

V1878

REPORT NO. TRC-92-N08

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

FORD MOTOR COMPANY
1993 FORD PROBE
3-DOOR HATCHBACK
NHTSA NO. MP0206
TRC TEST NO. 930211

PREPARED BY:
TRANSPORTATION RESEARCH CENTER INC.
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EAST LIBERTY, OHIO 43319



MARCH 8, 1993

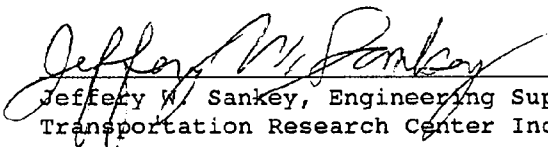
FINAL REPORT

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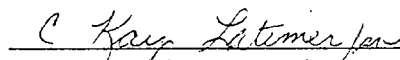
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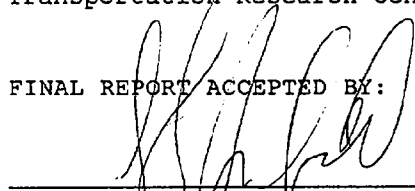
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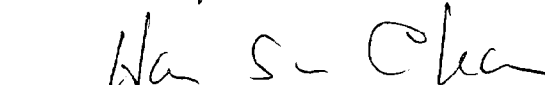
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Date **APR 08 1993**

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<p>16. Abstract</p> <p>A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1993 Ford Probe 3-door hatchback, NHTSA No. MP0206, at Transportation Research Center Inc. on February 11, 1993. This test was conducted to obtain new car assessment and research data indicant of FMVSS 208, 212, 219 (partial), and 301 performance. The barrier impact velocity was 56.3 kph. The vehicle's maximum static crush was 498 millimeters. The ambient temperature was 20° C.</p> <p>The driver's head injury criteria (HIC) was 784. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 57.5 g. The driver's left and right femur maximum axial forces were 6307 N and 5333 N, respectively.</p> <p>The passenger's head injury criteria (HIC) was 995. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 50.2 g. The passenger's left and right femur maximum axial forces were 2673 N and 2234 N, respectively.</p>			
17. Key Words 56.3 KPH (35 MPH) Frontal Barrier Impact Test: New Car Assessment Program (NCAP) FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Retention" FMVSS 219, "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division Nassif Building, Room 5108 400 Seventh Street, S.W. Washington, DC 20590	
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	*2.5	centimeters	cm
ft	feet	30	meters	m
yd	yards	0.9	kilometers	km
mi	miles	1.6		
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³

TEMPERATURE (exact)

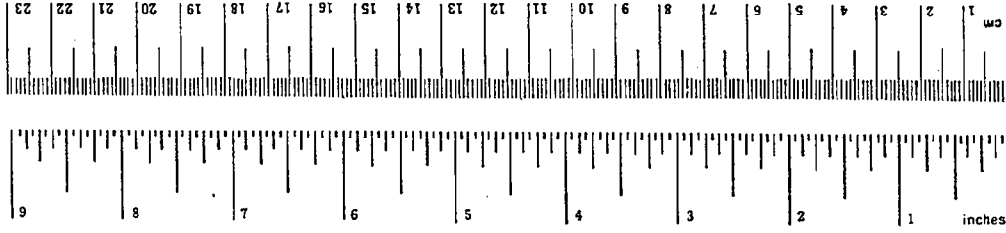
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³

TEMPERATURE (exact)

°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F
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* 1 in = 2.54 (exactly). For other exact conversions and more detail tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Chart No. C13.1D.286.

TABLE OF CONTENTS

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1.0	PURPOSE AND TEST PROCEDURE	1-1
2.0	FRONTAL BARRIER IMPACT TEST SUMMARY	2-1
3.0	FMVSS 212, 219 (PARTIAL), & 301 INDICANT DATA	3-1
4.0	OCCUPANT, CAMERA, & VEHICLE INFORMATION	4-1
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	DATA PLOTS	B-1
APPENDIX C	DUMMY CERTIFICATION DATA	C-1
APPENDIX D	MISCELLANEOUS TEST INFORMATION	D-1
APPENDIX E	RESTRAINT SYSTEM INSTRUCTIONS FROM OWNER'S MANUAL	E-1

LIST OF TABLES

<u>NUMBER</u>	<u>TITLE</u>	<u>PAGE</u>
1	CRASH TEST SUMMARY	2-3
2	TEST VEHICLE INFORMATION	2-4
3	POST-IMPACT DATA	2-7
4	VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY	2-11
5	POST-IMPACT DUMMY/VEHICLE DATA	2-12
6	FMVSS 208 DATA SUMMARY	2-13
7	SEAT BELT PERFORMANCE ASSESSMENT TEST DATA	2-15
8	LOAD CELL BARRIER DATA SUMMARY	2-17
9	FUEL SYSTEM DATA	3-4
10	FMVSS 301 POST-IMPACT TEST DATA	3-5
11	DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS	4-3
12	MOTION PICTURE CAMERA LOCATIONS	4-7
13	IMPACTED VEHICLE MEASUREMENTS	4-10

LIST OF FIGURES

<u>NUMBER</u>	<u>TITLE</u>	<u>PAGE</u>
1	IMPACT VELOCITY MEASUREMENT SYSTEM	2-8
2	ACCIDENT INVESTIGATION DIVISION-DATA FOR 56 KPH (35 MPH) FRONTAL BARRIER IMPACT	2-9
3	VEHICLE ACCELEROMETER PLACEMENT	2-10
4	LOAD CELL BARRIER CONFIGURATION	2-16
5	FMVSS 212 TEST DATA	3-2
6	FMVSS 219 TEST DATA	3-3
7	FMVSS 301 STATIC ROLLOVER TEST DATA	3-6
8	DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS	4-2
9	SEAT BELT POSITIONING DATA	4-4
10	CAMERA POSITIONS DIAGRAM	4-5
11	VEHICLE TARGET LOCATIONS	4-8
12	PRE-TEST AND POST-TEST MEASUREMENT POINTS	4-9

LIST OF PHOTOGRAPHS

<u>DESCRIPTION</u>	<u>FIGURE</u>
PRE-TEST FRONT VIEW	A-1
POST-TEST FRONT VIEW	A-2
PRE-TEST LEFT SIDE VIEW	A-3
POST-TEST LEFT SIDE VIEW	A-4
PRE-TEST REAR VIEW	A-5
POST-TEST REAR VIEW	A-6
PRE-TEST RIGHT SIDE VIEW	A-7
POST-TEST RIGHT SIDE VIEW	A-8
PRE-TEST RIGHT FRONT THREE-QUARTER VIEW	A-9
POST-TEST RIGHT FRONT THREE-QUARTER VIEW	A-10
PRE-TEST LEFT REAR THREE-QUARTER VIEW	A-11
POST-TEST LEFT REAR THREE-QUARTER VIEW	A-12
PRE-TEST WINDSHIELD VIEW	A-13
POST-TEST WINDSHIELD VIEW	A-14
PRE-TEST ENGINE COMPARTMENT VIEW	A-15
POST-TEST ENGINE COMPARTMENT VIEW	A-16
PRE-TEST FUEL FILLER CAP VIEW	A-17
POST-TEST FUEL FILLER CAP VIEW	A-18
PRE-TEST FUEL FILLER NECK VIEW	A-19
POST-TEST FUEL FILLER NECK VIEW	A-20
PRE-TEST FUEL TANK VIEW	A-21
POST-TEST FUEL TANK VIEW	A-22
PRE-TEST FRONT UNDERBODY VIEW	A-23
POST-TEST FRONT UNDERBODY VIEW	A-24
PRE-TEST REAR UNDERBODY VIEW	A-25
POST-TEST REAR UNDERBODY VIEW	A-26
PRE-TEST DRIVER DUMMY POSITION VIEW	A-27
POST-TEST DRIVER DUMMY POSITION VIEW	A-28
PRE-TEST PASSENGER DUMMY POSITION VIEW	A-29
POST-TEST PASSENGER DUMMY POSITION VIEW	A-30
PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1	A-31
POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1	A-32

LIST OF PHOTOGRAPHS, CONTINUED

<u>DESCRIPTION</u>	<u>FIGURE</u>
PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2	A-33
POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2	A-34
PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1	A-35
POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1	A-36
PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2	A-37
POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2	A-38
POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 1	A-39
POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 2	A-40
POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 1	A-41
POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 2	A-42
POST-TEST PASSENGER DUMMY HEAD CONTACT VIEW	A-43
POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 1	A-44
POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 2	A-45
PRE-TEST VEHICLE CERTIFICATION LABEL VIEW	A-46
PRE-TEST VEHICLE RECOMMENDED TIRE PRESSURE LABEL VIEW	A-47
POST-TEST VEHICLE ON STATIC ROLLOVER MACHINE VIEW	A-48

SECTION 1.0

PURPOSE AND TEST PROCEDURE

PURPOSE

This 56 kph (35 mph) frontal barrier impact test is part of the New Car Assessment Program (NCAP) conducted for the National Highway Traffic Safety Administration's (NHTSA) Office of Market Incentives by Transportation Research Center Inc. (TRC) under Contract No. DTNH22-90-D-22121.

The purpose of this test was to obtain new car assessment and research data for vehicle crashworthiness and occupant restraint system performance for the subject vehicle, a 1993 Ford Probe 3-door hatchback, NHTSA No. MP0206, at an impact speed in excess of the current 48 kph (30 mph) FMVSS 208 requirements.

TEST PROCEDURE

This test was conducted in accordance with NHTSA's Laboratory Indicant Test Procedure, New Car Assessment Program, dated January 1, 1990. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219 (partial), "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity," performance.

The test vehicle was instrumented with nine (9) accelerometers to measure longitudinal axis accelerations. The driver's and passenger's restraint systems were instrumented with four (4) seat belt load cells to measure lap belt tension and shoulder belt tension, two (2) string potentiometers to measure shoulder belt displacement, and two (2) linear potentiometers to measure shoulder belt stretch. The vehicle impacted a frontal load cell barrier instrumented with thirty-six (36) barrier face load cells. The vehicle's specified impact velocity range was 55.5 to 57.1 kph.

The test vehicle contained two (2) Part 572B 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedures specified in Appendices VII and VIII of the Laboratory Indicant Test Procedure.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, and with left and right femur load cells to measure axial forces.

The sixty-nine (69) data channels were multiplexed and recorded on two (2) 14-track tape drives. The data was digitally sampled at 8000 samples per second and processed per section IP11 of the Laboratory Indicant Test Procedure.

The crash event was recorded by one (1) real-time panning motion picture camera and sixteen (16) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

The vehicle, occupant, and load cell barrier data are presented in Section 2.0. The FMVSS 212, 219 (partial) and 301 data are presented in Section 3.0. The occupant, camera, and vehicle measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy, vehicle, and load cell barrier data plots. Appendix C contains the dummy certification data. Appendix D contains miscellaneous test information. Appendix E contains the restraint system instructions from the owner's manual.

SECTION 2.0

FRONTAL BARRIER IMPACT TEST SUMMARY

TEST RESULTS SUMMARY

This frontal load cell barrier test was conducted at TRC on February 11, 1993.

The test vehicle, a 1993 Ford Probe 3-door hatchback, NHTSA No. MP0206, was equipped with a 2.0 liter transverse engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1404 KG. The vehicle's impact speed was 56.3 kph. The vehicle sustained 498 mm of static crush during the impact.

The driver's head injury criteria (HIC) was 784. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 57.5 g. The driver's left and right femur maximum axial forces were 6307 N and 5333 N, respectively.

The passenger's HIC was 995. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 50.2 g. The passenger's left and right femur maximum axial forces were 2673 N and 2234 N, respectively.

There was no loss of windshield periphery retention.

There was no penetration through the windshield.

Following the impact, no fluid spilled from the vehicle's fuel system prior to the static rollover test or during any portion of the static rollover test.

TABLE 2 TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Autoalliance International for Ford Motor Co.

MAKE/MODEL: Ford/Probe

VIN: 1ZVCT20A6P5163609

BODY STYLE: 3-door hatchback

MODEL YEAR: 1993

NHTSA NO.: MP0206

COLOR: Dark Red

ENGINE DATA: TYPE: transverse CYLINDERS: 4 DISPLACEMENT: 2.0 liter

TRANSMISSION DATA: 3 SPEED, MANUAL, X AUTOMATIC, X FWD, RWD, 4WD

DATE VEHICLE RECEIVED: 01/26/92

ODOMETER READING: 76.0

DEALER'S NAME AND ADDRESS: Ricart Ford, Inc.
4255 S. Hamilton Rd.
Columbus, OH

ACCESSORIES:

POWER STEERING	Yes	AUTOMATIC TRANSMISSION	Yes
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TILTING STEERING WHEEL	Yes
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	Yes
RADIO	Yes	ANTI-SKID BRAKE	Yes
CLOCK	Yes	REAR WINDOW DEFROSTER	Yes
OTHER	None		

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

CERTIFICATION DATA FROM VEHICLE'S LABEL:

VEHICLE MANUFACTURED BY: Autoalliance International for Ford Motor Company

DATE OF MANUFACTURE: 12/06/92

VIN: 1ZVCT20A6P5163609

GVWR: 1584 KG

GAWR: FRONT: 907 KG, REAR: 691 KG

TABLE 2 TEST VEHICLE INFORMATION CONT'D

TIRES ON VEHICLE (MFR., LINE, SIZE): Firestone, P195/65R14

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 240 kPa
REAR: 240 kPa

SPARE TIRE (MFR., LINE, SIZE): Firestone, T125/70D15

TYPE OF SEATS: FRONT: Bucket
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manually-adjustable

MAXIMUM WIDTH: 1742 MM

WHEELBASE: 2605 MM

LOCATION OF LABEL STATING TIRE DATA:

The label was located on the passenger's B-pillar.

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P195/65R14 P205/55R15

RECOMMENDED COLD TIRE PRESSURE: FRONT: 220 kPa; REAR: 180 kPa

DESIGNATED SEATING CAPACITY: 2 FRONT 2 REAR 4 TOTAL

VEHICLE CAPACITY WEIGHT: 308 KG LUGGAGE: 36 KG

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN MILLIMETERS):

DELIVERED ATTITUDE: LF 691; RF 690; LR 684; RR 681

PRE-TEST ATTITUDE: LF 660; RF 661; LR 660; RR 645

POST-TEST ATTITUDE: LF 684; RF 742; LR 660; RR 628

TABLE 2 TEST VEHICLE INFORMATION CONT'D

WEIGHT OF TEST VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS):

RIGHT FRONT	387 KG	RIGHT REAR	215 KG
LEFT FRONT	396 KG	LEFT REAR	226 KG
TOTAL FRONT WEIGHT	783 KG	(63.9% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	441 KG	(36.1% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	1224 KG		

CALCULATION OF TEST VEHICLE'S TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT*

UDW = UNLOADED DELIVERED WEIGHT (1224 KG)

VCW = VEHICLE CAPACITY WEIGHT (308 KG)

DSC = DESIGNATED SEATING CAPACITY (4)

$RCLW = VCW - 150 (DSC) = 308 - 68 (4) = 36 \text{ KG}$

TARGET TEST WEIGHT = UDW + RCLW + (NO. OF HYBRID II DUMMIES X 72 KG/DUMMY)

TARGET TEST WEIGHT = 1224 + 36 + 148

TARGET TEST WEIGHT = 1408 KG

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 36 KG OF CARGO WEIGHT:

RIGHT FRONT	418 KG	RIGHT REAR	270 KG
LEFT FRONT	431 KG	LEFT REAR	285 KG
TOTAL FRONT WEIGHT	849 KG	(60.5% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	555 KG	(39.5% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	1404 KG	(0.3 KG UNDER TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE: 0 KG

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: REAR BUMPER, MUFFLER, REAR SEATBELTS, TAILLIGHTS

CG = 1030 MM REARWARD OF FRONT WHEEL CENTERLINE

*Cargo weight for multi-purpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 KG, whichever is less.

TABLE 3 POST-IMPACT DATA

TEST NUMBER: 930211 NHTSA NO.: MP0206
TEST DATE: 02/11/93 TEST TIME: 1219
TEST TYPE: Frontal load cell barrier IMPACT ANGLE: 0°
AMBIENT TEMPERATURE AT IMPACT AREA: 20° C
TEMPERATURE IN OCCUPANT COMPARTMENT: 20° C
IMPACT VELOCITY: PRIMARY = 56.3 KPH SECONDARY = 56.3 KPH
(SPECIFIED RANGE = 55.5 TO 57.1 KPH)

DISTANCE FROM VEHICLE TO BARRIER: ENTERING VELOCITY TRAP = 381 MM
EXITING VELOCITY TRAP = 51 MM

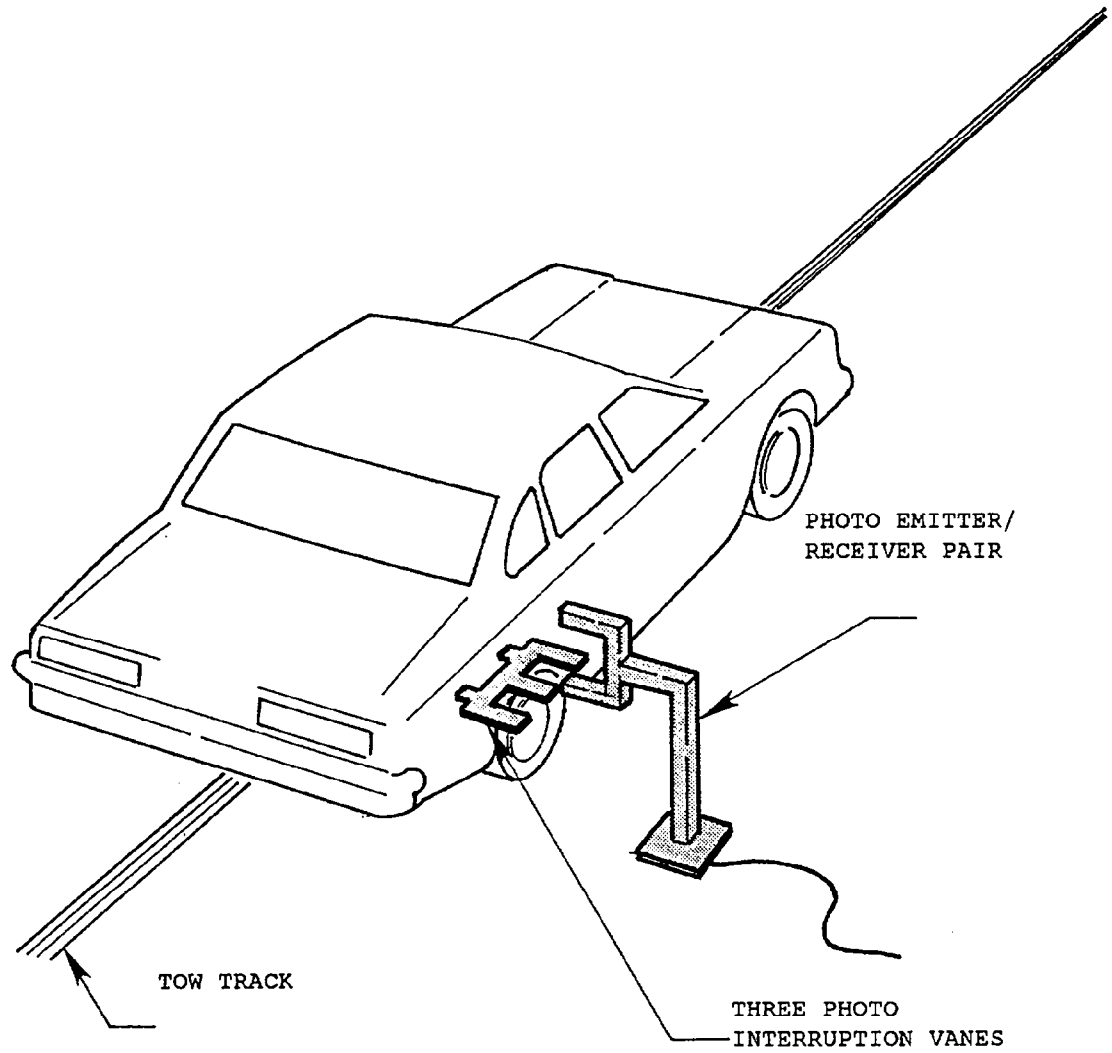
TEST VEHICLE STATIC CRUSH (ALL MEASUREMENTS ARE IN MILLIMETERS):

OVERALL LENGTH OF TEST VEHICLE: PRE-TEST: L 4369; C 4536; R 4370
POST-TEST: L 3946; C 4063; R 4080
TOTAL CRUSH: L 423; C 473; R 290
AVERAGE CRUSH: 395

TEST VEHICLE REBOUND FROM FLAT BARRIER
(ALL MEASUREMENTS ARE IN MILLIMETERS):

DISTANCE FROM TEST VEHICLE TO BARRIER: L 732; C 630; R 629; AVG. 664

FIGURE 1 IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane clears emitter/receiver 51 millimeters before impact.

The vanes have 305 millimeter spacing.

FIGURE 2 ACCIDENT INVESTIGATION DIVISION DATA
FOR 56 KPH (35 MPH) FRONTAL BARRIER IMPACT

VEHICLE MAKE/MODEL/BODY STYLE: Ford/Probe/3-door hatchback

VEHICLE NHTSA NO.: MP0206; VIN: 1ZVCT20A6P5163609

MODEL YEAR: 1993; BUILD DATE: 12/06/92; TEST DATE: 02/11/93

VEHICLE SIZE CATEGORY: Compact; TEST WEIGHT: 1404 KG

VEHICLE WHEELBASE: 2605 MM

MAXIMUM WIDTH: 1742 MM

FRONT OVERHANG: 1080 MM

COLLISION DEFORMATION
 CLASSIFICATION (CDC) CODE: 12FDEW3

CRUSH DEPTH
 MEASUREMENTS:

C1 =	<u>423</u>	MM
C2 =	<u>498</u>	MM
C3 =	<u>482</u>	MM
C4 =	<u>470</u>	MM
C5 =	<u>480</u>	MM
C6 =	<u>290</u>	MM

MIDPOINT OF DAMAGE: D = VEHICLE CENTERLINE (LONGITUDINAL)

LENGTH OF DAMAGED
 REGION: L = 1410 MM

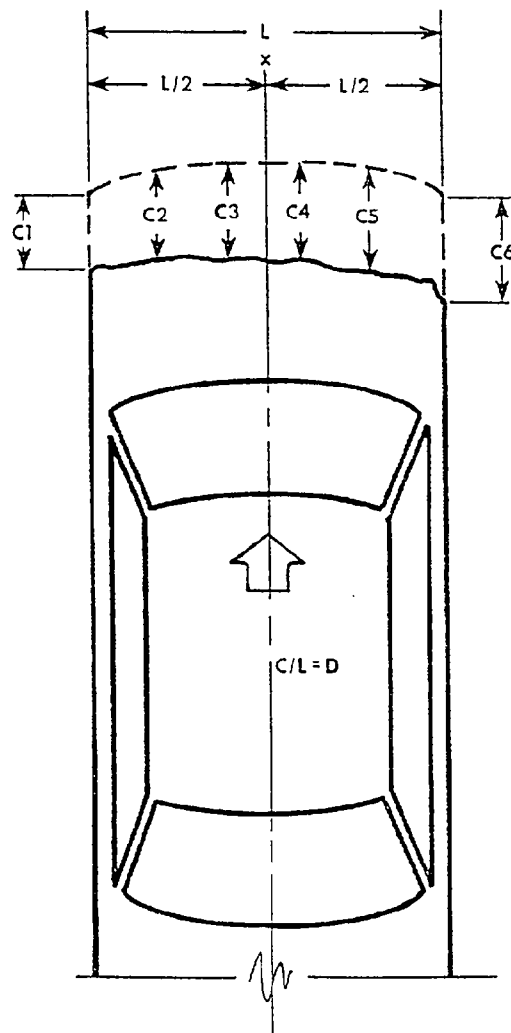
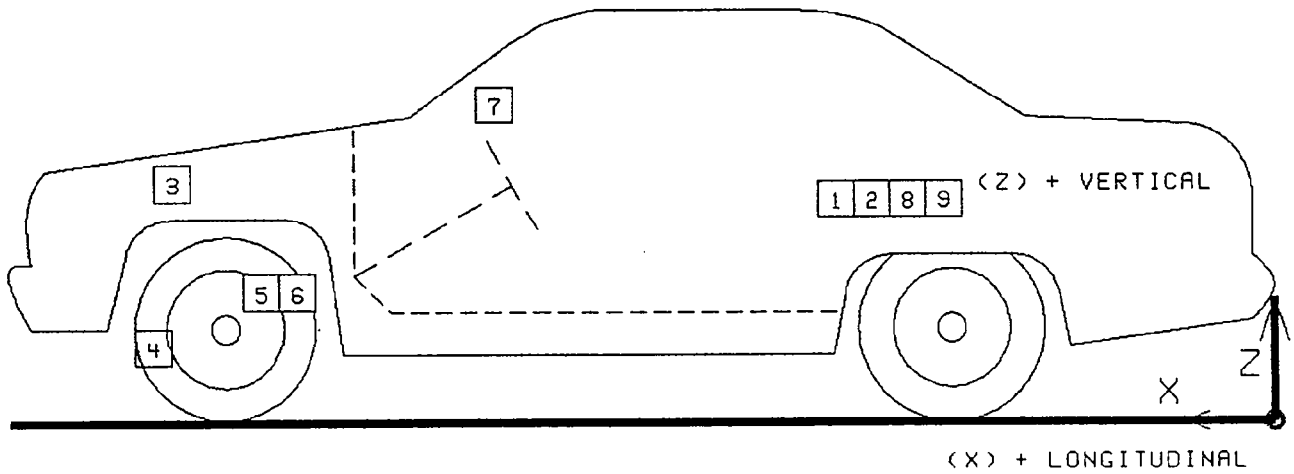
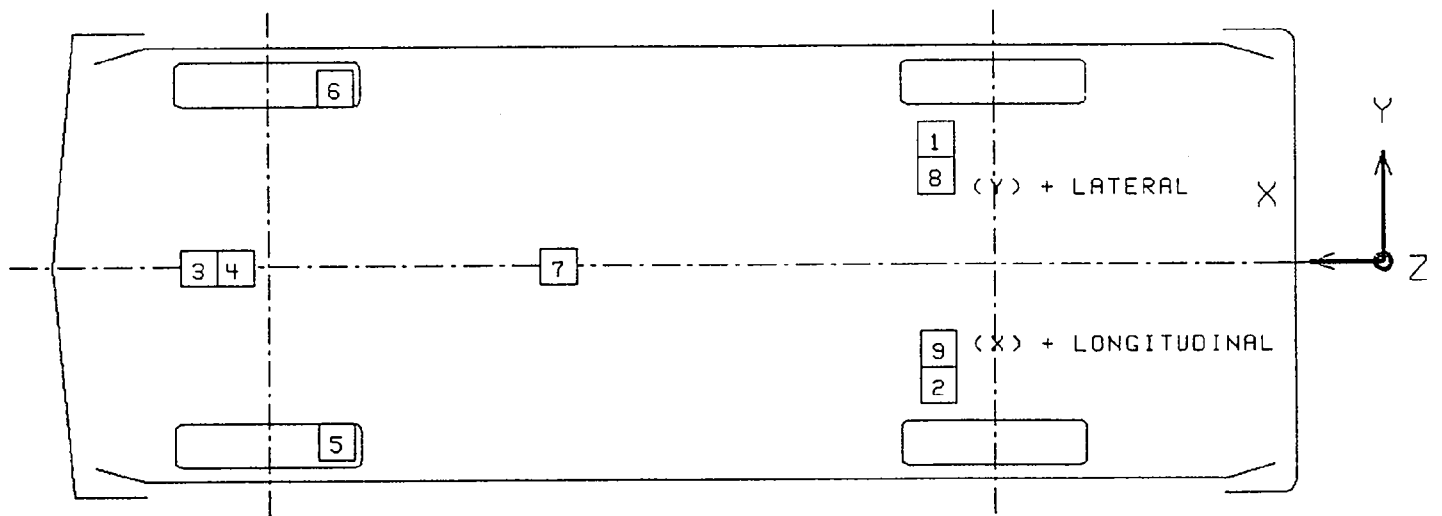


FIGURE 3

VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 4

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 930211

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	2826	300	365	4.4	99.8	42.2	55.0
2	RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	2831	-265	375	3.2	100.0	44.7	54.0
3	ENGINE TOP LONGITUDINAL	703	-220	800	36.1	42.0	116.4	30.0
4	ENGINE BOTTOM LONGITUDINAL	841	-190	233	36.9	42.4	133.9	32.3
5	RIGHT BRAKE CALIPER LONGITUDINAL	836	-657	304	39.4	62.5	115.0	45.8
6	LEFT BRAKE CALIPER LONGITUDINAL	836	657	304	13.0	61.0	126.7	40.5
7	INSTRUMENT PANEL CENTER LONGITUDINAL	1495	0	831	18.9	93.0	81.2	48.1
8	LEFT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	2826	340	365	4.2	99.6	42.0	55.3
9	RIGHT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	2831	-310	373	2.9	100.1	44.6	54.0

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN MILLIMETERS.
X-AXIS LOCATIONS ARE MEASURED REARWARD FROM THE FRONT BUMPER.

REFERENCE: X: + FORWARD ACCELERATION
Y: + LEFT FROM VEHICLE CENTERLINE
Z: + UP FROM GROUND LEVEL

TABLE 5 POST-IMPACT DUMMY/VEHICLE DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #826	PASSENGER #713
HEAD	<u>Airbag</u>	<u>Chest</u>
CHEST	<u>Airbag</u>	<u>None</u>
ABDOMEN	<u>None</u>	<u>None</u>
LEFT KNEE	<u>Instrument panel</u>	<u>Instrument panel</u>
RIGHT KNEE	<u>Instrument panel</u>	<u>Instrument panel</u>

DOOR OPENING:

	LEFT	RIGHT
FRONT	<u>Easy</u>	<u>Easy</u>
REAR	<u>NA</u>	<u>NA</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
FRONT	<u>None</u>	<u>None</u>
REAR	<u>NA</u>	<u>NA</u>

GLAZING DAMAGE:

The entire windshield was cracked upon impact.

OTHER NOTABLE IMPACT EFFECTS:

The driver's left hand and forearm extended out of
the driver door's window when the vehicle and dummy
came to rest after the impact.

TABLE 6 FMVSS 208 DATA SUMMARY

VEH. YR./MAKE/MODEL/BODY STYLE: 1993/Ford/Probe/3-door hatchback

VEH. NHTSA NO.: MPO206; TEST DATE: 02/11/93

<u>MAXIMUM ACCELERATIONS (G):</u>	<u>DRIVER DUMMY #826</u>	<u>PASSENGER DUMMY #713</u>
HEAD X-AXIS	-58.2	-31.4
HEAD Y-AXIS	-17.7	-40.6
HEAD Z-AXIS	-38.1	-81.7
HEAD RESULTANT	67.4	82.4
CHEST X-AXIS	-59.6	-48.9
CHEST Y-AXIS	7.5	-20.2
CHEST Z-AXIS	11.7	18.2
CHEST RESULTANT*	57.5	50.2
CHEST RESULTANT TIME INTERVAL (SEC.)*	.003	.003

HEAD INJURY CRITERIA (HIC) VALUES:

HIC**	784	995
HIC STARTING TIME (SEC.)	.059	.070
HIC ENDING TIME (SEC.)	.095	.106
AVG. HEAD RESULTANT ACCEL. DURING HIC TIME INTERVAL (G)	54.3	59.7

MAXIMUM COMPRESSIVE FEMUR FORCES (N):

LEFT FEMUR	6307	2673
RIGHT FEMUR	5333	2234

MAXIMUM SEAT BELT FORCES (N):

LAP BELT	1676	8078
SHOULDER BELT	6914	10464

NOTE: ALL VALUES LISTED MUST BE OCCURRING DURING PRIMARY IMPACT EVENT.
(HEAD ACCELERATIONS LISTED MUST BE DURING HIC TIME INTERVAL.)

*0.003 SEC. MINIMUM DURATION.

**THE MAXIMUM HIC TIME INTERVAL IS 36 MILLISECONDS.

DUMMY KINEMATIC SUMMARY

DRIVER DUMMY

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest were restrained by the driver's airbag as the dummy's torso was restrained by the three-point unbelt. The dummy rebounded into the seat back and head restraint. The driver dummy came to rest in the driver's seat, restrained by the three-point unbelt, with the dummy's left hand and forearm extending out of the driver door's window.

RIGHT FRONT PASSENGER DUMMY

Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward and contacted the dummy's chest. The dummy's torso rotated clockwise as the dummy was restrained by the three-point unbelt. The dummy's head rotated rearward as the dummy rebounded into the seat back and head restraint. The dummy came to rest seated in the right front passenger's seat, restrained by the three-point unbelt.

TABLE 7 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

	DRIVER	PASSENGER
<u>BELT LENGTH DATA:</u>		
BELT LENGTH FROM TRIM PANEL EXIT TO BOLT HOLE ANCHOR POINT FOR CONTINUOUS WEBBING SYSTEMS.	2510	2585
SHOULDER BELT LENGTH AS MEASURED ON PART 572 DUMMY.	950	1105
LAP BELT LENGTH AS MEASURED ON PART 572 DUMMY.	676	665
<u>SHOULDER BELT SPOOL-OFF LENGTH:</u>		
AS DETERMINED BY FILM ANALYSIS	NA*	NA*
AS DETERMINED MECHANICALLY	56	28
AS DETERMINED ELECTRONICALLY	123	53
<u>BELT STRETCH LENGTH (MM/M):</u>		
AS MEASURED MECHANICALLY	4	0
AS MEASURED ELECTRONICALLY	31	6
<u>RETRACTOR LOCK-UP TIME (MS):</u>		
AS DETERMINED BY SHOULDER BELT SPOOL-OFF	NA*	NA*

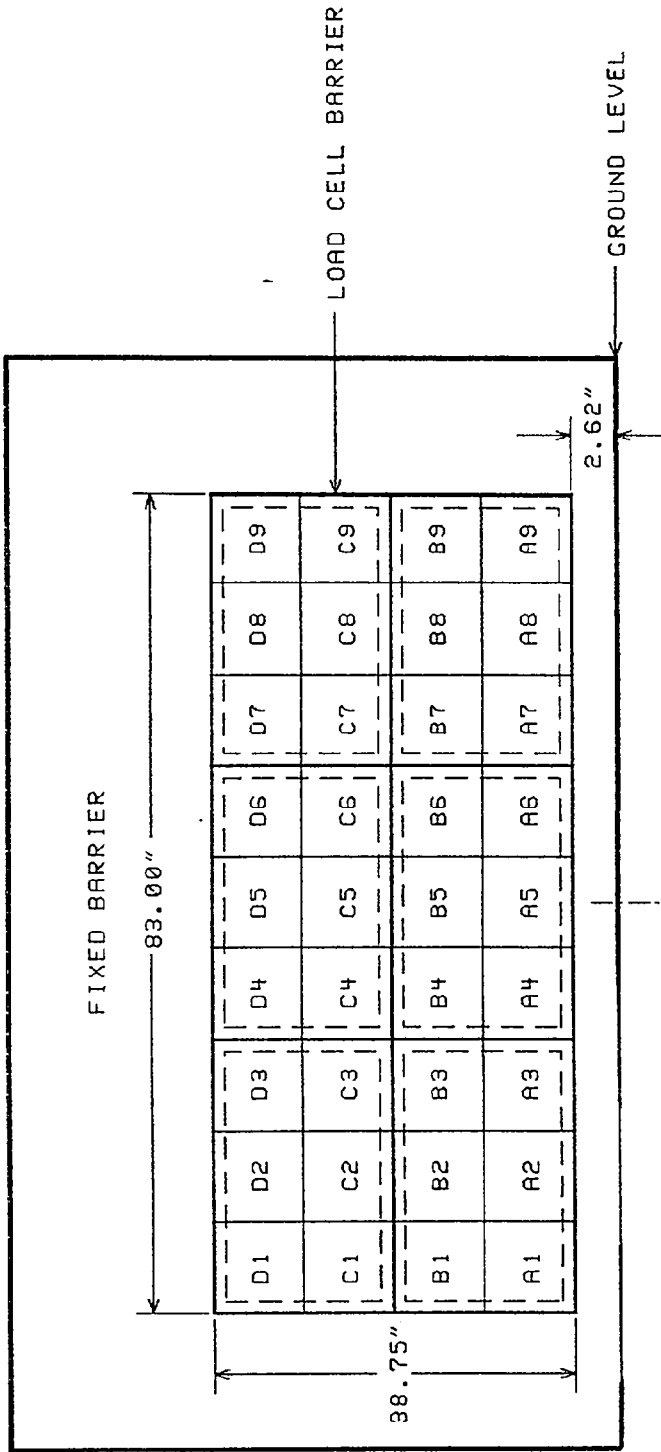
ALL MEASUREMENTS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

*The onboard cameras were not installed so the vehicle would meet the target test weight.

FIGURE 4

LOAD CELL BARRIER CONFIGURATION
FRONT VIEW

36 LOAD CELLS
4 ROWS
9 COLUMNS



- GROUP 1: A1 THRU B3
- GROUP 2: A4 THRU B6
- GROUP 3: A7 THRU B9
- GROUP 4: C1 THRU D3
- GROUP 5: C4 THRU D6
- GROUP 6: C7 THRU D9

TABLE 8

LOAD CELL BARRIER DATA SUMMARY

TEST NUMBER 930211

LOCATION	POSITIVE DIRECTION		NEGATIVE DIRECTION	
	KN	MSEC	KN	MSEC
TOTAL GROUP 1	1.7	252.5	79.1	16.5
TOTAL GROUP 2	1.7	311.0	317.6	33.4
TOTAL GROUP 3	2.3	3.4	91.1	16.4
TOTAL GROUP 4	1.3	228.9	48.0	38.4
TOTAL GROUP 5	1.4	309.6	41.7	34.4
TOTAL GROUP 6	2.0	129.3	32.3	28.4
TOTAL LOAD CELL FORCE	7.3	310.3	564.2	33.8

TENSION IS POSITIVE
COMPRESSION IS NEGATIVE

SECTION 3.0

FMVSS 212, 219 (PARTIAL), & 301 INDICANT DATA

FIGURE 5 FMVSS 212 TEST DATA

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

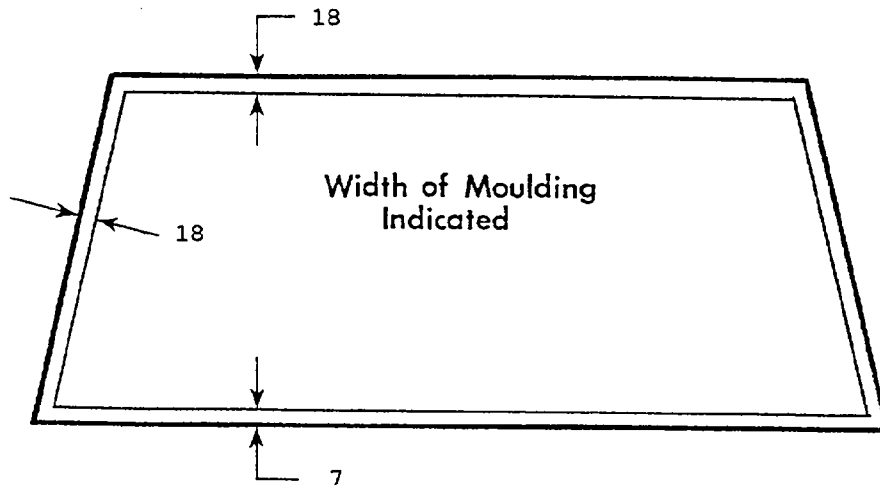
Plastic trim around outer perimeter, adhesive around inner perimeter, metal retainer across lower perimeter.

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.

WINDSHIELD PERIPHERY MEASUREMENTS:

	PRE-TEST	POST-TEST	PERCENT RETENTION
RIGHT SIDE	2050	2050	100
LEFT SIDE	2050	2050	100
TOTAL	4100	4100	100

PRE-TEST WINDSHIELD MOUNTING MATERIAL TEMPERATURE: 20° C



FRONT VIEW OF WINDSHIELD*

LOSS OF WINDSHIELD RETENTION LENGTHS: None

ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

*INDICATE AREAS OF LOSS OF RETENTION, IF ANY, ON WINDSHIELD DIAGRAM.

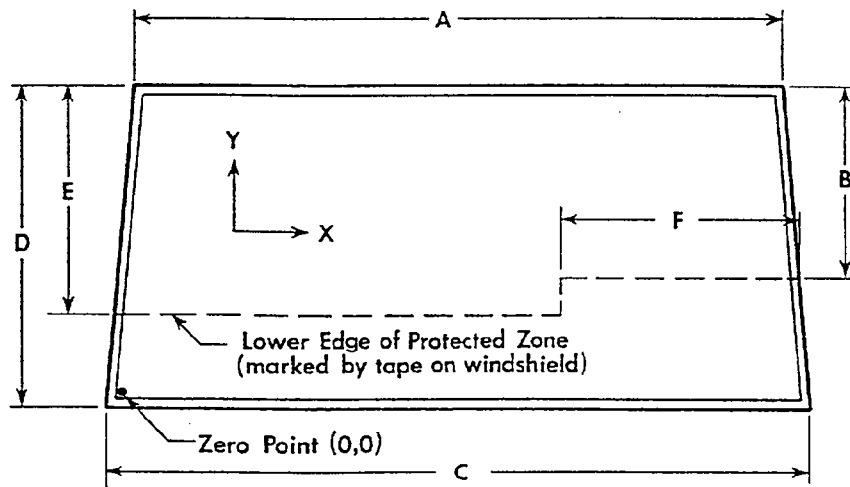
FIGURE 6 FMVSS 219 TEST DATA

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 165-millimeter diameter rigid sphere weighing 6.8 kg 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 13 millimeters 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.

WINDSHIELD MEASUREMENTS:

- A = 1100
- B = 452
- C = 1590
- D = 760
- E = 535
- F = 510



FRONT VIEW

METHOD OF ADHERING PROTECTED ZONE TEMPLATE TO WINDSHIELD: NA

AREAS OF WINDSHIELD TEMPLATE PENETRATION

GREATER THAN 6.0 MM: NA

COORDINATES

	X	Y
1.		
2.		
3.		

1.

2.

3.

AREAS OF WINDSHIELD PENETRATION, BELOW THE PROTECTED ZONE, THROUGH THE INNER SURFACE OF THE WINDSHIELD: None

1.

2.

3.

ALL MEASUREMENTS ARE IN MILLIMETERS.

TABLE 9 FUEL SYSTEM DATA

MAKE/MODEL: Ford/Probe

NHTSA NO.: MP0206

FUEL SYSTEM CAPACITY: 58.5 LITERS (FROM OWNER'S MANUAL)

USABLE CAPACITY: 58.3 LITERS (FURNISHED BY COTR)

TEST VOLUME RANGE: 53.6 LITERS TO 54.8 LITERS (92-94% OF USABLE)

ACTUAL TEST VOLUME: 54.3 LITERS (WITH ENTIRE FUEL SYSTEM FILLED)

TEST FLUID TYPE: STODDARD SOLVENT

SPECIFIC GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

TEST FLUID COLOR: PURPLE

DETAILS OF FUEL SYSTEM: The fuel tank is located in front of the rear
axle. The fuel filler is on the left side and entered the rear of the
tank. The fuel lines ran along the left frame rail to the front.

ELECTRIC FUEL PUMP: Yes FUEL INJECTION: Yes

DOES ELECTRIC FUEL PUMP OPERATE WITH IGNITION SWITCH "ON" AND THE ENGINE NOT OPERATING? No

TABLE 10 FMVSS 301 POST-IMPACT TEST DATA

TEST VEHICLE NHTSA NO.: MPO206 ; TEST DATE: 02/11/93

VEHICLE MAKE/MODEL/BODY STYLE: Ford/Probe/3-door hatchback

TEST REQUIREMENTS:

Test vehicle fuel tank filled to 92 to 94% of manufacturer's usable capacity and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

TEST VEHICLE IMPACT TYPE:

- FRONTAL (56 KPH)
- OBLIQUE (48 KPH) WITH ° BARRIER FACE
FIRST CONTACTING (DRIVER/PASS.) SIDE.
- REAR MOVING BARRIER (48 KPH)
- LATERAL MOVING BARRIER (32 KPH)

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

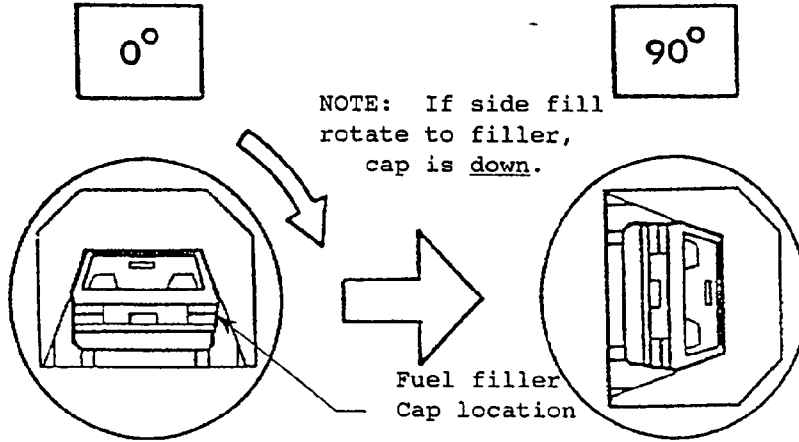
	<u>TEST RESULTS</u>	<u>MAXIMUM ALLOWABLE</u>
1. FROM IMPACT UNTIL VEHICLE MOTION CEASES - - -	0 G	28 G
2. 5 MINUTE PERIOD AFTER VEHICLE MOTION CEASES -	0 G	142 G
3. NEXT 25 MINUTES AFTER 5 MINUTE PERIOD - - - -	0 G	28 G/MN

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 7 FMVSS 301 STATIC ROLLOVER TEST DATA

NHTSA NO.: MPO206
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds
 FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds
 TOTAL - - - - - = 7 minutes, 00 seconds
 NEXT WHOLE MINUTE INTERVAL - - - - = 7 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

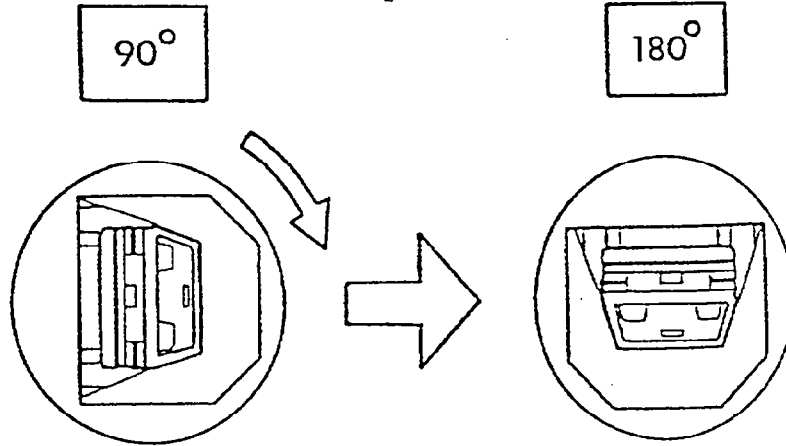
<u>0° TO 90° ROTATION (FUEL FILLER CAP DOWN)</u>	<u>TEST RESULTS</u>	<u>MAXIMUM ALLOWABLE</u>
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 7 FMVSS 301 STATIC ROLLOVER TEST DATA, CONT'D.

NHTSA NO.: MP0206
 TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds
 FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds
 TOTAL - - - - - = 7 minutes, 00 seconds
 NEXT WHOLE MINUTE INTERVAL - - - - - = 14 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

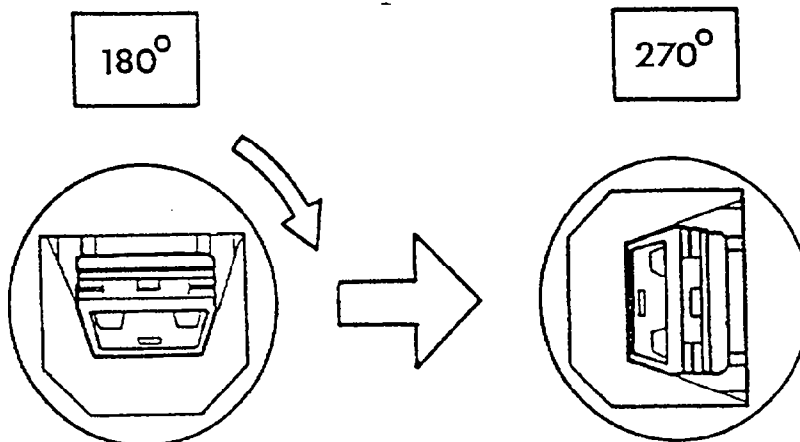
<u>90° TO 180° ROTATION</u>	<u>TEST RESULTS</u>	<u>MAXIMUM ALLOWABLE</u>
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 7 FMVSS 301 STATIC ROLLOVER TEST DATA, CONT'D.

NHTSA NO.: MPO206
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds
 FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds
 TOTAL - - - - - = 7 minutes, 00 seconds
 NEXT WHOLE MINUTE INTERVAL - - - - = 21 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

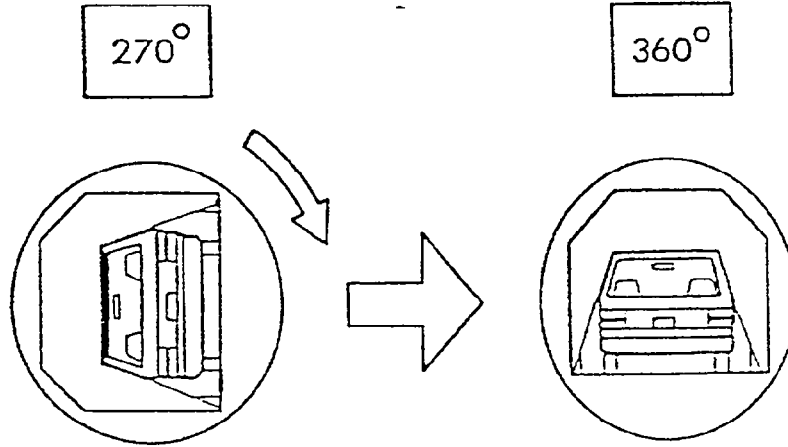
<u>180° TO 270° ROTATION</u>	<u>TEST RESULTS</u>	<u>MAXIMUM ALLOWABLE</u>
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 7 FMVSS 301 STATIC ROLLOVER TEST DATA, CONT'D.

NHTSA NO.: MP0206
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds
 FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds
 TOTAL - - - - - = 7 minutes, 00 seconds
 NEXT WHOLE MINUTE INTERVAL - - - - - = 28 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

<u>270° TO 360° ROTATION</u>	<u>TEST RESULTS</u>	<u>MAXIMUM ALLOWABLE</u>
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

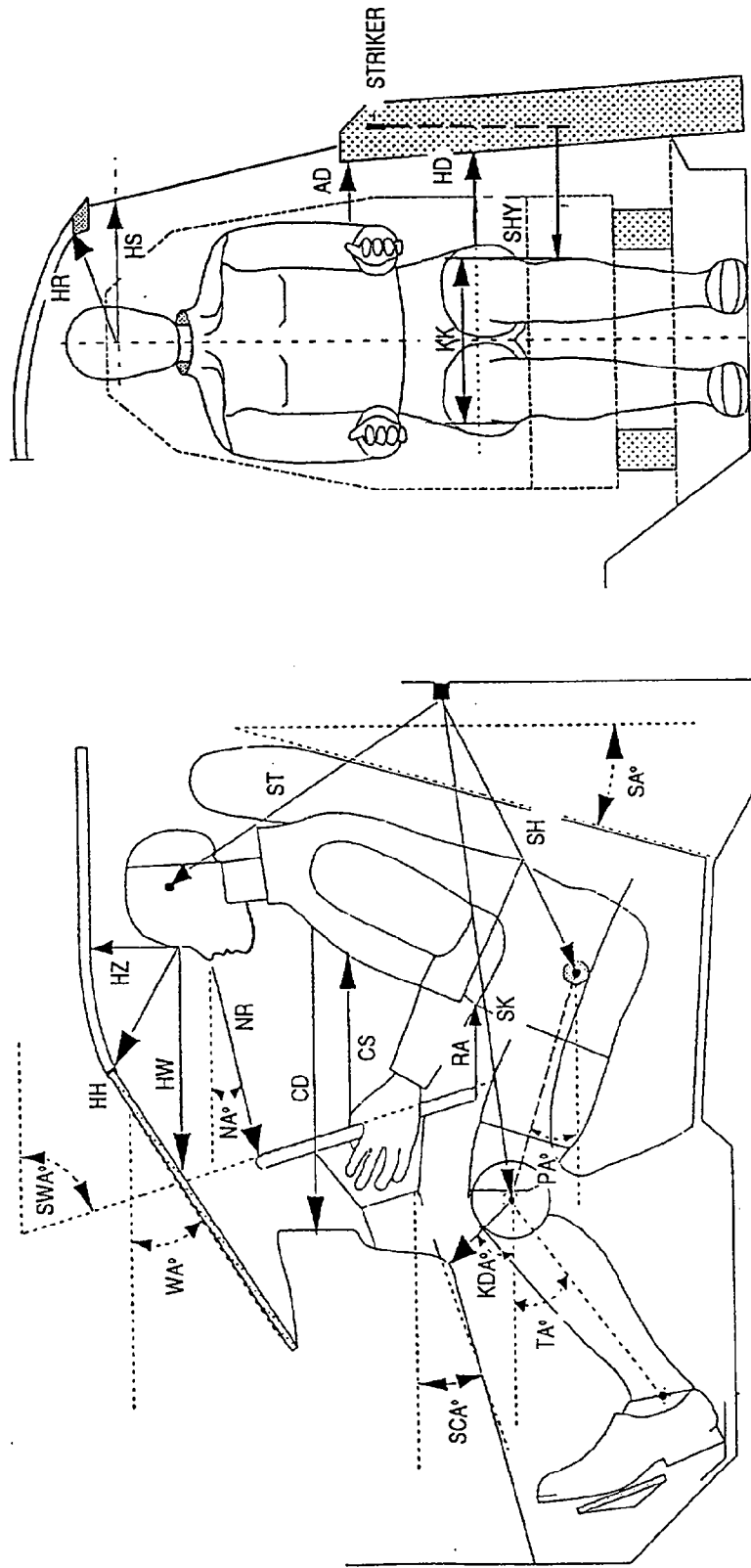
None

SECTION 4.0

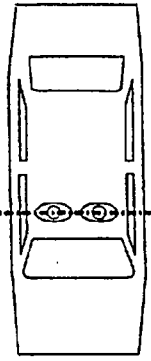
VEHICLE, OCCUPANT, & CAMERA INFORMATION

FIGURE 8

DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS



VERTICAL TRANSVERSE PLANE



VERTICAL LONGITUDINAL PLANE

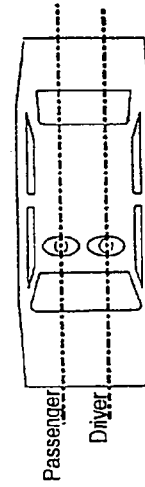
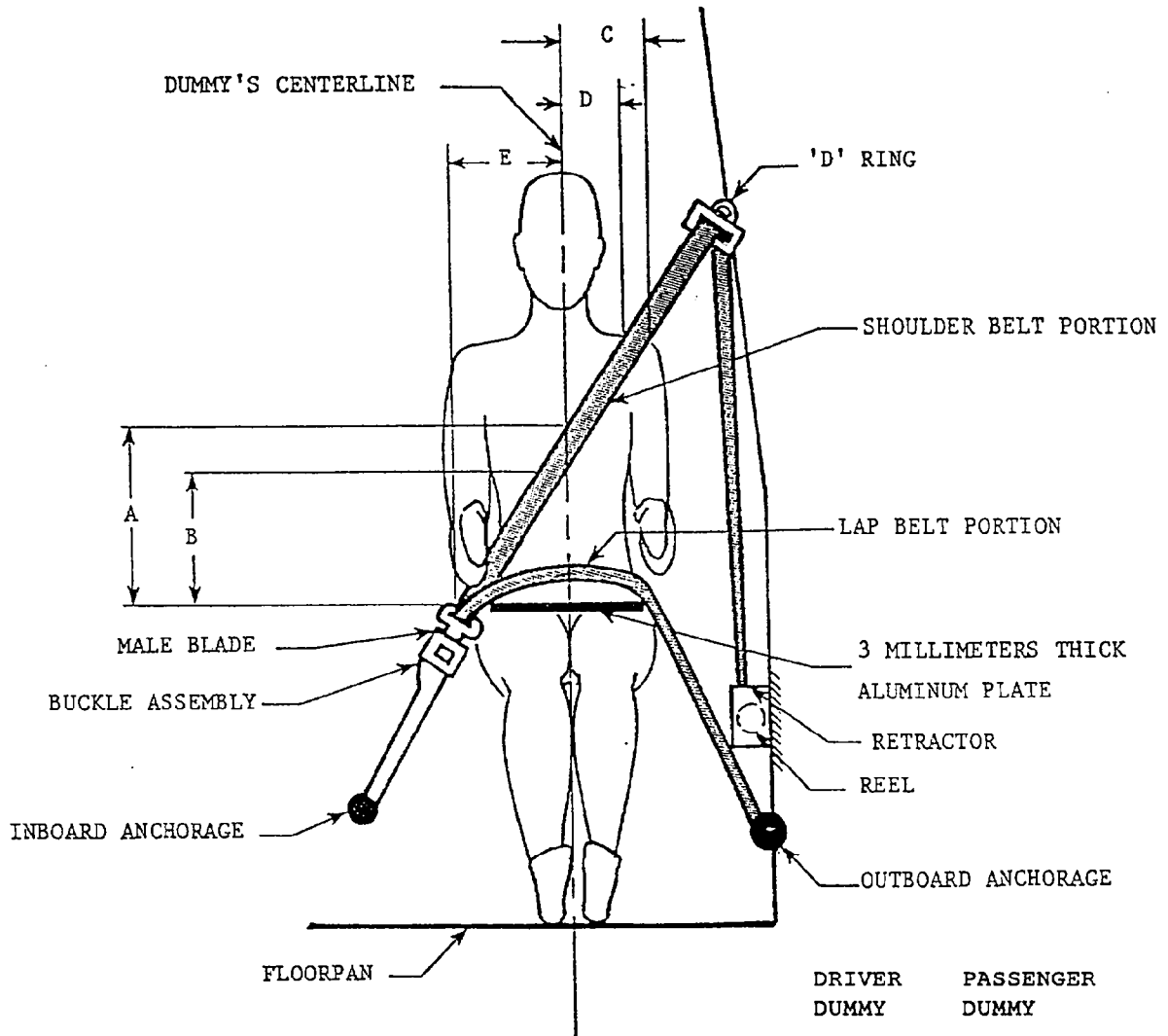


TABLE 11 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS

DESIGNATION	TYPE OF MEASUREMENT	DRIVER (SERIAL #826)	PASSENGER (SERIAL #713)
WA°	WINDSHIELD ANGLE	25°	NA
SWA°	STEERING WHEEL ANGLE	70°	NA
SCA°	STEERING COLUMN ANGLE	20°	NA
SA°	SEAT BACK ANGLE	25°	21°
HZ	HEAD TO ROOF	140	150
HH	HEAD TO HEADER	342	265
HW	HEAD TO WINDSHIELD	552	510
HR	HEAD TO SIDE HEADER	145	167
NR	NOSE TO RIM	560	NA
NA	NOSE TO RIM ANGLE	13°	NA
CD	CHEST TO DASH	555	580
CS	STEERING WHEEL TO CHEST	300	NA
RA	RIM TO ABDOMEN	200	NA
KDL	LEFT KNEE TO DASH	132	120
KDR	RIGHT KNEE TO DASH	150	130
KDA	OUTBOARD KNEE TO DASH ANGLE	-45°	45°
PA°	PELVIC ANGLE	22°	25°
TA°	TIBIAL ANGLE	30°	35°
KK	KNEE TO KNEE	275	200
ST	STRIKER TO HEAD	521	506
	STRIKER TO HEAD ANGLE	-60°	-60°
SK	STRIKER TO KNEE	865	865
	STRIKER TO KNEE ANGLE	5°	10°
SH	STRIKER TO H-POINT	530	500
	STRIKER TO H-POINT ANGLE	25°	25°
SHY	STRIKER TO H-POINT (Y DIR.)	260	280
HS	HEAD TO SIDE WINDOW	280	305
HD	H-POINT TO DOOR	165	151
AD	ARM TO DOOR	75	90

THE SEAT BACK ANGLE (SA°) IS MEASURED RELATIVE TO VERTICAL, ALL OTHER ANGLES ARE MEASURED RELATIVE TO HORIZONTAL.
ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

FIGURE 9 SEAT BELT POSITIONING DATA



	DRIVER DUMMY	PASSENGER DUMMY
A - TOP SURFACE OF ALUMINUM PLATE TO BELT UPPER EDGE	347	345
B - TOP SURFACE OF ALUMINUM PLATE TO BELT LOWER EDGE	264	260
C - DUMMY CENTERLINE TO OUTER EDGE OF BELT AT CHEST FLESH TOP	135	145
D - DUMMY CENTERLINE TO INNER EDGE OF BELT AT CHEST FLESH TOP	70	80
LAPBELT TENSION (N)	16	16
SHOULDER BELT TENSION (N)	16	16

ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

FIGURE 10 CAMERA POSITIONS

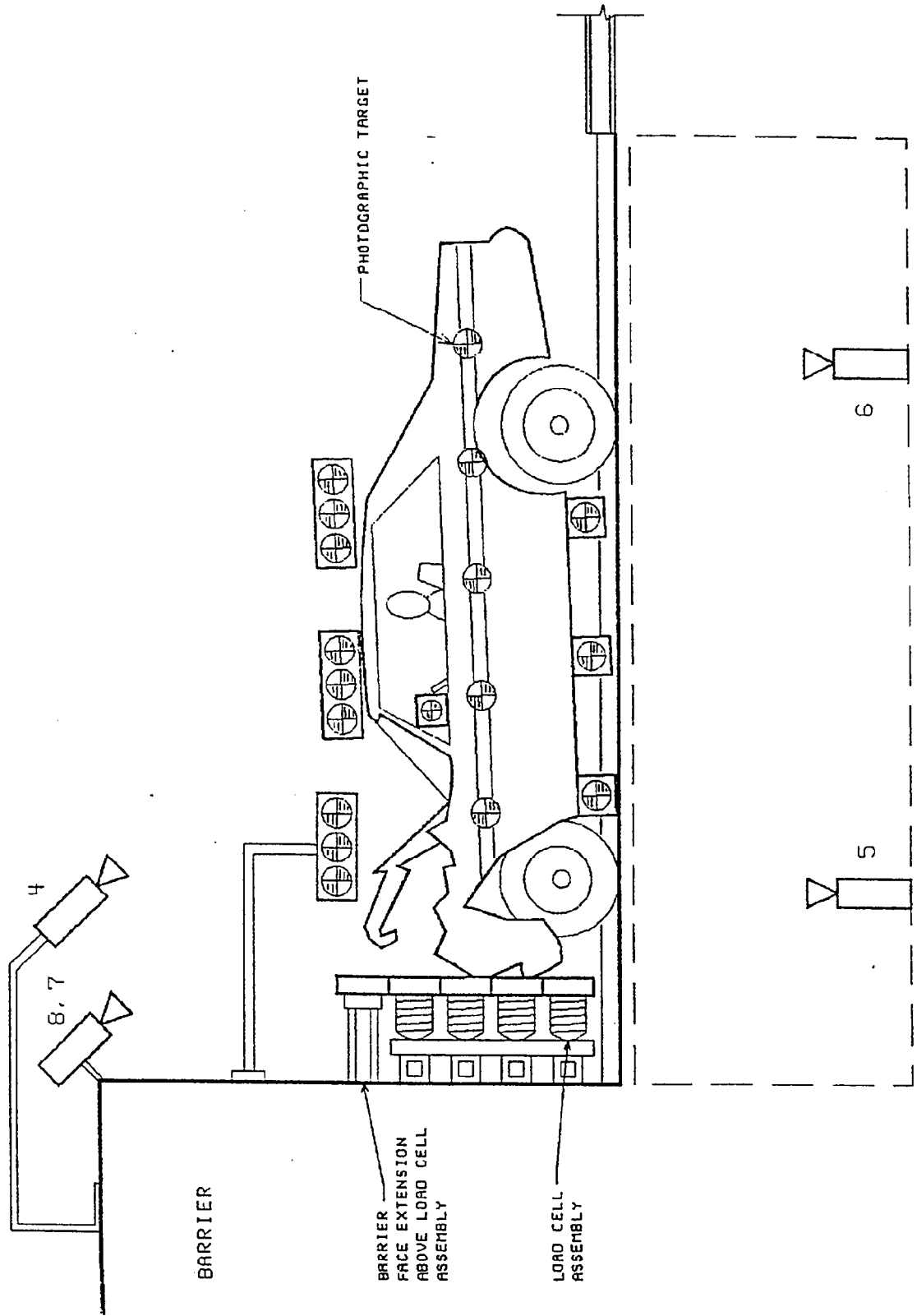


FIGURE 10 CAMERA POSITIONS, CONT'D.

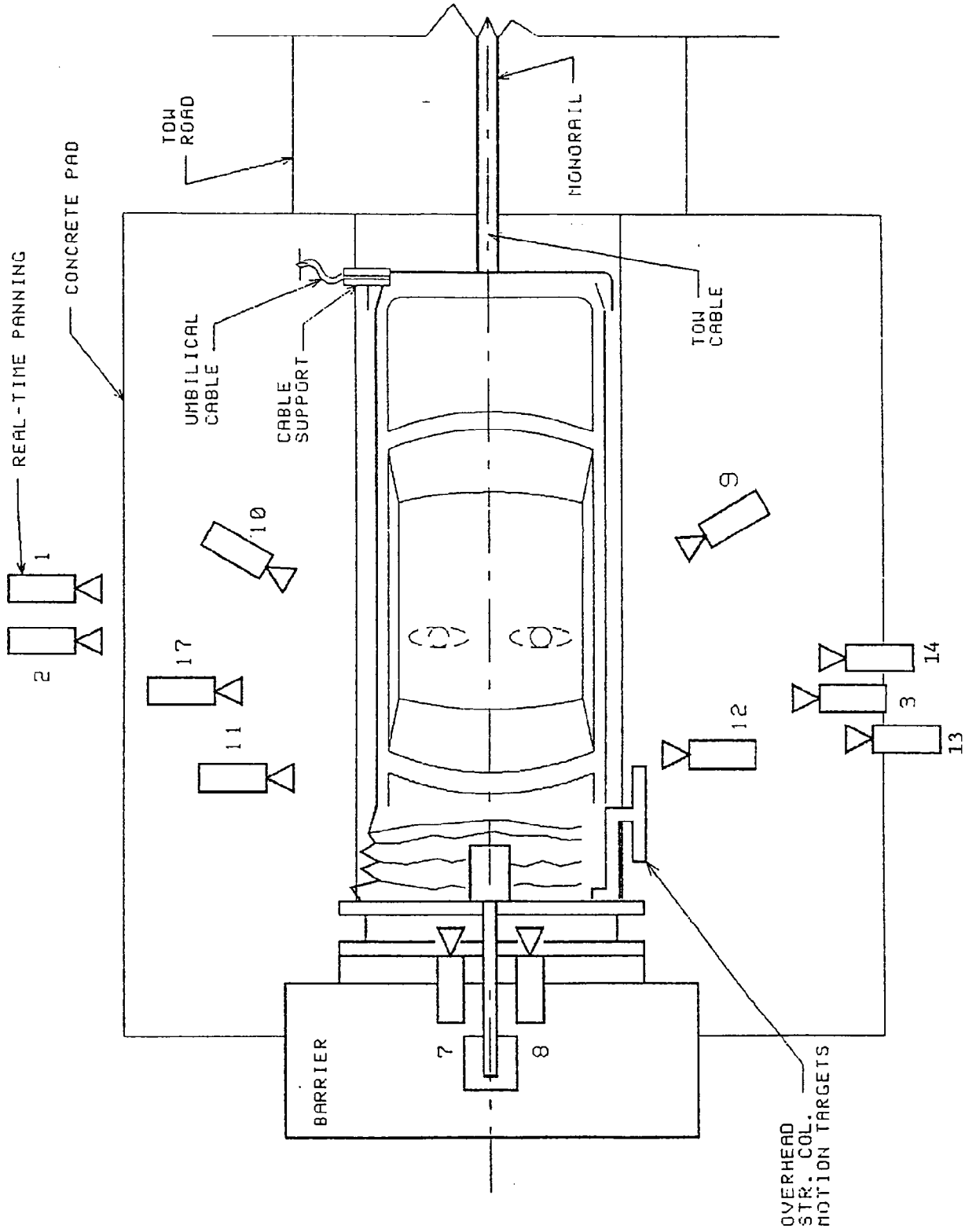


TABLE 12 MOTION PICTURE CAMERA LOCATIONS

CAMERA NO.	VIEW	CAMERA POSITIONS (MM)*			ANGLE** (DEG)	FILM PLANE TO HEAD TARGET (MM)			FILM SPEED (FPS)
		X	Y	Z		TO HEAD TARGET (MM)	LENS (MM)		
1	Real-time panning	-3607	-12802	1549	NA	NA	16	24	
2	Vehicle crush	-2065	-6767	942	-2	NA	13	493	
3	Dummy kinematics	-1054	7493	1118	-12	5461	25	1005	
4	Windshield damage	-925	0	2489	-40	NA	13	485	
5	Crush & fluid spillage	-1283	0	-2347	90	NA	13	1000	
6	Fluid spillage	-2522	0	-2515	90	NA	13	502	
7	Passenger kinematics	-114	-351	2159	-40	NA	17	500	
8	Driver kinematics	-173	368	2159	-41	NA	17	505	
9	Driver kinematics	-4572	1854	2591	-27	2489	25	498	
10	Passenger kinematics	-4674	-1880	2540	-26	2413	25	498	
11	Windshield intrusion	-968	-7775	1118	0	NA	50	508	
12	Windshield intrusion	-1346	7859	1074	0	NA	50	500	
13	Column movement	-3277	7264	2616	-14	NA	25	502	
14	Column movement	-3277	7264	1908	-9	NA	25	508	
15	Passenger kinematics	-986	-5354	1151	7	5918	25	1005	

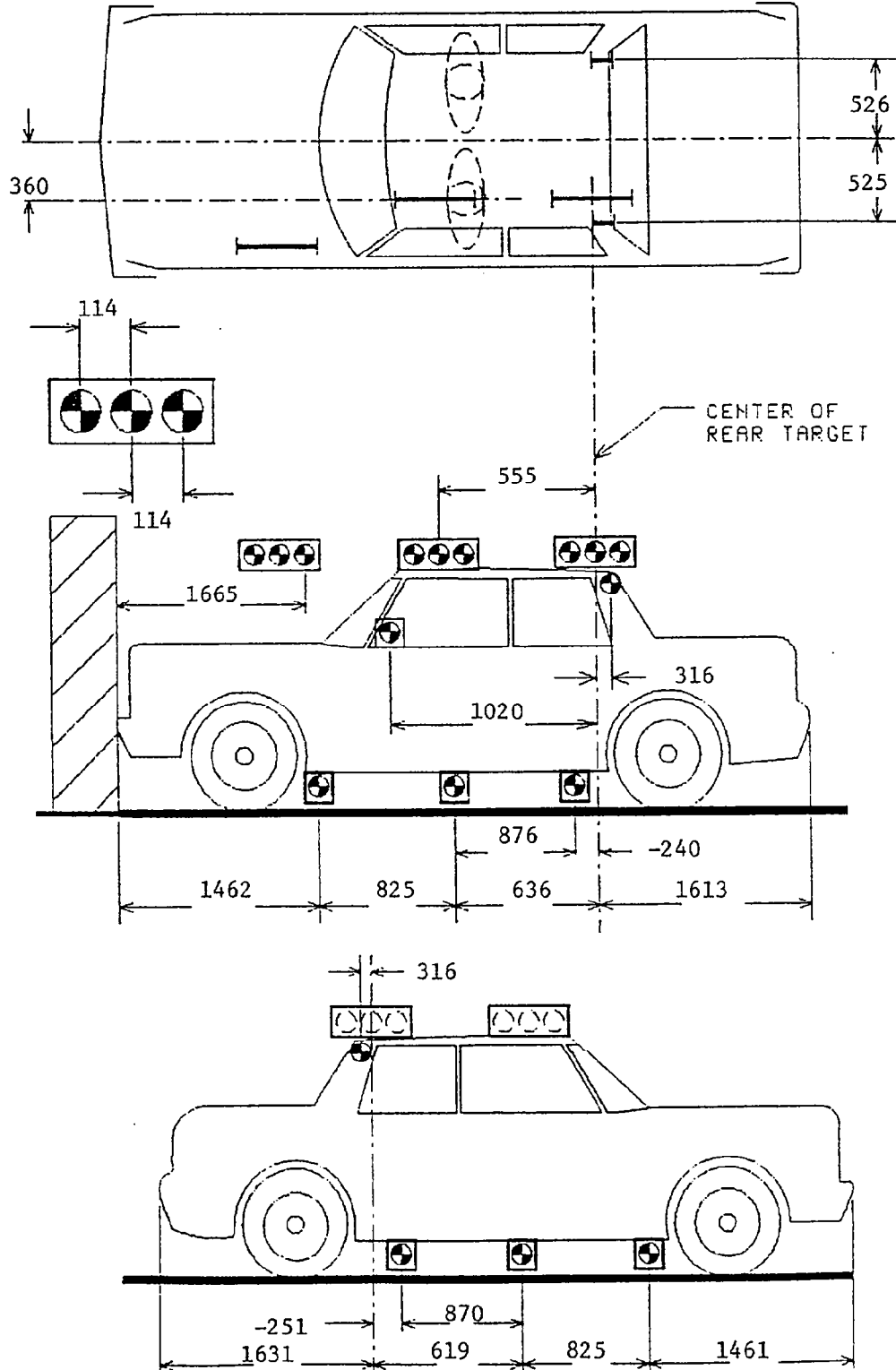
**X = Film plane forward of barrier face

+Y = Film plane to left of monorail centerline

+Z = Film plane above ground level

**Angle = Film plane angled upward from horizontal plane

FIGURE 11
VEHICLE TARGET LOCATIONS



ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS

FIGURE 12

PRE-TEST AND POST-TEST MEASUREMENT POINTS

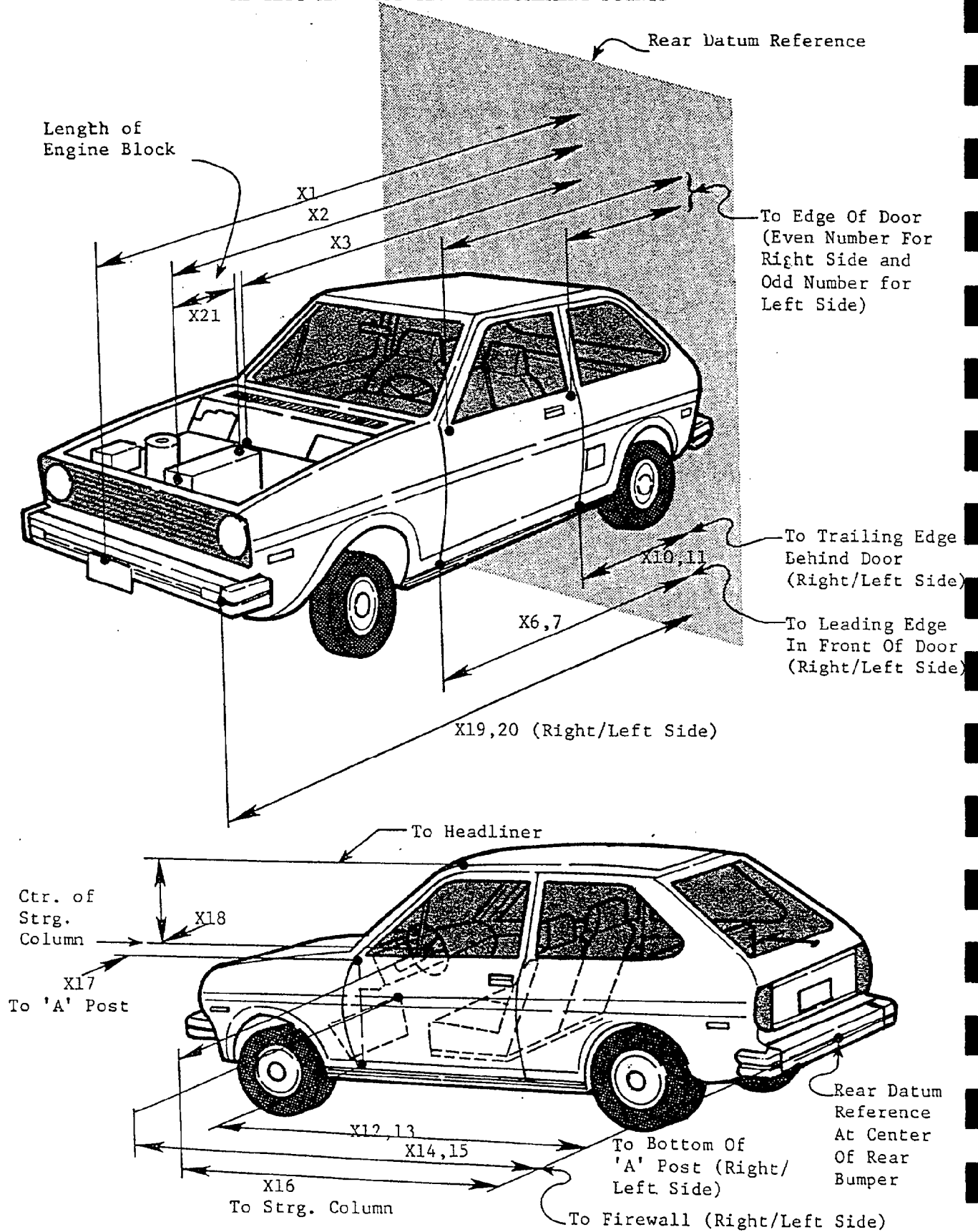


TABLE 13 IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Probe		TEST NUMBER: 930211	ALL MEASUREMENTS ARE IN MM		
NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.	
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4536	4063	473	
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	3876	3668	208	
X3	REAR SURFACE OF VEHICLE TO FIREWALL	3386	3303	83	
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	2981	2981	0	
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	2995	2980	15	
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3000	2998	2	
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3011	3005	6	
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	1698	1696	2	
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	1705	1694	11	
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	1815	1818	-3	
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	1832	1830	2	
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	2986	2970	16	
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	2994	2976	18	
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	3265	3245	20	
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	3270	3226	44	
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2581	2590	-9	
X17	CENTER OF STEERING COLUMN TO "A" POST	300	345	-45	
X18	CENTER OF STEERING COLUMN TO HEADLINER	424	410	14	
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4370	4080	290	
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4369	3946	423	
X21	LENGTH OF ENGINE BLOCK	490	490	0	

APPENDIX A

PHOTOGRAPHS

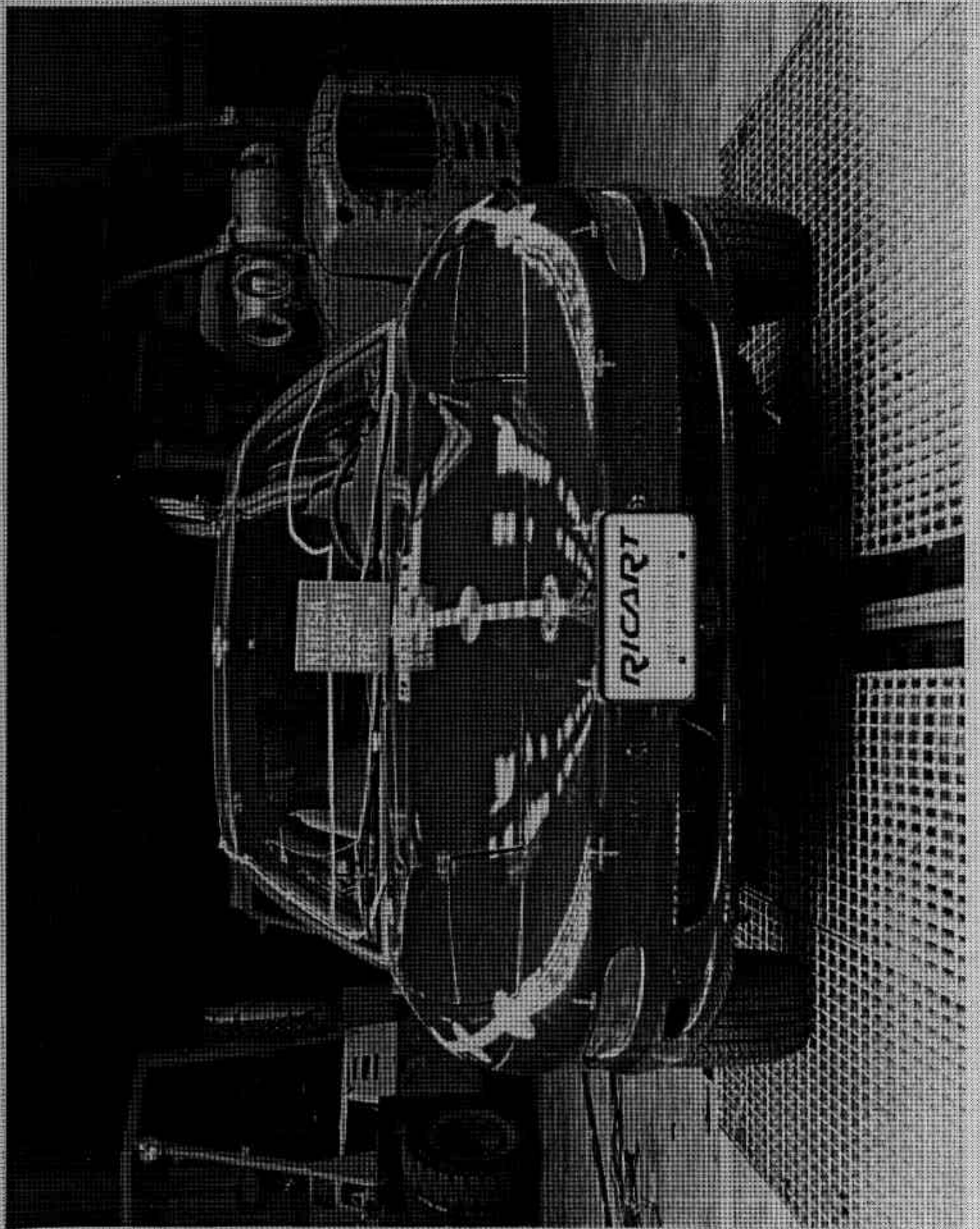


Figure A-1. PRE-TEST FRONT VIEW

A-2

930211

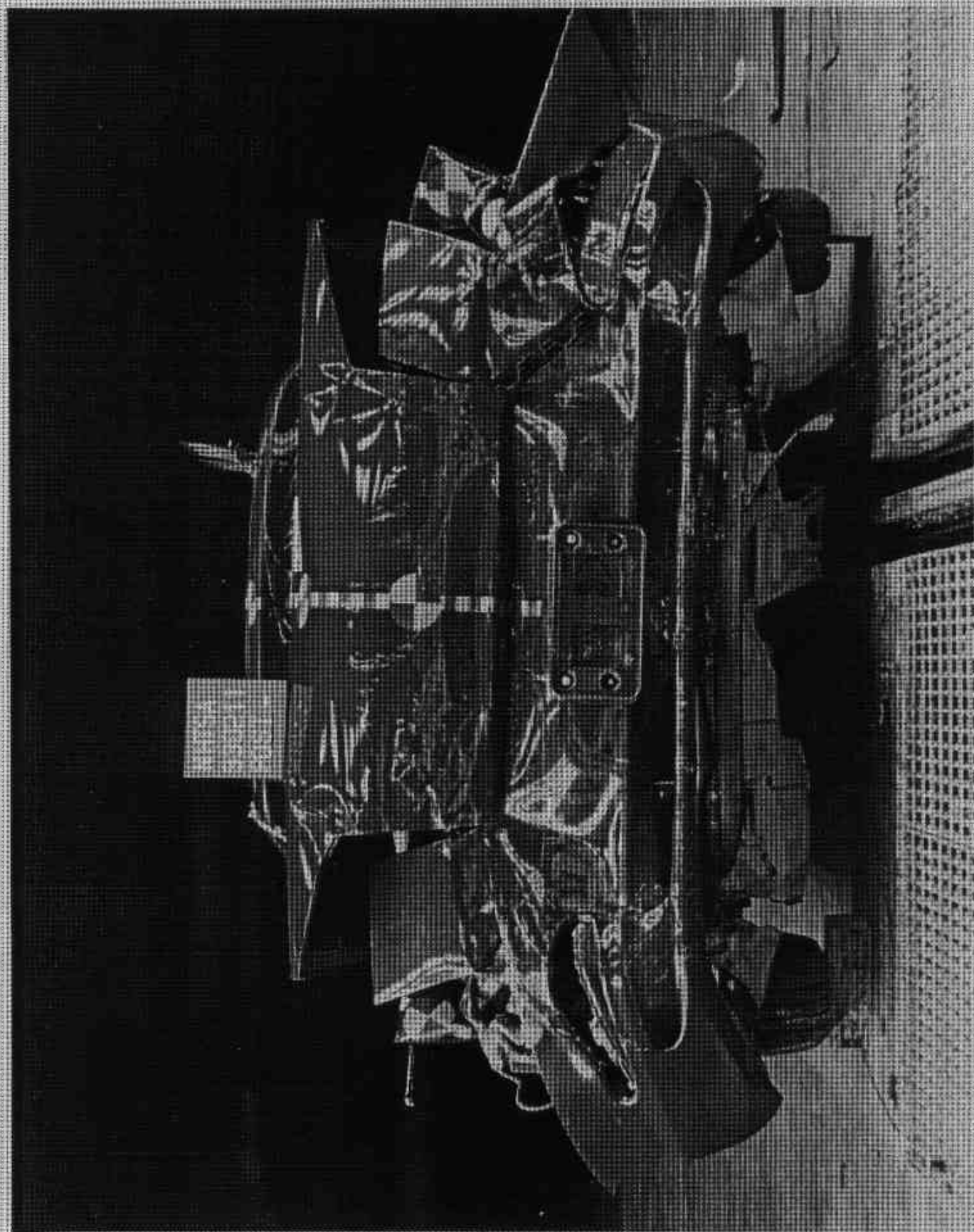


Figure A-2. POST-TEST FRONT VIEW
A-3

930211

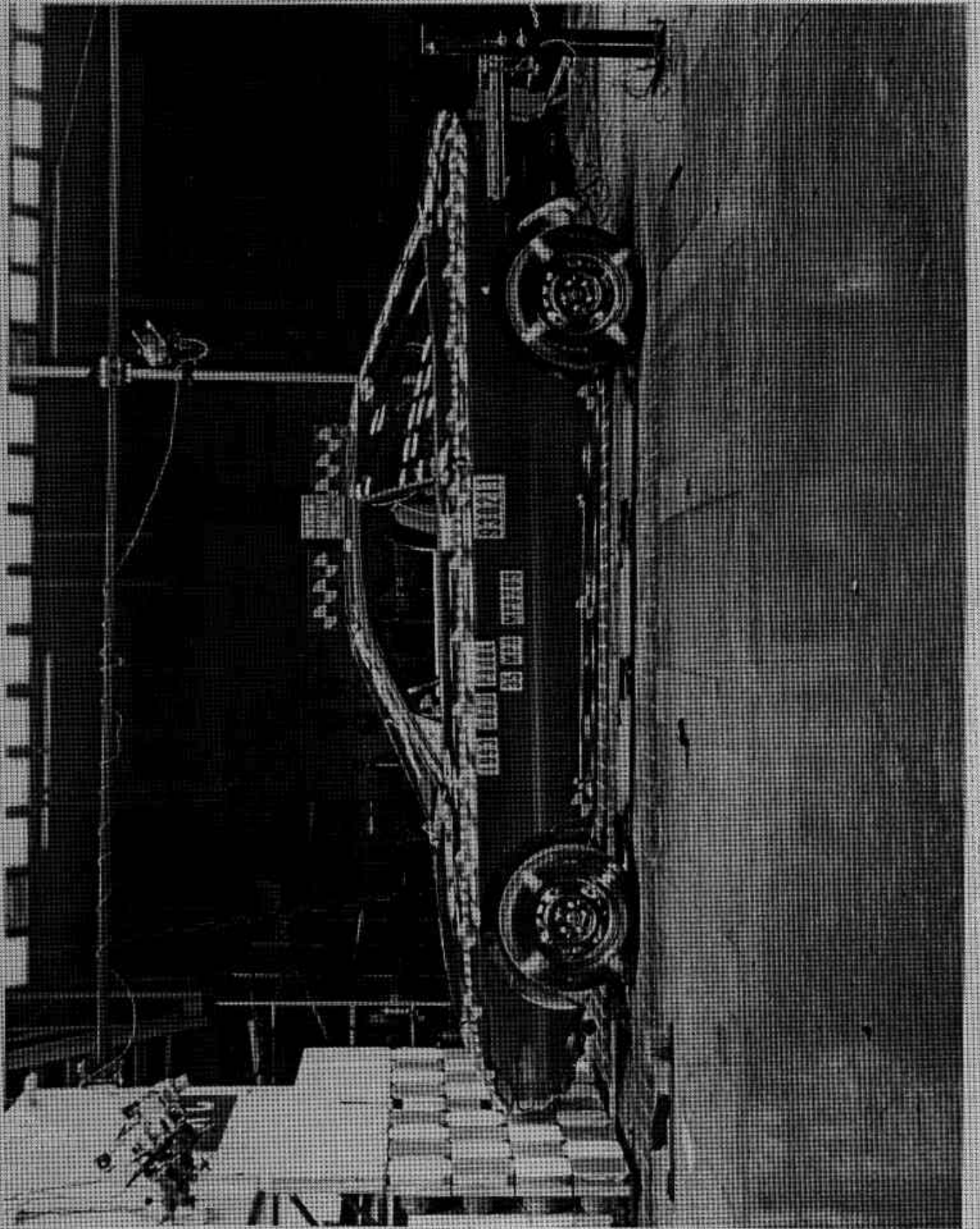


Figure A-3. PRE-TEST LEFT SIDE VIEW

A-4

930211

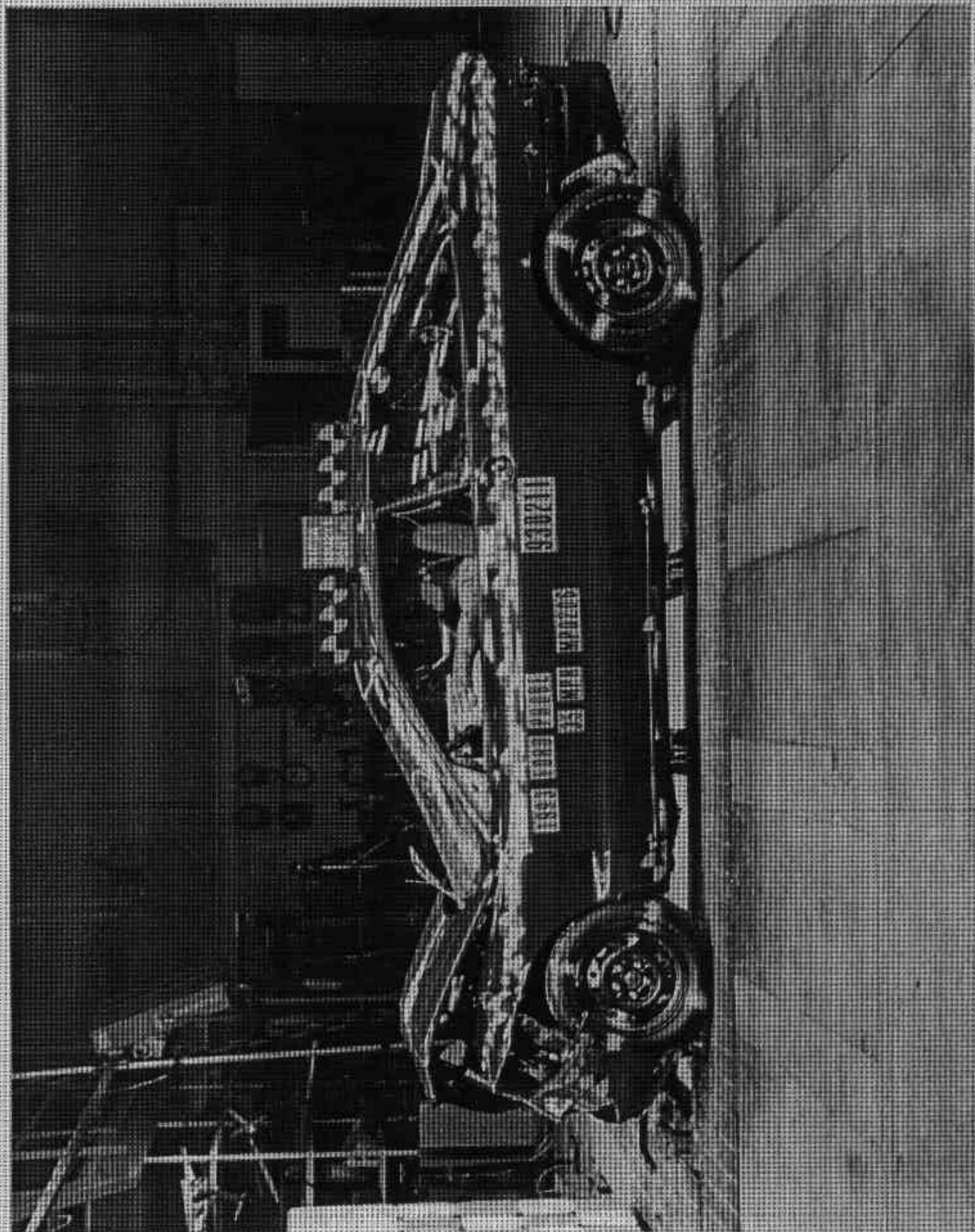


Figure A-4. POST-TEST LEFT SIDE VIEW
A-5

930211

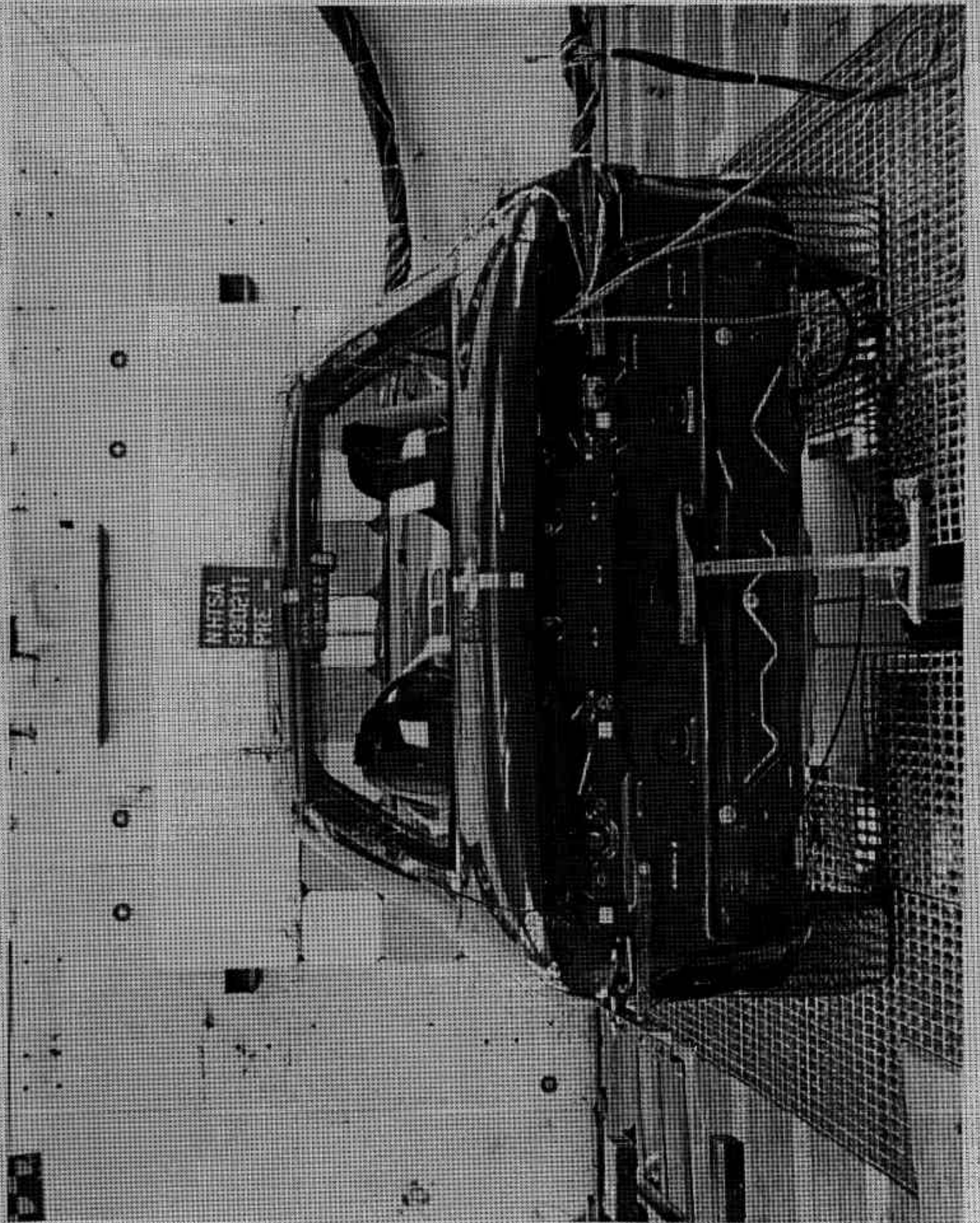


Figure A-5. PRE-TEST REAR VIEW

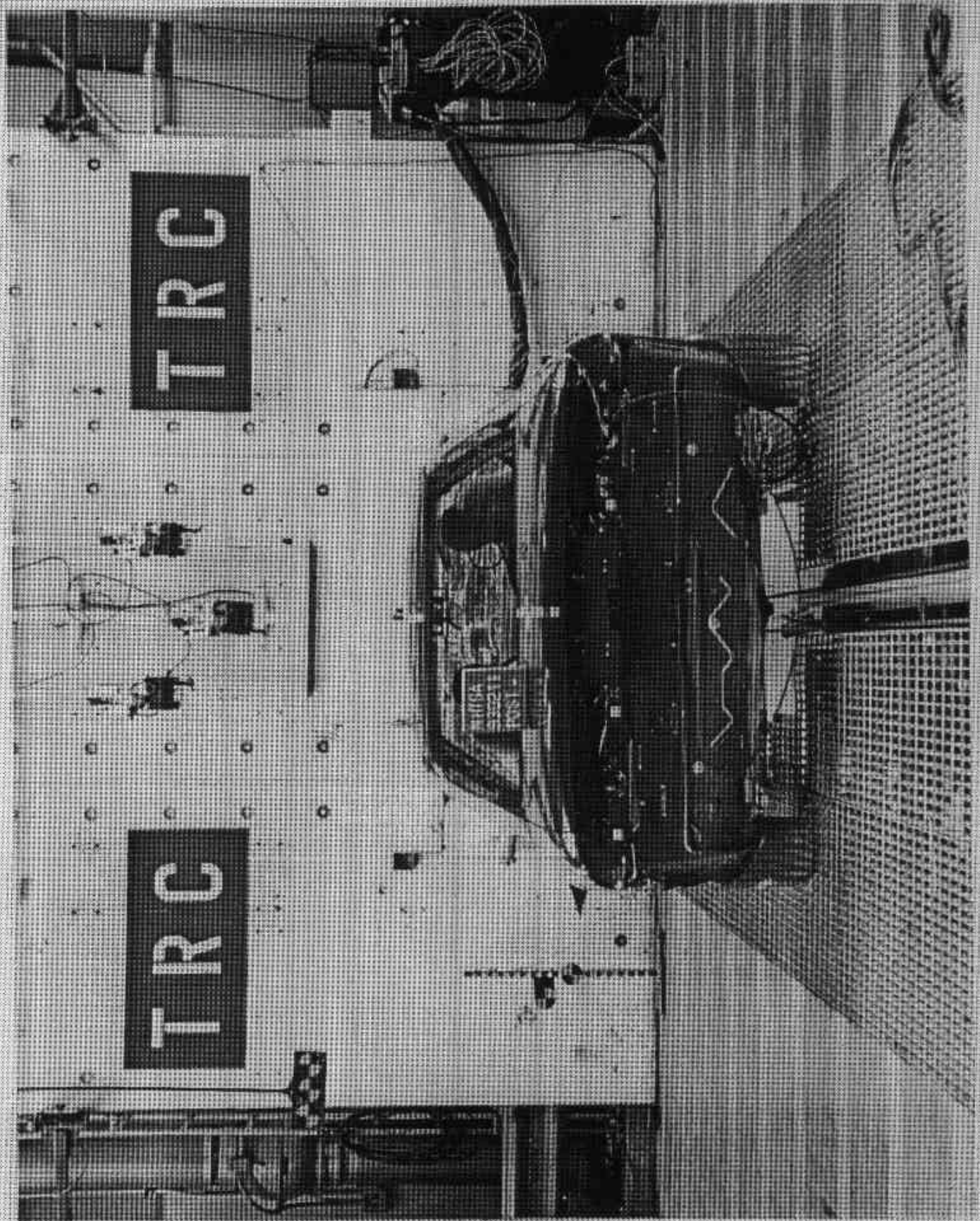


Figure A-6. POST-TEST REAR VIEW

A-7

930211

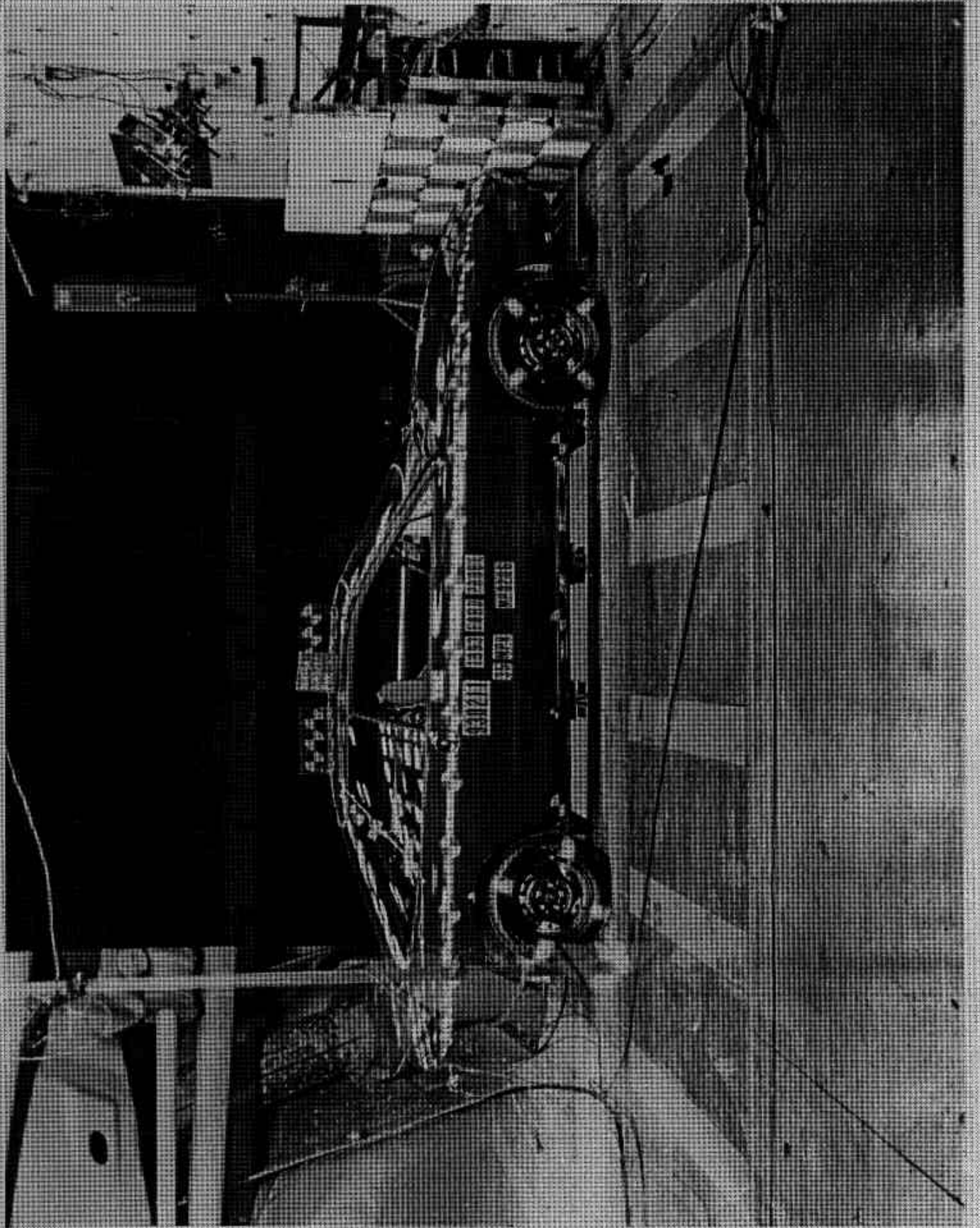


Figure A-7. PRE-TEST RIGHT SIDE VIEW

A-8

930211

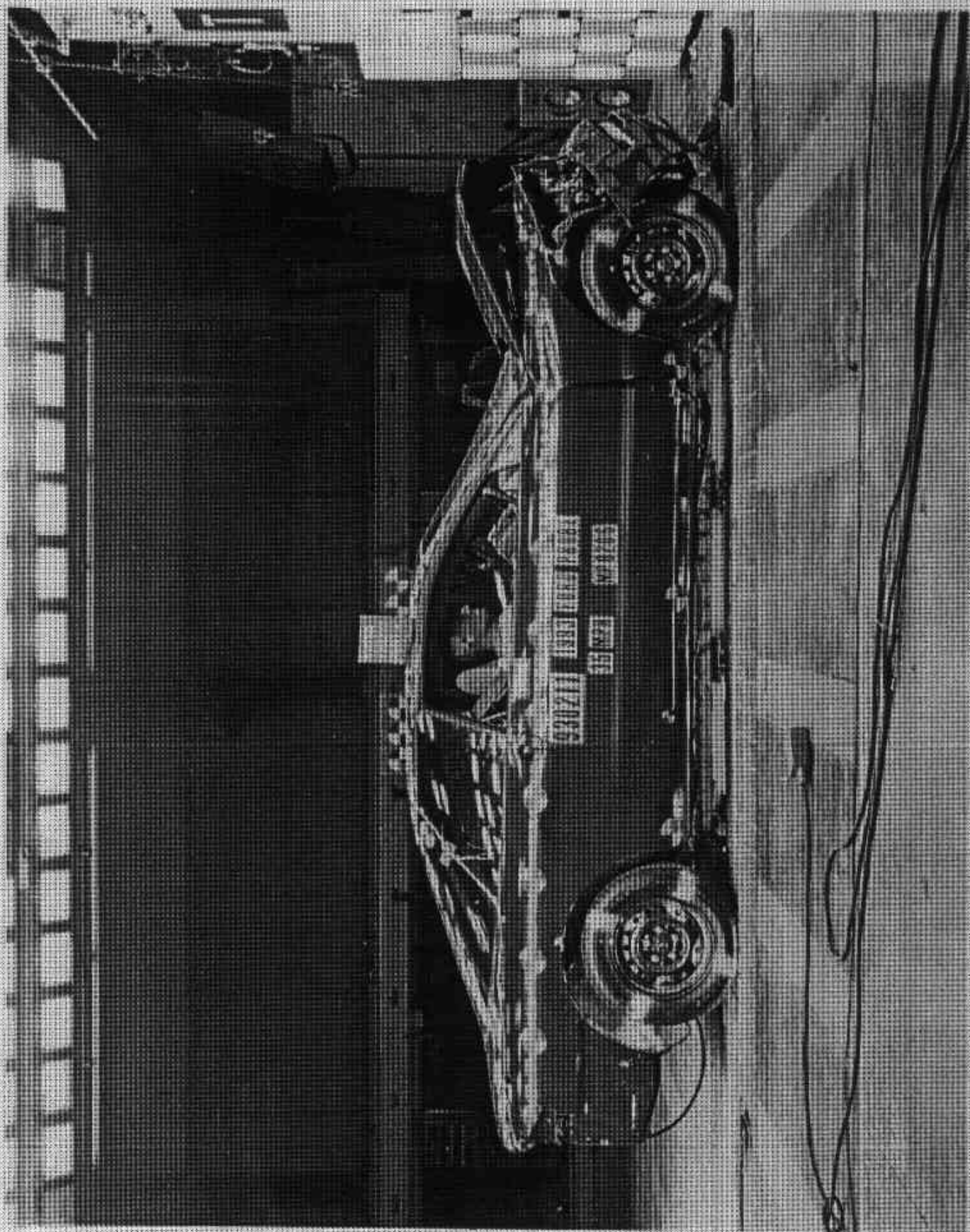


Figure A-8. POST-TEST RIGHT SIDE VIEW

A-9

930211

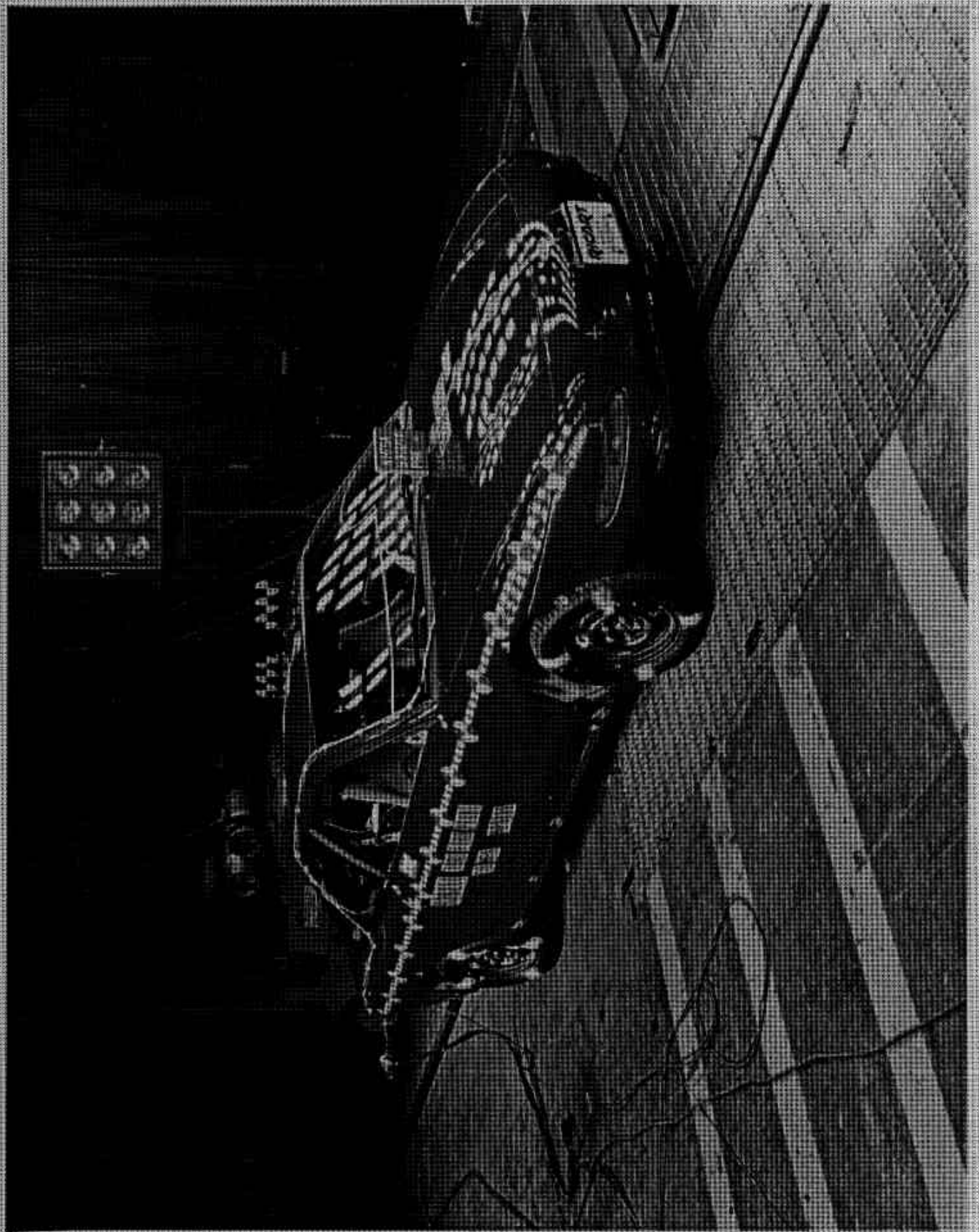


Figure A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

A-10

930211



Figure A-10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

A-11

930211

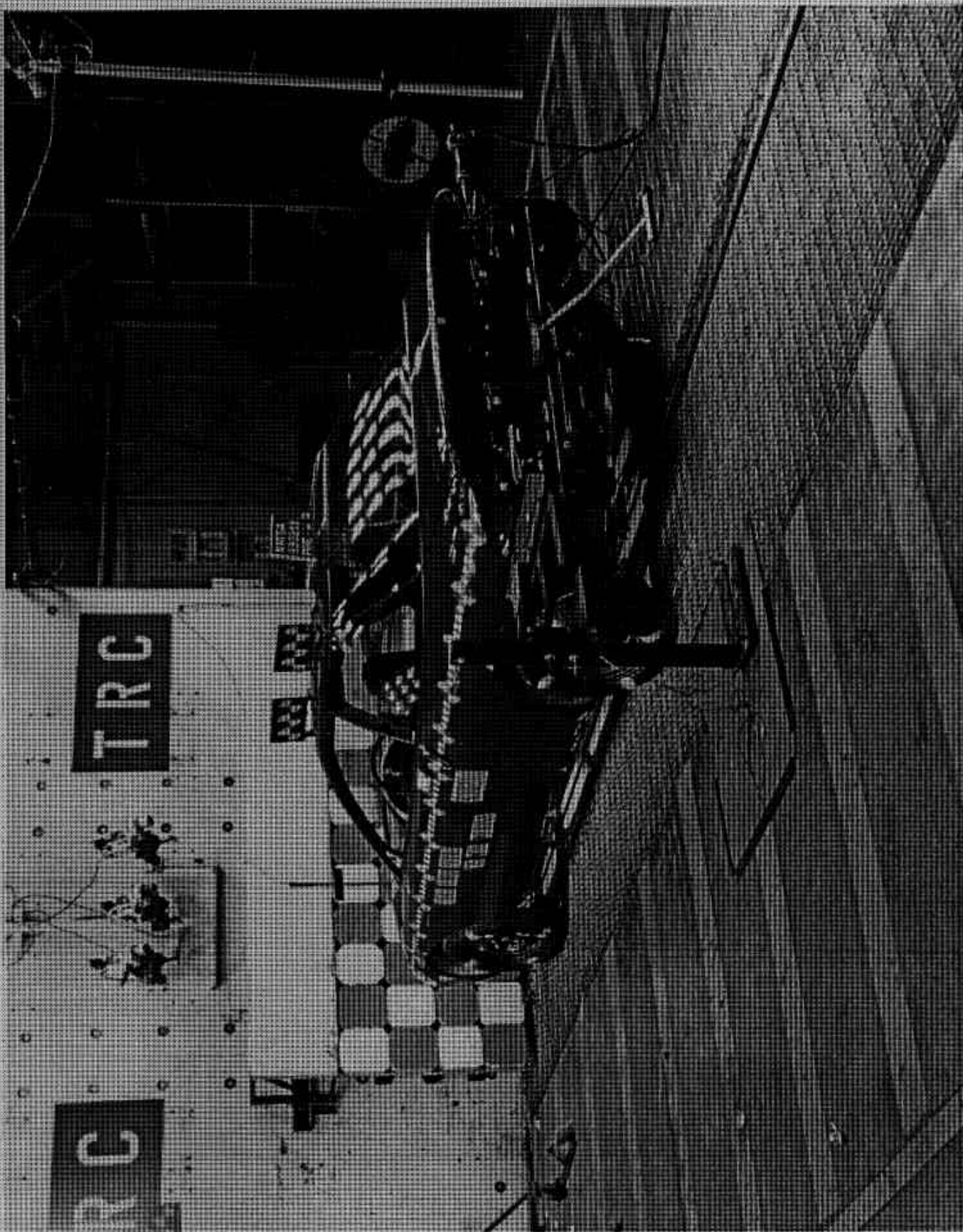


Figure A-11. PRE-TEST LEFT REAR THREE-QUARTER VIEW

A-12

930211

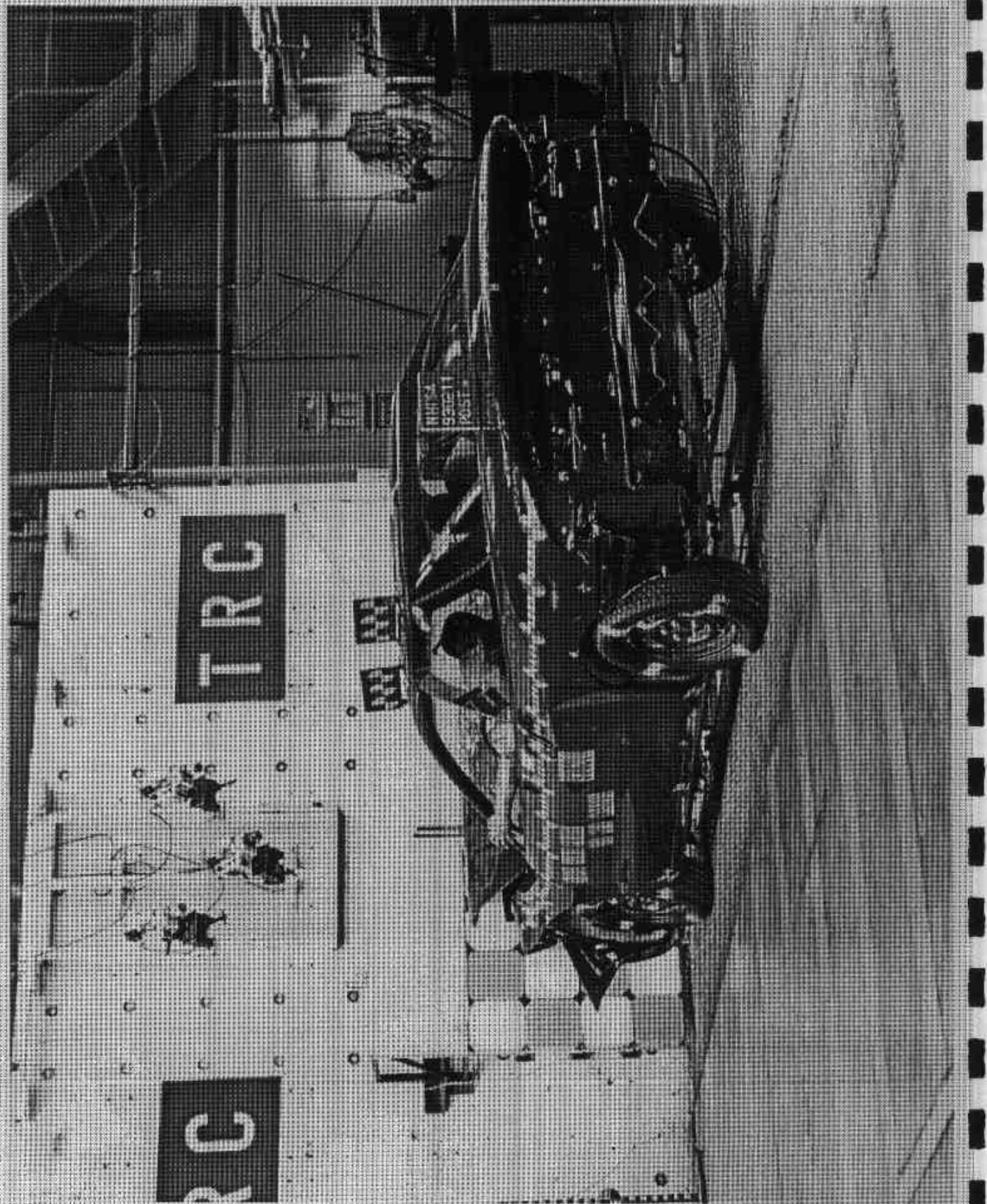


Figure A-12. POST-TEST LEFT REAR THREE-QUARTER VIEW

A-13

930211

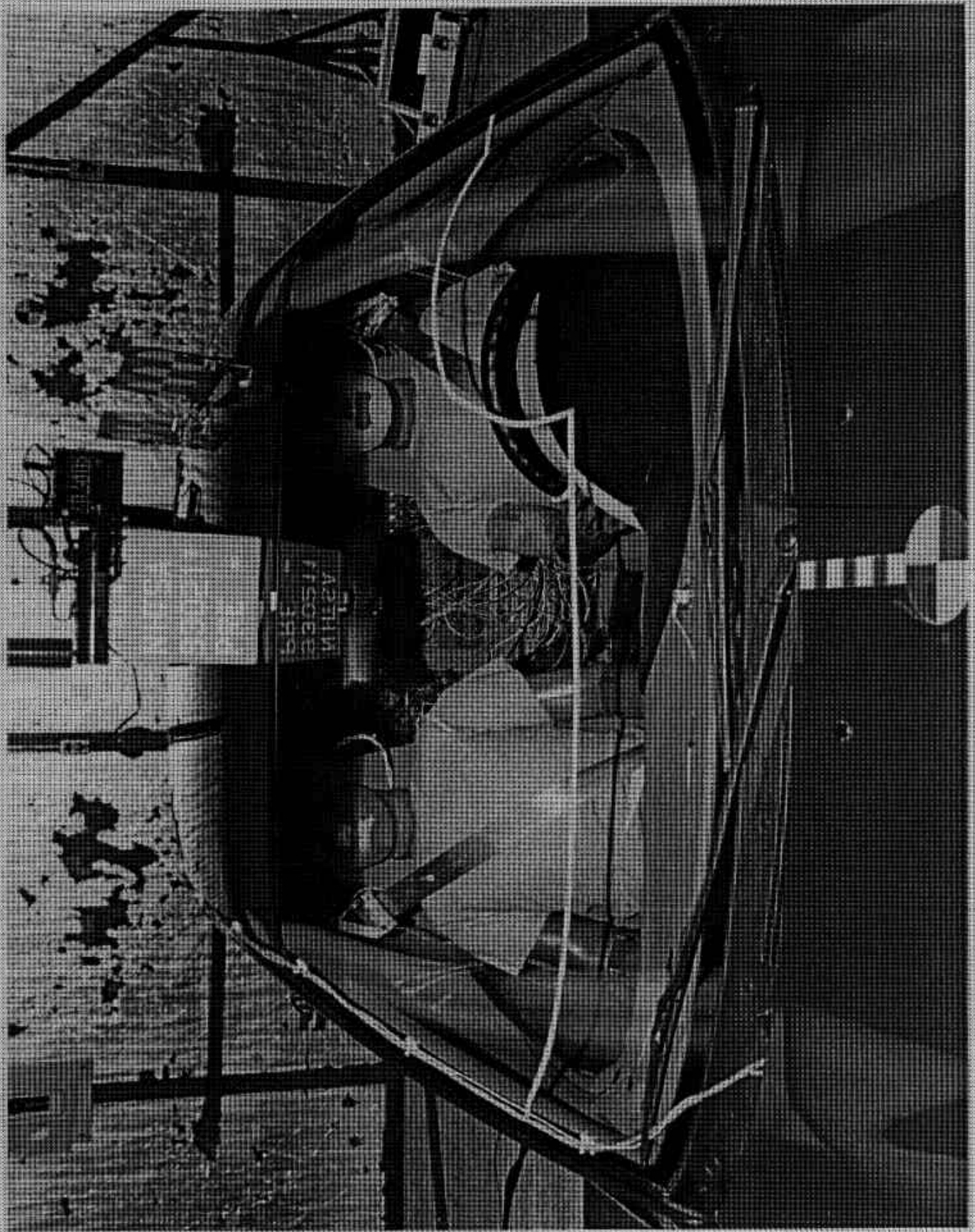


Figure A-13. PRE-TEST WINDSHIELD VIEW

A-14

930211

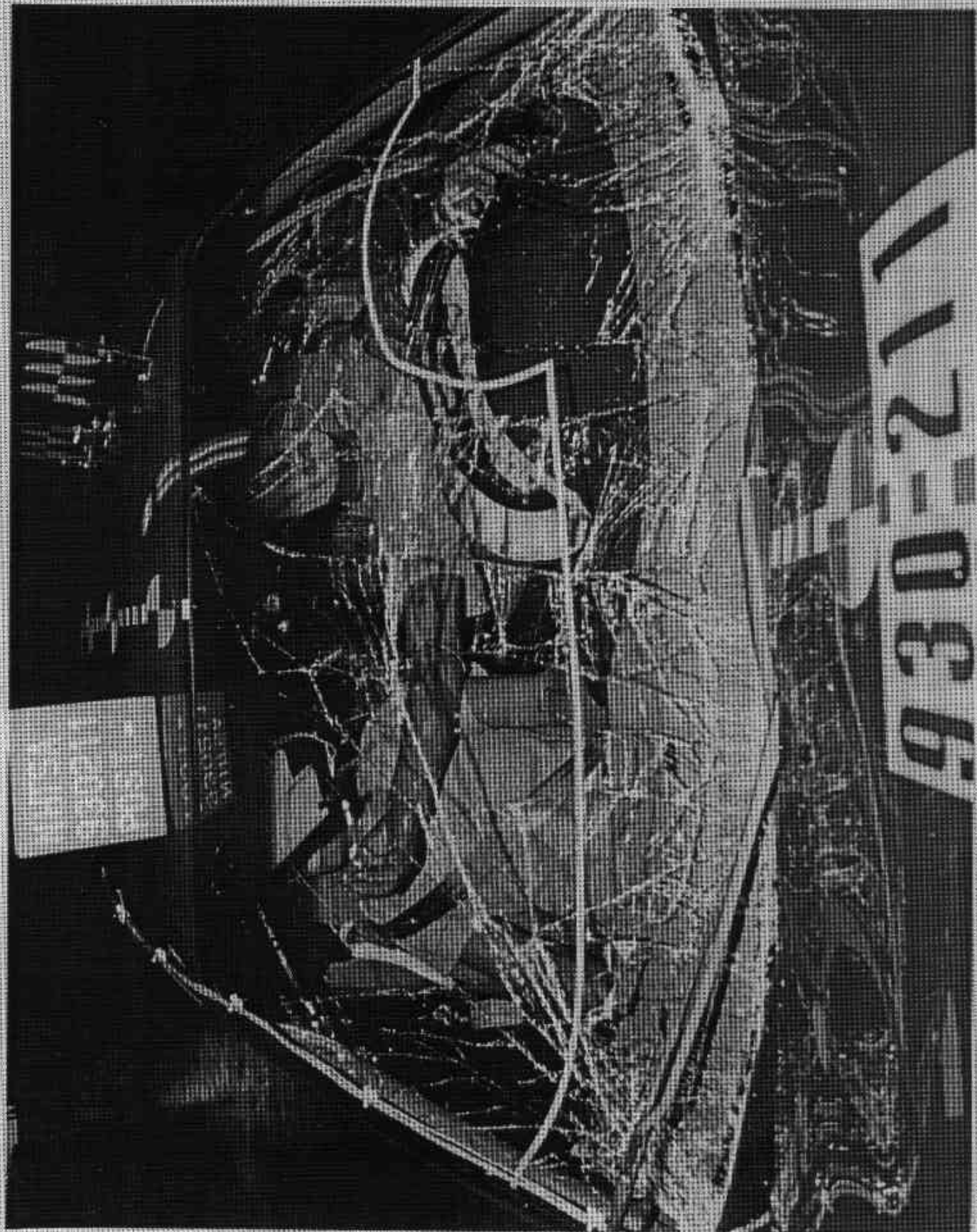


Figure A-14. POST-TEST WINDSHIELD VIEW

A-15

930211

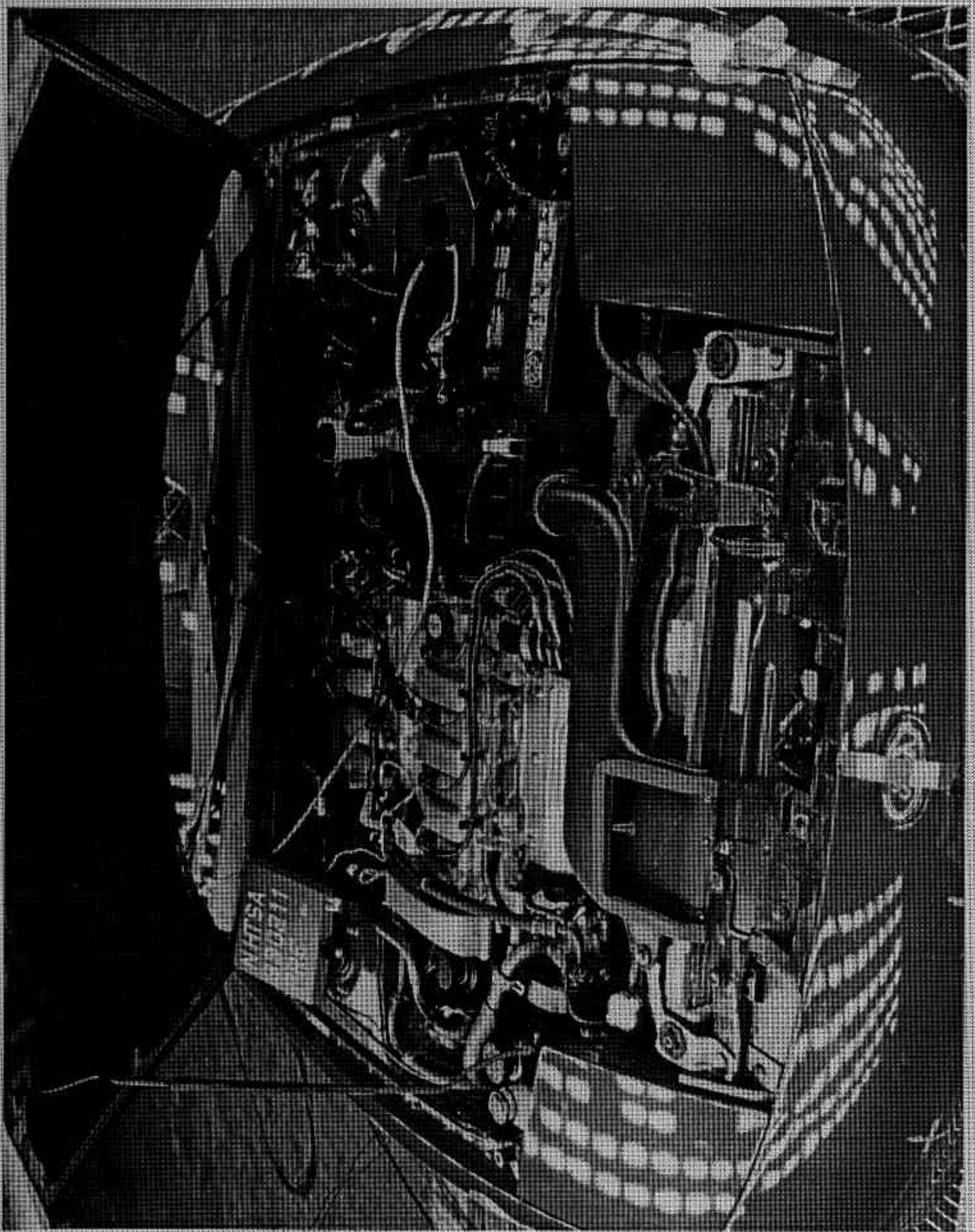


Figure A-15. PRE-TEST ENGINE COMPARTMENT VIEW

A-16

930211

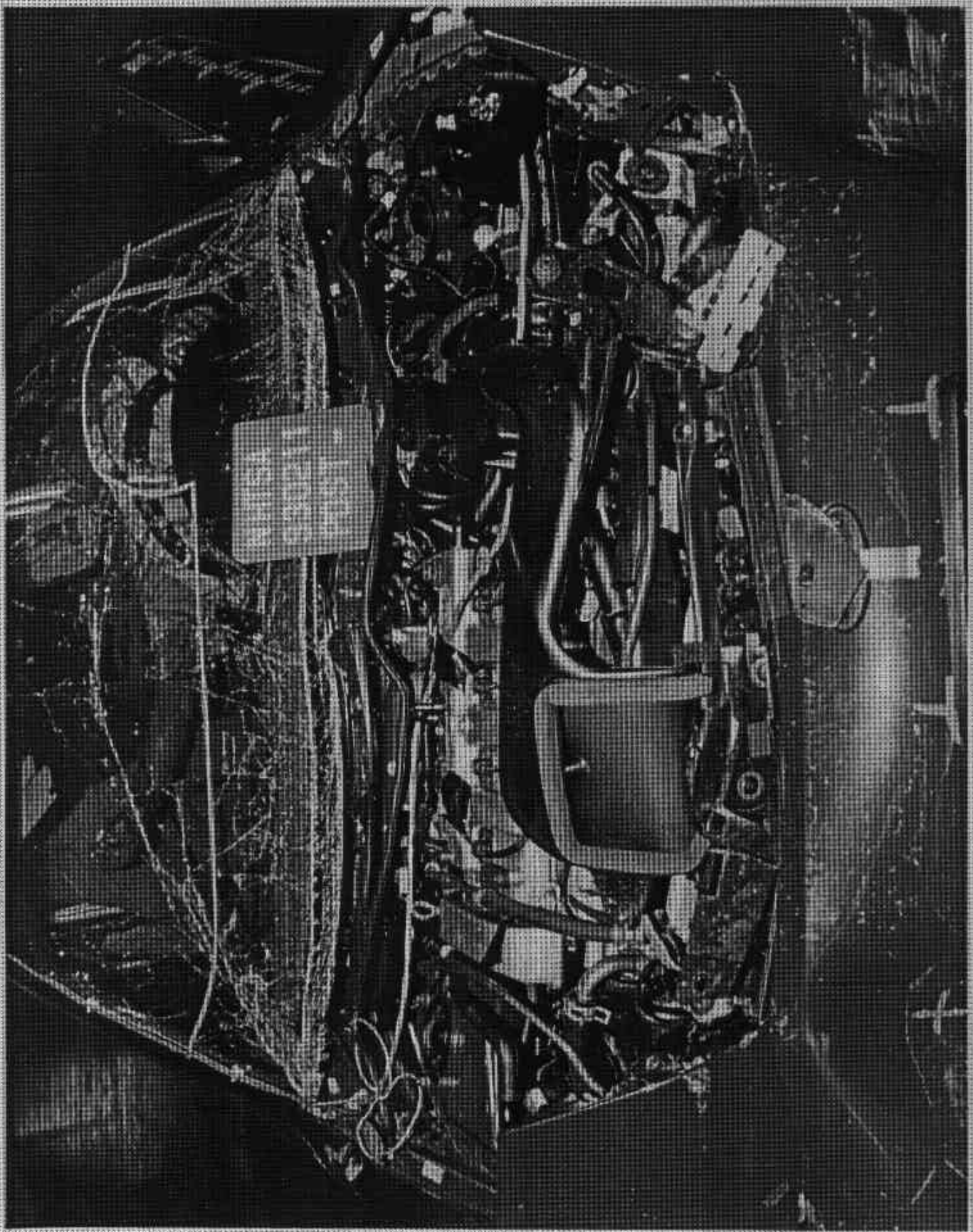


Figure A-16. POST-TEST ENGINE COMPARTMENT VIEW

A-17

930211



Figure A-17. PRE-TEST FUEL FILLER CAP VIEW

A-18

930211



Figure A-18. POST-TEST FUEL FILLER CAP VIEW

A-19

930211

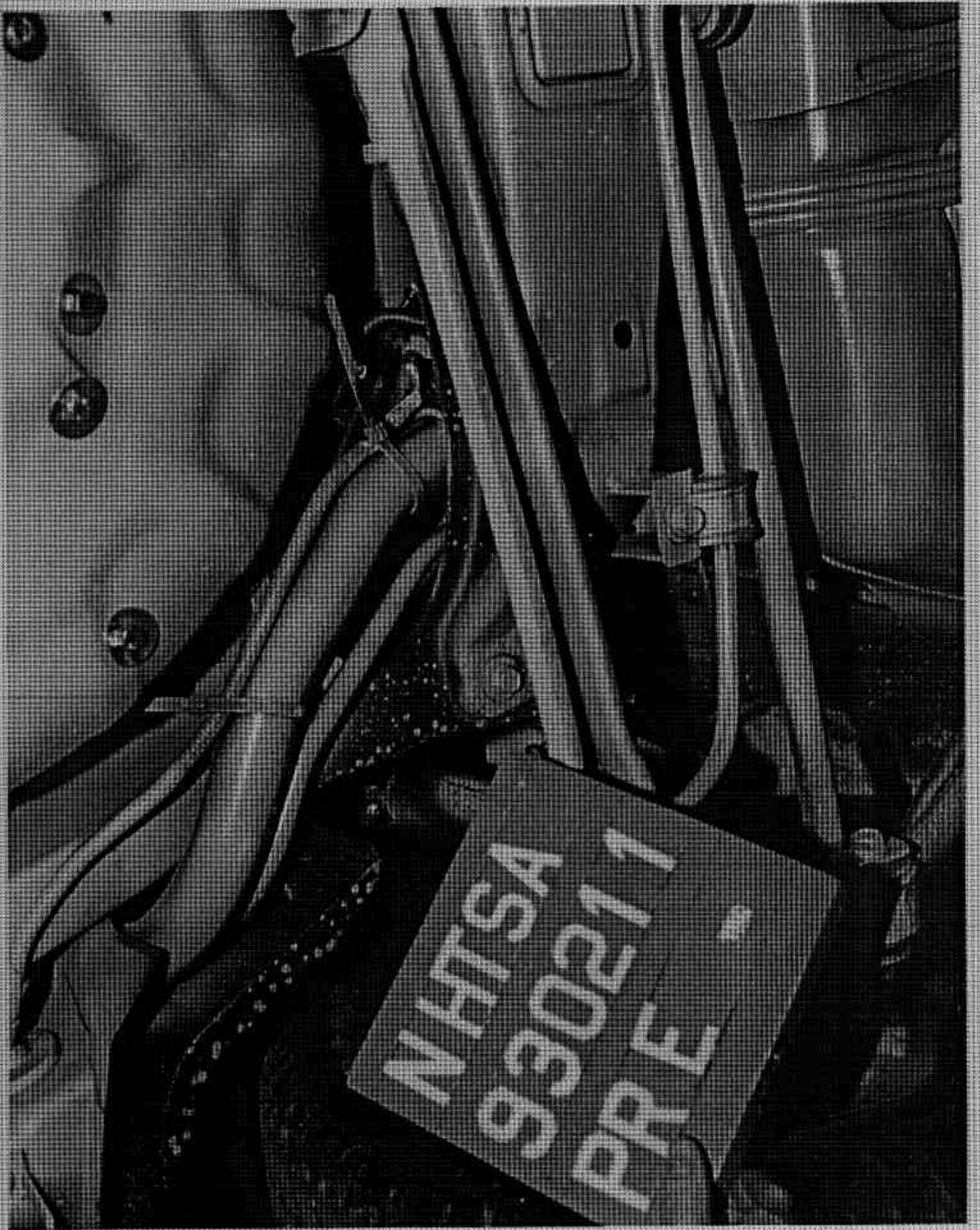


Figure A-19. PRE-TEST FUEL FILLER NECK VIEW

A-20

930211

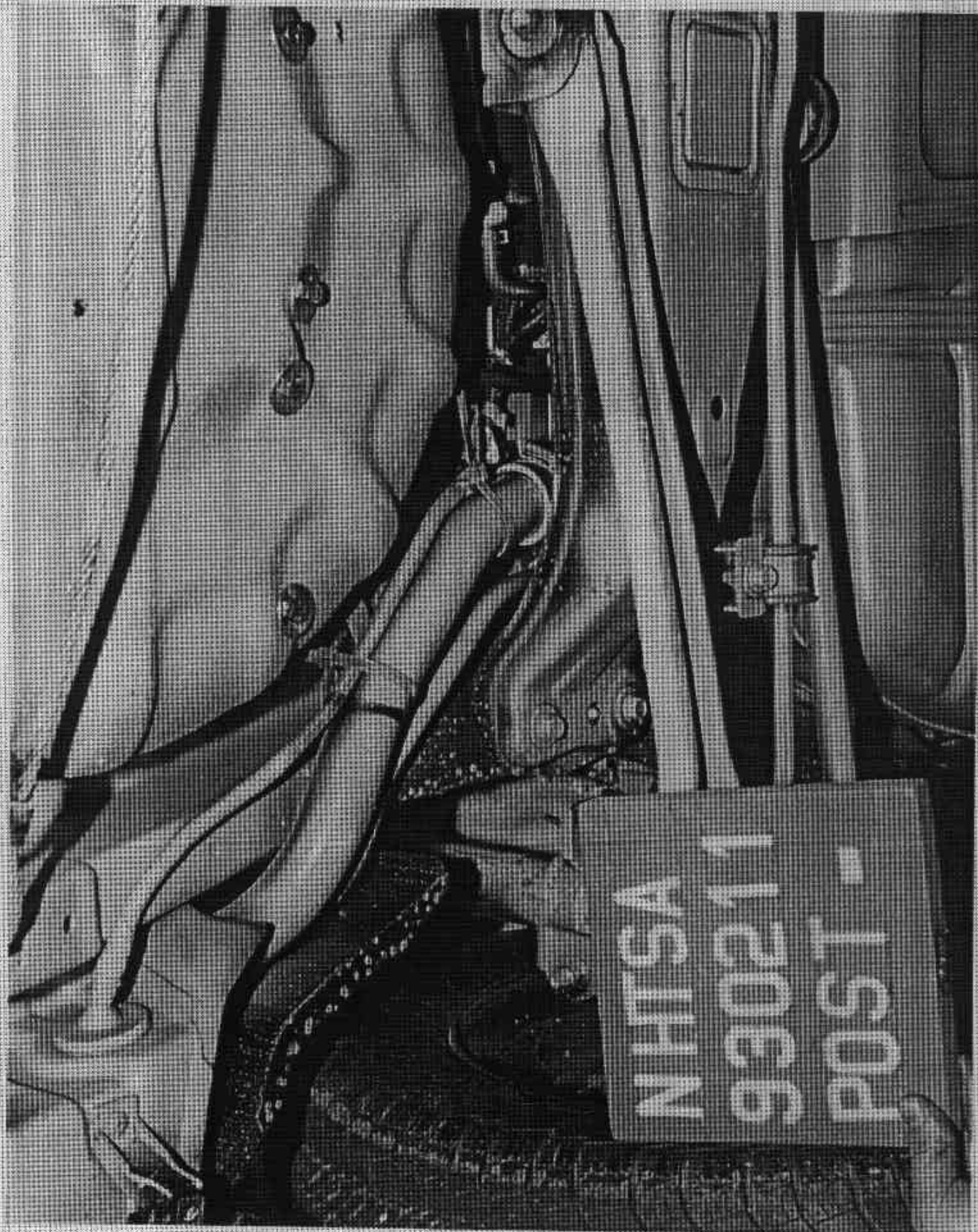


Figure A-20. POST-TEST FUEL FILLER NECK VIEW

A-21

930211

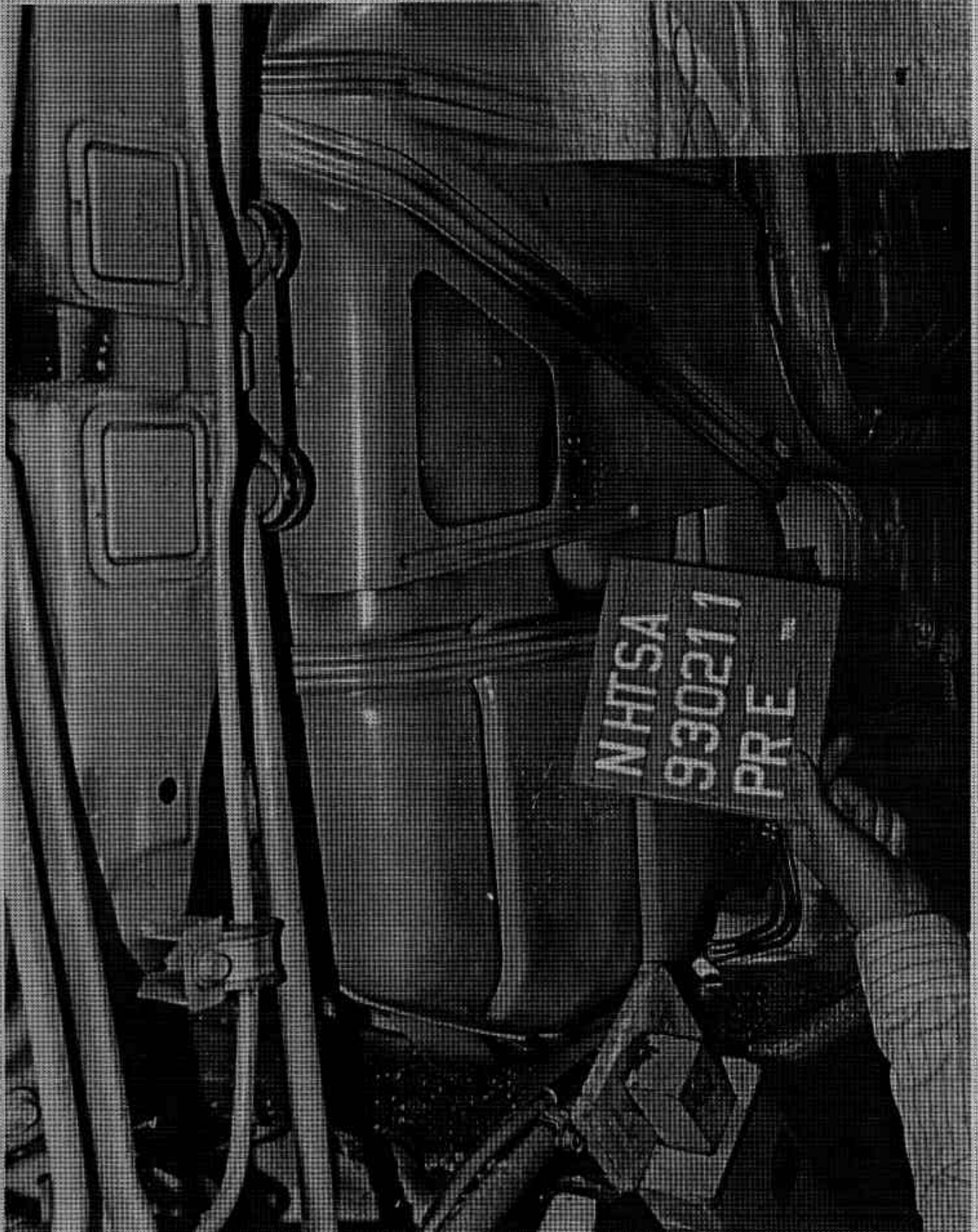


Figure A-21. PRE-TEST FUEL TANK VIEW

A-22

930211

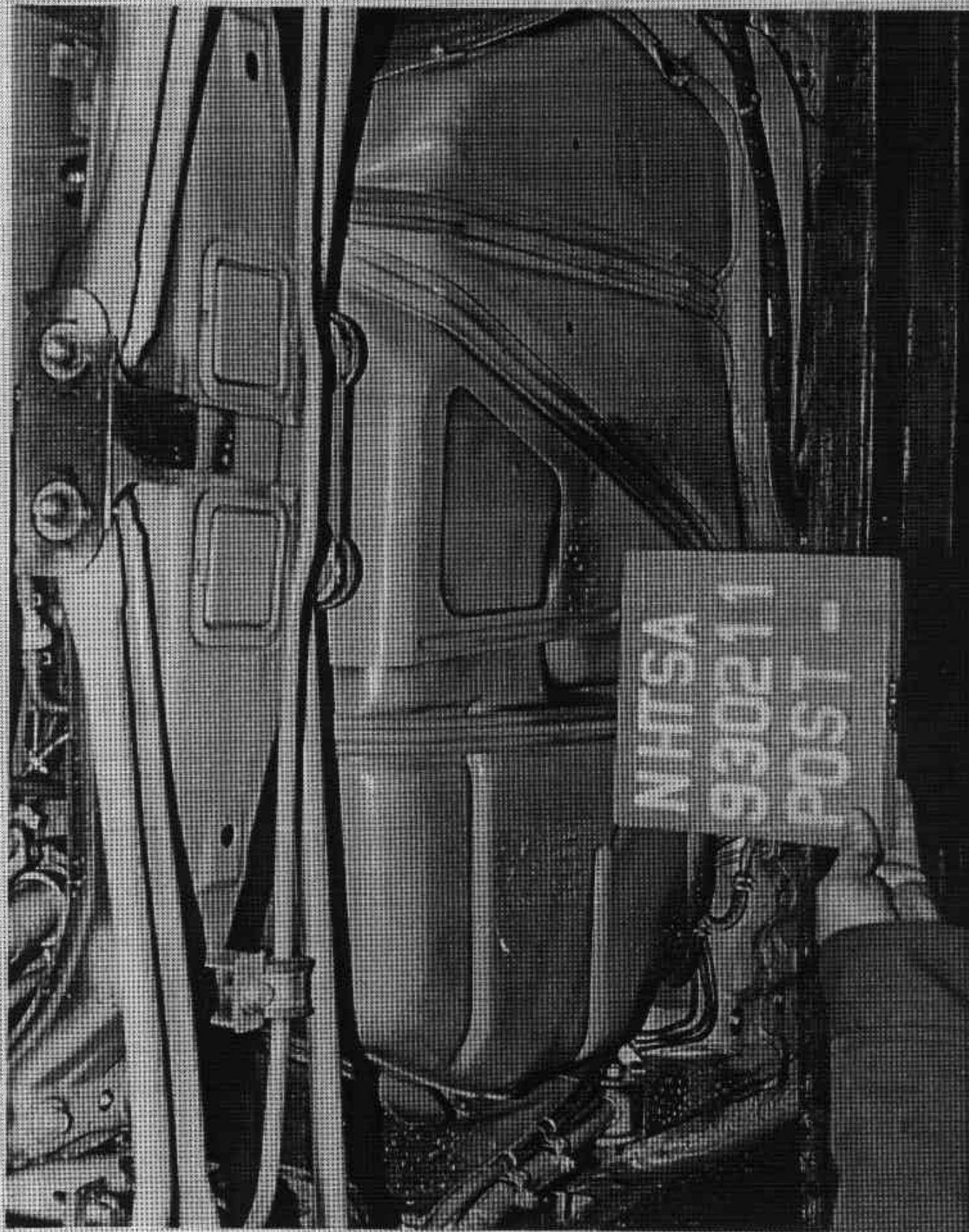


Figure A-22. POST-TEST FUEL TANK VIEW
A-23

930211

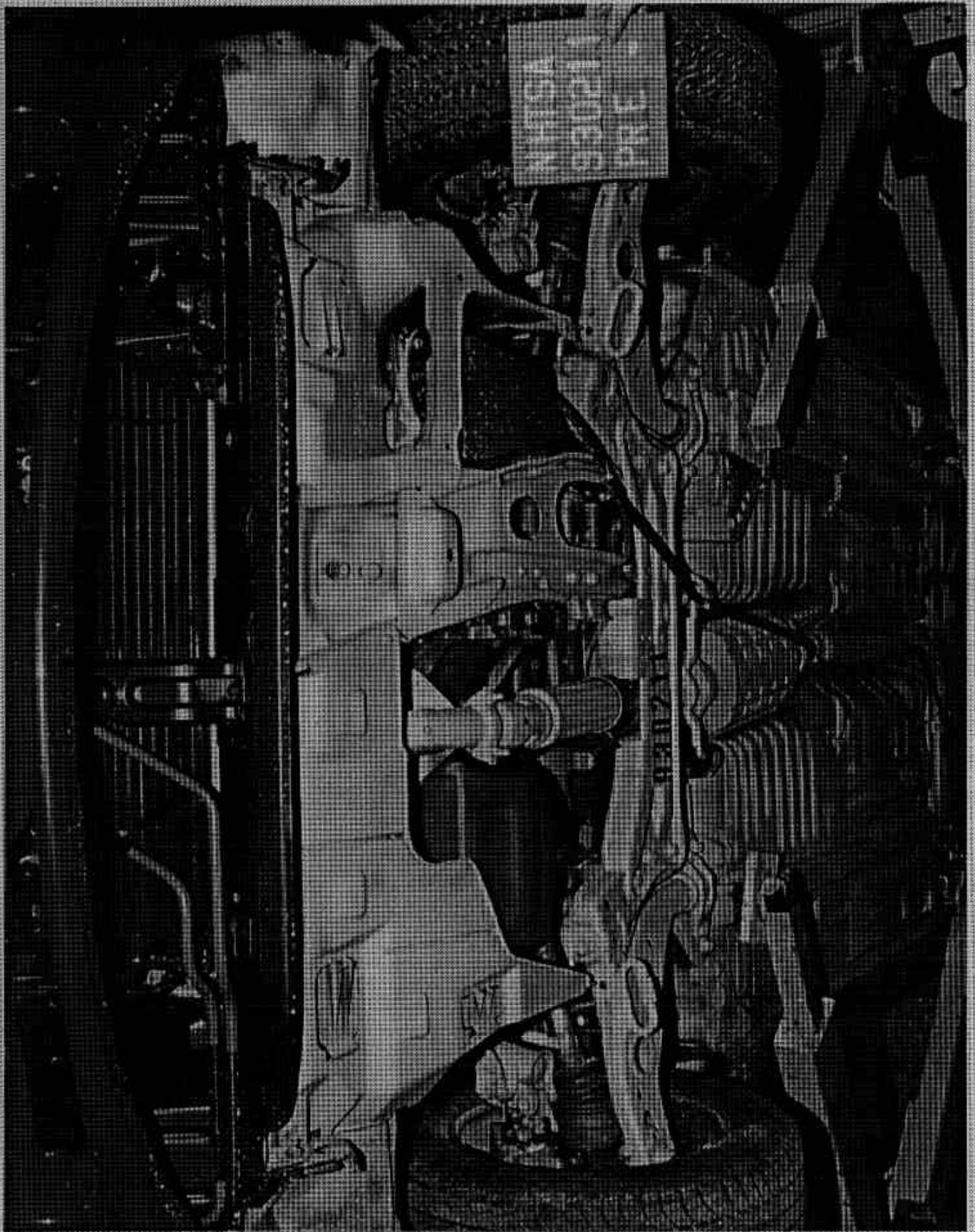


Figure A-23. PRE-TEST FRONT UNDERBODY VIEW

A-24

930211

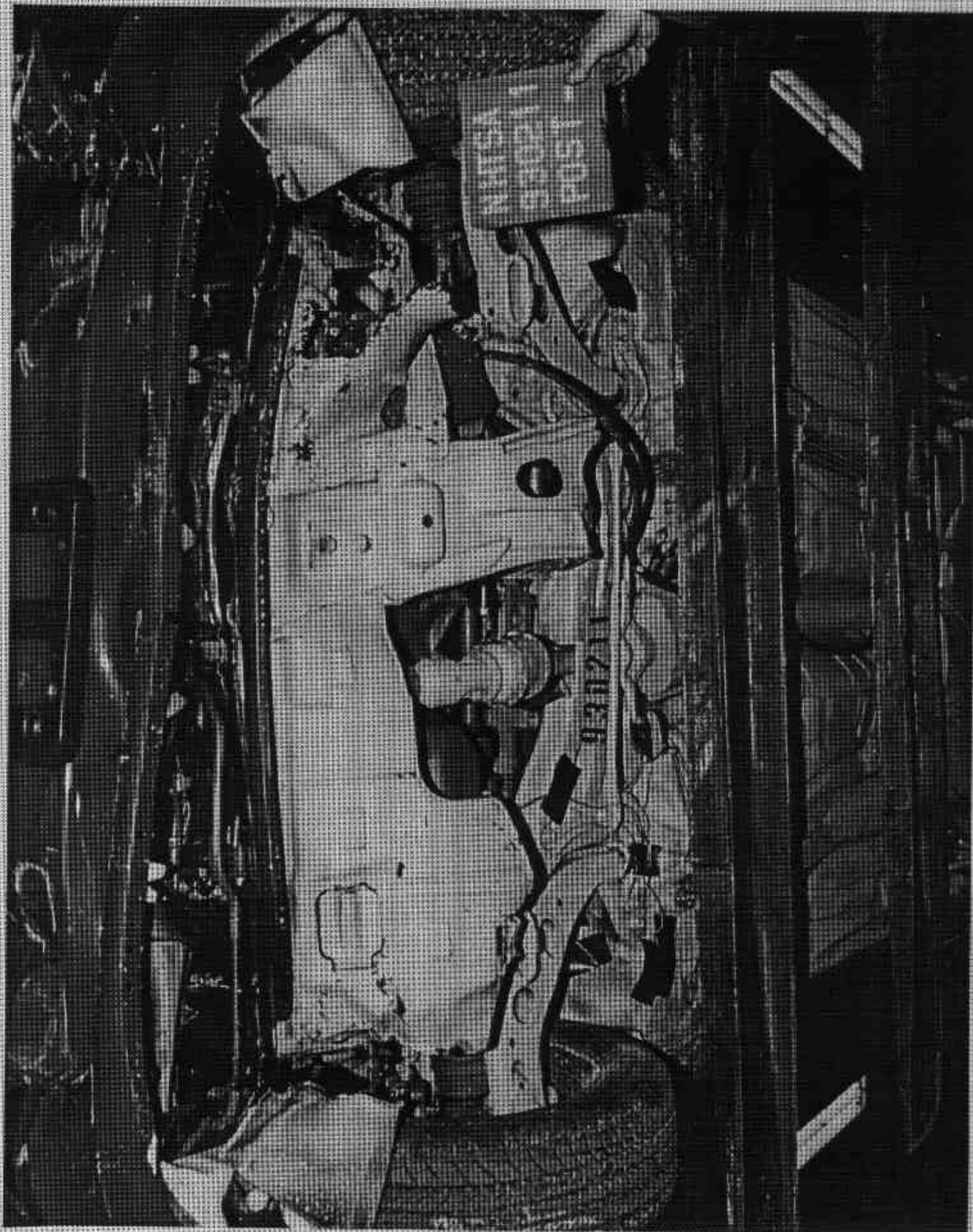


Figure A-24. POST-TEST FRONT UNDERBODY VIEW

A-25

930211

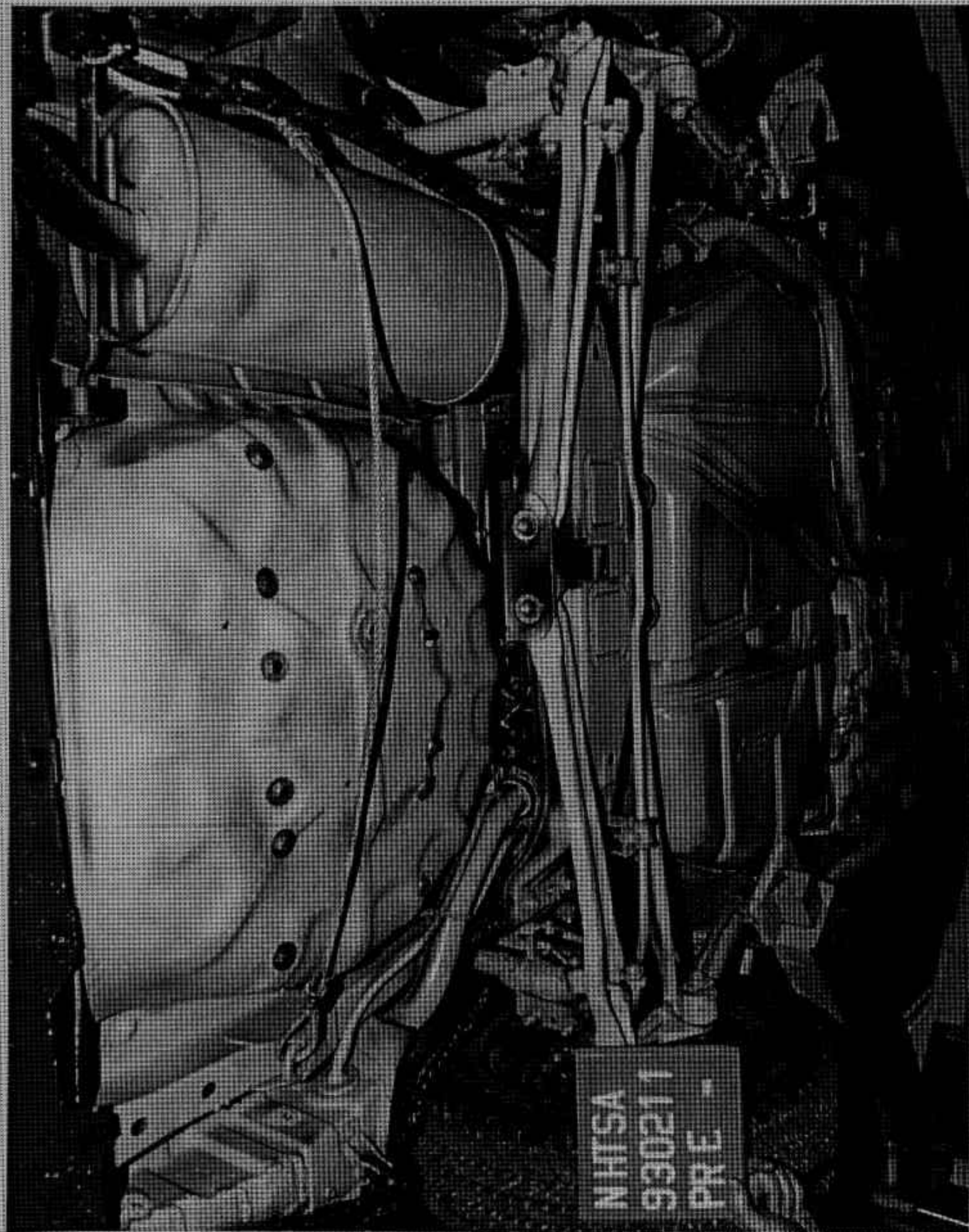


Figure A-25. PRE-TEST REAR UNDERBODY VIEW

A-26

930211

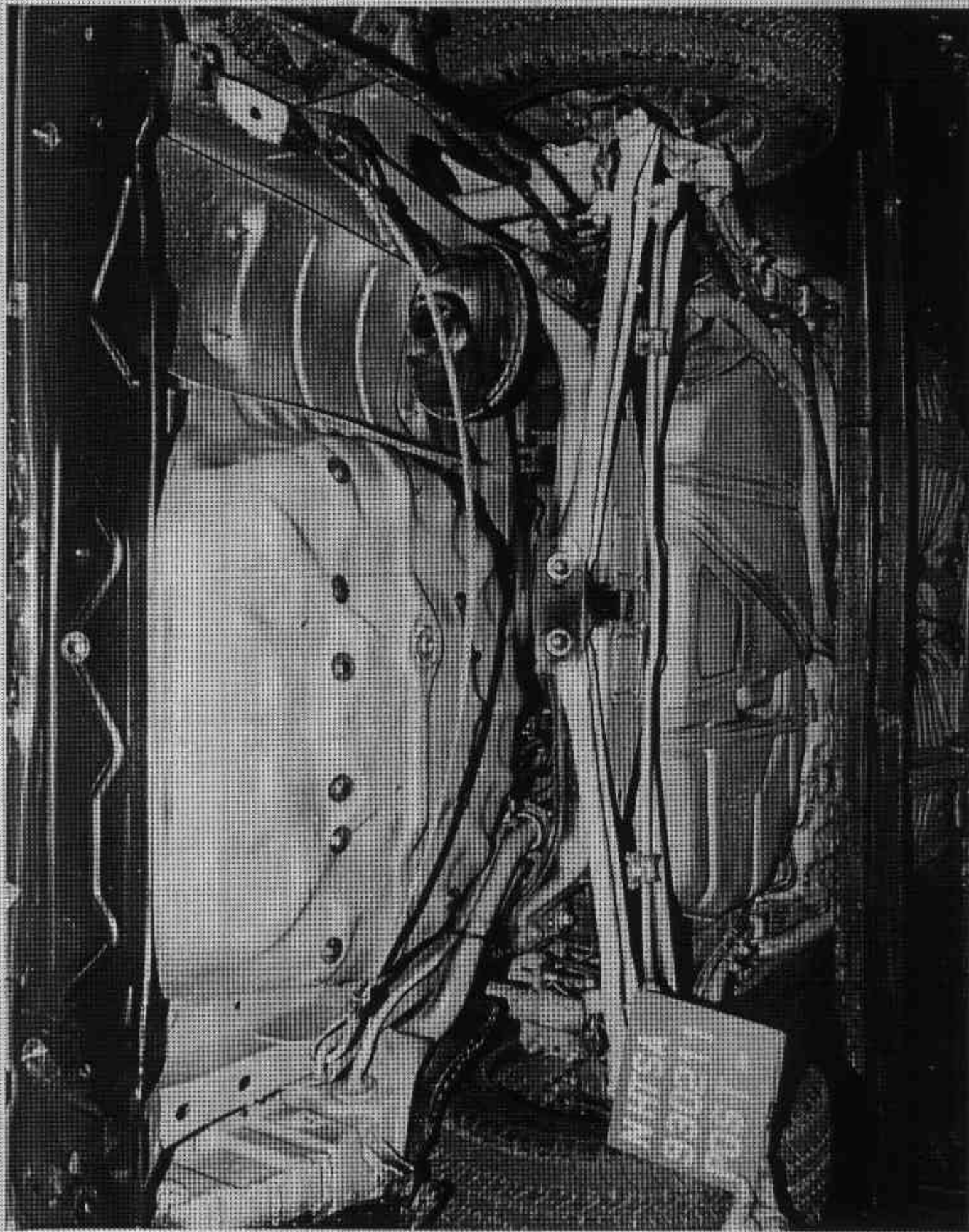


Figure A-26. POST-TEST REAR UNDERBODY VIEW

A-27

930211

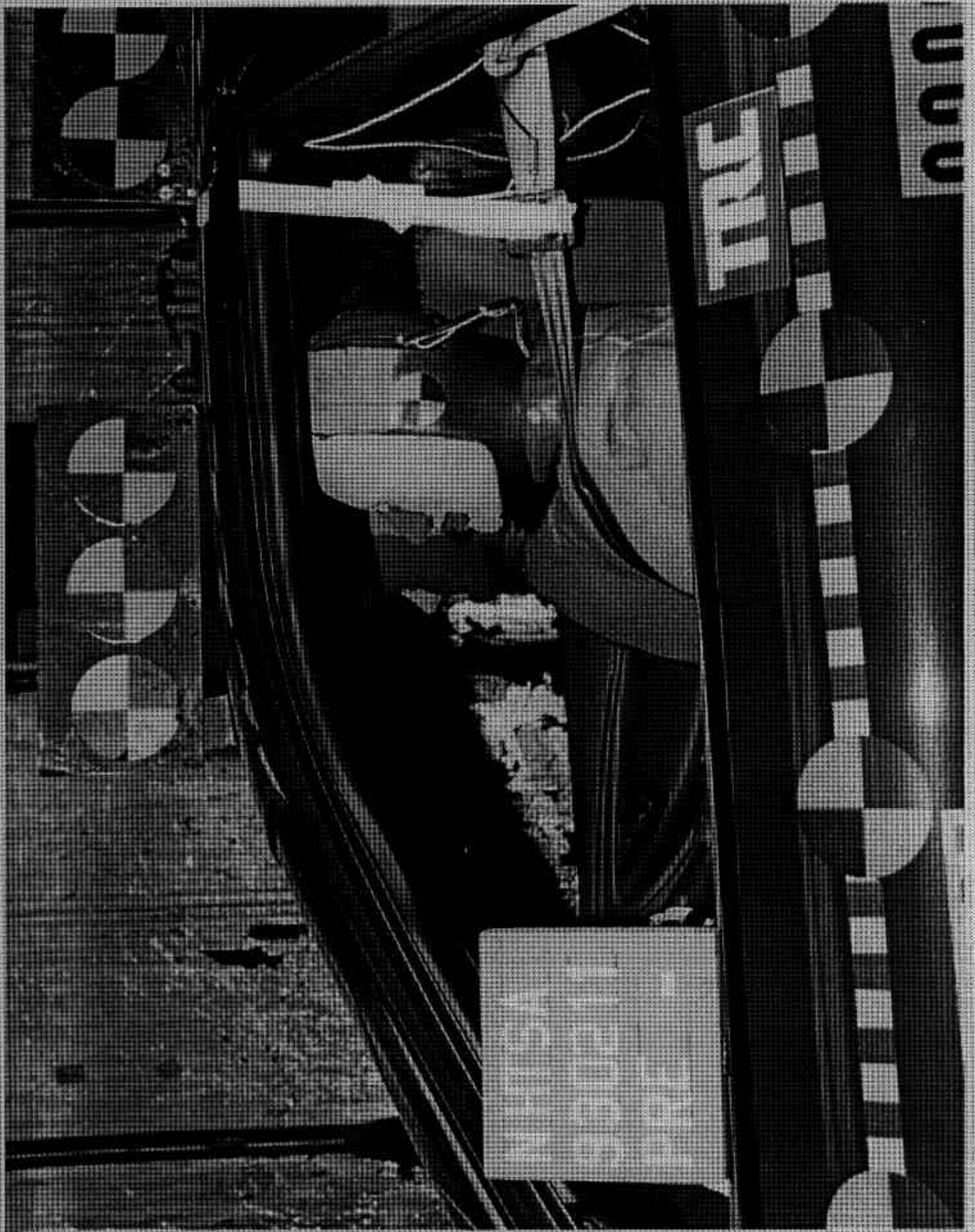


Figure A-27. PRE-TEST DRIVER DUMMY POSITION VIEW

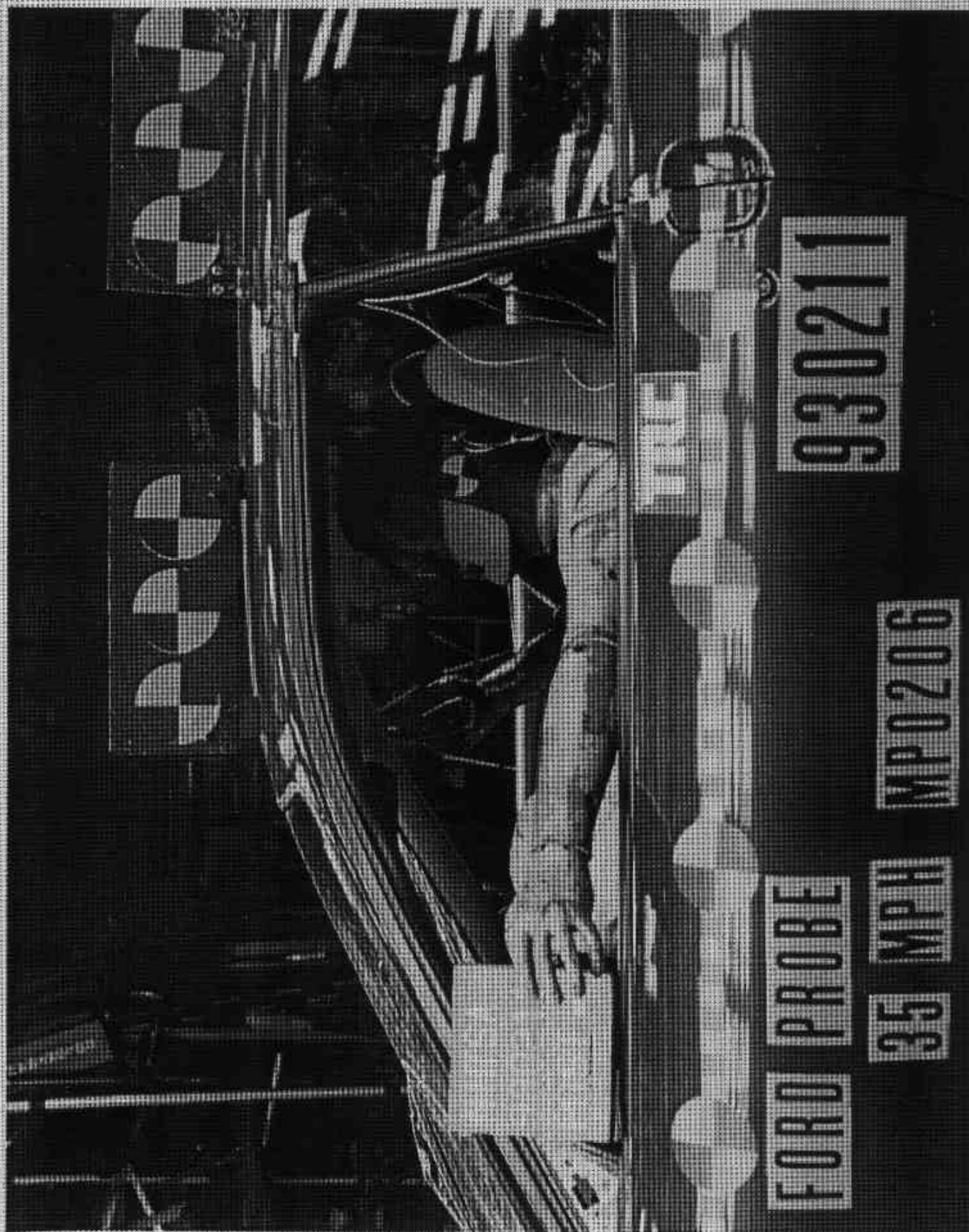


Figure A-28. POST-TEST DRIVER DUMMY POSITION VIEW



Figure A-29. PRE-TEST PASSENGER DUMMY POSITION VIEW

A-30

930211

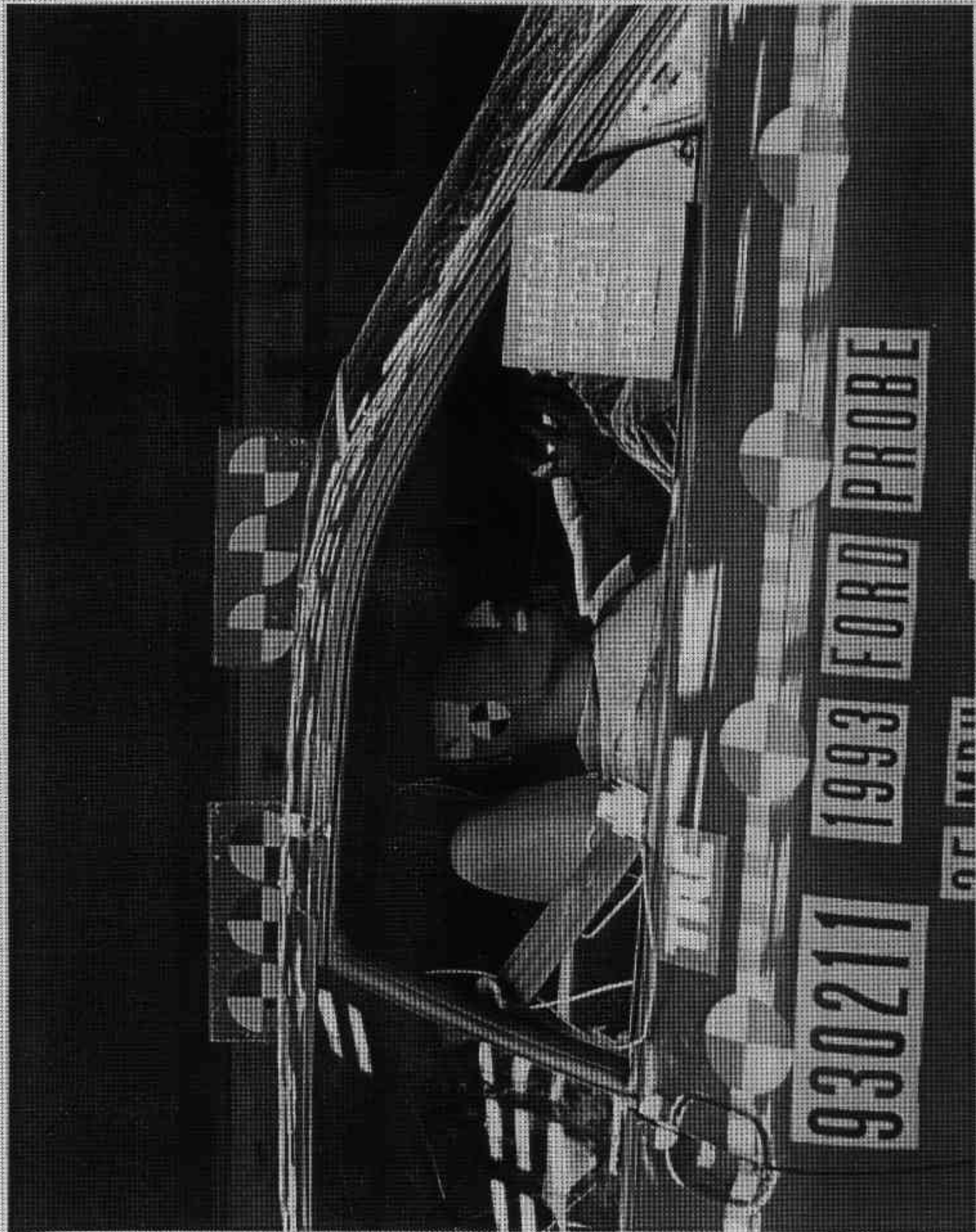


Figure A-30. POST-TEST PASSENGER DUMMY POSITION VIEW

A-31

930211

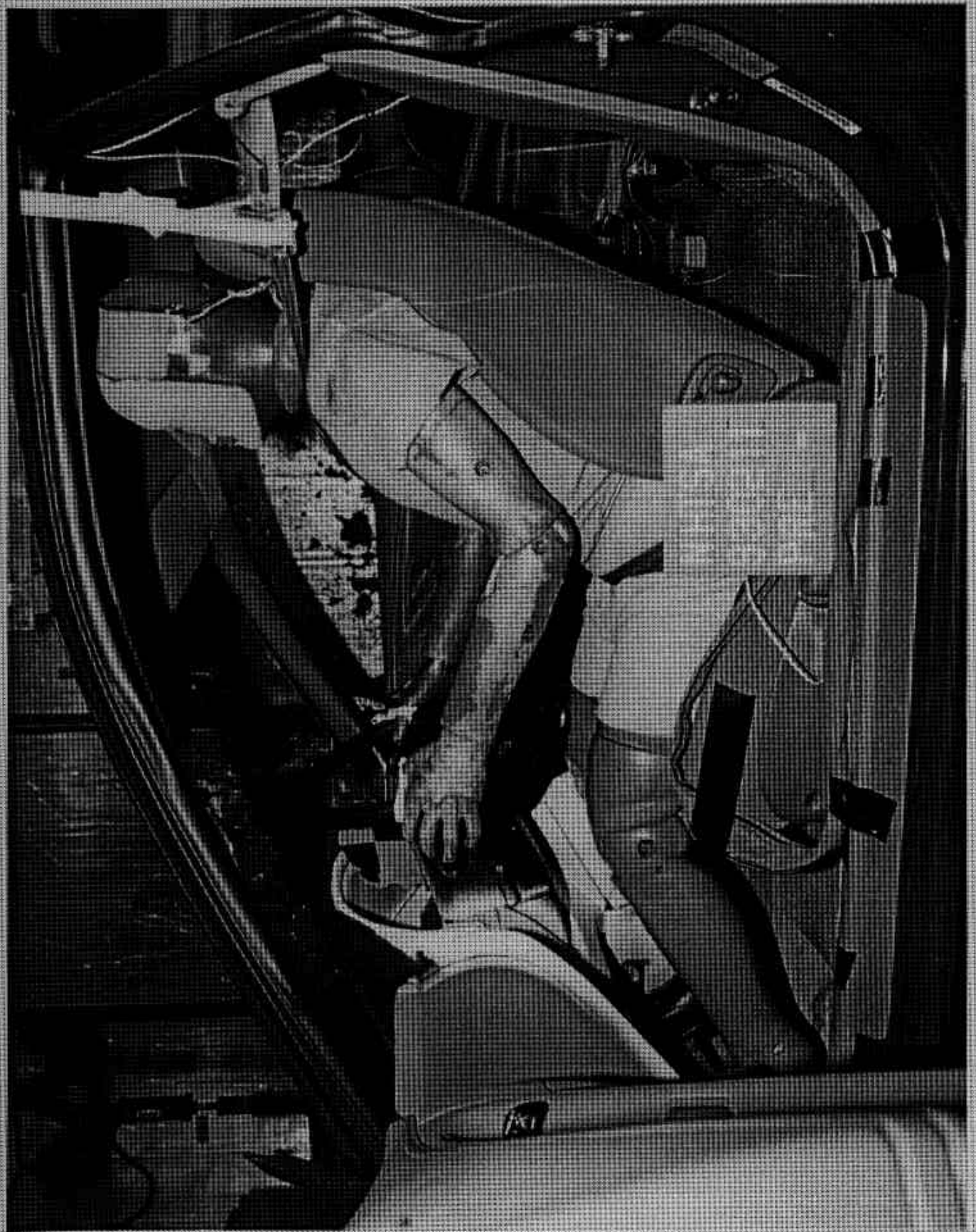


Figure A-31. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1
A-32 930211



Figure A-32. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

A-33

930211

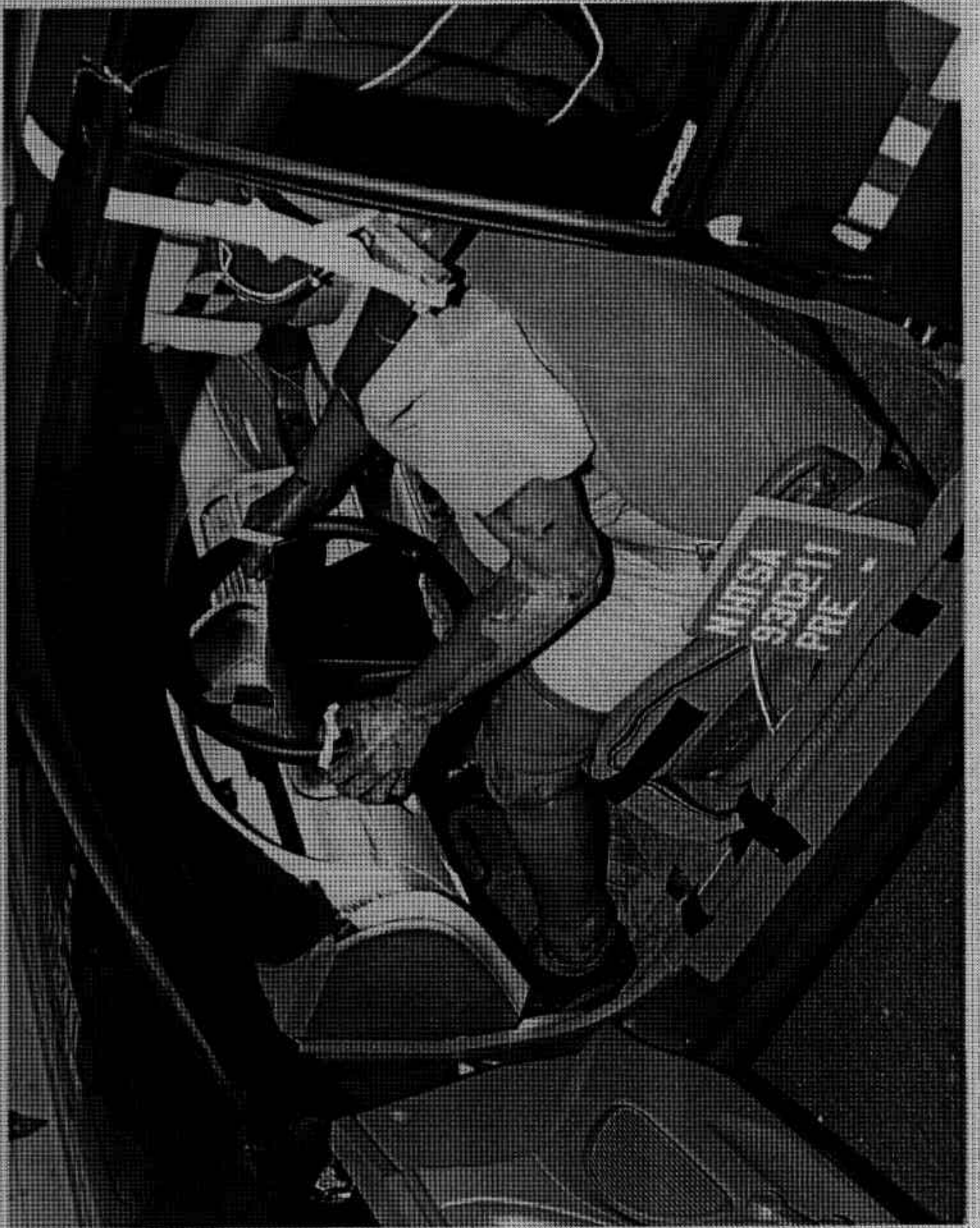


Figure A-33. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

A-34

930211



Figure A-34. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2
A-35 930211



Figure A-35. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1

A-36

930211



Figure A-36. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1

A-37

930211



Figure A-37. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

A-38

930211



Figure A-38. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

A-39

930211

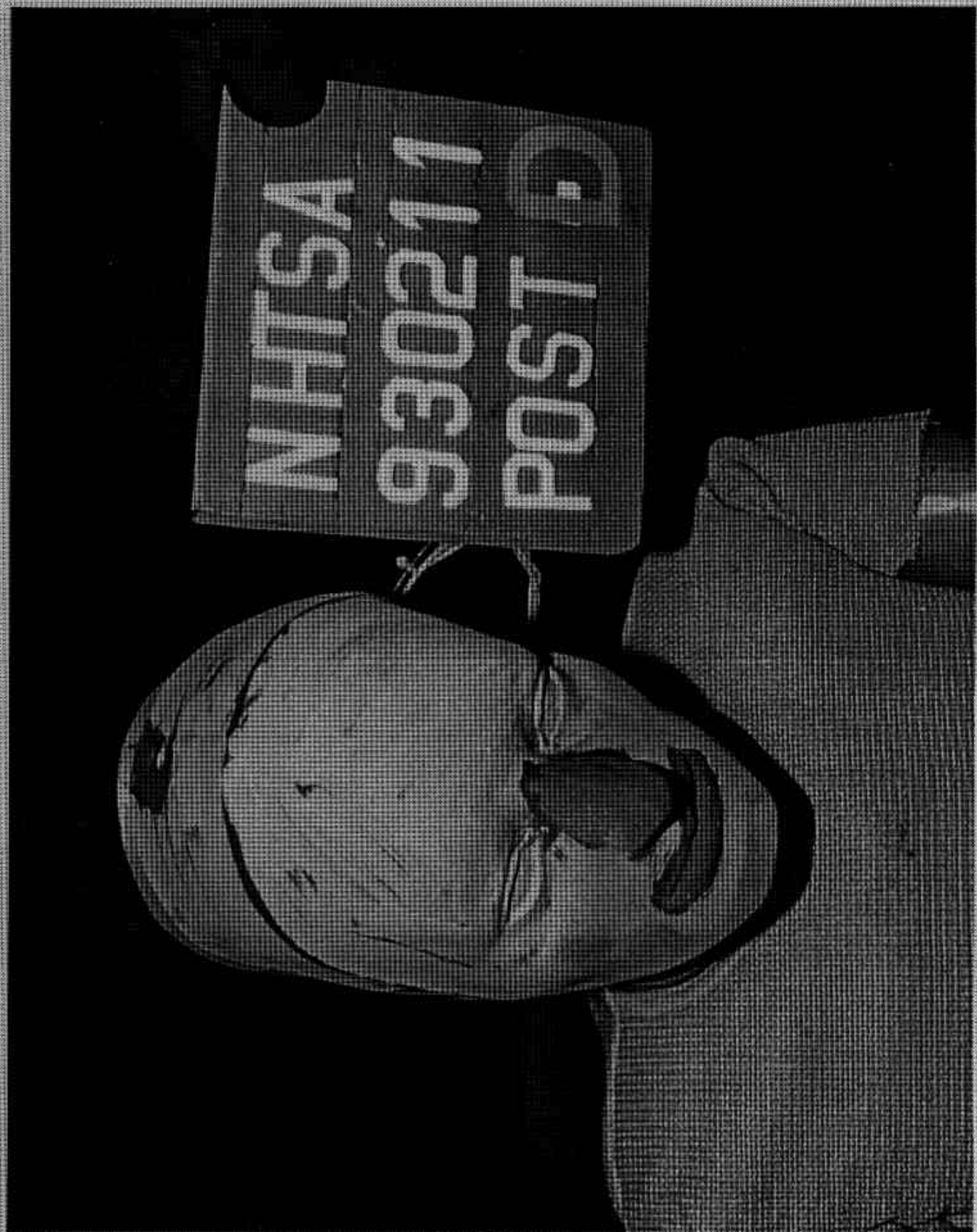


Figure A-39. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 1

A-40

930211

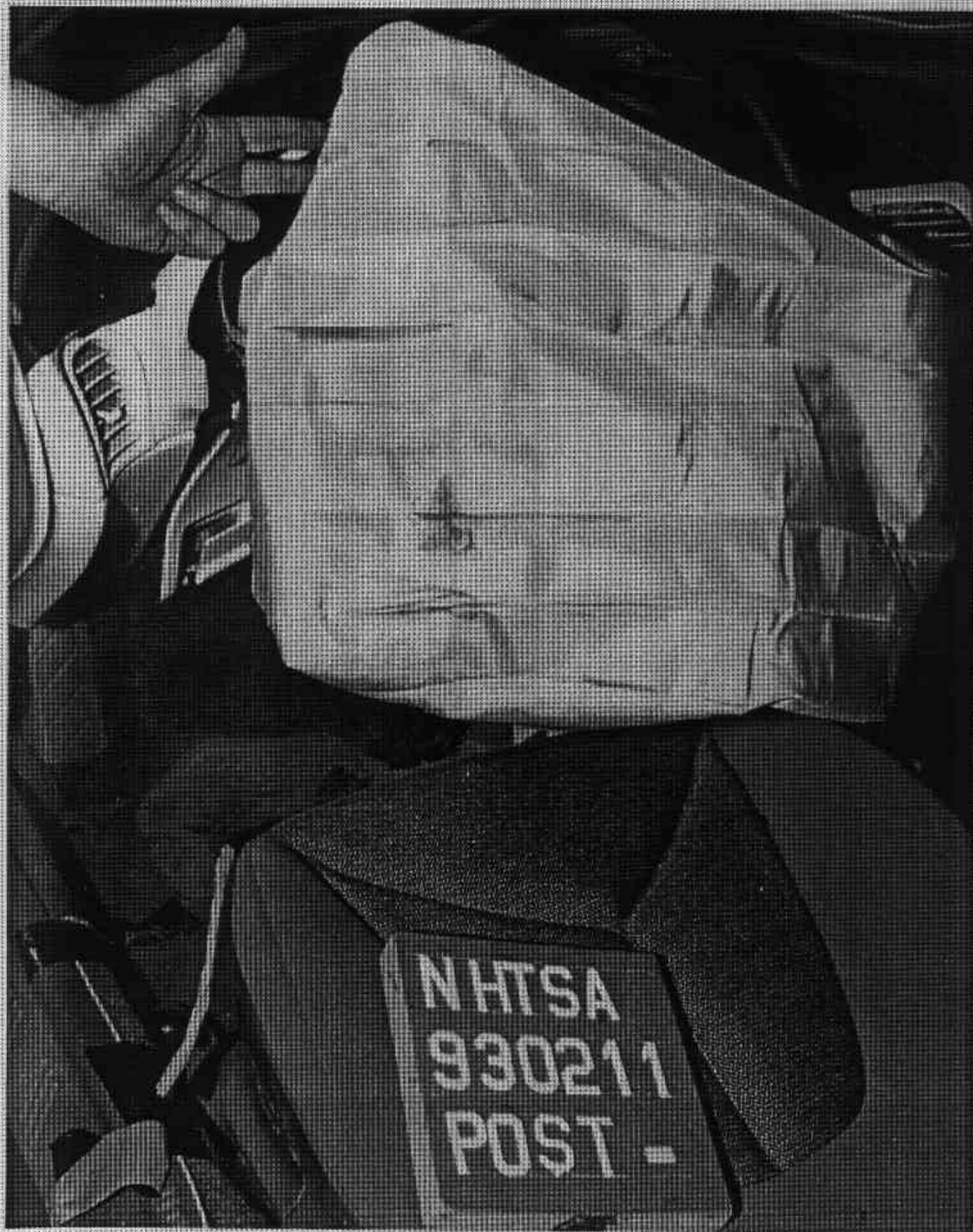


Figure A-40. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 2

A-41

930211

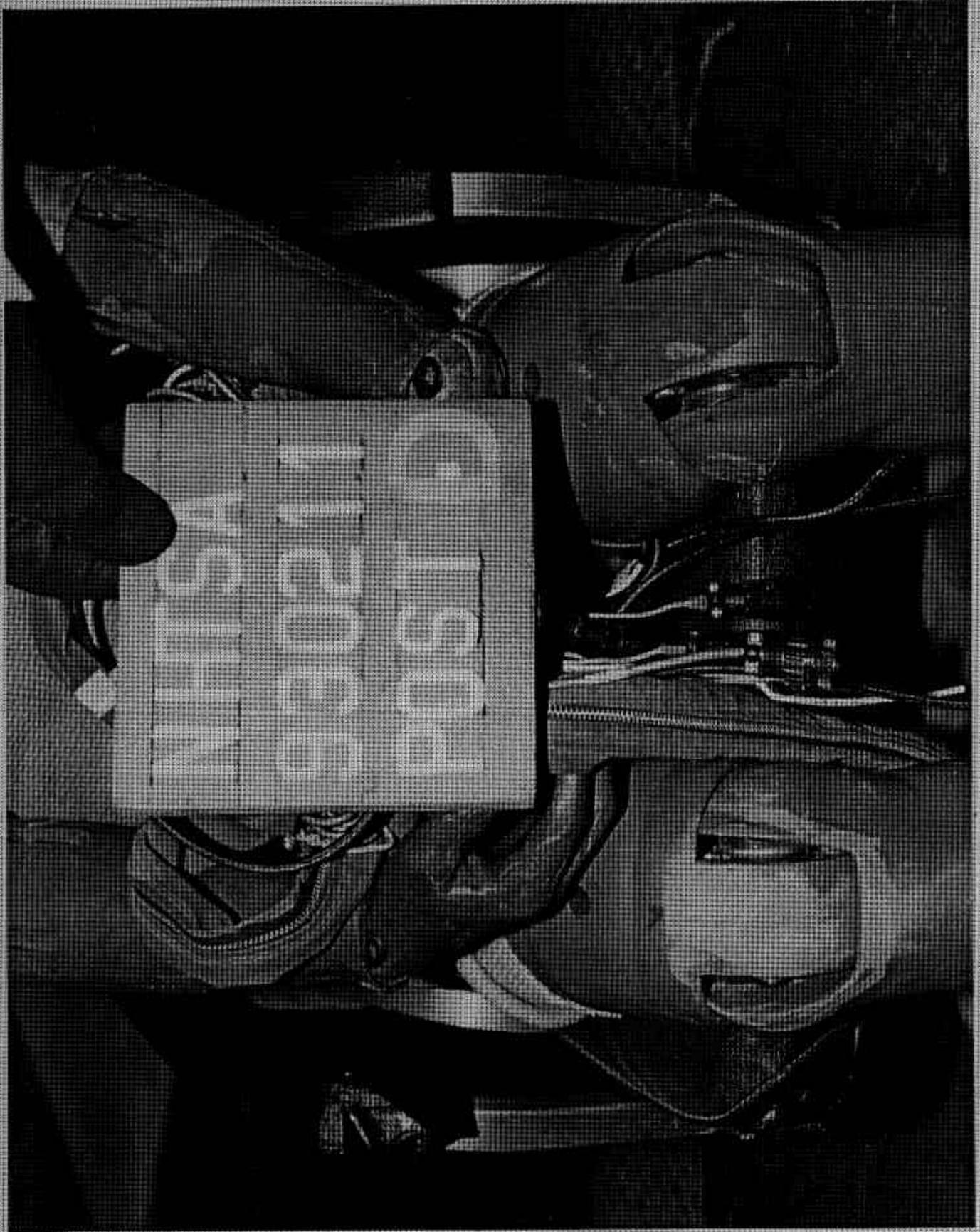


Figure A-41. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 1

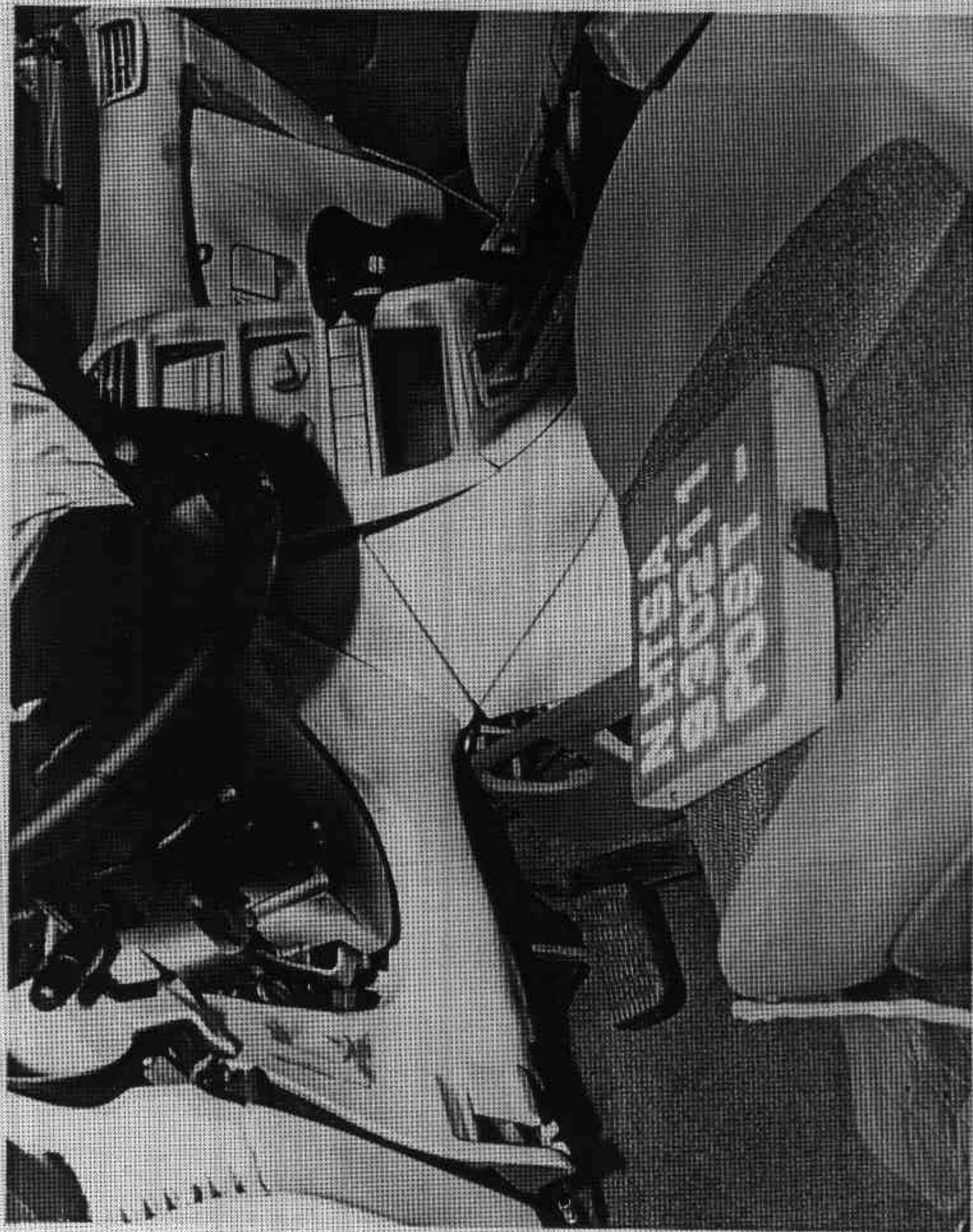


Figure A-42. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 2

A-43

930211

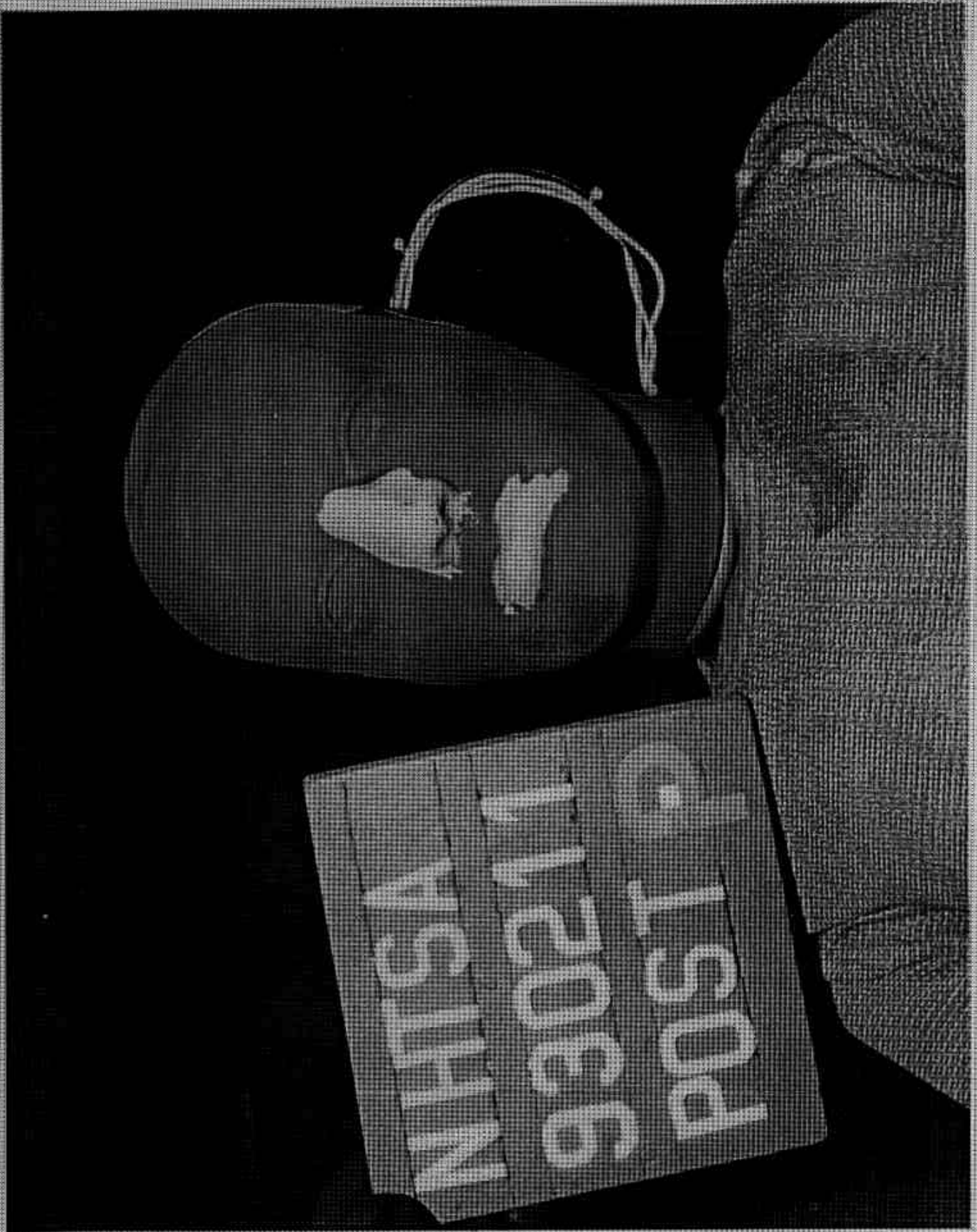


Figure A-43. POST-TEST PASSENGER DUMMY HEAD CONTACT VIEW

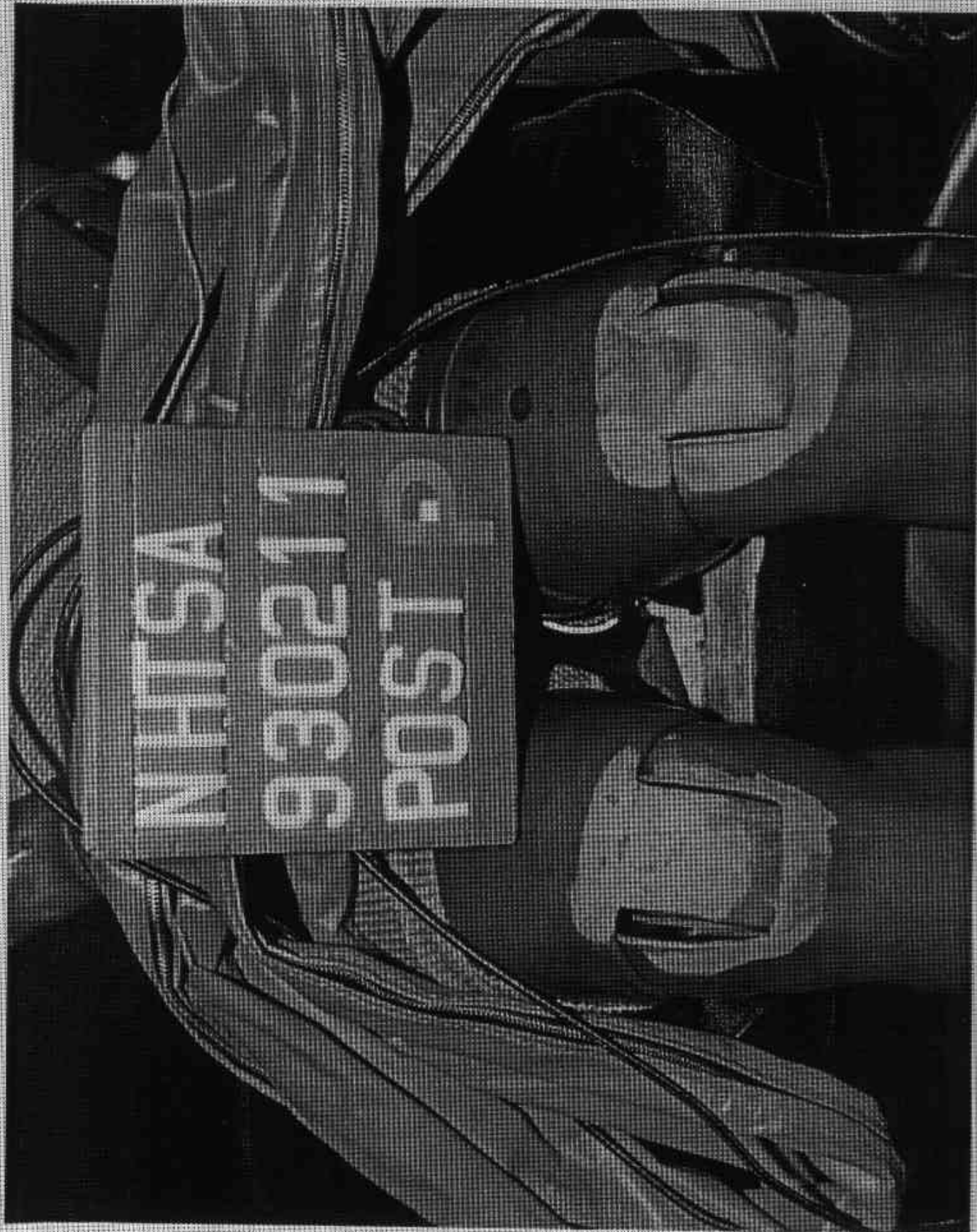


Figure A-44. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 1
A-45 930211



Figure A-45. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 2

MFD. BY AUTOALLIANCE INTERNATIONAL

INC. FOR FORD MOTOR CO

DATE 12/06/92 1584 IN

2000 LE BRONX IN 1525 LE

3490 LE CAMP IN 691 MI

907 MI

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY DEPARTMENT AND DOT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN 1ZVCT20A6P5163609

TYPE PASSENGER

GM

Y20 BC C 96 F 6 E7
MADE IN U.S.A.

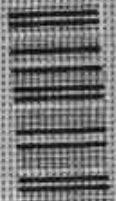


Figure A-46. PRE-TEST VEHICLE CERTIFICATION LABEL VIEW

PROBE **RECOMMENDED TIRE SIZE AND INFLATION PRESSURE (COLD)** **A**
RECOMMENDAZIONE DELLA PROBE PER LE DIMENSIONI DEI PNEUMATICI E LA PRESSIONE D'INFLAZIONE FREDDA

Tipo della Smeccia (Modello)	Tipo di veicolo	Tipo di pneumatico	Pressione d'inf. (COLD)
	118	17"	35 PSI (240 kPa) 75 PSI (510 kPa)
119	17"	17" x 155R14 - 85 17" x 155SR15 - 87 17" x 175R15 TEMPORAL SPARE PNEU DE SECOURS PROVISIONNE	50 PSI (340 kPa) 45 PSI (310 kPa)
Tipo della Smeccia (Modello)	Tipo di veicolo	Tipo di pneumatico	Pressione d'inf. (COLD)
ALL TDV6	ALL	165 160R14 165 160R15	45 PSI (310 kPa) 40 PSI (275 kPa)

PROBE è un marchio registrato di PROBE S.p.A. - Via S. Maria Maddalena, 1 - 40138 Bologna, Italia - Tel. 051/2611111 - Fax 051/2611112 - E-mail: info@probe.it - Web: www.probe.it

Figure A-47. PRE-TEST VEHICLE RECOMMENDED TIRE PRESSURE LABEL
 A-48 930211

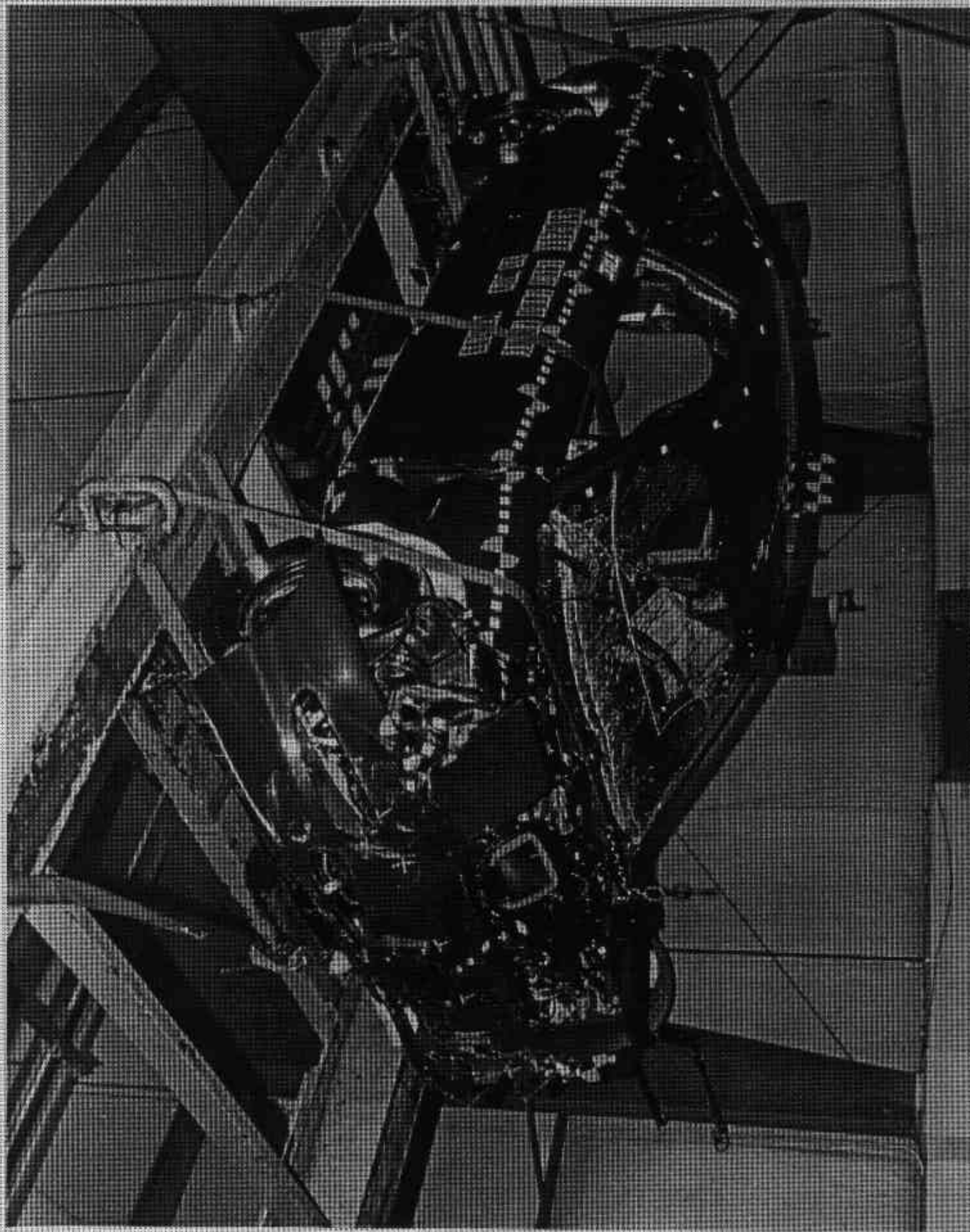


Figure A-48. POST-TEST VEHICLE ON STATIC ROLLOVER MACHINE VIEW

A-49

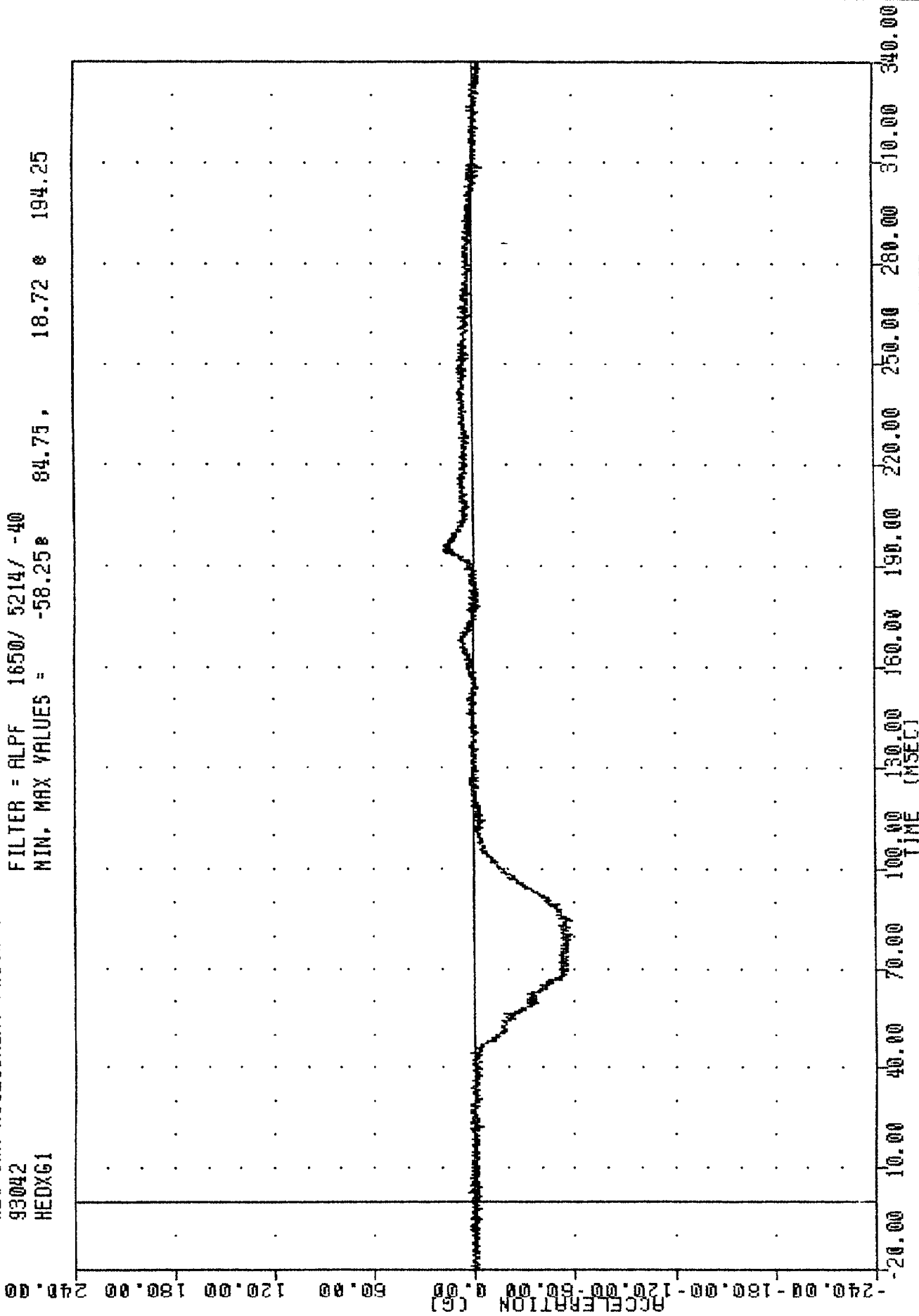
930211

APPENDIX B

DATA PLOTS

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
HEDXG1

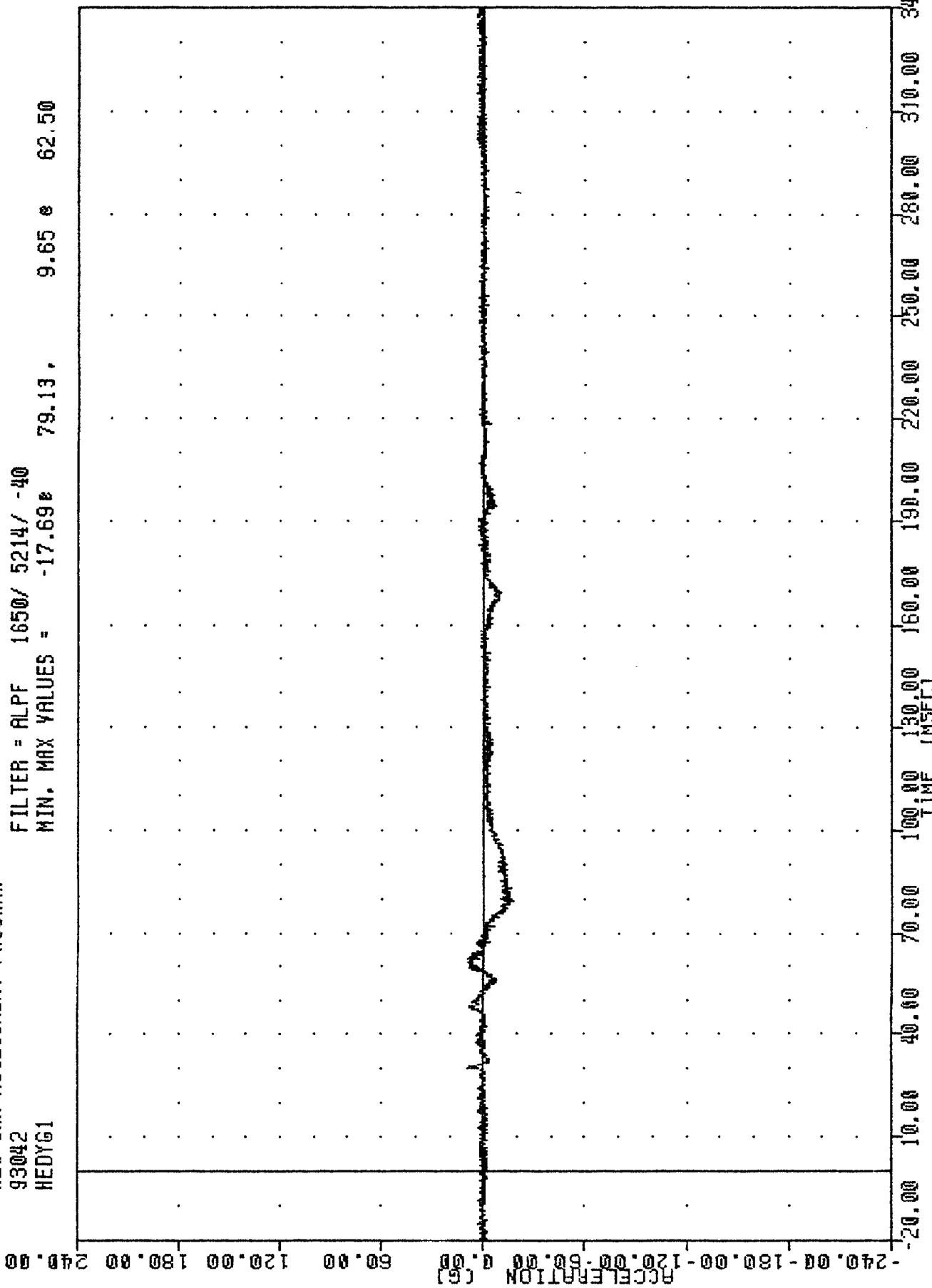
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -58.25 84.75, 18.72 194.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION

TRC
NEW CAR ASSESSMENT PROGRAM
93042
HEDYG1

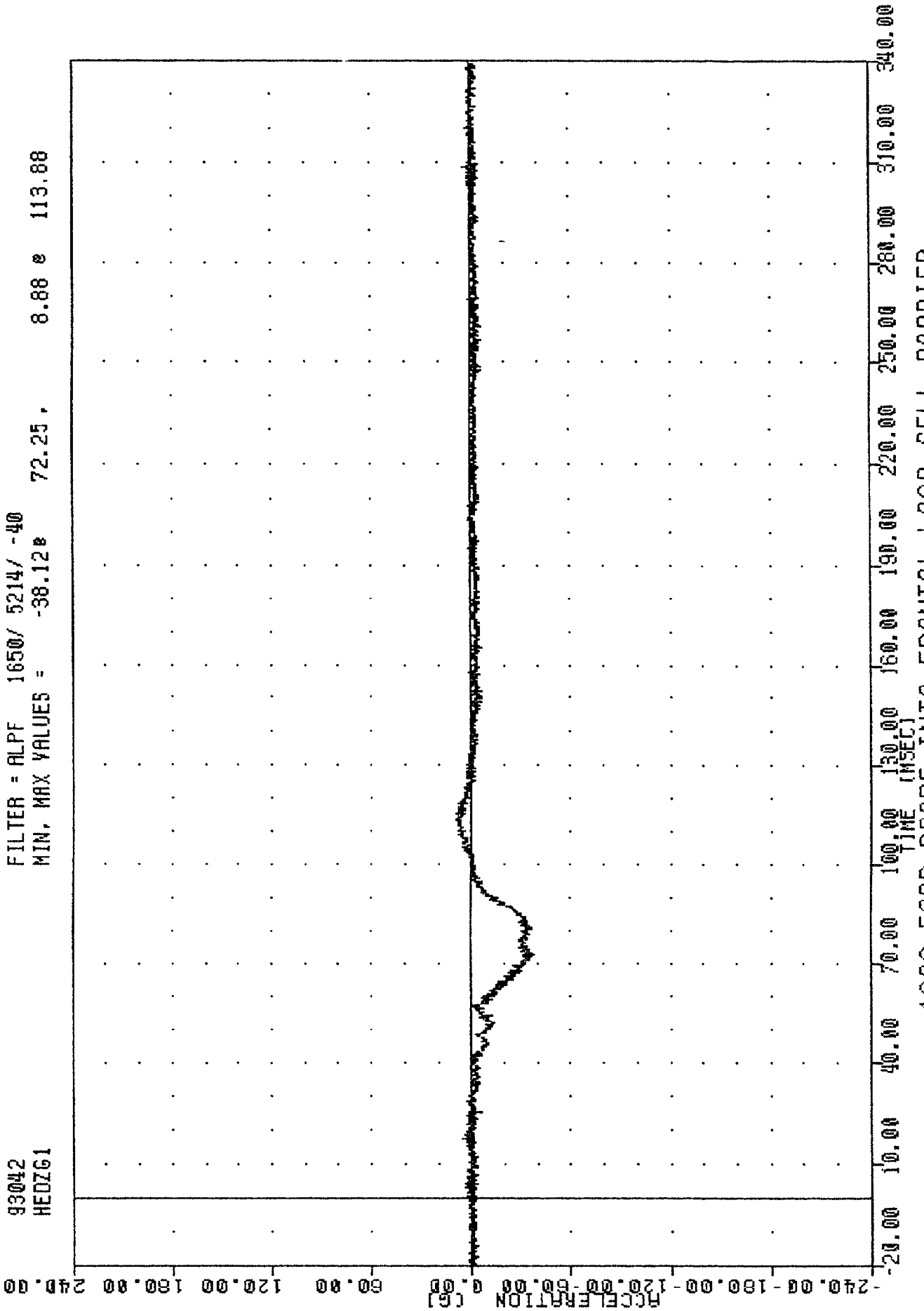
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -17.69e 79.13, 9.65 e 62.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 HDZG1

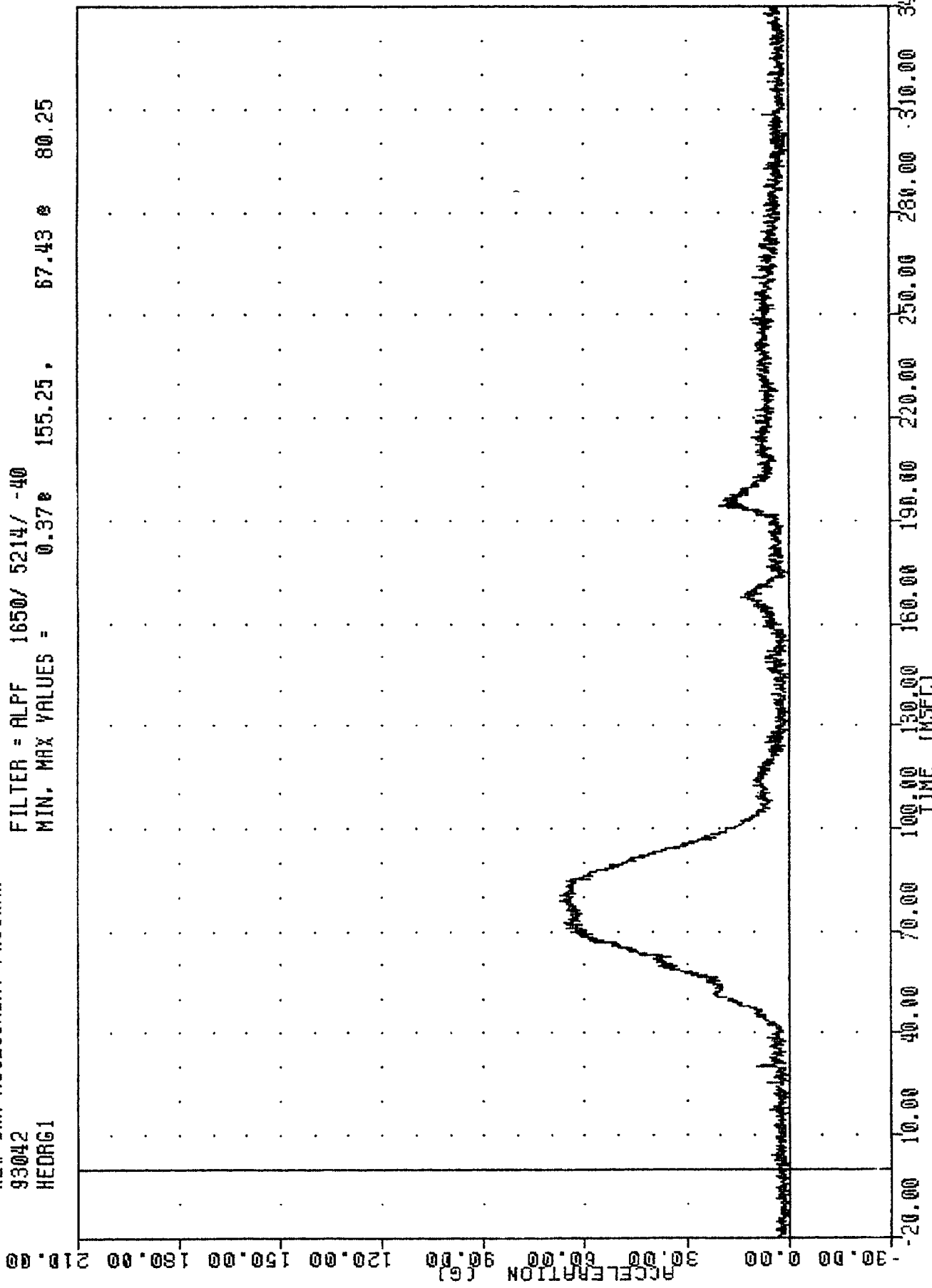
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -38.12e 72.25 , 8.88 e 113.88



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD - Z AXIS ACCELERATION

IRC
 NEW CAR ASSESSMENT PROGRAM
 93042
 HEDRG1

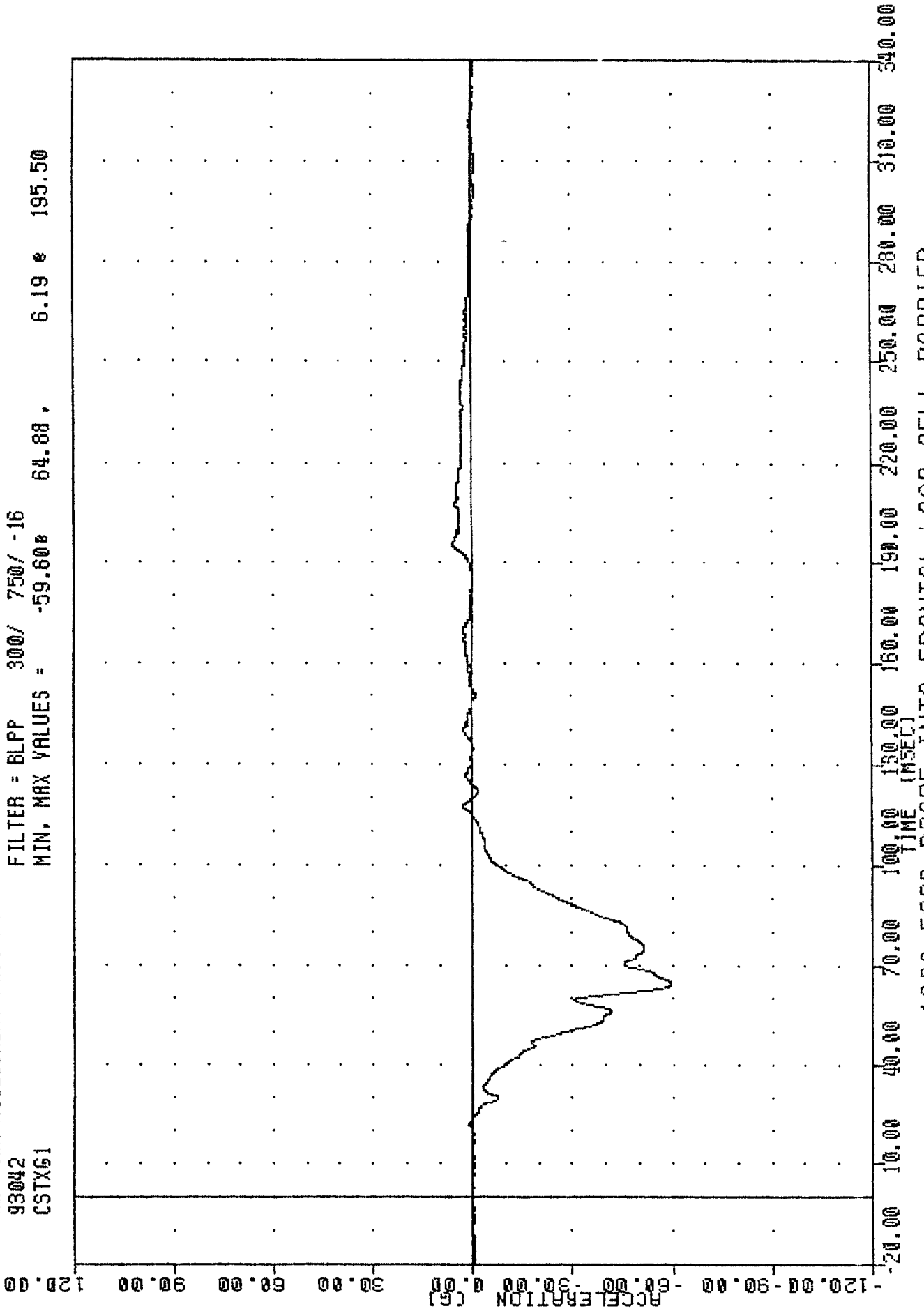
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = 0.37e 155.25, 67.43 e 80.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD RESULTANT ACCELERATION

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
CSTXG1

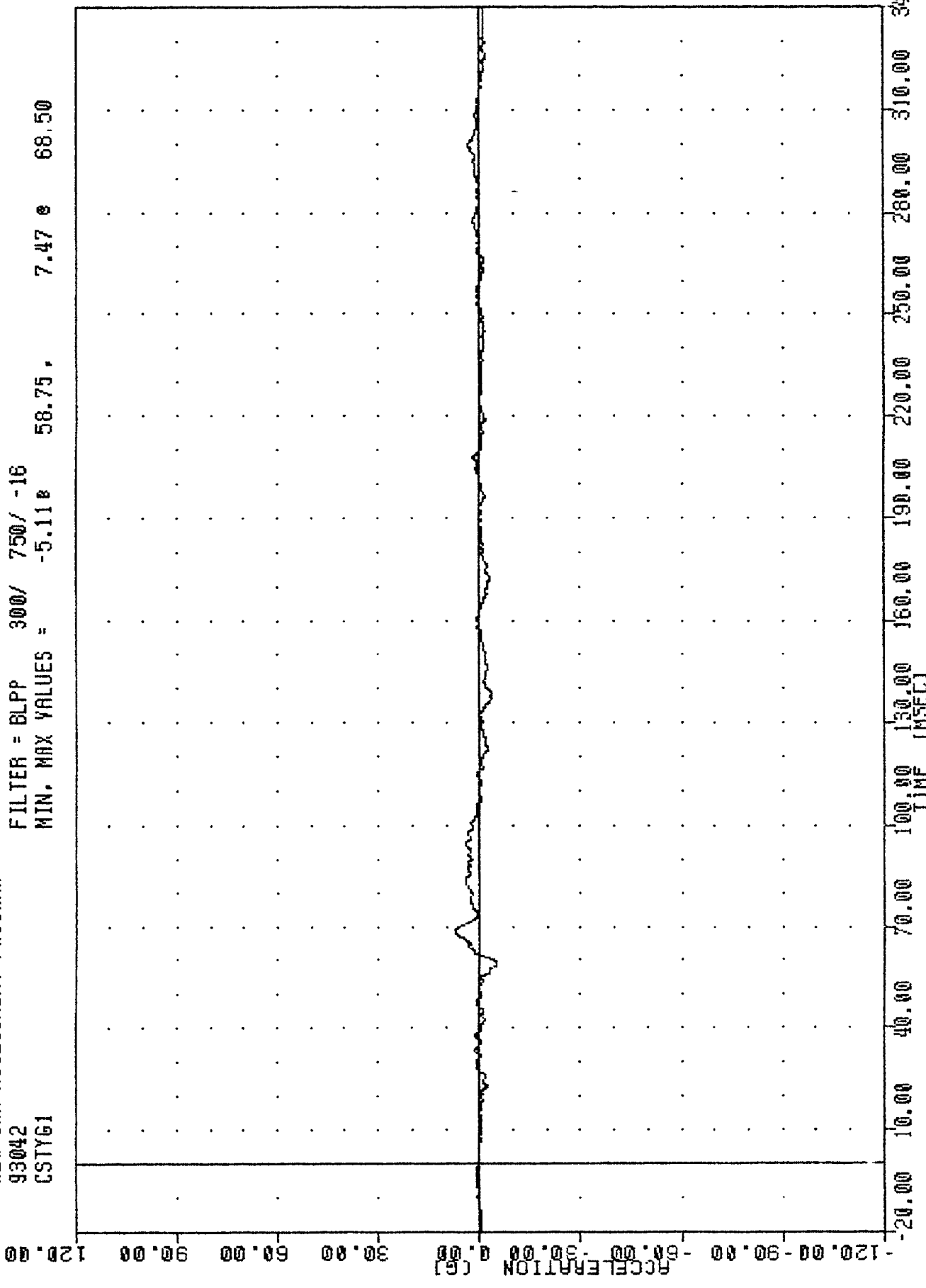
FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -59.60% 64.88 , 6.19 * 195.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION

TRC
 93042
 NEW CAR ASSESSMENT PROGRAM
 930211
 CSTYG1

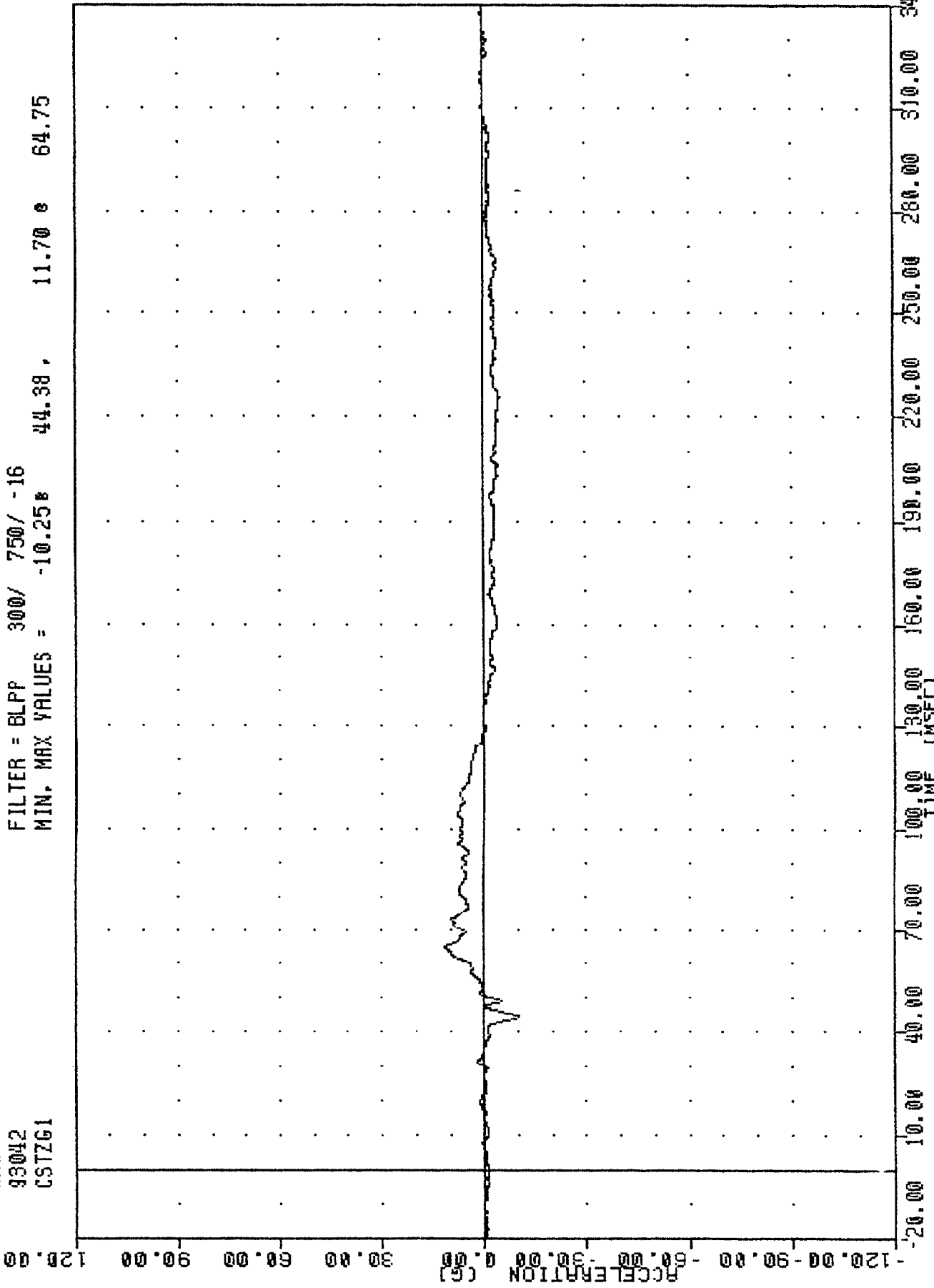
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -5.11e 58.75, 7.47 e 68.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Y-AXIS ACCELERATION

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
CSTZG1

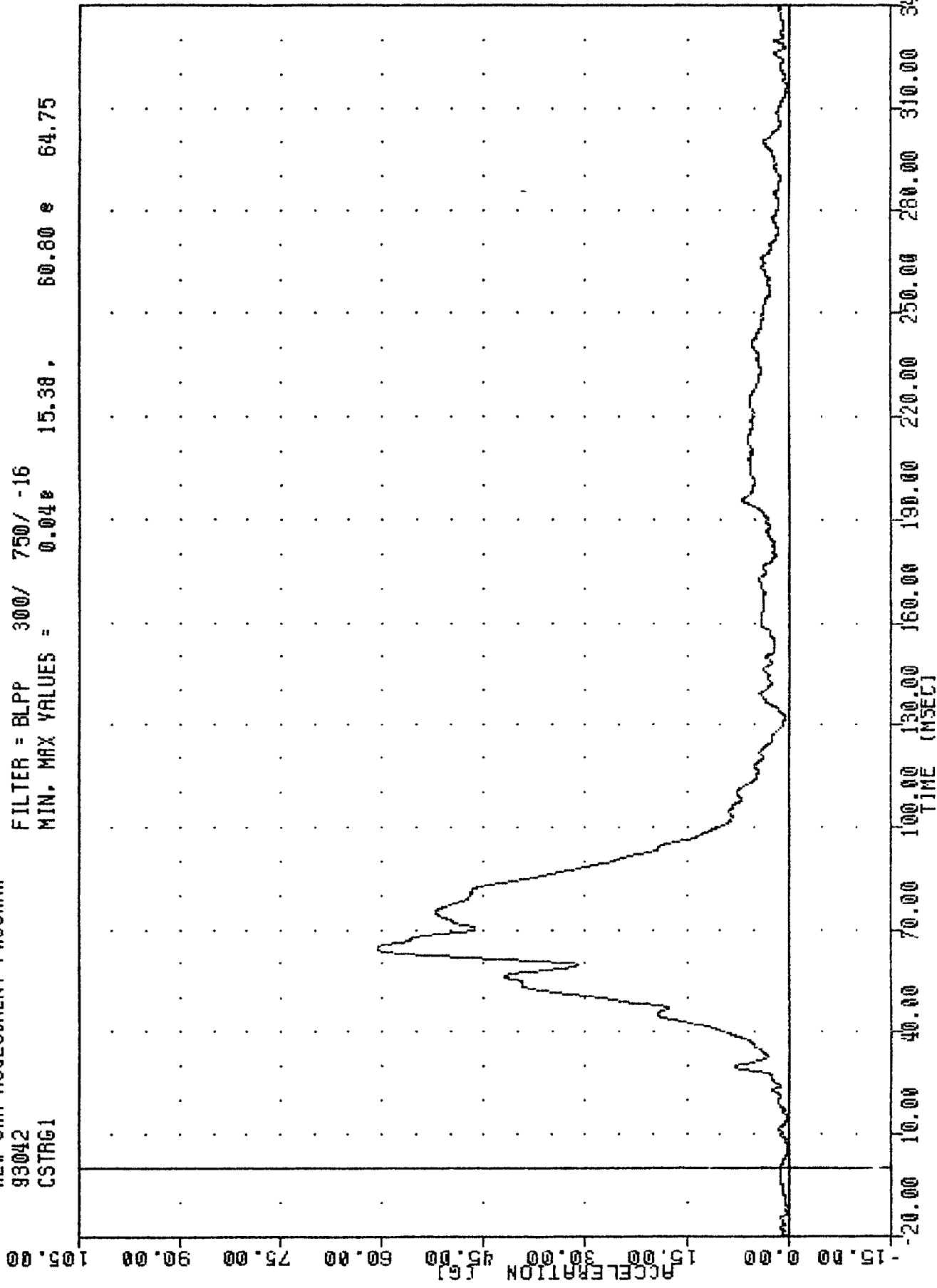
FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = -10.25% 44.38 , 11.70 % 64.75



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
DRIVER SEAT 7-AXIS ACCELERATION

TRC
 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 CSTRG1

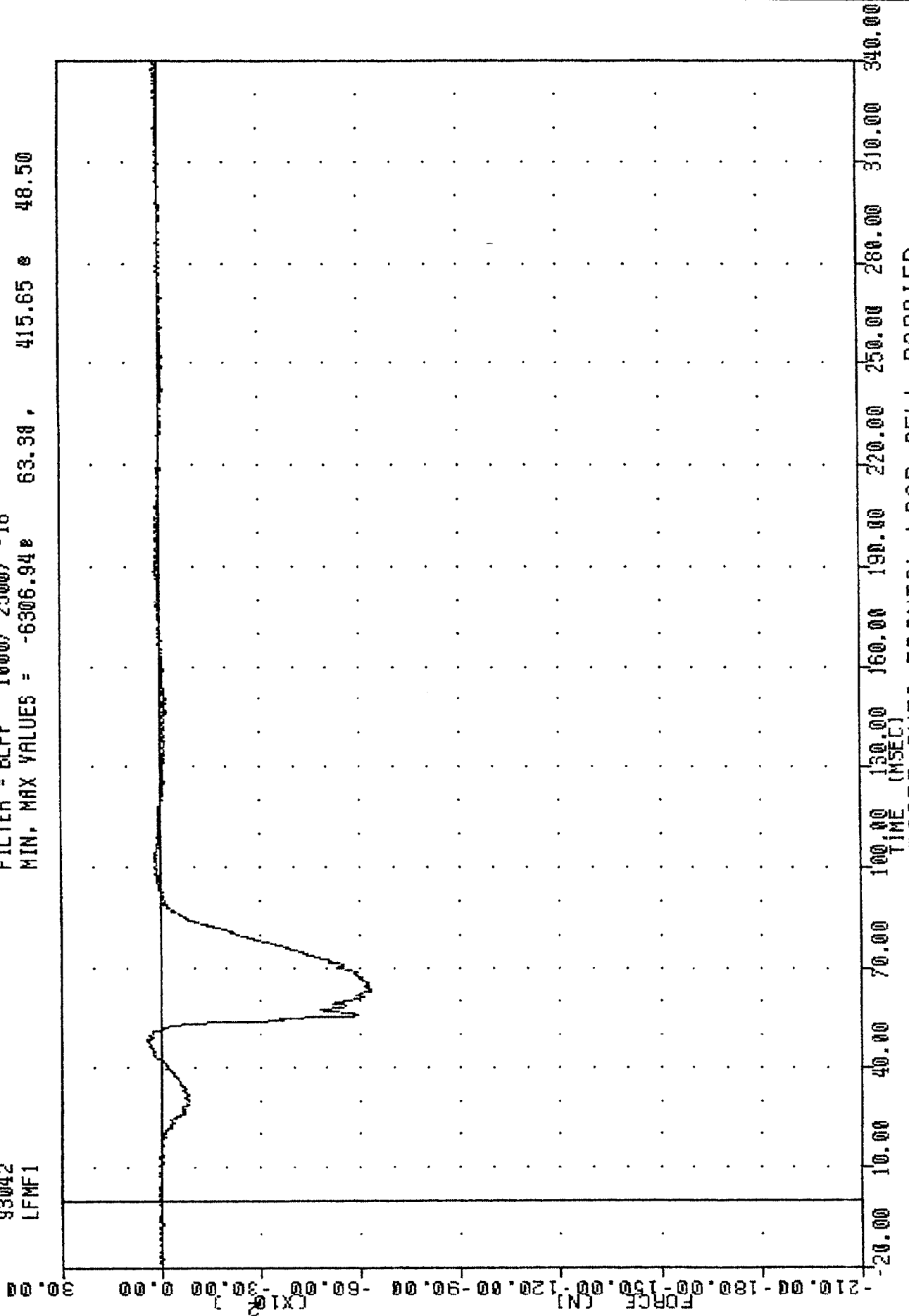
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.04e 15.38, 60.60 e 64.75



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST RESULTANT ACCELERATION

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 LFMF1

FILTER = BLPP 1000/ 2500/ -16
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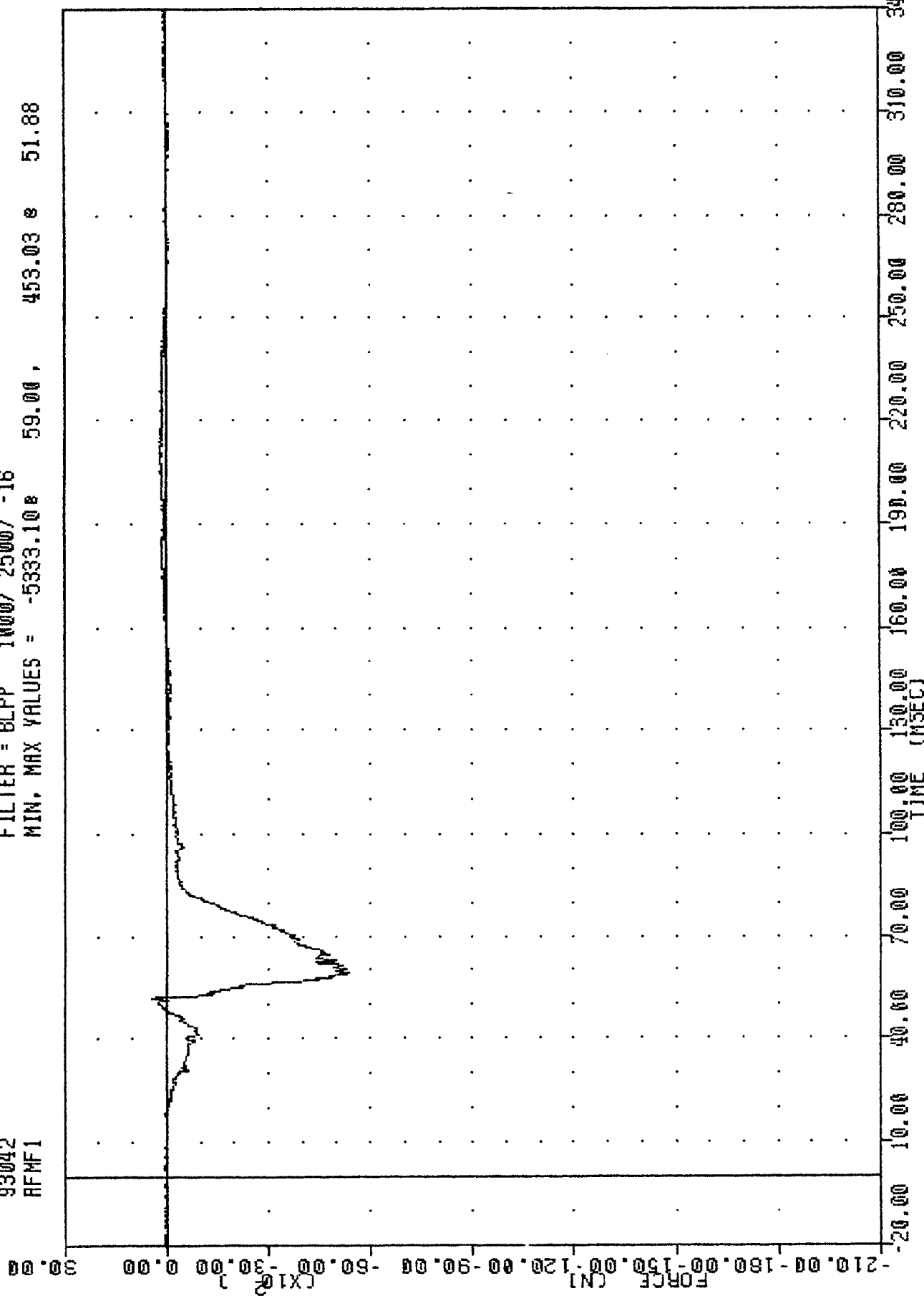


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER

DRIVER LEFT SEATER FORCE

TRC
 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 RFMF1

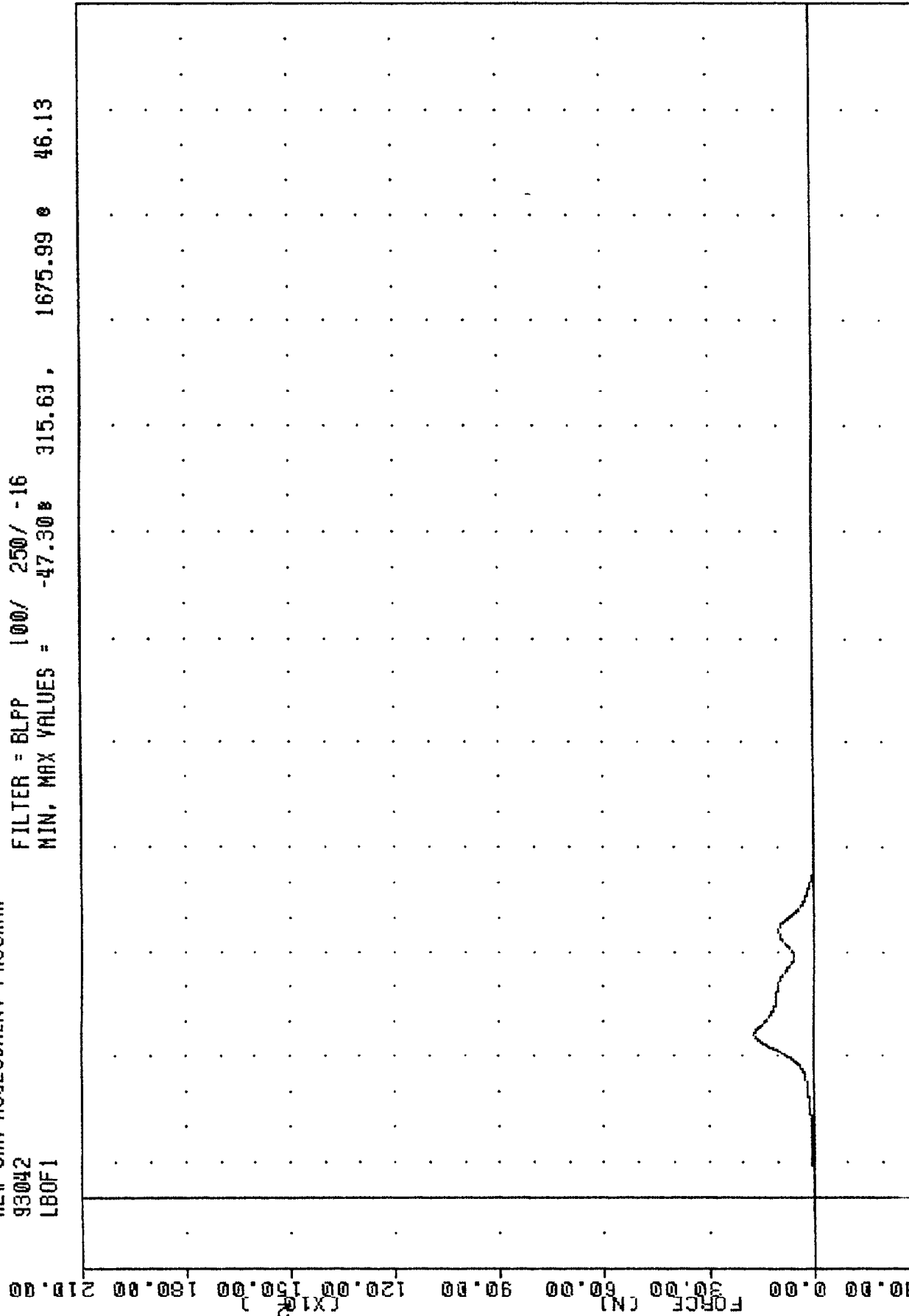
FILTER = BLPP 1000/ 2500/ -16
 MIN. MAX VALUES = -5333.10e 59.00 , 453.03 e 51.88



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FEMUR FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 LBOF1

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -47.30 315.63, 1675.99 e 46.13

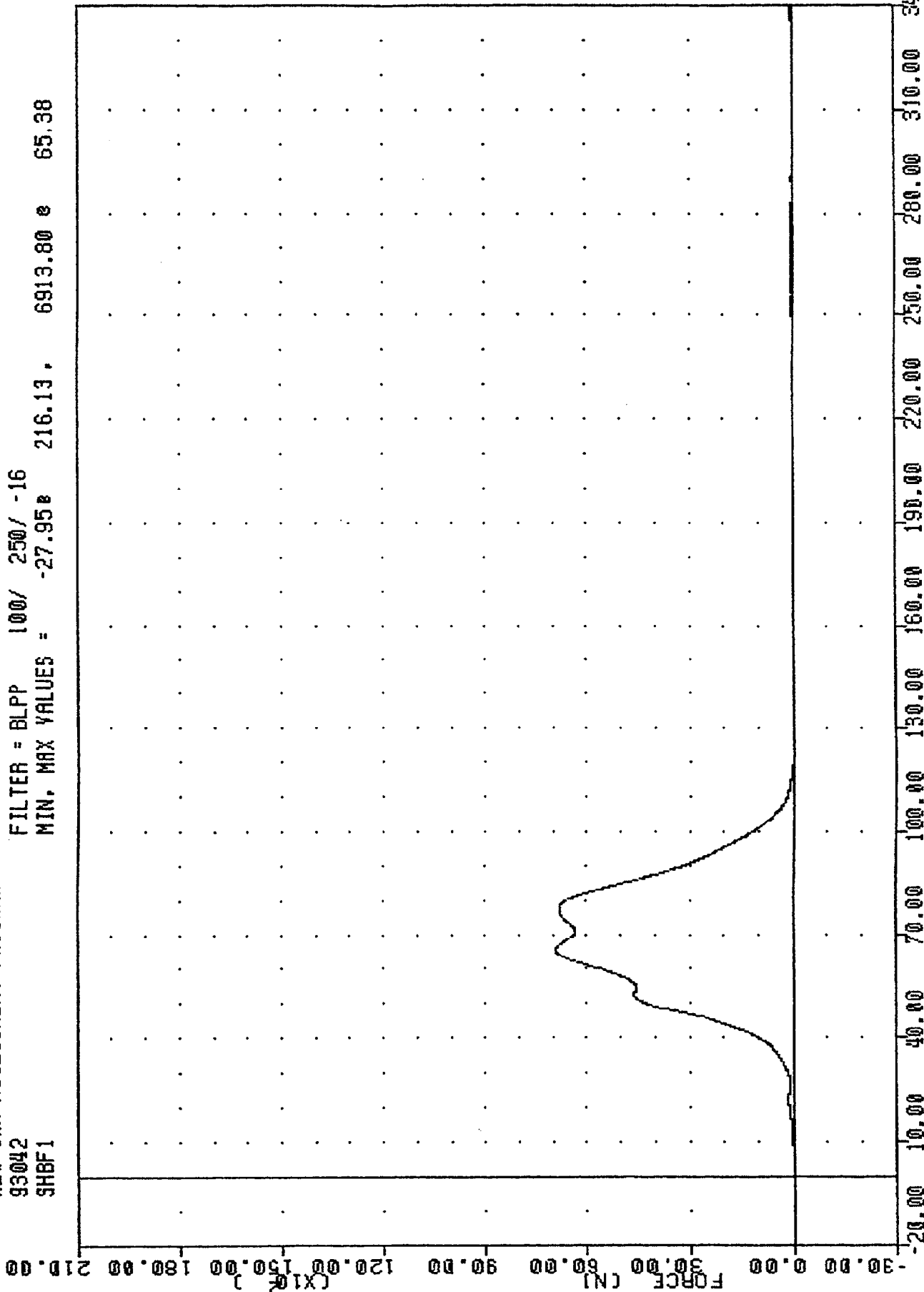


-30.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)

1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 DRIVER LAP BELT OUTPUT FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 SHBF1

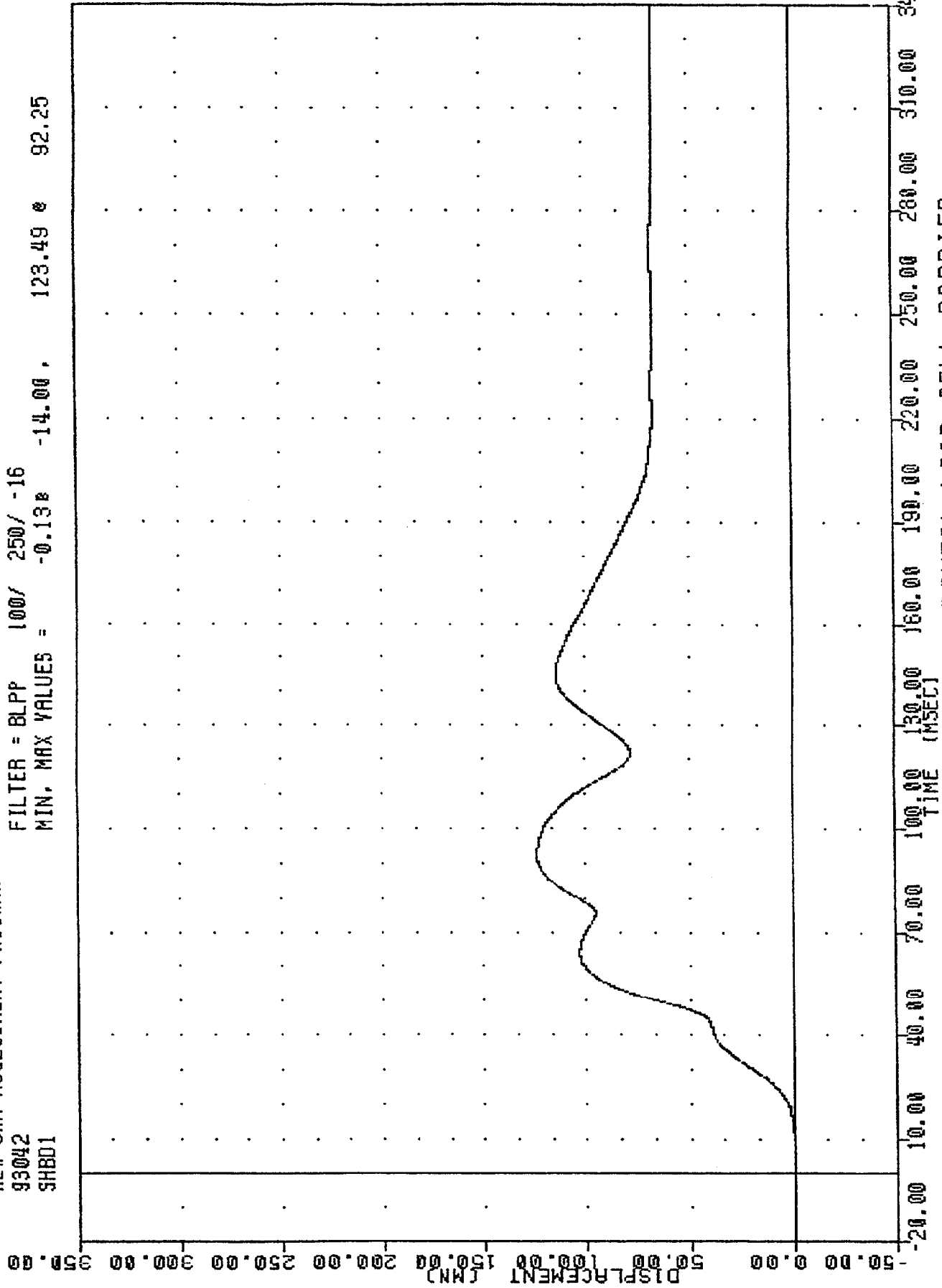
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -27.95e 6913.80 e 65.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 DRIVER SHOULDER BELT FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 SHBD1

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.138 -14.00 , 123.49 e 92.25

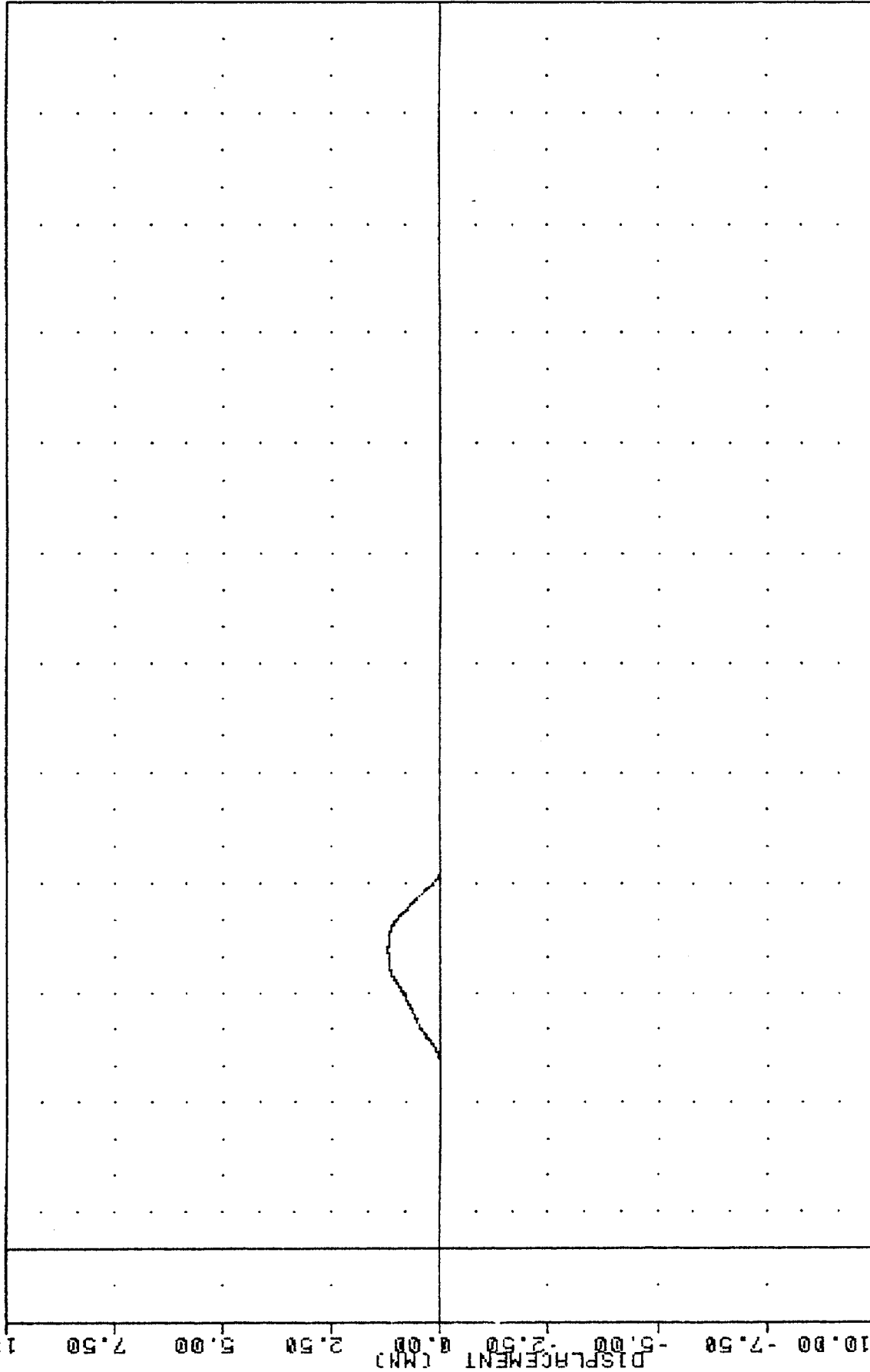


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 PRIMER IMPULSER TEST DISPLACEMENT

TRC
 NEW CAR ASSESSMENT PROGRAM
 93042
 SBED1

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.018 105.25, 1.21 e 81.50

10.00



DISPLACEMENT (MM)

-10.00

-7.50

-5.00

-2.50

0.00

2.50

5.00

7.50

10.00

20.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

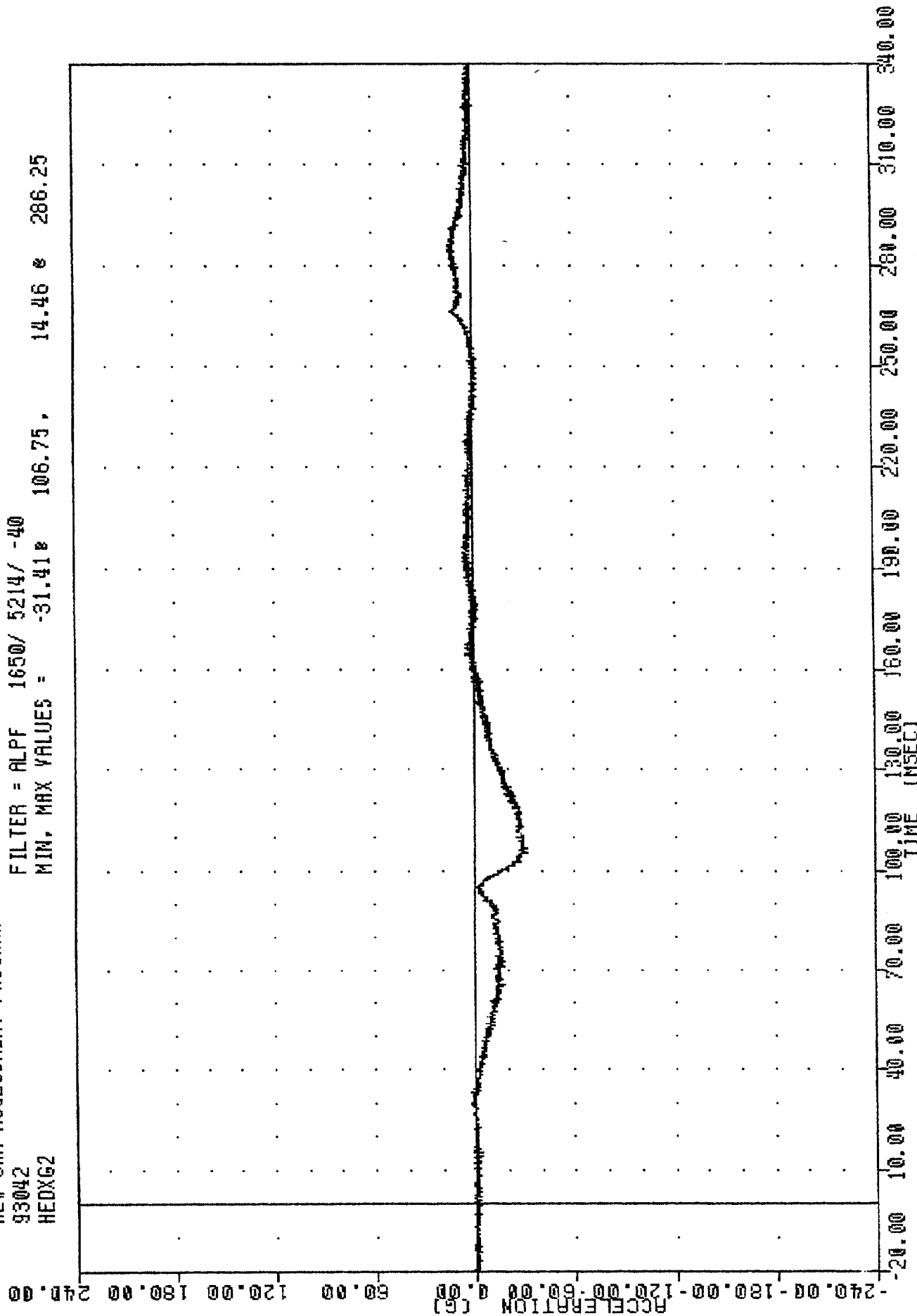
340.00

TIME (MSEC)

1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 DRIVER SEAT BELT EXTENSION

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
HEDX62

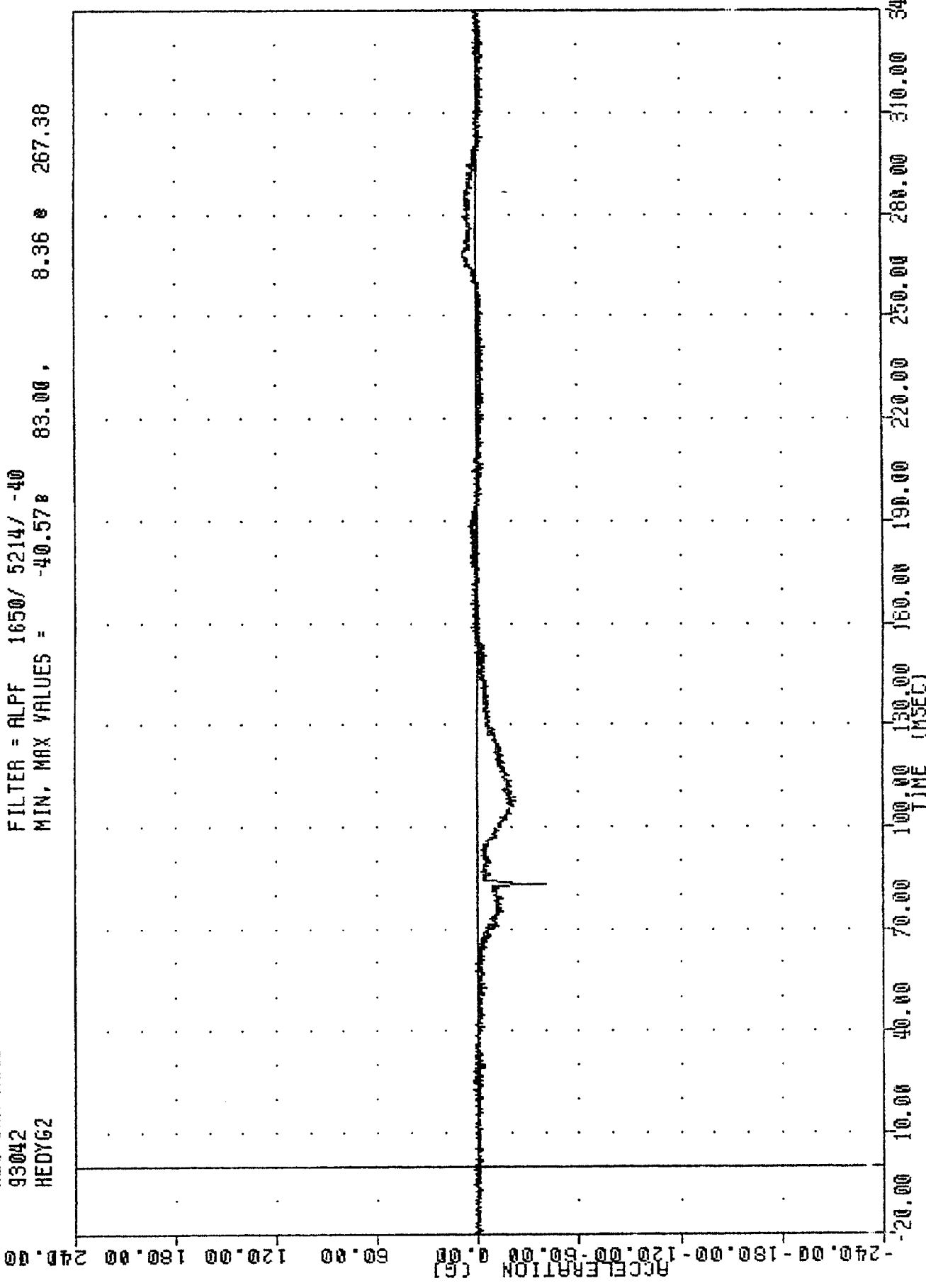
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -31.418 106.75, 14.46 & 286.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION

TRC
NEW CAR ASSESSMENT PROGRAM
93042
HEDYG2

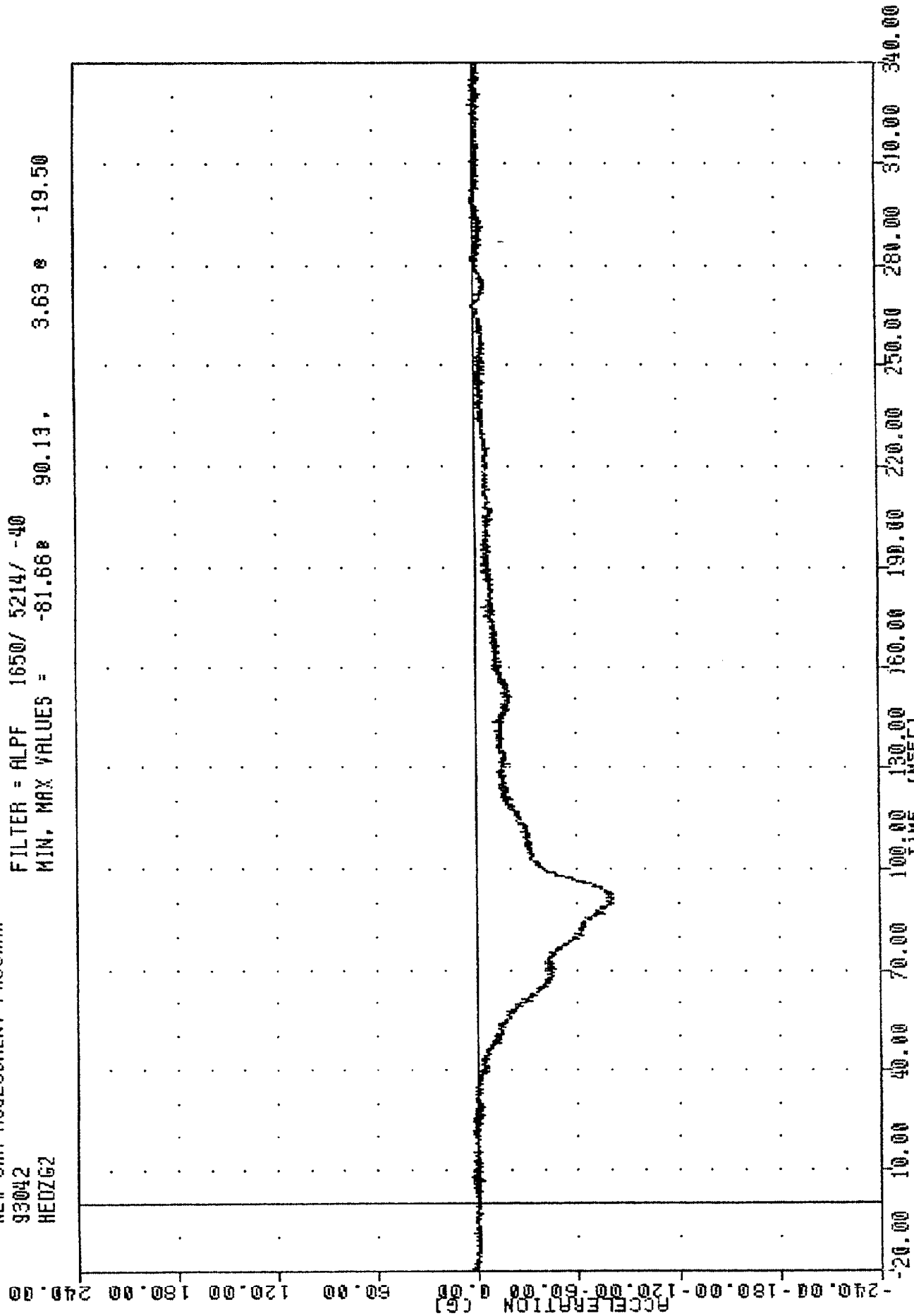
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -40.57g 83.00g 8.36g 267.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
HEDZG2

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -81.66e 90.13, 3.63 e -19.50

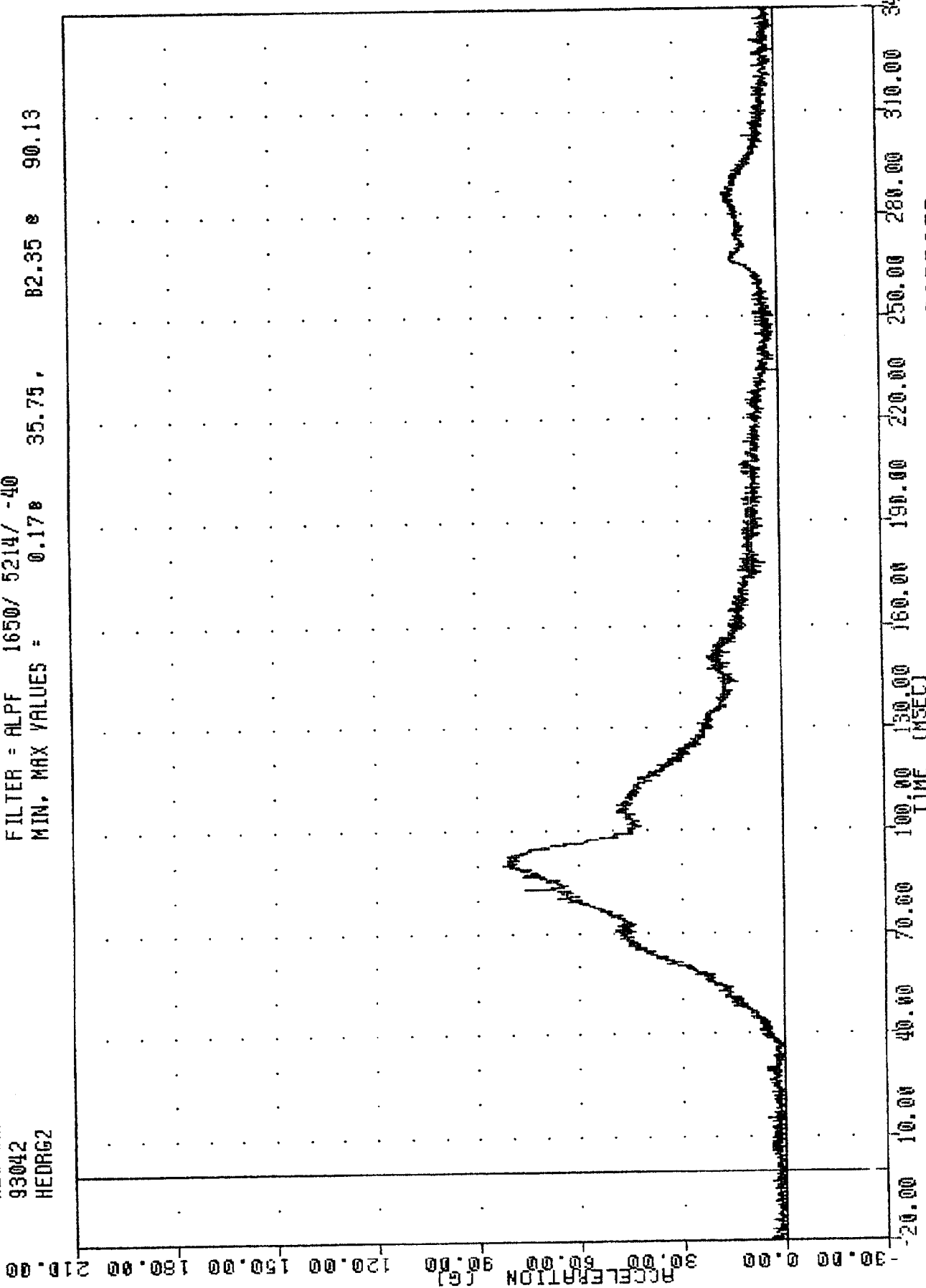


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
ASSASSIN Z-SECTION

TRC
NEW CAR ASSESSMENT PROGRAM
93042
HEDRG2

, 930211

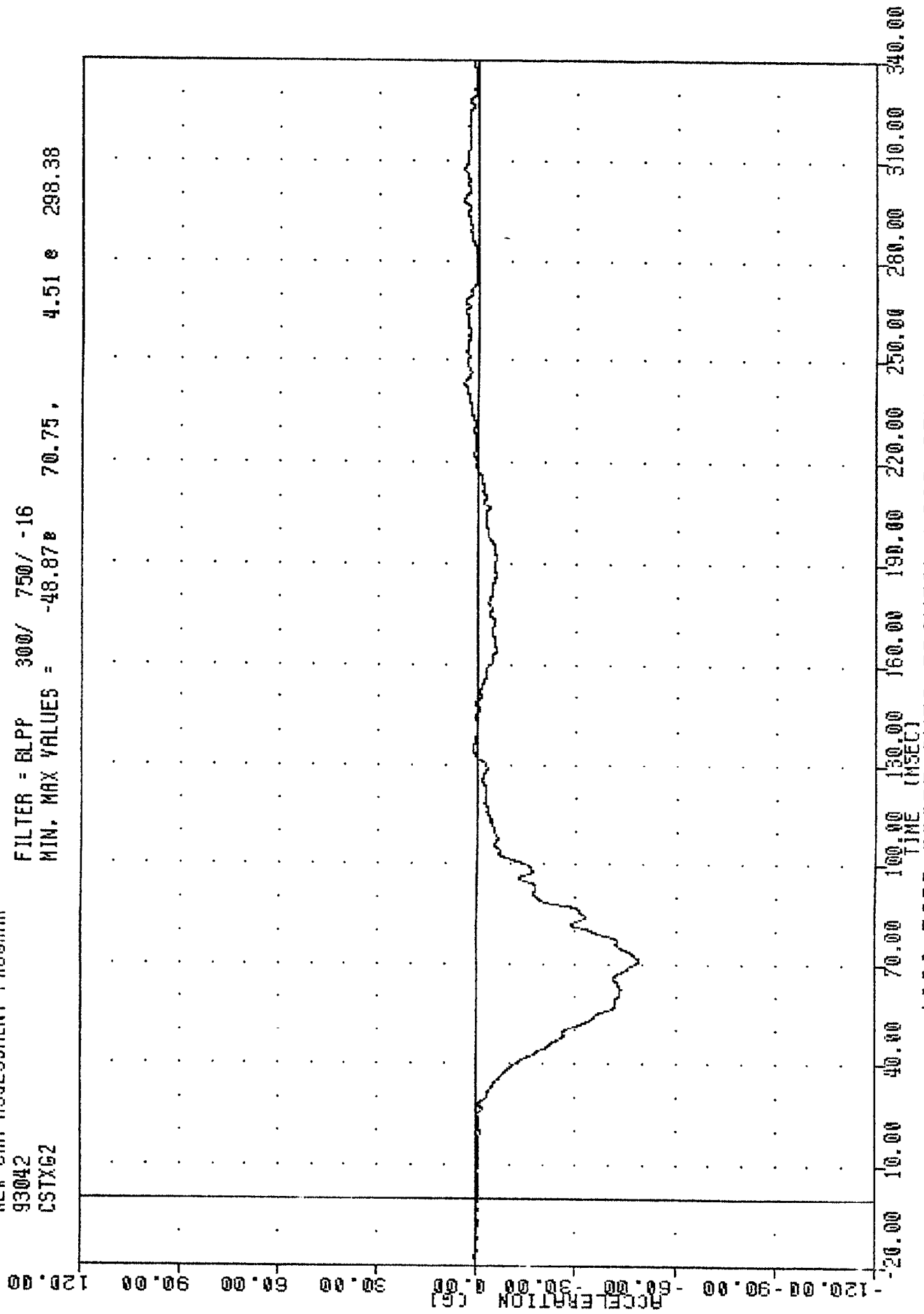
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 0.17g 35.75g 82.35g 90.13



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 CSTXG2

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -48.87 70.75 , 4.51 e 298.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER

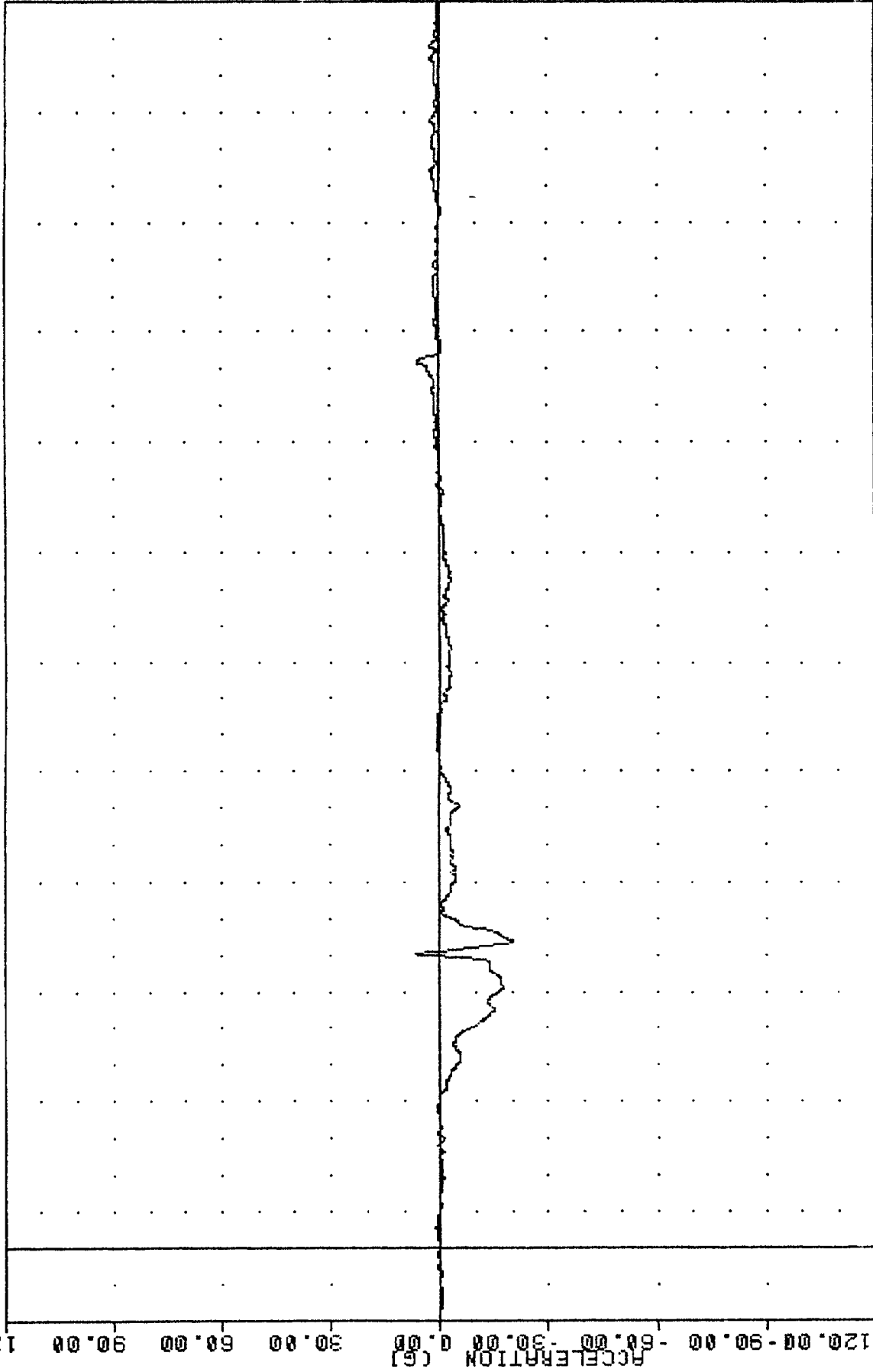
PASSENGER SHEET X AXIS ACCELERATION

TRC
NEW CAR ASSESSMENT PROGRAM
93042
CSTYG2

, 930211

FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -20.20e 83.75, 6.79 e 80.25

120.00
90.00
60.00
30.00
0.00
-30.00
-60.00
-90.00
-120.00

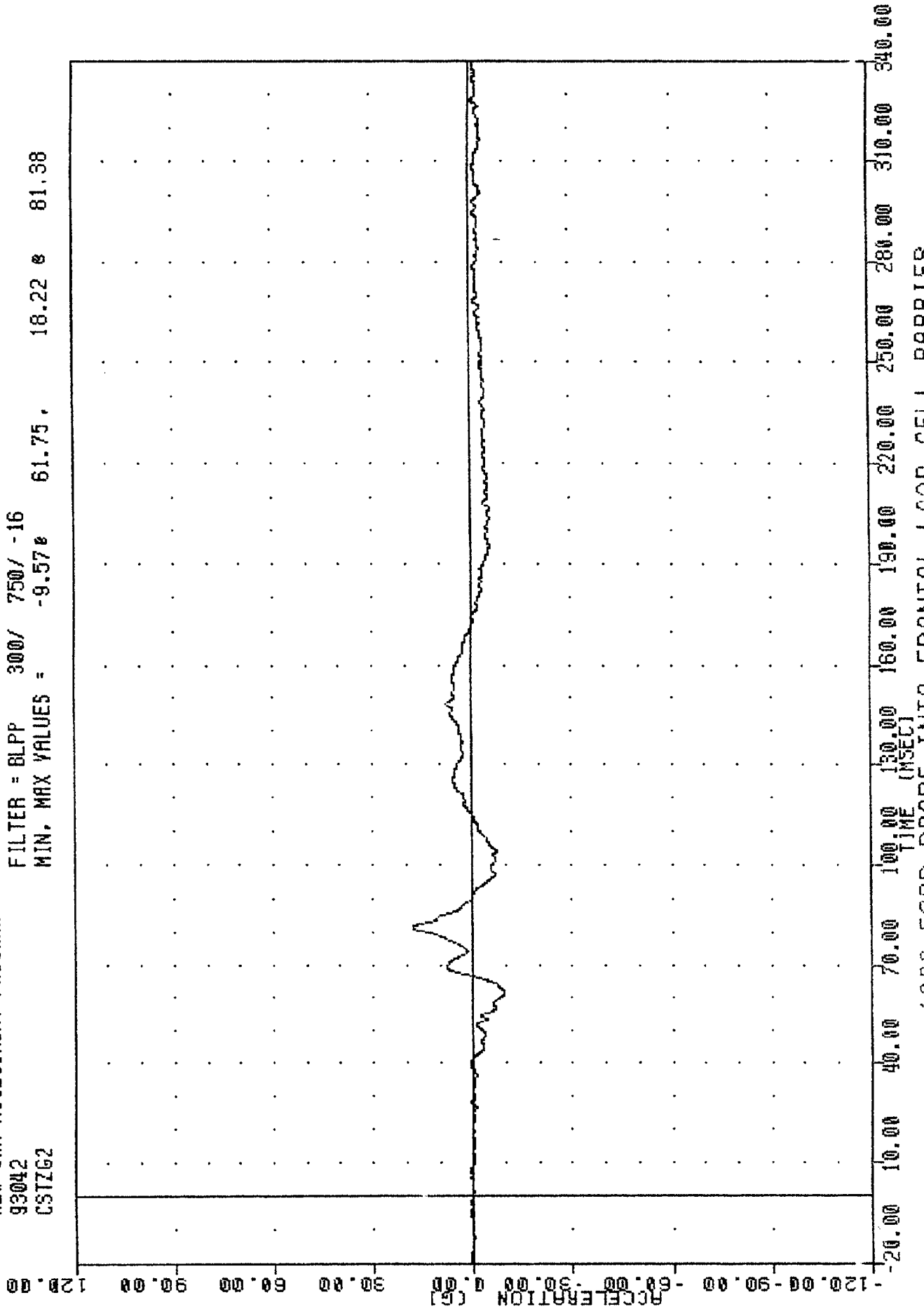


340.00
310.00
280.00
250.00
220.00
190.00
160.00
130.00
100.00
70.00
40.00
10.00
-20.00

1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION

TRC 930211
NEW CAR ASSESSMENT PROGRAM
93042
CSTIG2

FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -9.57% 61.75, 18.22 % 81.38



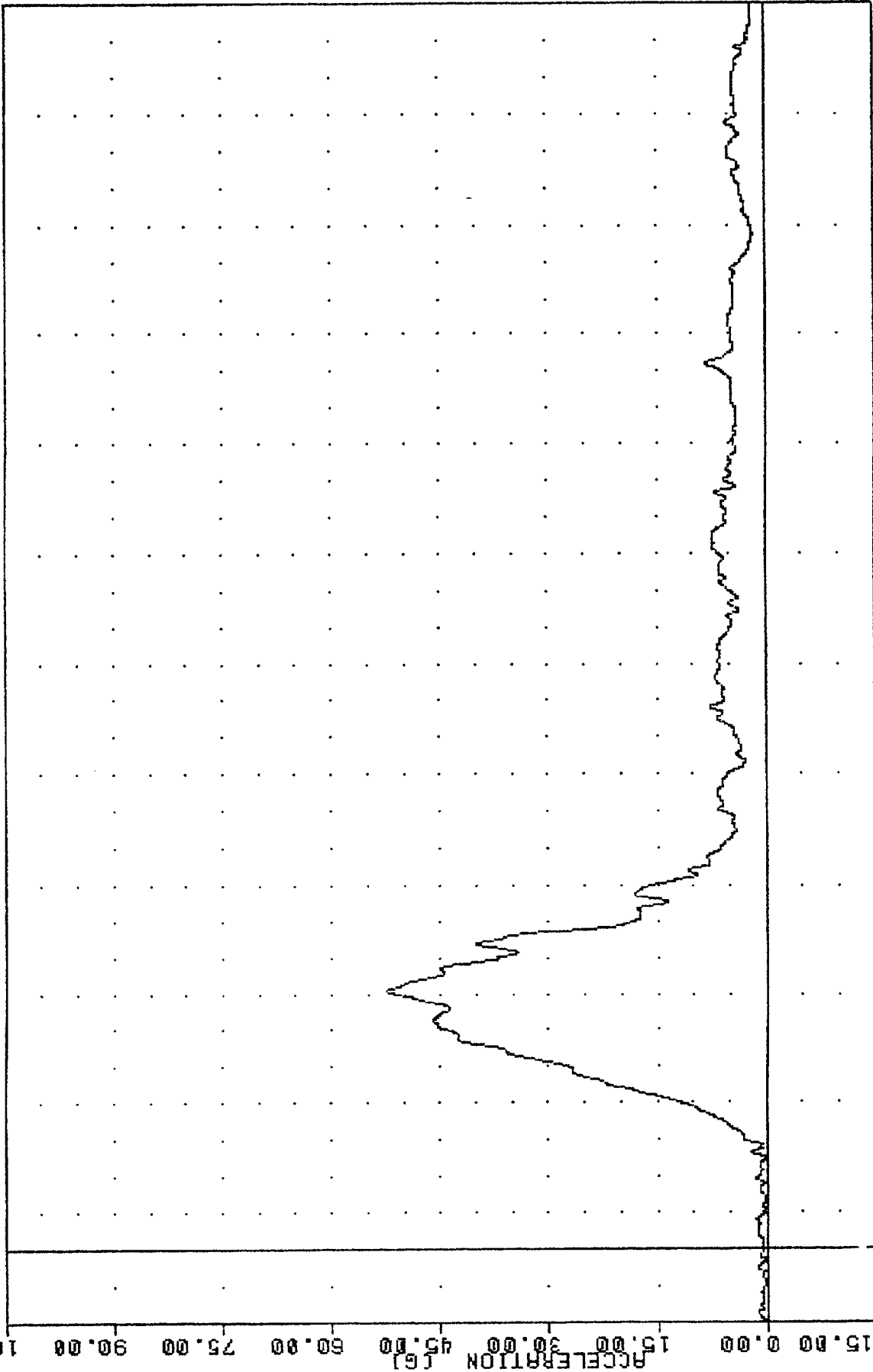
1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z AXIS ACCELERATION

TRC
NEW CAR ASSESSMENT PROGRAM
93042
CSTRG2

930211

FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = 0.07 e -20.00. 52.37 e 70.88

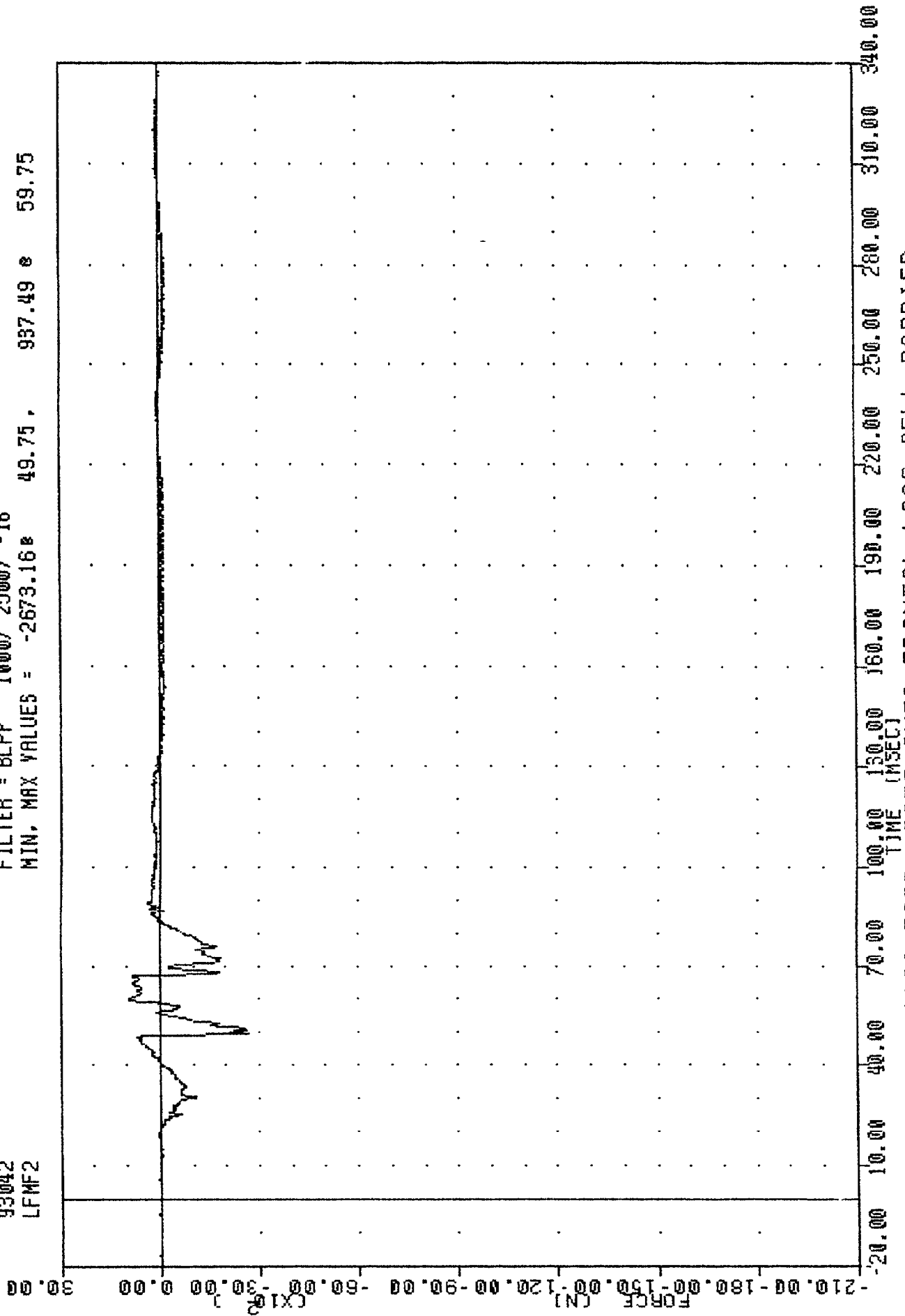
105.00



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 LFMF2

FILTER = BLPP 1000/ 2500/ -16
 MIN, MAX VALUES = -2673.16 49.75 , 937.49 e 59.75

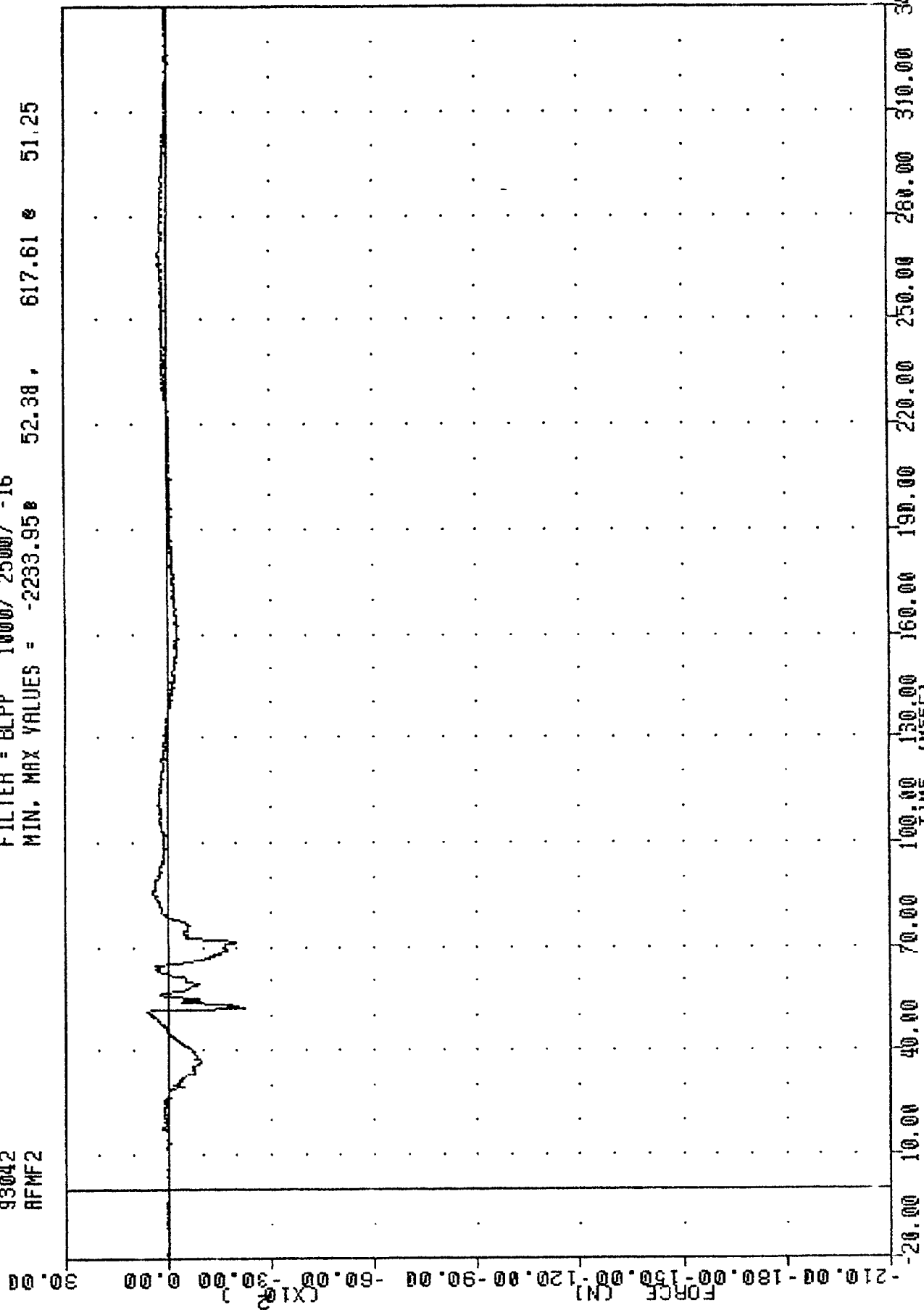


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER

ASSESSMENT REFERENCE FORCE

TRC
930211
NEW CAR ASSESSMENT PROGRAM
93042
RFMF2

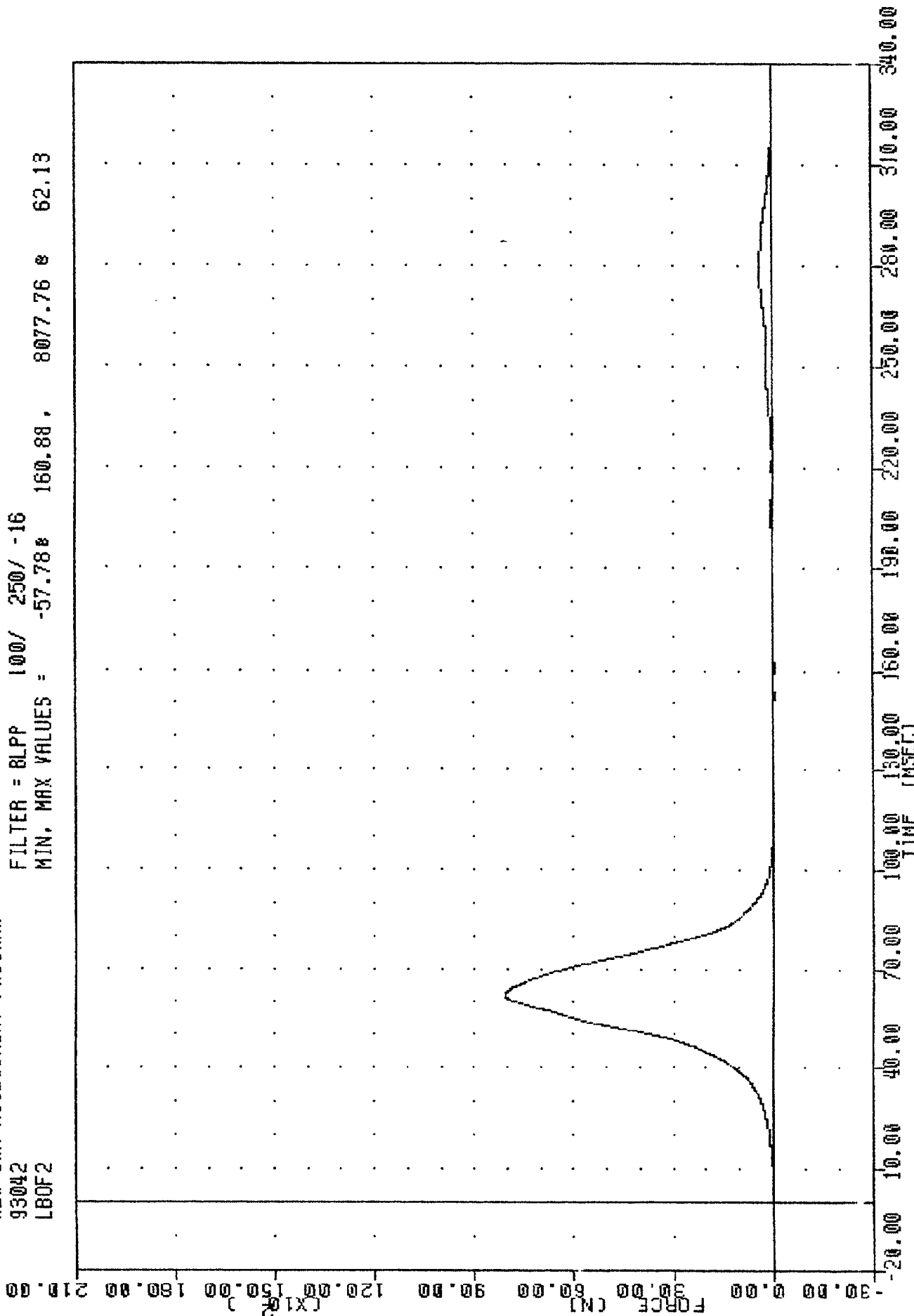
FILTER = BLPP 1000/ 2500/ -16
MIN. MAX VALUES = -2233.95 617.61 e 51.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 LBOF2

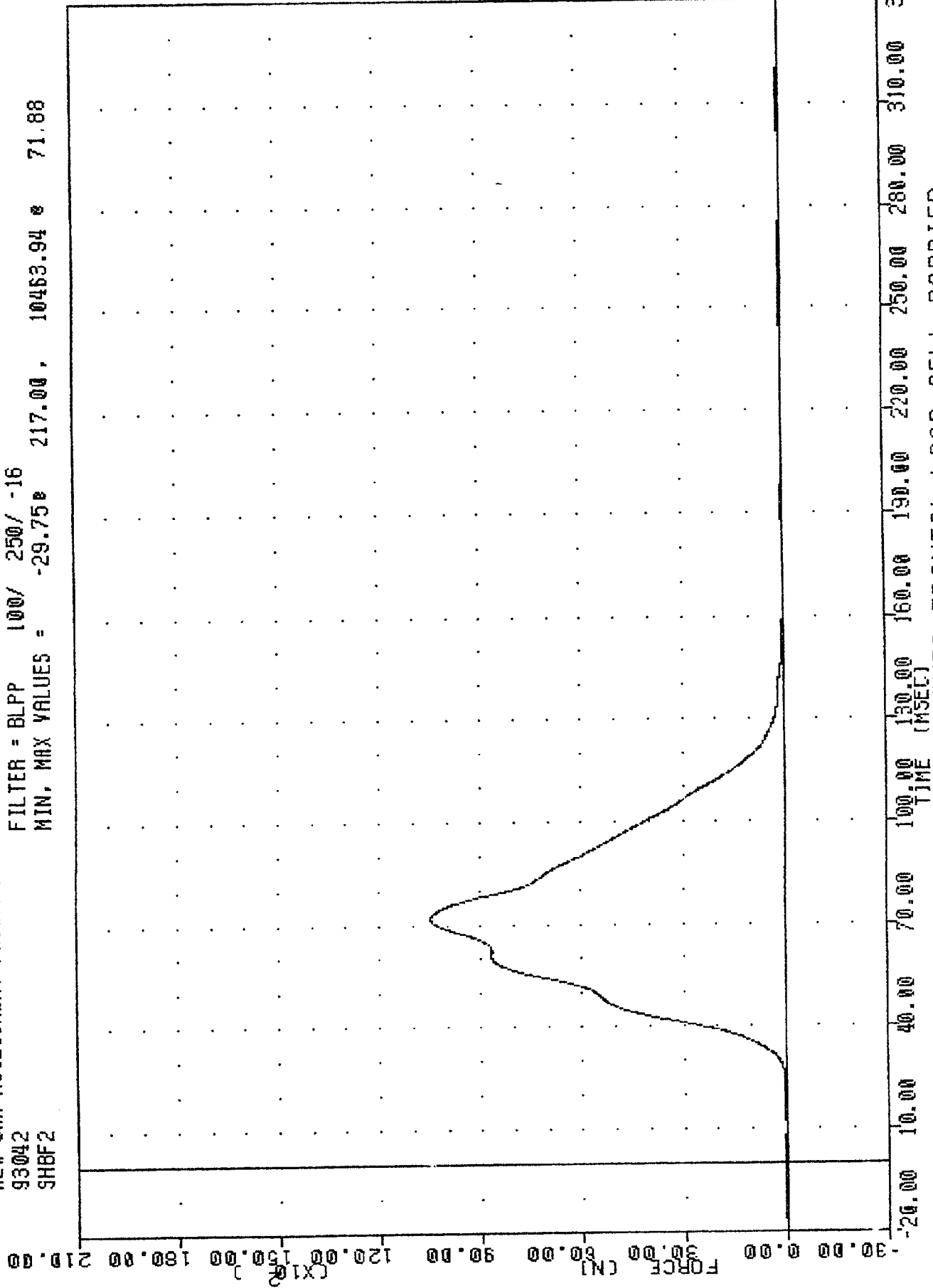
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -57.78e 160.88, 8077.76 e 62.13



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LASER-GATED LASER-SCATTER OUTBOARD FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 SHBF2

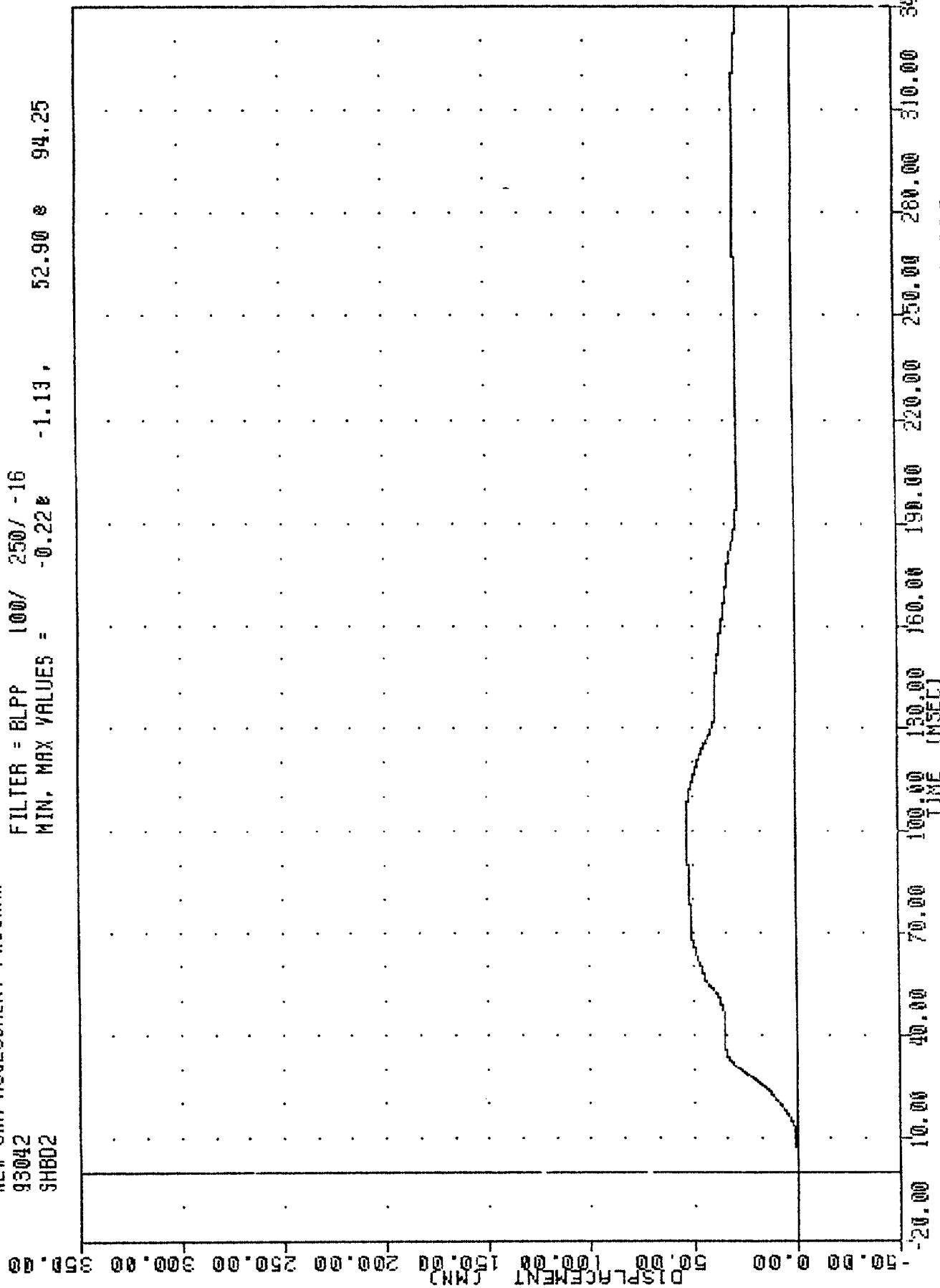
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -29.75e 217.00 , 10463.94 e 71.88



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 PASSENGER SHOULDER BELT FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 SHB02

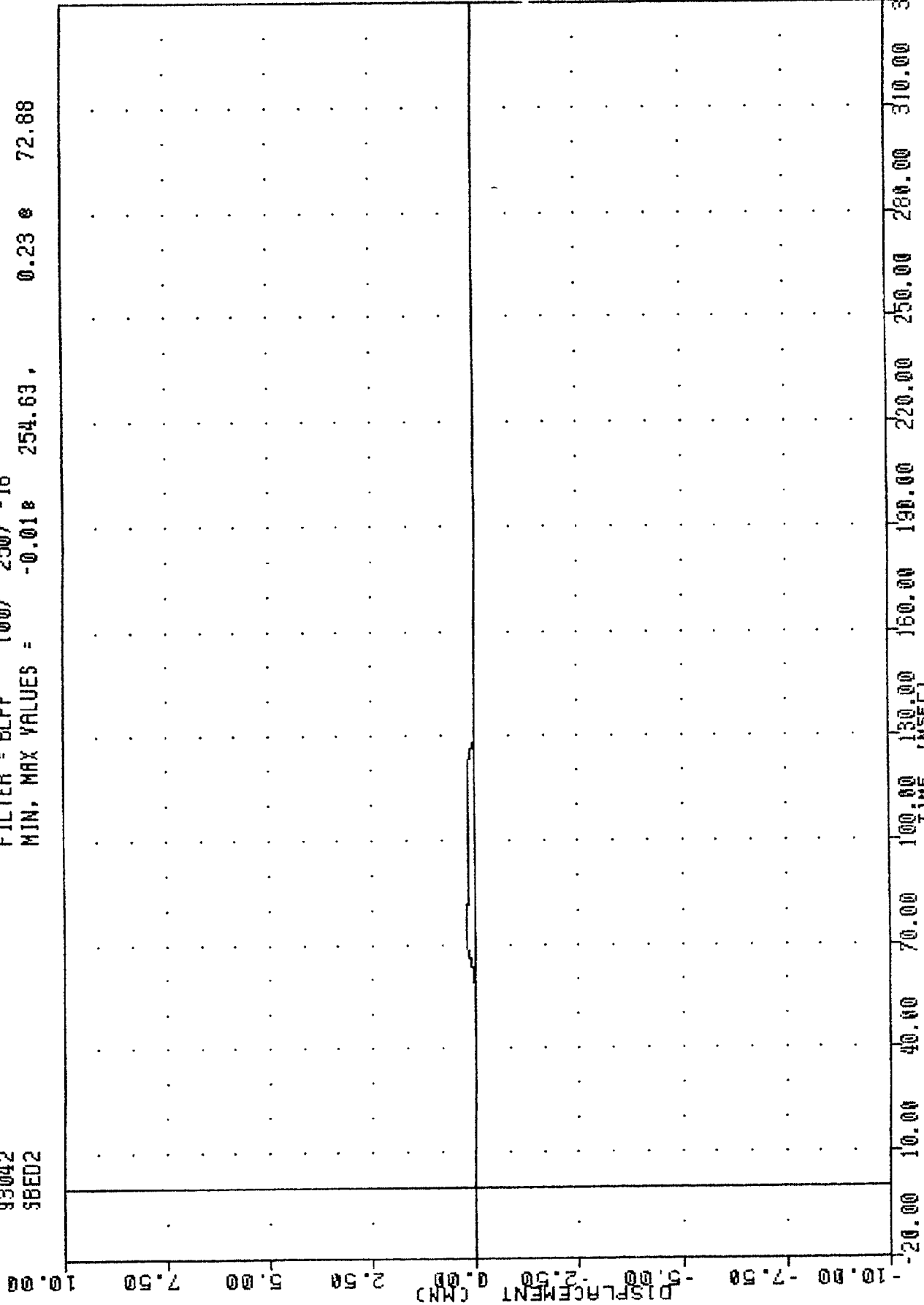
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.22 52.90 94.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 SBED2

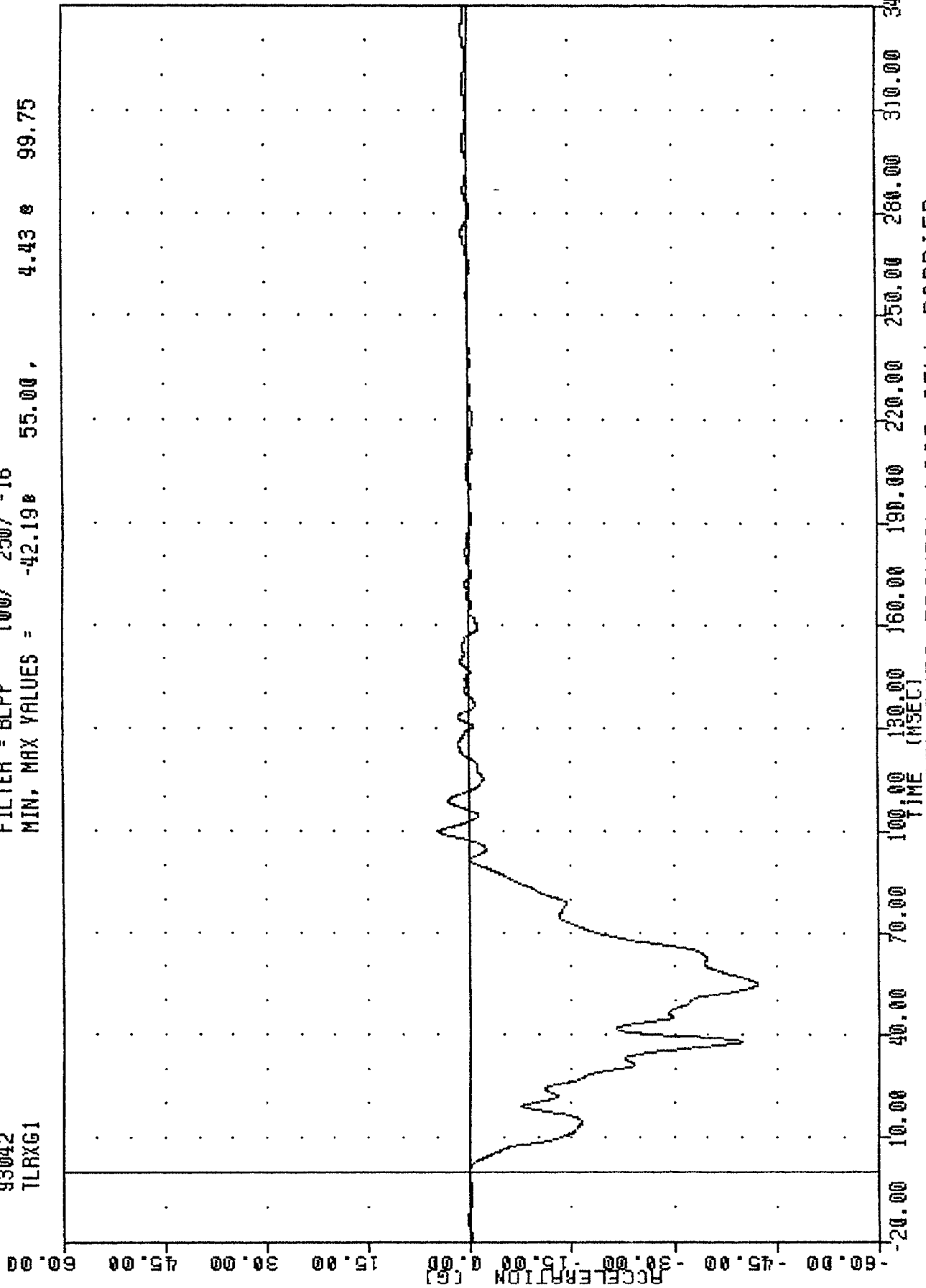
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -0.01e 254.63, 0.23 e 72.88



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 PASSENGER SEAT BELT EXTENSION

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
TLRXG1

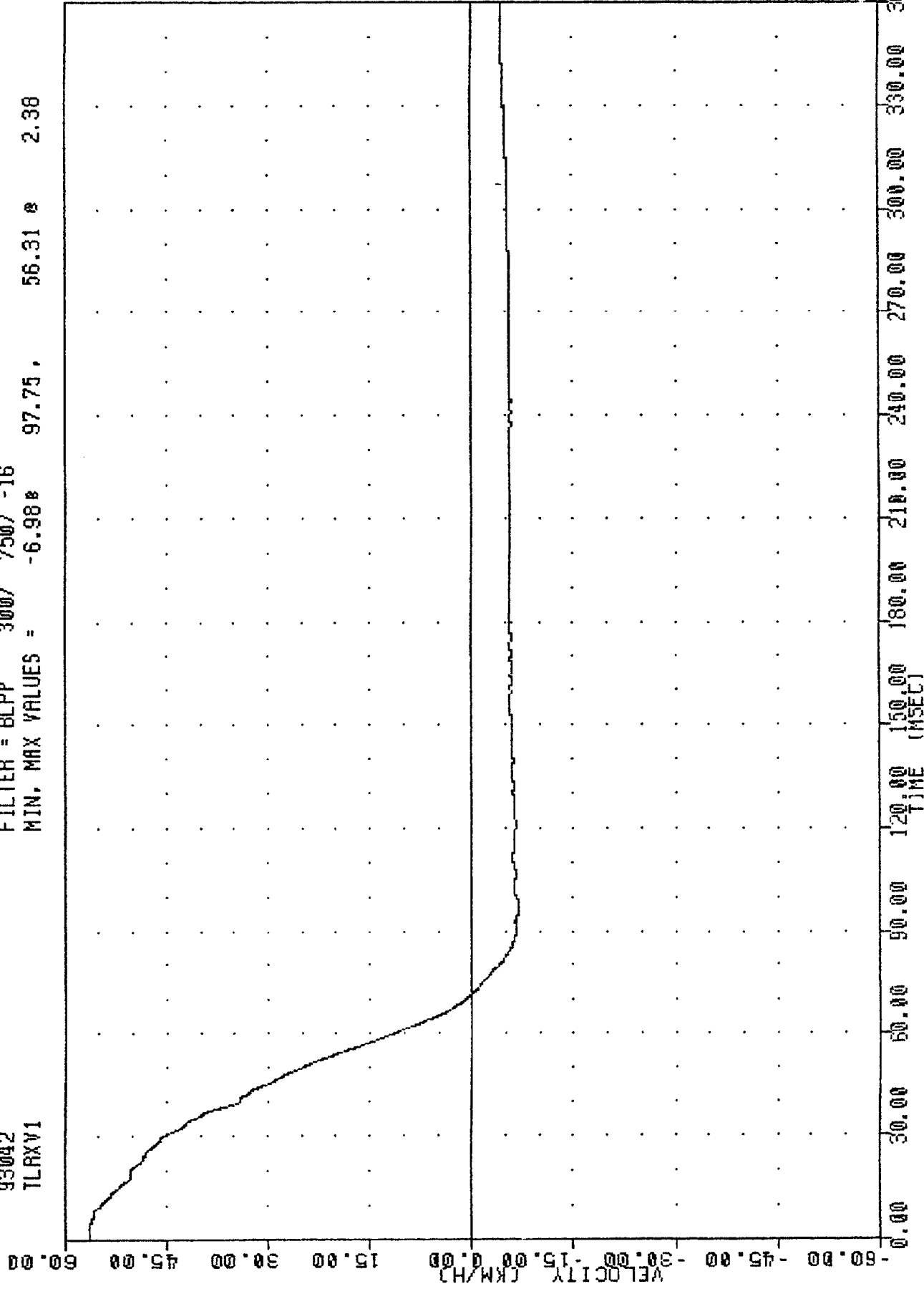
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -42.19 55.00 , 4.43 99.75



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
TLRXV1

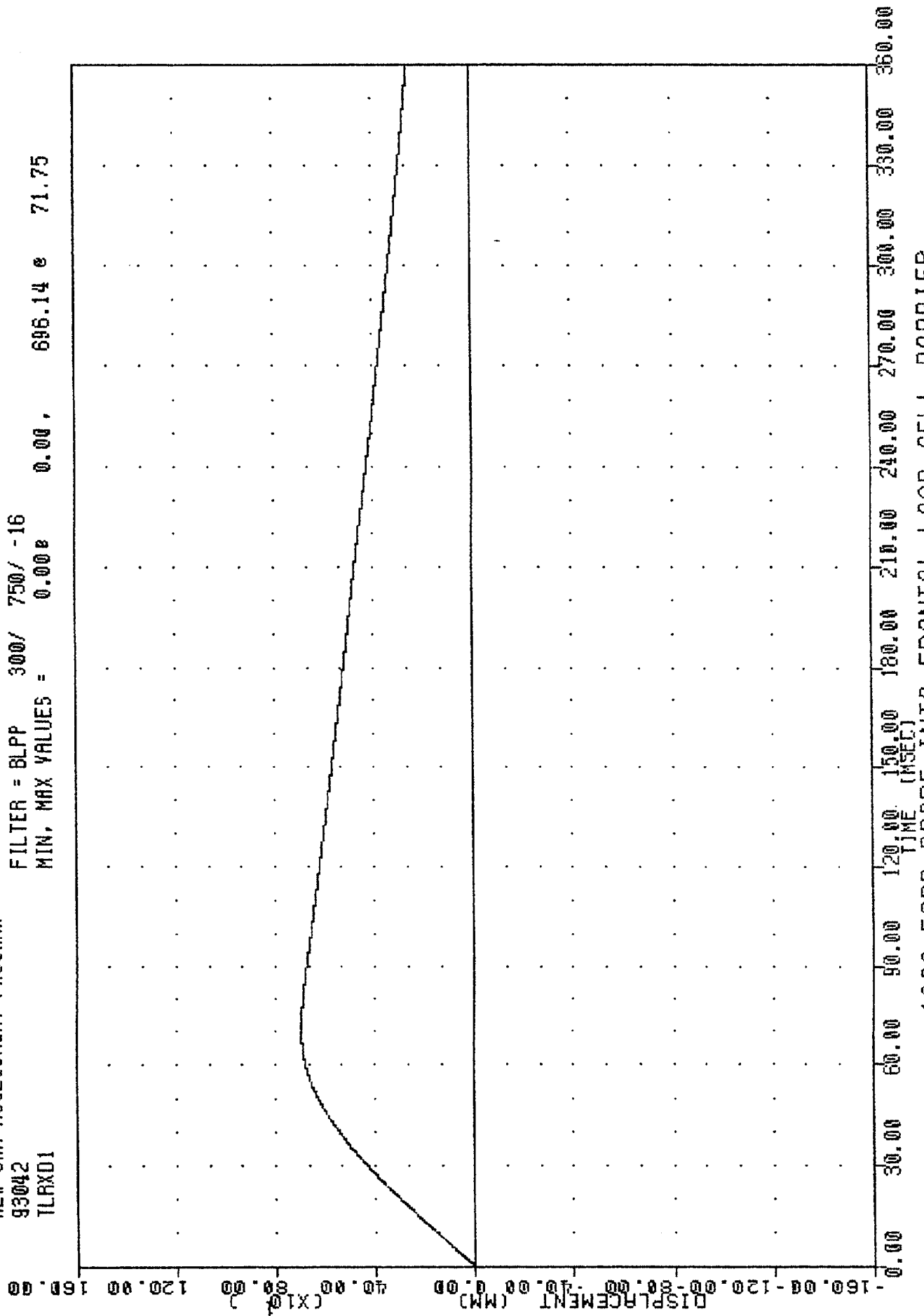
FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -6.98 56.31 97.75 2.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS VELOCITY

TRC 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 TLRXD1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.00e 0.00, 696.14 e 71.75

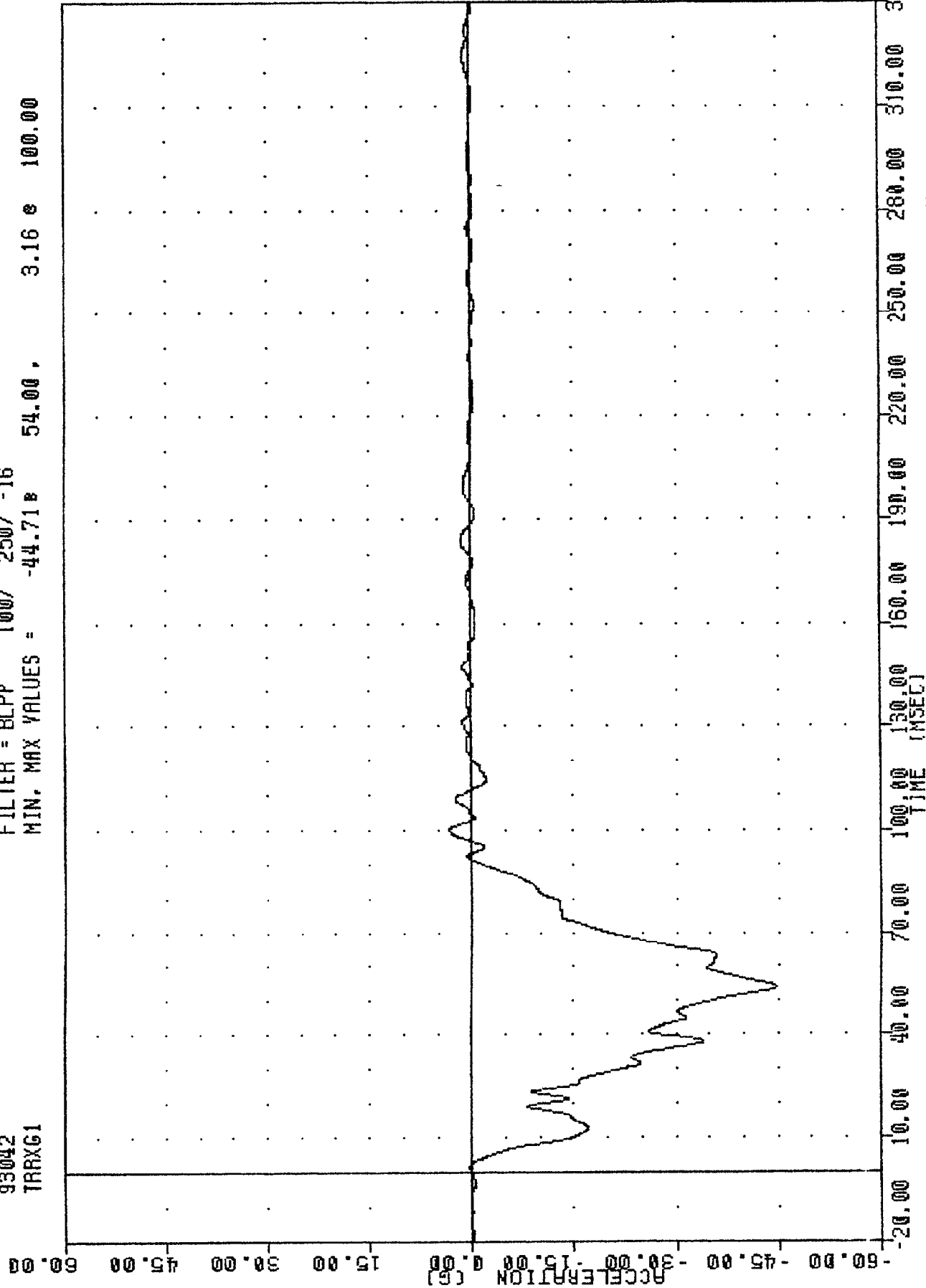


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER

IF HEAR BEH X - S DISPLACEMENT

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
TRRXG1

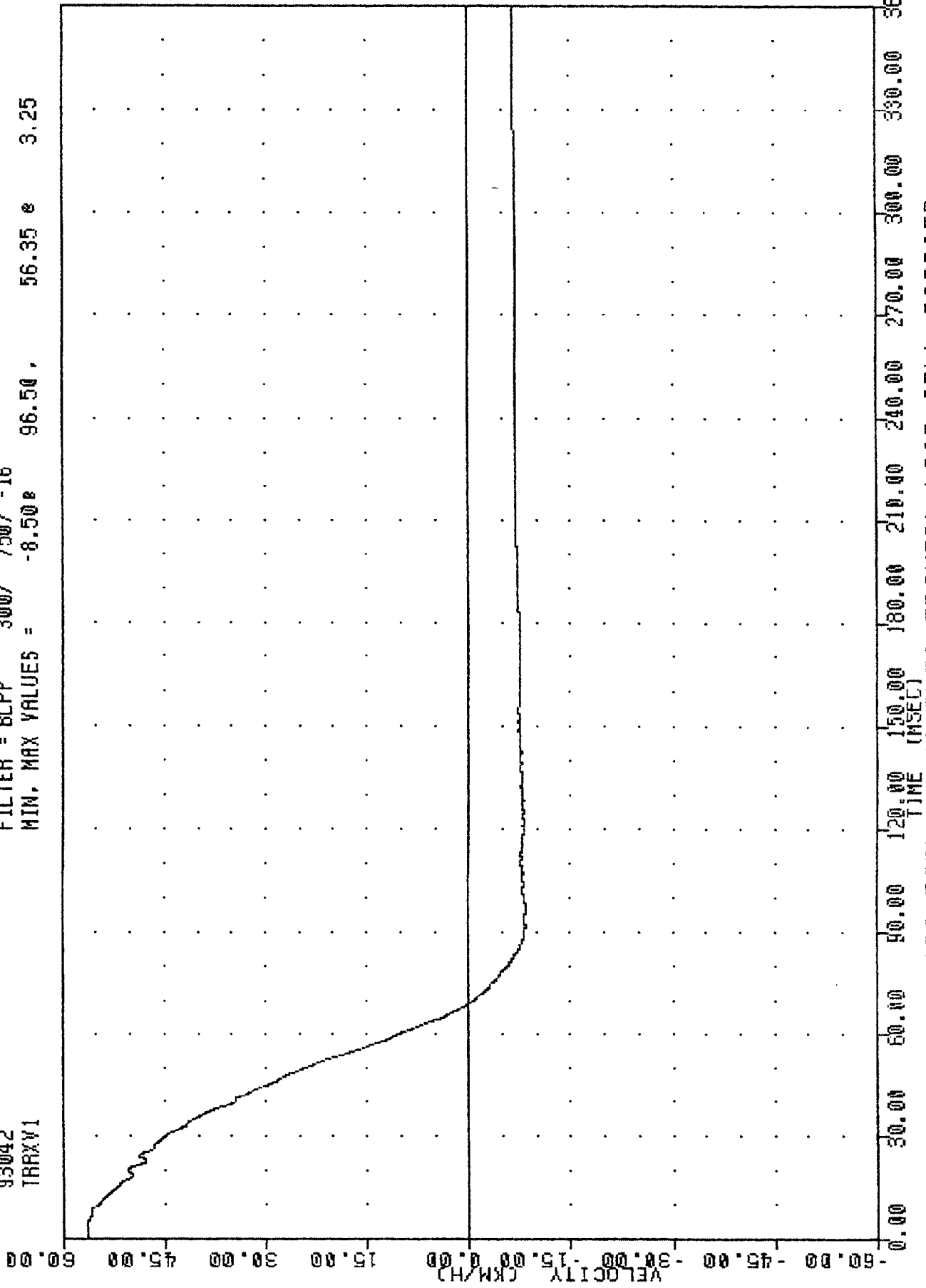
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -44.71g 54.00, 3.16 e 100.00



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 TRXY1

FILTER = 8LPP 300/ 750/ -16
 MIN. MAX VALUES = -8.50% 96.50 , 56.35 e 3.25

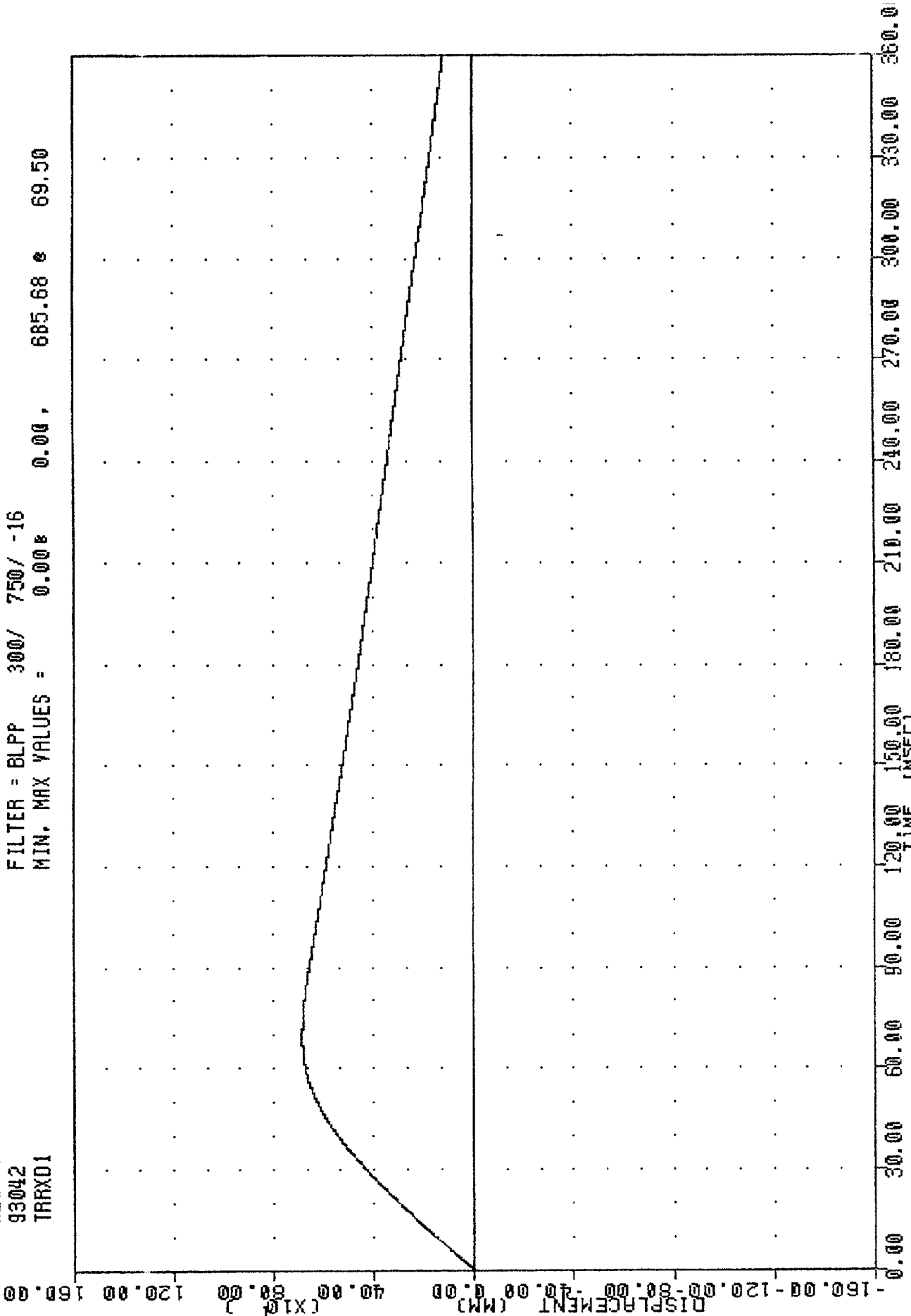


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER

FRONTAL REAR SEAT MAX VELOCITY

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 TRRX01

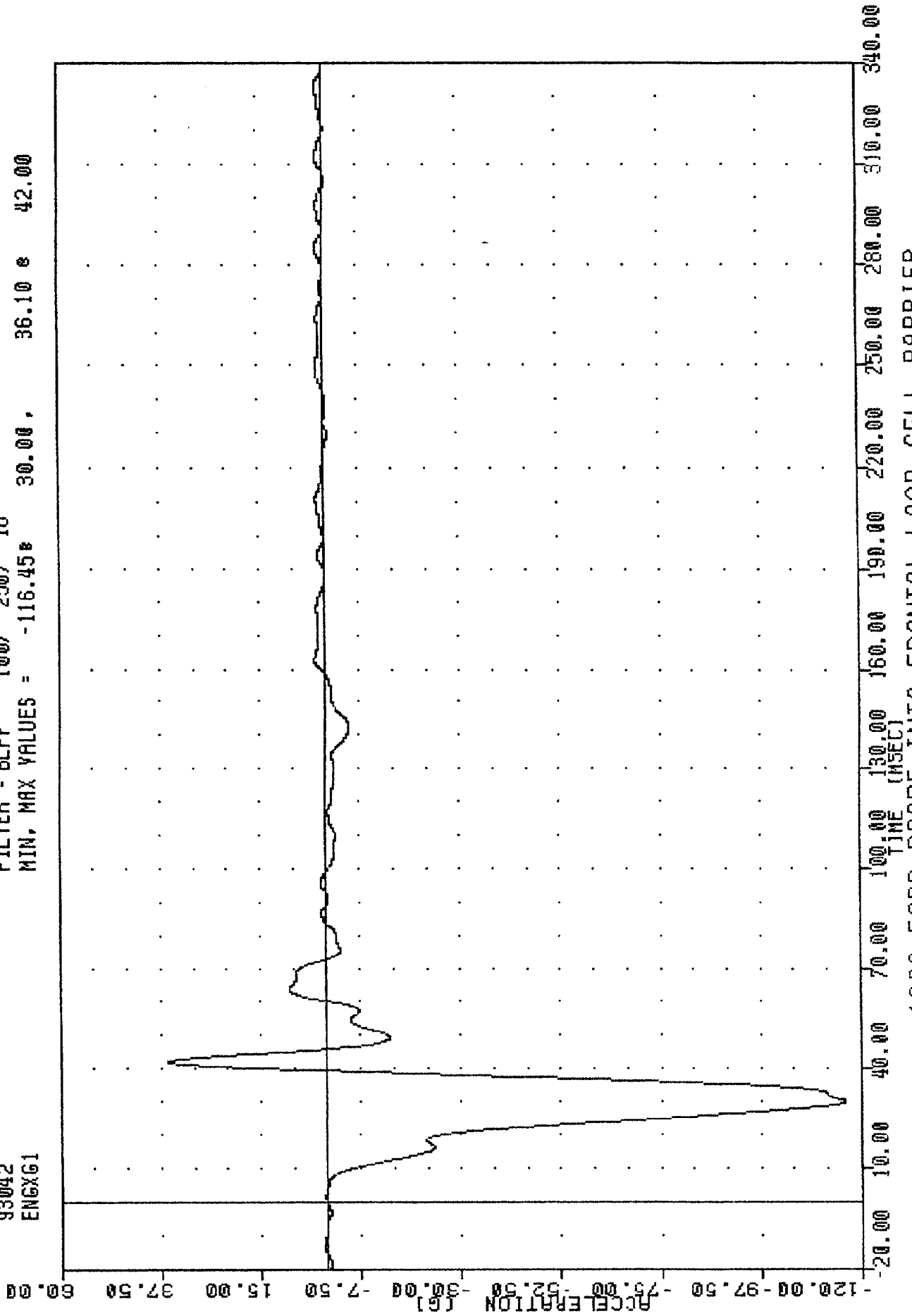
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 0.00 , 685.68 69.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS DISPLACEMENT

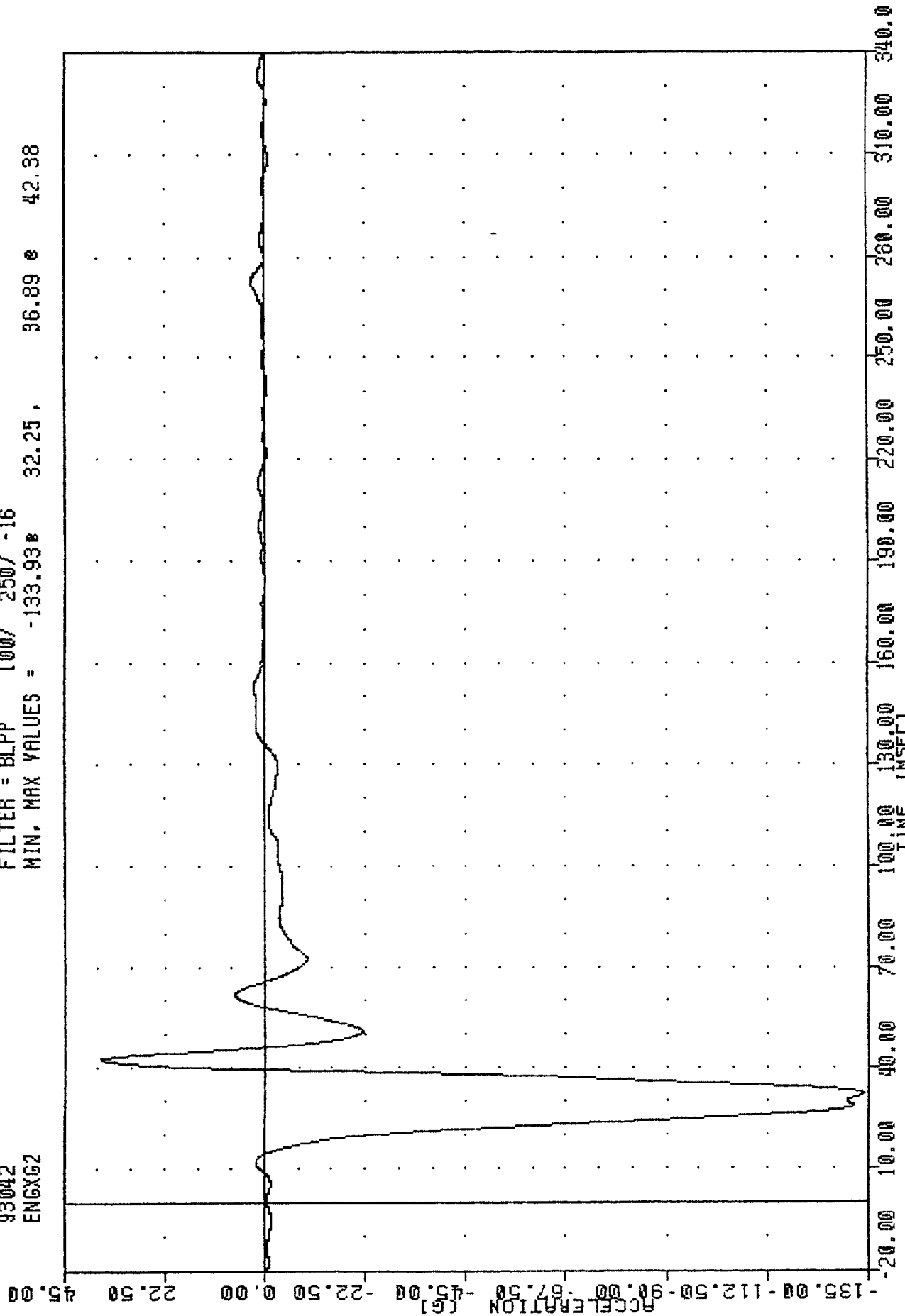
TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
ENXG61

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -116.45 30.00 , 36.10 e 42.00



TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
ENGX62

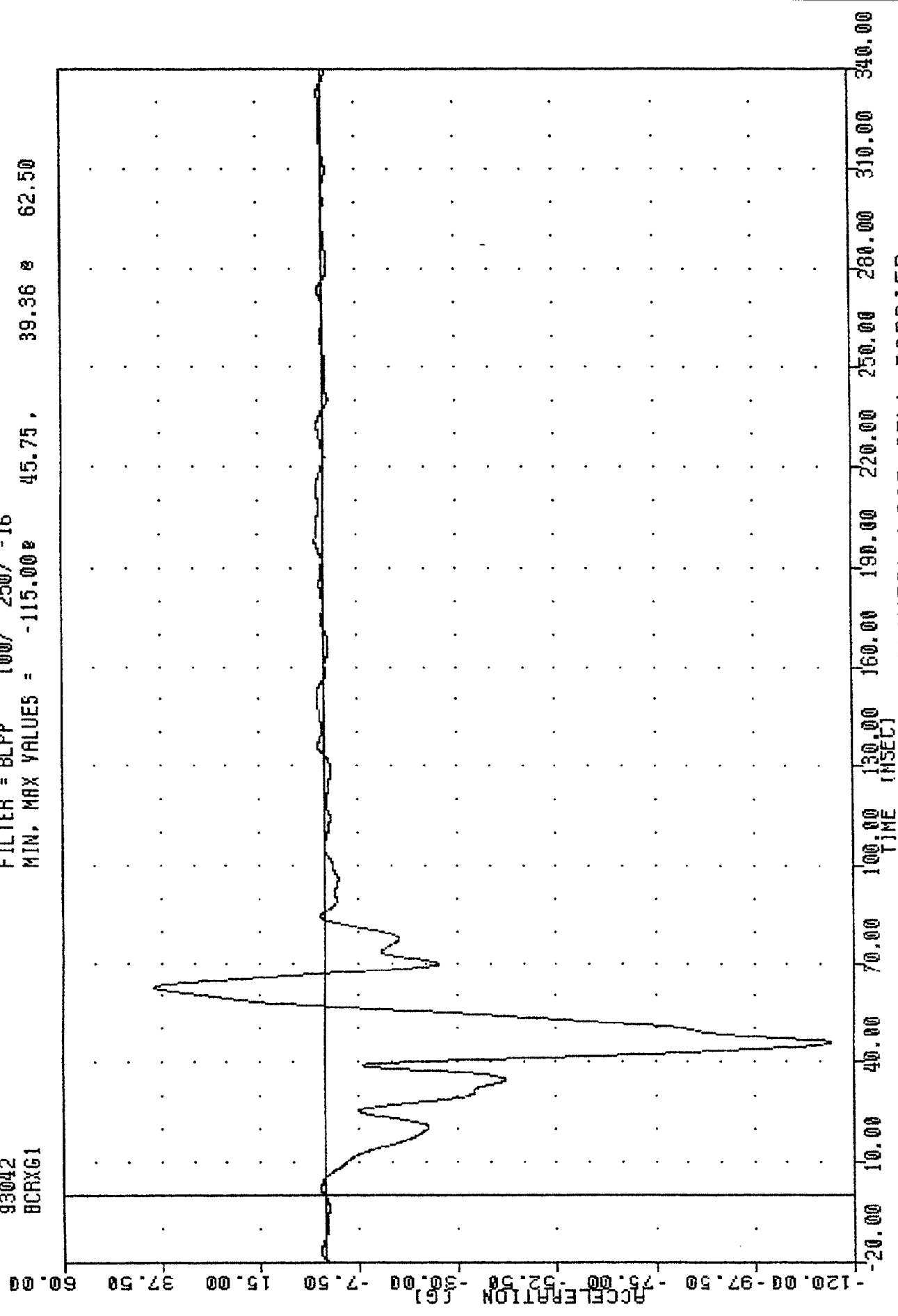
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -133.93 32.25, 36.89 42.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION

TRC 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BCRXG1

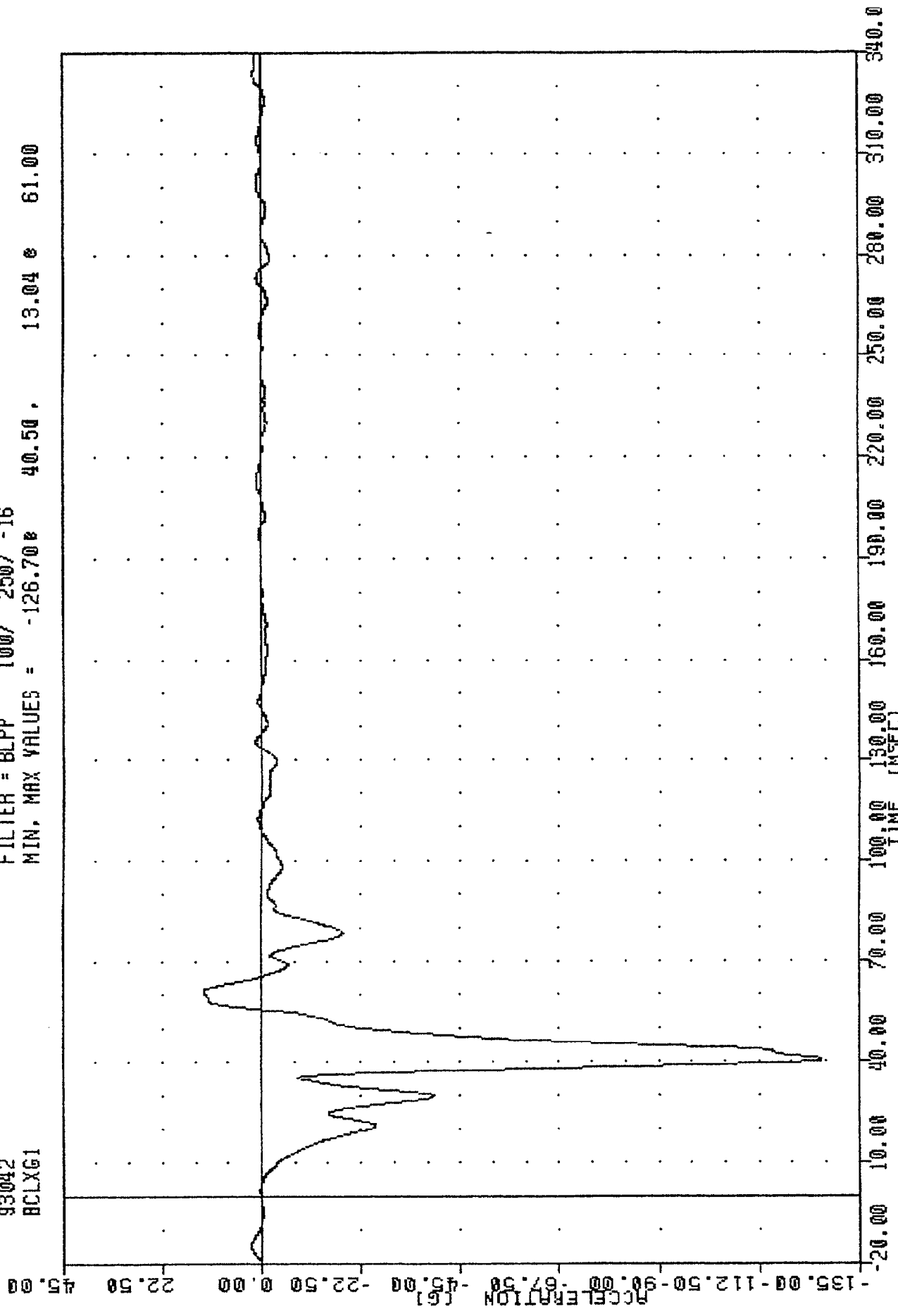
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -115.00% 45.75, 39.36% 62.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 RIGHT SIDE CRASH TEST AXLE ACCELERATION

TAC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
BCLXG1

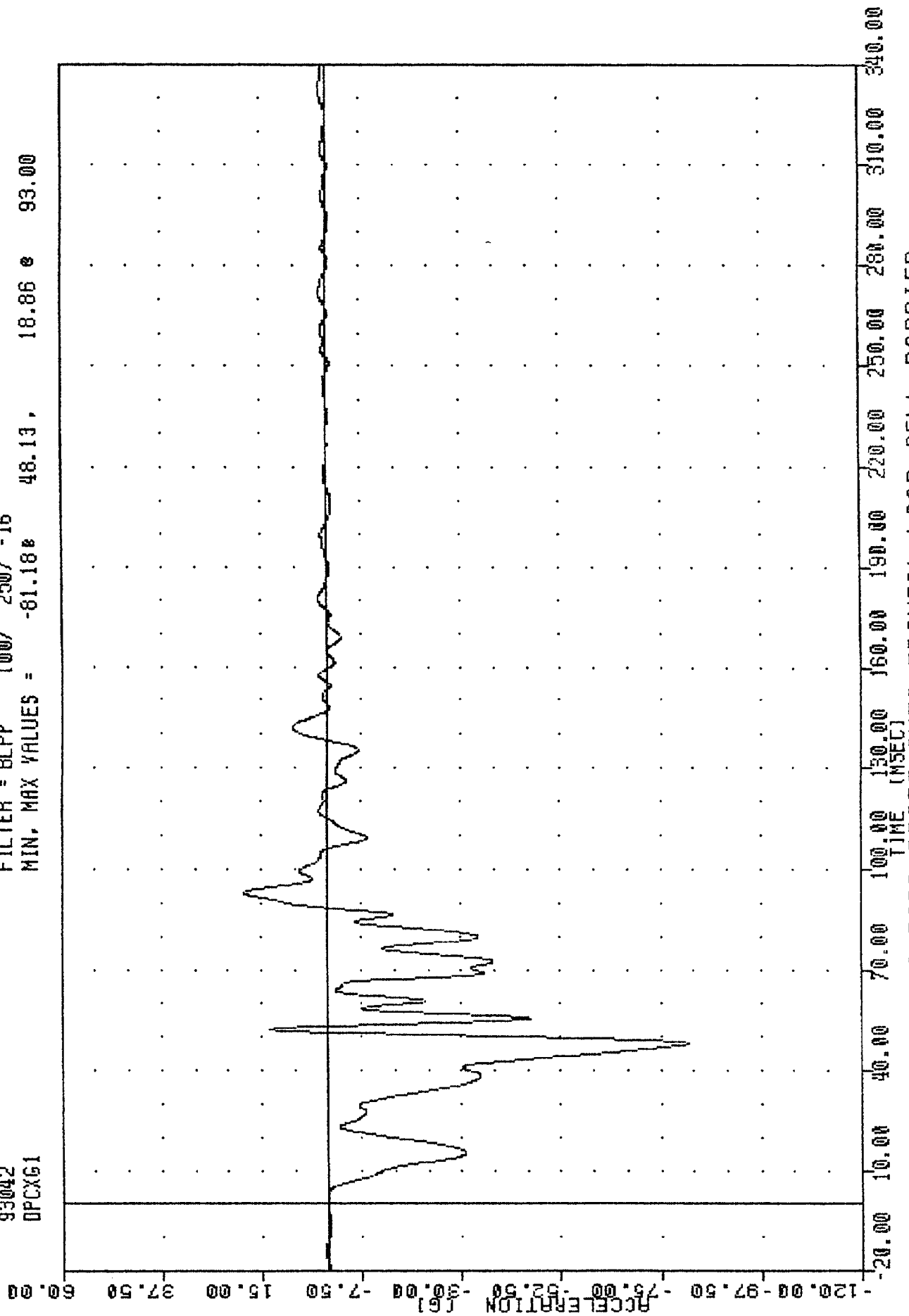
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -126.70e 40.50 . 13.04 e 61.00



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
DPCXG1

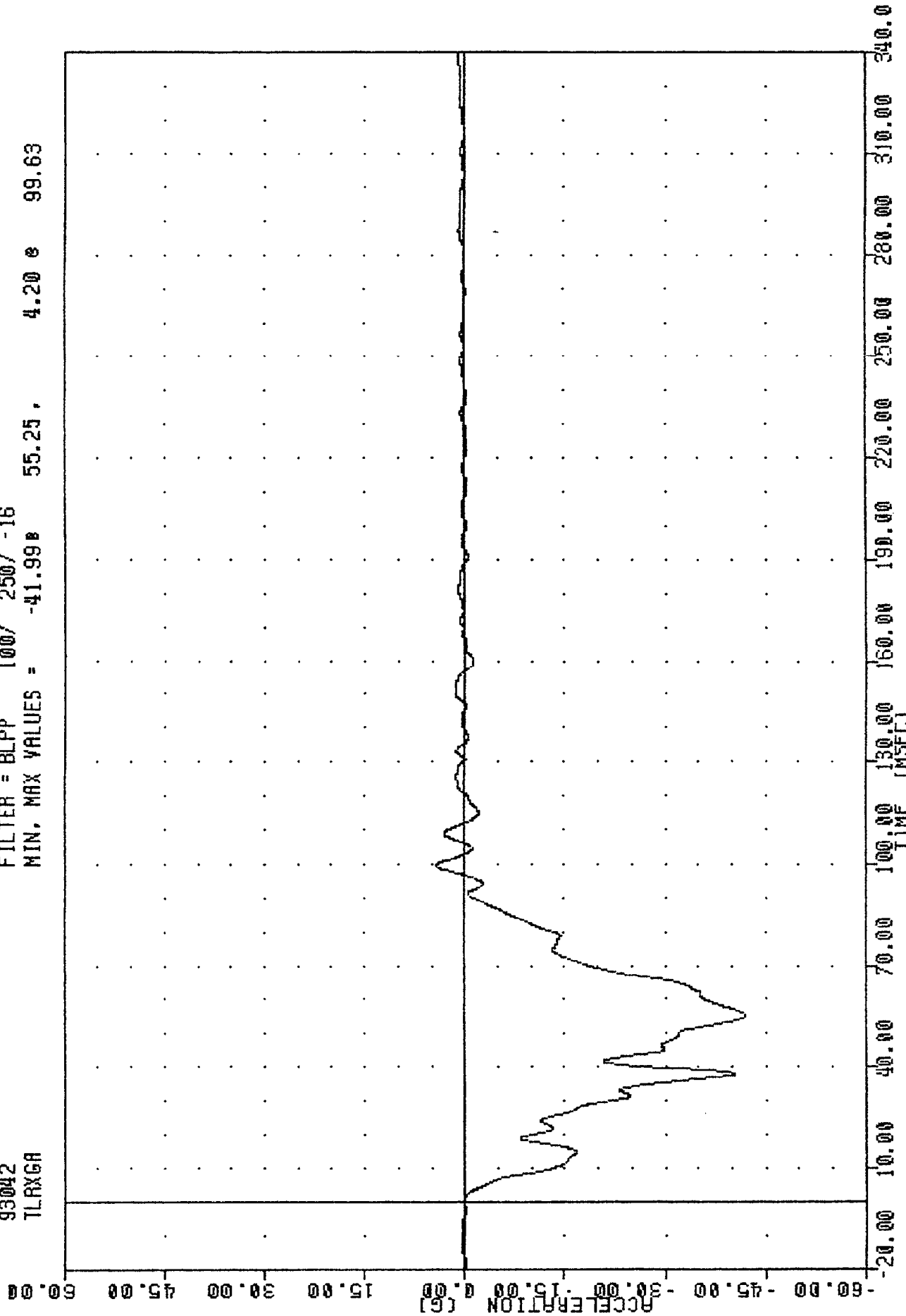
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -81.18 48.13 18.86 e 93.00



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X AXIS ACCELERATION

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
TLRXGA

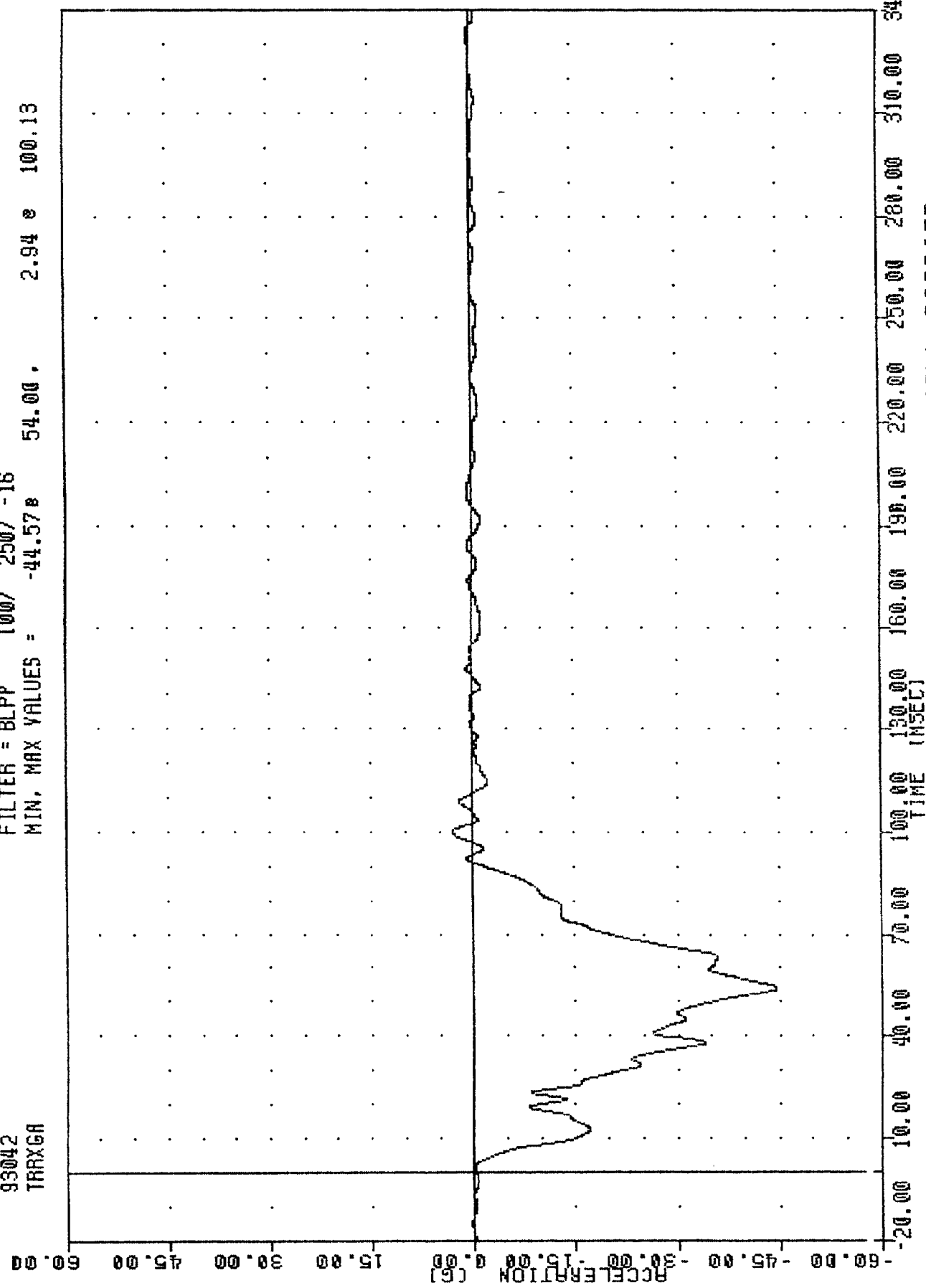
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -41.99 55.25 , 4.20 e 99.63



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
TRRXGA

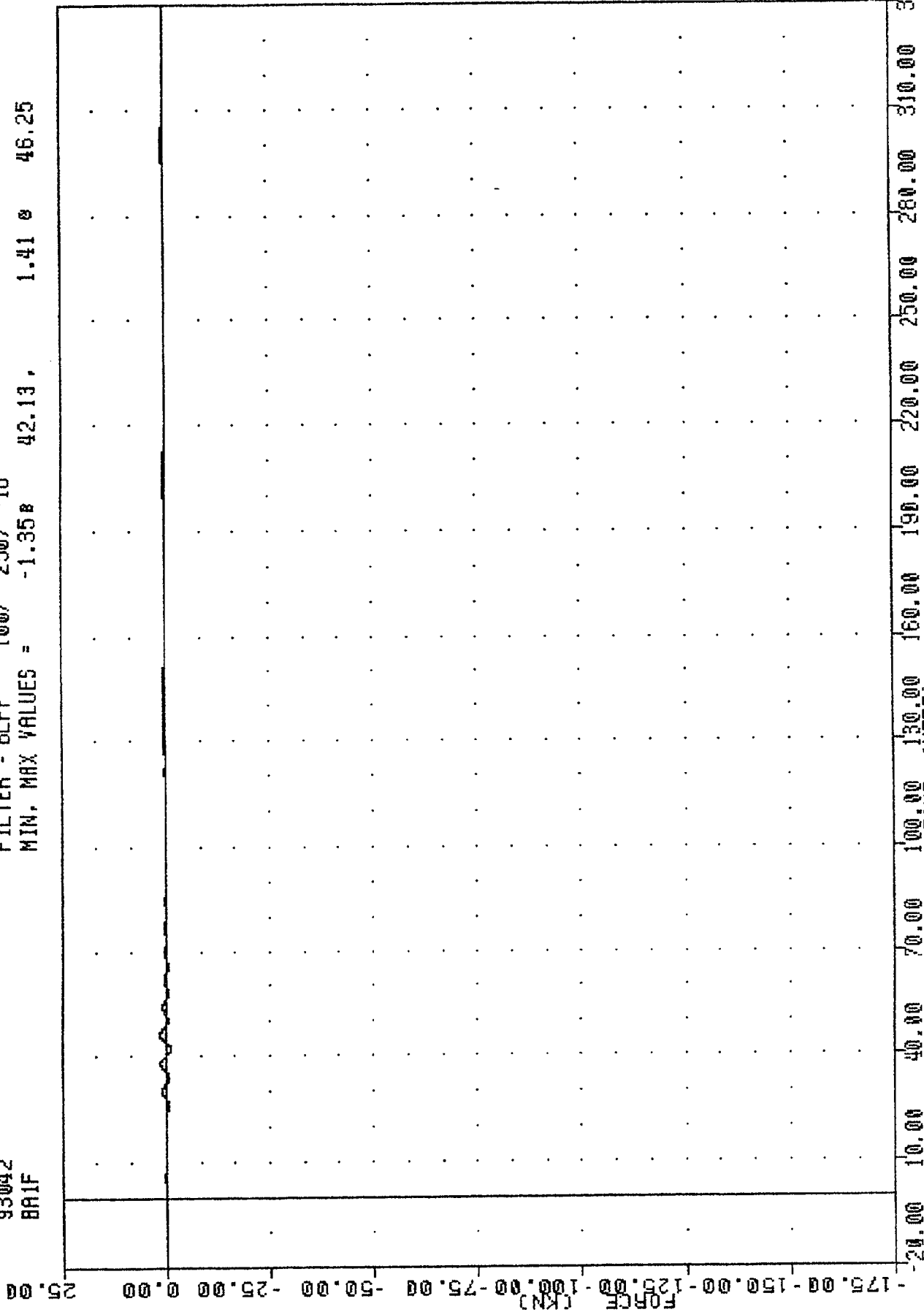
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -44.57 54.00 2.94 e 100.13



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REINFORCEMENT Y-AXIS ACCELERATION

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BRAIF

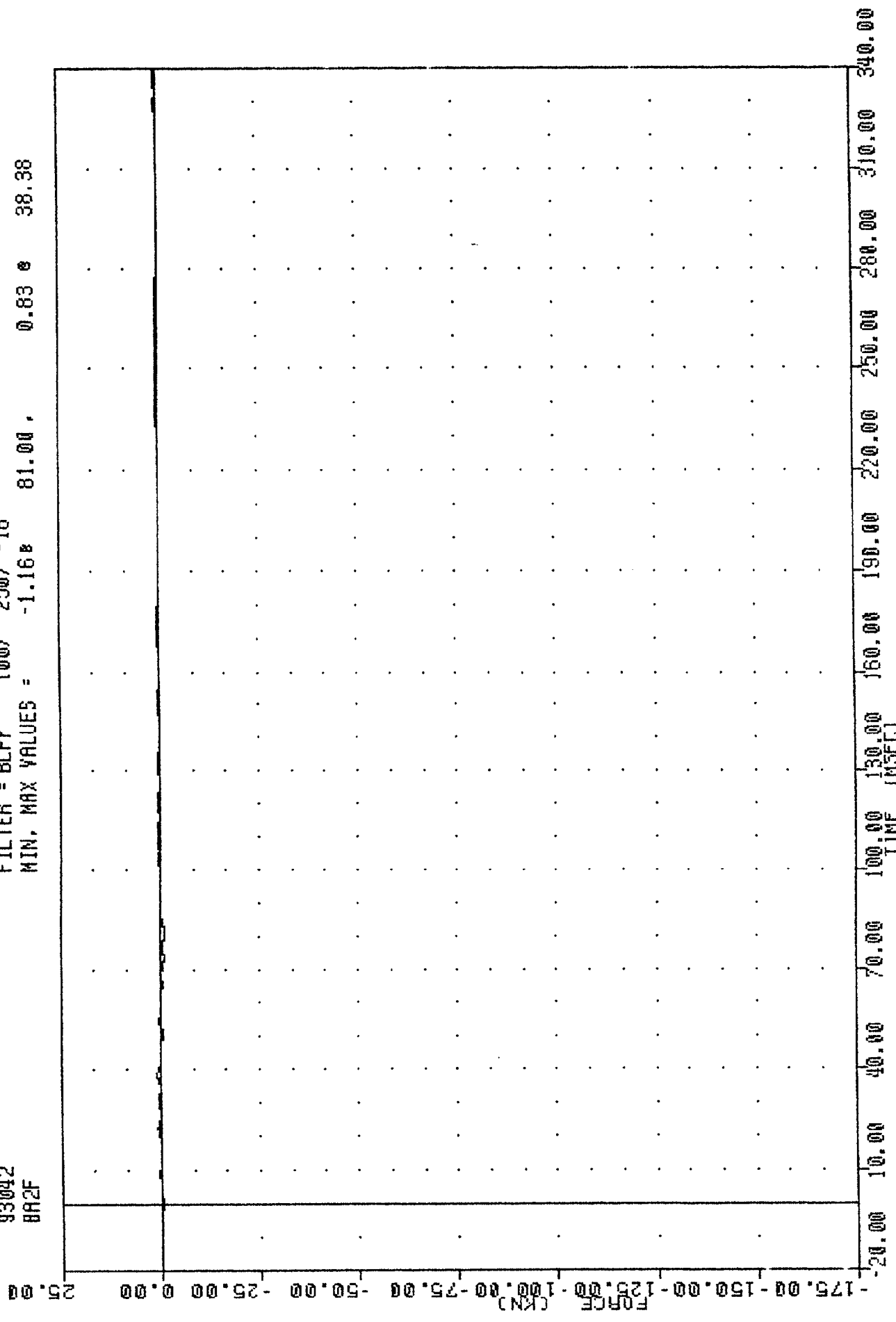
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -1.35B 42.13, 1.41 0 46.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A1 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BR2F

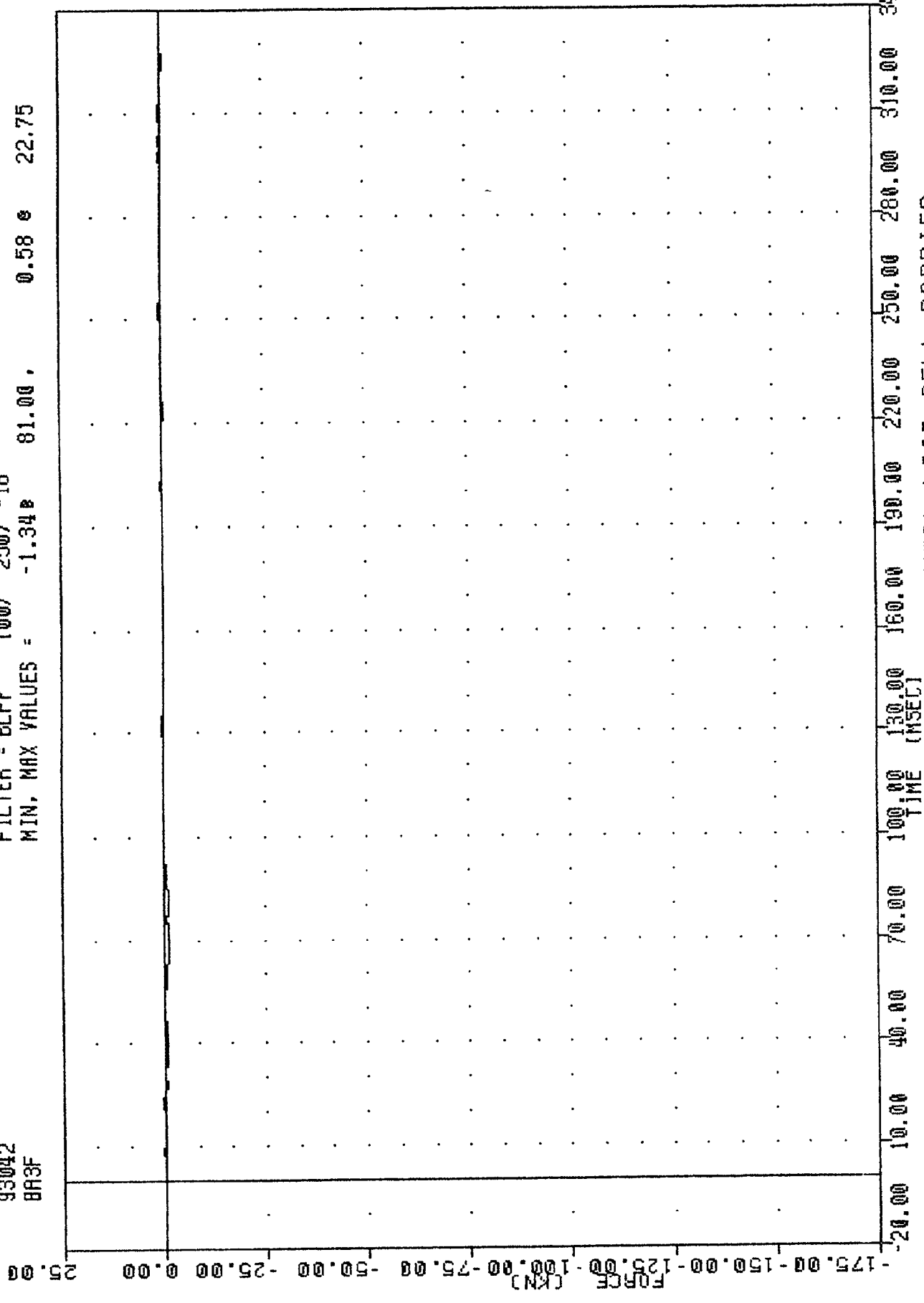
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -1.16 81.00 , 0.83 38.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 BARRIER POSITION IN THE FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BR3F

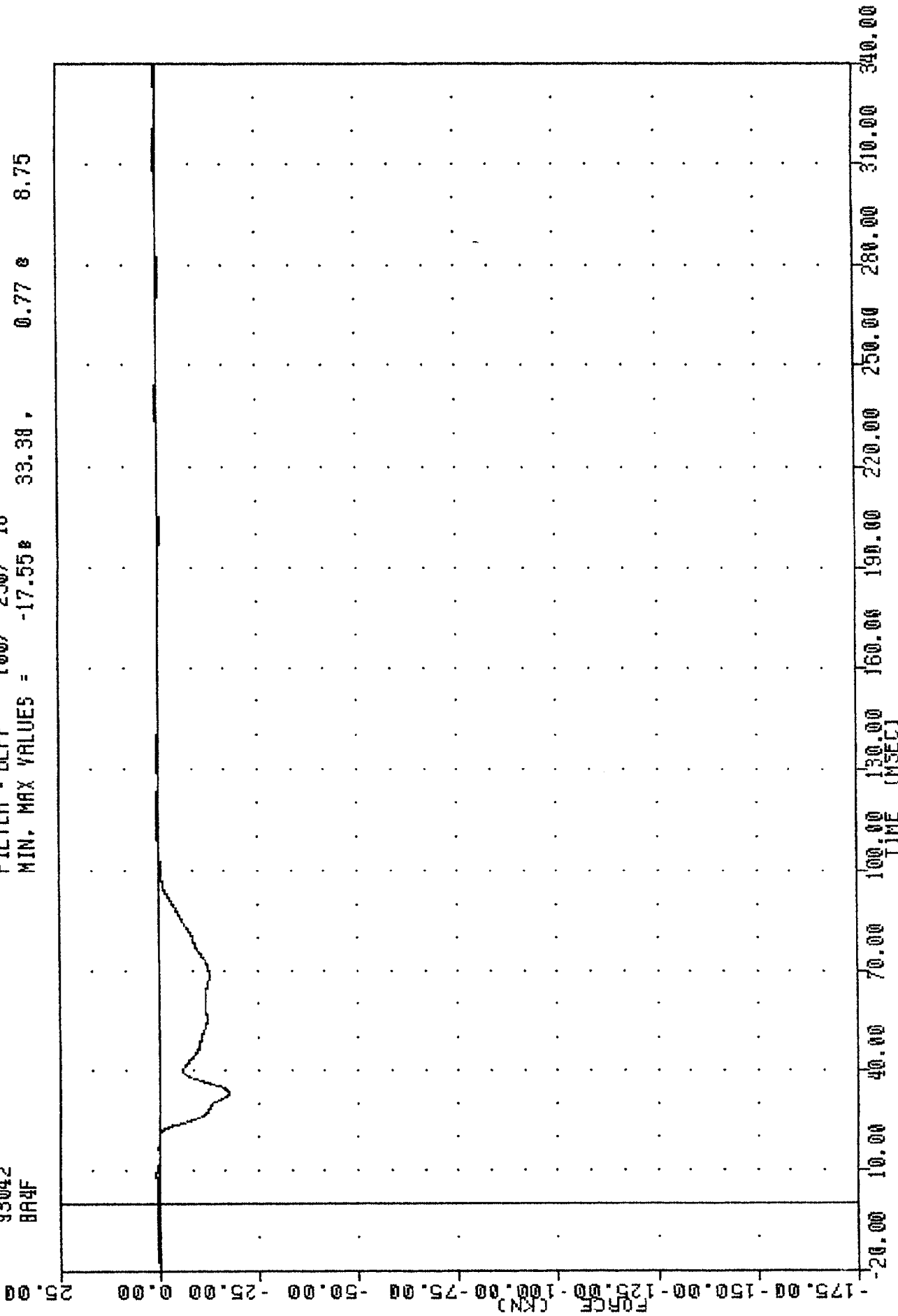
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -1.34 B 81.00 , 0.58 e 22.75



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A3 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BR4F

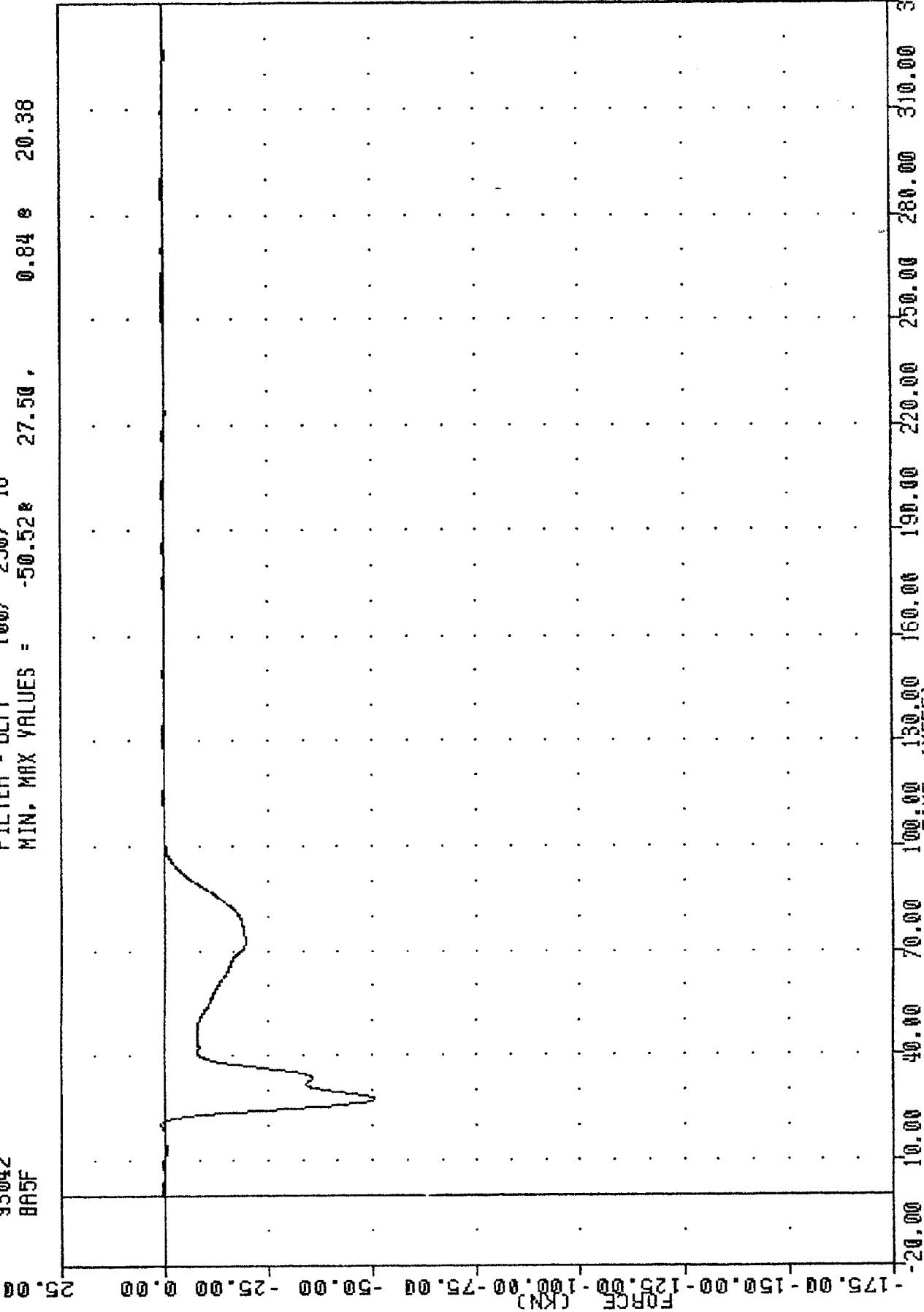
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -17.55# 33.38 , 0.77 # 8.75



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 BARRIER POSITION AND FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BR5F

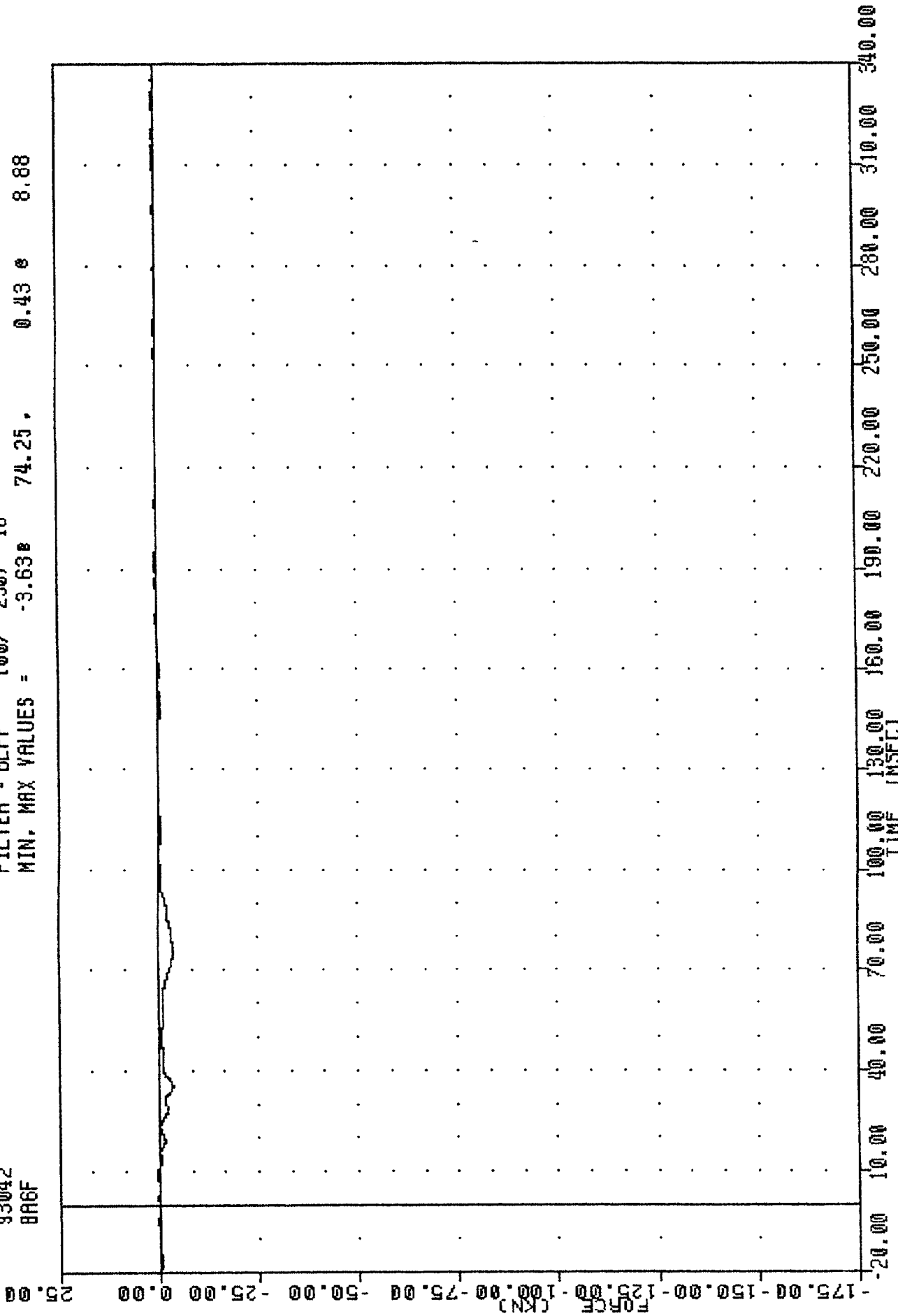
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -50.52 27.50 , 0.84 20.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A5 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BR6F

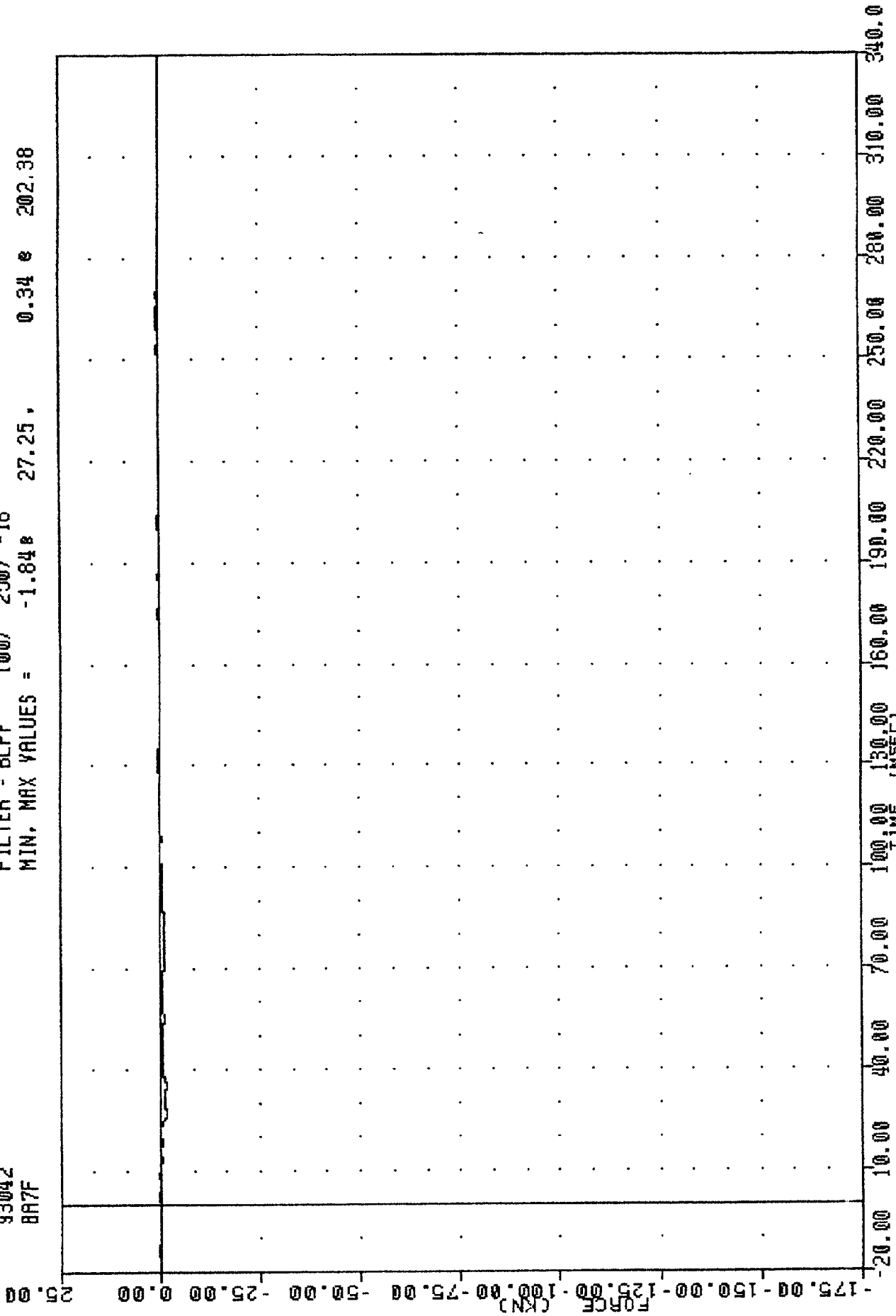
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -3.63 74.25, 0.43 8.88



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 BARRIER POSITION AND FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BR7F

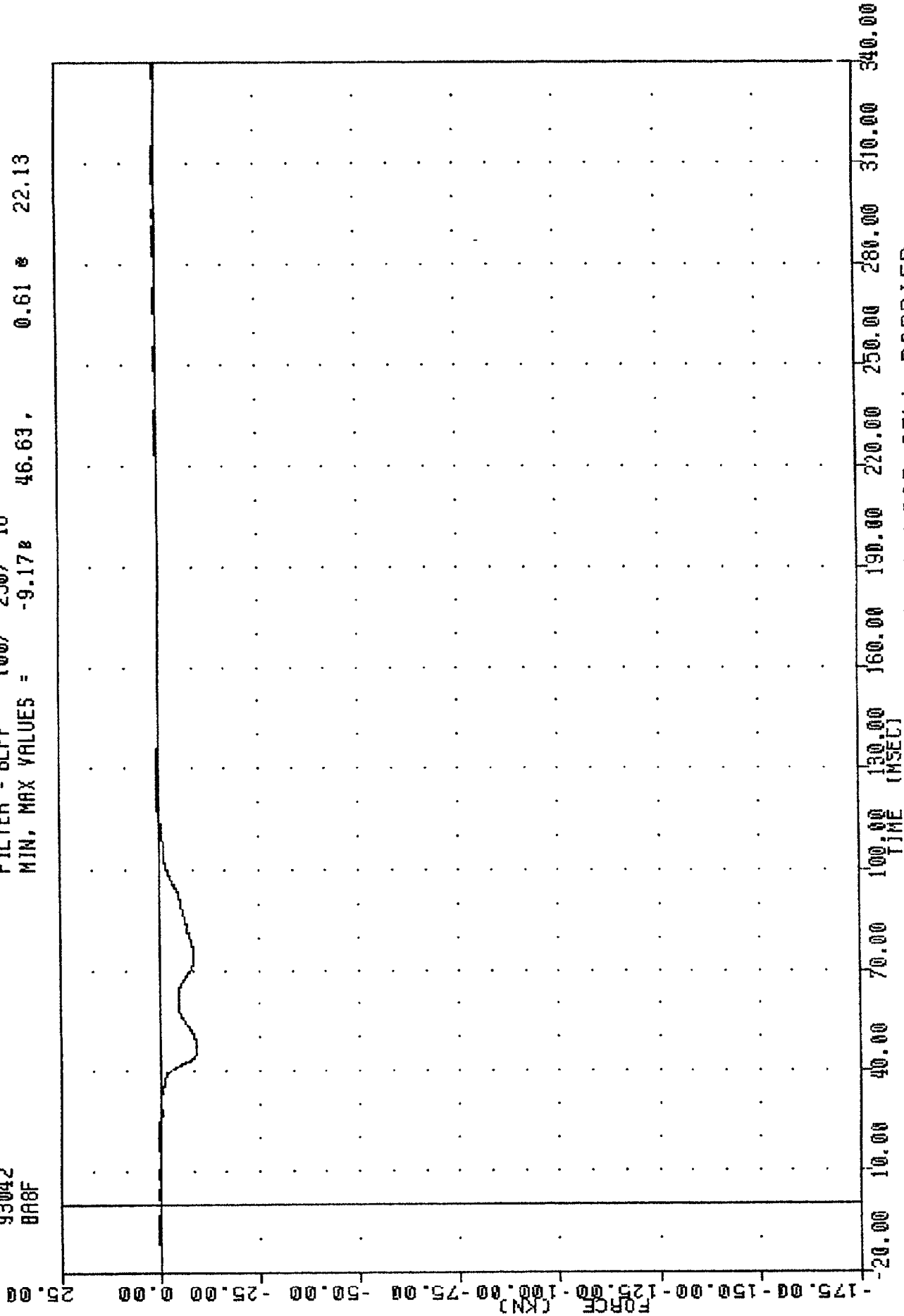
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -1.84 e 27.25 , 0.34 e 202.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A7 FORCE

TAC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BR8F

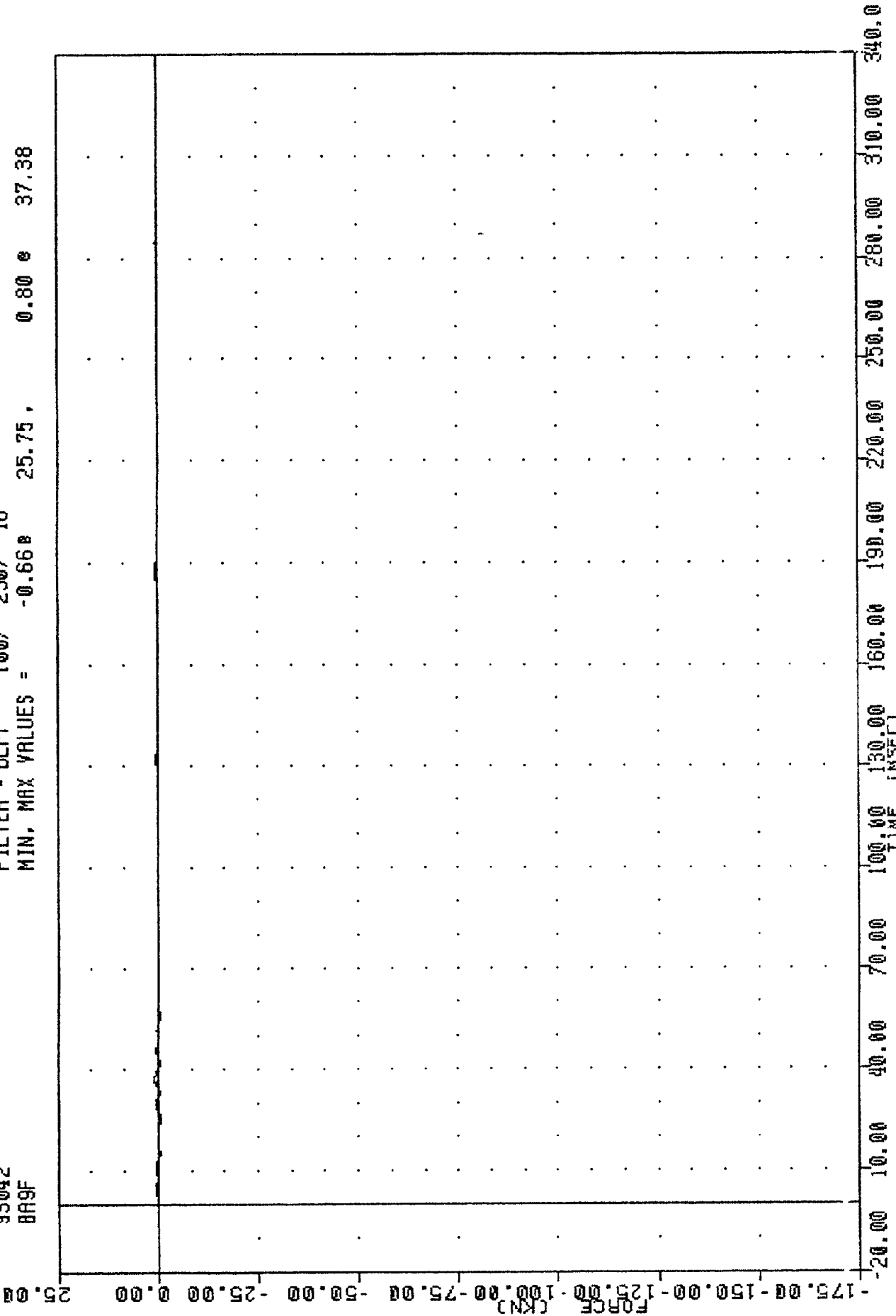
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -9.17 46.63, 0.61 22.13



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LEAD CELL BARRIER POSITION FORCE

TRC . 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BR9F

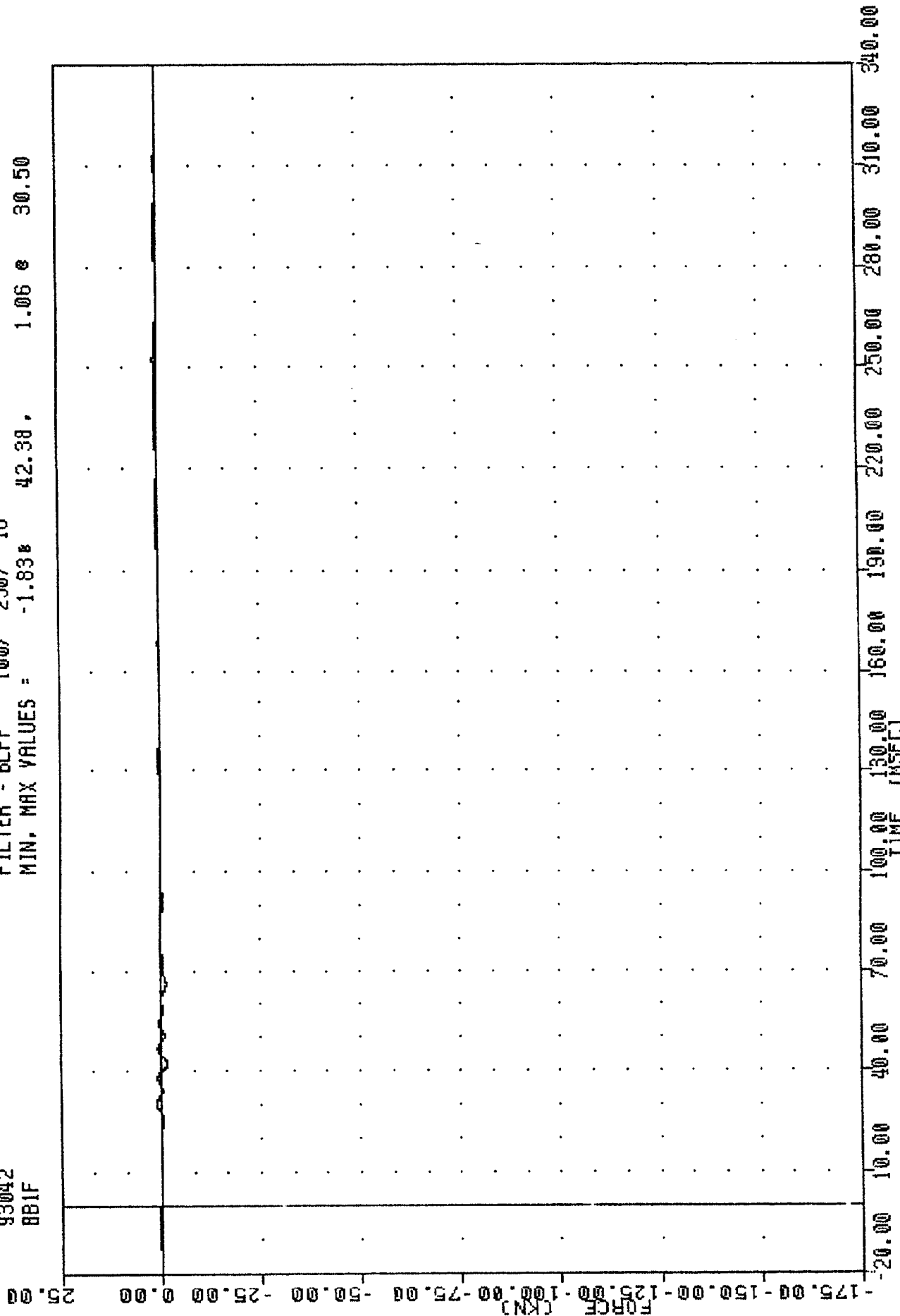
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -0.668 25.75, 0.80 37.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A9 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BBIF

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -1.83 42.38 1.06 30.50

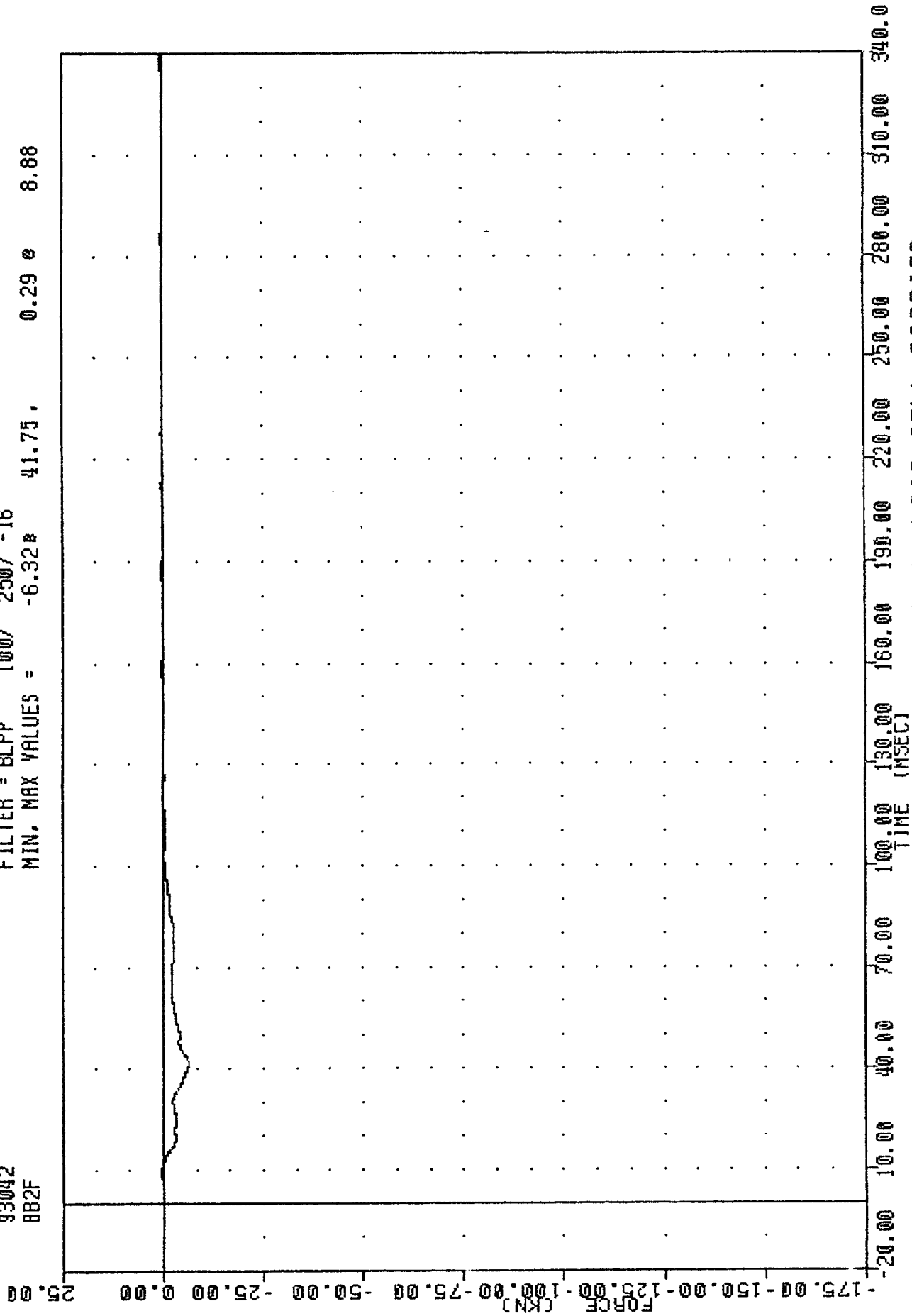


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LEAD CELL BARRIER POSITION FORCE

TRC
 NEW CAR ASSESSMENT PROGRAM
 93042
 BB2F

, 930211

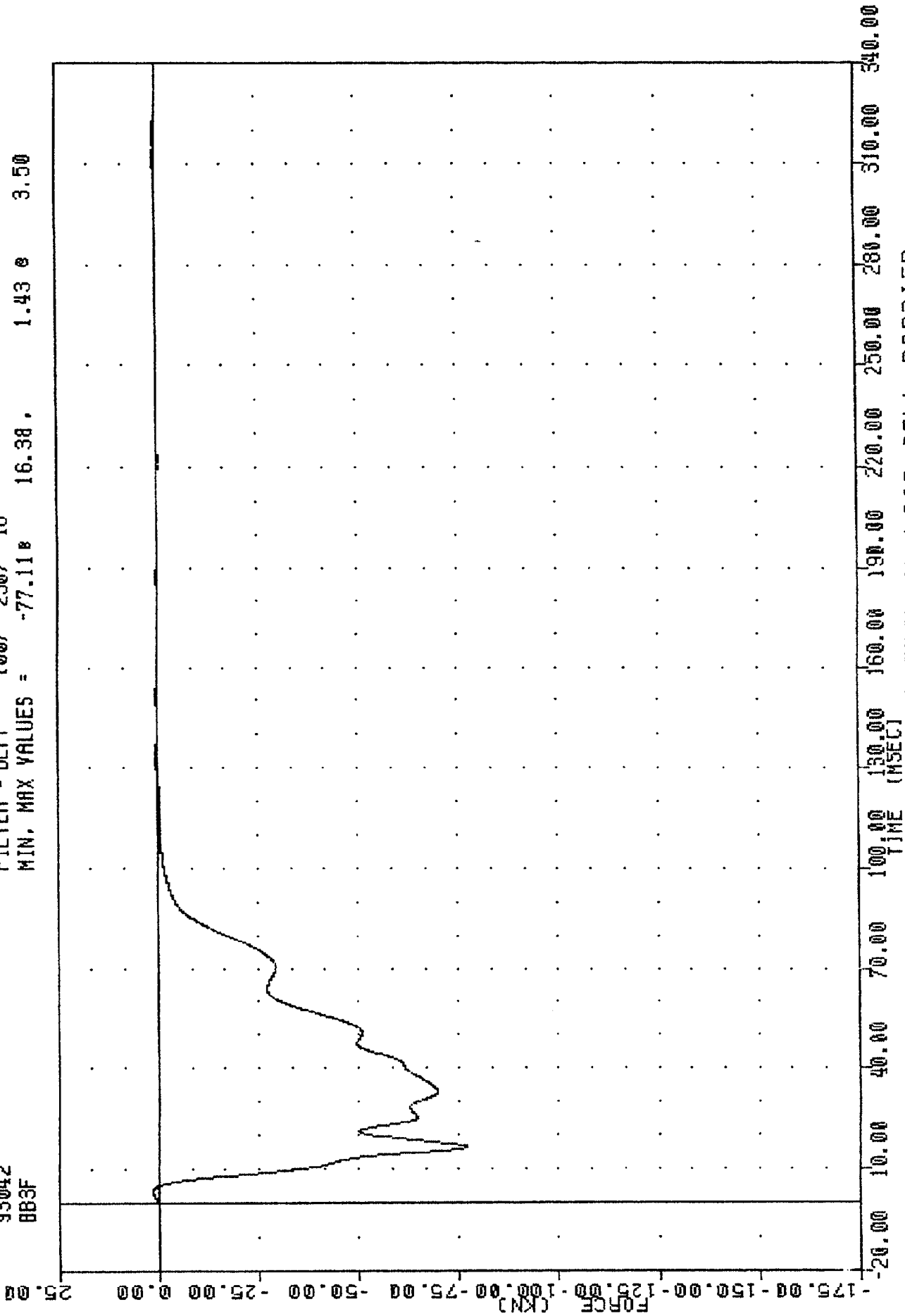
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 41.75, 0.29 e 8.88



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B2 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BB3F

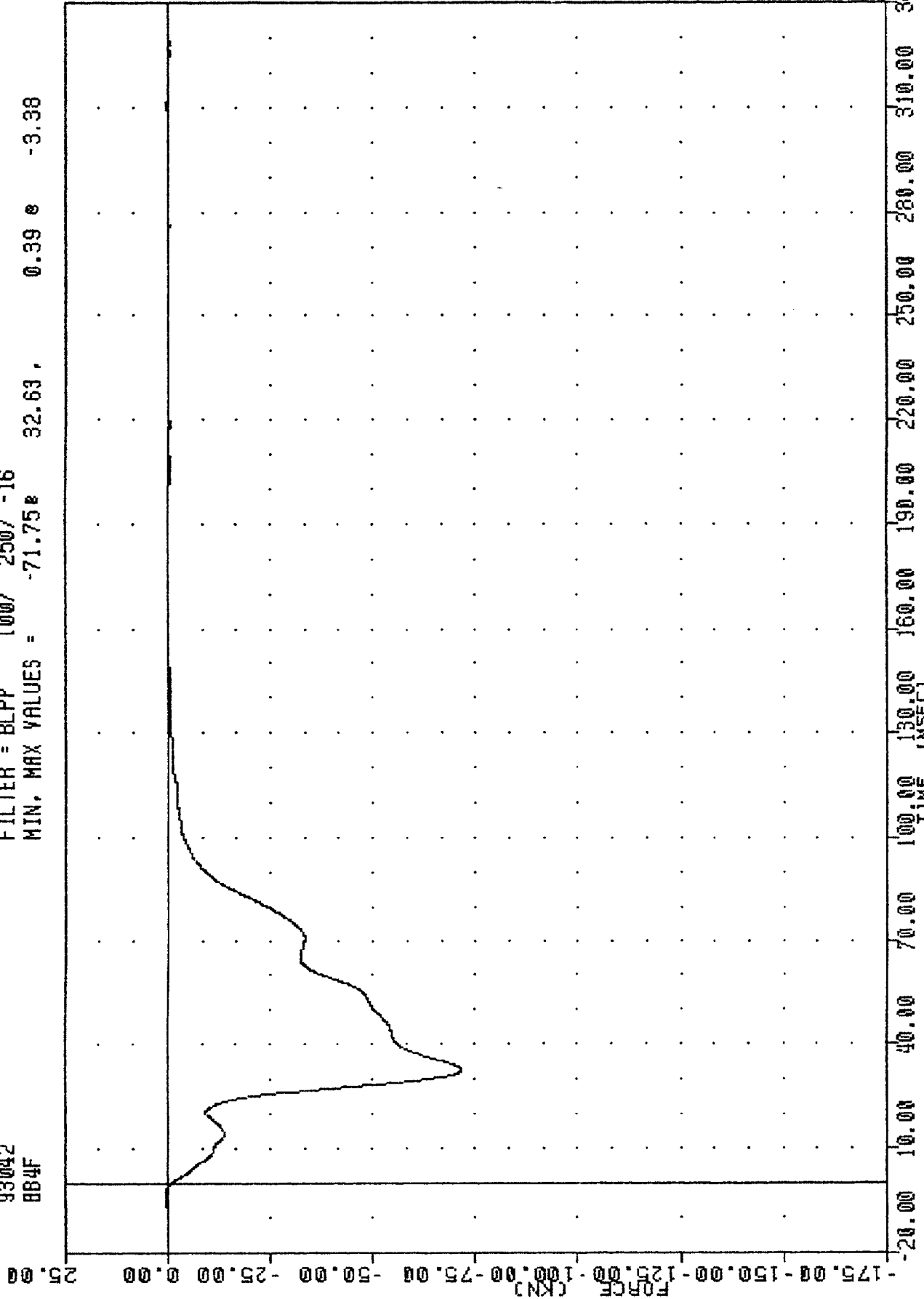
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -77.11 16.38 . 1.43 3.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LEAD CELL BARRIER POSITION VS FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 884F

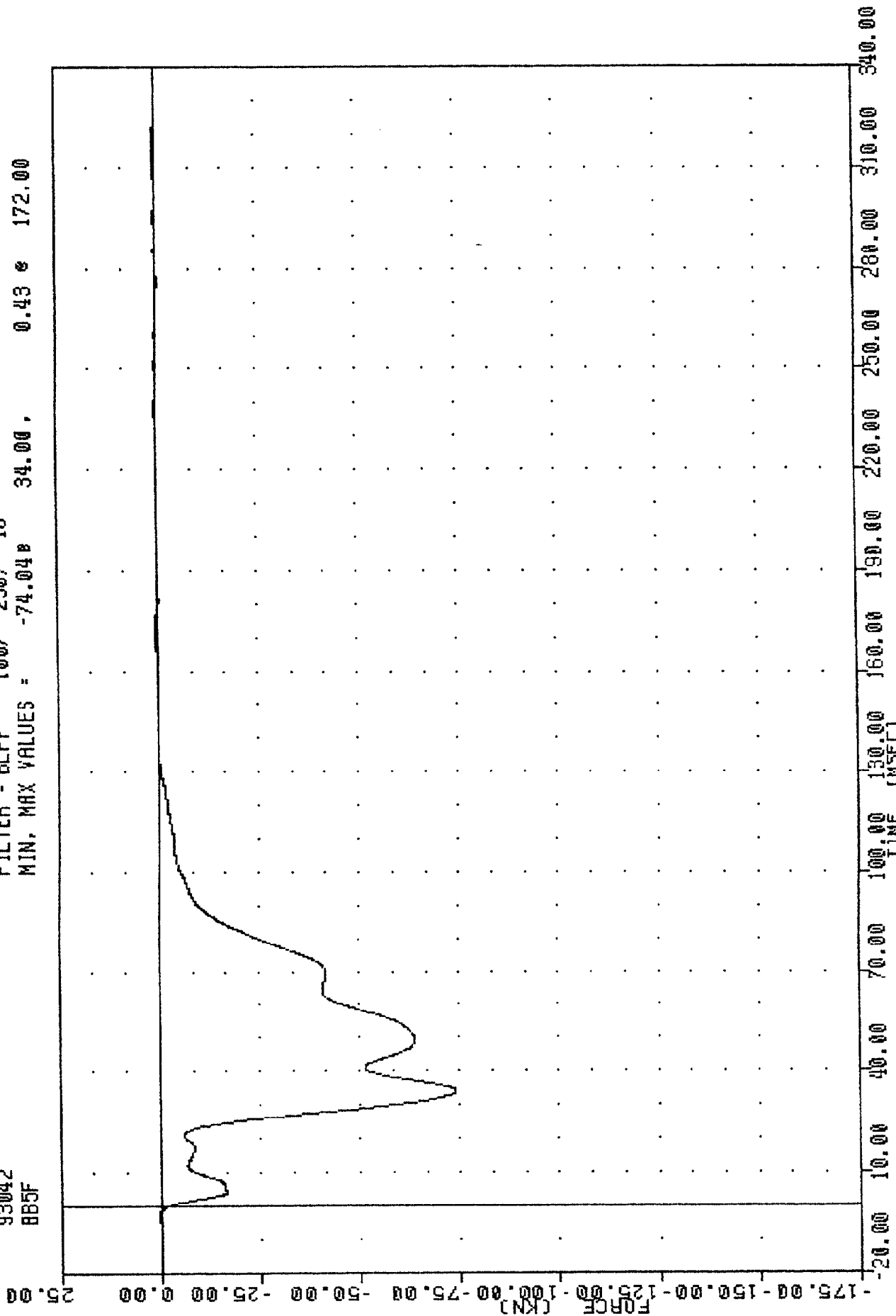
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -71.75e 32.63, 0.39 e -3.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B4 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BB5F

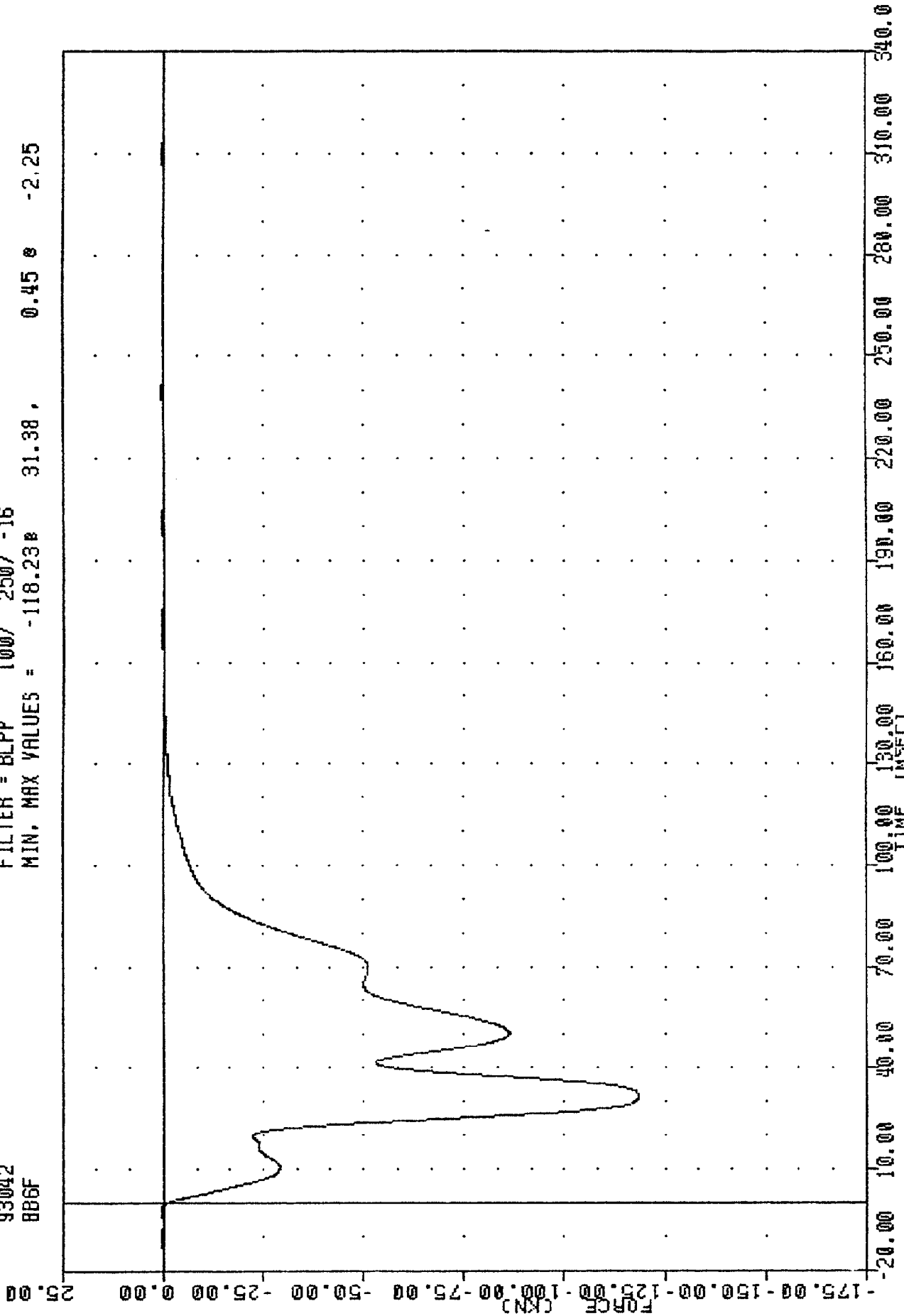
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -74.048 34.00, 0.43 e 172.00



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LEAD CELL BARRIER POSITION FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 886F

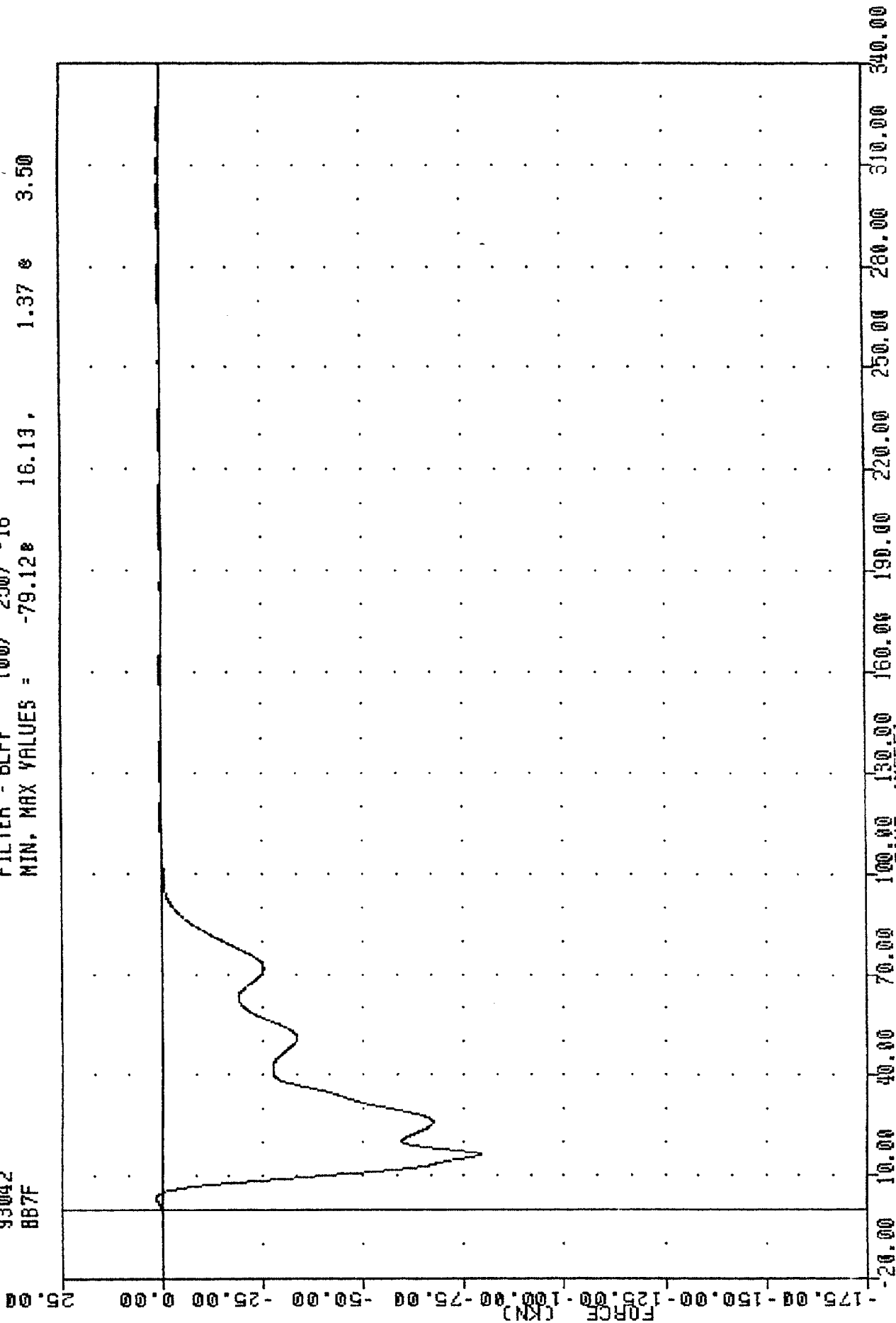
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -118.238 31.38, 0.45 0 -2.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B6 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BB7F

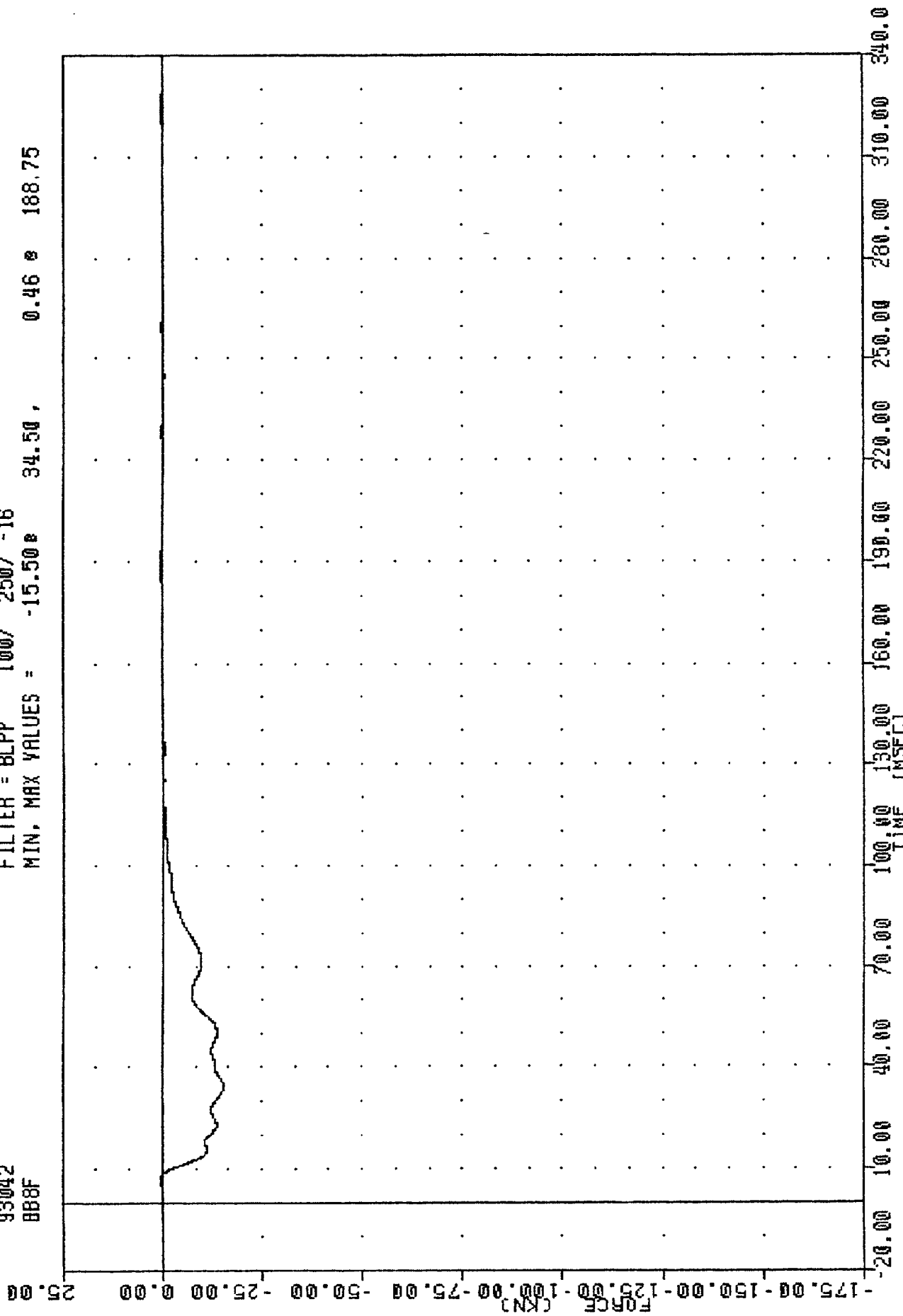
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -79.128 16.13, 1.37 e 3.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION FORCE

TRC 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BBBF

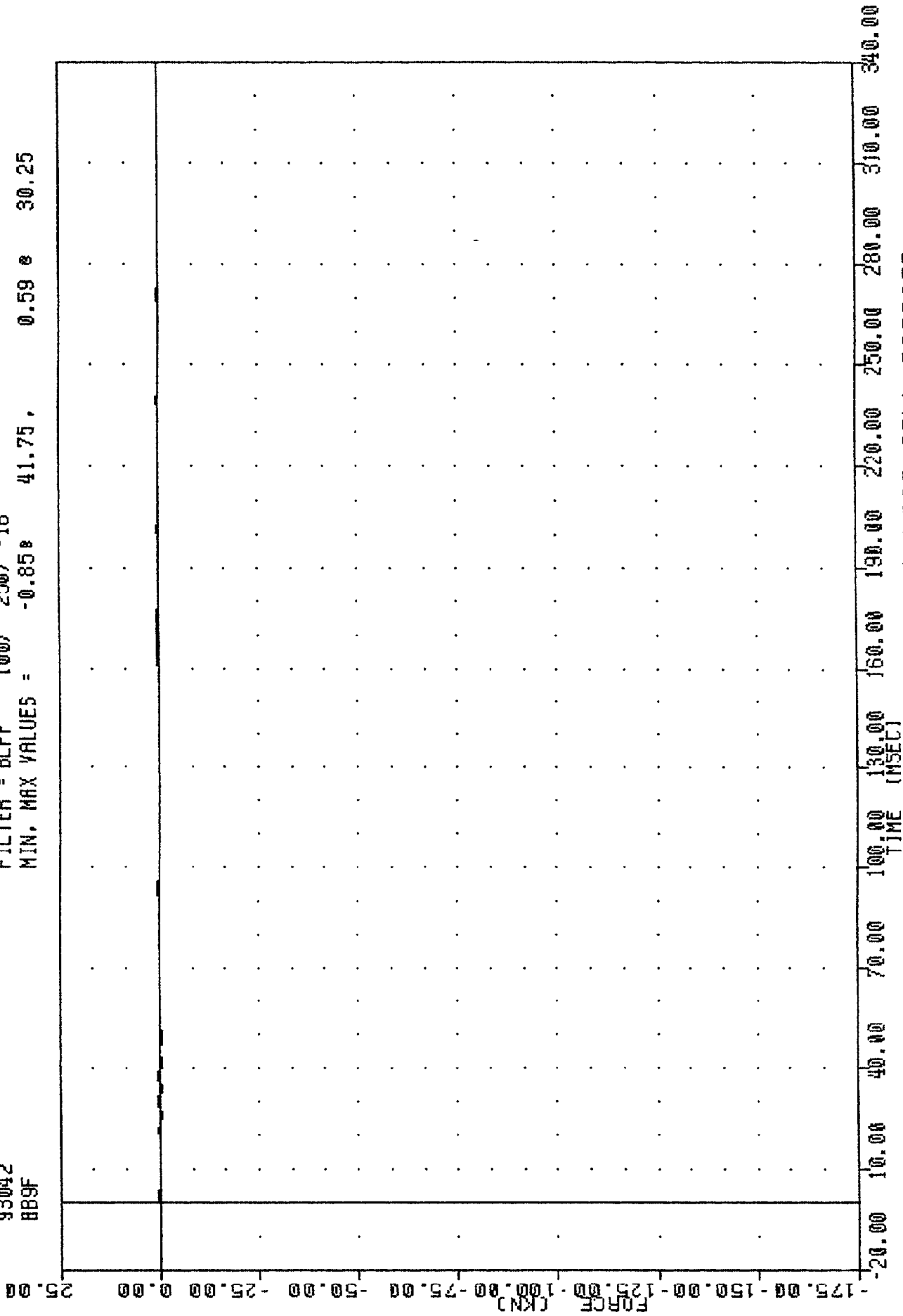
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -15.50e 34.50, 0.46 e 188.75



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B8 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BBSF

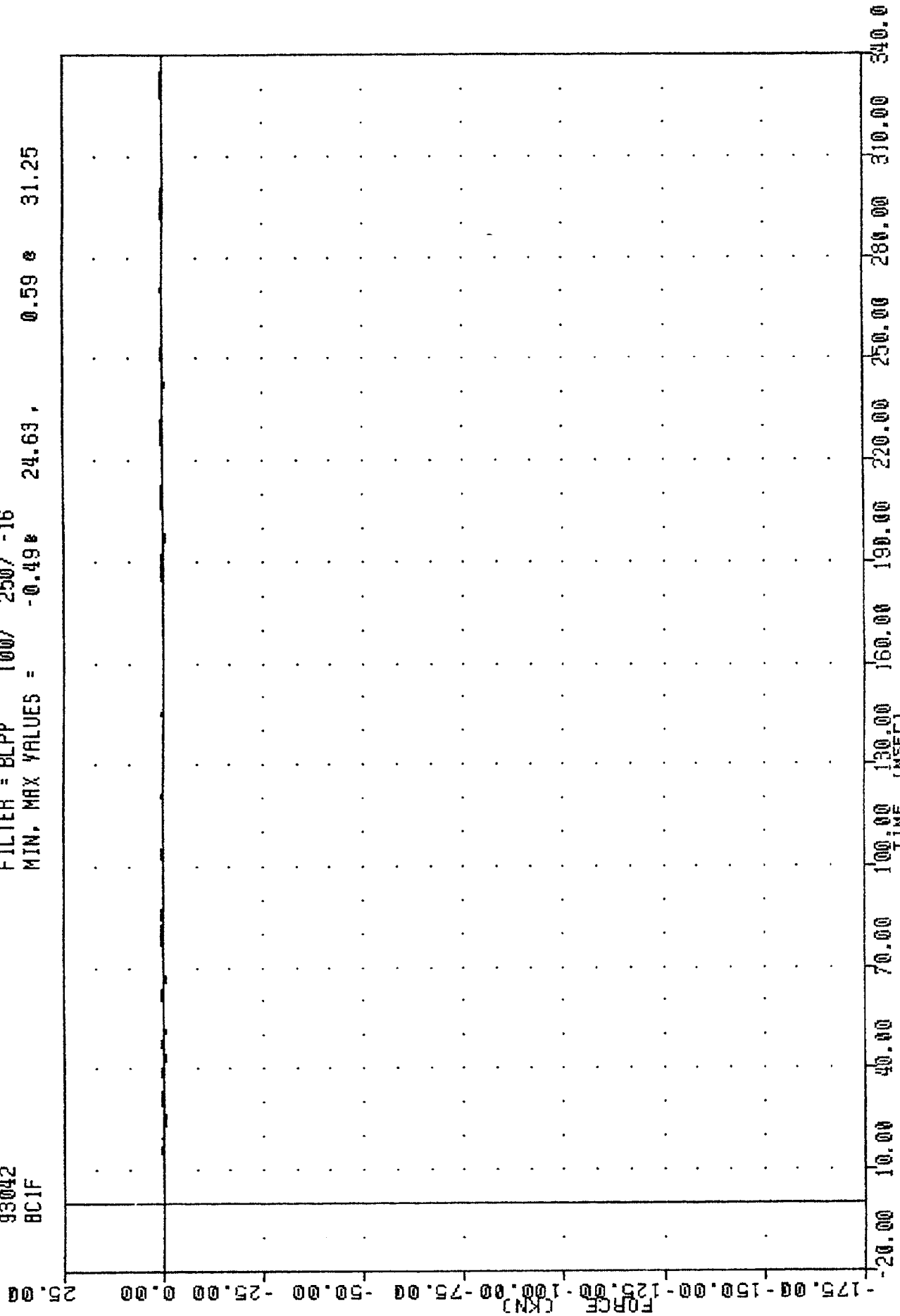
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.85e 41.75, 0.59 e 30.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BC1F

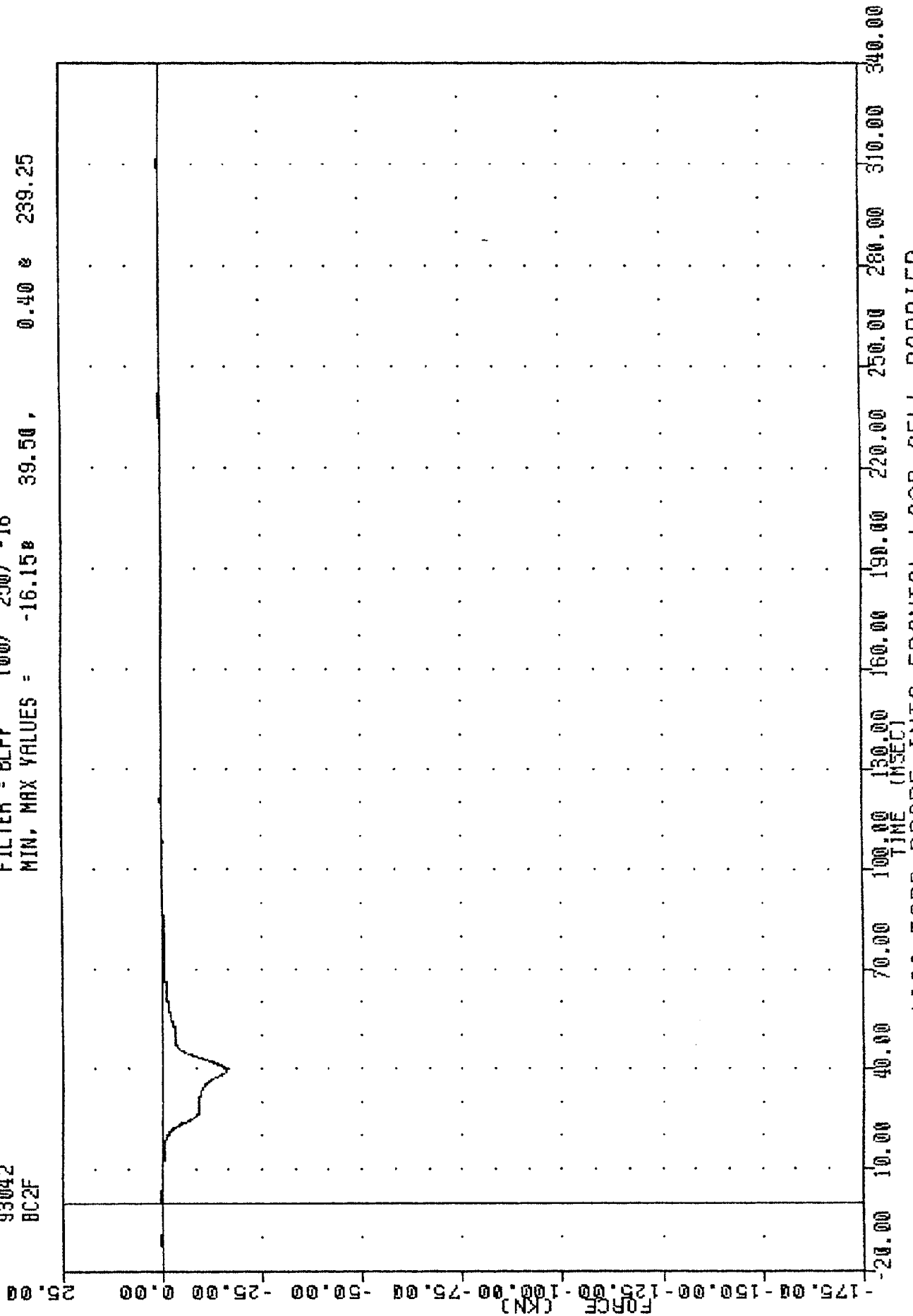
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -0.49 24.63 0.59 31.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BC2F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -16.15# 39.50 , 0.40 # 239.25

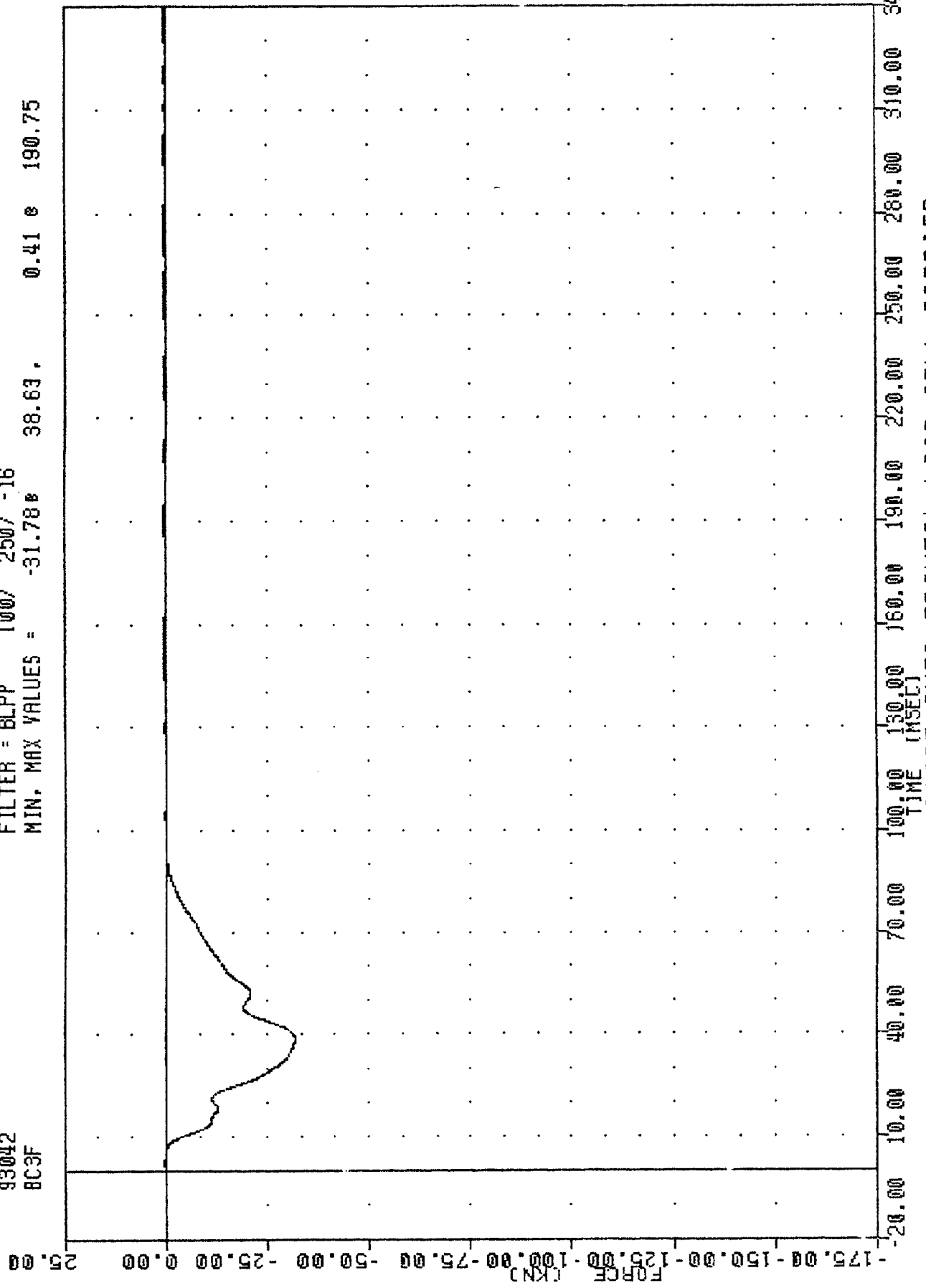


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 HEAD-CELL BARRIER POSITION FORCE

TRC
 NEW CAR ASSESSMENT PROGRAM
 93042
 BC3F

, 930211

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -31.78 38.63 0.41 e 190.75

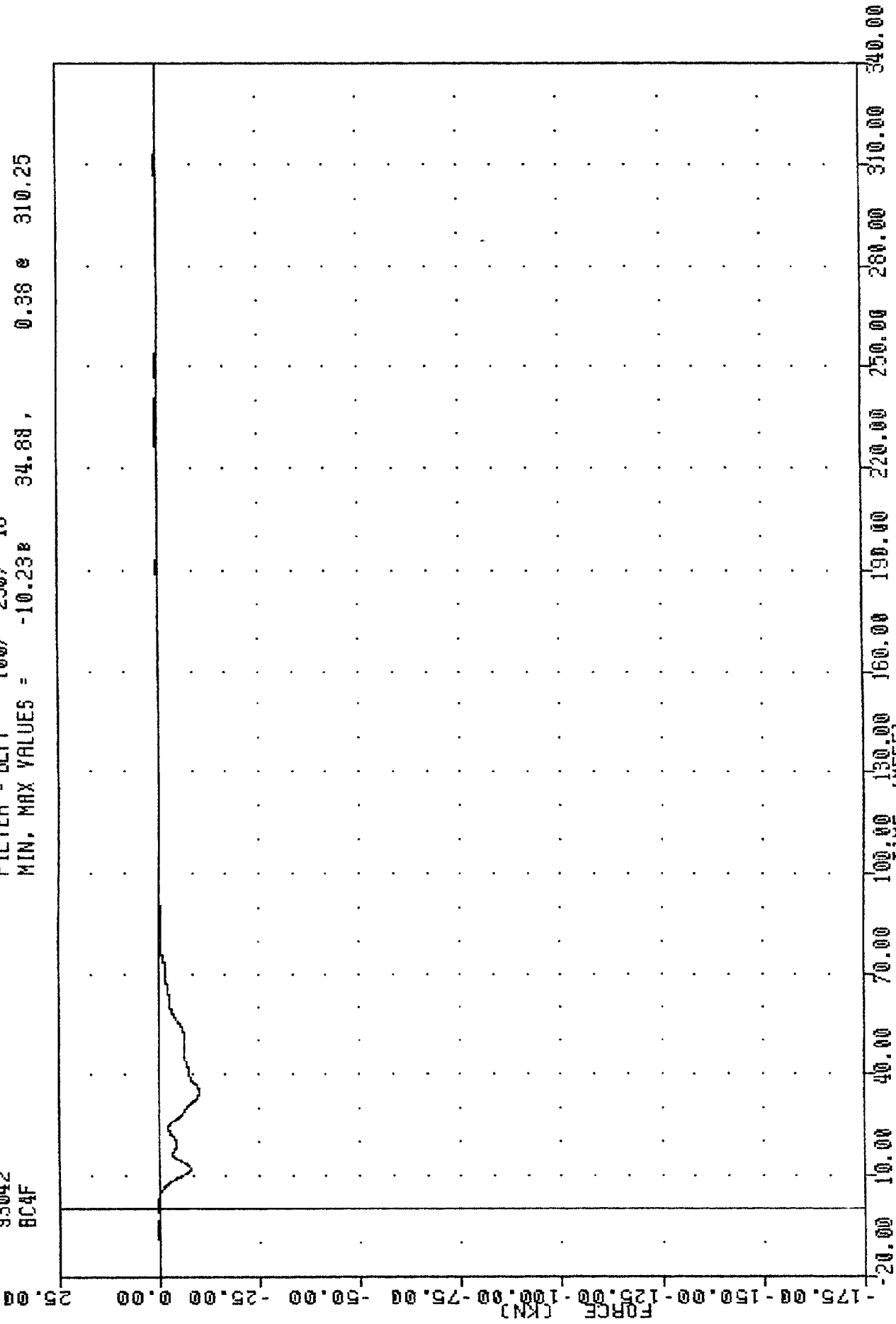


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C3 FORCE

TRC , 930211
NEW CAR ASSESSMENT PROGRAM

93042
BC4F

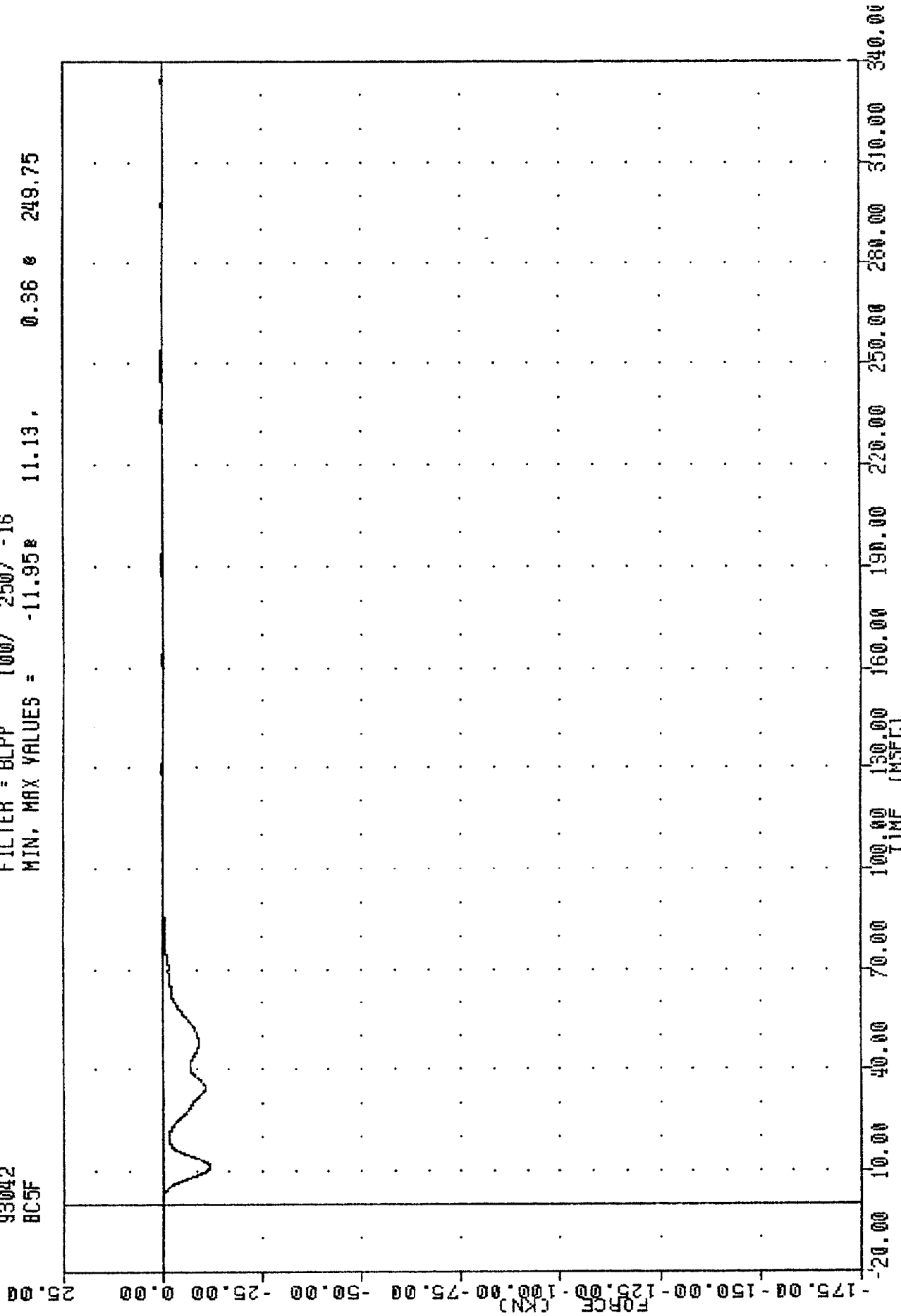
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -10.238 34.88 , 0.38 e 310.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BC5F

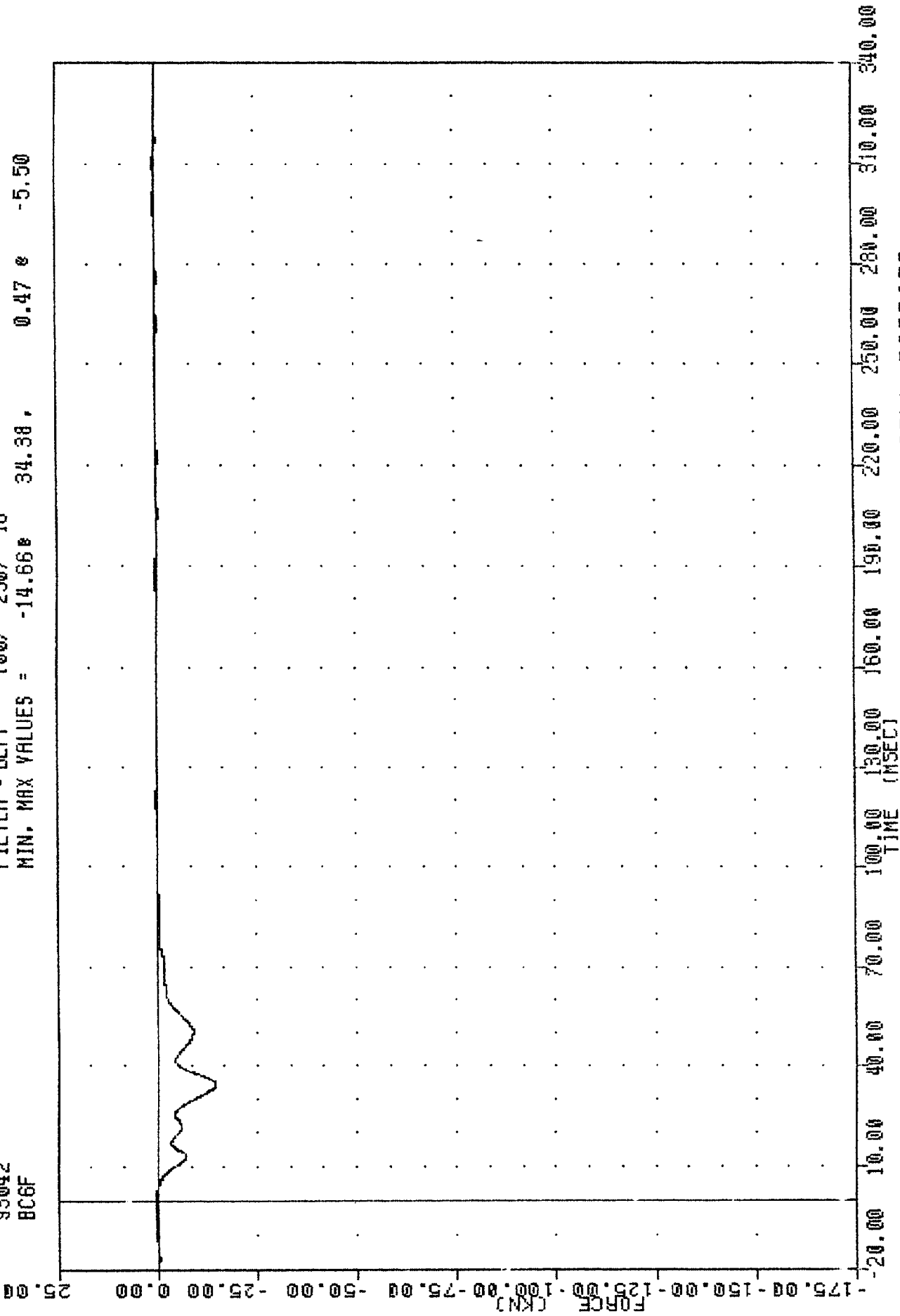
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -11.95# 11.13, 0.36 @ 249.75



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 05 FORCE

TRC 930211
 KEY CAR ASSESSMENT PROGRAM
 93042
 BC6F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -14.668 34.38 , 0.47 e -5.50

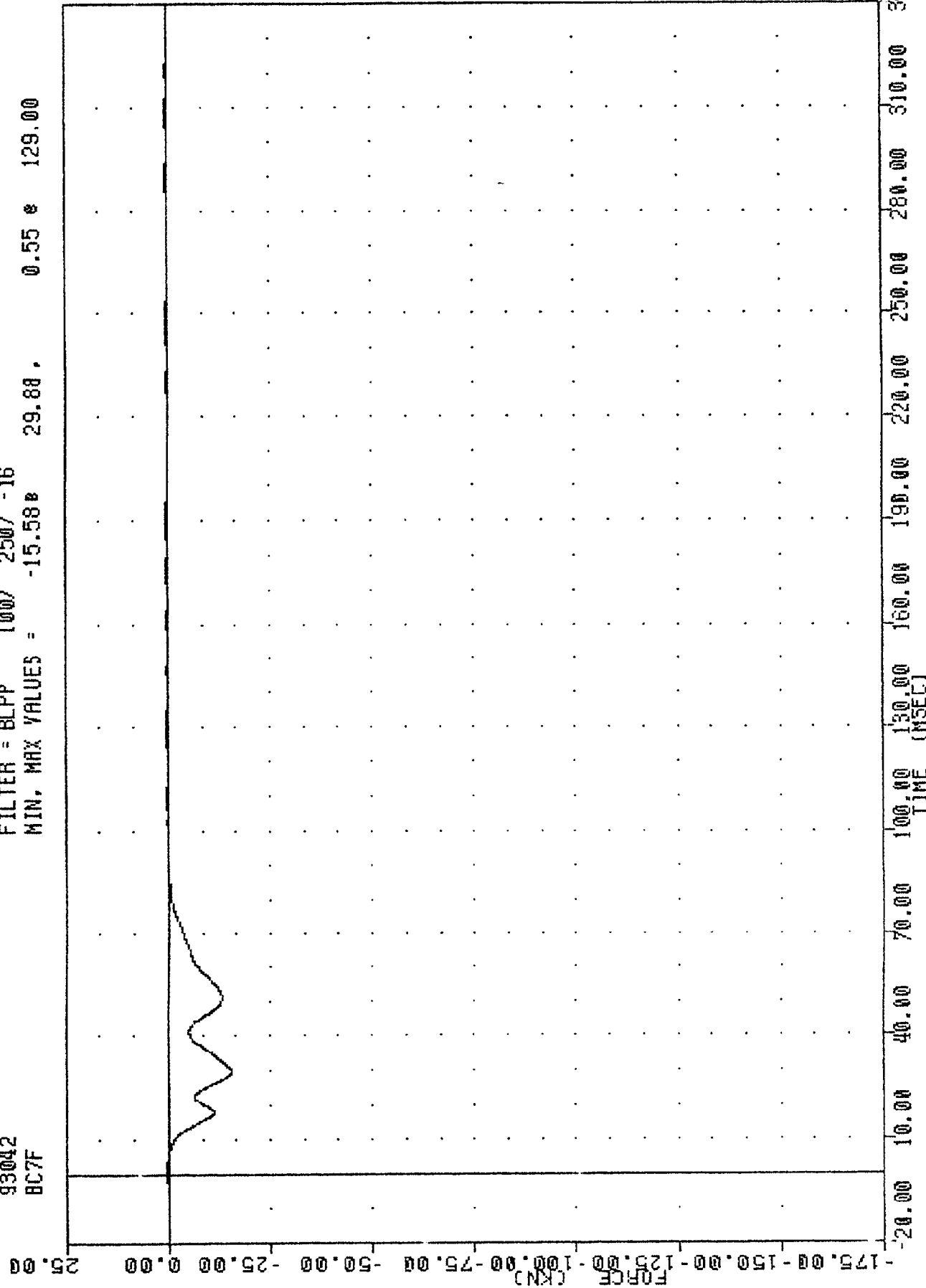


1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 HEAD-CELL BARRIER POSITION FORCE

TRC
NEW CAR ASSESSMENT PROGRAM
93042
BC7F

, 930211

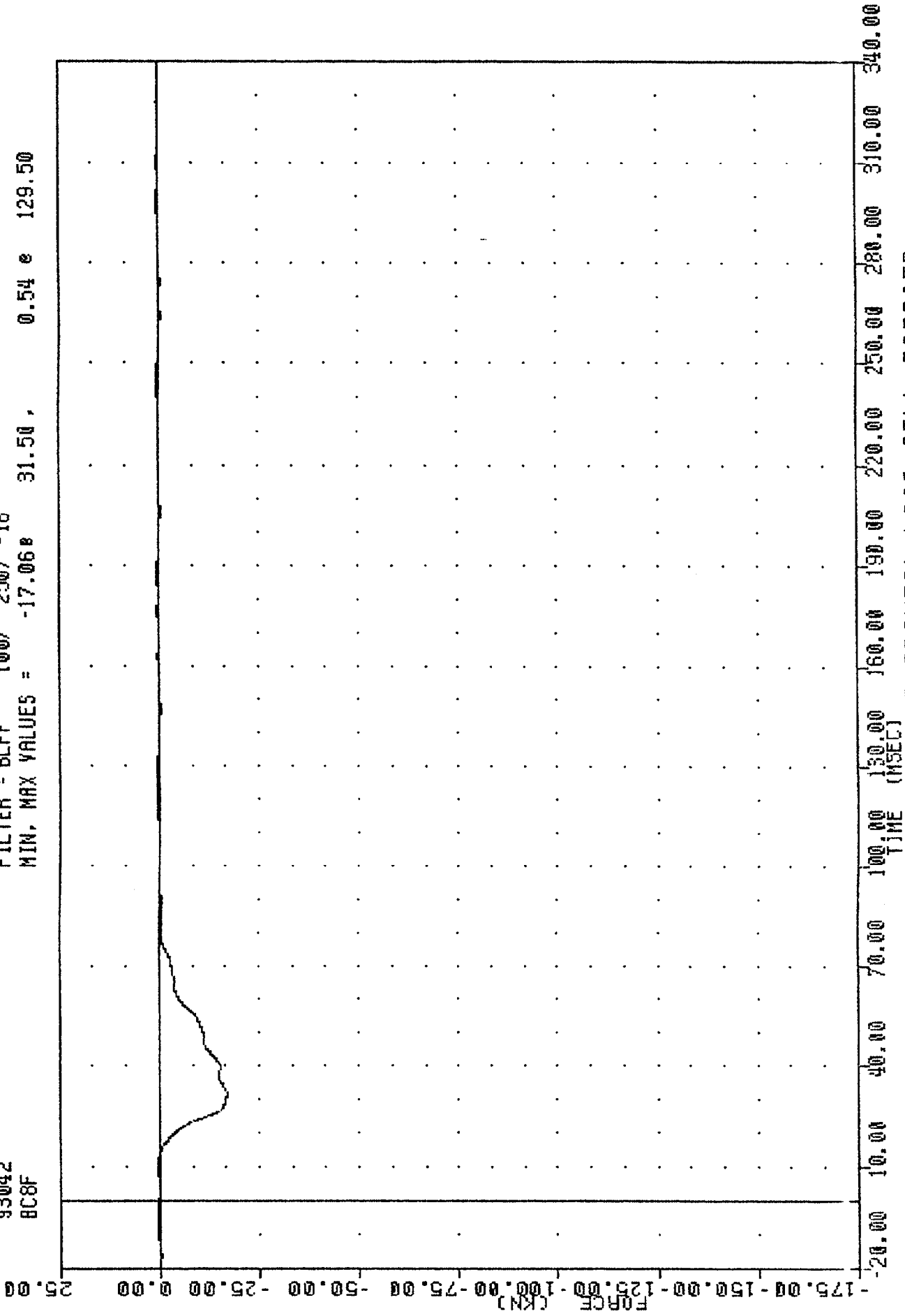
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -15.58 29.88 . 0.55 129.00



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
BC8F

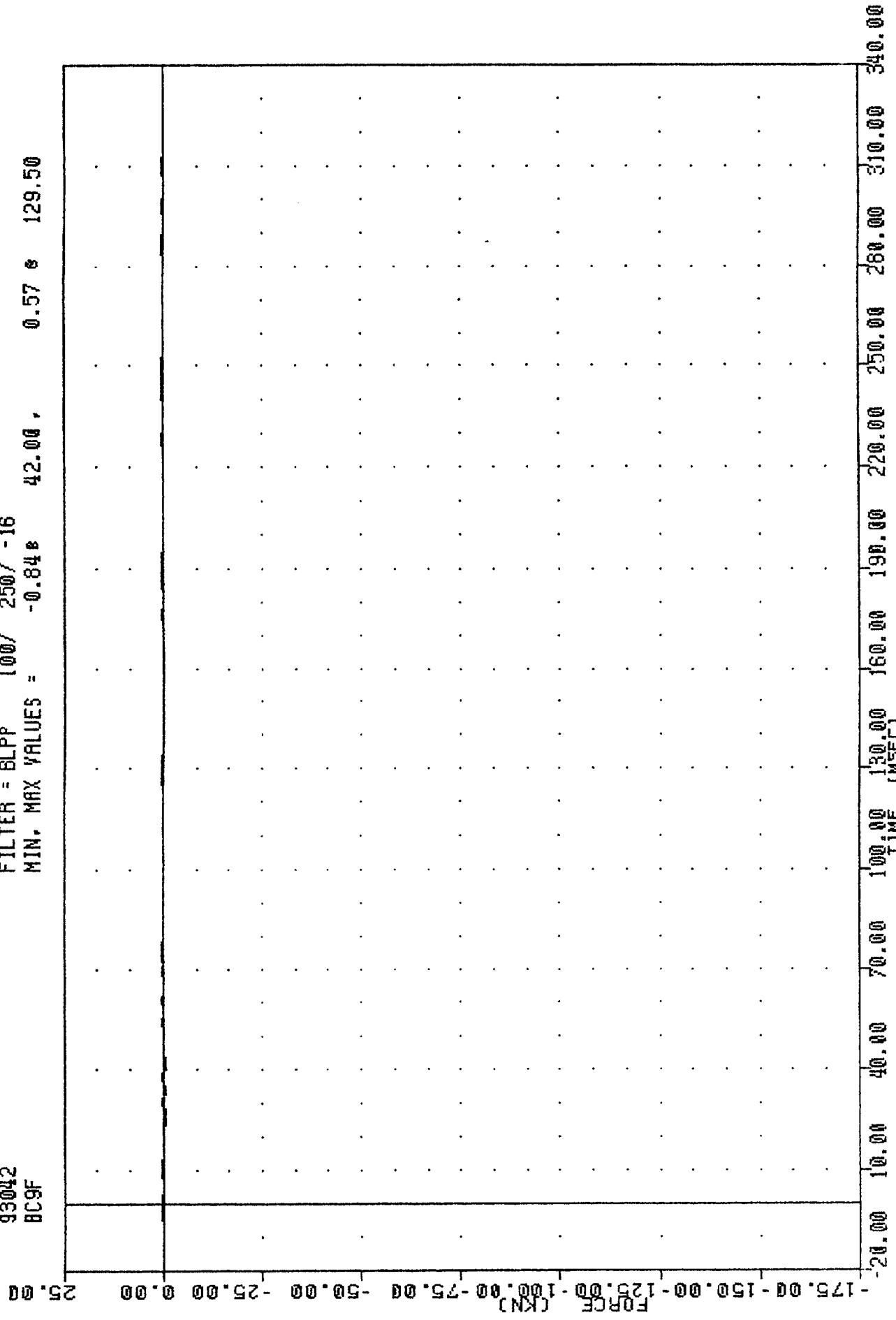
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -17.068 31.50 , 0.54 e 129.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION FORCE

TRC
 93042
 BC9F
 NEW CAR ASSESSMENT PROGRAM
 , 930211

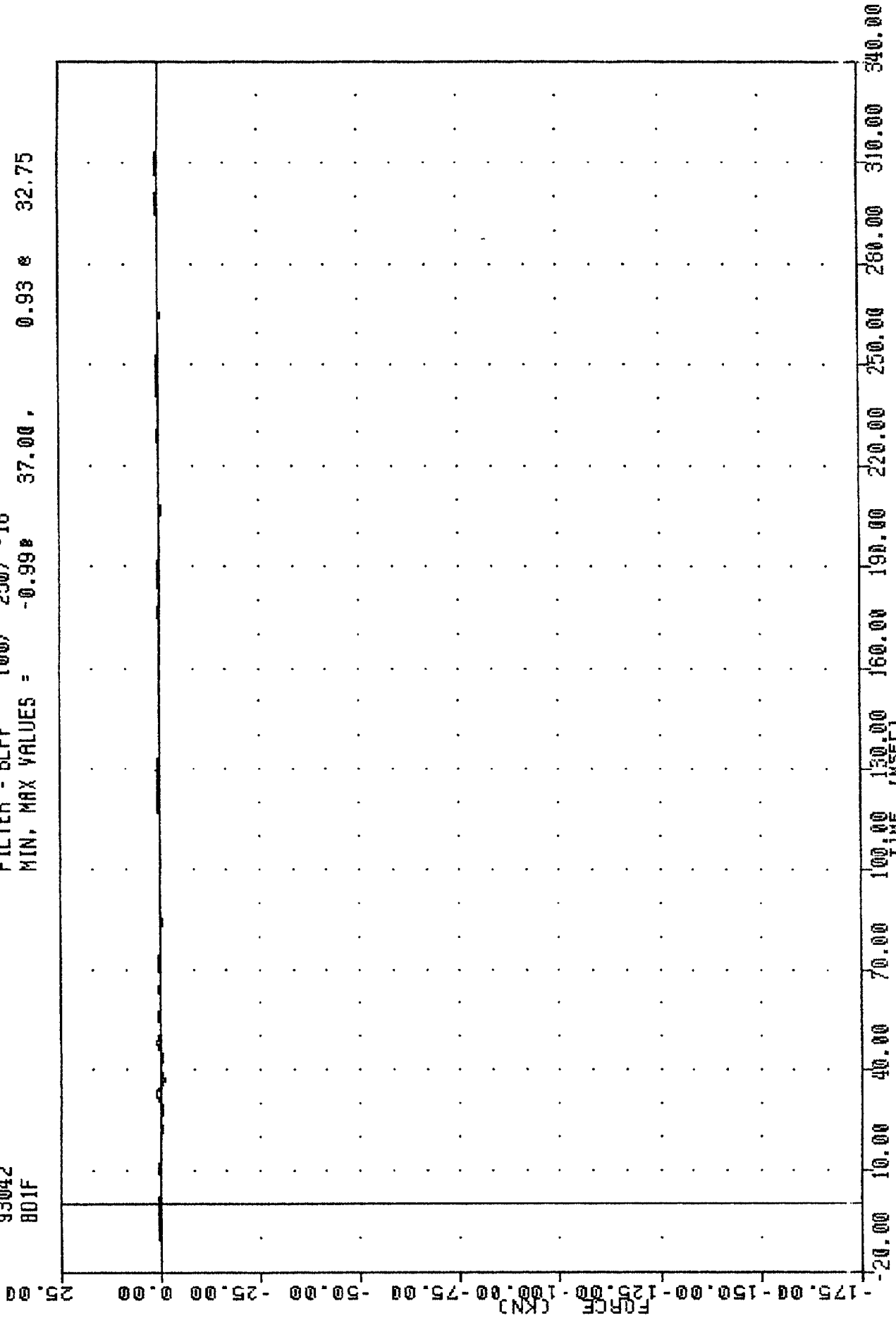
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.84 42.00 , 0.57 129.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C9 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 8D1F

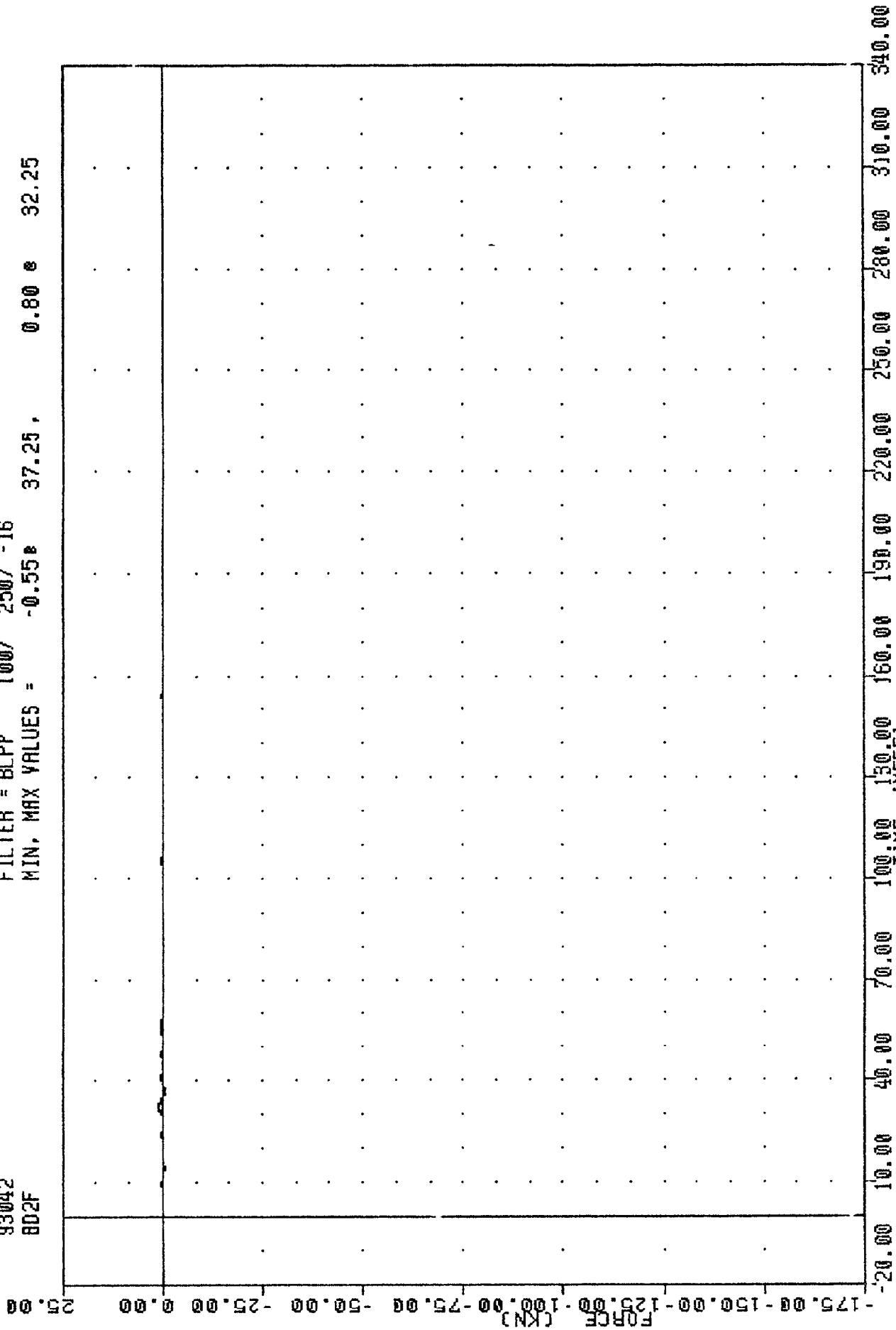
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -0.99# 37.00 , 0.93 # 32.75



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 FRONT BARRIER POSITION FORCE

TRC
 93042
 8D2F
 NEW CAR ASSESSMENT PROGRAM
 , 930211

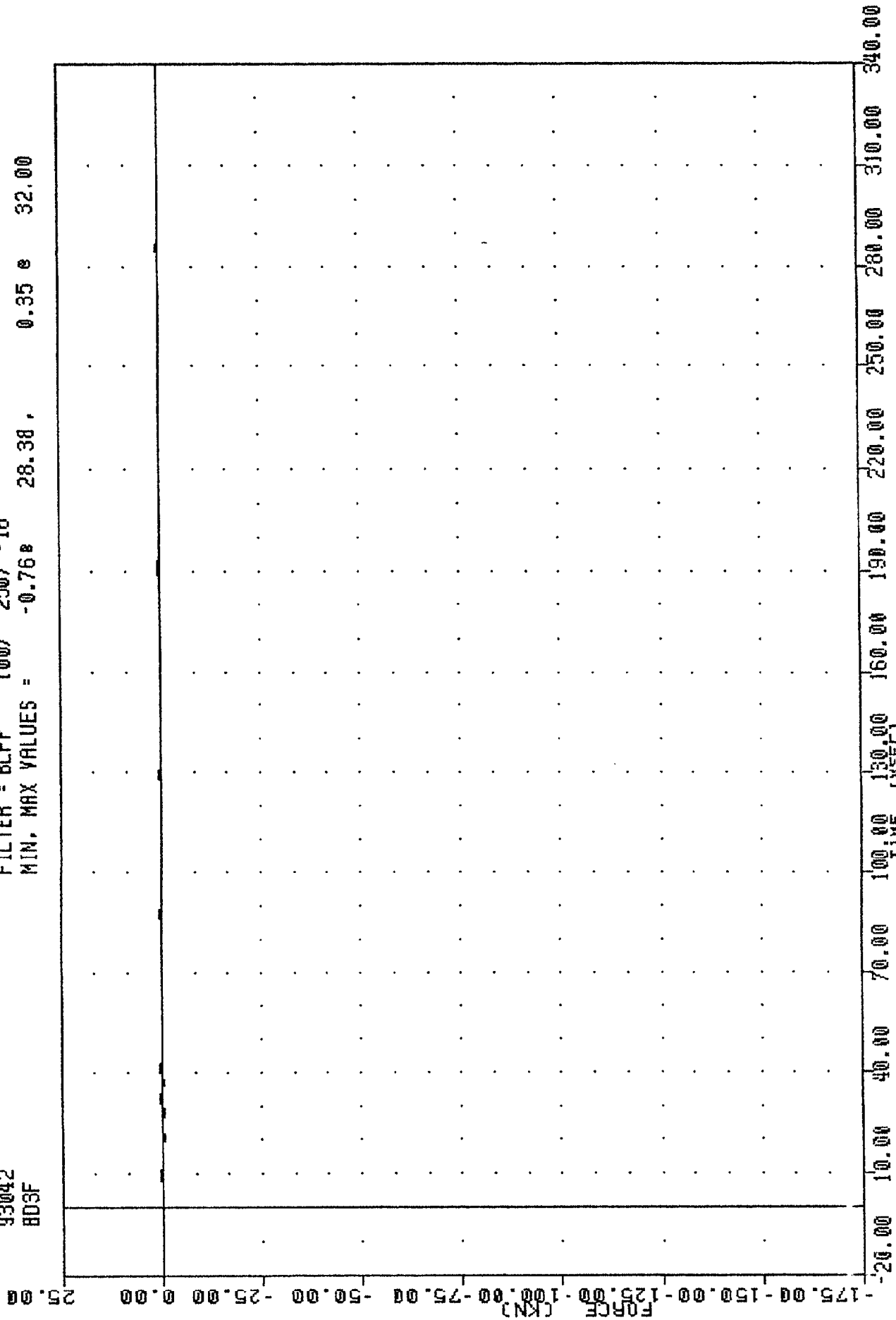
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.55 37.25 0.80 32.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D2 FORCE

TRC 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 B03F

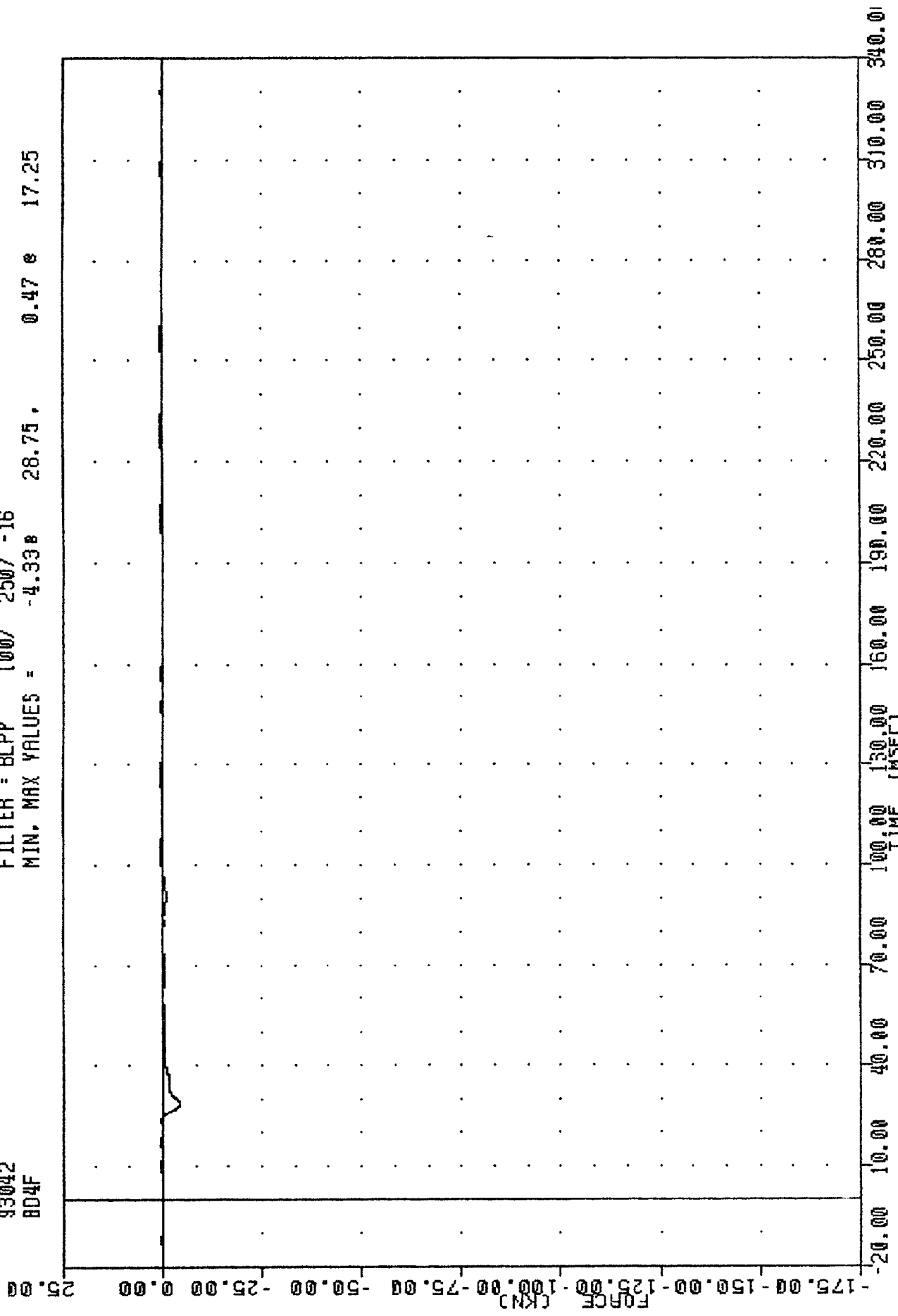
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -0.76% 28.38 , 0.35 % 32.00



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 BARRIER POSITION FORCE

TRC
 NEW CAR ASSESSMENT PROGRAM
 93042
 BD4F

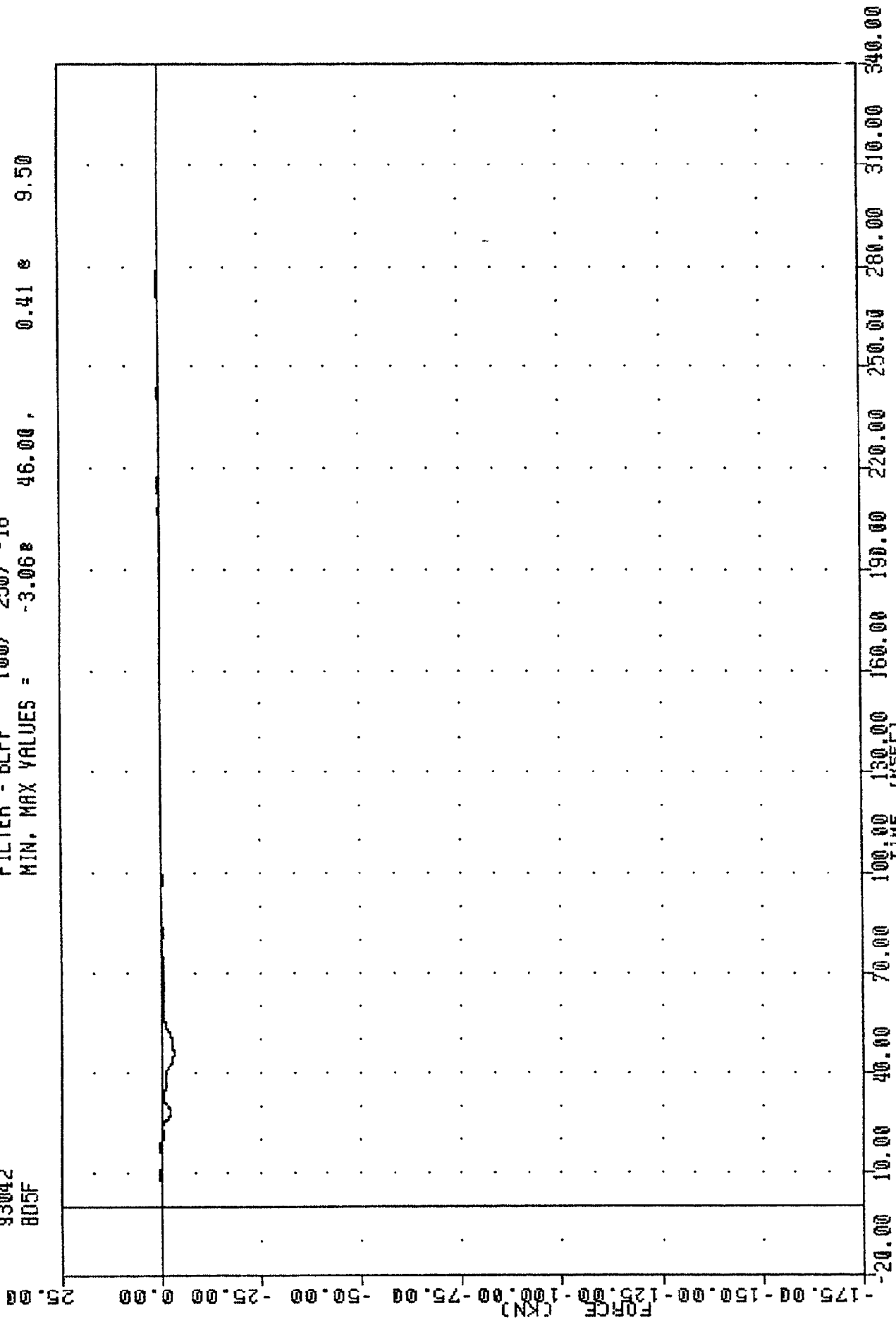
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -4.93 28.75 0.47 e 17.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 04 FORCE

TRC 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 805F

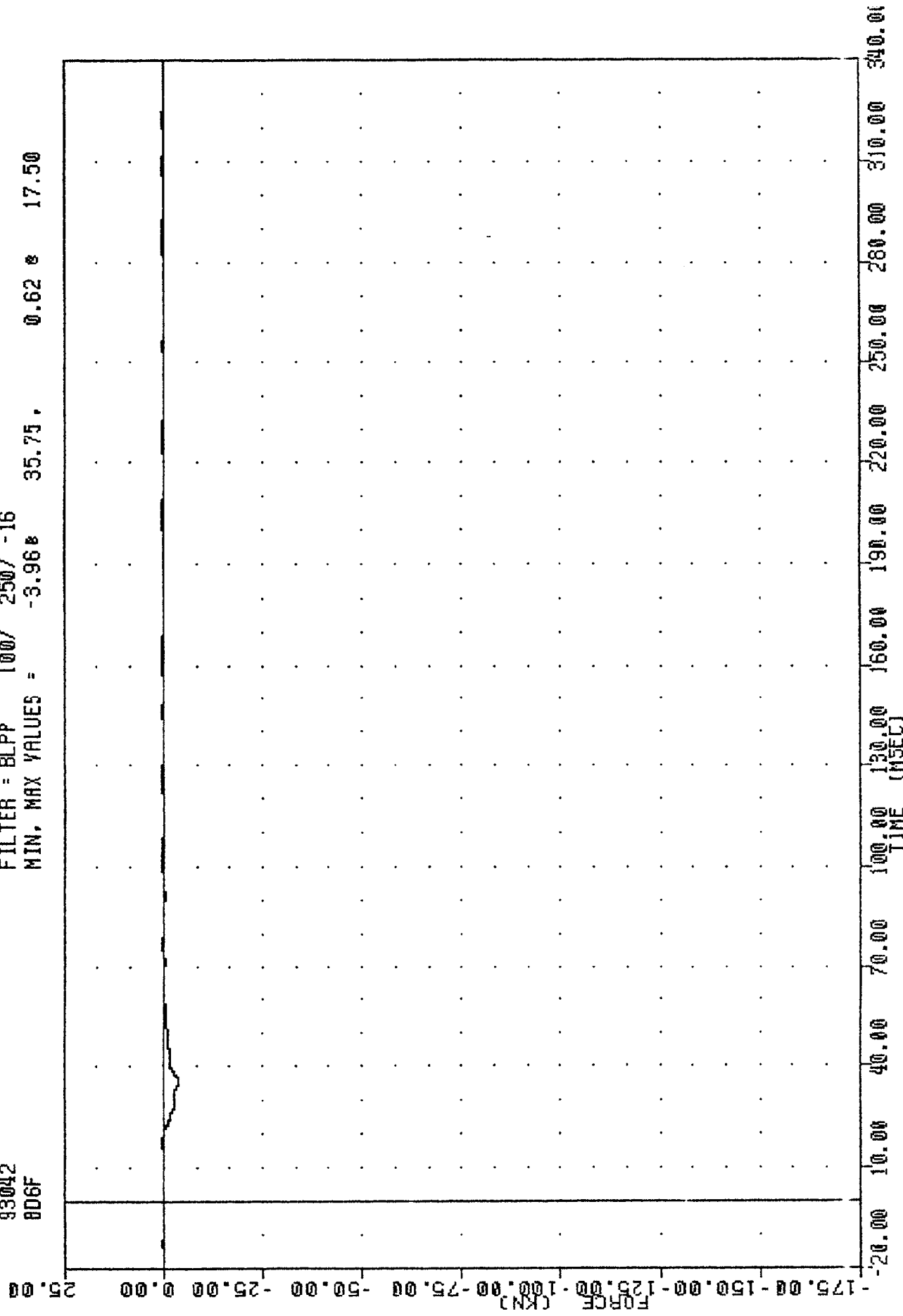
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -3.06 46.00 0.41 9.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 HEAD-CELL BARRIER POSITION FORCE

TRC
 93042
 8D6F
 NEW CAR ASSESSMENT PROGRAM
 , 930211

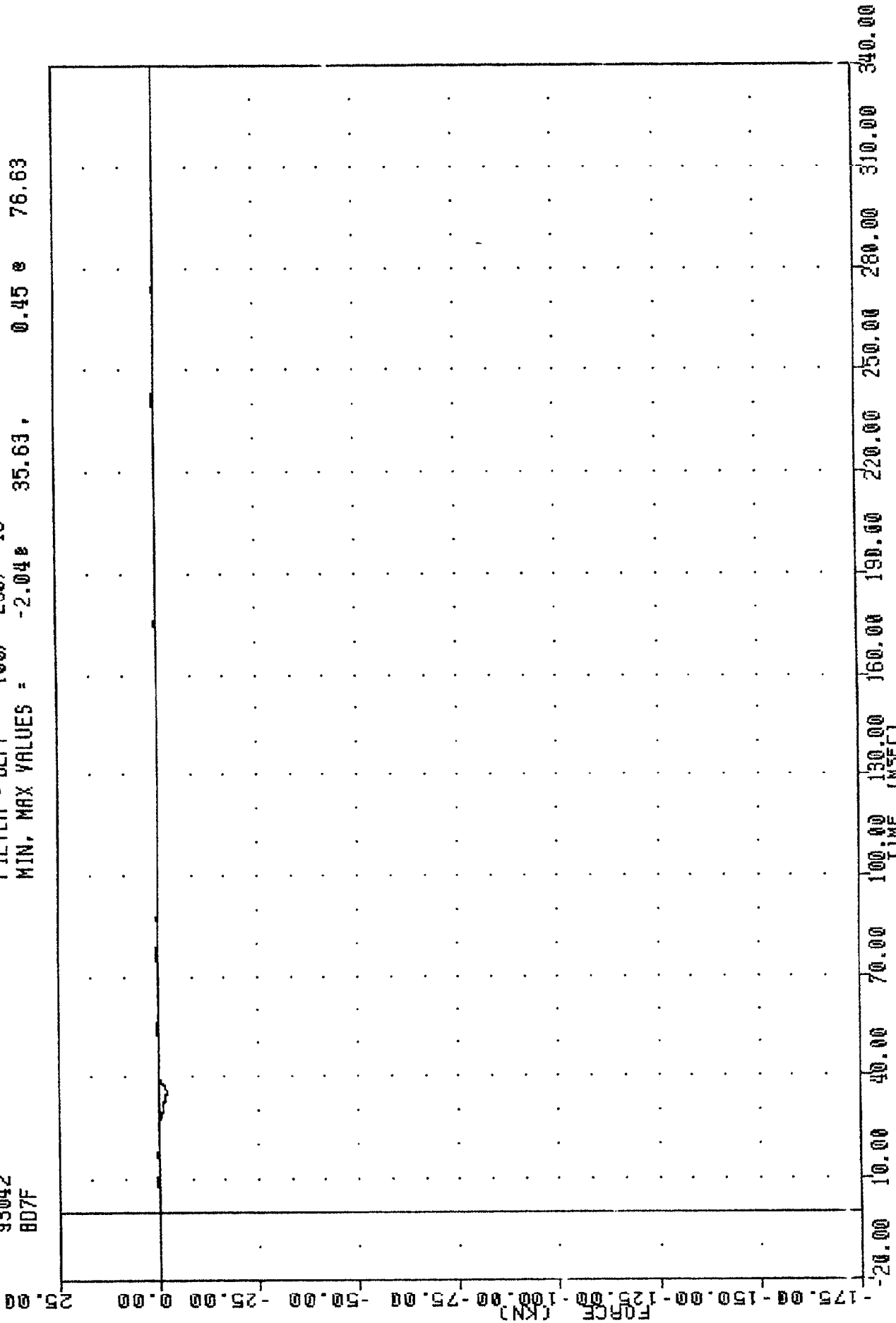
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -3.96 35.75 , 0.62 17.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 00 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BD7F

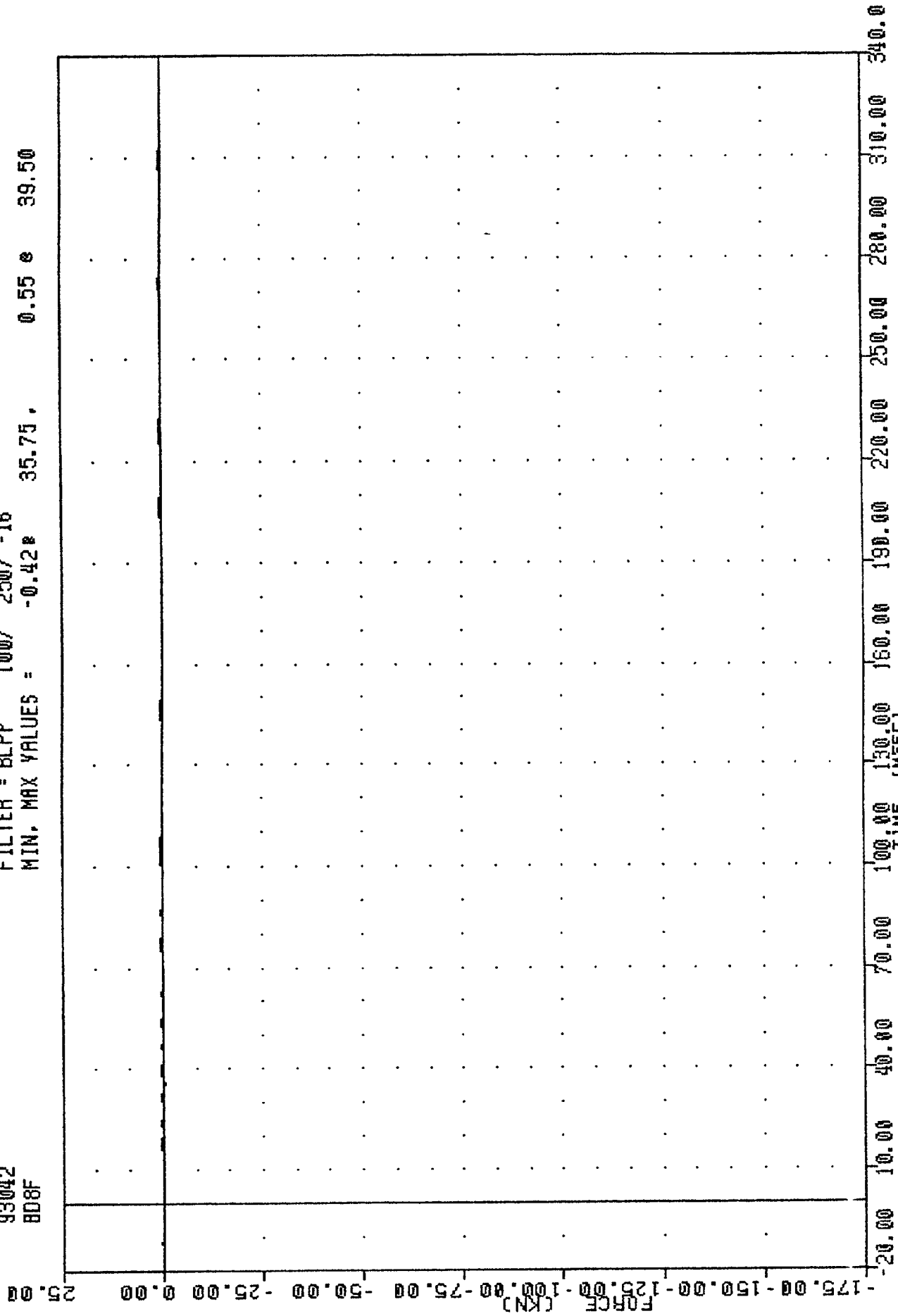
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -2.048 35.63 , 0.45 e 76.63



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BD8F

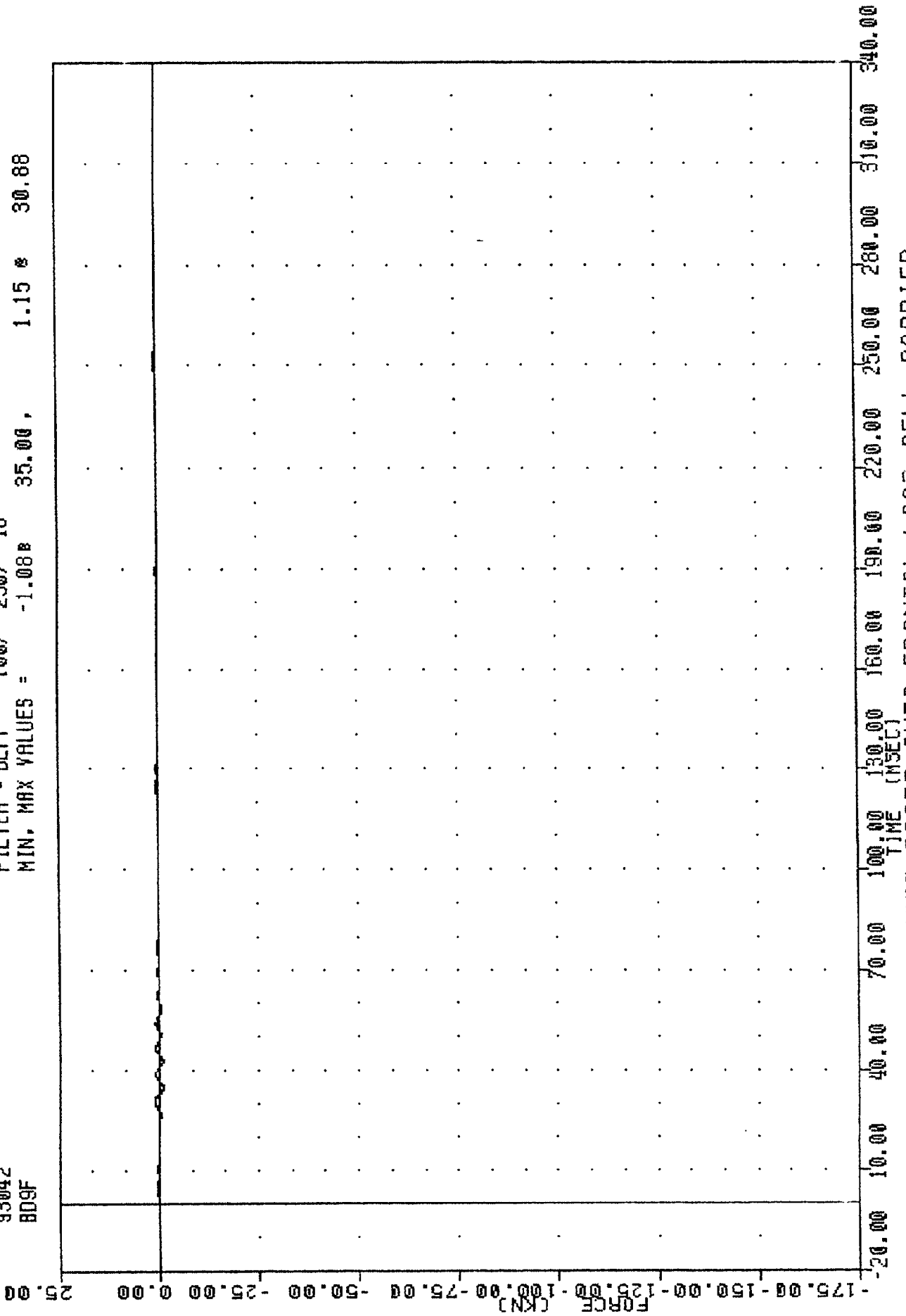
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.42 35.75 , 0.55 39.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D8 FORCE

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 BD9F

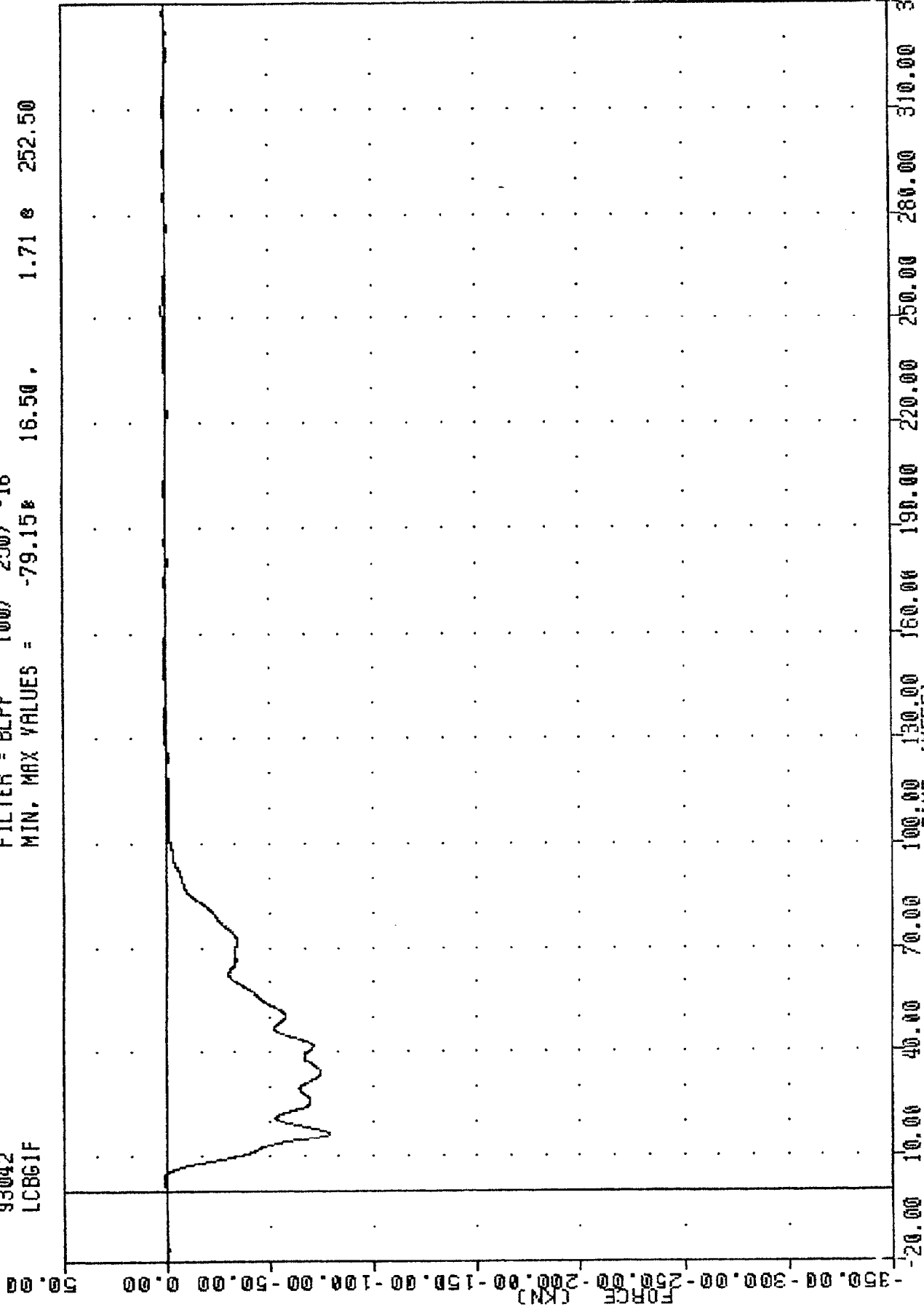
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -1.088 35.00, 1.15 * 30.88



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LEAD CELL BARRIER POSITION FORCE

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
LCBG1F

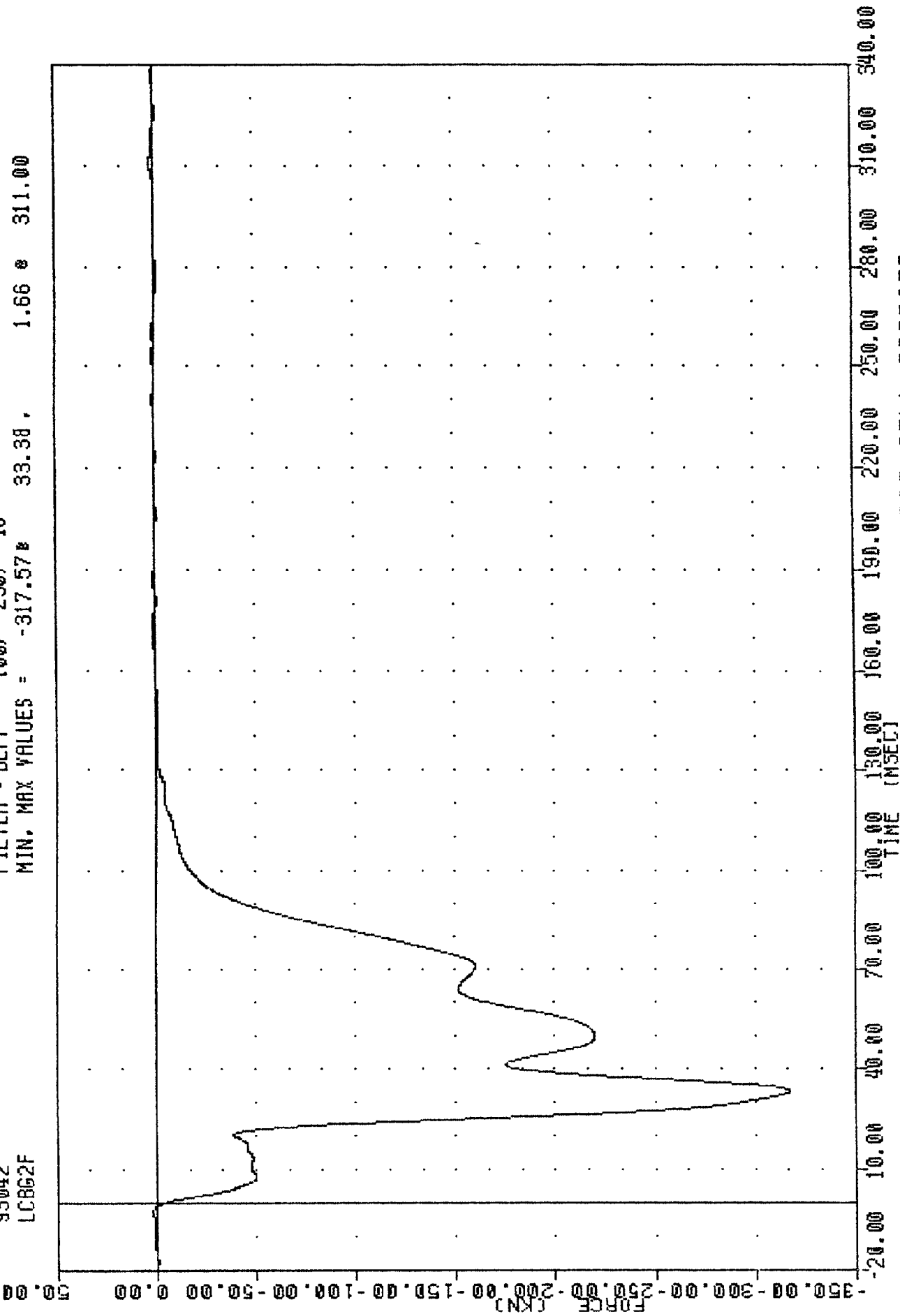
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -79.15 16.50 , 1.71 e 252.50



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP - I FORCE TOTAL

TRC , 930211
NEW CAR ASSESSMENT PROGRAM
93042
LC862F

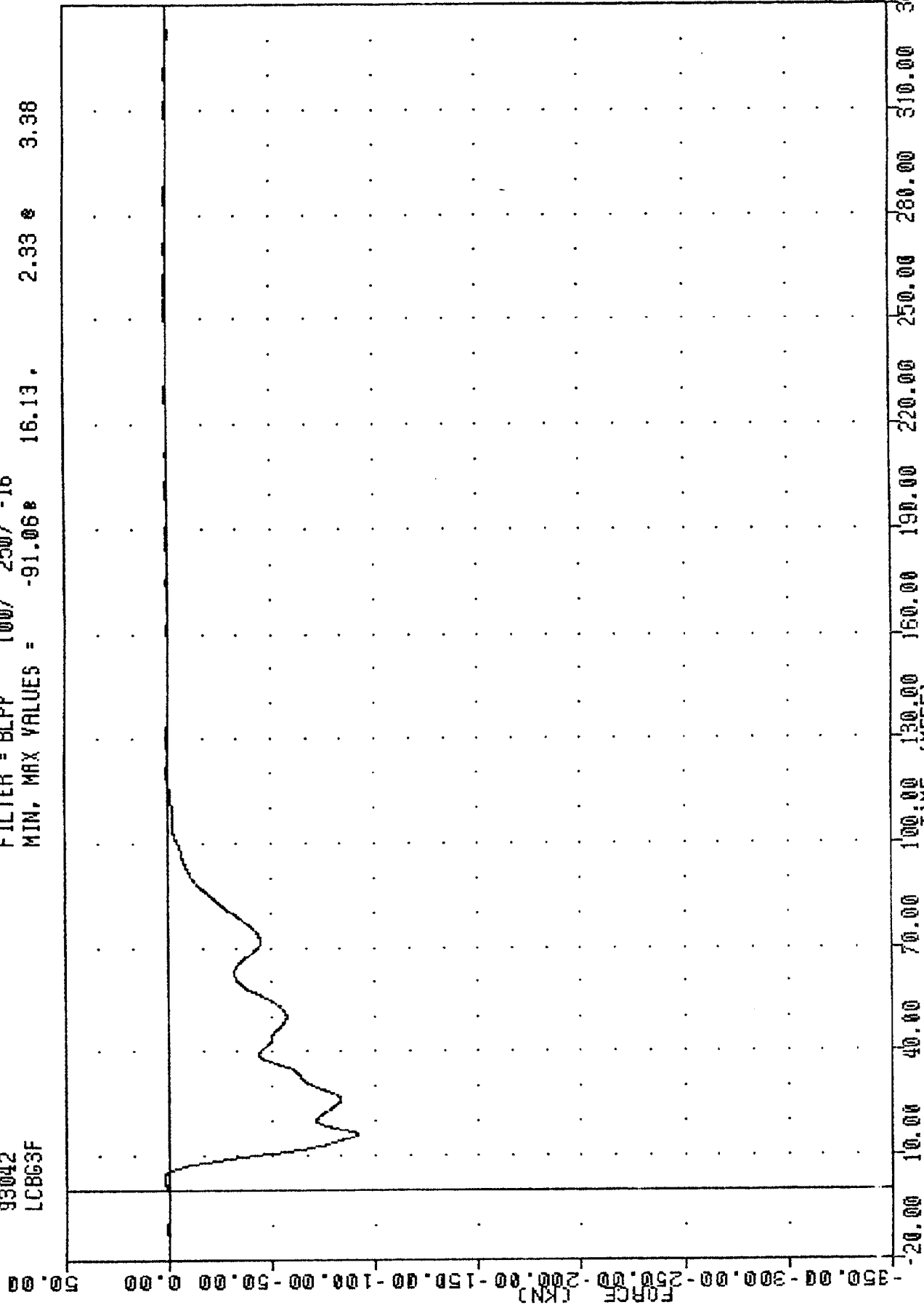
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -317.57# 33.38 , 1.66 e 311.00



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP 2 FORCE DOT

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 LCBC3F

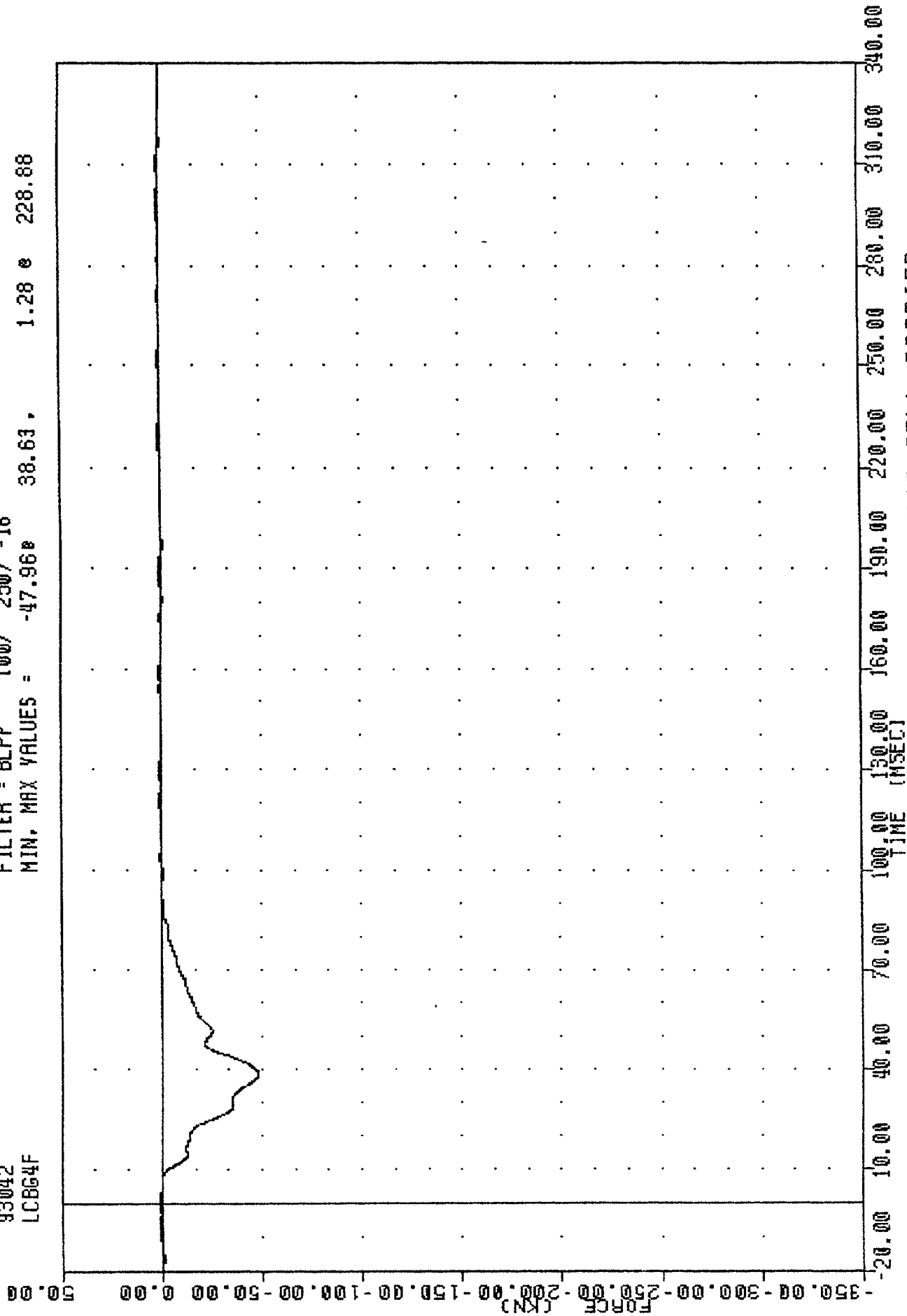
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -91.06 16.13 2.33 3.38



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 3 FORCE TOTAL

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 LCBG4F

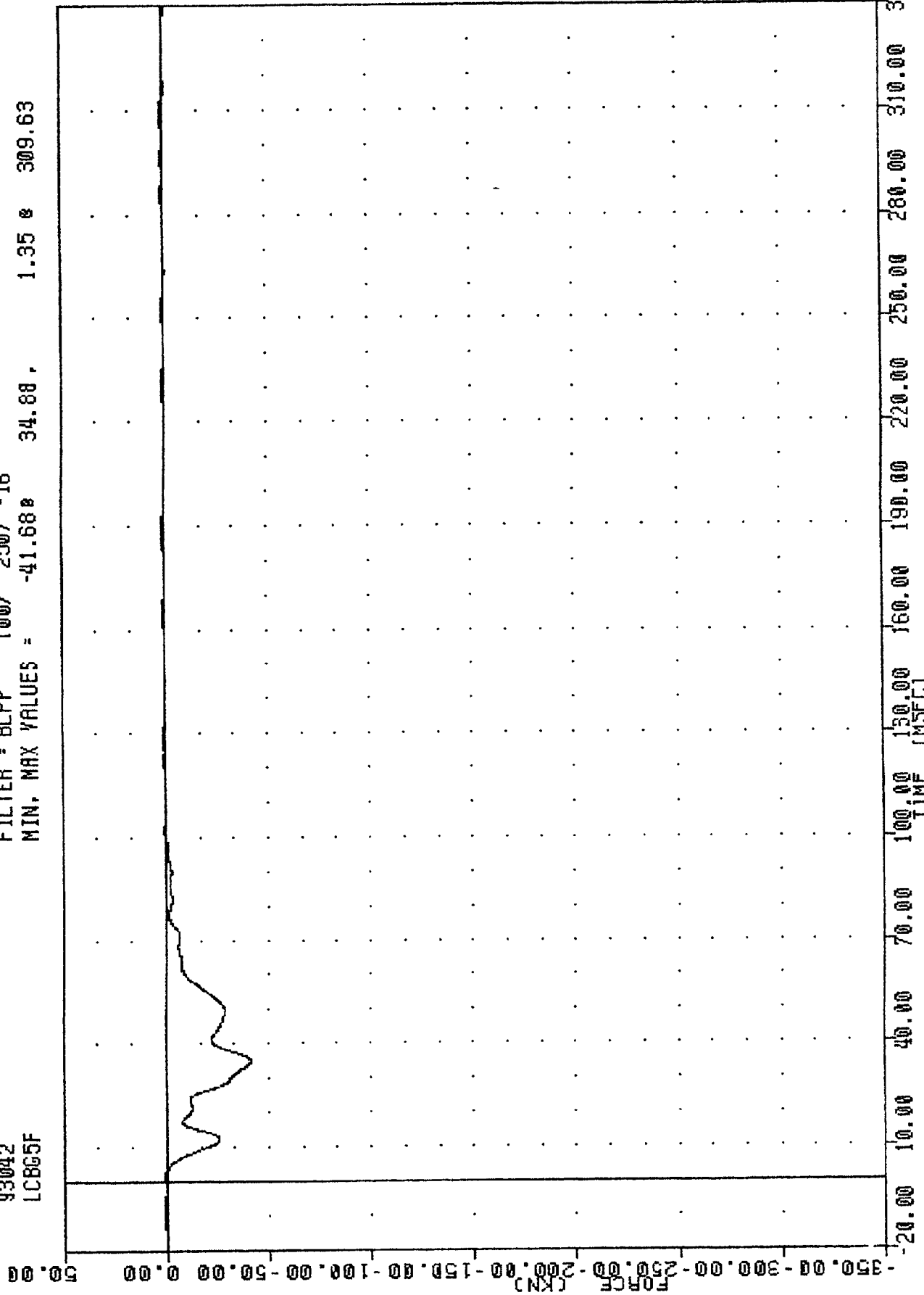
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -47.96e 38.63, 1.28 e 228.88



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP 4 TRACE

TRC
 , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 LC8G5F

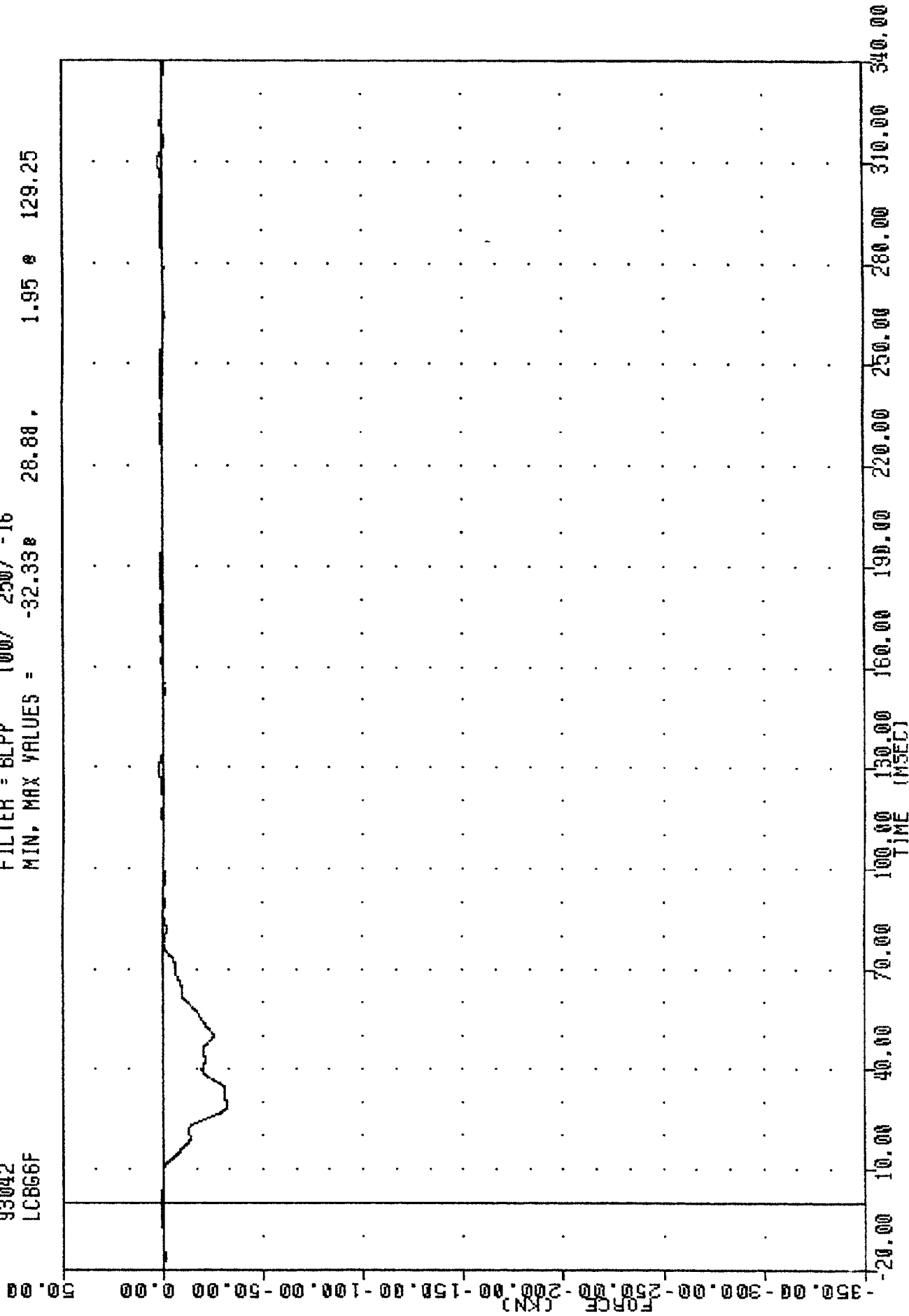
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -41.68 34.88 1.35 309.63



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 5 FORCE TOTAL

TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 LCB66F

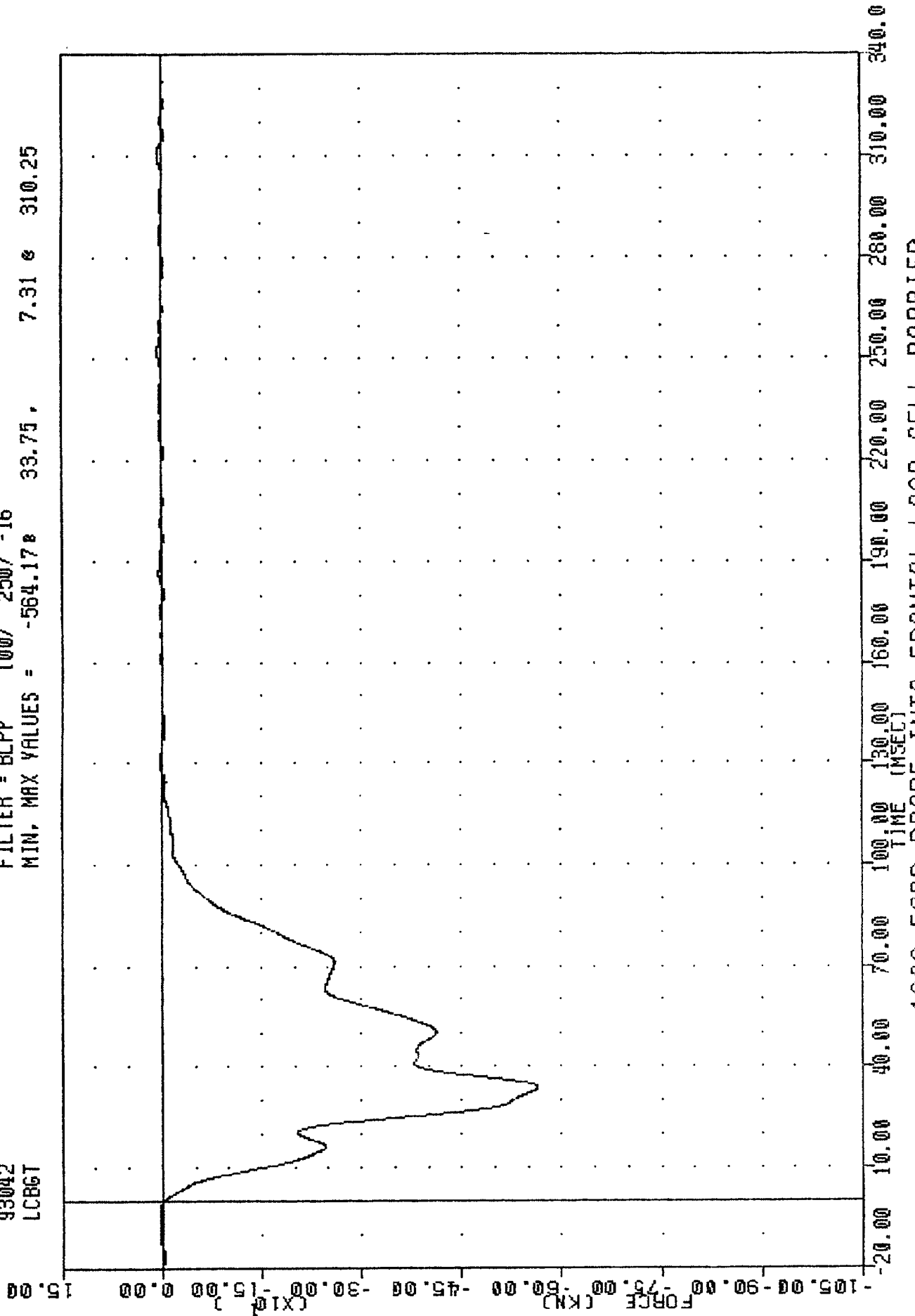
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -32.33e 28.80 , 1.95 e 129.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP 6 FORCE PROFILE

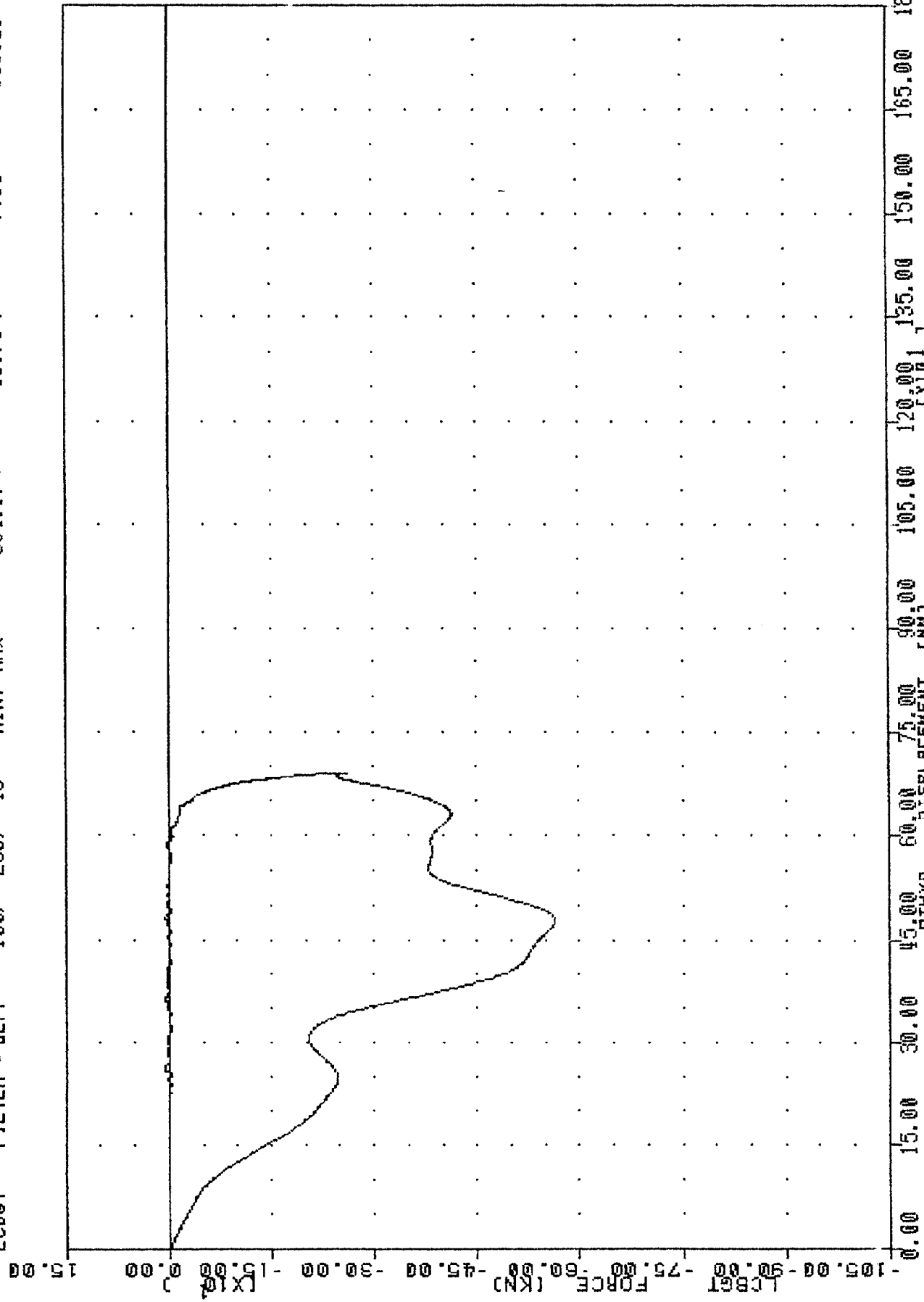
TRC , 930211
 NEW CAR ASSESSMENT PROGRAM
 93042
 LCBGT

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -564.17 33.75 , 7.31 310.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER
 TOTAL LOAD CELL BARRIER FORCE

TRC ,930211 NEV CAR ASSESSMENT PROGRAM 93042
 OTHXD FILTER = BLPP 300/ 750/ -16 MIN. MAX = 0.00 # 690.78 # 70.38
 LCBGT FILTER = BLPP 100/ 250/ -16 MIN. MAX = -564.17 # 33.75 # 310.25



1993 FORD PROBE INTO FRONTAL LOAD CELL BARRIER

TOTAL FORCE CELL BARRIER JARD VS AVERAGE FORCE CELL BARRIER JARD VS AVERAGE

APPENDIX C

DUMMY CERTIFICATION DATA

PRE-TEST CERTIFICATION DATA

DRIVER DUMMY S/N: 826

TRANSPORTATION RESEARCH CENTER INC.

EXTERNAL DIMENSIONS

PART 572B

12-JAN-93

TRC EDB2632 572B SNB26 EXT. DIMENSION CAL32
 SN HUMANOID 826

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	43 %
SITTING HEIGHT	904 - 909 MM	904. MM
SHOULDER PIVOT HEIGHT	553 - 569 MM	564. MM
HIP PIVOT HEIGHT	99 MM	REFERENCE
HIP PIVOT FROM BACKLINE	122 MM	REFERENCE
KNEE PIVOT FROM BACKLINE	511 - 526 MM	518. MM
REAR OF HEAD FROM BACKLINE	43 MM	REFERENCE
CHEST DEPTH	231 - 244 MM	239. MM
SHOULDER WIDTH	452 - 467 MM	455. MM
CHEST CIRCUMFERENCE OVER NIPPLES	935 - 1016 MM	958. MM
WAIST CIRCUMFERENCE AT MIN. GIRTH	798 - 828 MM	826. MM
HIP WIDTH	356 - 391 MM	376. MM
KNEE PIVOT FROM FLOOR	490 - 506 MM	495. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Fort

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

PART 572B

12-JAN-93

TRC

HD82632

572B SN 826 HEAD DROP CAL 32

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	43 %
PEAK RESULTANT ACCELERATION	210 - 260 G	247.87 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MS	1.21 MS
PEAK LATERAL ACCELERATION	10 G MAX	-6.34 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Pete Font*

TRC
572B SN 026 HEAD DROP CAL 32
93012
HEDXG

, H082632

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -200.63 2.00 15.27 3.50

0.00

50.00

100.00

150.00

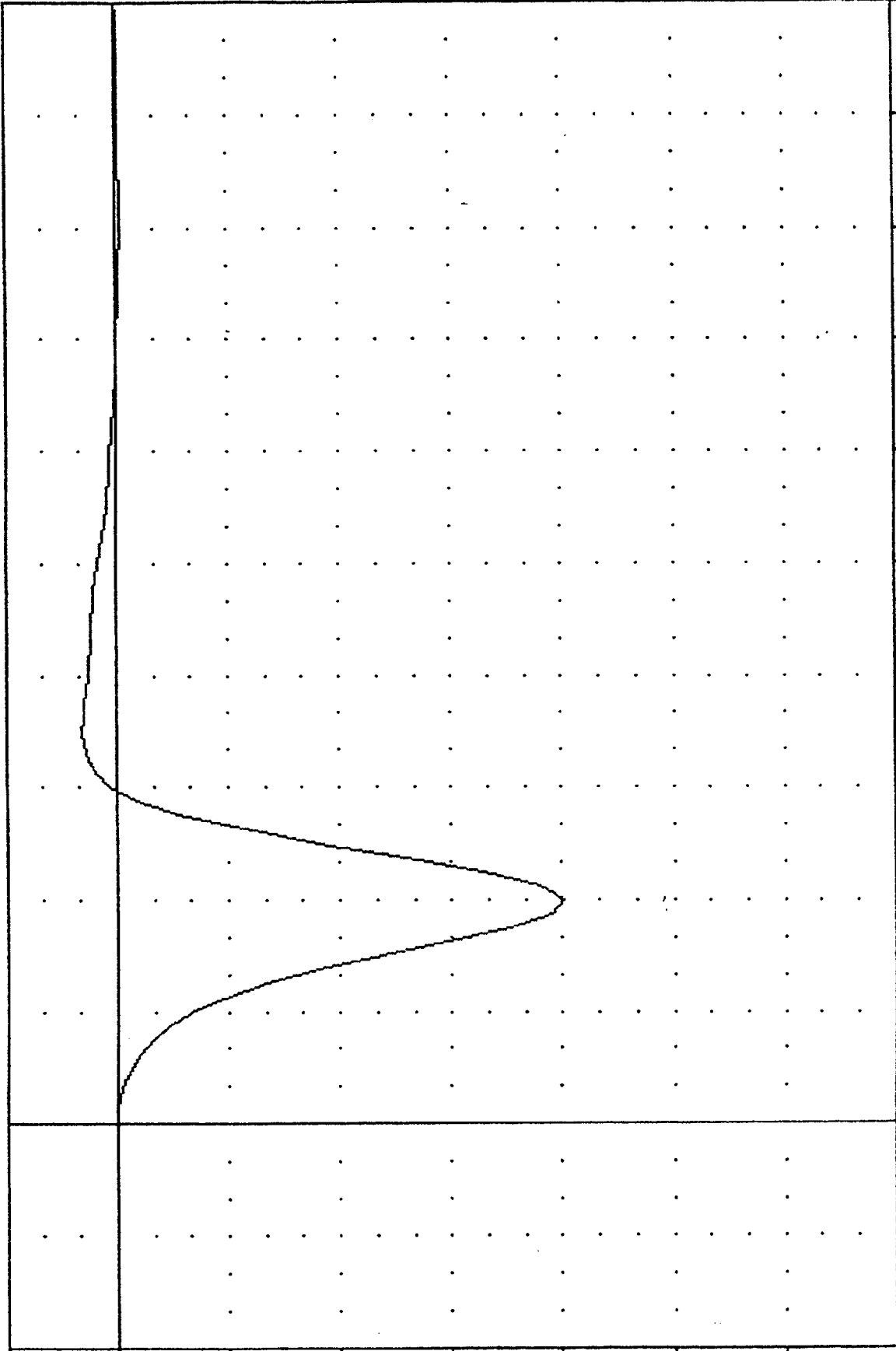
200.00

250.00

300.00

350.00

ACCELERATION (G)

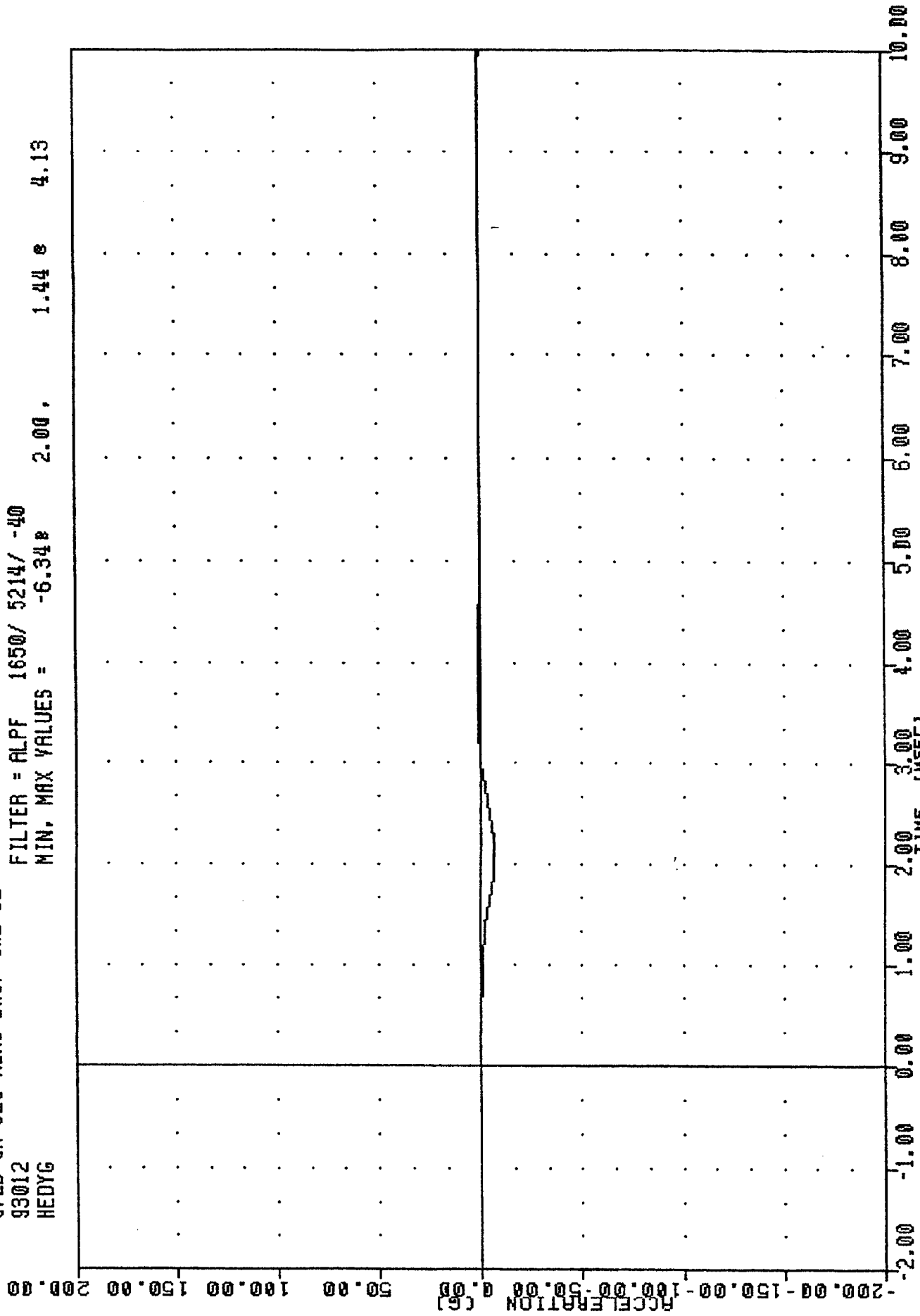


-2.00 -1.00 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00

PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD ACCELERATION X AXIS

TRC , H082632
 572B SN 026 HEAD DROP CAL 92
 93012
 HEDYG

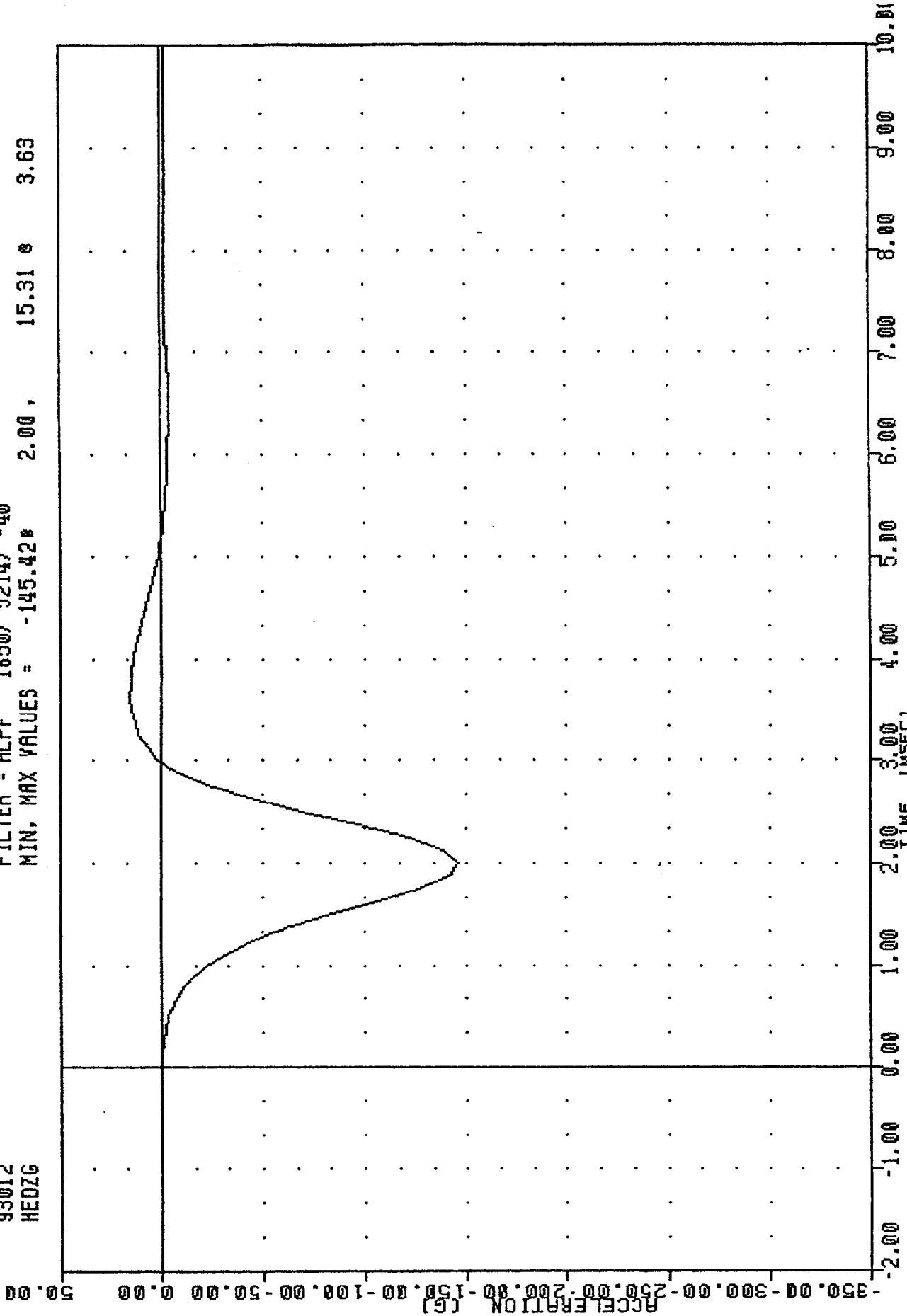
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -6.34e 2.00 , 1.44 e 4.13



PART 572-R HYBRID II HEAD DROP CALIBRATION

TAC , H082632
5728 SN 828 HEAD DROP CAL 32
93012
HEDZG

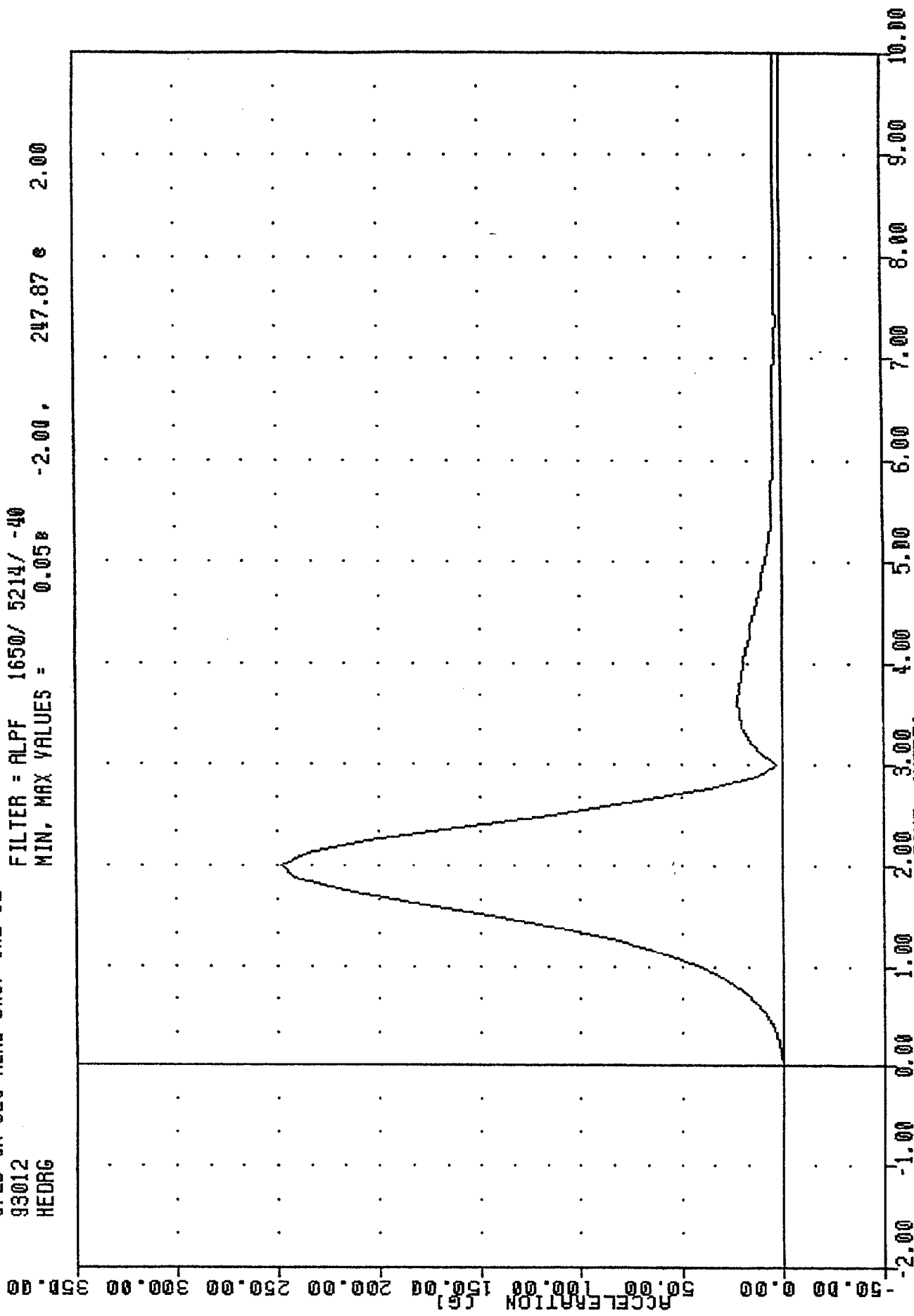
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -145.42 2.00 , 15.31 e 3.63



PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD ACCELERATION 7 AXIS

TRC
572B SN 026 HEAD DROP CAL 32
93012
HEADG

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 0.05B -2.00, 247.87 e 2.00



PART 572-B HYBRID II HEAD DROP CALIBRATION

TRANSPORTATION RESEARCH CENTER INC.

NECK PENDULUM TEST

PART 572B

12-JAN-93

TRC HN82632 572B SN 826 HEAD/NECK CAL 32

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	43 %
PENDULUM VELOCITY	6.55 TO 7.77 M/SEC	7.31 M/SEC
PENDULUM DECELERATION:		
T1 - T2 TIME (5 - 20 G)	3 MS MAX	2.43 MS
T2 - T3 TIME (20 - 20 G)	25 - 30 MS	27.25 MS
T3 - T4 TIME (20 - 5 G)	10 MS MAX	5.42 MS
AVG. G LEVEL T2 - T3	20 - 24 G	23.23 G
MAXIMUM ROTATION ANGLE	63 - 73 DEG	65.78 DEG
PEAK HEAD RESULTANT ACCEL	26 G MAX	23.98 G

TEST PARAMETER	SPECIFICATION		TEST RESULTS	
ROTATION ANGLE (DEGREES)	TIME (MS)	CHORDAL DISP. (MM)	TIME (MS)	CHORDAL DISP. (MM)
0	-2.0 - +2.0	-12.7 - +12.7	1.25	0.00
30	25.6 - 34.4	53.3 - 78.7	31.44	61.97
60	40.3 - 51.7	109.2 - 134.6	48.31	118.99
MAX	53.2 - 66.8	127.0 - 152.4	63.50	131.42
60	67.0 - 83.0	109.2 - 134.6	72.82	119.86
30	85.4 - 104.6	53.3 - 78.7	93.02	58.44
0	101.0 - 123.0	-12.7 - +12.7	107.31	2.43

SND: 151.13 MM

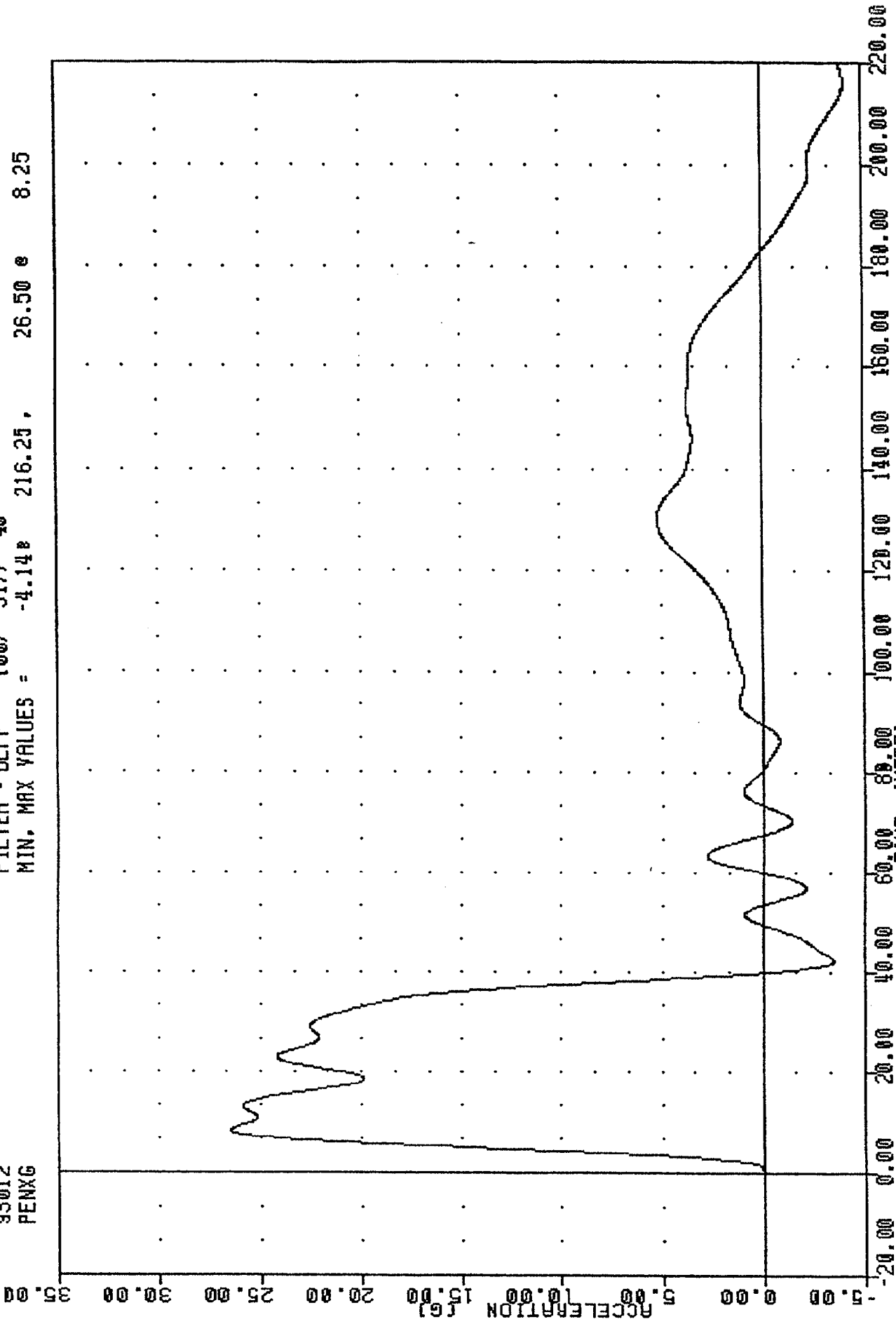
DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Pete Fout*

TRC
572B SN 826 HEAD/NECK CAL 32
93012
PENXG

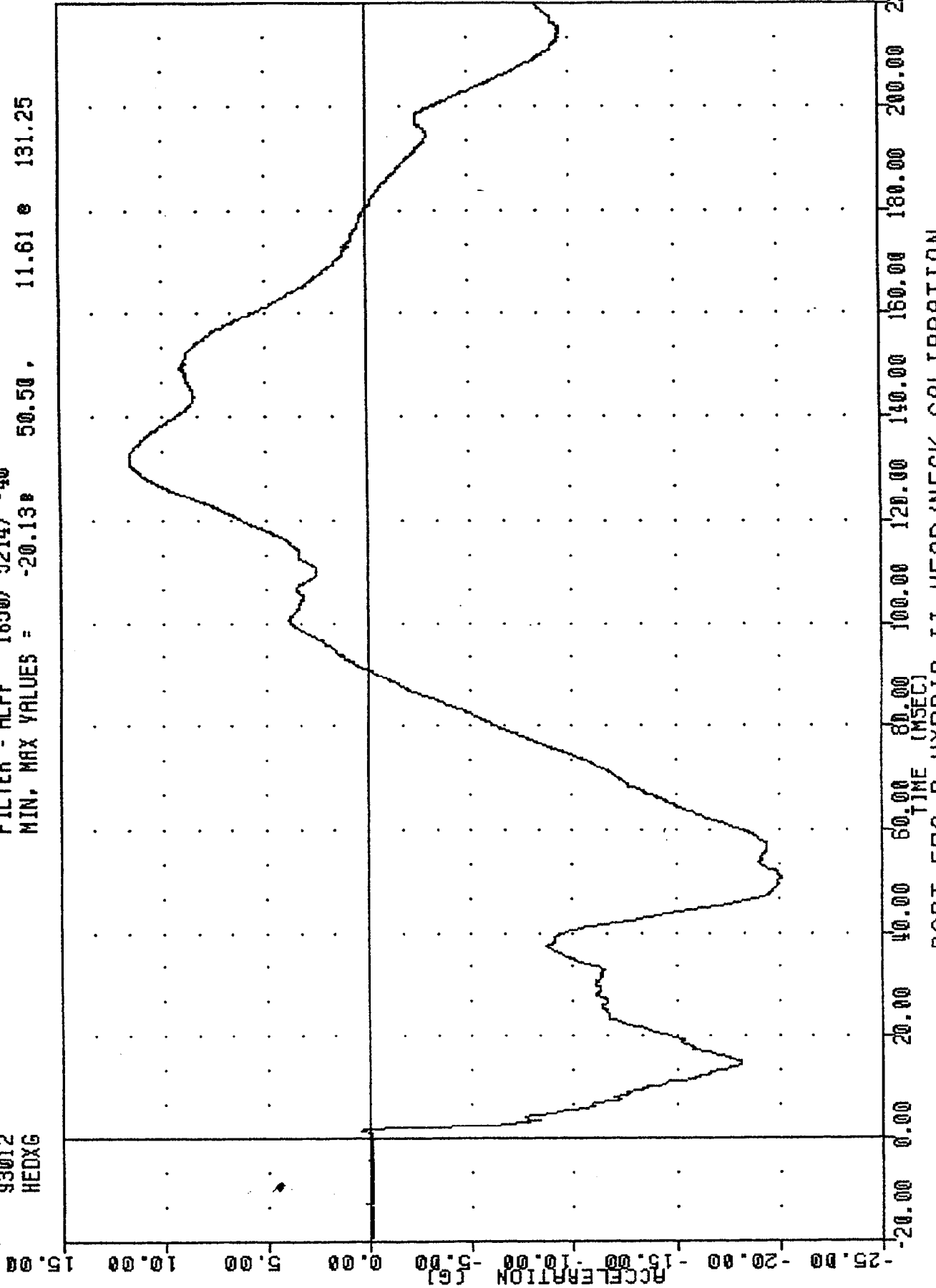
HN82632

FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = -4.14e 216.25, 26.50 e 8.25



TRC , HM82632
5728 SN 826 HEAD/NECK CAL 32
93012
HEADG

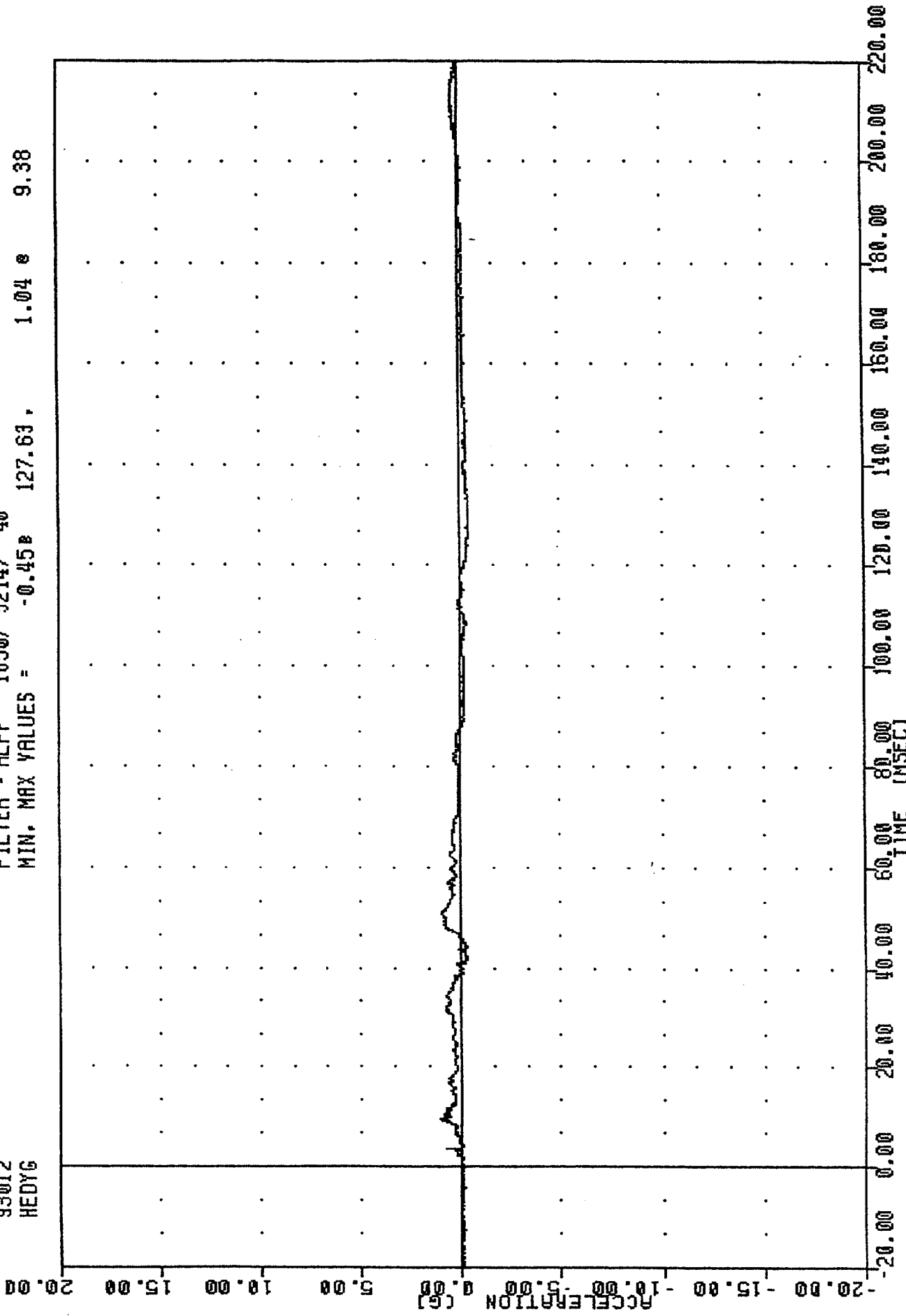
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -20.13 50.50 , 11.61 e 131.25



PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD ACCELERATION Y AXIS

TRC , HN82632
572B SN 026 HEAD/NECK CAL 32
93012
HEDYG

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -0.45B 127.63 . 1.04 e 9.38

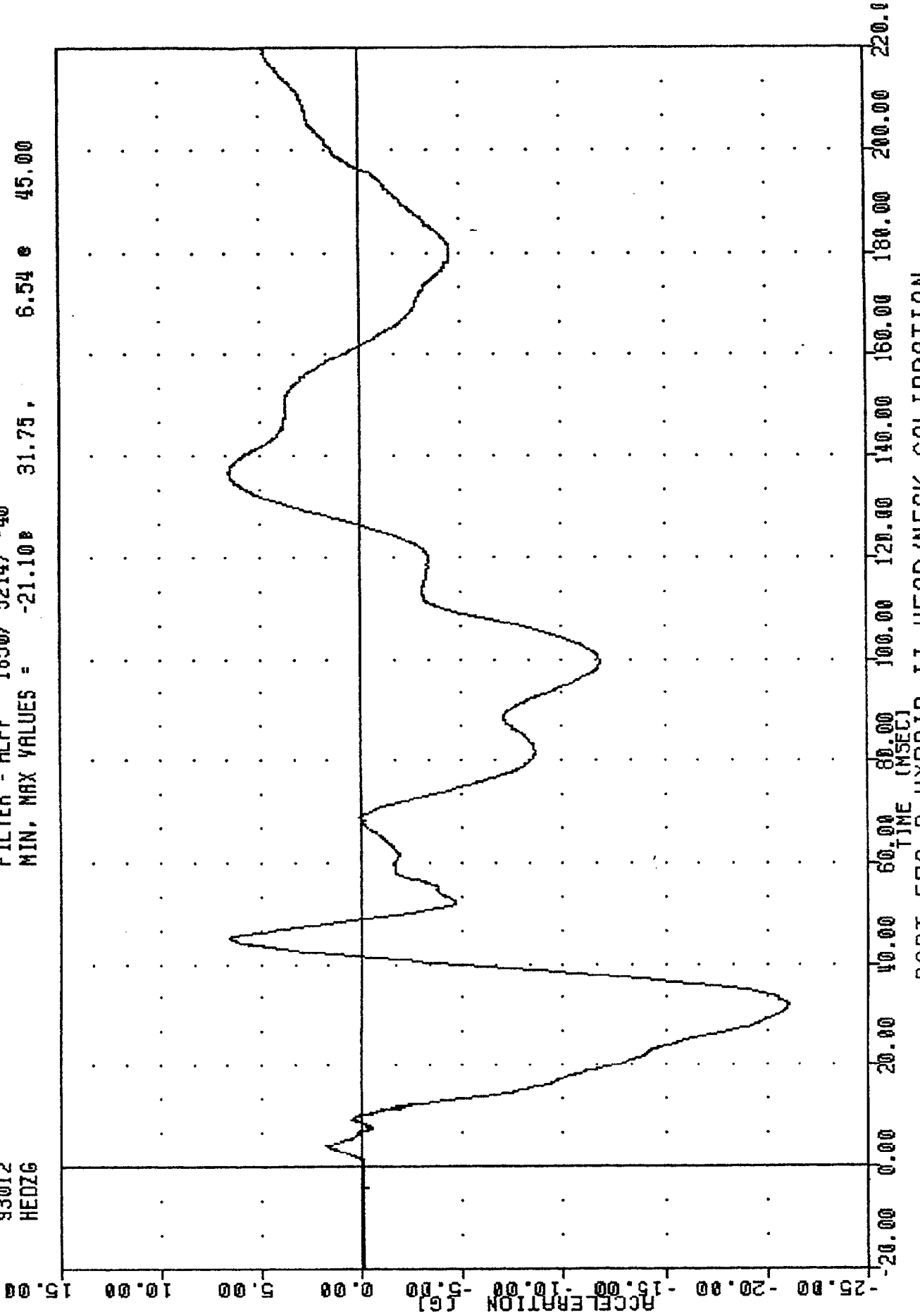


PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
572B SN 026 HEAD/NECK CAL 32
93012
HEADZG

, HN82632

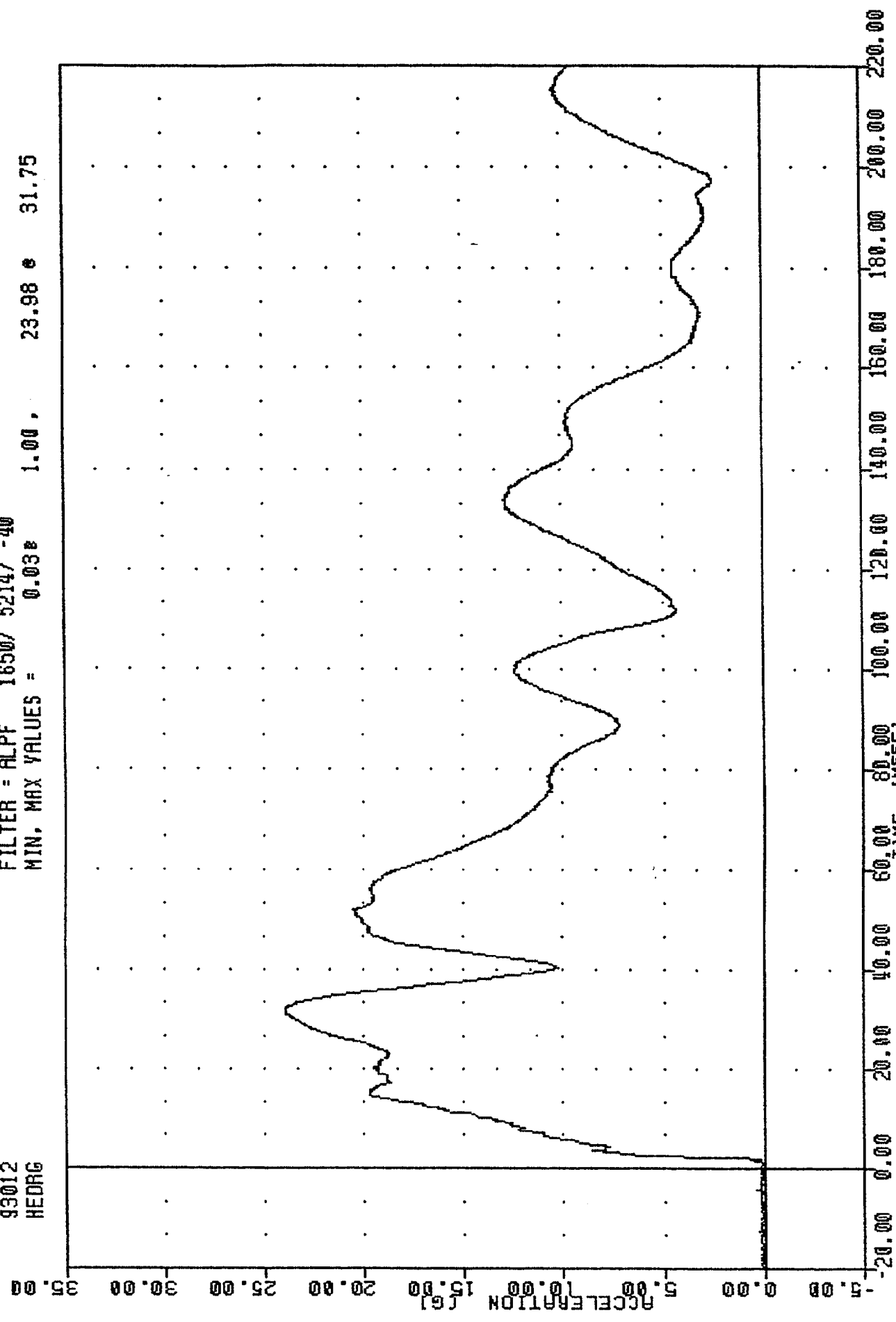
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -21.10g 31.75g 6.54g 45.00g



PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD ACCELERATION 7 AXIS

TRC , H182632
572B SN 026 HEAD/NECK CRL 32
93012
HEDRG

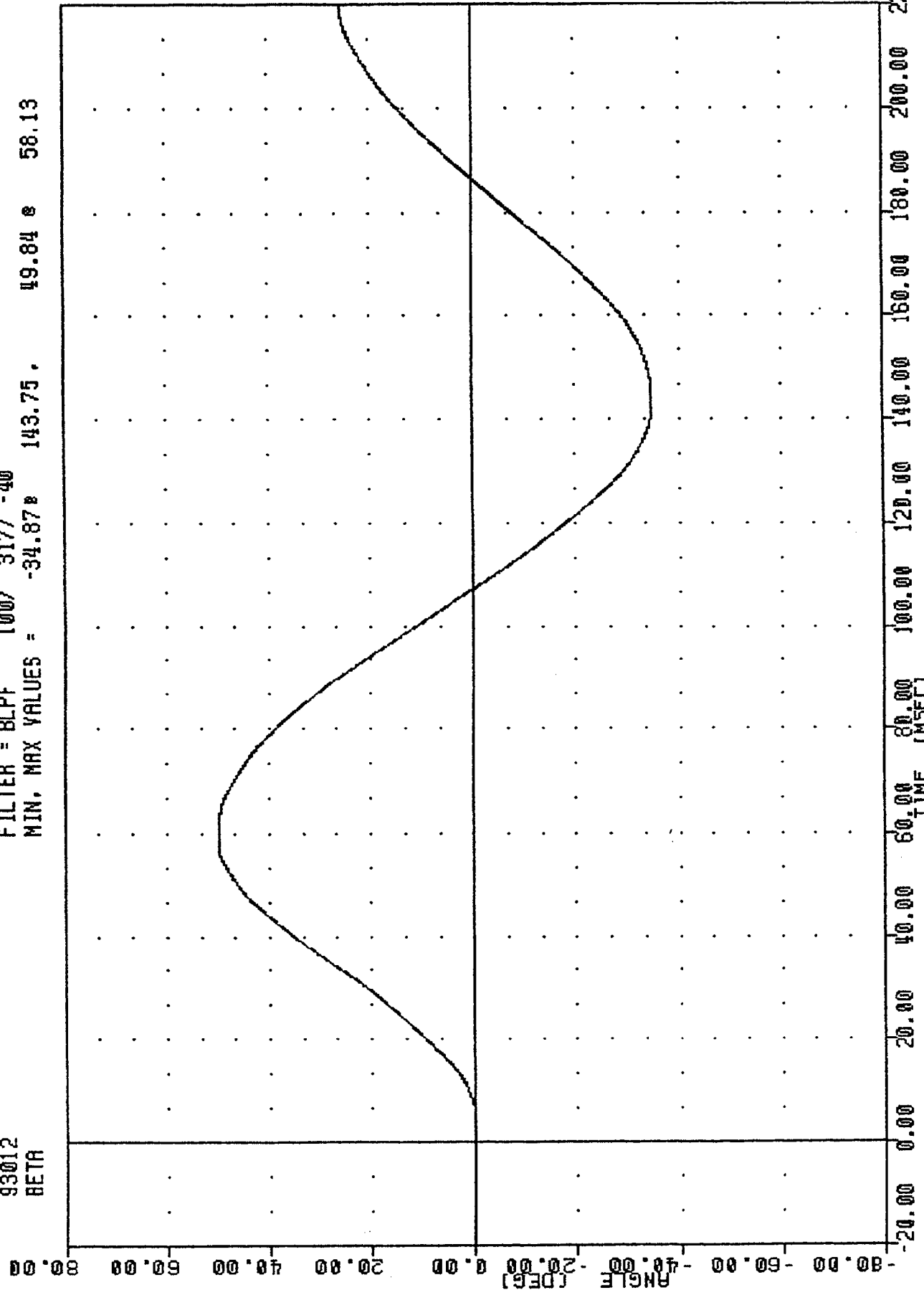
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 0.03 e 1.00 , 23.98 e 31.75



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC , HN82632
 572B SN 026 HEAD/NECK CAL 32
 93012
 BETA

FILTER = BLPF 100/ 317/ -40
 MIN, MAX VALUES = -34.87 143.75 . 49.84 e 58.13

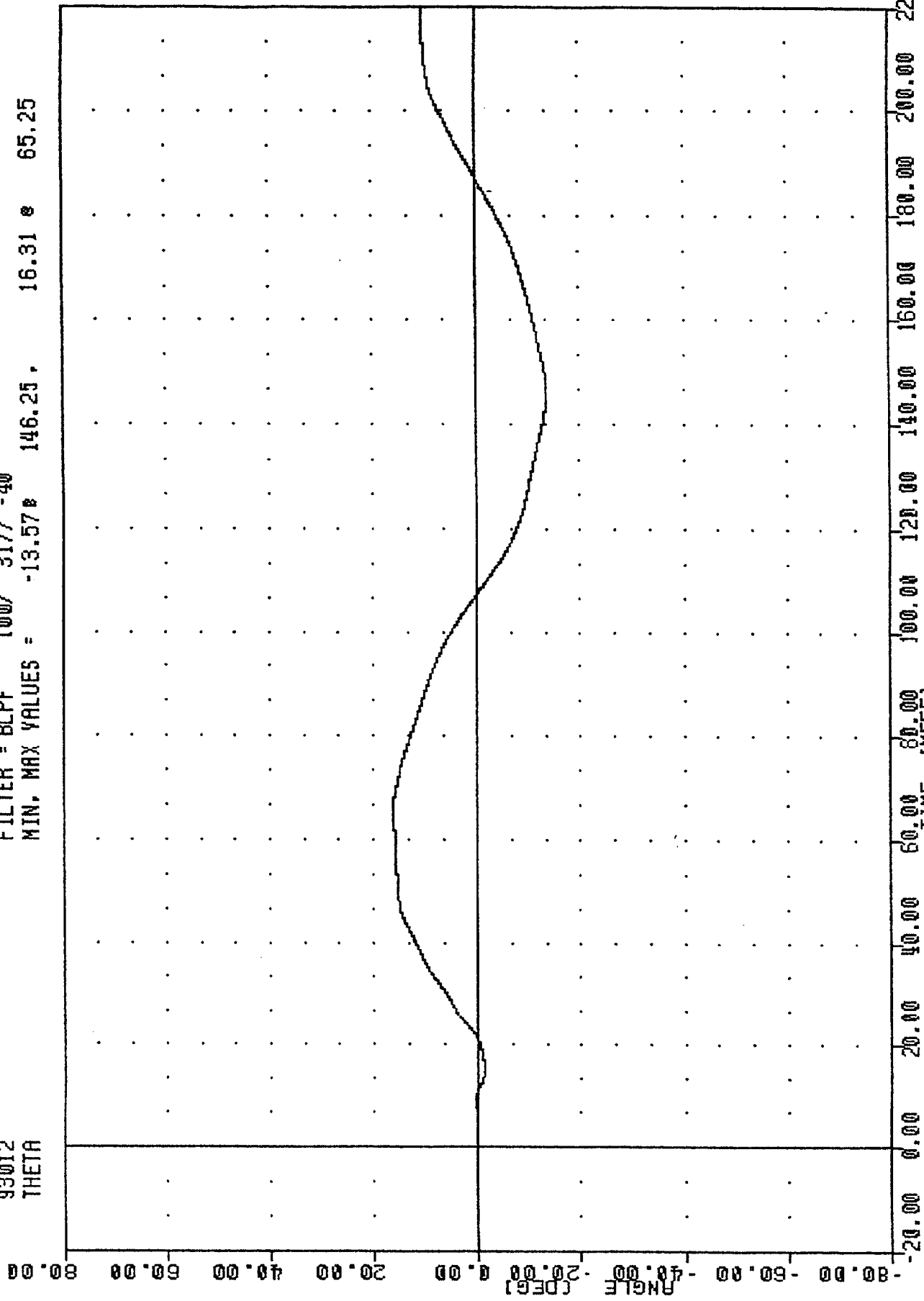


PART 572-B HYBRID II HEAD/NECK CALIBRATION
 ROTATION ABOUT THE BASE OF THE NECK

TRC
572B SN 026 HEAD/NECK CAL 32
93012
THETA

, H182632

FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -13.57 146.25 16.31 65.25

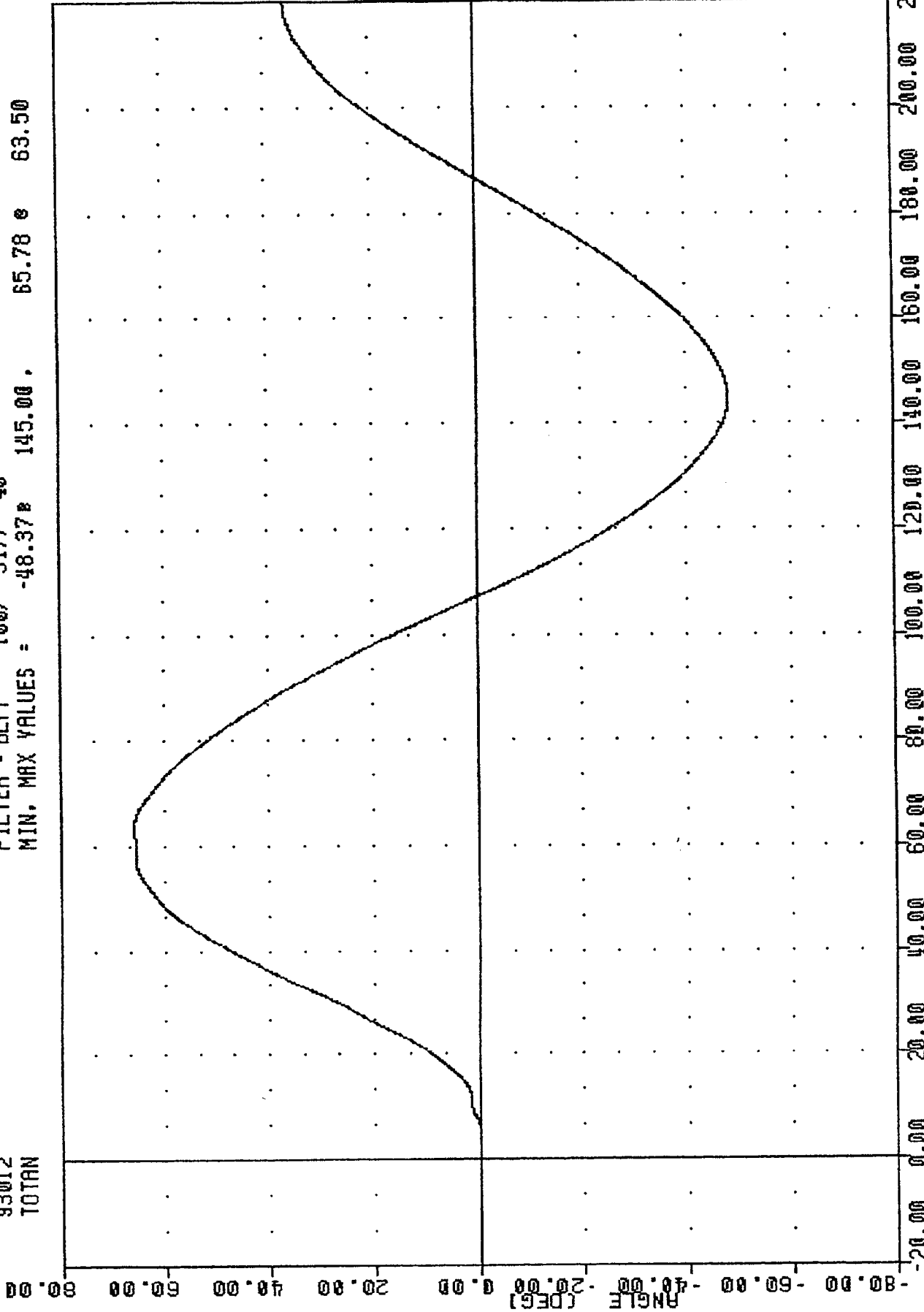


PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
5728 SN 826 HEAD/NECK CAL 92
93012
TOTAL

HM82632

FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -48.37 145.00 65.78 63.50



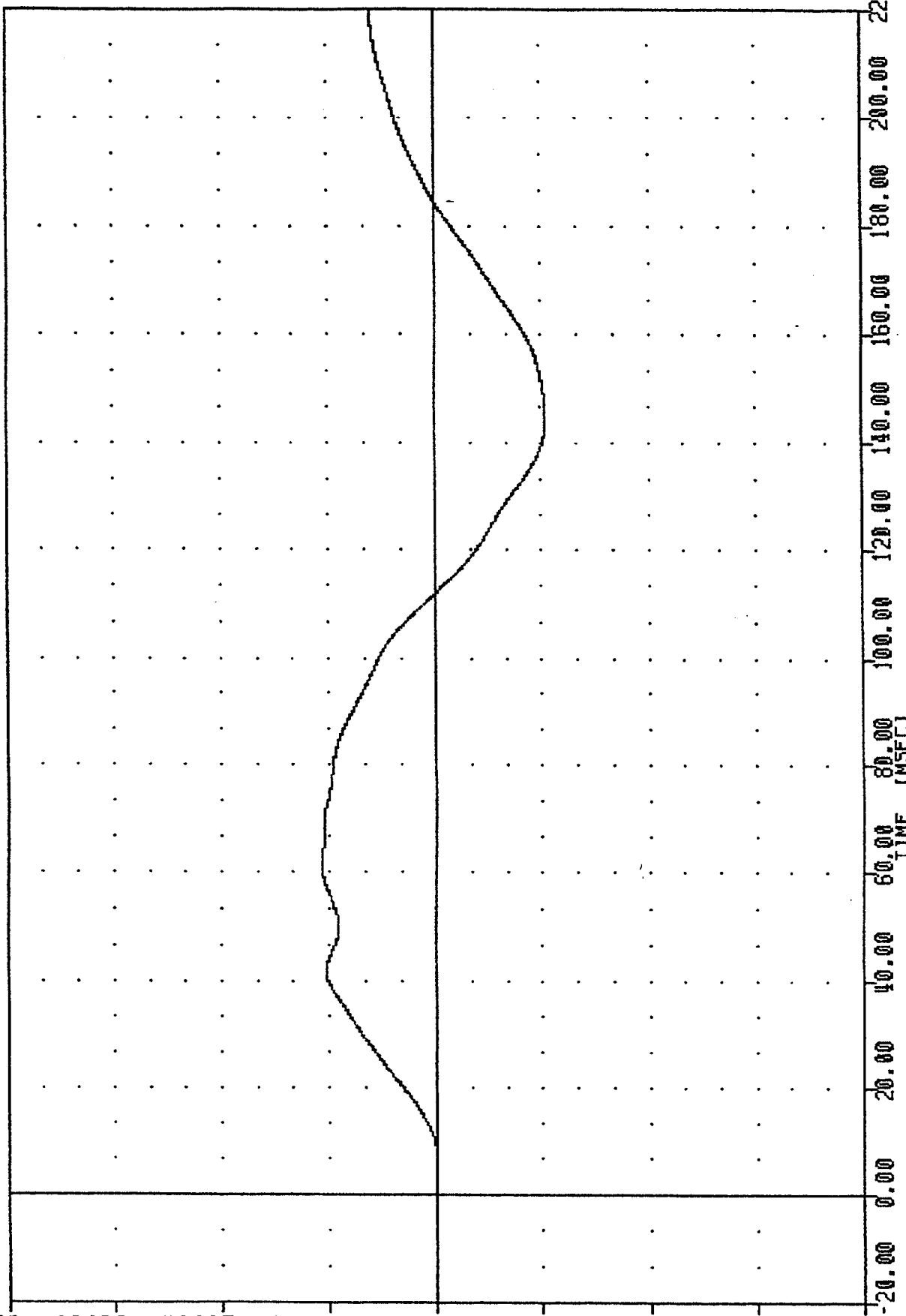
PART 572-B HYBRID II HEAD/NECK CALIBRATION
TOTAL ROTATION

TRC
572B SN 026 HEAD/NECK CAL 92
93012
MEKZO

HN82632

FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -10.41e 144.63, 10.70 e 61.00

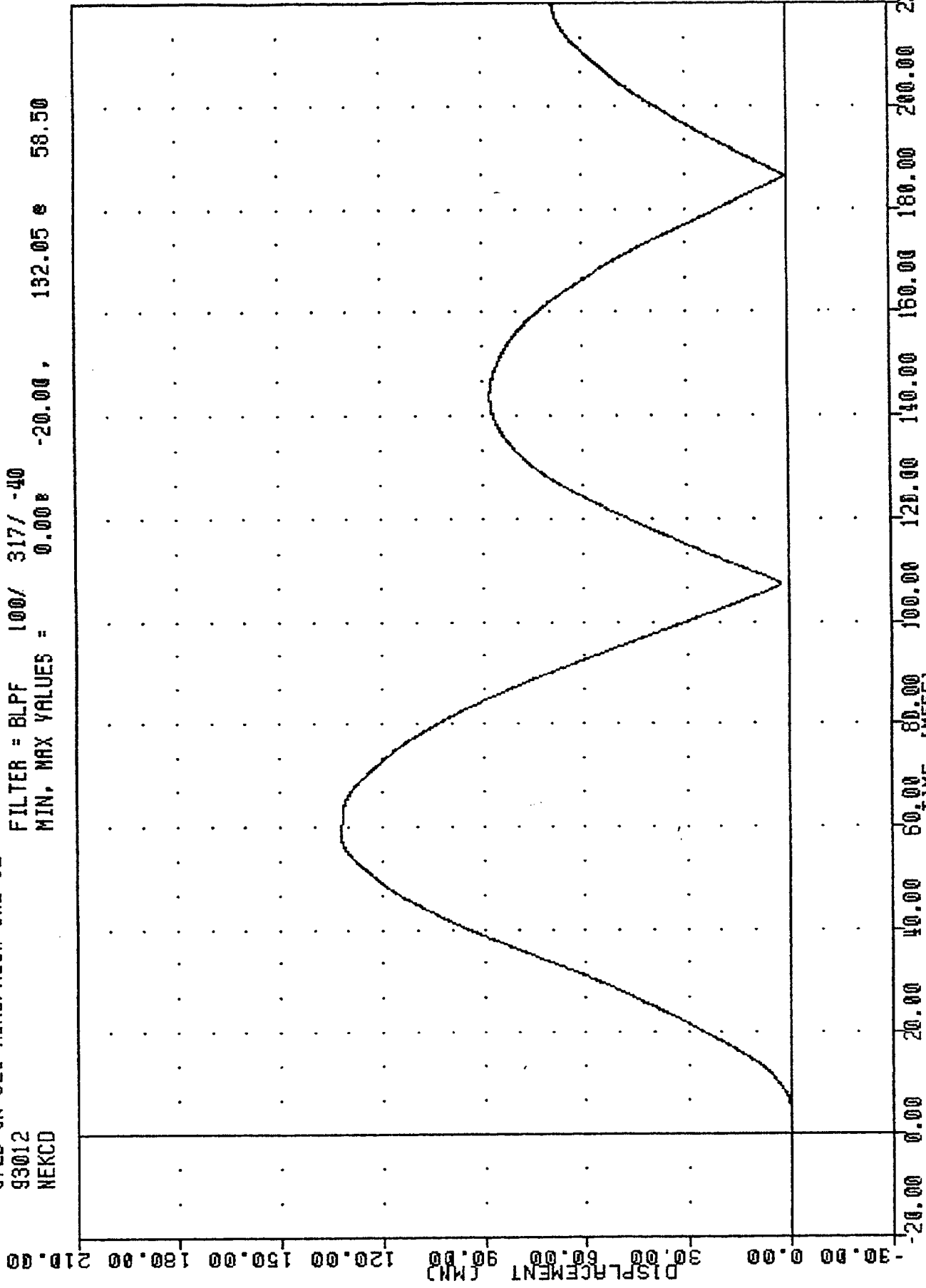
DISPLACEMENT (MM)



PART 572-B HYBRID II HEAD/NECK CALIBRATION
NECK DISPLACEMENT AXIS

TRC
 5728 SN 026 HEAD/NECK CAL 32
 93012
 NEKCD

FILTER = BLPF 100/ 317/ -40
 MIN, MAX VALUES = 0.00 e -20.00, 132.05 e 58.50



PART 572-B HYBRID II HEAD/NECK CALIBRATION
 NECK CHORNAI NTSP1 AFFMFMFNT

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

PART 572B

13-JAN-93

TRC

TL62632

572B SN 826 L.S.THORAX CAL 32

LOW SPEED TEST		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	43 %
PENDULUM VELOCITY	4.22 - 4.31 M/SEC	4.28 M/SEC
PEAK STERNUM DEFLECTION	28 MM MAX.	23.80 MM
PEAK RESISTIVE FORCE	6450. N MAX.	5778. N
INTERNAL HYSTERESIS	50 - 70 %	69.9 %

SCD: 53.34 MM

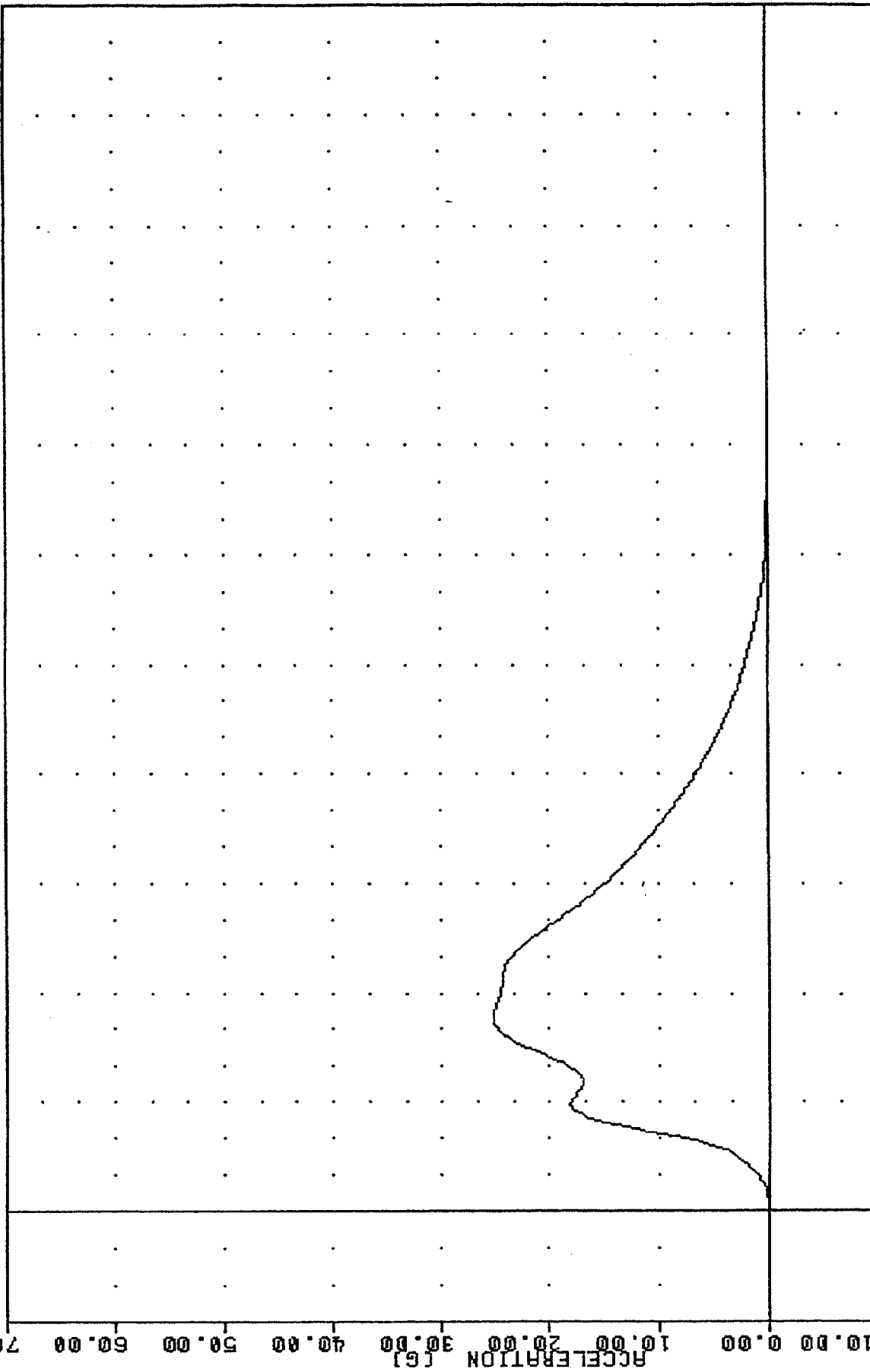
DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Pete Ford*

TRC , TL82632
 572B SN 626 L.S.THORAX CAL 32
 93013
 PENXG

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -0.038 44.88, 25.22 10.63

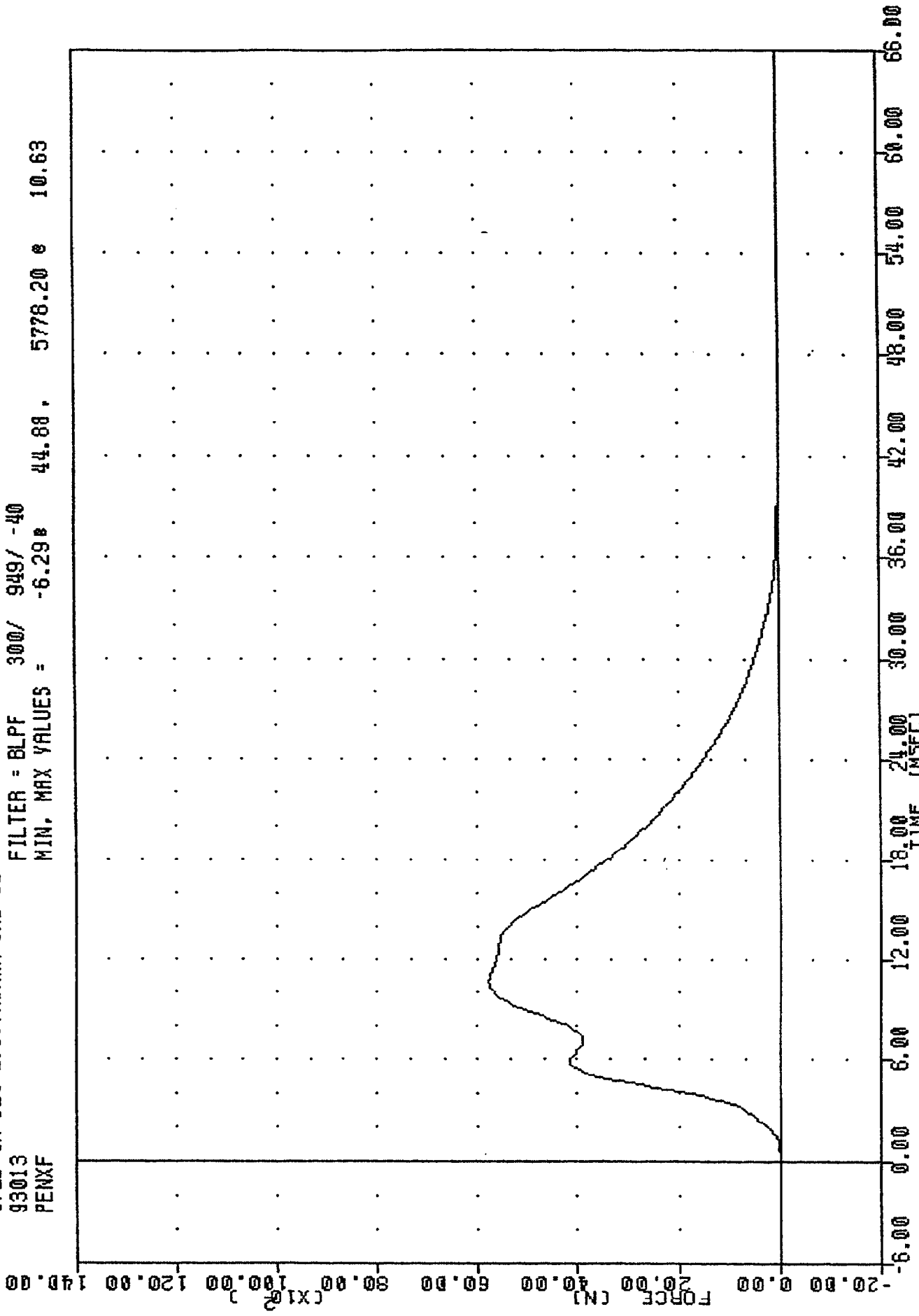
70.00



PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
 DENIHUIM RECEIVED

TRC
 5728 SN 026 L.S.THORAX CAL 32
 93013
 PENXF

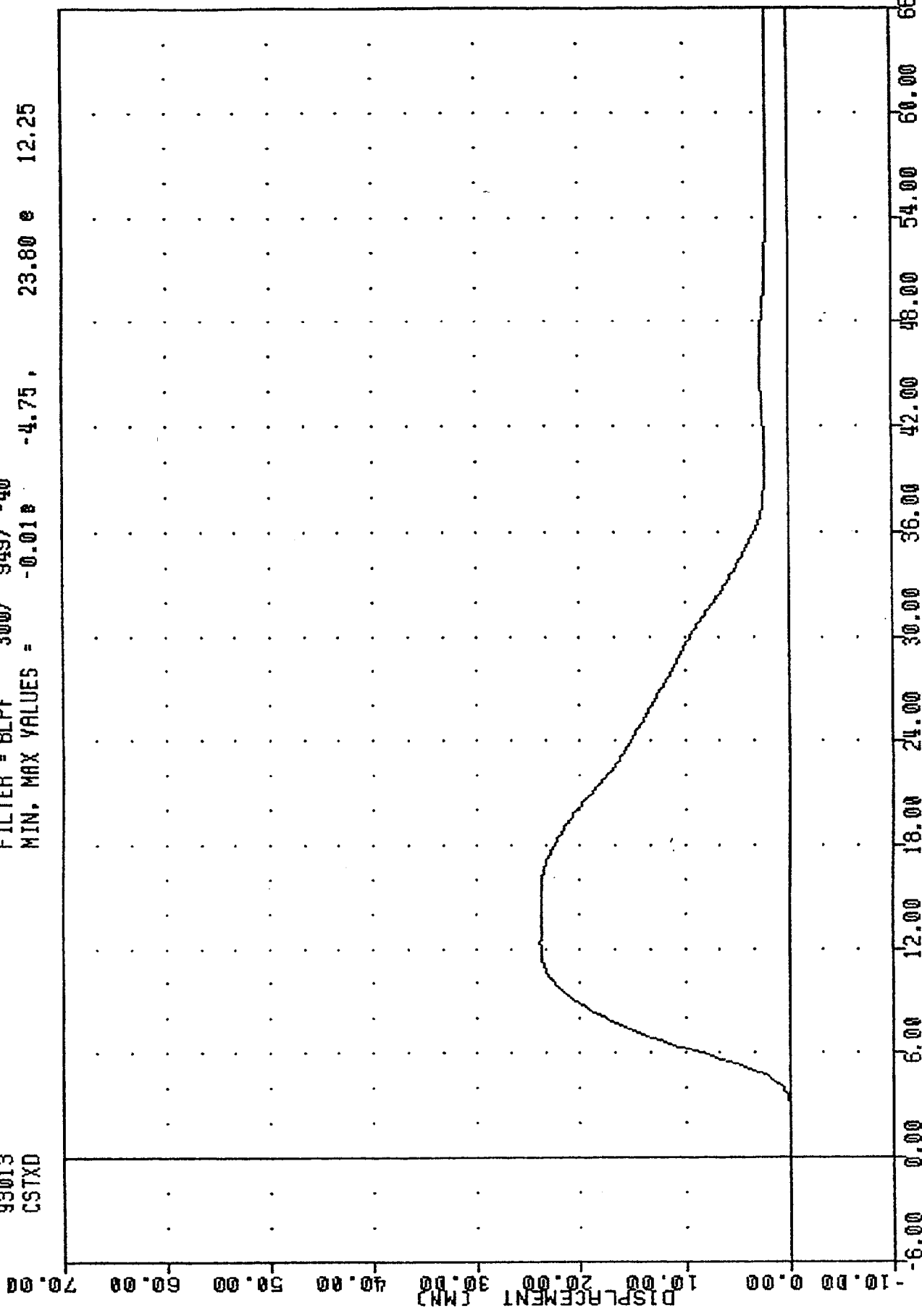
FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -6.29* 44.88, 5778.20 * 10.63



PART 5728 L.S. THORAX CALIBRATION 4.3 M/SEC

TRC TL82632
 572B SN 826 L.S.THORAX CAL 32
 93013
 CSTXD

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -0.018 -4.75, 23.80 e 12.25



C-23

930211

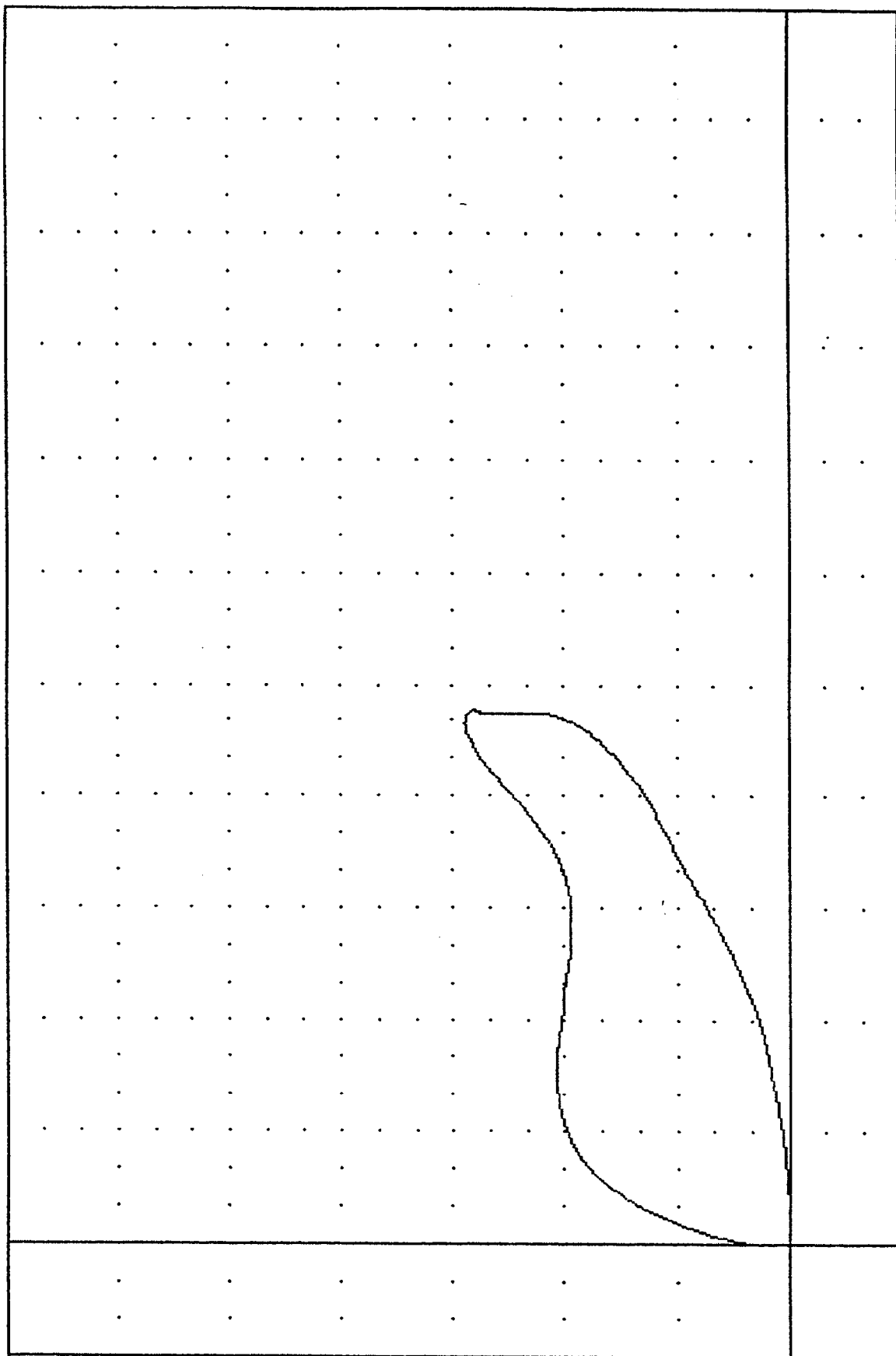
PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
 CTEDNIM DTSDI AFEMENT

TRC TL82632 572B SN 826 L.S. THORAX CAL 32 93013
 CSTXD FILTER = BLPF 300/ 949/ -40 MIN. MAX = -0.01 #
 PENXF FILTER = BLPF 300/ 849/ -40 MIN. MAX = -6.29 #

-4.75 ; 23.80 #
 44.88 ; 5778.20 #

12.25
 10.53

-20.00 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00
 PENXF (X100)



-5.00 0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00
 CSTXD DISPLACEMENT (MM)
 PART 572-B HYBRID II THORAX CALIBRATION 43 M/SEC

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

PART 572B

13-JAN-93

TRC

TH82632

572B SN 826 H.S. THORAX CAL 32

HIGH SPEED TEST		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	43 %
PENDULUM VELOCITY	6.64 - 6.77 M/SEC	6.68 M/SEC
PEAK STERNUM DEFLECTION	43 MM MAX.	35.99 MM
PEAK RESISTIVE FORCE	10009. N MAX.	9129. N
INTERNAL HYSTERESIS	50 - 70 %	69.0 %

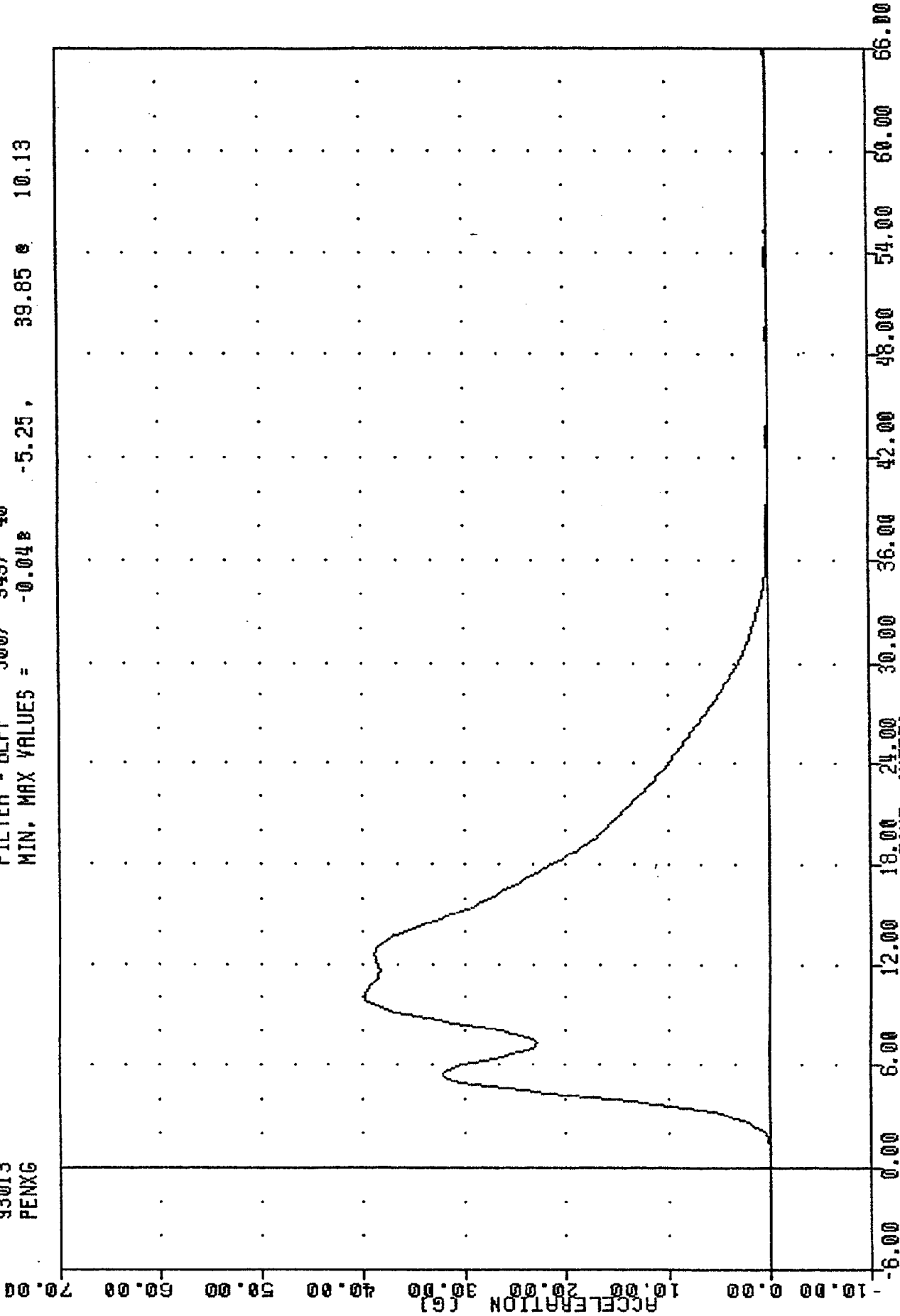
SCD: 53.34 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Rita Font*

TRC , TH82632
 572B SN 826 H.S.THORAX CAL 32
 93013
 PENXG

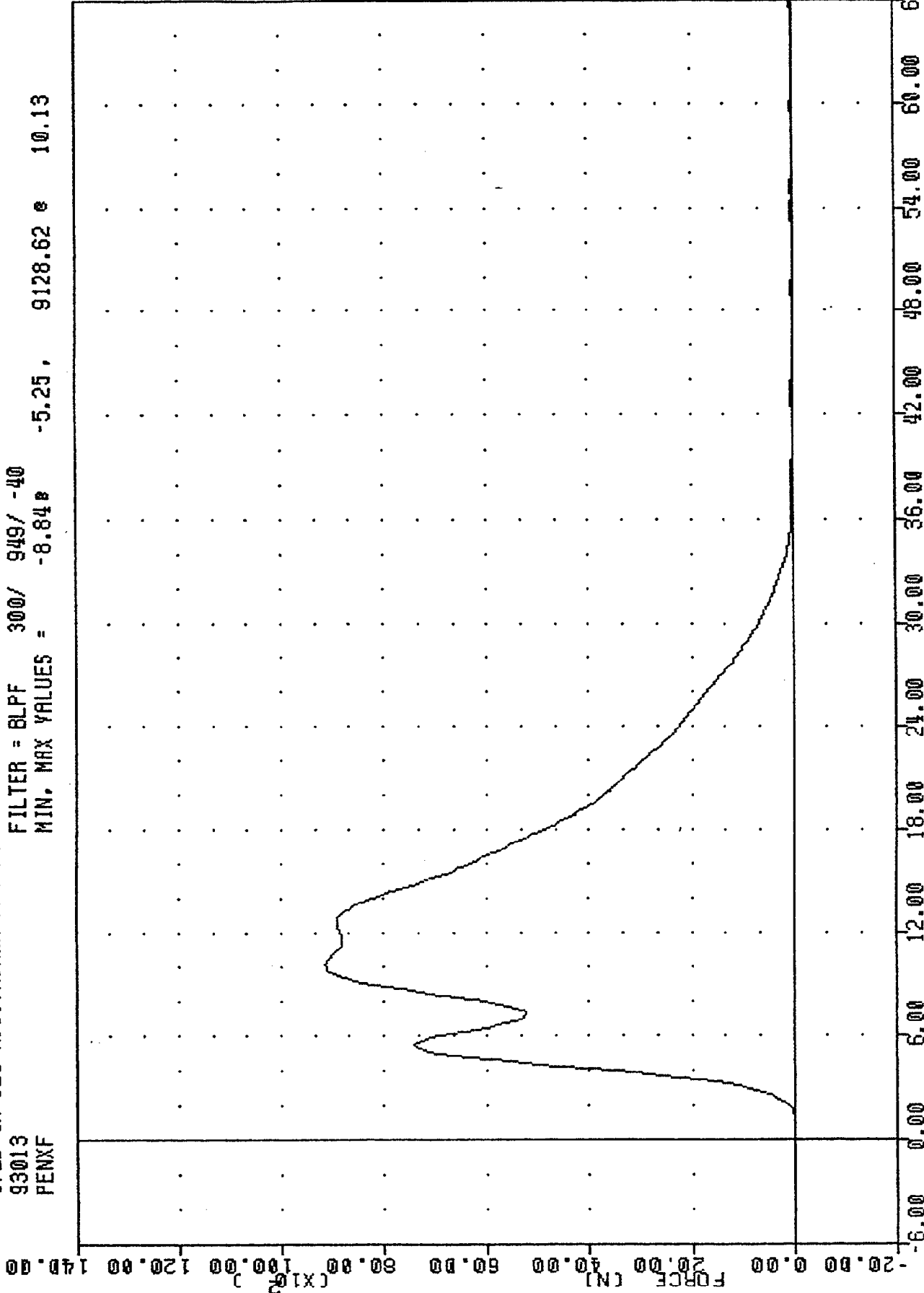
FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.048 -5.25 , 39.85 10.13



PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
 PENN III IN NETWORK

TRC , TH82632
 572B SN 826 H.S.THORAX CAL 32
 93013
 PENXF

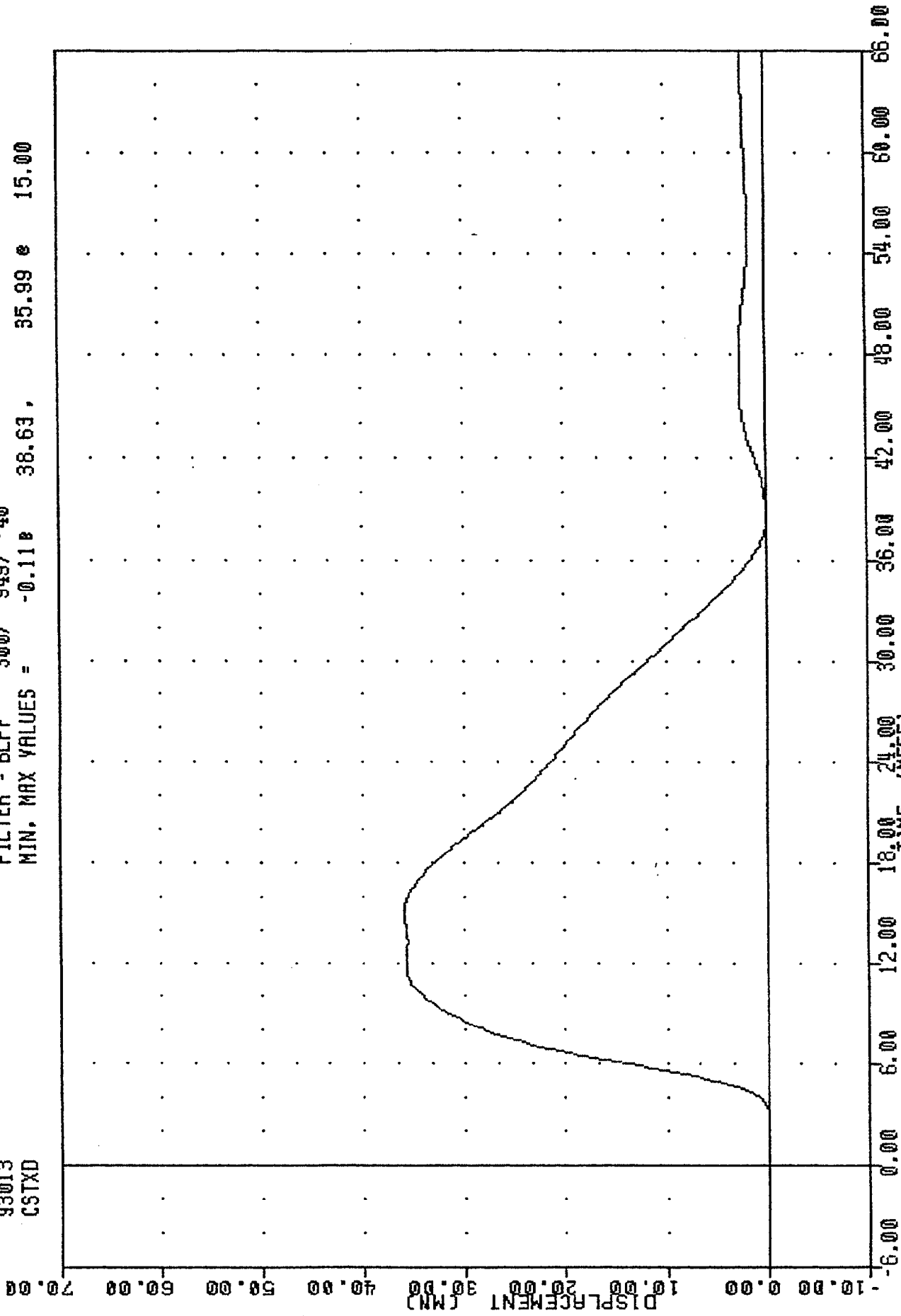
FILTER = 8LPF 300/ 949/ -40
 MIN. MAX VALUES = -8.848 -5.25 , 9128.62 e 10.13



PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
 PENNIII IM FORCE

TRC TH82632
 572B SN 826 H.S.THORAX DAL 32
 93013
 CSTXD

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.118 38.63, 35.99 e 15.00

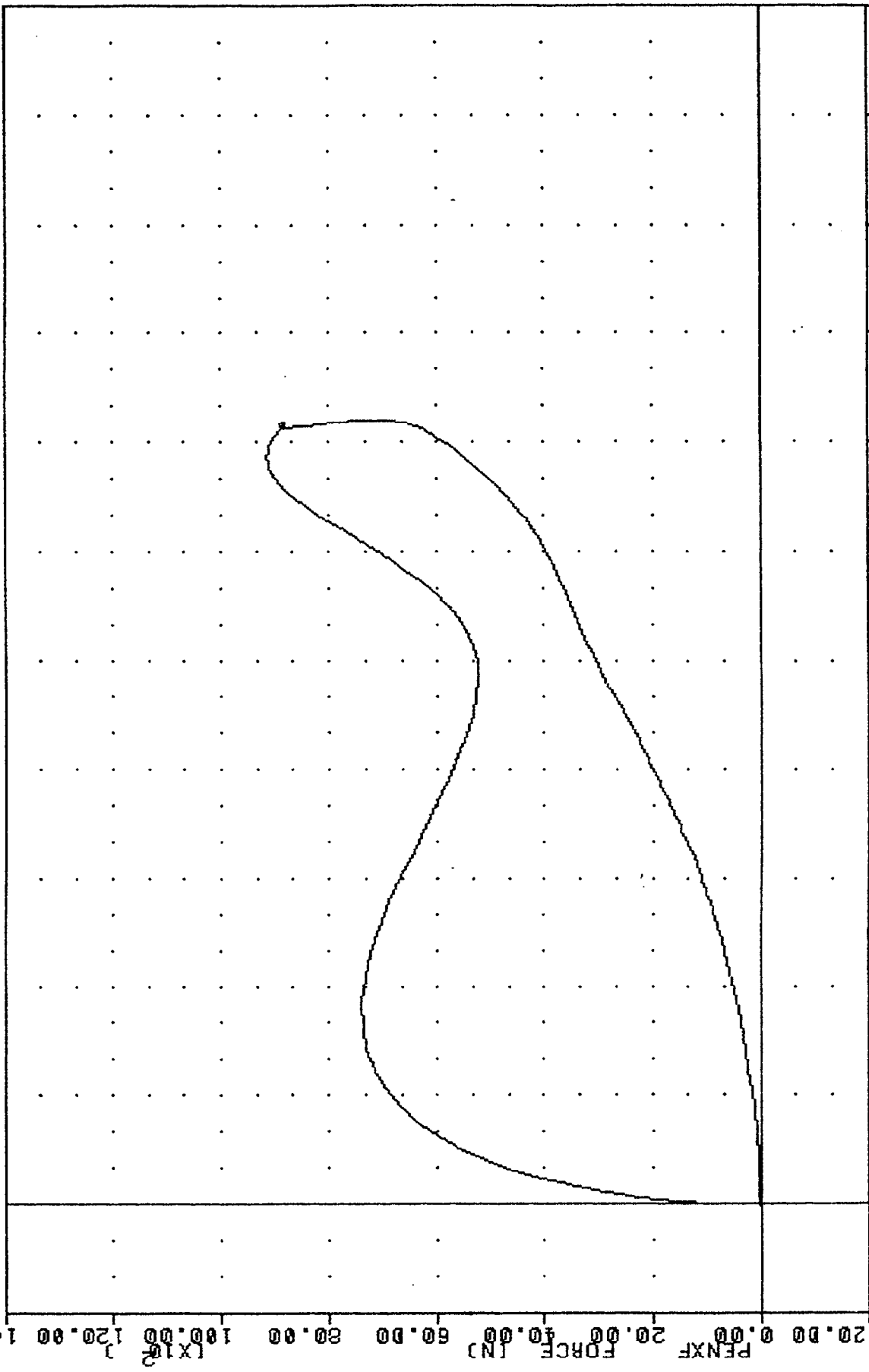


PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
 STIFFNESS ADJUSTMENT

TRC
 CSTXD
 PENXF

572B SN 826 H.S. THORAX CAL 32 93013
 300/ 949/ -40 MIN, MAX = -0.11 8
 300/ 949/ -40 MIN, MAX = -8.84 8

38.63 : 35.99 8
 -5.25 : 0128.62 8
 15.00
 10.13



-5.00 0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00
 CSTXD DISPLACEMENT (MM)

PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
 CHEST DISPLACEMENT VS PENNIIUM FORCE

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

12-JAN-93

TRC

AB82632

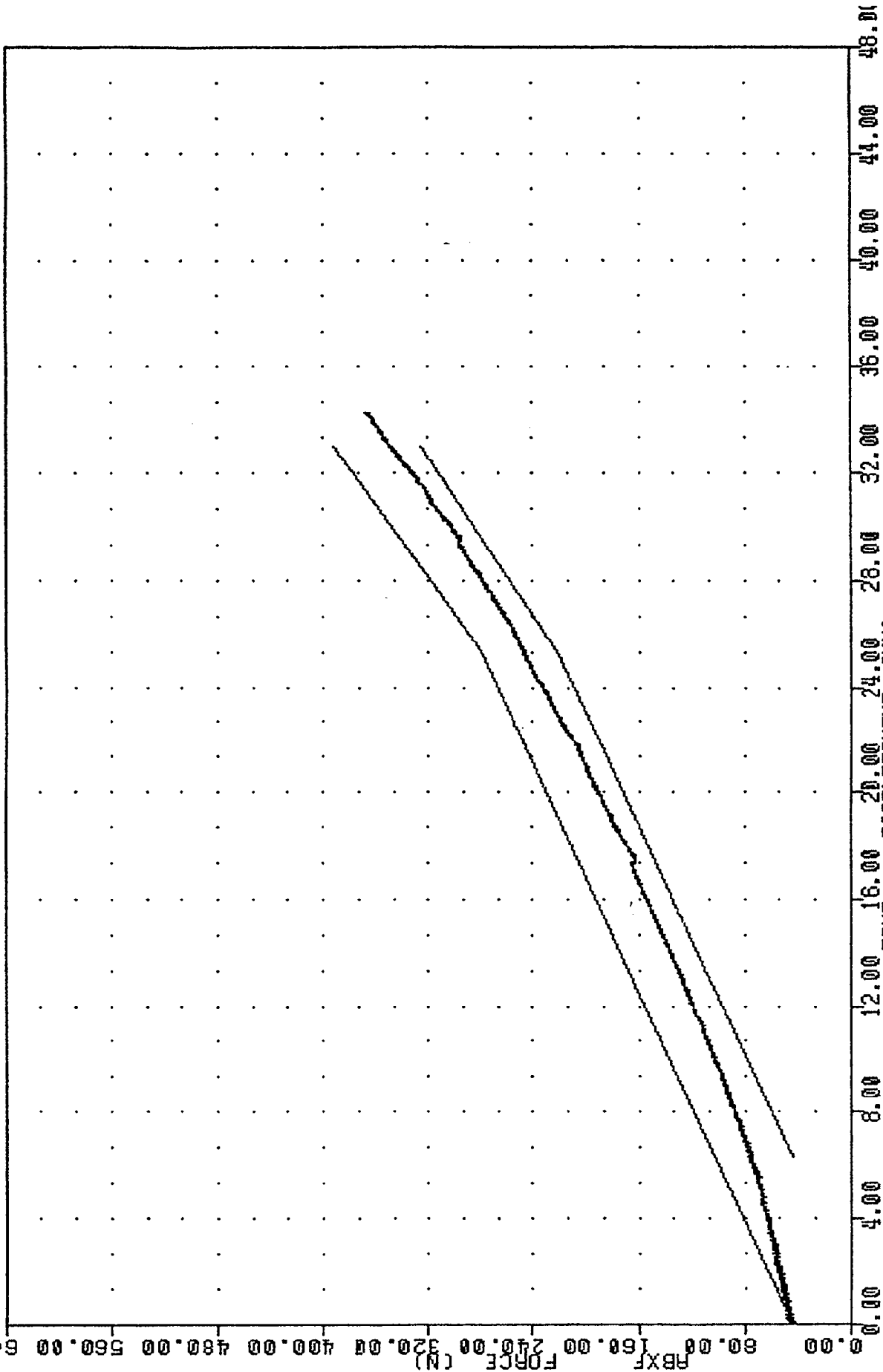
572B SN 826 ABDOM COMPRESS CAL 32

TEST PARAMETER	SPECIFICATION	TEST RESULTS.
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	43 %
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	125.23 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	180.31 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	247.53 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	347.42 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Post

TRC 572B SN 826 ABDOM COMP CAL 32 93012
 ABXD 1650/ 5214/ -40 MIN. MAX = -0.01 0.00 34.30 e 367.21
 ABXF 1650/ 5214/ -40 MIN. MAX = 42.32 0.04 368.15 e 34.29



PART 572-B HYBRID II ABDOMEN CALIBRATION
 ABDOMEN FORCE VS DISPLACEMENT

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

12-JAN-93

TRC

LF82632

- 572B SN826 LUMBAR FLEX CAL32

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	43 %
FORCE AT 0 DEG FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG FLEXION	97.86 - 151.24 N	106.75 N
FORCE AT 30 DEG FLEXION	151.24 - 204.62 N	160.13 N
FORCE AT 40 DEG FLEXION	204.62 - 258.00 N	213.50 N
NET RETURN ANGLE	< 12 DEG	4.35 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Font

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

PART 572B

21-JAN-93

TRC

RK82632

572B SN 826 R.KNEE IMP CAL 32

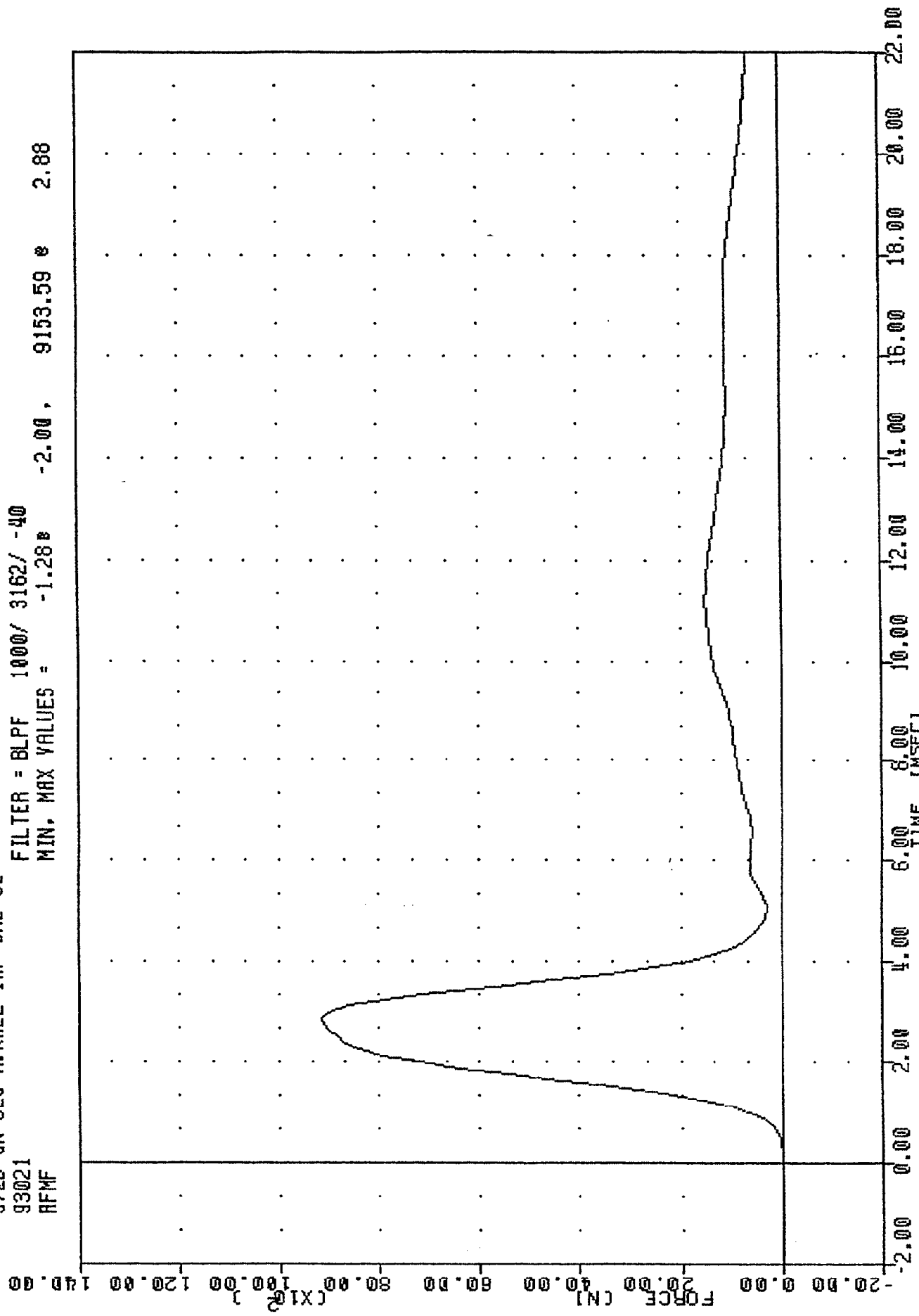
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
PENDULUM VELOCITY	2.06 - 2.15 M/SEC	2.12 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	9153.59 N
DURATION ABOVE 4448 N	>=1.7 MS	2.00 MS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleton

TRC , RK82632
 572B SN 826 R.KNEE INP DAL 92
 93021
 RFMF

FILTER = BLPF 1000/ 3162/ -40
 MIN, MAX VALUES = -1.28 e -2.00 , 9153.59 e 2.88



PART 572-B HYBRID II RIGHT KNEE CALIBRATION
 RIGHT FEMUR FORCE

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

PART 572B

21-JAN-93

TRC

LK82632

- 572B SN 826 L. KNEE IMP CAL 32

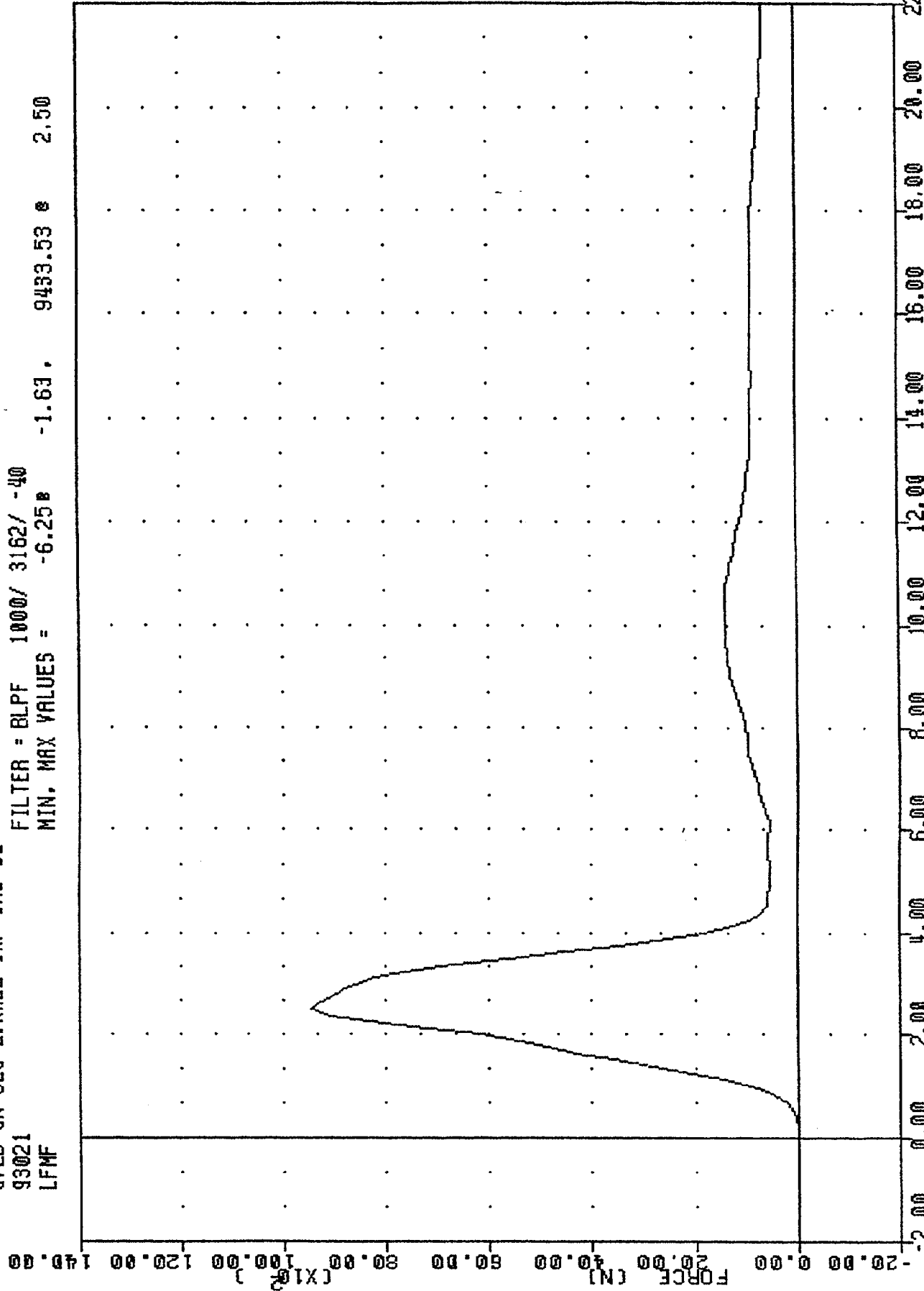
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
PENDULUM VELOCITY	2.06 - 2.15 M/SEC	2.13 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	9433.53 N
DURATION ABOVE 4448 N	≥ 1.7 MS	1.97 MS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chris. M. Adelt

TRC LK82632
 572B SN 826 L.KNEE IMP CAL 32
 93021
 LFMF

FILTER = BLPF 1000/ 3162/ -40
 MIN. MAX VALUES = -6.258 -1.63 9433.53 2.50



PART 572-B HYBRID II LEFT KNEE CALIBRATION
 LEFT EFFORT FORCE

PRE-TEST CERTIFICATION DATA

PASSENGER DUMMY S/N: 713

TRANSPORTATION RESEARCH CENTER INC.

EXTERNAL DIMENSIONS

PART 572B

12-JAN-93

TRC ED71307 572B SN713 EXT. DIMENSION CAL07
 SN HUNANOID 713

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
SITTING HEIGHT	904 - 909 MM	904. MM
SHOULDER PIVOT HEIGHT	553 - 569 MM	561. MM
HIP PIVOT HEIGHT	99 MM	REFERENCE
HIP PIVOT FROM BACKLINE	122 MM	REFERENCE
KNEE PIVOT FROM BACKLINE	511 - 526 MM	521. MM
REAR OF HEAD FROM BACKLINE	43 MM	REFERENCE
CHEST DEPTH	231 - 244 MM	239. MM
SHOULDER WIDTH	452 - 467 MM	455. MM
CHEST CIRCUMFERENCE OVER NIPPLES	935 - 1016 MM	958. MM
WAIST CIRCUMFERENCE AT MIN. GIRTH	798 - 828 MM	818. MM
HIP WIDTH	356 - 391 MM	378. MM
KNEE PIVOT FROM FLOOR	490 - 506 MM	498. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Fort

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

PART 572B

02-FEB-93

TRC

HD71307

572B SN 713 HEAD DROP CAL 07

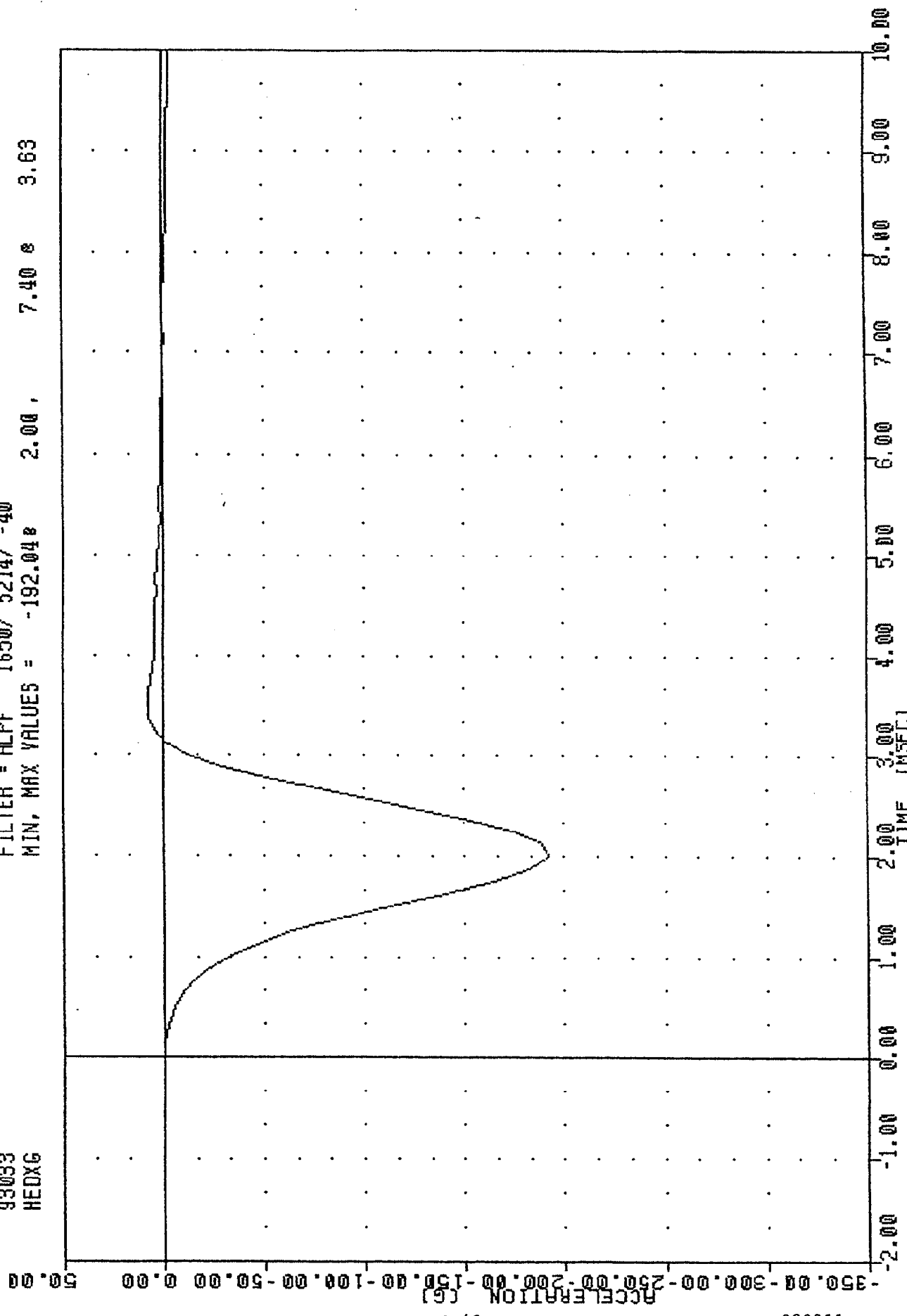
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
PEAK RESULTANT ACCELERATION	210 - 260 G	231.52 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MS	1.29 MS
PEAK LATERAL ACCELERATION	10 G MAX	-8.57 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Font

TRC . H071307
572B SN 713 HEAD DROP CAL 07
93093
HEDXG

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -192.04 2.00 , 7.40 3.63

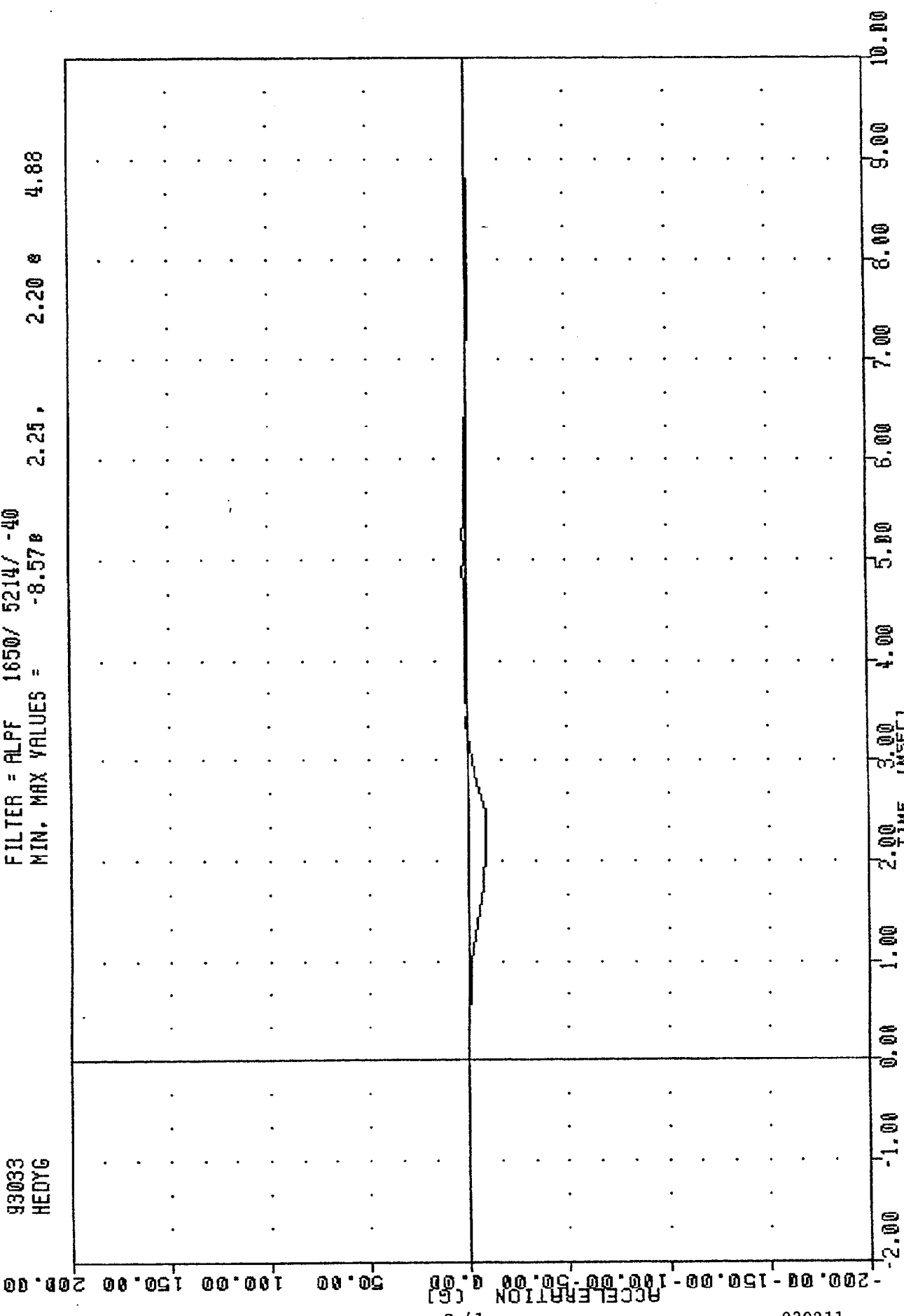


PART 572-R HYBRID II HEAD DROP CALIBRATION
HEAD HYPERFRAM X HYPS

TRC
 572B SN 713 HEAD DROP CAL 07
 93033
 HEDYG

HD71307

FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -8.578 2.25, 2.20 4.88



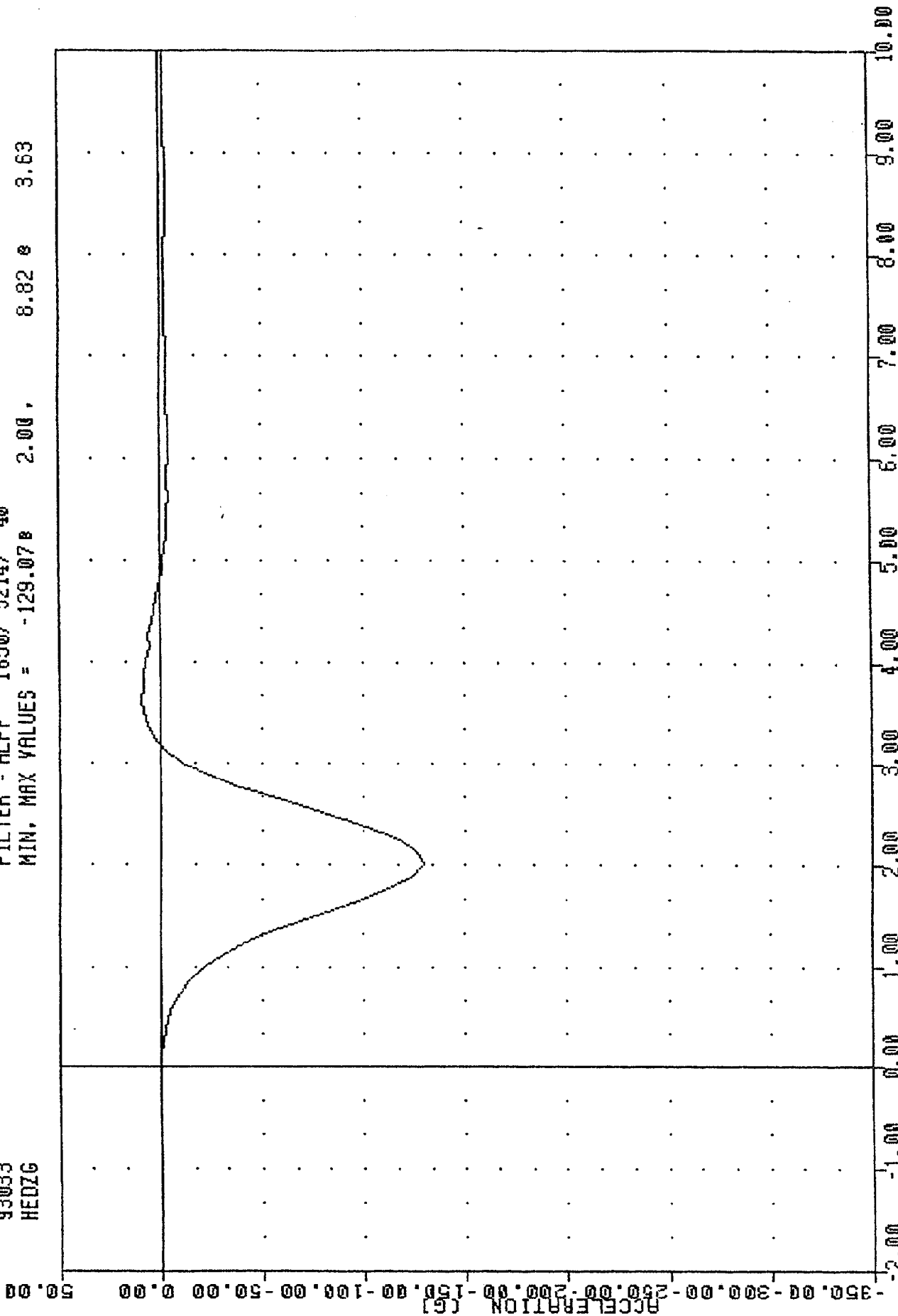
C-41

930211

PART 572-B HYBRID II HEAD DROP CALIBRATION
 HEAD ACCELERATION Y AXIS

TRC , HD71307
572B SN 713 HEAD DROP CAL 07
93033
HEDZG

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -129.078 2.00, 8.82 e 3.63



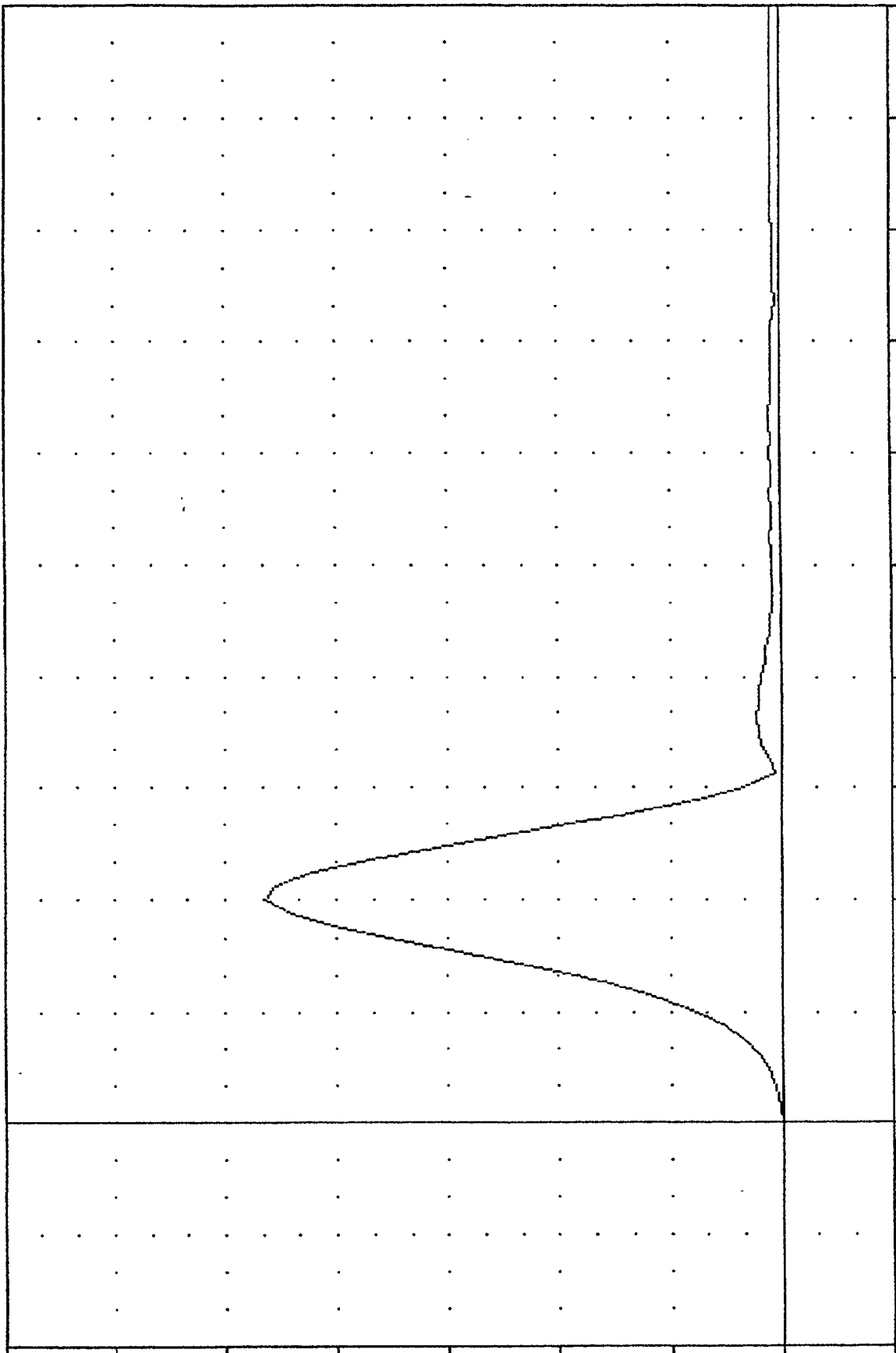
PART 572-B HYBRID II HEAD DROP CALIBRATION
AFAT AT CALIBRATION 7 AXES

TRC
5728 SN 713 HEAD DROP CAL 07
93033
HEDRG

, HD71307

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 0.058 -2.00, 231.52 @ 2.00

ACCELERATION (G)



-2.00 -1.00 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00

TIME (MSEC)
PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD RESULTANT ACCELERATION

TRANSPORTATION RESEARCH CENTER INC.

NECK PENDULUM TEST

PART 572B

02-FEB-93

TRC HN71307 572B SN 713 HEAD/NECK CAL 07

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
PENDULUM VELOCITY	6.55 TO 7.77 M/SEC	7.31 M/SEC
PENDULUM DECELERATION:		
T1 - T2 TIME (5 - 20 G)	3 MS MAX	2.38 MS
T2 - T3 TIME (20 - 20 G)	25 - 30 MS	27.68 MS
T3 - T4 TIME (20 - 5 G)	10 MS MAX	4.56 MS
AVG. G LEVEL T2 - T3	20 - 24 G	23.44 G
MAXIMUM ROTATION ANGLE	63 - 73 DEG	66.87 DEG
PEAK HEAD RESULTANT ACCEL	26 G MAX	23.45 G

TEST PARAMETER	SPECIFICATION		TEST RESULTS	
ROTATION ANGLE (DEGREES)	TIME (MS)	CHORDAL DISP. (MM)	TIME (MS)	CHORDAL DISP. (MM)
0	-2.0 - +2.0	-12.7 - +12.7	1.38	0.00
30	25.6 - 34.4	53.3 - 78.7	31.32	63.19
60	40.3 - 51.7	109.2 - 134.6	47.99	122.55
MAX	53.2 - 66.8	127.0 - 152.4	63.38	137.31
60	67.0 - 83.0	109.2 - 134.6	74.91	125.22
30	85.4 - 104.6	53.3 - 78.7	95.61	59.32
0	101.0 - 123.0	-12.7 - +12.7	109.82	4.18

SND: 151.13 MM

DUMMY MEETS SPECIFICATIONS

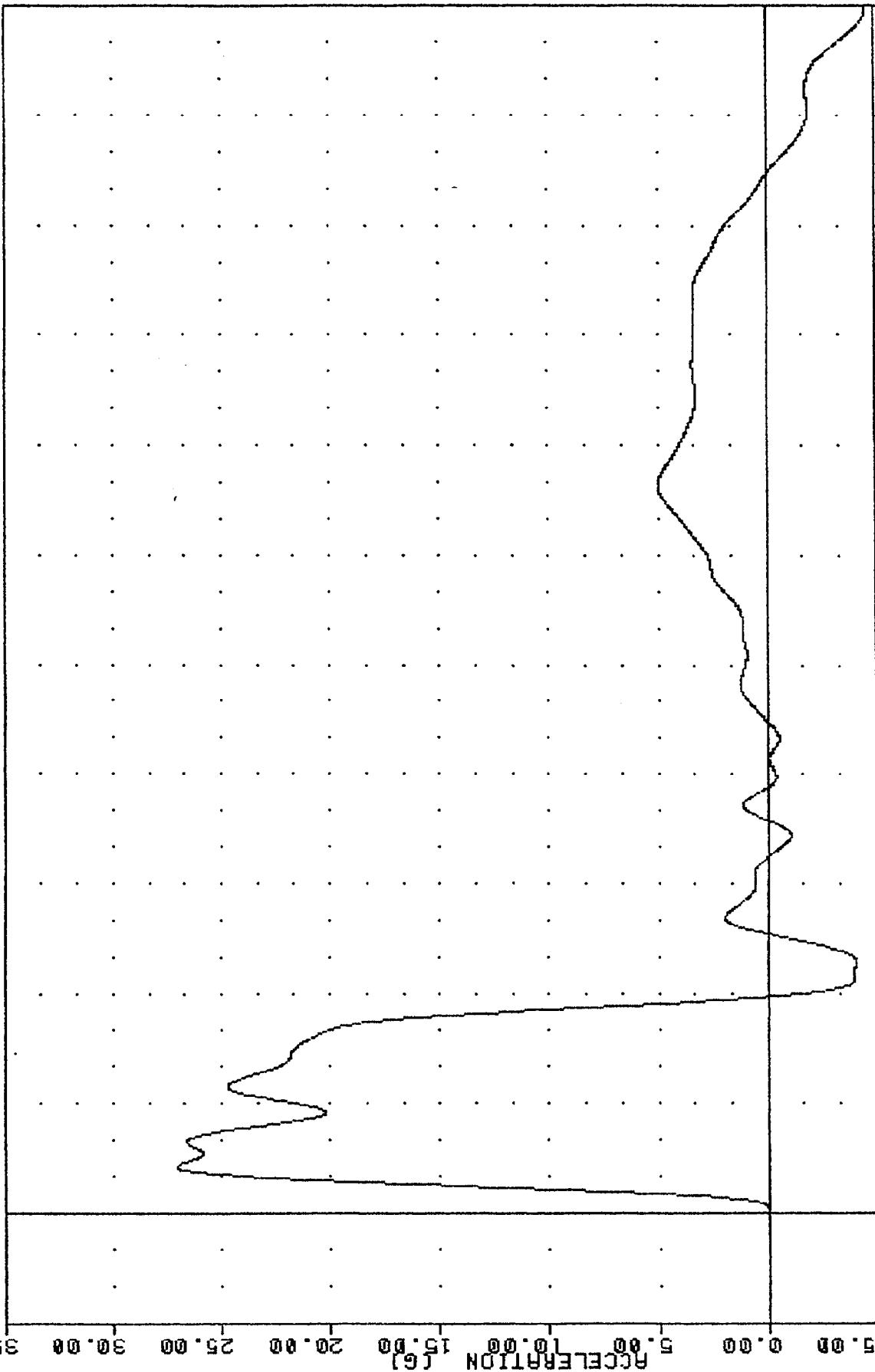
TECHNICIAN *Pete Fout*

TRC
572B SN 713 HEAD/NECK CAL 07
93033
PENXG

HW71307

FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -4.61e 219.63, 27.05 e 8.38

35.00



C-45

930211

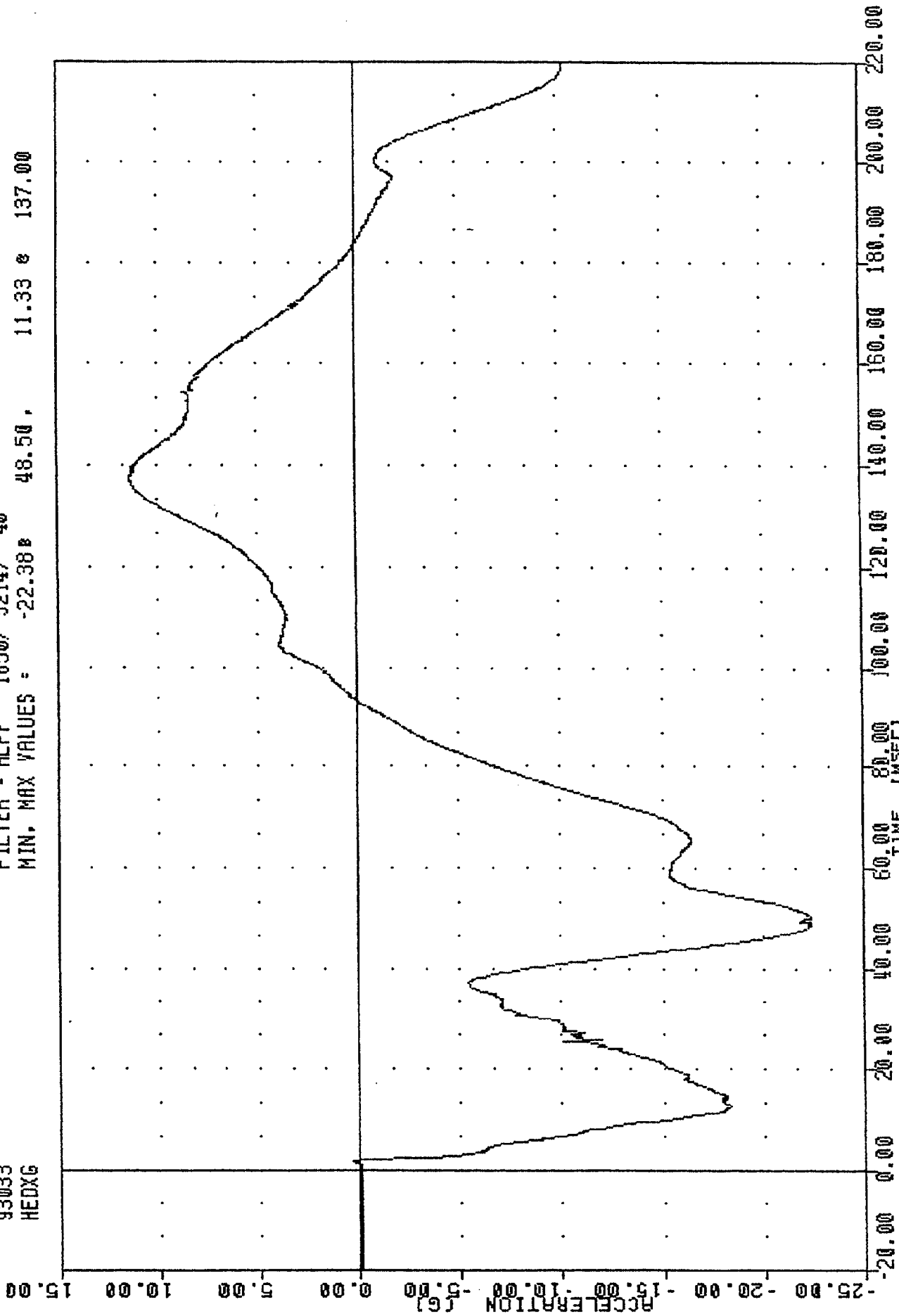
-20.00 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00
TIME (MSEC)

PART 572-B HYBRID II HEAD/NECK CALIBRATION
PFNDULUM DECELERATION

TRC
572B SN 713 HEAD/NECK CAL 07
93033
HEDXG

HN71307

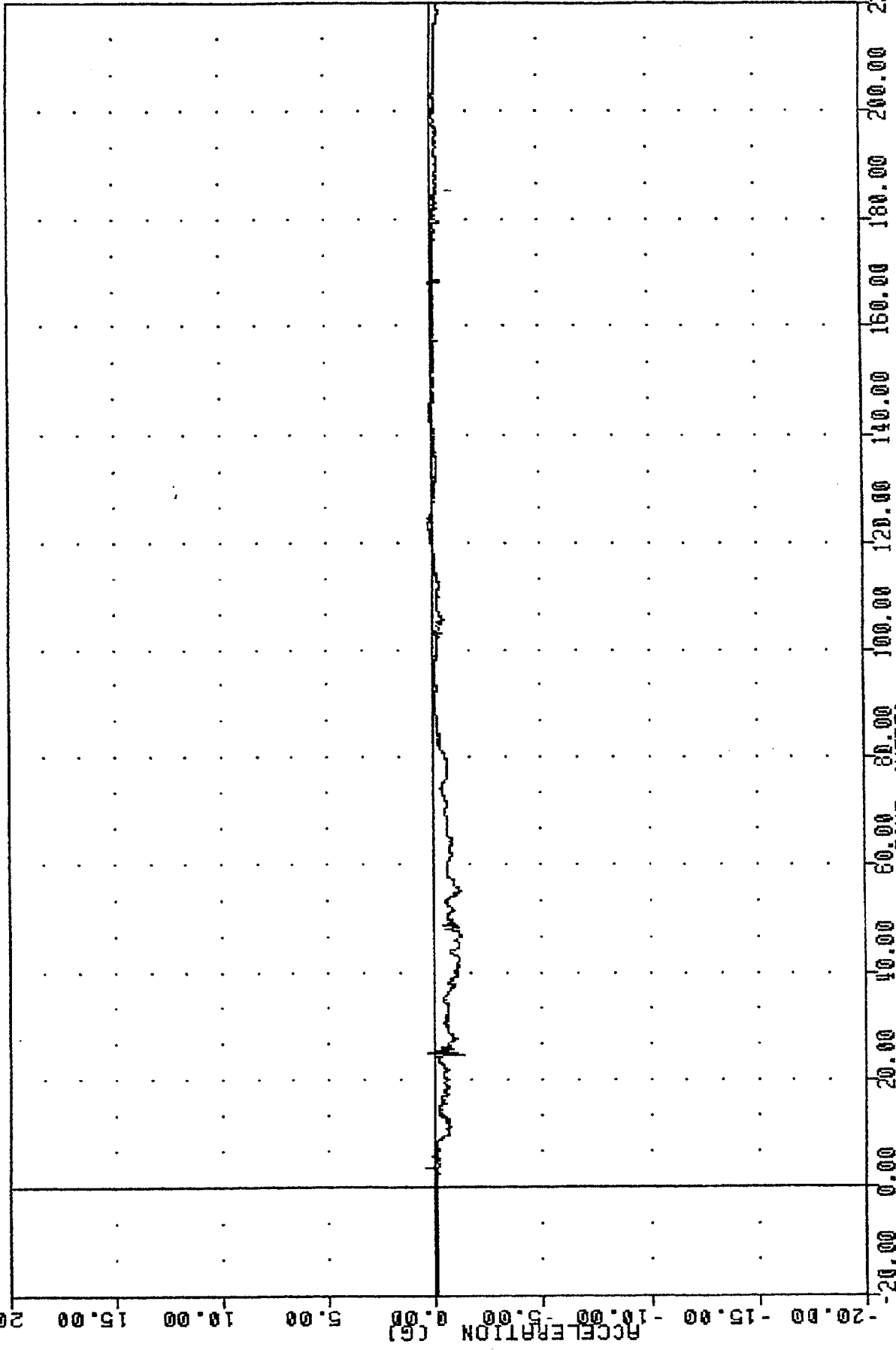
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES : -22.38B 48.50 , 11.33 e 137.00



PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD ACCELERATION AXIS

TRC
572B SN 713 HEAD/NECK CAL 07
93033
HEDYG

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -1.36 24.75 0.50 3.50

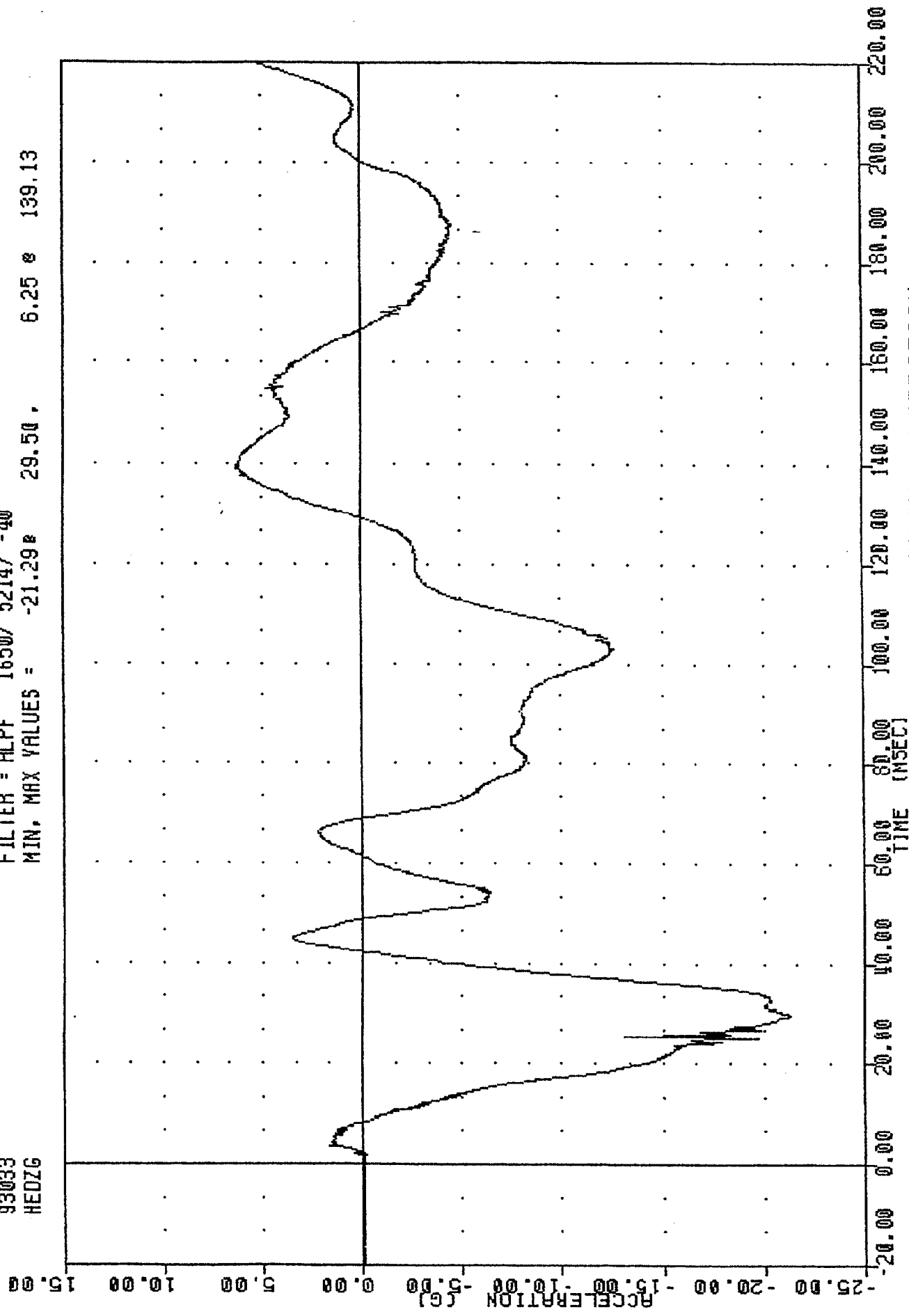


PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD ACCELERATION Y AXIS

TRC
572B SN 713 HEAD/NECK CAL 07
93033
HEDZG

HN71307

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -21.29 29.50 6.25 139.13

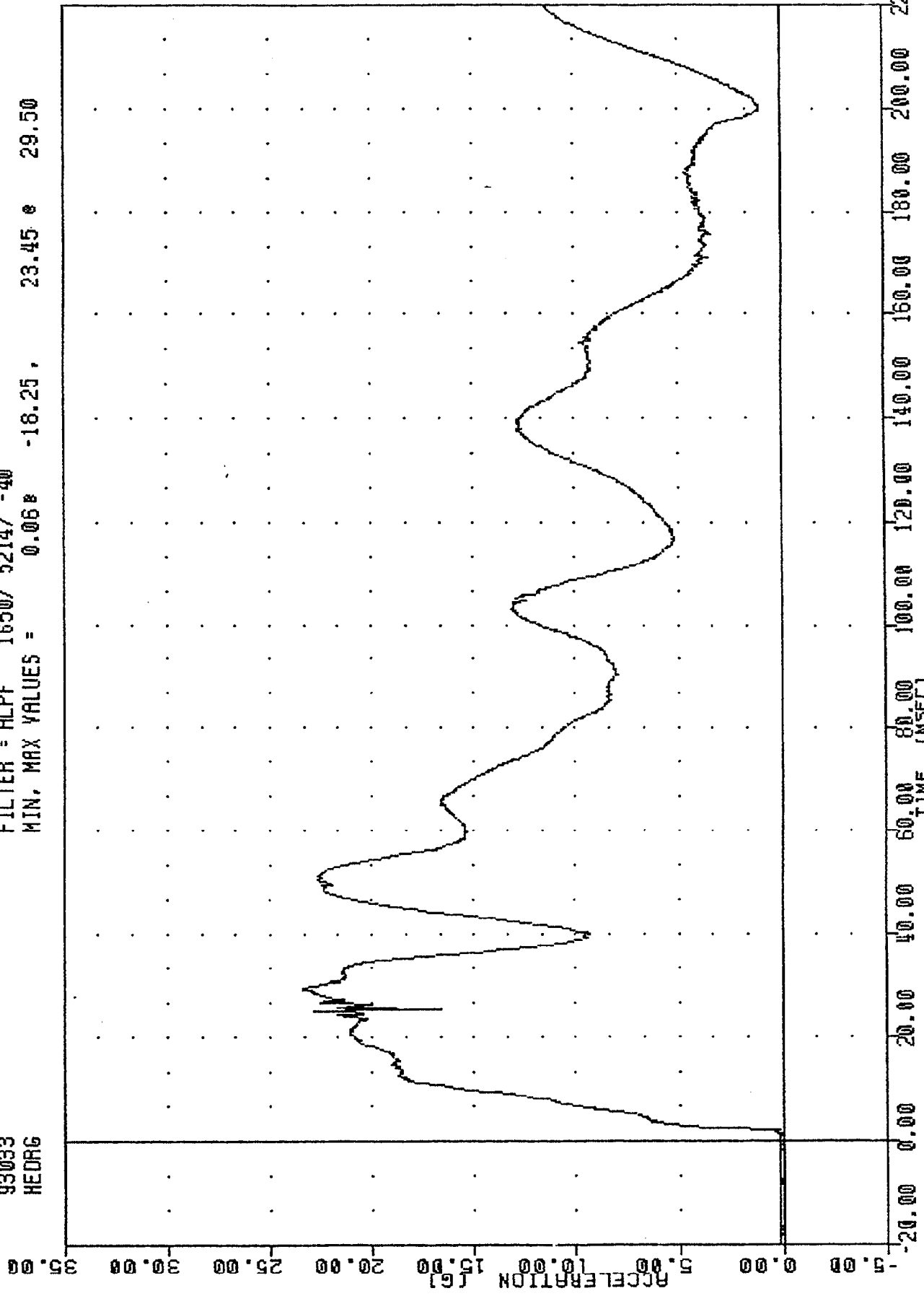


PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
572B SN 713 HEAD/NECK CAL 07
93093
HEADG

HN71307

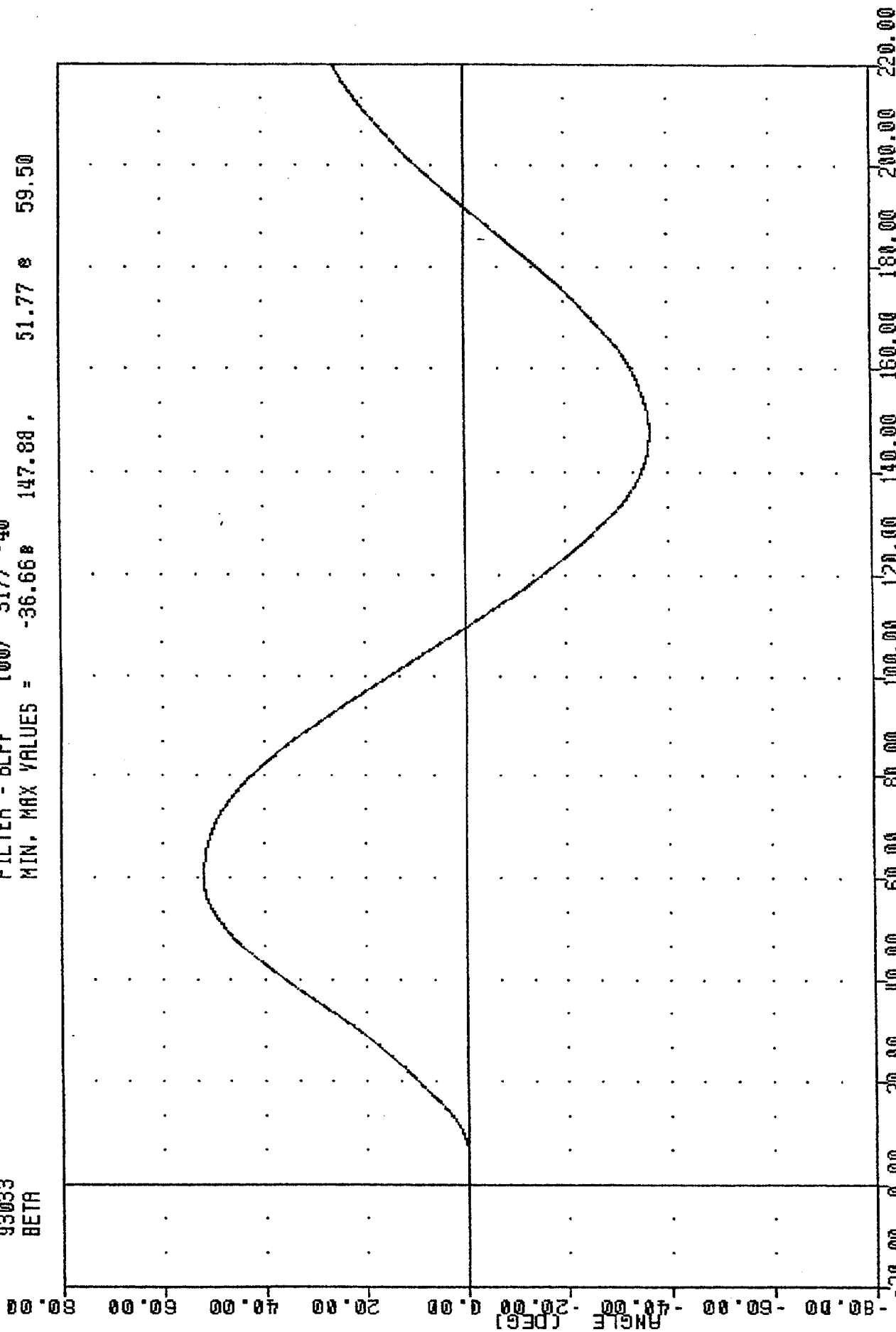
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 0.06g -18.25, 23.45g 29.50



PART 572-B HYBRID II HEAD/NECK CALIBRATION
HFAN RESONANT ACCELERATION

TRC , HN71307
572B SN 713 HEAD/NECK CAL 07
93033
BETA

FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -36.66 147.88 , 51.77 59.50



C-50

930211

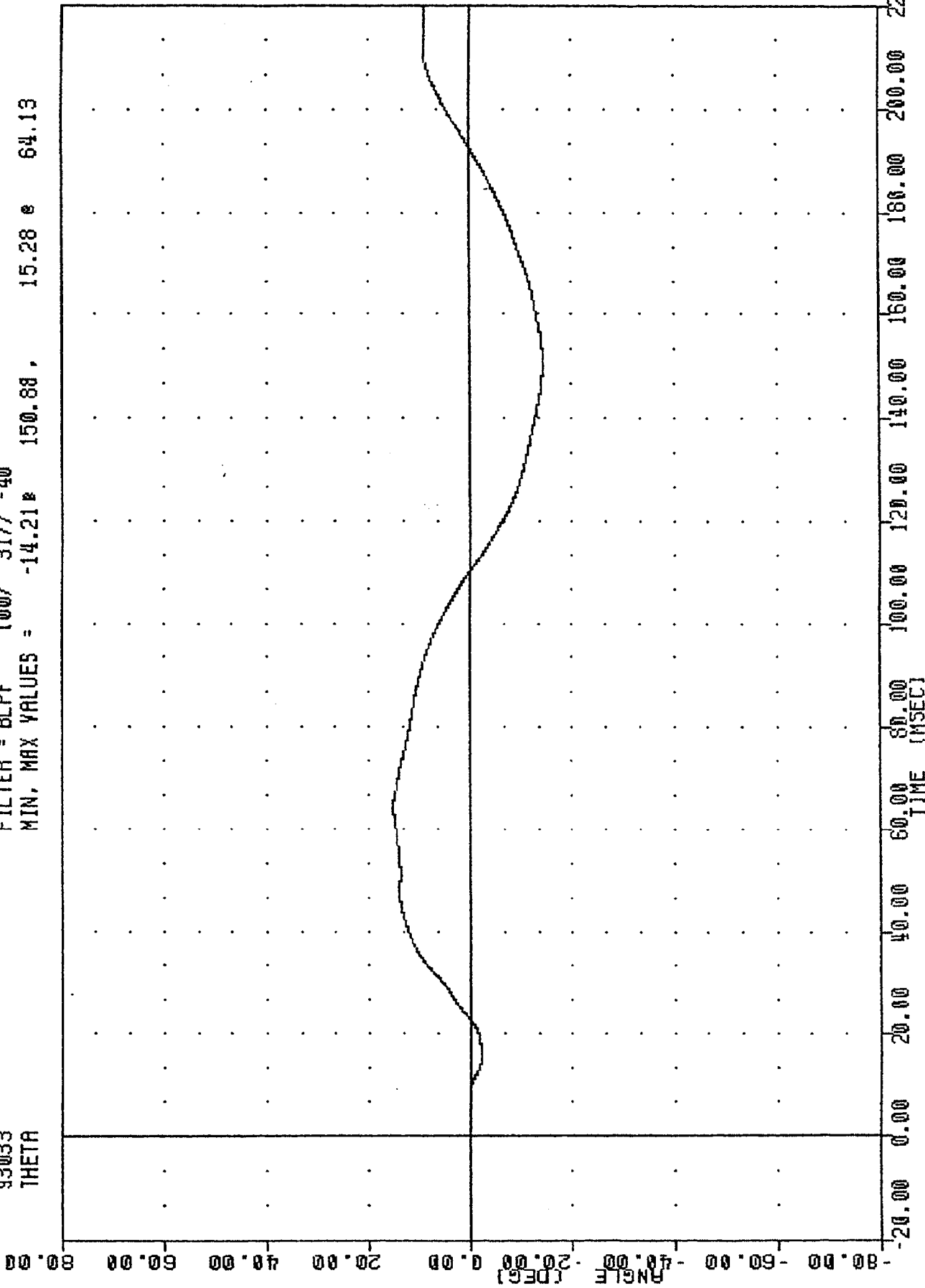
PART 572-B HYBRID II HEAD/NECK CALIBRATION

ENTRANCE POINT THE BASELINE THE MARK

TRC
 572B SN 713 HEAD/NECK CAL 07
 93033
 THETA

, HN71307

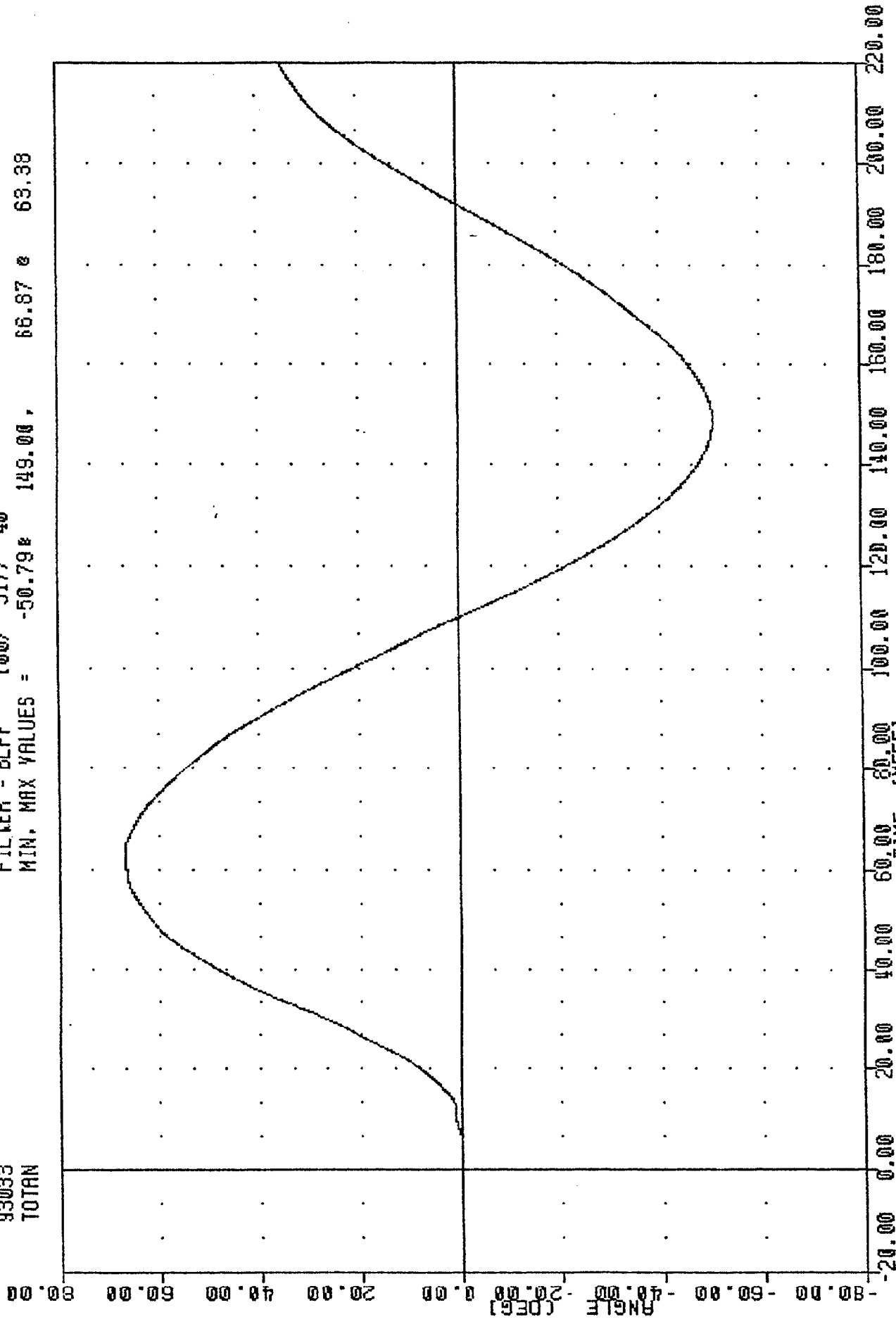
FILTER = BLPF 100/ 317/ -40
 MIN, MAX VALUES = -14.21 150.88, 15.28 e 64.13



PART 572-B HYBRID II HEAD/NECK CALIBRATION
 ROTATION ABOUT THE HEAD C.G.

TRC , HW71307
 572B SN 713 HEAD/NECK CAL 07
 93033
 TOTAN

FILTER = BLPF 100/ 317/ -40
 MIN, MAX VALUES = -50.79# 149.00, 66.87 e 63.38

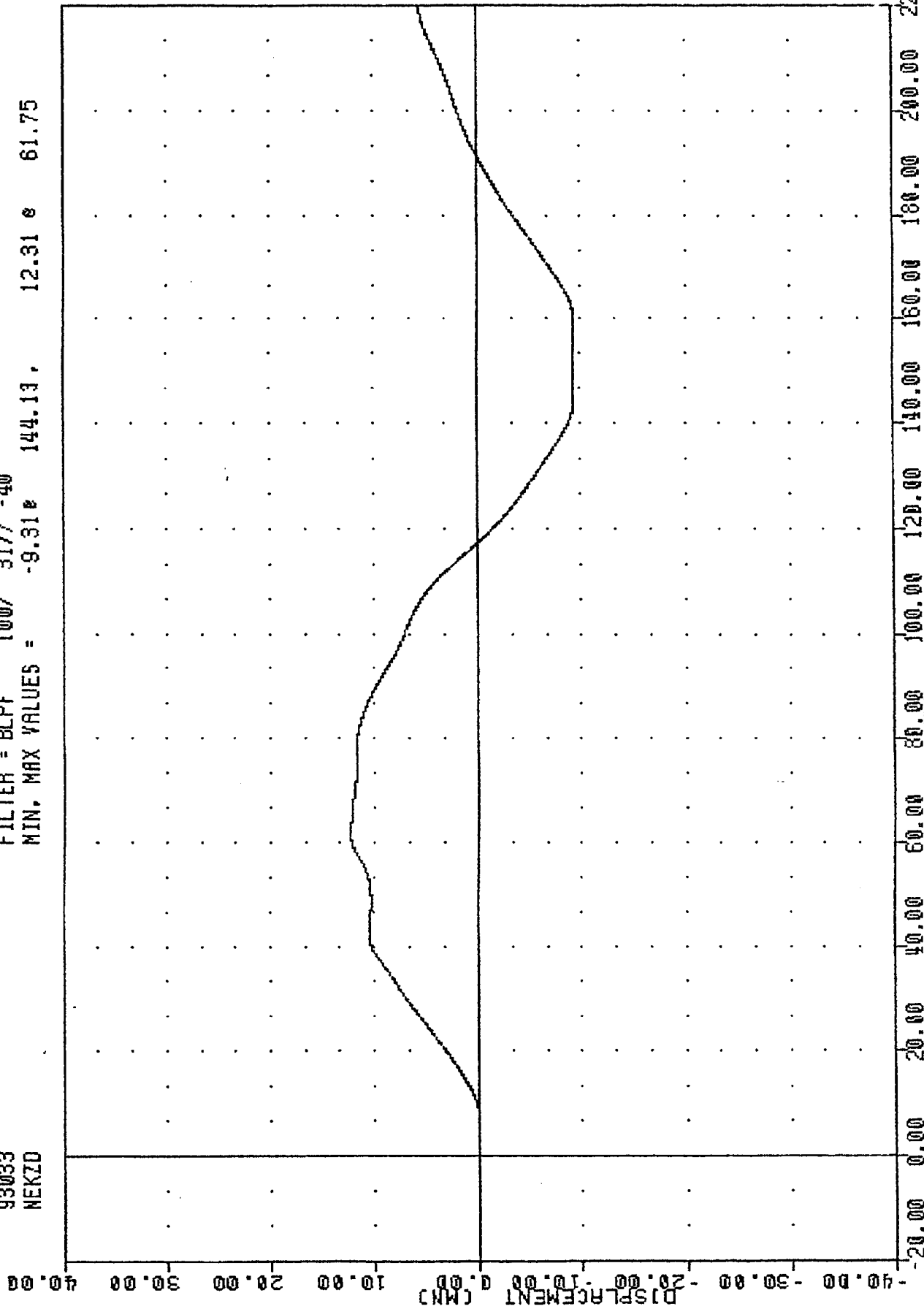


PART 572-R HYBRID II HEAD/NECK CALIBRATION

TRC
572B SN 713 HEAD/NECK CAL 07
93033
NEKZD

, HN71307

FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -9.31 144.13, 12.31 61.75



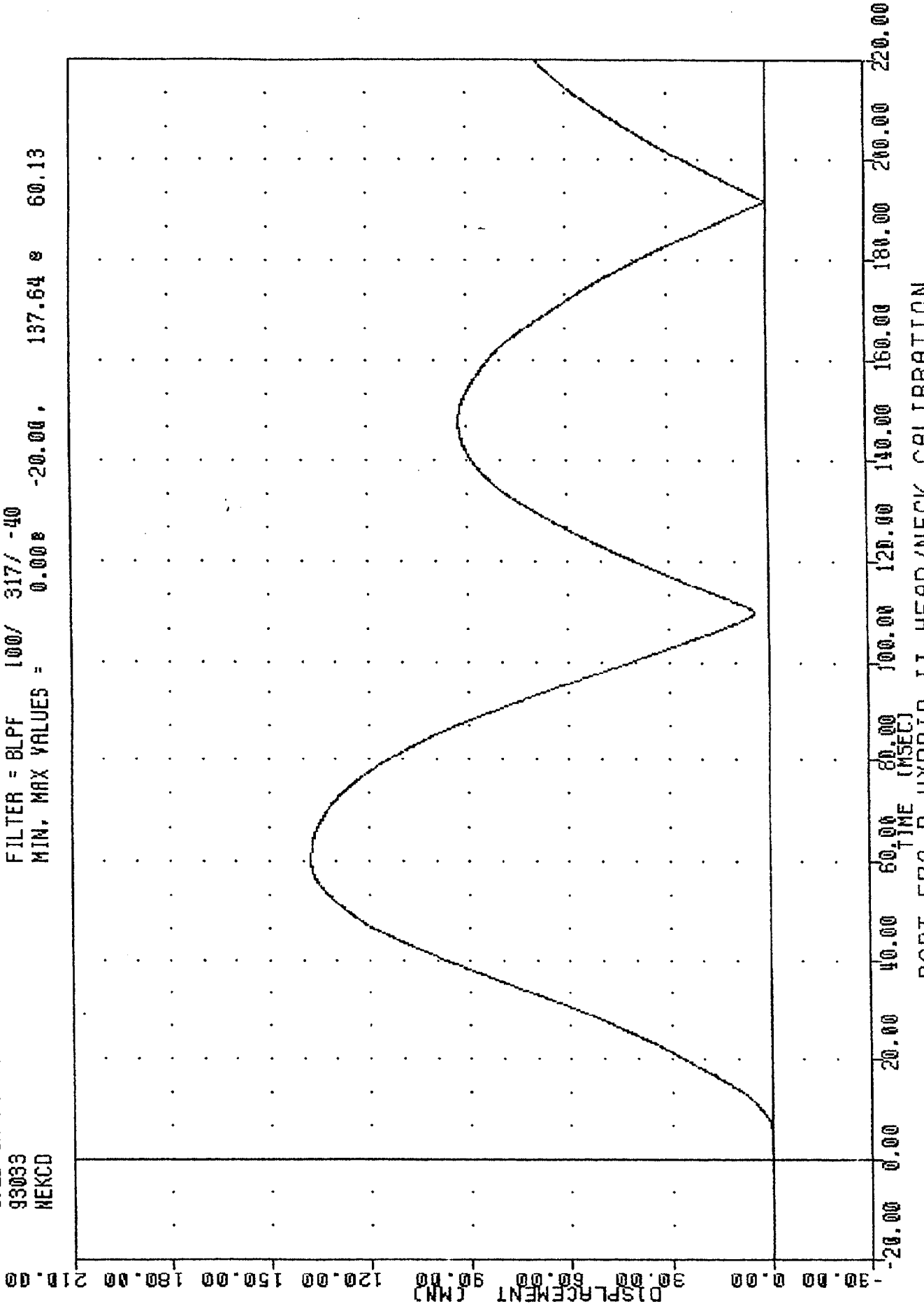
C-53

930211

PART 572-B HYBRID II HEAD/NECK CALIBRATION
NECK DISPLACEMENT Z AXIS

TRC HW71307
572B SN 713 HEAD/NECK CAL 07
93033
HEKCD

FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = 0.00s -20.00, 137.64 s 60.13



C-54

930211

PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEKCD

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

PART 572B

03-FEB-93

TRC

TL71307

572B SN 713 L.S.THORAX CAL 07

	LOW SPEED TEST	
TEST PARAMETER	SPECIFICATION	TEST RESULTS

TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	53 %
PENDULUM VELOCITY	4.22 - 4.31 M/SEC	4.30 M/SEC
PEAK STERNUM DEFLECTION	28 MM MAX.	23.22 MM
PEAK RESISTIVE FORCE	6450. N MAX.	5726. N
INTERNAL HYSTERESIS	50 - 70 %	65.5 %

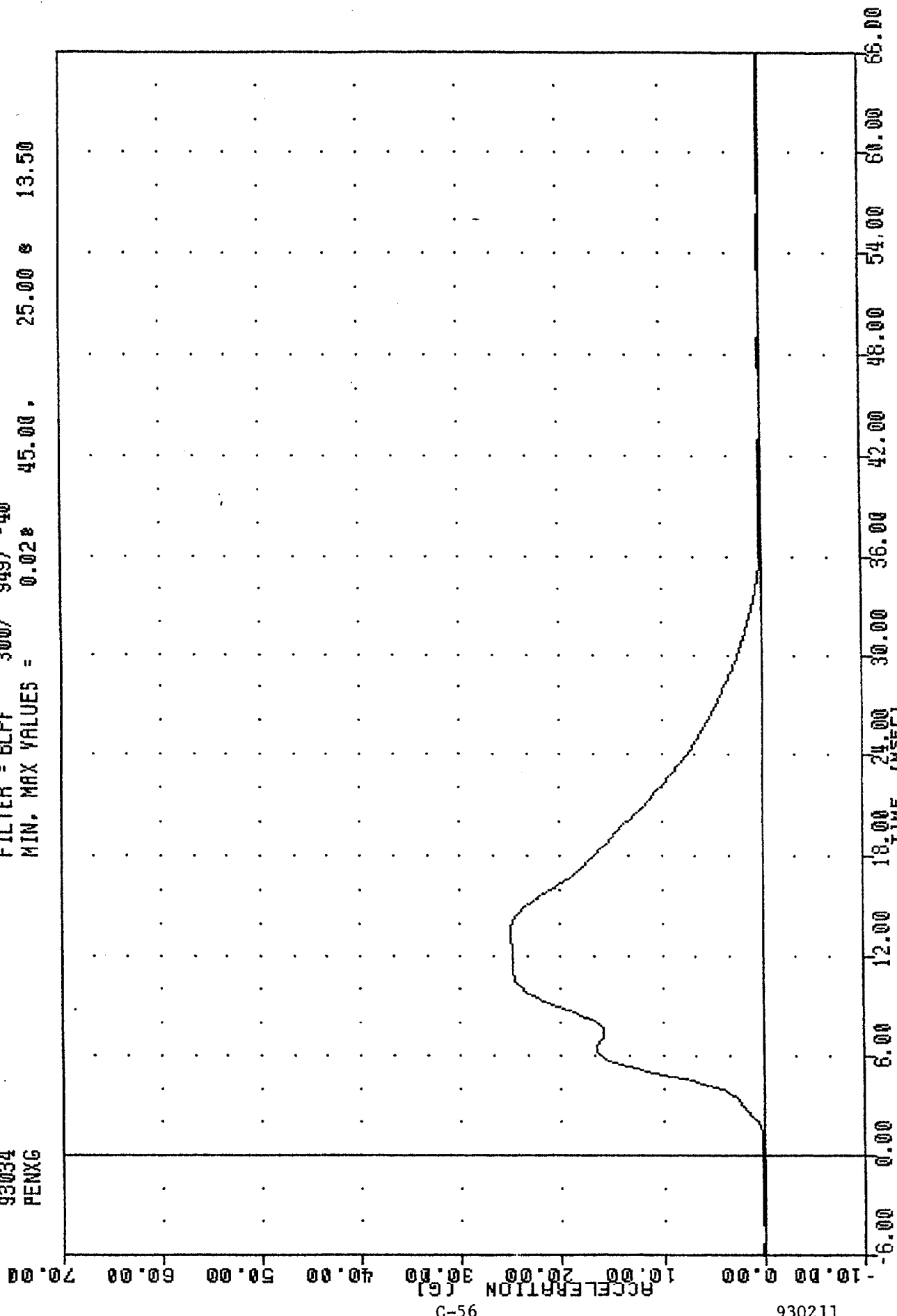
SCD: 54.61 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Fount

TAC
 572B SN 713 L.S.THORAX CAL 07
 93034
 PENXG

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 0.028 25.00 13.50



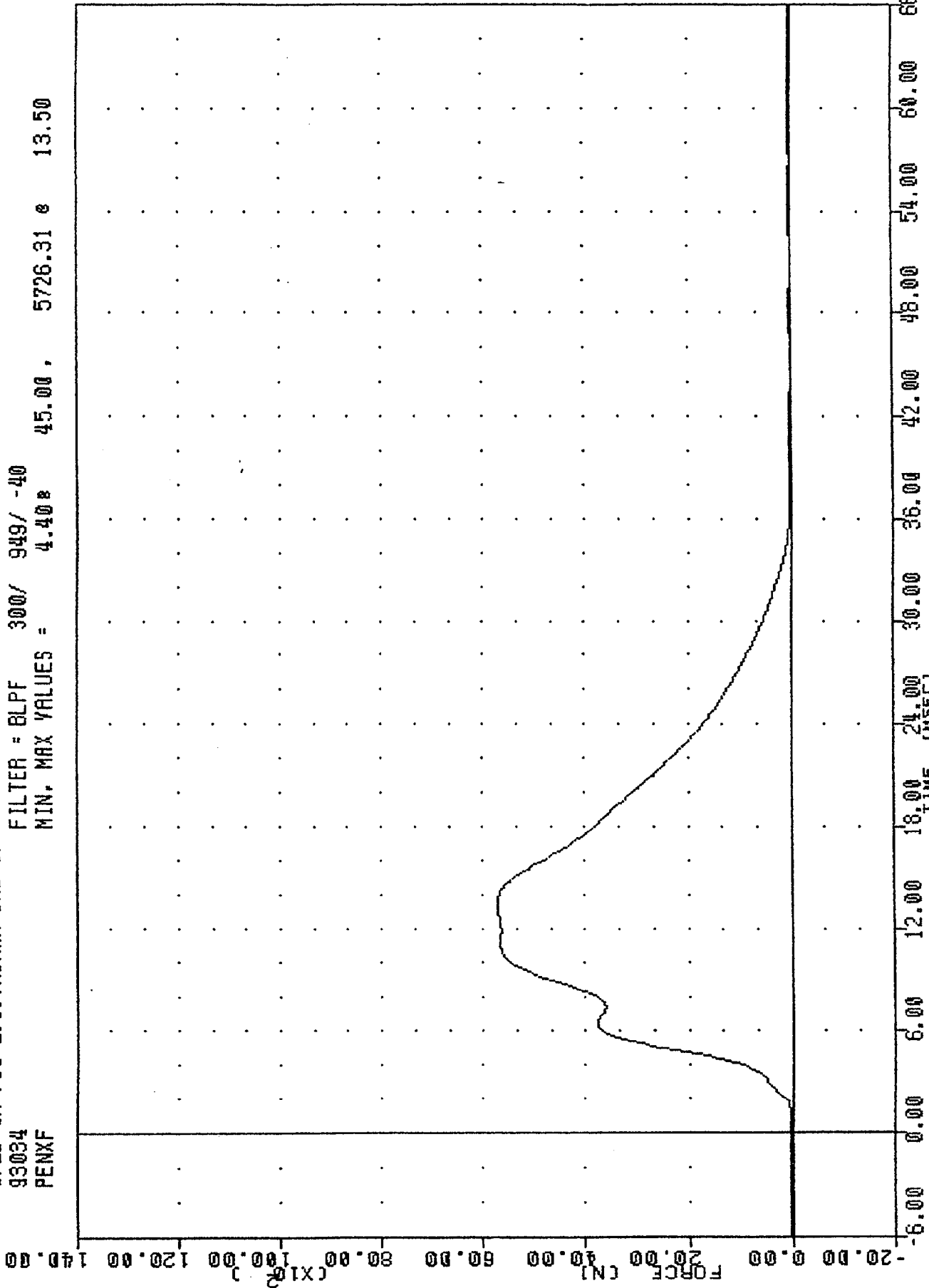
C-56

930211

PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC

TRC , TL71307
 572B SN 713 L.S.THORAX CAL 07
 93034
 PENXF

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 4.40B 45.00, 5726.31 e 13.50

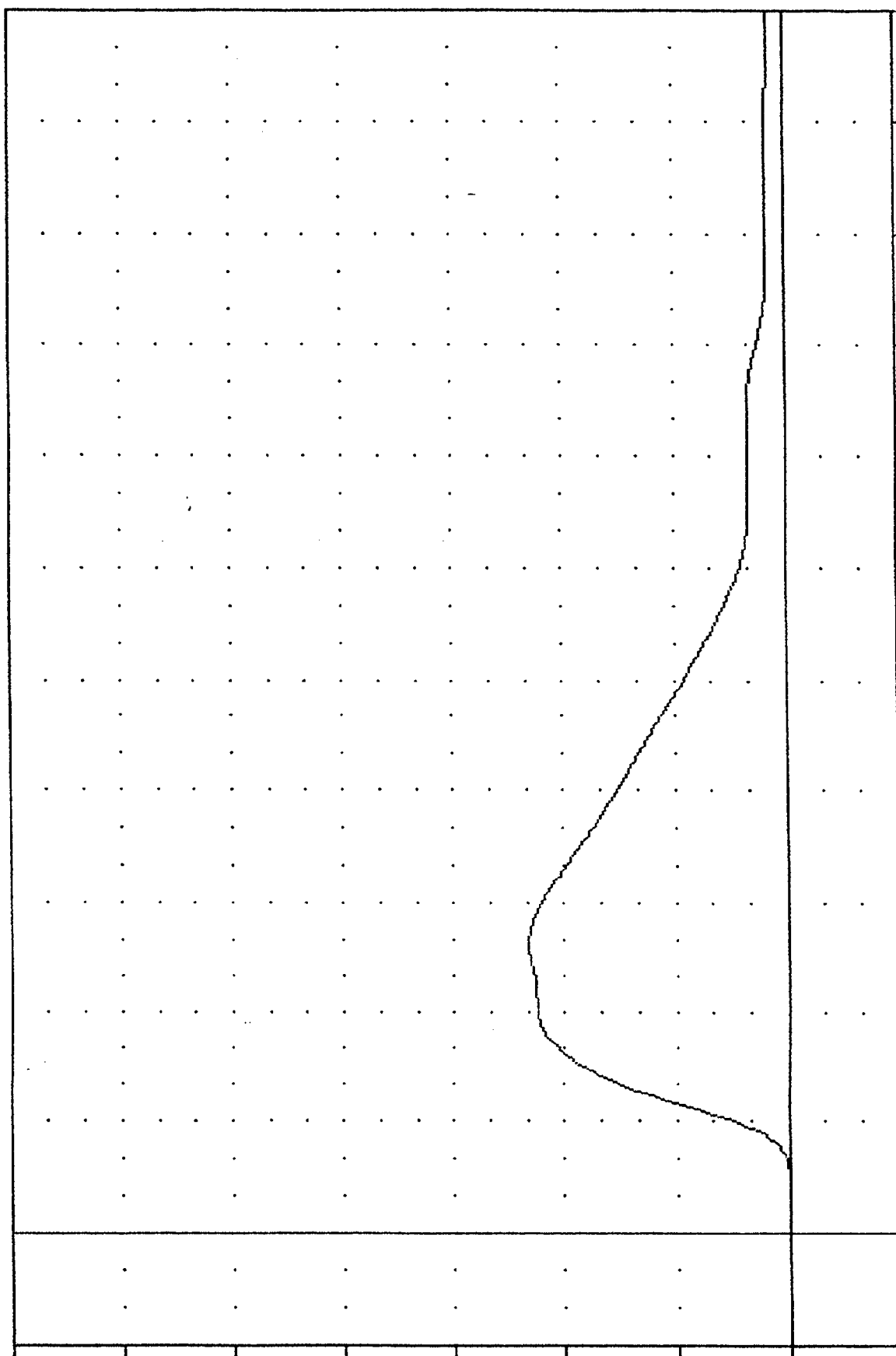


PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
 PFNNIII IM FORCE

TRC TL71307
 572B SN 713 L.S.THORAX CAL 07
 93034
 CSTXD

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.018 -0.25 23.22 @ 15.75

DISPLACEMENT (MNJ)



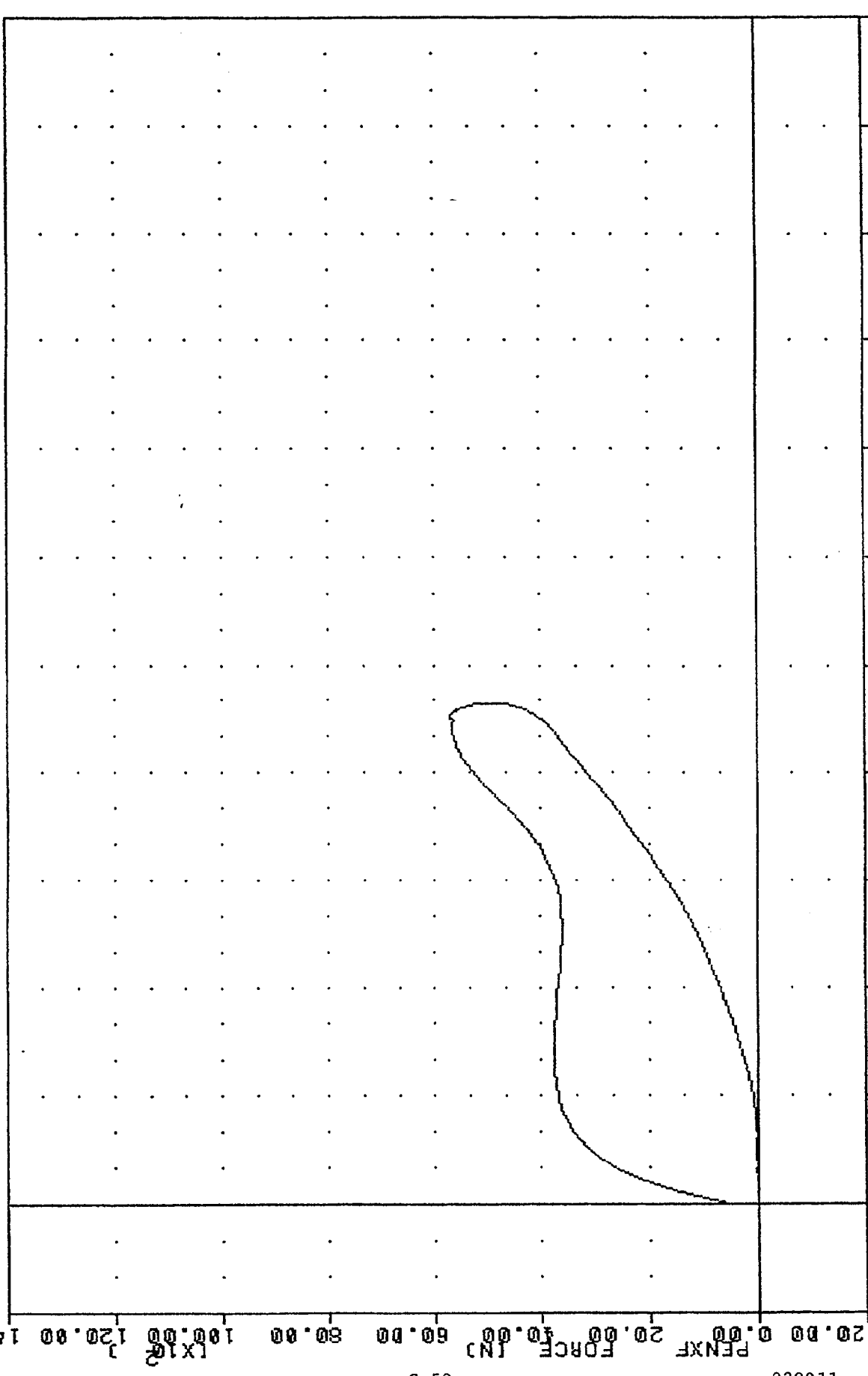
930211

PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
 STP ANIM DISPLACEMENT

TRC TL71307 572B SN 713 L.S. THORAX CAL 07 93034
 CSTXD FILTER = BLPF 300/ 949/ -40 MIN. MAX = -0.01 B
 PENXF FILTER = BLPF 300/ 949/ -40 MIN. MAX = 4.40 e

-0.25 ; 23.22 e 15.75
 45.00 ; 5726.31 e 13.50

-20.00
 0.00
 20.00
 40.00
 60.00
 80.00
 100.00
 120.00
 140.00



-5.00 0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00
 CSTXD DISPLACEMENT (CM)
 PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
 CHEST DISPLACEMENT VS PENDULUM FORCE

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

PART 572B

03-FEB-93

TRC

TH71307

572B SN 713 H.S. THORAX CAL 07

HIGH SPEED TEST		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	53 %
PENDULUM VELOCITY	6.64 - 6.77 M/SEC	6.68 M/SEC
PEAK STERNUM DEFLECTION	43 MM MAX.	37.40 MM
PEAK RESISTIVE FORCE	10009. N MAX.	9088. N
INTERNAL HYSTERESIS	50 - 70 %	65.0 %

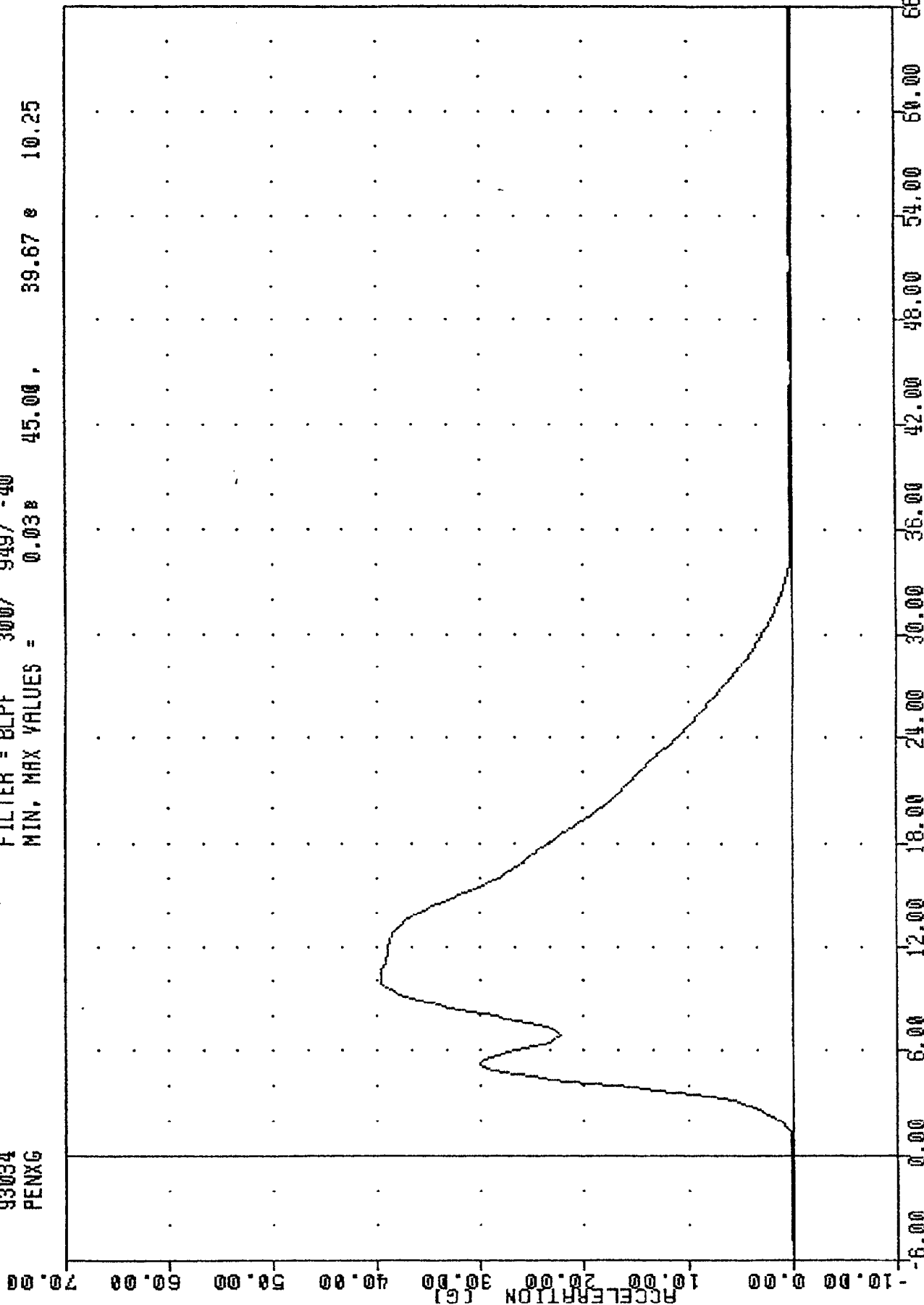
SCD: 54.61 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Pete Font*

TAC
 5728 SN 713 H.S. THORAX CAL 07
 93034
 PENXG

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 45.00, 39.67 e 10.25



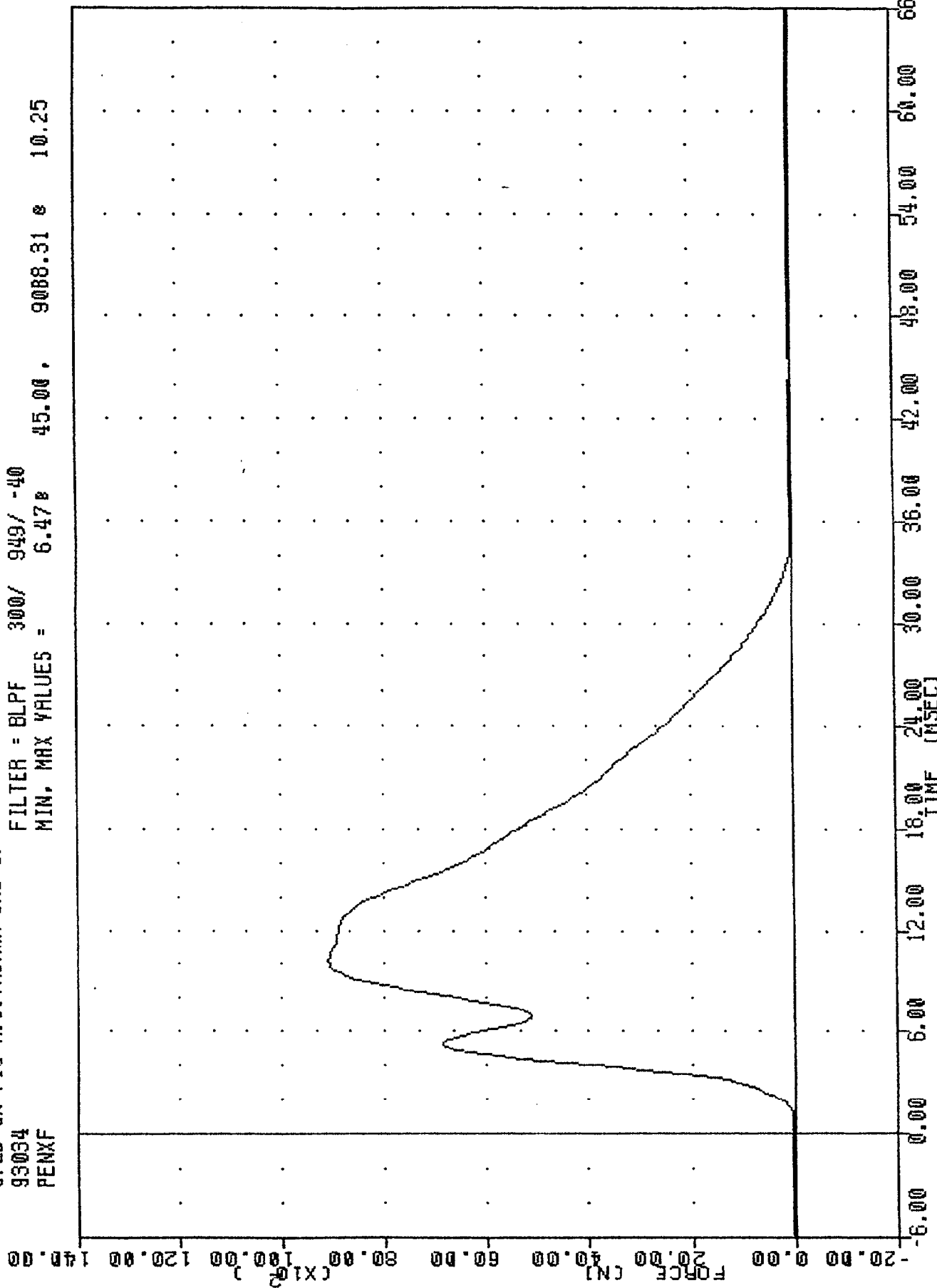
C-61

930211

PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
 PENDULUM ACCELERATION

TRC TH71307
 572B SN 713 H.S.THORAX CAL 07
 95034
 PENXF

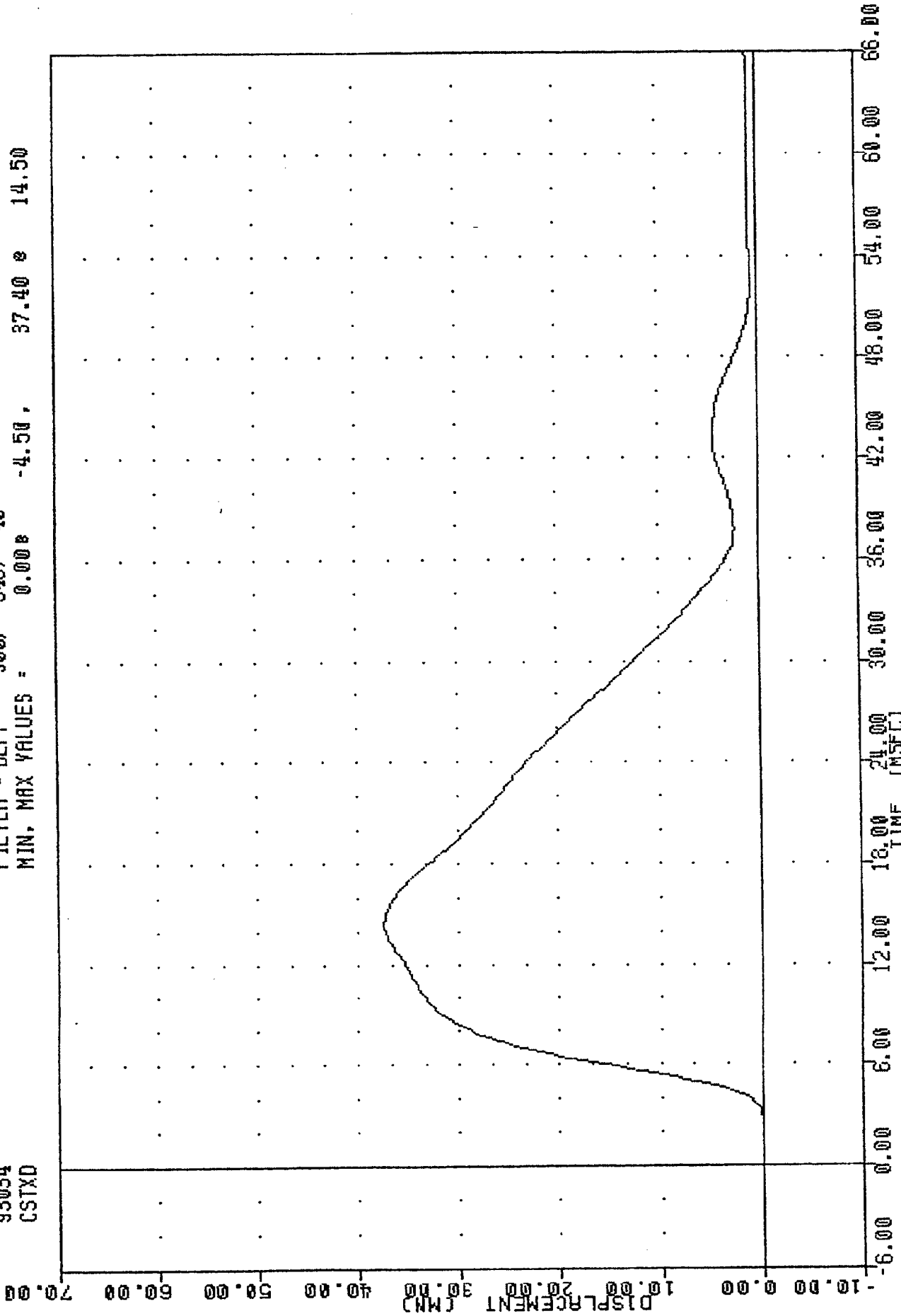
FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 6.47e 45.00, 9088.31 e 10.25



PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC

TRC
 572B SN 719 H.S.THORAX CAL 07
 93034
 CSTXD

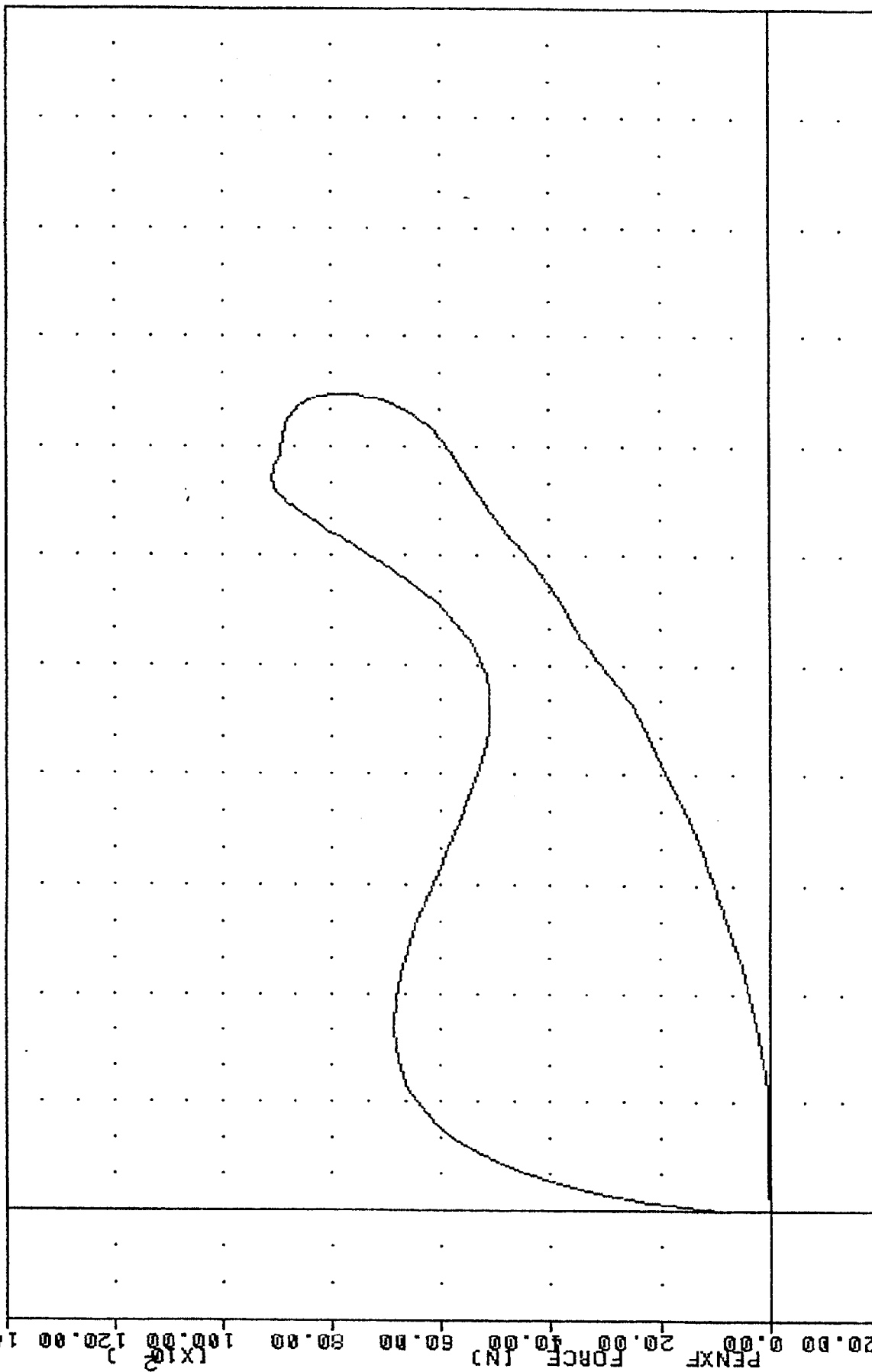
FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 0.000 -4.50, 37.40 e 14.50



PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
 STERNUM DISPLACEMENT

TRC TH71307 572B SN 713 H. S. THORAX CAL 07 93034
 CSTXD FILTER = BLPF 300/ 949/ -40 MIN, MAX = 0.00 8
 PENXF FILTER = BLPF 500/ 949/ -40 MIN, MAX = 6.47 8
 -4.50 7 37.40 6 14.50
 45.00 7 9088.31 6 10.25

-20.00
 0.00
 20.00
 40.00
 60.00
 80.00
 100.00
 120.00
 140.00



-5.00 0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00
 CSTXD DISPLACEMENT (MM)

PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC

CHEST DISPLACEMENT FORCE

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

02-FEB-93

TRC

AB71307

572B SN 713 ABDOM COMPR CAL 07

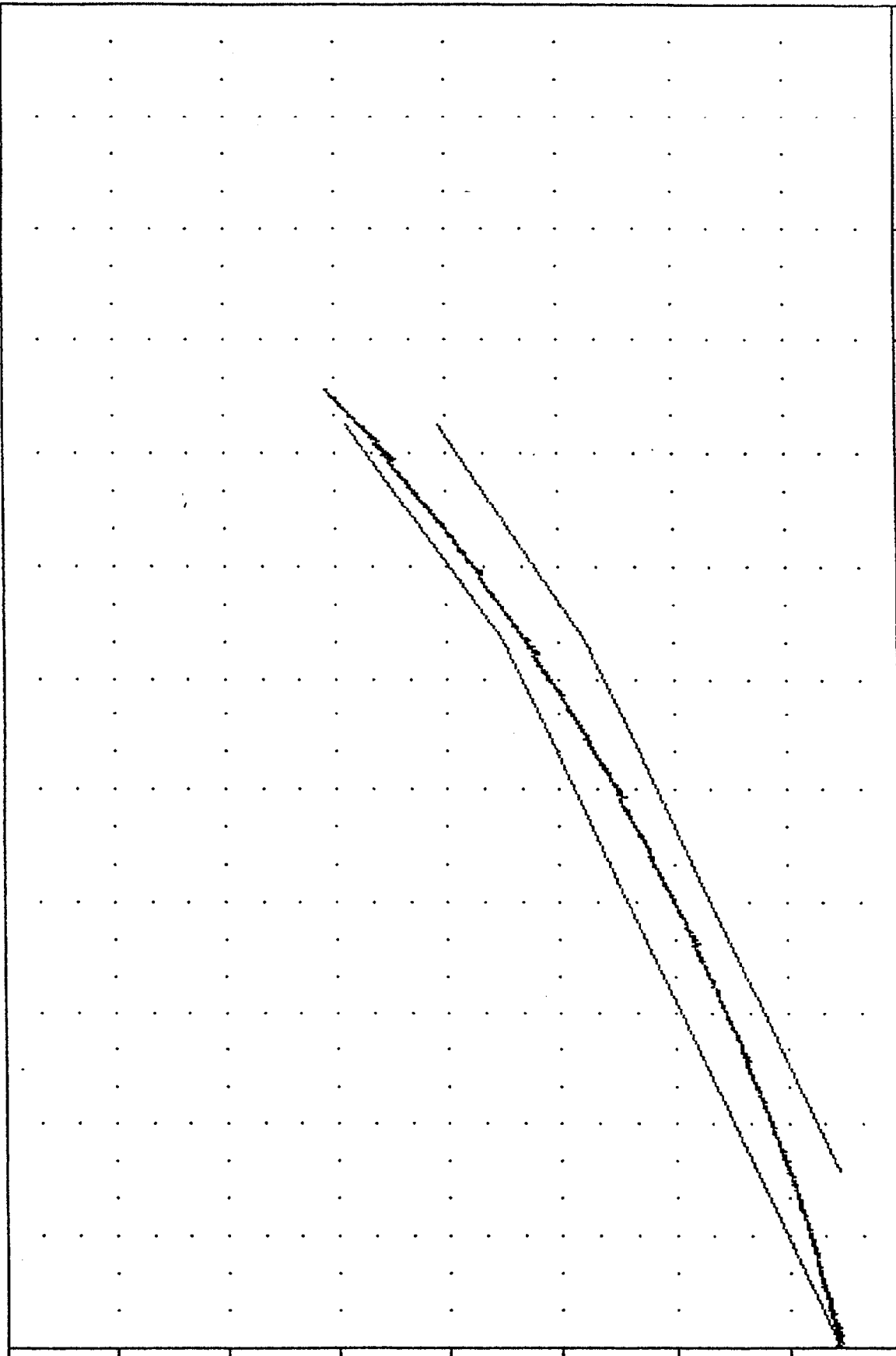
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	130.73 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	191.80 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	264.07 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	381.16 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Font

TRC 1AB71307 572B SN 713 ABDOM COMP6 CAL 07 93033 0.00 406.19
 ABXD FILTER = ALPF 1650/ 5214/ -40 MIN. MAX = 0.00 34.30 6
 ABXF FILTER = ALPF 1650/ 5214/ -40 MIN. MAX = 0.10 406.03 6
 42.22 0

0.00 80.00 160.00 240.00 320.00 400.00 480.00 560.00 640.00
 FORCE (N)



C-66

930211

PART 572-B HYBRID II ABDOMEN CALIBRATION
 ABXD DISPLACEMENT (MM)
 ABXF FORCE (N)

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

02-FEB-93

TRC

LF71307

572B SN713 LUMBAR FLEX CAL07

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
FORCE AT 0 DEG FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG FLEXION	97.86 - 151.24 N	120.10 N
FORCE AT 30 DEG FLEXION	151.24 - 204.62 N	155.68 N
FORCE AT 40 DEG FLEXION	204.62 - 258.00 N	222.40 N
NET RETURN ANGLE	< 12 DEG	4.03 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Pete Fort

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

PART 572B

03-FEB-93

TRC

RK71307

572B SN 713 R.KNEE IMP CAL 07

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	53 %
PENDULUM VELOCITY	2.06 - 2.15 M/SEC	2.12 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	8466.53 N
DURATION ABOVE 4448 N	≥ 1.7 MS	1.95 MS

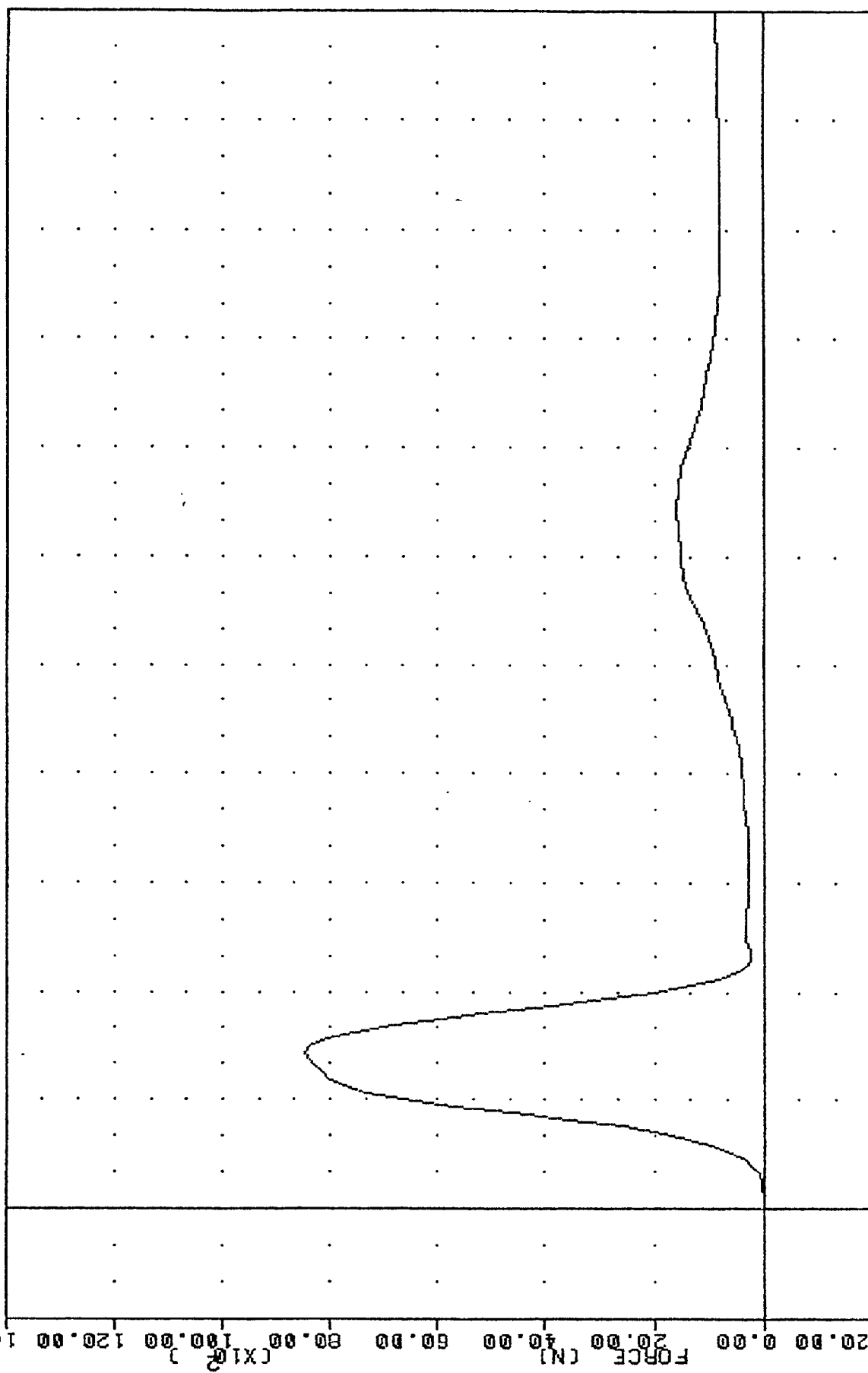
DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Peter Ford*

TRC
 572B SN 713 R.KNEE INP CAL 07
 93034
 RFMF

FILTER = BLPF 1000/ 3162/ -40
 MIN, MAX VALUES = -2.94e -1.50, 8466.53 e 2.88

140.00
 120.00
 100.00
 80.00
 60.00
 40.00
 20.00
 0.00
 -20.00



-2.00 0.00 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

PART 572-B HYBRID II RIGHT KNEE CALIBRATION
 RIGHT FEMUR FORCE

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

PART 572B

03-FEB-93

TRC

LK71307

572B SN 713 L.KNEE IMP CAL 07

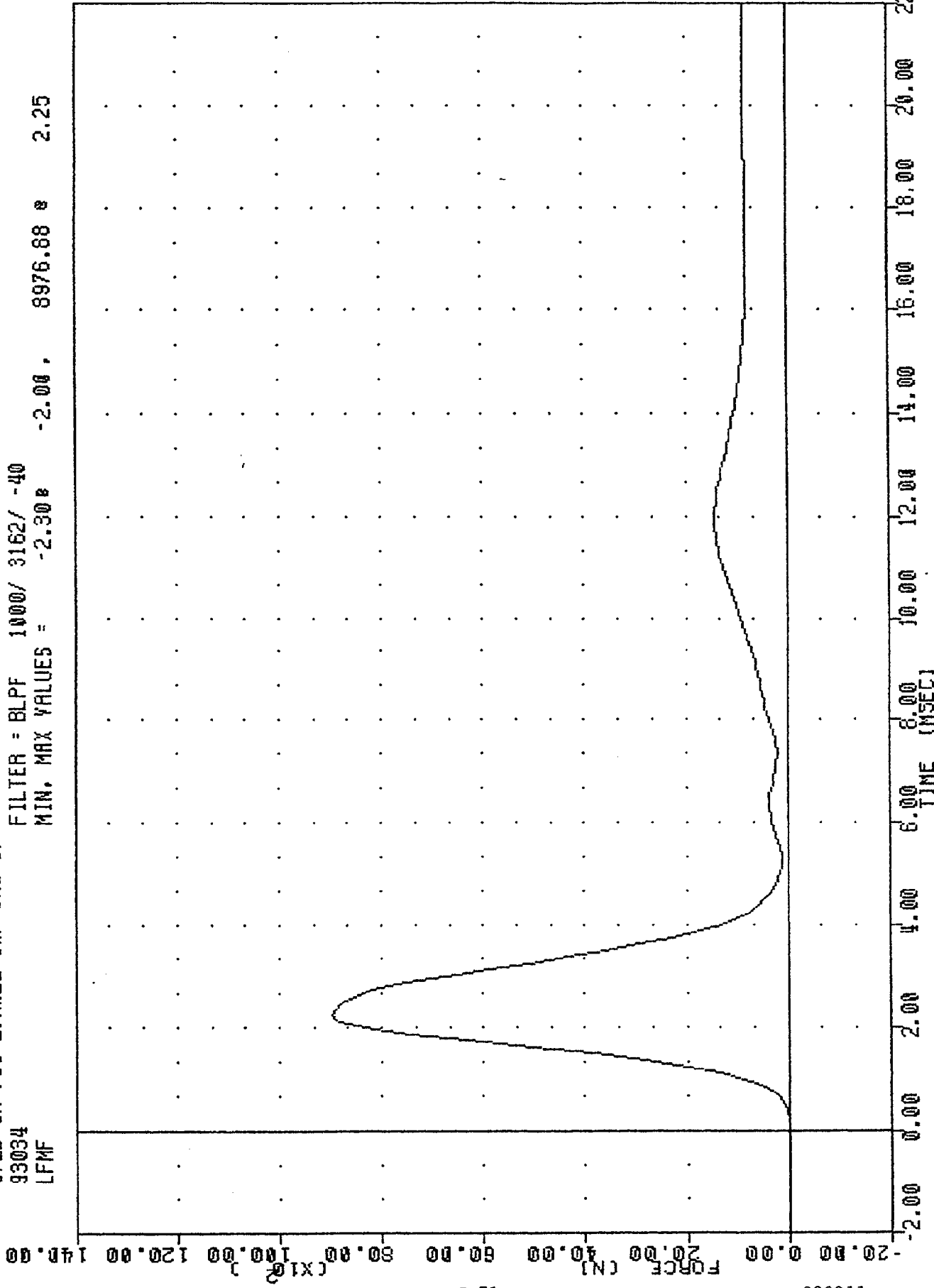
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	53 %
PENDULUM VELOCITY	2.06 - 2.15 M/SEC	2.13 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	8976.88 N
DURATION ABOVE 4448 N	≥ 1.7 MS	1.79 MS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Font

TRC
 572B SN 713 L.KNEE INP CAL 07
 93034
 LFMF

FILTER = BLPF 1000/ 3162/ -40
 MIN, MAX VALUES = -2.30e -2.00, 8976.88 e 2.25



C-71

930211

PART 572-B HYBRID II LEFT KNEE CALIBRATION
 LEFT FFMUR FORCE

APPENDIX D

MISCELLANEOUS TEST INFORMATION

DUMMY INSTRUMENT CALIBRATIONS

DRIVER DUMMY #826

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE	
				LAST	DUE
HEAD X-AXIS ACCEL.	CL95H	7264	ENDEVCO	01/11/93	07/11/93
Y-AXIS ACCEL.	DW12JC	7264	ENDEVCO	01/11/93	07/11/93
Z-AXIS ACCEL.	CC11H	7264	ENDEVCO	01/11/93	07/11/93
CHEST X-AXIS ACCEL.	DB74H	7264	ENDEVCO	01/11/93	07/11/93
Y-AXIS ACCEL.	CY31H	7264	ENDEVCO	01/11/93	07/11/93
Z-AXIS ACCEL.	CH67H	7264	ENDEVCO	01/11/93	07/11/93
LEFT FEMUR FORCE LOAD CELL	880	2430	GSE	01/11/93	07/11/93
RIGHT FEMUR FORCE LOAD CELL	898	2430	GSE	01/11/93	07/11/93
*NECK X-AXIS FORCE LOAD CELL	NA				
Y-AXIS FORCE LOAD CELL	NA				
X-AXIS FORCE LOAD CELL	NA				
*NECK MOMENT ABOUT X-AXIS LOAD CELL	NA				
MOMENT ABOUT Y-AXIS LOAD CELL	NA				
MOMENT ABOUT Z-AXIS LOAD CELL	NA				
*CHEST DEFLECTION POTENTIOMETER	NA				
LAP BELT FORCE LOAD CELL	616	3419	LEBOW	10/06/92	04/06/93
SHOULDER BELT FORCE LOAD CELL	615	3419	LEBOW	10/06/92	04/06/93
SHOULDER BELT SPOOL-OUT POTENTIOMETER	0586136	PT-101-40A	CELESCO	10/28/92	04/28/93
SHOULDER BELT STRETCH POTENTIOMETER	2690	2051414101	BOURNES	10/28/92	04/28/93

*HYBRID III USE ONLY.

DUMMY INSTRUMENT CALIBRATIONS

PASSENGER DUMMY #713

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE	
				LAST	DUE
HEAD X-AXIS ACCEL.	CW96H	7264	ENDEVCO	01/11/93	07/11/93
Y-AXIS ACCEL.	DK71J	7264	ENDEVCO	01/11/93	07/11/93
Z-AXIS ACCEL.	CR78H	7264	ENDEVCO	01/11/93	07/11/93
CHEST X-AXIS ACCEL.	CC71H	7264	ENDEVCO	01/11/93	07/11/93
Y-AXIS ACCEL.	CY32H	7264	ENDEVCO	01/11/93	07/11/93
Z-AXIS ACCEL.	CG13H	7264	ENDEVCO	01/11/93	07/11/93
LEFT FEMUR FORCE LOAD CELL	901	2430	GSE	01/11/93	07/11/93
RIGHT FEMUR FORCE LOAD CELL	902	2430	GSE	01/11/93	07/11/93
*NECK X-AXIS FORCE LOAD CELL	NA				
Y-AXIS FORCE LOAD CELL	NA				
Z-AXIS FORCE LOAD CELL	NA				
*NECK MOMENT ABOUT X-AXIS LOAD CELL	NA				
MOMENT ABOUT Y-AXIS LOAD CELL	NA				
MOMENT ABOUT Z-AXIS LOAD CELL	NA				
*CHEST DEFLECTION POTENTIOMETER	NA				
LAP BELT FORCE LOAD CELL	127	3419	LEBOW	10/06/92	04/06/93
SHOULDER BELT FORCE LOAD CELL	571	3419	LEBOW	10/06/92	04/06/93
SHOULDER BELT SPOOL-OUT POTENTIOMETER	A12889	PT-101-40A	CELESCO	10/28/92	04/28/93
SHOULDER BELT STRETCH POTENTIOMETER	1291	2051414101	BOURNES	10/28/92	04/28/93

*HYBRID III USE ONLY.

VEHICLE AND CALIBRATION LABORATORY INSTRUMENT CALIBRATIONS

VEHICLE ACCELEROMETERS				CALIBRATION DATE	
SERIAL NO.	MODEL NO.	MFR.	LAST	DUE	
LEFT REAR SEAT CROSSMEMBER X-AXIS	7264	ENDEVCO	10/09/92	04/09/93	
LEFT REAR SEAT CROSSMEMBER X-AXIS REDUN	7264	ENDEVCO	01/20/93	07/20/93	
RIGHT REAR SEAT CROSSMEMBER X-AXIS	7264	ENDEVCO	11/20/92	05/20/93	
RIGHT REAR SEAT CROSSMEMBER X-AXIS REDUN	7264	ENDEVCO	01/20/93	07/20/93	
ENGINE TOP X-AXIS	7264	ENDEVCO	01/20/93	07/20/93	
ENGINE BOTTOM X-AXIS	7264	ENDEVCO	01/20/93	07/20/93	
RIGHT BRAKE CALIPER X-AXIS	7264	ENDEVCO	11/20/92	05/20/93	
LEFT BRAKE CALIPER X-AXIS	7264	ENDEVCO	11/20/92	05/20/93	
INSTRUMENT PANEL CENTER X-AXIS	7264	ENDEVCO	01/20/93	07/20/93	

CALIBRATION LABORATORY INSTRUMENTS				CALIBRATION DATE	
SERIAL NO.	MODEL NO.	MFR.	LAST	DUE	
NECK BENDING PENDULUM ACCEL.	7232	ENDEVCO	10/06/92	04/06/93	
NECK BENDING ROTARY POTENTIOMETER	35435-1-102	BOURNES	MFR. SPECIFICATION		
NECK BENDING LINEAR POTENTIOMETER	5184-2051846003	BOURNES	10/06/92	04/06/93	
THORAX/HYBRID II FEMUR PEND. ACCEL.	7232	ENDEVCO	10/06/92	04/06/93	
LUMBAR FLEXION FORCE GAUGE	DPFH-50	CHATILLON	05/03/89	REPAIRED	
LUMBAR FLEXION ROTATION GAUGE	CP17-0601-1 7020	HUMPHREY	MFR. SPECIFICATION		
ABDOMEN COMPRESSION DISPL. GAUGE	4075-172	BOURNES	10/06/92	04/06/93	
ABDOMEN COMPRESSION FORCE GAUGE	1261	LEBOW	10/06/92	04/06/93	
HYBRID III FEMUR PEND. ACCEL.	7232	ENDEVCO	10/06/92	04/06/93	

SIGN CONVENTION
NHTSA DATA TAPE REFERENCE GUIDE

ACCELEROMETERS:

+X: FORWARD
+Y: LEFTWARD
+Z: UPWARD

POTENTIOMETERS:

+CHEST LONGITUDINAL DEFLECTION: OUTWARD
+CHEST LATERAL DEFLECTION: LEFTWARD
+SEAT BELT DISPLACEMENT: OUTWARD
+SEAT BELT EXTENSION: ELONGATION
+KNEE SLIDER DISPLACEMENT: DISTANCE BETWEEN FEMUR
AND TIBIA INCREASED
(IN RELATION TO A
SEATED DUMMY)

LOAD CELLS:

+FEMUR FORCE: TENSION
+SEAT BELT FORCE: TENSION
+BARRIER FORCE: TENSION

NECK LOAD CELLS:

+X FORCE: HEAD PUSHED FORWARD
+Y FORCE: HEAD PUSHED LEFTWARD
+Z FORCE: HEAD PULLED UPWARD (TENSION ON NECK)
+X MOMENT: RIGHT EAR ROTATING TOWARD RIGHT SHOULDER
+Y MOMENT: CHIN ROTATING TOWARD CHEST
+Z MOMENT: CHIN ROTATING TOWARD LEFT SHOULDER

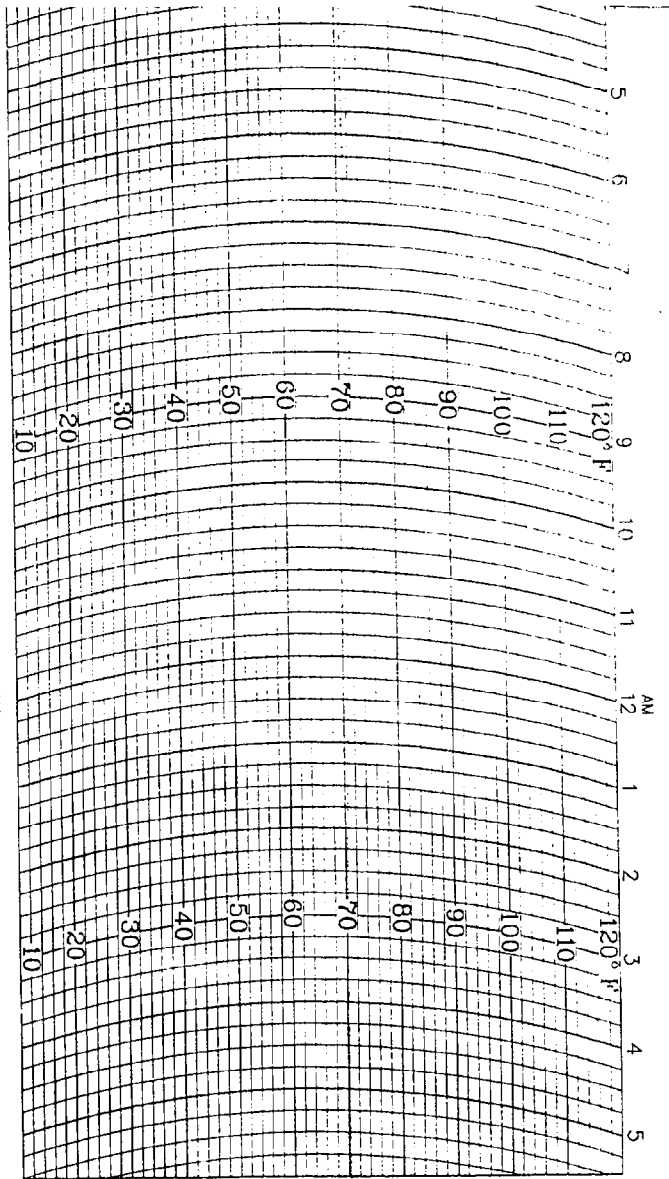
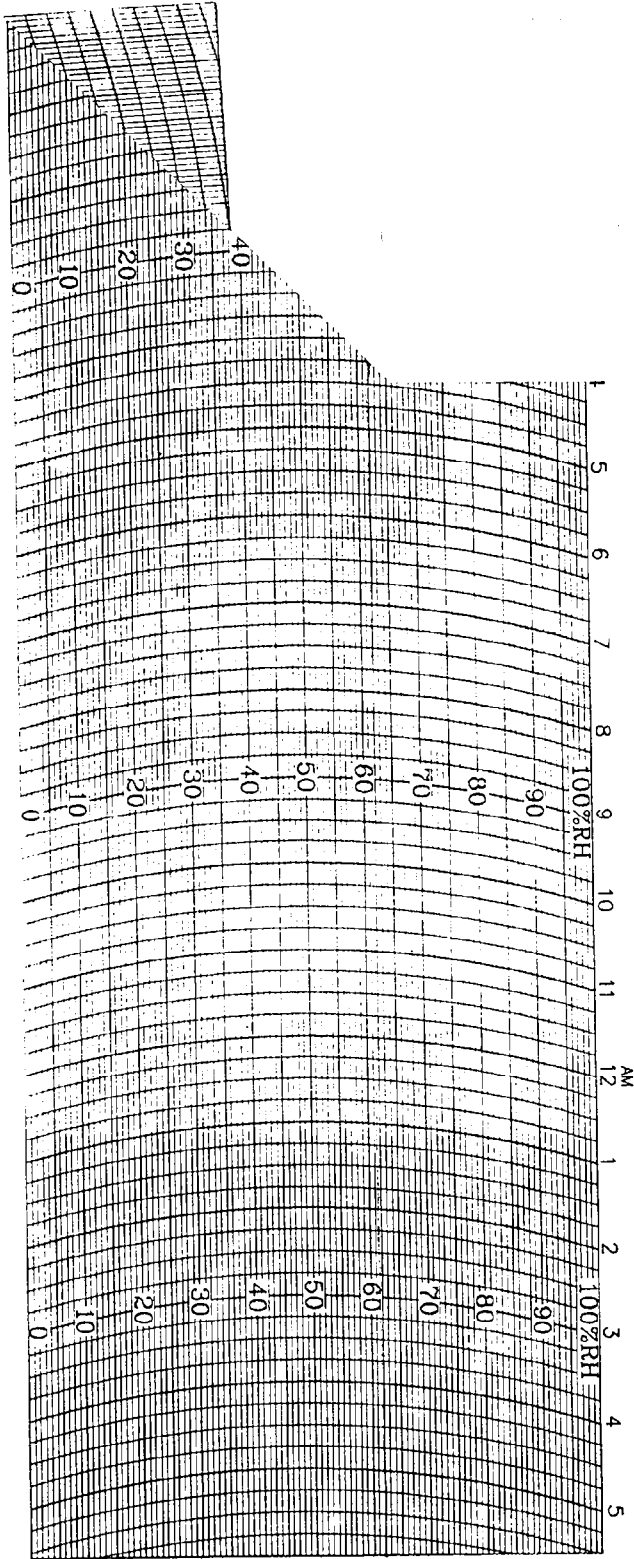
TIBIA LOAD CELLS:

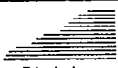
+X FORCE: TENSION
+Y FORCE: TENSION
+Z FORCE: TENSION
+X MOMENT: BOTTOM OF TIBIA MOVING LEFTWARD
+Y MOMENT: BOTTOM OF TIBIA MOVING REARWARD

FREQUENCY RESPONSE CLASSES

SAE J211 OCT88

<u>TYPICAL TEST MEASUREMENTS</u>	<u>CHANNEL CLASS</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	180
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Headform Accelerations	1000




Weather Measure
WEATHERtronic
 Division of QUALIMETRICS, Inc.

P.O. BOX 41039
 SACRAMENTO, CA 95841
 PHONE: (916) 923-0055

HYGROTHERMOGRAPH
 1 DAY

CHART NO. M699123
 C311-D-HF
 ECN 2717
 6-9-87

STATION FORD PROBE Dummies DATE ON 2/10/93 DATE OFF 2/11/93

APPENDIX E

RESTRAINT SYSTEM INSTRUCTIONS FROM OWNER'S MANUAL

Safety Restraints

Using Safety Restraints Properly	10
Safety belts	10
Safety belt maintenance	13
Front and rear seat combination lap and shoulder belts	13
To untwist or unjam a safety belt retractor	17
Air Bag Supplemental Restraint System (SRS)	17
The importance of wearing safety belts	18
The importance of being properly seated	18
How the Air Bag Supplemental Restraint System operates	18
Safety restraints for children	24
Safety belts for children	25
Safety seats for children	26
Installation instructions for child Safety seat locking clip	27
Attaching safety seats with tether straps	32

Safety Restraints

Using Safety Restraints Properly

Safety Belts

The use of safety belts help to restrain you and your passengers in case of a collision. In most states, the law requires their use. We strongly recommend that you use them every time you travel in your vehicle.

Safety belts provide best restraint when:

- the seatback is upright
- the occupant is sitting upright (not slouched)
- the lap belt is snug and low on the hips
- the shoulder belt is snug against the chest
- the knees are straight forward

Your vehicle has combination lap and shoulder belts for front and rear seat passengers.

See the following sections for directions on how to properly use these safety belts. Also see *Safety Restraints for Children* in this chapter for special instructions about using safety belts for children.

Warning:

Make sure that you and your passengers, including pregnant women, wear safety belts. Be sure that the lap belt portion of your safety belts fit snugly and as low as possible around the hips. If safety belts are not used properly, the risk of you or your passengers being injured in a collision greatly increases.

Warning:

Use the shoulder belt on the outside shoulder only. 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. Failure to follow these precautions could increase the risk and/or severity of injury in a collision.

Do not allow any people to ride in the cargo area of your vehicle. People who are not riding in seats with their safety belts fastened are much more likely to be injured in a collision.

Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Warning: Never use a single belt for more than one person or across more than one seating position. This greatly increases the risk that one or both of the people will be injured in a collision. Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair.

Warning: Lock the doors of your vehicle before driving to lessen the risk of the door coming open in a collision.

Warning: Always drive and ride with your seatback upright and the lap belt portion of your safety belt snug and low across the hips. This will reduce the risk of serious injury to the abdomen or neck that could be caused by sliding under the safety belts in a collision.

Children should always ride with the seatback in the fully upright position. When the seatback is not fully upright, there is a greater risk that the child will slide under the safety belt and be seriously injured in a collision.

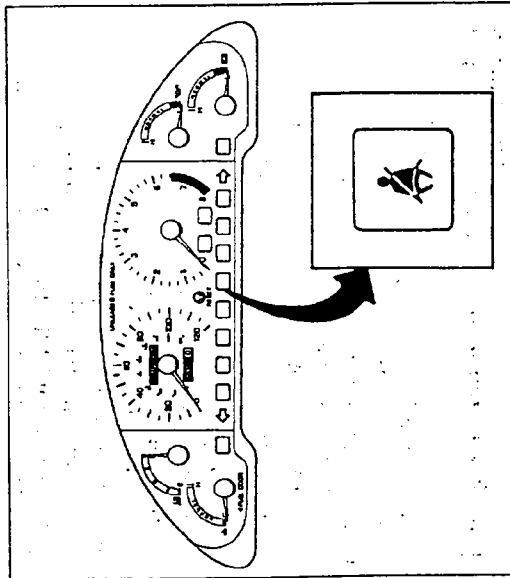
Safety Belt Maintenance

Check the safety belt systems periodically to make sure that they work properly and are not damaged.

Warning: All safety belt assemblies, including retractors and attaching hardware, should be inspected after any collision. Ford recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and continue to operate properly, they do not need to be replaced. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

Front and Rear Seat Combination Lap and Shoulder Belts

A warning light in the instrument panel lights up for 4-8 seconds and a chime sounds for 4-8 seconds if the driver doesn't fasten the safety belt before starting the car. If the driver fastens the belt, the warning light will illuminate but the chime will not sound.

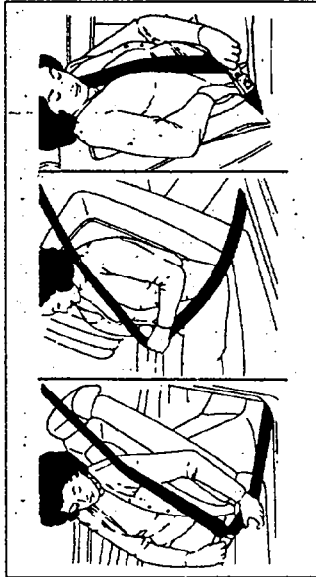


Safety belt warning lamp location on cluster

While in motion, the combination lap and shoulder belt adjusts to your movement. However, if you brake hard, turn hard, or if your vehicle receives an impact of 5 mph (8 km/h) or more, the lap and shoulder belt locks and helps reduce your forward movement.

After you get into your vehicle, close the door and lock it. Then adjust the seat to the position that suits you best.

To fasten the belt, find the long strap of the belt near the door, pull it across your shoulder and chest, and insert the tongue into the proper buckle on your seat until you hear a snap and feel it lock. Be sure to use the correct buckle and check to make sure the buckle is securely fastened.



Fastening the safety belt

Adjust the lap part of the belt by pulling up on the shoulder belt until the lap belt fits snugly and as low as possible around your hips.

Warning:

Front and rear seat outboard occupants, including pregnant women, should wear safety belts for optimum protection in an accident.

Warning:

Make sure that the lap portion of the safety belt is as low around your hips as possible. Do not wear the lap belt around your waist. If you do not use the lap belts properly, the risk of being injured in a collision greatly increases.

Warning:

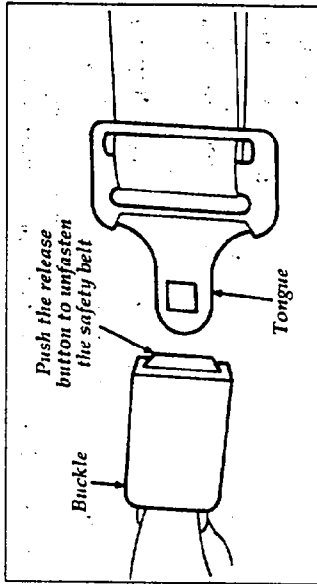
Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. Never swing it around the neck over the inside shoulder. Failure to follow these precautions could increase the risk and/or severity of injury in a collision.

Warning: To reduce the risk of sliding under the lap belt during a collision, always drive and ride with seatbacks in the upright position. If the lap belt slips above the hip-bone during a collision and applies force directly to the soft areas of the abdomen, it will increase the risk of serious injury. The seatbacks and the belts provide best restraint when the seat is upright, the occupant is sitting upright in the seat (not slouching), the lap belt is snug and low on the hips, the shoulder belt is snug against the chest and the knees are straight forward.

Children should always ride with the seatback in the fully upright position. When the seatback is not fully upright, there is a greater risk that the child will slide under the safety belt and be seriously injured in a collision.

To unfasten the belt:

1. Push the release button on the buckle. This allows the tongue to unlatch from the buckle.



Unfastening the lap and shoulder belt

2. While the belt retracts, guide the tongue to its original position. If you do not guide the tongue, it may strike you or part of the vehicle.

How to Untwist or Unjam a Safety Belt Retractor

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:

1. Work the belt slowly out of its holder as far as it will go and untwist the belt or remove the object that is jamming the belt. Let the belt retract.
2. Then, pull the belt out and let it retract several times to make sure that the belt works properly.

Air Bag Supplemental Restraint System (SRS)

Your car is equipped with an air bag for the driver. This air bag is a supplemental restraint system and is designed to be used in addition to your safety belts. The air bag, in conjunction with the safety belts, will help protect the driver from head and chest injuries in certain moderate

to severe frontal collisions. The air bag is located in the steering wheel.

The Importance of Wearing Safety Belts

Warning: ALWAYS WEAR THE SAFETY BELT!

There are four very important reasons to use safety belts even with an air bag system. Use your safety belts to:

- help keep you in the proper position when the air bag inflates
- reduce the risk of harm in rollover, side or rear impact accidents. The air bag supplemental restraint system is not designed to inflate in such situations.
- reduce the risk of harm in frontal collisions that are not severe enough to activate the air bag
- reduce the risk of being thrown from your vehicle

The Importance of Being Properly Seated

In an accident, the air bag must inflate extremely fast to help provide additional protection for you. In order to do this, the air bag must inflate with considerable force. If you are not seated in a normal riding position with your back against the seatback, the air bag may not protect you properly and could possibly hurt you as it inflates.

How the Air Bag Supplemental Restraint System Operates

The driver Air Bag Supplemental Restraint System has two main parts. One part is the air bag system with the air bag and inflator located in the center of the steering wheel. The second

part is the electrical system which has impact sensors, a diagnostic module, and a backup power supply. The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system readiness, including the crash sensors, system wiring, the air bag readiness light, air bag power, and the supplemental air bag igniter.

The air bag system uses a readiness light and a tone to indicate the condition of the system. The readiness light is in the instrument cluster. When you turn the ignition key to ON, the light will illuminate for approximately six (6) seconds and then turn off. This indicates that the system is operating normally.

NOTE: Regularly scheduled maintenance of the air bag system is not required.

Warning: A problem with the system is indicated by one or more of the following:

- the readiness light will either flash or stay lit,
- or it will not light,
- or a group of five beeps will be heard.

If any of these things happen, have the air bag system serviced at your Ford or Lincoln-Mercury dealer immediately.

Warning Chime

The air bag readiness light indicates the air bag system condition. However, a series of five sets of five beeps will be heard only if the readiness light doesn't work and there is a problem with the air bag system. This also means that the Air Bag Supplemental Restraint System (SRS) is in need of service. The tone pattern will repeat (five sets of five beeps) periodically until the

problem and light are repaired. Unless serviced, the Air Bag Supplemental Restraint System may not function properly in the event of an accident.

Warning: Do not attempt to service, repair, or modify the Air Bag Supplemental Restraint System; tampering could cause activation of the system and increase the risk of personal injury. For servicing of the Air Bag Supplemental Restraint System, see your Ford or Lincoln-Mercury dealer.

The air bag system is designed to stay out of sight until it is activated. The air bag system only operates in frontal and front-angled collisions that are more severe than hitting a parked car of a similar size and weight head-on at about 28 mph (45 km/h). After receiving a signal from the crash sensors, the air bag system inflates in about 45 milliseconds.

Because the system senses severe crashes rather than vehicle speed, some frontal collisions at speeds above 25 mph (45 km/h) will not inflate the air bag.

The following three steps show how the air bag system works:

1. Sensors in the vehicle detect a severe frontal impact. When two sensors close at the same time, electricity flows to the inflator and ignites the chemicals.
2. The chemical then rapidly burns in the metal container. The rapid burning produces nitrogen gas and small amounts of dust. The nitrogen gas and dust are cooled and filtered during inflation of the air bag.

3. The inflating air bag splits open the trim cover. The air bag then rapidly unfolds and inflates in front of the occupant.

NOTE: STEPS 1 - 3 TAKE PLACE IN A FRACTION OF A SECOND.

After inflation, the gas empties through holes in the air bag. The air bag deflates at once.

The surface of the air bag and the vehicle interior may be dusted with a powdery residue. The powder is corn starch or talcum powder, which is used to lubricate the air bag as it inflates, and sodium compounds such as sodium carbonates (e.g., baking soda), and possibly a very small amount of sodium hydroxide that may be irritating to the skin and eyes, but is not toxic.

Right after air bag inflation, you may notice smoke (from the powder and dust) and smell the burnt chemicals. This is normal.

NOTE: Several air bag system components get hot after inflation. Do not try to touch them after inflation.

Air bags may not inflate in certain frontal collisions, even though the vehicle may be badly damaged. The fact that your air bag did not inflate in such a collision does not mean that something is wrong with the air bag system. Rather, it means the crash forces were not severe enough to need an air bag.

WARNING
DO NOT TAMPER WITH OR DISCONNECT THE AIR BAG SYSTEM WIRING. You could inflate the bag(s) or make it inoperative which may result in injury. See Shop Manual.
AVERTISSEMENT
NE PAS MANIPULER NI DÉBRANCHER LE CÂBLAGE ÉLECTRIQUE DU DISPOSITIF D'UN COUSSIN DE SÉCURITÉ. Cela pourrait gonfler le coussin de sécurité ou le mettre hors service et entraîner des blessures. Voir le manuel de réparation.
FO08-6-00014-AA

Label on the radiator

Safety Restraints for Children

In most states, you are required by law to use safety restraints for children. If small children ride in your vehicle — this generally includes children who are four years old or younger and who weigh 40 pounds (18 kg) or less — you must put them in safety seats that are made specially for children. Safety belts alone do not provide maximum protection for these children. Check your local and state laws for specific requirements.

Warning: Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Warning: Never let children or adults ride in the cargo area of your vehicle. Make sure that they sit where they can be properly restrained. If they are not restrained, the risk of their being injured in a collision greatly increases.

Warning: When possible, put children in the rear seat of your vehicle. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating positions.

Warning: When using any infant or child restraint system, it is important that you follow the instructions and warnings provided by the manufacturer concerning its installation and use. Failure to follow each of the restraint manufacturer's instructions could increase the risk or severity of an injury in the event of a collision or sudden stop.

Safety belts and seats can become hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check seat covers and buckles before you place a child anywhere near them.

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

Safety Belts for Children

Children who are too large for child safety seats should always wear safety belts. (See instructions with your child seat, or contact its manufacturer, to determine maximum size of child that will safely fit in the seat.)

Warning: If safety belts are not properly worn and adjusted as described, the risk of serious injury to the child in a collision will be much greater.

Warning: If the shoulder belt portion of one of the lap and shoulder belts can be positioned so that it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt. Moving the child closer to the center of the vehicle may help provide a good shoulder belt fit.

The lap belt portion of lap and shoulder belts should always be worn snugly and below the hips, touching the child's thighs.

Warning: Children should always ride with the seatback in the fully upright position. When the seatback is not fully upright, there is a greater risk that the child will slide under the safety belt and be seriously injured in a collision.

Safety Seats for Children

Use a safety seat that is appropriate for the size of the child.

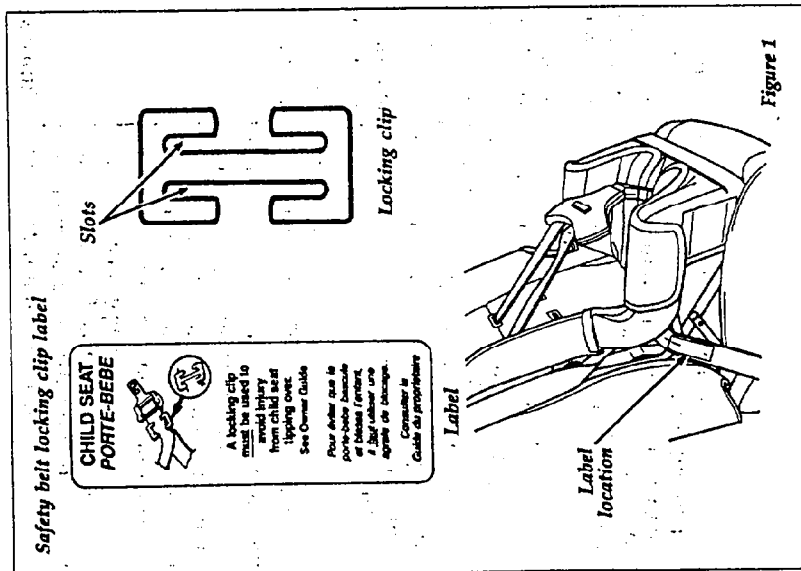
Warning: All safety seats for children are designed to be secured to the seat of your vehicle by the lap portion of a lap and shoulder belt. If you do not properly secure the safety seat to the vehicle, the risk is greater that a child, occupying the seat during a collision or sudden stop, will be injured. An unsecured safety seat could also injure other passengers in the vehicle.

Warning: Carefully follow all of the manufacturer's instructions that come with the safety seat that you put in your vehicle. Make sure that the shoulder belt does not cross or rest in front of the child's face or neck. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

Installation Instructions for Child Safety Seat Locking Clip

To install a child safety seat in your vehicle, a safety belt locking clip is required. To prevent looseness of the safety belt, use a genuine Ford Locking Clip, which is provided, along with instructions for its use, in your glove compartment. The locking clip is installed on a sample piece of webbing to show proper installation.

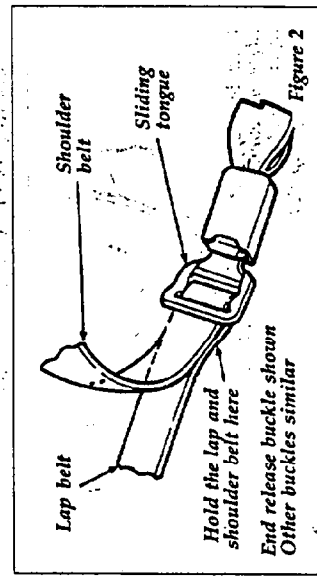
The locking clip must be used to secure a child seat when your vehicle has a shoulder and lap belt with a sliding tongue. Every seat belt that requires a locking clip is identified on the belt, with the label shown in **FIGURE 1**.



Warning: Once you have attached the safety seat, test the seat before you place the child in it. Tilt the seat from side to side. Also try to tug the seat forward. Check to see if the belt holds the seat in place. If the lap belt is too loose, tighten it by moving the locking clip, or put the safety seat in another seat and test it again. If the safety seat is not anchored properly, the risk of a child being injured in a collision or sudden stop greatly increases. Reclining seatbacks should be in the most upright position for use with child safety seats.

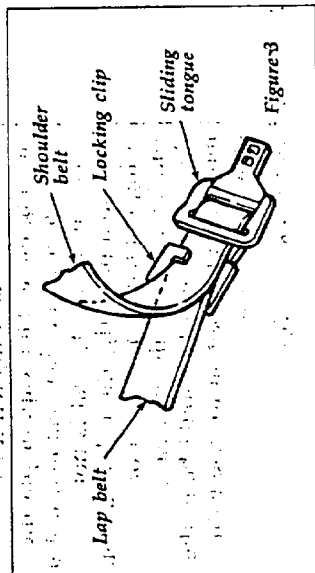
To Install the Locking Clip

1. Thread the belt webbing through the child seat according to the child seat manufacturer's instructions.
2. Buckle the seat belt.

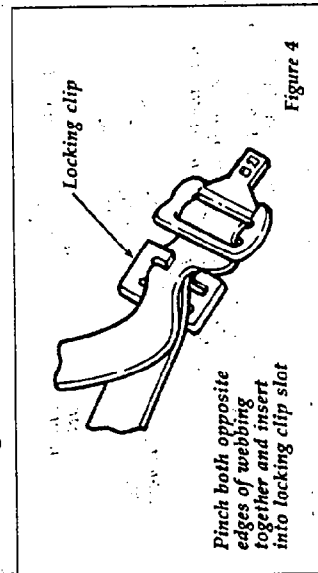


Warning: If you do not use a locking clip, injuries could result from the child seat tipping over during normal vehicle braking or cornering.

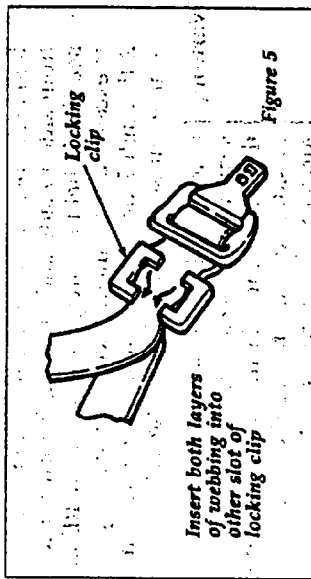
3. Pull on shoulder portion of the belt to make the lap portion fit snugly. Keeping the lap belt snug, hold the lap and shoulder belt portions of the webbing together next to the slip tongue and unbuckle the seat belt, FIGURE 2.



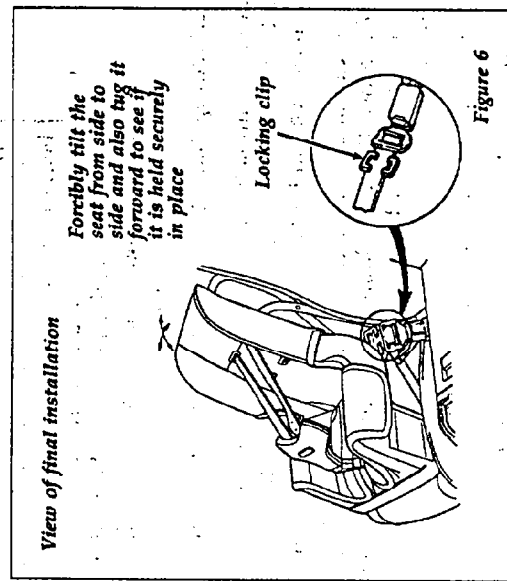
4. Slide either corner of the locking clip slot closest to the tongue over both layers of webbing as shown in FIGURE 3.



5. Pinch both opposite edges of webbing together and insert them into the locking clip slot as shown in FIGURE 4.



6. Pinch both layers of webbing together and insert into other slot of locking clip, FIGURE 5.



View of final installation

Forcibly tilt the seat from side to side and also tug it forward to see if it is held securely in place

7. Re-buckle belt. Forcibly tilt the child seat from side to side and also tug it forward to see if it is held securely in place, FIGURE 6. If excessive movement occurs, repeat steps 2 through 7 or properly install child seat in a different seating position in the vehicle.

Warning:

Once you have attached the safety seat, test the seat before you place the child in it. Tilt the seat from side to side. Also try to tug the seat forward. Check to see if the belt holds the seat in place. If the lap belt is too loose, tighten it by moving the locking clip, or put the safety seat in another seat and test it again. If the safety seat is not anchored properly, the risk of a child being injured in a collision or sudden stop greatly increases. Reclining seatbacks should be in the most upright position for use with child safety seats.

Attaching Safety Seats With Tether Straps

Some manufacturers make safety seats with a tether strap that goes over the back of the vehicle seat and attaches to an anchoring point.

You can attach the tether anchor bracket to one of the two 0.3 inch (8mm) weld nuts on the rear of the cargo area below the opening for the liftgate.

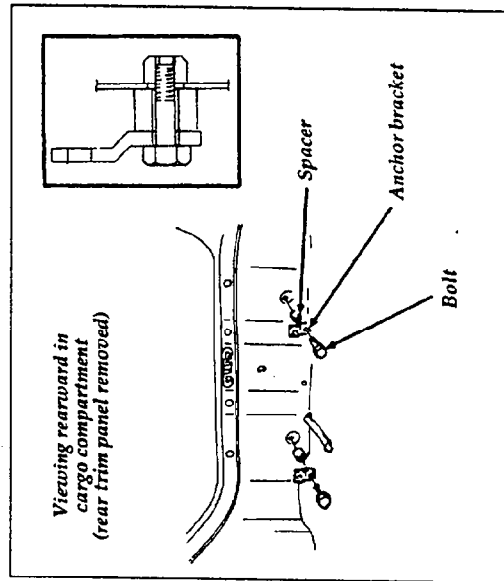
Tether Anchor Hardware

A tether safety seat should not be installed in the front seat because the tether cannot be properly secured to the rear belts of your car.

All vehicles built for sale in Canada include a tether anchor hardware kit for use with Canadian child safety seats.

Installing the Anchor Bracket

1. Open the liftgate and take out the luggage compartment cover (if equipped).
2. Weld nuts for the tether anchor bolts are behind the trim in the rear trim panel. Make a hole in the rear end trim panel to provide access to the anchor nut.
3. Next, insert a 0.4 inch (10mm) spacer between the anchor bracket and the rear wall panel of cargo area. Next, install the 8mm retaining bolt, making sure at least five full threads are engaged.
4. Re-install luggage compartment cover.



Installing the anchor bracket

Warning: The threaded holes have an 8mm metric locking thread. A wrench will be needed to screw an 8mm bolt into the locking thread. Some child restraints supply a non-metric bolt with a different thread. Do not use a non-metric bolt as it may be impossible to screw it all the way into the hole, resulting in inadequate retention of the child restraint. If you need a metric bolt or assistance, any Ford or Lincoln-Mercury dealer will be happy to assist you.

Warning: If the anchor bolt(s) are ever removed, the hole(s) in the rear panel must be sealed to prevent the possibility of exhaust fumes entering the passenger compartment.