R3049-004

REPORT NO. 212-MSE-84-004
301-MSE-84-004

DOT4697

NHTSA NEW VEHICLE ASSESSMENT AND STANDARDS ENFORCEMENT INDICANT TESTING FMVSS 212 & 301-75

FORD MOTOR COMPANY
1984 FORD F-150 PICK-UP TRUCK
NHTSA NO. CE0606

MARCH 1984

FINAL REPORT

Prepared Under Contract No. DTNH22-82-D-21140

For

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
Office of Vehicle Safety Compliance
400 Seventh Street, S.W.
Washington, D.C. 20590

BY

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Prepared by M. Poindexter

Approved by [signature]

Date 5/1/84

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16. Abstract

A 35 mph frontal barrier impact assessment test was performed on the vehicle named below at the Mobility Systems and Equipment Co. Automotive Research Center in Mira Loma, California. This crash test was performed as part of the New Vehicle Assessment and Standards Enforcement Indicant Testing of

FMVSS NO. 212, "Windshield Mounting"
FMVSS NO. 301, "Fuel System Integrity"

for the Office of Vehicle Safety Compliance, Office of Market Incentives, Office of Vehicle Research, and National Center for Statistics and Analysis.

Veh. Yr./Make/Model - 1984/Ford/F-150
Veh. Body Style - Pick Up Truck
Veh. NHTSA I.D. NO. - CE0606
Impact Speed - 35.23 mph
Test Date - 03/06/84
Ambient Temp. - 75 °F

The test vehicle appeared to comply with the following performance standards:

FMVSS 212 and 301.

The following FMVSS No. 208 Head Injury Data was generated during the crash:

Driver Dummy HIC = 1,362

Passenger Dummy HIC = 1,443

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SECTION 1

INTRODUCTION

The test was conducted as part of the 1984 Composite Test Program being conducted for the National Highway Traffic Safety Administration (NHTSA) by Mobility Systems and Equipment Company (MSE) under Contract DTNH22-82-D-21140. The composite tests provide data for evaluation of FMVSS 212 and 301-75; occupant response, and vehicle acceleration environment, at impact speeds in excess of those specified in the current FMVSS requirements. The test was conducted in accordance with the NHTSA test procedure IP-212-02.

A summary of the test conditions is presented in Section 2, the FMVSS 212, 301 compliance data are presented in Section 3, the occupant data are presented in Section 4, and the vehicle data are presented in Section 5. All photographs are shown in Appendix A, results of ATD certification test data in Appendix B, test data plots in Appendix C, and the Owner's Manual Seat and Seatbelt Information in Appendix D.

SECTION 2

SUMMARY OF TEST CONDITIONS

A composite test was conducted on a 1984 Ford F-150 Pick Up Truck, NHTSA No. CE0606 on 06 March 1984. The vehicle was impacted into a flat rigid load-cell barrier. The general test and vehicle descriptive information are presented in Table 1. The camera location data are presented in Table 2 and Figure 1. (The list of measurements recorded during the test is presented in Table 3.) Pretest and posttest photographs of the vehicle and occupants are presented in Appendix A.

Two certified (see Appendix B) fully instrumented Part 572, 50th percentile male anthropomorphic test devices (ATD's) were installed in the driver and right front passenger designated seating positions (DSP's). The ATD's were restrained with the standard production 3-point lap and shoulder belt system.

The test event was photographed with one real-time camera, and 14 high-speed cameras. All of the cameras functioned properly.

Sixty-two channels of data were recorded on six FM tape recorders. Time history plots of all recorded channels and appropriate resultants, and HIC and chest peak acceleration values are presented in Appendix C.

TABLE 1 - CRASH TEST SUMMARY

PROJECT: FY-84 Composite Test Program TEST NO. N02044

DATE: 03/06/84 TIME: 12:00 PM TEMP. 75 °F

VEHICLE	Ford F-150 Pick Up
TEST WEIGHT (lbs)	4,076
IMPACT ANGLE (deg)	0
IMPACT VELOCITY (mph)	35.23
MAX. CRUSH (in)	26 3/4

FIREWALL INTRUSION (in) Right Side: 3/8 Left Side: 13/16

ATD'S

TYPE	Part 572 50th Percentile Male	Part 572 50th Percentile Male
LOCATION	Left Front	Right Front
RESTRAINT	Production 3-Point Restraint	Production 3-Point Restraint

NUMBER OF DATA CHANNELS 62

NUMBER OF HIGH SPEED CAMERAS 14

BARRIER Load Cell

TABLE 2 SUMMARY OF CAMERA LOCATIONS AND DESCRIPTIONS

Loc. No.	Location	Field of View	Lens Size	Frame Rate	Timing Speed	Mfg./ Serial Number	Impact Dist-X	Center-line Dist-Y	Camera Height	Film Quality
1	Ground Based (left)	Left Side (documentary)	Zoom	24 fps	None	Arriflex NR6837	528	-553	58 1/2	Good
2	Ground Based (right)	Right Side	12 mm	543 fps	1000 Hz	Fastax 1250	91 1/2	244 1/2	53	Good
3	Ground Based (left)	Left Side Front Half	50 mm	698 fps	None	Fastax 41650	50	66.1	50 3/4	Good
4	Above Windshield	Windshield	13 mm	646 fps	None	Fairchild 276	29	0	100	Good
5	Pit	Front of Vehicle Underside	13 mm	500 fps	1000 Hz	Photosonic 45	12	0	- 49	Good
6	Pit	Fuel Tank	25 mm	504 fps	None	Photosonic 573	35	0	- 57	Good
7	Above Barrier	Windshield Passenger Side	25 mm	512 fps	None	Fastax 16-332	- 9	10 1/2	109	Good
8	Above Barrier	Windshield Driver Side	25 mm	1421 fps	None	Fastax 16-421	- 9	- 10 1/2	109	Good
9	Ground Based (left)	Driver	35 mm	672 fps	120Hz	Fairchild 283	156	-221	62 1/2	Good
10	Ground Based (right)	Passenger	28 mm	645	1000 Hz	Himac 143	112	132 1/2	56	Good

TABLE 2 SUMMARY OF CAMERA LOCATIONS AND DESCRIPTIONS (CONT'D.)

Loc. No.	Location	Field of View	Lens Size	Frame Rate	Timing Speed	Mfg./ Serial Number	Impact Dist-X	Center-line Dist-Y	Camera Height	Film Quality
11	Ground Based (right)	Right 'A' Post	20 mm	672 fps	None	Himac 138	40	126 1/2	51 1/2	Good
12	Ground Based (left)	Left 'A' Post	25 mm	756 fps	120Hz	Fastax 641	39	-174	35 1/4	Good
13	Not Used	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Not Used	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	Ground Based (left)	Steering Wheel	25 mm	594 fps	None	Fairchild 345	123	-239	90	Good
16	Ground Based (left)	Steering Wheel	25 mm	723 fps	120 Hz	Fairchild 219	123	-239	71	Good
17	Ground Based (right)	Passenger	16 mm	568 fps	None	Himac 135	73	142	52	Good

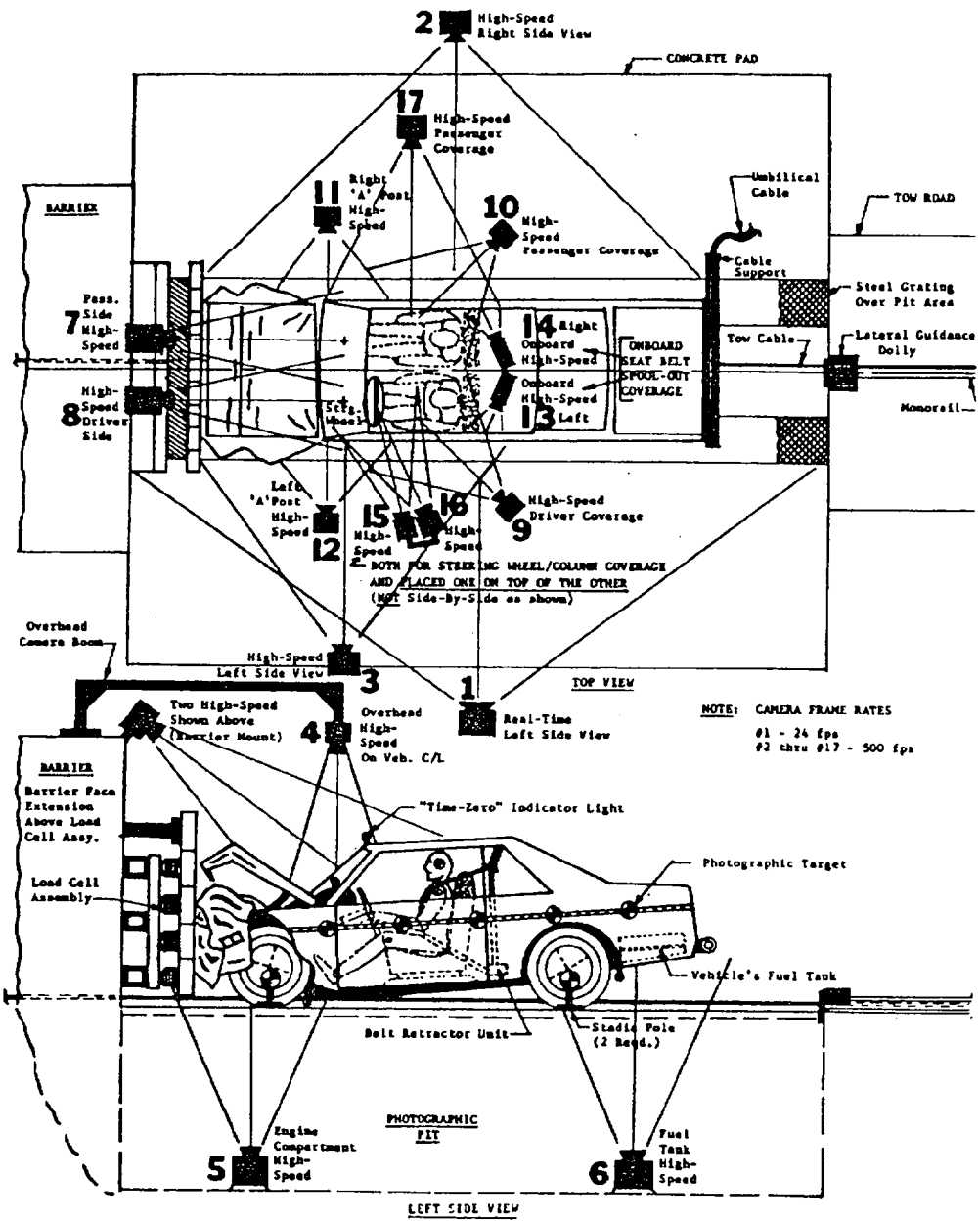


FIGURE 1

CAMERA LOCATIONS

TABLE 3 MEASUREMENT SYSTEM CHANNEL DESIGNATION

DIGITAL TAPE CHANNEL NO.	SENSOR	CHANNEL DESCRIPTION	DATA QUALITY
01	AC	DR HED X	Good
02	AC	DR HED Y	Good
03	AC	DR HED Z	Good
04	AC	DR CST X	Good
05	AC	DR CST Y	Good
06	AC	DR CST Z	Good
07	AC	PA HED X	Good
08	AC	PA HED Y	Good
09	AC	PA HED Z	Good
10	AC	PA CST X	Good
11	AC	PA CST Y	Good
12	AC	PA CST Z	Good
13	LC	DR FEMUR L	Good
14	LC	DR FEMUR R	Good
15	LC	PA FEMUR L	Good
16	LC	PA FEMUR R	Good
17	LC	DR LBO	Good
18	LC	DR SHB	Good
19	LC	PA LBO	Good
20	LC	PA SHB	Good
21	AC	VEH. BCL X	Good
22	AC	VEH. BCR X	Good
23	AC	VEH. ENG. TOP X	Good
24	AC	VEH. ENG. BOT. X	Good
25	AC	VEH. RFF X	Good
26	AC	VEH. LRF X	Good
27-62	LC	BA	Good

2.1 GENERAL COMMENTS

The 1984 Ford F-150 pick up truck was equipped with a 4.9 liter 6 cylinder engine, 3 speed manual transmission, and power steering. The test weight of the Ford F-150 with two 50th percentile male dummies and instrumentation was 4,076 pounds.

The Ford F-150 was involved in a frontal load cell carrier crash at a velocity of 35.23 mph. The vehicle appears to comply with FMVSS No. 212, "Windshield Mounting", and FMVSS No. 301-75, "Fuel System Integrity". There was 100% windshield retention, no fuel leakage after impact or during the subsequent rollover test.

A maximum static crush for the vehicle of 26 3/4 inches occurred at the center of the front bumper. The right side of the windshield was cracked. All other vehicle glazing remained intact. The doors both required the use of tools to be opened. The front end of the truck bed was pushed into the rear of the cab during the crash.

The driver ATD's head hit the steering wheel upper rim and top of the hub. His knees hit the dash panel and right side of the steering column. The driver ATD had a HIC value of 1,362, which does not meet the FMVSS No. 208, "Head Injury Criteria". His maximum chest acceleration (resultant clipped) of 48.4 g, and maximum femur loads of 408 and 1,155 pounds satisfy the FMVSS No. 208 requirements.

The passenger ATD's head did not appear to make contact with any part of the vehicle. His knees hit the dash panel, bending inward the steel member below the glove compartment door. The HIC value for the passenger ATD of 1,443 does not meet the requirements of FMVSS No. 208, "Head Injury Criteria". His maximum chest acceleration (resultant clipped) of 51.4 g, and maximum femur loads of 569 and 458 pounds satisfy the FMVSS No. 208 requirements.

The shoulder belt retractor on the passenger side was pulled forward during the crash. The tab on its lower rear surface did not return to its mounting hole. A posttest photograph of this retractor assembly is shown in Figure A-21 in Appendix A. The integrity of the retractor mounting and operation does not appear to have been affected.

SECTION 3

COMPLIANCE DATA

FMVSS 212, 301-75

Compliance data for FMVSS No.'s 212 and 301-75 were acquired during the test. The results are presented in Tables 4 and 5.

TABLE 4 SUMMARY OF FMVSS 212 DATA

TEST VEHICLE NHTSA NO. CE0606 TEST DATE: 03/06/84

VEH. MFR/MAKE/MODEL Ford Motor Co./Ford/F-150

Details of windshield mounting (method of retention, type of trim, etc.)

Windshield is bonded to a rubber perimeter moulding with adhesive. A chrome moulding surrounds the exterior edges of the windshield, and is attached to the body with clips.

	WINDSHIELD PERIPHERY	
	PRETEST	POSTTEST
RIGHT SIDE	84 3/8 inches	84 1/8 inches
LEFT SIDE	83 inches	83 1/2 inches
TOTAL	167 5/8 inches	167 5/8 inches

The standard requires that POSTTEST be a minimum of 75 percent of the PRETEST total periphery measurement for vehicles not equipped with occupant passive restraints and 50 percent for each side of the windshield for vehicles which are equipped with occupant passive restraints.

AREA OF RETENTION FAILURE:

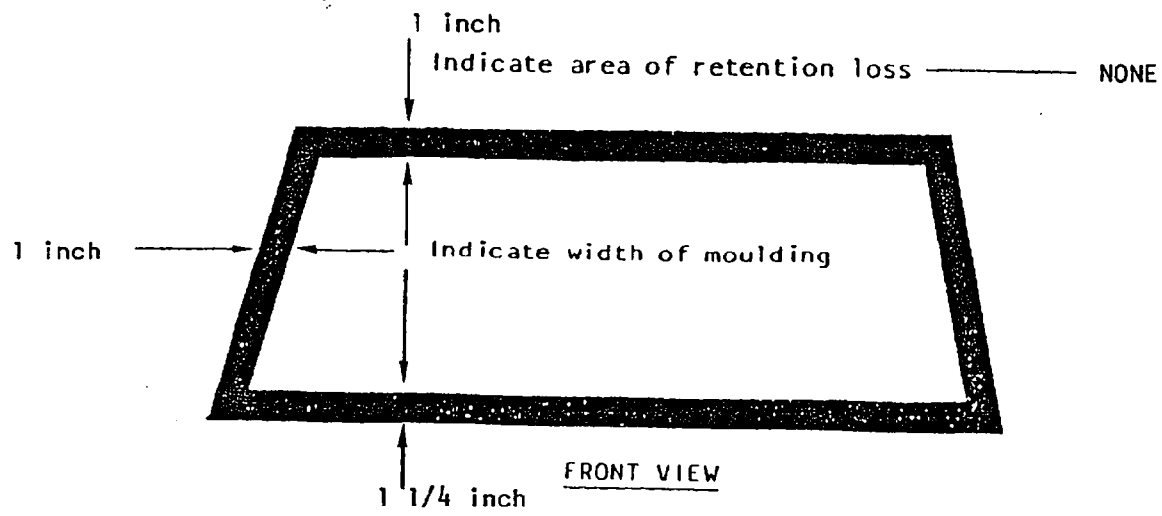


TABLE 5 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST VEHICLE NHTSA NO. CE0606 TEST DATE 03/06/84

VEH. MFR/MAKE/MODEL Ford Motor Co./Ford/F-150

Test vehicle fuel tank filled to 90-95% of capacity with Stoddard Solvent and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

A. TEST VEHICLE IMPACT TYPE

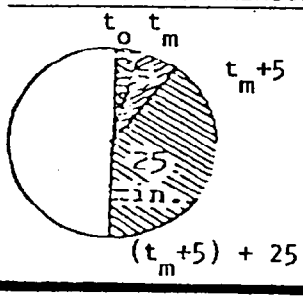
[X] Frontal (35 mph)

[ ] Oblique (35 mph) with ° barrier face first contacting (driver/passenger) side

[ ] Rear Moving Barrier (35 mph)

[ ] Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENT



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

ACTUAL	MAX. ALLOW.
0	1 oz.
0	5 oz.
0	1 oz/1 min.

B. TEST VEHICLE STATIC ROLLOVER

Detail test results are recorded on the following data sheets:

(1) Rollover data for 0° to 90° test phase.

(2) Rollover data for 90° to 180° test phase.

(3) Rollover data for 180° to 270° test phase.

(4) Rollover data for 270° to 360° test phase..

C. SOLVENT SPILLAGE DETAILS

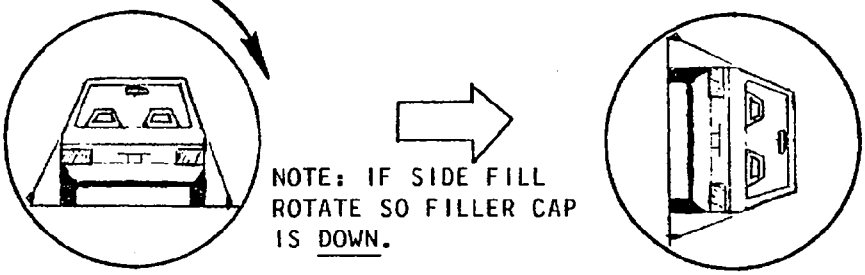
None.

TABLE 5 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET (CONT'D.)

TEST VEHICLE NHTSA NO. CE0606 TEST DATE 03/06/84

VEH. MFR/MAKE/MODEL Ford Motor Co./Ford/F-150

TEST PHASE: 0° 90°



NOTE: IF SIDE FILL ROTATE SO FILLER CAP IS DOWN.

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	= 1	minutes	4 0	seconds
FMVSS 301-75 Position Hold Time	= 5	minutes	0 0	seconds
	+			
TOTAL	= 6	minutes	4 0	seconds
Next Whole Minute Interval	= 7	minutes		

II. FMVSS 301-75 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	- -

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

IV. SOLVENT SPILLAGE LOCATION(S):

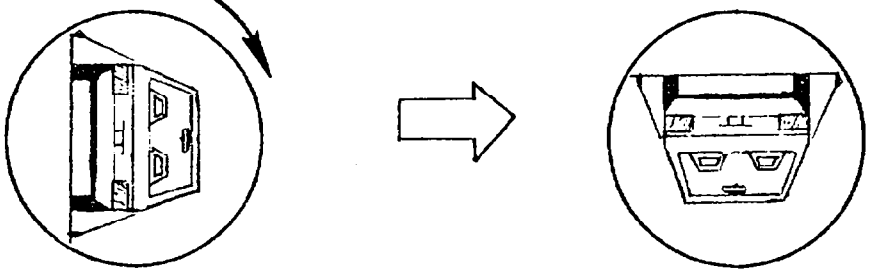
None.

TABLE 5 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET (CONT'D.)

TEST VEHICLE NHTSA NO. CE0606 TEST DATE 03/06/84

VEH. MFR/MAKE/MODEL Ford Motor Co./Ford/F-150

TEST PHASE: 90° 180°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	= 1	minutes	2 2	seconds
FMVSS 301-75 Position Hold Time	= 5	minutes	0 0	seconds
	+			
TOTAL	= 6	minutes	2 2	seconds
Next Whole Minute Interval	= 7	minutes		

II. FMVSS 301-75 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	- -

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

IV. SOLVENT SPILLAGE LOCATION(S):

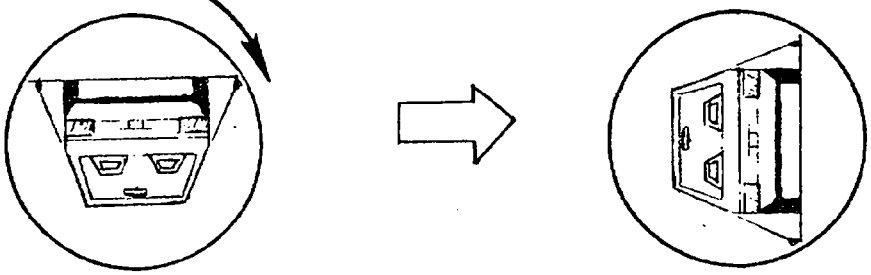
None.

TABLE 5 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET (CONT'D.)

TEST VEHICLE NHTSA NO. CE0606 TEST DATE 03/06/84

VEH. MFR/MAKE/MODEL Ford Motor Co./Ford/F-150

TEST PHASE: 180° 270°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	= 1	minutes	2 6	seconds
FMVSS 301-75 Position Hold Time	= 5	minutes	0 0	seconds
	+			
TOTAL	= 6	minutes	2 6	seconds
Next Whole Minute Interval	= 7	minutes		

II. FMVSS 301-75 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	- -

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

IV. SOLVENT SPILLAGE LOCATION(S):

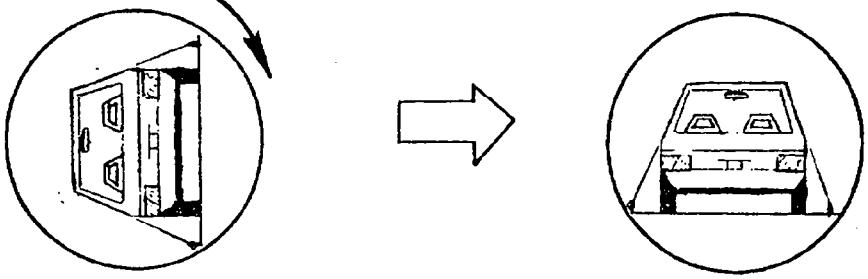
None.

TABLE 5 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET (CONT'D.)

TEST VEHICLE NHTSA NO. CE0606 TEST DATE 03/06/84

VEH. MFR/MAKE/MODEL Ford Motor Co./Ford/F-150

TEST PHASE: 270° 360°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	= 1	minutes	2 1	seconds
FMVSS 301-75 Position Hold Time	= 5	minutes	0 0	seconds
	+			
TOTAL	= 6	minutes	2 1	seconds
Next Whole Minute Interval	= 7	minutes		

II. FMVSS 301-75 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	- -

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

IV. SOLVENT SPILLAGE LOCATION(S):

None.

SECTION 4

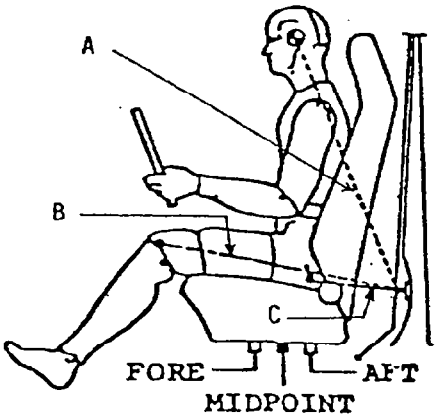
OCCUPANT DATA

Two Part 572 50th percentile male ATD's were installed in the test vehicle. One was positioned in the driver's DSP, and one in the right front passenger's DSP. Both ATD's were fully instrumented with three accelerometers mounted in the head and chest, and load cells mounted in each femur.

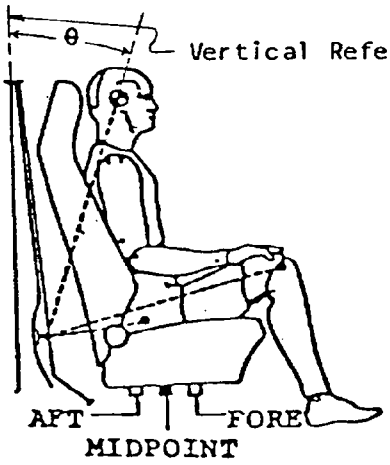
The pretest position of each ATD is shown in Tables 6 and 7. Safety belt and steering column data is presented in Table 8. A summary of the ATD measurements is shown in Table 9. A description of the posttest ATD positions is presented in Table 10.

TABLE 6 - DUMMY IN-VEHICLE POSITION RECORDING

DRIVER ATD



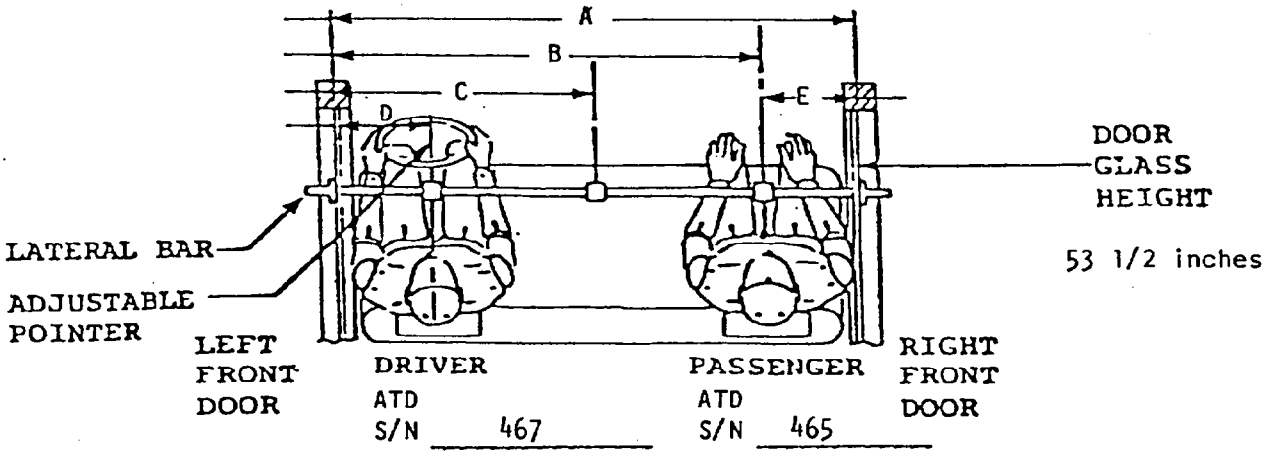
PASSENGER ATD



Dimension	(in.)	(θ°)
A	25 1/4	18 1/2
B	27 5/8	91
C	11 1/8	99
Torso Angle = -16 1/2°		
Seat Back Angle = -17°		

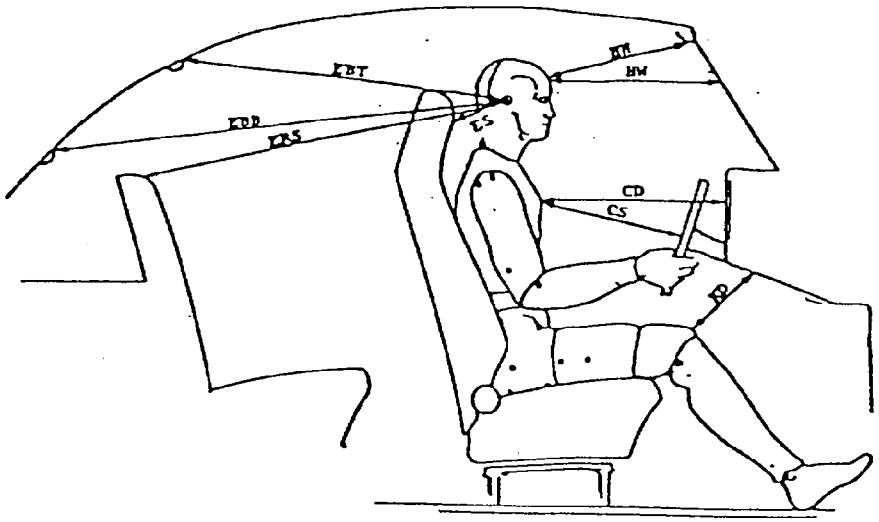
Dimension	(in.)	(θ°)
A	25 1/4	18
B	26 5/8	92 1/2
C	10 3/4	96
Torso Angle = -16°		
Seat Back Angle = -17°		

All angles are relative to the vertical plane.

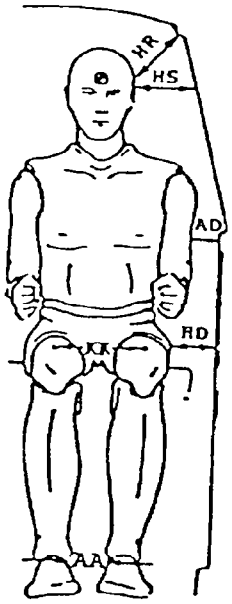


A = 65
B = 49 1/16
C = 32 1/2
D = 16
E = 15 15/16

TABLE 7 PART 572 ATD IN-VEHICLE POSITION



	DRIVER	PASSENGER
HH	18 1/4	17 5/8
HW	23 3/4	22 7/8
CD	23	23 1/2
CS	12 5/8	—
KD L	8 3/4	8 3/4
KD R	10	9 1/8



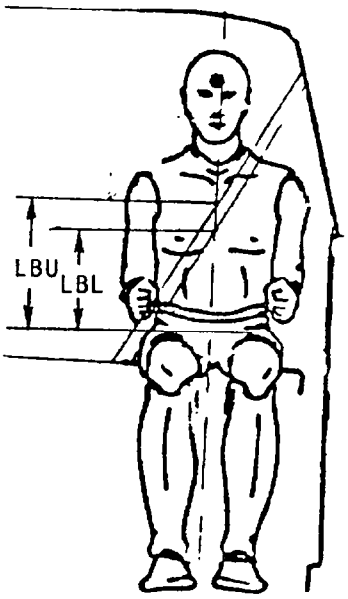
	DRIVER	PASSENGER
HR	9 3/4	9 3/8
HS	12 1/4	12 1/8
AD	4 7/8	5 1/4
HD	6	6 1/4
KK	14 1/2	11 5/8
AA	14 1/2	8 3/4

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
AA = Ankle to Ankle

TABLE 8 SAFETY BELT AND STEERING COLUMN DATA

SAFETY BELT POSITIONING

	Driver	Passenger
LBU	10 1/2 in.	10 3/4 in.
LBL	7 in.	7 1/2 in.
LBT	3 lb.	3 lb.
SBT	1 1/8 lb.	1 5/8 lb.



LBU – Lap to Belt Upper Edge – Distance from plate on lap to upper edge of shoulder belt.

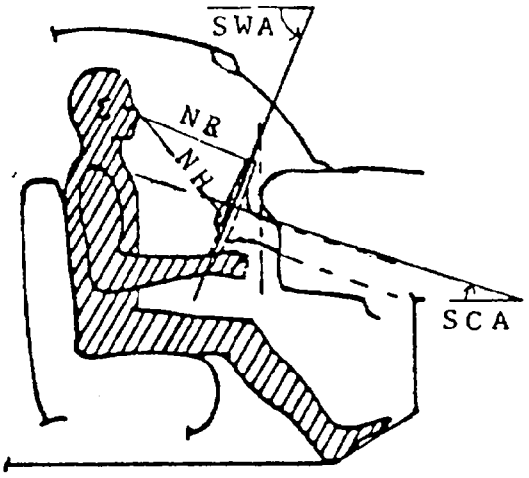
LBL – Lap to Belt Lower Edge – Distance from plate on lap to lower edge of shoulder belt.

LBT – Lap Belt Tension.

SBT – Shoulder Belt Tension.

STEERING COLUMN REFERENCE DIMENSIONS

	Driver Measurements
NR	14 5/8 inches
NH	17 inches
SCA	28°
SWA	67°



NR – Nose to Rim – Distance from tip of nose to surface of steering wheel rim.

NH – Nose to Hub – Distance from tip of nose to center of steering column hub.

SCA – Steering Column Angle – Angle of steering column in degrees relative to horizontal x axis.

SWA – Steering Wheel Rim Angle – Angle of steering wheel in degrees relative to horizontal x axis.

TABLE 9 PART 572 ATD DATA SUMMARY

Test Vehicle: 1984 Ford F-150 Pick Up	Driver ATD				Passenger ATD			
	Positive Direction*		Negative Direction**		Positive Direction*		Negative Direction**	
	Peak (g)	Time (msec)	Peak (g)	Time (msec)	Peak (g)	Time (msec)	Peak (g)	Time (msec)
Head Acceleration Longitudinal	27	63	216	62	34	176	32	112
Lateral	50	167	28	62	92	101	26	177
Vertical	70	65	66	84	65	68	1	22
Resultant	218	62	—	—	107	101	—	—
HIC	1362 btwn 62 and 90 msec				1443btwn 56 and 123 msec			
Chest Acceleration Longitudinal	10	171	37	66	6	227	41	75
Lateral	8	85	44	94	31	92	6	212
Vertical	24	63	13	88	34	65	14	108
Resultant (Max)	57	94	- -	- - -	52	66	- -	- - -
Resultant (clip)	48.4	- - -	- -	- - -	51.4	- - -	- -	- - -
	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)
Femur Loads Left	234	43	408	76	569	51	283	91
Right	1155	67	261	50	175	25	458	71
Belt Loads Lap	1644	65	—	—	2088	71	—	—
Torso	1561	88	—	—	1636	94	—	—
Note: Belt spoolout measurements were not made on this test.	Peak (in.)	Time (msec)			Peak (in.)	Time (msec)		
Belt Spoolout: Potentiometer	N/A	N/A	—	—	N/A	N/A	—	—
Film Data	N/A	N/A	—	—	N/A	N/A	—	—
Vehicle Impact Speed (mph): 35.23								

* Longitudinal: Forward
Lateral: Rightward
Vertical: Downward

** Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

TABLE 10 GENERAL POSTTEST DESCRIPTIONS

ATD Positions

Driver: Fallen over to right side with right elbow on seat.

Passenger: Slouched and leaning to the right.

Visible ATD Contact Areas

Component	Driver	Passenger
Head	Top of hub upper steering rim	None
Chest	None	None
Abdomen	None	None
Left Knee	Dash panel	Glove compartment door
Right Knee	Steering column dash panel	Glove compartment door

Seat And Seatbelt Position Changes

Seat Forward Displacement	0 inches	0 inches
Lap Belt Pullout	N/A	N/A
Shoulder Belt Pullout	1 1/2 inches	1 inch

SECTION 5

VEHICLE DATA

The test vehicle is a 1984 Ford F-150 Pick Up Truck. General vehicle descriptive information is presented in Table 11.

The pretest and posttest vehicle dimensional data are presented in Table 12. Fifteen reference targets were attached to the vehicle, and three to the barrier to aid in the film analysis of the test. The locations of these targets are shown in Figure 2. Pretest and posttest locations of these targets are presented in Table 13. Seat and steering wheel positioning data are presented in Table 14.

The accelerometer locations, and a summary of the measured peak amplitudes are presented in Table 15.

TABLE 11 TEST VEHICLE INFORMATION

Vehicle Manufacturer: Ford Motor Company

Make/Model: Ford F-150

Body Style: Pick Up Truck Model Year: 1984

VIN: 1FTCF15Y0EPA24569 Build Date: 10/83

NHTSA No.: CE0606 Color: White

Engine Data: 6 Cylinders: 4900 cc Displacement

Transmission Data: 3 Speed (X) Manual/ ( ) Automatic

Date Vehicle Received by Laboratory: 11/15/83

Dealer's Name & Address: Mission Ford, 3600 Iowa Ave., Riverside, CA

DATA FROM CERTIFICATION LABEL ON LEFT DOOR REAR FACE OR 'B' POST

Vehicle Manufactured By: Ford Motor Company

Date of Manufacture: 10/83 VIN: 1FTCF15Y0EPA24569

GVWR: 4,800 lb. GAWR: Front = 2,300 lb Rear = 2,684 lb

DATA FROM "RECOMMENDED TIRE PRESSURE" LABEL ON DOOR, POST, GLOVE BOX, ETC.

Vehicle Load: FRONT REAR
Up to Capacity 35 psi 35 psi

RECOMMENDED TIRE SIZE:	LOAD RANGE:
P215/75R15	(B) C D

Vehicle Capacity:
Type of seats [F] Bench [ ] Bucket [ ] Split Bench

CARGO LOAD = [N][A] lb

TOTAL = [N][A] lb

RECOMMENDED COLD TIRE PRESSURE	F 35 : R 35

Number of Occupants = [3] Front
(Designated Seating Capacity) [0] Rear
[3] Total

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with max. fluids): UDW 3,433 lb.

Right Front = 1030 lb

Left Front = 1013 lb

TOTAL FRONT WEIGHT = 2043 lb

TOTAL REAR WEIGHT = 1390 lb

TOTAL DELV. WEIGHT = 3433 lb

Right Rear = 683 lb

Left Rear = 707 lb

(59.5 % of Total Vehicle Weight)

(40.5 % of Total Vehicle Weight)

CALCULATION FOR TARGET TEST WEIGHT

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (3,433 lb)

VCW = Vehicle Capacity Weight (1,369 lb) *

DSC = Designated Seating Capacity (3)

RCLW = VCW - 150 (DSC) = 300 lb **

Target Test Weight = UDW + RCLW + (2 dummies X 164 lbs/dummy)

Target Test Weight = 4,061 lb

* GVWR-UDW

** Smaller of (GVWR-UDW) and 300 lb.

TABLE 11 TEST VEHICLE INFORMATION (CONT'D)

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 300 lb CARGO: 4,076 lb.

Right Front = 1070 lb — Right Rear = 944 lb

Left Front = 1080 lb — Left Rear = 982 lb

TOTAL FRONT WEIGHT = 2150 lb (52.8 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1926 lb (47.2 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 4076 lb

Weight of ballast secured in vehicle cargo area = 204 lb

VEHICLE ATTITUDE: (all dimensions in inches)

Delivered Attitude: RF 30 1/8 LF 30 RR 31 5/8 LR 31 1/8

Test Attitude: RF 30 3/16 LF 29 7/8 RR 30 3/4 LR 30 3/16

Wheelbase: 116 3/4 ; Distance from c.g. to front axle: 55.1

TEST FLUID DATA:

Test Fluid Type: Red Stoddard Solvent Spec. Grav.: 0.764

Viscosity: 0.96 Centistokes

Fuel System Capacity (data from NHTSA): 16.5 gal.

Fuel System Capacity (data from Owners Manual): 16.5 gal.

Test Volume: 15.3 Gallons (92 to 94% of NHTSA capacity)

Electric Fuel Pump: ___ Yes: X No; Fuel Injection: ___ Yes X No

Does electric fuel pump operate with ignition switch "on" and the engine not operating: ___ Yes ___ No N/A

Details of Fuel System: Fuel tank is located on left side of vehicle forward of rear axle and next to the drive shaft. The filler tube is on the left side of the vehicle. Two metal fuel lines run from the middle of the left side of the tank along the inner side of the left frame member to the fuel pump located on the left side of the engine block.

TABLE 11 TEST VEHICLE INFORMATION (CONT'D)

TEST CONDITIONS:

Date of Test: 03/06/84 Time of Test: 12:08 am/(pm)

Ambient Temperature: 75 °F at impact area

Temp. In Occ. Compart.: 75 °F: W/Shld. Mldg. Temp.: 75 °F

IMPACT VELOCITY:

Trap No. 1 = 35.23 mph; Trap No. 2 = 35.22 mph

Distance from the vehicle's front bumper to the barrier face entering the vehicle velocity measurement device = 54 inches

Exiting the vehicle velocity measurement device = 6 inches

VEHICLE REBOUND

Distance from front of test vehicle to the barrier after impact: Ave. = 16 1/8 in.; R = 18 1/4 in.; L = 14 in.

VEHICLE MAXIMUM CRUSH:

Left Side : 23 1/8 inches

Right Side: 21 5/16 inches

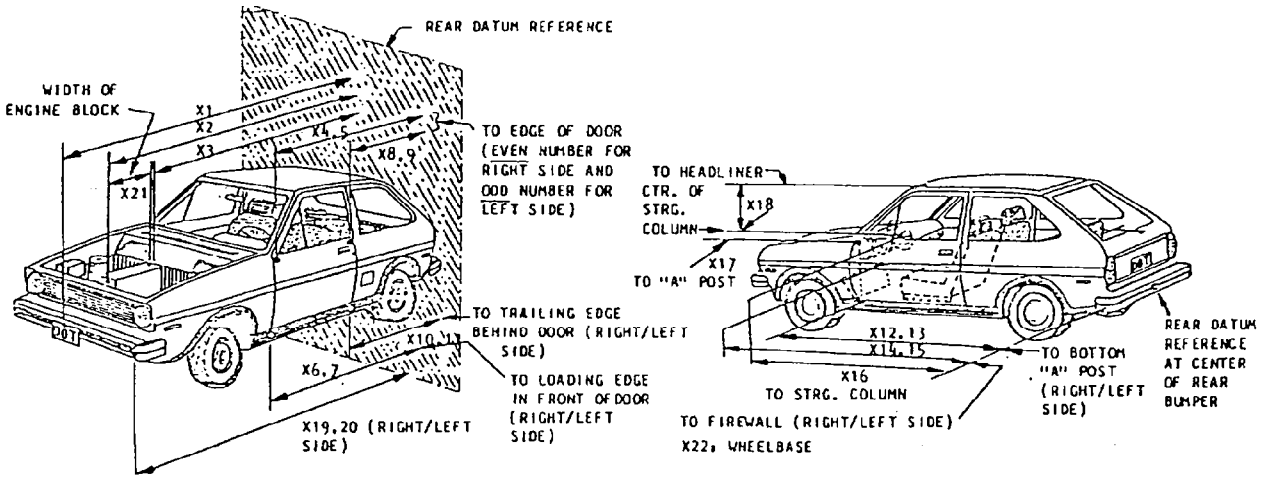
Centerline: 26 3/4 inches

FIREWALL INTRUSION:

Left Side: 13/16 inches

Right Side: 3/8 inches

TABLE 12 PRE/POST-TEST STATIC MEASUREMENT DATA



VEHICLE: Ford F-150 Pick Up Truck NHTSA NO.: CE0606

TEST DATE: 03/06/84

REFERENCE DIMENSION	PRE-TEST MEASUREMENT	POST-TEST MEASUREMENT	CHANGE
X1	191 3/4	165	-26 3/4
X2	178 1/8	158 3/4	-19 3/8
X3	142 1/4	139 1/2	- 2 3/4
X4	133 15/16	133 3/4	- 3/16
X5	133 3/4	133 1/2	- 1/4
X6	133 5/16	131 1/4	- 2 1/16
X7	133 1/8	131 7/8	- 1 1/4
X8	92 1/16	91 7/8	- 3/16
X9	92	91 7/8	- 1/8
X10	90 7/16	88 5/8	- 1 13/16
X11	90 7/16	89 5/8	- 13/16
X12	131 1/8	129 3/8	- 1 3/4
X13	130 11/16	129 7/8	- 13/16
X14	145 7/8	145 1/2	- 3/8
X15	146 5/16	145 1/2	- 13/16
X16	117 15/16	117 1/8	- 3/16
X17	18 1/2	18	- 1/2
X18	20	17 5/8	- 2 3/8
X19	187 13/16	166 1/2	-21 5/16
X20	187 1/2	164 3/8	-23 1/8
X21	34 3/8	34 3/8	0
X22	116 11/16	112 15/16	- 3 3/4

TABLE 13 PRE/POSTTEST TARGET LOCATION DIMENSIONS

	X From Barrier		Y From Rail		Z Above Ground	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
A1	48 3/4	48 3/4	42 1/2	42 1/2	74 3/4	74 3/4
A2	52 3/4	52 3/4	42 1/2	42 1/2	74 3/4	74 11/16
A3	56 3/4	56 3/4	42 1/2	42 1/2	74 11/16	74 11/16

	X From Rearmost Point of Vehicle		Y From Centerline		Z Above Ground	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
B1	112 1/4	114 3/16	17 3/8	17 1/2	70 3/4	68 1/8
B2	108 1/4	110 3/16	17 5/8	17 1/2	70 3/4	67 9/16
B3	104 1/4	106 3/16	17 5/8	17 1/2	70 3/4	67 3/8
C1	76 1/8	70 7/8	17 3/4	17 3/4	49 3/8	49
C2	72 1/8	66 7/8	17 3/4	17 3/4	49 3/8	49 1/2
C3	68 1/8	62 7/8	17 3/4	17 3/4	49 3/8	50
D	91	92 3/4	19 3/4	32	61 1/2	60 1/4
E	126 1/4	125 1/2	17 3/4	18 3/4	46 9/16	46 3/8
F	140 1/4	138 3/4	36 1/4	36 3/4	14	11 3/4
G	103 3/4	102 1/2	36 13/16	36 7/16	13 3/4	12 3/8
H	67 1/2	65 5/16	36 1/2	36 5/16	14 5/8	15 5/8
J	67 1/2	65	36 1/2	36 5/16	15 5/8	13 3/16
K	104 1/2	102 1/16	36 13/16	36 7/16	14 1/2	8 7/8
L	141 1/2	138 3/16	36 1/4	36 3/4	14 3/4	7 7/8
M	91 1/8	92 3/8	19 3/4	32	62	57 3/4

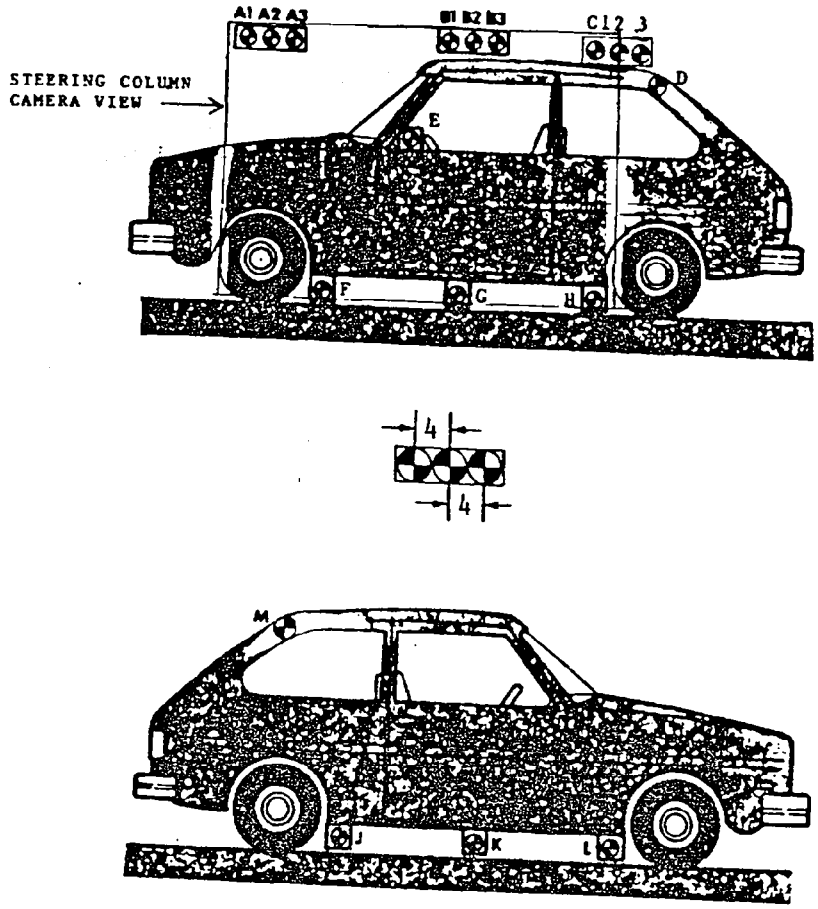


FIGURE 2

LOCATIONS OF VEHICLE TARGETS

TABLE 14 SEAT AND STEERING WHEEL POSITIONING

Vehicle: Ford F-150 Pick Up Truck

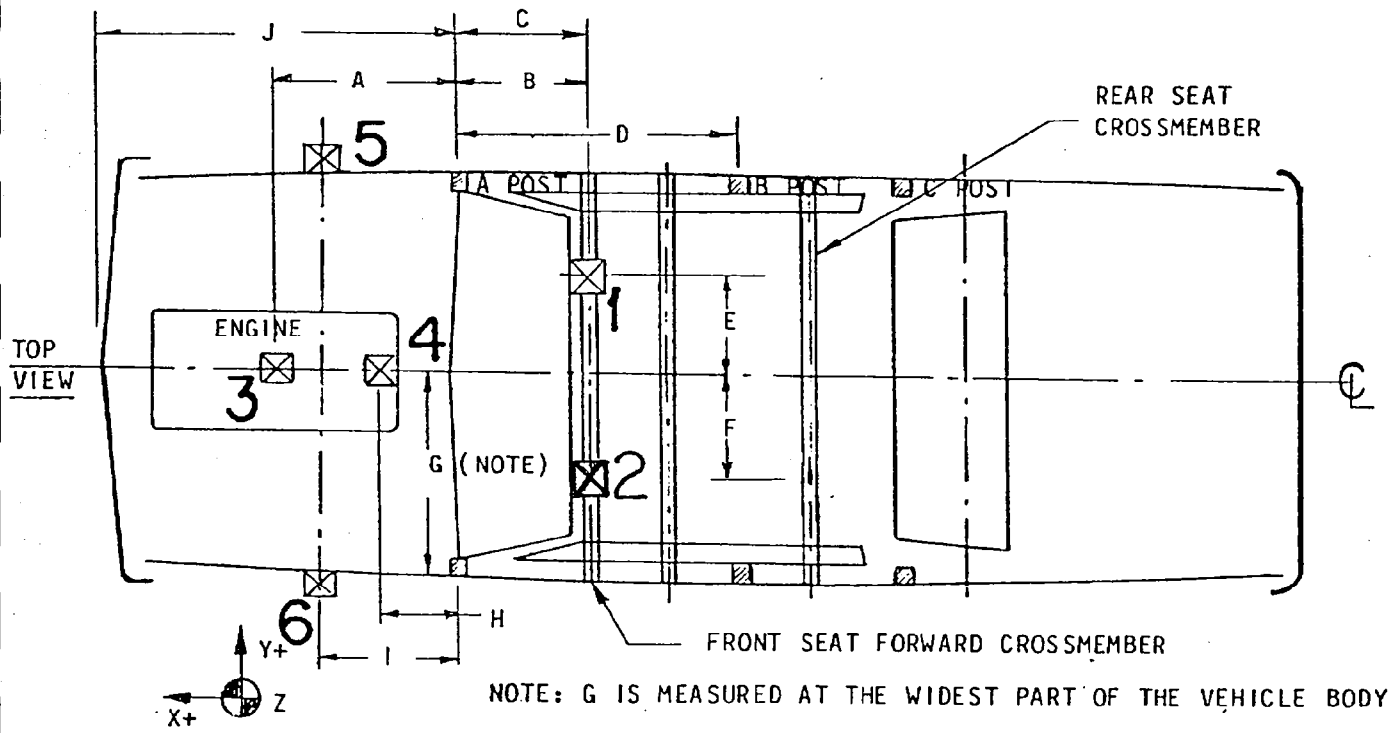
NHTSA No.: CE0606

VIN: 1FTCF15YOEPA24569

Type of Seat(s): bench

SEAT POSITION	DRIVER	PASSENGER
Longitudinal Position		
Range of travel	5 1/2 in.	5 1/2 in.
Number of positions	12	12
Test position	7th from front	7th from front
Seatback Angle		
Range of travel	NOT ADJUSTABLE	
Number of positions	1	1
Test position	N/A	N/A
Headrest		
Range of travel	N/A	N/A
Number of positions	N/A	N/A
Test position	N/A	N/A
Vertical Position		
Range of travel	NOT ADJUSTABLE	
Number of positions	1	1
Test position	N/A	N/A
Steering Column Angle		
Range of travel	NOT ADJUSTABLE	
Number of positions	1	
Test position	N/A	

TABLE 15 VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



NOTE: G IS MEASURED AT THE WIDEST PART OF THE VEHICLE BODY.

LOCATION NO. AND DESCRIPTION	LOCATION DIMENSION (IN.)	AXIS	PEAK (G'S)		TIME TO PEAK(MSEC)	
			POSITIVE	NEGATIVE	POSITIVE	NEGATIVE
1 - Below Front Seat Area	E - 22 1/4 B - 7 5/8	X	5	45	178	48
2 - Below Rear Seat Area	F - 19 1/2 C - 10	X	4	63	113	39
3 - Top of Engine at Carb. Mount	A - 36 1/2	X	.60	176	41	31
4 - Bottom of Engine at Oil Pan	H - 21 1/2	X	107	209	39	31
5 - Right Front Brake Caliper	I - 30 3/16	X	65	86	47	24
6 - Left Front Brake Caliper	I - 38 1/2	X	35	115	70	40
- Vehicle Half Width	G - 38 1/2	NOTE: NEGATIVE ACCELERATION IS REARWARD				
- Forward Most Point At ℄ to A Post	J - 131 5/16					
- Distance from 'A' post to 'B' post	D - 44 3/4					

APPENDIX A

PHOTOGRAPHIC COVERAGE

LIST OF PHOTOGRAPHS

A-1 FULL LEFT SIDE - PRETEST

A-2 HALF LEFT SIDE - PRETEST

A-3 FULL FRONT - PRETEST

A-4 LEFT FRONT 3/4 - PRETEST

A-5 RIGHT REAR 3/4 - PRETEST

A-6 FULL FRONT WINDSHIELD - PRETEST

A-7 DRIVER ATD GENERAL POSITION - PRETEST

A-8 PASSENGER ATD GENERAL POSITION - PRETEST

A-9 FULL LEFT SIDE - POSTTEST

A-10 HALF LEFT SIDE - POSTTEST

A-11 HALF RIGHT SIDE - POSTTEST

A-12 LEFT FRONT 3/4 - POSTTEST

A-13 FULL FRONT WINDSHIELD - POSTTEST

A-14 FULL FRONT - POSTTEST

A-15 FULL UNDERBODY - POSTTEST

A-16 DRIVER ATD GENERAL POSITION - POSTTEST

A-17 PASSENGER ATD GENERAL POSITION - POSTTEST

A-18 DRIVER ATD STEERING WHEEL - POSTTEST

A-19 DRIVER ATD KNEES - POSTTEST

A-20 PASSENGER ATD KNEES - POSTTEST

A-21 PASSENGER ATD SHOULDER BELT RETRACTOR - POSTTEST

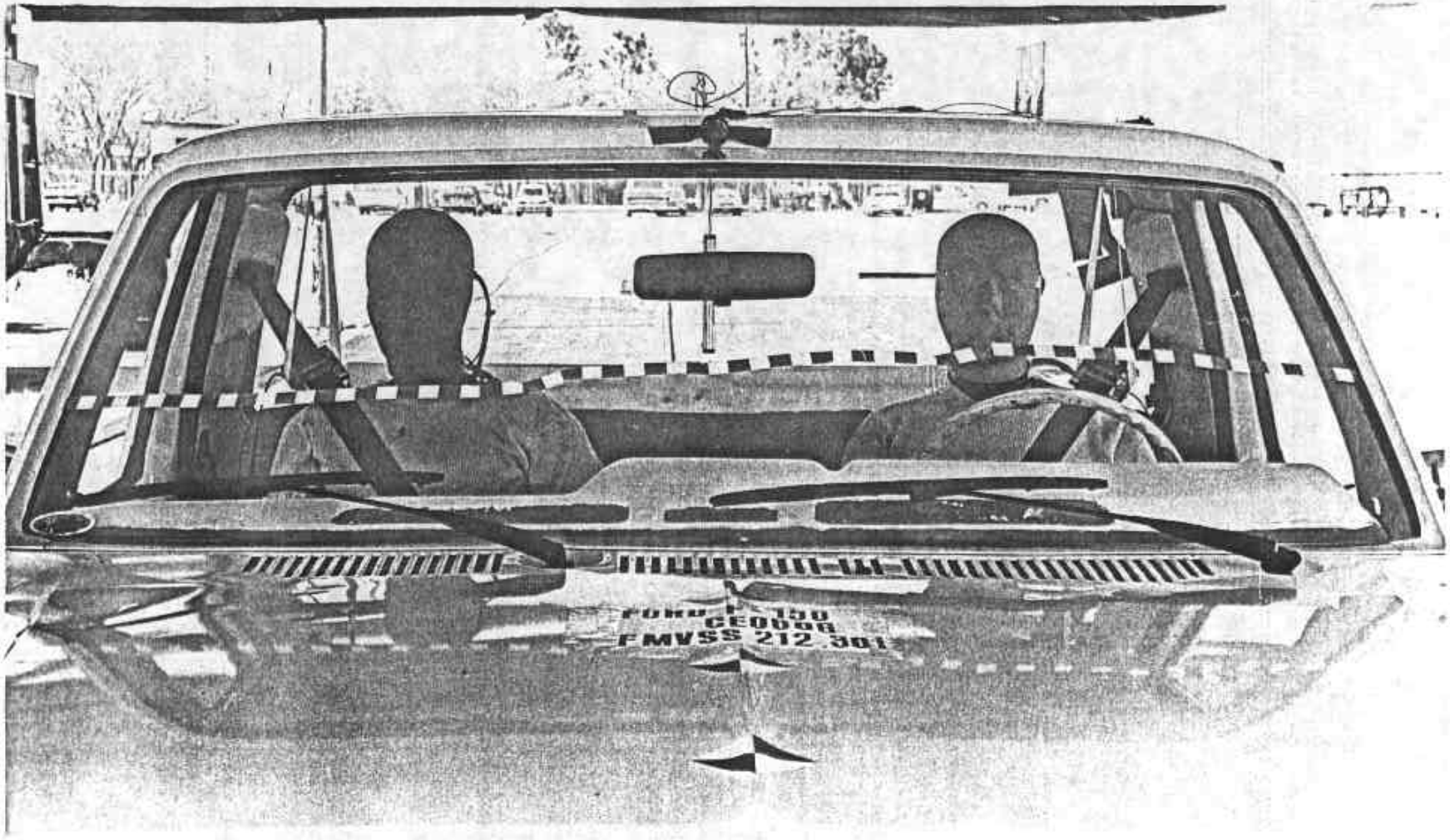
A-1 FULL LEFT SIDE – PRETEST

A-2 HALF LEFT SIDE - PRETEST

A-3 FULL FRONT - PRETEST

A-4 LEFT FRONT 3/4 - PRETEST

A-5 RIGHT REAR 3/4 – PRETEST



A-6 FULL FRONT WINDSHIELD - PRETEST

A-7 DRIVER ATD GENERAL POSITION – PRETEST

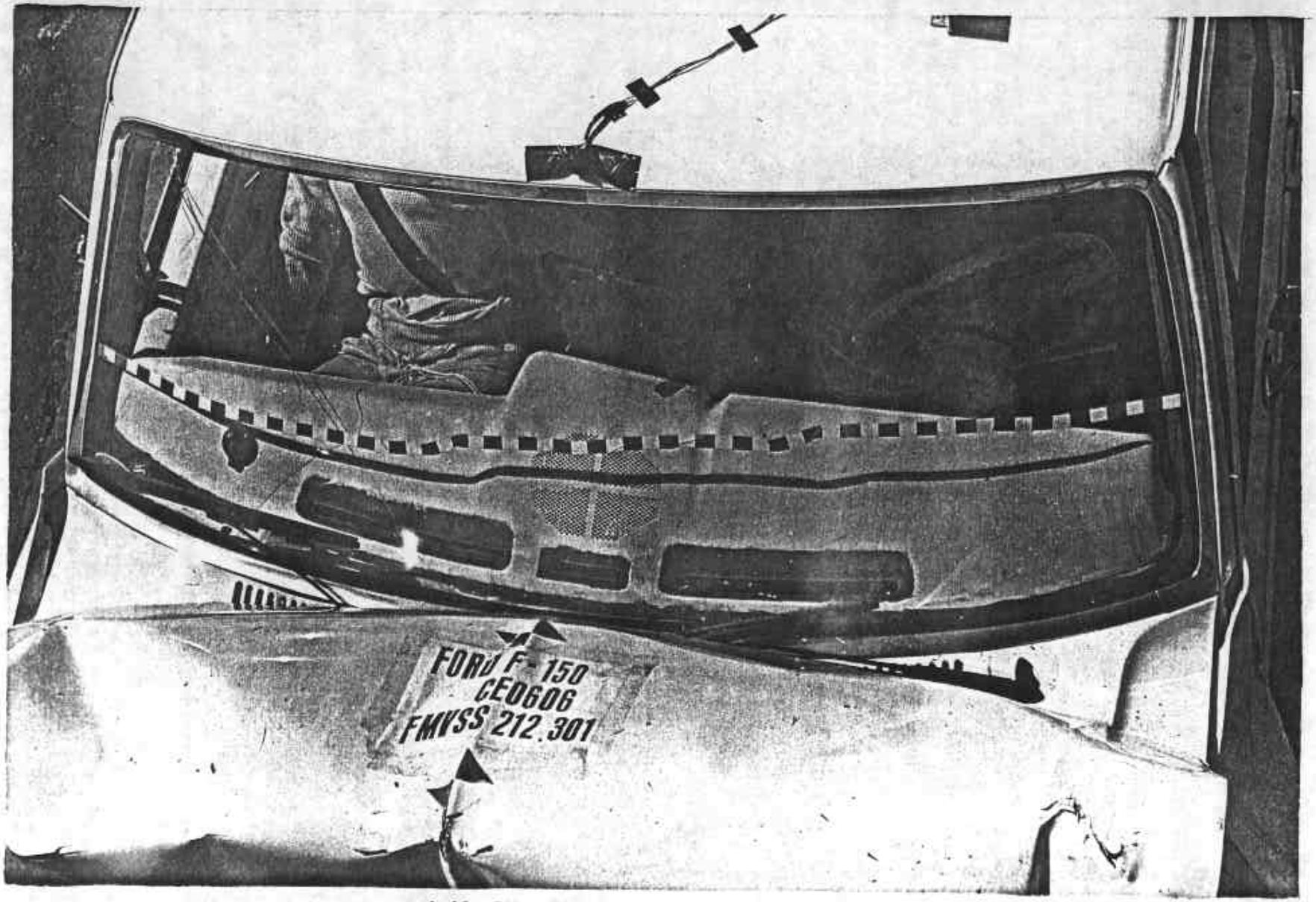
A-8 PASSENGER ATD GENERAL POSITION – PRETEST

A-9 FULL LEFT SIDE – POSTTEST

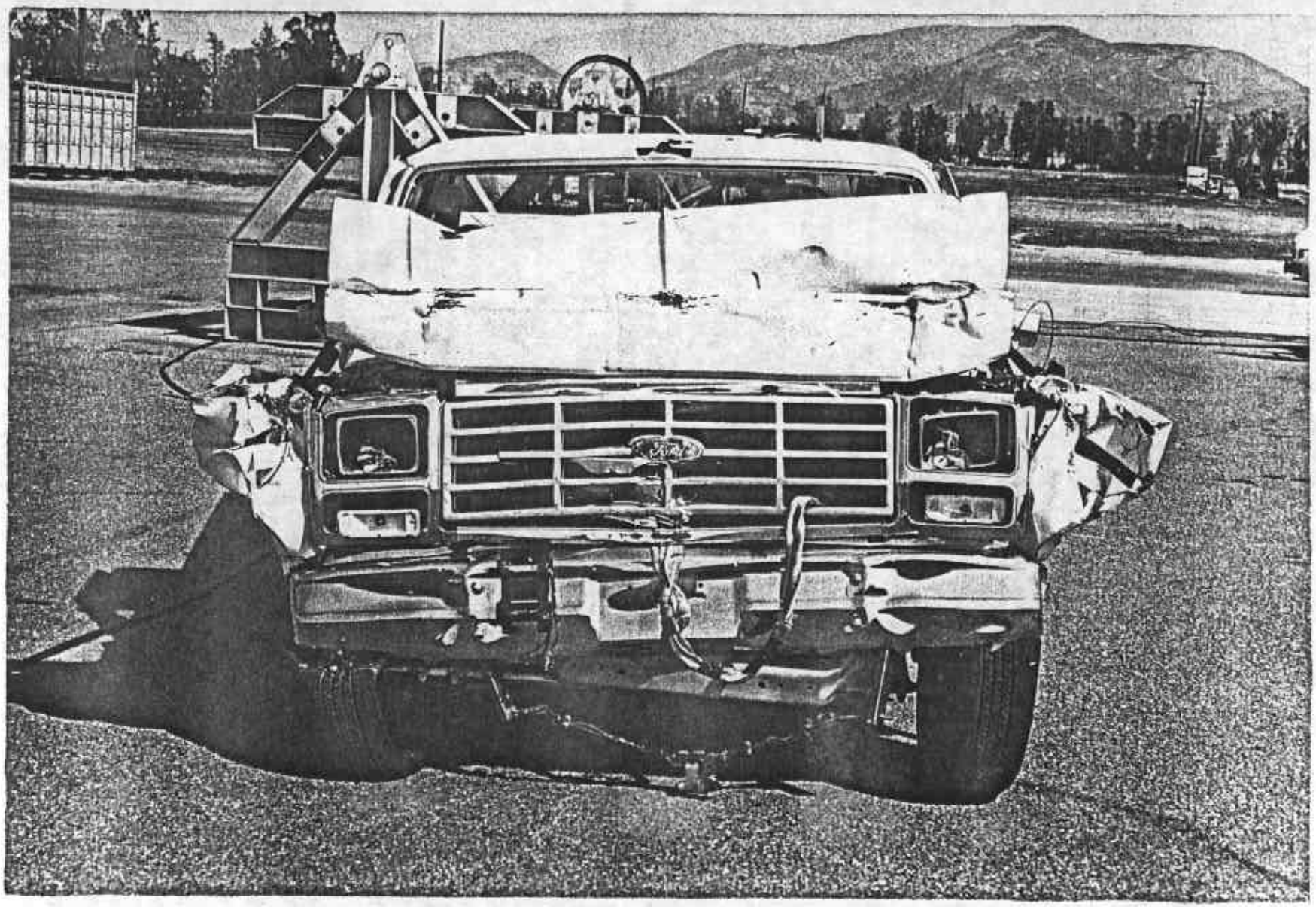
A-10 HALF LEFT SIDE – POSTTEST

A-11 HALF RIGHT SIDE – POSTTEST

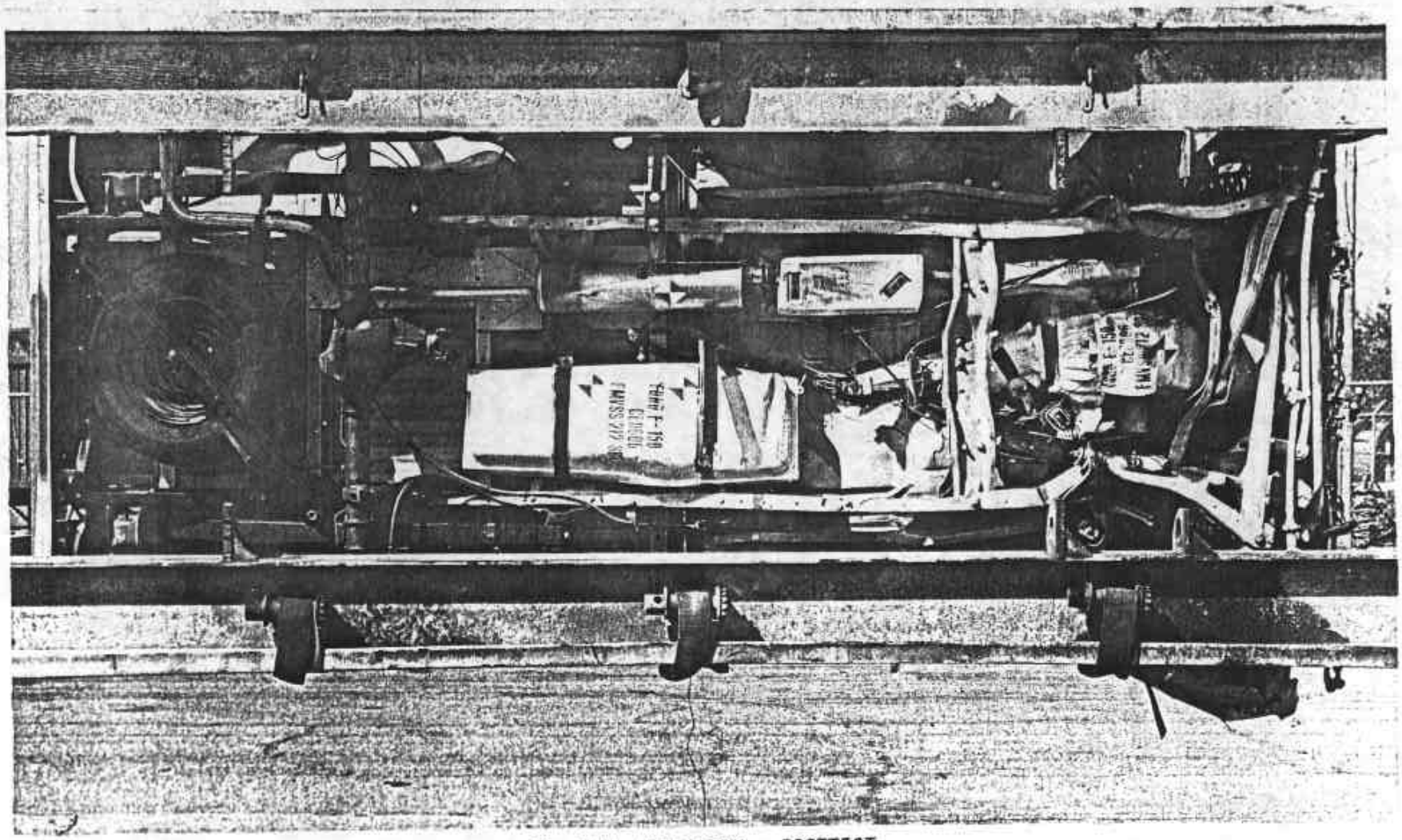
A-12 LEFT FRONT 3/4 – POSTTEST



A-13 FULL FRONT WINDSHIELD - POSTTEST

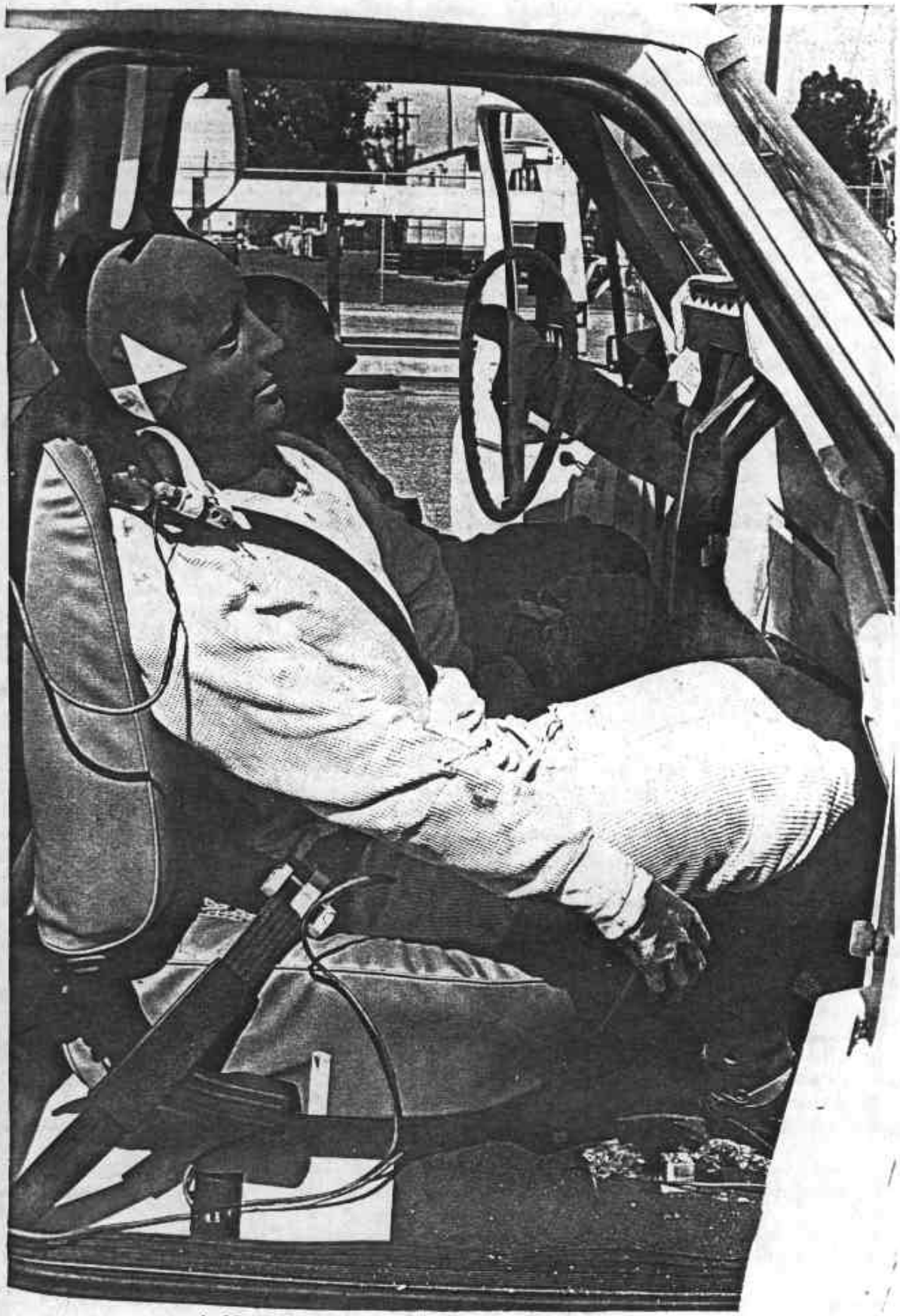


A-14 FULL FRONT - POSTTEST

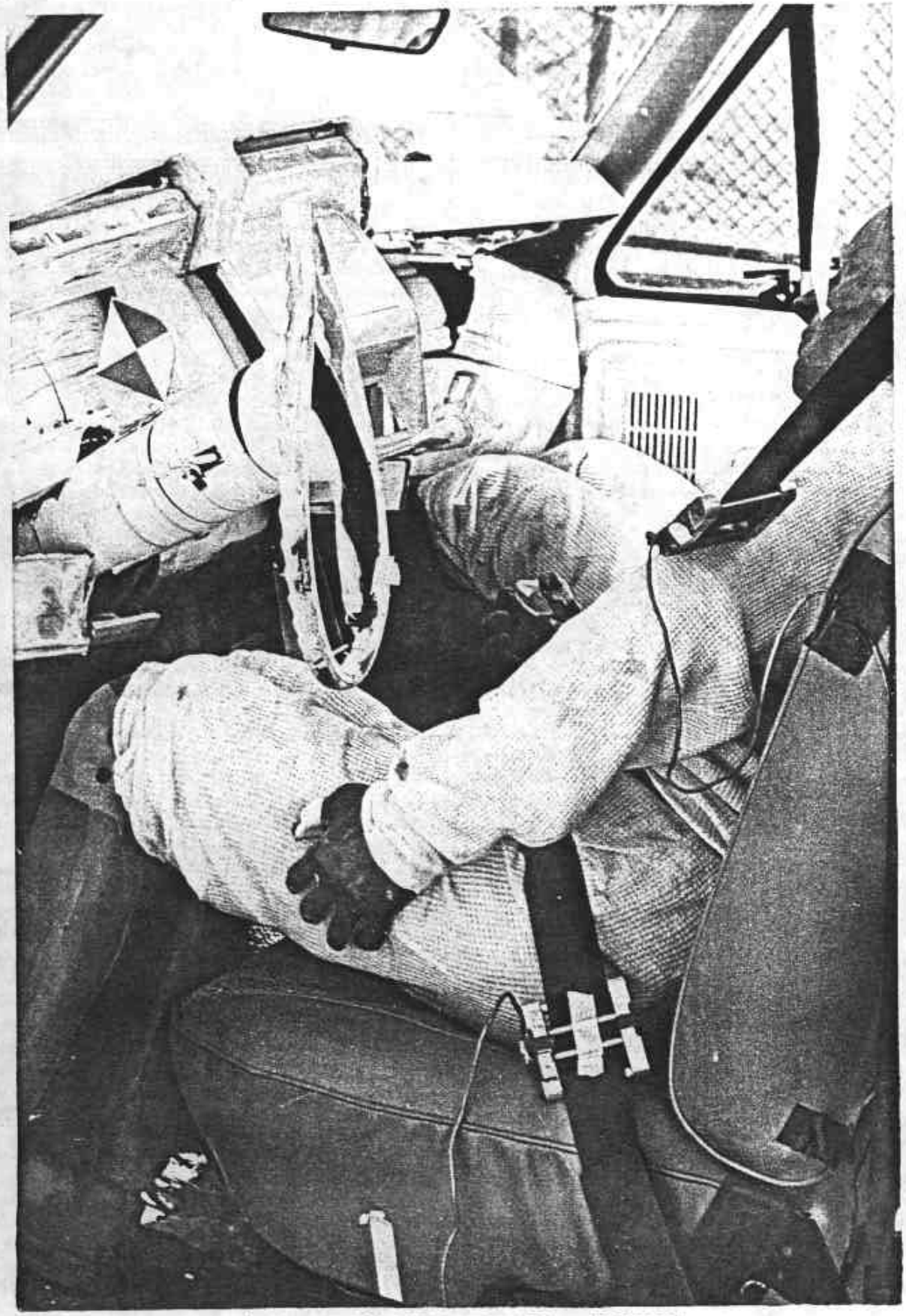


A-15 FULL UNDERBODY - POSTTEST

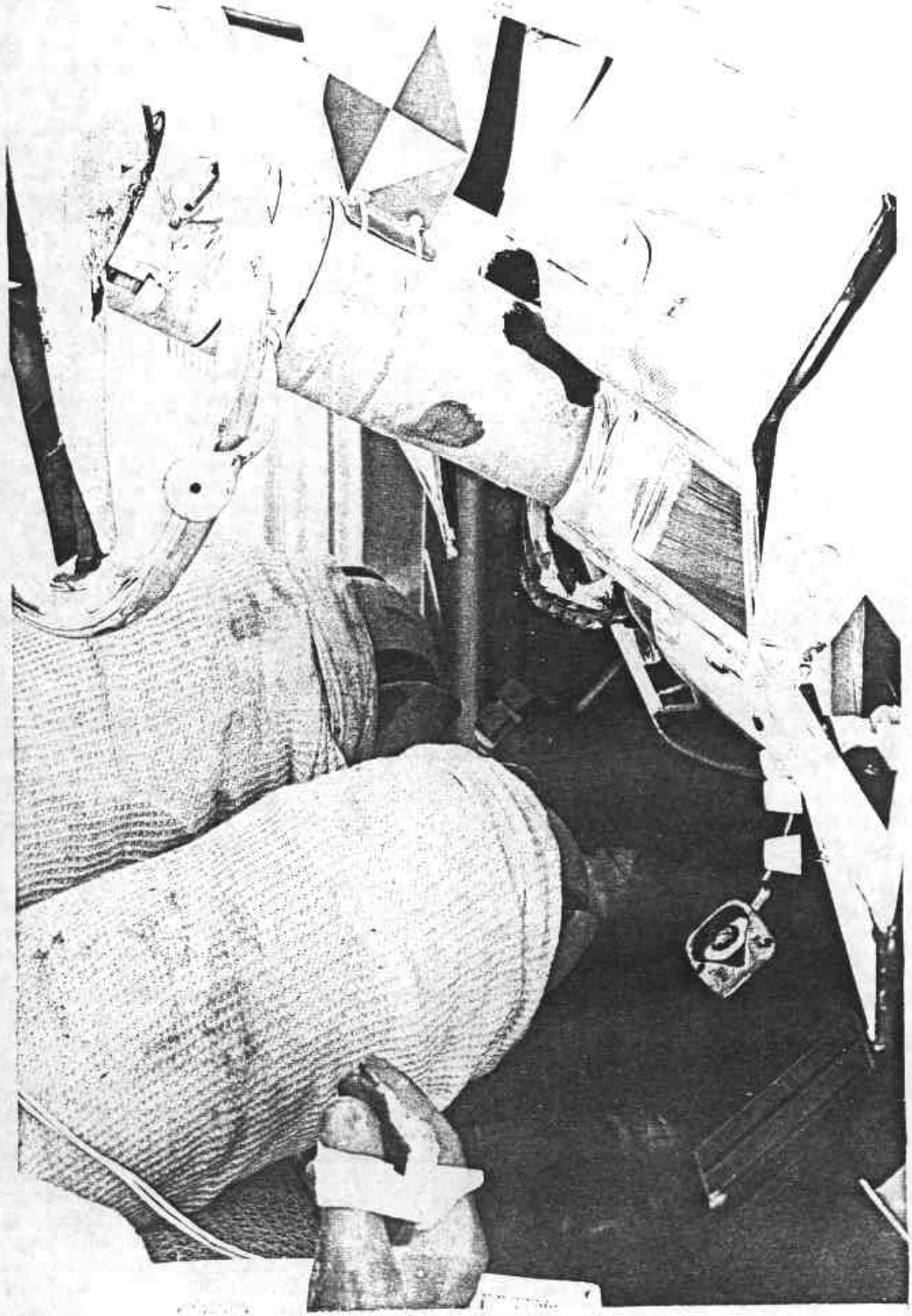
A-16 DRIVER ATD GENERAL POSITION – POSTTEST



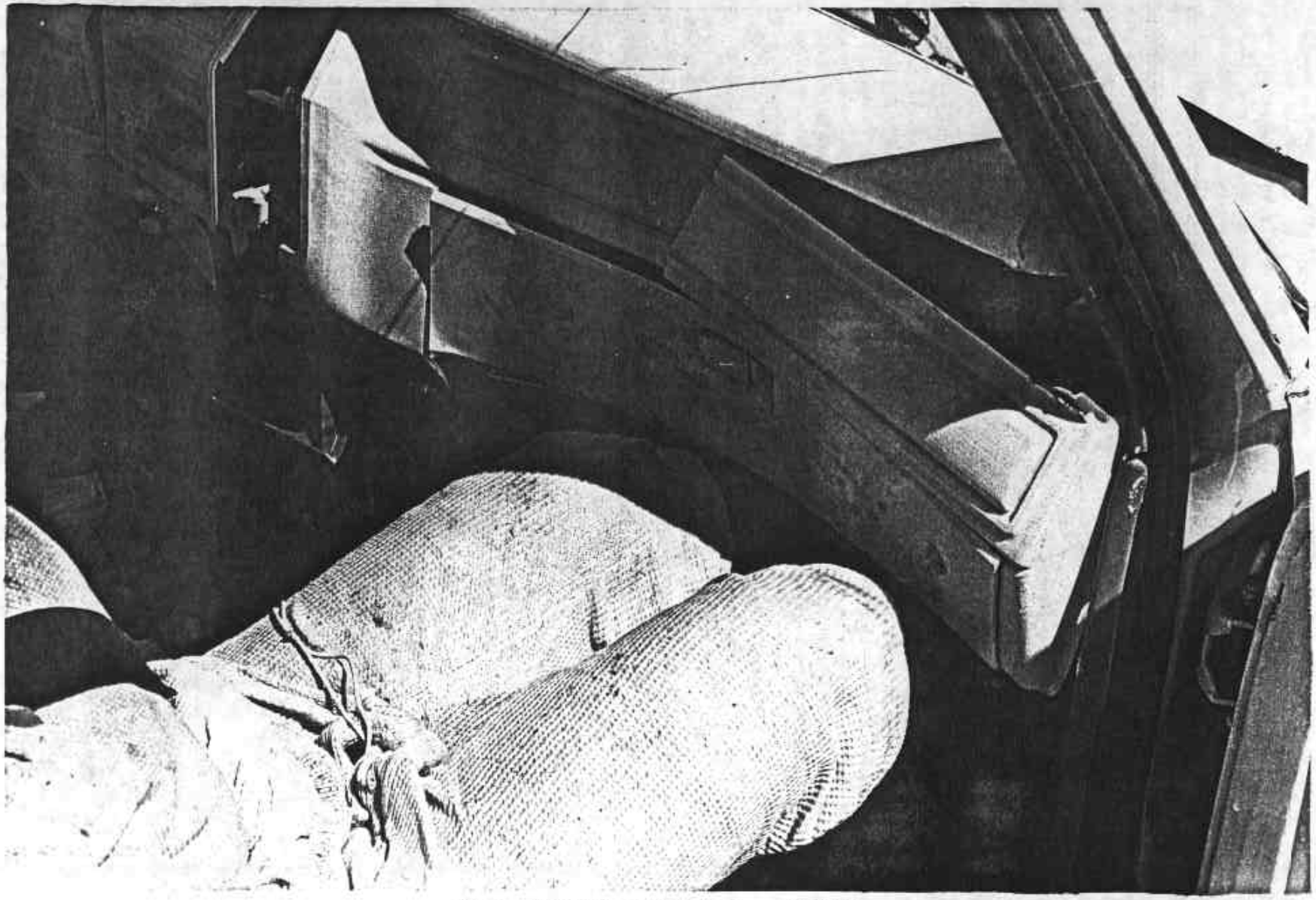
A–17 PASSENGER ATD GENERAL POSITION – POSTTEST



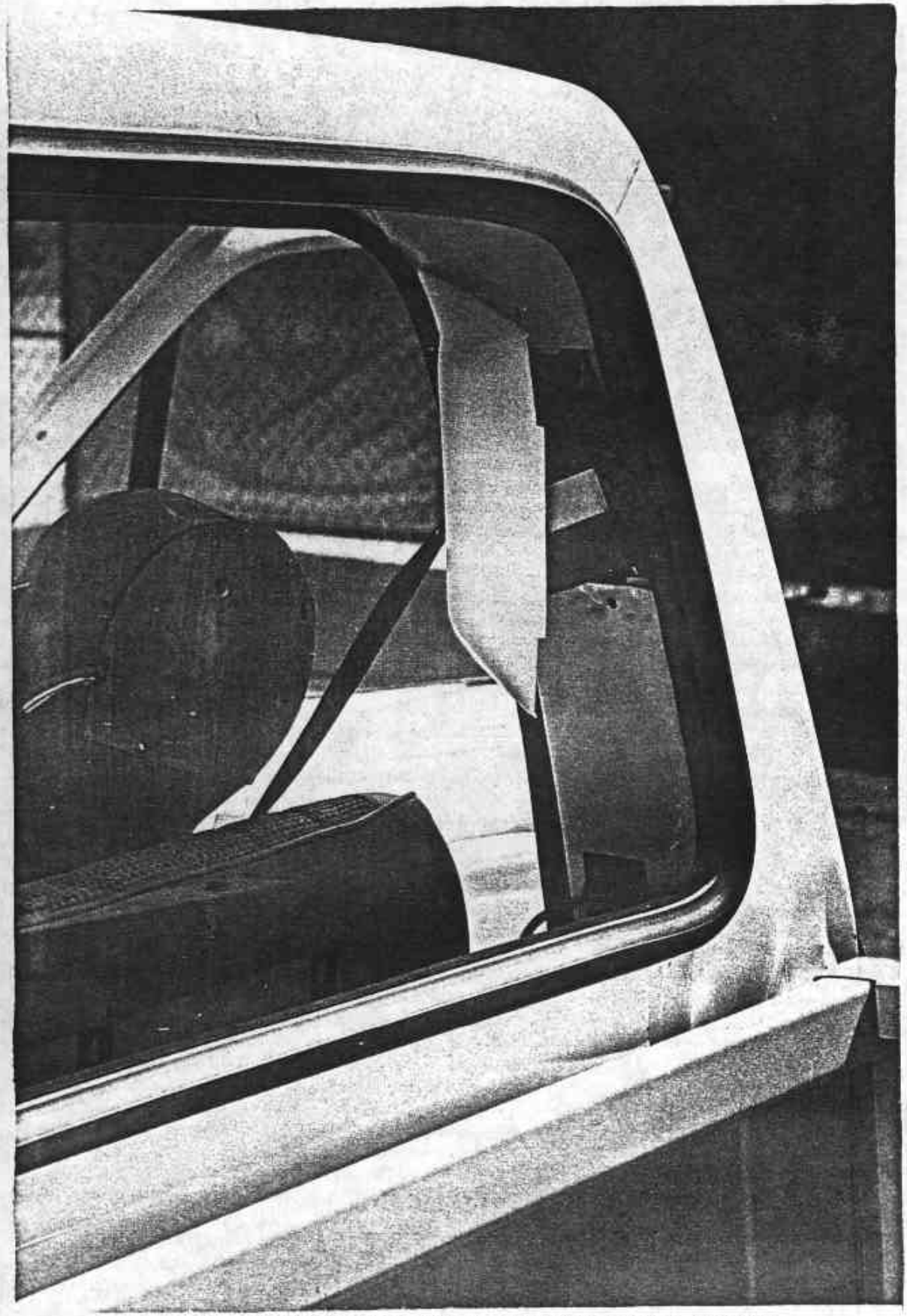
A-18 DRIVER ATD STEERING WHEEL - POSTTEST



A-19 DRIVER ATD KNEES - POSTTEST



A–20 PASSENGER ATD KNEES – POSTTEST



A-21 PASSENGER ATD SHOULDER BELT RETRACTOR – POSTTEST

APPENDIX B

SUMMARY OF RESULTS

CERTIFICATION TESTS ON

PART 572 ANTHROPOMORPHIC TEST DEVICES

HUMANOID MODEL 572

SERIAL NO'S. 467 and 465

TABLE B1 - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY

NHTSA ATD I.D. NO.: 467

LABORATORY TECHNICIAN: M. Poindexter

Sheet 1 of 3		Pre-Test Calibration	Post-Test Calibration
Date of ATD Calibration - - - - - - - - - - - -		02/25-02/29/84	03/08-03/10/84
Calibration Sequential Number For Dummy - - -		6	7
Temperature in Lab. (Spec. = 66 to 78° F) - -		68-78 °F	69-77 °F
Relative Humidity in Lab. (Spec. = 10 to 70%)		10-30%	24-45%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST:			
a. Peak Resultant Accel. -	210 to 260g	235.8	243
b. Peak Lateral Accel. - -	≤10g	6.0	7.5
c. Time above 100G - - - -	0.9 to 1.5 ms	1.5	1.3
2. NECK BENDING TEST:			
a. Pendulum Speed - - - -	21.5 to 25.5 fps	23.14	22.98
b. Pendulum Avg. Decel. (over $t_3 - t_2$) - - - -	20 to 24G	23.5	24
c. Peak Resultant Head Acceleration - - - - -	26G maximum	25.7	25.2
d. Pendulum Decel. (t_2-t_1)	≤3 ms	1.5	2.1
e. Pendulum Decel. (t_3-t_2)	25 to 30 ms	28.9	29.0
f. Pendulum Decel. (t_4-t_3)	≤ 10 ms	9.6	7.6
g. Pendulum Direction Reversal Time - - - - -	≥123 ms	N/A	N/A
h. Max. Head Rotation - -	63 to 73°	65 °	65
i. Chordal Displacement: Head Rotation Angle - -			
0° Time	-2 to 2 ms	0	0
0° Displ.	-.5 to .5 in.	0	0
30° Time	25.6 to 34.4 ms	29.2	31.8
30° Displ.	2.1 to 3.1 in.	2.40	2.66
60° Time	40.3 to 51.7 ms	50.6	49.6
60° Displ.	4.3 to 5.3 in.	5.05	5.15
Maximum (65 °) Time	53.2 to 66.8 ms	60.3	59.5
Maximum (65 °) Displ.	5.0 to 6.0 in.	5.33	5.69

TABLE B1 - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY (CONT'D)

NHTSA ATD I.D. NO.: 467

Sheet 2 of 3				
TEST PARAMETER			SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
2. NECK BENDING TEST Continued:					
i. Chordal Displacement:					
Head Rotation Angle -					
	60°	Time	67.0 to 83.0 ms	68.5	71.3
		Disp.	4.3 to 5.3 in.	4.82	5.13
	30°	Time	85.4 to 104.6 ms	89.0	89.8
		Displ.	2.1 to 3.1 in.	2.07	2.46
	0°	Time	101.0 to 123.0 ms	101	102
		Displ.	-.5 to 0.5 in.	0.23	-0.23
3. ABDOMINAL COMPRESSION TEST:					
(Preload = 10 pounds)					
a. Force @ .5" - - - - -			23 - 36 lbs.	29	25
b. Force @ .75" - - - -			36 - 50 lbs.	43	38
c. Force @ 1.0" - - - -			50 - 63 lbs.	60	54
d. Force @ 1.3" - - - -			73 - 88 lbs.	88	81
4. LUMBAR FLEXION TEST:					
a. Force @ 20° - - - - -			22 to 34 lbs.	34	32
b. Force @ 30° - - - - -			34 to 46 lbs.	43	41
d. Force @ 40° - - - - -			46 to 58 lbs.	48	53
e. Return Angle - - - -			12° maximum	10.5°	11°
5. CHEST IMPACT TESTS:					
a. High Speed					
(1) Probe Speed - - -			21.78-22.22 fps	22.10	22.17
(2) Peak Deflection -			1.7" maximum	1.43	1.55
(3) Peak Resistive Force - - - - - -			2250 lbs. maximum	2225	2081
(4) Internal Hysteresis - - -			50 to 70%	66	60

TABLE B1 - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY (CONT'D)

NHTSA ATD I.D. NO.: 467

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	14.17	13.86
(2) Peak Deflection -	1.1" maximum	0.86	0.87
(3) Peak Resistive Force - - - - - -	1450 lbs. maximum	1339	1215
(4) Internal Hysteresis - - -	50 to 70%	56	61
6. KNEE IMPACT TESTS:			
a. Right Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.83	6.85
(2) Maximum Force - -	1850 to 2500 lbs.	1890	2480
(3) Time Above 1000#-	1.7 ms minimum	2.0	1.8
b. Left Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.81	6.90
(2) Maximum Force - -	1850 to 2500 lbs.	2160	2030
(3) Time Above 1000#-	1.7 ms. minimum	1.8	1.8

TABLE B2 - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY

NHTSA ATD I.D. NO.: 465

LABORATORY TECHNICIAN: M. Poindexter

Sheet 1 of 3			Pre-Test Calibration	Post-Test Calibration
Date of ATD Calibration - - - - - - - - - - - -			02/17-02/25/84	03/09-03/16/84
Calibration Sequential Number For Dummy - - -			6	7
Temperature in Lab. (Spec. = 66 to 78° F) - -			66-78 °F	68-74 °F
Relative Humidity in Lab. (Spec. = 10 to 70%)			15-41%	35-53%
TEST PARAMETER		SPECIFICATION		
1. HEAD DROP TEST:				
a. Peak Resultant Accel. -		210 to 260g	241	253
b. Peak Lateral Accel. - -		≤10g	6.5	3.5
c. Time above 100G - - - -		0.9 to 1.5 ms	1.1	1.4
2. NECK BENDING TEST:				
a. Pendulum Speed - - - -		21.5 to 25.5 fps	23.10	23.07
b. Pendulum Avg. Decel. (over $t_3 - t_2$) - - - -		20 to 24G	22.5	22.5
c. Peak Resultant Head Acceleration - - - - -		26G maximum	25	25.7
d. Pendulum Decel. (t_2-t_1)		≤3 ms	2.1	1.3
e. Pendulum Decel. (t_3-t_2)		25 to 30 ms	29.6	29.1
f. Pendulum Decel. (t_4-t_3)		≤ 10 ms	9.9	7.8
g. Pendulum Direction Reversal Time - - - - -		≥123 ms	N/A	N/A
h. Max. Head Rotation - -		63 to 73°	65	64
i. Chordal Displacement: Head Rotation Angle - -				
0°	Time	-2 to 2 ms	0	0
	Displ.	-.5 to .5 in.	0	0
30°	Time	25.6 to 34.4 ms	31.3	29.6
	Displ.	2.1 to 3.1 in.	2.51	2.39
60°	Time	40.3 to 51.7 ms	50.8	50.8
	Displ.	4.3 to 5.3 in.	5.07	4.91
Maximum (65°)	Time	53.2 to 66.8 ms	60.8	59.2
	Displ.	5.0 to 6.0 in.	5.43	5.31

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

NHTSA ATD I.D. NO.: 465

Sheet 2 of 3				
TEST PARAMETER			SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
2. NECK BENDING TEST Continued:					
i. Chordal Displacement:					
Head Rotation Angle -					
	60°	Time	67.0 to 83.0 ms	68.1	68.2
		Disp.	4.3 to 5.3 in.	4.88	5.01
	30°	Time	85.4 to 104.6 ms	87.6	87.5
		Displ.	2.1 to 3.1 in.	2.31	2.19
	0°	Time	101.0 to 123.0 ms	102	101
		Displ.	-.5 to 0.5 in.	0.13	0.21
3. ABDOMINAL COMPRESSION TEST:					
(Preload = 10 pounds)					
a. Force @ .5" - - - - -			23 - 36 lbs.	26	24
b. Force @ .75" - - - -			36 - 50 lbs.	41	36
c. Force @ 1.0" - - - -			50 - 63 lbs.	59	52
d. Force @ 1.3" - - - -			73 - 88 lbs.	85	78
4. LUMBAR FLEXION TEST:					
a. Force @ 20° - - - - -			22 to 34 lbs.	33	29
b. Force @ 30° - - - - -			34 to 46 lbs.	41	38
d. Force @ 40° - - - - -			46 to 58 lbs.	52	48
e. Return Angle - - - -			12° maximum	12°	12°
5. CHEST IMPACT TESTS:					
a. High Speed					
(1) Probe Speed - - -			21.78-22.22 fps	21.97	22.17
(2) Peak Deflection -			1.7" maximum	1.42	1.66
(3) Peak Resistive Force - - - - - -			2250 lbs. maximum	2163	1972
(4) Internal Hysteresis - - -			50 to 70%	58	54

TABLE B2 - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY (CONT'D)

NHTSA ATD I.D. NO.: 465

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	13.92	14.12
(2) Peak Deflection -	1.1" maximum	0.92	0.98
(3) Peak Resistive Force - - - - - -	1450 lbs. maximum	1318	1205
(4) Internal Hysteresis - - -	50 to 70%	62	57
6. KNEE IMPACT TESTS:			
a. Right Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.81	6.82
(2) Maximum Force - -	1850 to 2500 lbs.	2050	2200
(3) Time Above 1000#-	1.7 ms minimum	1.8	2.0
b. Left Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.82	6.78
(2) Maximum Force - -	1850 to 2500 lbs.	2100	2300
(3) Time Above 1000#-	1.7 ms. minimum	1.7	1.8

APPENDIX C

TEST DATA PLOTS

DIGITAL TAPE HEADER INFORMATION

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1COMB. TEST OMI.212.301    03/06/84MSEDTNH2282D21140N0204415ACQUIRE OMI DATA PLUS EVALUATE COMPLIANCE TO FMVSS 212 & 301
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35.2000000 12FDAW9999874.223.126.926.826.425.421.300.026.9
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412CD      050M  HUMANOID SYSTEMS 465                    16.622.109.412.123.599.905.206.208.93PTSTDNADPNODP
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OCCUPANT RESPONSE COMPARISON TO FMVSS REQUIREMENTS 03/06/84

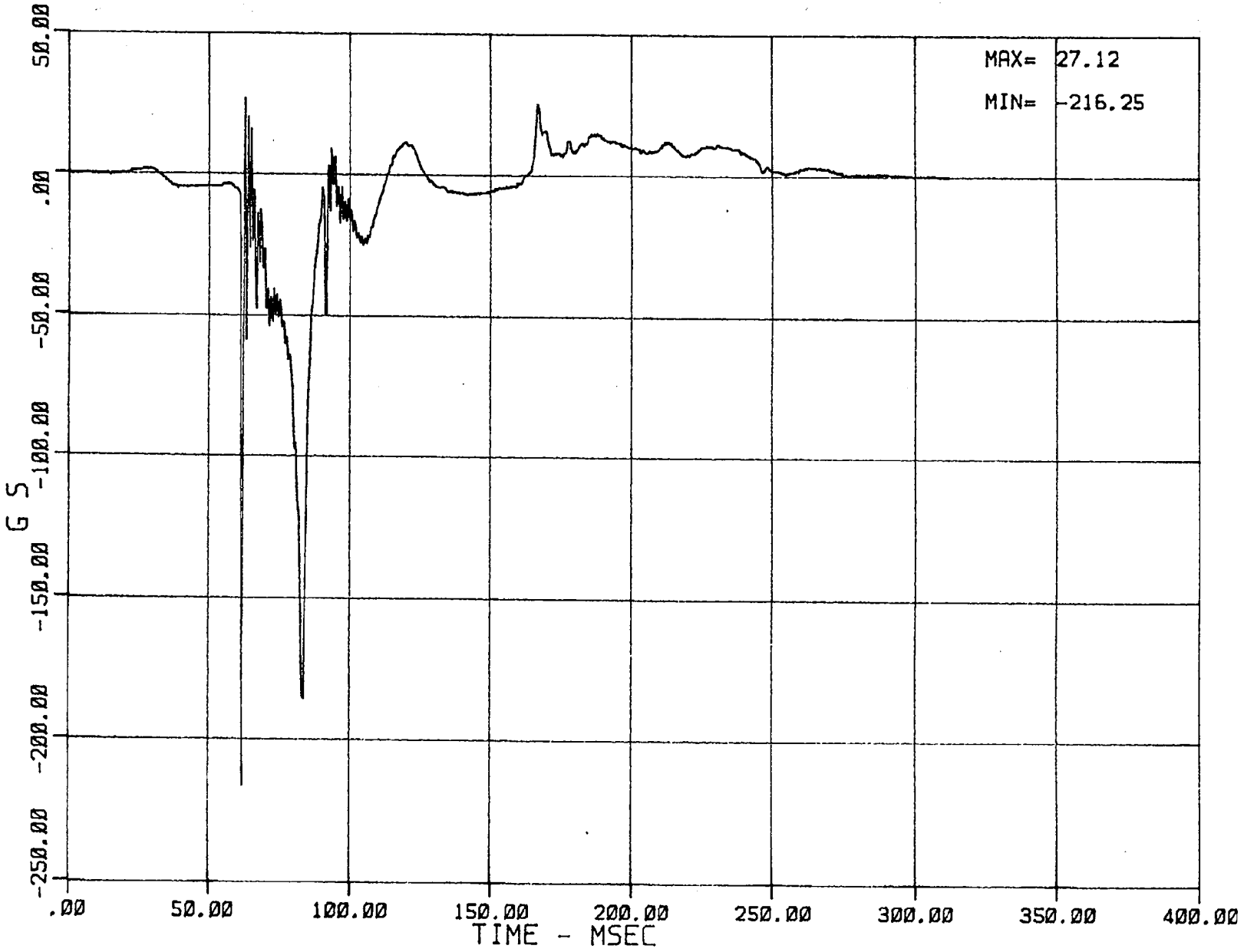
HIC

VEHICLE	OCCUPANT	HIC	T1	T2	T2-T1	*COMP. MARG.
1984 Ford F-150	Driver	1316.92	61.63	89.75	28.13	1.36
1984 Ford F-150	Passenger	1442.89	56.50	123.25	66.75	1.44

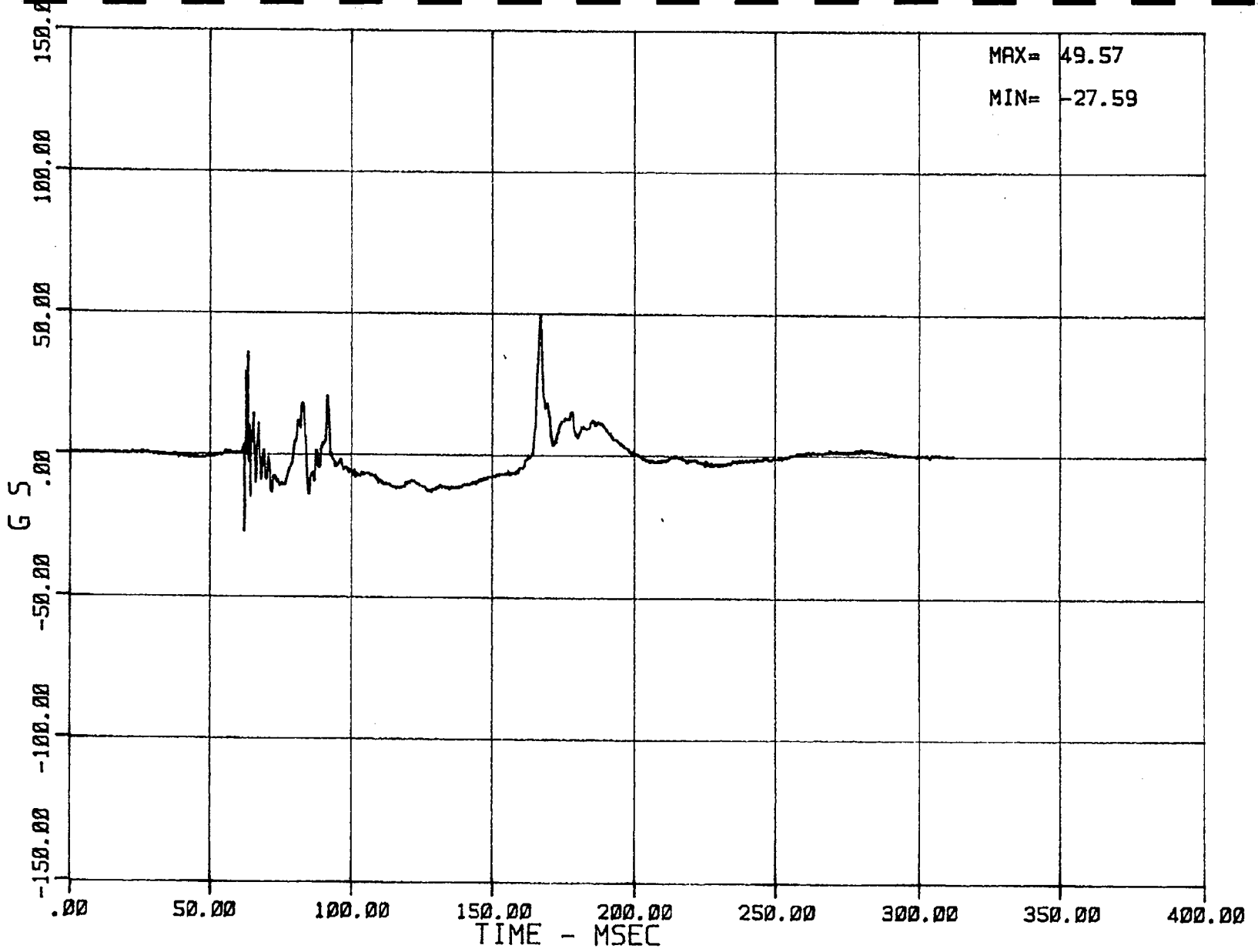
CHEST RESULTANT ACCELERATION, 3 MSEC CLIPPED PEAK

VEHICLE	OCCUPANT	REQUIREMENT	RESPONSE	*COMP. MARG.
1984 Ford F-150	Driver	60.00	48.4	0.81
1984 Ford F-150	Passenger	60.00	51.4	0.86

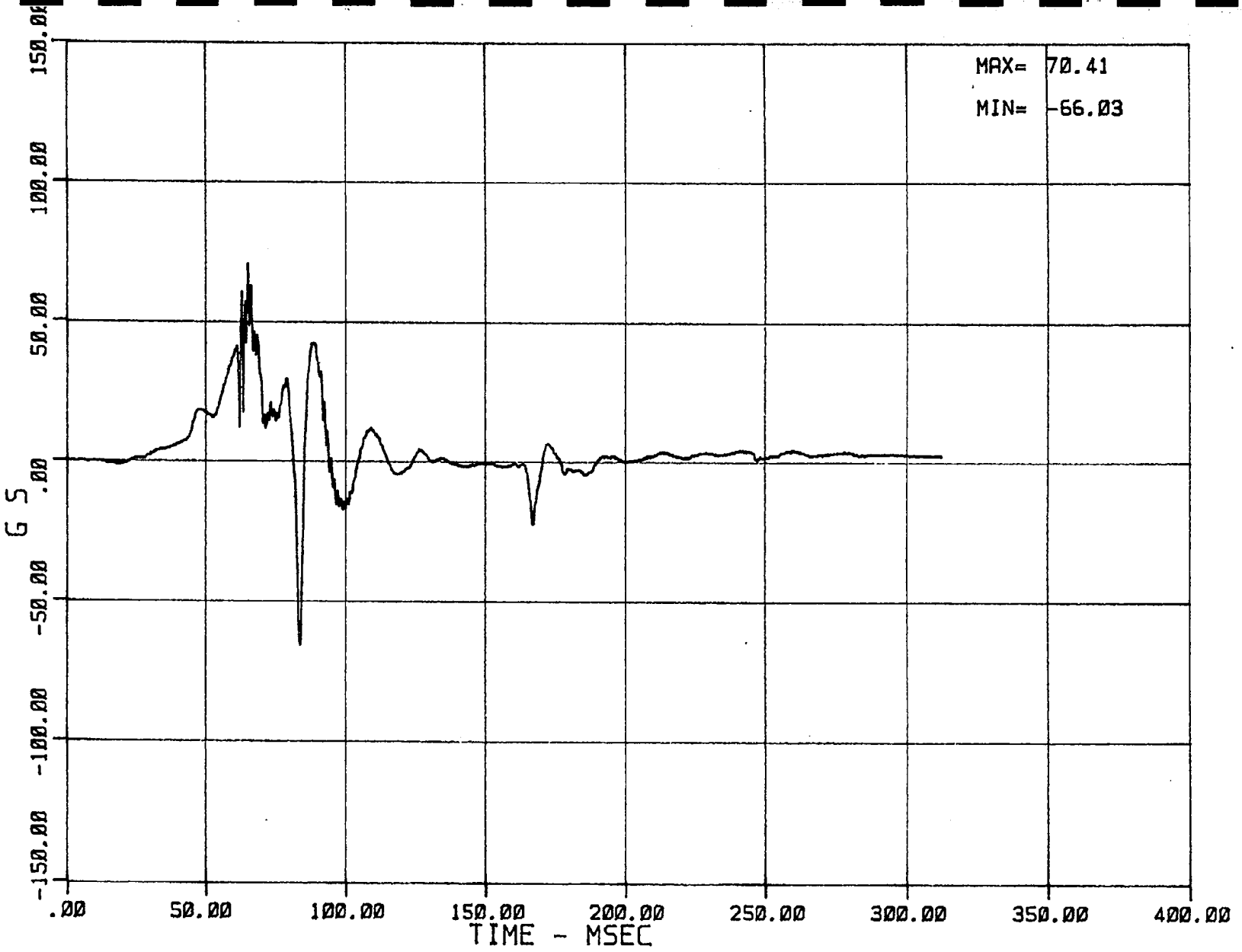
*Values Greater Than 1 Represent Non-Compliance.



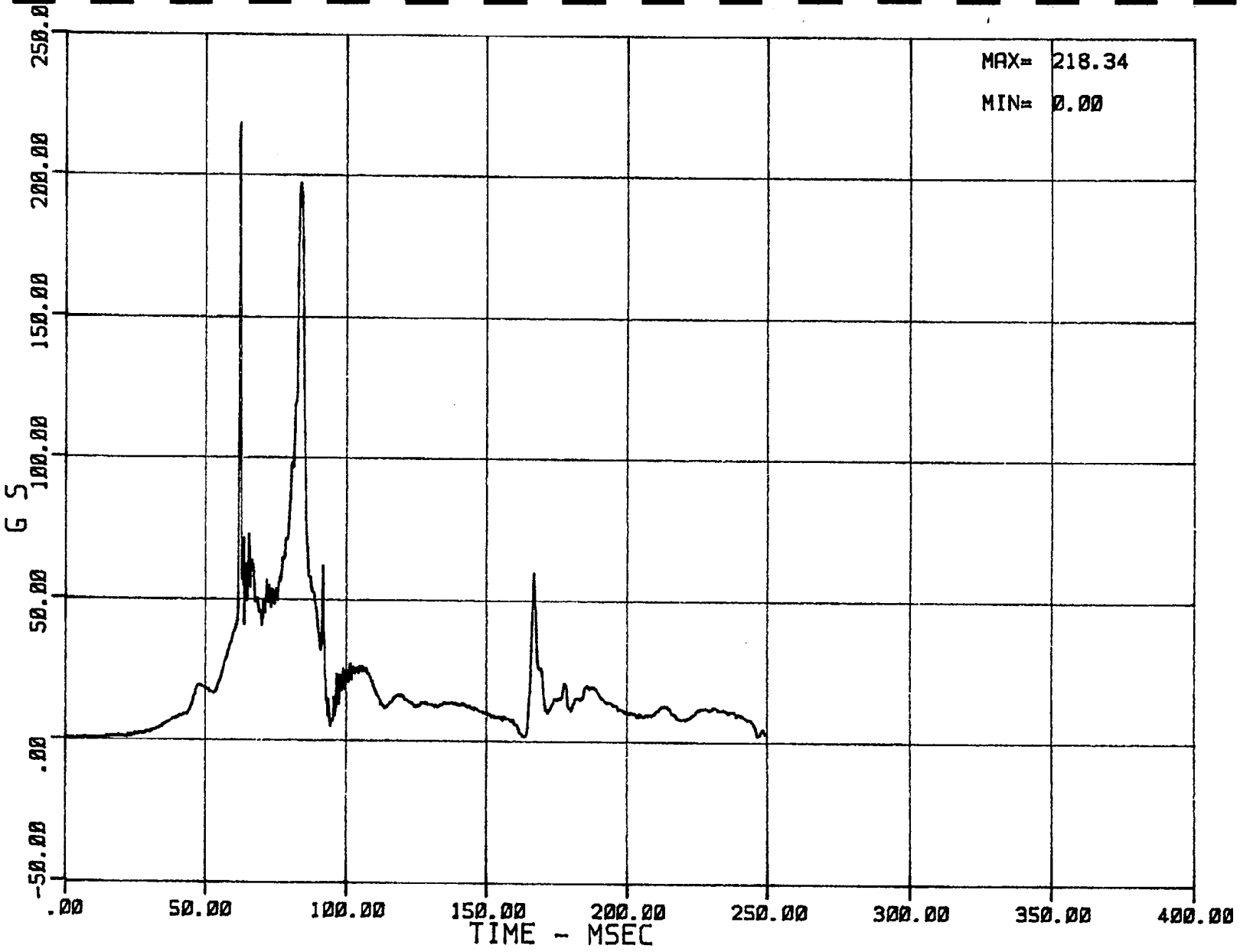
Ø1 AC Ø1 1 HED X (DRIVER HEAD ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



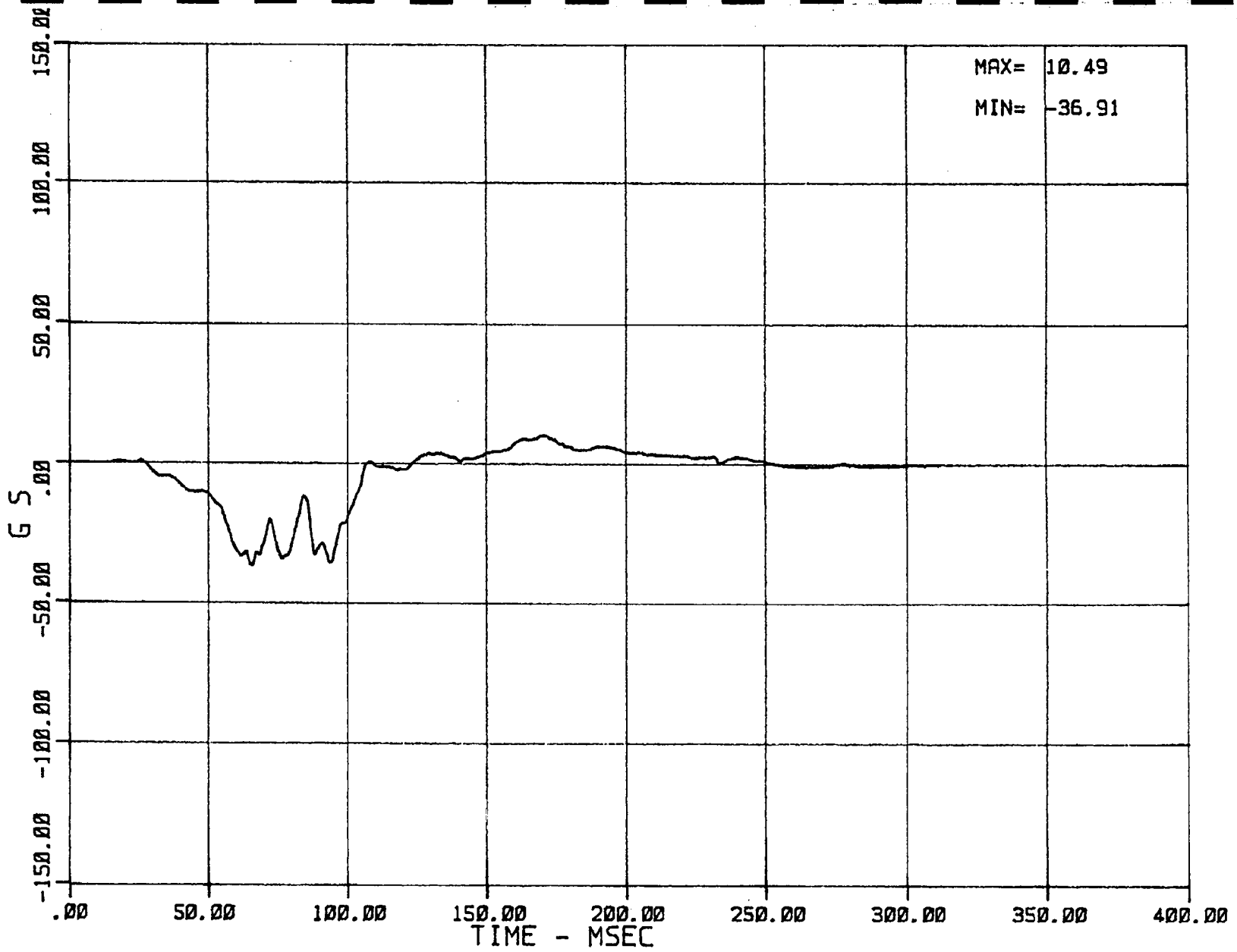
02 AC 01 1 HED Y (DRIVER HEAD ACCEL. -- Y AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



Ø3 AC Ø1 1 HED Z (DRIVER HEAD ACCEL. -- Z AXIS)
MSE NØ2Ø44 1984 FORD F-15Ø PICK UP Ø3/Ø6/84



DRIVER HEAD RESULTANT ACCELERATION
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



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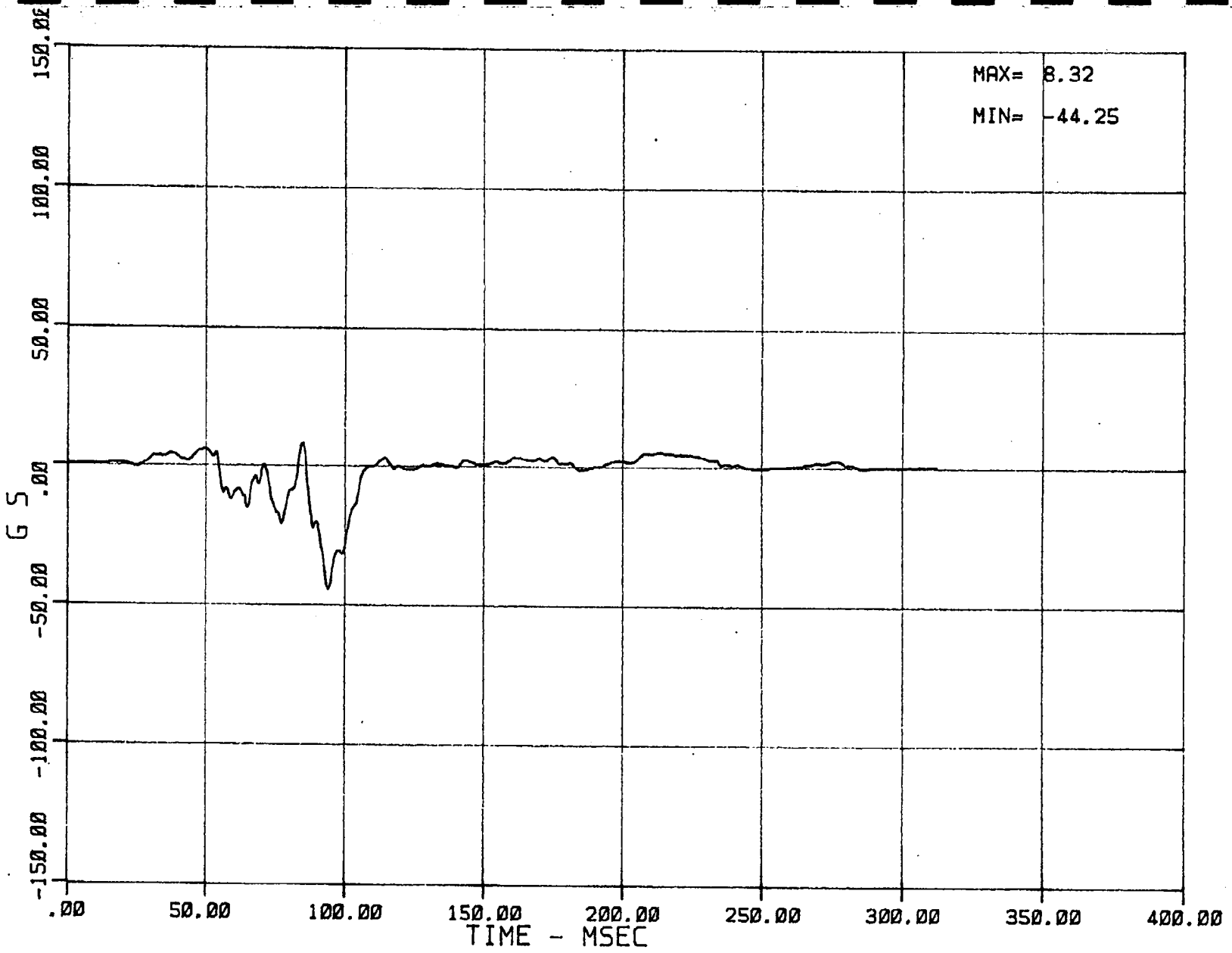
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



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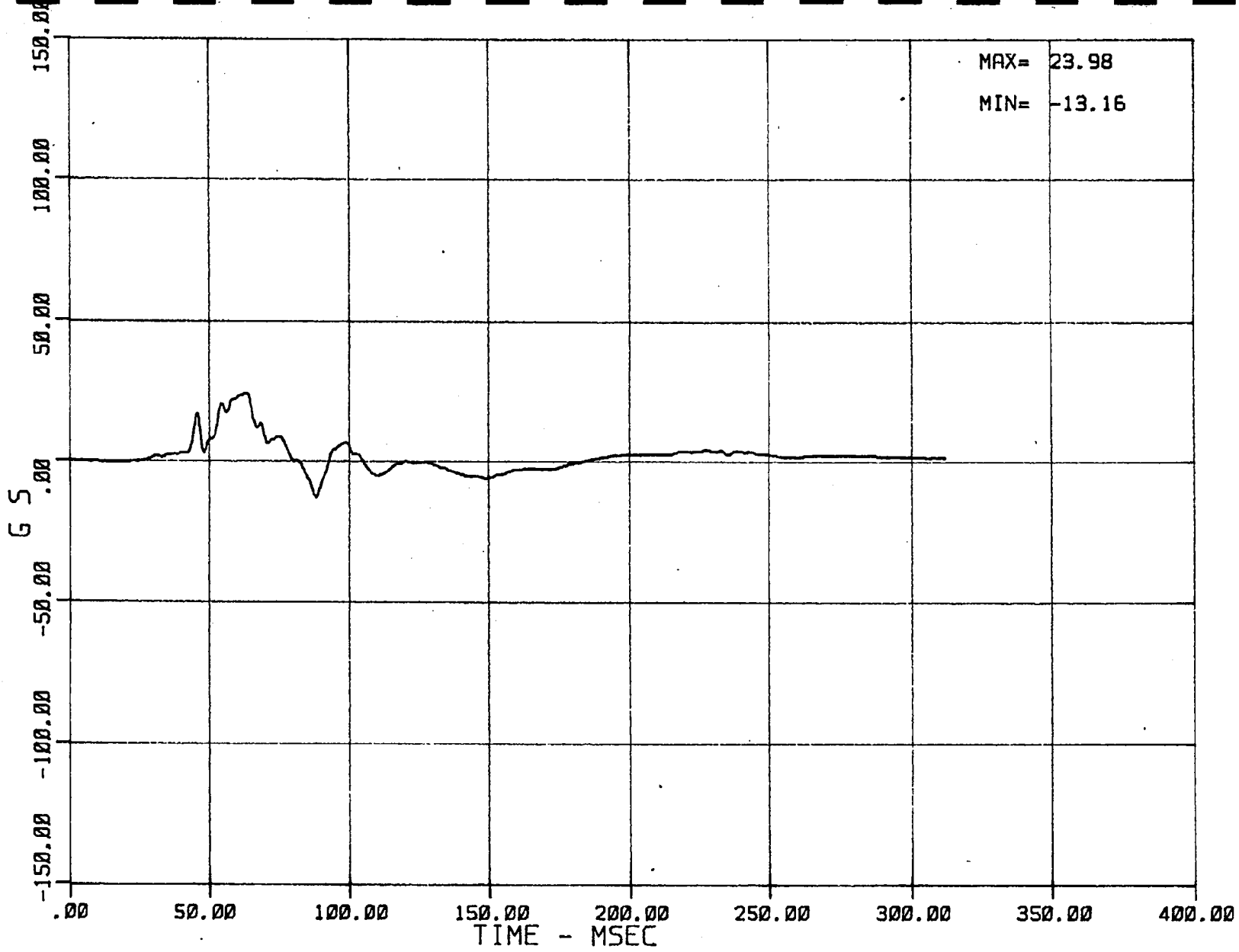
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



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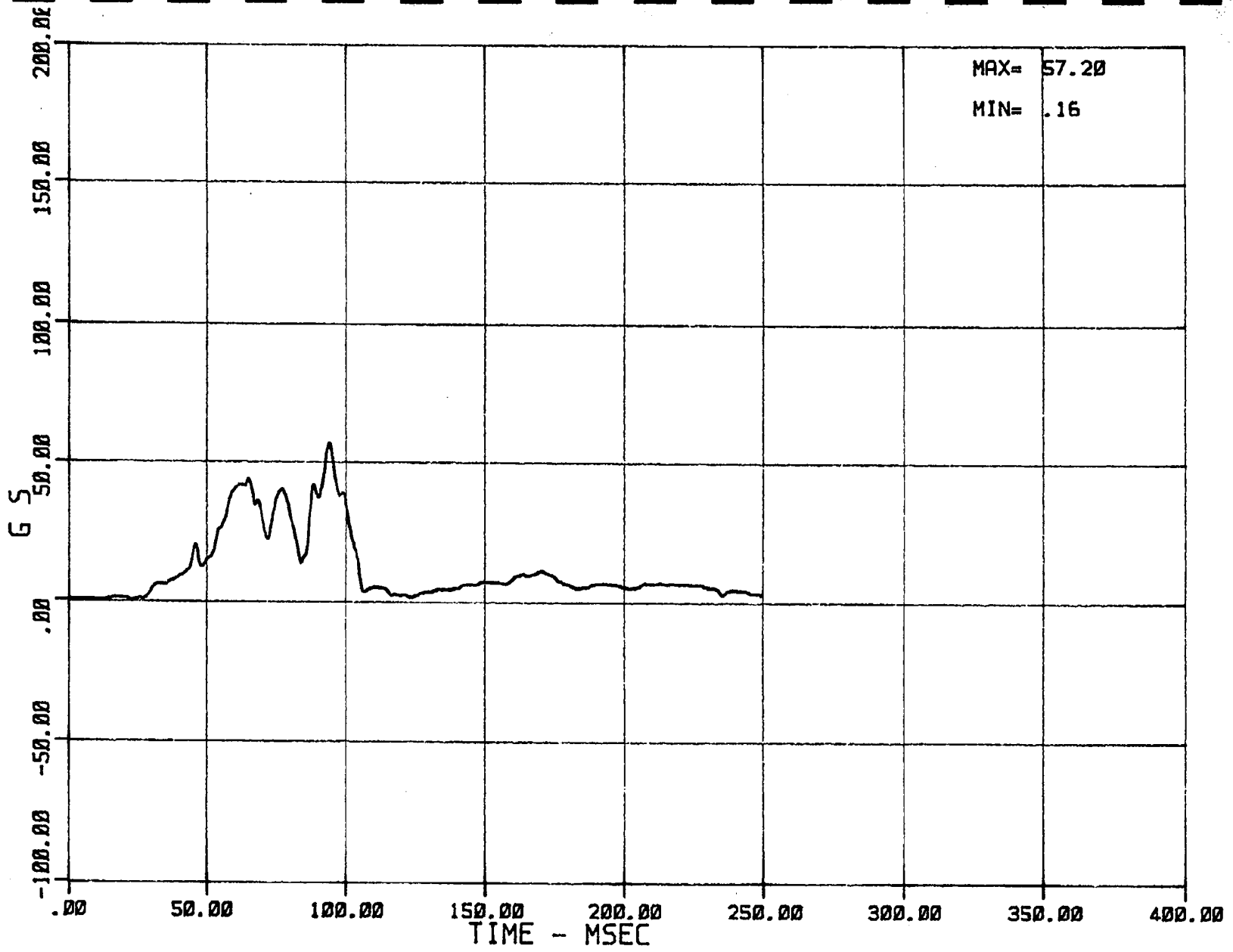
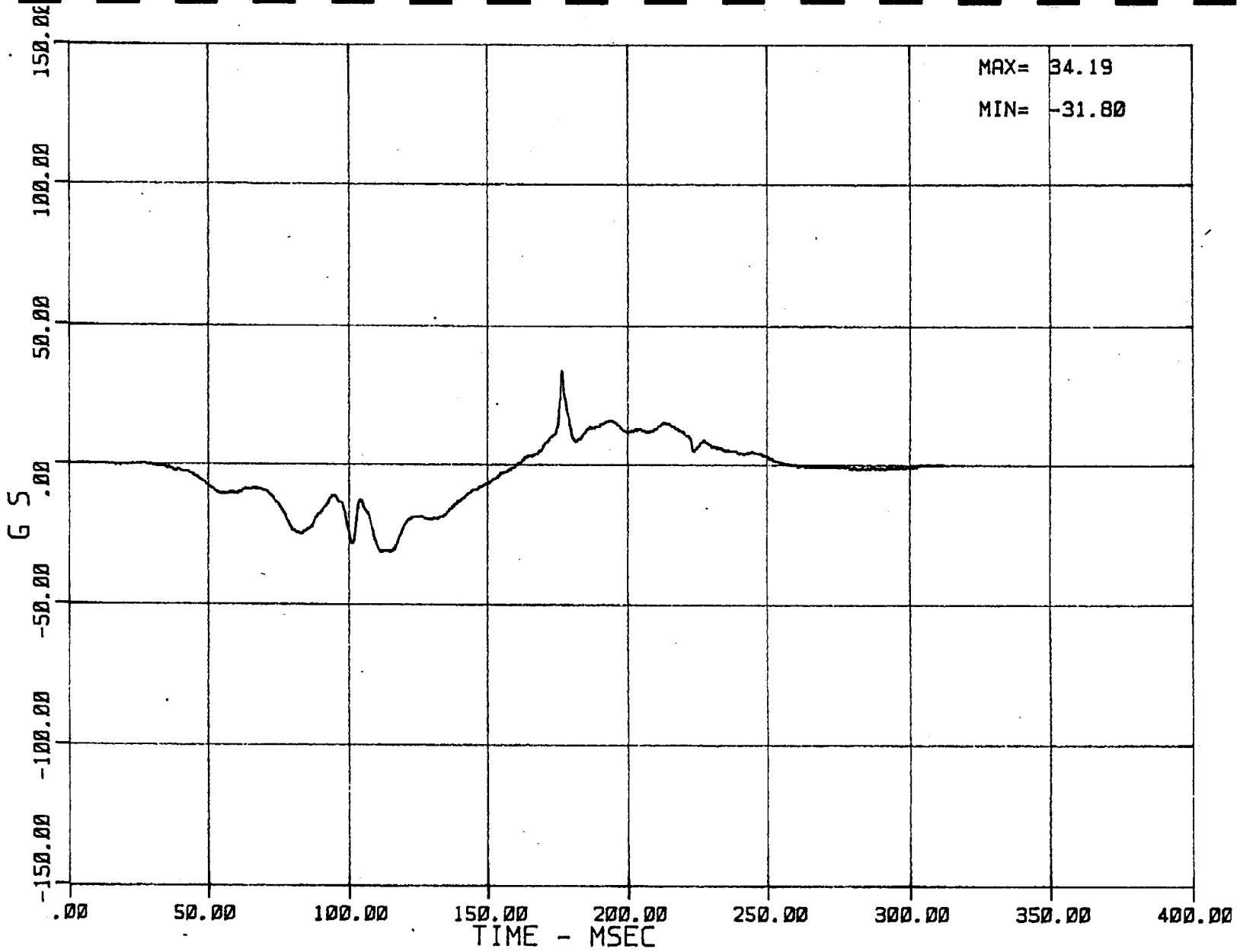


DRIVER CHEST RESULTANT ACCELERATION
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



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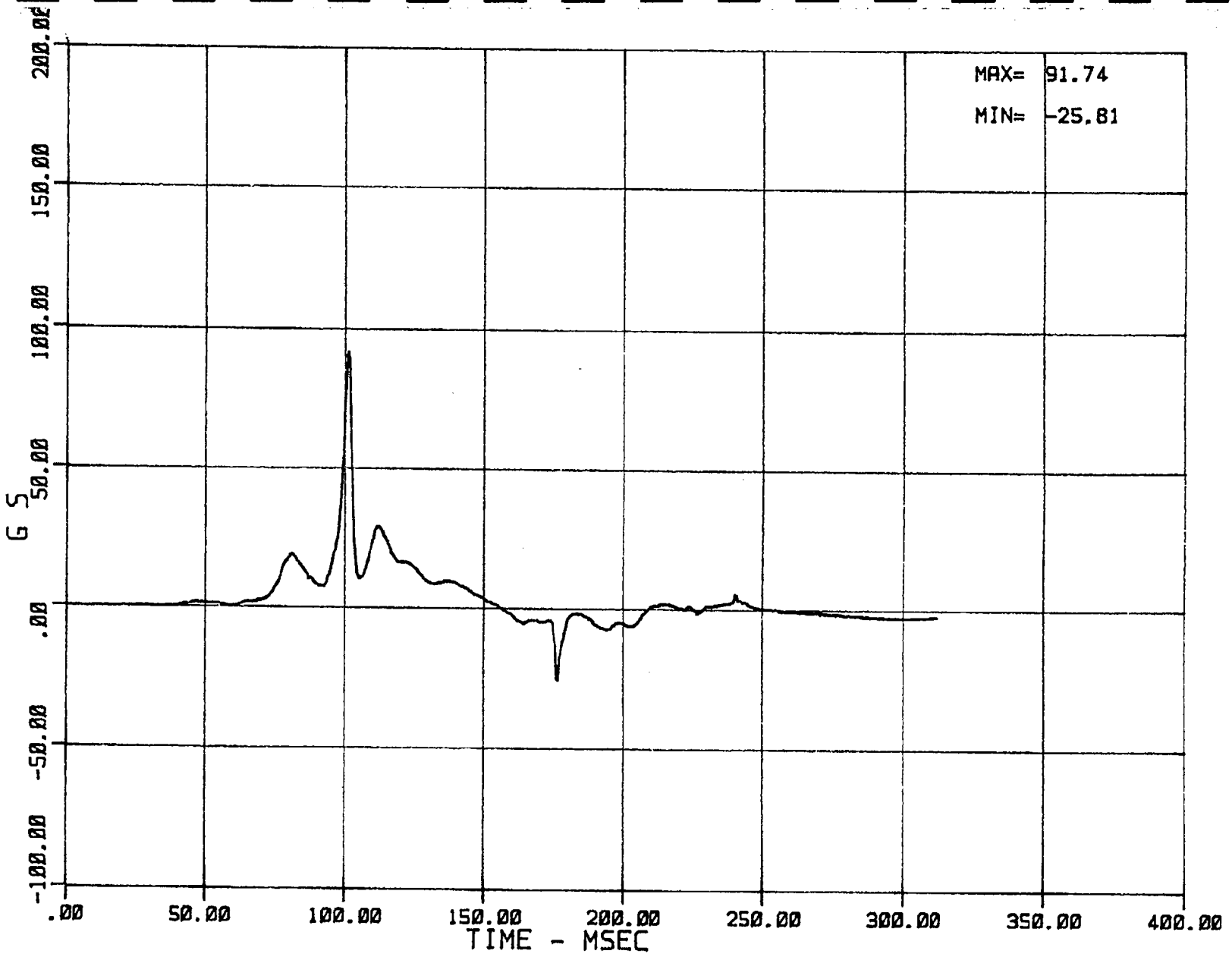

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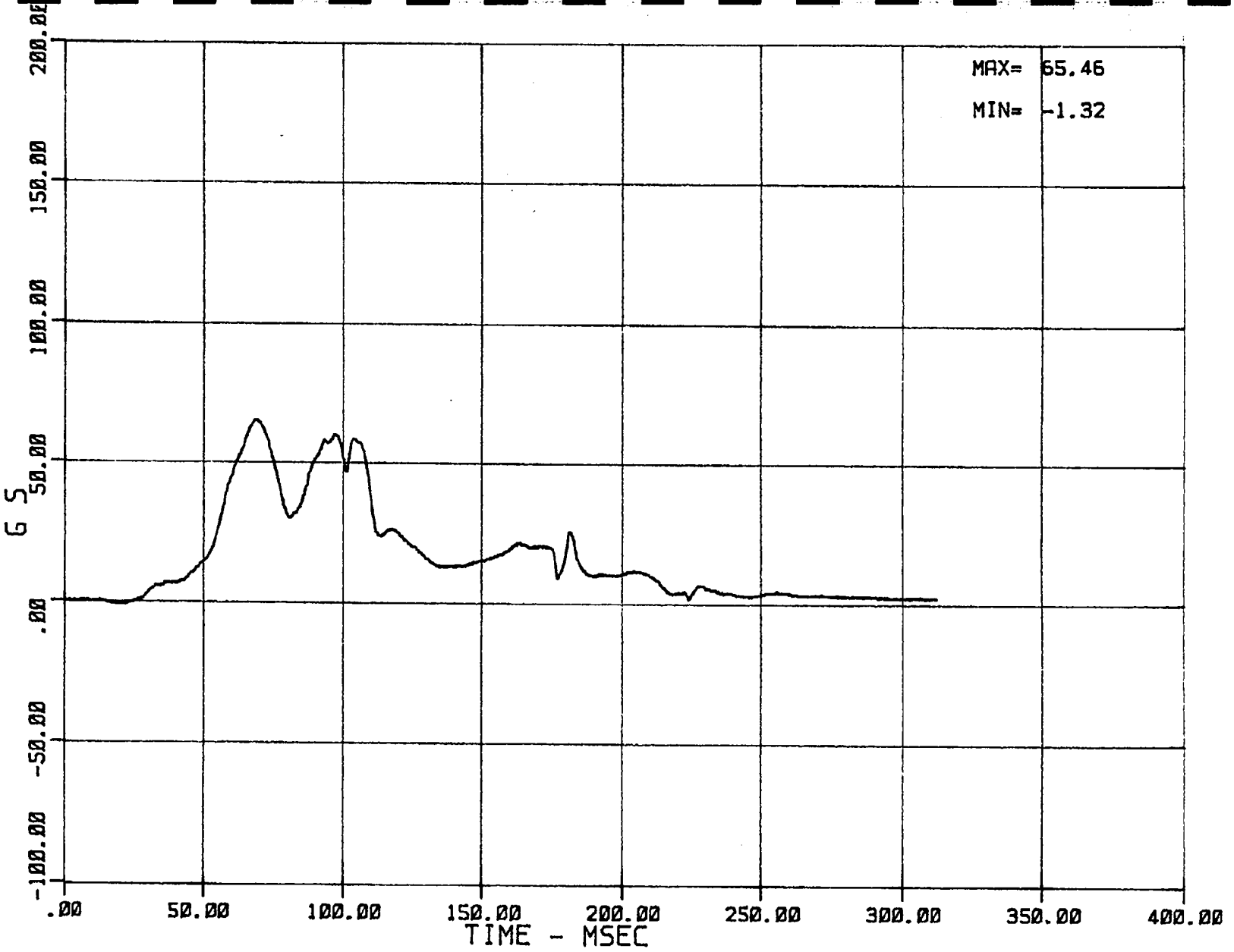

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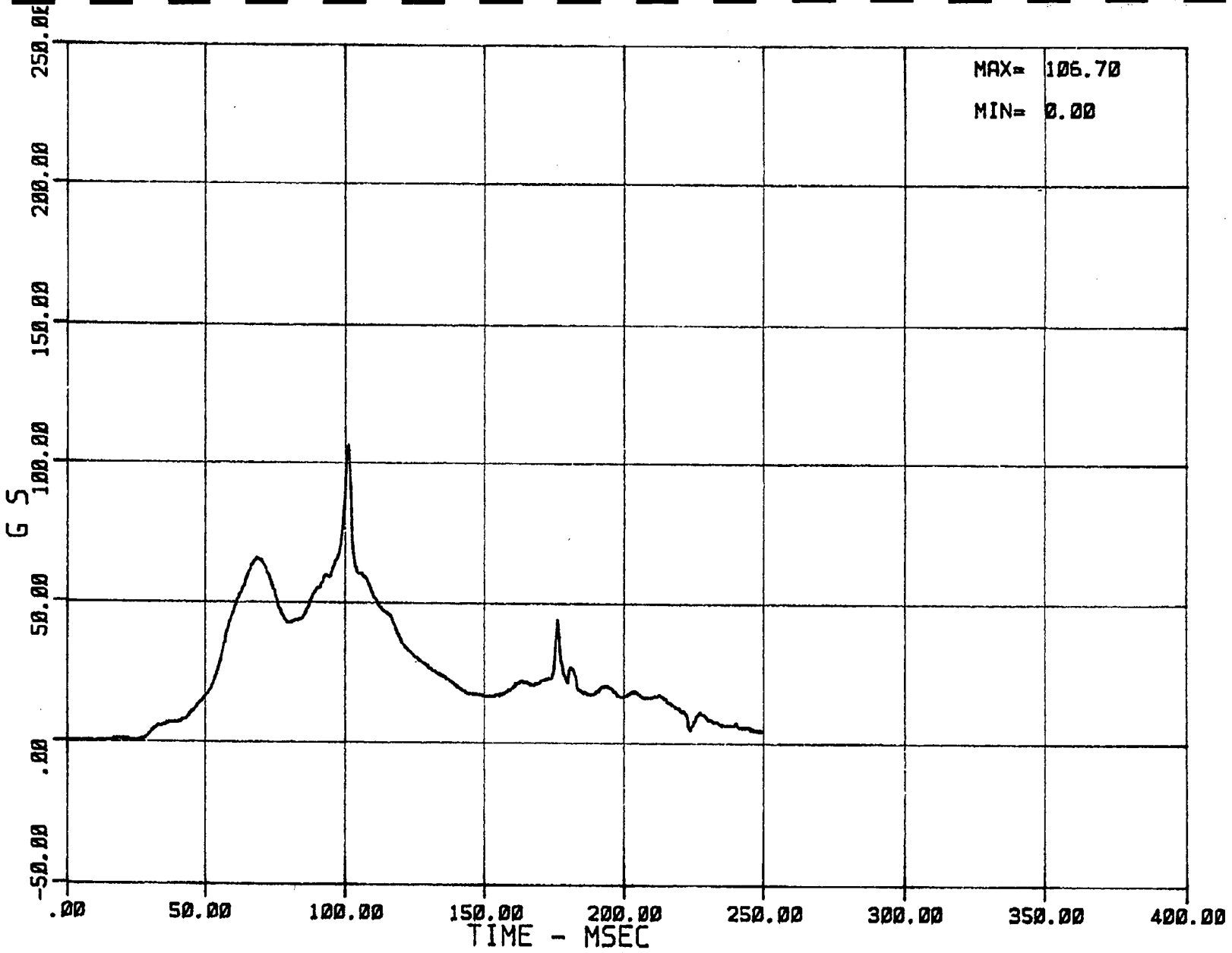
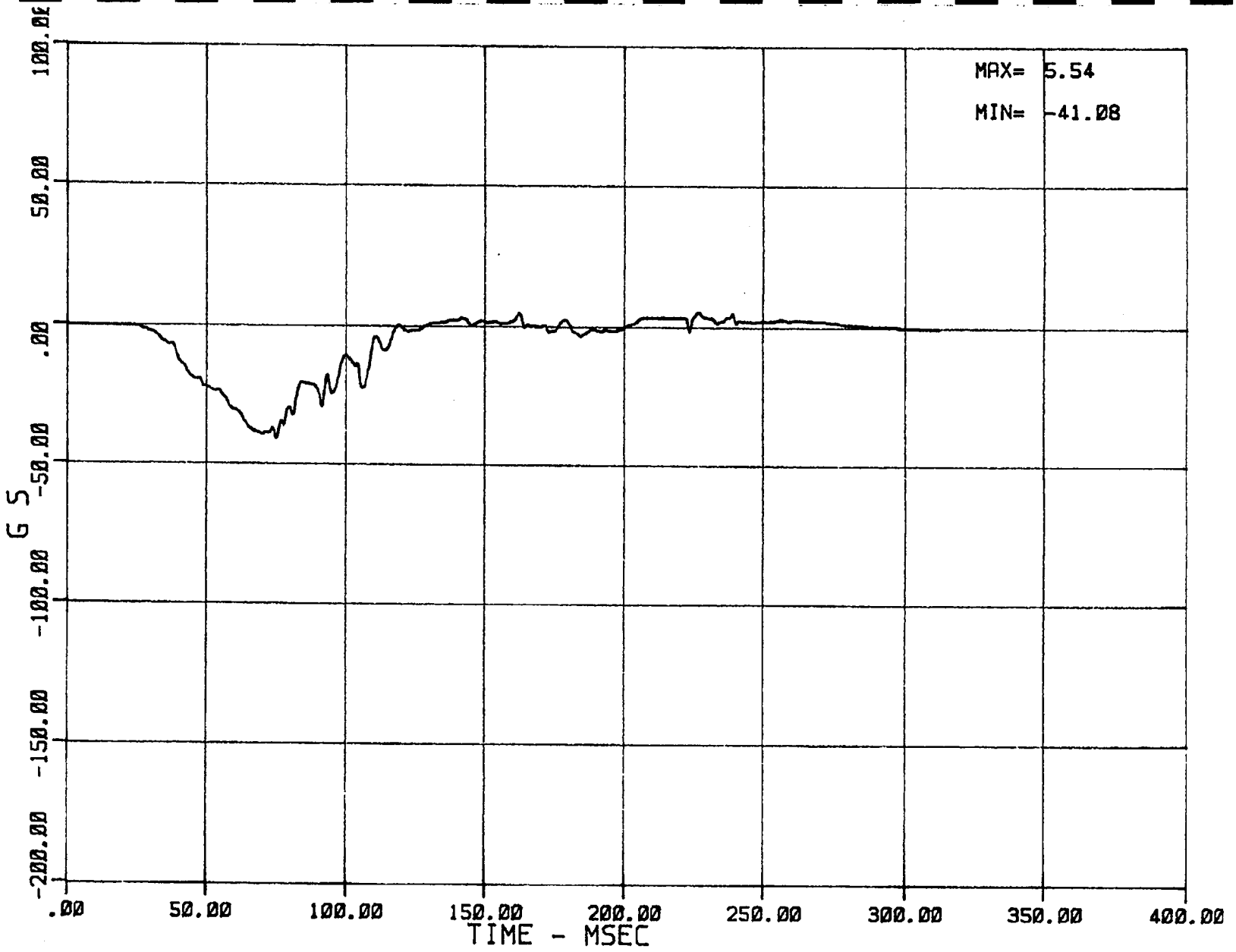


PASSENGER HEAD RESULTANT ACCELERATION
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



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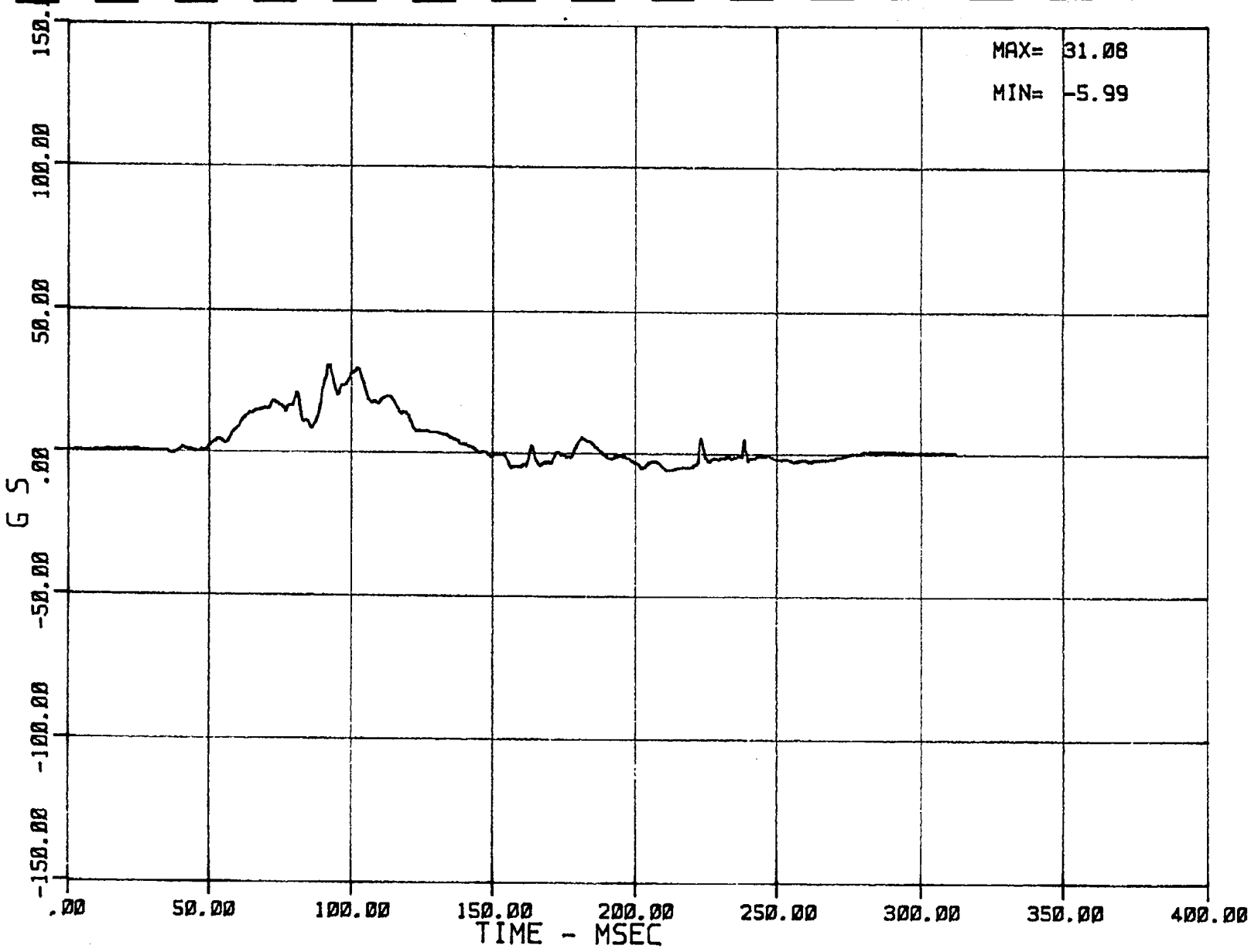
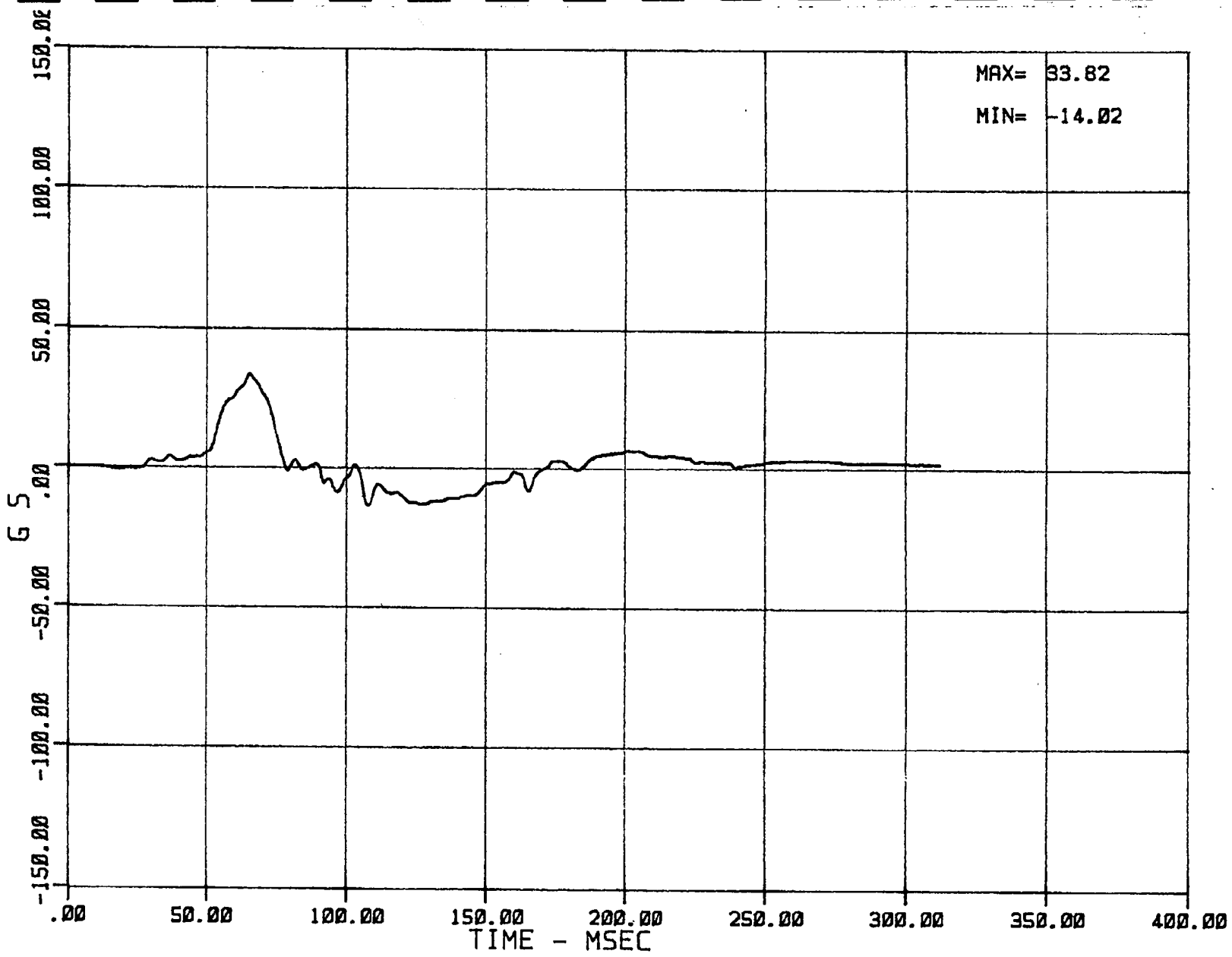
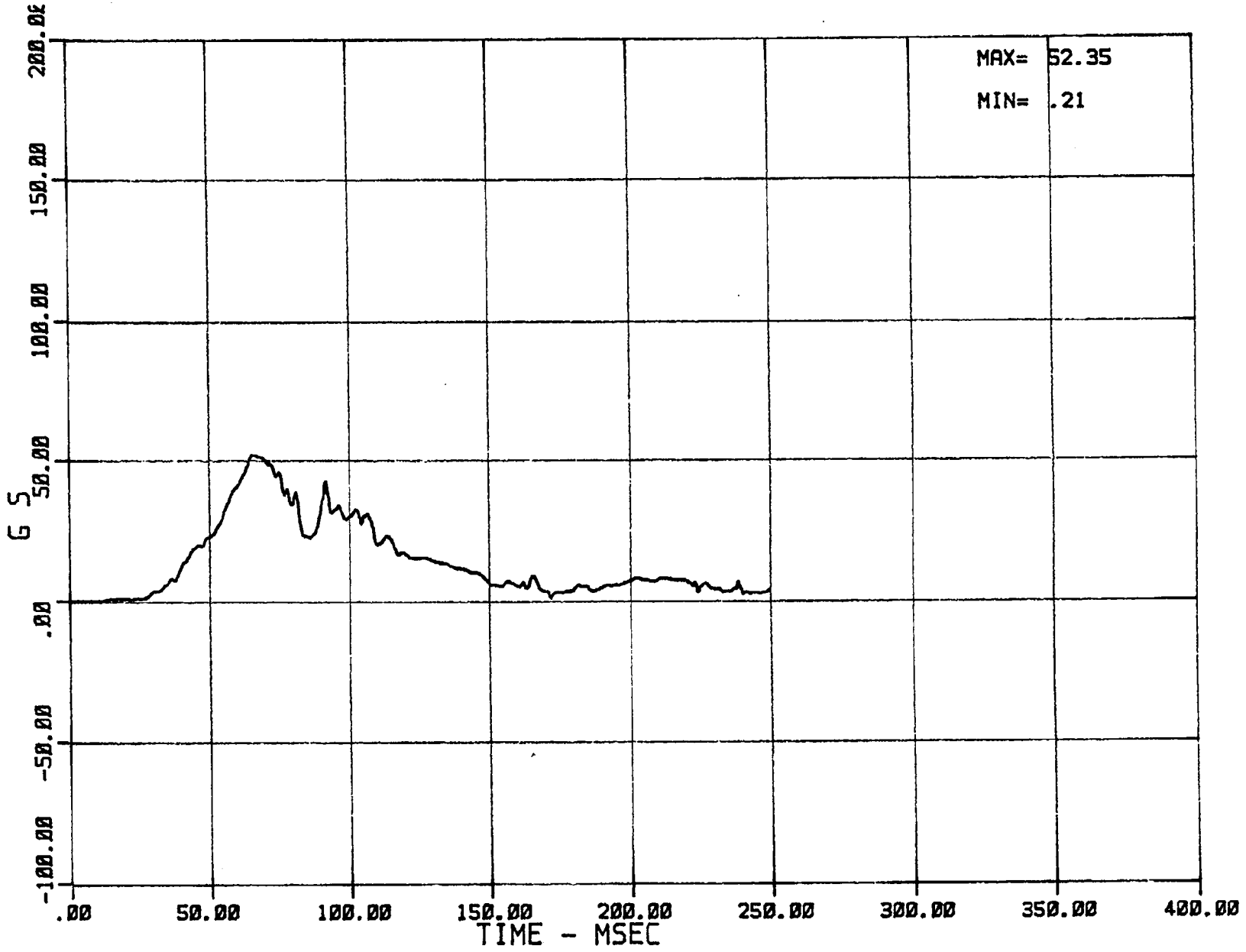
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



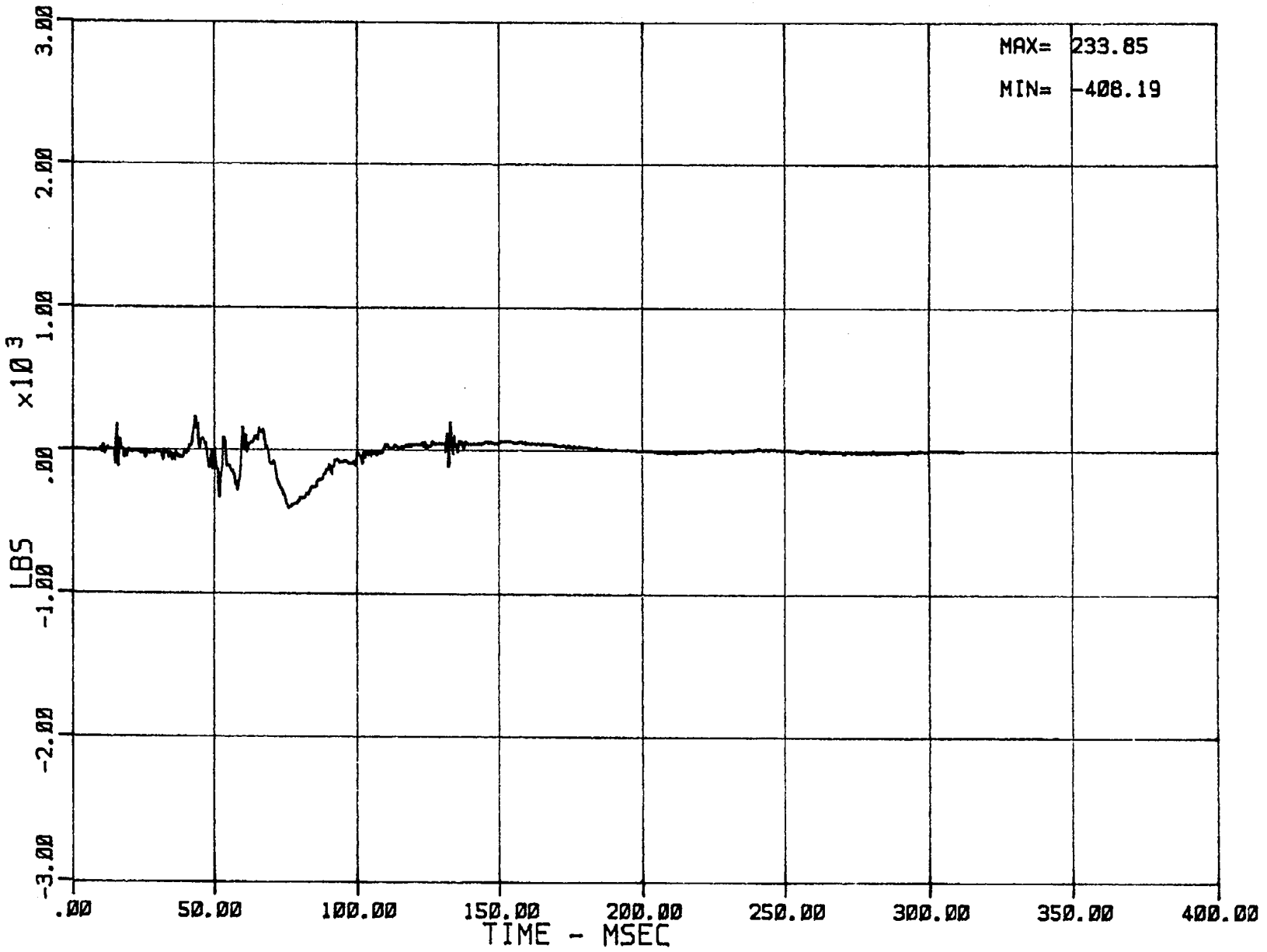
11 AC 01 2 CST Y (PASSENGER CHEST ACCEL. -- Y AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



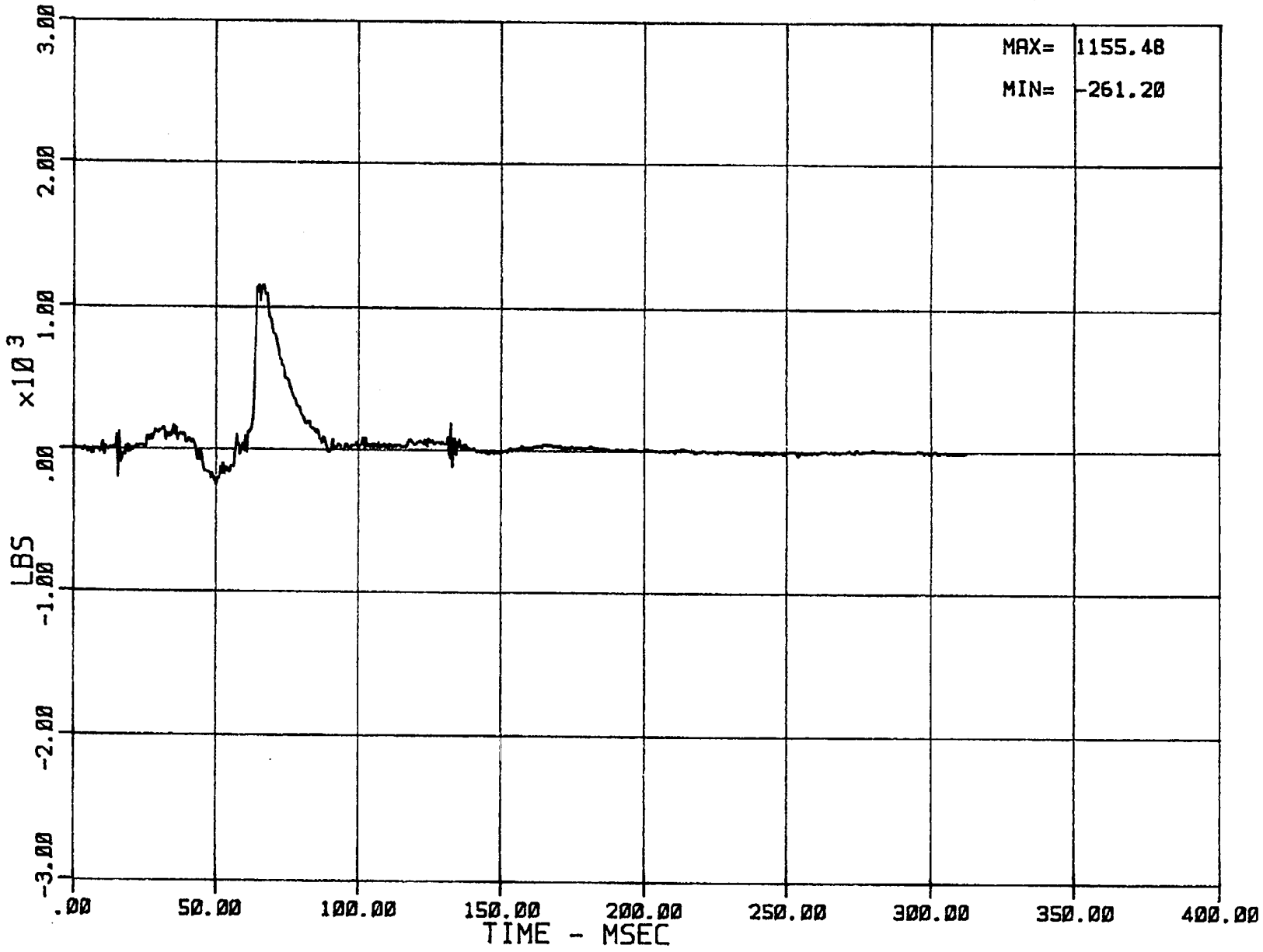
12 AC 01 2 CST Z (PASSENGER CHEST ACCEL. -- Z AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



PASSENGER CHEST RESULTANT ACCELERATION
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



13 LC 01 1 LFM (DRIVER LEFT FEMUR FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



14 LC 01 1 RFM (DRIVER RIGHT FEMUR FORCE)
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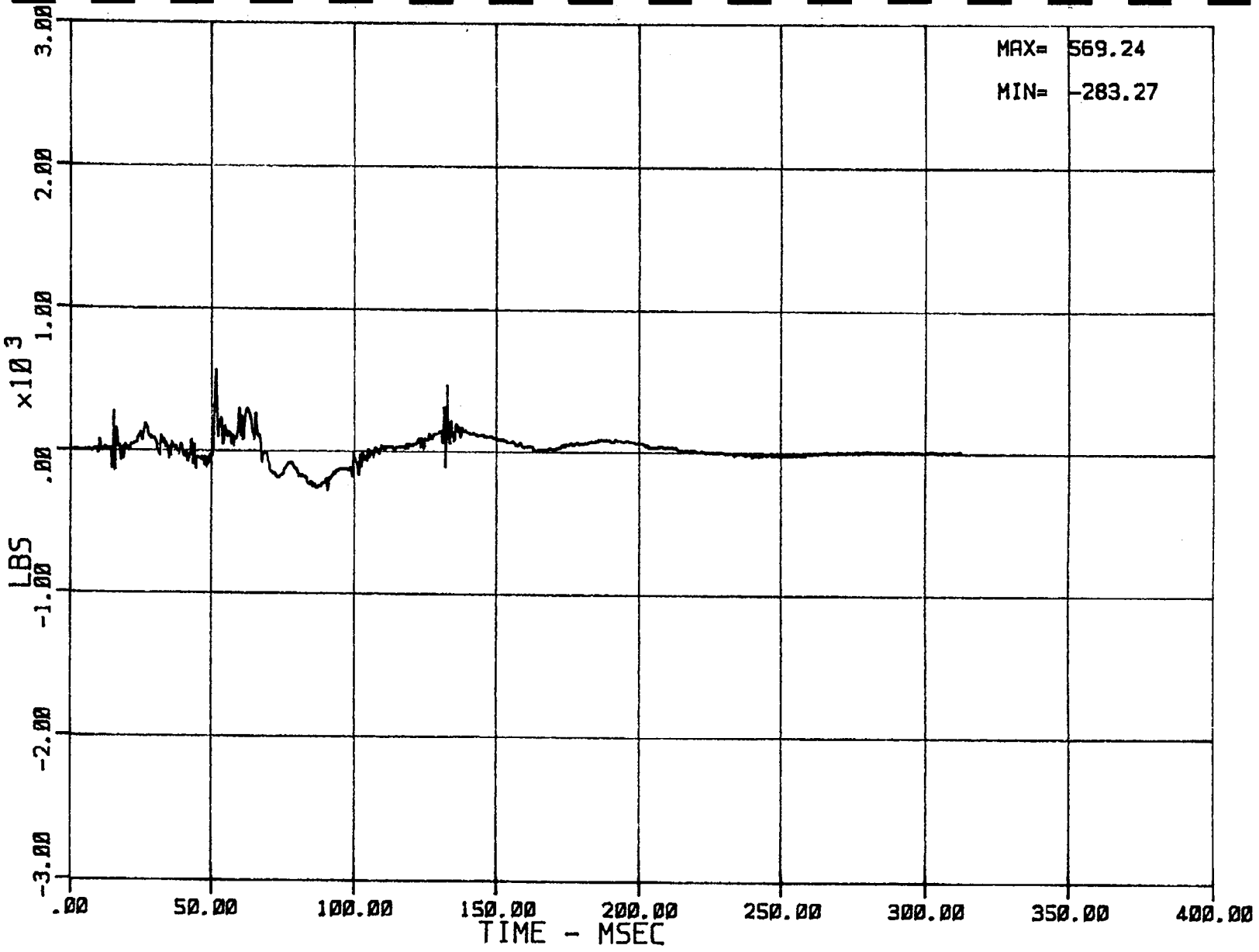
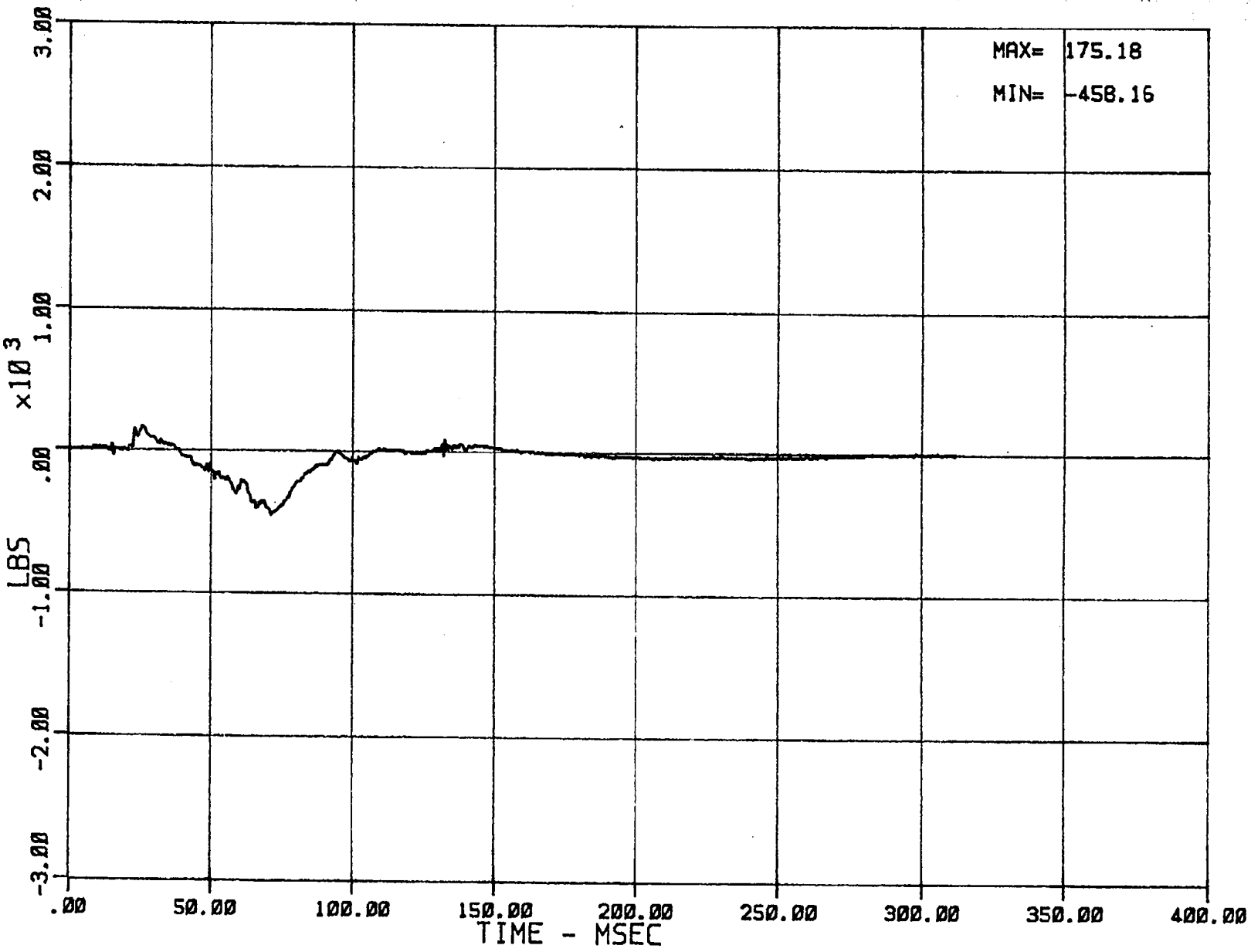


15 LC 01 2 LFM (PASSENGER LEFT FEMUR FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



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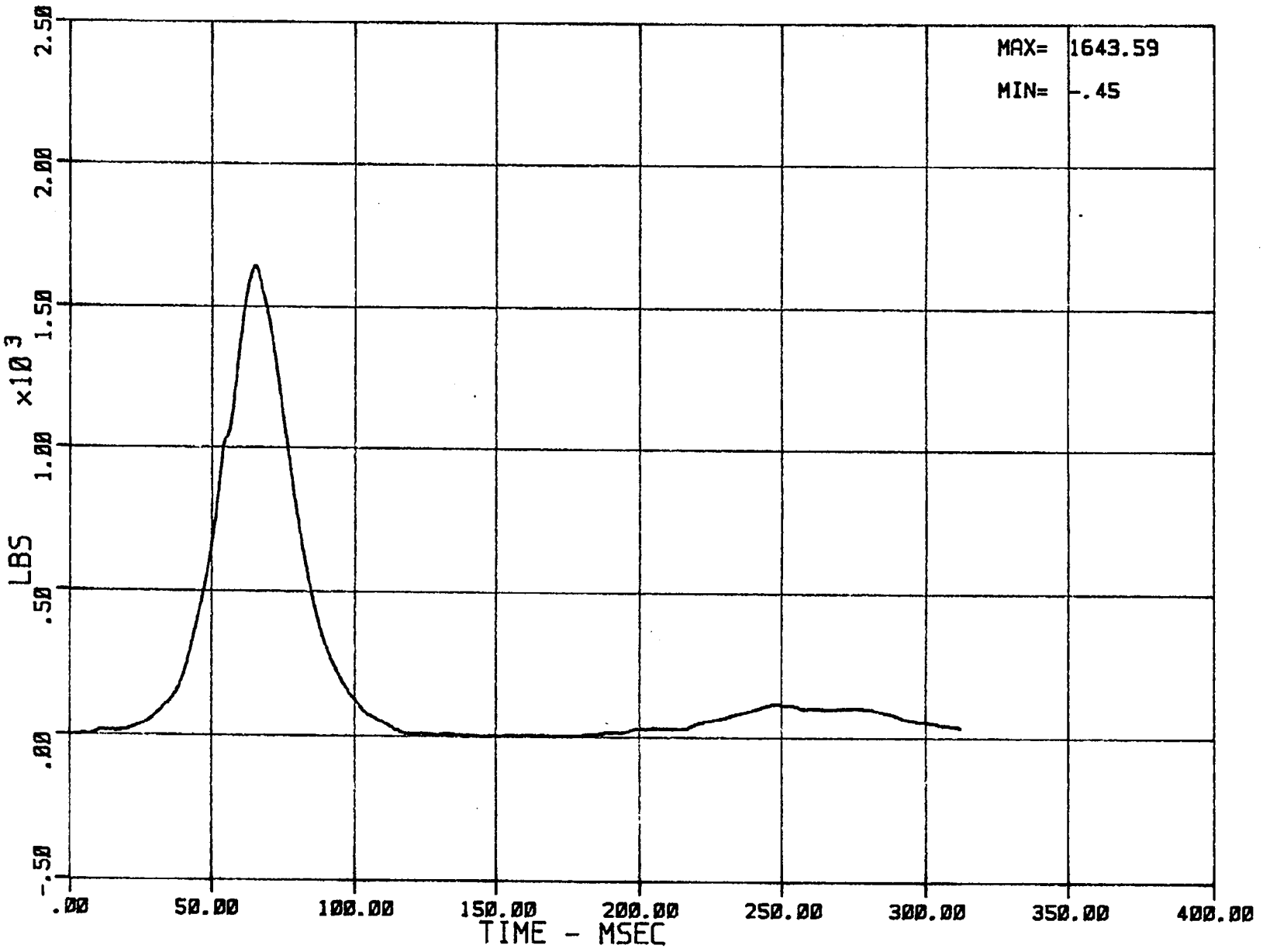

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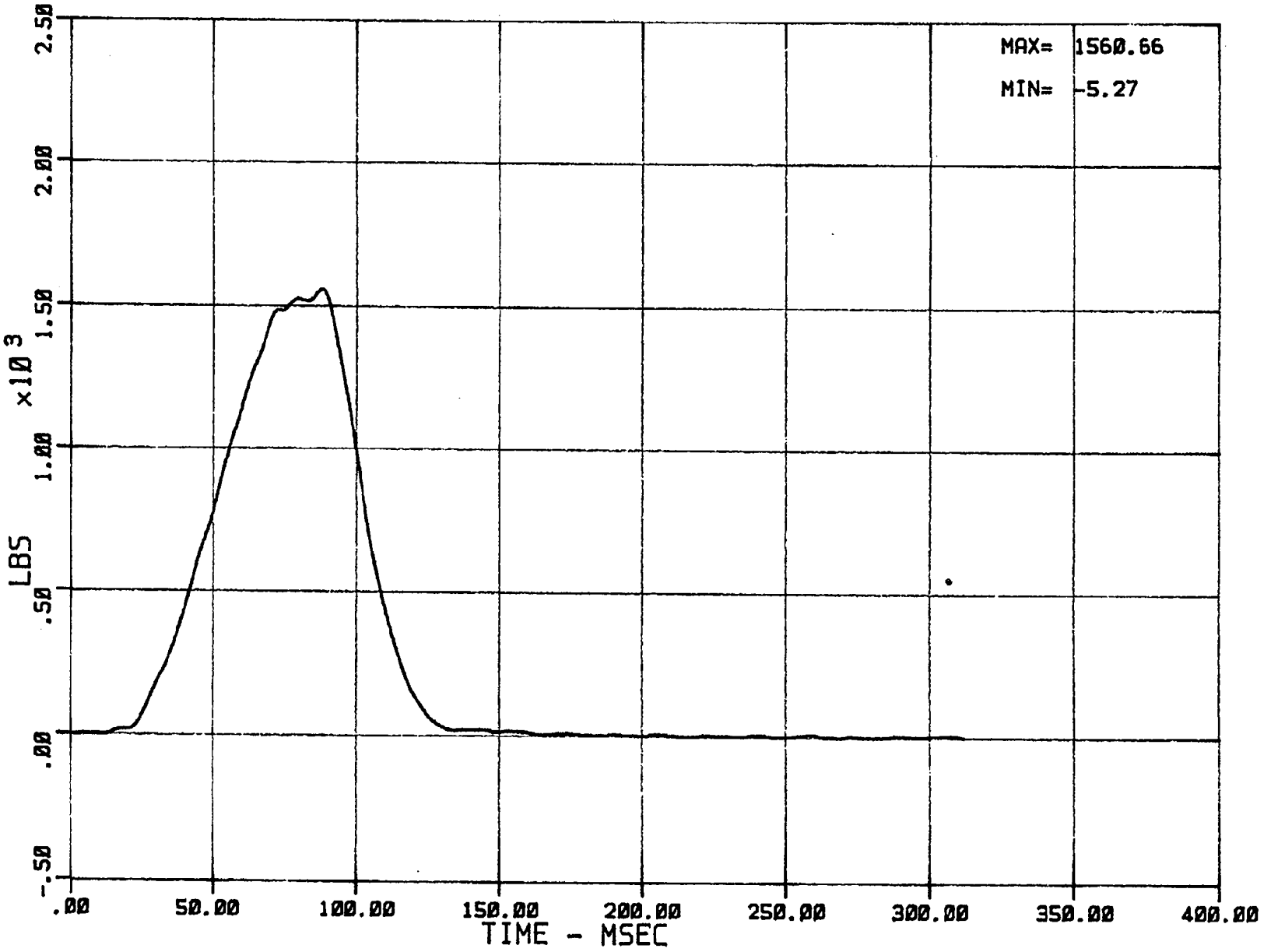

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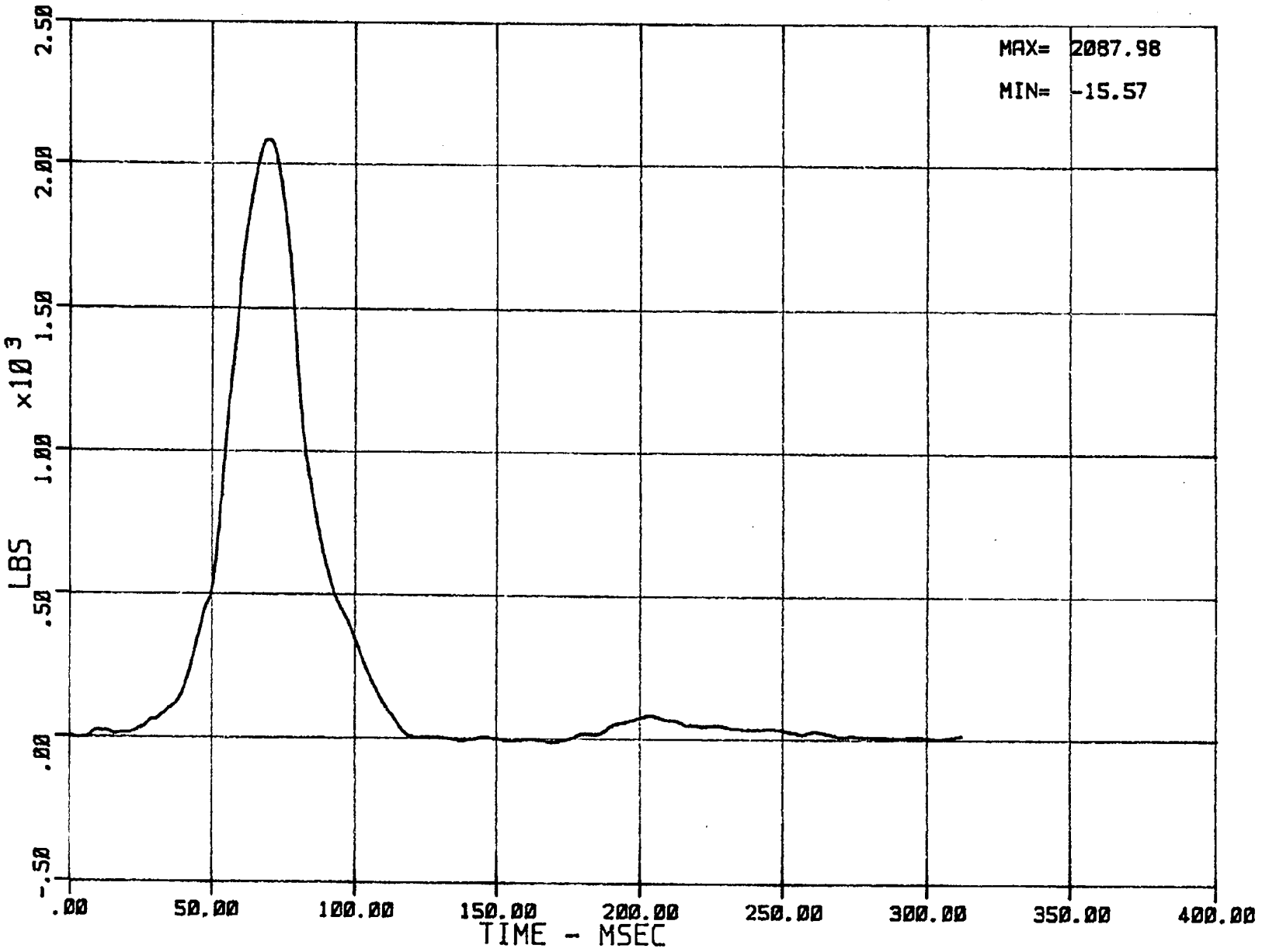
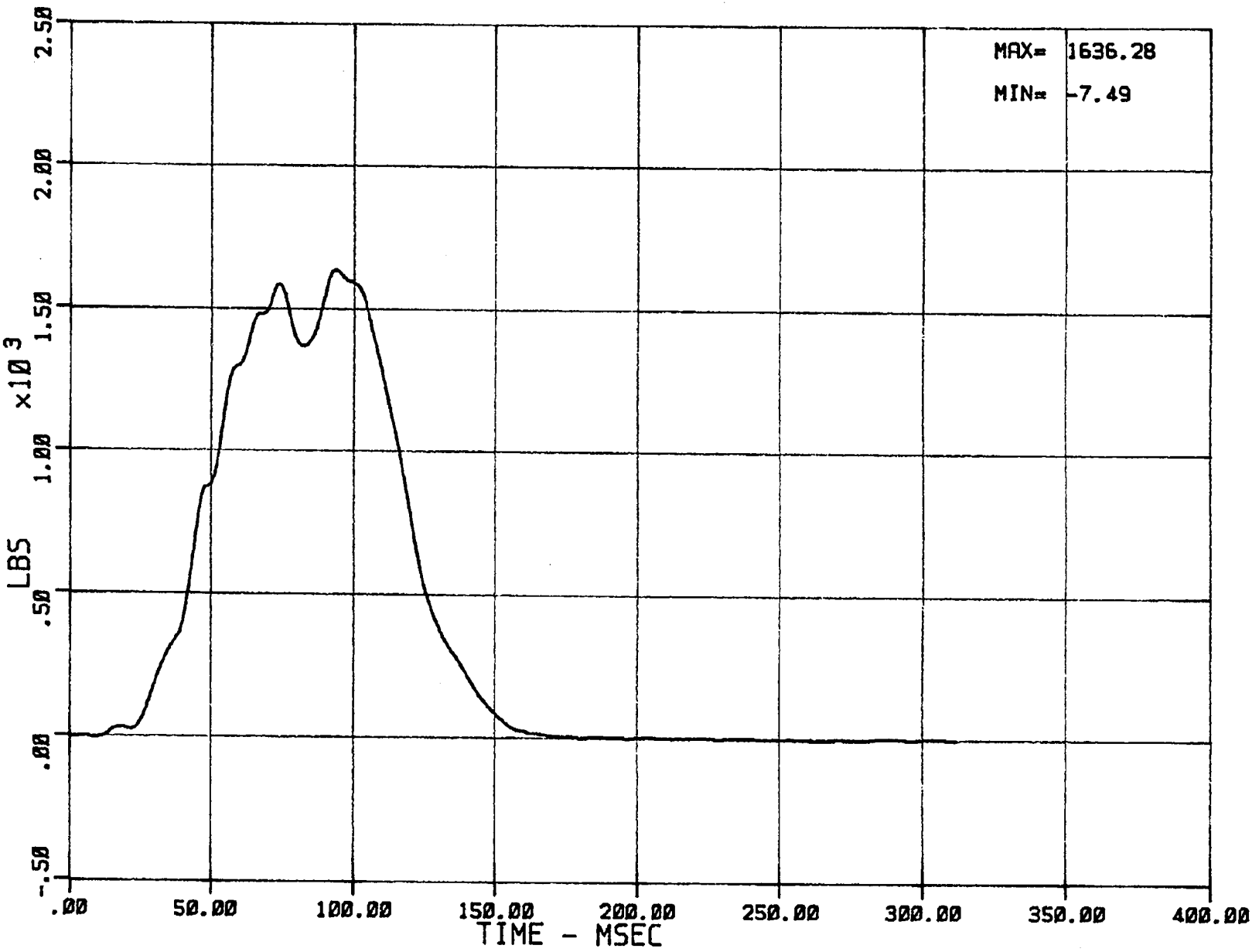
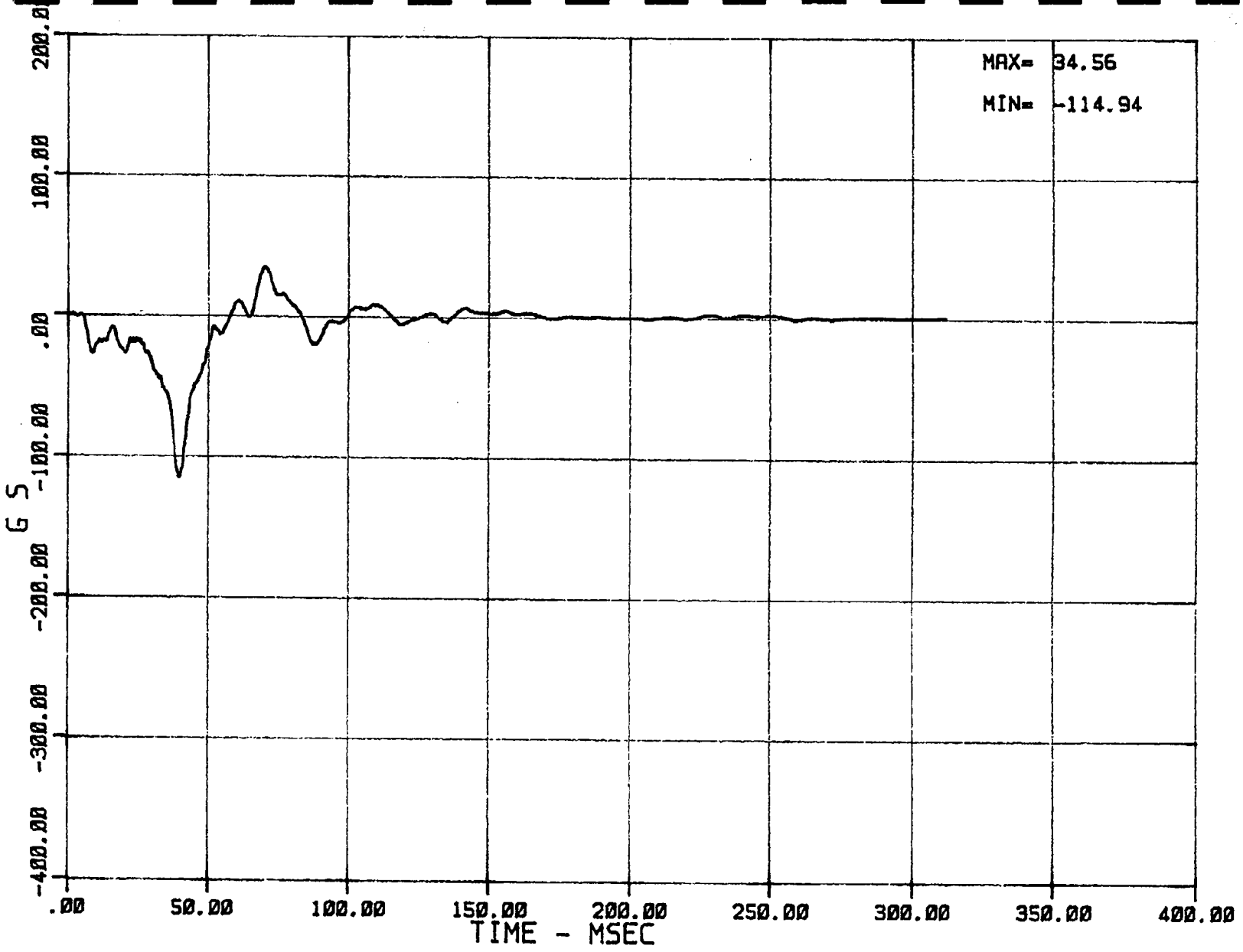


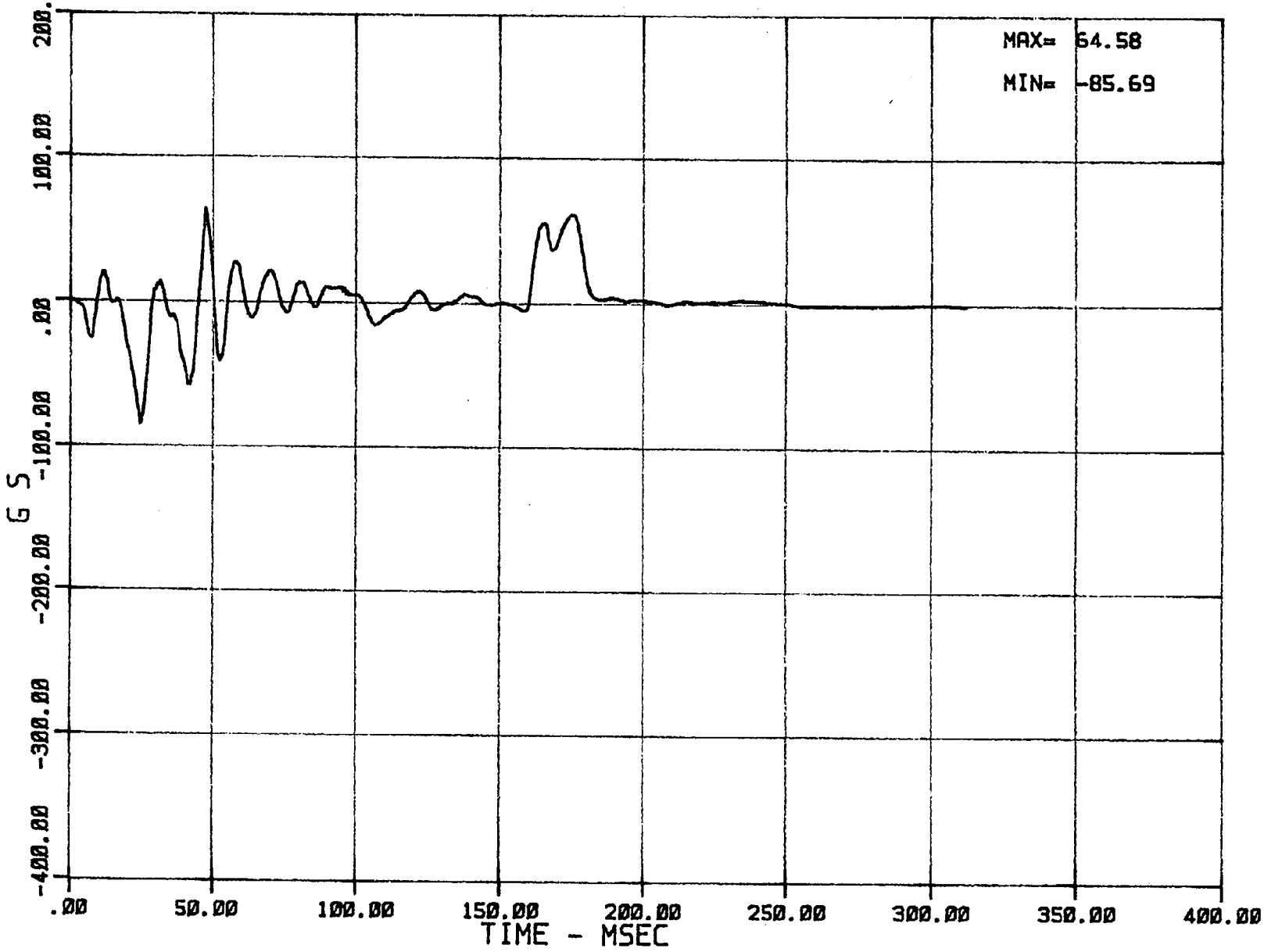
19 LC 01 2 LBO (PASSENGER LAP BELT FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



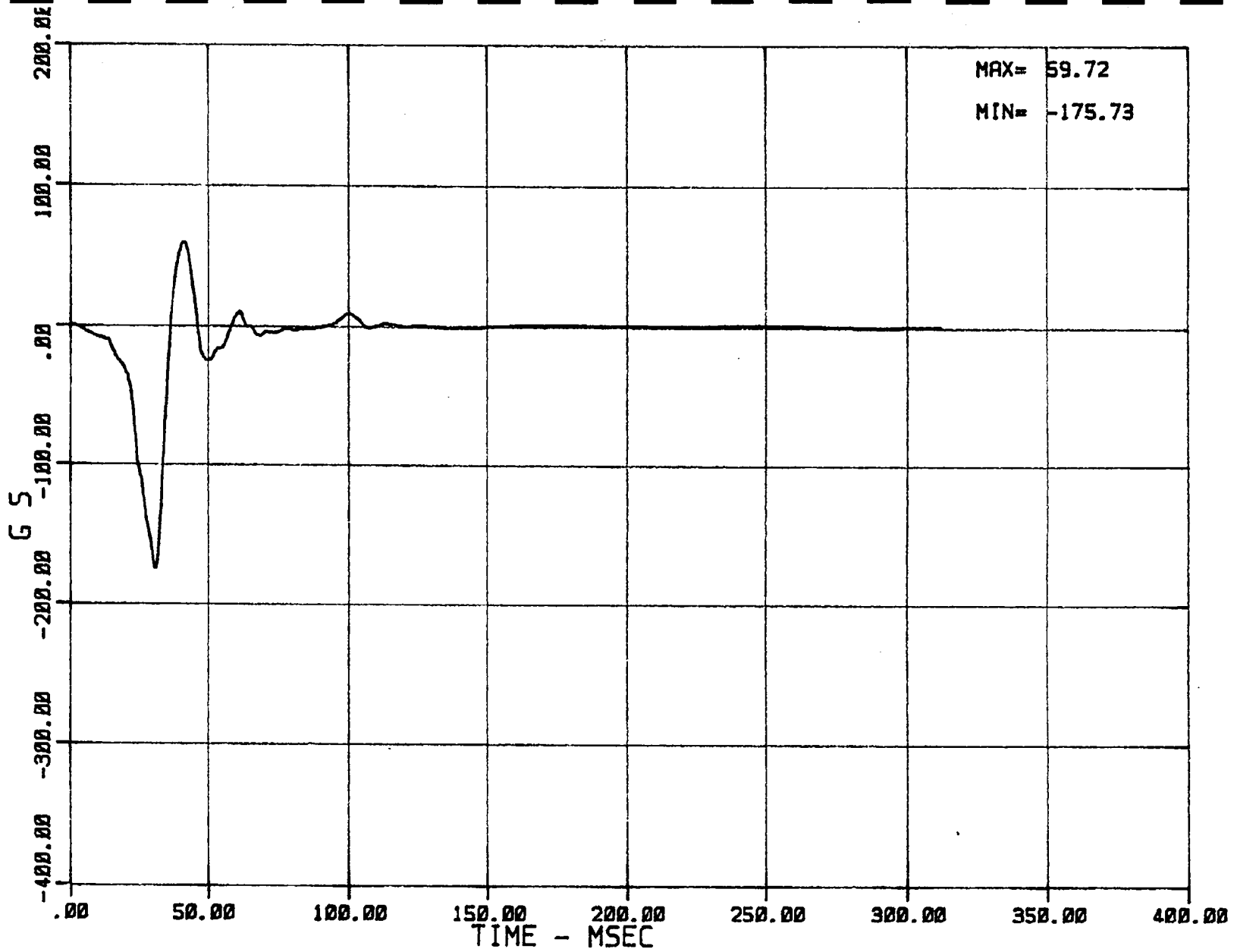
20 LC 01 2 SHB (PASSENGER SHOULDER BELT FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



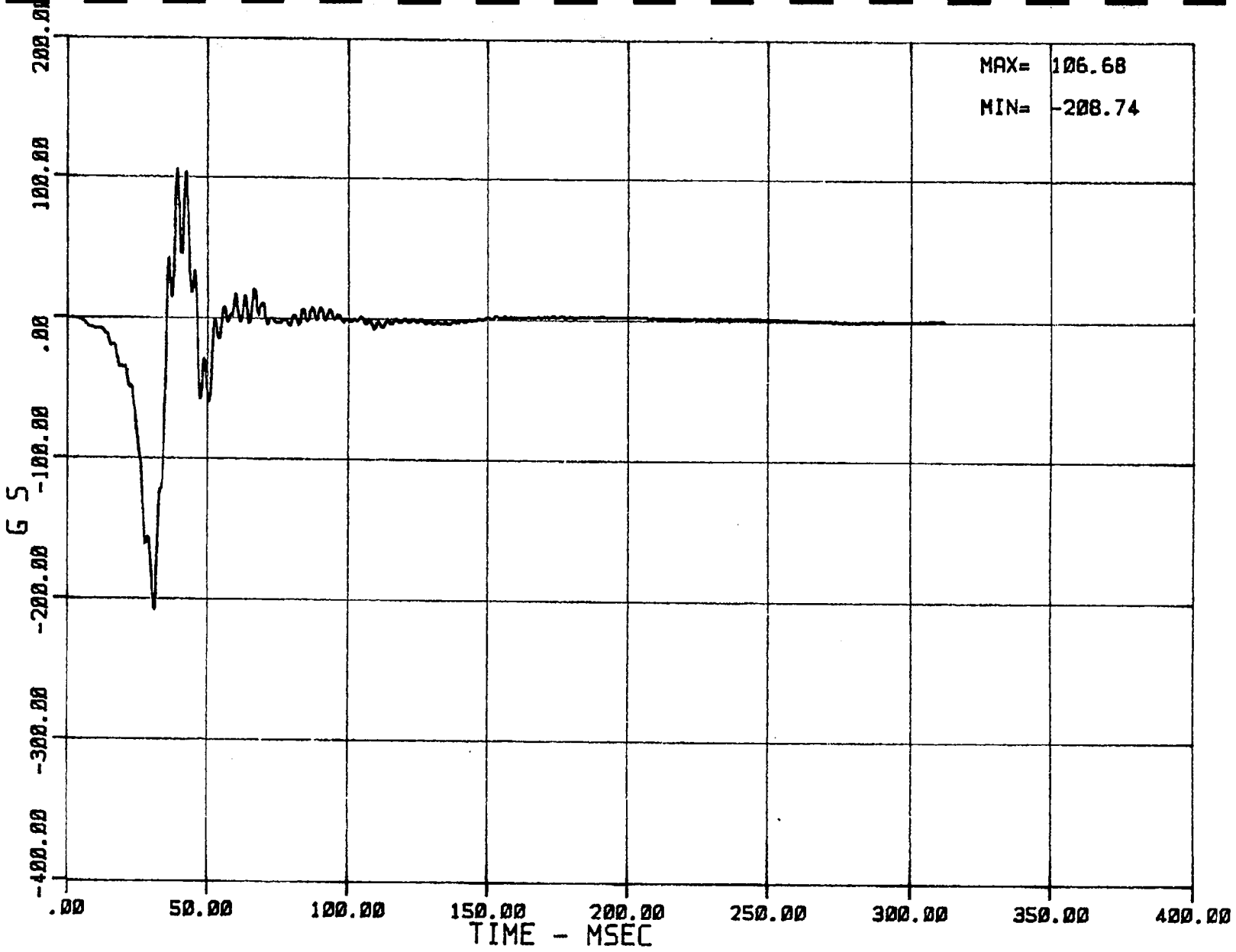
21 AC 01 N BCL X (LEFT FRONT WHEEL ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



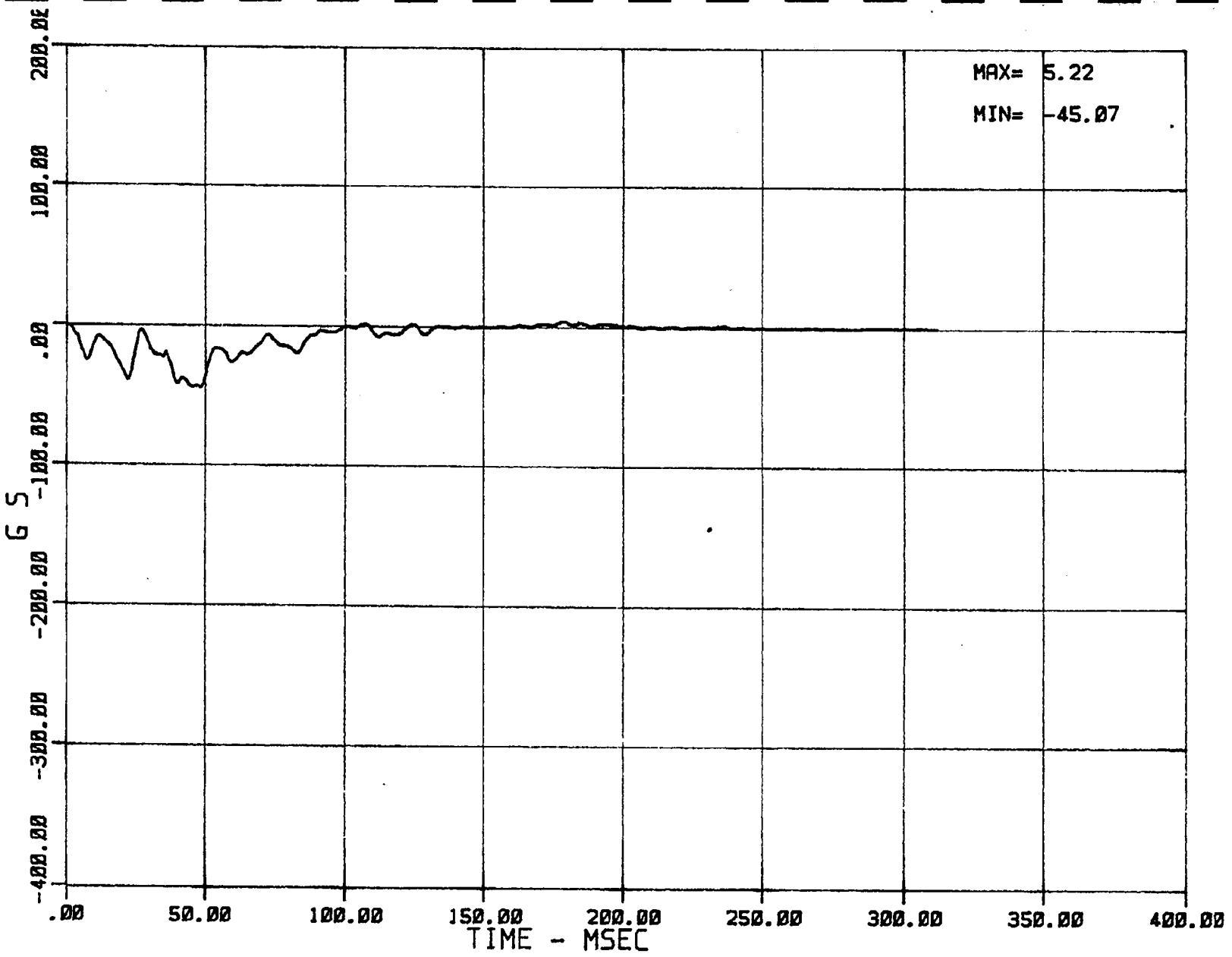
22 AC 01 N BCR X (RIGHT FRONT WHEEL ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



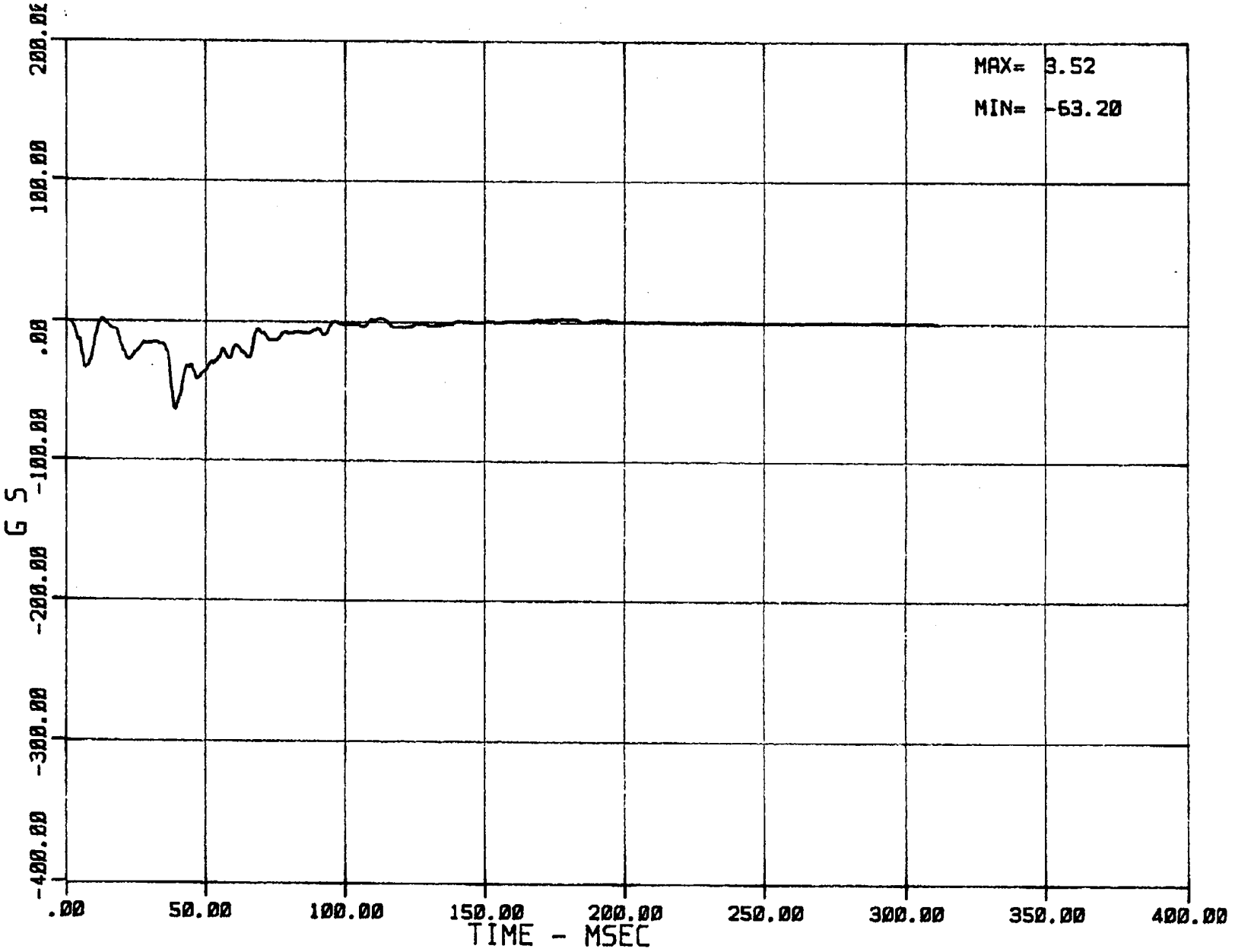
23 AC 01 N ENG X (TOP OF ENGINE ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



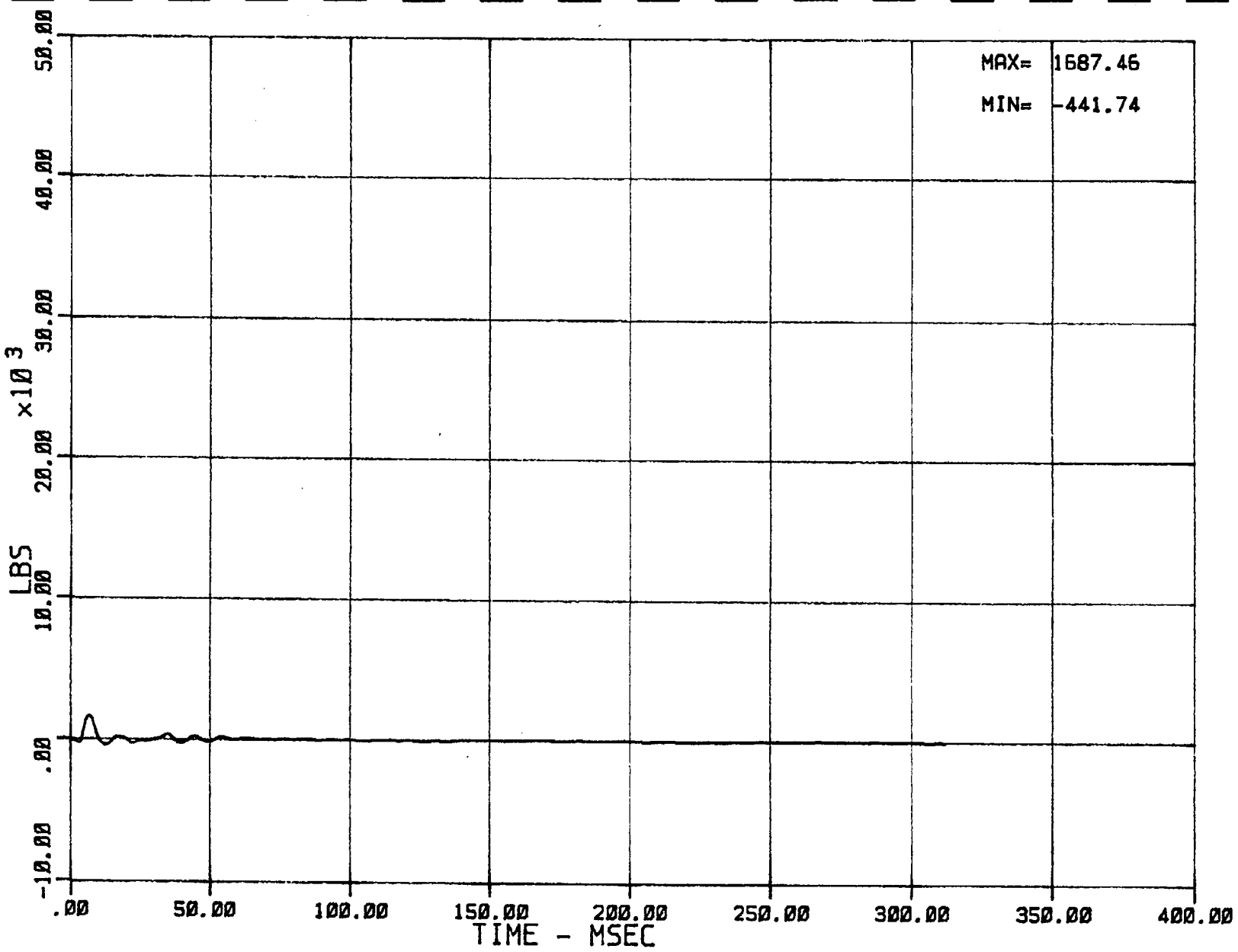
24 AC 01 N ENG X (BOTTOM OF ENGINE ACCEL. - X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



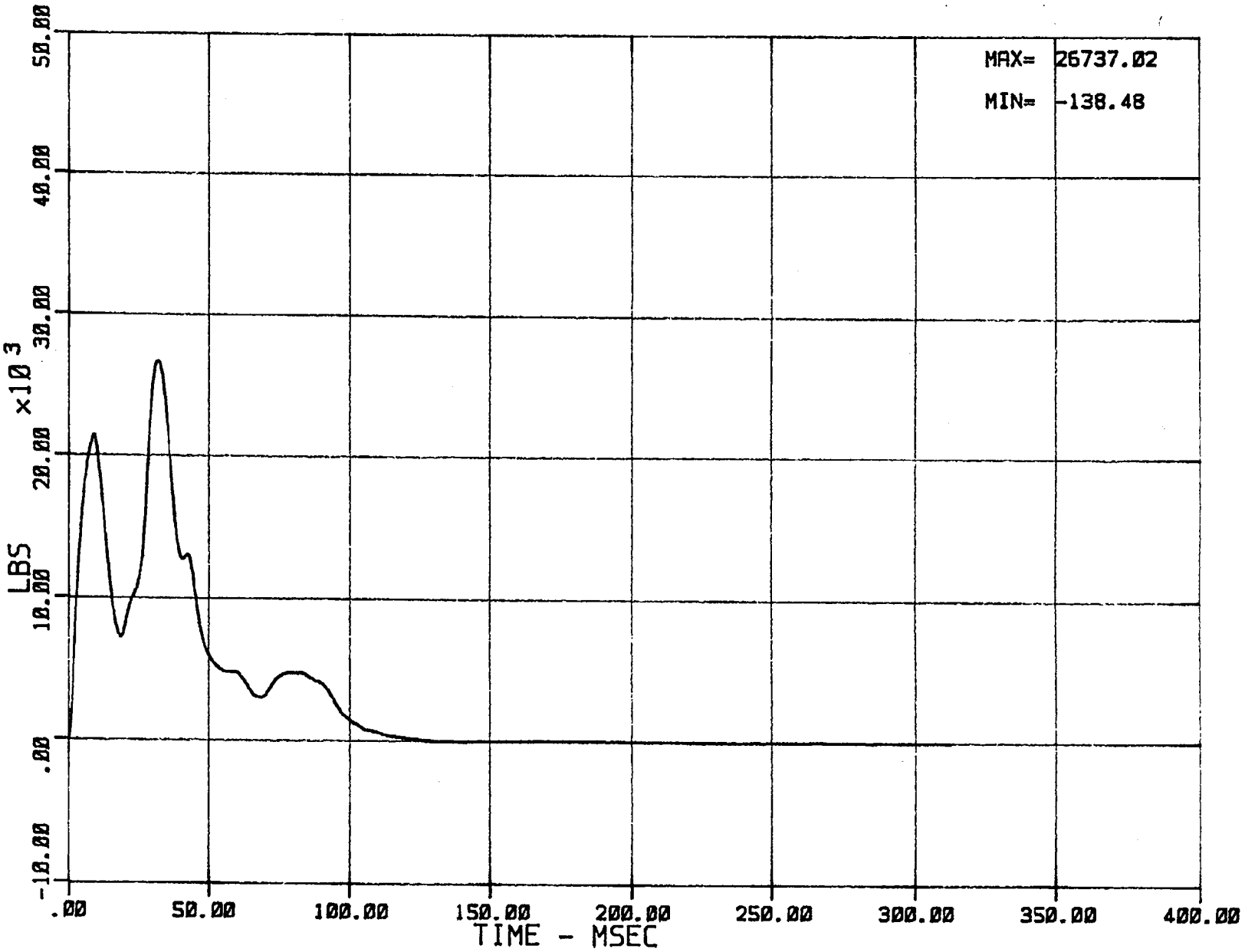
25 AC 01 N RFF X (RIGHT FRONT FLOOR ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



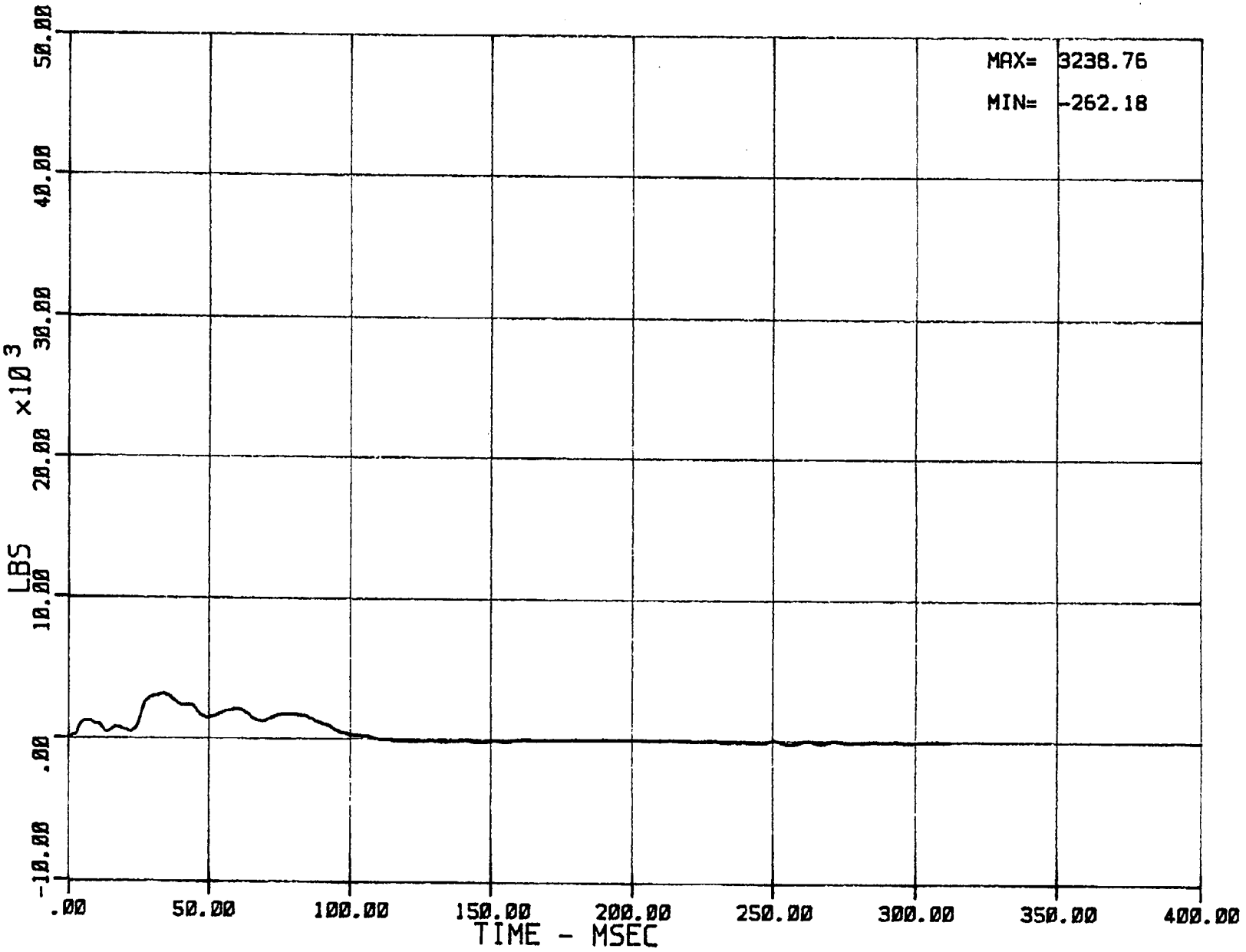
26 AC 01 N LRF X (LEFT REAR FLOOR ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



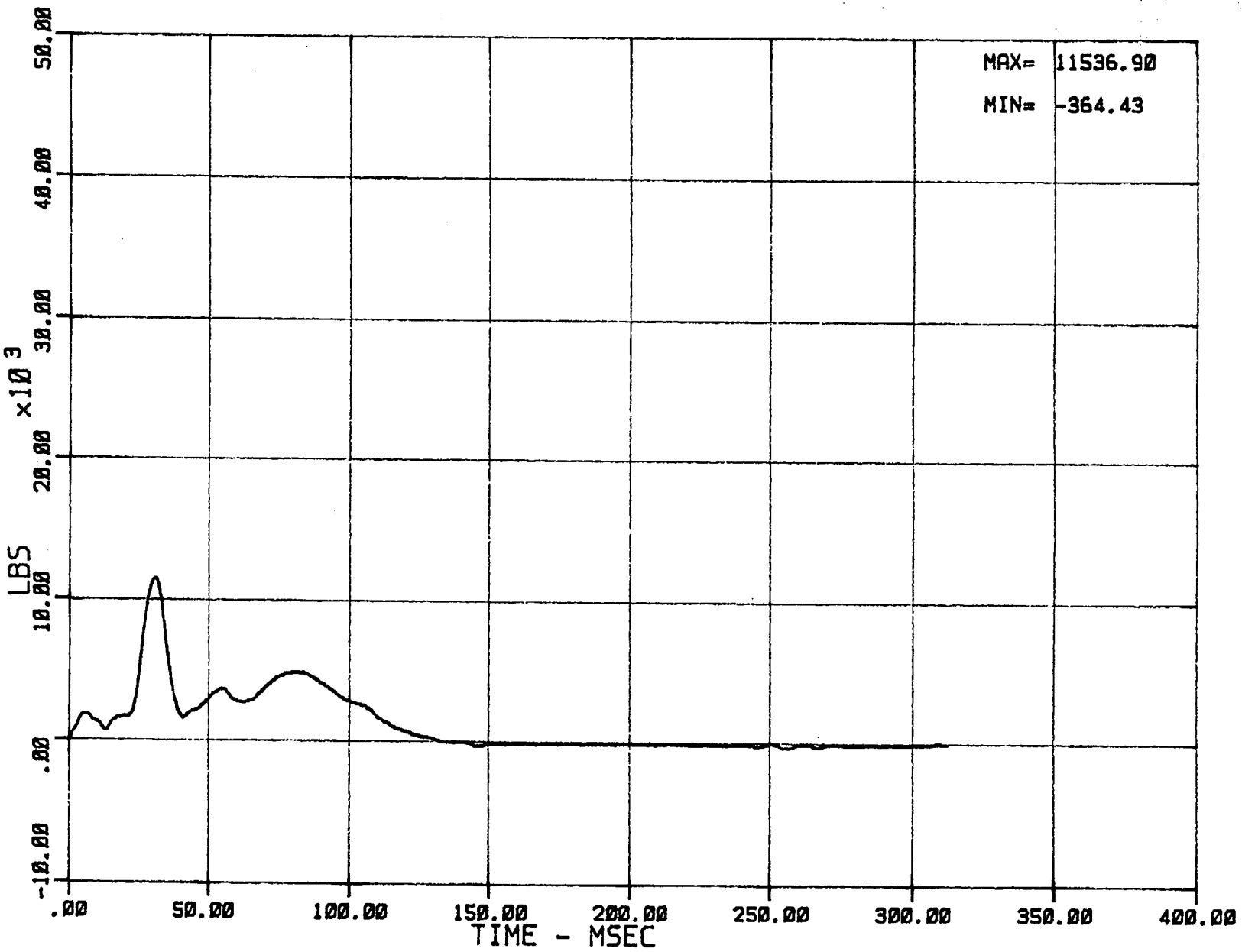
31 LC BA N BAS (BARRIER LOAD CELL AS FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



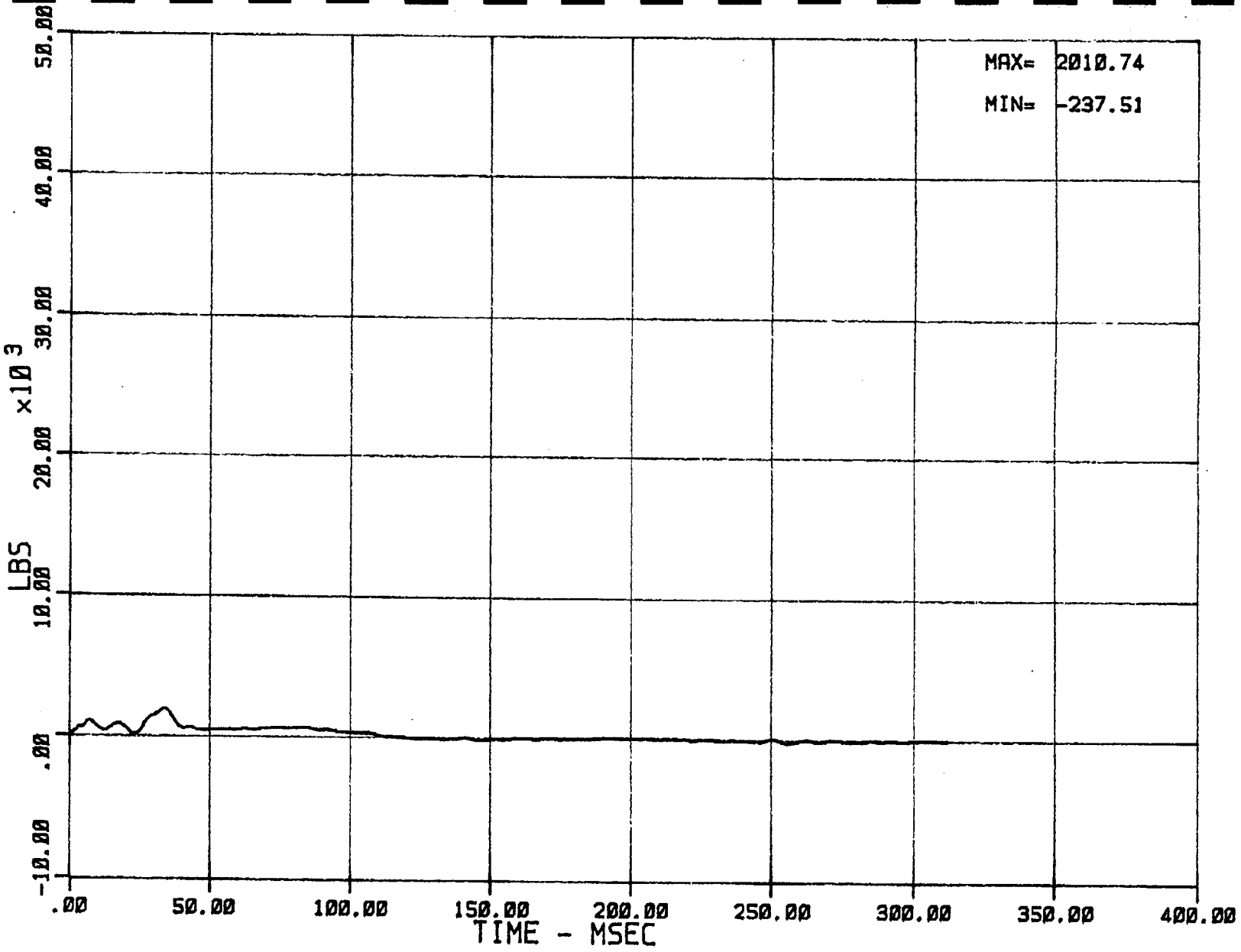
38 LC BA N BB3 (BARRIER LOAD CELL B3 FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



39 LC BA N BB4 (BARRIER LOAD CELL B4 FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84

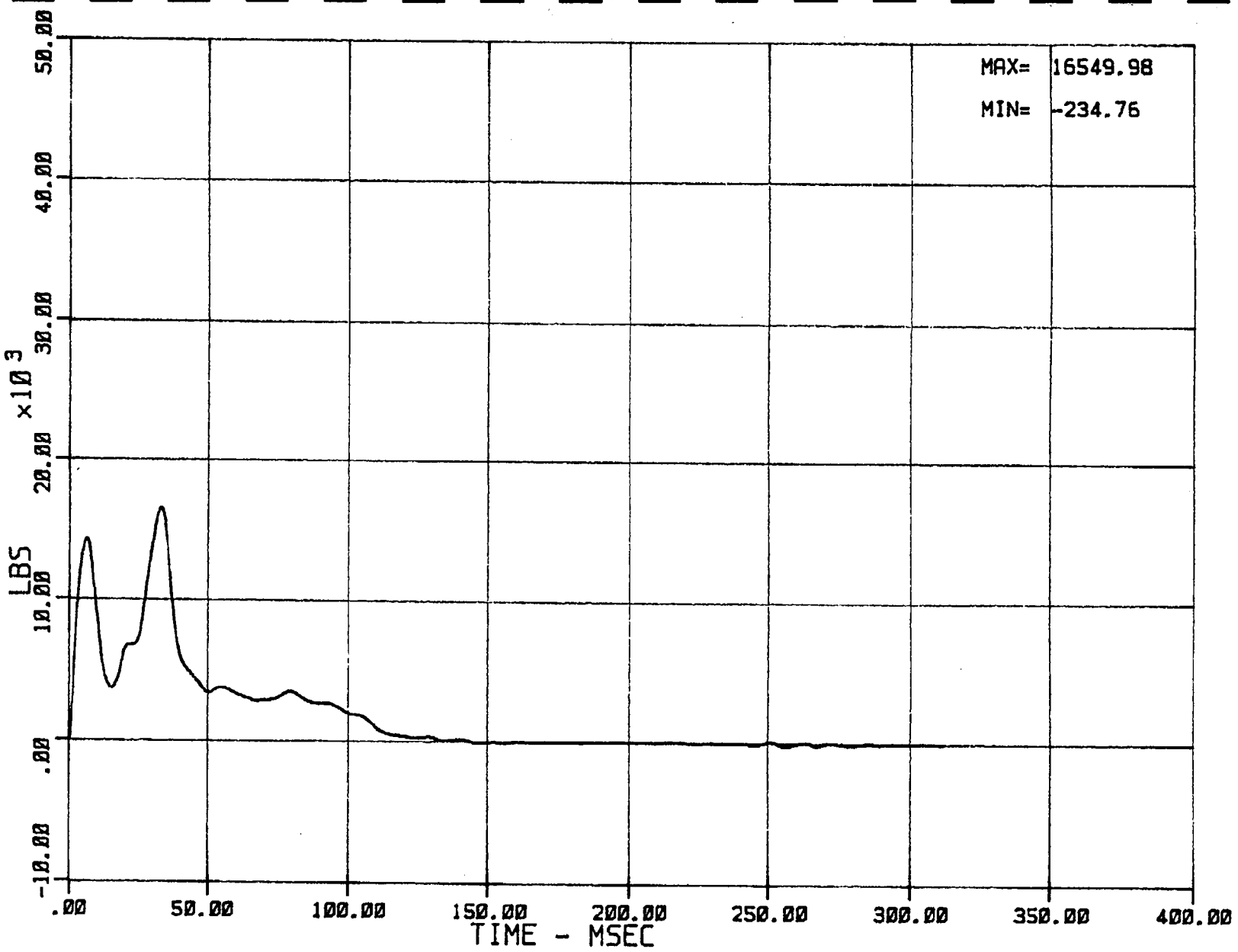


40 LC BA N BBS (BARRIER LOAD CELL BS FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



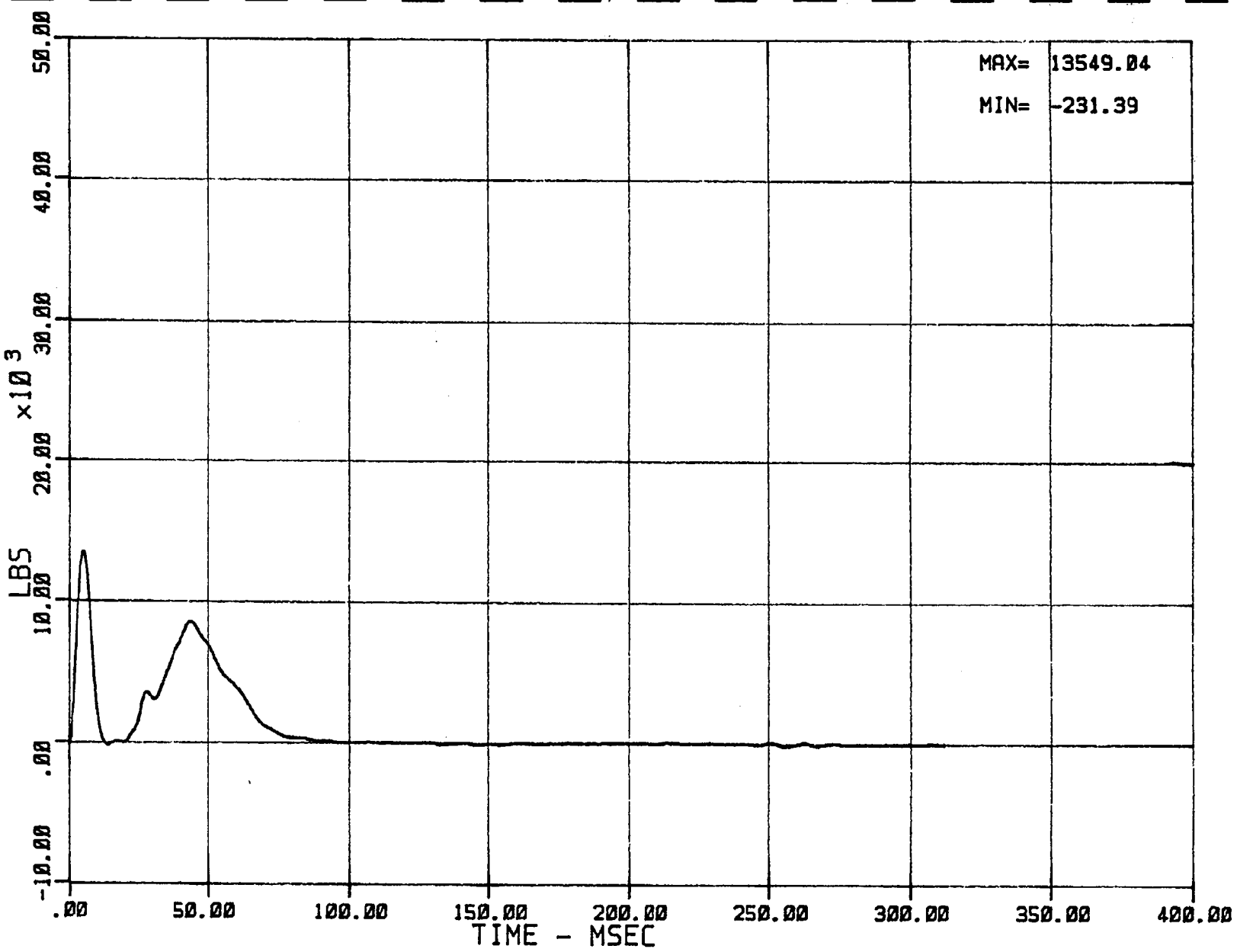
41 LC BA N BB6 (BARRIER LOAD CELL B6 FORCE)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84

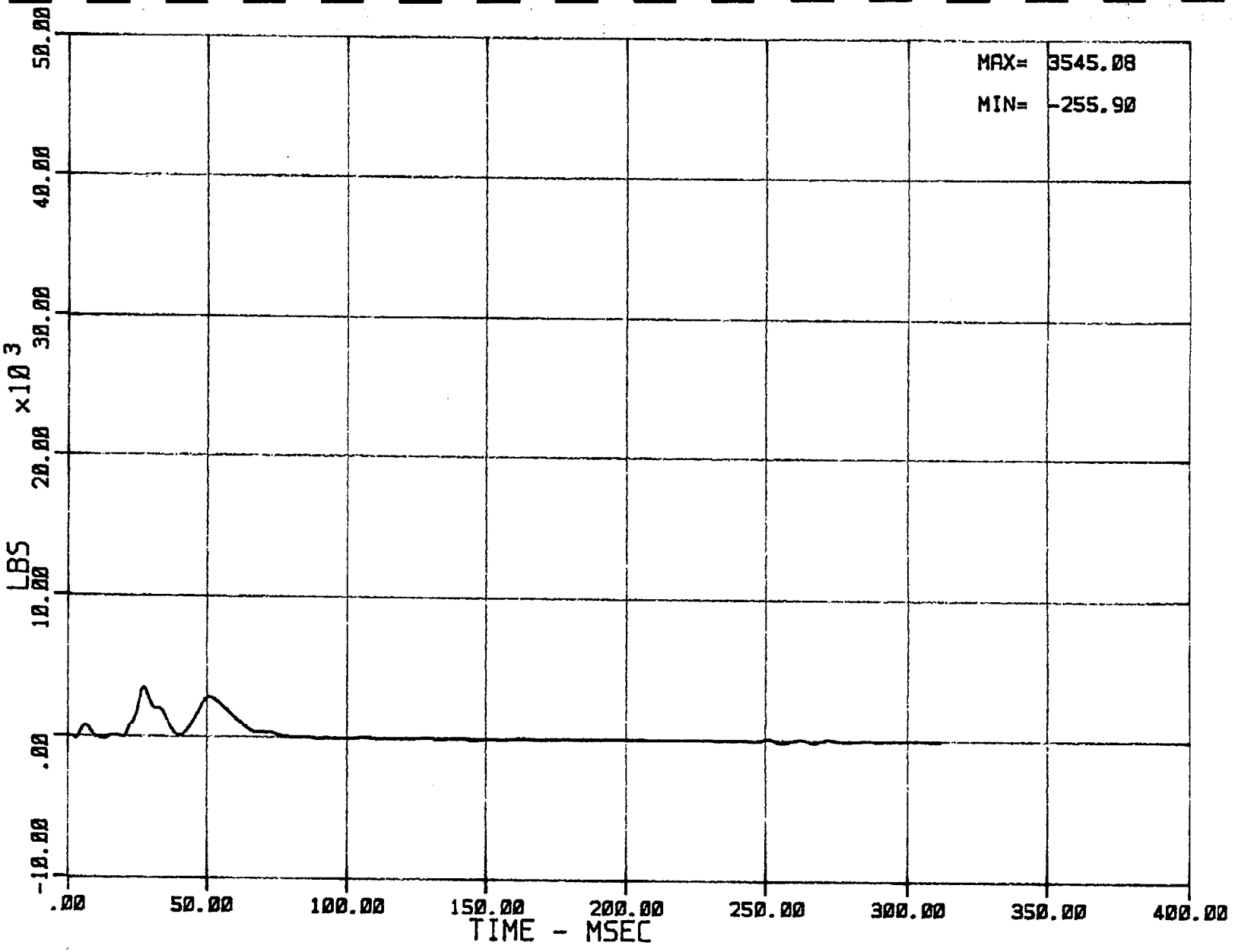


42 LC BA N BB7 (BARRIER LOAD CELL B7 FORCE)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84

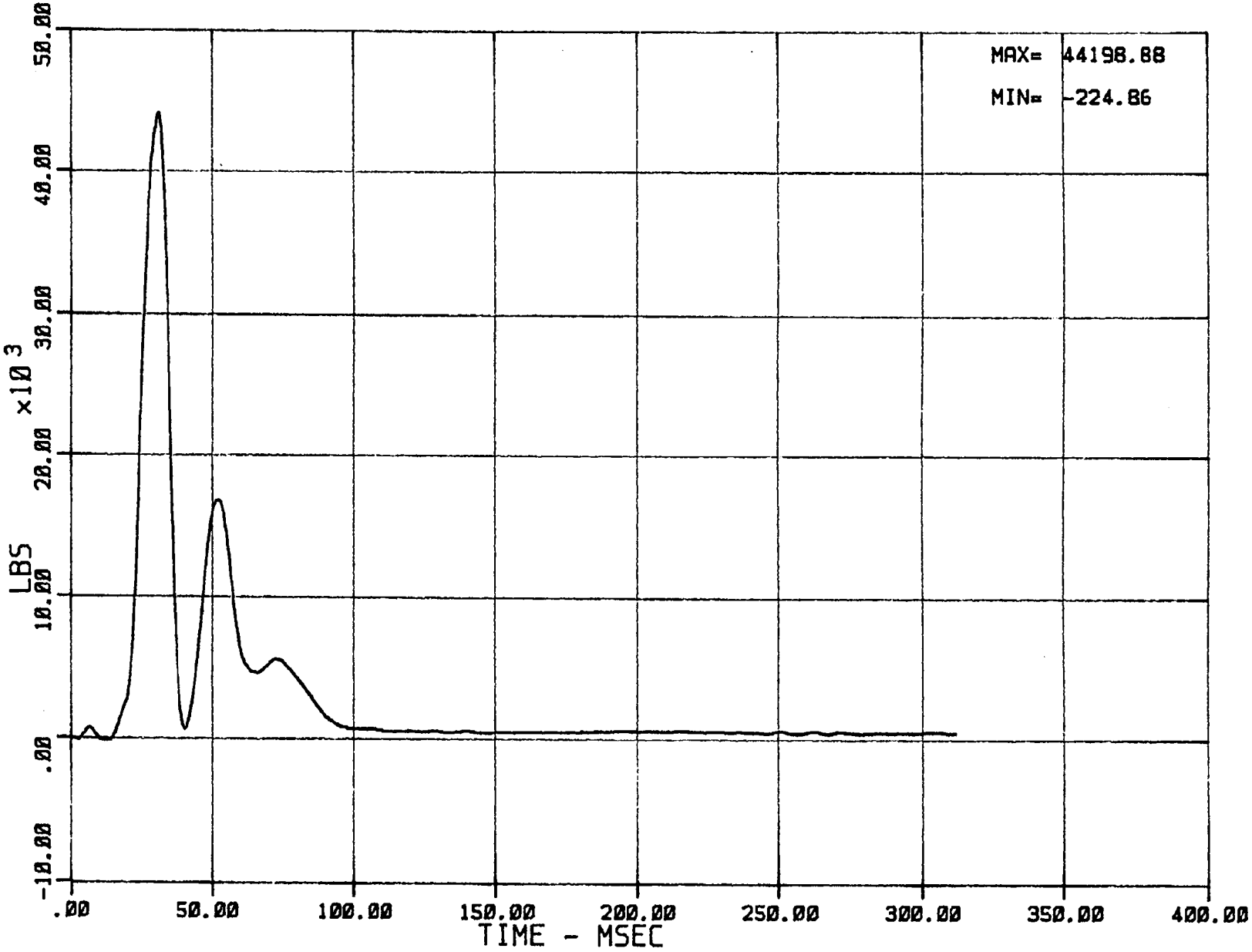


47 LC BA N BC3 (BARRIER LOAD CELL C3 FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84

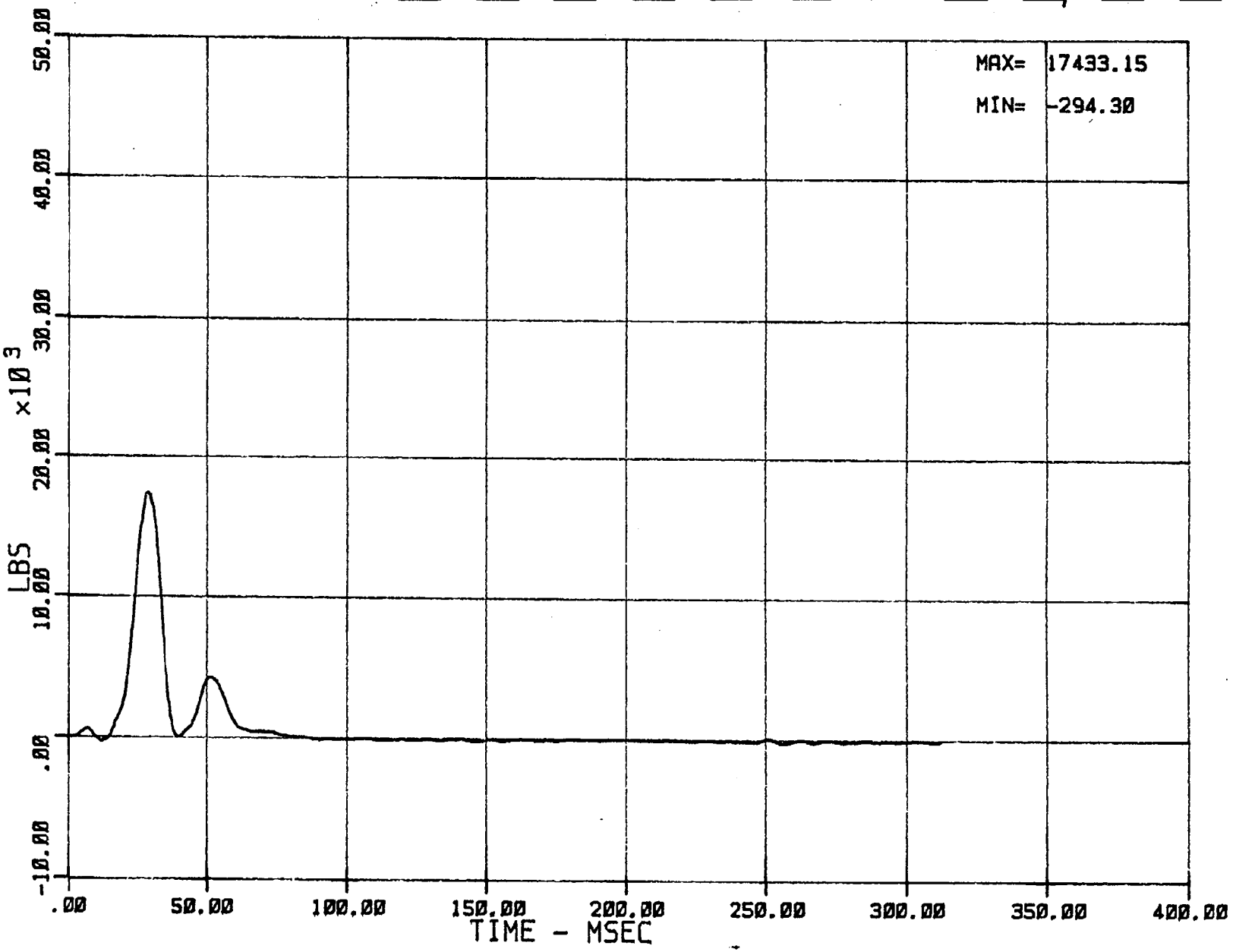


48 LC BA N BC4 (BARRIER LOAD CELL C4)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84

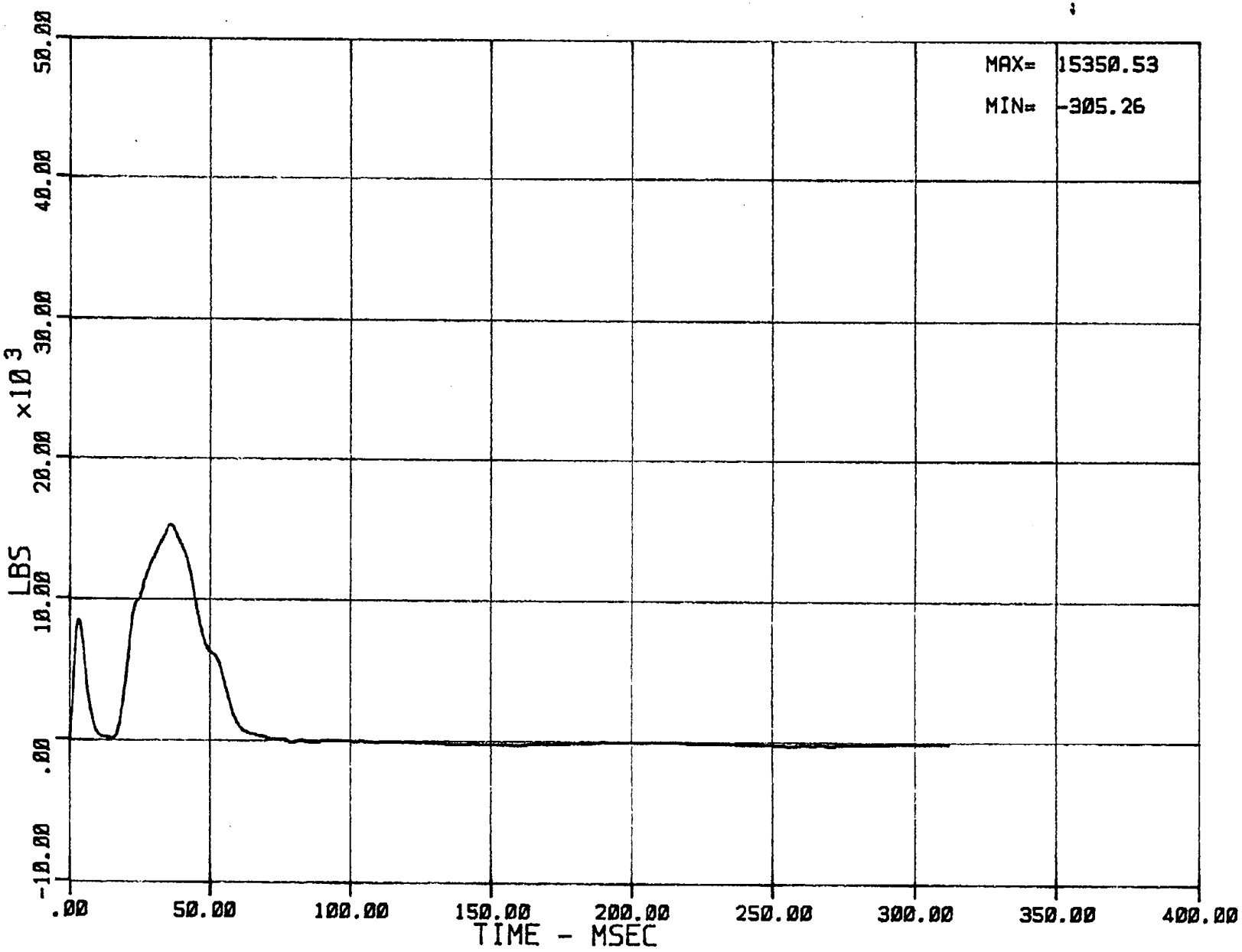


49 LC BA N BC5 (BARRIER LOAD CELL C5)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



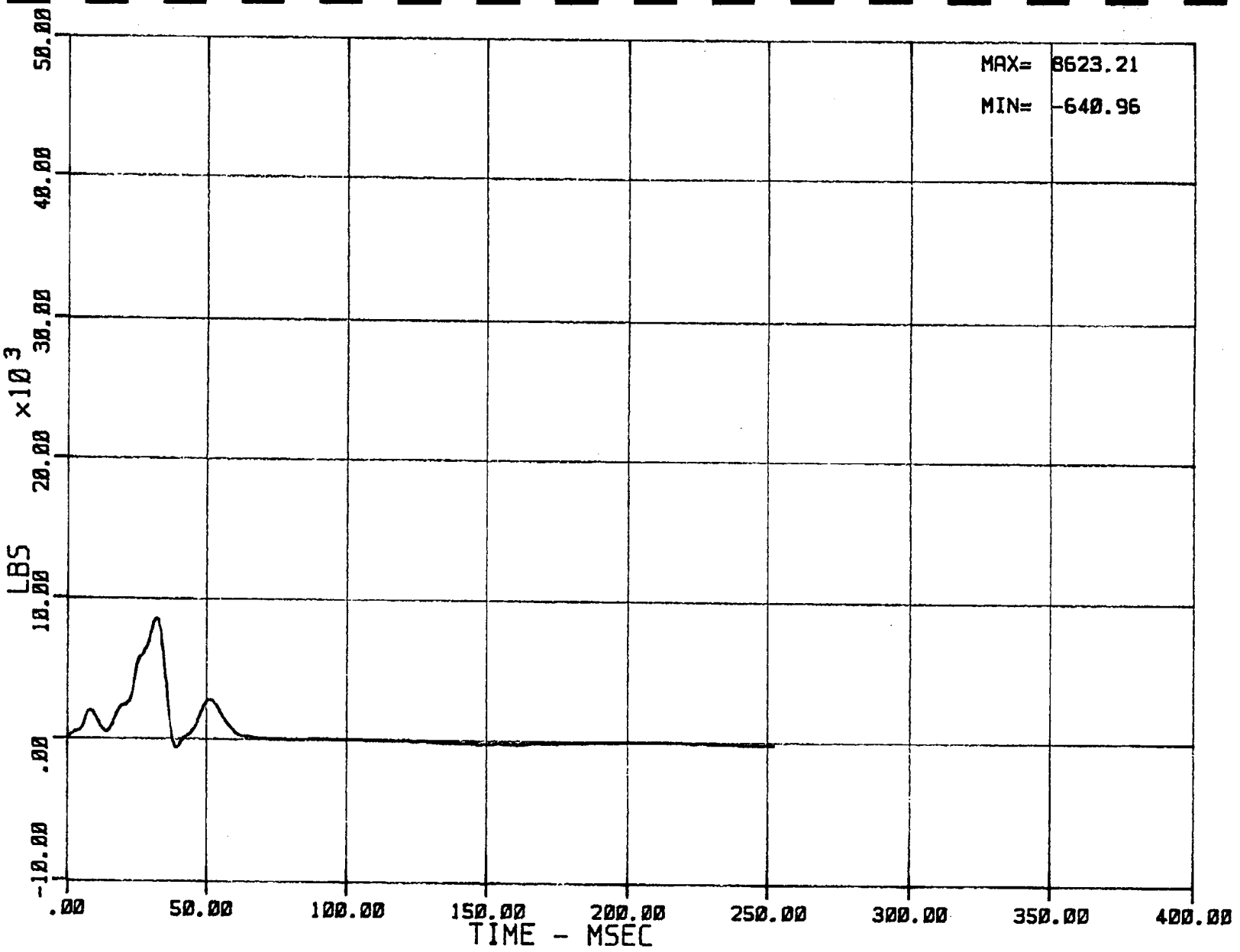
50 LC BA N BC6 (BARRIER LOAD CELL C6)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



S1 LC BA N BC7 (BARRIER LOAD CELL C7)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



58 LC BA N BDS (BARRIER LOAD CELL D5)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84

APPENDIX D

OWNER'S MANUAL

SEAT AND SEAT BELT INFORMATION

NOTE — During some air conditioning operation conditions, slight increases and decreases of engine speed/power may be noticed. This characteristic should be considered normal, as the system is designed to cycle the compressor on and off to maintain desired cooling. The reduced compressor operation should benefit fuel economy.

Since the air conditioner removes considerable moisture from the air during operation, it is normal if water drips on the pavement under the air conditioner drain after you have stopped the vehicle.

HEATING — Move the temperature control to far right, the function control to FLOOR, and the fan switch to HI. For heat through the instrument panel registers, move the function control to VENT. As the vehicle warms, adjust the fan switch and temperature control for comfort.

DEFROSTING — For maximum windshield defrosting, move the temperature control to far right, the function control to DEFROST, and the fan switch to HI. Air flow can be split between the defroster ducts and floor ducts by setting the function control lever at the MIX position.

DEFOGGING SIDE WINDOWS — Set the function control to A/C MAX in mild weather or VENT in cold weather. Direct side registers toward the windows.

To help prevent fog from forming on the windshield in humid weather, place the system in DEFROST. After a few minutes of operation, move the function control lever to the desired position. Avoid driving the vehicle for long periods of time with the system in the OFF position to prevent humidity build-up inside the vehicle.

OCCUPANT RESTRAINTS

Continuous Loop Lap-Shoulder Belt System

Ford Motor Company recommends that you always "buckle up." In some areas, seat belt use is required by law. Your vehicle features a Continuous Loop Lap-Shoulder Belt system for the driver and

Regular Cab and Crew Cab Front

SuperCab

right front seating positions. The driver's position also contains a seat belt warning system. If the driver does not buckle up before turning the ignition on, the buzzer will sound for four to eight seconds. The seat belt warning light will remain on for the same time period with or without the belts buckled.

WARNING — Do not allow passengers to ride in the cargo area of any vehicle. Persons who are not riding in a seat with a fastened seat belt are much more likely to suffer serious bodily injury in the event of a collision.

Front Lap — Shoulder Belts

After entering your vehicle, adjust the front seat to obtain the best position for your driving comfort and visibility. Then use the following procedure for fastening belts.

- Pull the lap-shoulder belt from the retractor so the shoulder portion of the belt crosses your shoulder and chest and insert the belt slip tongue into the proper buckle until you hear a snap and feel it latch.

- The shoulder restraint portion of the belt adjusts automatically to a snug position. The inertia reel allows freedom of movement, locking tight only on hard braking or impacts of approximately 5 mph (8 km/h) or more. The system cannot be made to lock by jerking on the belt.

- The lap portion of the belt adjusts automatically to a snug position. On vehicles equipped with Captain's Chairs, the lap portion of the belt must be fitted below the arm rests. The shoulder portion must be fitted above the arm rest on the door side and below the arm rest on the buckle side.

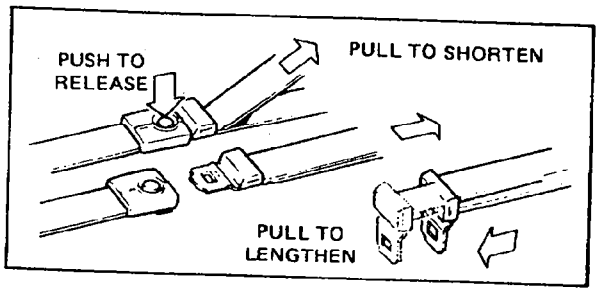
WARNING — Never allow more than 1½" (3.8 cm) of slack to be introduced into your seat belt system. Never wear the shoulder belt under the arm. Never swing it around your neck over the inside shoulder. Never use a single belt for more than one person. Be sure the lap portion of the belt is fitted

snugly around the hips, not on the waist. Use shoulder belt on outside shoulder only. Failure to follow these precautions could increase the chance and/or severity of injury in an accident.

If you should jam the lap or shoulder belt retractor by allowing the belt to retract when twisted, you may free the webbing by pulling on the webbing.

Center Lap Belts (Bench Seat)

The center lap belts don't have retractors. To lengthen the belt, tip the tongue at a right angle to the belt, and pull the tongue until the ends can be joined over the lap.



To fasten the belt, insert the tongue into the open end of the buckle until you hear a snap and feel the latch engage. Shorten the belt, if necessary, by pulling on the loose end of the webbing.

Rear Outboard Belts

To fasten these rear belts, pull the belt out of the retractor with a steady motion and insert it into the buckle until you hear a snap, and feel the latch engage.

WARNING — Be sure the lap belt is fitted snugly around the hips, not on the waist. Failure to do so may increase the chance of injury in the event of a collision.

Unfastening Seat Belts

Push the release button in the buckle and allow the belts to unlatch.

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

Pull on the belt with both hands to tighten it on the retractor spool.

Feed the belt back into the retractor until it is completely retracted. Repeat previous step if necessary.

Pull the belt out of the retractor as far as it will go.

Remove any foreign matter or untwist the belt and let the belt retract.

Extend and retract belt about five times to make sure the belt retractor operates properly.

Seat Belt Extension Assembly

A seat belt assembly that is too short even when fully extended can be lengthened approximately eight inches (20 cm.) with a seat belt extension assembly (54611C22) available from your dealer. The seat belt extension assembly can be used in all seating positions.

WARNING — To assure that the seat belt extension assembly will hold in the event of a collision, only seat belt extensions manufactured by the same supplier as the seat belt should be used.

Seat Belt Maintenance

Seat belt assemblies should be periodically inspected to assure that they have not become damaged and that they remain in proper operating condition, particularly if they have been subjected to severe stress.

WARNING — Seat and shoulder belt assemblies may be damaged when subjected to stress by occupants in a collision and must be replaced.

Infant and Child Restraints

WARNING — For maximum protection in vehicle accidents, children should not be transported unrestrained. Infants should be placed in infant carriers. Small children should be restrained in child safety seats. Children weighing over 50 lbs. should be placed in seats and restrained with lap belts. The infant carriers or child seats should be placed in the vehicle in accordance with the instructions provided with the infant carrier or child seat.

Do not use the type of infant seats that attach to seatbacks, because the seatbacks may not support the load in the event of a collision.

Never leave a child unattended in your vehicle.

Do not permit children to sit where they cannot use seat belts or restraint systems. The Ford Infant Carrier and Ford Tot-Guard are available from your dealer or may be ordered directly from Ford Motor Company. Use the order form provided at the back of this manual. Both accessory units are secured by vehicle lap belts or lap-shoulder belts and do not rely on the seatback for their support.

WARNING — If your vehicle is equipped with a folding rear seat, the tether strap must be attached to the rear seat belt per child seat manufacturing instructions. Installation of the tether strap anchor bracket in a rear seat equipped vehicle could cause injury to rear seat occupants in the event of an accident.

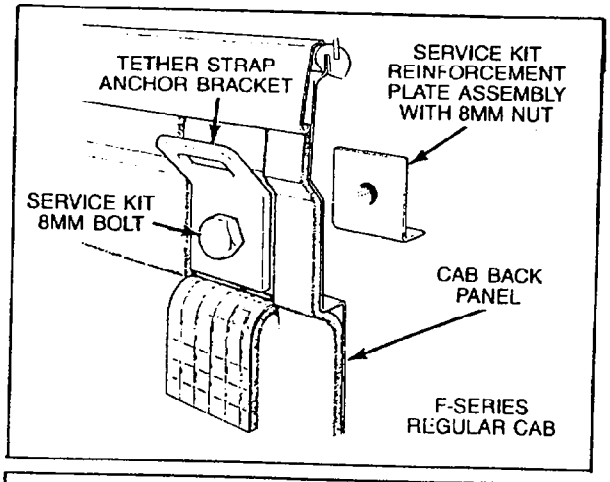
1. Drill a ⅜" (9 mm) diameter hole through the desired dimple.

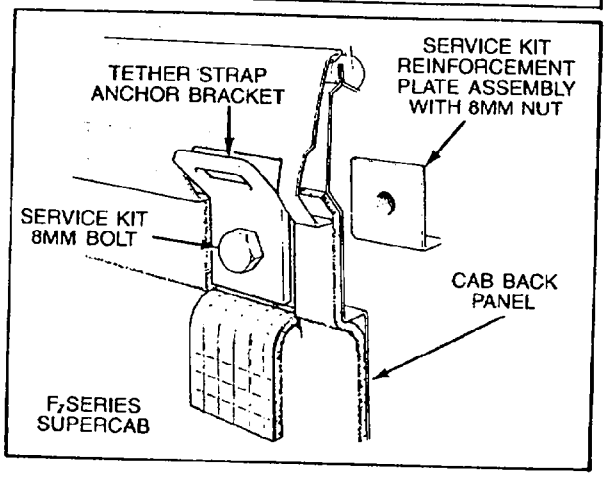
   CAUTION — Be sure not to drill through the cab outer panel.

2. Install the reinforcement plate assembly provided in the Service Kit through the slot in the back panel directly below the drilled hole. Bolt the tether strap anchor bracket in place using the 8 mm x 30 mm long coarse thread bolt provided in the Service Kit. Align the anchor bracket so that the tether strap end is facing upward and tighten the bolt securely (Torque to 15-20 lb.-ft.).

   WARNING — The anchor bracket must be bolted directly to the cab panel sheet metal. Interior trim must NOT be trapped between the anchor bracket and the sheet metal. Failure to properly install the anchor bracket could result in improper attachment performance in the event of an accident.

3. Cut 2 vertical slits in the carpet, if necessary, to clear the anchor bracket and install. Notch out the trim panel, if necessary, to clear the anchor bracket and install.

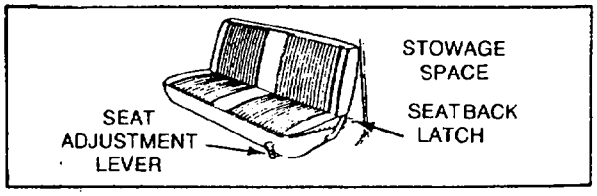




SEATS AND CONTROLS

Seat Adjustment

To move the seat forward or back, push the seat adjustment lever to the left and hold it there while you slide the seat to the desired position. Release the lever to lock the seat in place.



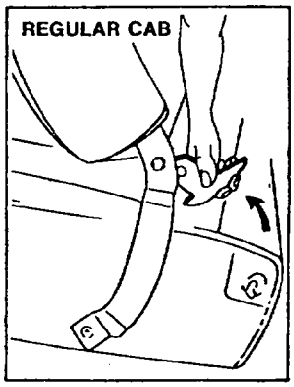
WARNING — Never adjust seat or the seatback while the vehicle is in motion to avoid loss of control and the possibility of personal injury.

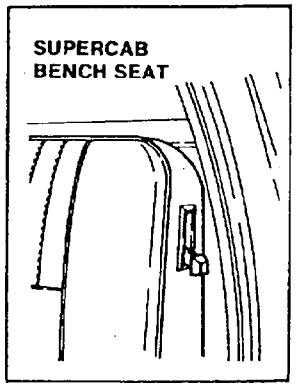
Storing large objects under the seat could prevent seat from latching properly due to interference with or damage to the seat track latch control wire.

Seatback Release

The front seatback and CrewCab rear seatback locks automatically in the full upright position. To fold the front seatback forward on regular cab models, lift the seatback latch at the lower rear corner of the seatback. The CrewCab front seatback does not fold.

On SuperCab vehicles, fold the seatback forward, for loading rear cab area by lifting the release lever on the side of the seatback.



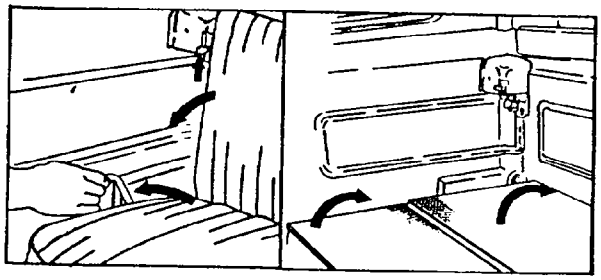


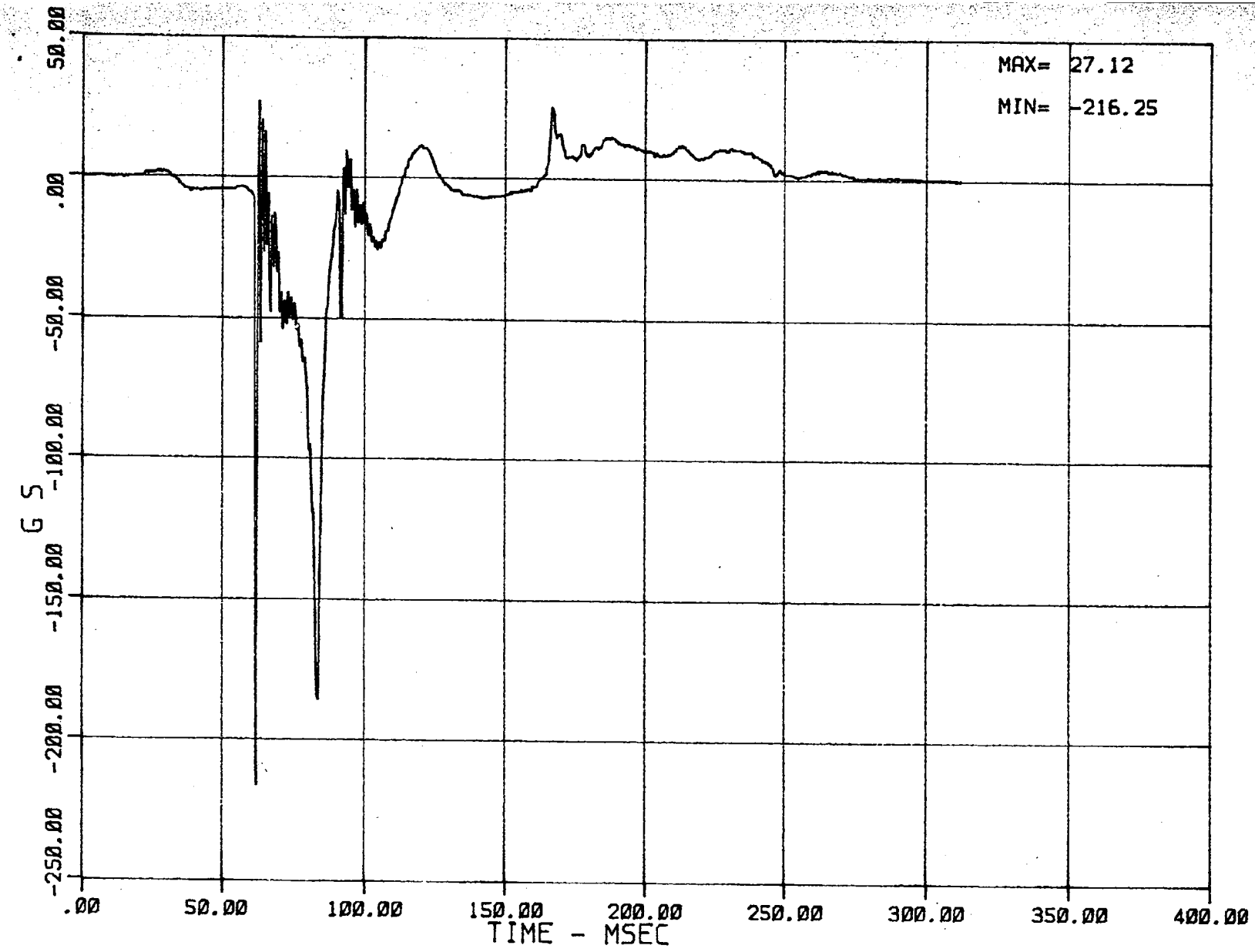
WARNING — Rear seat passengers should not lean on the front seatback while vehicle is in motion. A seatback which is folded forward even a small degree may not lock properly in the event of a sudden stop or collision. Do not allow packages or other objects to interfere with the normal position of the seatback or the emergency seatback release. If the seat fails to lock properly under these circumstances, both the rear passenger and the occupant of the front seat could be thrown forward and injured.

Rear Bench Seat
(Optional — SuperCab Only)

The forward facing rear seat in the SuperCab forms a cargo floor when folded. Before the seat can be folded, it may be necessary to move the front seat(s) forward. To fold the seat, lift the handle at the passenger's side of the seat bottom and pivot the assembly forward. Raise the release lever at the top of the seatback, on the passenger's side of the vehicle, and lower the seat back.

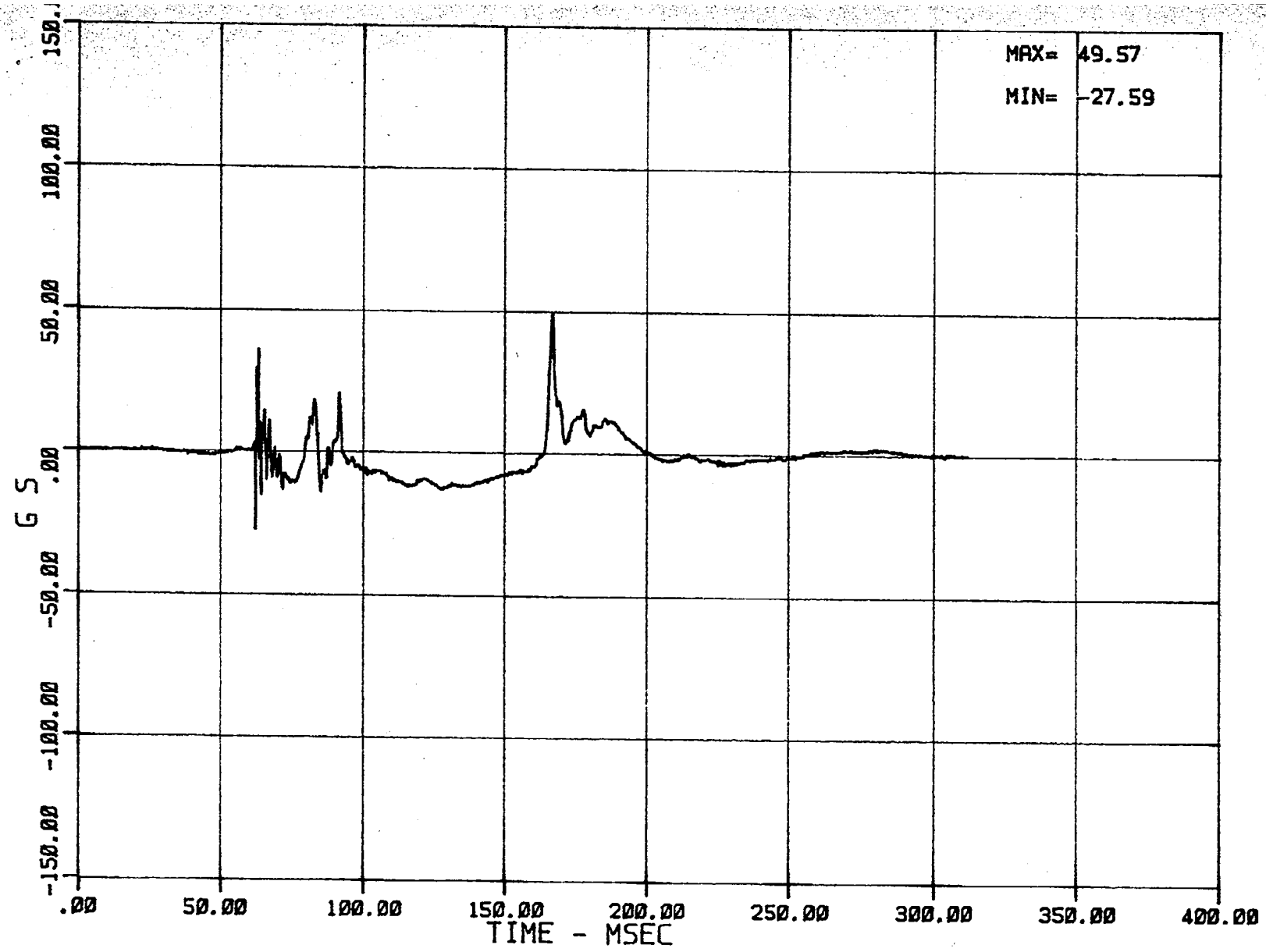
NOTE — To restore the seat to normal, lift the seatback until it locks in the vertical position. Grasp the seat bottom and pivot rearward.





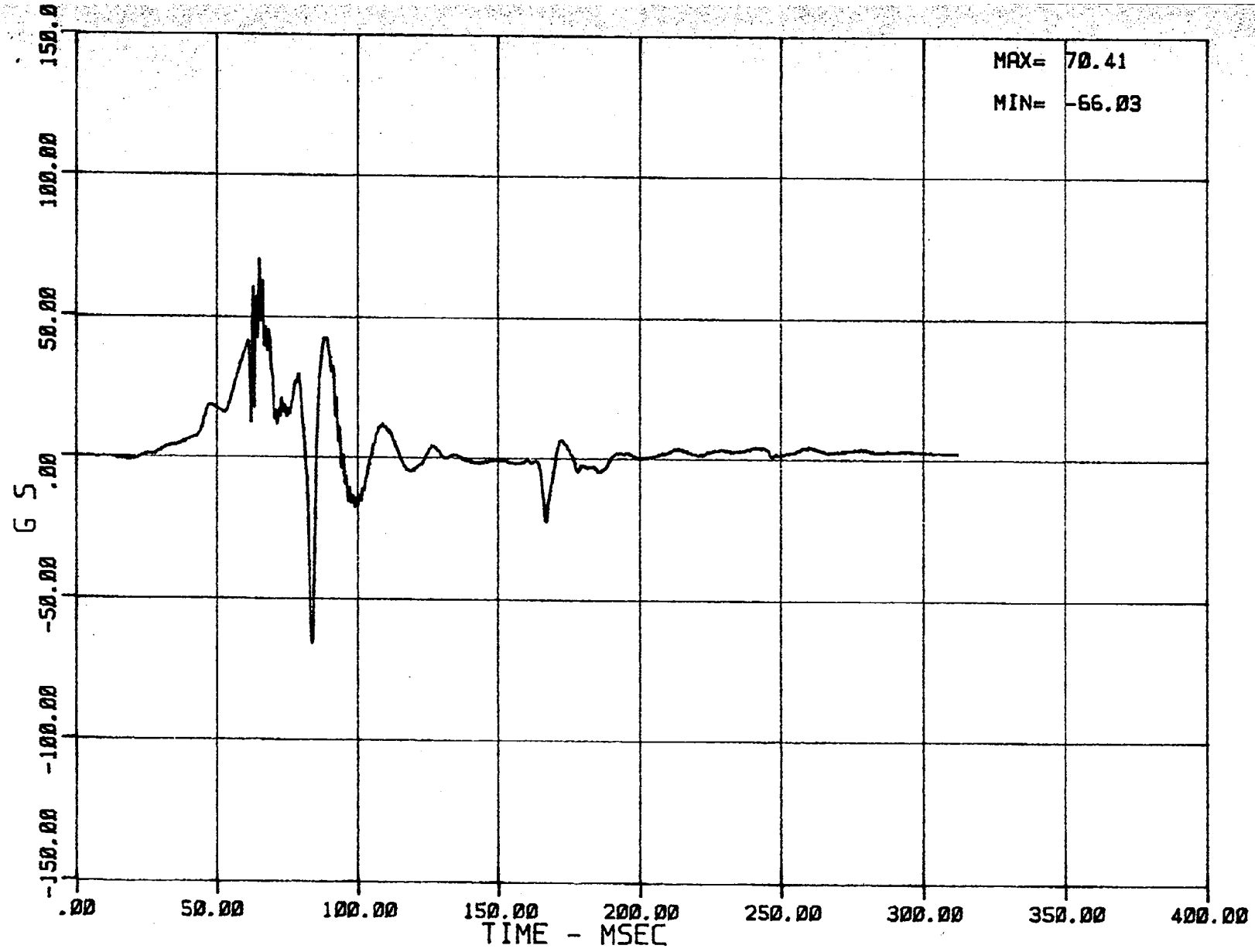
Ø1 AC Ø1 1 HED X (DRIVER HEAD ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP

Ø3/Ø6/84

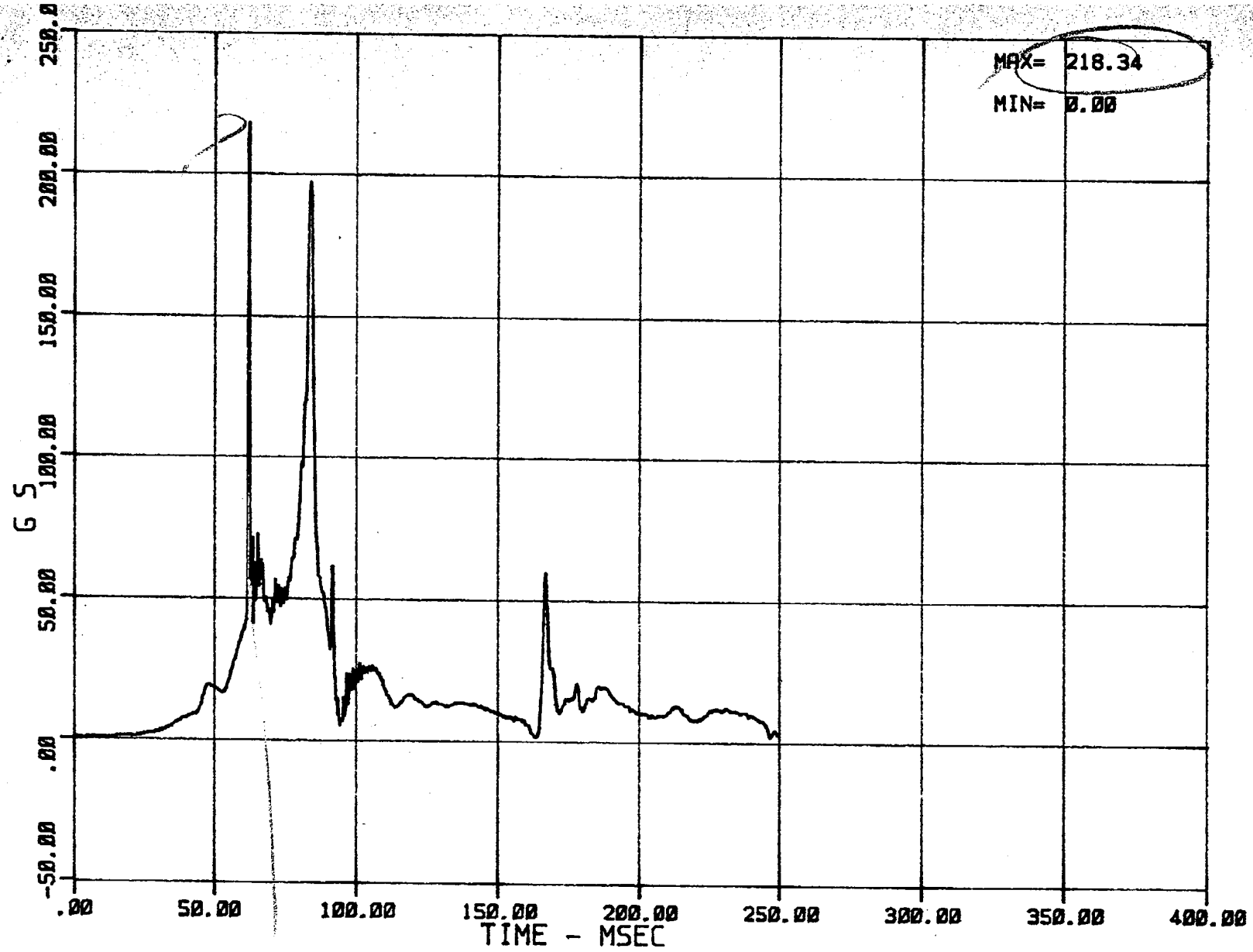


02 AC 01 1 HED Y (DRIVER HEAD ACCEL. -- Y AXIS)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



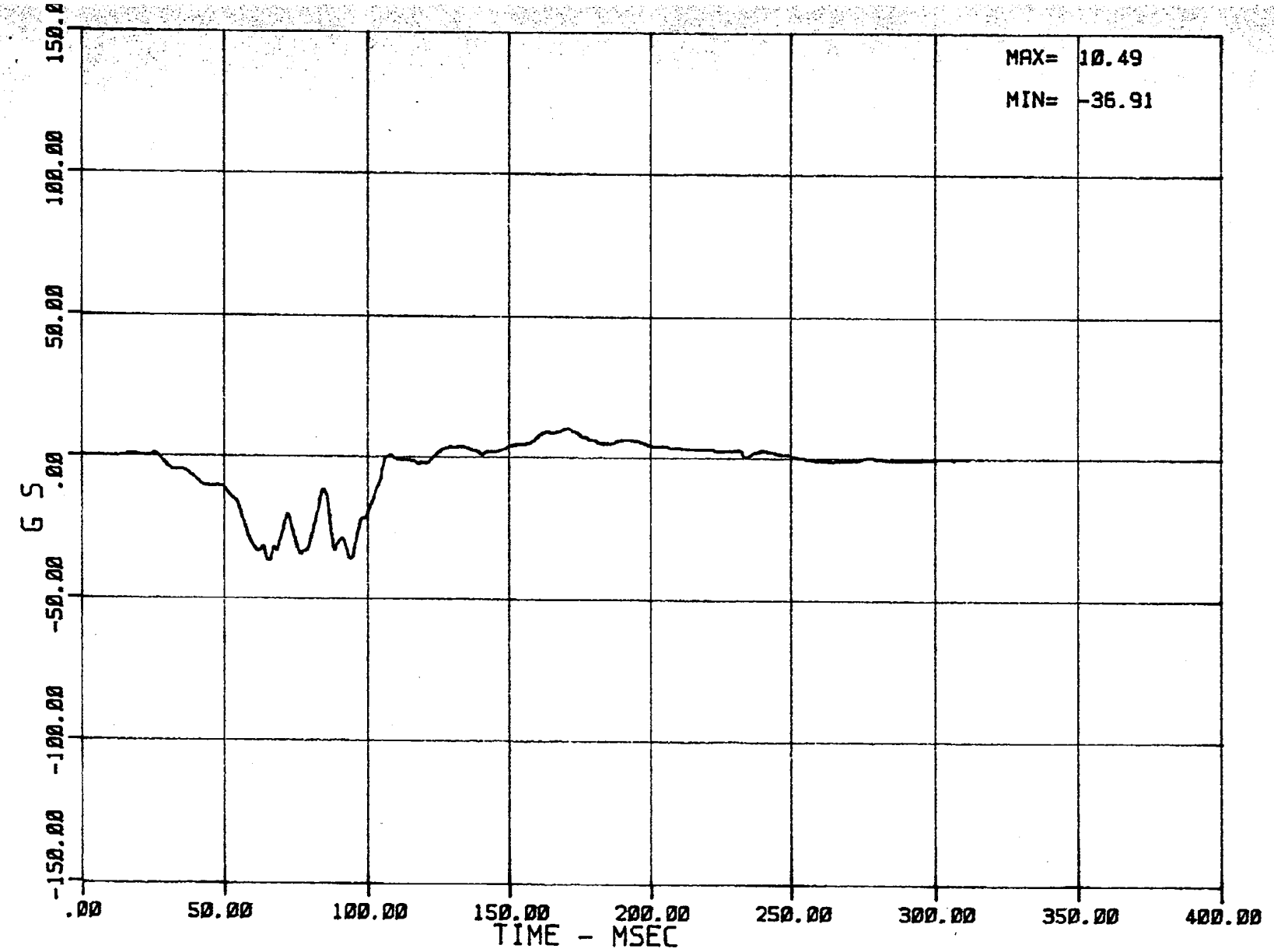
Ø3 AC Ø1 1 HED Z (DRIVER HEAD ACCEL. -- Z AXIS)
MSE NØ2Ø44 1984 FORD F-15Ø PICK UP 03/06/84



DRIVER HEAD RESULTANT ACCELERATION

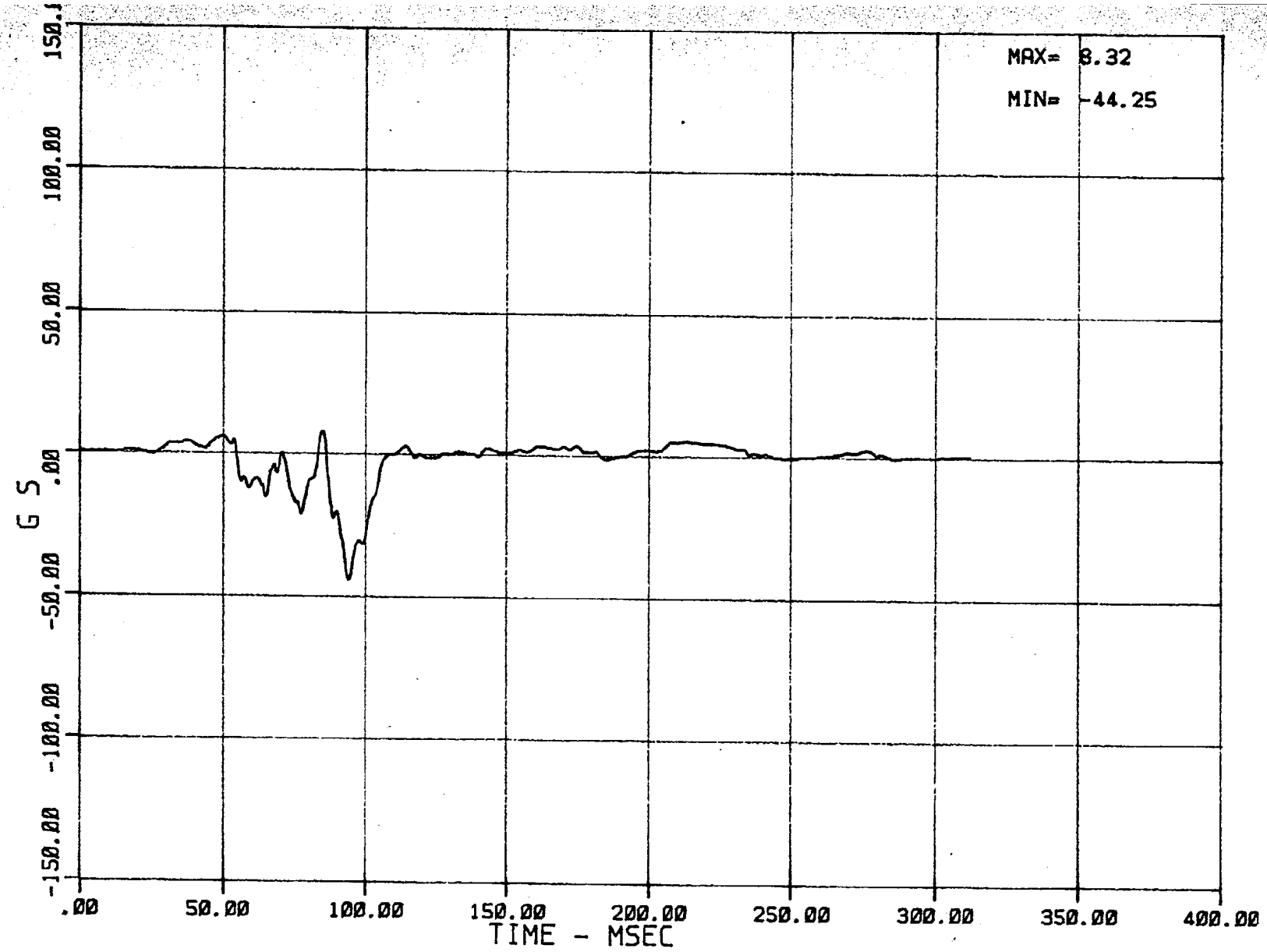
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



04 AC 01 1 CST X (DRIVER CHEST ACCEL. -- X AXIS)

MSE N02044 1984 FORD F-150 PICK UP 03/06/84



05 AC 01 1 CST (DRIVER CHEST ACCEL. -- Y AXIS)
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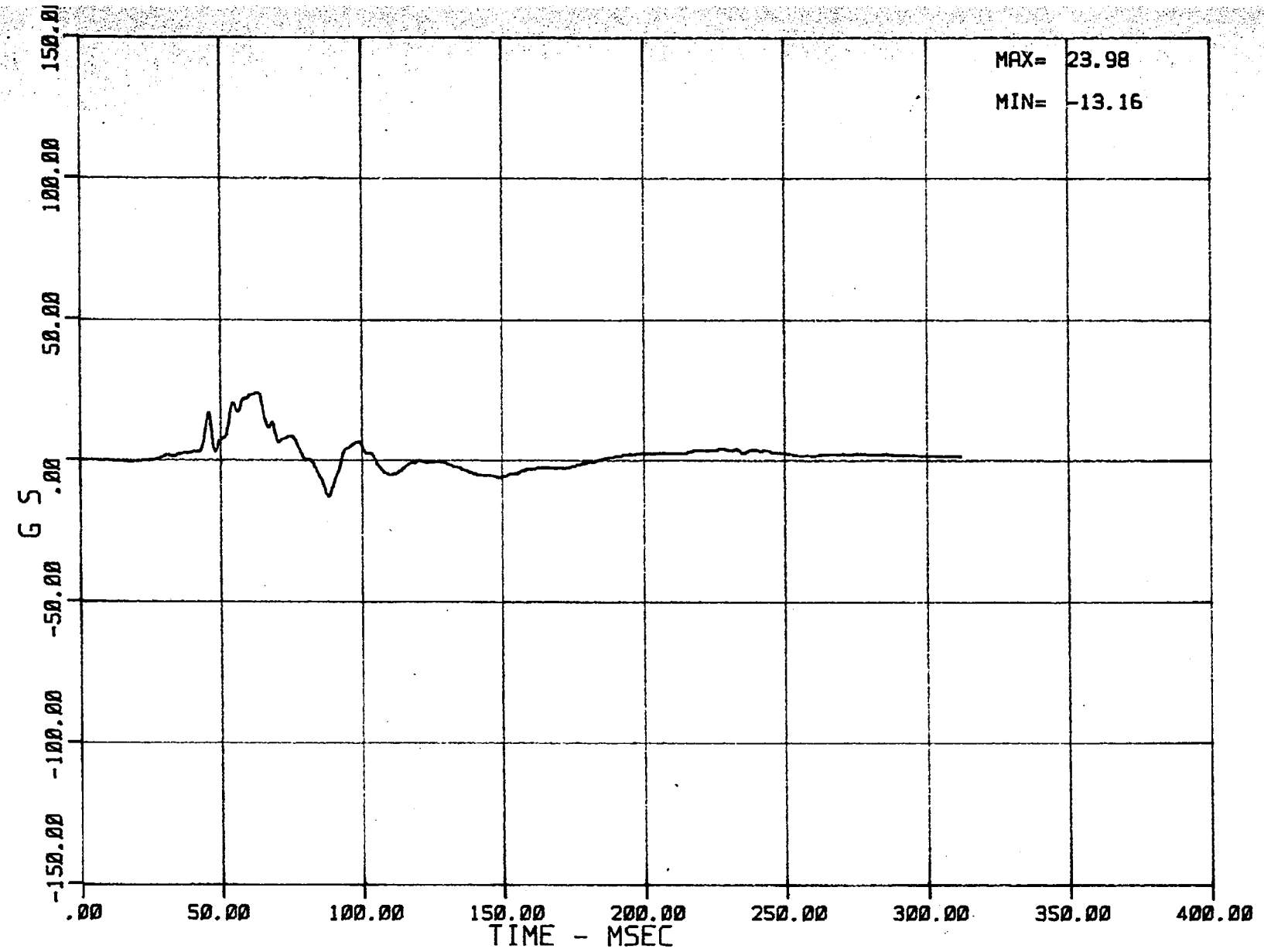
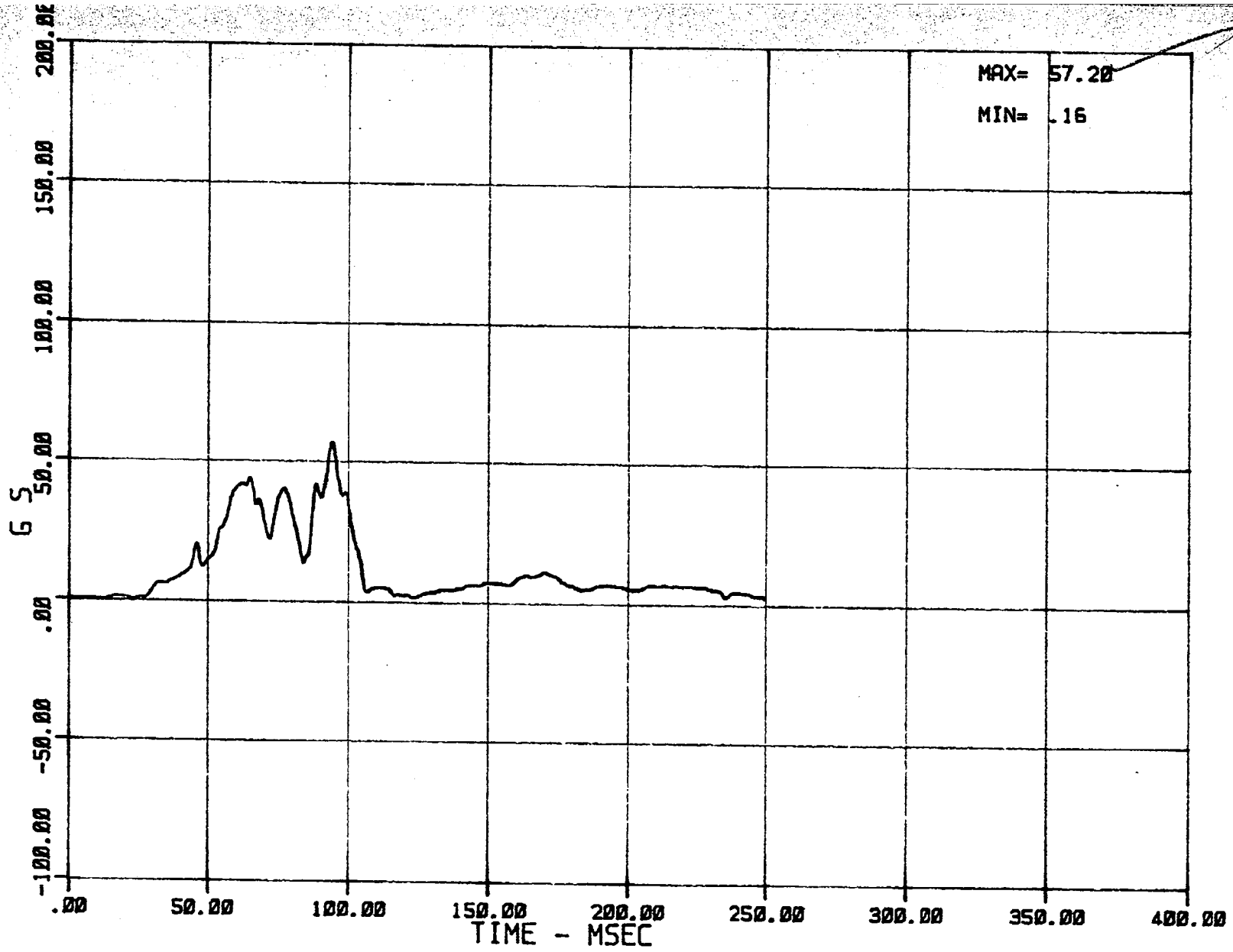
03/06/84



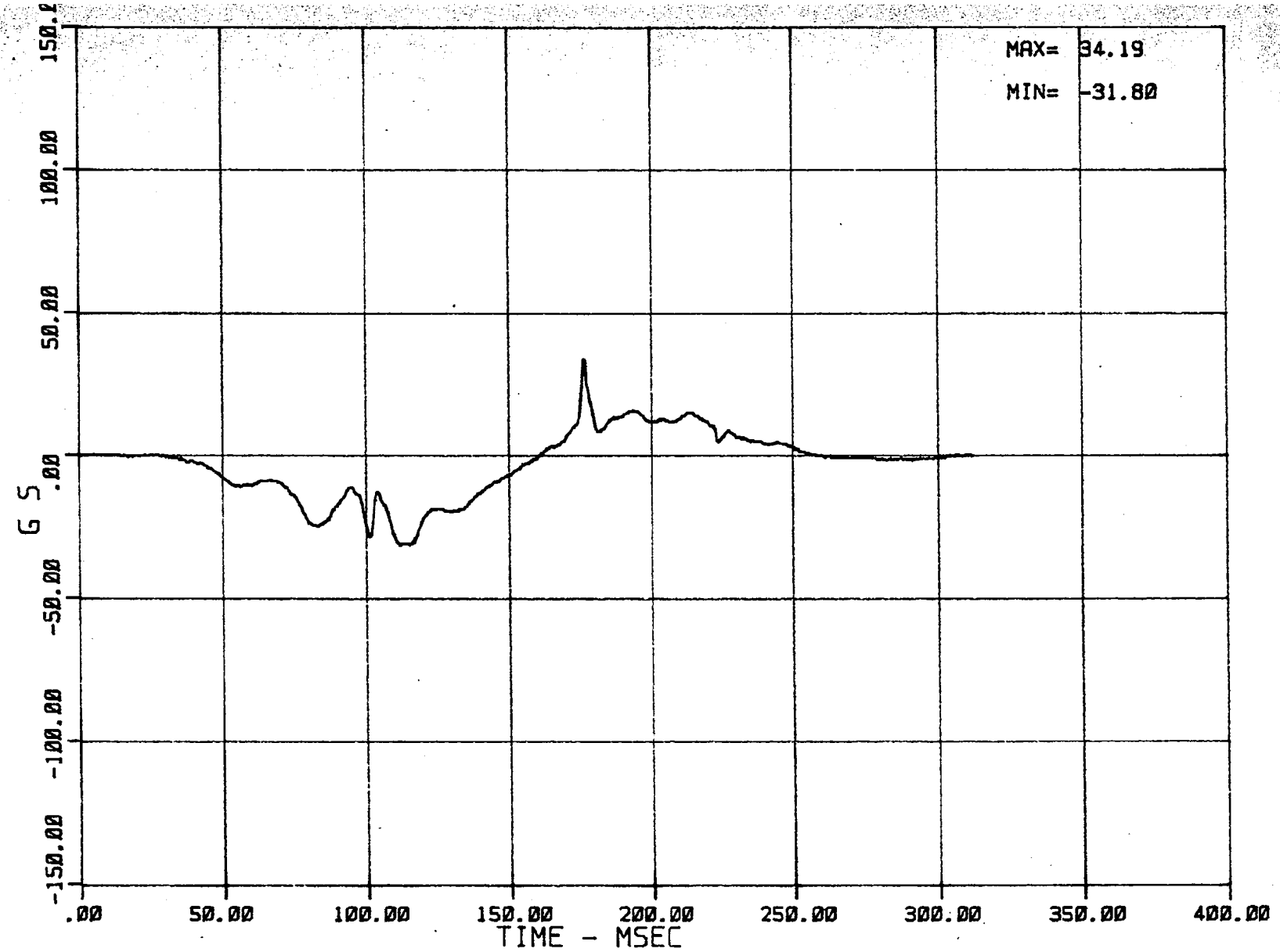
Ø6 AC Ø1 1 CST Z (DRIVER CHEST ACCEL. -- Z AXIS)

MSE N02044 1984 FORD F-150 PICK UP 03/06/84



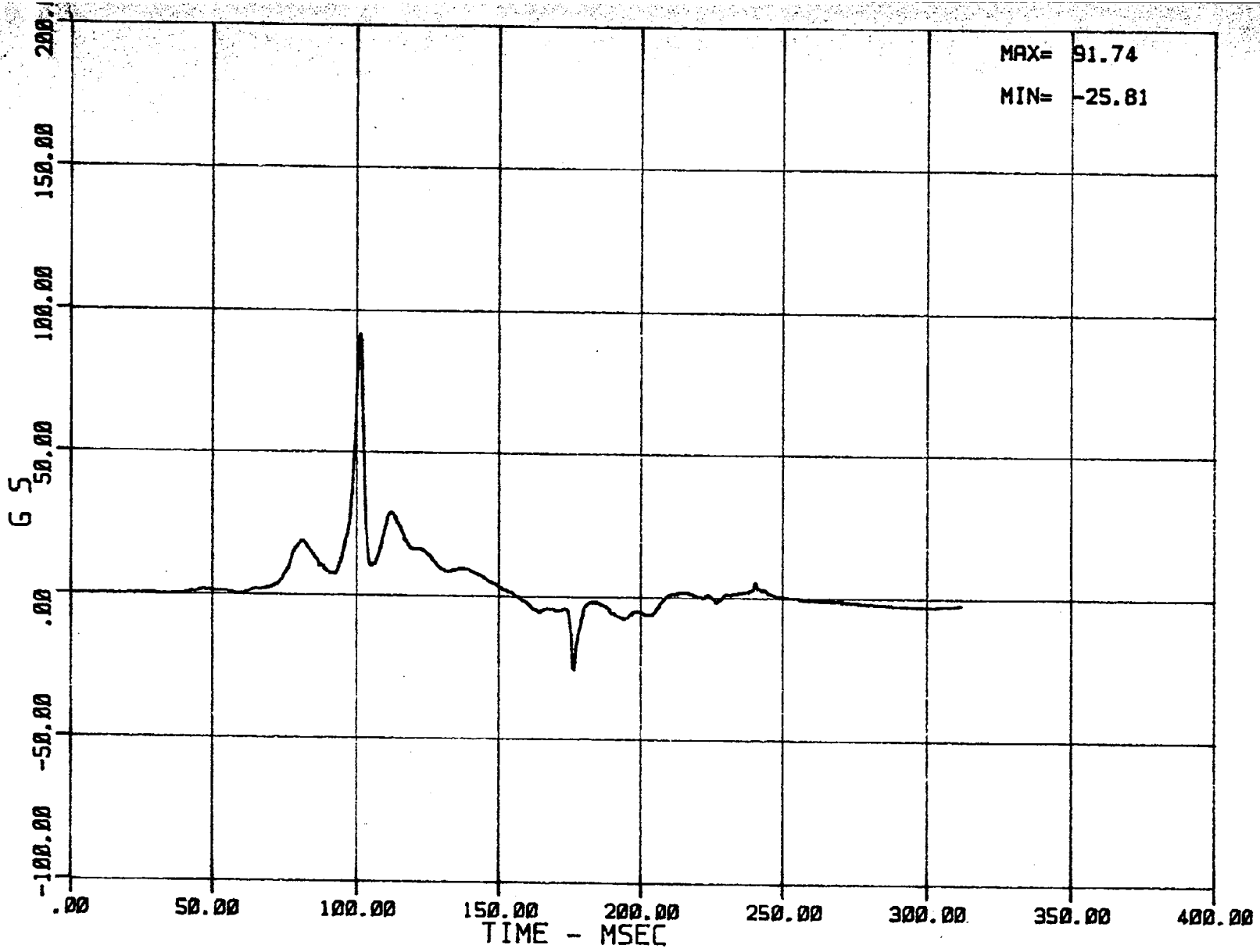
DRIVER CHEST RESULTANT ACCELERATION
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



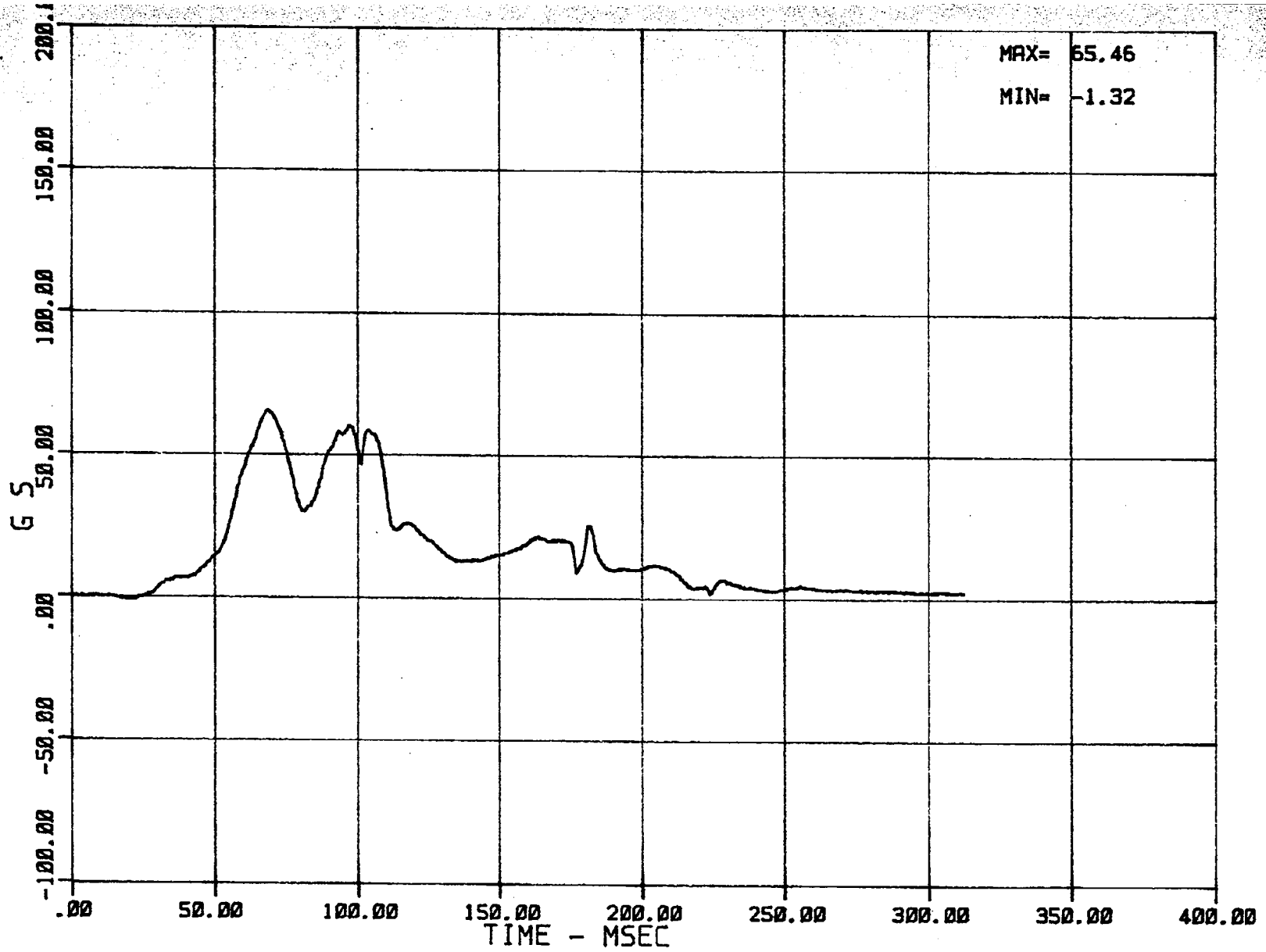
07 AC 01 2 HED X (PASSENGER HEAD ACCEL. -- X AXIS)

MSE N02044 1984 FORD F-150 PICK UP 03/06/84

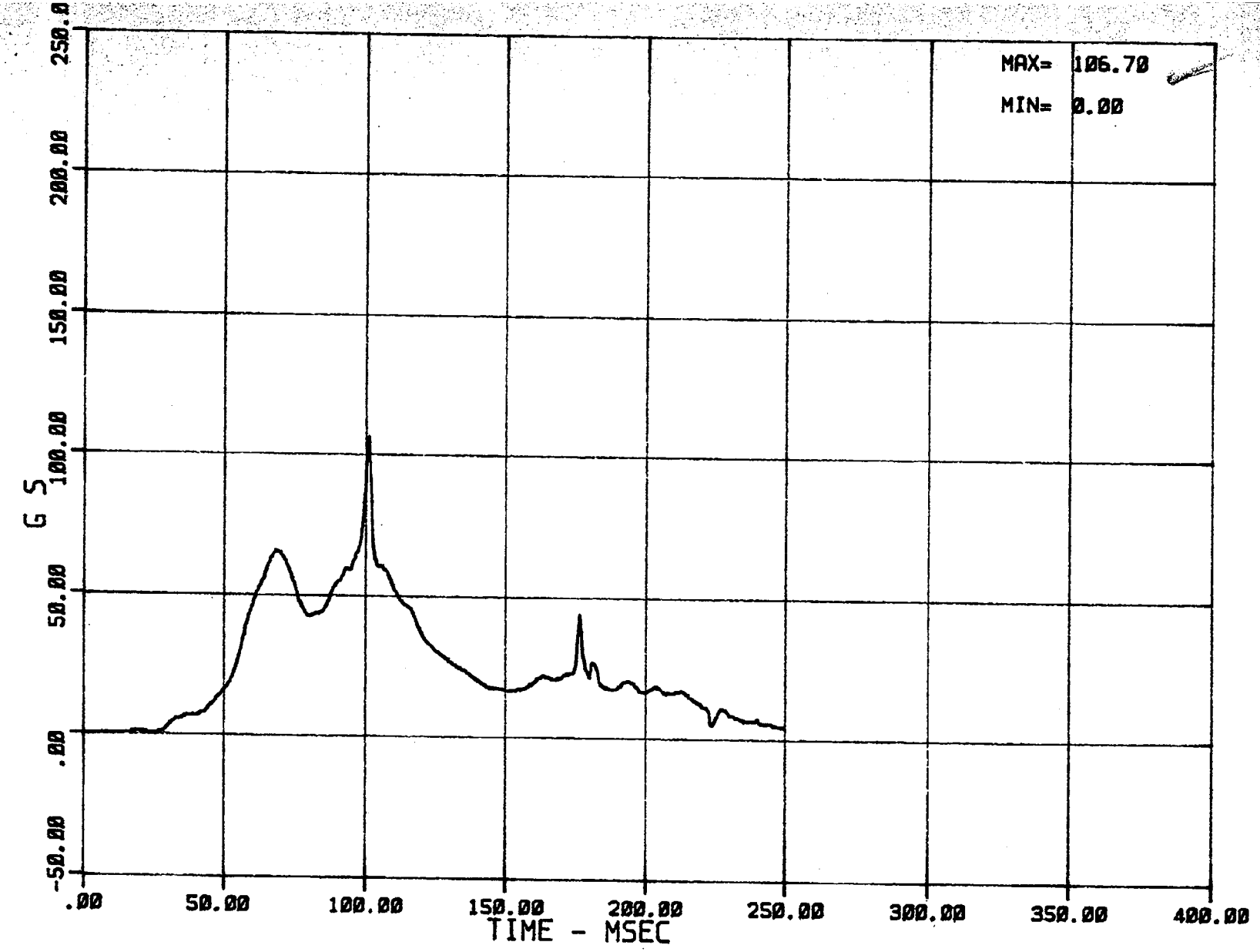


Ø8 AC Ø1 2 HED Y (PASSENGER HEAD ACCEL. -- Y AXIS)
MSE N02044 1984 FORD F-150 PICK UP

Ø3/Ø6/84

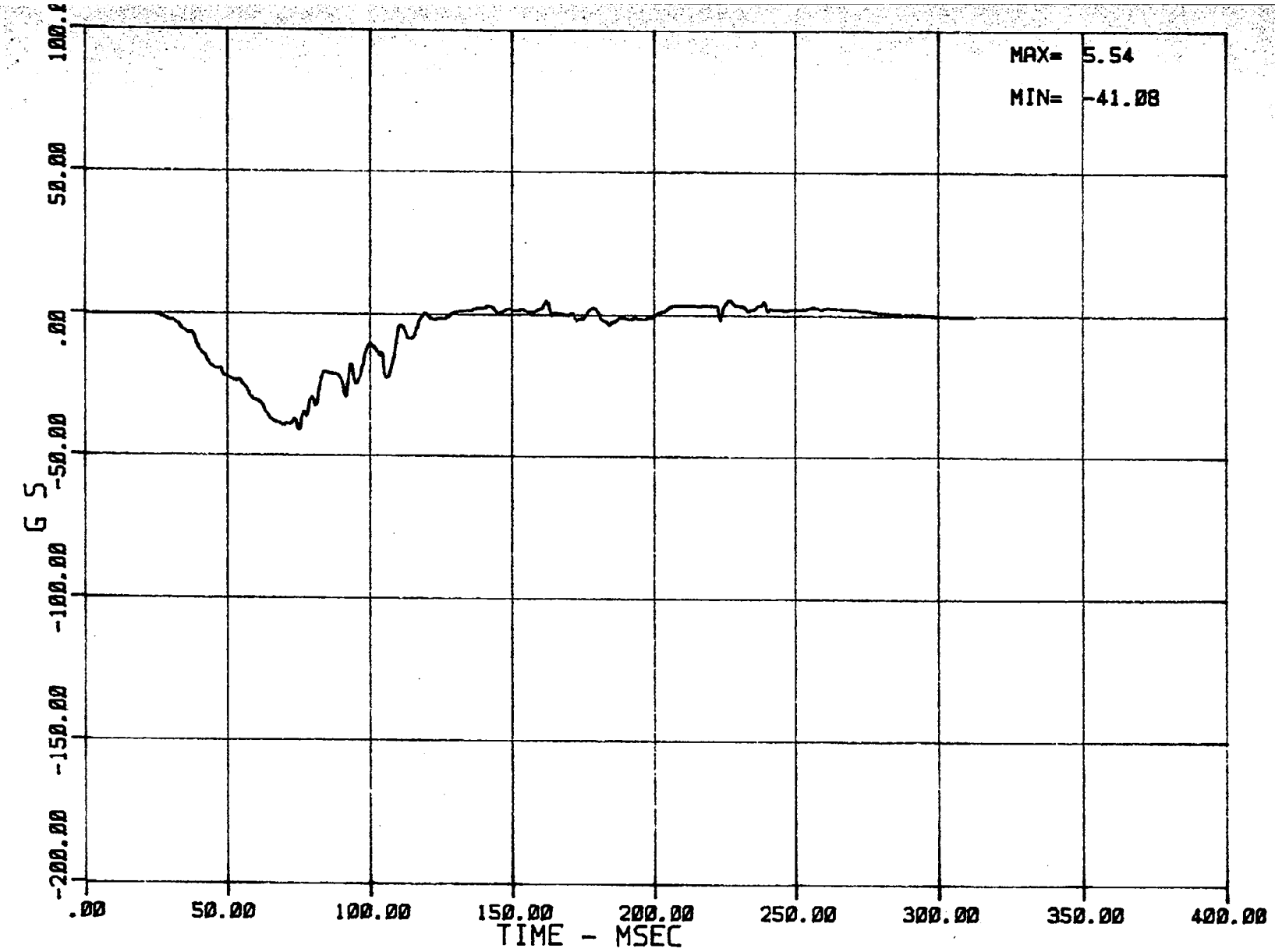


09 AC 01 2 HED Z (PASSENGER HEAD ACCEL. -- Z AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



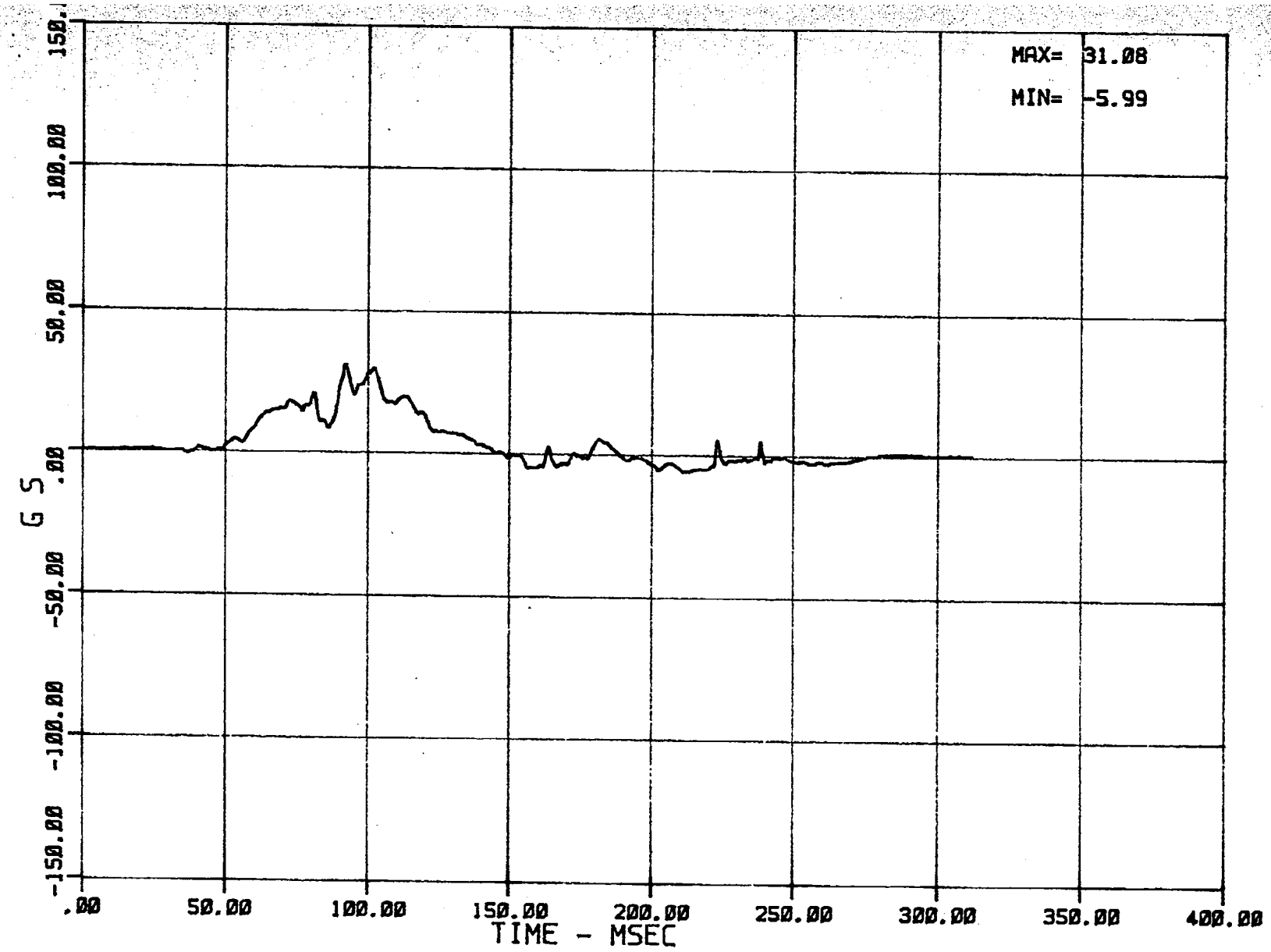
PASSENGER HEAD RESULTANT ACCELERATION
MSE N02044 1984 FORD F-150 PICK UP

03/06/84

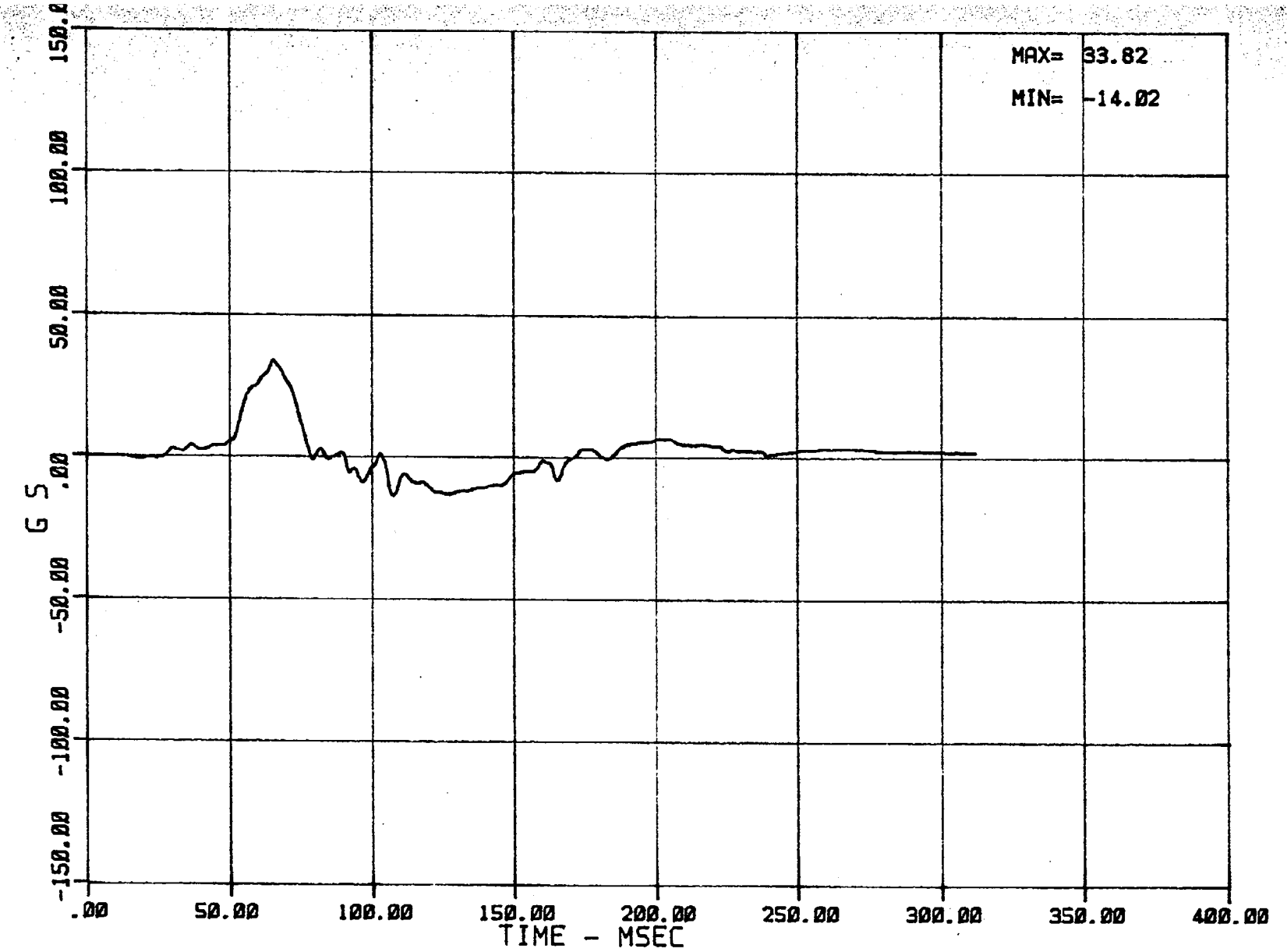


10 AC 01 2 CST X (PASSENGER CHEST ACCEL. -- X AXIS)

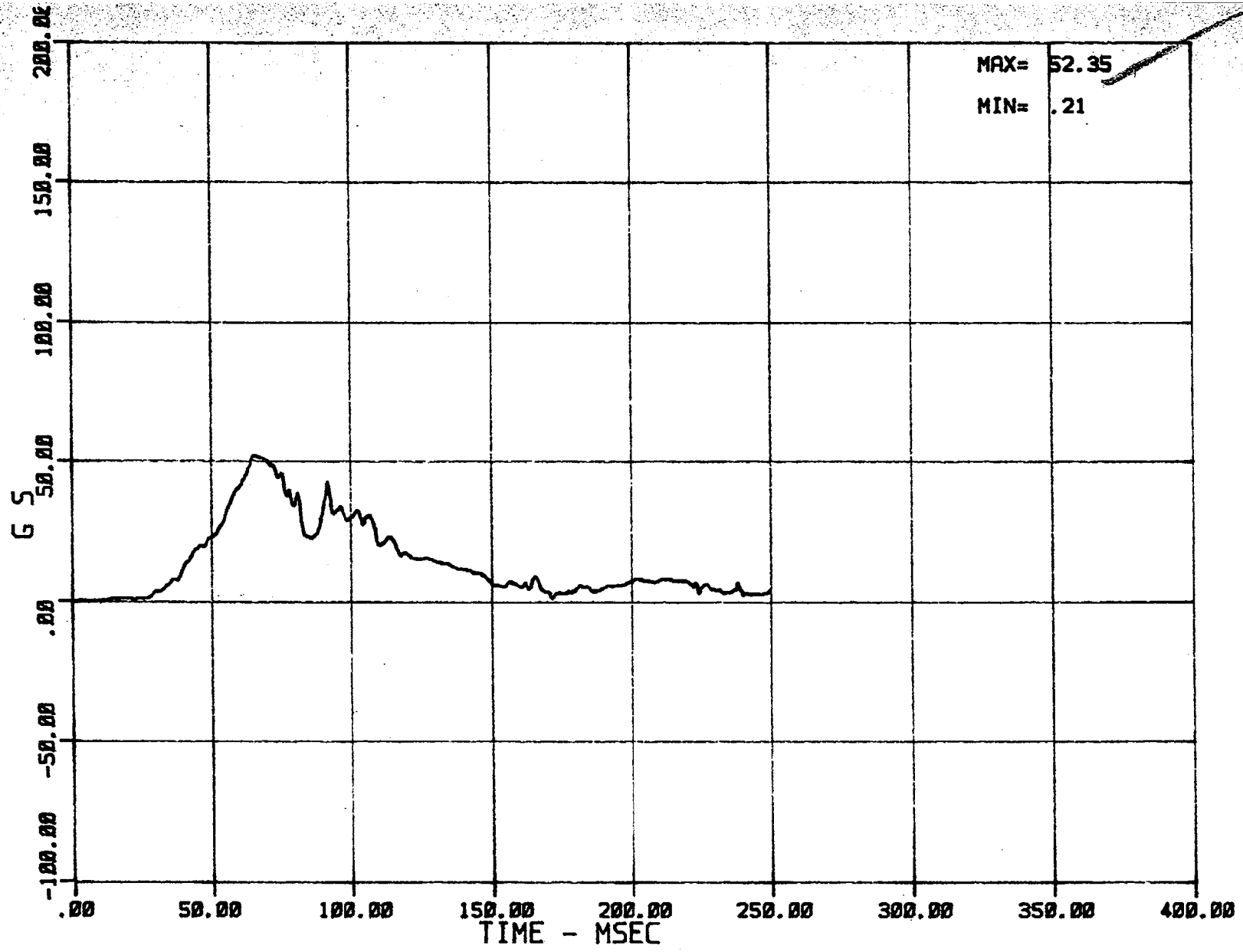
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



11 AC 01 2 CST Y (PASSENGER CHEST ACCEL. -- Y AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84

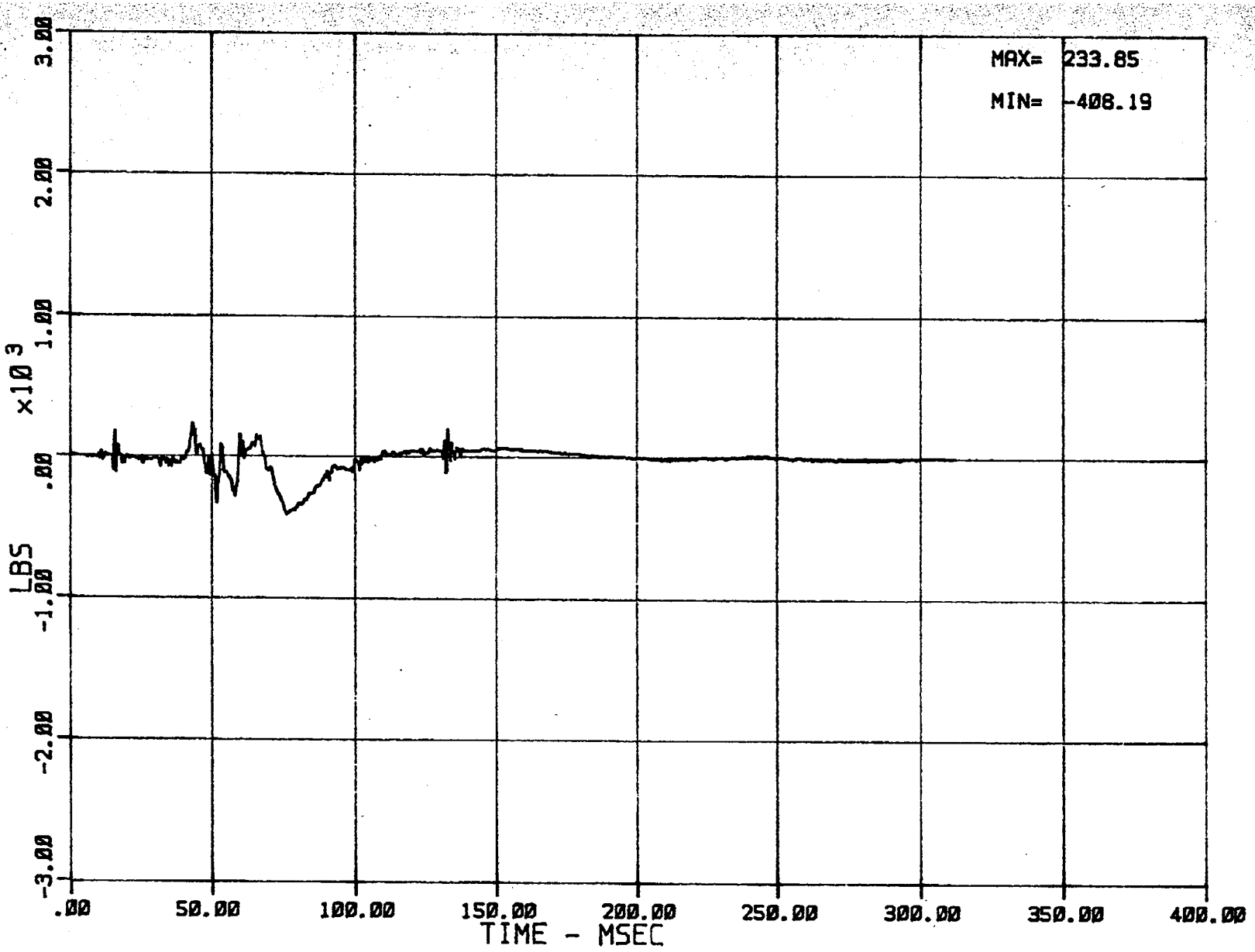


12 AC 01 2 CST Z (PASSENGER CHEST ACCEL. -- Z AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84

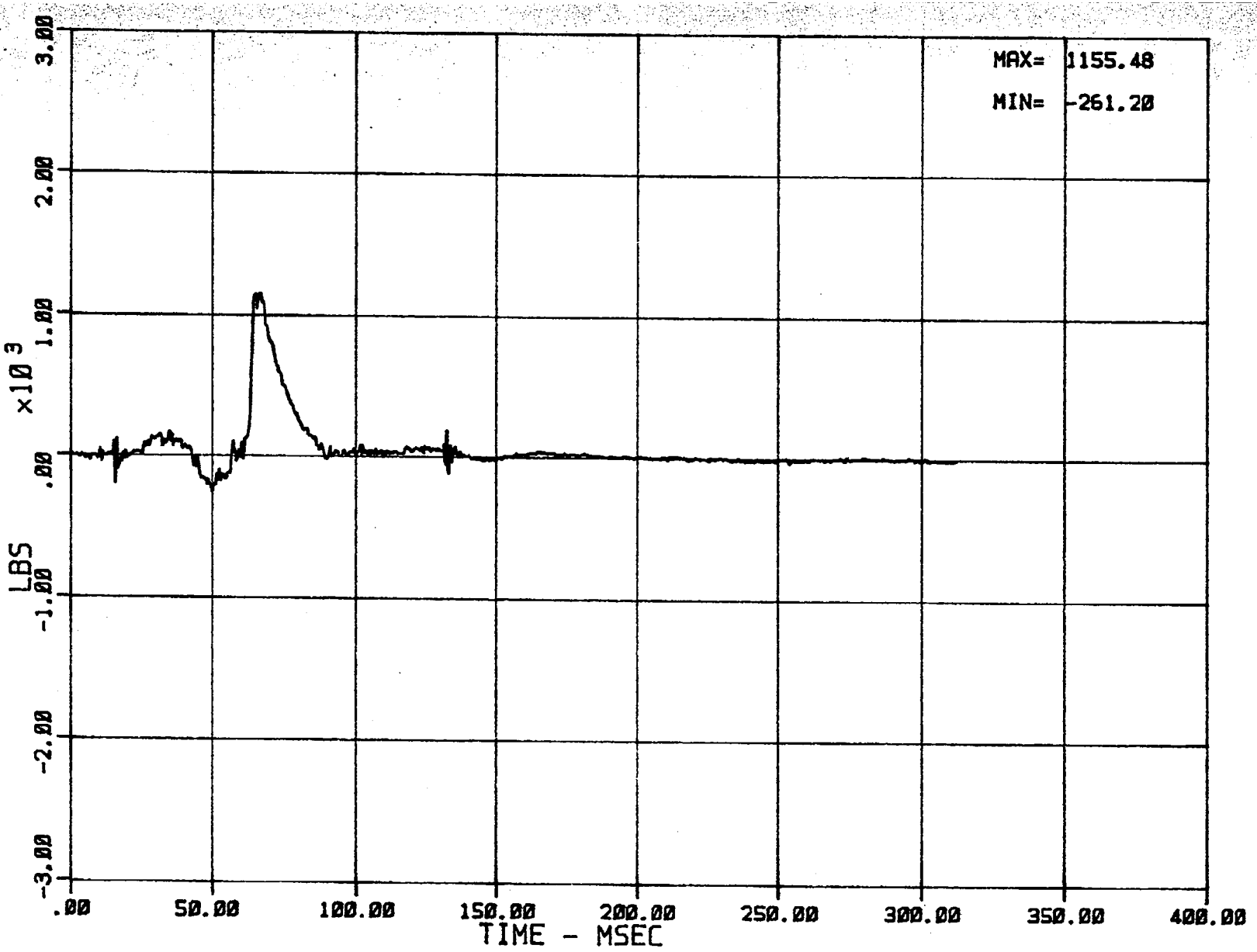


PASSENGER CHEST RESULTANT ACCELERATION

MSE N02044 1984 FORD F-150 PICK UP 03/06/84

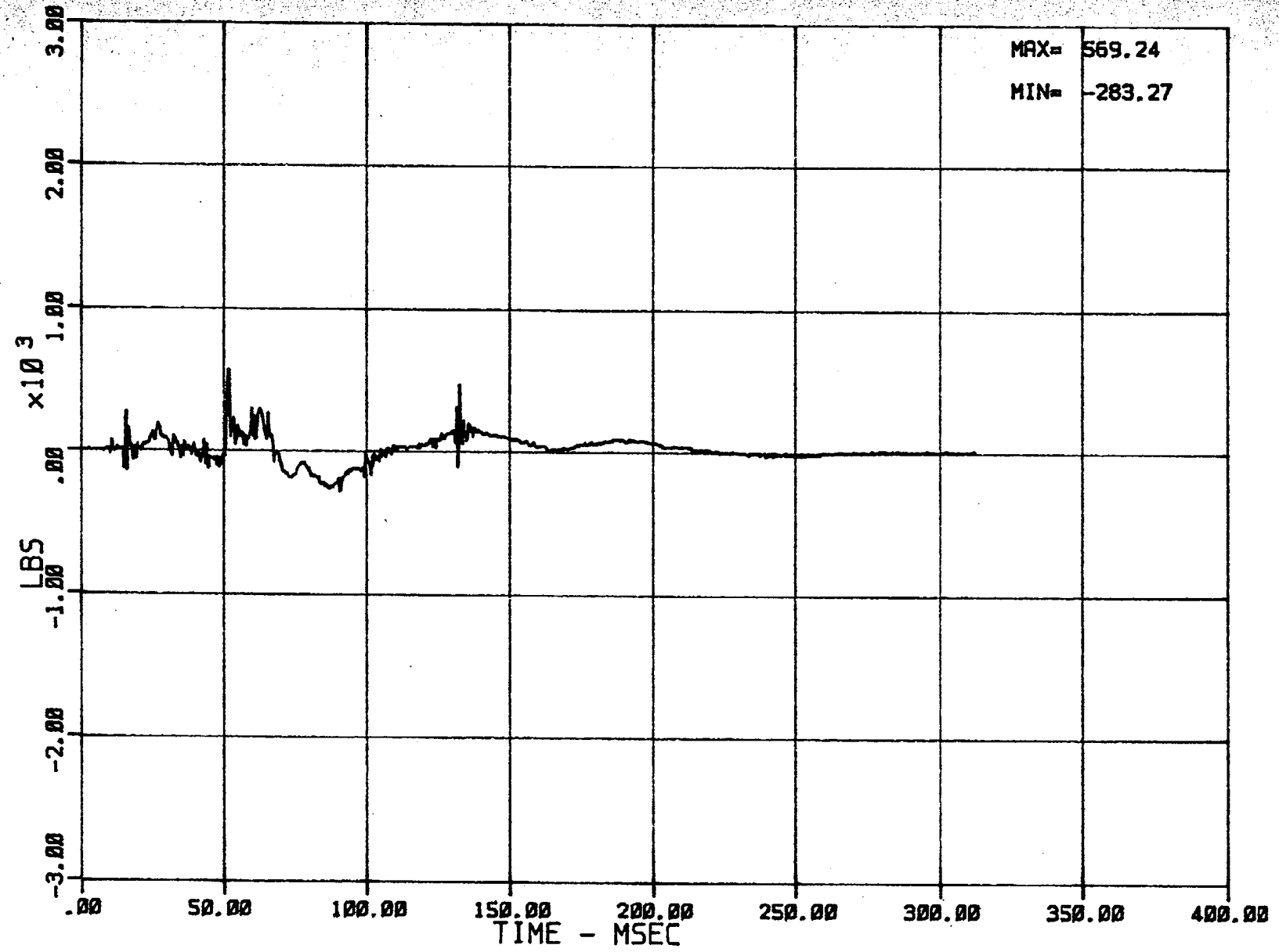


13 LC 01 1 LFM (DRIVER LEFT FEMUR FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84

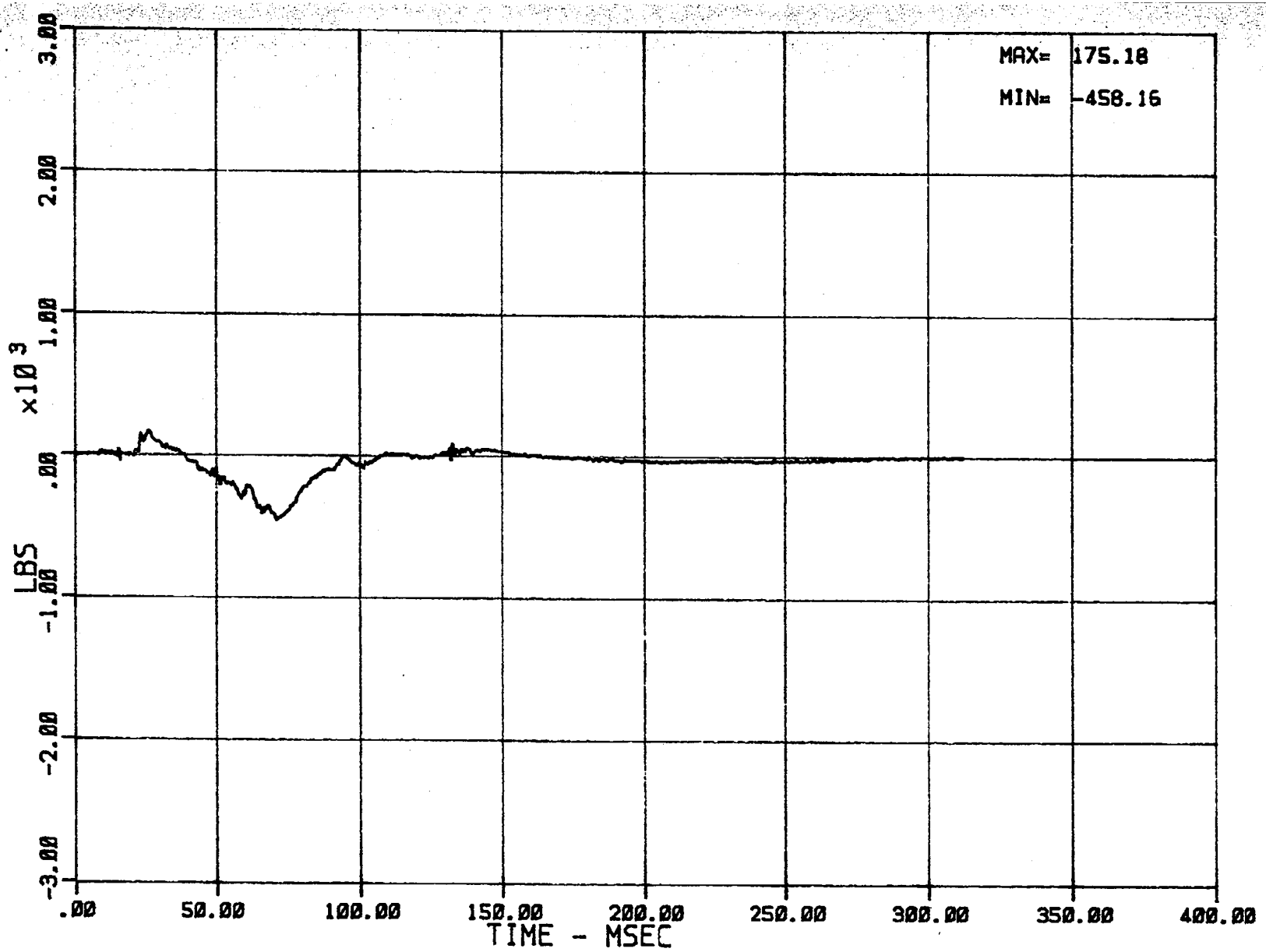


14 LC 01 1 RFM (DRIVER RIGHT FEMUR FORCE)
MSE N02044 1984 FORD F-150 PICK UP

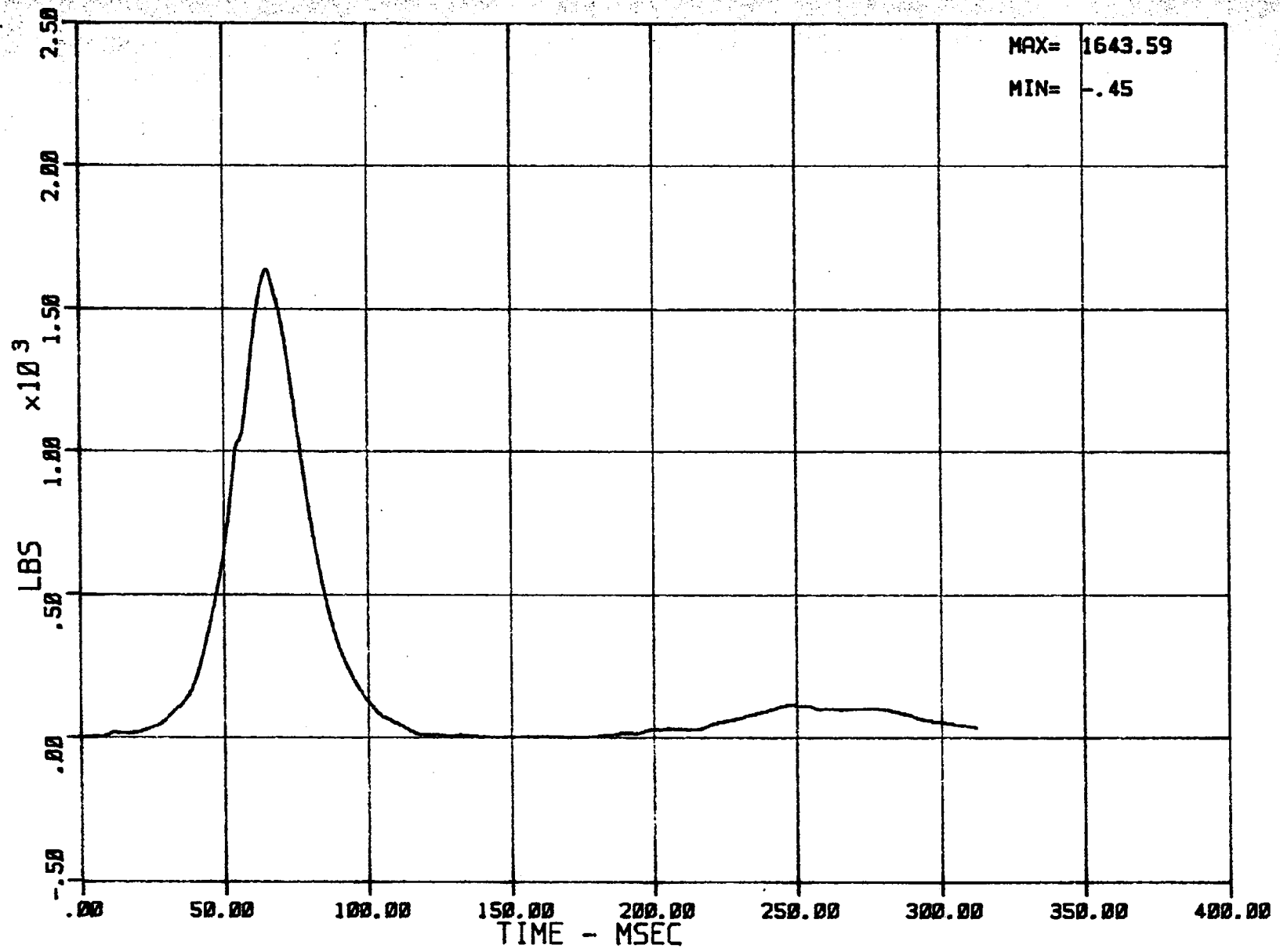
03/06/84



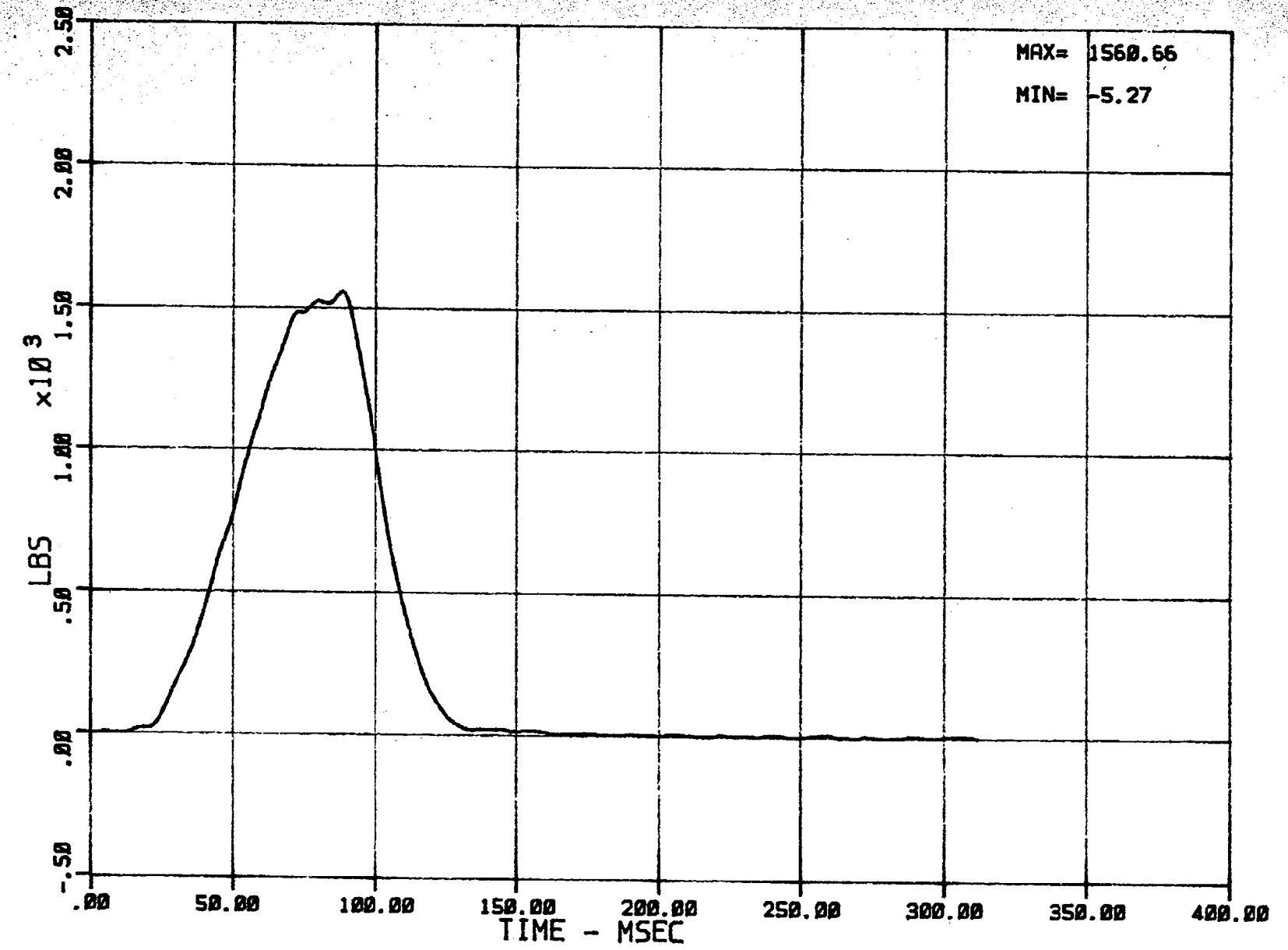
15 LC 01 2 LFM (PASSENGER LEFT FEMUR FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



16 LC 01 2 RFM (PASSENGER RIGHT FEMUR FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84

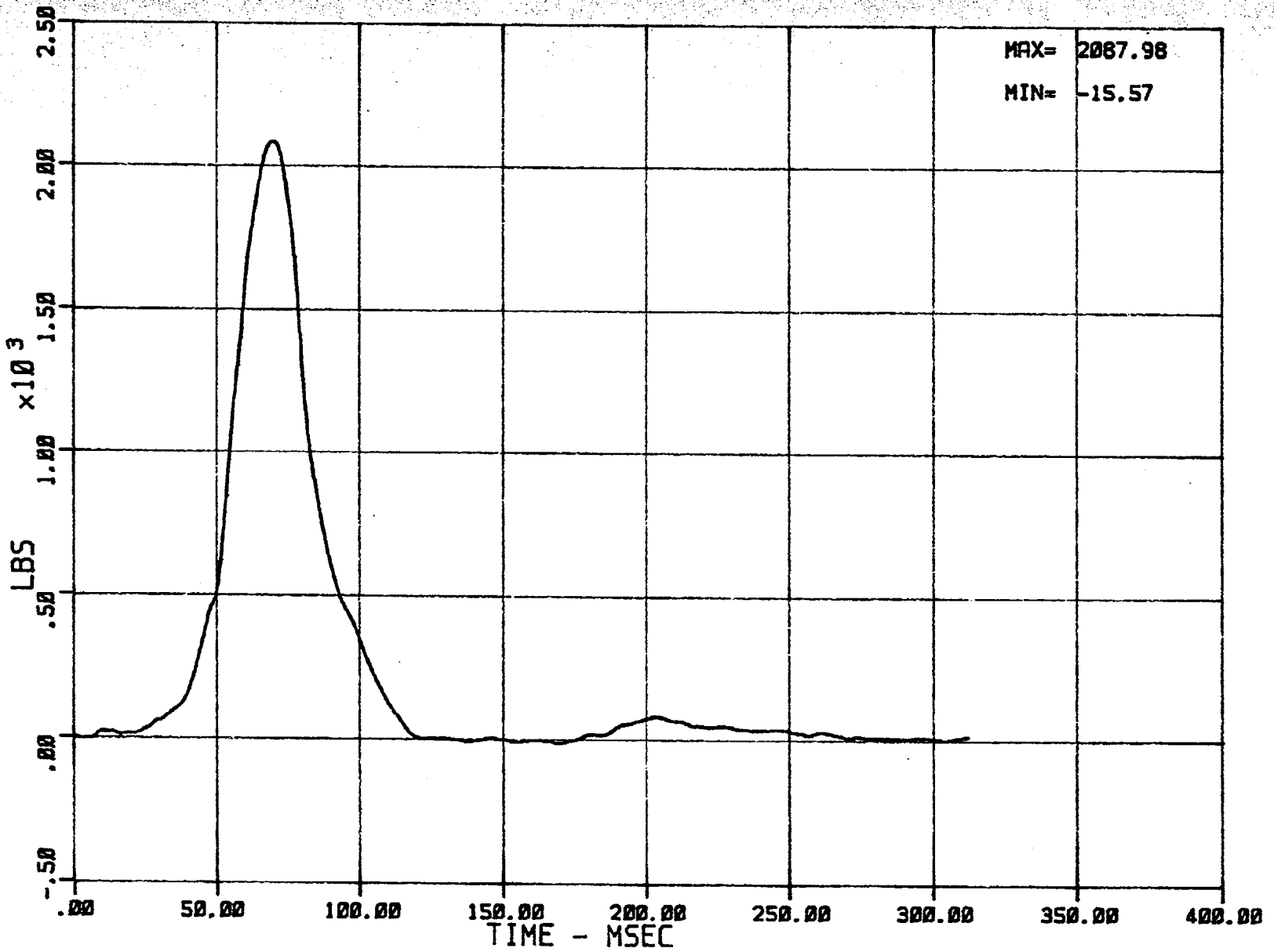


17 LC 01 1 LBO (DRIVER LAP BELT FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84

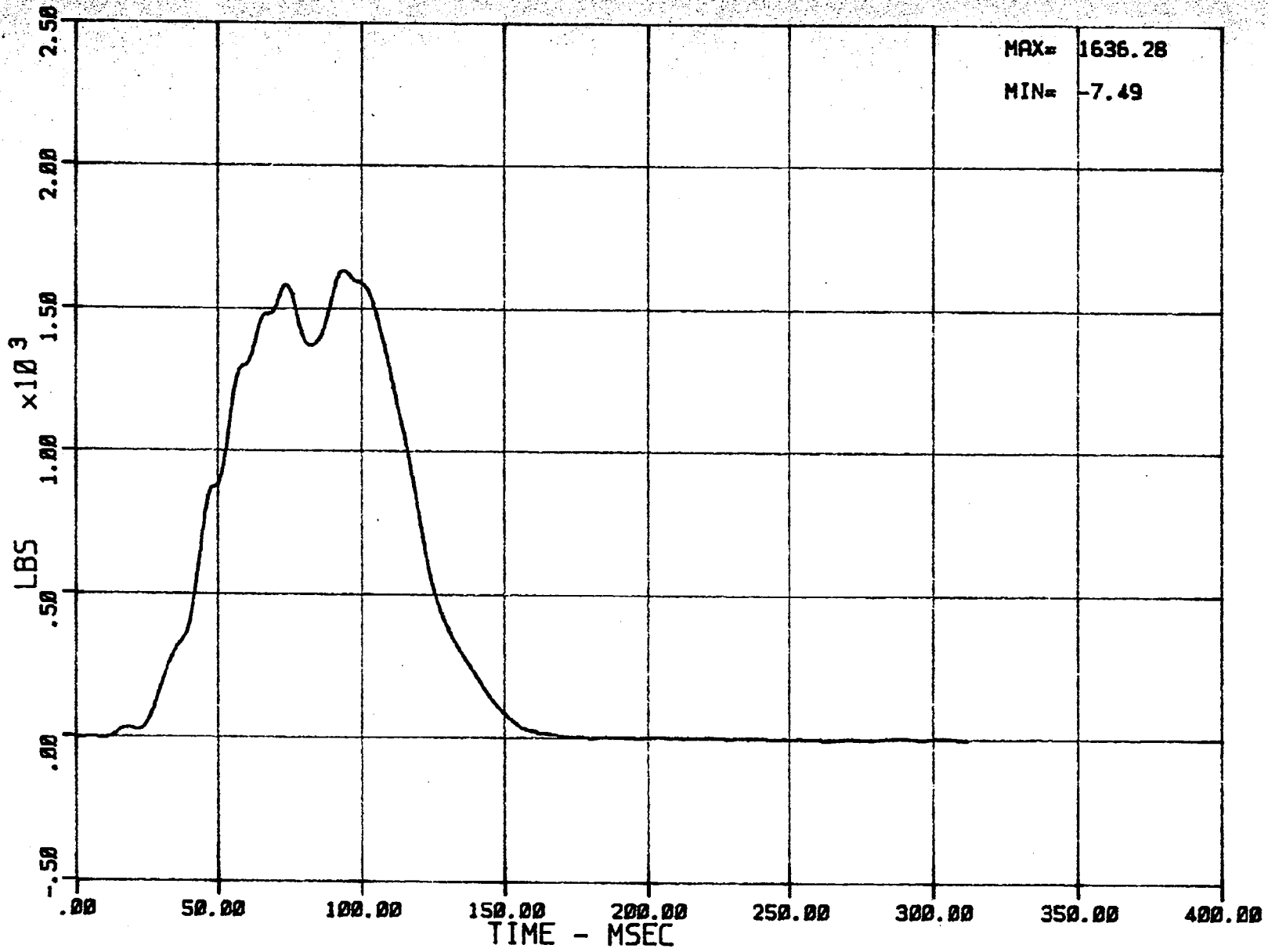


18 LC 01 1 SHB (DRIVER SHOULDER BELT FORCE)
MSE N02044 1984 FORD F-150 PICK UP

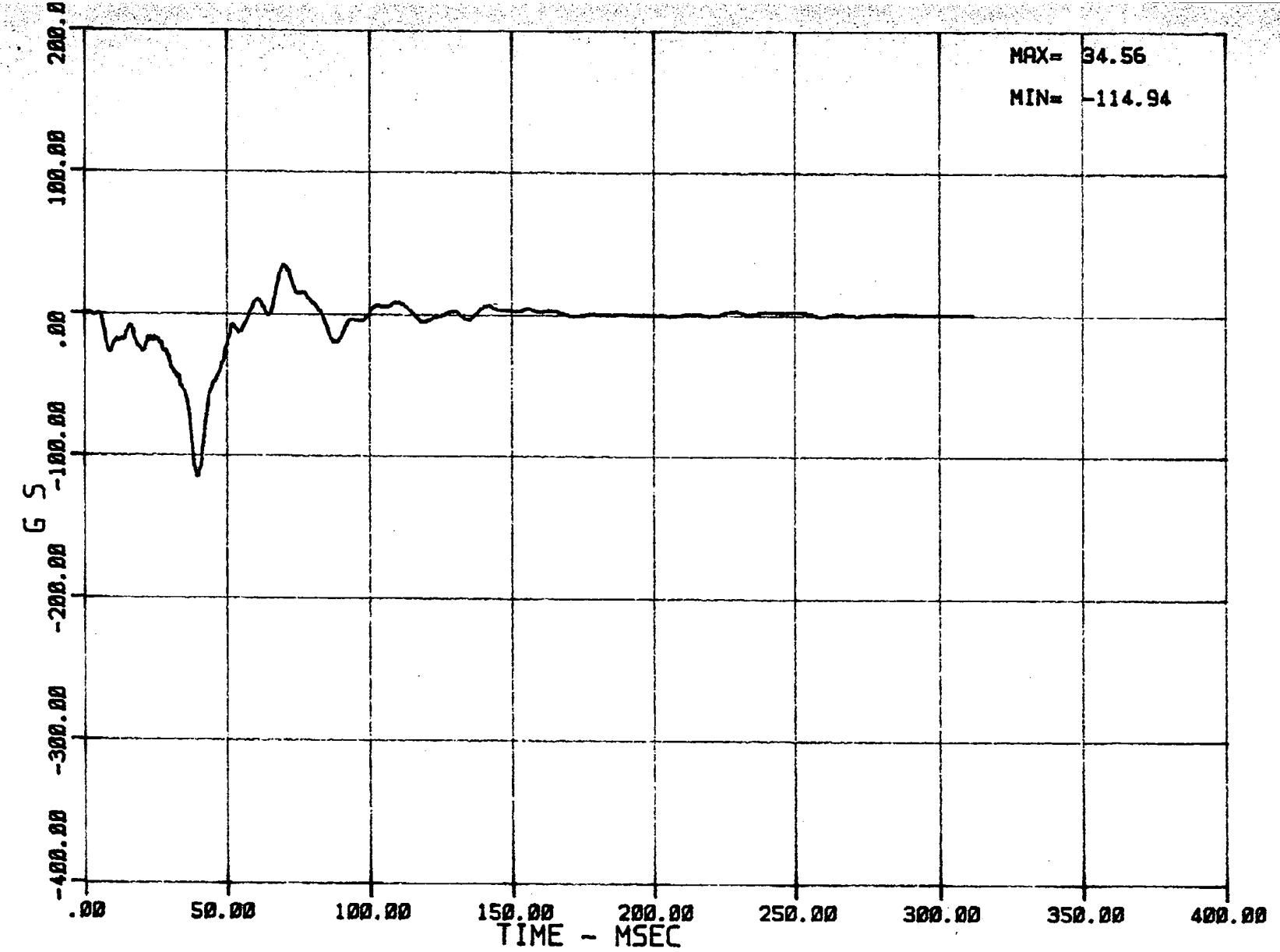
03/06/84



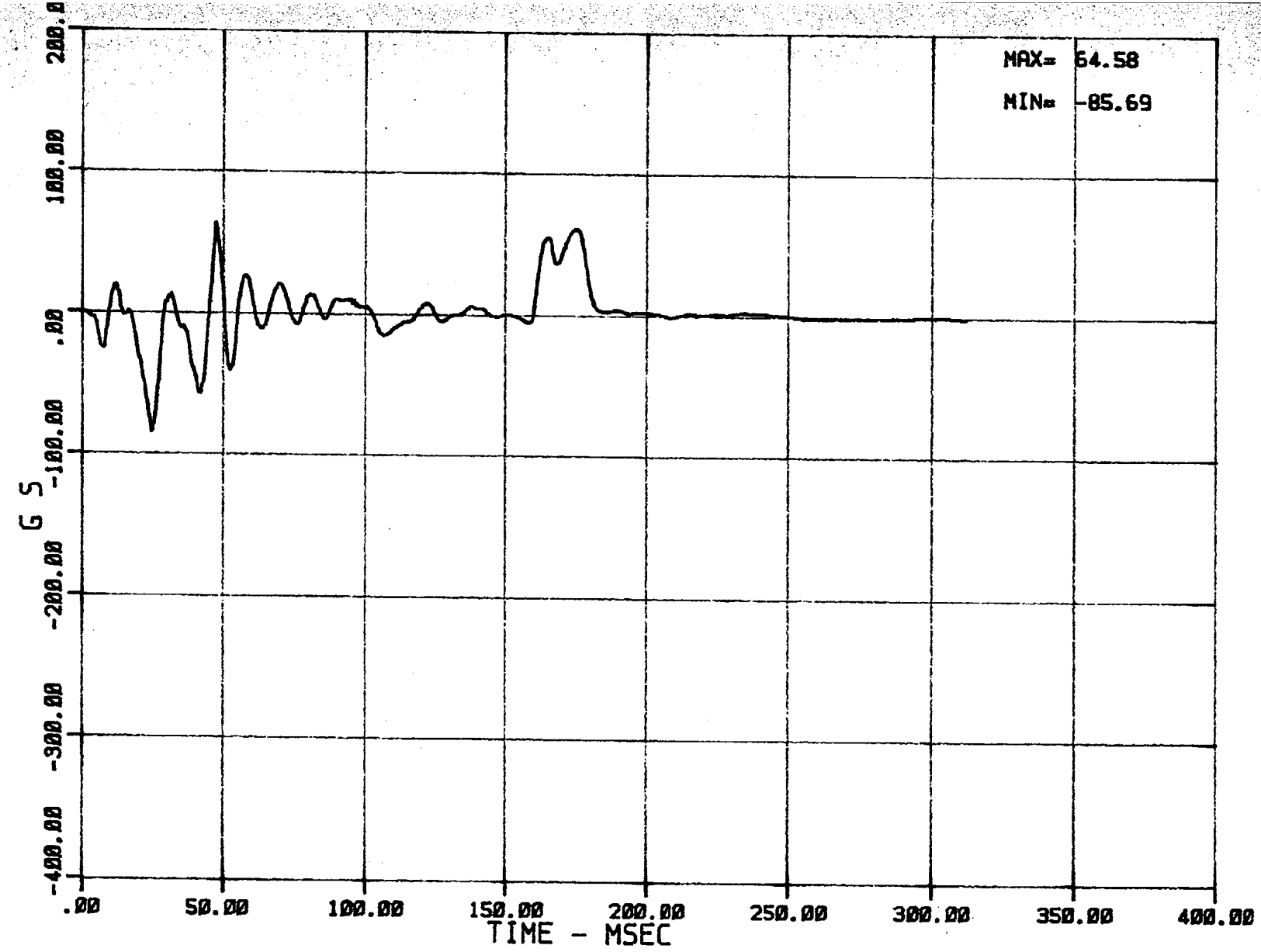
19 LC 01 2 LBO (PASSENGER LAP BELT FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



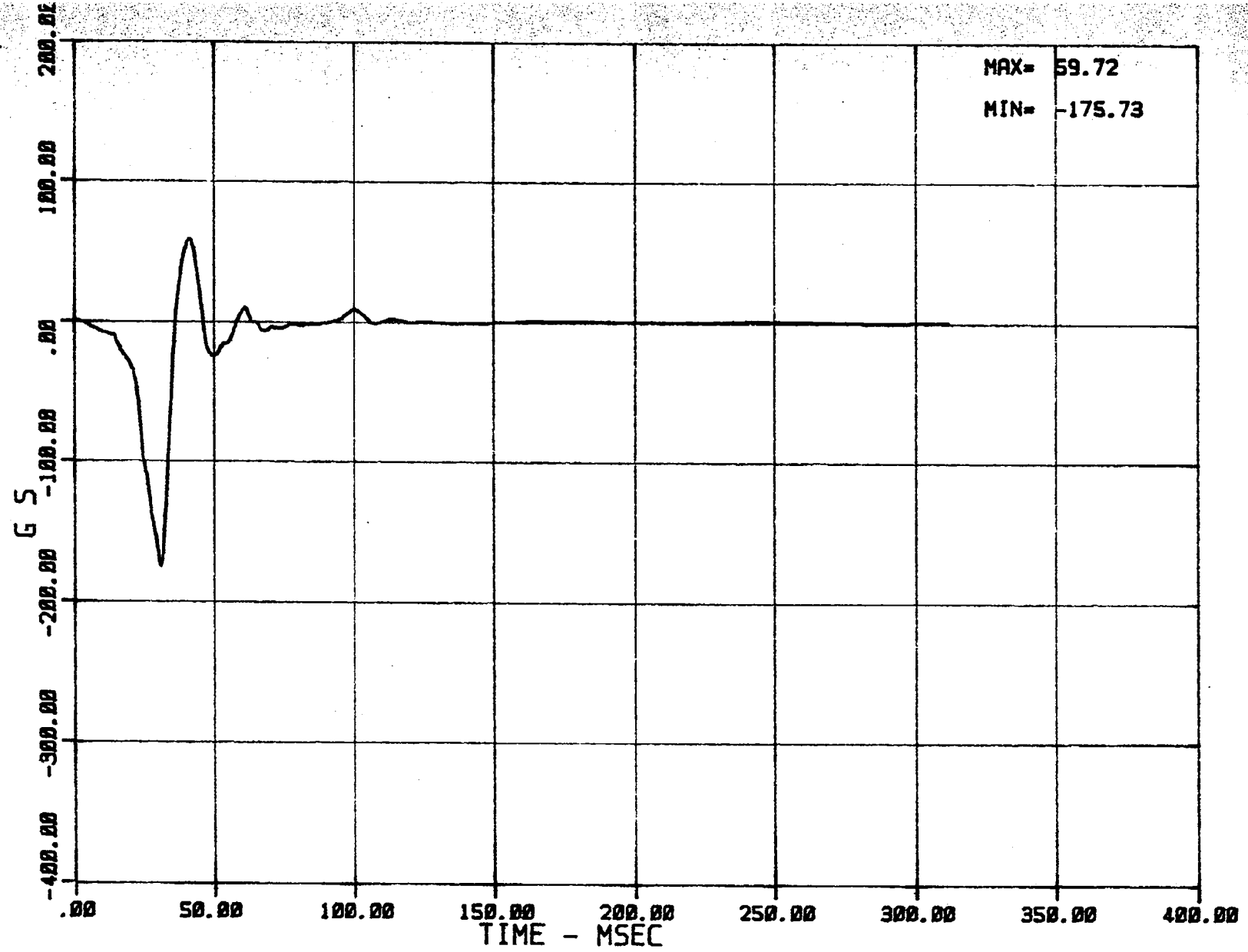
20 LC 01 2 SHB (PASSENGER SHOULDER BELT FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



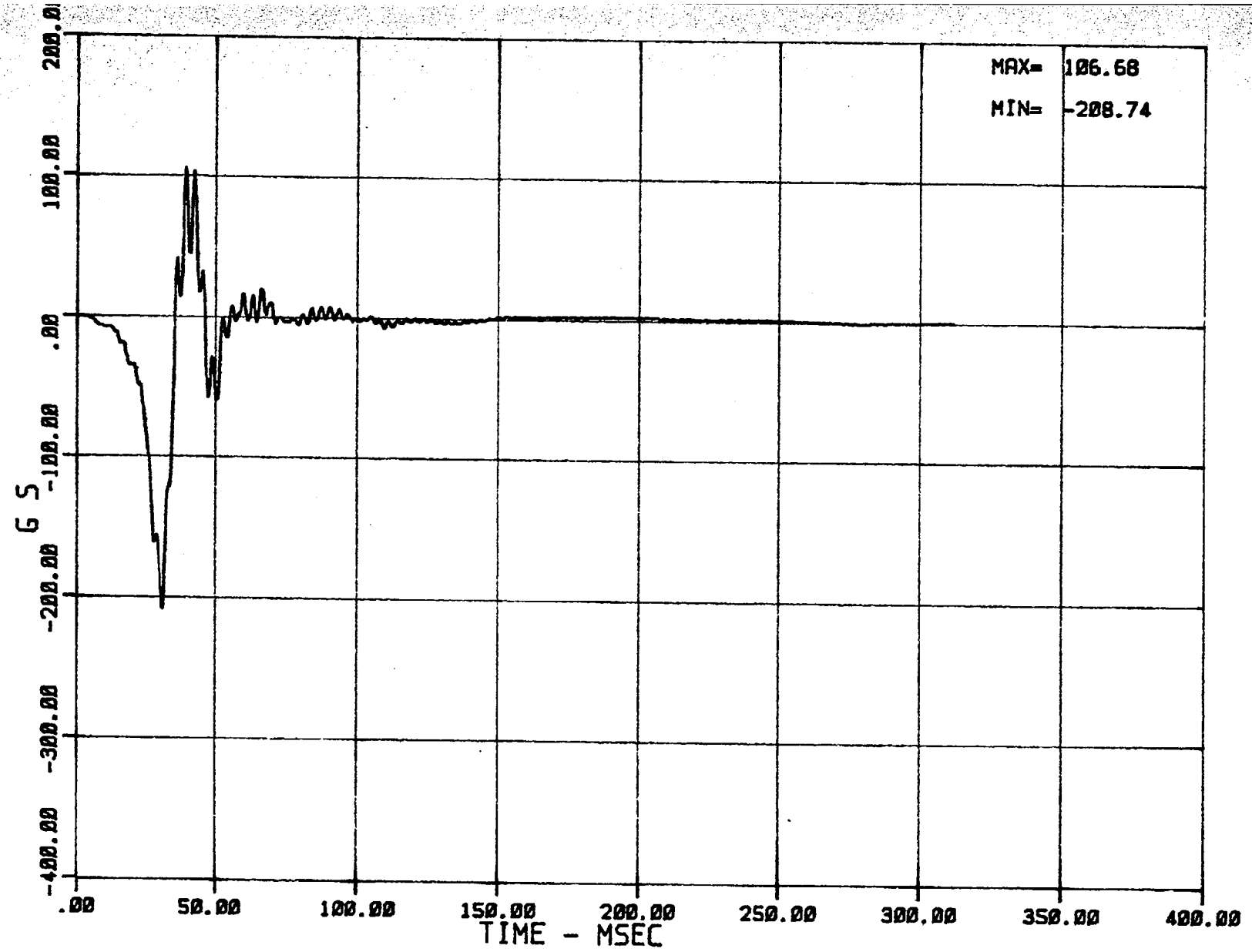
21 AC 01 N BCL X (LEFT FRONT WHEEL ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



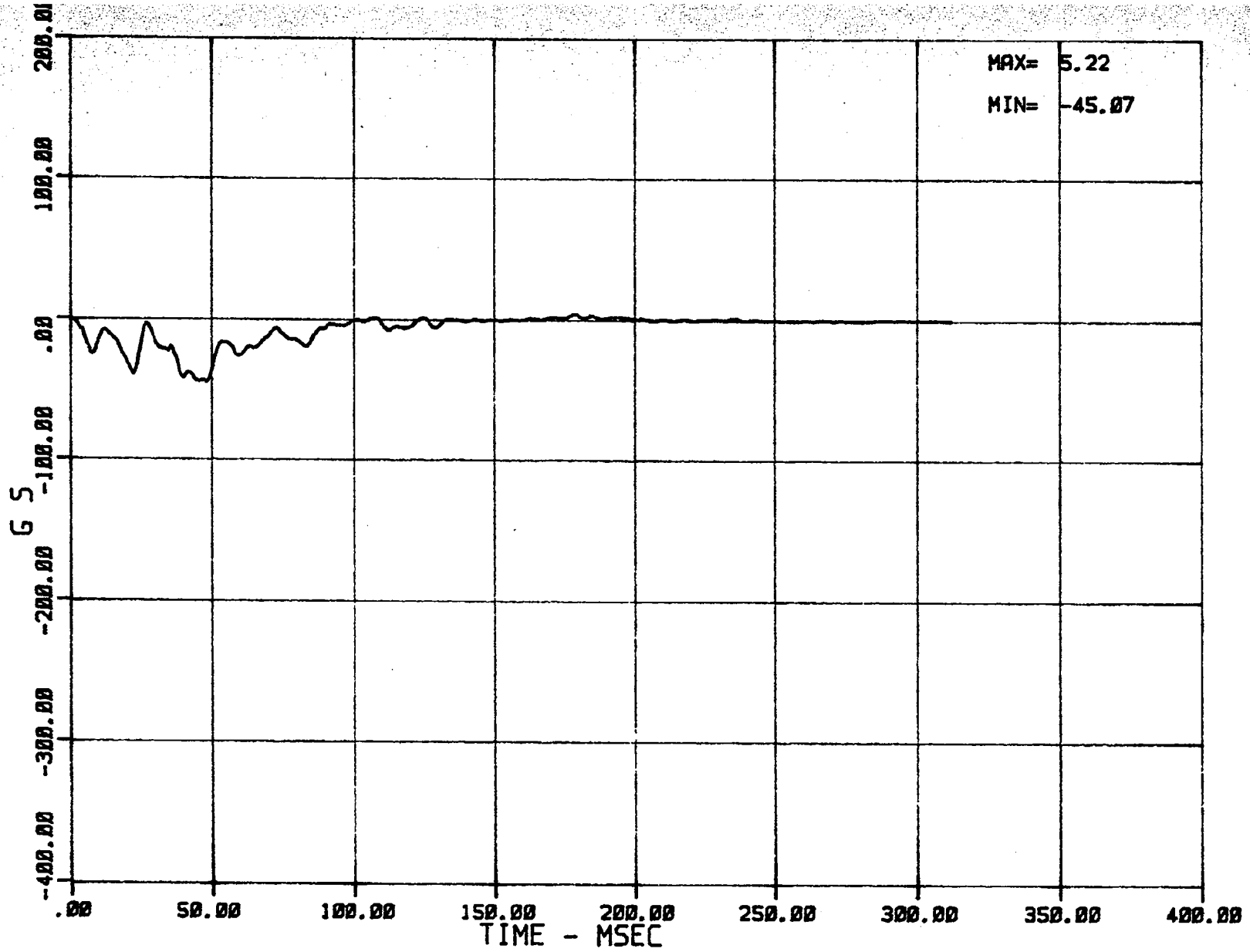
22 AC 01 N BCR X (RIGHT FRONT WHEEL ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



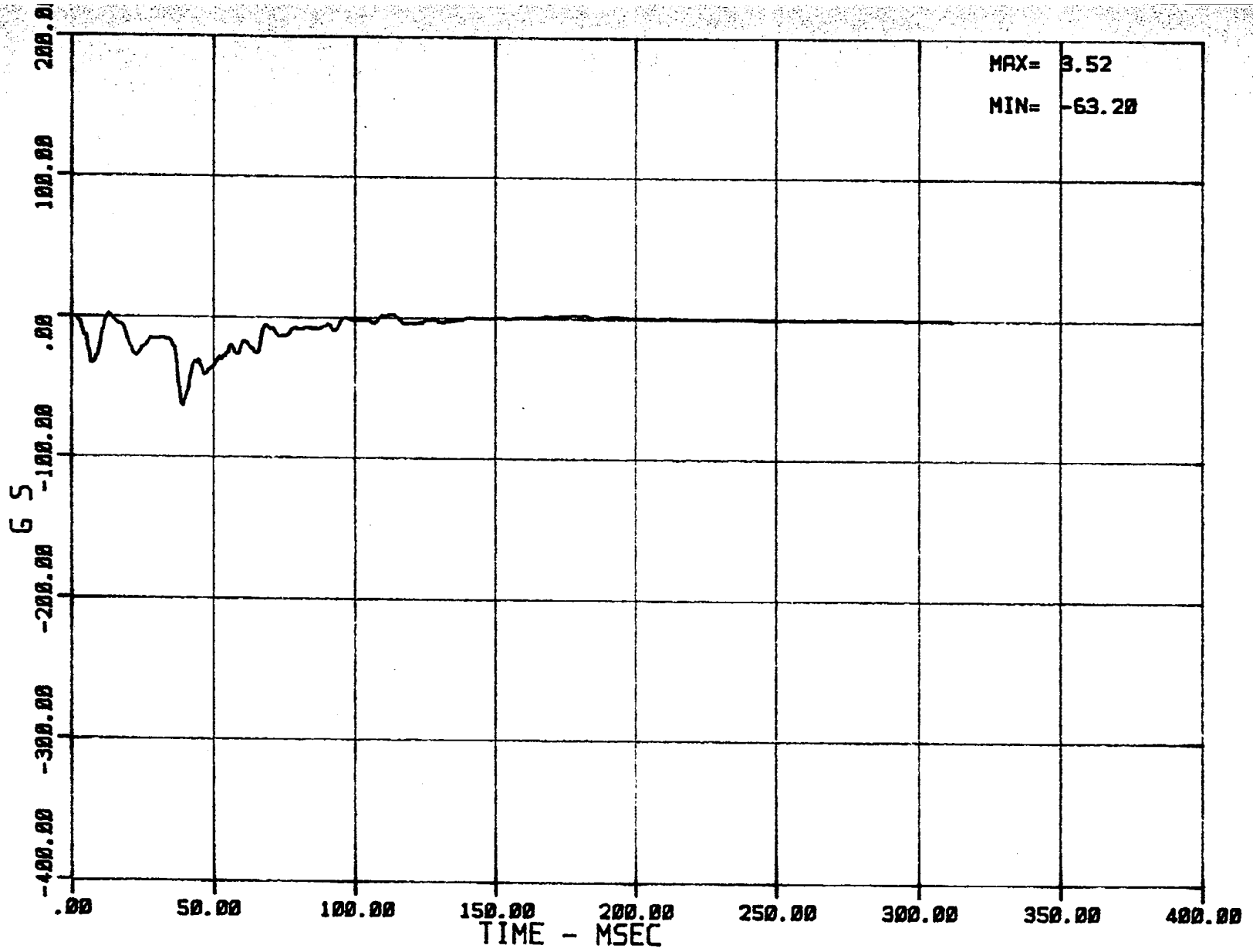
23 RC 01 N ENG X (TOP OF ENGINE ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



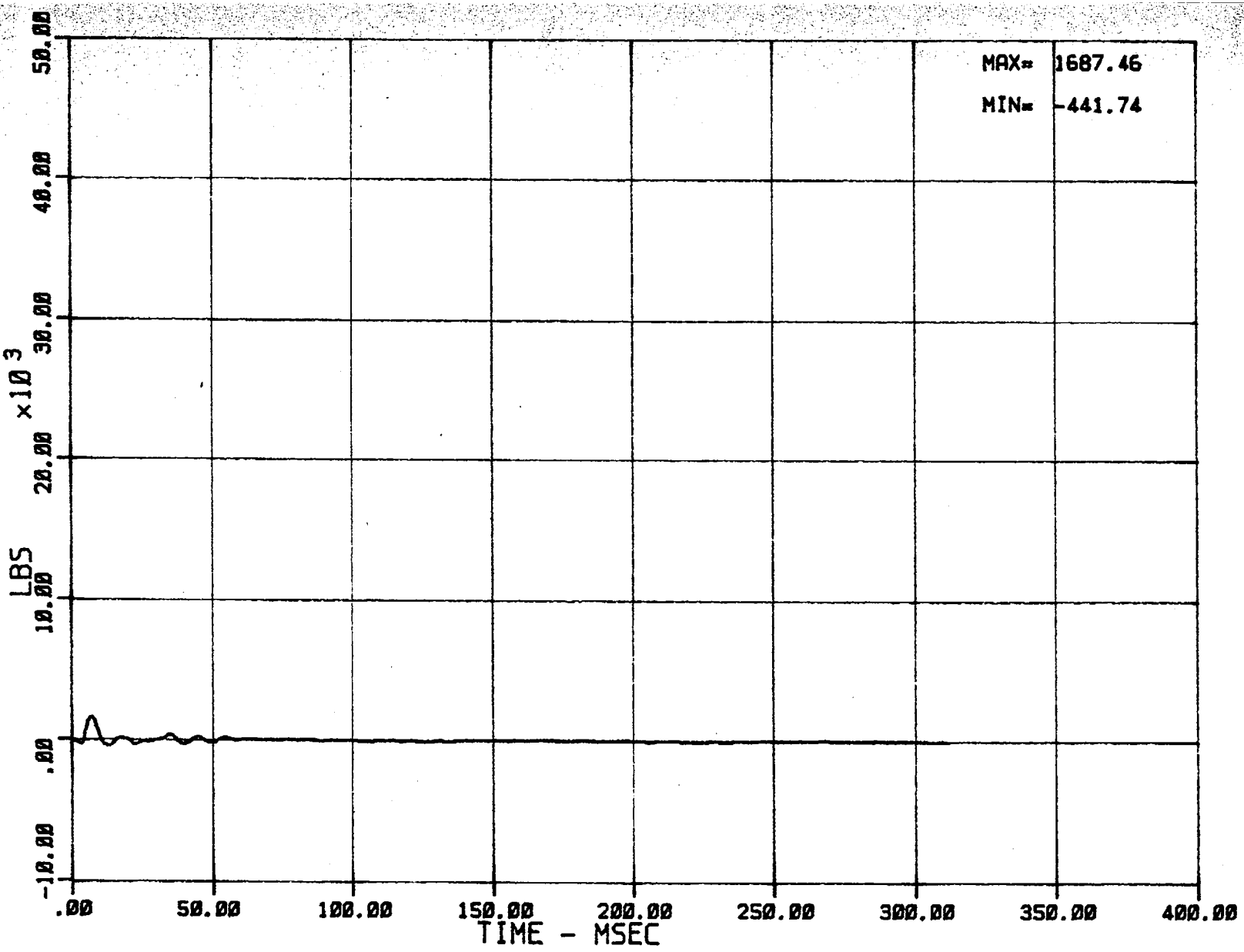
24 AC 01 N ENG X (BOTTOM OF ENGINE ACCEL. - X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



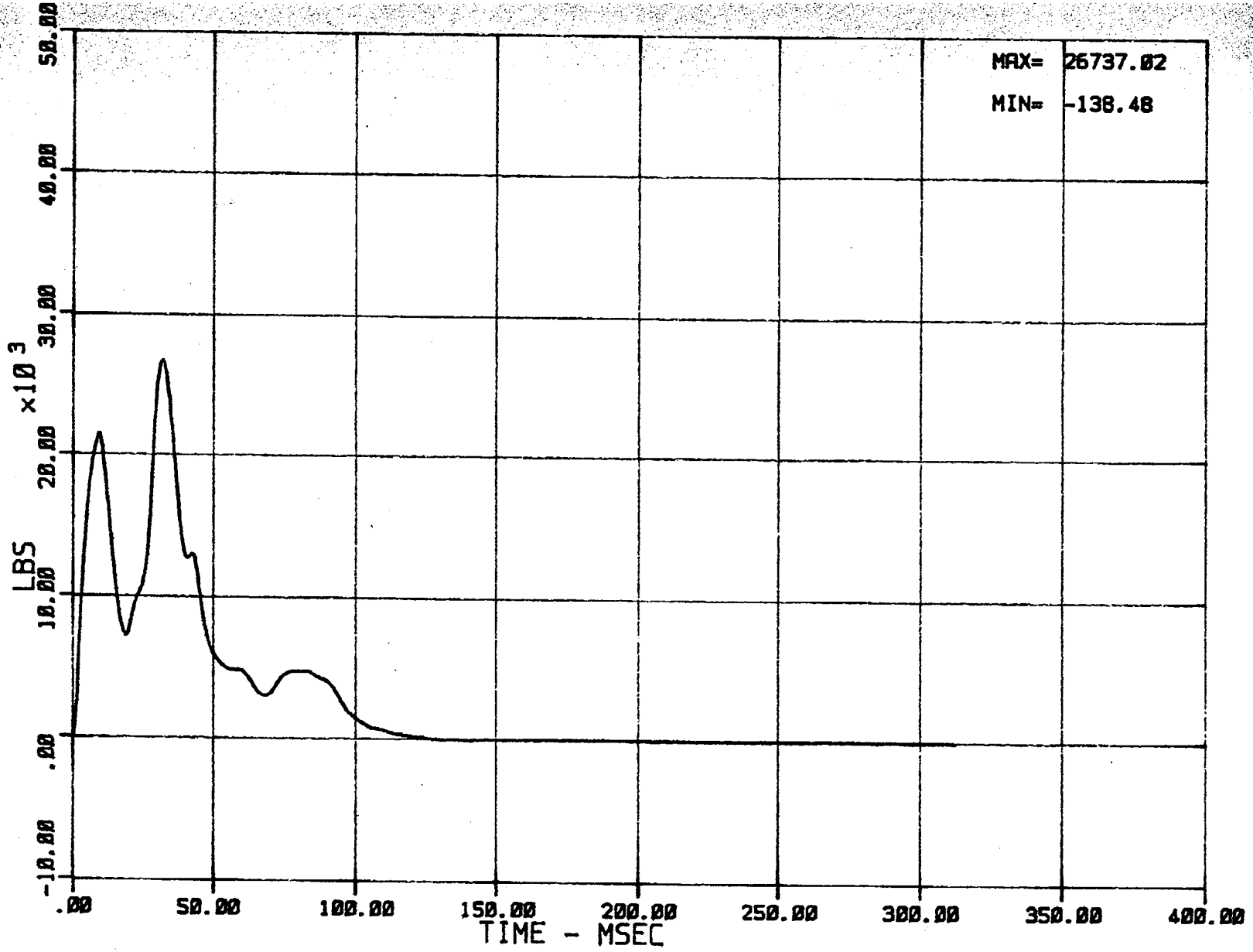
25 AC 01 N RFF X (RIGHT FRONT FLOOR ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



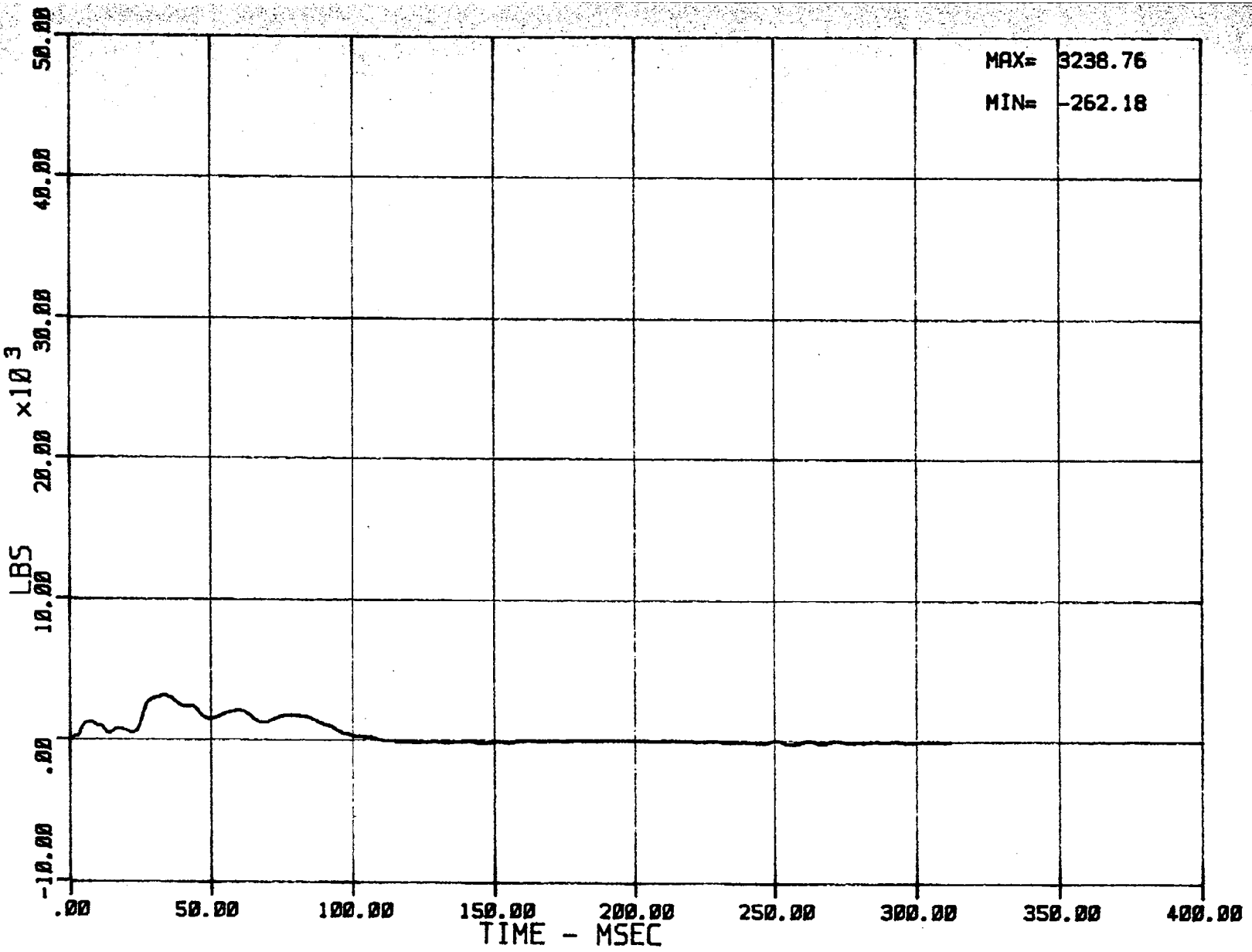
26 RC 01 N LRF X (LEFT REAR FLOOR ACCEL. -- X AXIS)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



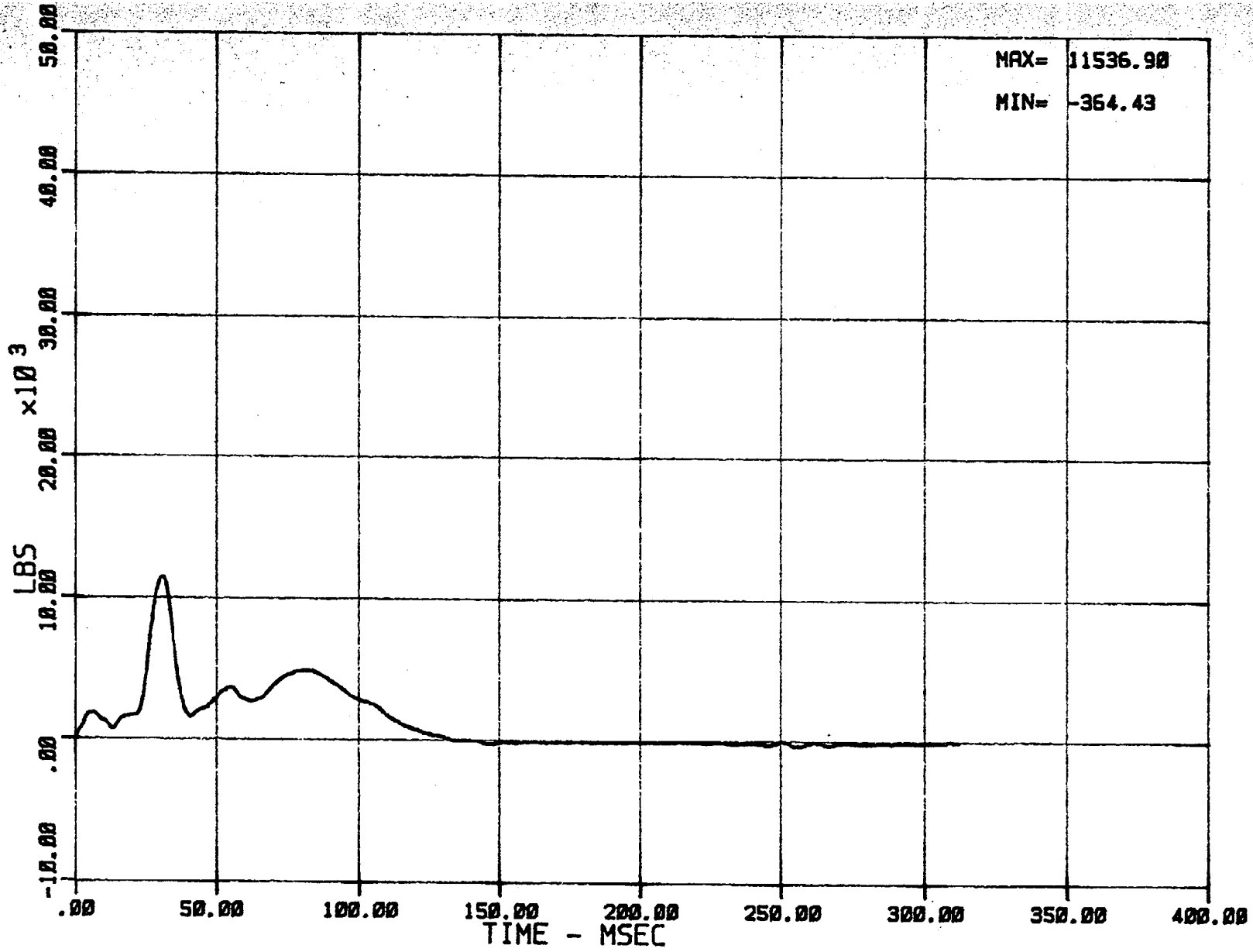
31 LC BA N BAS (BARRIER LOAD CELL AS FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



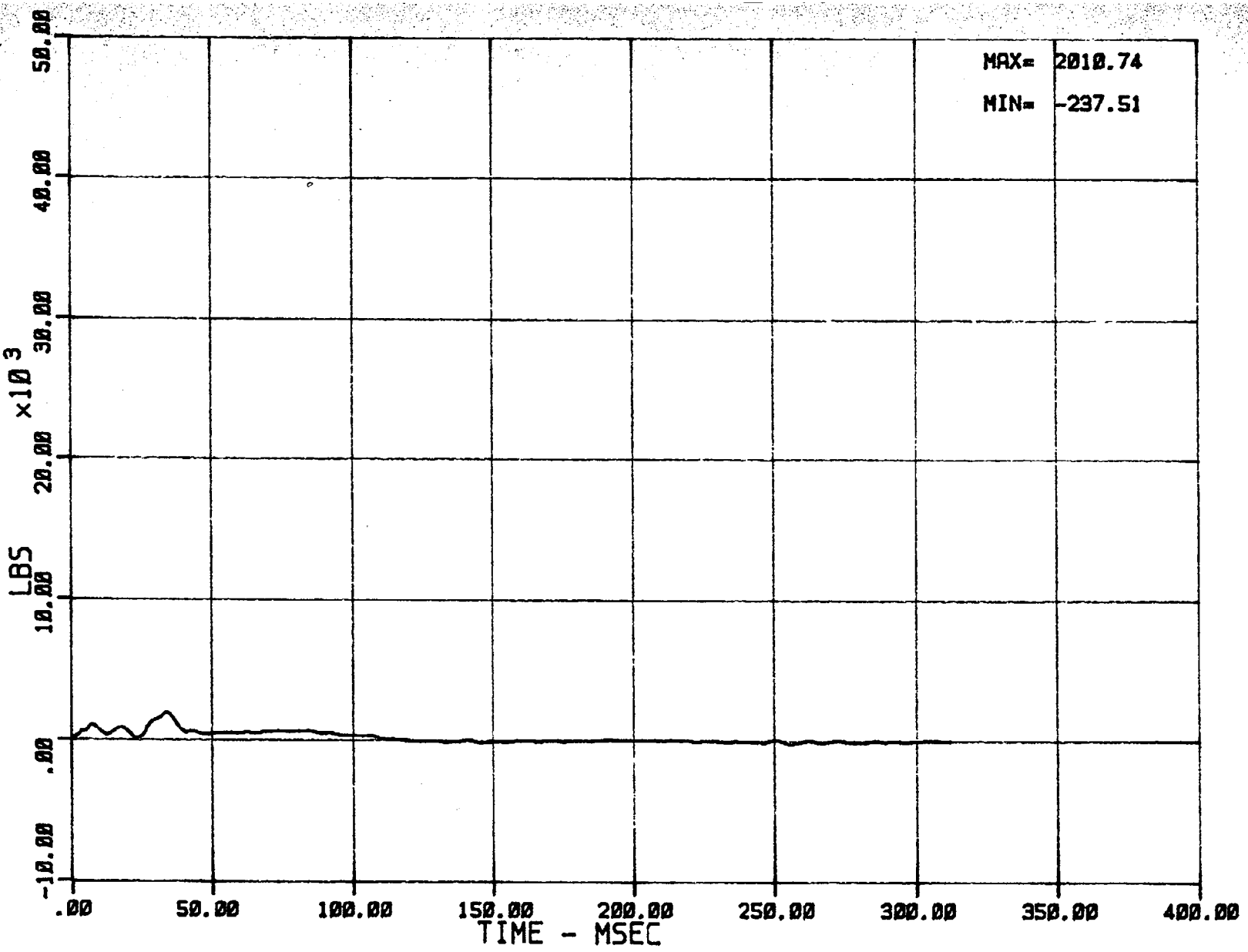
38 LC BA N BB3 (BARRIER LOAD CELL B3 FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



39 LC BA N BB4 (BARRIER LOAD CELL B4 FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84

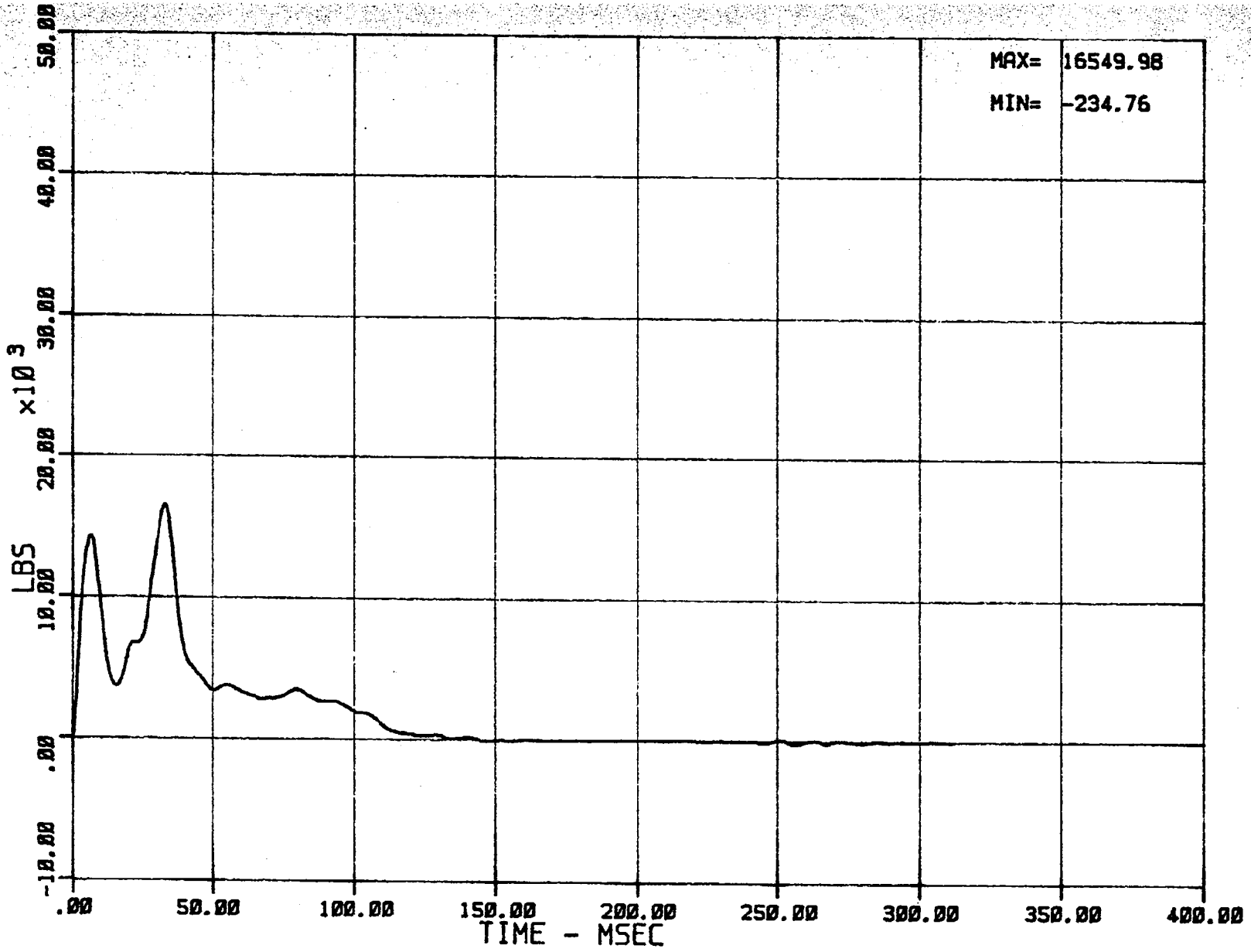


40 LC BA N BBS (BARRIER LOAD CELL BS FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



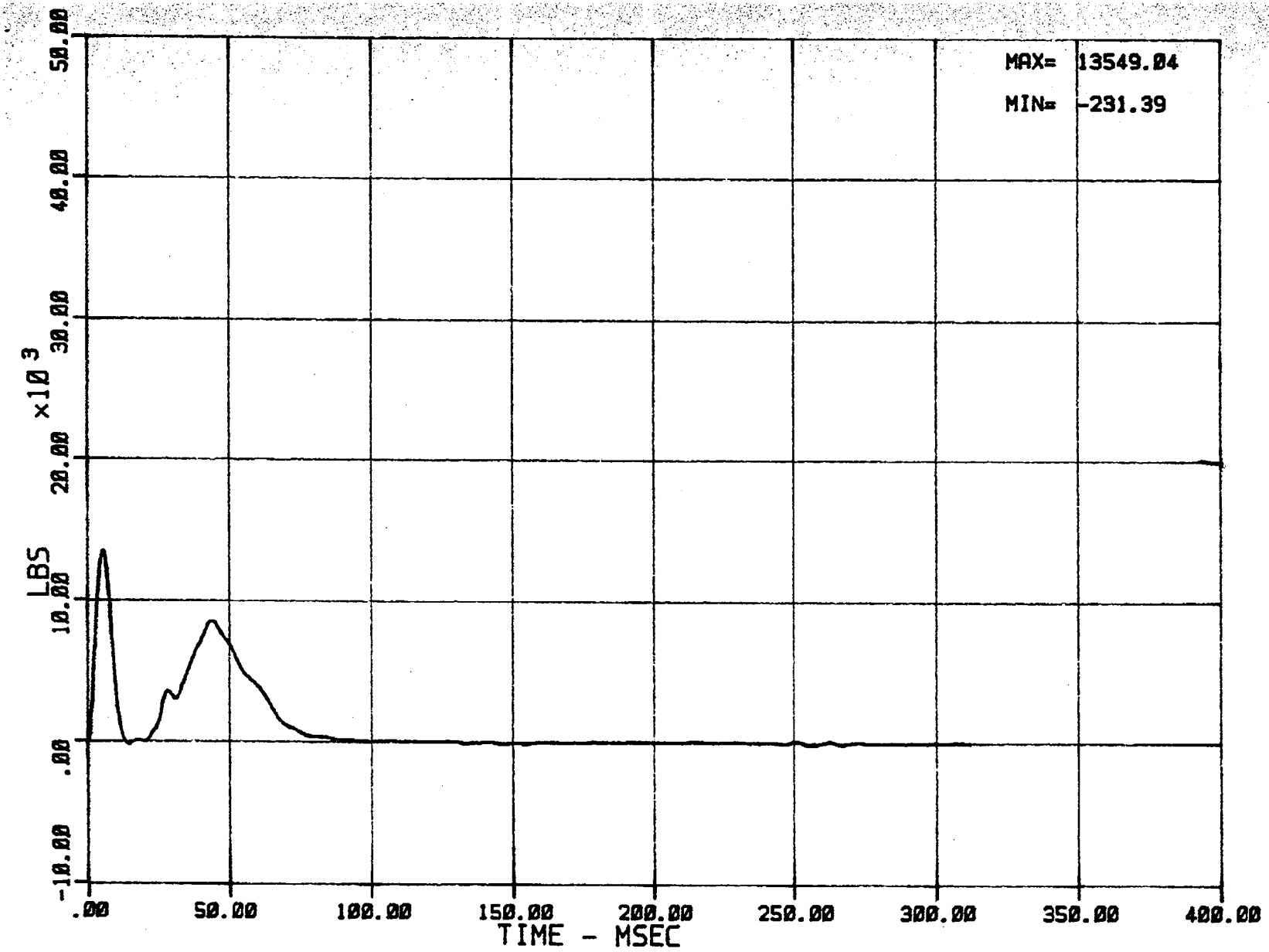
41 LC BA N BB6 (BARRIER LOAD CELL B6 FORCE)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84

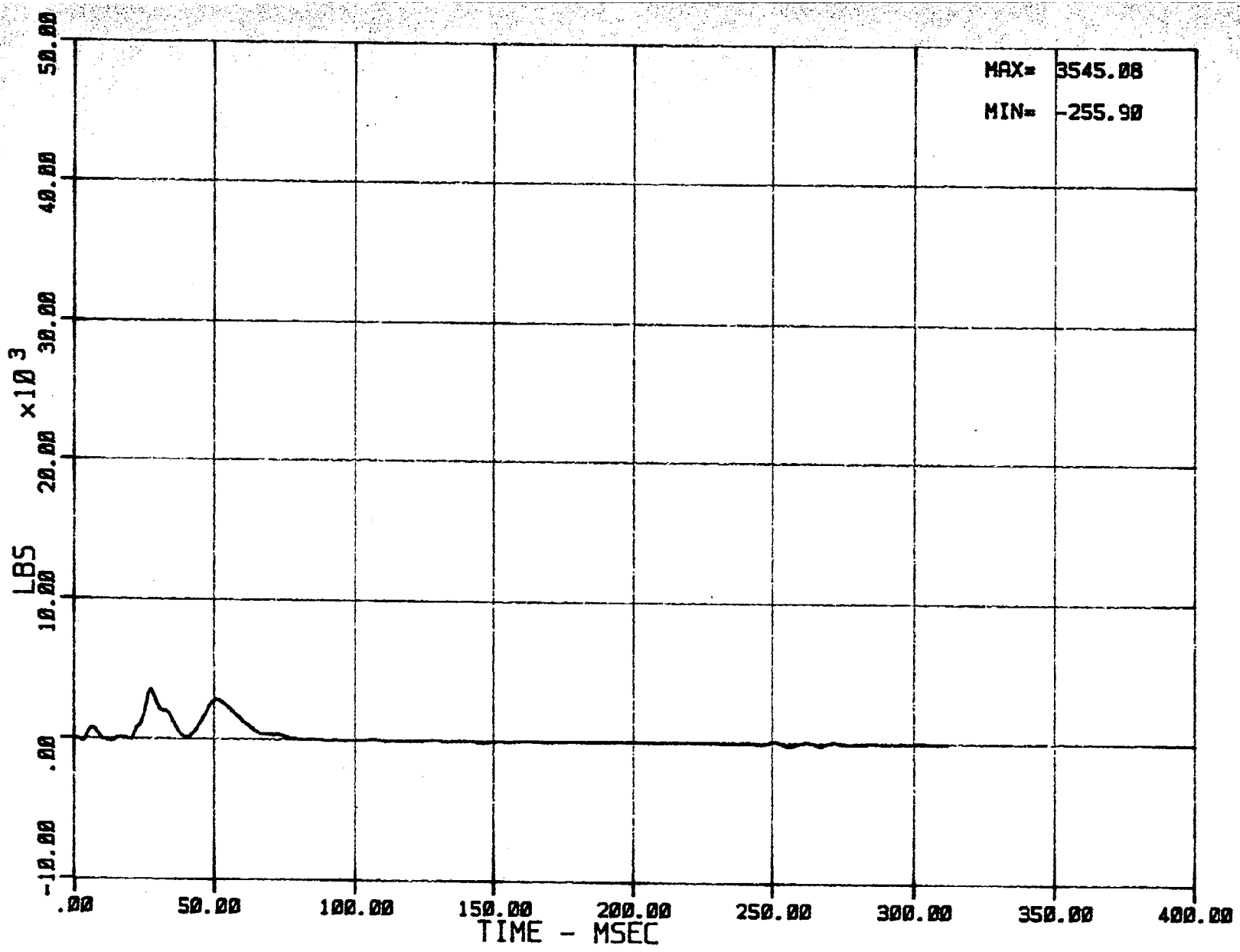


42 LC BA N BB7 (BARRIER LOAD CELL B7 FORCE)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84

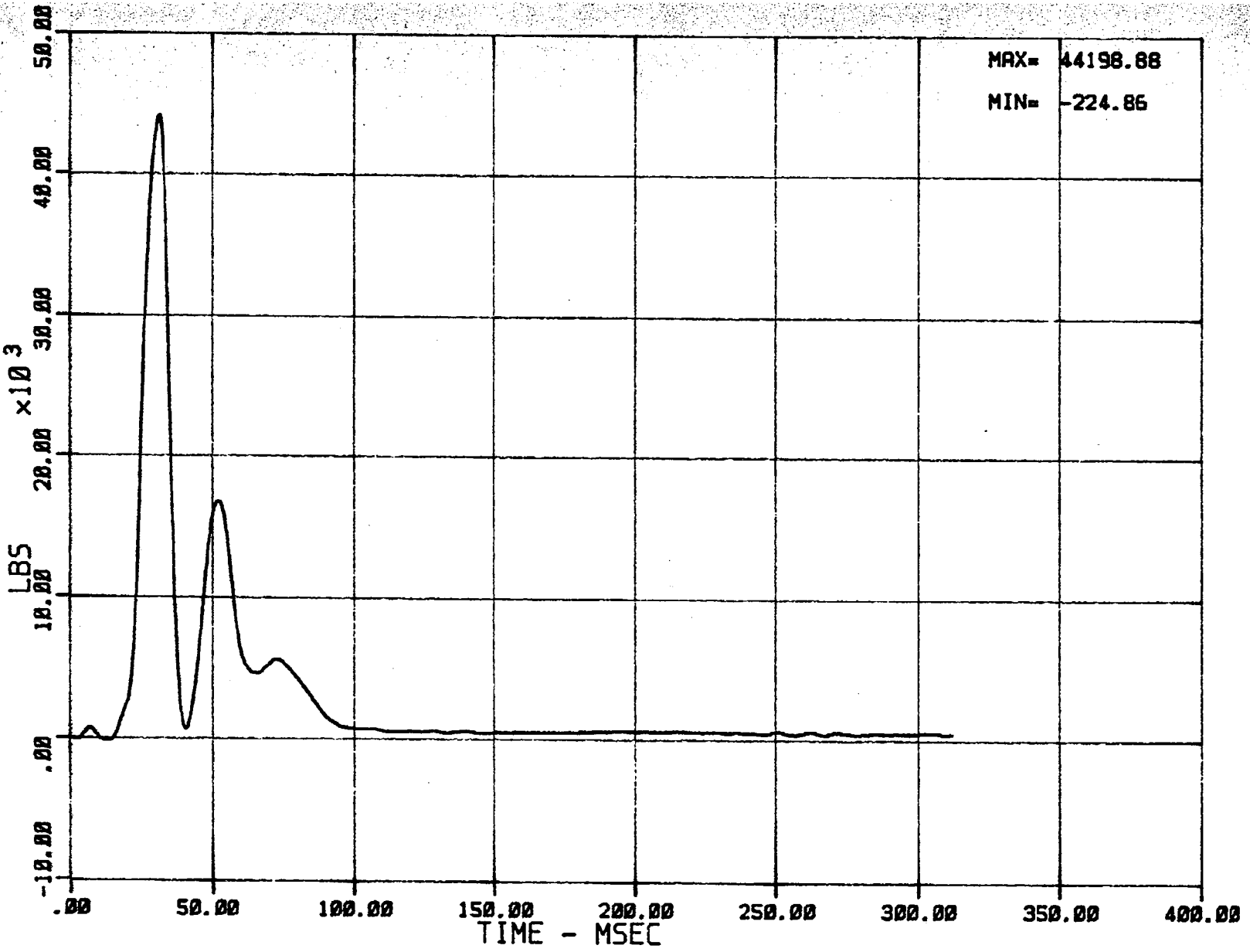


47 LC BA N BC3 (BARRIER LOAD CELL C3 FORCE)
MSE N02044 1984 FORD F-150 PICK UP 03/06/84



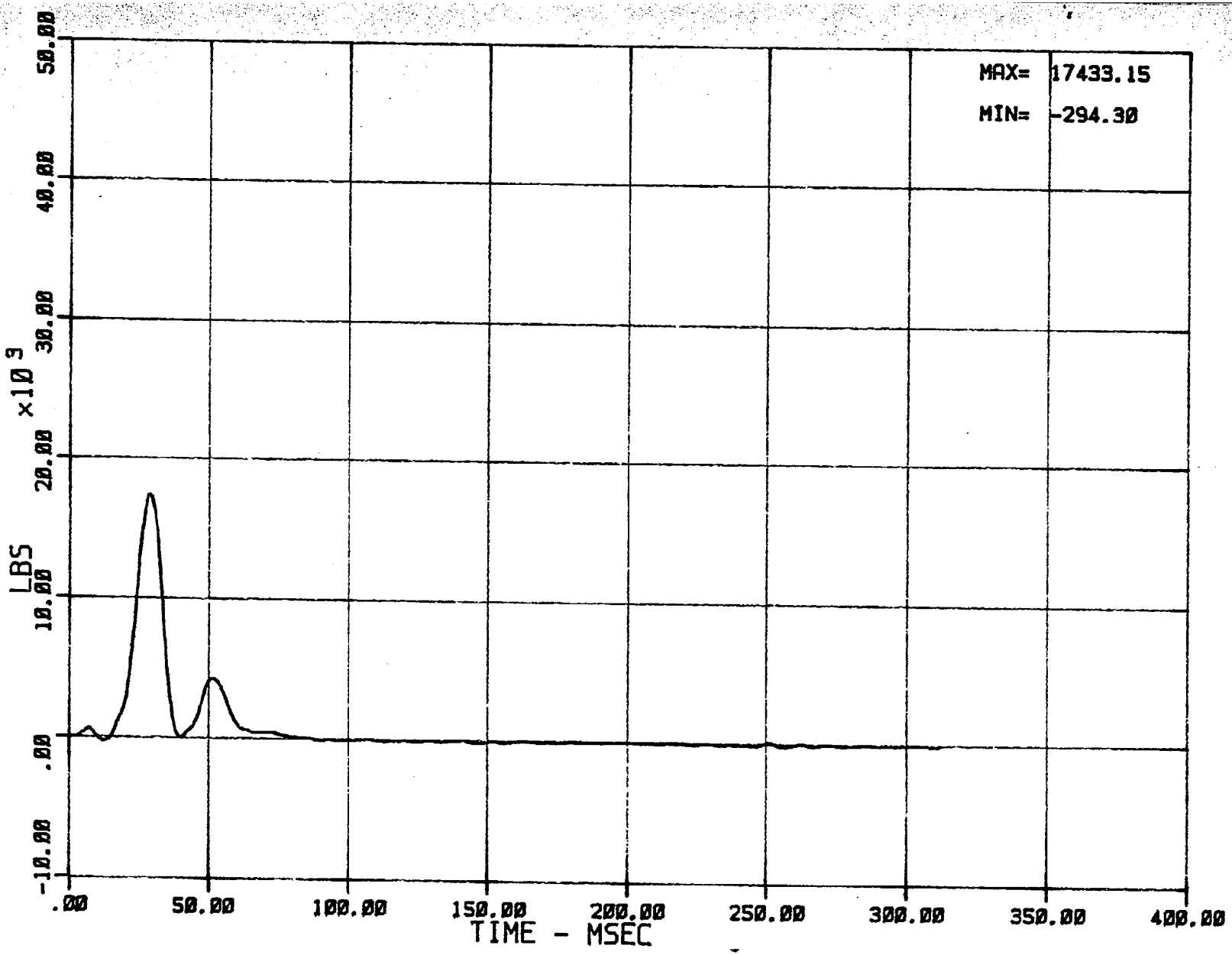
48 LC BA N BC4 (BARRIER LOAD CELL C4)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



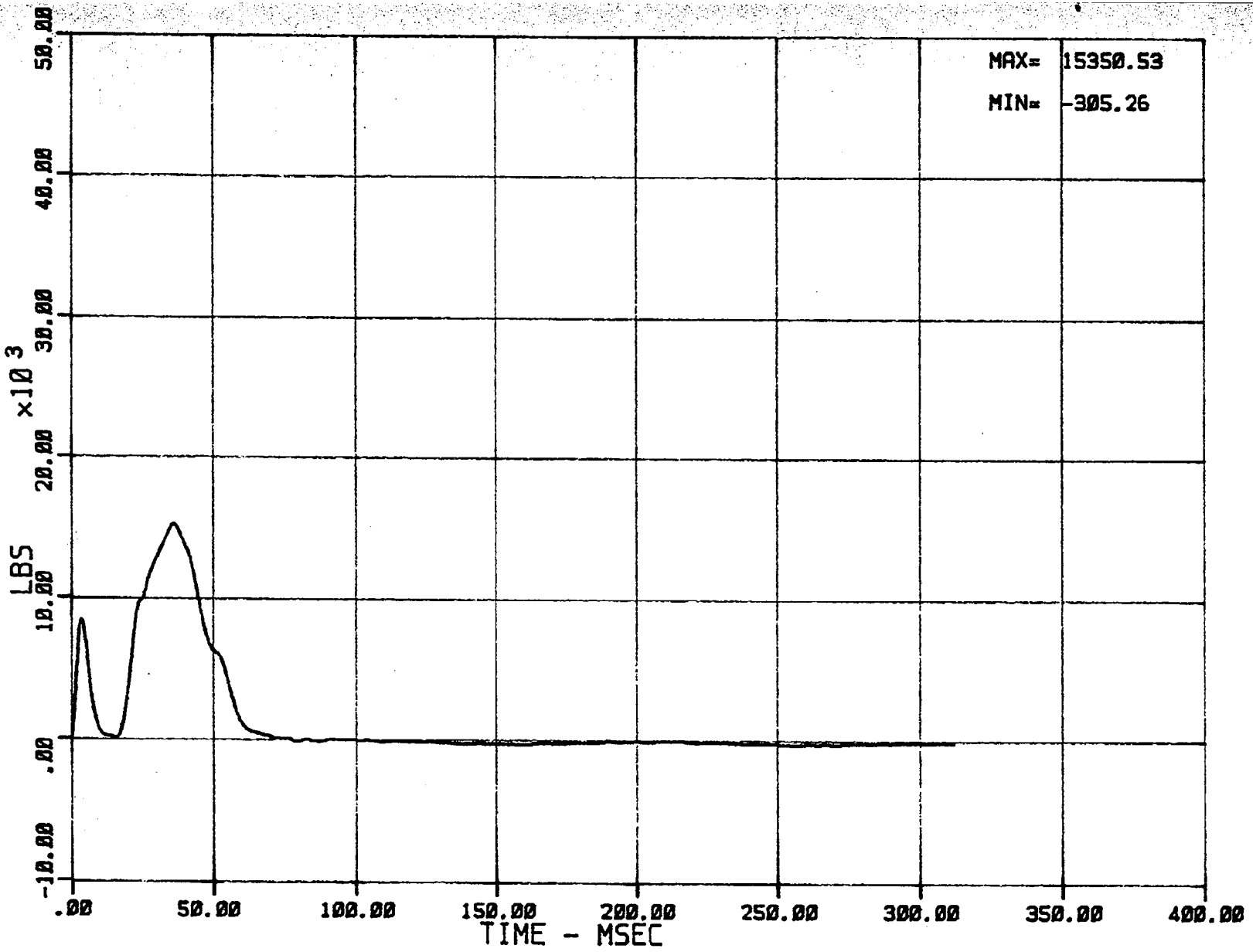
49 LC BA N BC5 (BARRIER LOAD CELL C5)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



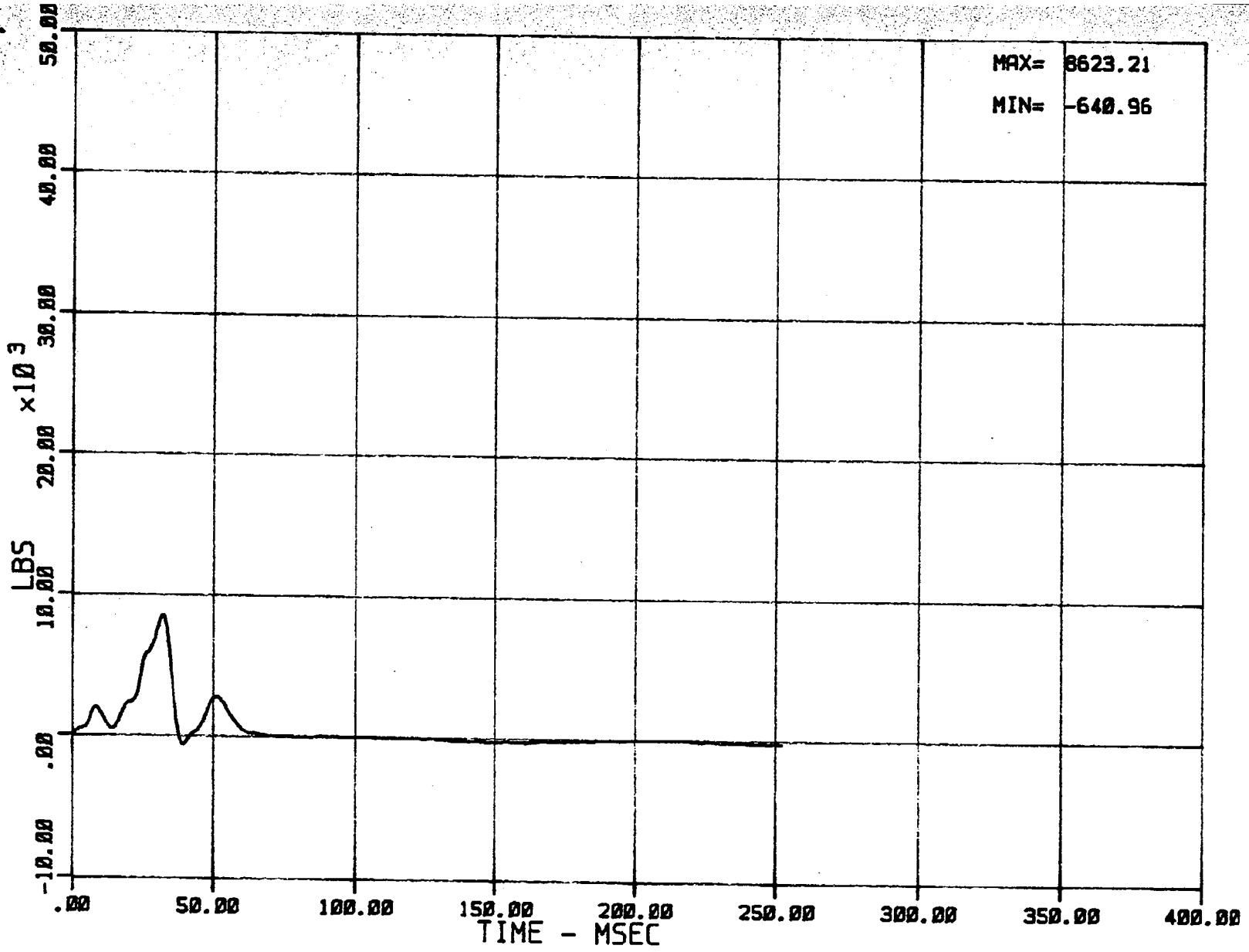
50 LC BA N BC6 (BARRIER LOAD CELL C6)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



S1 LC BA N BC7 (BARRIER LOAD CELL C7)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84



S8 LC BA N BDS (BARRIER LOAD CELL DS)
MSE N02044 1984 FORD F-150 PICK UP

03/06/84