

DOT 0505

COPY

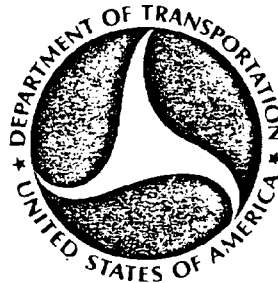
P2152-01AC

Report No. 204-MS-82-01-TR-AC

DOT 0517

↓ 15
SOG TEST

ADD-ON ACCELERATION MEASUREMENTS
PASSENGER CARS
FMVSS 204



December 1982

FINAL REPORT

Prepared Under Contract No. DTNH22-82-C-07481

For

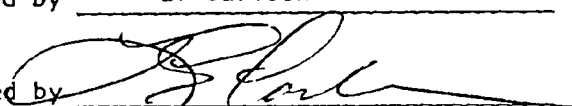
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
Office of Vehicle Safety Compliance
400 Seventh Street, S.W.
Washington, D.C. 20590

By

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

Prepared for the Department of Transportation,
National Highway Traffic Safety Administration under
Contract No. DTNH22-82-D-01105. This document is
disseminated under the sponsorship of the Department
of Transportation in the interest of information
exchange. The United States Government assumes no
liability for its contents or use thereof.

Prepared by L. Carlson

Approved by 

Date 1/4/83

Report Accepted by:

Contract Technical Manager
Office of Vehicle Safety Compliance

Date

1. REPORT NO. 204-MS-82-01-TR-AC		2. GOVERNMENT ACCESSION NO.	
		3. RECIPIENT'S CATALOG NO.	
4. TITLE AND SUBTITLE Add-On Acceleration Measurements Passenger Cars - FMVSS 204		5. REPORT DATE December 1982	
		6. PERFORMING ORGANIZATION CODE	
7. AUTHOR (S) Lloyd E. Carlson, P.E.		8. PERFORMING ORGANIZATION REPORT NO. P2152-01AC	
9. PERFORMING ORGANIZATION NAME AND ADDRESS MOBILITY SYSTEMS AND EQUIPMENT COMPANY 6151 West Century Boulevard, Suite 912 Los Angeles, California 90045		10. WORK UNIT NO.	
		11. CONTRACT AND GRANT NO. DTNH22-82-C-07481	
12. SPONSORING AGENCY NAME AND ADDRESS U.S. DEPARTMENT OF TRANSPORTATION NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION Office of Vehicle Safety Compliance 400 Seventh Street, S.W. Washington, D.C. 20590		13. TYPE OF REPORT AND PERIOD COVERED FINAL	
		14. SPONSORING AGENCY CODE	
15. SUPPLEMENTARY NOTES			
16. ABSTRACT Two channels of acceleration measurements were recorded on each of 15 vehicles subject to FMVSS 204 testing. The accelerometers were located on the front and rear floor pan areas of the vehicles.			
17. KEY WORDS FMVSS 204 Acceleration Measurement		18. DISTRIBUTION STATEMENT <u>Copies of this report are available from--</u> Technical Reference Division Nat'l Hwy Traffic Safety Admin. Room 510B, Nassif Building 400 7th St. SW, Wash. D.C. 20590	
19. SECURITY CLASSIF. (of this report)	20. SECURITY CLASSIF. (of this page)	21.	22.

TEST DATA REPORT
FMVSS 204
ADD-ON ACCELEROMETER MEASUREMENTS

SECTION 1
INTRODUCTION

A series of 15 FMVSS 204 tests was conducted for NHTSA. As an add-on to these tests, two channels of acceleration data were measured for each test. The vehicles tested are listed in Section 2. All tests were conducted in 1982.

Two channels of data were successfully recorded for each test. All data were of good quality except the data for the Nissan Sentra vehicle, NHTSA No. 820547. The data for this test exhibited large zero offsets that occurred sometime following impact. Corrections were made to achieve meaningful acceleration values. However, the first and second integrals (velocity and displacement) yield questionable values. All other test data required minor (less than 10% amplitude) zero offset corrections to achieve correct velocity and displacement response.

The data for all 15 tests are presented in Section 2. For each vehicle, the vehicle and test descriptive data and the time history data (6 channels, 2 acceleration, 2 velocity and 2 displacement) are presented. The descriptive and time history data were also written to tape in accordance with the NHTSA specified format. The 15 separate data tapes are included as part of this data report.

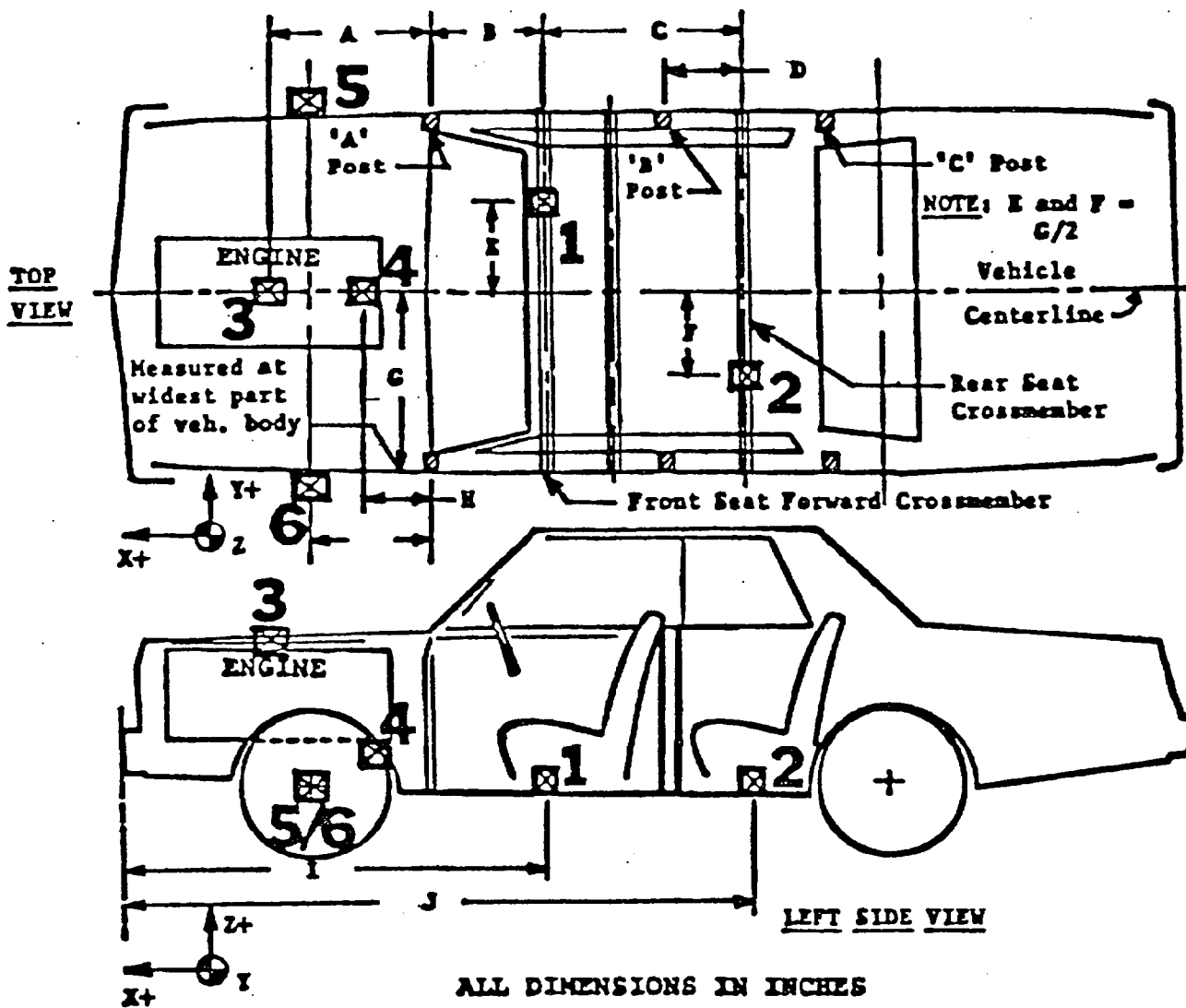
2.14 TEST DATA FOR FORD RANGER PICKUP

NHTSA No.	-	830604
Test Reference No.	-	N02142
Test Date	-	12/10/82

FORD RANGER PICKUP
VEHICLE AND DESCRIPTIVE TEST DATA

1. TEST TITLE	FMVSS204
2. TEST DATE (MM/DD/YY)	12/10/82
3. TEST PERFORMER	MSE
4. CONTRACT NUMBER	DTNH2282D01105
5. TEST REFERENCE NO.	TEST 14
6. TEST OBJECTIVES	DETERMINE COMPL. TO FMVSS204
7. (CONT)	AND MEASURE 2 ACCEL. CH. ON VEHICLE
8. TEST TYPE	COM
9. TEST CONFIGURATION	USB
10. CLOSING SPEED	29.3
11. IMPACT ANGLE	0
12. OFFSET DISTANCE	999.9
13. SIDE IMPACT POINT (INCHES)	999.9
14. TEST TRACK SURFACE	ASH
15. TEST TRACK CONDITION	DRY
16. AMBIENT TEMPERATURE (F)	62
17. RECORDER TYPE	FMT
18. DATA LINK	UMB
19. TEST ANOMALIES	ENG
20. DESCRIPTION OF OTHER ANOMALY	
21. VEHICLE I.D. NUMBER	1
22. VEHICLE MAKE	2
23. VEHICLE MODEL	22
24. VEHICLE YEAR	82
25. ENGINE TYPE	4-ILF
26. ENGINE DISPLACEMENT	2.3 LITER
27. TRANSMISSION TYPE	MF
28. BODY TYPE	PU
29. TEST WEIGHT	2493
30. WHEELBASE (IN.)	108.0
31. VEHICLE LENGTH (IN.)	175.2
32. VEHICLE WIDTH (IN.)	65.0
33. C.G. DIST. BEHIND FRONT AXLE	42.2
34. STEERING COL. TO DASH	S
35. STEERING COL. COLLAPSE MECH.	CYL
36. VEHICLE MODIFICATION INDIC.	P
37. GEN. DESCR. OF MODIFICATIONS	
38. (CONT)	
39. VEHICLE ABSOLUTE SPEED	29.3
40. TRAVEL ANGLE	0
41. DIRECTION OF IMPACT FORCE	0
42. DAMAGE INDEX	12FDEW3
43. BUMPER ENGAGEMENT	9
44. SILL ENGAGEMENT	9
45. PILLAR ENGAGEMENT	9
46. LENGTH OF CONTACT DAMAGE	65.0
47. POINT NO. 1	12.0
48. POINT NO. 2	12.2
49. POINT NO. 3	12.4
50. POINT NO. 4	12.6
51. POINT NO. 5	12.8
52. POINT NO. 6	13.0
53. DIST. DAMAGE CENTER TO C.G.	0.0
54. MAXIMUM CRUSH DISTANCE	13.0
55. TYPE OF BARRIER	FFB
56. DIAMETER OF POLE BARRIER	0.0
57. ANGLE OF BARRIER	0

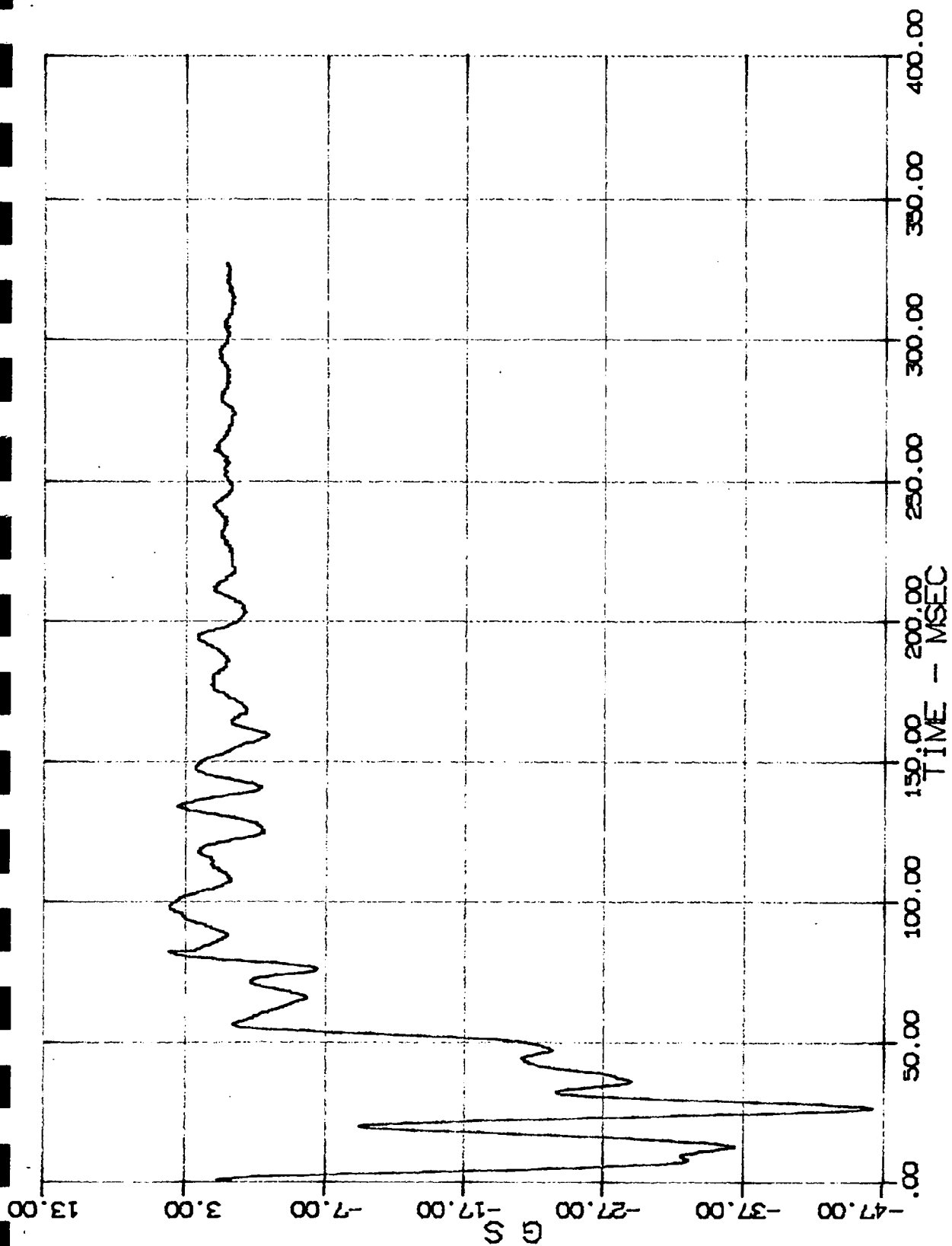
59. WEIGHT OF BARRIER IF MOVING	0
60. RIGID OR YIELDING BARRIER	R
61. ROLLOVER TYPE TEST	9
62. SPEED OF ROLLOVER CART	0.0
63. ANGLE OF ROLLOVER CART	0
64. ORIENTATION ON ROLLOVER CART	0
65. ADDITIONAL DESCRIPTION	
66. (CONTINUED)	
67. VEHICLE OCCUPANT	0
68. SEATING POSITION	0
69. SEAT POSITION (FORE-AFT)	
70. OCCUPANT TYPE	
71. OCCUPANT AGE	0
72. OCCUPANT HEIGHT	0
73. OCCUPANT WEIGHT	0
74. OCCUPANT SIZE PERCENTILE	0
75. OCCUPANT SEX	
76. OCCUPANT SIMULATED AGE	0
77. MANUFACTURER AND SERIAL NO.	
78. (CONTINUED)	
79. HEAD TO WINDSHIELD HEADER	0.0
80. HEAD TO WINDSHIELD	0.0
81. HEAD TO SIDE HEADER	0.0
82. HEAD TO SIDE WINDOW	0.0
83. CHEST TO DASH	0.0
84. CHEST TO STEERING WHEEL	0.0
85. ARM TO DOOR	0.0
86. HIP TO DOOR	0.0
87. KNEES TO DASH	0.0
88. RESTRAINT SYSTEM TYPE	
89. KNEE RESTRAINT DESCRIPTION	
90. AIR BAG/BELT DEPLOYMENT	
91. HEAD CONTACT REGION	
92. CHEST OR ABDOMEN CONTACT REGION	
93. LEF CONTACT REGION	
94. CHANNEL NUMBER	1
95. SENSOR TYPE	AC
96. SENSOR LOCATION	01
97. OCCUPANT	N
98. SENSOR ATTACHED	RFF
99. NATURAL FREQUENCY	6000
100. PREFIL	100
101. DMPRTO	0.0
102. NO. OF POINTS	2654
103. TOPT	360
104. DELTA T	200
105. UNITS	G's
106. AXIS	X
107. INITIAL VELOCITY	29.3
108. QUALITY	GOOD ,ZERO OFFSET
109. CHANNEL NUMBER	2
110. SENSOR TYPE	AC
111. SENSOR LOCATION	01
112. OCCUPANT	N
113. SENSOR ATTACHED	LRF
114. NATURAL FREQUENCY	6000
115. PREFIL	100
116. DMPRTO	0.0
117. NO. OF POINTS	2654
118. TOPT	360
119. DELTA T	200
120. UNITS	G's
121. AXIS	X
122. INITIAL VELOCITY	29.3
123. QUALITY	GOOD,ZERO OFFSET



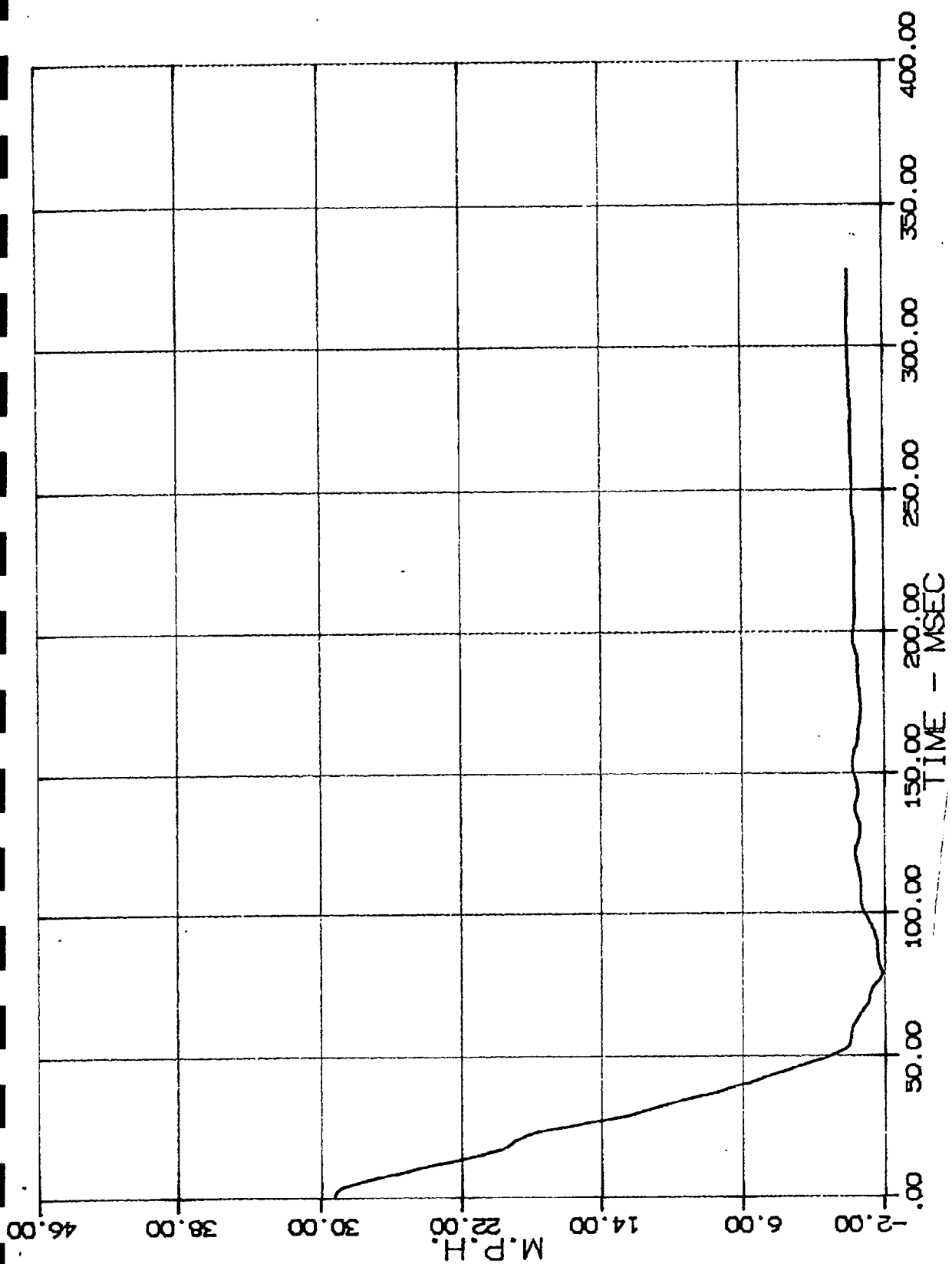
DIMENSION	LENGTH (in.)
$E = G/2$	18.75 in.
$F = G/2$	19.25 in.
G	32.5 in.
I	74.5 in.
J	85.5 in.

ACCEL. NO.	LOCATION	DIRECT.			PEAK G @						msec.
		X	Y	Z	X+	X-	Y+	Y-	Z+	Z-	
1	Below Front Seat Area	●			+	-	+	-			
2	Below Front Seat Area	●			+	-	+	-			

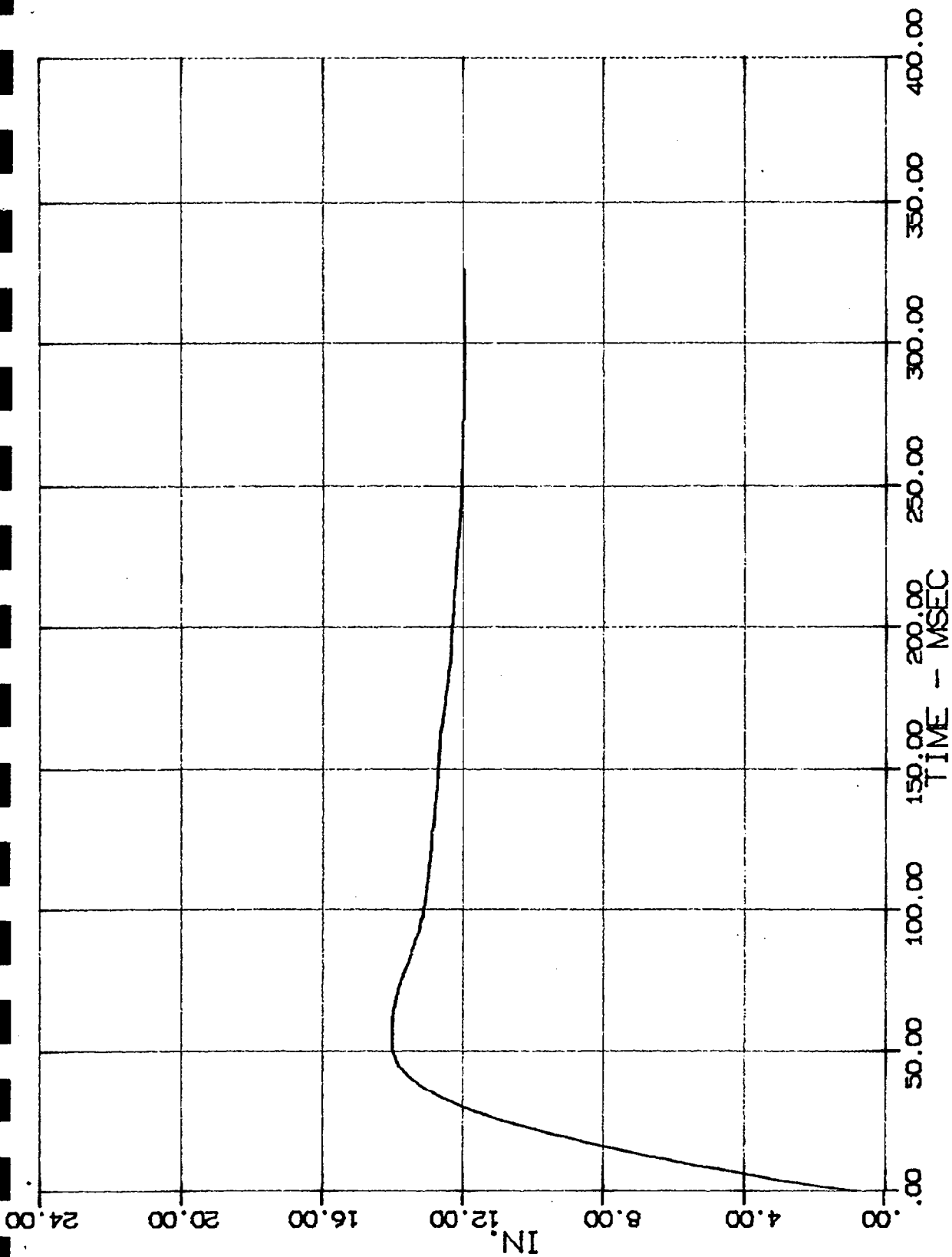
FORD RANGER PICKUP
VEHICLE ACCELEROMETER LOCATIONS



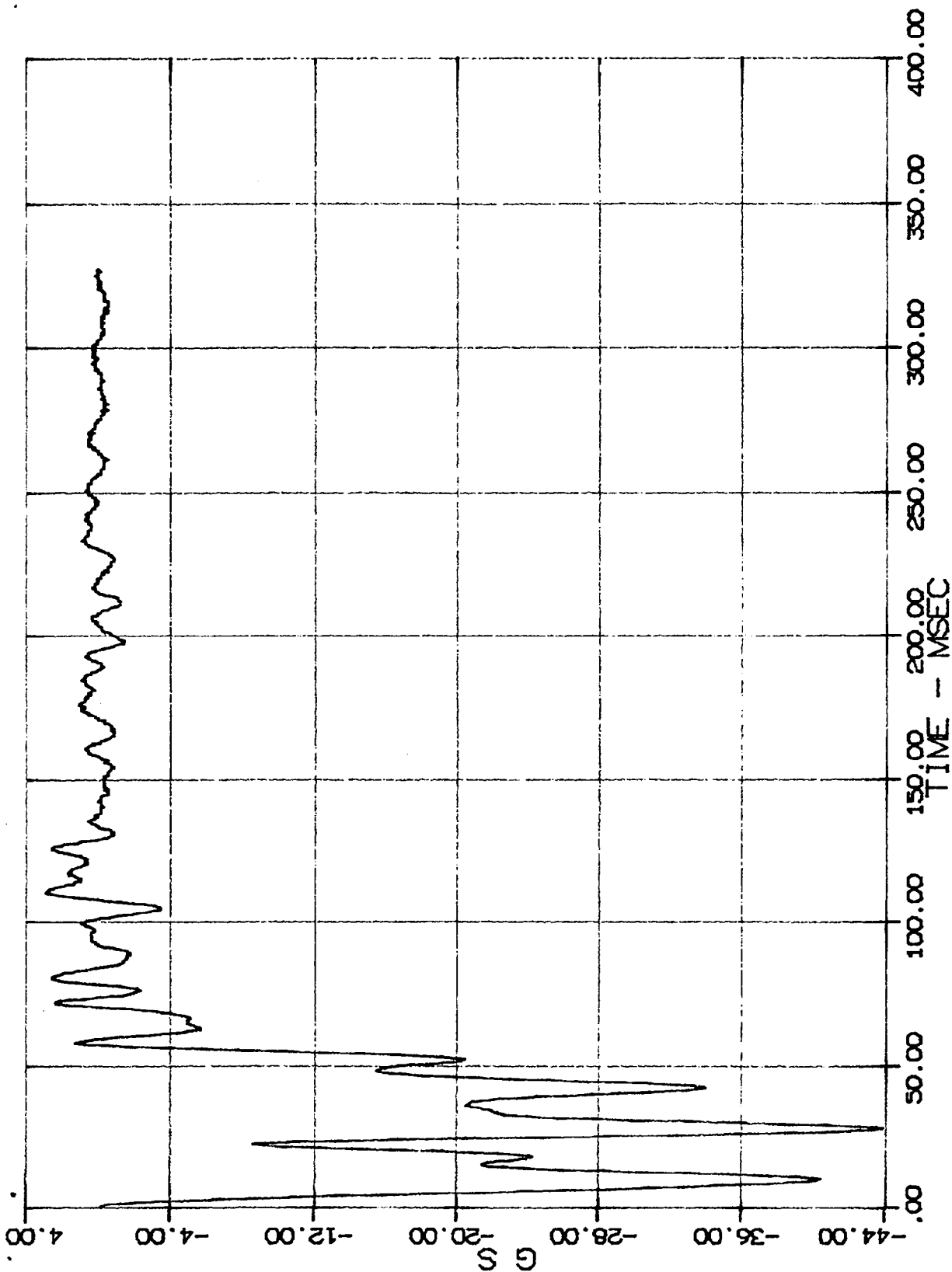
03 AC 01 N RFF X
MSE NO2142 1982 FORD RANGER PICKUP
12/10/82



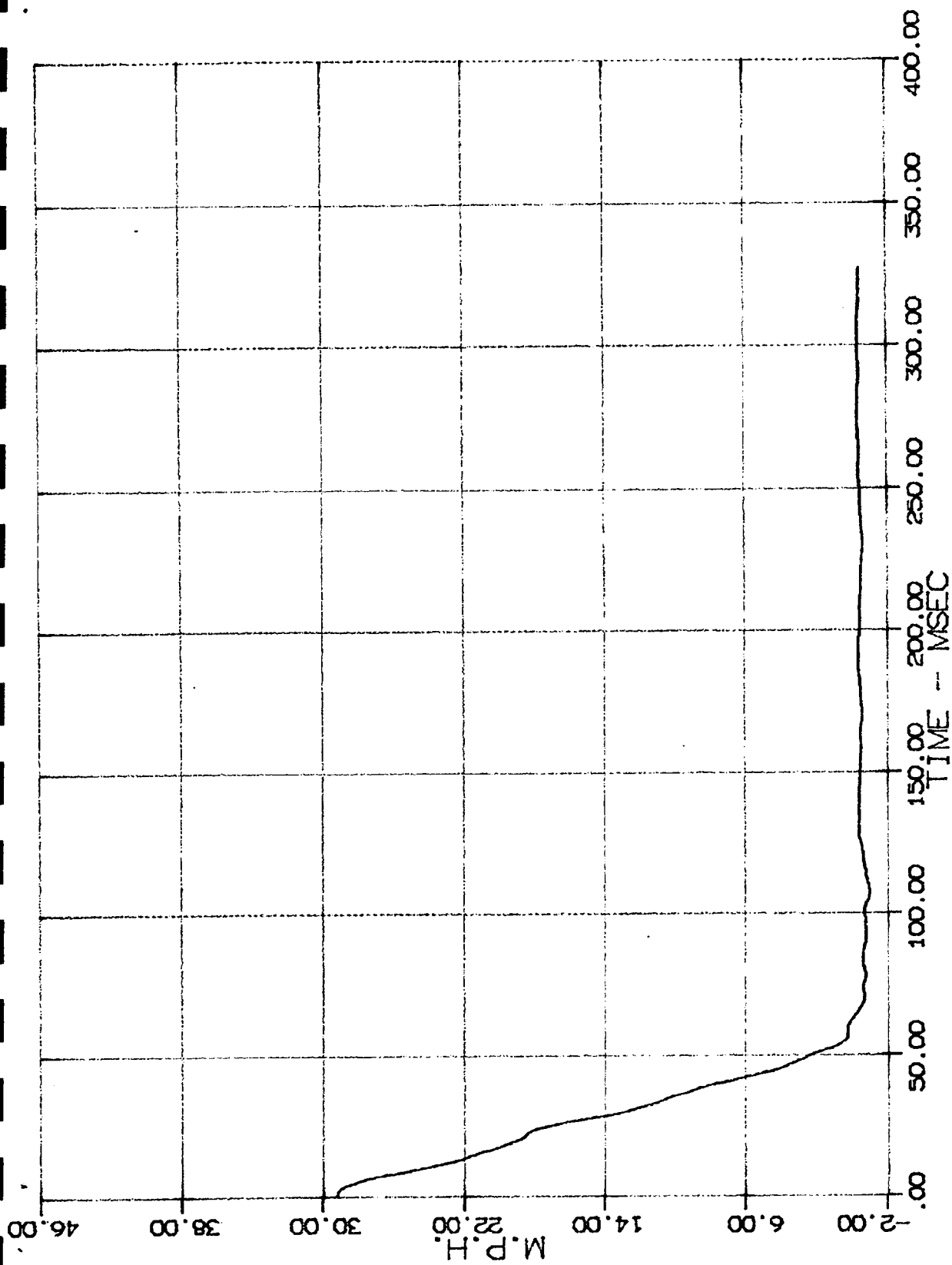
03 AC 01 N RFF X IN1
 MSE NO2142 1982 FORD RANGER PICKUP
 12/10/82



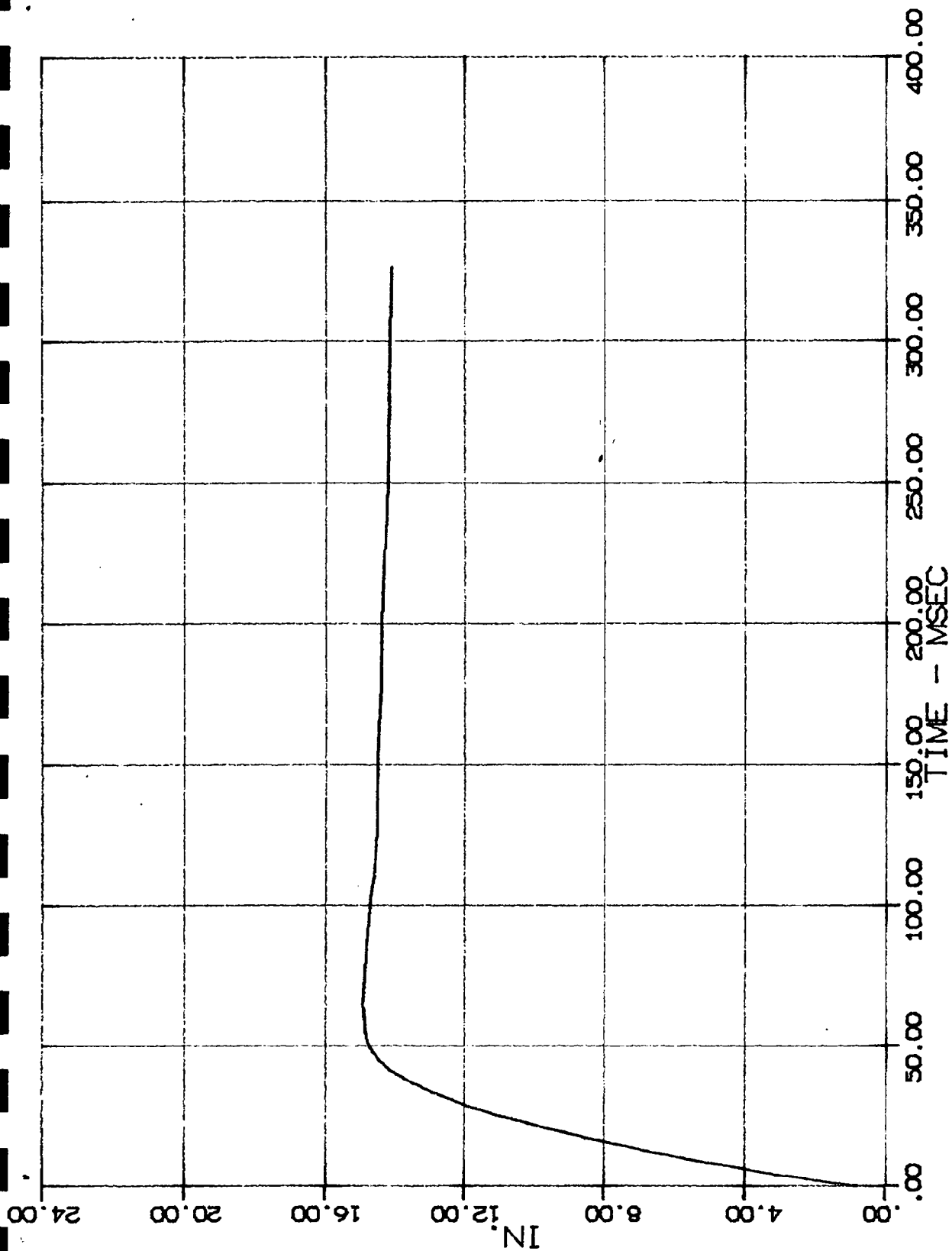
03 PC 01 N RFF X IN2
MSE ND2142 1982 FORD RANGER PICKUP 12/10/82



04 FC 01 N LRF X
MSE NO2142 1982 FORD RANGER PICKUP
12/10/82



04 PC 01 N LRF X IN1
MSE NO2142 1982 FORD RANGER PICKUP
12/10/82



04 AC 01 N LRF X IN2
MSE NO2142 1982 FORD RANGER PICKUP 12/10/82