DOT ϕ 947

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

CHRYSLER CANADA LTD
1986 DODGE B-150 VAN

NHTSA NO. MG0602

MOBILITY SYSTEMS AND EQUIPMENT COMPANY
6151 West Century Boulevard Suite 912
Los Angeles, California 90045

JUNE 1986

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)
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15. Supplementary Notes

16. Abstract

A 35 mph frontal barrier impact test using a load cell barrier was conducted on a 1986 Dodge B-150 Van at the Mobility Systems and Equipment Company (MSE) crash test facility in Mira Loma, CA on 22 May 1986.

The barrier impact velocity was 35.01 mph and the ambient temperature at the barrier face at the time of impact was 75°F. The posttest vehicle crush maximum was 19.7 in.

The test vehicle appears to comply with the indicant requirements of the following Federal Motor Vehicle Safety Standards:

1. FMVSS 301-75 "Fuel System Integrity".

The test vehicle is classified as a forward control vehicle, and is not required to comply with FMVSS 212 "Windshield Retention" and FMVSS 219 "Windshield Zone Intrusion".

With regard to the FMVSS 208 "Occupant Crash Protection", injury criteria, the driver dummy appeared to satisfy the head injury criteria (HIC)maximum allowable index of 1,000 but exceed the chest G's of not more than 60 for a time interval greater than 3 milliseconds and the femur requirements of 2,250 lb or less. The Passenger dummy appeared to satisfy the head, chest and femur requirements.

TYPE OF RESTRAINT SYSTEM: 3-point continuous webbing system at each front outboard seating position.

17. Key Words	18. Distribution Statement
35 mph Frontal Barrier Impact Test New Car Assessment Program (NCAP) FMVSS 212 Indicant Testing FMVSS 219 (Partial) Indicant Testing FMVSS 301-75 Indicant	COPIES OF THIS REPORT ARE AVAILABLE FROM: DEPARTMENT OF TRANSPORTATION National Highway Traffic Safety Administration Technical Reference Division, Room 5108 400 Seventh Street, SW Washington, DC 20590

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SECTION I

PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is part of the Composite FY'86 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-84-D-21149. 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 30 mph FMVSS 212/219/301-75 requirements.

This 35 mph frontal barrier impact test was conducted in accordance with the Office of Market Incentives (OMI) Laboratory Indicant Test Procedure. Standards Enforcement Indicant Test Program data for FMVSS No. 212, "Windshield Mounting", FMVSS No. 219 (Partial), "Windshield Zone Intrusion", FMVSS No. 301-75, "Fuel System Integrity", as well as occupant performance data are provided herein.

SECTION 2

SUMMARY OF FRONTAL BARRIER IMPACT TESTS

A load cell barrier consisting of 36 cell units was impacted by a 1986 Dodge B-150 Van, NHTSA No. MG0602, at a velocity of 35.01 mph. The frontal impact test was conducted by Mobility Systems and Equipment Company (MSE) on 22 May 1986. 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) Part 572 50th percentile adult male Anthropomorphic Test Devices (ATD's) were placed in the driver and right front passenger designated seating positions (DSP's) according to the NHTSA test requirements.

The ATD's were instrumented with head and chest triaxial accelerometers and right/left femur load cells. In addition, load cells were placed on the driver's and passenger's lap and shoulder belts to measure dummy upper torso and pelvic section belt loading. A summary of dummy 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. The camera location data are presented in Table 11.

Sixty-seven (67) channels of crash parameters were recorded using three (3) FM tape recorders and four (4) direct analog to digital acquisition units. Time history plots of all recorded channels are presented in Appendix B.

2.1 GENERAL COMMENTS

The 1986 Dodge B-150 Van, was equipped with a 225 cubic inch 6 cylinder engine and 3 speed automatic transmission. The test weight of the Dodge B-150 Van with two (2) 50th percentile male dummies, instrumentation, and cameras was 4,535 pounds.

The Dodge B-150 Van was involved in a frontal load cell barrier crash at a velocity of 35.01 mph. The vehicle appears to comply with FMVSS No. 301-75, "Fuel System Integrity" requirement. There was no solvent leakage from the fuel system after impact or during the subsequent rollover test.

The Dodge B-150 Van appears to fail the FMVSS No. 212, "Windshield Mounting" requirement. The windshield periphery retention was 15.1 percent for the right half, 98.3 percent for the left half, and 56.7 percent overall.

The Dodge B-150 Van appears to comply with FMVSS No. 219, "Windshield Zone Intrusion" requirement.

The maximum static crush for the vehicle of 19.7 inches occurred at the centerline of the front bumper. The windshield was cracked, but most of the vehicle glazing remained intact. Both the driver's and passenger's doors were jammed and required tools to opened them.

The driver ATD's head hit the steering wheel rim and the center hub. The driver's left and right knees hit the dash panel. The driver ATD had a HIC value of 983; the maximum chest acceleration (resultant clipped) was 67.8 g; and the maximum femur loads were 518 (left) 3,496 (right) pounds.

The passenger ATD's head did not contact anything. Both of his knees hit the dash panel. The HIC value for the passenger ATD was

868; the maximum chest acceleration (resultant clipped) was 44.1 g; and the maximum femur loads were 375 (left) and 319 (right) pounds.

Seat belt spoolout, measured by high speed film analysis was 3.2 inches for the driver and 5.2 inches for the passenger belts.

Data Table No. 1 Test Vehicle Data

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1986 DODGE/B-150/VAN

VEHICLE NHTSA NO.: M G 0 6 0 2 VIN: 2 B 4 G B 1 1 H 2 G K 5 5 2 9 8 1

VEHICLE BODY COLOR: BLUE ; MONTH & YEAR OF MANUFACTURE: JANUARY 1986

ENGINE: 6 Cylinders; ___ C.I.D.; 3.7 LITERS; ___ CC

X Gas; ___ Diesel; ___ Turbocharged

Placement— X Longitudinal; ___ Transverse (Lateral)

TRANSMISSION: 3 speed; ___ Manual; X Automatic; ___ Overdrive

FINAL DRIVE: [ ] FRONT WHEEL DRIVE; [X] REAR WHEEL DRIVE; [ ] Four Wheel Drive

DATE VEHICLE AVAILABLE FOR 35 MPH CRASH TESTING: 04/10/86

ODOMETER READING: 053 miles; OPTIONS: [ ] A/C; [X] P/S; [ ] P/WDO.; [ ] ___

[X] Tilt Whl.; [ ] Cruise Control

TYPE OF OCCUPANT RESTRAINT SYSTEM FOR FRONT OUTBOARD SEATING POSITIONS: Three-point continuous webbing manual system

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): 35 psi Front; 35 psi Rear

Recommended Tire Size: 205/75R15

Tires On Vehicle: 205/75R15 ; Manufacturer: GOODYEAR

Number Of Occupants: 2 Front: 3 Rear; ___ 3rd Seat; [5] TOTAL

Type Of Front Seats: X Bucket; ___ Bench; ___ Split Bench

Type of Front Seat Back; X Fixed; ___ Adjustable With [ ] Lever/ [ ] Rotating Knob

Vehicle Maximum Capacity Loading = 1050 lbs. (A)

No. Of Occupants x 150 lbs. - - - = 750 lbs. (B)

Cargo Capacity (A - B) - - - - - = 300 lbs.

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Right Front = 1,125 lbs.

Left Front = 1,093 lbs. ——TOTAL FRONT = 2,218 lbs. (53.8 % of TOTAL)

Right Rear = 915 lbs.

Left Rear = 989 lbs. ——TOTAL REAR = 1,904 lbs. (46.2 % of TOTAL)

TOTAL WEIGHT= 4,122 lbs.

Data Table No. 1 (Cont'd) Test Vehicle Data

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total test Vehicle Delivered Weight With Maximum Fluids = 4,122 lbs.

Maximum Cargo Carrying Capacity Of Test Vehicle - - - - - 300 lbs.

Weight Of Two P.572 Dummies (2 x 164 lbs.) - - - - - - - 328 lbs.

TEST VEHICLE TARGET WEIGHT - - - - - - 4,750 lbs.

*300 lbs. for light trucks and MPVs

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front = 1,249 lbs.

Left Front = 1,229 lbs.

TOTAL FRONT= 2,478 lbs (54.6% of TOTAL)

Right Rear = 1,036 lbs.

Left Rear = 1,021 lbs.

TOTAL REAR = 2,057 lbs (45.4% of TOTAL)

TOTAL WEIGHT= 4,535 LBS. (which includes 0 lbs. of cargo ballast weight placed in the cargo/luggage area)

VEHICLE COMPONENTS REMOVED TO MEET TARGET WEIGHT:

1. [ ] Spare Tire, Jack, Jack Stand
2. [ ] Rear Bumper Assembly
3. [X] Tail lamp hsg. [ ] Rt. Side [X] Left Side
4. _____

TEST VEHICLE ATTITUDE:

As Delivered—Right Front = 31.2 inches; Ready For Test—Right Front= 30.6 in.

Left Front = 31.2 inches; Left Front = 30.5 in.

Right Rear = 31.4 inches; Right Rear = 31.1 in.

Left Rear = 31.5 inches; Left Rear = 31.1 in.

Test Vehicle Wheelbase: 109.3 inches; C.g. =49.6 inches rearward of front wheel centerline

Total Vehicle Length:

Right Side = 177.9 inches;

Left Side = 177.9 inches;

Centerline = 180.9 inches;

Total Vehicle Width:

Across Front Fenders 79.3 in.

Across Center 78.8 in.

Across Rear Fender 79.0 in.

Maximum Rear Fender 79.3 in.

Data Table No. 2 Post Crash Test Data

DATE OF 35 MPH FRONTAL BARRIER IMPACT RATINGS TEST: 05/22/86

TIME OF TEST: 5:02 PM ; AMBIENT TEMPERATURE AT BARRIER FACE: 75 °F.

VEHICLE'S OCCUPANT COMPARTMENT TEMPERATURE: 72 °F. (Spec. Range + 66 to 78° F.)

VEHICLE'S WINDSHIELD MOLDING TEMPERATURE: 72 °F.

VEHICLE IMPACT VELOCITY: Primary Speed Trap = 35.01 mph

Secondary Speed Trap = 35.02 mph

(Specified Range = 34.5 to 35.5 mph)

Distance from vehicles's front bumper forwardmost surface to barrier face whe-

(a) entering the speed trap = 5 ft

(b) existing the speed trap = 1 ft

VEHICLE STATIC CRUSH: (All measurements in inches)

Vehicle Pre-test Length— Right Side= 177.9 ; C/Line= 180.9 ; Left Side= 179.9

Vehicle Post-test Length -Right Side= 159.0 ; C/Line= 161.2 ; Left Side= 160.5

VEHICLE STATIC CRUSH ---- Right Side= 18.9 ; C/Line= 19.7 ; Left Side= 17.4

VEHICLE REBOUND FROM BARRIER FACE:

Vehicle Right Side = 23.3 inches

Vehicle Centerline = 24.5 inches

Vehicle Left Side = 26.5 inches

VISIBLE DUMMY CONTACT POINTS:

	DRIVER (I.D. No. 466)			PASSENGER (I.D. No. 464)		
	Strg. Col. Hub	Strg. Wheel	Instru. Panel	Instru. Panel	Knee Assy.	Glove Box Door
HEAD	YES	YES	NO	NO	NO	NO
RIGHT KNEE			YES	YES		NO
LEFT KNEE			YES	YES		NO

VEHICLE DOOR OPENING INFORMATON:

	RIGHT SIDE		LEFT SIDE	
	OPENED	JAMMED	OPENED	JAMMED
FRONT DOORS	--	YES	--	YES
REAR DOORS	N/A	N/A	N/A	N/A

Data Table No. 2 (Cont'd) Post Crash Data

VEHICLE'S FRONT SEAT MOVEMENT DURING CRASH EVENT:

	RIGHT SIDE	LEFT SIDE
Seat Cushion Shift - - -	0.0 forward;	0.0 forward
Seat Adjuster Failure- -	No ;	No.

Details Of Any Failure:

SECTION 3

SUMMARY OF RESULTS FOR

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

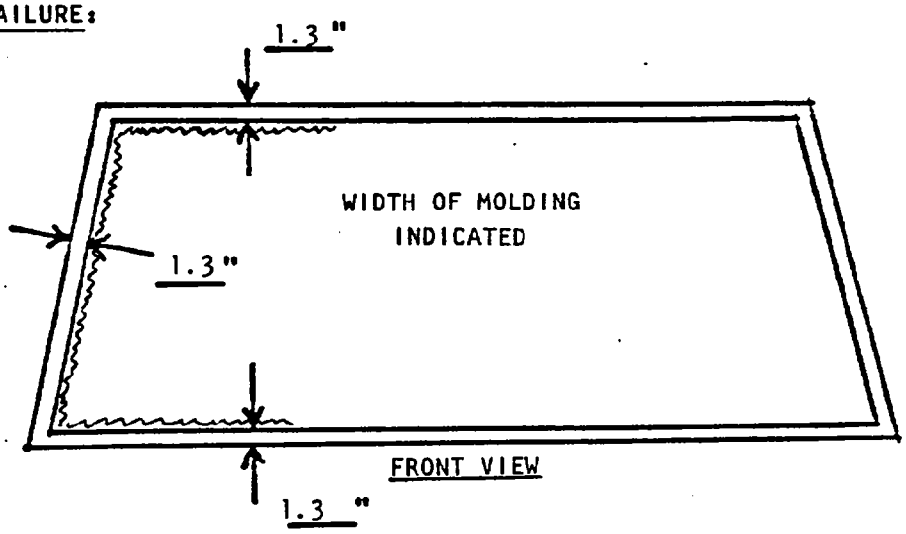
Data Table No. 3 FMVSS 212 Windshield Mounting Data

FMVSS 212 REQUIREMENTS: The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA:

	WINDSHIELD PERIPHERY		
	PRE-TEST (in.)	POST-TEST (in.)	PERCENT RETENTION
RIGHT SIDE	87.7	13.2	15.1
LEFT SIDE	87.7	86.2	98.3
TOTAL	175.4	99.4	56.7

AREA OF RETENTION FAILURE:



FAILURE DETAILS:

On the passenger side the windshield separated from the molding along the roofline, A pillar, and cowl section of the vehicle.

NOTE: The Dodge B-150 is classified as a forward control vehicle, and is not required to comply with FMVSS 212 "Windshield Retention."

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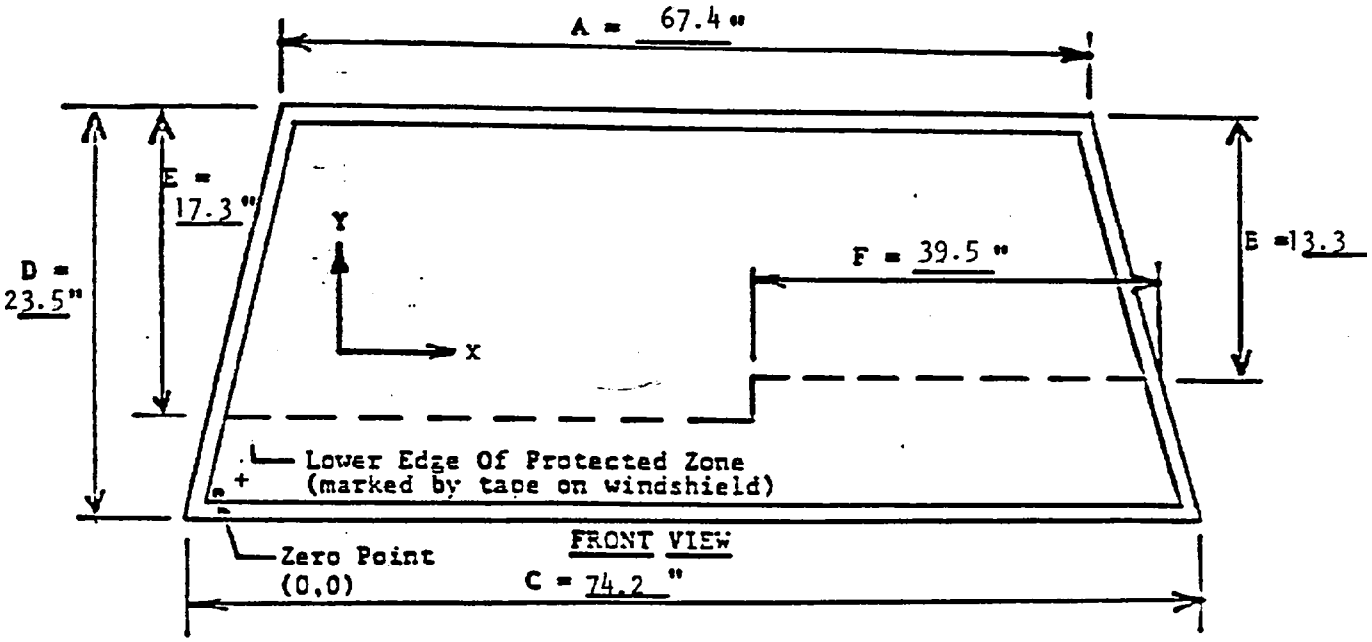
Data Table No. 4 FMVSS 219 Windshield Zone Intrusion

The lower edge of the protected zone is determined by placing a 6.5" dia. rigid sphere weighing 15 pounds in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. 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" distant from the locus line. The LOWER EDGE OF THE PROTECT 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":
(Show location of penetration on above sketch)

	COORDINATES	
	X	Y
1.	N/A	N/A
2.	N/A	N/A
3.	N/A	N/A
4.	N/A	N/A

NOTE: The Dodge B-150 is classified as a forward control vehicle, and is not required to comply with FMVSS 219 "Windshield Zone Intrusion".

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Data Table No. 5 FMVSS 301-75 Fuel System Integrity

TEST VEHICLE NHTSA NO.: MG0602 ; TEST DATE: 05/22/86

VEHICLE MAKE/MODEL/BODY STYLE: DODGE/B-150/VAN

USABLE CAPACITY OF VEHICLE'S FRONT FUEL TANK: 22.0 Gallons (figure furnished by vehicle manufacturer)

USABLE CAPACITY OF VEHICLE'S REAR FUEL TANK: N/A Gallons

TEST REQUIREMENTS:

Test vehicle's engine operated to "run dry" condition, and then a small amount of Stoddard solvent which has been dyed RED shall be added to the vehicle's fuel tank. Operate the fuel pump enough to completely fill the fuel system ahead of the fuel tank, and add 92 to 94% of the stated USABLE CAPACITY to the fuel tank.

AMOUNT OF STOODARD SOLVENT ADDED TO VEHICLE'S FUEL TANK:

Front Tank 20.5 Gallons which is 93.2 % of the Stated USABLE CAPACITY

Rear Tank N/A Gallons which is N/A % of the Stated USABLE CAPACITY

SOLVENT SPILLAGE MEASUREMENT AFTER 35 MPH FRONTAL BARRIER IMPACT TEST:

From impact until vehicle motion ceases - - - - NONE 1 oz.

For 5 min. period after vehicle motion ceases - NONE 5 oz.

For next 25 minutes at barrier face - - - - - - NONE 1 oz./1 minute)

SOLVENT SPILLAGE DETAILS: NONE

STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1 to 3 minutes)

Time reqd. for machine to rotate 90° = 1 minutes, 27 seconds

FMVSS 301-75 Position Hold Time = 5 minutes, 0 seconds

TOTAL - - - - - - = 6 minutes, 27 seconds

Next Whole Minute Interval - - - - - = 7 minutes

Data Table No. 5 (Cont'd) FMVSS 301-75 Fuel System Integrity

VEHICLE STATIC ROLLOVER DATA:

	First 5 Minutes FROM ONSET OF ROTATION	6th Minute	7th Minute	8th Minute
Maximum Allowable Solvent Spillage - -	5 oz.	1 oz.	1 oz.	1 oz.
0 to 90° (filler cap down) - - - - - - -	0	0	0	N/A
90 to 180° - - - - - - - - - - - - - - -	0	0	0	N/A
180 to 270° - - - - - - - - - - - - - - -	0	0	0	N/A
270 to 360° - - - - - - - - - - - - - - -	0	0	0	N/A

Solvent Spillage Location(s): NONE

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

I. OMI DATA

- Dummy Injury Criteria Data Summary
- Dummy Positioning Data
- Seat Belt Positioning Data
- Seat Belt Performance Assessment Data
- Driver Dummy to Steering Column Dimensions
- Camera Locations

II. OVR DATA

- Load Cell Barrier Data
- Vehicle Accelerometer Data

III. AID DATA

- Test Vehicle Measurements
- Accident Investigation Damage Data Summary

Data Table No. 6 FMVSS No. 208 Occupant Crash Protection Data Sheet

VEH. YR./MAKE/MODEL/BODY STYLE: 1986/DODGE/B-150/VAN

VEH. NHTSA NO.: MG0602 ; TEST DATE: 05/22/86

MAXIMUM ACCELERATION VALUES:		DRIVER DUMMY #	PASSENGER DUMMY #
Head Channel X	HEAD X	-344.51	-25.67
Head Channel Y	Y	- 99.47	16.67
Head Channel Z	Z	55.93	54.03
HEAD RESULTANT	R		
Chest Channel X	CHEST X	- 75.00	-46.43
Chest Channel Y	Y	- 38.54	30.44
Chest Channel Z	Z	- 18.35	-15.37
CHEST RESULTANT (3msec Clip)	R	67.84	44.14
TIME INTERVAL (seconds)		0.092 - 0.095	0.1185 - 0.1215

HEAD INJURY CRITERIA (HIC) VALUES:			
HIC	HIC	982.58	868.26
t_1 (seconds)		0.0965	0.1034
t_2 (seconds)		0.1339	0.1699
Avg. Accel. t_1 to t_2		58.71	44.33

MAXIMUM FEMUR FORCES: (Compressive)			
Right Side (lbs.)	FR	3496	319
Left Side (lbs.)	FL	518	375

MAXIMUM SEAT BELT FORCES:					
Lap Belt	LAP	396		1787	
Shoulder Belt	SHLDR	1552		1871	
		PHOTOGRAPHIC	ELECTRONIC	PHOTOGRAPHIC	ELECTRONIC
MAXIMUM SEAT BELT WEBBING SPOOL-OUT:		3.2	2.60 in	5.2	2.4 in
Belt Stretch (inches per foot)		N/A	0.60	N/A	0.36

BARRIER LOAD CELLS:			
Total Load	CELLS	136,152	lb

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Data Table No. 7 Test Dummy Positioning Data

PRE-IMPACT DATA:

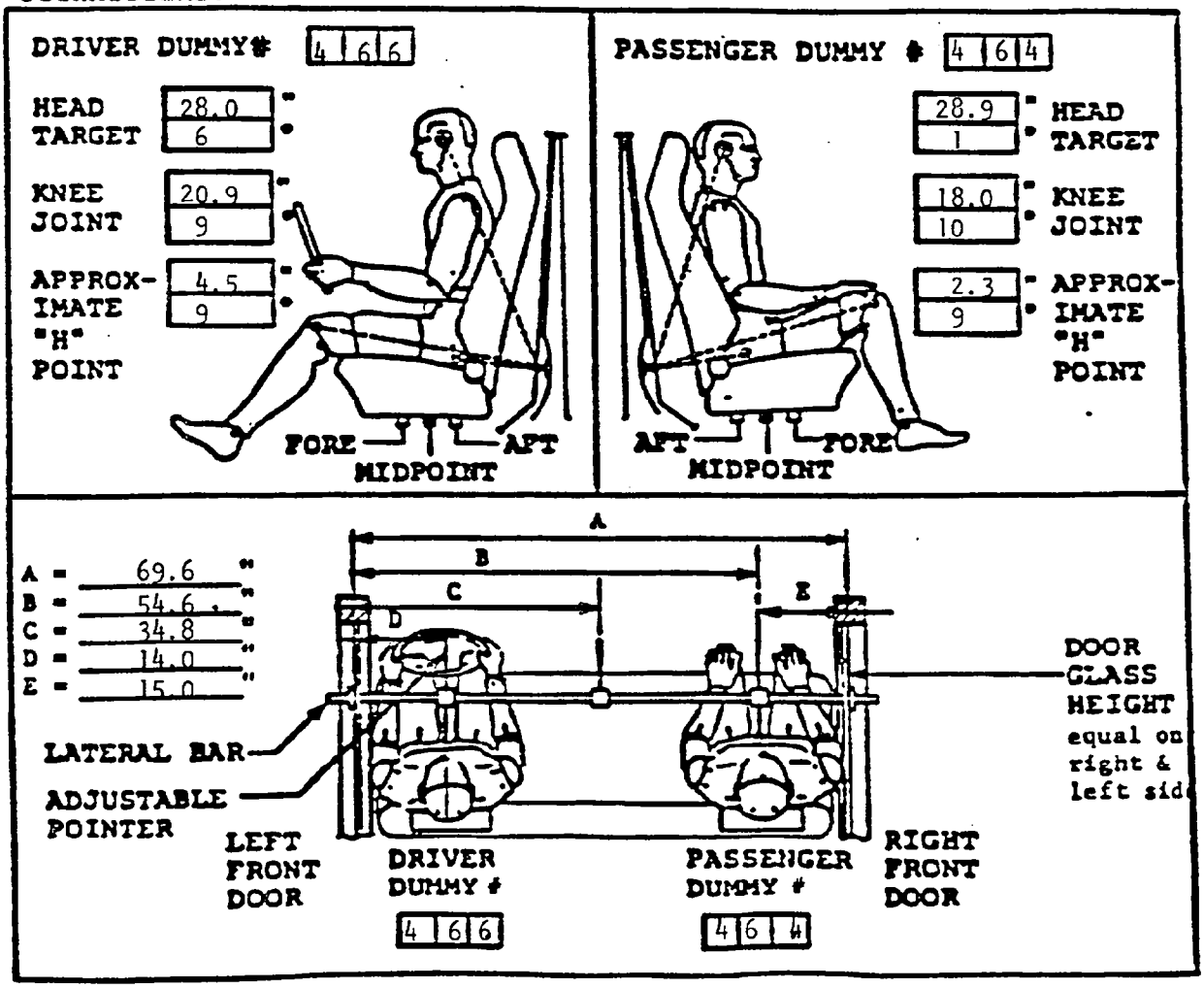
Make/Model: DODGE/B-150
Body Style: VAN **Model Year:** 86
NHTSA No.: MG0602 **Color:**

DATA FROM CERTIFICATION LABEL:

Vehicle Manufacturer: CHRYSLER CANADA LTD.
Date of Manufacture: 01/86 **VIN:** 2B4GB11H2GK552981
GVWR: 5,300 lb; **GAWR:** Front = 2,270 lb; Rear = 2,904 lb

POST-IMPACT DATA:

Date of Test: 05/22/86 **Time:** 5:02 PM **Temperature** 75 °F
Required Impact Velocity Range: 34.5 to 35.5 mph
Impact Velocity: Primary = 35.01 mph Secondary = 35.02 mph
Seat Type: BUCKET **Adjuster Type:** NONE
Bucket Seat Back Type: HIGH BACK
Technicians:



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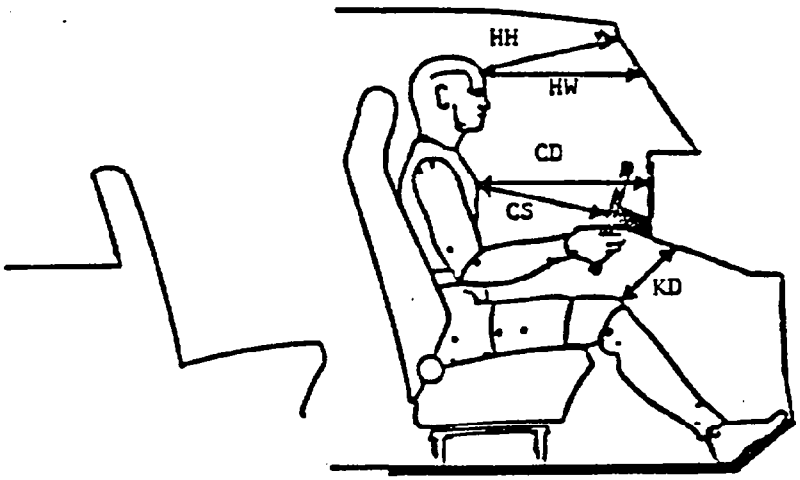
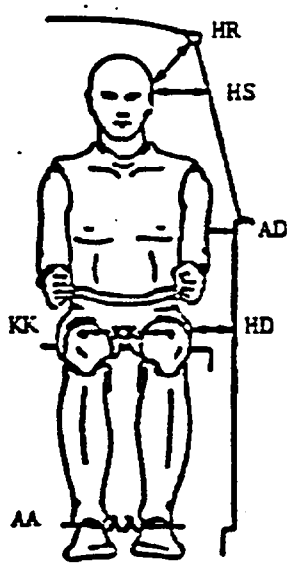
Data Table No. 7 (Cont'd) Test Dummy Positioning Data



	Driver	Passenger
HH	21.8	25.8
HW	26.0	30.5
CD	24.5	29.0
CS	14.0	N/A
KD	L- 8.0	L- 11.8
KD	R- 8.3	R- 11.3
Torso Angle	20	Torso Angle 20
Seat Back Angle	22	Seat Back Angle 22
HSW	N/A	N/A

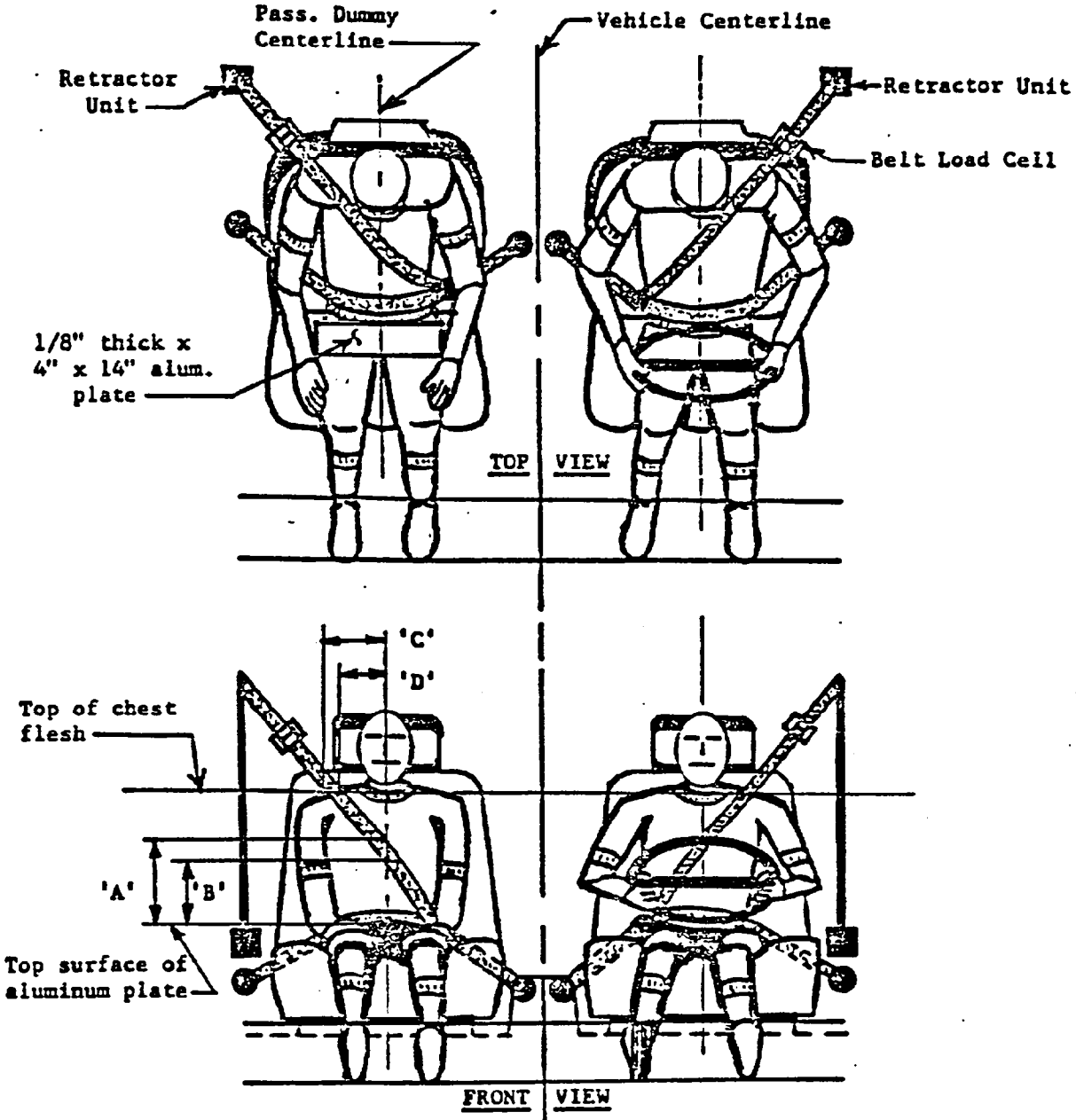
HH = Head to Windshield Header
HW = Head to Windshield
CD = Chest to Dash
CS = Chest to Steering Wheel
KD = Knees to Dash
HR = Head to Side Roof
HS = Head to Side Window
AD = Arm to Door
HD = Hip to Door
KK = Knee to Knee
Torso and seat back angles are relative to vertical.

REMARKS:



	Driver	Passenger
HR	6.8	6.3
HS	9.3	8.5
AD	3.0	1.6
HD	6.1	5.3
KK	14.5	10.0
AA	13.0	7.0

Data Table No. 8 Seat Belt Positioning Data



	DRIVER DUMMY (in.)	PASS. DUMMY (in.)
1. Dimension 'A'--alum. plate to belt upper edge on dummy centerline	11.2	10.3
2. Dimension 'B'--alum. plate to belt lower edge on dummy centerline	7.5	7.4
3. Dimension 'C'--dummy centerline to outer edge at chest flesh top	6.7	6.5
4. Dimension 'D'--dummy centerline to inner edge at chest flesh top	3.0	4.1
5. Lap belt tension (lbs.)	3.0	3.0
6. Shoulder belt tension (lbs.)	3.0	3.0

Data Table No. 9: Seat Belt Performance Assessment Test Data

BELT LENGTH DATA:

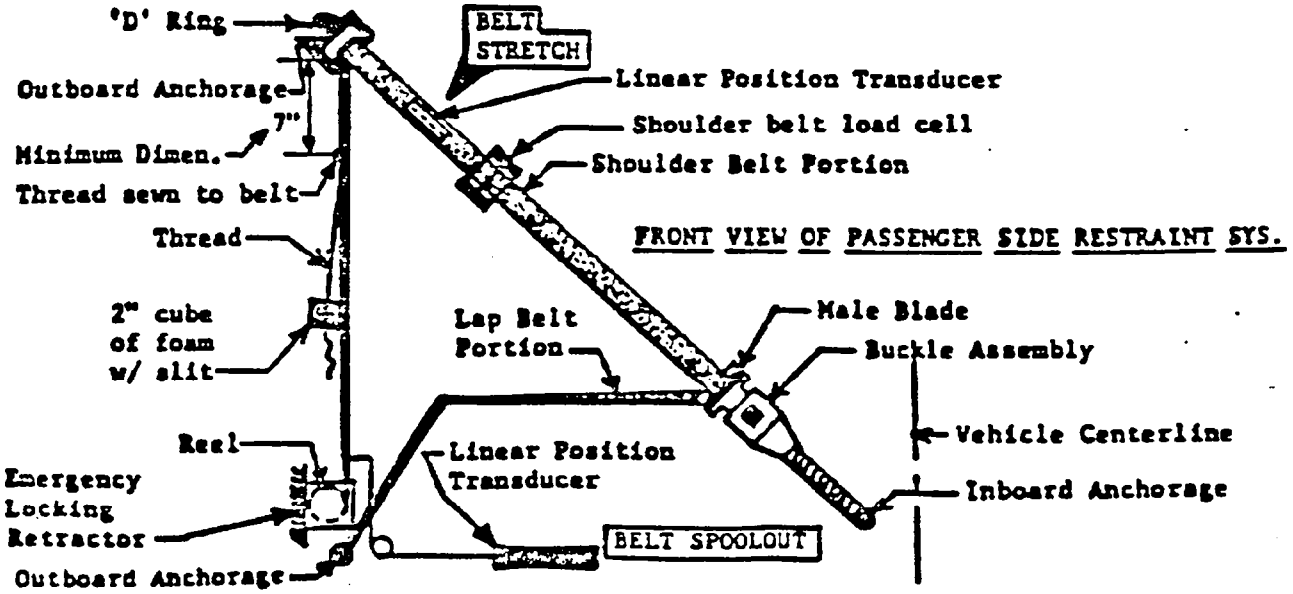
	PRE-TEST	
	DRIVER	PASSENGER
Total Belt Length from 'B' Post trim panel to "male blade"	67.5	66.4
Shoulder belt length measured from the 'D' ring to the male blade across the dummy	36.0	35.6
Lap belt length measured from the outboard side sill anchor bolt to the male blade across dummy	33.5	32.5

BELT SPOOL-OUT DATA:

	DRIVER SIDE	PASSENGER SIDE
As determined by film analysis	3.2	5.2
As determined electronically	2.60 in	2.41 in
As determined mechanically	*	6.3

BELT STRETCH DATA:

	Maximum Load 1,552 Elong. 0.60		Maximum Load 1,871 Elong. 0.36	
	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
(1) Determined electronically with linear position transducer in inches per foot.				
(2) Determined with 2" marked section of belt across dummy's chest (inches per foot)	2"	2" Elong 0	2"	2"



FRONT VIEW OF PASSENGER SIDE RESTRAINT SYS.

* During the impact a piece of glass cut the string.

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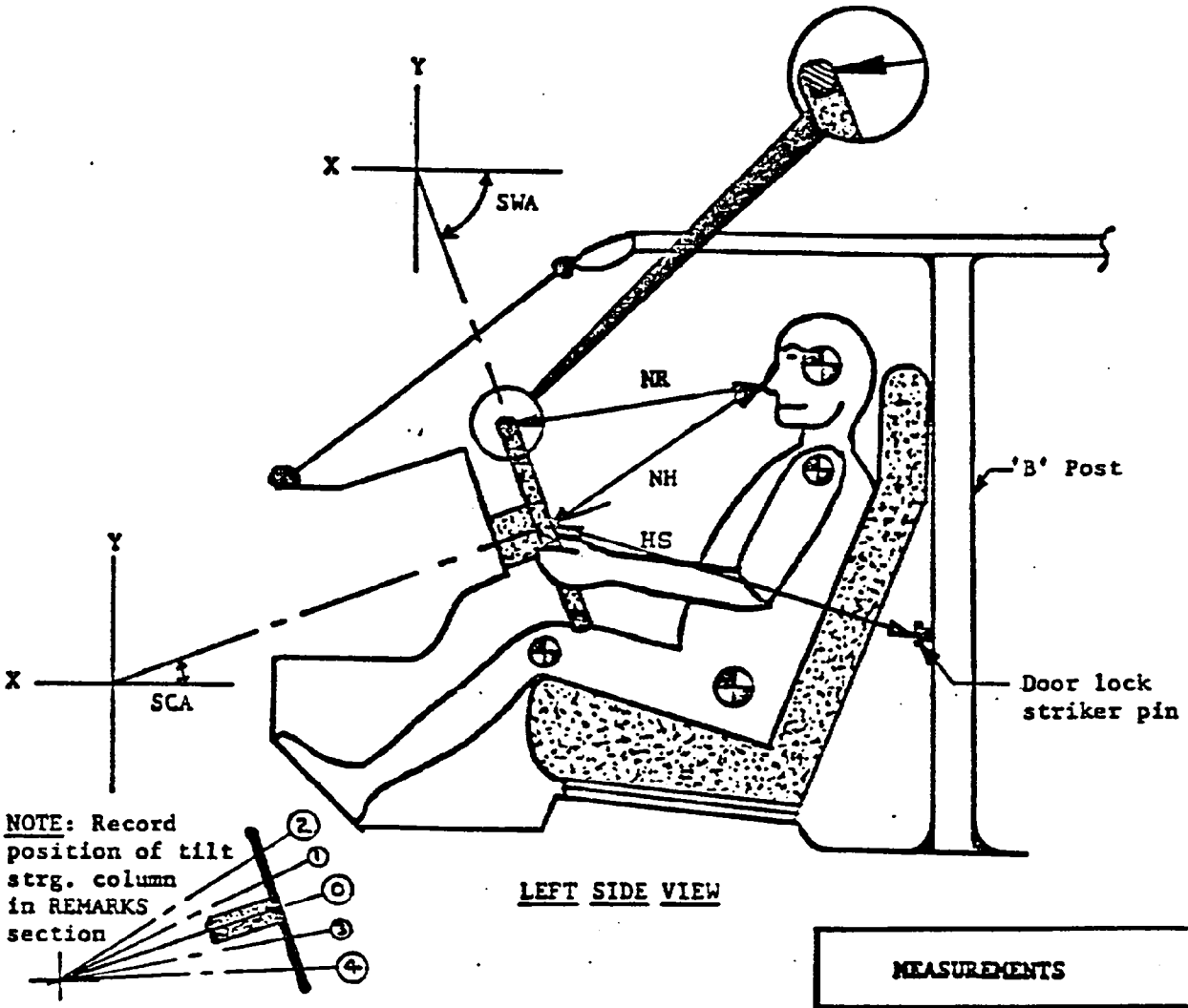
Data Table No. 10 Driver Dummy to Steering Wheel Position



LEFT SIDE VIEW

	MEASUREMENTS	
NR--Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	19.0	Inches
NH--Distance from tip of dummy's nose to center of steering column hub	18.8	Inches
HS--Distance from center of steering column hub to the forward surface of the door lock striker pin.	37.3	Inches
SCA--Angle of steering column relative to the horizontal X axis	35	Degrees
SWA--Angle of steering wheel relative to the horizontal X axis.	50	Degrees

REMARKS CONCERNING ADJUSTABLE OR TILT STEERING COLUMN IF VEHICLE IS SO EQUIPPED:

Tilt steering column was placed in fourth notch down from highest position.

Total of six notches.

Data Table No. 11 Camera Location Data

VEH. NHTSA NO.: MG0602 ; TEST DATE: 05/22/86 ; TIME: 5:02 PM

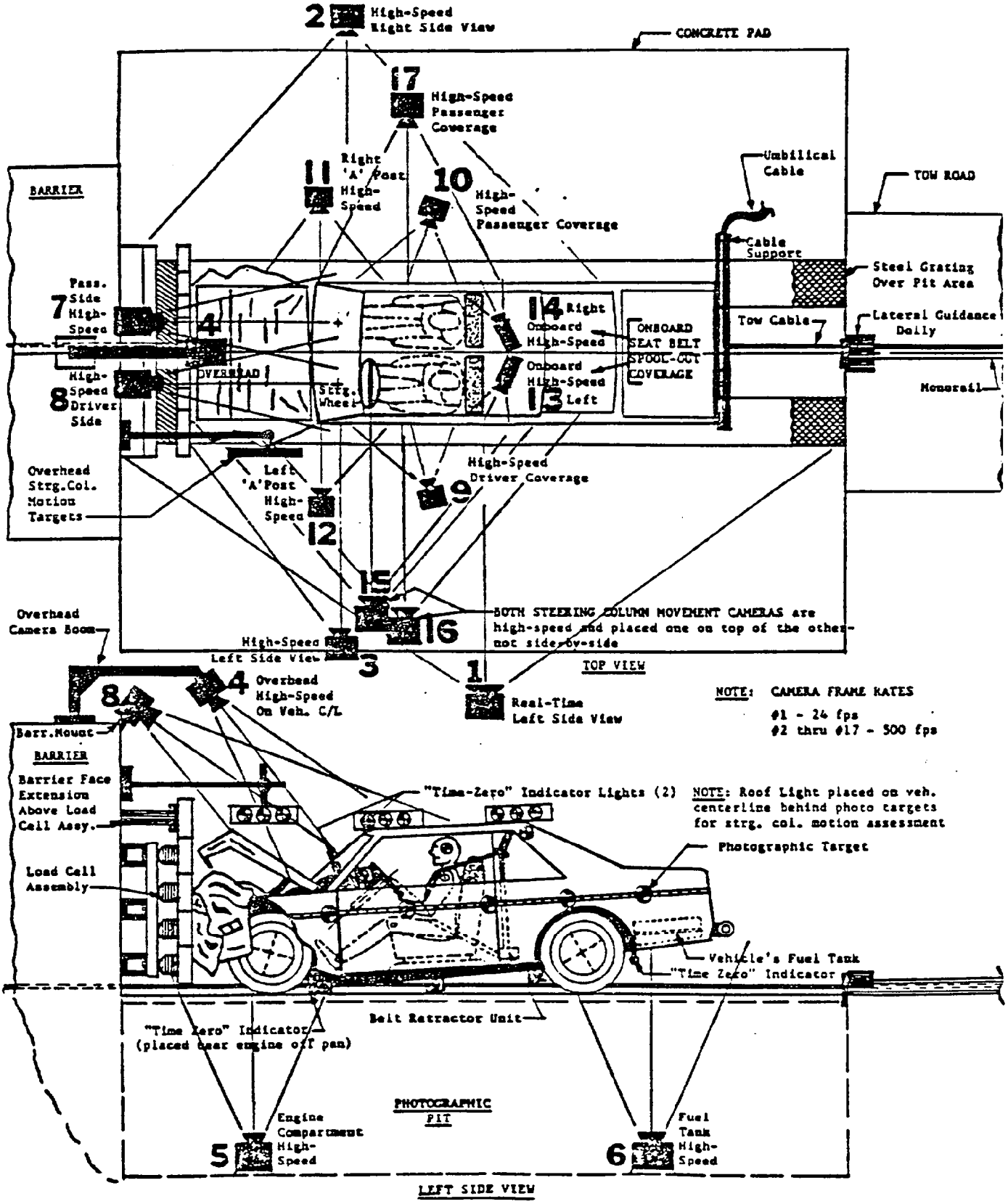
VEH. YEAR/MAKE/MODEL/BODY STYLE: 1986/Dodge/B-150/Van

CAMERA NO.	VIEW	CAMERA POSITIONS (in.)* X	Y	Z	ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Left Side View	780.0	300.0	51.5	2	792.4	12/50	24
2	Right Side View	-256.3	55.3	75.8	3	231.5	16	580
3	Left Side View	908.0	39.3	41.0	0	883.6	50	540
4	Overhead	0.0	23.3	127.1	89	74.8	13	540
5	Pit-Engine	0.0	18.2	-56.0	90	N/A	13	460
6	Pit-Fuel Tank	0.0	80.4	-51.0	90	N/A	13	460
7	Front-Passenger	- 13.3	17.4	106.8	57	59.5	16	600
8	Front-Driver	12.0	17.2	106.3	56	59.5	16	510
9	Left Side-Driver	84.1	80.7	81.5	19	64.3	16	600
10	Right Side-Passenger	- 94.2	50.1	68.3	4	69.9	16	600
11	Right Side-'A' Post	-144.3	31.8	66.1	0	122.6	28	660
12	Left Side-'A' Post	297.8	8.5	65.1	0	277.6	50	520
13	Onboard-Left Side	13.5	96.0	31.1	3	52.1	13	460
14	Onboard-Right Side	- 3.0	96.0	31.1	5	55.4	13	580
15	Left Side-Steering Col.	500.2	43.0	130.1	11	479.7	28	600
16	Left Side-Steering Col.	500.2	43.0	110.2	9	477.4	28	600
17	Right Side-Passenger	-110.4	80.6	76.4	7	88.3	20	600

* X = film plane to monorail centerline
  Y = film plane to barrier face
  Z = film plane to ground

Data Table No. 11(Cont'd) Camera Location Data

CAMERA REQUIREMENTS FOR 35 MPH FRONTAL BARRIER IMPACT ASSESSMENT PROGRAM TEST



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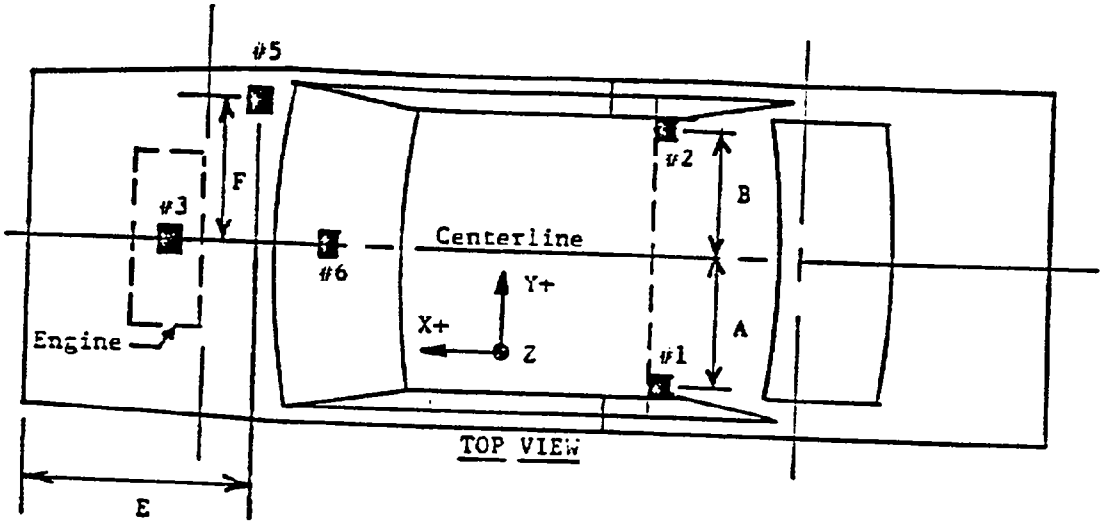
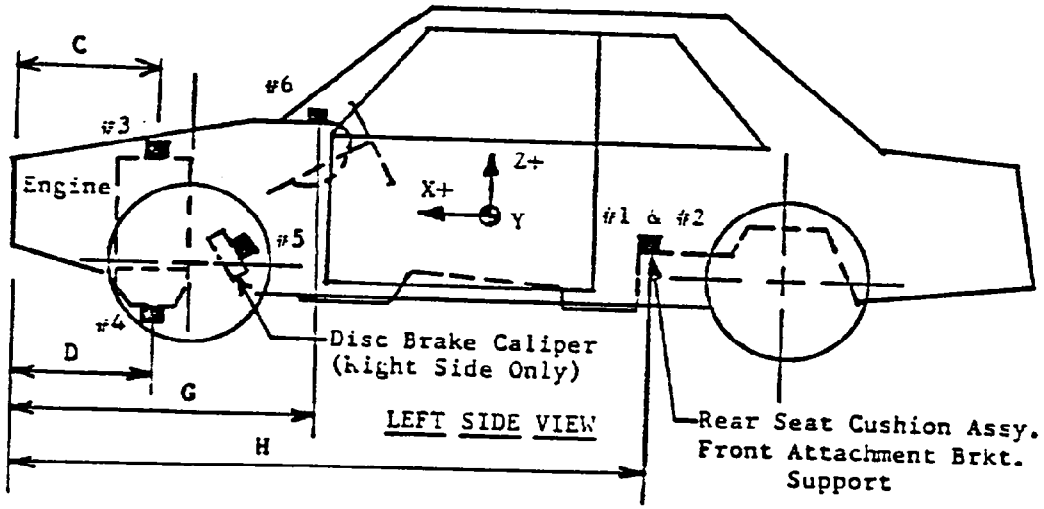
Data Table No. 12 Vehicle Accelerometer Location and Data Summary





Dimension	Length (in.)
A	26.5
B	24.0
C	41.5
D	42.3
E	38.3
F	27.0
G	34.5
H	98.7

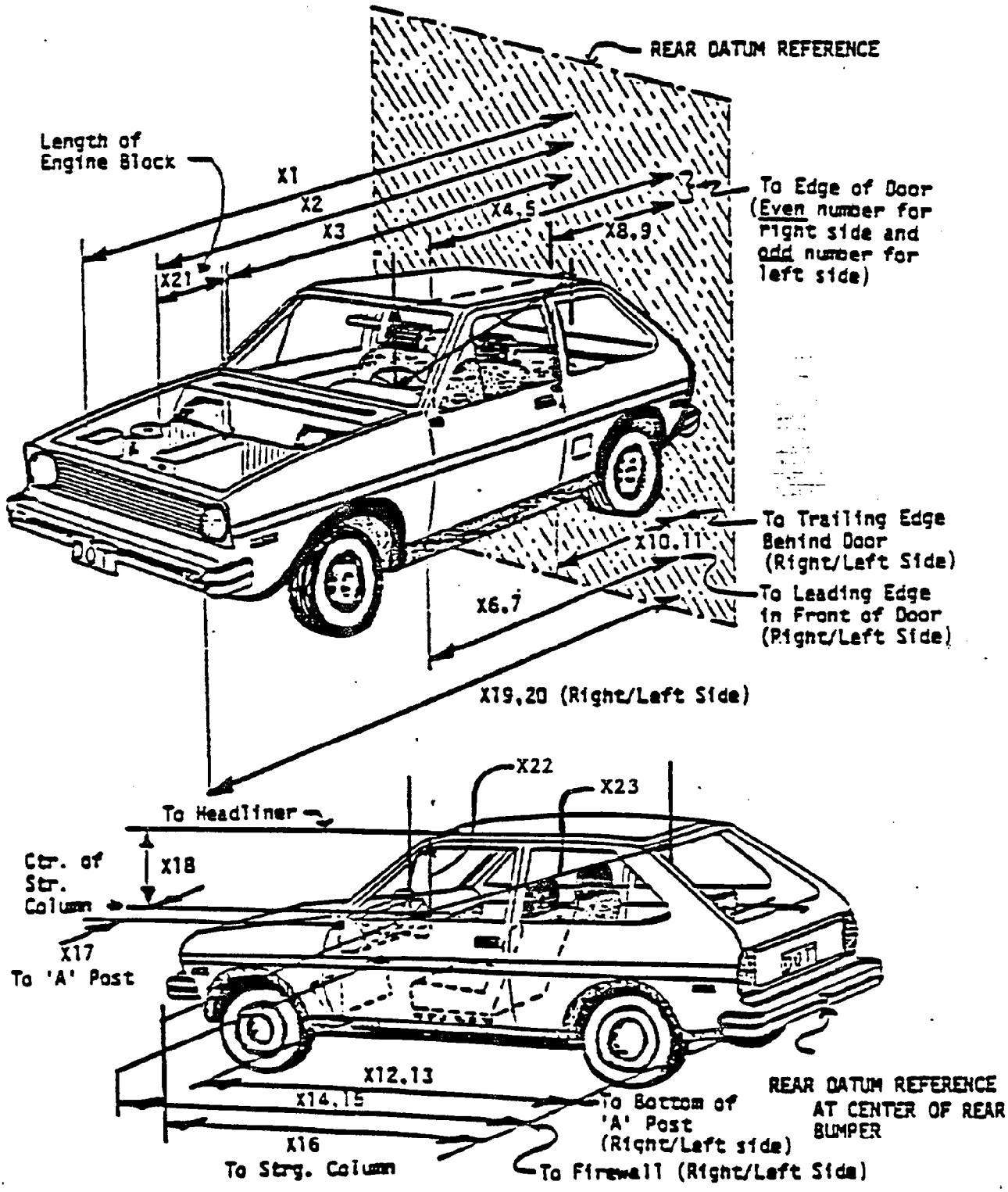
Loc. No.	Description	Maximum Value			
		X-	msec.	X+	msec.
1	Rear seat X-member @ Left Side	43.4	9.0	6.6	112.0
2	Rear seat X-member @ Right Side	42.3	10.0	9.9	18.0
3	Top of Engine Block	126.0	34.0	58.7	44.5
4	Bottom of Engine	112.3	34.0	45.5	44.0
5	Disc Brake Caliper @ Right Side	139.3	21.5	55.1	43.5
6	Instrument Panel	121.8	12.5	39.5	6.5
7	Vehicle c.g.	44.7	9.5	7.0	18.0

Data Table No. 13 Test Vehicle Measurements

NO.	MEASUREMENT DESCRIPTION:	Pre-Test (in.)	Post-Test (in.)	Diff. (in.)
X1	Total Length of Test Vehicle at Centerline	180.9	161.2	19.7
X2	Rear Surface of Vehicle to Front of Engine	162.5	153.5	9.0
X3	Rear Surface of Vehicle to Firewall	157.1	126.3	30.8
X4	Rear Surface to Upr. Leading Edge of Right Door	151.1	146.9	4.2
X5	Rear Surface to Upr. Leading Edge of Left Door	151.1	147.8	3.3
X6	Rear Surface to Lwr. Leading Edge of Right Door	151.0	143.9	7.1
X7	Rear Surface to Lwr. Leading Edge of Left Door	151.0	148.3	2.7
X8	Rear Surface to Upr. Trailing Edge of Right Door	111.1	107.5	3.6
X9	Rear Surface to Upr. Trailing Edge of Left Door	111.1	108.0	3.1
X10	Rear Surface to Lwr. Trailing Edge of Right Door	110.4	110.0	0.4
X11	Rear Surface to Lwr. Trailing Edge of Left Door	110.4	111.1	-0.7
X12	Rear Surface to Bottom of 'A' Post on Right Side	148.3	130.5	17.8
X13	Rear Surface to Bottom of 'A' Post on Left Side	148.3	132.1	16.2
X14	Rear Surface to Firewall on Right Side	154.5	149.8	4.7
X15	Rear Surface to Firewall on Left Side	158.3	150.0	8.3
X16	Rear Surface to Steering Column	133.0	125.1	7.9
X17	Center of Steering Column to 'A' Post	12.8	17.3	-4.5
X18	Center of Steering Column to Headlining	22.0	25.3	-3.3
X19	Rear Surface to Right Side of Front Bumper	177.9	159.0	18.9
X20	Rear Surface to Left Side of Front Bumper	177.9	160.5	17.4
X21	Length of Engine Block	25.0	25.0	0.0
X22	Strg. Whl. Hub C/L to W/Shld. Header Interior Trim Moulding	19.0	28.3	-9.3
X23	Strg. Whl. Hub C/L to Rr. Wdo. Upper Interior Trim Moulding	125.5	114.1	11.4

NOTE: Measurements are not done in the same location as Accident Investigation measurements. Therefore, measurements may not be equal.

Data Table No. 13 (Cont'd) Test Vehicle Measurements



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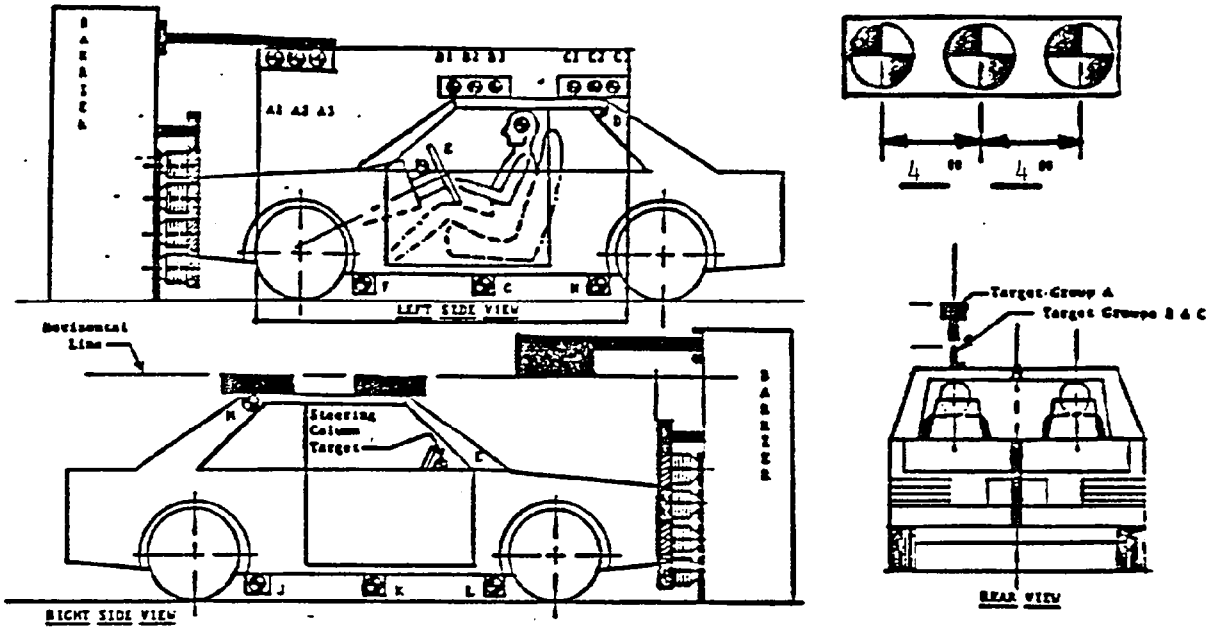
Data Table No. 14 Pre-Test Vehicle Target Locations



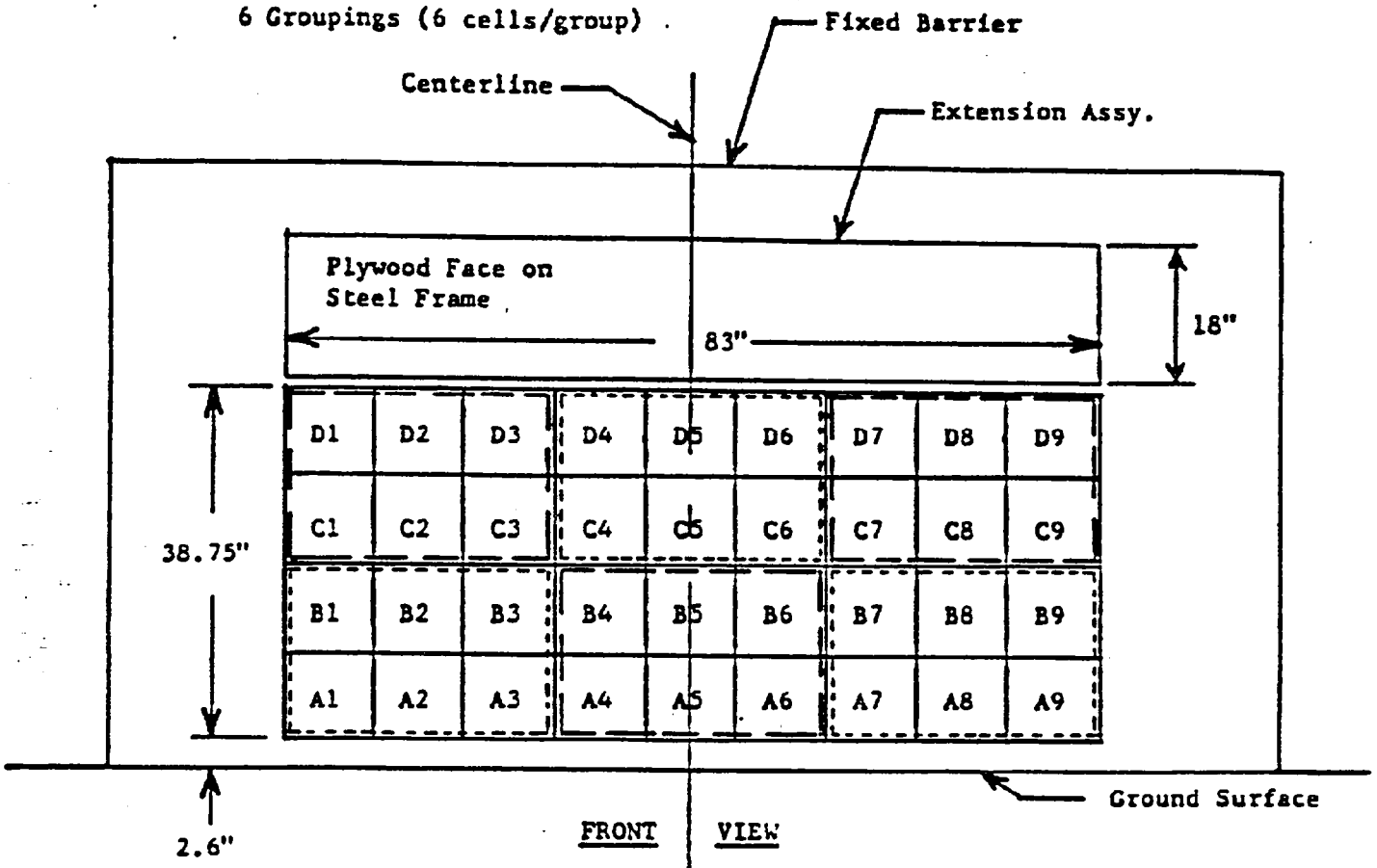
BARRIER TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Monorail C/L	'Z' Above Ground
A1	14.5	21.3	80.3
A2	18.5	21.3	80.3
A3	22.5	21.3	80.3

VEHICLE TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Vehicle C/L	'Z' Above Ground
B1	52.6	19.5	79.6
B2	56.6	19.5	79.6
B3	60.6	19.5	79.6
C1	152.8	19.5	80.4
C2	156.8	19.5	80.4
C3	160.8	19.5	80.4
D	163.9	32.8	72.5
E	40.4	19.8	54.0
F	50.6	34.4	12.1
G	85.7	34.4	13.4
H	120.3	34.0	13.4
J	119.9	34.0	13.4
K	85.4	34.4	13.4
L	50.6	34.4	12.3
M	164.0	32.8	72.4

NOTE: Diameter of all photo targets is 4"

Data Table No. 15 Load Cell Locations on Fixed Barrier

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



6 GROUPINGS OF 6 LOAD CELLS EACH

C1 thru D3	C4 thru D6	C7 thru D9
A1 thru B3	A4 thru B6	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)

Data Table No. 16 Accident Investigation Division Data

VEHICLE MAKE/MODEL/BODY STYLE: DODGE/B-150/VAN

VEH. NHTSA NO.: MG0602 ; VIN: 2B4GB11H2GK552981

MODEL YEAR: 1986 ; BUILD DATE: 01/86 ; TEST DATE: 05/22/86

VEH. SIZE CATEGORY: VAN ; TEST WEIGHT: 4,535 lb

VEH. WHEELBASE: 109.3 ; FRONT OVERHANG: 30.1 ; OVERALL WIDTH: 79.3

ACCELEROMETER DATA:

LOCATION: LEFT REAR FLOOR PAN

CALIBRATION PROCEDURE: VOLTAGE INSERTION

LINEARITY: 3% ; INTEGRATION ALGORITHM: AREA SUMMATION

VEH. IMPACT SPEED: 35.01 mph ; TIME OF SEPARATION: 0.113 seconds

VELOCITY CHANGE: 38.45 mph

☒ COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:
F (Frontal) 12FDEW5

CRUSH DEPTH DIMENSIONS:

C1= 17.4 inches

C2= 18.3 inches

C3= 19.4 inches

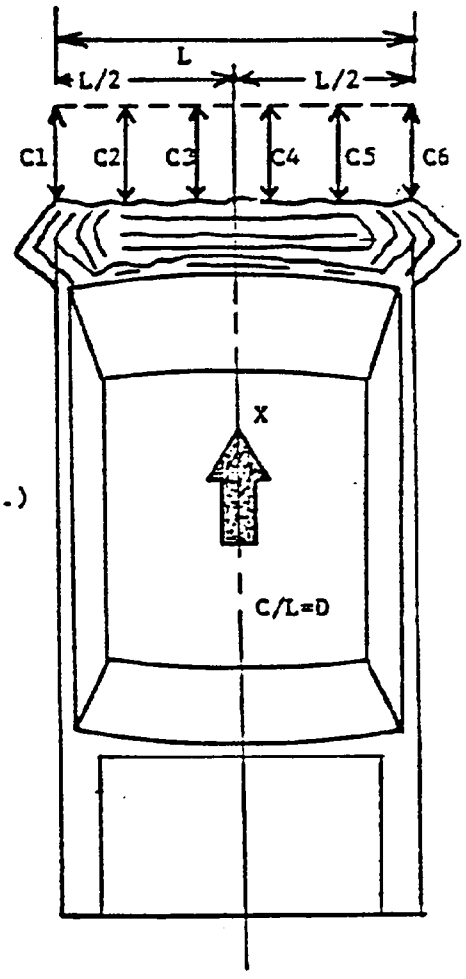
C4= 19.7 inches

C5= 19.3 inches

C6= 18.9 inches

MIDPOINT OF DAMAGE: D = Vehicle Centerline (Longitud.)

LENGTH OF DAMAGED REGION: L = 73.5 inches



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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
POSTTEST TOP VIEW (Vehicle on Rollover Machine)
PRETEST WINDSHIELD VIEW
POSTTEST WINDSHIELD VIEW
POSTTEST WINDSHIELD VIEW AND HOOD PENETRATION
PRETEST ENGINE COMPARTMENT VIEW
POSTTEST ENGINE COMPARTMENT VIEW
PRETEST FUEL FILLER CAP 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 & VEHICLE INTERIOR VIEW (Door Open)
POSTTEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
PRETEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

POSTTEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

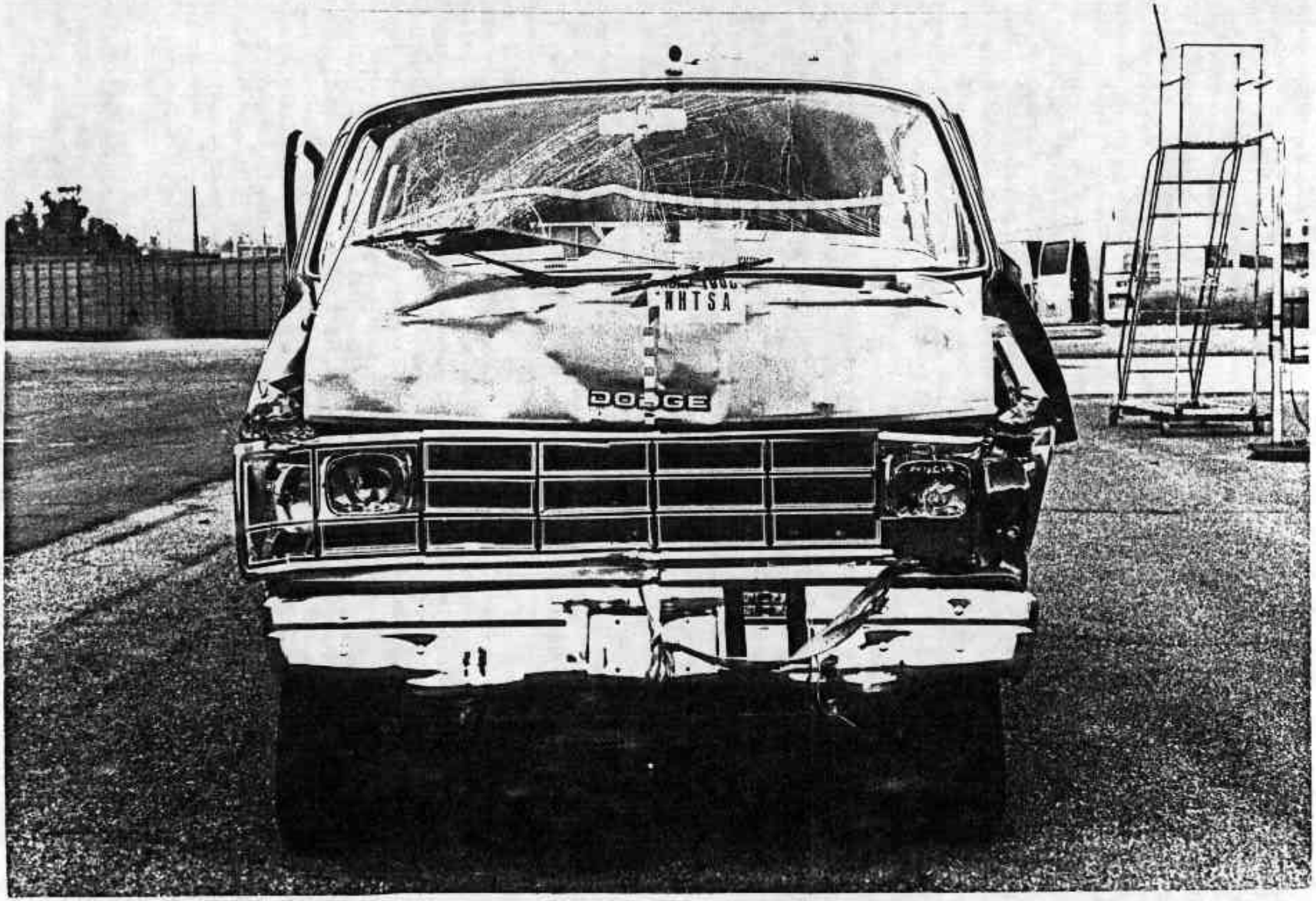
POSTTEST DRIVER DUMMY HEAD/KNEE CONTACT AREA

POSTTEST STEERING COLUMN HUB/RIM CONTACT BY DUMMY DRIVER

POSTTEST PASSENGER DUMMY KNEE CONTACT

PRETEST FRONT VIEW

R5077-02



POSTTEST FRONT VIEW

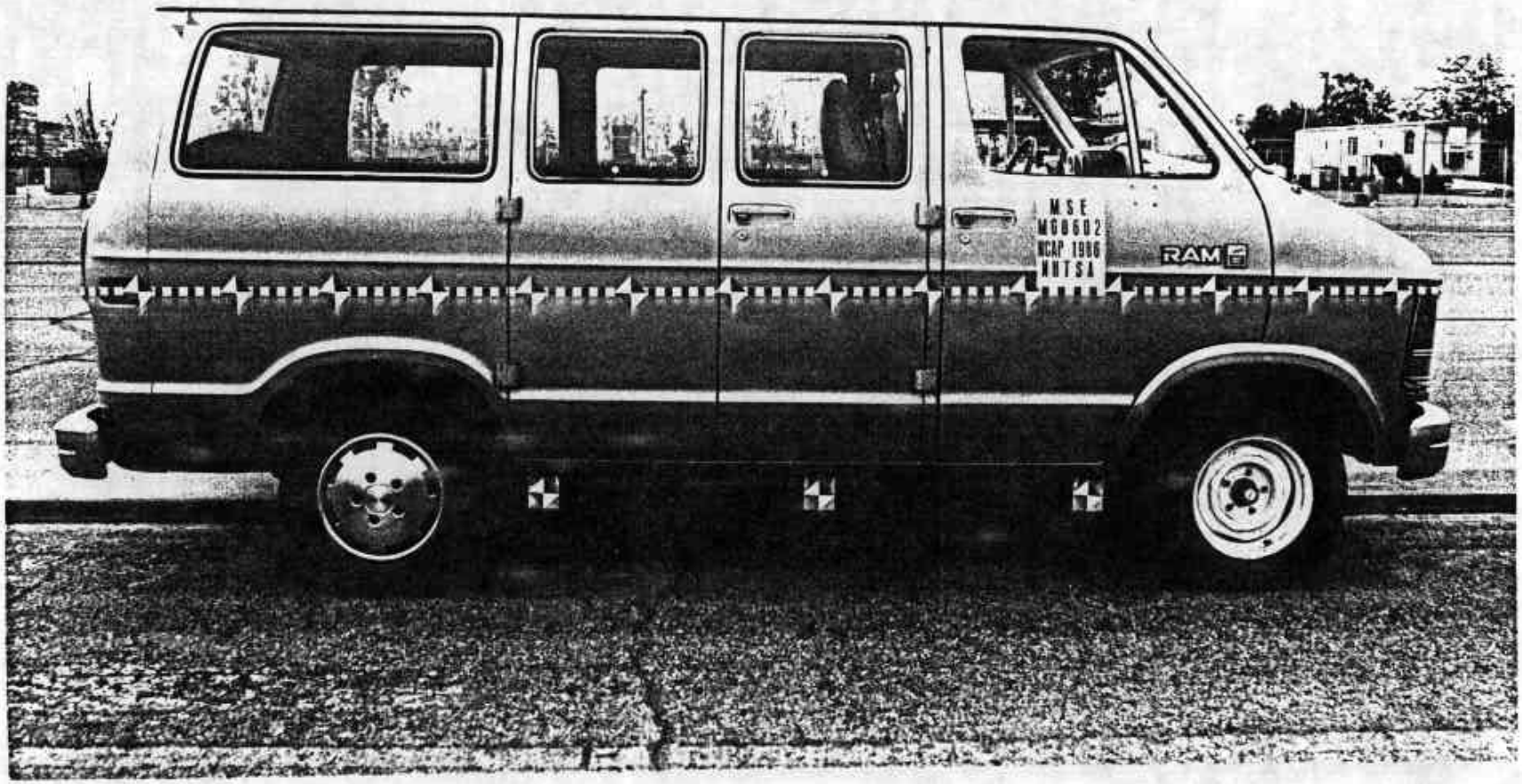
R5077-02

PRETEST LEFT SIDE VIEW

R5077-02

POSTTEST LEFT SIDE VIEW

R5077-02



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PRETEST RIGHT SIDE VIEW

POSTTEST RIGHT SIDE VIEW

R5077-02

PRETEST RIGHT FRONT 3/4 VIEW

POSTTEST RIGHT FRONT 3/4 VIEW

R5077-02

PRETEST LEFT SIDE 3/4 VIEW

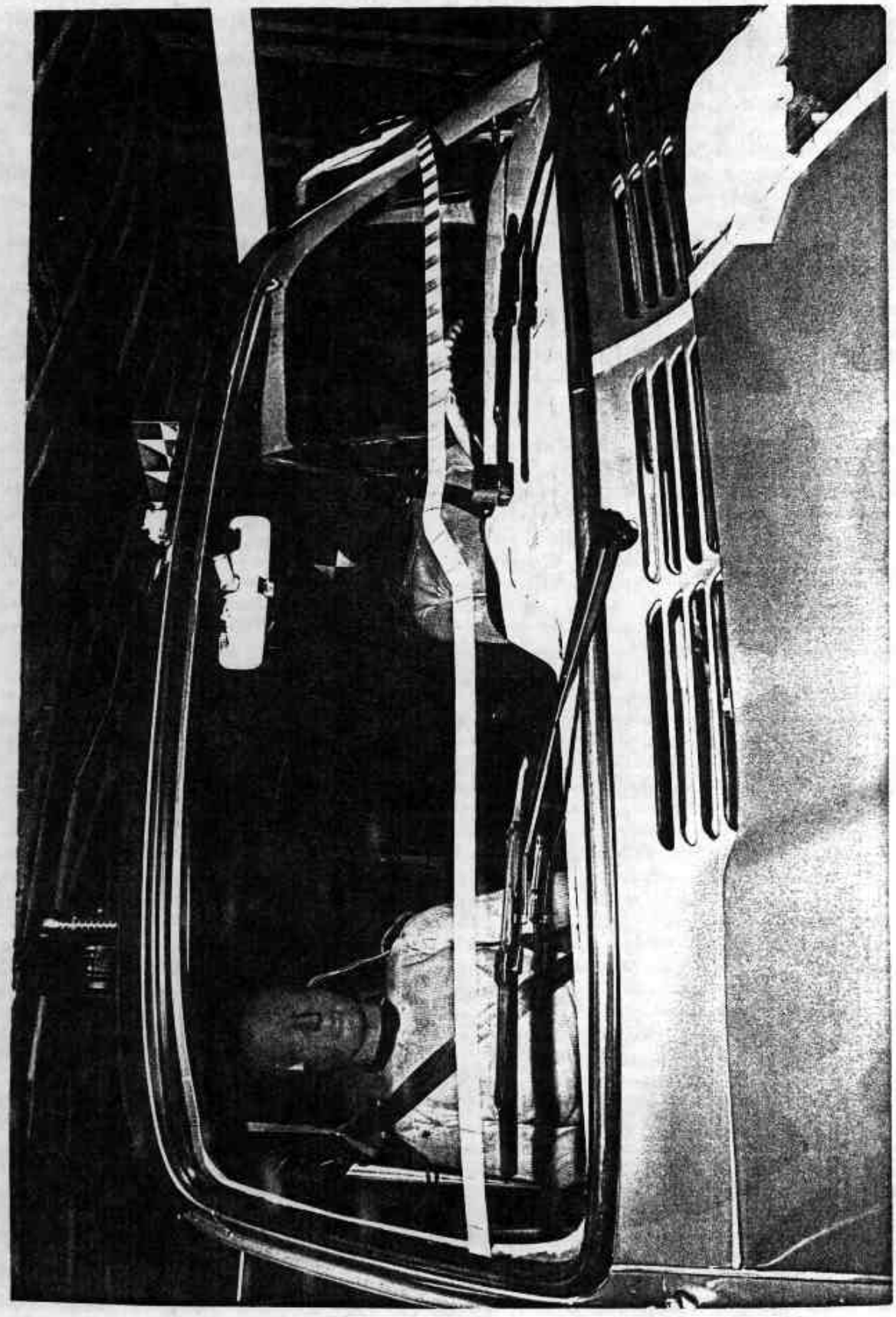
R5077-02

POSTTEST LEFT SIDE 3/4 VIEW

R5077-02

POSTTEST TOP VIEW (Vehicle on Rollover Machine)

R5077-02

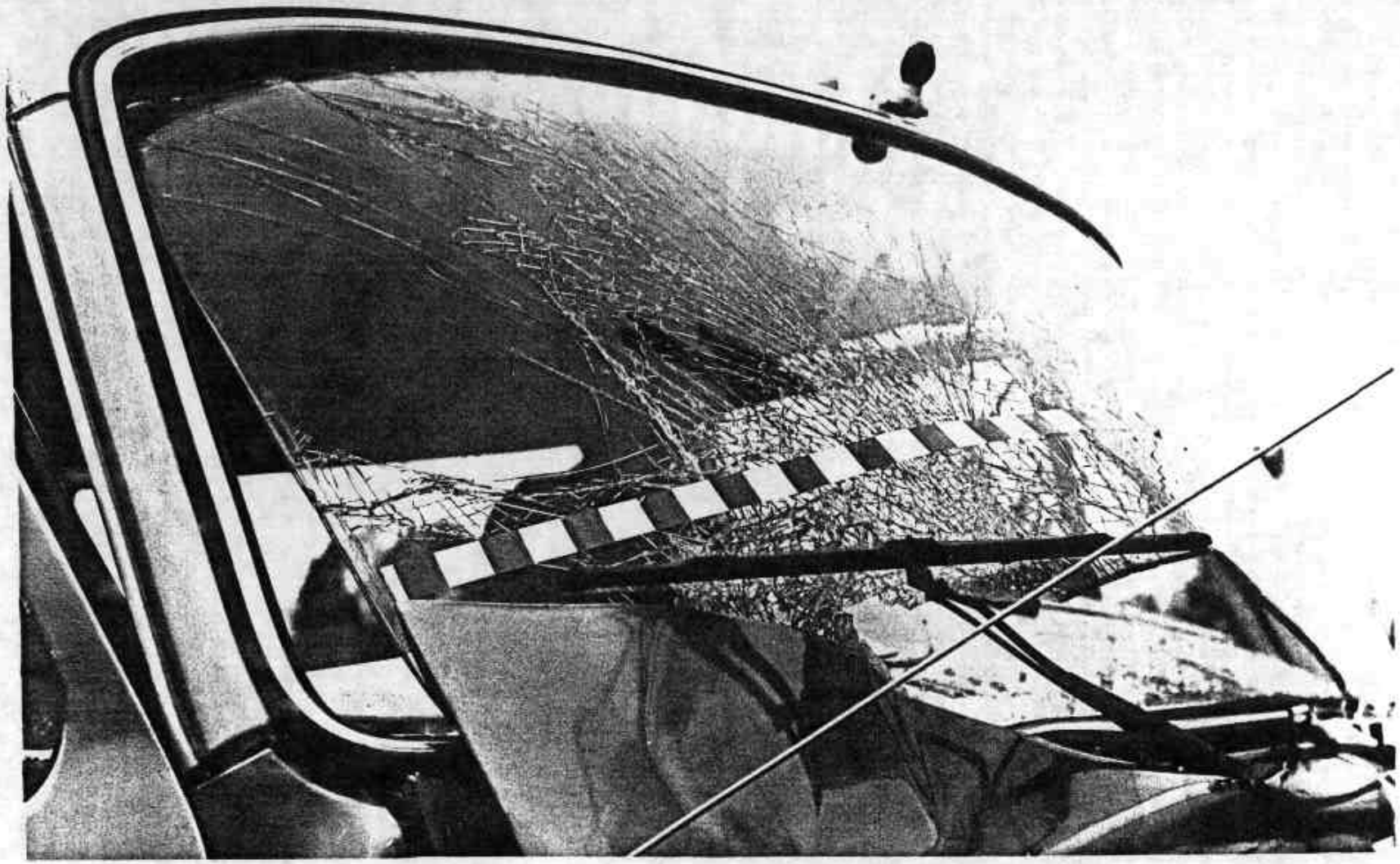


PRETEST WINDSHIELD VIEW

R5077-02

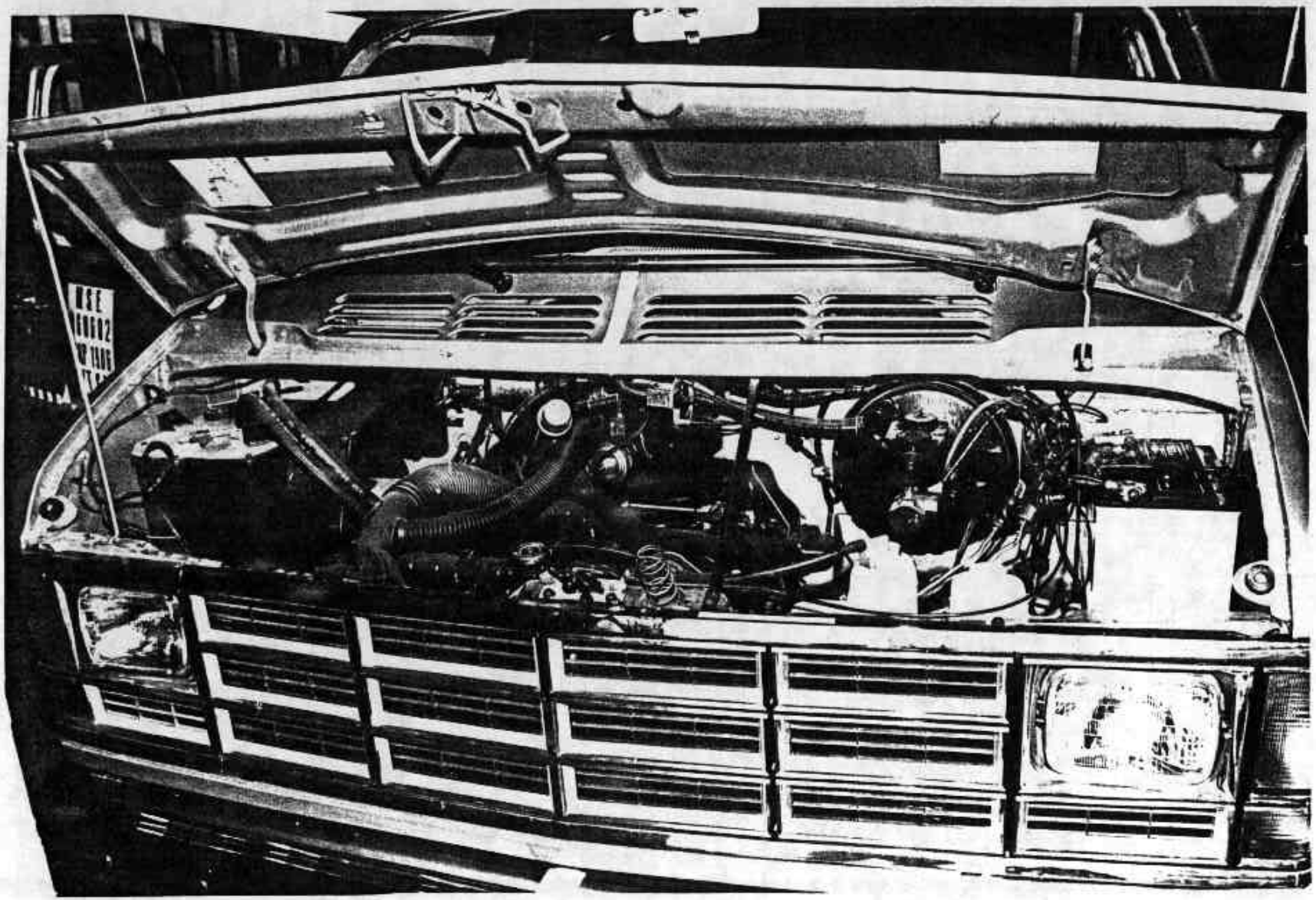
POSTTEST WINDSHIELD VIEW

R5077-02



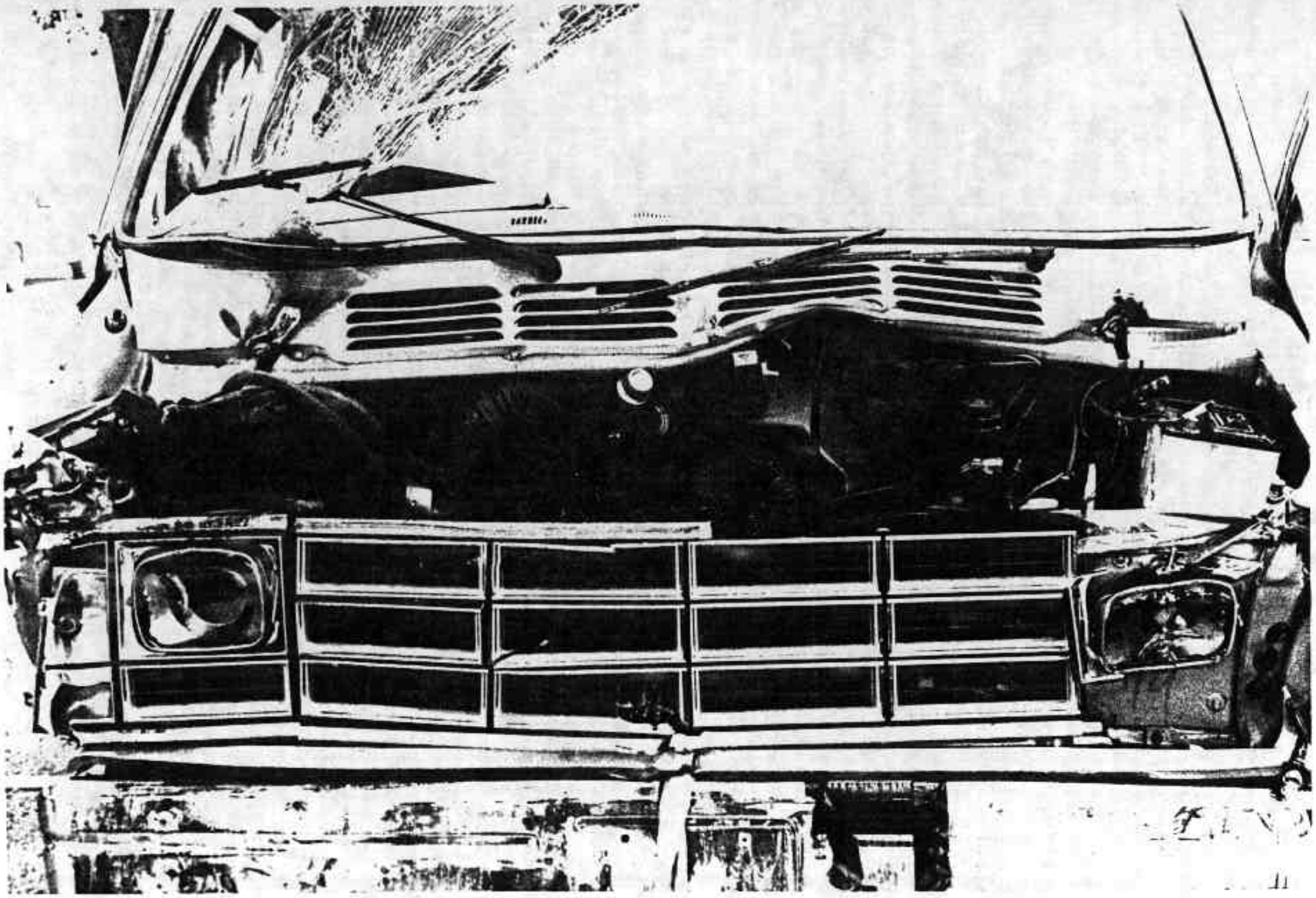
R5077-02

POSTTEST WINDSHIELD VIEW AND HOOD PENETRATION



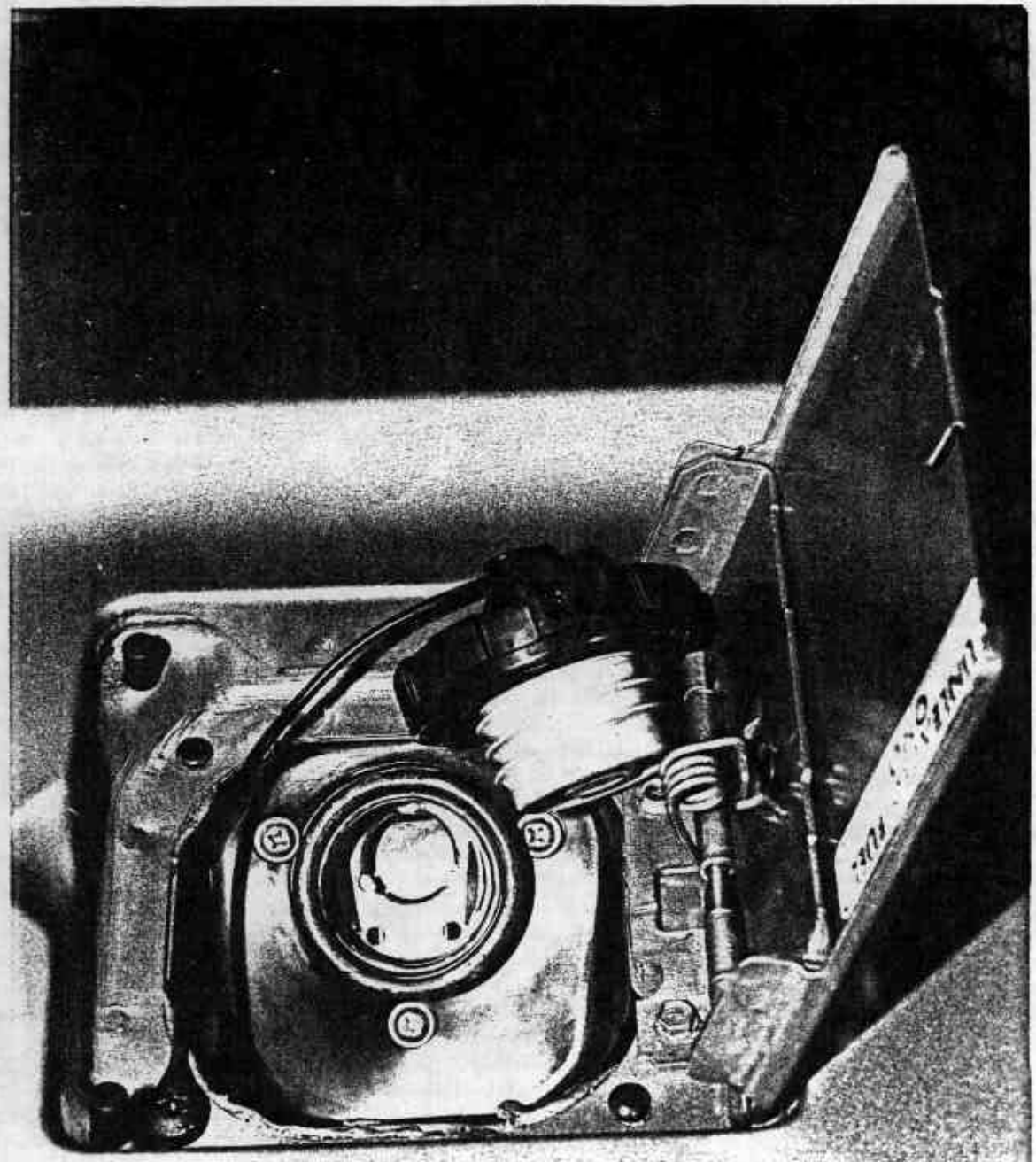
PRETEST ENGINE COMPARTMENT VIEW

R5077-02



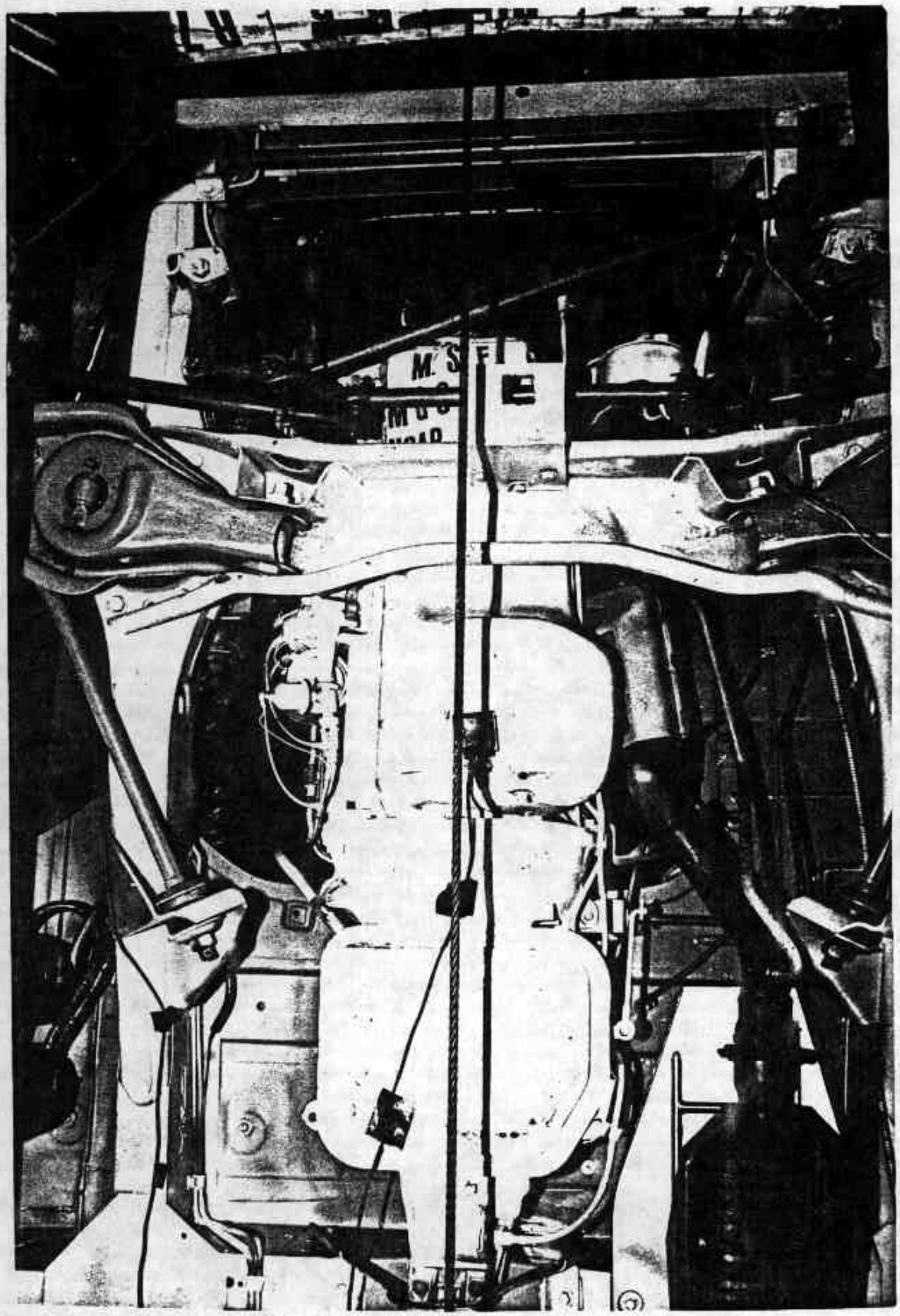
R5077-02

POSTTEST ENGINE COMPARTMENT VIEW



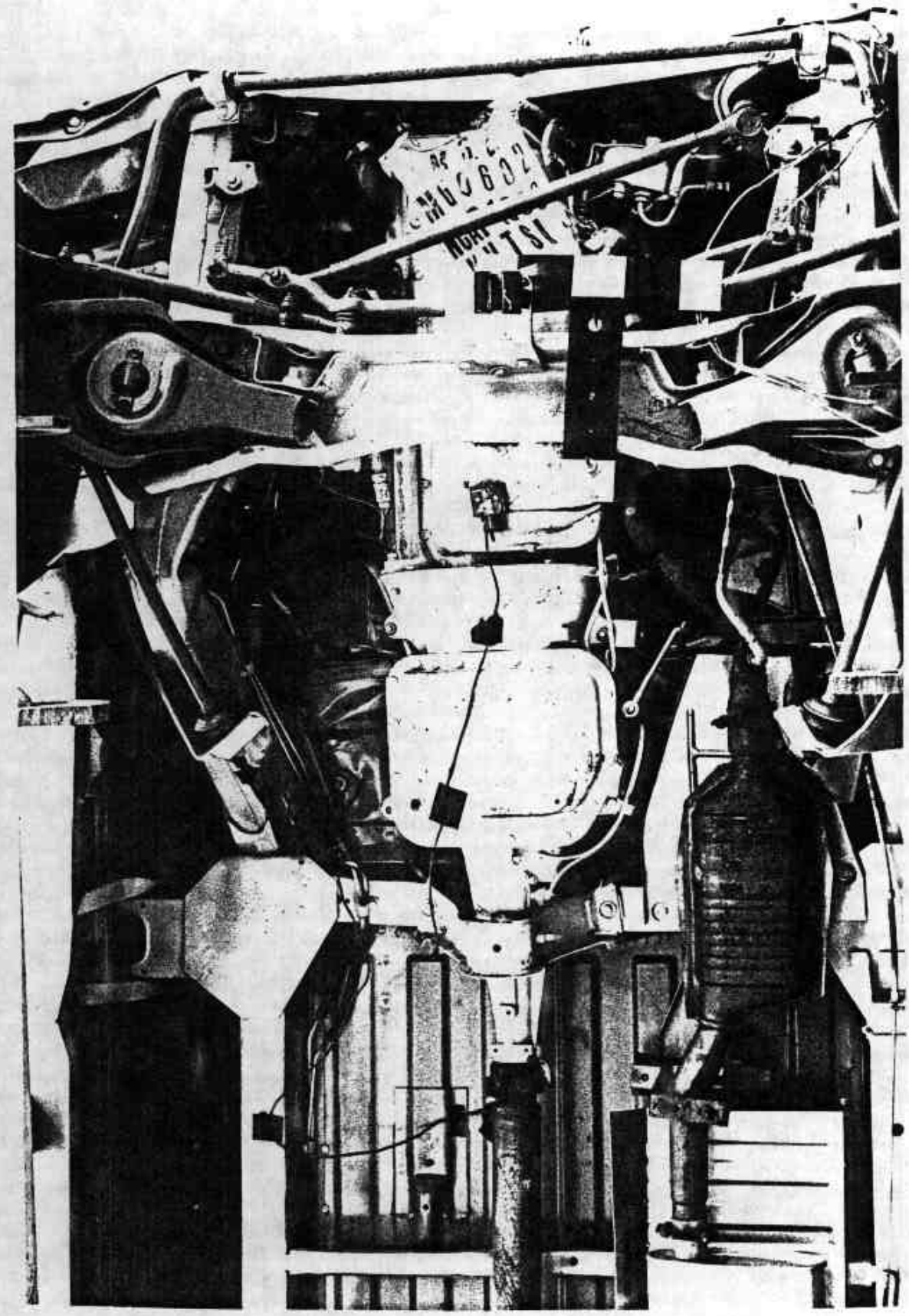
PRETEST FUEL FILLER CAP VIEW

R5077-02



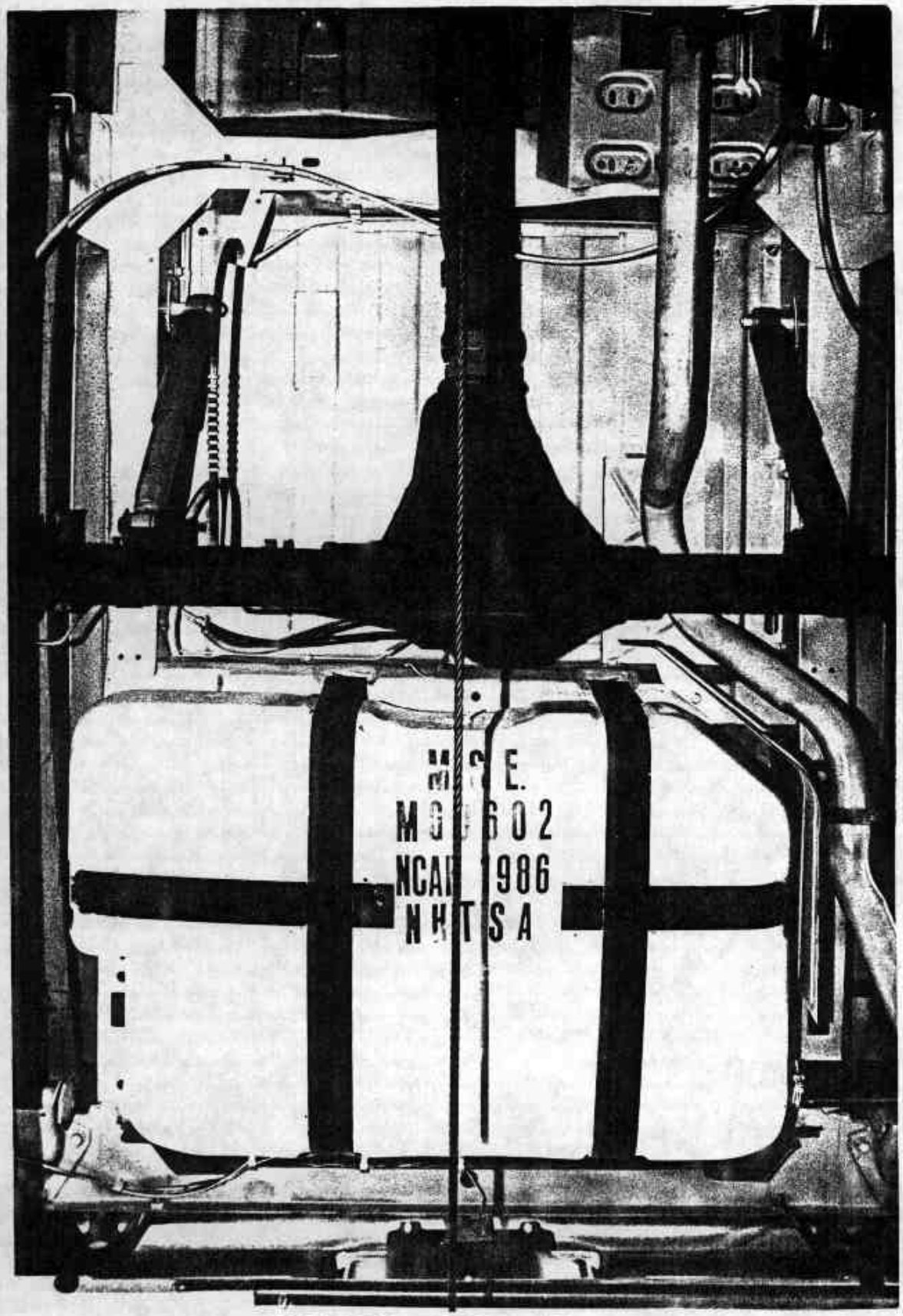
PRETEST FRONT UNDERBODY VIEW

R5077-02



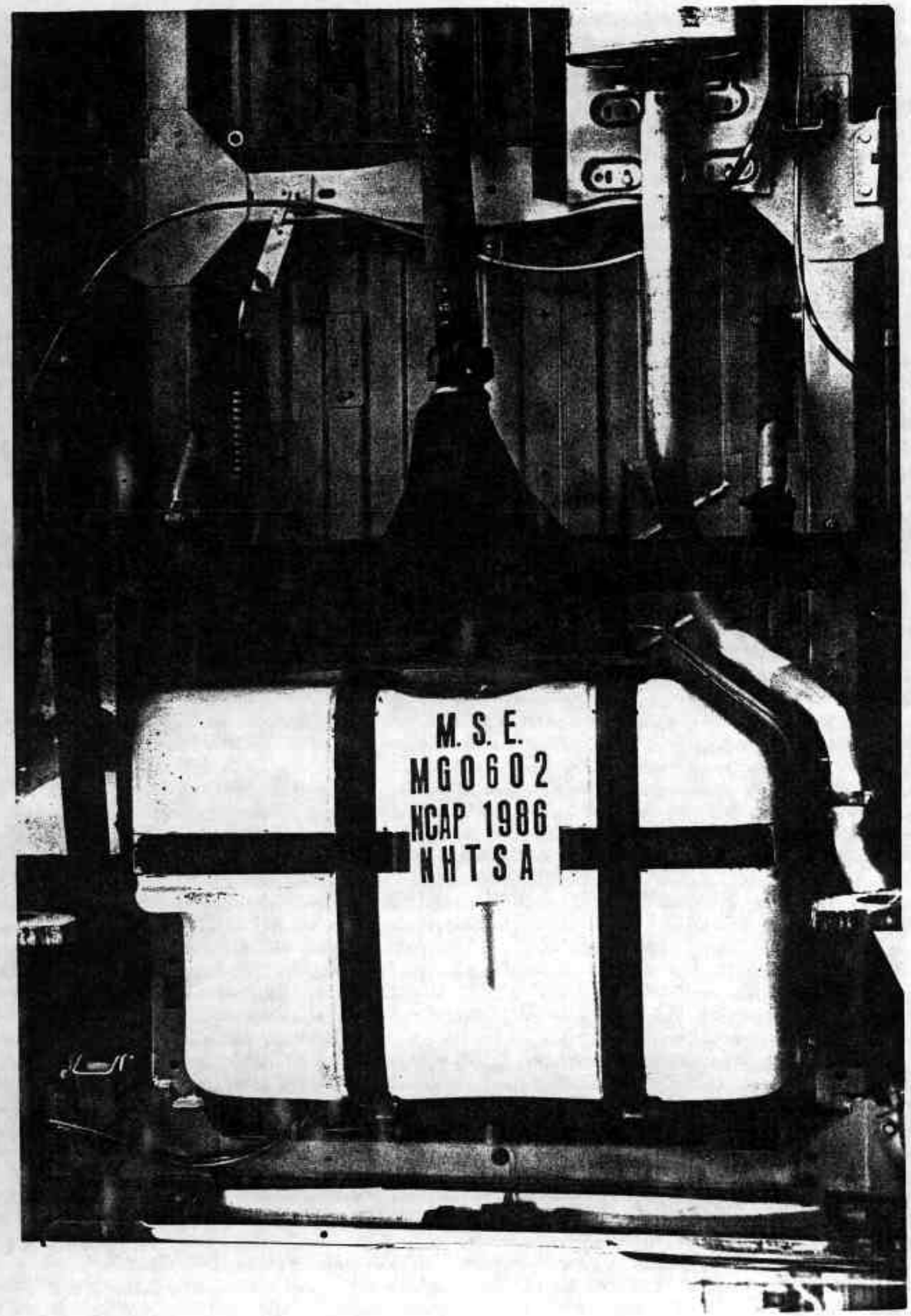
POSTTEST FRONT UNDERBODY VIEW

R5077-02

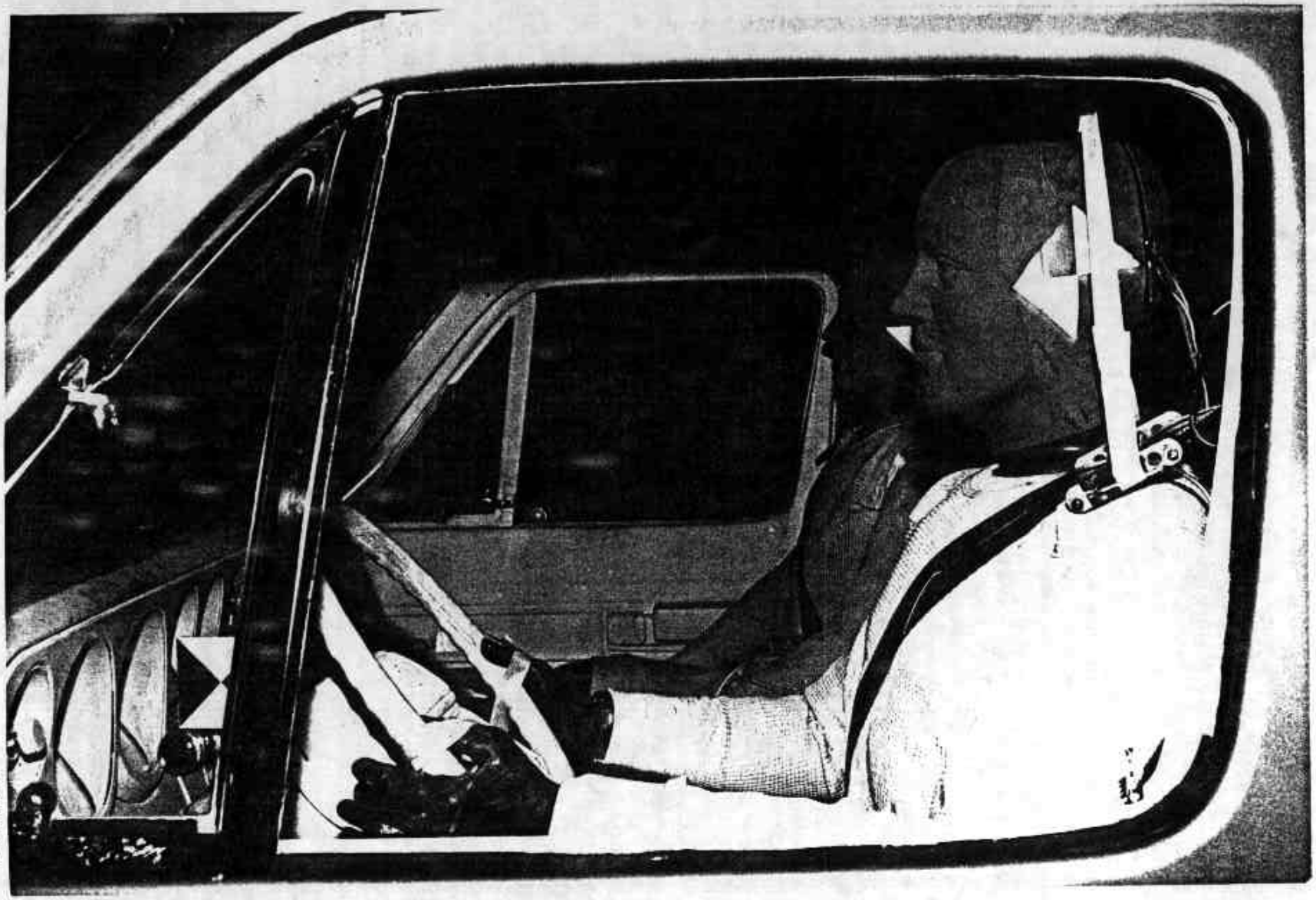


PRETEST REAR UNDERBODY VIEW

R5077-02



POSTTEST REAR UNDERBODY VIEW R5077-02



R5077-02

PRETEST DRIVER DUMMY POSITION VIEW

POSTTEST DRIVER DUMMY POSITION VIEW

R5077-02

PRETEST PASSENGER DUMMY POSITION VIEW

R5077-02

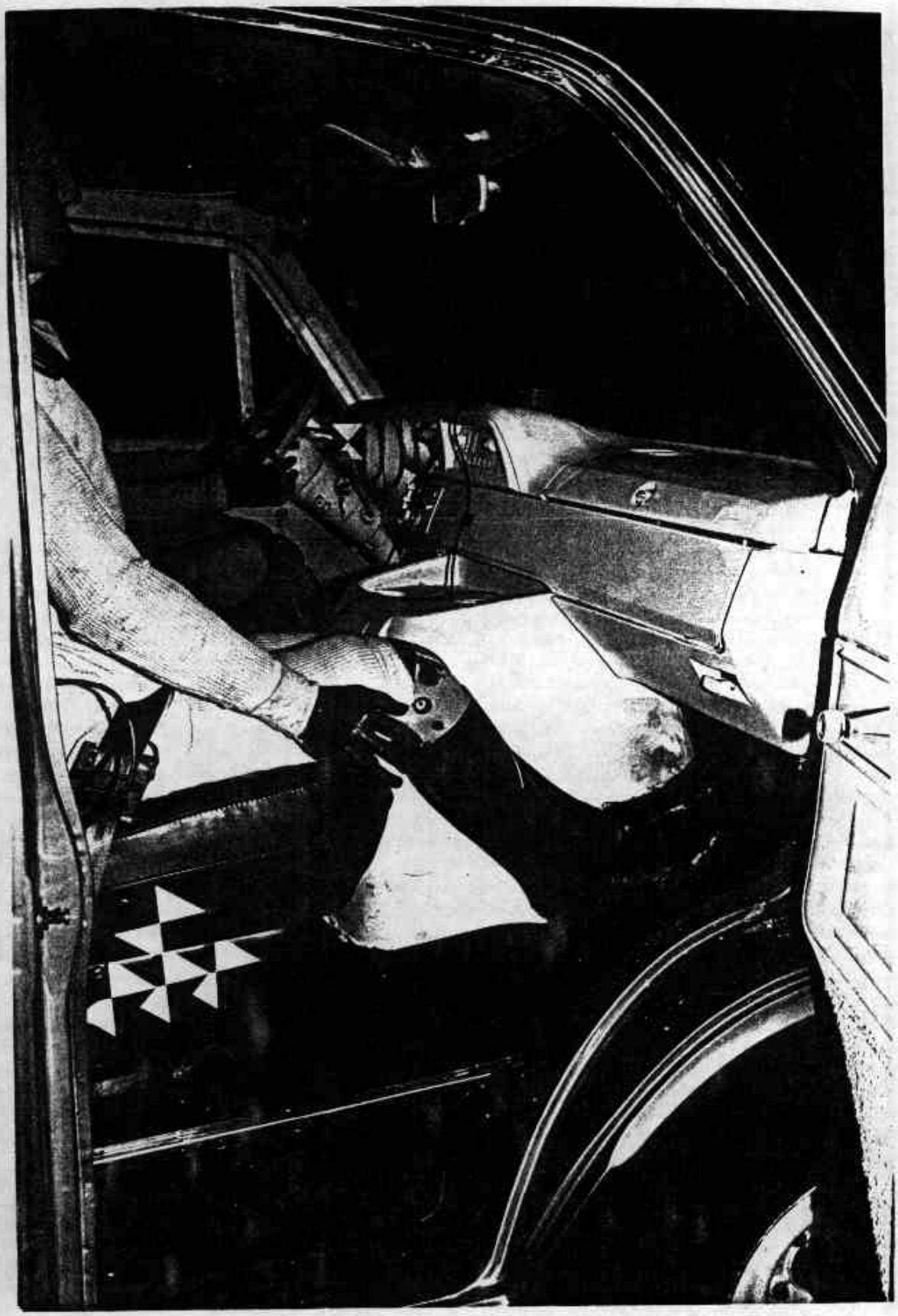
POSTTEST PASSENGER DUMMY POSITION VIEW

R5077-02

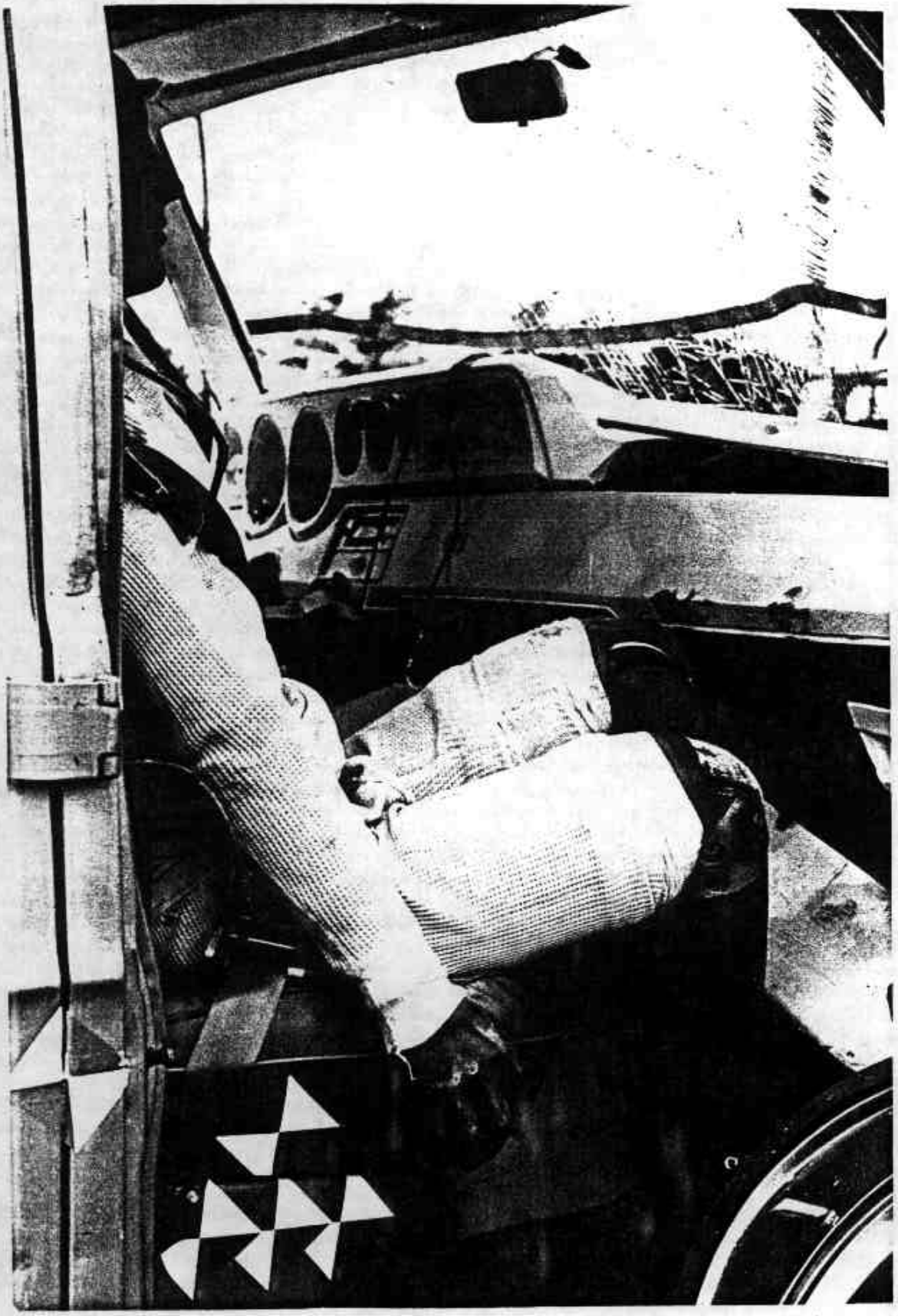
PRETEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

R5077-02

POSTTEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
R5077-02



PRETEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

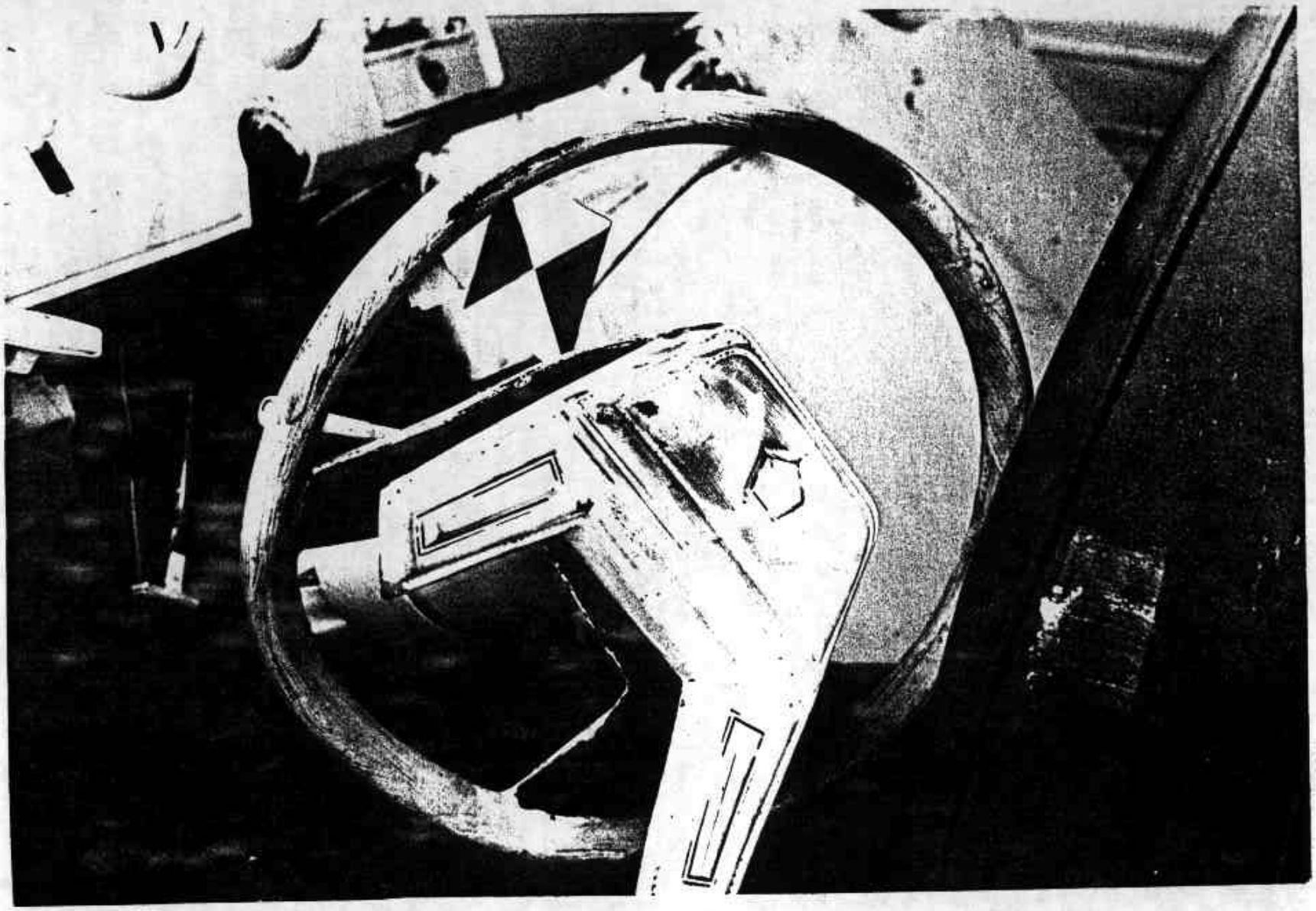


POSTTEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

R5077-02

POSTTEST DRIVER DUMMY HEAD/KNEE CONTACT AREA

R5077-02



POSTTEST STEERING COLUMN HUB/RIM CONTACT BY DUMMY DRIVER

R5077-02

POSTTEST PASSENGER DUMMY KNEE CONTACT

R5077-02

APPENDIX B-1

VEHICLE AND DUMMY RESPONSE DATA

DATA FILTERING:

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

NOTE: For all vehicle and dummy measurements the true time zero is at 46.875 msec.

NCAP TEST 05/22/86 - DODGE B-150 VAN NO7026

HEADER FILE - INPUT TO TAPE

```
1FY 86 35MPH NCAP FRONTAL  05/22/86MSEDTNH2284D21149N07026  ACQUIRE NCAP DATA PLUS EVALUATE COMPLIANCE TO FMVSS 212.219.
301-75 & 208NCAV5B 35.0000000.0999.9CONDRY 75FMTOMBENG
210720866-1LF3.7LITERS   ARVN4535108.3180.979.349.6SOTHPNONE
35.000000012FDEW5999 73.517.418.319.419.719.318.9 0.819.7
3LCB    00        R
411CD      050M  HUMANOID SYSTEMS 466 2ND IMP AFTER CAL21.826.0 6.8 9.324.514.0 3.0 6.1 3.23PTSTDNASWSWDP
412CD      050M  HUMANOID SYSTEMS 464 2ND IMP AFTER CAL25.830.5 6.3 8.529.099.9 1.6 5.311.63PTSTDNANONODP
501AC011HED 6000 1650  0.72860 360000125G'SX35.0GOOD
502AC011HED 6000 1650  0.72860 360000125G'SY00.0GOOD
503AC011HED 6000 1650  0.72860 360000125G'SZ00.0GOOD
504AC011CST 6000 1650  0.72860 360000125G'SX35.0GOOD
505AC011CST 2800 1650  0.72860 360000125G'SY00.0GOOD
506AC011CST 6000 1650  0.72860 360000125G'SZ00.0GOOD
507AC012HED 6000 1650  0.72860 360000125G'SX35.0GOOD
508AC012HED 6000 1650  0.72860 360000125G'SY00.0GOOD
509AC012HED 6000 1650  0.72860 360000125G'SZ00.0GOOD
510AC012CST 6000 1650  0.72860 360000125G'SX35.0GOOD
511AC012CST 2800 1650  0.72860 360000125G'SY00.0GOOD
512AC012CST 6000 1650  0.72860 360000125G'SZ00.0GOOD
513LC011LFM 9999 1650999.92860 360000125LBSO    GOOD
514LC011RFM 9999 1650999.92860 360000125LBSO    GOOD
515LC012LFM 9999 1650999.92860 360000125LBSO    GOOD
516LC012RFM 9999 1650999.92860 360000125LBSO    GOOD
517LC011LBO 9999 1650999.92860 360000125LBSO    GOOD
518LC011SHB 9999 1650999.92860 360000125LBSO    GOOD
519LC012LBO 9999 1650999.92860 360000125LBSO    GOOD
520LC012SHB 9999 1650999.92860 360000125LBSO    GOOD
521DT011SHB 9999 1650999.92860 360000125INCO    GOOD
522DT012SHB 9999 1650999.92860 360000125INCO    GOOD
523DT011SHB 9999 1650999.92860 360000125IPIO    GOOD
524DT012SHB 9999 1650999.92860 360000125IPIO    GOOD
525AC0INLRF 2800 1650  0.72860 360000125G'SX35.0GOOD
526AC0INRRF 2800 1650  0.72860 360000125G'SX35.0GOOD
527AC0INENG 2800 1650  0.72860 360000125G'SX35.0GOOD
528AC0INENG 2800 1650  0.72860 360000125G'SX35.0GOOD
529AC0INBCR 2800 1650  0.72860 360000125G'SX35.0GOOD
530AC0INDPC 2800 1650  0.72860 360000125G'SX35.0GOOD
531AC0INVCG 3600 1650  0.72860 360000125G'SX35.0GOOD
532LCBANBA1 9999 1650999.92800 360000125LBSO    GOOD
533LCBANBA2 9999 1650999.92800 360000125LBSO    GOOD
534LCBANBA3 9999 1650999.92800 360000125LBSO    GOOD
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536LCBANBA5 9999 1650999.92800 360000125LBSO    GOOD
537LCBANBA6 9999 1650999.92800 360000125LBSO    GOOD
538LCBANBA7 9999 1650999.92800 360000125LBSO    GOOD
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NCAP TEST 05/22/86 - DODGE B-150 VAN N07026
HEADER FILE - INPUT TO TAPE

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35.00000001 2FDEM5999 73.517.418.319.419.719.319.9 0.019.7
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412CD      050M  HUMANOID SYSTEMS 464 2ND IMP AFTER CAL25.830.5 6.3 8.529.099.9 1.6 5.311.63PTSTDNANONODP
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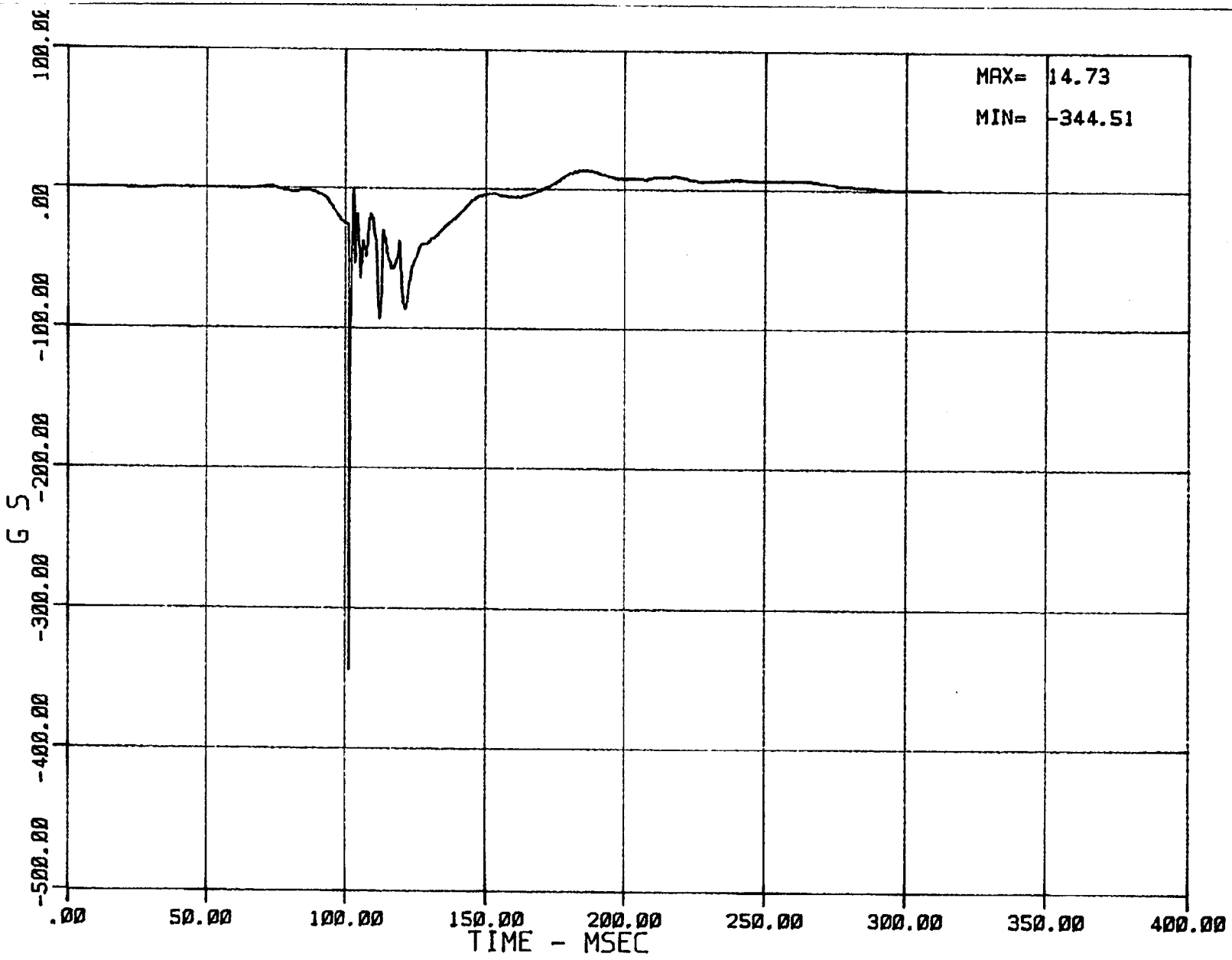
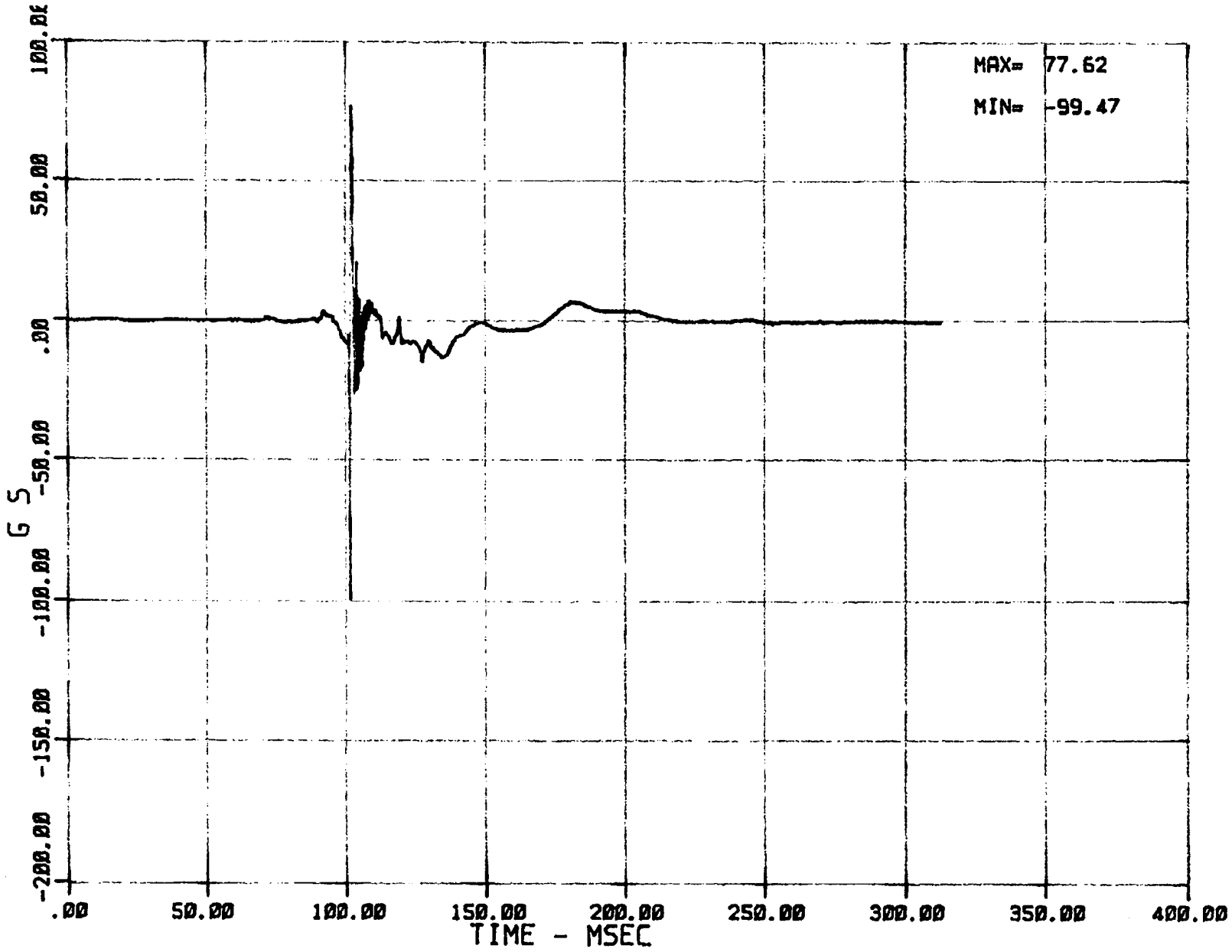


Ø1 AC Ø1 1 HED X (DRIVER HEAD ACCEL. -- X AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



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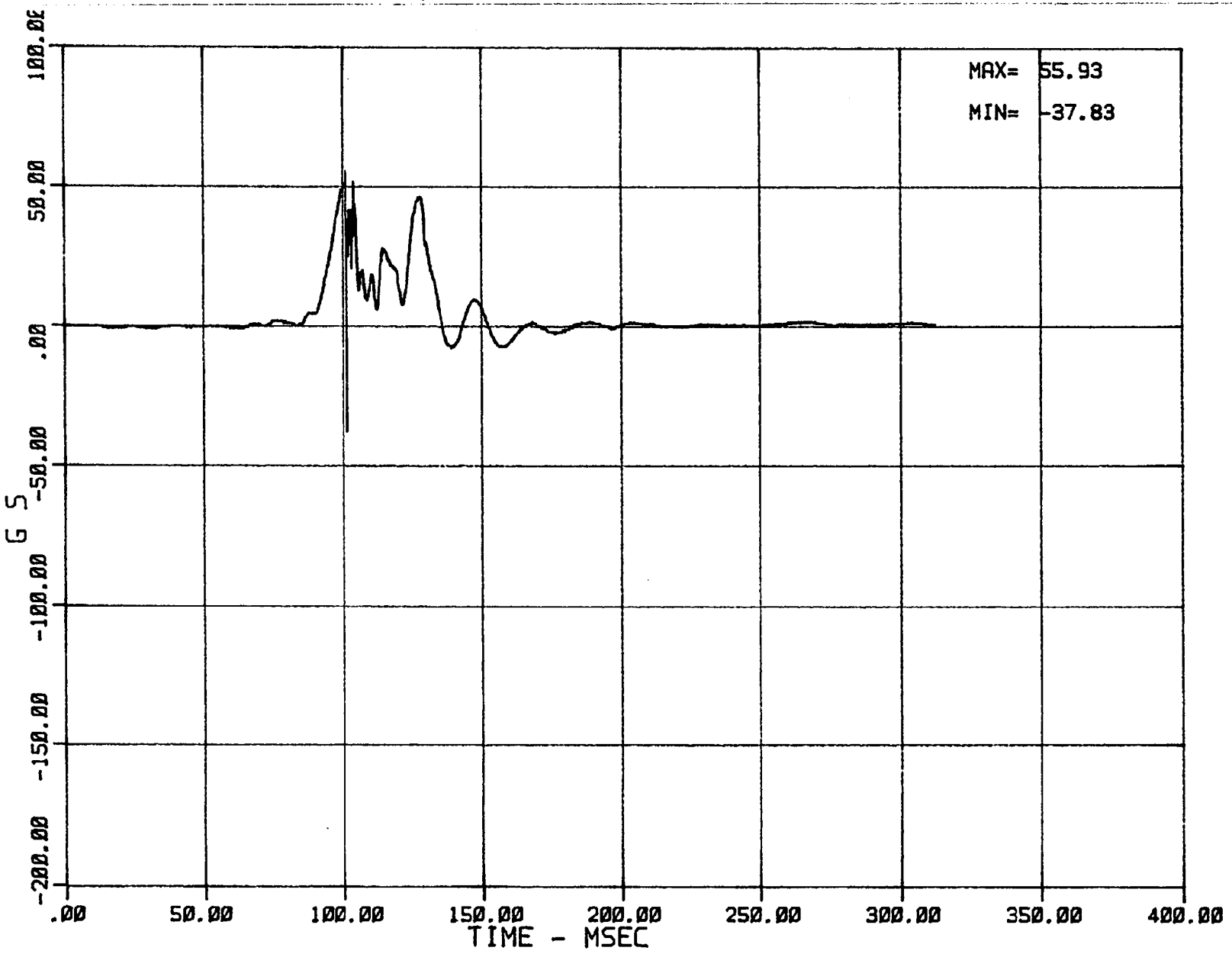
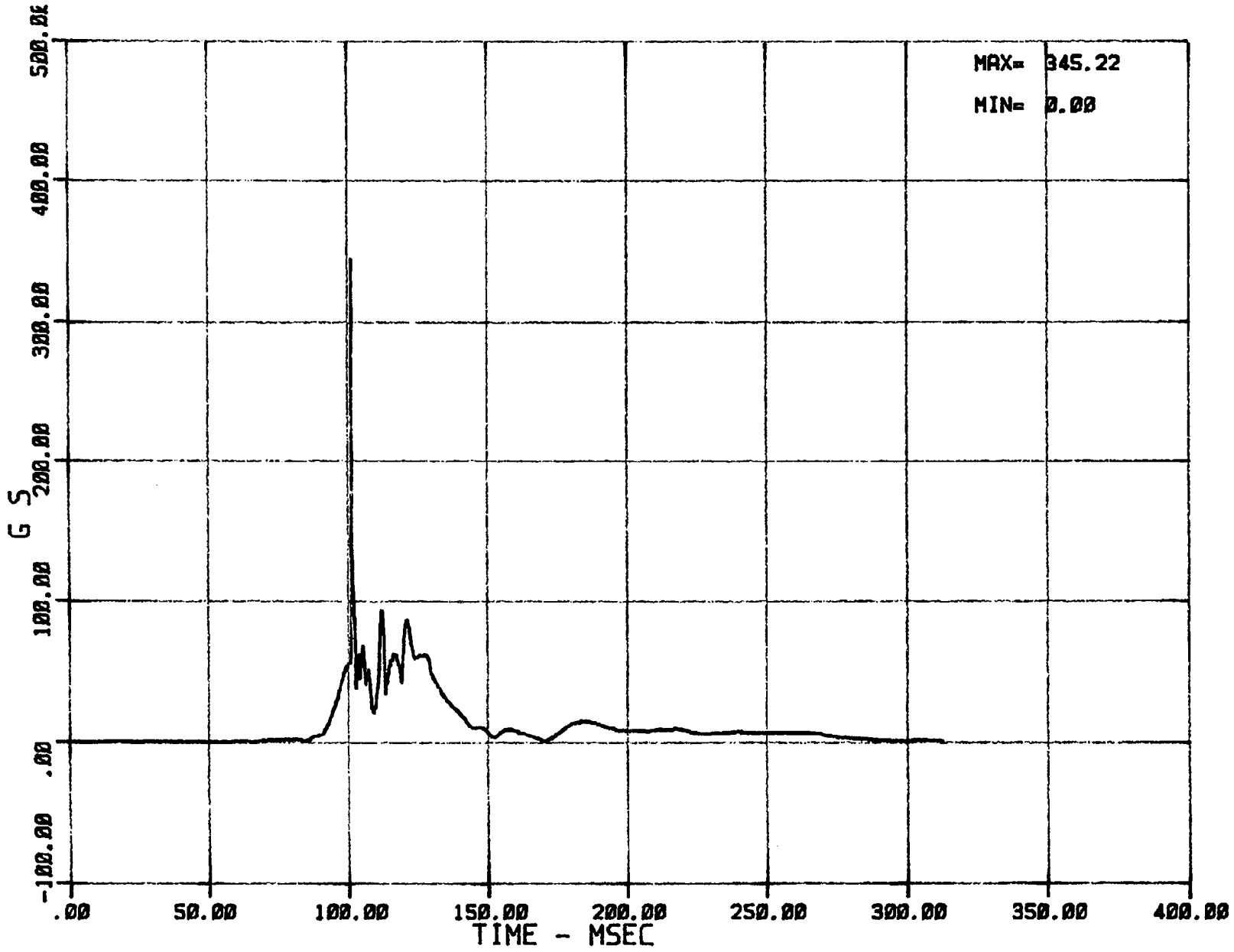
MSE N07026 1986 DODGE B-150 VAN 05/22/86

R5077-0



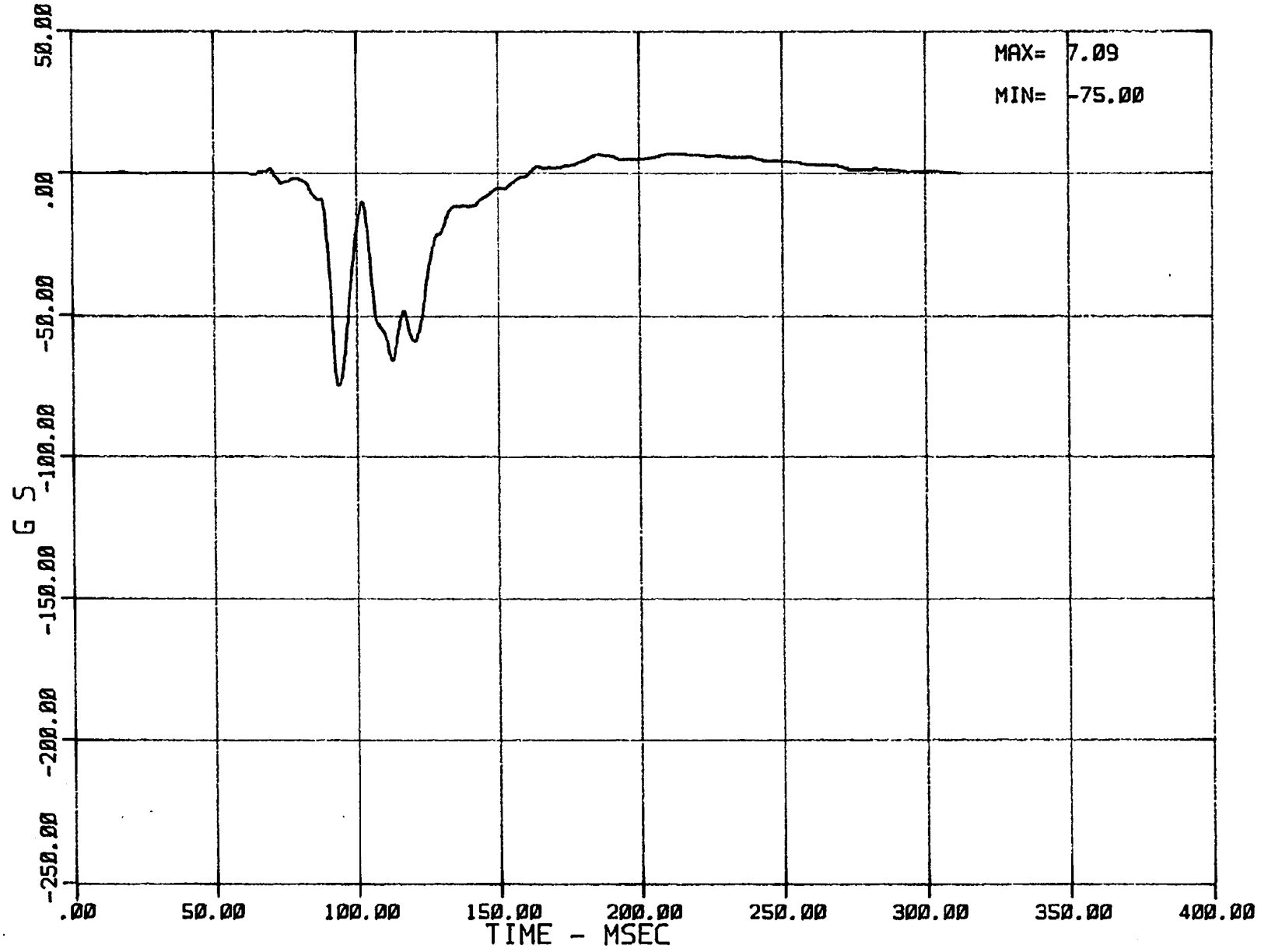
03 AC 01 HED Z (DRIVER ACCEL.-- Z AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

R5077-02

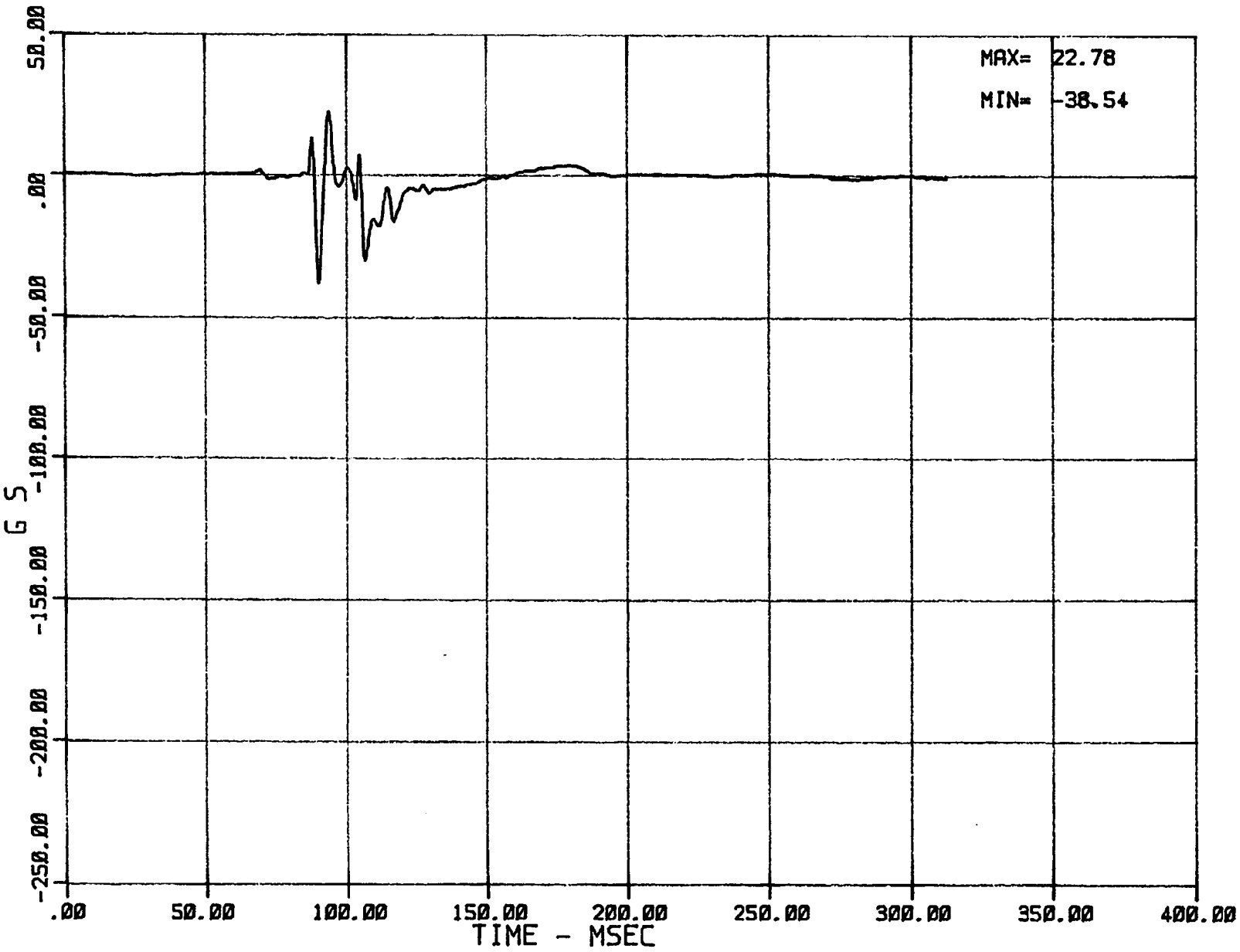


DRIVER HEAD RESULTANT ACCELERATION
MSE N07026 1986 DODGE B-150 VAN 05/22/86

R5077-02



04 AC 01 1 CST X (DRIVER CHEST ACCEL. -- X AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



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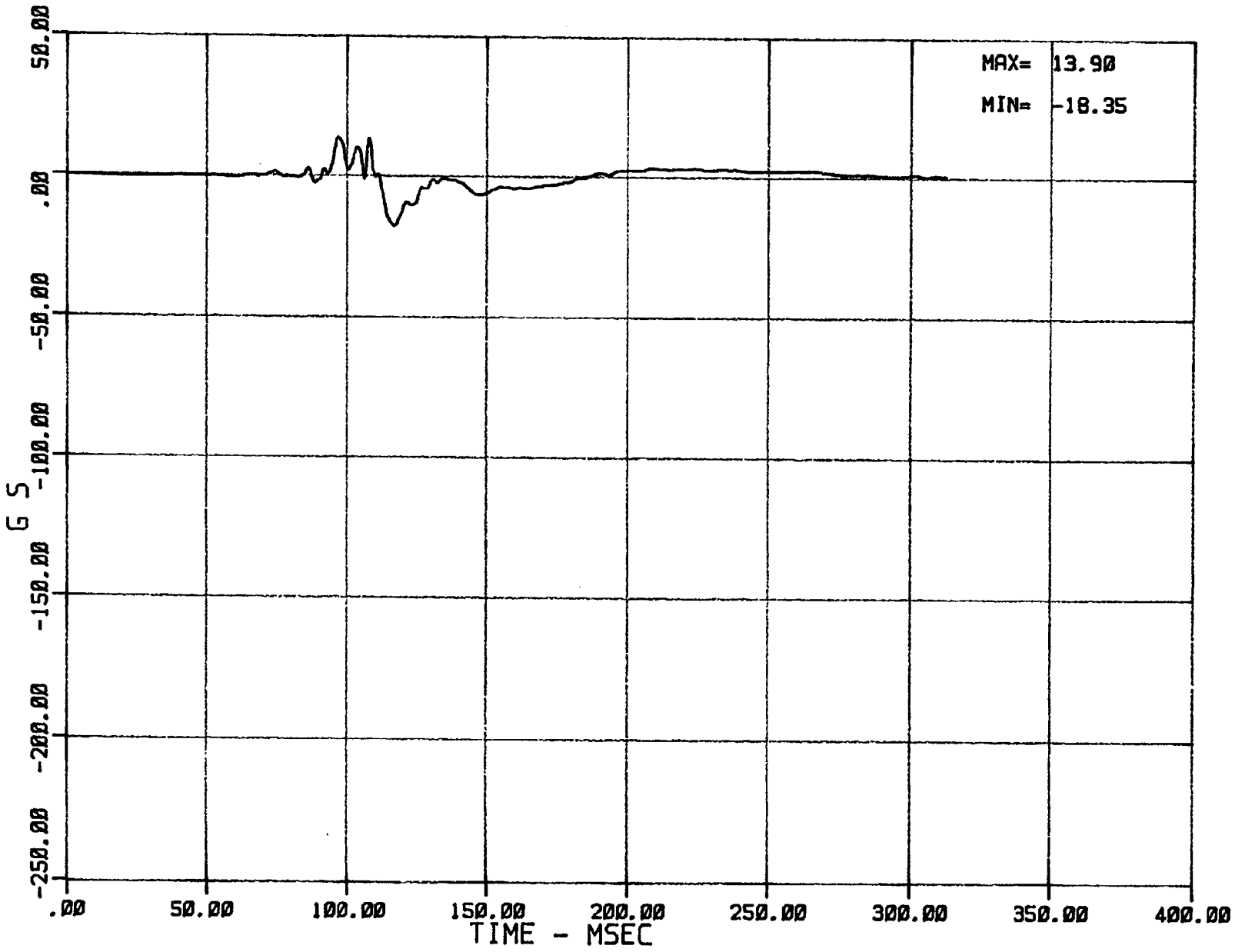
MSE N07026 1986 DODGE B-150 VAN 05/22/86



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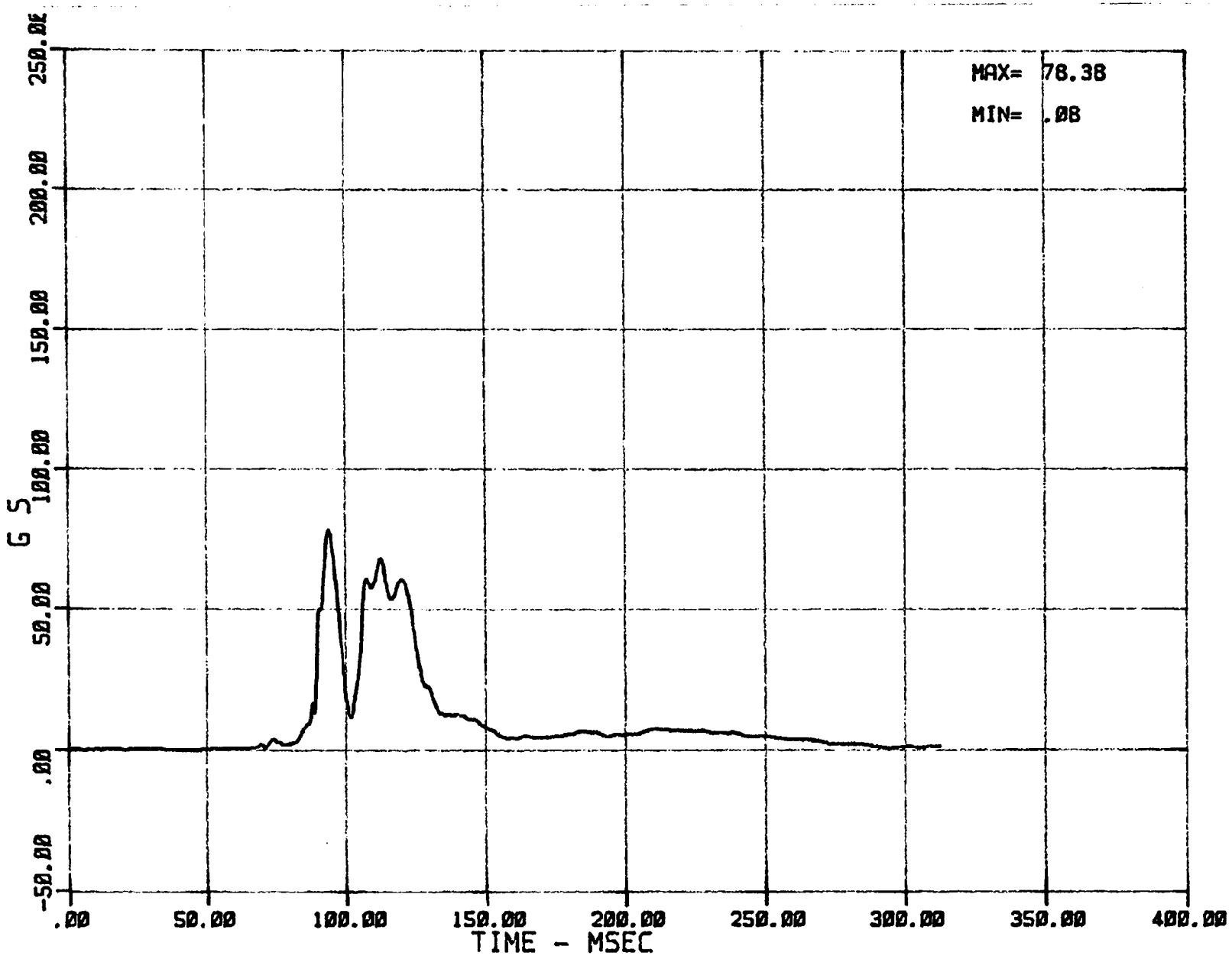
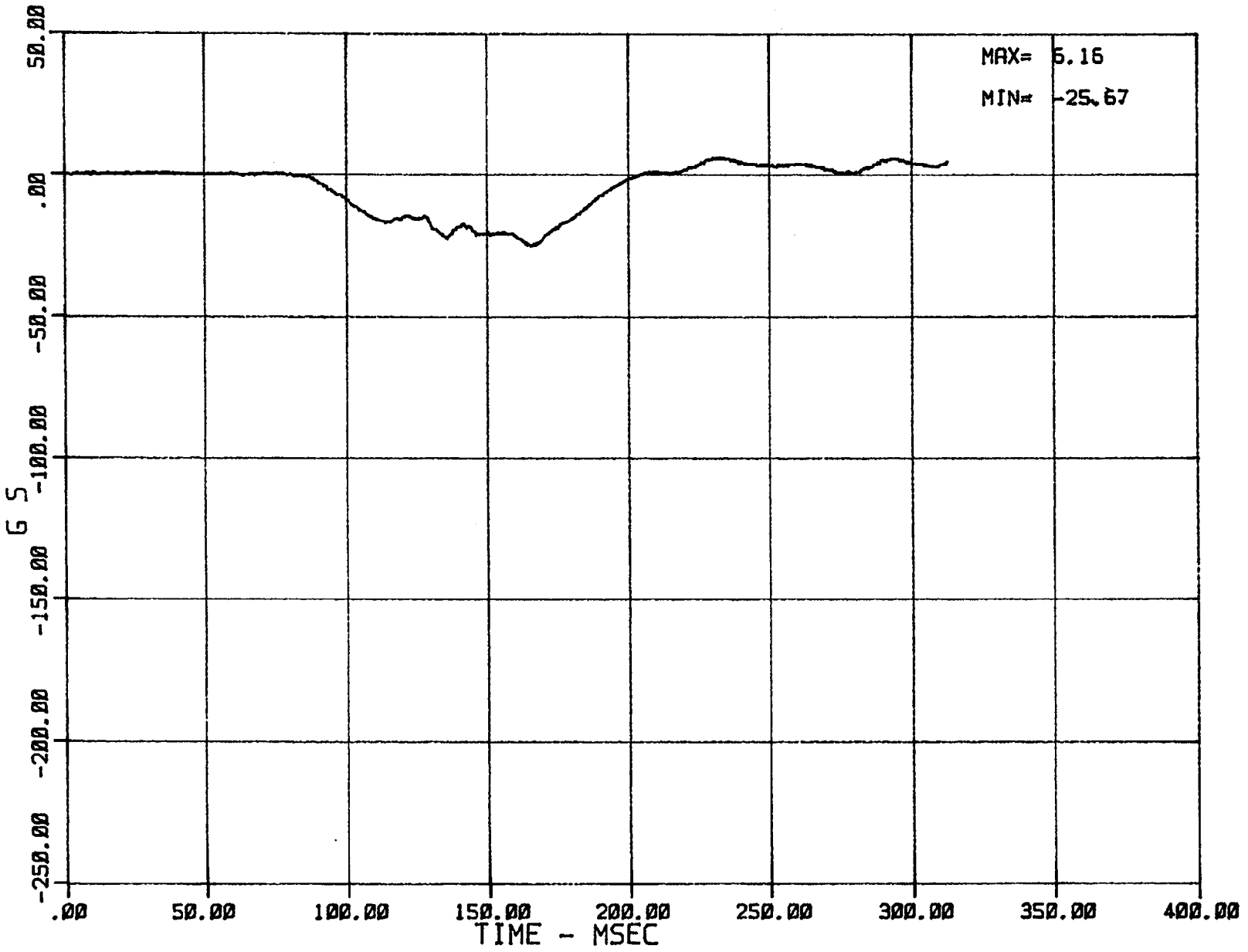
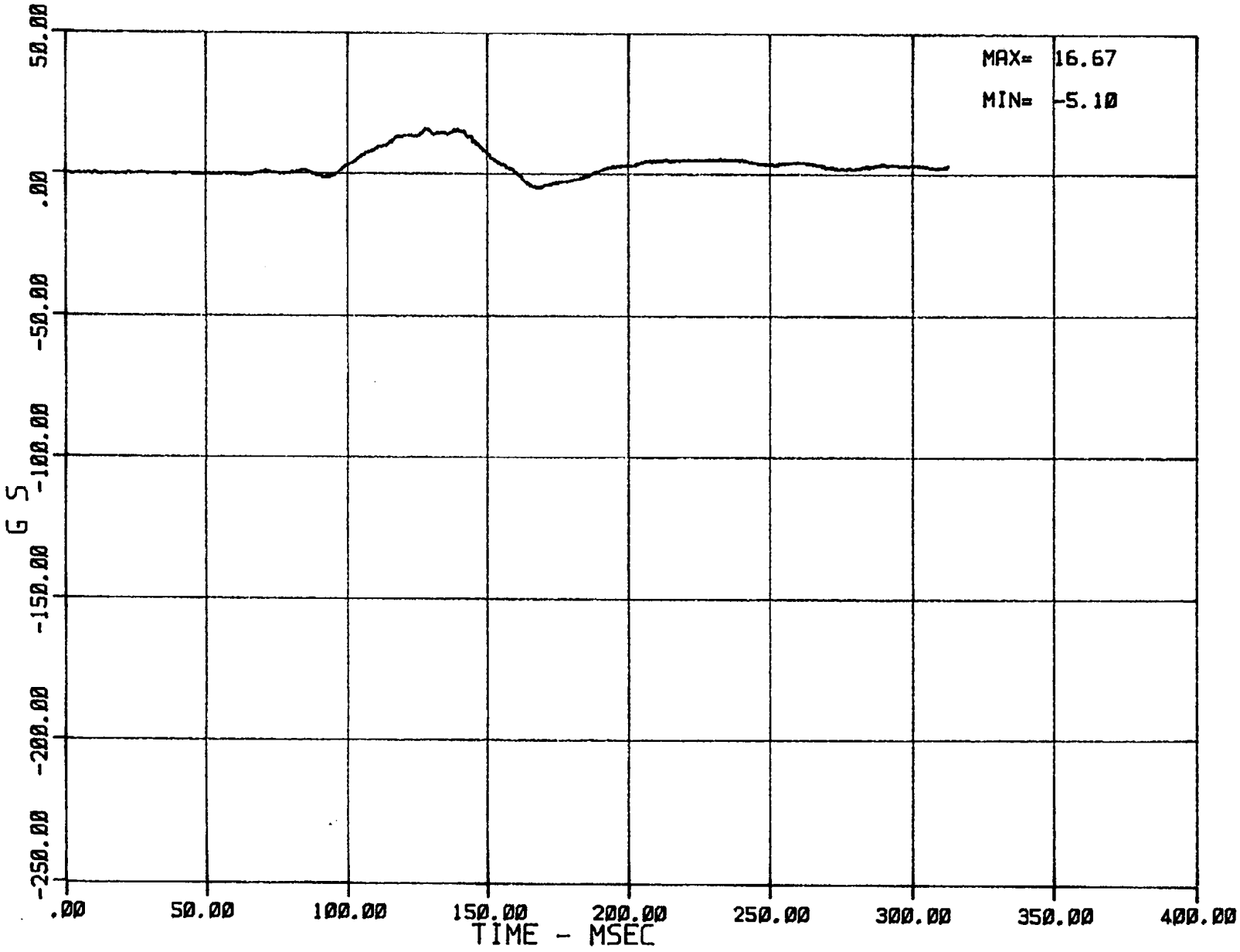
MSE N07026 1986 DODGE B-150 VAN 05/22/86



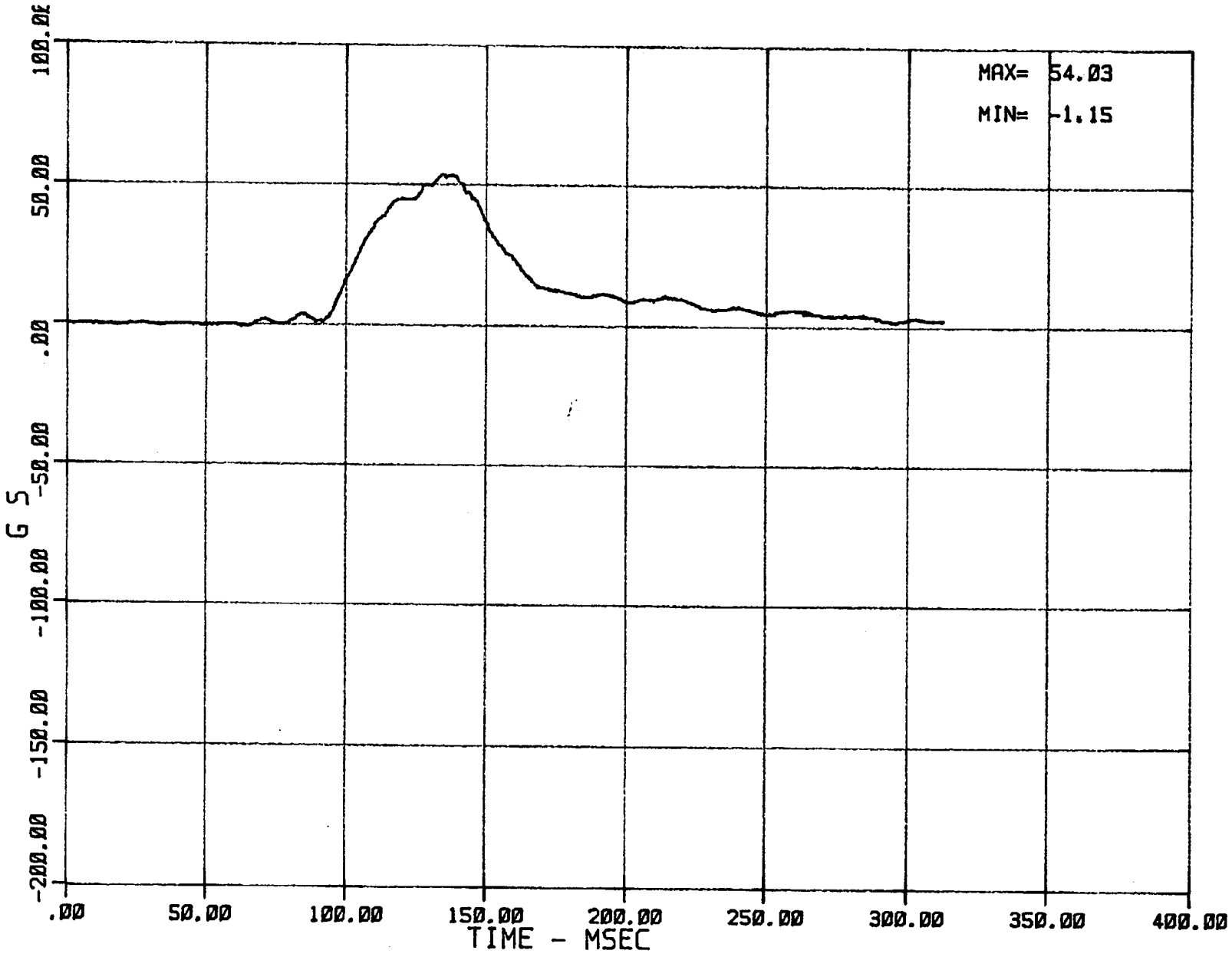
DRIVER CHEST RESULTANT ACCELERATION
MSE N07026 1986 DODGE B-150 VAN 05/22/86



07 01 2 HED X (PASSENGER HEAD ACCEL.-- X AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

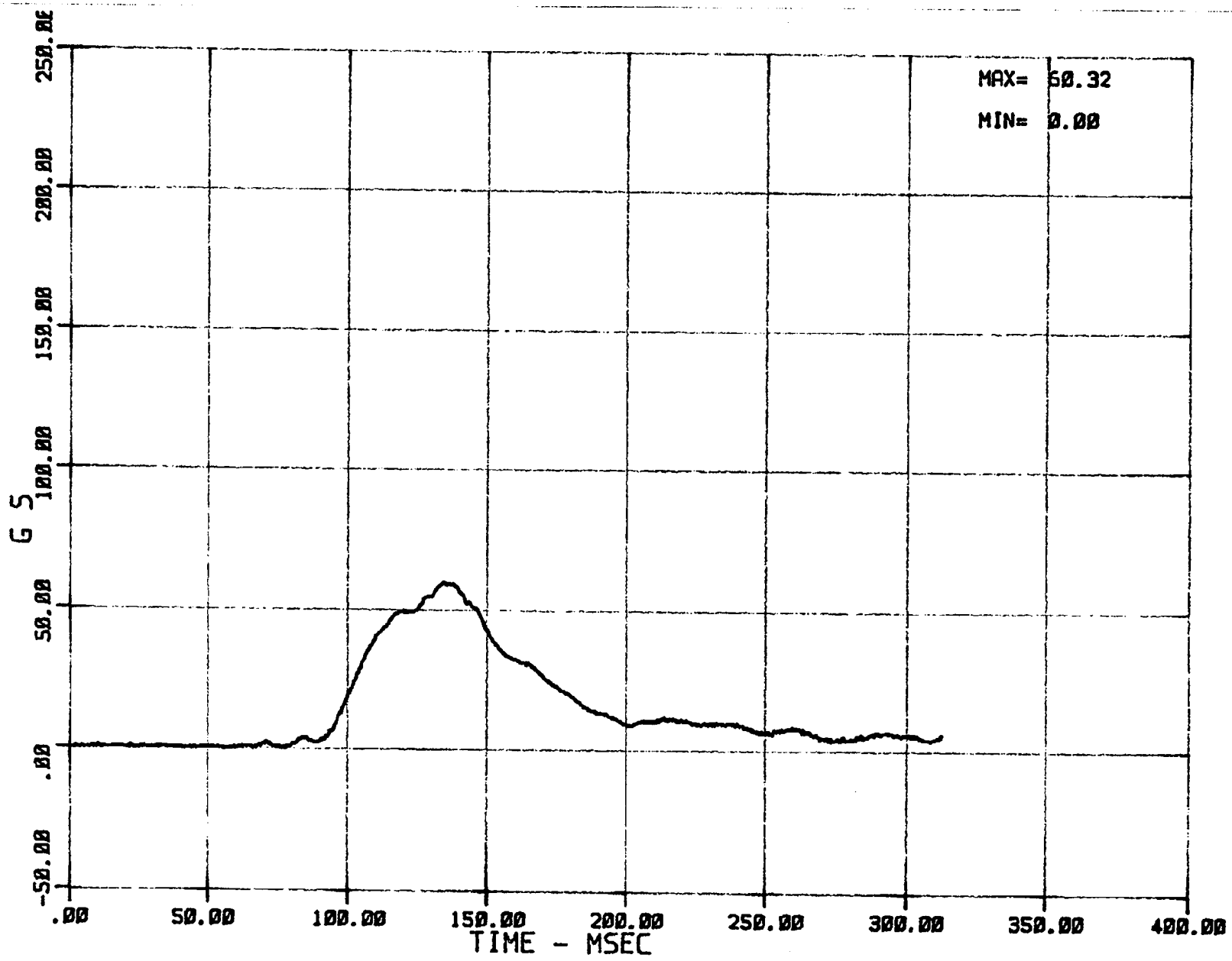


08 AC 01 2 HED Y (PASSENGER HEAD ACCEL.-- Y AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



09 AC 01 2 HED (PASSENGER HEAD ACCEL.-- Z AXIS)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

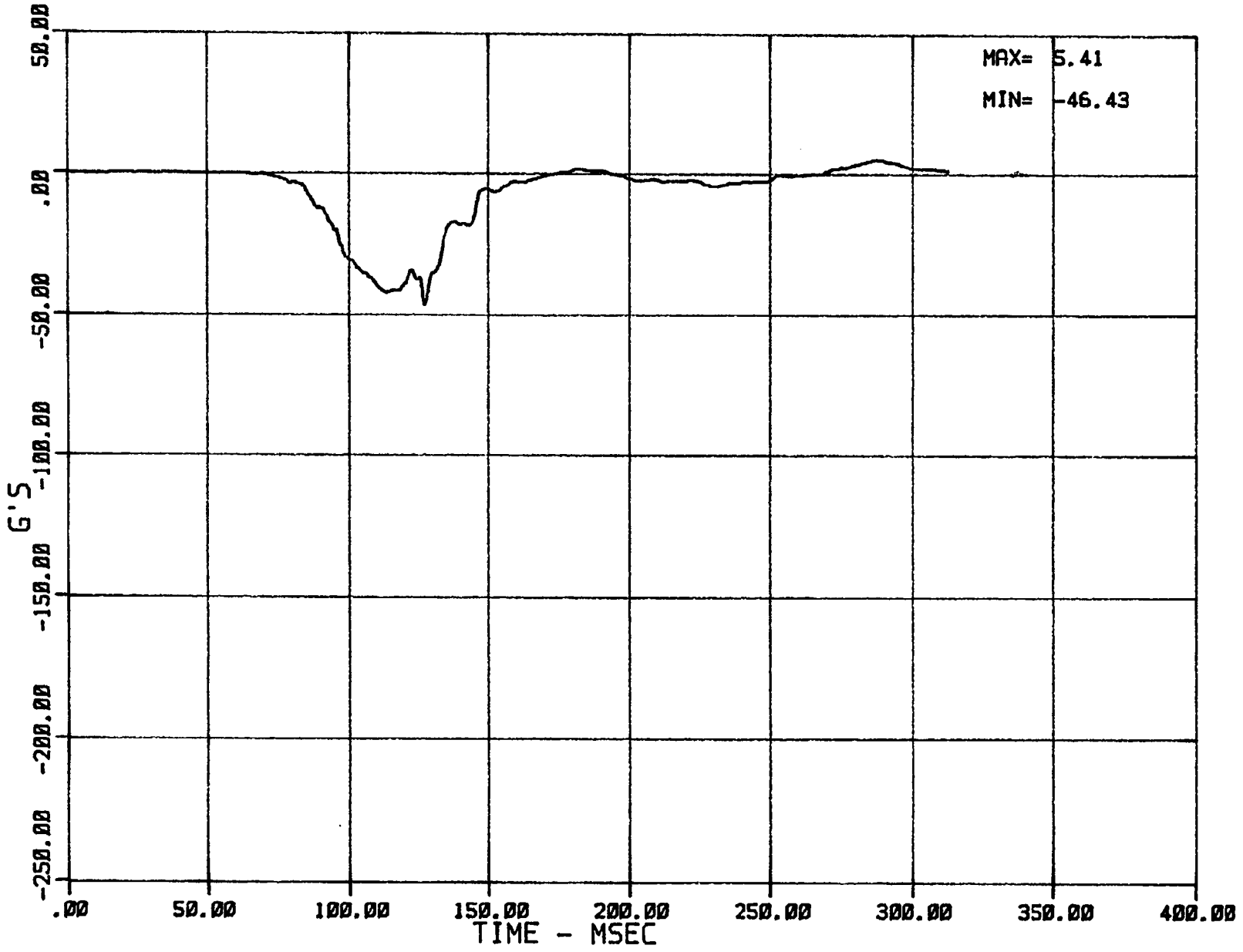


PASSENGER HEAD RESULTANT ACCELERATION
MSE N07026 1986 DODGE B-150 VAN

05/22/86

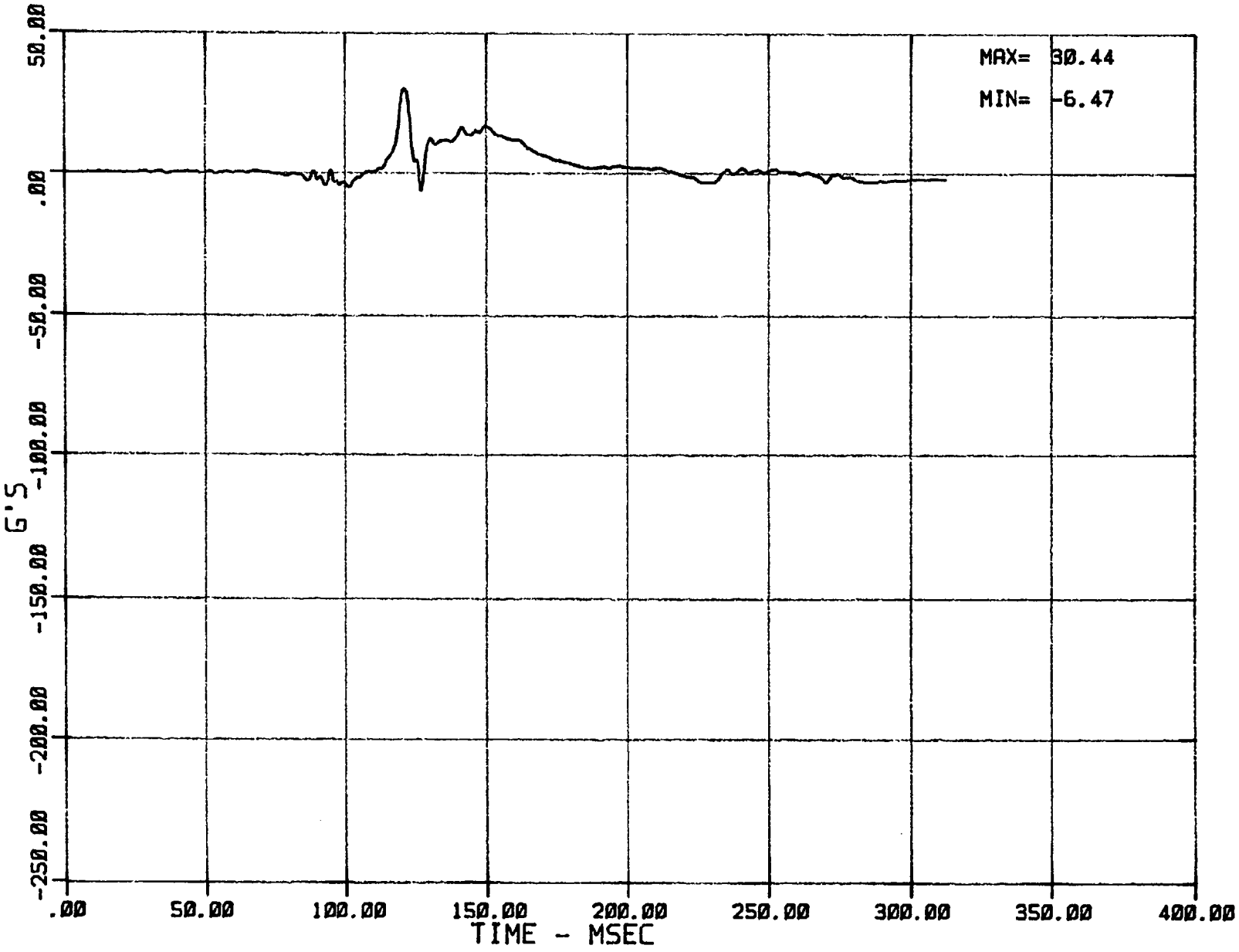
77

R5077-02



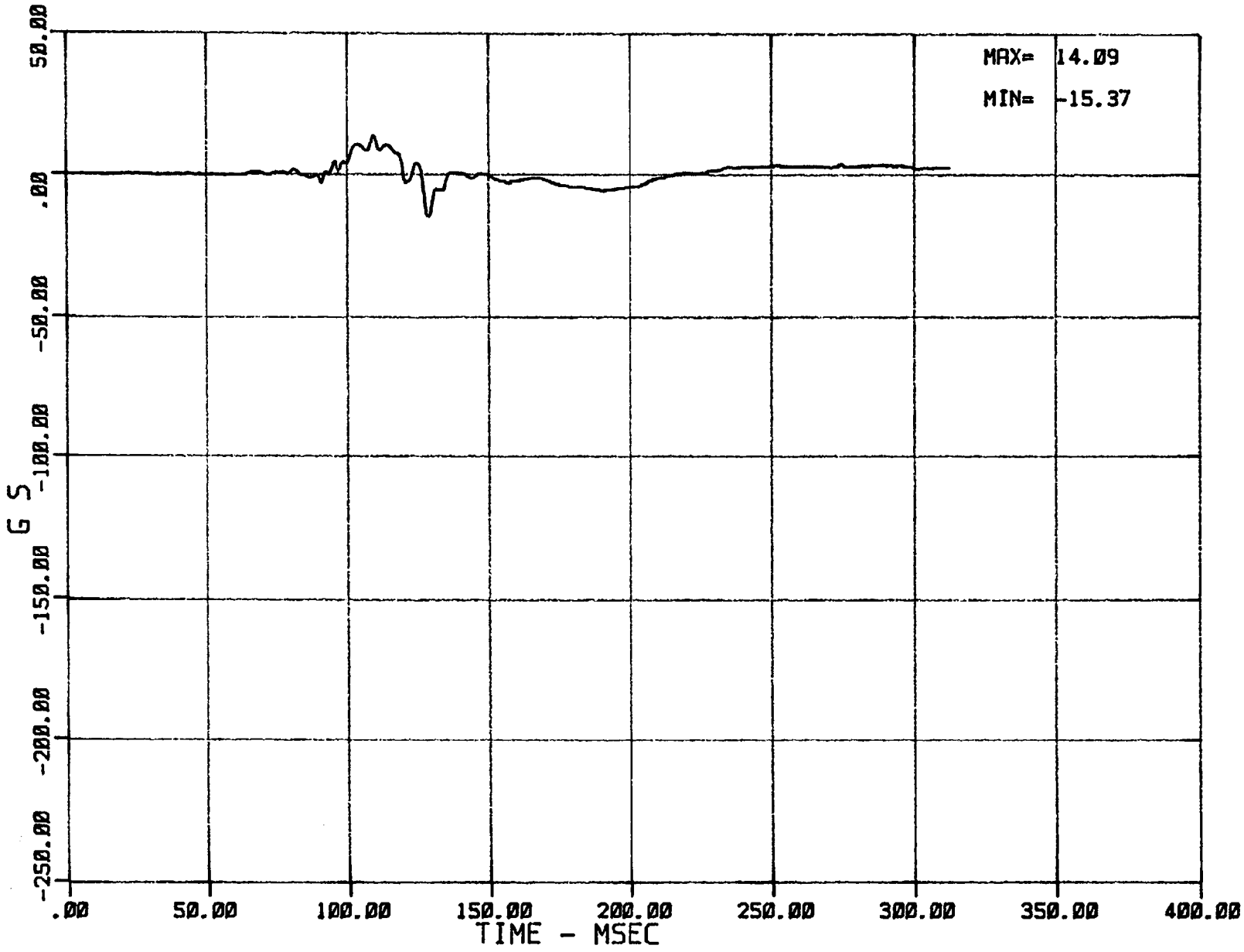
10 AC 01 2 CST X (PASSENGER CHEST ACCEL. -- X AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

R5077-02

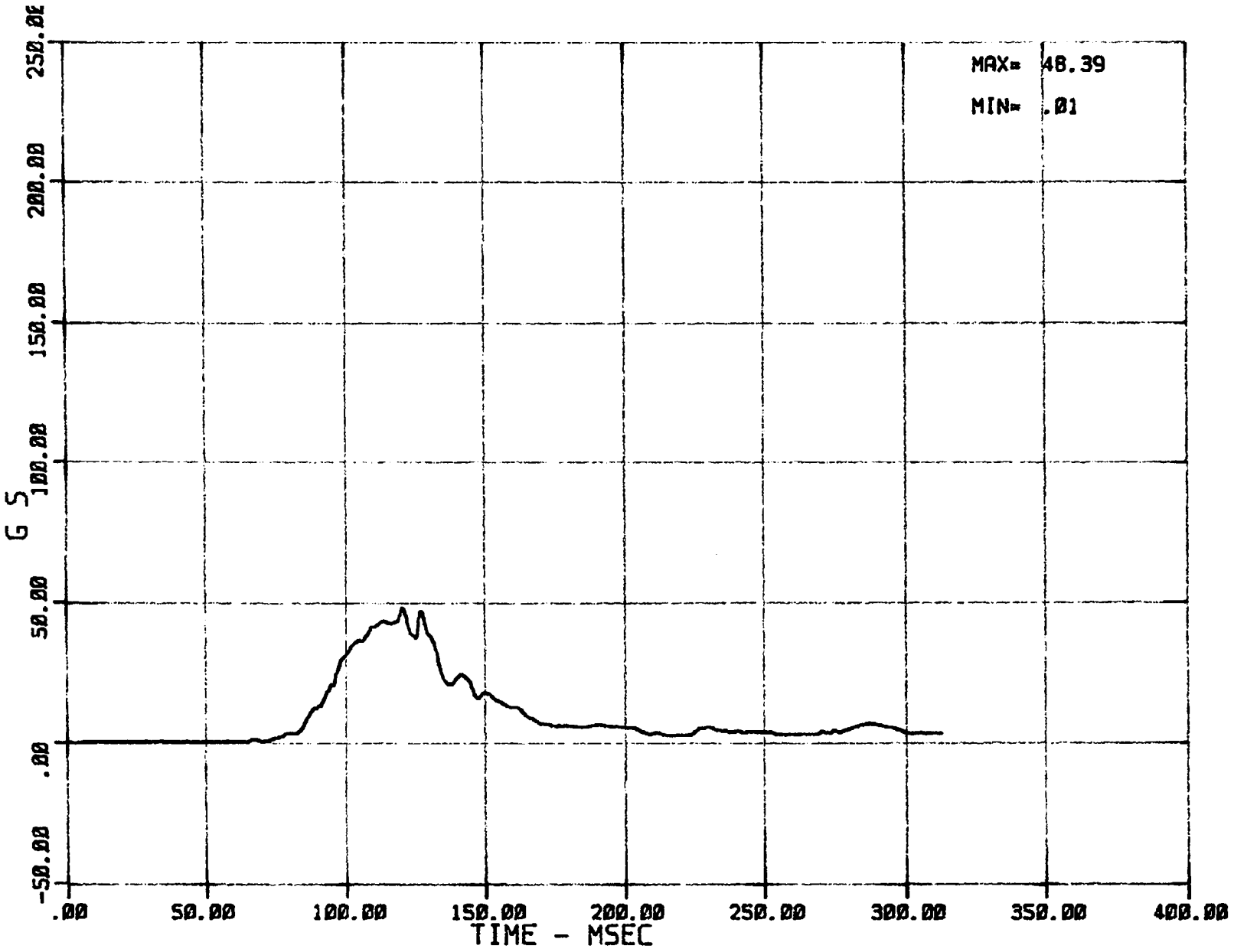


11 AC 01 2 Y (PASSENGER CHEST ACCEL. -- Y AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

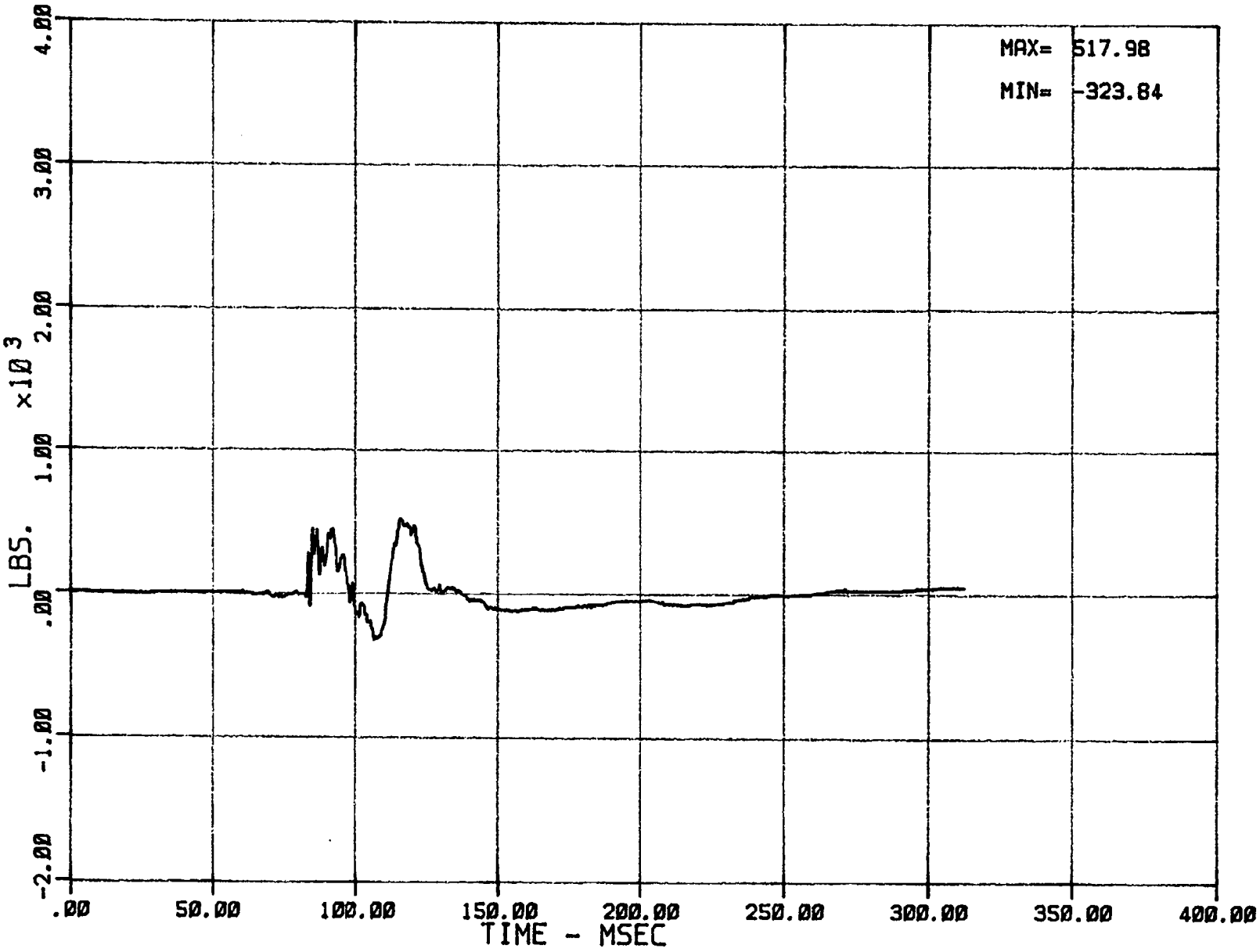
R5077-02



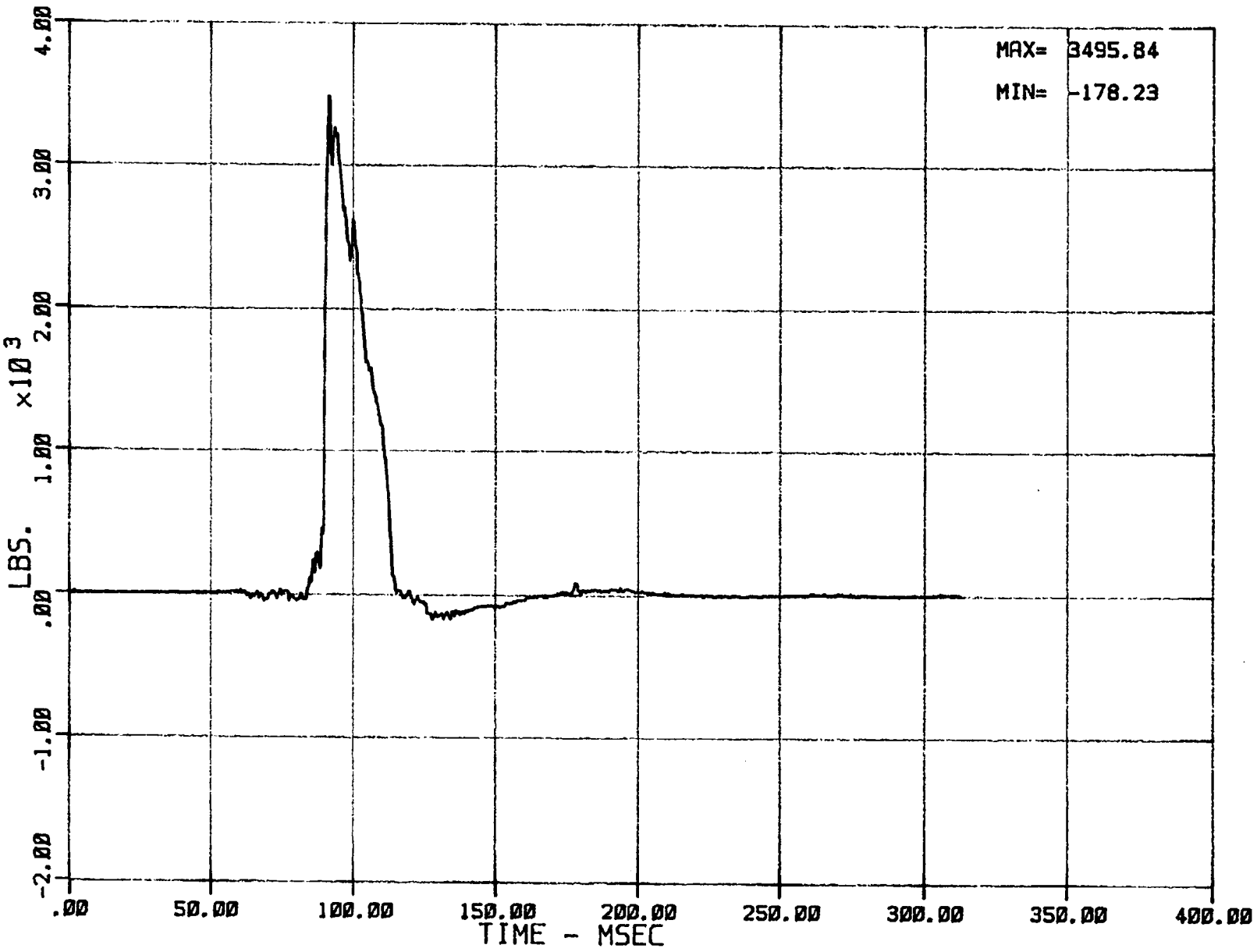
12 AC 01 2 CST Z (PASSENGER CHEST ACCEL. -- Z AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



PASSENGER CHEST RESULTANT ACCELERATION
MSE N07026 1986 DODGE B-150 VAN 05/22/86

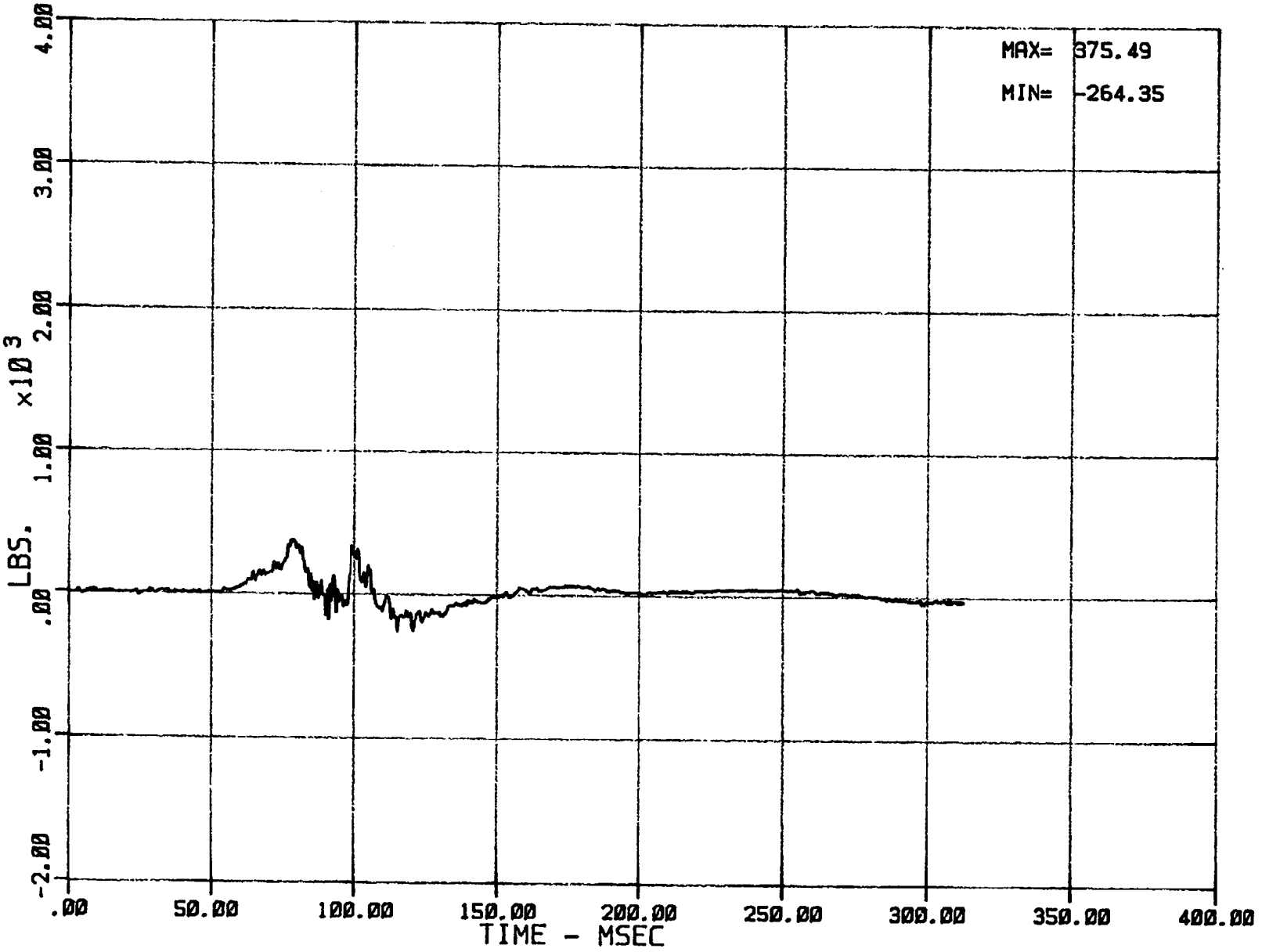


13 LC 01 1 LFM (DRIVER LEFT FEMUR FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



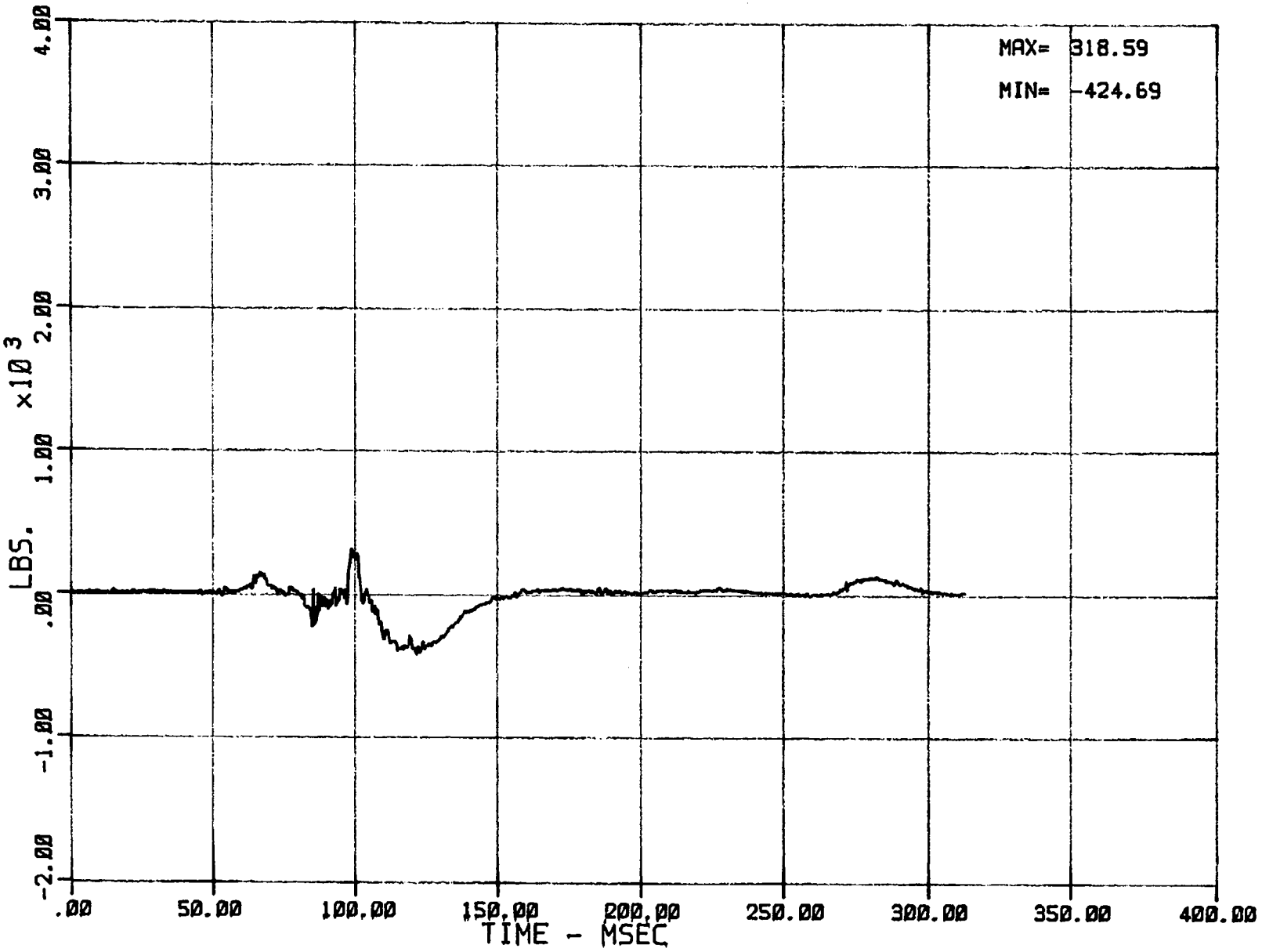
14 LC 01 1 RFM (DRIVER RIGHT FEMUR FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86



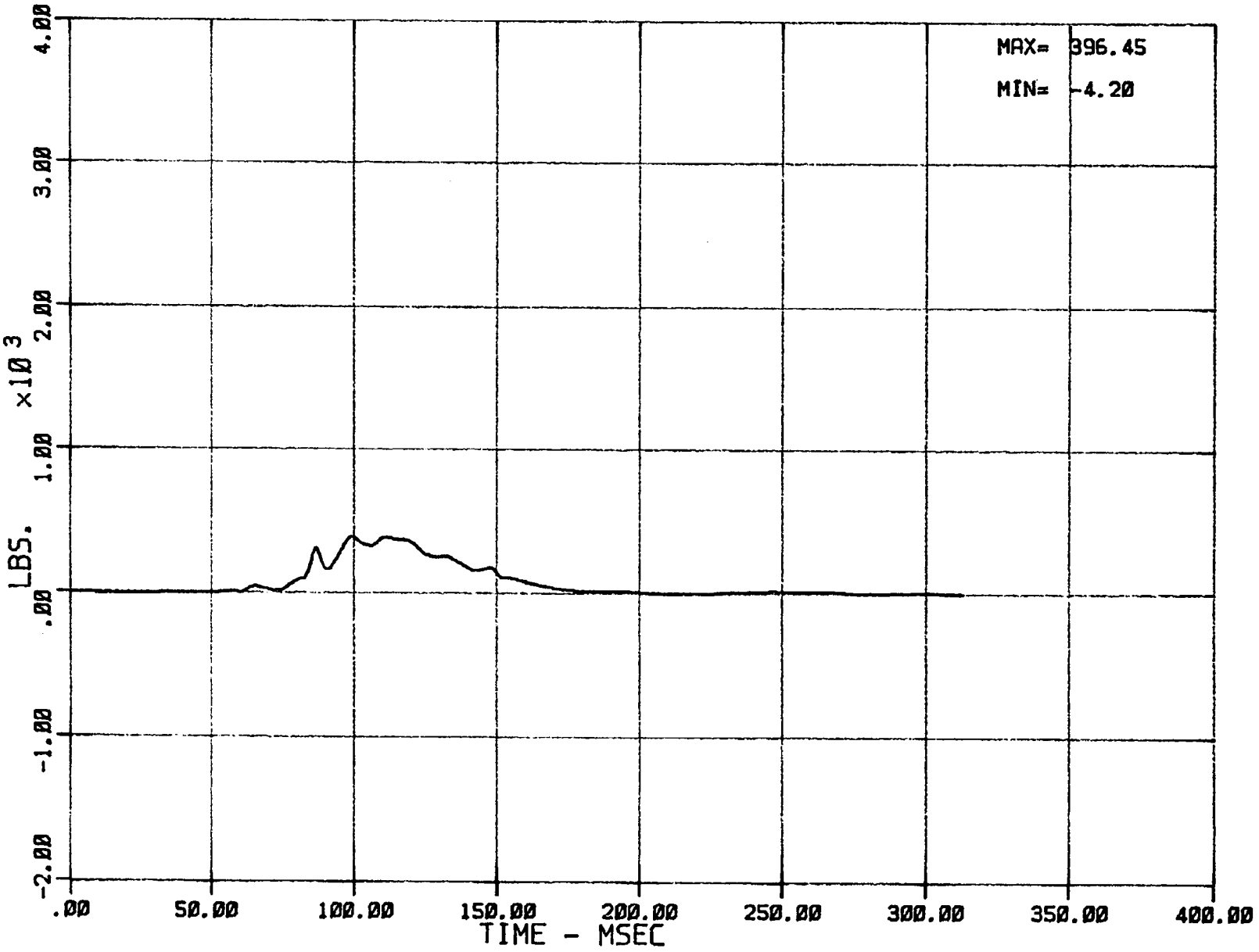
15 LC 01 2 LFM (PASSENGER LEFT FEMUR FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86



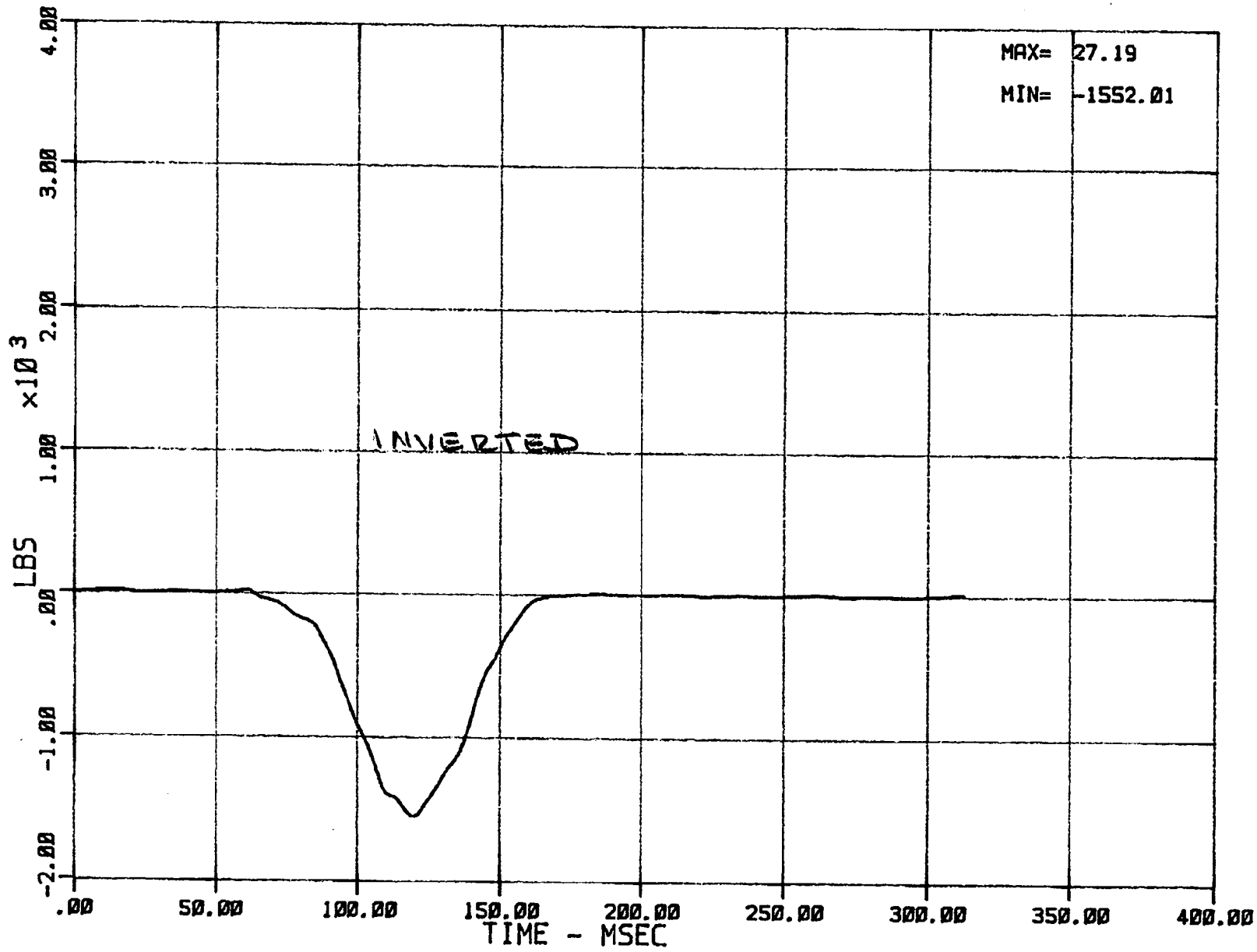
16 LC 01 2 RFM (PASSENGER RIGHT FEMUR FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

R5077-02



17 LC 01 1 LBD (DRIVER LAP BELT FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

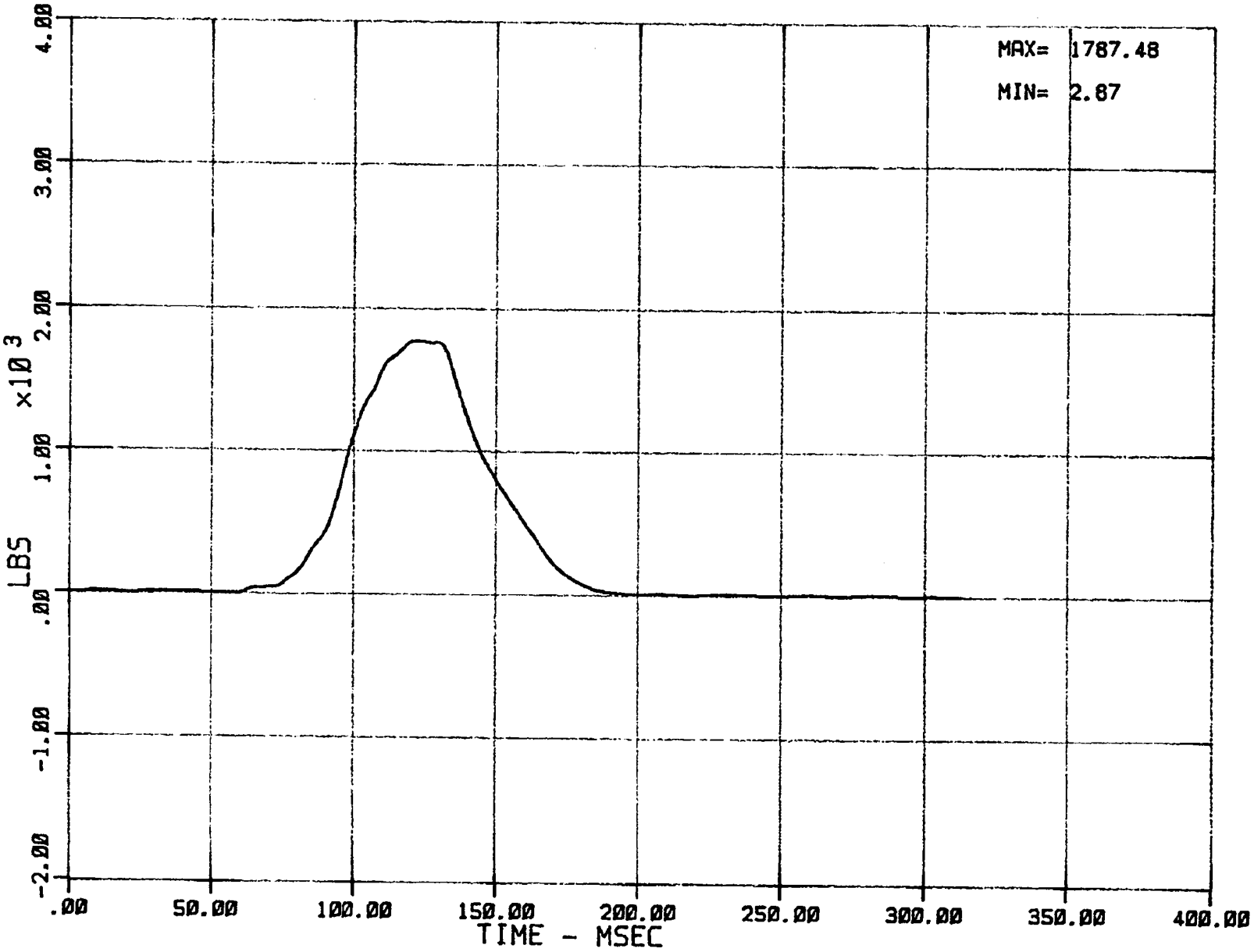


18 LC 01 1 SHB (DRIVER SHOULDER BELT FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

87

R5077-02



19 LC 01 2 LBD (PASSENGER LAP BELT FORCE)
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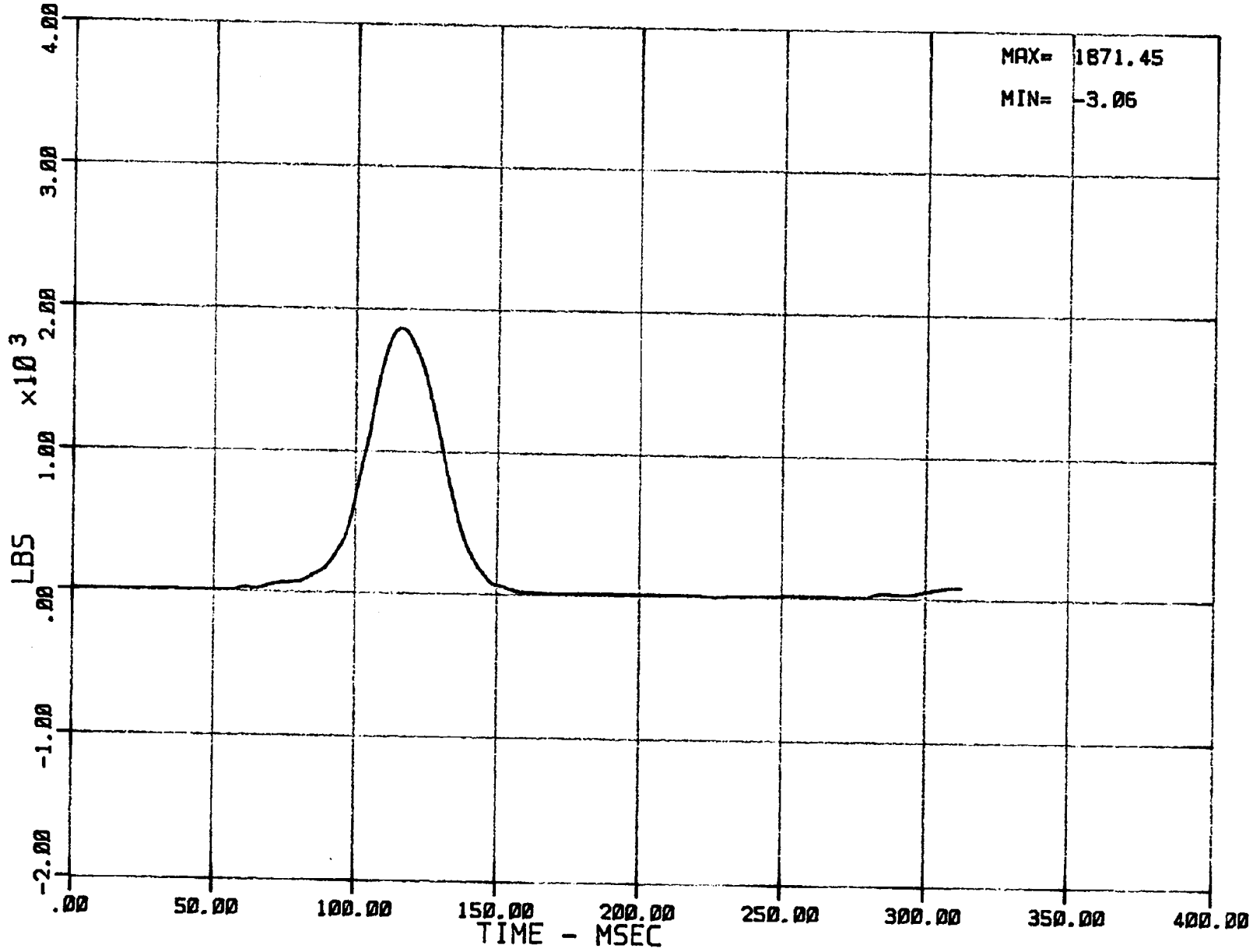
05/22/86

R5077-02



20 LC 01 2 SHB (PASSENGER SHOULDER BELT FORCE)
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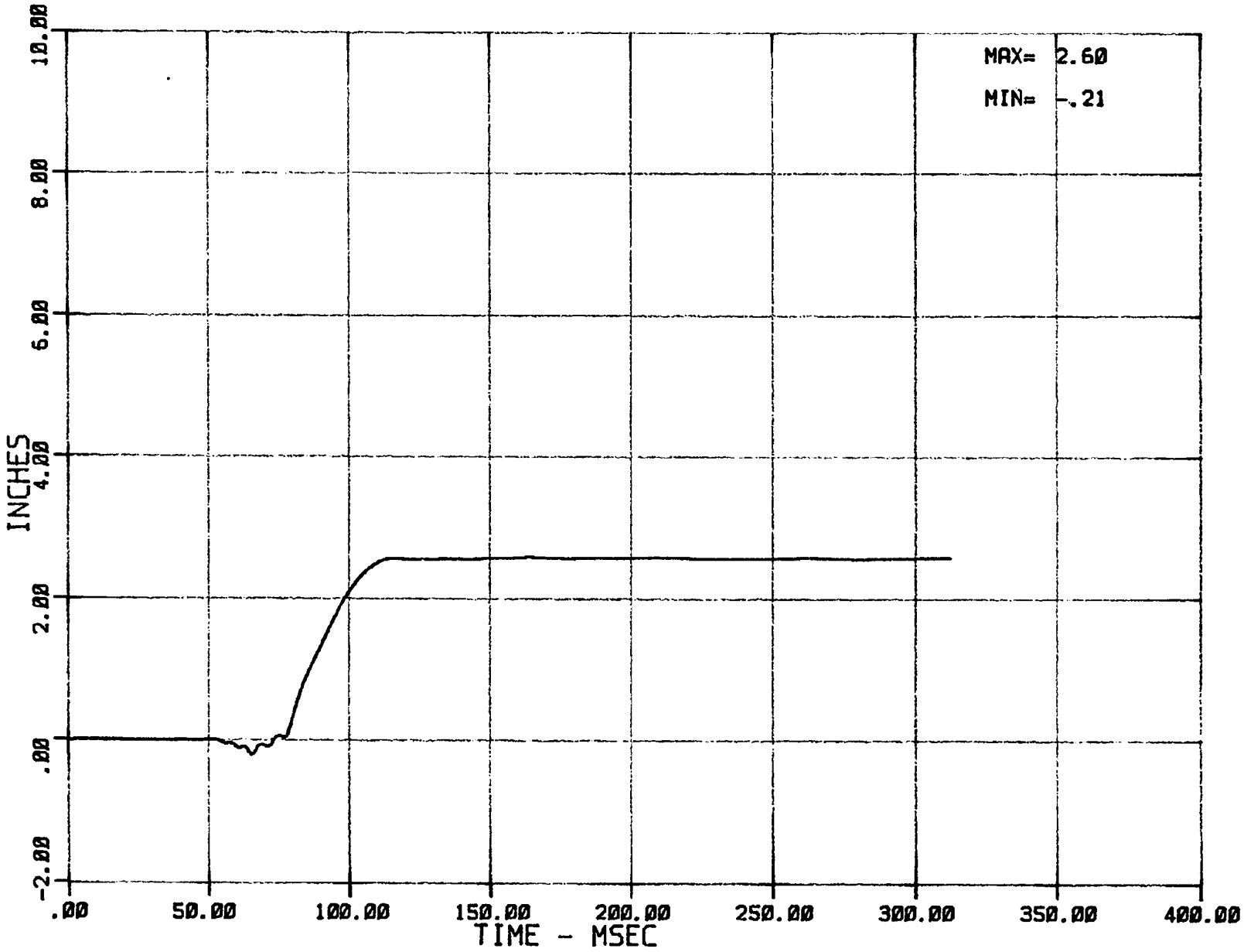
05/22/86

R5077-02



21 DT 01 1 SHB (DRIVER SHOULDER BELT PULLOUT)
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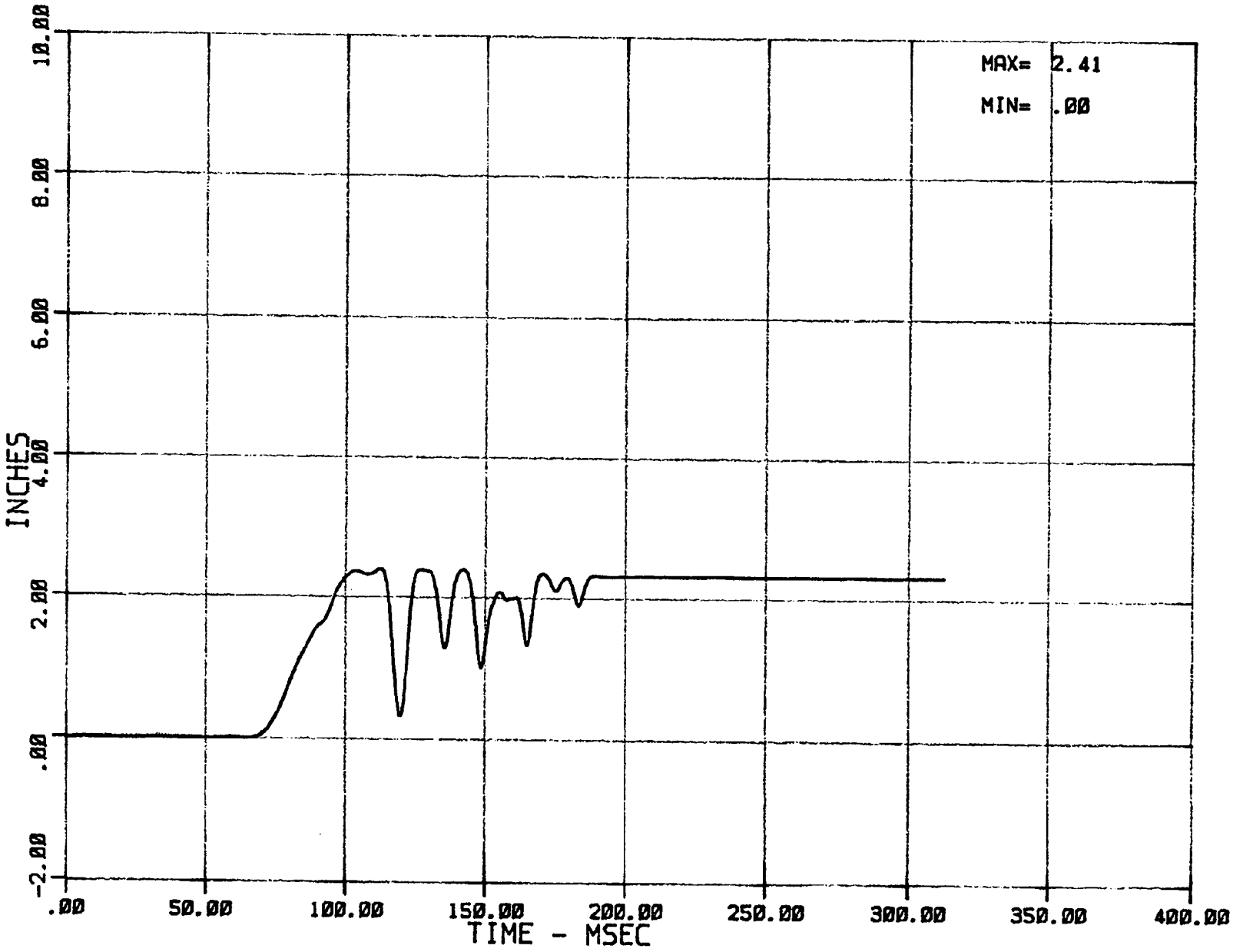
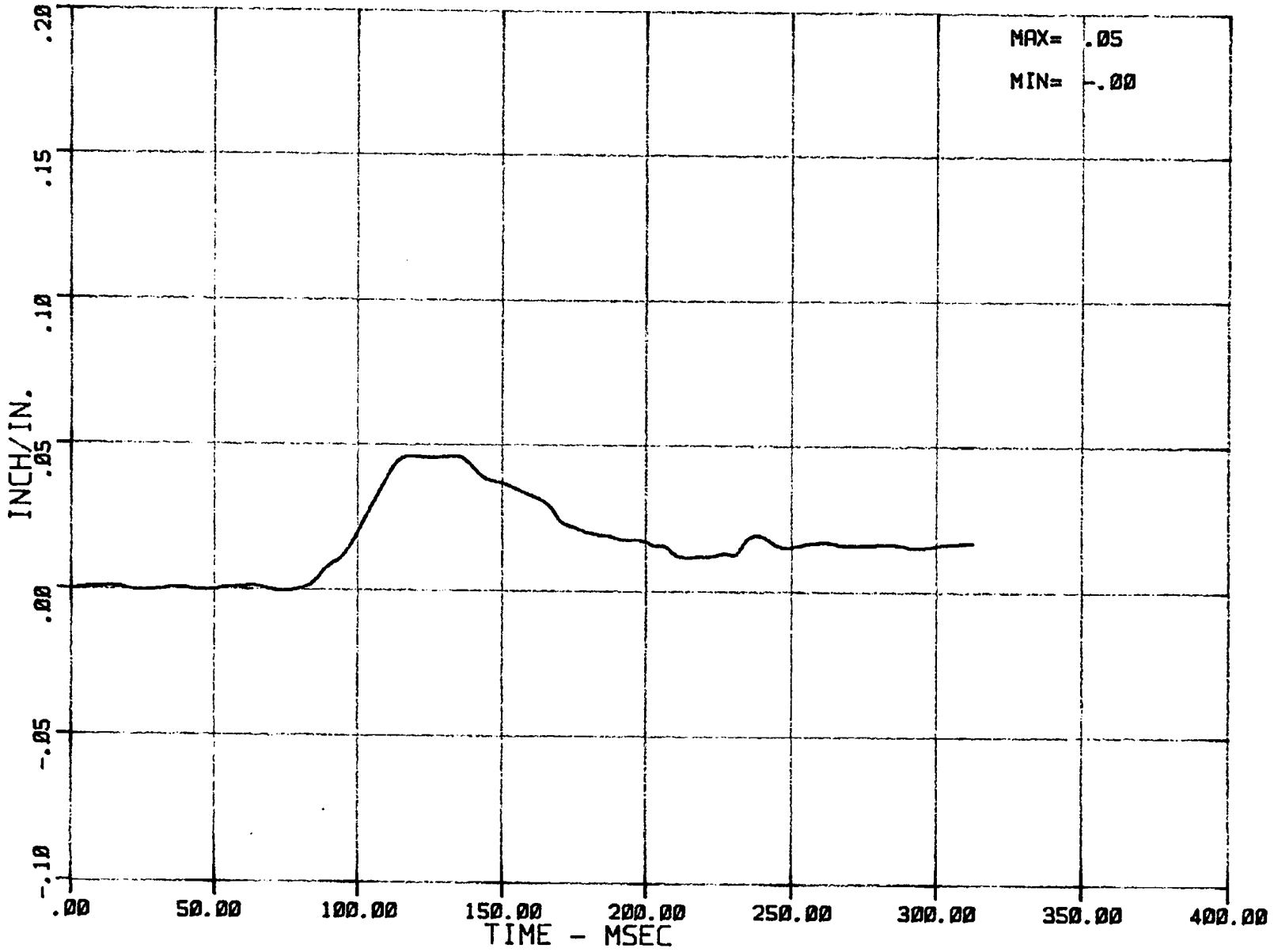


22 DT 01 2 SHB (PASSENGER SHOULDER BELT PULLOUT)
MSE N07026 1986 DODGE B-150 VAN

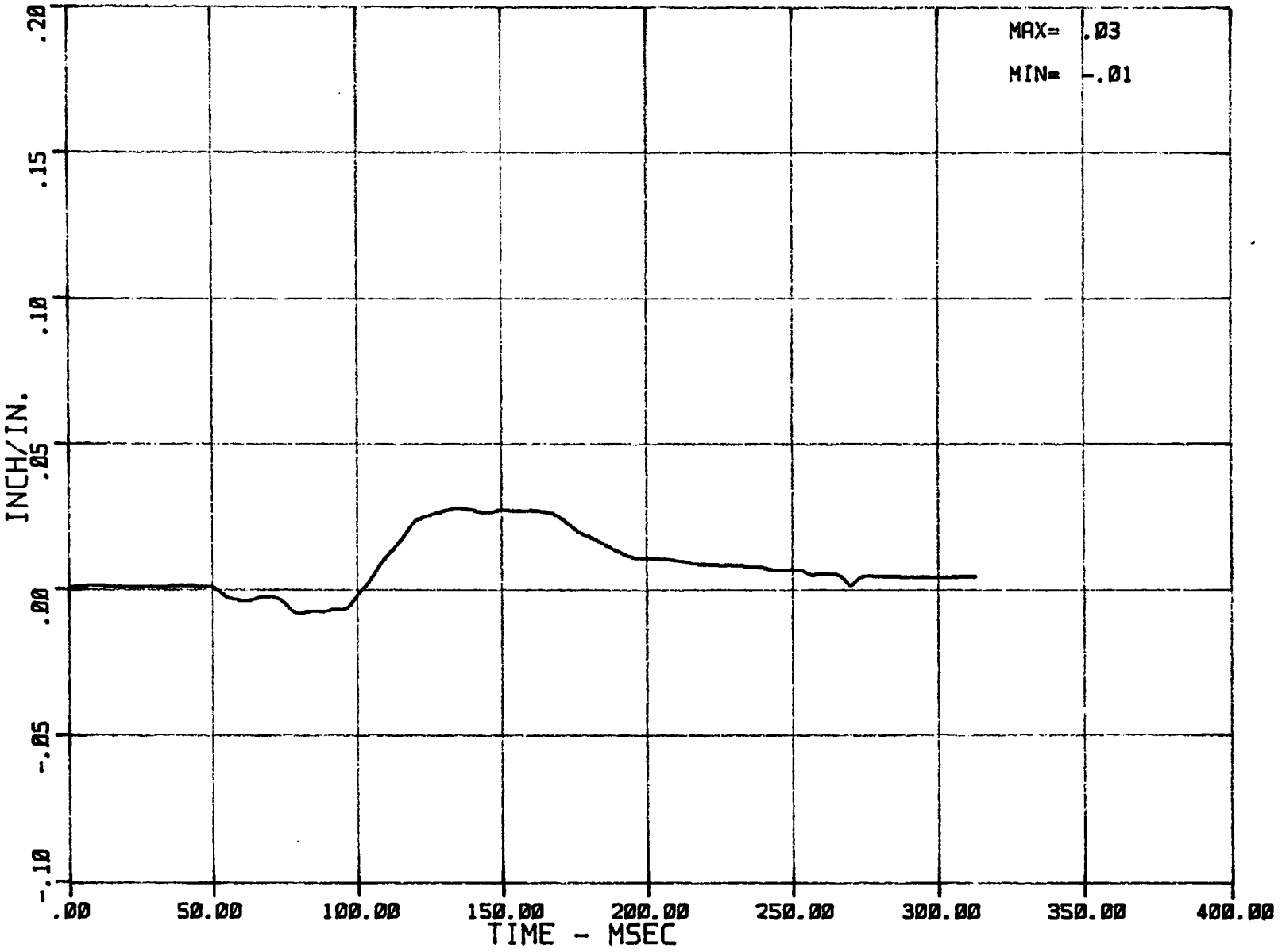
05/22/86



23 DT 01 1 SHB (DRIVER SHOULDER BELT STRETCH)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

R5077-02



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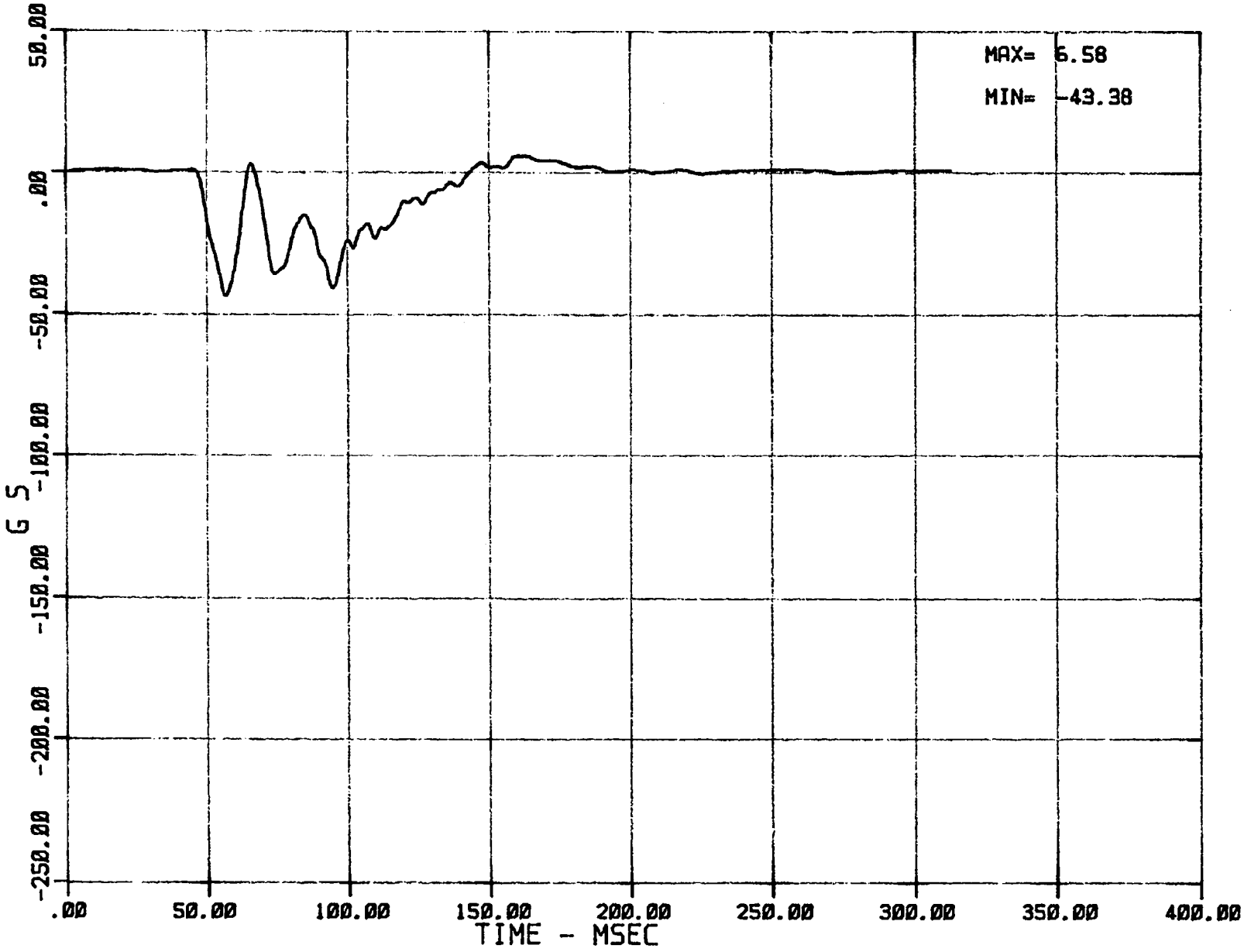
MSE N07026 1986 DODGE B-150 VAN 05/22/86



25 AC 01 N LRF X (LEFT REAR FLOOR ACCE. -- AXIS)
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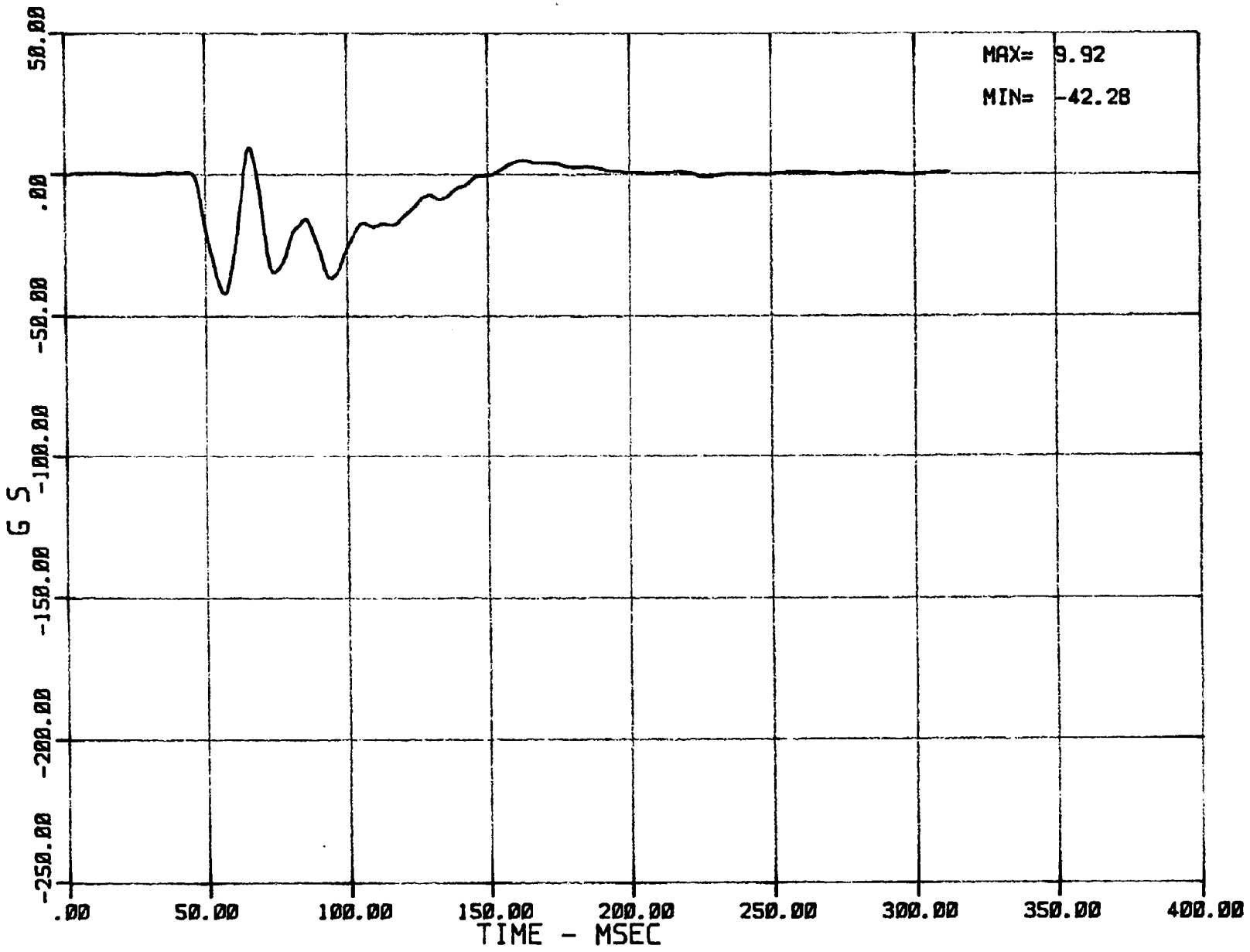

26 AC 01 N RRF X (RIGHT REAR FLOOR ACCEL. -- AXIS)
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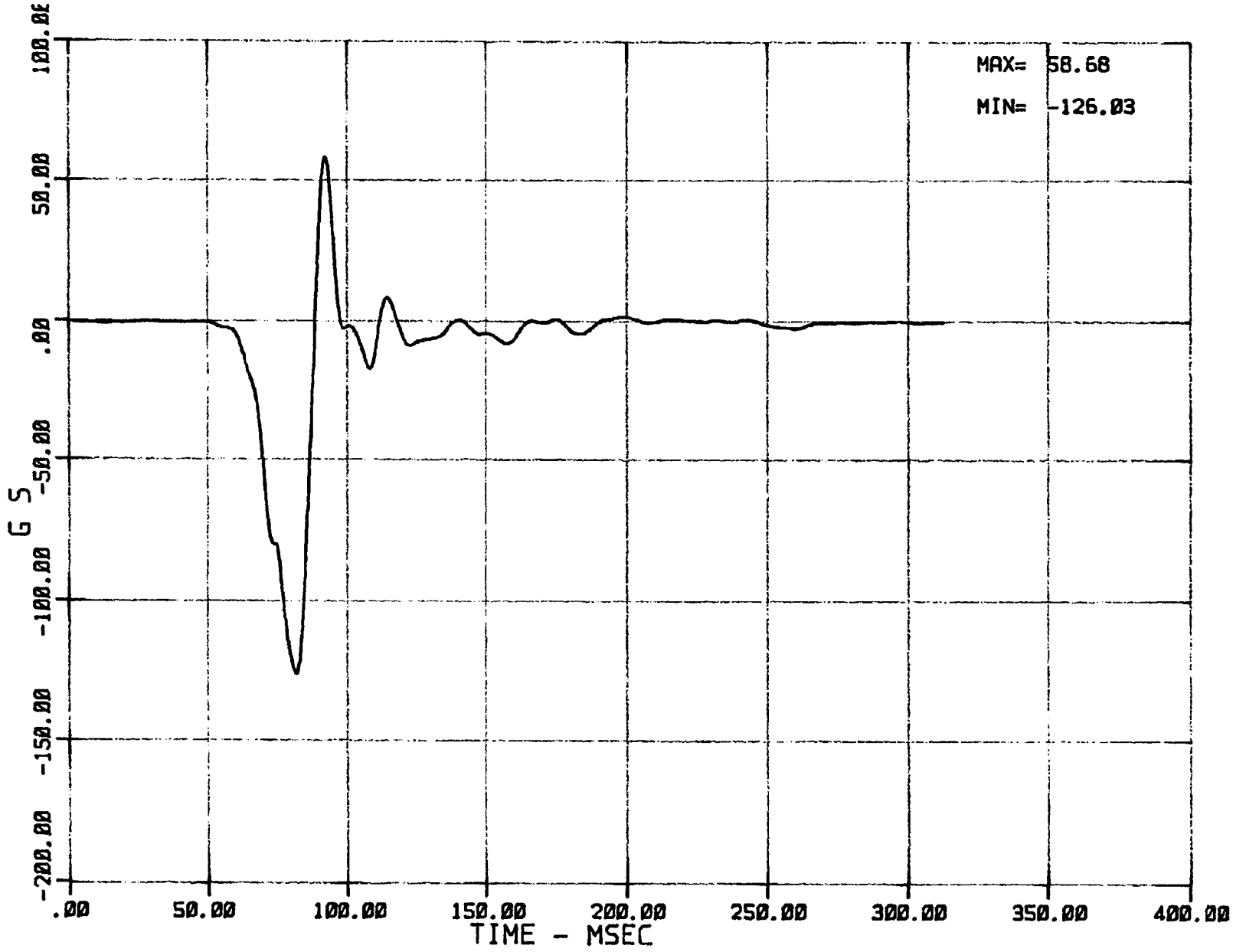
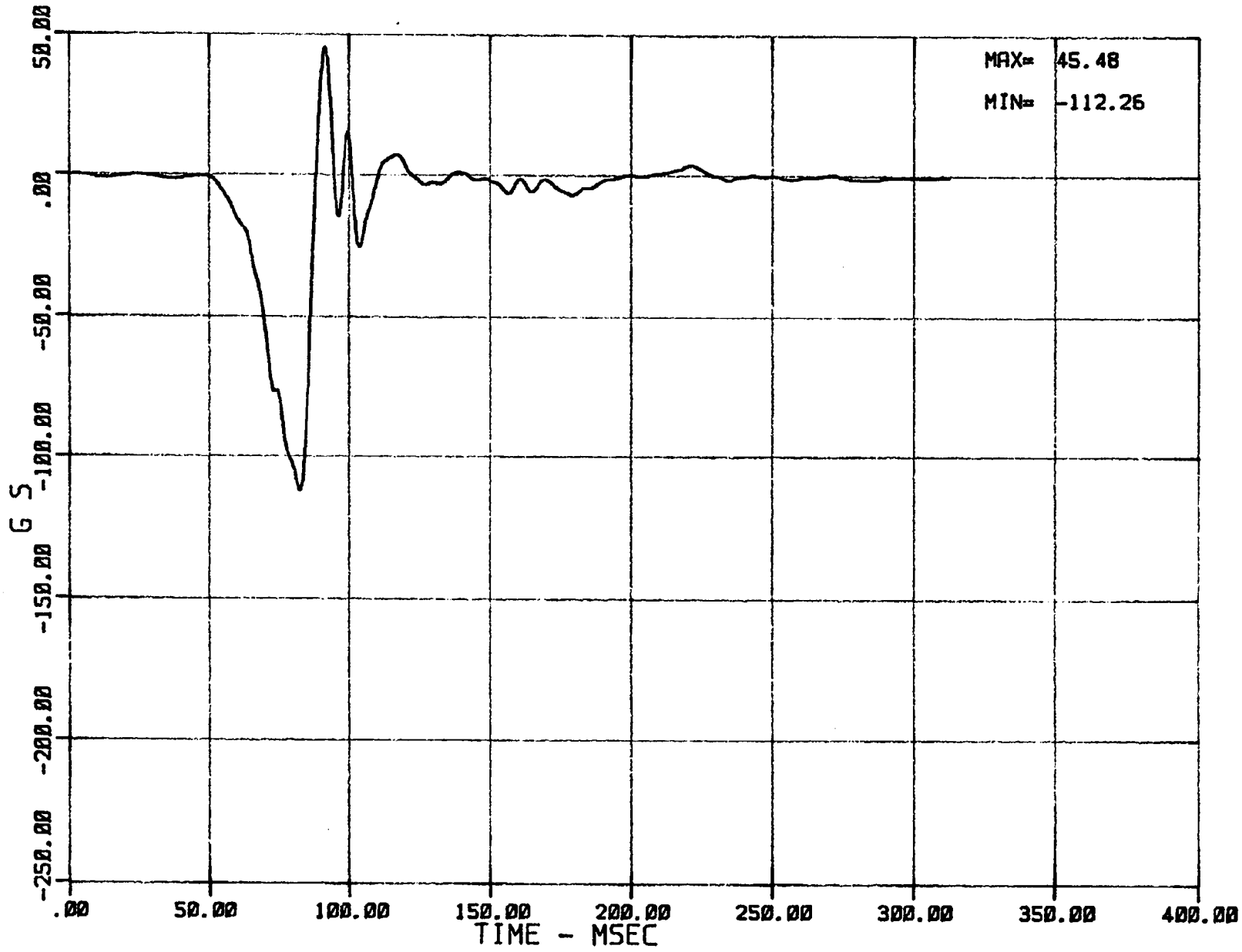


27 AC 01 N ENG X (TOP OF ENGINE ACCEL. -- X AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

R5077-02



28 AC 01 N ENG X (BOTTOM OF ENGINE ACCEL. -- X AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

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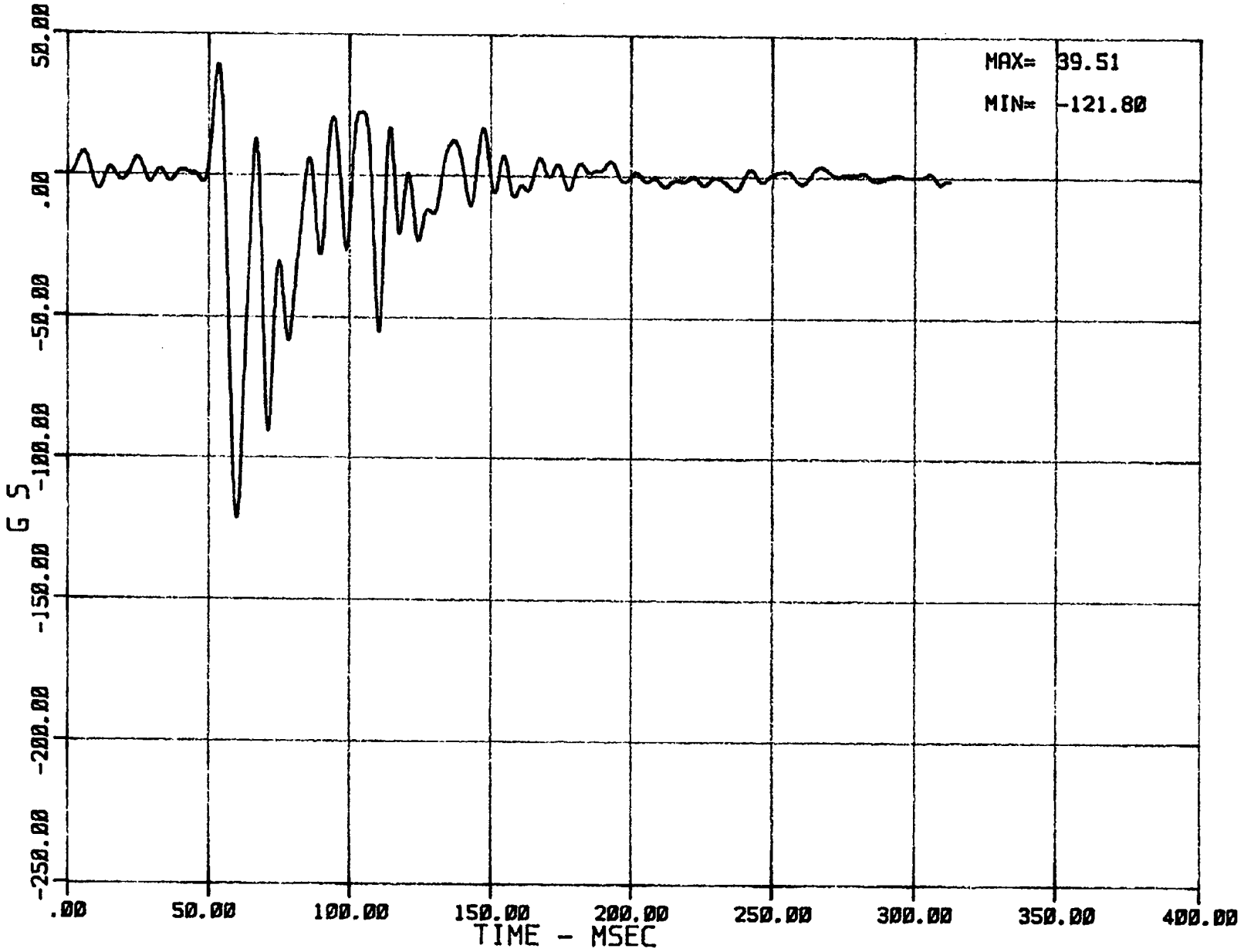
R5077-02

29 AC 01 BCR X (RIGHT FRONT WHEEL ACCEL. -- X AXIS)
MSE N07026 1986 DODGE B-150 VAN

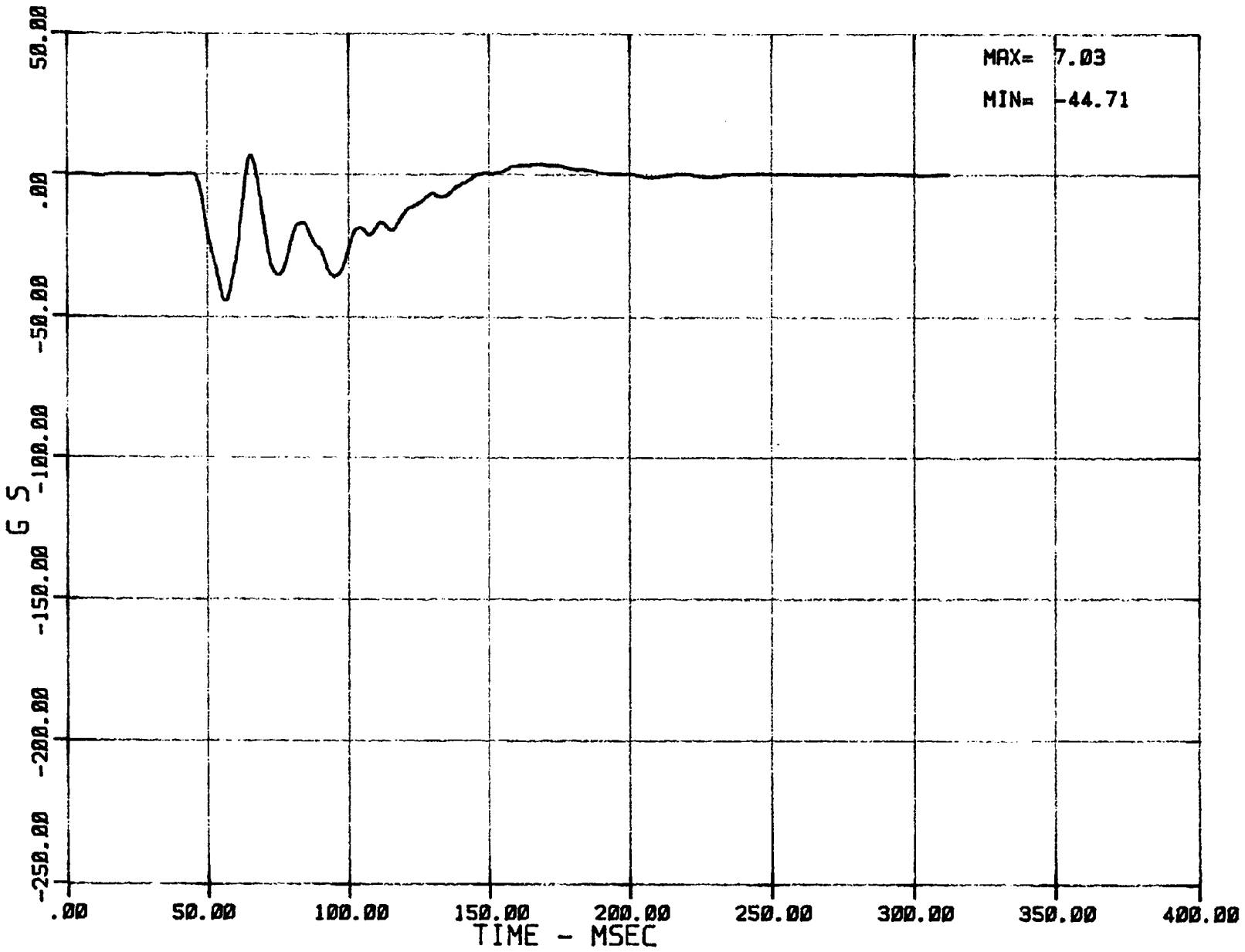
05/22/86

R5077-02



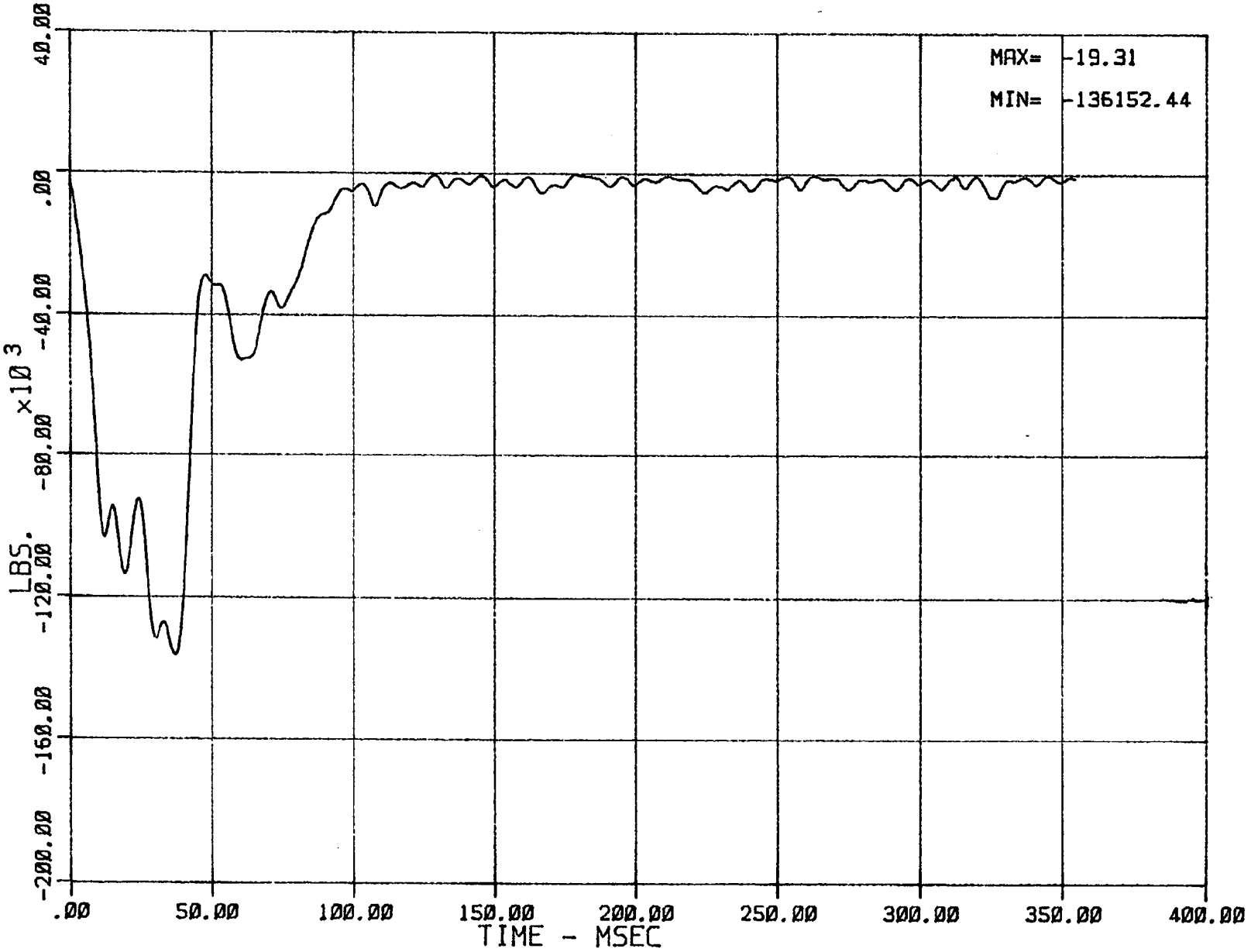
30 AC 01 N DPC (CENTER OF DASH ACCEL. -- X AXIS)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

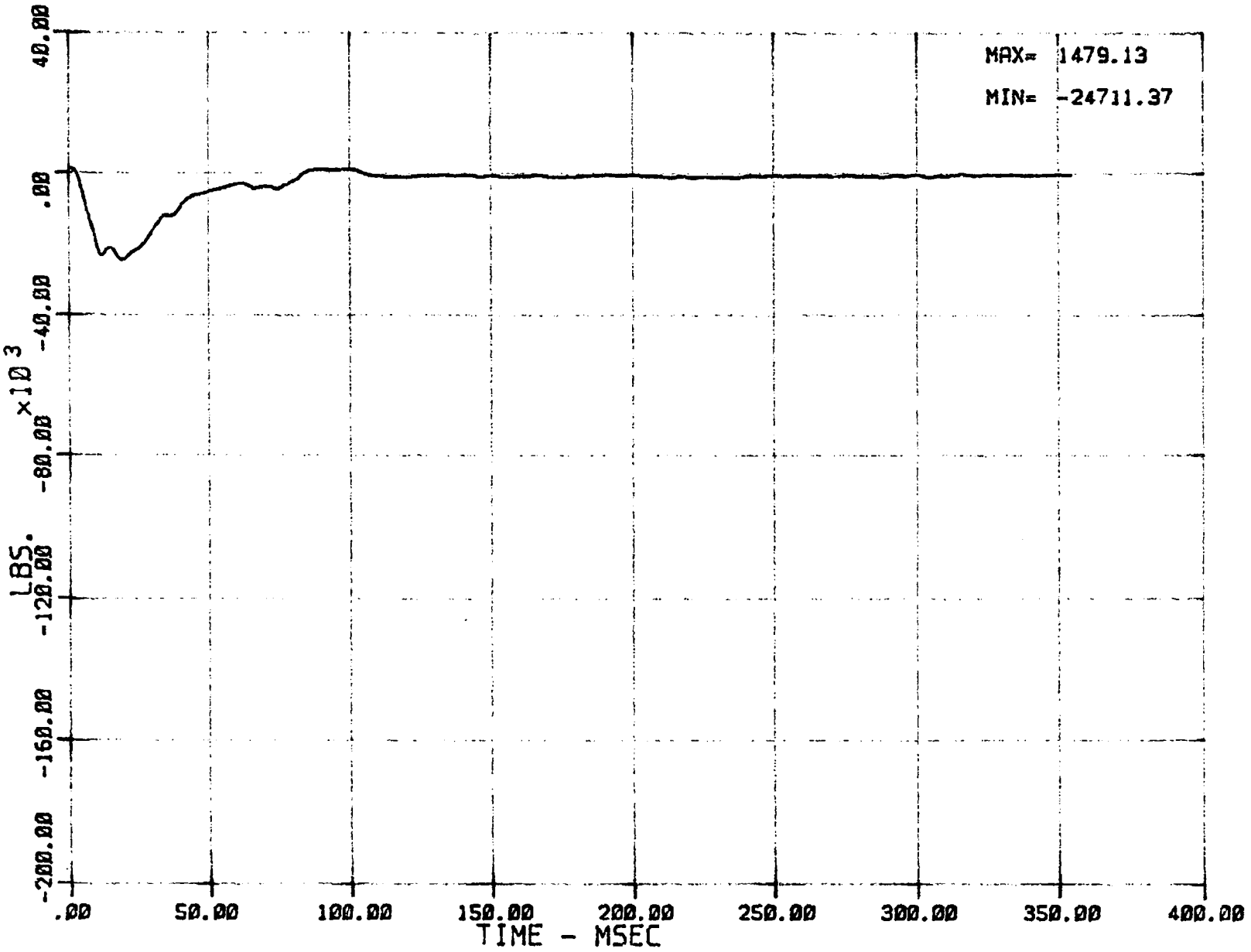


31 AC 01 VCG X (VEHICLE C-G. ACCEL. -- X AXIS)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

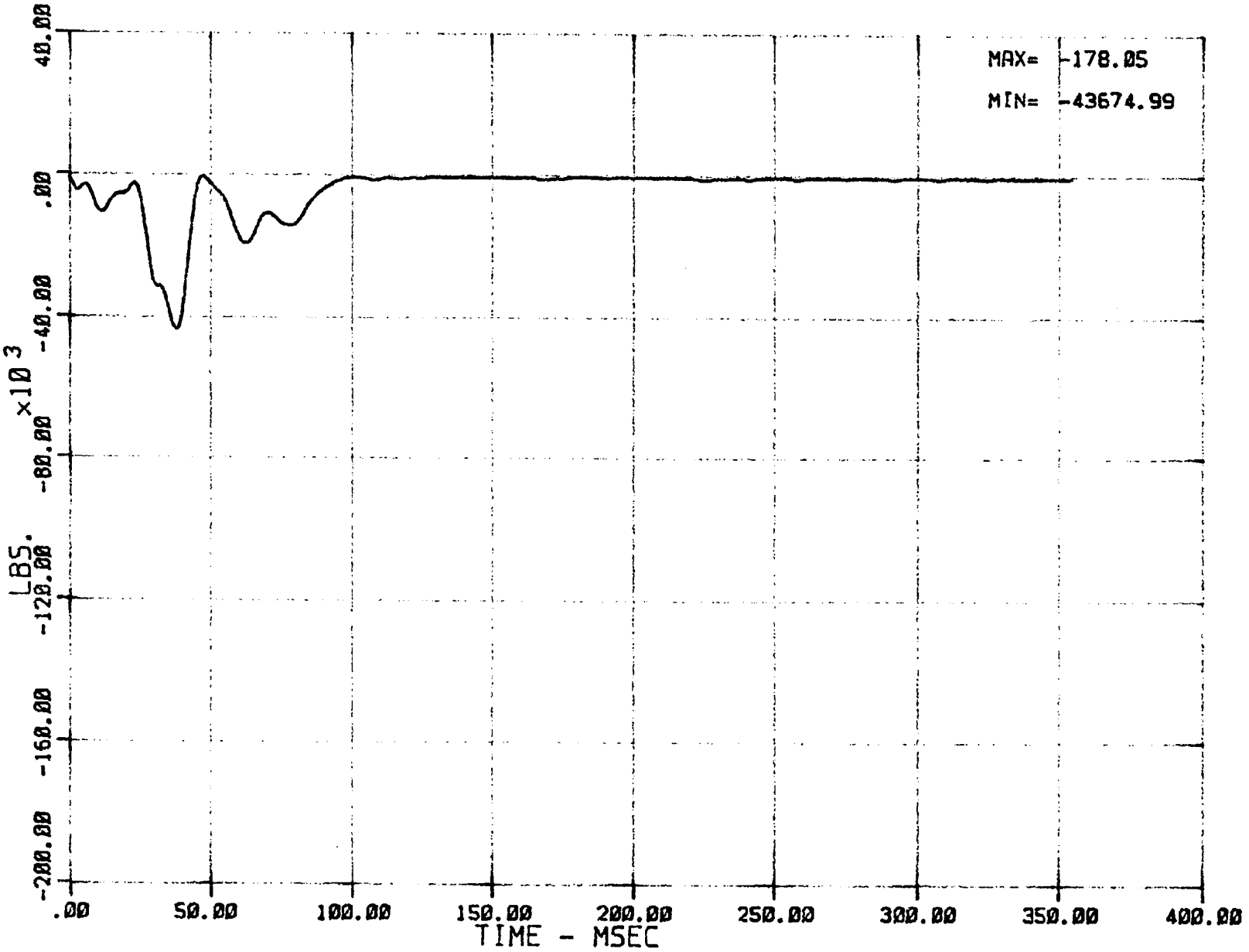
APPENDIX B-2
LOAD CELL BARRIER
DATA



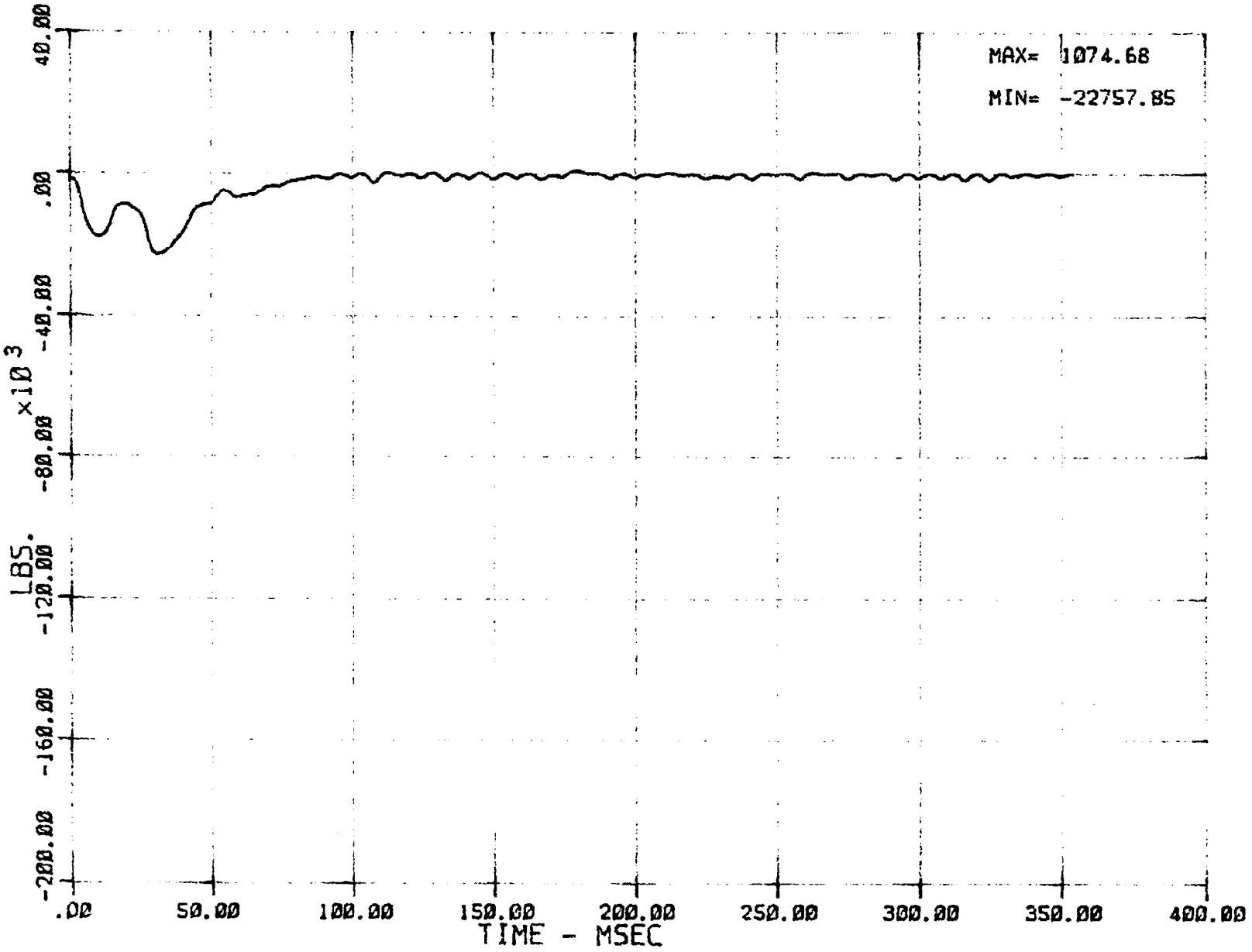
TOTAL SUM.LOAD CELL BARRIER FORCE
MSE N07026 1986 DODGE B-150 VAN 05/22/86



GROUP 1 SUM (C1,C2,C3,D1,D2,D3) LOAD CELL BARRIER FORCE
MSE N07026 1986 DODGE B-150 VAN 05/22/86

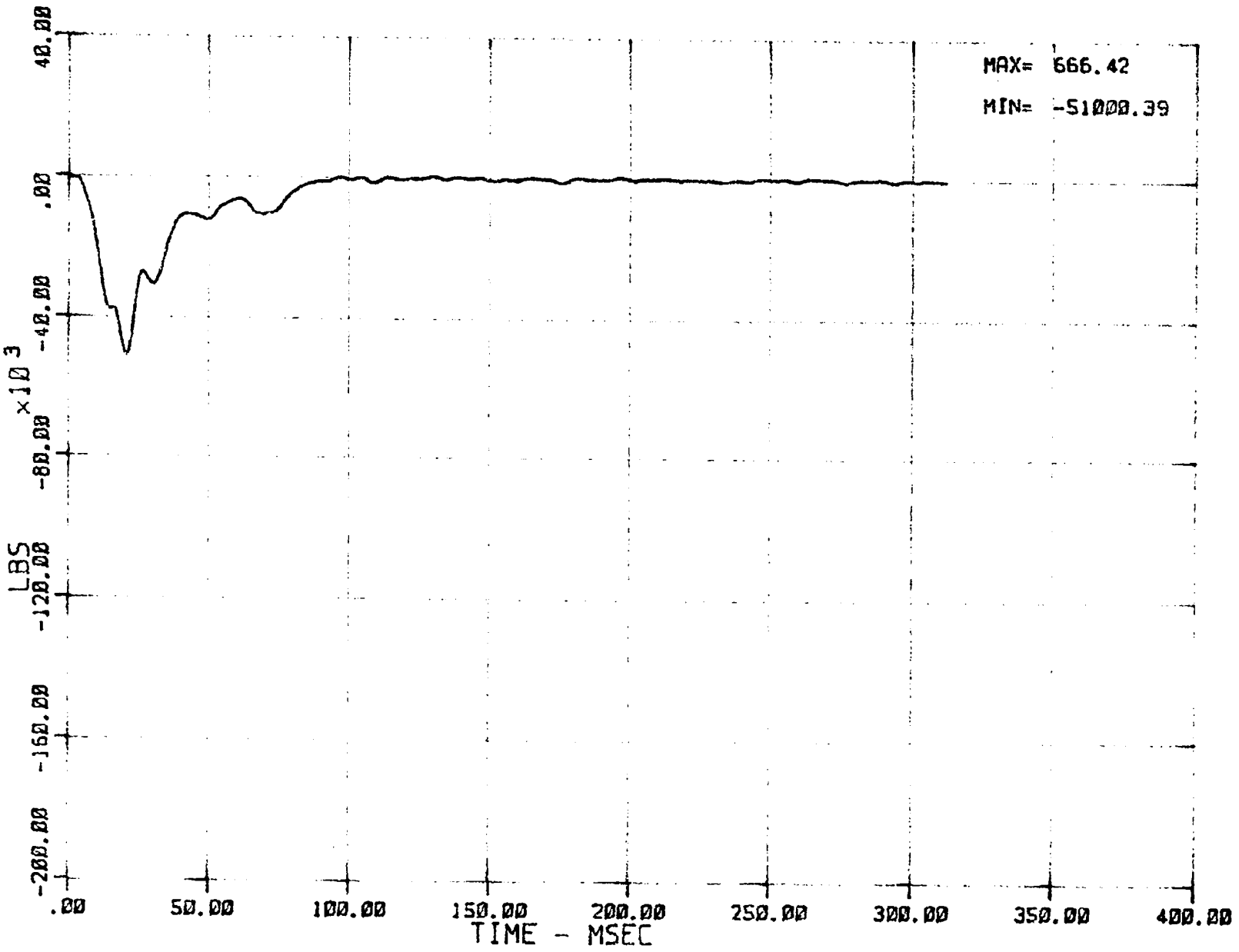


GROUP 2 SUM (C4,C5,C6,D4,D5,D6) LOAD CELL BARRIER FORCE
MSE N07026 1986 DODGE B-150 VAN 05/22/86

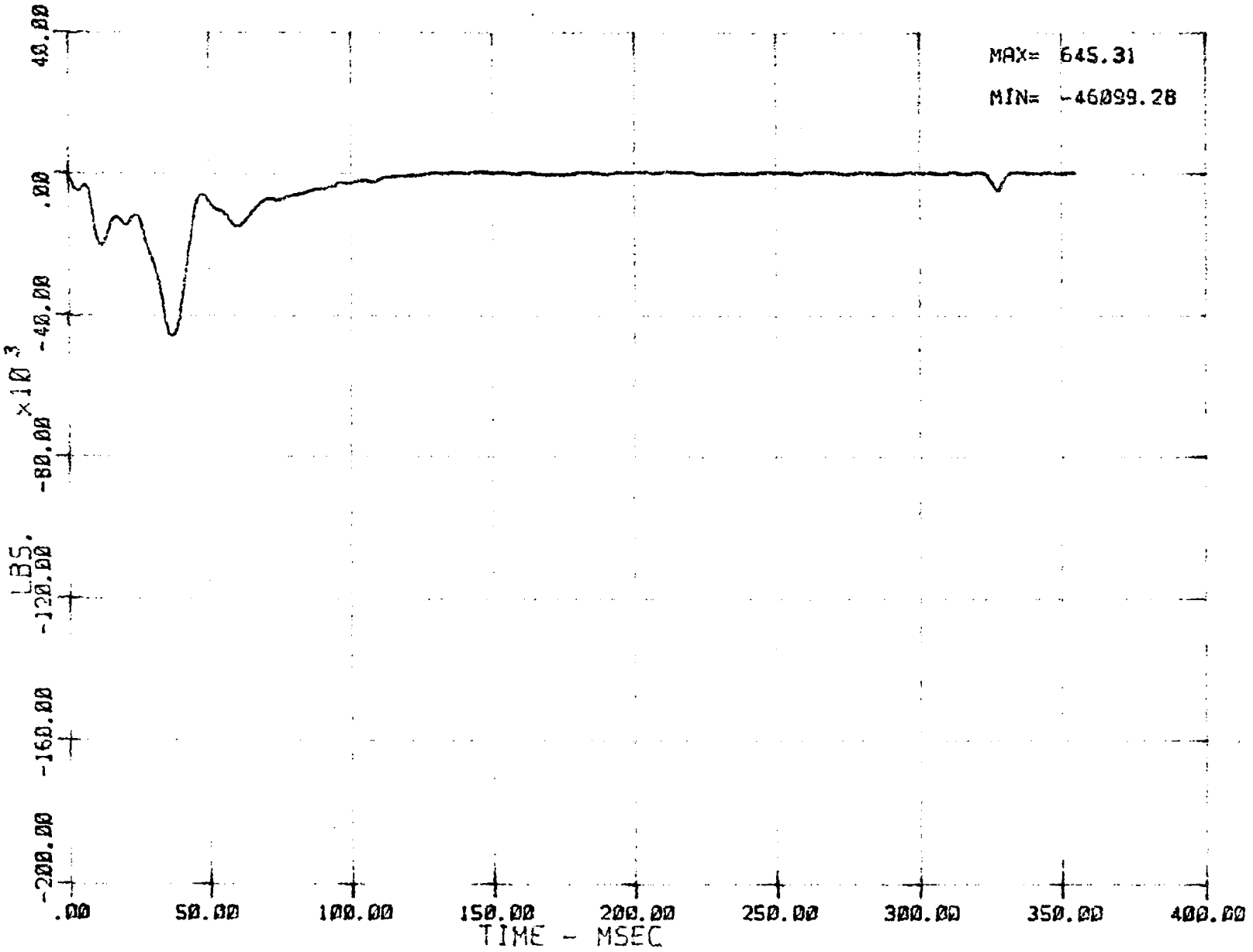


GROUP 3 SUM (C7,C8,C9,D7,D8,D9) LOAD CELL BARRIER FORCE
MSE N07026 1986 DODGE B-150 VAN 05/22/86

R5077-02

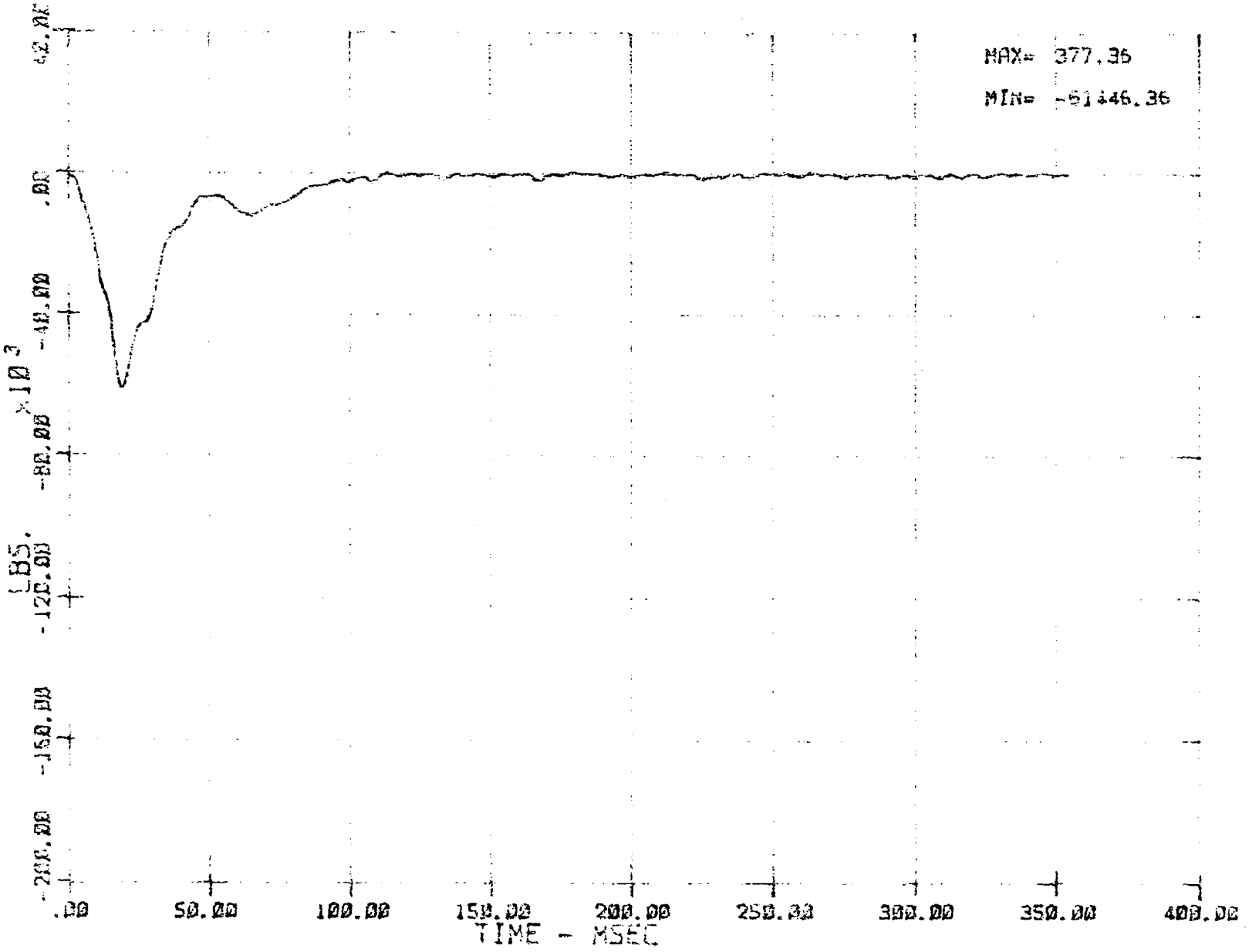


GROUP 4 SUM (A1,A2,A3,B1,B2,B3) LOAD CELL BARRIER FORCE
MSE N07026 1986 DODGE B-150 VAN 05/22/86



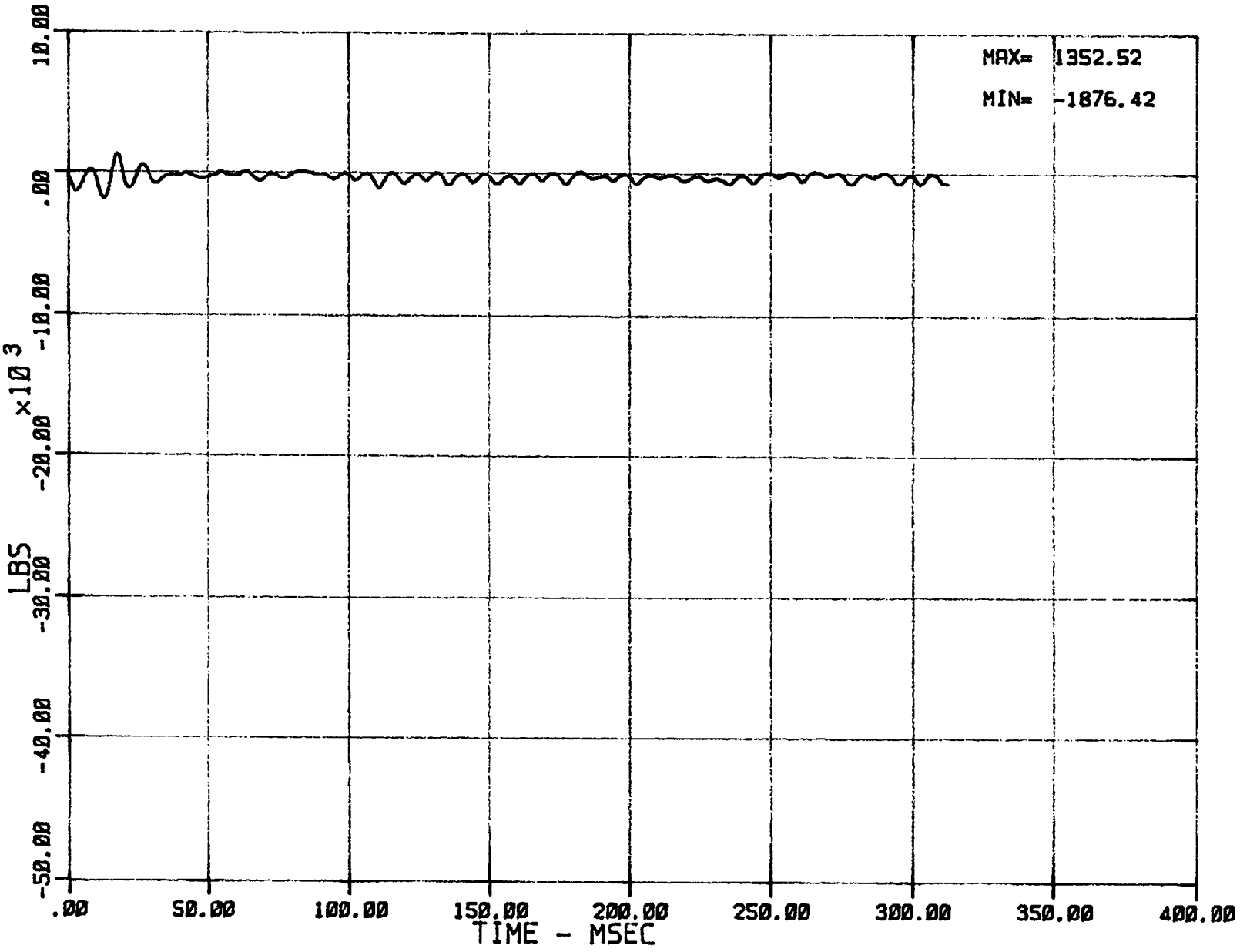
GROUP 5 SUM (A4,A5,A6,B4,B5,B6) LOAD CELL BARRIER FORCE

MSE N07026 1986 DODGE B-150 VAN 05/22/86

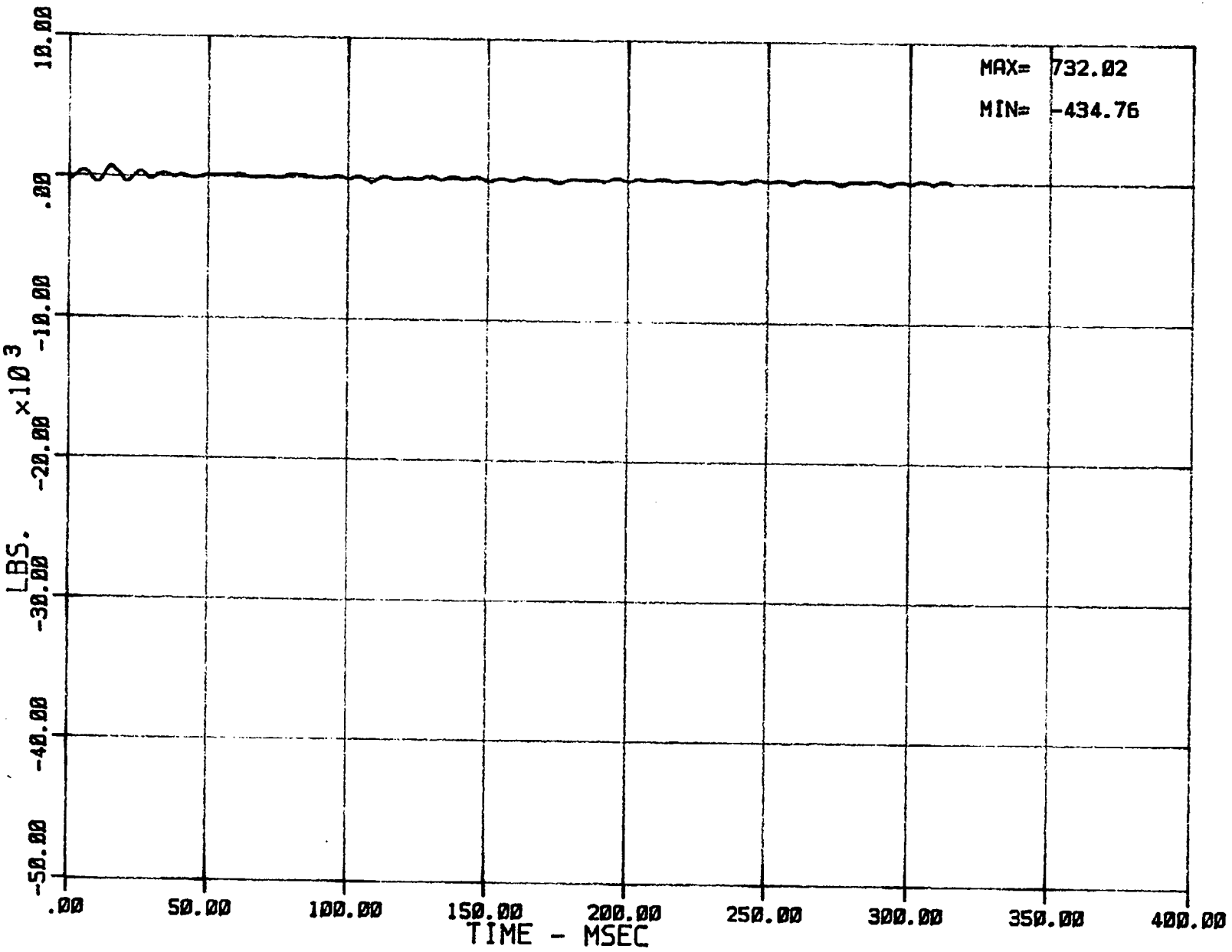


GROUP 6 SUM (A7,A8,A9,B7,B8,B9) LOAD CELL BARRIER FORCE
MSE N07026 1986 DODGE B-150 VAN 05/22/86

R5077-02

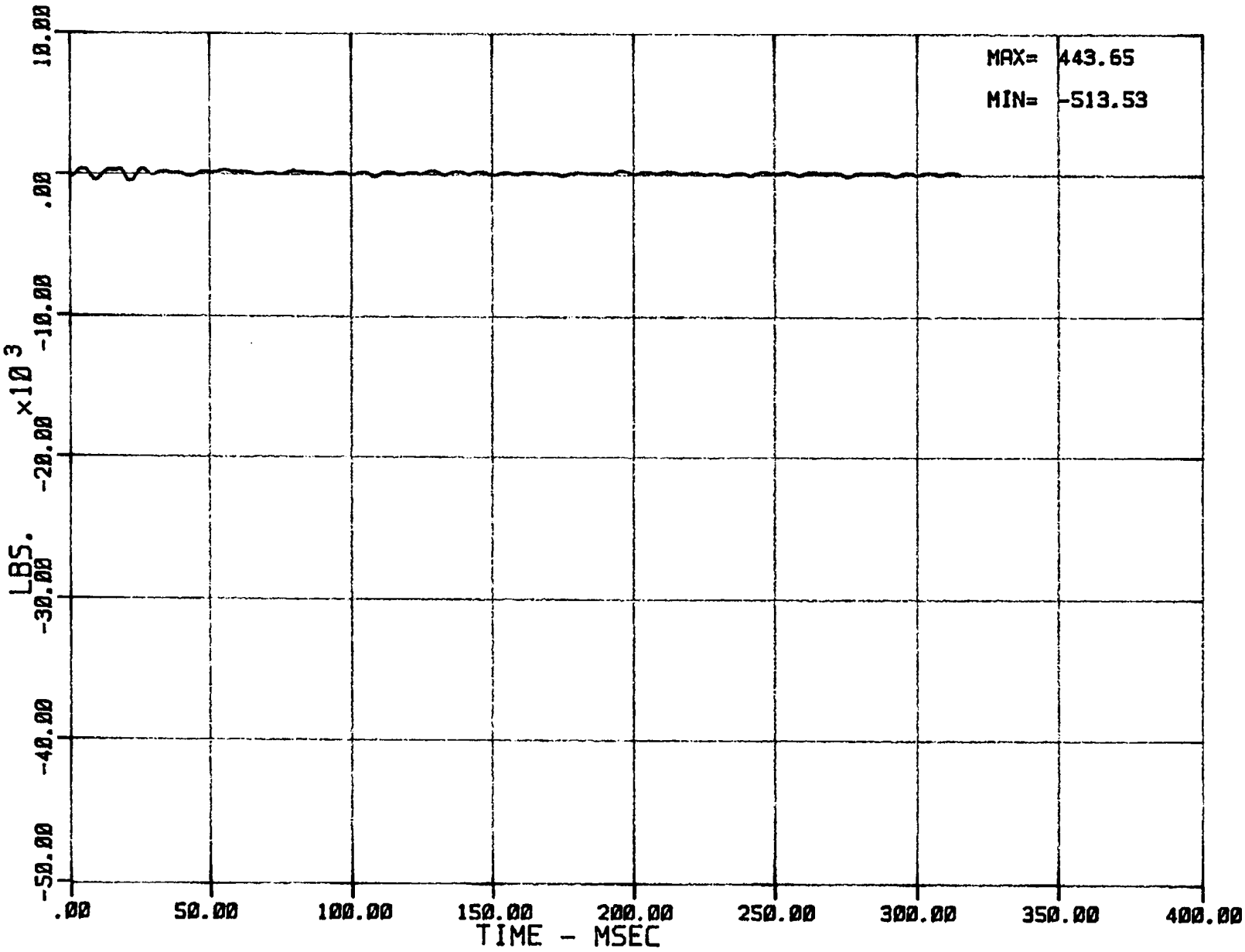


32 LC BA N BA1 (BARRIER LOAD CELL A1 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



33 LC BA N BA2 (BARRIER LOAD CELL A2 FORCE)
MSE N07026 1986 DODGE B-150 VAN

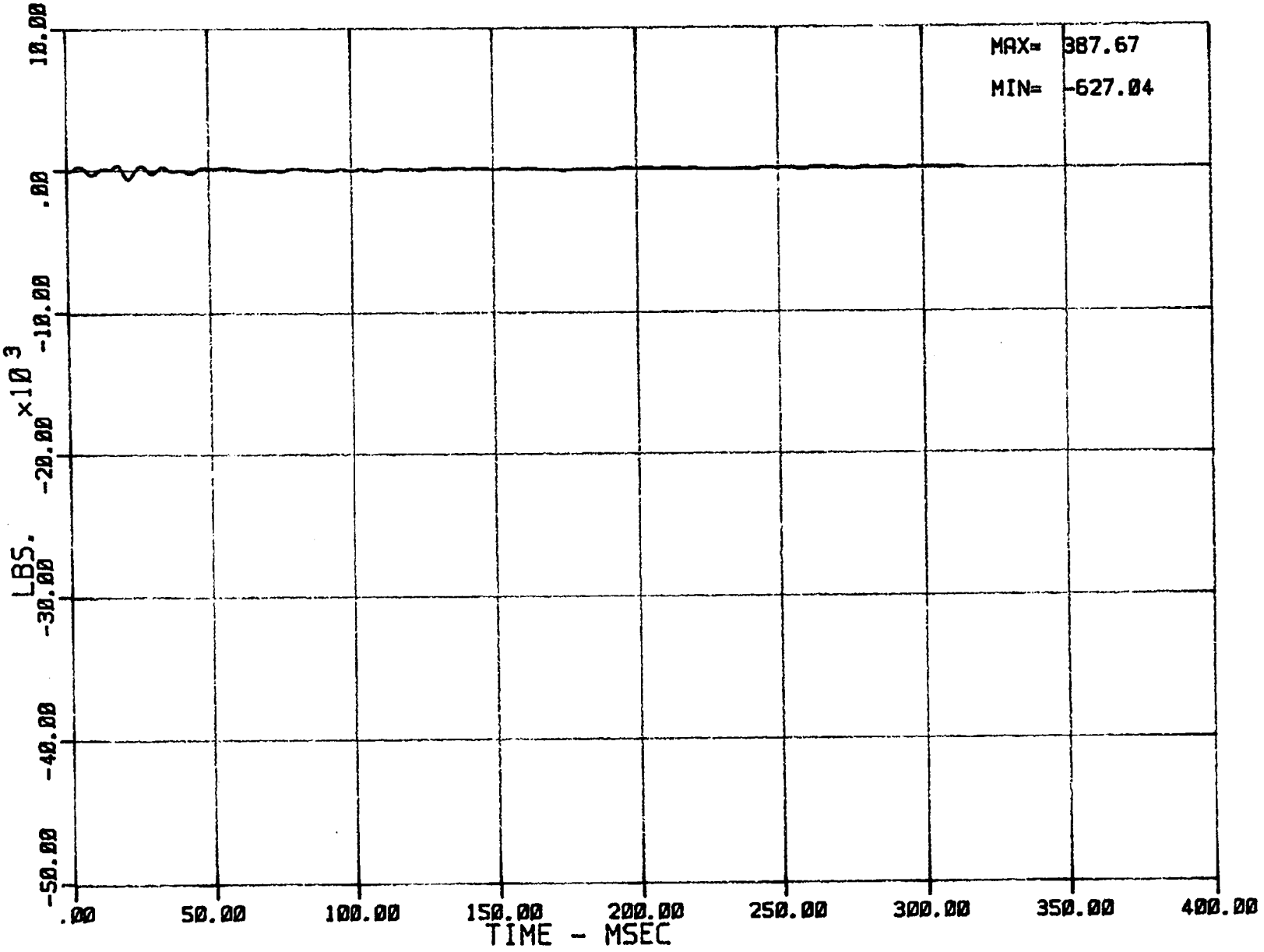
05/22/86



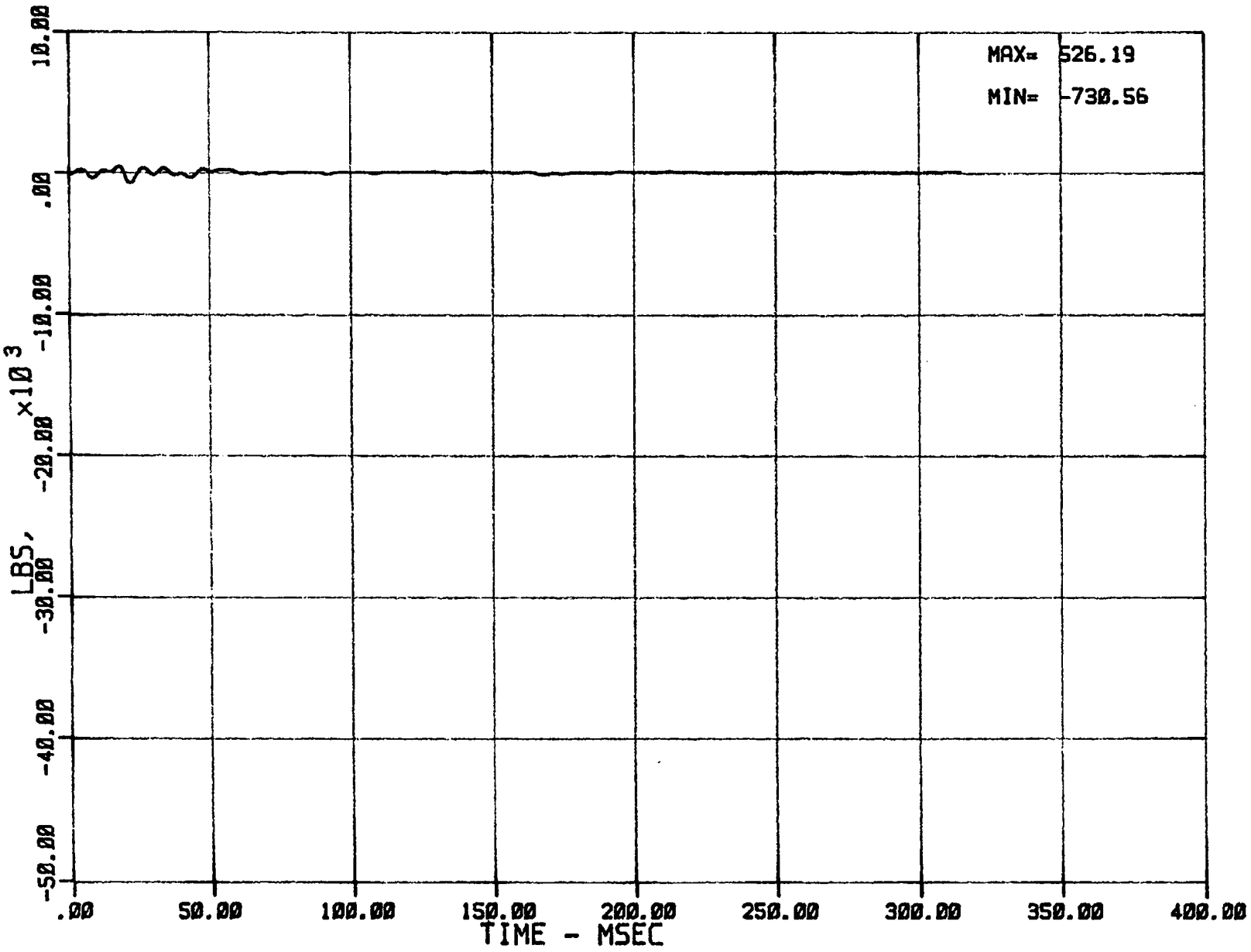
34 LC BA N BA3 (BARRIER LOAD CELL A3 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

111

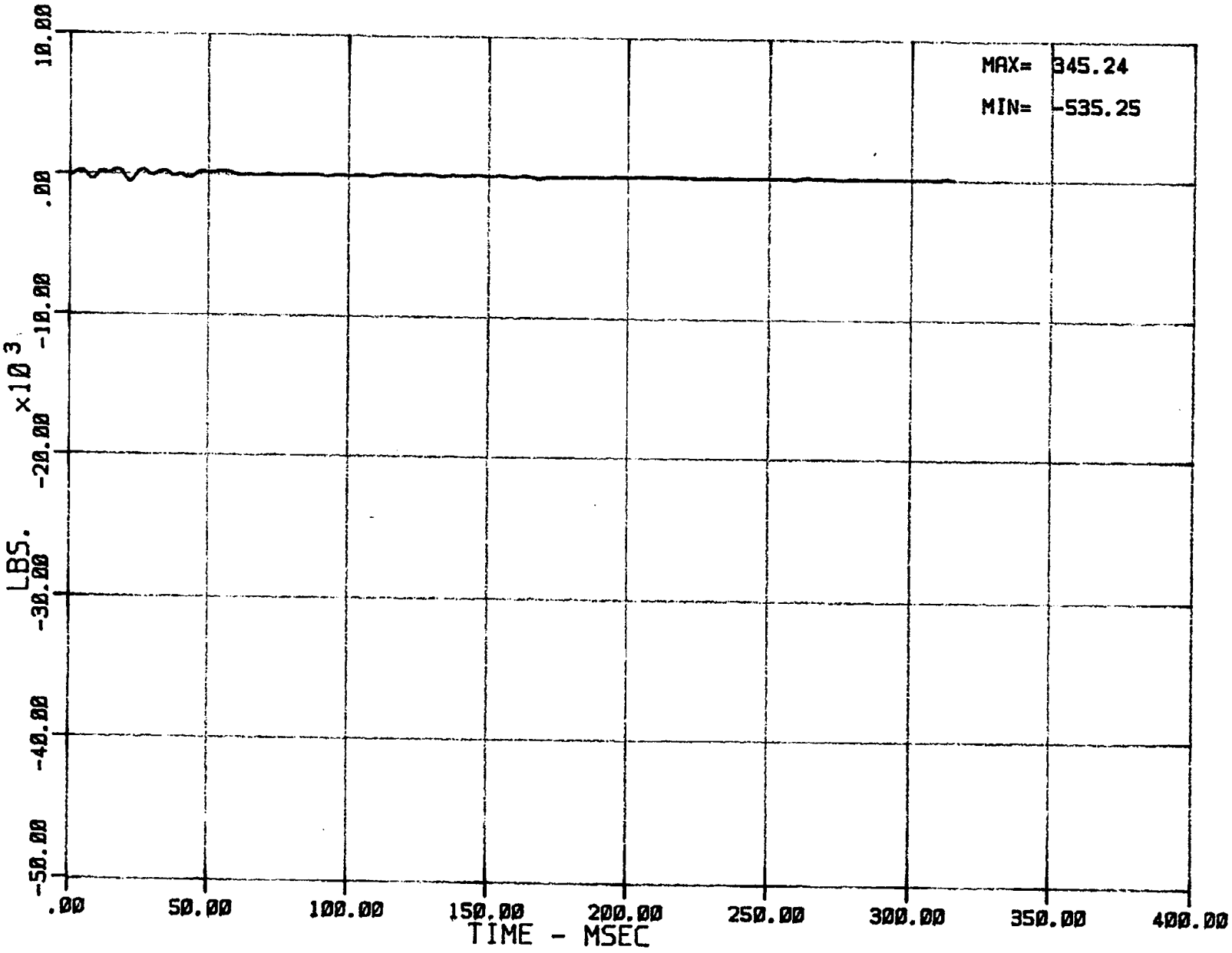
R5077-0



35 LC BA BA4 (BARRIER LOAD CELL A4 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

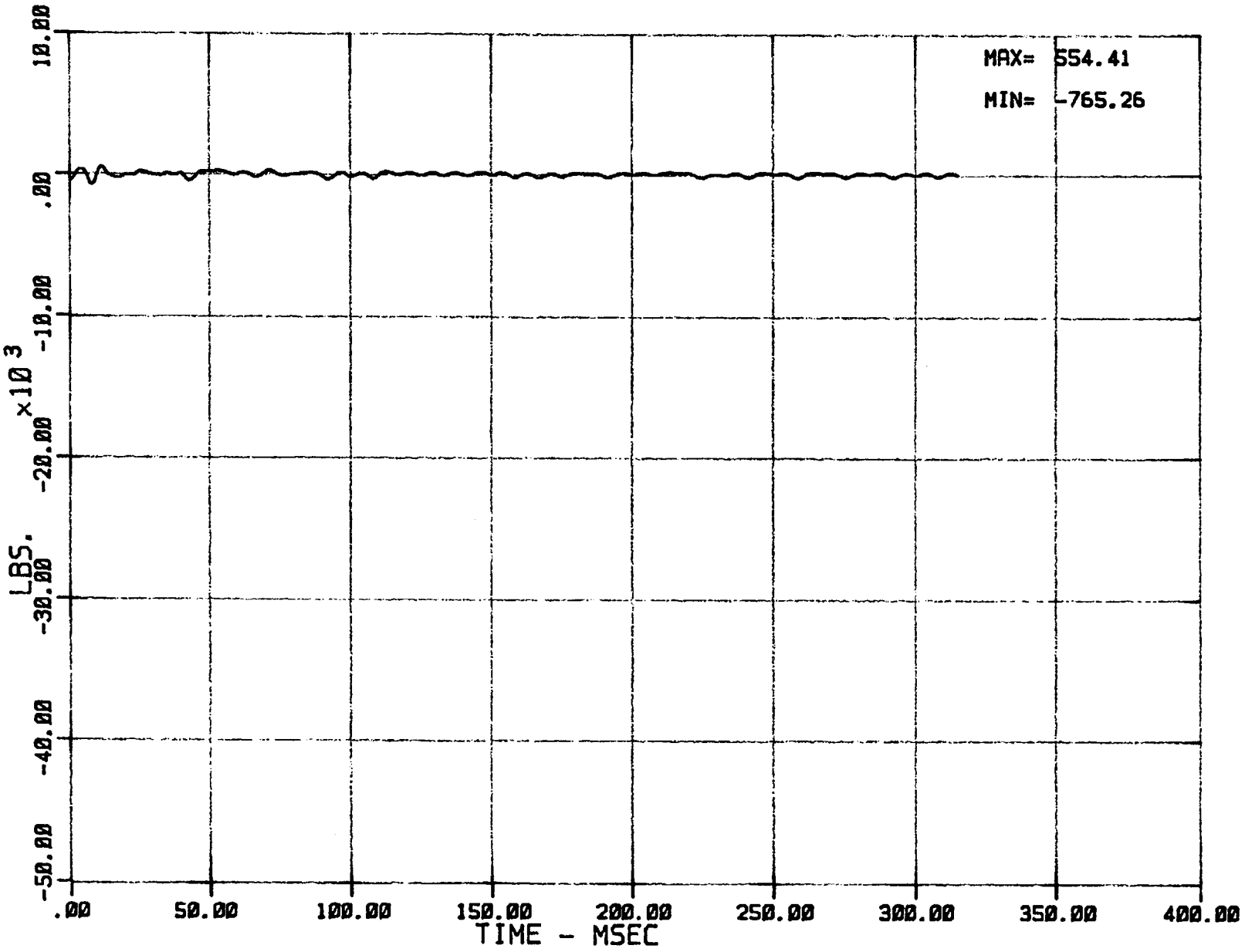


36 LC BA N BAS (BARRIER LOAD CELLL AS FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

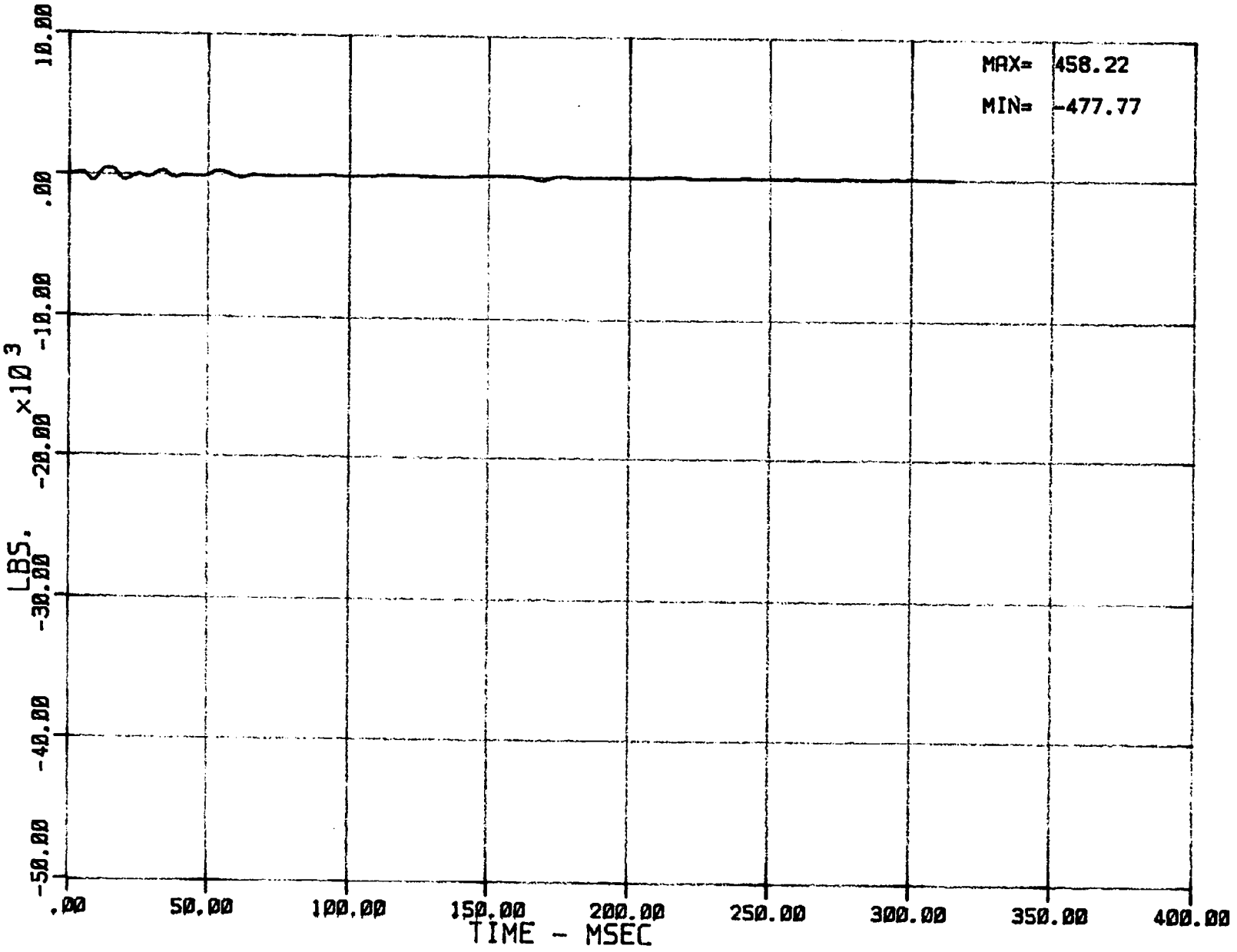


37 LC BA N BA6 (BARRIER LOAD CELL A6 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86



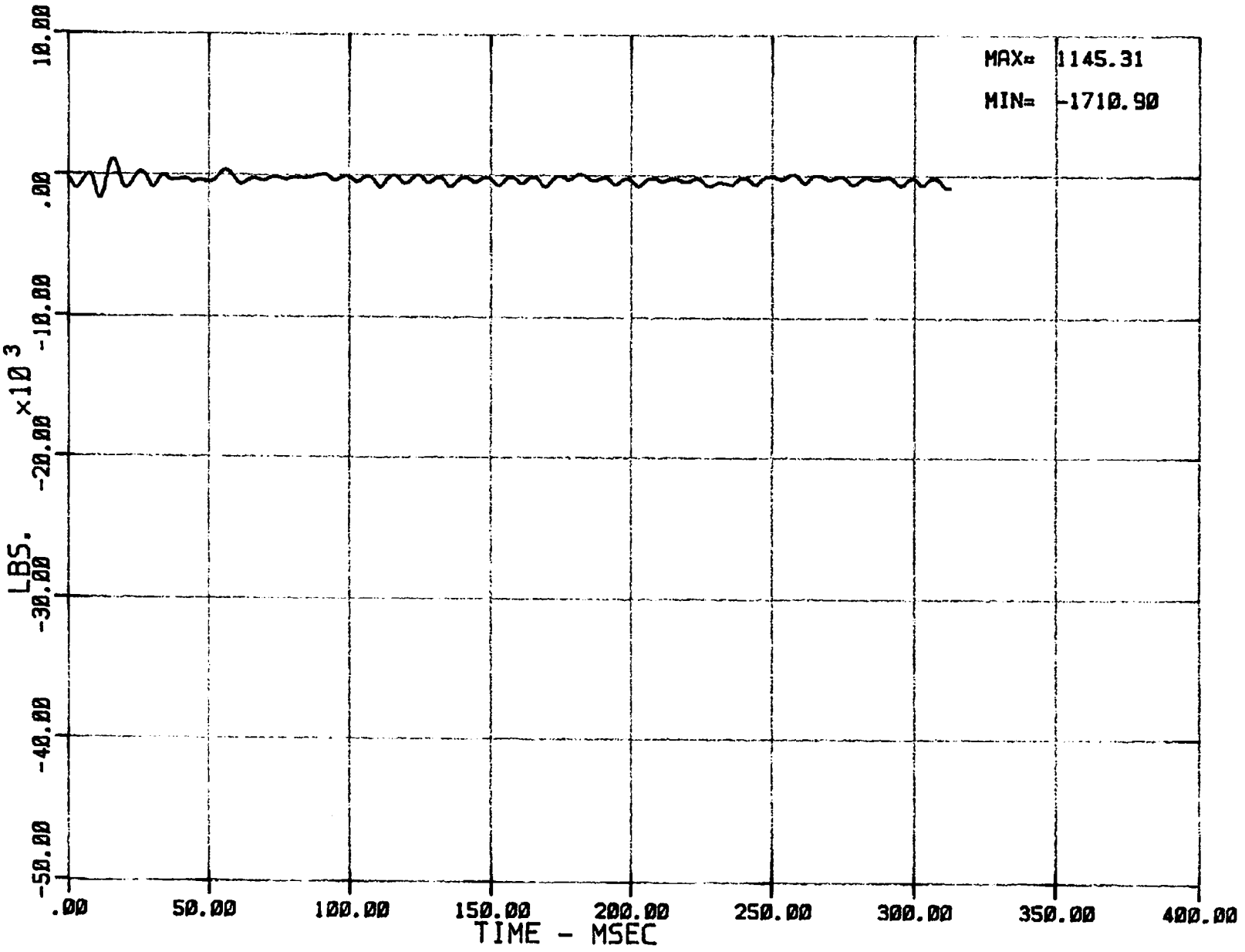
38 LC BA N BA7 (BARRIER LOAD CELL A7 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



39 LC BA N BA8 (BARRIER LOAD CELL A8 FORCE)
MSE N07026 1986 DODGE B-150 VAN

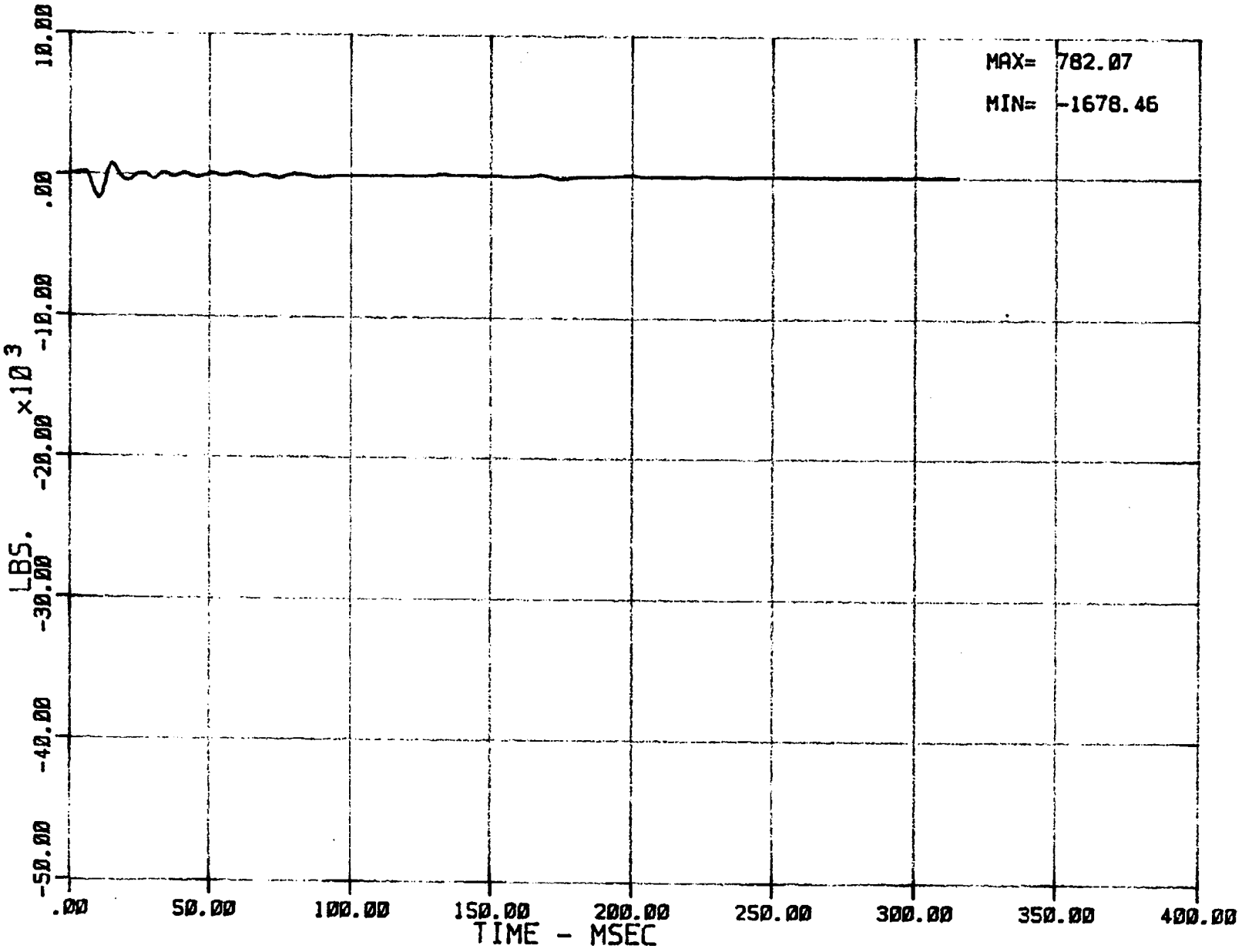
05/22/86

R5077-02



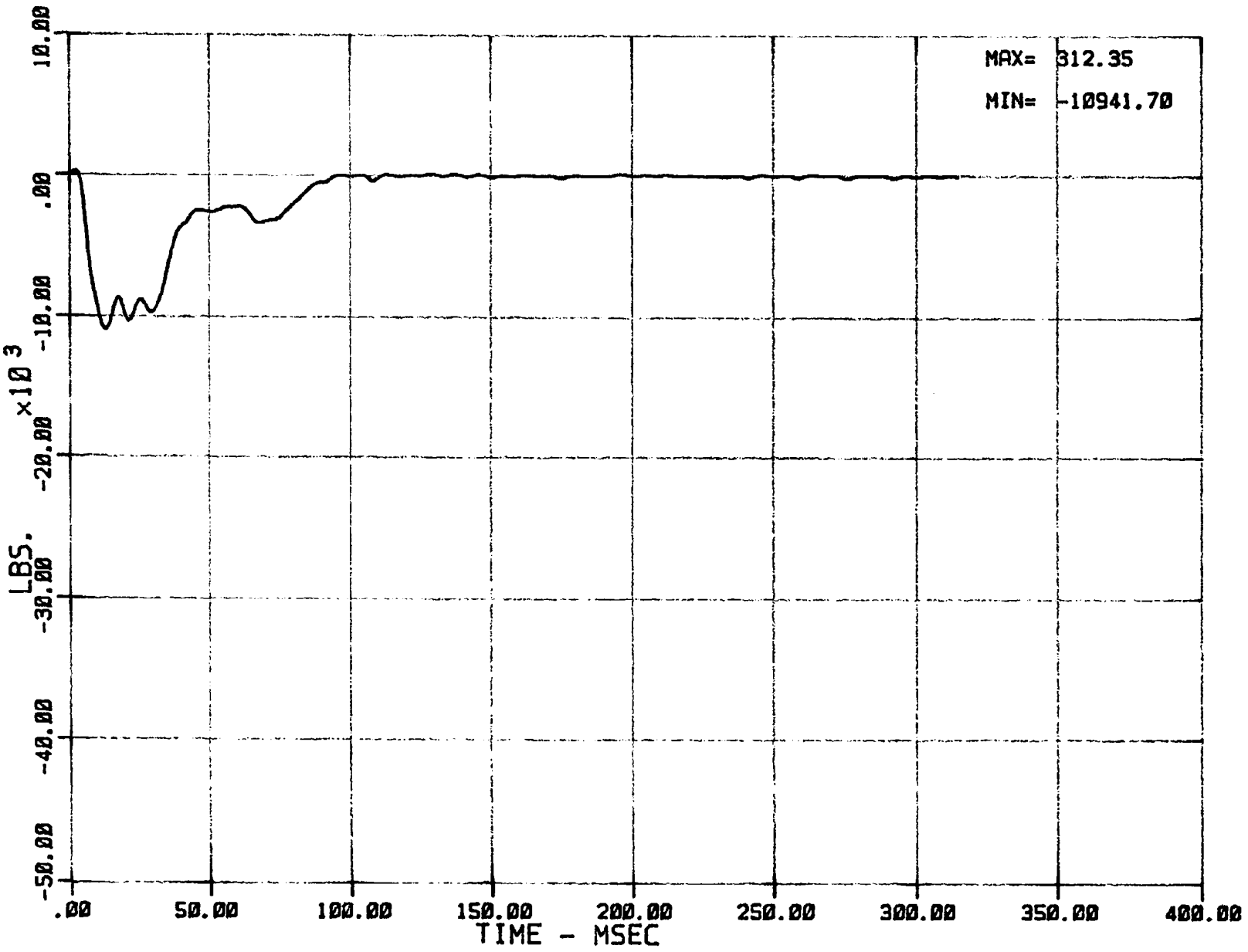
40 LC BA N BA9 (BARRIER LOAD CELL A9 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

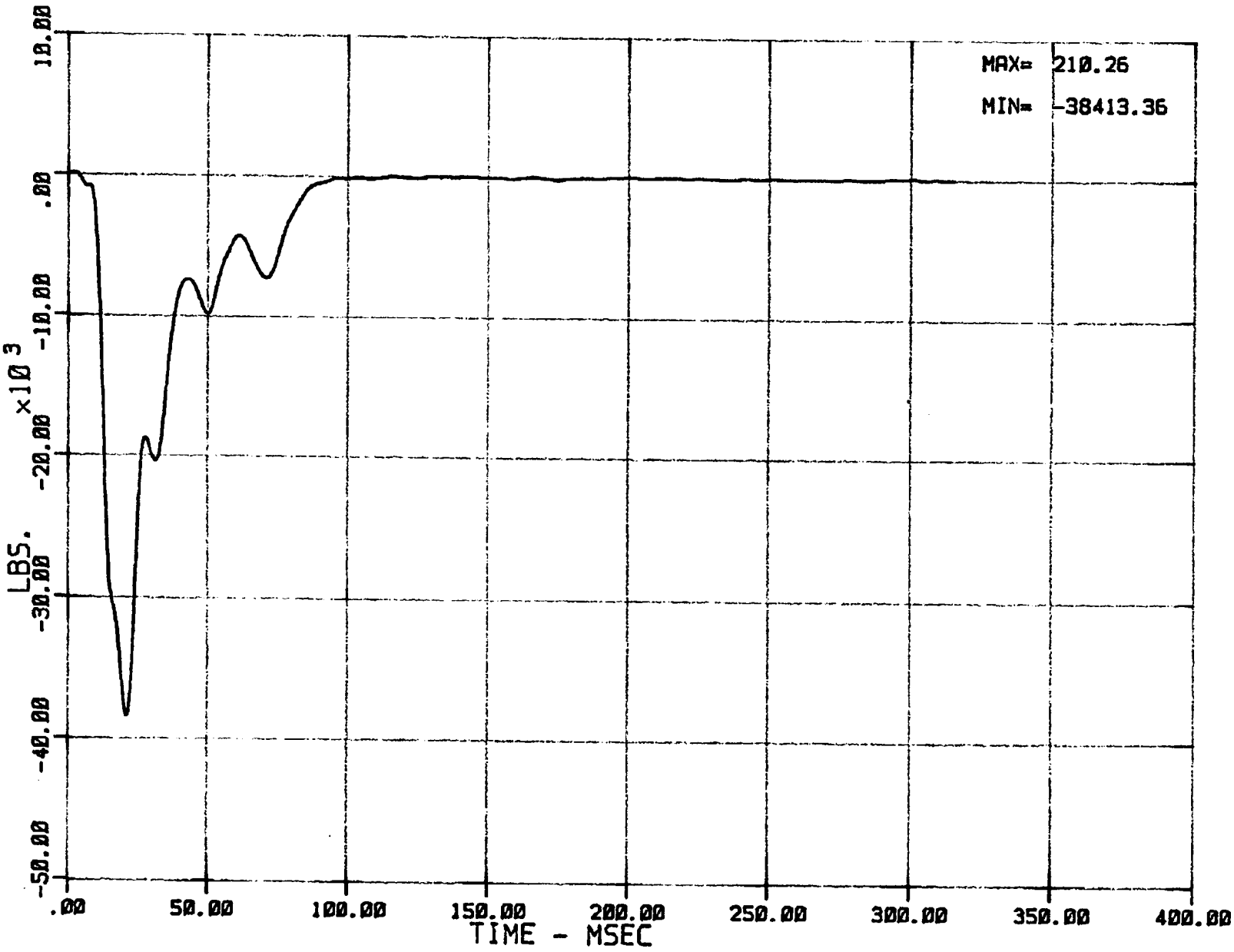


41 LC BA N BB1 (BARRIER LOAD CELL FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

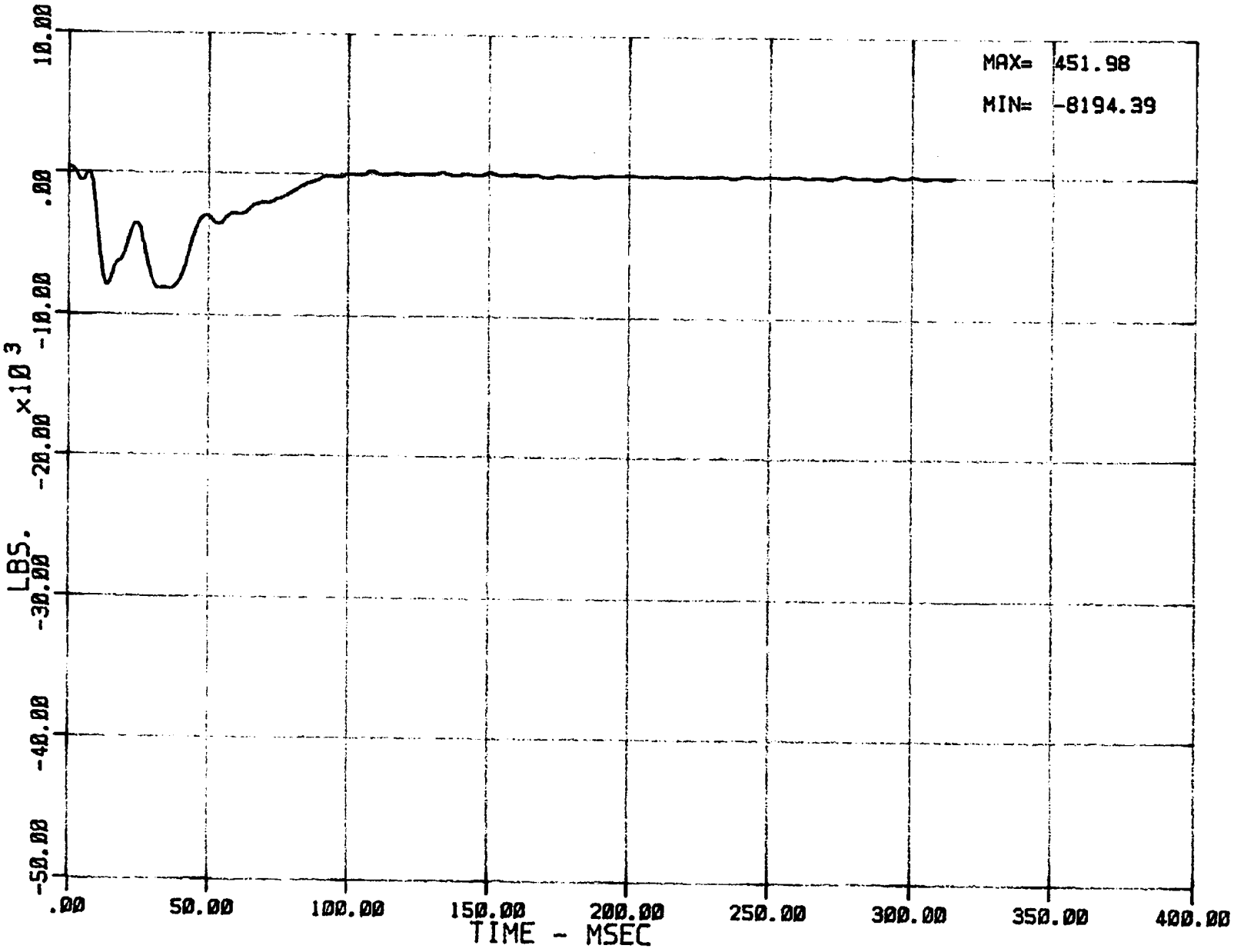


42 LC BB N BB2 (BARRIER LOAD CELL B2 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



43 LC BB N BB3 (BARRIER LOAD CELL B3 FORCE)
MSE N07026 1986 DODGE B-150 VAN

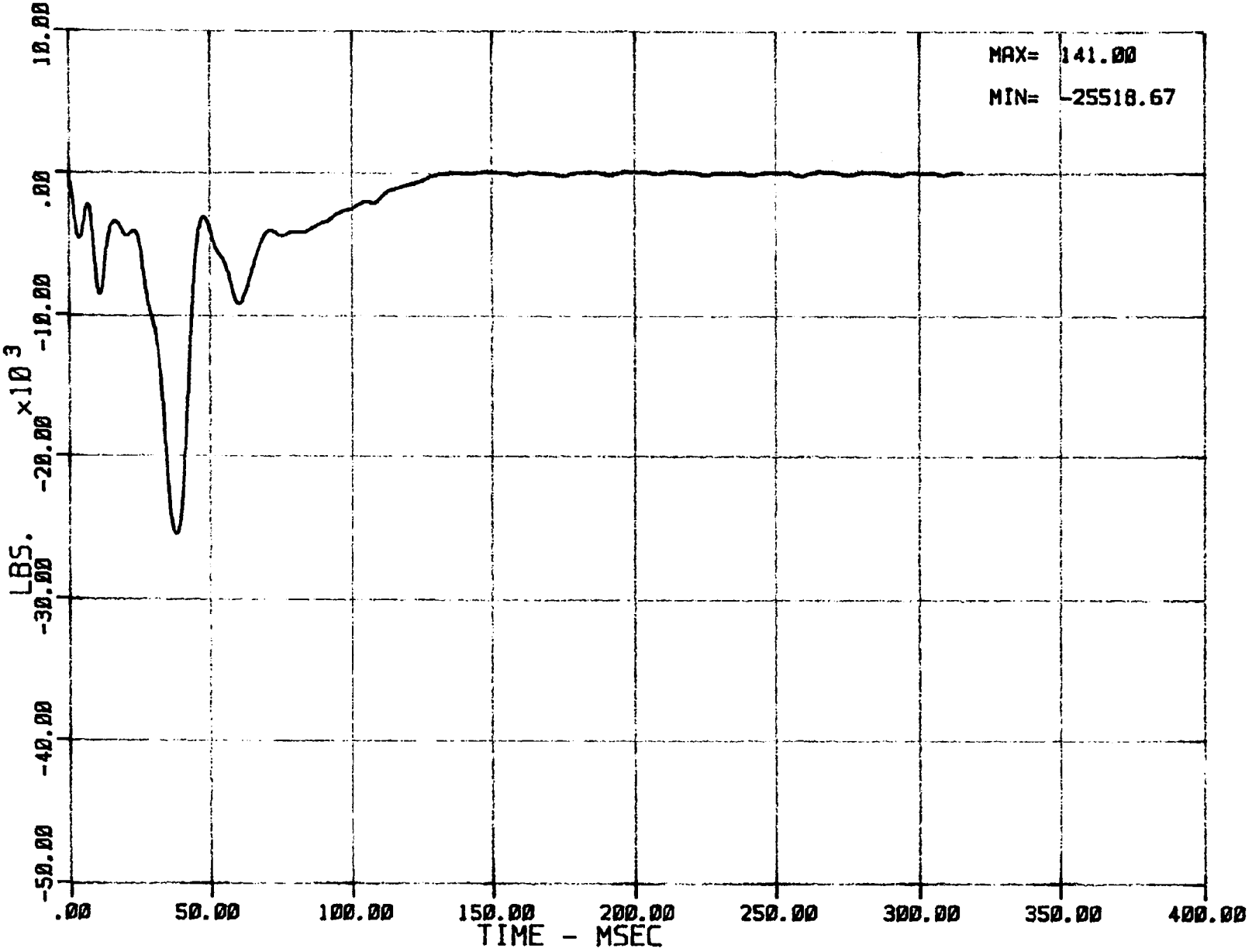
05/22/86



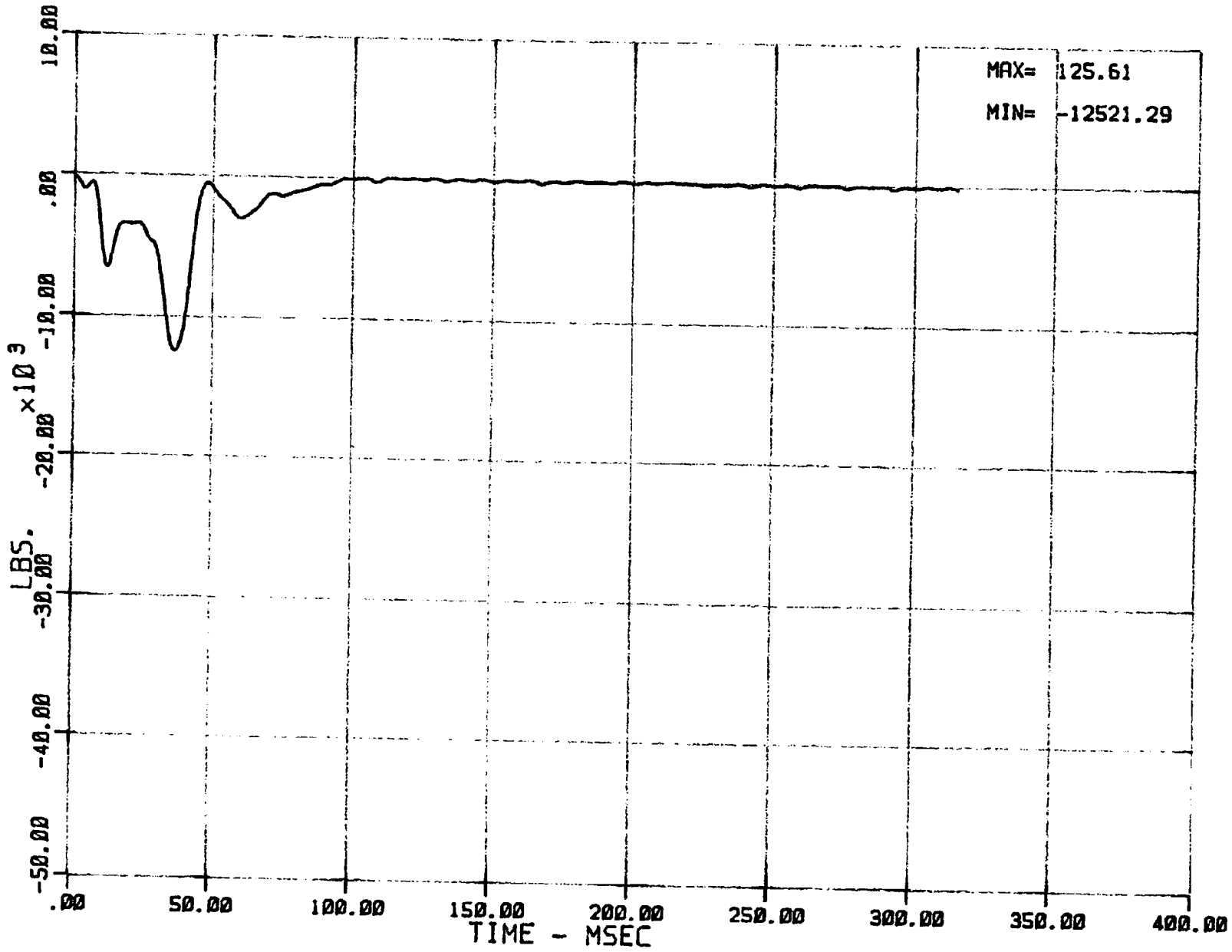
44 LC BB N BB4 (BARRIER LOAD CELL B4 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

R5077-02

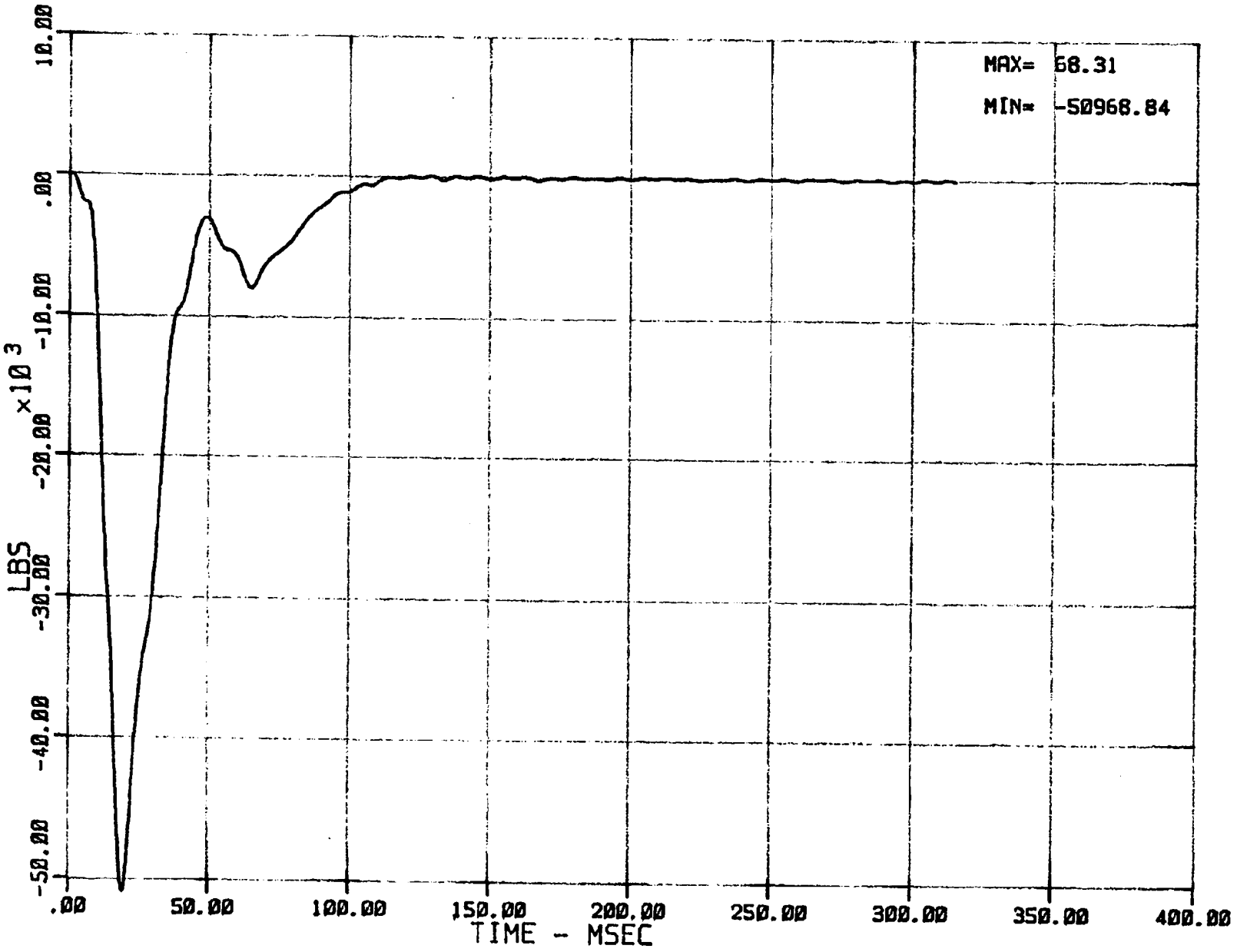


45 LC BB N BB5 (BARRIER LOAD CELL B5 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



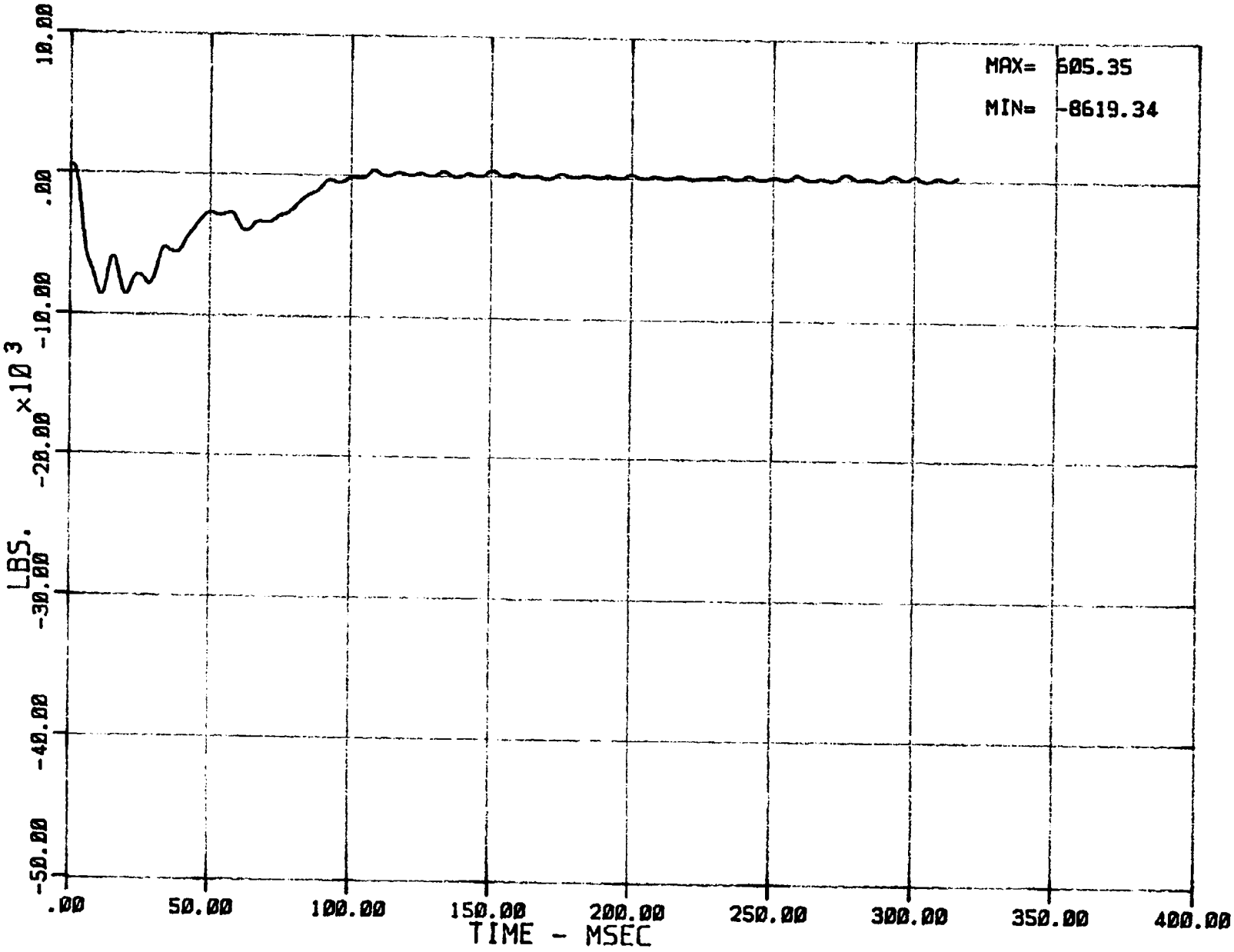
46 LC BA N BB6 (BARRIER LOAD CELL B6 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86



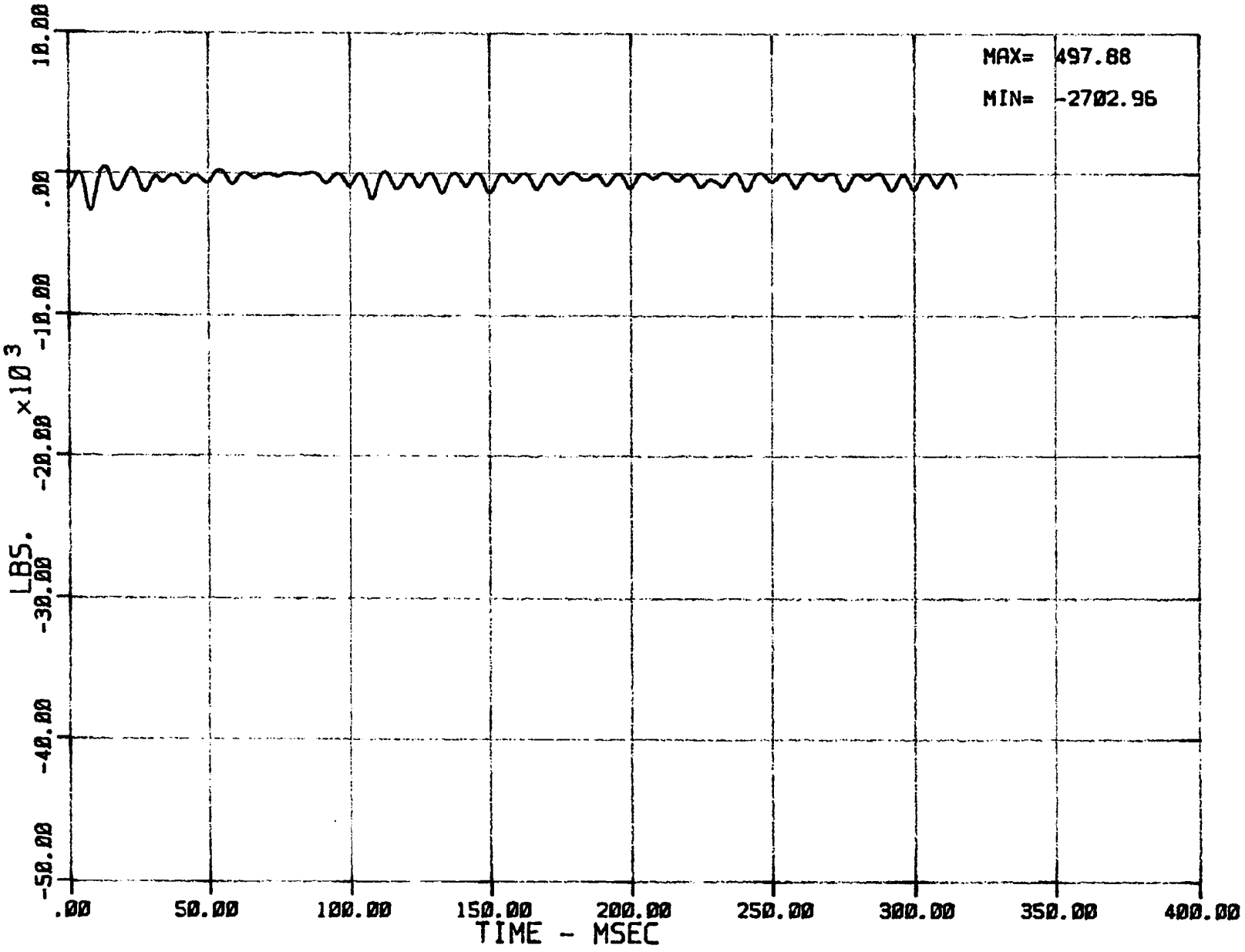
47 LC BA N B87 (BARRIER LOAD CELL B7 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

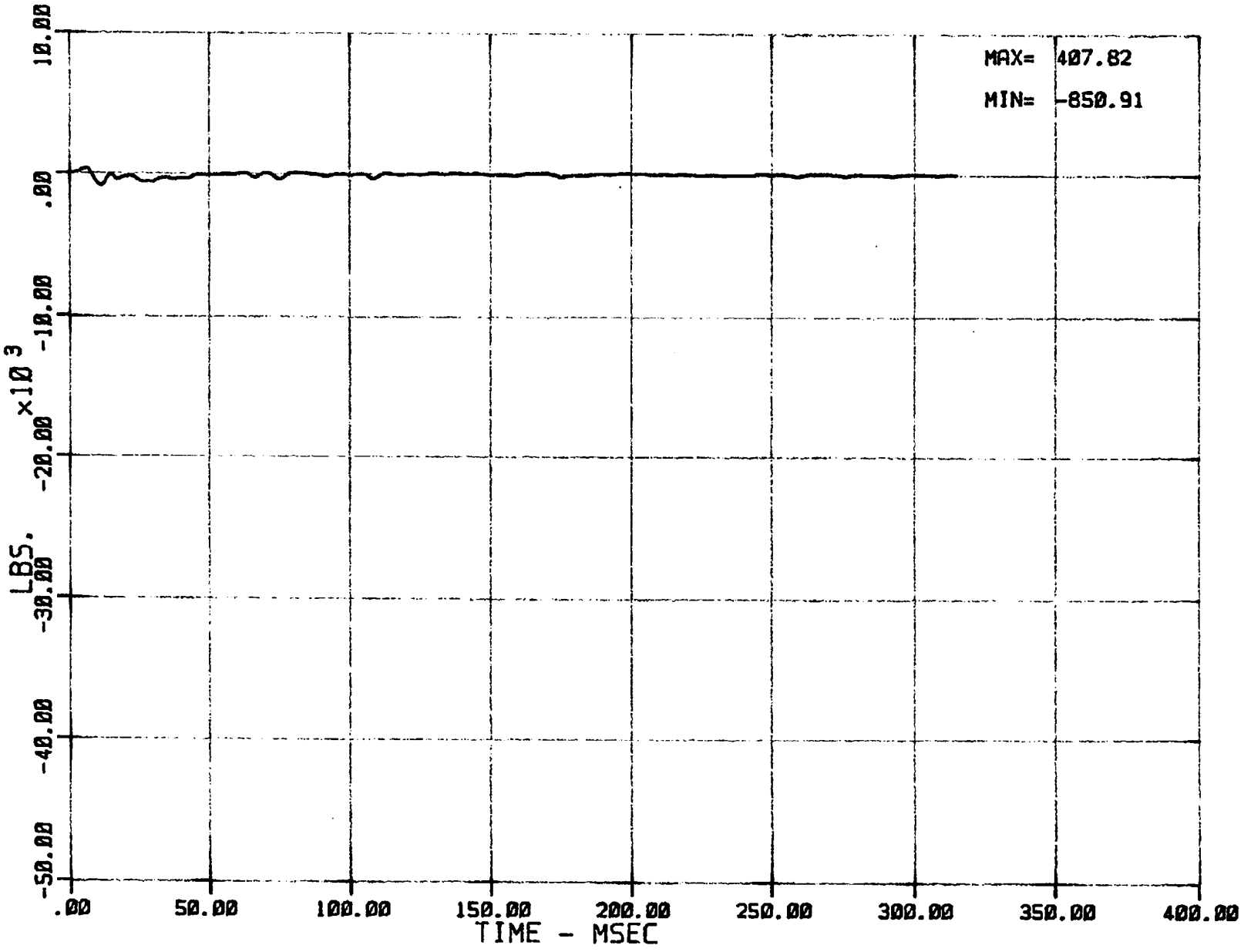


48 LC BA N BBB (BARIER LOAD CELL FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

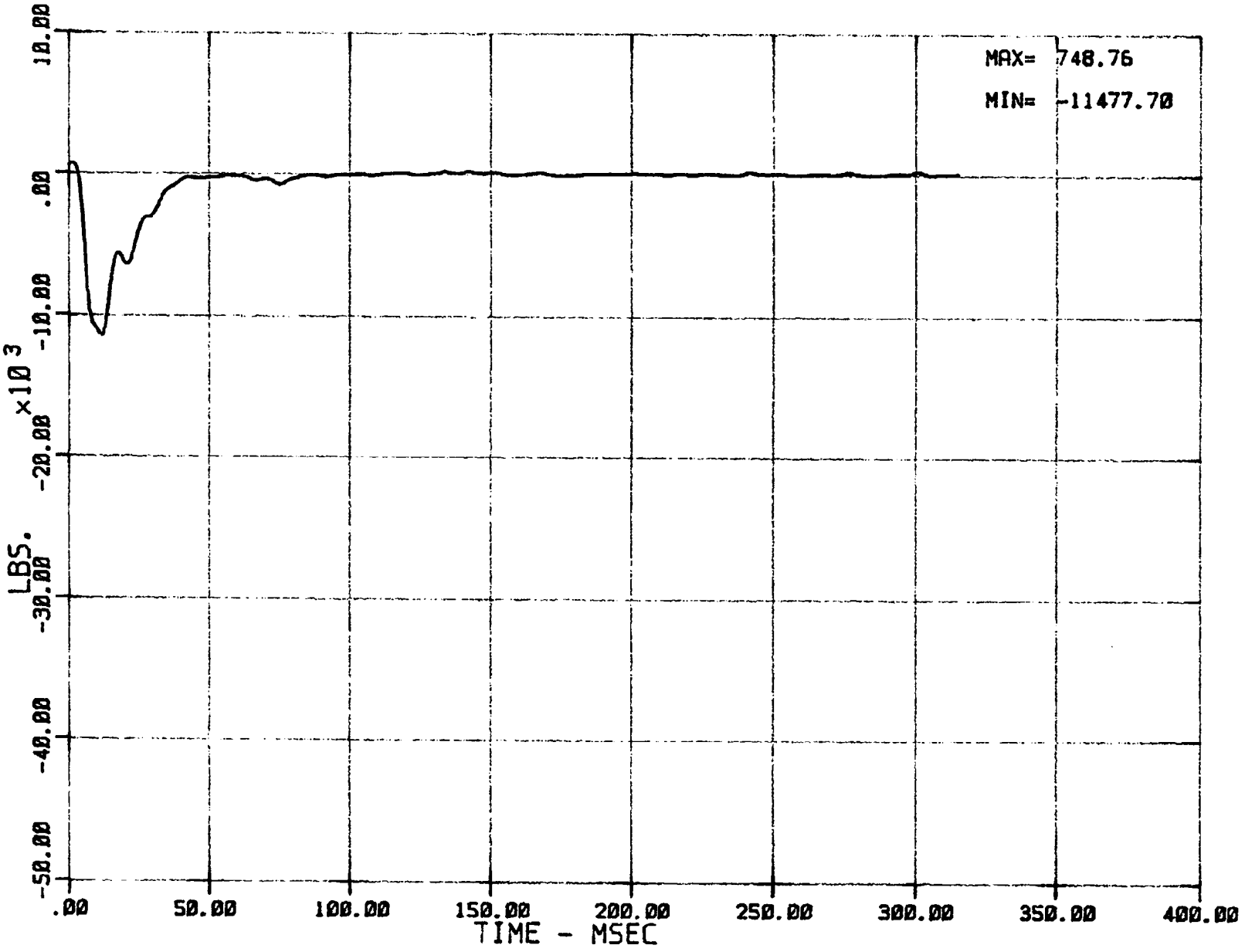


49 LC BA N 889 (BARRIER LOAD CELL 89 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



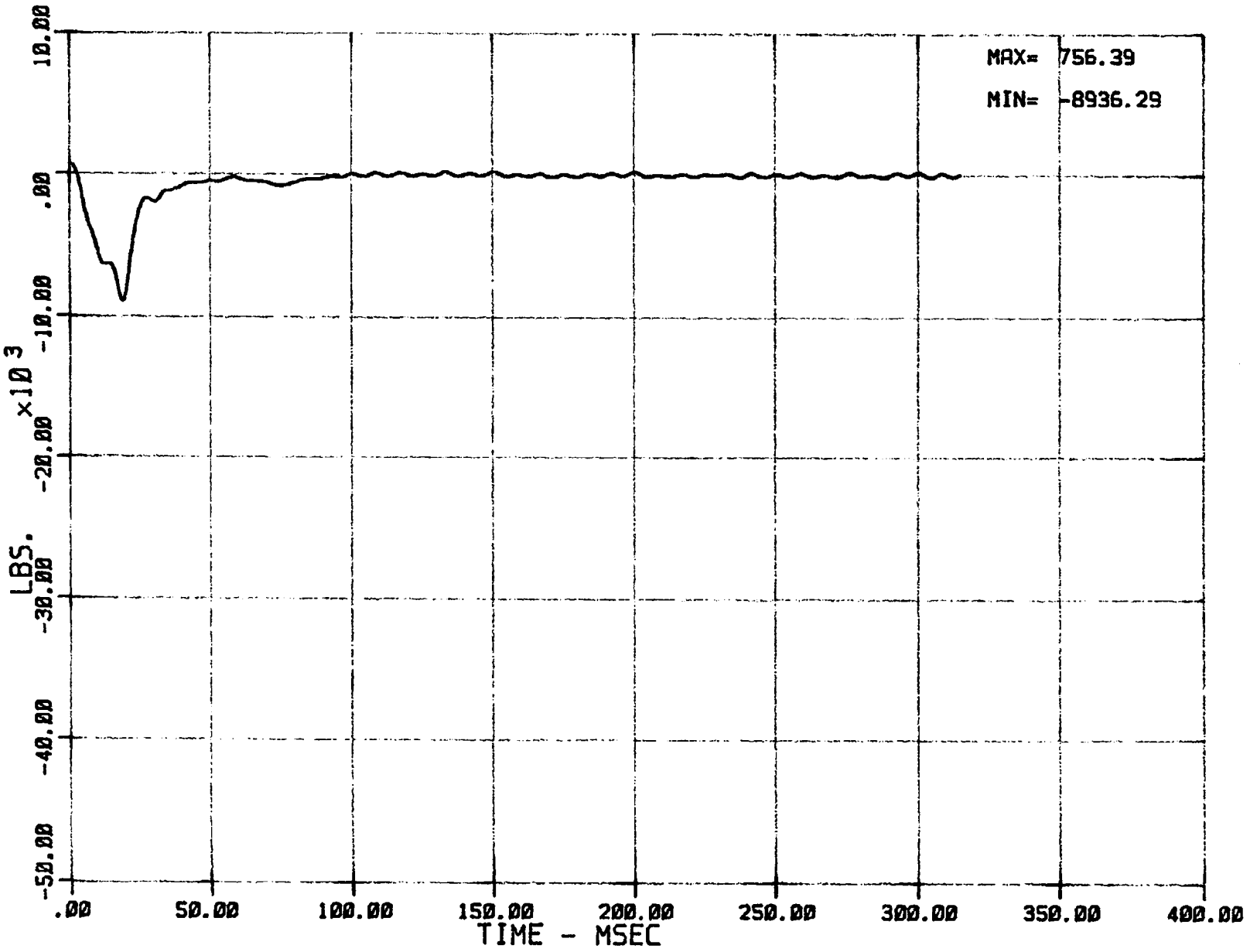
50 LC BA N BC1 (BARRIER LOAD CELL C1 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86



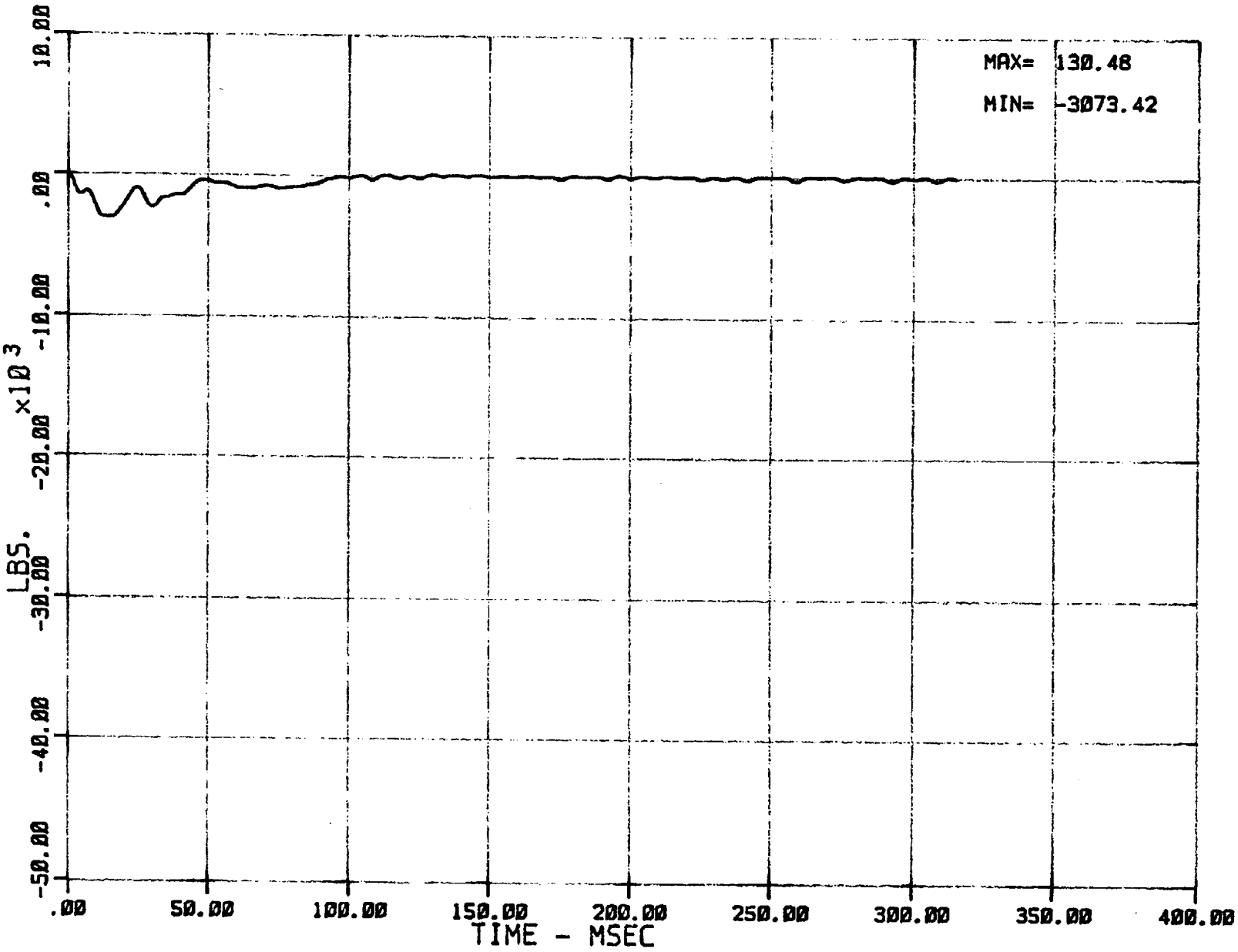
S1 LC BA BC2 (BARRIER LOAD CELL C2 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86



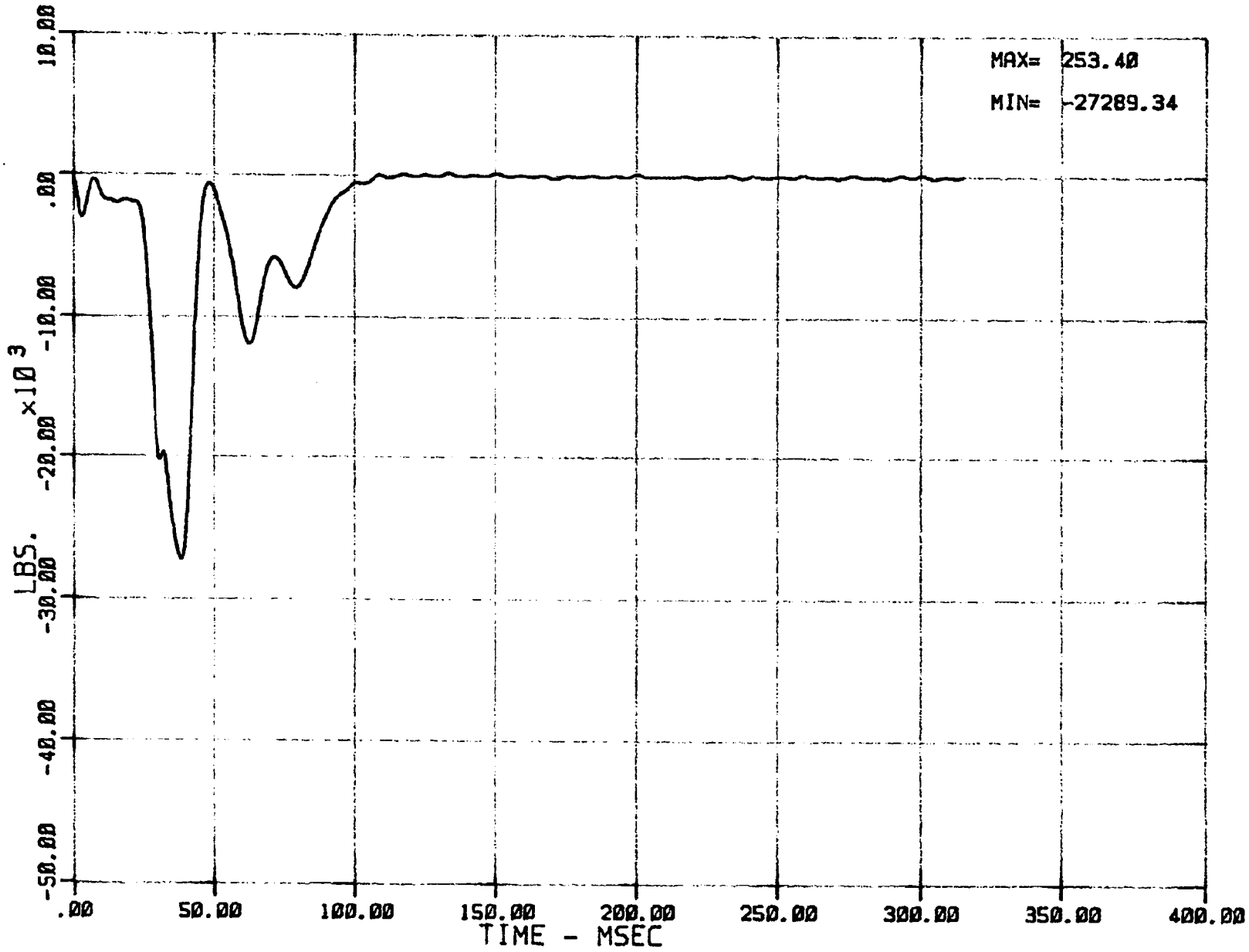
52 LC BA N BC3 (BARRIER LOAD CELL C3 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

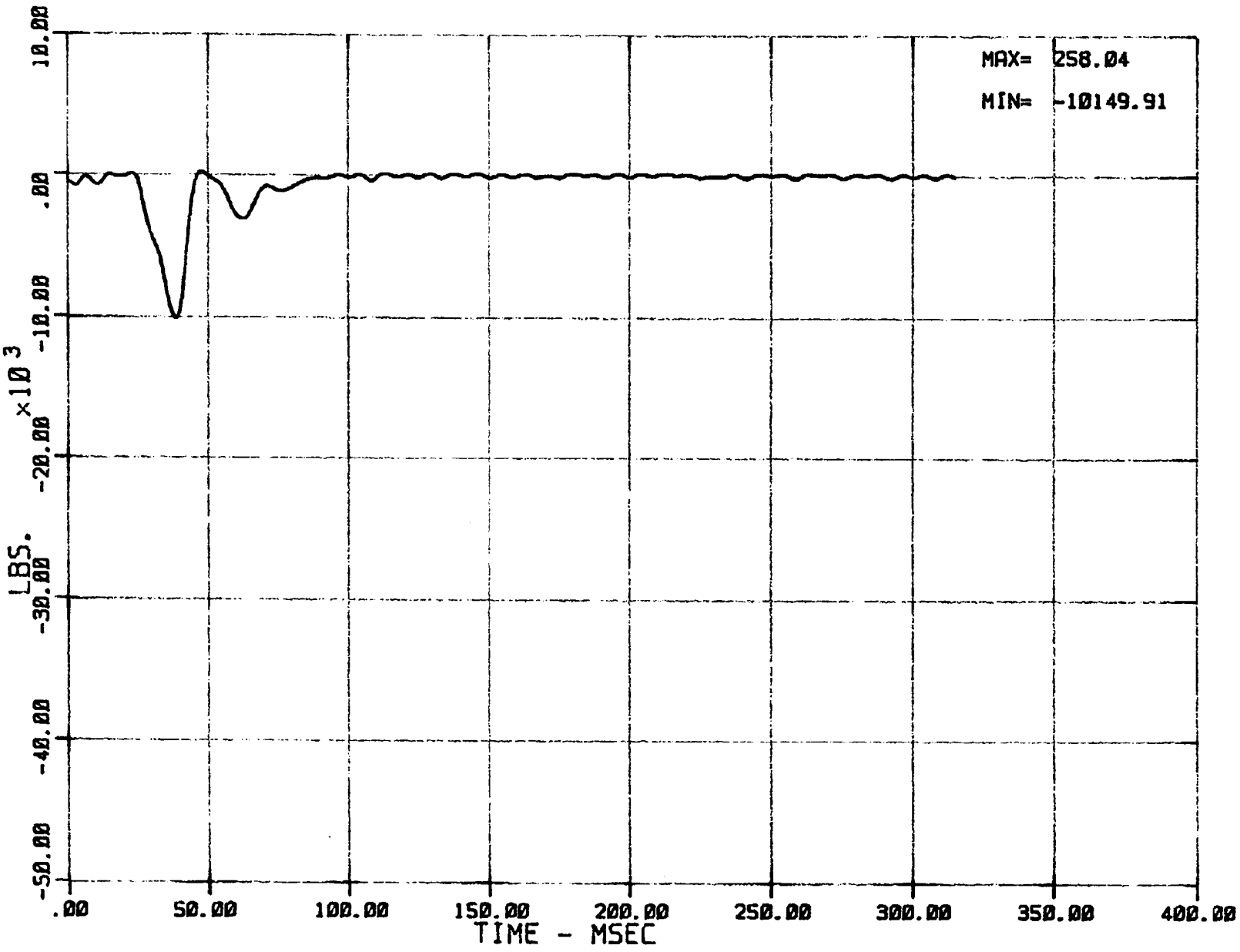


53 LC BA N BC4 (BARRIER LOAD CELL C4 FORCE)
MSE N07026 1986 DODGE B-150 VAN

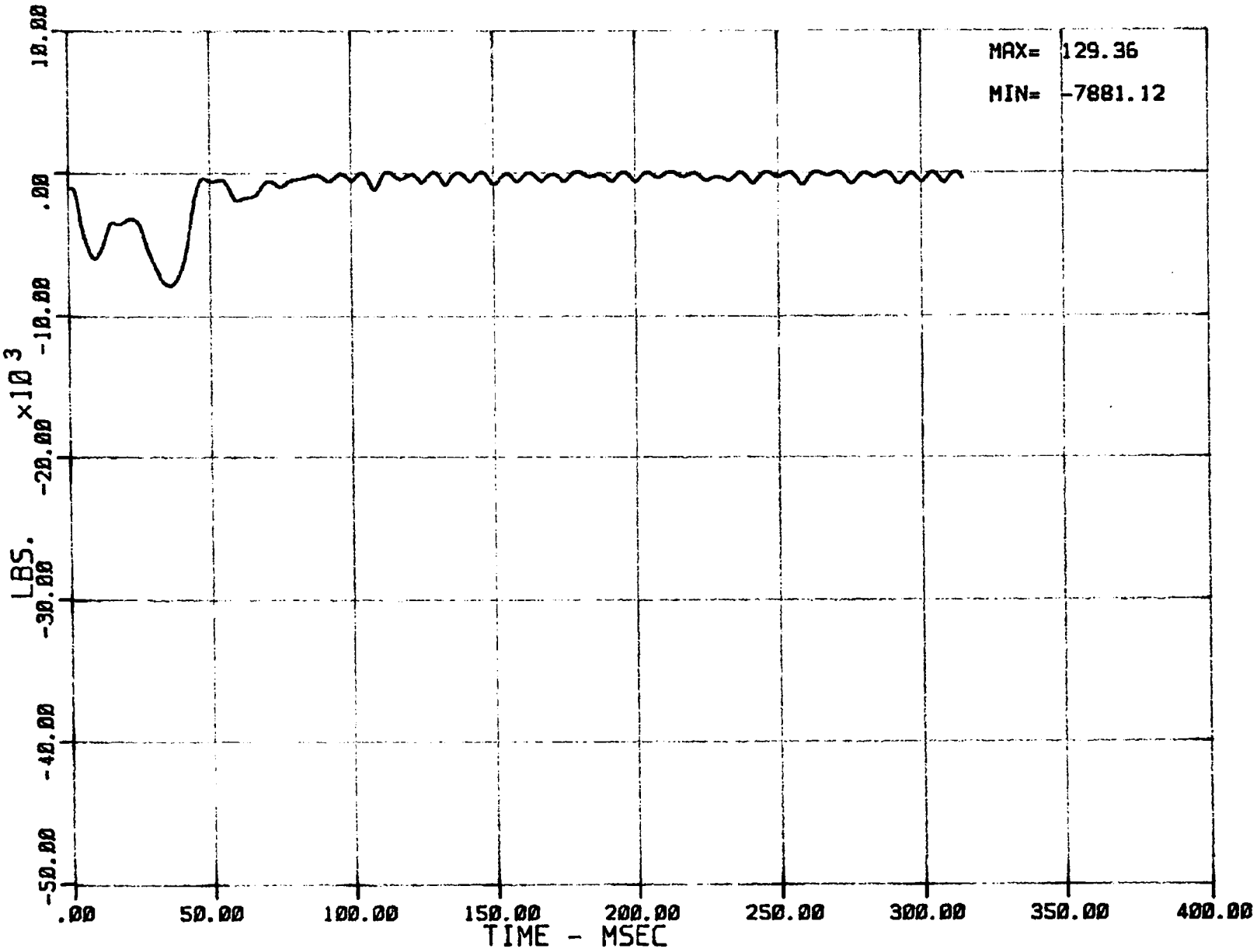
05/22/86



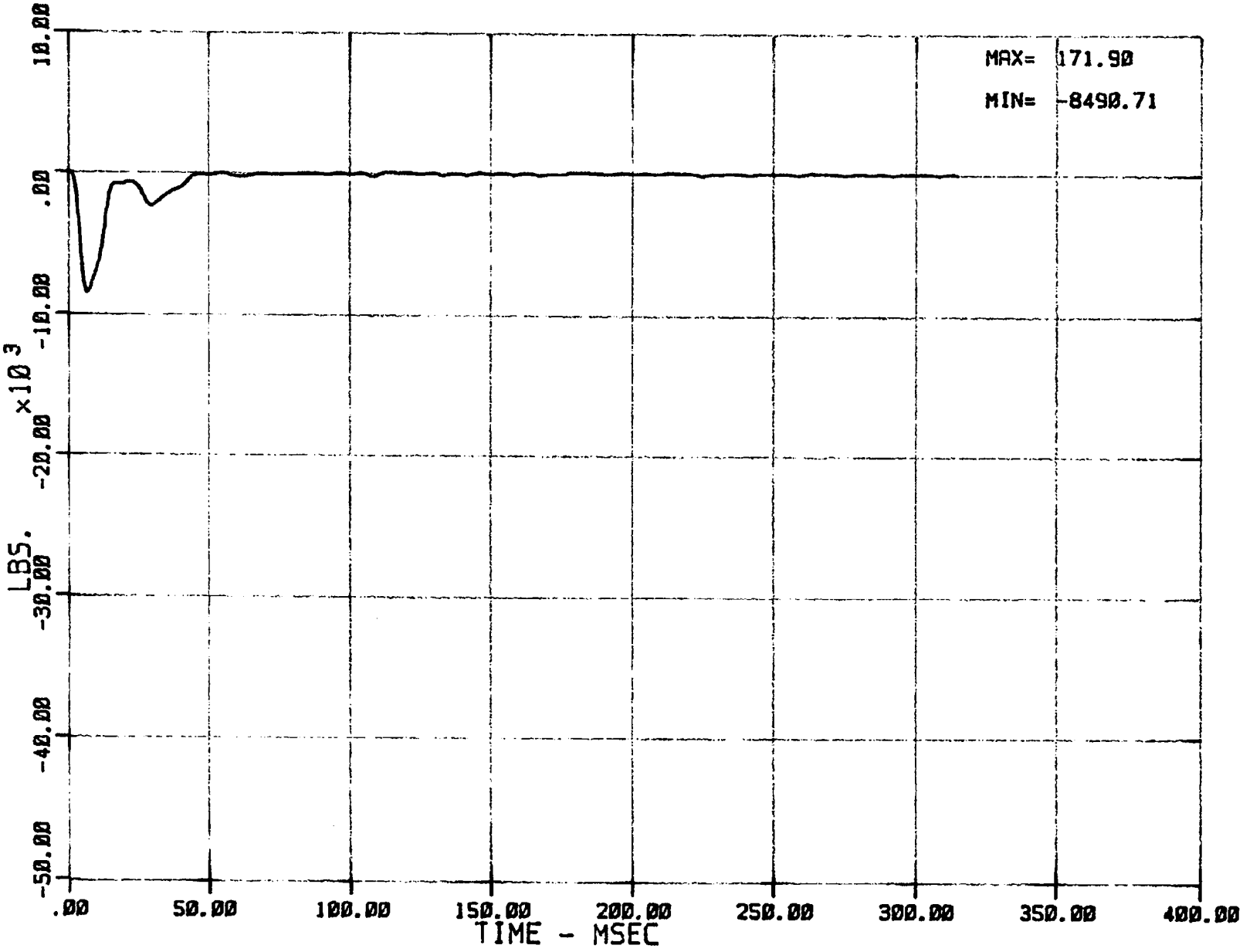
54 LC BA N BCS (BARRIER LOAD CELL CS FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



SS LC BA N BC6 (BARRIER LOAD CELL C6 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



56 LC BA N BC7 (BARRIER LOAOD CELL C7 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



S7 LC BA N BCB (BARRIER LOAD CELL C8 FORCE)
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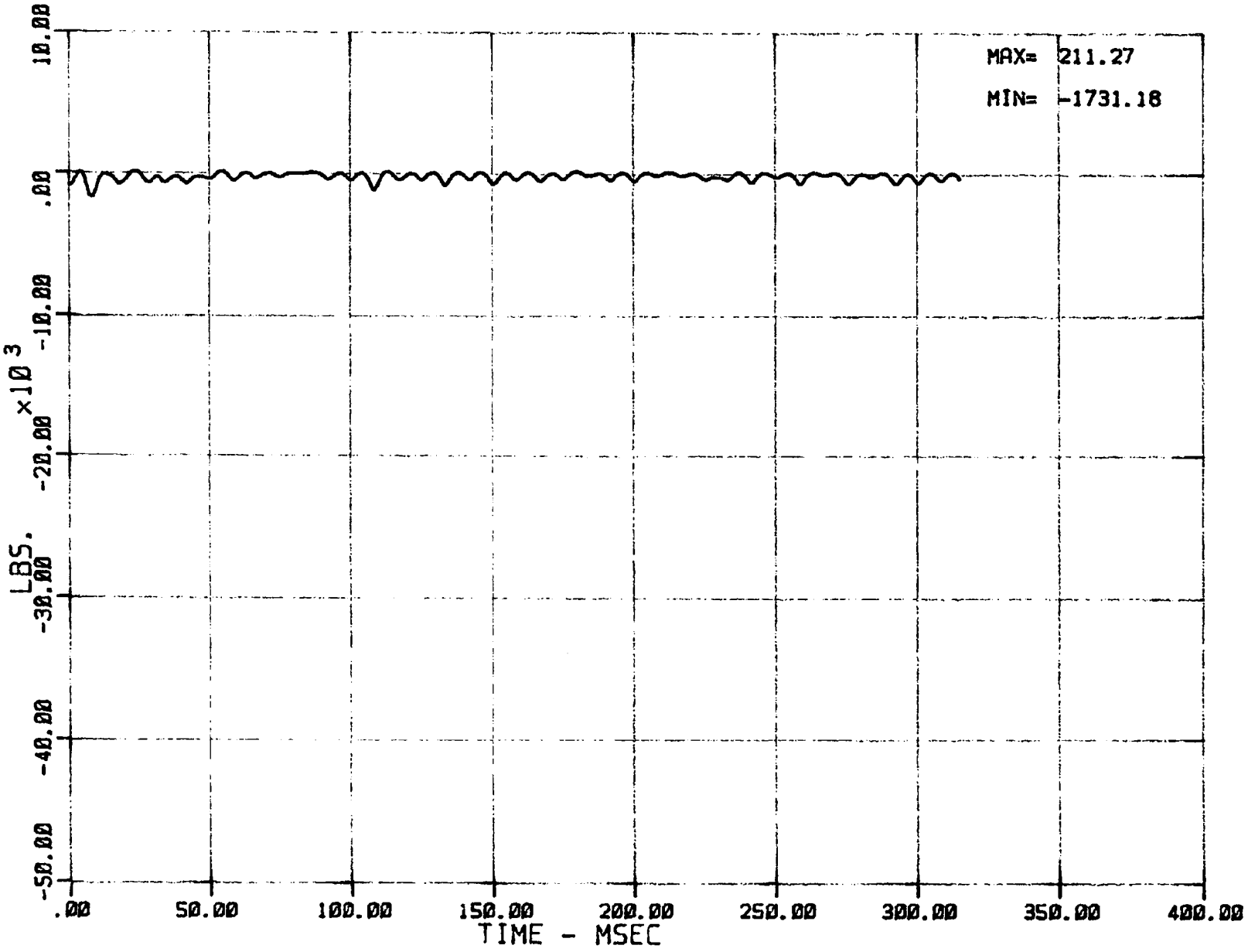

58 LC BA N BC9 (BARRIER LOAD CELL C9 FORCE)
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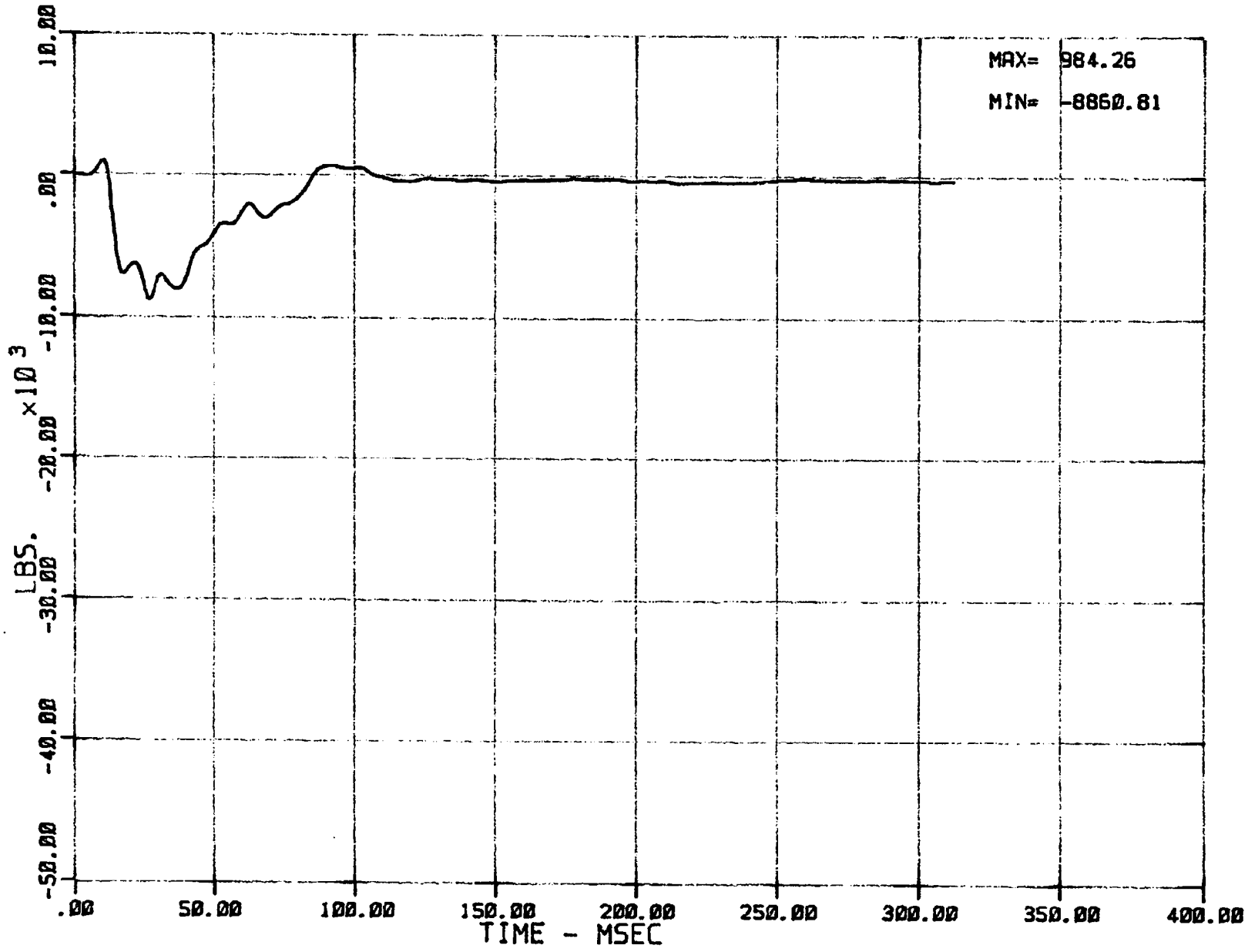
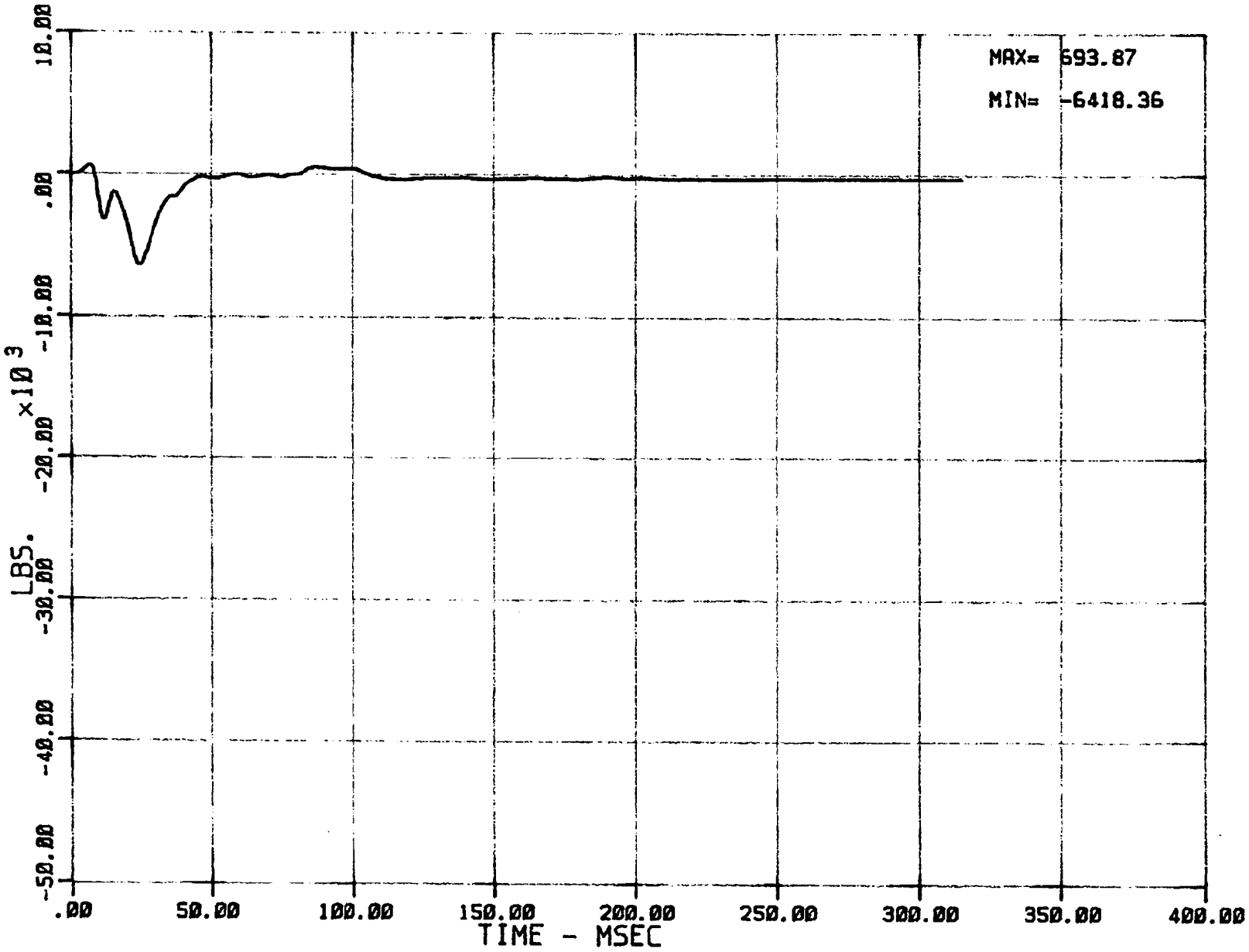


59 LC BA N BD1 (BARRIER LOAD CELL D1 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



60 LC BA N BD2 (BARRIER LOAD CELL D2 FORCE)
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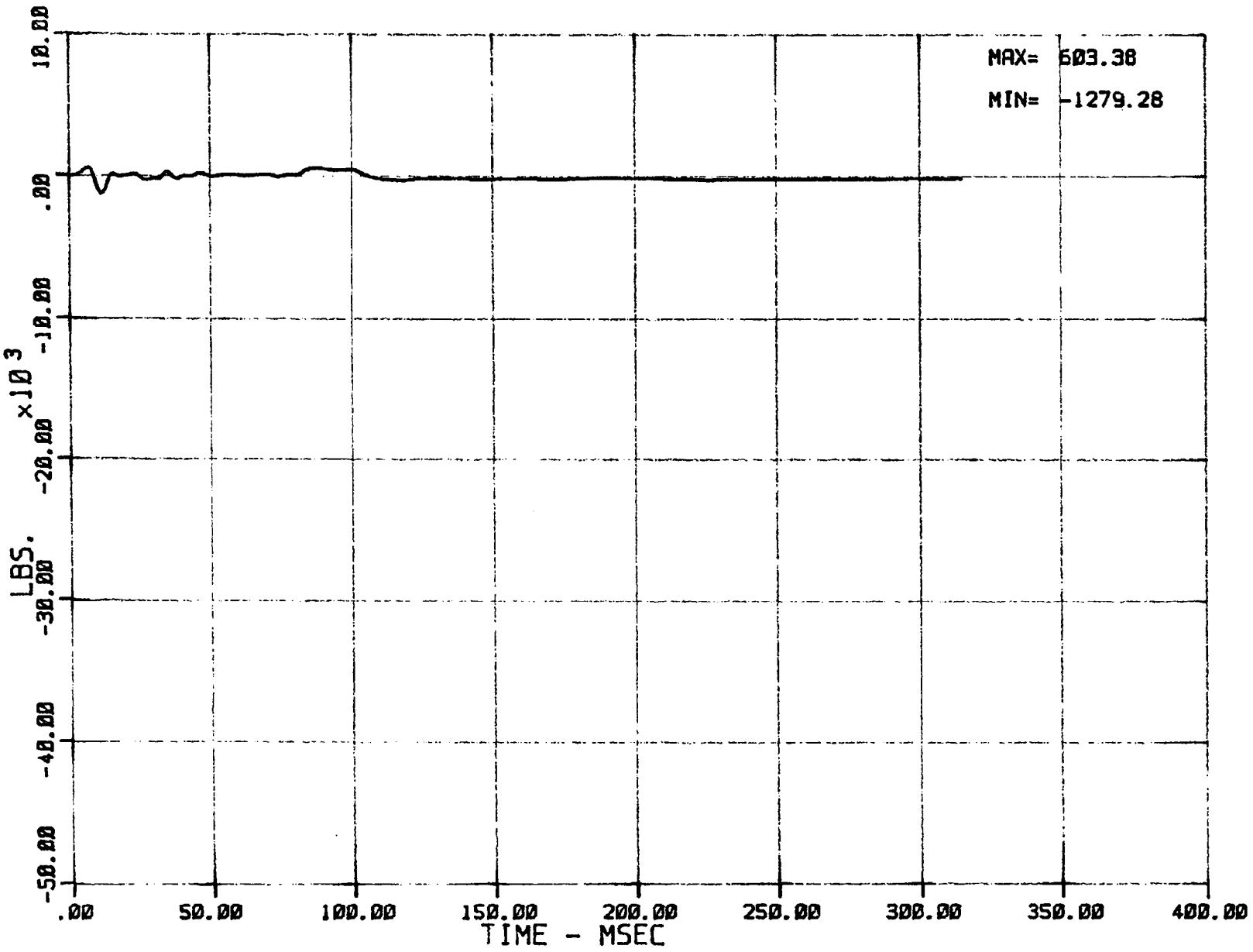
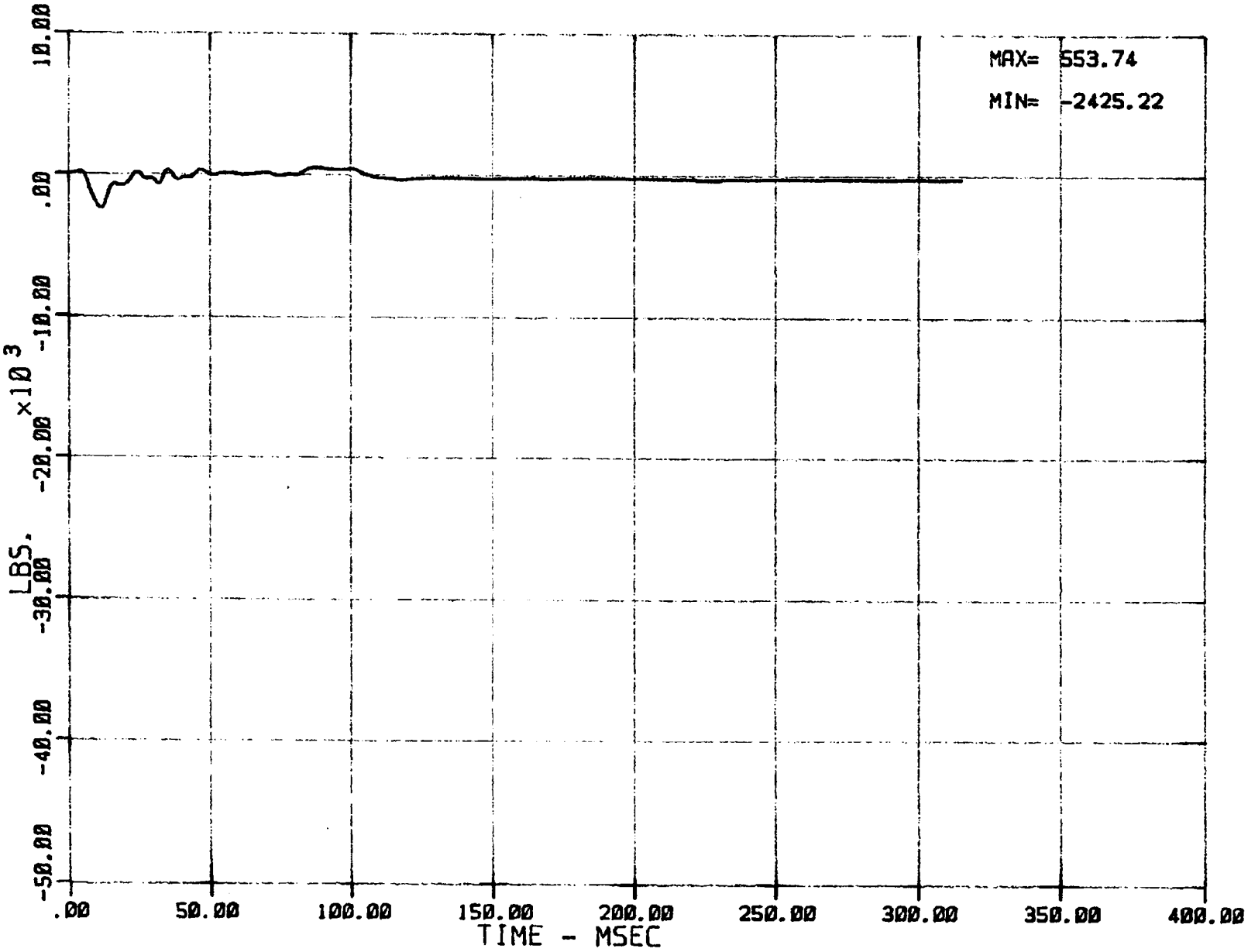
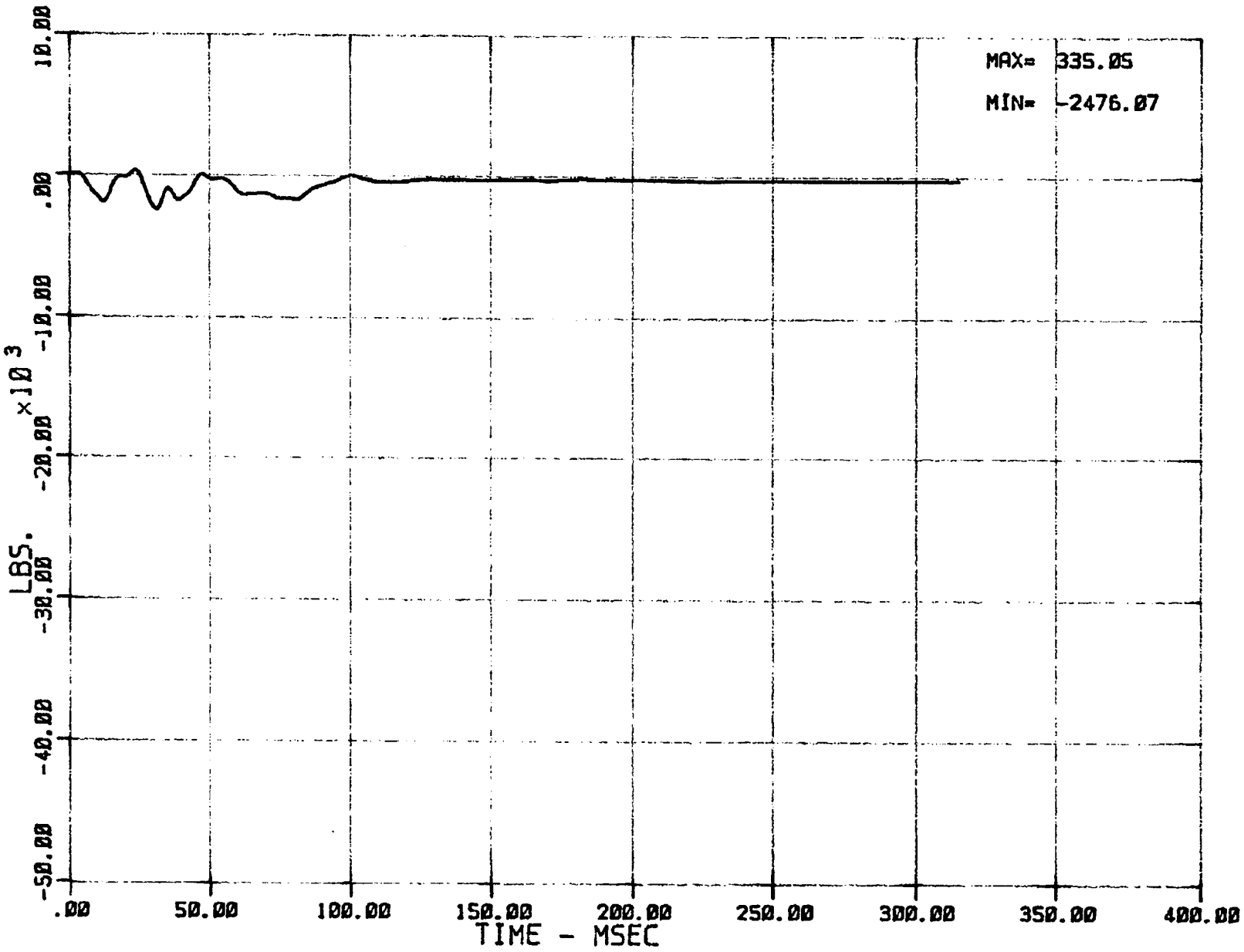


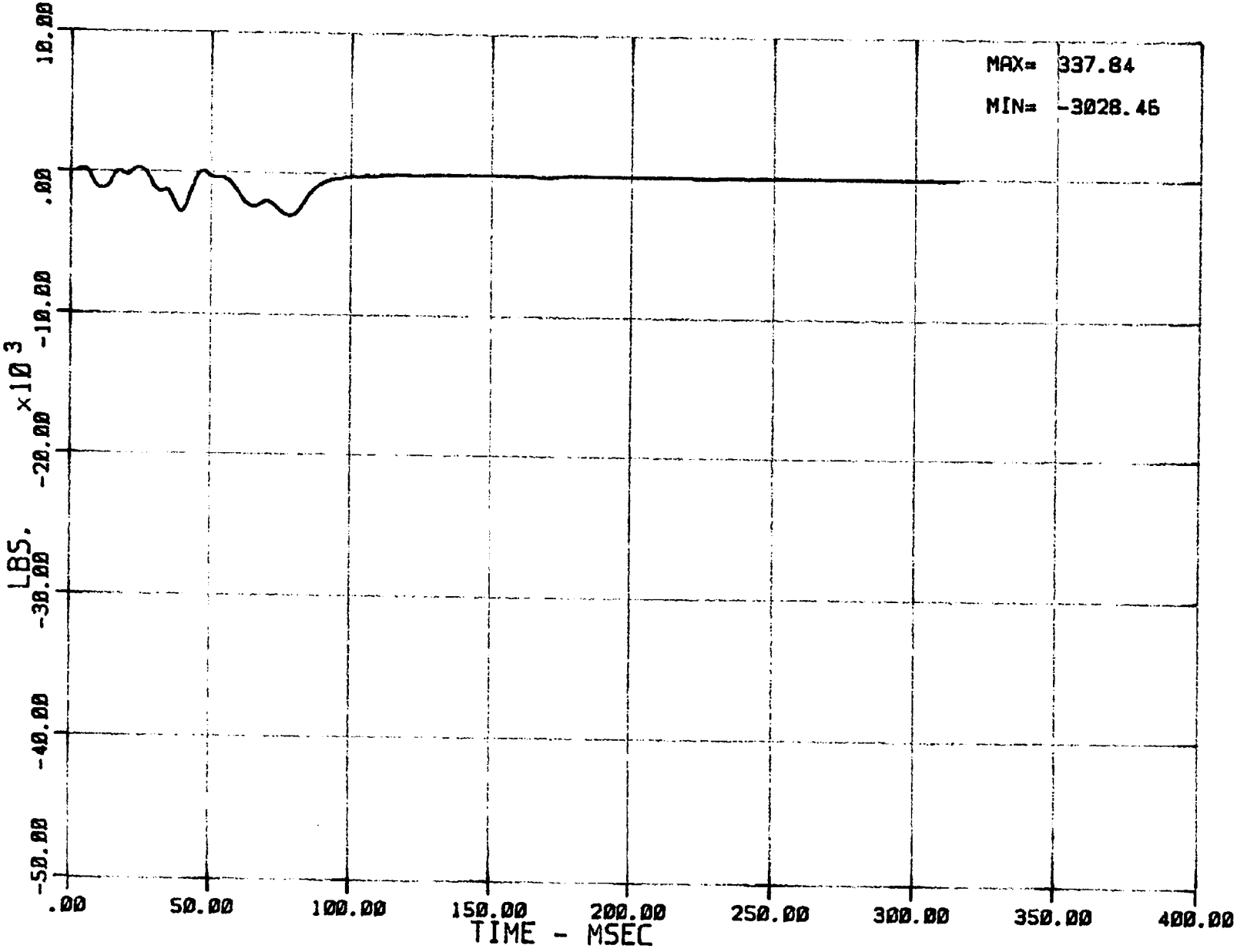
61 LC BA N BD3 (BARRIER LOAD CELL D3 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



62 LC BA N BD4 (BARRIER LOAD CELL D4 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

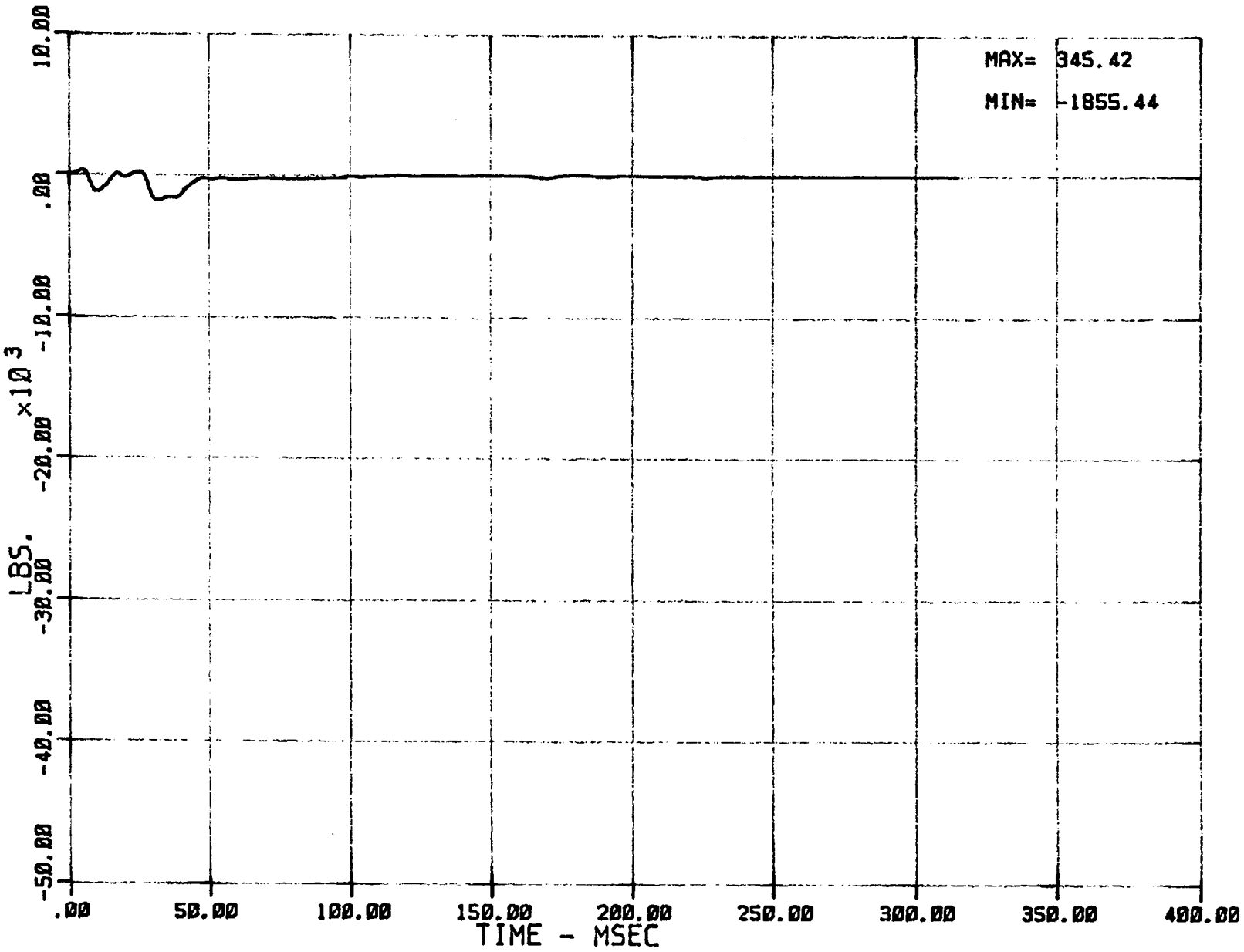


63 LC BA N BDS (BARRIER LOAD CELL DS FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



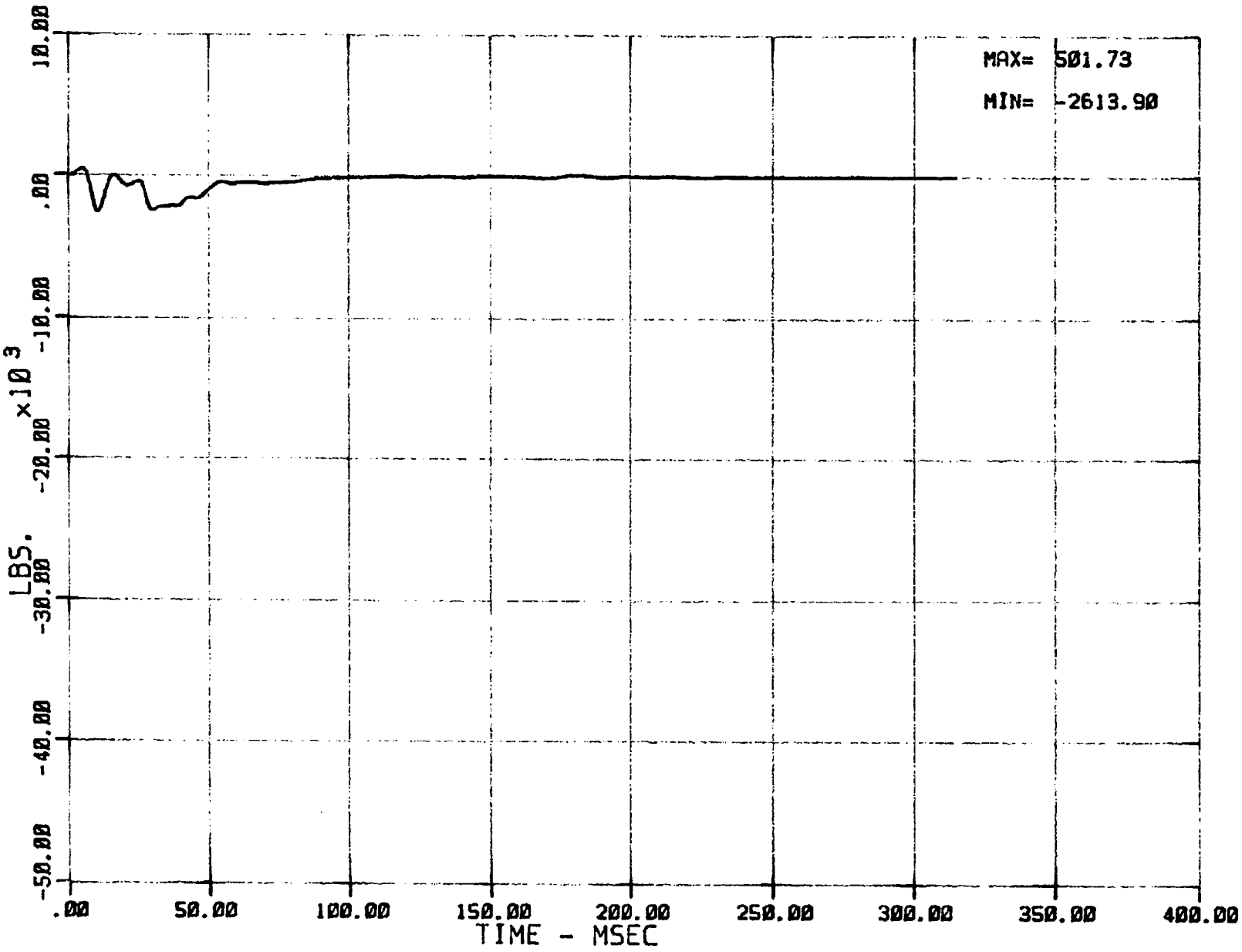
64 LC BA N BD6 (BARRIER LOAD CELL D6 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86

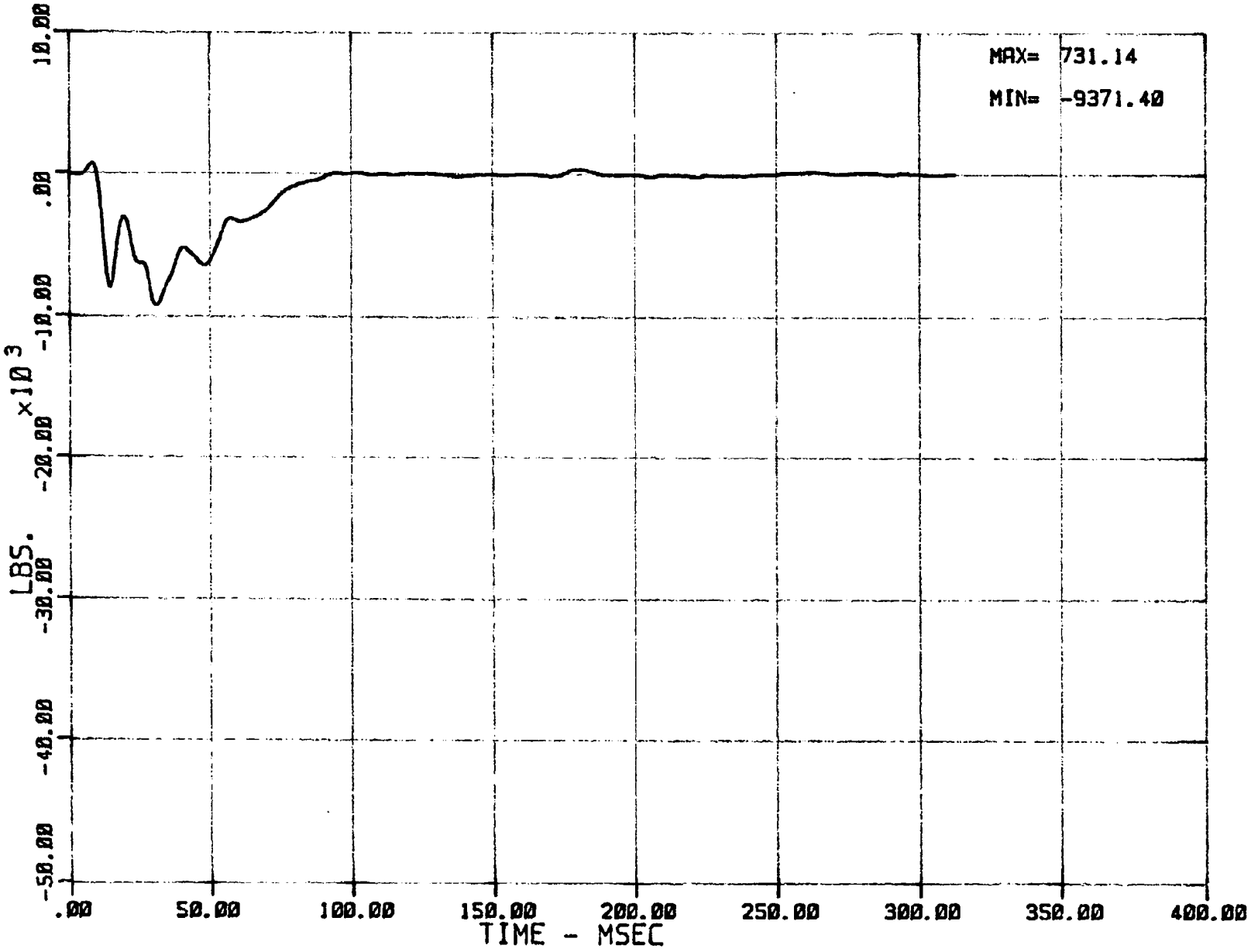


65 LC BA N BD7 (BARRIER LOAD CELL D7 FORCE)
MSE N07026 1986 DODGE B-150 VAN

05/22/86



66 LC BA N BD8 (BARRIER LOAD CELL D8 FORE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86



67 LC BA N BD9 (BARRIER LOAD CELL D9 FORCE)
MSE N07026 1986 DODGE B-150 VAN 05/22/86

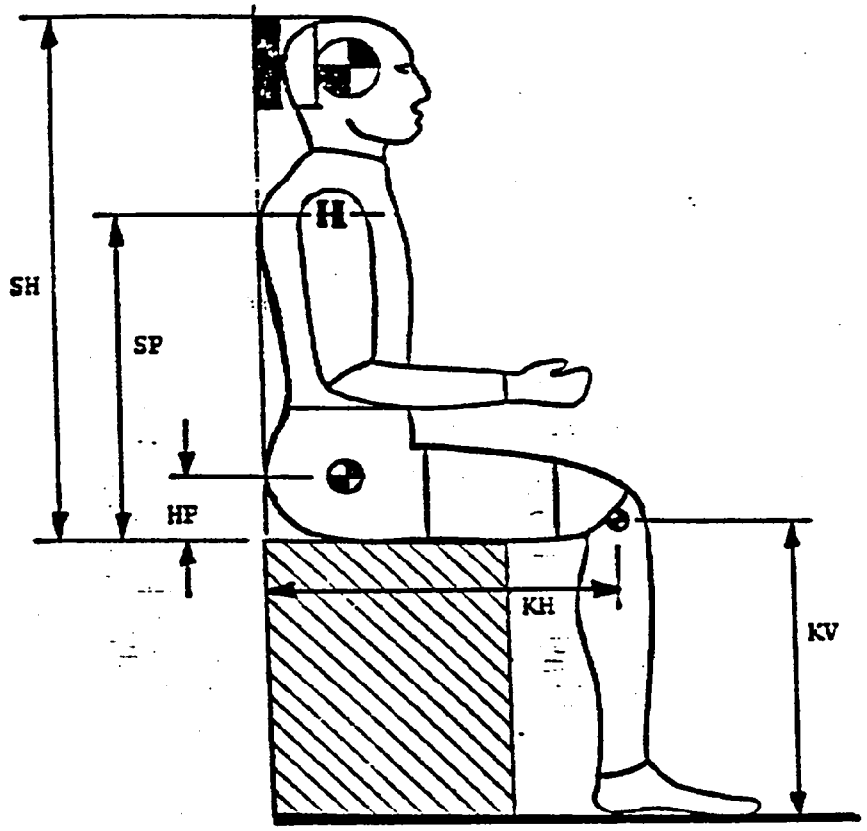
APPENDIX C

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION TESTS

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NO.: 4 6 4

I. CONFIGURATION VERIFICATION DATA:



	P.572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION		05/14/86	
VERIFICATION NUMBER FOR DUMMY*		1	
SH - Seated Height- - - - - - - -	35.6 to 35.8"	35.7	
SP - Shoulder Pivot Height- - - -	21.8 to 22.4"	22.1	
HP - Hip Pivot Height - - - - - -	3.9" ref.	3.9	
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.6	
KV - Knee Pivot from floor- - - -	19.3 to 19.9"	19.4	
SW - Shoulder Width - - - - - - -	17.8 to 18.4"	18.0	
HW - Hip Width- - - - - - - - - -	14.0 to 15.4"	14.8	

TECHNICIAN'S NAME: _____

* Sequential number beginning with "1" at the start of each fiscal year's crash test program

TABLE - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY

NHTSA ATD I.D. NO.: 464

LABORATORY TECHNICIAN: Paul Leonard

Sheet 1 of 3		Pre-Test Calibration	Post-Test Calibration
Date of ATD Calibration		02/27-05/14/86	
Calibration Sequential Number For Dummy		1	
Temperature in Lab. (Spec. = 66 to 78° F)		70-74	
Relative Humidity in Lab. (Spec. = 10 to 70%)		30-55	
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST:			
a. Peak Resultant Accel.	210 to 260G	233	
b. Peak Lateral Accel.	≤10G	2.7	
c. Time above 100G	0.9 to 1.5 ms	1.2	
2. NECK BENDING TEST:			
a. Pendulum Speed	21.5 to 25.5 fps	22.3	
b. Pendulum Avg. Decel. (over $t_3 - t_2$)	20 to 24G	24.0	
c. Peak Resultant Head Acceleration	26G maximum	23.8	
d. Pendulum Decel. (t_2-t_1)	≤3 ms	2.4	
e. Pendulum Decel. (t_3-t_2)	25 to 30 ms	27.6	
f. Pendulum Decel. (t_4-t_3)	≤ 10 ms	8.8	
g. Pendulum Direction Reversal Time	≥123 ms	N/A	
h. Max. Head Rotation	63 to 73°	63.9	
i. Chordal Displacement: Head Rotation Angle			
0°	Time	-2 to 2 ms	0.0
	Displ.	-.5 to .5 in.	0.00
30°	Time	25.6 to 34.4 ms	32.0
	Displ.	2.1 to 3.1 in.	2.54
60°	Time	40.3 to 51.7 ms	49.0
	Displ.	4.3 to 5.3 in.	4.98
Maximum (63.9)	Time	53.2 to 66.8 ms	57.6
	Displ.	5.0 to 6.0 in.	5.37

TABLE - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY (CONT'D)

NHTSA ATD I.D. NO.: 464

Sheet 2 of 3				Pre-Test Calibration	Post-Test Calibration
TEST PARAMETER			SPECIFICATION		
2. NECK BENDING TEST Continued:					
i. Chordal Displacement:					
Head Rotation Angle -					
	60°	Time	67.0 to 83.0 ms	67.0	
		Disp.	4.3 to 5.3 in.	4.94	
	30°	Time	85.4 to 104.6 ms	85.6	
		Displ.	2.1 to 3.1 in.	2.16	
	0°	Time	101.0 to 123.0 ms	101.0	
		Displ.	-.5 to 0.5 in.	0.15	
3. ABDOMINAL COMPRESSION TEST:					
(Preload = 10 pounds)					
a. Force @ .5" - - - - -			23 - 36	29.0	
b. Force @ .75" - - - -			36 - 50	41.5	
c. Force @ 1.0" - - - -			50 - 63	58.0	
d. Force @ 1.3" - - - -			73 - 88	84.0	
4. LUMBAR FLEXION TEST:					
a. Force @ 20° - - - - -			22 to 34 lbs.	31.3	
b. Force @ 30° - - - - -			34 to 46 lbs.	43.0	
d. Force @ 40° - - - - -			46 to 58 lbs.	53.6	
e. Return Angle - - - -			12° maximum	12°	
5. CHEST IMPACT TESTS:					
a. High Speed					
(1) Probe Speed - - -			21.78-22.22 fps	21.89	
(2) Peak Deflection -			1.7" maximum	1.40	
(3) Peak Resistive Force - - - - - -			2250 lbs. maximum	2160	
(4) Internal Hysteresis - - -			50 to 70%	68.4	

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TABLE - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY (CONT'D)

NHTSA ATD I.D. NO.: 464

Sheet 3 of 3 TEST PARAMETER	SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
5. CHEST IMPACT TESTS: Continued:			
b. Low Speed			
(1) Probe Speed - - -	13.86-14.14 fps	13.88	
(2) Peak Deflection -	1.1" maximum	1.03	
(3) Peak Resistive Force - - - - - -	1450 lbs. maximum	1318	
(4) Internal Hysteresis - - -	50 to 70%	57.0	
6. KNEE IMPACT TESTS:			
a. Right Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.93	
(2) Maximum Force - -	1850 to 2500 lbs.	2375	
(3) Time Above 1000#-	1.7 ms minimum	1.8	
b. Left Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.98	
(2) Maximum Force - -	1850 to 2500 lbs.	2374	
(3) Time Above 1000#-	1.7 ms. minimum	1.9	

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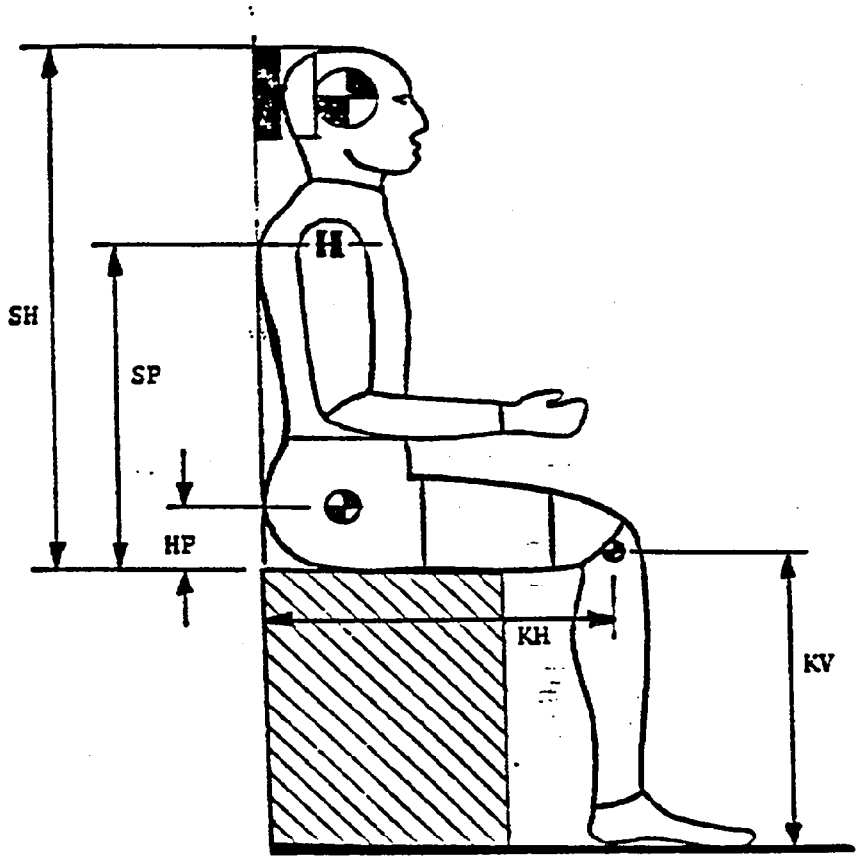
PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NO.: 4 6 6

I. CONFIGURATION VERIFICATION DATA:



	P.572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION		05/14/86	06/11/86
VERIFICATION NUMBER FOR DUMMY*		1	2
SH - Seated Height- - - - - - - -	35.6 to 35.8"	35.6	35.6
SP - Shoulder Pivot Height- - - -	21.8 to 22.4"	21.9	22.0
HP - Hip Pivot Height - - - - - -	3.9" ref.	3.9	3.9
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.5	20.5
KV - Knee Pivot from floor- - - -	19.3 to 19.9"	19.3	19.3
SW - Shoulder Width - - - - - - -	17.8 to 18.4"	18.3	18.2
HW - Hip Width- - - - - - - - - -	14.0 to 15.4"	14.1	14.1

TECHNICIAN'S NAME: P. Leonard

* Sequential number beginning with "1" at the start of each fiscal year's crash test program

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TABLE - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY

NHTSA ATD I.D. NO.: 466

LABORATORY TECHNICIAN: Paul Leonard

Sheet 1 of 3		Pre-Test Calibration	Post-Test Calibration
Date of ATD Calibration		02/28-05/14/86	06/02-06/10/86
Calibration Sequential Number For Dummy		1	2
Temperature in Lab. (Spec. = 66 to 78° F)		70-74	71-74
Relative Humidity in Lab. (Spec. = 10 to 70%)		33-56	54-64
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST:			
a. Peak Resultant Accel.	210 to 260G	249	222
b. Peak Lateral Accel.	≤10G	9.7	7.7
c. Time above 100G	0.9 to 1.5 ms	1.2	1.3
2. NECK BENDING TEST:			
a. Pendulum Speed	21.5 to 25.5 fps	22.2	22.1
b. Pendulum Avg. Decel. (over $t_3 - t_2$)	20 to 24G	22.2	23.8
c. Peak Resultant Head Acceleration	26G maximum	20.4	21.3
d. Pendulum Decel. (t_2-t_1)	≤3 ms	2.8	3.0
e. Pendulum Decel. (t_3-t_2)	25 to 30 ms	28.6	29.6
f. Pendulum Decel. (t_4-t_3)	≤ 10 ms	10.0	8.0
g. Pendulum Direction Reversal Time	≥123 ms	N/A	N/A
h. Max. Head Rotation	63 to 73°	63.0	64.0
i. Chordal Displacement: Head Rotation Angle			
0°	Time	-2 to 2 ms	0.0	0.0
	Displ.	-.5 to .5 in.	0.00	0.00
30°	Time	25.6 to 34.4 ms	32.8	33.8
	Displ.	2.1 to 3.1 in.	2.58	2.72
60°	Time	40.3 to 51.7 ms	51.6	51.2
	Displ.	4.3 to 5.3 in.	4.91	5.12
Maximum (63.0/64.0)	Time	53.2 to 66.8 ms	60.8	59.8
	Displ.	5.0 to 6.0 in.	5.22	5.35

TABLE - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY (CONT'D)

NHTSA ATD I.D. NO.: 466

Sheet 2 of 3			Pre-Test Calibration	Post-Test Calibration
TEST PARAMETER		SPECIFICATION		
2. NECK BENDING TEST Continued:				
i. Chordal Displacement:				
Head Rotation Angle -				
60°	Time	67.0 to 83.0 ms	70.4	69.4
	Disp.	4.3 to 5.3 in.	4.88	4.96
30°	Time	85.4 to 104.6 ms	89.2	88.4
	Displ.	2.1 to 3.1 in.	2.21	2.15
0°	Time	101.0 to 123.0 ms	101.2	101.0
	Displ.	-.5 to 0.5 in.	0.15	0.30
3. ABDOMINAL COMPRESSION TEST:				
(Preload = 10 pounds)				
a. Force @ .5" - - - - -		23 - 36 lbs.	28.0	26.0
b. Force @ .75" - - - -		36 - 50 lbs.	43.0	38.0
c. Force @ 1.0" - - - -		50 - 63 lbs.	59.0	56.0
d. Force @ 1.3" - - - -		73 - 88 lbs.	87.0	81.0
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - - -		22 to 34 lbs.	32.0	32.1
b. Force @ 30° - - - - -		34 to 46 lbs.	42.5	42.2
d. Force @ 40° - - - - -		46 to 58 lbs.	56.6	47.2
e. Return Angle - - - -		12° maximum	11°	11°
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - - -		21.78-22.22 fps	22.11	21.89
(2) Peak Deflection -		1.7" maximum	1.59	1.50
(3) Peak Resistive Force - - - - - -		2250 lbs. maximum	2192	2061
(4) Internal Hysteresis - - -		50 to 70%	61.4	50.5

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TABLE - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY (CONT'D)

NHTSA ATD I.D. NO.: 466

Sheet 3 of 3			
TEST PARAMETER	SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
5. CHEST IMPACT TESTS: Continued:			
b. Low Speed			
(1) Probe Speed - - -	13.86-14.14 fps	13.86	13.91
(2) Peak Deflection -	1.1" maximum	1.00	1.02
(3) Peak Resistive Force - - - - - -	1450 lbs. maximum	1312	1008
(4) Internal Hysteresis - - -	50 to 70%	66.2	51.4
6. KNEE IMPACT TESTS:			
a. Right Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.92	6.91
(2) Maximum Force - -	1850 to 2500 lbs.	2113	1862
(3) Time Above 1000#-	1.7 ms minimum	1.8	1.9
b. Left Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.96	6.90
(2) Maximum Force - -	1850 to 2500 lbs.	2480	2413
(3) Time Above 1000#-	1.7 ms. minimum	1.8	1.8

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APPENDIX D

VEHICLE'S OWNER MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

fully open position when the vehicle is parked on an incline.

To close the door from the open position, pull the outside handle down to release the door check. Slide the door to the closed position. Latch the door by pushing the outside door handle upward as shown or downward on the inside. Be sure that the sliding door is fully closed and latched before driving the vehicle.

Power Windows (optional)
The control on the left front door allows the driver to operate both front door 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 ON position.

Exhaust Gas Warning (Carbon monoxide)
All Models with Vented Rear Windows

Under some conditions, driving with the rear vented windows and/or doors open can permit exhaust fumes to enter the vehicle. As a precaution against carbon monoxide gas, the rear vented windows and doors should be closed whenever the vehicle is operated. If it is necessary to drive with the rear windows and/or doors open, the following precautions should be observed:

(a) *Close all other windows and adjust heating or cooling system to force outside air into the vehicle by setting the controls in any position except OFF or MAX A/C.*
(b) *Or bring outside air into the vehicle by the side panel air inlets, or fully open door vent windows as far as they will go to force outside air into the front of the vehicle. A partially-open vent window will increase the possibility of entrance of exhaust fumes through the rear vented window openings.*

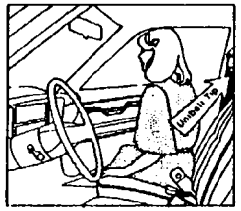
Note: *If passengers are riding in the rear area, the rear vented windows and/or doors should be fully closed at all times.*

SAFETY BELTS
Always use the safety belts. The chance of a serious injury is greatly reduced when the belts are properly used.

Safety belts provide protection against being thrown from the vehicle as well as reducing the risk of an injury caused by striking the interior of the vehicle.

Front Seats
The "UNIBELT", or single continuous-belt restraint system, is installed for the driver and front seat passenger. The unibelt system incorporates an inertia sensitive belt webbing retractor which is designed to lock (i.e., prevent belt travel) *only during very sudden stops or impacts.* This feature allows the shoulder belt to move freely with the wearer under normal conditions. *The retractor will not lock by jerking or pulling the webbing rapidly by hand.*

UNIBELT OPERATING INSTRUCTIONS


1

1. Enter the vehicle and close the door. Sit well back and erect and adjust the seat. Note the metal tip of the unibelt in its stowed position.

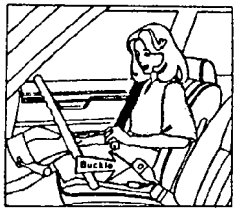
2. Grasp the metal tip and slide it up the webbing as far as necessary to go around your lap as you pull out the webbing. A couple of tries and this will become an automatic one handed operation.


2

3. As you pull the webbing across your lap and over your shoulder, move the metal tip toward the buckle.

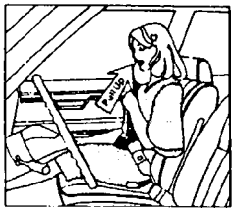
Insert the tip into the buckle until a "click" is heard.

Do not wear the shoulder belt under your arm or otherwise out of position. Such use could increase the chance and/or severity of injury in an accident.



3

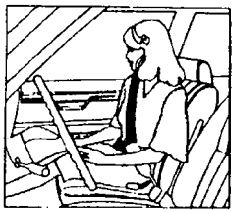
4. Position the lap belt with the upper edge of the belt drawn across the thighs and snug against the hips. Slack will automatically be removed due to tension created by the retractor. If a snug fit in the lap belt portion is desired, pull up on the shoulder belt as shown. *A snug belt reduces the risk of sliding under the belt in a collision.*



4

5. If the shoulder belt feels too tight, move your shoulder forward slightly, or withdraw an inch or so of webbing by giving a slight tug on the belt.

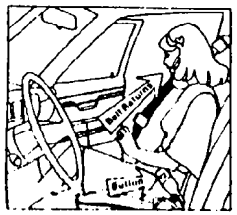
The belt will retain the small amount of slack necessary for comfort when you return to your normal seating position. If the belt is still too tight, pull out 6 to 8 inches of webbing, let it return to your chest and repeat the above motion.



5

CAUTION: *The amount of slack in the shoulder belt should be kept to a minimum. Too much slack could reduce the amount of protection because the belt may not be able to properly restrain you in an accident.*

The shoulder belt will allow unrestricted movement of the upper body under normal conditions. Extreme movements will probably require resetting the slack in the shoulder belt. The belt will lock in the event of an accident.



6

6. To release the belt, push the button on the buckle. The belt will automatically retract to its stowed position when the door is opened.

If needed, slide the tip down the webbing to allow the belt to fully retract.

Rear Seating Position — Lap Belts

Rear seat lap belts are not equipped with retractors. These belts should be worn with the upper edge of the belt drawn across the thighs and snug against the hips. To lengthen the belt, tilt the latch plate relative to the webbing and pull to the desired length. To reduce the risk of sliding under the belt in a collision, it should be adjusted as tight as comfort will allow, WHILE SITTING WELL BACK AND ERECT IN THE SEAT.

Slouching, sitting on the forward edge of the seat, or lying down should be avoided while wearing a lap belt, since there is the risk of sliding under the belt and incurring injury.

To unfasten, depress button in center of buckle and slide tip end out of buckle.

Never use a seat belt on more than one person at a time.

Pregnancy

Chrysler Corporation recommends that pregnant women use the available safety belts. This will reduce the likelihood of injury to both the woman and the unborn child. The lap belt should be worn across the thighs and as snug against the hips as possible, *but not across the waist.*

Safety Belt Extender

If the safety belt is too short, even when fully extended, a safety belt extender can be purchased from your dealer. This extender should only be used if the existing belt is not long enough. When not required, it should be removed and stowed.

CHILD RESTRAINT

When you are carrying children in your vehicle some type of restraint system should be used, regardless of the size of the child. This is *required by law* in most states and in many Canadian provinces. The safest installation position for any child restraint system is in a

center rear seat. *Holding a child in your arms is no substitute for a restraint system. Failure to use a restraint system can result in severe or fatal injury to your child.*

Infants and Small Children
For babies weighing up to approximately 20 lbs. (9 kg), a good infant carrier should be used. For small children over 20 lbs., a good child seat should be used. Both types of seats are available from your dealer.

Before purchasing a restraint system, make sure that it has a label certifying that it meets applicable Federal Motor Vehicle Safety Standards. The restraint system should be appropriate for your child's weight and height. This information can be found on the restraint system's label or instructions.

After purchasing the restraint system, carefully follow the instructions that come with it. *Failure to do so can result in severe or fatal injury to your child.*

When not in use, keep your child or infant seat secured with the seat belt or remove it from the vehicle in order to prevent injury to occupants in the event of a sudden stop.

Children Too Large For Child Seats
Children too large for child seats should ride in a center rear seat, if possible, and wear the lap belts provided. In the front seat a child can use the combination lap shoulder belt (unibelt) if it does not cross the face or neck.

Make sure that the child is seated upright in the seat with the lap belt fastened low on the hips and as snug as possible. Belt fit should be checked periodically, in case the belt has been mispositioned by the child's squirming or slouching.

MIRRORS
Inside Mirror
The mirror should be adjusted to center on the view through the rear window. Annoying headlight glare can

be reduced by moving the small control under the mirror to the night position (toward rear of vehicle). The mirror should be adjusted while set in the day position (toward windshield).

Outside Mirrors
To receive maximum benefit, adjust the outside mirror(s) to center on the adjacent lane of traffic, with a slight overlap of the view obtained on the inside mirror.

SEATS
Front Seat Adjustment
The adjusting lever is located under the front edge of the seat cushion. Slide lever to the left to release the seat. Move seat, with your body weight, to the desired position. The seat will lock in position when the lever is released.

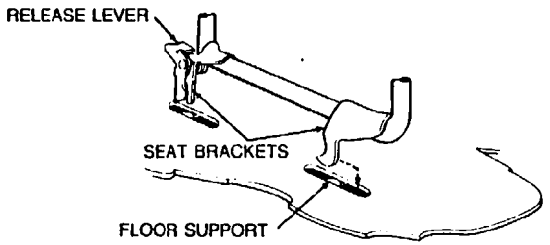
Quick Release Bench Seats (If so equipped)
The quick release bench seat provides easy removal of the seat assembly. The release levers are located on the front leg assembly near the floor. To remove the seat, lift the release levers up while pushing upward on the seat. This will unlatch the front portion of the seat assembly. While holding the seat up in front, push rearward to unlatch the rear supporting brackets. The seat assembly can be lifted upward and removed.

To reinstall the seat assembly, insert the rear seat bracket rearward of the floor supports. Push downward and then forward to latch (with the front portion of the seat held up slightly). The front supports will latch by pushing down on the front portion of the seat assembly.

WARNING
After reinstalling the bench seats be sure all brackets are latched securely.

Note: *8 passenger models — Both bench seats are quick release and interchangeable (except 109.6 inch wheel base models which are quick release but not interchangeable). 12 passenger models — The first two*

bench seats are quick release and interchangeable. The third bench seat is bolted to the floor. 15 Passenger models — The first three bench seats are quick release but only the first two seats are interchangeable. The fourth bench seat is bolted to the floor.



Note: *Quick release bench seats may face forward or rearward. For safety, whenever the vehicle is in motion the seats should all be latched in the forward facing position.*

WARNING

If the rear seats (with attaching bolts) or seat belts are removed, reinstall the bolts to eliminate the possibility of exhaust fumes entering the vehicle through the open bolt holes.

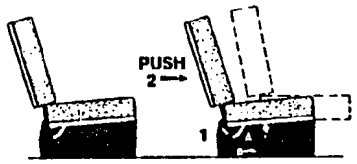
Travel Seat Package (If so equipped)

This dinette sleeper is a unique option that offers many uses. Besides providing a comfortable sleeper or lounge, you have a reversible seat that allows seating on both sides of a six-place dinette table. Also storage room for bedding and other articles is provided. The sleeper was designed to accept standard double bed size bedding.

The illustrations on pages 13 and 14 will acquaint you with the seat controls. Before operating these controls, position the front seats in the full forward facing position. When moving seats to the sleeper or dinette position, some moderate force may be required. Always be sure

TO FORM A LOUNGE OR SLEEPER

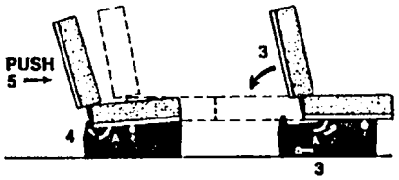
FIG.1



1 Lift lever "A" (front seat only).

2 Push the seat forward until latched.

FIG. 2

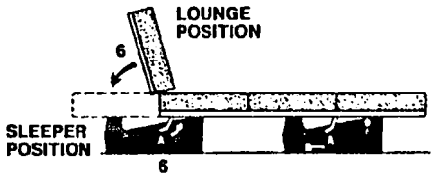


3 Rotate lever "A" counterclockwise (front seat only). Lower seat back to the flat position.

4 Lift lever "A" (rear seat).

5 Push the seat forward until latched.

FIG. 3

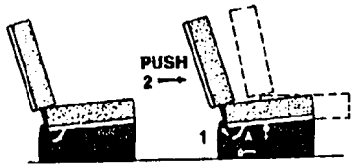


6 To form a sleeper from the lounge position rotate lever "A" counterclockwise (rear seat) and lower the seat back to the flat position.

To return the seats to the forward facing positions first lift the rear seat back until latched. Lift lever "A" and push the seat cushion assembly rearward. Repeat the same procedure for the front seat.

TO FORM A DINETTE

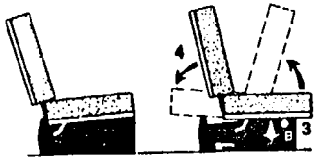
FIG.1



1 Lift lever "A" (front seat only).

2 Push the seat forward until latched.

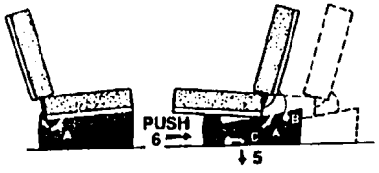
FIG. 2



3 Pull lever "B" (front seat).

4 Rotate the seat assembly to the rear facing position by pushing on the seat back.

FIG. 3

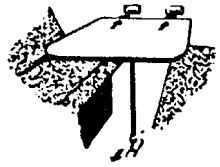


5 Depress lever "C" (front seat).

6 Push the seat base forward until latched. The dinette table may be installed, see fig. 4

To return the front seat to the forward facing position, remove the table and fasten in the stored position. Depress lever "C" and push the entire seat assembly to the rear. Pull lever "B" and rotate the seat to the forward facing position. Lift lever "A" and push the cushion assembly to the rear.

FIG. 4



Remove the table from the stored position.

Installing the table can be best done by sitting in the second seat. Install the table inserts into retainers on the side panel. Pull the table leg down and slide it firmly into the floor support.

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the seats are latched before proceeding to the next position.

WARNING

For safety make sure the seats are latched in the normal forward facing positions and the dinette table secured by its retainer before operating the vehicle.

To Open and Close The Hood

To open the hood, two latches must be released. First pull the hood release lever located under the left side of the instrument panel. Then pull up the safety catch located under the front edge of the hood, near the center.

To prevent possible damage, do not slam the hood to close it. Use a firm downward push at the center of the hood to ensure that both latches engage. Never drive your vehicle unless the hood is fully closed, with both latches engaged.

FUEL USAGE

Your vehicle was designed and developed for optimum operating performance and efficiency using gasoline.

In order to retain the optimum performance qualities and enjoy trouble-free operation of your vehicle, it is recommended that only gasolines from reputable dealers be used.

Use gasolines having a minimum octane rating of 87, (R + M) /2.

Besides anti-knock quality, a reputable gasoline blender will take into account the need for functional deposit control additives and control of fuel volatility.

Vehicles Equipped With A Catalytic Converter

Unleaded gasolines only must be used in vehicles equipped with catalyst emission control systems. All vehicles so equipped have labels located on the instrument panel and adjacent to the fuel filler cap that state UNLEADED FUEL ONLY. These vehicles also have fuel filler tubes specially designed to accept only the smaller