OCCUPANT RESPONSE COMPARISON 06/15/83
TO FMVSS REQUIREMENTS

HIC

VEHICLE	OCCUPANT	HIC	T1	T2	T2-T1	*COMP. MARG.
1983 FORD BRONCO	DRIVER	787.19	42.75	100.38	57.63	.79
1983 FORD BRONCO	PASSENGER	1071.63	45.13	124.13	79.00	1.07

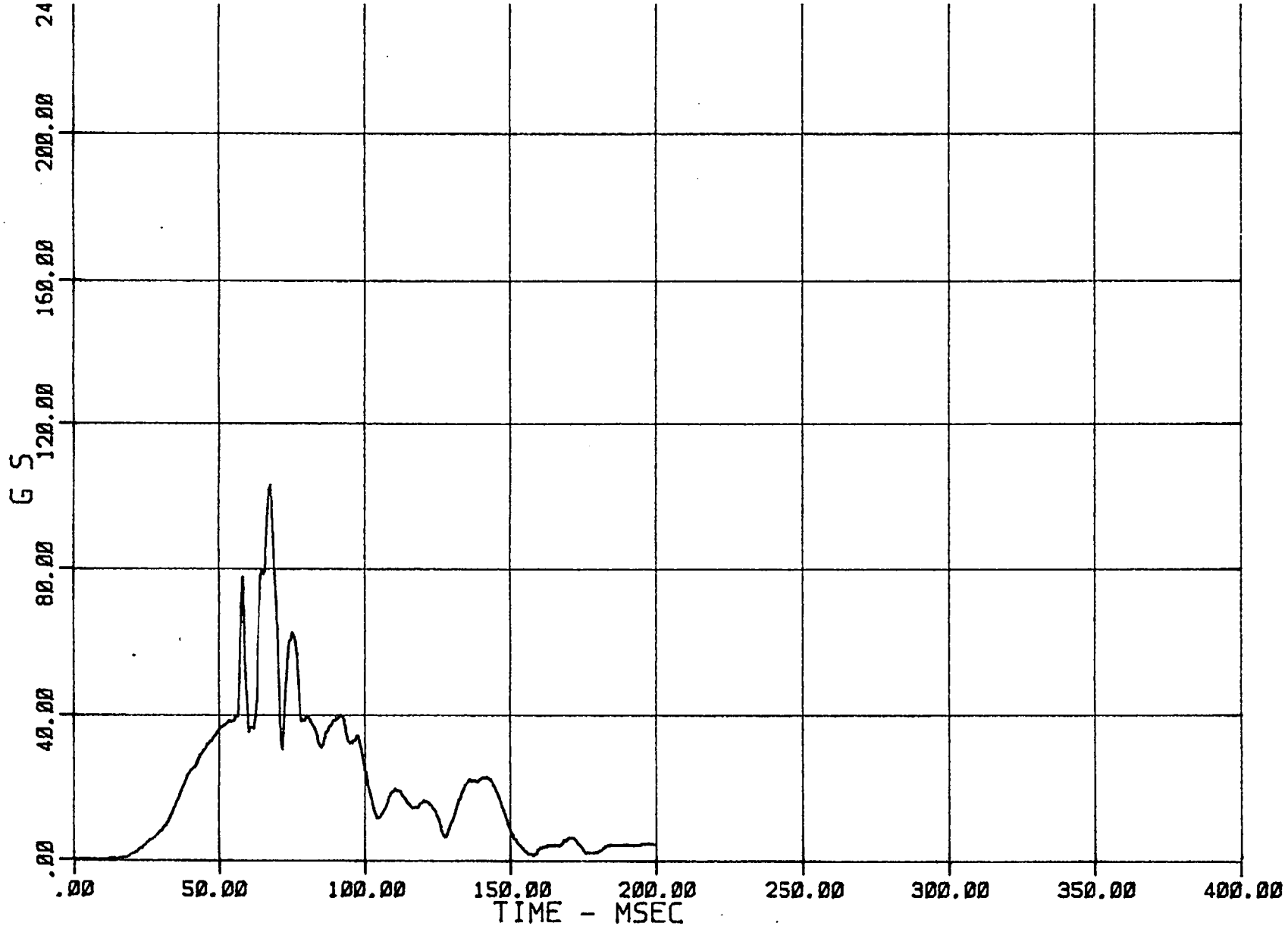
* VALUES GREATER THAN 1 REPRESENT NON-COMPLIANCE

OCCUPANT RESPONSE COMPARISON 06/15/83
TO FMVSS REQUIREMENTS

TEST: N02033

CHAN.	VEHICLE		REQUIREMENT	RESPONSE	* COMP. MARG.
RES	1983 FORD BRONCO	DRIVER	60.00	50.36	.84
RES	1983 FORD BRONCO	PASSENGER	60.00	48.61	.81

* ABS(VALUES) GREATER THAN 1 REPRESENT NON-COMPLIANCE



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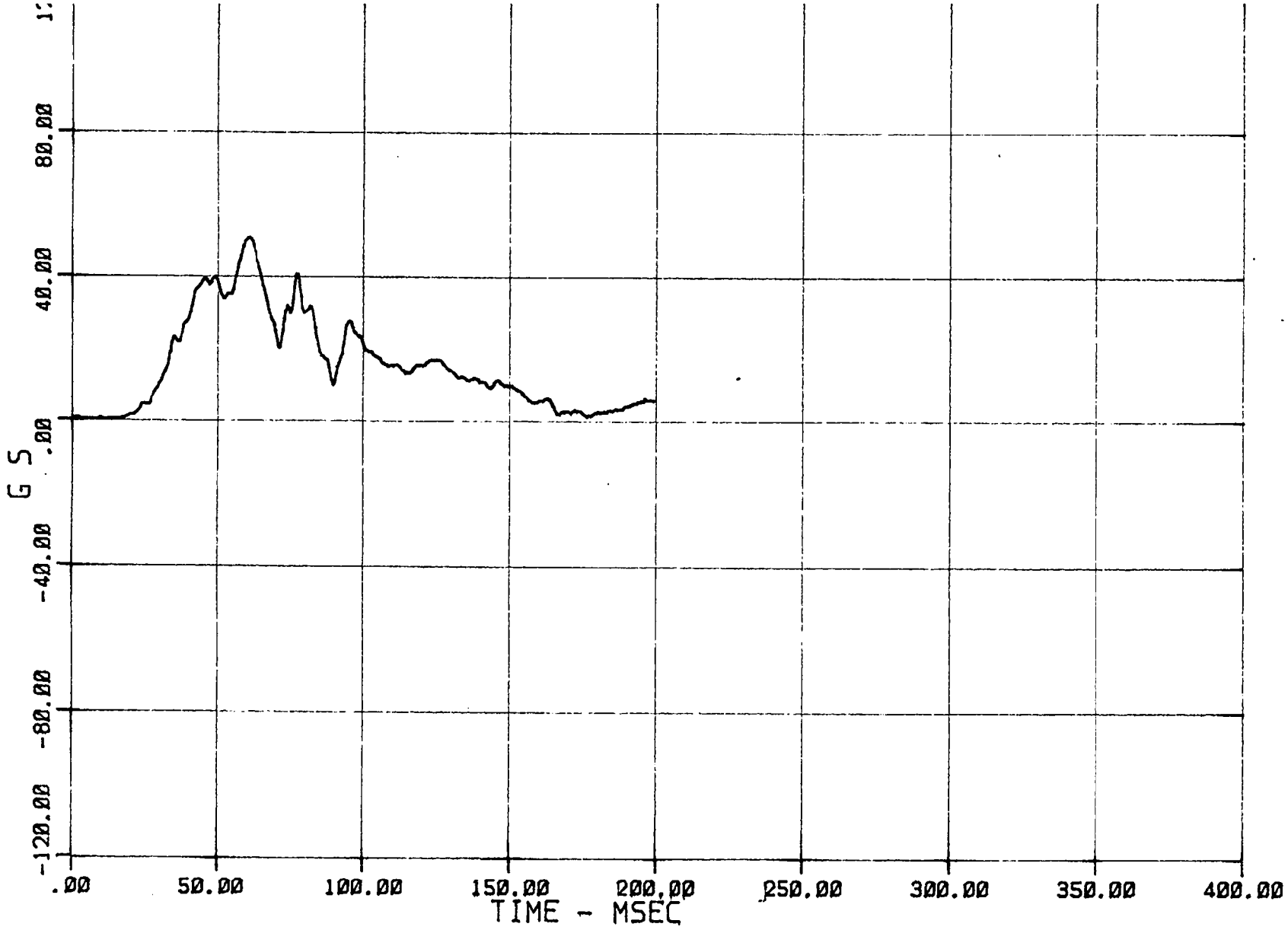

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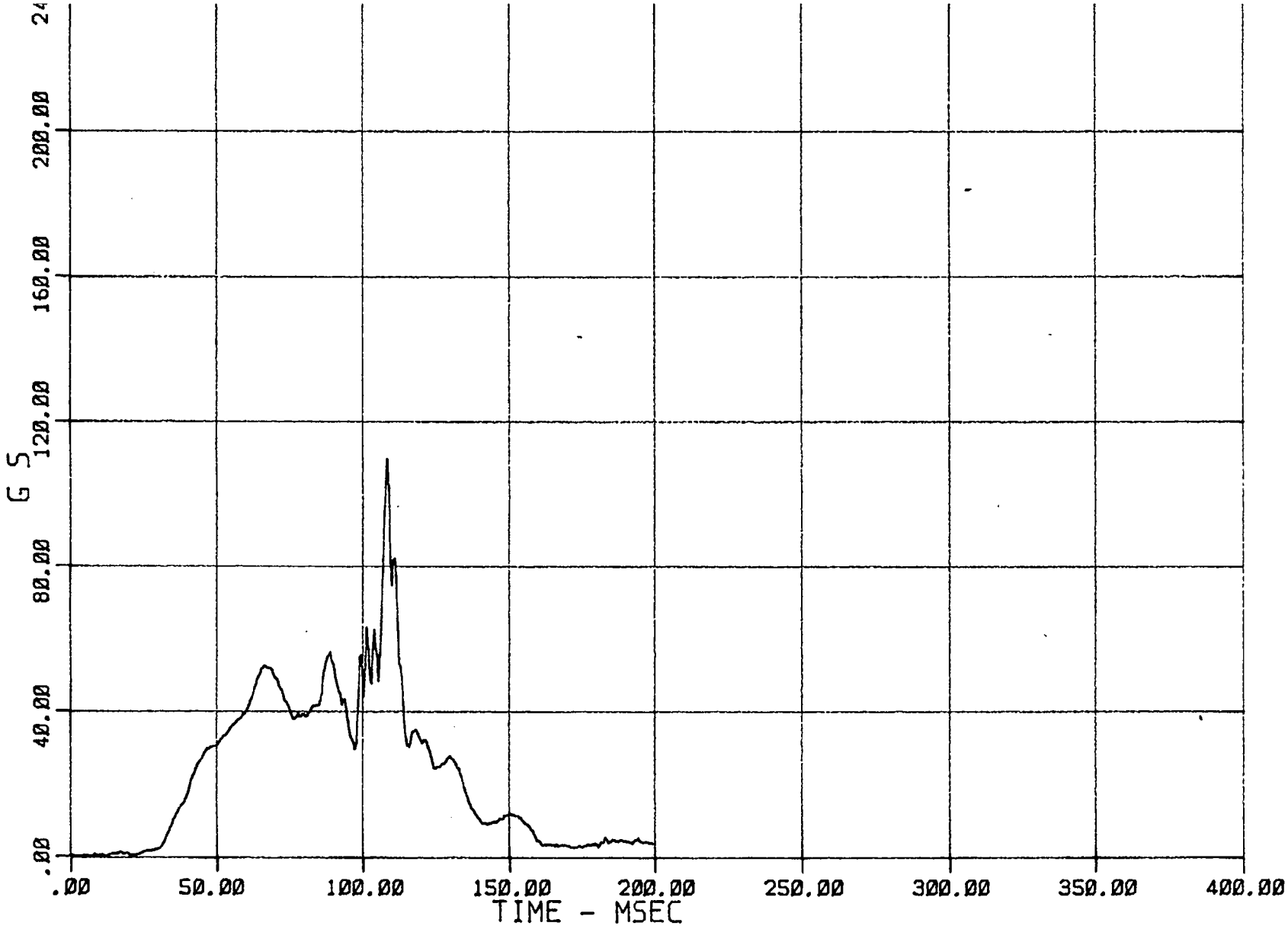
06/15/83



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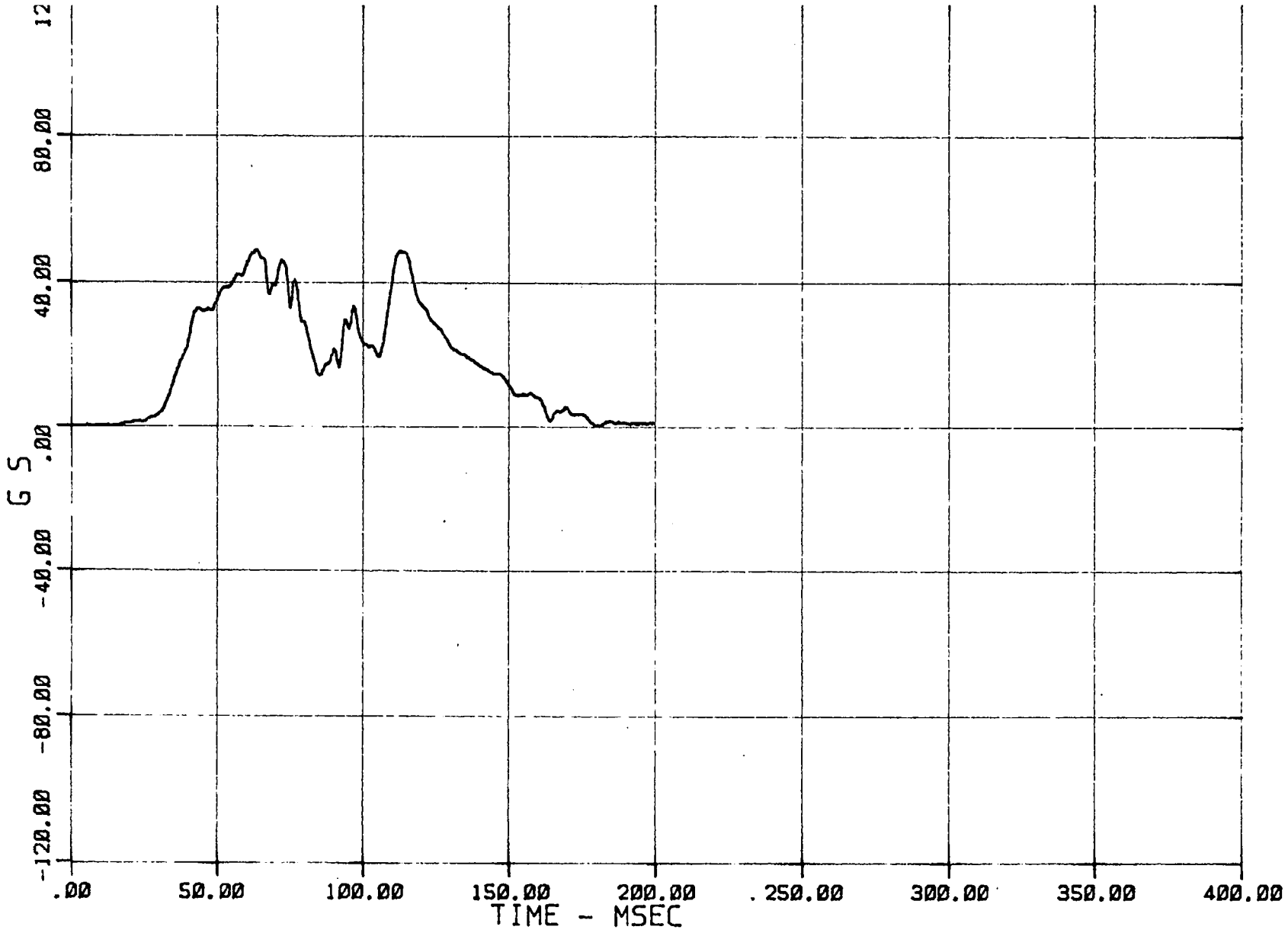

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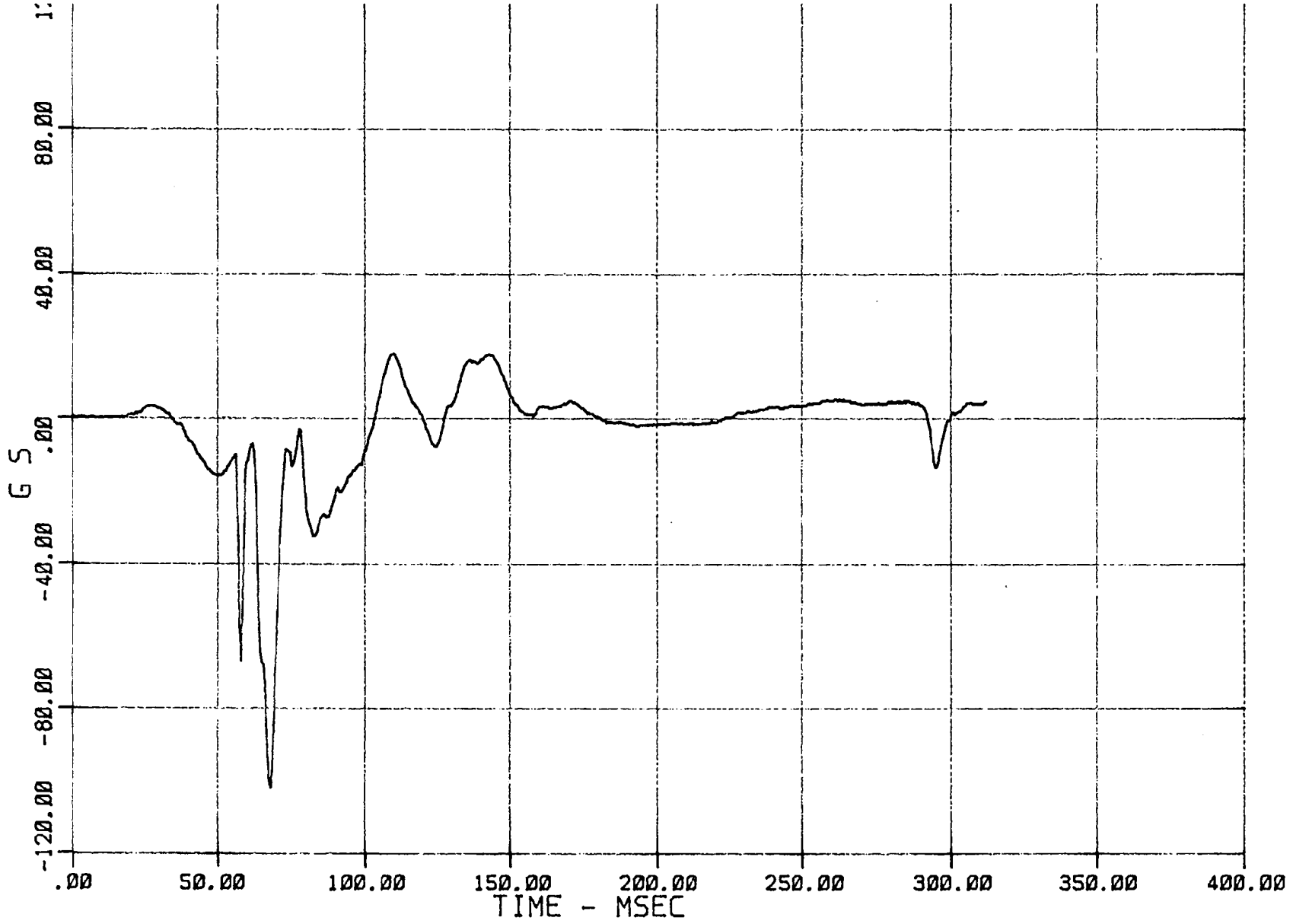

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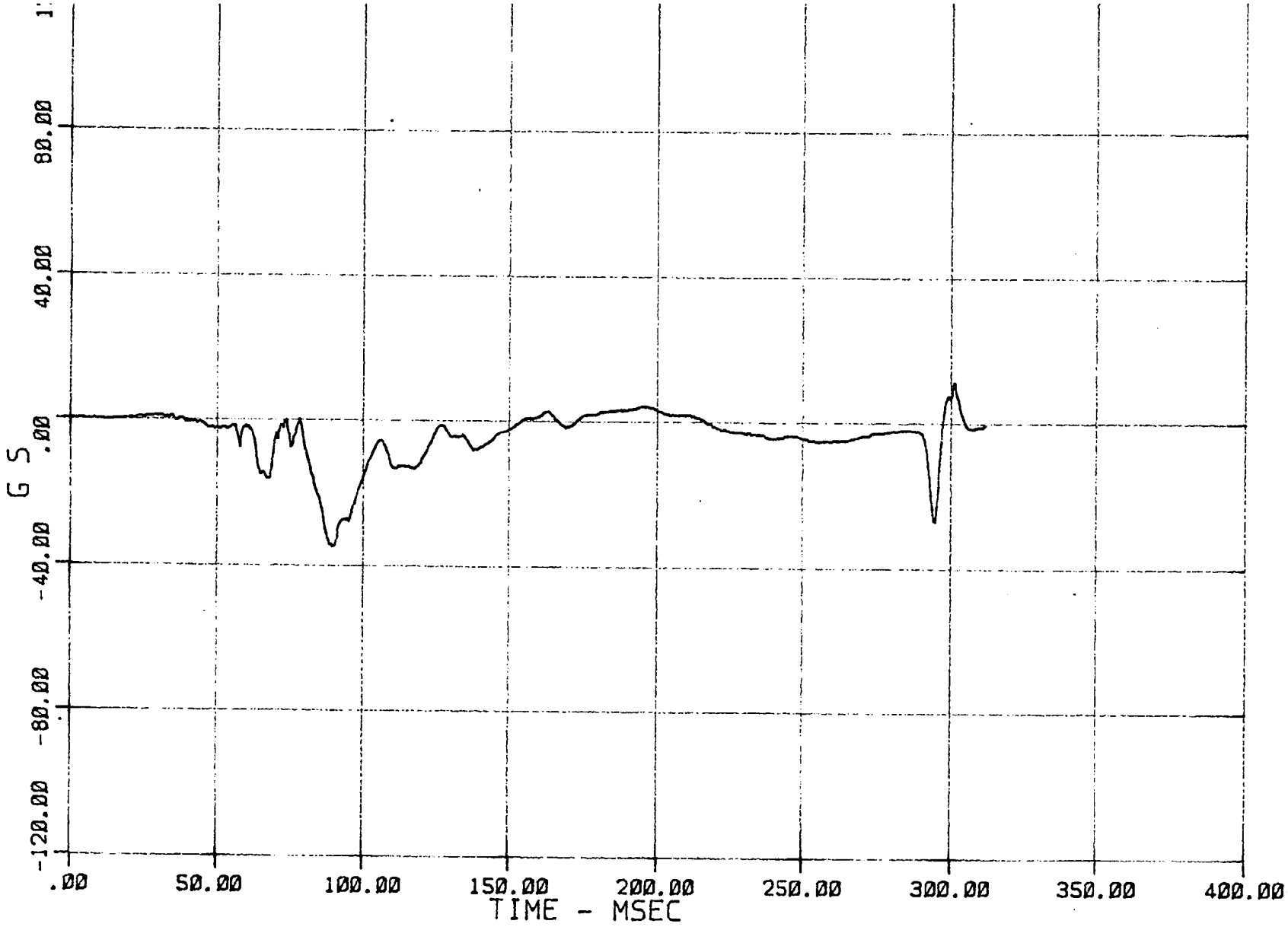

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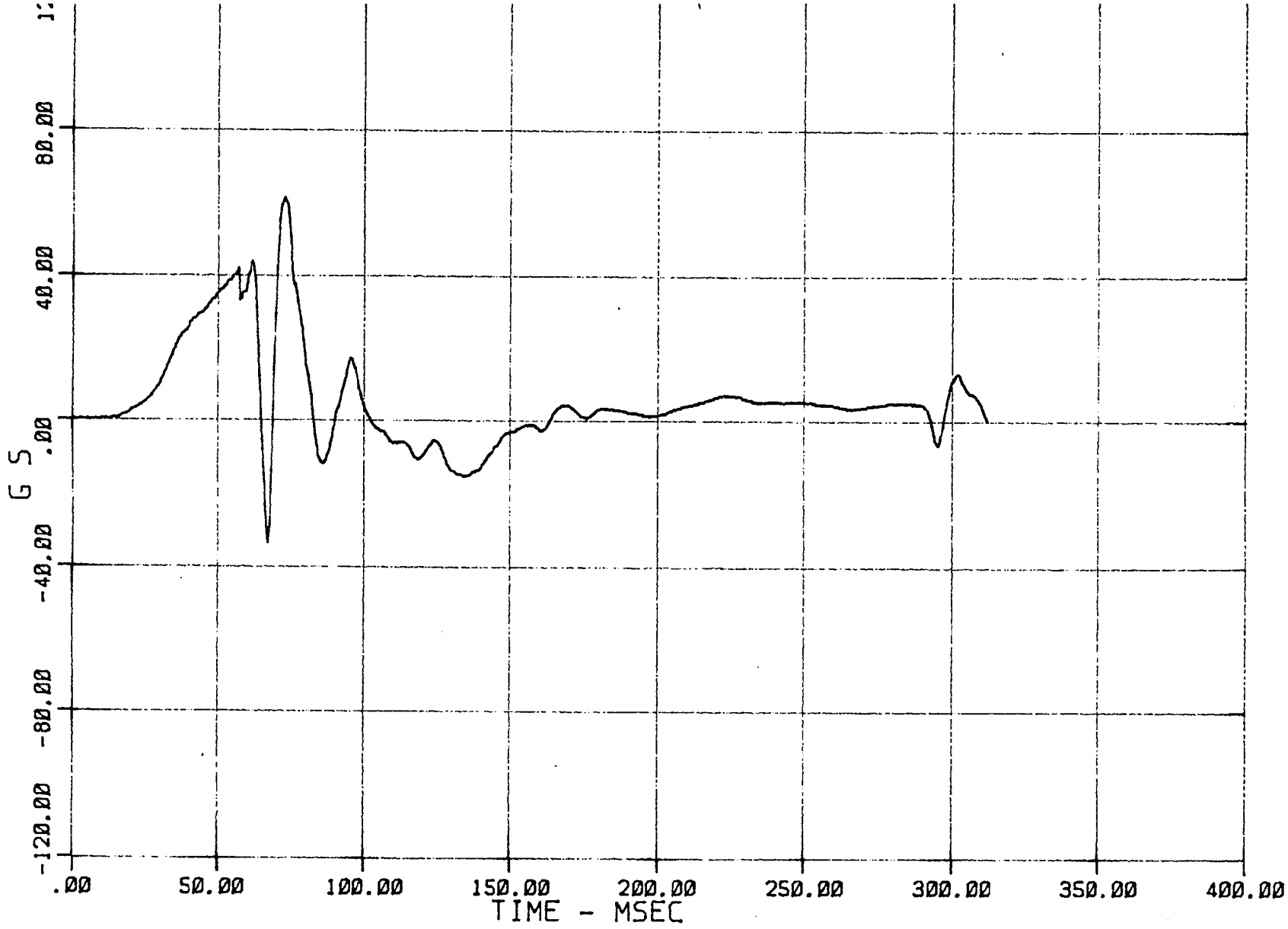
06/15/83



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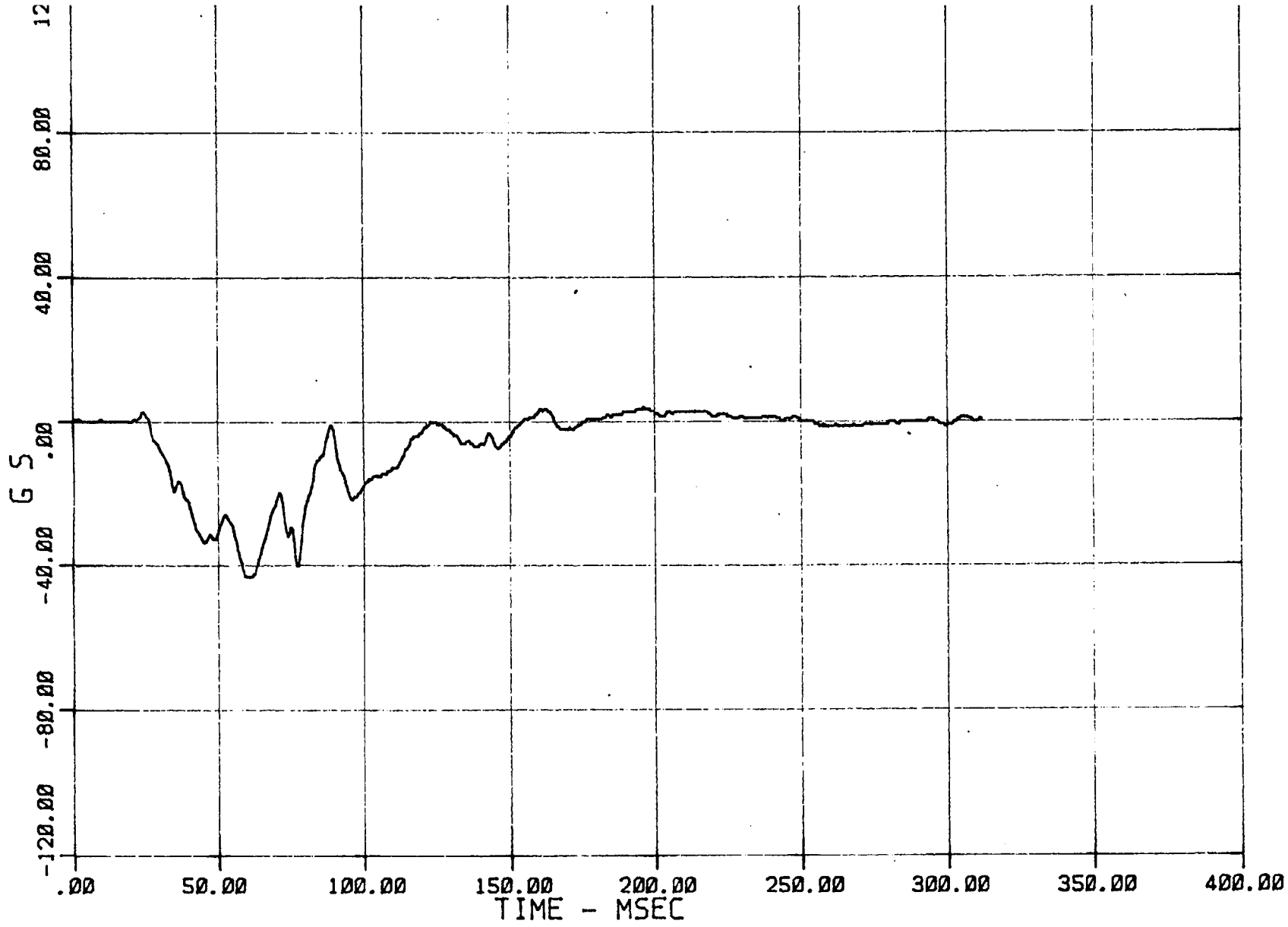

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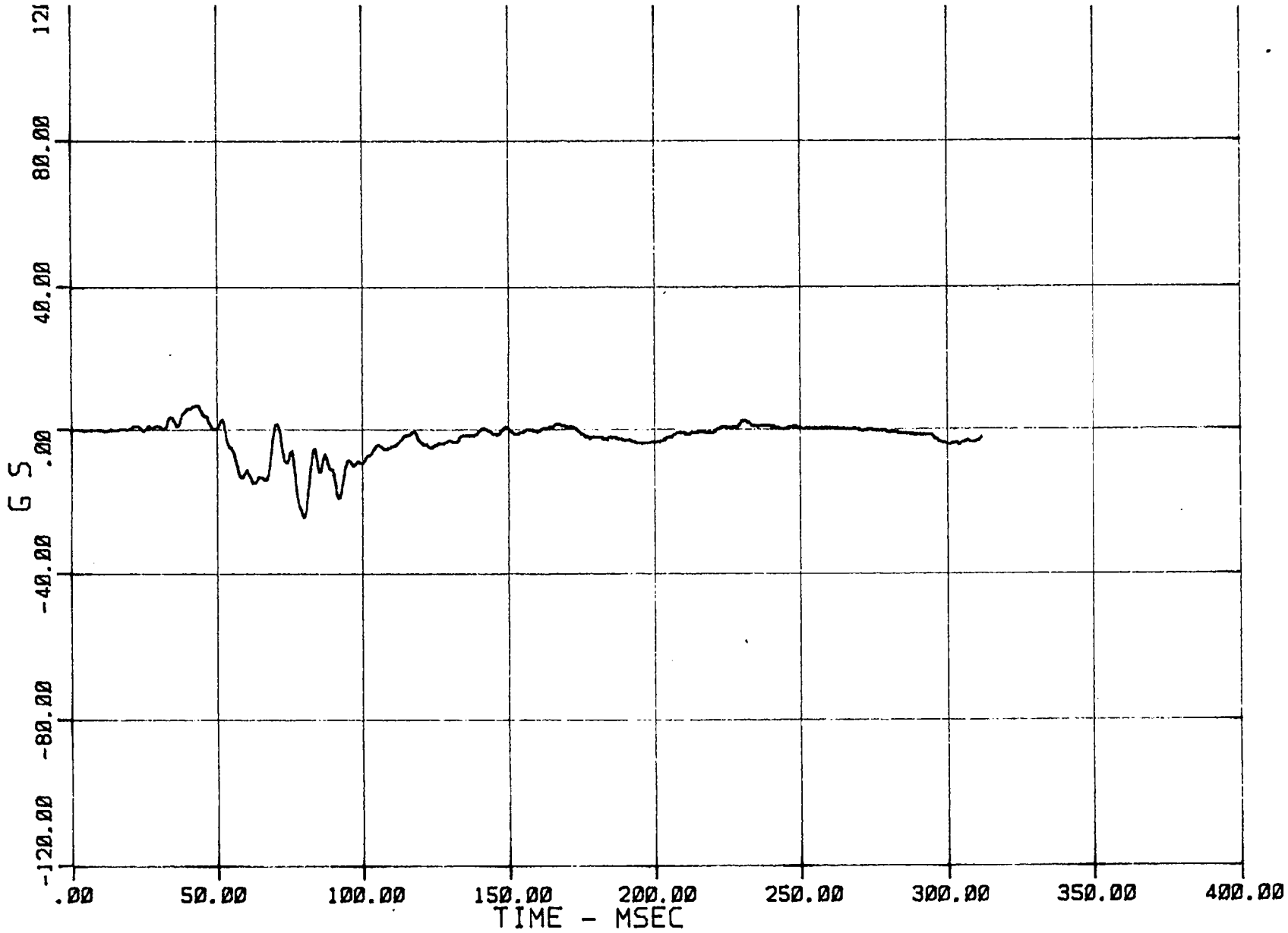

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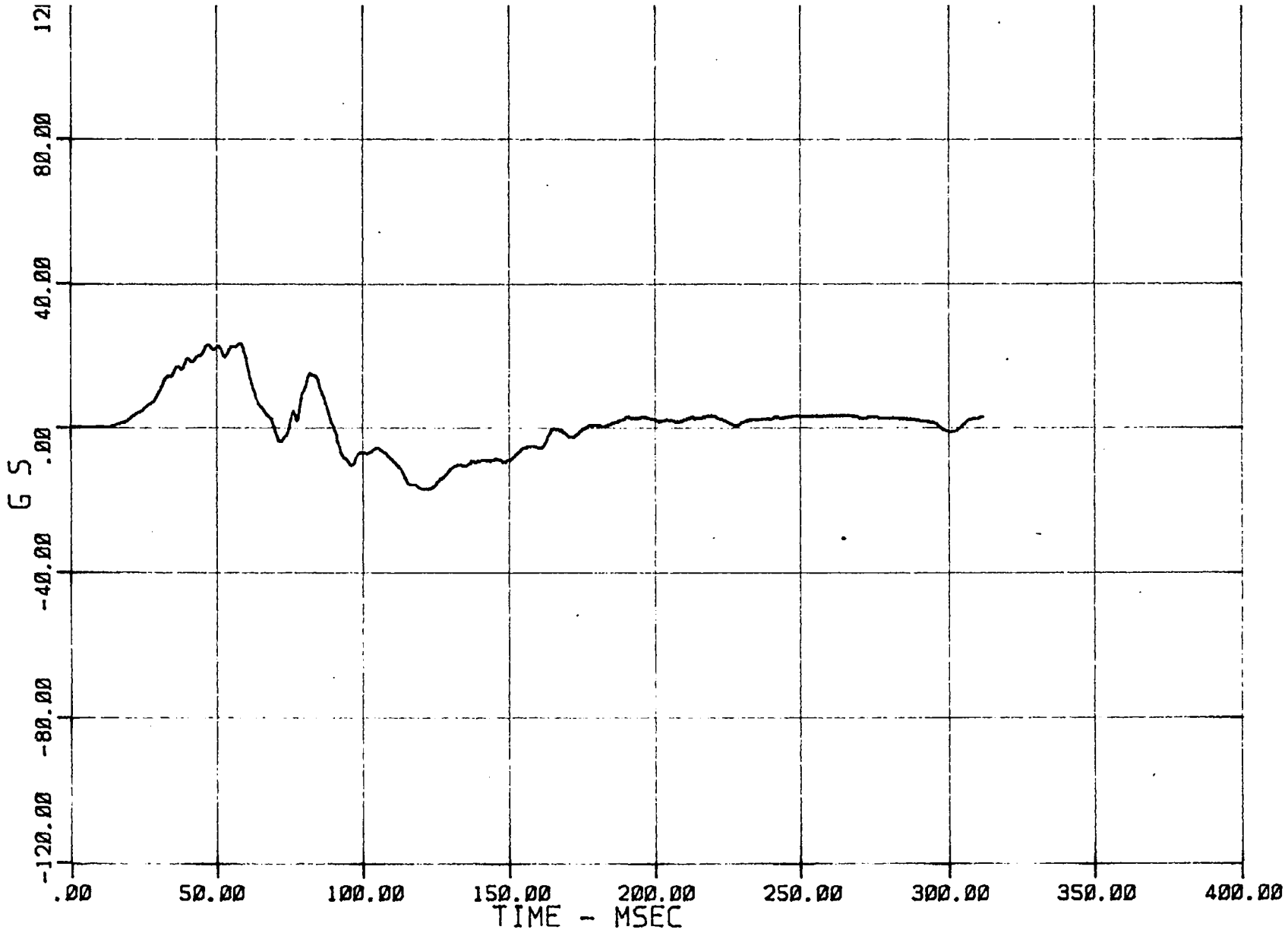

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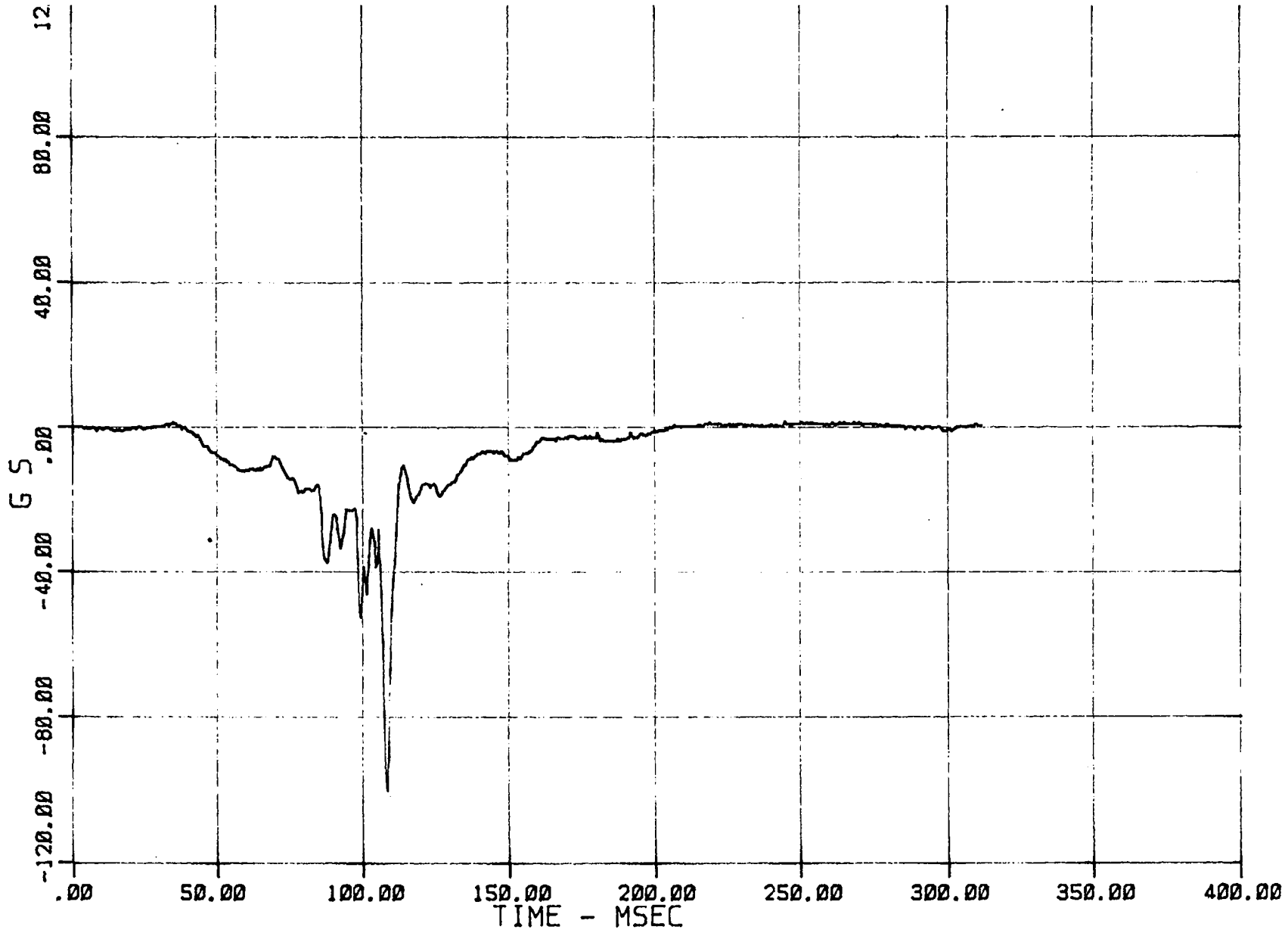

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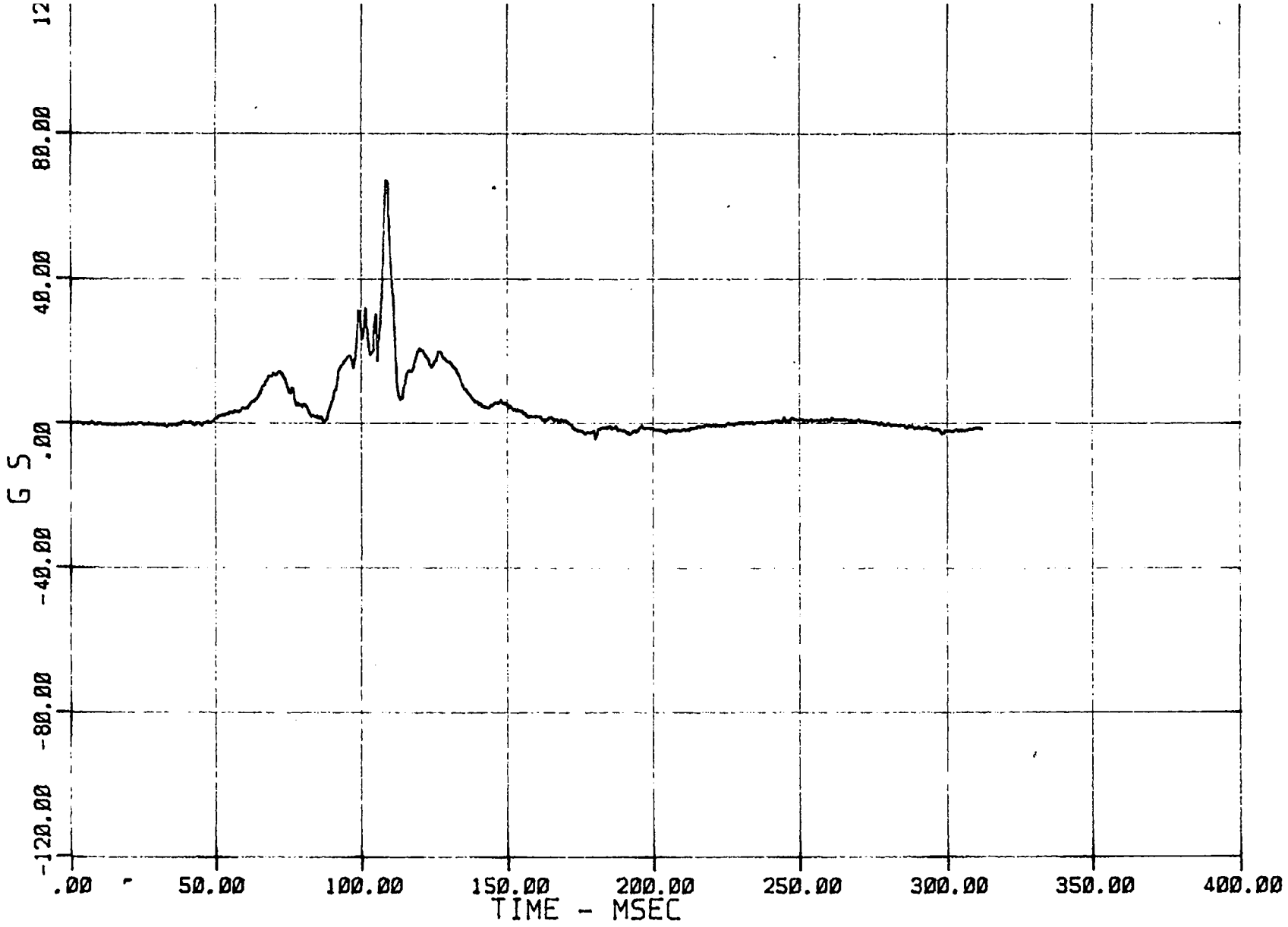
MSE N02033 1983 FORD BRONCO Ø6/15/83



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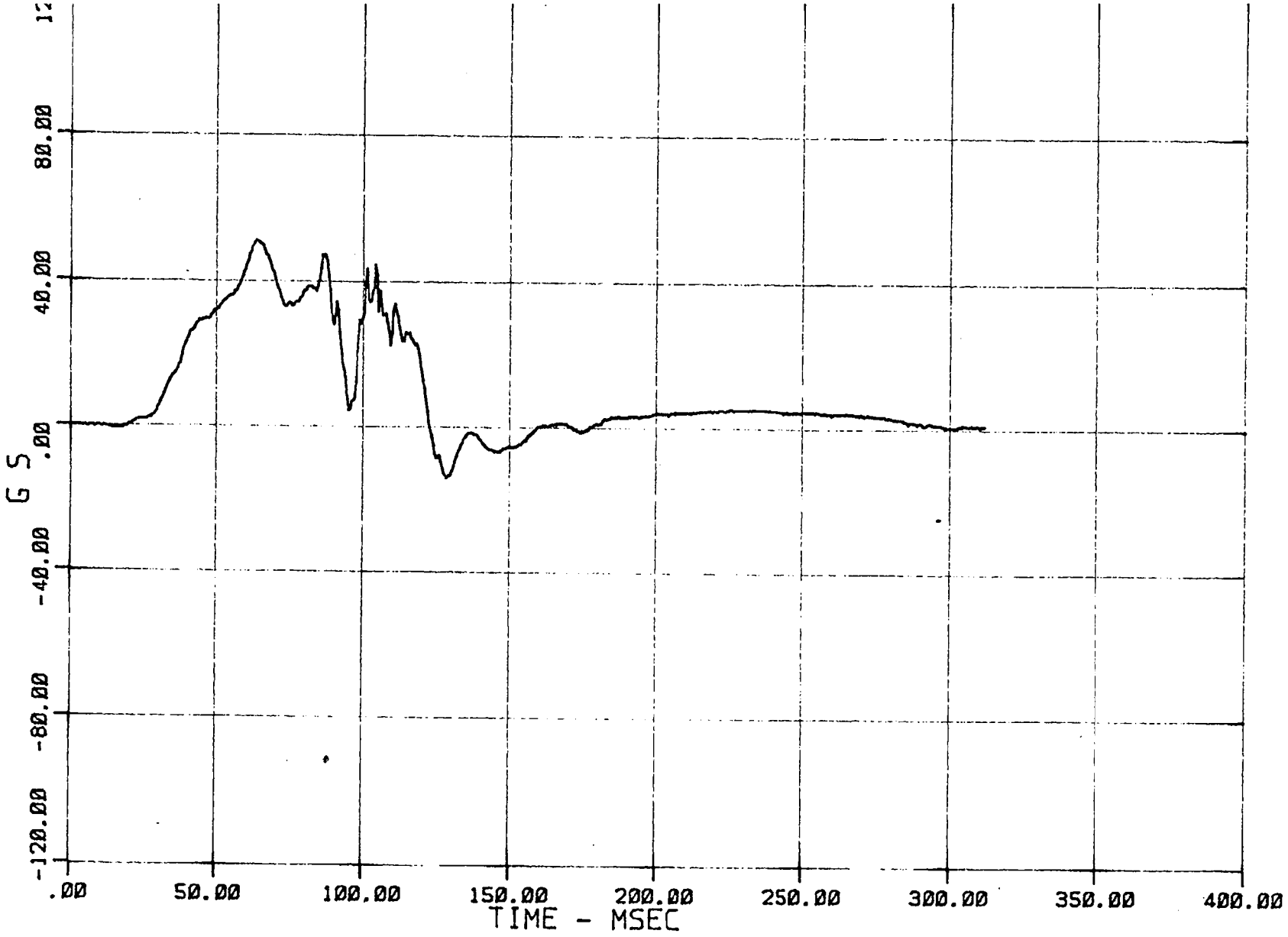

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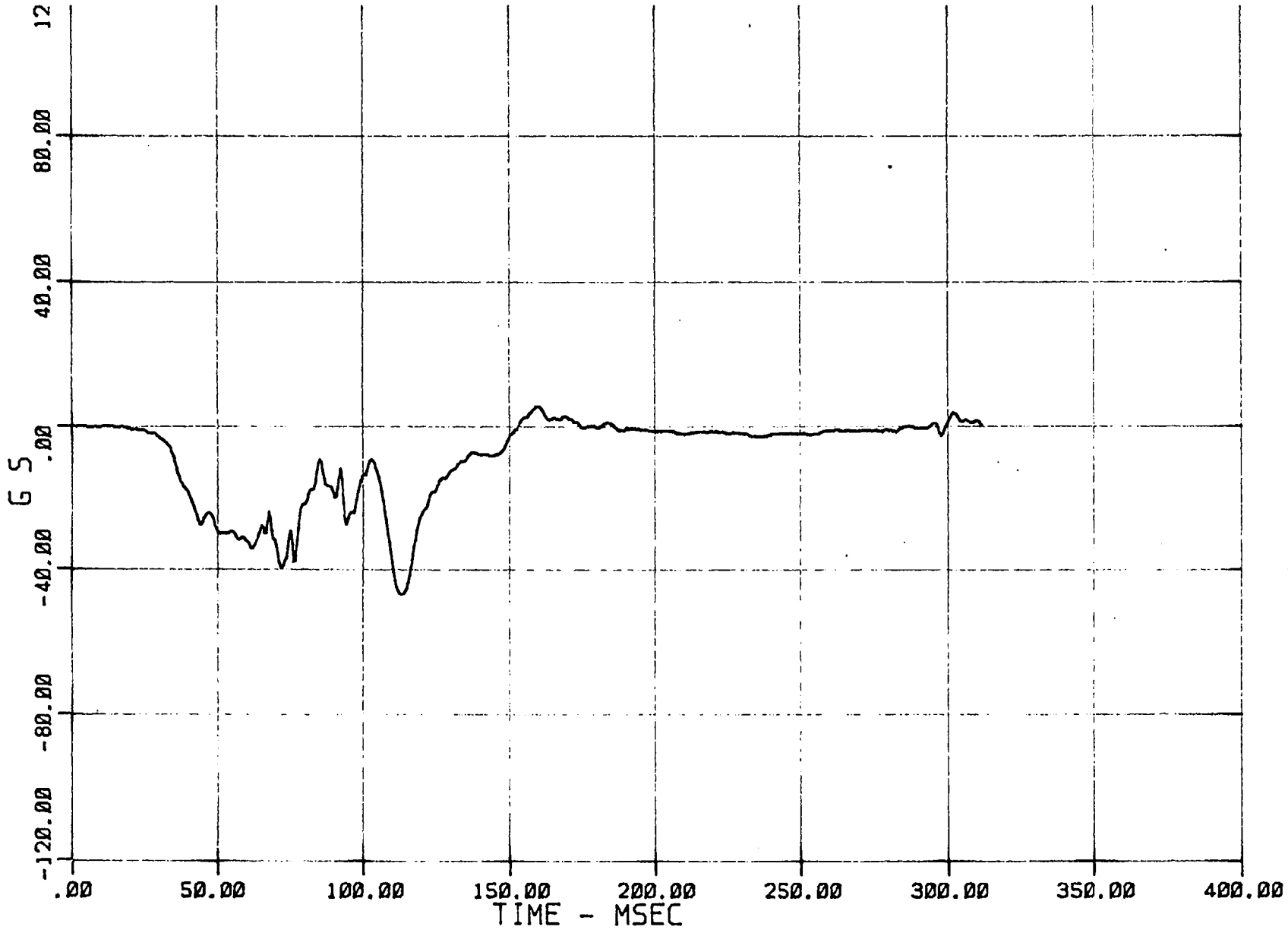
06/15/83



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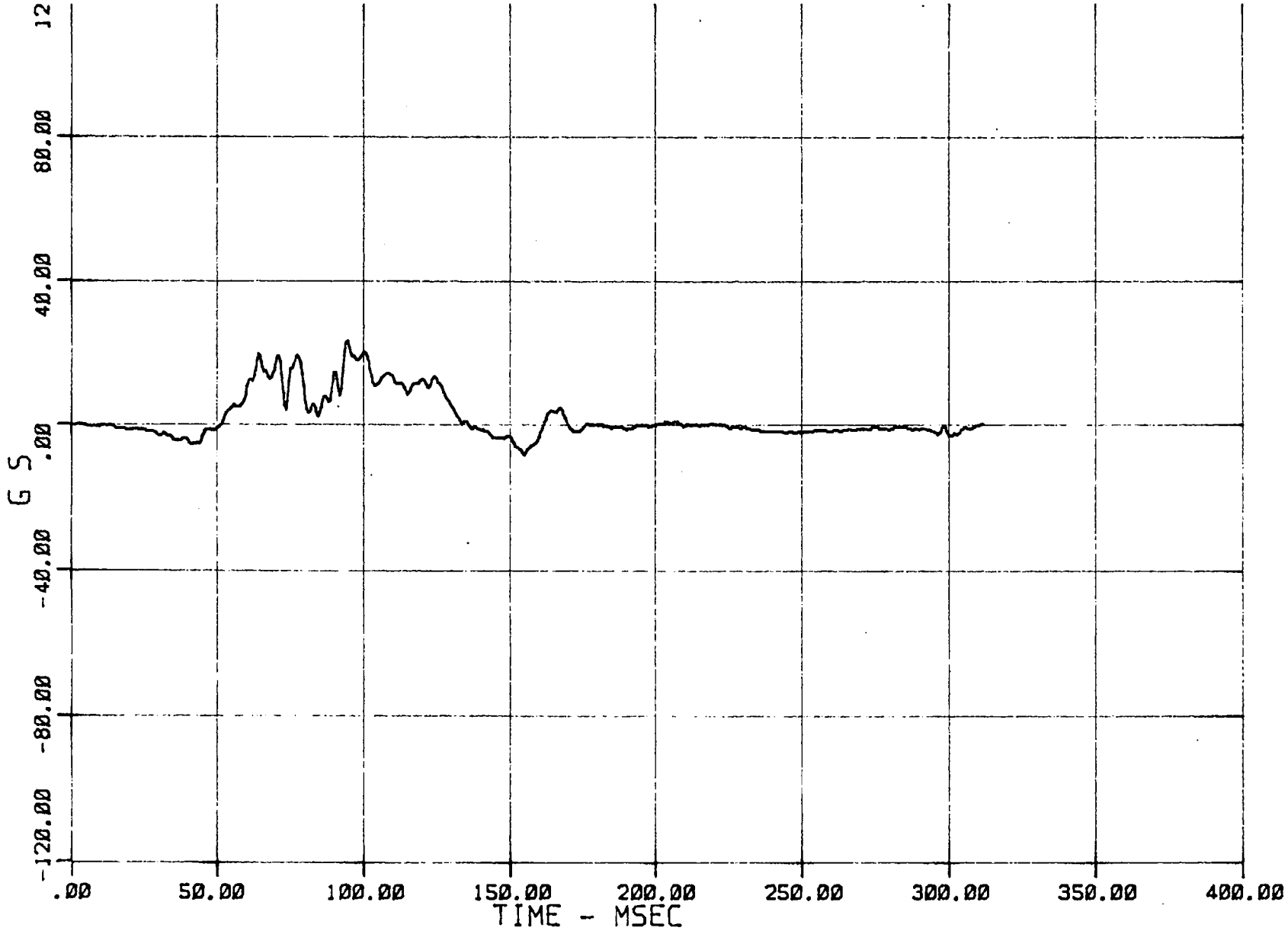

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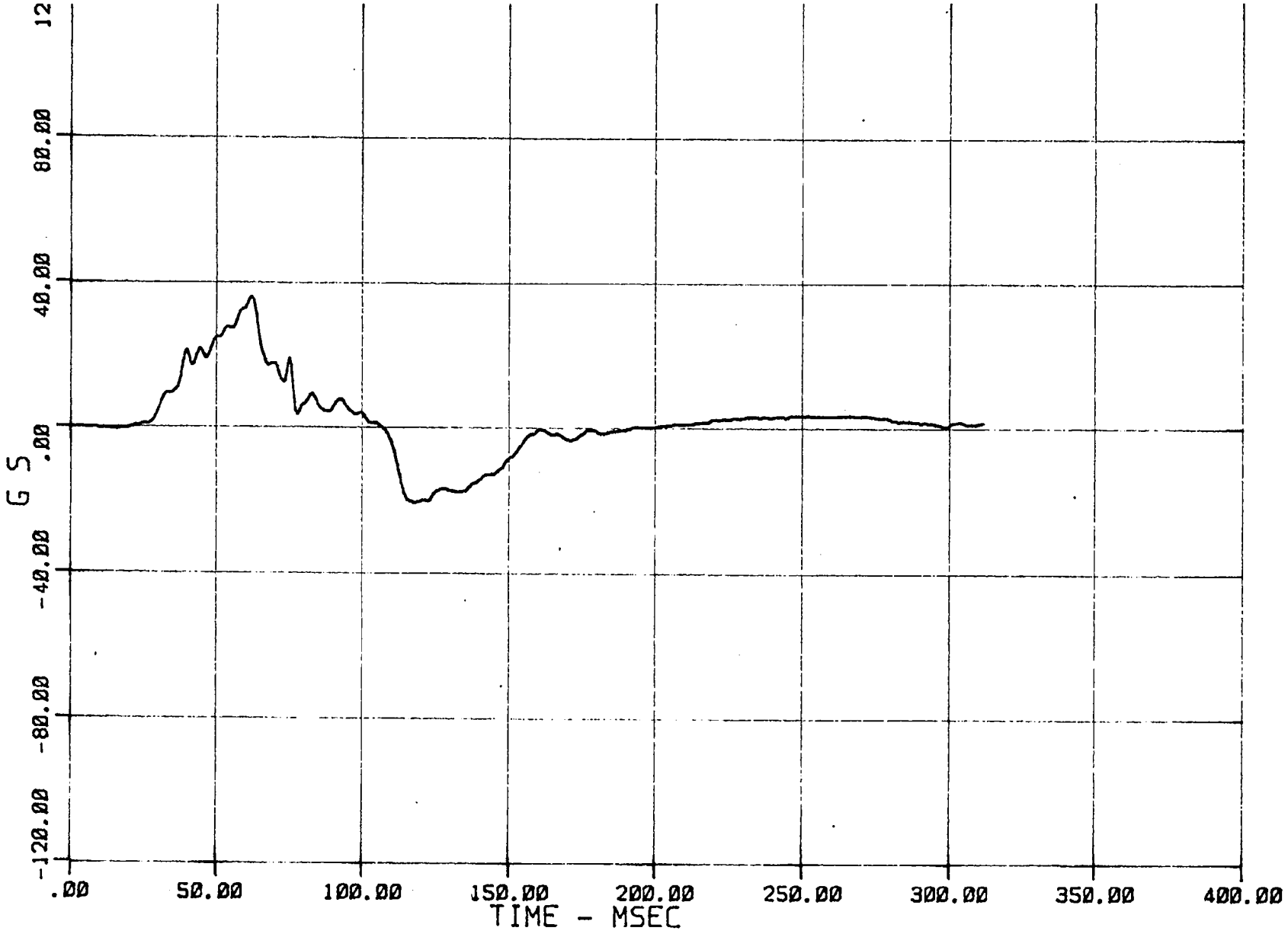

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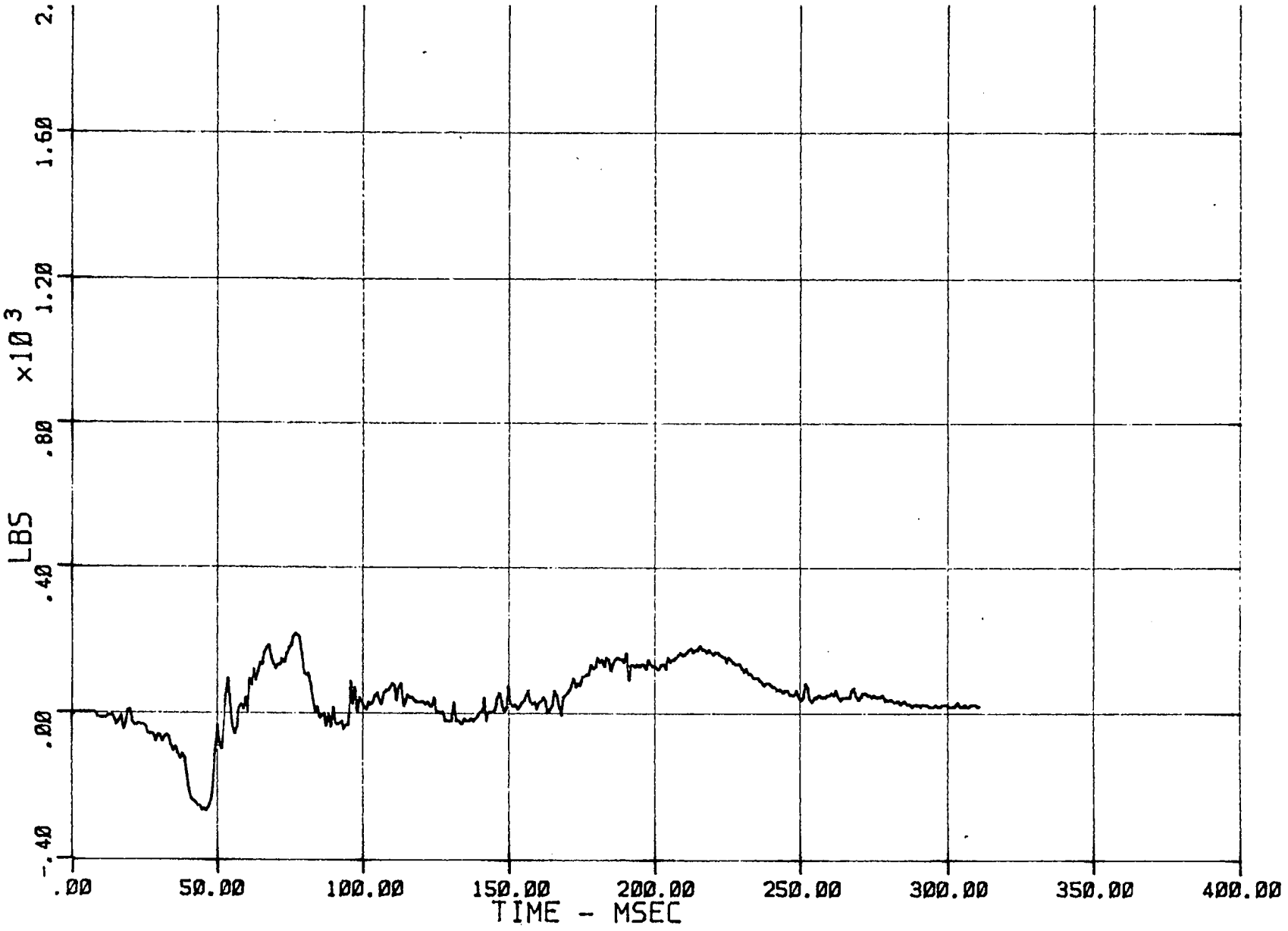

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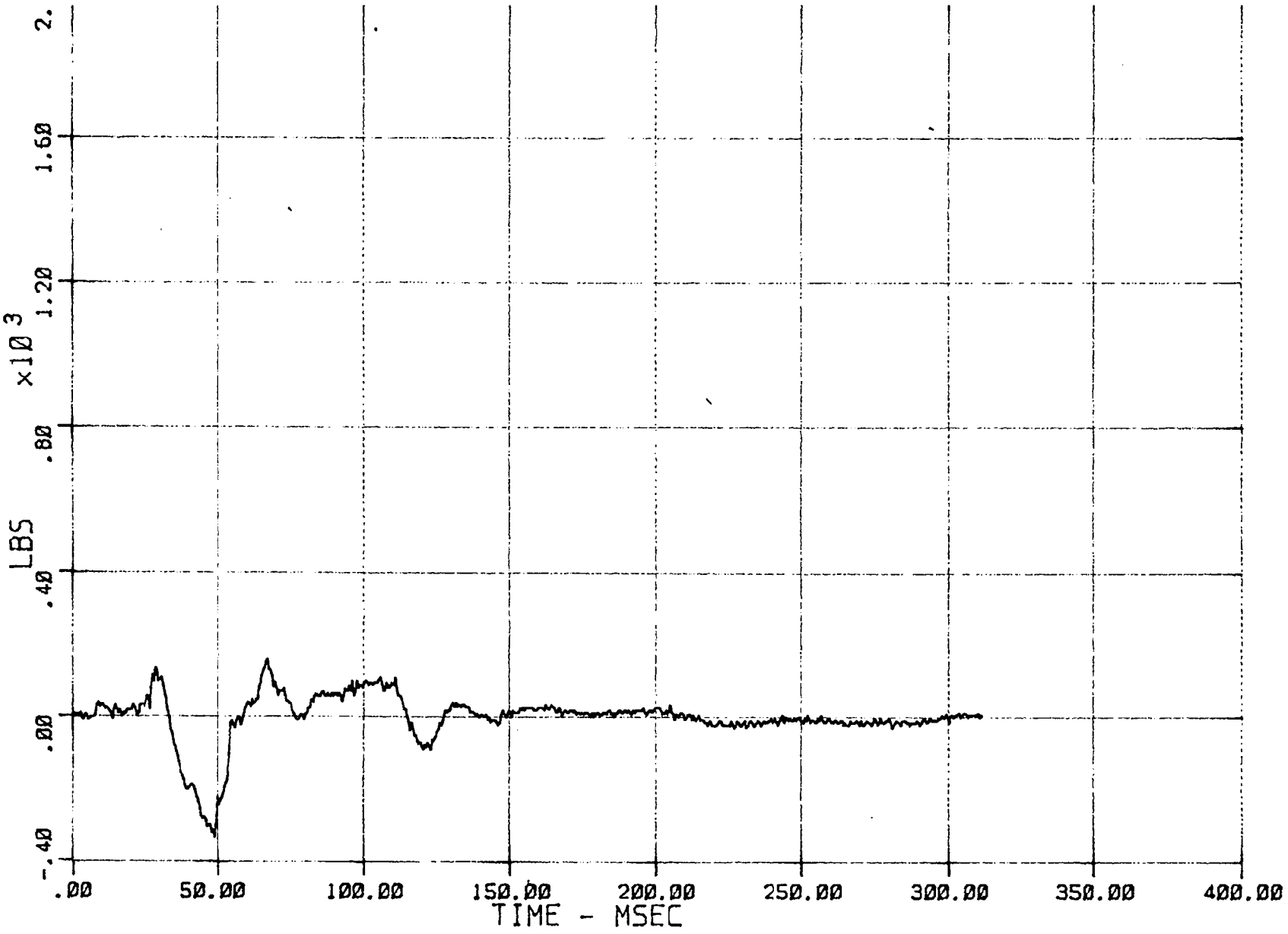

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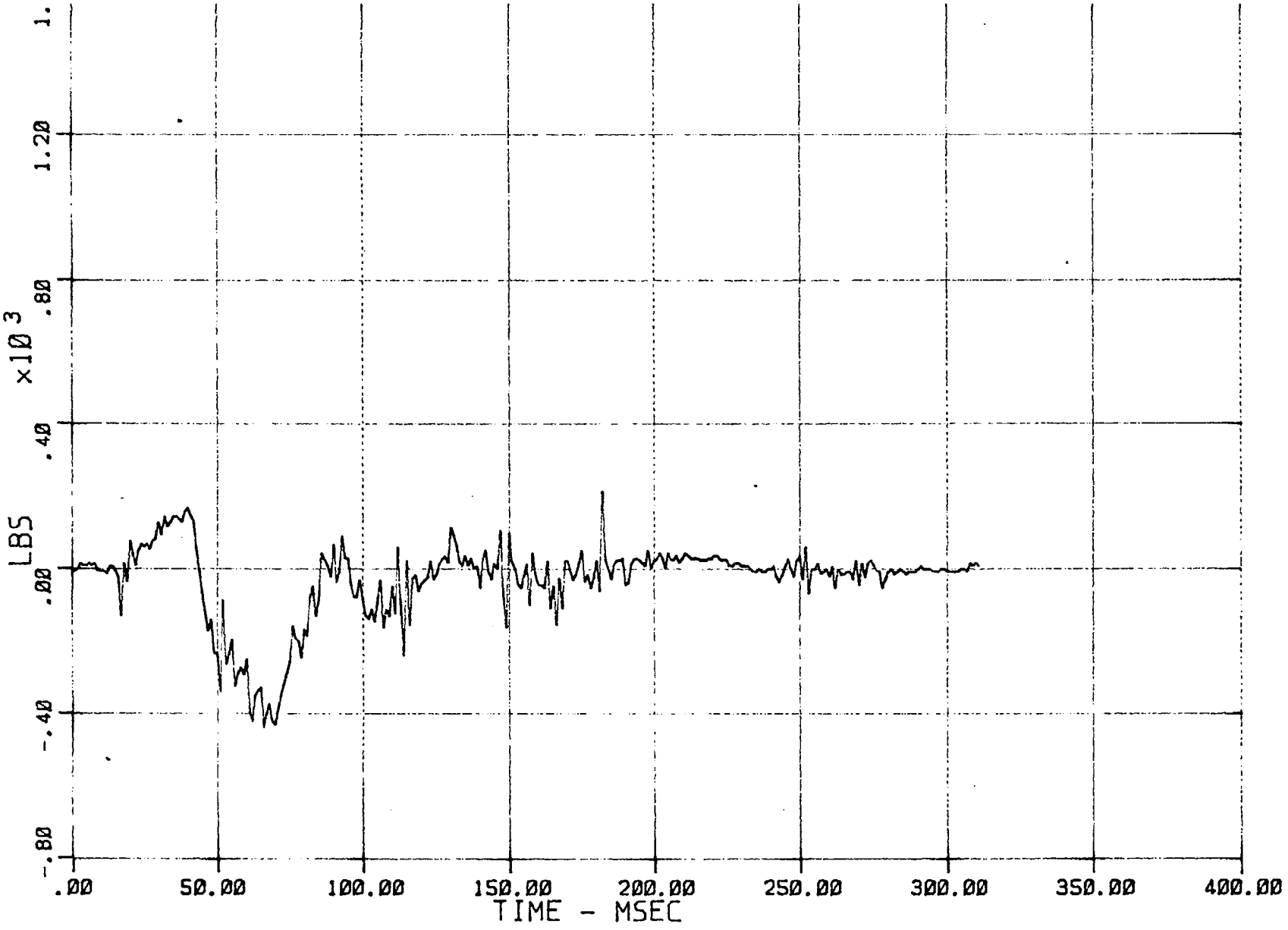

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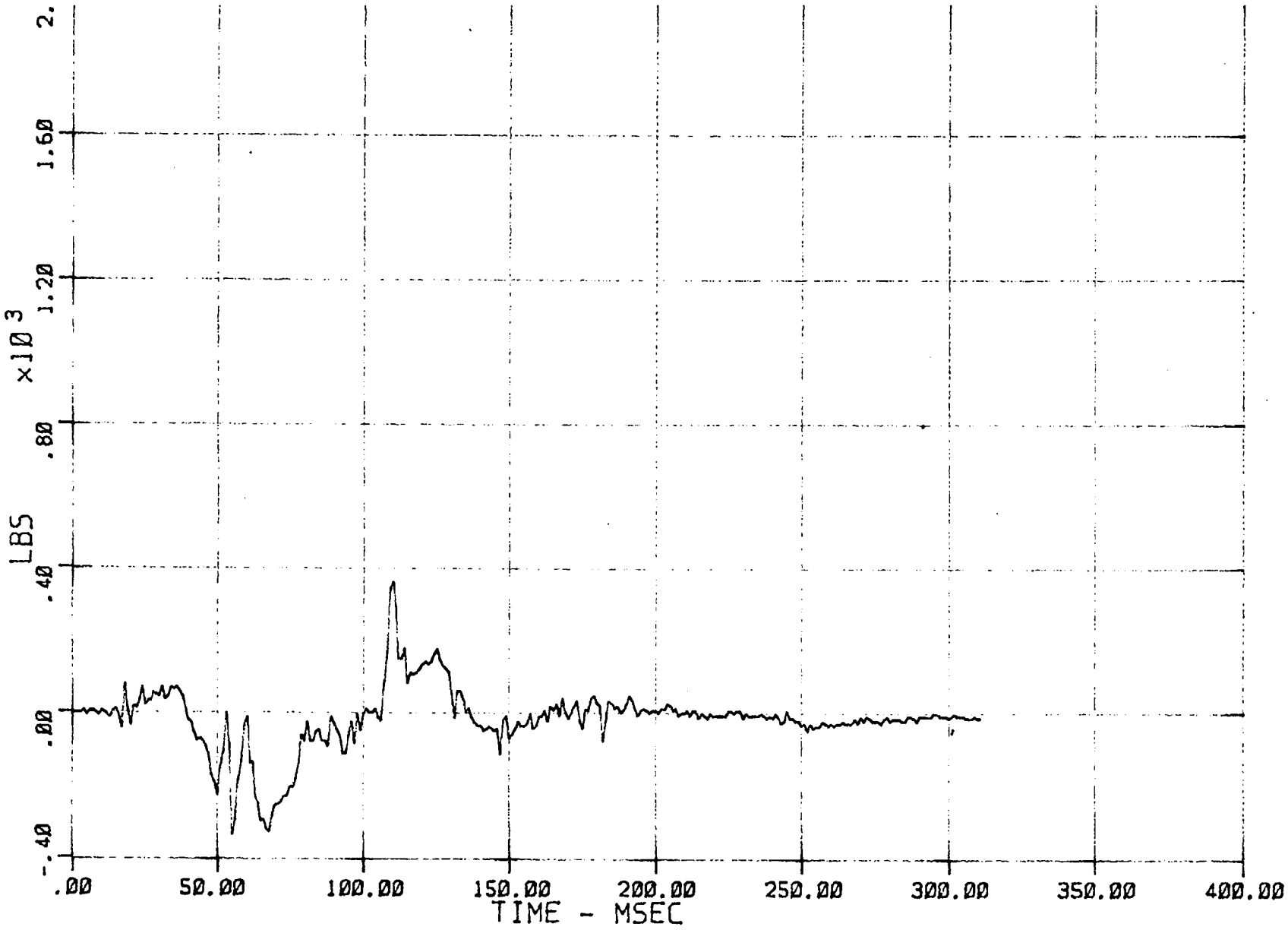

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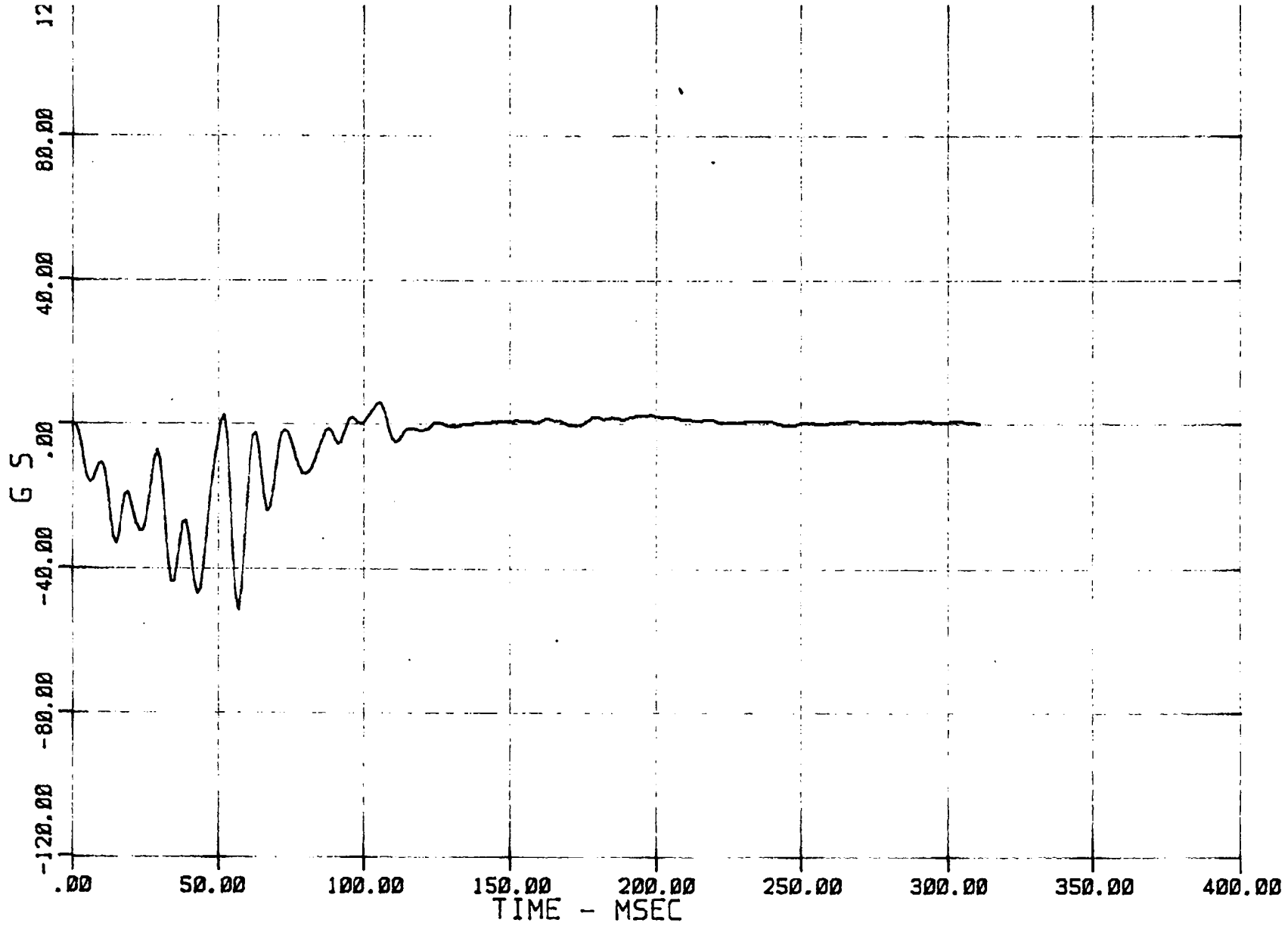

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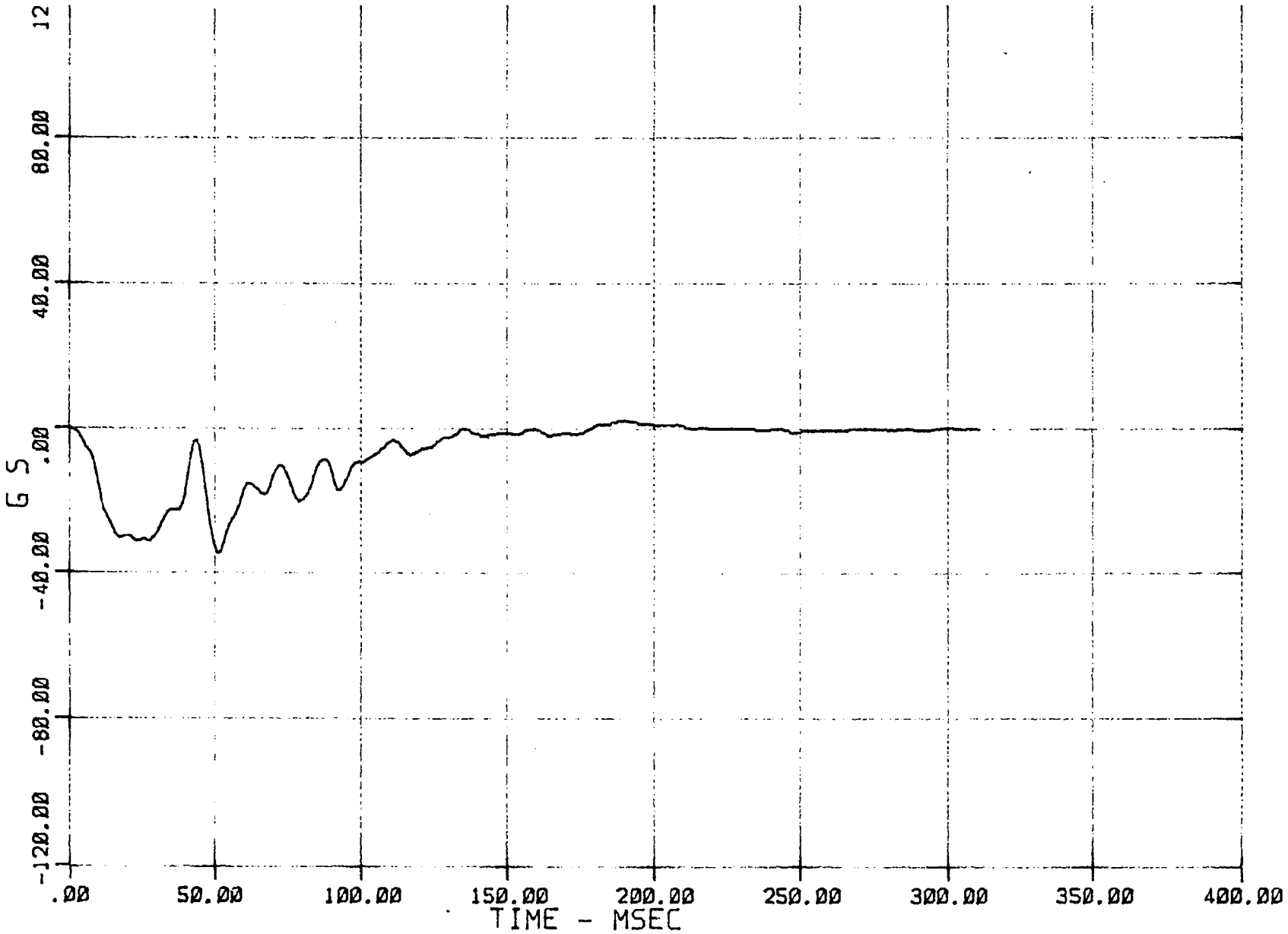

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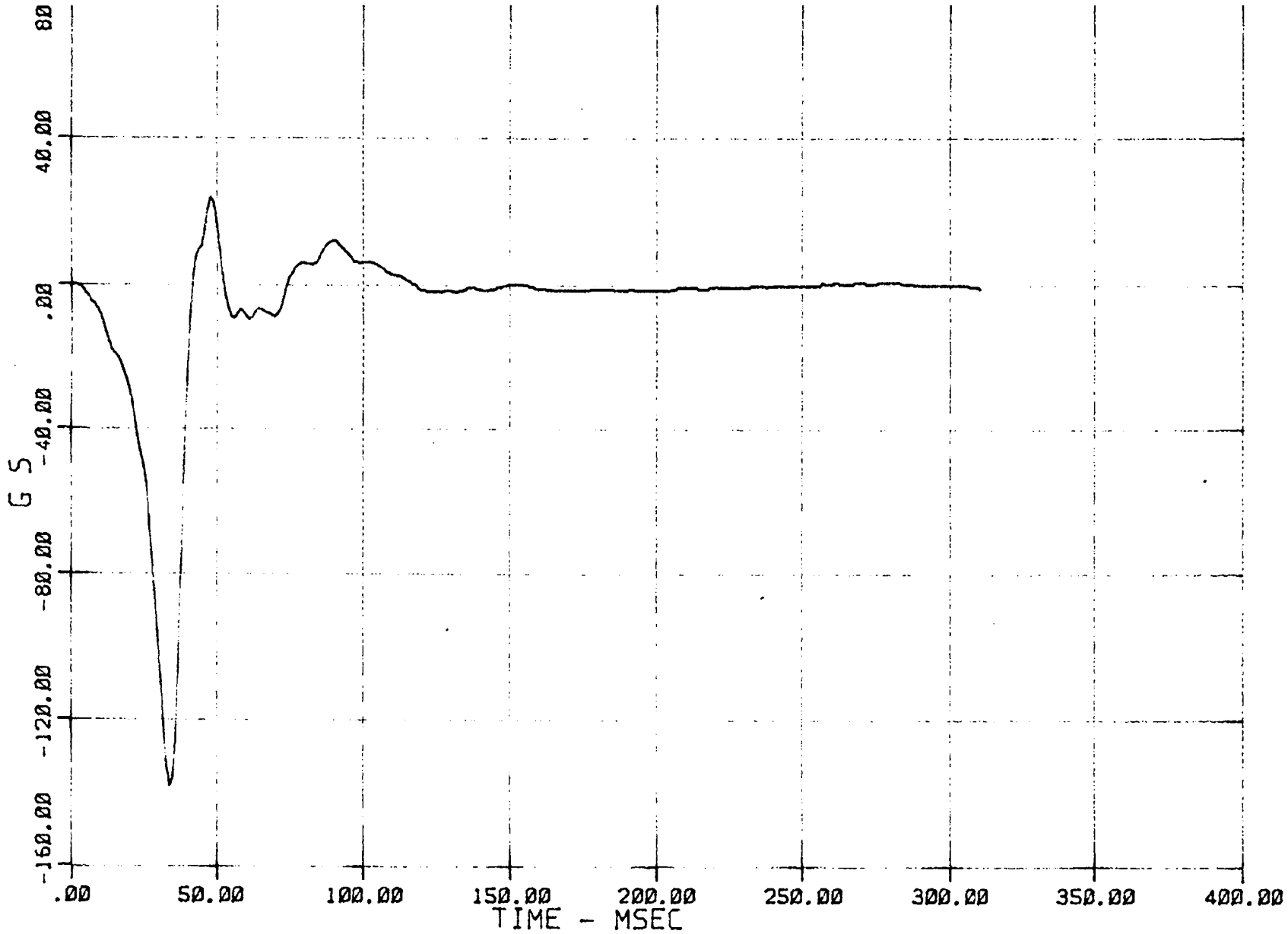

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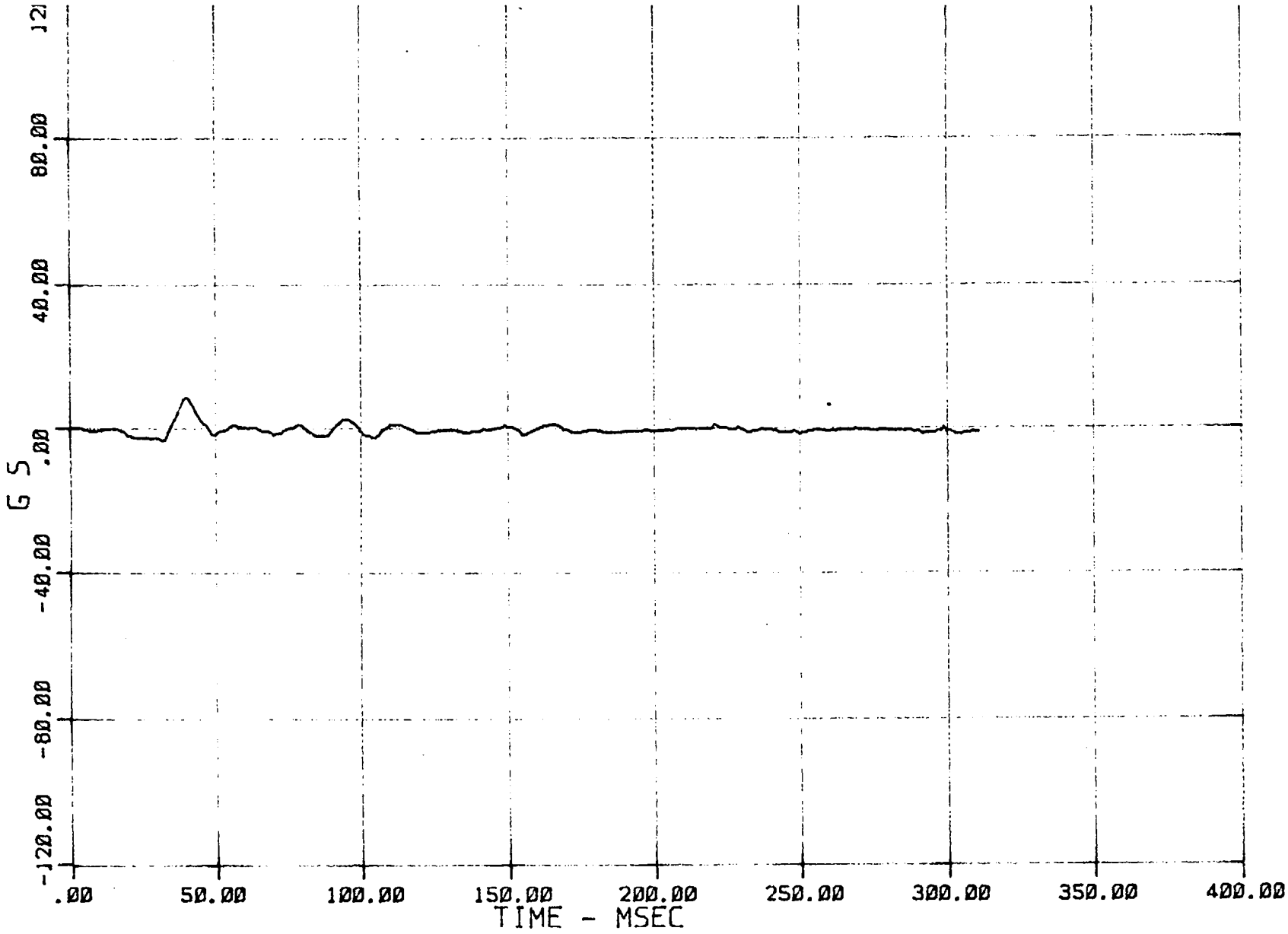

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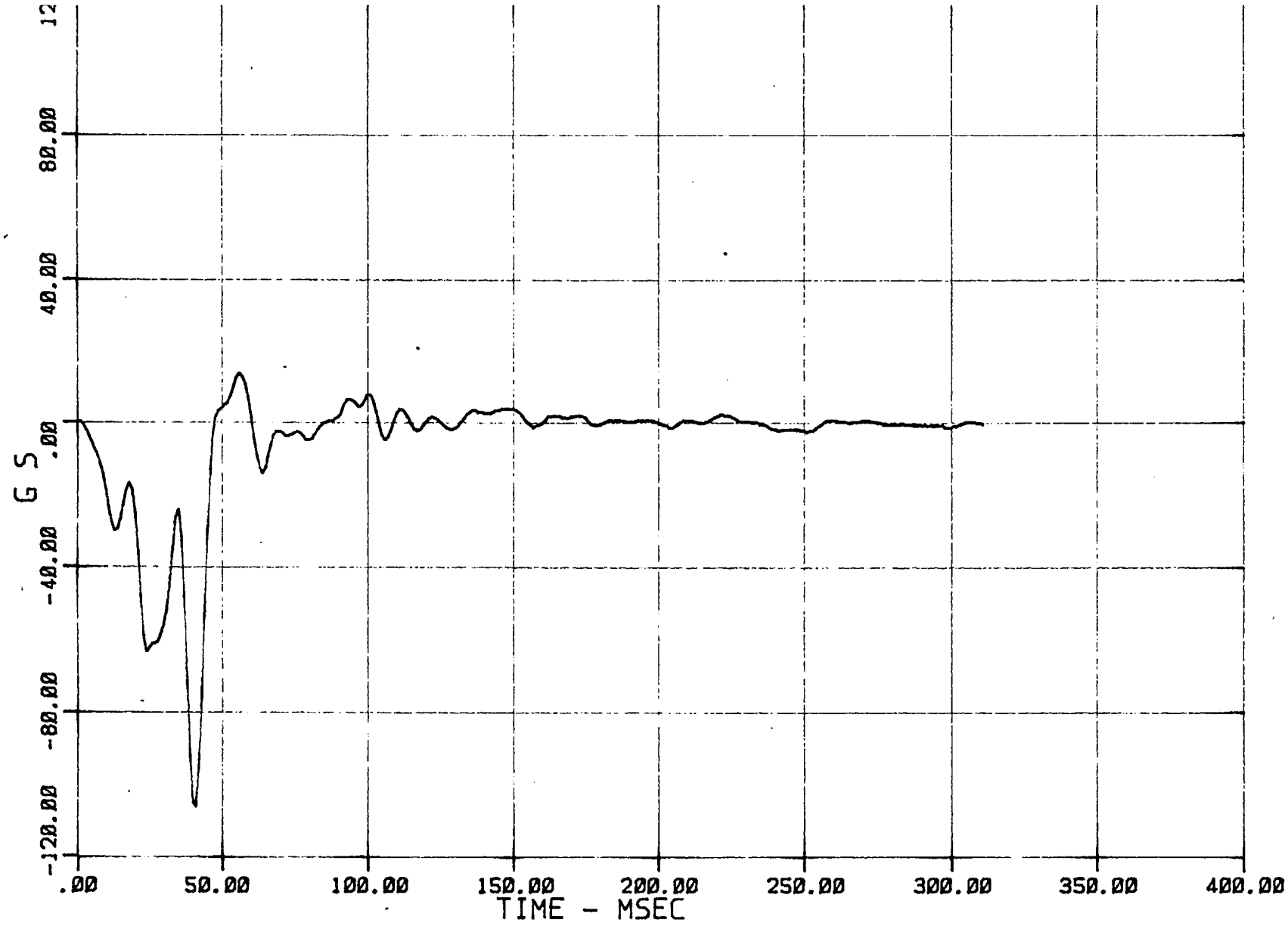

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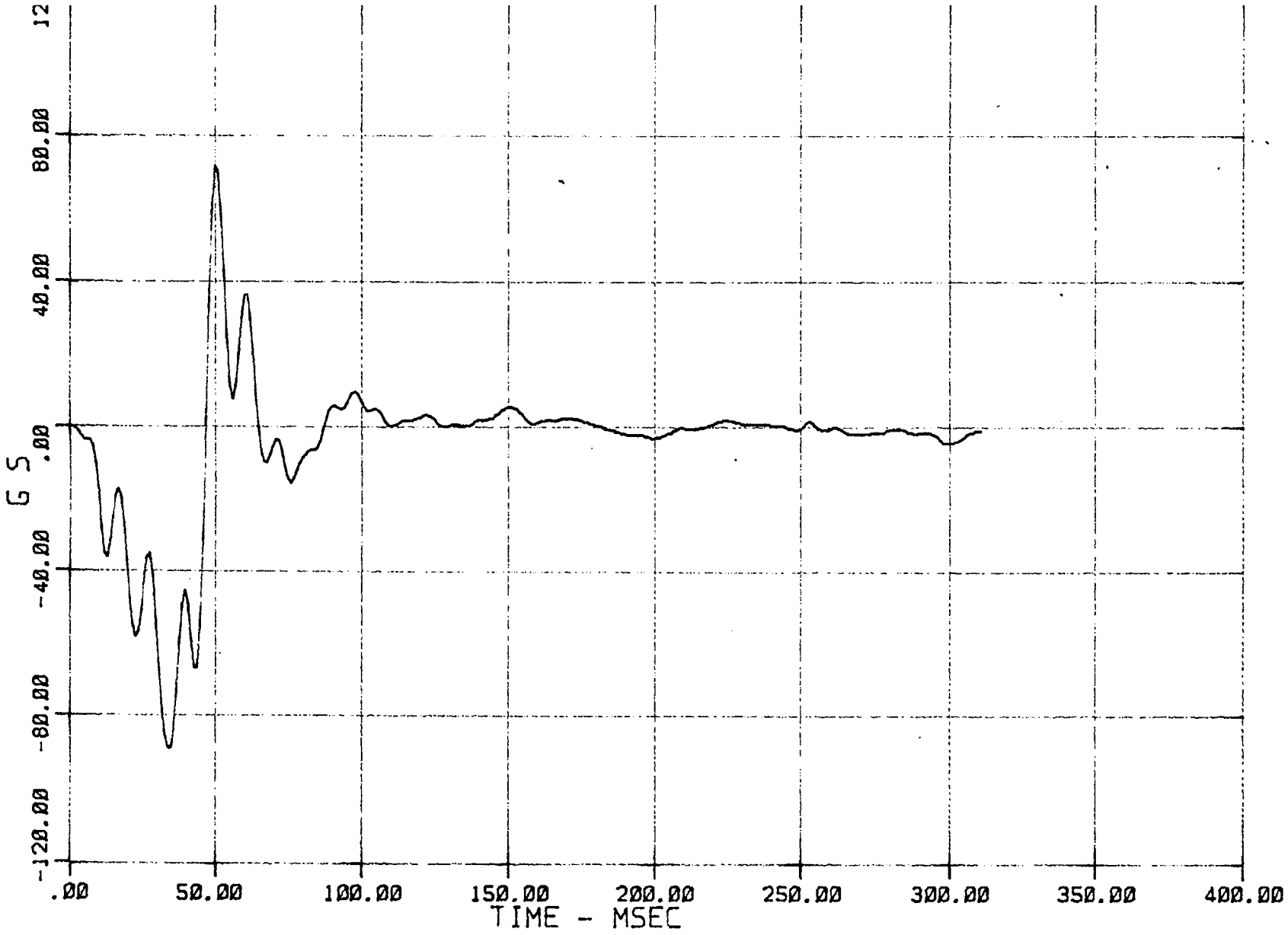

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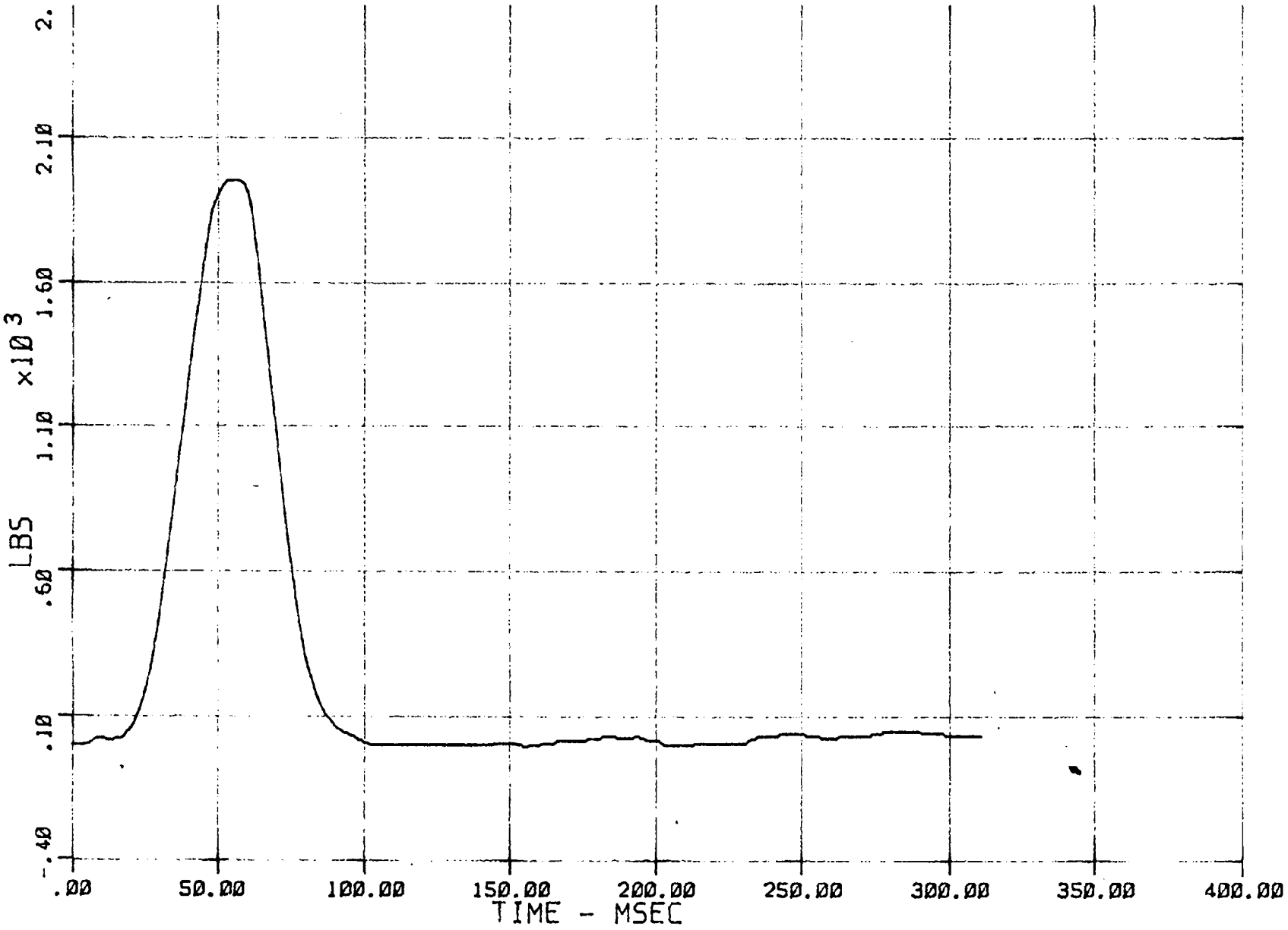

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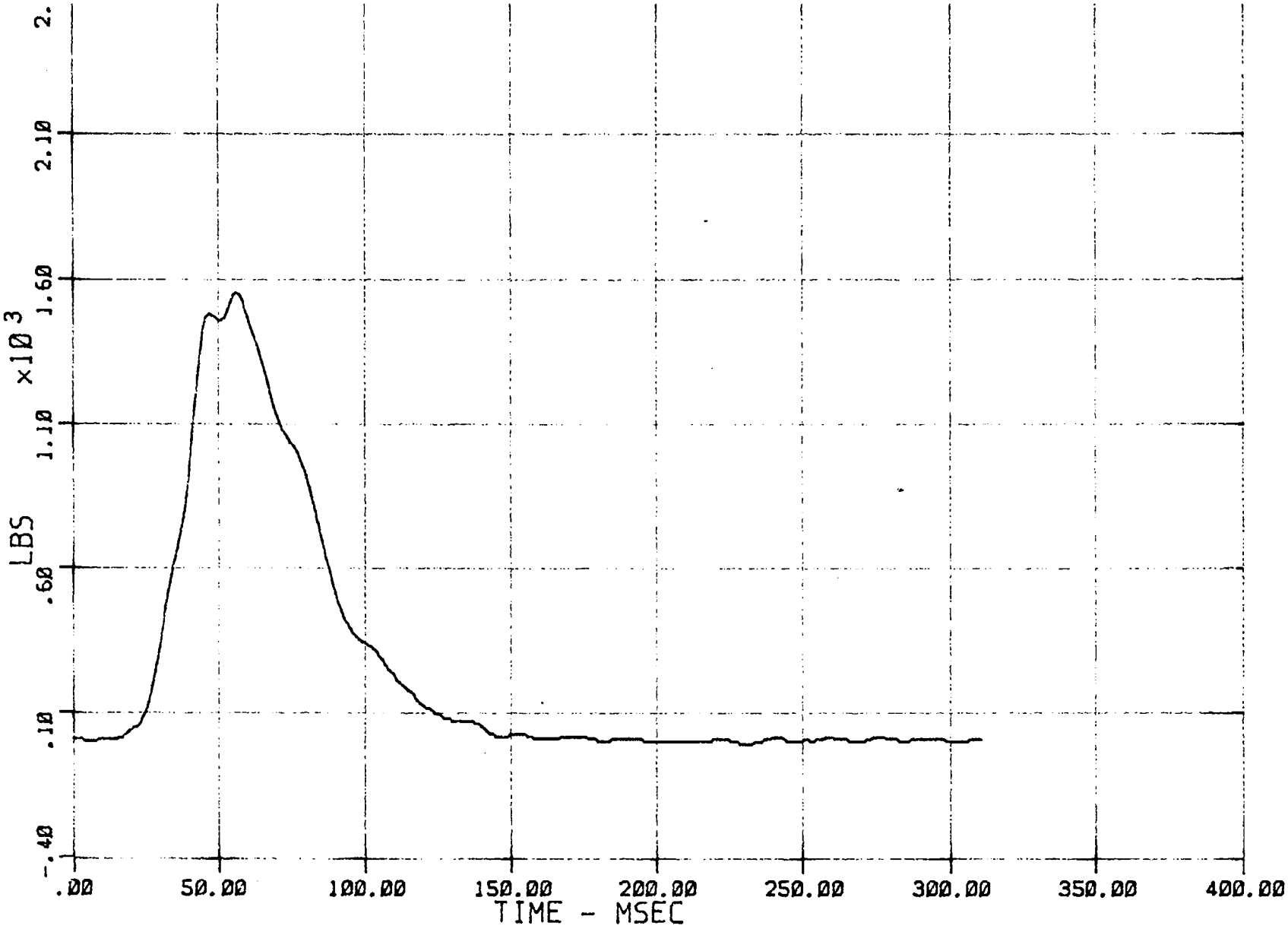

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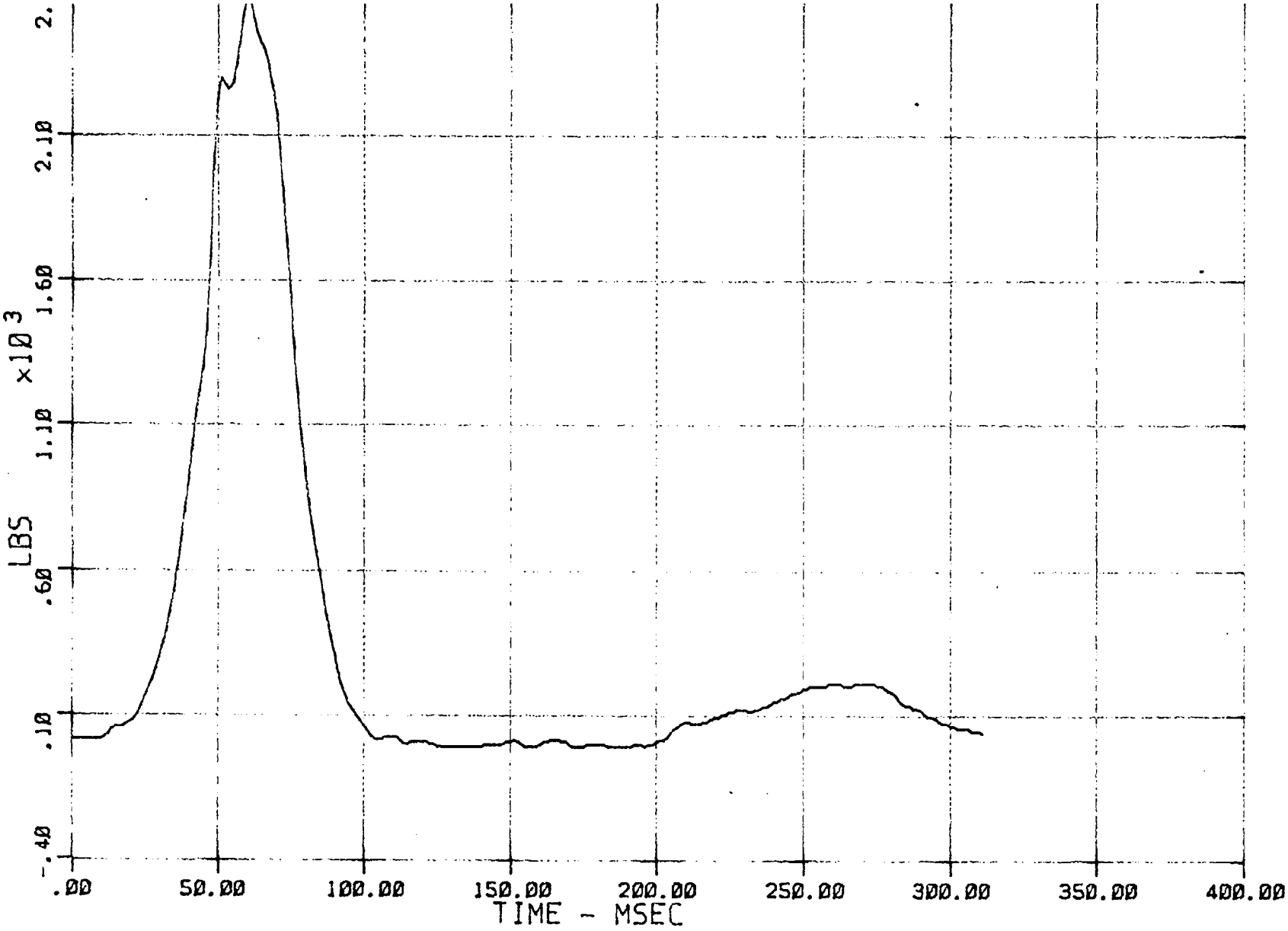

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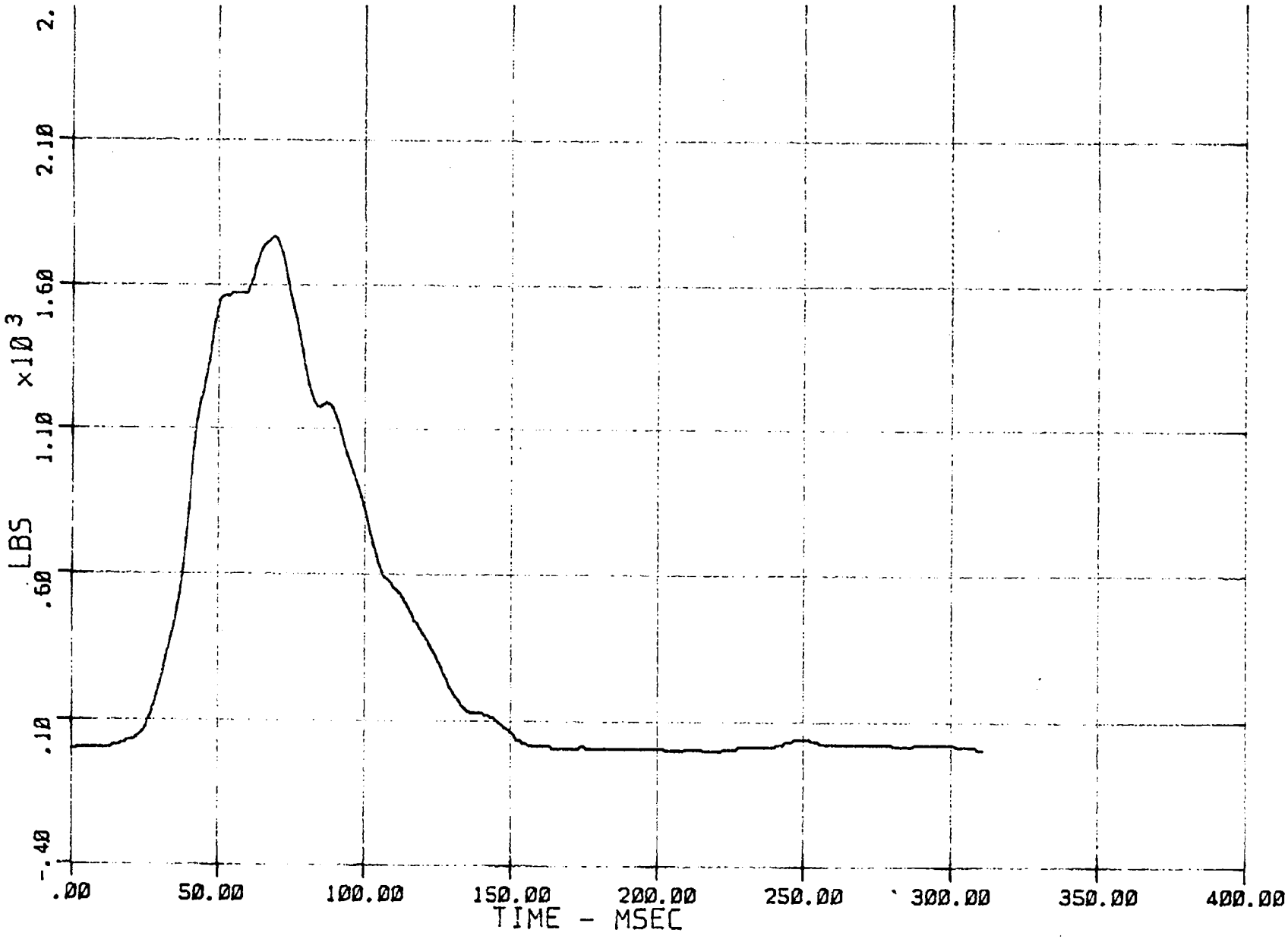

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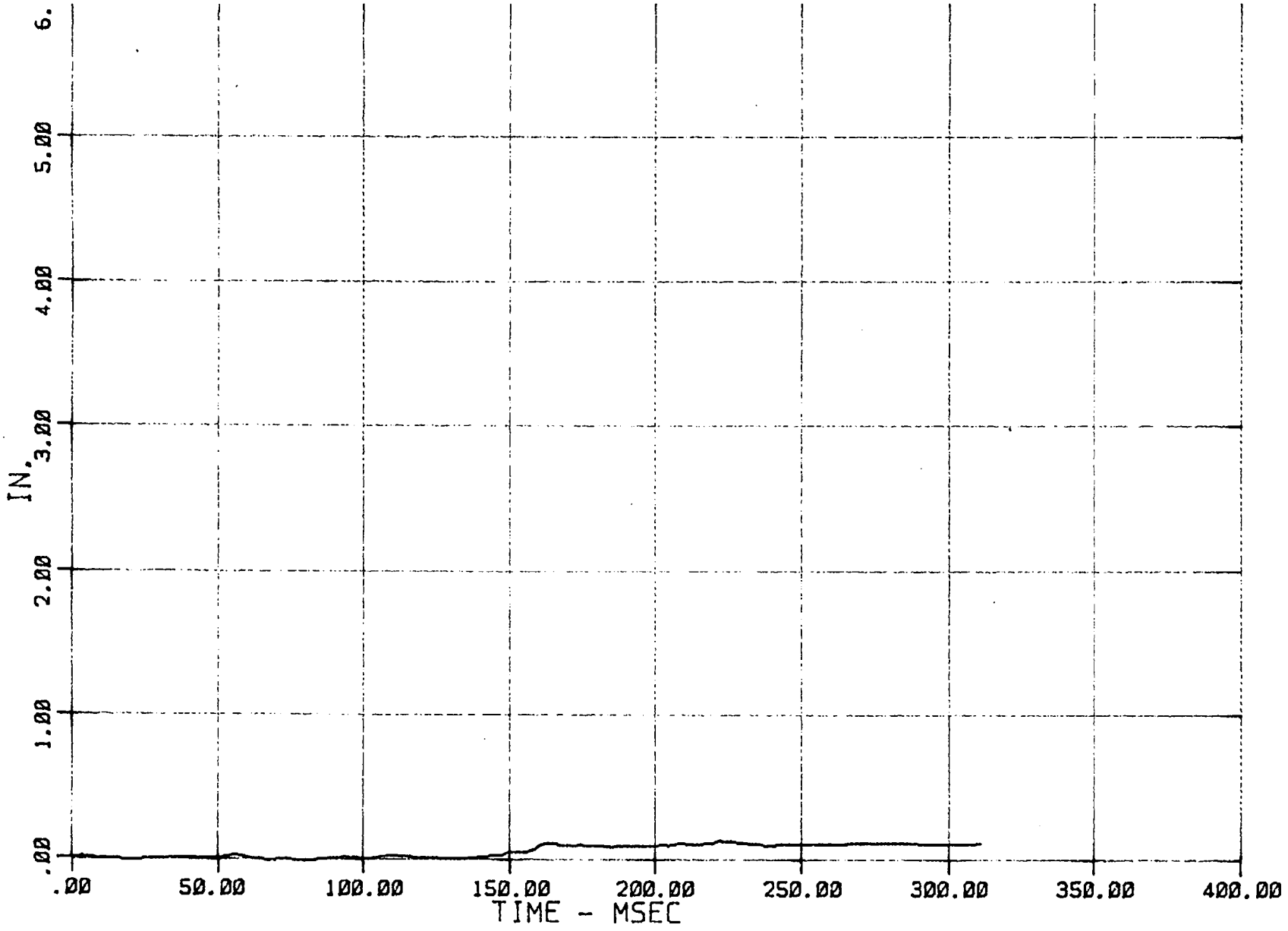

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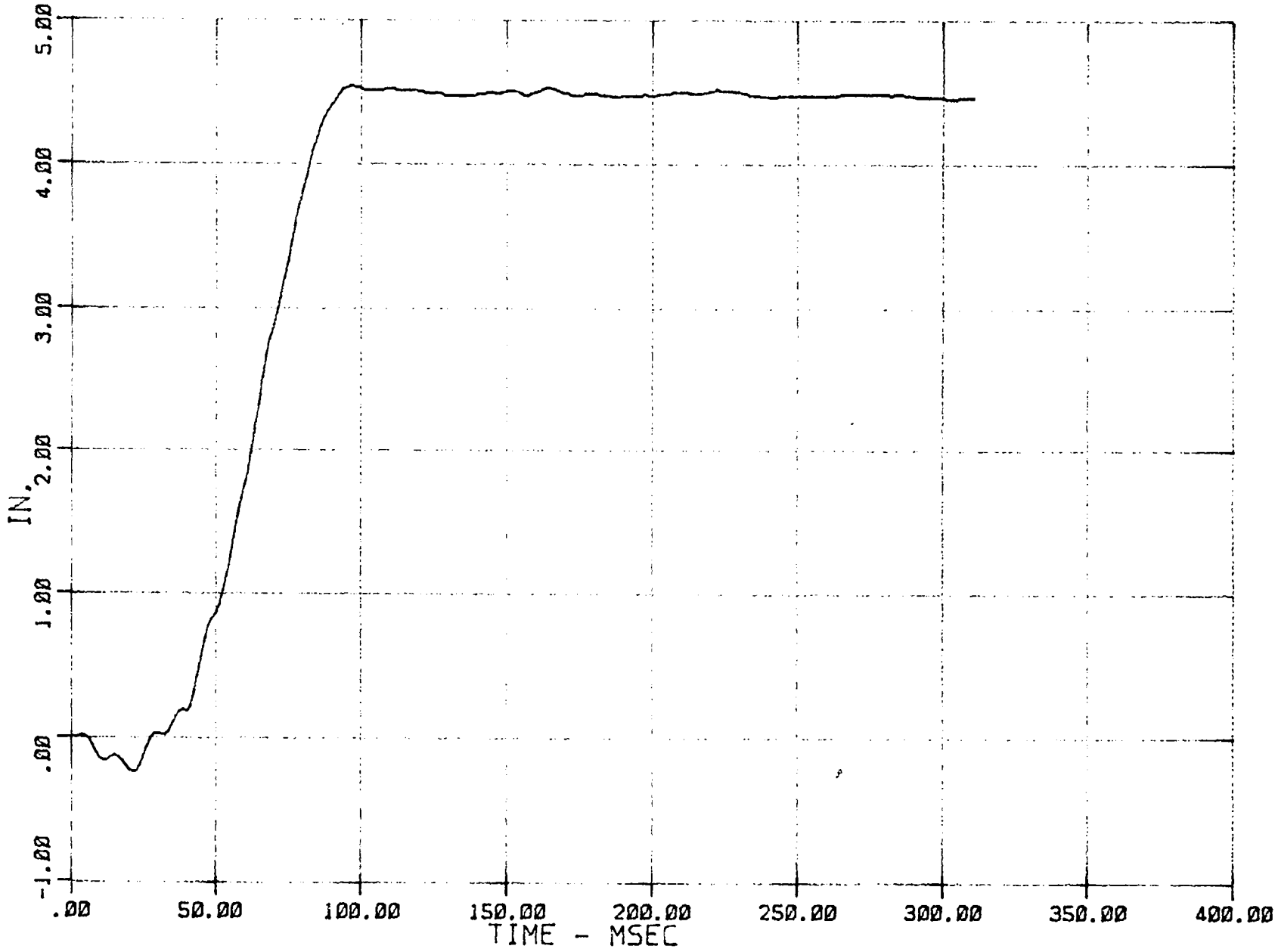

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06/15/83

REPORT NO. 212-MSE-83-003
219-MSE-83-003
301-MSE-83-003

580

NHTSA NEW VEHICLE ASSESSMENT AND STANDARDS ENFORCEMENT INDICANT TESTING FMVSS 212, 219, & 301-75

FORD MOTOR COMPANY

1984 FORD BRONCO II

MULTIPURPOSE VEHICLE

NHTSA NO. CE0603

APPROVED:
TOM GRUBBS
CONTRACT TECHNICAL MANAGER
FMVSS 204/208/212/301
DATE: JUL 22 1983

July 1983

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

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

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Prepared by M. Poindexter

Approved By

Date 18 July 1983

Report Accepted by:

TOM GRUBBS
Contract Technical Manager
Office of Vehicle Safety Compliance

JUL 22 1983
Date

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
212-MSE-83-003 219-MSE-83-003 301-MSE-83-003		

4. Title and Subtitle	5. Report Date
NHTSA NEW VEHICLE ASSESSMENT AND STANDARDS ENFORCEMENT INDICANT TESTING	July 1983
	6. Performing Organization Code MSE

7. Author(s)	8. Performing Organization Report No.
Lloyd E. Carlson, Project Manager Mark Poindexter, Project Engineer	2150-003

9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
Mobility Systems and Equipment Company Automotive Research Center P. O. Box 424 Mira loma, California 91753 Telephone (714) 685-5247	11. Contract or Grant No. DTNH22-82-D-21140

12. Sponsoring Agency Name and Address	13. Type of Report
U. S. Department of Transportation National Highway Traffic Safety Administration 400 Seventh Street, S.W. (NEF-31) Washington, D.C. 20590 Telephone (202) 426-2807	FINAL REPORT
	14. Sponsoring Agency Code NEF-31

15. Supplementary Notes

16. Abstract

A 35 mph frontal barrier impact assessment test was performed on the vehicle listed 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. 219, "Windshield Zone Intrusion"
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 Bronco II
Impact Speed- 35.42 mph
Veh. Body Style- Multipurpose Vehicle
Test Date- 15 June 1983
Veh. NHTSA I.D. No.- CE0603
Ambient Temp.- 91 °F

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

FMVSS 212
FMVSS 219
FMVSS 301

The following FMVSS No. 208 Head Injury Data was generated during the crash:
Driver Dummy HIC = 789
Passenger Dummy HIC = 1038

17. Key Words	18. Distribution Statement
New Vehicle Assessment Stds. Enforcement Indicant Testing 35 mph Frontal Impact Testing	Copies Available From— Technical Reference Division, NHTSA 400 Seventh Street, S.W., Rm 5108 Washington, D.C. 20590 Attn: Bob Hornickle (202) 426-2987 Mail Code: NAD-52

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

TABLE OF CONTENTS

SECTION 1

The test was conducted as part of the 1983 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, 219, 301-75; occupant response; and vehicle acceleration environment, at impact speeds in excess of these specified in the current FMVSS requirements. The test was conducted in accordance with the NHTSA test procedures TP-219-02 and IP-212-02.

A summary of the test conditions is presented in Section 2, the FMVSS 212, 219, 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 and the data plots in Appendix C.

SECTION 2

SUMMARY OF TEST CONDITIONS

A composite test was conducted on a 1984 Ford Bronco II NHTSA No. CE0603 on 06/15/83. The vehicle was impacted into a flat rigid 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 anthropometric test dummies (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 11 high-speed cameras. Two high-speed cameras were located on-board to view the belt pull-out. All cameras functioned properly.

Twenty-eight channels of data were recorded on three FM tape recorders. No data channels were lost during the test. 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-1983 Composite Test Program TEST NO. 03

DATE: 06/15/83 TIME: 2:33 p.m. TEMP. 91°F

VEHICLE	Ford Bronco II
TEST WEIGHT (lbs)	3845
IMPACT ANGLE (deg)	0
IMPACT VELOCITY (mph)	35.42
MAX. CRUSH (in)	24 3/4

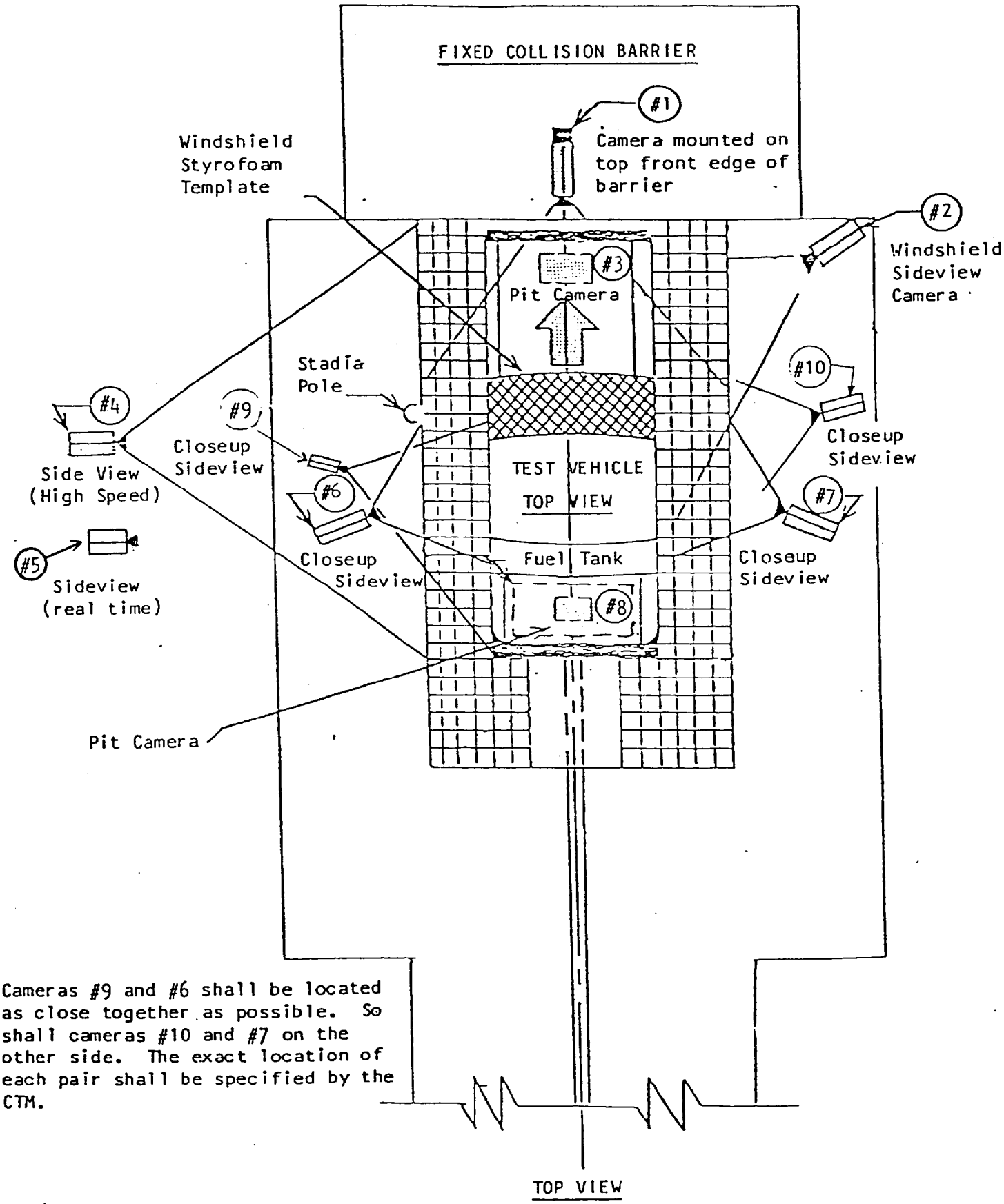
ATD's

TYPE	Part 572 50th Percentile Male	Part 572 50th Percentile Male
LOCATION	Left Front	Right Front
RESTRAINT	Production 3-point belt system	Production 3-point belt system

NUMBER OF DATA CHANNELS	28
NUMBER OF HIGH SPEED CAMERAS	11
BARRIER	Fixed, Rigid

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	Overhead (Barrier)	Windshield stryofoam up to barrier-vehicle contact if possible	16 mm	924 fps	None	HIMAC 135	12	0	212	Good
2	Ground Based (Right)	Windshield	20 mm	616 fps	None	HIMAC 143	11	- 102	62	Good
3	Pit	Engine underside and fuel pump	13 mm	513 fps	None	PHOTO-SONICS 45	46 3/4	0	- 59	Good
4	Ground Based (Left)	Views entire left side of vehicle	50 mm	617 fps	None	FASTAX 1258	34	1193	71	Good
5	Ground Based	Documentary	Zoom	24 fps	None	AIRFLEX 1258	542	1002	58	Good
6	Ground Based	Driver dummy closeup	25 mm	376 fps	None	MILIKEN 7410	59	152 1/4	68 1/2	Good
7	Ground Based	Passenger dummy closeup	25 mm	450 fps	100 Hz	MILIKEN 6784	101 1/2	- 138	64 3/8	Good
8	Pit	Fuel tank	13 mm	565 fps	None	PHOTO-SONICS 573	175	- 1	- 52	Good
9	Gound Based	Same view as Camera No. 6	25 mm	650 fps	100 Hz	FAIR-CHILD 305	87 1/2	148	66 3/4	Good
10	Ground Based (Right)	Same view as Camera No. 7	25 mm	933 fps	100 Hz	HIMAC 135	73	- 143	65 1/2	Good
11	On-board	Driver retractor	13 mm	889 fps	None	FAIR-CHILD 238	Variable	- 9	31	Good
12	On-Board	Passenger retractor	13 mm	916 fps	None	FAIR-CHILD 276	Variable	8 1/4	31 1/2	Good



Cameras #9 and #6 shall be located as close together as possible. So shall cameras #10 and #7 on the other side. The exact location of each pair shall be specified by the CTM.

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	AC	VEH. RFF X	Good
18	AC	VEH. LRF X	Good
19	AC	VEH. ENG TOP X	Good
20	AC	VEH. ENG. BOT. X	Invalid
21	AC	VEH. BCR X	Good
22	AC	VEH. BCL X	Good
23	LC	DR LBO	Good
24	LC	DR SHB	Good
25	LC	PA LBO	Good
26	LC	PA SHB	Good
27	DT	DR SHB	Invalid
28	DT	PA SHB	Good

2.1 GENERAL COMMENTS

The 1984 Ford Bronco II four wheel drive MPV was equipped with a 2.8 liter V-6 engine, five speed manual transmission and power steering. The test weight of the vehicle including 2 ATD's, instrumentation, and cameras was 3,845 lbs.

The Bronco II was crashed into a fixed rigid barrier at a speed of 35.42 mph. The vehicle appears to have complied with the FMVSS 212, 219, and 301 requirements. There was 88% windshield retention. The places where the windshield appeared to separate from the vehicle were along its bottom edge. There was no intrusion into the windshield's protected zone. No fuel leakage was observed after the impact or during the subsequent rollover test.

A maximum static crush of 24 3/4 inches occurred at the center of the front bumper. The windshield was cracked, and both the doors and roof were deformed by the crash.

The driver ATD head and chest hit the steering wheel rim, and then his body rolled off to the right side of the steering wheel. The driver's knees hit the dash panel. The left knee ended up under the steering column. The driver ATD met all FMVSS 208 Injury Criteria with a HIC of 789, a maximum chest acceleration (resultant clipped) of 49 g's, and femur loads of 270 and 380 lbs. The driver's seat belt pull-out determined from film analysis was 2 1/2 inches.

The right front passenger ATD grazed the top of his head on the edge of the top of the dash panel. His head moved through the open storage compartment until the forehead hit the bottom of the compartment where a steel bar that is part of the top of the glove compartment is located. This ATD did not meet the FMVSS 208 Head Injury Criteria with a HIC of 1038. A maximum chest acceleration (resultant clipped) of 50 g's, and femur loads of 440 and 340 lbs. were measured. The passenger's seatbelt pull-out determined from film analysis was 2 1/2 inches.

SECTION 3

COMPLIANCE DATA
FMVSS 212, 219, 301-75

Compliance data for FMVSS No.'s 212, 219 and 301-75 were acquired during the test. The results are presented in Tables 4 through 7.

TABLE 4 SUMMARY OF FMVSS 212 DATA

TEST VEHICLE NHTSA NO. CE0603 TEST DATE: 06/15/83

VEH. MFR/MAKE/MODEL Ford Bronco II

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

The windshield is glued to a rubber molding with adhesive. The exterior edges of the windshield are covered by a painted metal molding which is held to the frame by clips at 6 in. intervals. The clips were slid over rivets in the frame.

	WINDSHIELD PERIPHERY	
	PRETEST	POSTTEST
RIGHT SIDE	74 1/4	68
LEFT SIDE	74 1/2	63 1/4
TOTAL	148 3/4	131 1/4

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:

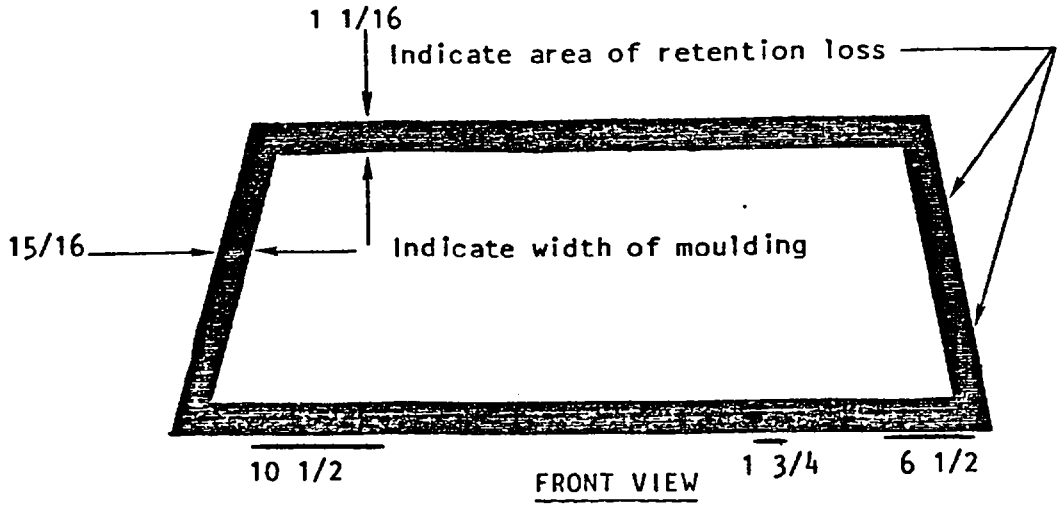
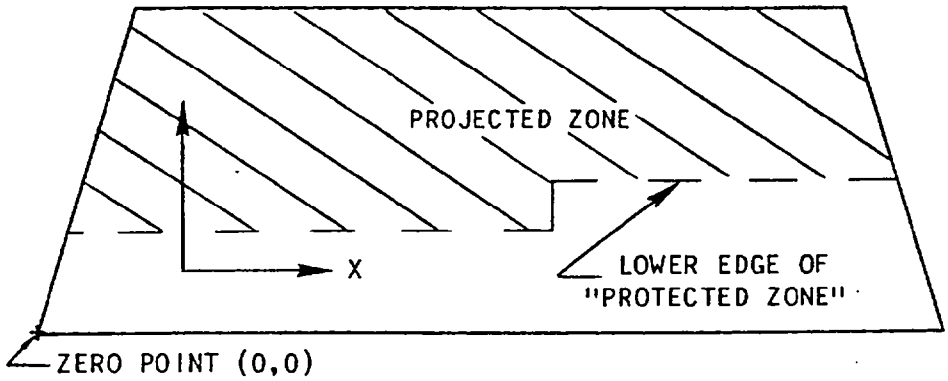


TABLE 5 WINDSHIELD ZONE INTRUSION, FMVSS 219

TEST VEHICLE NHTSA NO. CE0603 TEST DATE: 06/15/83

VEH. MFR/MAKE/MODEL Ford Bronco II



FRONT VIEW

With the zero coordinate for the X-Y grid located at the lower right corner (passenger side) of the windshield, record the following positions:

(A) The area that the "Protected Zone" template was penetrated more than .25 inches by a vehicle component other than one which is normally in contact with the windshield.

Coordinates

X	Y

None

(B) The area beneath the "Protected Zone" that the inner surface of the windshield was penetrated by a vehicle component.

Coordinates

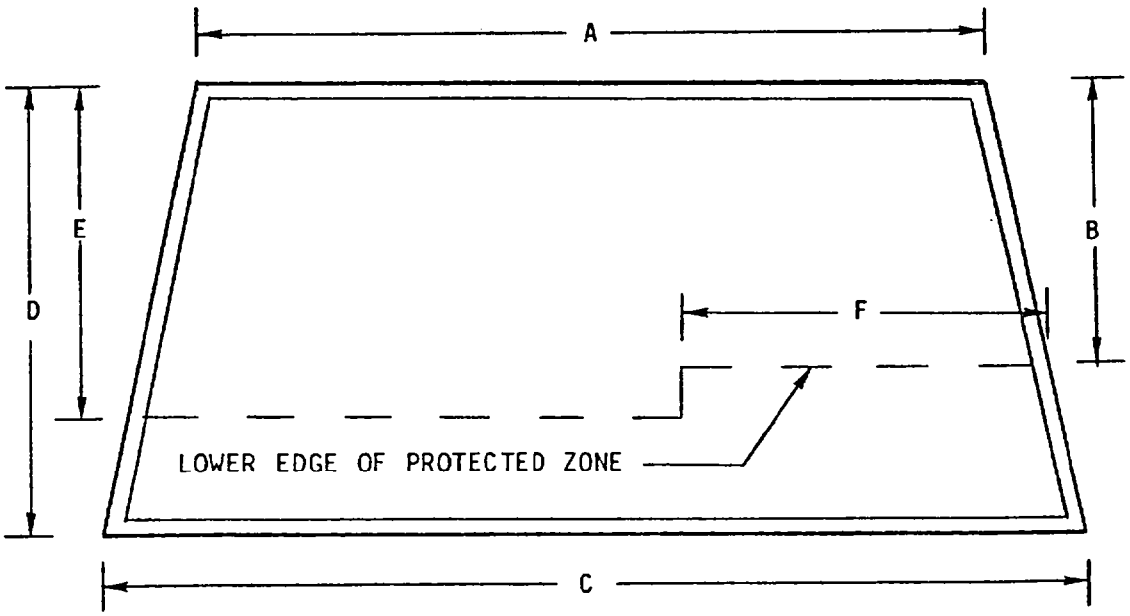
X	Y

None

TABLE 6 PROTECTED ZONE

TEST VEHICLE NHTSA NO. CE0603 TEST DATE: 06/15/83

VEH. MFR/MAKE/MODEL Ford Bronco II



FRONT VIEW OF WINDSHIELD

Provide all dimensions necessary to reproduce the protected zone.
Method of adhering styrofoam to the windshield:

Glued with G.E. silicone adhesive.

A = 49 7/8 D = 25

B = 13 5/8 E = 13

C = 59 3/8 F = 39

TABLE 7 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST VEHICLE NHTSA NO. CE0603 TEST DATE 06/15/83

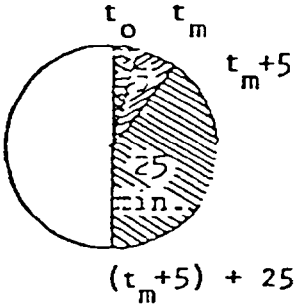
VEH. MFR/MAKE/MODEL Ford Bronco II

Test vehicle fuel tank filled to 90-91% 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 - - -



	ACTUAL	MAX. ALLOW.
1. From impact until vehicle motion ceases - - - - - -	0	1 oz
2. For 5 minute period after veh. motion ceases - - -	0	5 oz
3. For next 25 minutes - - -	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

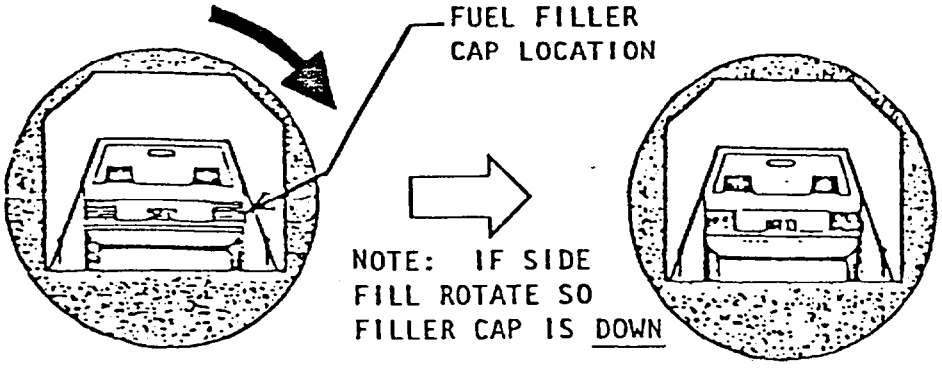
No spillage was observed.

TABLE 7 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET (CONT)

TEST VEHICLE NHTSA NO. CE0603 TEST DATE 06/15/83

VEH. MFR/MAKE/MODEL Ford Bronco II

TEST PHASE: 0° 90°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time - - (Spec. Range = 1 to 3 minutes)	=	1	minutes	24 seconds
FMVSS 301-75 Position Hold Time - - -	±	5	minutes	00 seconds
TOTAL- - - - - - - - - - - - - - - - - - -	=	6	minutes	24 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	0

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

IV. SOLVENT SPILLAGE LOCATION(S):

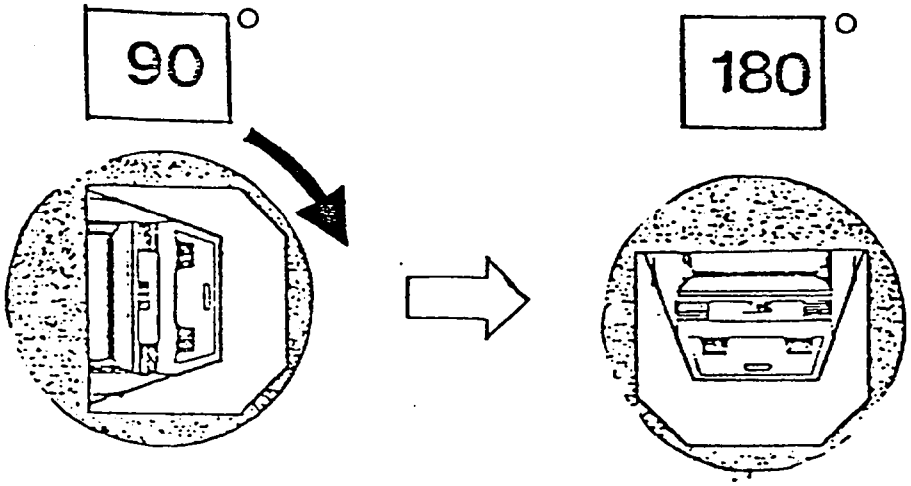
None

TABLE 7 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET (CONT)

TEST VEHICLE NHTSA NO. CE0603 TEST DATE 06/15/83

VEH. MFR/MAKE/MODEL Ford Bronco II

TEST PHASE



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time - - = (Spec. Range - 1 to 3 minutes)	1 minutes	19 seconds
FMVSS 301-75 Position Hold Time - - - - =	5 minutes	00 seconds
TOTAL - - - - - - - - - - - - - - - - - - =	6 minutes	19 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	0

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

IV. SOLVENT SPILLAGE LOCATION(S):

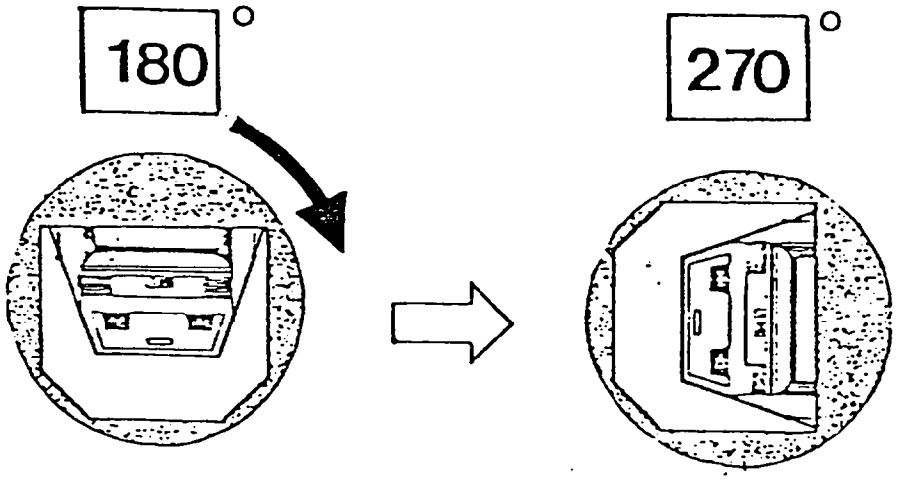
None

TABLE 7 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET (CONT)

TEST VEHICLE NHTSA NO. CE0603 TEST DATE 06/15/83

VEH. MFR/MAKE/MODEL Ford Bronco II

TEST PHASE



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time - - = (Spec. Range - 1 to 3 minutes)	1	minutes	14	seconds
FMVSS 301-75 Position Hold Time - - - =	5	minutes	00	seconds
TOTAL - - - - - - - - - - - - - - - - - - =	6	minutes	14	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	0

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

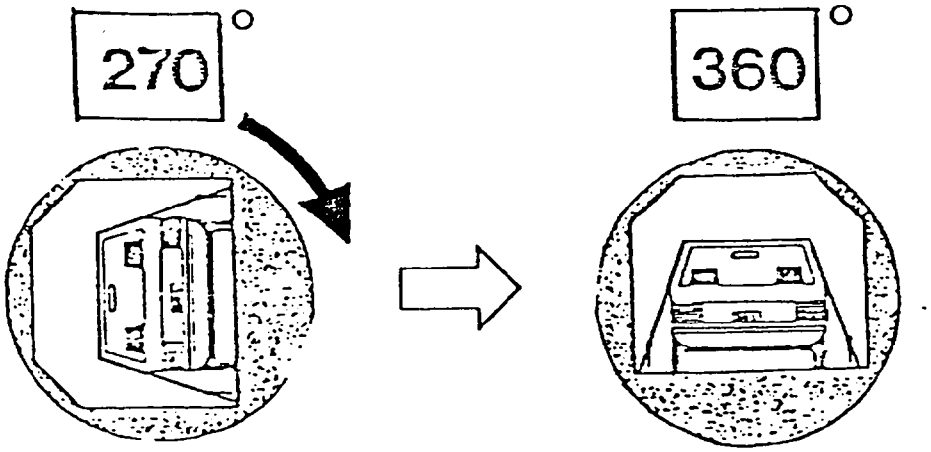
IV. SOLVENT SPILLAGE LOCATION(S):

None

TABLE 7 FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET (CONT)

TEST VEHICLE NHTSA NO. CE0603 TEST DATE 06/15/83

VEH. MFR/MAKE/MODEL Ford Bronco II



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

SECTION 4

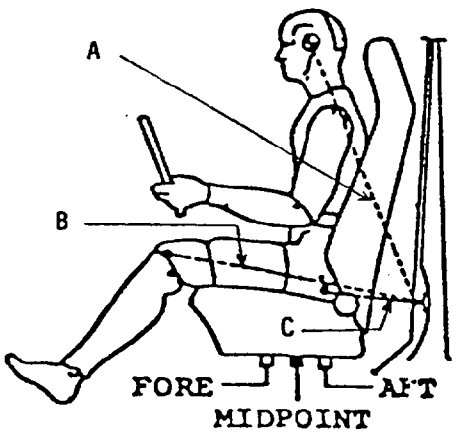
OCCUPANT DATA

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.

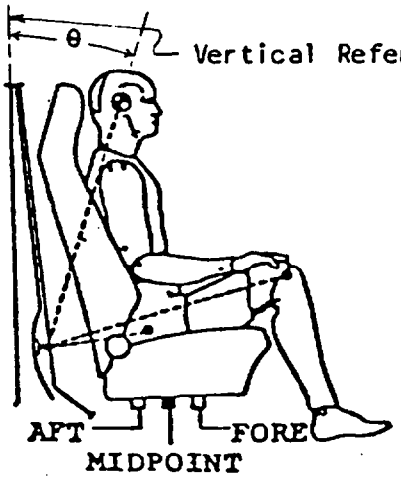
The pretest position of each ATD is shown in Tables 8 and 9. A summary of the ATD measurements is shown in Table 10. A description of the posttest ATD positions is presented in Table 11.

TABLE 8 – DUMMY IN-VEHICLE POSITION RECORDING

DRIVER ATD



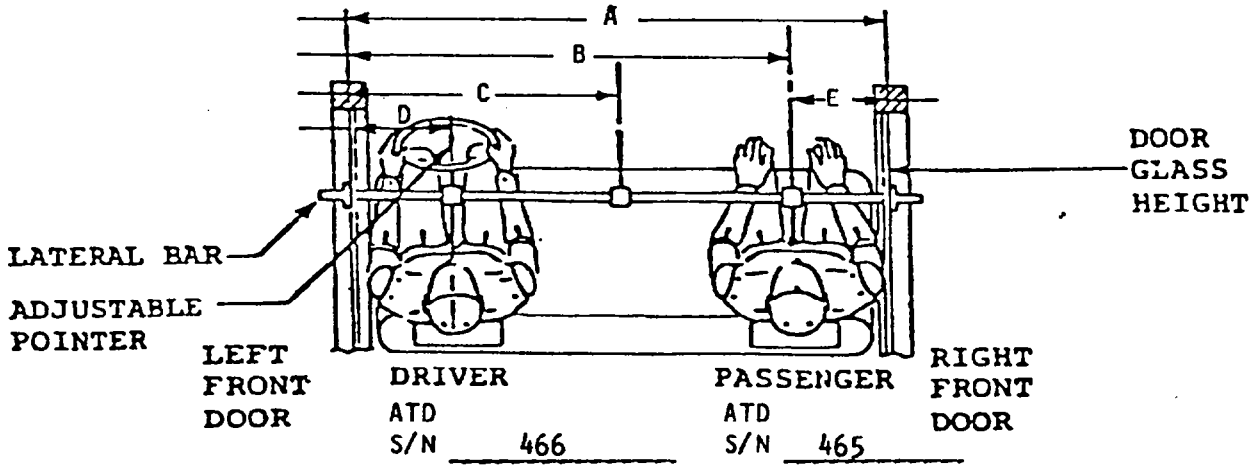
PASSENGER ATD



Dimension	(in.)	(θ°)
A	24 5/8	22
B	26 5/8	88
C	12 3/8	108
Torso Angle = 18°		
Seat Back Angle = 24°		

Dimension	(in.)	(θ°)
A	23 3/4	17
B	24 1/4	93
C	10 5/8	119
Torso Angle = 11°		
Seat Back Angle = 21°		

All angles are relative to the vertical plane.

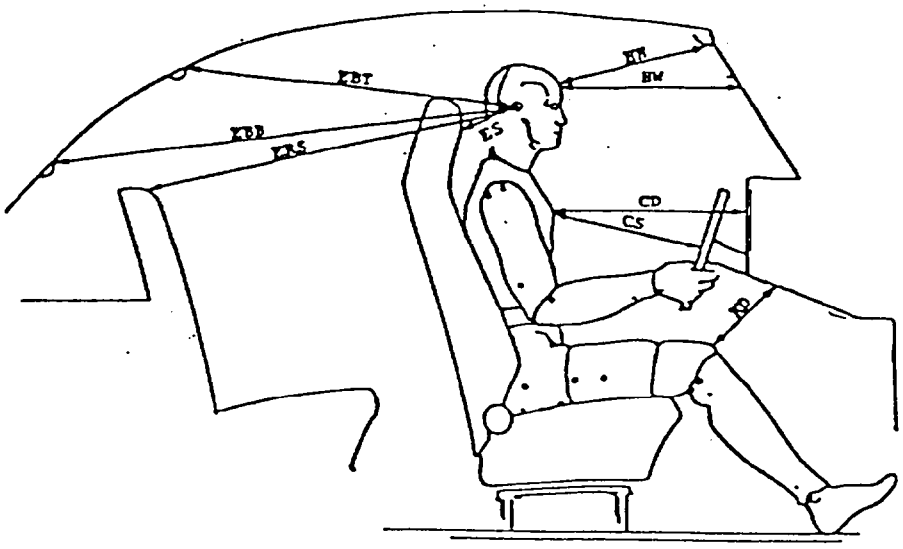


A = 55 1/4 D = 14 1/2

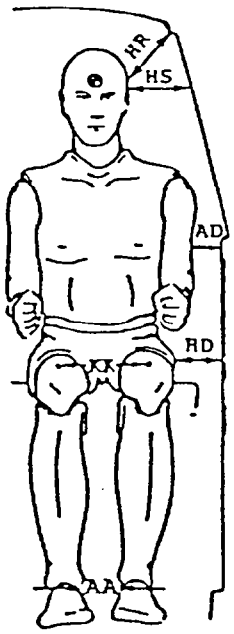
B = 41 1/8 E = 14 1/8

C = 27 5/8

TABLE 9 PART 572 ATD IN-VEHICLE POSITION



	DRIVER	PASSENGER
HH	24 3/4	14 1/8
HW	17 3/8	19 1/2
CD	21 1/2	23 3/4
CS	10	–
KD L	5 1/16	8 1/2
KD R	6	8 1/8



	DRIVER	PASSENGER
HR	5 5/8	7 15/16
HS	11	9 1/2
AD	4 5/8	4 3/8
HD	6 1/8	6 1/4
KK	14 1/2	11 1/2
AA	12 1/2	9 5/8

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 10 PART 572 ATD DATA SUMMARY

Test Vehicle: 1984 Ford Bronco II	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	18	109	101	67	1	218	100	108
Lateral	4	195	35	84	62	180	4	108
Vertical	61	62	34	67	51	64	14	128
Resultant	108	67	--	—	124	108	--	--
HIC	789 btwn 40 and 98 msec				1038 btwn 43 and 123 msec			
Chest Acceleration Longitudinal	4	160	43	61	6	159	47	113
Lateral	6	43	25	79	23	94	9	155
Vertical	23	46	17	120	36	61	20	117
Resultant (Max)	50	60	--	---	51	63	--	---
Resultant (clip)	49	---	--	---	50	---	--	---
	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)
Femur Loads Left	220	77	270	46	160	40	440	66
Right	160	67	380	49	360	110	340	55
Belt Loads Lap	1950	--	55	--	2580	--	60	--
Torso	1550	--	56	--	1780	--	69	--
	Peak (in.)	Time (msec)	--	--	Peak (in.)	Time (msec)	--	--
Belt Spoolout: Potentiometer	--	--	--	--	2.5	95	--	--
Film Data	2.5	--	--	--	2.5	--	--	--

Vehicle Impact Speed (mph): 35.42

* Longitudinal: Forward
Lateral: Rightward
Vertical: Downward

** Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

TABLE 11 GENERAL ATD POSTTEST DESCRIPTIONS

ATD Positions

Driver:

Slouched, leaning to the right, the left knee touching the steering column, hands at the sides.

Passenger:

Slouched, right shoulder touching the door, the left arm at the center of the car, both knees clear of dash panel.

Visible ATD Contact Areas

Component	Driver	Passenger
Head	Top of Steering Wheel Rim and Column	Above and Below Storage Compartment
Chest	Lower Steering Wheel	None
Abdomen	None	None
Left Knee	Dash Panel and Steering Column	Glove Compartment Door
Right Knee	Dash Panel	Glove Compartment Door

SECTION 5

VEHICLE DATA

The test vehicle is a 1984 Ford Bronco II. General vehicle descriptive information is presented in Table 12.

The pretest and posttest vehicle dimensional data are presented in Table 13.

The accelerometer placement locations and a summary of the measured peak amplitudes are presented in Table 14.

TABLE 12 TEST VEHICLE INFORMATION

Vehicle Manufacturer: Ford Motor Company

Make/Model: Bronco II

Body Style: Multiple Purpose Vehicle Model Year: 1984

VIN: 1FMBU1451EUA07016 Build Date: March 1983

NHTSA No.: CE0603 Color: Blue

Engine Data: 6 Cylinders: 2800 cc Displacement

Transmission Data: 5 Speed (X) Manual/ ( ) Automatic

Date Vehicle Received by Laboratory: 28 March 1983

Dealer's Name & Address: Fairway Ford 1350 E. Yorba linda, Placentia CA

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

Vehicle Manufactured By: Ford Motor Company

Date of Manufacturer: March 1983 VIN: 1FMBU1451EUA07016

GVWR: 3940 lbs. GAWR: Front = 1970 lbs. Rear = 2165 lbs.

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:
P195/75R15SL	(B) C D

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

RECOMMENDED COLD TIRE PRESSURE	F 35 : R 35

** CARGO LOAD = 121 lbs

TOTAL = 721 lbs.

Number of Occupants = 2 Front, 2 Rear, 4 Total
(Designated Seating Capacity)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with max. fluids): 3219 lbs.

Right Front = 825 lbs Right Rear = 795 lbs

Left Front = 822 lbs Left Rear = 777 lbs

TOTAL FRONT WEIGHT = 1647 lbs (51.2 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1572 lbs. (48.8 % of Total Vehicle Weight)

TOTAL DELV. WEIGHT = 3219 lbs

CALCULATION FOR TARGET TEST WEIGHT

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (3219 lbs)

VCW = Vehicle Capacity Weight (721* lbs)

DSC = Designated Seating Capacity (4)

RCLW = VCW - 150 (DSC) = 121 lbs

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

Target Test Weight = 3,668 lbs

* GVWR-UDW
** Cargo weight is not given on label, the weight shown is calculated.

TABLE 12 TEST VEHICLE INFORMATION (CONT'D)

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 300 lbs CARGO: 3845

Right Front = 916 lbs — Right Rear = 1020 lbs

Left Front = 897 lbs — Left Rear = 1012 lbs

TOTAL FRONT WEIGHT = 1813 lbs (47.2 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 2032 lbs (52.8 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 3845 lbs

Weight of ballast secured in vehicle trunk area = 150 lbs *

VEHICLE ATTITUDE: (all dimensions in inches)

Delivered Attitude: RF 30 1/8 LF 31 1/8 RR 30 1/2 LR 31 1/8

Test Attitude: RF 30 3/8 LF 30 7/16 RR 28 1/8 LR 28 3/4

Wheelbase: 94 1/4 ; Distance from c.g. to front axle: 49.8

TEST FLUID DATA:

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

Viscosity: 0.96 Centistokes

Fuel System Capacity (data from NHTSA): 23 gal.

Fuel System Capacity (data from Owners Manual): 23 gal.

Test Volume: 21.3 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: The fuel tank is located behind the rear axle differential. The filler hose goes from the left side of the vehicle along the underside of the floor to the tank. Three fuel lines go from the tank along the inner side of the left frame rail to the engine compartment. Two of the lines go to the fuel pump attached to the left side of the engine. The third goes to a cannister at the front left corner of the engine compartment.

* Ballast was added because the RCLW value of 300 lbs. (for MPV's) was incorrectly applied to this vehicle.

TABLE 12 TEST VEHICLE INFORMATION (CONT'D)

TEST CONDITIONS:

Date of Test: 15 June 1983 Time of Test: 2:33 am/(pm)

Ambient Temperature: 91 °F at impact area

Temp. In Occ. Compart.: 78 °F: W/Shld. Mldg. Temp.: 78 °F

IMPACT VELOCITY:

Trap No. 1 = 35.42 mph; Trap No. 2 = 35.42 mph

Distance from the vehicle's front bumper to the barrier face entering the vehicle velocity measurement device = 60 inches

Exiting the vehicle velocity measurement device = 12 inches

VEHICLE REBOUND

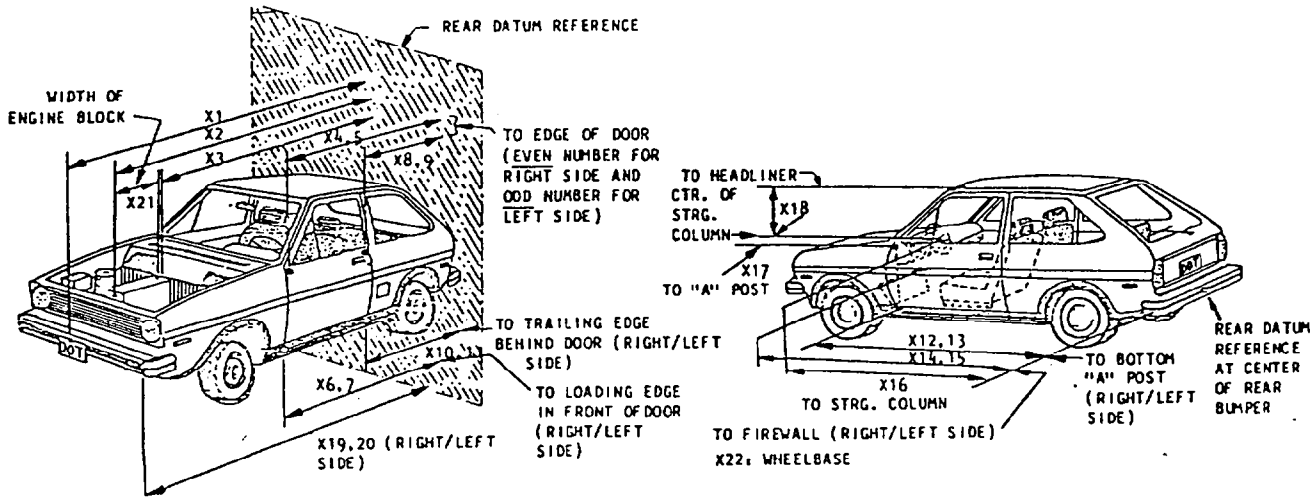
Distance from front of test vehicle to the barrier after impact: Ave. = 0 ; R = 0 ; L = 0

VEHICLE MAXIMUM CRUSH:

Left Side : 24 3/4 inches Ave.: 24 3/4

Right Side: 24 3/4 inches Max.: 24 3/4

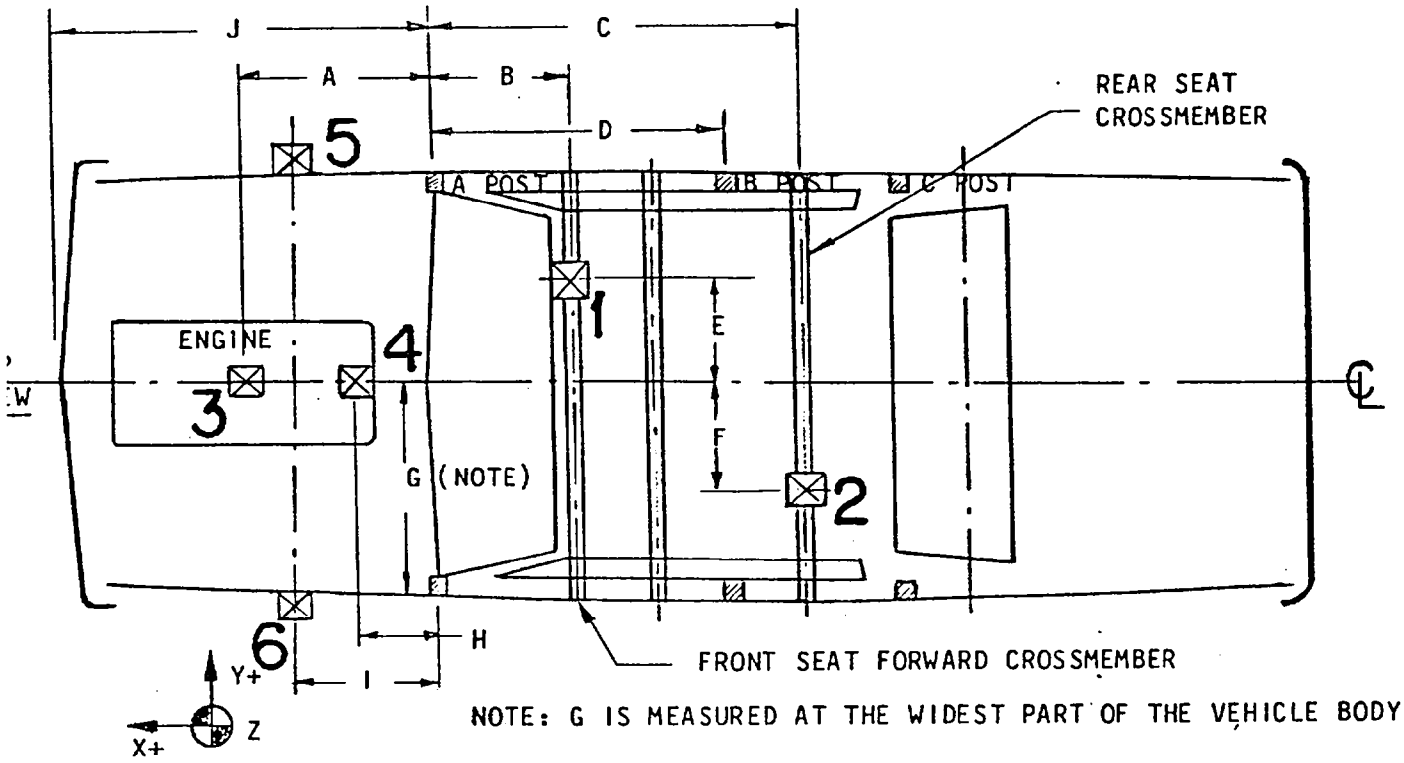
TABLE 13 PRE-/POST-TEST STATIC MEASUREMENT DATA



VEHICLE: Ford Bronco II NHTSA NO.: CE0603

TEST DATE: 15 June 1983

REFERENCE DIMENSION	PRE-TEST MEASUREMENT	POST-TEST MEASUREMENT	CHANGE
X1	160 3/4	136	- 24 3/4
X2	137	128	- 9
X3	118 1/2	115	- 3 1/2
X4	107	104 1/2	- 2 1/2
X5	106 1/2	107	+ 1/2
X6	104 1/8	104 1/2	+ 3/8
X7	105 3/4	105	- 3/4
X8	64 1/8	63 1/4	- 7/8
X9	63 3/4	65	1 1/4
X10	63 1/4	62 1/2	- 3/4
X11	63 1/4	63 1/8	- 1/8
X12	104 1/8	103	- 1 1/8
X13	104 1/2	104 1/2	0
X14	110 1/4	107 1/2	- 2 3/4
X15	111	109	- 2
X16	89 1/2	90 3/4	+ 1 1/4
X17	14 1/2	17 1/2	+ 3
X18	18	19 1/2	+ 1 1/2
X19	157 3/4	139 1/4	- 18 1/2
X20	158 1/4	138	- 20 1/4
X21	19 1/2	19	- 1/2
X22	94 1/2	91	- 3 1/4



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 - 19 B - 11 1/4	X	6	51	105	57
2 - Below Rear Seat Area	F - 12 3/4 C - 56 3/8	X	2	35	187	51
3 - Top of Engine at Carb. Mount	A - 28 1/4	X	25	137	46	34
4 - Bottom of Engine * at Oil Pan	H - 15 7/8	X	--	--	--	--
5 - Right Front Brake Caliper	I - 20 1/4	X	13	106	55	40
6 - Left Front Brake Caliper	I - 20 1/4	X	73	89	50	34
- Vehicle Half Width	G - 31 1/4					
- Forward Most Point At ℄ to A Post	J - 51 3/4					
- Distance from 'A' post to 'B' post	D - 43					

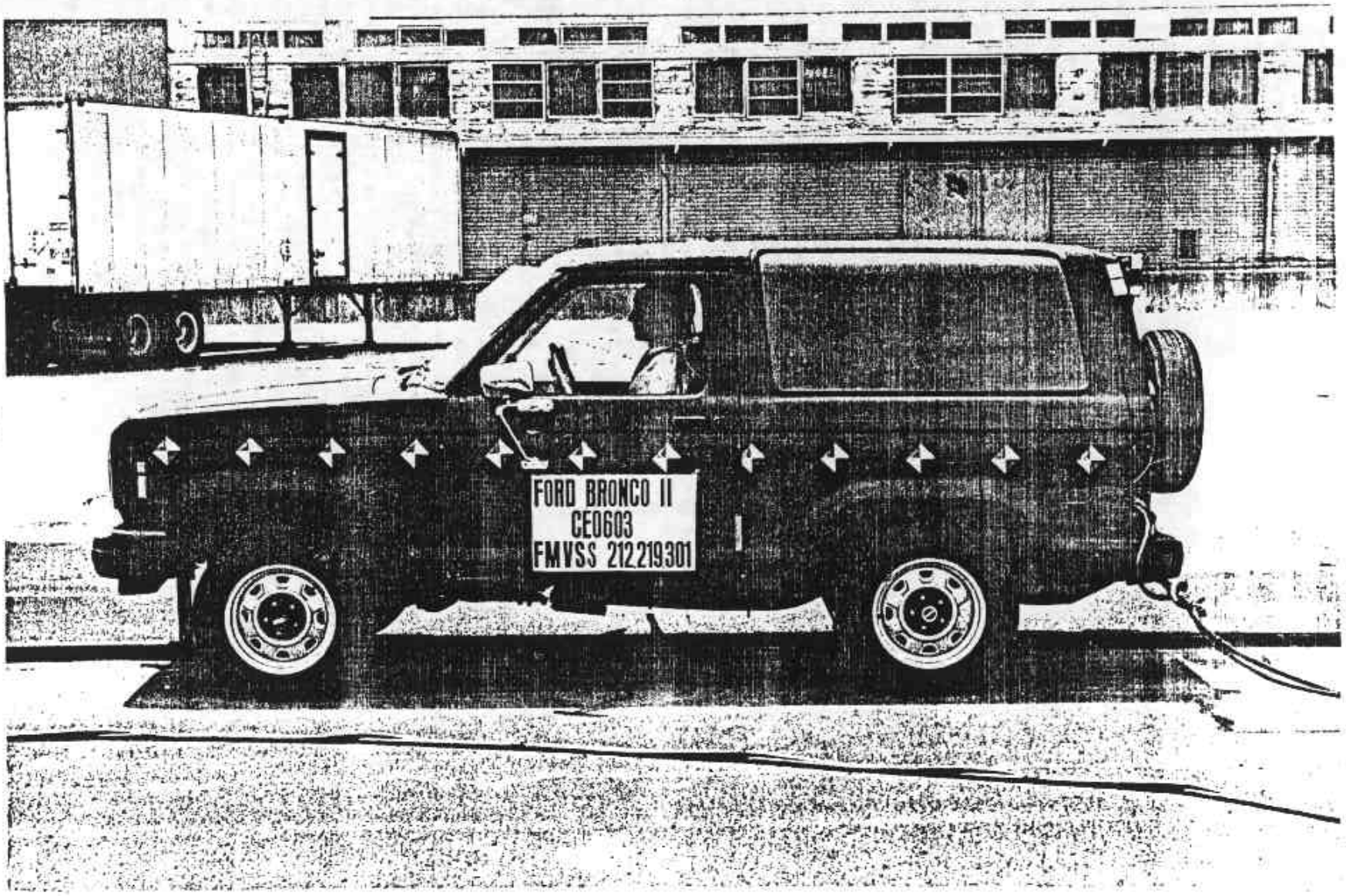
NOTE: NEGATIVE ACCELERATION IS REARWARD

* Invalid Data

APPENDIX

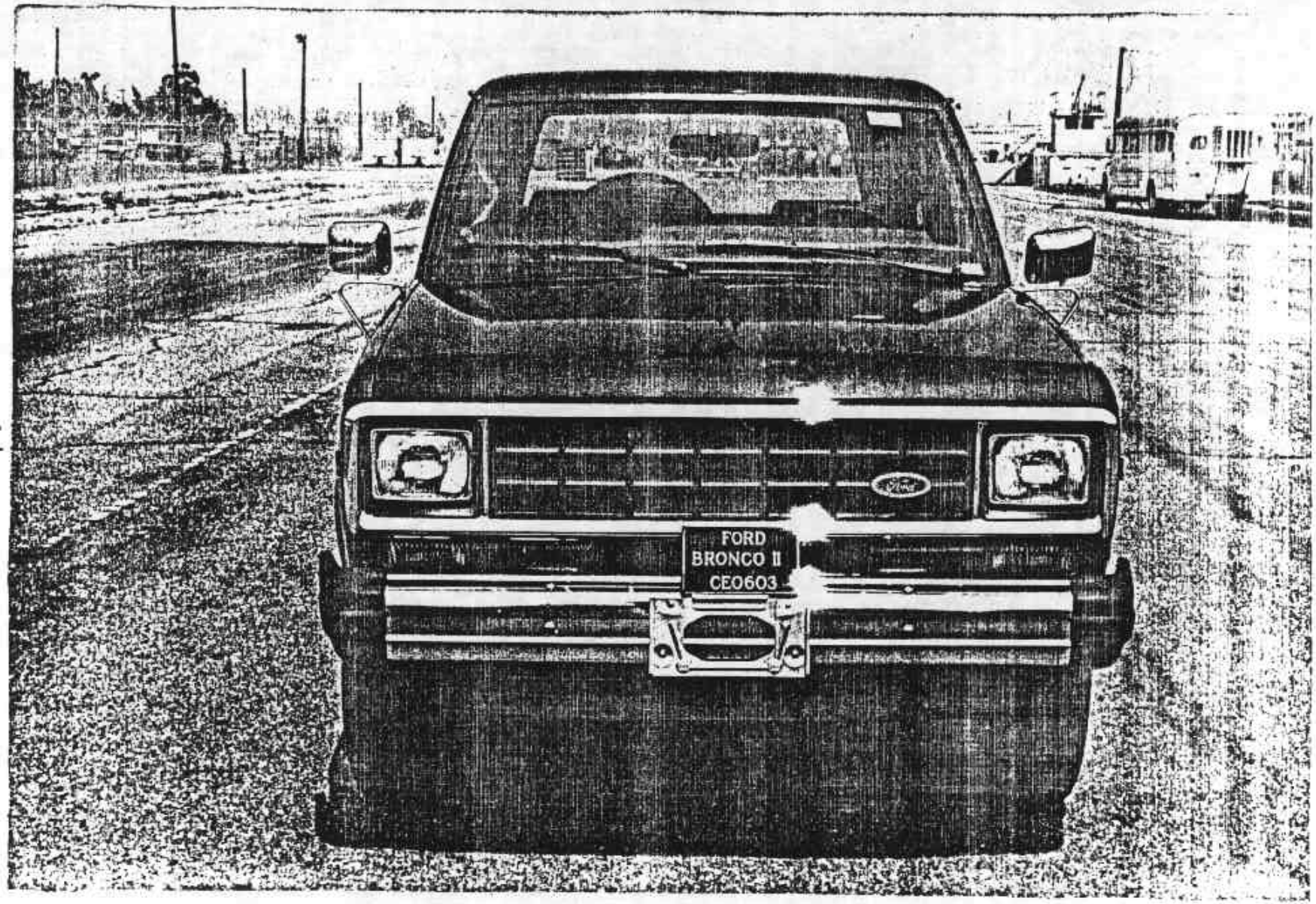
A

PHOTOGRAPHIC COVERAGE



A-1 FULL LEFT SIDE - PRETEST

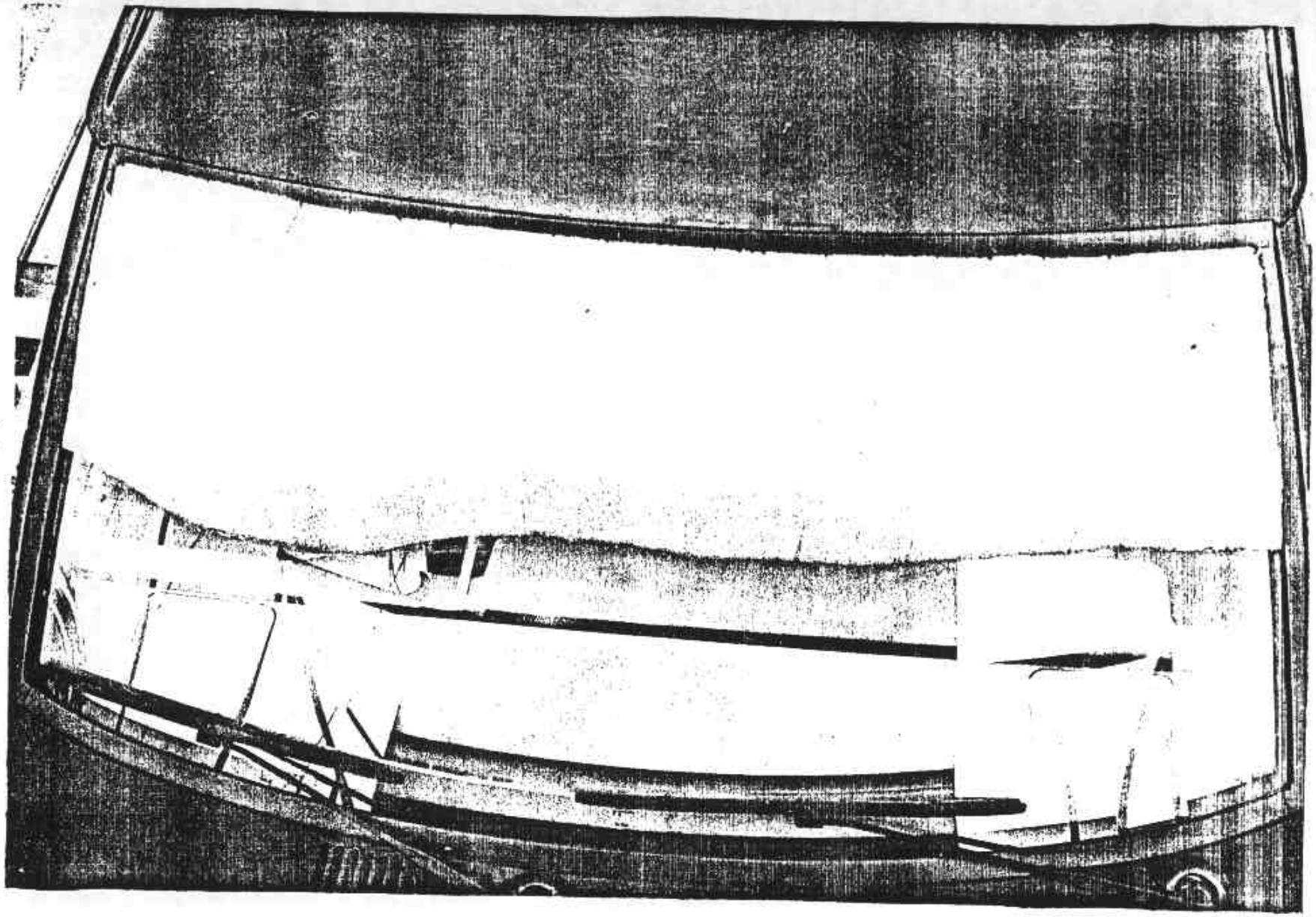
A-2 HALF LEFT SIDE – PRETEST



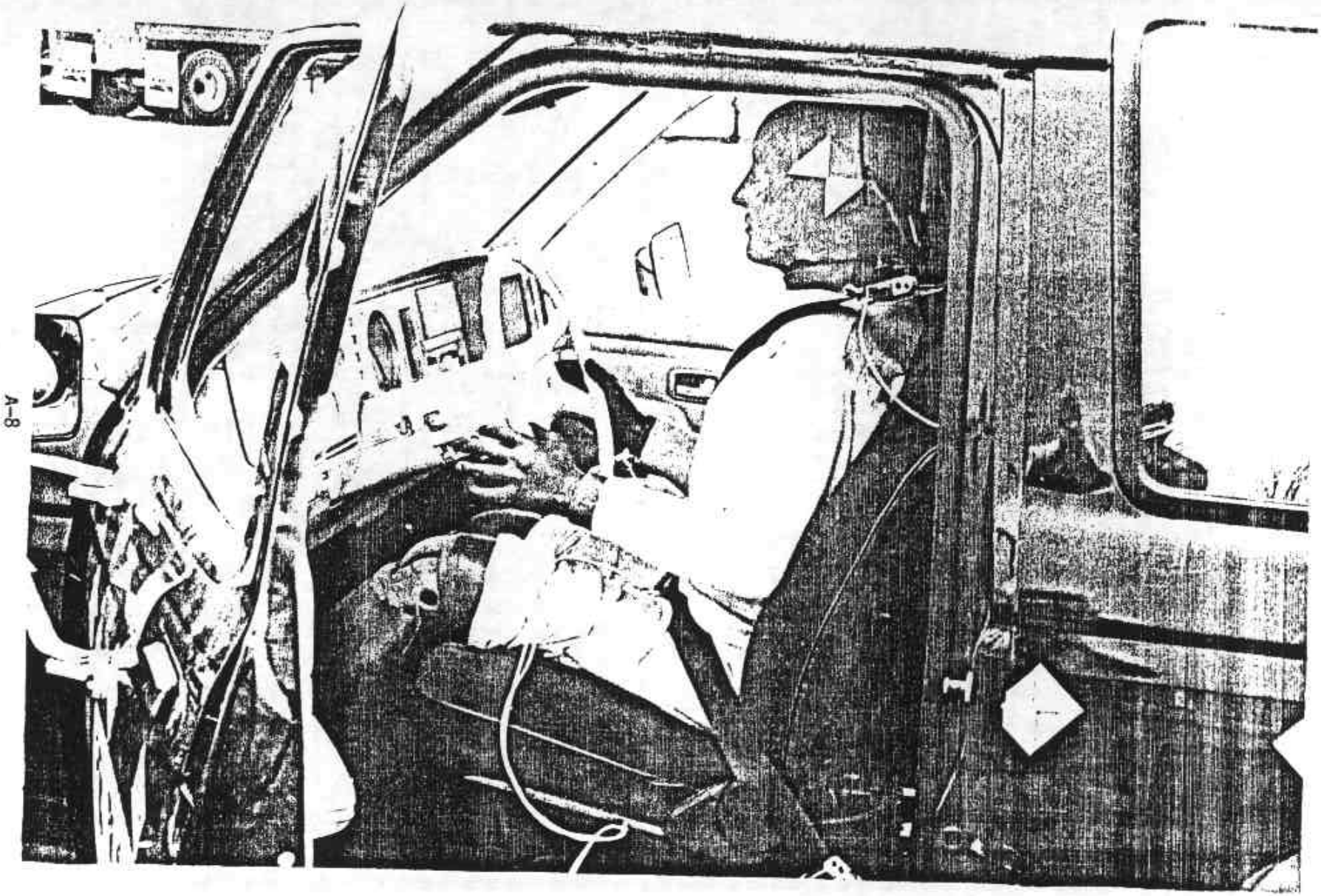
A-3 FULL FRONT - PRETEST

A-4 LEFT FRONT 3/4 – PRETEST

A-5 RIGHT REAR 3/4 - PRETEST

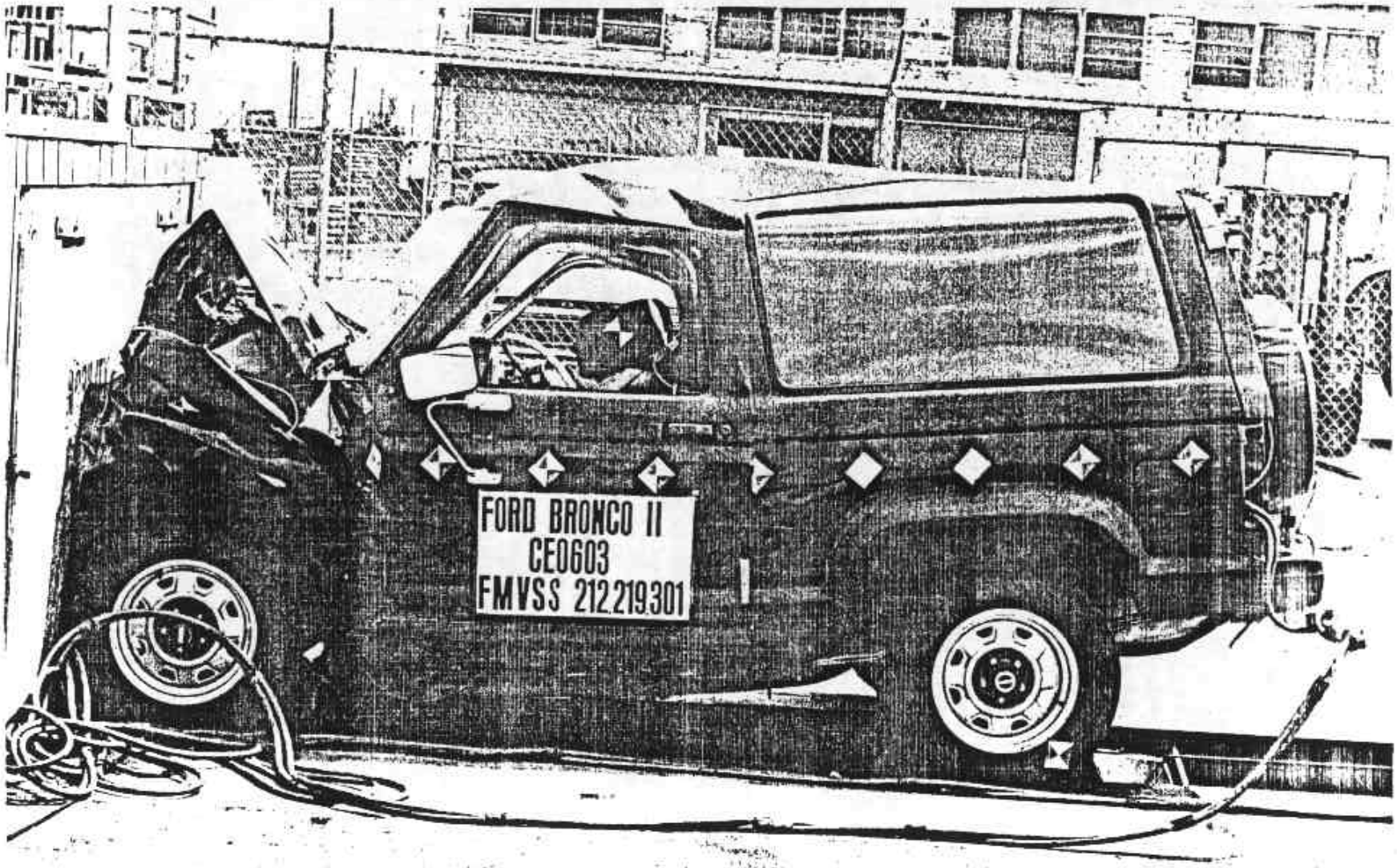


A-6 FULL FRONT WINDSHIELD WITH STYROFOAM - PRETEST



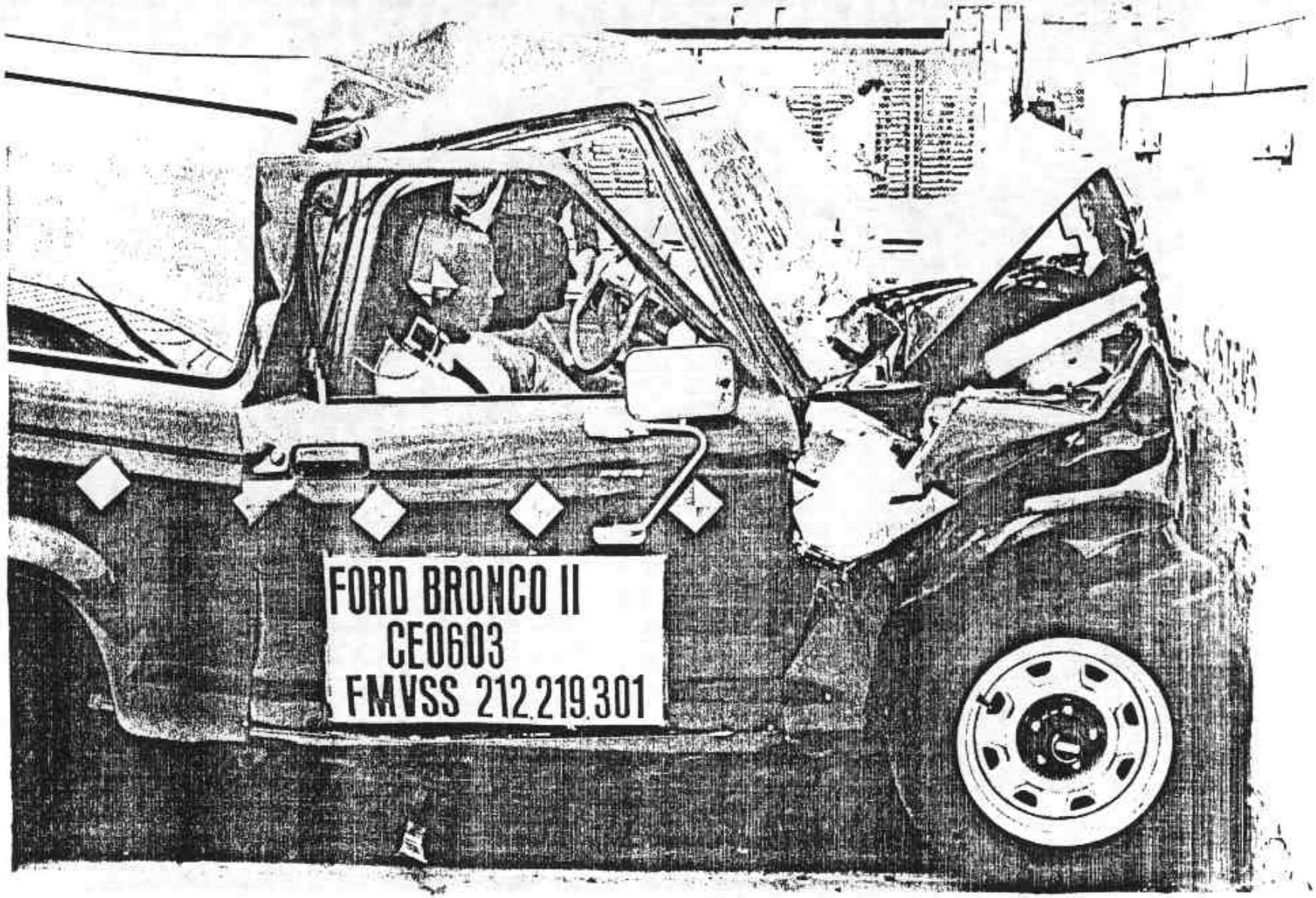
A-7 DRIVER ATD GENERAL POSITION – PRETEST

A-8 PASSENGER ATD GENERAL POSITION – PRETEST



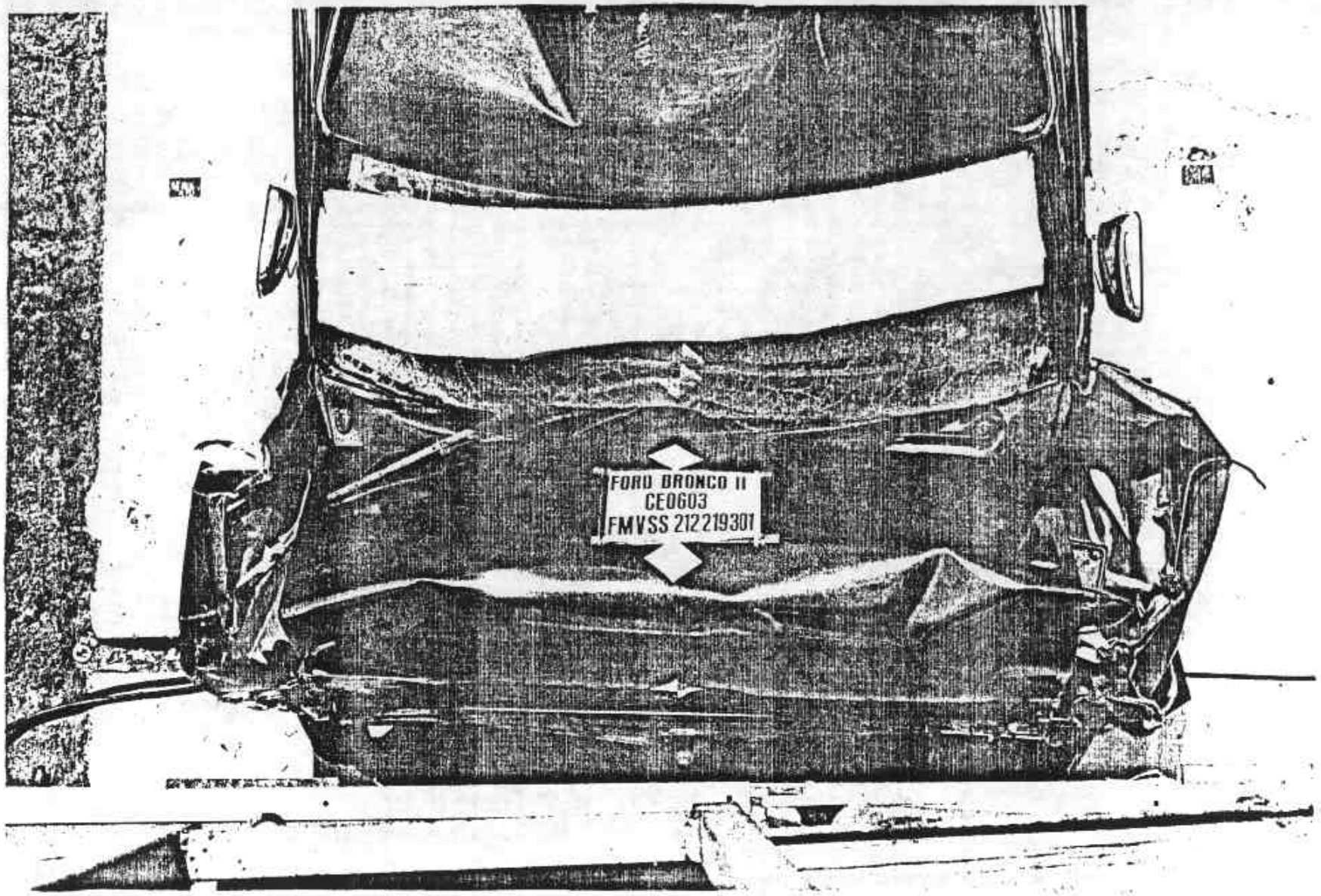
A-9 FULL LEFT SIDE – POSTTEST

A-10 HALF LEFT SIDE - POSTTEST

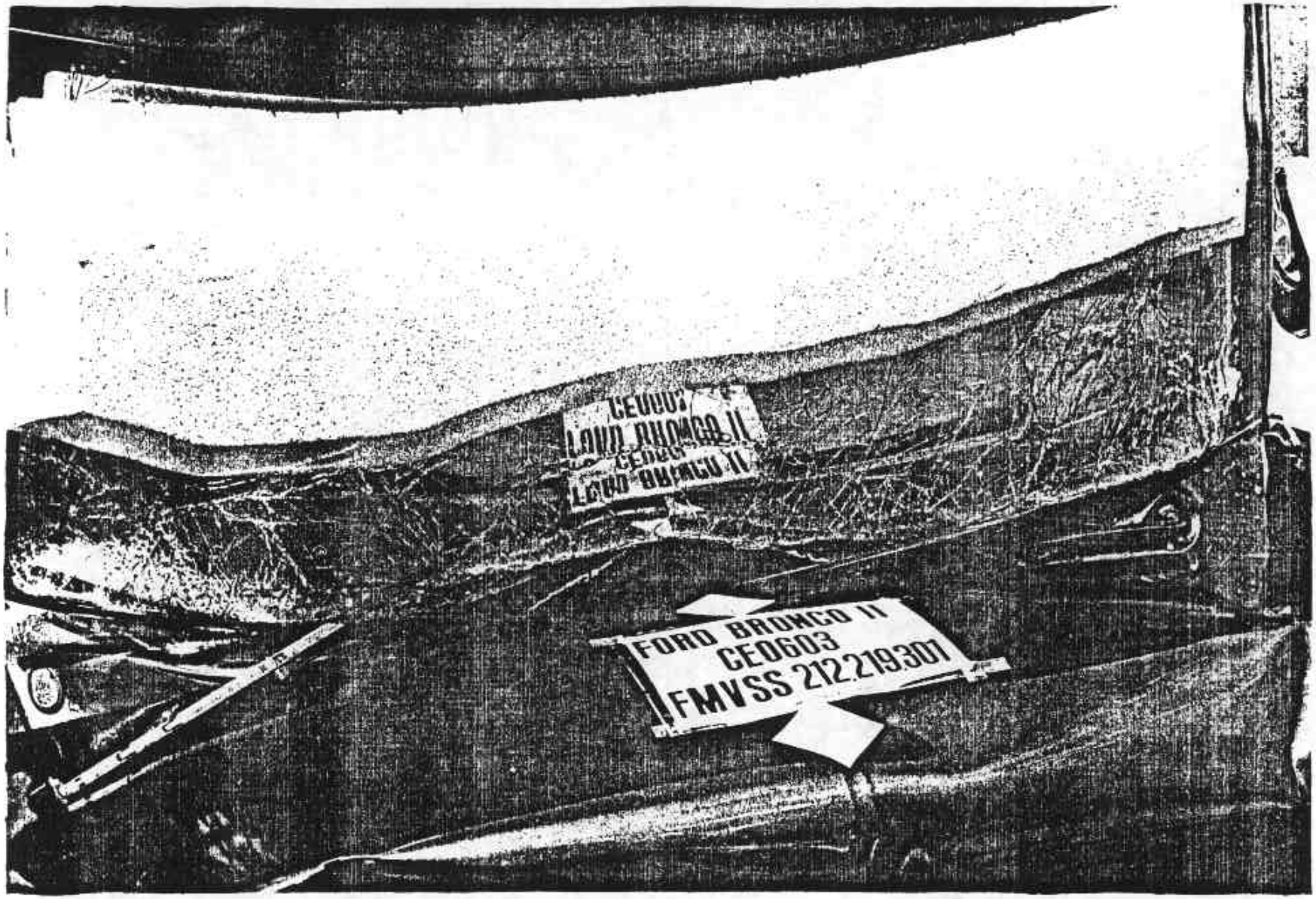


A-11 HALF RIGHT SIDE – POSTTEST

A–12 LEFT FRONT 3/4 – POSTTEST

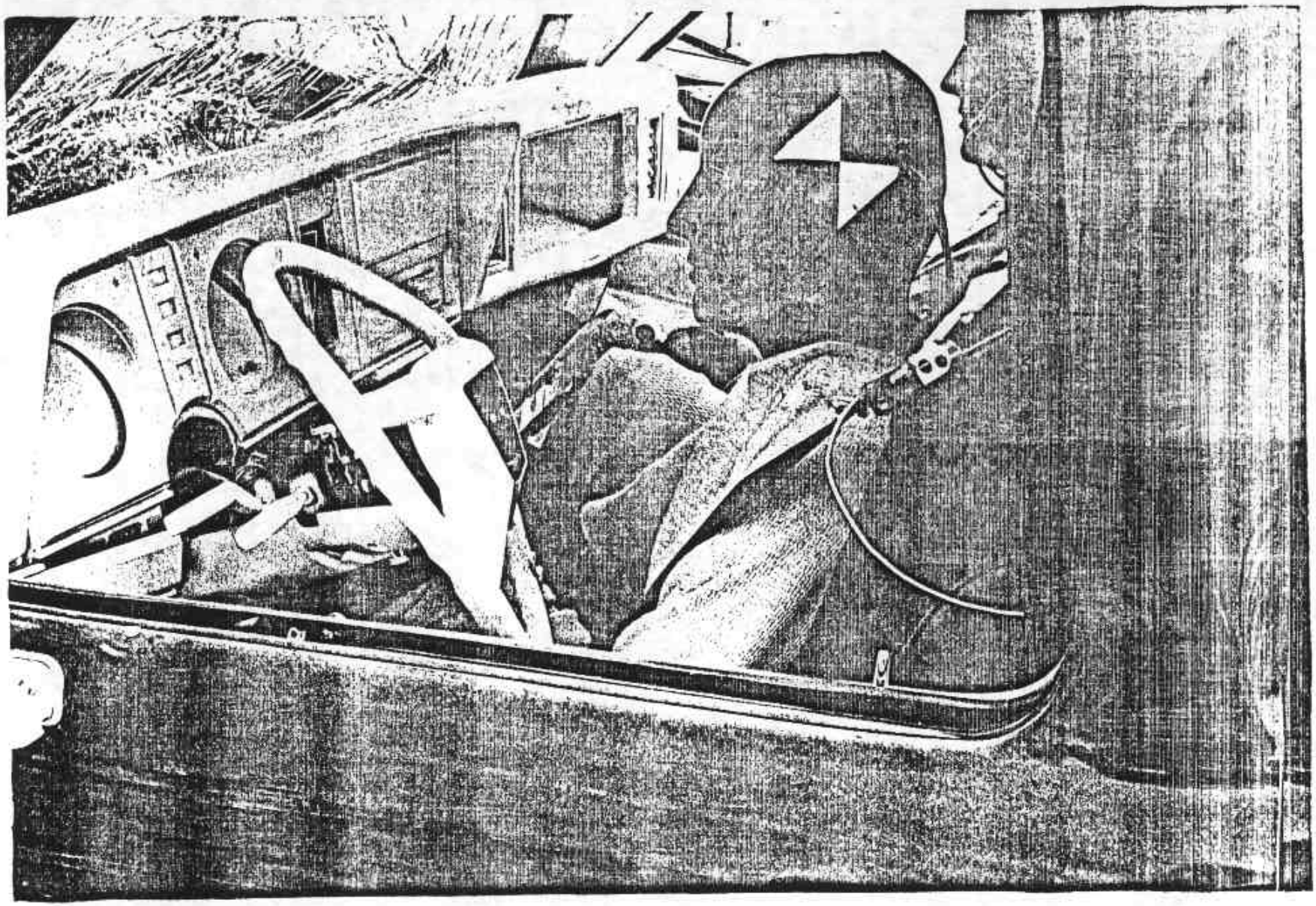


A-13 FULL FRONT WINDSHIELD WITH STYROFOAM - POSTTEST



A-14 DETAIL WINDSHIELD AREA – POSTTEST

A-15 FULL UNDERBODY - POSTTEST

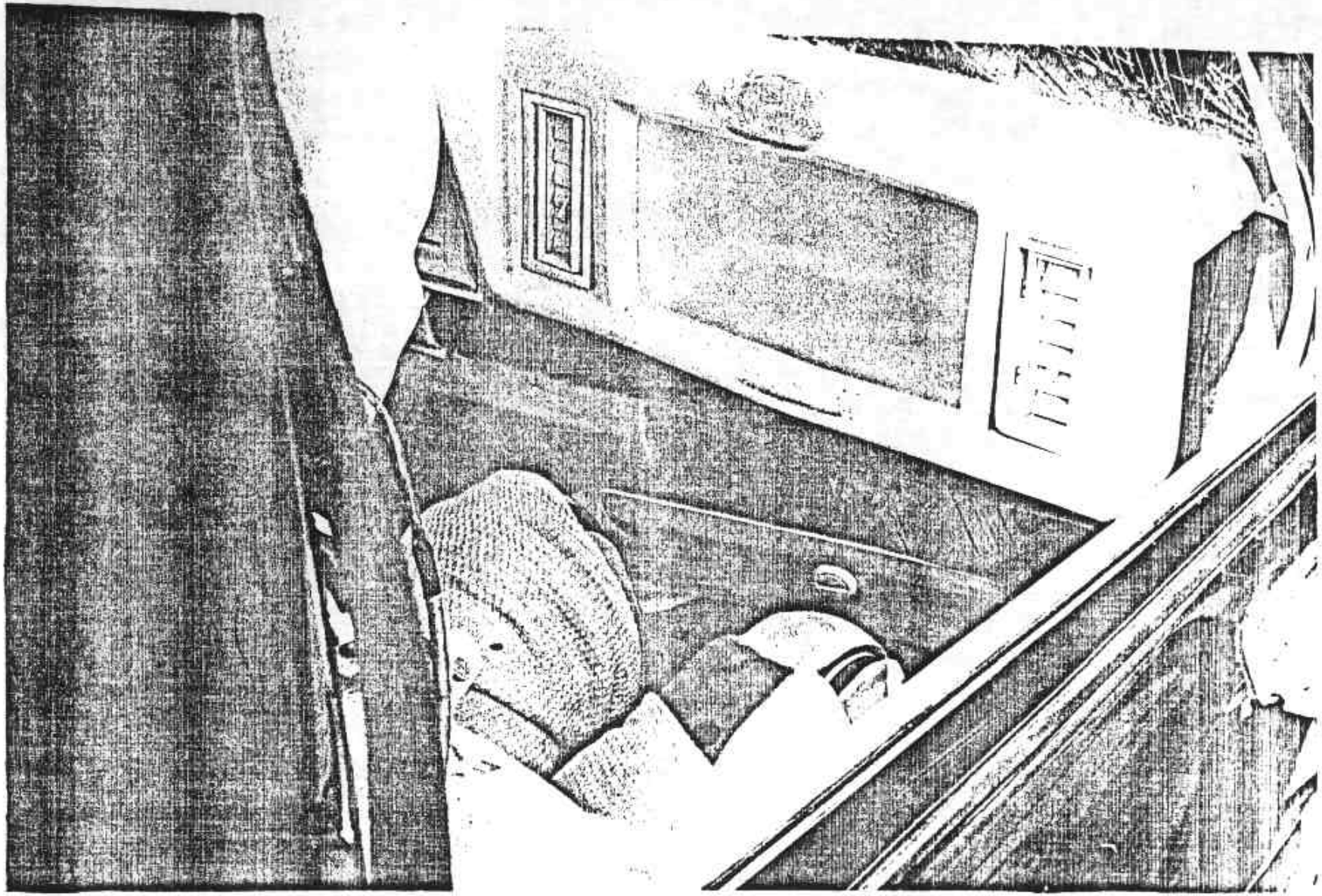


A-16 DRIVER ATD GENERAL POSITION – POSTTEST

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

APPENDIX B

SUMMARY OF RESULTS OF

CERTIFICATION TESTS ON

PART 572 ANTHROPOMORPHIC TEST DEVICES

HUMANOID MODEL 572

SERIAL NO'S. 465 & 466

TABLE B-1- 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 - - - - - - - - - - - -			06/07/83	06/28/83
Calibration Sequential Number For Dummy - - -			1	2
Temperature in Lab. (Spec. = 66 to 78° F) - -			71 - 78°F	73 - 78°F
Relative Humidity in Lab. (Spec. = 10 to 70%)			54 - 64%	52 - 62%
TEST PARAMETER		SPECIFICATION		
1. HEAD DROP TEST:				
a. Peak Resultant Accel. -		210 to 260G	238.7	219.2
b. Peak Lateral Accel. - -		≤10G	2.4	3.5
c. Time above 100G - - - -		0.9 to 1.5 ms	1.1	1.5
2. NECK BENDING TEST:				
a. Pendulum Speed - - - -		21.5 to 25.5 fps	21.6	21.6
b. Pendulum Avg. Decel. (over $t_3 - t_2$) - - - -		20 to 24G	21	24
c. Peak Resultant Head Acceleration - - - - -		26G maximum	20.2	24.4
d. Pendulum Decel. (t_2-t_1)		≤3 ms	1.6	0.8
e. Pendulum Decel. (t_3-t_2)		25 to 30 ms	27.2	27
f. Pendulum Decel. (t_4-t_3)		≤ 10 ms	9.5	9
g. Pendulum Direction Reversal Time - - - - -		≥123 ms	N.A.	N.A.
h. Max. Head Rotation - -		63 to 73°	63	63
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	28.2	27
	Displ.	2.1 to 3.1 in.	2.98	2.57
60°	Time	40.3 to 51.7 ms	49.6	48
	Displ.	4.3 to 5.3 in.	5.28	5.21
Maximum (63 °)	Time	53.2 to 66.8 ms	56.1	53.4
	Displ.	5.0 to 6.0 in.	6.0	5.38

TABLE B-1 – PART 572 ATD CERTIFICATION TEST DATA, SUMMARY (CONT'D)

NHTSA ATD I.D. NO.: 465

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	68.1	67
	Disp.	4.3 to 5.3 in.	5.25	5.07
30°	Time	85.4 to 104.6 ms	86.9	86
	Displ.	2.1 to 3.1 in.	2.94	2.33
0°	Time	101.0 to 123.0 ms	101	101
	Displ.	-.5 to 0.5 in.	0	-0.29
3. ABDOMINAL COMPRESSION TEST:				
(Preload = 10 pounds)				
a. Force @ .5" – – – – –		23 – 36 lb.	27	24
b. Force @ .75" – – – –		36 – 50 lb.	41	36
c. Force @ 1.0" – – – –		50 – 63 lb.	56	50
d. Force @ 1.3" – – – –		73 – 88 lb.	80	74
4. LUMBAR FLEXION TEST:				
a. Force @ 20° – – – – –		22 to 34 lbs.	32	34
b. Force @ 30° – – – – –		34 to 46 lbs.	39	43
d. Force @ 40° – – – – –		46 to 58 lbs.	48	56
e. Return Angle – – – –		12° maximum	8 1/2°	9 1/2°
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed – – –		21.78-22.22 fps	22.0	21.9
(2) Peak Deflection –		1.7" maximum	1.52	1.62
(3) Peak Resistive Force – – – – – –		2250 lbs. maximum	1936	1978
(4) Internal Hysteresis – – –		50 to 70%	60%	53%

TABLE B-1 – 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	13.9	13.9
(2) Peak Deflection -	1.1" maximum	1.05	0.62
(3) Peak Resistive Force - - - - - -	1450 lbs. maximum	1154	1154
(4) Internal Hysteresis - - -	50 to 70%	61%	50%
6. KNEE IMPACT TESTS:			
a. Right Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.82	6.99
(2) Maximum Force - -	1850 to 2500 lbs.	1955	2455
(3) Time Above 1000#-	1.7 ms minimum	1.7	1.9
b. Left Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.87	7.01
(2) Maximum Force - -	1850 to 2500 lbs.	1905	2435
(3) Time Above 1000#-	1.7 ms. minimum	1.7	2.0

TABLE B-2 – PART 572 ATD CERTIFICATION TEST DATA, SUMMARY

NHTSA ATD I.D. NO.: 466

LABORATORY TECHNICIAN: M. Poindexter

Sheet 1 of 3			Pre-Test Calibration	Post-Test Calibration
Date of ATD Calibration – – – – – – – – – – – –			06/07/83	07/08-07/09/83
Calibration Sequential Number For Dummy – – –			1	2
Temperature in Lab. (Spec. = 66 to 78° F). – –			71 - 78°F	75 - 78°F
Relative Humidity In Lab. (Spec. = 10 to 70%)			54 - 64%	37 - 57%
TEST PARAMETER		SPECIFICATION		
1. HEAD DROP TEST:				
a. Peak Resultant Accel. –		210 to 260G	234	223
b. Peak Lateral Accel. – –		≤10G	1	3.2
c. Time above 100G – – – –		0.9 to 1.5 ms	1.0	1.3
2. NECK BENDING TEST:				
a. Pendulum Speed – – – –		21.5 to 25.5 fps	21.5	21.6
b. Pendulum Avg. Decel. (over $t_3 - t_2$) – – – –		20 to 24G	22	24
c. Peak Resultant Head Acceleration – – – – –		26G maximum	25.7	26
d. Pendulum Decel. (t_2-t_1)		≤3 ms	2.1	2.4
e. Pendulum Decel. (t_3-t_2)		25 to 30 ms	27.3	30.0
f. Pendulum Decel. (t_4-t_3)		≤ 10 ms	10.0	6.6
g. Pendulum Direction Reversal Time – – – – –		≥123 ms	N/A	N/A
h. Max. Head Rotation – –		63 to 73°	66	70
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	30	28.8
	Displ.	2.1 to 3.1 in.	2.7	2.1
60°	Time	40.3 to 51.7 ms	51	45.6
	Displ.	4.3 to 5.3 in.	5.2	4.9
Maximum (70°)	Time	53.2 to 66.8 ms	57	58.8
	Displ.	5.0 to 6.0 in.	5.3	5.5

TABLE B-2 – PART 572 ATD CERTIFICATION TEST DATA, SUMMARY (CONT'D)

NHTSA ATD I.D. NO.: 466

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	67	70.4
		Disp.	4.3 to 5.3 in.	5.2	4.8
	30°	Time	85.4 to 104.6 ms	87	86.4
		Displ.	2.1 to 3.1 in.	2.4	2.5
	0°	Time	101.0 to 123.0 ms	101	101
		Displ.	–.5 to 0.5 in.	0	0.5
3. ABDOMINAL COMPRESSION TEST: (Preload = 10 pounds)					
a. Force @ .5" – – – – –			23 – 36 lbs.	27	26
b. Force @ .75" – – – –			36 – 50 lbs.	39	36
c. Force @ 1.0" – – – –			50 – 63 lbs.	56	53
d. Force @ 1.3" – – – –			73 – 88 lbs.	86	74
4. LUMBAR FLEXION TEST:					
a. Force @ 20° – – – – –			22 to 34 lbs.	32	33
b. Force @ 30° – – – – –			34 to 46 lbs.	42	44
d. Force @ 40° – – – – –			46 to 58 lbs.	52	49
e. Return Angle – – – –			12° maximum	12°	12°
5. CHEST IMPACT TESTS:					
a. High Speed					
(1) Probe Speed – – –			21.78–22.22 fps	21.9	21.95
(2) Peak Deflection –			1.7" maximum	1.64	1.70
(3) Peak Resistive Force – – – – – –			2250 lbs. maximum	1895	2225
(4) Internal Hysteresis – – –			50 to 70%	54	69

TABLE B-2 - 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	13.88	13.88
(2) Peak Deflection -	1.1" maximum	1.10	.76
(3) Peak Resistive Force - - - - - -	1450 lbs. maximum	1164	1081
(4) Internal Hysteresis - - -	50 to 70%	52	50
6. KNEE IMPACT TESTS:			
a. Right Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.9	6.78
(2) Maximum Force - -	1850 to 2500 lbs.	2235	2360
(3) Time Above 1000#-	1.7 ms minimum	1.7	2.3
b. Left Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.9	6.80
(2) Maximum Force - -	1850 to 2500 lbs.	1920	2170
(3) Time Above 1000#-	1.7 ms. minimum	1.7	2.2

APPENDIX

C

TEST DATA PLOTS

PRINTOUT OF HEADER DATA FOR DIGITAL TAPE

```
1COMB. TST-OAR.212,219,301 06/15/83MSEDTNH2282D2114003      ACQUIRE OAR DATA PLUS EVAL. COMPL.  TO FMVSS 212,219,301
          NCAVSB35.4   00.0  999.9ASHDRY091FMTUMBENG
21022183V6-IL2.8 LITERS  FWOT3845094.2160.862.549.8S0THP
35.4  0  012FDAW9999 61.819.821.522.221.820.519.0 0.022.8
3FFB 0.0 0 0.0   0R9 0.0 0 0
411CD 0 0  050M 0HUMANOID 465                          12.817.405.611.021.510.004.606.105.03PTSTDNASWSWDP
412CD 0 0  050M 0HUMANOID 466                          14.119.507.909.523.899.904.406.208.13PTSTDNADPNODP
5 1AC011HED 6000 1600   .72860 360   125G'SX35.4GOOD
5 2AC011HED 6000 1600   .72860 360   125G'SY 0.0GOOD
5 3AC011HED 6000 1600   .72860 360   125G'SZ 0.0GOOD
5 4AC011CST 6000 1600   .72860 360   125G'SX35.4GOOD
5 5AC011CST 2800 1600   .72860 360   125G'SY 0.0GOOD
5 6AC011CST 6000 1600   .72860 360   125G'SZ 0.0GOOD
5 7AC011HED 6000 1600   .72860 360   125G'SX35.4GOOD
5 8ACHE0HED 6000 1600   .72860 360   125G'SY 0.0GOOD
5 9AC011HED 6000 1600   .72860 360   125G'SZ 0.0GOOD
510AC012CST 6000 1600   .72860 360   125G'SX35.4GOOD
511AC012CST 2800 1600   .72860 360   125G'SY 0.0GOOD
512AC012CST 6000 1600   .72860 360   125G'SZ 0.0GOOD
513LC011LFM 9999 1000999.92860 360   125LBSO    GOOD
514LC011RFM 9999 1000999.92860 360   125LBSO    GOOD
515LC012LFM 9999 1000999.92860 360   125LBSO    GOOD
516LC012RFM 9999 1000999.92860 360   125LBSO    GOOD
517AC01NRFF 2800  100   .72860 360   125G'SX35.4GOOD
518AC01NLRF 2800  100   .72860 360   125G'SX35.4GOOD
519AC01NENG 2800  100   .72860 360   125G'SX35.4GOOD
520AC01NENG 2800  100   .72860 360   125G'SX35.4INVALID
521AC01NBCR 2800  100   .72860 360   125G'SX35.4GOOD
522AC01NBCL 2800  100   .72860 360   125G'SX35.4GOOD
523LC011LBO 9999  100999.92860 360   125LBSO    GOOD
524LC011SHB 9999  100999.92860 360   125LBSO    GOOD
525LC012LBO 9999  100999.92860 360   125LBSO    GOOD
526LC012SHB 9999  100999.92860 360   125LBSO    GOOD
527DT011SHB 9999  100999.92860 360   125INCO    INVALID
528DT012SHB 9999  100999.92860 360   125INCO
1
```

OCCUPANT RESPONSE COMPARISON
TO FMVSS REQUIREMENTS

06/15/83

HIC

VEHICLE		OCCUPANT	HIC	T1	T2	T2-T1	*COMP. MARG.
1984	FORD BRONCO II	DRIVER	789.20	40.50	98.25	57.75	.79
1984	FORD BRONCO II	PASSENGER	1038.46	42.50	121.75	79.25	1.04

* VALUES GREATER THAN 1 REPRESENT NON-COMPLIANCE

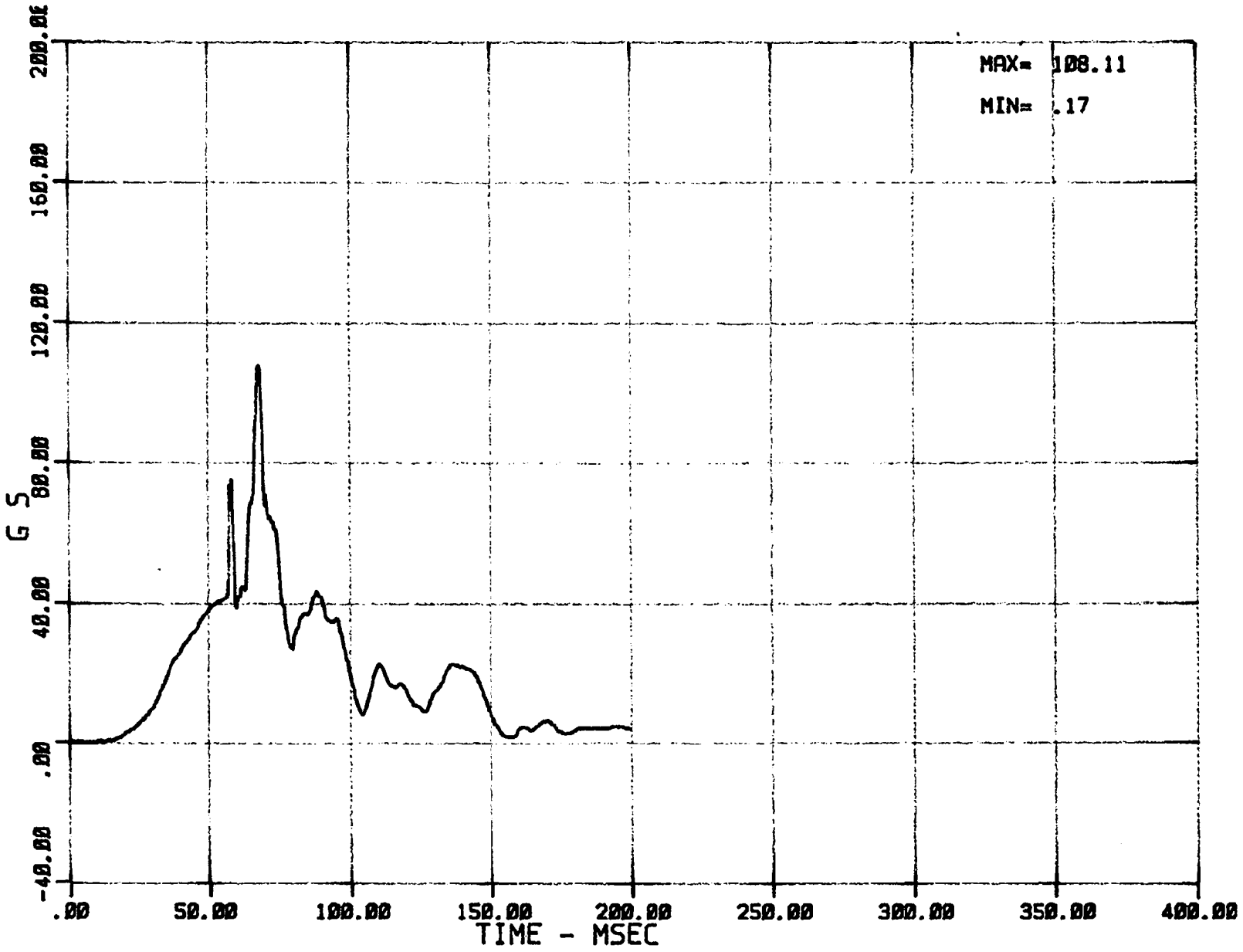
OCCUPANT RESPONSE COMPARISON
TO FMVSS REQUIREMENTS

06/15/83

CHEST 3 MSEC CLIPPED PEAK

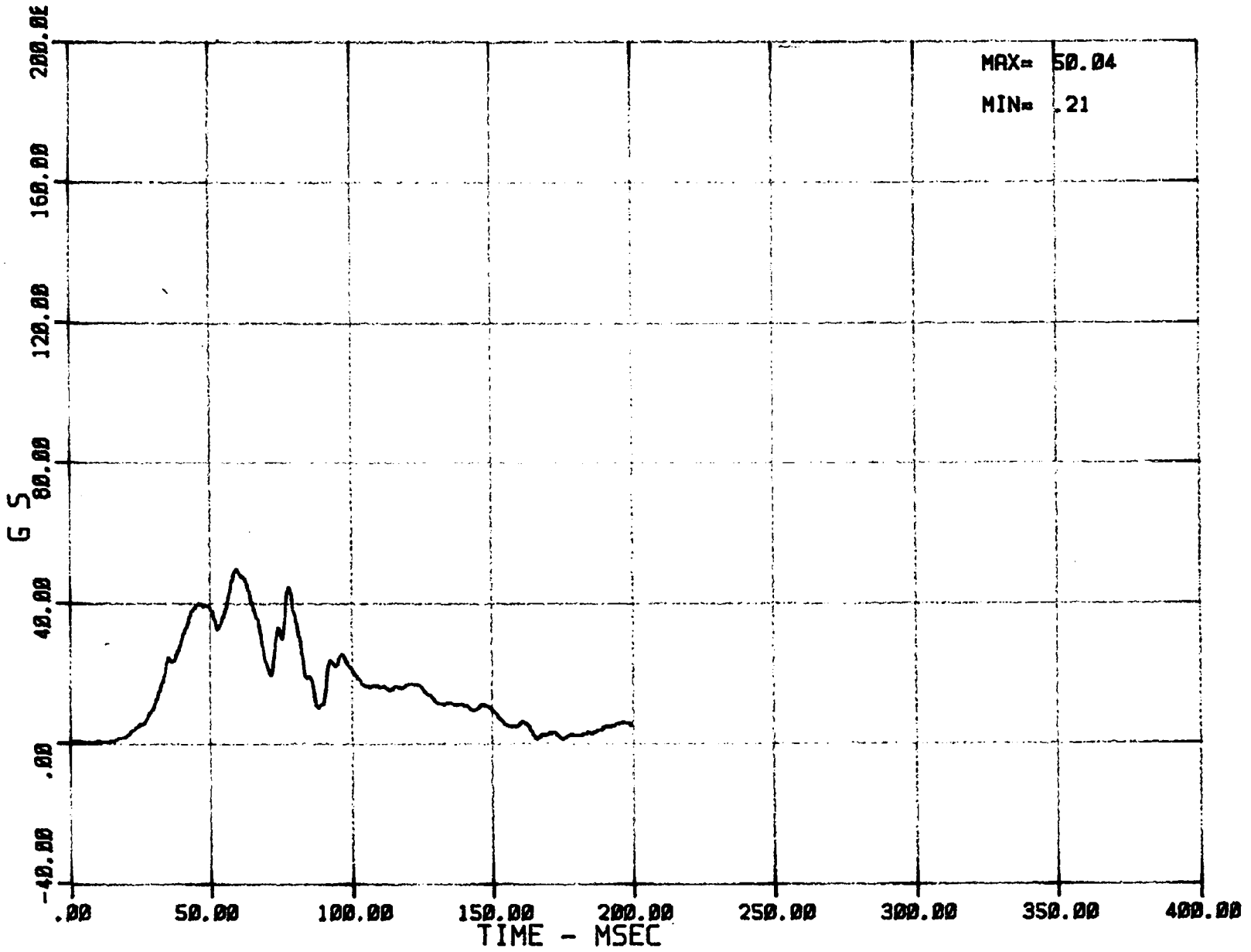
VEHICLE			REQUIREMENT	RESPONSE	* COMP. MARG.
1984	FORD BRONCO II	DRIVER	60.00	-48.86	.81
1984	FORD BRONCO II	PASSENGER	60.00	50.38	.84

* ABS(VALUES) GREATER THAN 1 REPRESENT NON-COMPLIANCE



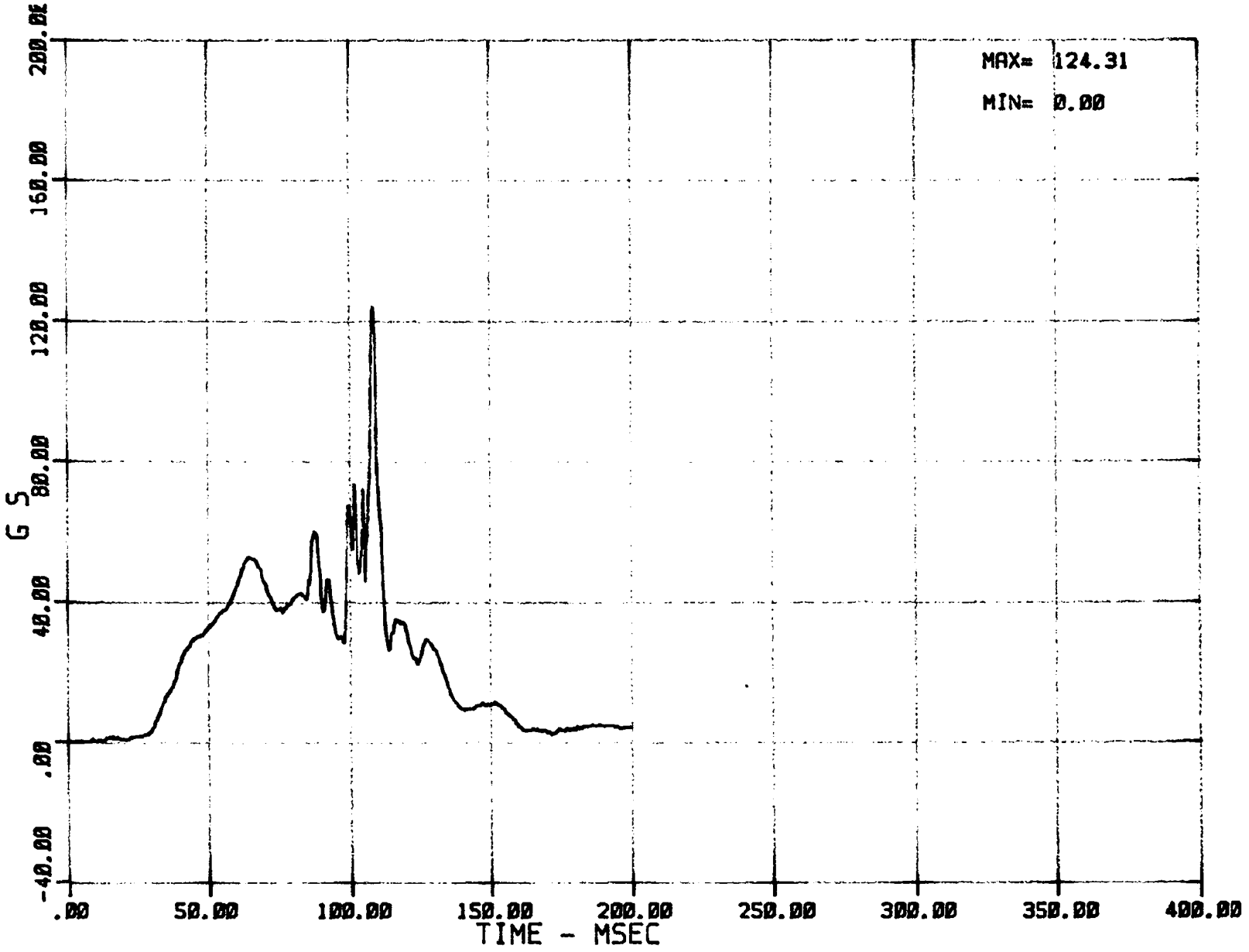
DRIVERS HEAD RESULTANT ACCEL.

MSE N02033 1984 Ford Bronco II 06/15/83



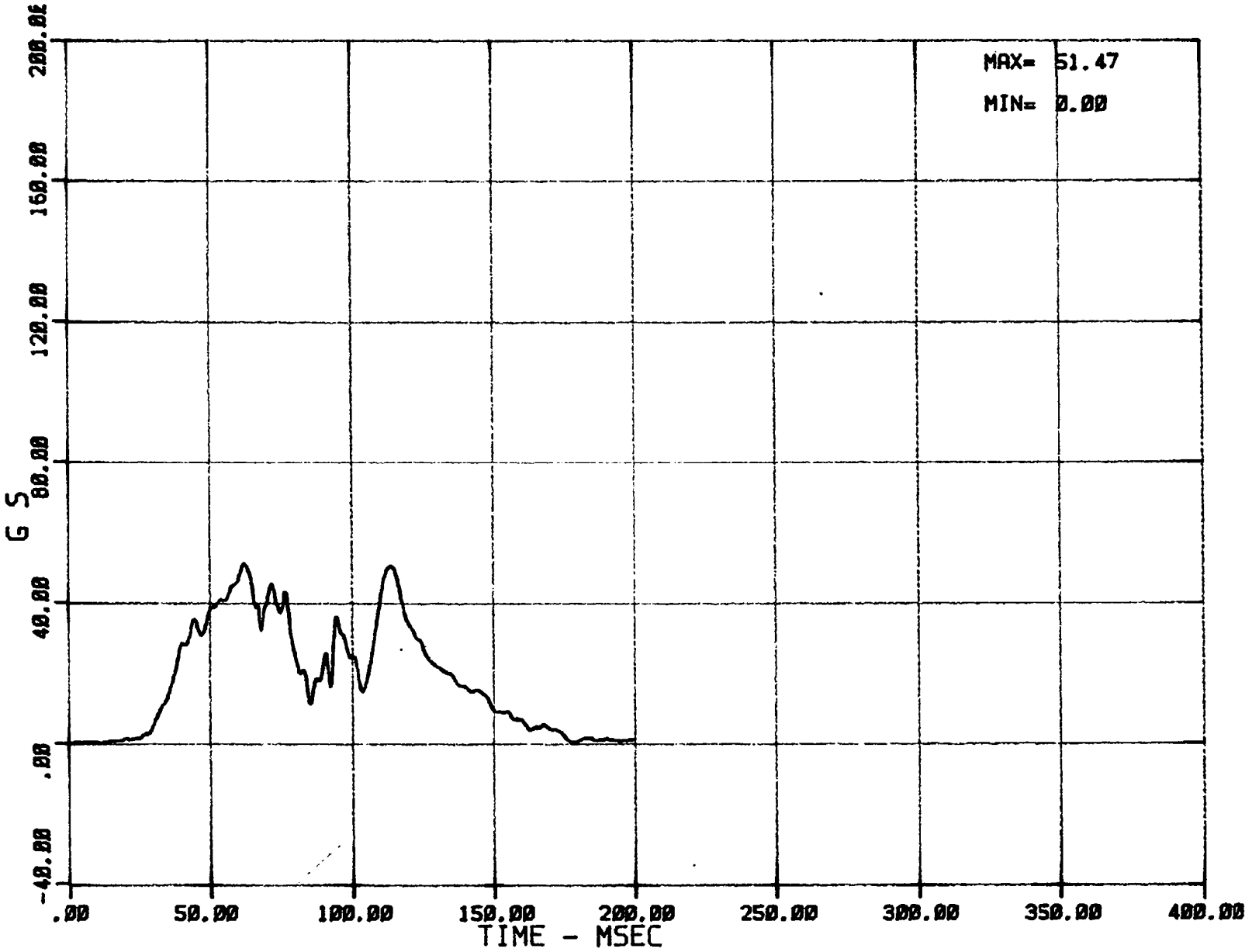
DRIVERS CHEST RESULTANT ACCEL.

MSE N02033 1984 Ford Bronco II 06/15/83



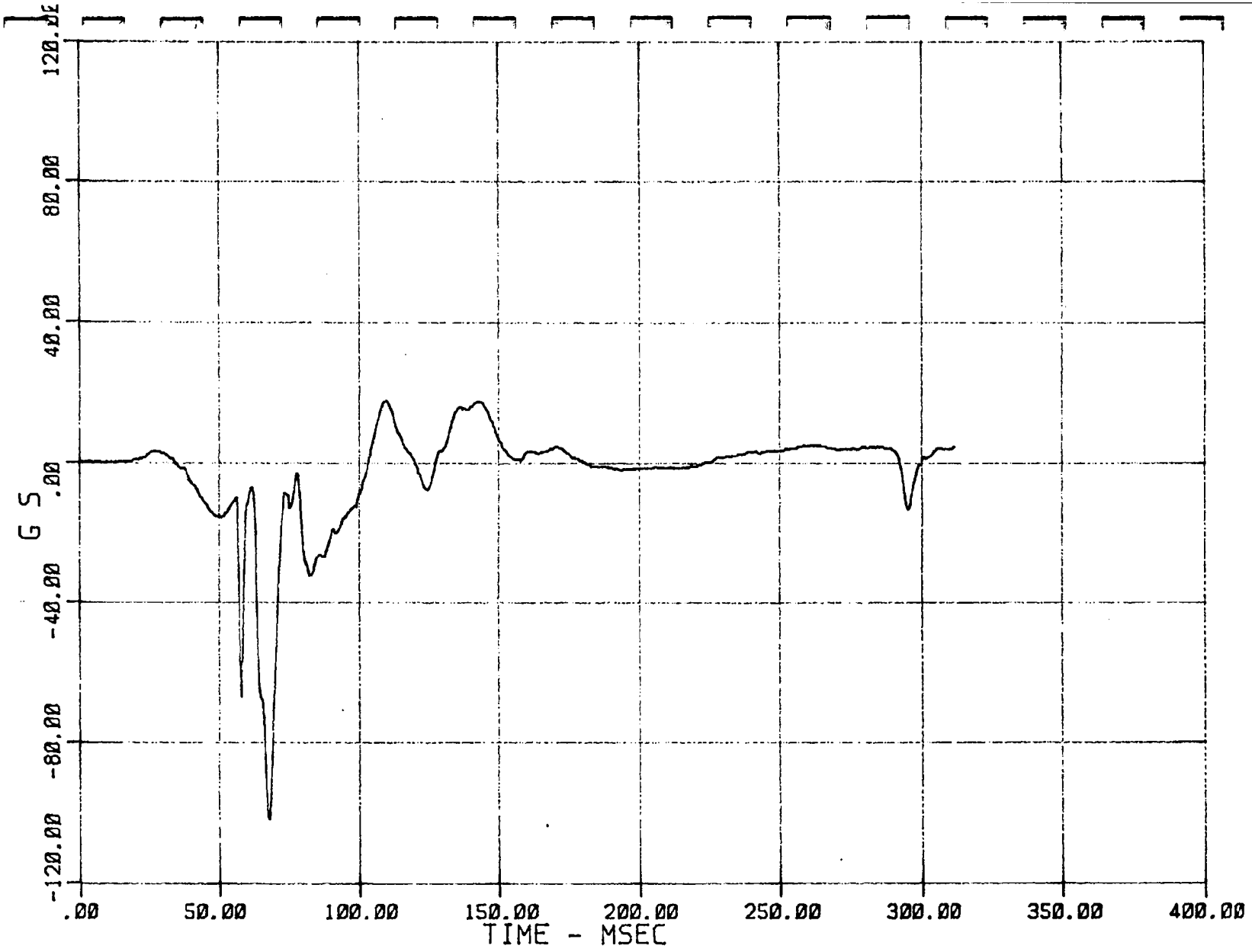
PASSENGERS HEAD RESULTANT ACCEL.

MSE N02033 1984 Ford Bronco II 06/15/83



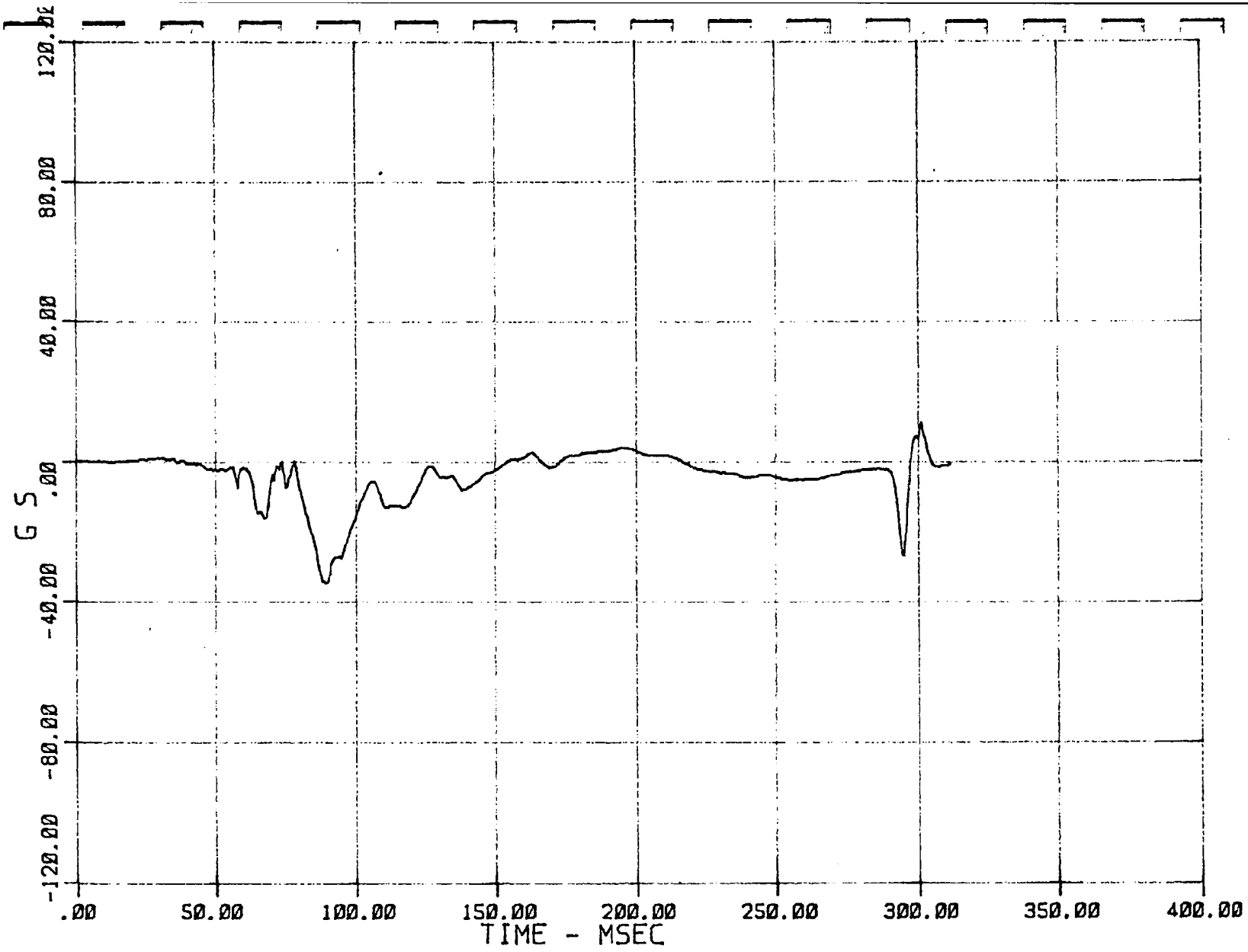
PASSENGERS CHEST RESULTANT ACCEL.

MSE N02033 1984 Ford Bronco II 06/15/83



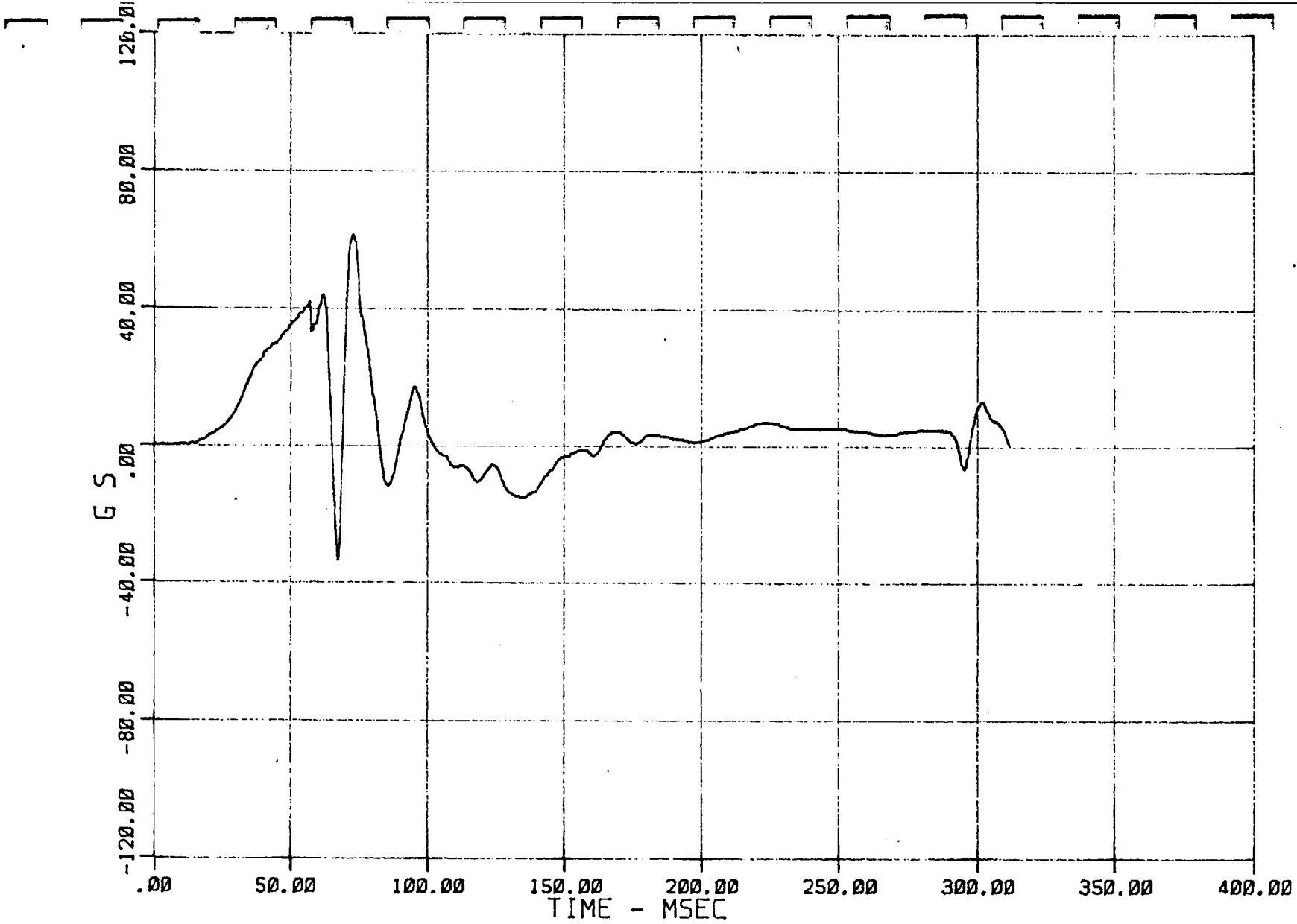
01 AC 01 1 HED X

MSE N02033 1984 Ford Bronco II 06/15/83



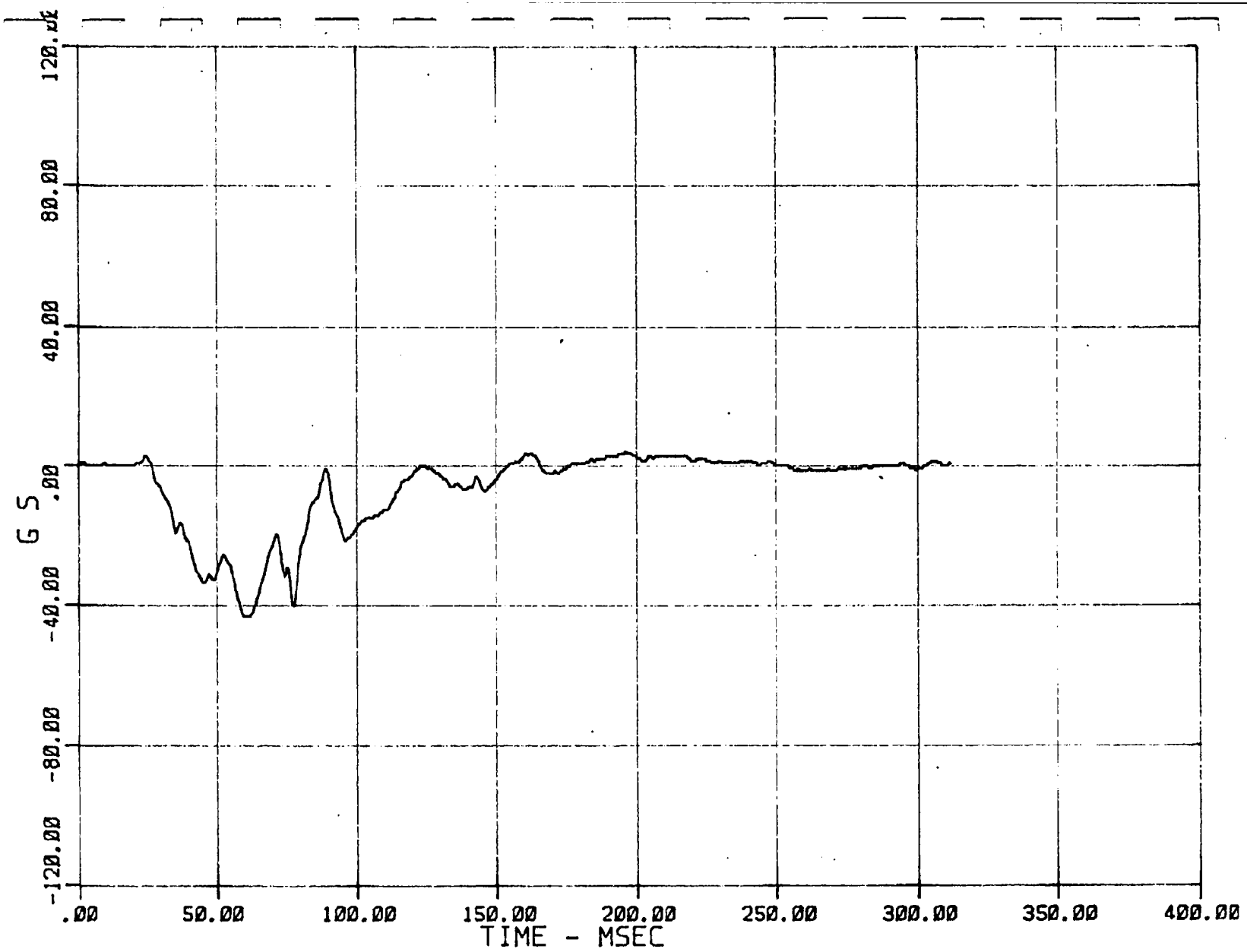
Ø2 AC Ø1 1 HED Y

MSE N02033 1984 Ford Bronco II 06/15/83



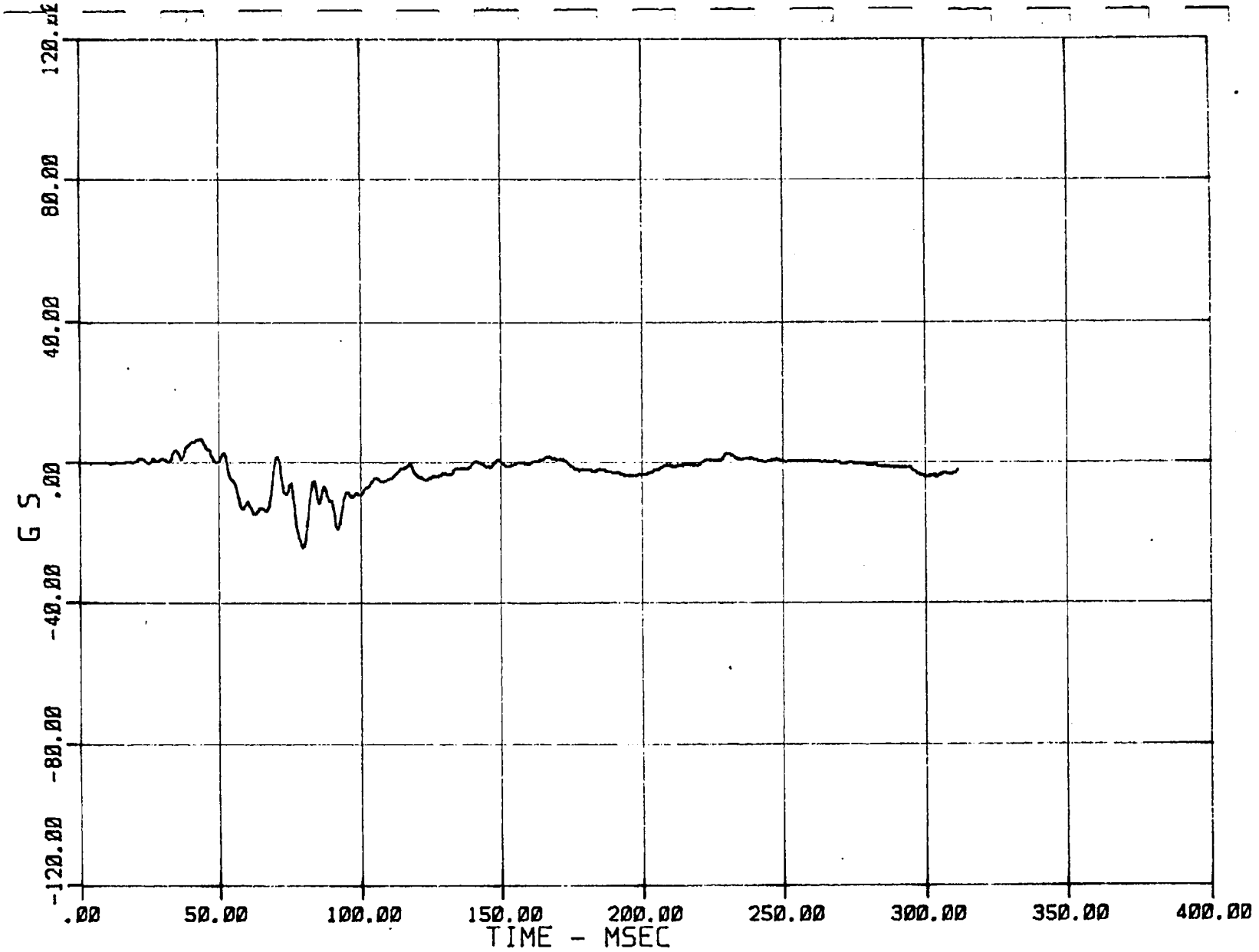
Ø3 AC Ø1 1 HED Z

MSE N02033 1984 Ford Bronco II Ø6/15/83

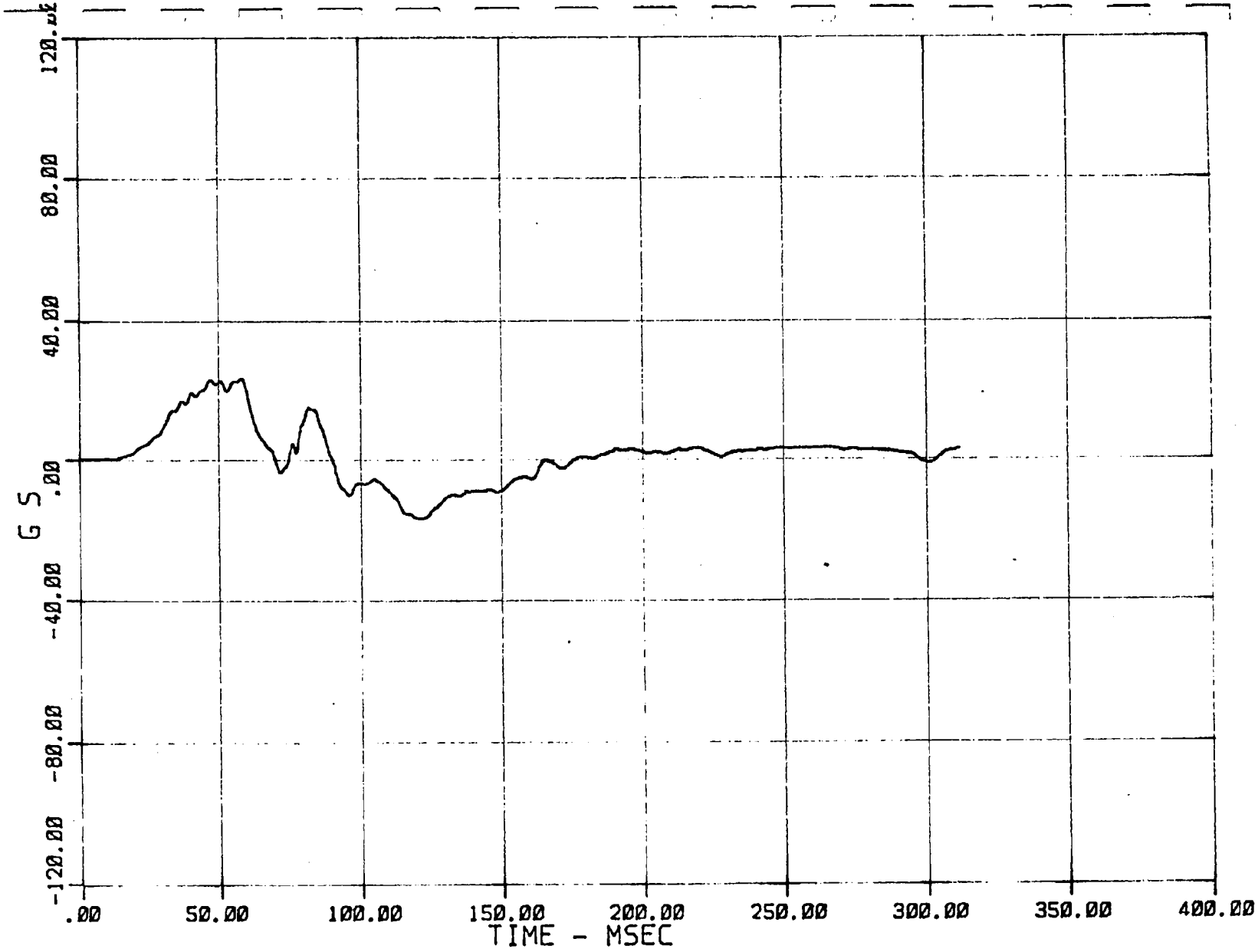


Ø4 AC Ø1 1 CST X

MSE N02033 1984 Ford Bronco II 06/15/83



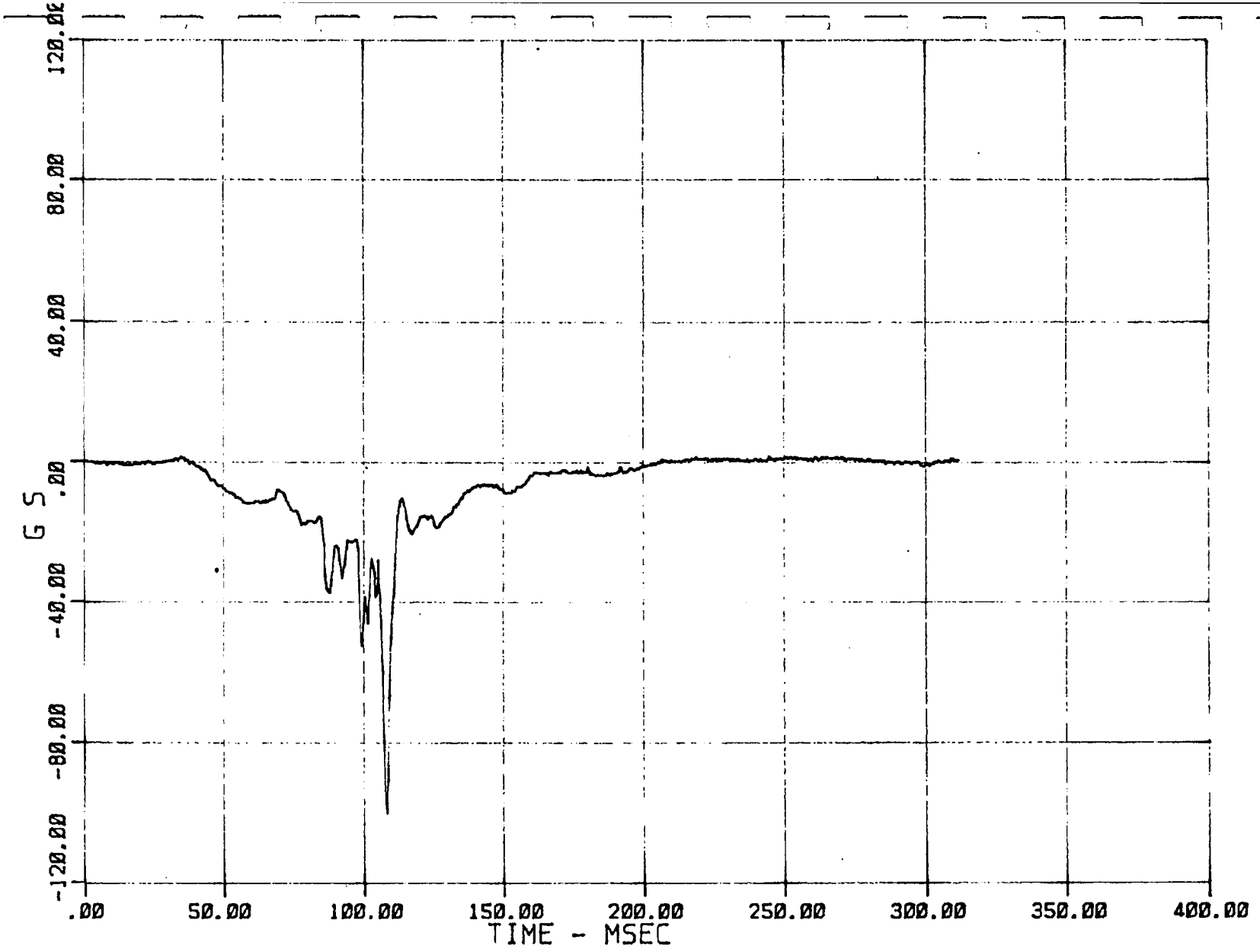
05 AC 01 1 CST Y
MSE N02033 1984 Ford Bronco II 06/15/83



Ø6 AC Ø1 1 CST Z

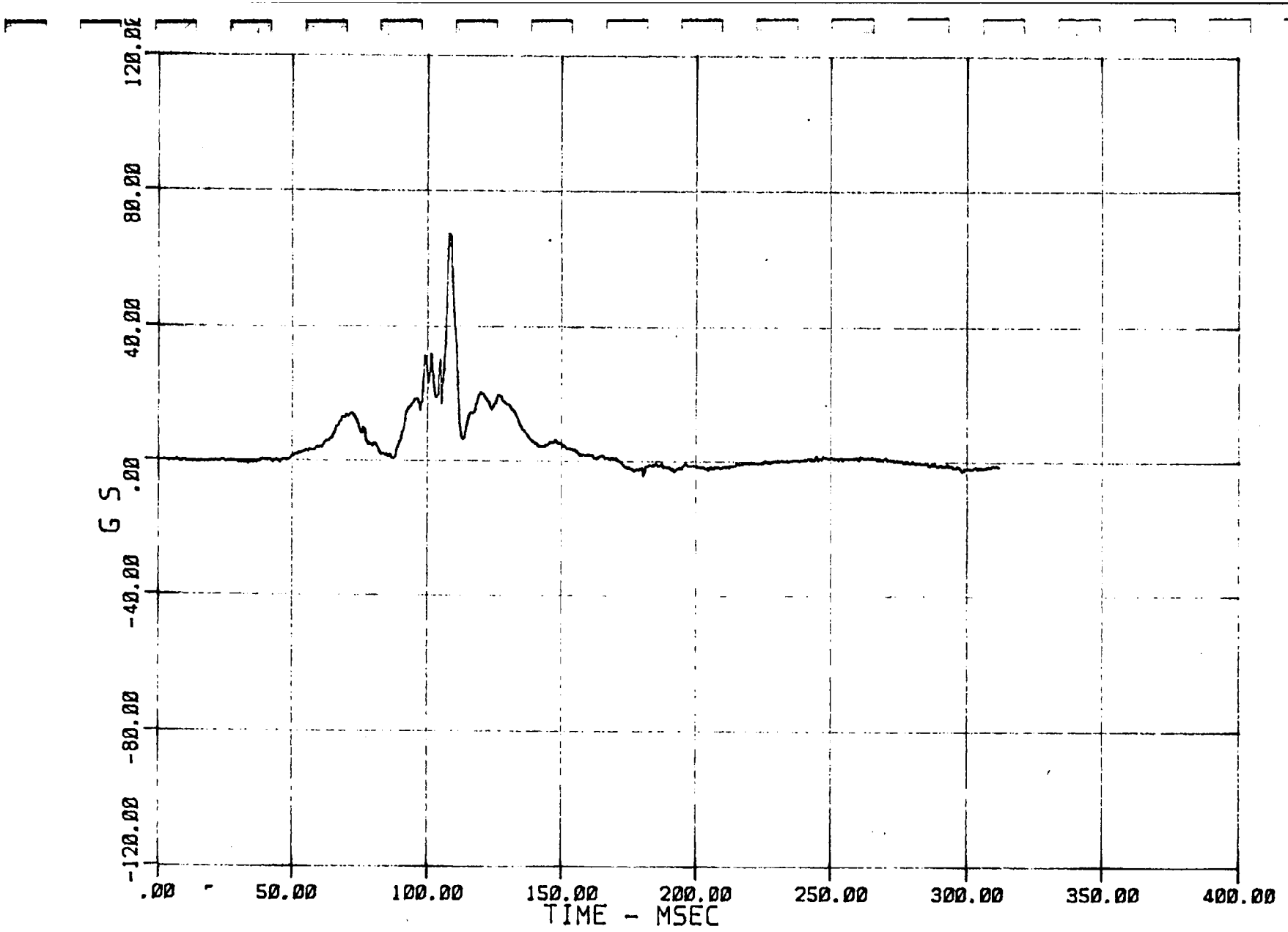
MSE N02033 1984 Ford Bronco II

06/15/83



07 AC 01 2 HED X

MSE N02033 1984 Ford Bronco_II 06/15/83



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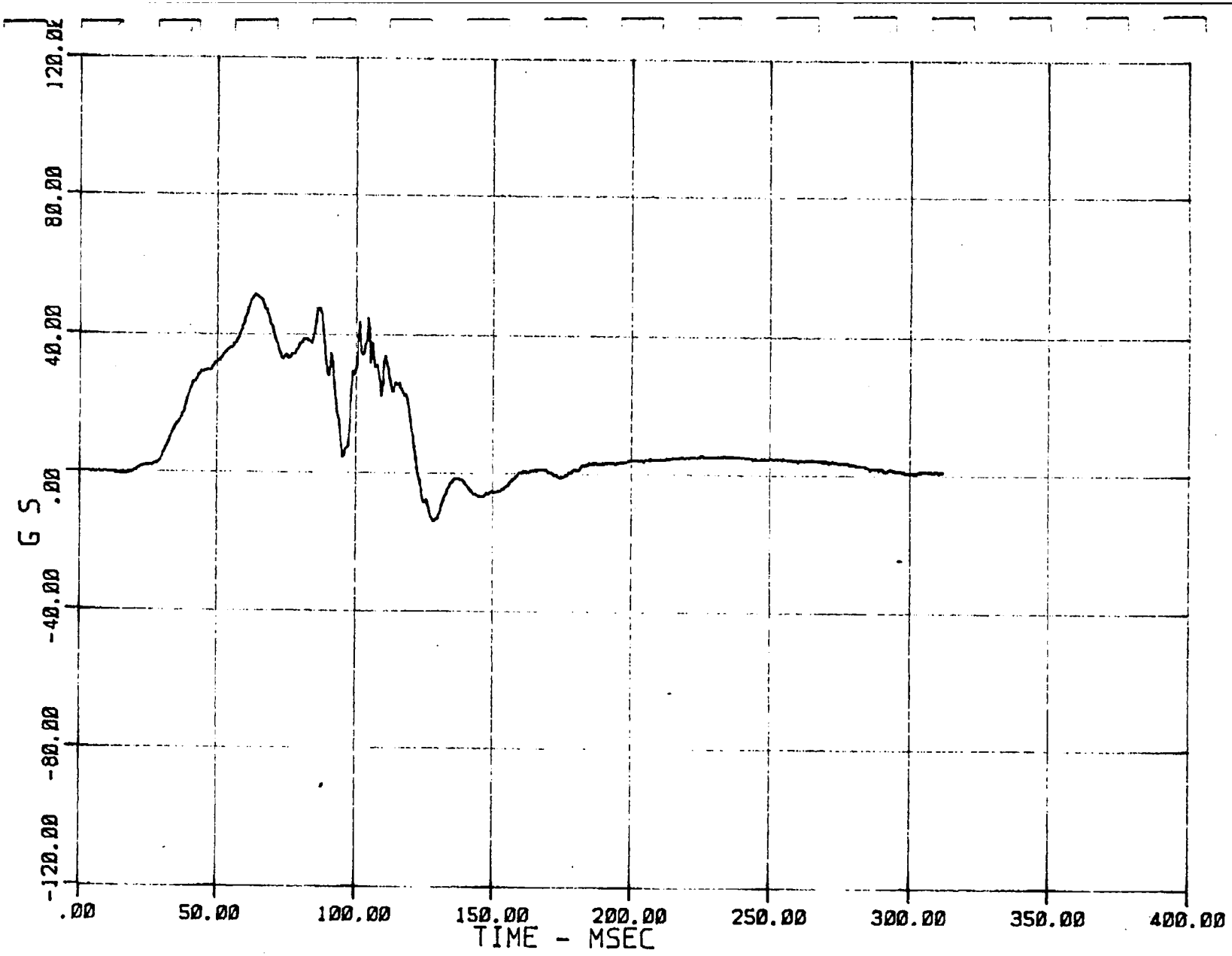
MSE N02033 1984 Ford Bronco II

06/15/83



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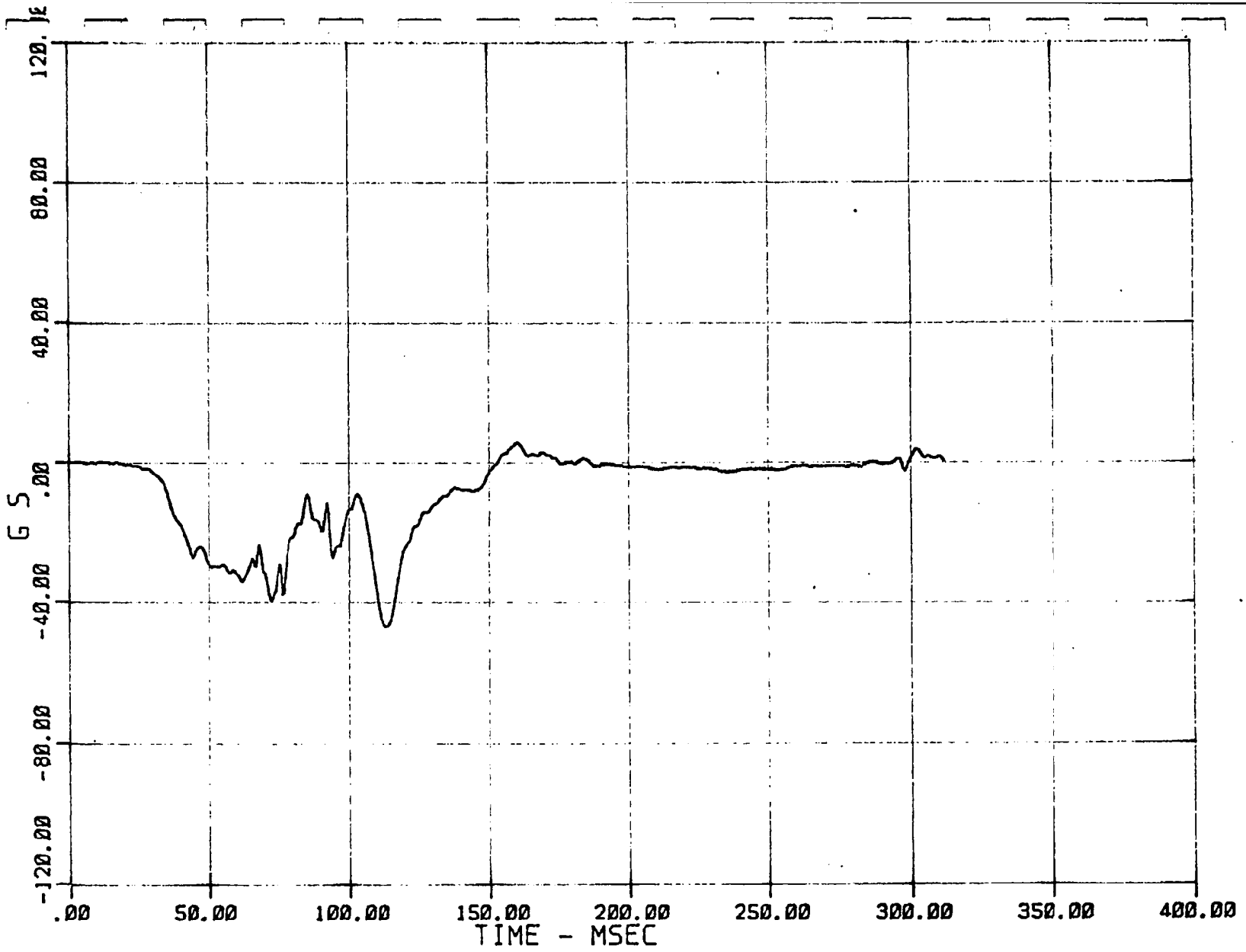
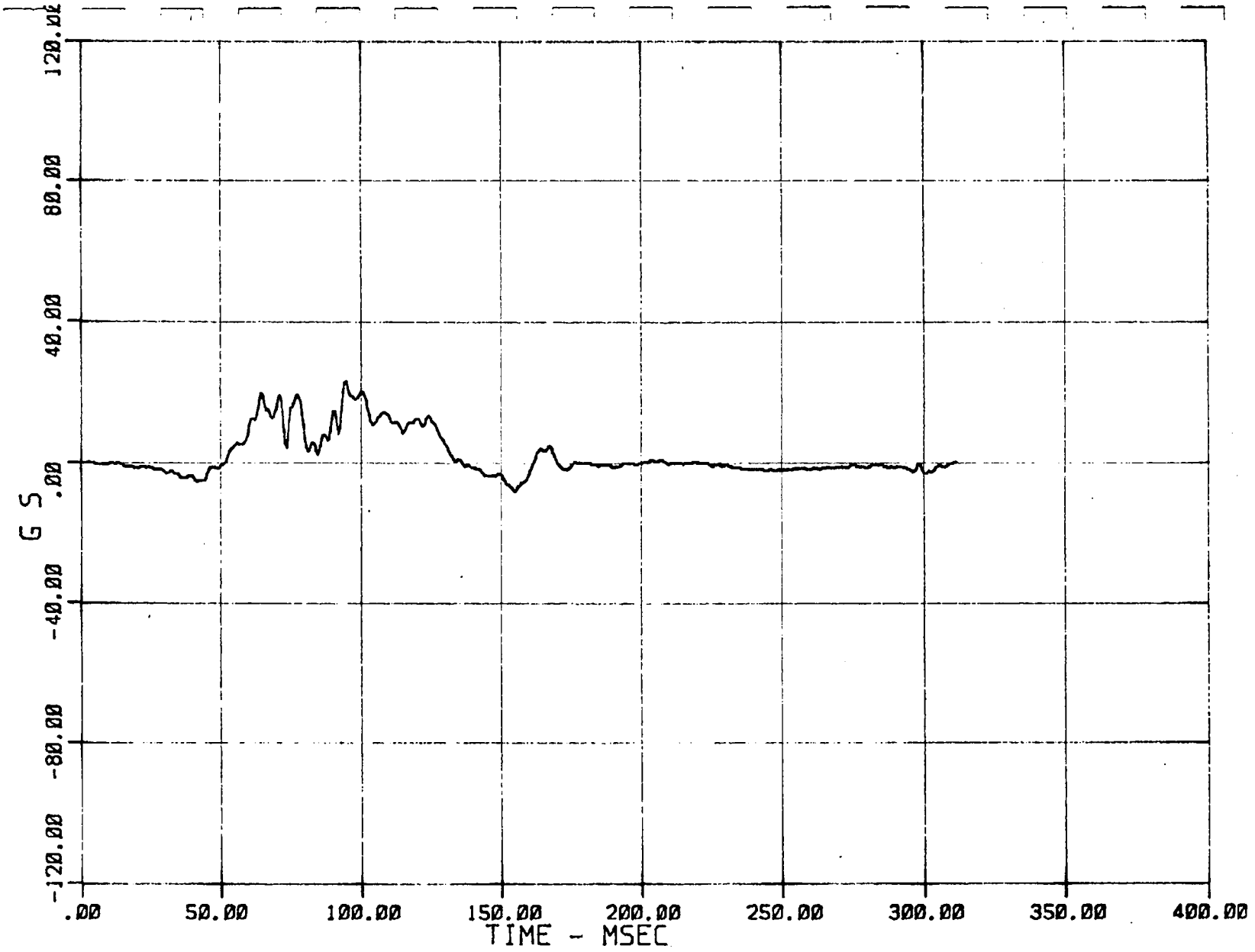
06/15/83



10 AC 01 2 CST X

MSE N02033 1984 Ford Bronco II

06/15/83



11 AC 01 2 CST Y
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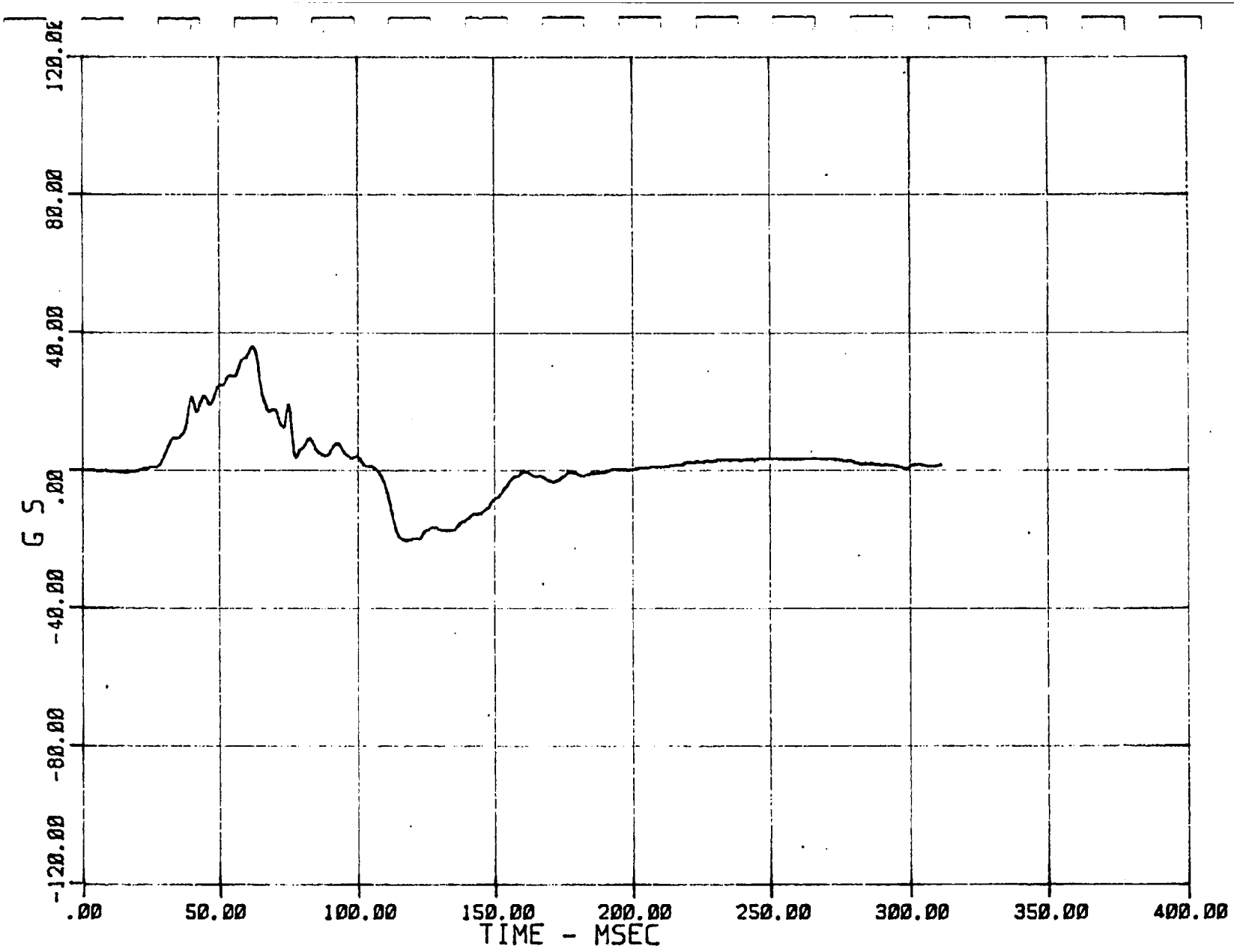
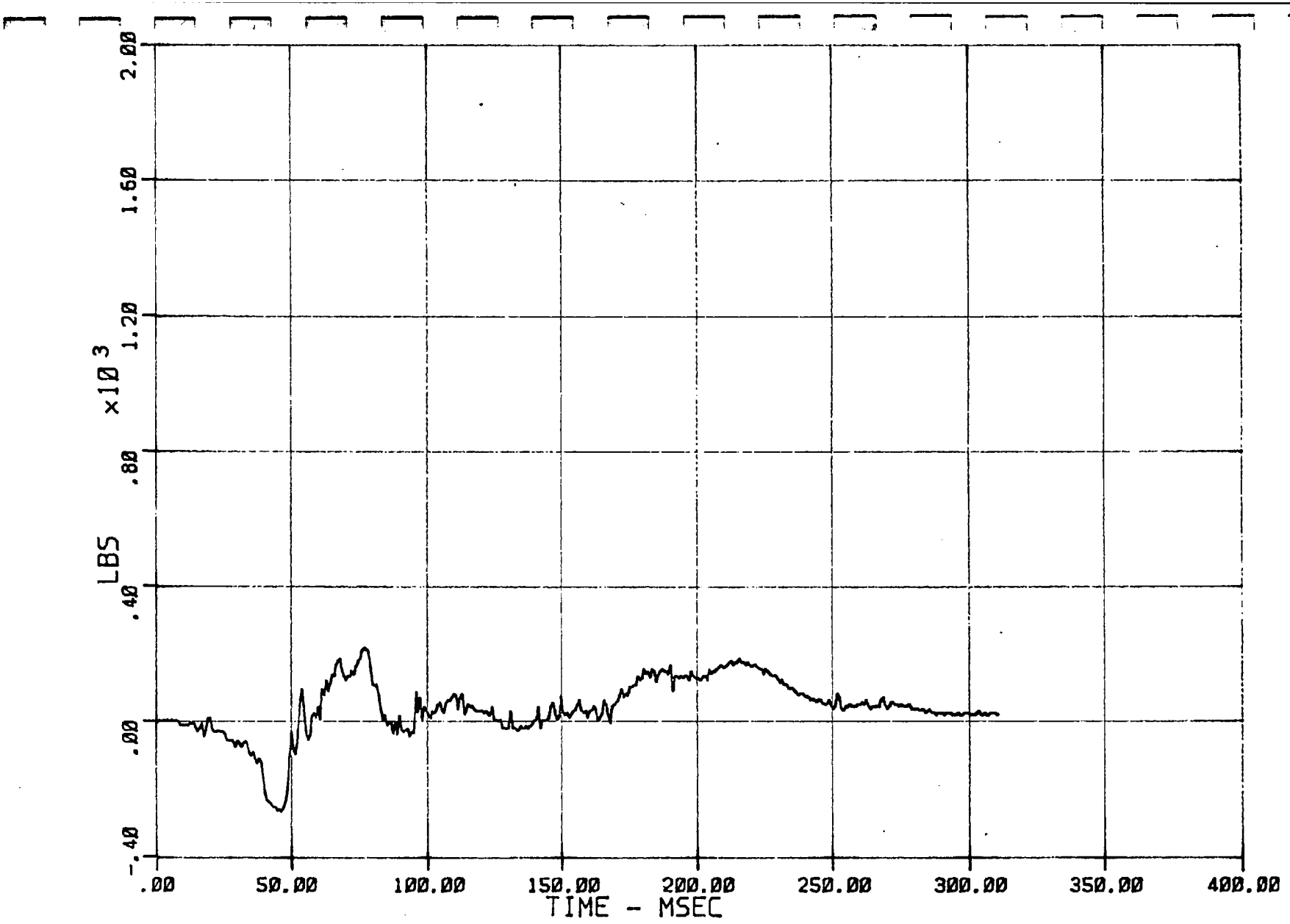


J2 AC Ø1 2 CST Z
MSE N02033 1984 Ford Bronco II 06/15/83



13 LC 01 1 LFM 0
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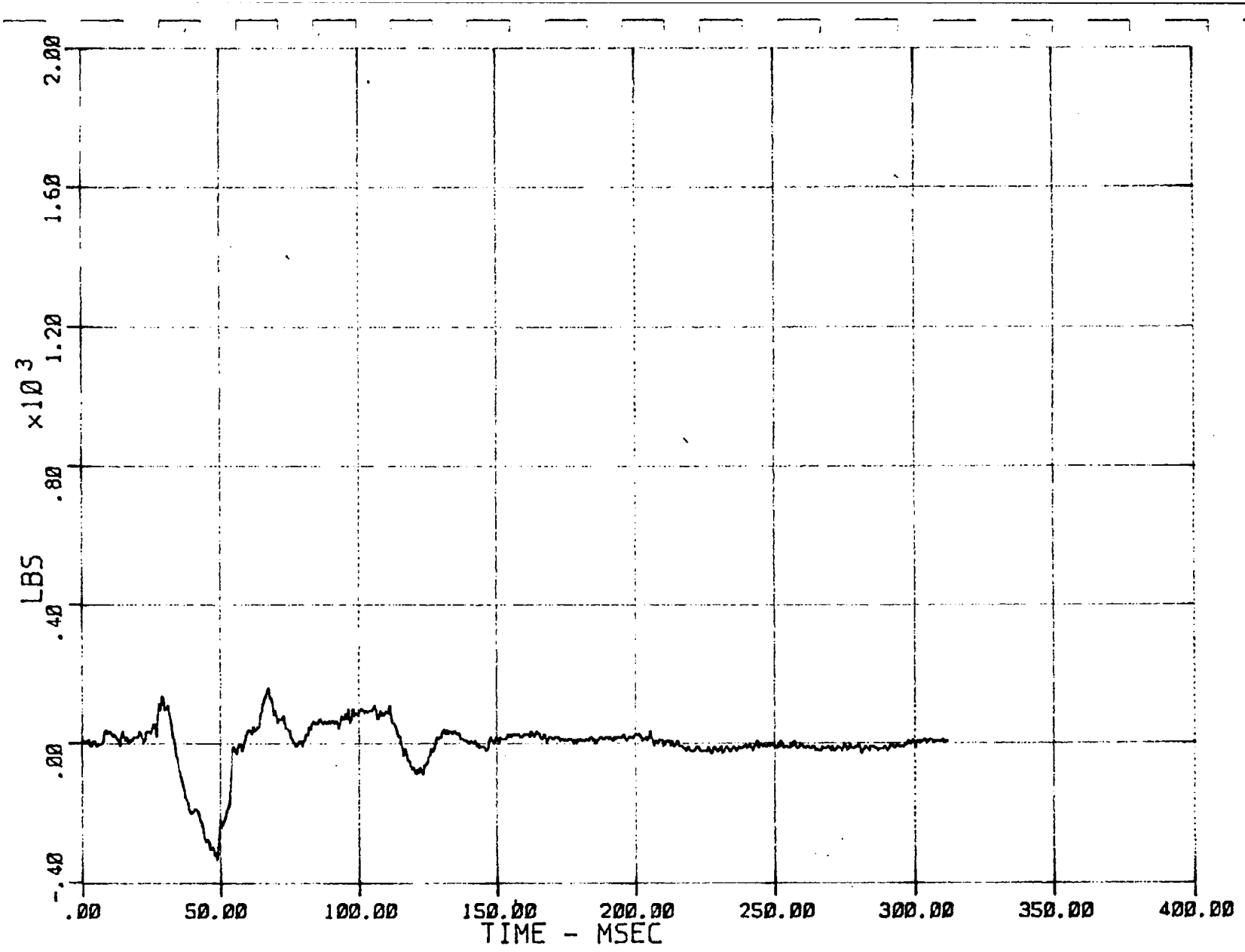

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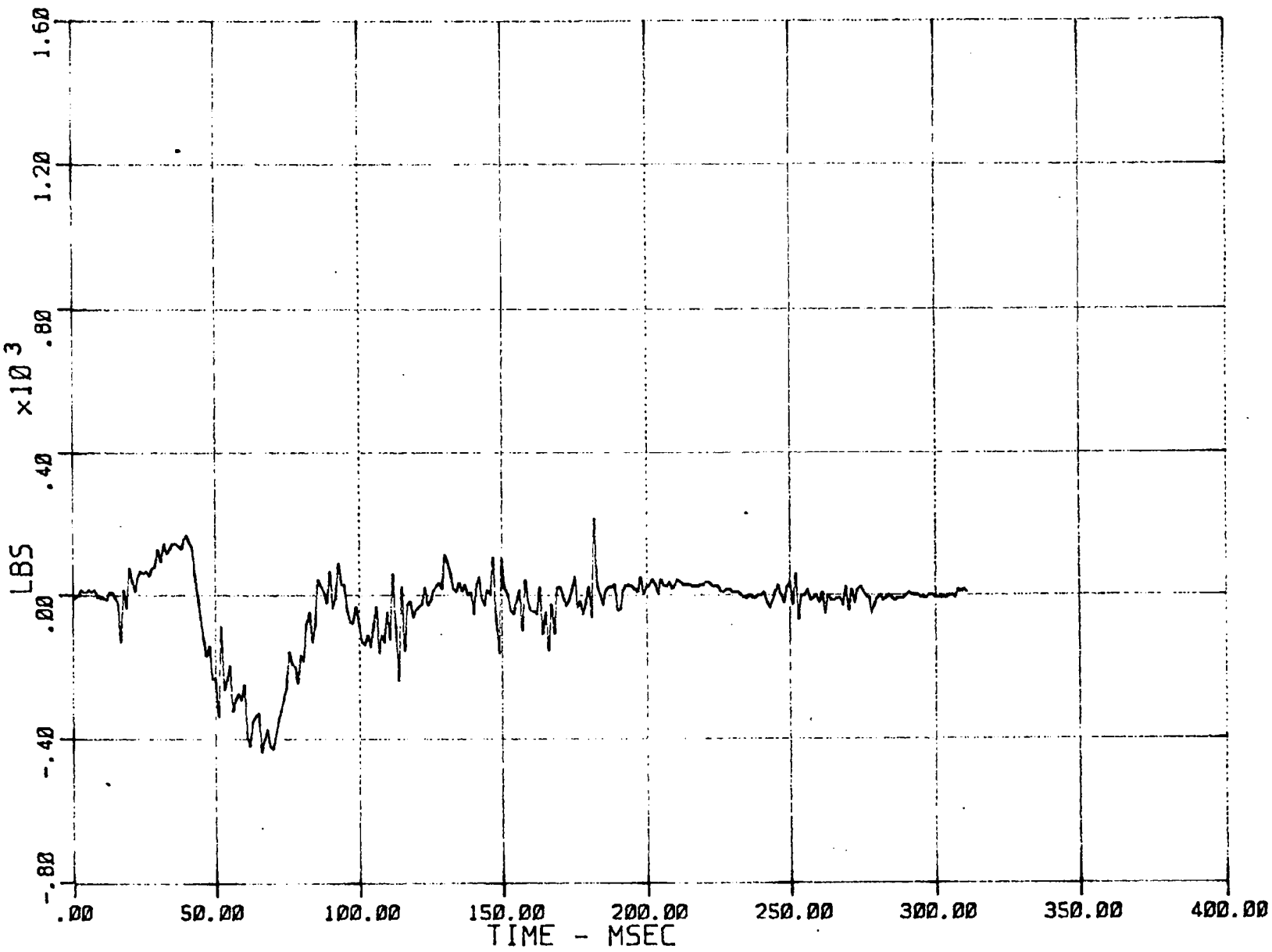

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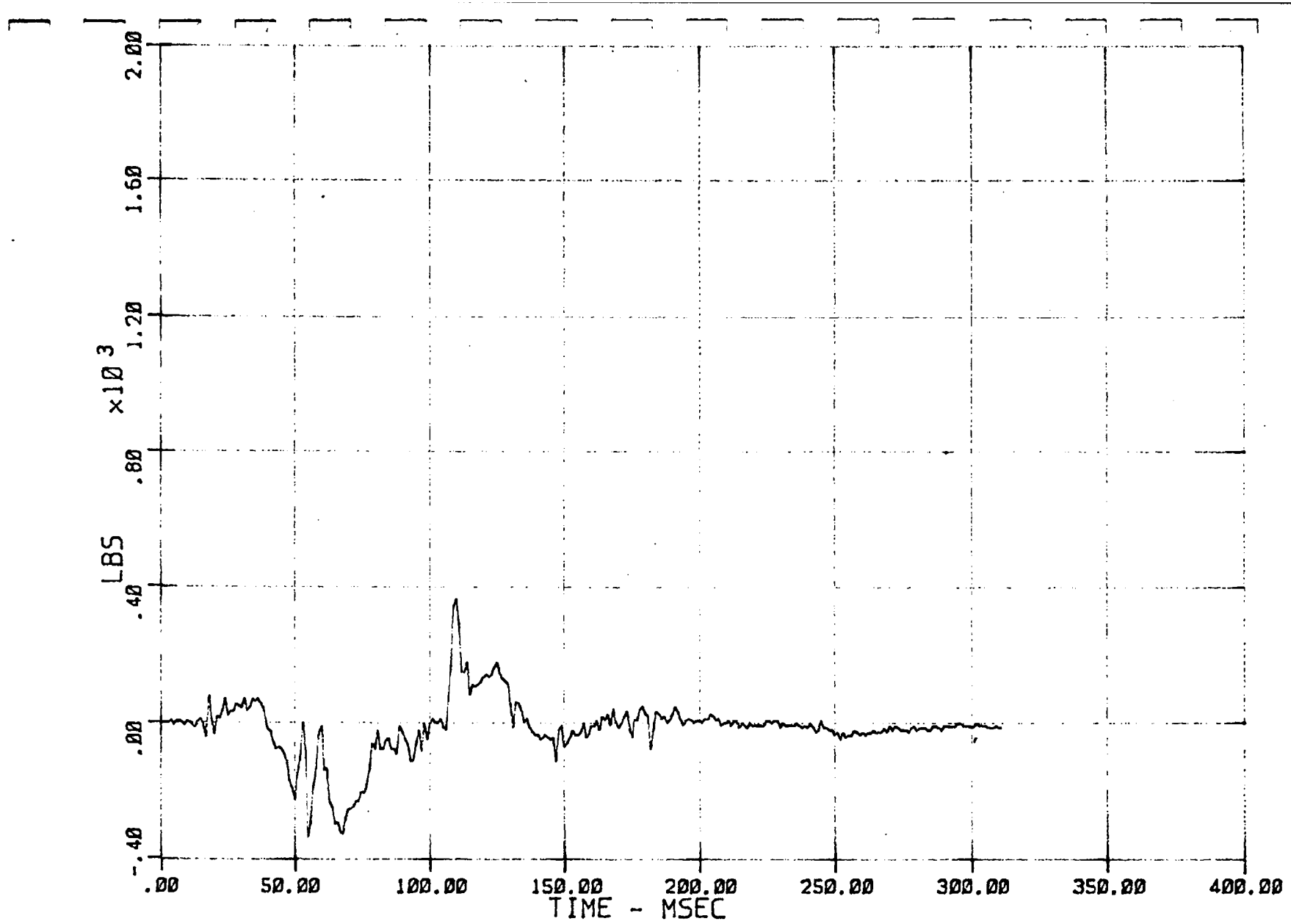

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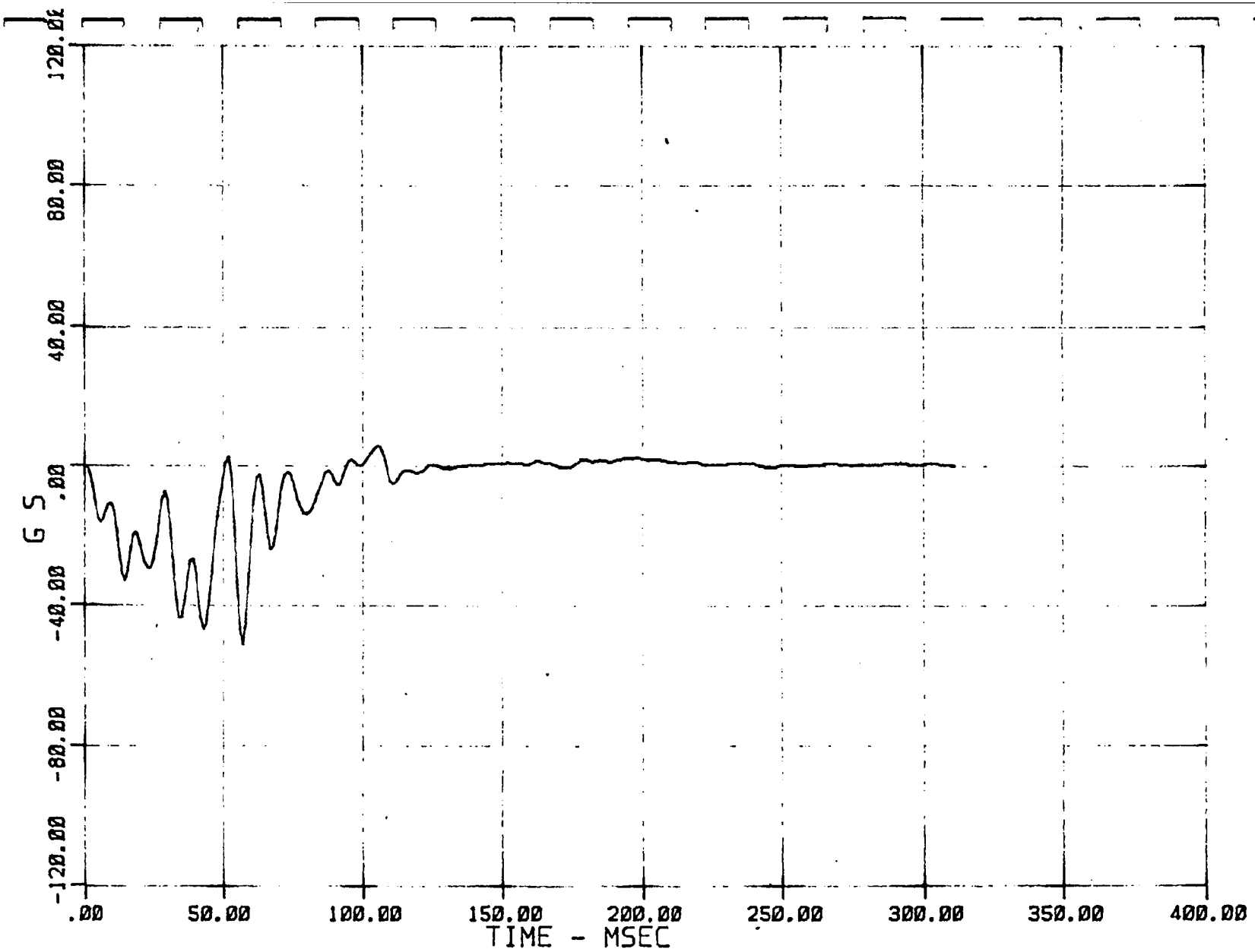

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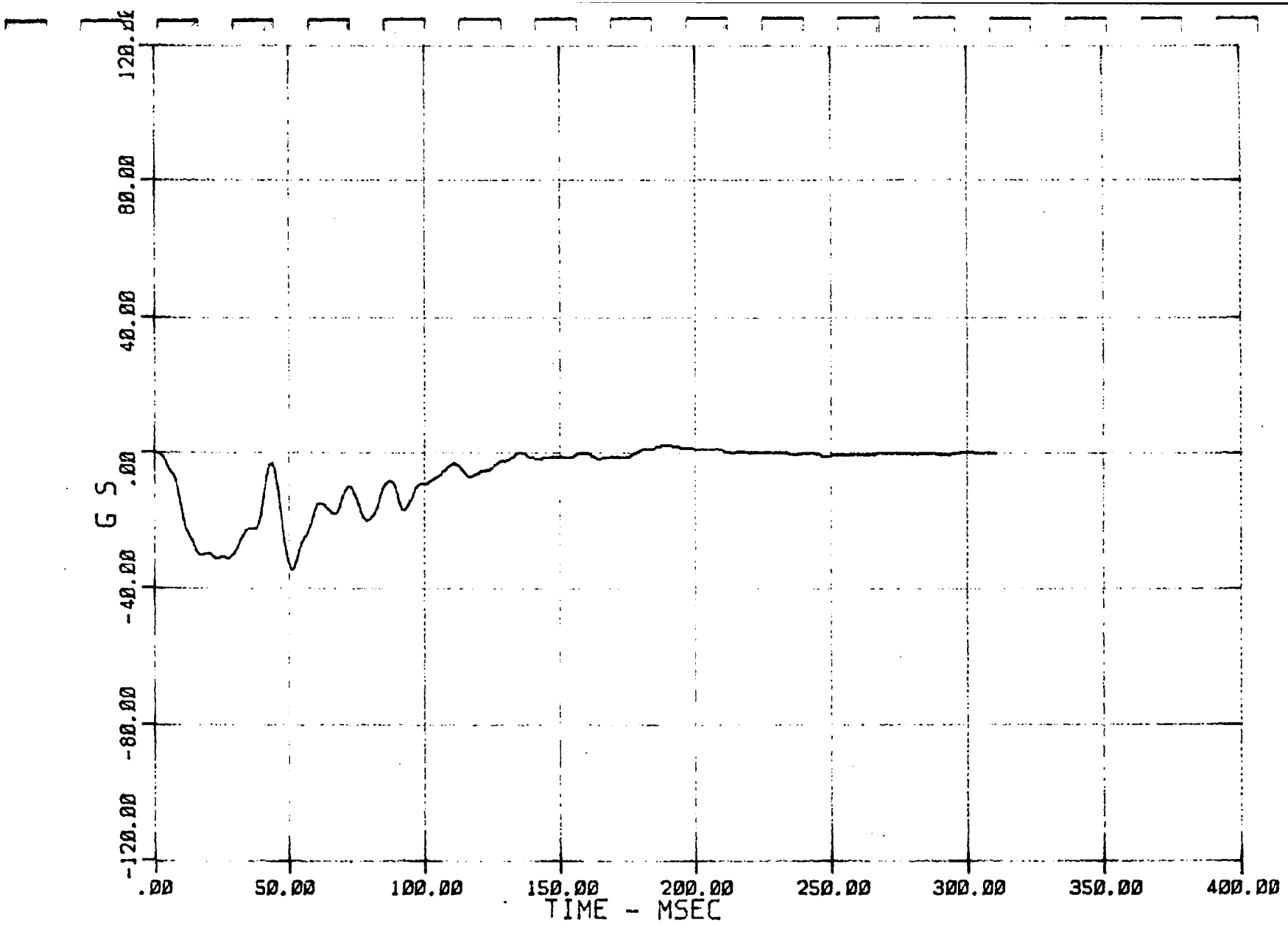

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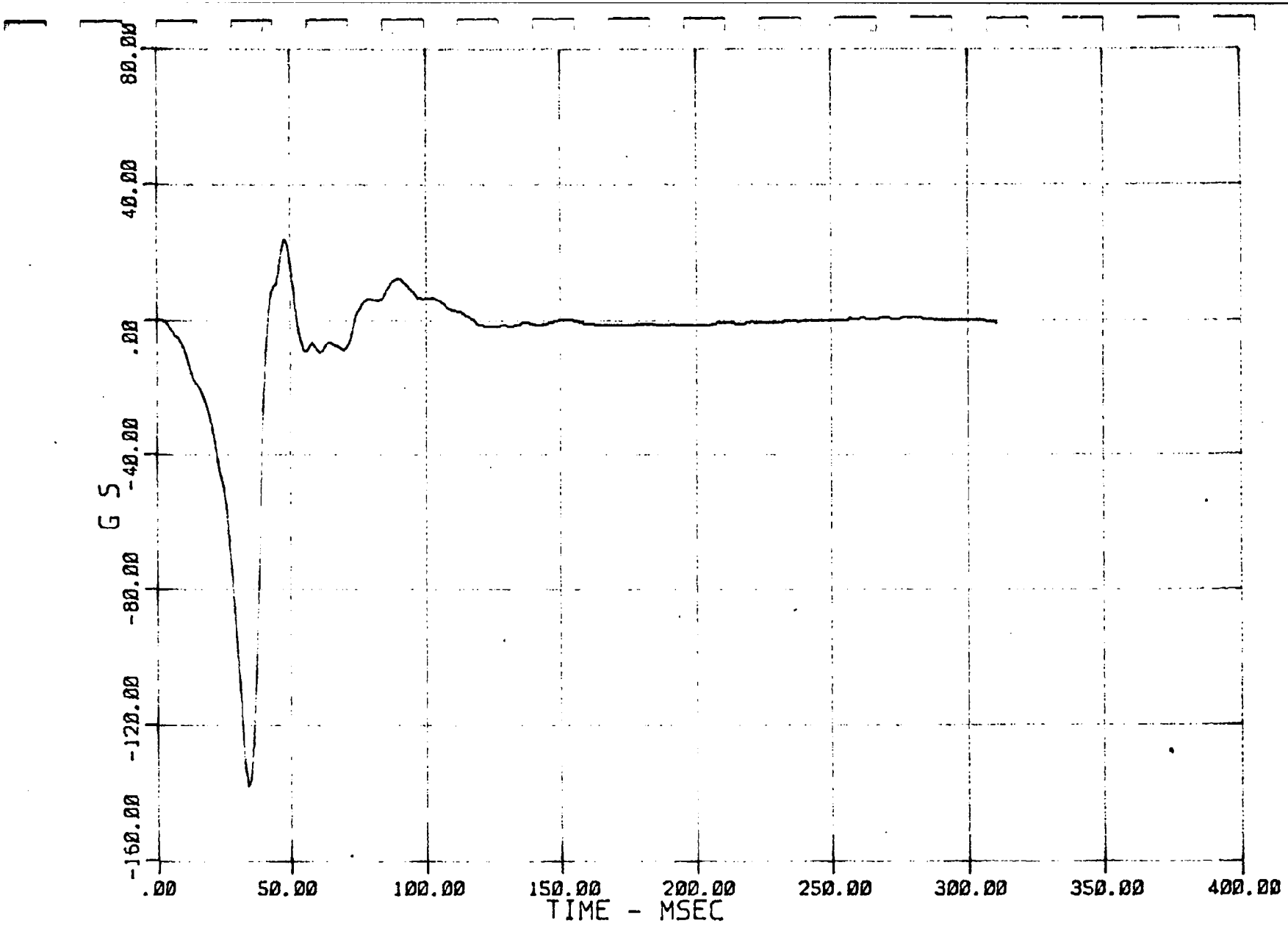

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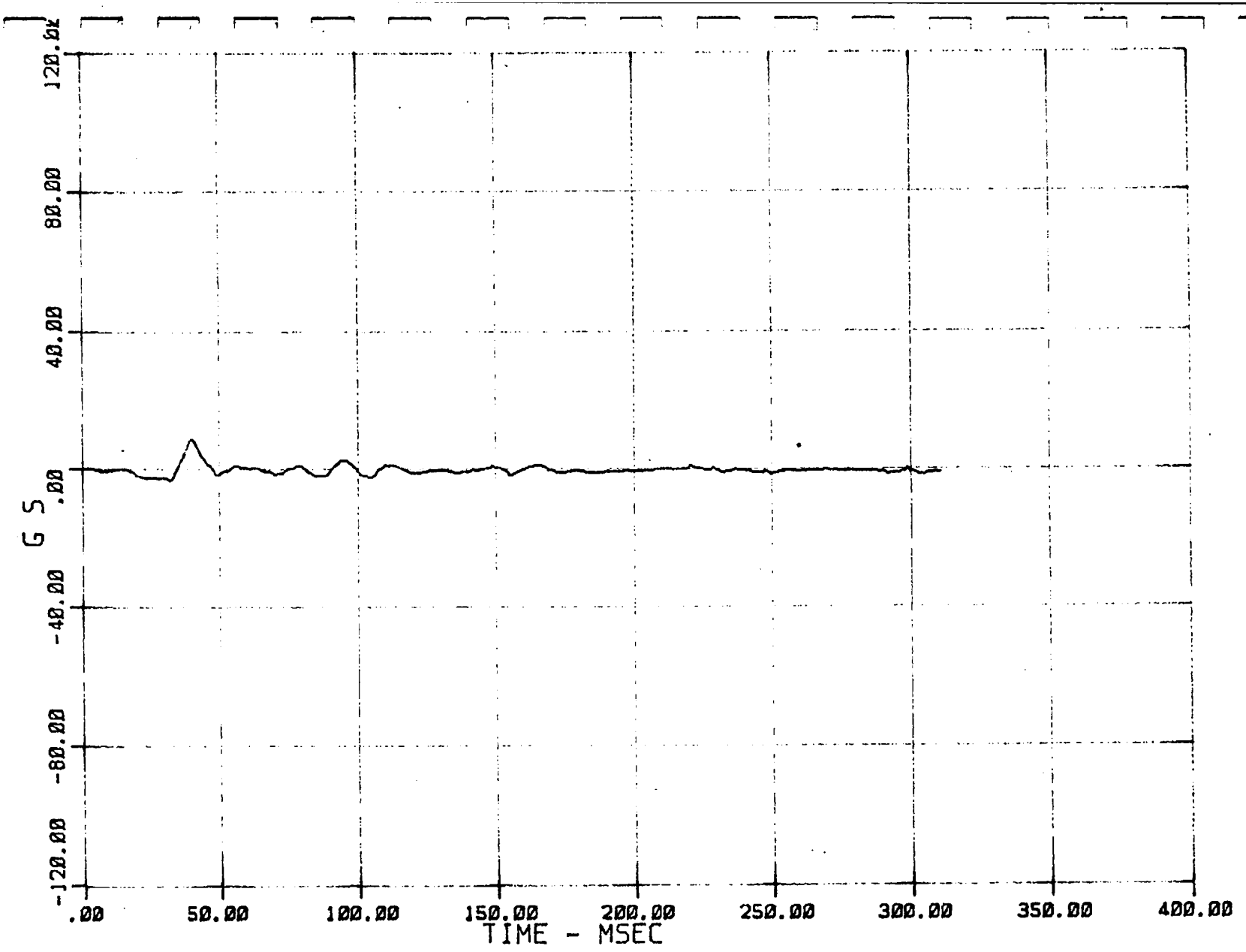

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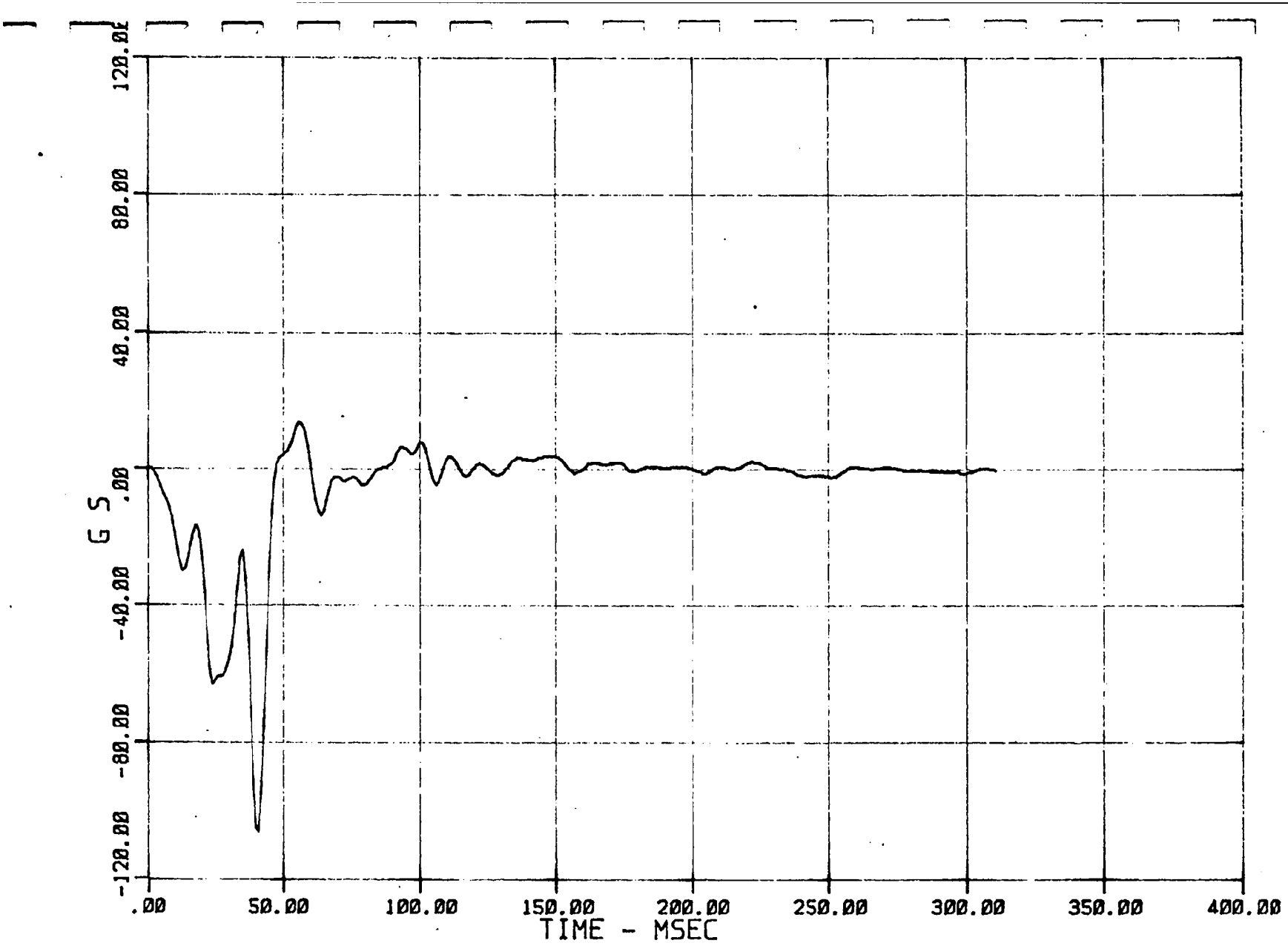

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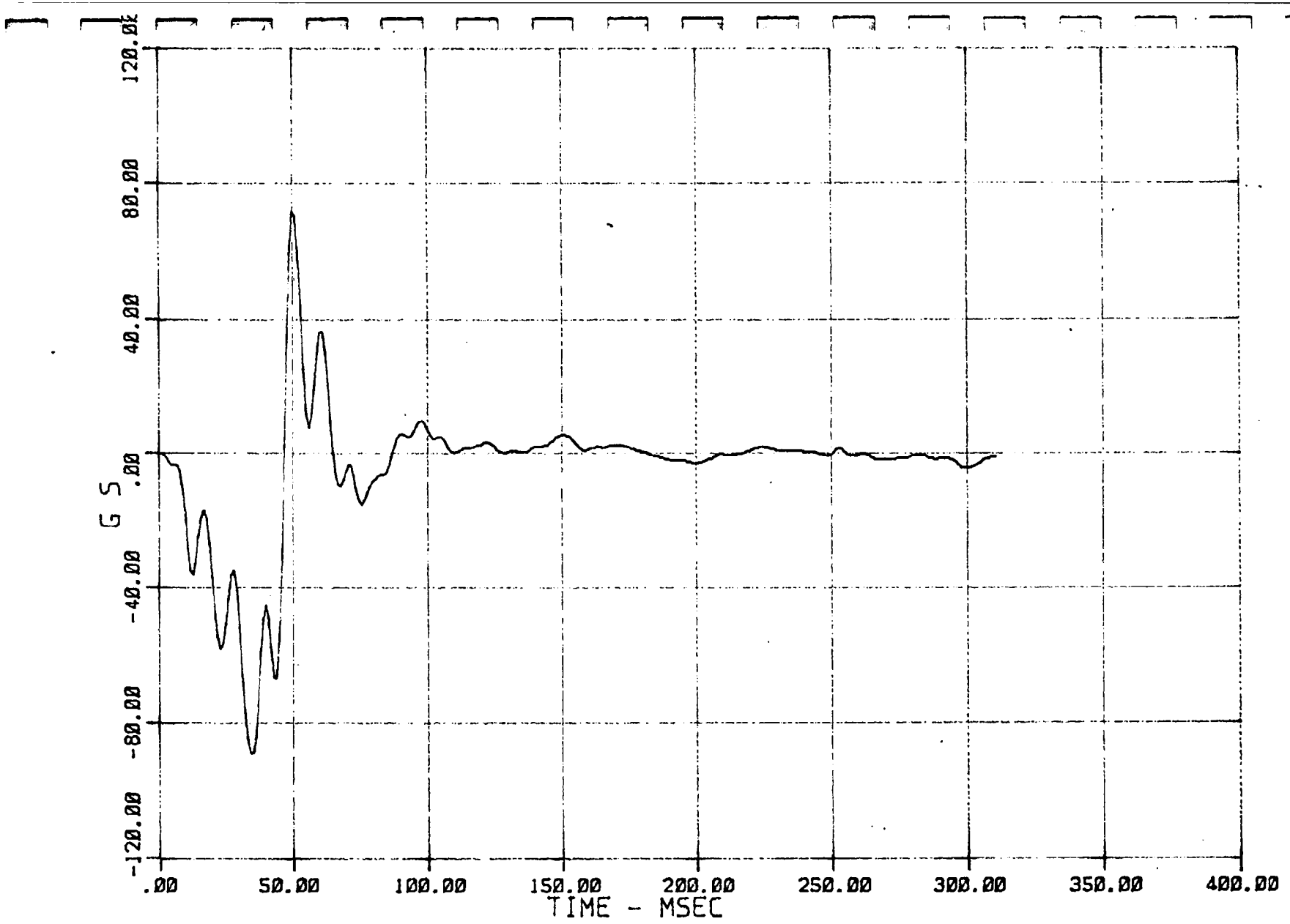
MSE N02033 1984 Ford Bronco II 06/15/83



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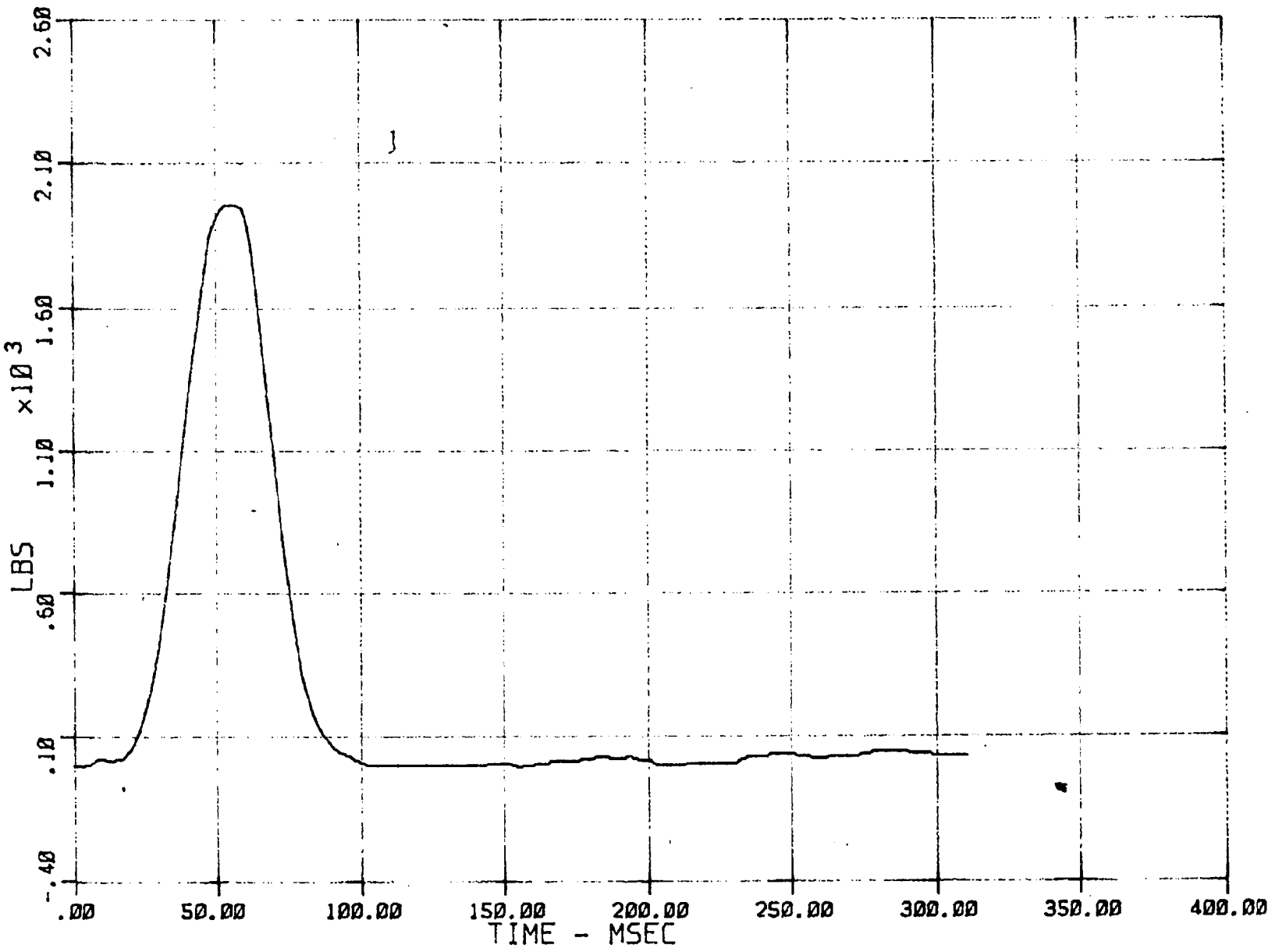

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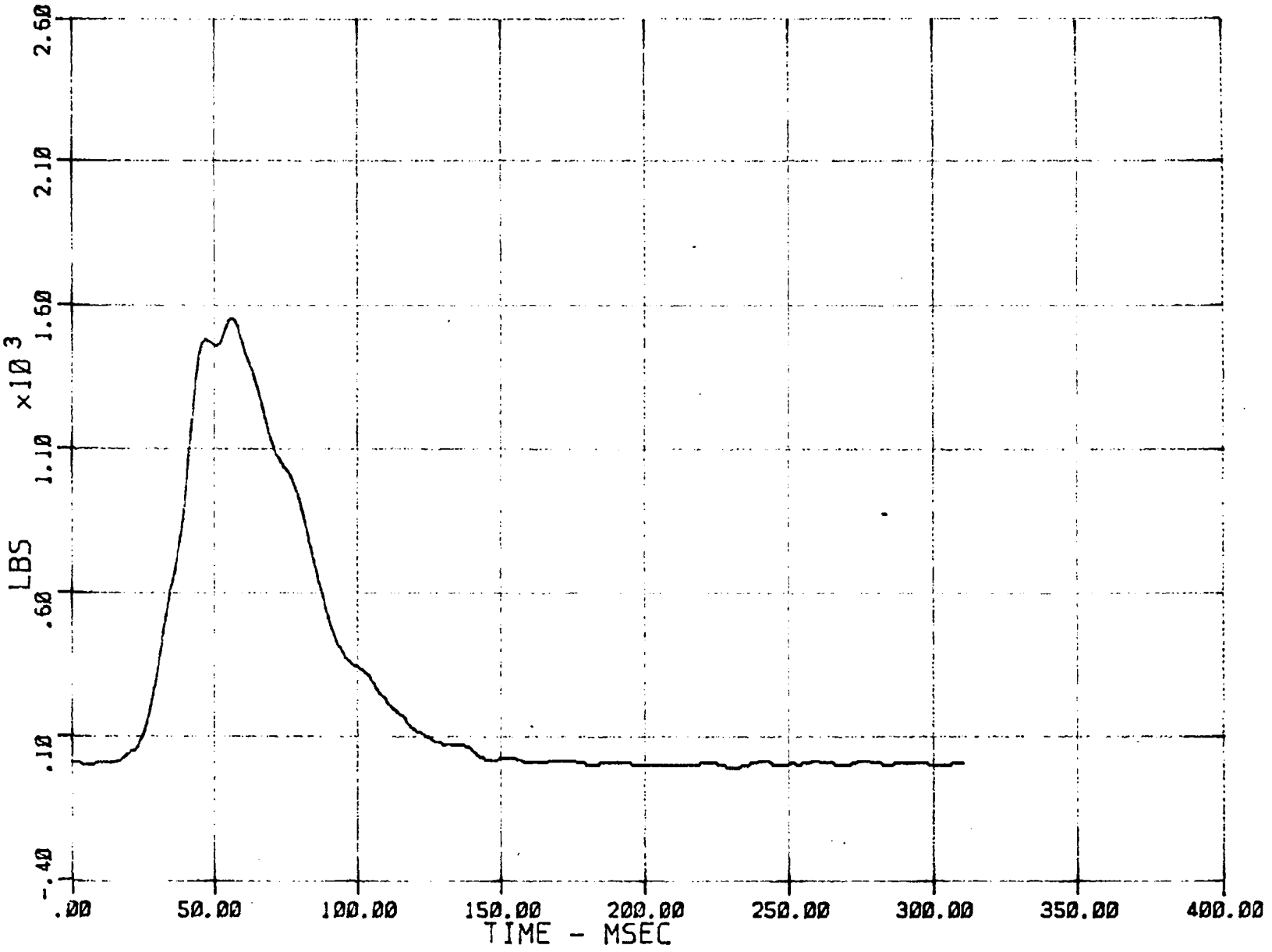

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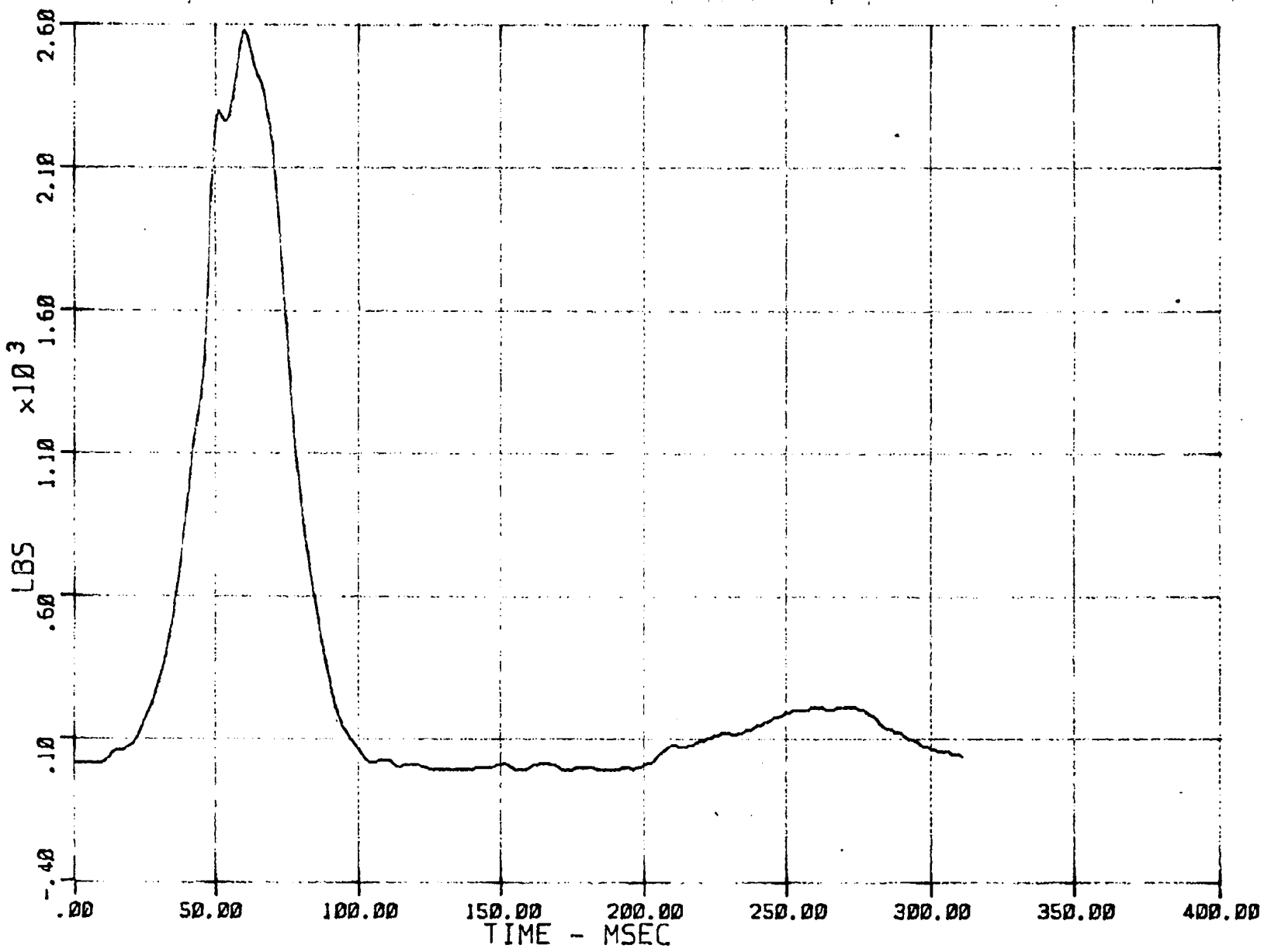

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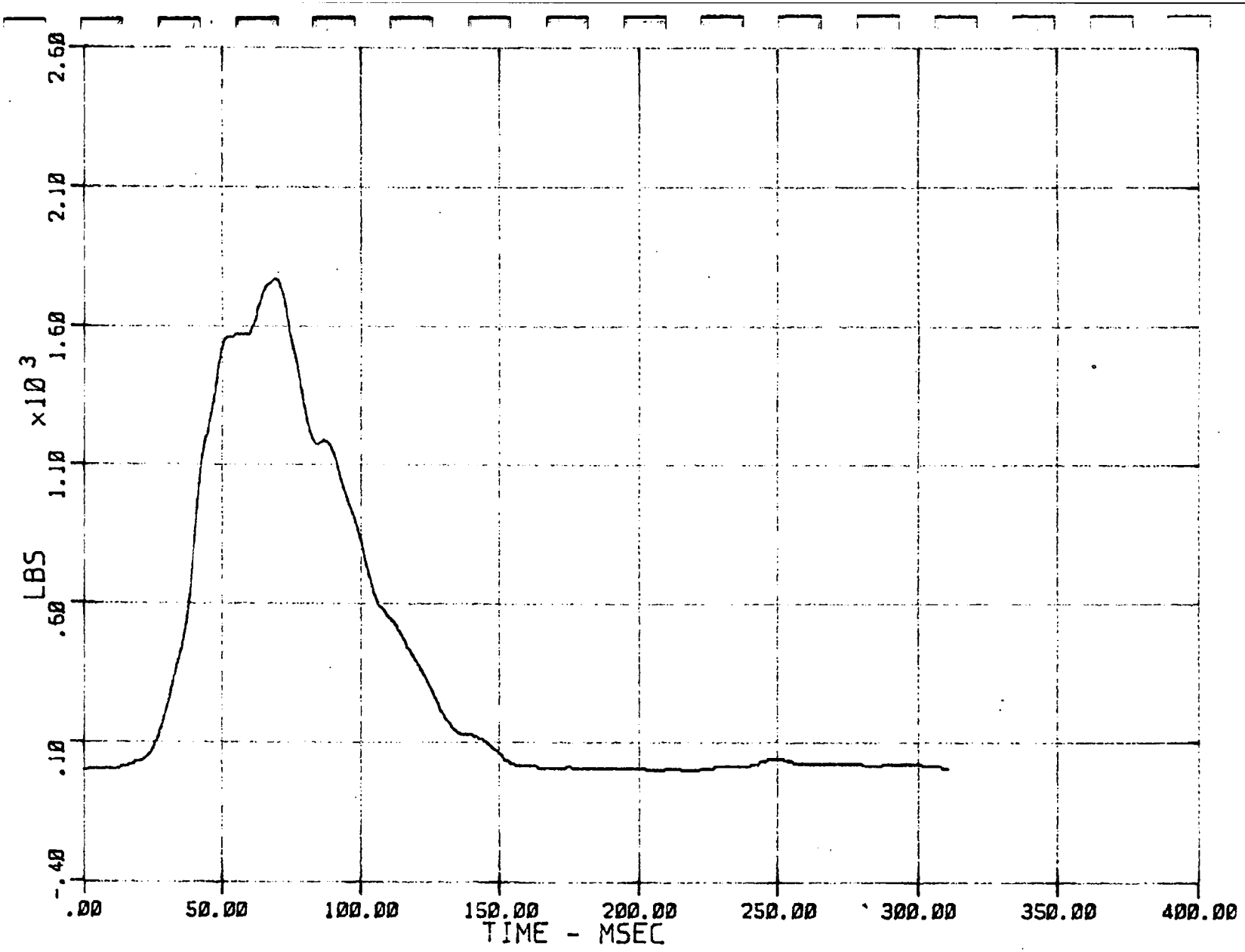

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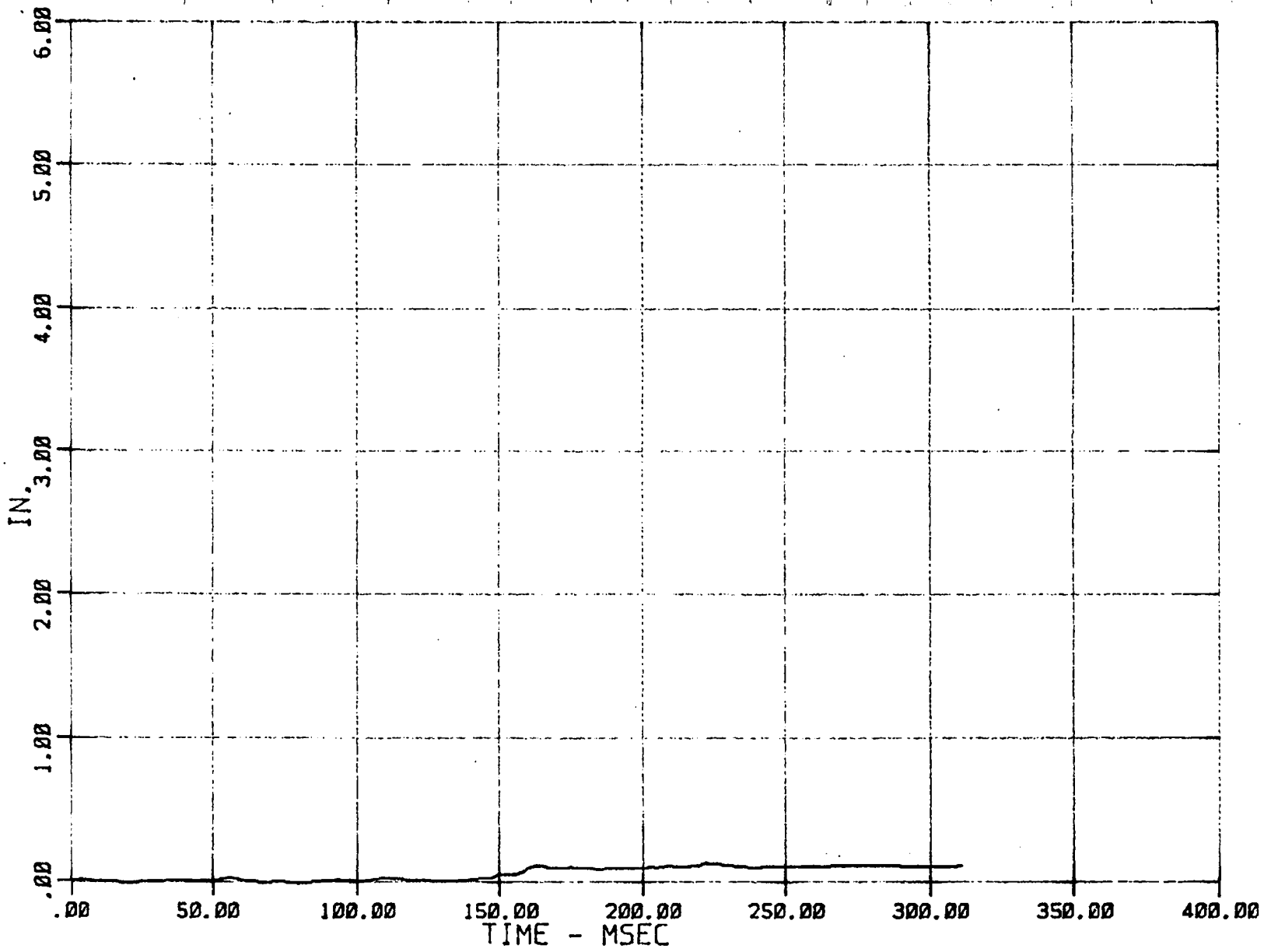
06/15/83



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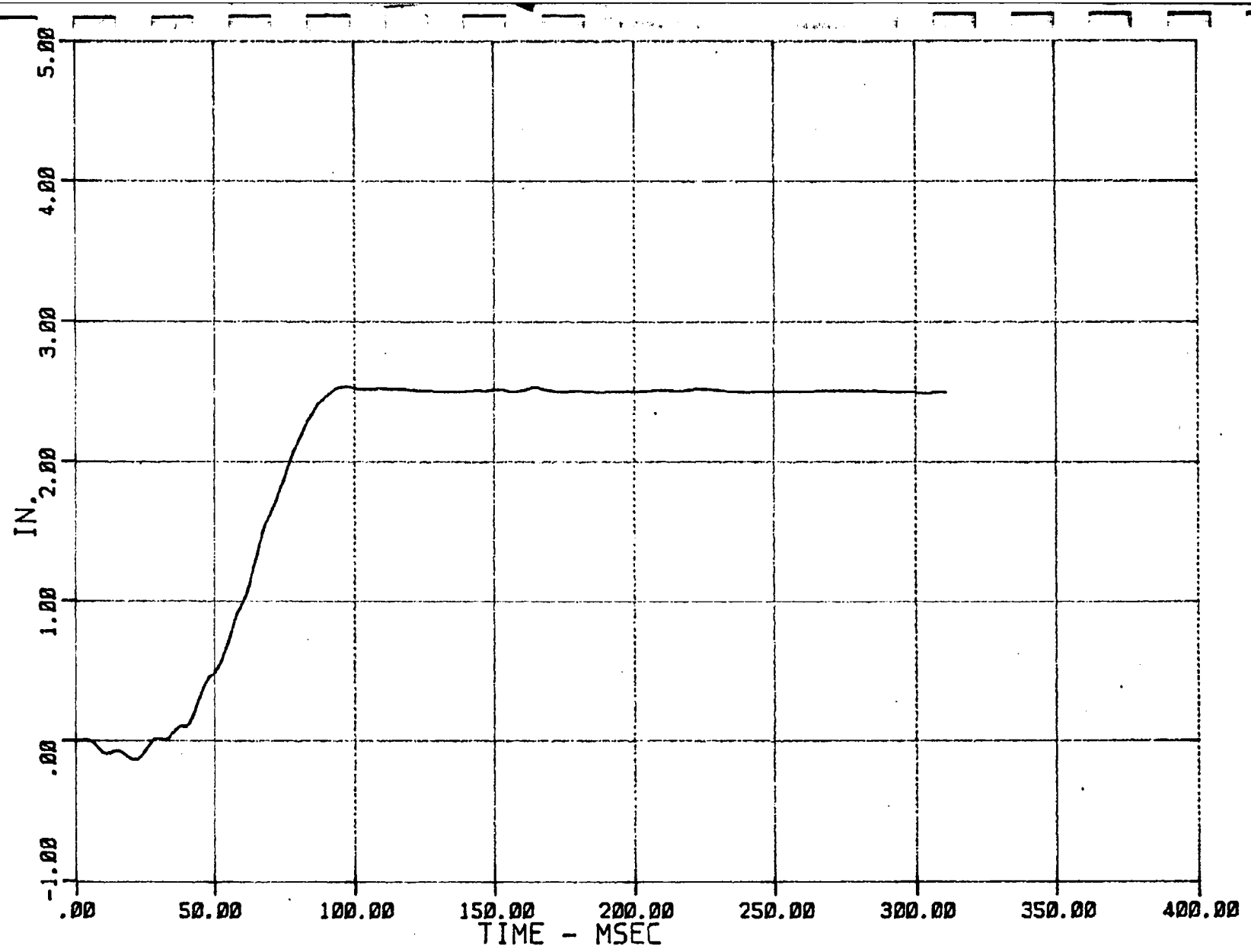

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