

DOT 843

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

FORD MOTOR COMPANY

1985 FORD E-150 CLUB WAGON

NHTSA No. CF0630

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



JULY 1985

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

OFFICE OF MARKET INCENTIVES

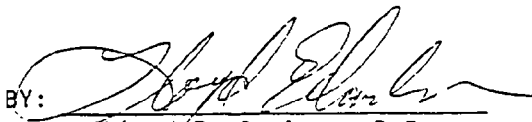
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16. Abstract A 35 mph frontal barrier impact test using a load cell barrier was conducted on a 1985 Ford E-150 Club Wagon at the Mobility Systems and Equipment Company (MSE) crash test facility in Mira Loma, CA on 26 June 1985. The barrier impact velocity was 34.89 mph and the ambient temperature at the barrier face at the time of impact was 109°F. The post-crash crush maximum was 19.5 in. The test vehicle appears to comply with the indicant requirements of the following Federal Motor Vehicle Safety Standards: <ol style="list-style-type: none"> 1. FMVSS No. 212, "Windshield Mounting" 2. FMVSS No. 219 (Partial), "Windshield Zone Intrusion" 3. FMVSS No. 301-75, "Fuel System Integrity" With regard to FMVSS 208, "Occupant Crash Protection", injury criteria, the driver dummy appeared to exceed the head injury criteria (HIC) maximum allowable index of 1000, satisfied the chest G's of not 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, but did satisfy the chest and femur requirements. TYPE OF RESTRAINT SYSTEM: 3-point non continuous webbing dual retractors manual system.					
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., S.W., 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	97
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 Ford E-150 Club Wagon, NHTSA No. CF0630, at a velocity of 34.89 mph. The frontal impact test was conducted by Mobility Systems and Equipment Company (MSE) on 26 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. Camera number eleven (11) functioned during the in-run, but the film jammed and the camera stopped prior to the impact event. 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 Ford E-150 Club Wagon was equipped with a 302 cubic inch 8 cylinder engine and 3 speed automatic transmission with overdrive. The test weight of the Ford E-150 Club Wagon with two (2) 50th percentile male dummies, instrumentation, and cameras was 5,237 pounds.

The Ford E-150 Club Wagon was involved in a frontal load cell barrier crash at a velocity of 34.89 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 Ford E-150 Club Wagon 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 Ford E-150 Club Wagon appears to comply with FMVSS No. 219, "Windshield Zone Intrusion".

A maximum static crush for the vehicle of 19.5 inches occurred at the center 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 them.

The driver ATD's head hit the steering wheel lower rim and the center hub. His knees hit the dash panel, and his right knee also hit the steering column. The driver ATD had a HIC value of

1986; maximum chest acceleration (resultant clipped) was 54.9 g; maximum femur loads were 2139 and 1193 pounds.

The passenger ATD's head hit the dash panel. Both of his knees hit the glove box door. The HIC value for the passenger ATD was 1198; maximum chest acceleration (resultant clipped) was 50.0 g; maximum femur loads were 1065 and 1806 pounds.

Seat belt spoolouts, measured as the distance a string attached to the shoulder belt was pulled through a foam block, were 4.0 inches for the driver and 7.5 inches for the passenger.

It appears that during the impact, the driver's outboard track latching device failed and the seat shifted forward 1.3 inches on the outboard side; the inboard track had no latching device and the seat shifted forward 1.3 inches on the inboard side. It appears that during the impact, the passenger's inboard track latching device failed and the seat shifted forward 1.8 inches on the inboard side; the outboard track did not have a track latching device and the seat shifted forward 1.8 inches on the outboard side.

Data Table No. 1 Test Vehicle Data

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1985/FORD/E-150/CLUB WAGON

VEHICLE NHTSA NO.: C F 0 6 3 0 ; VIN: I F M E E I I F 9 F H A 4 0 4 2 3

VEHICLE BODY COLOR: MAROON ; MONTH & YEAR OF MANUFACTURE: 09/84

ENGINE:- 8 cylinders; 302 C.I.D.; Liters; CC

X Gas; Diesel; Turbocharged

PLACEMENT-- X Longitudinal; Transverse (Lateral)

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

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

DATE VEHICLE AVAILABLE FOR 35 MPH CRASH TESTING: 06/19/85

ODOMETER READING: 72.6 miles; OPTIONS: X A/C; X P/S; X P/Wdo.;

X Tilt Whl.; X Cruise Control

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

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): 41 psi Front; 41 psi Rear

Recommended Tire Size: P235/75R15XL

Tires On Vehicle: 235/75R15 M+S ; Manufacturer: GENERAL TIRE

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

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

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

Vehicle Maximum Capacity Loading = 1050 lbs. (A)

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

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

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Right Front = 1285 lbs. TOTAL FRONT = 2551 lbs. (52.7% of TOTAL)

Left Front = 1266 lbs.

Right Rear = 1161 lbs. TOTAL REAR = 2291 lbs. (47.3% of TOTAL)

Left Rear = 1130 lbs.

TOTAL WEIGHT = 4842 lbs.

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

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight With Maximum Fluids = 4842 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- - - - - = 5470 lbs.

*300 lbs. for light trucks and MPVs

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front = 1382 lbs. TOTAL FRONT = 2756 lbs. (52.6% of TOTAL)
Left Front = 1374 lbs.
Right Rear = 1241 lbs. TOTAL REAR = 2481 lbs. (47.4% of TOTAL)
Left Rear = 1240 lbs.
TOTAL WEIGHT = 5237 lbs. (which includes 0 lbs. of cargo ballast weight placed in the cargo/luggage area)

VEHICLE COMPONENTS REMOVED TO MEET TARGET WEIGHT:

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

TEST VEHICLE ATTITUDE:

As Delivered--Right Front = 32.3 inches; Ready For Test--Right Front = 31.7 in.
Left Front = 32.1 inches Left Front = 31.6 in.
Right Rear = 33.0 inches Right Rear = 32.4 in.
Left Rear = 32.8 inches Left Rear = 32.4 in.

Test Vehicle Wheelbase: 138.0 inches; C.G. = 65.4 inches rearward of front wheel centerline

Total Vehicle Length:

Right Side = <u>209.3</u> inches	Across Front Fenders <u>81.0</u> in.
Left Side = <u>209.3</u> inches	Across Center <u>78.8</u> in.
Centerline = <u>209.8</u> inches	Across Rear Fenders <u>80.0</u> in.
	Maximum <u>81.0</u> in.

Data Table No.2 Post Crash Test Data

DATE OF 35 MPH FRONTAL BARRIER IMPACT RATINGS TEST: 06/26/85

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 HOLDING TEMPERATURE: 73 ° F.

VEHICLE IMPACT VELOCITY: Primary Speed Trap = 34.89 mph

Secondary Speed Trap = 34.90 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=209.3"; C/Line=209.8"; Left Side=209.3"

Vehicle Post-test Length- Right Side=192.3"; C/Line=190.3"; Left Side=193.3"

VEHICLE STATIC CRUSH----- Right Side=17.0"; C/Line=19.5"; Left Side=16.0"

VEHICLE REBOUND FROM BARRIER FACE:

Vehicle Right Side = 24.6 inches

Vehicle Centerline = 24.3 inches

Vehicle Left Side = 23.9 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 Assv. Glove Box Door
	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 - - -	<u>1.8</u> " forward;	<u>1.3</u> " forward
Seat Adjuster Failure- -	<u>Yes</u> ;	<u>Yes</u>

Details Of Any Failure:

It appears that during the impact the driver's outboard track latching device failed and the seat shifted forward 1.3 inches on the outboard side; the inboard track had no latching device and the seat shifted forward 1.3 inches on the inboard side. It appears that during the impact the passenger's inboard track latching device failed and the seat shifted forward 1.8 inches on the inboard side; the outboard track had no latching device and the seat shifted forward 1.8 inches on the outboard side.

SECTION 3

SUMMARY OF RESULTS FOR

FMVSS 212, "Windshield Mounting"

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

FMVSS 301-75, "Fuel System Integrity"

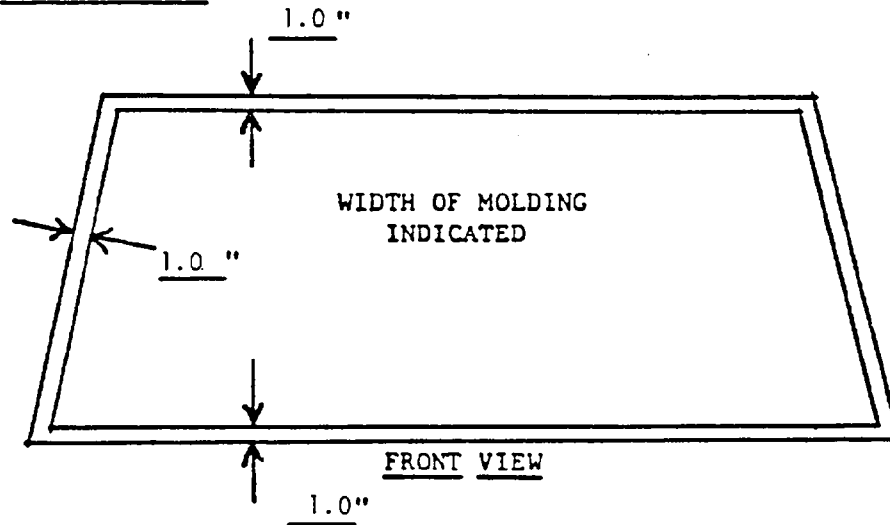
Data Table No. 3 FMVSS 212 Windshield Mounting Data

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	91.9	91.9	100%
LEFT SIDE	91.9	91.9	100%
TOTAL	183.8	183.8	100%

AREA OF RETENTION FAILURE:

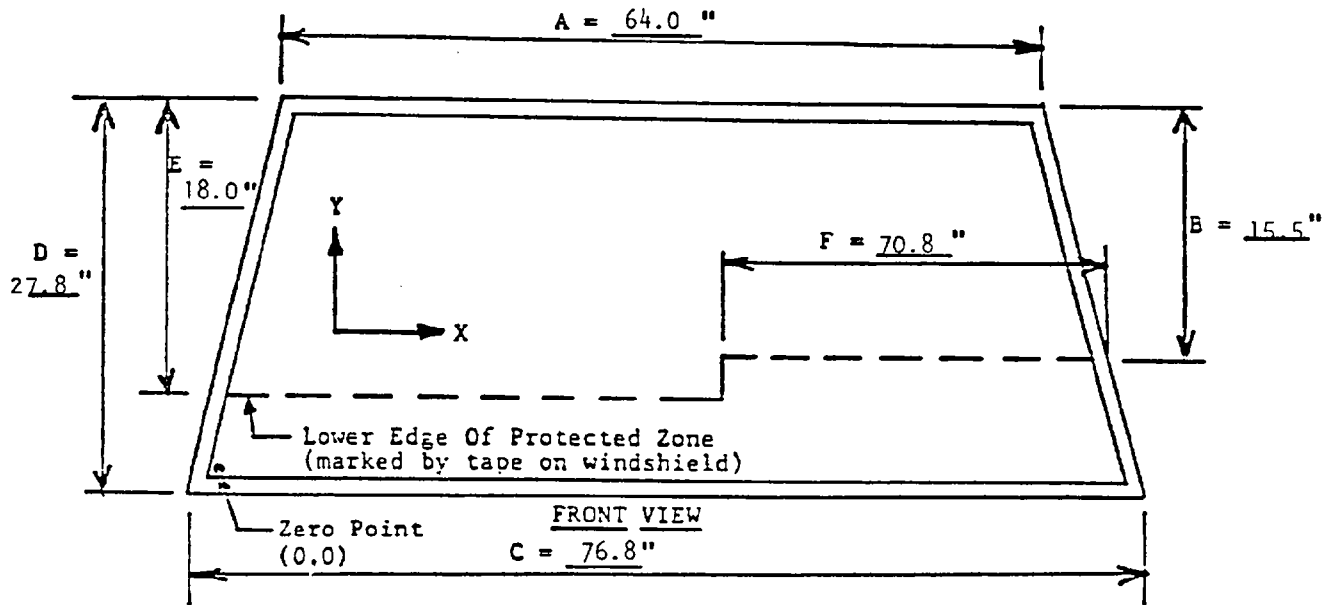


FAILURE DETAILS: NONE

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.: CF0630 ; TEST DATE: 06/26/85

VEHICLE MAKE/MODEL/BODY STYLE: FORD/E-150 CLUB WAGON

USABLE CAPACITY OF VEHICLE'S FRONT FUEL TANK: 18.0 Gallons (figure furnished by vehicle manufacturer)

USABLE CAPACITY OF VEHICLE'S REAR FUEL TANK: 22.1 Gallons

TEST REQUIREMENTS:

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

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

Front Tank 16.75 Gallons which is 93.1 % of the Stated USABLE CAPACITY

Rear Tank 20.50 Gallons which is 92.8 % 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:

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): N/A

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/FORD/E-150/CLUB WAGON

VEH. NHTSA NO.: CF0603; TEST DATE: 06/26/85

MAXIMUM ACCELERATION VALUES:		DRIVER DUMMY #466	PASSENGER DUMMY # 465
Head Channel X	HEAD X	- 216.28	- 76.09
Head Channel Y	Y	- 9.63	- 13.01
Head Channel Z	Z	88.70	73.24
HEAD RESULTANT		218.70	105.80
Chest Channel X	CHEST X	- 63.81	- 52.04
Chest Channel Y	Y	26.24	- 14.87
Chest Channel Z	Z	19.93	20.63
CHEST RESULTANT (3msec Clip)		54.86	49.99
TIME INTERVAL (msec)		61.0 - 64.0	70.0 - 73.0

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	HIC	1986.32	1197.79
t_1 (msec)		68.13	56.00
t_2 (msec)		79.50	97.38
Avg. Accel. t_1 to t_2		125.74	60.44

MAXIMUM FEMUR FORCES:

Right Side (lbs.)	FR	2139	1065
Left Side (lbs.)	FL	1193	1806

MAXIMUM SEAT BELT FORCES:

Lap Belt	LAP	235	1038
Shoulder Belt	SHLDR	1475	1824
		PHOTOGRAPHIC	ELECTRONIC
MAXIMUM SEAT BELT WEBBING SPOOL-OUT:		1.8	4.94
Belt Stretch (inches per foot)		N/A	appears clipped 0.96
		PHOTOGRAPHIC	ELECTRONIC
		2.0	5.88
		N/A	0.72

BARRIER LOAD CELLS:

Total Load	CELLS	176,610 lb
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Data Table No. 7 Test Dummy Positioning Data

PRE-IMPACT DATA:

Make/Model: FORD/E-150
 Body Style: CLUB WAGON Model Year: 85
 NHTSA No.: CE0630 Color: MAROON

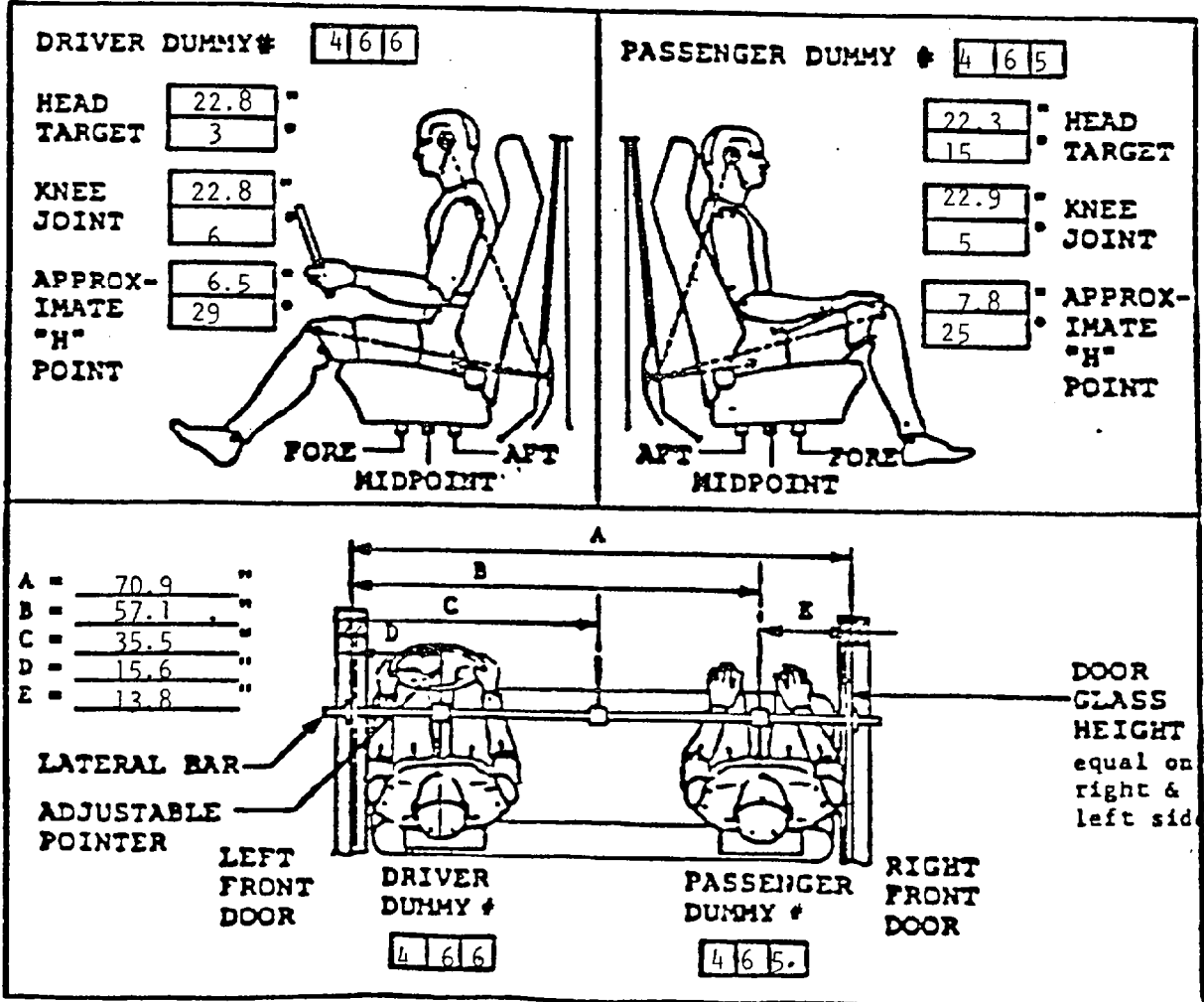
DATA FROM CERTIFICATION LABEL:

Vehicle Manufacturer: FORD MOTOR COMPANY
 Date of Manufacture: 09/84 VIN: 1FMEE11F9FHA40423
 GVWR: 6050 lb; GAWR: Front = 3150 lb; Rear = 3750 lb

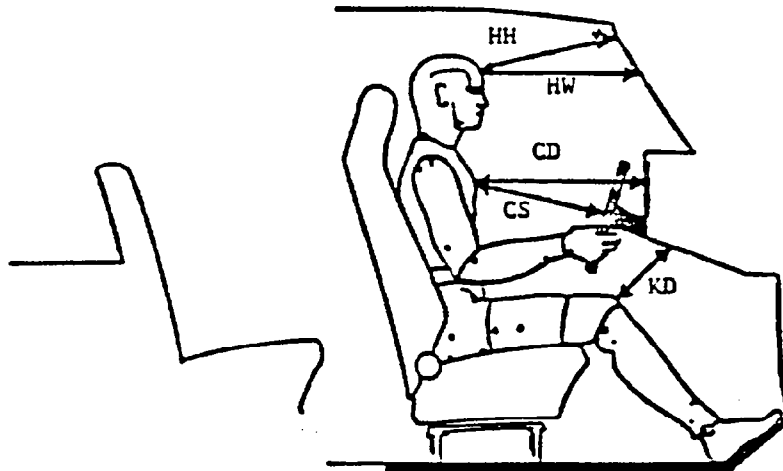
POST-IMPACT DATA:

Date of Test: 06/26/85 Time: 4:19pm Temperature 109 °F
 Required Impact Velocity Range: 34.5 to 35.5 mph
 Impact Velocity: Primary = 34.89 mph Secondary = 34.90 mph
 Seat Type: Bucket Adjuster Type: Manual
 Bucket Seat Back Type: Low

Technicians:



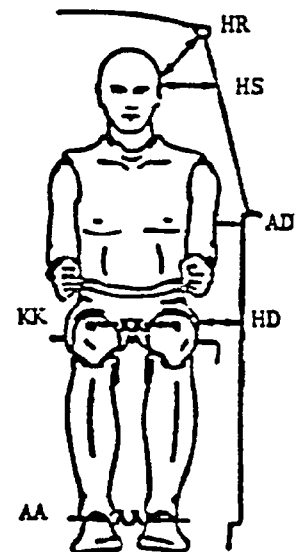
Data Table No. 7 (Con't) Test Dummy Positioning Data



	Driver	Passenger
HH	17.6	15.0
HW	24.3	21.9
CD	23.4	21.8
CS	12.3	N/A
KD L-	7.9	L- 6.5
KD R-	8.0	R- 6.8
Torso Angle	14	Torso Angle 12
Seat Back Angle	20	Seat Back Angle 20
HSW	N/A	N/A

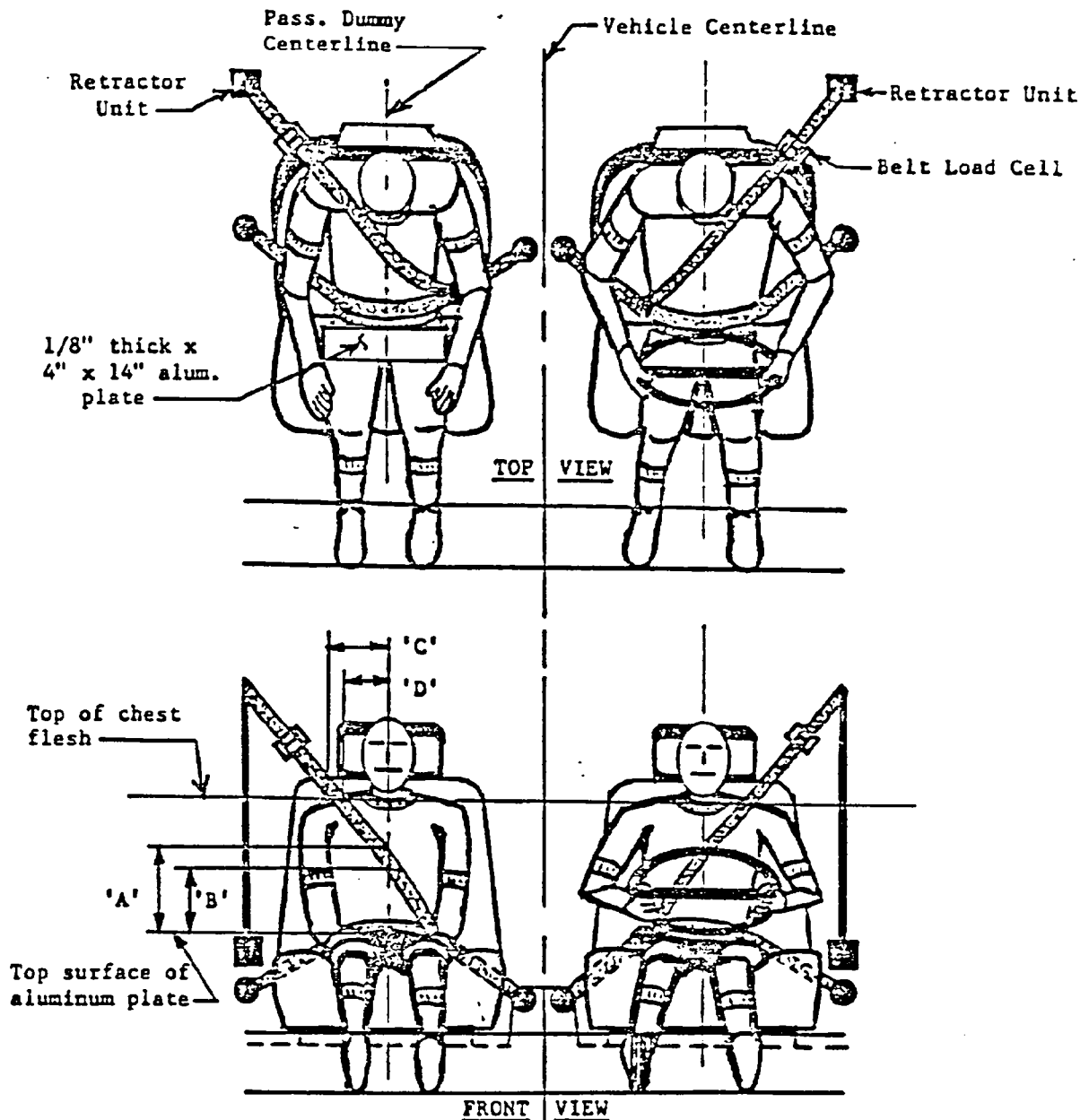
- HH = Head to Windshield Header
 - HW = Head to Windshield
 - CD = Chest to Dash
 - CS = Chest to Steering Wheel
 - KD = Knees to Dash
 - HR = Head to Side Roof
 - HS = Head to Side Window
 - AD = Arm to Door
 - HD = Hip to Door
 - KK = Knee to Knee
- Torso and seat back angles are relative to vertical.

REMARKS:



	Driver	Passenger
HR	7.8	6.8
HS	9.8	8.5
AD	4.1	3.0
HD	6.6	4.5
KK	14.5	12.0
AA	13.5	11.0

Data Table No. 8 Seat Belt Positioning Data



	DRIVER DUMMY (in.)	PASS. DUMMY (in.)
1. Dimension 'A'--alum. plate to belt upper edge on dummy centerline	15.5	13.0
2. Dimension 'B'--alum. plate to belt lower edge on dummy centerline	12.1	9.5
3. Dimension 'C'--dummy centerline to outer edge at chest flesh top	3.5	4.8
4. Dimension 'D'--dummy centerline to inner edge at chest flesh top	1.0	2.5
5. Lap belt tension (lbs.)	3.0	3.0
6. Shoulder belt tension (lbs.)	2.0	2.0

BELT LENGTH DATA:

Total Belt Length from 'D' Post trim panel to "male blade"
 Lap Belt
 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
89.5	89.5
46.5	47.0
36.3	34.5
37.3	36.1

BELT SPOOL-OUT DATA:

As determined by film analysis
 As determined electronically
 As determined mechanically

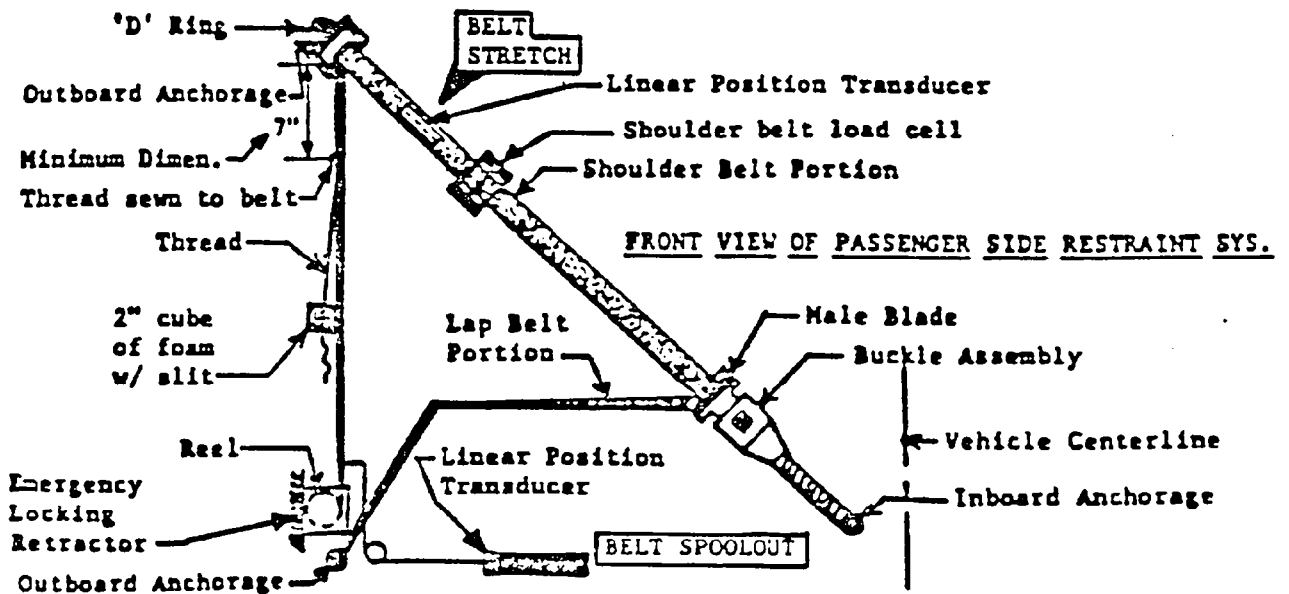
DRIVER SIDE	PASSENGER SIDE
1.8	2.0
4.9	5.9
4.0	7.5

BELT STRETCH DATA:

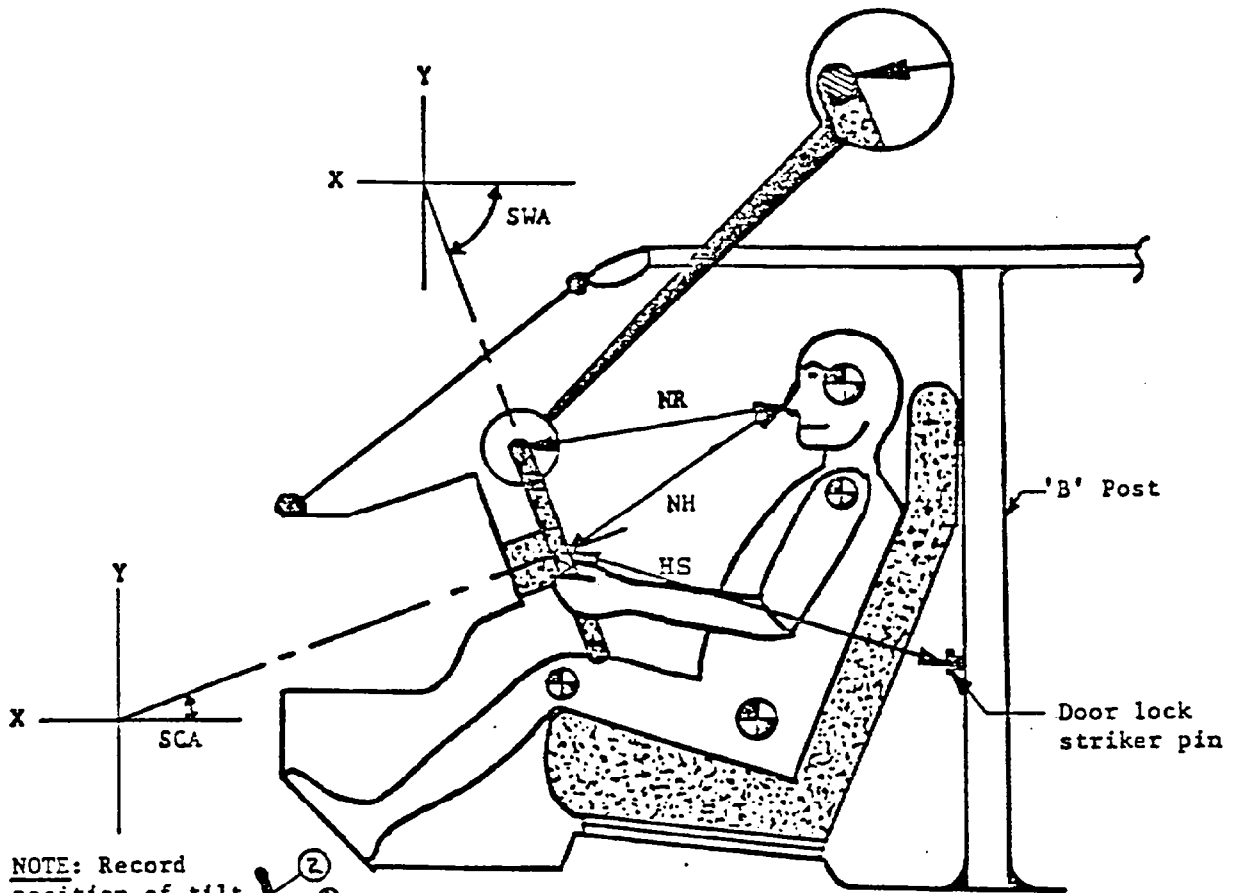
- Determined electronically with linear position transducer in inches per foot.
- Determined with 2" marked section of belt across dummy's chest (inches per foot)

Maximum Load 1475		Maximum Load 1824	
Elong. 0.92*		Elong. 0.72	
PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
2"	2"	2"	2"
	Elong: 0		Elong 0

*Appears Clipped

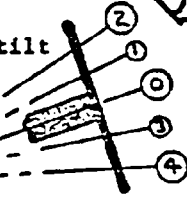


Data Table No. 10 Driver Dummy to Steering Wheel Position



LEFT SIDE VIEW

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



MEASUREMENTS

NR--Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	17.6 Inches
NH--Distance from tip of dummy's nose to center of steering column hub	17.5 Inches
HS--Distance from center of steering column hub to the forward surface of the door lock striker pin.	23.0 Inches
SCA--Angle of steering column relative to the horizontal X axis	40 Degrees
SWA--Angle of steering wheel relative to the horizontal X axis.	40 Degrees

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

Tilt steering colum was reclined three (3) notches downward from the highest position.

Data Table No. 11 Camera Location Data

VEH. NHTSA NO.: CF0630; TEST DATE: 06/26/85; TIME: 4:18 pm

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1985/FORD/E-150/CLUB WAGON

CAMERA NO.	VIEW	CAMERA POSITIONS (in.)*			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Left Side View	810.0	300.0	51.5	2	820	12/50	24
2	Right Side View	149.8	95.5	64.8	2	131.3	16	760
3	Left Side View	815.1	46.0	52.5	0	793.5	50	600
4	Overhead	0	-26.0	196.1	71	151.9	25	580
5	Pit-Engine	1.0	9.5	- 57	50	N/A	13	480
6	Pit-Fuel Tank	14.5	6.0	- 50.3	35	N/A	20	500
7	Front-Passenger	14.3	-15.1	106.3	49	94.3	13	810
8	Front-Driver	11.5	13.3	107.5	49	96.9	25	410
9	Left Side-Driver	137.3	142.5	65.5	3	129.5	28	750
10	Right Side-Passenger	150.0	145.4	74.1	8	132.8	45	340
11	Right Side-'A' Post	255.0	20.5	60.0	5	237.6	35	**
12	Left Side-'A' Post	346.0	85.0	59.3	5	327.9	50	420
13	Onboard-Left Side	103.3	10.0	30.5	2	50.0	13	520
14	Onboard-Right Side	104.0	4.0	30.5	5	54.0	13	340
15	Left Side-Steering Col.	665.3	98.8	129.0	10	646.4	50	790
16	Left Side-Steering Col.	663.8	97.5	109.3	6	648.9	50	840
17	Right Side-Passenger	165.8	62.3	69.1	4	147.3	13	580

* X = film plane to monorail centerline

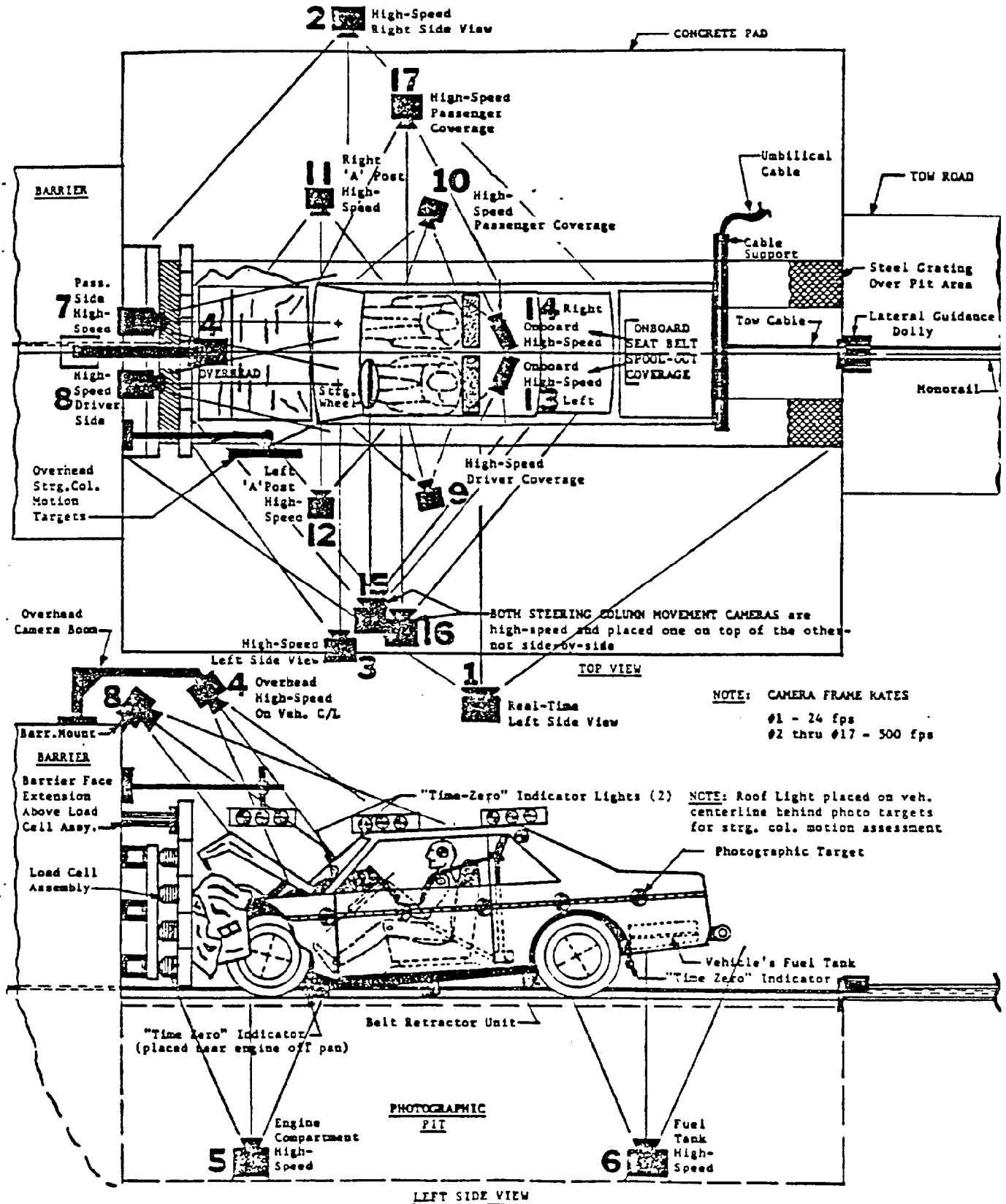
Y = film plane to barrier face

Z = film plane to ground

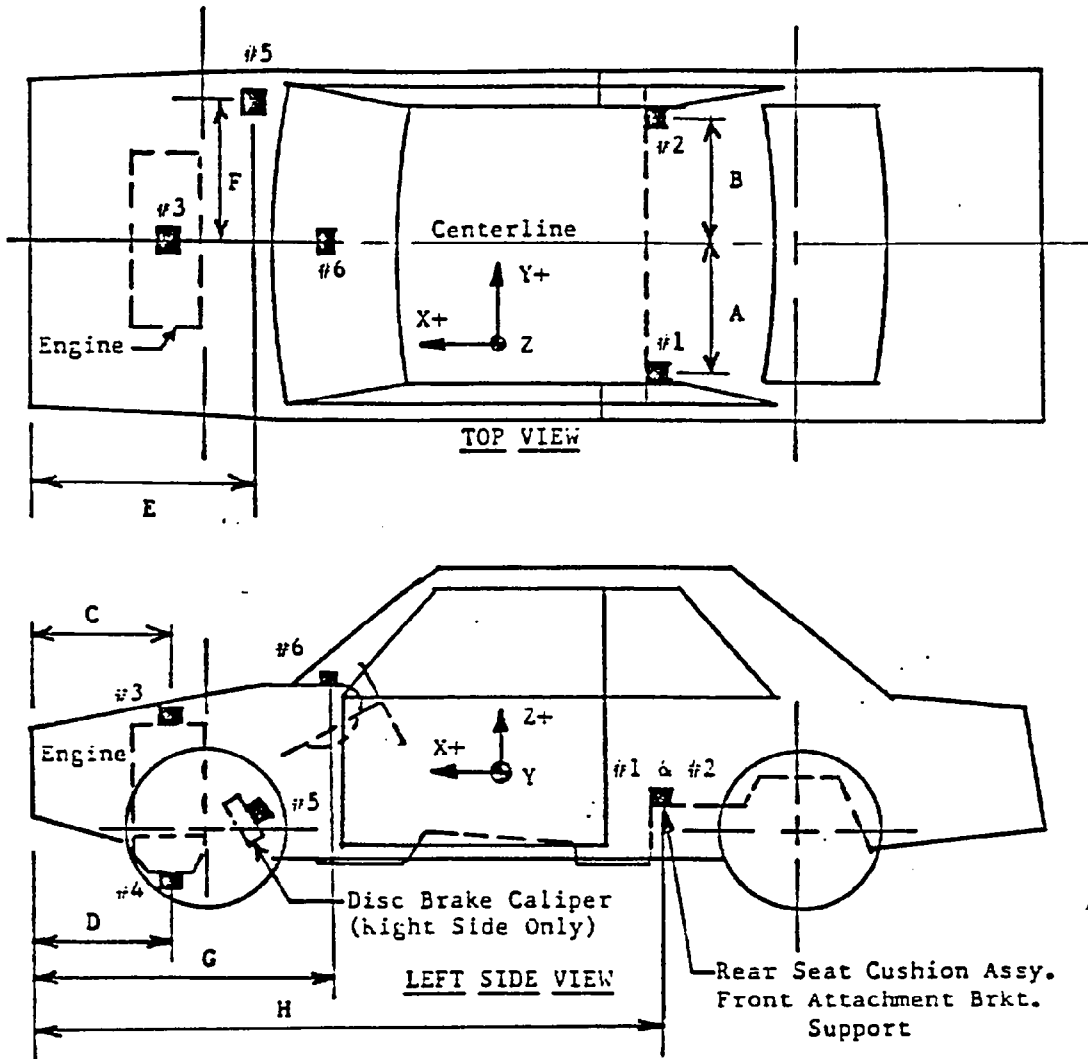
** film jammed prior to impact

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



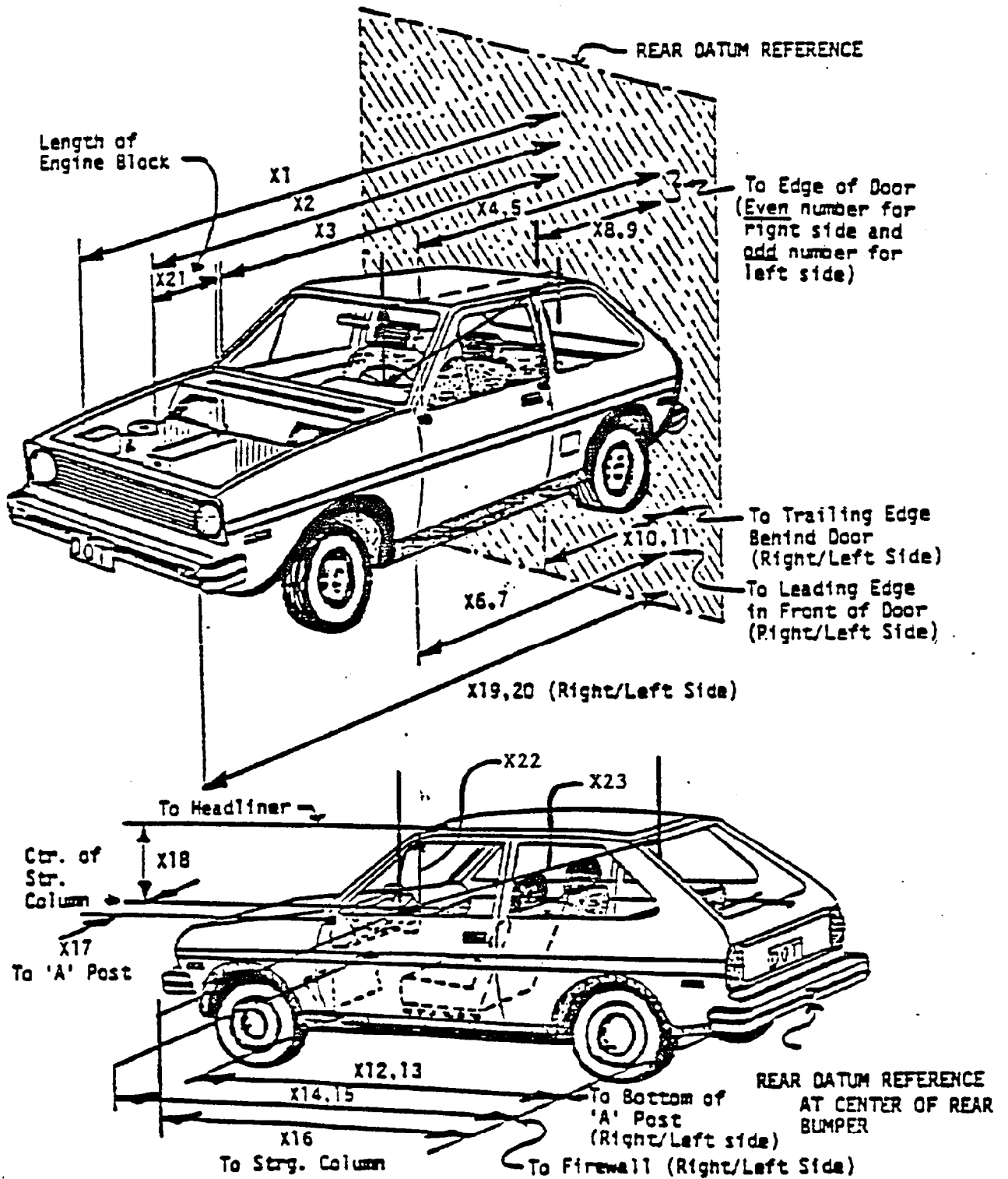
Dimension	Length (in.)
A	22.8
B	10.6
C	46.1
D	38.3
E	32.3
F	26.5
G	42.2
H	99.5

Loc. No.	Description	Maximum Value			
		X-	msec.	X+	msec.
1	Rear seat X-member @ Left Side	44.94	14.0	3.14	169.0
2	Rear seat X-member @ Right Side	48.60	14.0	3.31	169.0
3	Top of Engine Block	110.58	29.0	14.93	39.5
4	Bottom of Engine	98.31	31.5	38.97	64.0
5	Disc Brake Caliper @ Right Side	106.36	29.0	26.88	39.0
6	Instrument Panel	60.12	20.0	38.04	95.0

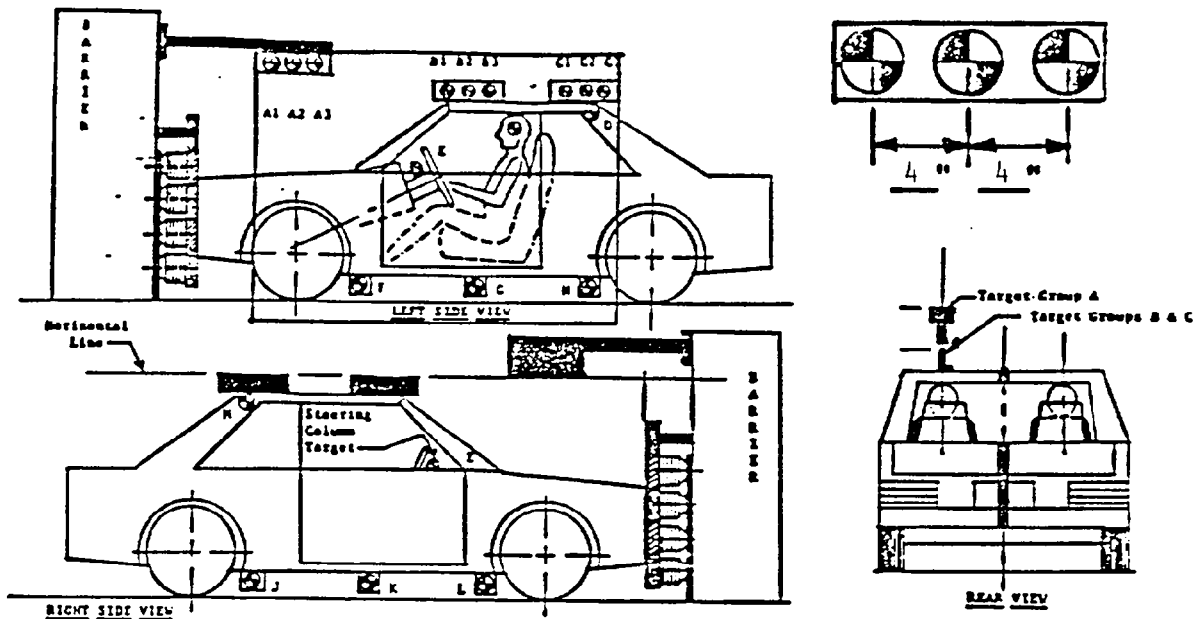
Data Table No. 13 Test Vehicle Measurements

NO.	MEASUREMENT DESCRIPTION:	Pre-Test (in.)	Post-Test (in.)	Diff. (in.)
X1	Total Length of Test Vehicle at Centerline	209.8	190.3	19.5
X2	Rear Surface of Vehicle to Front of Engine	190.2	179.8	10.4
X3	Rear Surface of Vehicle to Firewall	182.2	179.0	3.2
X4	Rear Surface to Upr. Leading Edge of Right Door	171.9	171.4	0.5
X5	Rear Surface to Upr. Leading Edge of Left Door	172.0	170.0	2.0
X6	Rear Surface to Lwr. Leading Edge of Right Door	165.4	164.5	0.9
X7	Rear Surface to Lwr. Leading Edge of Left Door	165.6	163.4	2.2
X8	Rear Surface to Upr. Trailing Edge of Right Door	132.9	133.4	-0.5
X9	Rear Surface to Upr. Trailing Edge of Left Door	132.9	132.3	0.6
X10	Rear Surface to Lwr. Trailing Edge of Right Door	132.2	131.3	0.9
X11	Rear Surface to Lwr. Trailing Edge of Left Door	132.3	130.1	2.2
X12	Rear Surface to Bottom of 'A' Post on Right Side	164.5	164.3	0.2
X13	Rear Surface to Bottom of 'A' Post on Left Side	164.8	164.4	0.4
X14	Rear Surface to Firewall on Right Side	181.3	179.6	1.7
X15	Rear Surface to Firewall on Left Side	182.2	174.4	7.8
X16	Rear Surface to Steering Column	156.3	156.3	0
X17	Center of Steering Column to 'A' Post	15.9	16.4	- 0.5
X18	Center of Steering Column to Headlining	20.6	18.3	2.3
X19	Rear Surface to Right Side of Front Bumper	209.3	192.3	17.0
X20	Rear Surface to Left Side of Front Bumper	209.3	193.3	16.0
X21	Length of Engine Block	25.3	25.3	0
X22	Strg. Whl. Hub C/L to W/Shld. Header Interior Trim Moulding	20.3	18.0	2.3
X23	Strg. Whl. Hub C/L to Rr. Wdo. Upper Interior Trim Moulding	142.0	137.6	4.4

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



Data Table No. 14 Pre-Test Vehicle Target Location



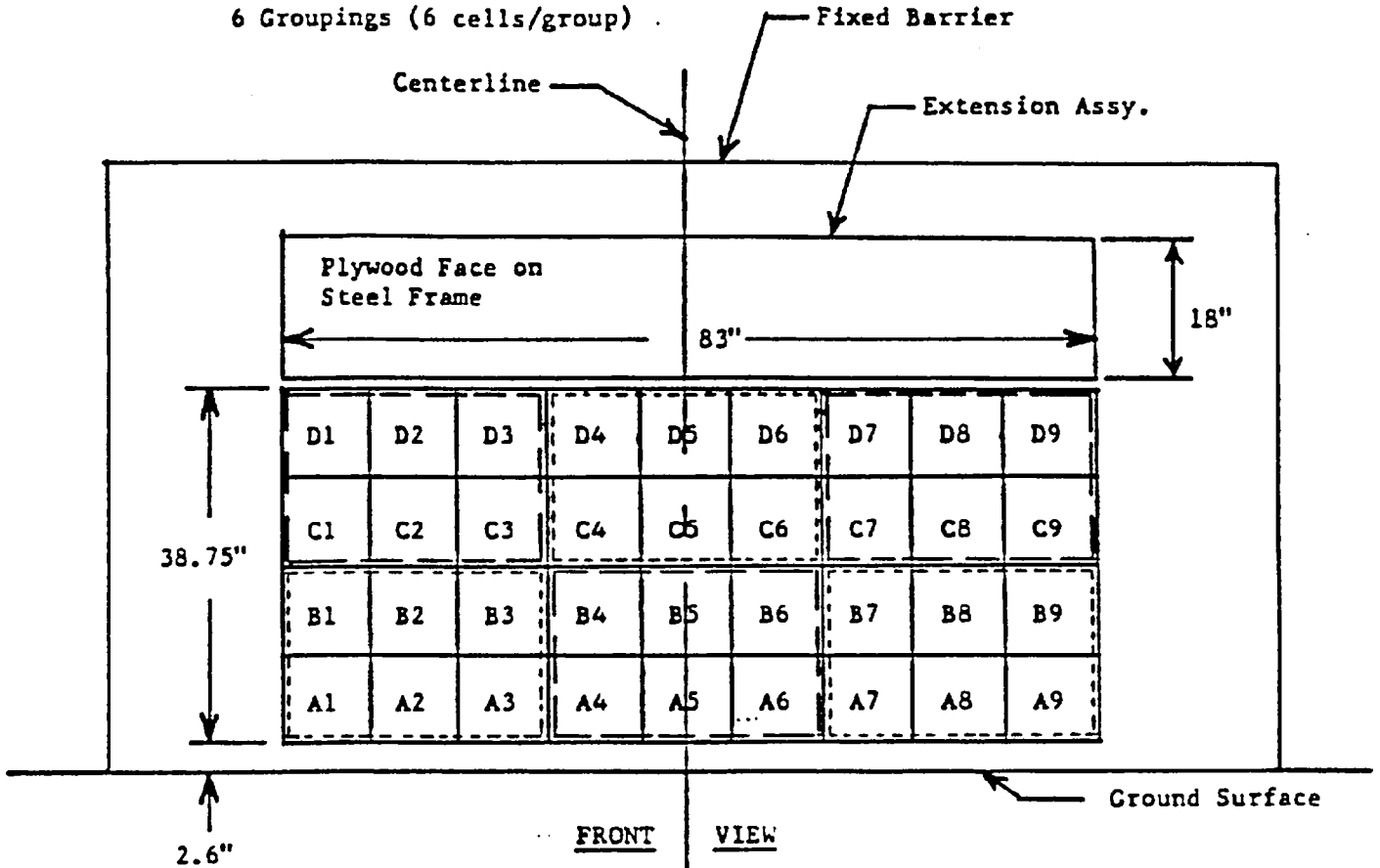
BARRIER TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Monorail C/L	'Z' Above Ground
A1	13.5	20.8	80.5
A2	17.5	20.8	80.5
A3	21.5	20.8	80.5

VEHICLE TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Vehicle C/L	'Z' Above Ground
B1	62.3	18.1	77.8
B2	66.3	18.1	77.8
B3	70.3	18.1	77.8
C1	176.3	18.4	81.8
C2	180.3	18.4	81.8
C3	184.3	18.4	81.8
D	193.0	31.5	73.8
E	54.3	21.1	53.0
F	46.6	33.4	12.1
G	93.3	33.1	12.3
H	140.1	33.2	13.0
J	140.0	33.2	13.0
K	93.5	33.1	12.1
L	46.8	33.4	12.1
M	193.0	31.5	73.8

NOTE: Diameter of all photo targets is 4".

Data Table No. 15 Load Cell Locations on Fixed Barrier

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



6 GROUPINGS OF 6 LOAD CELLS EACH

C1 thru D3	C4 thru D6	C7 thru D9
A1 thru B3	A4 thru B6	A7 thru B9

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

Data Table No. 16 Accident Investigation Division Data

VEHICLE MAKE/MODEL/BODY STYLE: FORD/E-150/CLUB WAGON

VEH. NHTSA NO.: CF0603; VIN: 1FMEE11F9FHA40423

MODEL YEAR: 1985; BUILD DATE: 09/84; TEST DATE: 06/26/85

VEH. SIZE CATEGORY: Van; TEST WEIGHT: 5237 lb

VEH. WHEELBASE: 138.0 in.; FRONT OVERHANG: 24.6 in.; OVERALL WIDTH: 80.0 in.

ACCELEROMETER DATA:

LOCATION: Left rear floor pan

CALIBRATION PROCEDURE: Voltage insertion

LINEARITY: 3%; INTEGRATION ALGORITHM: Area summation

VEH. IMPACT SPEED: 34.89 mph; TIME OF SEPARATION: 0.150 sec.

VELOCITY CHANGE: 41.9 mph

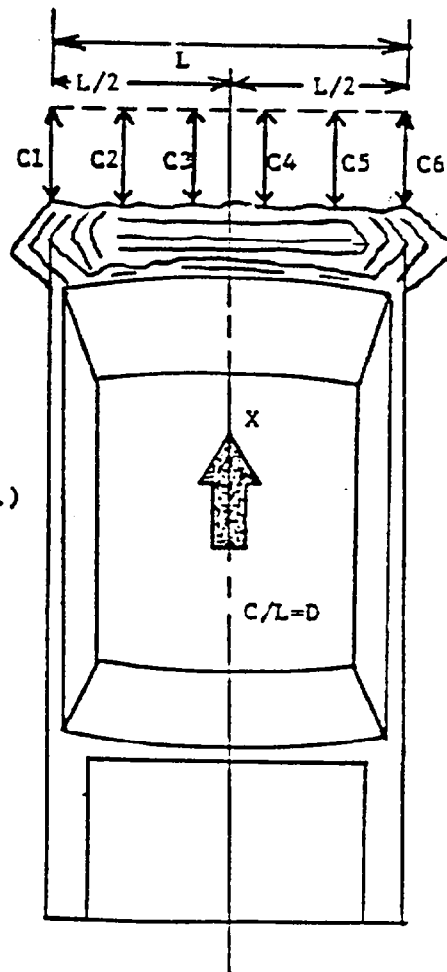
COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:

F (Frontal)

CRUSH DEPTH DIMENSIONS:	C1=	<u>16.0</u>	<u>inches</u>
	C2=	<u>17.8</u>	<u>inches</u>
	C3=	<u>18.5</u>	<u>inches</u>
	C4=	<u>17.4</u>	<u>inches</u>
	C5=	<u>18.1</u>	<u>inches</u>
	C6=	<u>17.0</u>	<u>inches</u>

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

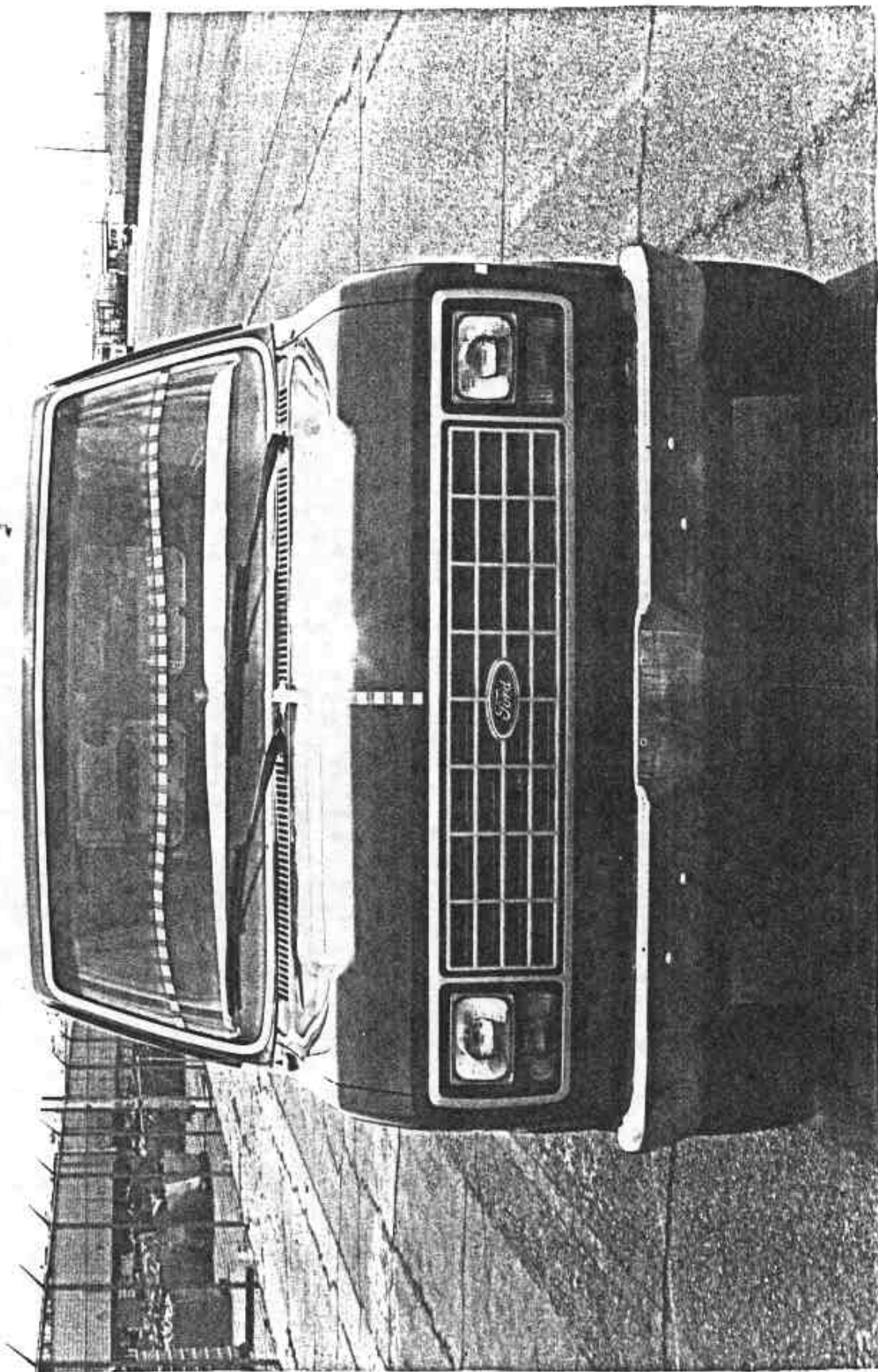
LENGTH OF DAMAGED
REGION: L = 71.0 inches



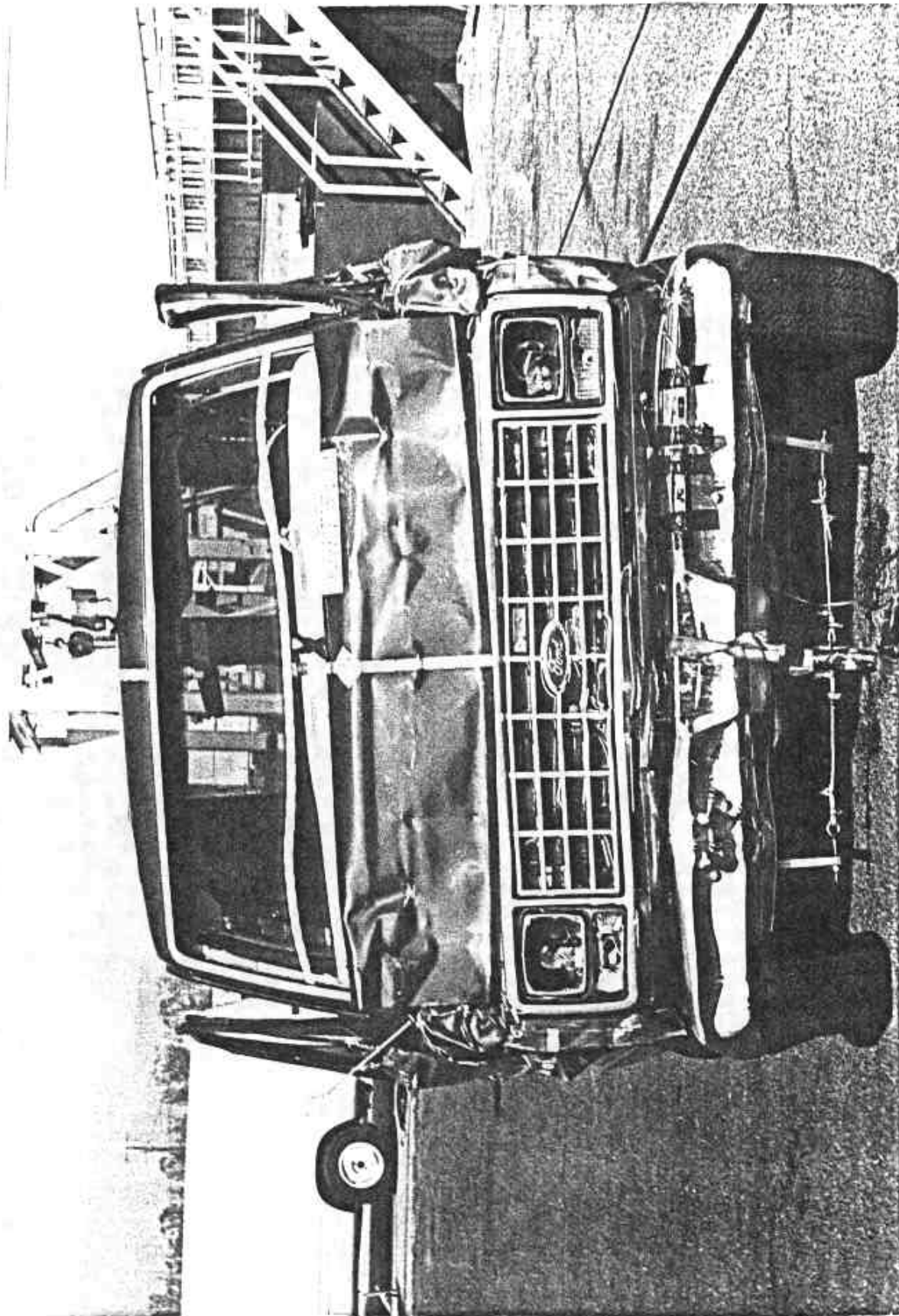
APPENDIX A

PHOTOGRAPHS

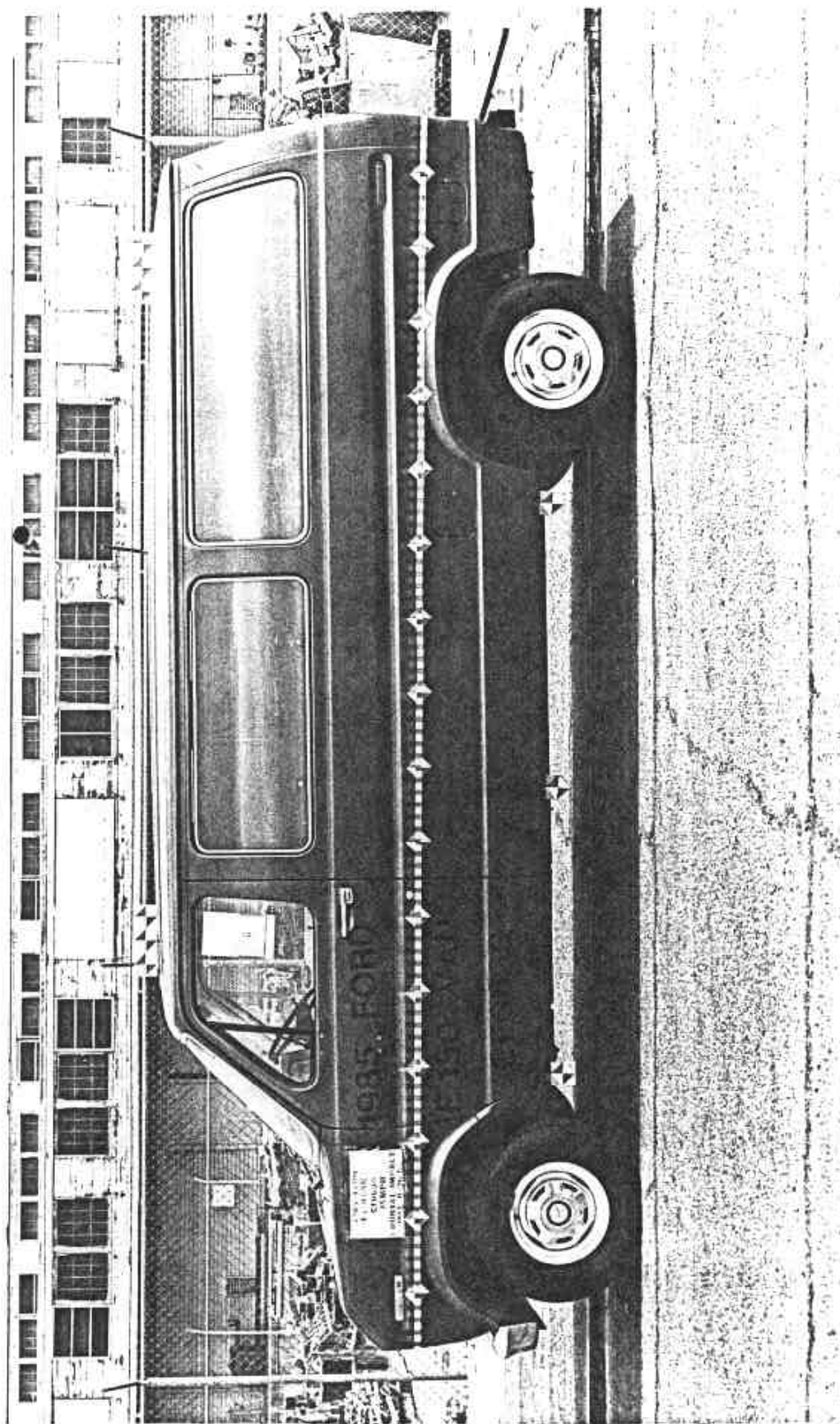
PRE TEST FRONT VIEW
POST TEST FRONT VIEW
PRE TEST LEFT SIDE VIEW
POST TEST LEFT SIDE VIEW
PRE TEST RIGHT SIDE VIEW
POST TEST RIGHT SIDE VIEW
PRE TEST RIGHT FRONT THREE QUARTER VIEW
POST TEST RIGHT FRONT THREE QUARTER VIEW
PRE TEST LEFT REAR THREE QUARTER VIEW
POST TEST LEFT REAR THREE QUARTER VIEW
POST 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 - FORWARD TANK
PRE TEST FUEL FILLER CAP - REAR TANK
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 DRIVER DUMMY HEAD CONTACT AREA (Seatback)
POST TEST STEERING COLUMN HUB/RIM CONTACT BY DUMMY DRIVER
POST TEST PASSENGER DUMMY HEAD/KNEE CONTACT



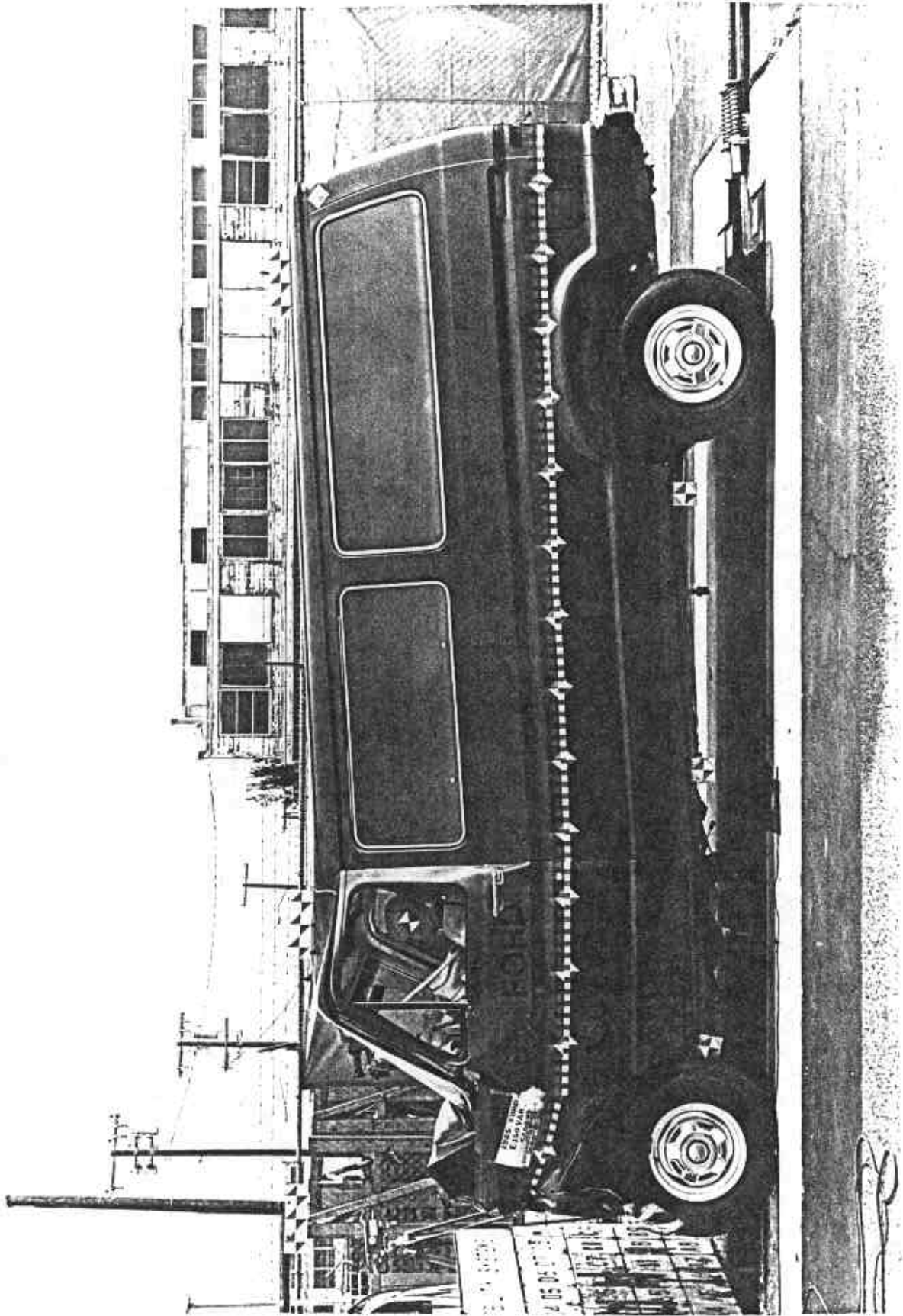
PRE TEST FRONT VIEW



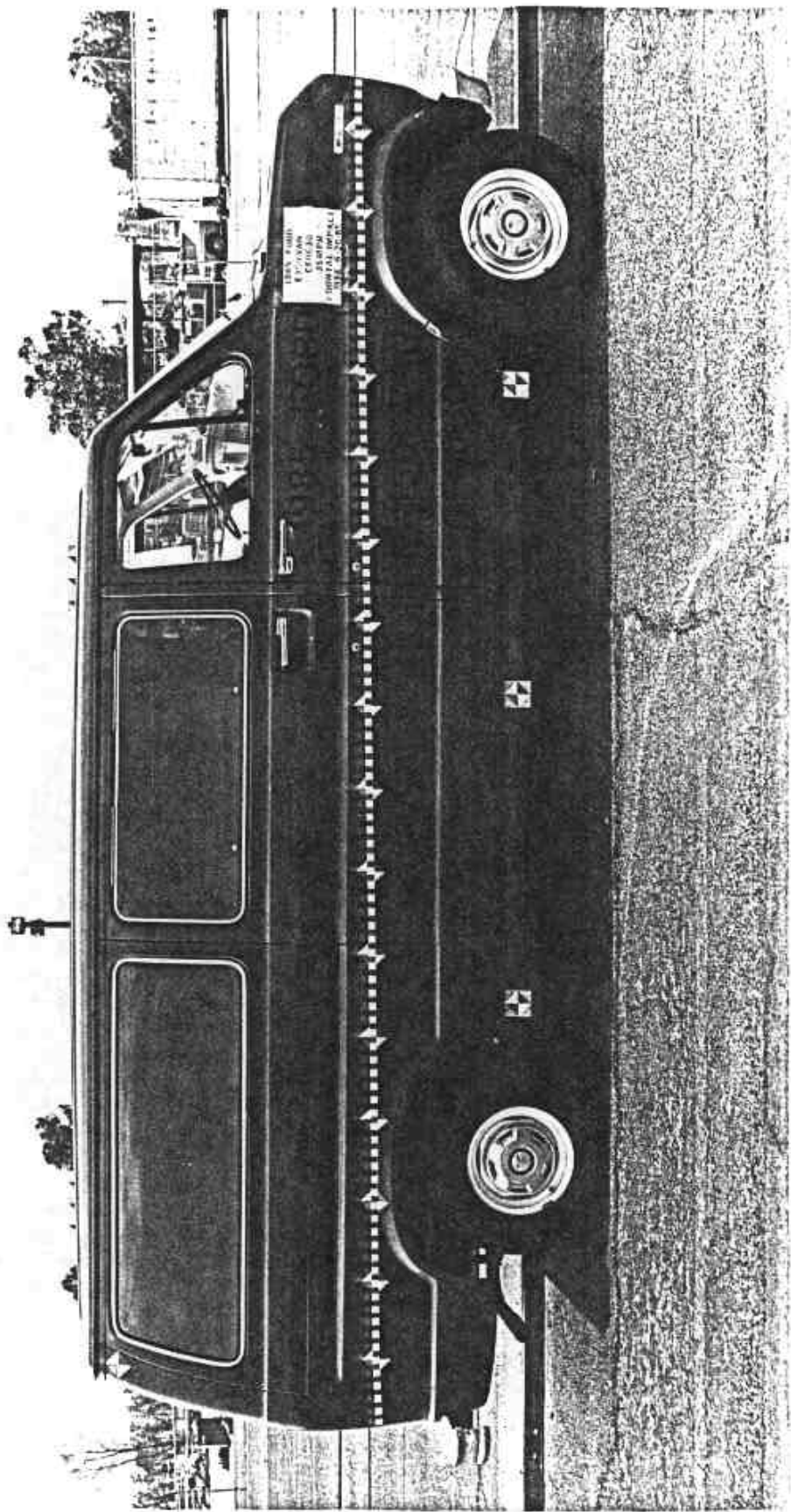
POST TEST FRONT VIEW



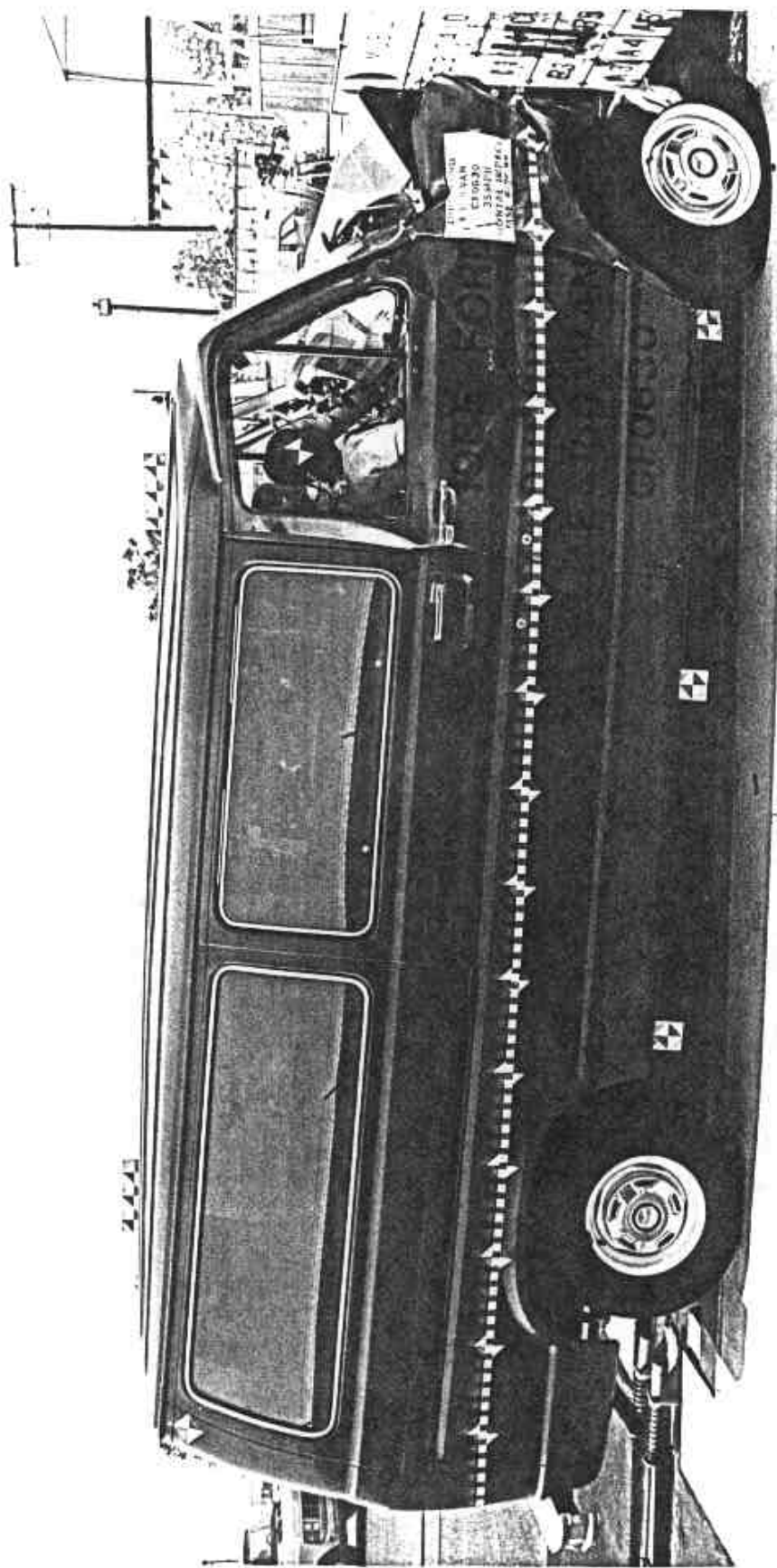
PRE TEST LEFT SIDE VIEW



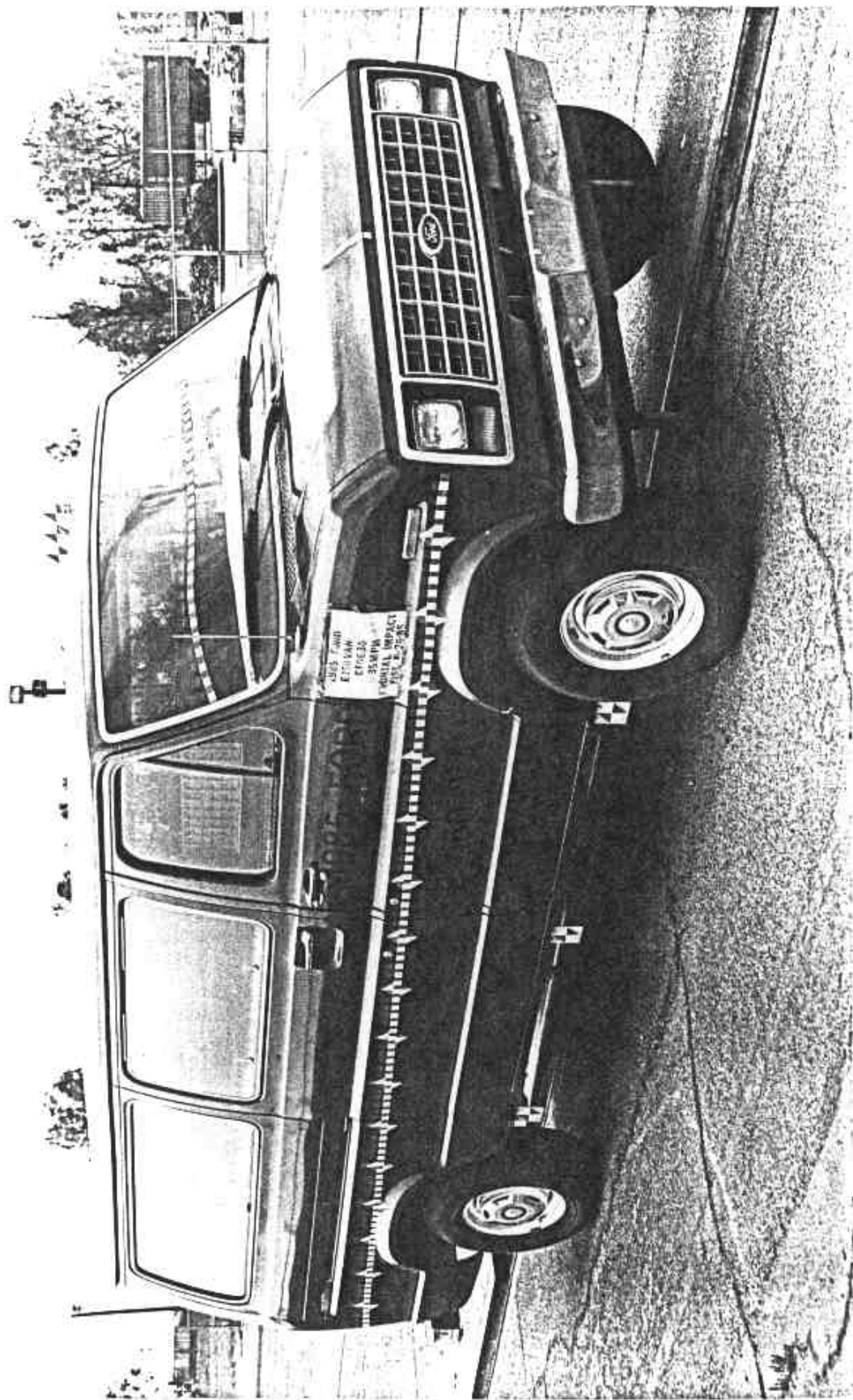
POST TEST LEFT SIDE VIEW



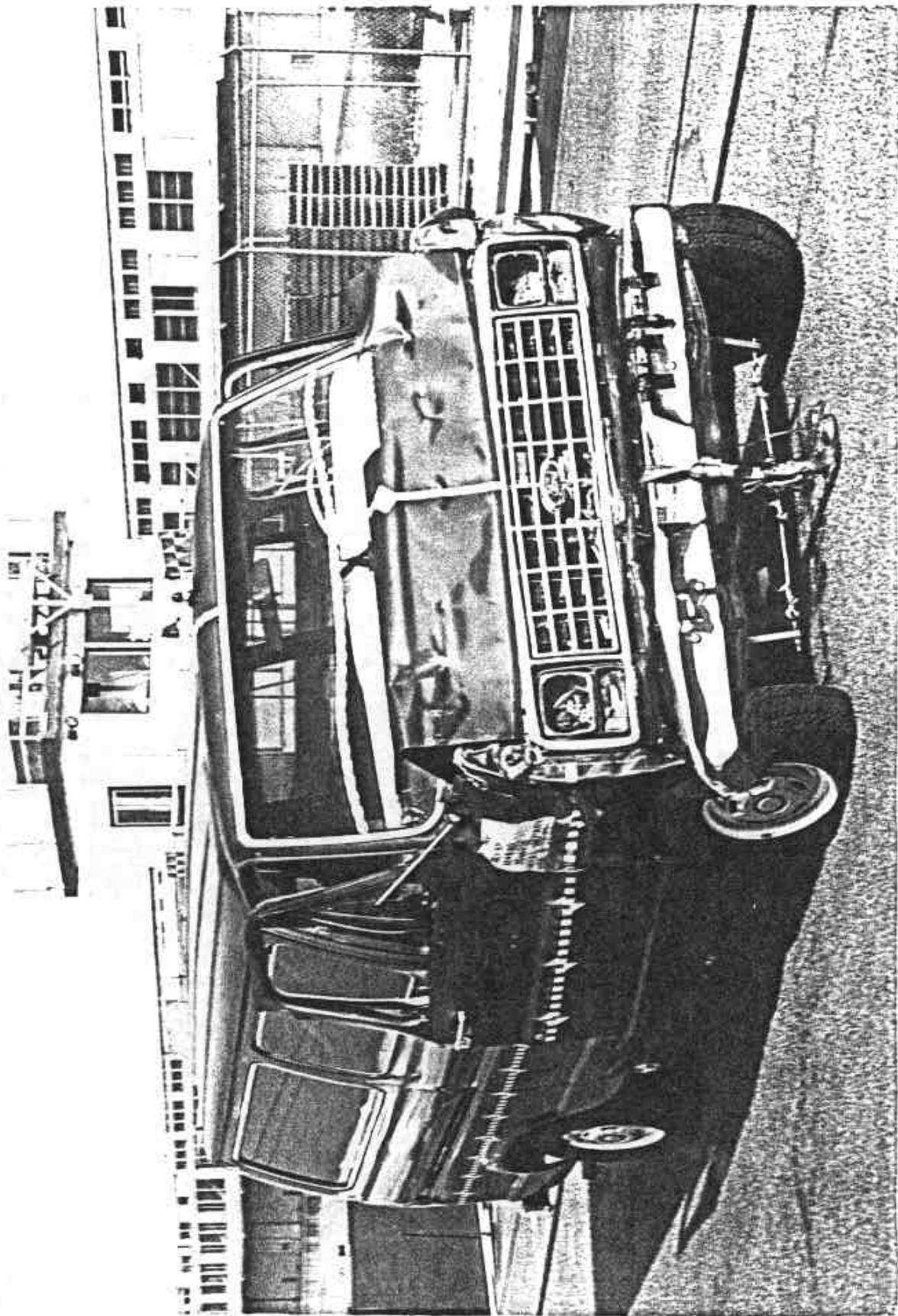
PRE TEST RIGHT SIDE VIEW



POST TEST RIGHT SIDE VIEW



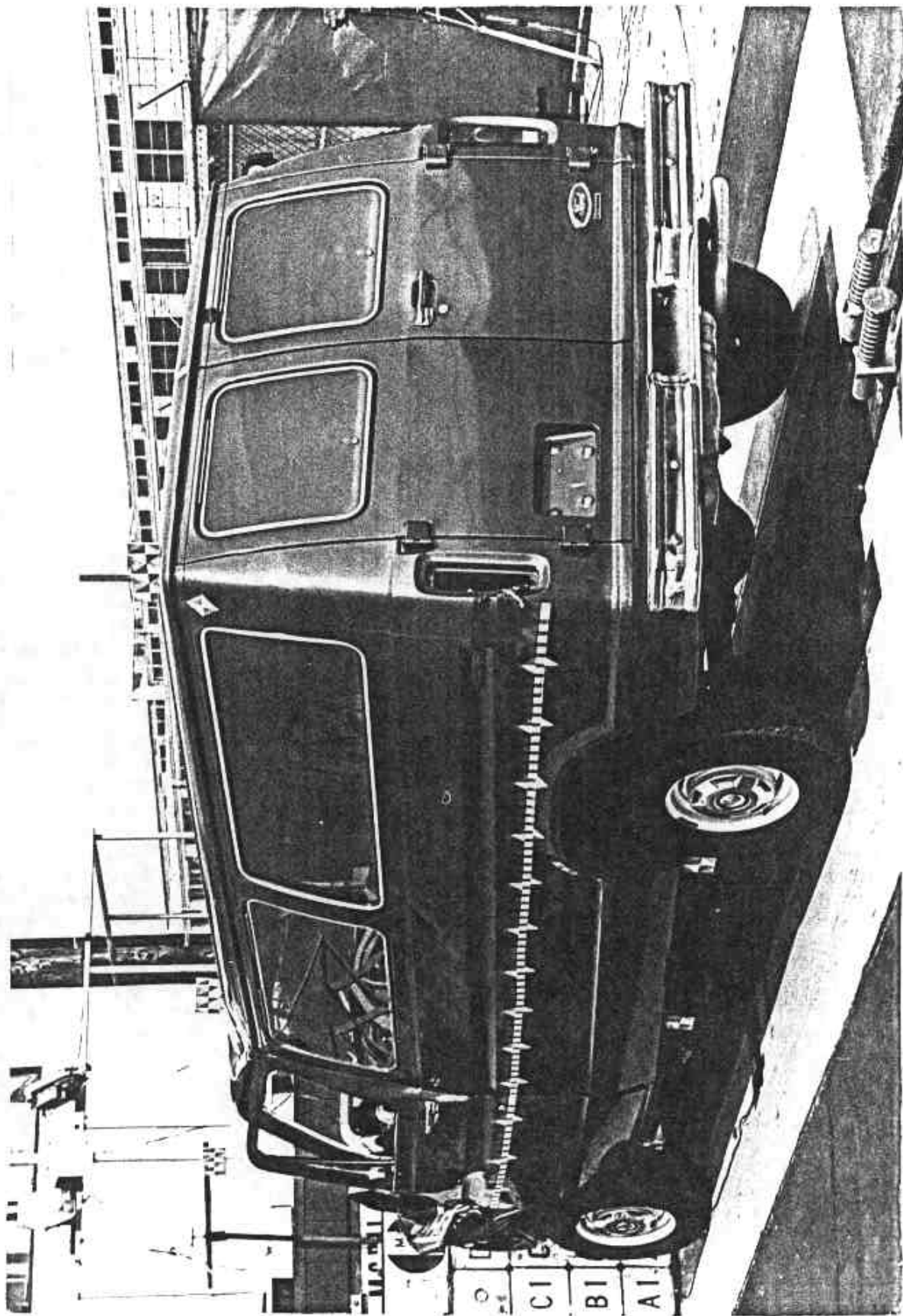
PRE TEST RIGHT FRONT THREE QUARTER VIEW



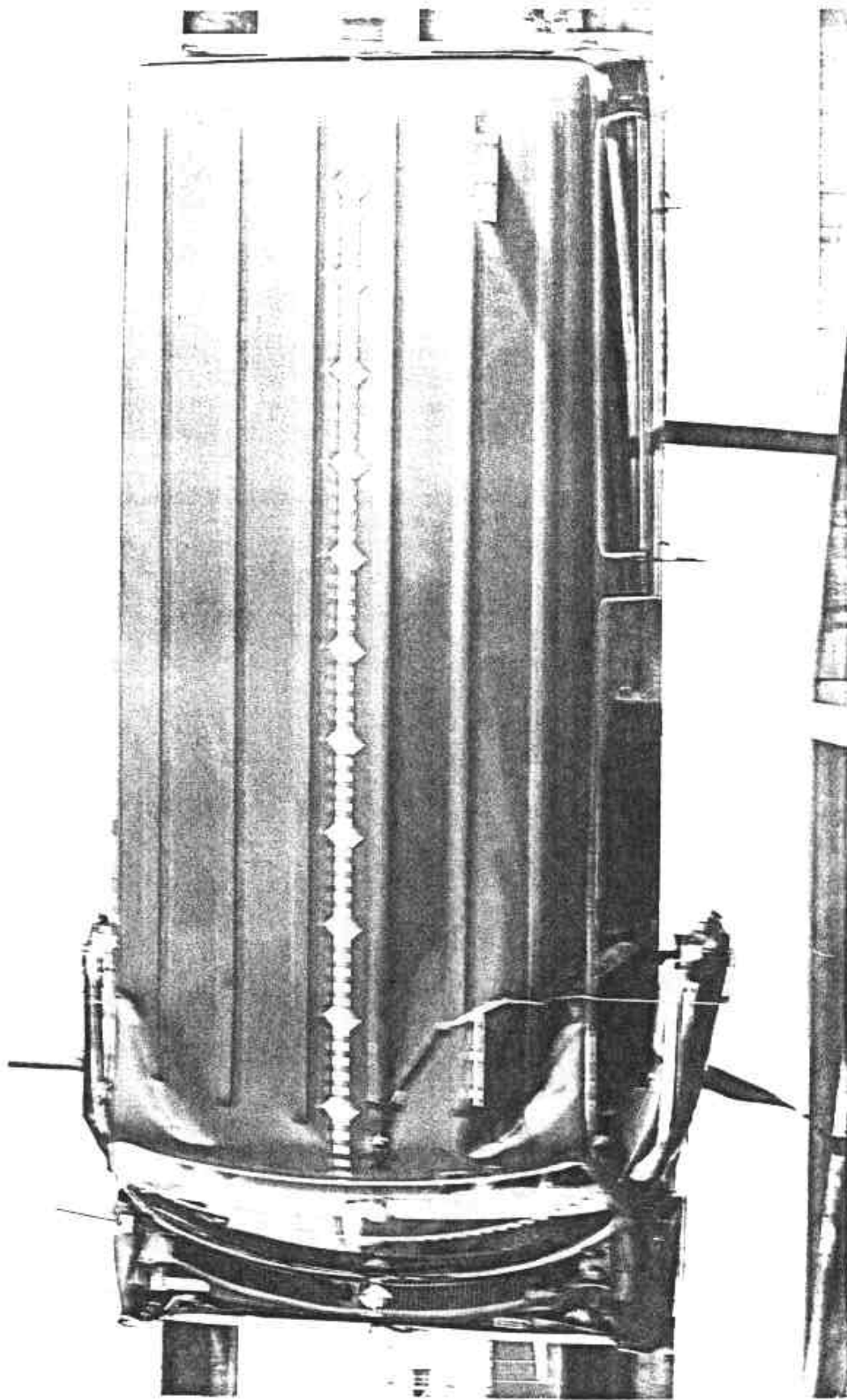
POST TEST RIGHT FRONT THREE QUARTER VIEW



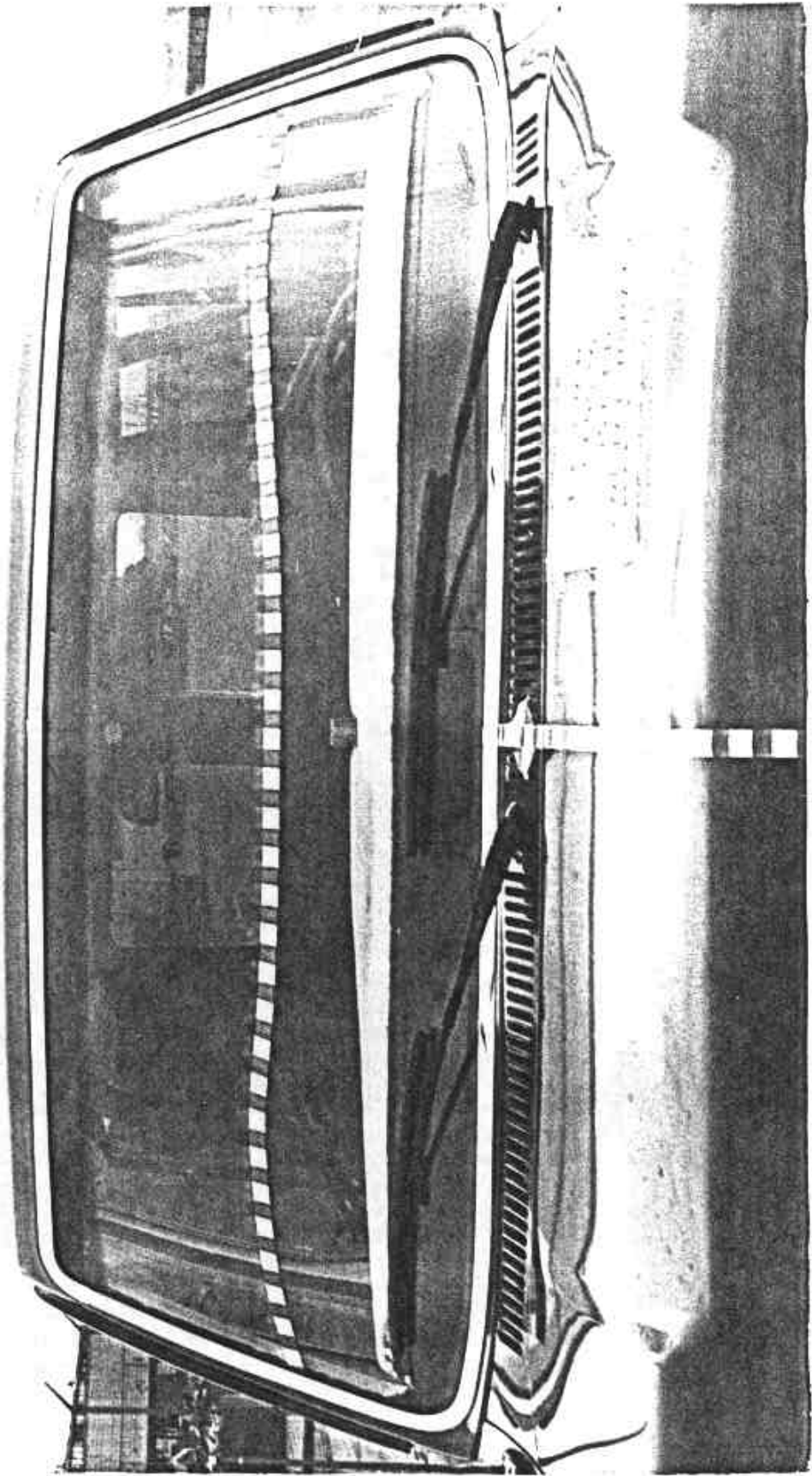
PRE TEST LEFT REAR THREE QUARTER VIEW



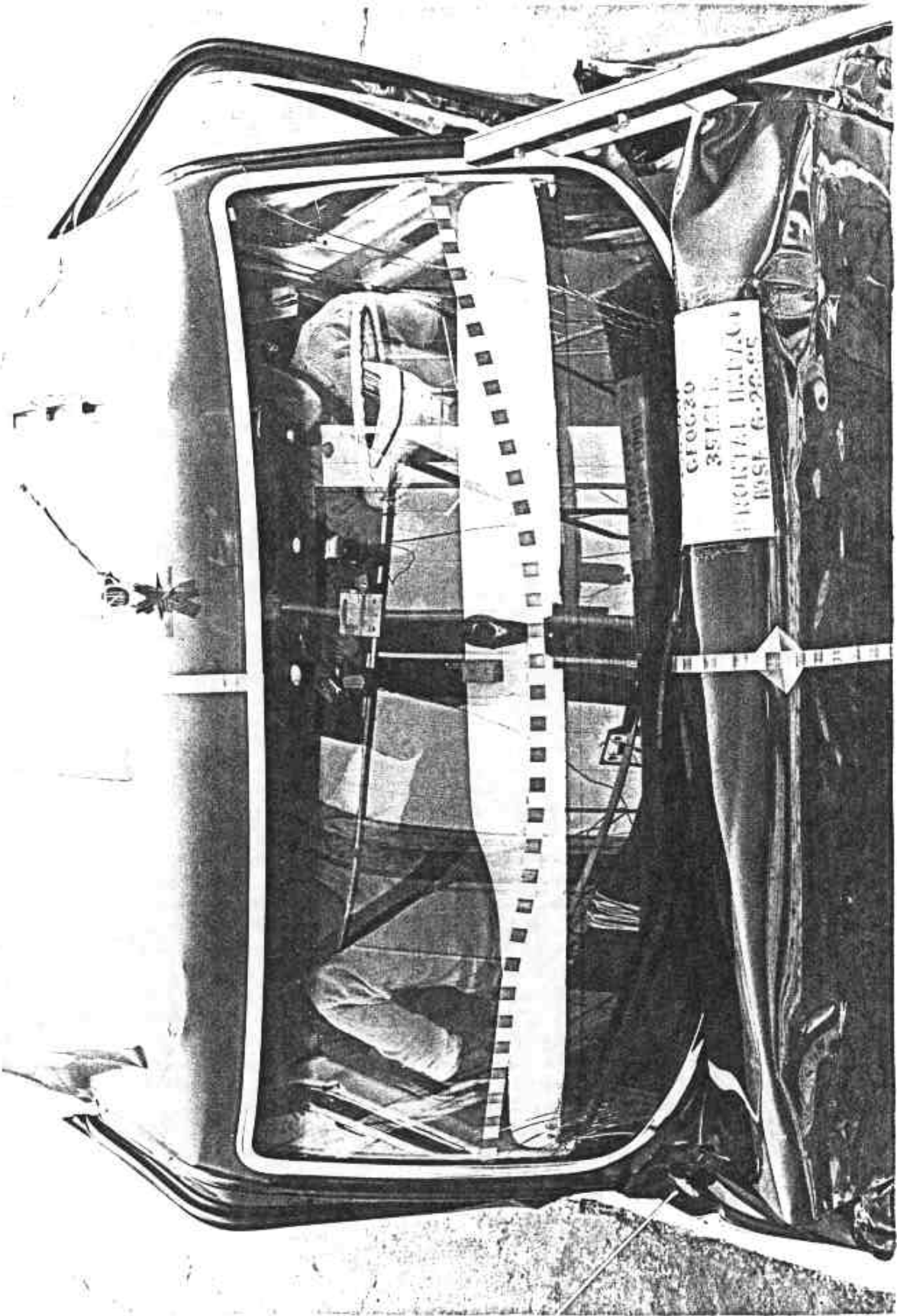
POST TEST LEFT REAR THREE QUARTER VIEW



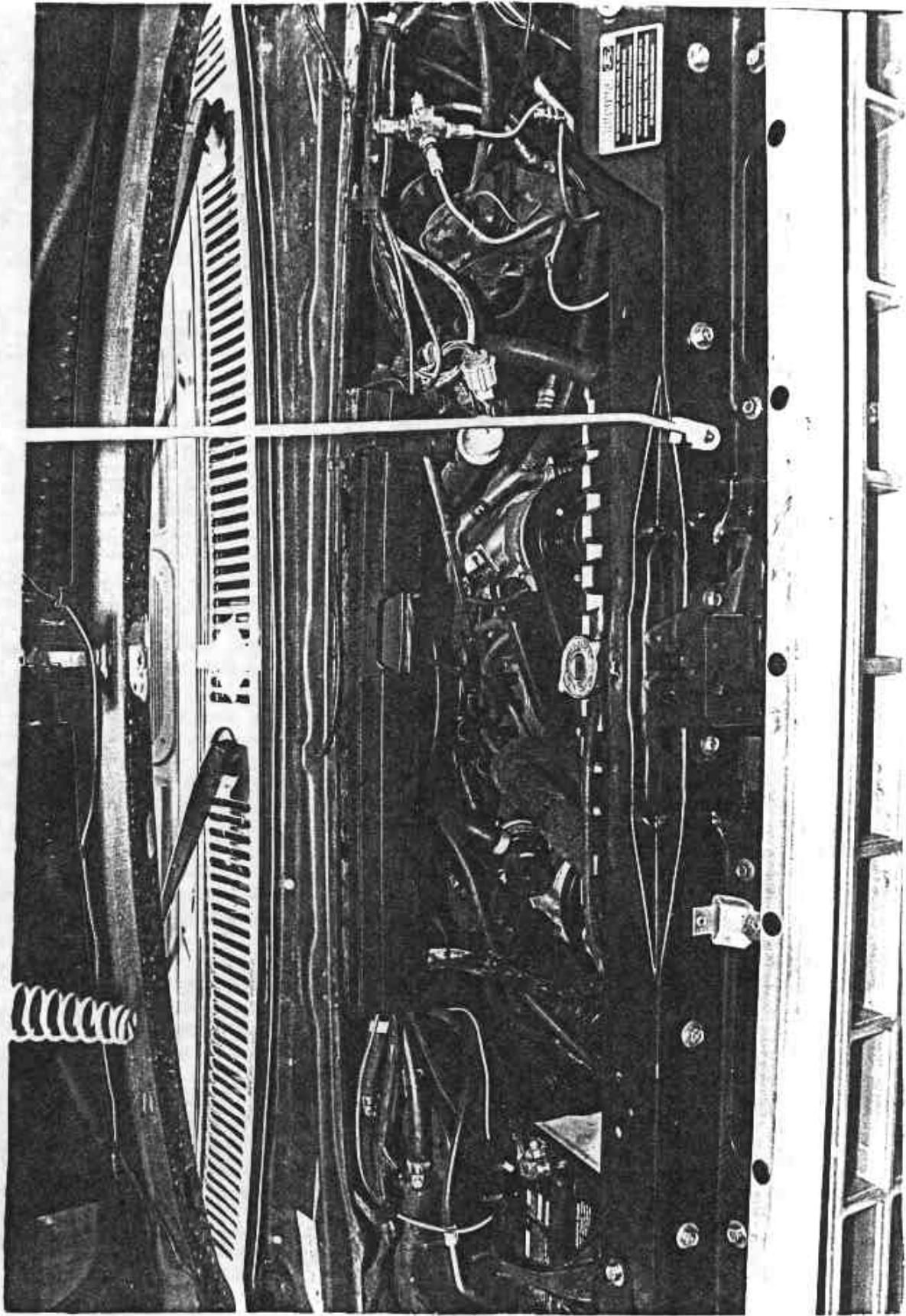
POST TEST TOP VIEW (Vehicle on Rollover Machine)



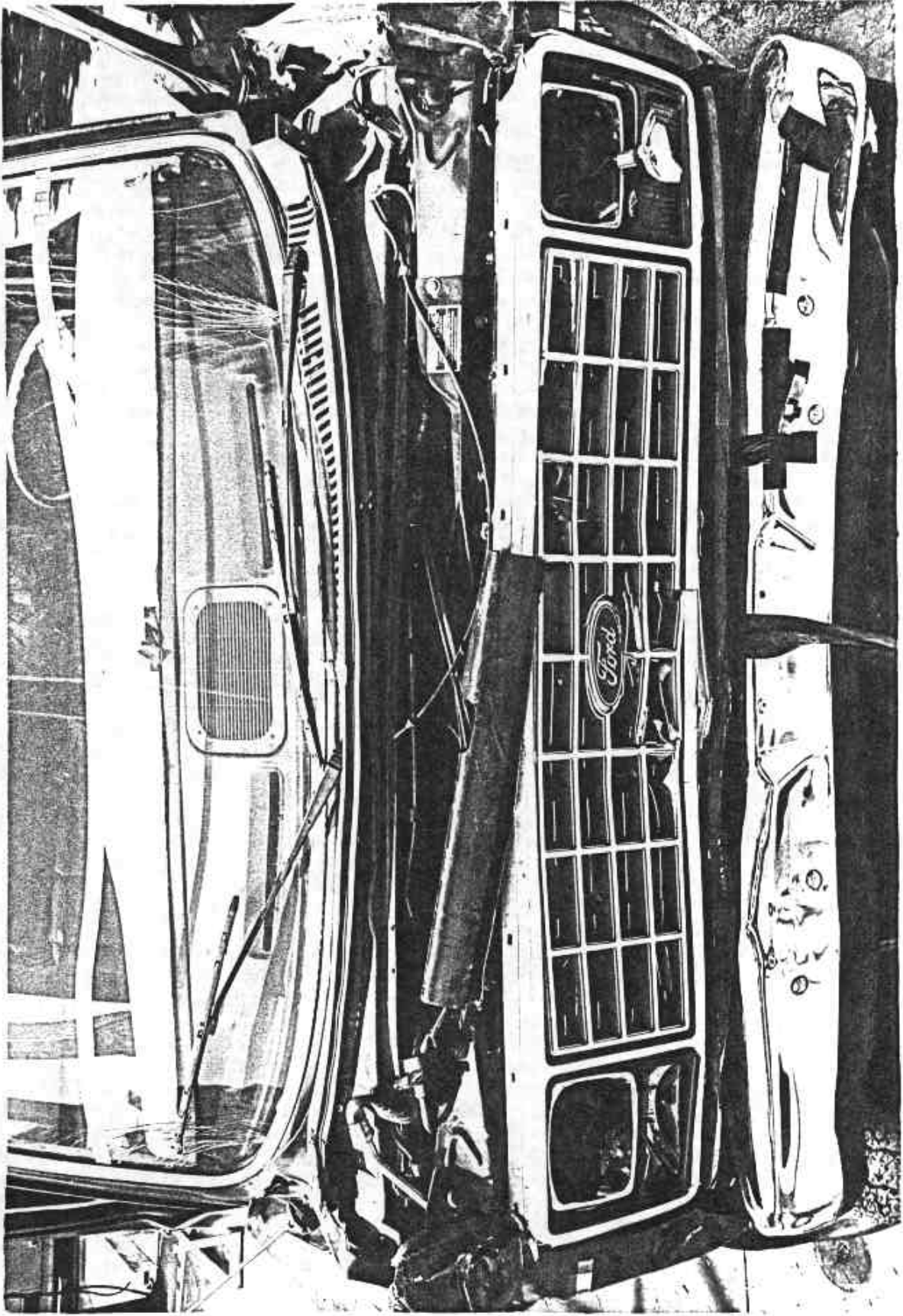
PRE TEST WINDSHIELD VIEW



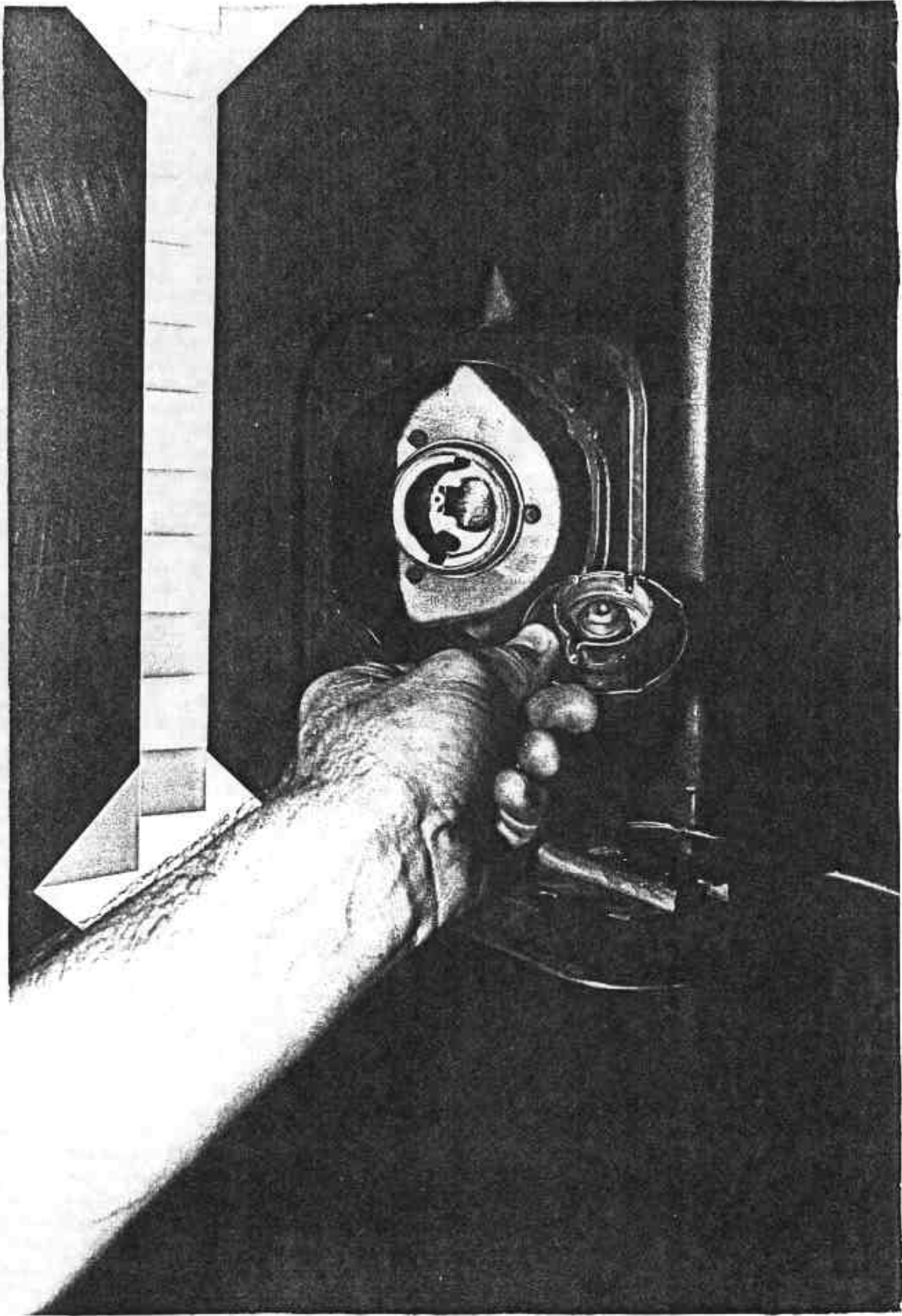
POST TEST WINDSHIELD VIEW



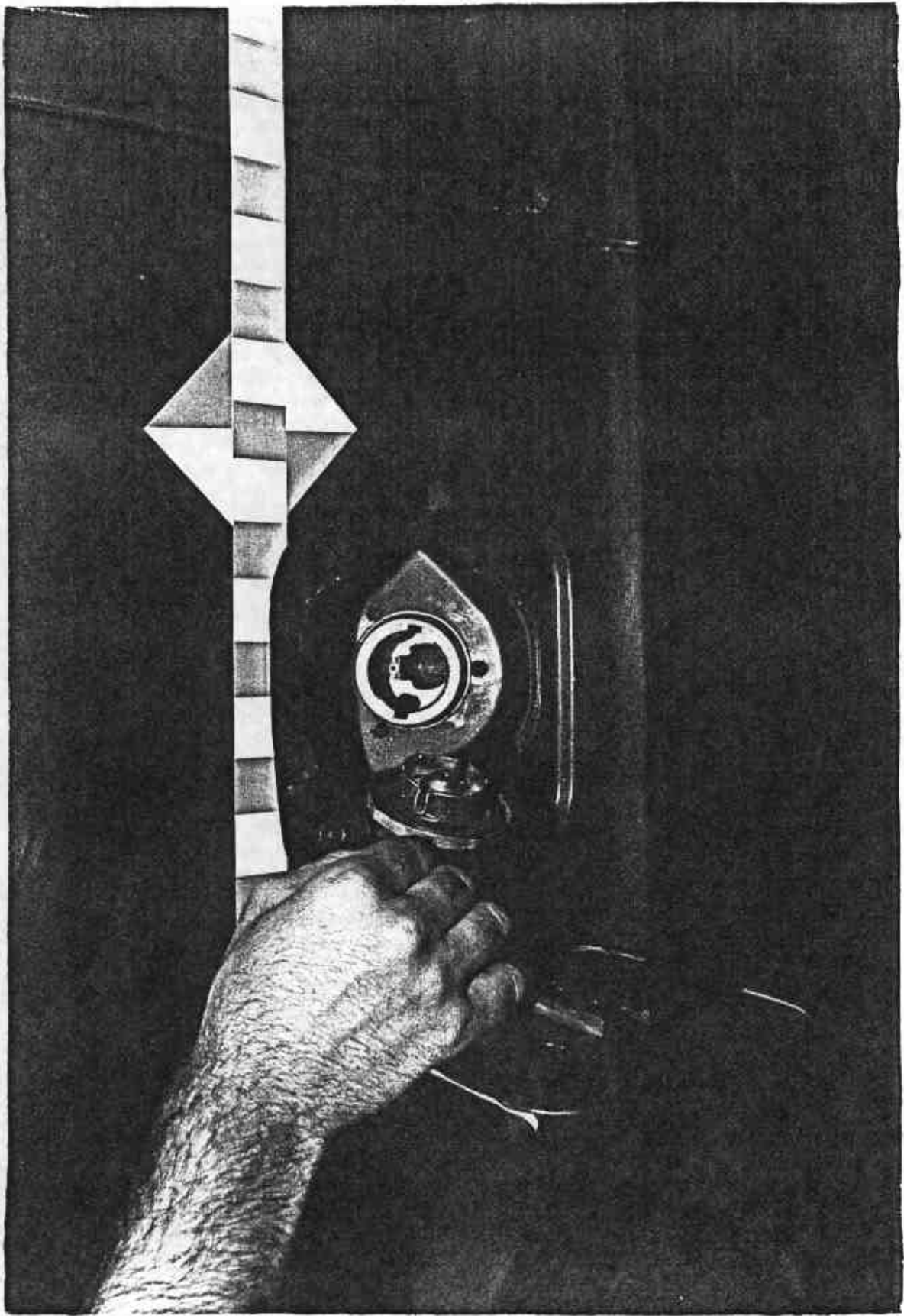
PRE TEST ENGINE COMPARTMENT VIEW



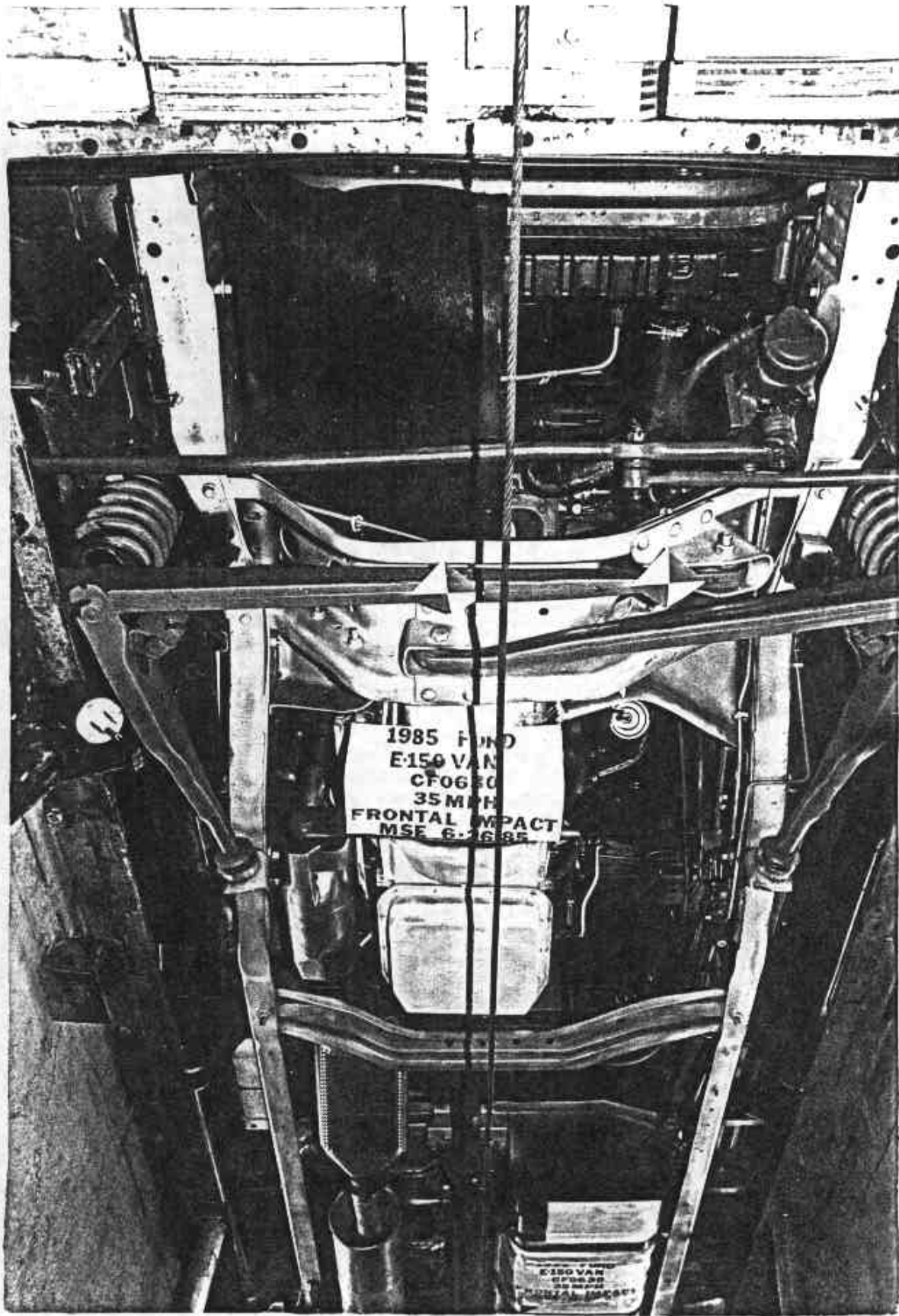
POST TEST ENGINE COMPARTMENT VIEW



PRE TEST FUEL FILLER CAP - FORWARD TANK

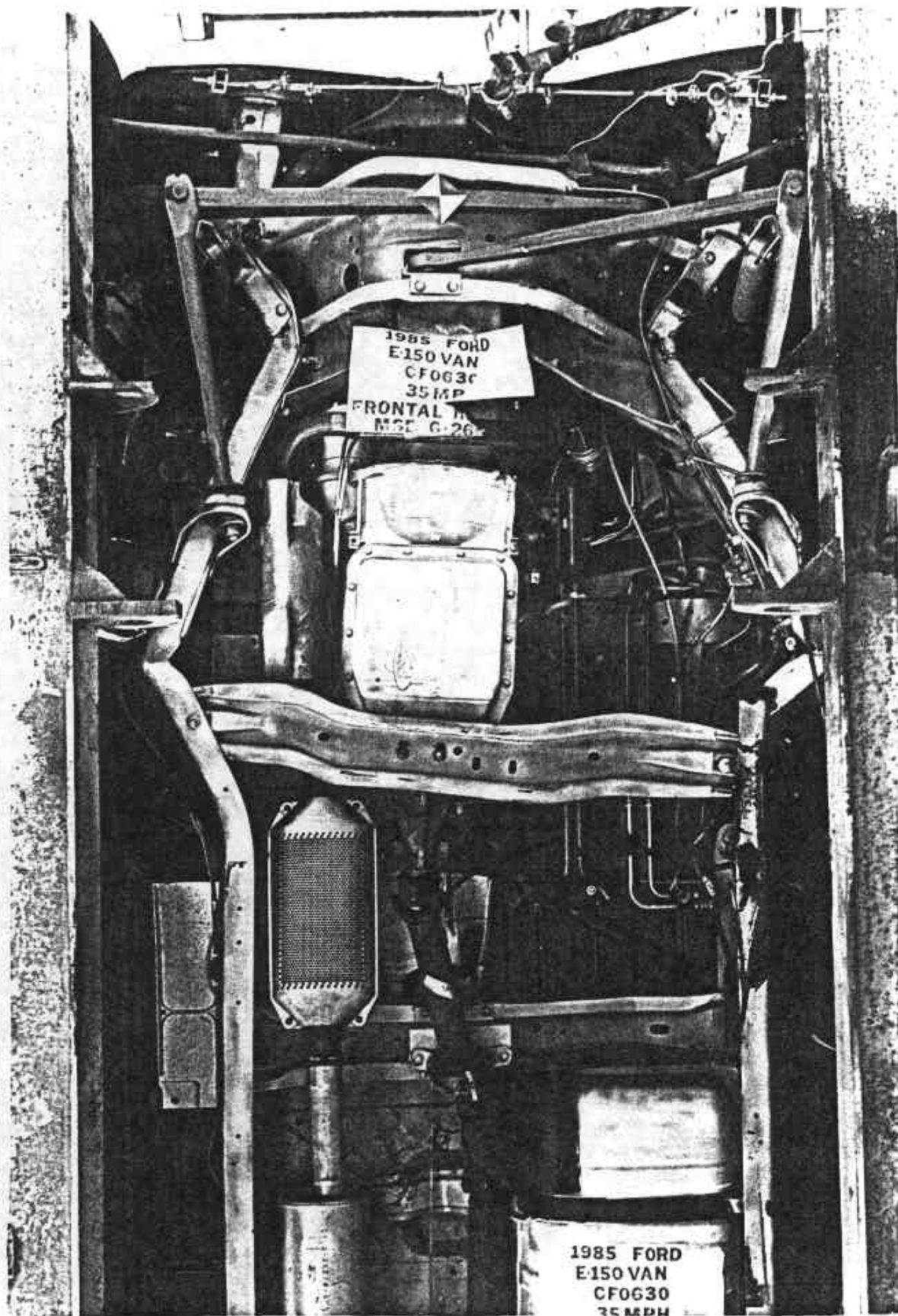


PRE TEST FUEL FILLER CAP - REAR TANK

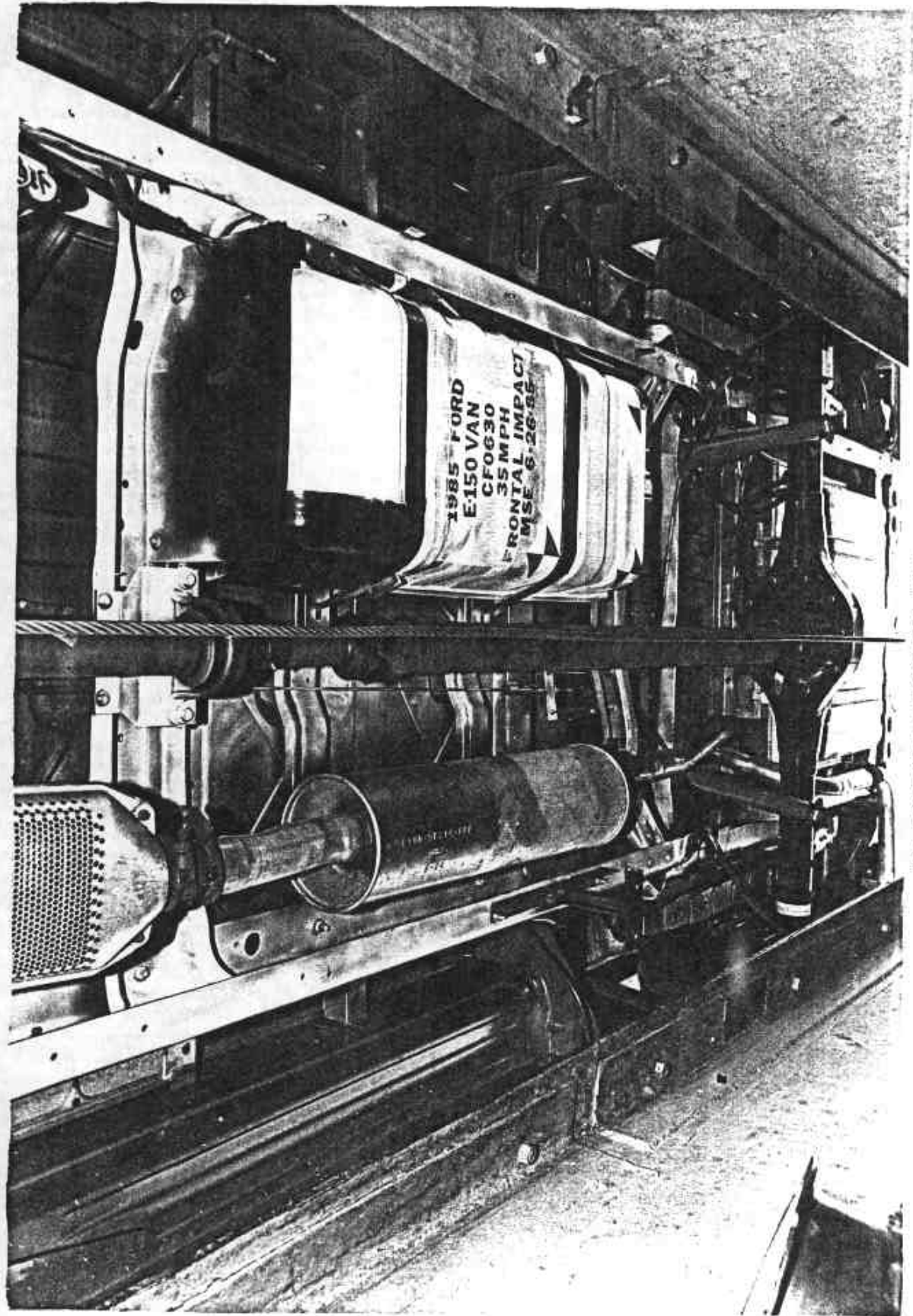


1985 FORD
E-150 VAN
CF0650
35 MPH
FRONTAL IMPACT
MSE 6-16-85

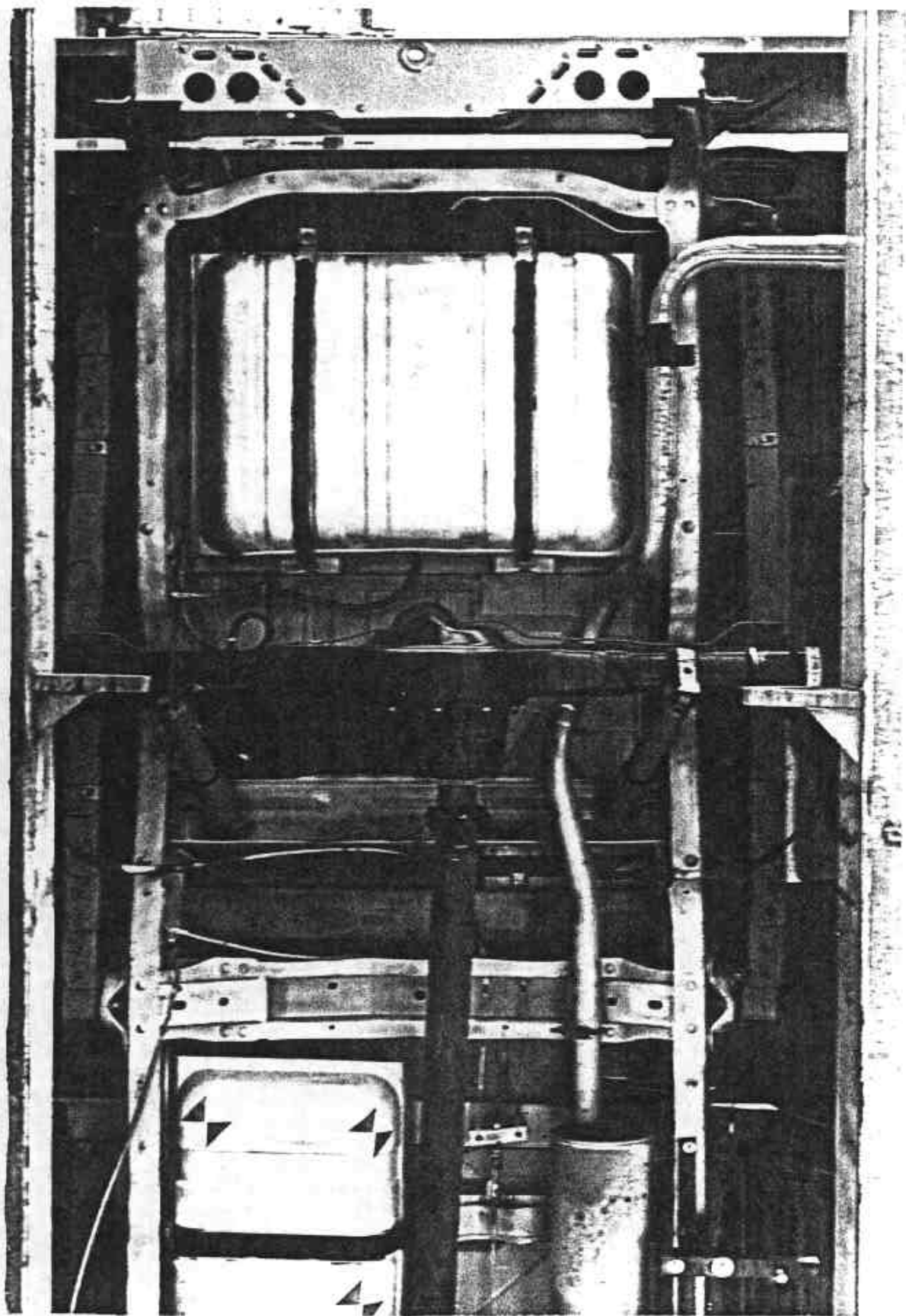
PRE TEST FRONT UNDERBODY VIEW



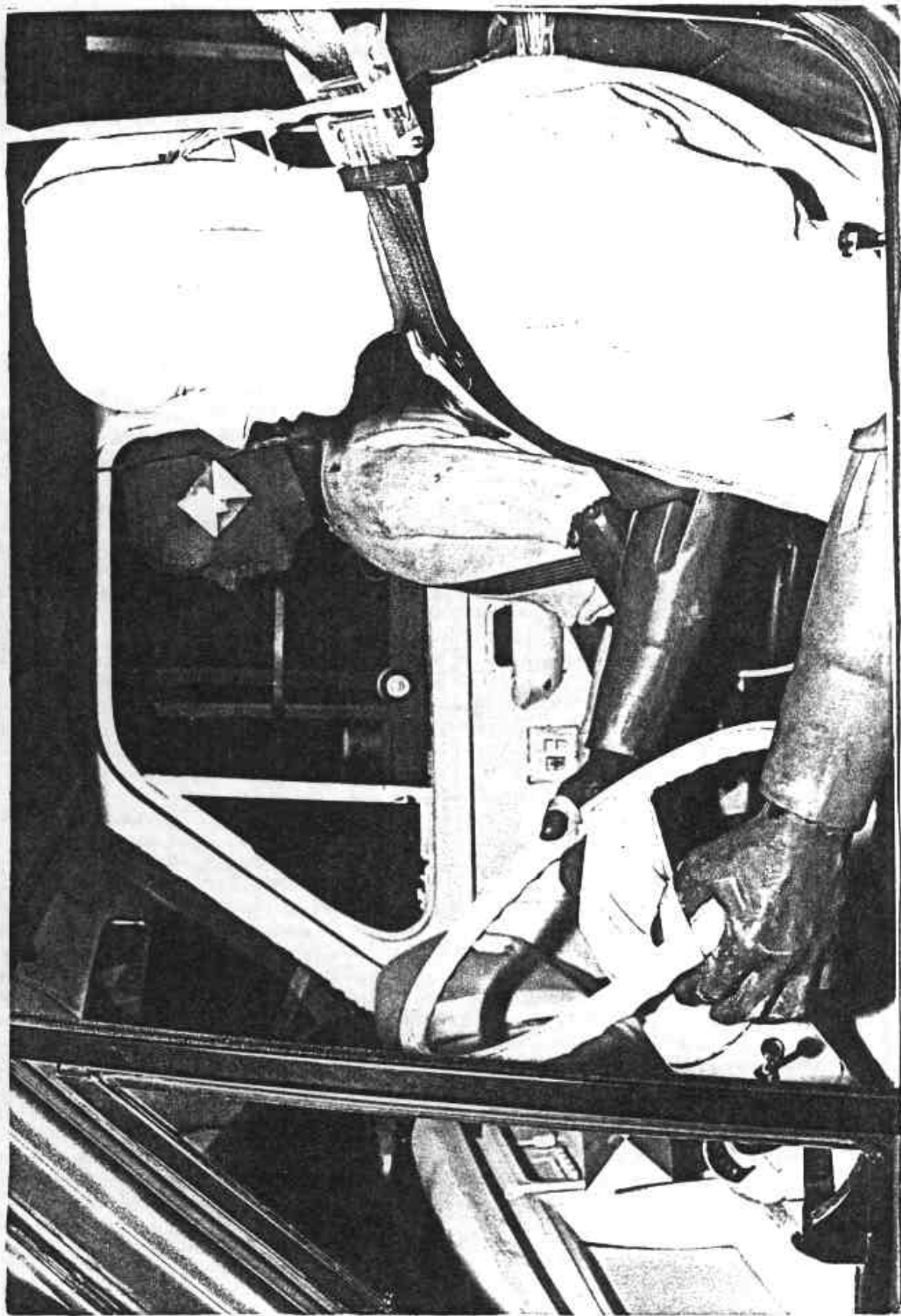
POST TEST FRONT UNDERBODY VIEW



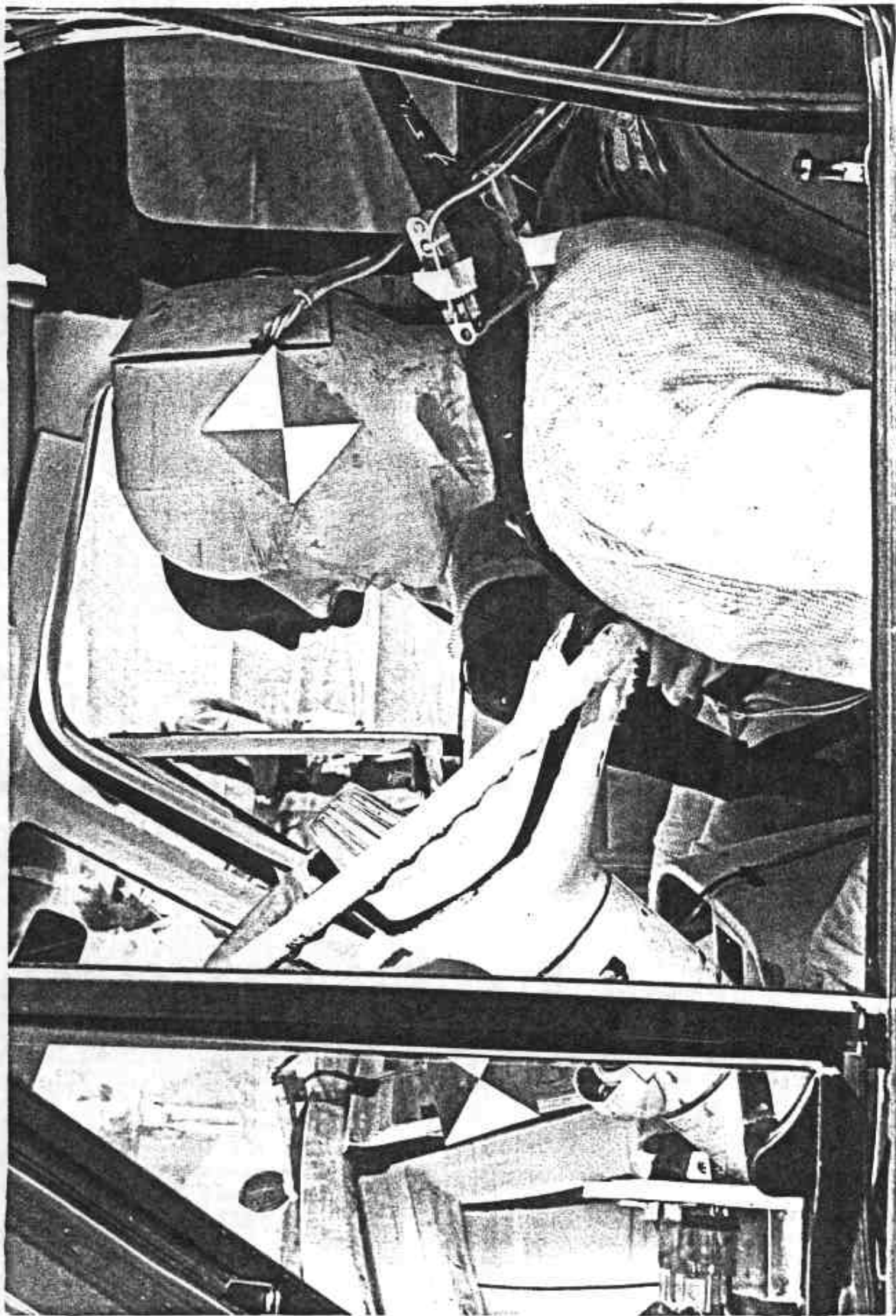
PRE TEST REAR UNDERBODY VIEW



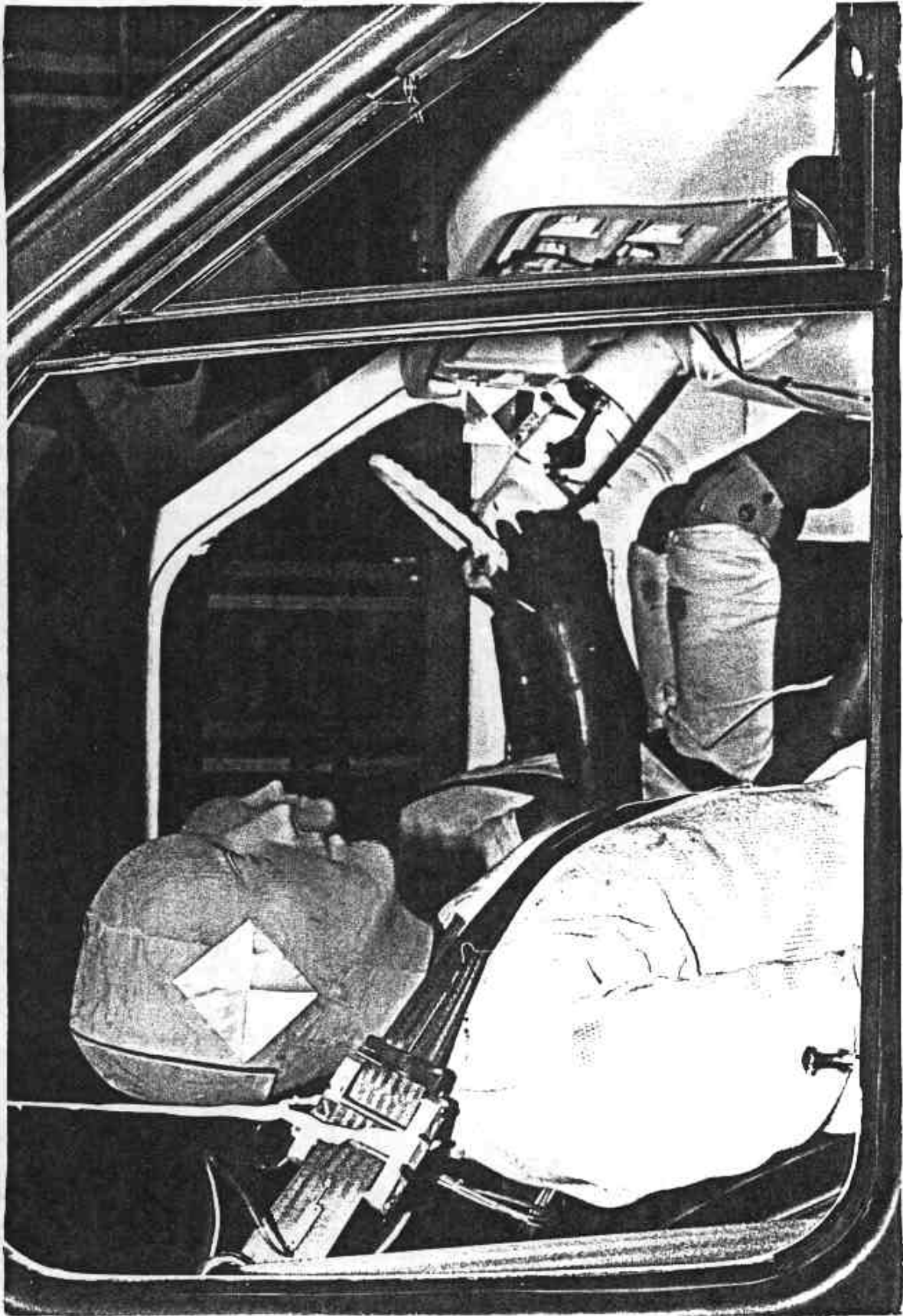
POST TEST REAR UNDERBODY VIEW



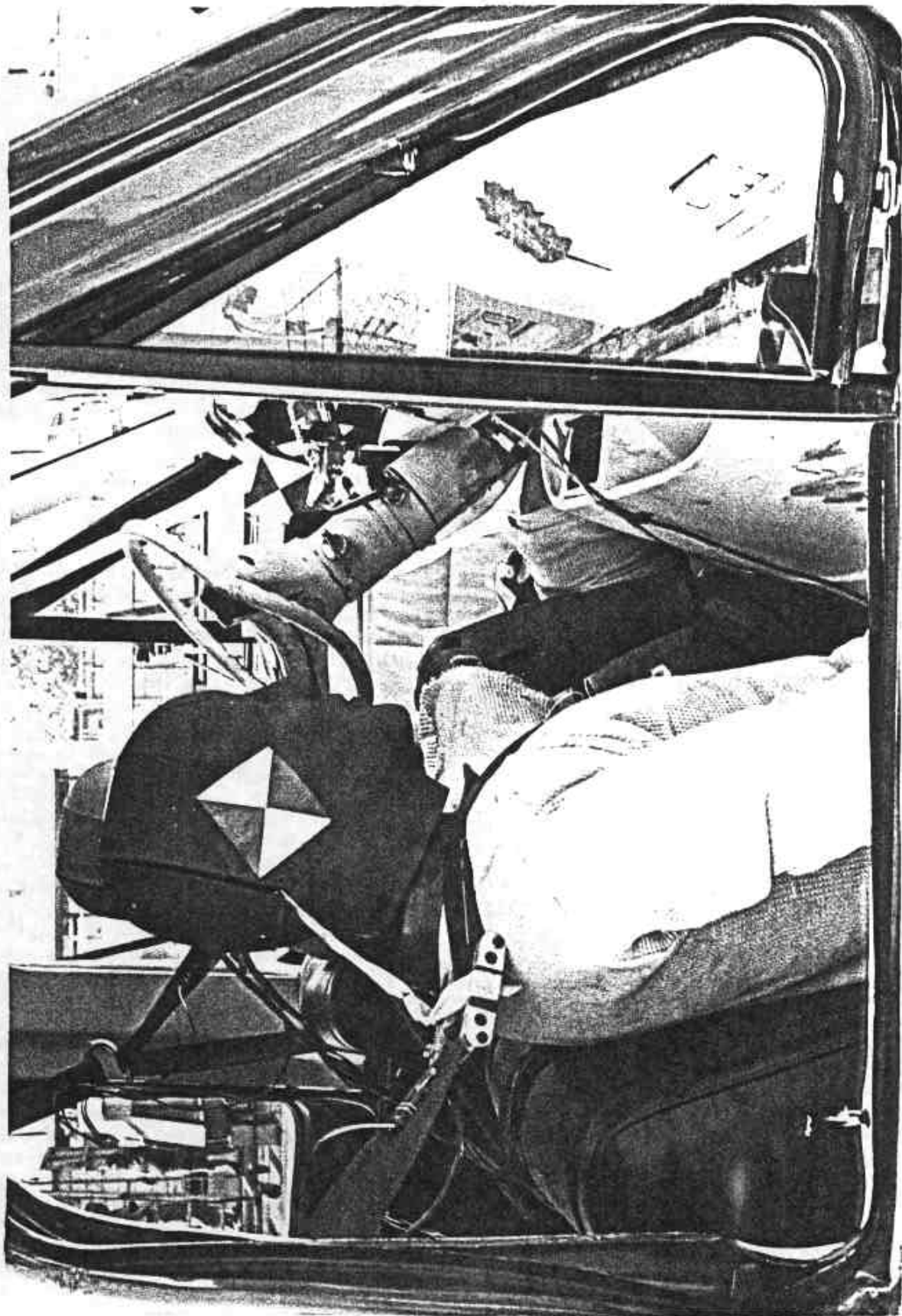
PRE TEST DRIVER DUMMY POSITION VIEW



POST TEST DRIVER DUMMY POSITION VIEW



PRE TEST PASSENGER DUMMY POSITION VIEW



POST TEST PASSENGER DUMMY POSITION VIEW



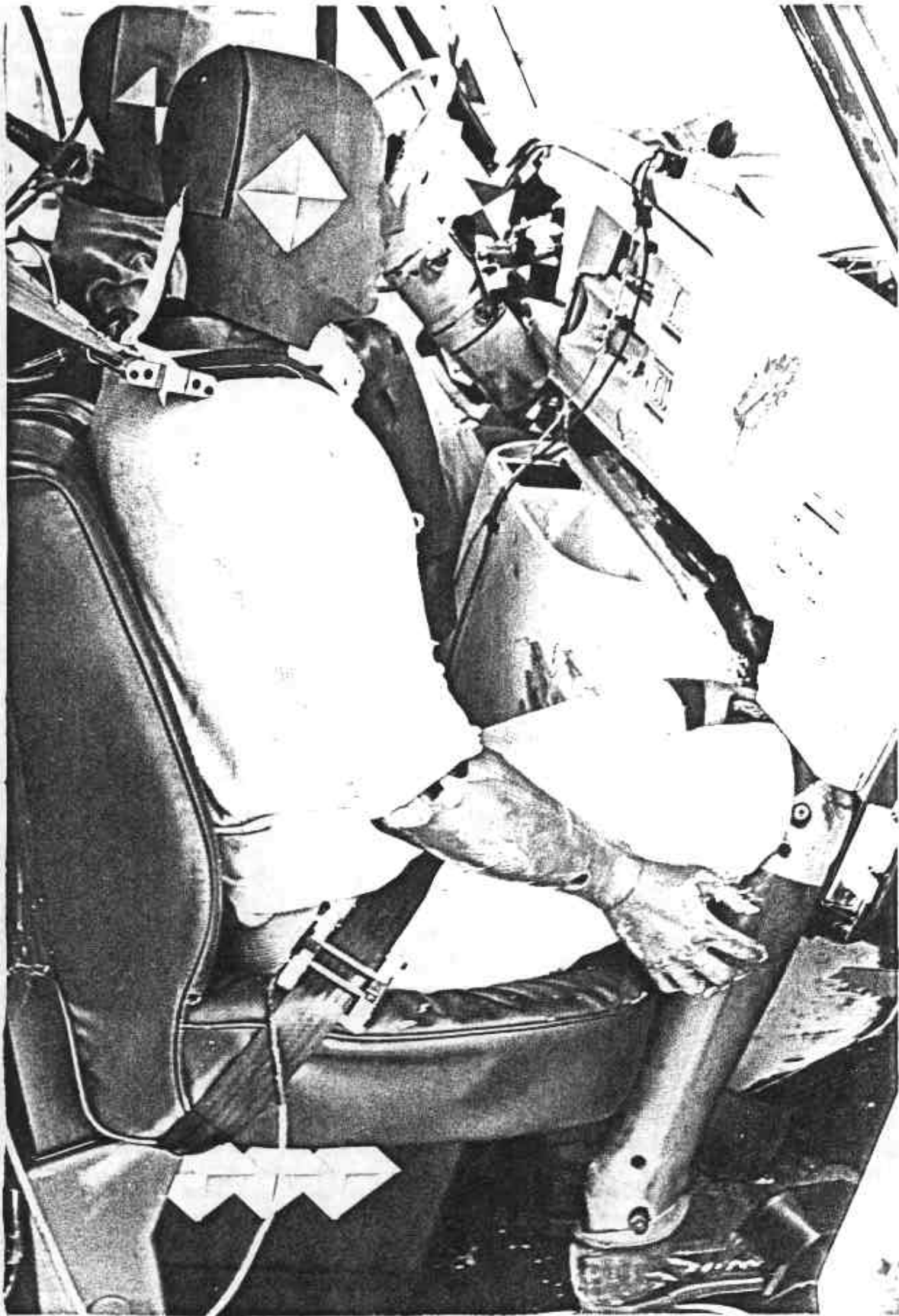
PRE TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



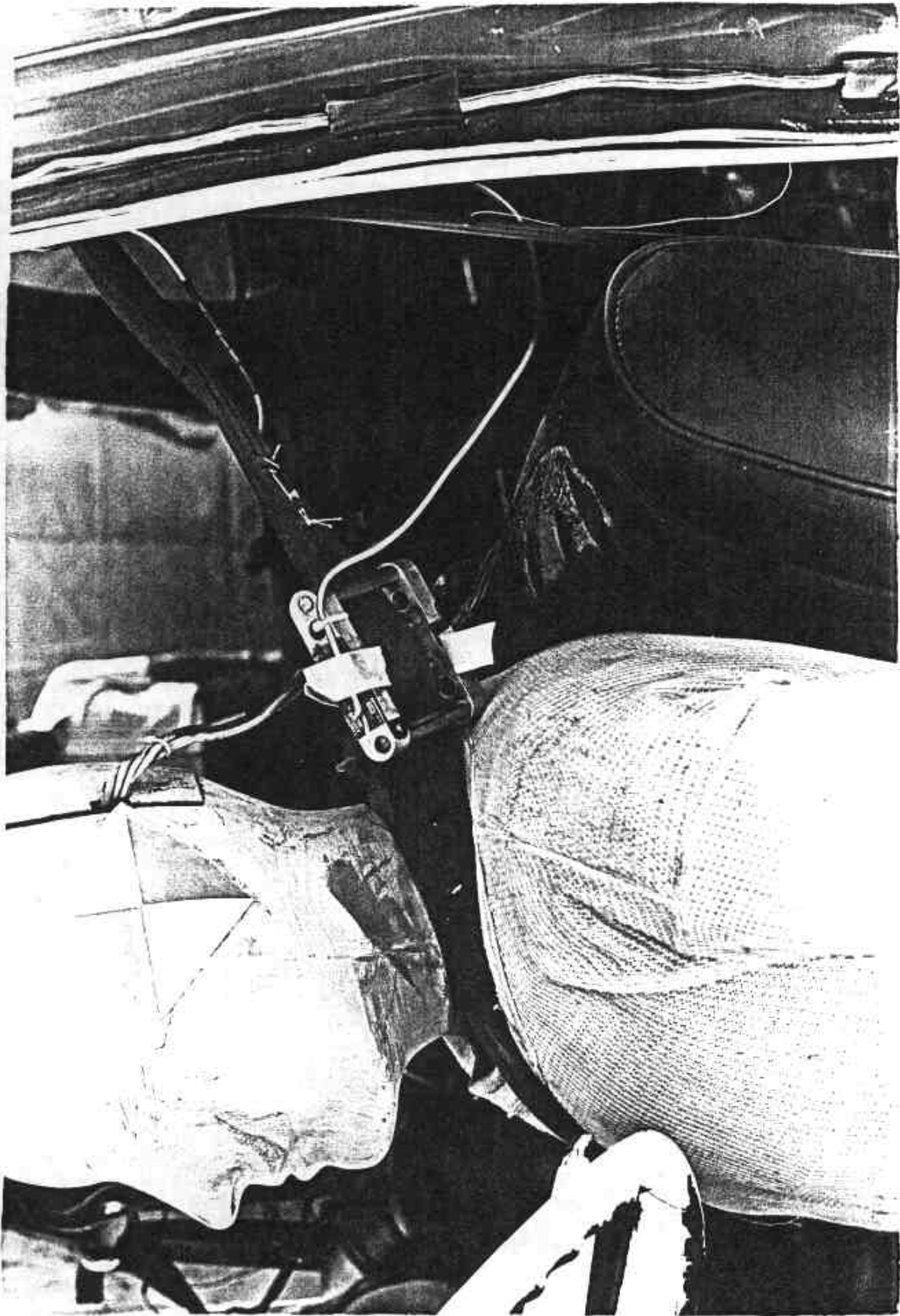
POST TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



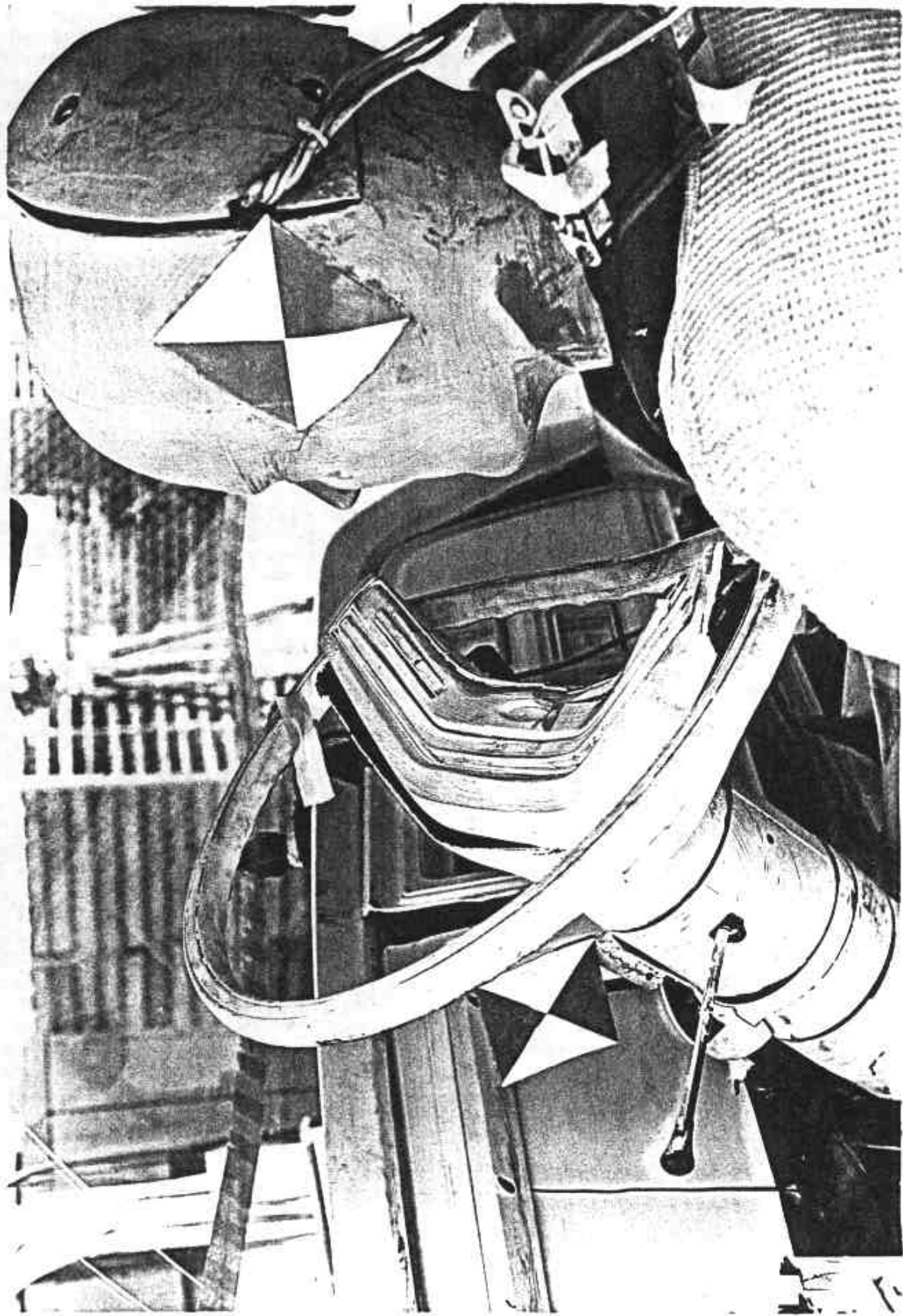
PRE TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



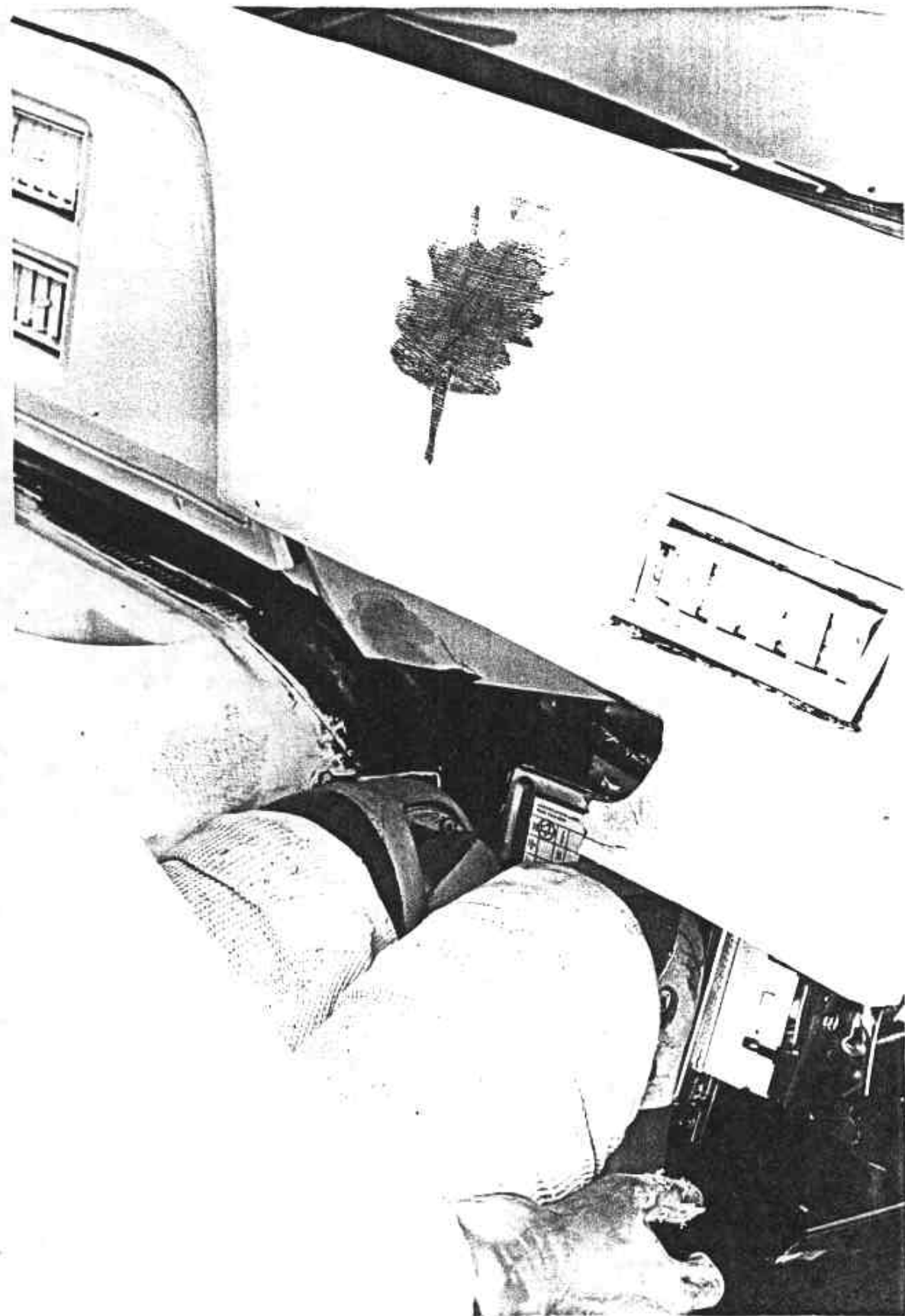
POST TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



POST TEST DRIVER DUMMY HEAD CONTACT AREA (SEATBACK)



POST TEST STEERING COLUMN HUB/R/HI CONTACT BY DUMMY DRIVER



POST TEST PASSENGER DUMMY HEAD/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 25 254PM NCAP FRONTAL 06/25/2015 08:22:25.000 104EN02055 ACQUIRE NCAP DATA PLUS EVALUATE COMPLIANCE TO FINES 212.219.

201-75 W 282ND AVE 34.900000 8999.900000 32FHTU48EN3

21022255/3-1L5.0 LITERS ARMS237133.0229.591.0-5.450YLPNGX

35.100000 12F0EN4999 49.020.125.124.024.624.322.5 0.024.0

3LCS 00 R

411CD 050M HUMANOID SYSTEMS 464 1ST IMP AFTER CAL11.019.5 4.5 0.020.511.0 3.0 5.5 3.43PTSTDIAENSHOP

412CD 050M HUMANOID SYSTEMS 467 1ST IMP AFTER CAL10.317.5 4.3 0.022.099.9 3.0 5.5 5.33PTSTDIAENPN30P

501AC011HED 0000 1650 0.72360 360000 1256'SX35.50000

502AC011HED 0000 1650 0.72360 360000 1256'SY00.00000

503AC011HED 0000 1650 0.72360 360000 1256'SZ00.00000

504AC011CST 0000 1650 0.72360 360000 1256'SX35.50000

505AC011CST 0000 1650 0.72360 360000 1256'SY00.00000

506AC011CST 0000 1650 0.72360 360000 1256'SZ00.00000

507AC012HED 0000 1650 0.72360 360000 1256'SX35.50000

508AC012HED 0000 1650 0.72360 360000 1256'SY00.00000

509AC012HED 0000 1650 0.72360 360000 1256'SZ00.00000

510AC012CST 0000 1650 0.72360 360000 1256'SX35.50000

511AC012CST 0000 1650 0.72360 360000 1256'SY00.00000

512AC012CST 0000 1650 0.72360 360000 1256'SZ00.00000

513LC011LRF 9999 1650999.92360 360000 125LBS0 0000

514LC011LRF 9999 1650999.92360 360000 125LBS0 INVALID DATA AFTER 154.75 ms

515LC012LRF 9999 1650999.92360 360000 125LBS0 0000

516LC012RPF 9999 1650999.92360 360000 125LBS0 0000

517LC011LBO 9999 1650999.92360 360000 125LBS0 0000

518LC011SHB 9999 1650999.92360 360000 125LBS0 0000

519LC012LE0 9999 1650999.92360 360000 125LBS0 0000

520LC012SHB 9999 1650999.92360 360000 125LBS0 0000

521DT011SHB 9999 1650999.92360 360000 125INCO 0000

522DT012SHB 9999 1650999.92360 360000 125INCO 0000

523DT011SHB 9999 1650999.92360 360000 125IP10 0000

524DT012SHB 9999 1650999.92360 360000 125IP10 0000

525AC0 INLRF 2000 1650 0.72360 360000 1256'SX35.50000

526AC0 INRRF 2000 1650 0.72360 360000 1256'SX35.50000

527AC0 INENG 2000 1650 0.72360 360000 1256'SX35.50000

528AC0 INENG 2000 1650 0.72360 360000 1256'SX35.50000

529AC0 INBCR 2000 1650 0.72360 360000 1256'SX35.50000

530AC0 INDPC 2000 1650 0.72360 360000 1256'SX35.50000

531LCBANE01 9999 1650999.92360 360000 125LBS0 NO LOAD CELL IN THIS LOC.

532LCBANE02 9999 1650999.92360 360000 125LBS0 0000

533LCBANE03 9999 1650999.92360 360000 125LBS0 0000

534LCBANE04 9999 1650999.92360 360000 125LBS0 0000

535LCBANE05 9999 1650999.92360 360000 125LBS0 0000

536LCBANE06 9999 1650999.92360 360000 125LBS0 0000

537LCBANE07 9999 1650999.92360 360000 125LBS0 - (No Data Recorded)

538LCBANE08 9999 1650999.92360 360000 125LBS0 0000

539LCBANE09 9999 1650999.92360 360000 125LBS0 NO LOAD CELL IN THIS LOC.

540LCBANE10 9999 1650999.92360 360000 125LBS0 0000

541LCBANE11 9999 1650999.92360 360000 125LBS0 0000

542LCBANE12 9999 1650999.92360 360000 125LBS0 0000

543LCBANE13 9999 1650999.92360 360000 125LBS0 0000

544LCBANE14 9999 1650999.92360 360000 125LBS0 0000

545LCBANE15 9999 1650999.92360 360000 125LBS0 0000

546LCBANE16 9999 1650999.92360 360000 125LBS0 0000

547LCBANE17 9999 1650999.92360 360000 125LBS0 0000

548LCBANE18 9999 1650999.92360 360000 125LBS0 0000

549LCBANE19 9999 1650999.92360 360000 125LBS0 0000

550LCBANE20 9999 1650999.92360 360000 125LBS0 0000

551LCBANE01 9999 1650999.92360 360000 125LBS0 0000

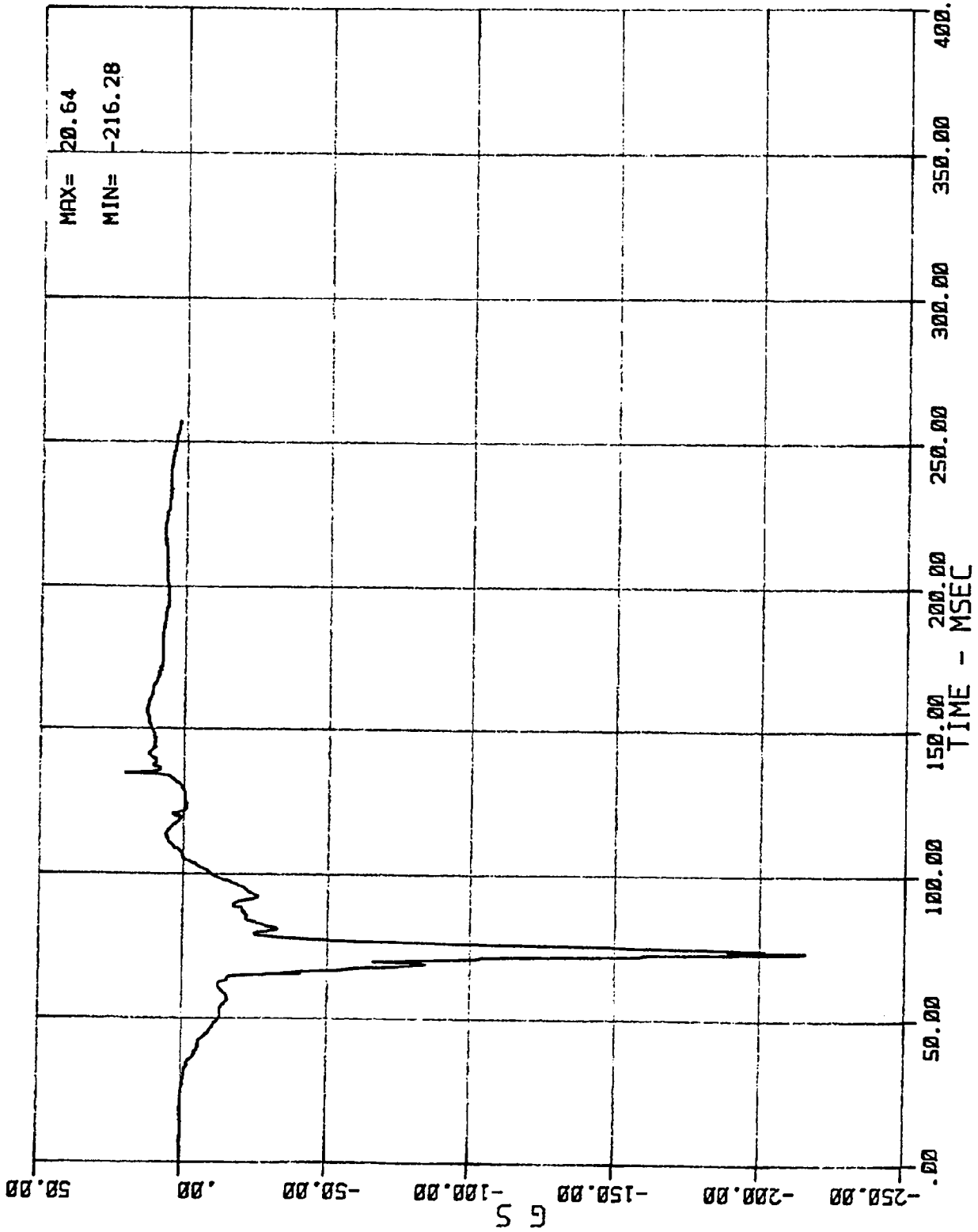
552LCBANE02 9999 1650999.92360 360000 125LBS0 0000

553LCBANE03 9999 1650999.92360 360000 125LBS0 0000

(No Data Recorded)

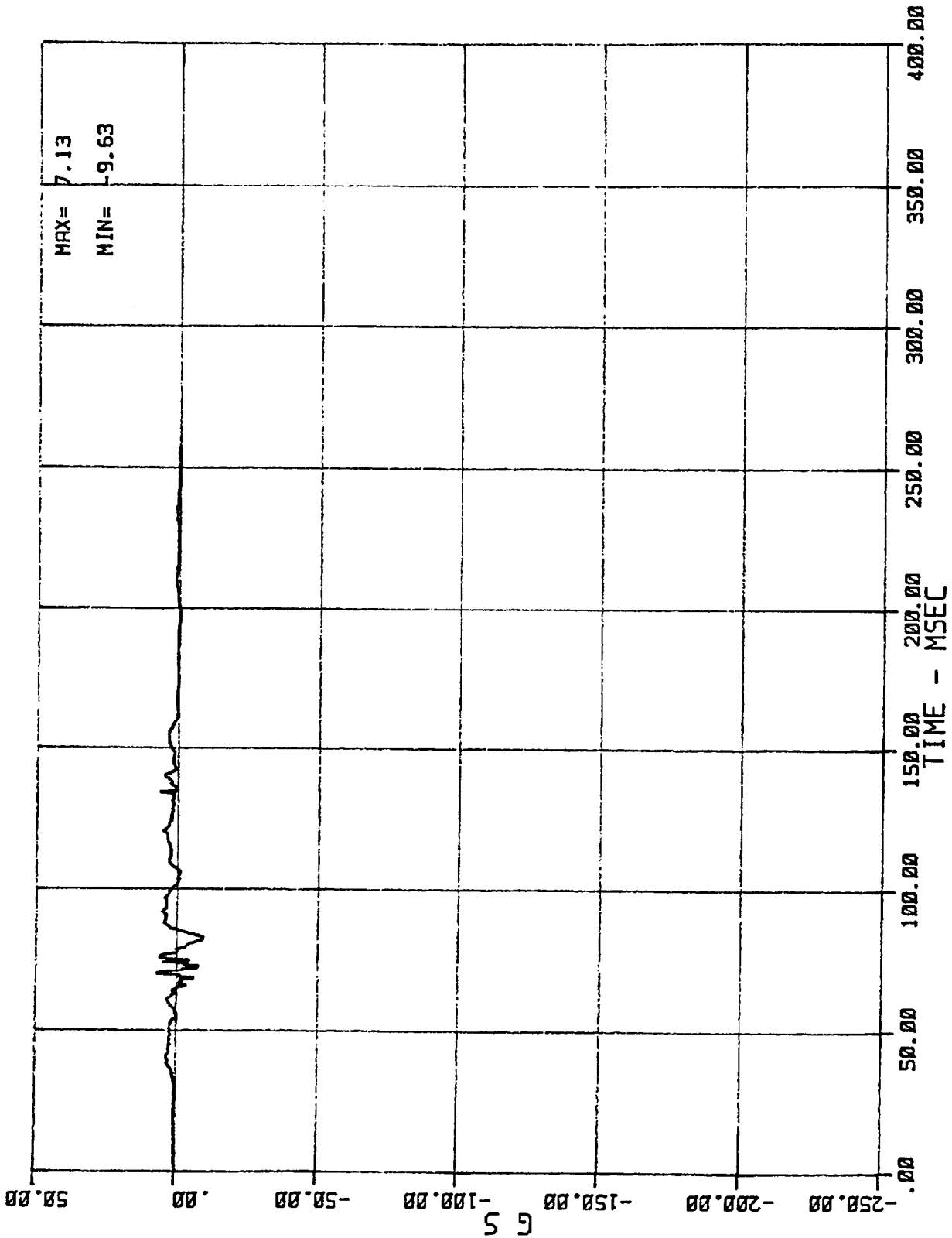
554LCSANE06	9999	1650999.92800	368000	125L850	
555LCSANE07	9999	1650999.92800	368000	125L850	6000
556LCSANE08	9999	1650999.92800	368000	125L850	6000
557LCSANE09	9999	1650999.92800	368000	125L850	6000
558LCSANE10	9999	1650999.92800	368000	125L850	6000
559LCSANE11	9999	1650999.92800	368000	125L850	6000
560LCSANE12	9999	1650999.92800	368000	125L850	6000
561LCSANE13	9999	1650999.92800	368000	125L850	6000
562LCSANE14	9999	1650999.92800	368000	125L850	6000
563LCSANE15	9999	1650999.92800	368000	125L850	6000
564LCSANE16	9999	1650999.92800	368000	125L850	6000
565LCSANE17	9999	1650999.92800	368000	125L850	6000
566LCSANE18	9999	1650999.92800	368000	125L850	6000
567LCSANE19	9999	1650999.92800	368000	125L850	6000

1



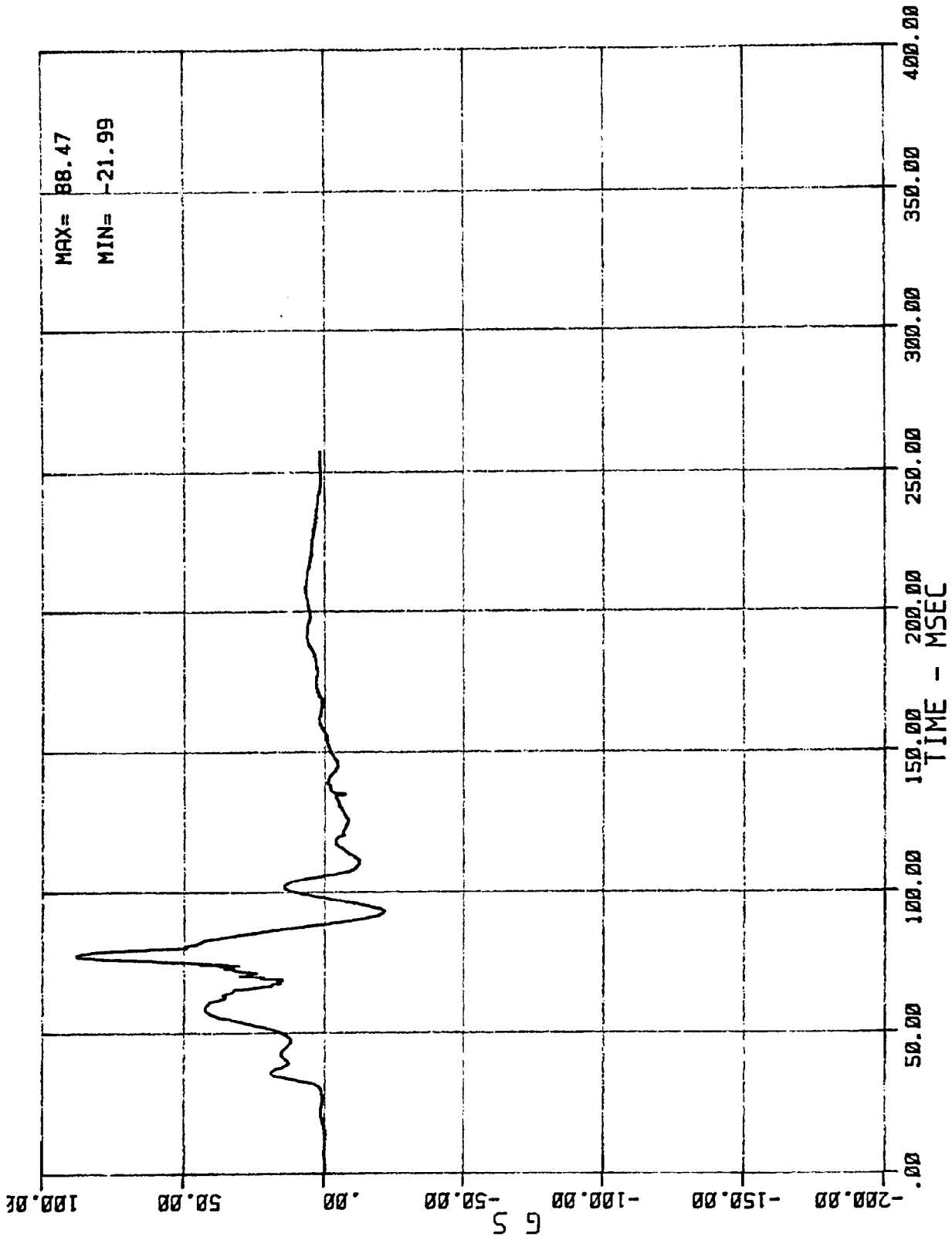
01 AC 01 J HED X (DRIVER HEAD ACCEL. -- X AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



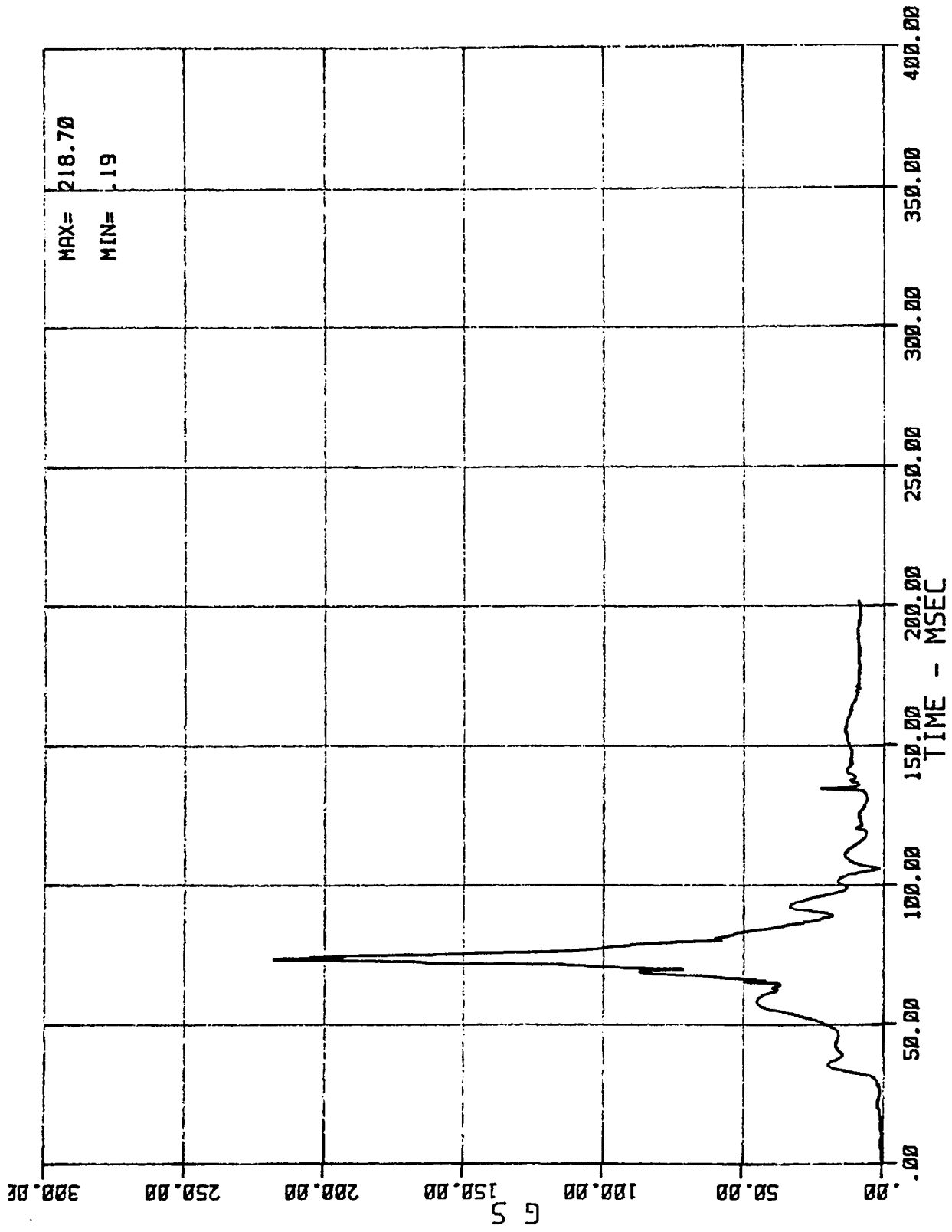
02 AC 01 I HED Y (DRIVER HEAD ACCEL. --- Y AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



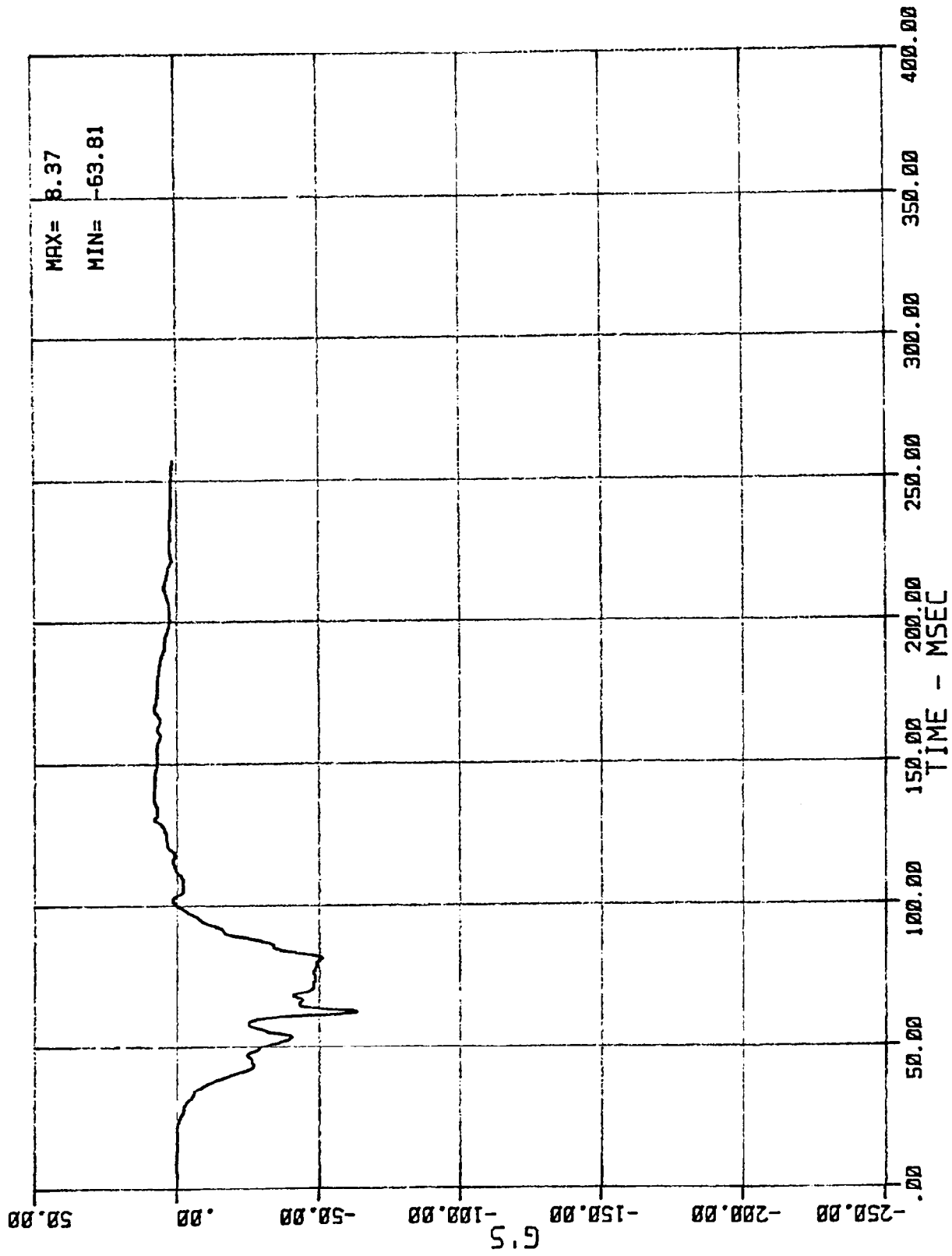
03 AC 01 1 HED Z (DRIVER HEAD ACCEL. -- Z AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



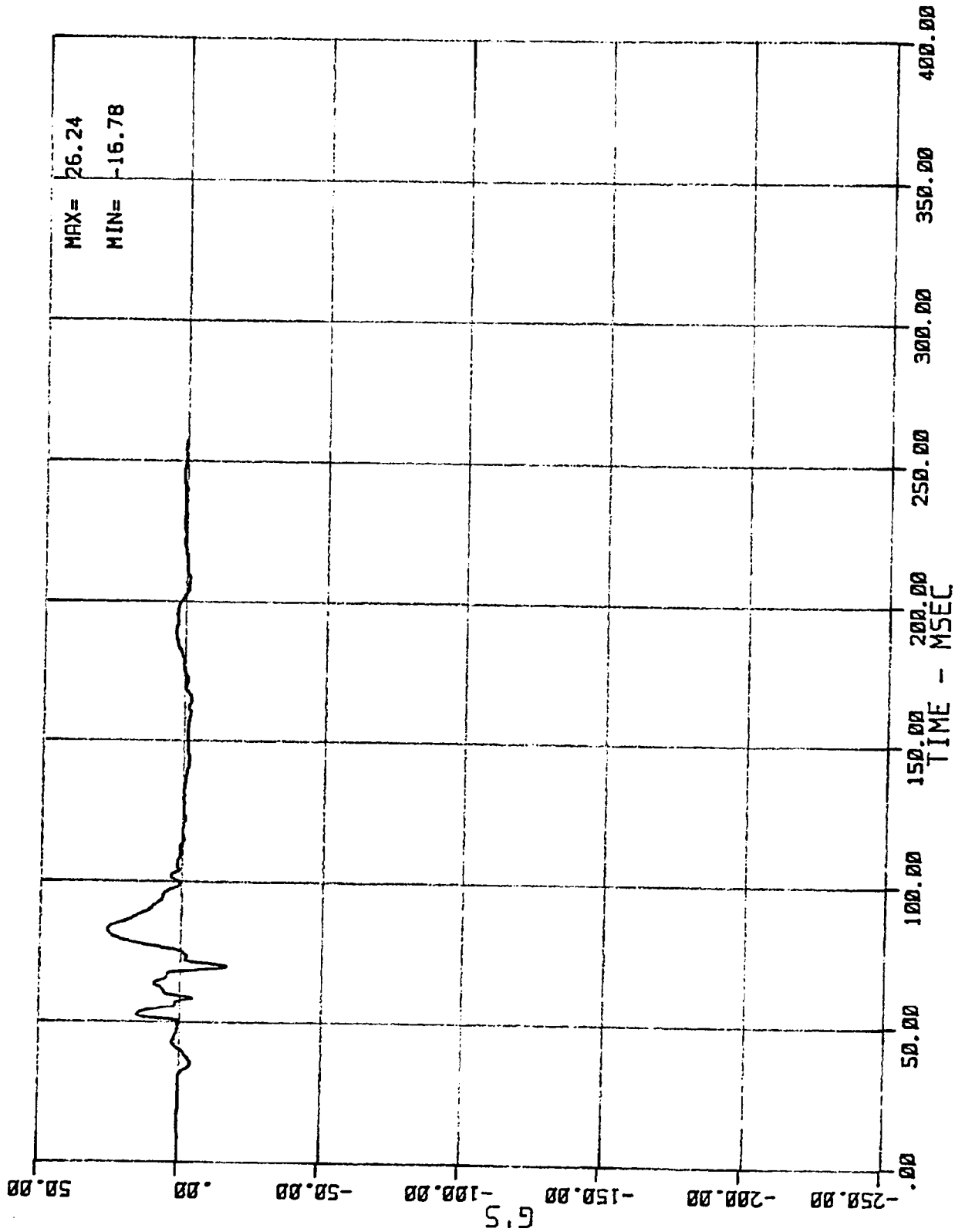
DRIVER HEAD RESULTANT ACCELERATION
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



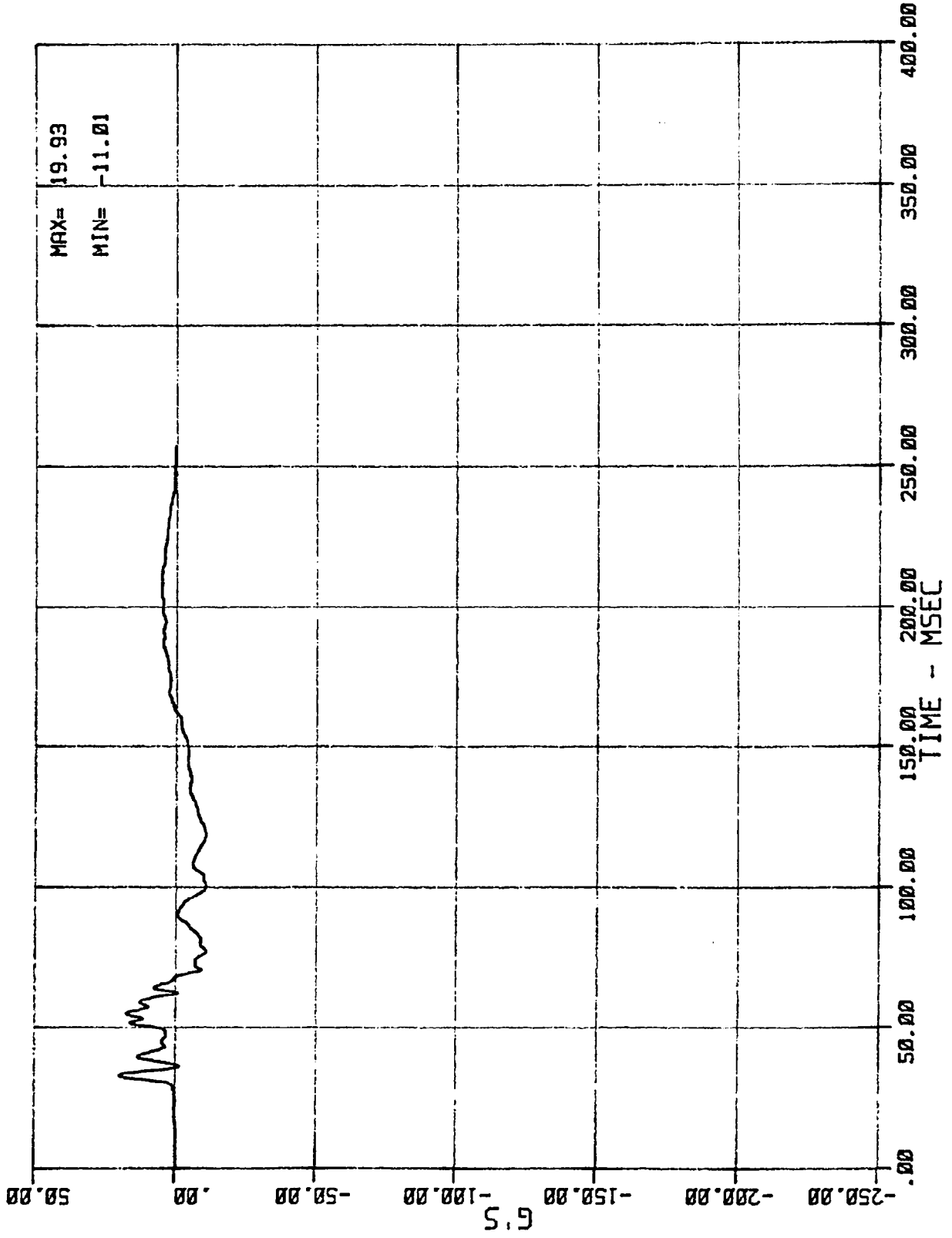
04 AC 01 1 CST X (DRIVER CHEST ACCEL. --- X AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



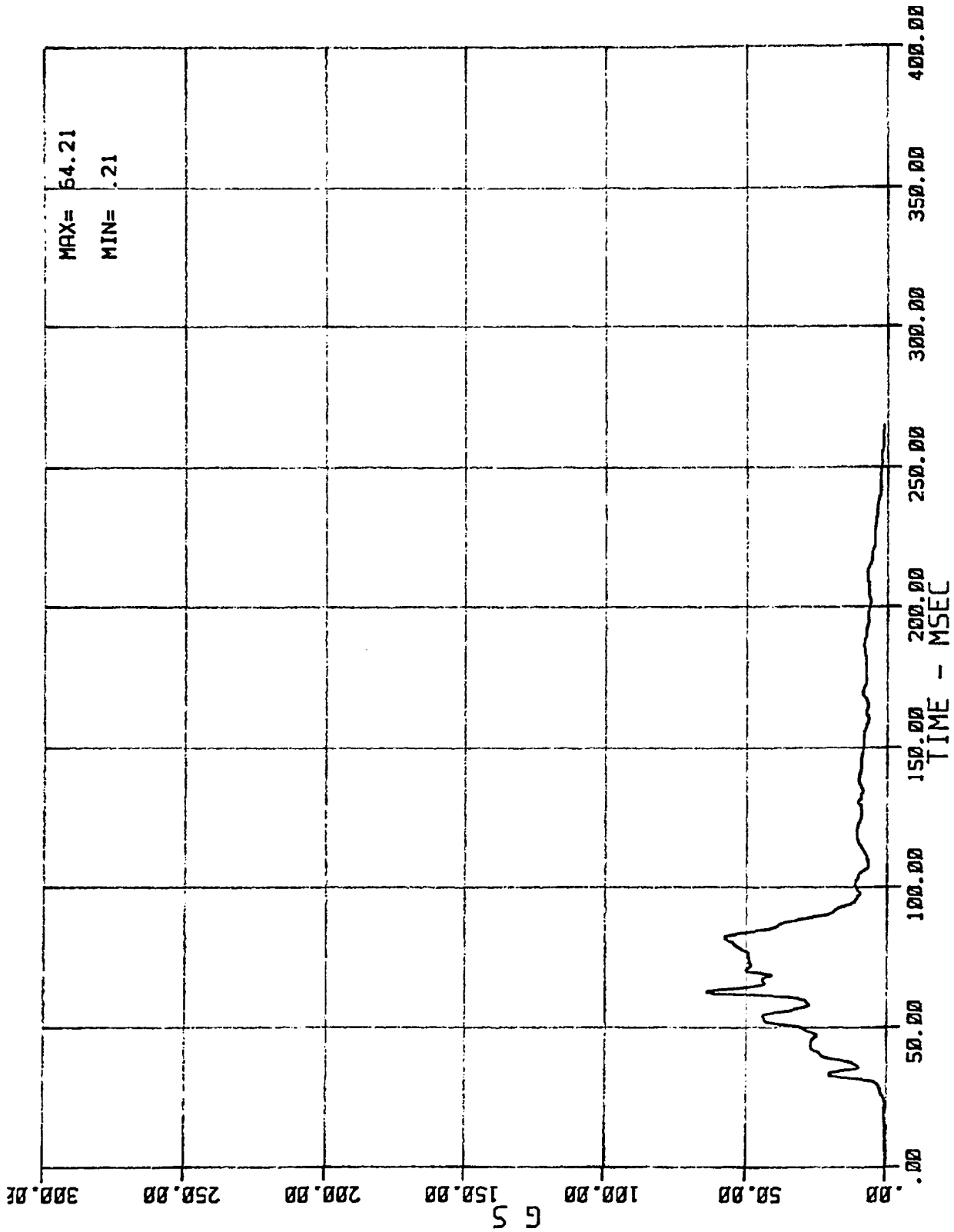
05 AC 01 1 CST Y (DRIVER CHEST ACCEL. -- Y AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



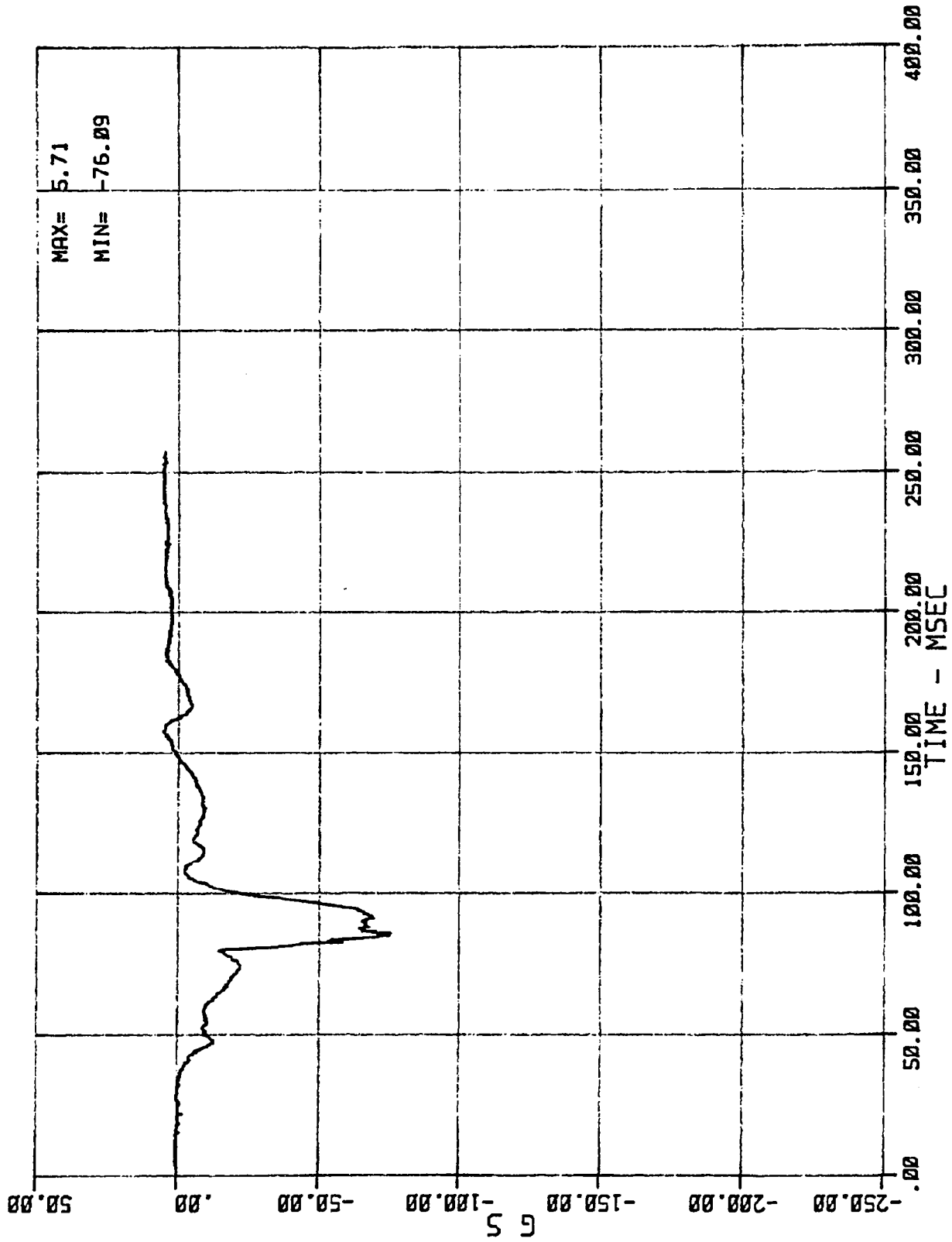
06 AC 01 1 CST 2 (DRIVER CHEST ACCEL. -- Z AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



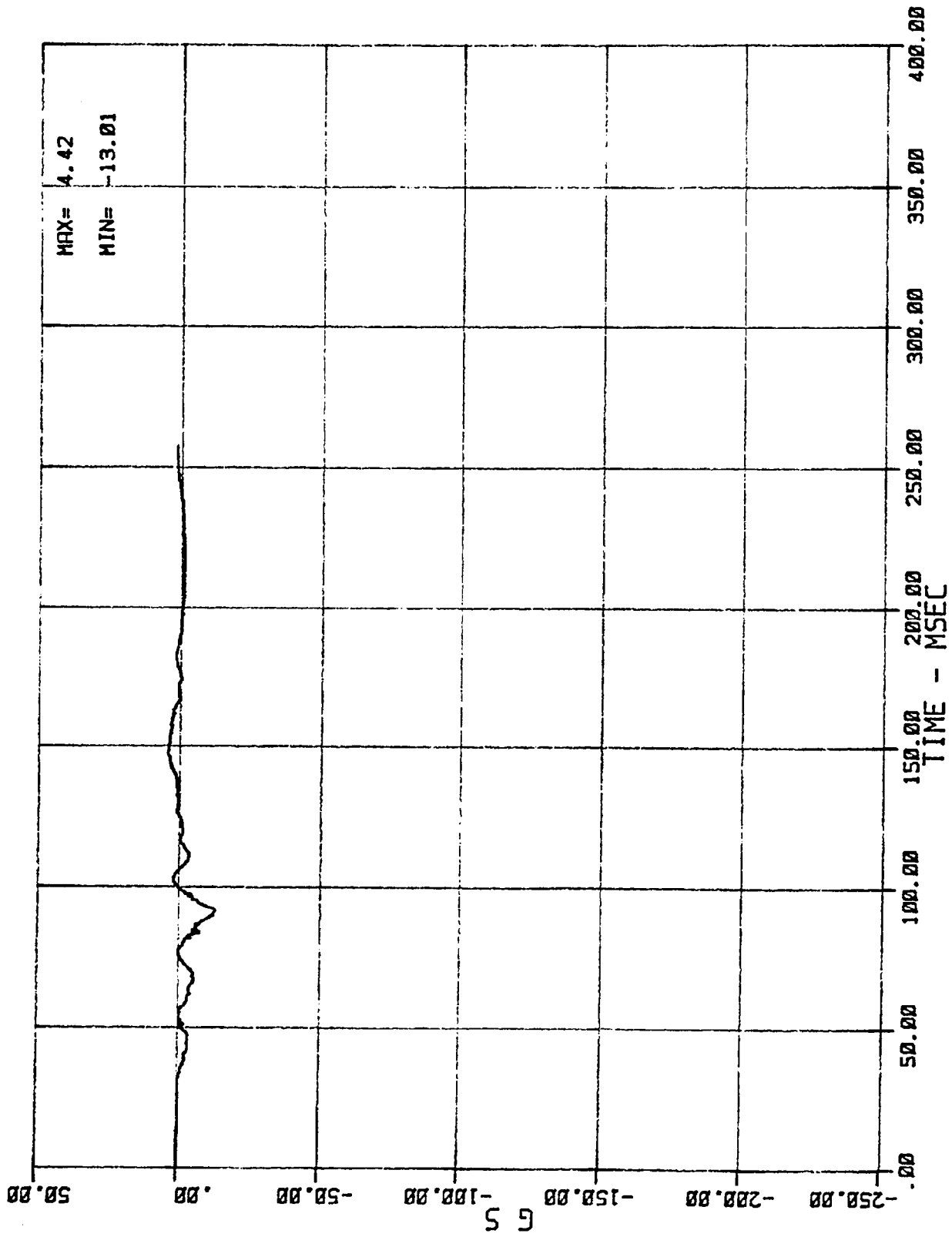
DRIVER CHEST RESULTANT ACCELERATION
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



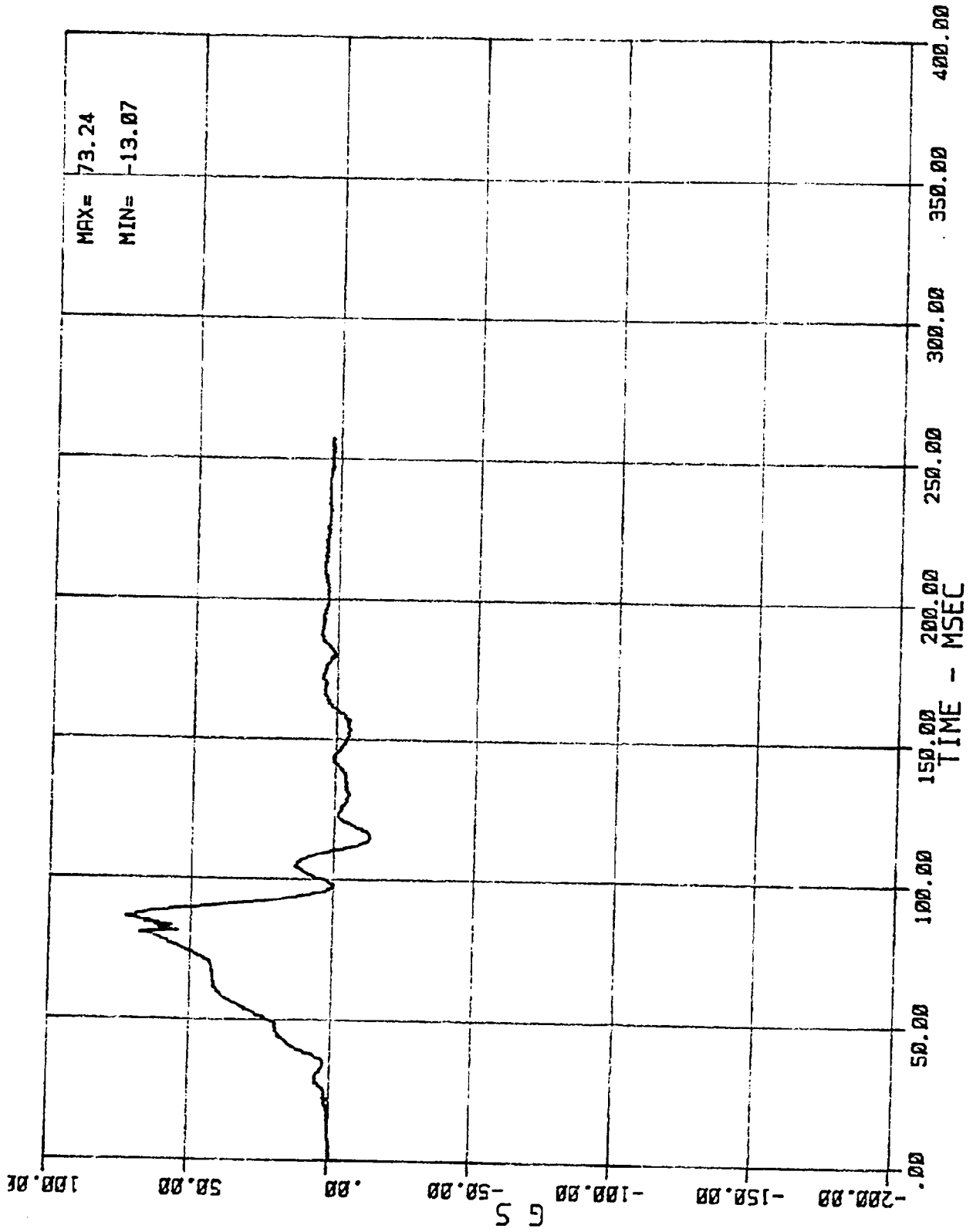
07 AC 01 2 HED X (PASSENGER HEAD ACCEL. --- X AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



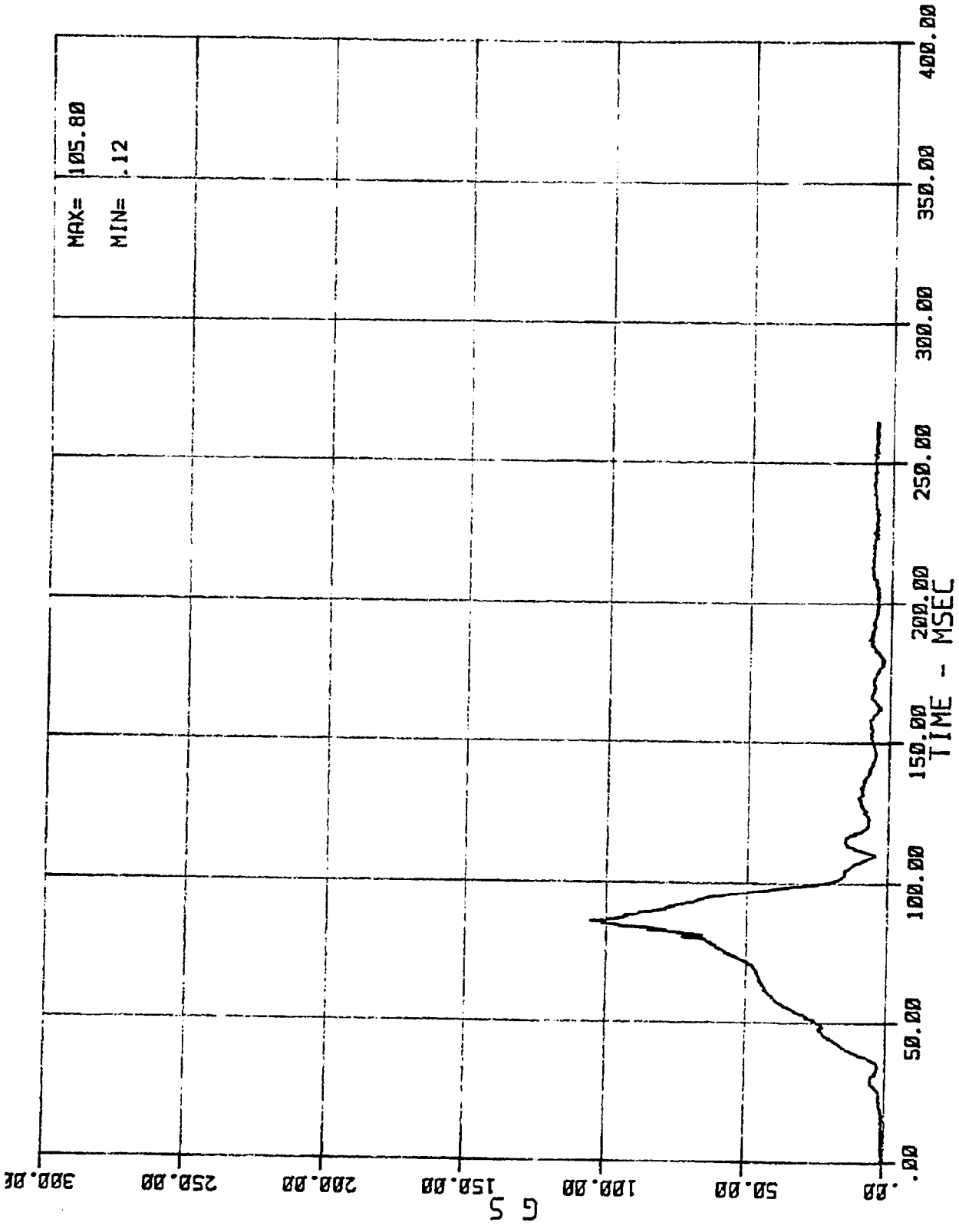
08 AC 01 2 HED Y (PASSENGER HEAD ACCEL. -- Y AXIS)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



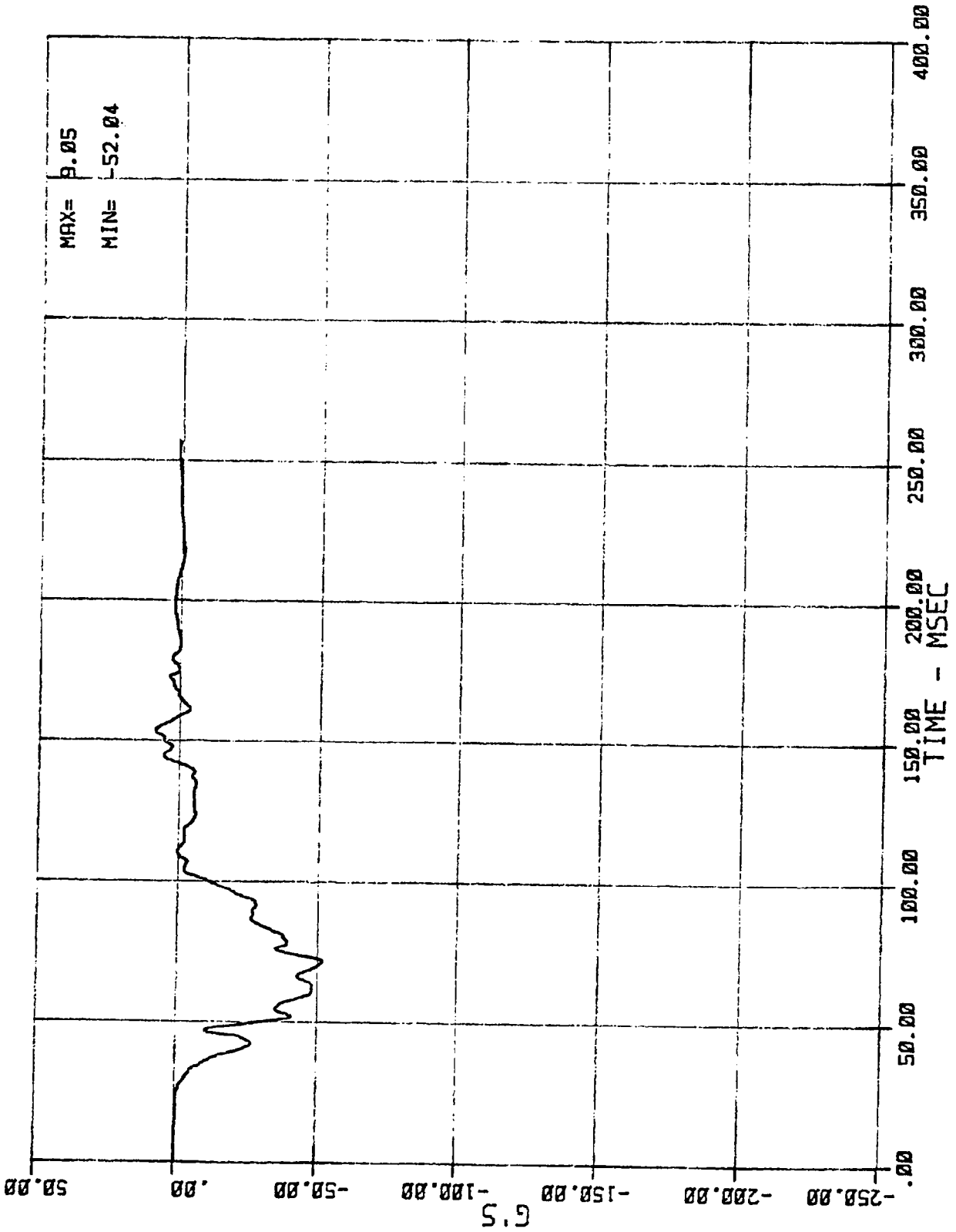
09 AC 01 2 HED Z (PASSENGER HEAD ACCEL. -- Z AXIS)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



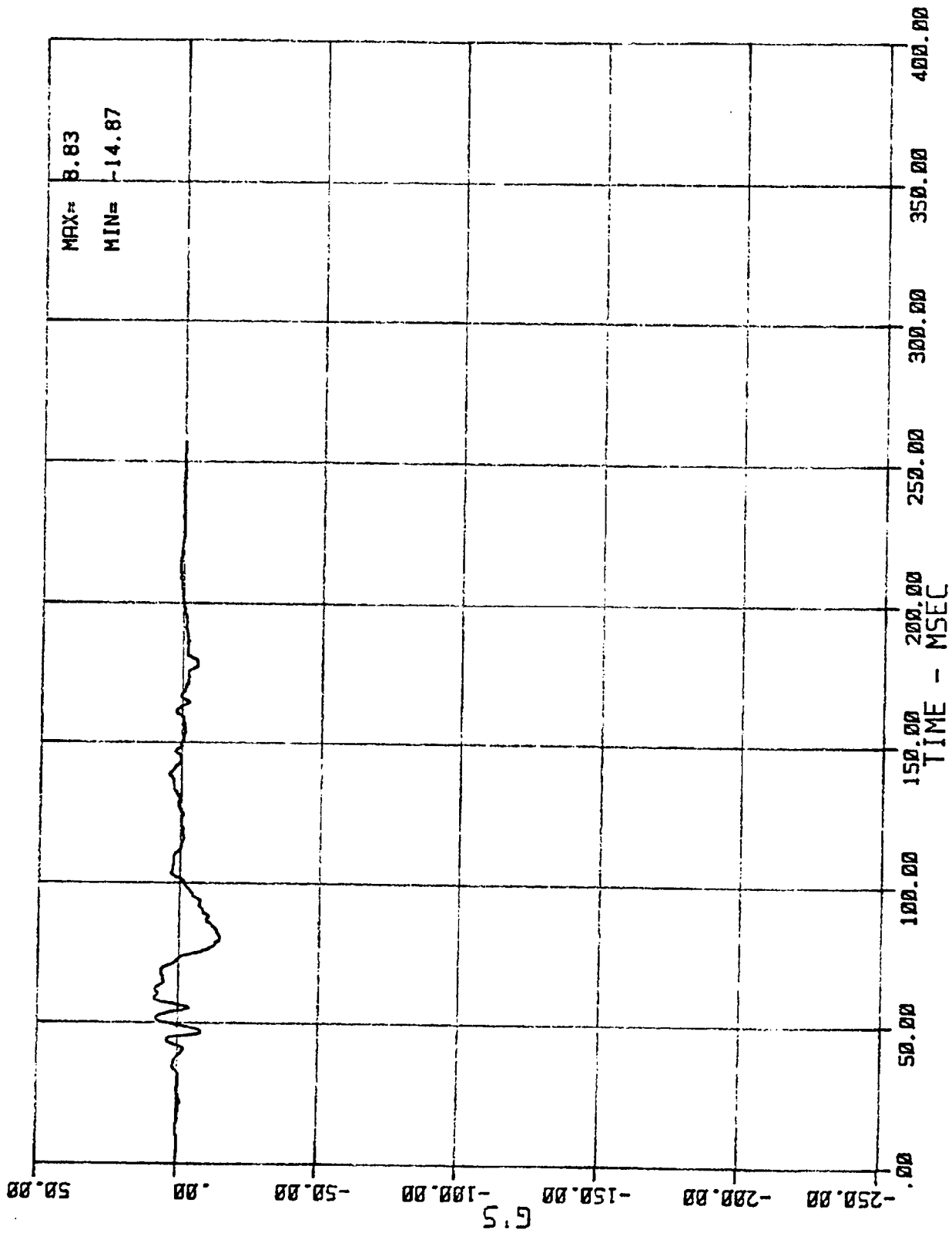
PASSENGER HEAD RESULTANT ACCELERATION
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



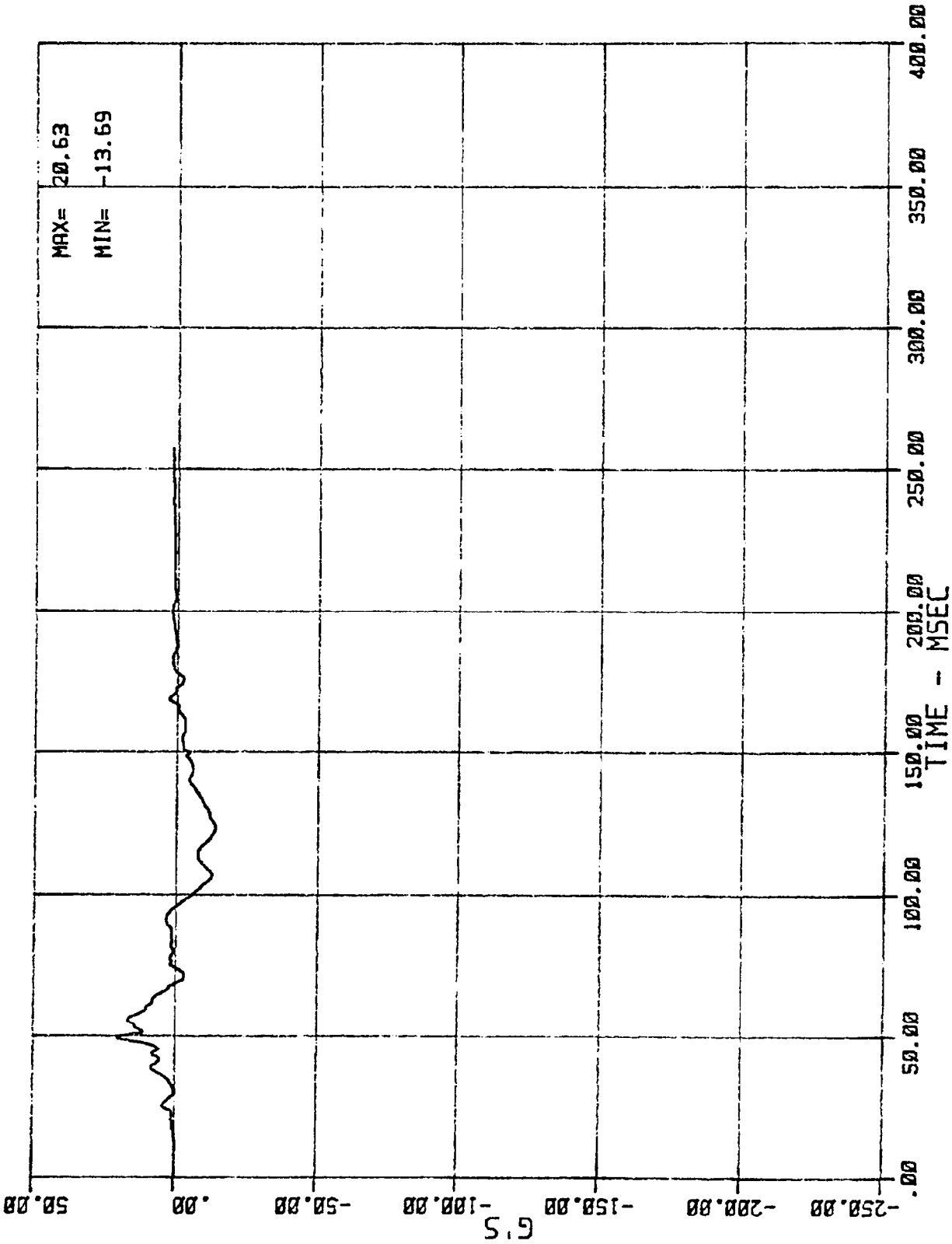
10 AC 01 2 CST X (PASSENGER CHEST ACCEL. -- X AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



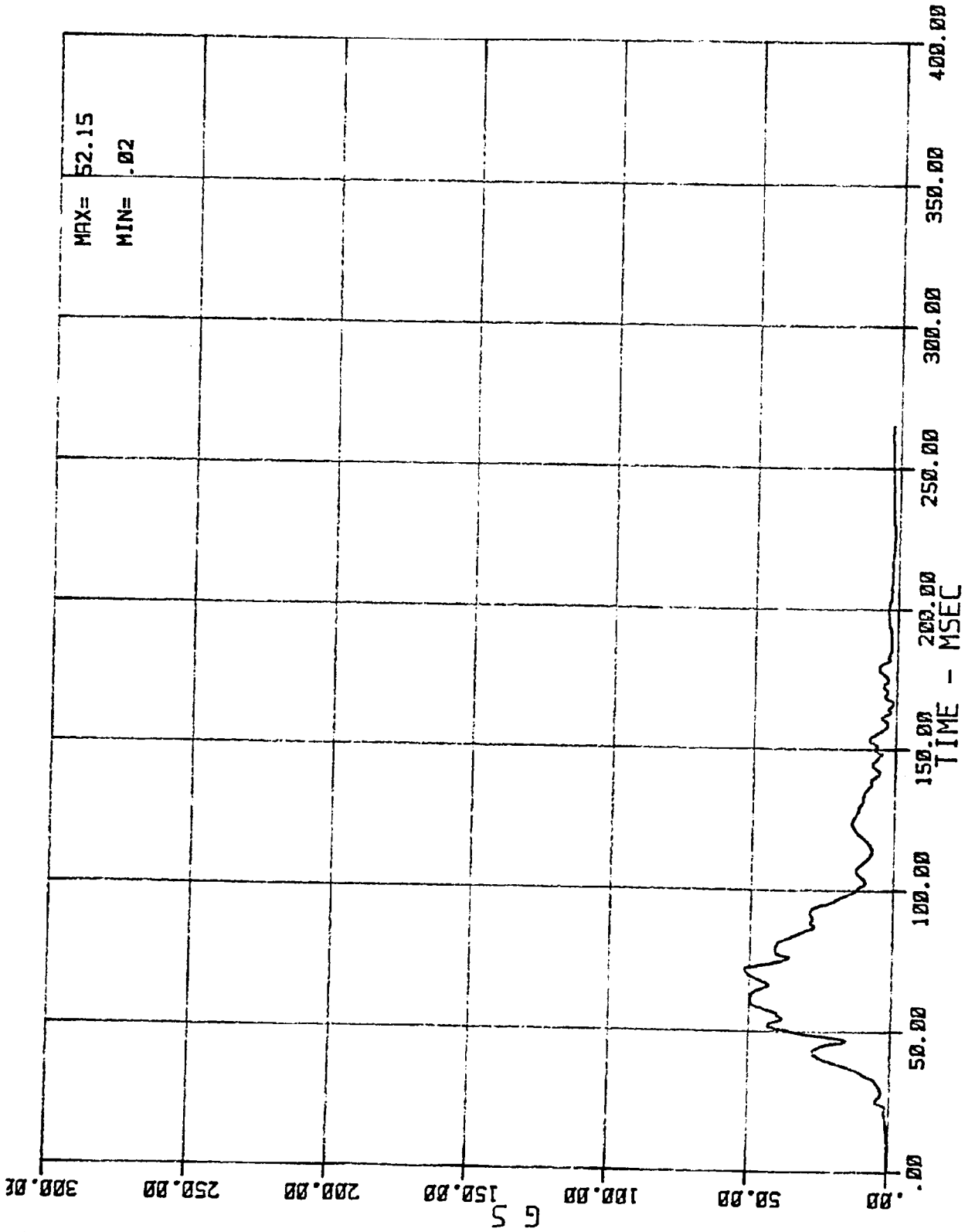
11 AC 01 2 CST Y (PASSENGER CHEST ACCEL. --- Y AXIS)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



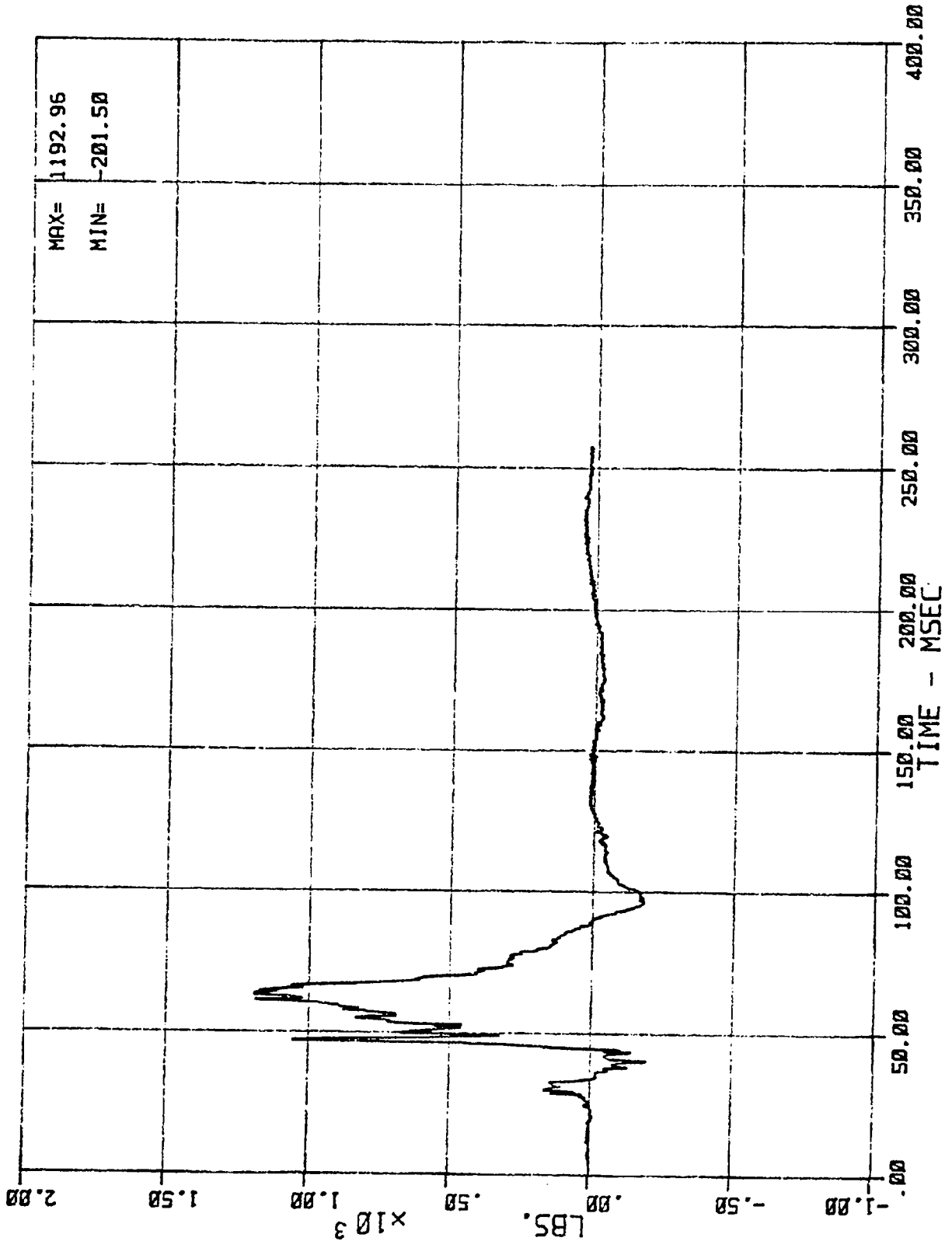
12 AC 01 2 CST Z (PASSENGER CHEST ACCEL. -- Z AXIS)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



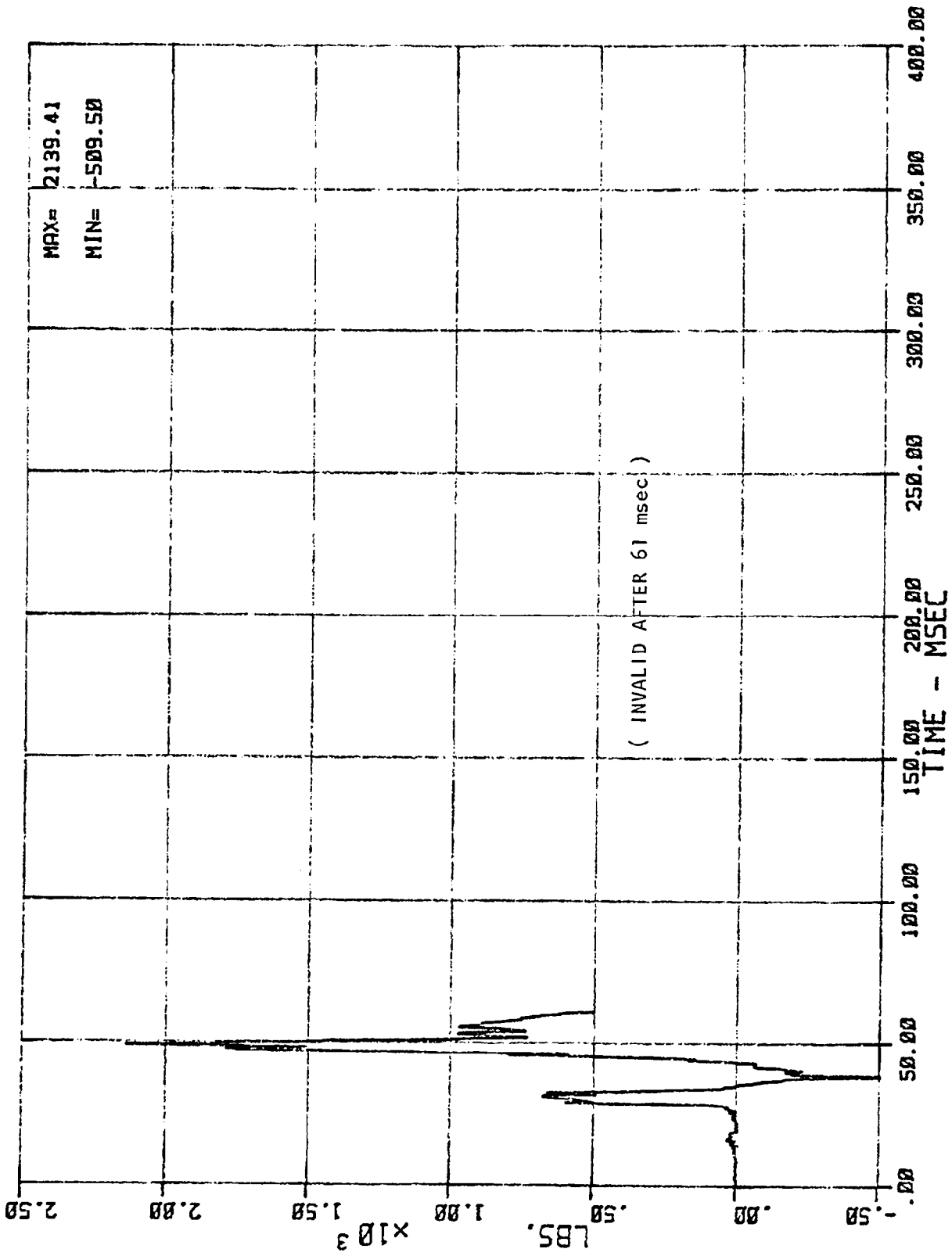
PASSENGER CHEST RESULTANT ACCELERATION
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



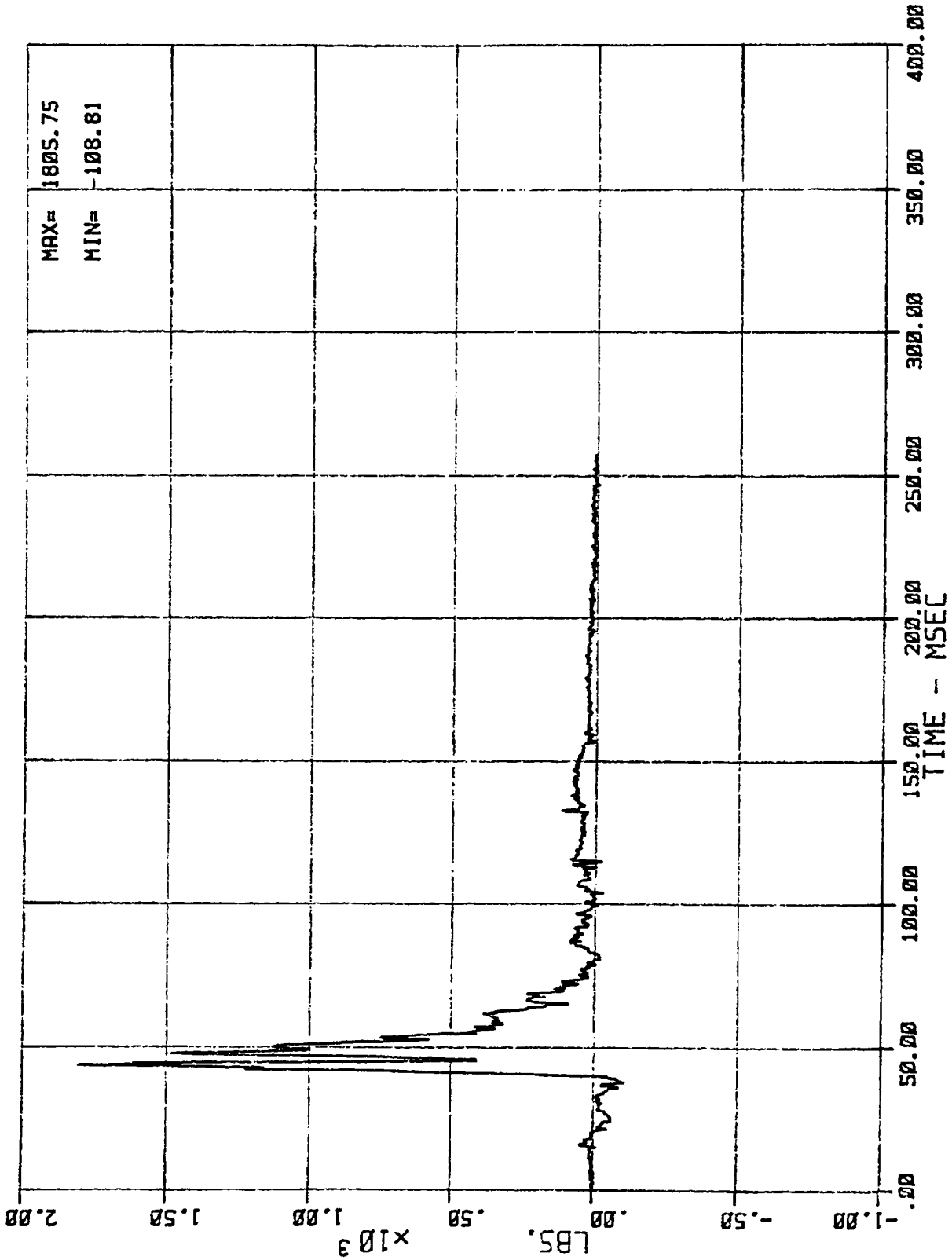
13 LC 10 1 LFM (DRIVER LEFT FEMUR FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



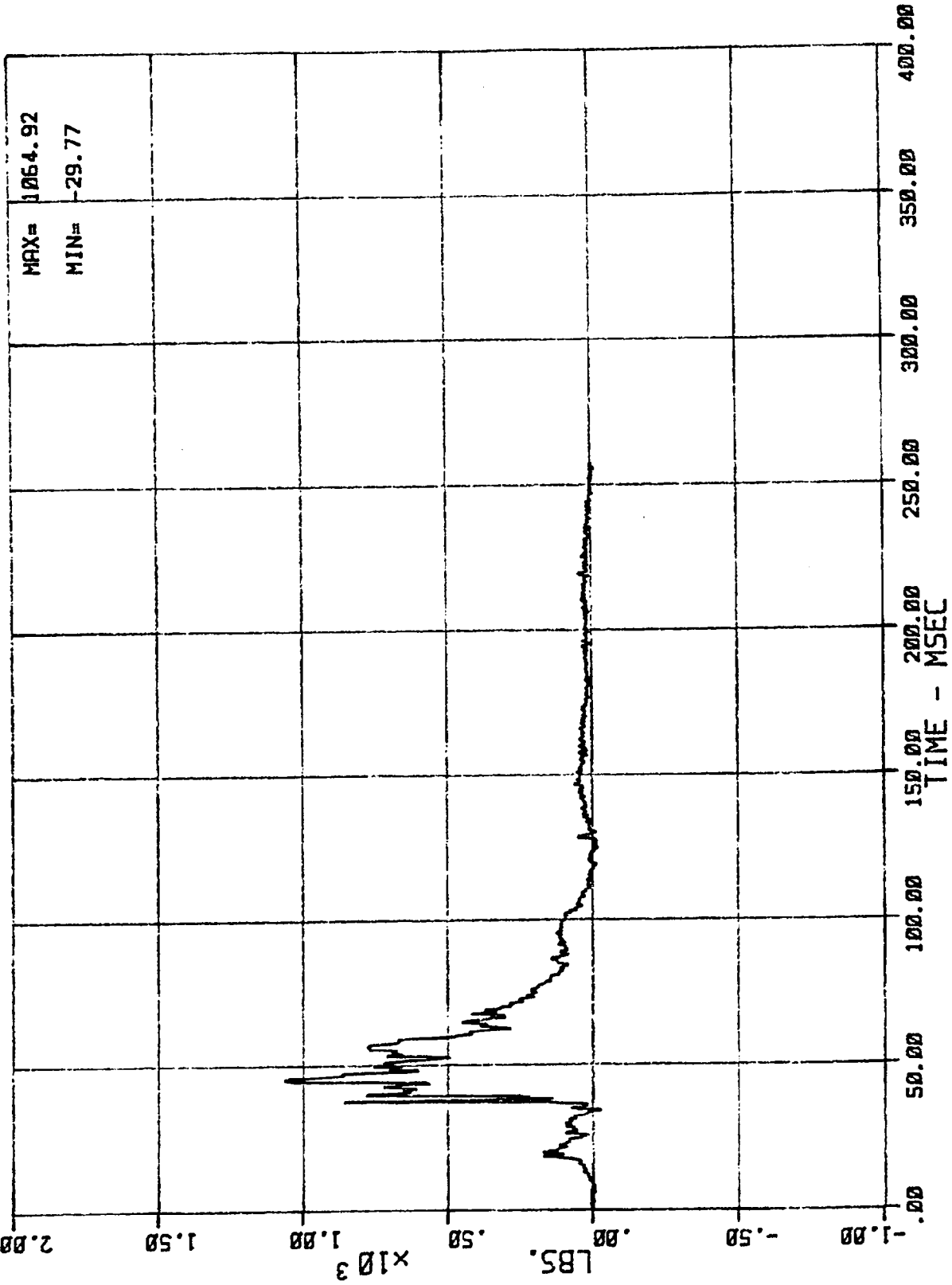
14 LC 01 J RFM (DRIVER RIGHT FEMUR FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



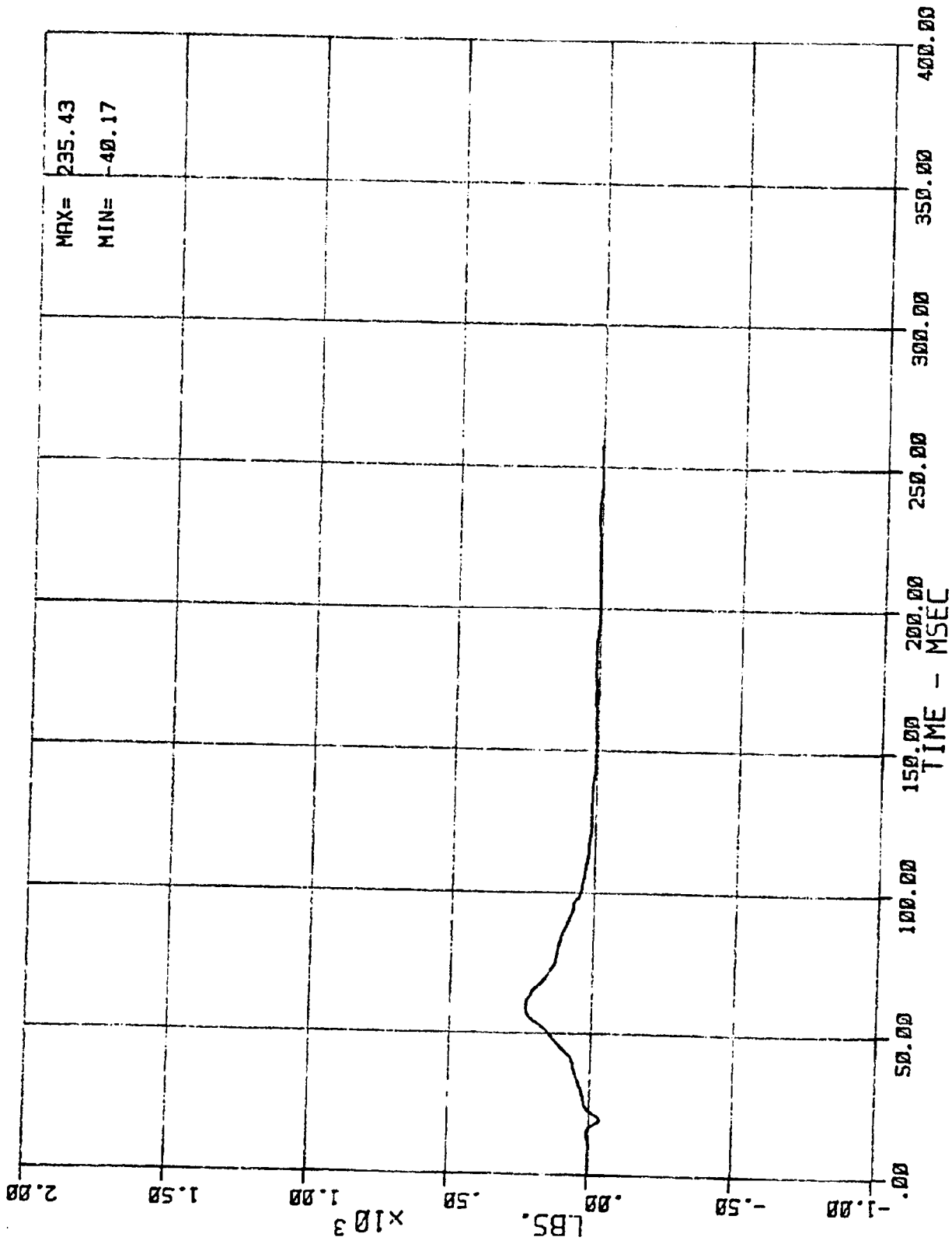
15 LC 01 2 LFM (PASSENGER LEFT FEMUR FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



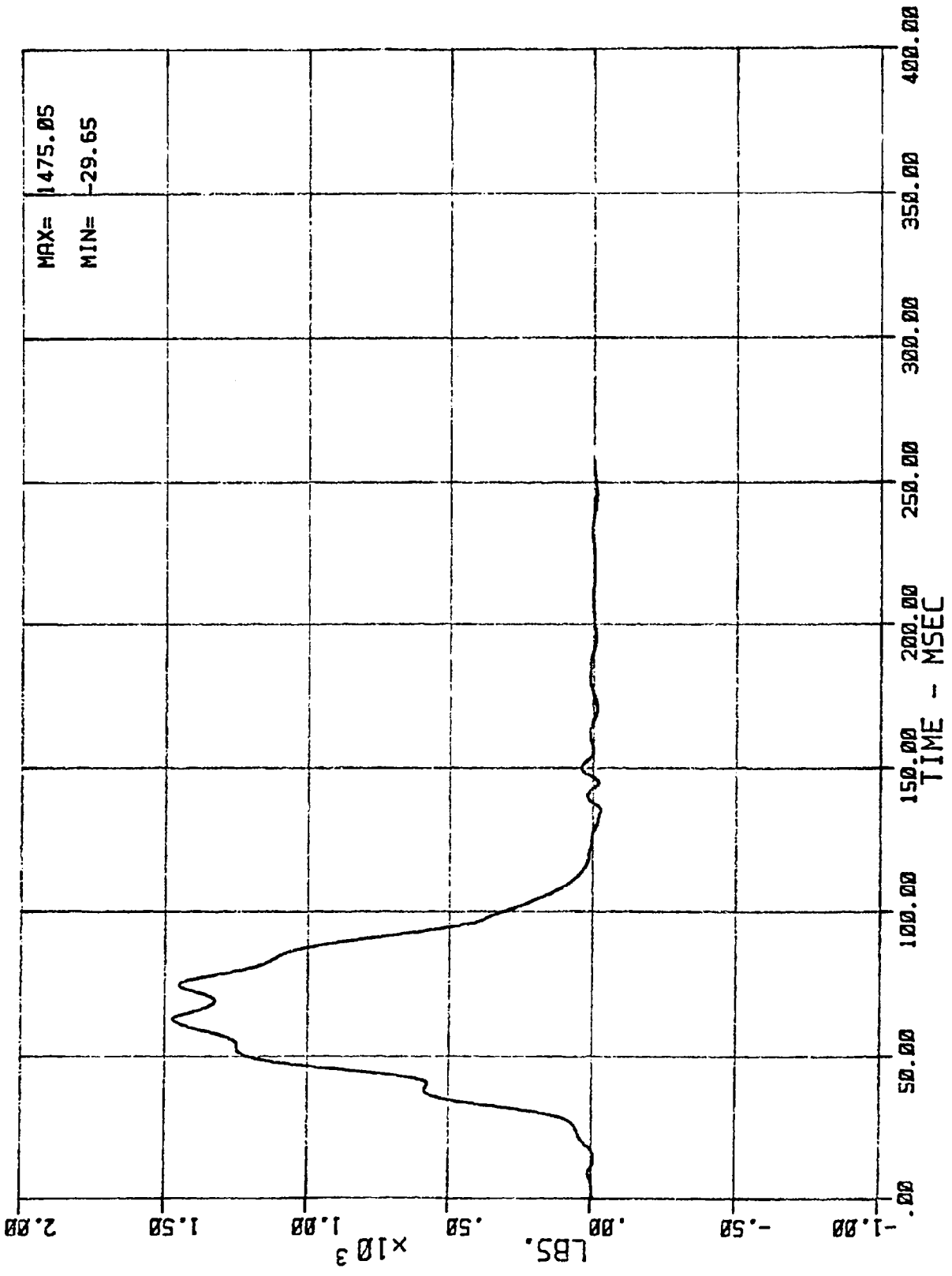
16 LC 01 2 RFM (PASSENGER RIGHT FEMUR FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



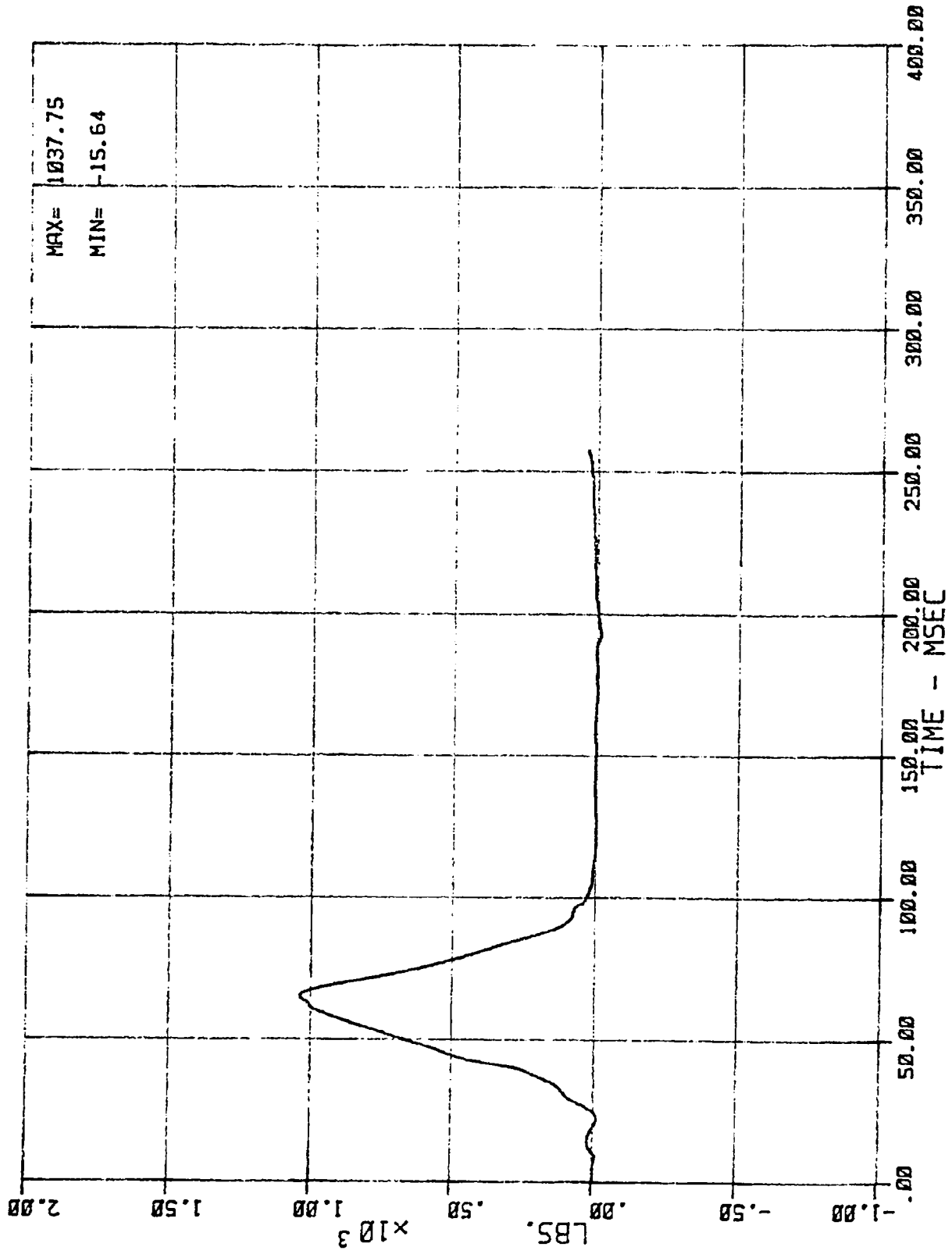
17 LC 01 1 LBO (DRIVER LAP BELT FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



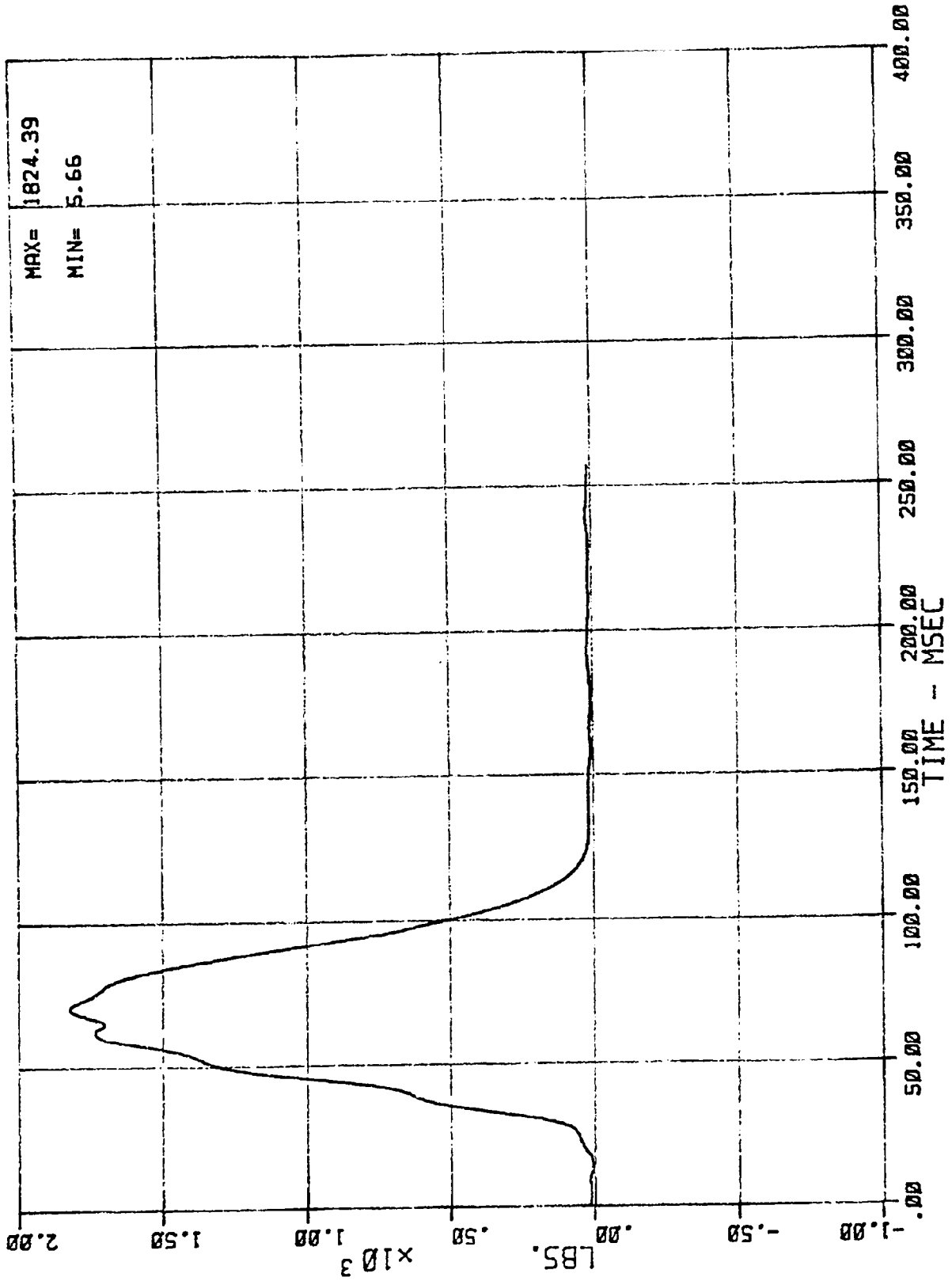
18 LC 01 1 SHB (DRIVER SHOULDER BELT FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



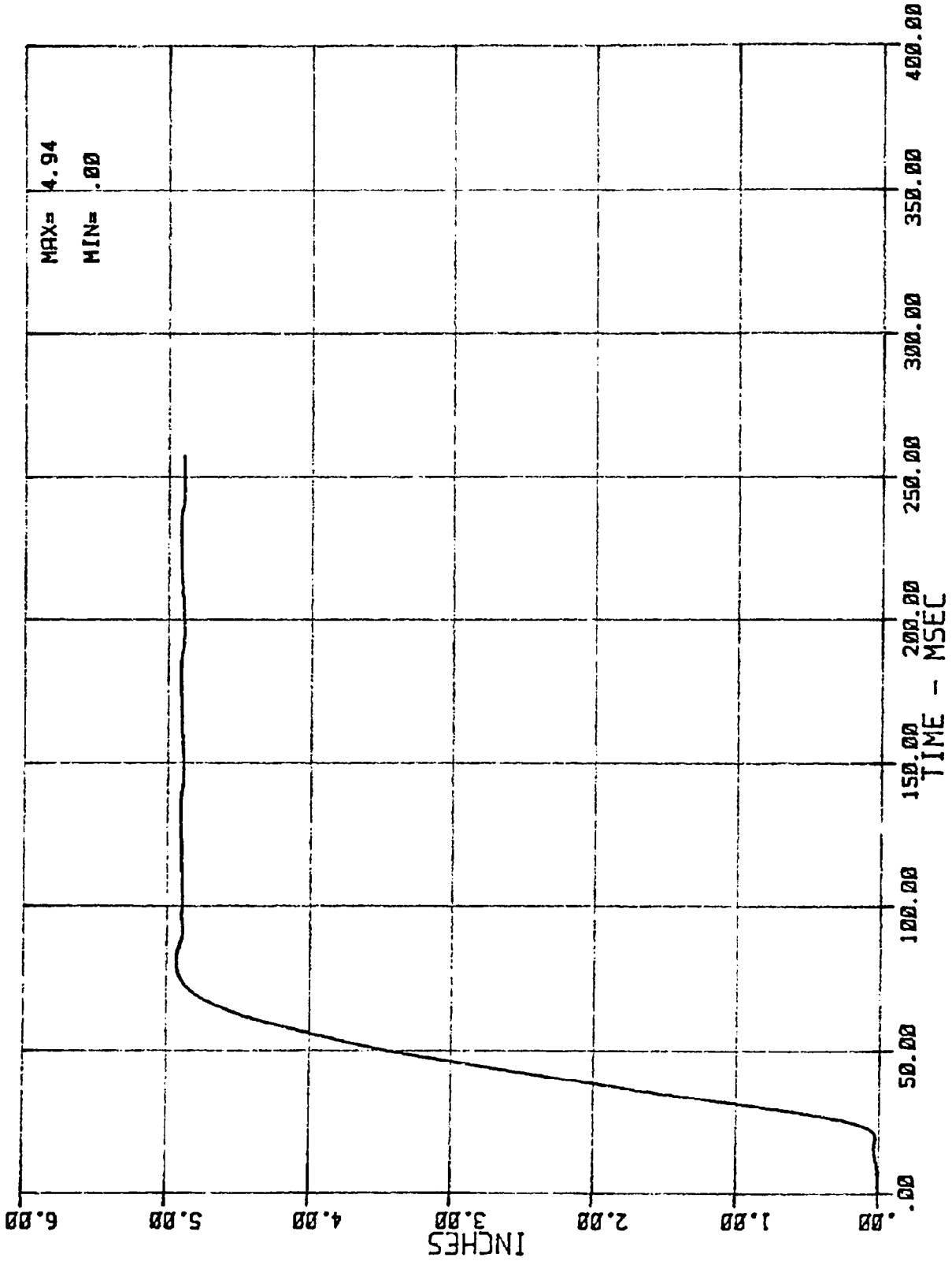
19 LC 01 2 L80 (PASSENGER LAP BELT FORCE)
NSE N02055 1985 FORD E-150 CLB VGN

06/26/85



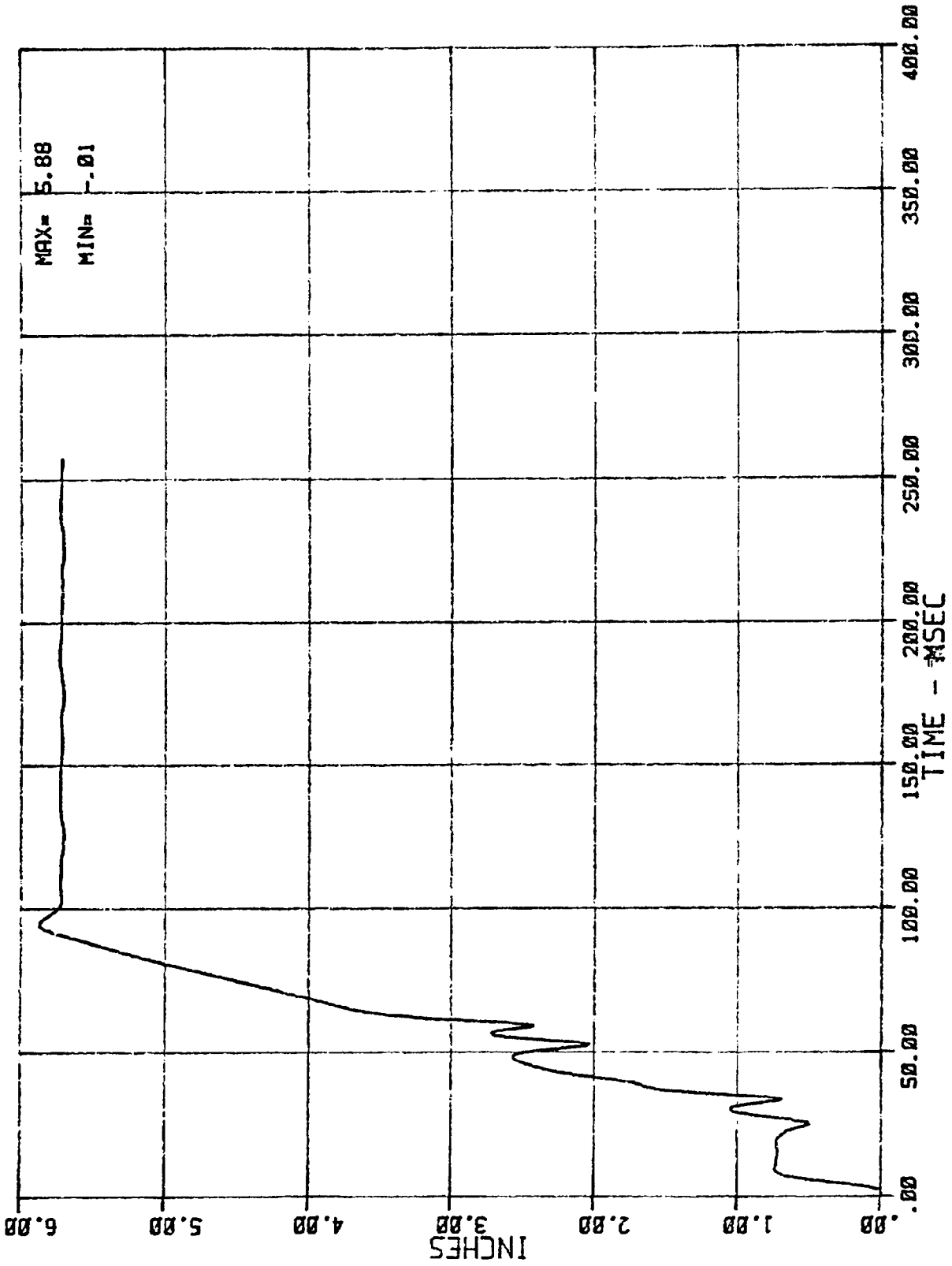
20 LC 01 2 SHB (PASSENGER SHOULDER BELT FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



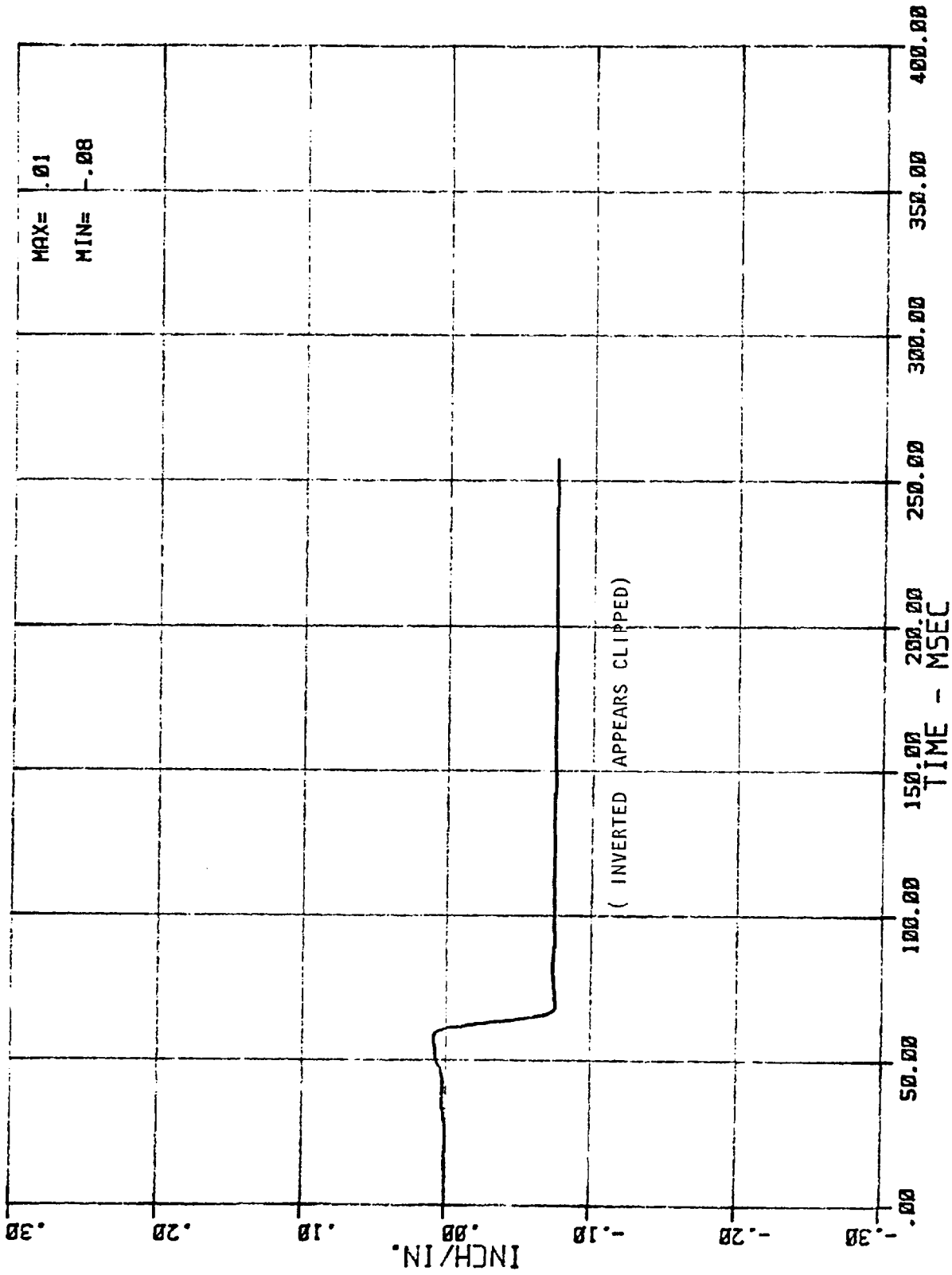
21 DT 01 1 SHB (DRIVER SHOULDER BELT PULLOUT)
 MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



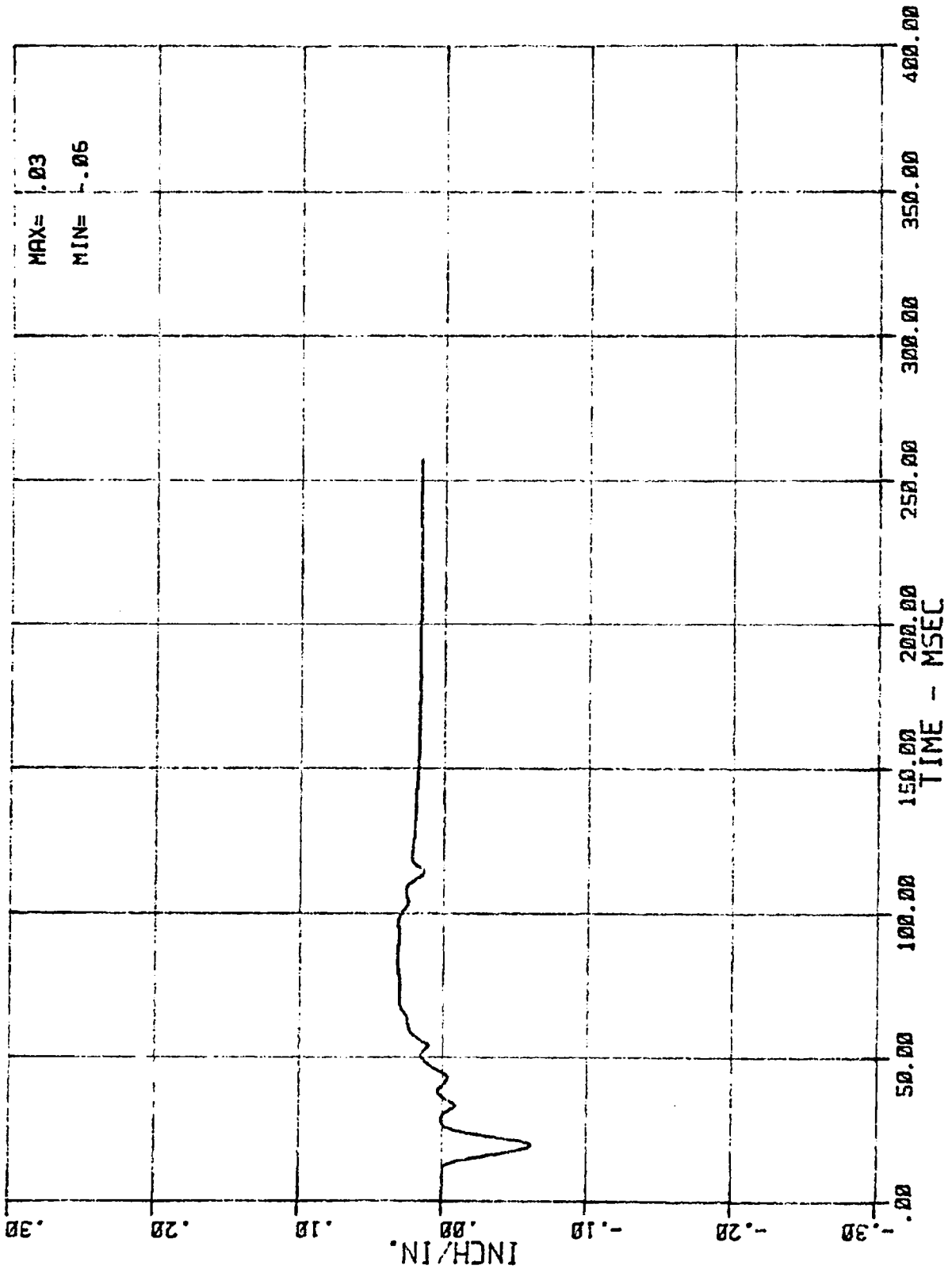
22 DT 01 2 SHB (PASSENGER SHOULDER BELT PULLOUT)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



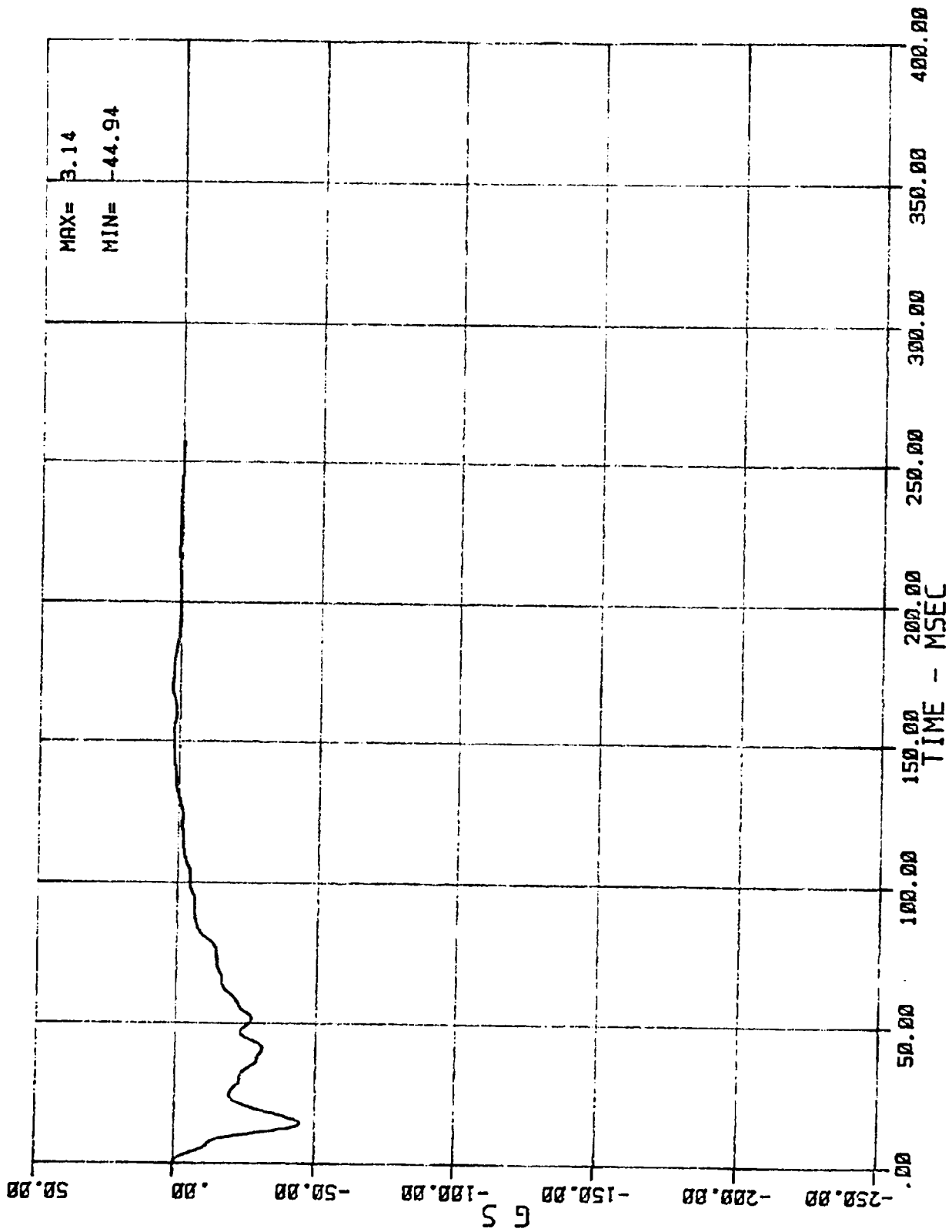
23 DT 01 1 SHB (DRIVER SHOULDER BELT STRETCH)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



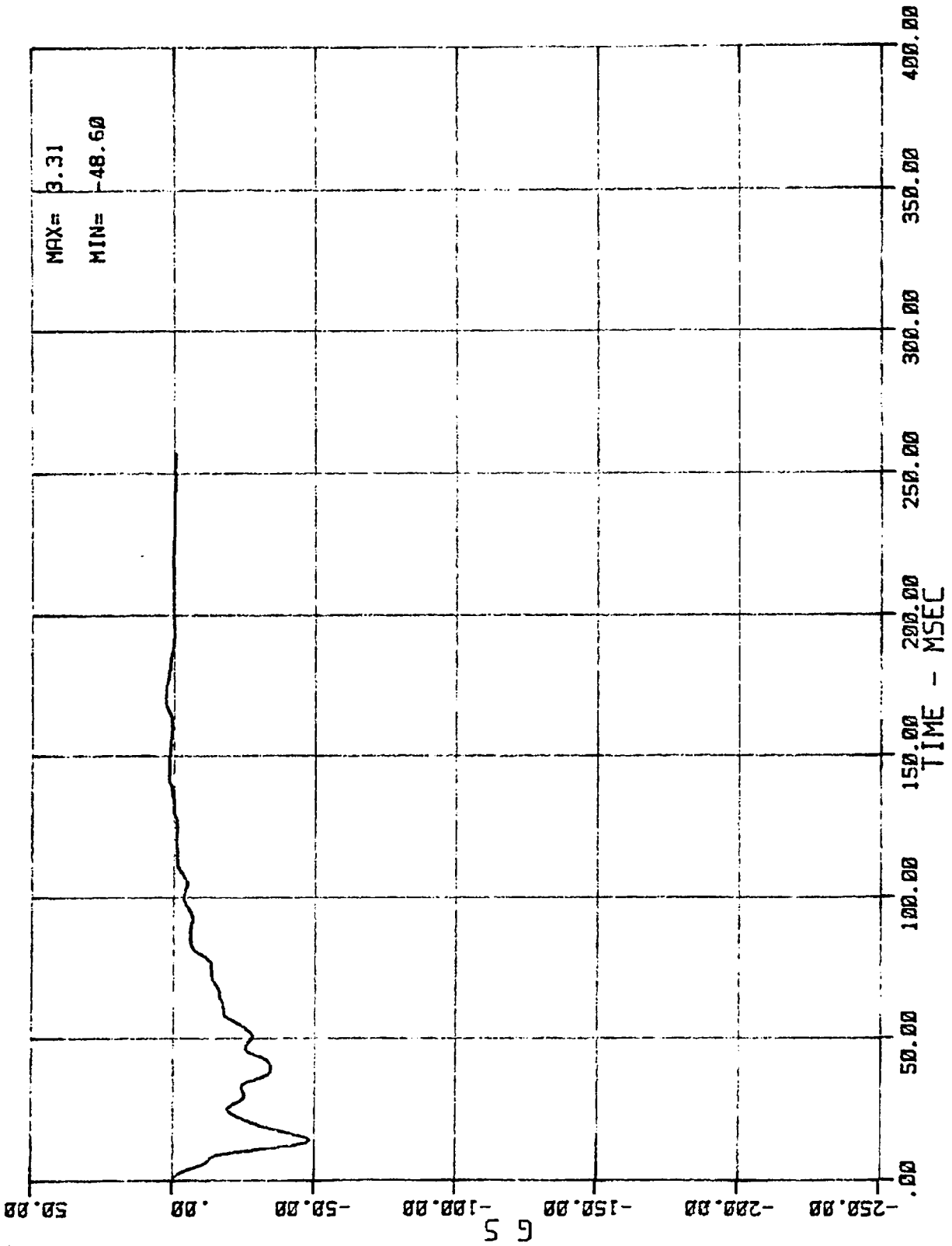
24 DT 01 2 SHB (PASSENGER SHOULDER BELT STRETCH)
MSE N02055 1985 FORD E-150 CLB VEN

06/26/85



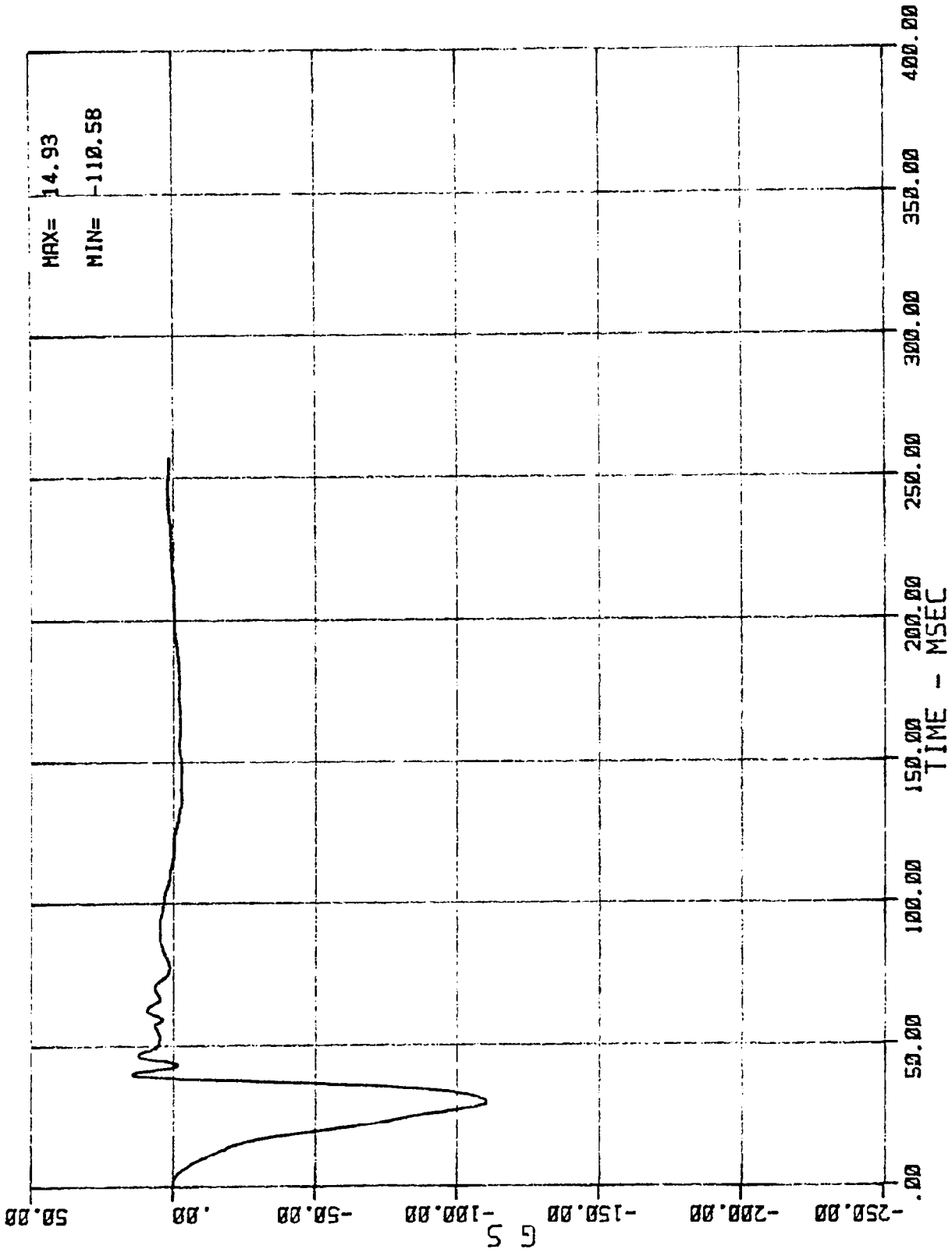
25 AC 01 N LRF X (LEFT REAR FLOOR ACCEL. -- X AXIS)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



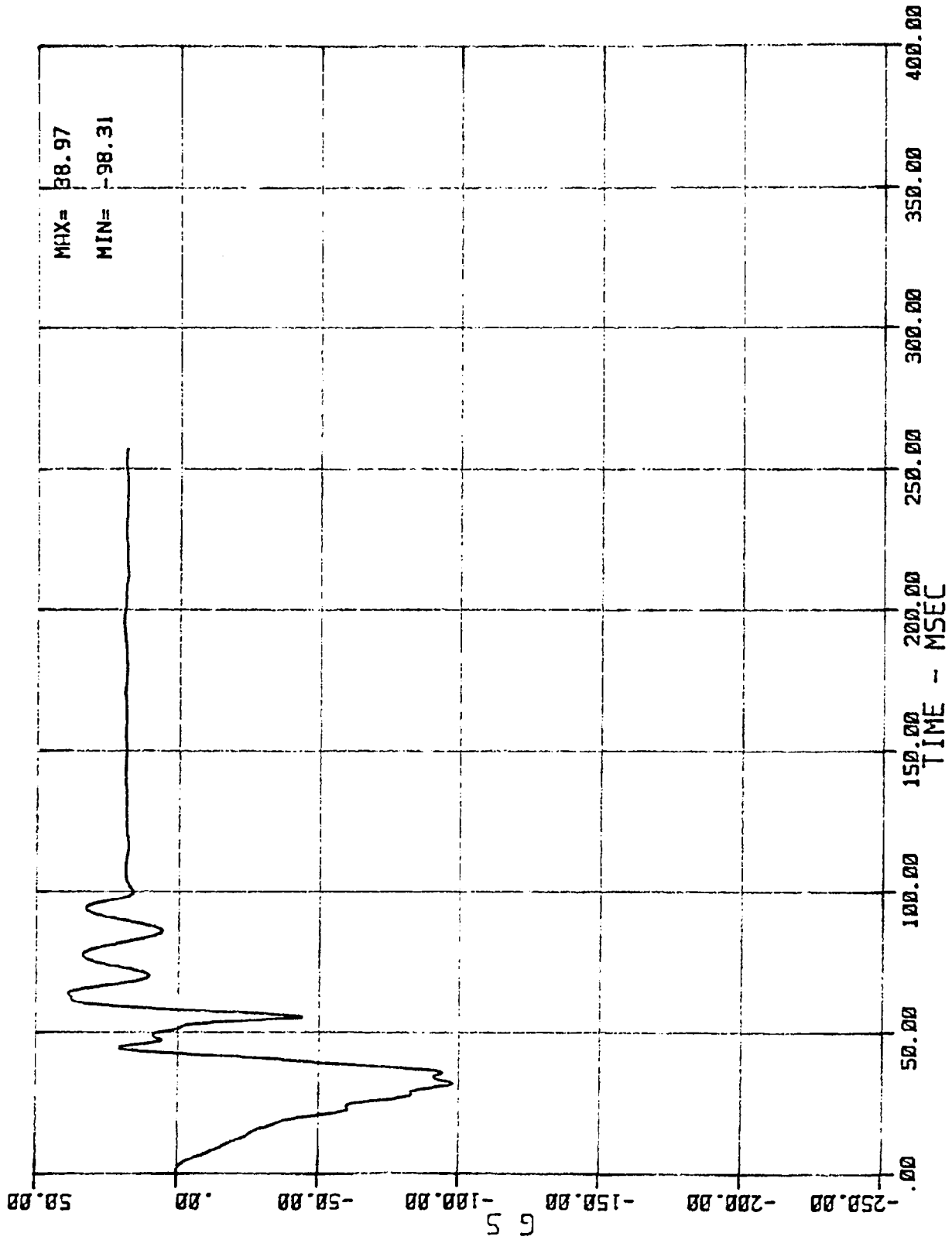
26 AC 01 N RRF X (RIGHT REAR FLOOR ACCEL. --- X AXIS)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



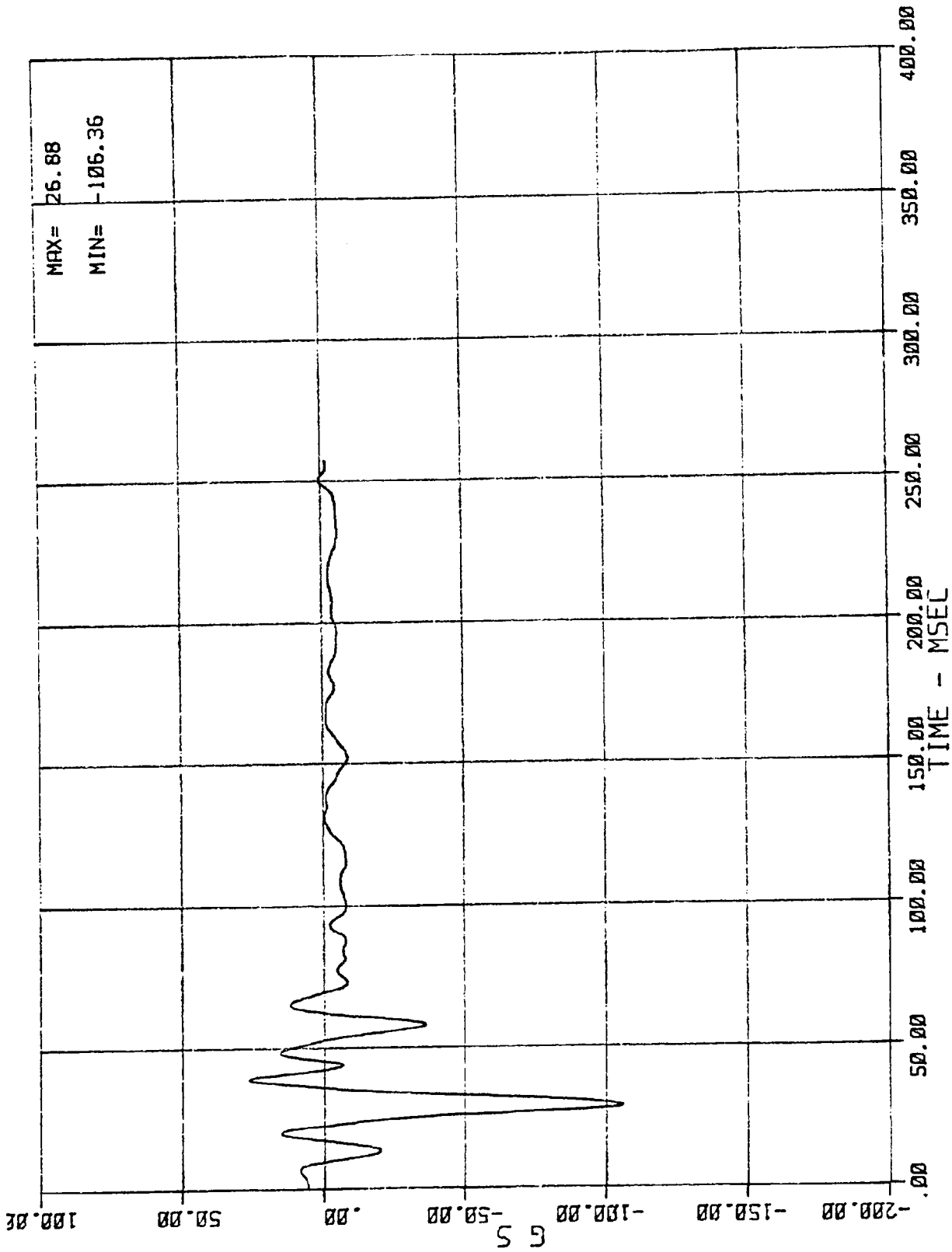
27 AC 01 N ENG X (TOP OF ENGINE ACCEL. -- X AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



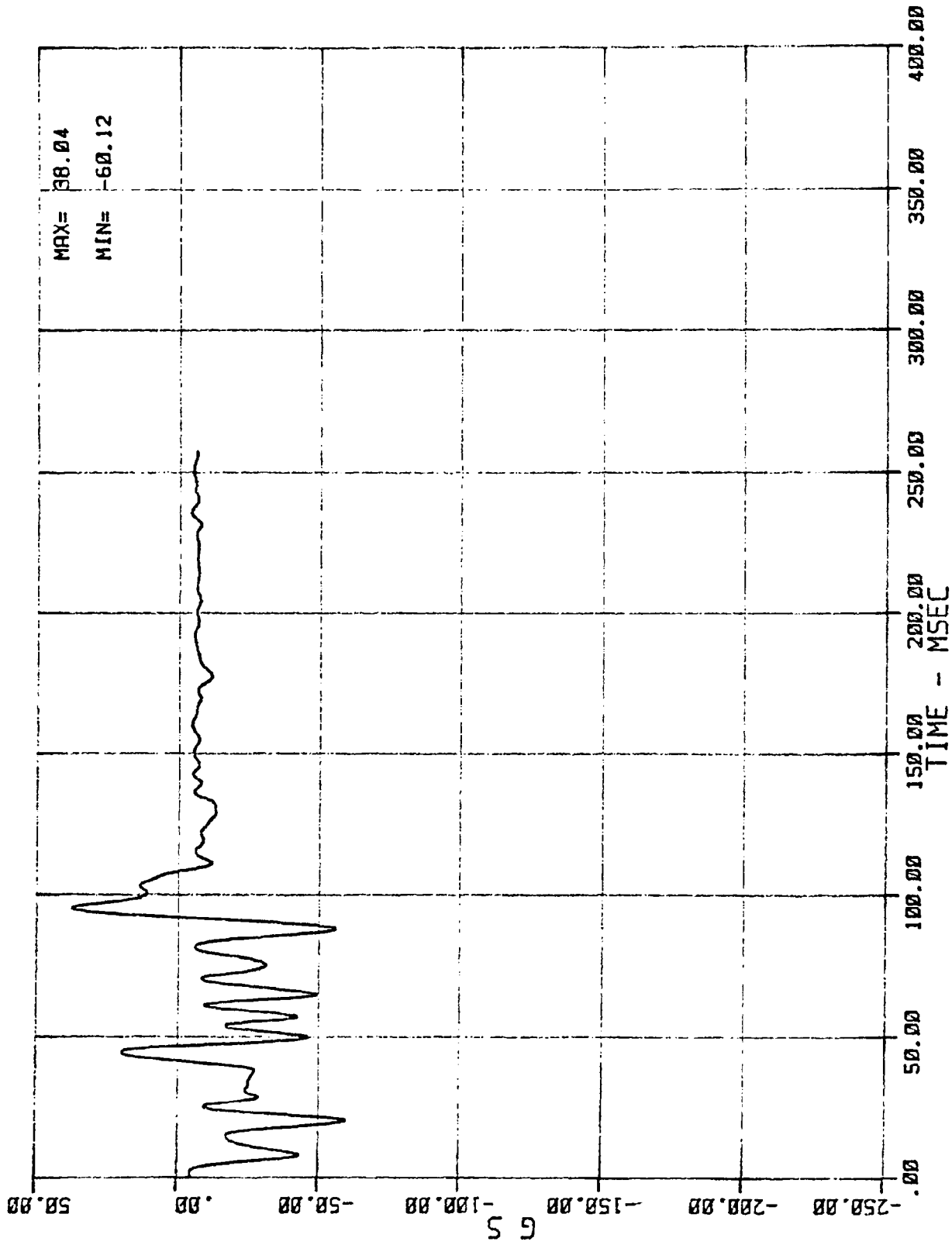
28 AC 01 N ENG X (BOTTOM OF ENGINE ACCEL. --- X AXIS)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



29 AC 01 N BRC X (RIGHT FRONT WHEEL ACCEL. -- X AXIS)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



30 AC 01 N DPC X (CENTER OF DASH ACCEL. -- X AXIS)
NSE N02055 1985 FORD E-150 CLB VGN

06/26/85

APPENDIX B-2

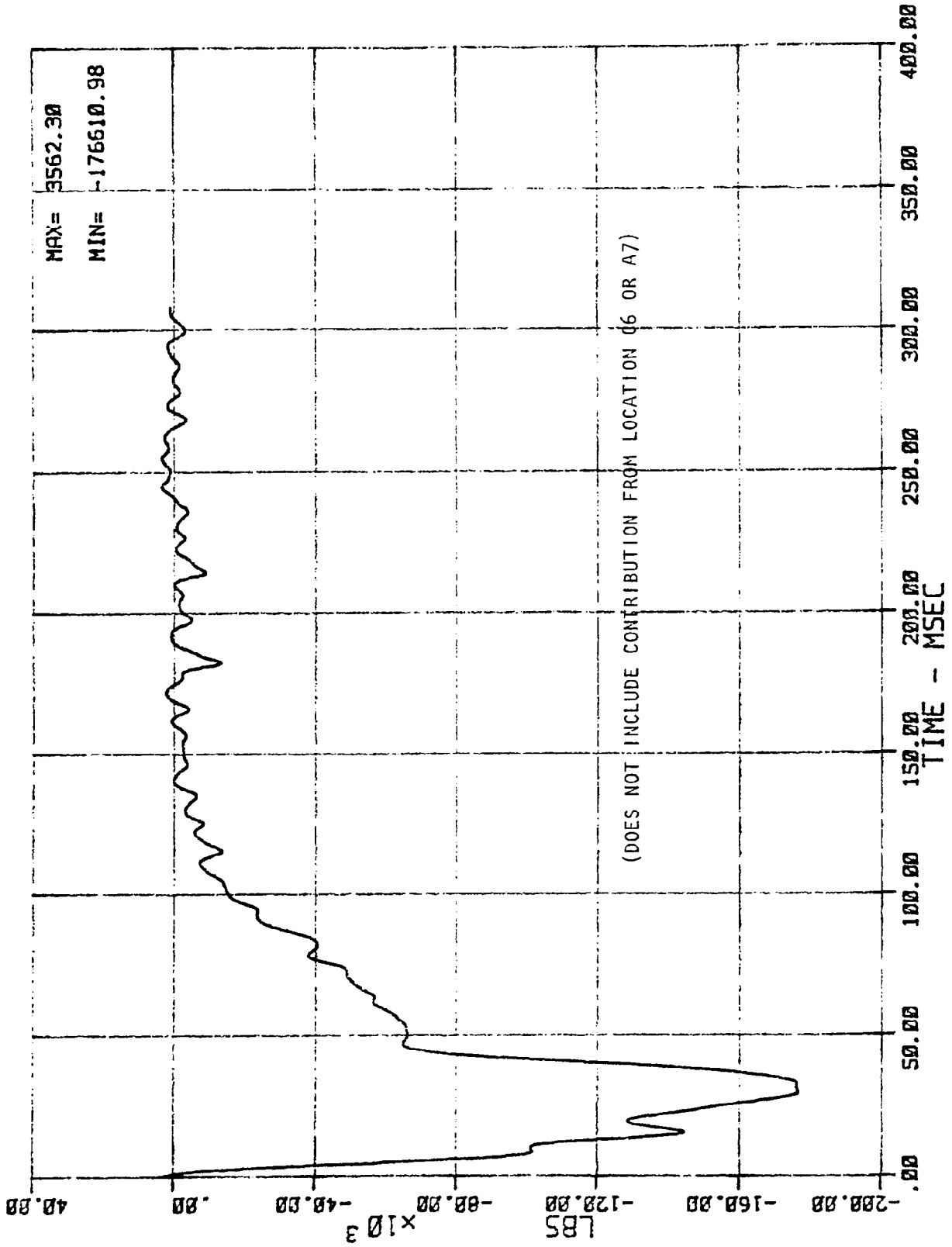
LOAD CELL BARRIER

DATA

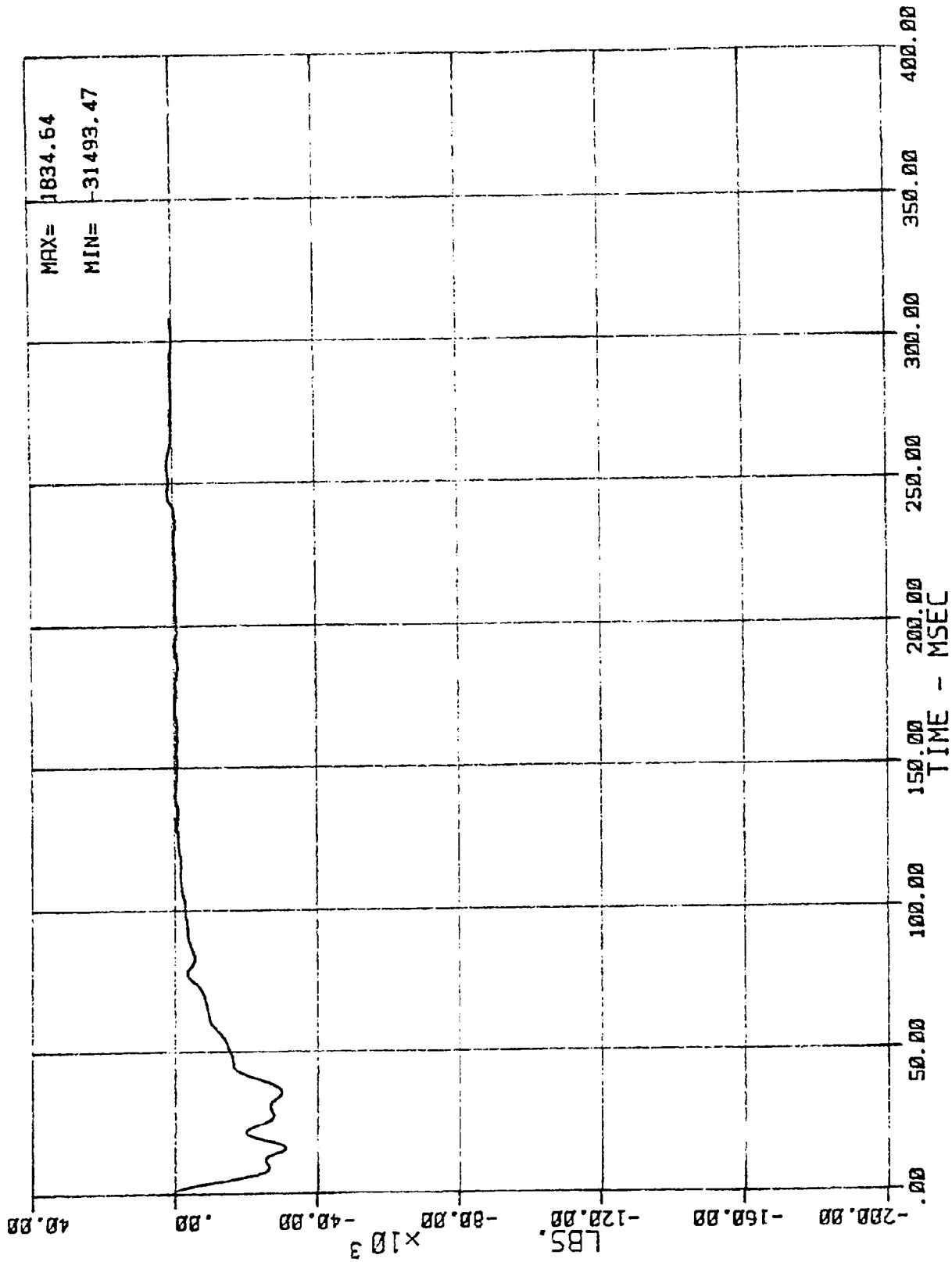
DATA FILTERING:

All Load Cell Barrier Channels - Class 60

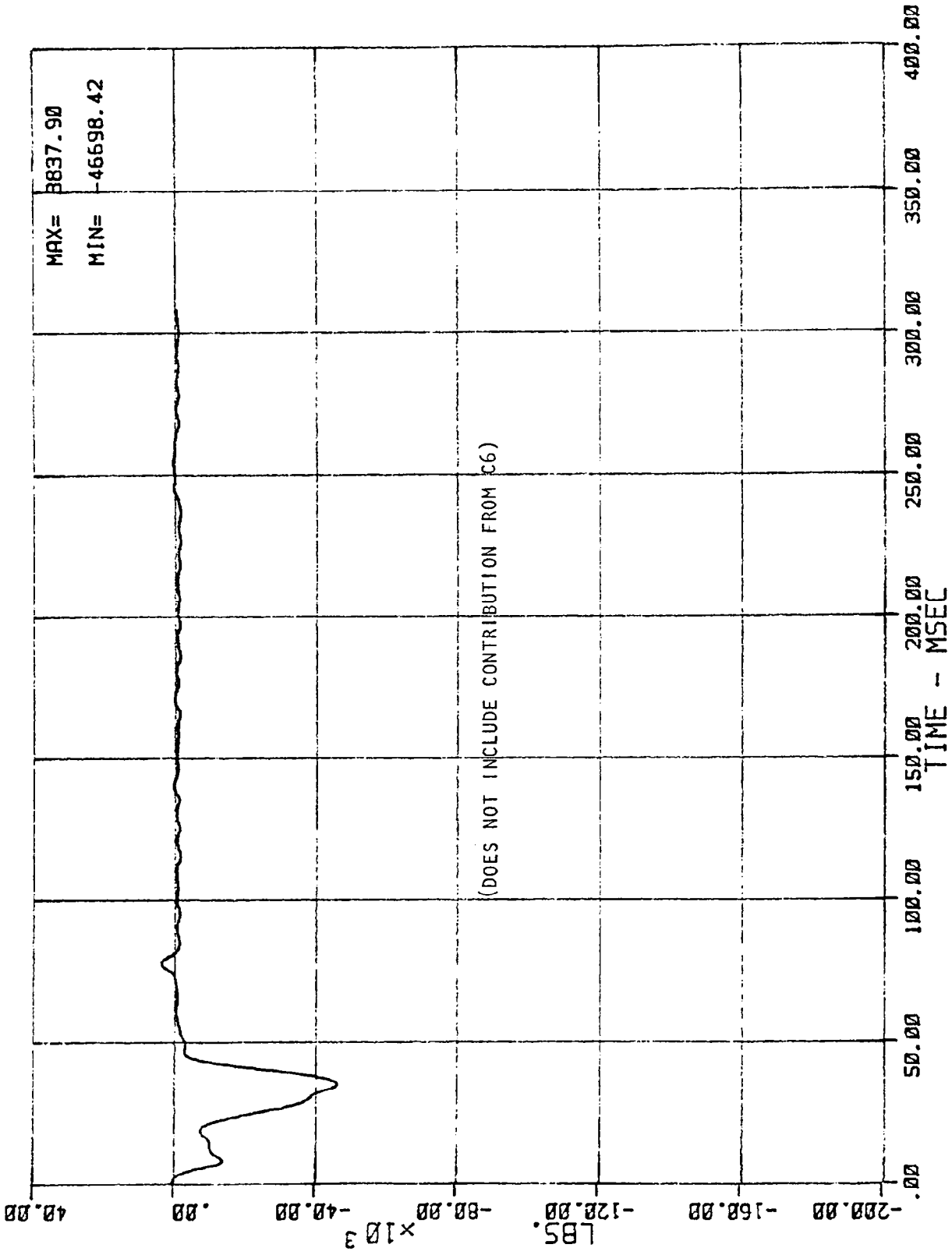
NOTE: No data was recorded from load cell locations A7 and C6 which had active load cells installed. Thus the sum data do not reflect the true total load for the affected groups (Group 2 and Group 6). The A7 location probably did not experience significant loads in this test. However, C6 does see a significant load which is not included.



TOTAL SUM, LOAD CELL BARRIER FORCE
MSE N02055 1985 FORD E-150 CLB VGN 06/26/85

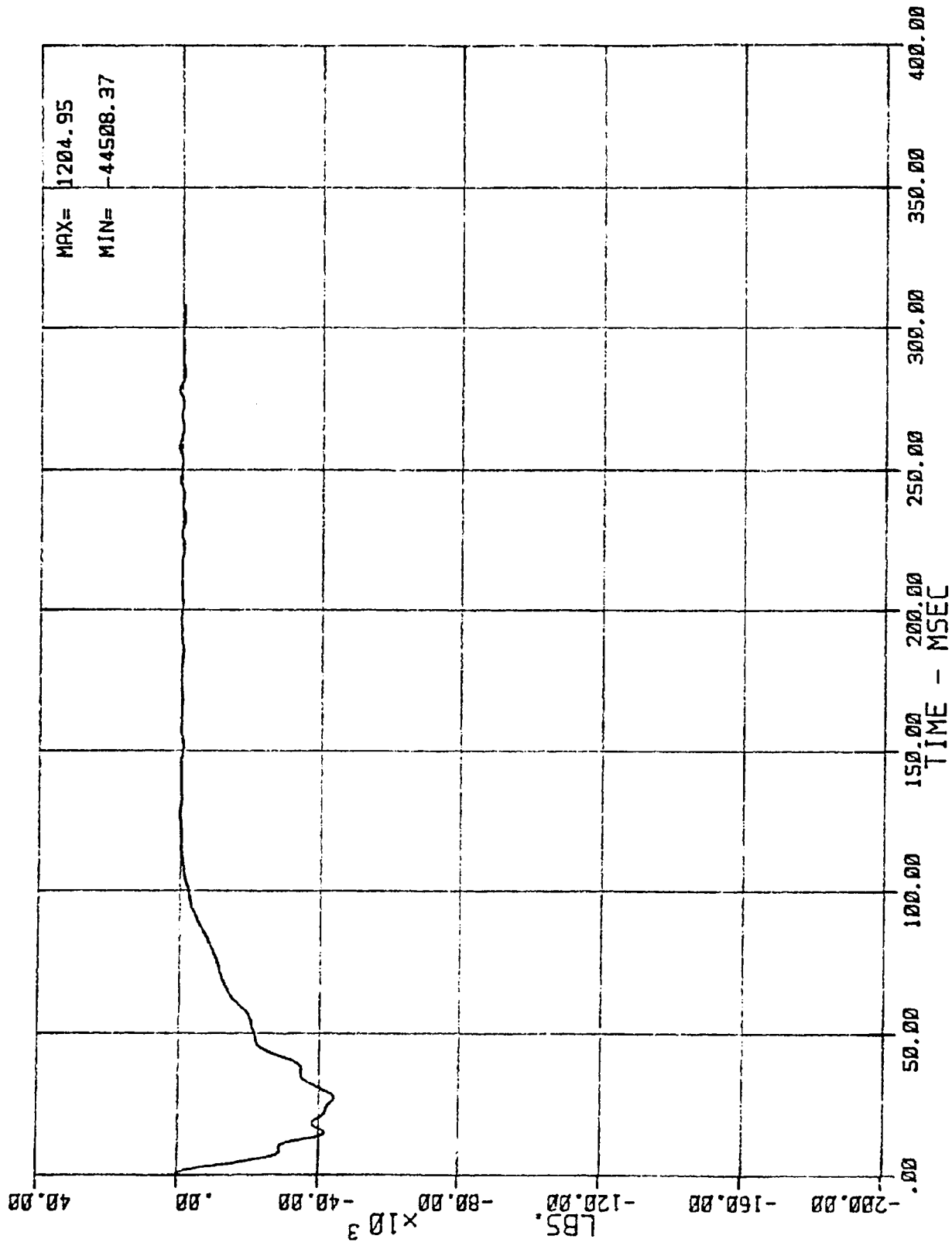


GROUP 1 SUM (C1,C2,C3,D1,D2,D3) LOAD CELL BARRIER FORCE
MSE N02055 1985 FORD E-150 CLB VGN 06/26/85



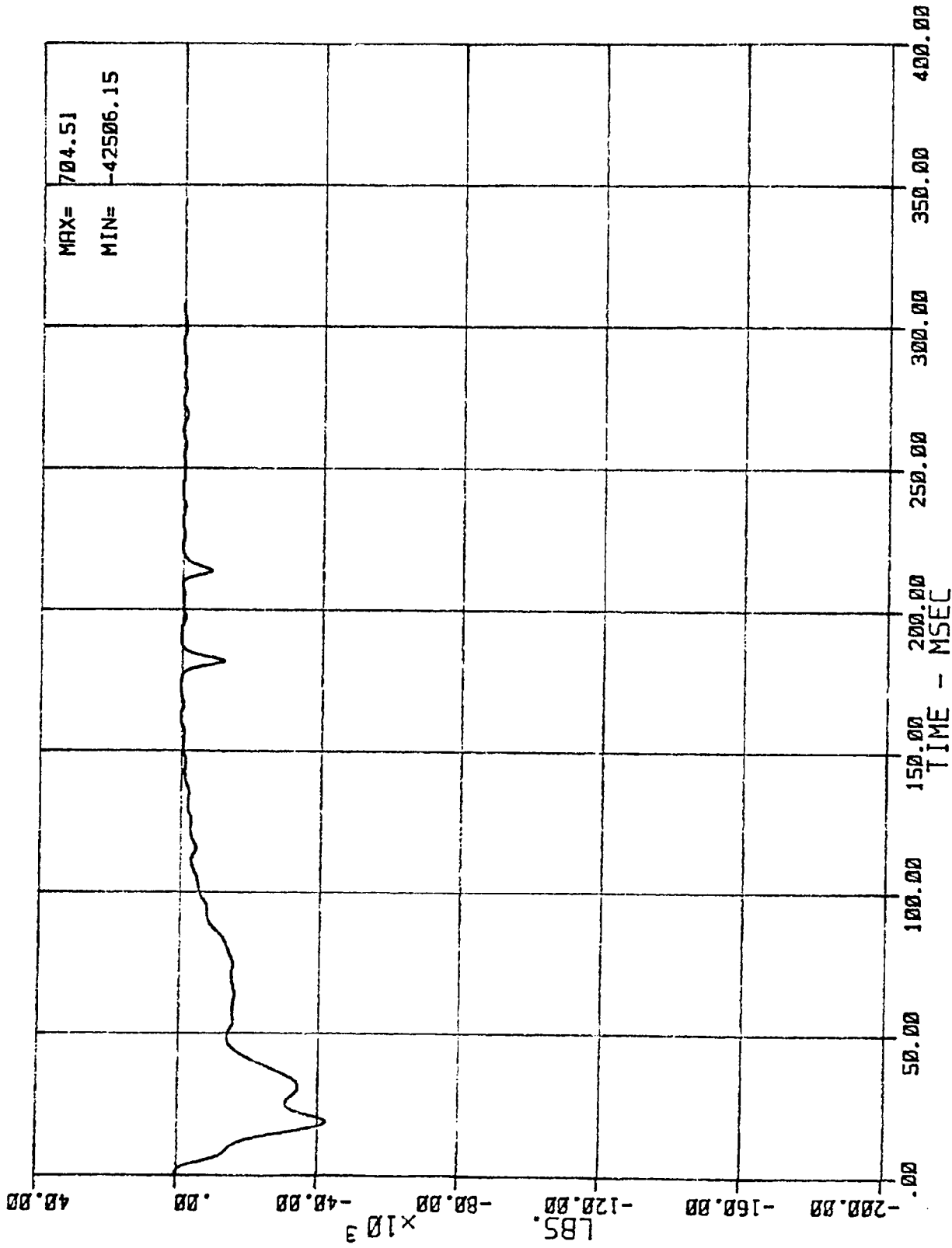
GROUP 2 SUM (C4,C5,C6,D4,D5,D6) LOAD CELL BARRIER FORCE
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



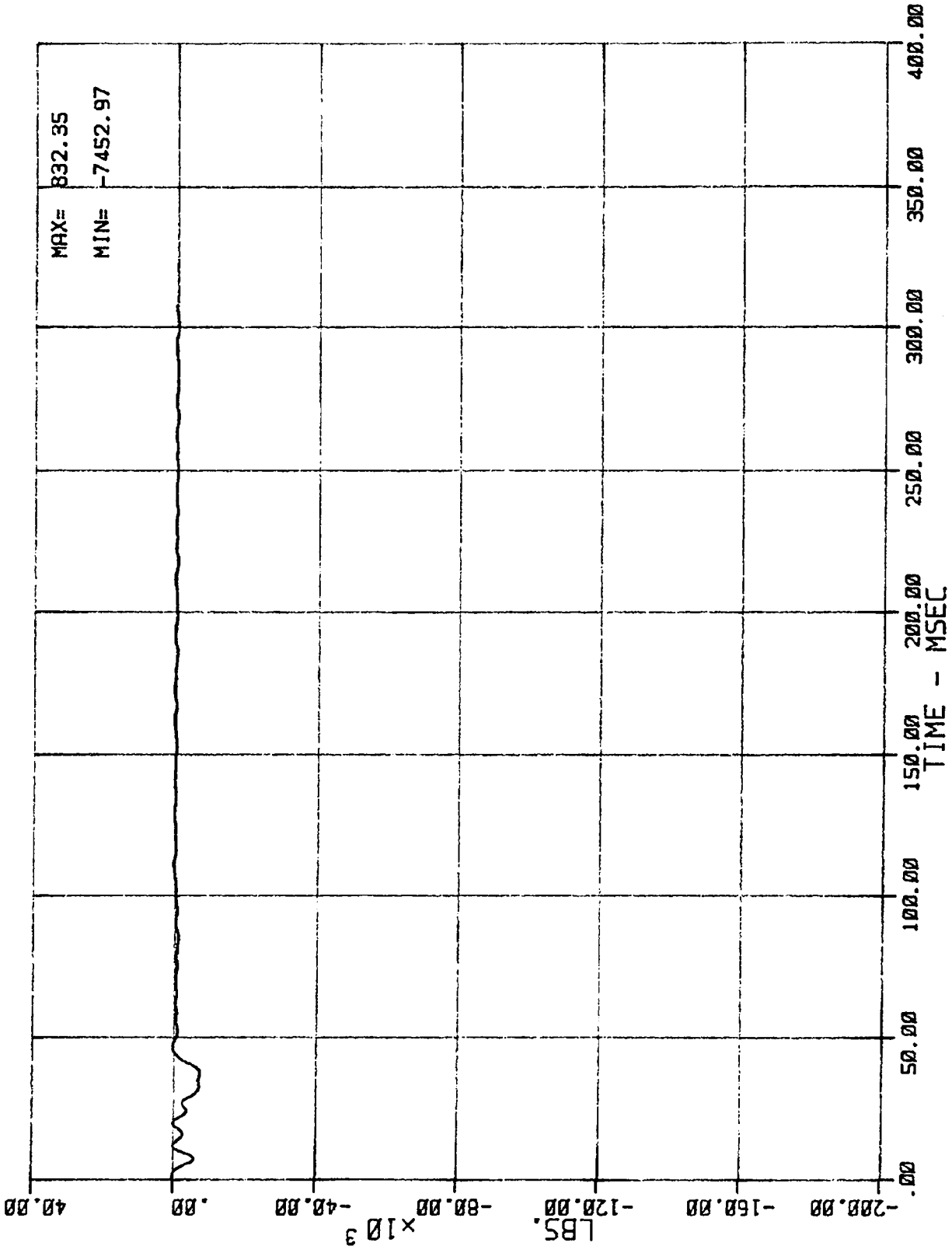
GROUP 3 SUM (C7,C8,C9,D7,D8,D9) LOAD CELL BARRIER FORCE
 MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



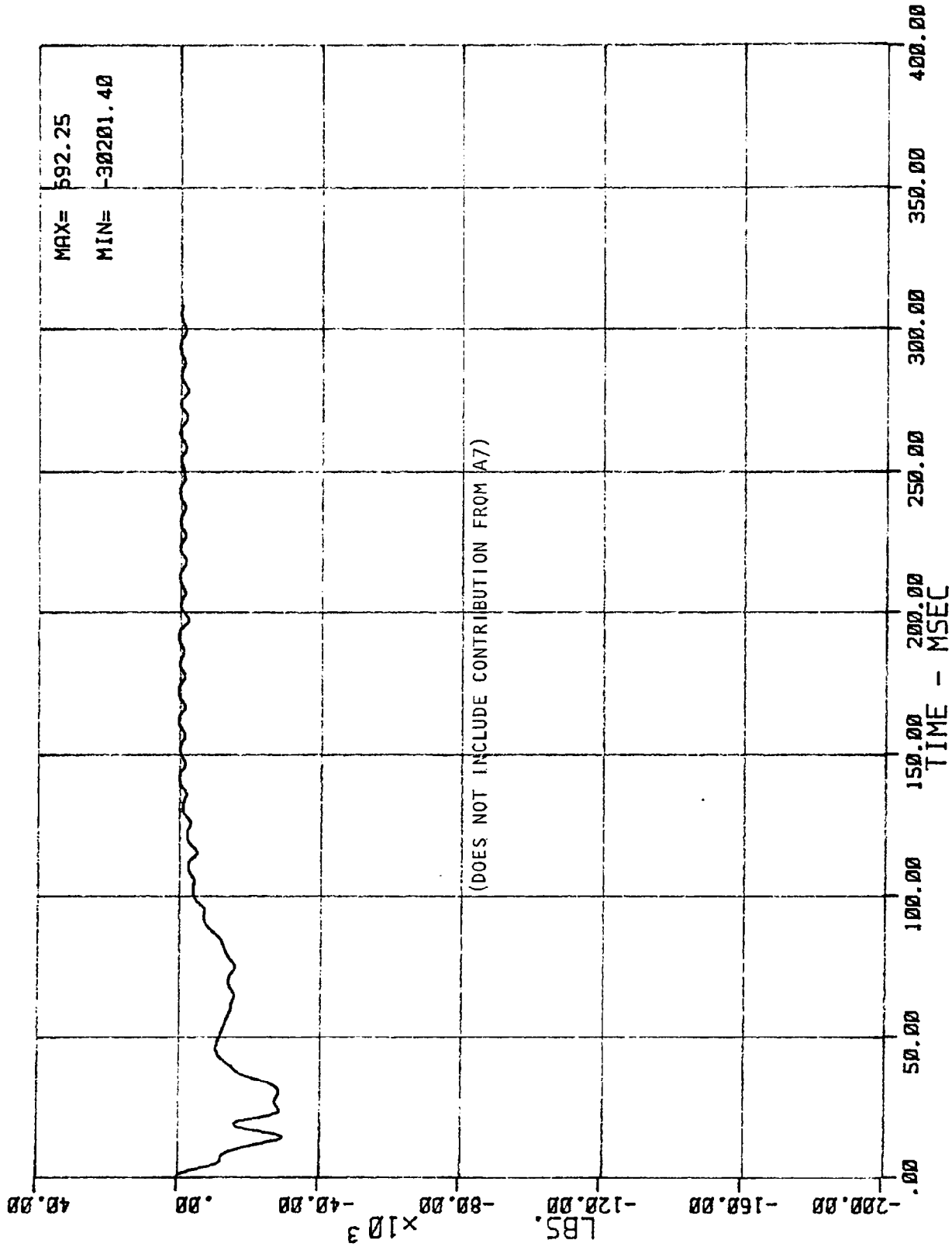
GROUP 4 SUM (A1,A2,A3,B1,B2,B3) LOAD CELL BARRIER FORCE
 MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



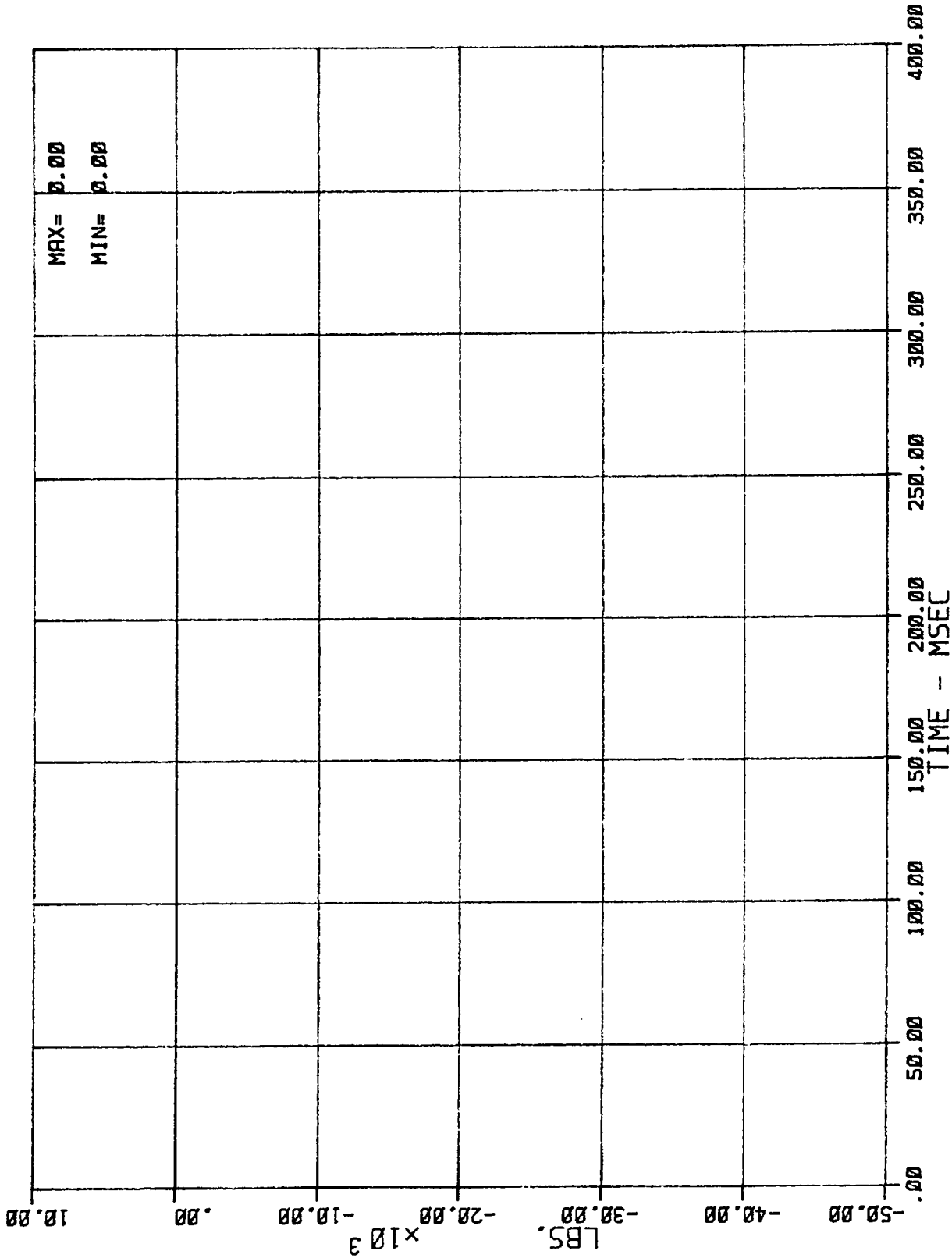
GROUP 5 SUM (A4,A5,A6,B4,B5,B6) LOAD CELL BARRIER FORCE
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



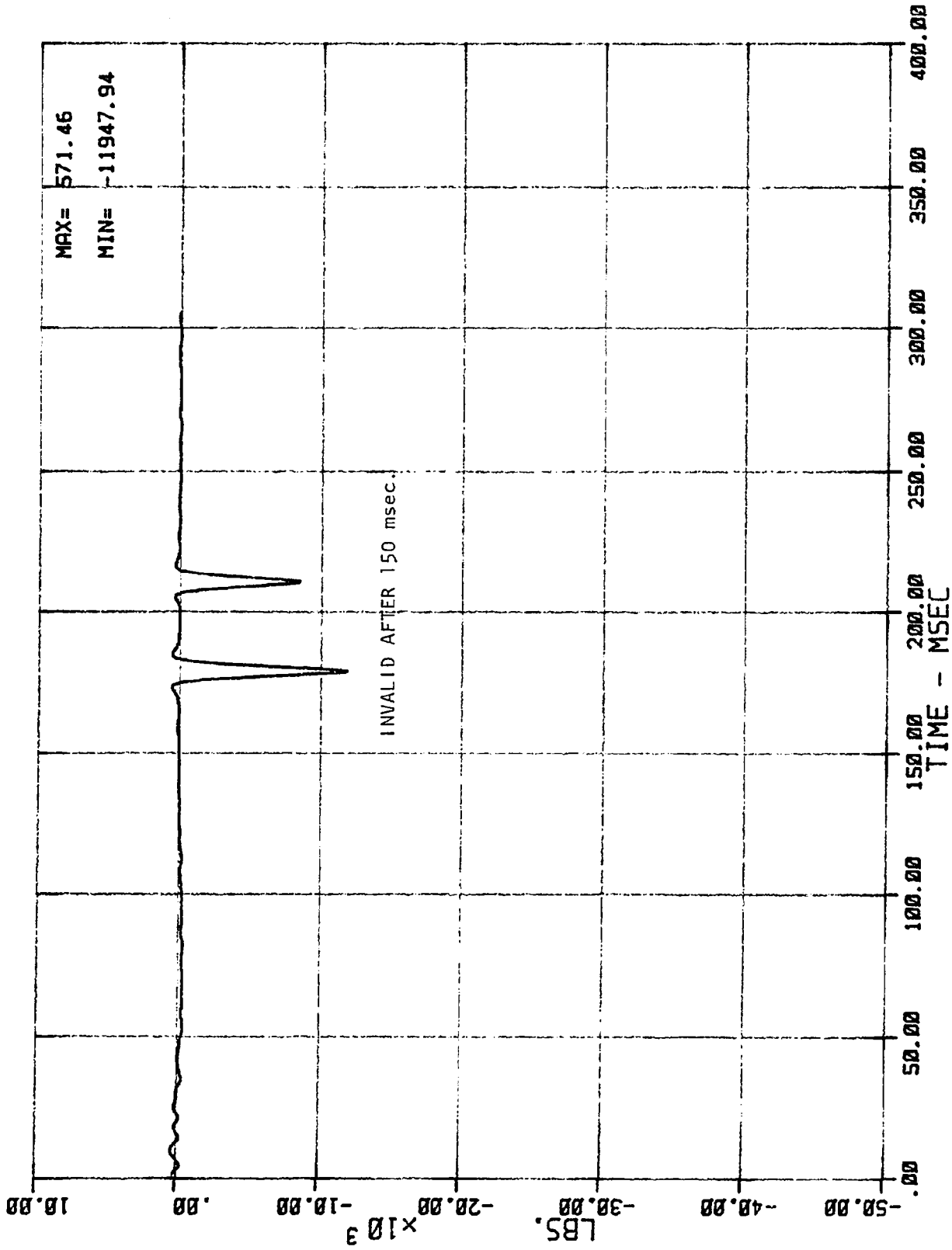
GROUP 6 SUM (A7,A8,A9,B7,B8,B9) LOAD CELL BARRIER FORCE
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



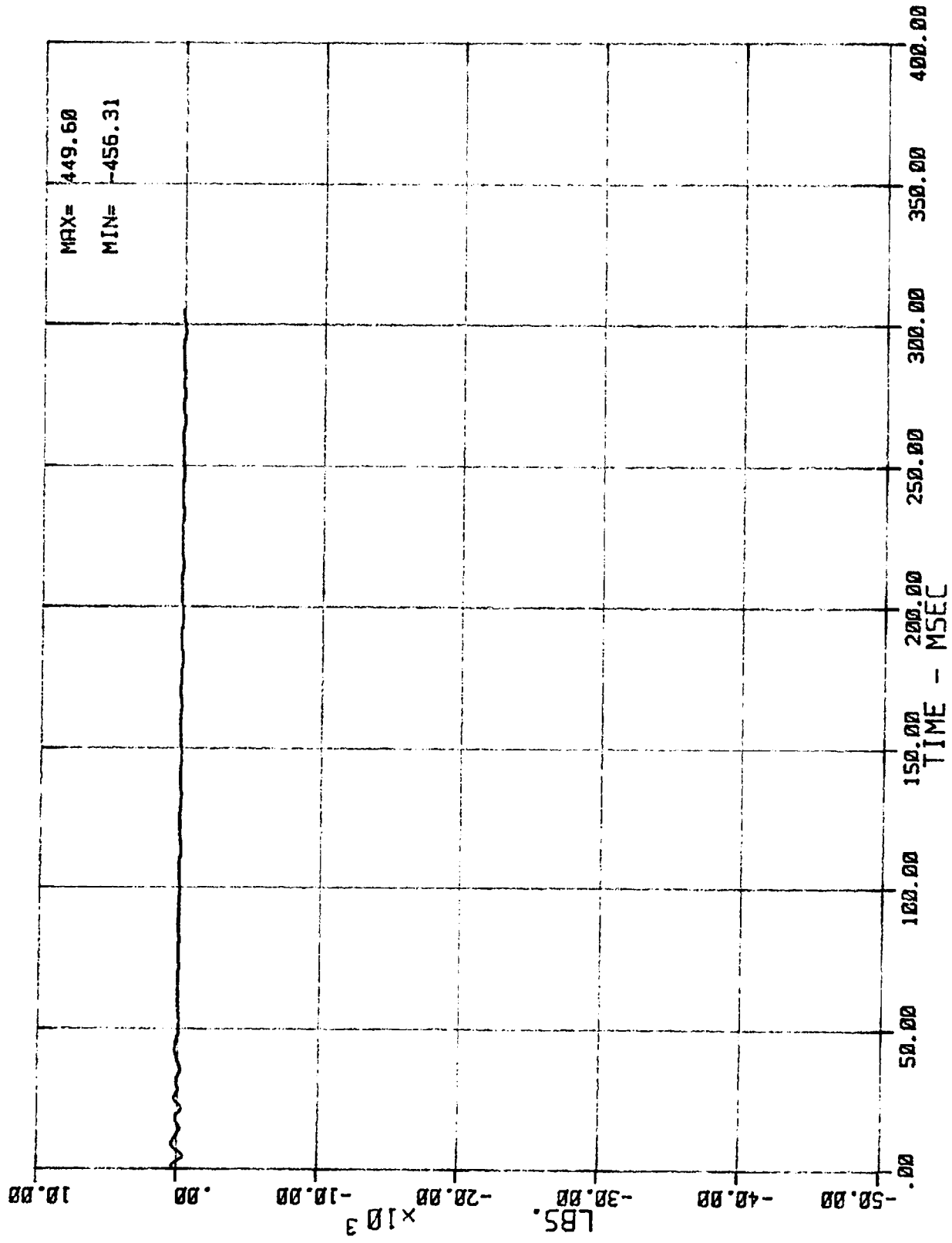
31 LC BA N BA1 (BARRIER LOAD CELL A1 FORCE NO L. C.)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



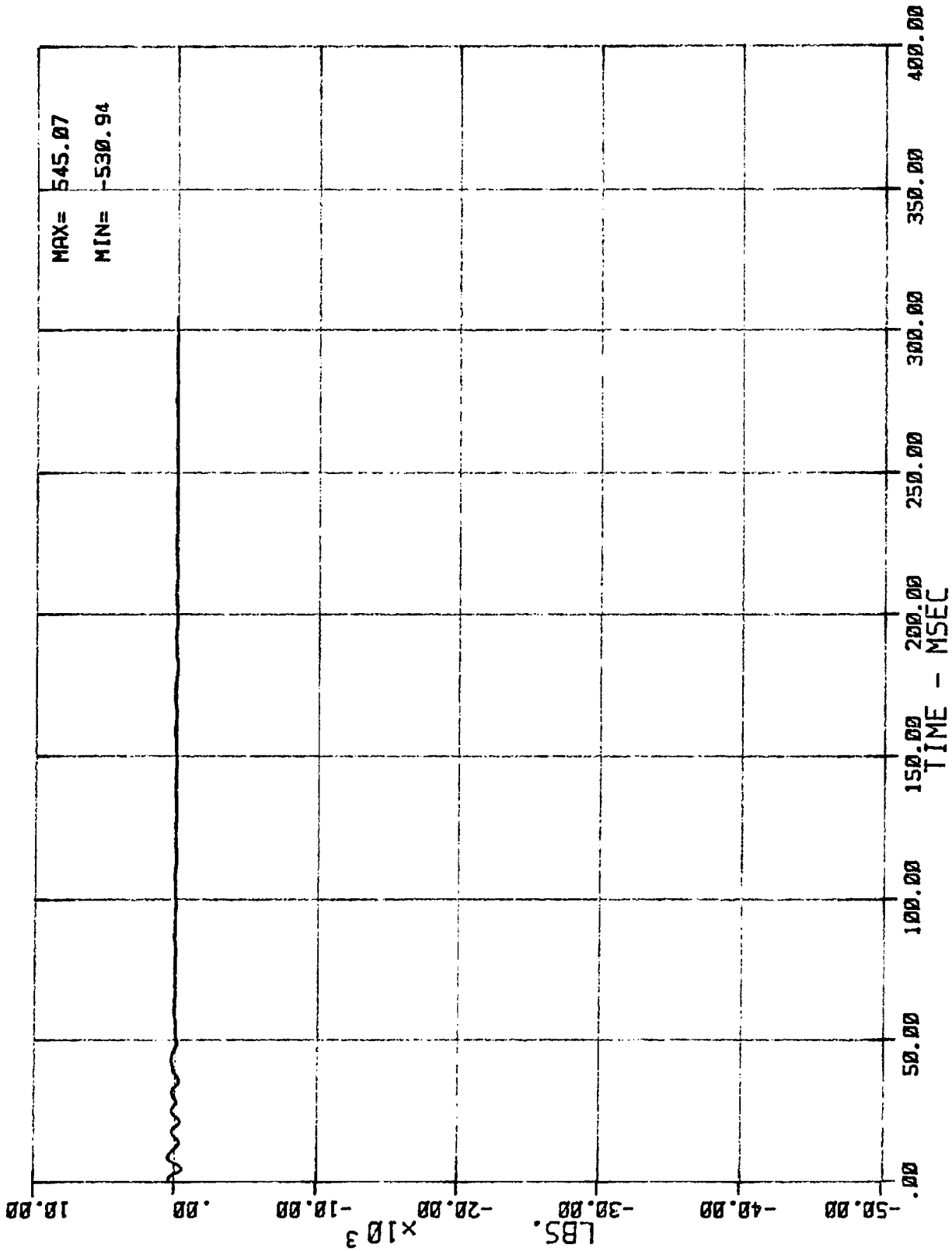
32 LC BA N BA2 (BARRIER LOAD CELL A2 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



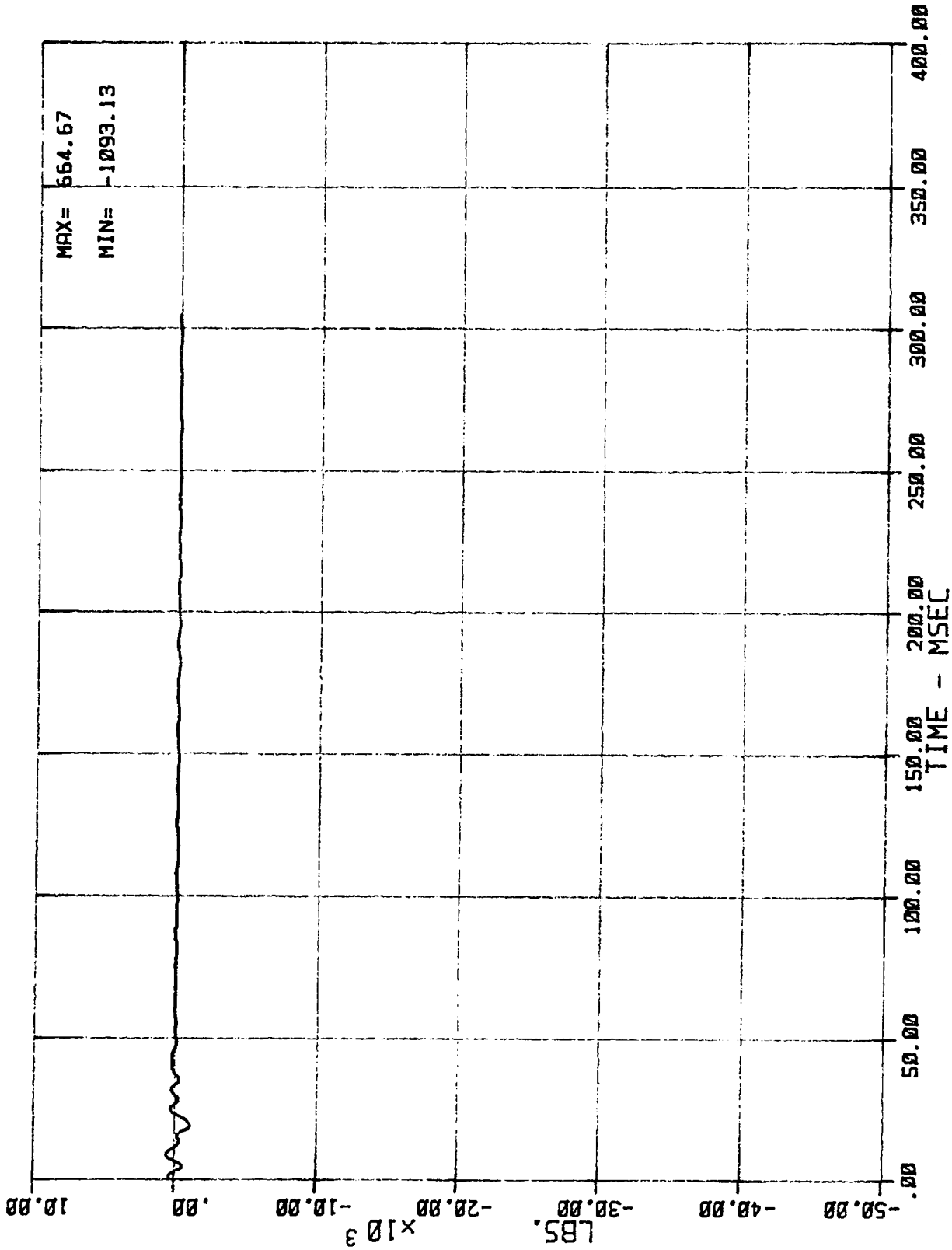
33 LC BA N BA3 (BARRIER LOAD CELL A3 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



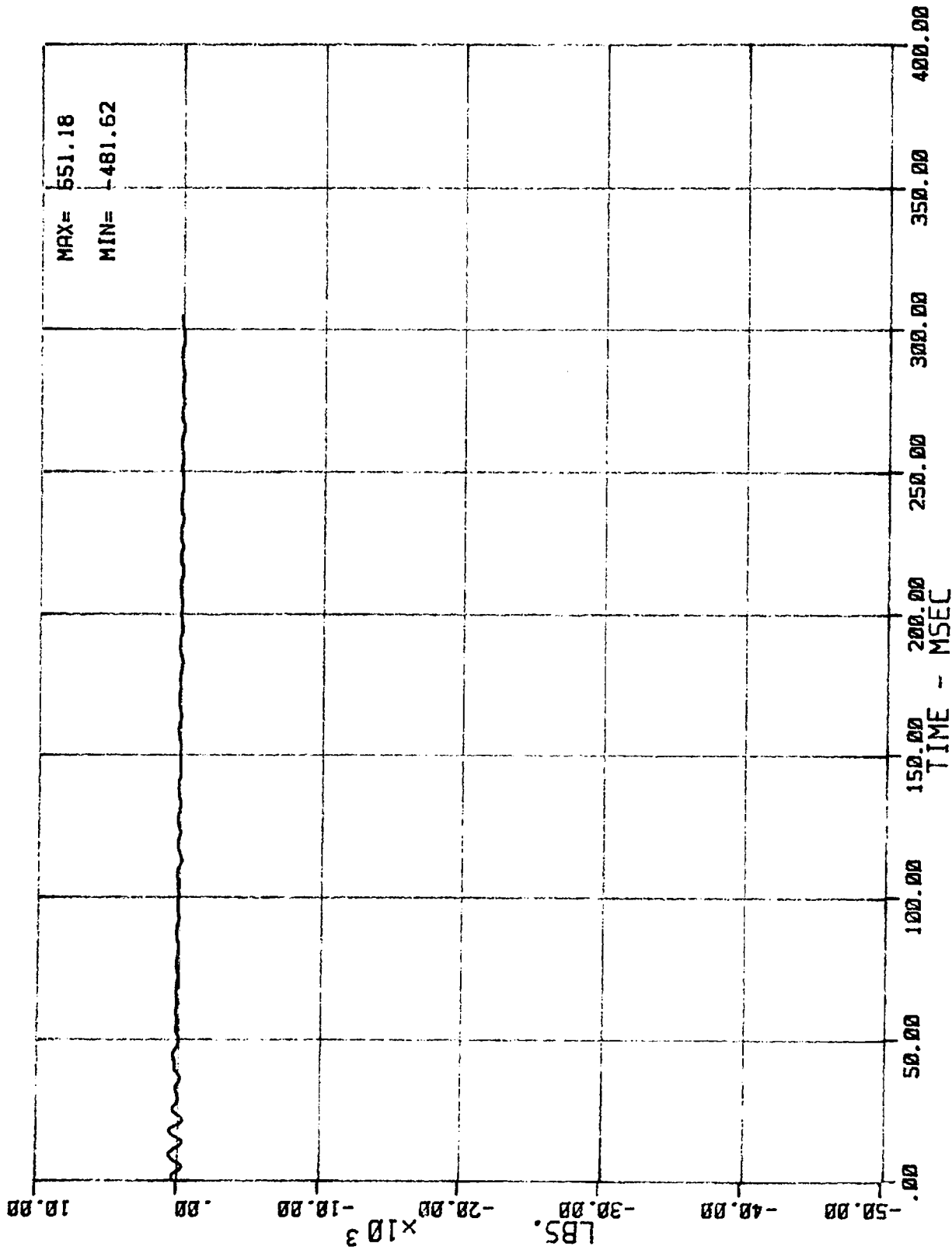
34 LC BA BA4 (BARRIER LOAD CELL A4 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



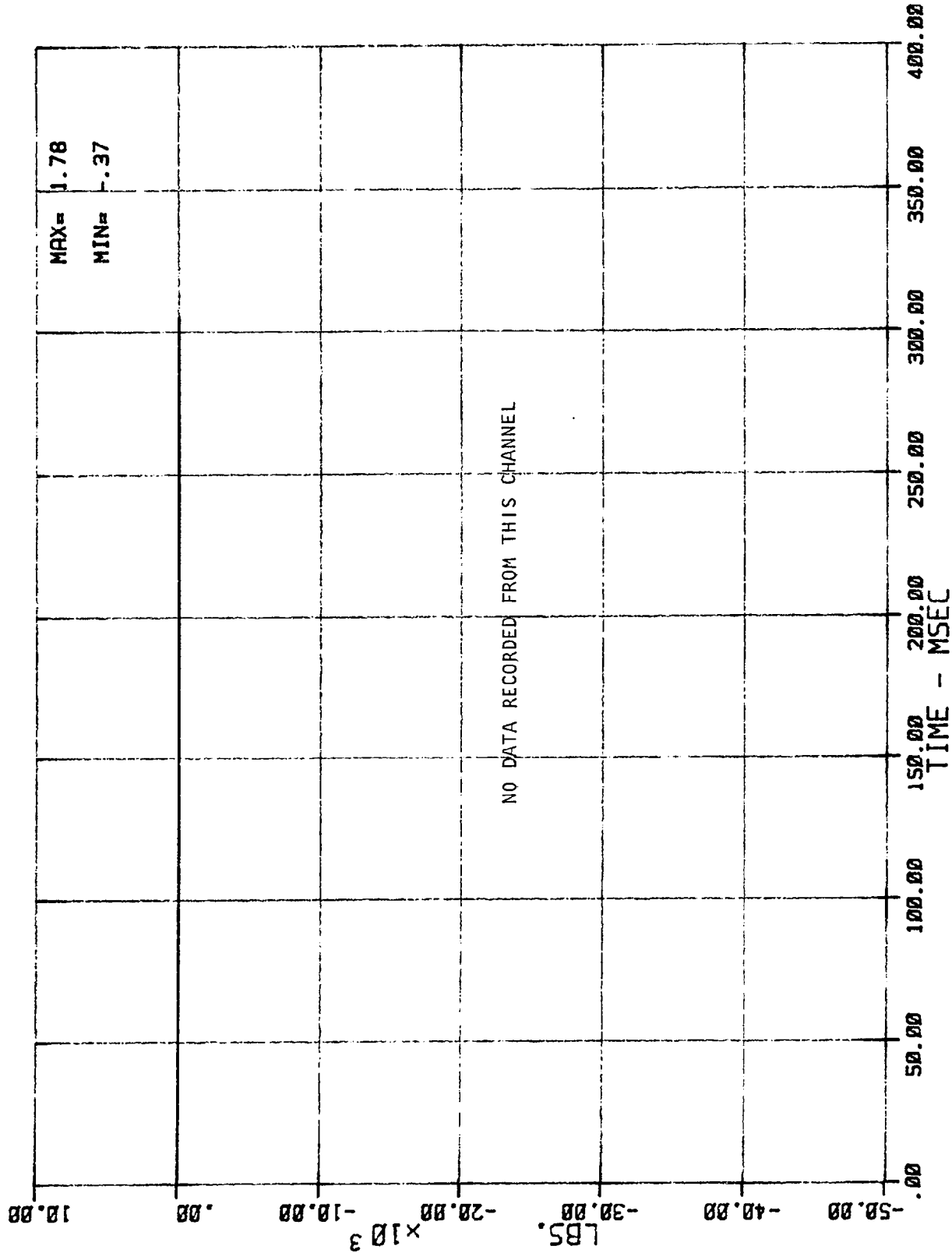
35 LC BA N BAS (BARRIER LOAD CELL AS FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



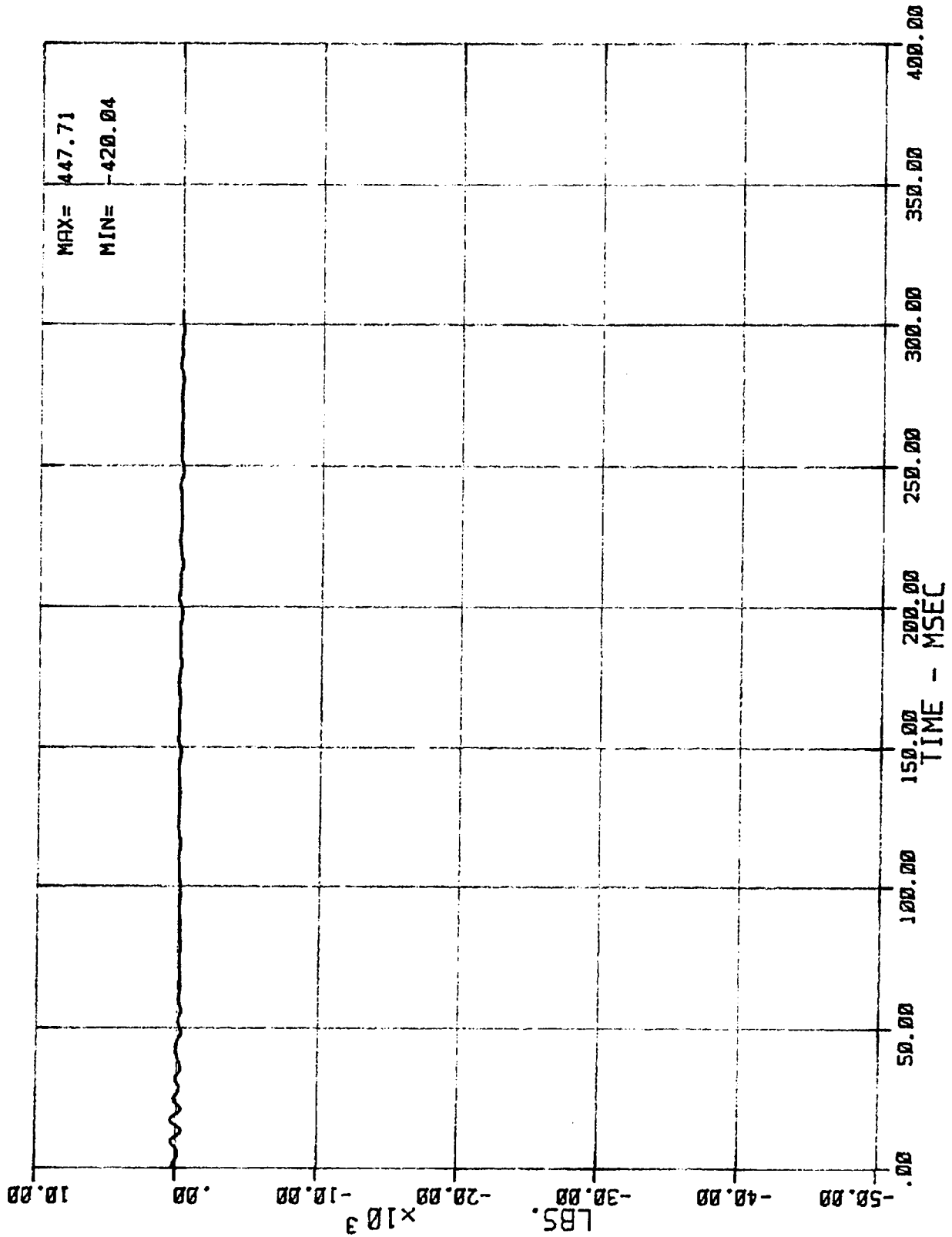
36 LC BA N BA6 (BARRIER LOAD CELL A6 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



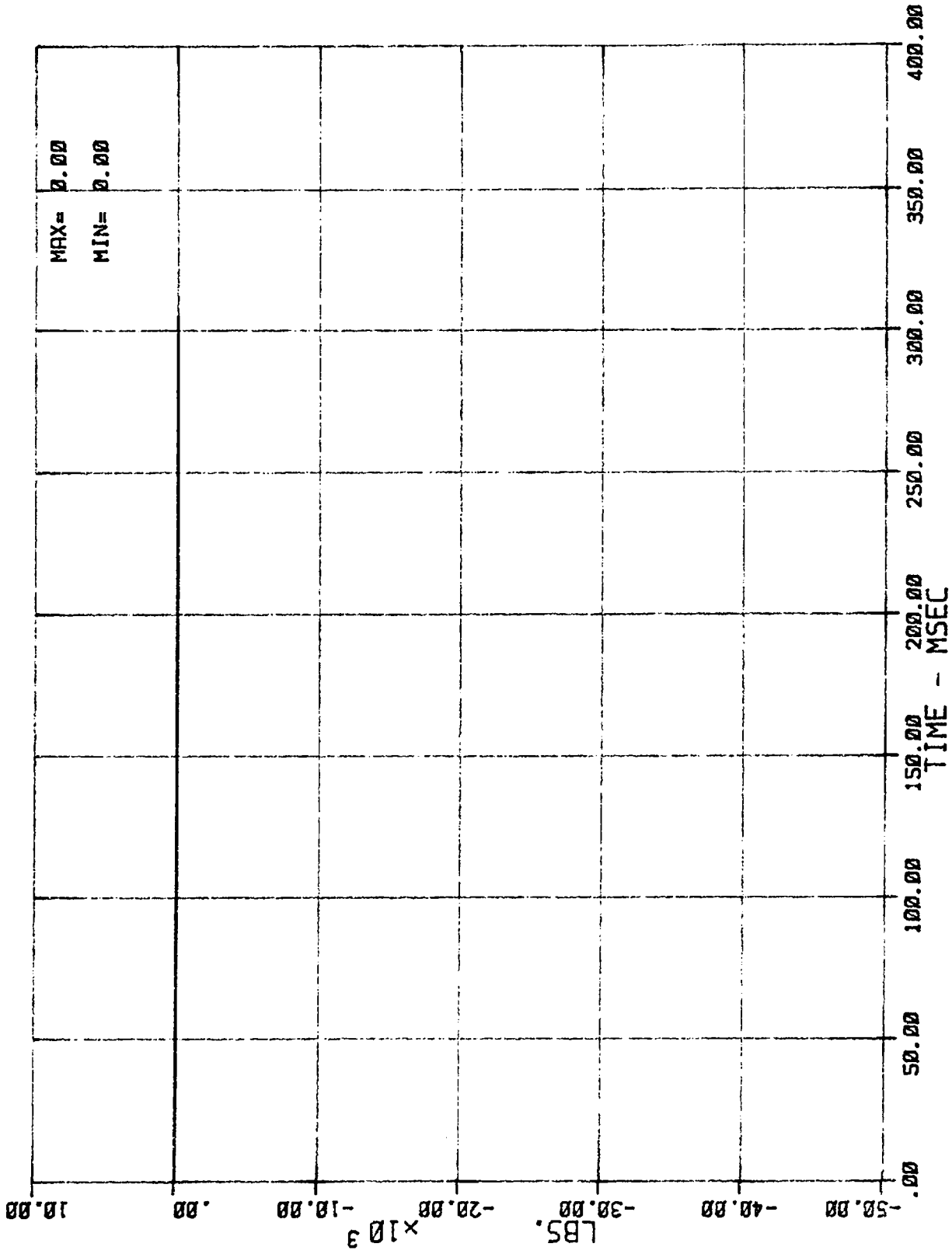
37 LC BA N BA7 (BARRIER LOAD CELL A7 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



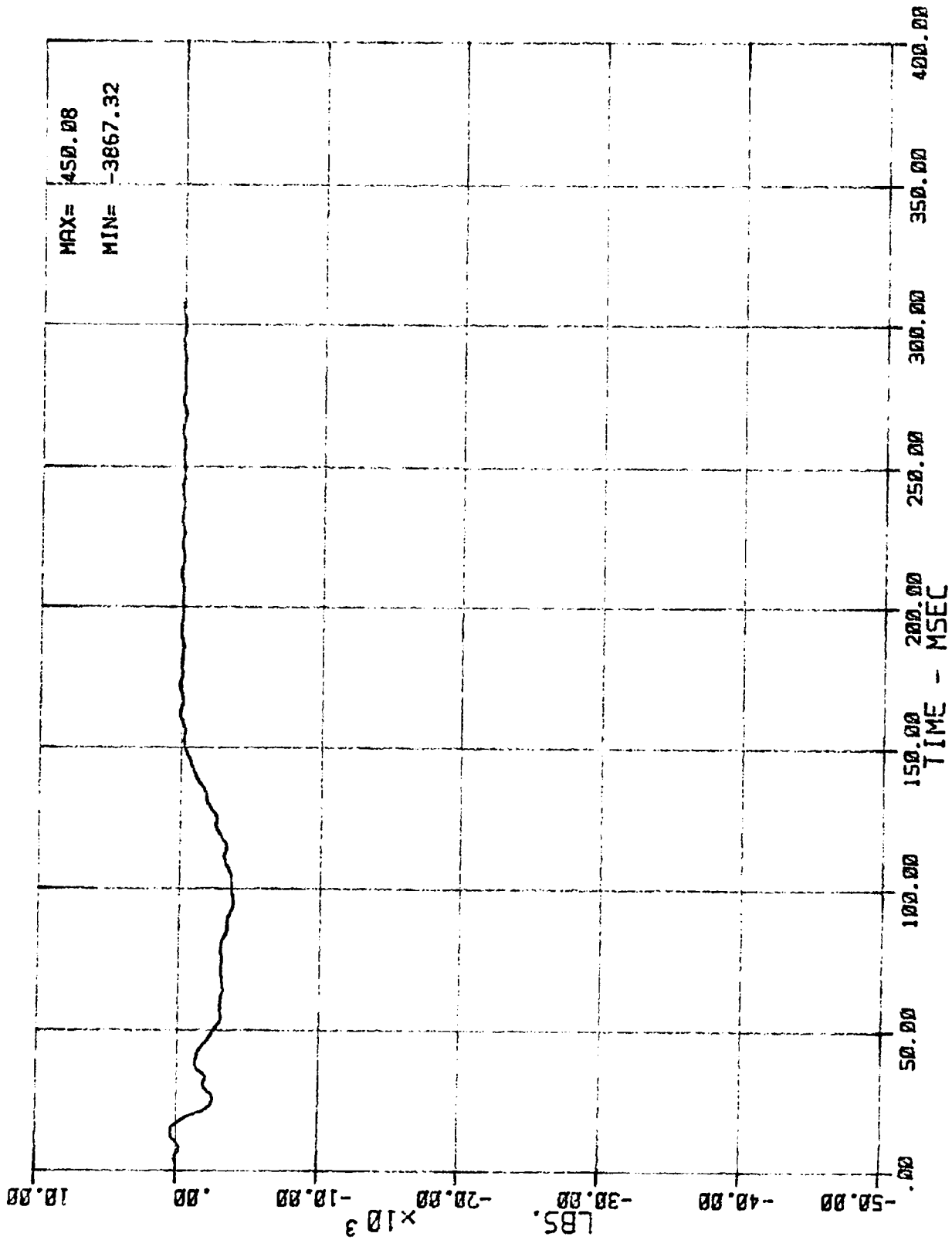
38 LC BR N B88 (BARRIER LOAD CELL A8 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



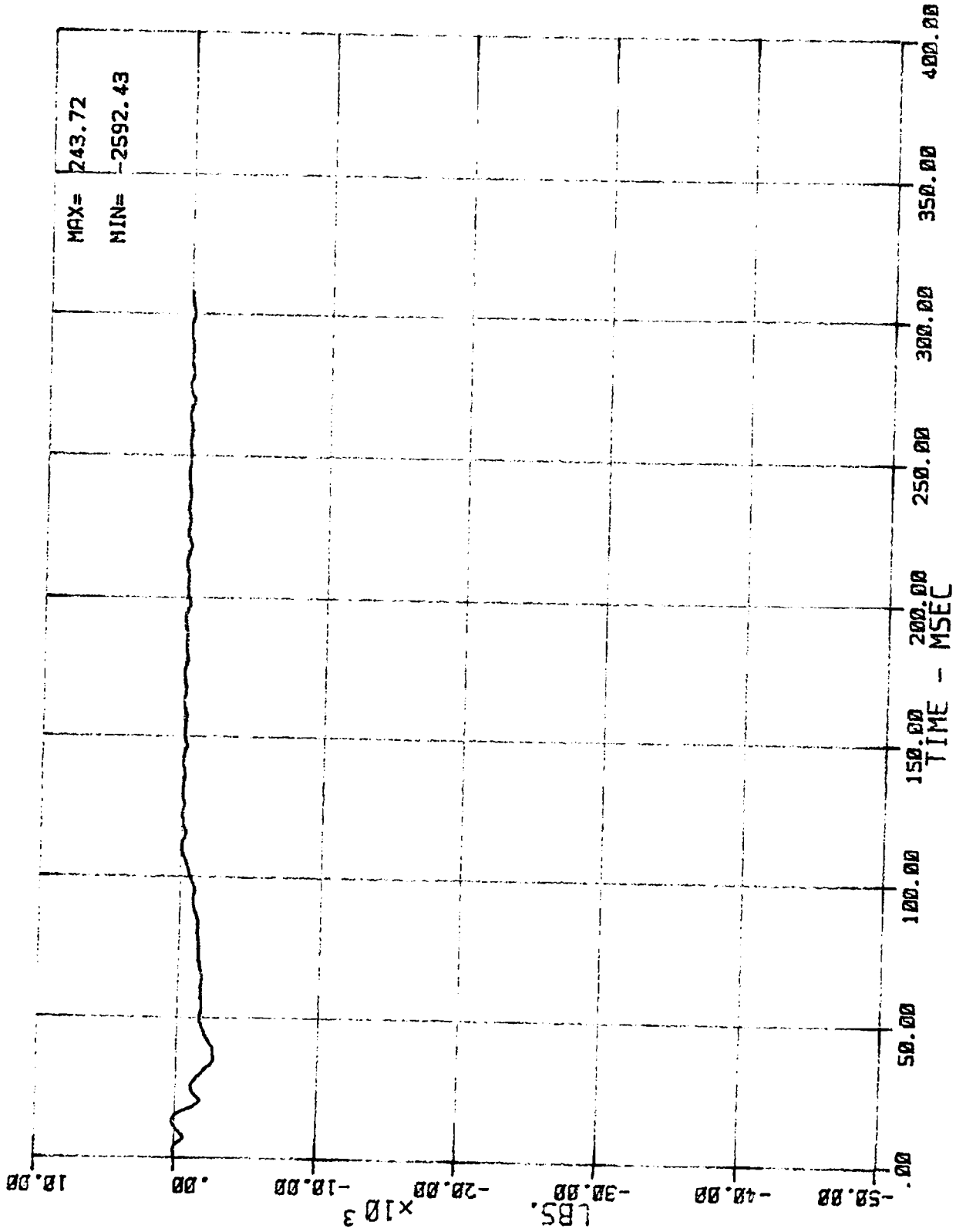
39 LC BA N BA9 (BARRIER LOAD CELL A9 FORCE NO L.C.)
 MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



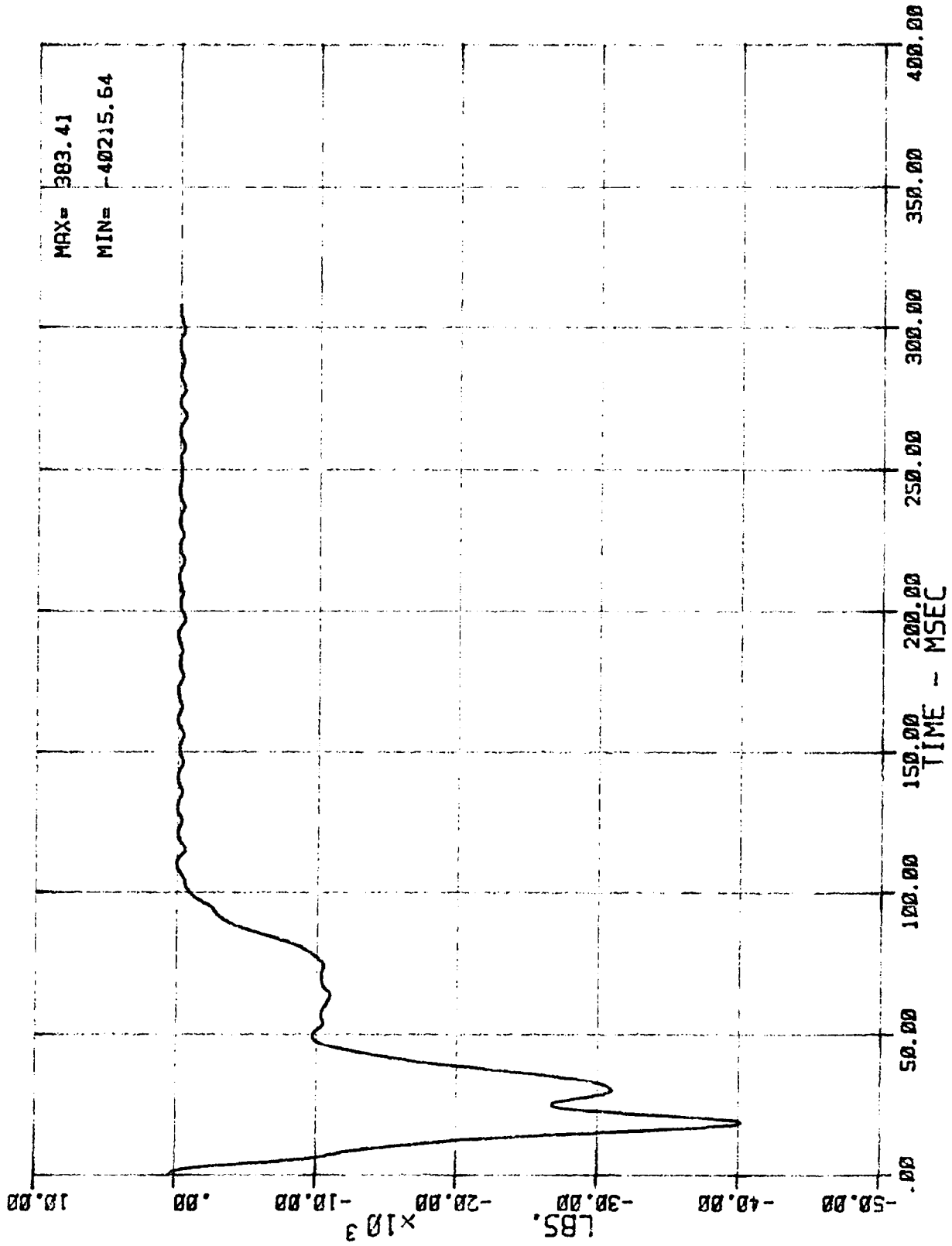
40 LC BR N B01 (BARRIER LOAD CELL B1 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



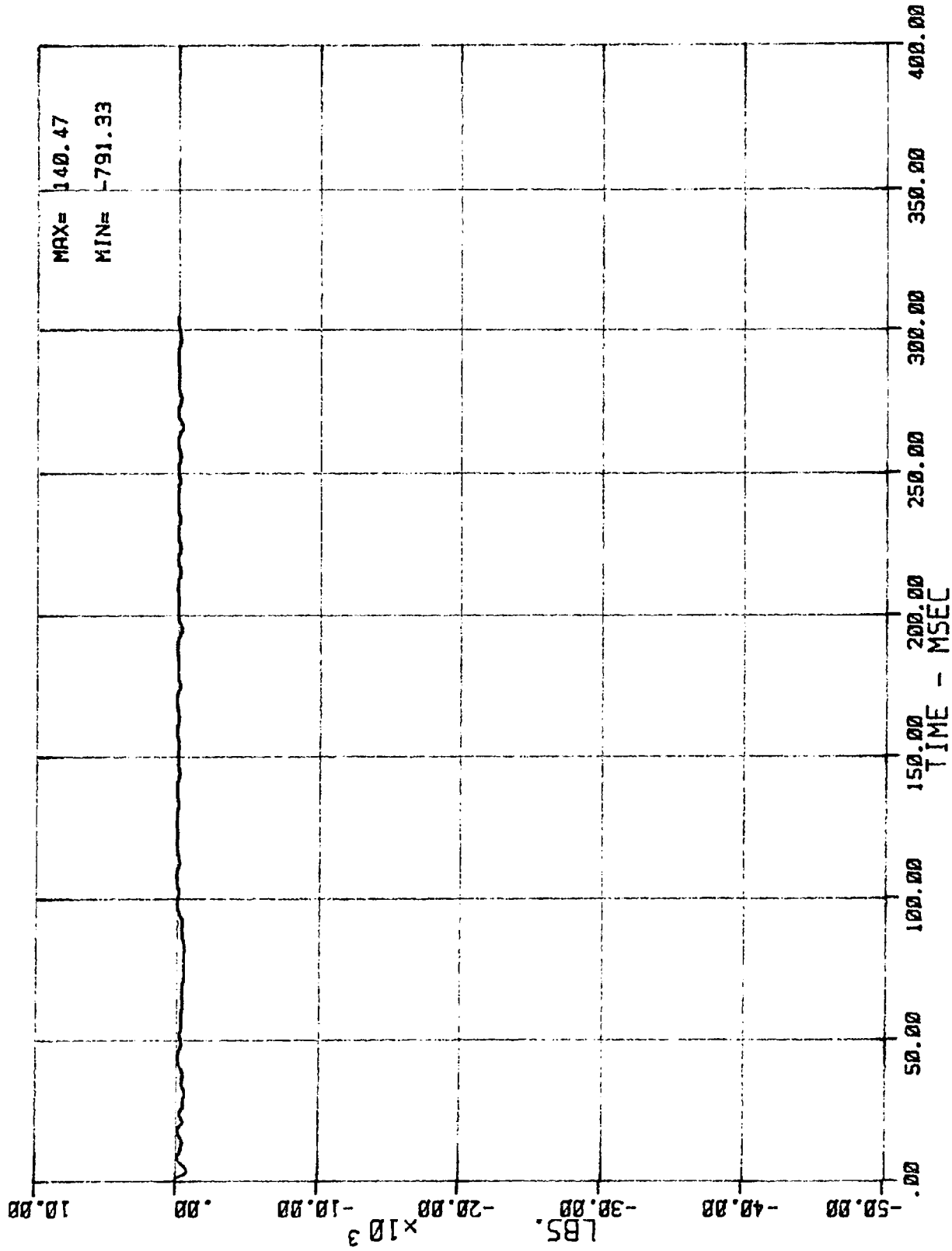
41 LC BB N BB2 (BARRIER LOAD CELL B2 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



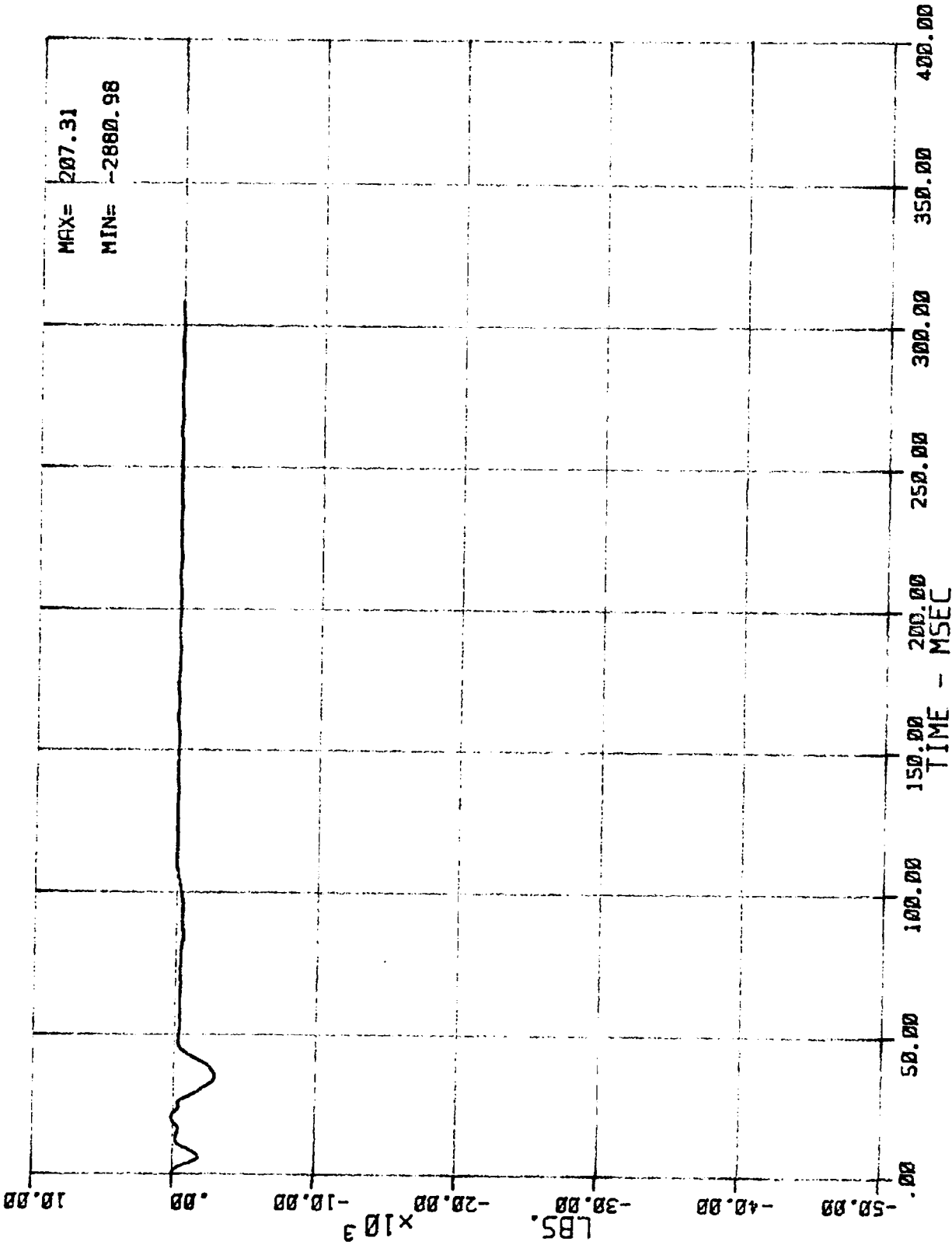
42 LC BB N BB3 (BARRIER LOAD CELL B3 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



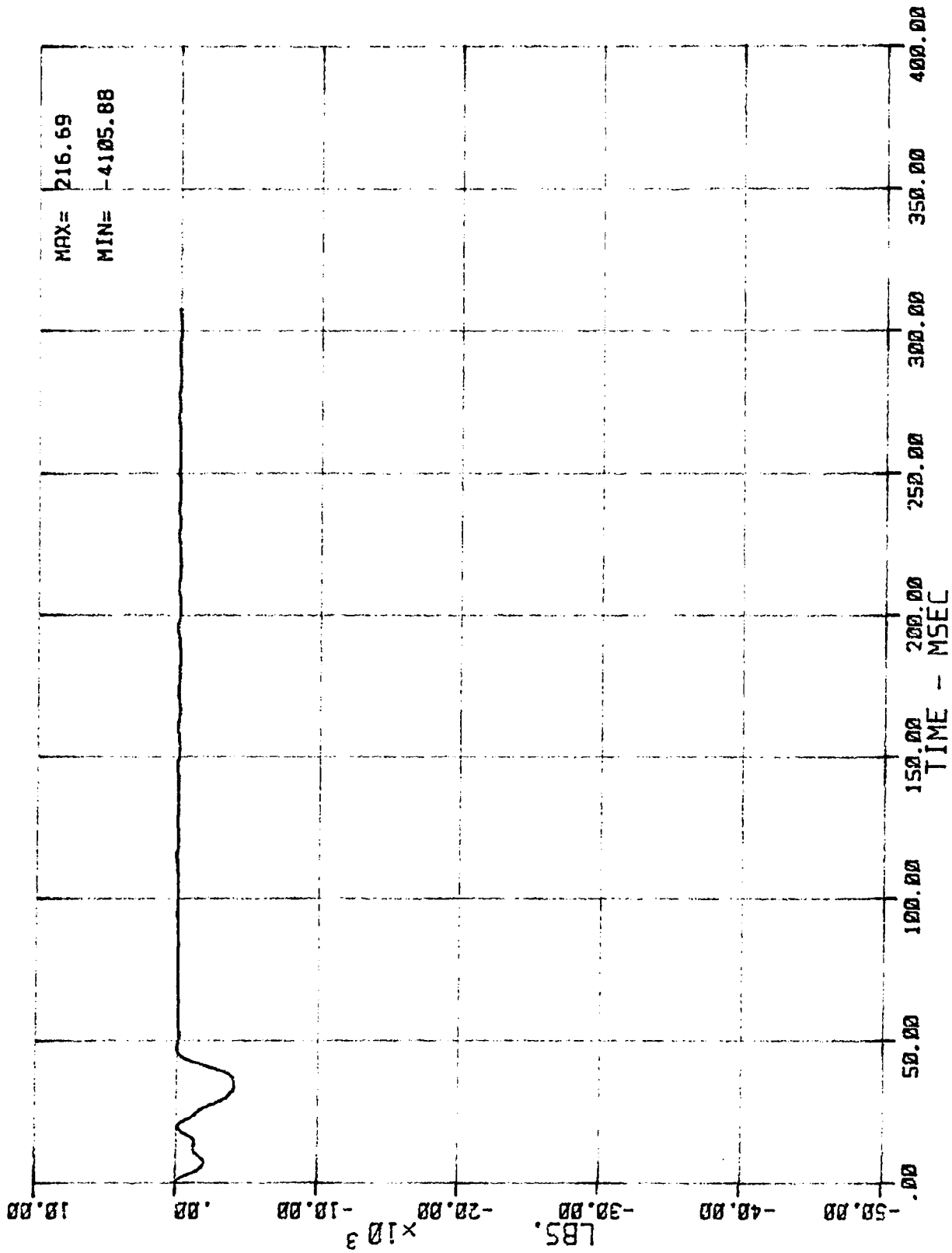
43 LC BB N BB4 (BARRIER LOAD CELL B4 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



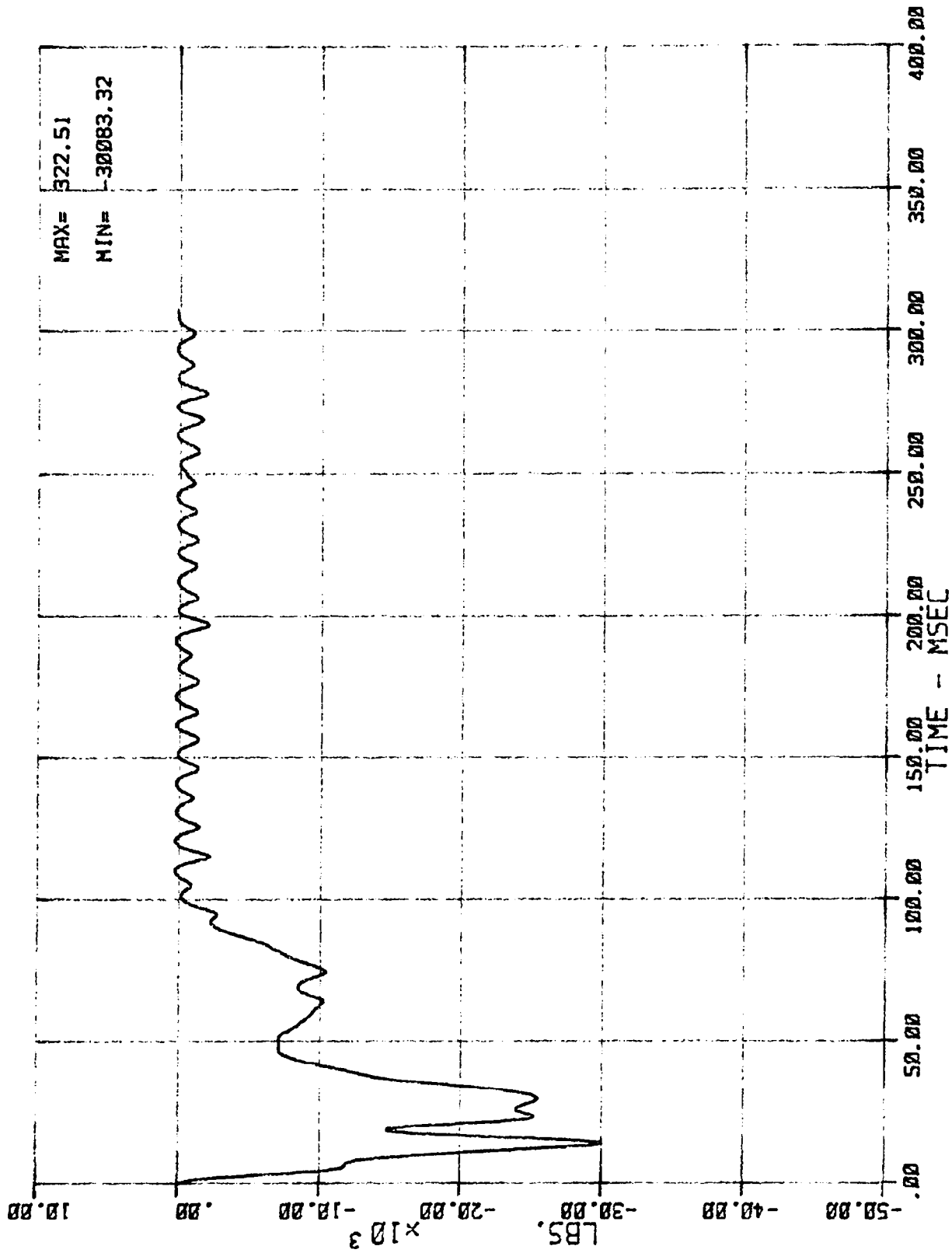
44 LC BB N BB5 (BARRIER LOAD CELL B5 FORCE)
MSE M02055 1985 FORD E-150 CLB VGN

06/26/85



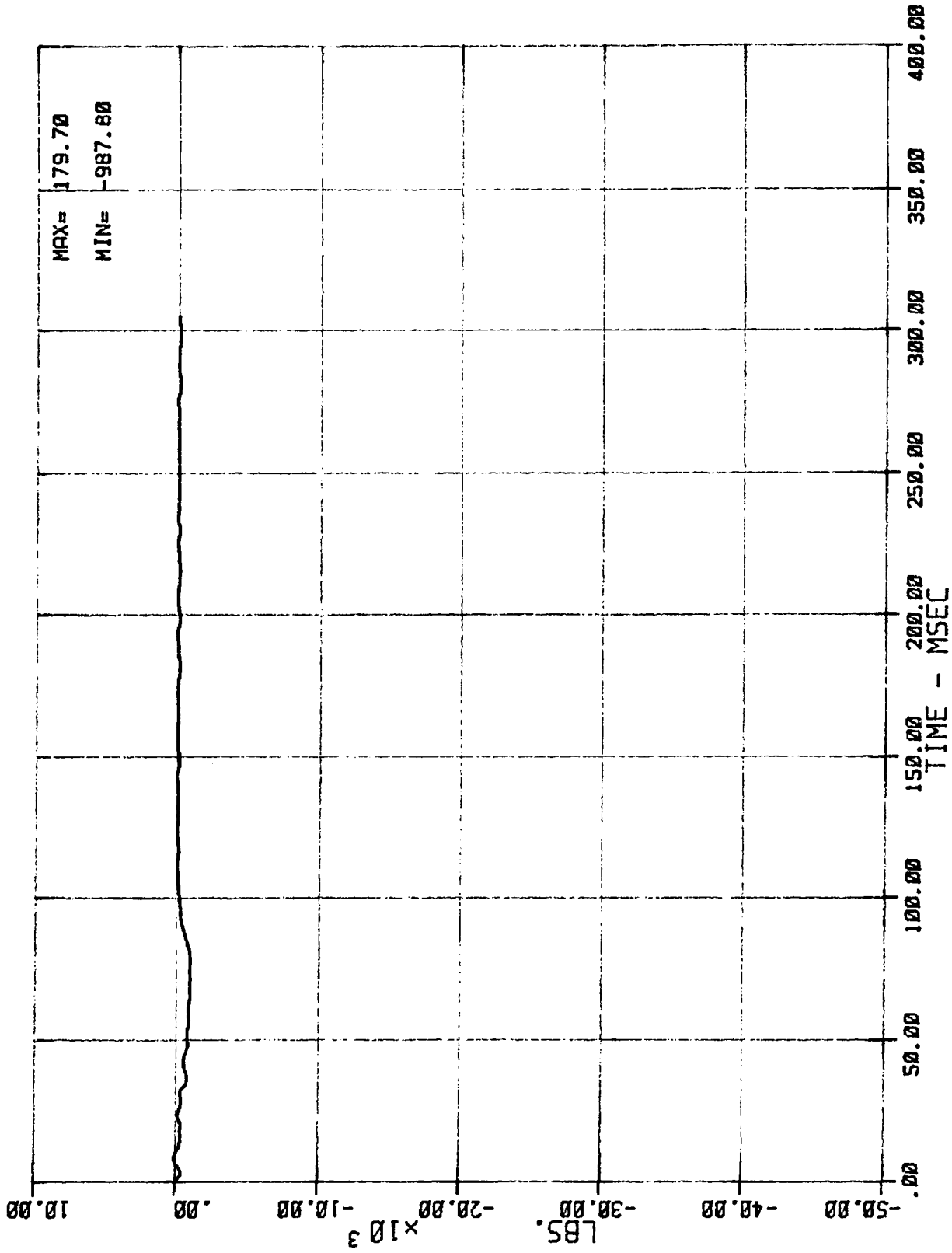
45 LC 8A 886 (BARRIER LOAD CELL B6 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



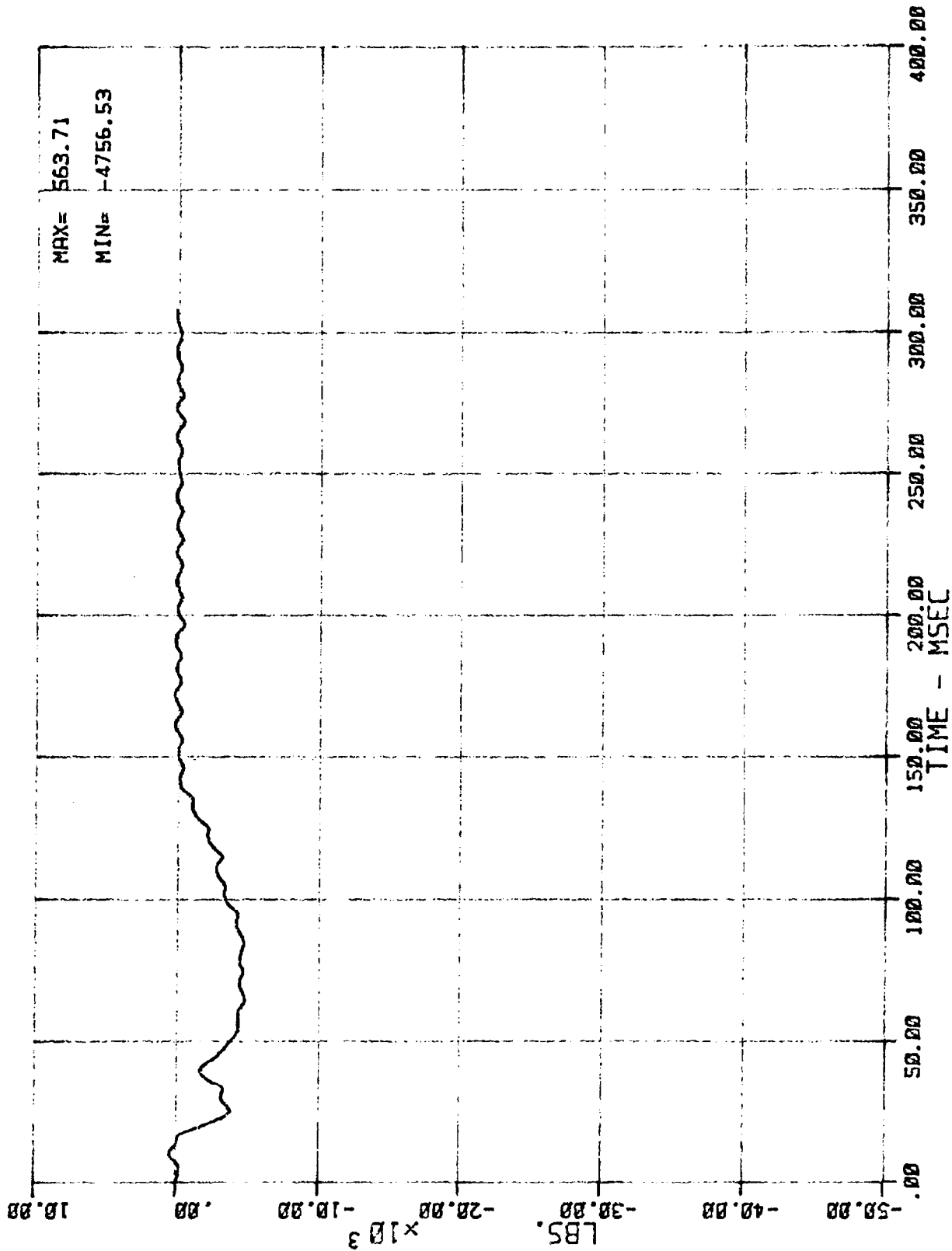
46 LC BA N BB7 (BARRIER LOAD CELL B7 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



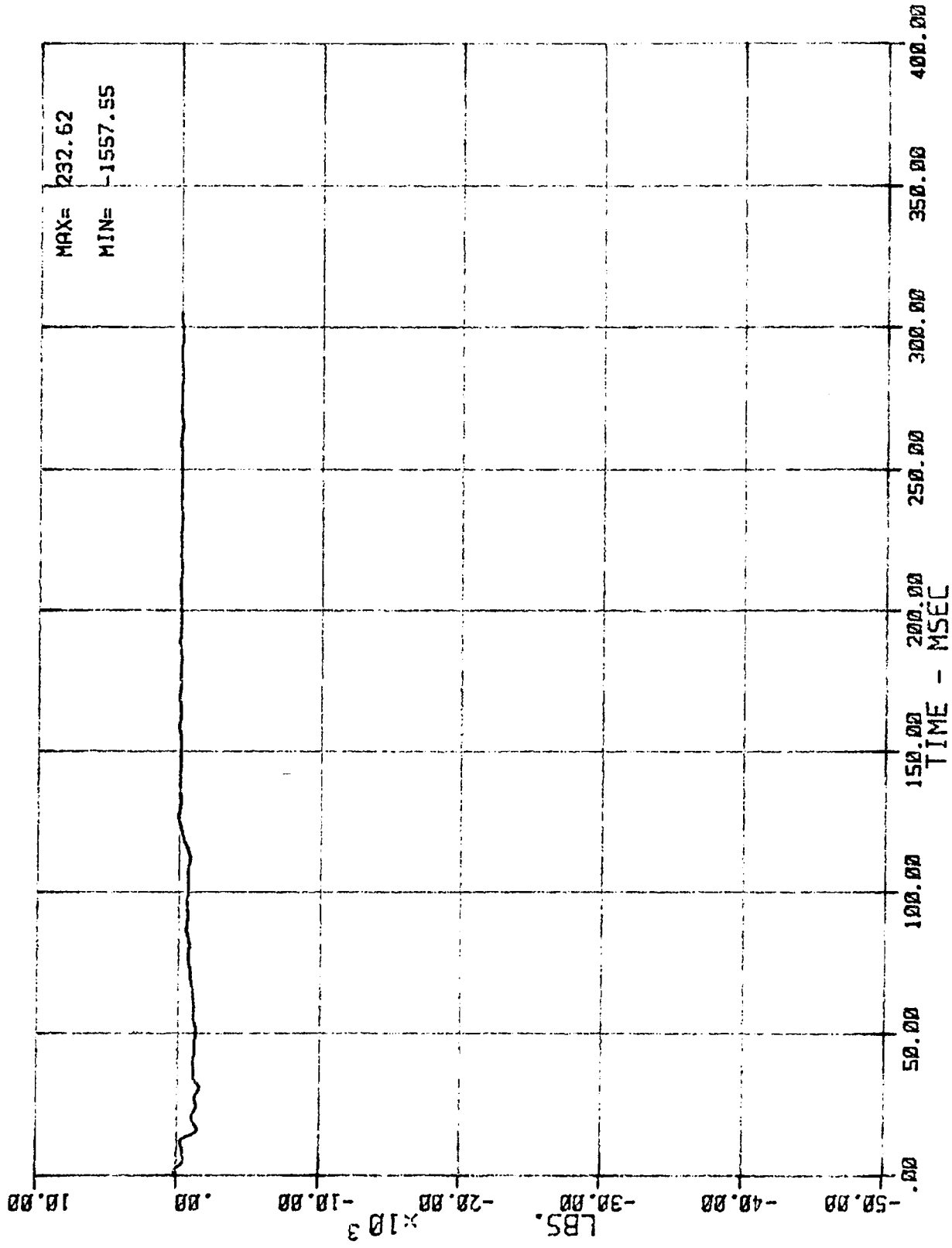
47 LC BA N 888 (BARRIER LOAD CELL 88 FORCE)
 MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



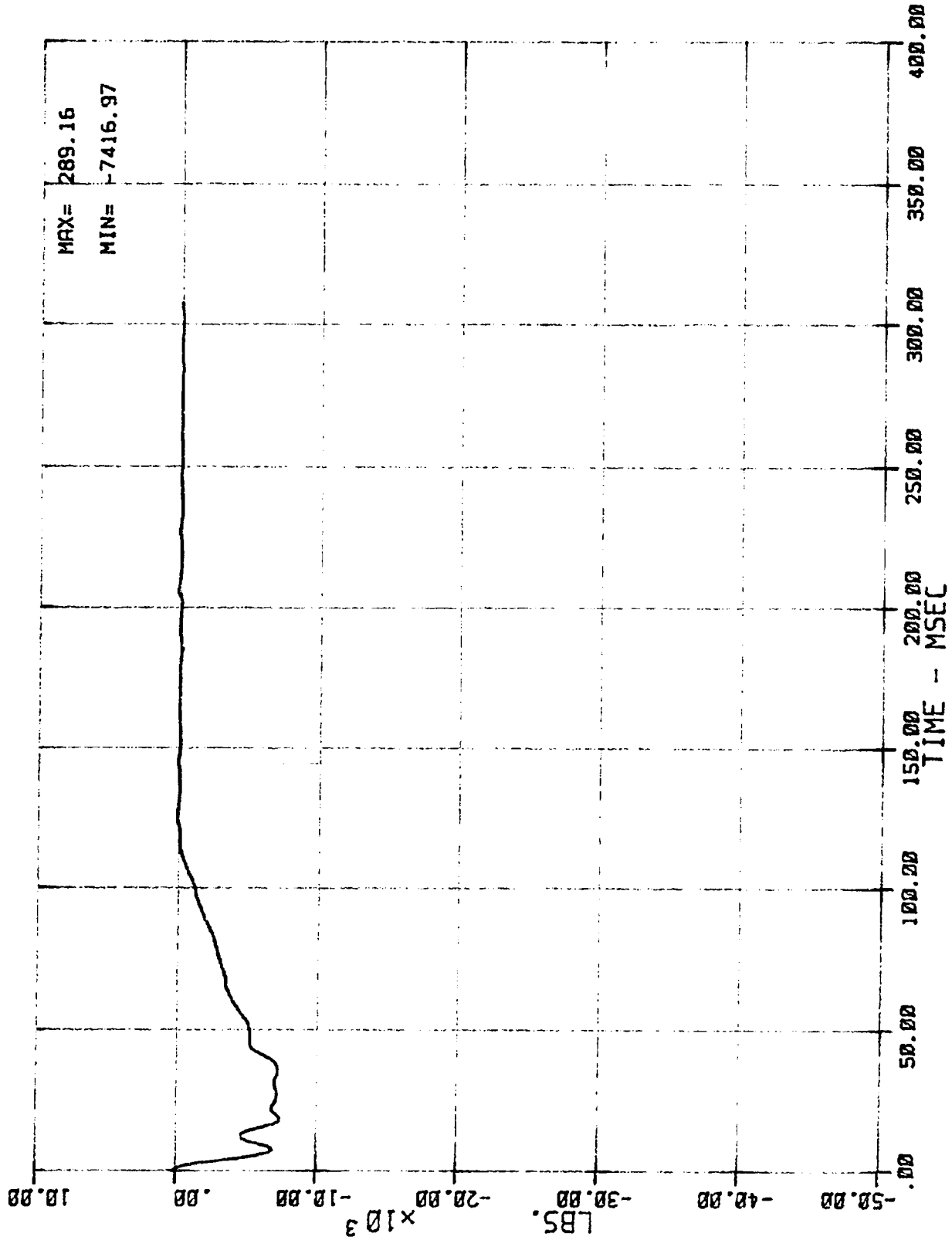
48 LC BR N BB9 (BARRIER LOAD CELL B9 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

05/26/85



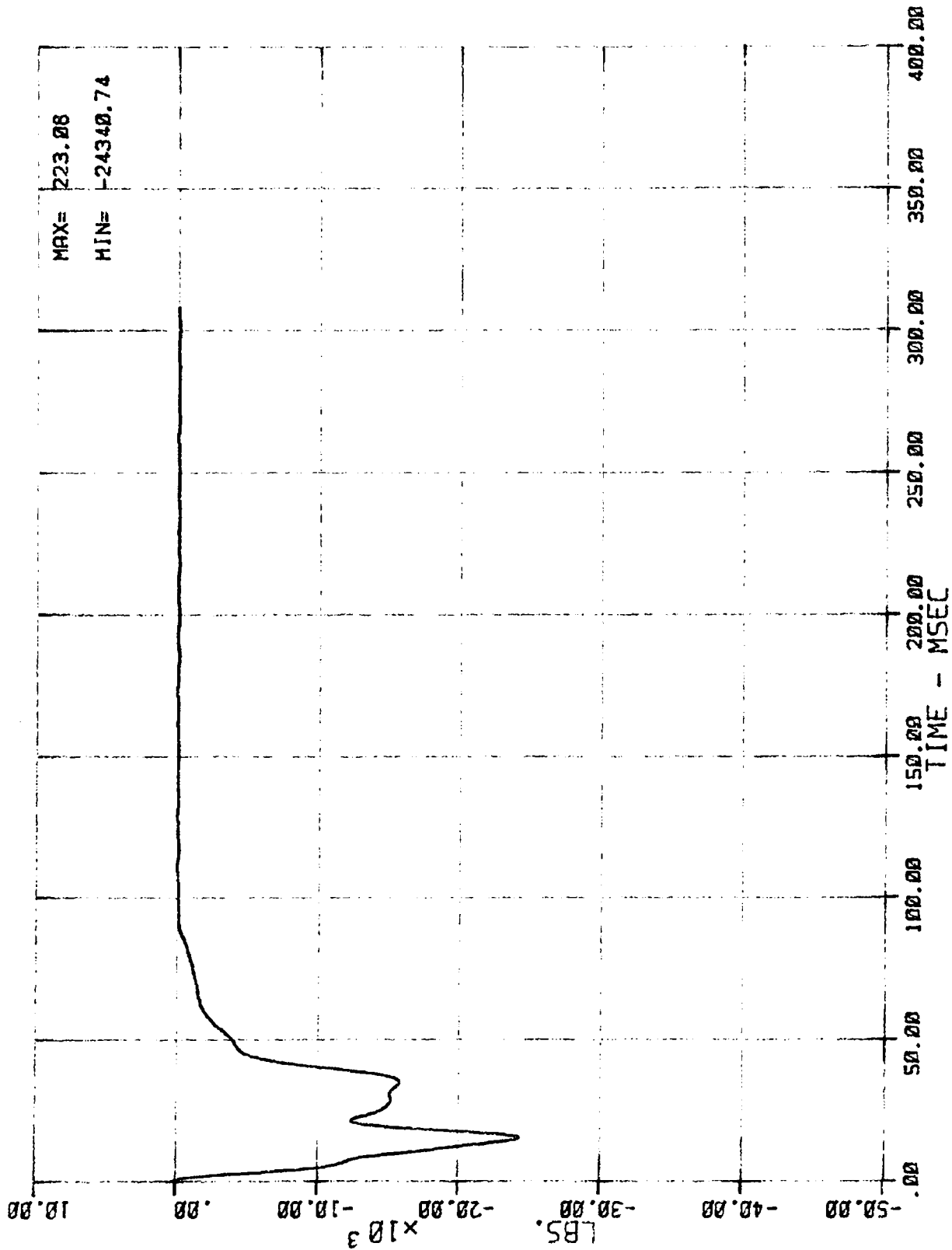
49 LC BA N BC1 (BARRIER LOAD CELL C1 FORCE)
MSE N02055 1905 FORD E-150 CLB VGN

06/25/85



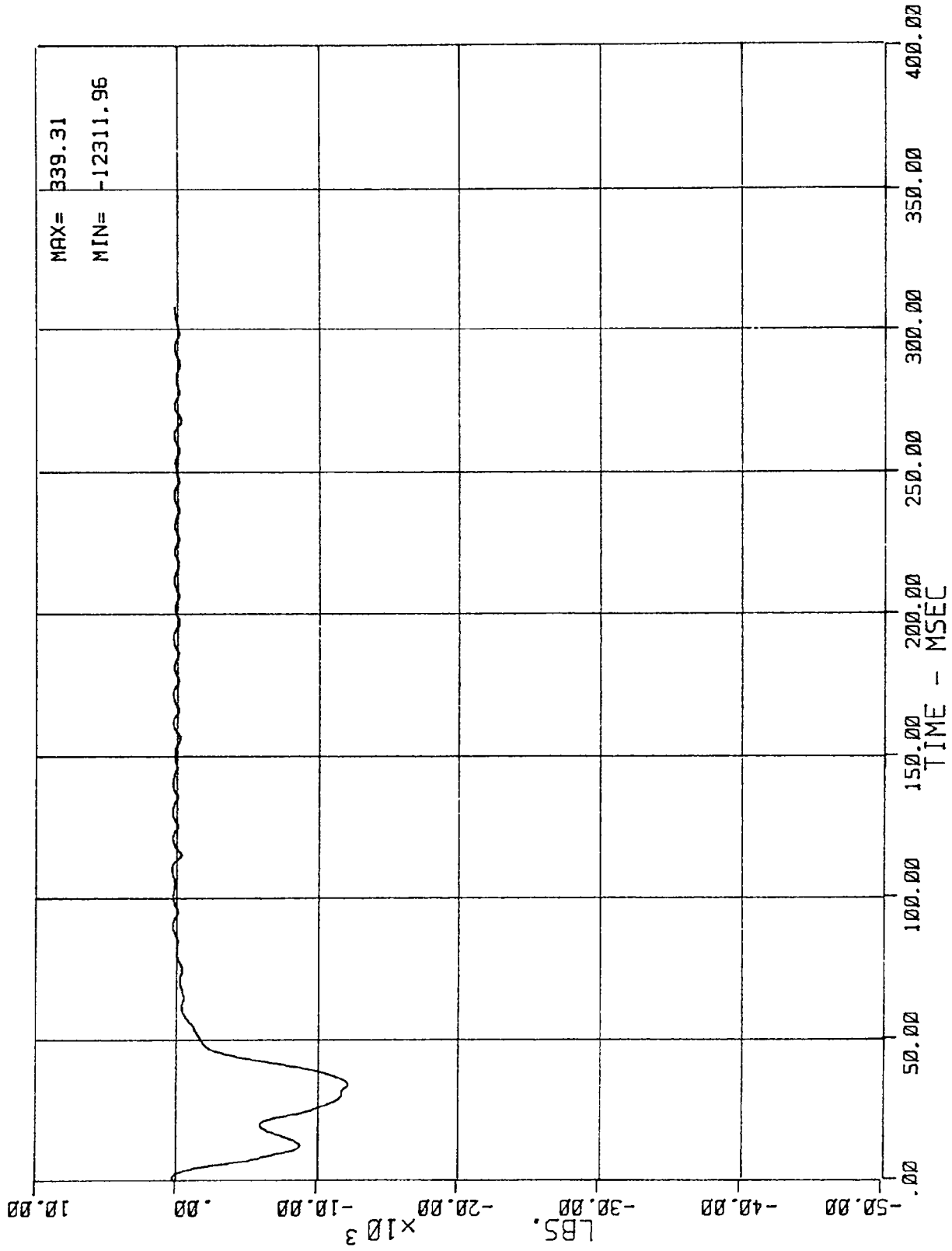
50 LC BA N BC2 (BARRIER LOAD CELL C2 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



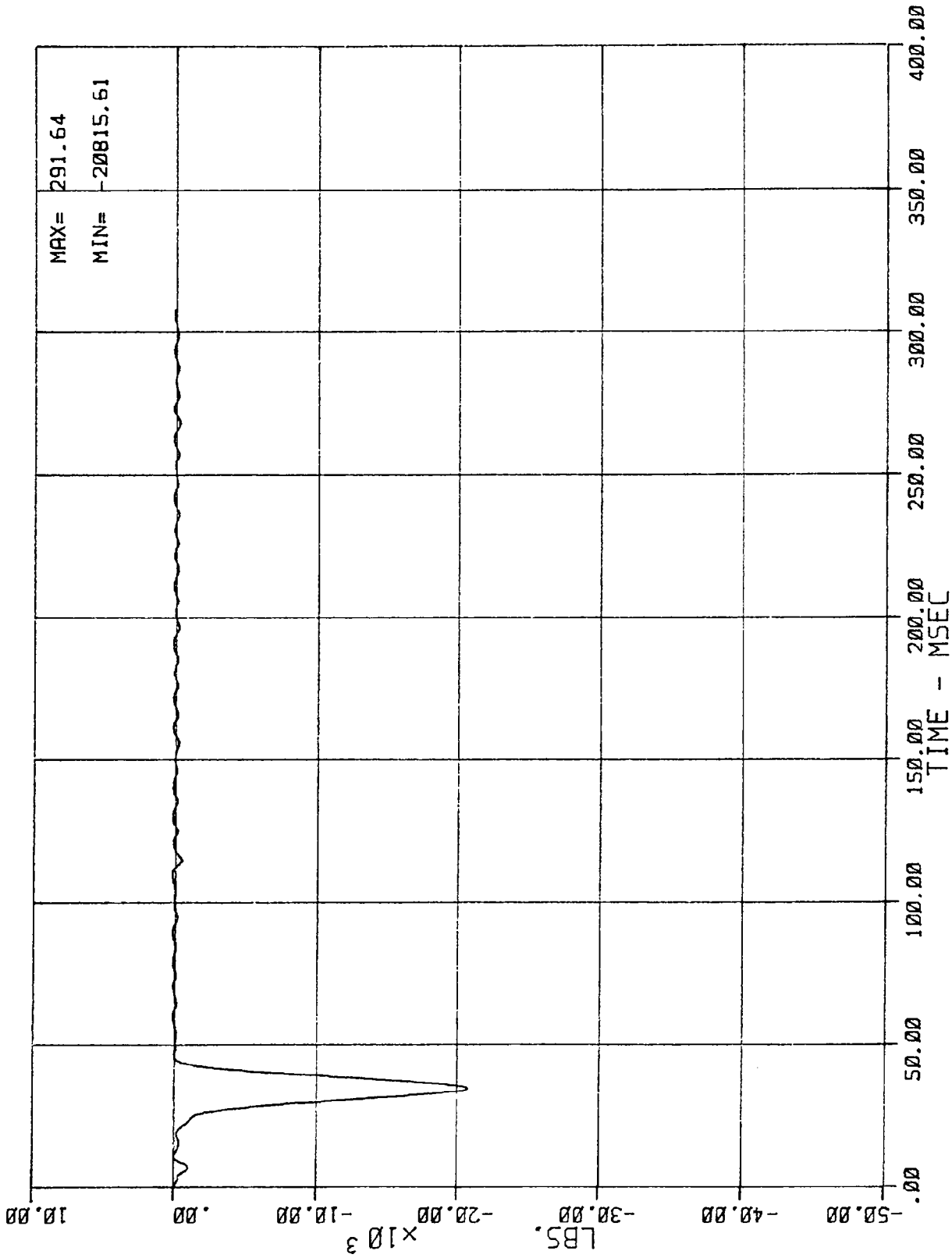
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MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



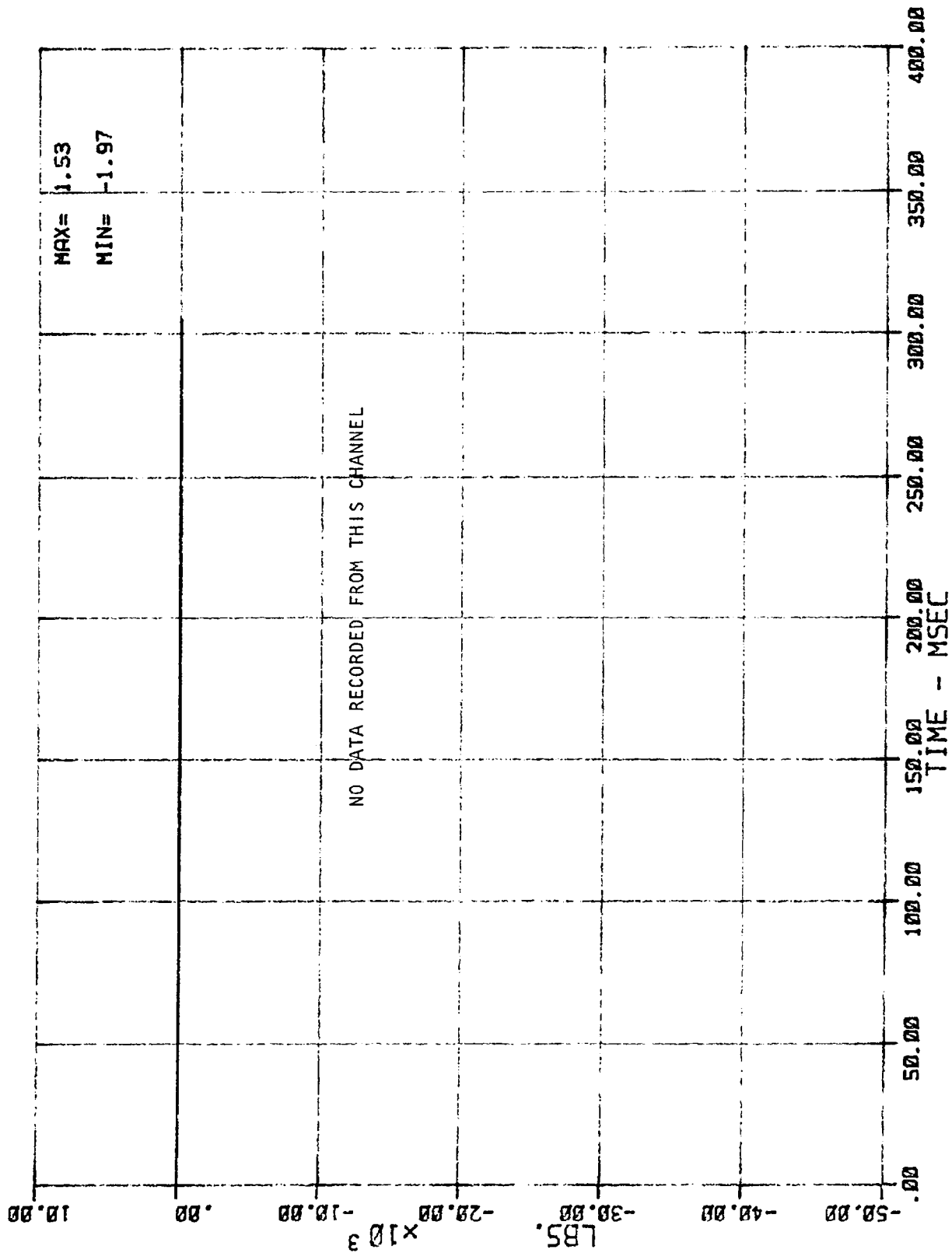
52 LC BA N BC4 (BARRIER LOAD CELL C4 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



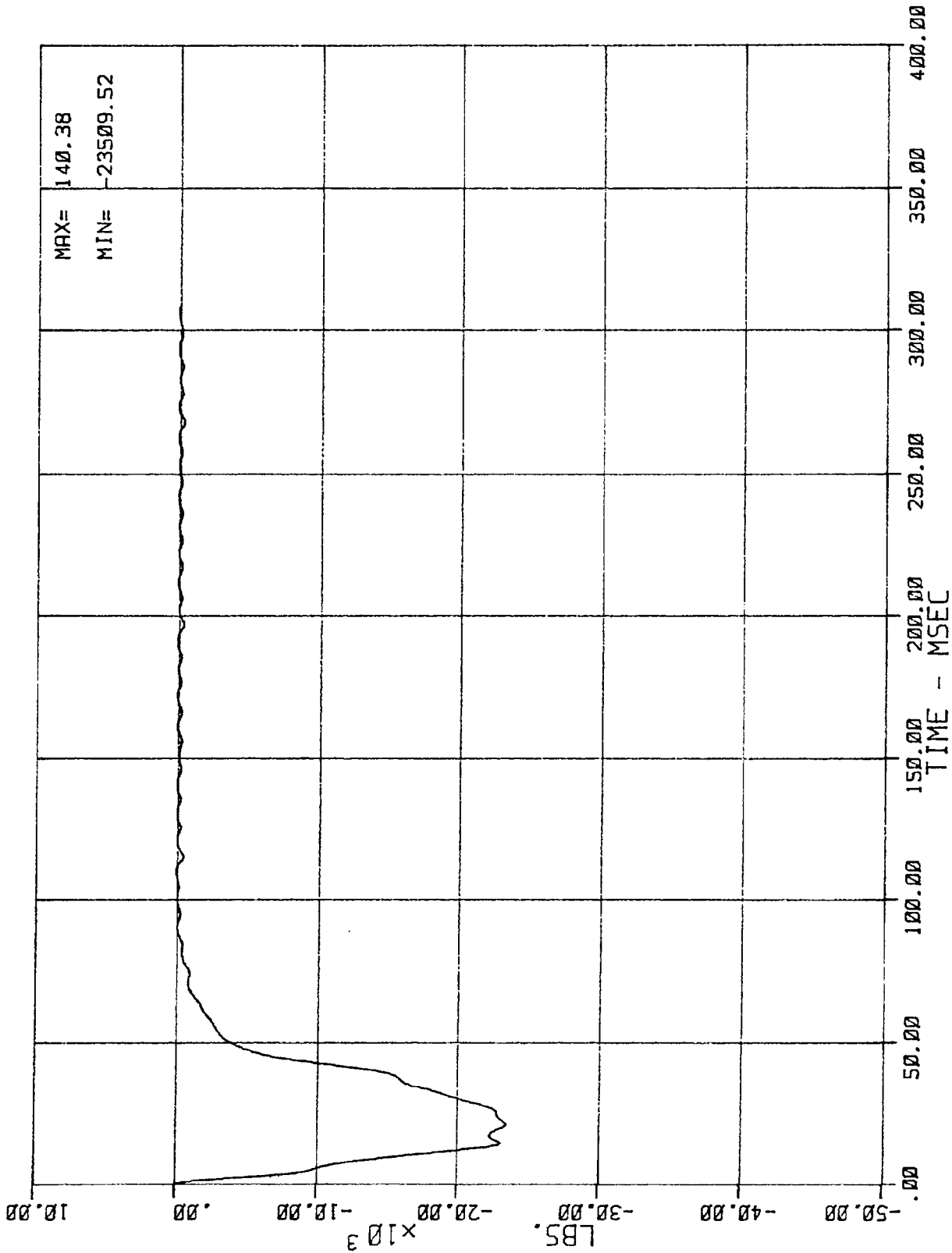
53 LC BA N BCS (BARRIER LOAD CELL C5 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

06/26/85



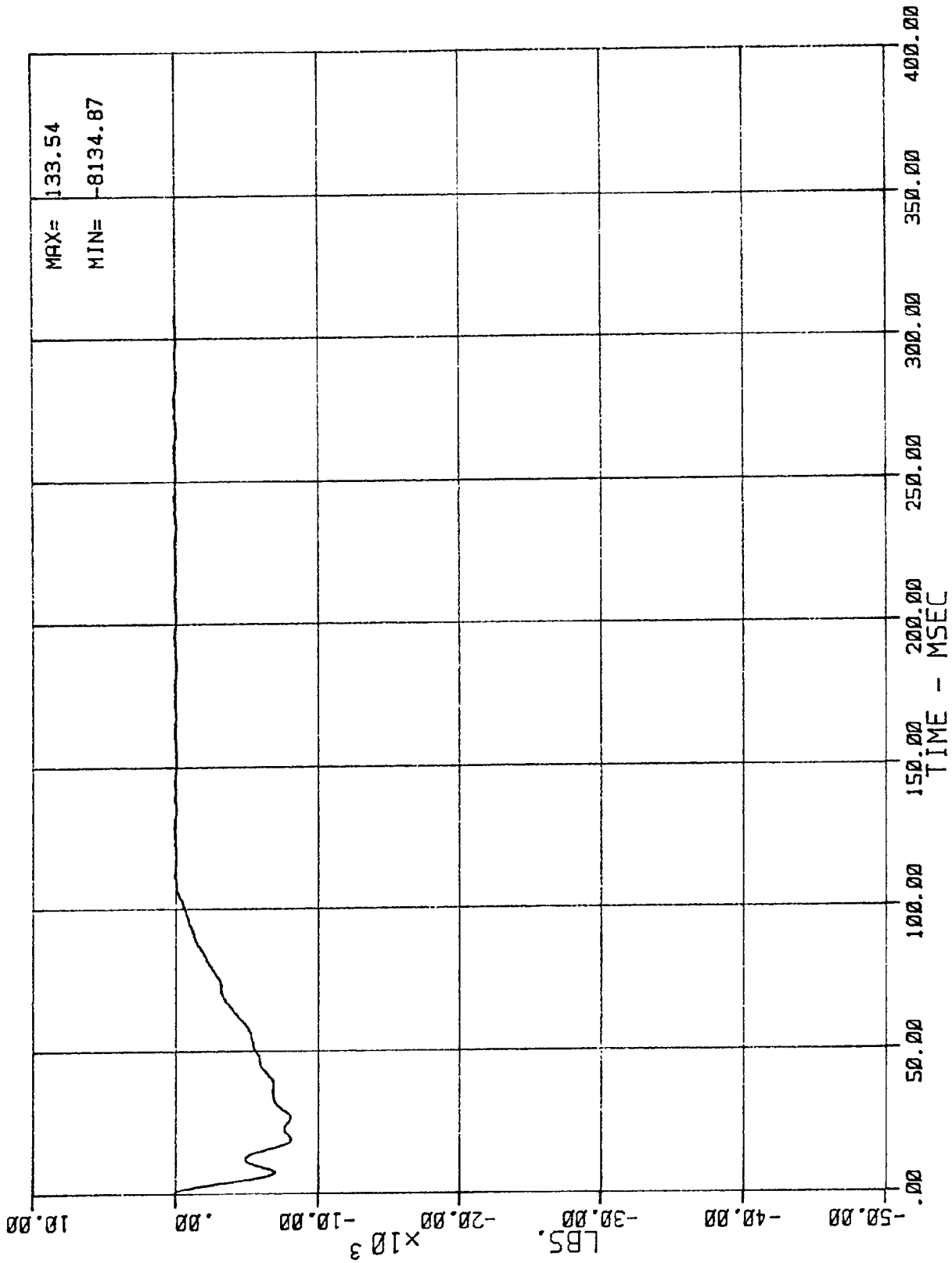
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MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



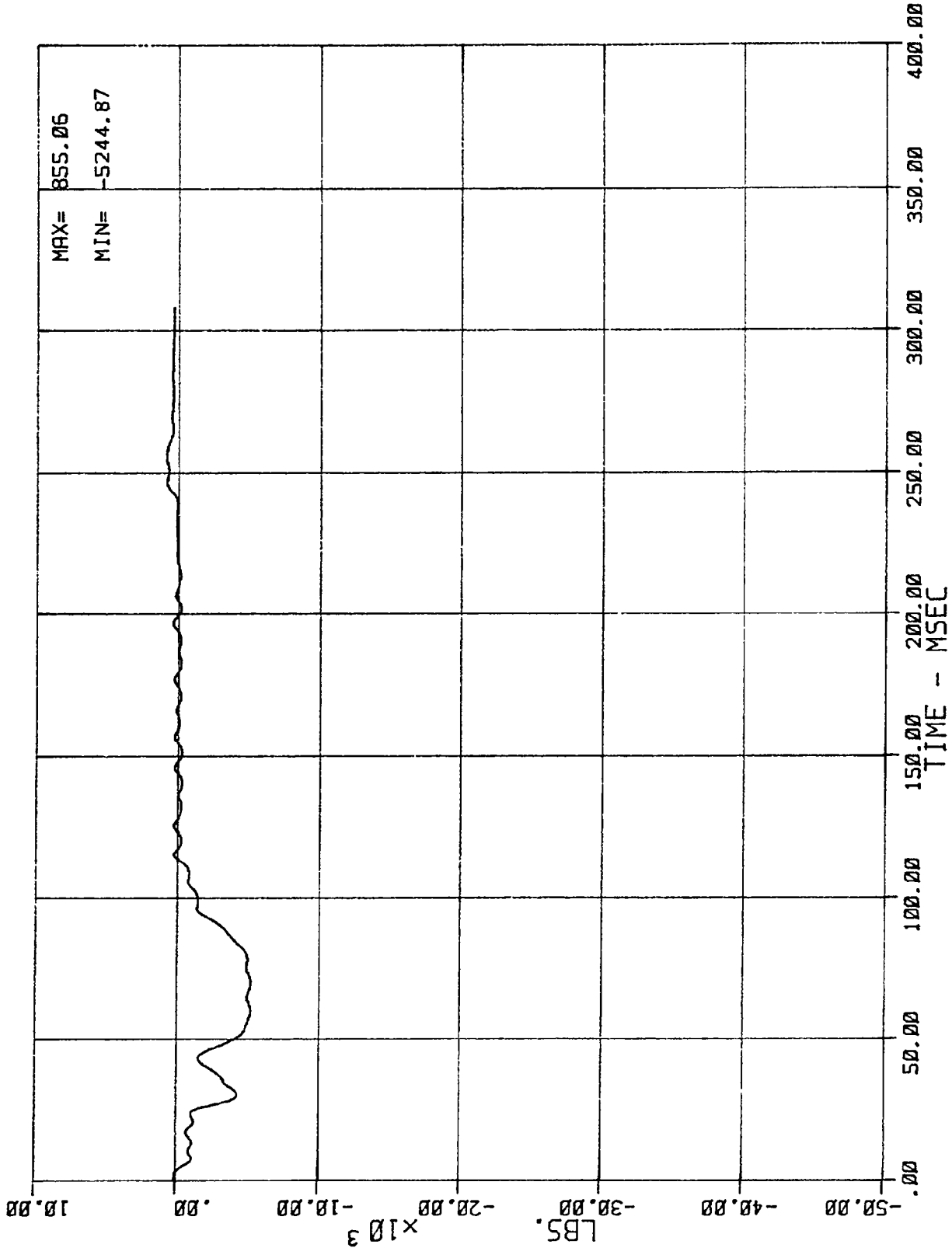
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 MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



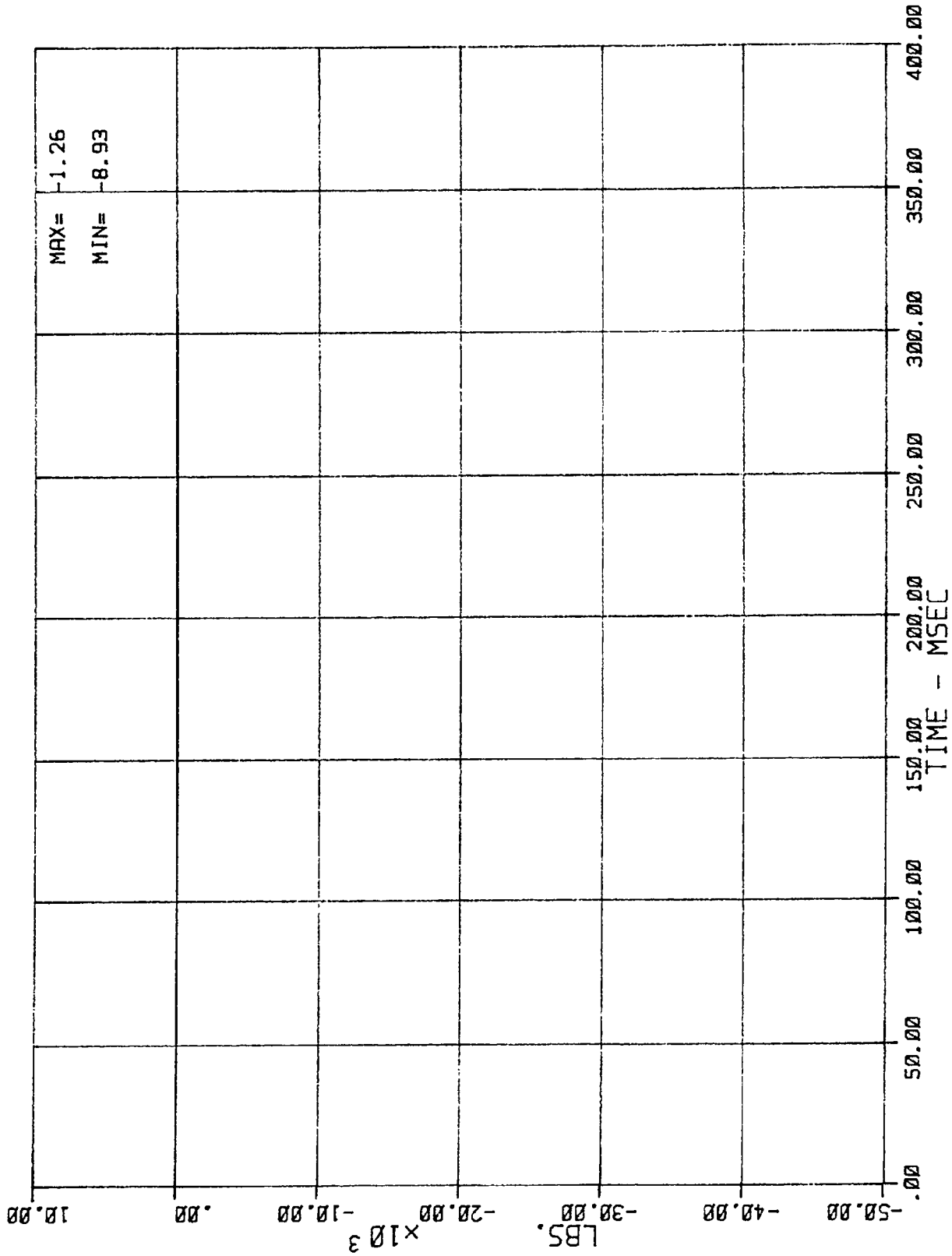
56 LC BA N BC8 (BARRIER LOAD CELL C8 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



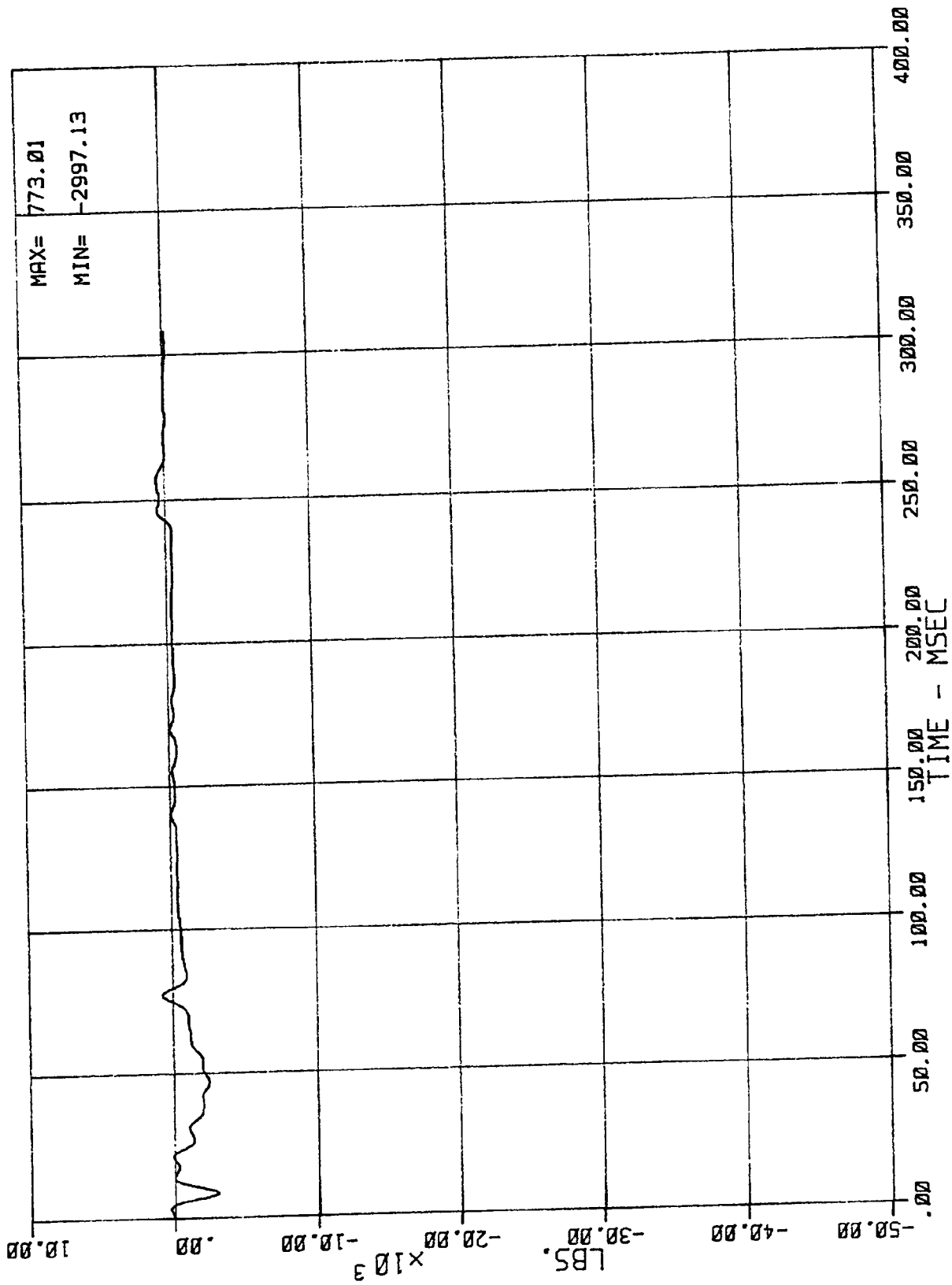
S7 LC BR N BC9 (BARRIER LOAD CELL C9 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



58 LC BA N BD1 (BARRIER LOAD CELL D1 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

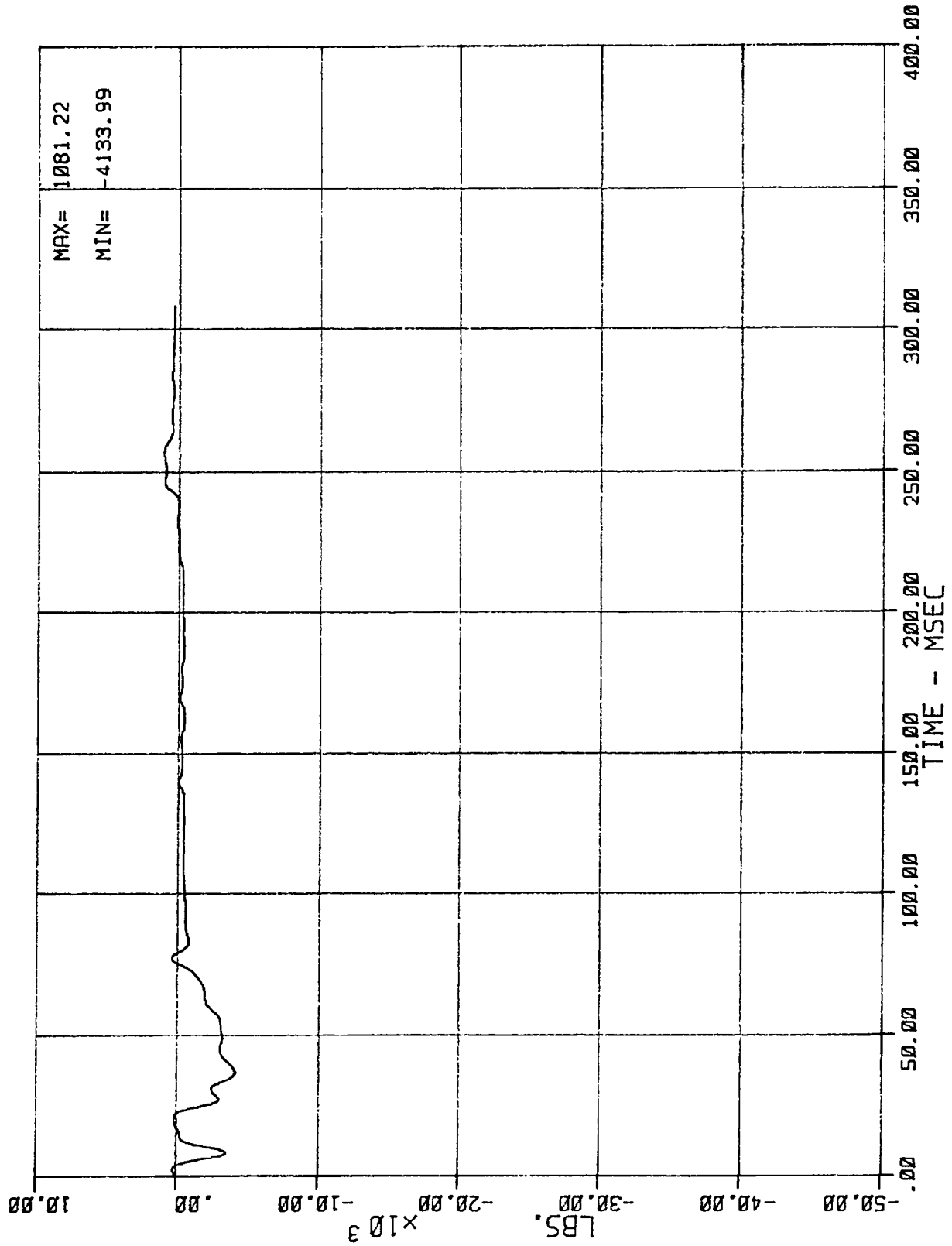
06/26/85



59 LC BA N B02 (BARRIER LOAD CELL D2 FORCE)
MSE N02055 1985 FORD E-150 CLB VGN

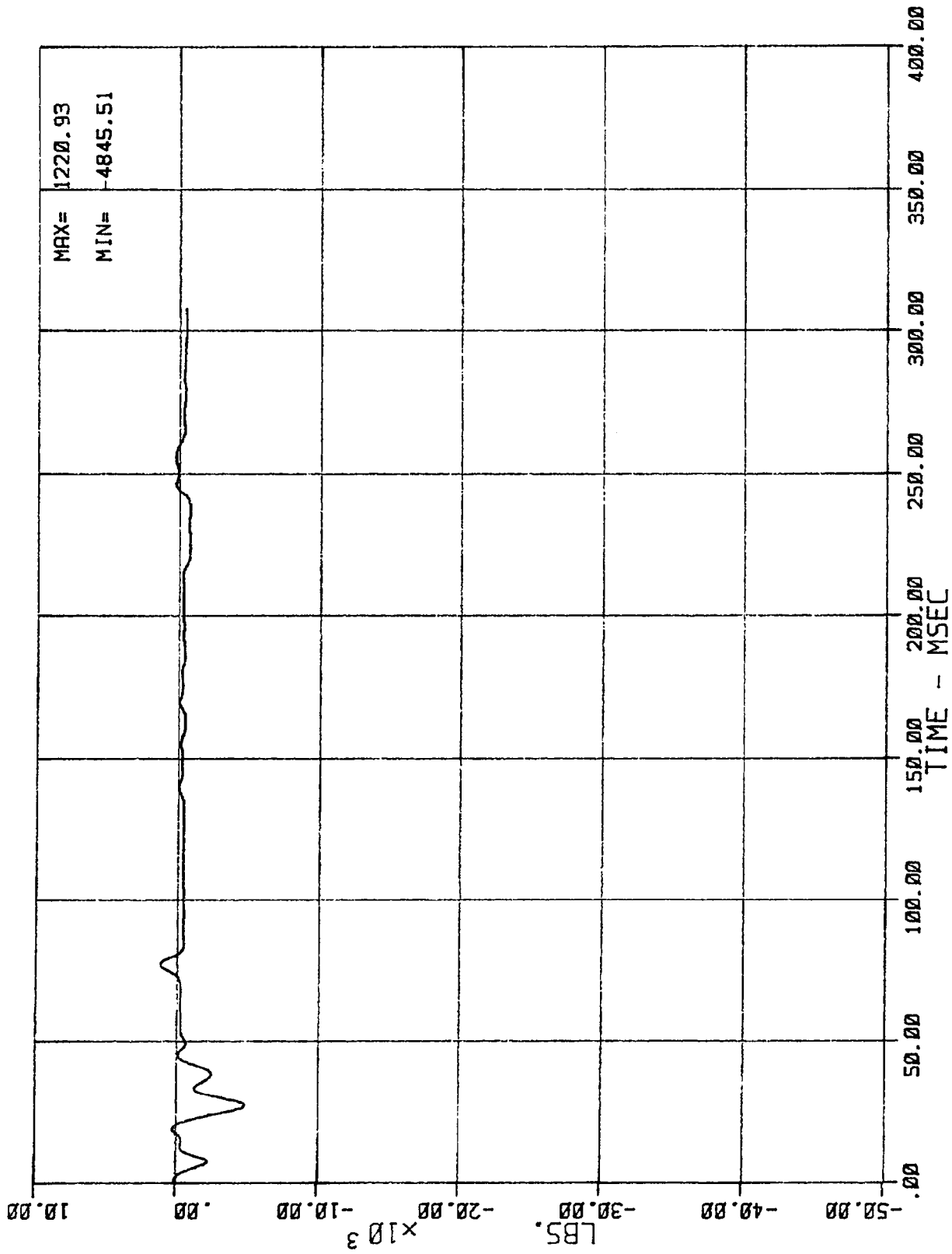
06/26/85

R5027-05



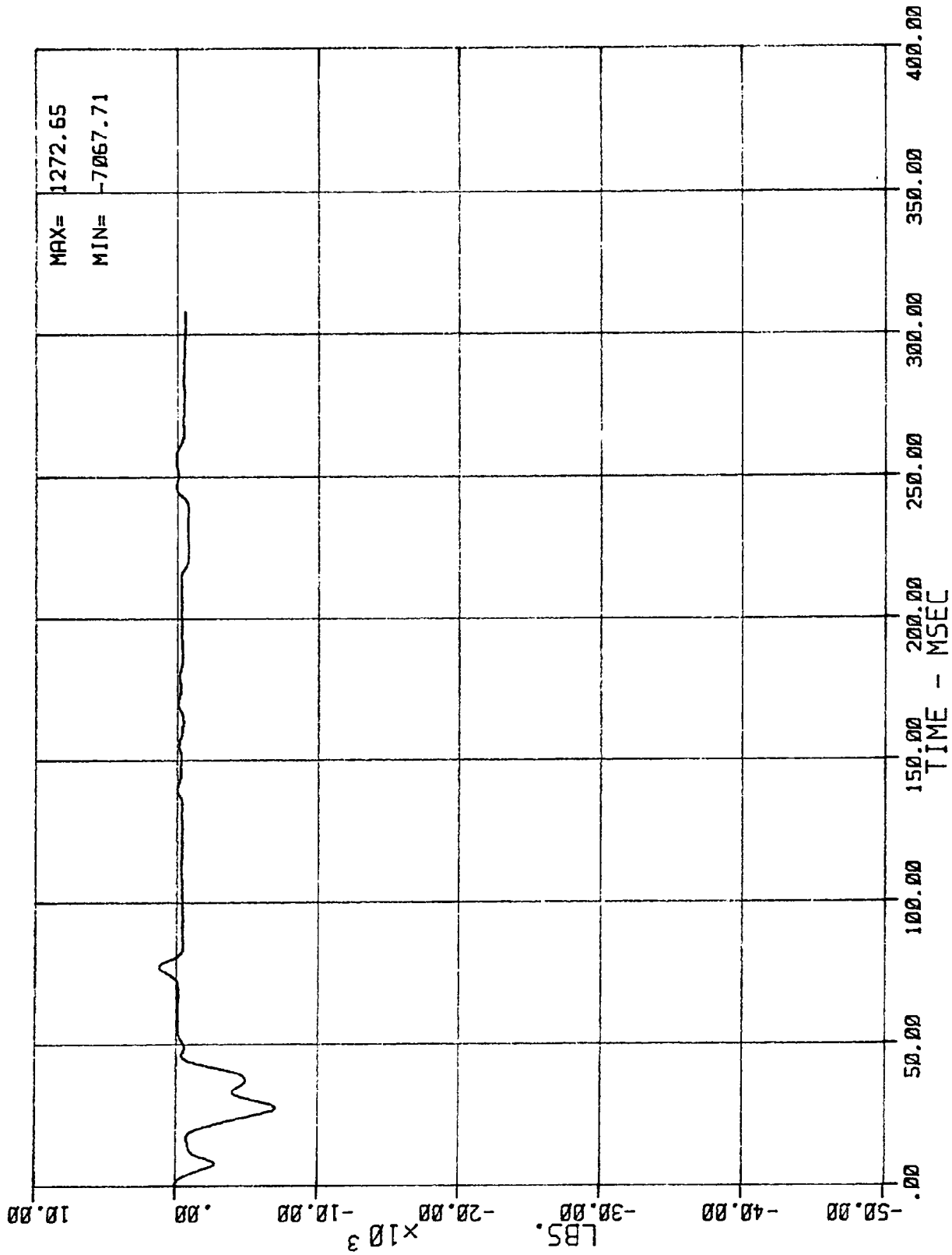
60 LC BA N 803 (BARRIER LOAD CELL D3 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



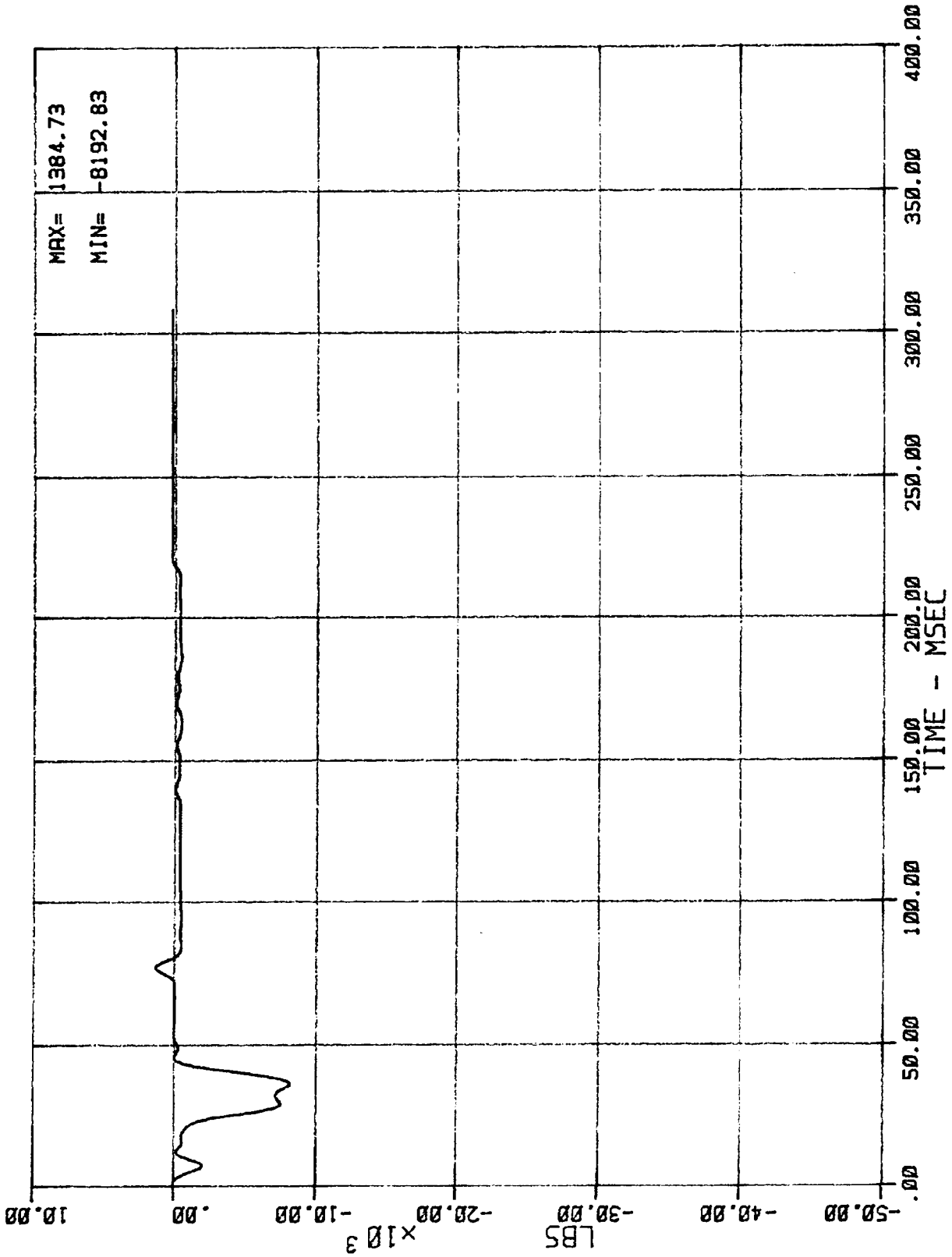
61 LC BR N BD4 (BARRIER LOAD CELL D4 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



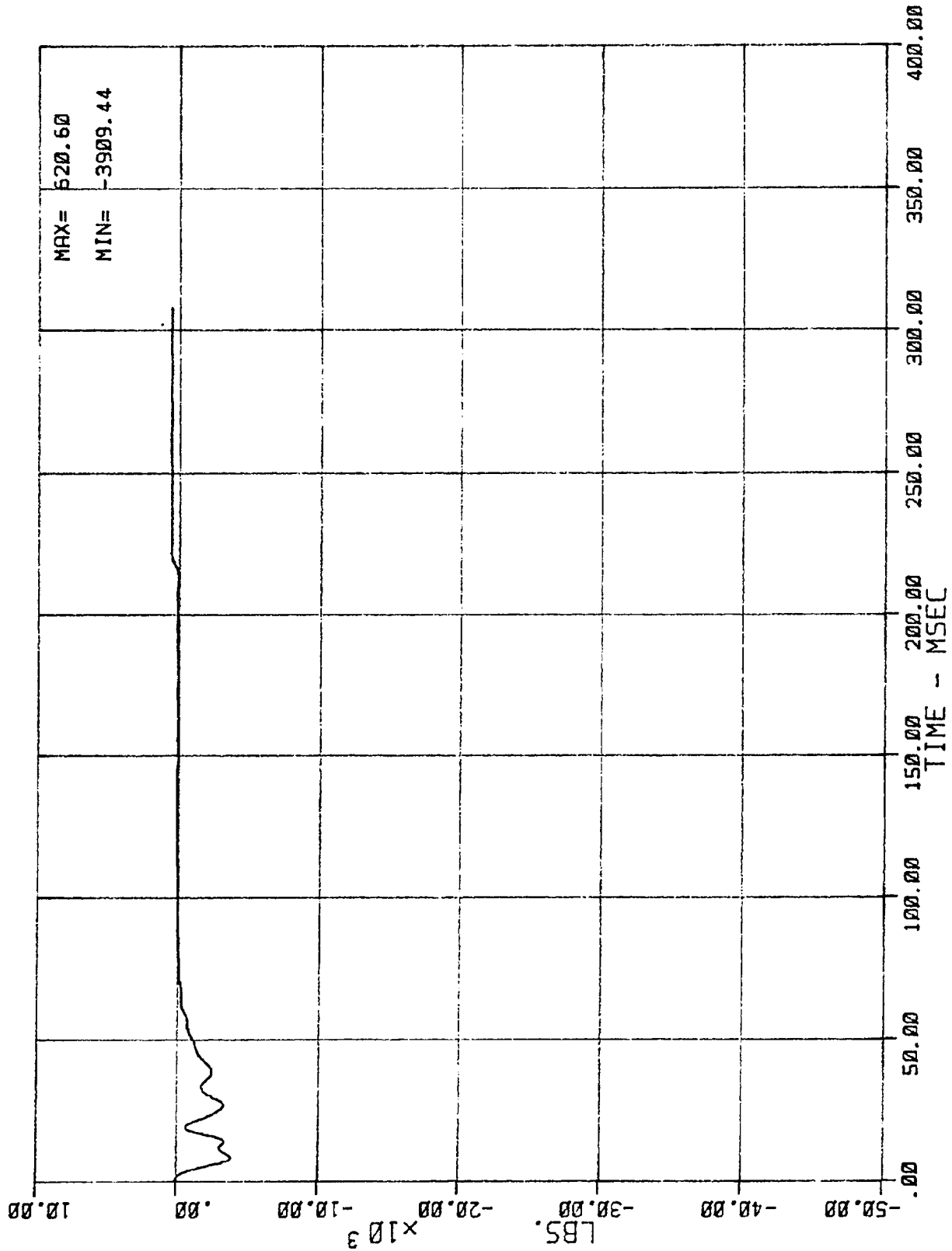
62 LC BA N BDS (BARRIER LOAD CELL D5 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



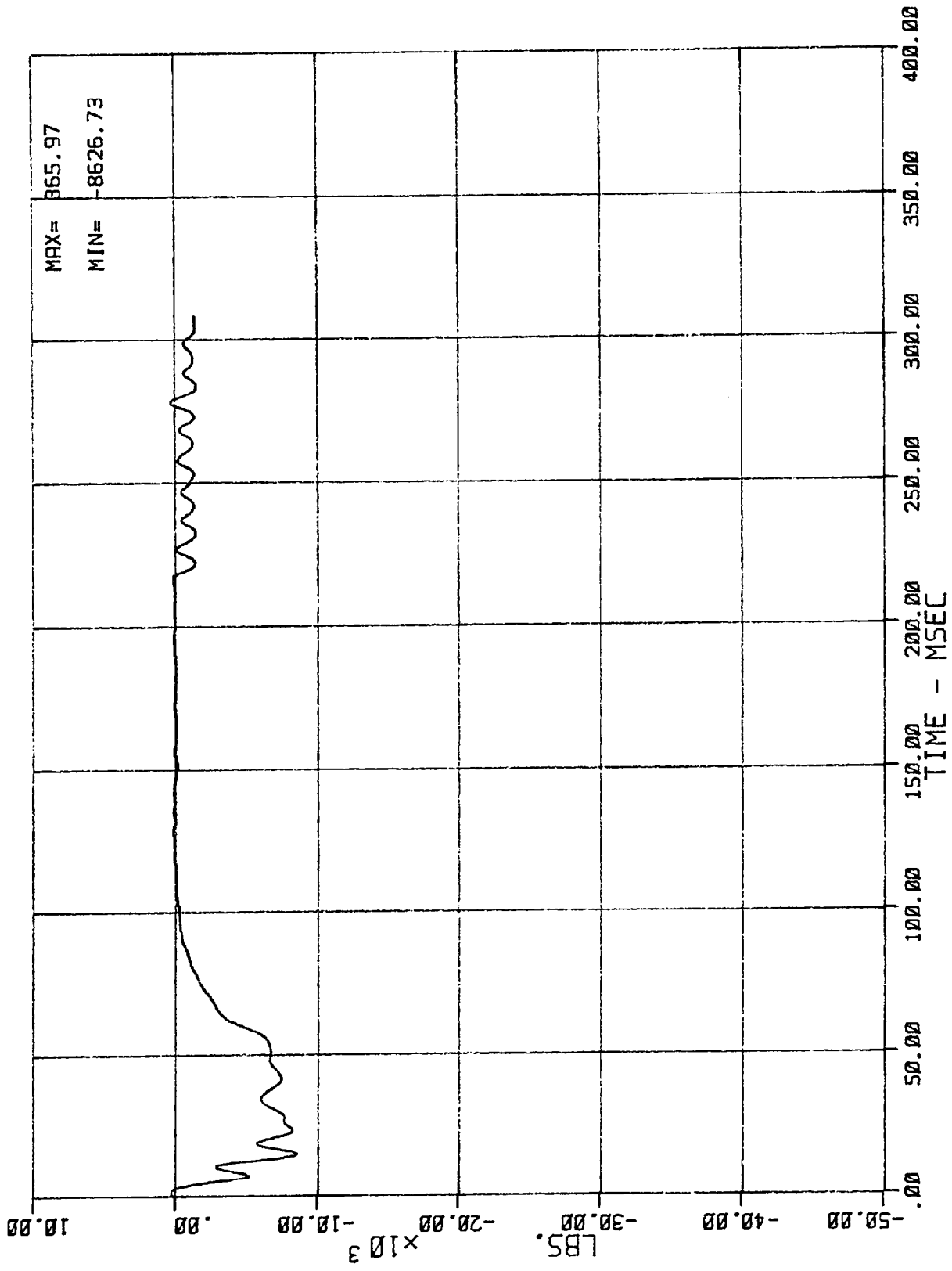
63 LC BR N 806 (BARRIER LOAD CELL D6 FORCE)
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06/26/85



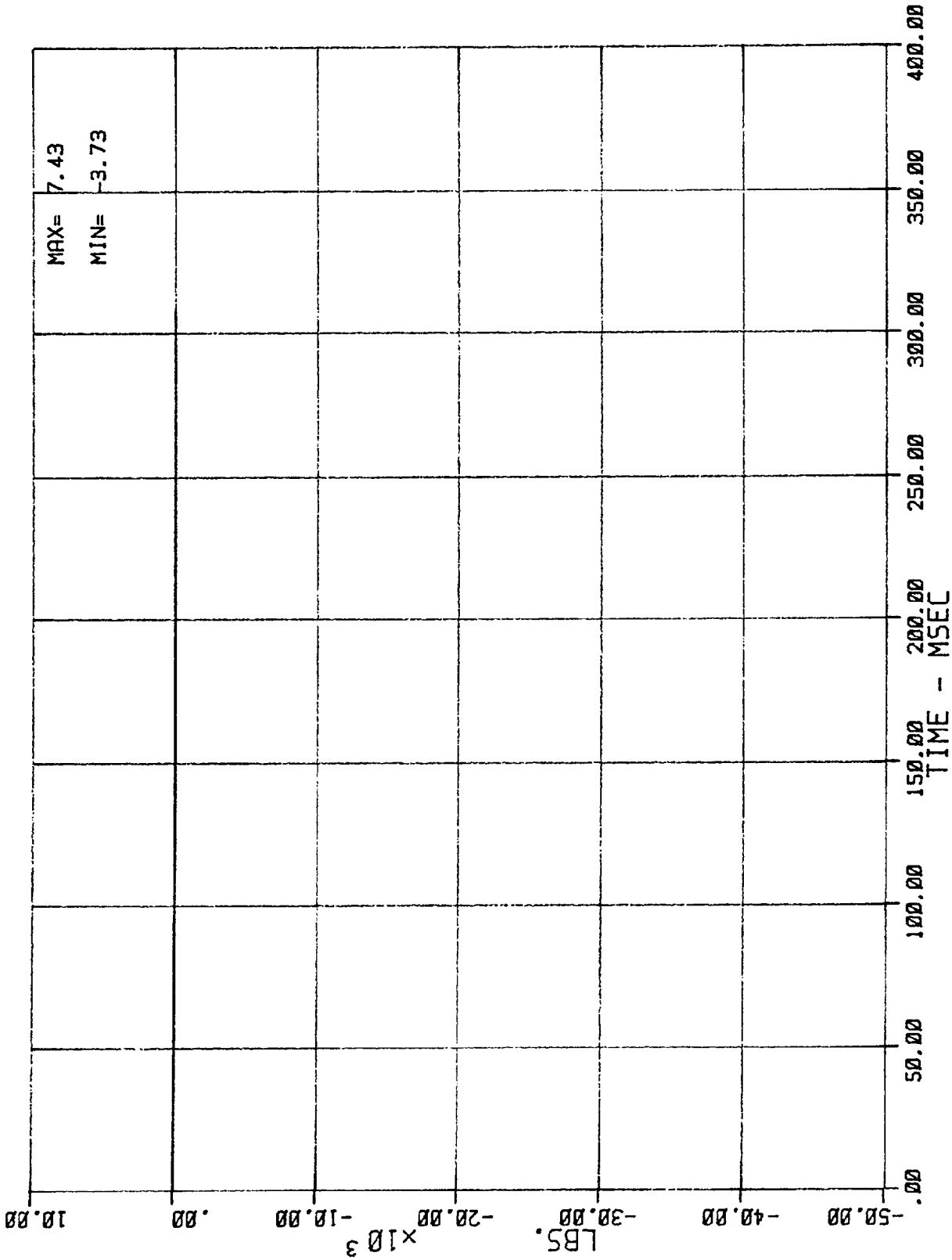
64 LC BA N BD7 (BARRIER LOAD CELL D7 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



65 LC BA N BU8 (BARRIER LOAD CELL DB FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85



66 LC BA N B09 (BARRIER LOAD CELL D9 FORCE)
MSE N02055 1985 FORD E-150 CLB WGN

06/26/85

APPENDIX C

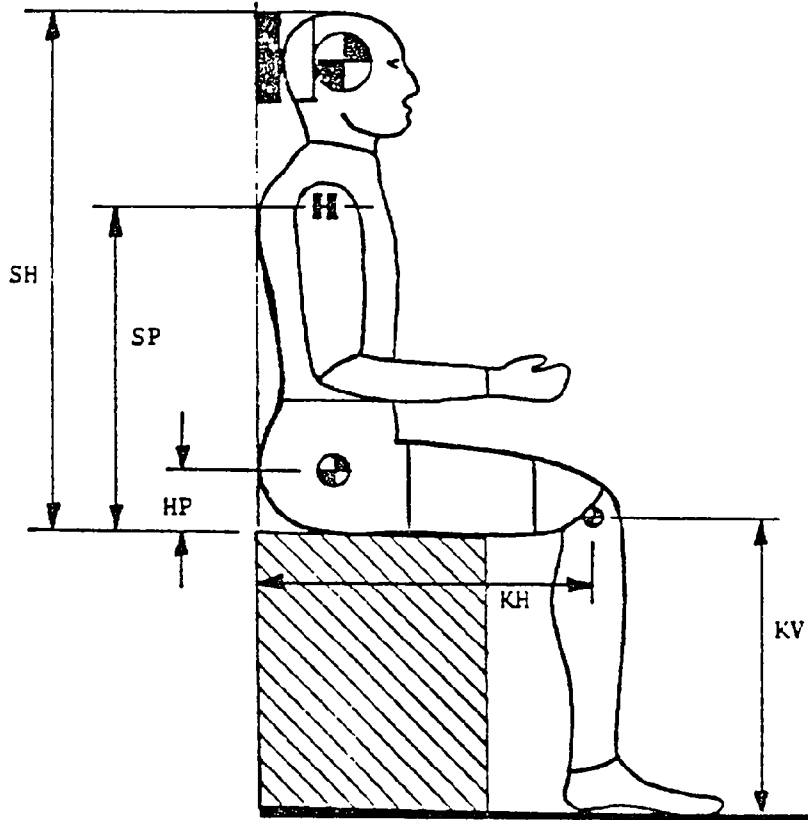
PART 572 DUMMY CONFIGURATION AND
PERFORMANCE VERIFICATION TESTS

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NO.:

4	6	5
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I. CONFIGURATION VERIFICATION DATA:



	P. 572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION		06/10 - 06/13/85	N/A
VERIFICATION NUMBER FOR DUMMY*		2	
SH - Seated Height- - - - -	35.6 to 35.8"	35.6	
SP - Shoulder Pivot Height- - - -	21.8 to 22.4"	22.1	
HP - Hip Pivot Height - - - - -	3.9" ref.	3.9	
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.5	
KV - Knee Pivot from floor- - - -	19.3 to 19.9"	19.4	
SW - Shoulder Width - - - - -	17.8 to 18.4"	18.3	
HW - Hip Width- - - - -	14.0 to 15.4"	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.: 465

LABORATORY TECHNICIAN: P. Leonard

		Pre-Test Calibration	Post-Test Calibration
DATE OF PERFORMANCE VERIFICATION		06/10-06/13/85	N/A
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY		2	
VERIF. LAB. TEMPERATURE (66 to 70% Range)		70 - 75°F	
VERIF. LAB. HUMIDITY (10 to 70% Range)		38 - 58 %	
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST:			
a. Peak Resultant Accel. -	210 to 260g	222	
b. Peak Lateral Accel. -	≤10g	8.0	
c. Time above 100G - - - -	0.9 to 1.5 ms	1.2	
2. NECK BENDING TEST:			
a. Pendulum Speed - - - -	21.5 to 25.5 fps	22.20	
b. Pendulum Avg. Decel. (over $t_3 - t_2$) - - - -	20 to 24G	23.7	
c. Peak Resultant Head Acceleration - - - - -	26G maximum	21.8	
d. Pendulum Decel. ($t_2 - t_1$)	≤3 ms	2.0	
e. Pendulum Decel. ($t_3 - t_2$)	25 to 30 ms	27.8	
f. Pendulum Decel. ($t_4 - t_3$)	≤ 10 ms	8.2	
g. Pendulum Direction Reversal Time - - - - -	≥123 ms	N/A	
h. Max. Head Rotation - -	63 to 73°	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	32.4
	Displ.	2.1 to 3.1 in.	2.56
60°	Time	40.3 to 51.7 ms	48.6
	Displ.	4.3 to 5.3 in.	4.87
Maximum	Time	53.2 to 66.8 ms	61.4
(°)	Displ.	5.0 to 6.0 in.	5.48

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	73.2	
	Disp.	4.3 to 5.3 in.	4.86	
30°	Time	85.4 to 104.6 ms	91.0	
	Displ.	2.1 to 3.1 in.	2.18	
0°	Time	101.0 to 123.0 ms	102.0	
	Displ.	-.5 to 0.5 in.	0.05	
3. ABDOMINAL COMPRESSION TEST: (Preload = 10 pounds)				
a. Force @ .5" - - - - -		23 - 36 lbs.	28.0	
b. Force @ .75" - - - - -		36 - 50 lbs.	41.5	
c. Force @ 1.0" - - - - -		50 - 63 lbs.	58.0	
d. Force @ 1.3" - - - - -		73 - 88 lbs.	85.0	
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - - -		22 to 34 lbs.	27.2	
b. Force @ 30° - - - - -		34 to 46 lbs.	36.8	
d. Force @ 40° - - - - -		46 to 58 lbs.	46.0	
e. Return Angle - - - - -		12° maximum	11	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - - -		21.78-22.22 fps	21.83	
(2) Peak Deflection -		1.7" maximum	1.55	
(3) Peak Resistive Force - - - - -		2250 lbs. maximum	1850	
(4) Internal Hysteresis - - -		50 to 70%	69.8	

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

NHTSA ATD I.D. NO.: 465

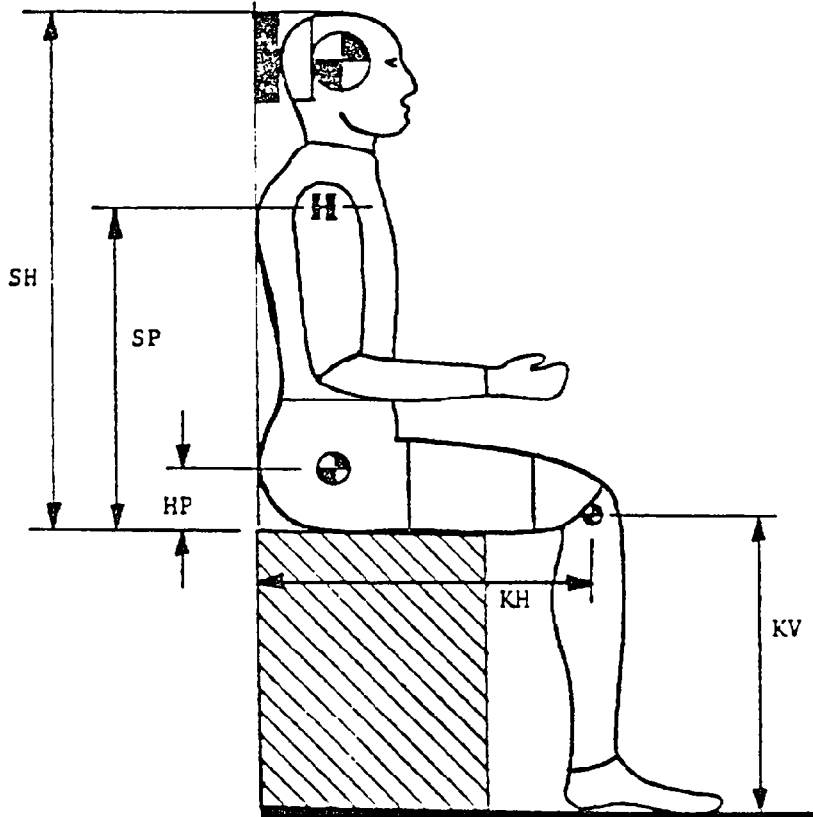
TEST PARAMETER	SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
5. CHEST IMPACT TESTS:			
Continued:			
b. Low Speed			
(1) Probe Speed - - -	13.86-14.14 fps	13.94	
(2) Peak Deflection -	1.1" maximum	1.02	
(3) Peak Resistive Force - - - - -	1450 lbs. maximum	1190	
(4) Internal Hysteresis - -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

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		06/10-06/13/85	
VERIFICATION NUMBER FOR DUMMY*		3	
SH - Seated Height- - - - -	35.6 to 35.8"	35.6	
SP - Shoulder Pivot Height- - - -	21.8 to 22.4"	21.9	
HP - Hip Pivot Height - - - - -	3.9" ref.	3.9	
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.6	
KV - Knee Pivot from floor- - - -	19.3 to 19.9"	19.5	
SW - Shoulder Width - - - - -	17.8 to 18.4"	18.0	
HW - Hip Width- - - - -	14.0 to 15.4"	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.: 466

LABORATORY TECHNICIAN: P. Leonard

		Pre-Test Calibration	Post-Test Calibration
DATE OF PERFORMANCE VERIFICATION		06/10-06/13	N/A
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY		3	
VERIF. LAB. TEMPERATURE (66 to 70% Range)		70-74°F	
VERIF. LAB. HUMIDITY (10 to 70% Range)		46-56 %	
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST:			
a. Peak Resultant Accel. -	210 to 260g	234	
b. Peak Lateral Accel. - -	≤10g	1.0	
c. Time above 100G - - - -	0.9 to 1.5 ms	1.2	
2. NECK BENDING TEST:			
a. Pendulum Speed - - - -	21.5 to 25.5 fps	22.20	
b. Pendulum Avg. Decel. (over $t_3 - t_2$) - - - -	20 to 24G	23.9	
c. Peak Resultant Head Acceleration - - - - -	26G maximum	22.3	
d. Pendulum Decel. ($t_2 - t_1$)	≤3 ms	1.8	
e. Pendulum Decel. ($t_3 - t_2$)	25 to 30 ms	28.4	
f. Pendulum Decel. ($t_4 - t_3$)	≤10 ms	8.2	
g. Pendulum Direction Reversal Time - - - - -	≥123 ms	N/A	
h. Max. Head Rotation - -	63 to 73°	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	33.4
	Displ.	2.1 to 3.1 in.	2.65
60°	Time	40.3 to 51.7 ms	51.6
	Displ.	4.3 to 5.3 in.	5.10
Maximum (°)	Time	53.2 to 66.8 ms	60.8
	Displ.	5.0 to 6.0 in.	5.52

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	71.6
	Disp.	4.3 to 5.3 in.	5.13
30°	Time	85.4 to 104.6 ms	87.4
	Displ.	2.1 to 3.1 in.	2.51
0°	Time	101.0 to 123.0 ms	101.0
	Displ.	-.5 to 0.5 in.	0.17
3. ABDOMINAL COMPRESSION TEST:			
(Preload = 10 pounds)			
a. Force @ .5" - - - - -	23 - 36 lbs.	25.5	
b. Force @ .75" - - - - -	36 - 50 lbs.	39.0	
c. Force @ 1.0" - - - - -	50 - 63 lbs.	58.0	
d. Force @ 1.3" - - - - -	73 - 88 lbs.	88.0	
4. LUMBAR FLEXION TEST:			
a. Force @ 20° - - - - -	22 to 34 lbs.	26.0	
b. Force @ 30° - - - - -	34 to 46 lbs.	39.2	
d. Force @ 40° - - - - -	46 to 58 lbs.	54.0	
e. Return Angle - - - - -	12° maximum	7	
5. CHEST IMPACT TESTS:			
a. High Speed			
(1) Probe Speed - - -	21.78-22.22 fps	21.80	
(2) Peak Deflection -	1.7" maximum	1.70	
(3) Peak Resistive Force - - - - -	2250 lbs. maximum	1870	
(4) Internal Hysteresis - - -	50 to 70%	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	13.87	
(2) Peak Deflection -	1.1" maximum	0.98	
(3) Peak Resistive Force - - - - -	1450 lbs. maximum	1210	
(4) Internal Hysteresis - - -	50 to 70%	60.7	
6. KNEE IMPACT TESTS:			
a. Right Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	7.02	
(2) Maximum Force - -	1850 to 2500 lbs.	2090	
(3) Time Above 1000#-	1.7 ms minimum	1.80	
b. Left Side			
(1) Probe Speed - - -	6.76 to 7.04 fps	7.01	
(2) Maximum Force - -	1850 to 2500 lbs.	1850	
(3) Time Above 1000#-	1.7 ms. minimum	2.00	

APPENDIX D

VEHICLE'S OWNERS MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

BEFORE DRIVING YOUR VEHICLE

OCCUPANT RESTRAINTS

Ford Motor Company recommends that you always "buckle up." In some areas, seat belt use is required by law. Your Econoline features a seat belt warning system for the driver's seat and an Emergency Locking Retractor belt system for the front seating positions.

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

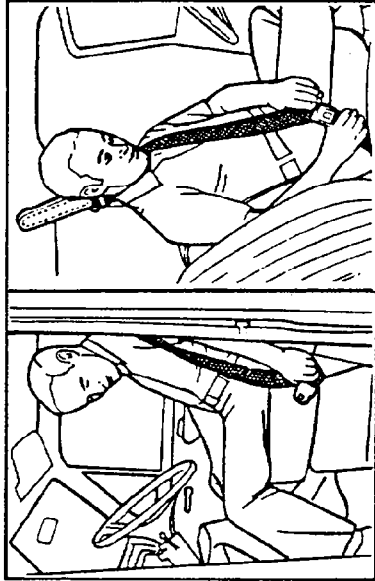
The second seat is equipped with lap belts which have automatic locking retractors at the outboard positions (except on 11, 12, and 15 passenger vehicles which will be equipped same as third seat). The center position of the second bench seat and all positions of the third, fourth and fifth seats (if so equipped) have lap belts with mini-buckles.

Front Lap-Shoulder Belts

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

- Pull the lap-shoulder belt from the retractor so the shoulder portion of the belt crosses your shoulder and chest and insert the belt tongue into the proper buckle until you hear a snap and feel it latch.
- The lap and shoulder belts adjust automatically to a snug position. On vehicles equipped with Captain's Chairs, the lap portion of the belt must be fitted below the arm rests. The shoulder

BEFORE DRIVING YOUR VEHICLE



portion of the belt must be fitted above the arm rest on the door side and below the arm rest on the buckle side.

- The belt system retractor allows freedom of movement, locking tight only on hard braking or impacts. The retractor cannot be made to lock up by jerking on the webbing.

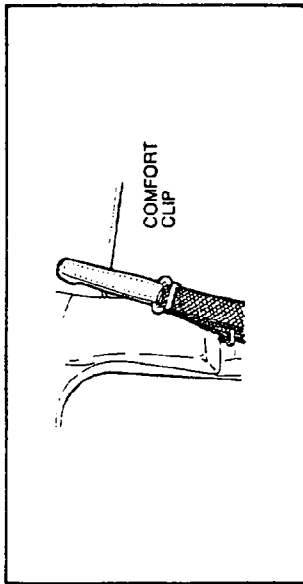
If you should jam the lap or shoulder belt retractor by allowing the belt to retract when twisted, you may free the webbing by pulling on the webbing.

NOTE — To insure that the lap-shoulder belt does not become entangled with the arm rests on the Captain's Chairs, place the arm rests in the up position before fastening the belts and always remove the lap-shoulder belt before rotating the Captain's Chair.

Adjusting Shoulder Belt (Early 1985 Models)

To relieve belt pressure on your shoulder after the shoulder belt is fastened, slide the shoulder harness "comfort clip" to a position that provides a comfortable shoulder harness length.

BEFORE DRIVING YOUR VEHICLE



Adjustment Procedure for Deluxe Seat Belts with Tension Reliever (Some Later 1985 Models)

To set the tension reliever the shoulder belt initially should be positioned against the chest. If the belt is not snug the tension reliever may be engaged. Disengagement should be accomplished by the following procedure:

Pull the shoulder belt outward 4 to 5 inches (10 to 13 cm). Then release it and allow belt to fully retract. Repeat procedure if belt is not snug to the chest.

Now the belt tension may be adjusted by pulling down slightly on the shoulder belt and releasing. The least amount of slack needed to relieve tension but not more than 1½ inches (3.8 cm) should be chosen when using the tension reliever system.

- If the desired setting is not achieved or excess slack develops as you change seat position, repeat the above procedure.
- When the door is opened, the tension reliever will release automatically, permitting the lap-shoulder belt to retract. After unbuckling the belt it is recommended that you guide the tongue during retraction to prevent it from striking you or the vehicle.

BEFORE DRIVING YOUR VEHICLE

WARNING — Never allow more than 1½ inches (3.8 cm) of slack to be introduced into your seat belt system. Never wear the shoulder belt under the arm. Never swing it around your neck over the inside shoulder. Never use a single belt for more than one person. Be sure the lap portion of the belt is fitted snugly around the hips, not on the waist. Use shoulder belt on outside shoulder only. Failure to follow these precautions could increase the chance and/or severity of injury in an accident.

Lap Belts (Second Seat Outboard Belts) (Bench Seat or Captain's Chairs) (Except on 11, 12 and 15 Passenger Vehicles Which Will Be Equipped Same As Third Seat)

To fasten the second seat outboard lap belts pull the belt out of the retractor with a steady motion and insert it into the buckle until you hear a snap and feel the latch engage. Do not place any portion of the belt over the arm rest.

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

- Pull on the belt with both hands to tighten it on the retractor spool.
- Feed the belt back into the retractor until it is completely retracted. Repeat previous step if necessary.
- Pull the belt out of the retractor as far as it will go.
- Remove any foreign matter or untwist the belt and let the belt retract.
- Extend and retract belt about five times to make sure the belt retractor operates properly.

BEFORE DRIVING YOUR VEHICLE

Lap Belts (2nd Seat Center; all 3rd, 4th and 5th Seat Positions; all 2nd Seats on 11, 12, and 15 Passenger Vehicles and Seat/Bed Applications)

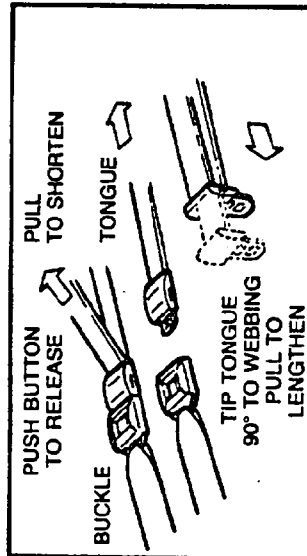
The lap belts don't have retractors. To lengthen the belt, tip the tongue at a right angle to the belt, and pull the tongue until the ends can be joined over the lap.

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

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

Unfastening Seat Belts

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



Seat Belt Extension Assembly

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

BEFORE DRIVING YOUR VEHICLE

The seat belt extension assembly can be used in all seating positions.

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

Seat Belt Maintenance

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

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

Infant and Child Restraints

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

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

Never leave a child unattended in your vehicle. Always remove the key from the ignition and take it with you.