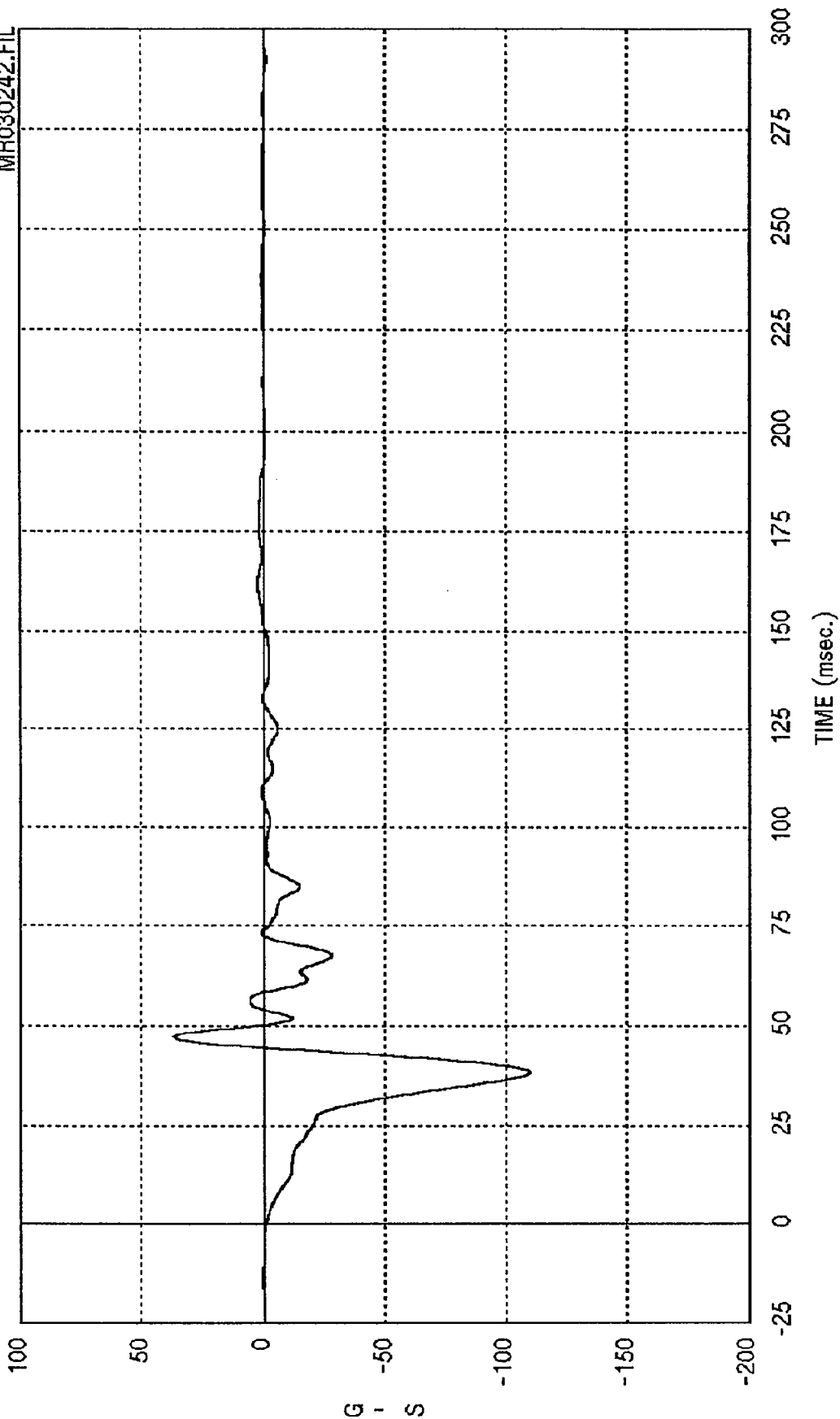


Curve: Vehicle engine bottom -- displacement Filter: SAE CLASS 180 Max = 540.82 Min = 36.826

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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MR030242.FIL



Curve: Vehicle engine top acceleration

Filter: SAE CLASS 60

Max = 37.162

Min = -110.02

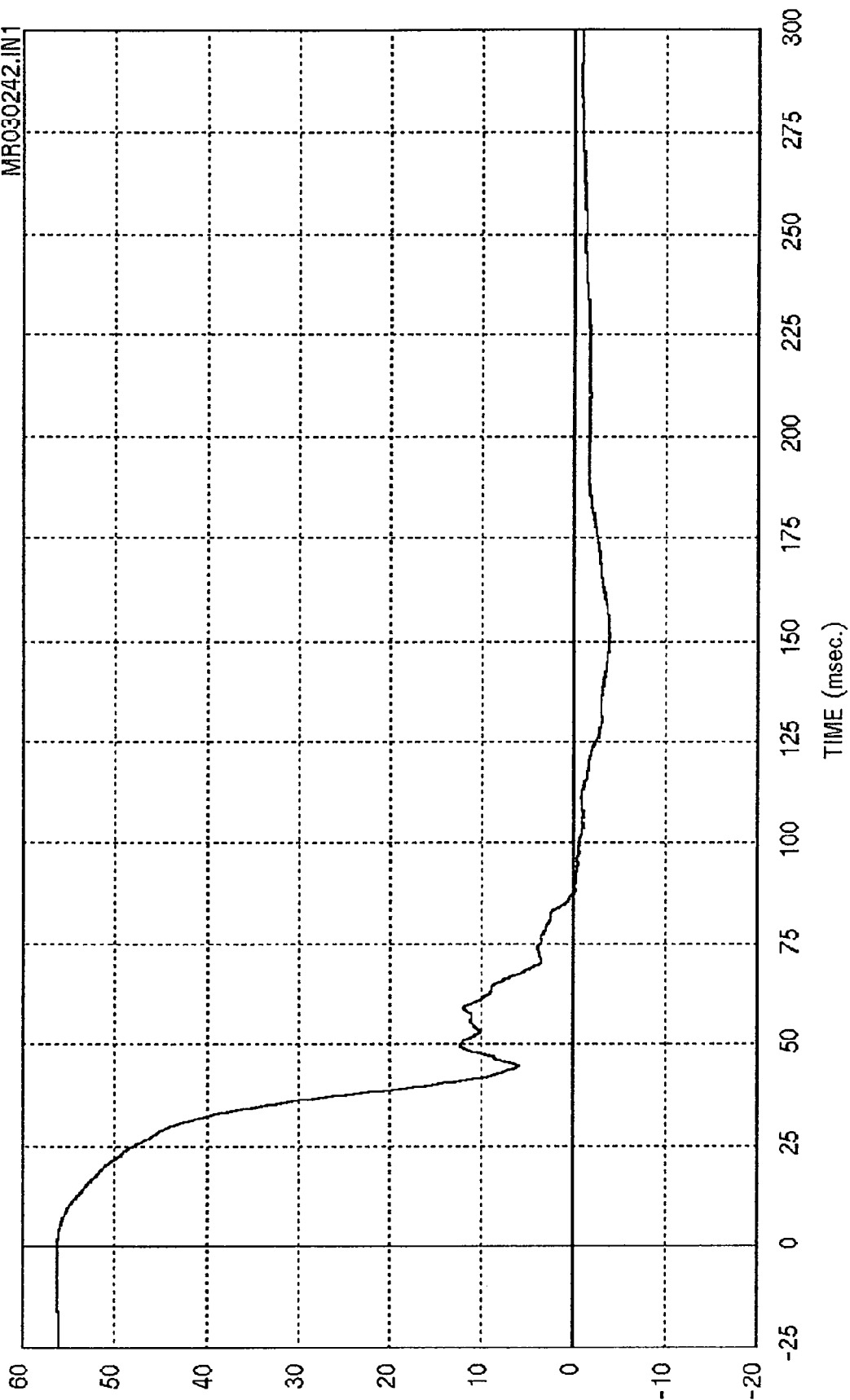
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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MSE-R93030-02

MR030242.IN1



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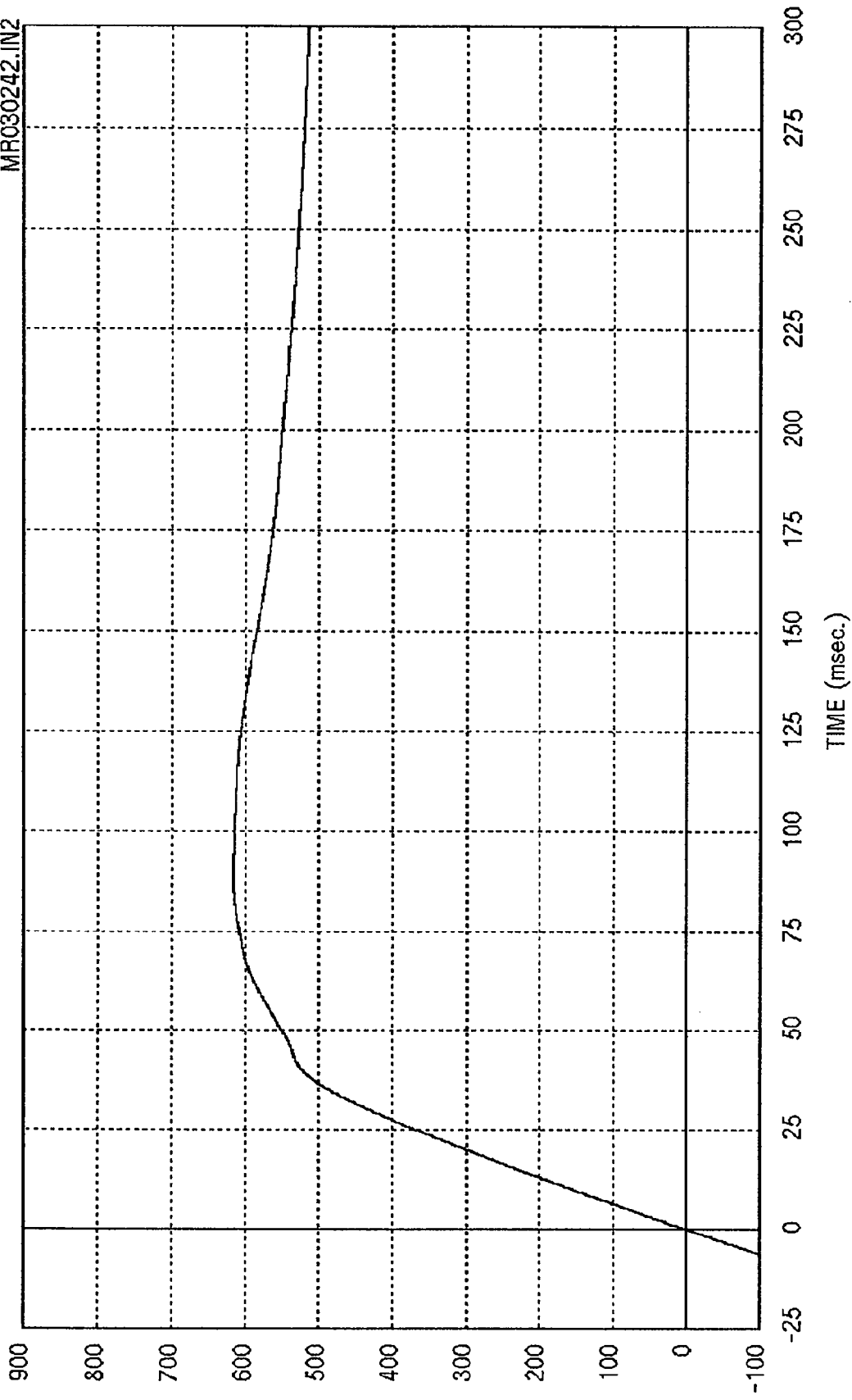
65

MSE-R93030-02

Curve: Vehicle engine top -- delta V Filter: SAE CLASS 180 Max = 56.251 Min = -3.8105

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030242.IN2



Curve: Vehicle engine top -- displacement Filter: SAE CLASS 180 Max = 617.13 Min = 515.15

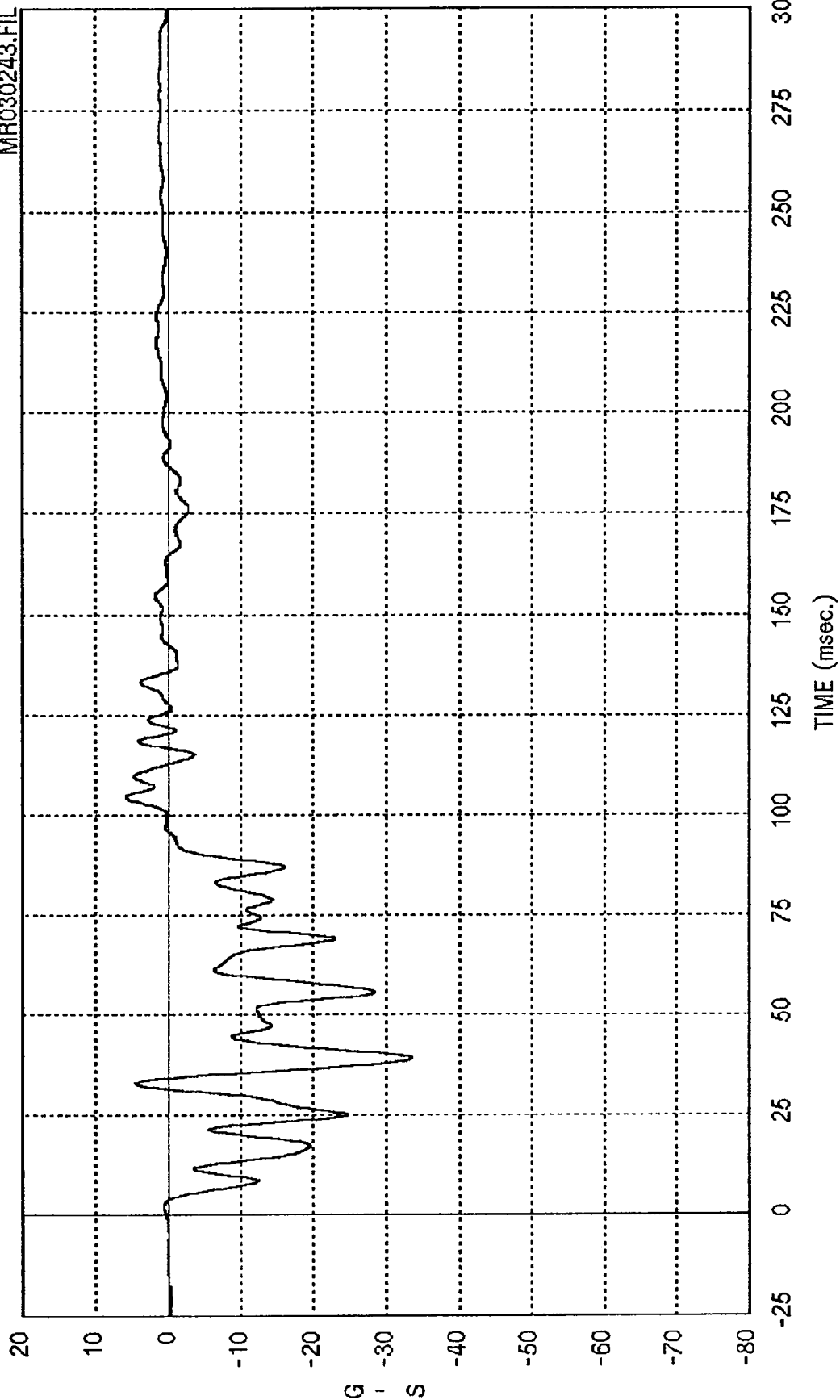
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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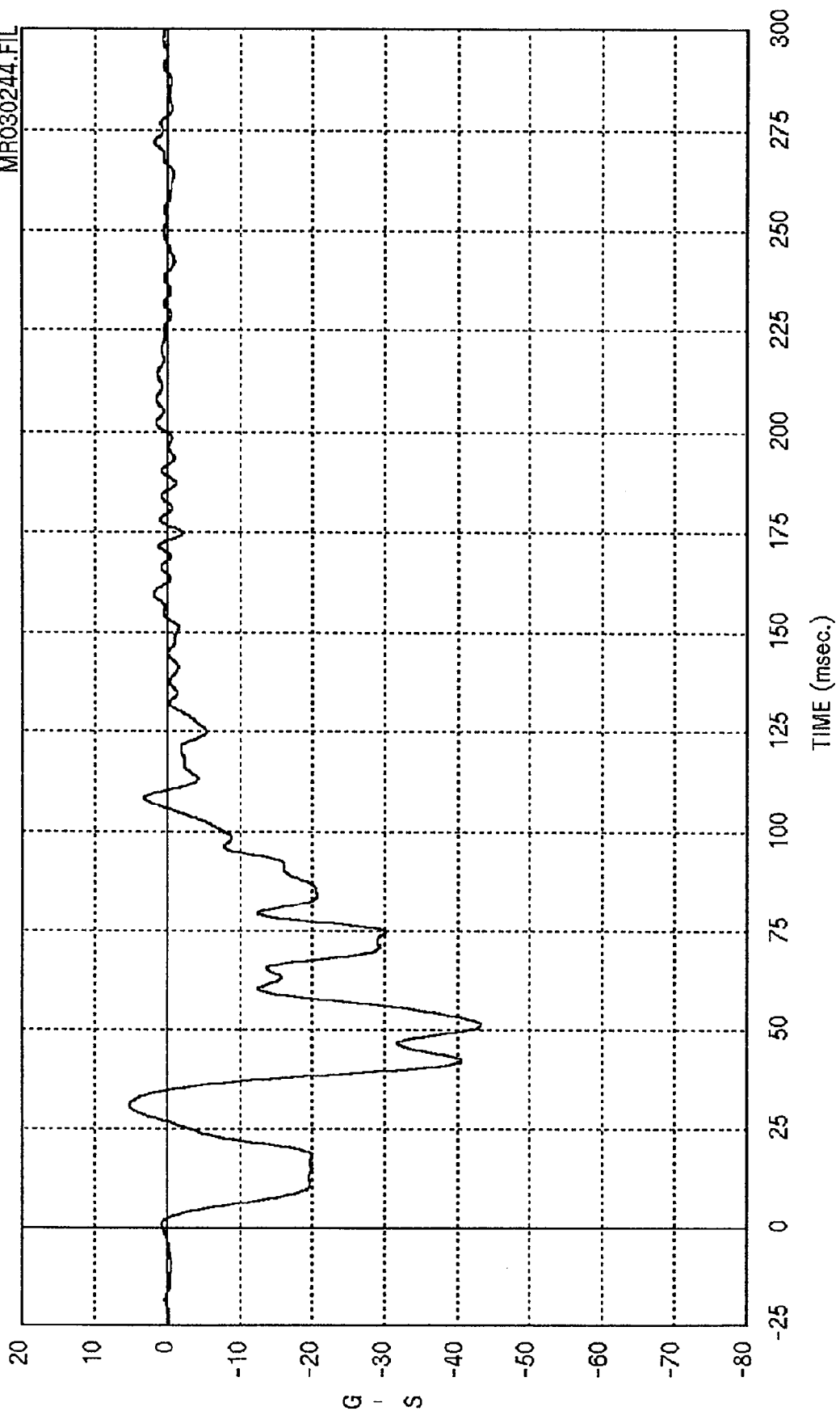
MR030243.FIL



Curve: Vehicle Instrument panel acceleration Filter: SAE CLASS 60 Max = 5.8638 Min = -33.443

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030244.FIL

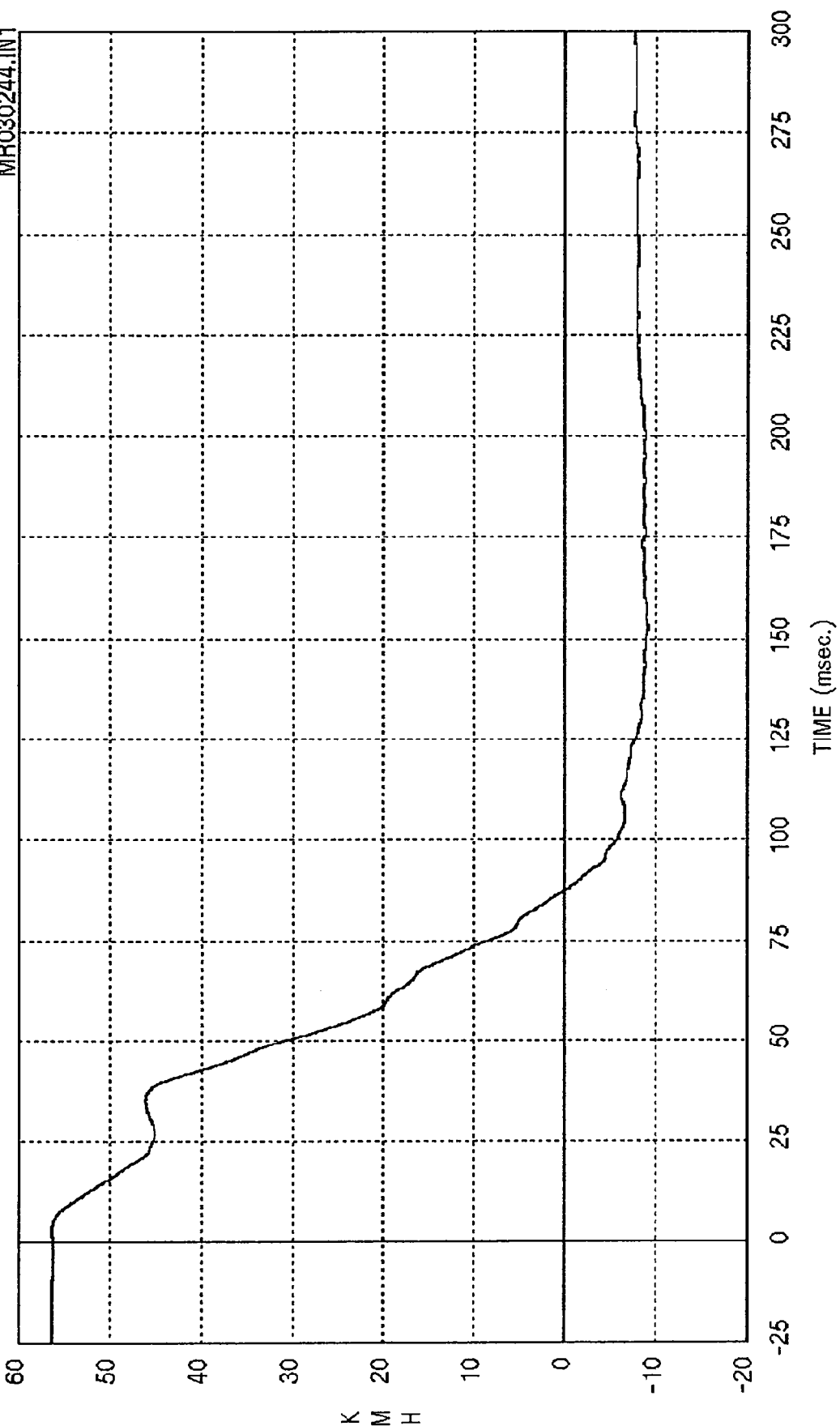


Curve: Vehicle left rear X-member acceleration (Pri.) Filter: SAE CLASS 60 Max = 5.2591 Min = -43.340

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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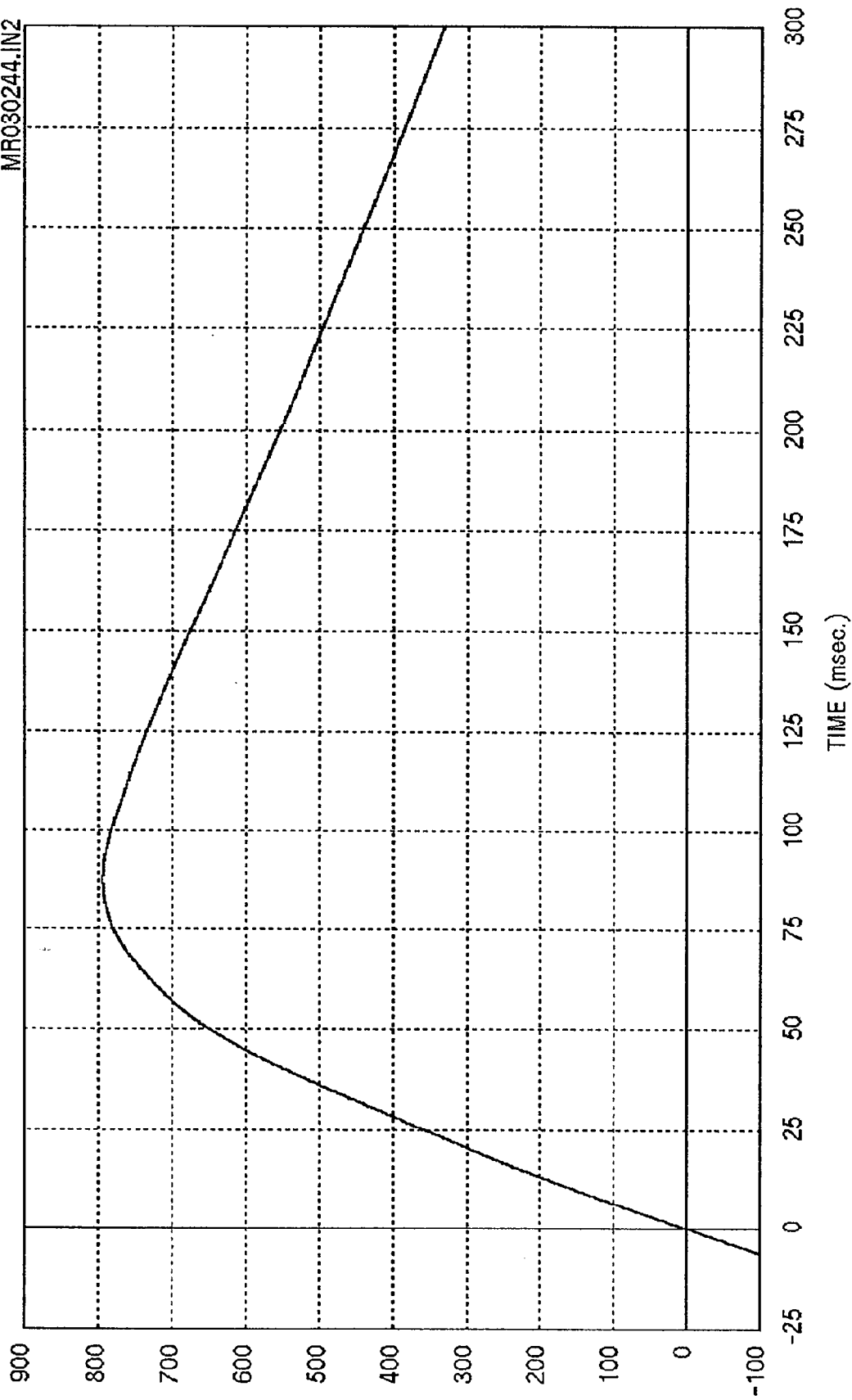
MR030244.IN1



Curve: Vehicle left rear X-member -- delta V (Pri.) Filter: SAE CLASS 180 Max = 56.320 Min = -9.1075

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030244.IN2

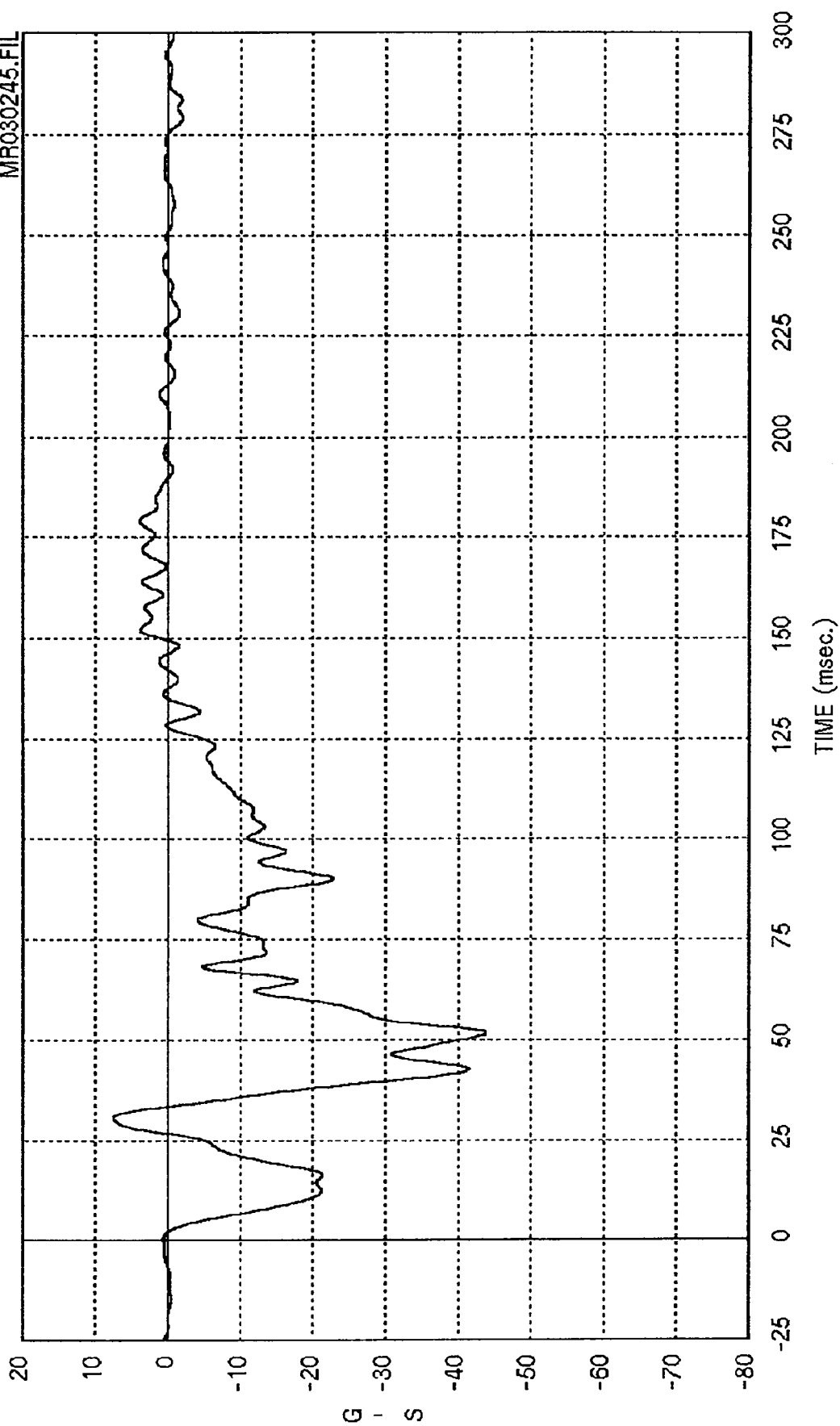


Curve: Vehicle left rear X-member - displacement (Pri.) Filter: SAE CLASS 180 Max: 794.56 Min: 332.99

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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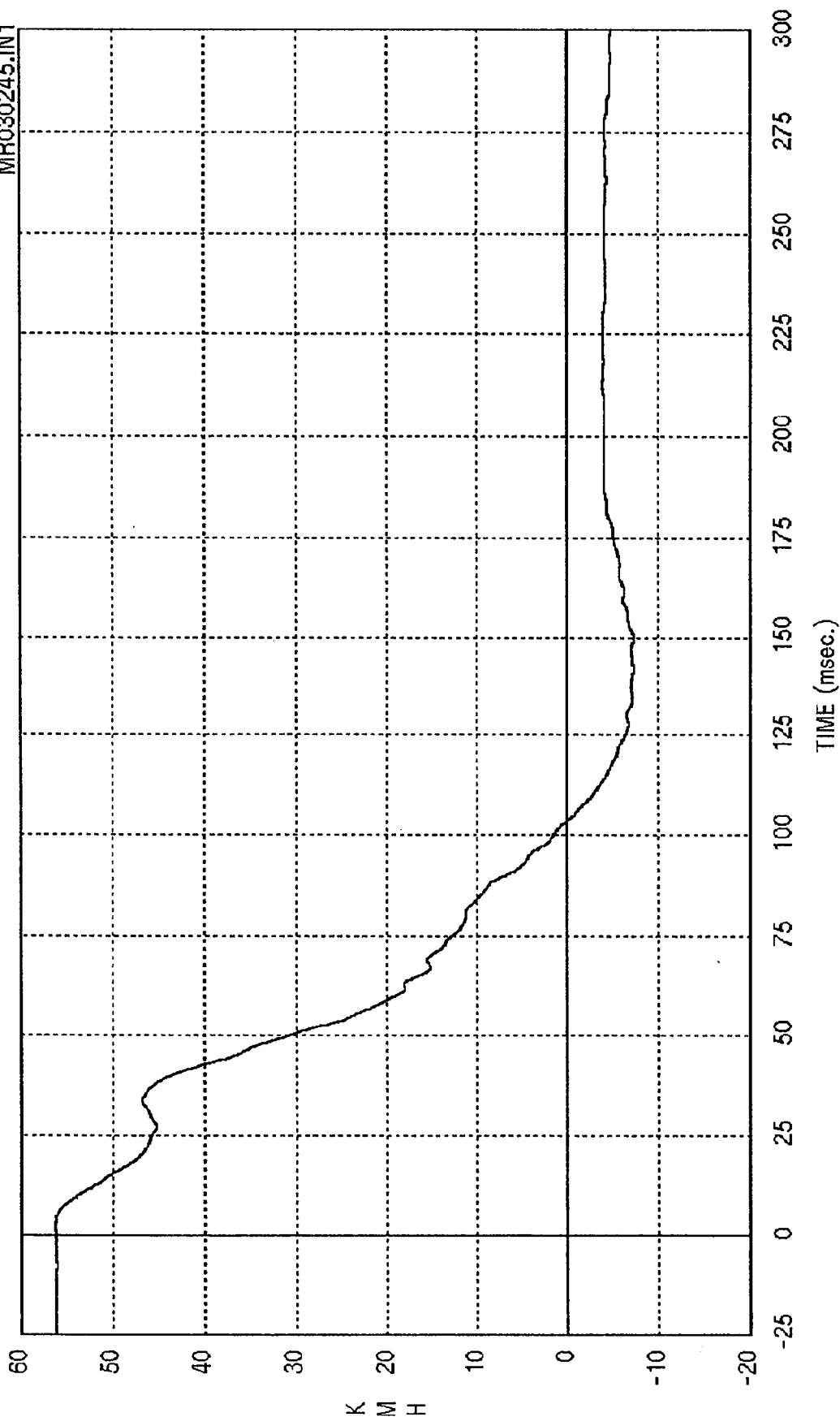
MR030245.FIL



Curve: Vehicle right rear X-member acceleration (Pri.) Filter: SAE_CLASS 60 Max = 7.5055 Min = -43.851

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030245.IN1



Curve: Vehicle right rear X-member -- delta V (Pri.) Filter: SAE-CLASS=180 Max = 56.300 Min = -17.268

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

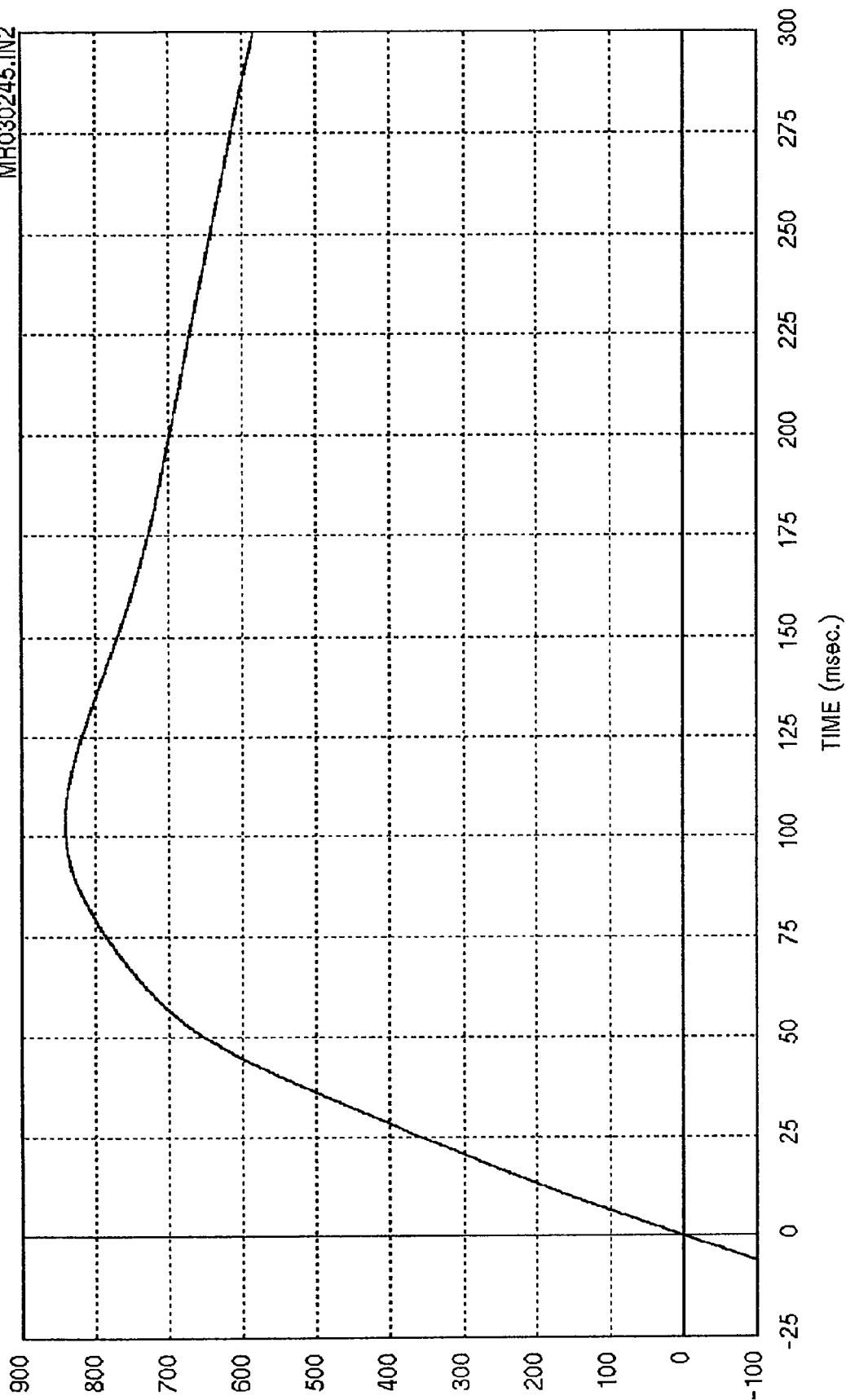
K M H

B1

72

MSE-R93030-02

MR030245.IN2



Curve: Vehicle right rear X-member - displacement (Pri.) Filter: SAE CLASS 180 Max = 840.91 Min = 584.87

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

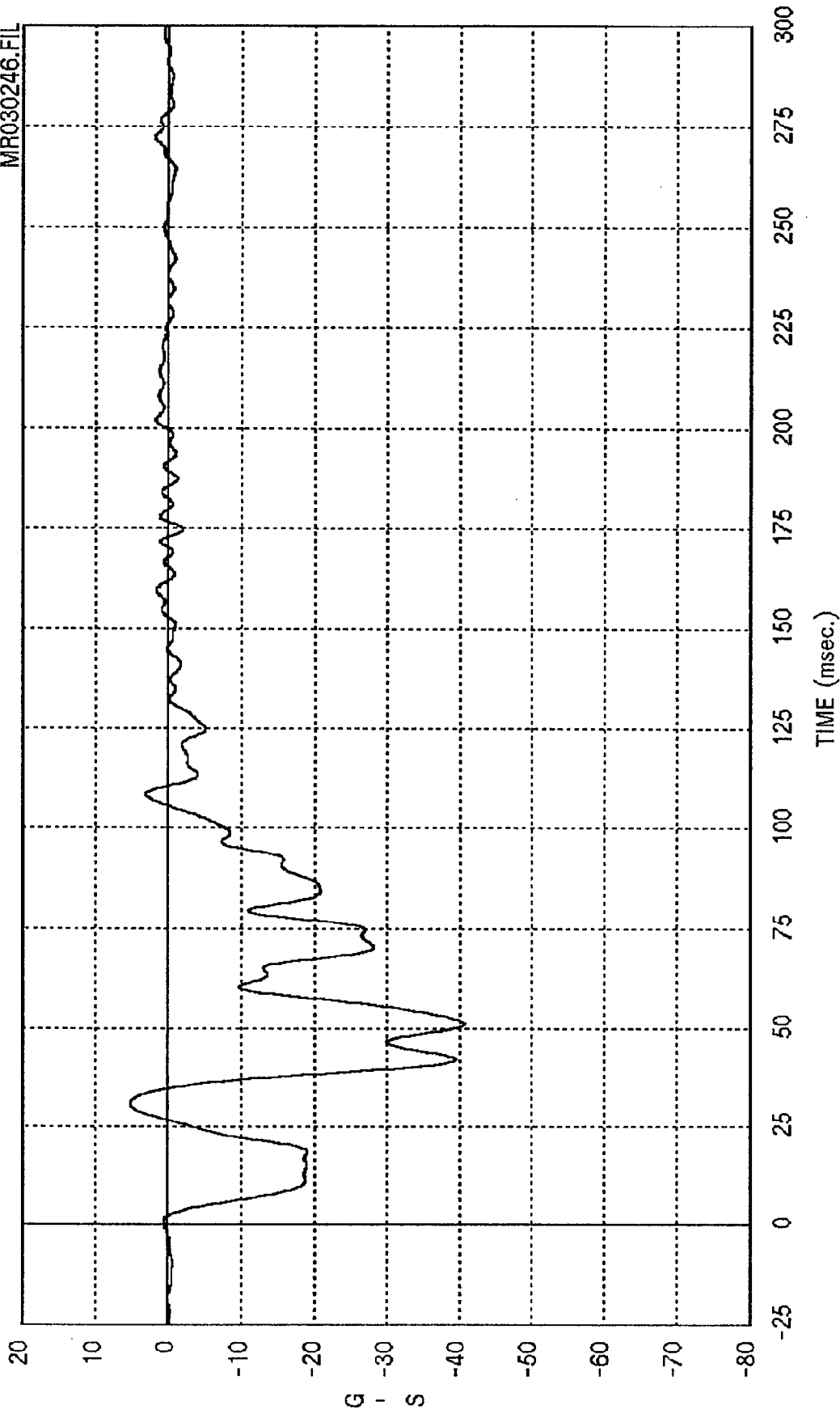
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73

MSE-R93030-02

MR030246.FIL



Curve: Vehicle left rear X-member acceleration (Sec.) Filter: SAE CLASS 60 Max = 5.2056 Min = -40.718

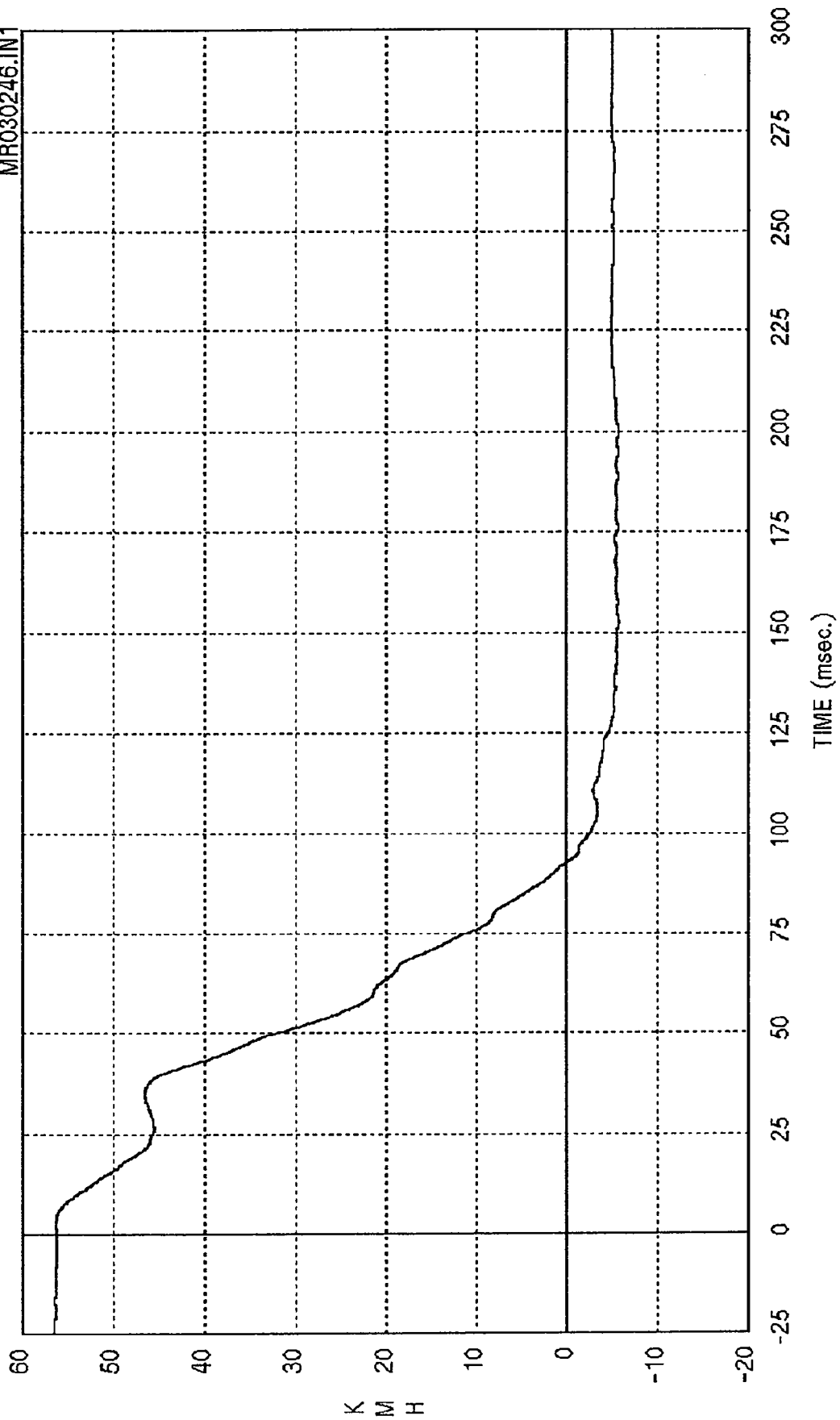
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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74

MSE-R93030-02

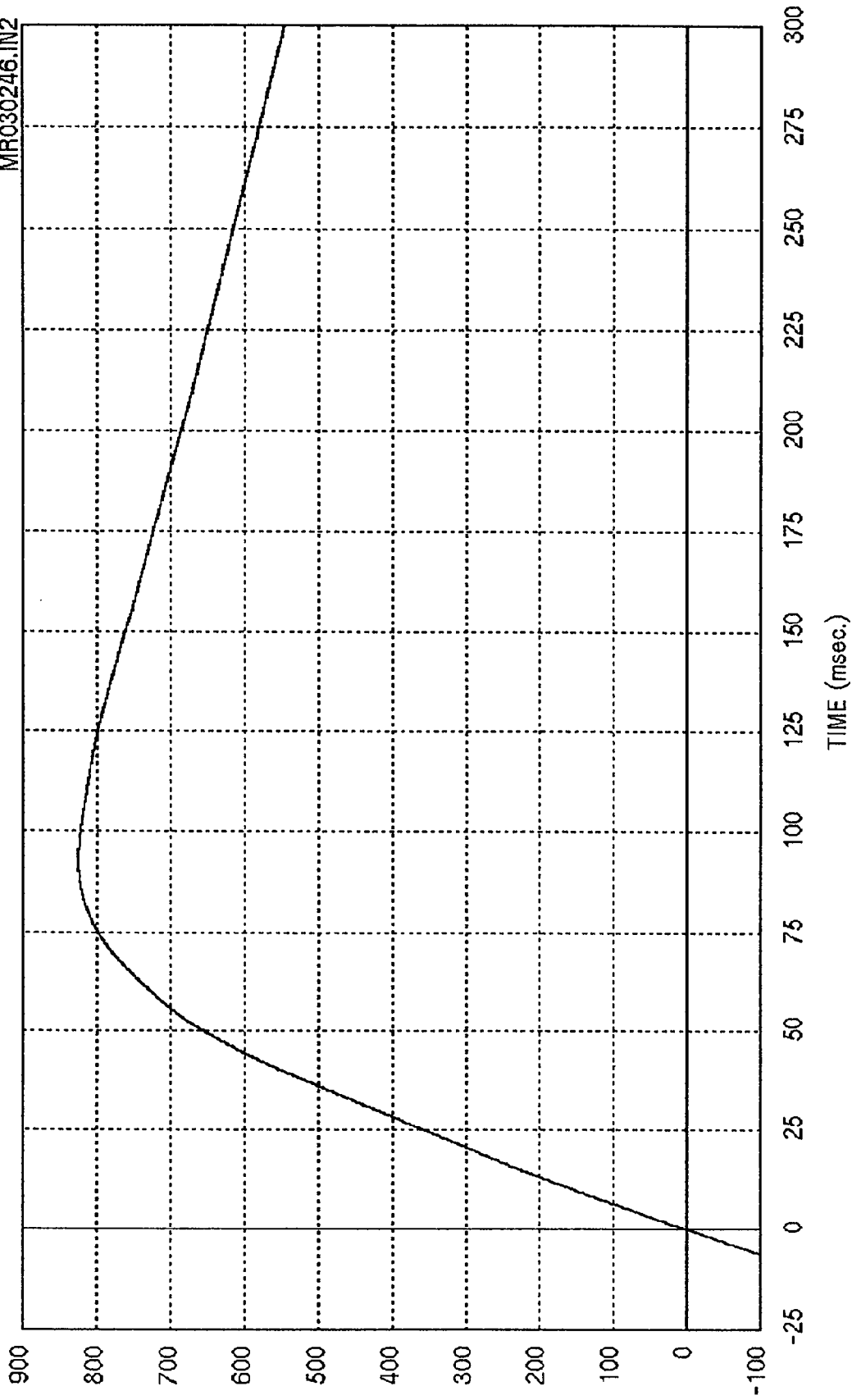
MR030246.IN1



Curve: Vehicle left rear X-member -- delta V (Sec.) -- Filter: SAE CLASS 180 Max = 56.298 Min = -5.7045

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

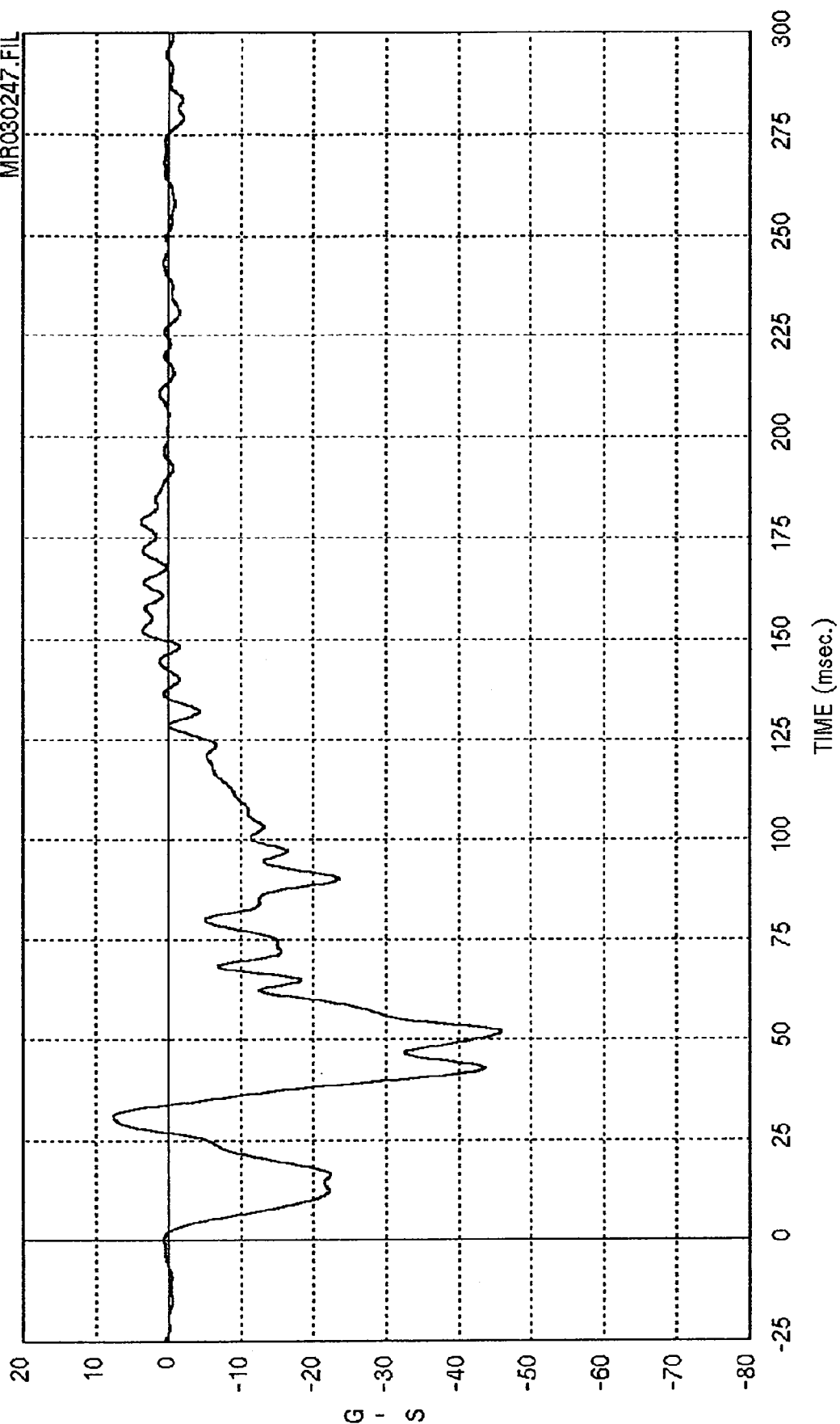
MR030246.IN2



Curve: Vehicle left rear X-member - displacement (Sec.) Filter: SAE CLASS:180 Max = 825.45 Min = 547.03

MSE Date: 02/10/94 Program:1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030247.FIL



Curve: Vehicle right rear X-member acceleration (Sec.) Filter: SAE CLASS 60 Max: 15.7049 Min: -45.970

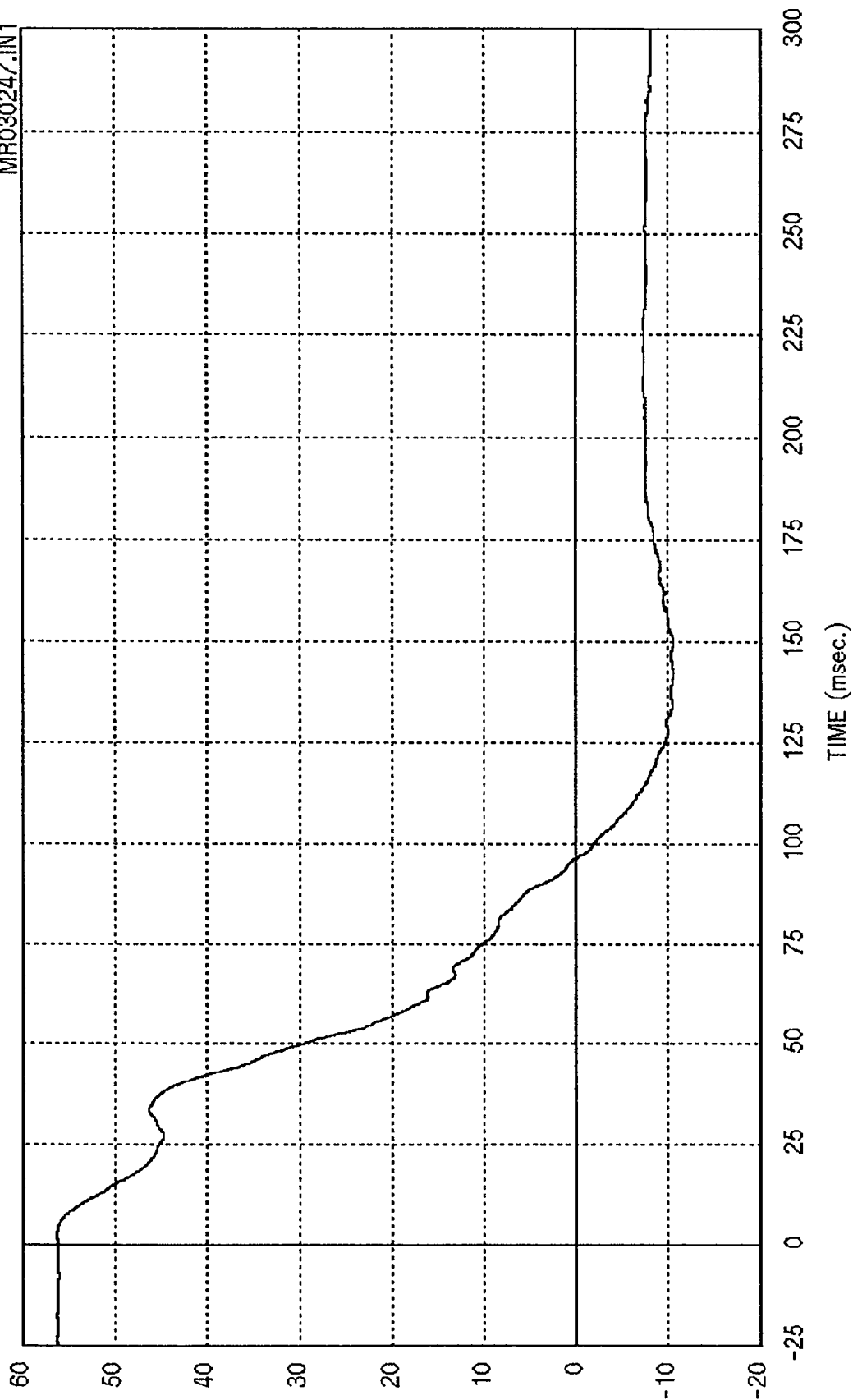
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

G - S
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77

MSE-R93030-02

MR030247.IN1



Curve: Vehicle right rear X-member -- delta V (Sec.) Filter: SAE CLASS 180 Max = 56.302 Min = -10.657

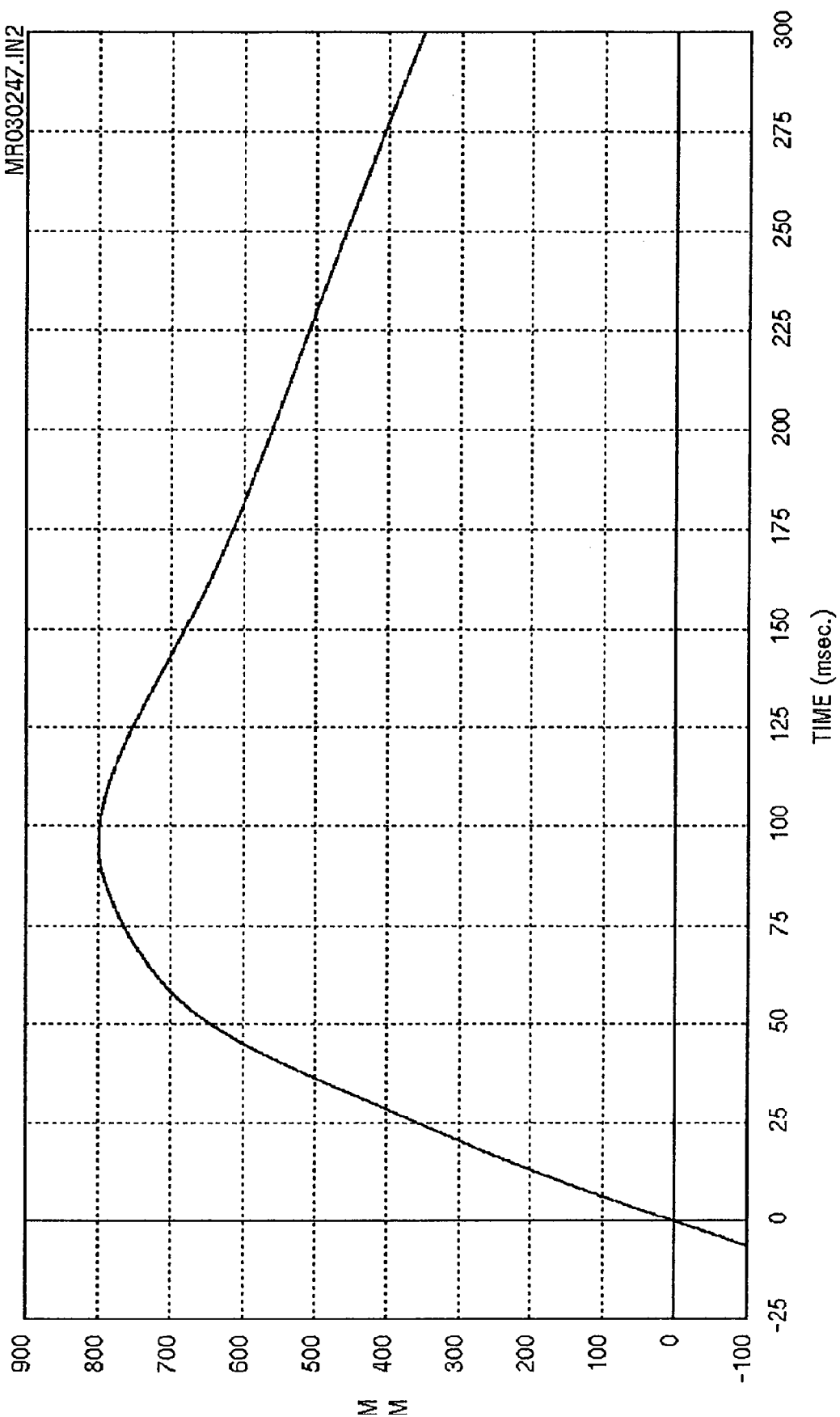
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

K M H
B1

78

MSE-R93030-02

MR030247.IN2



Curve: Vehicle right-rear X-member - displacement (Sec.) Filter: SAE CLASS 180 Max = 799.21 Min = 351.67

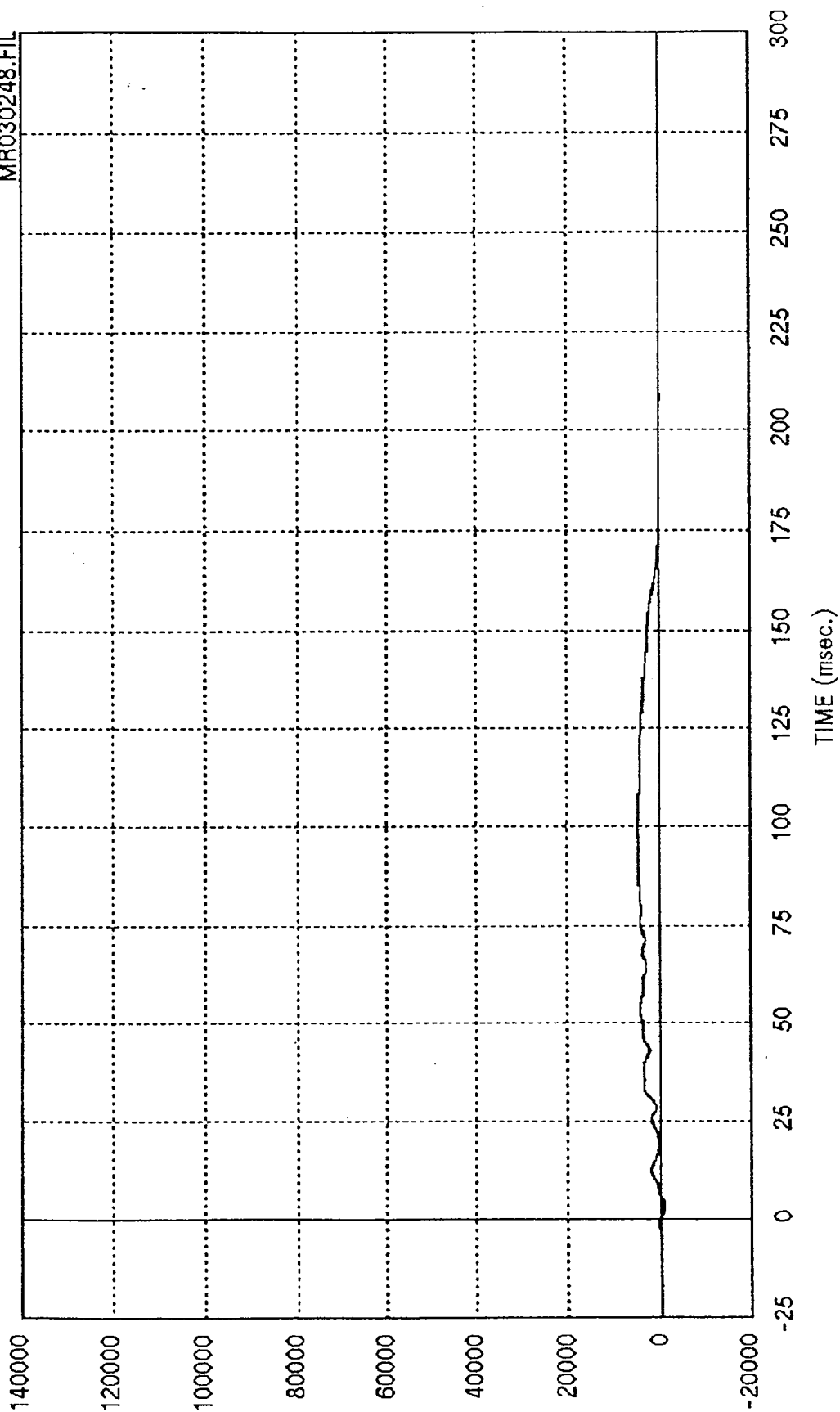
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

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APPENDIX B - 2
LOAD CELL BARRIER DATA

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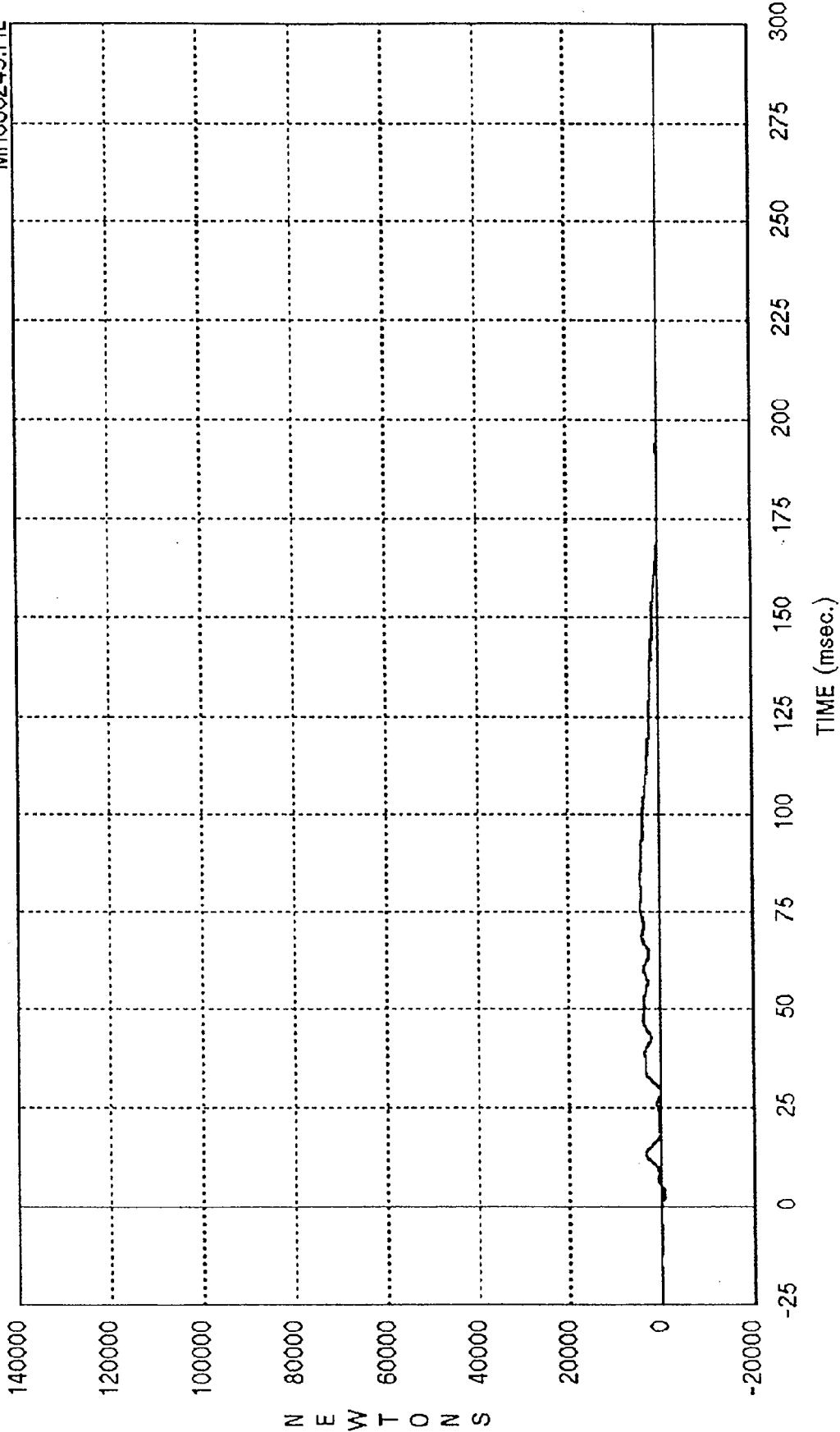
MR030248.FIL



Curve: Force on barrier location A1 Filter: SAE CLASS 60 Max = 4839.6 Min = -725.84

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

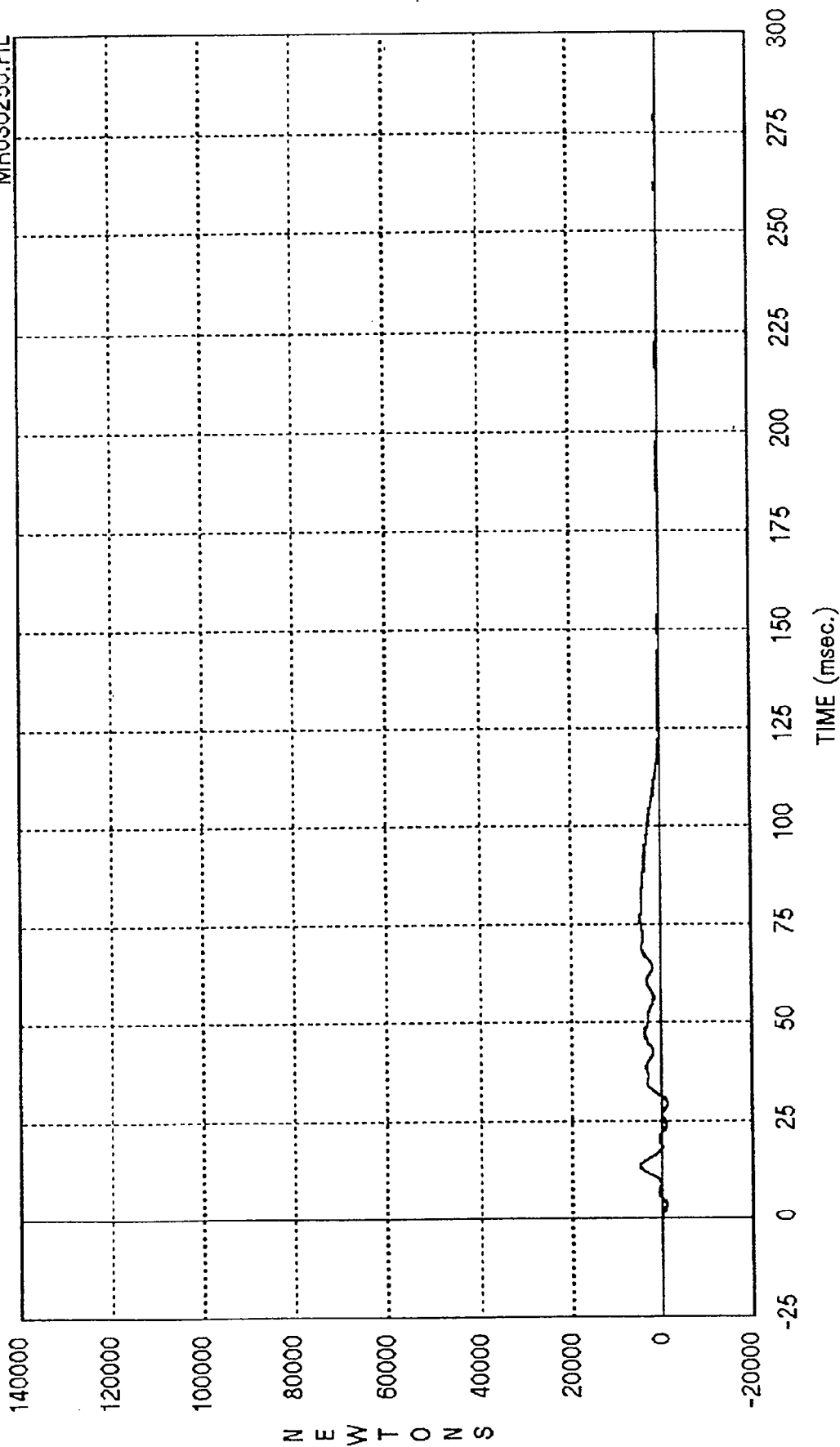
MR030249.FIL



Curve: Force on barrier location A2 Filter: SAE CLASS 60 Max = 4378.2 Min = -801.78

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

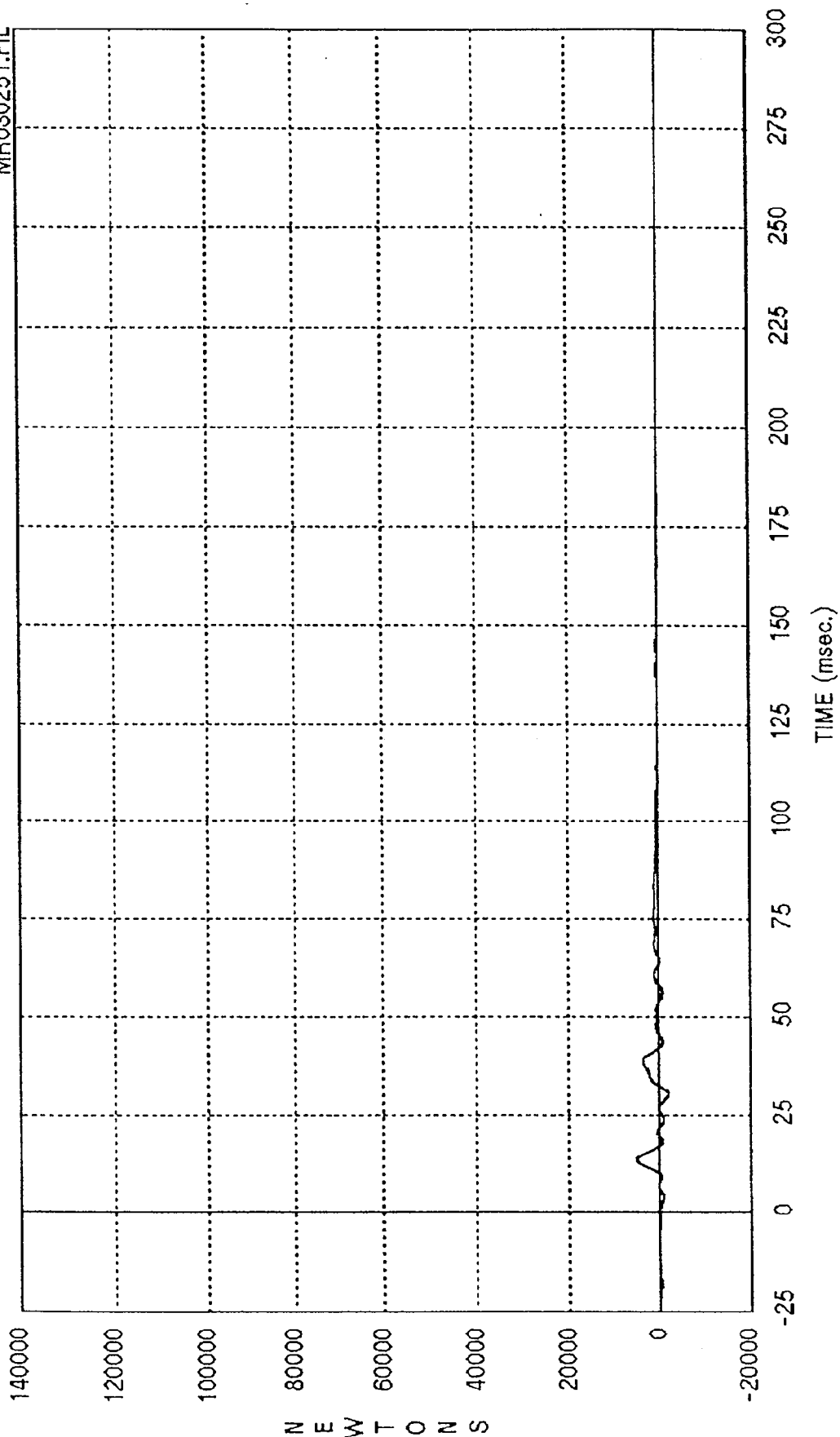
MR030250.FIL



Curve: Force on barrier location A3 Filter: SAE CLASS 60 Max = 5081.5 Min = -1247.6

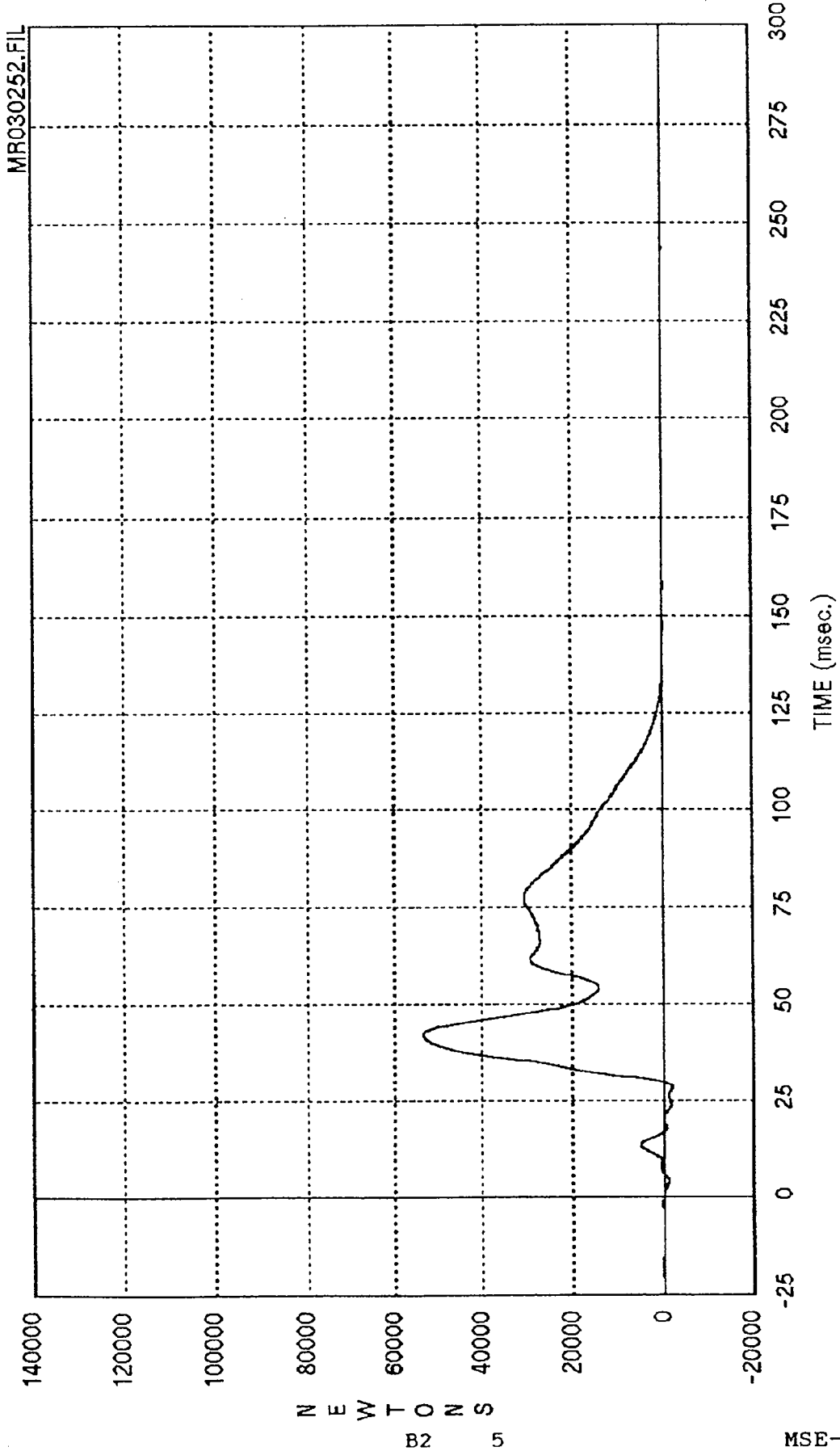
MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

MR030251.FIL



Curve: Force on barrier location A4 Filter: SAE CLASS 60 Max = 5234.5 Min = -2092.0

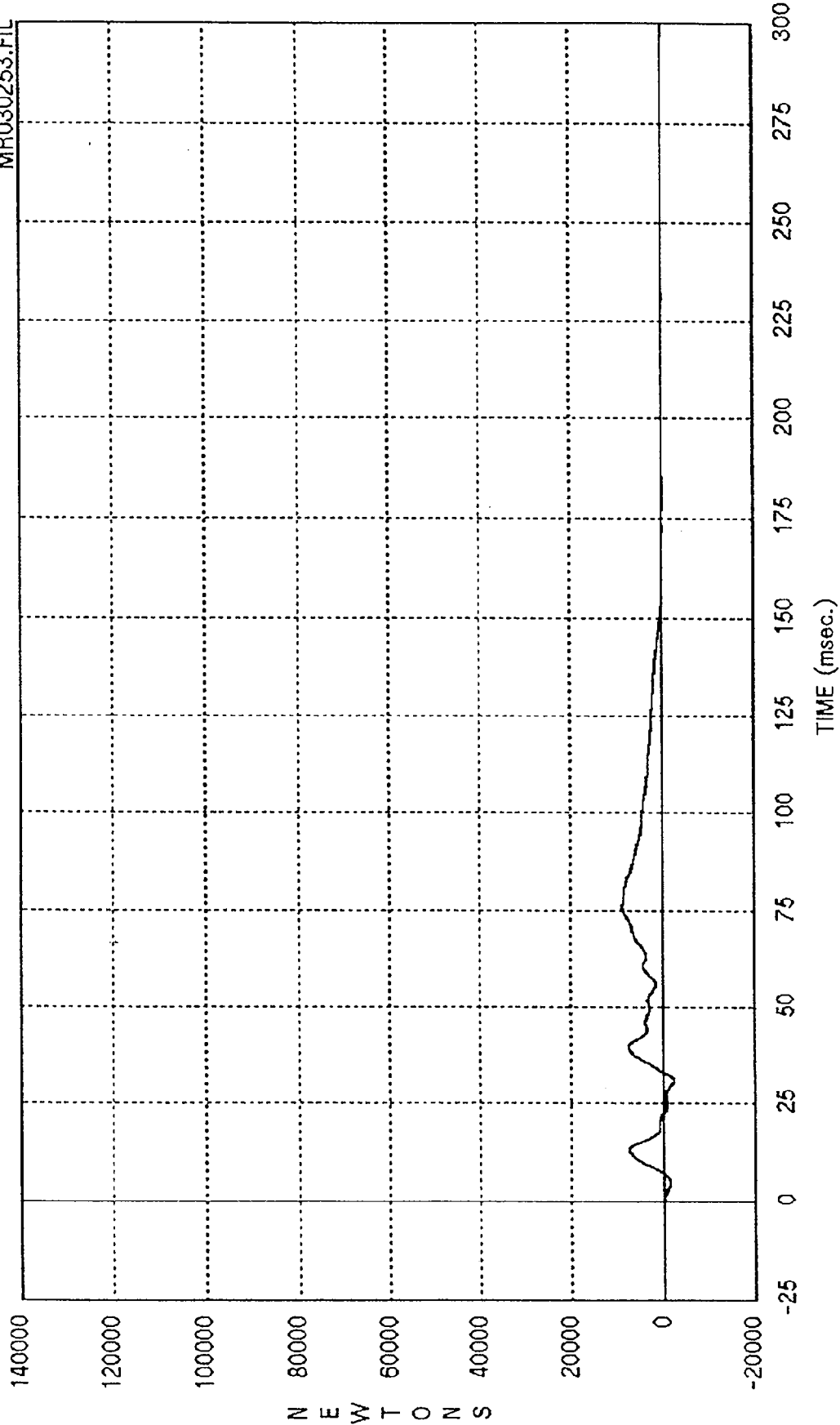
MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup



Curve: Force on barrier location A5 Filter: SAE CLASS 60 Max = 53336. Min = -1809.1

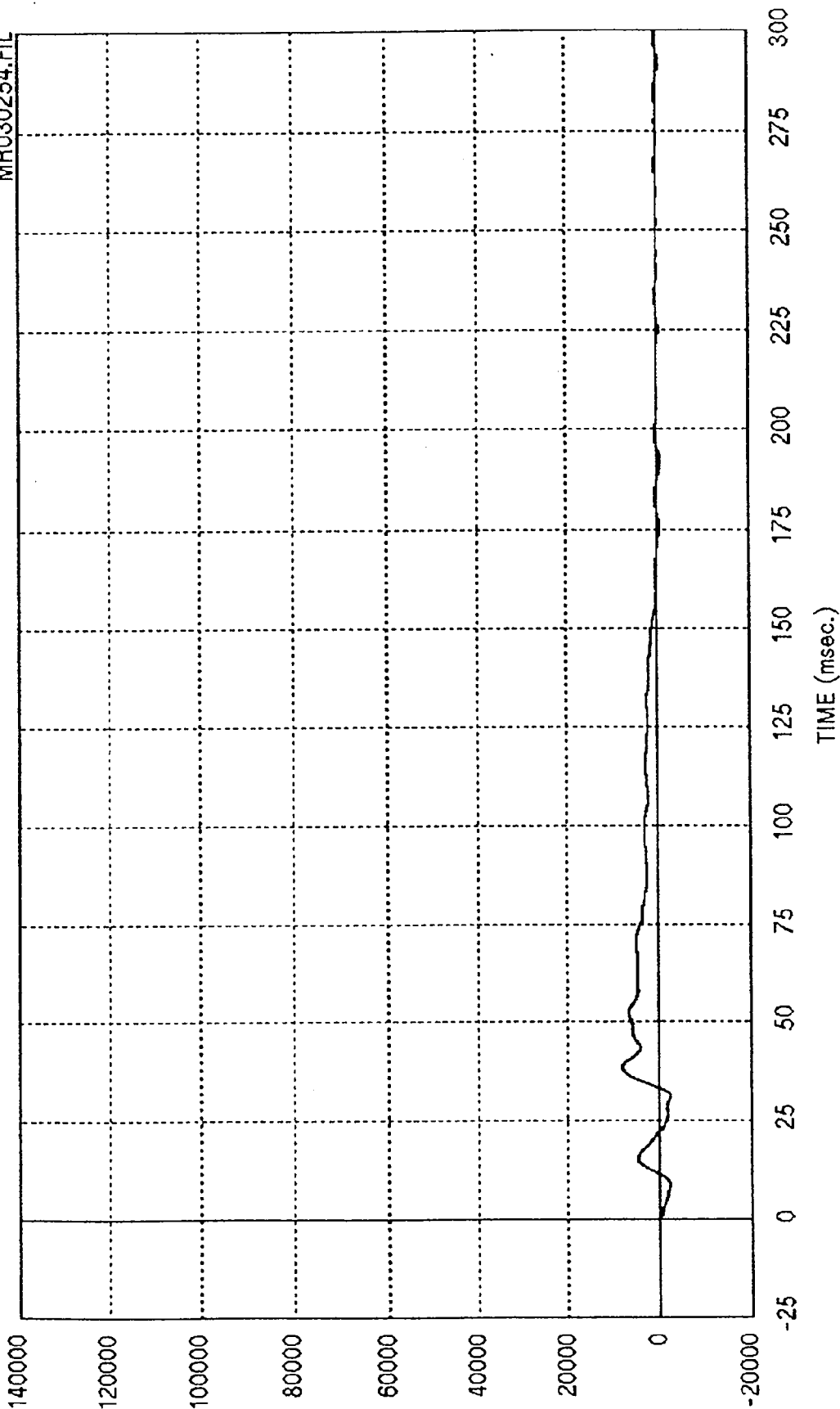
MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

MR030253.FIL



Curve: Force on barrier location A6 Filter: SAE CLASS 60 Max = 8897.3 Min = -2216.8
MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

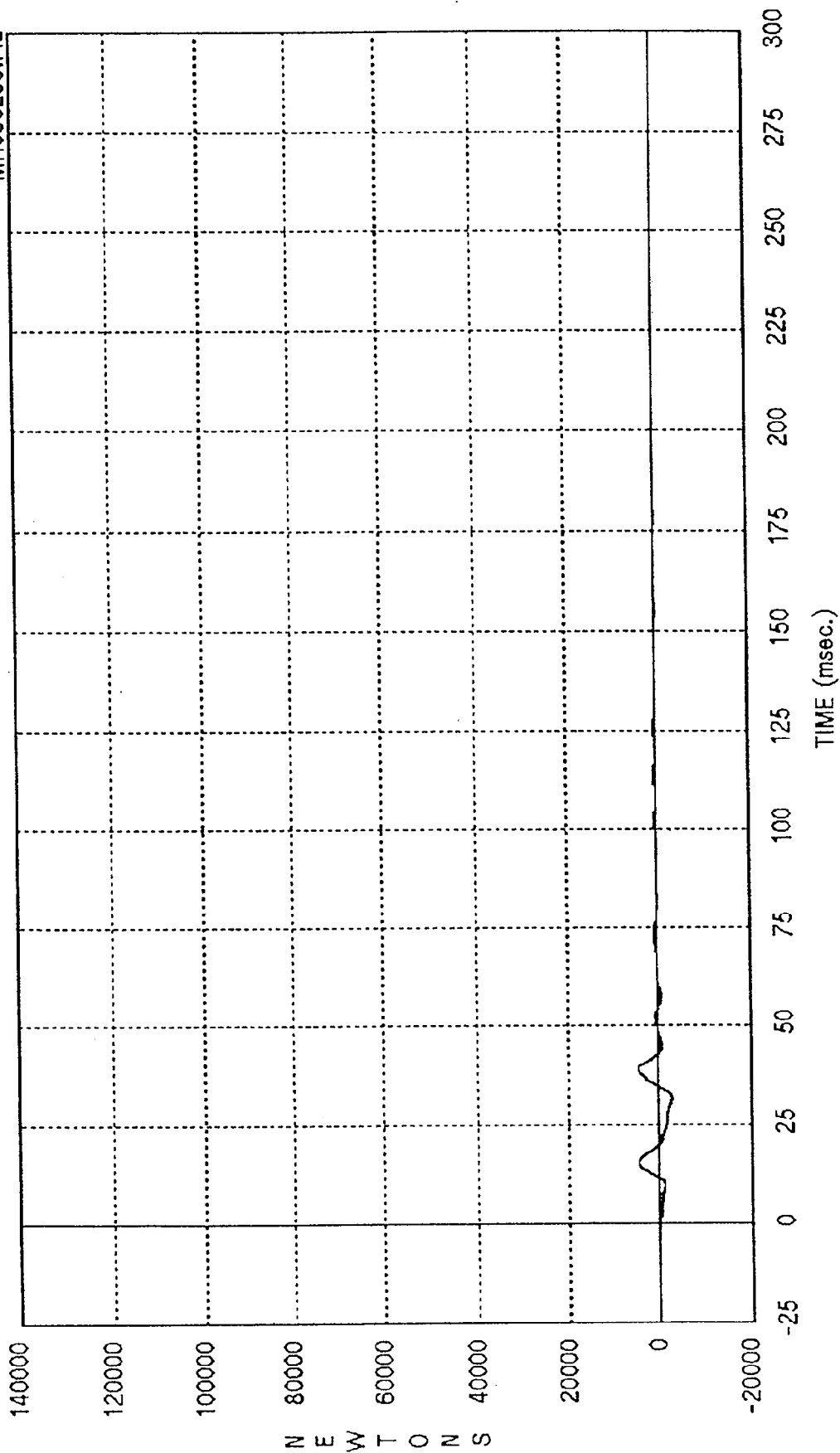
MR030254.FIL



Curve: Force on barrier location A7 Filter: SAE CLASS 60 Max = 7977.9 Min = -2430.6

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

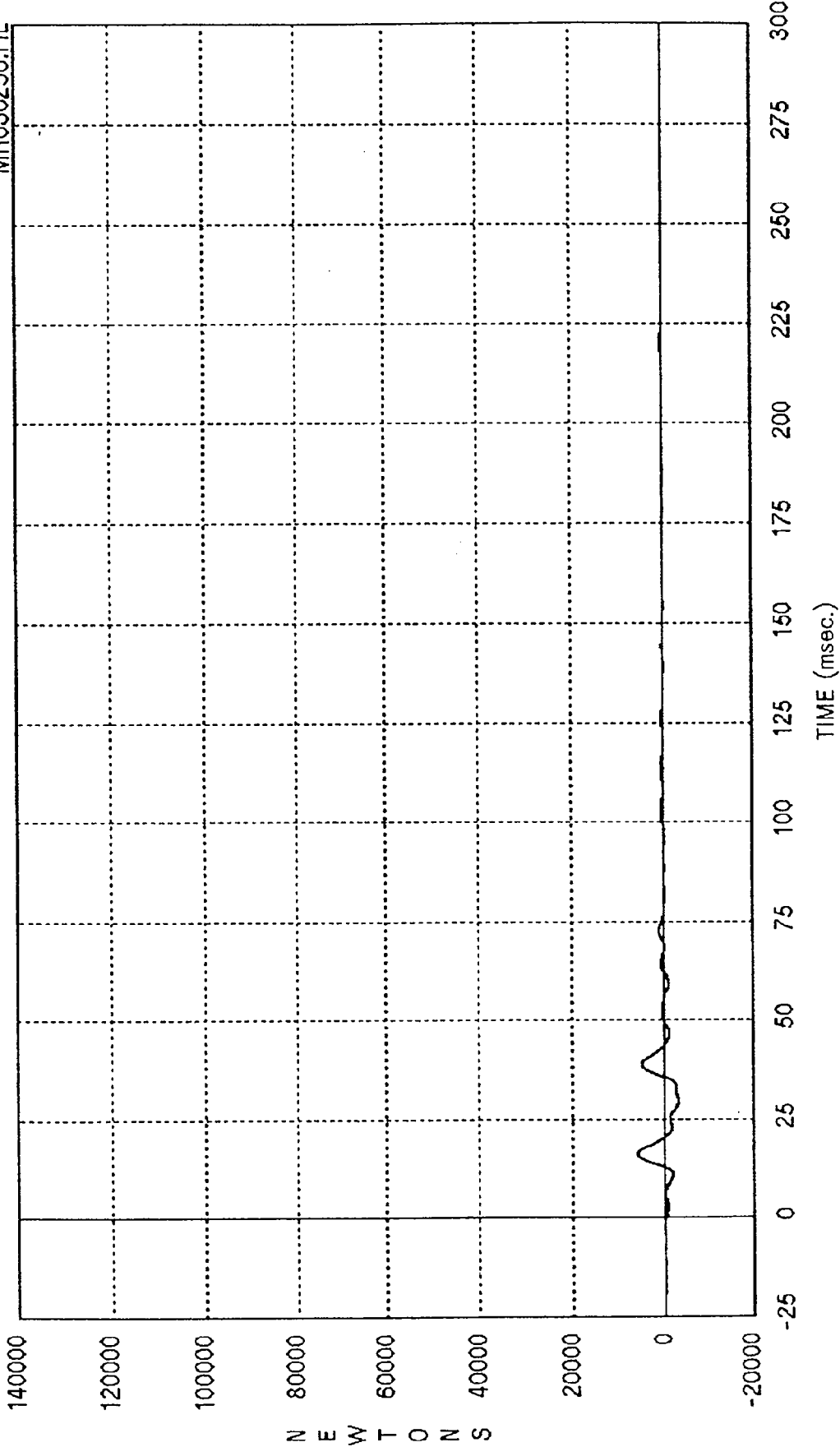
MR030255.FIL



Curve: Force on barrier location A8 Filter: SAE CLASS:60 Max = 4493.3 Min = -2815.1

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

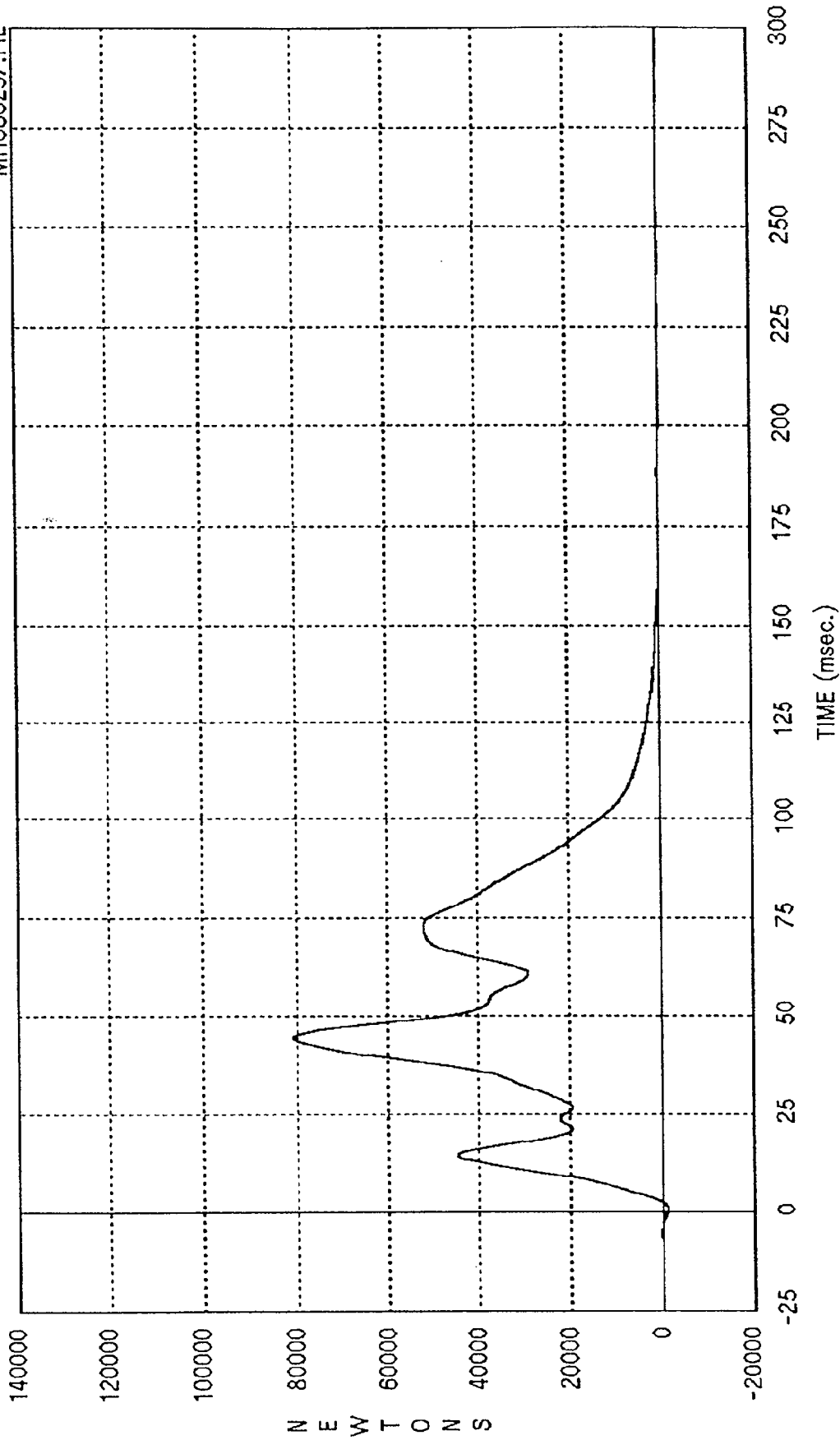
MR030256.FIL



Curve: Force on barrier location A9 Filter: SAE CLASS 60 Max = 5923.9 Min = -3183.9

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

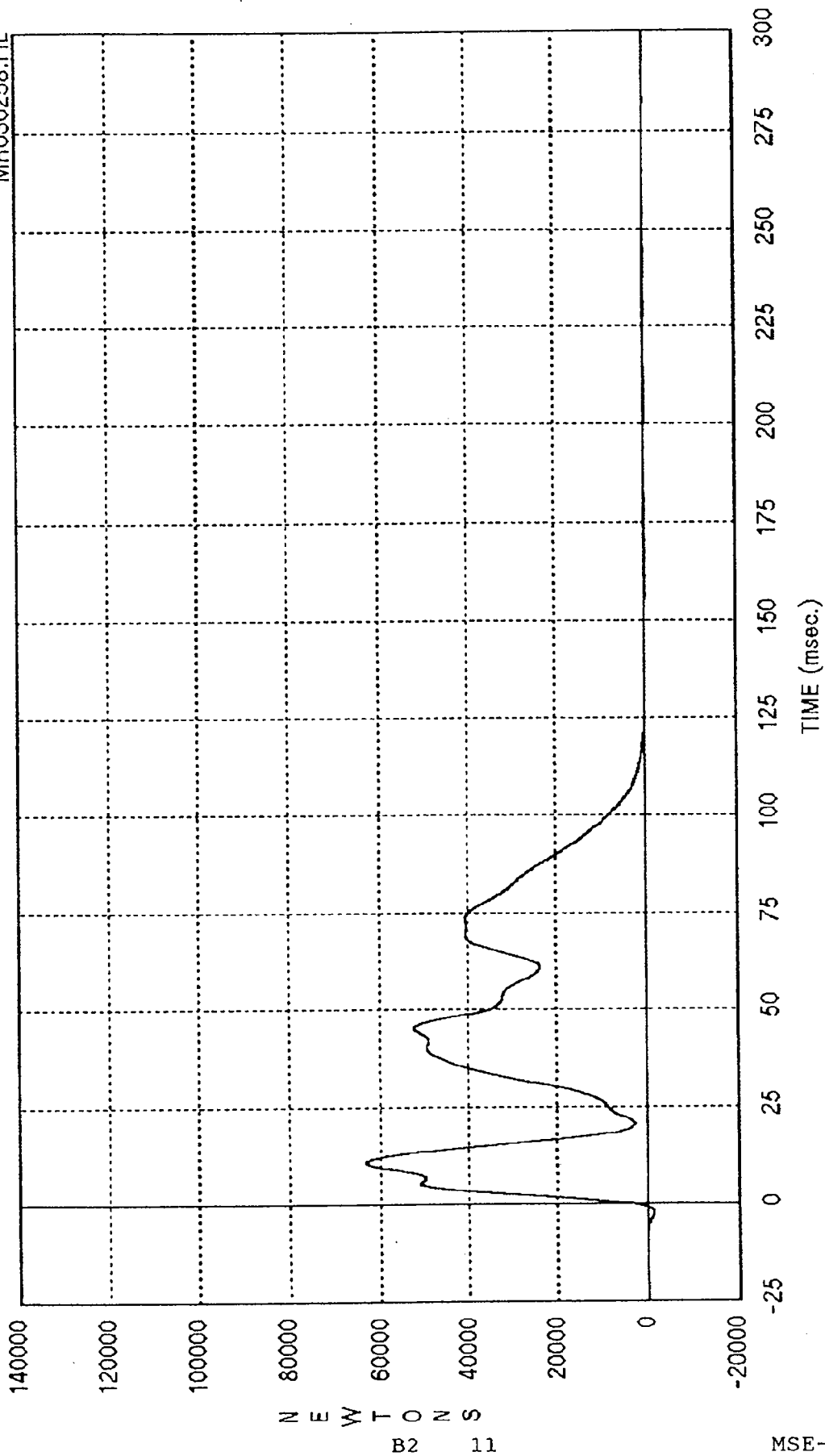
MR030257.FIL



Curve: Force on barrier location B1 Filter: SAE CLASS 60 Max = 80797. Min = -1135.5

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

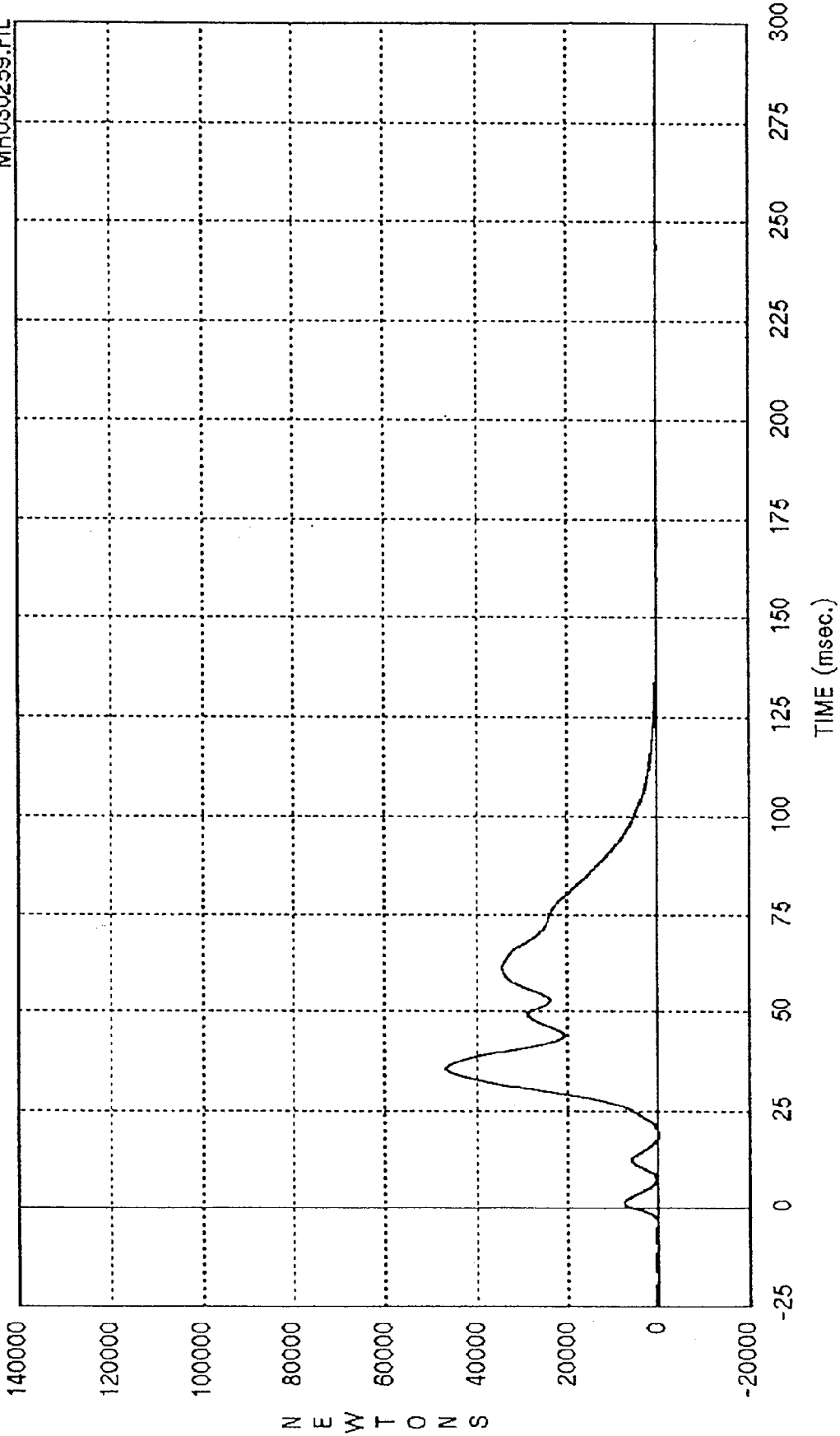
MR030258.FIL



Curve: Force on barrier location B2 Filter: SAE CLASS 60 Max = 63530. Min = -223.89

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

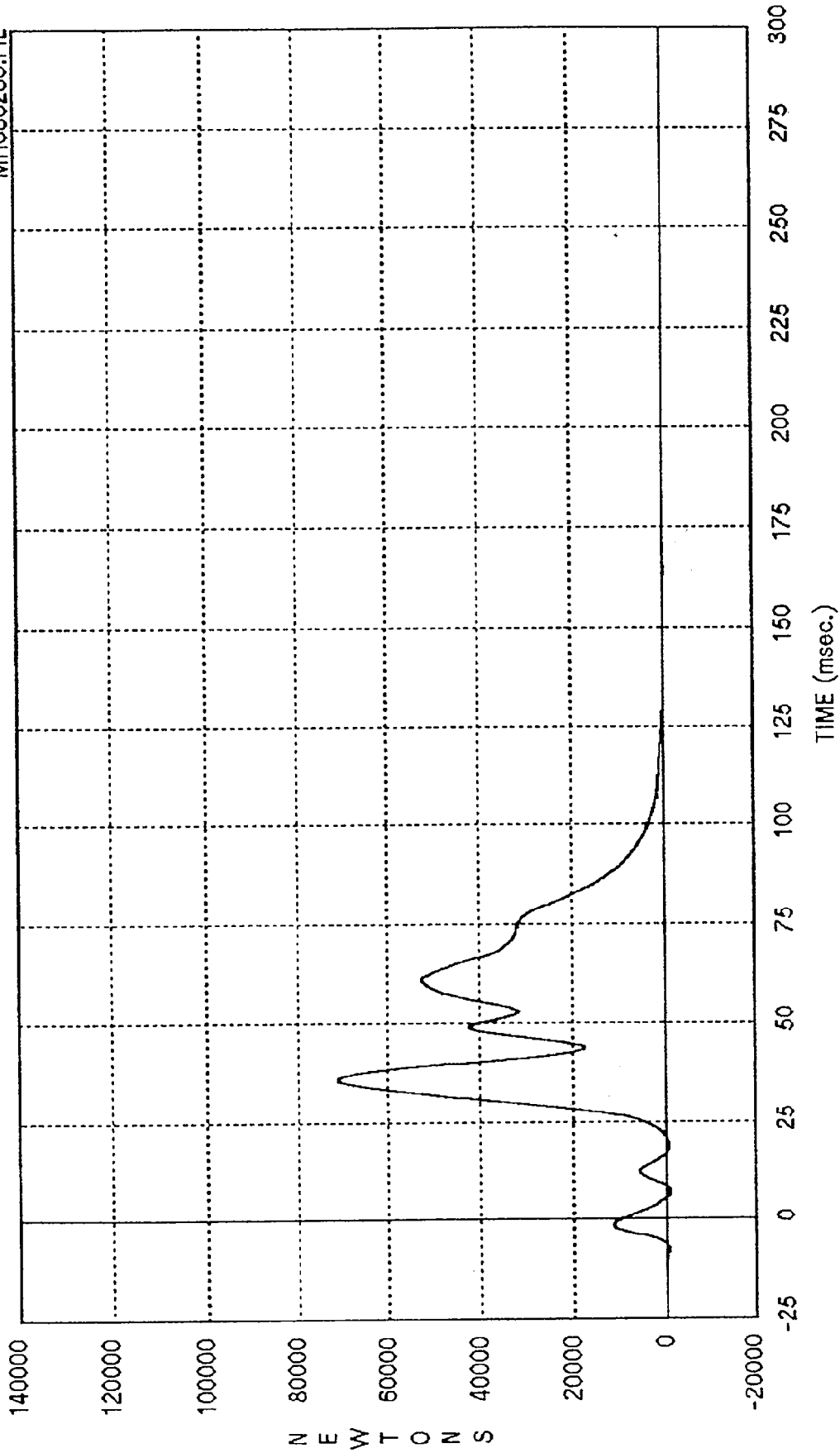
MR030259.FIL



Curve: Force on barrier location B3 Filter: SAE CLASS=60 Max = 46891. Min = -16210

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

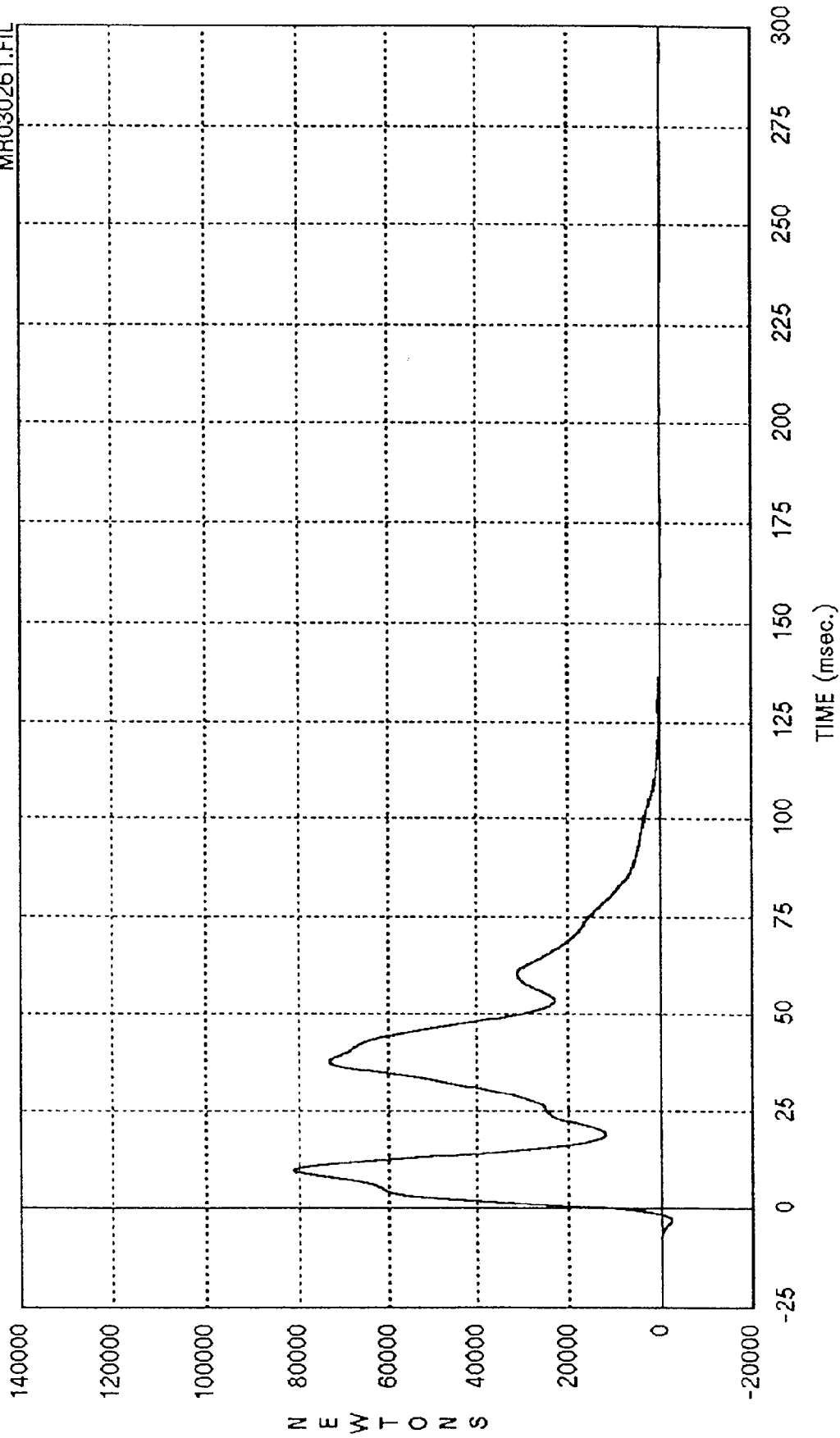
MR030260.FIL



Curve: Force on barrier location B4 Filters: SAE=CLASS 60 Max = 71125. Min = 807.00

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

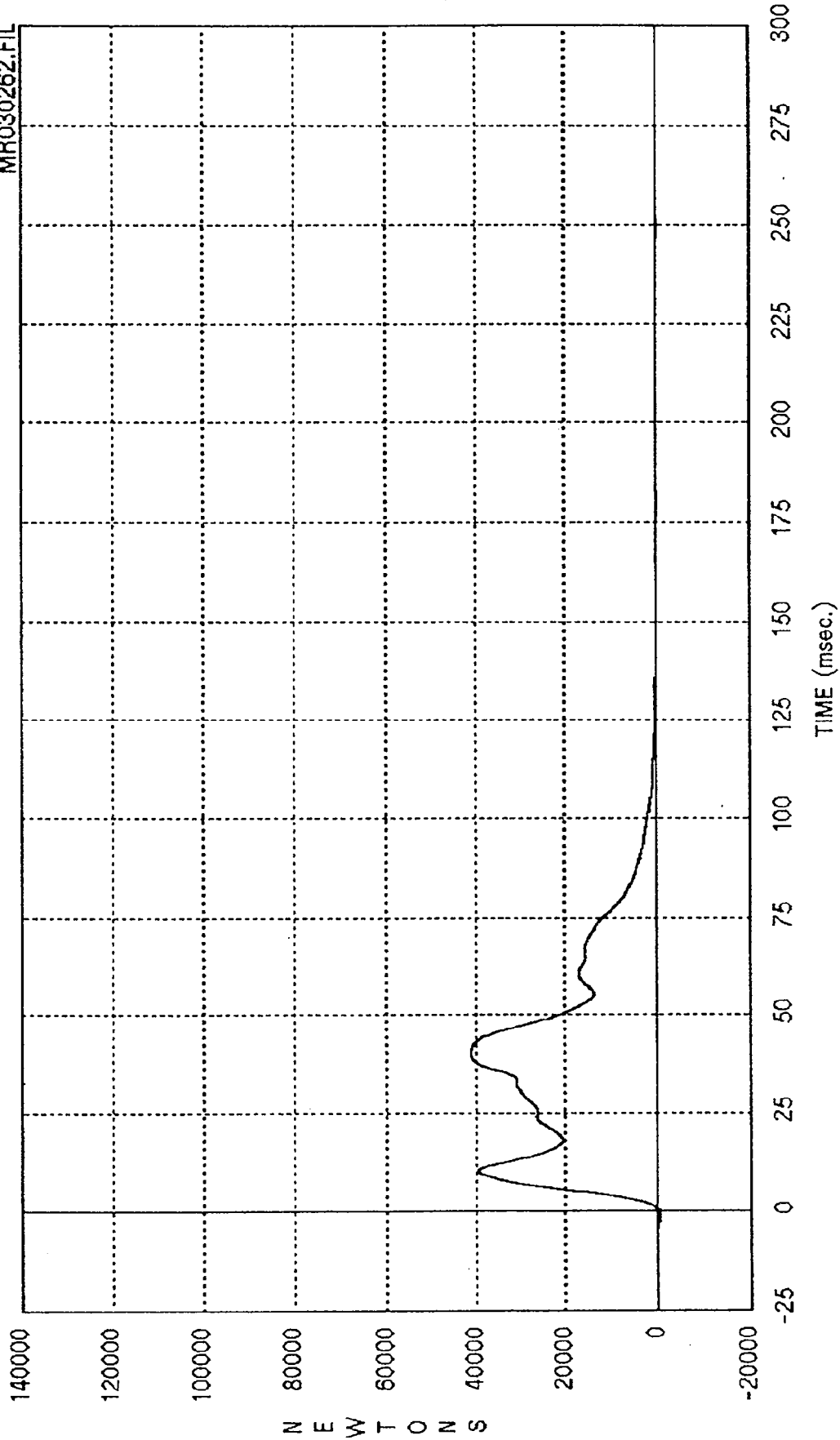
MR030261.FIL



Curve: Force on barrier location B5 Filter: SAE CLASS 60 Max = 81274. Min = -166.90

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

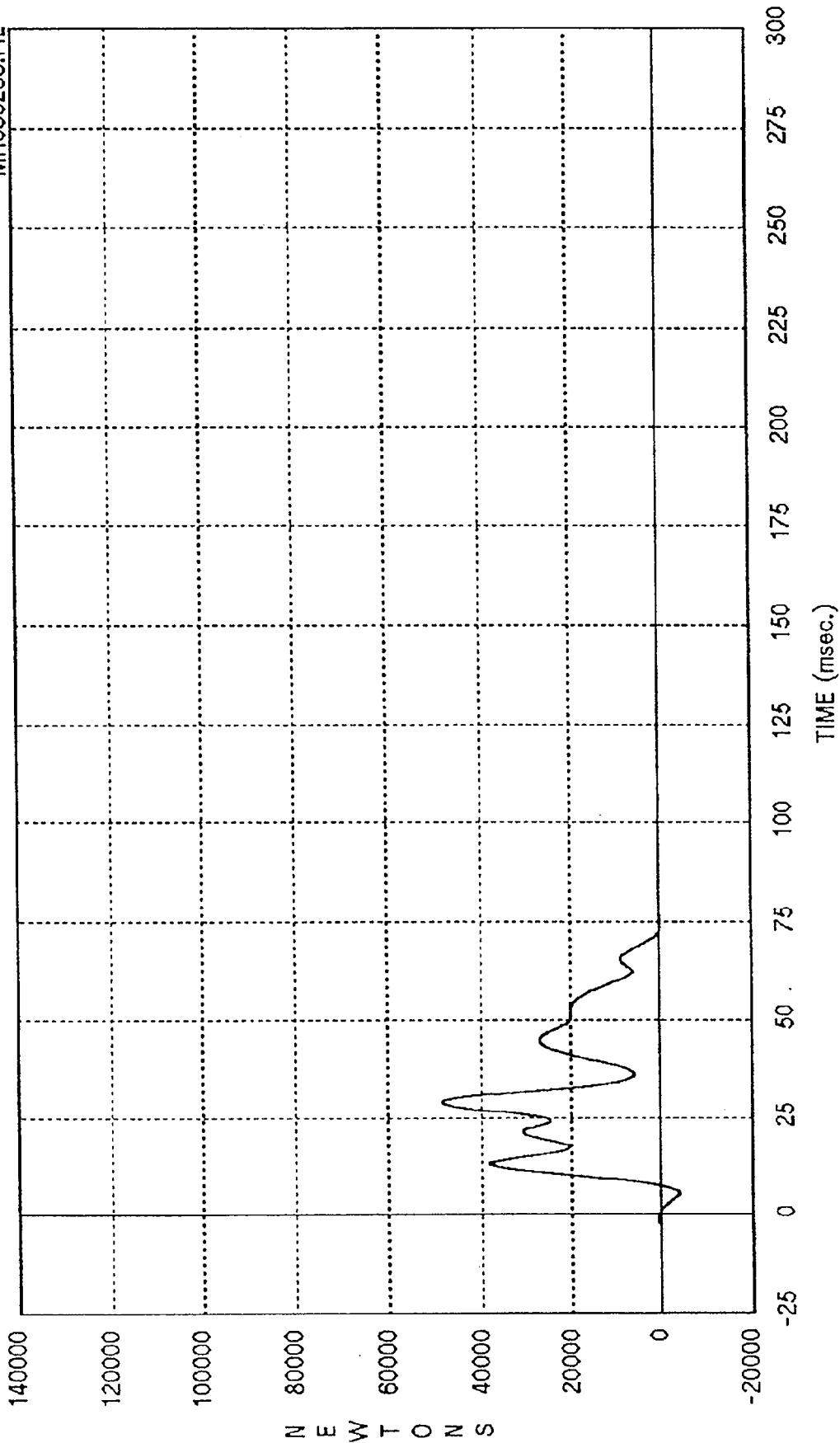
MR030262.FIL



Curve: Force on barrier location B6 Filter: SAE CLASS 60 Max = 41191. Min = -72.723

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

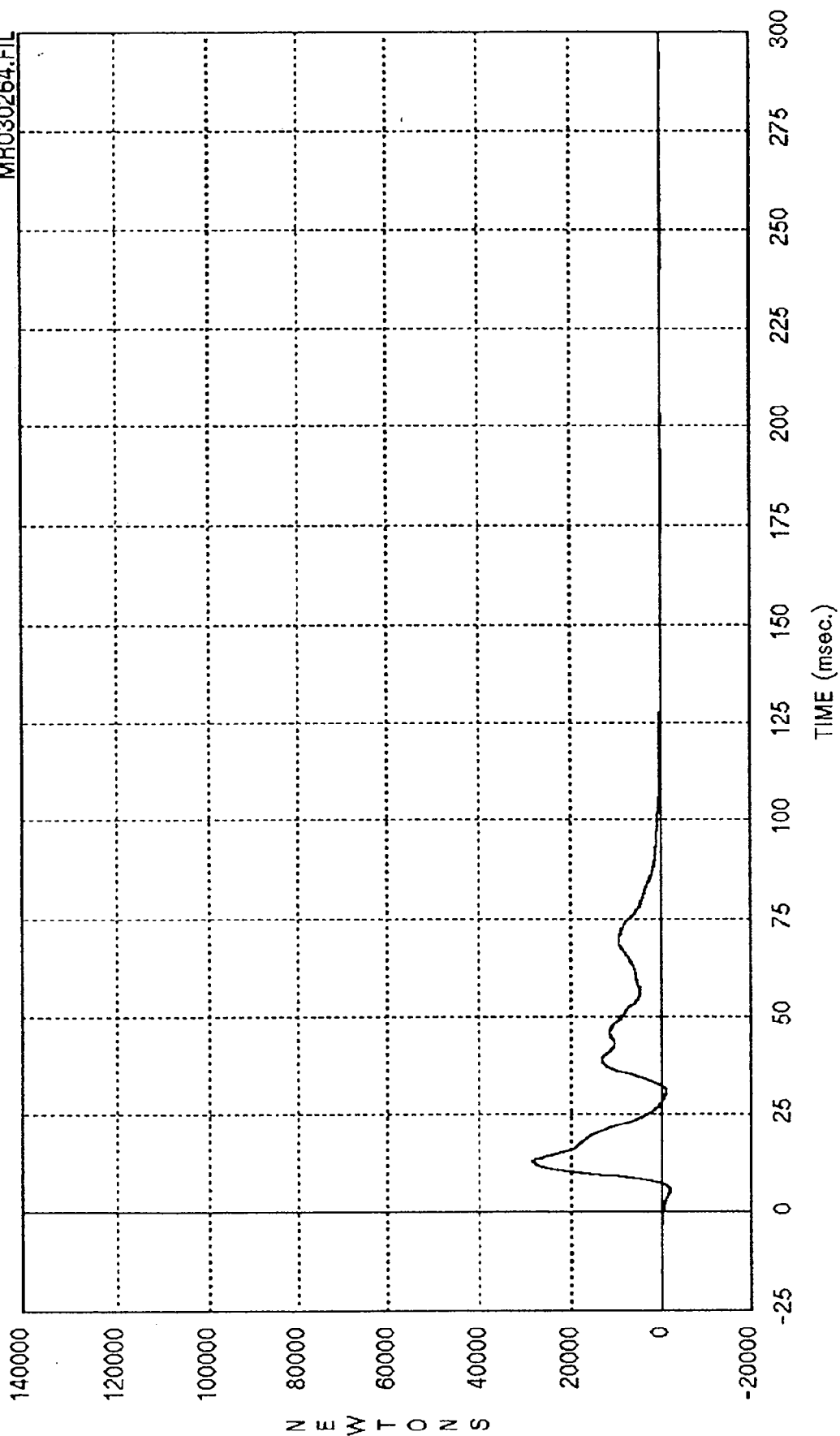
MR030263.FIL



Curve: Force on barrier location B7 Filter: SAE CLASS 60 Max = 48884. Min = -4193.5

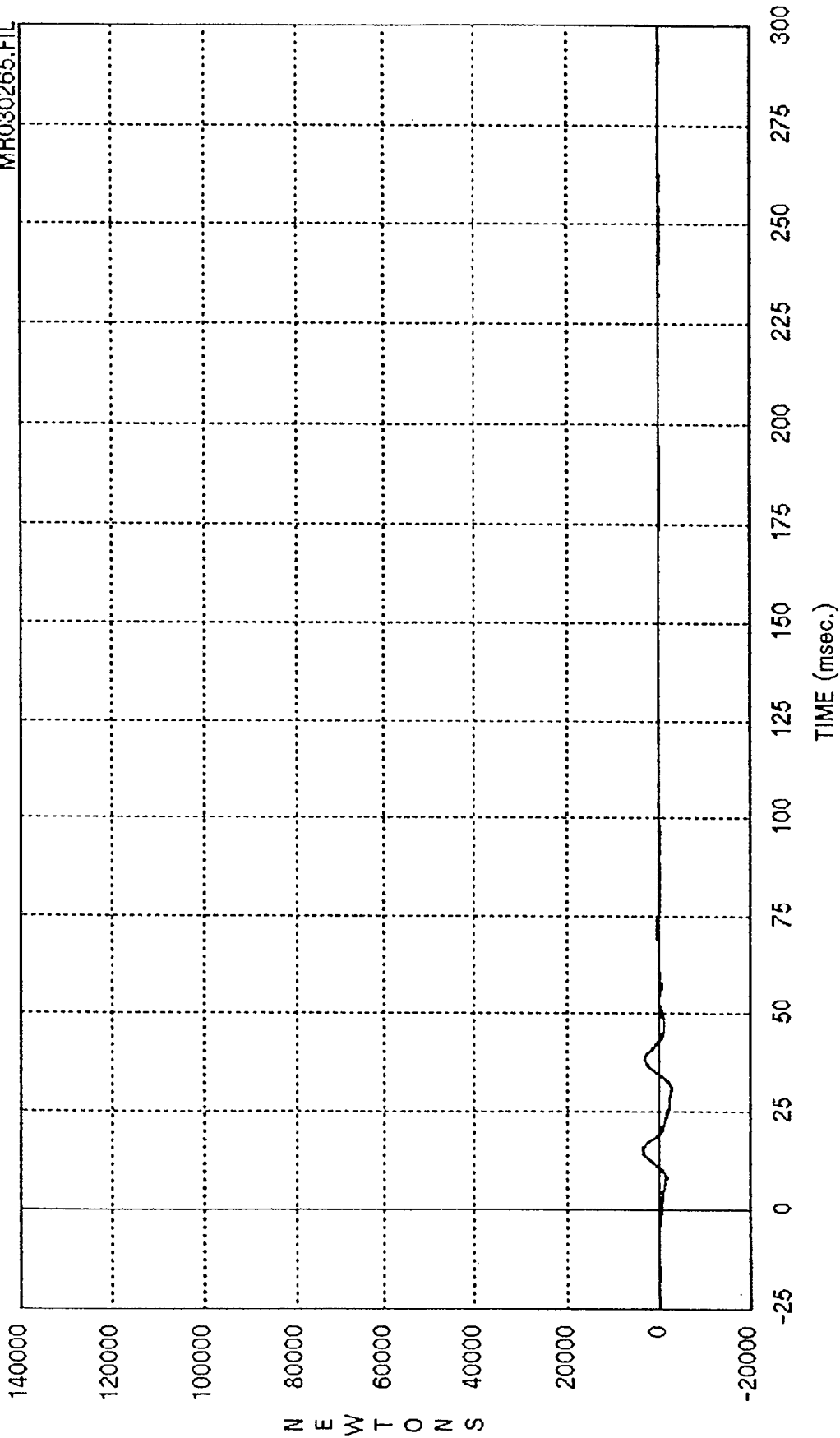
MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

MR030264.FIL



Curve: Force on barrier location B8 Filter: SAE CLASS 60 Max = 28479. Min = -1890.6
MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

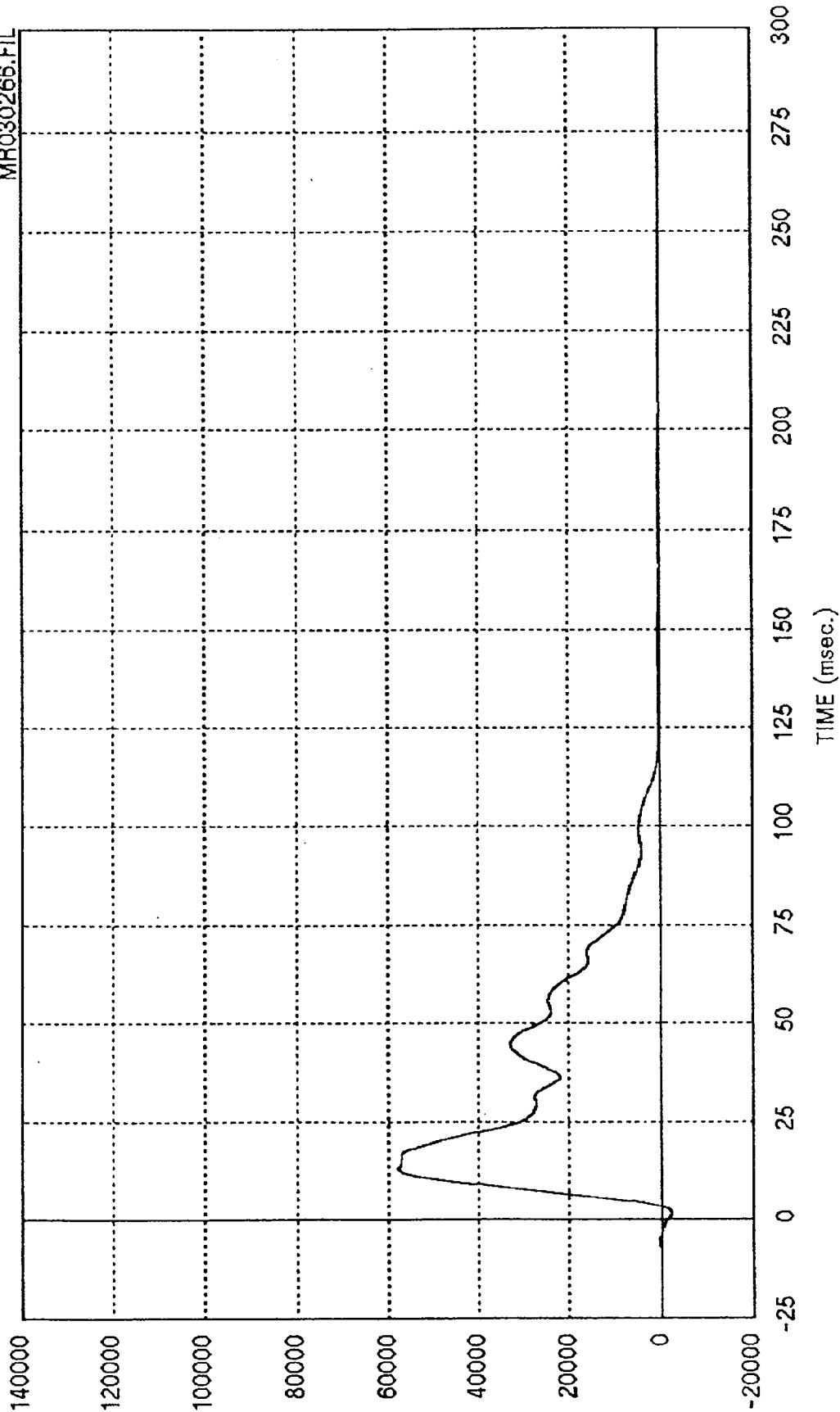
MR030265.FIL



Curve: Force on barrier location B9 Filter: SAE CLASS.60 Max = 3688.7 Min = -2525.5

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

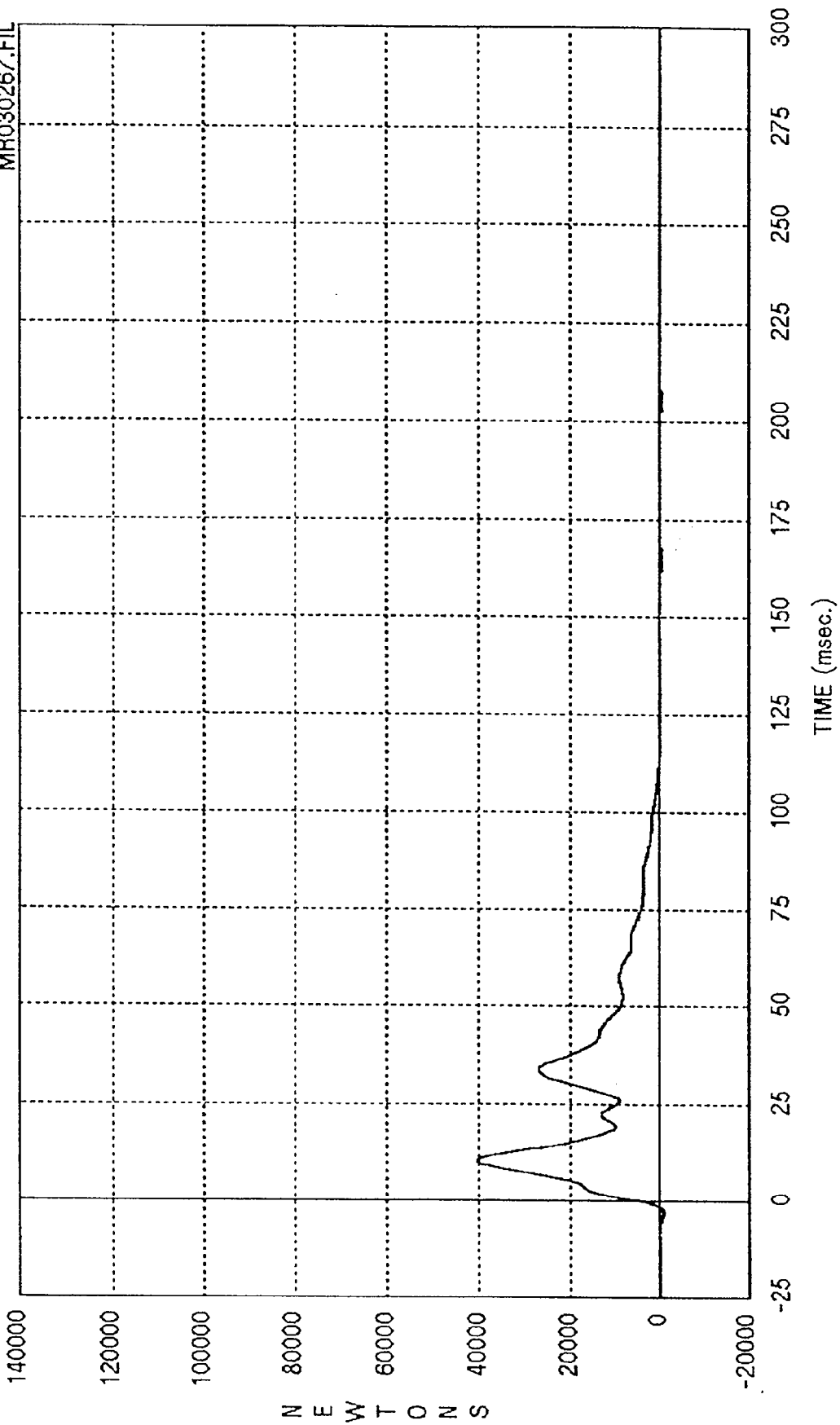
MR030266.FIL



Curve: Force on barrier location C1 Filter: SAE CLASS 60 Max = 57892. Min = -2032.9

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

MR030267.FIL

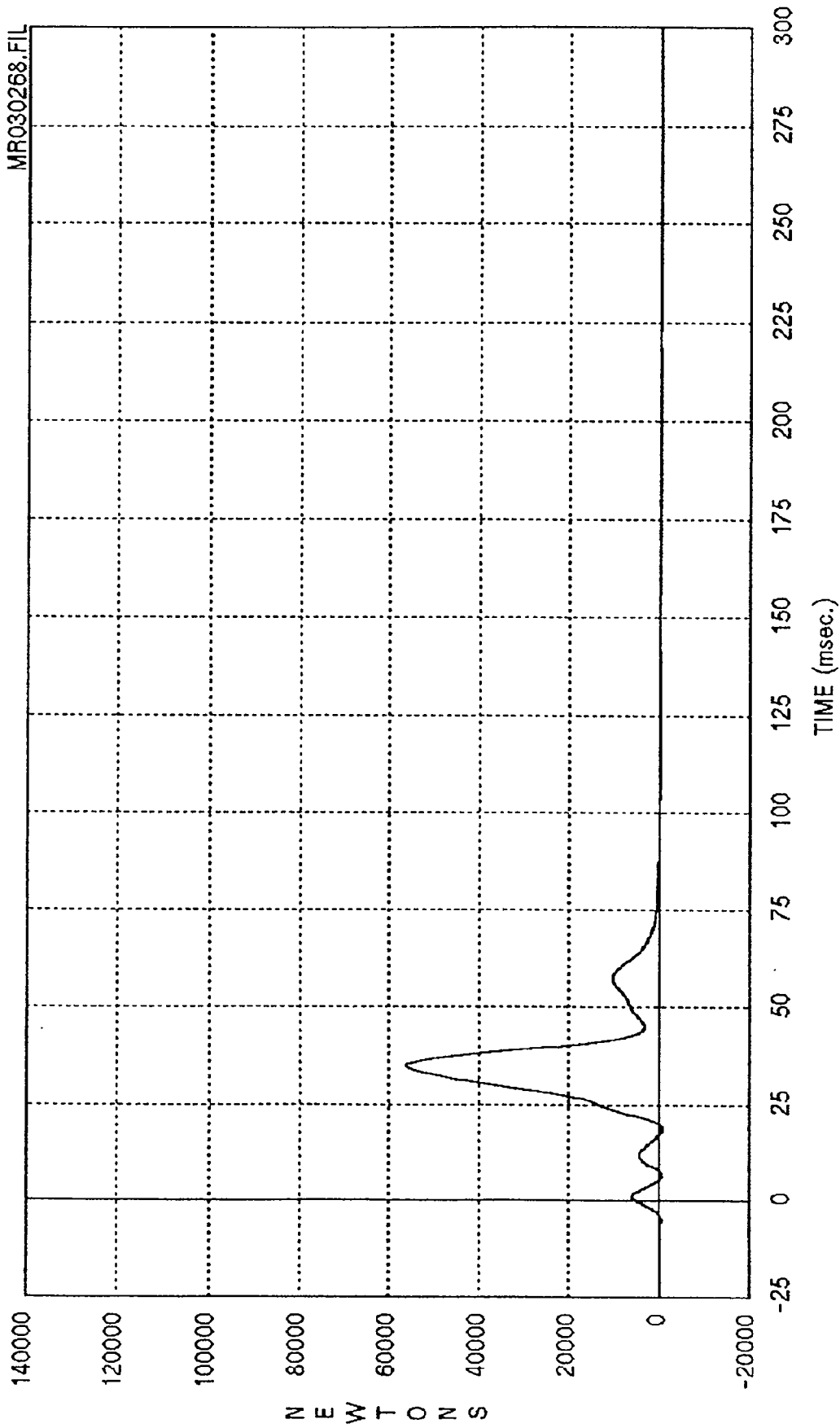


Curve: Force on barrier location C2

Filter: SAE CLASS 60 Hz Max = 40377.

Min = -371.22

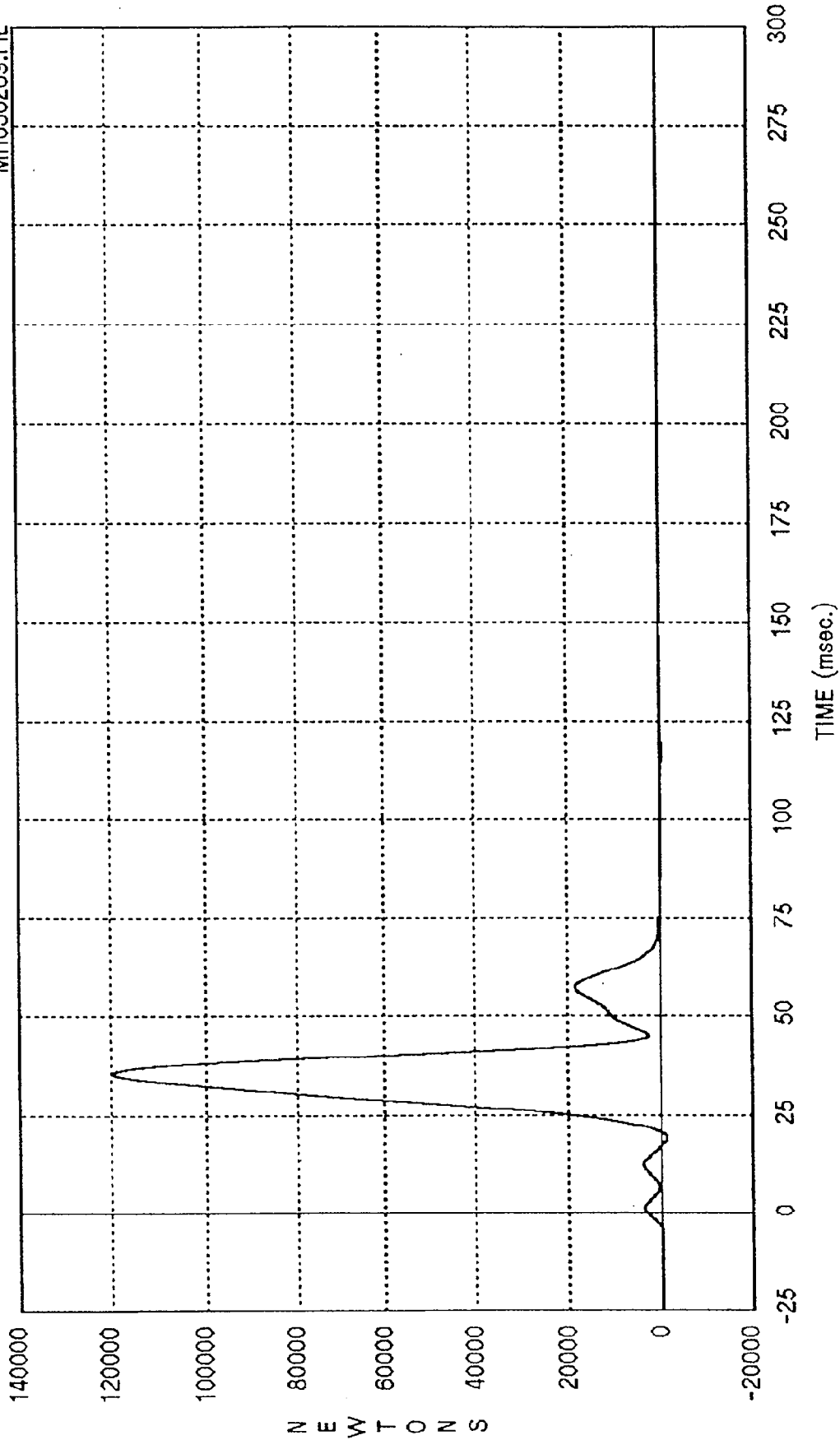
MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup



Curve: Force on barrier location C3 Filter: SAE-CLASS:60 Max = 56346. Min = -5720.21

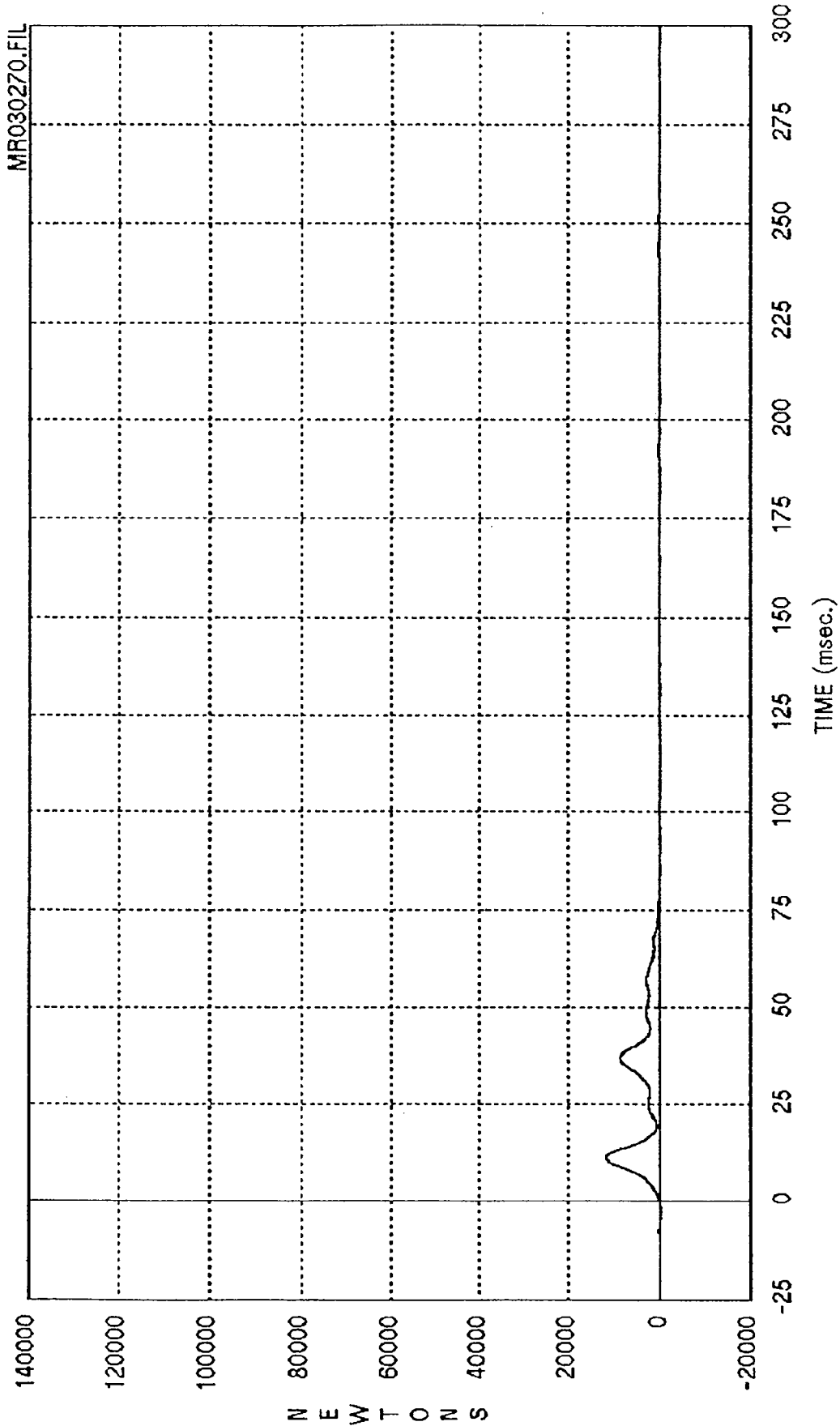
MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

MR030269.FIL



Curve: Force on barrier location C4 Filter: SAE CLASS 60 Max = .12000E+06 Min = -1096.9

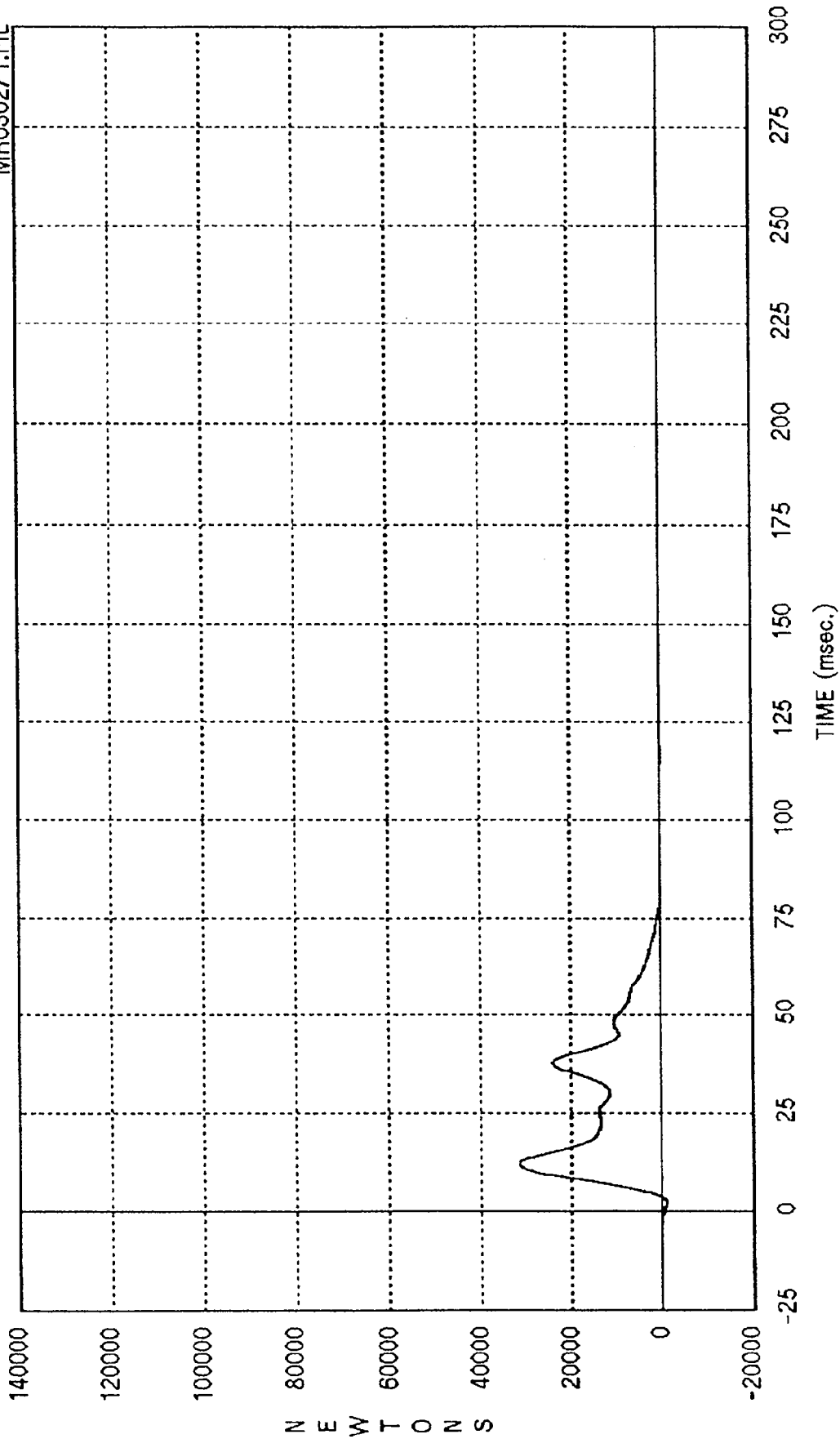
MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup



Curve: Force on barrier location C5 Filter: SAE CLASS 60 Max = 11689. Min = -148.49

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

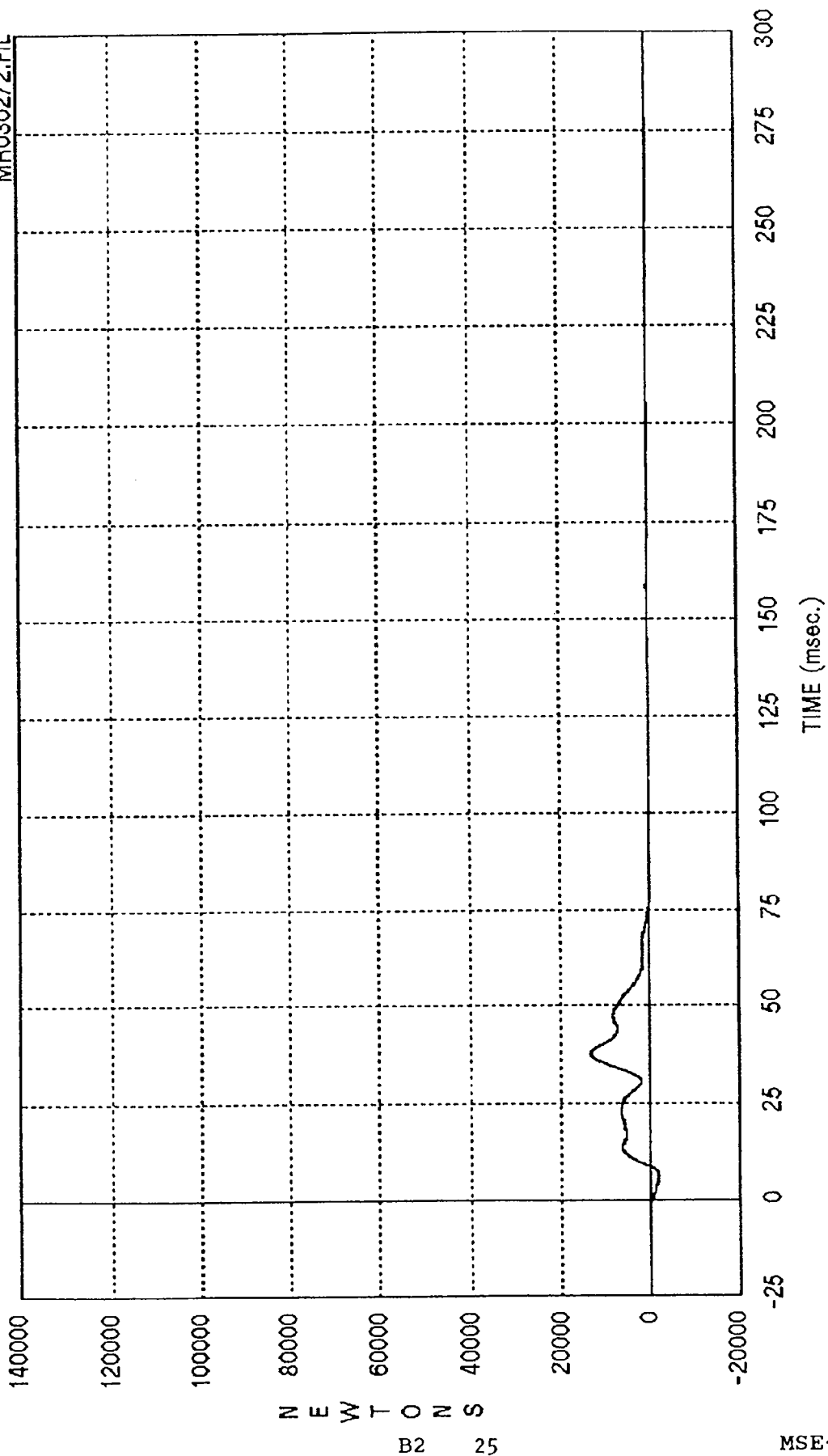
MR030271.FIL



Curve: Force on barrier location C6 Filter: SAE CLASS:60 Max = 31614, Min = -1016.2

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

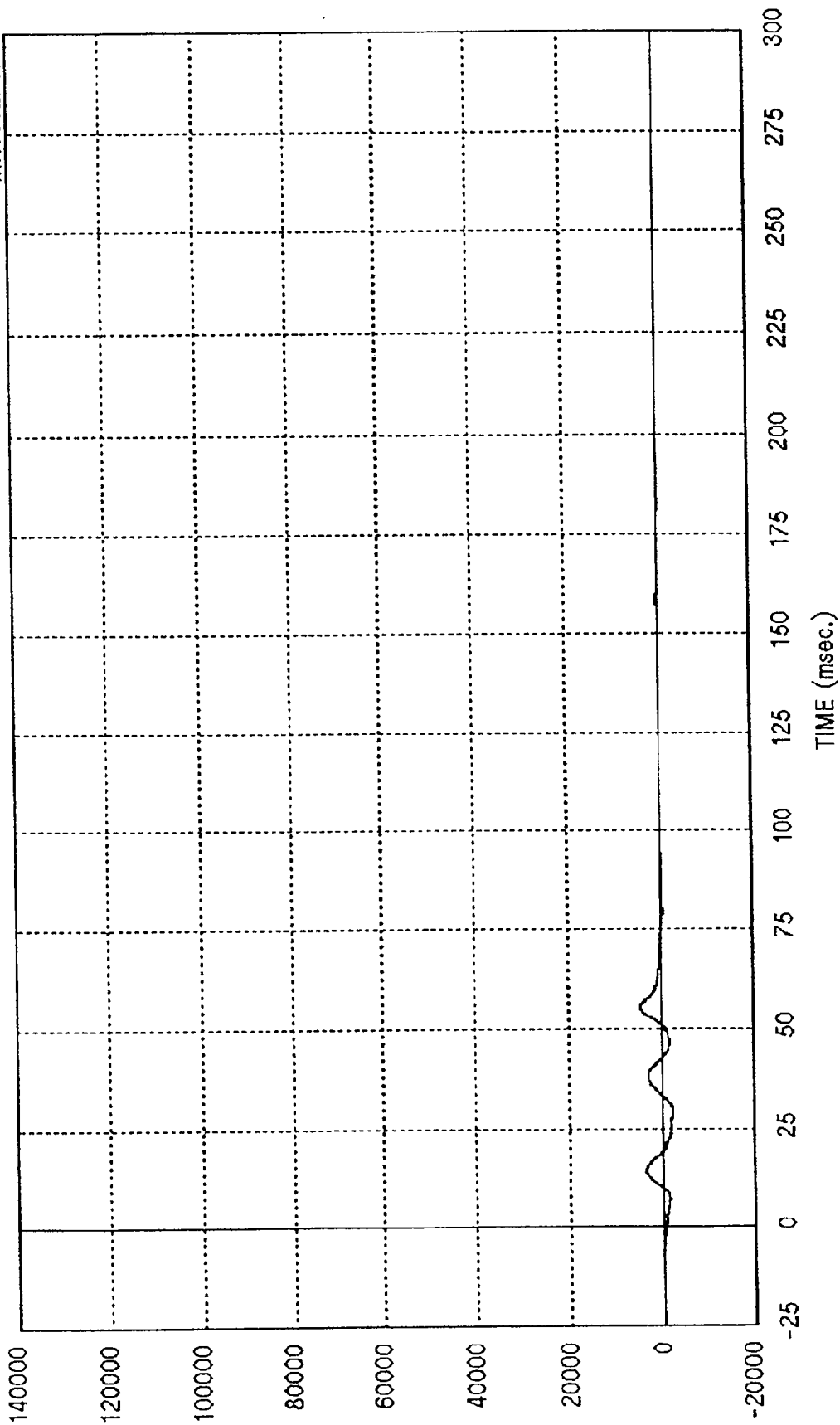
MR030272.FIL



Curve: Force on barrier location C7 Filter: SAE CLASS 60 Max = 13360. Min = -19456

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

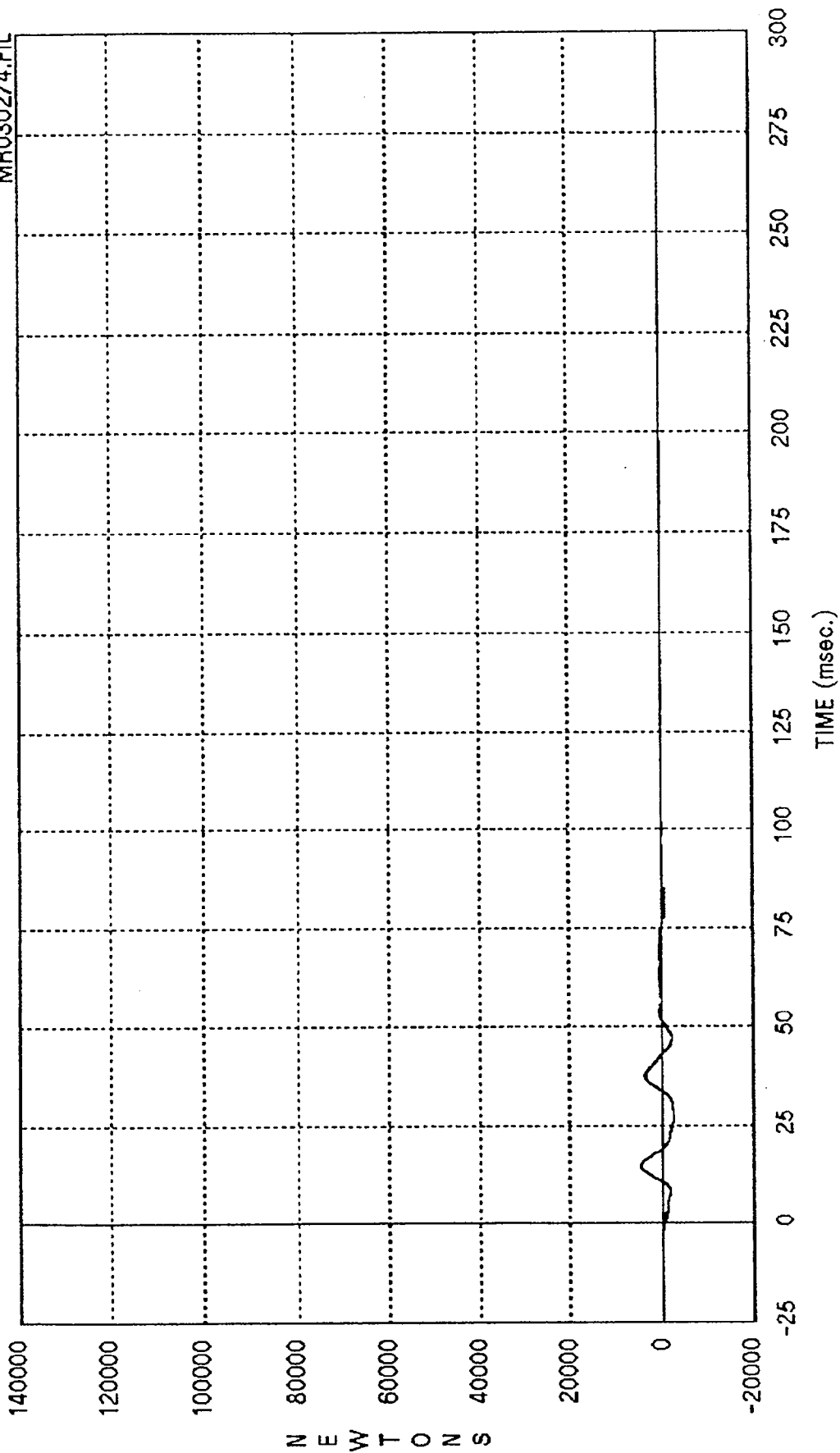
MR030273.FIL



Curve: Force on barrier location C8 Filter: SAE CLASS 60 Max = 4786.1 Min = -2099.7

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

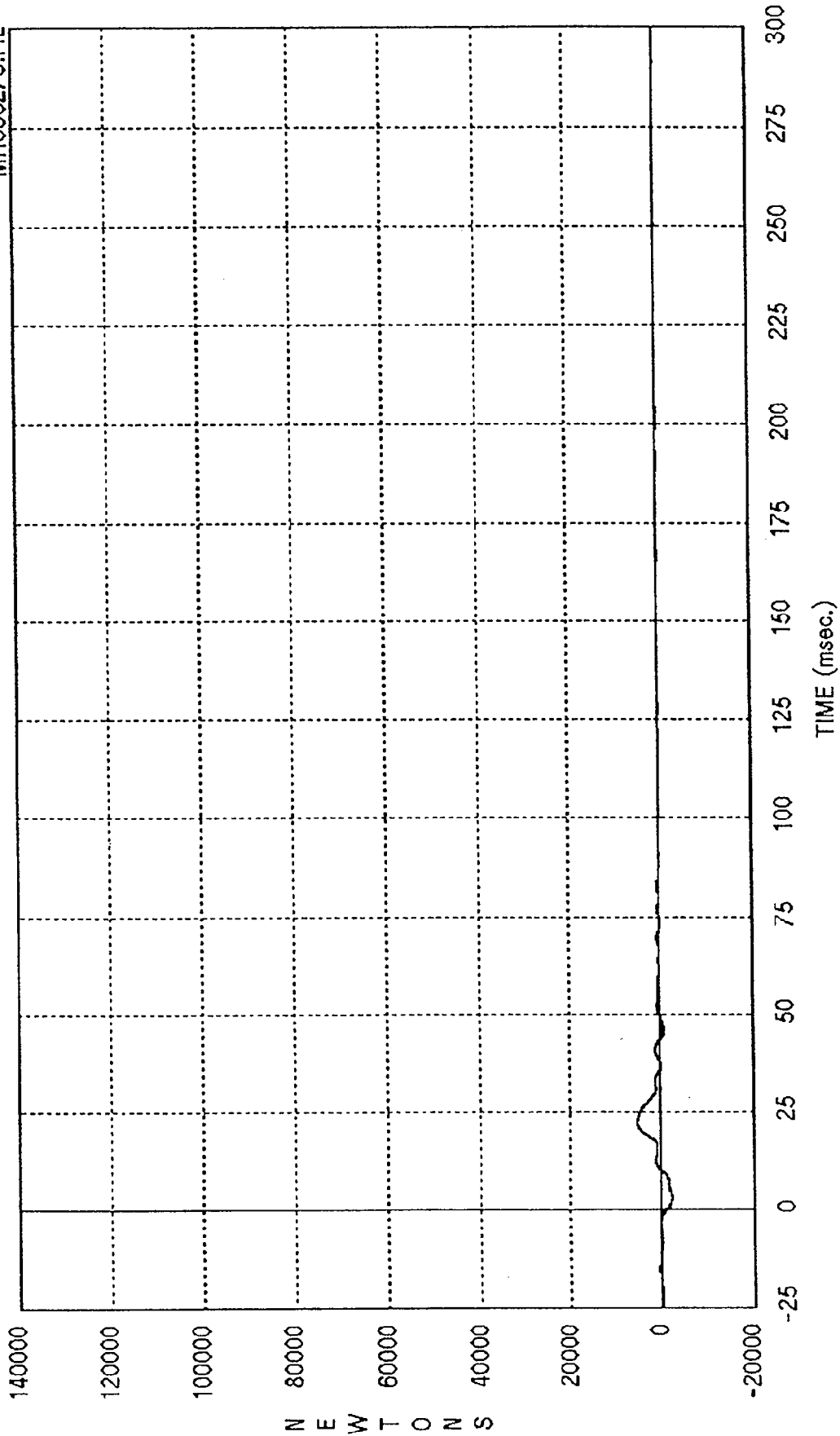
MR030274.FIL



Curve: Force on barrier location C9 Filter: SAE CLASS 60 Max = 4738.4 Min = -2480.8

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

MR030275.FIL



Curve: Force on barrier location D1

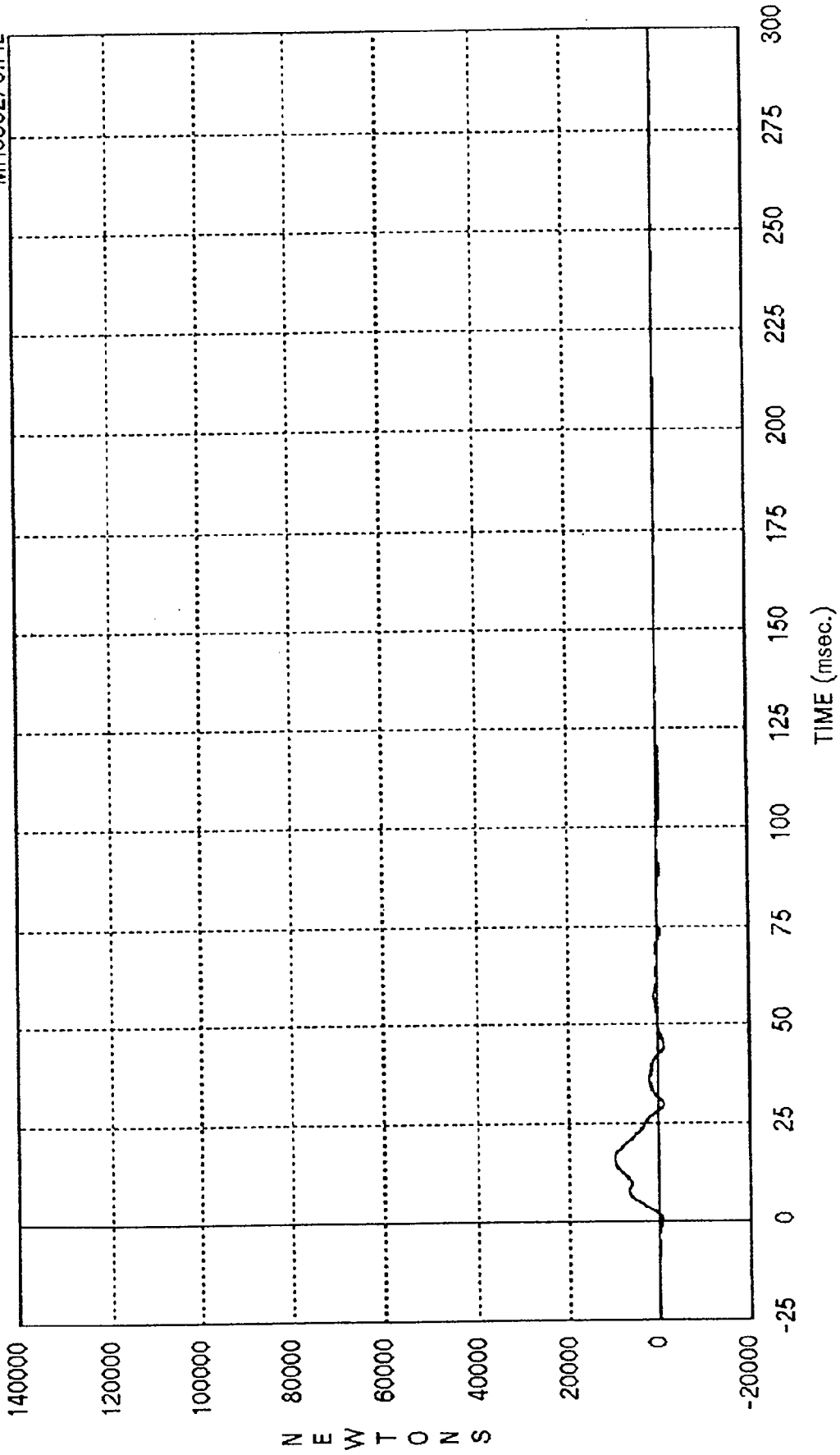
Filter: SAE CLASS 60

Max = 5209.1

Min = -2288.0

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

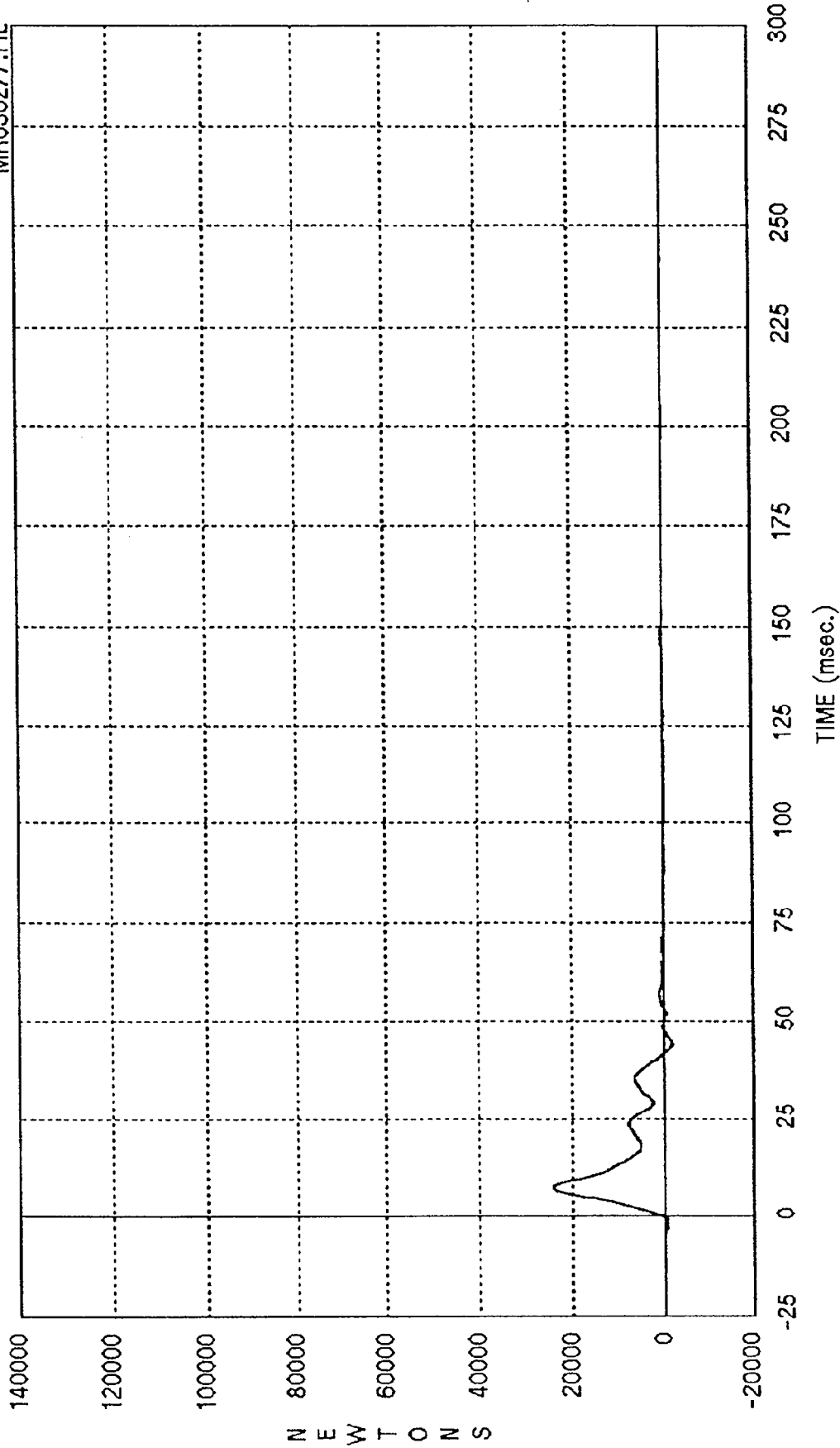
MR030276.FIL



Curve: Force on barrier location D2 Filter: SAE CLASS:60 Max = 9799.2 Min = -1354.4

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

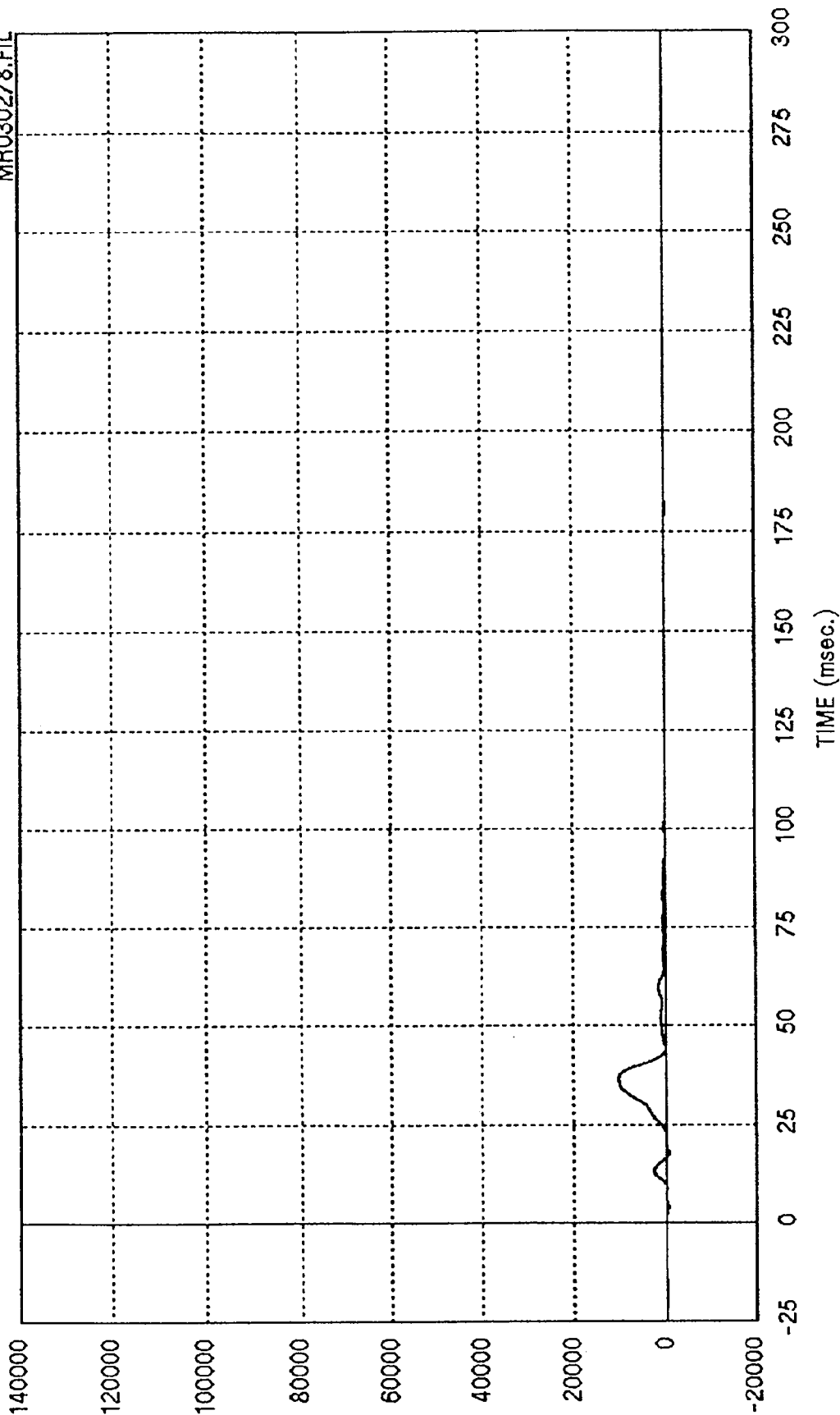
MR030277.FIL



Curve: Force on barrier location D3 Filter: SAE CLASS 60 Max = 24192. Min = -1725.8

MSE Date: 02/10/94 Program: 1994 New-Car Assessment Vehicle: 1994 Dodge Dakota Pickup

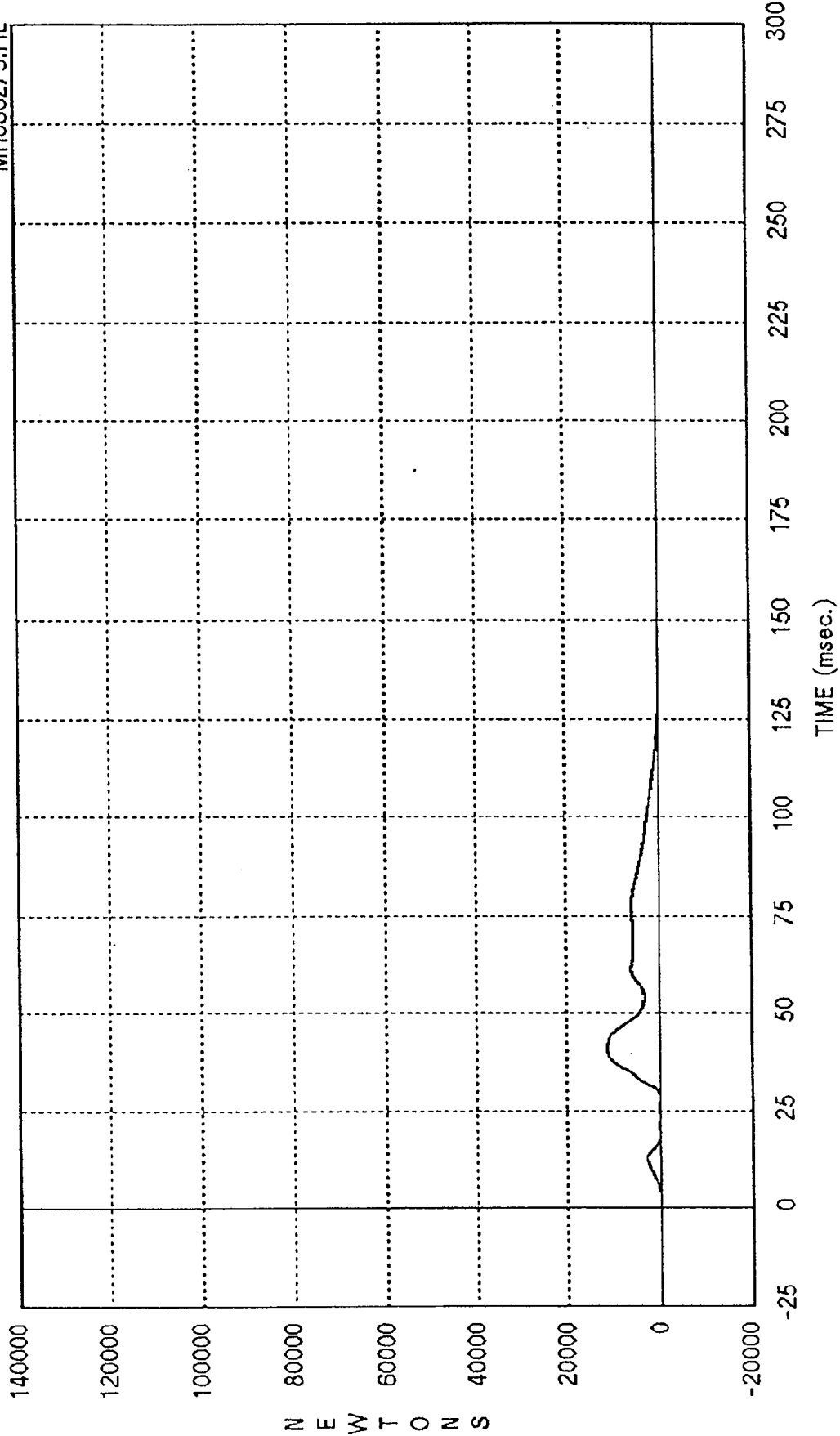
MR030278.FIL



Curve: Force on barrier location D4 Filter: SAE CLASS 60 Max = 10258. Min = -450.47

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

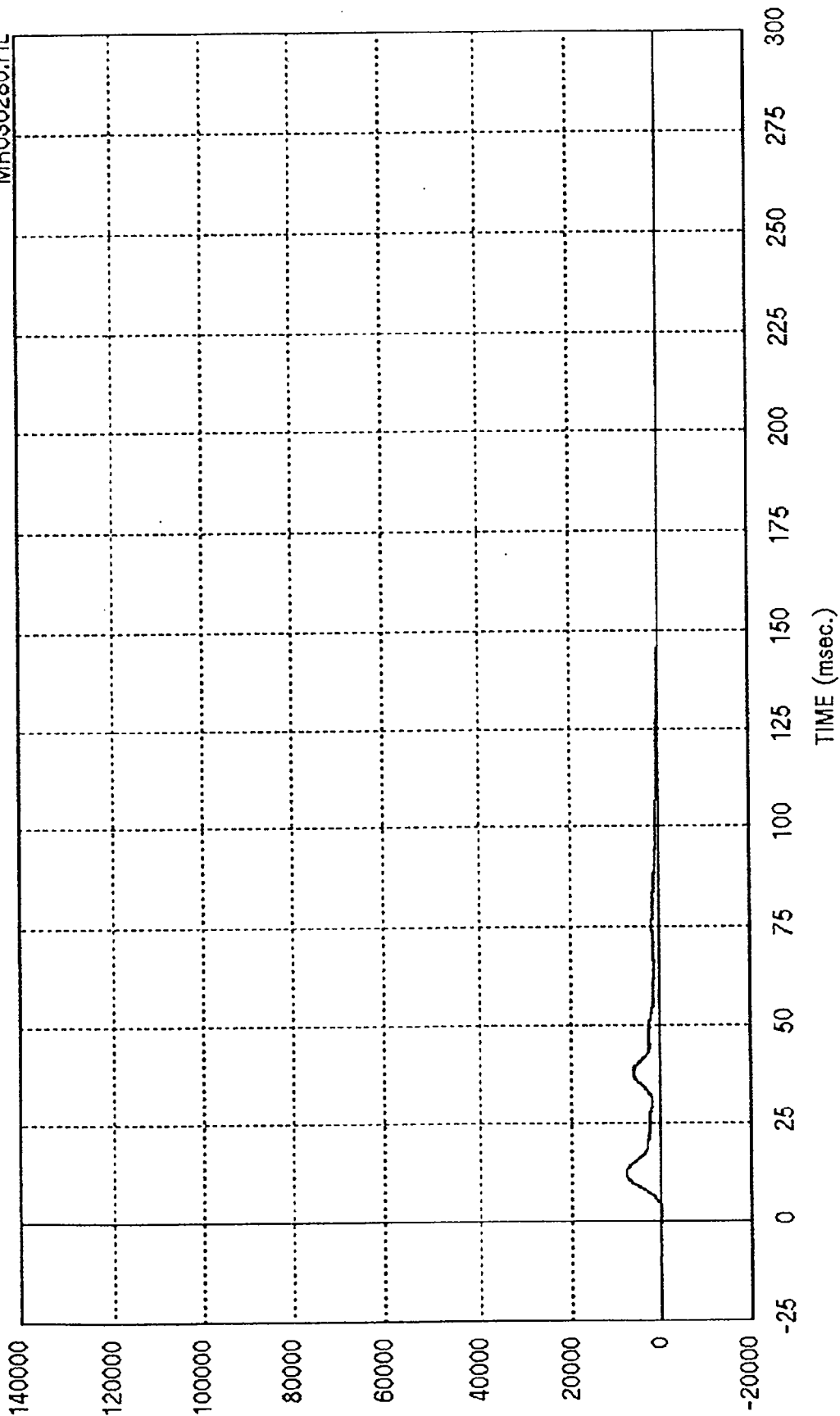
MR030279.FIL



Curve: Force on barrier location D5 Filter: SAE CLASS 60 Max = 11407. Min = -12.957

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

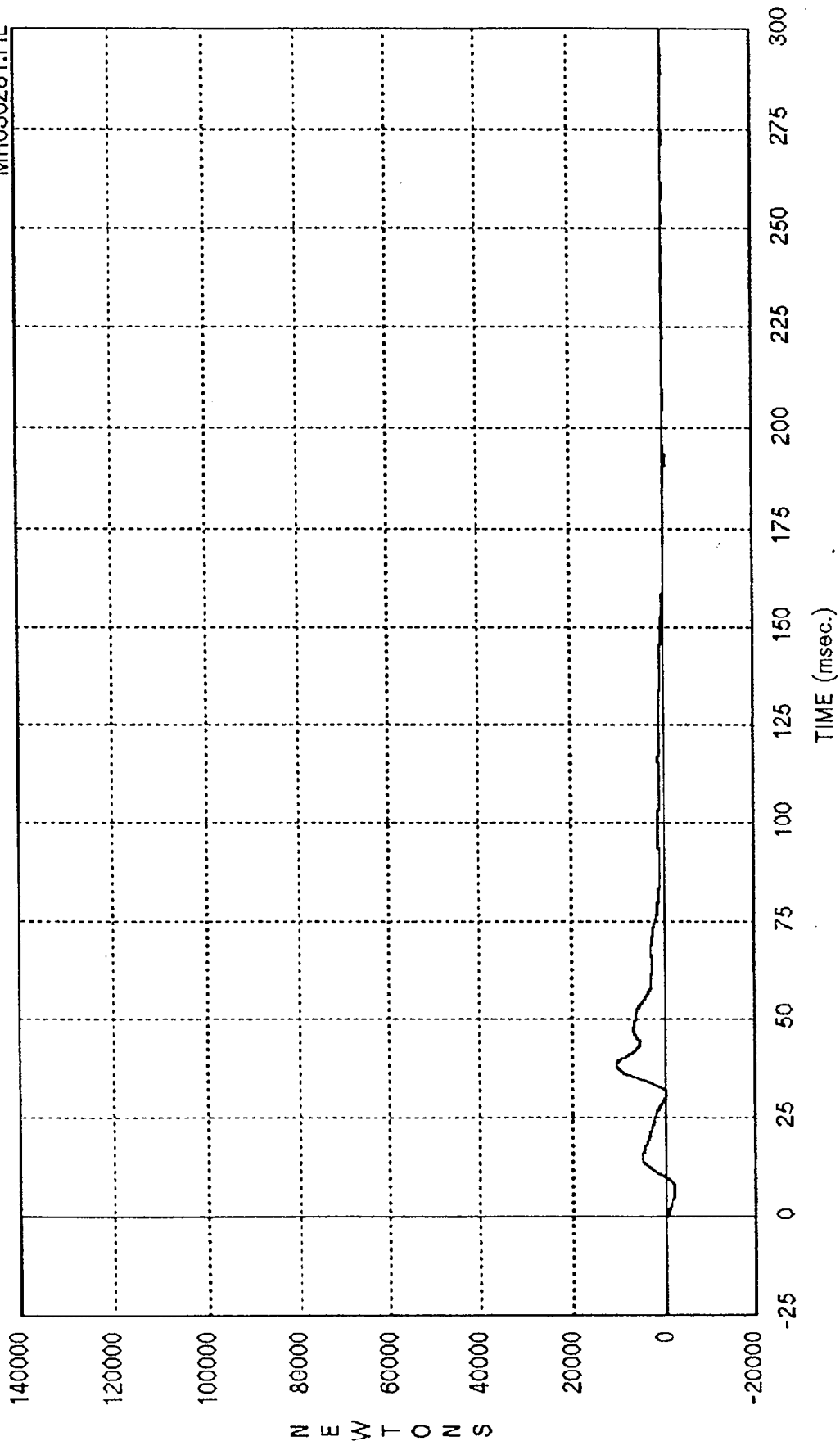
MR030280.FIL



Curve: Force on barrier location D6 Filter: SAE CLASS 60 Max = 7769.9 Min = -308.98

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

MR030281.FIL

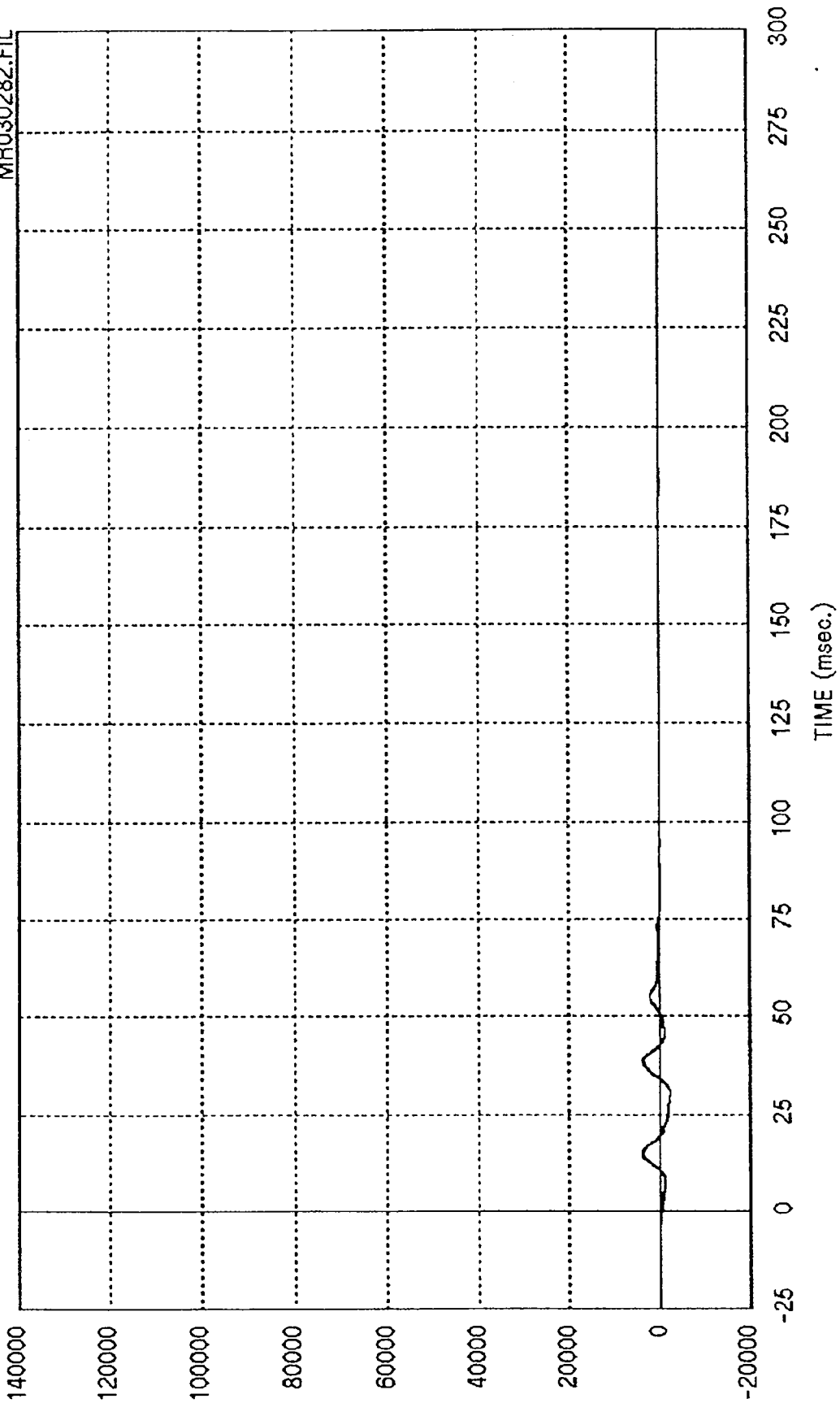


Curve: Force on barrier location D7

Filter: SAE CLASS.60. Max = 10596. Min = -18873.

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

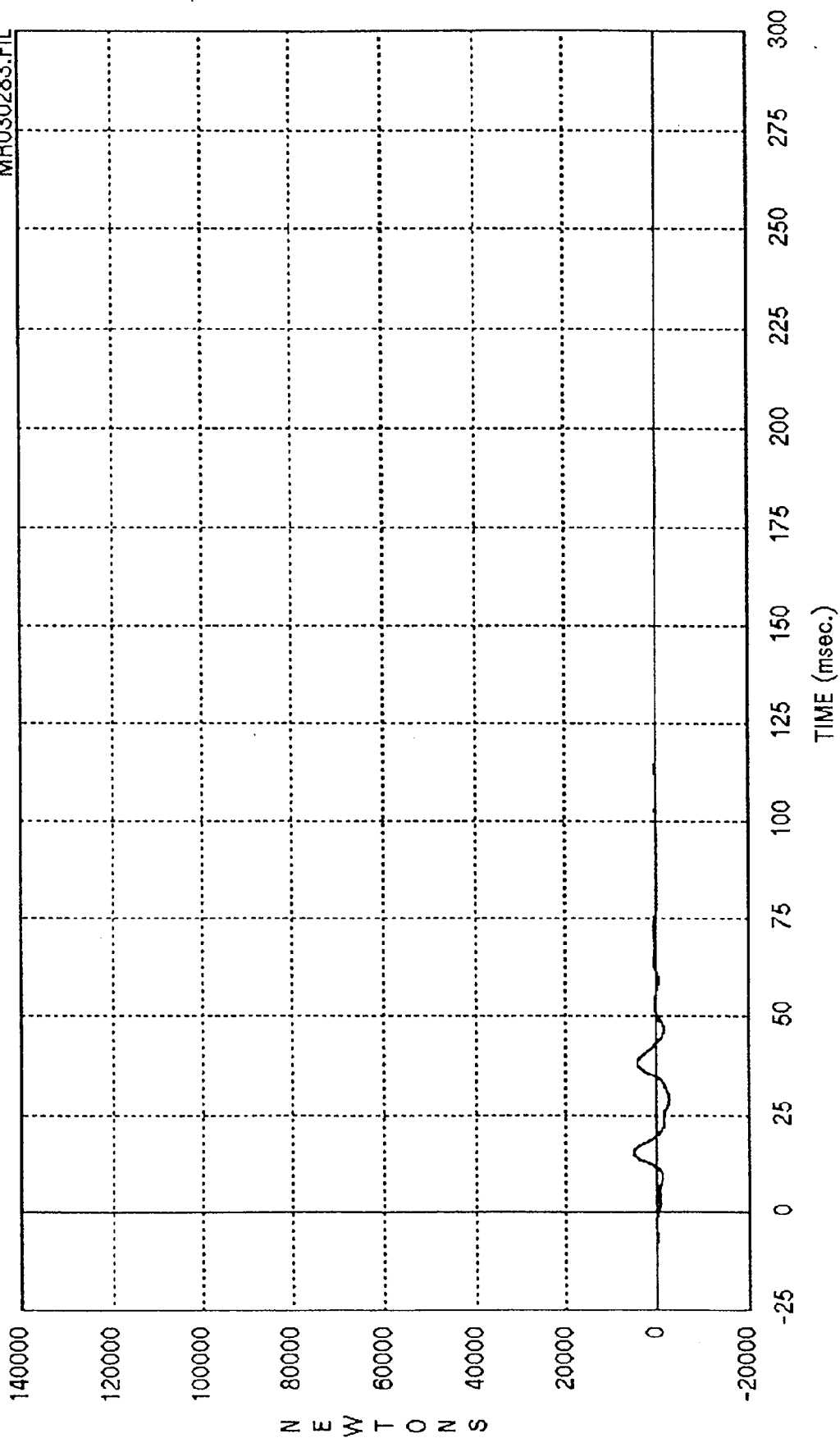
MR030282.FIL



Curve: Force on barrier location D8 Filter: SAE CLASS 60 Max = 3967.1 Min = -2264.3

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

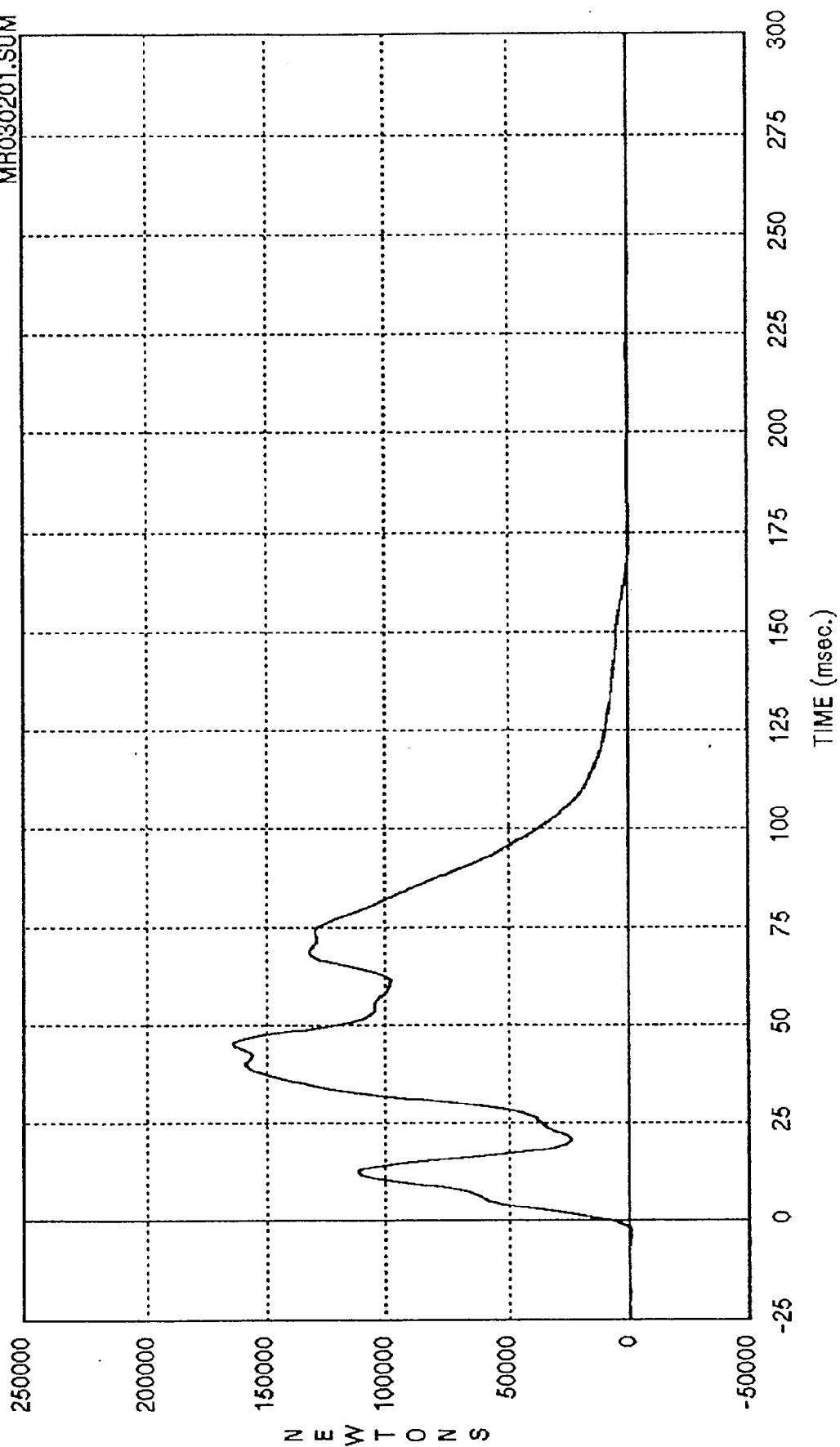
MR030283.FIL



Curve: Force on barrier location D9 Filter: SAE CLASS 60 Max = 5063.5 Min = -2689.2

MSE Date: 02/10/94 Program: 1994 New Car Assessment Vehicle: 1994 Dodge Dakota Pickup

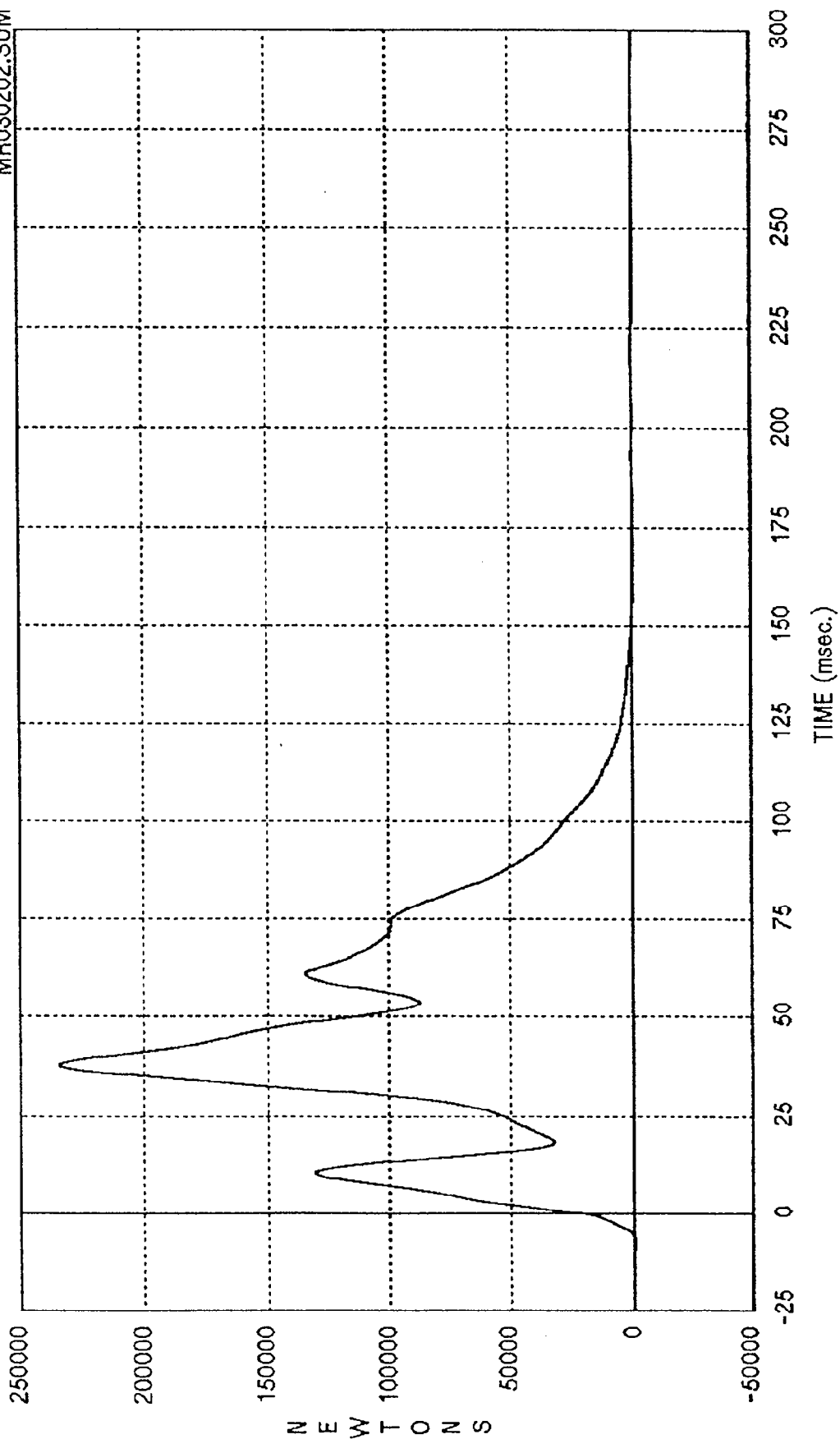
MR030201.SUM



Curve: Barrier sum force A1,A2,A3,B1,B2,B3 -- Group 1 Filter: SAE CLASS 60 Max = .16412E+06 Min = -171.81

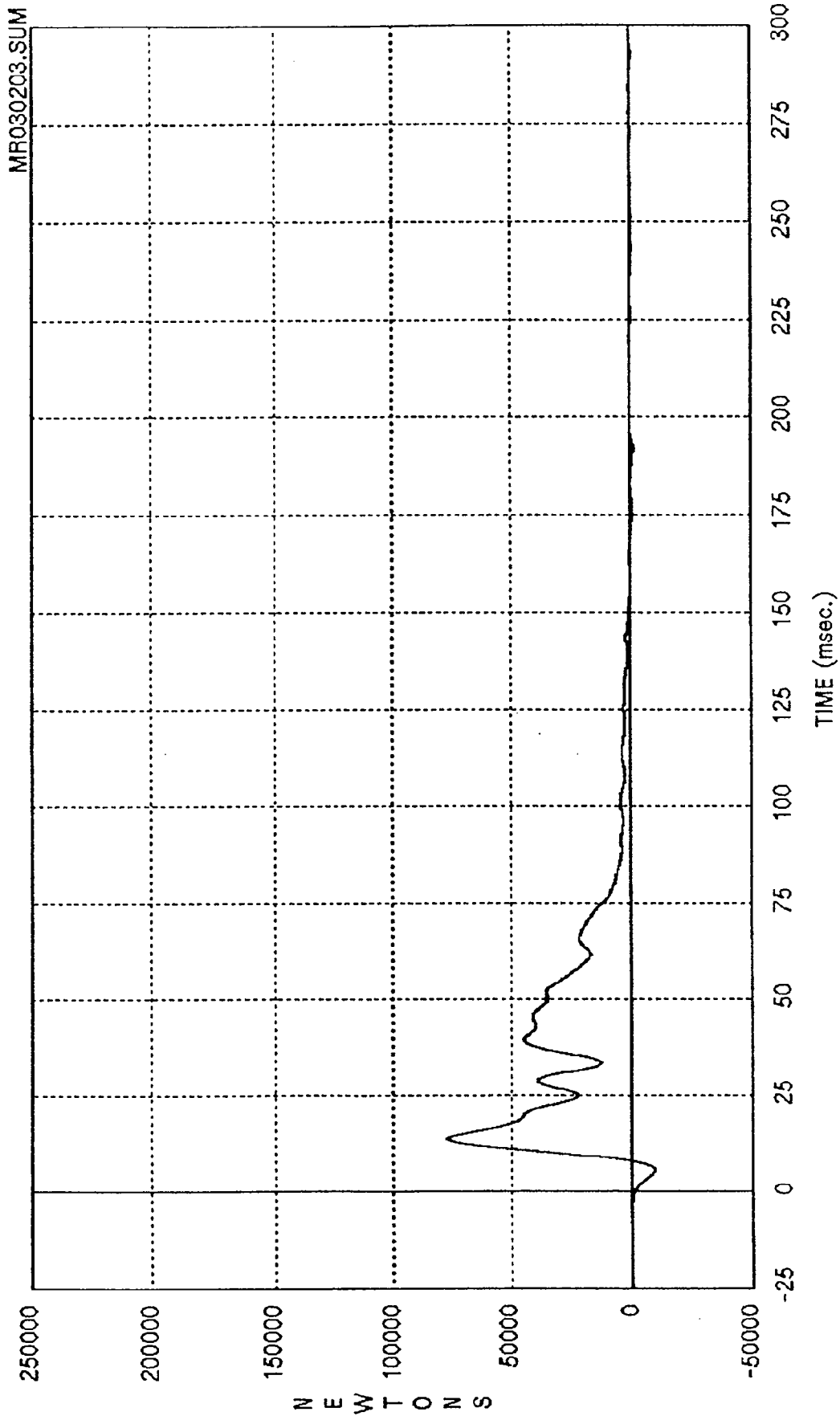
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030202.SUM



Curve: Barrier sum force A4,A5,A6,B4,B5,B6 --- Group 2 Filter: SAE CLASS 60 Max = .23434E+06 Min = -399.18

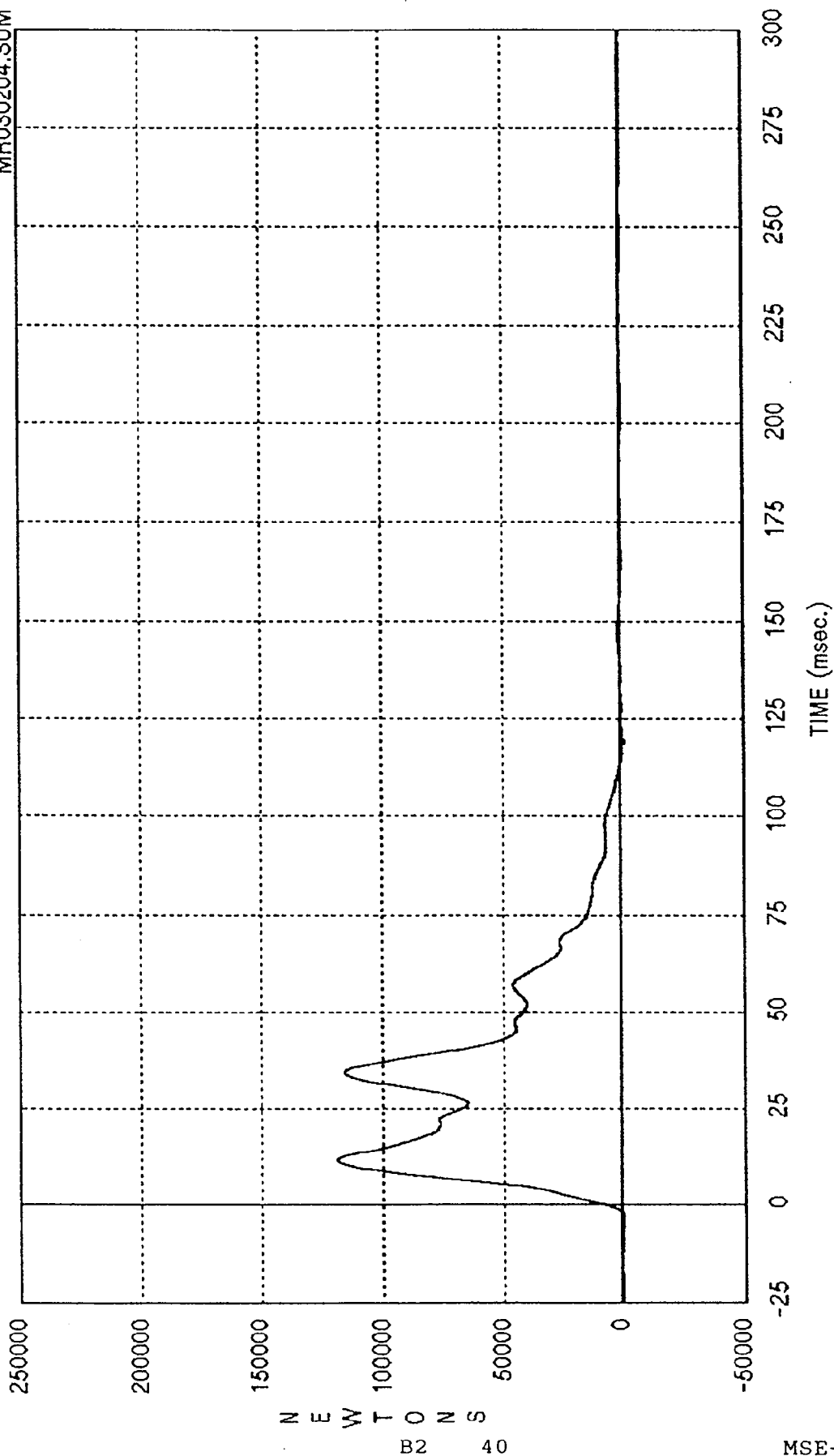
MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup



Curve: Barrier sum force A7,A8,A9,B7,B8,B9 --- Group 3 Filter: SAE CLASS 60 Max = 77356. Min = -9340.7

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

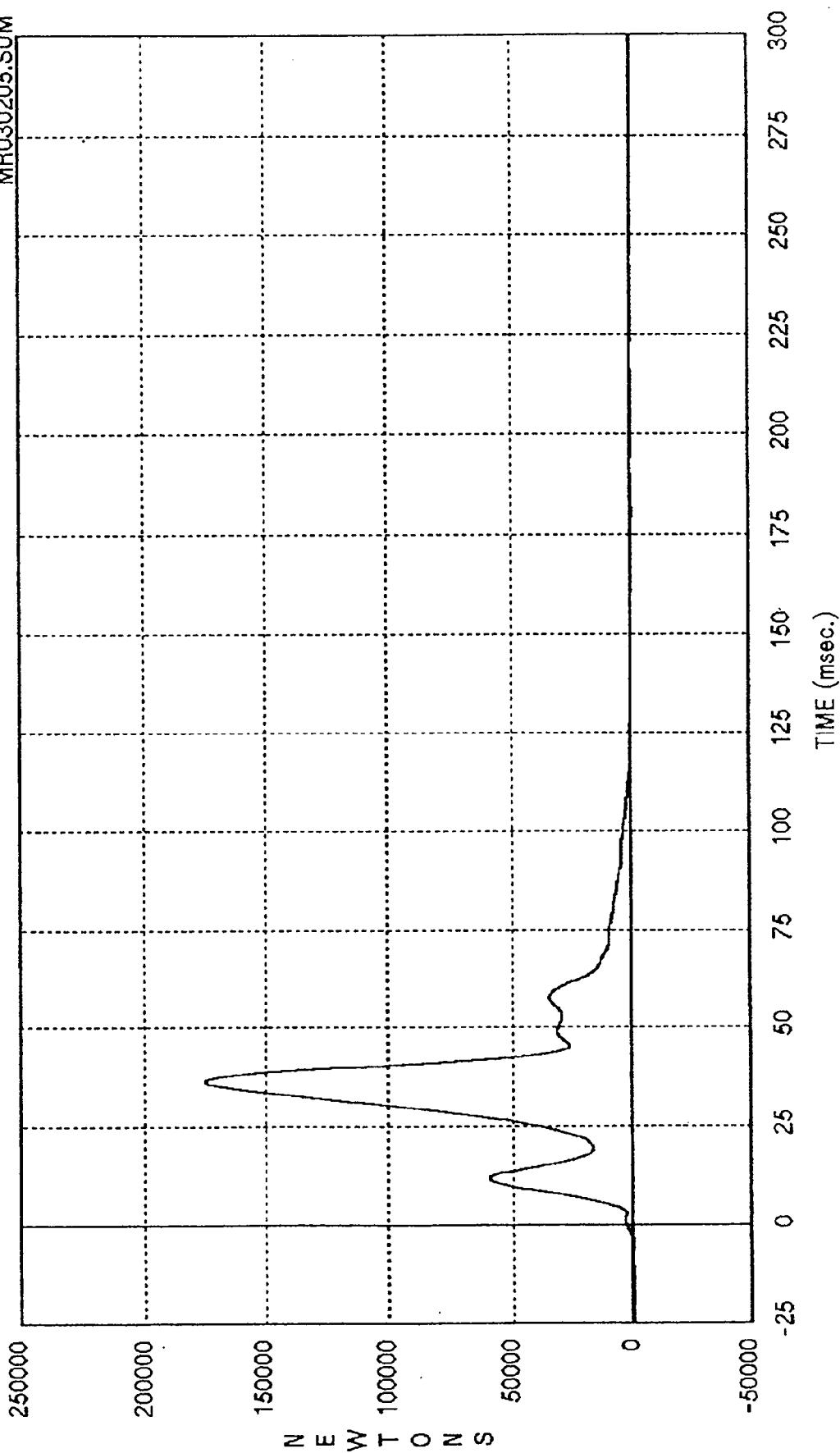
MR030204.SUM



Curve: Barrier sum force C1,C2,C3,D1,D2,D3 -- Group 4 Filter: SAE CLASS 60 Max = .11847E+06 Min = -.972.90

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030205.SUM



Curve: Barrier sum force C4,C5,C6,D4,D5,D6 -- Group 5 -- Filter: SAE CLASS 60 Max = 17538E+06 Min = -446.24

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MR030206.SUM

250000

200000

150000

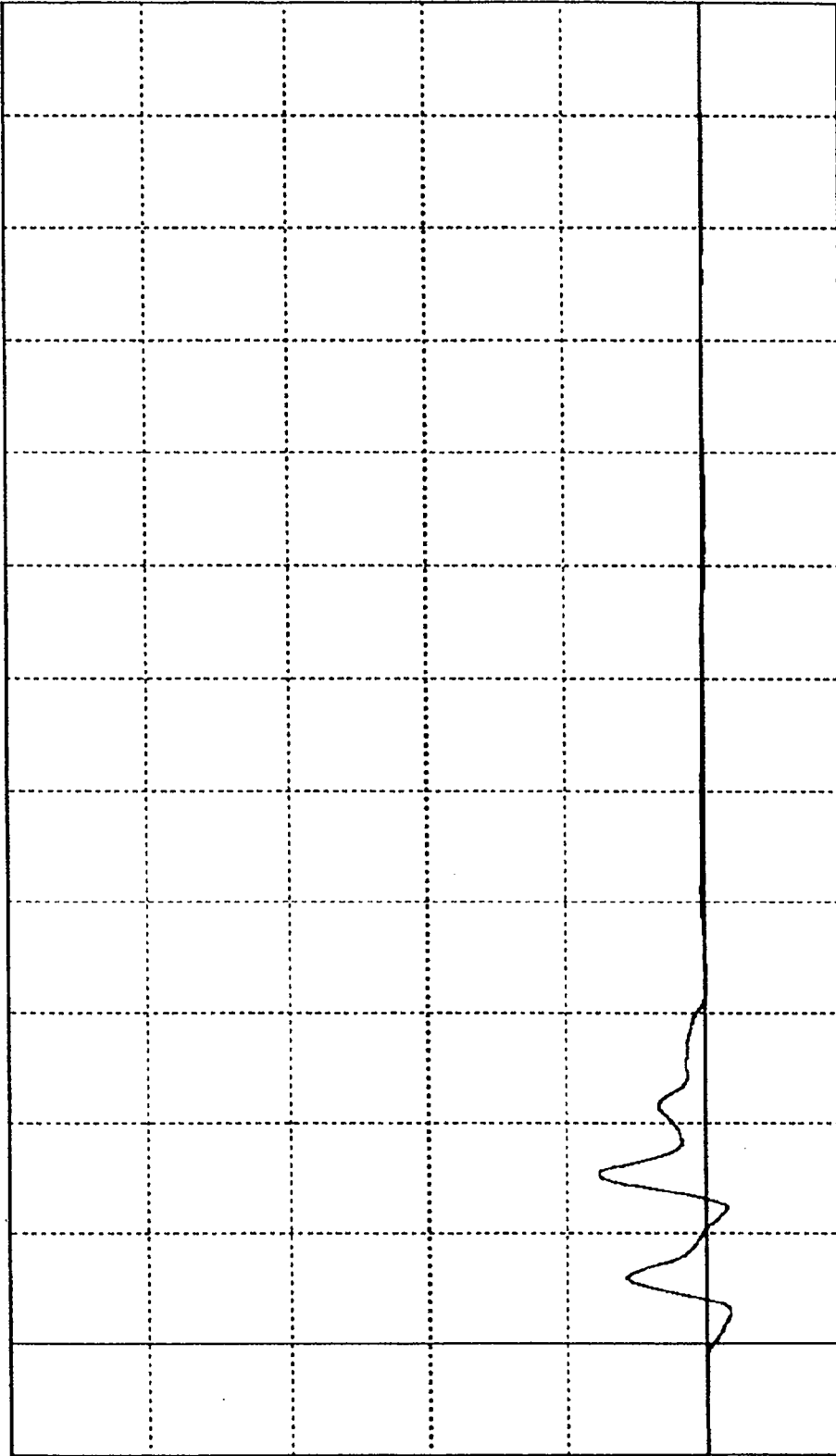
100000

50000

0

-50000

N E W T O N S
B2 42

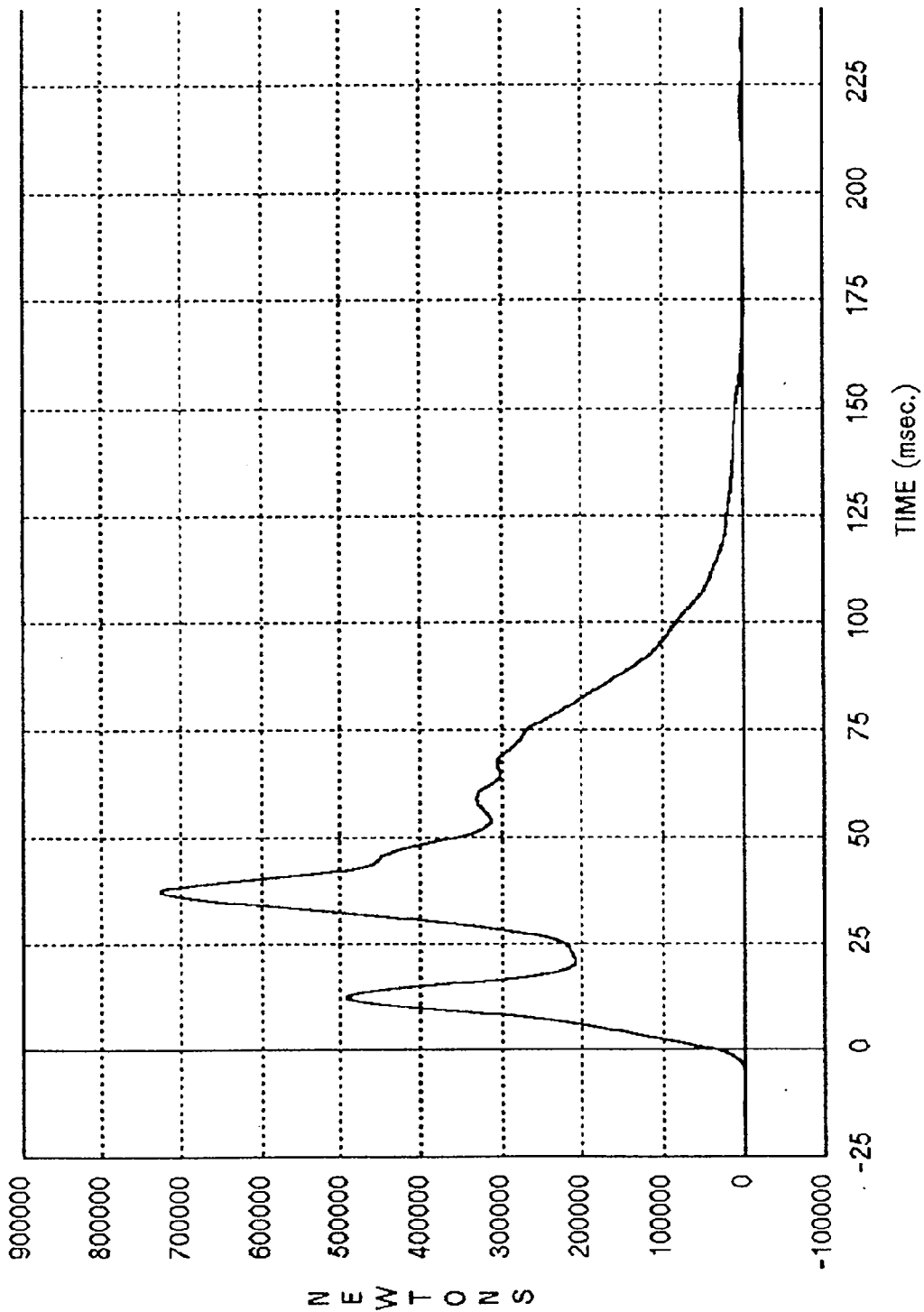


TIME (msec.)

Curve: Barrier sum force C7,C8,C9,D7,D8,D9 Filter: SAE CLASS 60 Max = 38651. Min = -8433.0

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge Dakota Pickup

MSE-R93030-02



Curve: Barrier sum force -- Total Filter: SAE CLASS 60 Max = .72618E+06

MSE Date: 02/10/94 Program: 1994 New Car Assessment Program Vehicle: 1994 Dodge

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APPENDIX C

PART 572 DUMMY CONFIGURATION AND
PERFORMANCE VERIFICATION TABLES

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HYBRID III ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA ATD I.D. NUMBER: 34

LAB TECHNICIAN: Patrick Puzzuto

CALIBRATION SEQUENCE: 01

CALIBRATION DATE: 12/01/93 to 12/03/93

I. CONFIGURATION VERIFICATION DATA, PRETEST			
TESTED PARAMETER	UNIT	SPECIFICATION	TEST RESULTS
AA - Location for Chest Circ.	MM	429.3 to 434.3	431.8
BB - Location for Waist Circ.	MM	226.1 to 231.1	228.6
Y - Chest Circumference	MM	970.3 to 1000.8	985.5
Z - Waist Circumference	MM	815.3 to 866.1	863.6
O - Chest Depth	MM	213.4 to 228.6	215.9
C - "H" Point Height	MM	83.8 to 88.9	88.9
D - "H" Point from Seat Back	MM	134.6 to 139.7	137.2
H - Skull Cap to Back Line	MM	40.6 to 45.7	43.2
A - Total Sitting Height	MM	878.8 to 889.0	881.4
F - Thigh Clearance	MM	139.7 to 154.9	147.3
K - Buttock to Knee Length	MM	579.1 to 604.5	594.4
N - Buttock Popliteal Length	MM	452.1 to 477.5	475.0
L - Popliteal Length	MM	429.3 to 454.7	431.8
M - Knee Pivot Height	MM	485.1 to 500.4	495.3
P - Foot Length	MM	251.5 to 266.7	259.1
W - Foot Breadth	MM	91.4 to 106.7	106.7
E - Shoulder Pivot from Back	MM	84.0 to 94.0	88.9
V - Shoulder Breadth	MM	421.6 to 436.9	421.6
B - Shoulder Pivot Height	MM	505.5 to 520.7	515.6
J - Elbow Rest Height	MM	190.5 to 210.8	198.1
I - Shoulder to Elbow Length	MM	330.2 to 345.4	332.7
G - Elbow Back to Wrist Pivot	MM	330.2 to 345.4	338.6

PART 572E ATD PERFORMANCE AND CALIBRATION DATA

NHTSA ATD I.D. NUMBER: 34

CALIBRATION SEQUENCE: 01 CALIBRATION DATE: 12/03/93

HEAD DROP TEST			
TESTED PARAMETER	UNITS	SPECIFICATION	TEST RESULTS
Temperature in laboratory	Deg C	20.6 - 22.2	21.7
Humidity in laboratory	%	10 - 70	45
Peak resultant acceleration	G's	225 - 275	239.8
Peak lateral acceleration	G's	15 max	10.9
Is acceleration curve unimodal ?		YES	YES

LAB TECHNICIAN: Patrick J. Puzzuto

PART 572 ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA (Cont.)

NHTSA ATD I.D. NUMBER: 34

CALIBRATION SEQUENCE: 01

CALIBRATION DATE: 12/03/93

THORAX IMPACT TEST			
TESTED PARAMETER	UNITS	SPECIFICATION	TEST RESULTS
Temperature in laboratory	Deg C	20.6 - 22.2	21.1
Humidity in laboratory	%	10 - 70	54
Probe speed	MPS	6.58 - 6.83	6.71
Peak deflection	MM	63.5 - 72.6	66.29
Peak resistive force	Kgs	526.6 - 601.6	559.65
Internal hysteresis	%	69 - 89	74.3

LAB TECHNICIAN: P. Puzzuto

PART 572E ATD PERFORMANCE AND CALIBRATION DATA

NECK FLEXION TEST

NHTSA ATD I.D. NUMBER: 34

CALIBRATION SEQUENCE: 01

CALIBRATION DATE: 12/01/93

TESTED PARAMETER		UNITS	SPECIFICATION	TEST RESULTS
Lab temperature		Deg C	20.6 - 22.2	21.1
Lab relative humidity		%	10 - 70	35
Pendulum speed		MPS	6.89 - 7.13	6.90
Pendulum deceleration	10 msec	G's	22.50 - 27.50	24.61
	20 msec	G's	17.60 - 22.60	20.12
	30 msec	G's	12.50 - 18.50	15.24
Max decel. above 30 msec		G's	29.00 max	15.18
Deceleration decay time to first cross 5 G's		msec	34.0 - 42.0	38.90
"D" Plane Rotation	Maximum	Deg.	64.0 - 78.0	64.69
	Time	msec	57.0 - 64.0	63.80
Moment About Occipital Condyle	Maximum	Mt.Kgs	9.0 - 11.1	9.14
	Time	msec	47.0 - 58.0	57.80
Rotation angle decay time to cross zero		msec	113.0 - 128.0	123.90
Positive moment decay time to cross zero		msec	97.0 - 107.0	105.90

LAB TECHNICIAN: P. Puzzuto

PART 572E ATD PERFORMANCE AND CALIBRATION DATA

NECK EXTENSION TEST

NHTSA ATD I.D. NUMBER: 34

CALIBRATION SEQUENCE: 01

CALIBRATION DATE: 12/02/93

TESTED PARAMETER		UNITS	SPECIFICATION	TEST RESULTS
Lab temperature		Deg C	20.6 - 22.2	20.6
Lab relative humidity		%	10 - 70	40
Pendulum speed		MPS	5.94 - 6.19	6.11
Pendulum deceleration	10 msec	G's	17.20 - 21.20	19.64
	20 msec	G's	14.00 - 19.00	17.30
	30 msec	G's	11.00 - 16.00	14.56
Max decel. above 30 msec		G's	22.00 max	14.51
Deceleration decay time to first cross 5 G's		msec	38.0 - 46.0	45.80
"D" Plane	Rotation	Deg.	81.0 - 106.0	94.37
	Time	msec	72.0 - 82.0	74.20
Occipital Condyle	Moment	Mt.Kgs	-8.2 to -5.4	8.01
	Time	msec	65.0 - 79.0	68.90
Rotation angle decay time to cross zero		msec	147.0 - 174.0	159.30
Negative moment decay time to cross zero		msec	120.0 - 148.0	133.30

LAB TECHNICIAN: P. Puzzuto

PART 572E ATD PERFORMANCE AND CALIBRATION DATA

NHTSA ATD I.D. NUMBER: 34

CALIBRATION SEQUENCE: 01

CALIBRATION DATE: 12/02/93

LEFT KNEE IMPACT TEST			
TESTED PARAMETER	UNITS	SPECIFICATION	TEST RESULTS
Lab temperature	Deg C	18.9 - 25.6	22.2
Lab relative humidity	%	10 - 70	27
Probe velocity	MPS	2.07 - 2.13	2.11
Peak impact force (Probe mass x deceleration)	Kgs	481.2- 590.2	545.8

LAB TECHNICIAN: P. Puzzuto

RIGHT KNEE IMPACT TEST			
TESTED PARAMETER	UNITS	SPECIFICATION	TEST RESULTS
Lab temperature	Deg C	18.9 - 25.6	22.2
Lab relative humidity	%	10 - 70	27
Probe velocity	MPS	2.07 - 2.13	2.09
Peak impact force (Probe mass x deceleration)	Kgs	481.2 - 590.2	510.3

LAB TECHNICIAN: P. Puzzuto

HYBRID III ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA ATD I.D. NUMBER: 35

LAB TECHNICIAN: Patrick Puzzuto

CALIBRATION SEQUENCE: 01

CALIBRATION DATE: 12/01/93 to 12/03/93

I. CONFIGURATION VERIFICATION DATA, PRETEST

TESTED PARAMETER	UNIT	SPECIFICATION	TEST RESULTS
AA - Location for Chest Circ.	MM	429.3 to 434.3	432.2
BB - Location for Waist Circ.	MM	226.1 to 231.1	228.8
Y - Chest Circumference	MM	970.3 to 1000.8	988.4
Z - Waist Circumference	MM	815.3 to 866.1	864.0
O - Chest Depth	MM	213.4 to 228.6	218.2
C - "H" Point Height	MM	83.8 to 88.9	88.0
D - "H" Point from Seat Back	MM	134.6 to 139.7	137.2
H - Skull Cap to Back Line	MM	40.6 to 45.7	43.0
A - Total Sitting Height	MM	878.8 to 889.0	882.8
F - Thigh Clearance	MM	139.7 to 154.9	145.4
K - Buttock to Knee Length	MM	579.1 to 604.5	594.4
N - Buttock Popliteal Length	MM	452.1 to 477.5	470.2
L - Popliteal Length	MM	429.3 to 454.7	440.8
M - Knee Pivot Height	MM	485.1 to 500.4	490.6
P - Foot Length	MM	251.5 to 266.7	258.8
W - Foot Breadth	MM	91.4 to 106.7	104.2
E - Shoulder Pivot from Back	MM	84.0 to 94.0	88.9
V - Shoulder Breadth	MM	421.6 to 436.9	424.8
B - Shoulder Pivot Height	MM	505.5 to 520.7	515.6
J - Elbow Rest Height	MM	190.5 to 210.8	198.0
I - Shoulder to Elbow Length	MM	330.2 to 345.4	332.7
G - Elbow Back to Wrist Pivot	MM	289.6 to 304.8	300.4

PART 572E ATD PERFORMANCE AND CALIBRATION DATA

NHTSA ATD I.D. NUMBER: 35

CALIBRATION SEQUENCE: 01 CALIBRATION DATE: 12/03/93

HEAD DROP TEST			
TESTED PARAMETER	UNITS	SPECIFICATION	TEST RESULTS
Temperature in laboratory	Deg C	20.6 - 22.2	21.1
Humidity in laboratory	%	10 - 70	47
Peak resultant acceleration	G's	225 - 275	230.2
Peak lateral acceleration	G's	15 max	4.7
Is acceleration curve unimodal ?		YES	YES

LAB TECHNICIAN: Patrick J. Puzzuto

PART 572 ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA (Cont.)

NHTSA ATD I.D. NUMBER: 35

CALIBRATION SEQUENCE: 01 CALIBRATION DATE: 12/03/93

THORAX IMPACT TEST			
TESTED PARAMETER	UNITS	SPECIFICATION	TEST RESULTS
Temperature in laboratory	Deg C	20.6 - 22.2	21.7
Humidity in laboratory	%	10 - 70	49
Probe speed	MPS	6.58 - 6.83	6.67
Peak deflection	MM	63.5 - 72.6	65.28
Peak resistive force	Kgs	526.6 - 601.6	568.32
Internal hysteresis	%	69 - 89	72.9

LAB TECHNICIAN: P. Puzzuto

PART 572E ATD PERFORMANCE AND CALIBRATION DATA

NECK FLEXION TEST

NHTSA ATD I.D. NUMBER: 35

CALIBRATION SEQUENCE: 01

CALIBRATION DATE: 12/01/93

TESTED PARAMETER		UNITS	SPECIFICATION	TEST RESULTS
Lab temperature		Deg C	20.6 - 22.2	21.1
Lab relative humidity		%	10 - 70	35
Pendulum speed		MPS	6.89 - 7.13	6.89
Pendulum deceleration	10 msec	G's	22.50 - 27.50	23.28
	20 msec	G's	17.60 - 22.60	19.42
	30 msec	G's	12.50 - 18.50	16.50
Max decel. above 30 msec		G's	29.00 max	16.40
Deceleration decay time to first cross 5 G's		msec	34.0 - 42.0	41.50
"D" Plane Rotation	Maximum	Deg.	64.0 - 78.0	72.28
	Time	msec	57.0 - 64.0	60.00
Moment About Occipital Condyle	Maximum	Mt.Kgs	9.0 - 11.1	10.44
	Time	msec	47.0 - 58.0	55.20
Rotation angle decay time to cross zero		msec	113.0 - 128.0	115.10
Positive moment decay time to cross zero		msec	97.0 - 107.0	99.58

LAB TECHNICIAN: P. Puzzuto

PART 572E ATD PERFORMANCE AND CALIBRATION DATA

NECK EXTENSION TEST

NHTSA ATD I.D. NUMBER: 35

CALIBRATION SEQUENCE: 01

CALIBRATION DATE: 12/02/93

TESTED PARAMETER		UNITS	SPECIFICATION	TEST RESULTS
Lab temperature		Deg C	20.6 - 22.2	20.6
Lab relative humidity		%	10 - 70	38
Pendulum speed		MPS	5.94 - 6.19	6.18
Pendulum deceleration	10 msec	G's	17.20 - 21.20	20.97
	20 msec	G's	14.00 - 19.00	18.84
	30 msec	G's	11.00 - 16.00	15.82
Max decel. above 30 msec		G's	22.00 max	15.77
Deceleration decay time to first cross 5 G's		msec	38.0 - 46.0	42.40
"D" Plane	Rotation	Deg.	81.0 - 106.0	99.70
	Time	msec	72.0 - 82.0	72.60
Occipital Condyle	Moment	Mt.Kgs	-8.2 to -5.4	8.04
	Time	msec	65.0 - 79.0	65.30
Rotation angle decay time to cross zero		msec	147.0 - 174.0	151.90
Negative moment decay time to cross zero		msec	120.0 - 148.0	123.20

LAB TECHNICIAN: P. Puzzuto

PART 572E ATD PERFORMANCE AND CALIBRATION DATA

NHTSA ATD I.D. NUMBER: 35

CALIBRATION SEQUENCE: 01

CALIBRATION DATE: 12/02/93

LEFT KNEE IMPACT TEST			
TESTED PARAMETER	UNITS	SPECIFICATION	TEST RESULTS
Lab temperature	Deg C	18.9 - 25.6	22.2
Lab relative humidity	%	10 - 70	27
Probe velocity	MPS	2.07 - 2.13	2.10
Peak impact force (Probe mass x deceleration)	Kgs	481.2- 590.2	557.4

LAB TECHNICIAN: P. Puzzuto

RIGHT KNEE IMPACT TEST			
TESTED PARAMETER	UNITS	SPECIFICATION	TEST RESULTS
Lab temperature	Deg C	18.9 - 25.6	22.2
Lab relative humidity	%	10 - 70	27
Probe velocity	MPS	2.07 - 2.13	2.10
Peak impact force (Probe mass x deceleration)	Kgs	481.2 - 590.2	553.7

LAB TECHNICIAN: P. Puzzuto

APPENDIX D

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTION

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windows. There is a single opening and closing switch on the passenger door for passenger window control. The windows will operate only when the ignition switch is turned to the ON position.

Sliding Rear Window (optional)

A locking device in the center of the windows helps to prevent entry from the rear of the vehicle. Squeeze the lock to release the window.

Club Cab Vented Quarter Window

The Club Cab is equipped with rear quarter windows that open out. Pull the window latch toward you to unlock, push out on the window. Press the latch straight to secure the window in an open position.

OCCUPANT RESTRAINTS

One of the most important safety features in your vehicle is the restraint system. This system includes the front and rear seat belts. Your seat belts can also be used to hold infant and child restraint systems if you will be carrying children too small for adult-size belts.

Please pay close attention to the information in this section. It tells you how to use your restraint system properly to keep you and your passengers as safe as possible.

WARNING!

In a collision you and your passengers can suffer much greater injuries if you are not properly buckled up. You can strike parts of the inside of the vehicle or other passengers, or you can be thrown out of the vehicle. Always be sure you and others in your vehicle are buckled up properly.

Buckle up even though you are an excellent driver. Even on short trips. Someone else on the road may be a poor driver and cause a collision which involves you. And this can happen far from home or on your own street.

Research has shown that seat belts save lives. And they can reduce the seriousness of injuries in a collision. Some of the worst injuries happen when people are

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BEFORE STARTING YOUR VEHICLE

thrown from the vehicle. Seat belts provide protection against that, and they reduce the risk of injury caused by striking the inside of the vehicle. Everyone in a motor vehicle needs to be buckled up all the time.

Unibelts

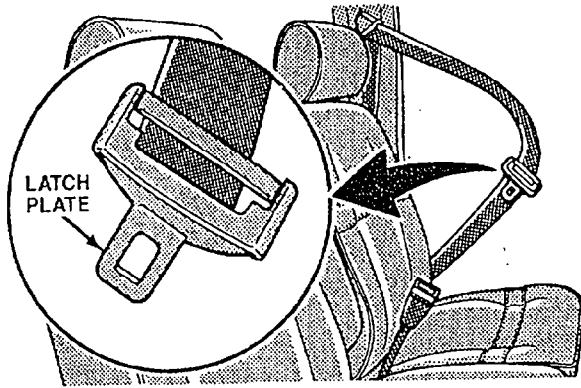
The outboard front and rear seats of your vehicle have combination lap/shoulder belts, or unibelts. The retractor is designed to lock during very sudden stops or impacts. This feature allows the shoulder part of the belt to move freely with you under normal conditions. But in a collision, the belt will lock and reduce the risk of your striking the inside of the vehicle or being thrown out.

WARNING!

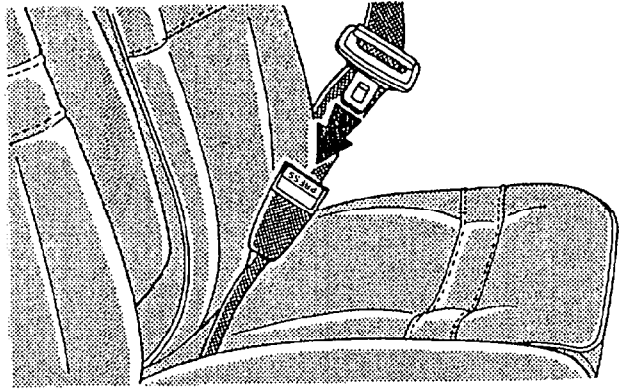
Wearing a seat belt incorrectly is dangerous. Seat belts are designed to go around the large bones of your body. These are the strongest parts of your body and can take the forces of a collision the best. Wearing your belt in the wrong place could make your injuries in a collision much worse. You might suffer internal injuries, or you could even slide out of part of the belt. Follow these instructions to wear your seat belt safely and to keep your passengers safe, too.

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Unibelt Operating Instructions



1. Enter the vehicle and close the door. Sit back and adjust the seat.



2. The latch plate of the belt is above the back of your seat. Grasp the latch plate and pull out the belt. Slide the latch plate up the webbing as far as necessary to make the belt go around your lap.
3. When the belt is long enough to fit, insert the latch plate into the buckle until you hear a "click."

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BEFORE STARTING YOUR VEHICLE

WARNING!

A belt buckled into the wrong buckle will not protect you properly. The lap portion could ride too high on your body, possibly causing internal injuries. Always buckle your belt into the buckle nearest you.

WARNING!

- A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your seat belt snugly.
- A shoulder belt worn under your arm is very dangerous. Your body could fall into the inside surfaces of the vehicle in a collision, increasing head and neck injury. And a belt worn under the arm can cause internal injuries. Ribs aren't as strong as shoulder bones. Wear the belt over your shoulder so that your strongest bones will take the force in a collision.

4. Position the lap belt across your thigh, below your abdomen. If you need the lap portion tighter, pull up a bit on the shoulder part, as shown. A snug belt reduces the risk of sliding under the belt in a collision.

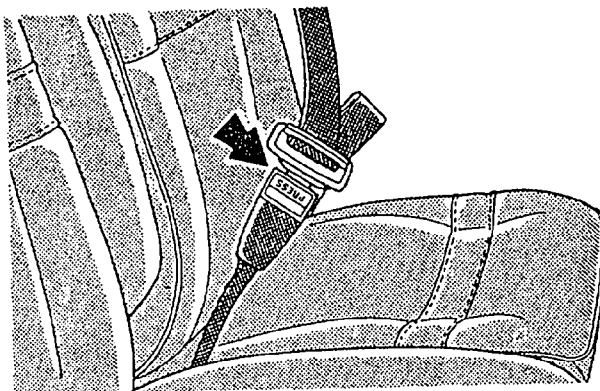
WARNING!

A lap belt worn too high can increase the risk of internal injury in a collision. The belt forces won't be at the strong hip and pelvic bones, but across your abdomen. Always wear the lap part as low as possible and keep it snug.

5. Position the shoulder belt on your chest so that it is comfortable and not resting on your neck. The retractor will withdraw any slack in the belt.

WARNING!

A twisted belt can't do its job as well. In a collision it could even cut into you. Be sure your belt is straight. If you can't straighten a belt in your vehicle take it to your dealer and have it fixed.



6. To release the belt, push the red button marked "Press" on the buckle. The belt will automatically retract to its stowed position.

If necessary, slide the latch plate down the webbing to allow the belt to retract fully.

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BEFORE STARTING YOUR VEHICLE

WARNING!

A frayed or torn belt could rip apart in a collision and leave you with no protection. Inspect the belt system periodically, checking for cuts, frays, or loose parts. Damaged parts must be replaced immediately. Do not disassemble or modify the system. Seat belt assemblies must be replaced after an accident if they have been damaged (bent retractor, torn webbing, etc.).

Front Center Lap Belts

The front center seating position has a lap belt only.

To fasten the lap belt, slip the latch plate into the buckle.

To lengthen the lap belt, tilt the latch plate and pull. To shorten the belt, pull the loose end of the webbing.

Wear the lap belt snug against the hips. Sit back and erect in the seat, then adjust the belt as tightly as is comfortable.

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MSE-R93030-02

WARNING!

A lap belt worn too loose or too high is dangerous. A belt worn too loose can allow you to slip down and under the belt in a collision. A belt that is too high will apply crash forces to the abdomen, not to the stronger hip bones. In either case, the risk of internal injuries is greater. Wear a lap belt low and snug.

WARNING!

Belting two people into one seat belt can lead to greater injury. People belted together can crash into one another in an accident, hurting one another badly. Never use a belt for more than one person, no matter what their size.

Seat Belts and Pregnant Women

We recommend that pregnant women use seat belts throughout their pregnancies. Keeping the mother safe is the best way to keep the baby safe.

Pregnant women should wear the lap part of the belt across the thighs and as snug against the hips as possible. Keep the belt low so that it does not come across the abdomen. That way the strong bones of the hips will take the force if there is a collision.

Seat Belt Extender

If a seat belt is too short, even when fully extended, your dealer can provide you with a seat belt extender. This extender should be used only if the existing belt is not long enough. When it is not required, remove the extender and stow it.

Child Restraint

When we say that everyone in your vehicle needs to be buckled up all the time, we mean babies and children, too.

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BEFORE STARTING YOUR VEHICLE

WARNING!

In a collision, an unrestrained child, even a tiny baby, can become a missile inside the vehicle. The force required to hold even an infant on your lap can become so great that you could not hold the child, no matter how strong you are. The child and others could be badly injured. Any child riding in your vehicle should be in a proper restraint for the child's size.

Every state in the United States and all Canadian provinces require small children to ride in proper restraint systems. This is the law, and you can be prosecuted for ignoring it.

Infants and Small Children

There are different sizes and types of restraints for children from newborn size to the bigger child almost large enough for an adult safety belt. Use the restraint that is correct for your child.

Two different child restraint systems are generally available.

- The infant carrier for babies weighing up to 20 lbs. (9 kg.).
- The child seat for small children over 20 lbs.

In addition, some manufacturers make systems that can be used first as an infant carrier, and then converted to a child seat as the child grows.

Here are some tips on getting the most out of your child restraint:

- Before buying any restraint system, make sure that it has a label certifying that it meets Motor Vehicle Safety Standard 213. We also recommend that before you buy a child restraint, you try it in the vehicle in the seats where you will use it.
- The restraint must be appropriate for your child's weight and height. Check the label on the restraint for this, too.

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- If possible, install the restraint in the rear seat. According to accident statistics, children are safer when properly restrained in the rear seats rather than in the front.
- Carefully follow the instructions that come with the restraint. If you install the restraint improperly it may not work when you need it.

WARNING!

Improper installation can lead to failure of an infant or child restraint. It could come loose in a collision. The child could be badly injured or killed. Follow the manufacturer's directions exactly when installing an infant or child restraint.

- Infant and child restraints are secured in vehicle seats by the lap belt or the lap part of the lap/shoulder belt.
- In the rear seat, you may have trouble tightening the belt on the child restraint because the buckle or latch

plate interferes with the belt path opening on the restraint. Disconnect the latch plate from the buckle end and twist the short buckle-end belt several turns to shorten it. Reassemble the latch plate to the buckle with the release button turned so that it is facing out.

In the front seat, move the seat forward to re-position the buckle against the side of the child restraint.

In the front center seat, if the belt still can't be tightened or if pulling and pushing on the restraint loosens that belt, you may need to do something more. Disconnect the latch plate from the buckle, turn it over, and reconnect it to the buckle. If you still can't make the child restraint secure, try a different seating position.

- Buckle the child into the seat exactly as the seat manufacturer's directions tell you. The cinching latch plate will keep the belt tight.
- When your infant carrier or child seat is not in use, secure it with the seat belt or remove it from the

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vehicle. Don't leave it loose in the vehicle. In a sudden stop or collision it could strike occupants and injure them.

Children Too Large for Child Seats

Children who are too large for child seats and who can sit upright by themselves should use the available lap/shoulder belts for best protection.

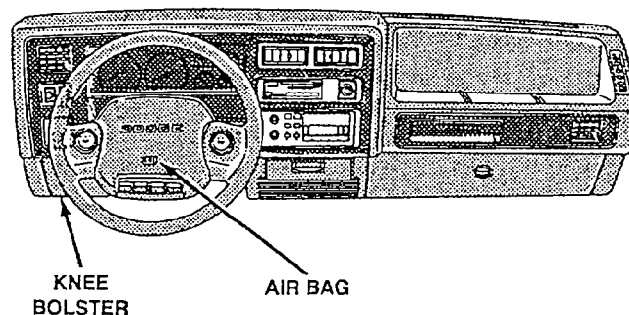
- Make sure that the child is seated upright in the seat.
- The lap belt should be fastened low on the hips and as snug as possible.
- Check belt fit periodically. A child's squirming or slouching can move the belt out of position.

If the shoulder belt contacts the face or neck, move the child closer to the middle of the vehicle. If this doesn't solve the problem, move the child to the front center seat and use the lap belt.

Booster seats that may help overcome this problem are also available for use with lap/shoulder belts. Before buying a booster seat, make sure it has a label certifying

that it meets applicable Motor Vehicle Safety Standards. Make sure it is satisfactory for use in this vehicle.

DRIVER SUPPLEMENTAL RESTRAINT SYSTEM - AIRBAG



This vehicle has an airbag for the driver as a supplement to the seat belt restraint system. The airbag is mounted in the steering wheel. Its job is to inflate in higher speed frontal impacts. It works with the instrument panel knee bolster and the seat belt to provide improved protection for the driver.

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WARNING!

Relying on the airbag alone could lead to more severe injuries. Wear your seat belt even though you have an airbag.

The seat belt is designed to protect you in many types of collisions. The airbag deploys only in frontal collisions. And it will not deploy in collisions at slow speed. But even in collisions where the airbag does work, you need the seat belt to keep you in the right position for the airbag to protect you properly.

WARNING!

Ignoring the AIRBAG light in your instrument panel could mean you won't have the airbag to protect you in a collision. If the light does not come on, stays on after you start the vehicle, or if it comes on as you drive, have the airbag system checked right away.

The airbag system consists of the following:

- Crash Sensors
- Diagnostic Unit
- AIRBAG Light
- Airbag/Inflator Unit
- Unique Steering Wheel and Column
- Interconnecting Wiring
- Knee Impact Bolster

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BEFORE STARTING YOUR VEHICLE

How The Airbag System Works

- Crash Sensors in the front of the vehicle and in the occupant compartment determine if a frontal impact is severe enough to require the airbag. The sensors will not detect side, rollover, or rear impacts. Switches in the sensors are connected to the diagnostic unit and to the airbag/inflator unit.
- The Diagnostic Unit monitors the readiness of the electronic parts of the system whenever the ignition switch is in the START or RUN position. These include all of the items listed above except the knee bolster and the steering wheel and column. The Diagnostic Unit also turns on the AIRBAG light in the instrument panel for 6 to 8 seconds when the ignition is first turned on, then turns the light off. If it detects a malfunction in any part of the system, it turns on the light either momentarily or continuously.
- The Airbag/Inflator Unit is in the center of the steering wheel. When the crash sensors detect an impact requiring the airbag, they signal the inflator

unit. A large quantity of non-toxic nitrogen gas is generated to inflate the airbag. The steering wheel hub trim cover separates and folds out of the way as the bag inflates to its full size. The bag fully inflates in about 50 milliseconds. This is about half of the time it takes to blink your eyes. It then quickly deflates by venting the nitrogen gas through holes in the airbag toward the instrument panel. In this way the bag does not interfere with your control of the vehicle.

If A Deployment Occurs

The airbag system is designed to deploy when the impact sensors detect a moderate-to-severe frontal collision, and then immediately deflate.

NOTE: A frontal collision that is not severe enough to need airbag protection will not activate the system. This does not mean something is wrong with the airbag system.

If you do have a collision which deploys the airbag, any or all of the following may occur:

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BEFORE STARTING YOUR VEHICLE

- The nylon airbag material may sometimes cause abrasions and/or skin reddening to the driver as the airbag deploys and unfolds itself from the steering wheel.

The abrasions are similar to friction rope burns or those you might get sliding along a carpet or gymnasium floor. They are not caused by contact with chemicals. They are not permanent and normally heal quickly. However, if you haven't healed significantly within a few days, or if you have any blistering, see your doctor immediately.

- As the airbag deflates you may see some smoke-like particles. The particles are a normal by-product of the process that generates the non-toxic nitrogen gas used for airbag inflation. These airborne particles may irritate the skin, eyes, nose, or throat. If you have skin or eye irritation, rinse the area with cool water. For nose or throat irritation, move to fresh air. If the irritation continues, see your doctor.

If these particles settle on your clothing, follow the garment manufacturer's instructions for cleaning.

- Your vehicle may be safely driveable after the airbag deploys. If so, you can tuck the deployed airbag inside the opening in the steering wheel hub trim cover to make driving somewhat easier.

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APPENDIX E
INSTRUMENTATION AND CALIBRATION DATA

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INSTRUMENTATION AND CALIBRATION DATA

DRIVER ATD SN 34

CH#	TYP	LOCATION/AXIS		MAKE	MODEL/SERIAL No	CAL DATE
01	AC	HEAD C.G.	X	ENDEVCO	7264-2000/ACC59	11/01/93
02	AC	HEAD C.G.	Y	ENDEVCO	7264-2000/ACCD1	11/01/93
03	AC	HEAD C.G.	Z	ENDEVCO	7264-2000/ACC62	11/01/93
04	AC	CHEST	X	ENDEVCO	7264-2000/ACC65	11/01/93
05	AC	CHEST	Y	ENDEVCO	7264-2000/ACC66	11/01/93
06	AC	CHEST	Z	ENDEVCO	7264-2000/ACC67	11/01/93
07	LC	NECK FORCE	X	R.A. DENTON	1716A/0400FX	11/02/93
08	LC	NECK FORCE	Y	R.A. DENTON	1716A/0440FY	11/02/93
09	LC	NECK FORCE	Z	R.A. DENTON	1716A/0440FZ	11/02/93
10	LC	NECK MOMENT	X	R.A. DENTON	1716A/0440MX	11/02/93
11	LC	NECK MOMENT	Y	R.A. DENTON	1716A/0440MY	11/02/93
12	LC	NECK MOMENT	Z	R.A. DENTON	1716A/0440MZ	11/02/93
13	LC	LEFT FEMUR	X	R.A. DENTON	2121A/0255	11/09/93
14	LC	RIGHT FEMUR	X	R.A. DENTON	2121A/0256	11/09/93
15	DS	CHEST DISP.	X	SERVO	14CBI-2897/9241	12/02/93
16	LC	LAP BELT	OT	LEBOW	3371/330	11/09/93
17	LC	SHOULDER BELT	OT	LEBOW	3371/308	11/09/93
18	DS	BELT ELONG.	OT	ETI	LPC 12A-12/001	02/10/94
19	DS	BELT PULLOUT	OT	MSE	701-36/113	02/10/94

INSTRUMENTATION AND CALIBRATION DATA

PASSENGER ATD SN 35

CH#	TYP	LOCATION/AXIS		MAKE	MODEL/SERIAL No	CAL DATE
20	AC	HEAD C.G.	X	ENDEVCO	7264-2000/ACC63	11/01/93
21	AC	HEAD C.G.	Y	ENDEVCO	7264-2000/ACCC9	11/01/93
22	AC	HEAD C.G.	Z	ENDEVCO	7264-2000/ACCY2	11/01/93
23	AC	CHEST	X	ENDEVCO	7264-2000/ACCF3	11/01/93
24	AC	CHEST	Y	ENDEVCO	7264-2000/ACC02	11/01/93
25	AC	CHEST	Z	ENDEVCO	7264-2000/ACC67	11/01/93
26	LC	NECK FORCE	X	R.A. DENTON	1716A/0400FX	11/02/93
27	LC	NECK FORCE	Y	R.A. DENTON	1716A/0440FY	11/02/93
28	LC	NECK FORCE	Z	R.A. DENTON	1716A/0440FZ	11/02/93
29	LC	NECK MOMENT	X	R.A. DENTON	1716A/0440MX	11/02/93
30	LC	NECK MOMENT	Y	R.A. DENTON	1716A/0440MY	11/02/93
31	LC	NECK MOMENT	Z	R.A. DENTON	1716A/0440MZ	11/02/93
32	LC	LEFT FEMUR	X	R.A. DENTON	2121A/0263	11/09/93
33	LC	RIGHT FEMUR	X	R.A. DENTON	2121A/0264	11/09/93
34	DS	CHEST DISP.	X	SERVO	14CBI-2897/9242	12/02/93
35	LC	LAP BELT	OT	LEBOW	3371/333	11/09/93
36	LC	SHOULDER BELT	OT	LEBOW	3371/327	11/09/93
37	DS	BELT ELONG.	OT	ETI	LCP-12A-12/002	02/10/94
38	DS	BELT PULLOUT	OT	CELESCO	PT0620	02/10/94

INSTRUMENTATION AND CALIBRATION DATA

VEHICLE

CH#	TYP	LOCATION/AXIS	MAKE	MODEL/SERIAL No	CAL DATE
39	AC	Lt. Fr. Caliper X	I. C. Sensor	3031-200/23-200	11/02/93
40	AC	Rt. Fr. Caliper X	I. C. Sensor	3031-200/34-200	11/02/93
41	AC	Engine Bottom X	I. C. Sensor	3031-200/21-200	11/02/93
42	AC	Engine Top X	I. C. Sensor	3031-200/29-200	11/02/93
43	AC	Instr. Panel X	I. C. Sensor	3031-200/27-200	11/02/93
44	AC	LfRr X-mbr Pri X	I. C. Sensor	3031-200/25-200	11/02/93
45	AC	RtRr X-mbr Pri X	I. C. Sensor	3031-200/26-200	11/02/93
46	AC	LfRr X-mbr Sec X	I. C. Sensor	3031-200/28-200	11/02/93
47	AC	RtRr X-mbr Sec X	I. C. Sensor	3031-200/26-200	11/02/93

INSTRUMENTATION AND CALIBRATION DATA

LOAD CELL BARRIER

CH#	TYP	LOCATION/AXIS	MAKE	MODEL/SERIAL No	CAL DATE
01	LC	A1 XG	Interface	1220-F3/19349	05/14/85
02	LC	A2 XG	Interface	1220-F3/19349	05/14/85
03	LC	A3 XG	Interface	1220-F3/19349	05/14/85
04	LC	A4 XG	Interface	1220-F3/19349	05/14/85
05	LC	A5 XG	Interface	1220-F3/19349	05/14/85
06	LC	A6 XG	Interface	1220-F3/19349	05/14/85
07	LC	A7 XG	Interface	1220-F3/19349	05/14/85
08	LC	A8 XG	Interface	1220-F3/19349	05/14/85
09	LC	A9 XG	Interface	1220-F3/19349	05/14/85
10	LC	B1 XG	Interface	1220-F3/19349	05/14/85
11	LC	B2 XG	Interface	1220-F3/19349	05/14/85
12	LC	B3 XG	Interface	1220-F3/19349	05/14/85
13	LC	B4 XG	Interface	1220-F3/19349	05/14/85
14	LC	B5 XG	Interface	1220-F3/19349	05/14/85
15	LC	B6 XG	Interface	1220-F3/19349	05/14/85
16	LC	B7 XG	Interface	1220-F3/19349	05/14/85
17	LC	B8 XG	Interface	1220-F3/19349	05/14/85
18	LC	B9 XG	Interface	1220-F3/19349	05/14/85

INSTRUMENTATION AND CALIBRATION DATA

LOAD CELL BARRIER

CH#	TYP	LOCATION/AXIS	MAKE	MODEL/SERIAL No	CAL DATE
19	LC	C1 XG	Interface	1220-F3/19349	05/14/85
20	LC	C2 XG	Interface	1220-F3/19349	05/14/85
21	LC	C3 XG	Interface	1220-F3/19349	05/14/85
22	LC	C4 XG	Interface	1220-F3/19349	05/14/85
23	LC	C5 XG	Interface	1220-F3/19349	05/14/85
24	LC	C6 XG	Interface	1220-F3/19349	05/14/85
25	LC	C7 XG	Interface	1220-F3/19349	05/14/85
26	LC	C8 XG	Interface	1220-F3/19349	05/14/85
27	LC	C9 XG	Interface	1220-F3/19349	05/14/85
28	LC	D1 XG	Interface	1220-F3/19349	05/14/85
29	LC	D2 XG	Interface	1220-F3/19349	05/14/85
30	LC	D3 XG	Interface	1220-F3/19349	05/14/85
31	LC	D4 XG	Interface	1220-F3/19349	05/14/85
32	LC	D5 XG	Interface	1220-F3/19349	05/14/85
33	LC	D6 XG	Interface	1220-F3/19349	05/14/85
34	LC	D7 XG	Interface	1220-F3/19349	05/14/85
35	LC	D8 XG	Interface	1220-F3/19349	05/14/85
36	LC	D9 XG	Interface	1220-F3/19349	05/14/85

CALIBRATION DATA FOR INSTRUMENTATION
USED IN ATD CALIBRATION

ATD INSTRUMENTS	MANUFACTURER	MODEL/SERIAL No	CAL DATE	DUE
Chest Deflection Pot	BECKMAN	5311 / N/A	EACH USE	EACH USE
Chest Impactor Accelerometer	ENTRAN	EGV-1/14N3N-V13-1	09/14/93	03/14/94
Neck Pendulum Accelerometer	ENTRAN	EGV-1/14N3N-V13-1	09/14/93	03/14/94
Neck Rotation No. 2	BECKMAN	5311 / N/A	EACH USE	EACH USE
Neck Rotation No. 1	BECKMAN	5311 / N/A	EACH USE	EACH USE
Neck Extension Pot	BOURNS	80294-20518 184020/1684-067	EACH USE	EACH USE
Abdominal Compression Load	LEBOW/EATON	3167 /1573	09/14/93	03/14/94
Lumbar Flexion Load	LEBOW/EATON	3167 / 1573	09/14/93	03/14/94
Lumbar Rotation	BOURNS	3590S-2-102/ N/A	EACH USE	EACH USE
Abdominal Displacement	CELESCO	PT-101-158/0786551	EACH USE	EACH USE
Timer	MSE	MSE TIM/1	02/11/94	08/11/94
Time Trap	MSE	1 IN./1	02/11/94	08/11/94