

DOT 4840

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

ISUZU MOTORS LIMITED

1985 ISUZU TROOPER II TRUCK 2 DOOR

NHTSA NO. CF0605

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



JULY 1985

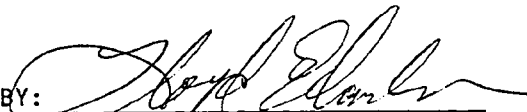
FINAL REPORT

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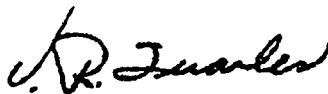
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16. Abstract A 35 mph frontal barrier impact test using a load cell barrier was conducted on a 1985 Isuzu Trooper II Truck at the Mobility Systems and Equipment Company (MSE) crash test facility in Mira Loma, CA on 06 June 1985. The barrier impact velocity was 35.05 mph and the ambient temperature at the barrier face at the time of impact was 109°F. The post-test vehicle crush maximum was 16.8 in. The test vehicle appears to comply with the indicant requirements of the following Federal Motor Vehicle Safety Standards: 1. FMVSS No. 202, "Windshield Mounting" 2. FMVSS No. 219 (Partial), "Windshield Zone Intrusion" 3. FMVSS No. 301-75 "Fuel System Integrity" With regard to the FMVSS 208 "Occupant Crush Protection", injury criteria, the driver dummy appeared to satisfy the head injury criteria (HIC) maximum allowable index of 1000, the chest G's of more than 60 for a time interval greater than 3 milliseconds and the femur requirements of 2250 lb or less. The passenger dummy appeared to exceed the HIC and satisfy the femur requirements. The chest G's could not be calculated because of insufficient data. TYPE OF RESTRAINT SYSTEM: 3-point continuous webbing manual system at each front outboard seating position.			
17. Key Words 35 mph Frontal Barrier Impact Test New Car Assessment Program (NCAP) FMVSS 212 Indicant Testing FMVSS 219 (Partial) Indicant Testing FMVSS 301-75 Indicant Testing		18. Distribution Statement COPIES OF THIS REPORT ARE AVAILABLE FROM: Technical Reference Division National Highway Traffic Safety Admin. Nassif Building, Room 5108 400 seventh St. SW, Washington, DC 20590	
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TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page No.</u>
1	Purpose and Test Procedure	1
2	Summary of Frontal Barrier Impact Test	2
2.1	General Comments	3
3	Summary of Results for FMVSS 212, 219 and 301-75 Tests	9
4	Occupant and Vehicle Information	14
<u>Data Tables</u>		
1	Test Vehicle Data	5
2	Post Crash Test Data	7
3	FMVSS 212 Windshield Mounting Data	10
4	FMVSS 219 Windshield Zone Intrusion Data	11
5	FMVSS 301-75 Fuel System Integrity	12
6	FMVSS 208 Occupant Crash Protection Data	15
7	Test Dummy Positioning Data	16
8	Seat Belt Positioning Data	18
9	Seat Belt Performance Assessment Test Data	19
10	Driver Dummy to Steering Wheel Position	20
11	Camera Location Data	21
12	Vehicle Accelerometer Location and Data Summary	23
13	Test Vehicle Measurements	24
14	Pre-Test Vehicle Target Location	26
15	Load Cell Locations on Fixed Barrier	27
16	Accident Investigation Division Data	28
<u>Appendices</u>		
A	Photographs	29
B-1	Vehicle and Dummy Response Data	62
B-2	Load Cell Barrier Data	99
C	Dummy Configuration and Performance Verification Data	143
D	Restraint Instructions from Vehicle Owner's Manual	152

SECTION I

PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is part of the Composite FY'85 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-85-D-01045. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph FMVSS 212/219/301-75 requirements.

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

SECTION 2

SUMMARY OF FRONTAL BARRIER IMPACT TEST

A load cell barrier consisting of 36 cell units was impacted by a 1985 Isuzu Trooper II Truck, 2 door, NHTSA No. CF0605, at a velocity of 35.05 mph. The frontal impact test was conducted by Mobility Systems and Equipment Company (MSE) on 6 June 1985. The general test and vehicle description information are presented in Tables 1 and 2. Pretest and posttest photographs of the test vehicle and dummies are shown in Appendix A.

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

The ATD's were instrumented with head and chest triaxial accelerometers and right/left femur load cells. In addition, load cells were placed on the driver's and passenger's lap and shoulder belts to measure dummy upper torso and pelvic section loading. A summary of dummy configuration and performance verification test data is presented in Appendix C.

The frontal impact event was documented by one (1) real time camera and sixteen (16) high-speed cameras. The camera location data are presented in Table 11.

Sixty-six (66) channels of crash parameters were recorded using three (3) FM tape recorders and four (4) direct analog to digital acquisition units. Time history plots of all recorded channels are presented in Appendix B.

2.1 GENERAL COMMENTS

The 1985 Isuzu Trooper II 2 door Truck was equipped with a 119 cubic inch 4 cylinder engine and 4 speed manual transmission. The test weight of the Isuzu Trooper II with two (2) 50th percentile male dummies, instrumentation, and cameras was 3,606 pounds.

The Isuzu Trooper II was involved in a frontal load cell barrier crash at a velocity of 35.05 mph. The vehicle appears to comply with FMVSS No. 301-75, "Fuel System Integrity". There was no solvent leakage from the fuel system after impact or during the subsequent rollover test.

The Isuzu Trooper II appears to comply with FMVSS No. 212, "Windshield Mounting". Percent of windshield periphery retention was 100 percent for the right half, 100 percent for the left half, and 100 percent overall.

The Isuzu Trooper appears to comply with FMVSS No. 219, "Windshield Zone Intrusion".

A maximum static crush for the vehicle of 16.8 inches occurred at the right side of the front bumper. The windshield was cracked, but all vehicle glazing remained intact. Both the driver's and passenger's doors were jammed and required tools to open.

The driver ATD's head hit the steering wheel upper rim and the center hub. The driver's left knee hit the dash panel, the plastic air ducting, and the sheet metal bracing. The driver's right knee hit the plastic air ducting, the sheet metal bracing, and the parking brake release lever. It appears that the driver's bayonet plastic covering had sharp edges on it that cut the driver's seat belt during the impact. The driver ATD had a

HIC value of 916; maximum chest acceleration (resultant clipped) was 57.9 g; maximum femur loads were 1901 (left) and 745 (right) pounds.

The passenger ATD's head hit the dash panel. Both of his knees hit below the dash panel, contacting the plastic air ducting and the sheet metal bracing. The left arm was separated from the passenger ATD during the impact due to the left clavicle casting breaking. The HIC value for the passenger ATD was 2189; maximum chest acceleration (resultant clipped) was not calculated because the x axis channel did not record; maximum femur loads were 357 (left) and 133 (right) pounds.

Seat belt spoolouts, measured as the distance a string attached to the shoulder belt was pulled through a foam block, were 5.9 inches for the driver and 5.1 inches for the passenger.

It appears that during the impact the driver's outboard track latching device unlatched and the seat shifted forward 3.0 inches on the outboard side; the inboard track latching device remained latched and the seat did not shift forward on the inboard side. The passenger's outboard track had no track latching device, thus during the impact the seat shifted forward 1.1 inches on the outboard side; the inboard track latching device remained latched and the seat did not shift forward on the inboard side.

Data Table No. 1 Test Vehicle Data

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1985/ISUZU/TROOPER 11/TRUCK 2 DOOR

VEHICLE NHTSA NO.: C F 0 6 0 5; VIN: J A A C H I 5 A 4 F 5 4 0 6 5 3 9

VEHICLE BODY COLOR: TAN; MONTH & YEAR OF MANUFACTURE: 10/84

ENGINE:- 4 cylinders; 119 C.I.D.; Liters; CC

X Gas; Diesel; Turbocharged

PLACEMENT-- X Longitudinal; Transverse (Lateral)

TRANSMISSION: 4 speed; X Manual; Automatic; Overdrive

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

DATE VEHICLE AVAILABLE FOR 35 MPH CRASH TESTING: 05/14/85

ODOMETER READING: 102 miles; OPTIONS: A/C; X P/S; P/Wdo.;
 Tilt Whl.; Cruise Control

TYPE OF OCCUPANT RESTRAINT SYSTEM FOR FRONT OUTBOARD SEATING POSITIONS: 3-point
continuous webbing manual system

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): 26 psi Front; 26 psi Rear

Recommended Tire Size: P225/75R15

Tires On Vehicles: P225/75R15; Manufacturer: B.F. Goodrich

Number Of Occupants: 2 Front; Rear; 3rd Seat; 2 TOTAL

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

Type of Front Seat Back: Fixed; X Adjustable With Lever; Rotating Knob

Vehicle Maximum Capacity Loading = 1100 lbs. (A)

No. Of Occupants x 150 lbs. - - - = 300 lbs. (B)

Cargo Capacity (A - B) - - - - - = 800 MAX 300 (Truck) lbs.

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Right Front = <u>859</u> lbs.	] TOTAL FRONT = <u>1695</u> lbs. (<u>54.2</u> % of TOTAL)
Left Front = <u>836</u> lbs.	
Right Rear = <u>712</u> lbs.	] TOTAL REAR = <u>1435</u> lbs. (<u>45.8</u> % of TOTAL)
Left Rear = <u>723</u> lbs.	
TOTAL WEIGHT- <u>3130</u> lbs.	

Data Table No. 1 (Con't) Test Vehicle Data

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight With Maximum Fluids = 3130 lbs.
Maximum Cargo Carrying Capacity Of Test Vehicle*- - - = 300 lbs.
Weight Of Two P.572 Dummies (2 x 164 lbs.)- - - - - = 328 lbs.
TEST VEHICLE TARGET WEIGHT- - - - - = 3758 lbs.

*300 lbs. for light trucks and MPVs

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front = 919 lbs. TOTAL FRONT = 1873 lbs. (51.9 % of TOTAL)
Left Front = 954 lbs.
Right Rear = 843 lbs. TOTAL REAR = 1733 lbs. (48.1 % of TOTAL)
Left Rear = 890 lbs.
TOTAL WEIGHT= 3606 lbs. (which includes 0 lbs. of cargo ballast weight
placed in the cargo/luggage area)

VEHICLE COMPONENTS REMOVED TO MEET TARGET WEIGHT:

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

TEST VEHICLE ATTITUDE:

As Delivered--Right Front = 33.3 inches; Ready For Test--Right Front = 32.9 in.
Left Front = 33.0 inches Left Front = 32.9 in.
Right Rear = 33.1 inches Right Rear = 32.1 in.
Left Rear = 32.8 inches Left Rear = 31.8 in.

Test Vehicle Wheelbase: 104.6 inches; C.G.= 50.3 inches rearward of front
wheel centerline

Total Vehicle Length:

Right Side = 171.3 inches Across Front Fender = 64.6 in.
Left Side = 171.3 inches Across Center = 64.3 in.
Centerline = 171.8 inches Across Rear Fender = 65.0 in.
Maximum = 65.0 in.

Data Table No.2 Post Crash Test Data

DATE OF 35 MPH FRONTAL BARRIER IMPACT RATINGS TEST: 06/06/85

TIME OF TEST: 4:18 pm : AMBIENT TEMPERATURE AT BARRIER FACE: 109 ° F.

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

VEHICLE'S WINDSHIELD MOLDING TEMPERATURE: 72 ° F.

VEHICLE IMPACT VELOCITY: Primary Speed Trap = 35.05 mph

Secondary Speed Trap = 35.07 mph

(Specified Range = 34.5 to 35.5 mph)

Distance from vehicle's front bumper forwardmost surface to barrier face when--

(a) entering the speed trap = 5 ft.

(b) exiting the speed trap = 1 ft.

VEHICLE STATIC CRUSH:

Vehicle Pre-test Length-- Right Side=171.3"; C/Line=171.8"; Left Side=171.3"

Vehicle Post-test Length- Right Side=154.5"; C/Line=155.6"; Left Side=155.6"

VEHICLE STATIC CRUSH----- Right Side=16.8"; C/Line=16.2"; Left Side=15.7"

VEHICLE REBOUND FROM BARRIER FACE:

Vehicle Right Side = 10.5 inches

Vehicle Centerline = 14.0 inches

Vehicle Left Side = 18.0 inches

VISIBLE DUMMY CONTACT POINTS:

	DRIVER (I.D. No. 466)		
	Strg. Col. Hub	Strg. Wheel	Instru. Panel
HEAD - - - - -	Yes	Yes	No
RIGHT KNEE - - - - -			Yes
LEFT KNEE- - - - -			Yes

PASSENGER (I.D. No. 465)		
Instru. Panel	Knee Assy.	Glove Box Door
No	No	Yes
No		Yes
No		Yes

VEHICLE DOOR OPENING INFORMATION:

	RIGHT SIDE	
	OPENED	JAMMED
FRONT DOORS- - - - -	No	Yes
REAR DOORS - - - - -	N/A	N/A

LEFT SIDE	
OPENED	JAMMED
No	Yes
N/A	N/A

Data Table No.2 (Con't) Post Crash Test Data

VEHICLE'S FRONT SEAT MOVEMENT DURING CRASH EVENT:

	RIGHT SIDE	LEFT SIDE
Seat Cushion Shift - - -	1.1 " forward;	3.0 " forward
Seat Adjuster Failure- -	Yes	Yes

Details Of Any Failure:

It appears that during the impact the driver's outboard track latching device unlatched and the seat shifted forward 3.0 inches on the outboard side; the inboard track latching device remained latched and the seat did not shift forward on the inboard side. The passenger's outboard track had no track latching device, thus during the impact the seat shifted forward 1.1 inches on the outboard side; the inboard track latching device remained latched and the seat did not shift forward on the inboard side.

OTHER NOTABLE IMPACT EFFECTS:

The left arm was separated from the passenger ATD during the impact due to the left clavicle casting breaking.

It appears that the driver's bayonet plastic covering had sharp edges on it that cut the driver's seat belt during the impact.

SECTION 3

SUMMARY OF RESULTS FOR

FMVSS 212, "Windshield Mounting"

FMVSS 219, (Partial), "Windshield Zone Intrusion"

FMVSS 301-75, "Fuel System Integrity"

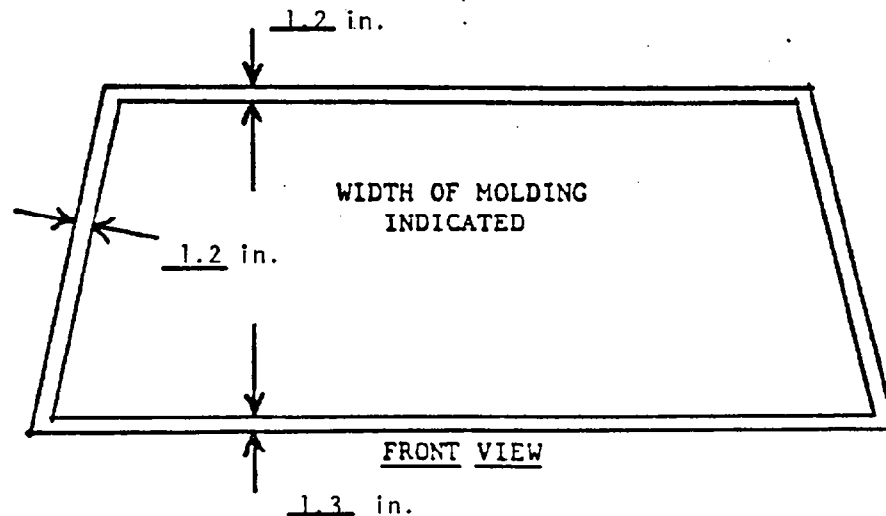
Data Table No. 3 FMVSS 212 Windshield Mounting Data

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

FMVSS 212 TEST DATA:

	WINDSHIELD PERIPHERY		
	PRE-TEST (in.)	POST-TEST (in.)	PERCENT RETENTION
RIGHT SIDE	71.9	71.9	100%
LEFT SIDE	71.9	71.9	100%
TOTAL	143.8	143.8	100%

AREA OF RETENTION FAILURE: NONE

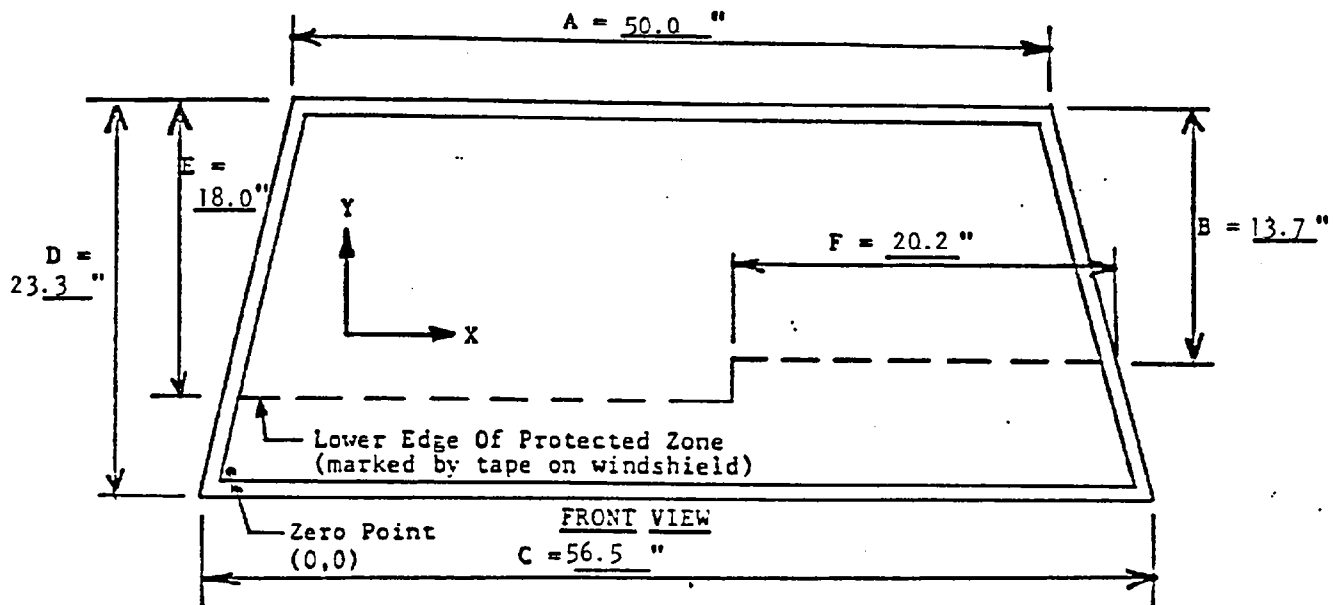


FAILURE DETAILS: NONE

Data Table No.4 FMVSS 219 Windshield Zone Intrusion Data

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

FMVSS 219 TEST DATA:



DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4":

(Show location of penetration on above sketch)

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

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

TEST VEHICLE NHTSA NO.: CF0605; TEST DATE: 06/06/85

VEHICLE MAKE/MODEL/BODY STYLE: ISUZU/TROOPER 11/TRUCK 2 DOOR

USABLE CAPACITY OF VEHICLE'S FUEL TANK: 13.0 Gallons (figure furnished by
vehicle manufacturer)

TEST REQUIREMENTS:

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

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

12.0 Gallons Which is 92.3 % of the Stated USABLE CAPACITY.

SOLVENT SPILLAGE MEASUREMENT AFTER 35 MPH FRONTAL BARRIER IMPACT TEST:

	<u>Actual</u>	<u>Maximum Allowable</u>
From impact until vehicle motion ceases - - - -	<u>None</u>	1 oz.
For 5 min. period after vehicle motion ceases -	<u>None</u>	5 oz.
For next 25 minutes at barrier face - - - - -	<u>None</u>	1 oz./1 minute

SOLVENT SPILLAGE DETAILS: NONE

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

Time reqd. for machine to rotate 90° = 1 minutes, 20 seconds
FMVSS 301-75 Position Hold Time = 5 minutes, 0 seconds
TOTAL- - - - - = 6 minutes, 20 seconds
Next Whole Minute Interval - - - - - = 7 minutes

Data Table No.5 (Con't) FMVSS 301-75 Fuel System Integrity

VEHICLE STATIC ROLLOVER DATA:

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

Solvent Spillage Location(s): NONE

SECTION 4

Occupant and Vehicle Information

I. OMI DATA

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

II. OVR DATA

- Load Cell Barrier Data
- Vehicle Accelerometer Data

III. AID DATA:

- Test Vehicle Measurements
- Accident Investigation Damage Data Summary

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

VEH. YR./MAKE/MODEL/BODY STYLE: 1985/ISUZU/TROOPER 11/TRUCK 2 DOOR

VEH. NHTSA NO.: CF0605; TEST DATE: 06/06/85

MAXIMUM ACCELERATION VALUES:		DRIVER DUMMY # 466	PASSENGER DUMMY # 465
Head Channel X	HEAD X	- 169.49	- 65.94
Head Channel Y	Y	- 22.92	52.48
Head Channel Z	Z	68.90	74.90
HEAD RESULTANT	R	170.34	82.66
Chest Channel X	CHEST X	- 57.43	Not Available Lost Channel
Chest Channel Y	Y	28.94	48.83
Chest Channel Z	Z	43.39	34.21
CHEST RESULTANT (3msec Clip)	R	57.88	Not Available Lost Channel
TIME INTERVAL (msec)		44.5 - 47.5	N/A

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	HIC	915.51	2188.72
t_1 (msec)		39.37	38.62
t_2 (msec)		83.25	102.87
Avg. Accel. t_1 to t_2		53.67	65.08

MAXIMUM FEMUR FORCES:(Compressive)

Right Side (lbs.)	FR	1901	357
Left Side (lbs.)	FL	745	133

MAXIMUM SEAT BELT FORCES:

Lap Belt	LAP SHLDR	2332*	2087		
Shoulder Belt		1550*	2116		
		PHOTOGRAPHIC	ELECTRONIC	PHOTOGRAPHIC	ELECTRONIC
MAXIMUM SEAT BELT WEBBING SPOOL-OUT:		5.8	3.00*	3.8	3.15
Belt Stretch (inches per foot)		N/A	N/A *	N/A	1.20

BARRIER LOAD CELLS:

Total Load	CELLS	202,810 ^{1b}
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* SEAT BELT BROKE

Data Table No. 7 Test Dummy Positioning Data

PRE-IMPACT DATA:

Make/Model: ISUZU/TROOPER 11/TRUCK 2 DOOR

Body Style: TRUCK

NHTSA No.: CE0605

Model Year: 1985

Color: TAN

DATA FROM CERTIFICATION LABEL:

Vehicle Manufacturer: ISUZU MOTORS LIMITED

Date of Manufacture: 10/84; VIN: JAACHI5A4F5406539

GVWR: 4300 lb; GAWR: Front = 2095 lb; Rear = 2645 lb

POST-IMPACT DATA:

Date of Test: 06/06/85 Time: 4:18 pm Temperature 109 °F

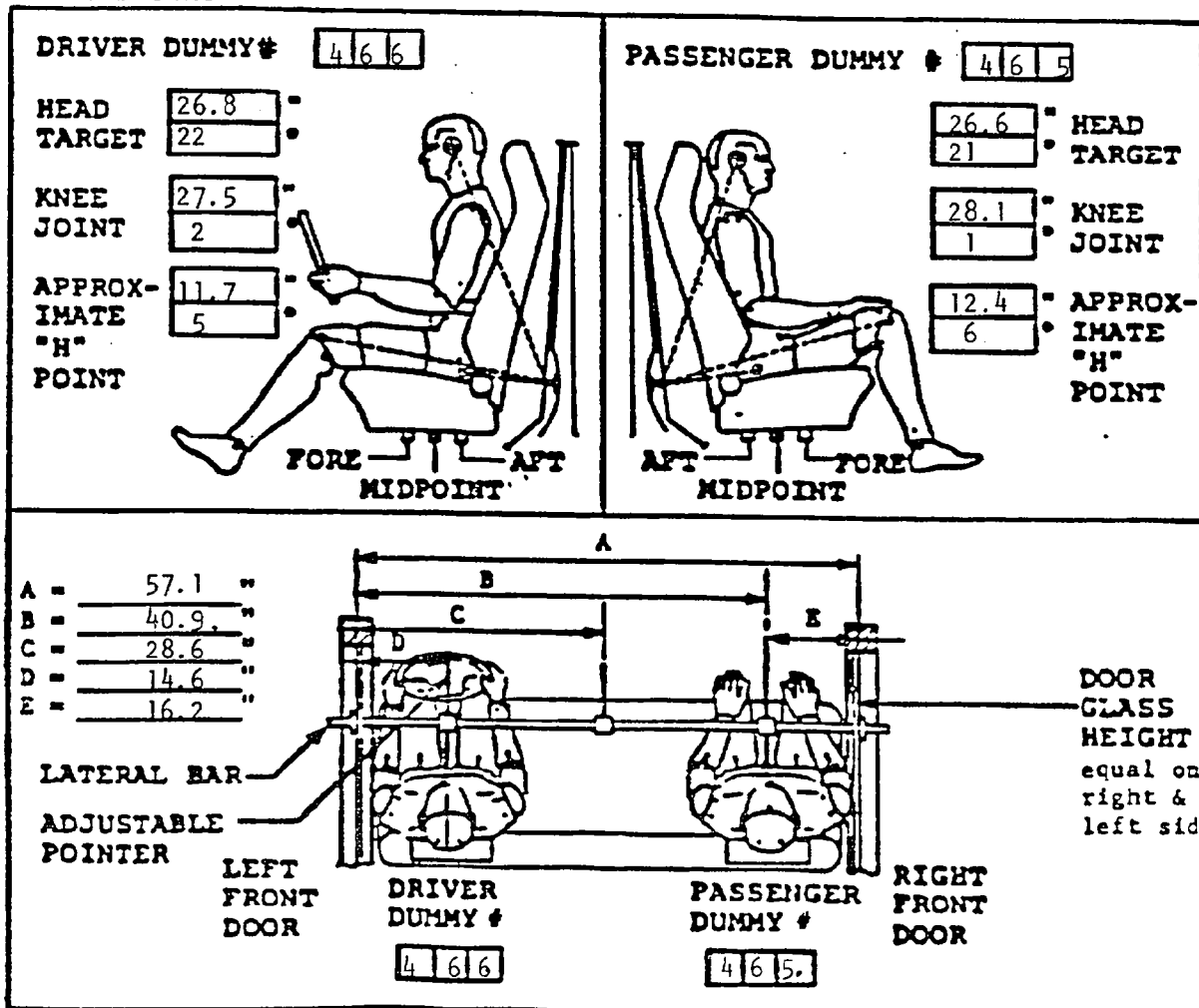
Required Impact Velocity Range: 34.5 to 35.5 mph

Impact Velocity: Primary = 35.05 mph Secondary = 35.07 mph

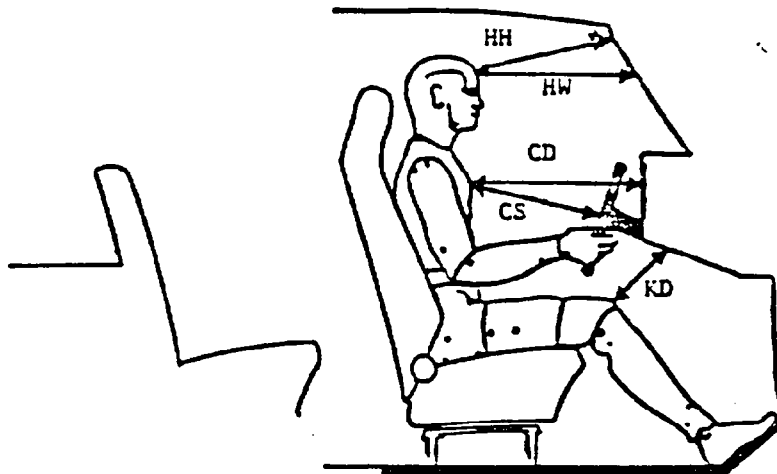
Seat Type: Bucket Adjuster Type: Manual

Bucket Seat Back Type: High Back Head Rest

Technicians:



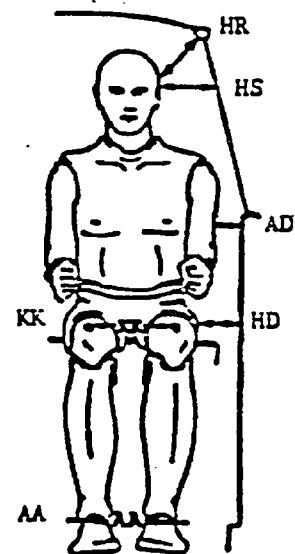
Data Table No. 7 (Con't) Test Dummy Positioning Data



	Driver	Passenger
HH	13.5	14.5
HW	17.0	17.5
CD	19.0	18.5
CS	11.25	N/A
KD L-	4.5	L- 5.0
KD R-	4.5	R- 5.5
Torso Angle	20	Torso Angle 20
Seat Back Angle	20	Seat Back Angle 20
HSW	N/A	N/A

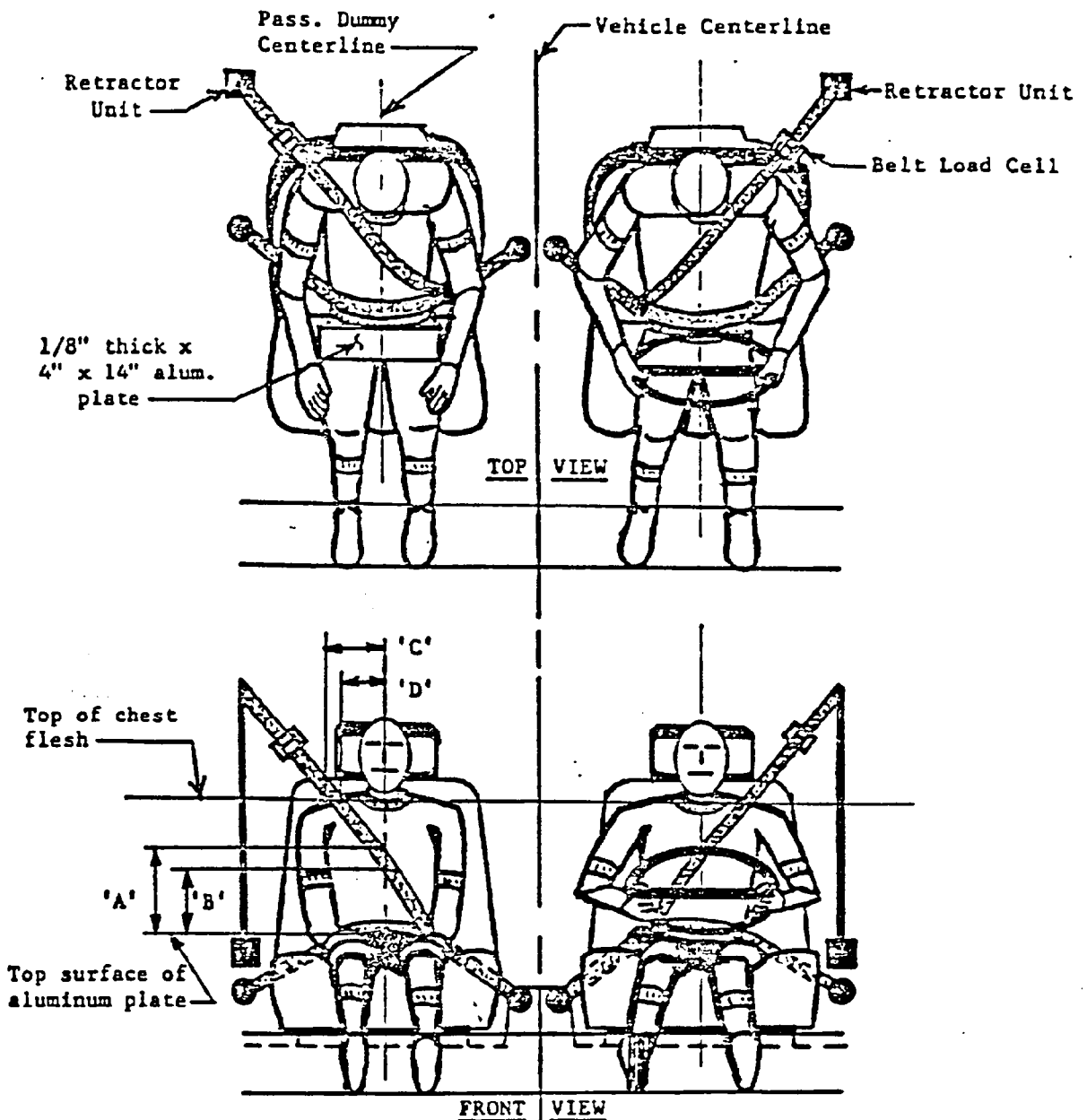
HH = Head to Windshield Header
 HW = Head to Windshield
 CD = Chest to Dash
 CS = Chest to Steering Wheel
 KD = Knees to Dash
 HR = Head to Side Roof
 HS = Head to Side Window
 AD = Arm to Door
 HD = Hip to Door
 KK = Knee to Knee
 Torso and seat back angles
 are relative to vertical.

REMARKS:



	Driver	Passenger
HR	7.8	8.5
HS	9.0	9.0
AD	3.0	3.5
HD	6.5	6.5
KK	14.5	14.5
AA	14.0	14.5

Data Table No. 8 Seat Belt Positioning Data



	DRIVER DUMMY (in.)	PASS. DUMMY (in.)
1. Dimension 'A'--alum. plate to belt upper edge on dummy centerline	13.4	13.5
2. Dimension 'B'--alum. plate to belt lower edge on dummy centerline	9.8	9.9
3. Dimension 'C'--dummy centerline to outer edge at chest flesh top	4.9	5.6
4. Dimension 'D'--dummy centerline to inner edge at chest flesh top	2.4	3.0
5. Lap belt tension (lbs.)	2.5	2.5
6. Shoulder belt tension (lbs.)	0.8	0.8

Data Table No. 9 Seat Belt Performance Assessment Test Data

BELT LENGTH DATA:

Total Belt Length from 'D' Post trim panel to "male blade"

Shoulder belt length measured from the 'D' ring to the male blade across the dummy

Lap belt length measured from the outboard side sill anchor bolt to the male blade across dummy

PRE-TEST	
DRIVER	PASSENGER
118.8	118.4
39.8	38.5
39.3	40.0

BELT SPOOL-OUT DATA:

As determined by film analysis

As determined electronically

As determined mechanically

DRIVER SIDE	PASSENGER SIDE
5.8*	3.8
3.0 *	3.2
5.9 *	5.1

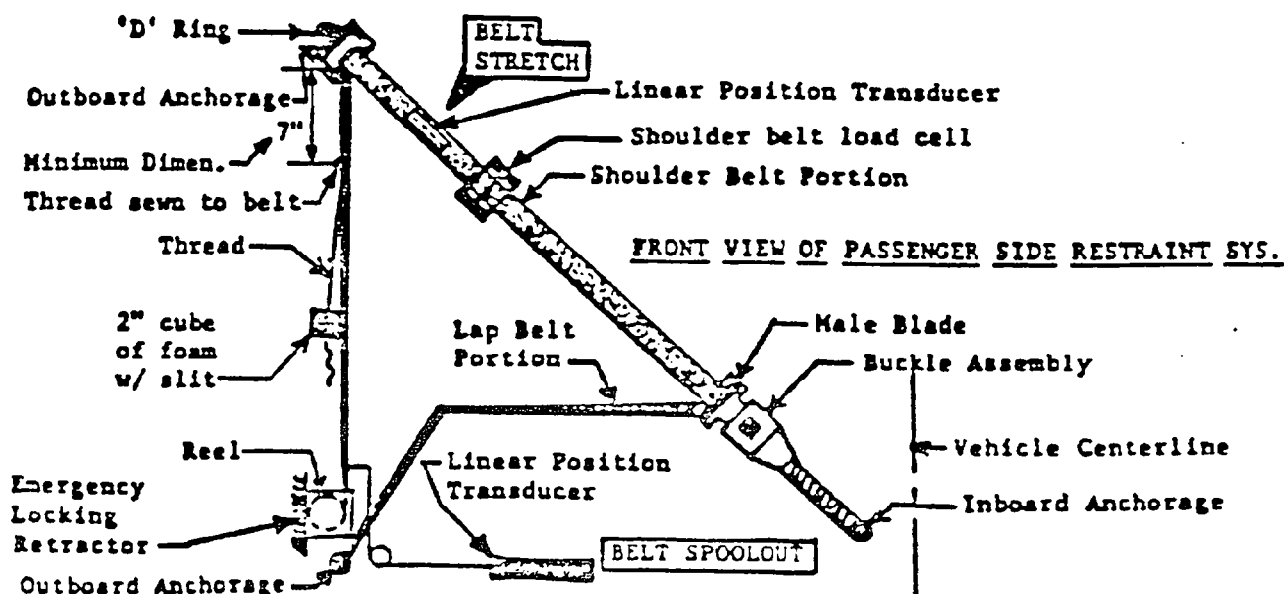
BELT STRETCH DATA:

(1) Determined electronically with linear position transducer in inches per foot.

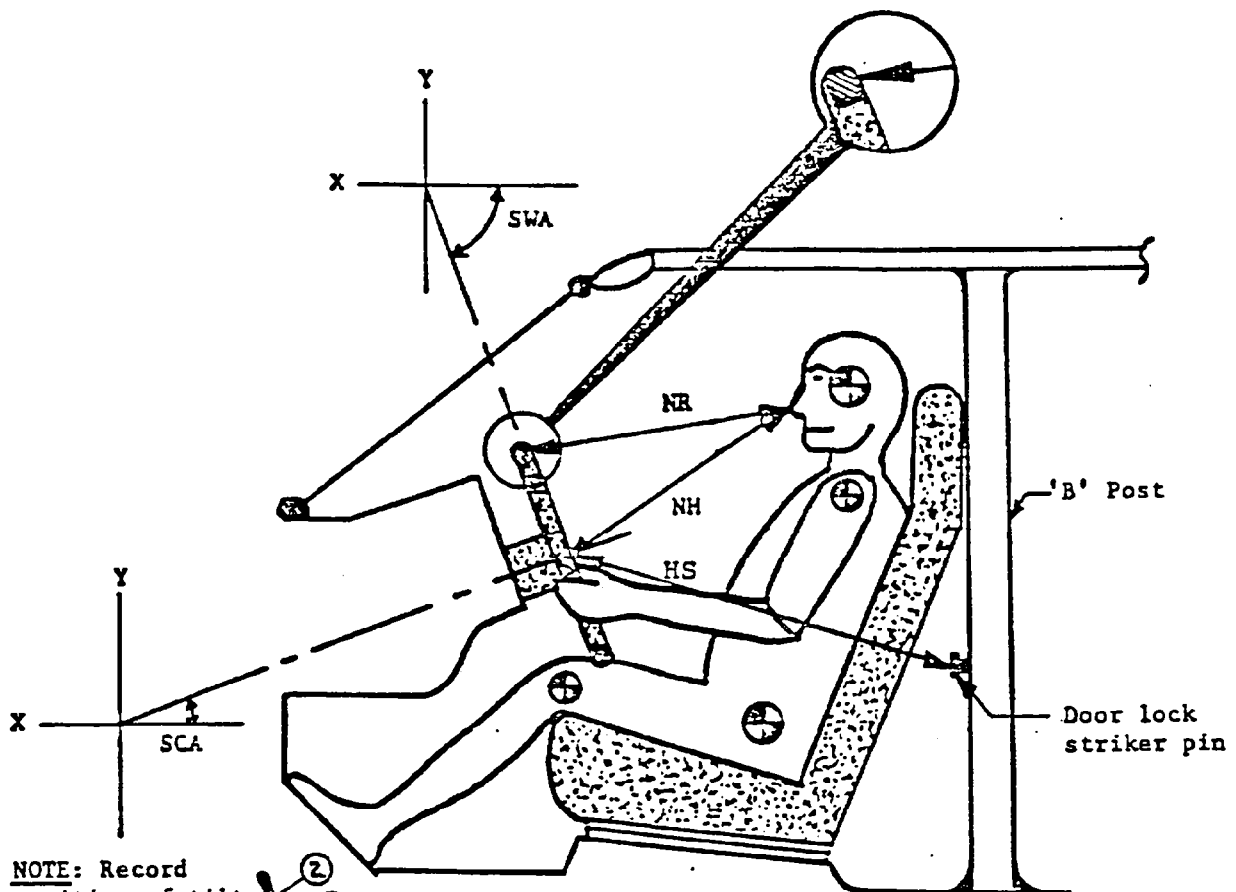
(2) Determined with 2" marked section of belt across dummy's chest (inches per foot)

Maximum Load 1550*		Maximum Load 2116*	
Elong. N/A*		Elong. 1.20	
PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
2"	2" Elong 0	2"	2" Elong 0

* DRIVER BELT BROKE



Data Table No. 10 Driver Dummy to Steering Wheel Position



NOTE: Record position of tilt strg. column in REMARKS section

LEFT SIDE VIEW

MEASUREMENTS		
NR--Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	13.8	Inches
NH--Distance from tip of dummy's nose to center of steering column hub	16.3	Inches
HS--Distance from center of steering column hub to the forward surface of the door lock striker pin.	29.8	Inches
SCA--Angle of steering column relative to the horizontal X axis	34	Degrees
SWA--Angle of steering wheel relative to the horizontal X axis.	27	Degrees

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

N/A

Data Table No. 11 Camera Location Data

VEH. NHTSA NO.: CF0605; TEST DATE: 06/06/85; TIME: 4:18 pm

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1985/ISUZU/TROOPER 11/TRUCK 2 DOOR

CAMERA NO.	VIEW	CAMERA POSITIONS (in.)*			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Left Side View	790.0	300.0	51.5	2	800.0	12/50	24
2	Right Side View	254.0	65.0	96.3	5	231.6	16	840
3	Left Side View	790.1	45.4	51.3	0	772.4	50	640
4	Overhead	- 1.1	-39.2	129.1	15	97.3	13	580
5	Pit-Engine	1.5	11.8	- 56.0	50	N/A	13	490
6	Pit-Fuel Tank	.5	43.0	- 52.0	51	N/A	13	600
7	Front-Passenger	11.3	-15.3	107.3	46	127.5	13	840
8	Front-Driver	- 12.9	-14.8	109.1	45	129.4	25	440
9	Left Side-Driver	146.3	137.1	60.5	2	135.3	28	870
10	Right Side-Passenger	148.5	145.0	64.4	7	150.0	45	420
11	Right Side-'A' Post	251.5	49.1	51.8	1	232.8	35	620
12	Left Side-'A' Post	351.1	86.5	59.0	2	333.6	50	410
13	Onboard-Left Side	11.5	112.6	33.9	12	38.25	13	440
14	Onboard-Right Side	11.8	113.5	34.3	10	37.9	13	360
15	Left Side-Steering Col.	664.1	94.6	129.5	9	645.9	50	700
16	Left Side-Steering Col.	663.3	93.4	109.8	6	645.1	50	770
17	Right Side-Passenger	158.8	69.5	68.0	6	141.3	13	600

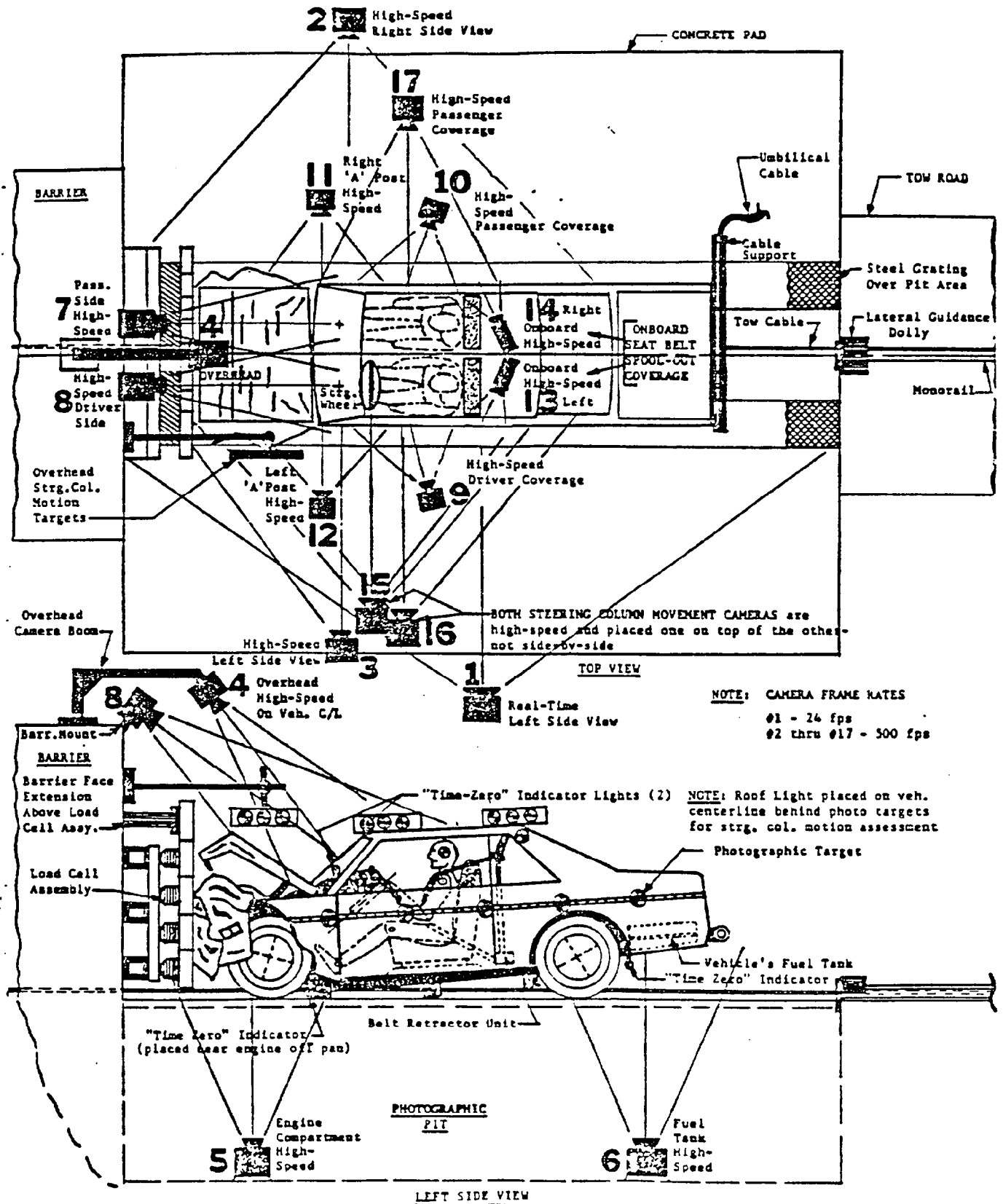
* X = film plane to monorail centerline

Y = film plane to barrier face

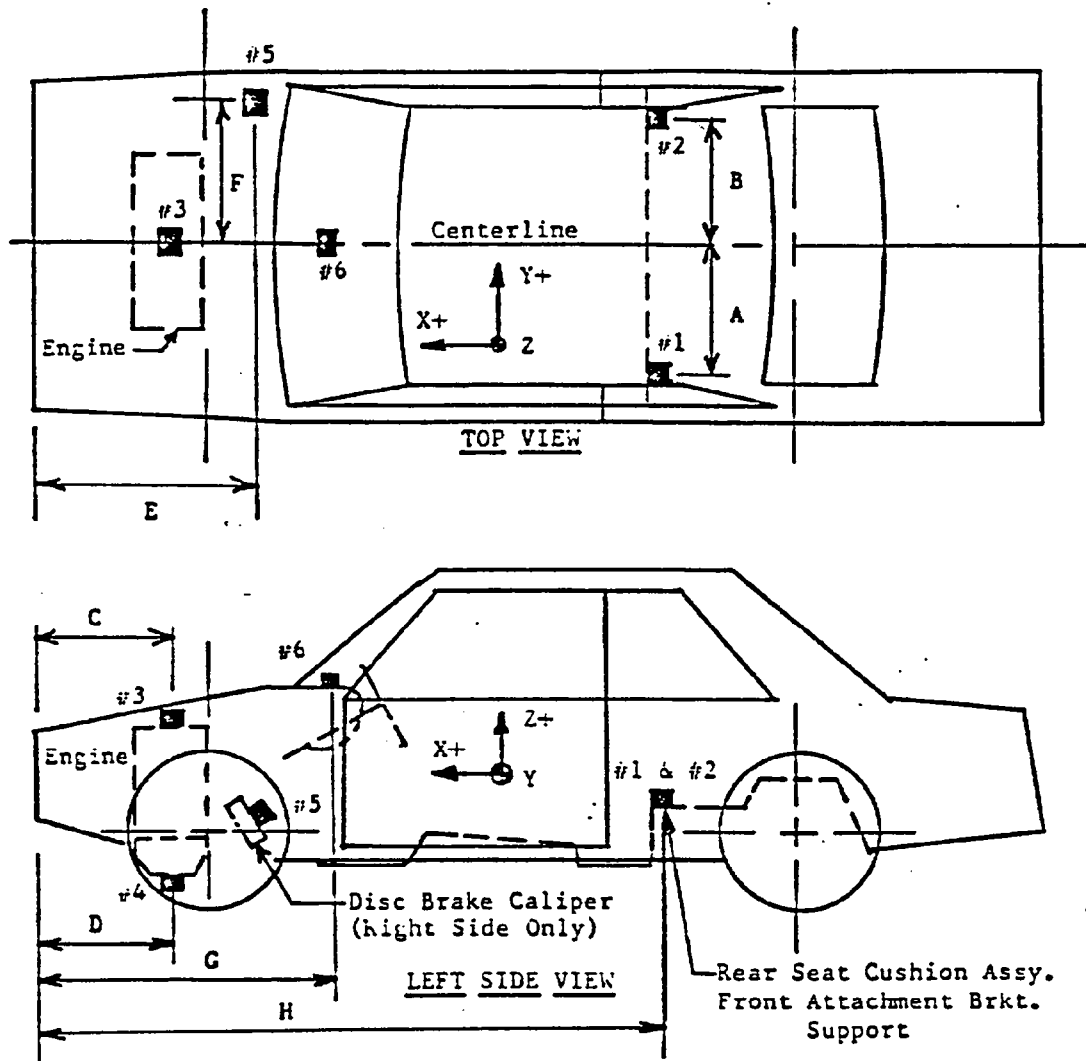
Z = film plane to ground

Data Table No. 11 (Con't) Camera Location Data

CAMERA REQUIREMENTS FOR 35 MPH FRONTAL BARRIER IMPACT ASSESSMENT PROGRAM TEST



Data Table No. 12 Vehicle Accelerometer Location and Data Summary



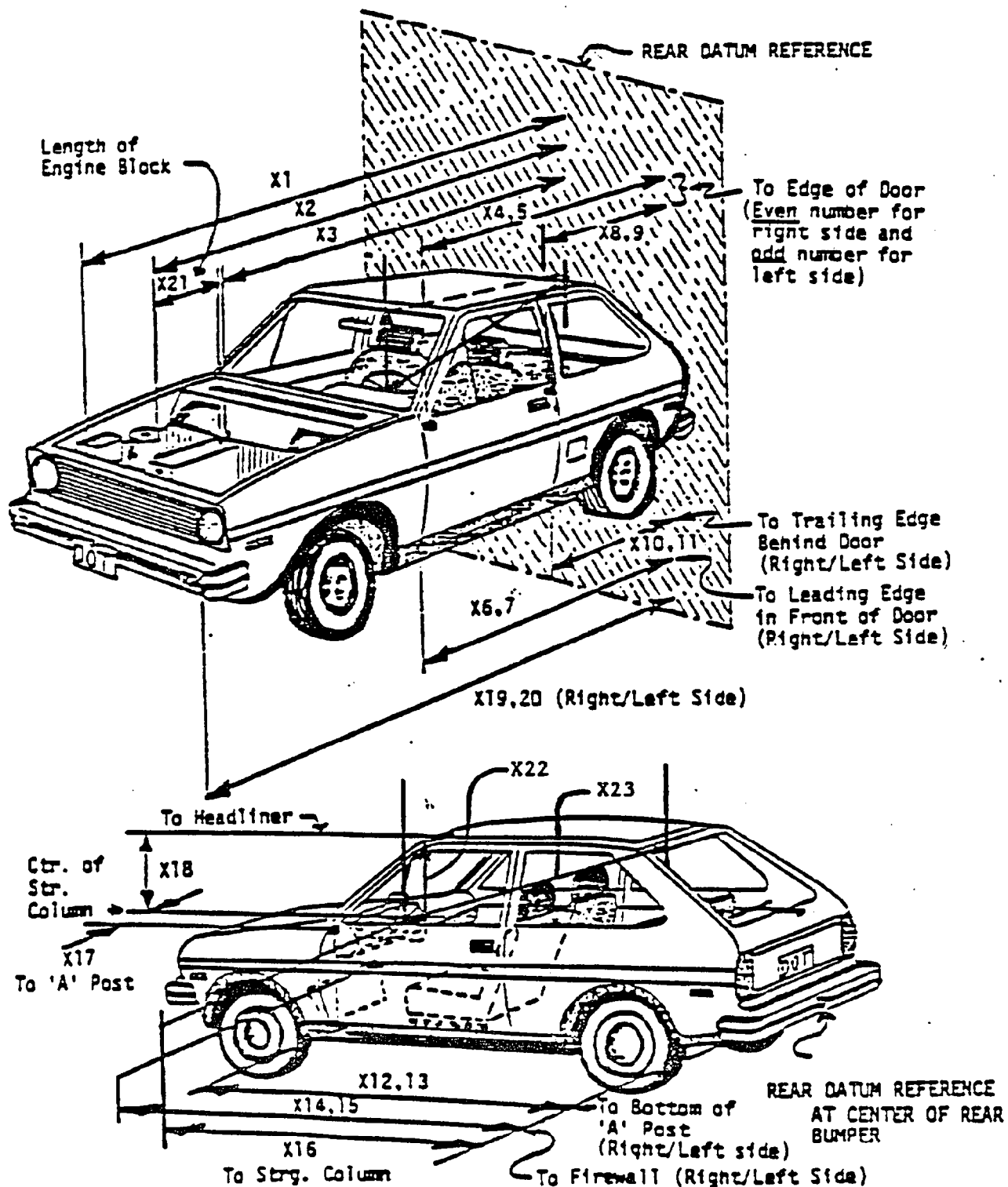
Dimension	Length (in.)
A	12.4
B	20.6
C	24.8
D	37.1
E	34.3
F	21.9
G	60.5
H	97.3

Loc. No.	Description	Maximum Value			
		X-	msec.	X+	msec.
1	Rear seat X-member @ Left Side	85.26	17.0	25.57	47.5
2	Rear seat X-member @ Right Side	64.01	15.0	6.54	79.5
3	Top of Engine Block	151.80	28.0	7.21	54.0
4	Bottom of Engine	123.76	24.5	25.24	40.5
5	Disc Brake Caliper @ Right Side	150.01	14.5	56.65	39.5
6	Instrument Panel	73.44	11.5	47.02	53.5

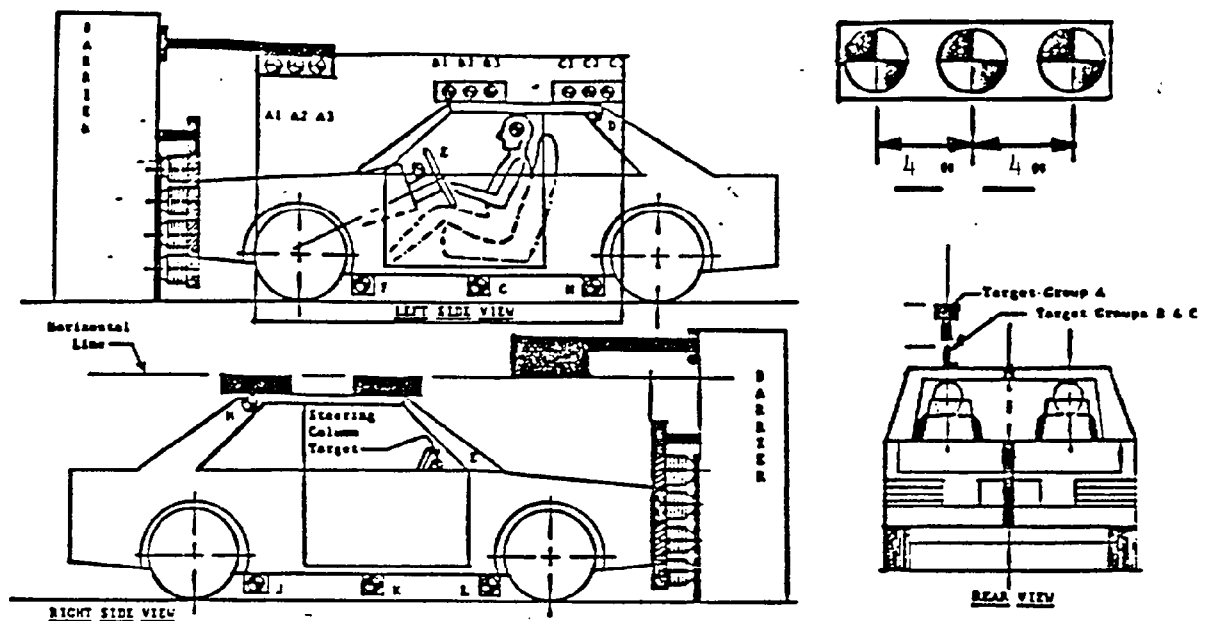
Data Table No. 13 Test Vehicle Measurements

NO.	MEASUREMENT DESCRIPTION:	Pre-Test (in.)	Post-Test (in.)	Diff. (in.)
X1	Total Length of Test Vehicle at Centerline	171.8	155.6	16.2
X2	Rear Surface of Vehicle to Front of Engine	151.8	149.1	2.7
X3	Rear Surface of Vehicle to Firewall	130.2	131.1	0.9
X4	Rear Surface to Upr. Leading Edge of Right Door	118.8	119.8	1.0
X5	Rear Surface to Upr. Leading Edge of Left Door	118.8	120.3	1.5
X6	Rear Surface to Lwr. Leading Edge of Right Door	119.0	119.4	0.4
X7	Rear Surface to Lwr. Leading Edge of Left Door	118.8	120.5	1.7
X8	Rear Surface to Upr. Trailing Edge of Right Door	79.3	80.3	1.0
X9	Rear Surface to Upr. Trailing Edge of Left Door	79.3	81.3	2.0
X10	Rear Surface to Lwr. Trailing Edge of Right Door	78.4	78.9	0.5
X11	Rear Surface to Lwr. Trailing Edge of Left Door	78.1	79.6	1.5
X12	Rear Surface to Bottom of 'A' Post on Right Side	117.6	117.3	0.3
X13	Rear Surface to Bottom of 'A' Post on Left Side	116.6	117.4	0.8
X14	Rear Surface to Firewall on Right Side	130.3	131.6	1.3
X15	Rear Surface to Firewall on Left Side	130.3	132.4	2.1
X16	Rear Surface to Steering Column	105.6	109.5	3.9
X17	Center of Steering Column to 'A' Post	12.6	12.0	0.6
X18	Center of Steering Column to Headlining	19.5	21.3	1.8
X19	Rear Surface to Right Side of Front Bumper	171.3	154.5	16.8
X20	Rear Surface to Left Side of Front Bumper	171.3	155.6	15.7
X21	Length of Engine Block	20.1	20.1	0
X22	Strg. Whl. Hub C/L to W/Shld. Header Interior Trim Moulding	18.9	20.3	1.4
X23	Strg. Whl. Hub C/L to Rr. Wdo. Upper Interior Trim Moulding	94.9	94.8	0.1

Data Table No. 13 (Con't) Test Vehicle Measurements



Data Table No. 14 Pre-Test Vehicle Target Location



BARRIER TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Monorail C/L	'Z' Above Ground
A1	14.4	20.7	73.6
A2	18.4	20.7	73.6
A3	22.4	20.7	73.6

VEHICLE TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Vehicle C/L	'Z' Above Ground
B1	73.8	13.6	71.9
B2	77.8	13.6	71.9
B3	81.8	13.6	71.9
C1	139.2	14.3	73.1
C2	143.2	14.3	73.1
C3	147.2	14.4	73.3
D	157.4	26.3	65.0
E	57.6	13.6	47.3
F	50.9	27.0	11.3
G	82.2	26.9	11.9
H	113.4	26.8	12.4
J	112.9	26.8	12.3
K	82.0	26.9	11.9
L	51.0	27.0	11.4
M	157.3	26.3	65.3

NOTE: Diameter of all photo targets is 4"

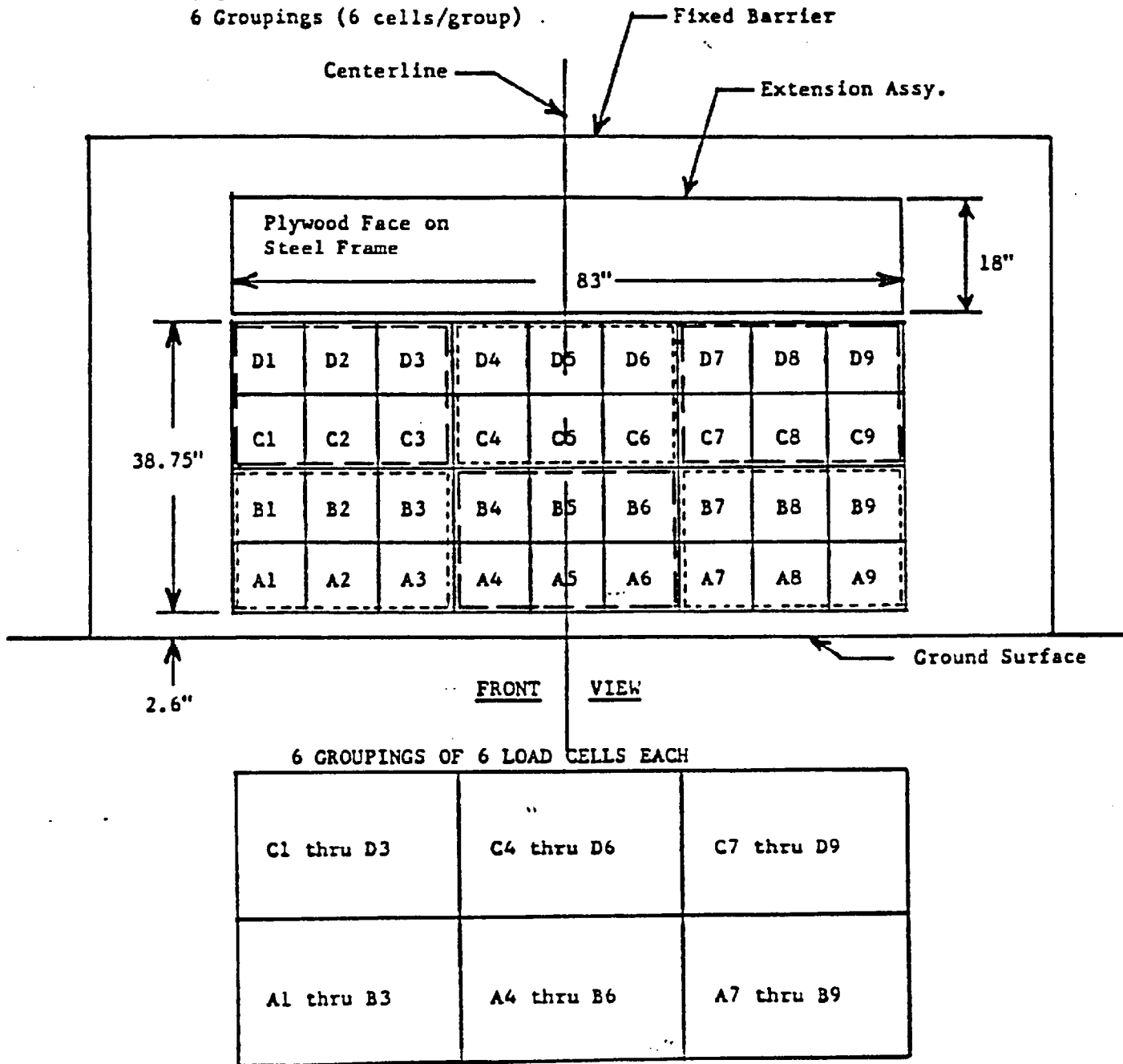
Data Table No. 15 Load Cell Locations on Fixed Barrier

36 Load Cells

4 Rows

9 Columns

6 Groupings (6 cells/group)



DATA REQUIREMENTS:

- (1) Data from 36 individual load cells
- (2) Total or Sum of 36 individual load cells
- (3) Data from 6 Groupings shown above (6 cells/group)

Data Table No. 16 Accident Investigation Division Data

VEHICLE MAKE/MODEL/BODY STYLE: ISUZU/TROOPER 11/TRUCK/2 DOOR

VEH. NHTSA NO.: QF0605; VIN: JAACH15A4F5406539

MODEL YEAR: 1985; BUILD DATE: 10/84; TEST DATE: 06/06/85

VEH. SIZE CATEGORY: Truck; TEST WEIGHT: 3606 lb

VEH. WHEELBASE: 104.6 in.; FRONT OVERHANG: 29.3 in.; OVERALL WIDTH: 65.0 in.

ACCELEROMETER DATA:

LOCATION: Right rear floor pan

CALIBRATION PROCEDURE: Voltage insertion

LINEARITY: 3%; INTEGRATION ALGORITHM: Area summation

VEH. IMPACT SPEED: 35.05 mph; TIME OF SEPARATION: 0.092 sec.

VELOCITY CHANGE: 39.6

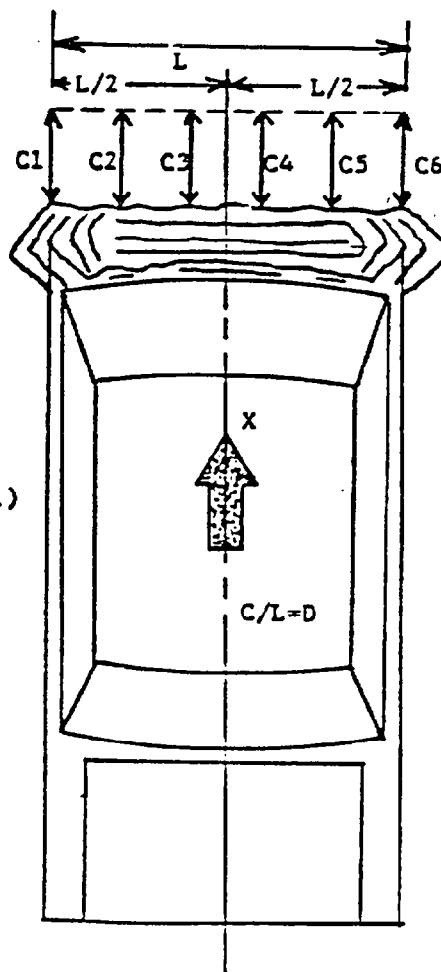
☒ COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:

F (Frontal) 12FDEW4

CRUSH DEPTH	C1=	<u>15.7</u>	<u>inches</u>
DIMENSIONS:	C2=	<u>15.7</u>	<u>inches</u>
	C3=	<u>16.1</u>	<u>inches</u>
	C4=	<u>16.3</u>	<u>inches</u>
	C5=	<u>16.4</u>	<u>inches</u>
	C6=	<u>16.8</u>	<u>inches</u>

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

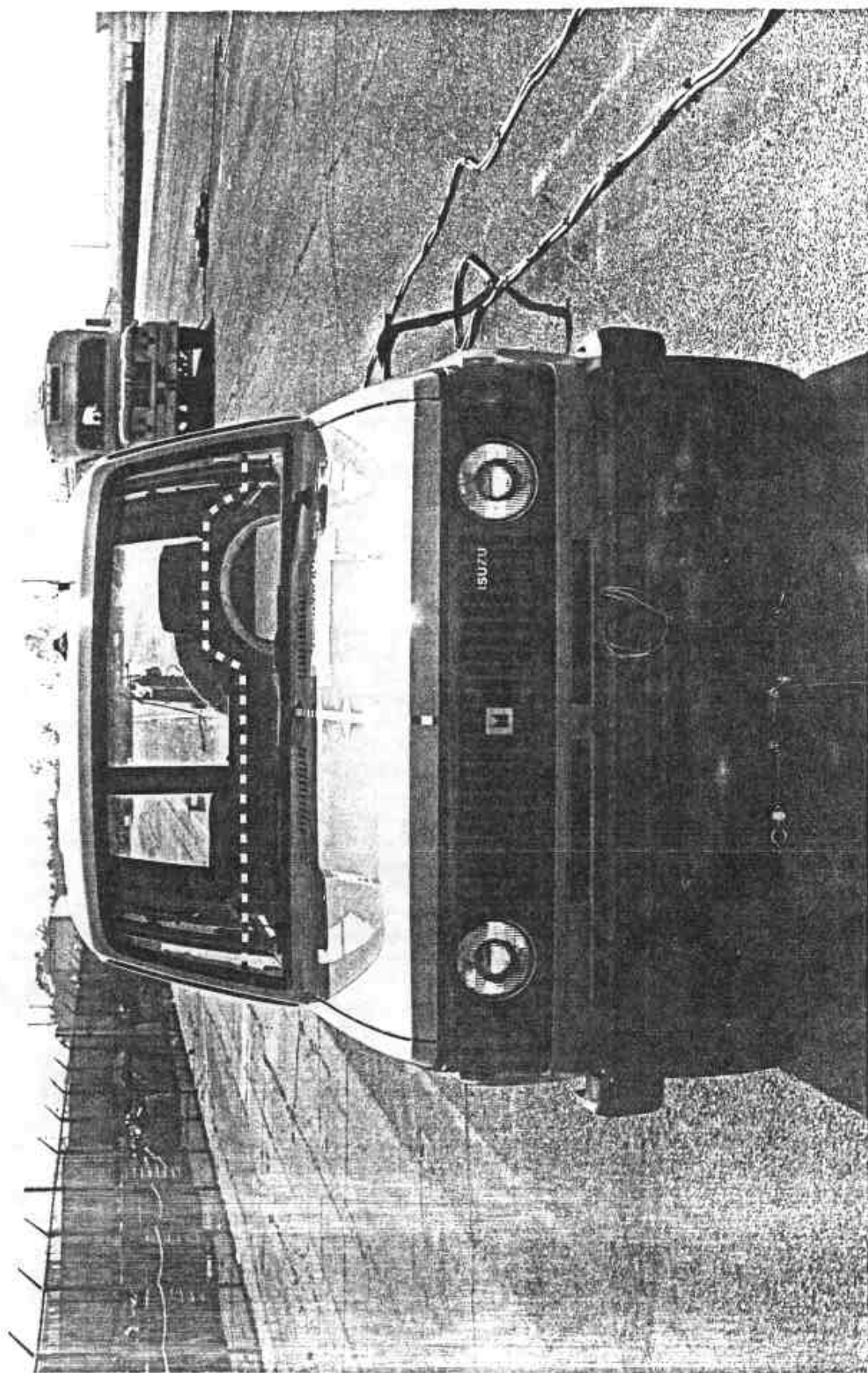
LENGTH OF DAMAGED REGION: L = 56.8 inches



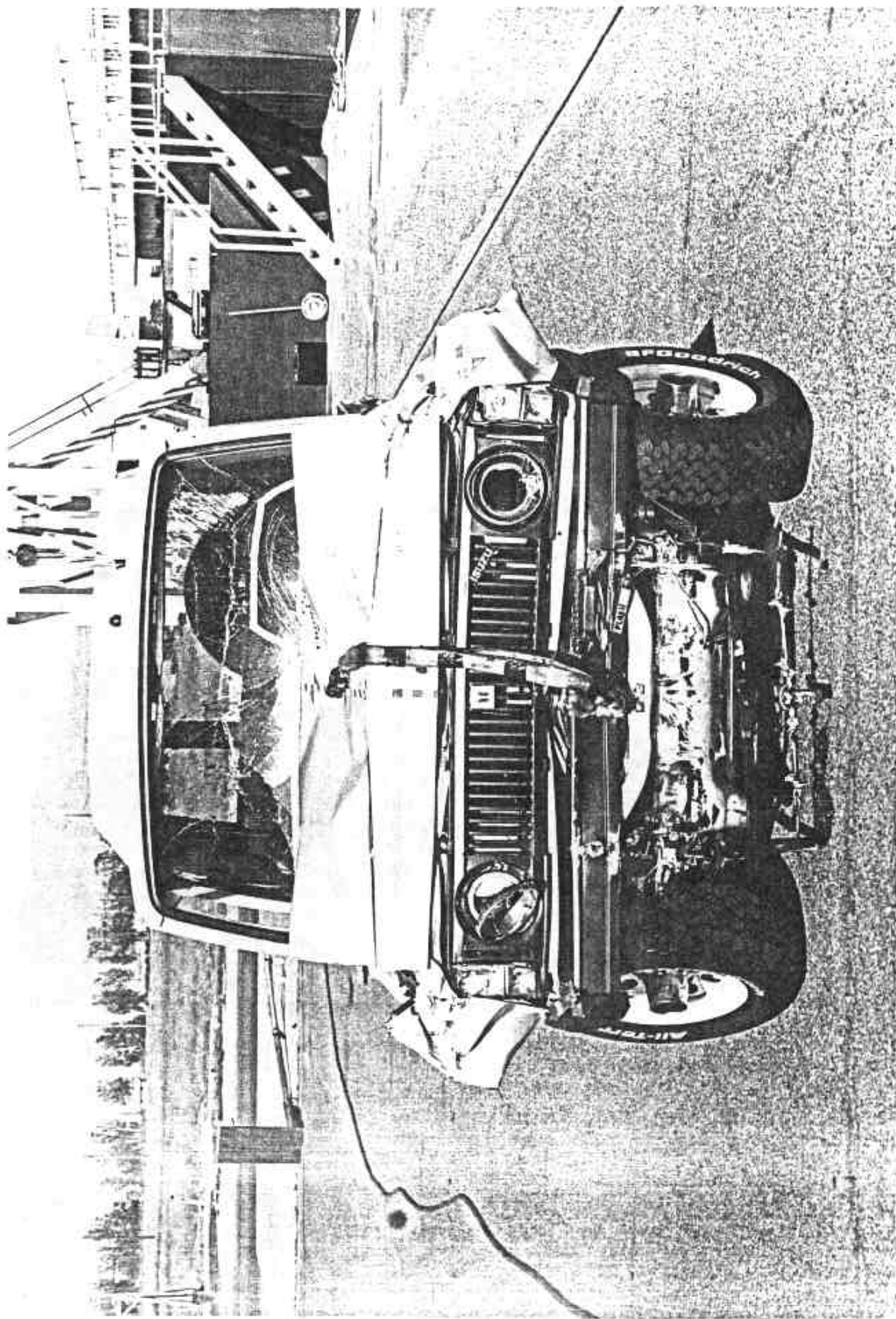
APPENDIX A

PHOTOGRAPHS

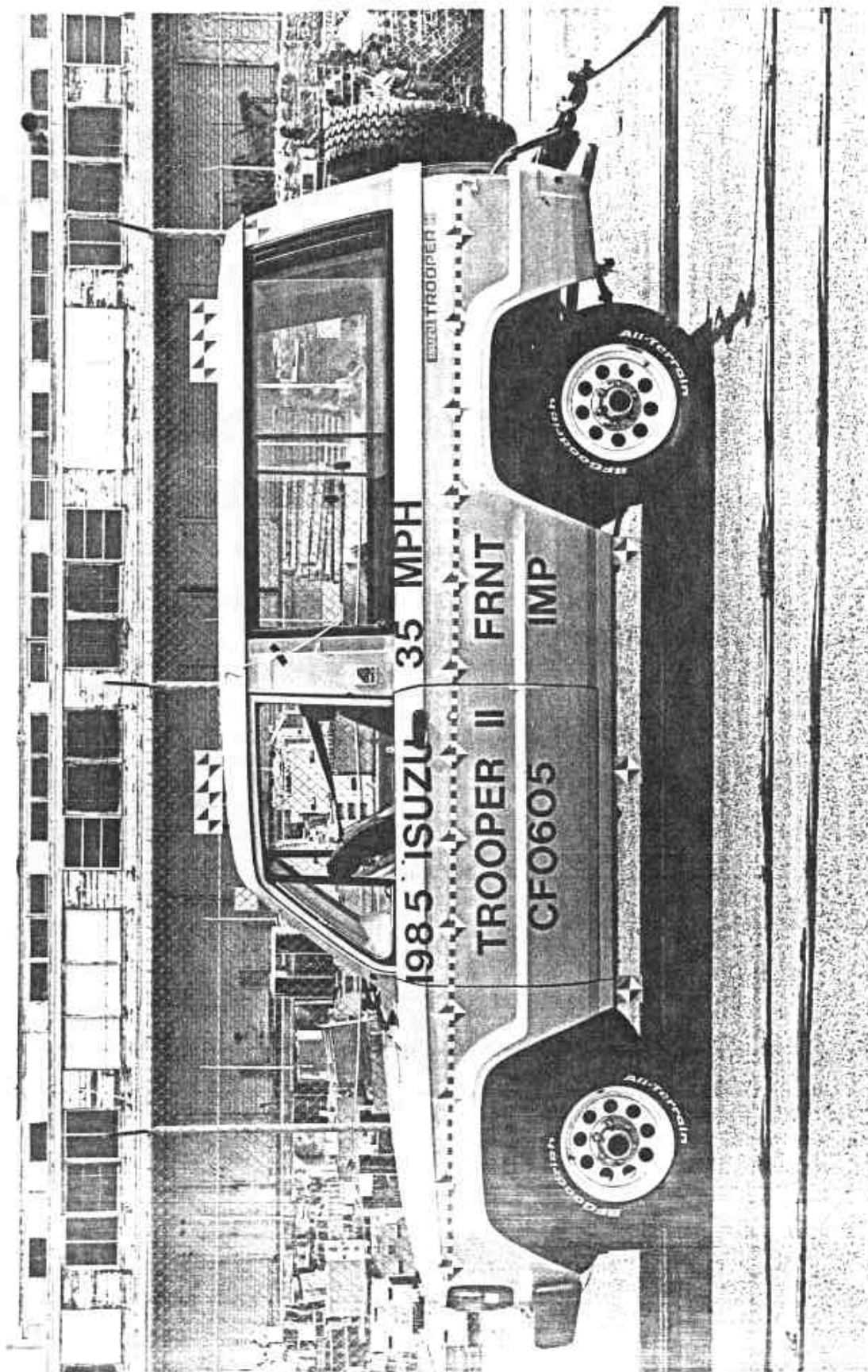
PRE TEST FRONT VIEW
POST TEST FRONT VIEW
PRE TEST LEFT SIDE VIEW
POST TEST LEFT SIDE VIEW
PRE TEST RIGHT SIDE VIEW
POST TEST RIGHT SIDE VIEW
PRE TEST RIGHT FRONT THREE QUARTER VIEW
POST TEST RIGHT FRONT THREE QUARTER VIEW
PRE TEST LEFT REAR THREE QUARTER VIEW
POST TEST LEFT REAR THREE QUARTER VIEW
POST TEST TOP VIEW (Vehicle on Rollover Machine)
PRE TEST WINDSHIELD VIEW
POST TEST WINDSHIELD VIEW
PRE TEST ENGINE COMPARTMENT VIEW
POST TEST ENGINE COMPARTMENT VIEW
PRE TEST FUEL FILLER CAP VIEW
PRE TEST FRONT UNDERBODY VIEW
POST TEST FRONT UNDERBODY VIEW
PRE TEST REAR UNDERBODY VIEW
POST TEST REAR UNDERBODY VIEW
PRE TEST DRIVER DUMMY POSITION VIEW
POST TEST DRIVER DUMMY POSITION VIEW
PRE TEST PASSENGER DUMMY POSITION VIEW
POST TEST PASSENGER DUMMY POSITION VIEW
PRE TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
POST TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
PRE TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
POST TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
POST TEST STEERING COLUMN HUB/RIM CONTACT BY DUMMY DRIVER
POST TEST PASSENGER DUMMY KNEE CONTACT



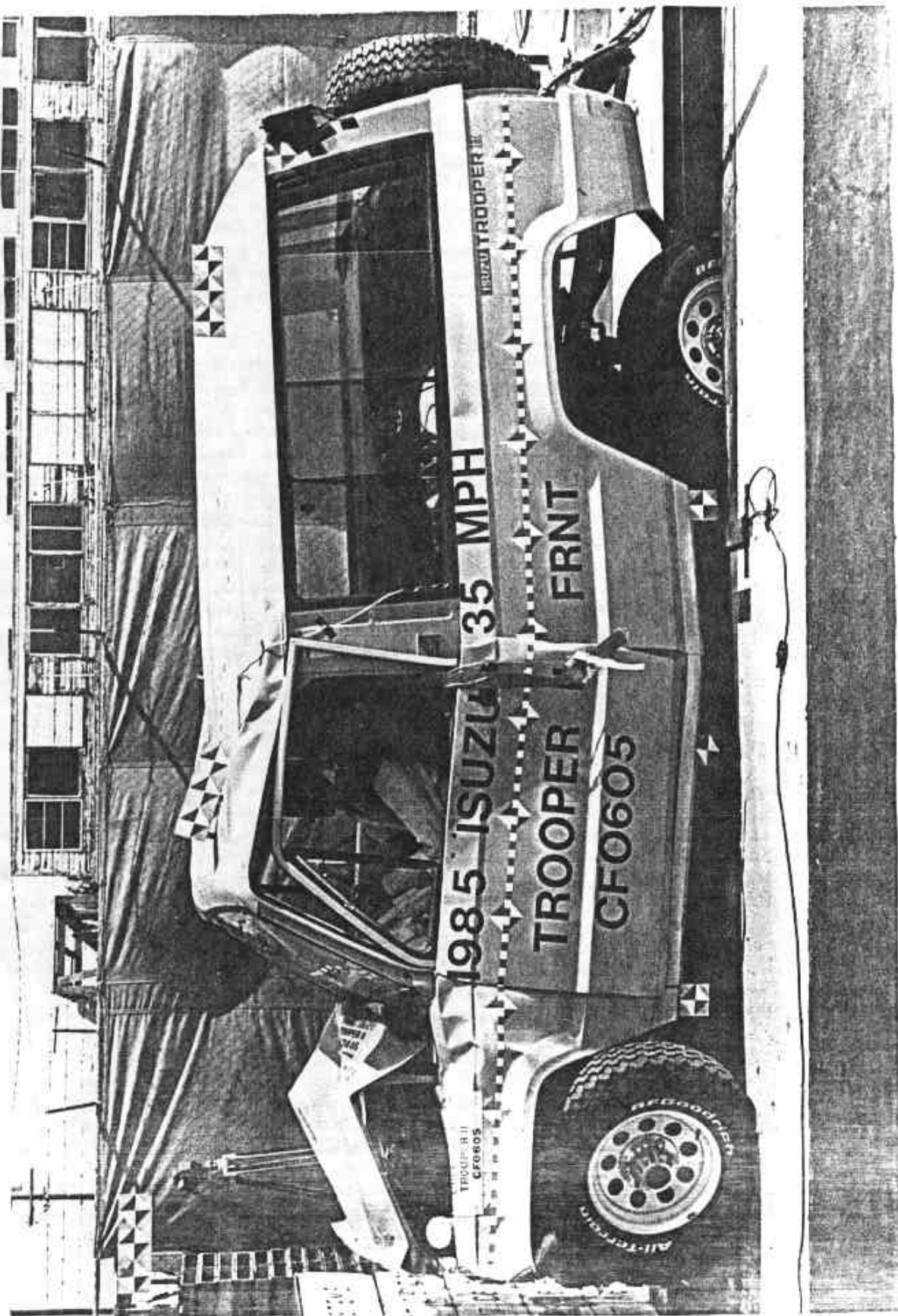
PRE TEST FRONT VIEW



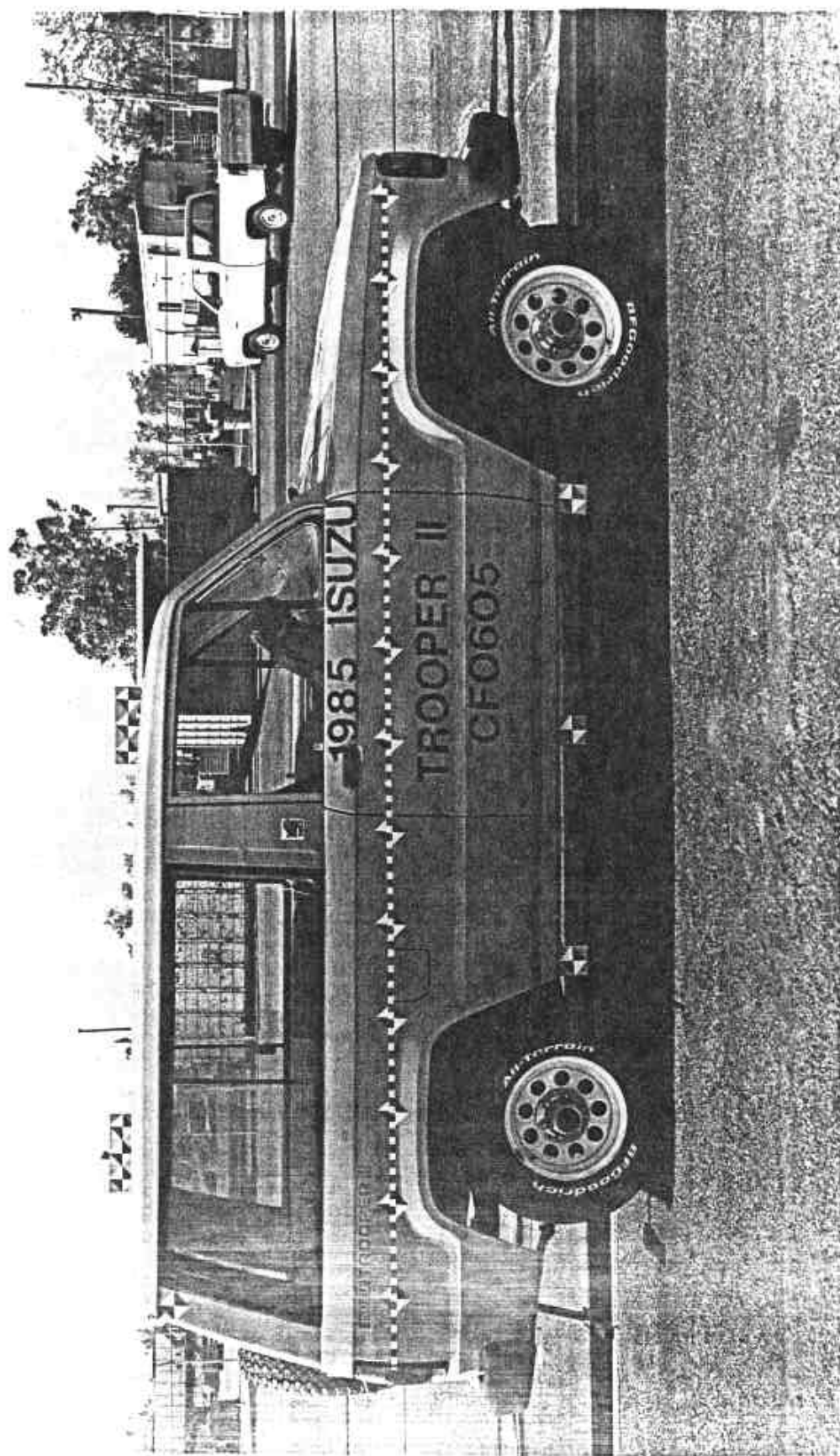
POST TEST FRONT VIEW



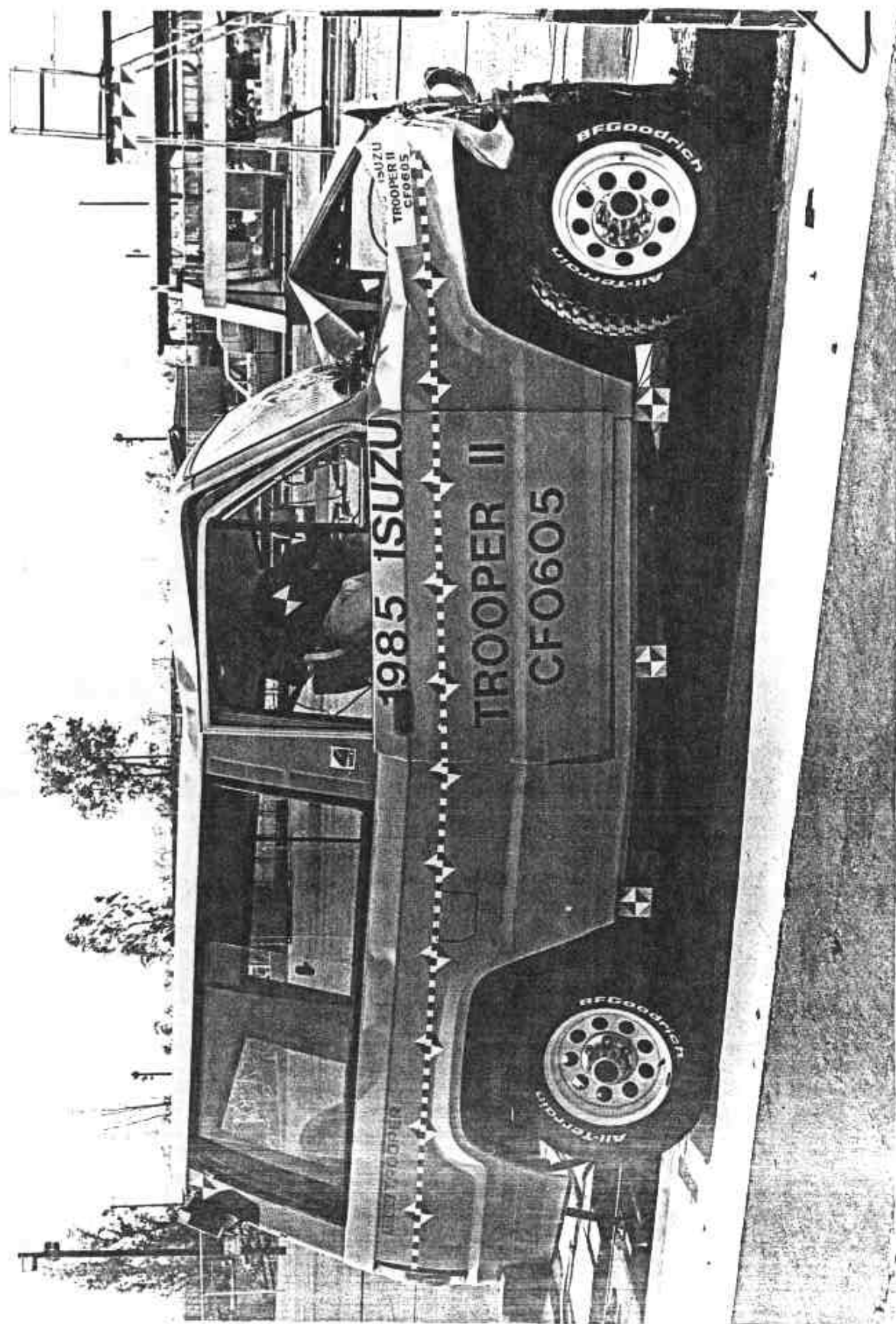
PRE TEST LEFT SIDE VIEW



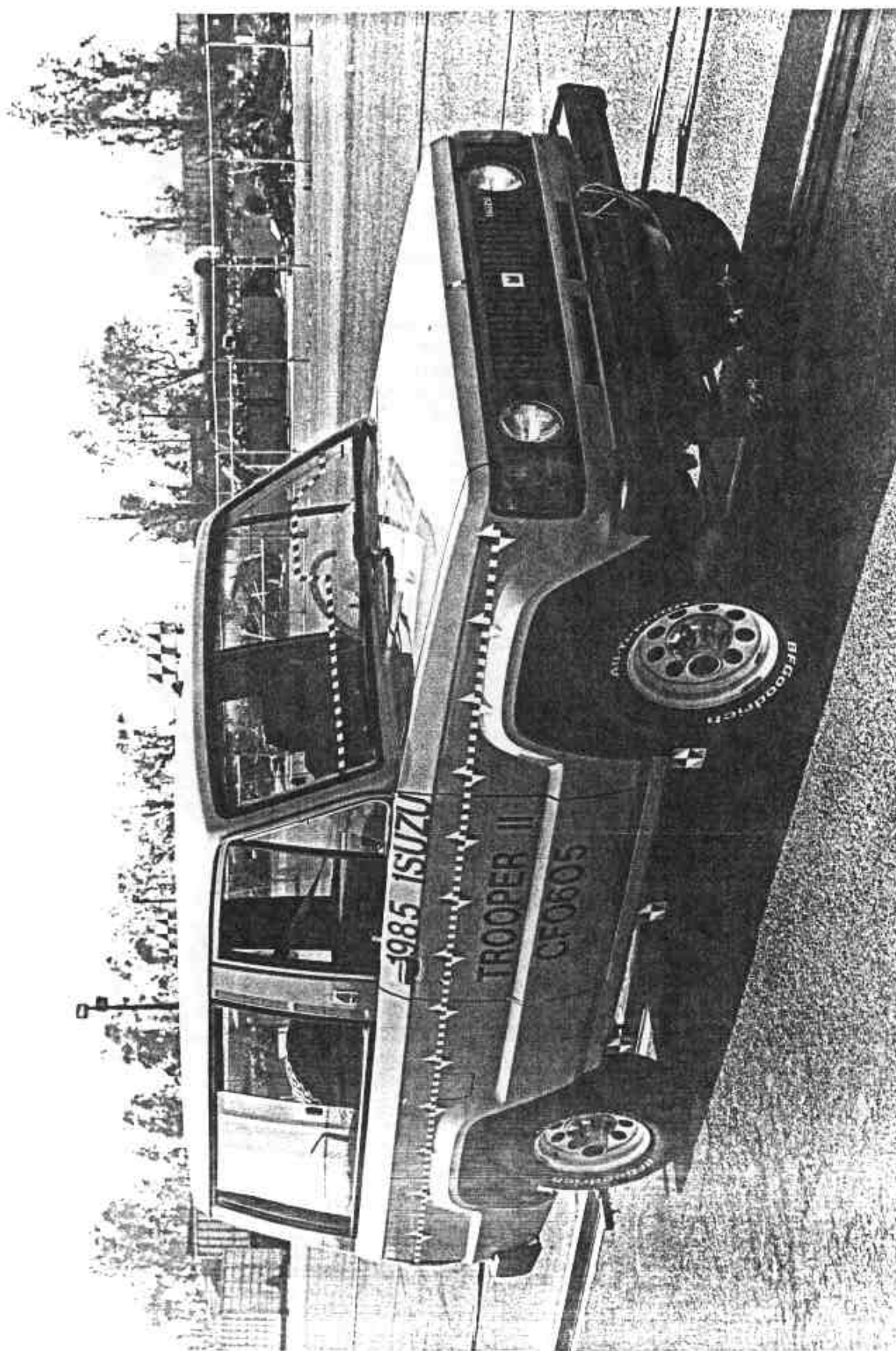
POST TEST LEFT SIDE VIEW



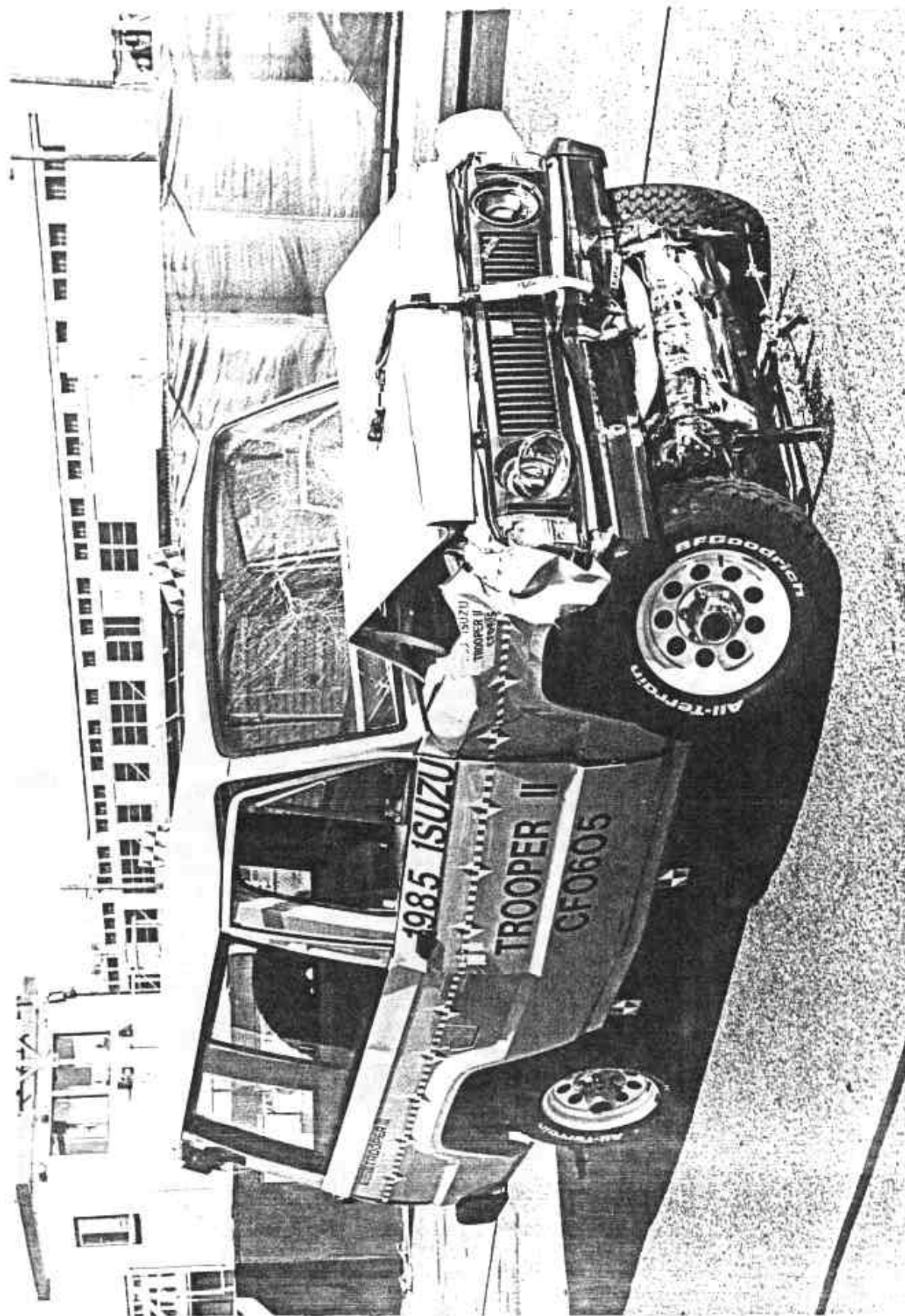
PRE TEST RIGHT SIDE VIEW



POST TEST RIGHT SIDE VIEW



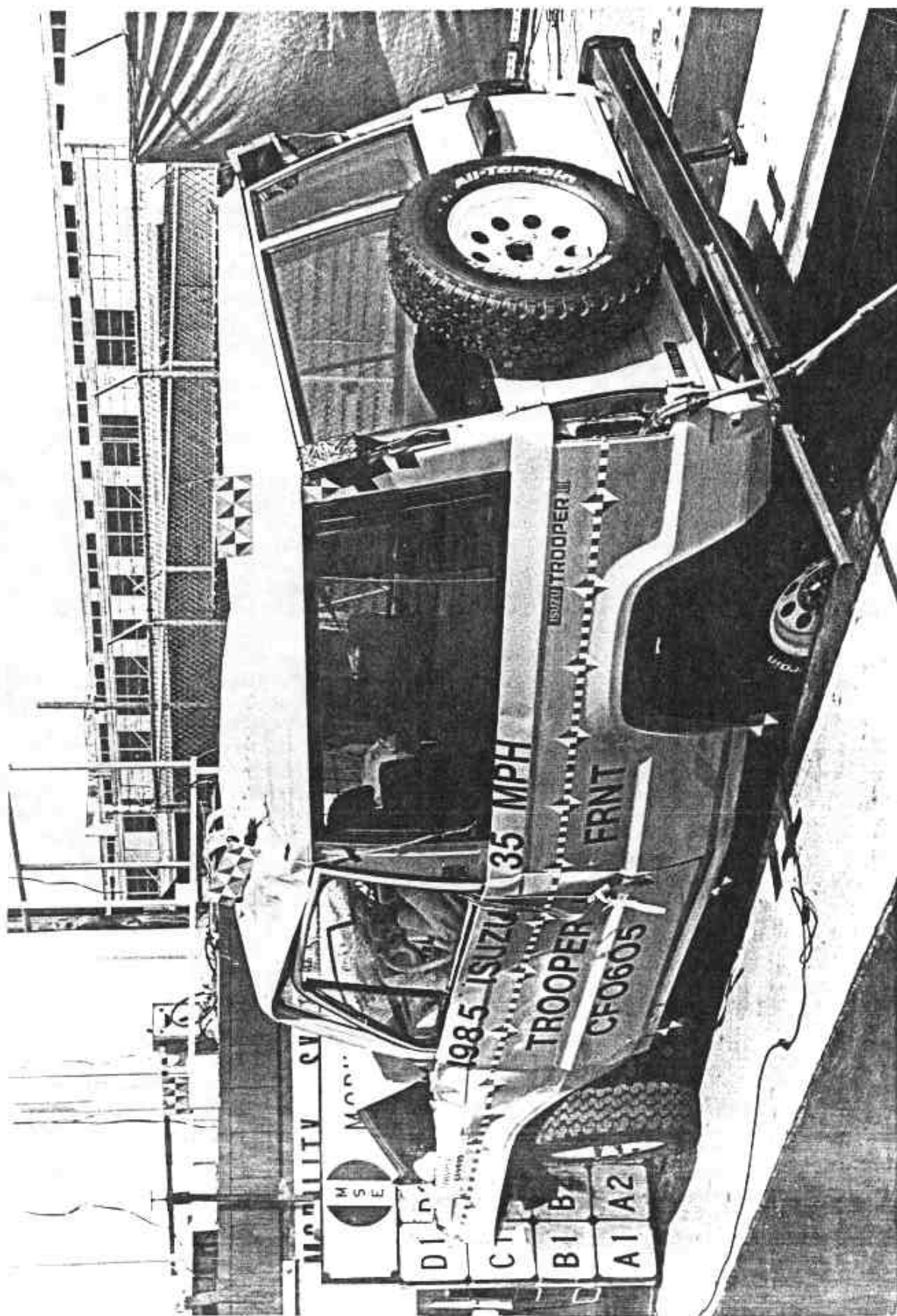
PRE TEST RIGHT FRONT THREE QUARTER VIEW



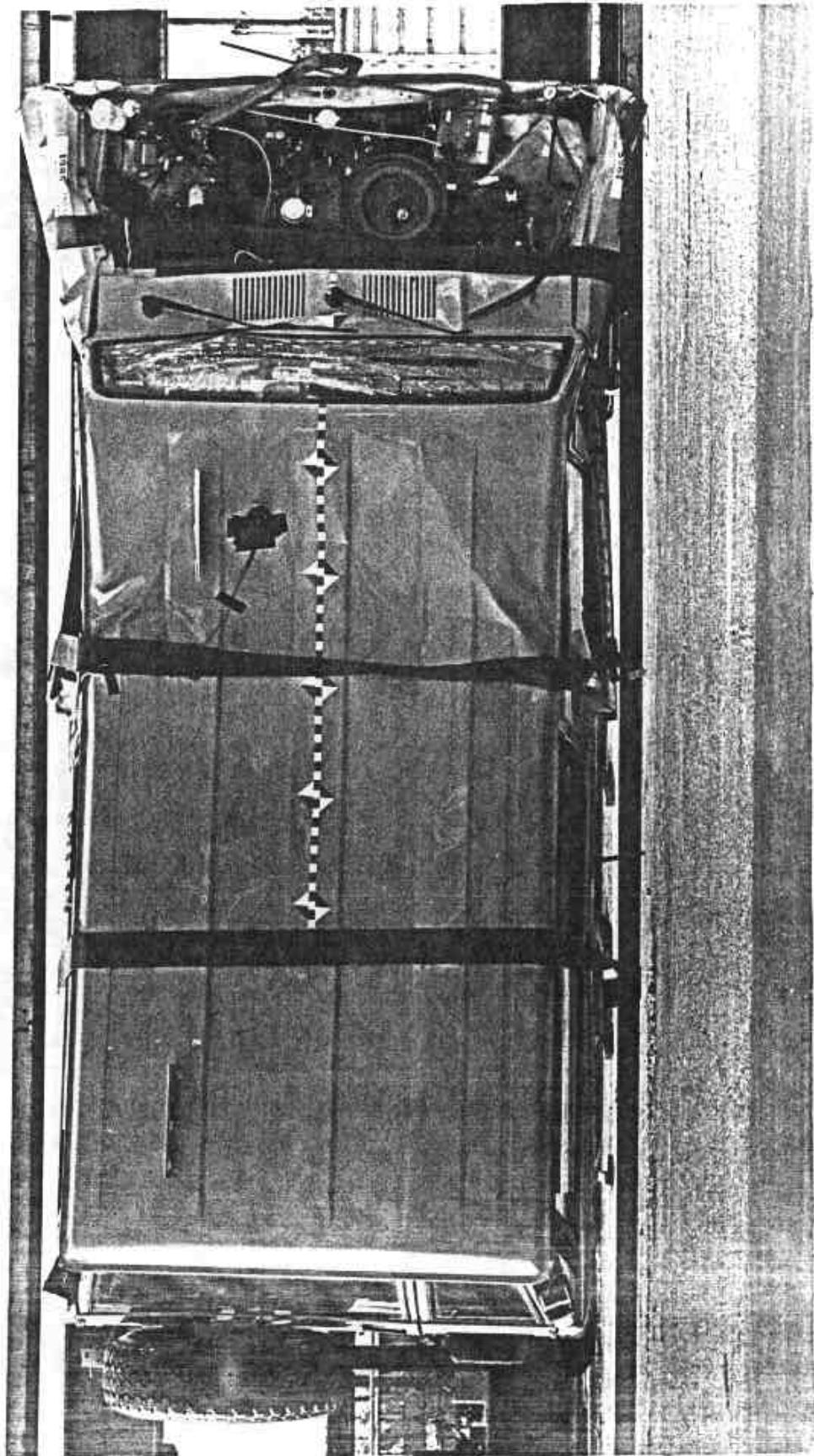
POST TEST RIGHT FRONT THREE QUARTER VIEW



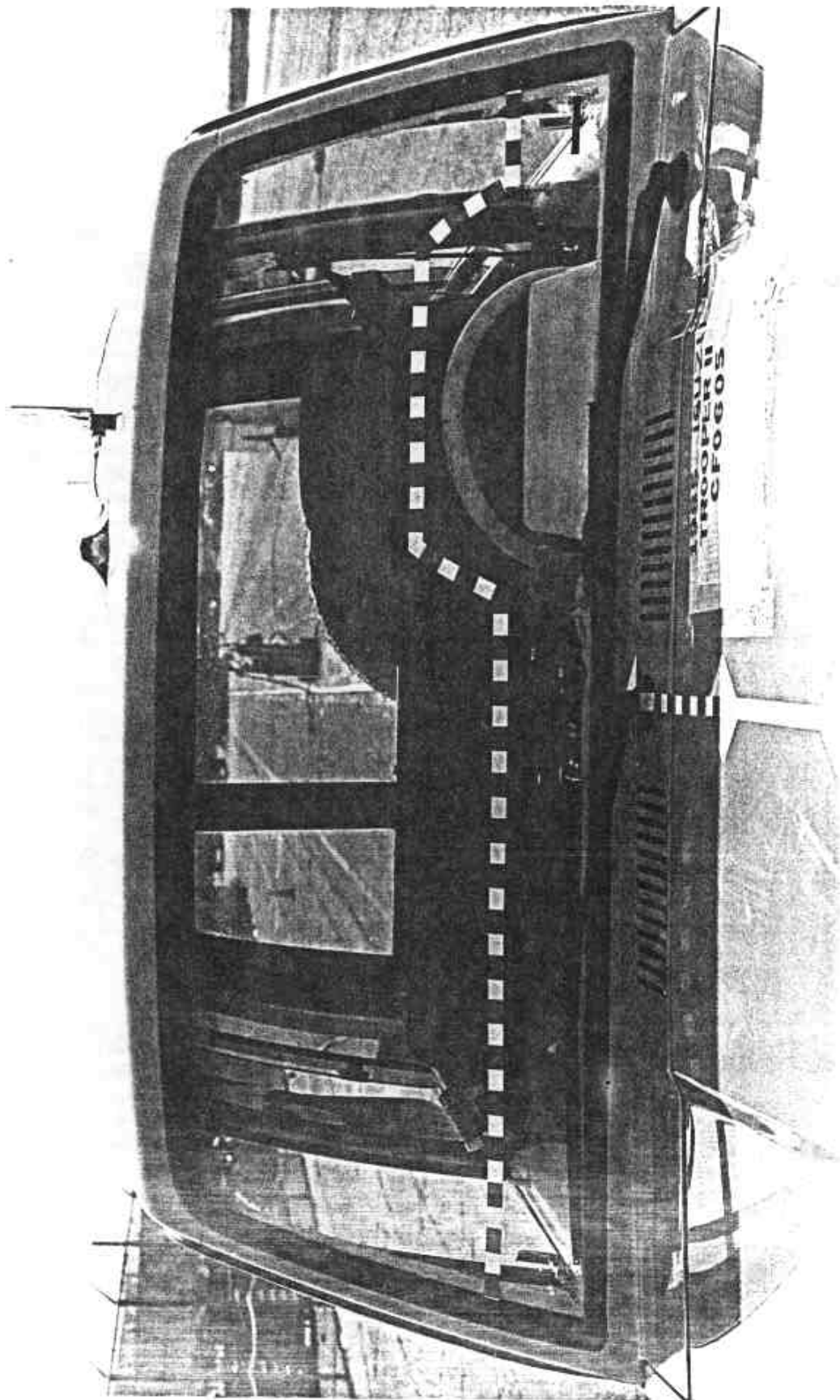
PRE TEST LEFT REAR THREE QUARTER VIEW



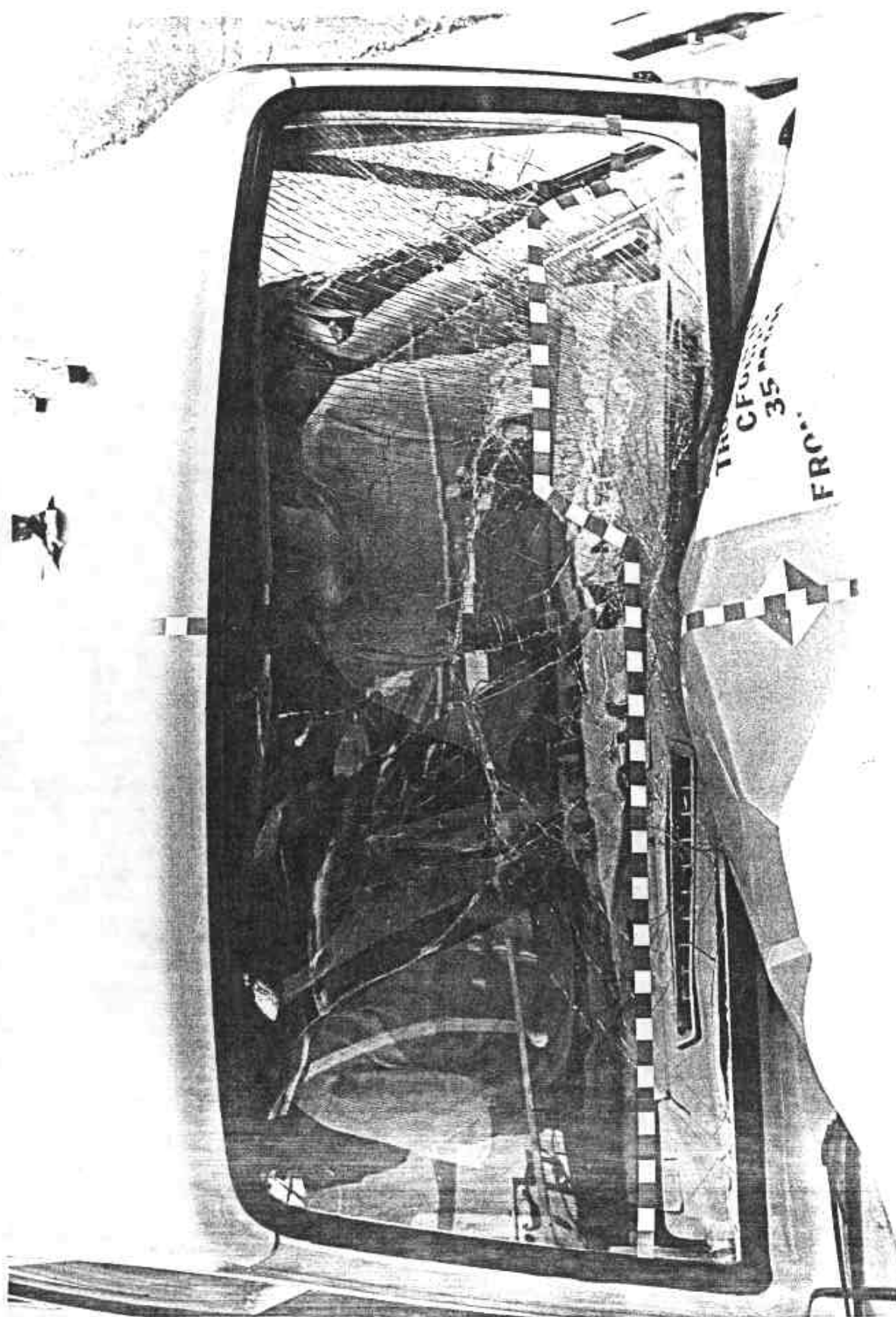
POST TEST LEFT REAR THREE QUARTER VIEW



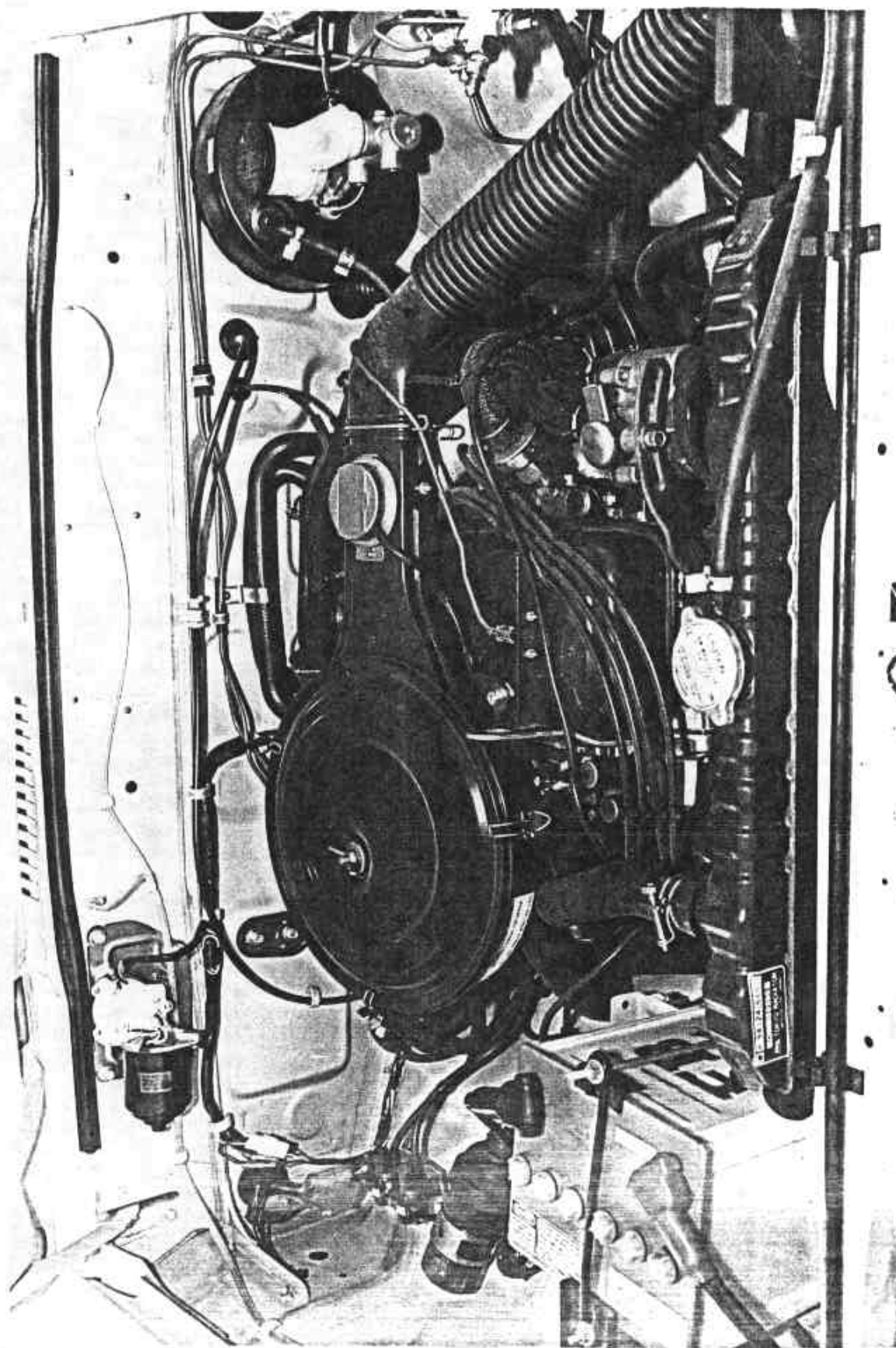
POST TEST TOP VIEW (Vehicle on Rollover Machine)



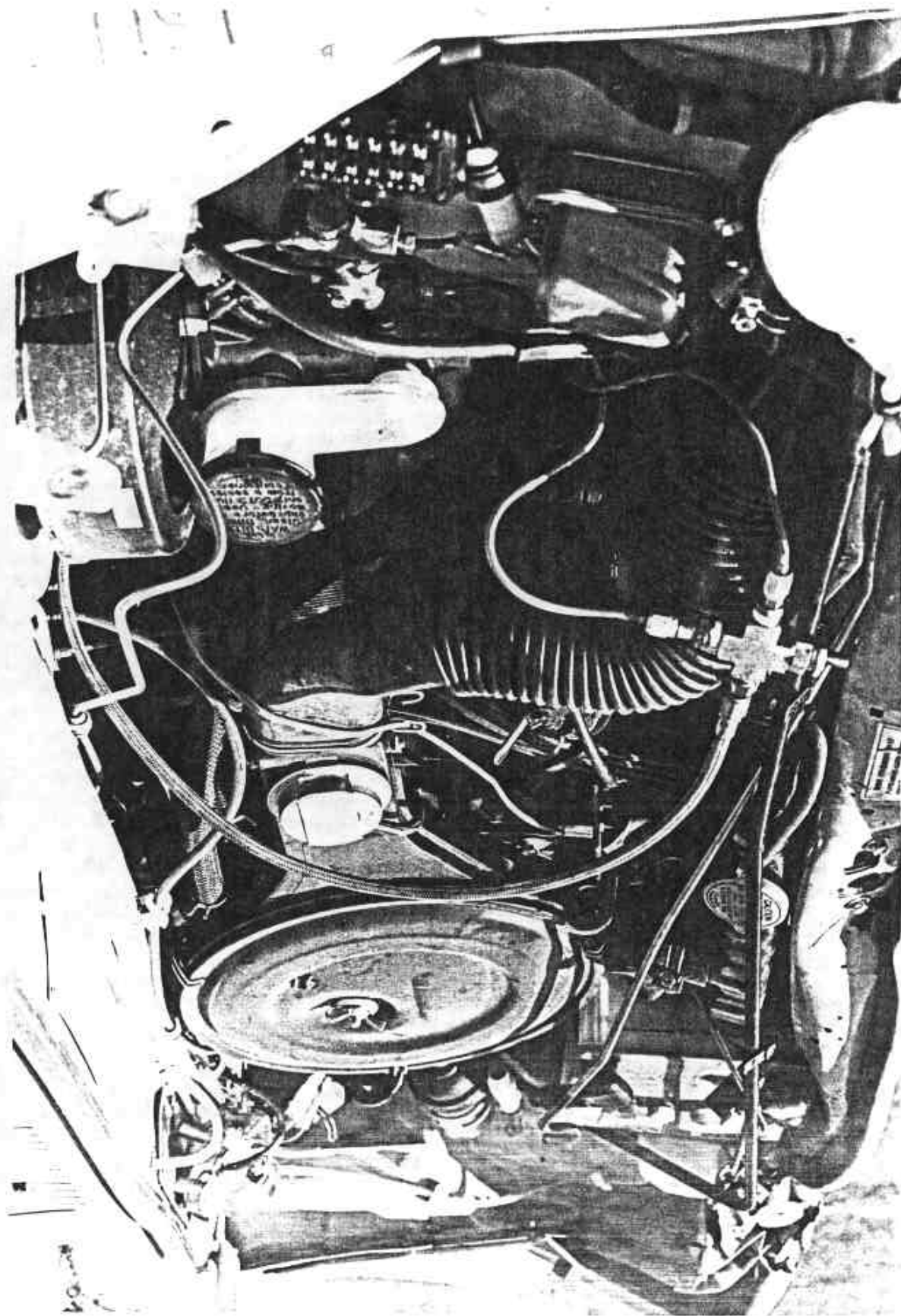
PRE TEST WINDSHIELD VIEW



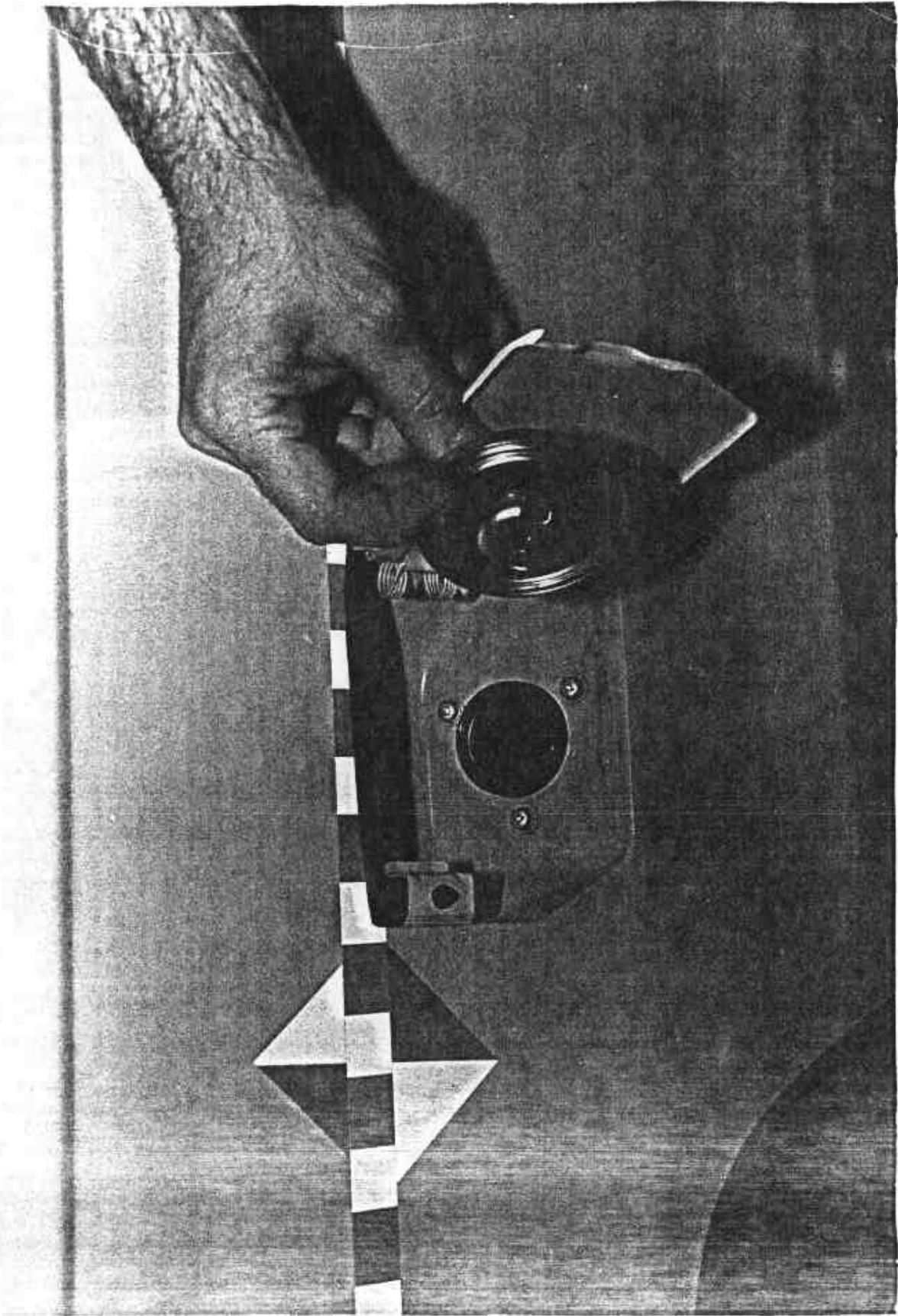
POST TEST WINDSHIELD VIEW



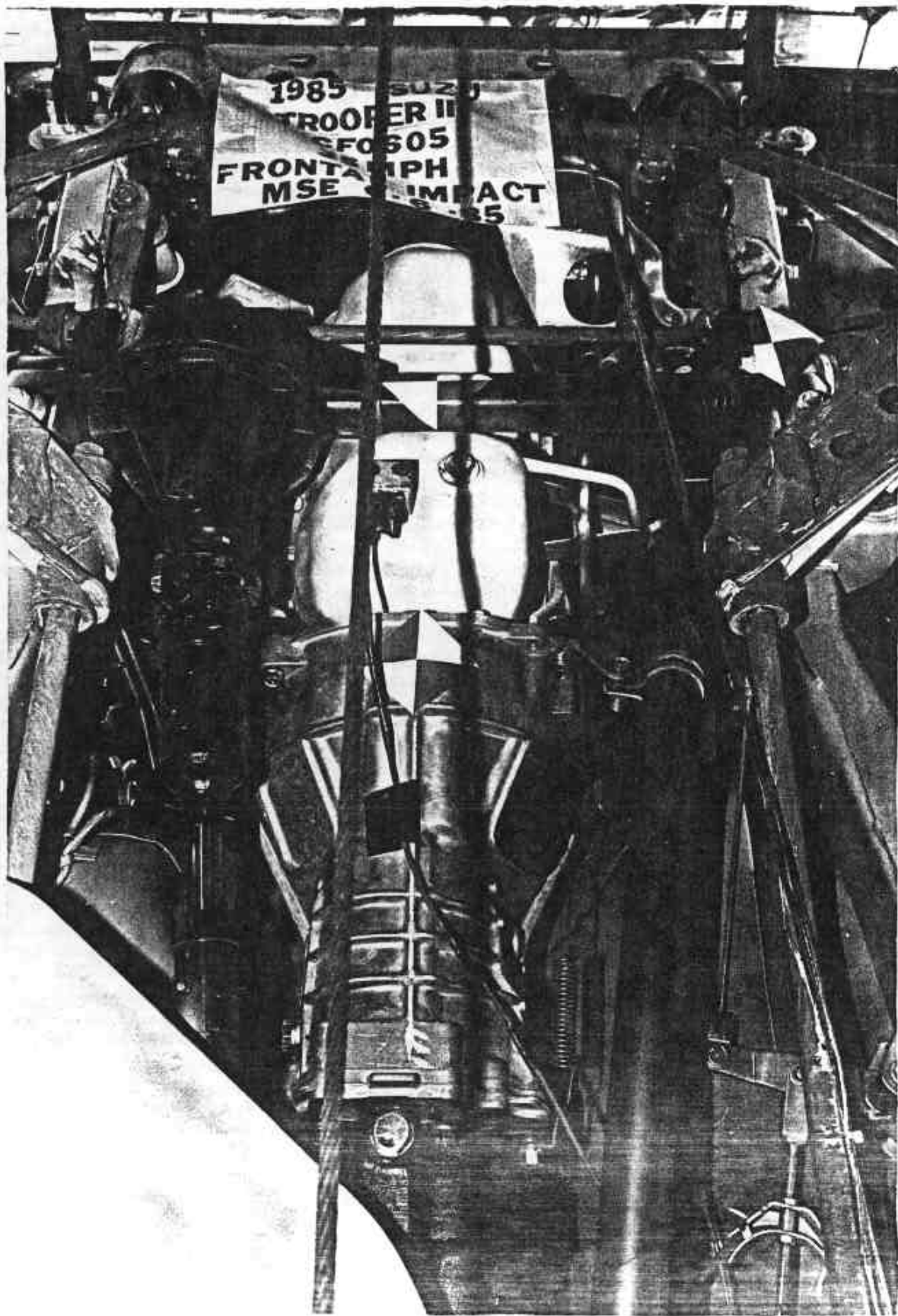
PRE TEST ENGINE COMPARTMENT VIEW



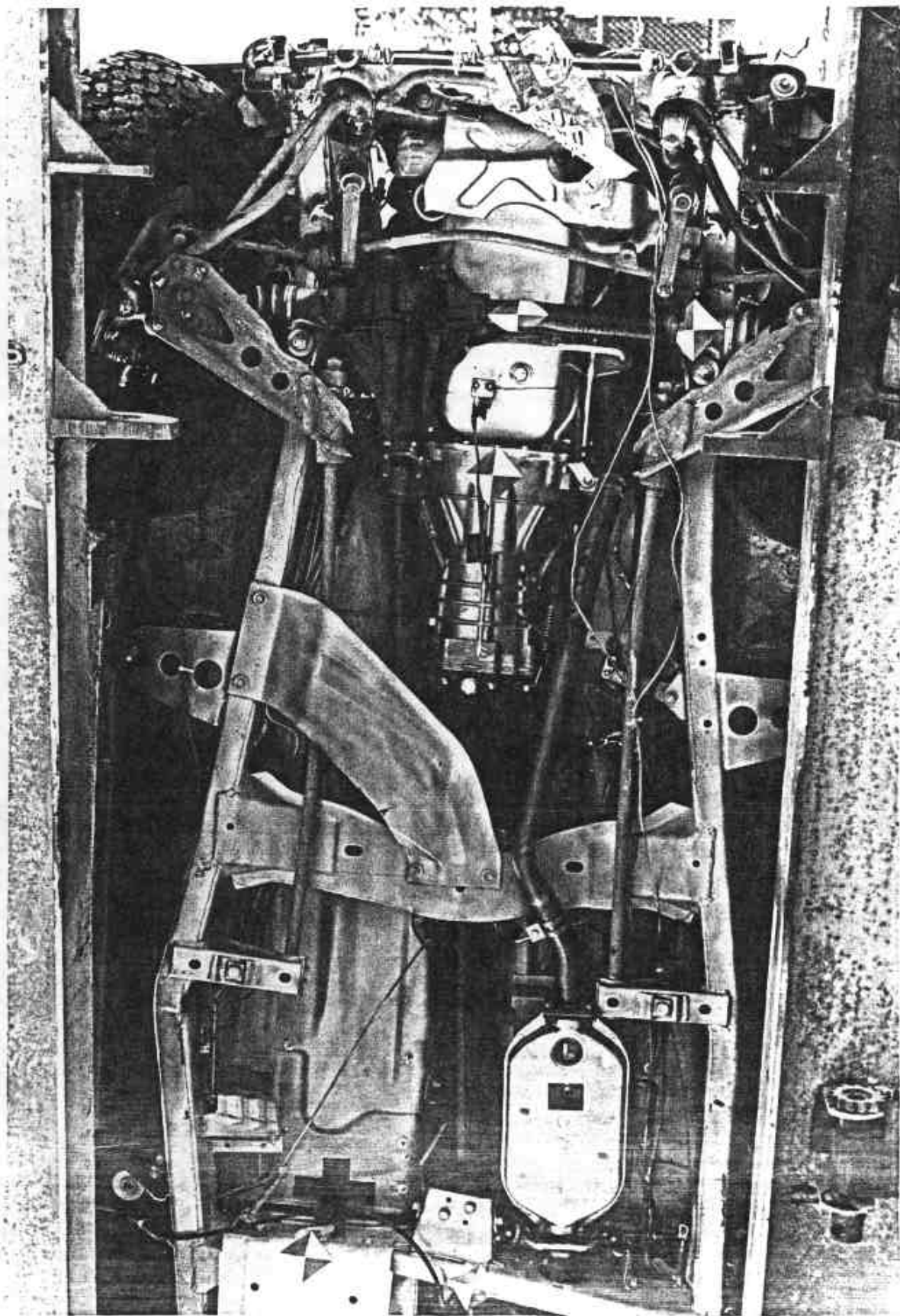
POST TEST ENGINE COMPARTMENT VIEW



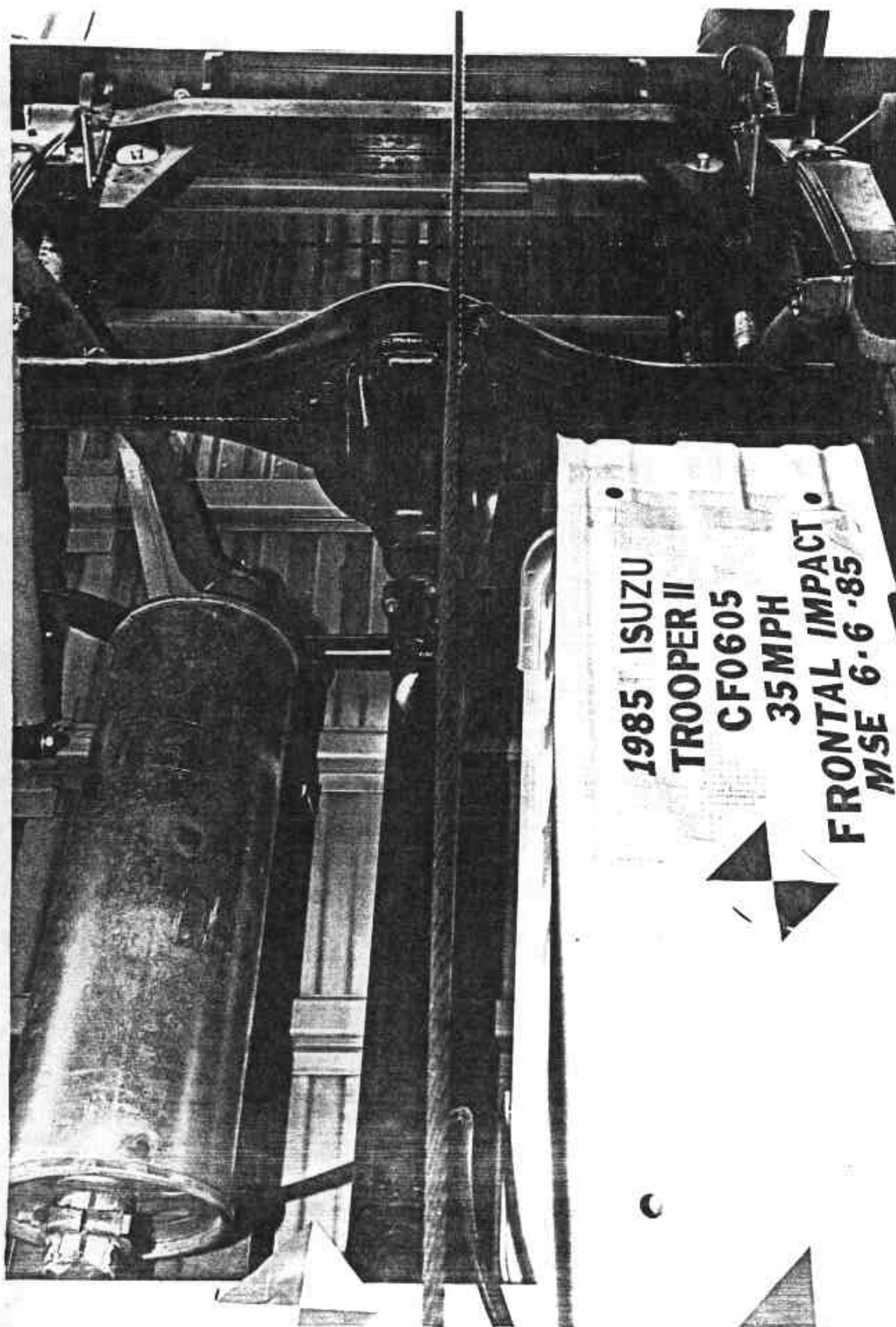
PRE TEST FUEL FILLER CAP



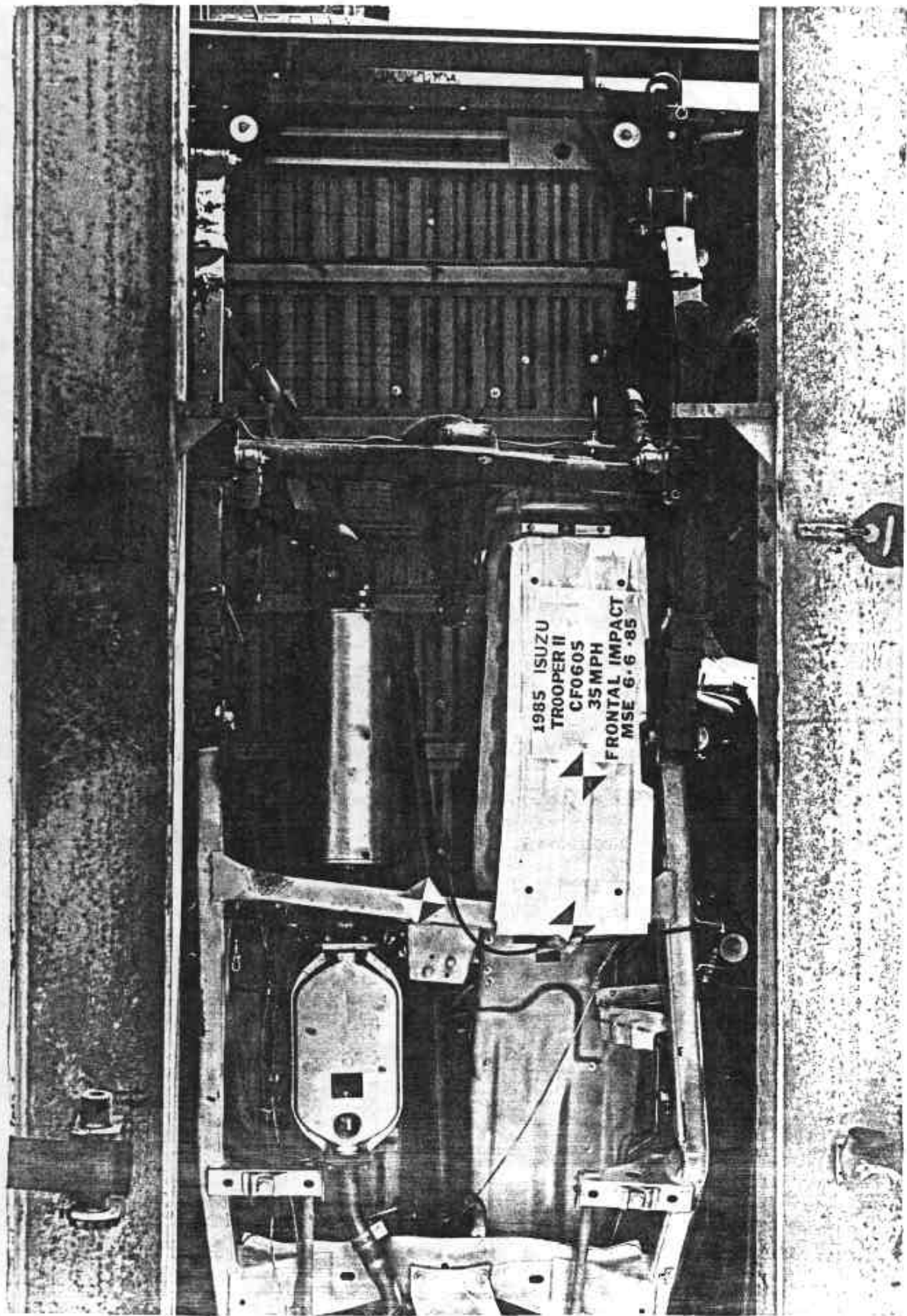
PRE TEST FRONT UNDERBODY VIEW



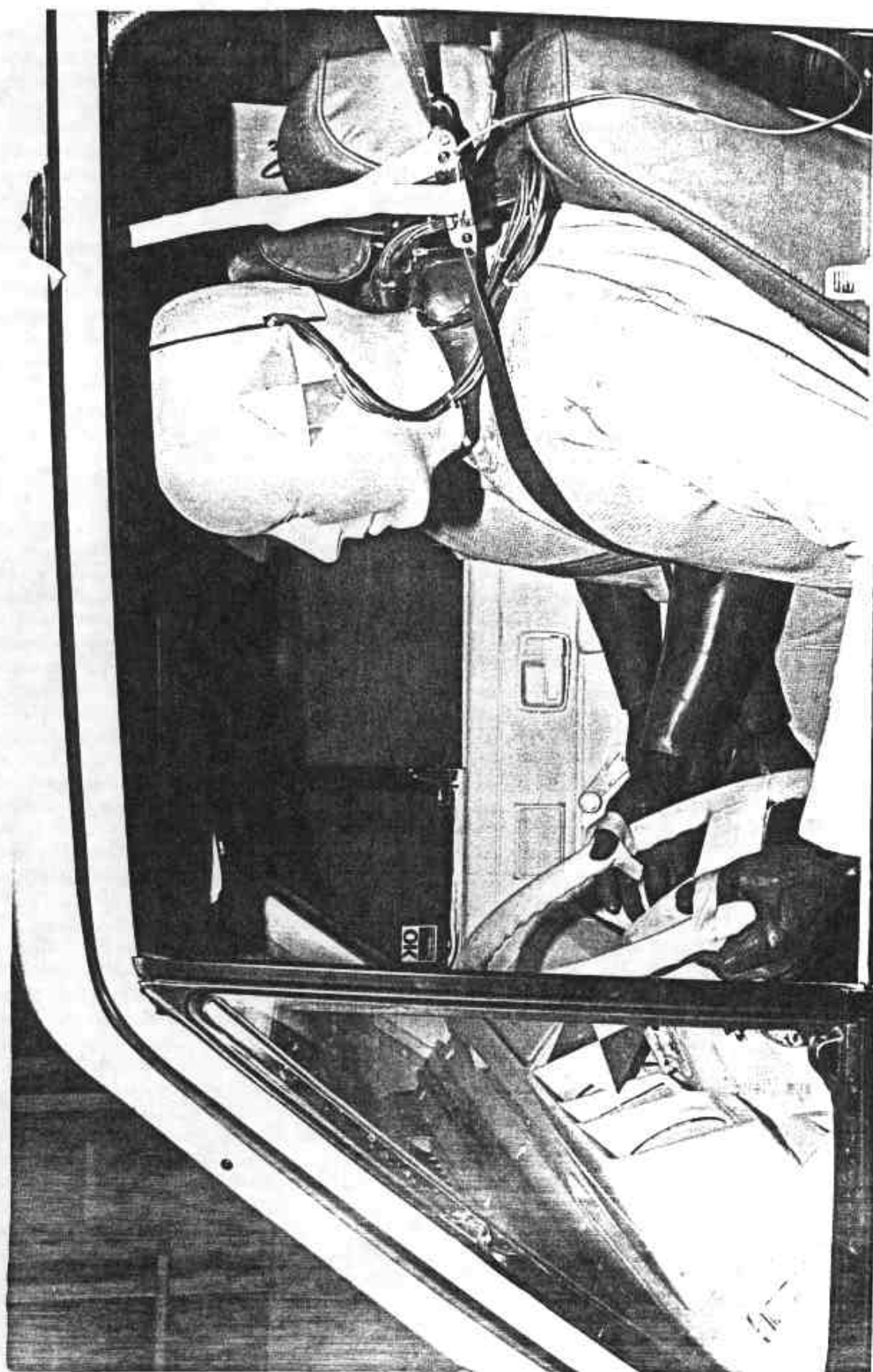
POST TEST FRONT UNDERBODY VIEW



PRE TEST REAR UNDERBODY VIEW



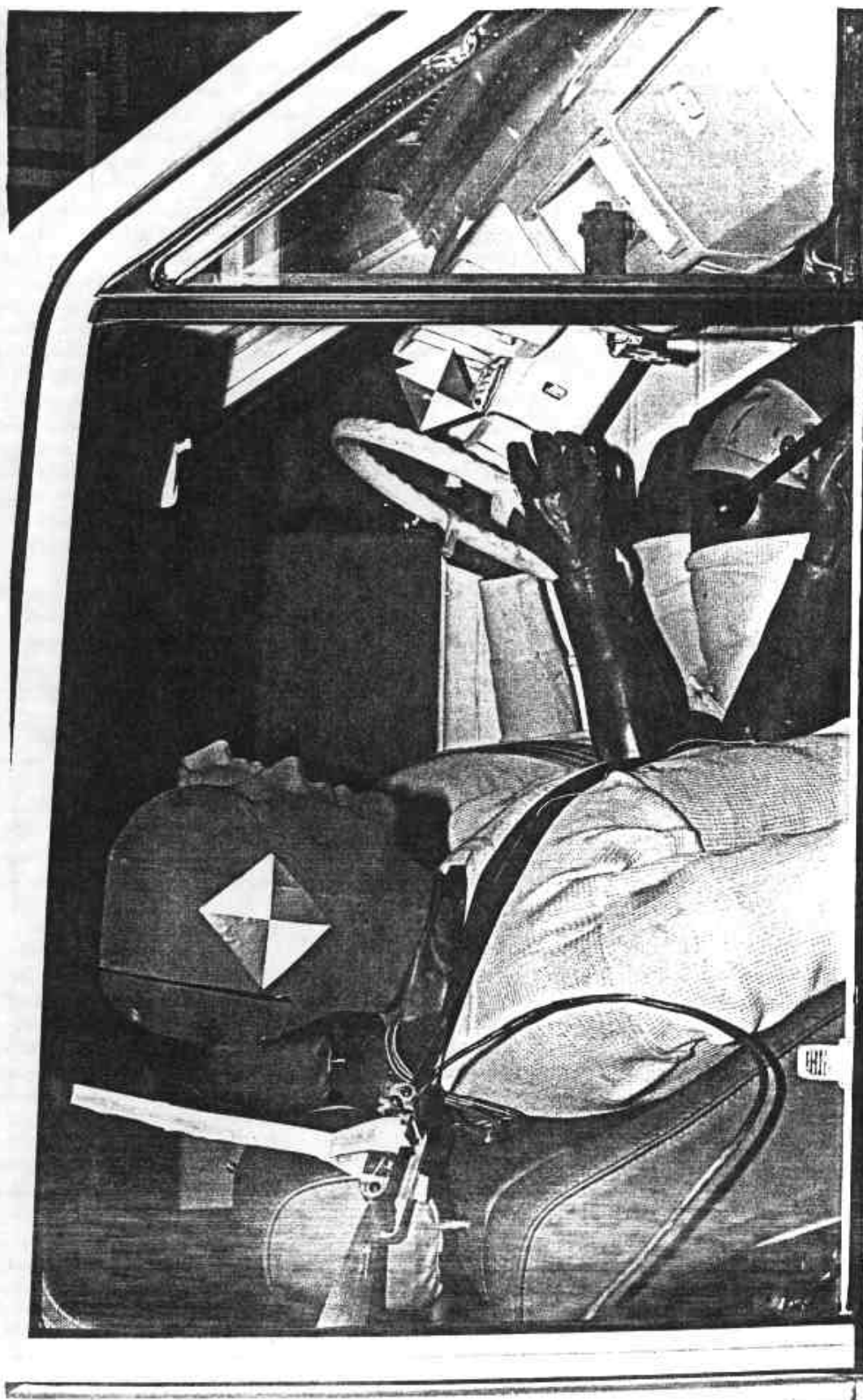
POST TEST REAR UNDERBODY VIEW



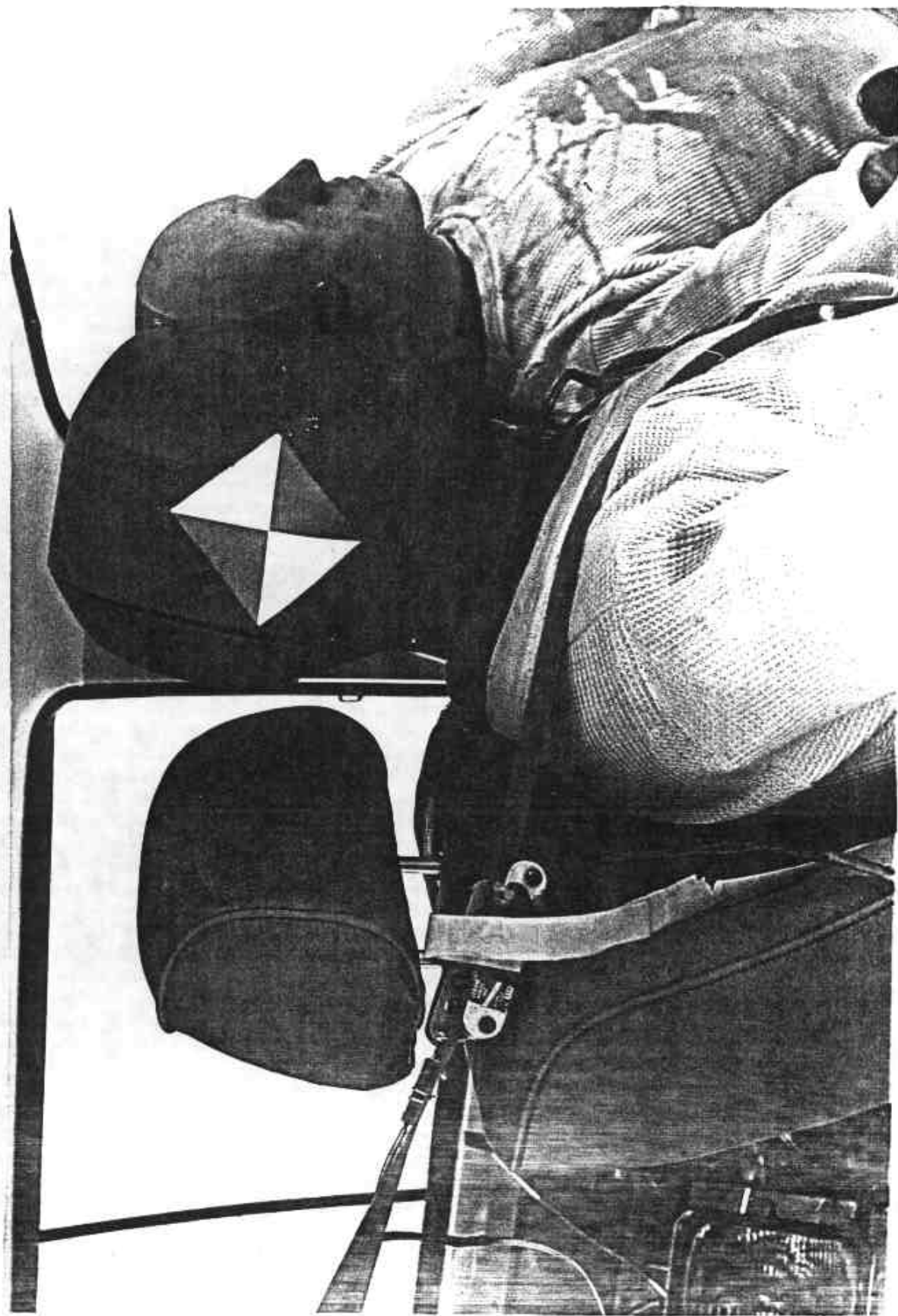
PRE TEST DRIVER DUMMY POSITION VIEW



POST TEST DRIVER DUMMY POSITION VIEW



PRE TEST PASSENGER DUMMY POSITION VIEW



POST TEST PASSENGER DUMMY POSITION VIEW



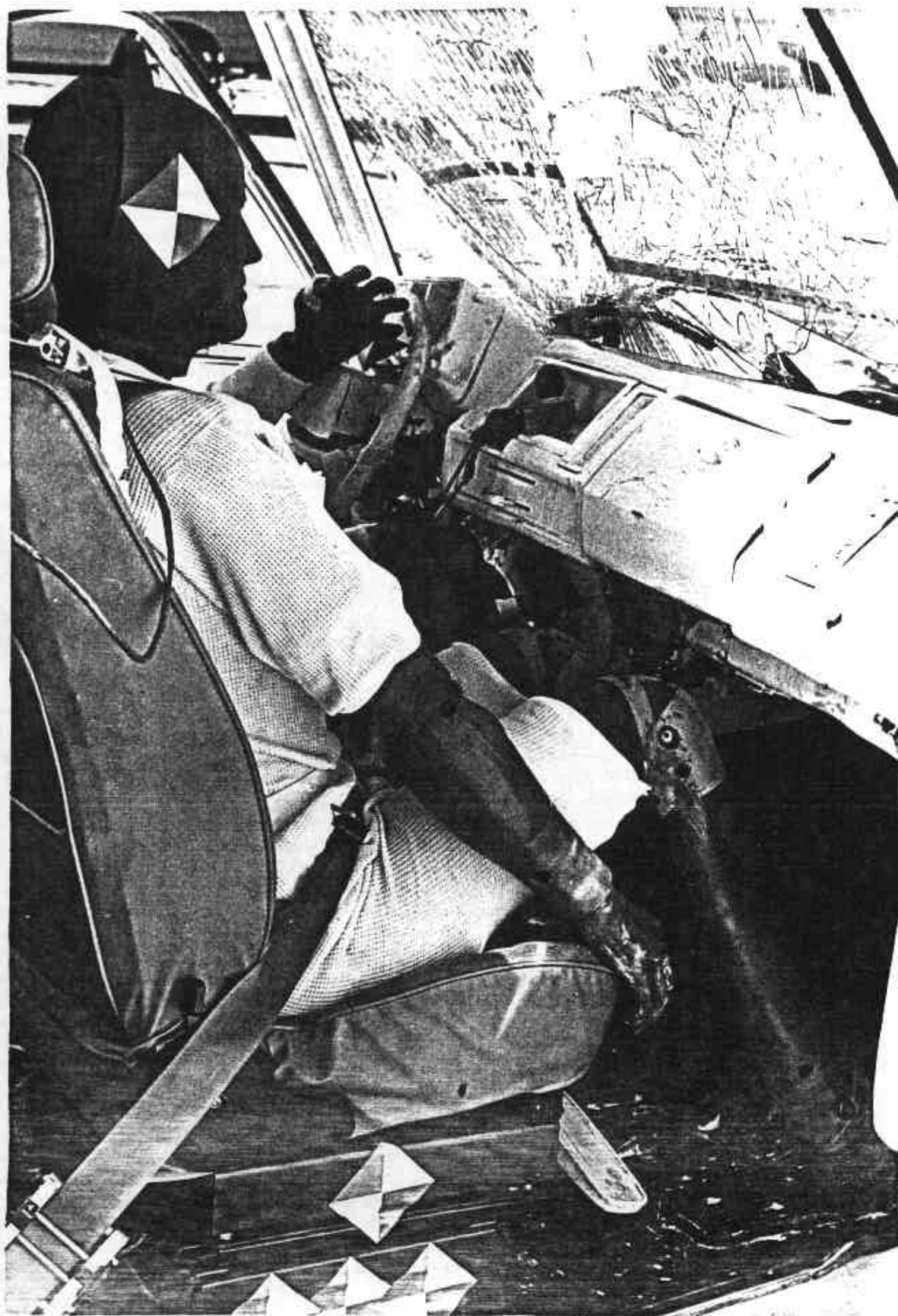
PRE TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



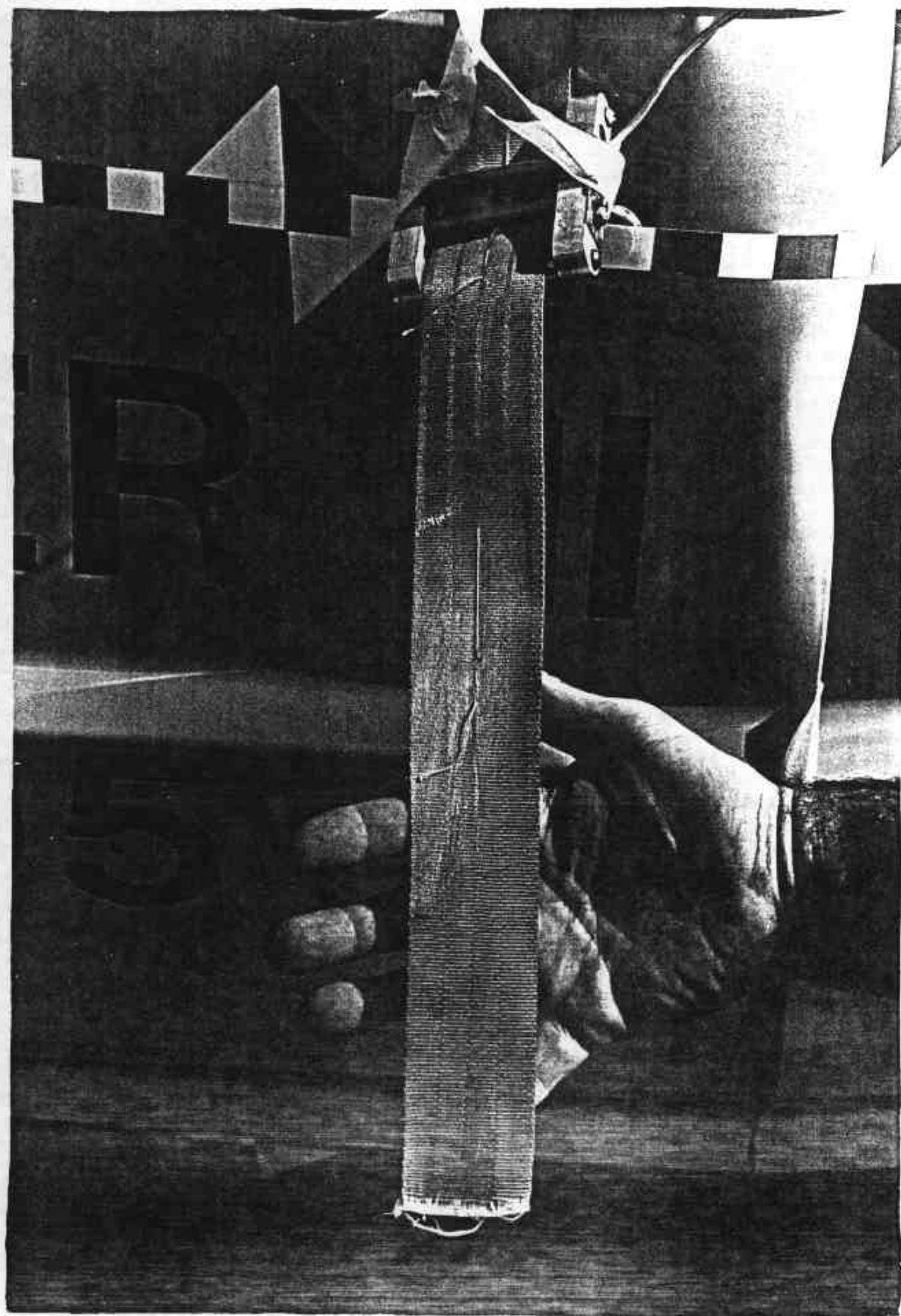
POST TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



PRE TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



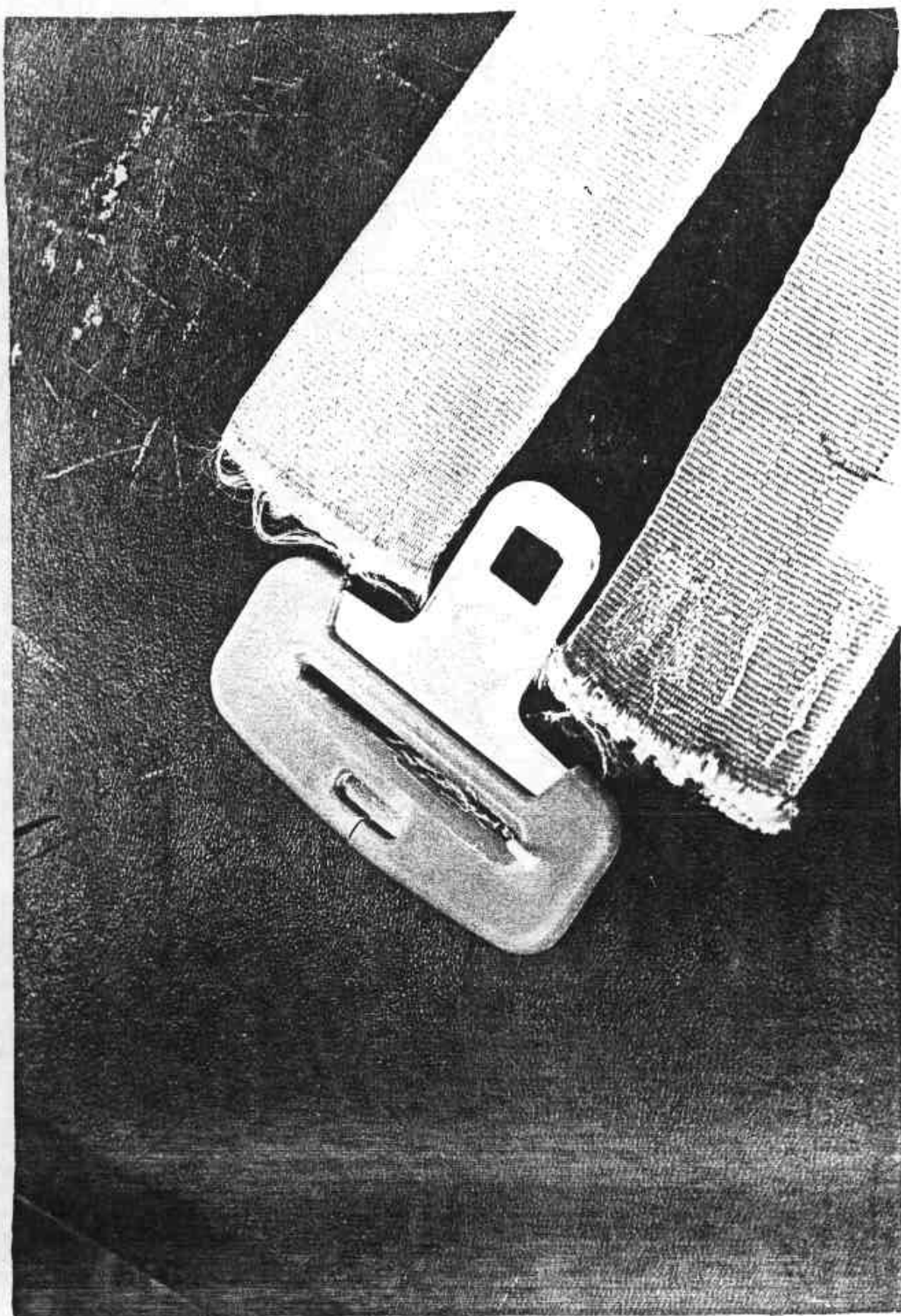
POST TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



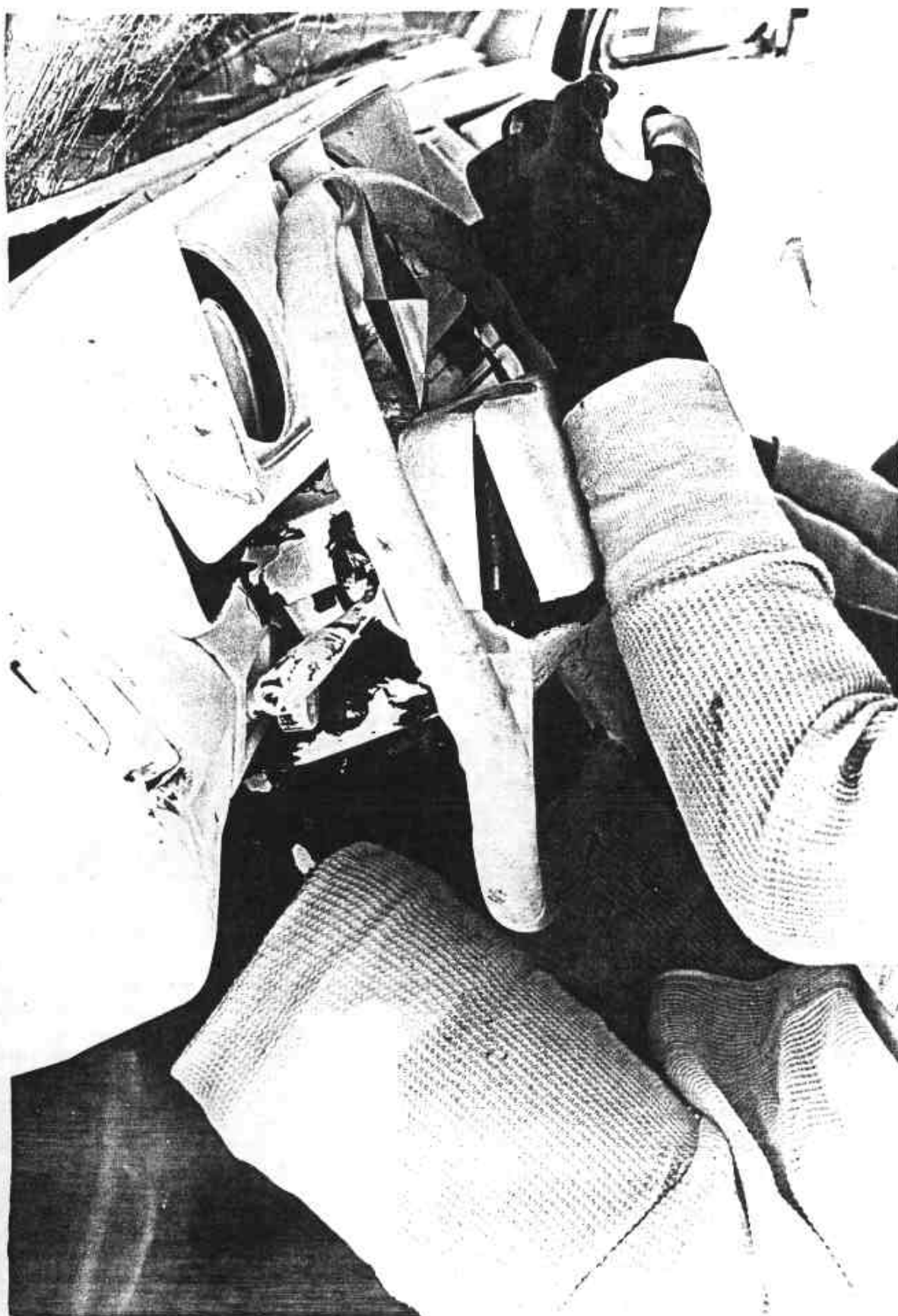
RESTRAINT SYSTEM PROBLEM AREA VIEW (Broken Seat Belt)

50

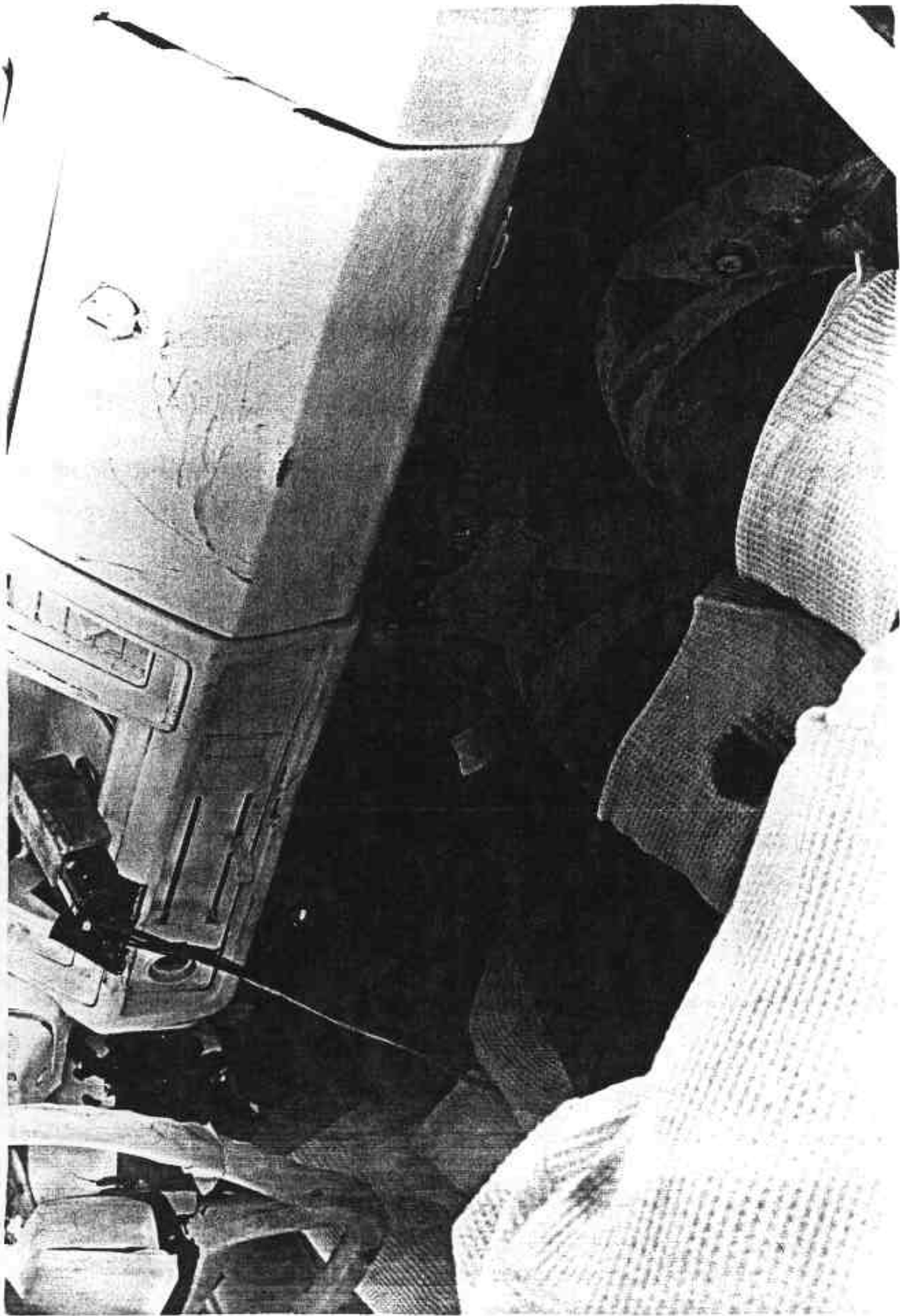
R5027-03



RESTRAINT SYSTEM PROBLEM AREA VIEW (Broken Seat Belt & Bayonet)



POST TEST STEERING COLUMN RUB/RIM CONTACT BY DUMMY DRIVER



POST TEST PASSENGER DUMMY KNEE CONTACT

APPENDIX B-1

VEHICLE AND DUMMY RESPONSE DATA

DATA FILTERING:

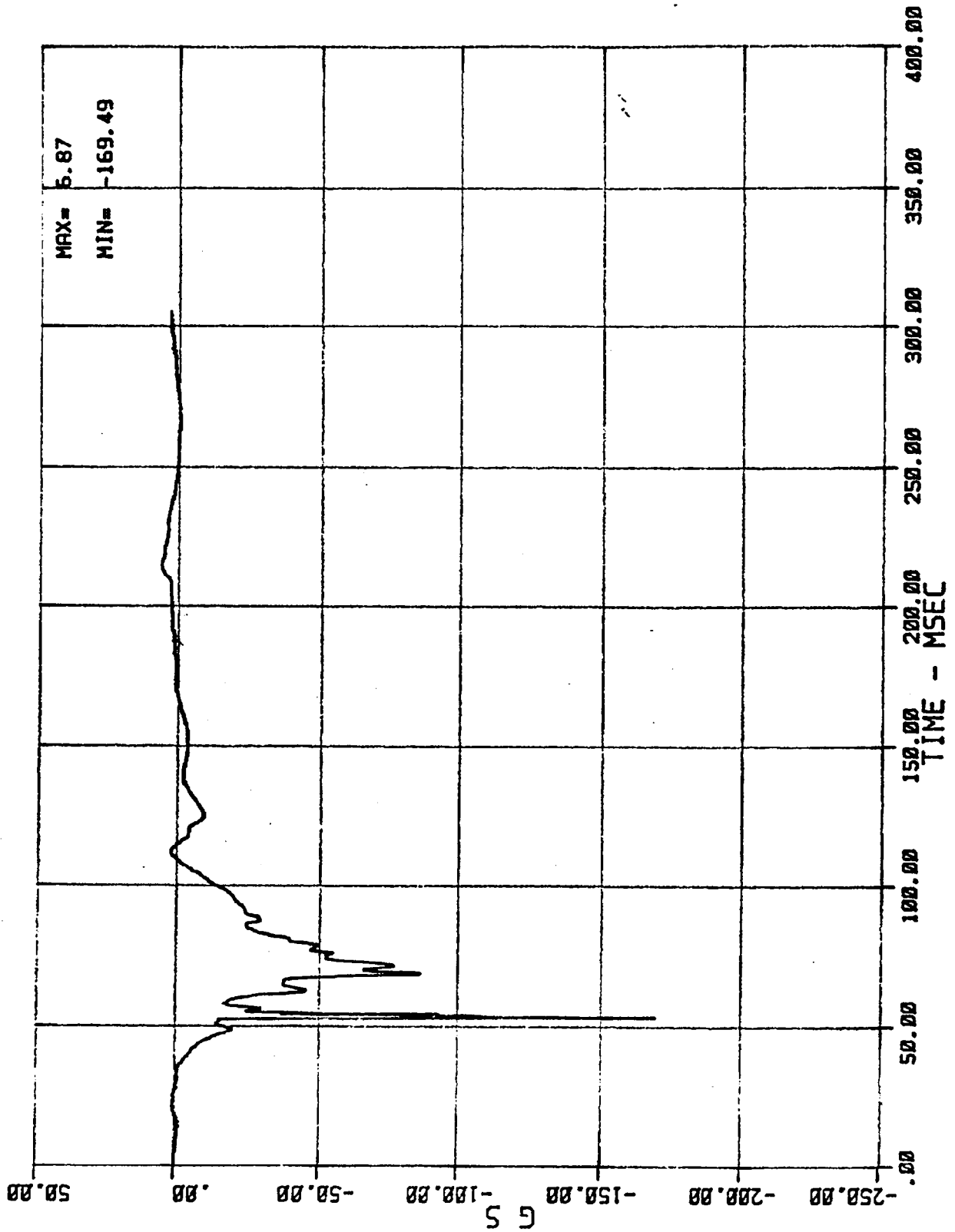
ATD Head Channels	- Class 1000
ATD Chest Channels	- Class 180
ATD Femur Channels	- Class 600
Vehicle Channels	- Class 60

1FY 35 35MPH NCAP FRONTAL 05/05/SSMEEDTNH223501045N32035 ACQUIRE NCAP DATA PLUS EVALUATE COMPLIANCE TO FMVSS 212,219.
 301-75 & 208NCAUSS 35.1000000.0999.9CONDY100FHTUMSENG
 214299854-ILF1.9 LITERS FNOT3606104.6171.365.050.3SCYLPHONE
 35.100000012FDEW4999 56.815.715.716.116.316.416.0 0.017.5

SLCB	00	R
411RD	050M	HUMANOID SYSTEMS 466 1ST IMP AFTER CAL13.517.0 7.0 9.019.011.3 3.0 6.5 4.53PTSTDNASHNDP
412RD	050M	HUMANOID SYSTEMS 465 1ST IMP AFTER CAL14.517.5 8.5 9.018.599.9 6.0 7.5 6.23PTSTDNADPNODP
501AC011HED	6000	1650 0.72860 360000125G/SX35.56000
502AC011HED	6000	1650 0.72860 360000125G/SY00.06000
503AC011HED	6000	1650 0.72860 360000125G/SZ00.06000
504AC011CST	6000	1650 0.72860 360000125G/SX35.56000
505AC011CST	6000	1650 0.72860 360000125G/SY00.06000
506AC011CST	6000	1650 0.72860 360000125G/SZ00.06000
507AC012HED	6000	1650 0.72860 360000125G/SX35.56000
508AC012HED	6000	1650 0.72860 360000125G/SY00.06000
509AC012HED	6000	1650 0.72860 360000125G/SZ00.06000
510AC012CST	6000	1650 0.72860 360000125G/SX35.56000
511AC012CST	2800	1650 0.72860 360000125G/SY00.06000
512AC012CST	6000	1650 0.72860 360000125G/SZ00.06000
513LC011LFM	9999	1650999.92860 360000125LBS0 GOOD
514LC011RFM	9999	1650999.92860 360000125LBS0 GOOD
515LC012LFM	9999	1650999.92860 360000125LBS0 GOOD
516LC012RFM	9999	1650999.92860 360000125LBS0 GOOD
517LC011LBO	9999	1650999.92860 360000125LBS0 GOOD
518LC011SHB	9999	1650999.92860 360000125LBS0 GOOD
519LC012LBO	9999	1650999.92860 360000125LBS0 GOOD
520LC012SHB	9999	1650999.92860 360000125LBS0 GOOD
521DT011SHB	9999	1650999.92860 360000125INCO GOOD
522DT012SHB	9999	1650999.92860 360000125INCO GOOD
523DT011SHB	9999	1650999.92860 360000125IPIO GOOD
524DT012SHB	9999	1650999.92860 360000125IPIO GOOD
525AC01NLR	2800	1650 0.72860 360000125G/SX35.56000
526AC01NRR	2800	1650 0.72860 360000125G/SX35.56000
527AC01NENG	2800	1650 0.72860 360000125G/SX35.56000
528AC01NENG	2800	1650 0.72860 360000125G/SX35.56000
529AC01NCR	2800	1650 0.72860 360000125G/SX35.56000
530AC01NDC	2800	1650 0.72860 360000125G/SX35.56000
531LCBANBA1	9999	1650999.92800 360000125LBS0 NO LOAD CELL IN THIS LOC.
532LCBANBA2	9999	1650999.92800 360000125LBS0 GOOD
533LCBANBA3	9999	1650999.92800 360000125LBS0 GOOD
534LCBANBA4	9999	1650999.92800 360000125LBS0 GOOD
535LCBANBA5	9999	1650999.92800 360000125LBS0 GOOD
536LCBANBA6	9999	1650999.92800 360000125LBS0 GOOD
537LCBANBA7	9999	1650999.92800 360000125LBS0 GOOD
538LCBANBA8	9999	1650999.92800 360000125LBS0 GOOD
539LCBANBA9	9999	1650999.92800 360000125LBS0 GOOD
540LCBANBB1	9999	1650999.92800 360000125LBS0 GOOD
541LCBANBB2	9999	1650999.92800 360000125LBS0 GOOD
542LCBANBB3	9999	1650999.92800 360000125LBS0 GOOD
543LCBANBB4	9999	1650999.92800 360000125LBS0 GOOD
544LCBANBB5	9999	1650999.92800 360000125LBS0 GOOD
545LCBANBB6	9999	1650999.92800 360000125LBS0 GOOD
546LCBANBB7	9999	1650999.92800 360000125LBS0 GOOD
547LCBANBB8	9999	1650999.92800 360000125LBS0 GOOD
548LCBANBB9	9999	1650999.92800 360000125LBS0 GOOD
549LCBANBC1	9999	1650999.92800 360000125LBS0 GOOD
550LCBANBC2	9999	1650999.92800 360000125LBS0 GOOD
551LCBANBC3	9999	1650999.92800 360000125LBS0 GOOD
552LCBANBC4	9999	1650999.92800 360000125LBS0 GOOD
553LCBANBC5	9999	1650999.92800 360000125LBS0 GOOD

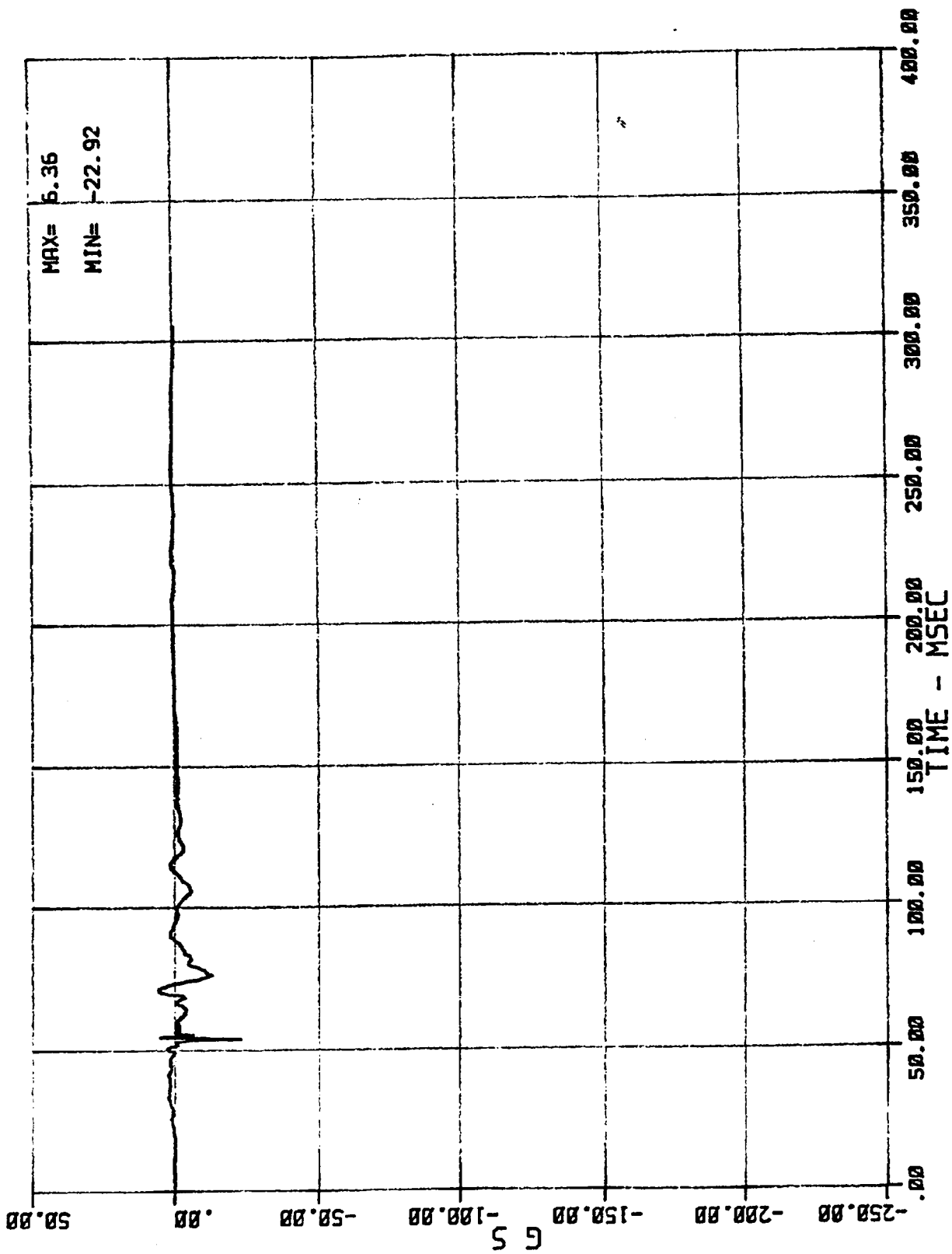
554LCBANBC6	9999	1650999.92800	360000125LBS0	GOOD
555LCBANBC7	9999	1650999.92800	360000125LBS0	GOOD
556LCBANBC8	9999	1650999.92800	360000125LBS0	GOOD
557LCBANBC9	9999	1650999.92800	360000125LBS0	GOOD
558LCBANBD1	9999	1650999.92800	360000125LBS0	GOOD
559LCBANBD2	9999	1650999.92800	360000125LBS0	GOOD
560LCBANBD3	9999	1650999.92800	360000125LBS0	GOOD
561LCBANBD4	9999	1650999.92800	360000125LBS0	GOOD
562LCBANBD5	9999	1650999.92800	360000125LBS0	GOOD
563LCBANBD6	9999	1650999.92800	360000125LBS0	GOOD
564LCBANBD7	9999	1650999.92800	360000125LBS0	GOOD
565LCBANBD8	9999	1650999.92800	360000125LBS0	GOOD
566LCBANBD9	9999	1650999.92800	360000125LBS0	GOOD

1



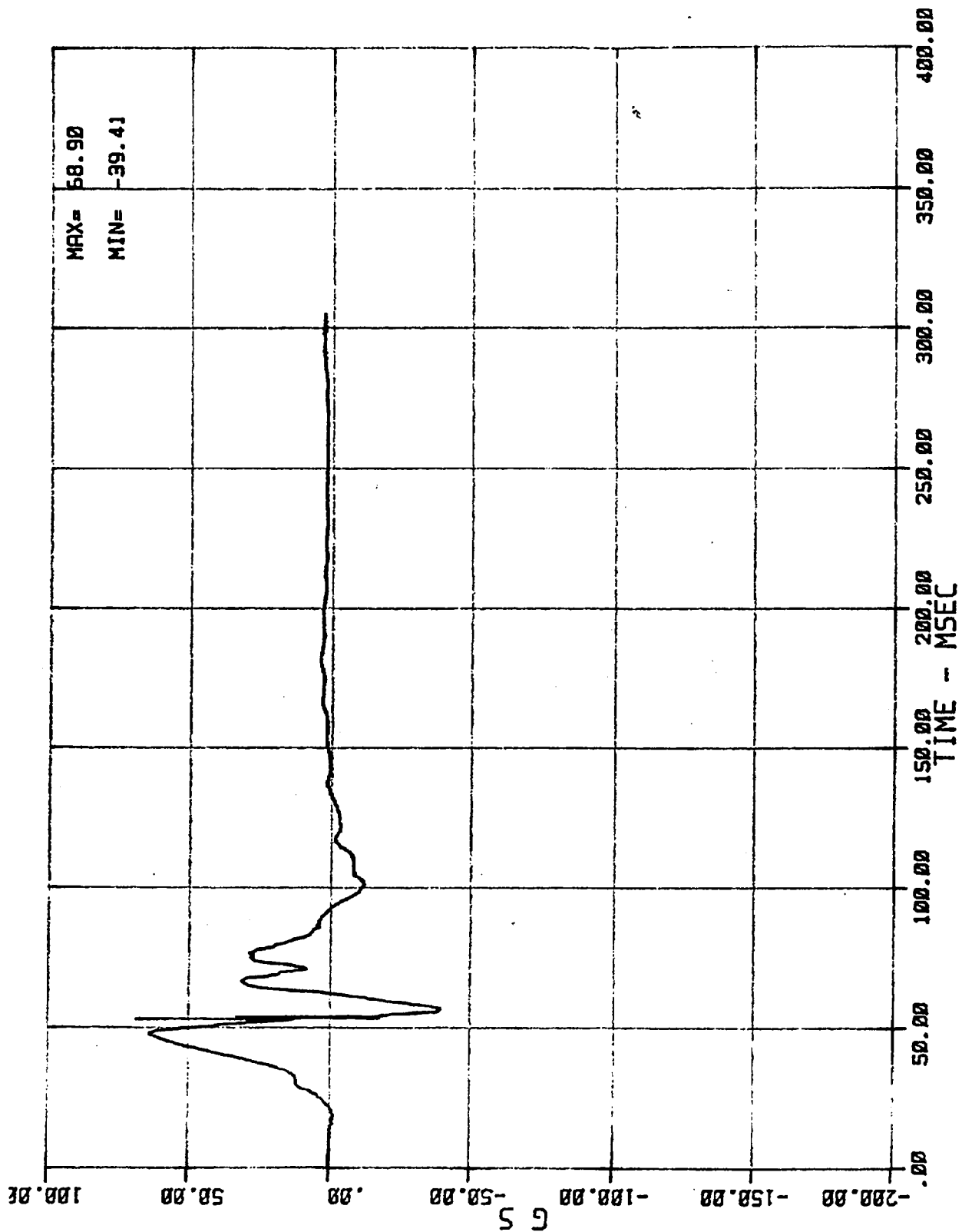
01 AC 01 J HED X (DRIVER HEAD ACCEL. -- X AXIS)
MSE N62035 1985 ISUZU TROOPER 2

05/05/85



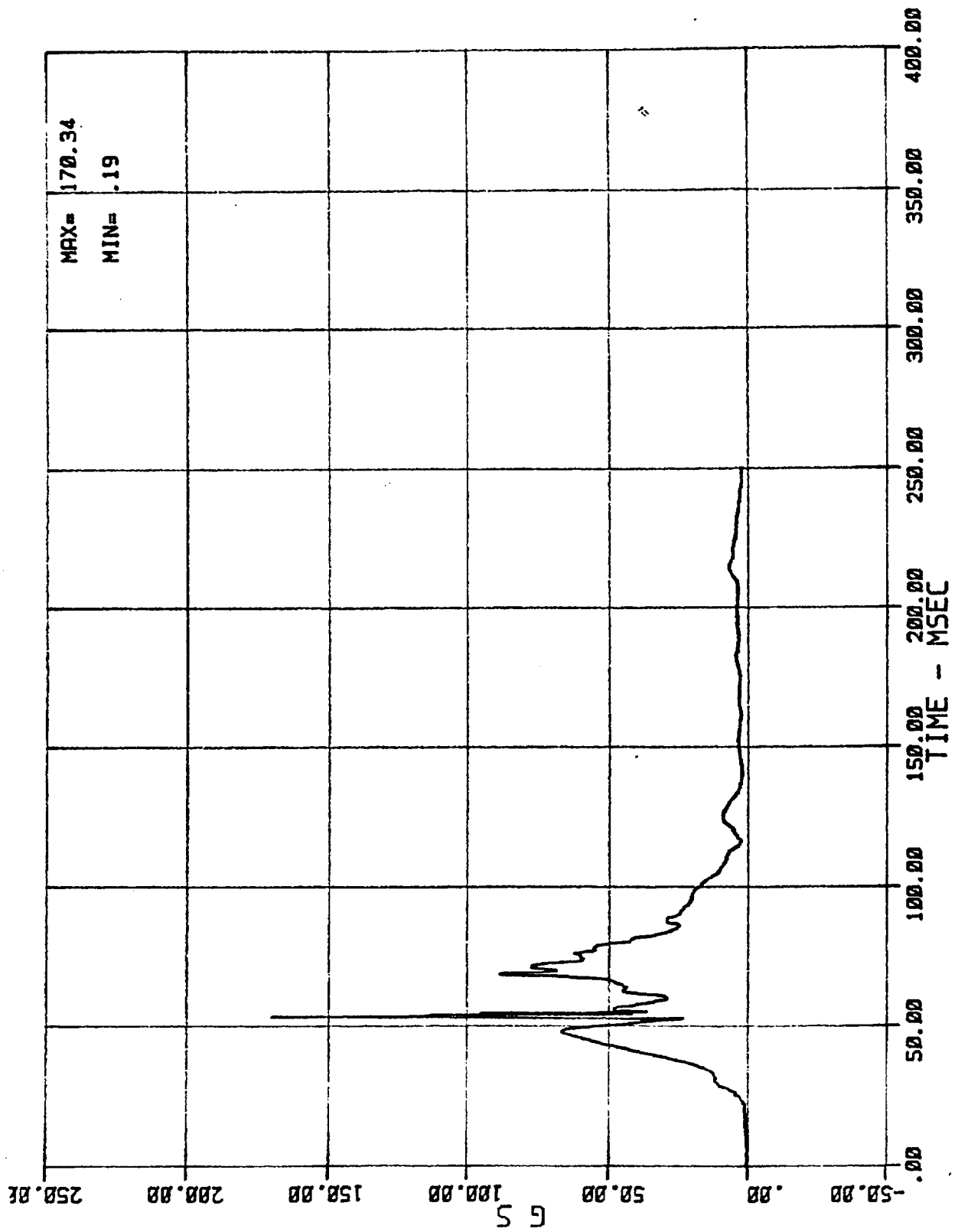
02 AC 01 1 HED Y (DRICER HEAD ACCEL. -- Y AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



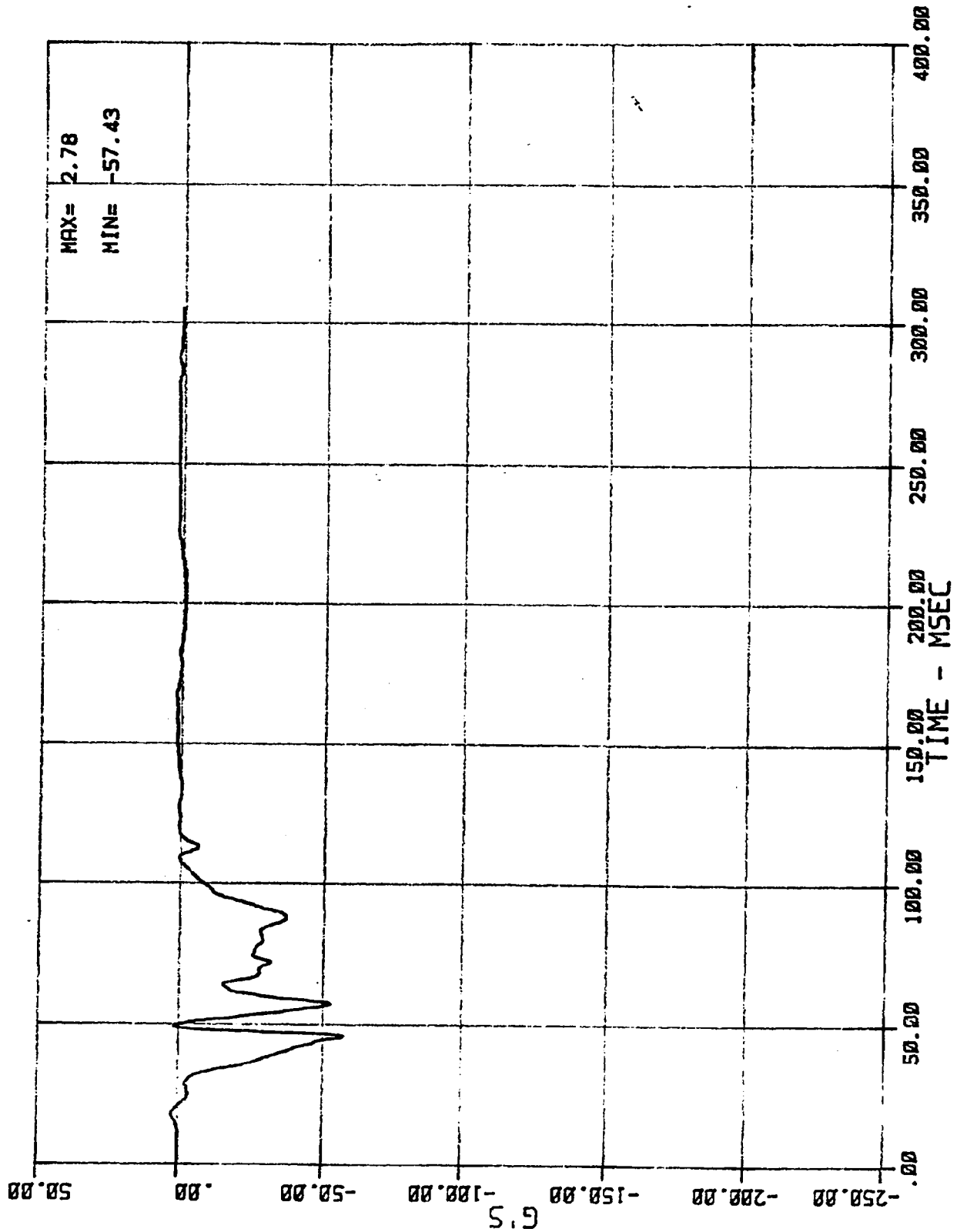
03 AC 01 1 HED 2 (DRIVER HEAD ACCEL. -- Z AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



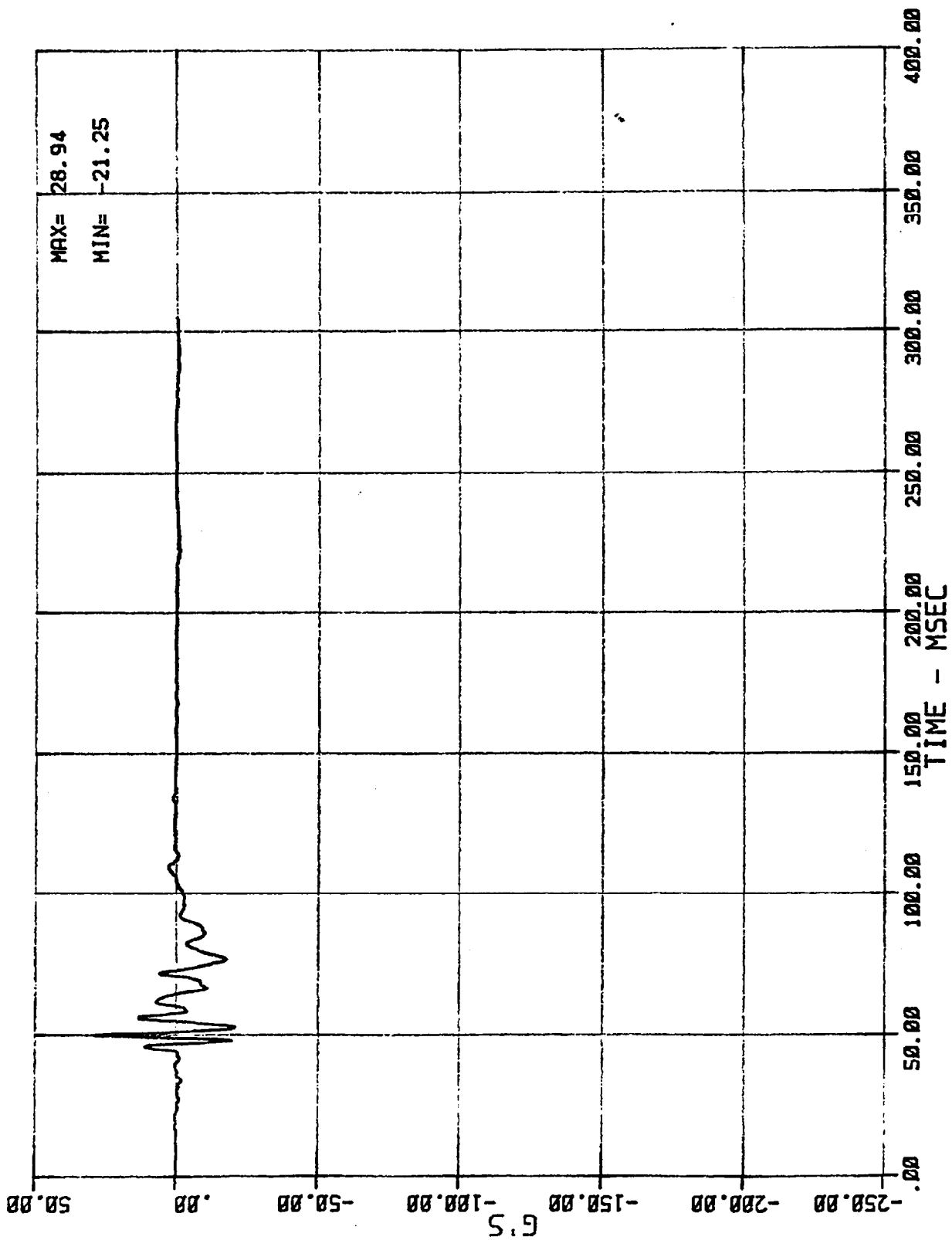
DRIVER HEAD RESULTANT ACCELERATION
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



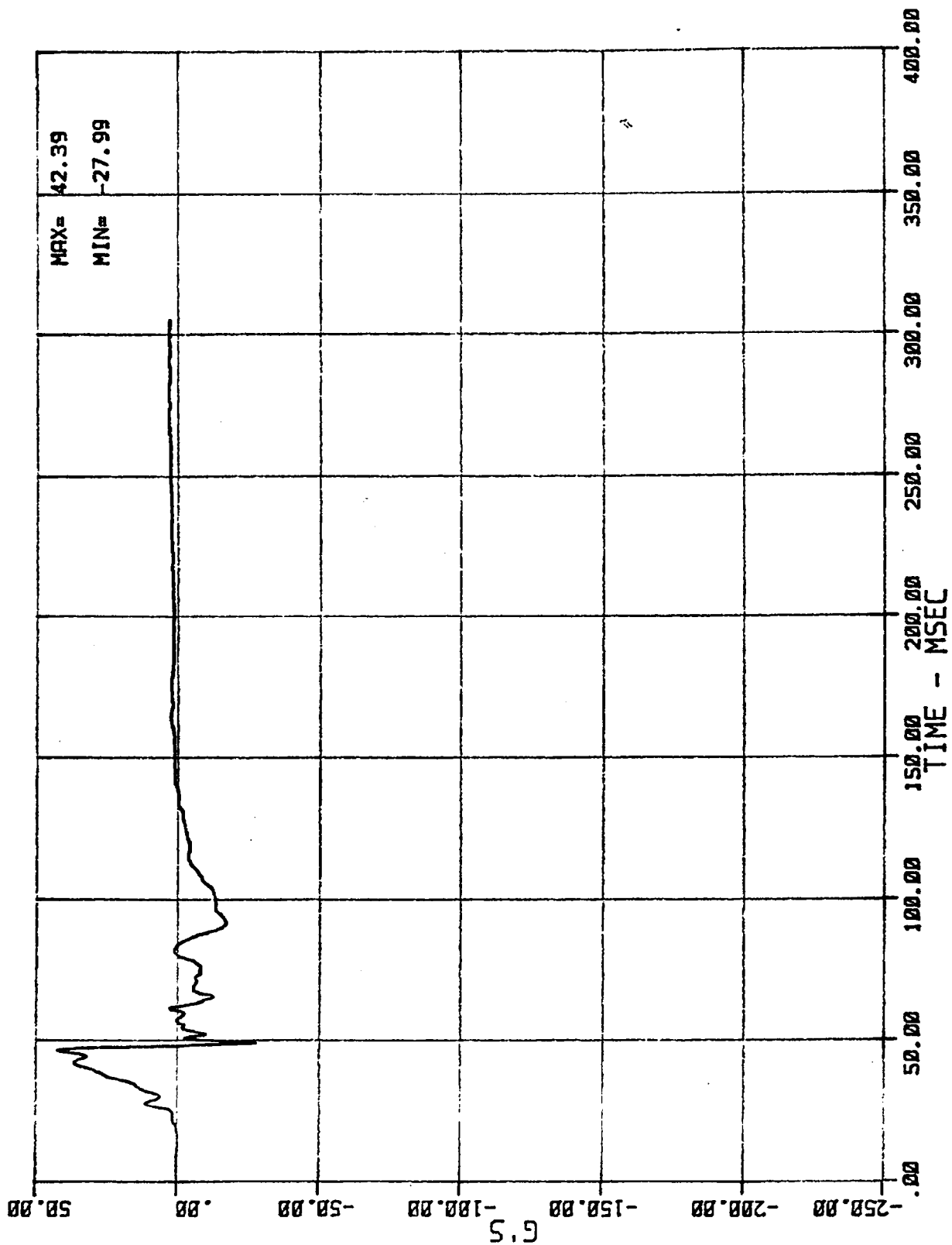
04 AC 01 1 CST X (DRIVER CHEST ACCEL. -- X AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



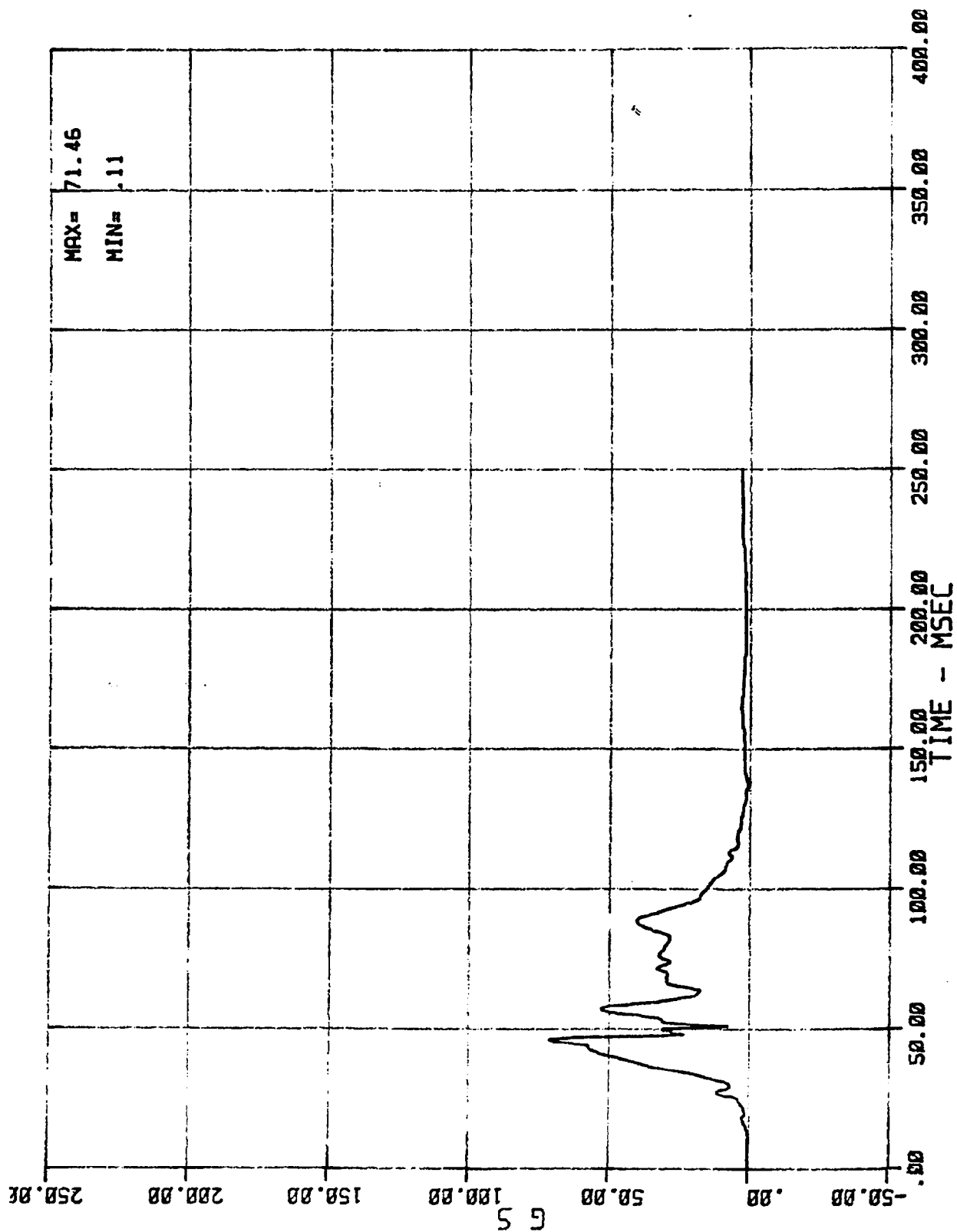
05 AC 01 1 CST Y (DRIVER CHEST ACCEL. --Y AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/05/85



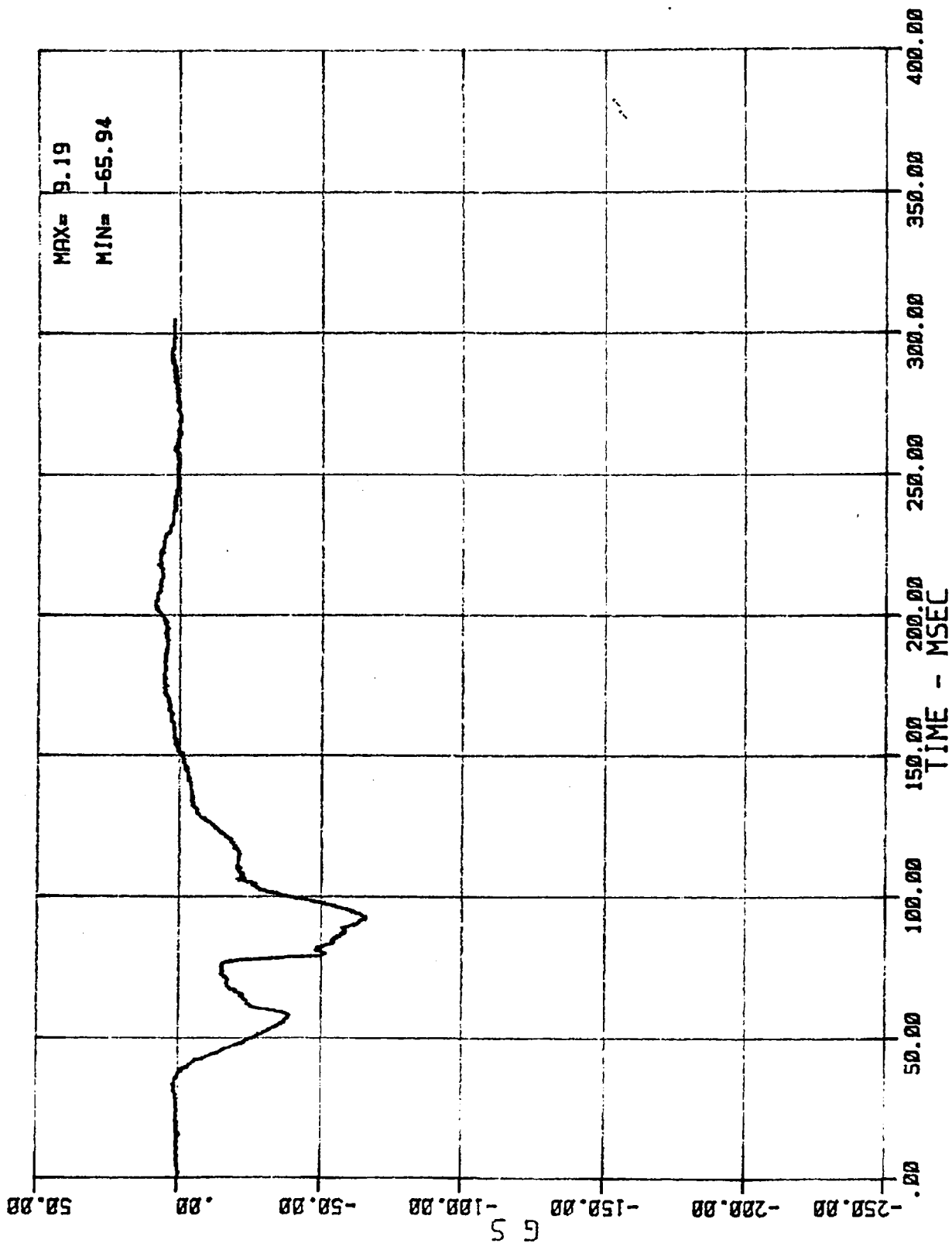
06 AC 01 1 CST 2 (DRIVER CHEST ACCEL. -- Z AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



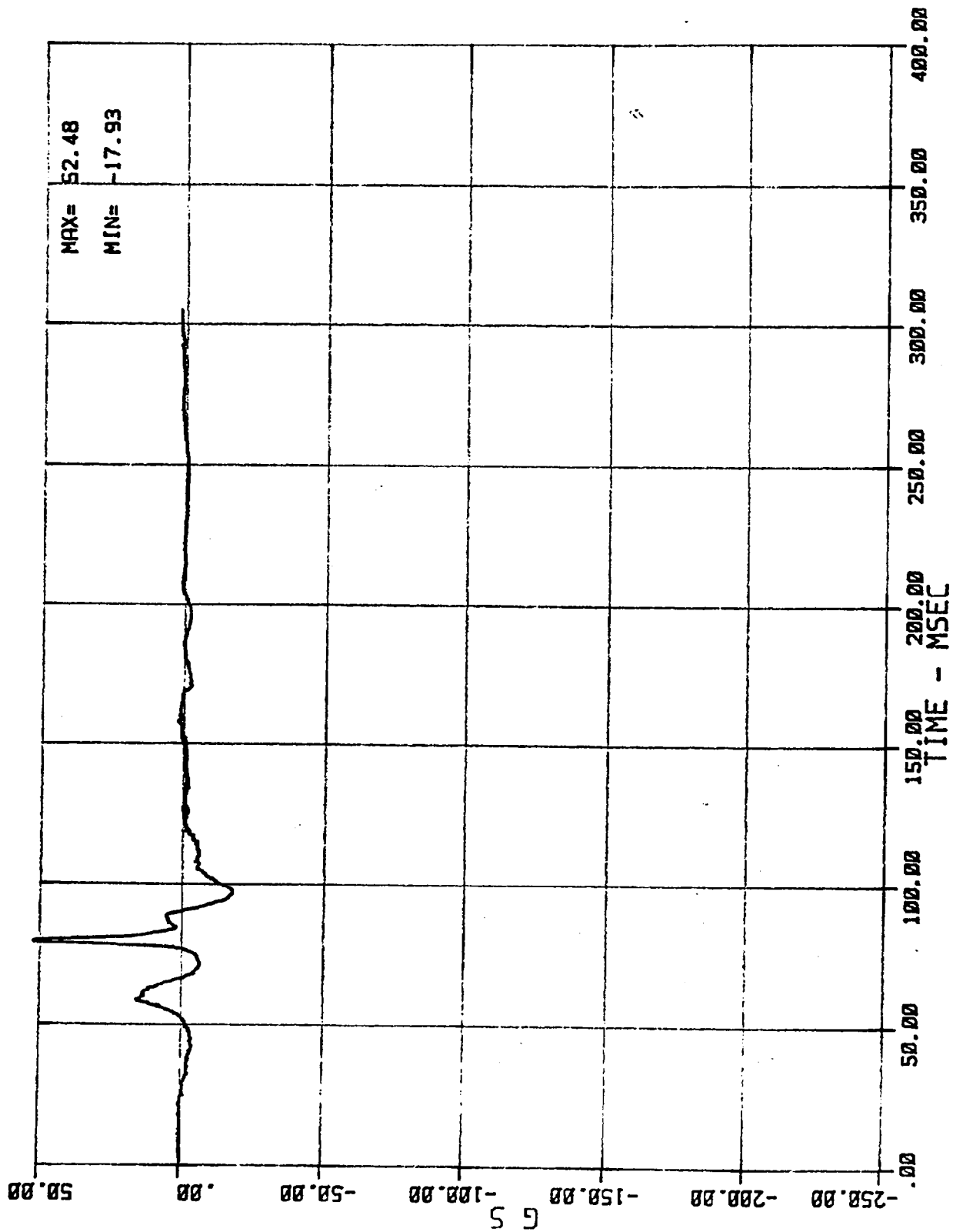
DRIVER CHEST RESULTANT ACCELERATION
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



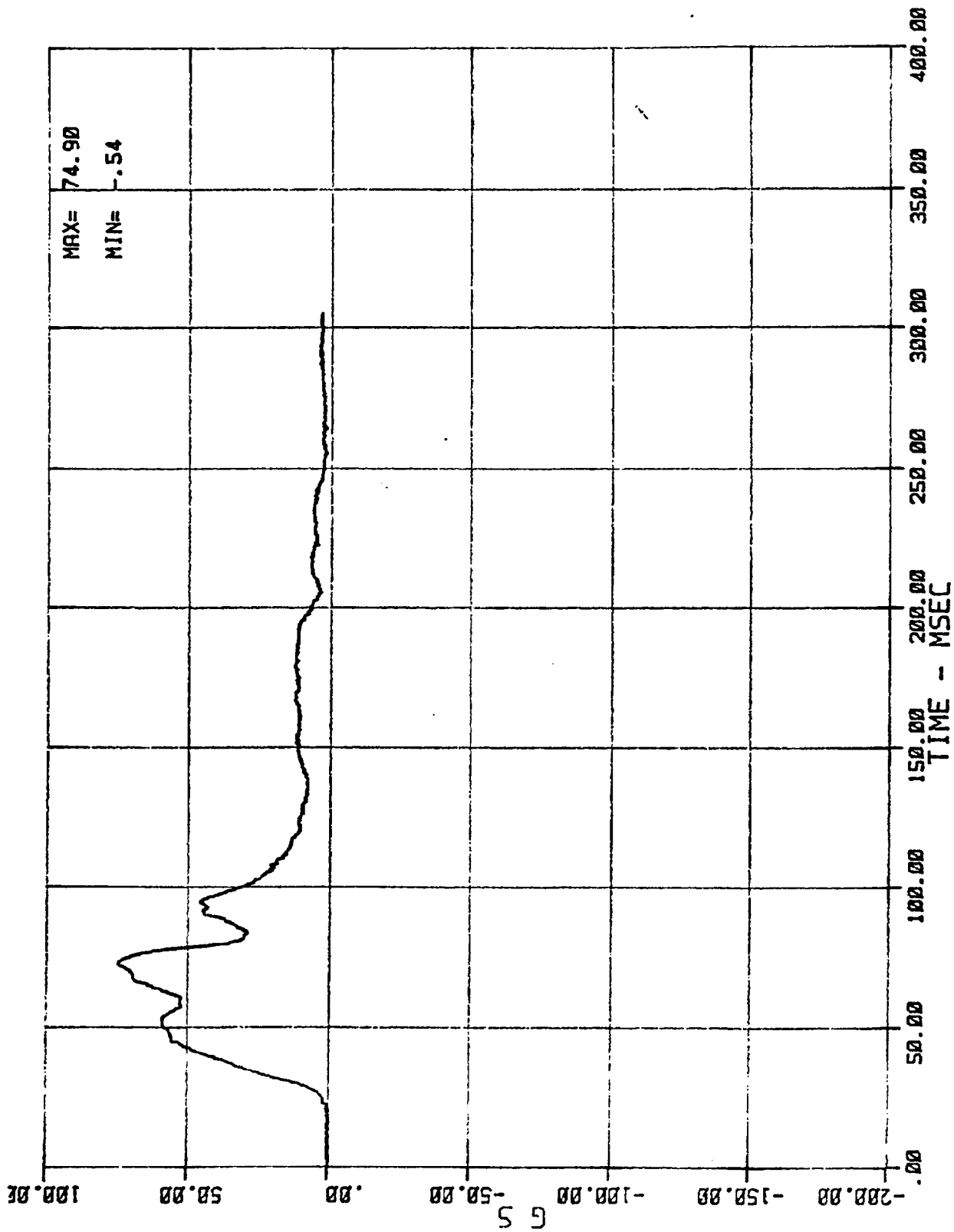
07 01 2 HED X (PASSENGER HEAD ACCEL. -- X AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



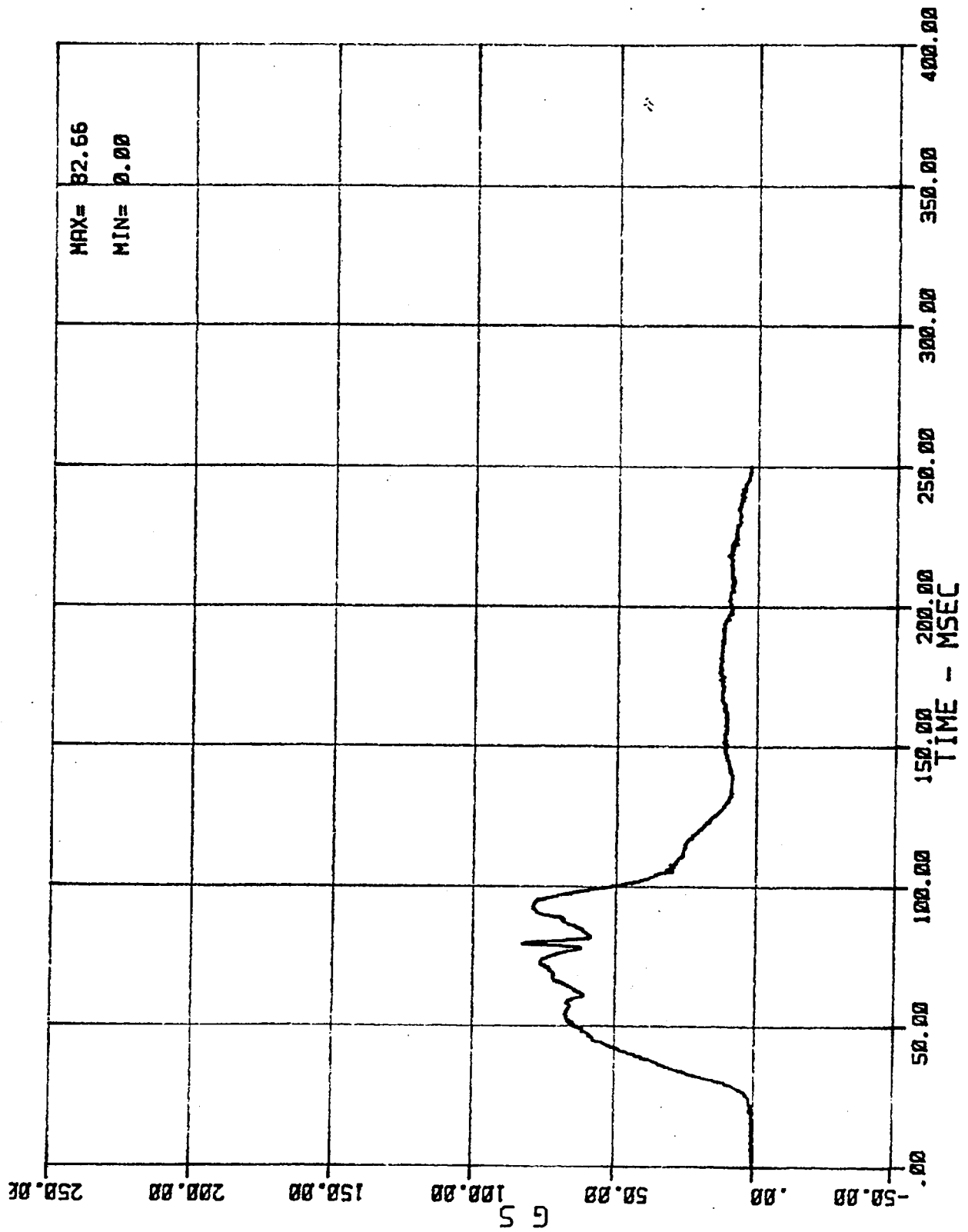
08 AC 01 2 HED Y (PASSENGER HEAD ACCEL. -- Y AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



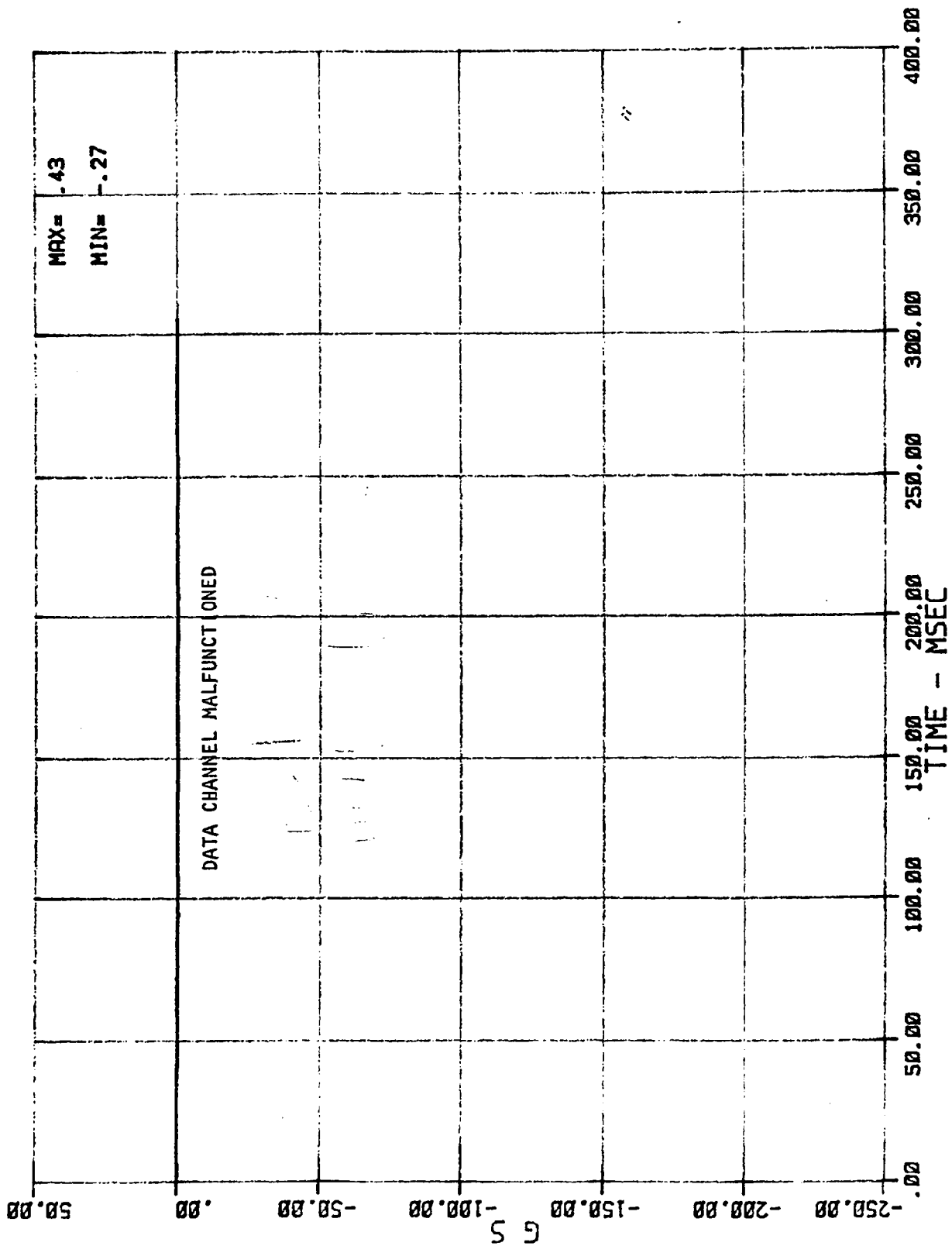
09 AC 01 2 HED 2 (PASSENGER HEAD ACCEL. -- Z AXIS)
MSE N62035 1985 ISUZU TROOPER 2

05/05/85



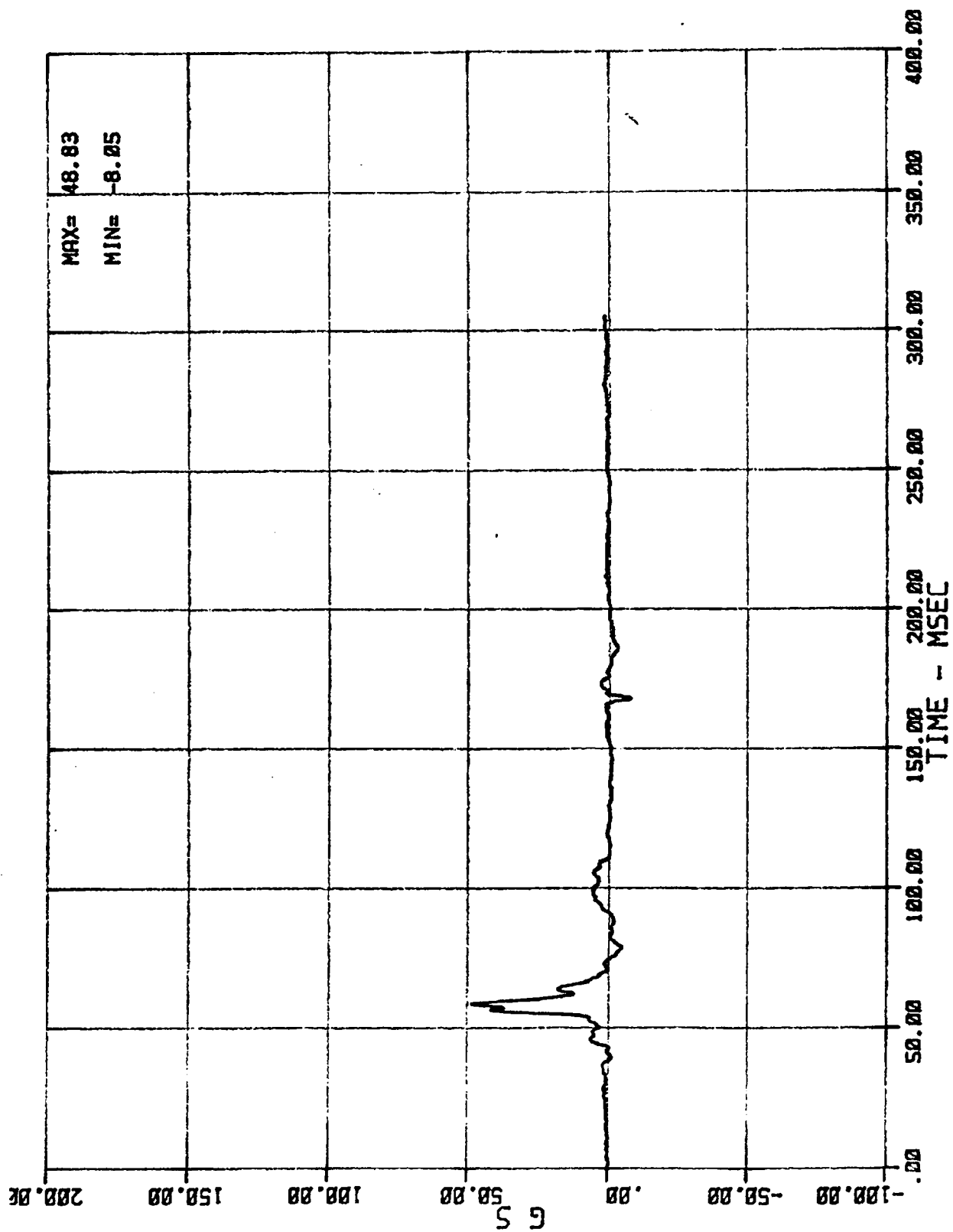
PASSENGER HEAD RESULTANT ACCELERATION
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



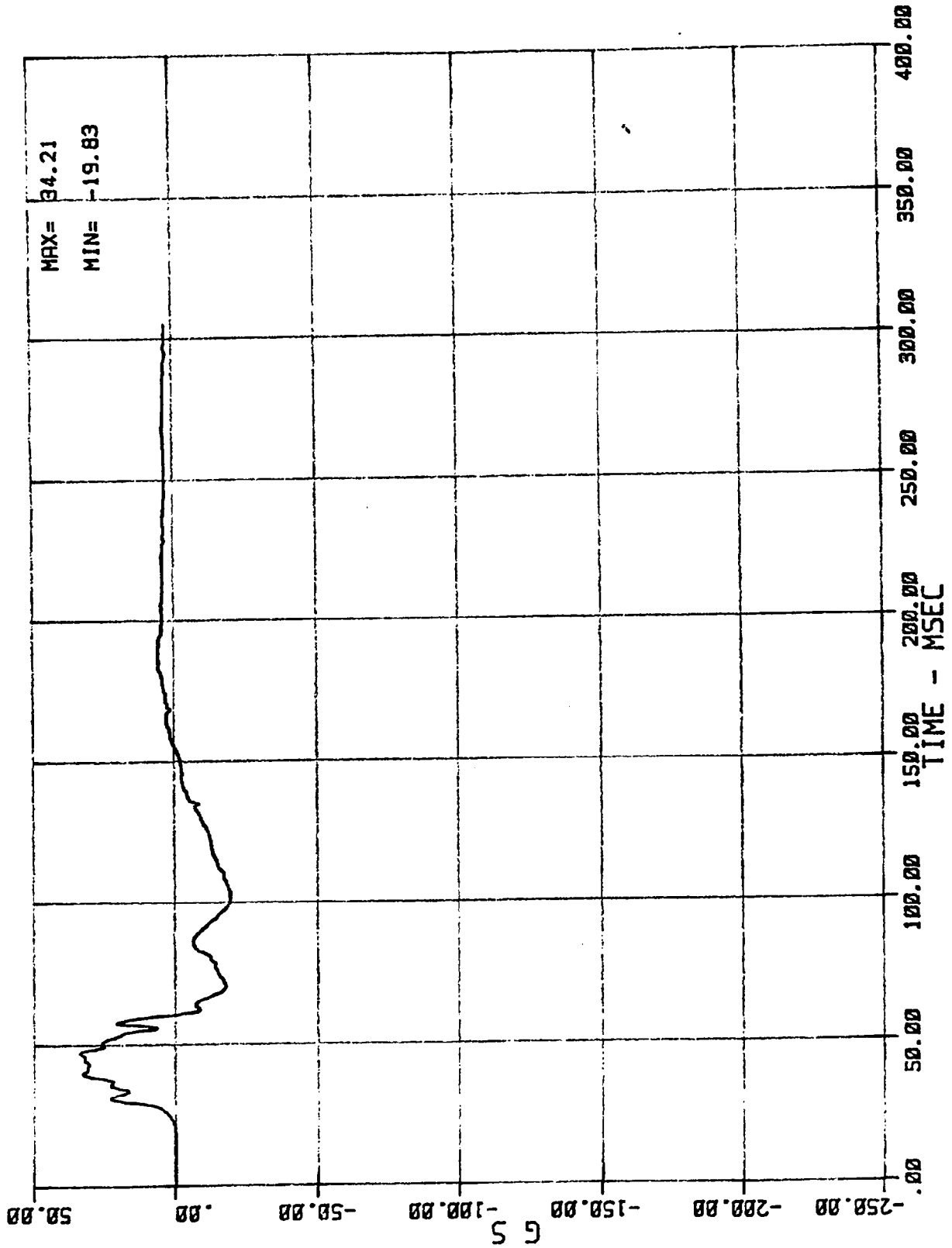
10 AC 01 2 CST X (PASSENGER CHEST ACCEL. -- X AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



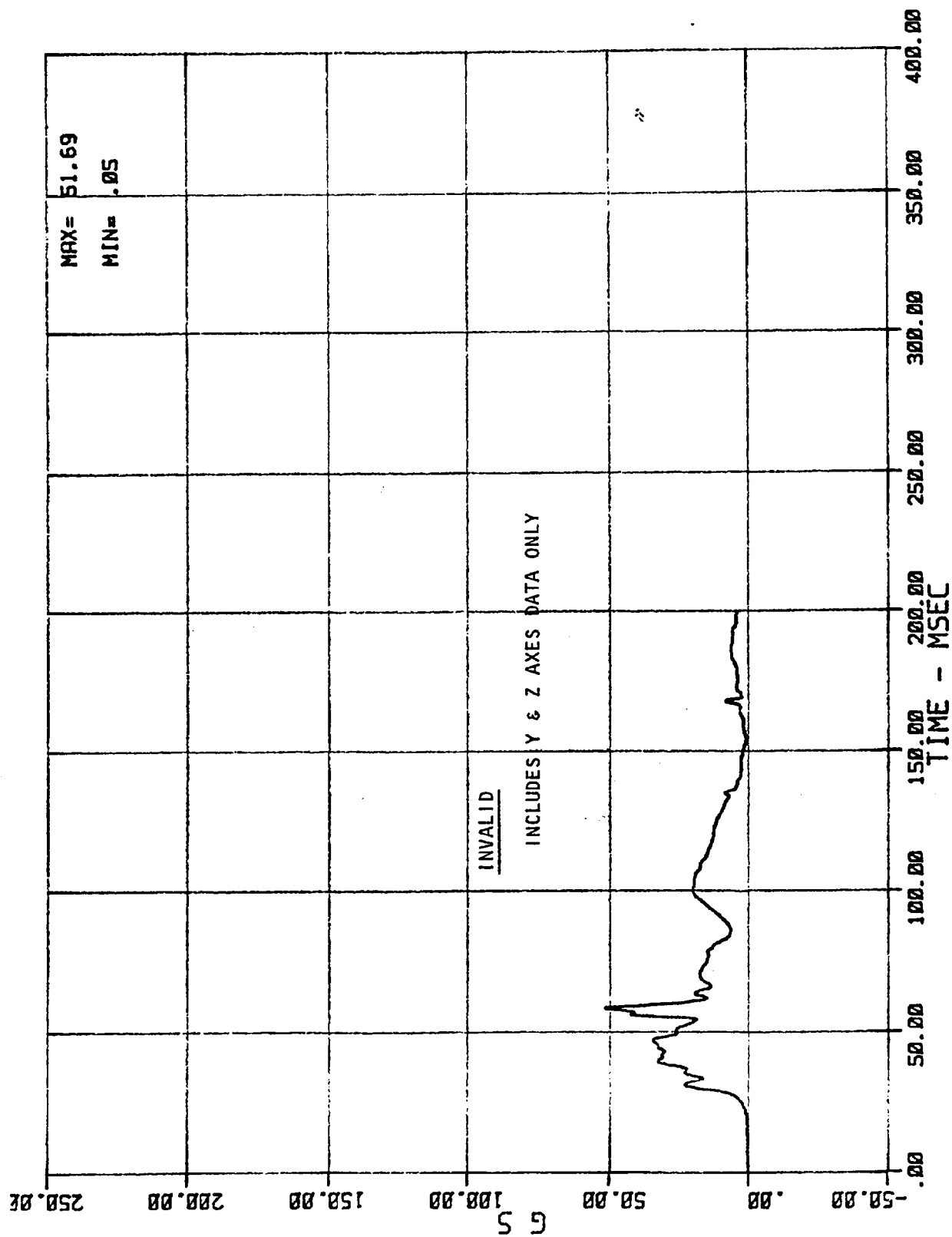
11 AC 01 2 CST Y IPASSENGER CHEST ACCEL. --- Y AXIS
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



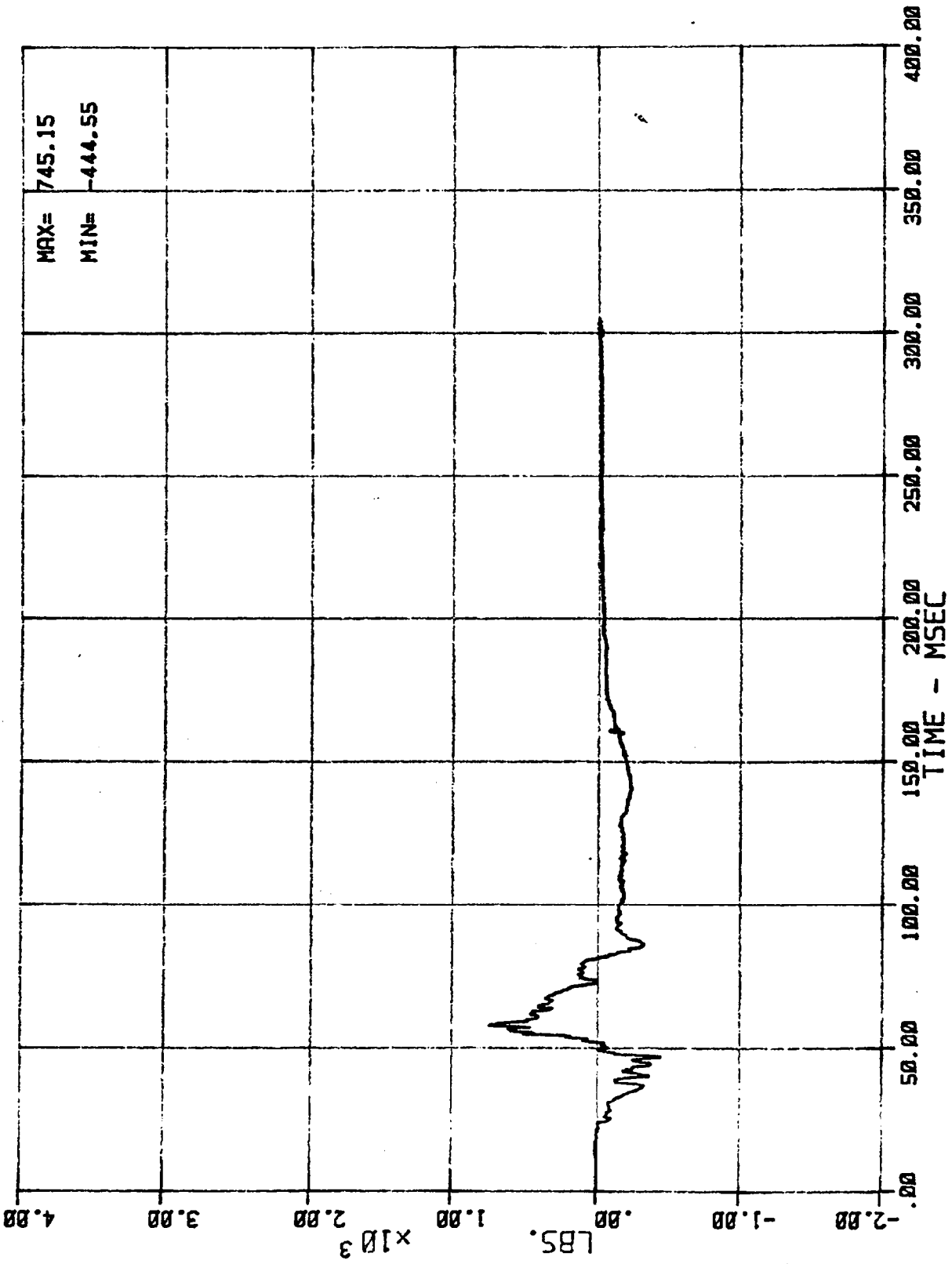
12 AC 01 2 CST 2 (PASSENGER CHEST ACCEL. -- Z AXIS)
MSE N62035 1985 ISUZU TROPER 2

06/06/85



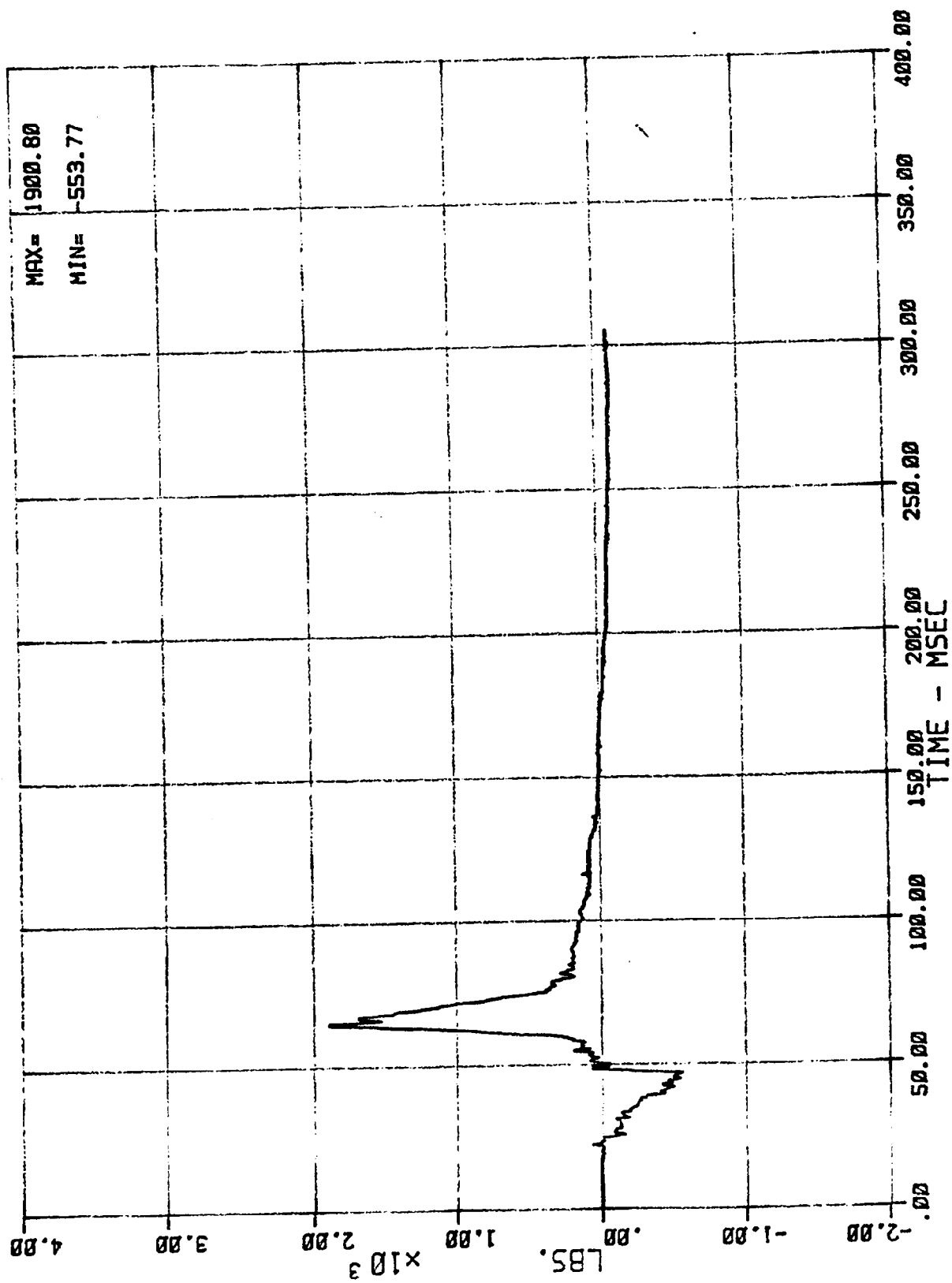
PASSENGER CHEST RESULTANT ACCELERATION
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



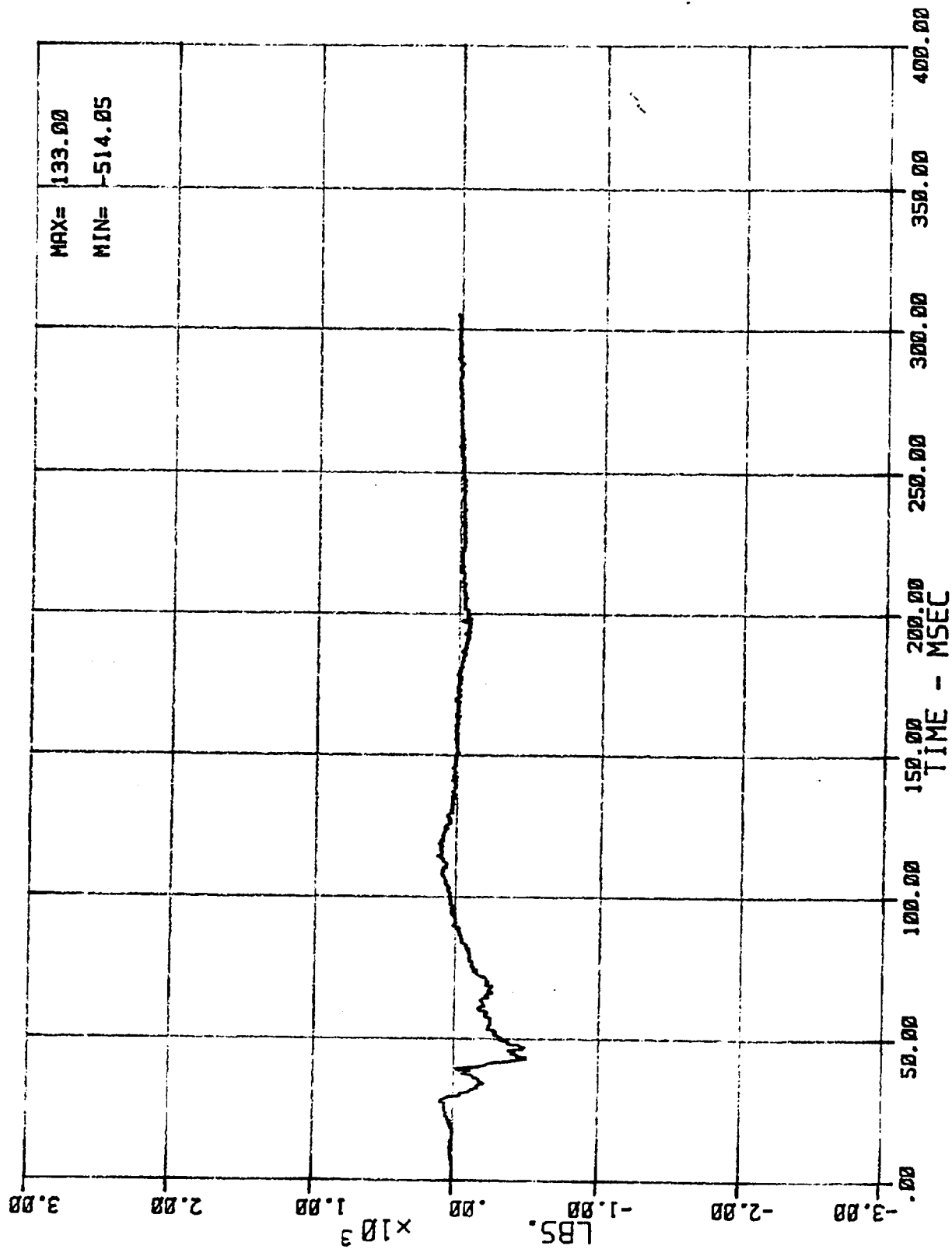
13 LC 01 1 LFM (DRIVER LEFT FEMUR FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



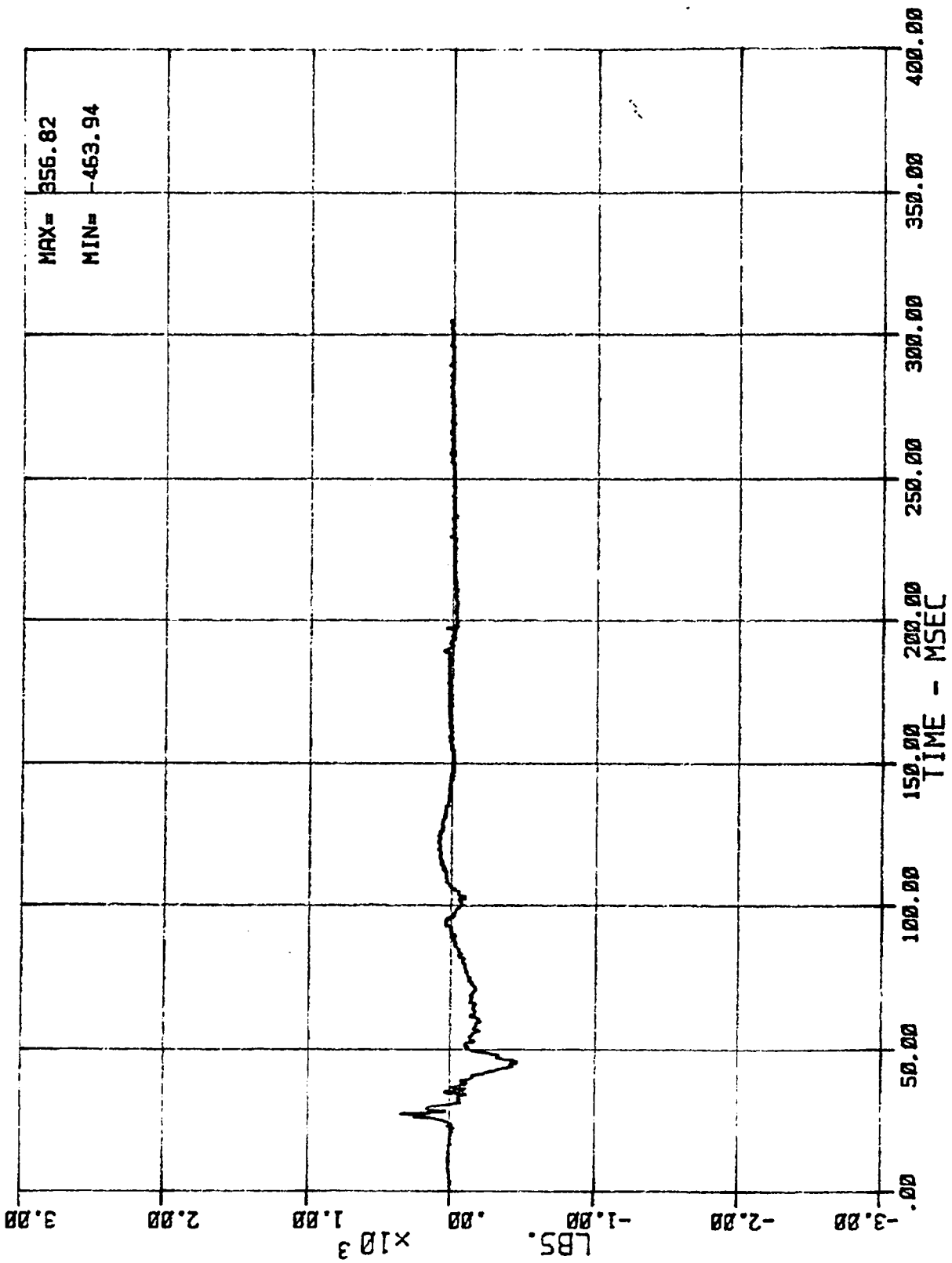
14 LC 01 1 RFM (DRIVER RIGHT FEMUR FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



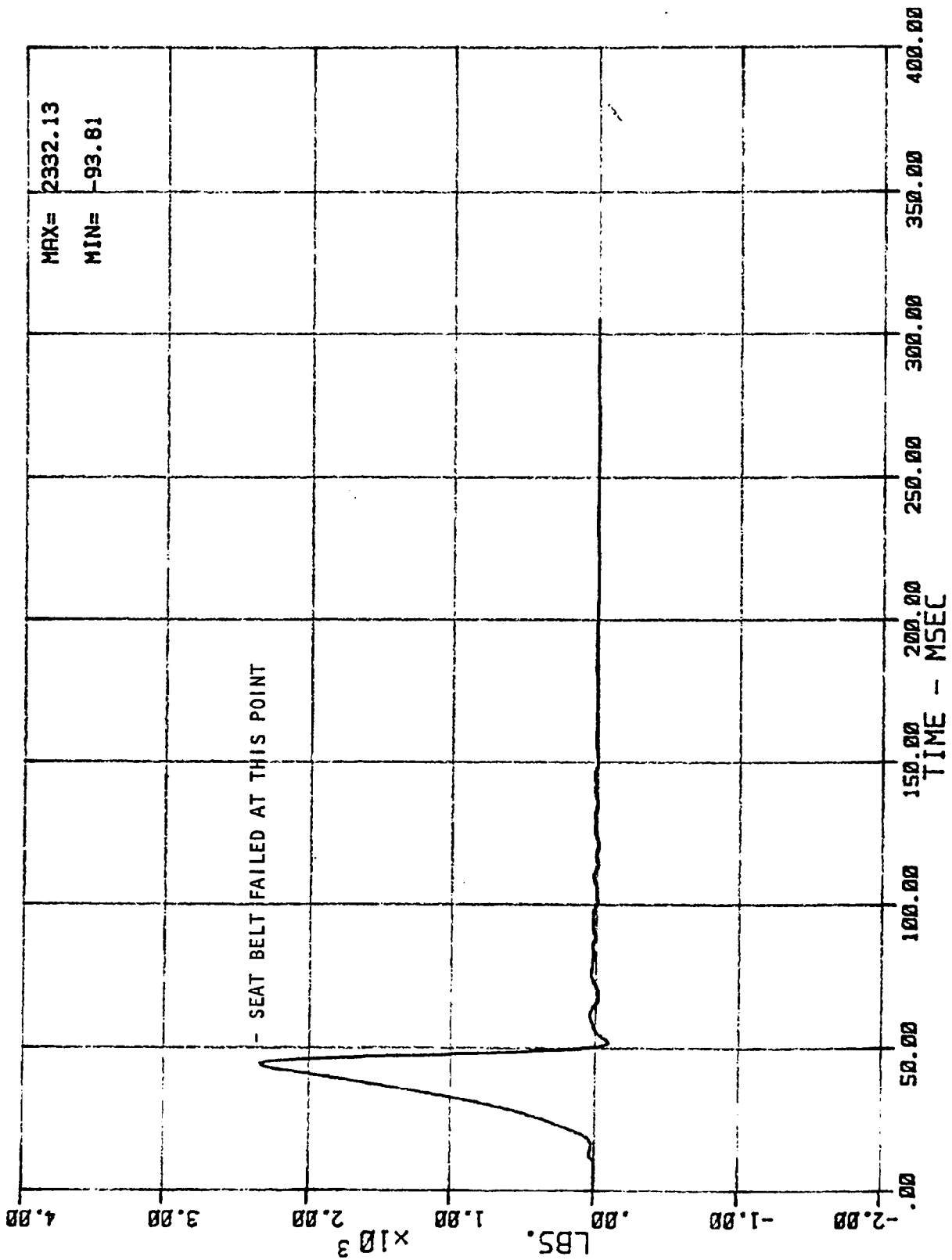
15 LC 01 2 LFM (PASSENGER LEFT FEMUR FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



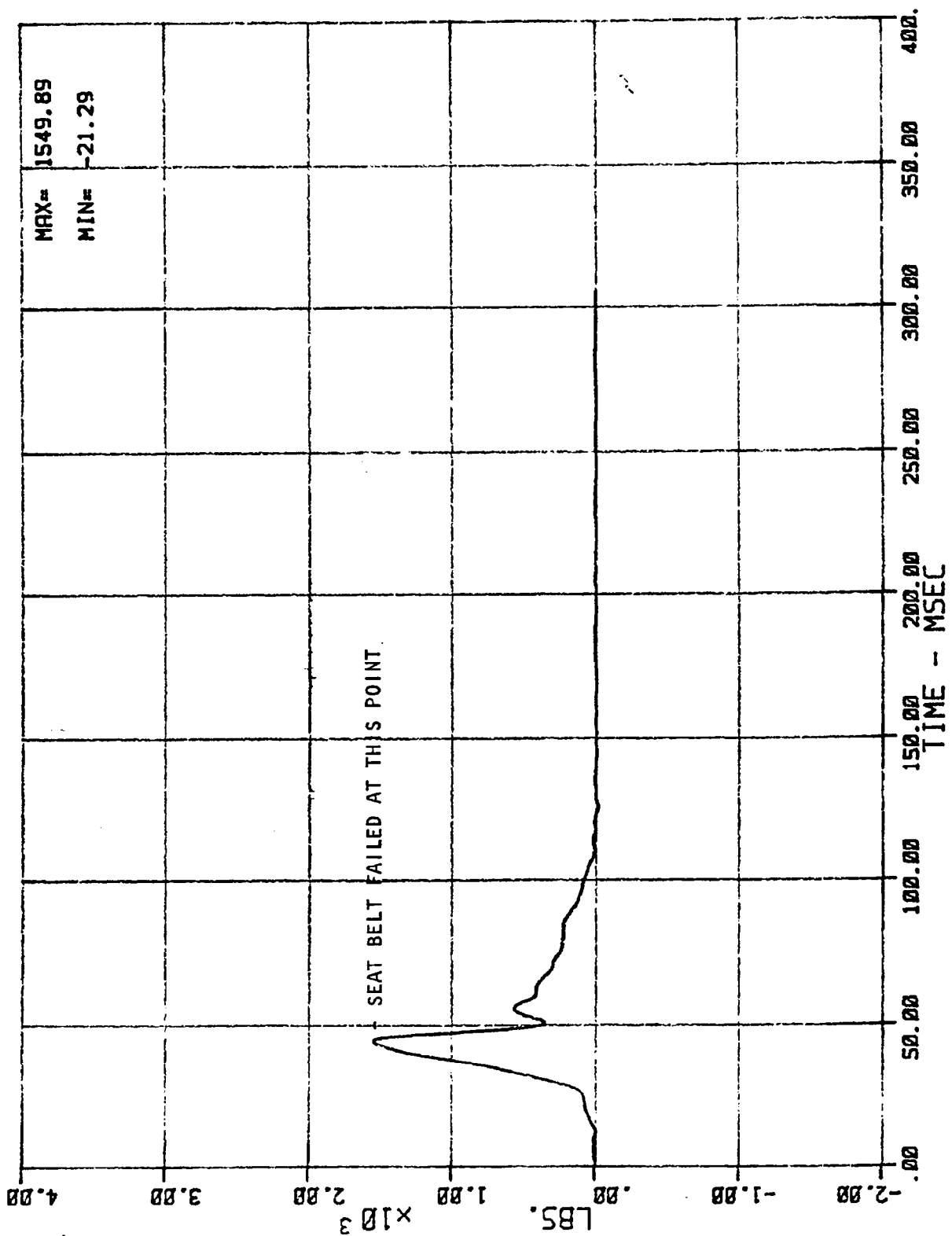
16 LC 01 2 RFM (PASSENGER RIGHT FEMUR FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



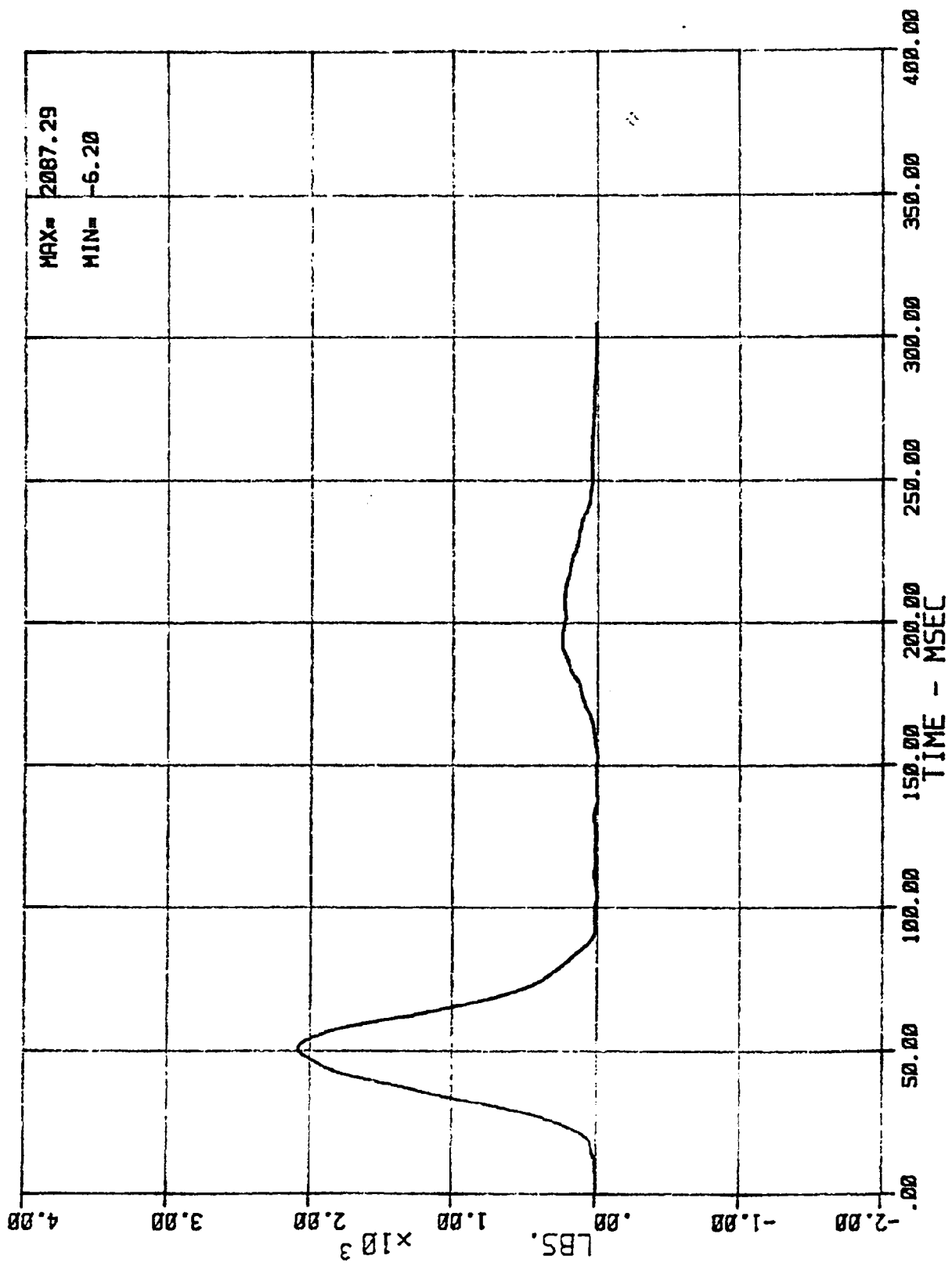
17 LC 01 1 LBD (DRIVER LAP BELT FORCE)
MSE N52035 1985 ISUZU TROOPER 2

06/06/85



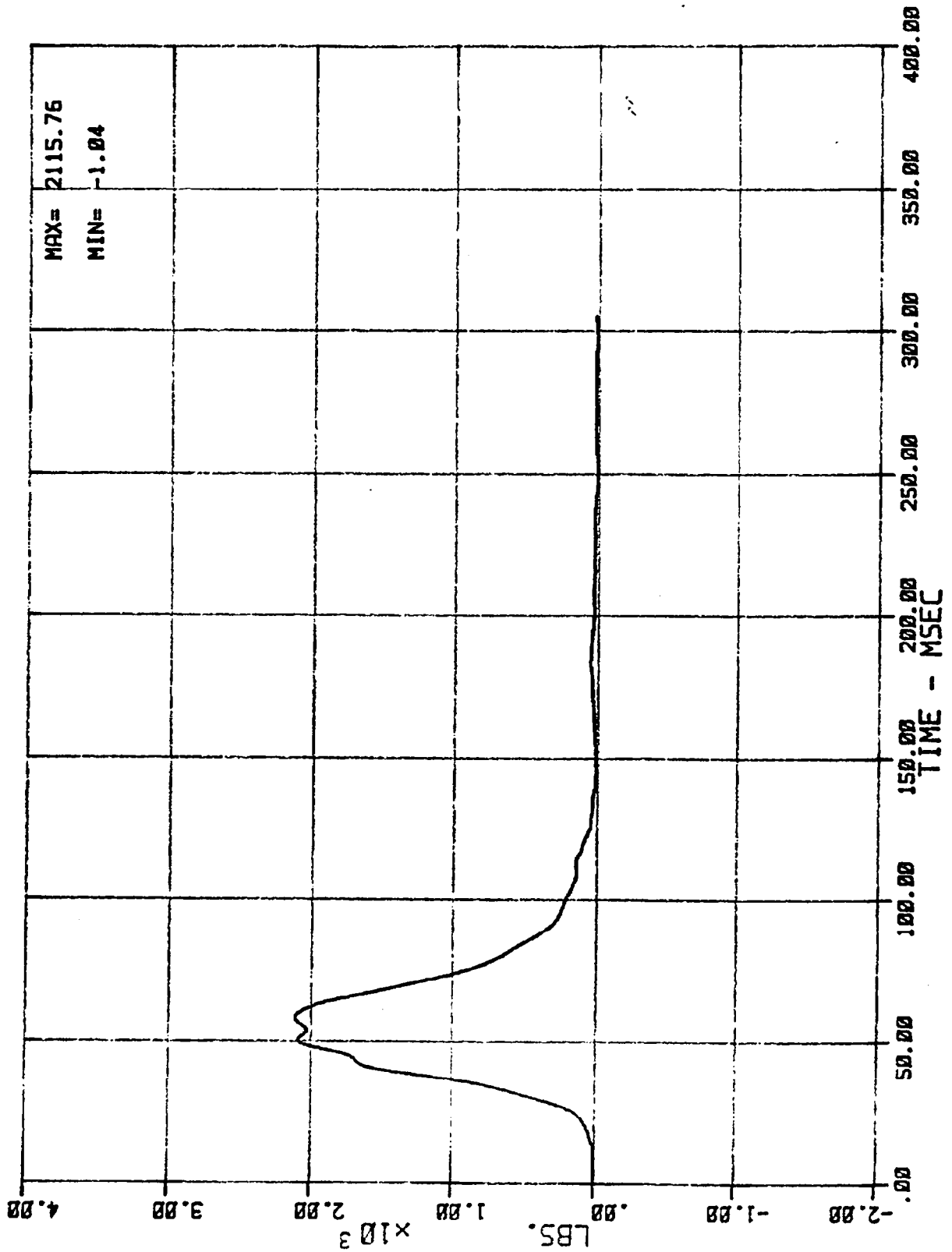
18 LC 01 1 SHB (DRIVER SHOULDER BELT FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



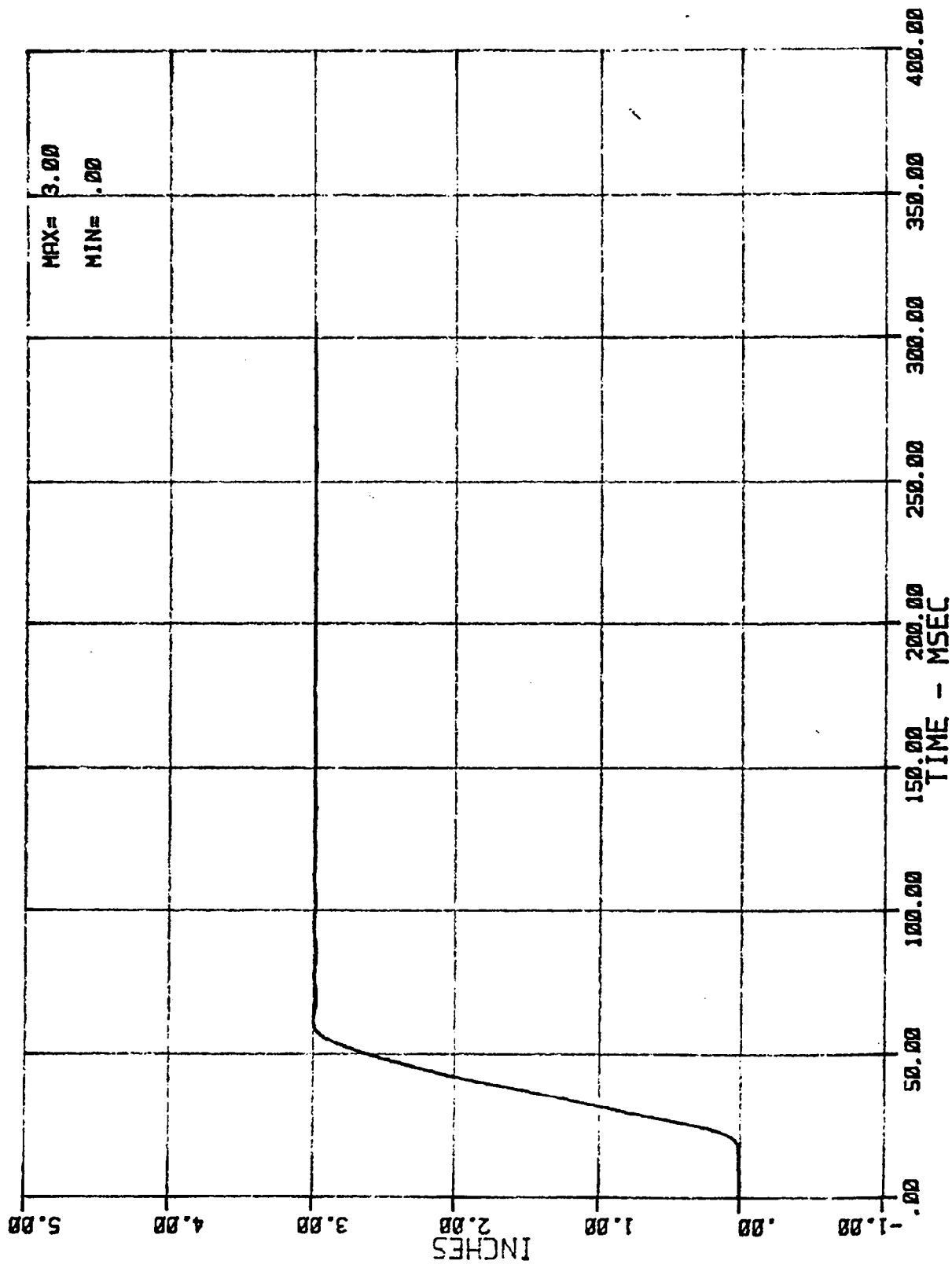
19 LC 01 2 L80 (PASSENGER LAP BELT FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



20 LC 01 2 SHB (PASSENGER SHOULDER BELT FORCE)
MSE N62035 1985 ISUZU TROOPER 2

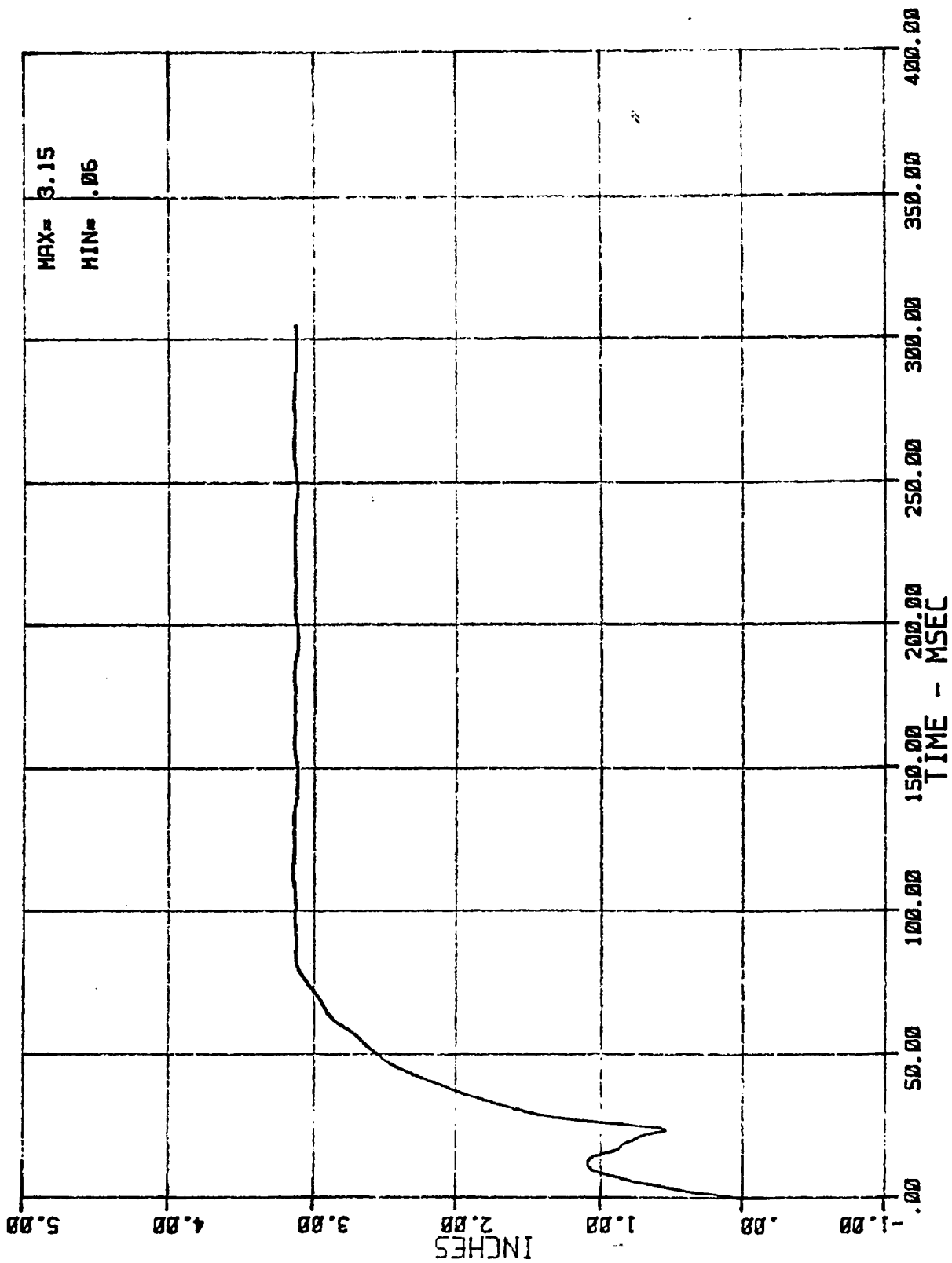
06/06/85



21 DT 01 1 SHB (DRIVER SHOULDER BELT PULLOUT)
MSE N62035 1985 ISUZU TROOPER 2

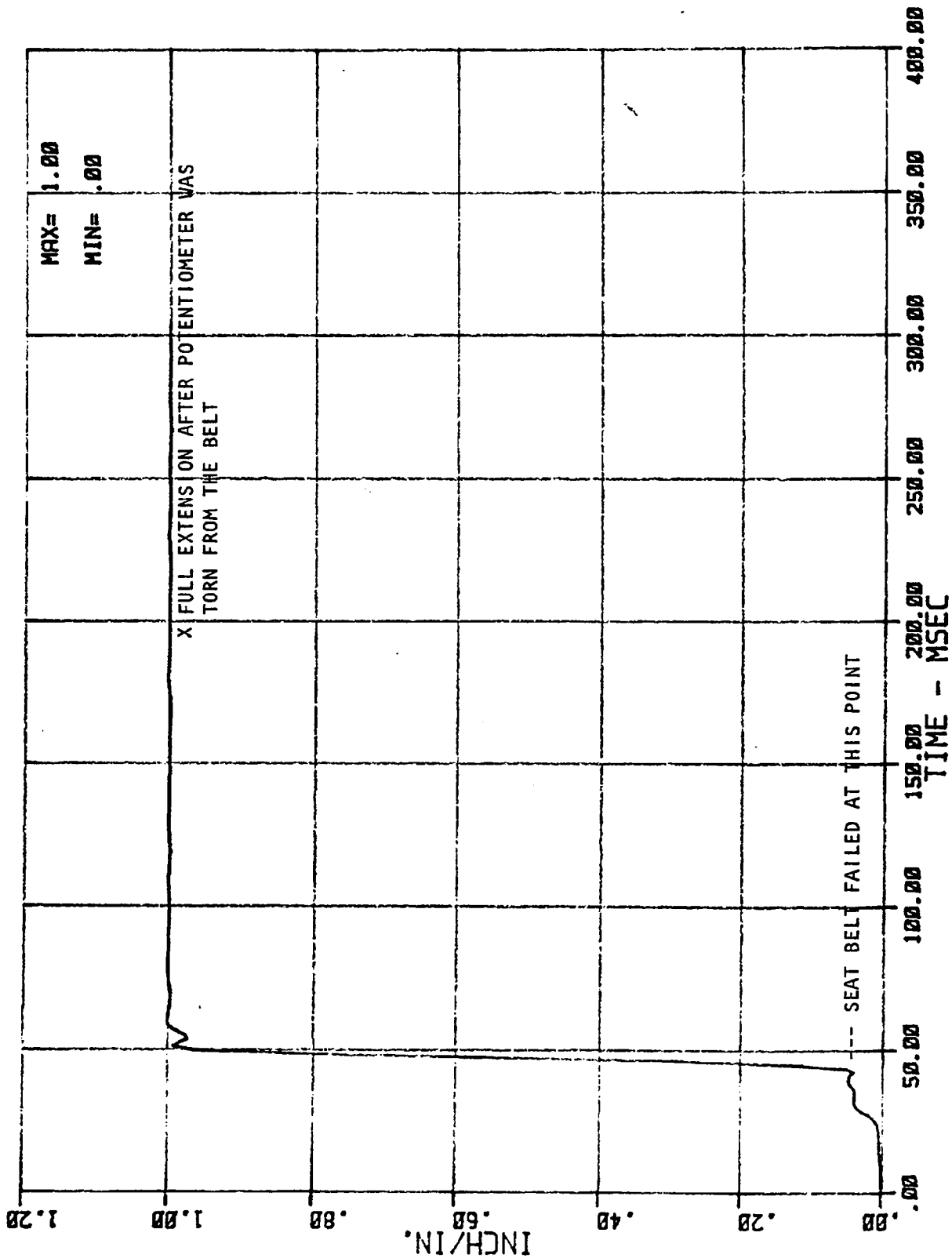
06/06/85

R5027-03



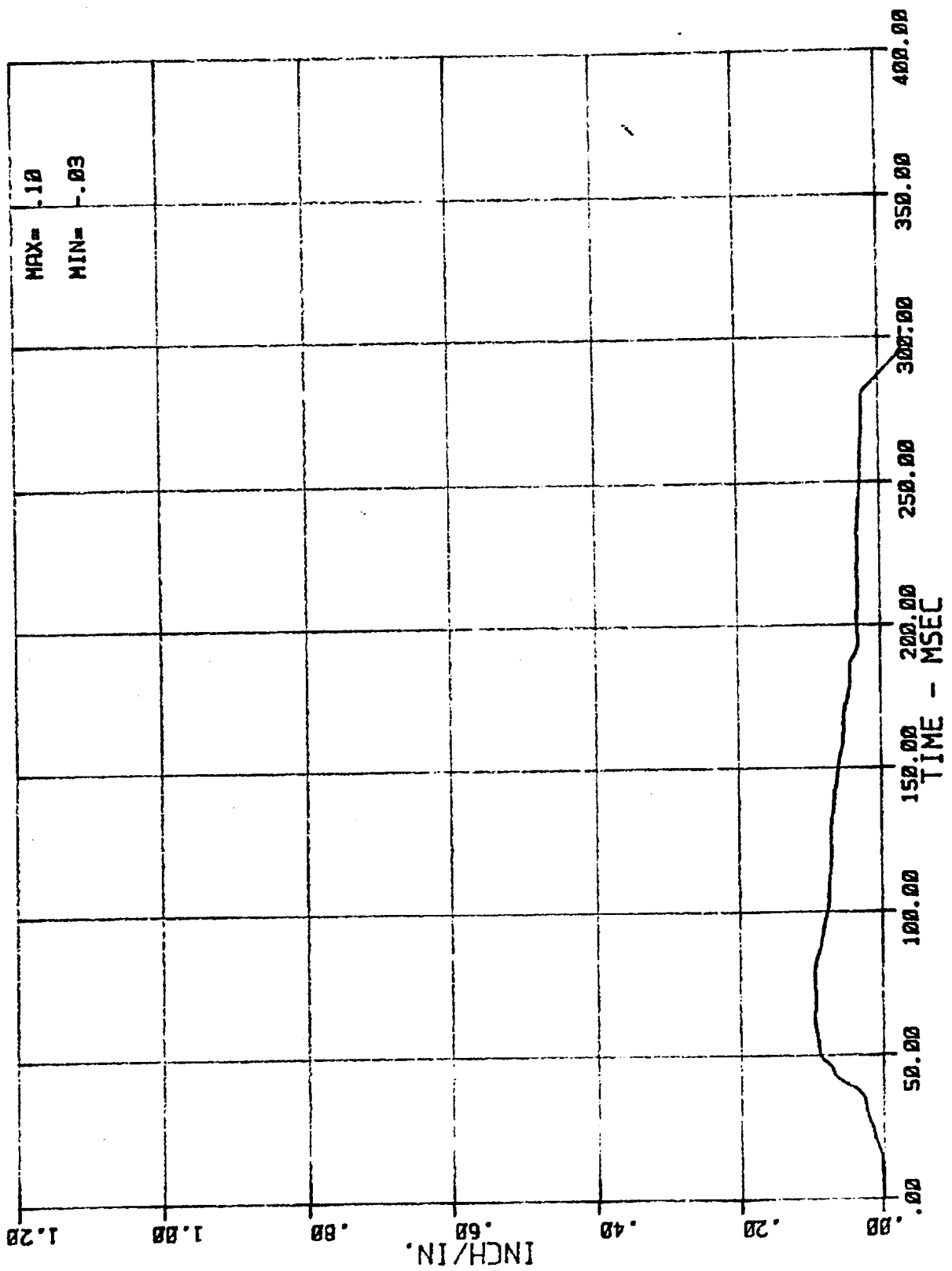
22 DT 01 2 SHB (PASSENGER SHOULDER BELT PULLOUT)
HSE N62035 1985 ISUZU TROOPER 2

06/06/85



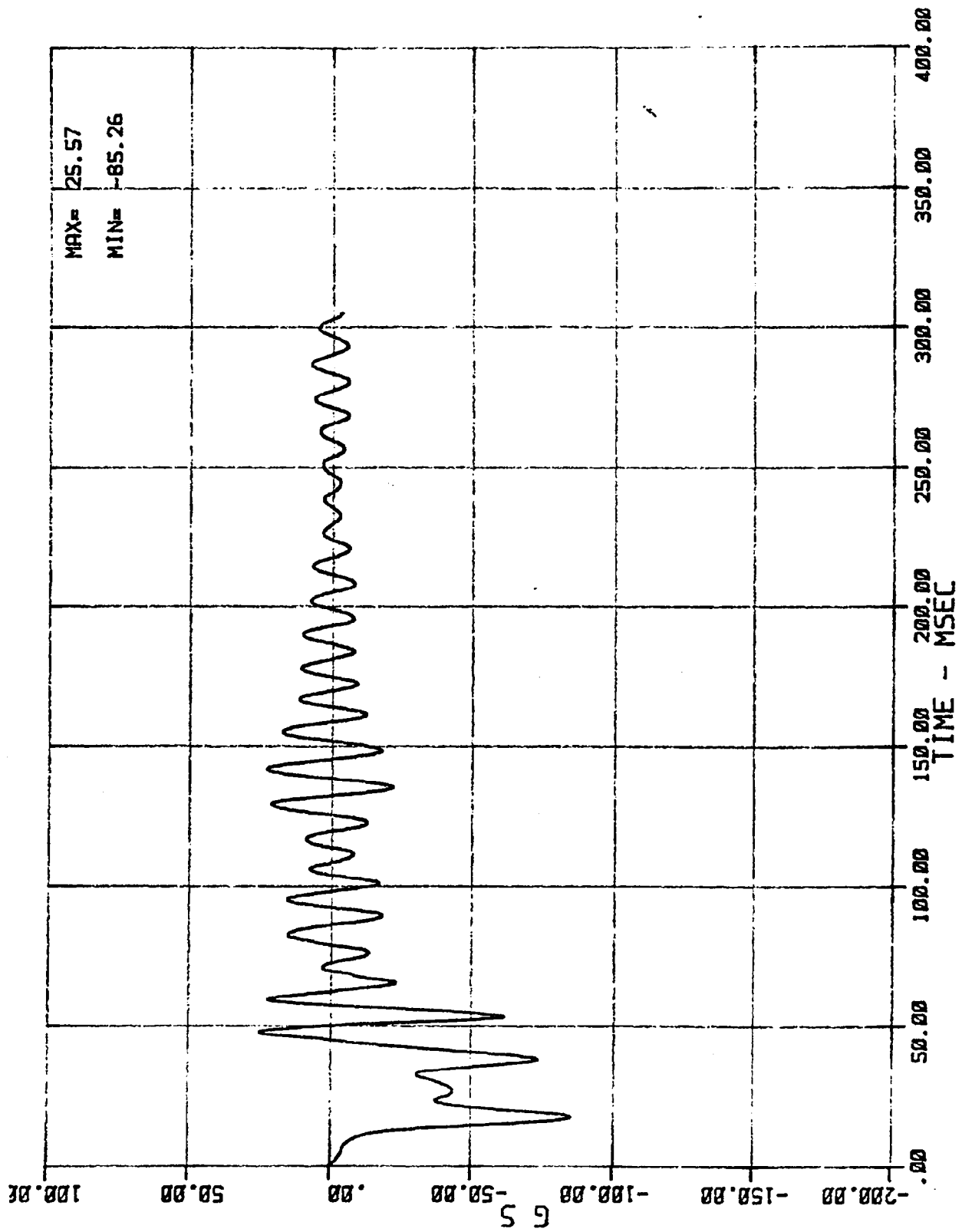
23 DT 01 1 SHB (DRIVER SHOULDER BELT STRETCH)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



24 DT 01 2 SHB (PASSENGER SHOULDER BELT STRETCH)
HSE N62035 1985 ISUZU TROOPER 2

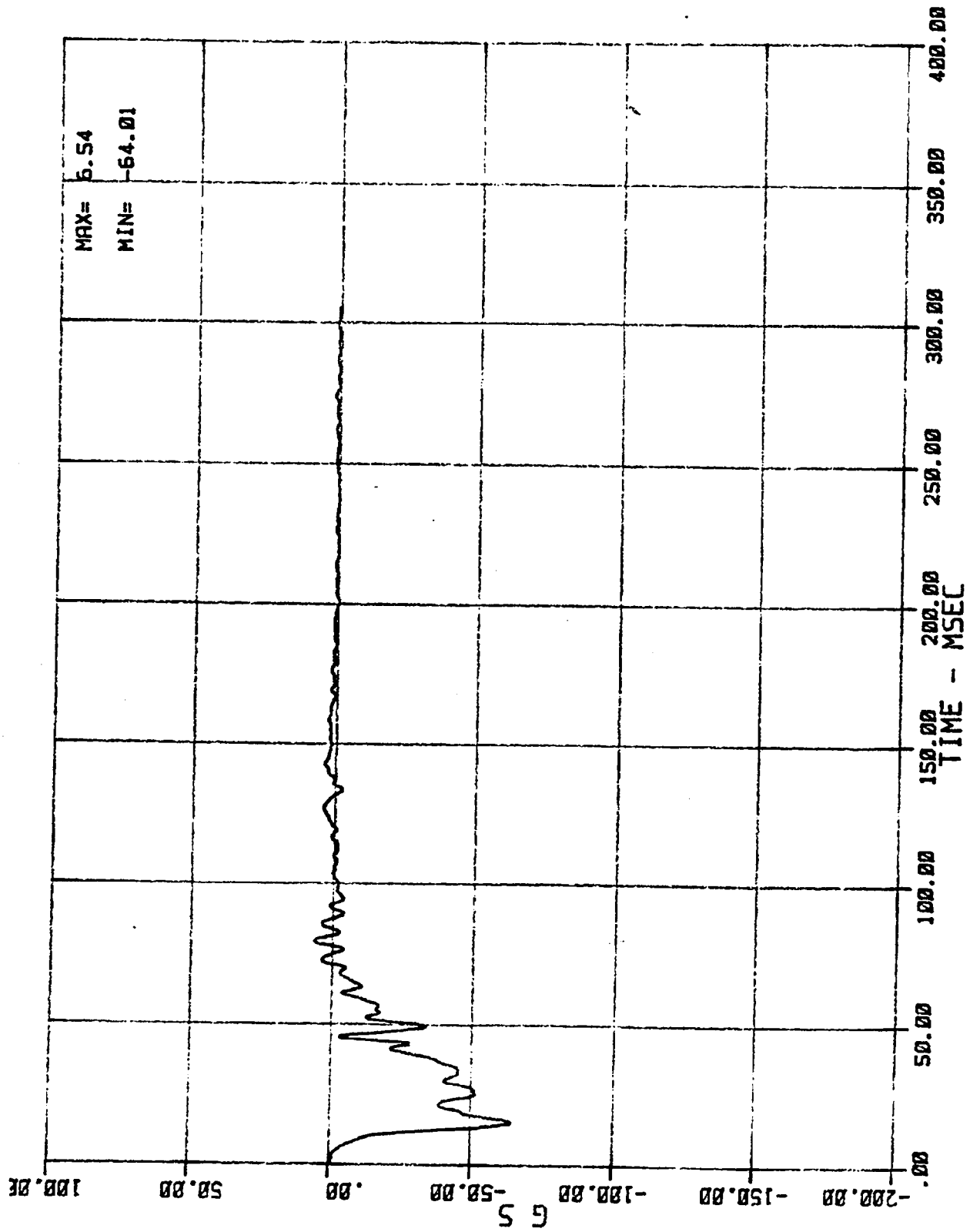
06/06/85



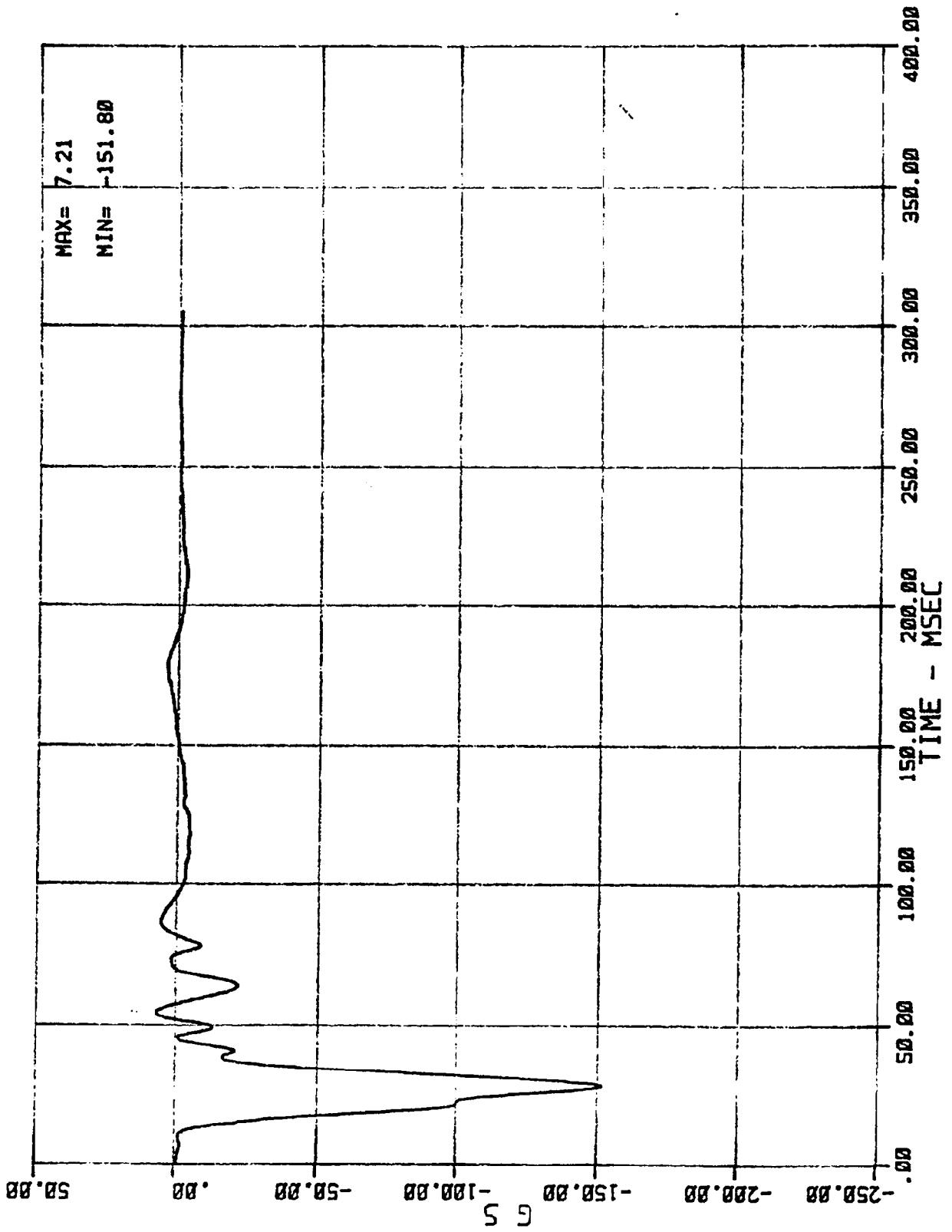
25 AC 01 N LRF X (LEFT REAR FLOOR ACCE. -- X AXIS)

PISE N62035 1985 ISUZU TROOPER 2

06/06/85

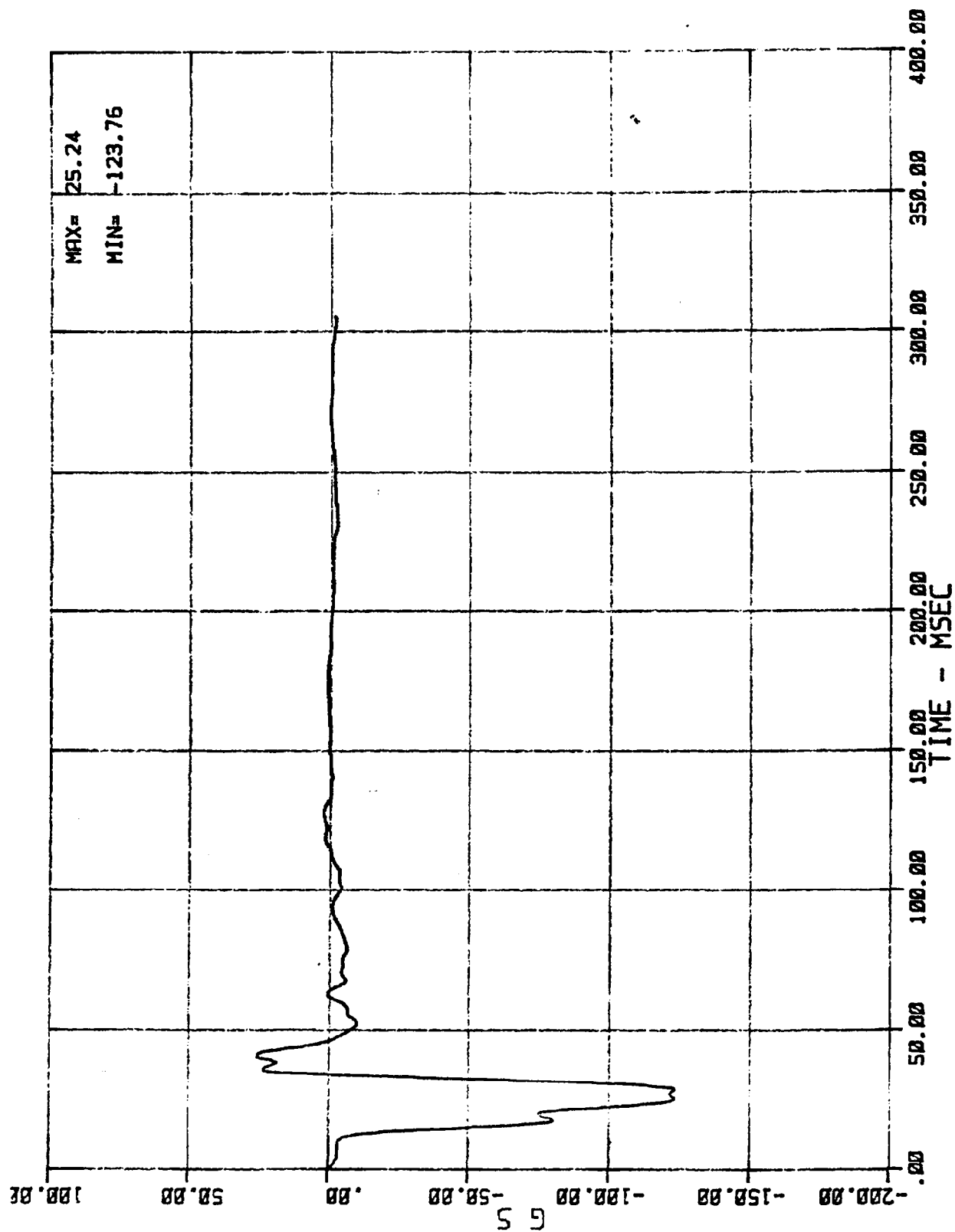


06/06/85



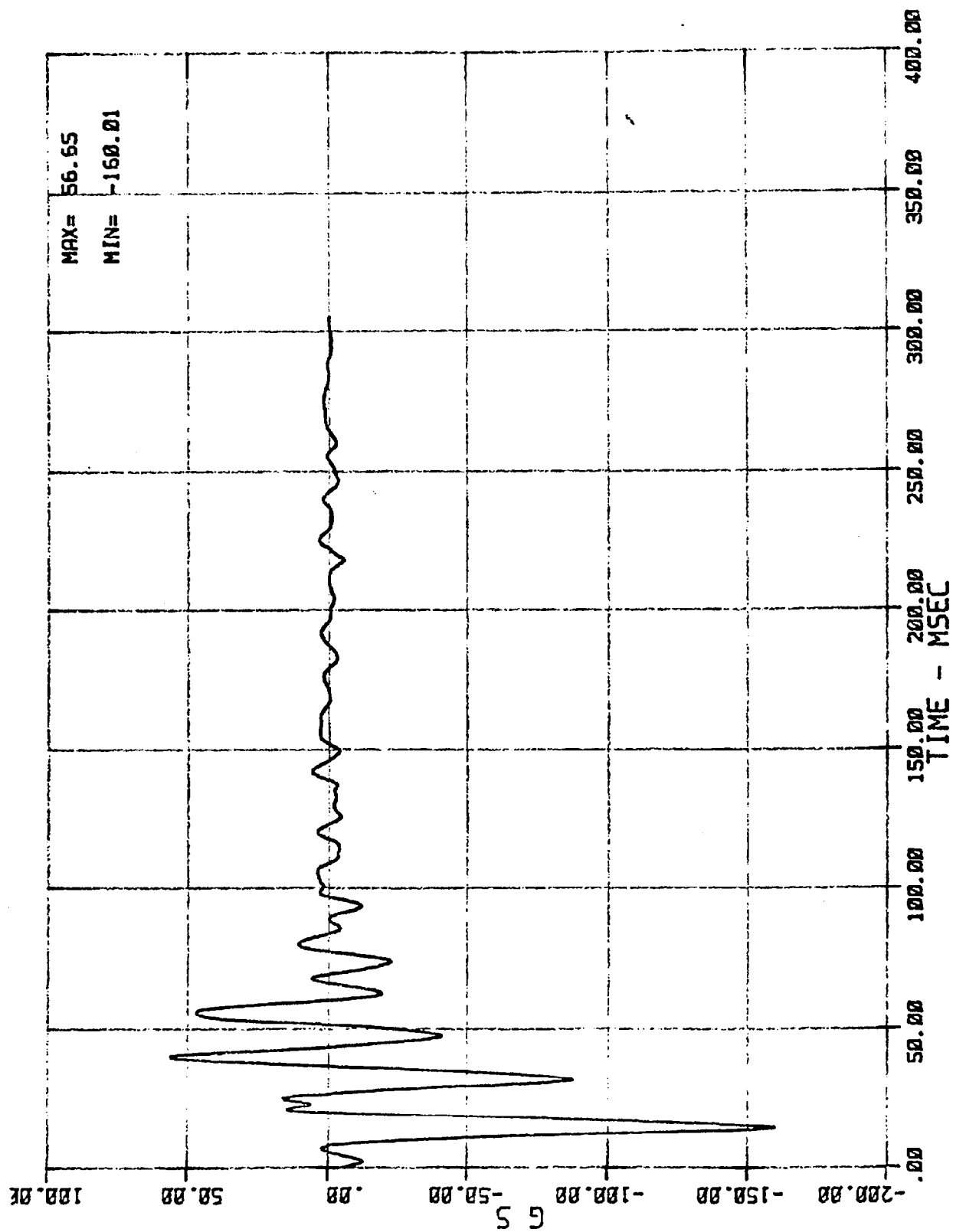
27 AC 01 N ENG X (TOP OF ENGINE ACCEL. -- X AXIS)
MSE N62035 1985 ISUZU TROOPER 2

05/06/85



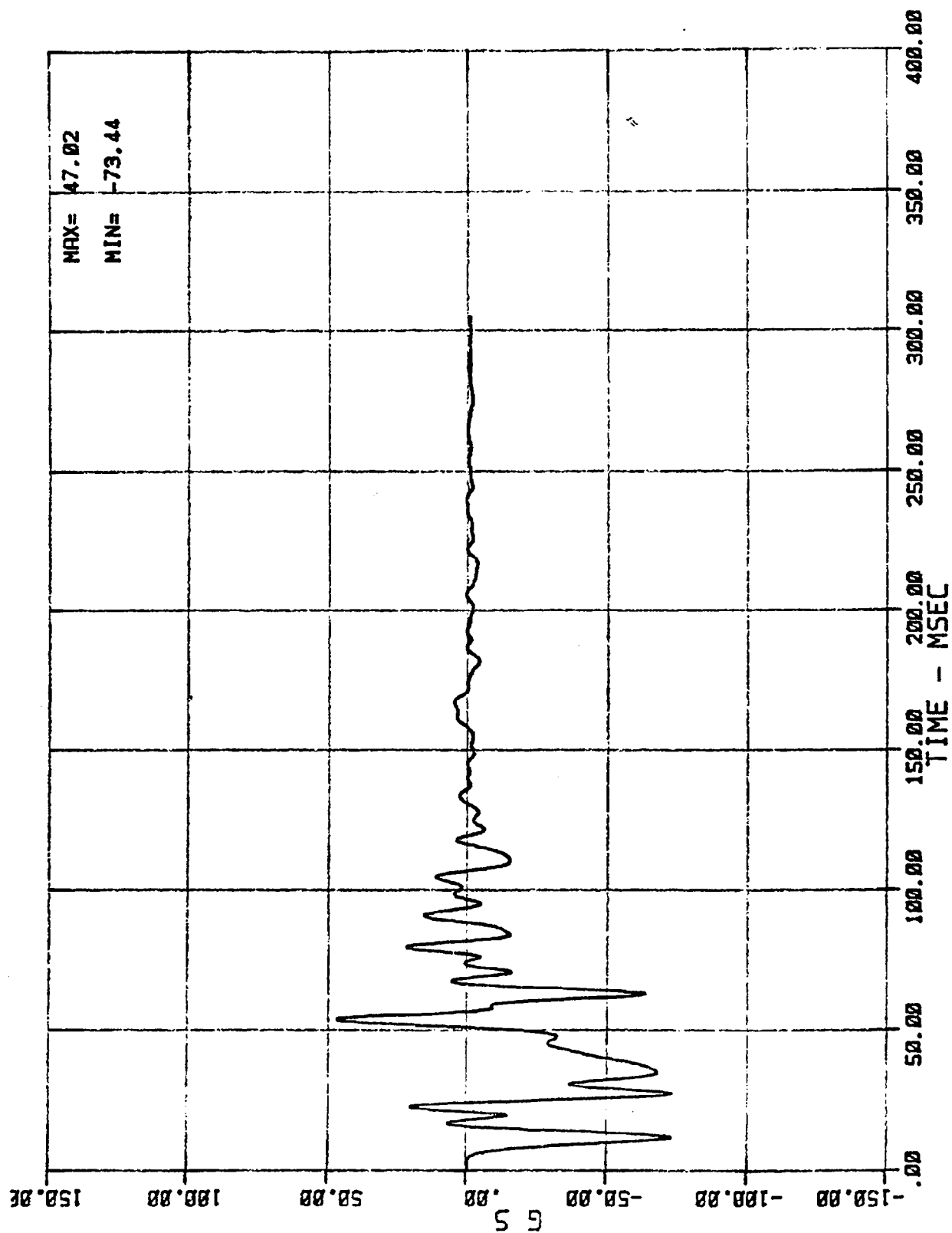
28 AC 01 N ENG X (BOTTOM OF ENGINE ACCEL. -- X AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



29 AC 01 N BCR X (RIGHT FRONT WHEEL ACCEL. -- X AXIS)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



30 AC 01 N DPC (CENTER OF DASH ACCEL. -- X AXIS)
HSE N62035 1985 ISUZU TROOPER 2

06/06/85

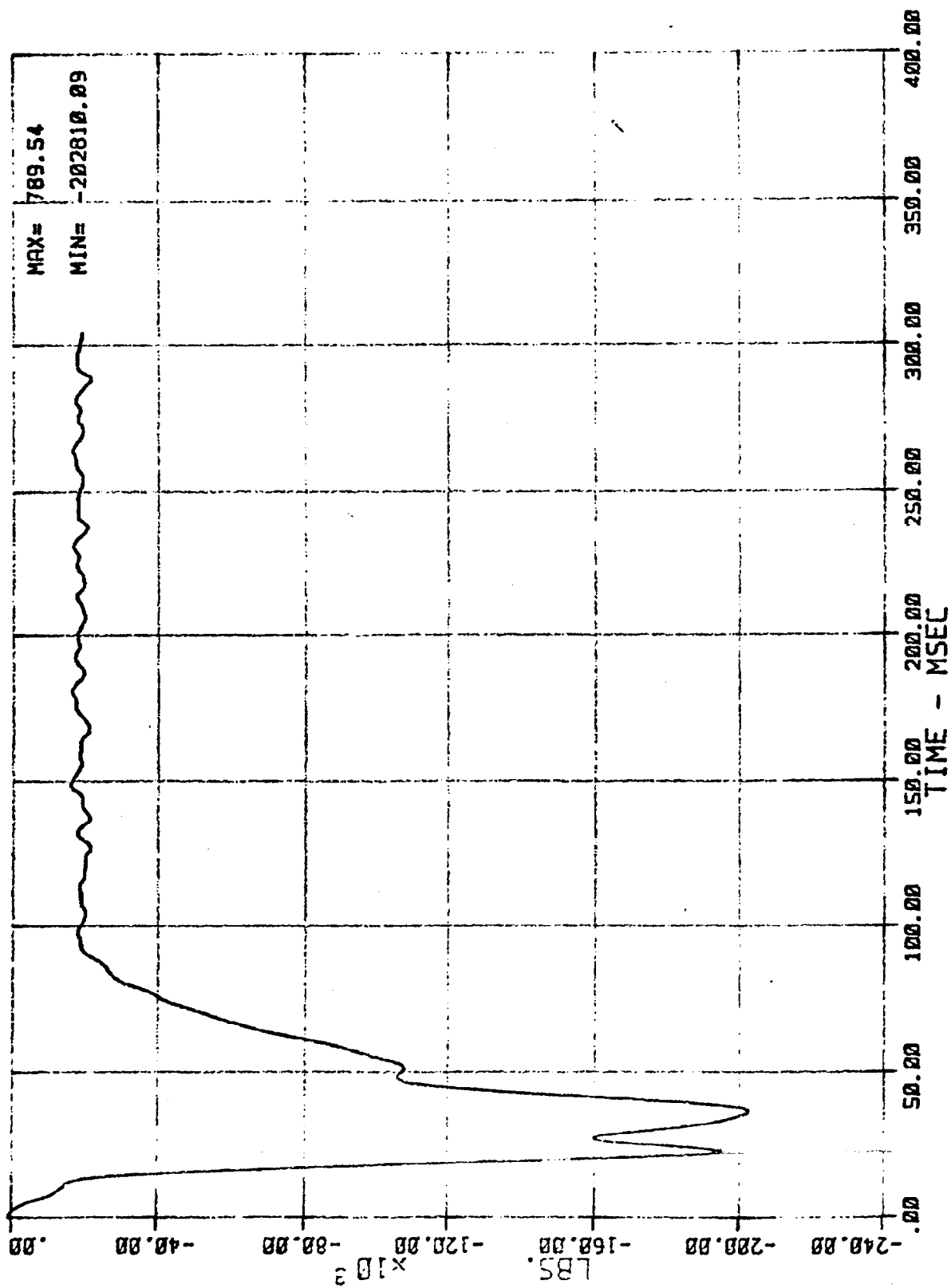
APPENDIX B-2

LOAD CELL BARRIER

DATA

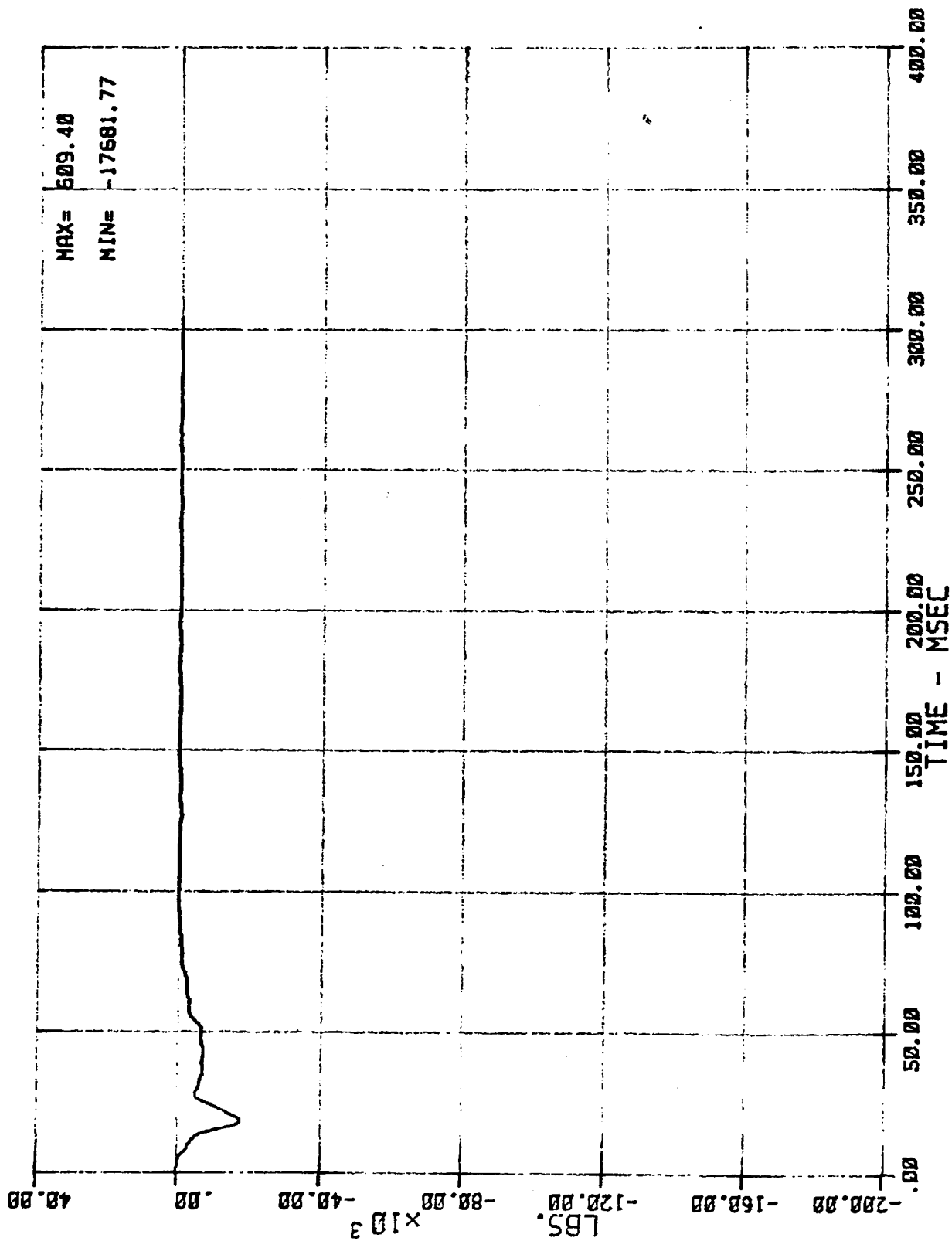
DATA FILTERING:

All Load Cell Barrier Channels - Class 60



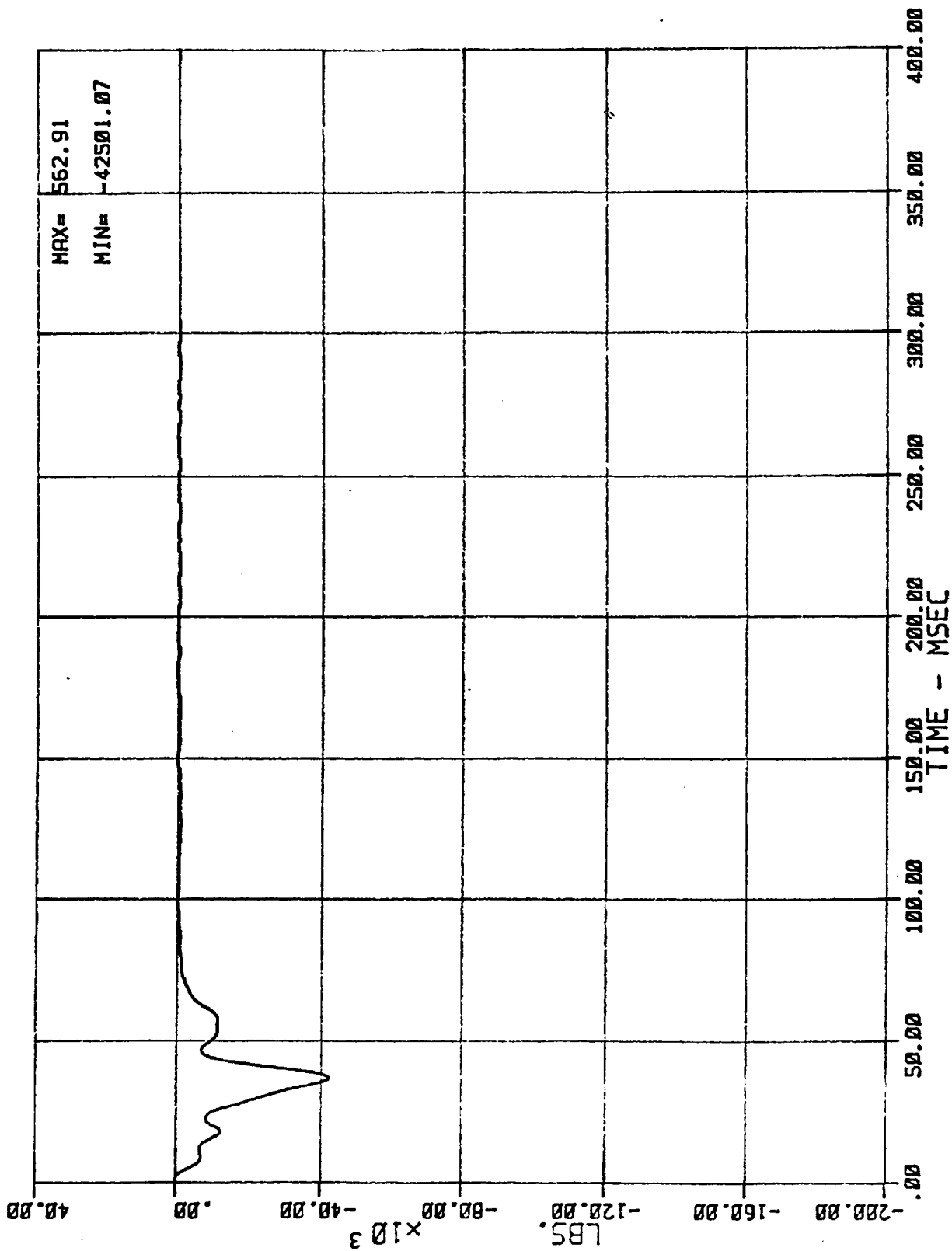
TOTAL SUM LOAD CELL BARRIER FORCE
MSE N52035 1985 ISUZU TROOPER 2

06/06/85



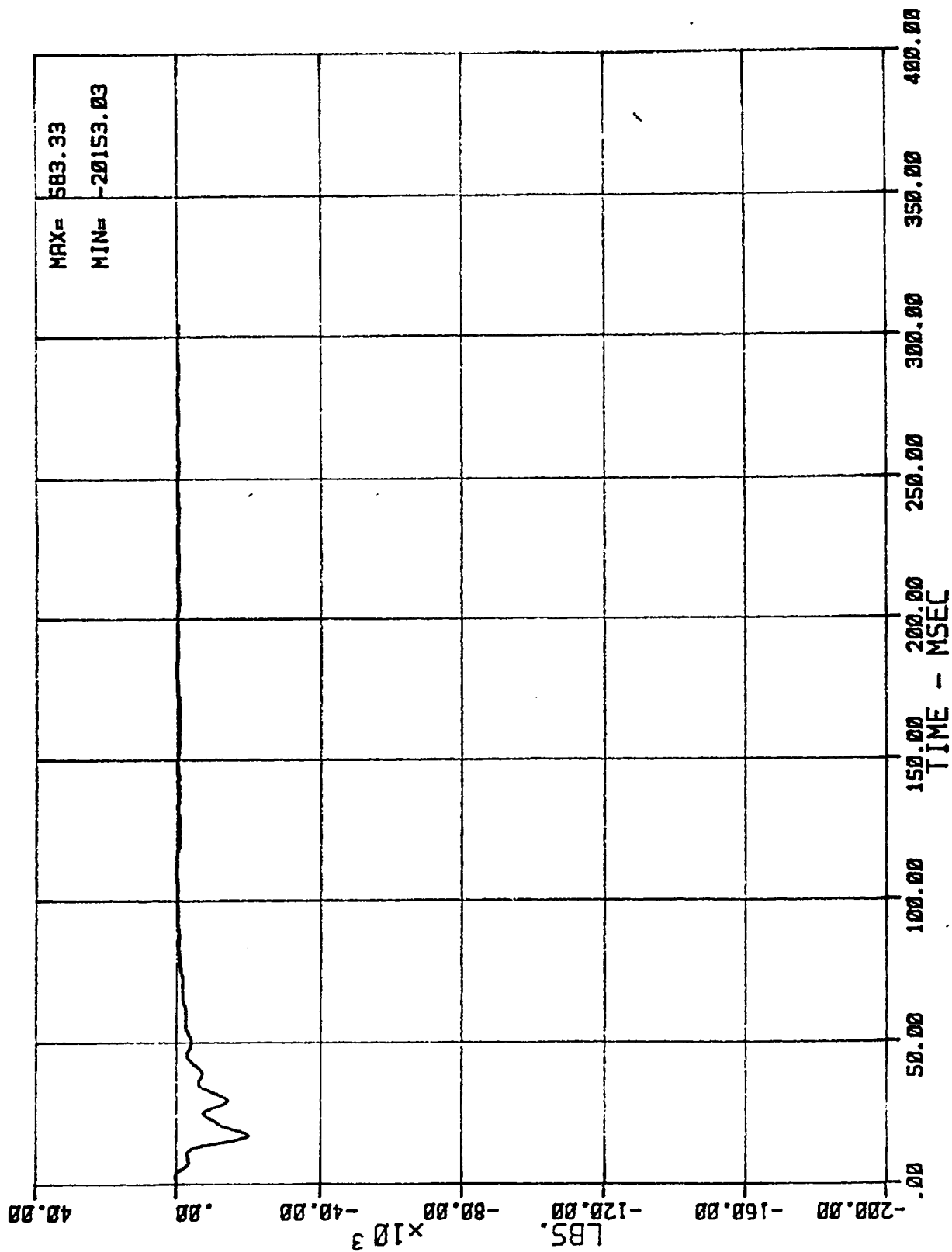
GROUP 1 SUM (C1,C2,C3,D1,D2,D3) LOAD CELL BARRIER FORCE
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



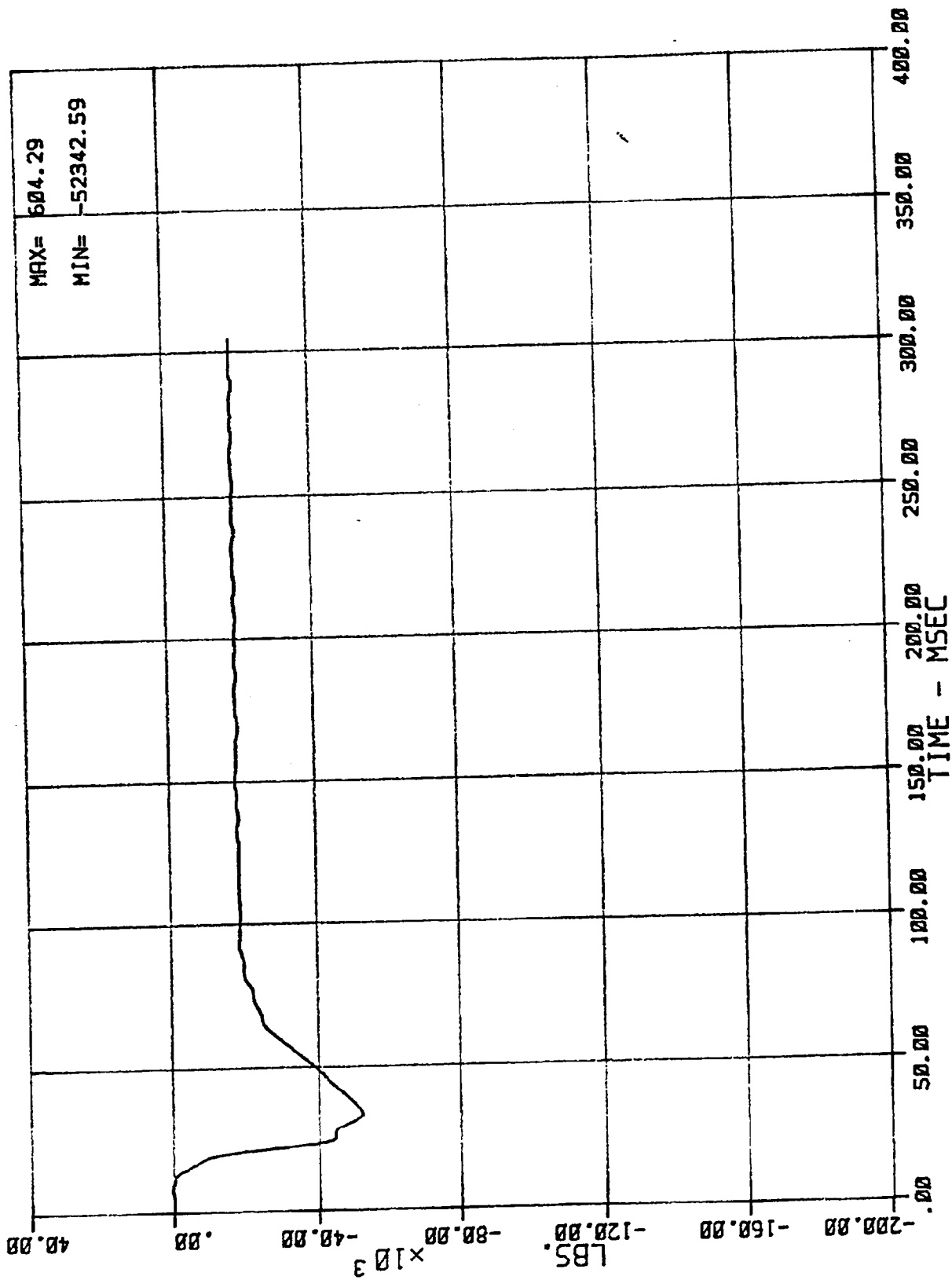
GROUP 2 SUM (C4,C5,C6,D4,D5,D6) LOAD CELL BARRIER FORCE
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



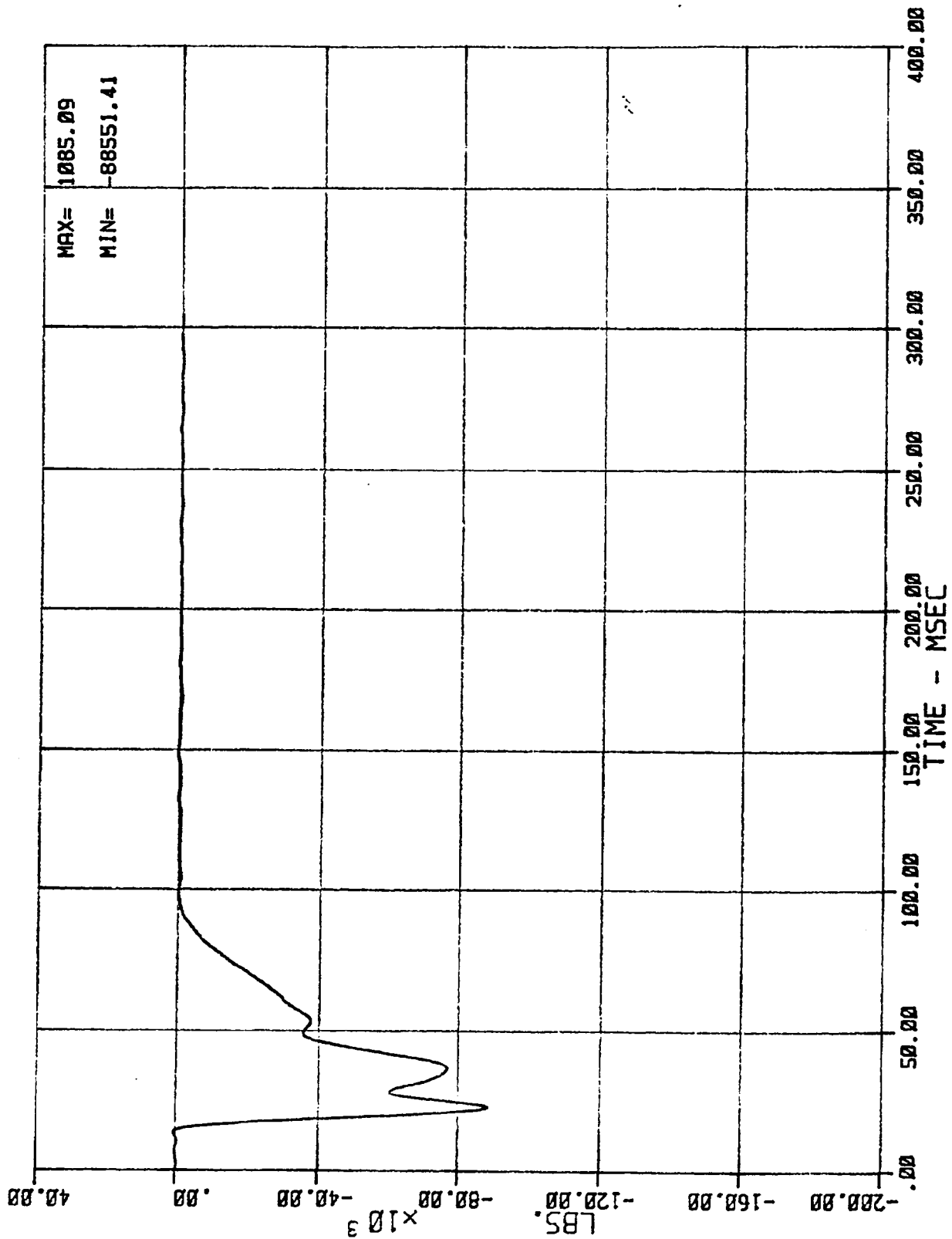
GROUP 3 SUM (C7,C8,C9,D7,D8,D9) LOAD CELL BARRIER FORCE
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



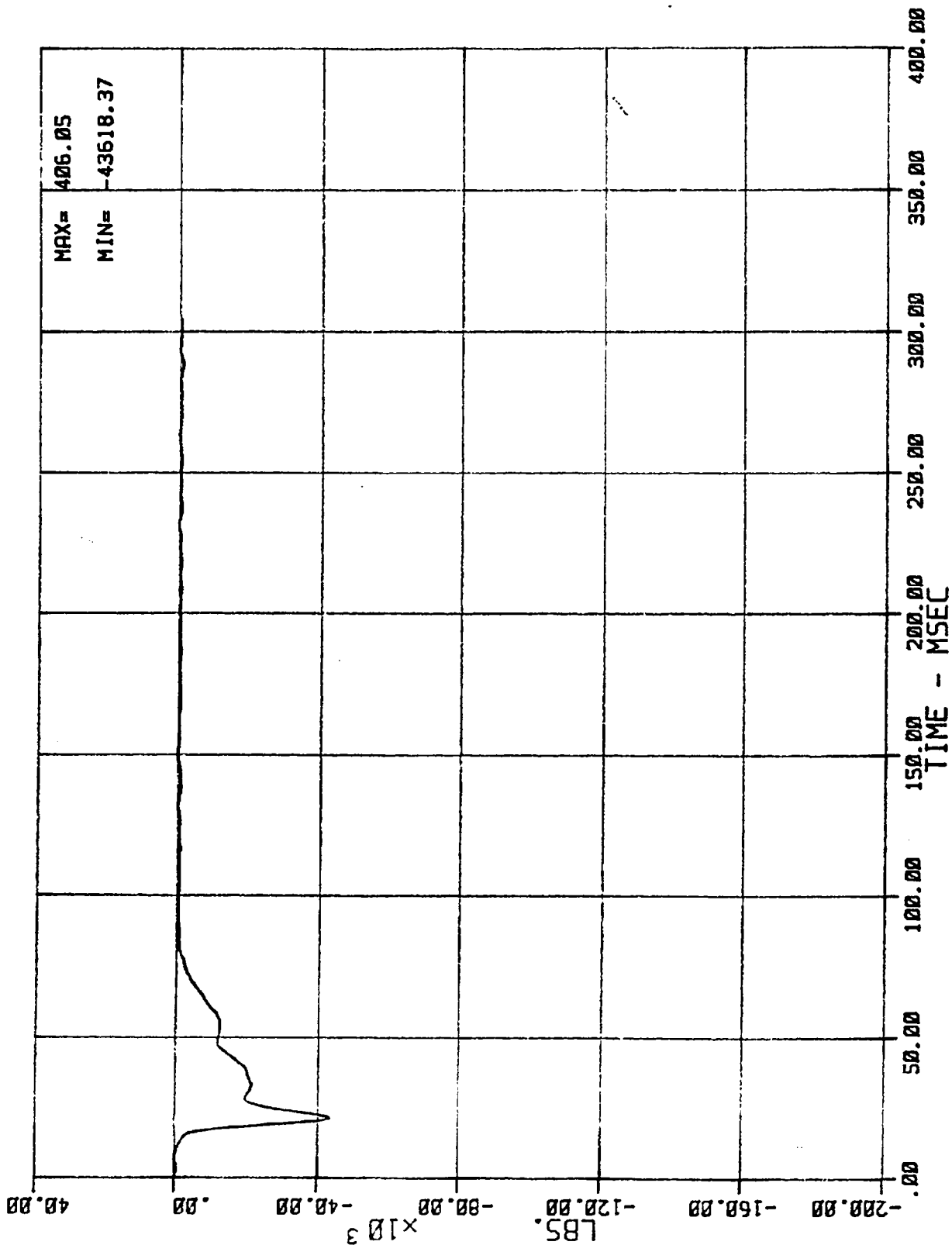
GROUP 4 SUM (A1,A2,A3,B1,B2,B3) LOAD CELL BARRIER FORCE
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



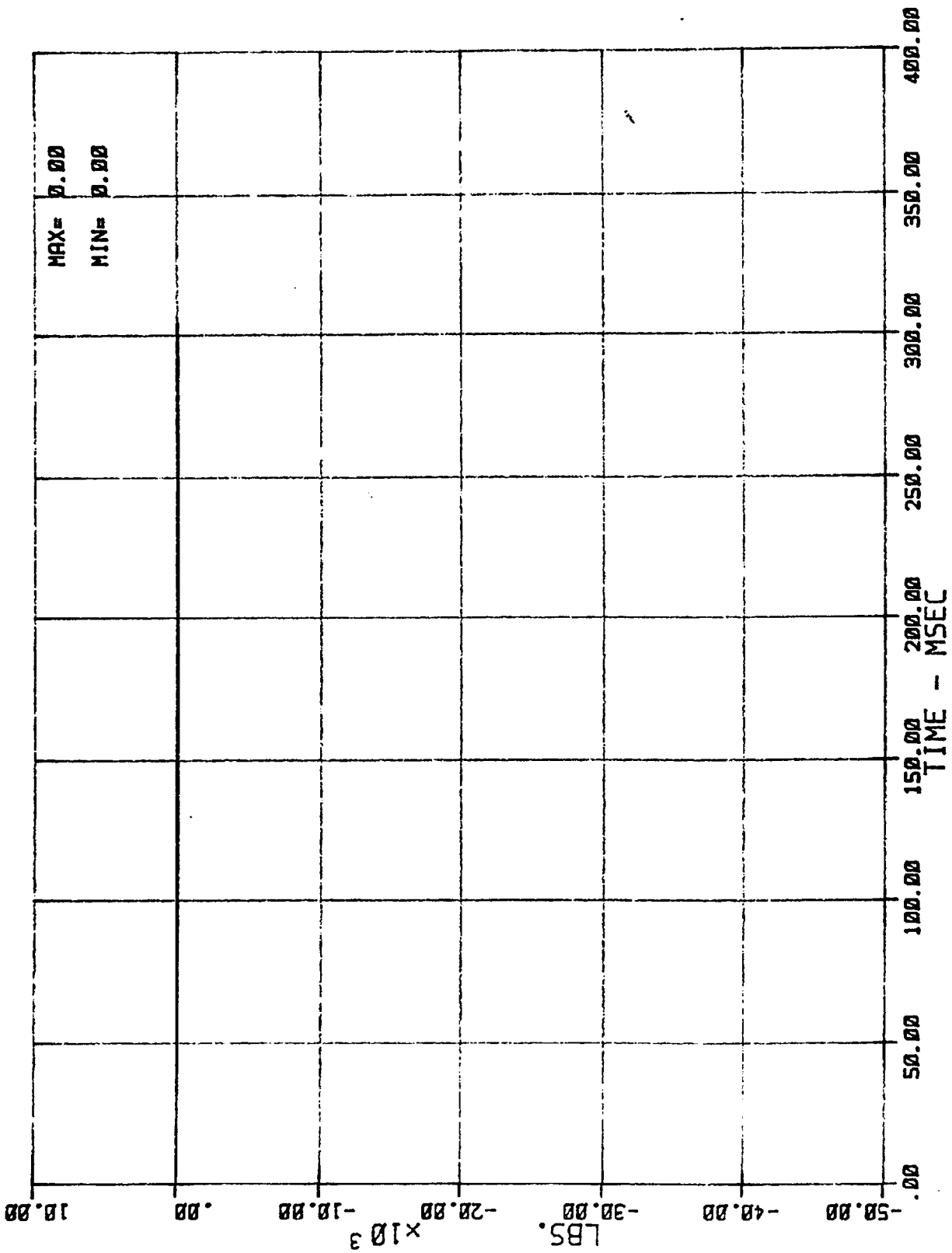
GROUP 5 SUM (A4.A5.A6.B4.B5.B6) LOAD CELL BARRIER FORCE
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



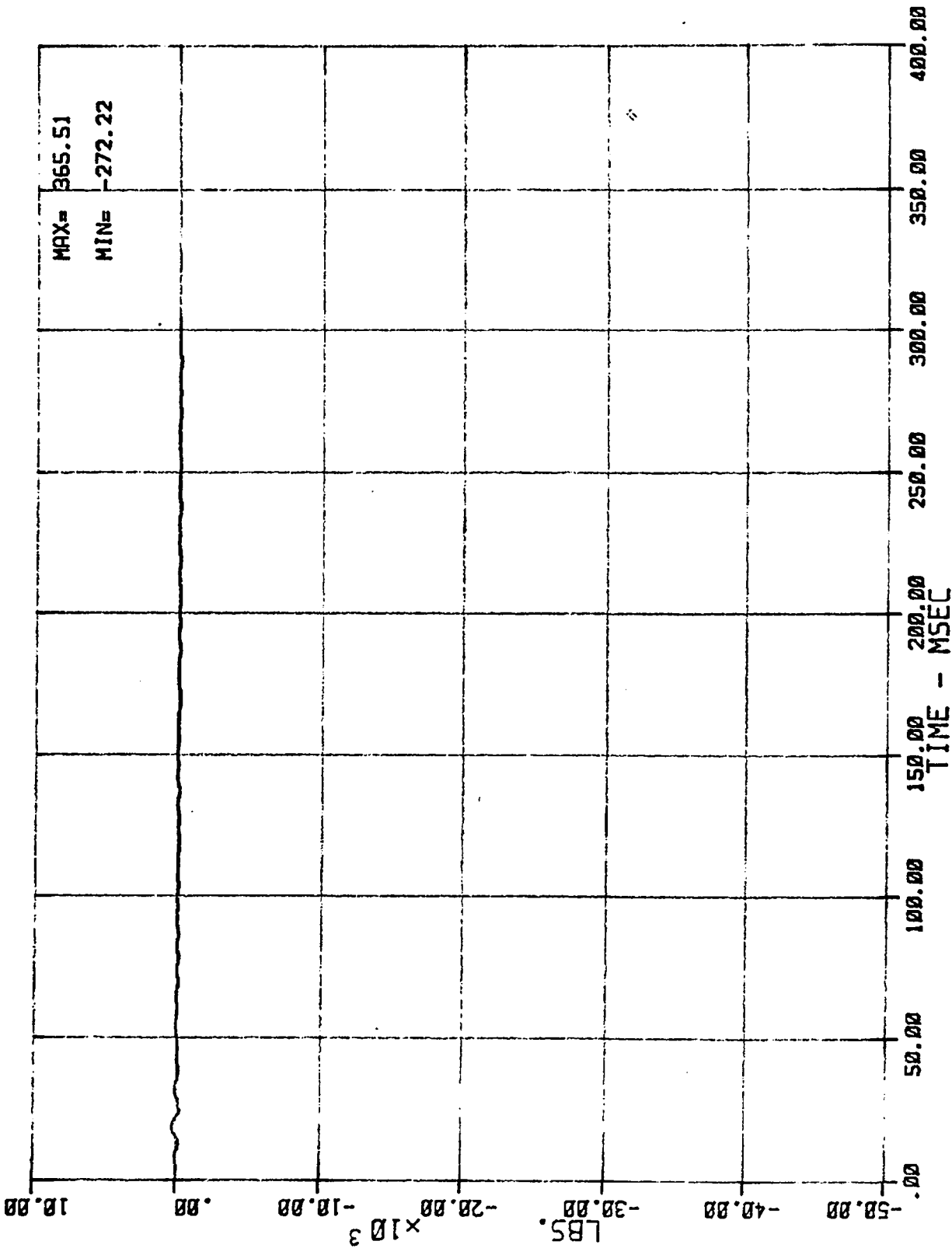
GROUP 6 SUM (A7,A8,A9,B7,B8,B9) LOAD CELL BARRIER FORCE
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



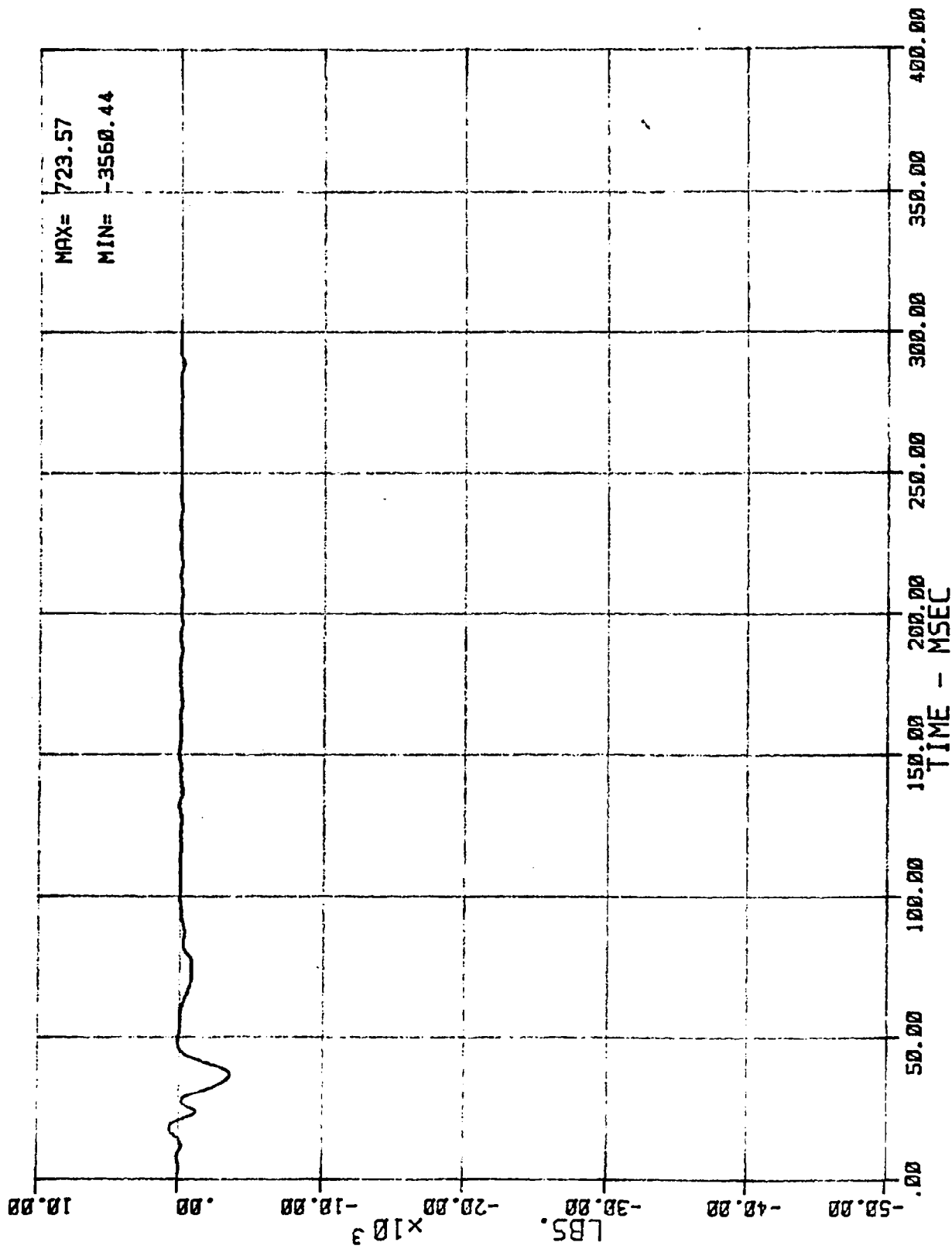
31 LC BA N BA1 (BARRIER LOAD CELL A1 FORCE NO L.C.)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



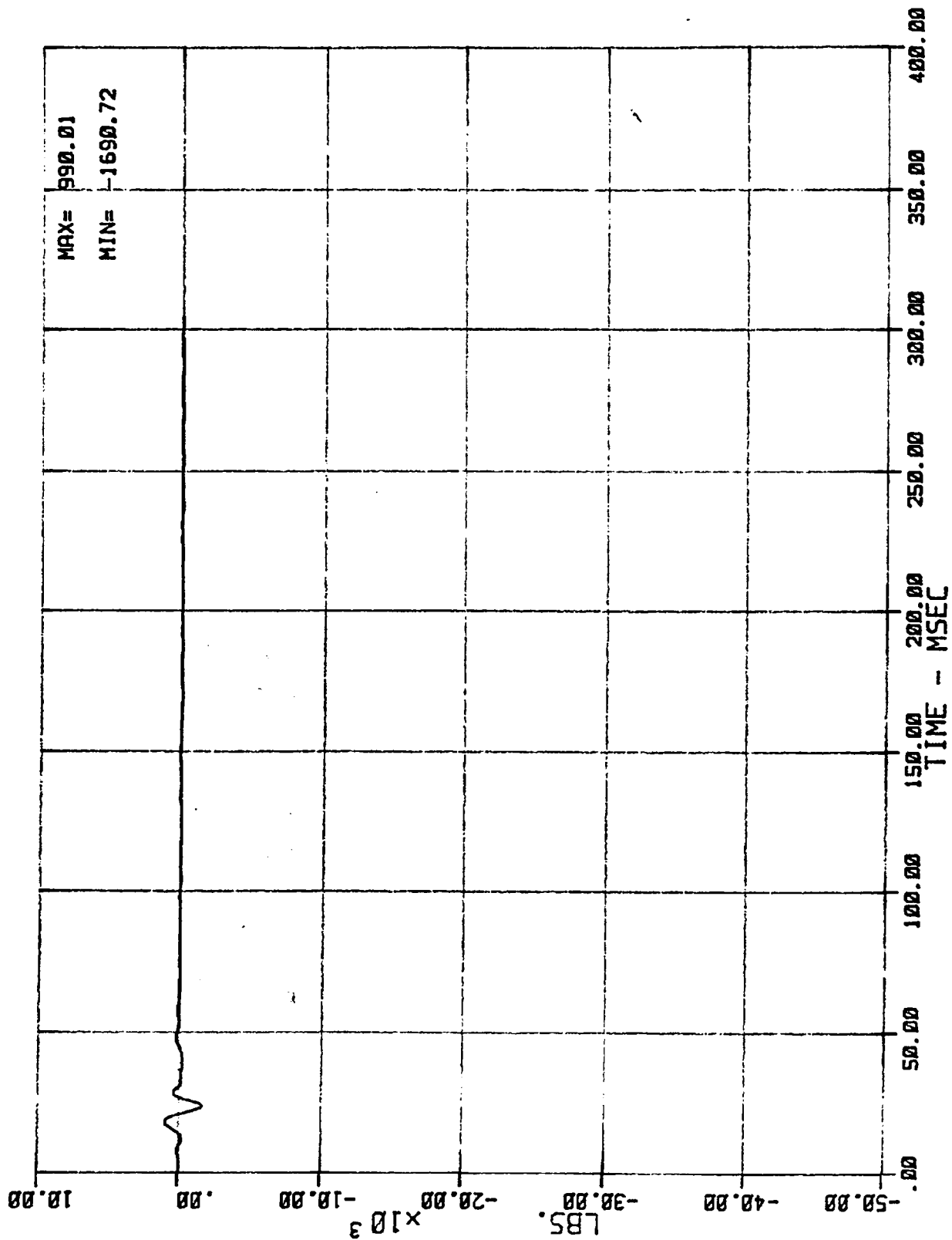
32 LC BA N BA2 (BARRIER LOAD CELL A2 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



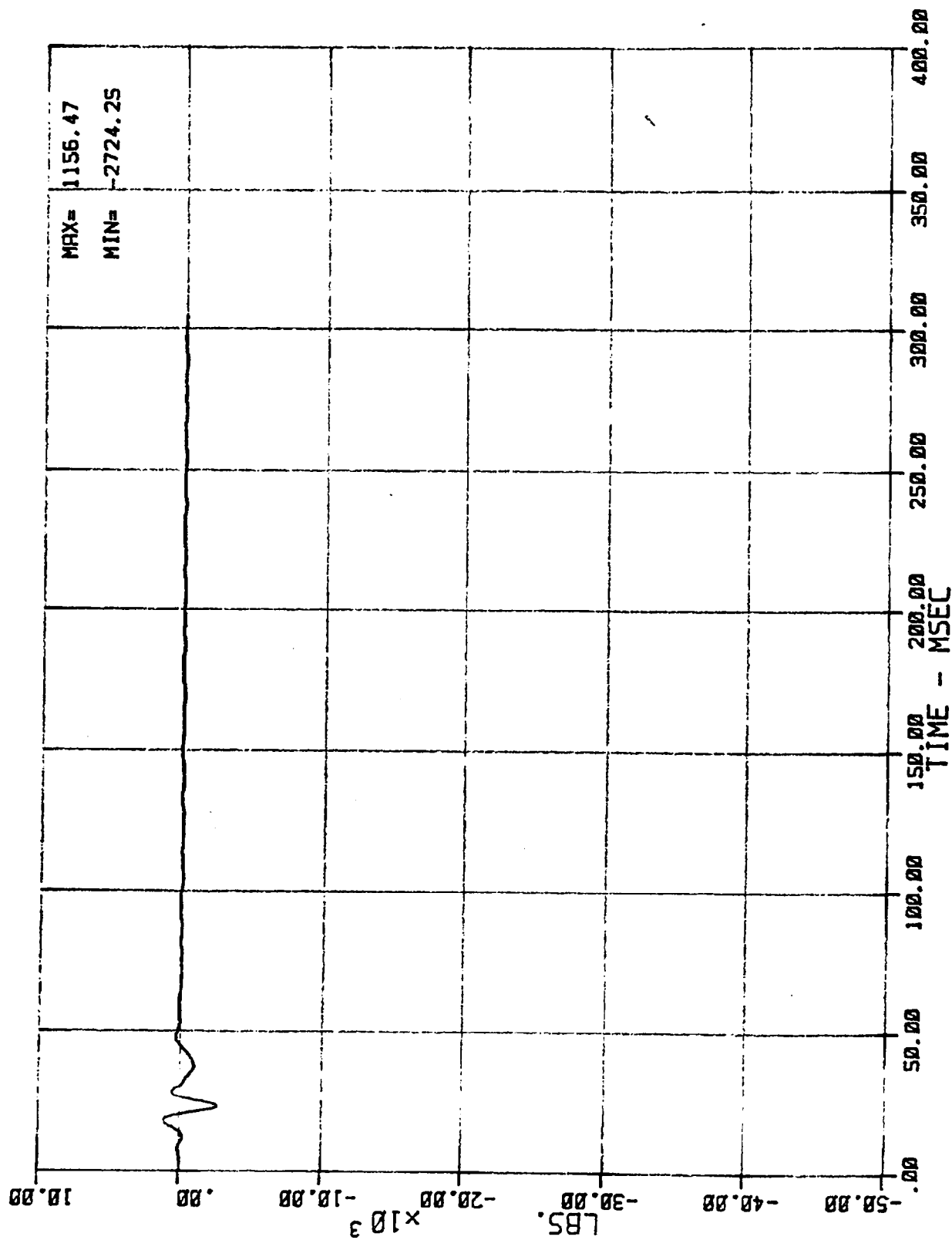
33 LC BA N BA3 (BARRIER LOAD CELL A3 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

05/05/85



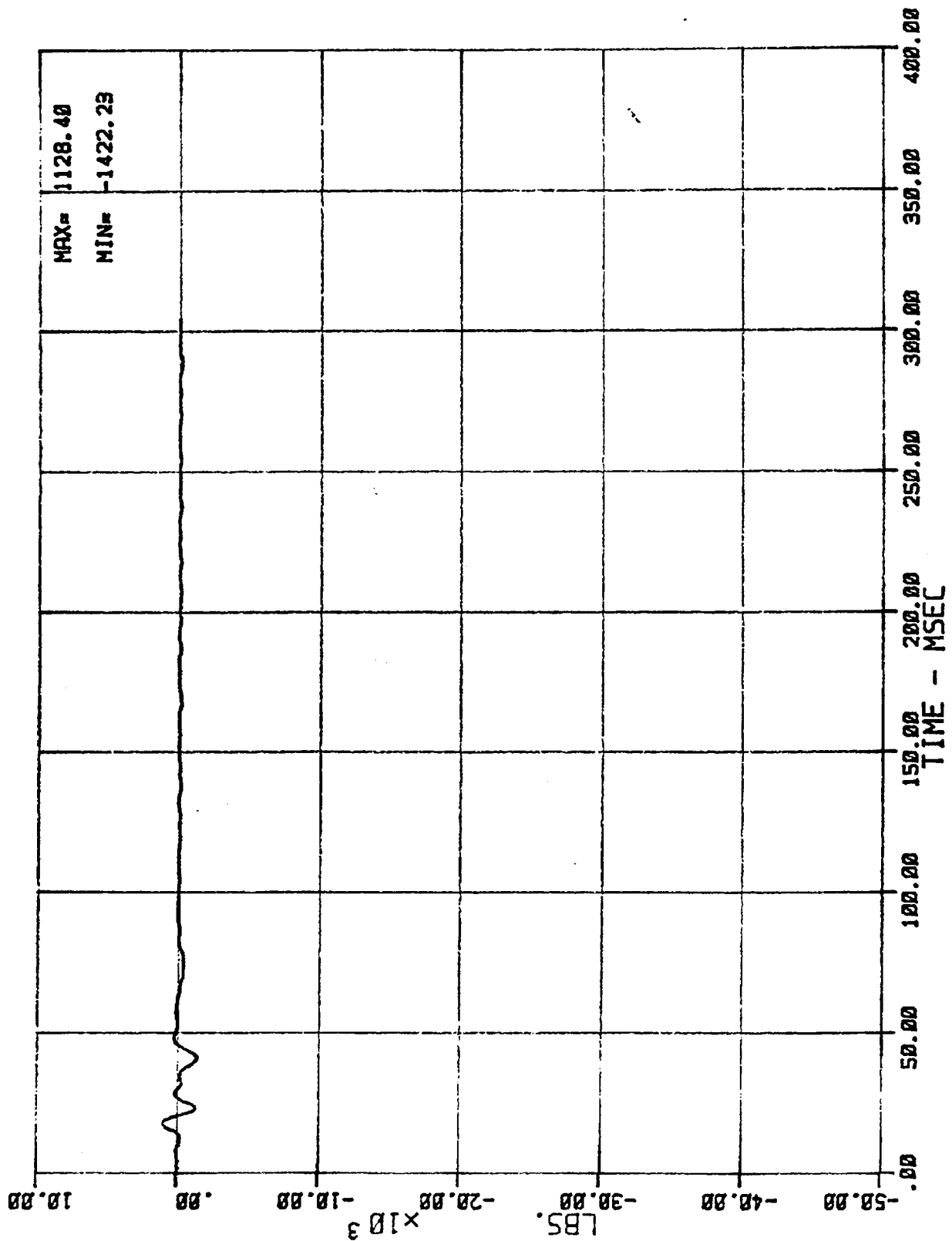
34 LC BA BA4 (BARRIER LOAD CELL A4 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

05/05/85



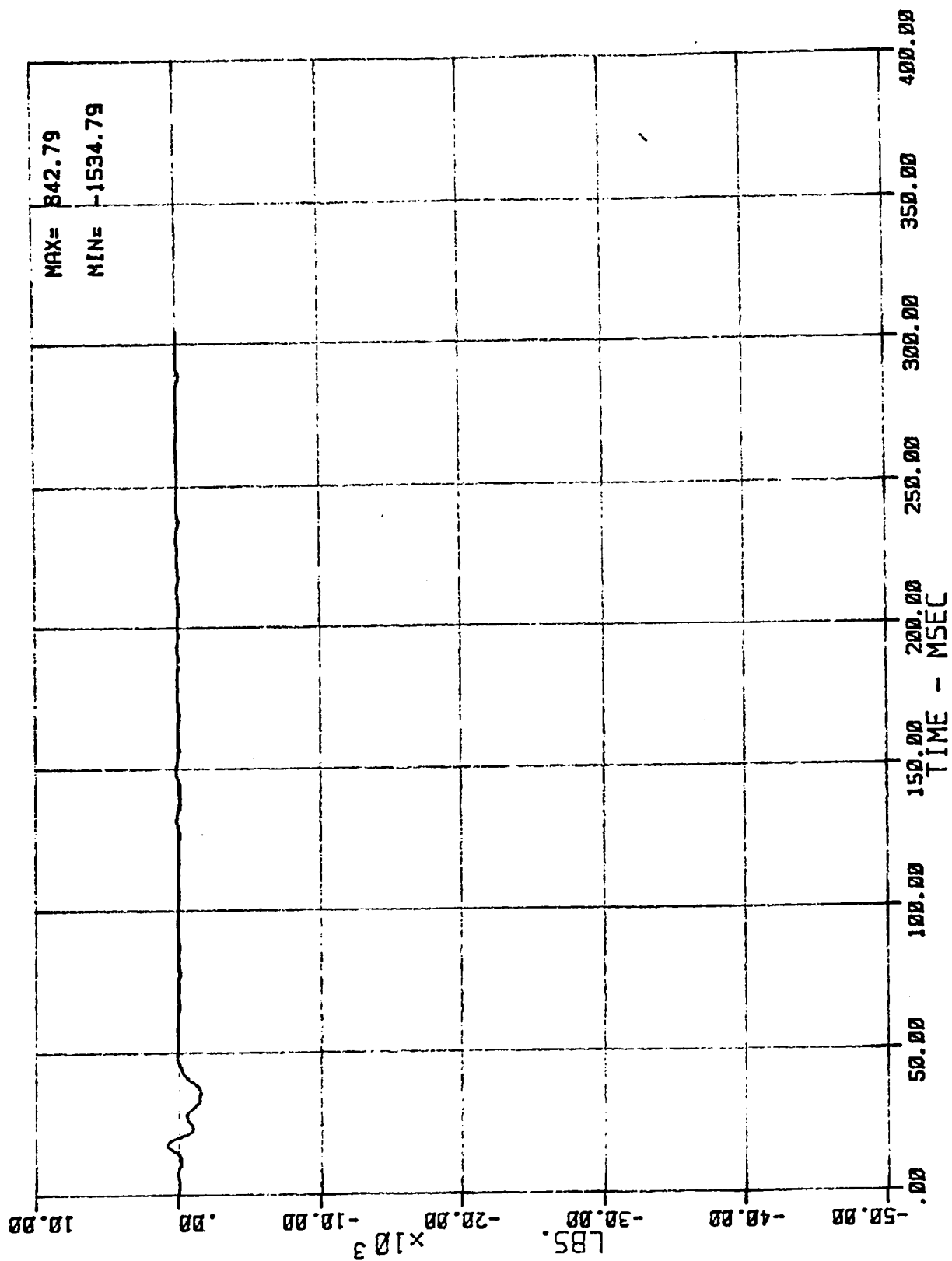
35 LC BA N BAS (BARRIER LOAD CELL AS FORCE)
HSE N62035 1985 ISUZU TROOPER 2

06/06/85



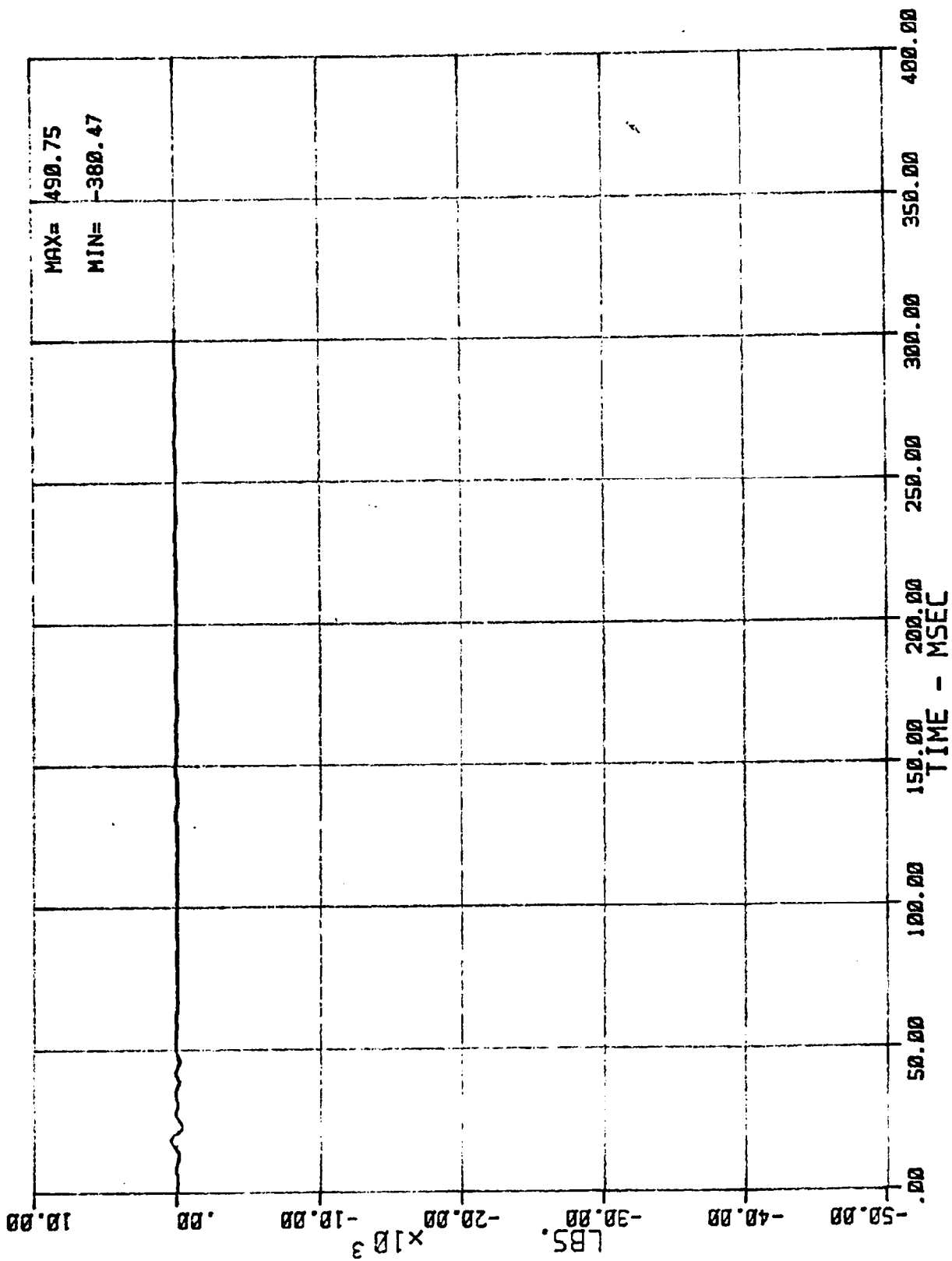
36 LC BA N BA6 (BARRIER LOAD CELL A6 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



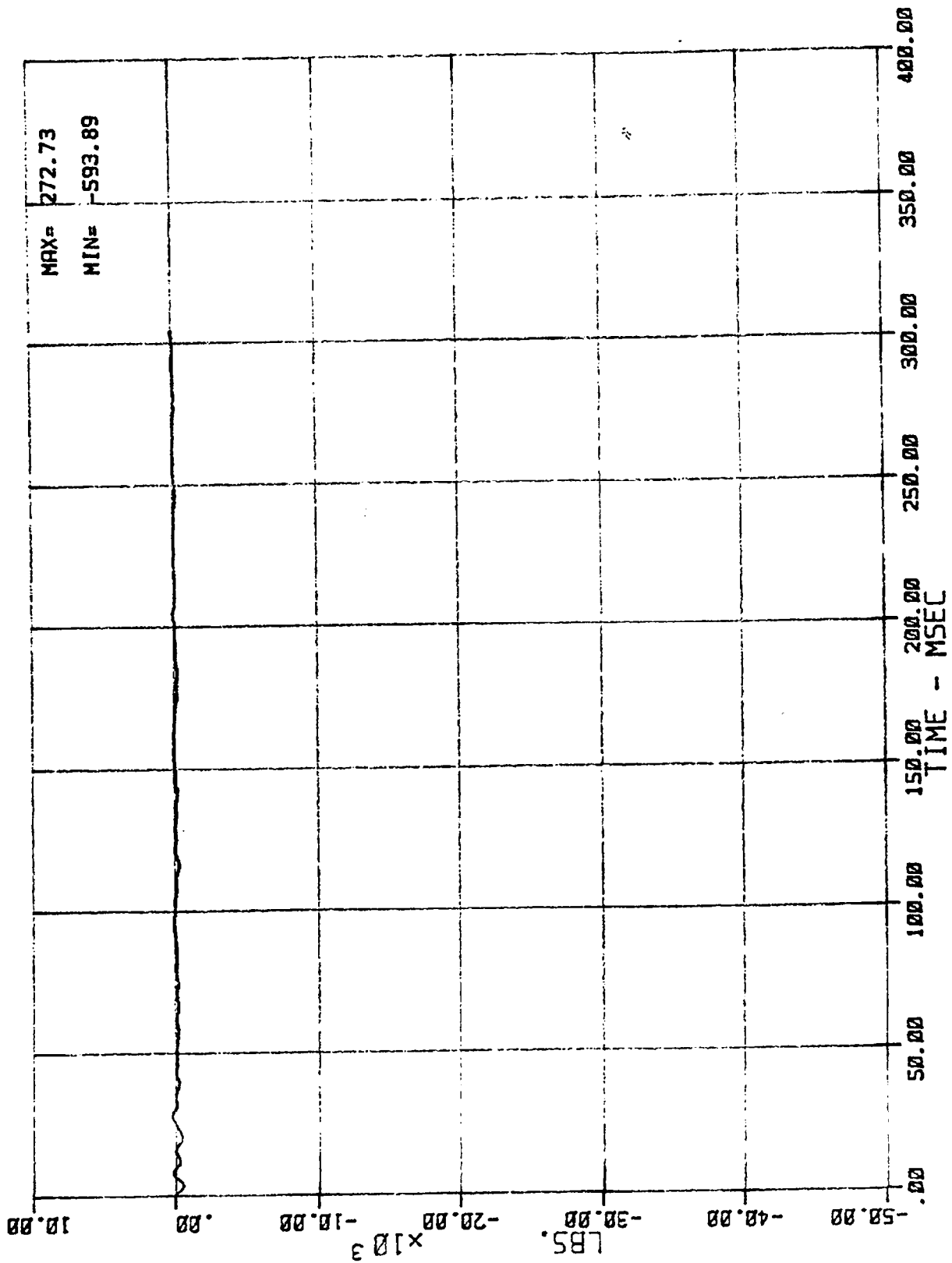
37 LC BA N BA7 (BARRIER LOAD CELL A7 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



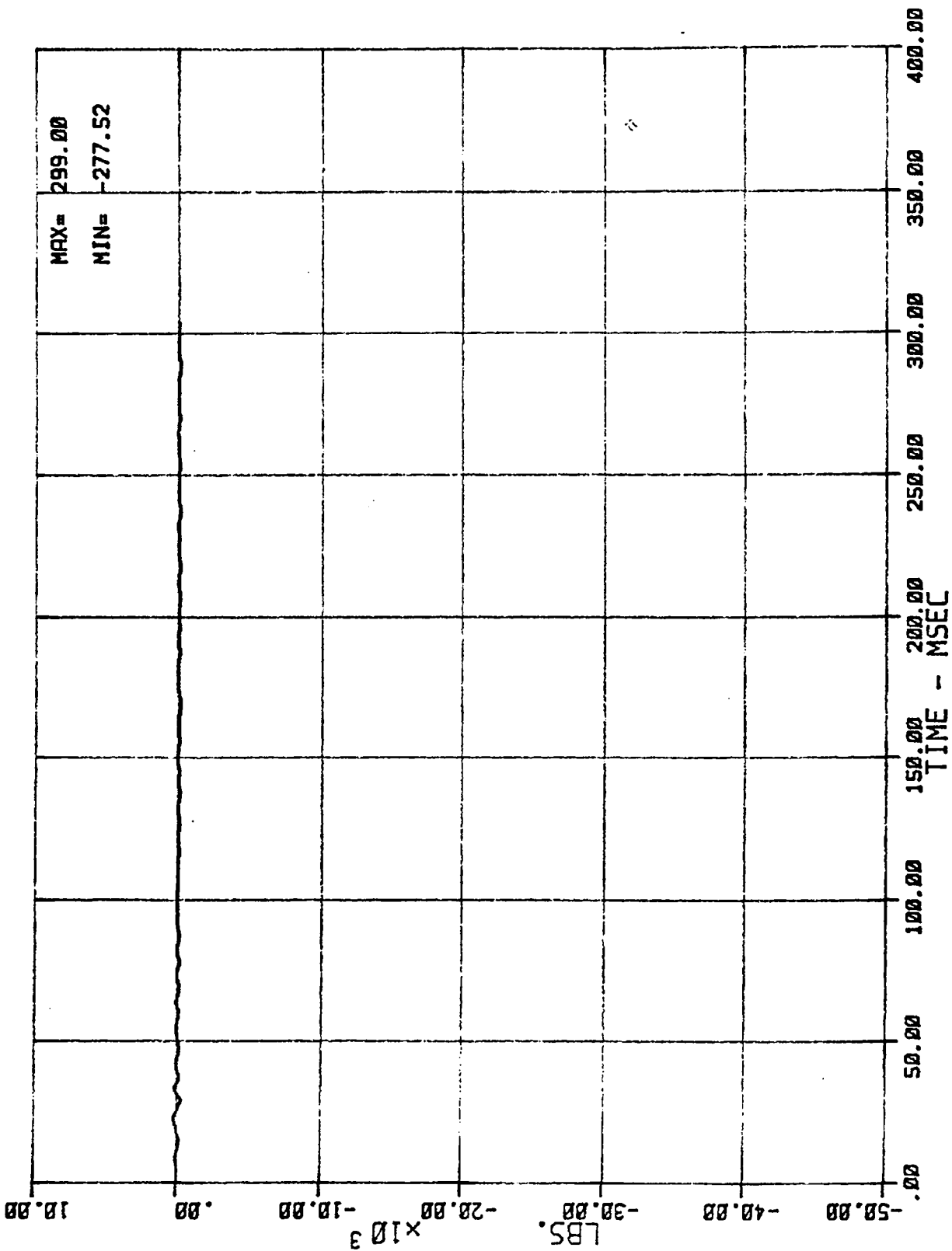
38 LC BA N BA8 (BARRIER LOAD CELL AB FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



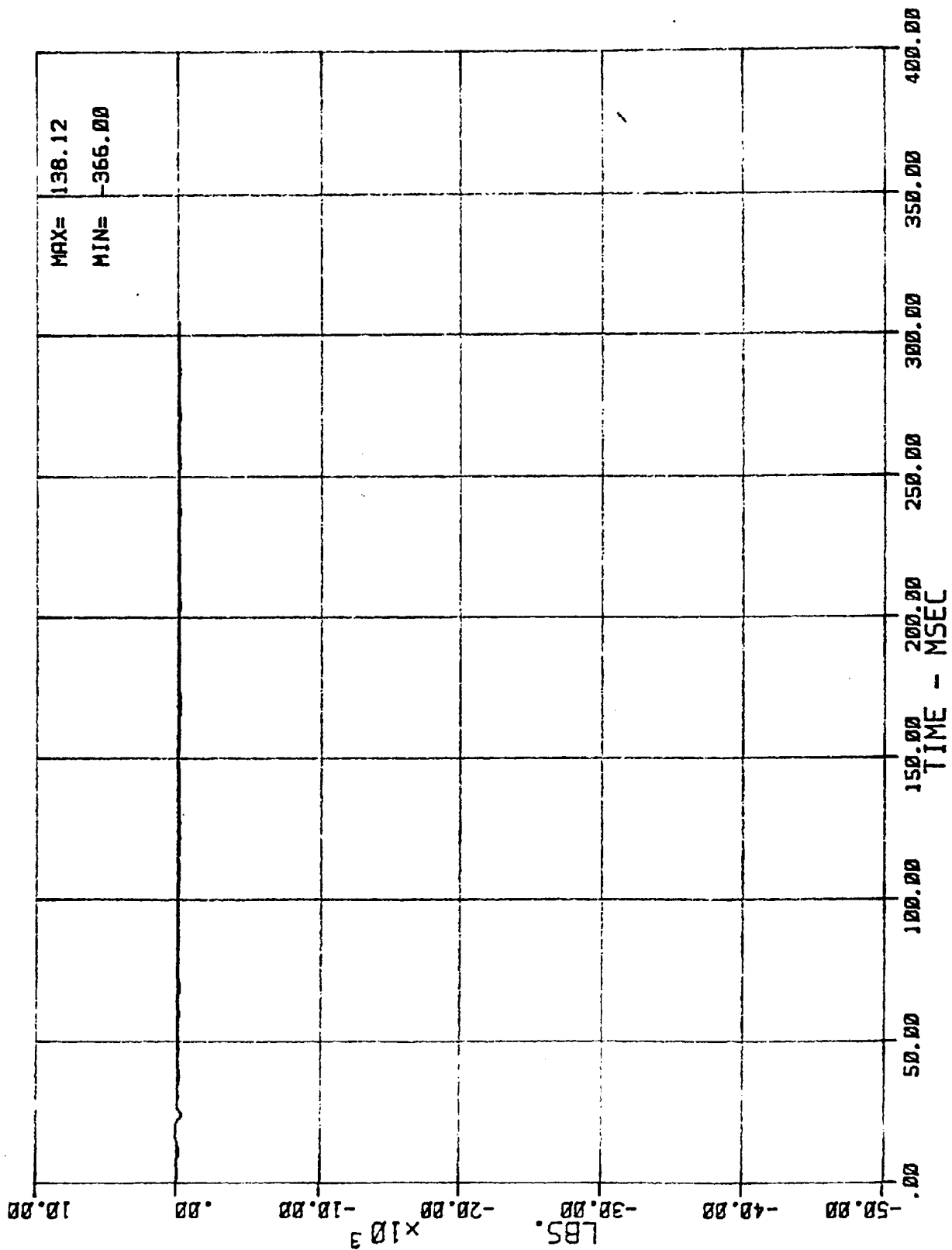
39 LC BA N BA9 (BARRIER LOAD CELL A9 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



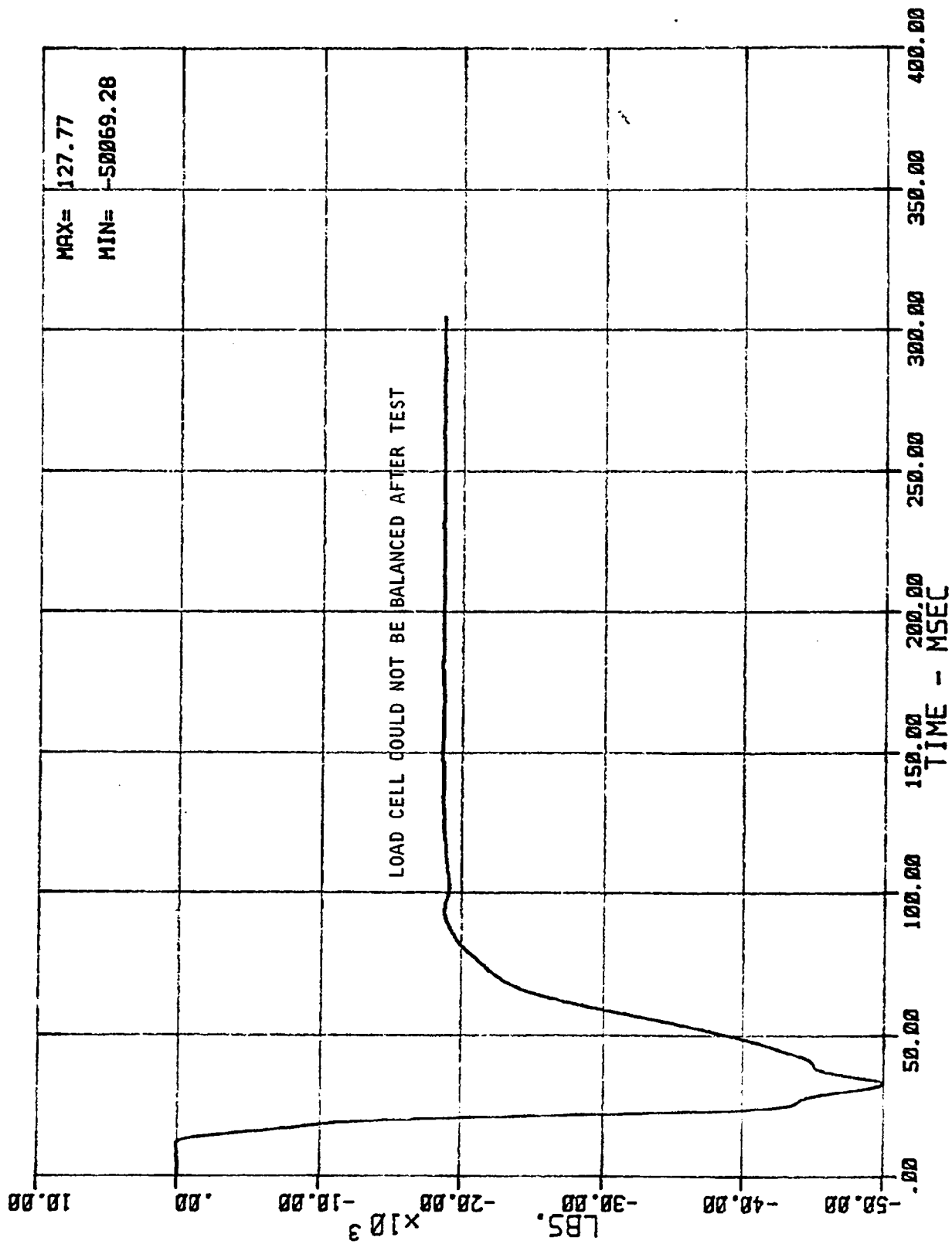
40 LC BA N BB1 (BARRIER LOAD CELL B1 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



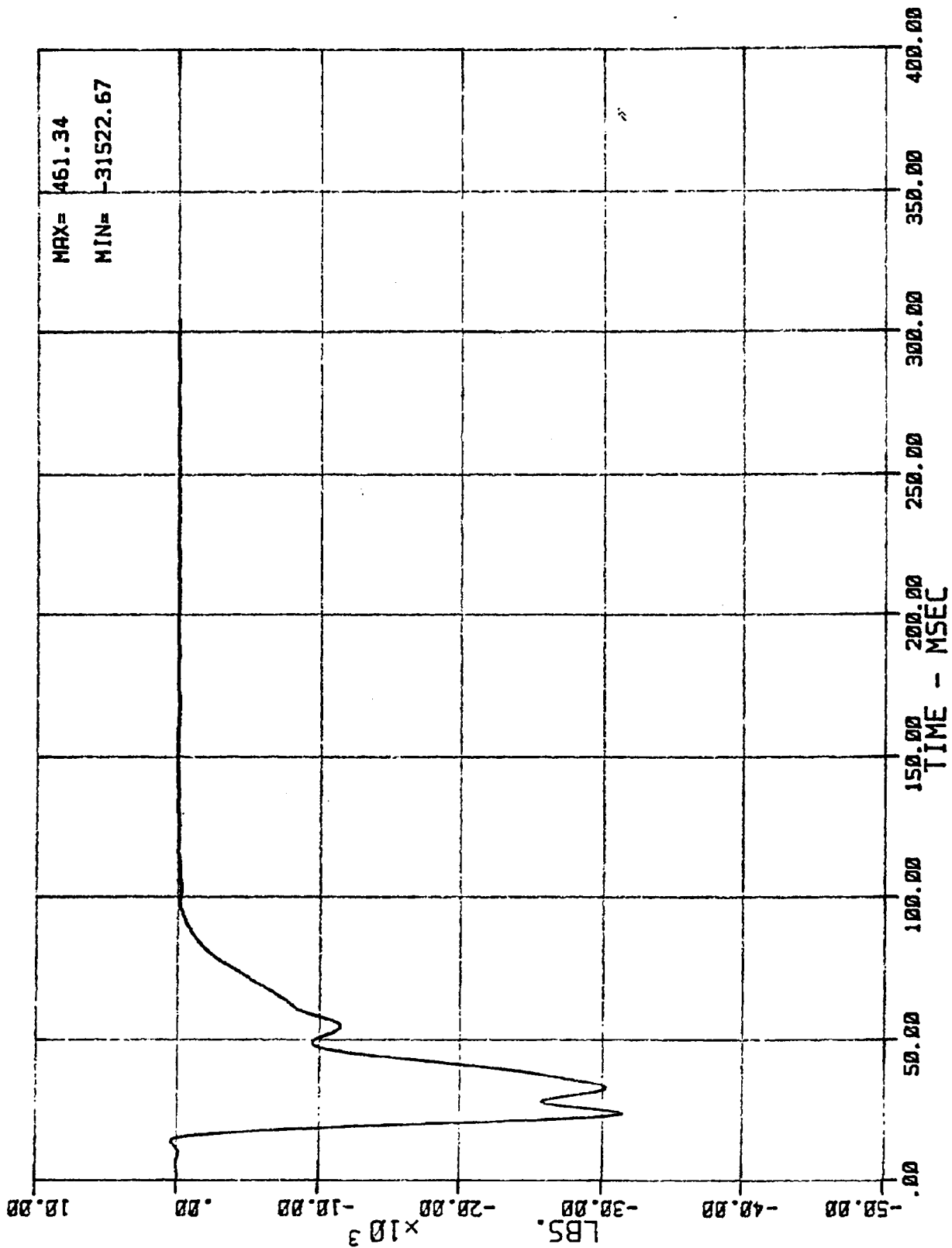
41 LC BB N BB2 (BARRIER LOAD CELL B2 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



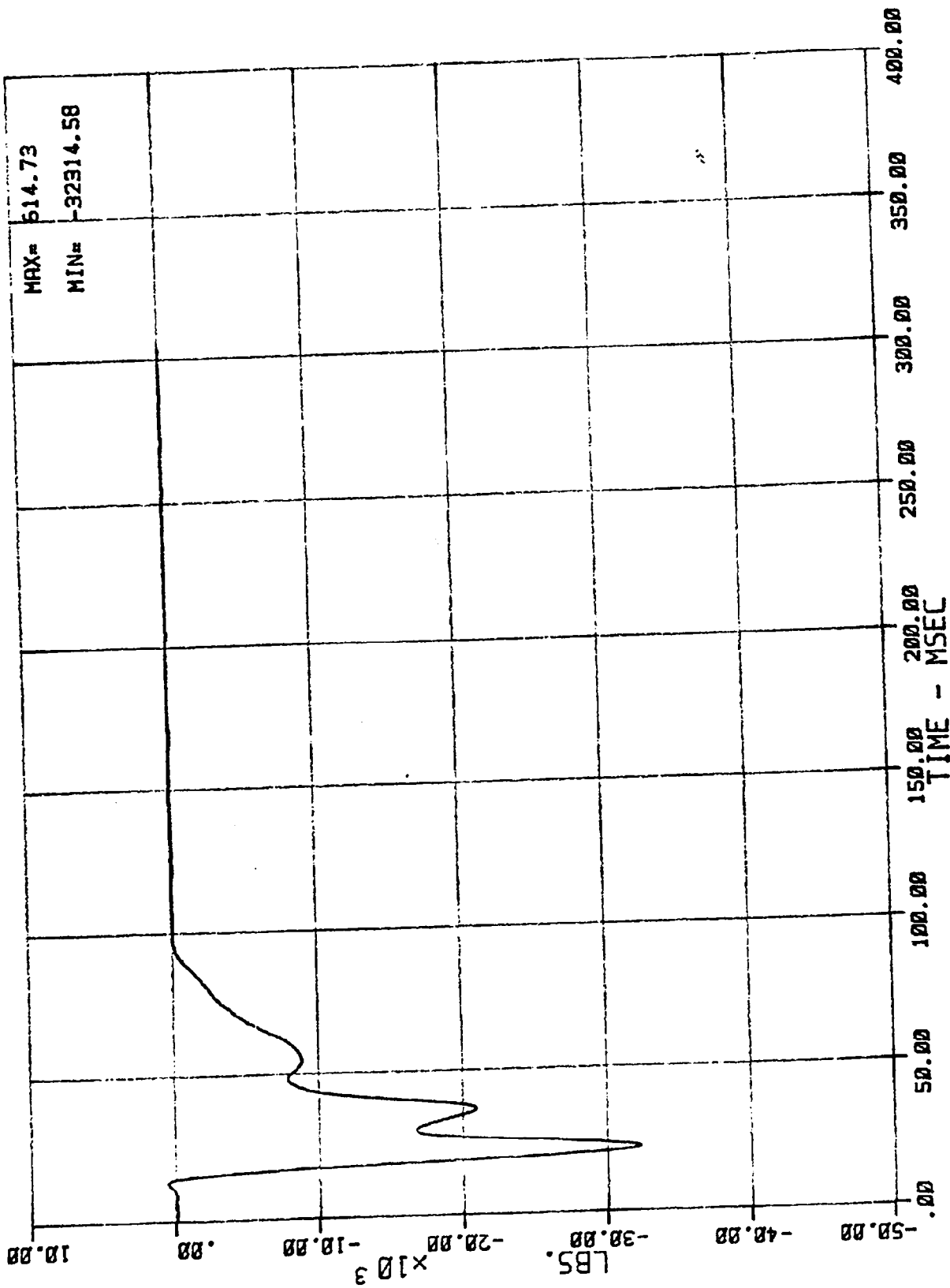
42 LC BB N BB3 (BARRIER LOAD CELL B3 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



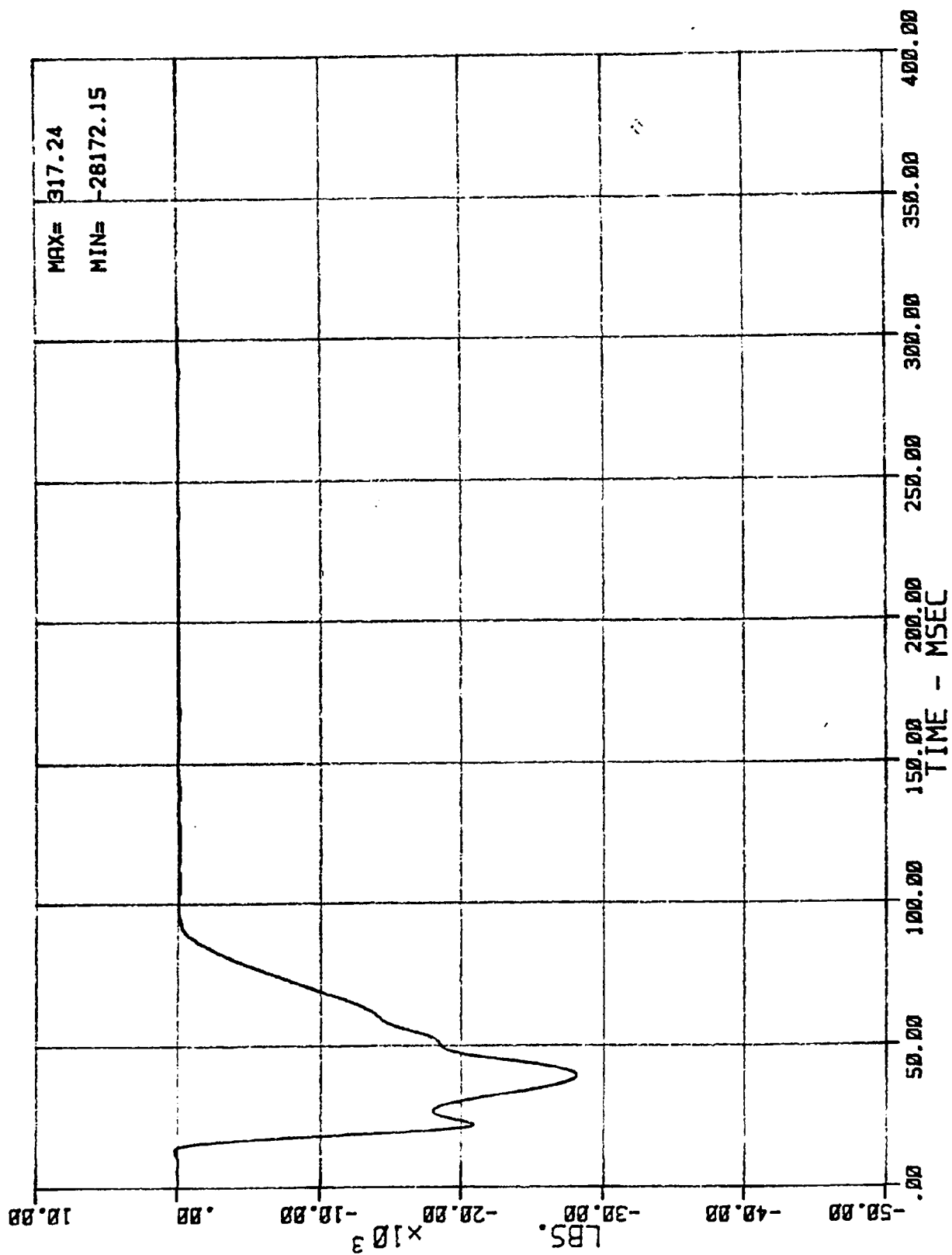
43 LC BB N BB4 (BARRIER LOAD CELL B4 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



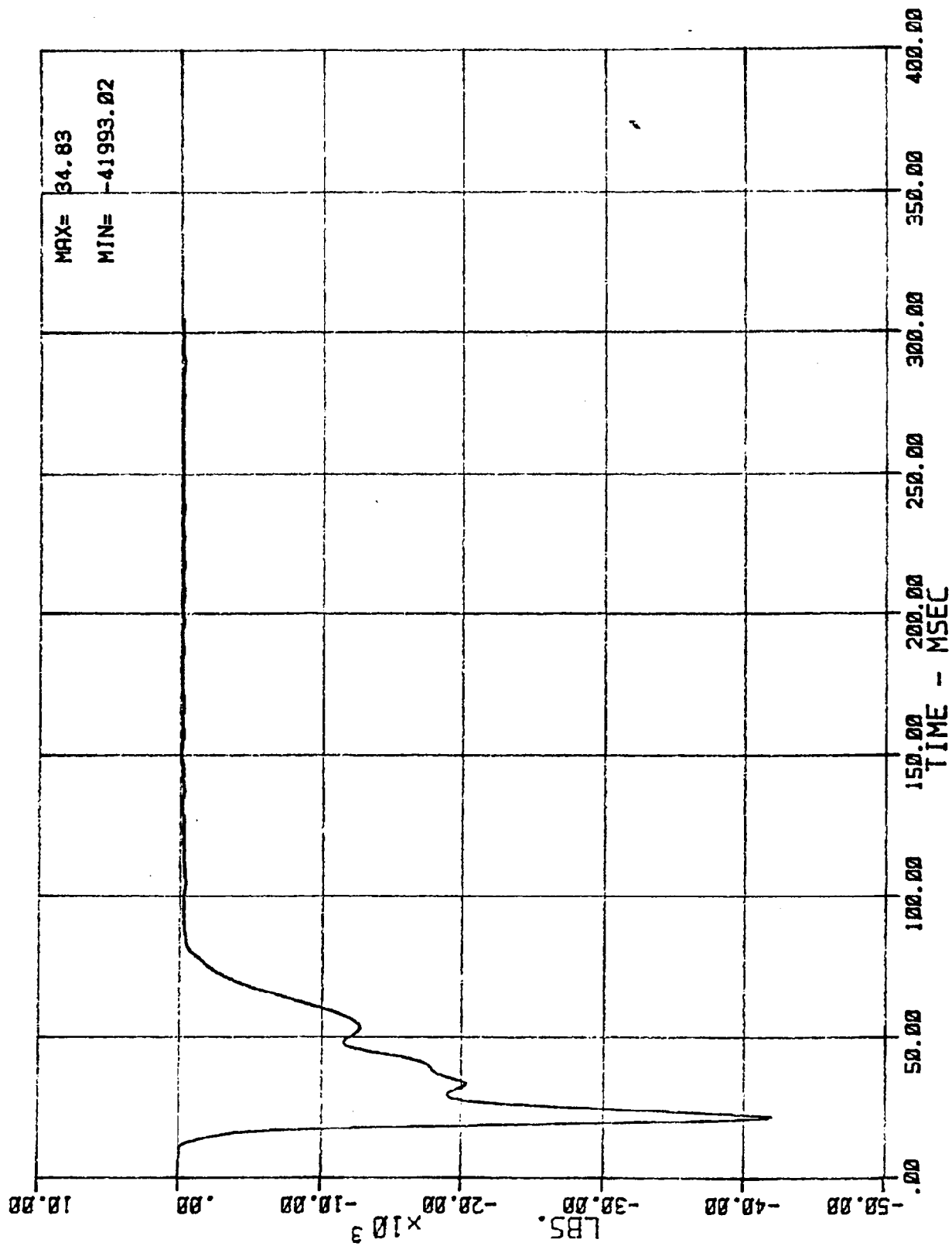
44 LC 8B N BBS (BARRIER LOAD CELL B5 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



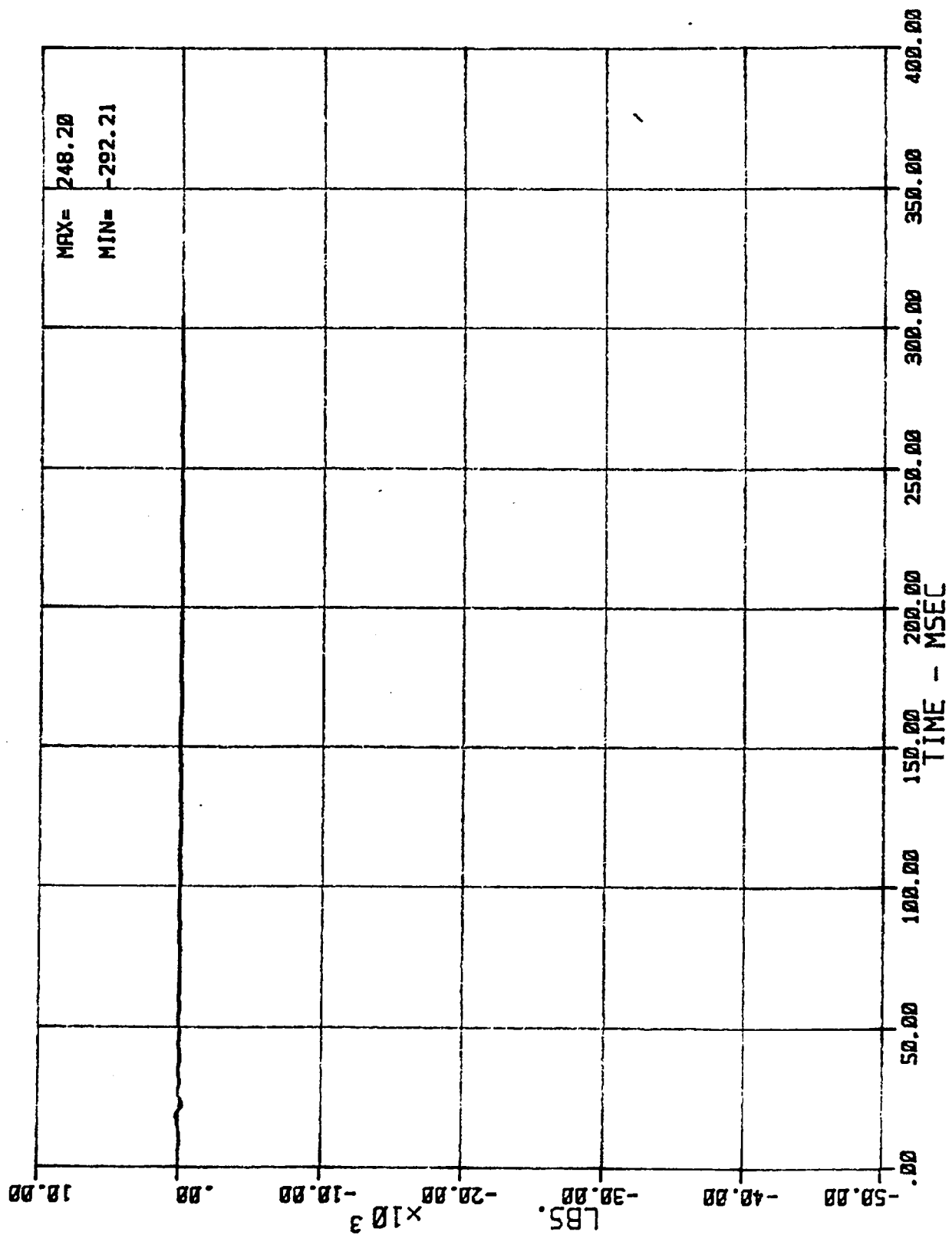
45 LC BA N BB6 (BARRIER LOAD CELL B6 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



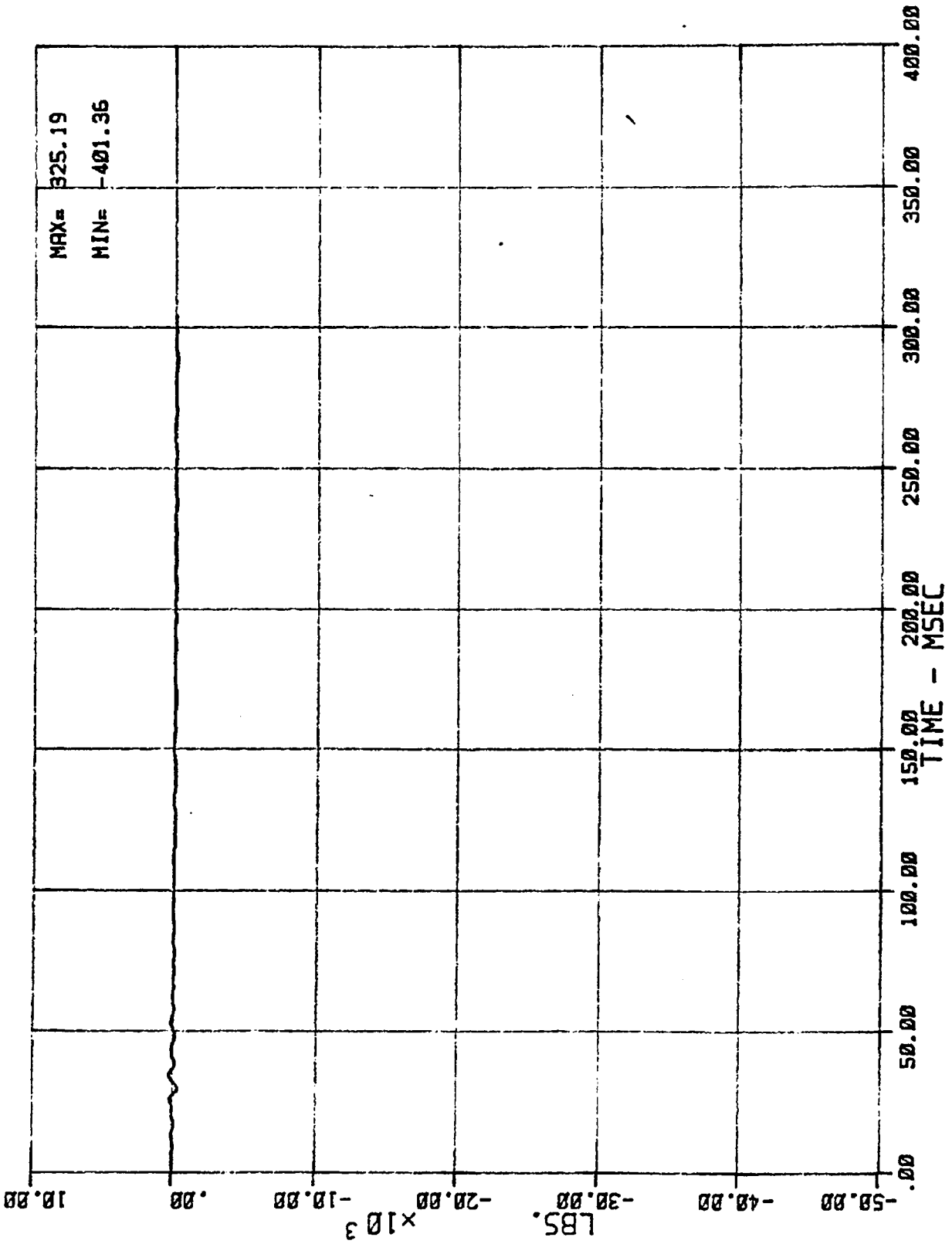
46 LC BR N BB7 (BARRIER LOAD CELL B7 FORCE)
 MSE N62035 1985 ISUZU TROOPER 2

06/06/85



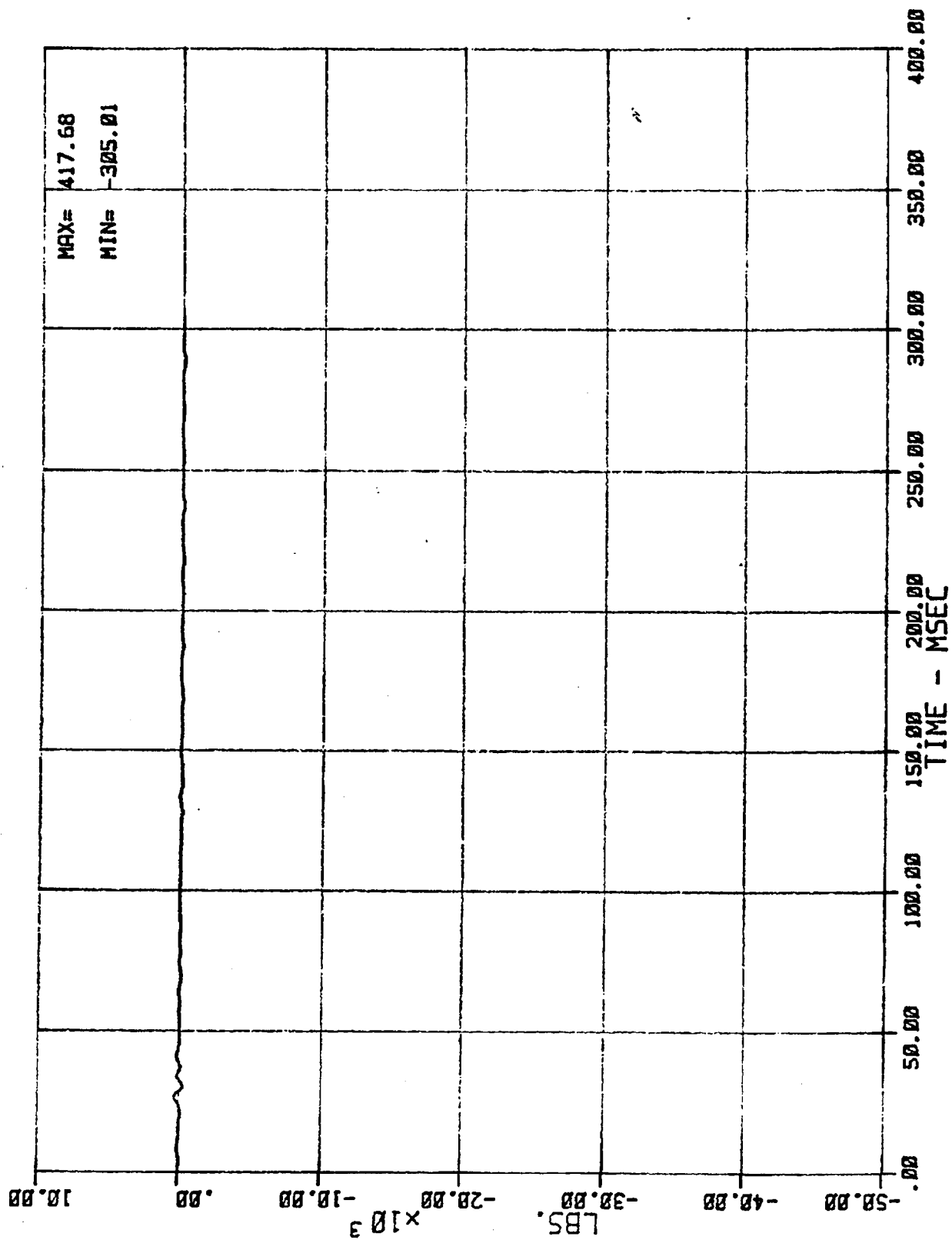
47 LC BA N BB8 (BARRIER LOAD CELL BB FORCE)
NSE N62035 1985 ISUZU TROOPER 2

06/06/85



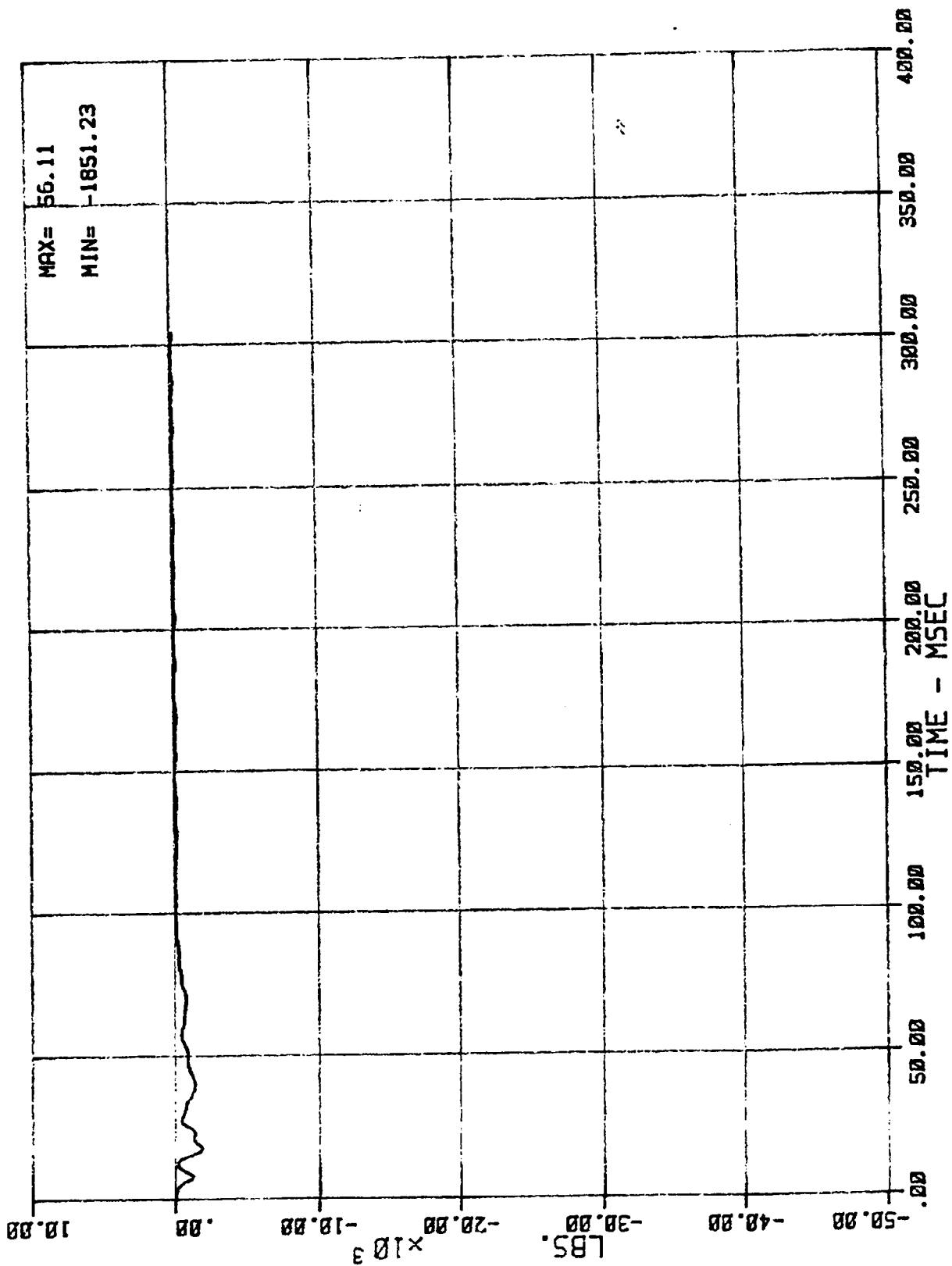
48 LC BA N BB9 (BARRIER LOAD CELL B9 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



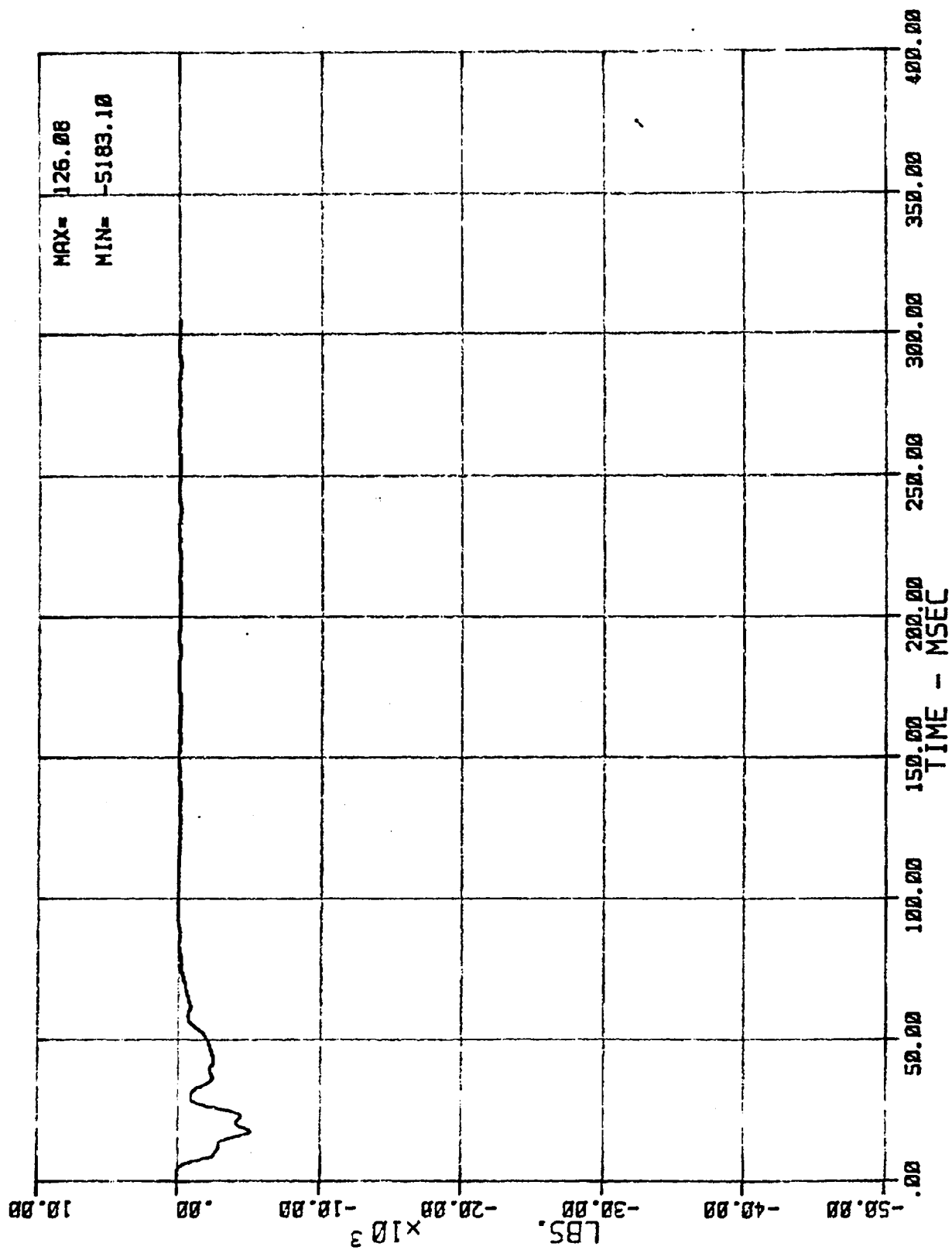
49 LC BA N BC1 (BARRIER LOAD CELL C1 FORCE)
HSE N62035 1985 ISUZU TROOPER 2

06/06/85



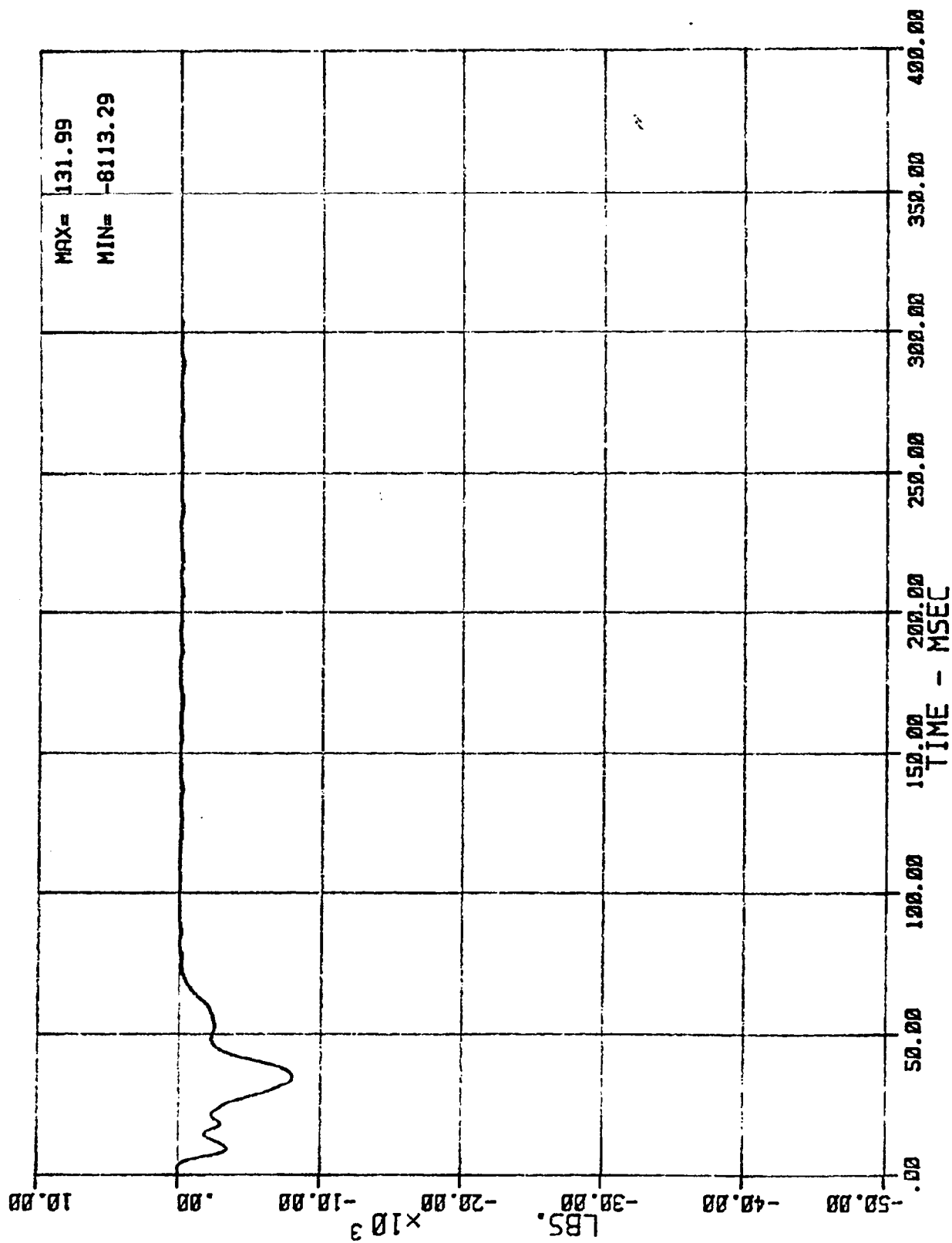
S0 LC BA BC2 (BARRIER LOAD CELL C2 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



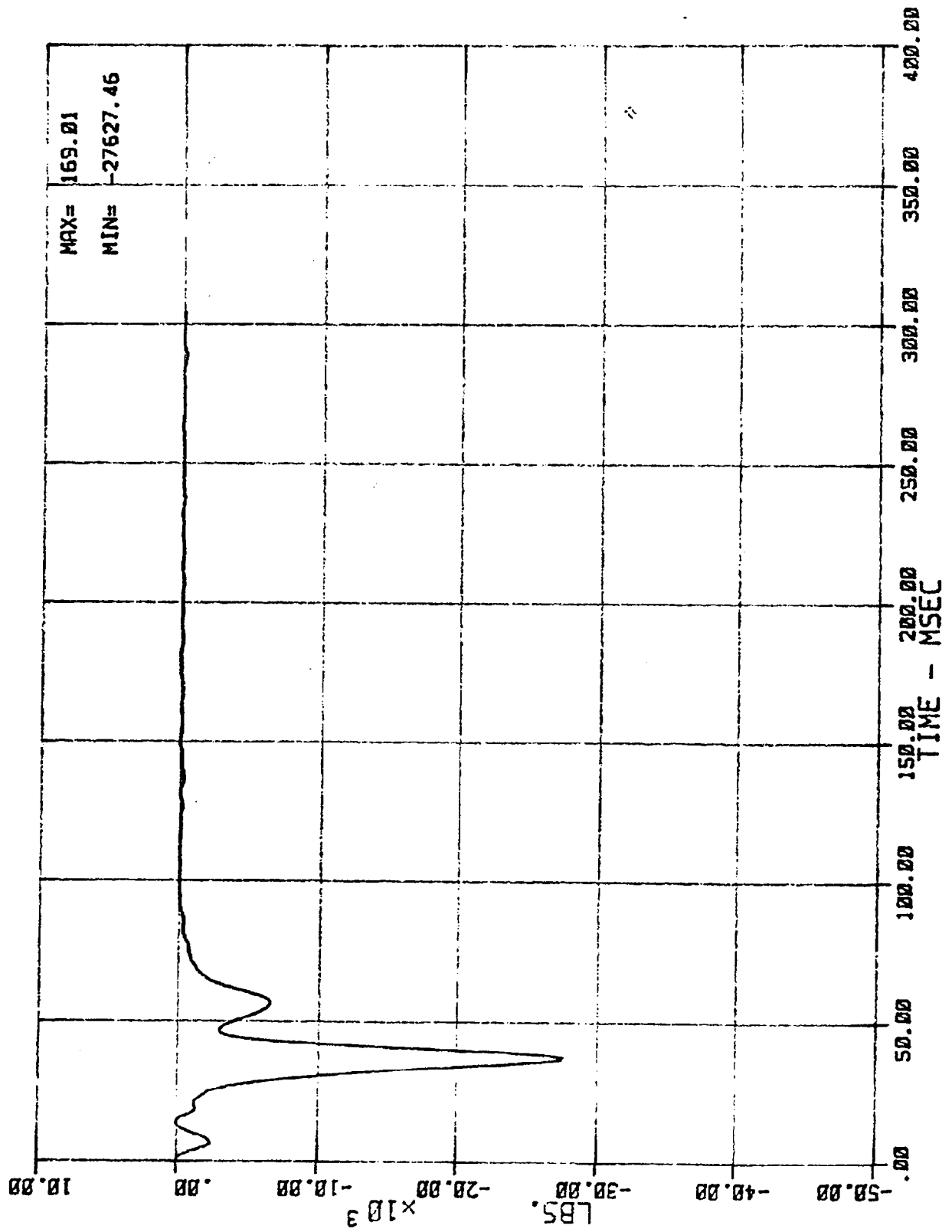
51 LC BA N BC3 (BARRIER LOAD CELL C3 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



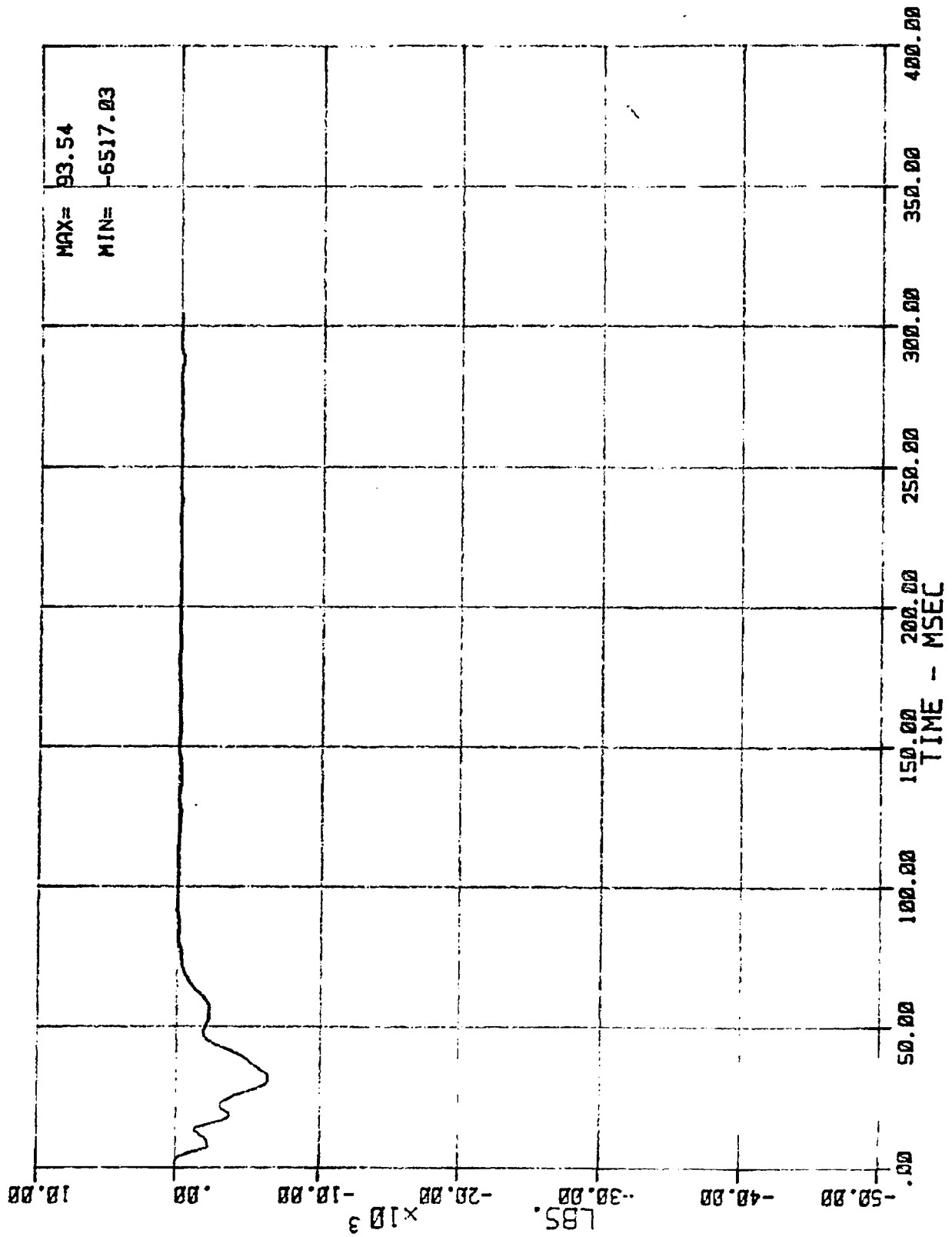
52 LC BA N BC4 (BARRIER LOAD CELL C4 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



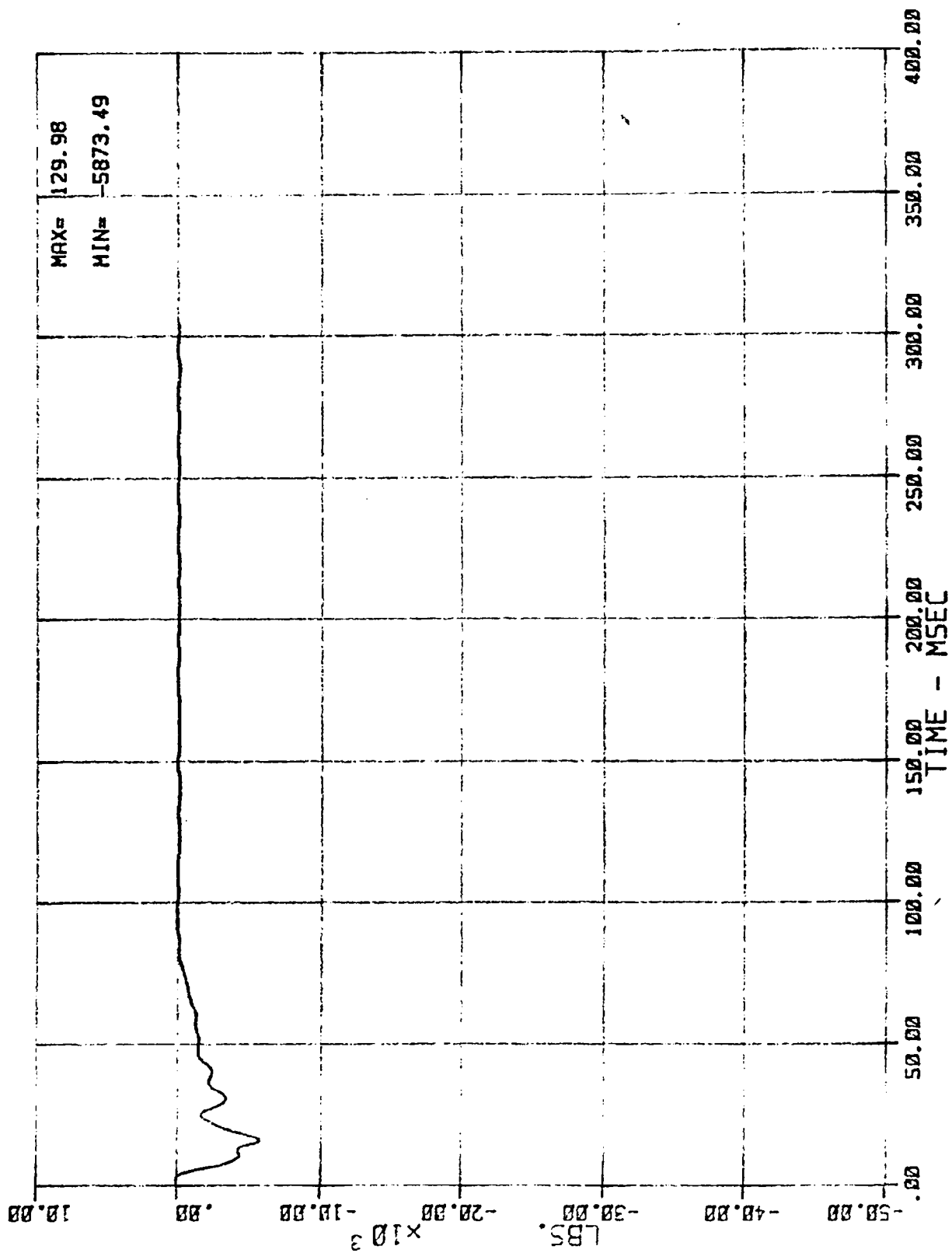
53 LC BA N BC5 (BARRIER LOAD CELL CS FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



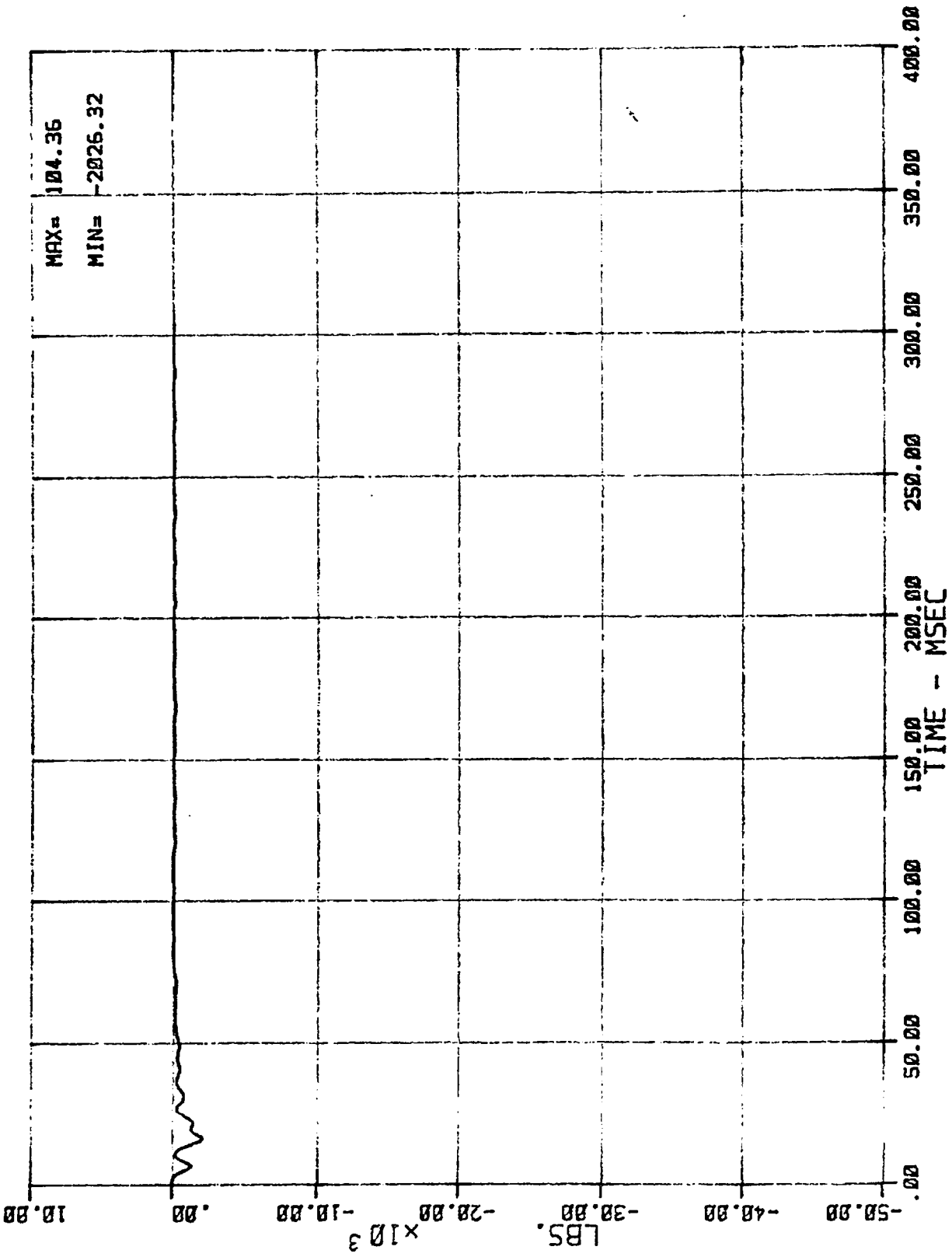
54 LC BR N BC6 (BARRIER LOAD CELL C6 FORCE)
HSE N62035 1985 ISUZU TROOPER 2

06/06/85



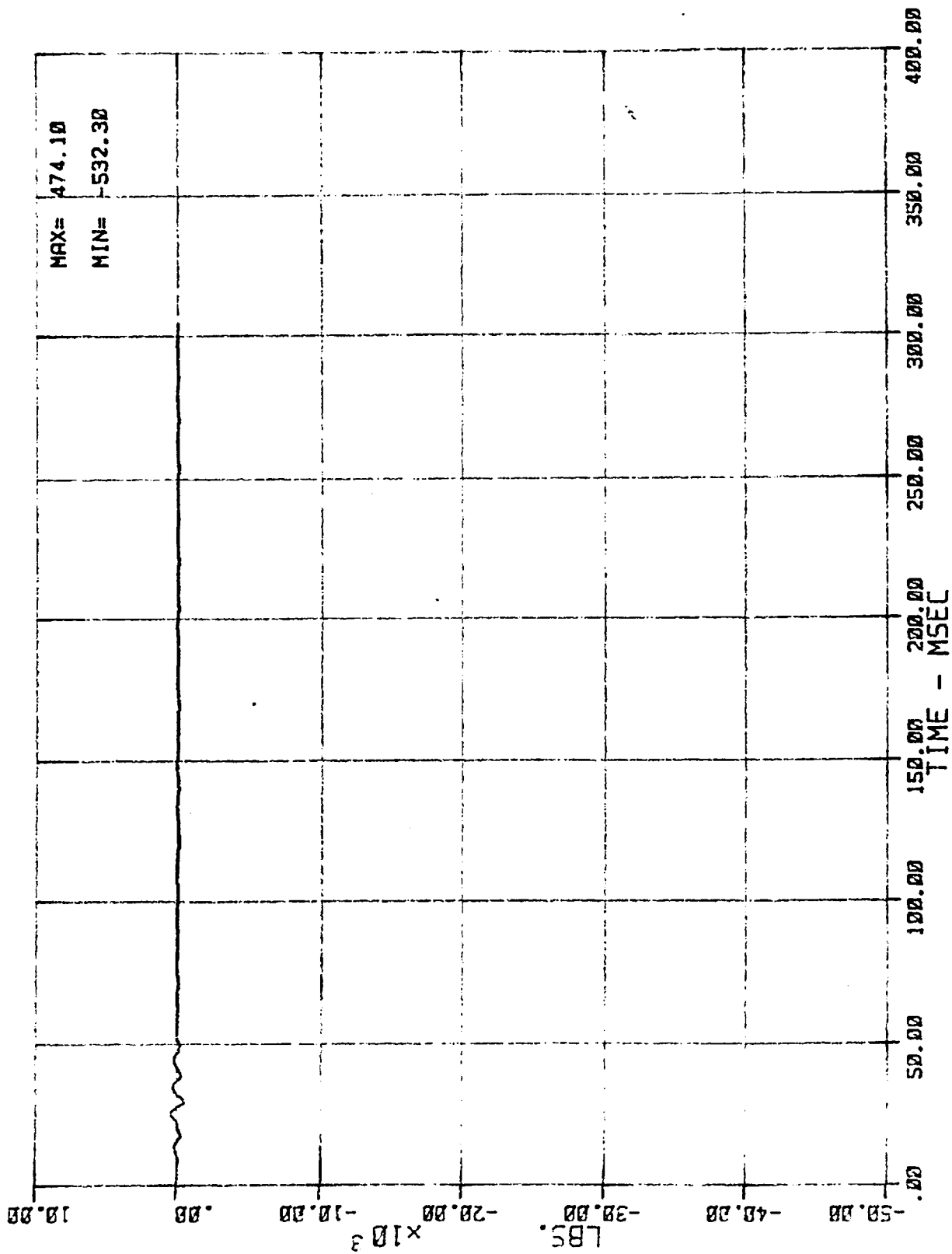
55 LC BA N BC7 (BARRIER LOAD CELL C7 FORCE)
HSE N62035 1985 ISUZU TROOPER 2

06/06/85



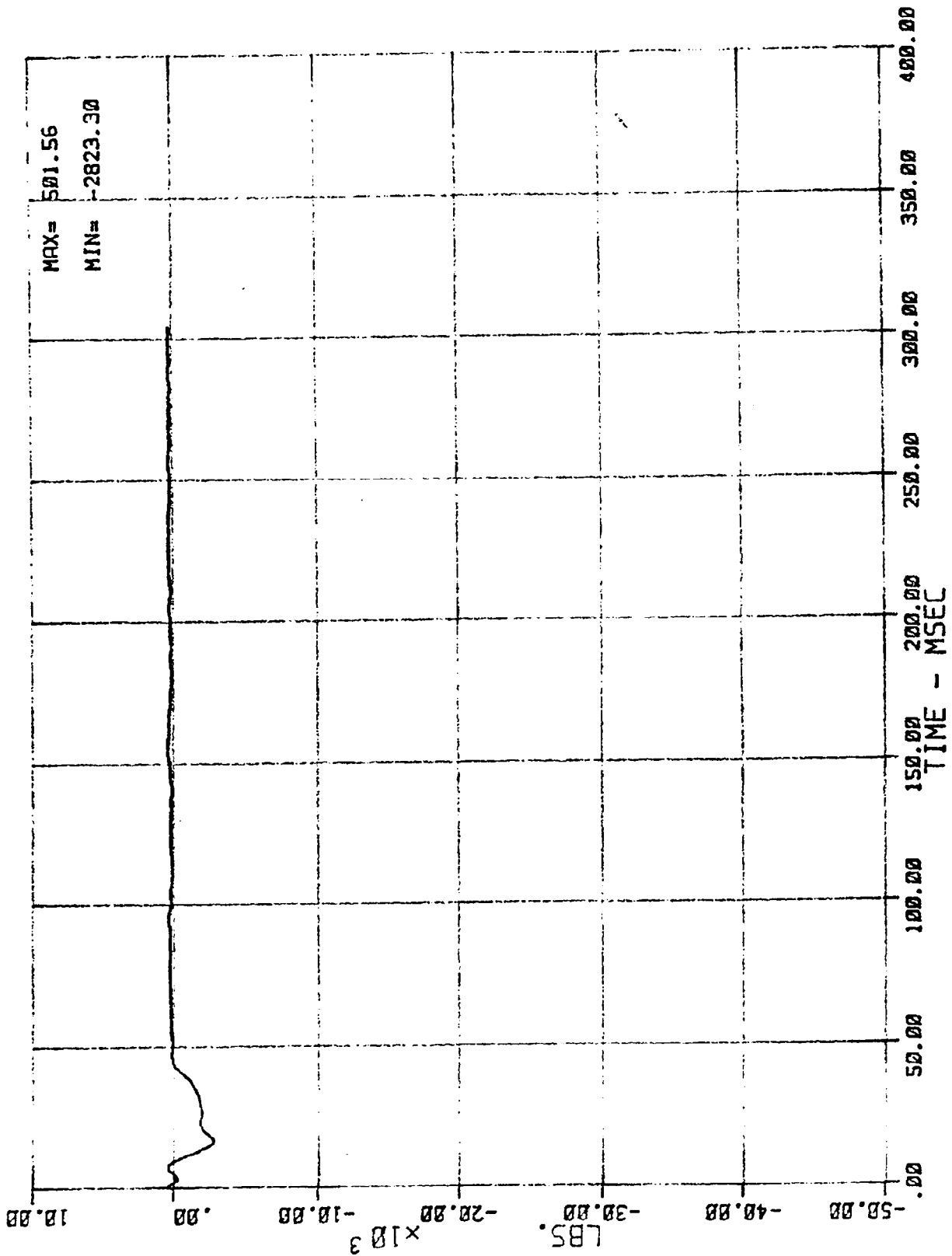
56 LC BA N BCB (BARRIER LOAD CELL C8 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



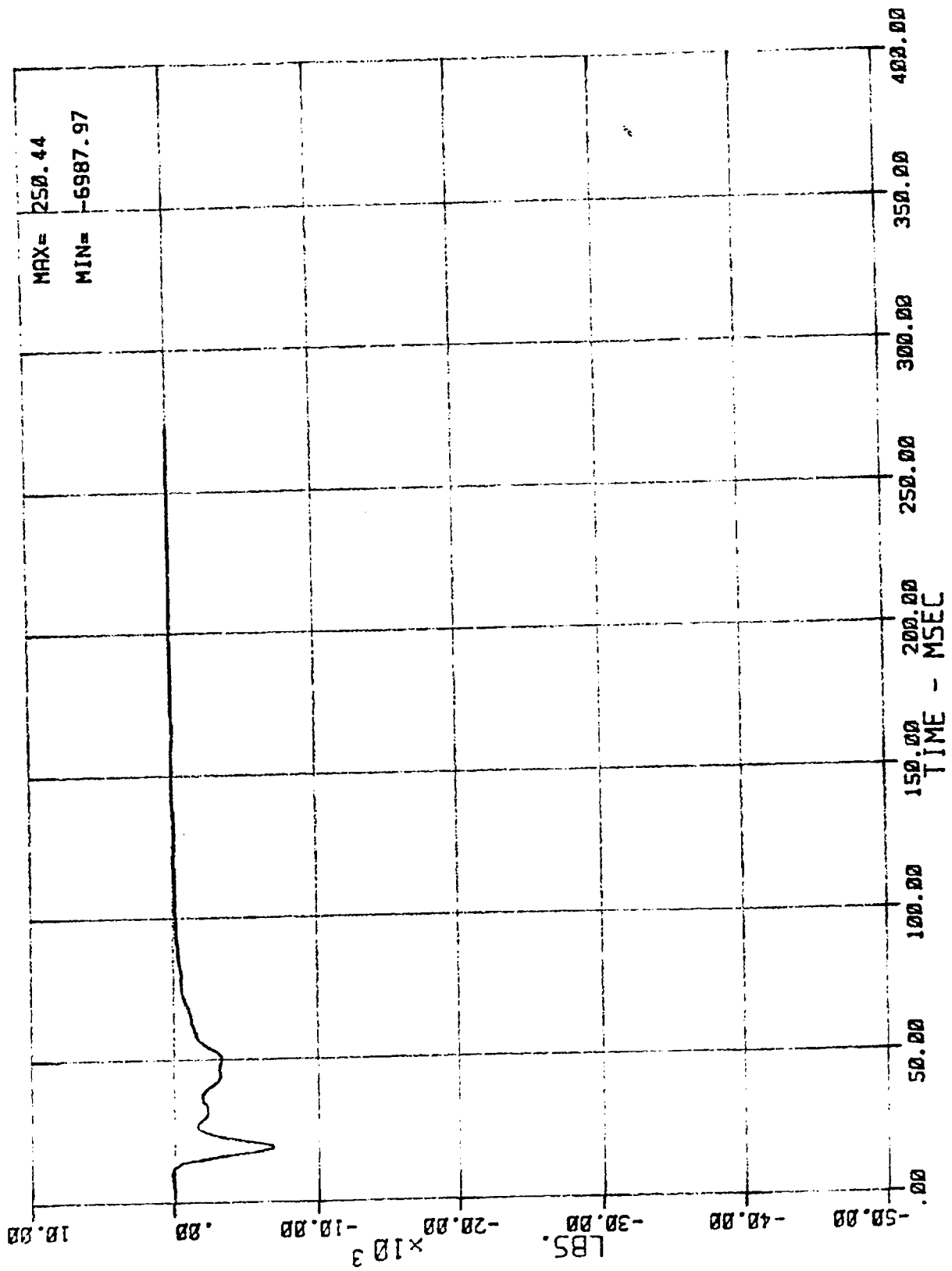
57 LC BA N BC9 (BARRIER LOAD CELL C9 FORCE)
HSE N62035 1985 ISUZU TROOPER 2

06/06/85



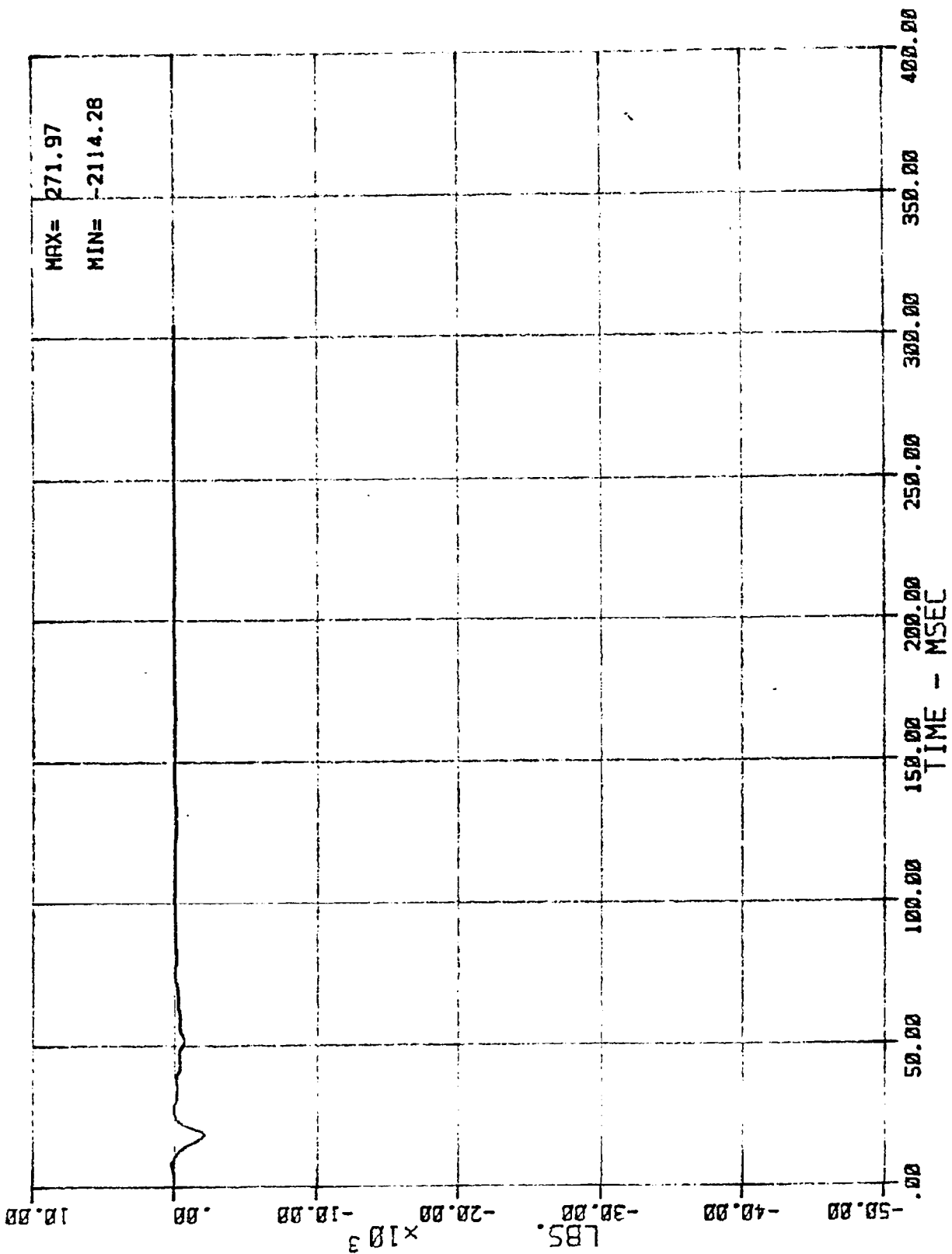
58 LC BA N BD1 (BARRIER LOAD CELL D1 FORCE)
NSE N62035 1985 ISUZU TROOPER 2

06/06/85



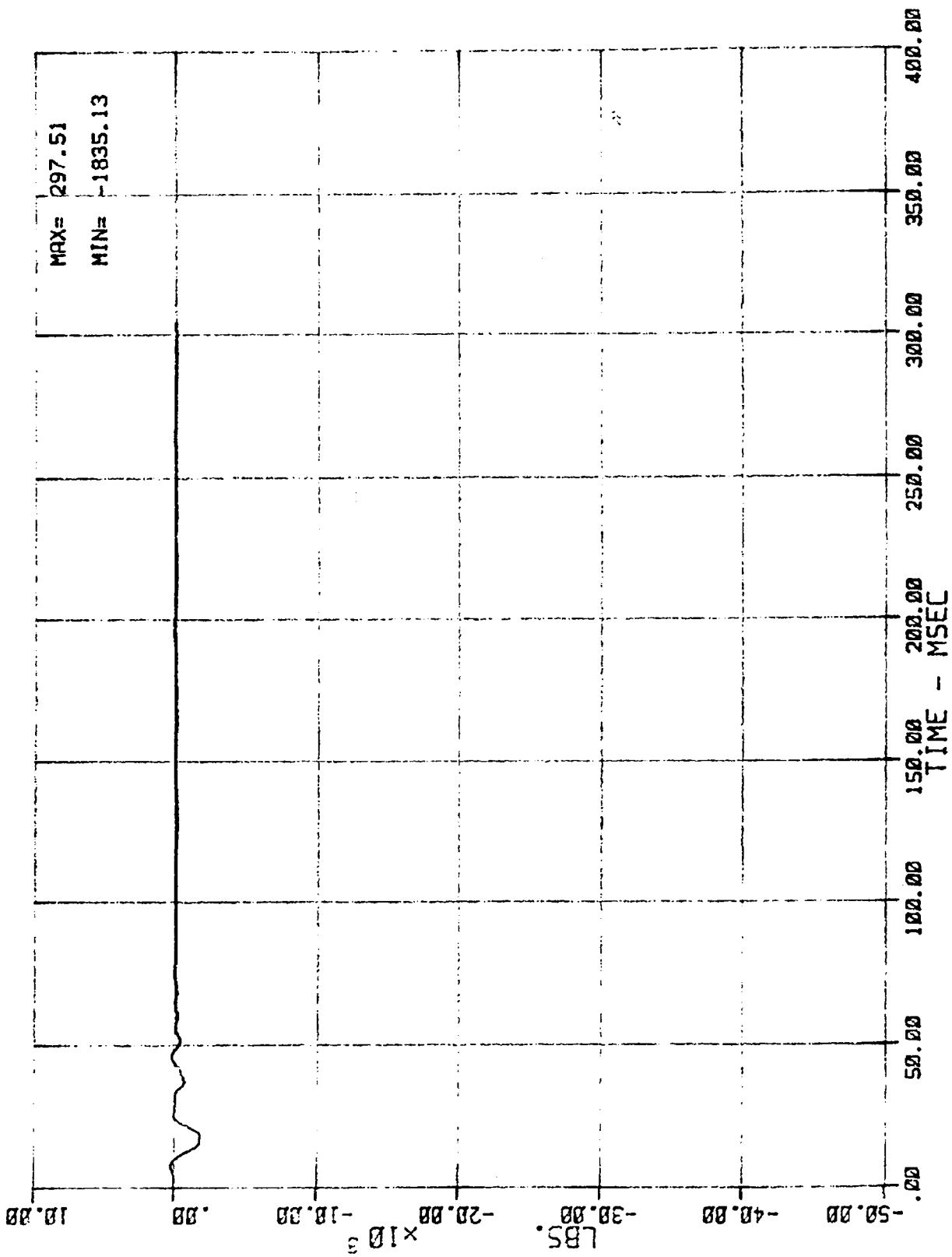
59 LC BA N BD2 (BARRIER LOAD CELL D2 FORCE)
HSE N62035 1985 ISUZU TROOPER 2

06/06/85



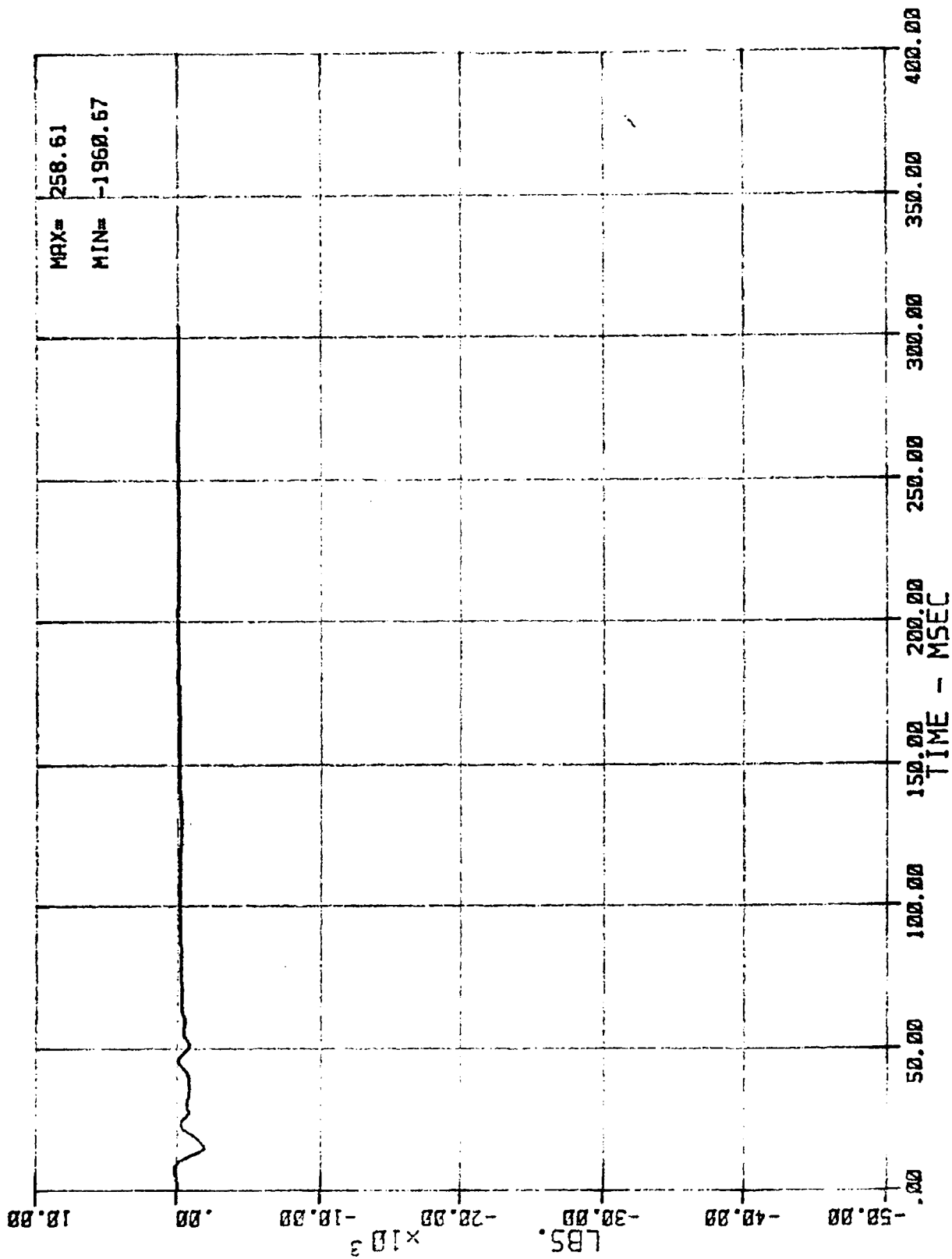
60 LC BA N 803 (BARRIER LOAD CELL D3 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



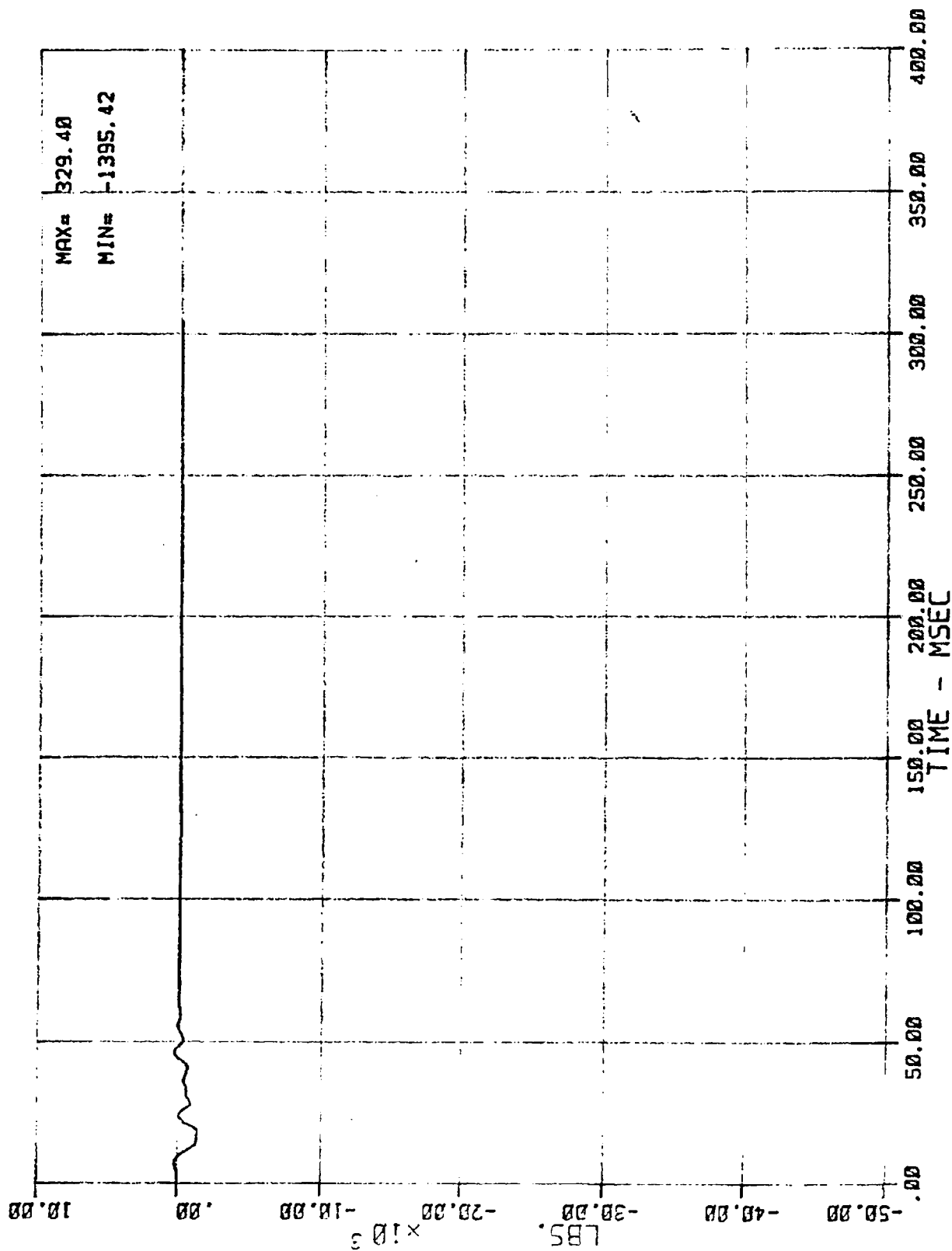
61 LC BA N BD4 (BARRIER LOAD CELL D4 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



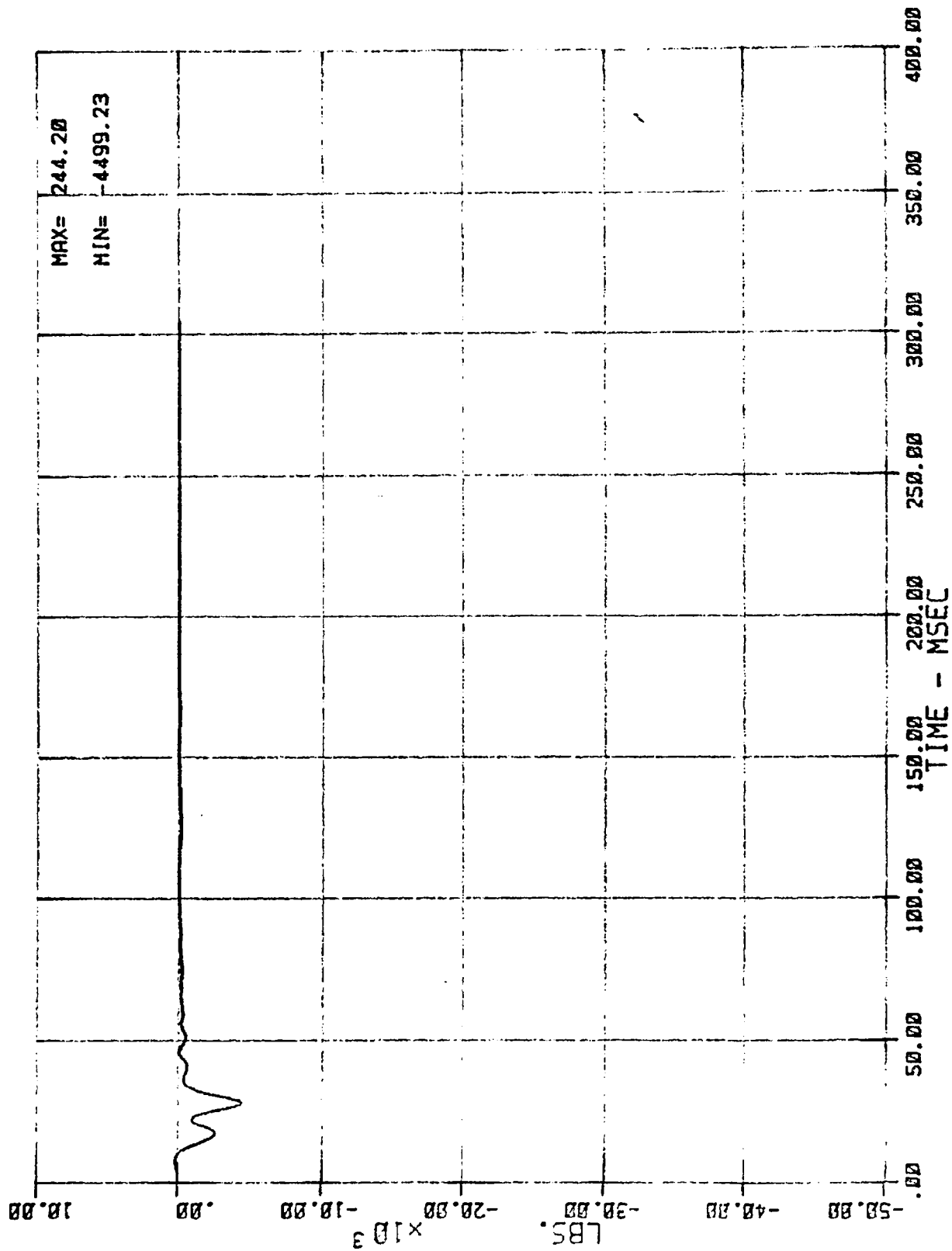
62 LC BA N BDS (BARRIER LOAD CELL DS FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



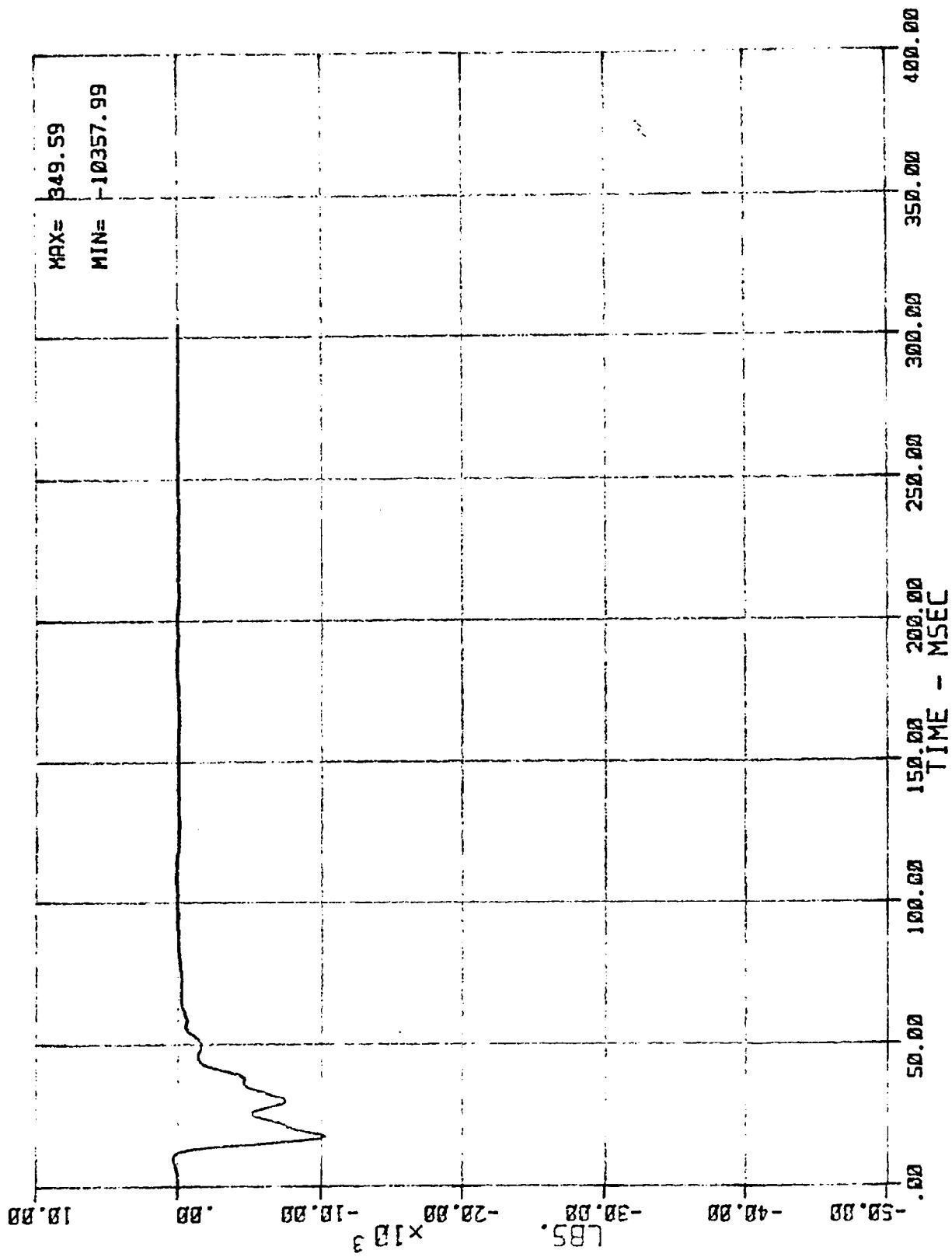
63 LC BA N 806 (BARRIER LOAD CELL D6 FORCE)
MSE N62035 1985 ISUZU TROOPER 2

06/06/85



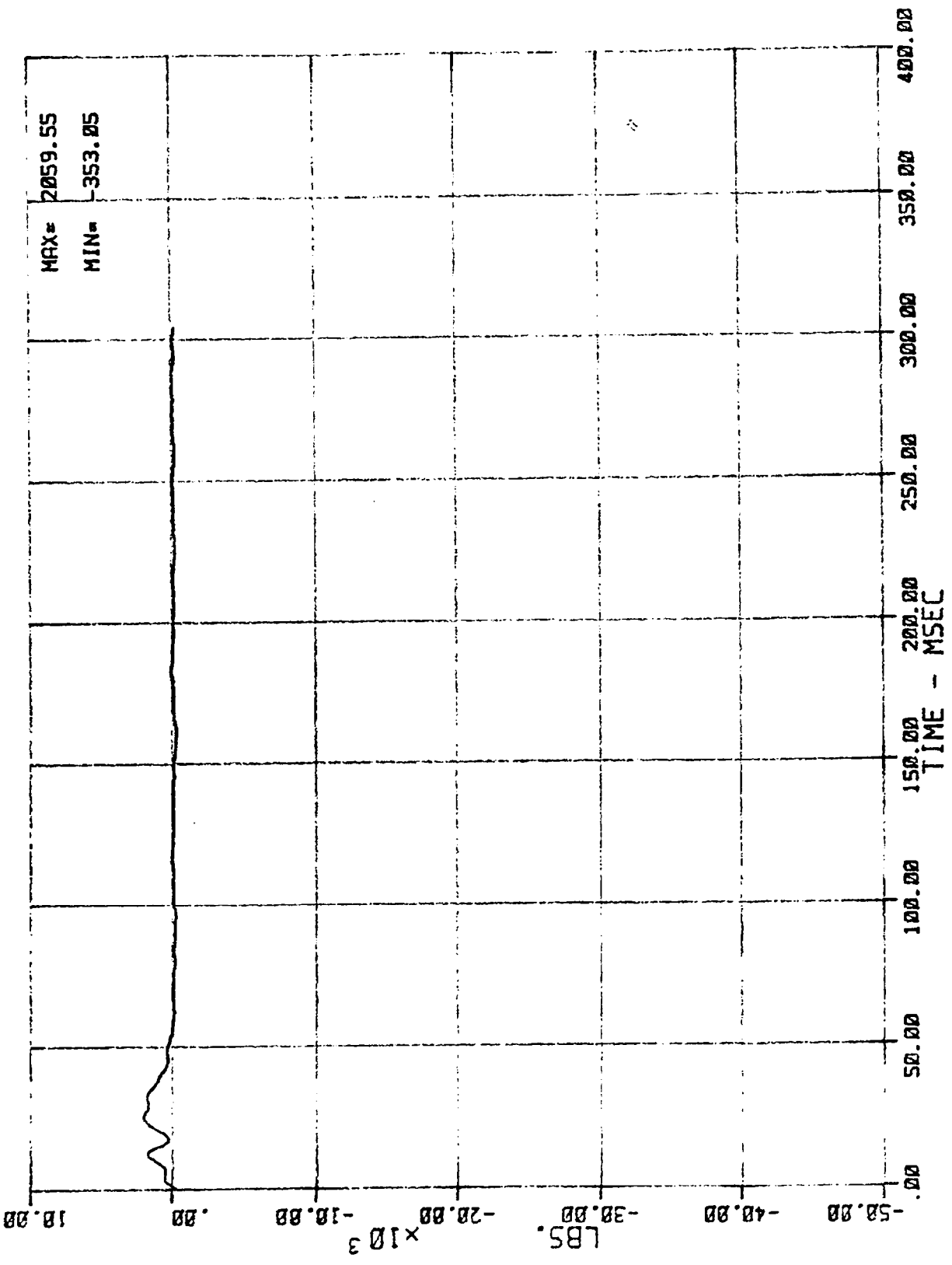
64 LC BA N 807 (BARRIER LOAD CELL 07 FORCE)
NSE N62035 1985 ISUZU TROOPER 2

06/06/85



65 LC BA N 808 (BARRIER LOAD CELL D8 FORCE)
HSE N62035 1985 ISUZU TROOPER 2

06/06/85



66 LC BA N 809 (BARRIER LOAD CELL D9 FORCE)
NSE N62035 1985 ISUZU TROOPER 2

06/06/85

APPENDIX C

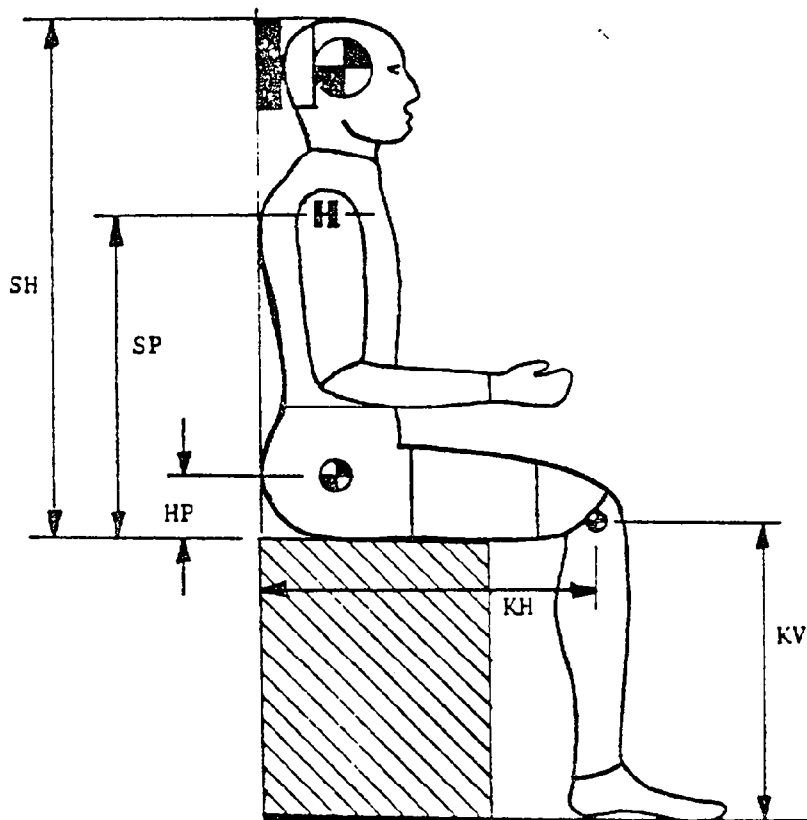
PART 572 DUMMY CONFIGURATION AND
PERFORMANCE VERIFICATION TESTS

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NO.:

4	6	6
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I. CONFIGURATION VERIFICATION DATA:



	P. 572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION		06/01-06/06/85	06/10 - 06/13/85
VERIFICATION NUMBER FOR DUMMY*		2	3
SH - Seated Height- - - - -	35.6 to 35.8"	35.6	35.6
SP - Shoulder Pivot Height- - -	21.8 to 22.4"	21.9	21.9
HP - Hip Pivot Height - - - - -	3.9" ref.	3.9	3.9
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.6	20.6
KV - Knee Pivot from floor- - -	19.3 to 19.9"	19.5	19.5
SW - Shoulder Width - - - - -	17.8 to 18.4"	18.0	18.0
HW - Hip Width- - - - -	14.0 to 15.4"	14.5	14.5

TECHNICIAN'S NAME: P. Leonard

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

TABLE - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY

NHTSA ATD I.D. NO.: 466LABORATORY TECHNICIAN: P. Leonard

		Pre-Test Calibration	Post-Test Calibration
DATE OF PERFORMANCE VERIFICATION		06/01-06/06/85	06/10-06/13/85
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY-----		2	3
VERIF. LAB. TEMPERATURE (66 to 70% Range)-----		69°-74°F	70°-74°F
VERIF. LAB. HUMIDITY (10 to 70% Range)		44 -50 %	46 -56 %
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST:			
a. Peak Resultant Accel. -	210 to 260g	231	234
b. Peak Lateral Accel. - -	≤10g	3.6	1.0
c. Time above 100G - - - -	0.9 to 1.5 ms	1.3	1.2
2. NECK BENDING TEST:			
a. Pendulum Speed - - - -	21.5 to 25.5 fps	22.20	22.20
b. Pendulum Avg. Decel. (over $t_3 - t_2$) - - - -	20 to 24G	23.0	23.9
c. Peak Resultant Head Acceleration - - - - -	26G maximum	23.3	22.3
d. Pendulum Decel. ($t_2 - t_1$)	≤3 ms	2.2	1.8
e. Pendulum Decel. ($t_3 - t_2$)	25 to 30 ms	27.2	28.4
f. Pendulum Decel. ($t_4 - t_3$)	≤10 ms	9.2	8.2
g. Pendulum Direction Reversal Time - - - - -	≥123 ms	N/A	N/A
h. Max. Head Rotation - -	63 to 73°	64.2	64.5
i. Chordal Displacement: Head Rotation Angle - -			
0°	Time	-2 to 2 ms	0.0
	Displ.	-.5 to .5 in.	0.00
30°	Time	25.6 to 34.4 ms	32.8
	Displ.	2.1 to 3.1 in.	2.75
60°	Time	40.3 to 51.7 ms	49.6
	Displ.	4.3 to 5.3 in.	5.21
Maximum (64°) (65°)	Time	53.2 to 66.8 ms	59.9
	Displ.	5.0 to 6.0 in.	5.49

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

NHTSA ATD I.D. NO.: 466

TEST PARAMETER		SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
2. NECK BENDING TEST <u>Continued:</u>				
i. Chordal Displacement:				
Head Rotation Angle -				
60°	Time	67.0 to 83.0 ms	70.2	71.6
	Disp.	4.3 to 5.3 in.	4.87	5.13
30°	Time	85.4 to 104.6 ms	89.2	87.4
	Displ.	2.1 to 3.1 in.	2.20	2.51
0°	Time	101.0 to 123.0 ms	101.8	101.0
	Displ.	-.5 to 0.5 in.	0.22	0.17
3. ABDOMINAL COMPRESSION TEST:				
(Preload = 10 pounds)				
a. Force @ .5" - - - - -		23 - 36 lbs.	27.0	25.5
b. Force @ .75" - - - - -		36 - 50 lbs.	39.0	39.0
c. Force @ 1.0" - - - - -		50 - 63 lbs.	58.0	58.0
d. Force @ 1.3" - - - - -		73 - 88 lbs.	86.0	88.0
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - - -		22 to 34 lbs.	27.2	26.0
b. Force @ 30° - - - - -		34 to 46 lbs.	37.6	39.2
d. Force @ 40° - - - - -		46 to 58 lbs.	50.4	54.0
e. Return Angle - - - - -		12° maximum	11	7
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - - -		21.78-22.22 fps	22.00	21.80
(2) Peak Deflection -		1.7" maximum	1.43	1.70
(3) Peak Resistive Force - - - - -		2250 lbs. maximum	1930	1870
(4) Internal Hysteresis - - -		50 to 70%	54.4	55.0

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

NHTSA ATD I.D. NO.: 466

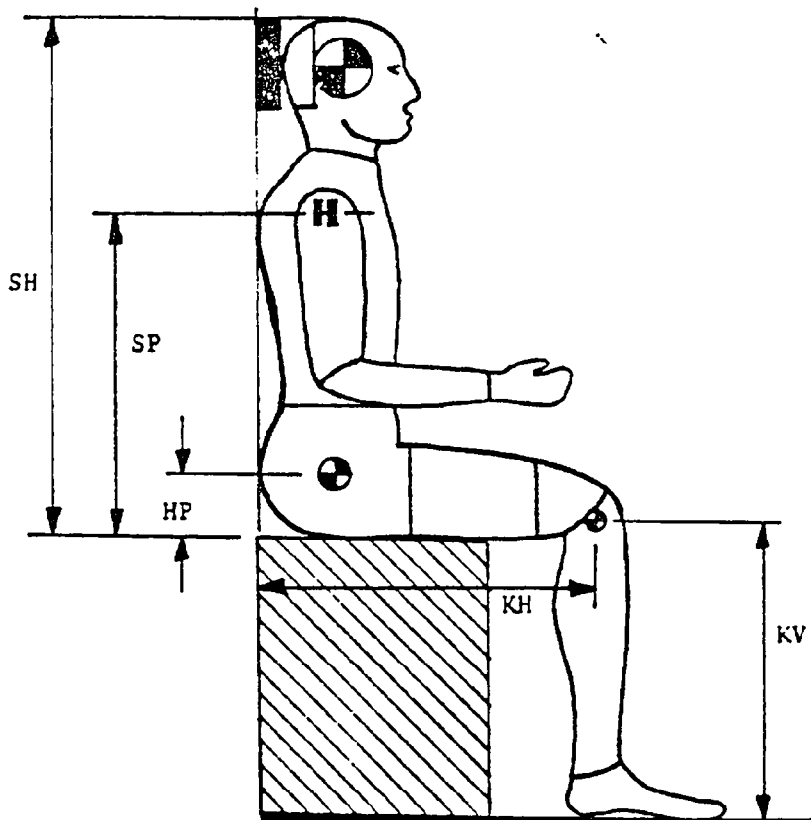
TEST PARAMETER	SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
5. CHEST IMPACT TESTS:			
<u>Continued:</u>			
b. Low Speed			
(1) Probe Speed - - -	13.86-14.14 fps	13.96	13.87
(2) Peak Deflection -	1.1" maximum	1.03	0.98
(3) Peak Resistive Force - - - - -	1450 lbs. maximum	1200	1210
(4) Internal Hysteresis - - -	50 to 70%	57.0	60.7
6. KNEE IMPACT TESTS:			
a. Right Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	7.01	7.02
(2) Maximum Force - -	1850 to 2500 lbs.	1960	2090
(3) Time Above 1000#-	1.7 ms minimum	2.00	1.80
b. Left Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.98	7.01
(2) Maximum Force - -	1850 to 2500 lbs.	1980	1850
(3) Time Above 1000#-	1.7 ms. minimum	1.80	2.00

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NO.:

4	6	5
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I. CONFIGURATION VERIFICATION DATA:



	P.572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION		05/17-05/28/85	06/10-06/13/85
VERIFICATION NUMBER FOR DUMMY*		1	2
SH - Seated Height- - - - -	35.6 to 35.8"	35.6	35.6
SP - Shoulder Pivot Height- - -	21.8 to 22.4"	22.0	22.1
HP - Hip Pivot Height - - - - -	3.9" ref.	3.9	3.9
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.6	20.5
KV - Knee Pivot from floor- - -	19.3 to 19.9"	19.4	19.4
SW - Shoulder Width - - - - -	17.8 to 18.4"	18.3	18.3
HW - Hip Width- - - - -	14.0 to 15.4"	14.5	14.4

TECHNICIAN'S NAME: P. Leonard

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

TABLE - PART 572 ATD CERTIFICATION TEST DATA, SUMMARY

NHTSA ATD I.D. NO.: 465LABORATORY TECHNICIAN: P. Leonard

		Pre-Test Calibration	Post-Test Calibration
DATE OF PERFORMANCE VERIFICATION		05/17-05/28/85	06/10-06/13/85
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY		1	2
VERIF. LAB. TEMPERATURE (66 to 70% Range)		69° - 74°F	70° - 75°F
VERIF. LAB. HUMIDITY (10 to 70% Range)		43 - 50 %	38 - 58 %
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST:			
a. Peak Resultant Accel. -	210 to 260g	233	222
b. Peak Lateral Accel. -	≤10g	3.0	8.0
c. Time above 100G - - - -	0.9 to 1.5 ms	1.4	1.2
2. NECK BENDING TEST:			
a. Pendulum Speed - - - -	21.5 to 25.5 fps	23.14	22.20
b. Pendulum Avg. Decel. (over $t_3 - t_2$) - - - -	20 to 24G	22.5	23.7
c. Peak Resultant Head Acceleration - - - -	26G maximum	21.0	21.8
d. Pendulum Decel. ($t_2 - t_1$)	≤3 ms	2.4	2.0
e. Pendulum Decel. ($t_3 - t_2$)	25 to 30 ms	27.6	27.8
f. Pendulum Decel. ($t_4 - t_3$)	≤10 ms	8.6	8.2
g. Pendulum Direction Reversal Time - - - -	≥123 ms	N/A	N/A
h. Max. Head Rotation - -	63 to 73°	63.9*	66.2
i. Chordal Displacement: Head Rotation Angle - -			
0°	Time	-2 to 2 ms	0.0
	Displ.	-.5 to .5 in.	0.00
30°	Time	25.6 to 34.4 ms	34.0
	Displ.	2.1 to 3.1 in.	2.70
60°	Time	40.3 to 51.7 ms	51.6
	Displ.	4.3 to 5.3 in.	4.93
Maximum (64°) (66°)	Time	53.2 to 66.8 ms	60.6
	Displ.	5.0 to 6.0 in.	5.35

*Acceptable

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

NHTSA ATD I.D. NO.: 465

TEST PARAMETER		SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
2. NECK BENDING TEST <u>Continued:</u>				
i. Chordal Displacement:				
Head Rotation Angle -				
60°	Time	67.0 to 83.0 ms	72.2	73.2
	Disp.	4.3 to 5.3 in.	4.89	4.86
30°	Time	85.4 to 104.6 ms	90.0	91.0
	Displ.	2.1 to 3.1 in.	2.35	2.18
0°	Time	101.0 to 123.0 ms	102.4	102.0
	Displ.	-.5 to 0.5 in.	0.10	0.05
3. ABDOMINAL COMPRESSION TEST: (Preload = 10 pounds)				
a. Force @ .5" - - - - -		23 - 36 lbs.	26.5	28.0
b. Force @ .75" - - - - -		36 - 50 lbs.	39.5	41.5
c. Force @ 1.0" - - - - -		50 - 63 lbs.	54.0	58.0
d. Force @ 1.3" - - - - -		73 - 88 lbs.	82.0	85.0
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - - -		22 to 34 lbs.	31.2	27.2
b. Force @ 30° - - - - -		34 to 46 lbs.	40.0	36.8
d. Force @ 40° - - - - -		46 to 58 lbs.	48.8	46.0
e. Return Angle - - - - -		12° maximum	12	11
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - - -		21.78-22.22 fps	21.97	21.83
(2) Peak Deflection -		1.7" maximum	1.34	1.55
(3) Peak Resistive Force - - - - -		2250 lbs. maximum	1940	1850
(4) Internal Hysteresis - - -		50 to 70%	62.0	69.8

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

NHTSA ATD I.D. NO.: 465

TEST PARAMETER	SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
5. CHEST IMPACT TESTS:			
<u>Continued:</u>			
b. Low Speed			
(1) Probe Speed - - -	13.86-14.14 fps	14.04	13.94
(2) Peak Deflection -	1.1" maximum	0.81	1.02
(3) Peak Resistive Force - - - - -	1450 lbs. maximum	1240	1190
(4) Internal Hysteresis - - -	50 to 70%	54.9	68.4
6. KNEE IMPACT TESTS:			
a. Right Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.95	7.02
(2) Maximum Force - -	1850 to 2500 lbs.	1850	1930
(3) Time Above 1000#-	1.7 ms minimum	1.70	1.80
b. Left Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.97	6.92
(2) Maximum Force - -	1850 to 2500 lbs.	2090	2060
(3) Time Above 1000#-	1.7 ms. minimum	2.13	1.80

APPENDIX D

VEHICLE'S OWNERS MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

SEAT BELTS

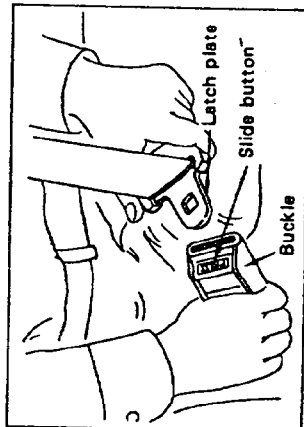
The use of seat belts by all vehicle passengers is recommended at all times. National safety council statistics clearly indicate that the use of seat belts reduces the possibility of serious and fatal injuries in accidents or sudden stops.

A seat belt is provided at each position designed for occupant seating. (Two Lap-Shoulder Belts are provided for the front seat).

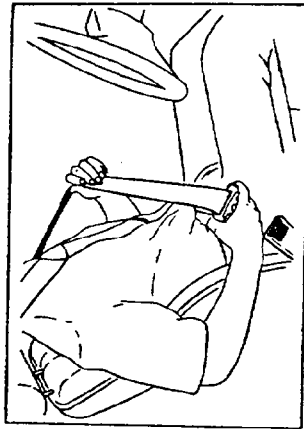
Special instructions for use of belts by children and pregnant women are included. (See page 8).



Seat Lap-Shoulder Belts



- Adjust the seat as needed. Sit up straight and well back in the seat.
- Take hold of the seat belt latch plate and pull the lap-shoulder belt across your body. Push the latch plate into the buckle until it clicks.



- Position the "lap" portion of the belt across your lap as **LOW ON THE HIPS** as possible. Then, adjust it to a **SNUG FIT** by grasping the "shoulder" portion of the seat belt and pulling it **UPWARD** through the latch plate until the lap portion is snug across your lap. This reduces the risk of sliding under the belt during an accident.
- A snug fit with the lap belt positioned low on the hips is necessary to help lessen the chance and/or severity of injury in an accident. This spreads the force of the lap belt over the strong hip bone instead of across the soft abdomen.

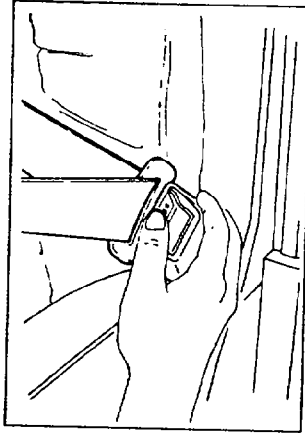
CAUTION:

- Never use the same belt for more than one person at a time, do not wear belts twisted, and do not let belts or belt hardware become damaged by pinching them in the seat or door.

- The lap-shoulder belts are designed to permit free, normal forward body movement, but to resist sudden, hard vehicle movement such as might occur in an impact.

CAUTION:

- Too much shoulder belt slack could reduce the amount of protection because the belt may not be able to properly restrain you in an accident.
- Do not wear the shoulder portion of the belt under your arm nearest the door or otherwise out of position. Such use could increase the chance and/or the severity of injury in an accident.



- To unfasten the belts, push in the slide button in the center of the buckle.
- When no longer in use, seat belts should be stowed by letting them rewind into their retractors. If necessary, move the keeper along the front seat belt webbing to let the belt retract fully. This will also put the latch plate within easy reach on the door pillar.

Restraint of Children

Children in vehicles should be restrained to help lessen the chance and/or severity of injury in accidents or sudden stops. Never let a child of any age stand or kneel on any seat. Use of infant or child restraint systems which conform to federal motor vehicle safety standards and which are installed according to their instructions is the surest way of minimizing the risk of injury to young passengers. Older children should be placed on a seat and restrained with the seat belts provided with your vehicle. Both lap and shoulder belts should be used.

The use of infant or child restraint systems may be required by the laws of your state. You should check with the appropriate state authorities to ensure that you are in compliance with these laws.



Restraint of Pregnant Women

It is recommended that pregnant women use seat belts. Check with your doctor for specific recommendations. The lap belt should be worn snug and positioned as low as possible around the hips, not the waist.

- Keep belts clean and dry.
- Clean only with mild soap and lukewarm water.
- Do not bleach or dye belts since this may greatly weaken them.

Seat Belt Inspection

- Now and then check that the belts, buckles, latch plates, retractors, reminder systems, guide loops, and keepers work properly. Also check for loose parts or damage that could keep the restraint system from doing its job.
- Keep sharp edges and damaging objects away from the belts and other parts of the restraint system.
- Replace belts if they are cut, weakened, or frayed. Also have belts replaced if they have been worn in a collision.
- If there is any doubt, have parts replaced.